

INTERIORS

THE INSIDE STORY

PART III

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Ask anyone who has put an addition on a house and they'll tell you that one of the most exciting parts of the process is first seeing the architect's rendering of the soon-to-be-transformed home. In the airplane game, we also use interior and exterior renderings, sketches and photographs to communicate, debate, add and delete ideas until the final design is brought to fruition.

The beauty of the whole process is that one doesn't have to be a designer to make it all happen. Armed with the research accumulated with the camera, magazine cutouts and the notes taken earlier (don't forget your wish list), you are quite well-prepared to sit down with the person who will spearhead the execution of your project and begin to design the interior of your dreams.

What comes first?

Before immersing ourselves in the design stage of the project, I want to answer an often-asked question: What should I do first: paint or interior? To the surprise of many, I usually answer that it really doesn't matter.

Think of it this way: If we are installing a new interior in a freshly painted airplane, we must take great care to protect the new paint job, i.e. cover the wings, install protective masking around the doors and windows, etcetera. Conversely, if a paint shop is stripping and painting an airplane with a new interior, they must be absolutely certain not to allow stripper vapor, moisture or paint overspray to damage the door jams or the interior.

Some paint shops are so attentive to the possibility of paint overspray get-

ting into the cabin as to actually install a temporary inspection panel in the belly area that has a fresh air hose mounted to it. This allows them to blow a low-pressure fresh air source into the cabin area, creating a slight positive pressure inside the cabin that ensures no undesired chemistry can get into the cabin.

The point is, professional, reputable companies (exterior or interior) will not cause a problem. So do whichever improvement you want first.

The design

I will break the design process into several categories, all of which play a major part in the creation of an interior that is as safe, functional, comfortable, durable, maintainable and pleasing to look at as possible.

- **SCOPE.** How much of the interior is to be redone? Not all airplanes are in need of a complete re-do. Simply replacing worn carpet and armrests can make an aging interior look fresh again.

Consider changing the color of the carpet to pick up a trim color on the exterior. Adding a blue carpet to a previously all-beige interior can change the entire visual feeling of an existing interior. New carpets coupled with new ergonomically designed seat upholstery can also make the entire interior look new again.

But keep in mind that what once looked good can look bad when another part of the interior is upgraded. Try cleaning and then evaluating the components that you're not planning to change to be sure they will measure up when the partial job is finished.

- **MISSION PROFILE.** Here's a very complex part of the interior design process, and one where my customers and I tend to spend a lot of time and effort. These discussions sometimes take us all over the map, from "How do I store more baggage?" to "Maybe I should sell the V35B and get an A36."

I probably get two or three calls a month from prospective customers who

are considering just that. ("Our two kids aren't getting any smaller..." You know the drill.) If money is not a concern, the decision is simple—buy the A36. Otherwise, stop and think for a moment: How many trips will the kids take with Mom and Dad when they themselves are nearly adults? Answer: Not many.

Consider UPS as part of your travel plans. That's right – UPS. Ship the bulk of the heavy stuff to the FBO and haul just the people in the V35B. The money it takes to upgrade to an A36 will pay for a lot of shipping for the few years you're in that situation. Once the kids are grown and on their own, it's likely that you'll wish you still had the nicer-handling, faster V35B.

Airplane uses

Getting back to decisions at hand, consider how you are going to use your airplane. If you fly at night, panel and cabin lighting options need to be evaluated. Gooseneck reading lights with dimming rheostats do a much better job of illuminating books and approach plates than overhead floodlights. And a passenger can read a book without filling the entire cabin with night vision-compromising light.

Selectable red and white glare-shield lighting can more correctly accommodate the differing requirements of VFR and IFR lighting. Consider the fact that aging eyes see better with white light. The selectable feature gives you both. Lighting options are nearly endless, and interior renovation time is the ideal time to really improve the cabin lighting environment.

- **IFR vs. VFR.** To me, IFR means more storage. This can be accomplished in many ways: dual map cases on the crew seatbacks, a clear Lexan storage box on the front spar for NOAA or Jeppesen approach plates, convenient storage pouches for pencils or flashlights, to name a few.

Here's where keeping a notepad handy really pays off. If you are con-



Typical gooseneck reading light installation available in different neck lengths.

stantly unable to find or reach something, make a note to that effect. We will very likely be able to come up with a solution to the problem.

In addition to the IFR issue, another important consideration when traveling with children (pets, too) is cabin noise level. Young ears are very sensitive to long-term exposure to loud noise. I think reducing the cabin sound level 5-10 decibels is a must when young children are involved.

If you travel with elderly parents, some means of sun protection should be considered such as curtains or darker windows. Better ventilation seems to be a frequent request, as well as fully reclining seats. Beech cabin seats built after 1962 can be converted to the almost fully reclining hydrolock type.

The lesson here is to really consider how you use your airplane, discuss

matters with your family or traveling partners, and share your thoughts with the interior professional you've chosen. They've probably heard it all before, and can often surprise you with clever and practical solutions to meet your needs.

- **MATERIALS.** How and where you use the airplane should be taken into consideration when selecting the cover materials for your new interior. Looks, durability and comfort are the "big three" when it comes to choosing the right material. The question I hear most often is cloth vs. leather. So here's my two cents worth on the subject.

I'm going to get the leather thing out of the way first. Leather looks beautiful, feels nice and smells great. Remember though, that it is a natural product to which a manmade finish has

been applied. It's only a matter of time before the hide develops what the leather salesmen call character, and I call cracks.

Leather is intolerant of ballpoint pen ink, susceptible to abrasion from sharp objects, wear-sensitive in high-use areas because the finish is quite thin, and is hot in the summer and cold in the winter. Some leathers are very prone to water spotting, and we all know how hard it can be to keep Beech windows and doors watertight. I know I sound pessimistic, but there are some realities that can't be ignored when dealing with leather.

On the positive side, today's leather tanners have made substantial improvements in the quality and durability of their products. The new breed of leathers are finished with urethane instead of lacquer, and are more flexible and sun- and abrasion-tolerant than the leathers of yesteryear.

We've been using this type of leather since 1993, and have experienced a substantial reduction in cracking and noticeable wear. Quality leathers are "through-dyed," i.e. the color you see on the surface goes through the thickness of the hide to the back surface as well. This provides richer color, better consistency and improved wearability.

Finally, aircraft leather must be treated so as not to support combustion (FAR 25.853a). The chemical that makes this happen is bromide salt – yes, corrosion-causing salt! If bromide is included in the tanning process from the beginning, a low enough concentration is used so as not to be a corrosion issue.

If a hide is flame-treated after it has already been tanned and finished, a far greater amount of bromide must be applied, mostly to the back surface of the hide, to pass the FAR. This is what you'll be dealing with if you buy commercial or marine leather and treat it to become aircraft leather. (I suggest you don't go this route.) There is an increased potential for this hide to cause corrosion if the interior is exposed to

moisture and the salt becomes a corrosive vapor.

Think what can happen if your cabin door is left open during an unexpected summer storm. All that corrosive runoff can find its way down into your main spar. As with many things in life, the cheaper way isn't the most cost-effective.

In my opinion, the most durable and comfortable interiors consist of either Dacron or wool fabric trimmed in high-quality vinyl, with wool carpeting (all approved aircraft materials, of course).

If you carry young children or pets, or haul camping gear, skis and bikes,



Corroded seat caused by post-tanning flame-proofing.

Dacron is for you. It is an extremely durable, stain-resistant, sun-tolerant synthetic fiber, often used in high-end SUVs and pickup trucks. It can be quite plush and comfortable.

Wool is nature's most durable and sun-tolerant fiber, and can also be quite comfortable due to its porous nature. The fact that both Dacron and wool breathe contributes to your comfort level (warmer in winter, cooler in summer).

As a complement to your fabric of choice, I recommend the use of vinyl. Why? Modern vinyls are extremely sun-tolerant, durable, abrasion-resistant and often so leather-like that many people have a hard time distinguishing them from leather.

Here is a little story for those

who are skeptical on the vinyl issue. Many of you have seen and examined the leather interior in the Beech cabin mock-up I routinely take to ABS conventions and other air shows. A number of years ago, the leather on the door was damaged at Oshkosh, and I temporarily replaced that section with some matching vinyl I happened to have in stock. I can't tell you how many times during the following year or two someone would comment, while rubbing that piece of vinyl, "There's nothing like the feel of leather!" (I've since reupholstered the door in leather, but still chuckle when I think of it.)

In the 32 years Air Mod has been in business, probably 40 percent of our renovations have been done in all-leather, 10 percent in a fabric/leather combination and 50 percent in a fabric/vinyl combination. Without question, the 20- and 30-year-old installations we follow that were done in fabric and vinyl look immeasurably better today than their leather counterparts.

Sometimes the right choice is a compromise. When we did AOPA's Aero SUV 206 sweepstakes project in 1999, we chose to use leather on the upper side panels (adding a bit of elegance) with a durable rich-looking Dacron fabric for the seats and lower side panels. Add to the mix a berber-type wool carpet, and that machine was as appropriate for a trip to New York for a weekend of theater and fine arts as it was heading to a forestry strip in Montana for some trout fishing and camping.



Dacron fabric & leather trim - plush and tough (AOPA's Aero SUV).

Floor coverings

High-end dense wool carpet is the material of choice. Wool is very durable, easily treated for flame-retardancy and is available in countless beautiful colors as well as numerous patterns and weaves.

If a customer has allergy problems, however, or owns a floatplane, nylon is a better bet. We would still be using a high-quality aircraft product in this case, but unfortunately would sacrifice some of the plush feel attained with wool.

Color

Now that you are armed with some basic information about material selections, let's move on to color. Proper color coordination between the interior and exterior is essential. The only hard-core rule to obey is to avoid mixing cool colors and warm colors.

Think of an orangey-brown interior in an airplane that is white with blue and grey stripes; warm interior, cool exterior—not a good look. Now think of that same airplane with a blue or grey interior—ininitely better aesthetically.

I know a lot of this seems rather obvious, and perhaps unnecessary to even mention. But you wouldn't believe some of the combinations I've seen over the years.

Next consider light vs. dark colors. We all know that light colors make the interior look bigger and, because they reflect rather than absorb sunlight, fade less and help keep the cabin cooler. Some folks like to incorporate a darker color, particularly for the carpeting, as it is easier to keep clean and can add a striking element of color to the interior.

Strong colors, like fire-engine red, bright blue and yellow, tend to get old in a hurry. If you are leaning toward this type of intense color, you may want to tone it down a bit to something more conservative—oxblood instead of red, grey-blue instead of vivid blue, camel instead of yellow. You'll likely be happier down the road.

Also, if you use an obviously strong color in the interior, that color should probably be represented somewhere on the exterior. I think a more neutral interior allows you to consider a wider range of exterior choices. But ultimately, the choices are yours to make. And if you really love that bright red, go for it!

One final note before we actually design your interior. How many times have you heard the statement “Less is more.” Well, it is.

Don’t try to stuff too many different colors, textures and sewing details into your Beech interior. Keep it clean and simple. Let the shape of the seats, armrests and sewing patterns make a tasteful statement. Use wood and metal accents to complement rather than overpower other interior details. The less-is-more approach works for the exterior as well.

Let's get started

You have your wish list, punch list, photos and ads! I think it’s important to coordinate the design temperament of the interior and exterior. If you like or already have a trendy, swoopy, flowing exterior paint job, your interior should be organic and flowing to reflect this. If you have an older, classic Bonanza or Baron, perhaps a traditional conservative interior would be more appropriate.

Here’s how we usually do this at our place. After phone calls and data-gathering, the startup date finally arrives and we dive right in.

First the customer and I sit together in the airplane and review the customer’s notes. It’s not uncommon to discuss 20 or 30 items, ranging from dingy yokes, tired instrument panels, storage problems, water leaks and lighting issues to new and innovative ideas that the customer hopes to incorporate into the redesigned interior.

Wish-list items are evaluated and different options are explored. Do you want a short or long neck on your gooseneck map light? How about a dimming rheostat? And would it be more convenient to mount it here or there?



Contemporary and trendy that goes best with a “swoopy” paint design.



More timeless traditional design.

You can imagine how many different aspects of the interior become a factor in the renovation.

With interior options clarified and transferred to the Air Mod detail list, we move into the sample room for the selection of materials (unless this was taken care of at a prior meeting).

There are hundreds of possible combinations and choices, and it’s good for the customer to see all that is avail-



Inspecting the aircraft with the customer and creating the punch list.

able. It can sometimes be a bit overwhelming, and my wife Cynthia and I are there to help steer things in the right direction (we have done this a few times). Our in-house photos and slides of previously completed projects can often help, as well as a sketch or two done on the spot.

Now comes the fun part

With samples chosen and detail list complete, it's time to cruise through photos of previously completed projects, look again at the magazine ads and photos the customer collected, and start sketching the new interior design. For the sake of simplicity, I am using here what is probably our most timeless interior and seat design as the basis for how we go through this design-development process.

I start with a seat sketch, usually drawn with a headrest, and then another thumbnail sketch eliminating the headrest and showing a taller seat back. Sometimes we'll change the pleating layout, or change how the cording is run around the edge of the seat. In a matter

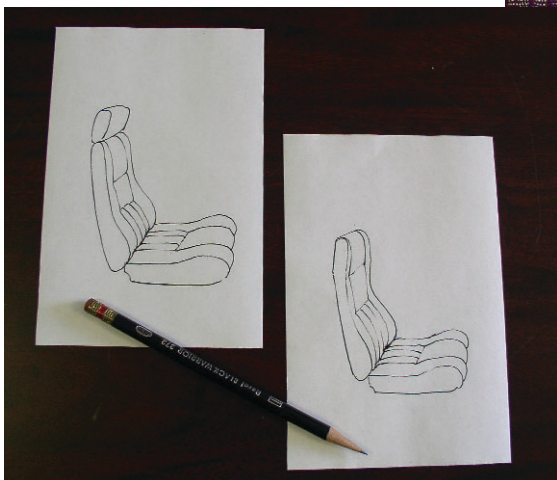
of minutes, many different aesthetic ideas can be explored.

With the seat design finalized, I can make a full cabin sketch incorporating the side panels, armrests and lower carpeted panels. I usually make several photocopies of this uncolored rendering, which allows us to quickly explore different color and texture combinations. (Maybe the carpet does look better in the darker shade; maybe the fabric should go to the edge of the seat rather than be just a center panel.)

Customers start to get excited at this point, as we give them a glimpse of what their interior will look like at delivery. Lots of expectations; no surprises. See, it can be as much fun as adding on to the house!


Next month, we start the work.

ABS member Dennis Wolter started Air Mod in 1973 to bring innovative design and high-quality renovations to the general aviation market. Dennis, his wife Cynthia and 10 dedicated employees complete about 40 renovations each year at their facility on the east side of Cincinnati. Dennis has a degree in industrial design from the University of Cincinnati. He is an A&P, IA and a 3,000-hour instrument pilot.



Sketch of a seat built with lower seat back and a headrest, and same design built taller with no headrest.

Finalizing the design with sample materials and colorized sketches.



New Life Members

ABS welcomes new Life Member

Kim Sopha of Poynette, Wisconsin.

Kim has been an ABS member since 1990.