

Builders Forum

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Tom's Technical Tips

From Tom Wright, Sommerset PA

I find that building anything is a series of assembly and disassembly steps. It seems to proceed like this: make the part, see how it fits, temporarily fasten the part in place, determine how to make it fit better and what to do to it next, unfasten and remove, go modify it and try again until it is acceptable. To be able to assemble and disassemble quickly we sometimes use "CECOS" but they are not always the best tool, especially if there are nuts, bolts, and nut plates involved. So to that end I have found a very quick and inexpensive device that allows assembly of a nut plated part without using your good aircraft-quality screws and bolts. Go to your local hardware store and find thumb screws one inch long, with fine threads in each size you will be using, i.e. 8-32, 1/4-28, 10-32. Also get knurled thumb nuts in the same threads and hex nuts all in fine thread. For those of you who don't know about threads, there are two types of threads that are used on fasteners: national course (nc) and national fine (nf). Aircraft bolts, nuts, nut plates are fine. The two thread types are not interchangeable with each other. Continuing at the hardware store, purchase a dozen or so thumb screws, thumb nuts and regular hex nuts, and a can of red spray paint. Since these are all temporary fastening devices that we don't want to leave in our completed plane, we will spray everything red so we don't forget to remove. Install the thumb nut onto the thumb screw now when you have to attach something to a nut plate. For example, on an aileron hinge, simply place the screw through the hole and turn into the

nut plate until it gets tight, then turn the thumb nut tight against the skin drawing the nut plate tight against the underside and through, holding the part in place. The red nuts can be used anyplace in place of your aircraft nuts; they spin on easily with fingers and are easily removable, for temporary fitting purposes. If you can't find this hardware at a local hardware store, try a really big international company McMaster Carr, Cleveland, Ohio – they have everything man has ever invented.

Again at the hardware store, usually in the paint department, you can find sanding blocks that are made of spongy foam with abrasive surfaces of various roughness/grits. These are excellent to use for sanding and forming various concave edges, etc. For straight surfaces I use 3M adhesive-backed paper for use on air boards: obtain a good straight piece of 1x3x12 and screw another 1x3x12 right down center to form a "T". Countersink the screws, then use the adhesive-backed paper on the flat surface (it glues itself). Use whatever grit you want. When finished, remove the paper in one piece with a putty knife. Cut in half to make two pieces 3" x 6". Fold each piece in half with the sticky backs against themselves. Now you have good pieces of really tough sandpaper that will not wrinkle when you're trying to use it. It's rigid enough to get into thin, tight areas like the door gap space and make a good sand line.

To save one complete cure-sand-fill cycle, here's a trick I've been using for years. After the parts have been laminated and partially cured, apply your micro fill (the glass on the part must be stiff enough that it

does not distort from the application of the filler) and squeegee. Another way to fill glassed surfaces is to sprinkle micro powder directly onto the glassed surface while it is still wet. The micro will soak up the excess wet epoxy. It becomes a thin film of filler that chemically bonds to the glass. Spread it very thin, only enough to fill the small valleys in the glass. Let cure then sand as you would ordinarily do finish.

Thomas J. Wright is the co-owner of Advanced Composite Technologies and has been custom building aircraft since 1982. The company employs six full-time staff members. They are responsible for building over 30 aircraft of various types, currently completing their eighth Velocity.

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Terra Radio Repairs

From Rick Lavoie, St Augustine FL

I had a bad display with one of my Terra Com radios. My local avionics shop made me aware that there is a company that bought out the Terra inventory and provides repair service for Terra. I know that many Velocity builders already own Terra avionics in their panel and need this information for future service or replacement.

Free Flight Systems
3700 Interstate 35
Waco TX 76706
Phone: 254-662-0000
freeflightsystems.com

Service was friendly, professional and timely. My com radio now works like new! I'm glad I found them.

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