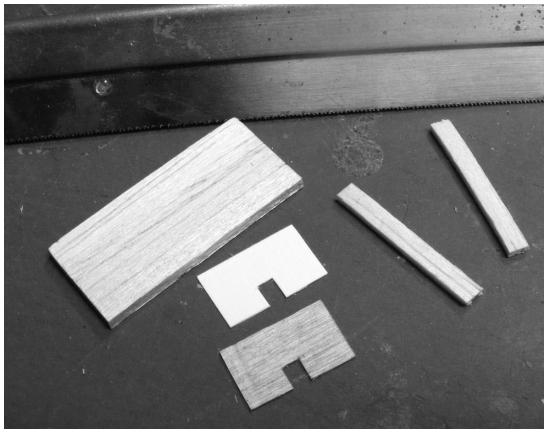
Stronger Strut Connections

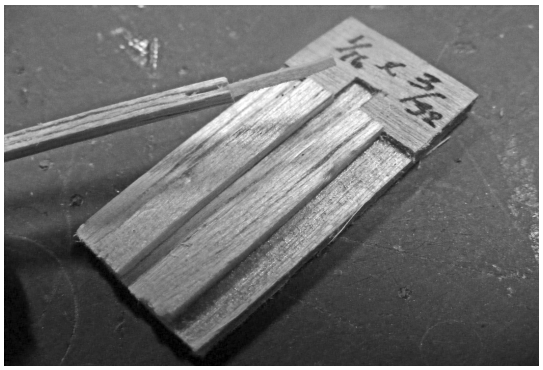
by Stew Meyers

In the September 2009 issue of MaxFax, Stew wrote an article describing how he created a jig for using Sig hinge material to reinforce biplane struts and landing gear. This article amplifies on an article entitled "A Different Way to Build Struts" which was published in the July 2009 issue of this rag. The following is a slightly edited version of his article.

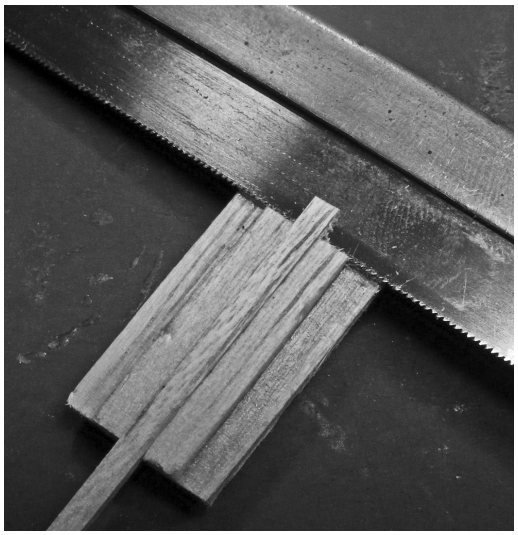
The Sig hinge material that I used for tabs on the ends of the interplane and cabane struts worked so well, that I used it for the landing gear as well on the Megow Camel and Spad. I like it better than a staple or monofilament pin. After slitting a few struts with a zona saw, I came up with a jig that makes the job very easy and quick. When you have no real building talent to eyeball it, a jig really helps.

For a 1/16th inch thick strut, I cut a piece of 1/64th plywood the width of a zona saw blade and then cut a 1/8" deep notch the width of the strut, in this case 3/32". I cut a matching piece of file card stock and glued it to the back and glued this sandwich to a scrap piece of balsa. (The file card and 1/64ply place the saw bade in the middle of the strut.) Then I glued guide pieces of 1/16x1/8 on either side of the slot to accommodate a 1/16X3/32 strut.

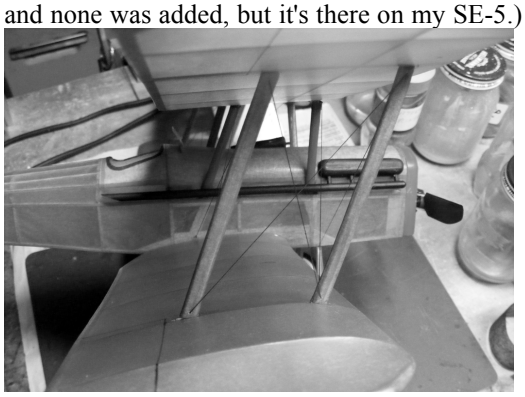




To use this, you place the un-rounded strut between the guides flush with the end of the notch in the plywood. Hold the strut in place with your thumb and run the saw flush on the plywood across the strut. The stiffening rib on the saw will prevent it from going in too deep and you get a nice centered cut in the end of the strut 1/8" deep. Since I am using a very fine 52 tpi 4-1/2 inches Long x 13/32 inch Wide x .008 inch thick saw the slot is not quite thick enough for the 0.010 Sig hinge material. Pulling a strip of 320 sand paper through the slot a few times takes care of this. Or you can chase it with a slightly thicker saw. Say 32 tpi which is 0.010 thick. I like using the finest saw to begin with because you are less likely to split the wood.



After slitting both ends of the strut, I cut the required angles on the ends before gluing in a 3/32 wide strip of Sig hinge with cyano. After it sets, I cut the end of the protruding tab to 1/8". I then shape the cross section of the strut and finish it. If you are to add rigging, drill a #77 hole in the side strut 1/32 of and inch from the end of the strut. The imbedded Sig hinge and the cyano it is glued in with reinforce the hole so the thread won't cut it when you tension the rigging. (Of course these simple Megow dimers don't show rigging on the plans and none was added, but it's there on my SE-5.)



The Sig hinge also nicely reinforces the "V" of the undercarriage strut that is so common to WW I aircraft. On these light dimers a hole can be drilled through the "V' in to the cross bar. A cut pin in this hole will provide a good shear connection and holds the wheel in place. Use Ambroid for this joint as you don't want to glue the wheel to the pin.