

3 WING JOINER INSTALLATION

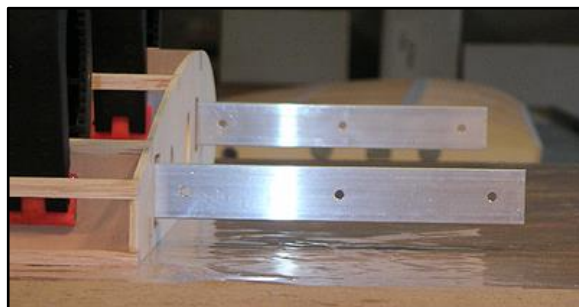
☐☐ Prepare the wing joiners exactly as described in the Sig directions. Okay, maybe one exception: If you don't have numbered drill bits (like me), you can use a 7/64" drill for the 4-40 bolts (the mounting bolts, not the set screws) and a 9/64" drill for the 6-32 bolts. Slide the joiners into the C-channels, tighten the set screws, and set aside.

☐☐ Use the Shear Web Identification drawings (on the plans) to locate the internal shear webs A, B, and C. Trial fit these internal webs between the main spars. Trim as necessary; try for a snug fit.

☐☐ Trial fit the external shear webs D, E, and F against the aft faces of the main spar. Actually, webs E and F should fit perfectly because you used these earlier to position the W-2 ribs. Hold the webs in place and mark the spar locations using a pencil from the front side. Now you can glue the internal webs to the external webs using the pencil lines for proper alignment. Web A glues to web D, B glues to E, and C glues to F.

☐☐ Trial fit the three rear shear webs G, H, and J against the rear spars; trim to fit as necessary.

☐☐ Working with the center wing panel only, position the shear webs for the C-channels, front and rear. No glue yet! You might have to use tape to hold the rear web in place against the rear spars. Now position your joiner assemblies on the webs. I positioned my set screws heads-down, so they can be tightened through holes in the bottom of the wing. They may be positioned on top, if you prefer. Visually inspect the aluminum joiners to be certain they are parallel, then mark the webs (mechanical pencil) through the four mounting holes in each C-channel.



With the center panel flat on the table and the assemblies clamped in place, make certain the joiners are parallel to each other and the table.

☐☐ Remove the joiner assemblies and the webs from the center panel, then carefully drill the webs (3/32" drill bit) at the marks. Bolt the C-channels to the webs using the high-quality hardware supplied with the kit:

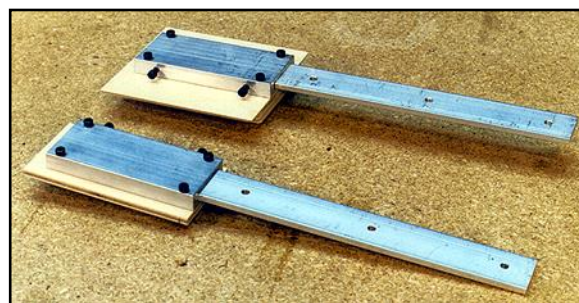
Each Front C-channel: Four 4-40 x 1" Socket-Head Bolts, #4 Washers, and 4-40 Hex Nuts

Each Rear C-channel: Four 4-40 x 3/4" Socket-Head Bolts, #4 Washers, and 4-40 Hex Nuts

☐☐ You will have to notch the rear spars to clear the mounting hardware used on the rear joiner. Try to make the notches as small as possible in order to maintain spar strength.

☐☐ Temporarily fit the shear webs in the outer wing panel, front and rear. Again, you may have to tape the rear webs to the rear spars.

☐☐ Position the webs with the joiner assemblies in the center section, again without glue. With the center section firm on your table (I used beanbags filled with lead shot), slide the outer panel into position. Prop up the wingtip end of the outer panel 1-1/4" off the table for proper dihedral. The W-2 ribs should fit against each other pretty well at this point, and the aluminum joiners should be resting against the faces of the plywood webs in the outer panel. Carefully mark the webs through the joiner mounting holes.



Top: Front Joiner Assembly. Bottom: Rear Joiner Assembly - At this point, the joiners have been fastened to the center section shear webs. Notice the "open" side of the C-channel is positioned against the face of the plywood web.

Carefully mark the webs through the joiner mounting holes.

WING JOINER INSTALLATION, CONTINUED...

☐☐ Remove the outer panel and the webs. Drill at the marks (9/64"), put the webs back in the outer panel, then slide the outer panel into its final position against the center panel. Bolt the joiners to the webs with this hardware:

Each Front Joiner - Three 6-32 x 1" Socket-Head Bolts, Six #6 Washers, and Three 6-32 Hex Nuts

Each Rear Joiner - Three 6-32 x 3/4" Socket-Head Bolts, Six #6 Washers, and Three 6-32 Hex Nuts

Notice I used a washer under the bolt heads to keep the bolts from digging into the aluminum.

☐☐ Now the webs are ready to be glued into place. Without disturbing the position of the wing panels, work the webs away from their spars. Apply slow-drying epoxy to both the webs and the spars, reposition the webs, and clamp them in place. CAUTION! Be careful not to get any glue in the joint between the wing panels. The whole idea here is for the wing panels to come apart!

☐☐ When dry, remove the wing from the board, loosen the set screws and separate the wing panels. Mix another batch of epoxy and use a disposable brush to coat the area thoroughly between the top and bottom spars, including the internal webs, spars, and mounting hardware. This is not the place to be stingy with the epoxy!

☐☐ For extra strength, glue scrap pieces of hard plywood (3/32 or 1/8) along the top and bottom edges of all the joiners and C-channels. This is a very important step because there will be a lot of stress and pressure on the channels trying to twist them out of position, especially when flying aerobatics.

☐☐ Having fun? Good! Repeat these steps for the other side....

-SFK



Both Joiner Assemblies are now bolted in place, but the webs have not been glued yet. The front joiner/web assembly is still in position, but the rear joiner/web assembly has been pulled away from the spars so that glue can be applied.



Joiner/Web Assemblies are glued and clamped firmly. Temporary pieces of plywood are used on the opposite side of the spars for clamping purposes. Use epoxy, but keep it away from the actual wing joint between the two lite-ply W-2 wing ribs.



Plywood Scraps are glued above and below the C-channels for extra strength. Rear channel too!



Plywood Scraps are glued above and below the joiners for extra strength. Rear joiners too!