

3 WING PANEL DETAILS

At this point, the primary structures of the wing panels are complete. The last major part, the top center sheeting, will be added after the wing panels are joined (this allows easy access to the dihedral braces so you can be certain they are glued properly). This section wraps up some of the detail work on the wing panels that is easier to do before the panels are joined.

☐☐ Trim the wing sheeting and spars at each end of the wing panel, flush with ribs W-1 and W-14. It's critical to sand the root end accurately so the panels will make firm contact with each other when joined. I made myself an oversized sanding block just for this purpose using scrap plywood, an aluminum bar, and a cut up sanding belt.

☐☐ Trim the TE sheeting flush with the trailing edge. Maintain the bevel in the inboard section of the wing panel.

☐☐ Now you can finally cut the wheel opening and the wheel wells away from W-4 and W-5 along the vertical lines you drew earlier.

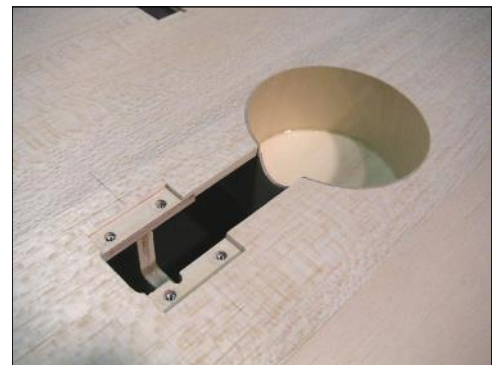
☐☐ Dry assemble the 1/32" plywood wheel well liner and the lite-ply wheel well floor in the wing. The liner can be overlapped in the area cutout for the strut, or you can trim the liner for a butt joint - your choice. When satisfied with the fit and position of the parts, glue everything in place with medium CA.

☐☐ Use a sanding drum in a Dremel tool to make a rounded notch in the liner to clear the wheel strut. Make a smaller notch in the retract mount to clear the brass nipple on the side of the Robart retract unit.

☐☐ Accurately place your retract unit in the wing and mark the position of the mounting holes on the plywood mount. Remove the unit, then drill the holes carefully for blind nuts. Install the retract mounting blind nuts and fix them in place with medium CA. **Note 1:** Hardware for retract mounting is not provided in the R54 kit, but it IS provided in the optional Retract Package available from BTE. **Note 2:** If you do not have your retract units at this time, you can still do this step using the Robart Bolt Pattern Template provided in the kit.

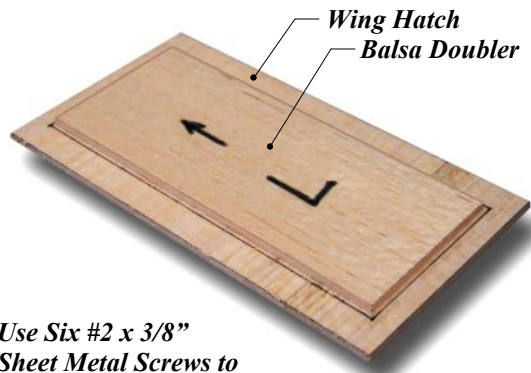
☐☐ Glue the wingtip trailing edge extension to the wing, using the plans as a guide for proper placement. When dry, trim the end to match the angle of rib W-14.

☐☐ The balsa wingtip block is roughly cut to match the wing top view. Mark the airfoil shape on the block using the actual wing as a pattern, then saw the block to a rough airfoil shape. Glue the wingtip block in place with yellow glue using pins and tape to hold it in position until dry.



☐☐ Carve and sand the wingtip to a pleasing round shape. You can protect the surrounding sheeting by masking off a portion of your sanding block with paper and tape.

☐☐ The wing hatches that you cut out earlier need to be stiffened with a balsa doubler. Use some scrap 3/32" balsa cut slightly smaller than the hatch opening which is already drawn on the hatch. Make sure the grain of the doubler runs fore and aft, perpendicular to the hatch grain. Glue the doubler to the hatch.



Use Six #2 x 3/8" Sheet Metal Screws to Mount the Hatch to the Wing

☐☐ Lightly sand the edges of the hatch, just enough to provide some clearance for covering material. Mark the positions of the six mounting holes, tape the hatch to the wing, then drill at the marks with a 1/16" drill bit. Remove the hatch and re-drill the holes in the hatch with a 3/32" drill bit. You can toughen the wood around the holes in the hatch by applying thin CA. Finally, mark the hatch to indicate the correct wing panel and an arrow pointing forward to help with orientation later.

☐☐ Mark the position of the wing bolt block on the bottom of the wing by poking a few pin holes through the bottom center sheeting. You will need to know the block's position later when the wing bolt plate is installed.

☐☐ Glue the root TE extensions to the wing, again using the plans as a guide. Fill in the gap on the bottom of the wing with scrap balsa sanded to fit. When dry, trim the inboard end flush with W-1.

☐☐ Cut a flap from the material provided in the kit. Sand the ends square, leaving about a 1/16" gap at each end for clearance. Inset a 1/16" plywood control horn pad into the bottom of the flap, positioned as shown on the plans.

☐☐ Cut an aileron and install its control horn pad just as you did for the flap.

☐☐ Now is a good time to drill the flaps and ailerons for their control horns. The flaps use short horns (one left-hand, one right-hand), and the ailerons use the long horns. Position the horns carefully, mark the mounting holes, then drill at the marks with a 3/32" drill bit. I like to use a drill press for accuracy; prop up the surface so the ply pad is perpendicular to the drill. Harden the wood around the holes using thin CA. **NOTE:** The flap horns are positioned back from the hinge point to minimize the vertical displacement of the pushrod at full flap deflection.

