

7 AILERONS AND FLAPS

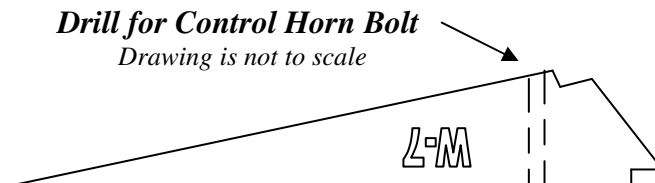
Two of each! The following instructions apply to both the ailerons and flaps; the main difference is that you use 24" wood for the flaps, 36" wood for the ailerons.

☐☐ Locate the four 3/8" plywood W-7 ribs. Depending on your choice of control horn, you may want to drill your ribs before assembly. I used Sullivan Super Horns which use a long 8-32 bolt that thread through the control surface. I wanted the flat head of the bolt to be flush with the tops of the ailerons/flaps, so I flipped the ribs upside down as shown in the diagram and used a drill press to drill a 9/64" hole located just aft of the notch for the bottom spar.

☐☐ Start by pinning the bottom LE and TE sheeting over the plan. Line up the LE sheet with the front of the bottom spar.

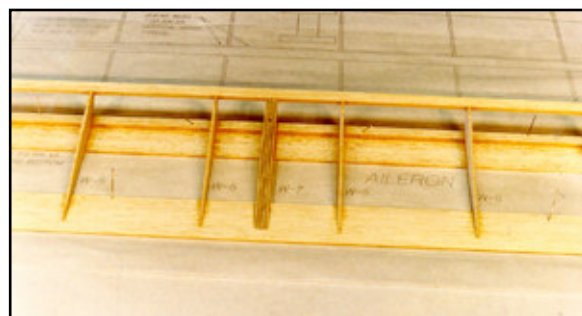
Drill for Control Horn Bolt

Drawing is not to scale



☐☐ Glue the 3/16" x 3/8" bottom spar in place so that its front edge is even with the front edge of the LE sheet.

☐☐ Add the balsa W-5 ribs, the lite-ply W-6 ribs, and the thick plywood W-7 rib. You may want to adjust the position of your W-7 from what is shown on the plan so that it lines up properly with your intended servo linkage.



Aileron - with the the bottom sheeting, spars, and ribs glued in place. Trailing edge still needs to be beveled to match the slope of the ribs. Remember to make right and left ailerons and flaps.

☐☐ Glue on the 3/16" x 3/8" balsa top spar.

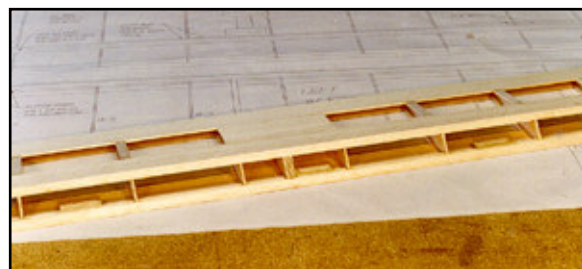
☐☐ Sand the TE sheet to match the slope of the ribs.

☐☐ Add the top sheets to the LE and TE. Note the LE sheet should overhang the front of the spar by about 1/8".

☐☐ Sheet over the rib bay containing the W-7 rib, then add 3/32" x 3/8" capstrips to the remaining ribs.

☐☐ Remove the control surface from the building board and go over all the glue joints with medium CA.

☐☐ Punch through the balsa sheeting at the hole in W-7, top and bottom. You may have to locate it by feeling around with a straight pin. Flip the control surface upside-down and pin it flat to the table. Add the balsa sheeting over the W-7 rib bay, then glue capstrips onto the remaining ribs.



Aileron, Upside-Down - After sanding the front face of the aileron, I decided that my hinges would need more material for strong mounting, so I added balsa pads at each hinge location. Be sure to position a hinge very close to W-7.

☐☐ Once again, think about your hinging method and add "beef" to the top spar as needed.

☐☐ Unpin, then sand the front face until both spars are completely beveled and the sanding block is beginning to touch the front edge of the ribs.

☐☐ Finish off the front of the control surface by gluing on the 3/32" x 1-5/8" balsa sheet. Be careful not to cause a twist during this step. Pin the control surface upside-down on your table, apply slow CA to all of the front edges, then press your sheet in place. When dry, trim and sand all of the excess sheeting.

-SFK