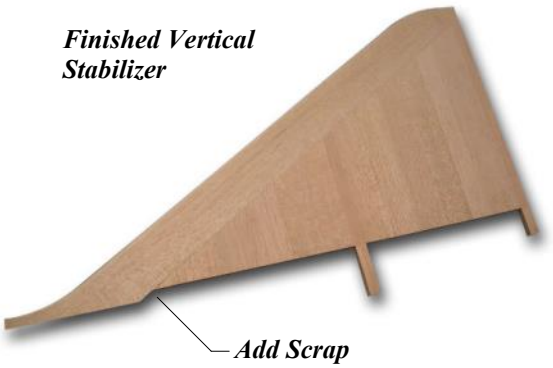
5 TAIL SURFACES

The tail feathers are simple, all-sheet surfaces that build fast and easy. You can build these parts any time during construction. They will come in handy during fuselage construction when you are routing the pushrods, so let's get them done now and set them aside for later.

❑ Let's start with the vertical stabilizer (fin). I recommend yellow glue (aliphatic resin) for all of the sheet balsa tail surfaces because it's easier to sand smooth. CA tends to leave hard ridges at the glue joints that are difficult to make "invisible". Pin and glue the FIN-1, FIN-2, and FIN-3 parts over the plan, being careful to align the bottom edges.

❑ Cut the front fin post from the 5/16" x 1/2" balsa stick provided in the kit. You can leave the top end of the stick long; it will be trimmed later. The bottom end of the stick should match the angle shown on the plan.



Finished Vertical Stabilizer

❑ Now add the FIN-4, FIN-5, and FIN-6 pieces, again aligning their bottom edges. Allow to dry

❑ Remove the fin from the board and carefully sand the top edge smooth and straight. Pin the fin over the drawing again and add the FIN-7 piece. You want the front/forward end of FIN-7 to match the plans. When dry, remove the fin from the building board and trim the rear edge of FIN-7 flush with FIN-1.

❑ Cut another stick for the rear fin post and glue it in place. When dry, trim the top end flush with FIN-7. You will also need to add a tiny scrap of balsa at the front point of FIN-6

❑ Sand both sides of the fin smooth. I like to attack this with an 80-grit sanding block until the glue joints are virtually smooth followed up with 150-grit. Using this process, you may sand off up to 1/32" from the nominal wood thickness of 5/16", which is acceptable. Round off the fin LE, but leave the front tip squared off as shown in the photo.

❑ Cap both ends of the rudder with 5/16" sq. balsa. When dry, sand the caps to match the rudder contour. You will notice that the TE thickness increases near the tip. It's okay to leave it that way, but purists (like me) will want an even thickness along the entire TE. This is actually fairly easy to do using a few swipes of a sanding block. A carefully drawn line, centered on the TE, will help guide your work and indicate that both sides have been sanded evenly. **NOTE:** The actual thickness of the TE is not critical, but I do recommend that you leave it squared off, which is less likely to flutter than a TE that is rounded off. The recommendation holds for all of the R54's control surfaces.

❑ Temporarily tape the rudder to the fin, using the plans to accurately position the bottom edge of the rudder. Sand the top of the rudder to match the contour of the fin.

❑ Inlay a 1/16" ply control horn pad in the right side of the rudder using the plan as a guide. Do not install the rudder control horn at this point - it will be installed later to align with the end of the pushrod.

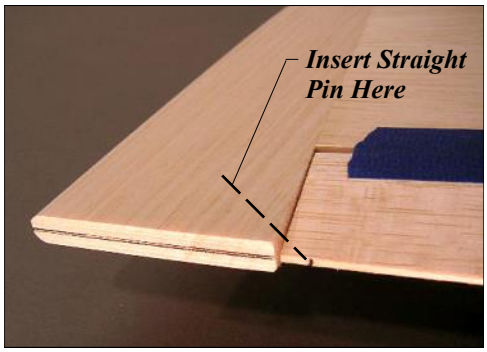
❑ Now let's build the horizontal stabilizer (stab). Pin and glue the three STAB-3 pieces over the plan, followed by the STAB-2 piece and the two STAB-1 pieces. Allow to dry.

❑ Remove the stab from the board, and trim the corners off the most forward STAB-3 to match the angle of the stab LE. Sand the LE smooth and straight, then add the 3/8" sq. balsa leading edge sticks. Trim the sticks for a tight joint where they meet at the front tip of the stab. Allow to dry.

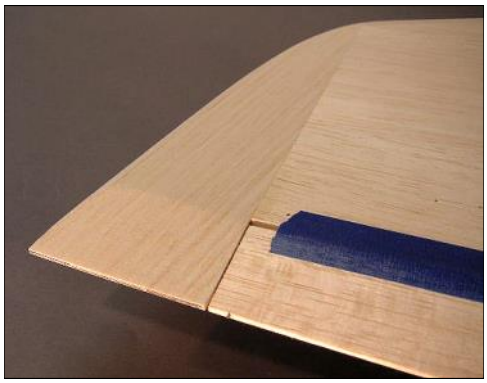
❑ When dry, trim off the leading edge sticks at the tips and sand the outboard ends of the stab. Now you can glue the two STAB-4 stabilizer tips in place.

❑ Sand the top and bottom surface of the stabilizer smooth, and round off the leading edge and tips.

❑ Sand the balsa elevator to an even TE thickness if you wish. Trial fit the elevator to the stab, and sand the ends of the elevator (if necessary) for about 1/16" clearance at each end.

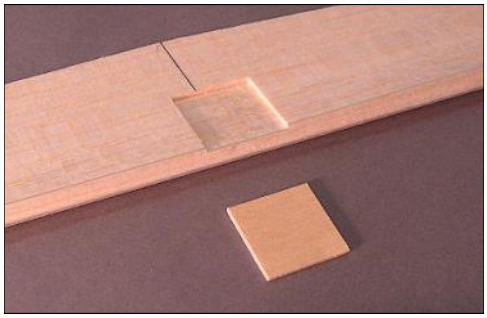


❑ The STAB-4 tips need to be sanded to match the taper of the elevator. Tape the elevator to the stab, keeping the ends of the tape about an inch away from the tips. To really hold the elevator in position, insert a straight pin at an angle through the elevator TE and into the STAB-4 piece at each end. Now you can carve and sand the STAB-4 pieces to match the taper of the elevator.



❑ Once again using the plans, draw an accurate centerline on the top surface of the stabilizer (choose the smoothest side to be the top). Carefully cut the two holes required for the fin posts. The holes should be centered on the centerline that you just drew, and spaced to fit the fin that you built earlier.

Finished Horizontal Stabilizer



❑ Inlay a 1/16" ply control horn pad in the bottom of the elevator. Use the plan as a guide - you will notice that the pad is offset from the center line to better accommodate the control horn. Again, hold off on the actual installation of the horn until later, when it can be aligned perfectly with the installed pushrod.