

SECTION 3:



Rear Skin 8R3-1

SNIPS: use the red snips to cut the left side of the rudder skin

The supplied skin must first be trimmed along the pre-marked lines along the bottom of the skin. Check: Edge distance = 10mm from the center of the holes to the line.

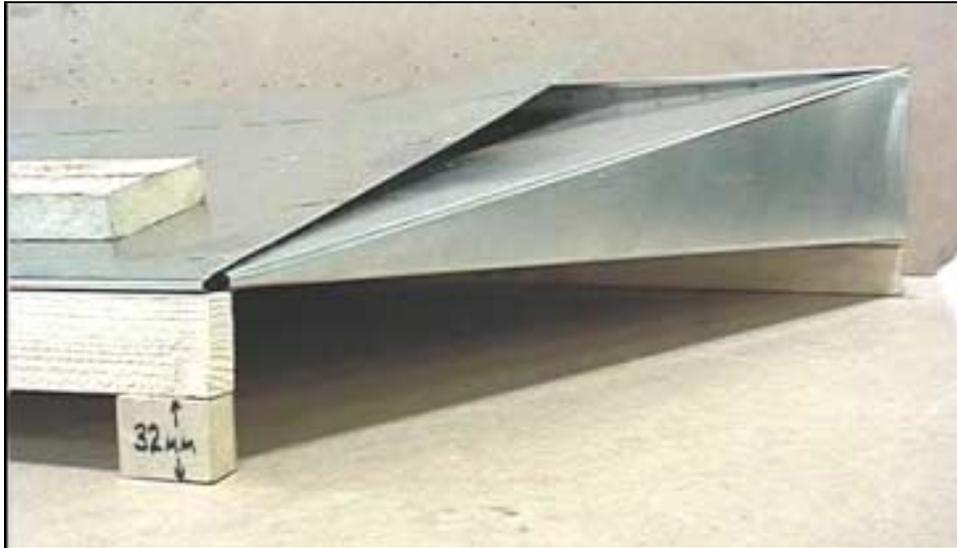


SNIPS: Use the Green snips to cut the left side of the rudder skin

IMPORTANT: cut the left and right side of the skin separate.

FILE: File the cut edge smooth to remove any sliver or sharp edge.

First make a rough cut approximately 1/2" from the line. This can also be used as a practice cut!



CHECK that the rib flange rivet line is clearly marked on both flanges of Ribs 2 to 5

Insert the Skeleton inside the rear skin

IMPORTANT: A 32mm block is required under the bottom of the trailing edge to align the trailing edge with the center line of the rudder (The rudder spar is tapered, there is no twist in the rudder when the trailing edge is in line with the spar center line).

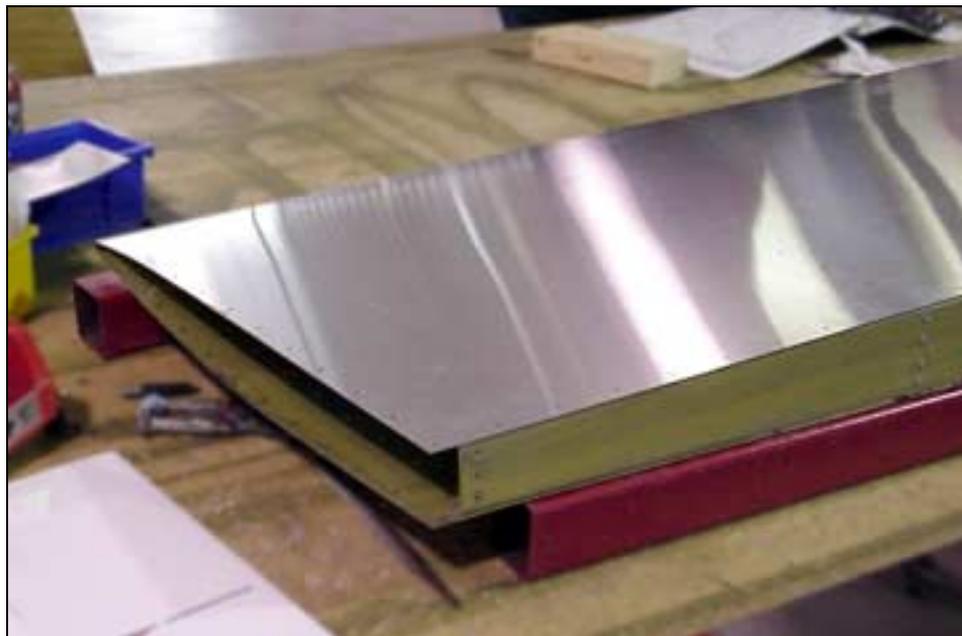
Only one block 32mm block is required under the bottom of the trailing edge of the rear skin (at the end the bottom rib #1)

The Rudder assembly is positioned on straight beams to avoid damage to the trailing edge, the 32mm block raises the bottom corner up. Two beams of equal heights are required, position one under the spar, and the other under the trailing edge. Then slide the 32mm spacer at the end of Bottom Rib #1



No spacer block is required along the spar or at the tip of the trailing edge.

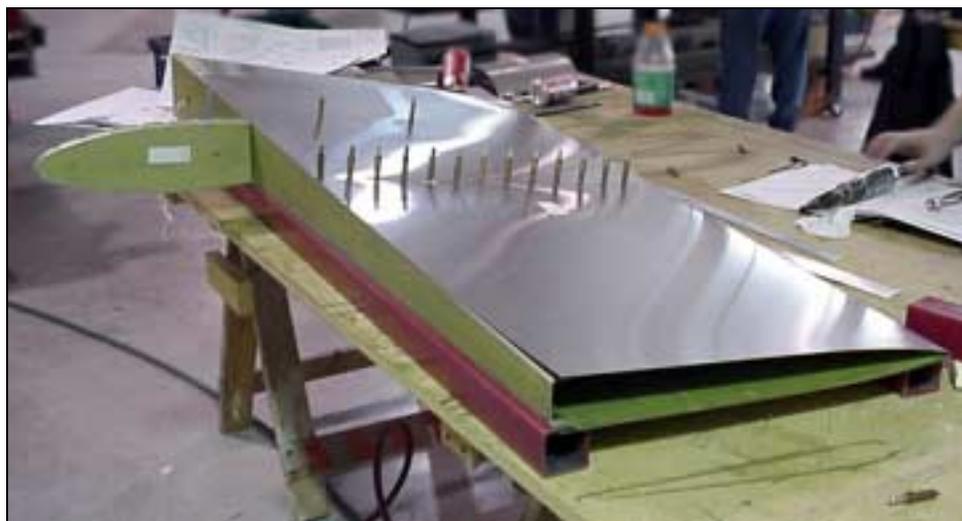
SUGGESTION:
Use steel beams 2x2" square or straight 2x4 wood boards.



Line up the pre-drilled hole in the rear skin with the rib rivet line in the spar web at each corresponding rib.

DEPTH: The front edge of the skin is flush to the front of the spar.

CHECK: With the rudder layout flat on the beams (32mm spacer at the end of the bottom rib #1) check that both the top and bottom edge of the skin is even with the front of the spar. If one side is slightly shorter than the other, use the short side as a reference for positioning the skin flush to spar.



Drill the ribs to the spar. Do not drill the front rivet line to the spar, this is drilled later when the nose skin is installed (The Jig will also help assure that there is no twist in the rudder)

Drill from the back, forward:

Drill and cleco last hole in each rib. Drill and Cleco every third hole starting from the back moving forward. Then drill in between the clecos.

To hold the skin to the spar, drill 4 holes along the front of the skin into the spar, Ref upper left diagram on drawing 8RU-2 or use pieces of duct tape to hold the front edge of the skin to the spar. Reach inside or open the skin to align the rib flange rivet line with the pre-drilled holes in the skin.



Detail of bottom rib, Rib #2 fits inside the Bottom Rib #1.

The rivet line is approximately 10mm from the top edge of the side flange of the bottom rib #1

Gently push the end of the bottom rib up full overlap with the rudder spar, drill and cleco the last hole. Additional assure trimming may be required at the end of the skin if the end of the rear is covered by the skin .



Rudder resting on the beams with the 32mm spacer under the end of the bottom rib #1



Tip Angle
8R2-5

Tip Rib
8R1-6

The tip rib angle is positioned 40 mm. back from the forward edge of the rib leading edge.

Layout a line 40mm from the front of the rib.

Position the front edge of the Angle along the 40mm line (the flange is towards the rear). Check that the ends of the flange are not too long, some trimming may be required if they inter with the rib flange. Check, the angle is square to the aircraft center line.
Drill and Cleco two #30 holes



Install the Tip Rib 8R1-6 to the spar 8R3-1.



Note: Clecos for the Tip angles from the outside.

position the tip rib with the top edge of the skin on the bent tangent line on of the rib (approximately 2mm from the top of the rib). The bend radius of the rib is deliberately exposed to help finish the rudder tip.



Tip angle fits behind the spar.

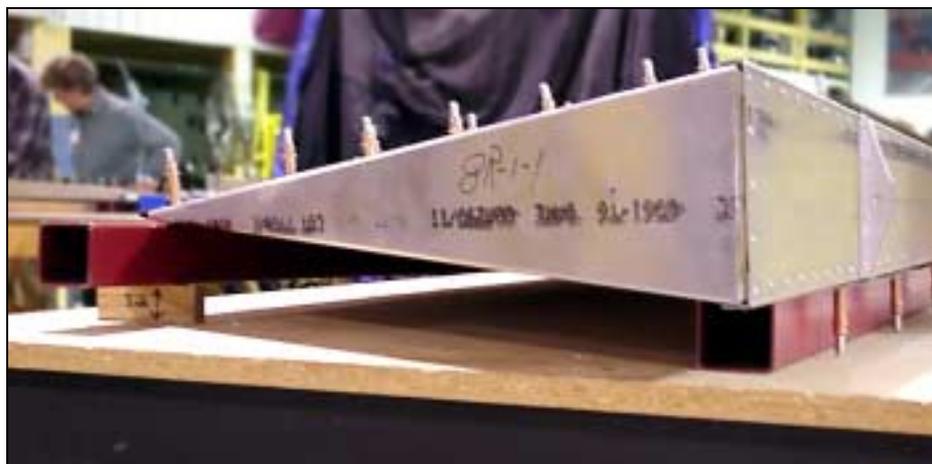
Pinch the tip rib between your fingers to center the rib.

Drill and Cleco three #30 holes.



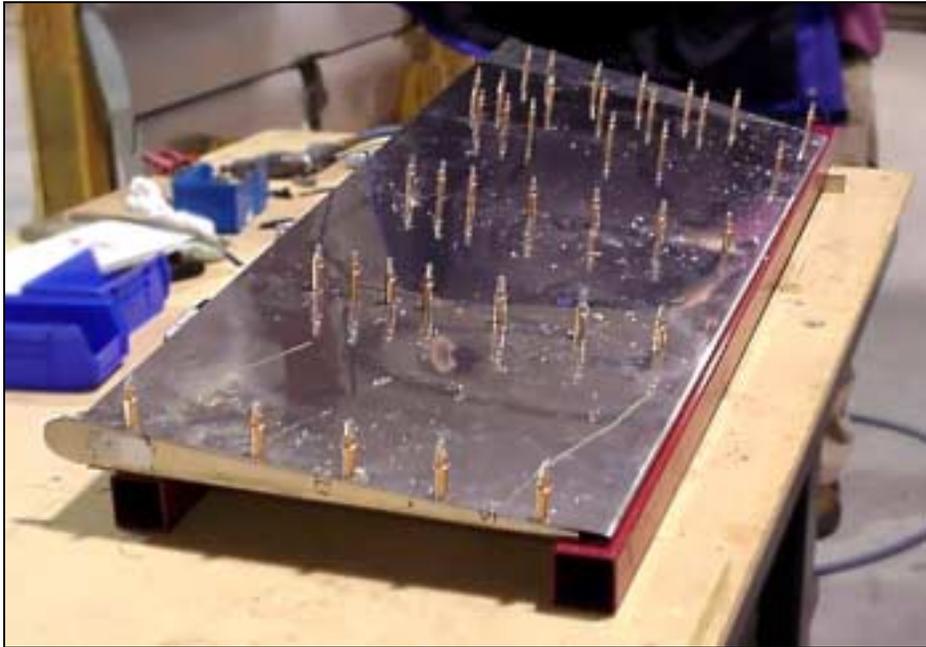
Turn the rudder over,
re-adjust the beams and
32mm spacer.

Photo illustrates **POOR** placement of the beam support. This would result in a twisted rudder trailing edge.



Note: the width of the
beam is wider than the
length of the Cleco.

The rudder assembly shown supported on steel 2" x 2" beams – notice the 32mm wedge under the bottom trailing edge of the assembly.



LABEL: Soak the labels on the parts with laquer thinner, wait about 30 second then peel off. Use laquer thinner on a rag to remove any glue residue.

Before drill the second side:

1. Check alignments of predrilled holes in the skin and the rib centerlines.
2. Drill the rib holes, 1/8" (#30).
3. Start at the ribs most aft hole and work towards the spar.
4. Keep everything flat.
5. Use Clecos as drilling proceeds.
6. Stop occasionally to check the lay of the rudder: Is it still flat on the support beams?