

Rudder Assembly Instructions Modified.

1. Press bushings into hinges per Rans plans.
2. Draw line on undrilled flange per Rans plans.
3. Using the Rudder Horn Mount Tube as a guide/template, enlarge the provided #30 size holes to #11. This will ensure that all 3 holes will match the welded mount tube correctly.
4. Cut and deburr the bend tags on both ends of the Rudder Skin.
5. Cleco the Rudder Spar and Upper Rudder Ribs together as shown in the PARTS MANUAL DRAWING.
6. Cleco the Rudder Skin to the **Left** side of the frame assembly. The leading edges of the skin curl around to meet each other. **Do NOT** cleco the leading edge at this time.
7. Cleco the Rudder Horn rib doubler to the Lower Rudder Rib.
8. Insert the lower Rudder Rib, with doubler, into the bottom of the rudder and cleco it in place above the tang on the Rudder Horn Mount Tube.
9. Cleco **Left** side of the Rudder Skin to Ribs and Spar. Place Rudder, **Left** side down on a flat surface and check for twist. Make sure Spar and Ribs are straight. Use center line on the Rib flange as a guide to check alignment with side skin holes.
10. Check the Rudder for twist. If needed, use boards and weights or straps to fix the assembly and correct any error in twist. Transfer drill from the skin to the undrilled flange of the spar and ribs. Cleco as you drill.
11. Transfer drill #11 through the rudder horn mount tube to the lower rib. Add a washer as needed to take up the space between the tang and the rib.
12. Drill the leading edge holes #30.
13. Remove the Skin from the Rudder Frame, disassemble the frame, deburr all holes and prime if / as desired.
14. Rivet the Rudder Spar, Upper Rudder Ribs and Hinges together as shown in the Parts Manual Drawing.
15. Fabricate Rudder Stop Bushings and assemble as shown in PARTS MANUAL DRAWING.
16. Cleco the rudder skin to the frame.

17. Rivet the rudder horn rib doubler to the lower rudder rib.
18. Insert the Lower Rib, with Doubler, into the bottom of the rudder and cleco it in place above the tang on the Rudder Horn Mount Tube.
19. Place Rudder, **Right** side down on a flat surface and check for twist. Make sure Spar and Ribs are straight. Check the rudder for twist. If needed, use boards and weights or straps to fix the assembly and correct any error in twist.
20. Rivet the **Left** side of the Rudder Skin to the Ribs and Spar.
21. Place Rudder, **Left** side down on a flat surface and check for twist. Make sure Spar and Ribs are straight. Check the Rudder for twist. If needed, use boards and weights or straps to fix the assembly and correct any error in twist.
22. Rivet the **Right** side of the Rudder Skin to the Ribs and Spar.
23. Rivet the Rudder Horn Mount Tube to the lower rib and washer.
24. Rivet the leading edge holes.
25. Use a scrap piece of wood to slightly bend the edges of the skin around the spar at the very bottom near the hinge. The purpose is to ensure the edge of the skin does not contact the vertical stabilizer skin and to reduce drag slightly.