Fit Rudder to Vertical Fin

Reference: Drawing 20020K2/1
Photo

Parts Required:
- 2064092-1 Vertical Fin
- 2068002-1 Rudder
- 2001394 Hinge – Aluminium sets (3)
- 2001H94 Hinge Pin 1/8 (3)
- 2001594 Hinge Pin Retainer (3)
- TAPK Rivet 6-6 (16)
- TAPK 3-3 Rivet 3/32” (6)
- MS35206-245 Screw (3)
- MS21078-3 Anchor Nut (3)

Materials Required:
- LC3600 Resin
- LC3600 Hardener
- Fibreflock

Photo - Positioning of the retaining cap nuts
Fitting Hinges Procedure:

Note: This procedure to be completed after fin is bonded to joined fuselage.

1. Position the Outer Rudder hinges to Rudder only and mark the rivet holes as per drawing. Note: This is best done by positioning the hinge on top of the surface & allowing the thickness of the hinge pin between the Rudder & Vertical Fin. (The hinge leaf where the pin goes through will need to be lifted half way over the skin).

   Note: Keep hinges identified with the position they were marked in.
   Also Note: File a recess in Vertical Fin where hinge pin sits to allow full travel.

2. Mark all holes using the hinge as your template & only drill the two outer holes for the rivet to 5/32”.

3. Attach the hinge leaf to the Rudder using M4 x 12 machined screws.

4. Centrally Position Rudder onto Vertical Fin. Position the Rudder so that there is 2-3mm between the Vertical Fin & the top of the rudder. Also allow a hinge pin thickness between the Rudder & Vertical fin. Note: If the Rudder is not flush with the Vertical Fin on the left hand side, you may need to cut a thin shim to put between the hinge & the Vertical skin or Rudder.

5. Check for full deflection using the Top Center molding of the Vertical Fin above the rudder, this is the Neutral position. Use the center of the rudder & measure 98mm to the right & 98mm to the left (20deg).

6. Remove screws from rudder hinge leaf & use as the drilling template to mark & drill the remaining rivet holes to 3/16”.

7. Countersink holes enough so the rivet head sits below the surface of the skin.

8. Screw MS35206-245 screw into a lug anchor nut from top to make a drilling jig. Refer to Photos. Drill the holes for the anchor lug nut. This is best done by using the hinge pins positioned in recess & lock tab (hinge pin retainer) to mark and drill position of anchor nut. Note: Position retainer nut at 45 degrees angle to hinge line to keep rear rivet hole in from edge. Countersink anchor nut mount holes and rivet anchor nuts in position using TAPK 3-3 rivets.

9. Sand back all bonding surfaces of Rudder & Vertical fin.

10. Clean with acetone.

11. Bond the hinges with
Epoxy/flock & rivet into place with TAPK 6-6 or 6-4 countersunk rivets.

12. Rivet the hinges on the Rudder first & then rivet hinge leaf to the Vertical fin with the Rudder still attached, this way your will be assured that the alignment will be correct.

   Note: If it is necessary, holes can be elongated as the resin/flock used to secure hinge will take up any gaps.

13. Remove Rudder from the Vertical fin.

14. After you have finished riveting & clean excess flock off with a small amount of Acetone.

15. Rivet the 2-lug anchor nut for the hinge pin retainer into place.

16. Allow to cure

17. Fit Rudder to Vertical fin and insert the hinge pins. Check for hinge alignment, full Measure deflection (98mm or 20deg Left & Right) and parallel gap between Rudder & Vertical fin.

18. Sand all bonding areas on vertical fin where rudder will come in contact with fuselage.

19. Using Epoxy Resin & Flock bond Fiberglass Rudder stops on fuselage to the same angle as the rudder horn. Refer to photos.
Rudder set to full right rudder

Please note: It may be necessary to grind the radius out in the horn to allow full deflection to the right hand side.

Set Left hand side rudder stop.
Anchor point for Rudder Cable