

Torque Tube Installation

6.5 Torque Tube Installation

- 1) Drill eight equally spaced #30 holes in a 2 1/4" x 1/2" x .125 RD Tube (CC0054). Figure 6.5.1.

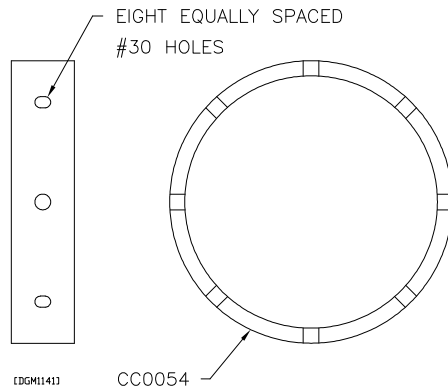


Fig. 6.5.1

- 2) Install a 1/4" Anchor Nut (F5000-4) to the inside of an End Plug (EL0031). Figure 6.5.2.

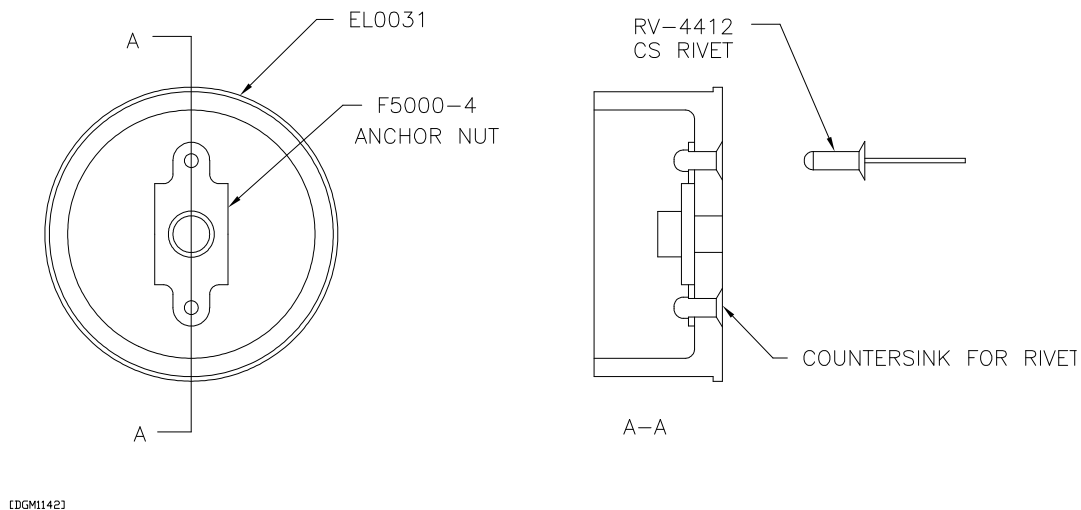
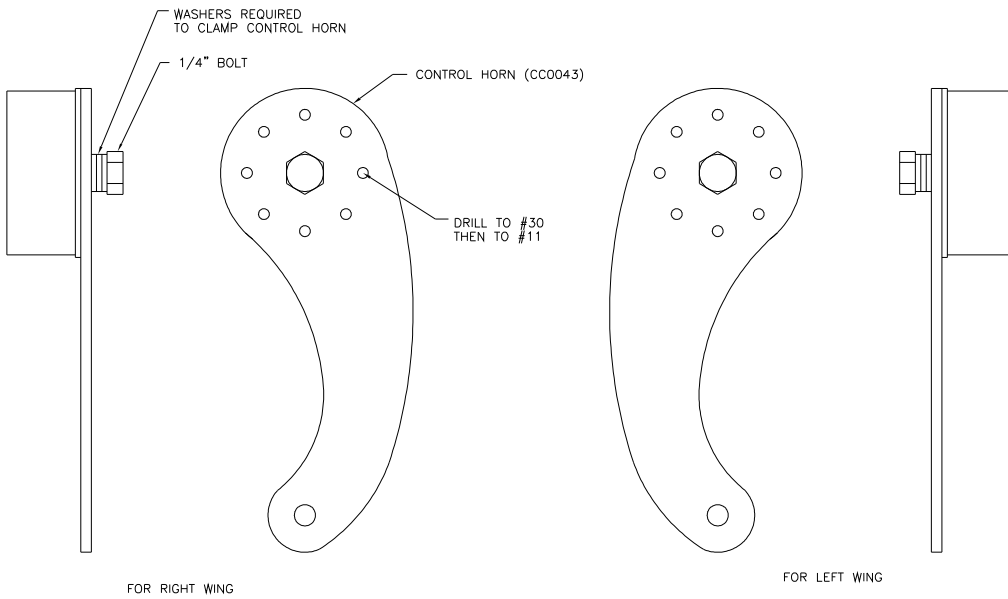


Fig. 6.5.2

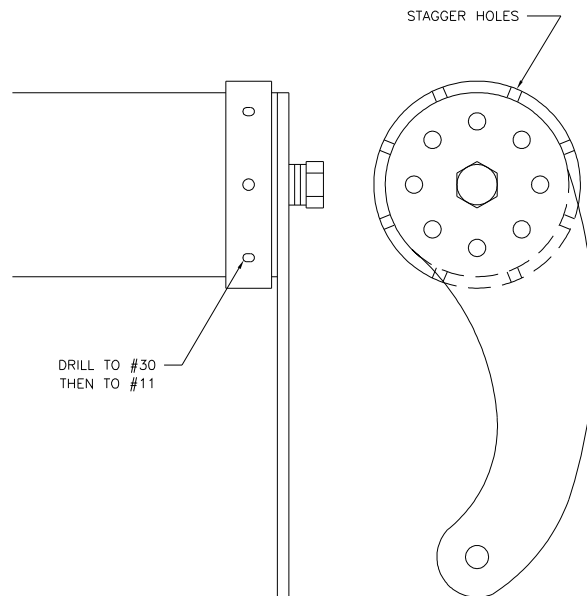
- 3) Bolt a Control Horn (CC0043) to the End Plug. Position the Control Horn so the holes do not interfere with the Anchor Nut retaining Rivets. Back drill the eight holes to #30 then to #11. Ensure that the Control Horn is facing the correct direction for the wing you are working on. Figure 6.5.3. Countersink the 1/4" hole at the narrow end of the control horn on its outside (tip side) surface. The aileron control rod will bolt in place here.



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Figure 6.5.3

- 4) Slide CC0054 over the end of one 9' length of 2" .035 Tube (Raw Stock).
- 5) Slip the End Plug Assembly into the end of the tube.
- 6) Slide CC0054 to the end of the tube. Stagger the holes in CC0054 with the holes in the End Plug and back drill to #30 and then to #11. Figure 6.5.4.



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Fig. 6.5.4

- 7) Disassemble and debur.
- 8) Chromate and rivet together with 3/16" SS Rivets (RR-5606).

- 9) Slide the Torque Tube Assembly from the tip end through the L.E. Ribs and the Delrin Bearing (CC0037) until the horn is approximately in line with the cutout in the Main Spar Assembly.
- 10) Draw two lines on a Bracket (W0542) as in Figure 6.5.5.

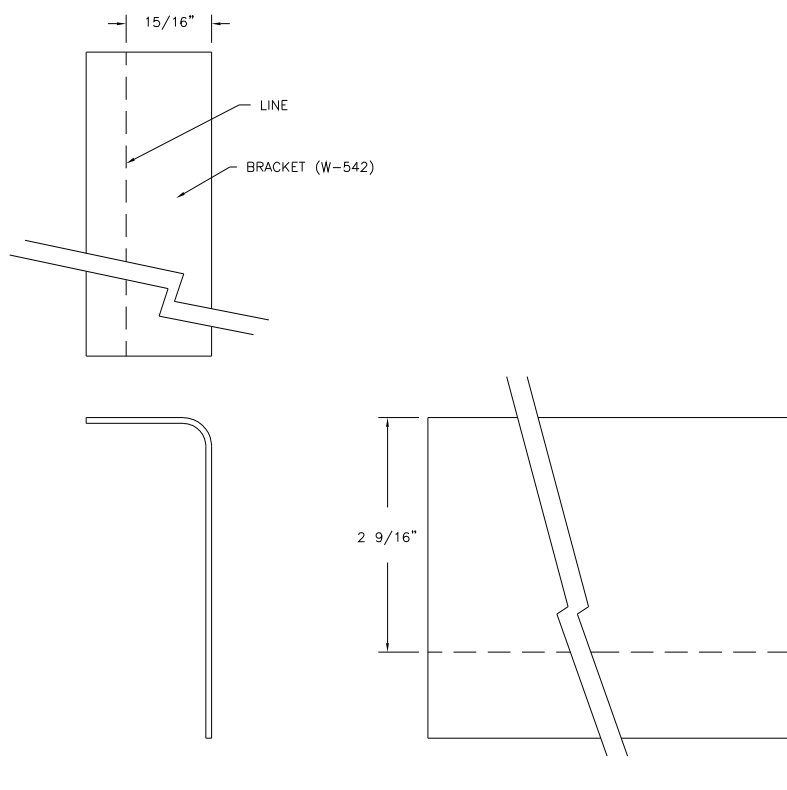
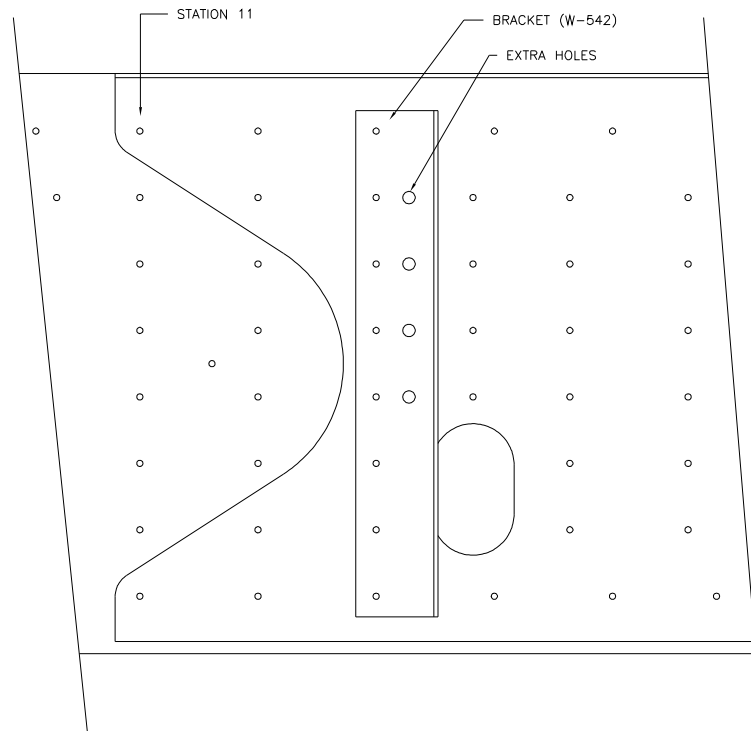


FIGURE 6.5.5

Fig. 6.5.5

- 11) Position the Bracket (W0542) on the front of the Main Spar Assembly beside the cutout so the line on the short flange is visible through the rivet holes. Figure 6.5.6.



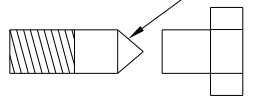
[DGM1146]

Fig. 6.5.6

- 12) Back drill to #30 then to #11.
- 13) Add four extra holes as in Figure 6.5.6.
- 14) Cut the head off a 1/4" bolt and grind the end to point. Figure 6.5.7.

NOTE: A 1/4" dowel locator can be used.

CUT BOLT AND GRIND TO A POINT →

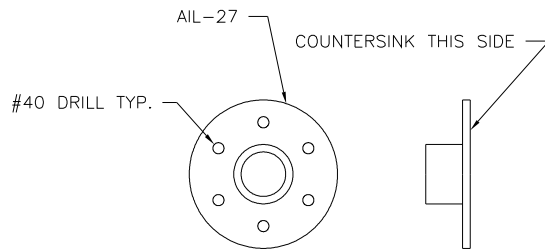


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Fig. 6.5.7

- 15) Screw the pointed bolt into the end plug in the Torque Tube.
- 16) Block up the Torque Tube near the cutout so it is at the same height as at the Root Rib.
- 17) With the sharpened bolt scribe a line across the line drawn on the large flange of the Bracket (W0542).
- 18) Remove the bracket and at the intersection of the line and scribe mark drill a 1/2" hole.

19) Drill six evenly spaced #40 hole into Brass Bushing (AIL0027). Figure 6.5.8.



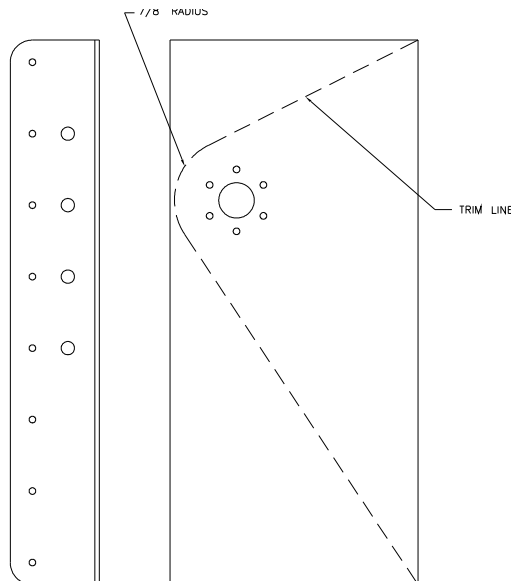
[DGM1148]

Fig. 6.5.8

20) Insert the Brass Bushing from the Torque Tube side into the 1/2" hole in the Bracket and back drill to #40 and then to #30.

21) Countersink the six holes in the Brass Bushing for 1/8" Avex CS Rivets (RV-4412).

22) Trim the bracket as in Figure 6.5.9. Debur.



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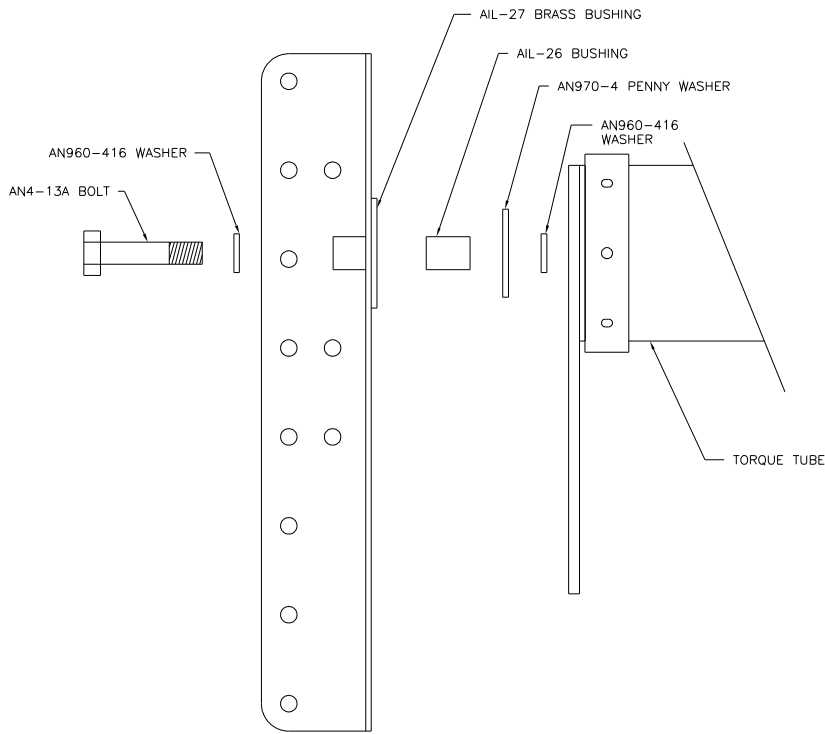
Fig. 6.5.9

23) Rivet the Brass Bushing to the trimmed Bracket with 1/8" Avex CS Rivets (RV-4412)

24) Rivet the Bracket to the Spar assembly with 3/16" Avex Rivets (RV-1621).

25) Remove the cut bolt from the Torque Tube.

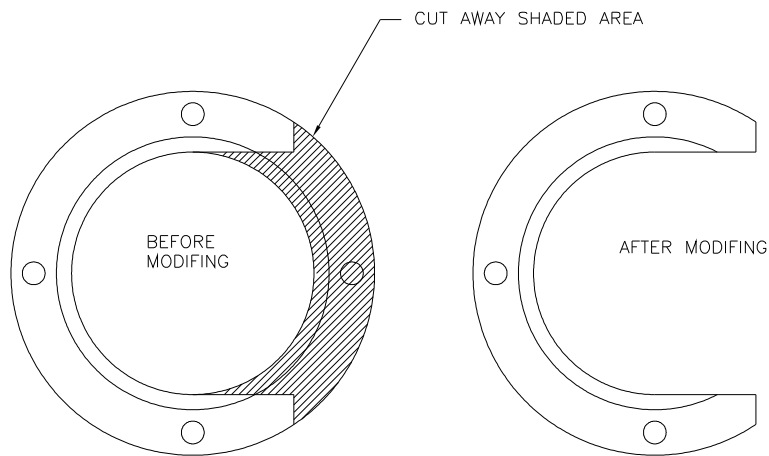
26) Attach the Torque Tube to the Bracket. Figure 6.5.10.



(DGM150)

Fig. 6.5.10

27) Modify a Delrin Bearing (CC0037) as in Figure 6.5.11.



(DGM151)

Fig.6.5.11

28) Slip the modified Delrin Bearing over the Torque Tube between station 6 and station 7. Figure 6.5.12.

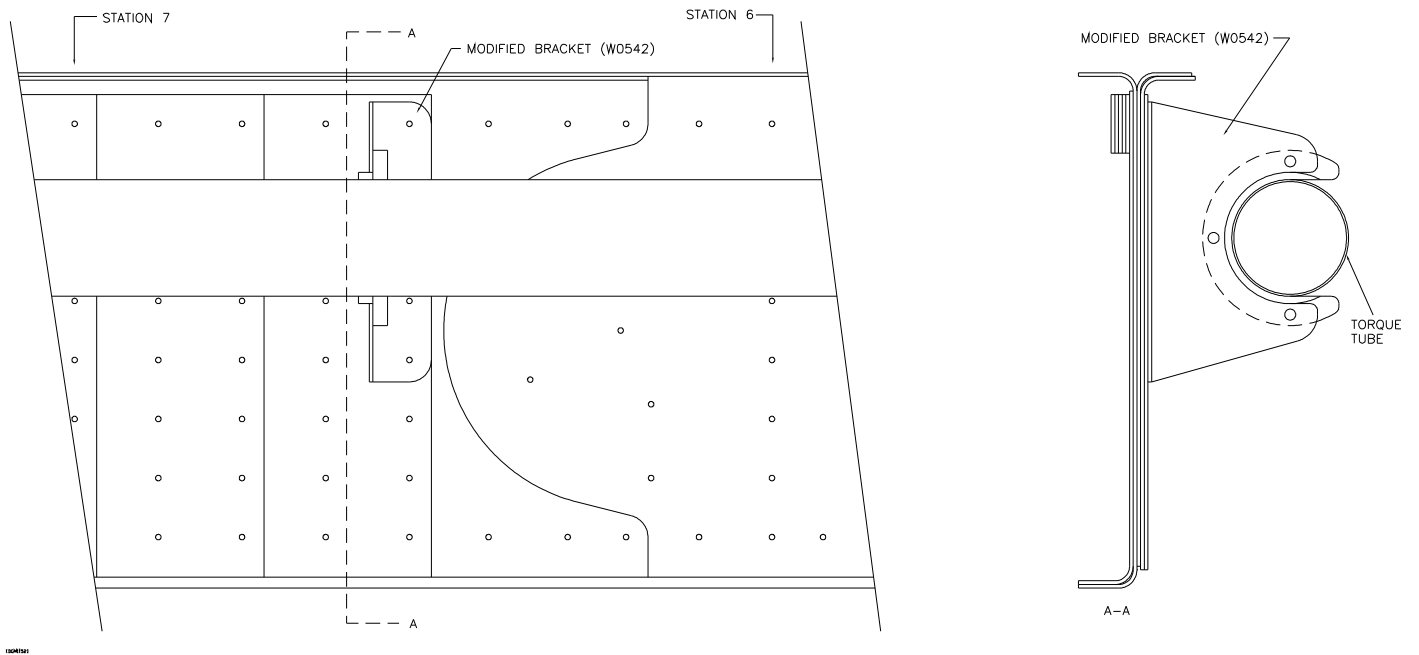


Fig. 6.5.12

29) Modify a Bracket (W0542) to rivet to the Spar and to which the Delrin Bearing can be bolted to Figure 6.5.12.

30) Install F5000-3 Anchor Nuts to the Bracket.

31) Use 3/16" Avex Rivets (RV-1621) to attach the Bracket to the Spar. Use AN509-1032R10 Machine Screws to attach the bearing to the Bracket.

NOTE: The bearing is required to prevent the Torque Tube from sagging during landing and high "G" maneuvers. The bearing is cut away in the front to allow the Torque Tube to be removed without having to remove the L.E. Skin.