

PROCEDURE 3.050
Installation of Aileron Torque Tube Assembly

In this procedure...

The aileron torque tube will be assembled and installed in the wing.

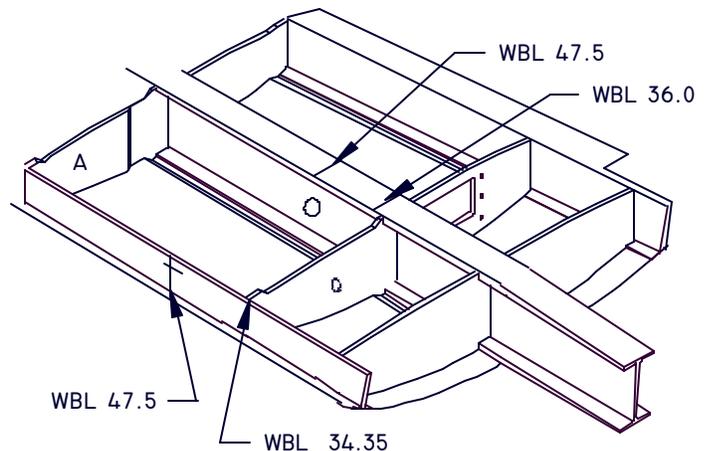
<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
111-24-050	Torque Tube, Aft	2
111-24-051	Torque Tube, Forward	2
111-24-052	Torque Tube, Collar	2
111-24-065	Bearing Bracket	2
111-24-053	Bearing Bracket, Shear Web	2
111-24-054	Washer, Nylon	2
J1812	Bearing	4
111-24-055	Backing Plate, Shear Web	2
K2000-3	Anchor Nut	8
AN3-10A	Bolt	16
AN960-10	Washer	24
AN365-1032	Nut	4
AN4-15A	Bolt	2
AN960-416	Washer	4
AN365-428	Nut	2

Step 1 Locate and drill Forward Shear Web mounting hole.

A. Measure 13.15" outboard from the centerline of Rib Q, along the forward shear web. Mark a vertical line on the aft side of the Shearweb. This line represents the vertical centerline of the torque tube, and will be used to position the Shearweb bearing bracket.

B. Measure 11.5" outboard from WBL 36 and mark a line of the main spar cap. Transfer this line down to the main spar web and mark a vertical line on the spar web. This line will be used to locate the position of main spar bearing bracket.

C. To locate the center point for the forward Shearweb bearing bracket, measure up from the surface of the upper wing skin 3.5", on the vertical line drawn in step 1 A. This point is the center of the forward shear web bearing support.

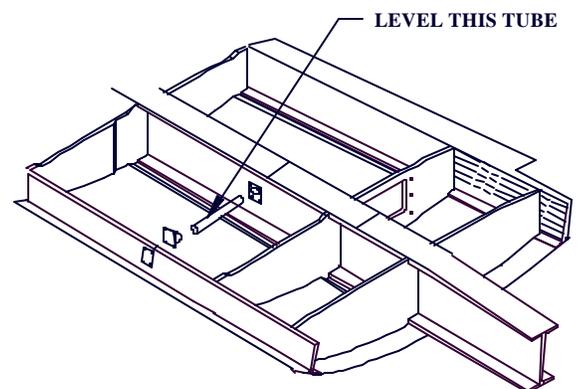


D Draw a parallel line 7/8" on each side of the torque tube centerline. Measure 2.75 inches up from the wing skin and draw a horizontal line across the vertical lines. Drill two, 3/16" holes through the Forward Shearweb. Install the bearing bracket (PN 111-24-053-02) and drill the two upper holes. Bolt the bearing bracket in place.

Step 2 Locate and Drill Hole in the Main Spar Web.

A. Assemble the forward torque tube assembly and place the forward end, in the bearing bracket. Hold the torque tube so that it is centered on the vertical line on the main spar web. Use a bubble level to insure that the torque tube is level with the wing and mark around the tube on the spar web. Determine the center of the circle and mark the center point.

B. Use a hole-saw and drill a 1 1/2" hole through the spar web.

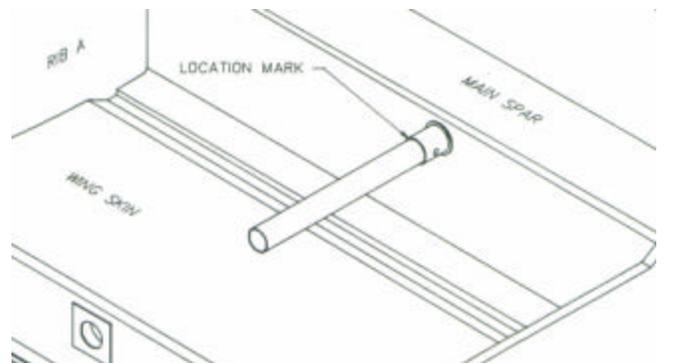
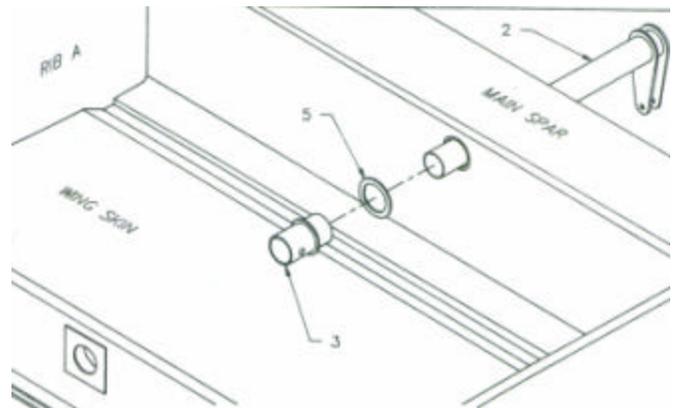


Step 3 Install Bearings in Shear Webs.

- A. Press the J1616 roller bearing into Bearing Supports (PN 111-24-053 and 111-24-065). Insert the bearing assembly into the hole drilled into the main spar web. Make sure the bottom of the bearing support is parallel to the spar and drill the four mounting holes.
- B. Temporally install two of the bolts to hold the bearing bracket in place.

Step 4. Assemble Torque Tube.

- A. Insert the aft torque tube assembly (2) through the main spar bearing from the aft side. Slide a nylon washer (5) and the short end of the torque tube collar assembly (3) onto the forward end of the aft torque tube.
- B. Insert the collar assembly (3) into the bearing until the collar seats against the bearing. Space the aft torque tube (2) so the forward surface of the forward horn is $\frac{1}{2}$ " from the main spar web bearing bracket. With the parts held in this position, make a mark on the aft torque tube at the forward end of the collar assembly.
- C. Remove the aft torque tube and collar assemblies and place them in a vice so they are aligned at the mark. Mark the center of the hole $\frac{1}{2}$ " from the marked end of the collar assembly, and perpendicular to the direction of the horn. Use a center punch to start the hole, and then drill a $\frac{1}{4}$ " hole through the torque tube and collar. Be sure to drill as close to the center and as perpendicular to the tube as possible.



Place the nylon washer (5) on the forward torque tube (1), and insert it into the bearing in the front shear web. Assemble the aft torque tube (2) and collar assembly (3) with a nylon washer into the wing, and insert a bolt (6) in the drilled hole. Put pressure on the parts so both collars and washers are seated against the bearings. With the parts held in this position, make a mark on the aft torque tube at the aft end of the forward torque tube assembly.

D. Remove the parts and position them in a vise so they are aligned at the mark and oriented so that both horns are parallel. Drill a 3/16" hole 1/2" from the marked end of the torque tube assembly, and perpendicular to the direction of the horn. Be sure to drill as close to the center and as perpendicular to the tube as possible.

E. Drill a 3/16" hole 1" from the marked end of the torque tube assembly, and perpendicular to the previously drilled hole.

F. Assemble the parts in the wing so all holes line up. Insert the bolts oriented as shown in the illustration, and attached the forward connections only with washers and nuts and tighten to 20-in/lb torques. Drill holes for inboard torque tube in Ribs Q and I, 14 1/2" from spar centerline and 3 3/8" from bottom of Rib EOP after Skin is fit.

