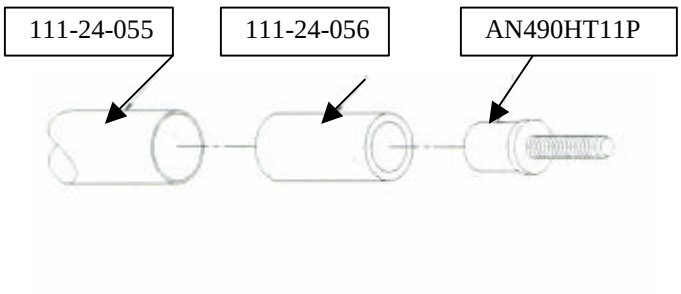
Procedure 3.070

Aileron Mid Push-Pull Tube Installation

In this procedure…
The mid aileron push-pull tube will be constructed.

For this procedure, the following parts will be required:

Part Number	Description	Quantity
111-24-055	Tube, Aileron Mid Push-Pull	2
111-24-056	Spacer, Aileron Push-Pull	4
AN490HT11P	Rod End	4
CR313-4-4	Rivet, Cherry Max	8
AN316-5	Nut, Check	4
GMW-3M-570	Bearing, Rod End	4
AN3-10A	Bolt	2
AN3-15A	Bolt	2
AN960-10	Washer	8
AN365-1032	Nut	4



Step 1. Locate and drill hole in Rib B for push-pull tube.

The initial holes in Ribs B and C are located and drilled first. Later, the push-pull tube will be trial fit, and the holes elongated to allow rotation of the bellcrank and torque tube.
To locate the hole in Rib B, measure 1" out from the main spar shear web, and draw a vertical line. Measure 3.25" down from the inside of the main spar cap, on that line, and make a mark. This is the center of the hole. Drill a 1.25" hole through the center mark with a hole saw. Drill from both sides of the rib, and try to drill as perpendicular as possible.

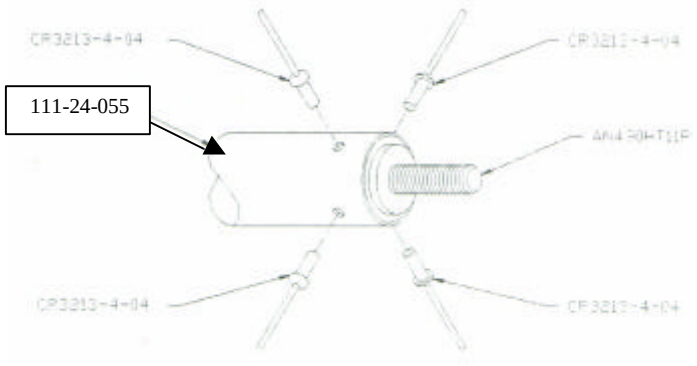
Step 2. Locate and drill hole in Rib C for push-pull tube.

To locate the hole in Rib C, measure 1.75" aft of the main spar shear web, and draw a vertical line. Measure 2.75" down from the inside of the main spar cap, on that line, and make a mark. This is the center of the hole. Drill a 1.25" hole through the center mark with a hole saw.

Step 3. Locate and drill hole in Rib H

Measure aft of the main spar shear web 2.0" and make a mark on rib H. Now measure up from the skin 3.0", at this location and make a mark. The intersection of these two marks is the center of the access hole. Drill a 1 ¼" hole using a hole-saw.

Step 4. Attach rod end and spacer to tube



Measure 70 ¼" on the push-pull tube and mark the tube. Use a tubing cutter and cut the push–pull tube to this length. Slide a spacer (111-24-056) onto the unthreaded end of a rod end. Insert the spacer and rod end into on end of the push-pull tub. The tube may require some filing on the inside to fit the spacer. Drill a No.30 rivet hole .375 inches from the end of the tube, through the center of the tube, spacer, and rod end. Rivet in place. Drill a second rivet hole at 90° to the first hole. Install the remaining Cherry Max Rivets into the holes. Install the spacer and rod end to the other end of the tube in the same manner.

Step 5. Attach rod end bearing to rod end.

The rod end bearing has a threaded shank, which the rod end attaches to. There is an inspection hole in the shank to allow for checking the minimum thread contact of the rod end.

Screw a check nut (AN316-5) all the way onto the rod end. Screw a rod end bearing onto the rod end just until the shank reaches the inspection hole. Use a light behind the hole if necessary, to see the shank. Slowly screw the bearing in by hand until it gets tight, counting the number of turns. Now back it out ½ the number of turns. This centers the shank in the available threaded area, allowing the most room for adjustment in either direction. Back the check nut out and tighten it to the bearing.
Repeat this step to the other end of the push-pull tube.

Step 6. <u>Attach Push-Pull Tube to Torque Tube and Bellcrank.</u>

Slide the tube through the holes in ribs B and C. Temporarily bolt the rod end bearing to the bellcrank. Insert a bolt through the bellcrank and bearing, and attach with a non-locking nut. Tighten hand tight.
Remove the aft connection on the torque tube, and slide the torque tube aft through the main spar. Insert the rod end bearing between the aft torque tube horns so the holes line up, and attach with a bolt (AN3-10A) from the forward side. This rod end bearing and bolt should not need removal during this installation. Torque this bolt to 25 in/lb. Move the torque tube through its motion and insure that the tube does not come in contact with any of the ribs, which it passes through.