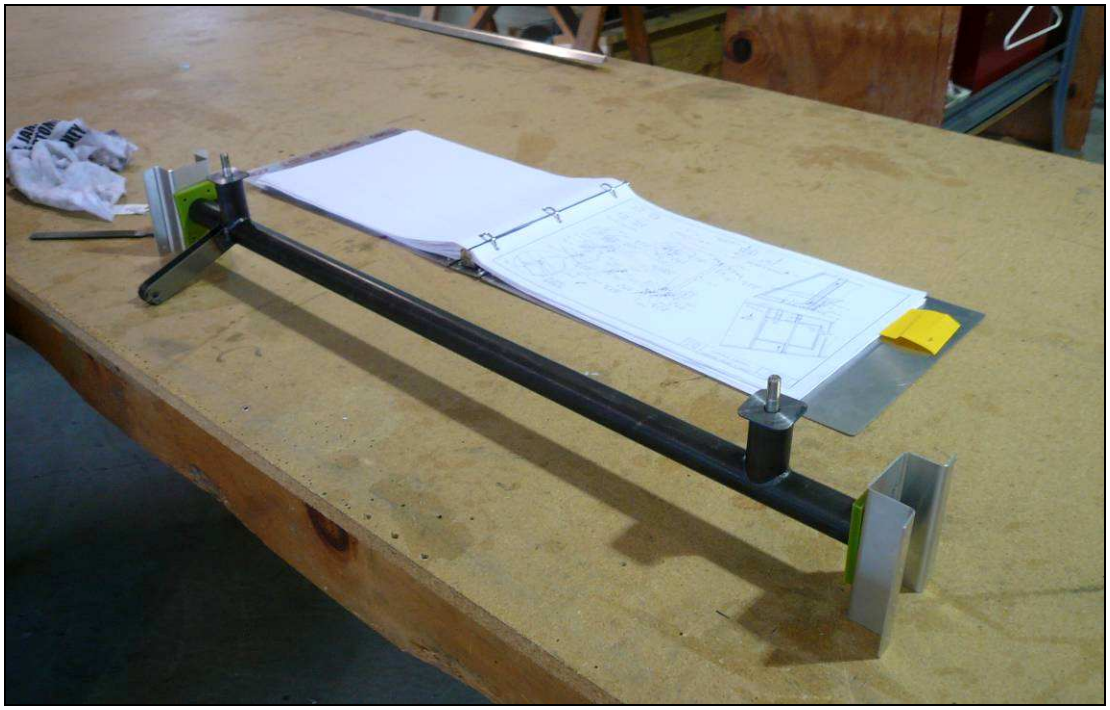
Section C75-CA-1
Flaperon Controls

This manual has been prepared for assembly of the Flaperon Controls. This photo assembly manual is intended as a supplement to the drawings. If there is any discrepancy between this manual and the drawings, the drawings supersede this manual. For more information on building standards and allowable tolerances see “Construction Standards for Zenair Light Aircraft” available from Zenith Aircraft Co.



P/N: C75C1-4
Mixer Bearing

P/N: C75C1-5
Mixer Bearing Support

P/N: C75C1-6
Control Mixer

Cleco the Mixer Bearings to the Mixer Bearing Supports. Slide the Control Mixer into the Bearings. There is a top and bottom side to the Mixer Bearing and Support. See drawing C75-CA-1. The tabs on the Control Mixer will not hit the bolts on the support.

Remove the Baggage Floor from the Rear Fuselage. Slide the Mixer assembly into position in the Rear Fuselage. Cleco the Mixer Bearing Supports to the Side Skins. Wait to expand the holes until the vertical L Angle is installed on the aft rivet line of the Mixer Bearing Supports.

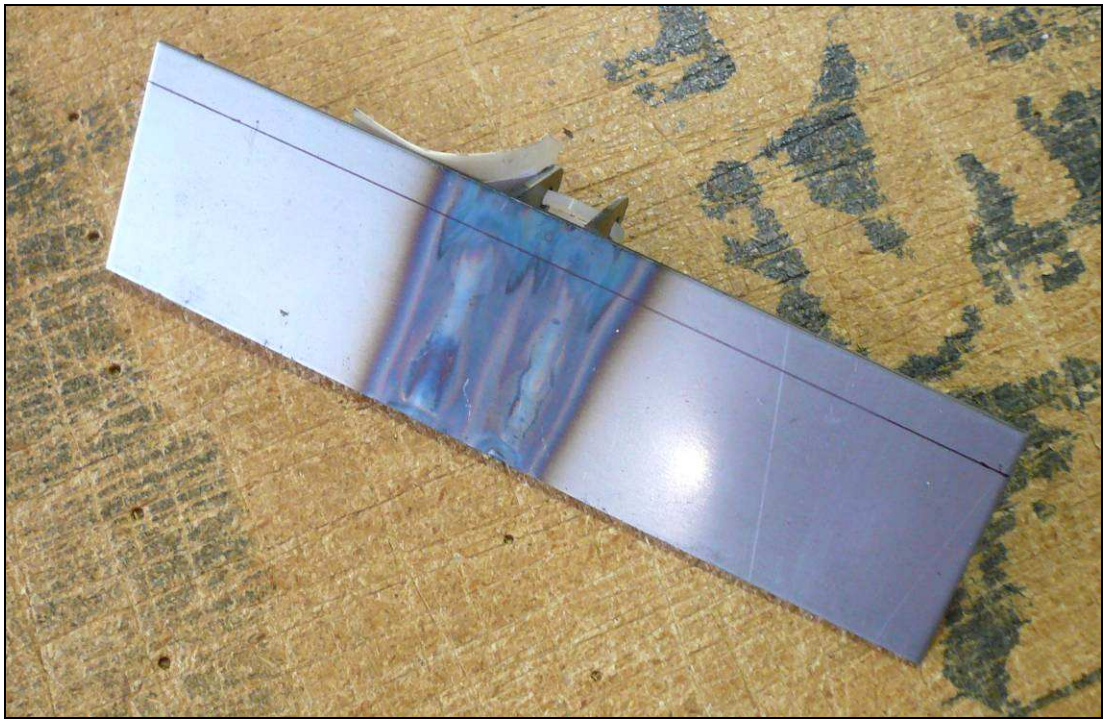
Cut an L angle 303mm long. Position the L Angle against the tab on the Longeron and against the inside of the Bearing Support. Clamp the L Angle to the Bearing Support. With a #40 drill bit, back drill through the Skin into the L Angle and Cleco. Expand the holes with a #20 drill bit and Cleco.

P/N: 75C1-2
Linear Actuator

Use a ¼" drill bit to open the mounting hole and the actuator hole on the Flap Actuator.

P/N: C75C1-3
Linear Actuator
Control Rod

Install the Linear Actuator Control Rod on the Linear Actuator. Install the Jam Nut along with the Rod End on the end of the Linear Actuator Control Rod.

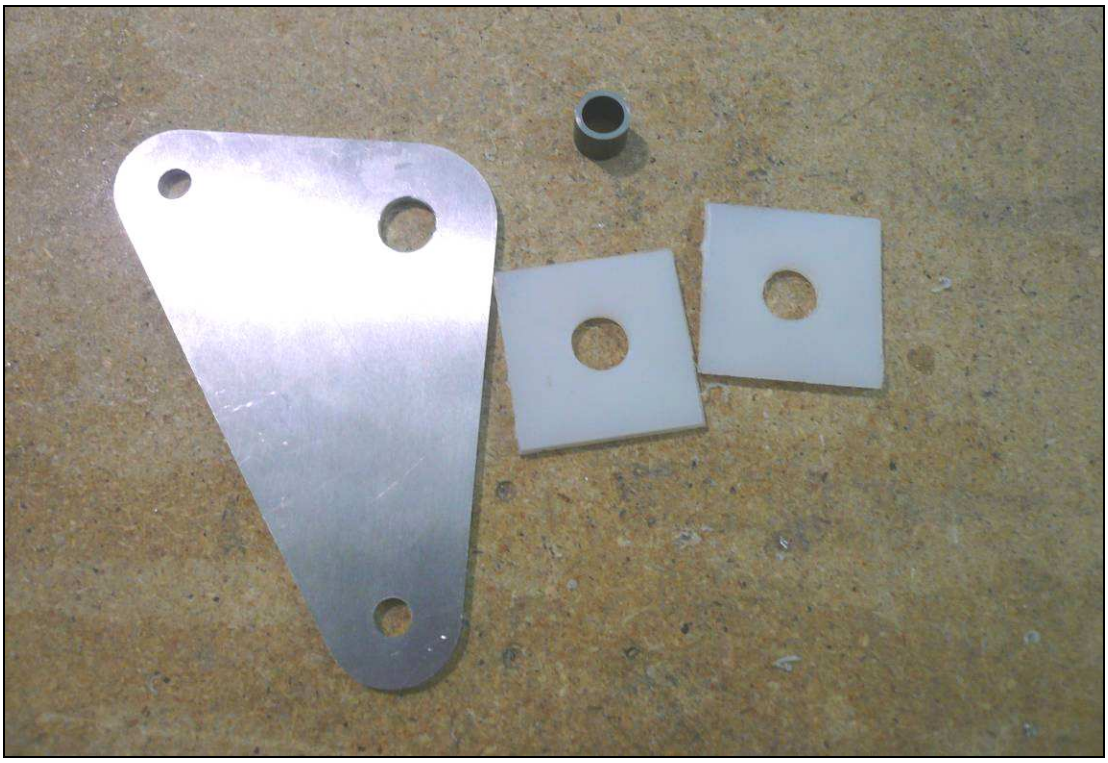


P/N: C75C1-1
Linear Actuator
Mount

Draw a line 10mm from the aft edge (the edge towards the Linear Actuator mounting hole).

Screw the rod end in all the way as shown in the above photo

Bolt the Rod End on the Actuator Rod to the Mixer. Then position the Actuator Mount so the line is visible through the predrilled holes in the Bottom Skin. With a #40 drill bit, back drill through the Skin into the Mount and Cleco. With a #20 drill bit, expand the holes and Cleco. Adjust the Rod End so the arms of the Mixer are above level the same angle as when the Flaps are deployed. Use a 9 volt battery to actuate the Flap Actuator to check the angle.



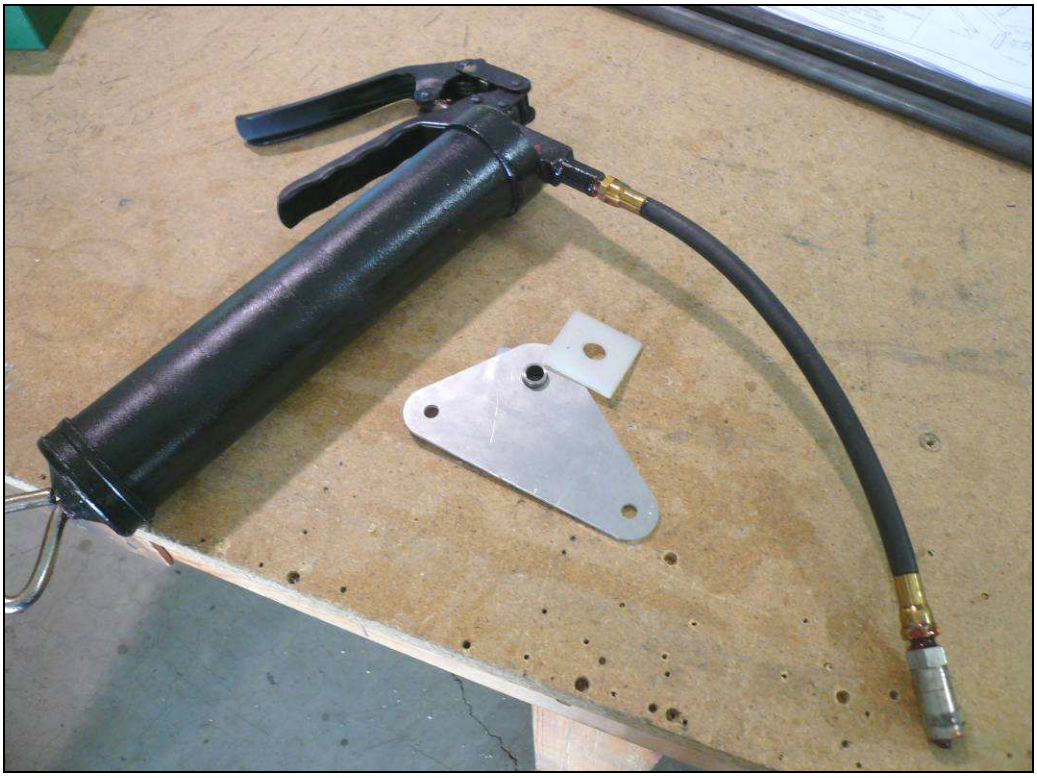
P/N: C75C1-7
Flaperon Bellcrank

P/N: C75C1-8
Flaperon Bellcrank Bearing

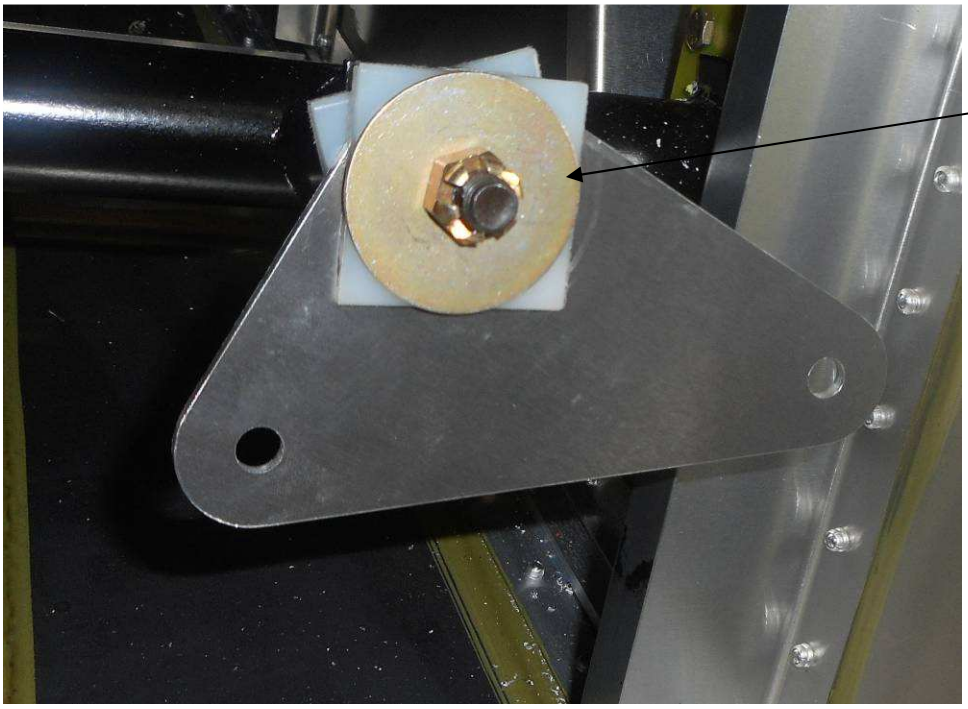
P/N: C75C1-9
Flaperon Bellcrank Bushing

Mark the center of the Flaperon Bellcrank Bearings. With a #40 drill bit, drill a hole in the center of the Bearing. Expand the hole up to ½" in steps. It is helpful to clamp the Bearing in a vise to prevent it from spinning while drilling the holes.

Use a ½" drill bit to expand the mounting hole in the Flaperon Bellcrank. See drawing C75-C-1 or 75-CA-1 for the specific hole if in question.



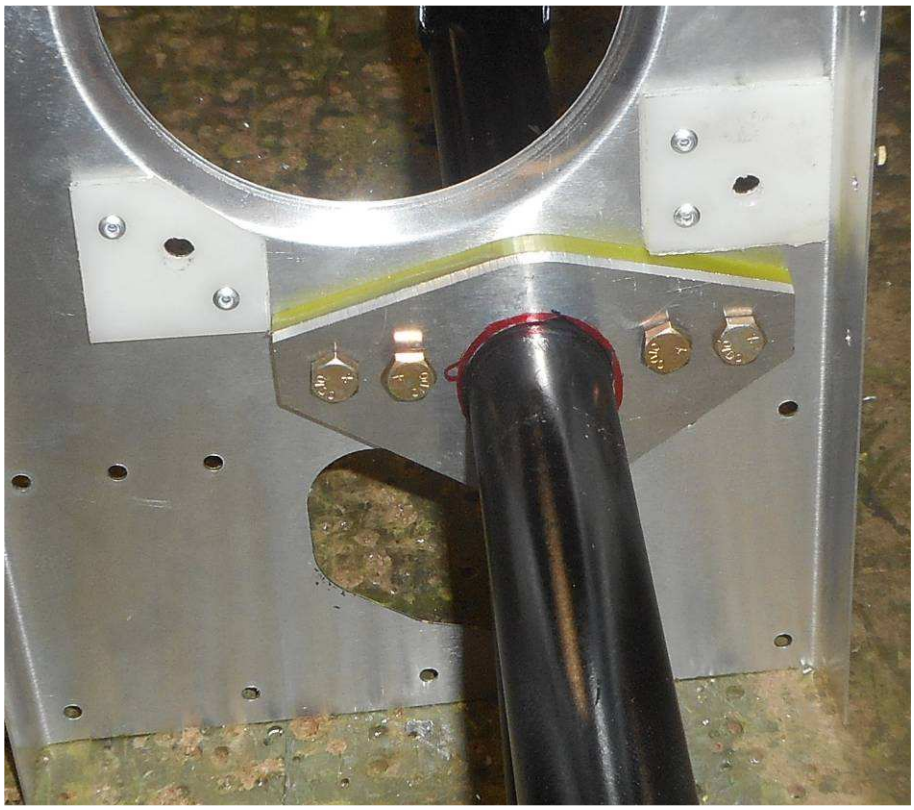
The Flaperon Bushing should turn freely in the Bellcrank, make sure the hole is large enough for it to turn but not be too loose. Grease the outside of the Bushing and the faces of the Bearings that contact the Bellcrank.



Slide the Bushing on the stud of the Mixer. Put grease on the plate on the Mixer and install the first Bearing, followed by the Bellcrank and second Bearing. Tighten the Castle Nut on the Stud and secure with a Cotter Pin. Do this on both sides of the Mixer.

P/N: C75C2-3
Rear Torque Tube
Bearing

P/N: C75C2-4
Rear Torque Tube
Bearing Doubler



On the aft side, the Flaperon stops C75Z1-12 are bolted Through the AN3 bolts (ref. DWG C75-ZA-6)

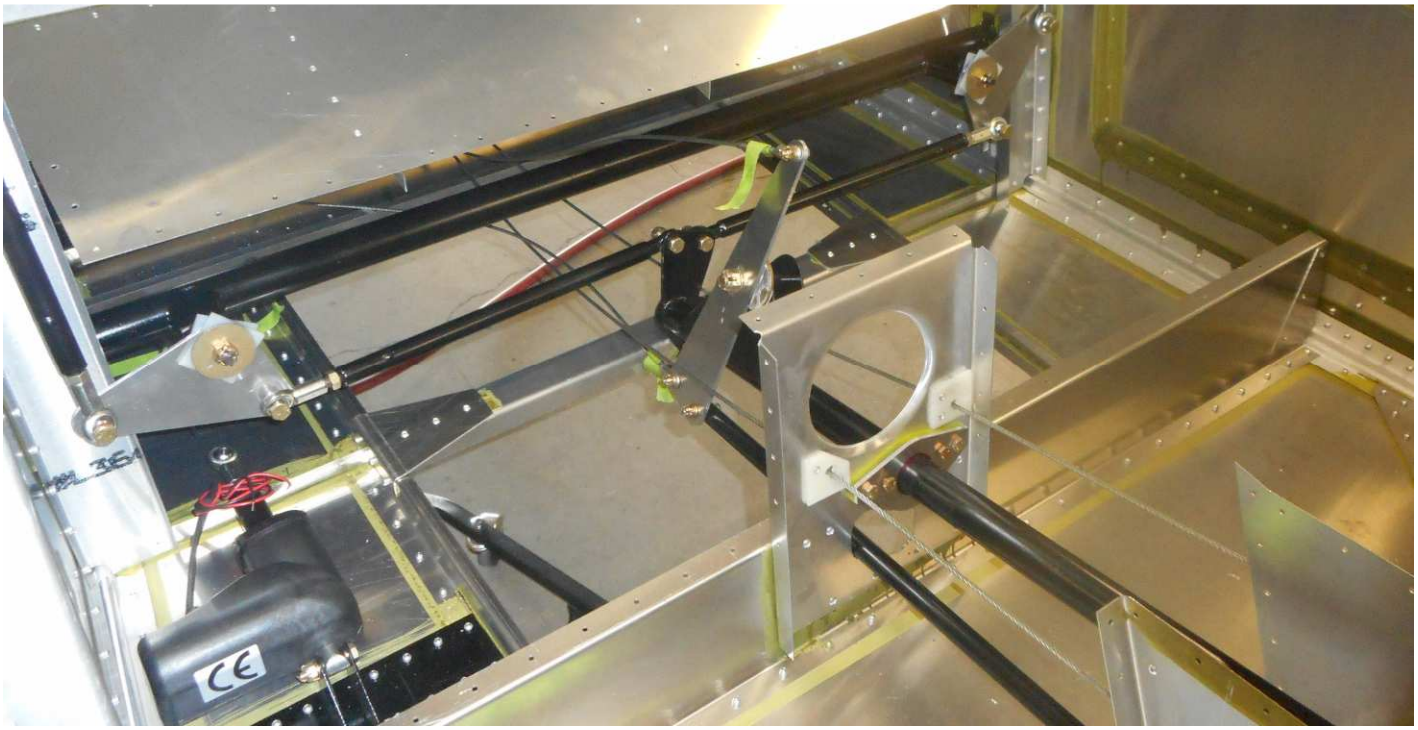
The Bearing is sandwiched between the Bearing Support and the Bearing Doubler

Bolt the Torque Tube Bearing and Doubler to the Torque Tube Bearing Support

P/N: C75C2-5
Torque Tube

P/N: C75C2-9
Stop Ring

Remove the Stop Ring from the end of the Torque Tube



The 15mm x 20mm plate welded on the Torque Tube Bearing is against the Bearing Support (back side)

FRONT

BACK SIDE

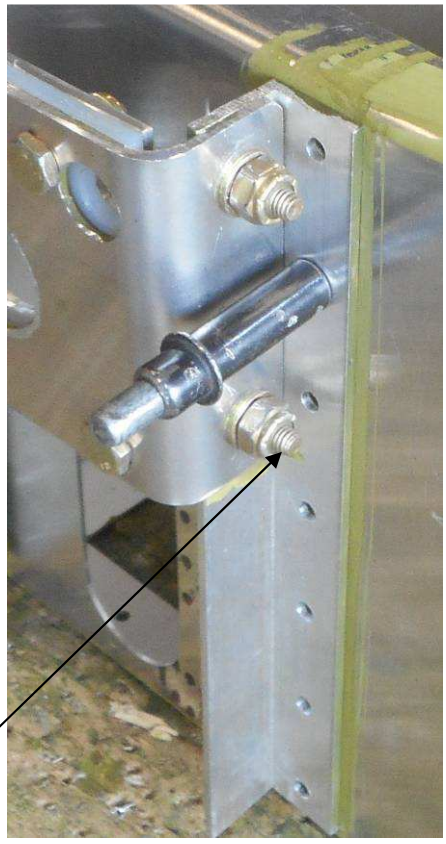
P/N: C75C3-1
Front torque Tube Bearing

Note: At the top of the Bearing the flange measures 27mm.

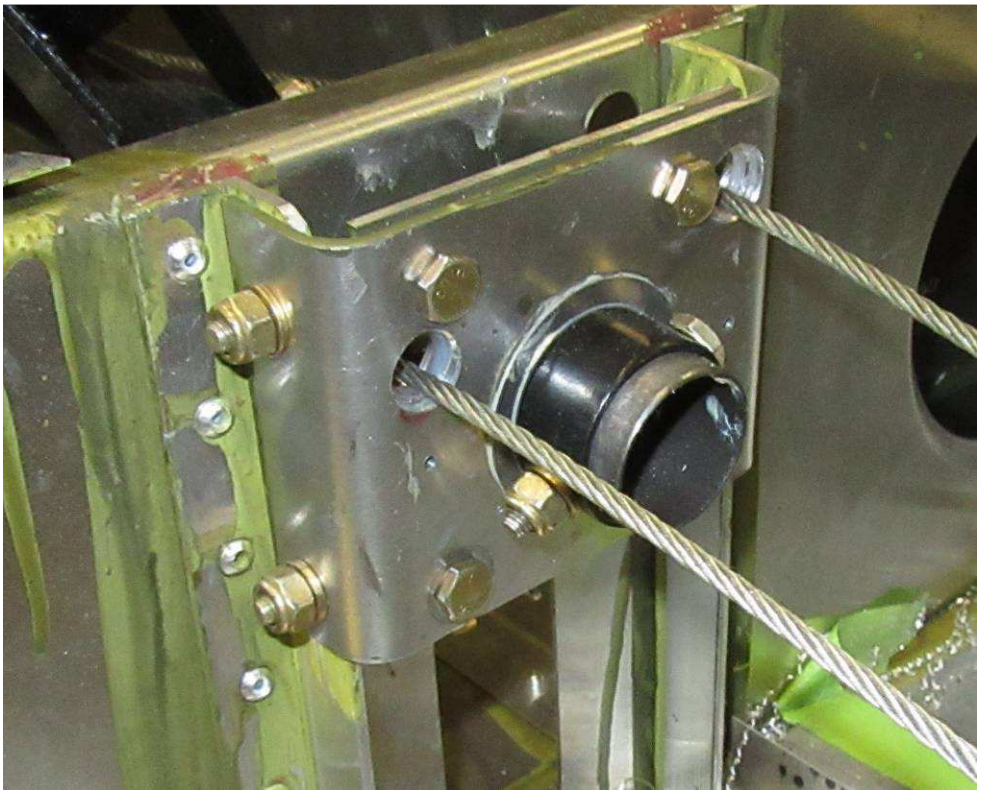
P/N: C75C4-4
Front Torque Tube Bearing Rudder Fairlead

P/N: C75C4-5
Front torque Tube Bearing Doubler

The Fairlead is sandwiched between the bearing and the doubler. 4 bolts AN3

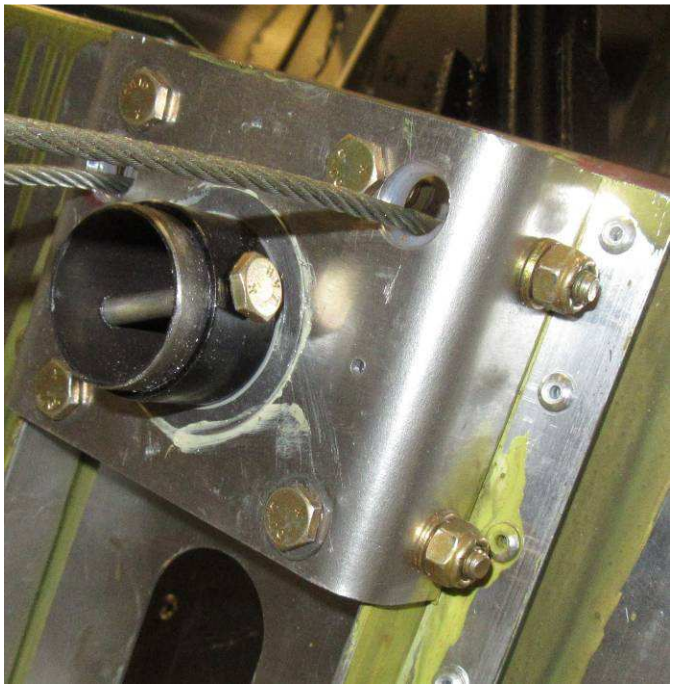


Check that the bolts will not intefer with the rivets



P/N: 3088A417
Stainless Steel Shim

4 bolts AN3



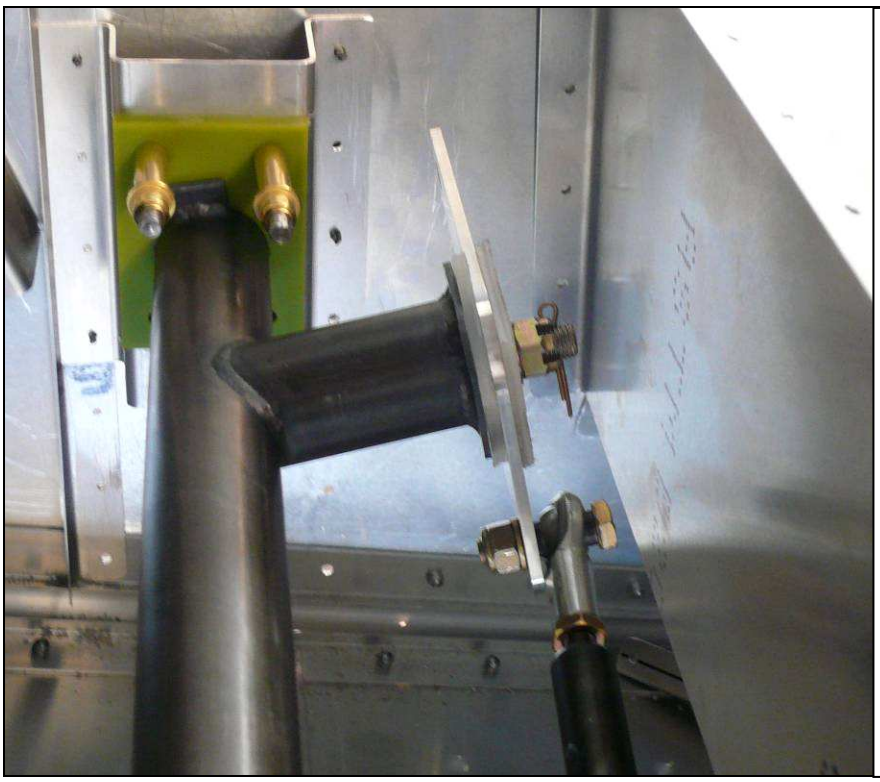
The welded tab on the torque tube make contact with the Bearing support C75F5-1.
Install the Stainless Steel Shim and Stop Ring on the end of the Torque Tube.

P/N: C75C2-1
Horizontal Flaperon Control Rod

P/N: C75C2-2
Control Rod Bushing

Thread the Jam Nut on the end of the Control Rod then thread on the Rod End.

Install the Bolt on the Torque Tube. Slide the first Rod Bushing on the bolt, followed by the Control Rod and a second Bushing. Tighten the nut and properly torque the nut on the bolt.



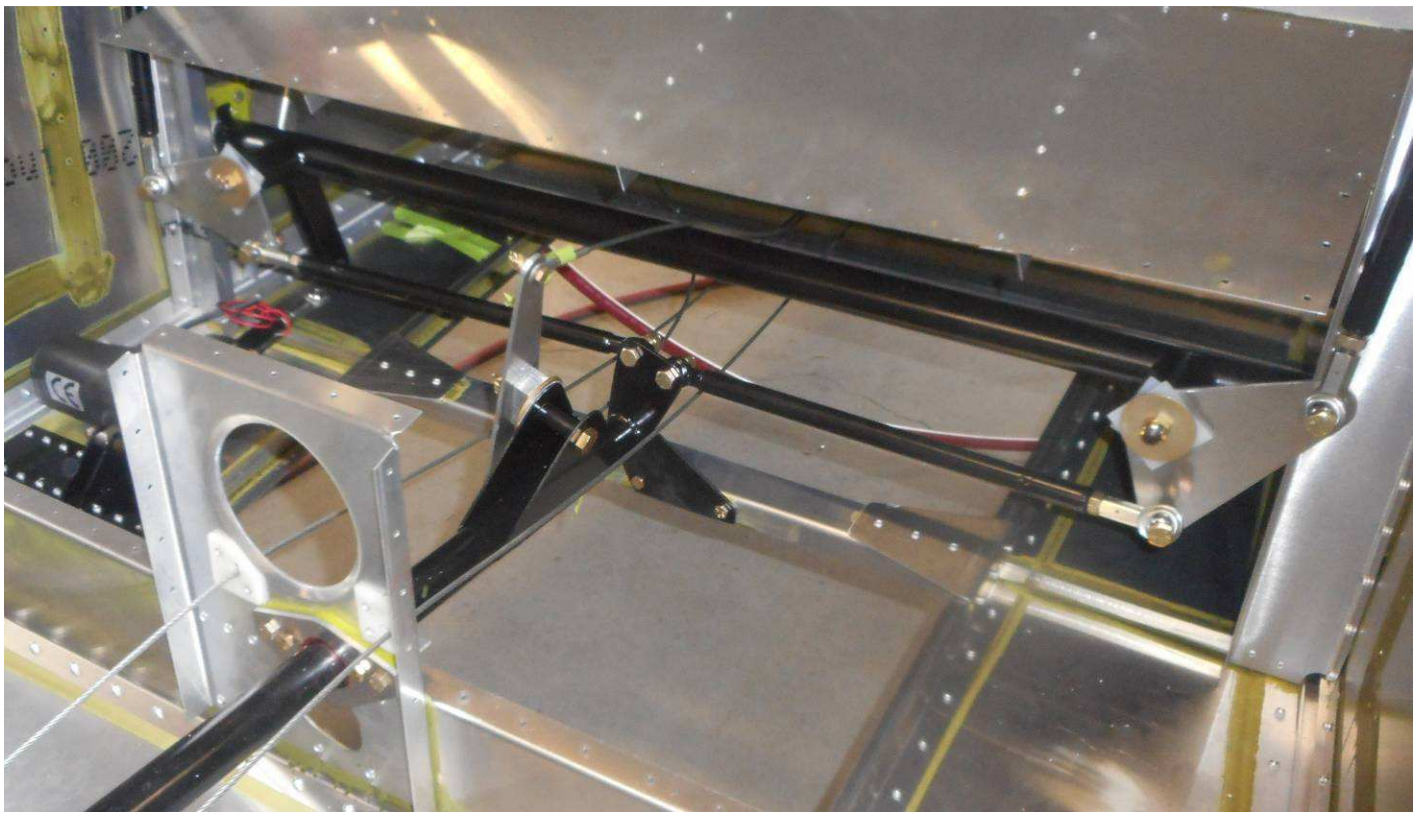
Check: The welded tab is below the bolts
Note: the center of the 30.8mm hole is 30mm Up from the bottom C75C1-4

Install a Bushing on the bolt, followed by the Control Rod End and an additional Bushing. Then install the assembly on the Bellcrank attached to the Mixer. Adjust the Rod End so the top of the Bellcrank is parallel to the cross tube of the Mixer. Wait to torque the nut on the bolt until the Wings are installed in case some adjustment is required to properly set the Flaperon Neutral Position.

P/N: C75C1-10
Vertical Flaperon
Control Rod

P/N: C75C2-2
Control Rod Bushing

Thread the Jam Nut on the end of the Control Rod followed by the Rod End.



Slide one Bushing on the Bolt, followed by the Rod End on the Control Rod with a second Bushing after it. Install the assembly on the Bellcrank on the Mixer. Don't torque the nut until after the Wings are installed to make adjustments for the Neutral Position of the Flaperons.