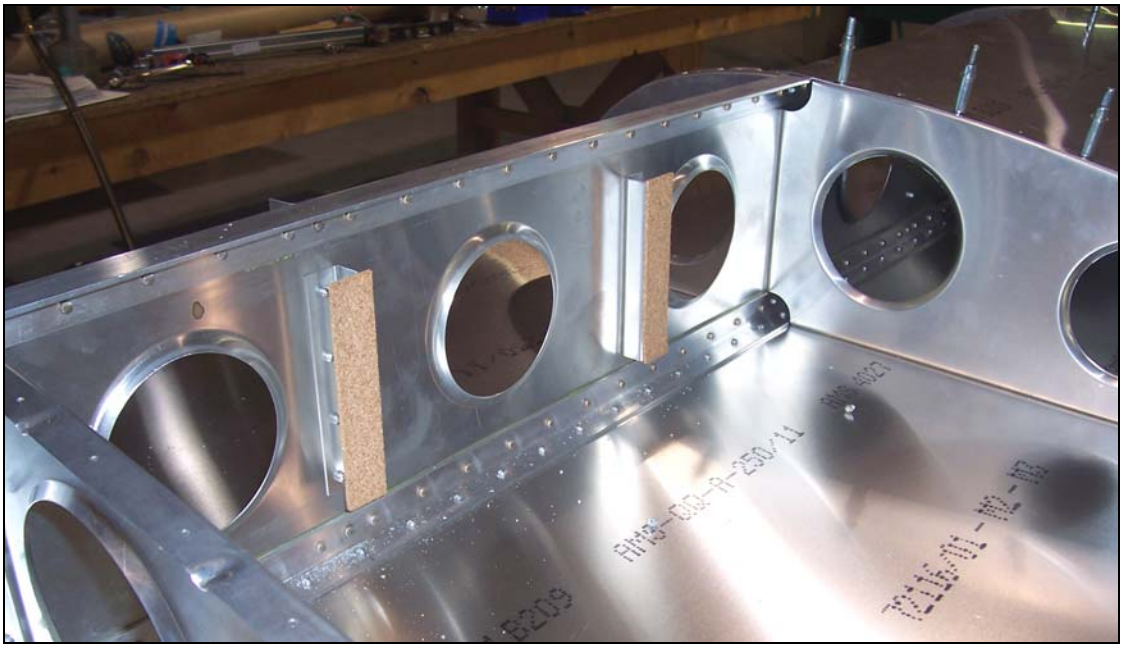
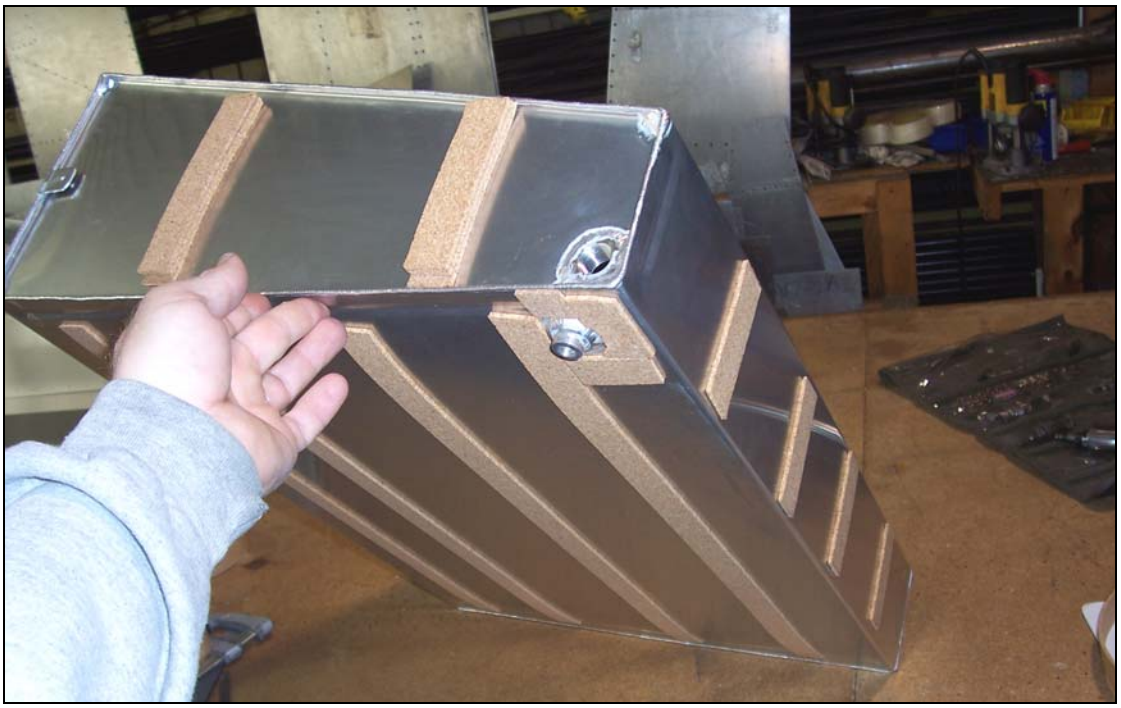
Section 75-KA-1
Fuel System

This manual has been prepared for assembly of the fuel system. 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.



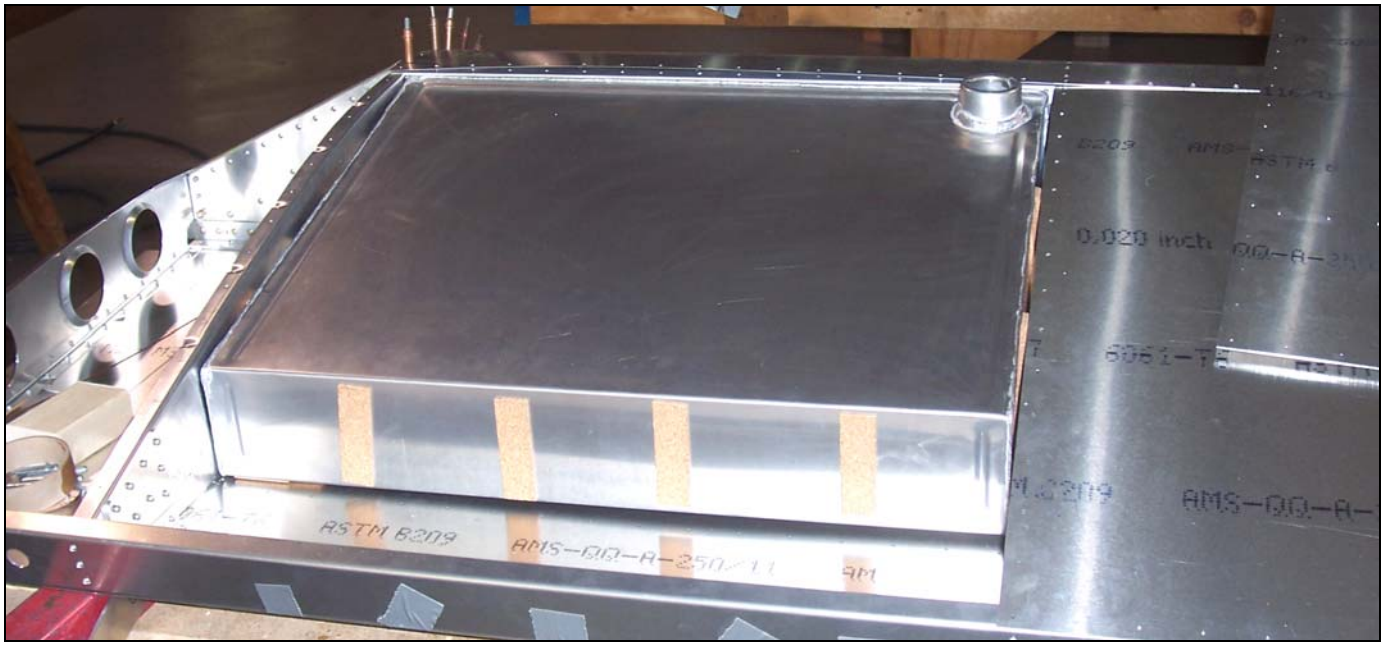
Install Cork Strips on the Web Channels riveted to the Wing Spar. At least one layer of Cork is required, using 2 layers is normal. The Cork Strips will prevent the Fuel Tank from shifting in the Wing and prevent wear on the Fuel Tank or Wing Structure.



P/N: 75K1-1
12 Gallon Fuel Tank

Put Cork Strips on the Fuel Tank. Be sure to carefully cover the area around the Drain Outlet. Build up enough layers on the Fuel Tank ends to take up the gap between the web of the end and the flange.

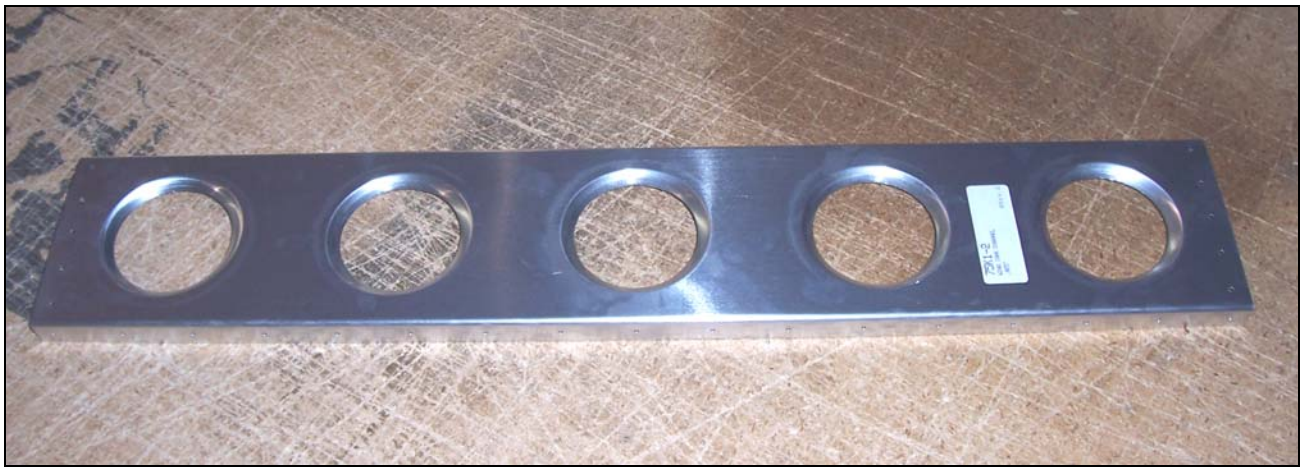
Check: Be sure the Cork Strips are between the lightening holes in the Ribs and the Fuel Channel.



Set the Fuel Tank in place in the Wing. The Fuel Tank should fit tightly between the Ribs. If needed add more Cork Strips to the Fuel Tank.

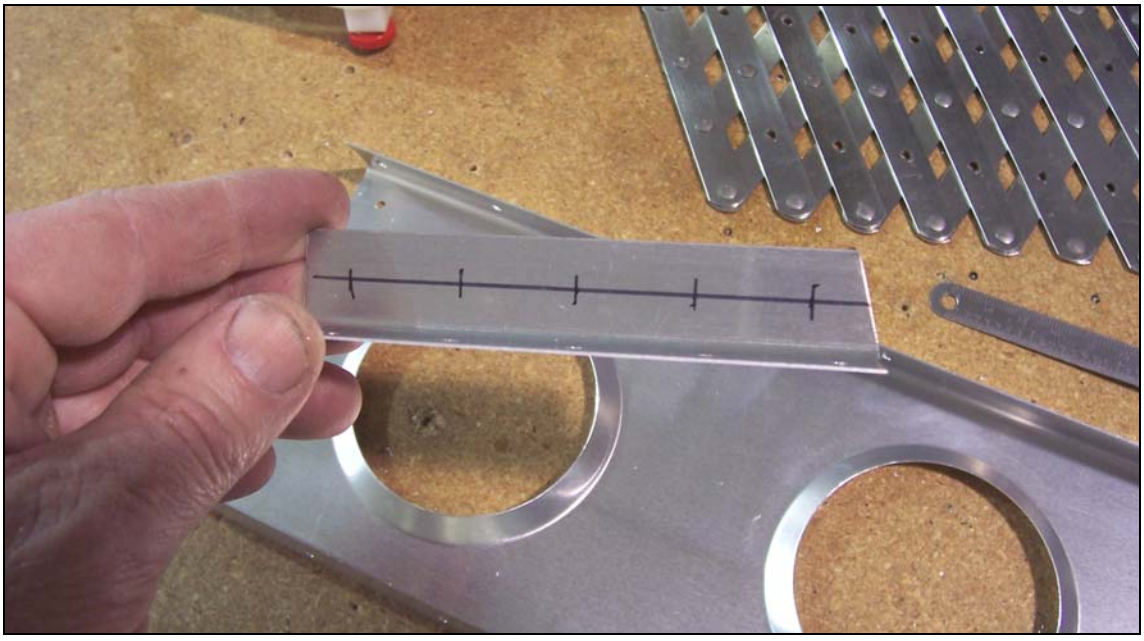
Orientation: The Filler Neck should be on the outboard side.

Check: Be sure the Fuel Tank doesn't make contact with the structure of the Wing. The Fuel Tank is completely supported by the Cork Strips.

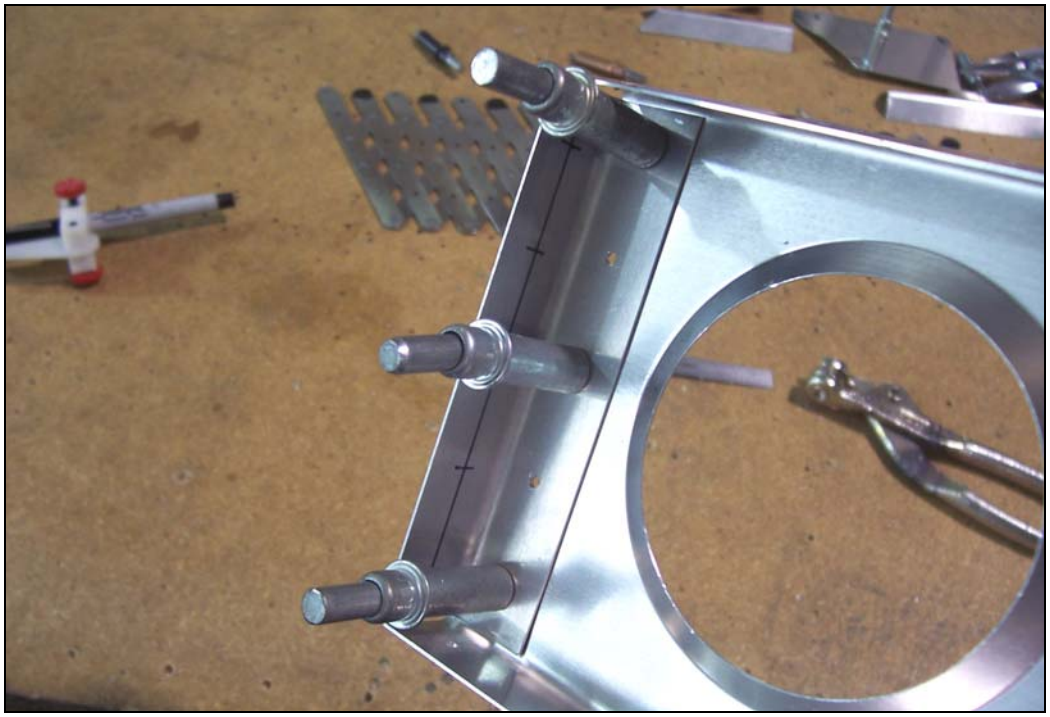


P/N: 75K1-2 Fuel Channel

Set the Fuel Channel in the Wing against the Fuel Tank. Center the Fuel Channel between the Rear Ribs. With a #40 drill bit, back drill through the Fuel Channel into the I/B Bottom Skin. Cleco the Fuel Channel to the I/B Bottom Skin. Expand the holes with a #30 drill bit and Cleco as the holes are expanded.



Cut 2 pieces of L angle to 113mm long. Crop the top corner so it won't interfere with the top flange of the Fuel Channel. On the flange that has the cropped corner, draw a center line. Mark a rivet hole location 10mm from each end of the flange. Evenly place 3 more rivet locations on the flange of the L angle. With a #40 drill bit, predrill the holes in the L angle.



Draw a center line on the other flange of the L angle. Position the L angle on the Fuel Channel so the line is visible through the predrilled holes in the Fuel Channel. Clamp the L angle in place and back drill with a #40 drill bit through the Fuel Channel into the L angle, Cleco the L angle to the Fuel Channel as the holes are drilled.

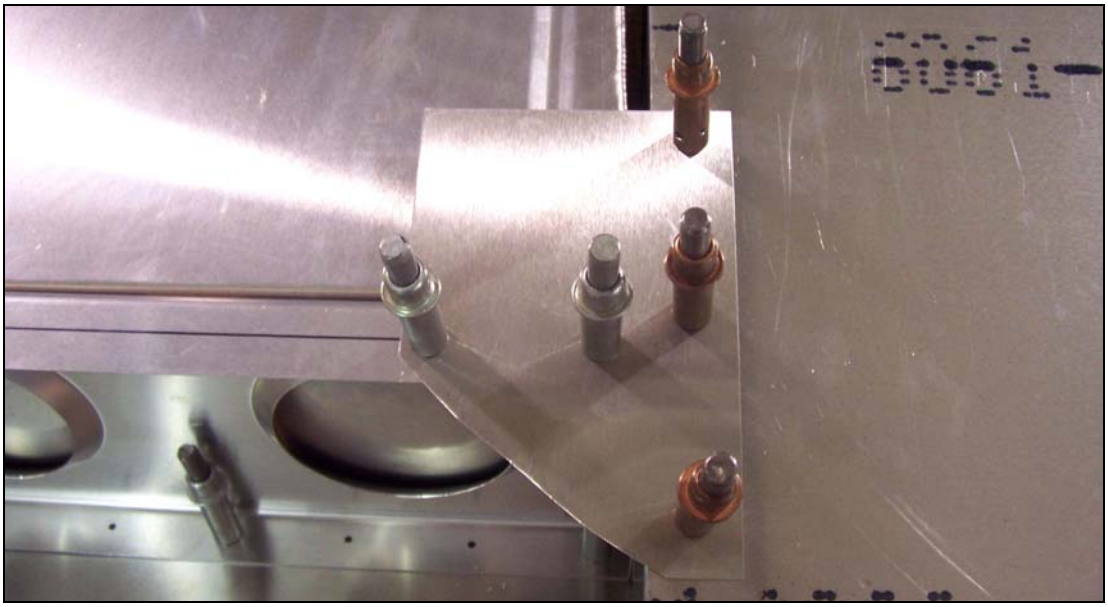
Check: Check the position of the L angle by setting the Fuel Channel in the Wing before drilling the L angle to the Fuel Channel.

With a #30 drill bit, expand the holes in the L angle and Fuel Channel, Cleco the holes as they are drilled. Remove the L angle from the Fuel Channel, deburr, and rivet the L angles to the Fuel Channel.

Note: The rivet head should be on the front face of the Fuel Channel to prevent the rivet from making contact with the Fuel Tank.

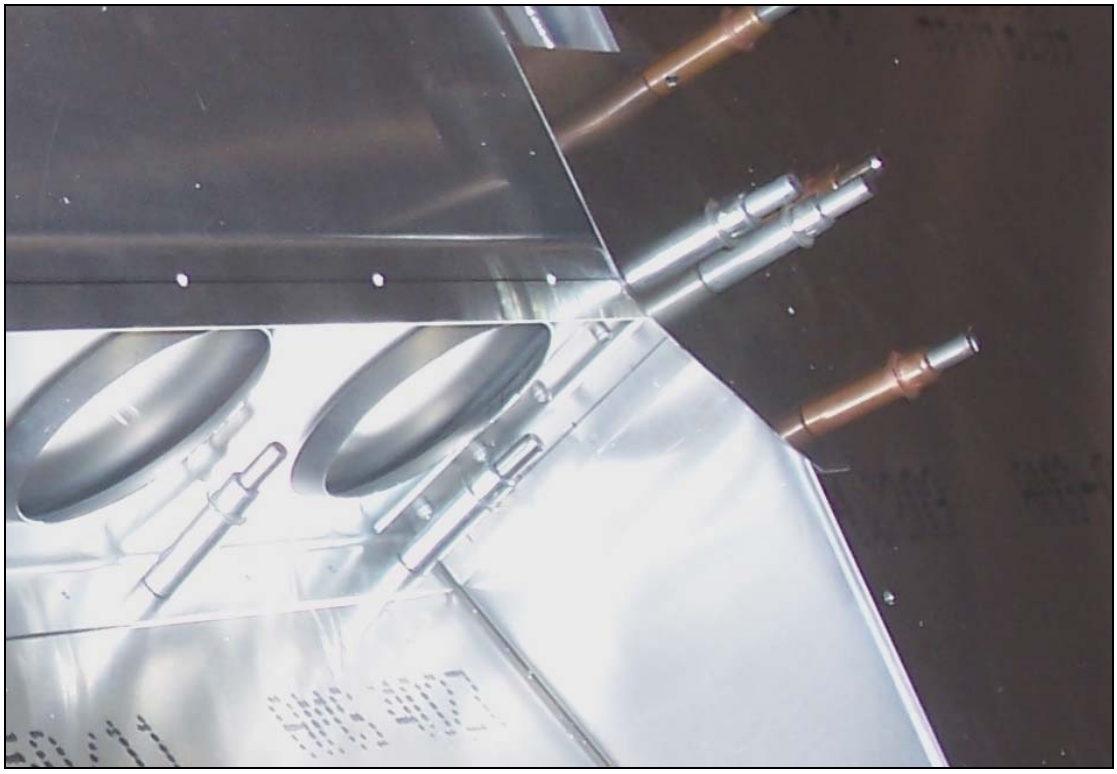
Draw a center line on the top flange of the Fuel Channel. Place a mark for a rivet hole 10mm from each end of the Fuel Channel on the top flange. Layout the rivet line on the top flange to pitch 40. With a #40 drill bit, predrill the Fuel Channel top flange.

Note: The L angles installed in the previous step are not shown in the photo above.

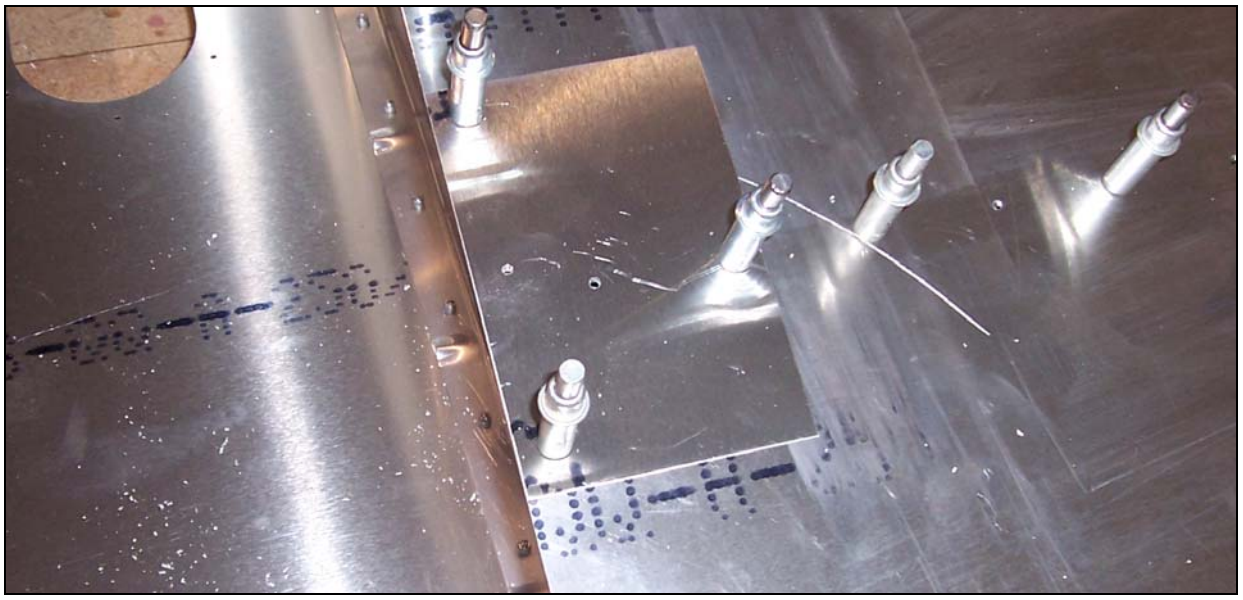


Cleco the Fuel Channel to the I/B Bottom Skin. Slide a piece of scrap material under the O/B Top Skin, shown on top in photo above. Back drill through the O/B Top Skin into the scrap material, then Cleco the scrap. Back drill through the Fuel Channel into the scrap material. Use a second piece of scrap material at the opposite end of the Fuel Channel.

Check: Be sure the Fuel Channel is tight against the Fuel Tank before back drilling the scrap material.



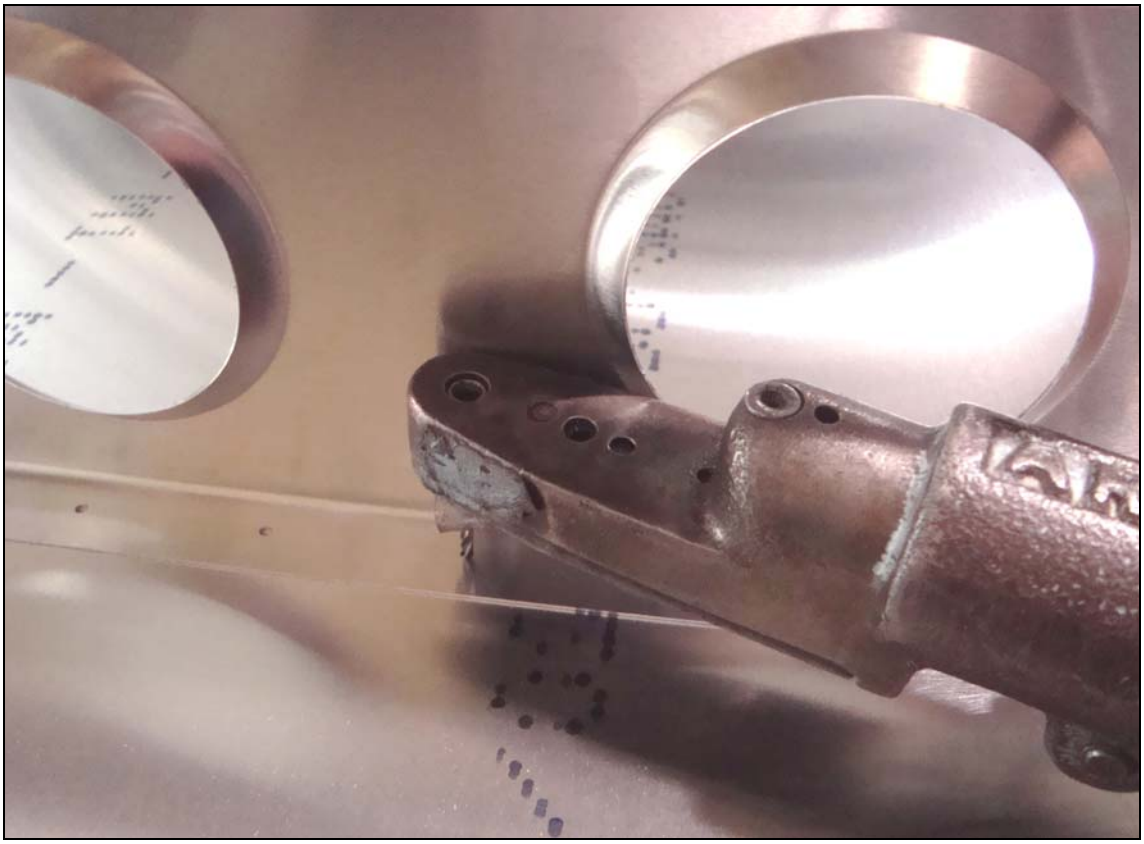
With a #30 drill bit, back drill through the L angle into the Rear Rib (the Clecos in the bottom flange of the Fuel Channel in the photo should be on the outside of the wing as they will be in the way).



Cleco the I/B Top Skin to the Rear Ribs. Cleco the pieces of scrap material to the Rear Ribs on top of the I/B Top Skin. This will give the locations for a couple holes into the Fuel Channel. Back drill through the scrap material into the I/B Top Skin.

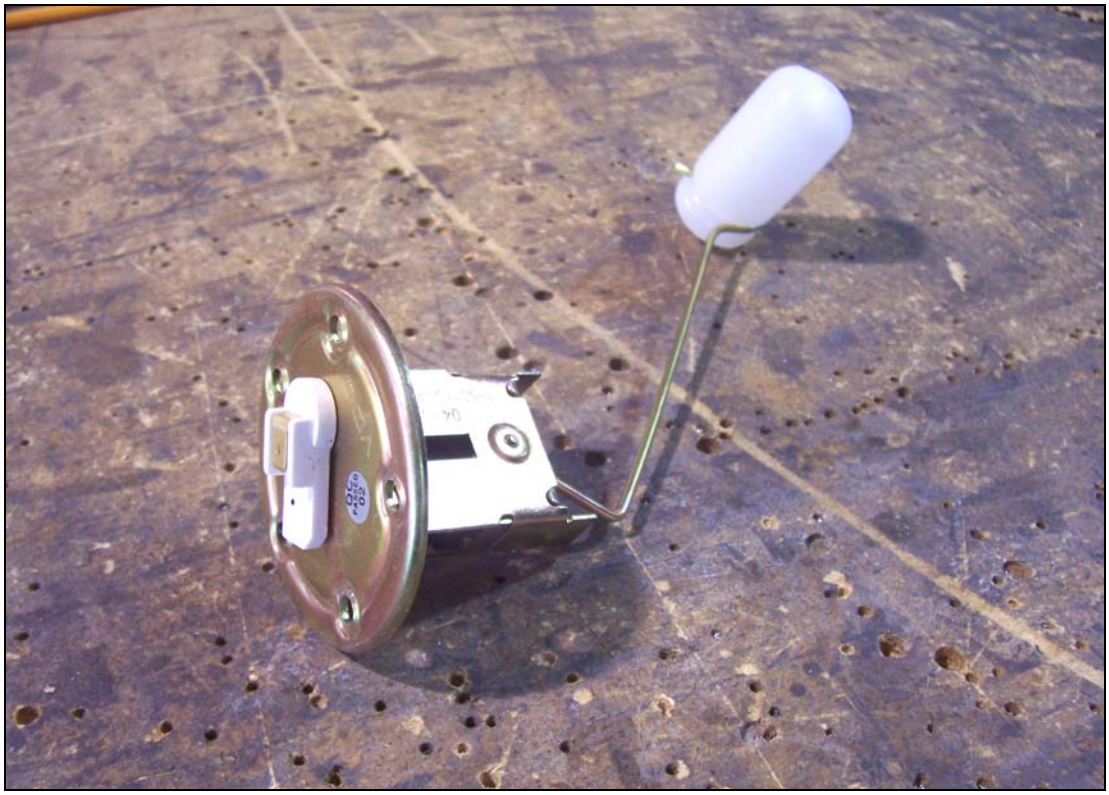
Note: In the photo above the I/B Top Skin has already been drilled for the remaining holes in the top flange of the Fuel Channel, this is done in the next step.

Check: Be sure the scrap is Clecoed in the correct location before drilling the I/B Top Skin.

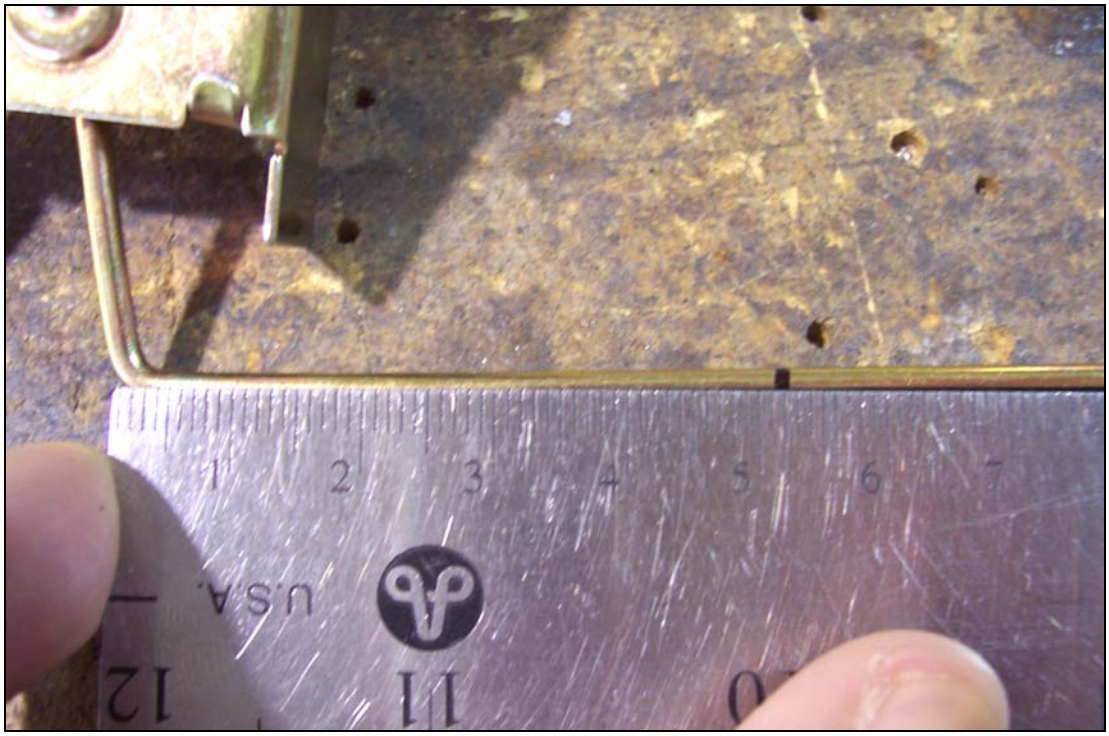


Remove the I/B Top Skin from the Wing. Cleco the Fuel Channel to the I/B Top Skin in the holes drilled using the scrap material as a guide. Back drill the holes in the top flange of the Fuel Channel into the I/B Top Skin.

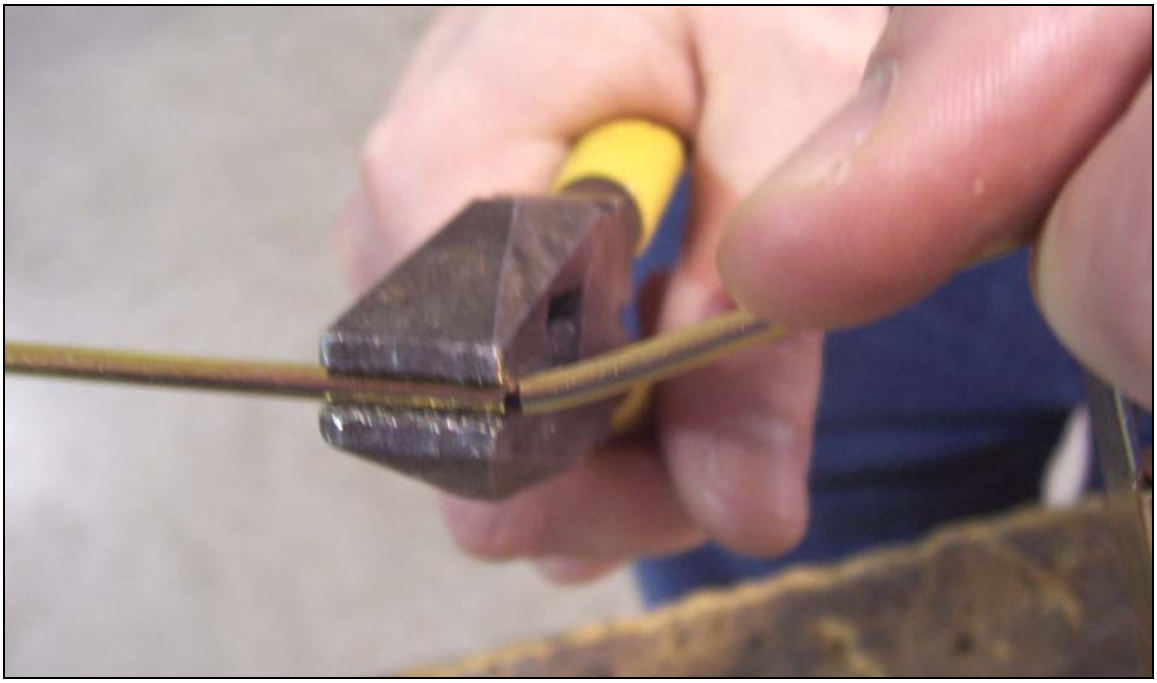
With a #30 drill bit, expand the holes in the I/B Top Skin and Fuel Channel (photo shows the Fuel Channel and I/B Top Skin reinstalled on the Wing but this is not necessary).



P/N: 221-012D
Fuel Level Sender Unit



Place a mark 52mm from the bend on the arm of the Sender Unit.



With a pair of pliers, bend the arm 125degrees. The pliers are on the end of the rod towards the float in the photo above. Be careful not to apply pressure on the Sender Unit, hold the arm only. Bend the arm in the opposite direction as the factory installed bend.

Check the bend angle is approximately 125 degrees.

Mark the orientation on the face of the Sender Unit to correctly position the Sender Unit in the Fuel Tank.

Mark the center of the hole for the Sender Unit on the inboard end of the Fuel Tank. Measure up 90mm from the bottom of the tank and 80mm from the front of the Fuel Tank.

Use a fly cutter to cut a 59mm opening in end of the Fuel Tank centered on the mark. Once the hole is cut be sure to clean out the chips in the tank.

P/N: 226-451D
Sender Unit
Installation Kit

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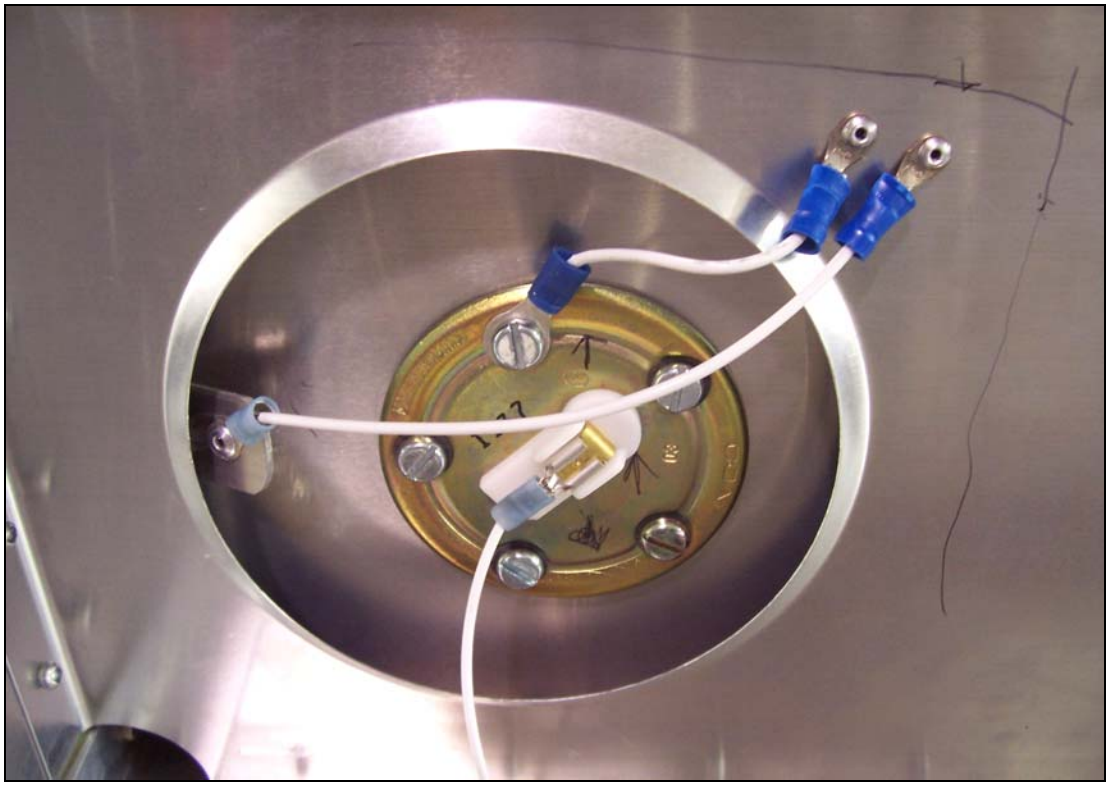
Position the Rubber Gasket between the Sender Unit and the Mounting Ring. Use the long screw to hold the Mounting Ring in place. Slide the Sender Unit float and Mounting Ring inside the end of the Fuel Tank. Tighten the long screw then install the remaining screws.

Note: One screw will be used to ground the Sender Unit. The Rubber Gasket should be installed between the Sender Unit and the Fuel Tank. Be sure to put a fuel resistant thread sealer on each screw to prevent leaks.

It is a good idea to check the resistance readings for the Sender Unit with an Ohm meter before installing it in the tank.



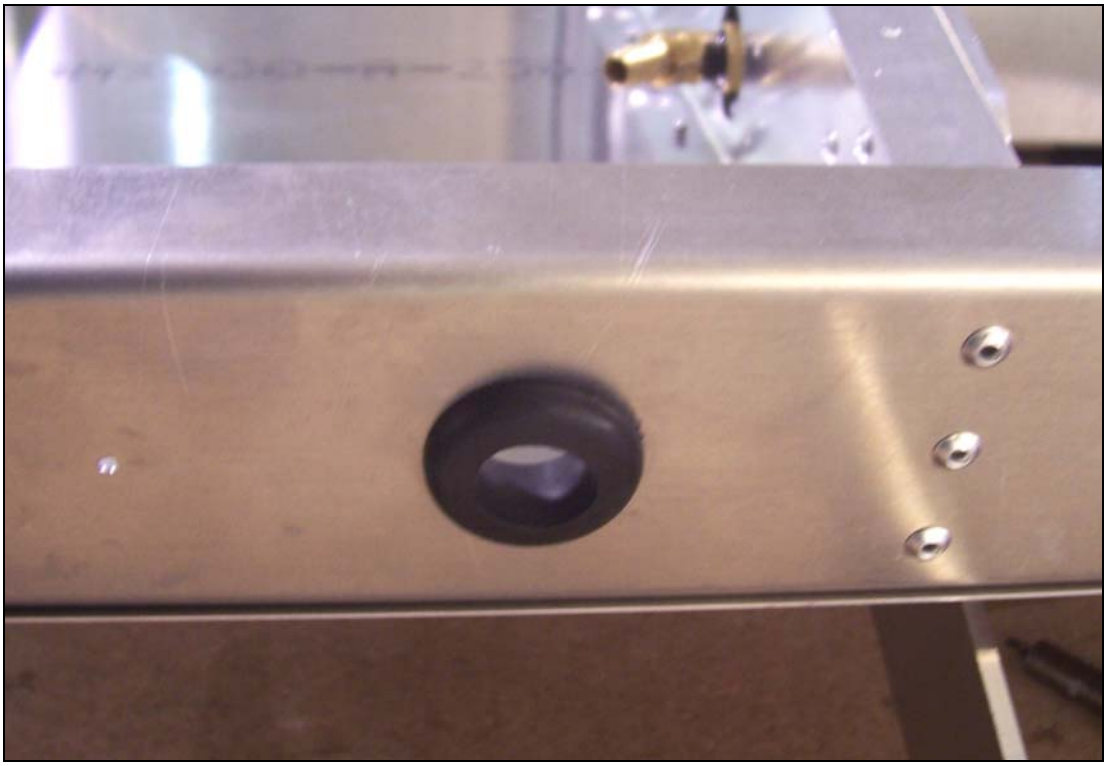
Ground the Sender Unit to the Rear Rib. Also this is a good time to ground the tank to the Rear Rib.

P/N: DX2021
Finger Screen

P/N: F140-6B
45deg Nipple Fitting

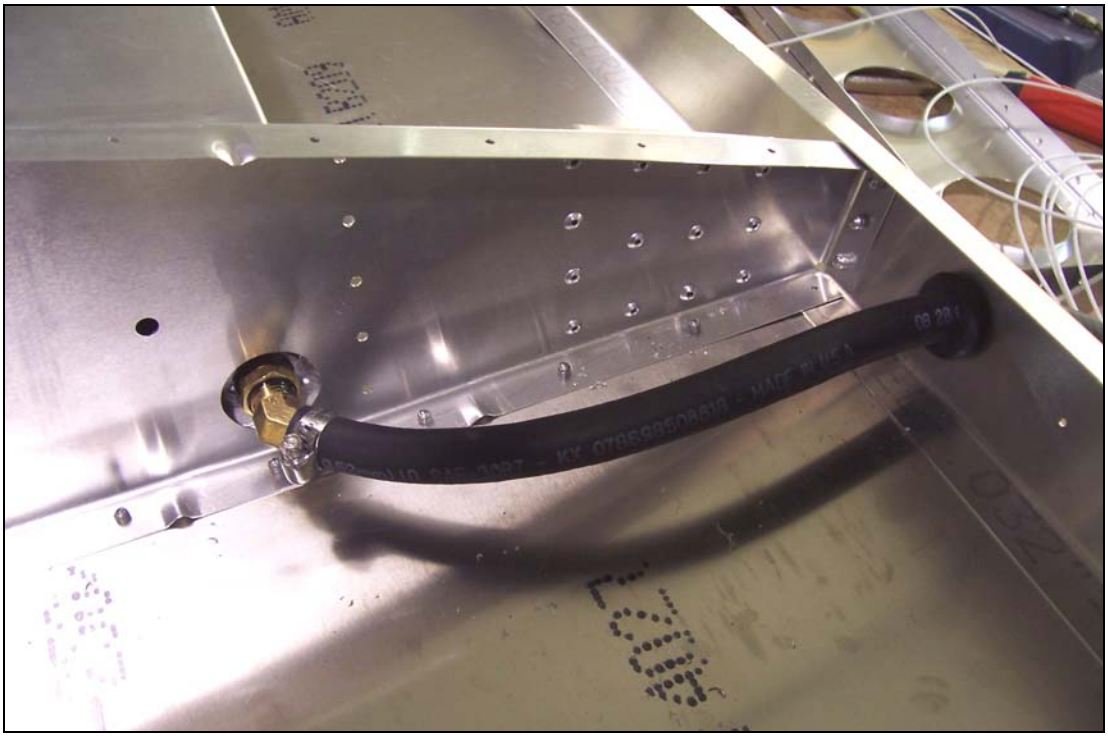
P/N: EZTURN1LB
United EZ Turn
sealant and lubricant

Install the Finger Screen into the Fuel Tank. Install the 45deg Nipple Fitting into the Finger Screen. Be sure to use a fuel resistant sealant on the threads of the Finger Screen and Nipple Fitting.



P/N: AN931-10-14
Grommet

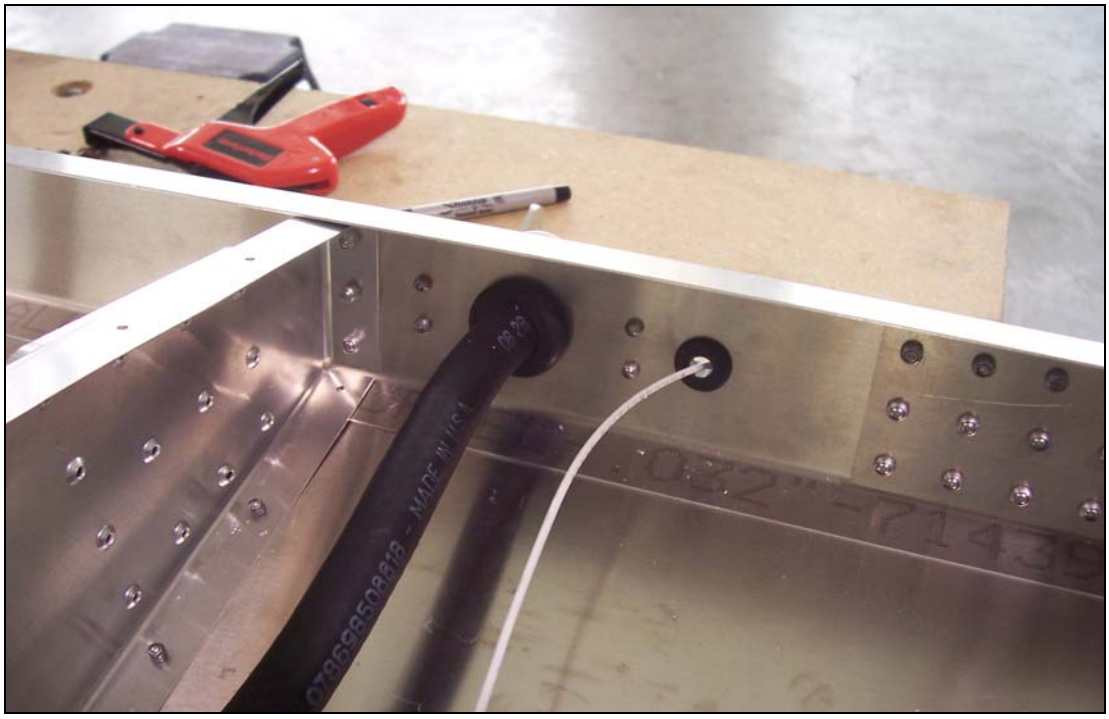
Expand the pilot hole in the Rear Channel closest to RR#1 to 7/8". Install the Grommet in the Rear Channel.



P/N: FLH-6-50
3/8" Fuel Line

P/N: FHC5-6TB
Hose Clamp

Install the Fuel Line through the Grommet in the Rear Channel to the 45deg Nipple Fitting. Tighten the Hose Clamp on the Fuel Line to secure it to the 45deg Nipple Fitting. When the Hose Clamp is tight, safety wire the Hose Clamp to prevent it from loosening over time.



P/N: 9307K12
Grommet

Expand the hole to 3/16” in the Rear Channel for the Sender Unit Wire Grommet. Install the Grommet and run the wire from the Sender Unit.

P/N: 11-01017
Tie Mount
Available from
Aircraft Spruce

Be sure to secure the Fuel Line and Wires to the Wing. The photo above shows wires installed for the optional Nav/Strobe Lights.