

Section 75-FA-6 & 75-FA-7 Fuselage Joining & Forward Fuselage



This manual has been prepared for assembly of the fuselage supplied with match drilled parts. 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.

**STOL
CH750**

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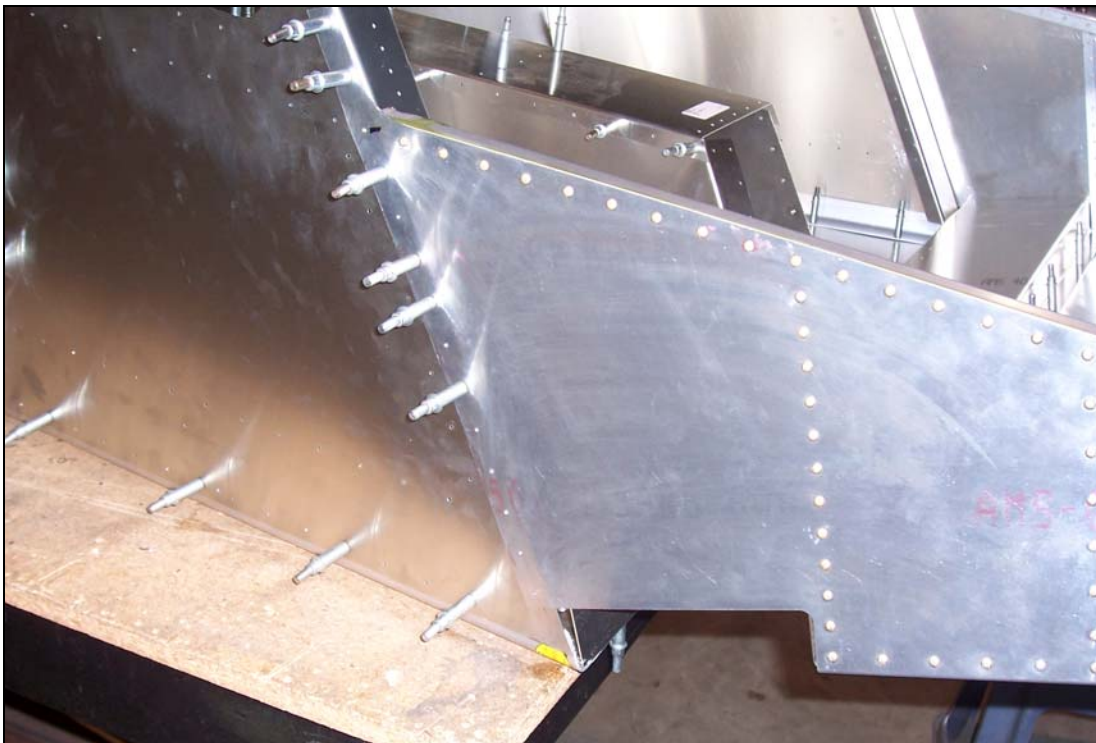
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Slide the Longerons inside of the cutouts on the Side Channels and Flaperon Control Covers.

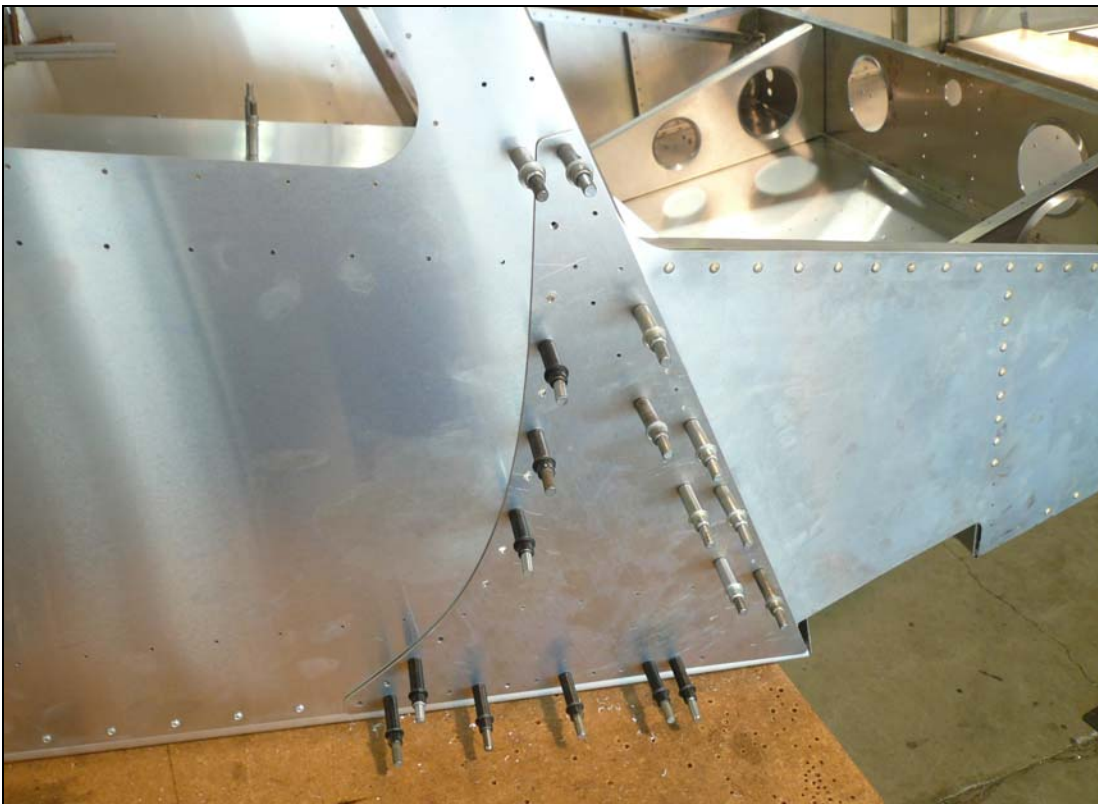
Note: The photo above shows the Gear Channel installed on the Rear Fuselage instead of the Forward Fuselage.



Cleco the Cabin Side to the Side Skin and Side Channel. Cleco the Gear Channel to the Bottom Skin. Use a stand under the front end of the Forward Fuselage to support its weight. With a #20 drill bit expand the holes in the Bottom Skin into the Gear Channel and Cleco.



With a #40 drill bit, back drill through the Side Skin into the Longeron on the Cabin Side and Cleco. Use a #20 drill bit to expand the holes and Cleco.



P/N: 75F4-7
Side Skin Gusset

Cleco the Side Skin Gusset to the Side Skin and Cabin Side. With a #20 drill bit, expand the holes in the Side Skin Gusset and Cleco.

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Measure the distance between the Rear Wing Attachment and the first hole in the Top Doubler.



P/N: 75F15-1
Cabin Frame

Mark the distance measured in the previous step on the top rear tubes of the Cabin Frame. With an Angle Grinder and Cutoff wheel or a Hacksaw, trim the excess material off the Cabin Frame. The top rear tubes should be cut on a 15degree angle. Follow the same procedure to mark and cut the vertical tubes for the holes in the Cabin Side. The Vertical tubes should be cut on a 5 degree angle.



Cleco the aft most hole in the Cabin Frame to the Top Doubler. With a #40 drill bit, back drill through the Top Doubler into the Cabin Frame for the remaining holes and Cleco. Then with a #20 drill bit, expand the holes and Cleco.



The bottom most hole for the Cabin Side has been predrilled into the Cabin Frame. Cleco the Cabin Side to the Cabin Frame. With a #40 drill bit, back drill through the Cabin Side into the Cabin Frame and Cleco. Then with a #20 drill bit, expand the hole and Cleco.



P/N: 75F12-4
Cabin Frame Gusset

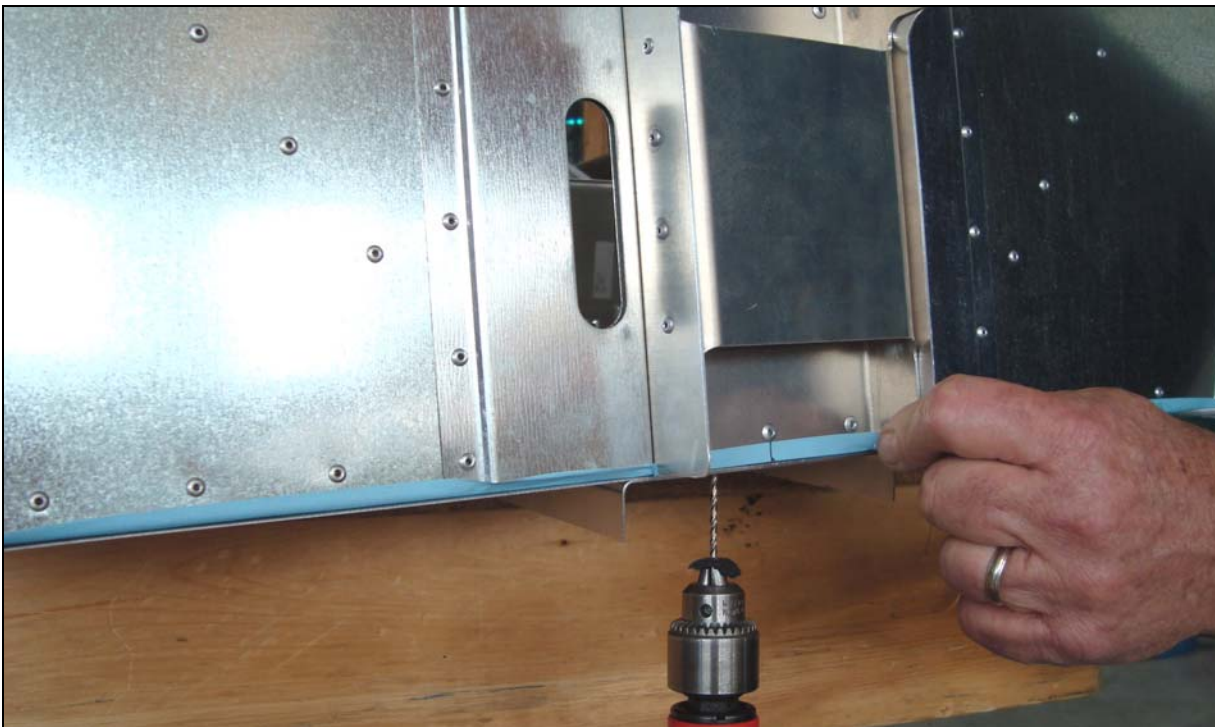
Layout 5 rivets on each flange of the Cabin Frame Gusset and predrill the holes with a #40 drill bit. Position the Gusset on the Cabin Side and Cabin Frame. With a #40 drill bit, back drill through the Gusset into the Cabin Side and the Cabin Frame and Cleco. Then with a #20 drill bit, expand the holes and Cleco.



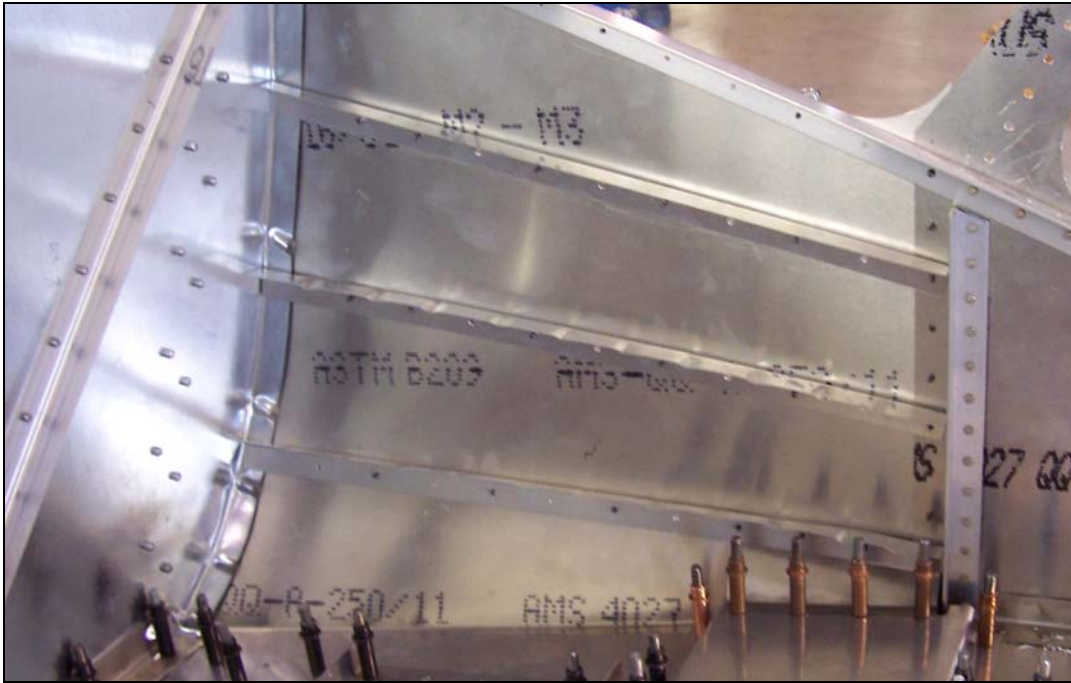
Draw the center line of the Fuselage on the Cabin Floor at the front.



Draw the center line of the Firewall on the bottom flange of the Firewall.



Set the Firewall on the Forward Fuselage. Align the center line on the Firewall with the Center Line on the Cabin Floor. The front of the Firewall should be flush with the edge of the Cabin Floor. With a #40 drill bit, back drill through the Cabin Floor into the Firewall and Cleco. With a #20 drill bit, expand the holes. Wait to expand the holes for the Floor Stiffener.

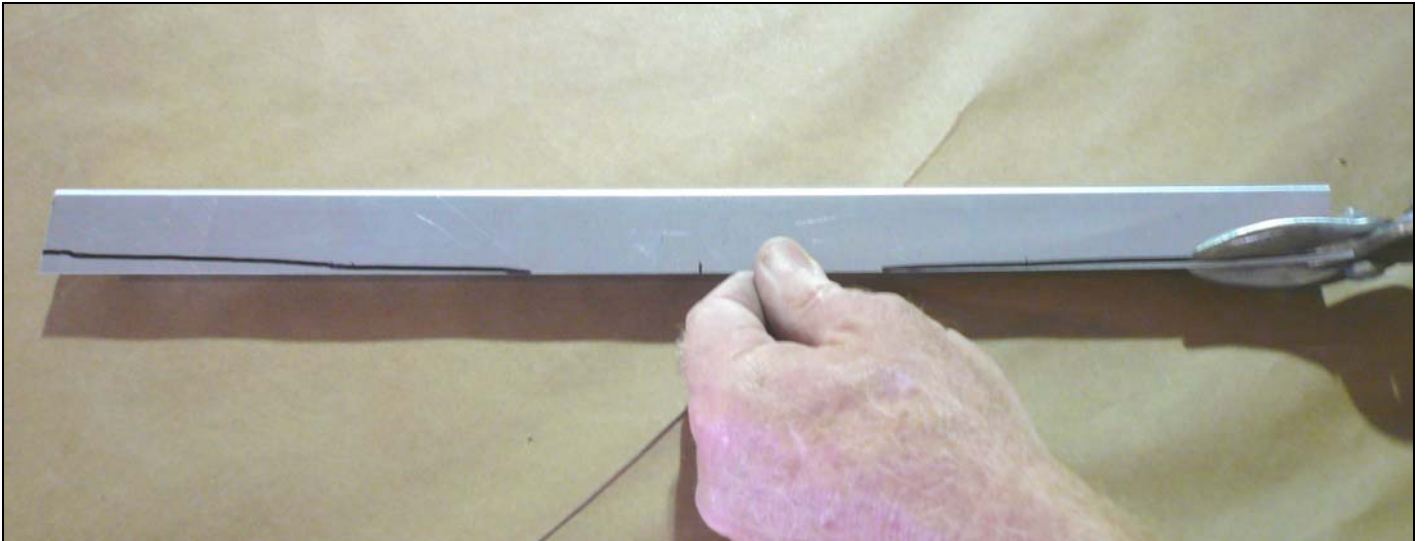


Trim L Angles to fit on the Forward Side Skin. Draw a center line on one flange of L Angles. Position the Angles on the Forward Side Skin so the line is visible through the predrilled holes. Crimp the top flange to match the curvature of the Side Skin. With a #40 drill bit, back drill through the Side Skin into the L Angles and Cleco. With a #30 drill bit, expand the holes and Cleco.



P/N: 75F12-7
Forward Angle

Cut the Forward Angles to fit between the Firewall and Cabin Side. Set the Forward Angle on the L Angle and measure the distance at the center between the edge of the Angle and the Side Skin.



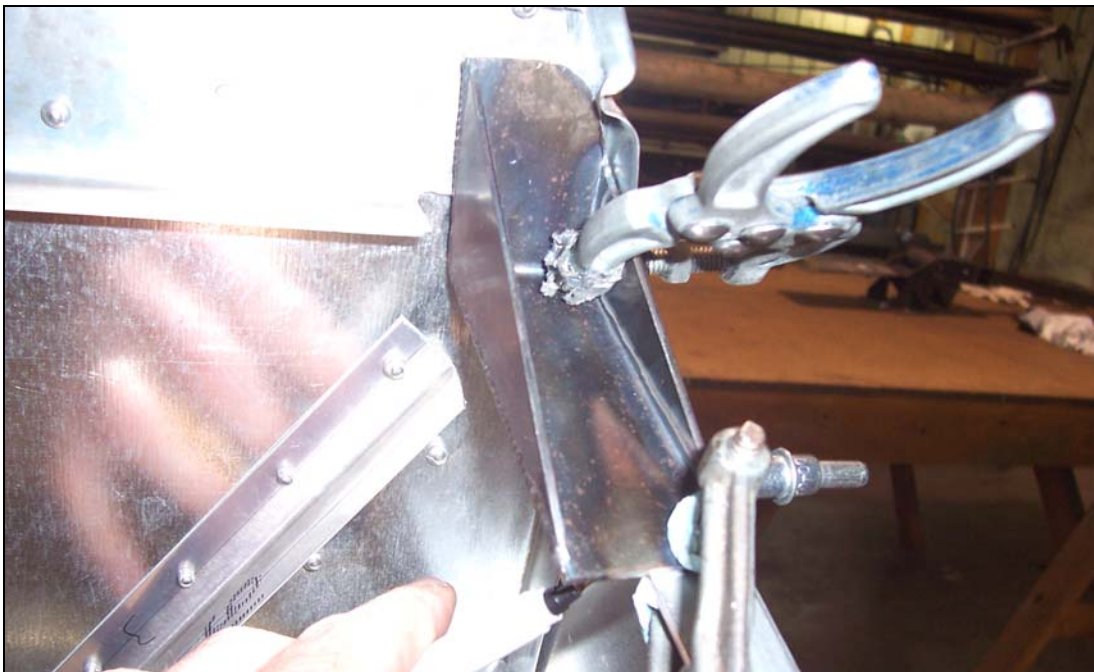
Make a mark at each end of the Angles at the distance measured in the previous step. Make a smooth curve to the center of the Angle from the marks at each end. Trim the Angle along the line to match the curvature of the Side Skin.



Mark the crimp locations in the L Angle on the Side Skin. Clamp the Forward Angle to the L Angle. Layout a 40mm rivet pitch making sure to miss the crimps in the L Angle, 10mm from the edge of the Forward Angle. With an Angle Drill and a #40 drill bit, drill the rivet locations in the Forward Angle into the L Angle and Cleco. Use a #30 drill bit to expand the holes.



Draw a center line on the inside of the Firewall flange. Layout the rivet locations at a pitch 40. Adjust the pitch to avoid the crimps in the Firewall flange. With a #40 drill bit, drill through the Firewall into the Side Skin and Cleco. Then with a #20 drill bit, expand the holes and Cleco.



P/N: 75F14-2
Upper Engine Mount
Fitting

Position the Upper Engine Mount Fitting on the Longeron against the Firewall. Grind the top outside corner until the Fitting will set flush with the edge of the Longeron. Mark the edge of the Longeron on the bottom of the Fitting.



Layout a hole 10mm from the aft end of the Upper Engine Mount Fitting centered on the Longeron. Layout a hole 10mm from the front edge of the Longeron on the Upper Engine Mount Fitting centered on the Longeron. With a #40 drill bit, predrill the holes for the bolts in the Upper Engine Mount Fittings. Position the Upper Engine Mount Fitting on the Longeron, drill with a #40 drill bit, and Cleco. Expand the holes to 3/16" and Cleco.



P/N: 75F14-1
Lower Engine Mount Fitting

Position the Lower Engine Mount on the Cabin Floor against the Firewall. Center the front flange on the hole for the Engine Mount Bolt. Check the edge distance on the holes through the Longeron on the Lower Engine Mount Fitting. Back drill through the Longeron into the Lower Engine Mount Fitting and Cleco. Expand the Holes to 3/16" and Cleco or bolt.



P/N: 75F16-1
Instrument Panel

Note: Wait to drill the Instrument Panel until the Forward Top Skin is installed.

Draw a center line on the top flange of the Instrument Panel. Position the Instrument Panel on the Cabin Frame. Check to be sure the Instrument Panel is centered. Clamp the Instrument Panel to the Cabin Frame.



P/N: 75F16-2
Forward Top Skin

Note: The Cabin Frame passes through the cutout in the front of the Forward Top Skin.

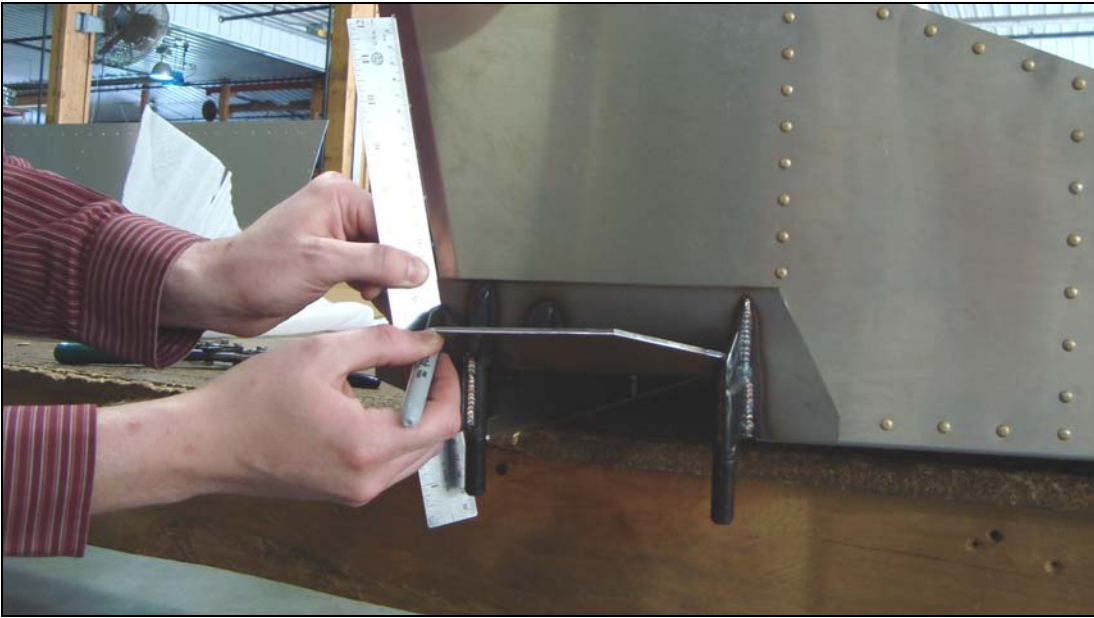
Position the Forward Top Skin over the Firewall and Instrument Panel. The Forward Top Skin slides between the Forward Side Skin and the Longeron. Cleco the Forward Top Skin to the Instrument Panel.



With a #40 drill bit, back drill through the Forward Top Skin into the Firewall. Start in the center and work to each edge. Cleco every hole as they are drilled to pull the Skin tight to the Firewall. Back drill through the Side Skin into the Top Skin and Longerons and Cleco. With a #20 drill bit, expand the holes for the Firewall and Longeron and Cleco. With a #30 drill bit, expand the holes through the Instrument Panel.



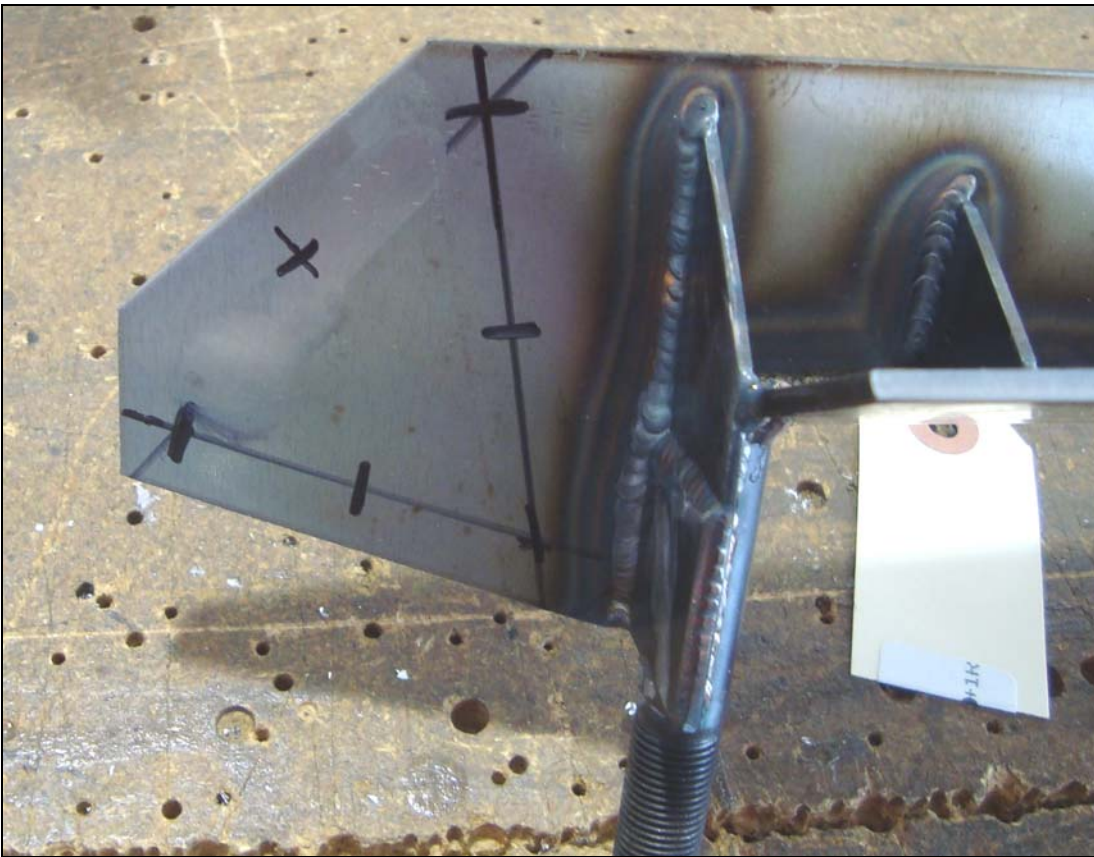
Cut L Angles to fit between the Instrument Panel and the Firewall. Draw a center line on one flange of the L Angles. Position the L Angles on the Top Skin so the center line is visible through the predrilled holes. Crimp the L Angles as required to fit the skin. With a #30 drill bit, back drill through the Top Skin into the L Angles and Cleco.



P/N: 75F14-3
Gear Strut Fitting

Extend the rivet line onto the Gear Strut Fitting to lay out the bolt locations.

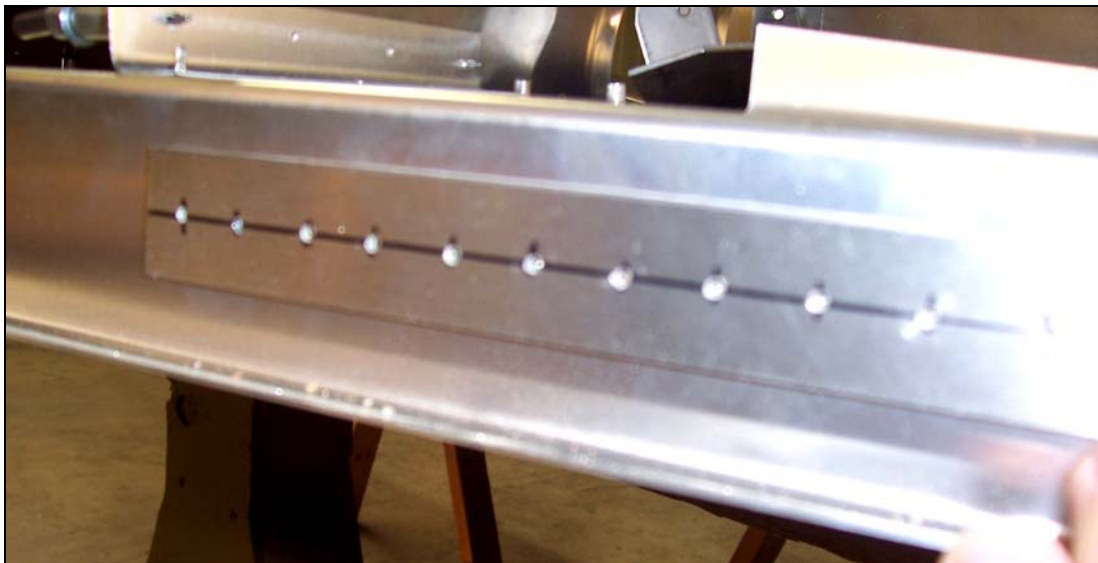
Note: In the above photo, the Forward Fuselage hasn't been joined to the Rear Fuselage yet.



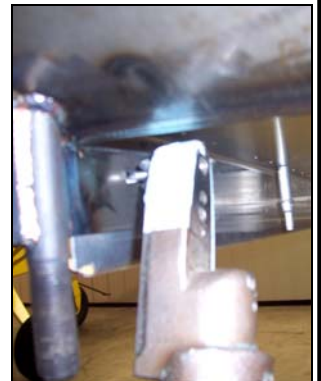
Mark a line 10mm from the bottom edge of the Gear Strut Fitting. Mark a hole location 10mm from the ends and one half way between. Layout a rivet location 10mm from the edge, half way between the bolt locations.



Position the Gear Strut Fitting on the Fuselage. The bottom aft should be flush with the edge of the Skin. The bottom front should be flush with the bottom of the Cabin Side. With a #40 drill bit, back drill through the aft extrusion on the Cabin Side into the Gear Strut Fitting and Cleco. Expand all the holes with a #20 drill bit and Cleco. Expand the 10 holes for the bolts to 3/16", then expand the top hole in the Gear Strut Fitting through the Side Channel to 1/4".



P/N: 75F10-2
Gear Channel Doubler



Draw a center line on the Gear Channel Doubler. Position the Gear Channel Doubler on the Gear Channel. When the Line is visible through the holes in the Gear Strut Fitting, back drill through the Gear Strut Fitting into the Gear Channel Doubler (photo right). Then layout 11 rivet locations evenly spaced. Cleco the Gear Channel Doubler to the Gear Channel. With a #40 drill bit, back drill through the Doubler into the Gear Channel and Cleco. Expand the holes with a #20 drill bit and Cleco. Expand the holes through the Gear Strut Fitting to 3/16".



Cut a piece of L angle 150mm long. Mark the center line on both flanges. Mark a rivet location 10mm from each end of the L angle, then even space 3 more rivet locations. With a #40 drill bit, predrill the holes in the L angle. Position the L angle on the Gear Channel against the Cabin Side. Back drill through the L angle into the Gear Channel and Cabin Side and Cleco. With a #30 drill bit, expand the holes and Cleco.

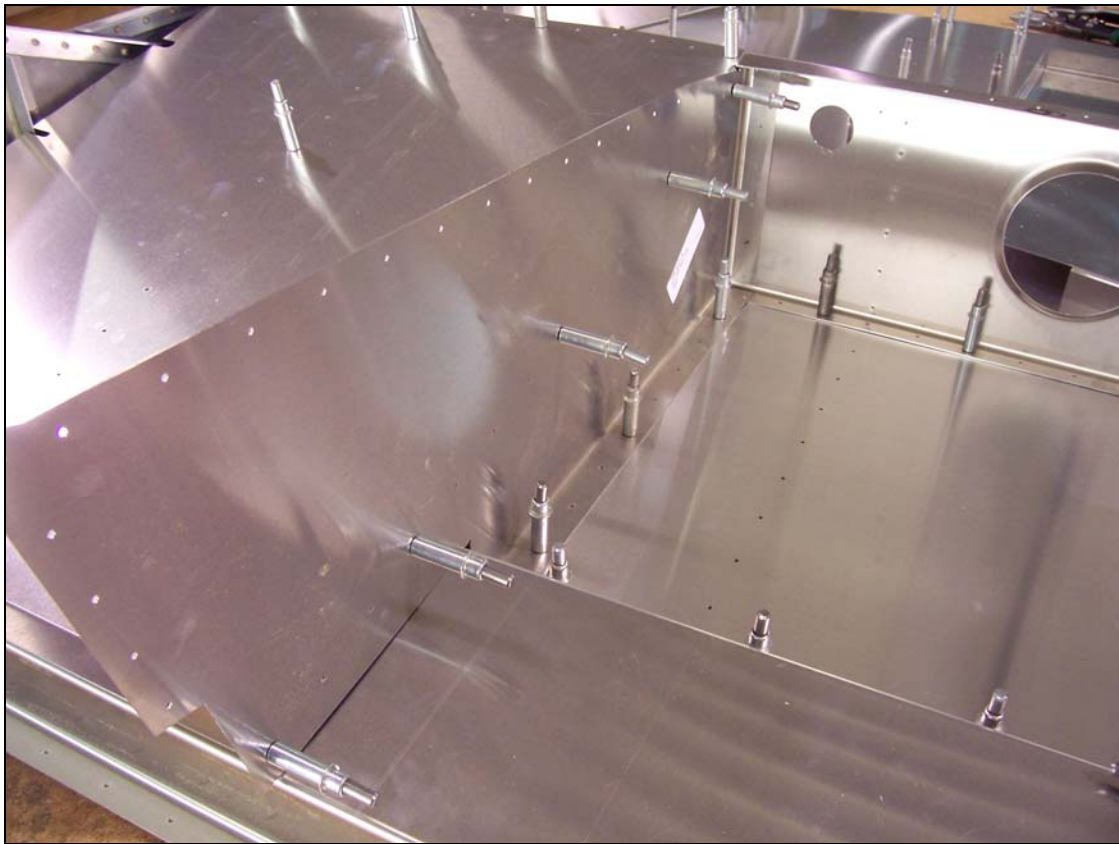


P/N: 75F11-4
Seat Base

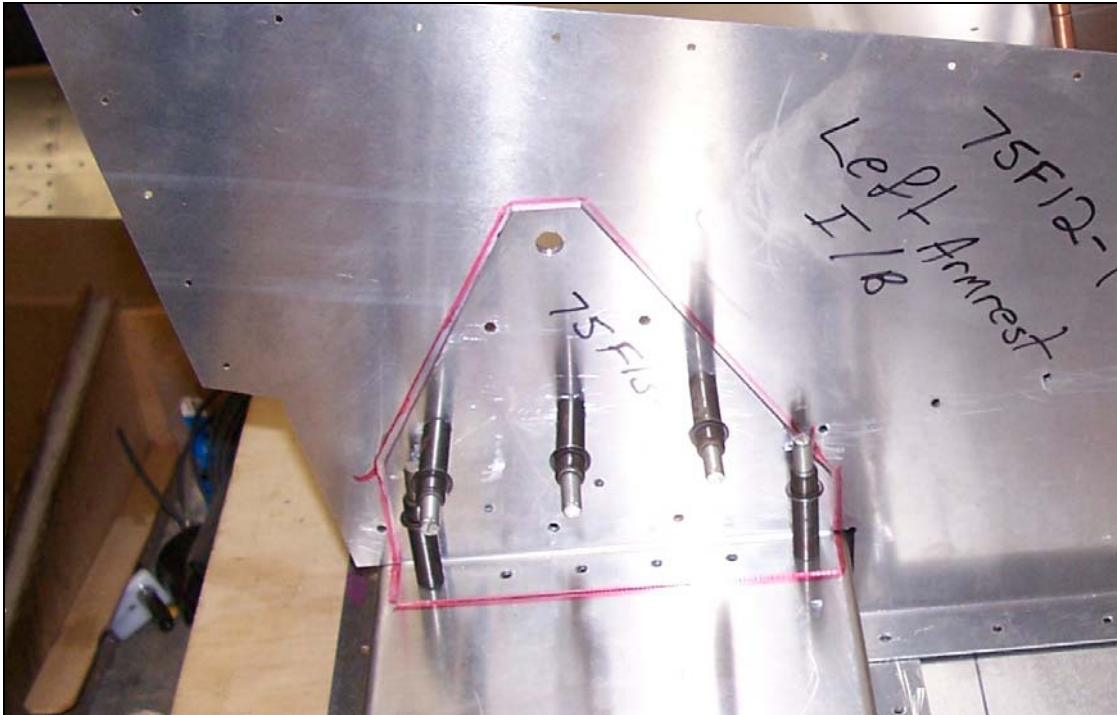
Remove the Seat Support and Arm Rest Sides. Cleco the Seat Base to the Seat Channel and Rear Seat Channel.



Reach under the Seat Base to back drill the Seat Base to the Cabin Side. With a #40 drill bit, back drill through the Seat Base into the Cabin side and Cleco. With a #30 drill bit, expand the holes from the outside and Cleco.



Remove the Seat Base and reinstall the Seat Support and Arm Rest Side. Cleco the Seat Base back in place. With a #30 drill bit, expand the remaining holes and Cleco.



P/N: 75F13-7
Inboard Seat Belt Attachment

Position the Inboard Seat Belt Attachment on the Gear Channel against the Arm Rest Side. With a #40 drill bit, back drill through the Seat Belt Attachment into the Arm Rest Side. Expand the holes with a #20 drill bit and Cleco.



The Seat Base is positioned under the Lower Baggage Floor. With a #40 drill bit, back drill through the Lower Baggage Floor into the Seat Base and Cleco. Expand the holes with a #30 drill bit and Cleco.



P/N: 75F11-5
Arm Rest Top

Note: The back flange of the Arm Rest Top is Clecoed under the Control Tunnel Top.

Cleco the Arm Rest Top to the Arm Rest Sides and to the Control Tunnel Top. With a #30 drill bit, expand the holes through the Arm Rest Top into the Arm Rest Sides and Control Tunnel Top.



With a #30 drill bit, expand the holes in the Arm Rest Sides into the Control Tunnel Sides and Cleco.