

STOL CH 801 REAR FUSELAGE ASSEMBLY

SECTION 4 Joining The Rear Skins; Horizontal Tail Frames Ref Dwg 8FR-3



The top side is made up of one skin



Cleco the side skins to the Bottom Rear Longeron.

Support the side assembly in some manner. A few strips of masking tape were used here. *It worked well!*



COMMENT: It is not necessary to have 2x4 boards underneath the bottom skin; it is acceptable to have the skin rest on the workbench.

CHECK: Clecos in the bottom skin are set from the top.

A helper is the best insurance against damaging the skin while handling them.



Corner detail of longerons to bottom and side skins.



Note: There is no gusset or rivet in the overlapping flange of the vertical and horizontal L angles.

Not all stiffeners will meet like these do. Those that do not are also correct.



Cleco both sides to the bottom skin.



At this stage of assembly both the left and right sides have been drilled and clecoed to the bottom longerons, which attaches them to the bottom skin assembly.

The dimension of each fuselage may vary slightly.

Notch the lower corner of the plywood to accept clamps.

Measure the width of the assembly at the intersection of the floor longeron and the diagonal stiffener located just ahead of the access door. Cut a piece of ¼" thick plywood to use as an assembly jig as shown above. It should be 920 - 930 mm. high by the width of the inside of the fuselage less 2 - 3mm.



Note: the vertical L angles on the side skin are square to the reference line.

The plywood board clamped to the sides to help support the fuselage assembly. The sides of the template are at 90° to each other.

Clamp the stiffeners to the top edge of the plywood leaving about 2mm on each side between it and the upper Longeron.



**REAR H.T. FRAME
8F1-3**

Photo of aft side.

H.T. - Horizontal Tail

ORIENTATION: Bent flange is towards the top (lightening hole towards the top); the bends are towards the front (flanged lightening hole points forwards).



**FORWARD H.T. FRAME
8F1-4**

Photo showing aft side.

NOTE: the corners of the H.T. Frames are cutout to make room for the top and bottom longerons.

ORIENTATION: The flanged lightening hole is at the top, flanges point back (the bends in the side flanges is towards the front).



Use a #40 drill and cleco.

A5 PITCH 40

In Side Skin, (no rivet zone for 8F3-4)

Note that this builder used a large plywood triangle in addition to the plywood square to support the forward portion or the rear fuselage.

The level was used as a guide but remember it must be used on a level table. Here it was aligning the height or the forward HT frame.

- Install the forward frame first.
- Lay a flat plate or angle across the upper longerons and clamp the top flange of the forward HT frame to it.
- Position the HT frame so that the rivet line on its side flanges align with the predrilled holes in the side skins and clamp it in position

CHECK: Hold a plumb bob set on the aircraft centerline along the top to check alignment on the bottom. The top is level.



TOP SKIN ASSEMBLY

Flanged lightening hole points up.

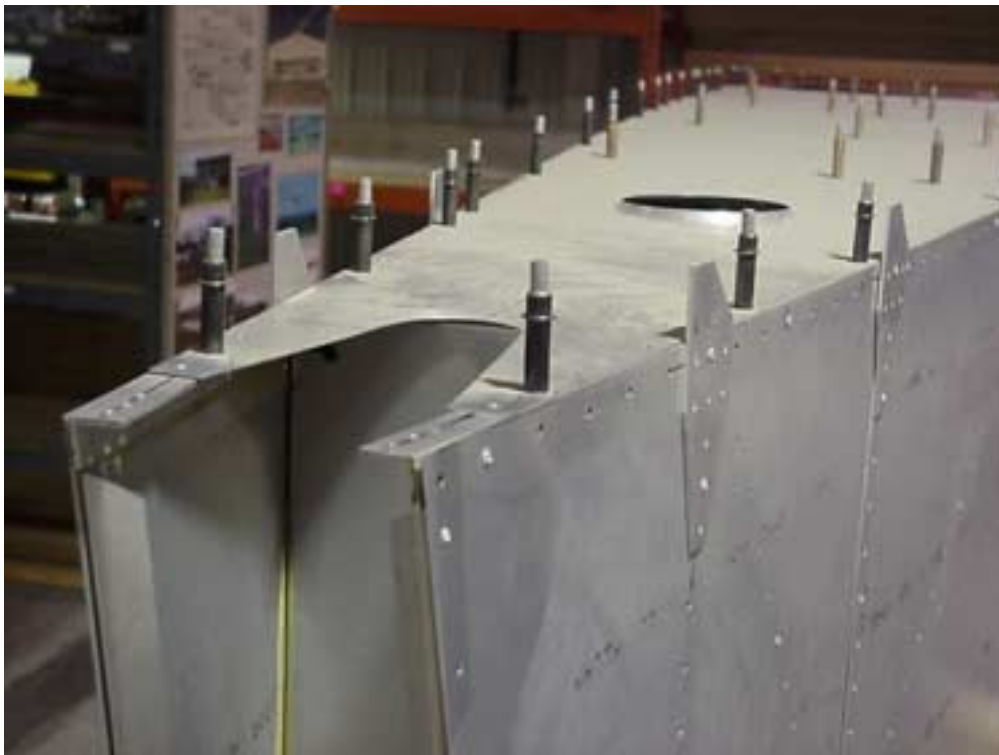
SUGGESTION: remove the L angles from the top skin and clamp them to the vertical L angles on the fuselage side skin: this will help support the top skin as it is positioned.



CHECK: Use a plumb bob to check that the aircraft center line on the top skin is in line with the aircraft centerline on the bottom skin. Check the front and aft end of the fuselage.

Also check that the top of the fuselage is level along the front edge of the skin (left to right)

Place the top skin in place. Clamp a board at the front edge to support the skin.



Notice the centerline on the top skin. Drop a plumb bob to check that it is in line with the aircraft centerline on the bottom skin.

Lay a level across the longerons (left and right) to check for level.

Photo to show the relative position of the aft edge of the top skin.

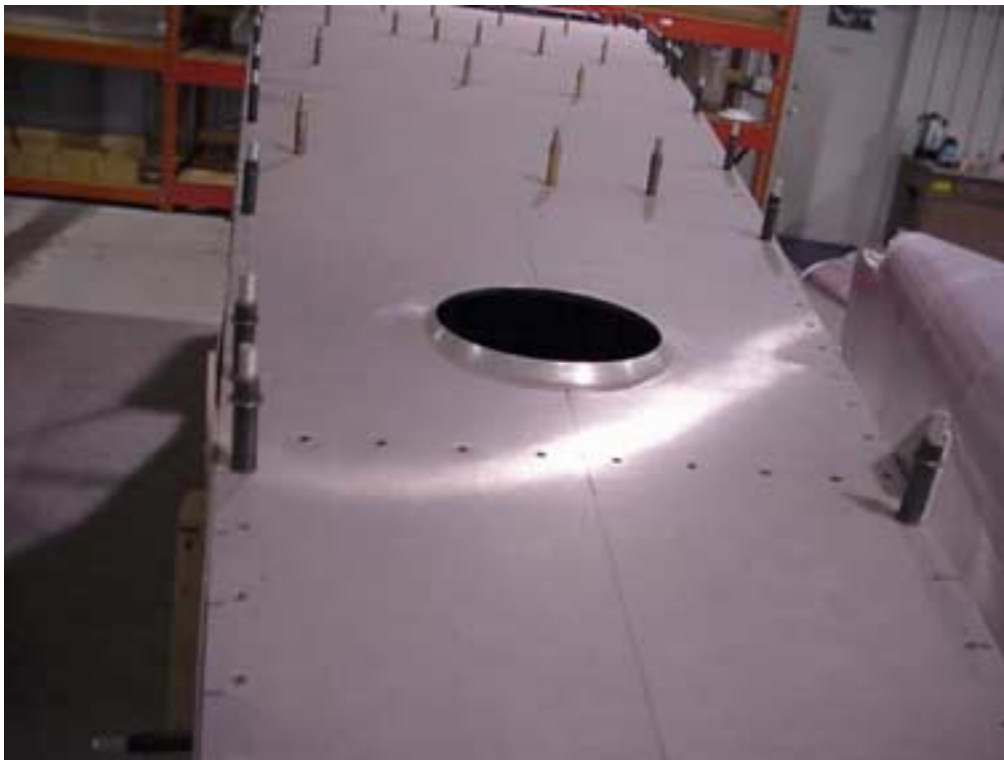
Top skin does not extend to the end of the Longerons.



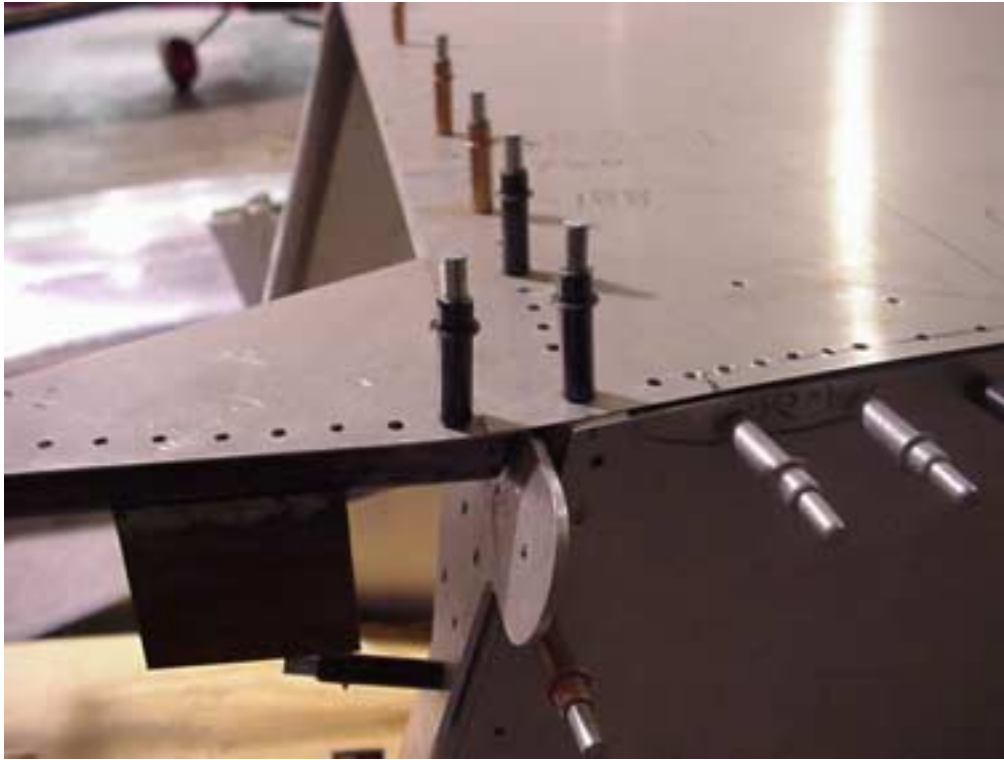
Photo to show the alignment of the rivet lines for the H.T. frame.

CLAMP the aft edge of the skin to the top longerons.

LINE UP the pre-drilled holes in the top skin for the H.T. Frames with the rivet line in the side skins, check left and right sides.



CHECK: The pre-drilled holes for the Front H.T. frame line up with the rivet line in the side skin.



CHECK: The front holes line up with the holes in the side skin.

NOTE: the front edge of the top skin overhangs approximately 20mm past the fuselage side skins.

A5 PITCH 40

In Longerons 8F3-1B

A5 PITCH 30

In 8F1-3 & 8F1-4

Photo to show the alignment of the front rivet lines.

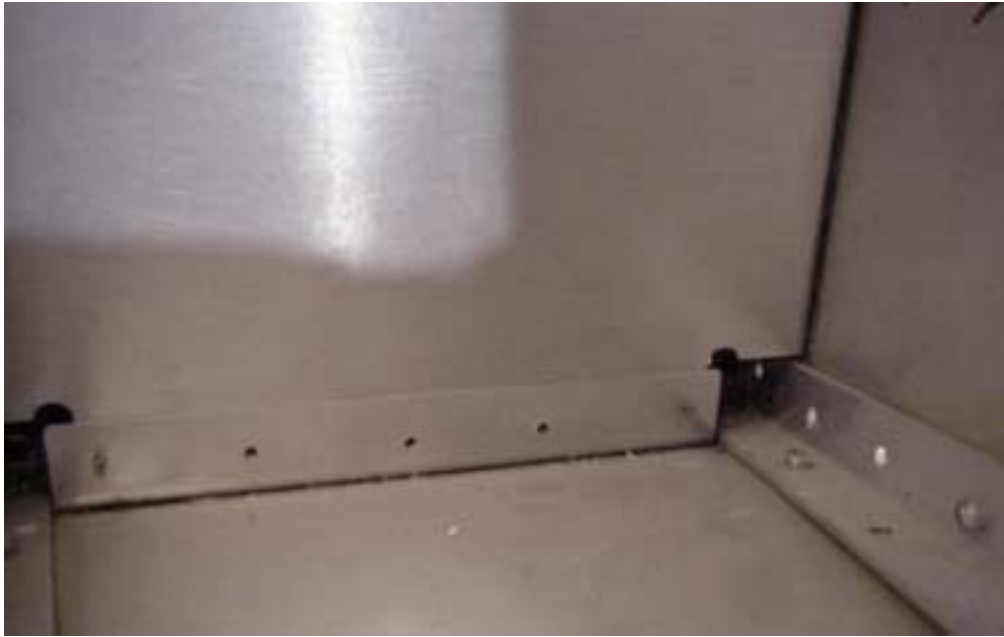


The HT frame part 8F1-3 and 8F1-4 are each secured to the bottom skin assembly with a length of std 'L'.

Cut two pieces of std 'L' to fit between the bottom Longerons.

Adjust the angle of the flange, approximately 12 degrees closed for the front HT frame and 12 degrees open for the rear frame.

Install an L angle at the bottom of the H.T. Frames and the bottom skin.



Note: the direction of the overlap is not critical.

5 RIVETS A5

In each flange of the L angle of the Rear H.T. Frame 8F1-3

7 RIVETS A5

In each flange of the L angle of the Front H.T. Frame 8F1-4

The length of the L angle to fits between the longerons; it overlaps on the backside of the H.T. frames.



Disassembly to deburr

The fuselage overhangs past the end of the workbench to drill the bottom rivet line through the L angle for the front and rear H.T. frames.

Trim the ends of the Longerons flush with front and aft end of the fuselage side skins.