

Category: 3.9b. Top Fuselage

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WARNING: I made a mistake on drilling the gussets... will explain the correct method "according to me" to drill the engine mount brackets and the firewall gussets in a future article [\(see 14/07/2017 article\)](#).

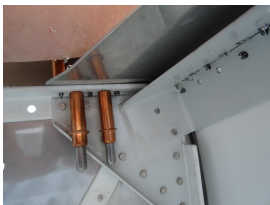
Continued on the fuselage gussets. In the last session I drilled them to the longeron.

I was not able to nest the forward side nicely on the firewall angle so I decided to make a slight bend in the gusset triangular from the corner (actually corner - width of longeron) towards the inner side. Even with the bend, the gusset doesn't touch the firewall angle but with slight pressure it nests well.

This made it possible to have the part where the rivets are to sit flush with the firewall angle.



Clamped and drilled. As you can see in the image below the gusset now sits flush against the firewall angle and towards the corner bends up towards the firewall.



Another view fully clamped.



Here you can see the location of the small additional bend in the gusset

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As I mentioned earlier, I had serious doubts about the edge distance on the top leg of the engine mount bracket.



A closer look already reveals the problem... The upper leg is lengthwise not flush with the inside of the longeron angle, instead, it's angled inward towards the end which makes edge distance smaller and small towards the end.

Major head scratch...

I tried to measure the edge distance but it's almost impossible to get a good reading while the mount is attached. As it is already rivetted to the firewall, removing it would be a drastic operation on the firewall structure.

I will have a night sleep on this and evaluate further tomorrow.



Removed the gussets and took this picture to illustrate the extra bend.

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As a next step I deburred and cleaned the shoulder harness attach brackets (F636, shoulder harness anchor).

The anchor is attached to the longeron using AN3 bolts.

To position the anchor, you have to draw a lengthwise alignment line $1/8$ " from the outboard edge of the longeron. Then measure a horizontal line at $17/32$ " from the front of the F708 bulkhead. The most backward line is my reference line perpendicular on the front of the F708. The second one (forward) is the one where the bolt will be centered.



Clamped the anchor parallel to the lengthwise line and showing the forward line through the back hole of the anchor.



Drilled and clecoed 3/16.

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Good edge distance overall.



Here's a view with both passenger and pilot side drilled.



Deburred holes on longeron, gussets, canopy deck, F757S, aft deck F714 and F636 anchors.

Next I noticed that I forgot to dimple the vertical line where the F-728A channel attached to the F706 bulkhead. I rivetted the channel and angle at an earlier stage so all I had to do left was to dimple the holes for #30 and rivet it together.

Don't rivet the row on the left side (in the picture) just yet as the F787 stiffener web will attach also at that location.

Tried to rivet the connection of the bellcrank channel with the 706 and I set two rivets. I tilted both of them. Started cursing and called it a night... I'll get back to this when my nerves cool down. Vans mentions in the plans that this is a difficult location and allows CS4-4 pop rivets in the lower three holes and that's probably

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what I'll end up doing.

