Problem fixing - 05/10/2013

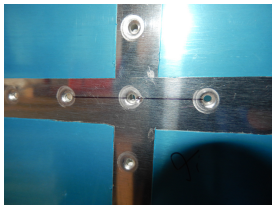
Category: 3.7. Tail Assembly
Published: Friday, 11 October 2013 11:44
Hits: 2008

Today, I started solving some of the issues I encountered earlier with the matchdrilling of the aft fuselage.

When clecoing the aft fuselage back together after dimpling the holes, I realised that it was much easier this time to cleco the aft side together as it was before. Much less stress on the items as before.

As you may remember from previous articles, I had this misdrilled hole where Sterling from Vans support advised me to dimple as is, but drill two extra #40 support holes on the stiffeners. left and right of the hole.

Here is the pre-picture as is now. the dimpled hole with the misdrill next to it is in the center of stiffener and bulkhead.
In the picture I already marked and centerlined the location for the 2 new holes.



After cleco-ing all together, drilled the extra holes, first using #45, then reaming to #40 to ensure perfect holes.

Then I checked the rear side of the aft fuselage. Here, the idea was to drill the last row of holes on F712 to #30 because some of the holes were oval.

I contacted vans support also on this issue. After looking at my pictures, they told me that it was not this big of an issue, to leave it alone because the expansion of the rivet shaft would be sufficient to fill the few thousands on the oval hole.

I didn't really like the answer and asked if for them there would be an issue in putting #30 rivets on that location.

They told me that that would be ok, but that they are more difficult to set.

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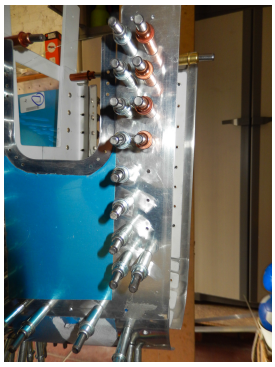
Since I can do these with the pneumatic squeezer, I don't consider this an argument.
I also measured on all sides and found that the aft flange of F712 would still provide sufficient edge distance to host #30 - AD4 rivets.

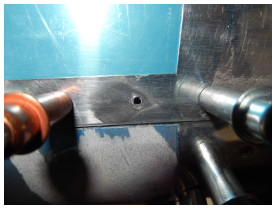
In the picture below, I started up-drilling the aft flange. First using #34 drill, then reaming with #30 reamer.

The result was really good. as you will see some pictures below.

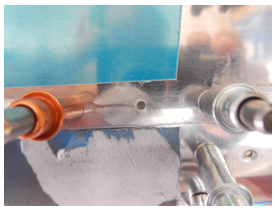


Then there were the 3 last holes in the fuselage side skin to aft skin.

This is how it looked like before updrilling.



This is after reaming to #30. Mucho better !



Checked to make sure the edge distance would be fine here to. this is measurement after drilling. The thin red line shows where I measured, the red arrow shows the 0.236 edge distance to the edge of the hole and the yellow arrow shows my calculation of minimum edge distance there (edge to edge of hole 1.5 * 1/8 + 0.03)

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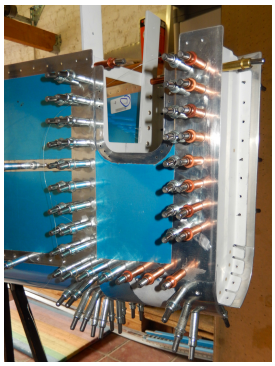
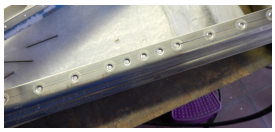
Here is an overview of all the up-drilled holes (bronze cleco's)

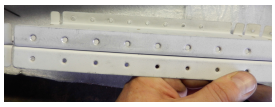


After the drilling, disassembled the whole thing again and started deburring and dimpling the new holes.

Here a shot of the stiffener at the new holes location.



A shot of the F712 holes after dimpling and updrilling. You can clearly see the difference in quality to the holes I had before.



A shot of the holes in the skin right side

and left side. Notice the last row (topmost). All #30 and nicely round. This surely gives me a much better feeling.

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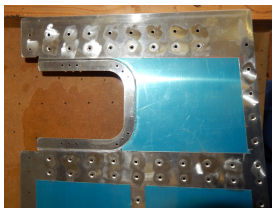
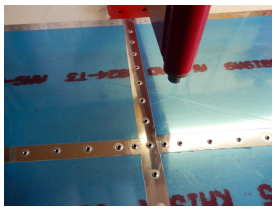


Dimpled skin for 2 extra holes.



Next, it will be time to scuff and prime the parts.

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