Right tank sealing - 21/04/2012 - 9h45

Category: 2.5. Fuel Tanks
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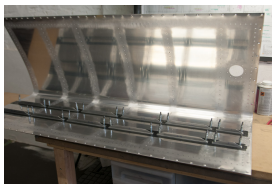
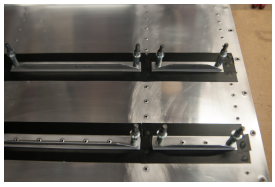
After completing the inner ribs on the left tank, it's time to tackle the right one. I deliberatly wait with closing the tank until both are ready to do so.
There are a couple of reasons for that. The most important one being that there is literally a ton of clecoes to be cleaned after rivetting on the baffle plate and I don't feel like doing this twice.
When you will be as far in this process as I am now, you will understand why.

I taped of the areas that need to stay clean around the stiffeners, this makes making the fillets easier while working. I used cheap electric tape for this.

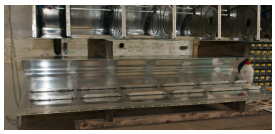


Keep a couple of millimeters distance from the stiffener. Make sure to keep enough room where the rib will come. The sealant that connects stiffener seal with rib seal will anyway be produced when you install the rib.



A new thing I tried after doing the stiffeners on the left wing tank is to put brown paper on the rest of the skin surface. It takes a bit extra work before you start but will save you two hours of cleaning skin with aceton after you finished and a lot less mess.

After 5 hours, the stiffeners of the right tank are backrivetted on.



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The started working on the inner rib to install the access plate accessories on the rib. As you may remember from the left wing, the rib arrives uncut in the wing and you have to cut the circular opening for the access plate yourself using a fly cutter.
This went very smoothly. Then deburred the edges of accessplate, inner stiffener ring and rib using the die grinder with 3M wheel and sandpaper.

Next step, install the stiffener ring. According to the plan, you should first put the access plate on and use that for match drilling. I found it difficult to perfectly locate the position of the access plate to be dead center and is was easier to start with the stiffener as this one can be perfectly aligned with the cut whole in the rib. The only thing that you have to check before starting to drill is that the holes line up well with the hole position of the access plate. Remember that the access plate has a straight edge on one side that should align with the extrusion in the rib. That will give you an approximate position of the holes. Use a sharpie pen to mark them. Then position the stiffener on to align with those hole and in perfect alignment with the cut edges. Use clamps to fixate.

Drill for #8 screws with #19 drill and cleco as you go.

Then drill #40 for the nutplate ears. All of this can be done at once while the stiffener ring is clecoed on.

Then add the access plate and matchdrill that one with the #19 drill through the already cut holes.

Next step is dimpling the rib nutplate ears. (carefull on the

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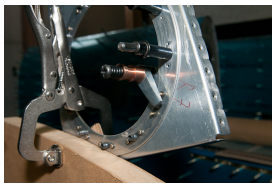
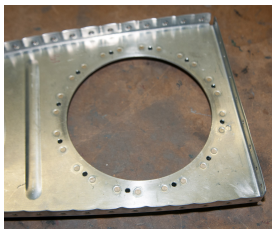
direction !). Dimples are facing IN, flanges of the rib OUT.

Then, countersink the stiffener ring. You will need to go seriously under flush. The usual 2 teeth extra on the countersink will not do. Important is that after countersinking, when you match the stiffener ring in the dimples, that the stiffener lays flush on the rib. I had to go 5-6 steps under. The test rivet sits fairly deep in the stiffener countersink. The reason I guess is that the rib web is fairly thick. This gauge takes place in the countersink you you'll need to countersink some more to have a nice mating situation.

Then for rivetting, I use crock clecoes to keep nutplate, ring and rib well attached. Setting the cleco a bit to the side still provides enough place to pass with the pneumatic squeezer head. So, some #8 clecoes on the sides for overall mating, then the two rivets in , nutplate on and clamping the nutplate on with a crock cleco. Then squeeze.



The result is really outstanding. Nice rivets from both sides.



But more important, look at that mating of both pieces. Nearly perfect. No opening at all.

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Next step will be rivetting in the 5 inner ribs in the right tank.

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