More fuel tank rivetting - 3/3/2012 - 15h

Category: 2.5. Fuel Tanks
Published: Tuesday, 06 March 2012 00:35
Hits: 1946

Continued work on the fuel tank senders as the evenings are too short to break out the sealant for the tanks.

I found the nice idea on another website of reusing the unnecessary T-708 access plate to make doublers for the fuel senders.
The tank baffle plate is too thin for the fuel senders so an extra reinforcement like the normal installation with fixed arm fuel pickup is desired.
I marked the size of the fuel sender plate on T-708 and then made a star shape out of it. Not because it's needed but because it's easier to cut then making a circular form.

It takes a lot of carefull measuring and trying before you get the fuel sender perpendicular on the tank and at the same time the holes to sit all at the same distance from the hole you have cut. I marked with a sharpie pen in the holes of the fuel sender and then removed soI could measure the edge distance.

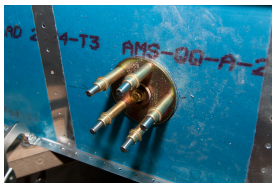
When it finally was right, I matchdrilled the holes through the fuel tank sender. Use a drill stop not to damage the sender arm.
I drilled to #12 for AN3 bolts. The manual states to use 8R8 screws and #19 drilling but the predrilled holes in the fuel sender are already #12.
So decided to install K1000-03 nutplates and use AN3 bolts to have a nice and thight fit. I tried with the 8R8 but the screws are just to sloppy in the holes to be ok.

From the back side, it looks like the picture below. This is the acdtual installation location of the fuel sender, not like on the pictures a few articles back.
The sender plate goes on the aft side of the baffle and the arm goes

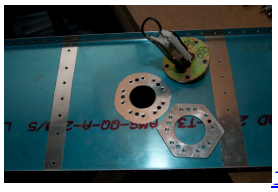
Phoca PDF

Category: 2.5. Fuel Tanks
Published: Tuesday, 06 March 2012 00:35
Hits: 1946

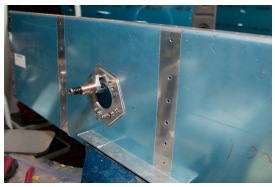
through the hole of the baffle. The entire backplate of the sender and the AN3 bolts will be sealed with proseal on the baffle.



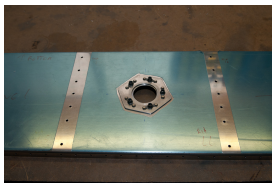
Then used the reinforcement plate as template to drill the nutplate ear holes to #40 in the baffle plate.
Dimpled the baffle and countersunk the reinforcement plate. Had to countersink 2 to 3 stops under to actually get the dimples to sit flush in the plate.
Used for the first time my 4" yoke for dimpling. The only was to reach the middle holes with the pneumatic squeezer.
Could also have used the pop rivet dimpler but I'm out of nails for the moment :)


i

Then clamped the nutplates on and squeezed them on. The reinforcement plate does not need to be sealed (just like the T-407 reinforcement ring).
It will sit on the inside of the tank and the fuel sender plate will be prosealed over them later.



All nutplates on.

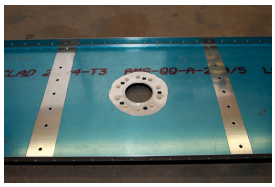


Aft side of the tank.

Phoca PDF

More fuel tank rivetting - 3/3/2012 - 15h

Category: 2.5. Fuel Tanks
Published: Tuesday, 06 March 2012 00:35
Hits: 1946



Temporarily installed the sender with a couple of AN3 bolts.

On friday and saturday, Hugo and Jacques came over to help out with the rivetting of the ribs in the tank.
This is really a job you can't do on your own. Get help if you don't want to get frustrated.

After schuffing and cleaning some ribs, started installing them in the tank.

I learned from Hugo that I'm actually putting too much sealant as a layer on my parts before installing them.

The correct way to apply the proseal on the rib flange is to smear it on with a popsickle stick, and then go over the rib flange scraping off as much sealant so that you start seeing the nothes and holes in the rib.
Just make sure that all the surface is covered with sealant and that you don't see any more aluminum.

Slightly open the skin and slide the rib in place without touching the sides. Then finally aim and press against the skin. Have your helper install two or three clecoes.

You need clecoes in every hole. They will be messy but I think it's really required to have the hole row clamped and secured. Proseal will ooze out and that's good.

Make sure to apply electric tape the hole length at bout 1/8" of the edge of the rib flanges. This will simplify making the fillets later

Phoca PDF

Category: 2.5. Fuel Tanks
Published: Tuesday, 06 March 2012 00:35
Hits: 1946

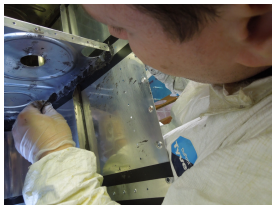
and will make nice and straight lines when you remove them leaving a cleaner look.

Then start from the forward end of the rib and rivet the holes one by one.
It's a mess for the bucker so it is best that the rivet gun operator keeps his hands clean.
The bucking is sticky, but I found it less stressfull then with the stiffeners. Maybe because I use less sealant now.

40PSI seemed to be the best pressure to set out rivets (3X gun for AN426AD3-3.5)

Then with the rest of the sealant, covered the rivet heads with a dab of sealant. It's better to do this first and then make the fillets.
I put a small about on a popsickle stick. Then dab it on the rivet head, make a circular motion on the sealant and scrape it on the fillet side. That was the quickest way and gave the best results.
Don't be afraid to put too much.

How much is enough ?
I kept hearing Georges voice from the video saying : "if you look at the sealant and you think, 'this can not possbily leak', then it probably won't. If you look at it and think, 'this might leak', It certainly will.



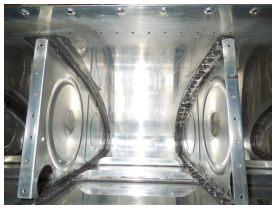
As I cleaned my popsickle stick on the fillet side, I had each time a little bit of excess sealant on the fillet.
That makes it easy to swipe the filet in one motion without the need to first add additional sealant on the fillet.
The electrical tape serves as a barrier for not covering the tank skin with the proseal.

Phoca PDF

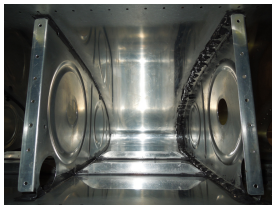
More fuel tank rivetting - 3/3/2012 - 15h

Category: 2.5. Fuel Tanks
Published: Tuesday, 06 March 2012 00:35
Hits: 1946

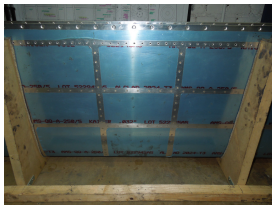
Remove the electrical tape immediatly after finishing the fillets. Waiting too long, or working with already hardening sealant will make it more difficult to remove the tape and will require you to walk over the fillet again as the tape may pull the sealant a little away from the skin (wires). If the sealant is still nice and soft, the remainder after removing the tape is a nice line. (see images below)



another fuel tank bay. Cleaning actually takes at least as much as long as the actuall rivetting and sealing time. Make sure there is no stuff left in the tank or lefts of rivets drllled out sticking in the proseal (or paper tissue rests,...). If you don't remove rests, it's about to get real difficult to remove them if you don't once the proseal sets permanently into a rubbery like paste.



The skin from the outside looks really cool with all these small black rings next to the head. Only a few rivets could have been sitting a little deeper but the tank dimples are deeper and make iit difficult to get the rivets deep in the dimple.
Then I thought, the tank dimples are deeper to allow some proseal to sit in between the head and the dimple so why would I wantin to set them deeper in the aluminum if the special dimples where used to do the opposite.

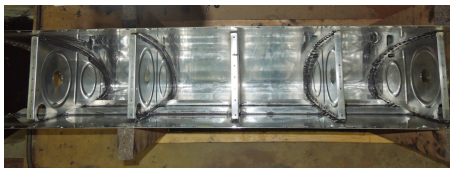


Phoca PDF

More fuel tank rivetting - 3/3/2012 - 15h

Category: 2.5. Fuel Tanks
Published: Tuesday, 06 March 2012 00:35
Hits: 1946

And here is the final stage of rivetting the interior ribs in the tank.



Phoca PDF