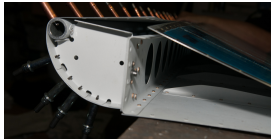


Work on the ailerons continued with rivetting the top skin of the other aileron. Used the same technique as for before. Just overhang the aileron top over the workbench and shoot from the underneath.



here is a look inside after all were finished. I'm more pleased with the shop heads on the other aileron but they are all acceptable. Some have a bit of a slight angle. The photo makes it looks worse than it looks in real life.



Then, you can start rivetting the side ribs in place, but only on the top side. The pneumatic squeezer with no nose yoke takes care of this easily. I know I'm falling in repetition, look at those shop heads. Even in the hard to reach places. The squeezer produces nice and consistent results. As long as you keep the squeezer perpendicular and straight on the rivet, all you need to do is pull the trigger gently.



You also rivet the top side of the nose ribs in place. As I discovered with the wing skins, also here, I had to use a longer size rivet to make a nice size shop head (-4) instead of -3.5. The responsible for this is the thickness created by the new primer.

No big deal after all, the shop head is nice and perfect in size and the plates fit tightly.

After that, the top side is completely rivetted. At this point, the aileron can lay flat top skin down on the workbench.

To ensure straightness and avoid deforming, you have to weight the aileron down. I used some beams near the end of the aileron as weights. Then cleco everything in place.

Category: 2.6. Ailerons

Published: Wednesday, 31 October 2012 19:58

Hits: 1935



On the bottom side, you first rivet the nose skin to the counterbalance pipe. I read discussions about setting the pop rivets 'wet'. I assume that they mean to dip the pop rivet in primer before setting it.

The reason for this is that the pop rivet is aluminum and the countersink pipe is steel. I don't question that this is a good idea but I think it's a bit overkill. In the end, the aileron will be painted, so the rivets will be covered first with primer, then with paint and finally with a lacquer. I doubt if humidity would penetrate that. Yes indeed, air get's in from the sides... well, I guess I'll replace the pipe in that case. But I'm pretty sure I won't live that long to see that happen.

I set the pop rivets in the counterbalance pipe using my pneumatic pop rivetter. I bought it at Harbor Freight for 29\$ but boy what a tool. I set all of the pop rivets without a problem. My fellow builder's Michael first pop rivetter looked similar and when we tried it the first time, we had a lot of issues with nails keeping stuck in the nose. I was a bit afraid that would happen on mine as well. Nothing like that, truly a wondertool. Pop rivetting using the pneumatic rivetter is one of my favorite jobs on the plane.

Here is a side view of a pulled CS4-4 rivet.



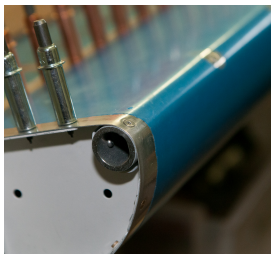
From the top side, it looks like this

Finishing ailerons - 30/10/2012 - 7h

Category: 2.6. Ailerons

Published: Wednesday, 31 October 2012 19:58

Hits: 1935



Even if you push the nose hard against the bend, the rivet will still not sit completely flush on either side. I could have dimpled and countersunk deeper, but then the rivet would have sat too deep. What I did was use my pin punch and give the side of the rivet a very gentle tap. The aluminum deforms easily so don't hit too hard. As the skin is supported by the steel pipe, it nicely bends along with it. By doing this, the rivet nicely adapts to the skin and sits perfectly flush. I remember I also had this problem on the forward side of the elevators so I will use this technique also on the elevators.

After the poprivetting of the counterbalance, you can squeeze the bottom side of the main rib and nose rib.

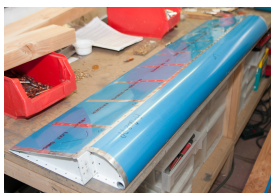
Some visit and help in the shop by Robin.

Last step is to pop rivet the bottom row of rivets along the aileron spar. I turned the aileron and weighted it down again to ensure maximum flatness.

Pop rivetting this row was maximum fun.



And here's the left aileron, completely rivetted.



Same procedure on the right aileron, weighting the aileron down on the bench.

Finishing ailerons - 30/10/2012 - 7h

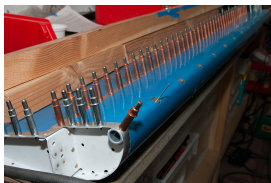
Category: 2.6. Ailerons

Published: Wednesday, 31 October 2012 19:58

Hits: 1935



pop rivetting the counterbalance pipe.



The master at work with his favorite tool.

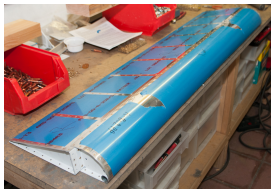


Important when poprivetting is to ensure the nose is perpendicular on the material and the head of the tool sits flat on the surface. Use some pressure to ensure the pop rivet sit flush with the material, but also to ensure the layers are pressed against eachother so no gaps remain between the layers once the rivet is set.



And also the right elevator is finished. Both are straight, can't

discover any bending.



As a last step, I bolted the aileron brackets to the aileron.

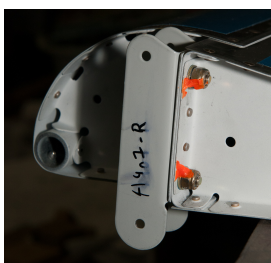
The bolts are AN3-4A so used 25 inch pound on the torque wrench.

Torquing these nuts was not easy. I had to use an extension on these to torque.

The left bolt sits in the nutplate as it is located behind the rib. The thin washer goes on the bolt side for this one. Use inspection lacquer to indicate it has been torqued so I don't have to revisit this later.



Torqued the other two and applied lacquer. I may have overtorqued them a little. With a little, I mean max quarter turn. I wanted to make sure I saw two threads out of the nut.



The other side is even worse to torque. First of all, on the bracket side, the bolt fits tightly within and there is no way you can put a socket over them. I used a wrench to hold the bolt in place while torquing from the other side.

Finishing ailerons - 30/10/2012 - 7h

Category: 2.6. Ailerons

Published: Wednesday, 31 October 2012 19:58

Hits: 1935



But... Torqueing isn't easy here. The bottom nut also can't hold a socket because the rivet below is in the way. So the only way you can attach this is by using a normal wrench key with 1/8 rotation per turn.

You can see but the nut that it isn't easy. The nut has some markings by the key. The top one is easier.



This completed the work of the aileron work. I need to attach the aileron brackets now to the main wing in order to install the ailerons to the wing. But first... the flaps.

As a final task of the day, I searched for all of the flap components and tool this picture.

