

Left Flap To Wing - 15/12/12 - 5h

Category: 2.7. Flaps

Published: Friday, 21 December 2012 19:12

Hits: 1743

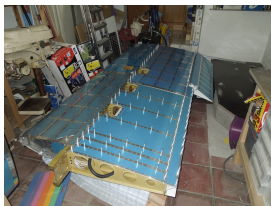
Just noticed that today - while writing this - is 21/12/2012. The day the world will cease to exist. Well... bad luck, I have three more years to build so nature will have to be a bit patient.

Time for a scary job. Not that it is difficult, but this is the time where you will know for sure if you drilled your flap hinge on the hinge at the right position.

The risk exists that you have to move the flap too far backwards to align with the aileron so that you don't have enough edge distance anymore on the flap hinge on the wing side.

To ensure visual confirmation while drilling, I drew a line on the flap hinge at 3/16 minimal edge distance for the AD3 rivets

As per the manual, you lay the wing topside down on a flat surface. I had installed the aileron before and cut the small spacer that goes between the aileron hinge and the aileron pushro.



This is a job that is best done by 2 persons. It's hard to do it by yourself. My buddy builder Jacques came by to assist in lining up the flap.

First, lined up the aileron to the aileron neutral position using a straight tooling angle. Simple to make this: just matchdrill using the two toolholes in the outer main rib. then extend the center of those hole and drill a small hole where the aileron top will more or less be.

Once the aileron is lined up, I took two long rectangular straight aluminum profiles of about 3meters long (about 9 feet).

Attached those angles on top of the aileron and the. Same with the other on the bottom side and clamped both together. Then carefully move the flap backwards until the two trailing edges where aligned.

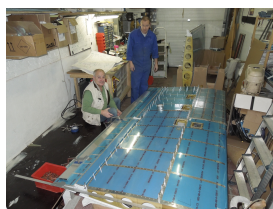
I took two 1/4 inch drills to ensure the minimum distance between flap and aileron.

Left Flap To Wing - 15/12/12 - 5h

Category: 2.7. Flaps

Published: Friday, 21 December 2012 19:12

Hits: 1743



Fortunately, my hinge lines up well with the rear end of the wing. I have enough edge distance left. The line with the min edge distance is clearly visible on the end of the visible holes from the wing skin and flap brace.

The first hole is the most difficult one as it's difficult to hold the hinge against the wing and flap brace. I have seen people using c-clamps but can't seem to get one in that tight spot myself.

It drilled the first holes on the outboard side of the flap and worked my way to the inboard (one by one).

Keep the drill perpendicular. The difficult part is to make sure flap brace and wing skin line up before starting to drill through. You want to avoid to elongate holes in the flap brace.



drill, cleco in, drill, cleco in... real teamwork.



In this picture, the whole flap is now attached to the hinge and drilled to the wing.

Look at that alignment. It's just perfect. All my worries during the drilling of the hinge to the flap some weeks ago fade away. I have to repeat that I did a good job extending the hinge a bit on the flap

Left Flap To Wing - 15/12/12 - 5h

Category: 2.7. Flaps

Published: Friday, 21 December 2012 19:12

Hits: 1743

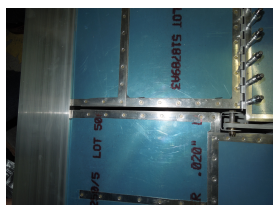
side. If you would align it with the flap skin, it would be impossible to get this result because you would lack edge distance on the wing side.



Look at that... nice and straight, 1/4" between aileron and flap.



Couldn't get enough of it... her's another shot.



This is what I meant earlier with the straight tooling angle and aligning the aileron to the hole in the angle. the two lines on the angle are the extension of two lines touching the extreme ends of the drilled hole for the wing tooling holes.



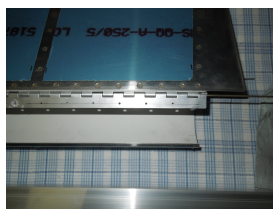
Here are some shots on edge distance once the flap came back off the wing for deburring.

Left Flap To Wing - 15/12/12 - 5h

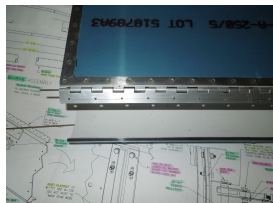
Category: 2.7. Flaps

Published: Friday, 21 December 2012 19:12

Hits: 1743



outboard side



And here is a shot of the wing with both flap and aileron installed... impressive.



During that week, I continued to deburr the holes on the hinge and skin, dimpled the skin and countersunk the flap brace.

This can be a good hint for your. I've seen people countersink the hinge, or countersinking through skin and spar brace.

The best way really is to countersink the flap brace only. The material is 0.040" so plenty to countersink. Install the hinge with clecoes and use the microstop countersink with the hinge as pilot. Works very well.

the skin sits in the dimple and the hinge remains untouched. Can't get stronger than that.