28/2/2020 - drill out inner aileron bracket - 2,5h

Category: 2.8. Closing skins
Published: Tuesday, 21 April 2020 19:10
Hits: 928

I mentioned in the previous article that I would move on the the inner skin of the left wing before starting the outboard bottom skin.

I had a good reason for that. Vans published a service bulletin (SB-16-03-28).

In this service bulletin, Vans Aircraft explains that some airplanes have on their annual inspection encountered some cracks on the rear spar of the wing at the inboard aileron hinge and there is a potential for cracks at the flanges of the inner aileron hinge brackets. In the service bulletin, Vans also says that this is not a mandatory modification but that the location should be inspected carefully on each annual inspection.

They also mention that a preventive action on already completed wings is not recommended and that the change should only be done by someone experienced in sheet metal repair.

When you read through the steps of how to fix this issue, you immediatlaly understand why. This is NOT an easy fix once the wings are finished.
This put me thinking if it would not be a good idea to implement this SB as a preventative measure now that the wings are still wide open and the aileron bracket is easily accessible.

My aileron hinges are off course already rivetted to the rear spar so I started doubting. I asks Vans Support and they did not recommend it. They said that I should be very carefull when drilling out those rivets of the aileron hinge not to damage the rear spar. They advised backing up the rear spar with a bucking bar while tapping the rivets out. Some days later, Michael from Australia came by (who build and fliies a sonex) on a holiday trip to Belgium and visited my workshop. I showed him the SB and my hinges and his thoughts were the same as mine. So I decided to go for it. I will need to order those SB 16 brackets so I 'll have to wait with closing the outboard skins for now.

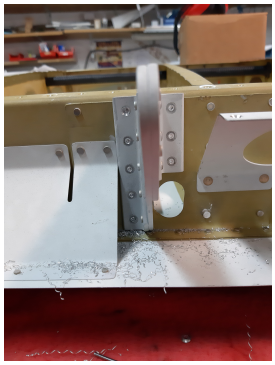
Fortunatly I have been drilling out a lot of rivets and I became more or less an expert in this. I carefully center drilled all rivets and was able to easily pull them out with no damage at all.
My process is the following. I center punch the rivets, The rivet has a little center notch in it and if you are lucky you can still feel if after setting the rivet. (sometimes the rivet head expands a bit and the hole gets closed)

Then I use a very small drill bit to drill the center hole. Then switch to #40 to the depth of the head. Then you pull out the head and

Phoca PDF

punch out the rivet with a pinpunch and hamer or sometimes I use the pinpunch to click it out.

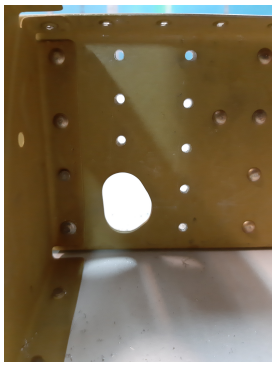
Here's a shot with all rivet heads removed.



Then punched them out (like Vans suggested) backing up the rear spar with two tungsten bucking bars on each side of the hole. Then gently tapping them out.

Tis image is the doulbler on the aft side. As you can see below, the holes came all out undamaged.

The next image is the inner side view of the rear spar. Here also totally ok.



One thing less to worry about. I'll do the same on the left wing after

Phoca PDF

28/2/2020 - drill out inner aileron bracket - 2,5h

Category: 2.8. Closing skins
Published: Tuesday, 21 April 2020 19:10
Hits: 928

rivetting the inner bottom skin on.

Phoca PDF