08/04/2017 - rudder pedal center brace - 4h

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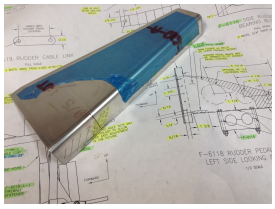
One more final step before the rudder pedals can go back to their resting place : the positioning and drilling of F-6118 rudder pedal brace which is a piece of angled material that supports the center nylon block of the rudder pedal assembly.
It get's rivetted to outboard side of the F-601N-L angle on the firewall stiffener and the nylon center rudder bearing block bolts onto it's flange using AN3 bolts.
The stock material comes prebent but has excess material to it.

First of all, you want to install the firewall recess part in the firewall and measure it's depth. The plans call for 1" 3/8 to be cut away but I decided to measure it.
That distance will have to be cut away from the flange so that the widest side can but against the F-601N-L and the flange will just start behind the firewall recess.
I marked the part to be cut on the part.



A cutting disc, vixen file and grinder took car of the job. You want to make sure also that the bent part is completely gone so that the piece rests nicely against the firewall stiffener.
I should have drilled a hole first in the corner to get a nice relief bent but forgot it. Fortunatly I could make a nice bend using a round keyfile.

I also rounded the edge a bit so that it would rest as deep as possible in the stiffener angle.

Here's the part after the cut.

Next step is to draw a line at 5/16" distance from the forward edge and layout 5 rivet positions along the line. Draw 2 5/16" points from the edges on both sides and then a point in the middle. Next divide both parts again in the middle. Or if you have a rivet fan it becomes much easier off course. However, I found the amount of times you need

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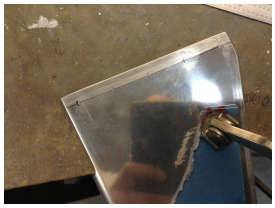
to do this so small that I didn't want to spend the extra dollars on buying a rivet fan. A ruler and some basic math gives you the same result.



Next clamped the brace to the outboard side of the F-601N-L (so no like in the picture but the other side) with the brace butting against the nylon block and the brace as forward as possible against the stifferener angle.
Clamped it all in place and drill from the outside in with an angle drill. Now that I have the correct distance and good edge distance, I removed the clamps and repositioned the brace on the inboard side of the stiffener and put a cleco iun the hole I just drilled. Made sure it rested nicely against the blocks again and followed parallel with the stiffener and clamped. Now it's much easier as the firewall recess is removed to drill the remaining 4 holes with the regular dril and normal drill bit.

All drilled and clecoed and reinstalled on the correct side of the firewall stiffener.

Now, the next step is to move the rudder pedals in each possible position and matchdrill through the nylon block holes.

Couple of remarks here. Draw a line as indicated on the plans on the

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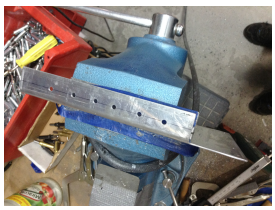
flange of the brace at 5/8 from the outer edge of the flange for edge distance.
Secondly, when I installed mine, I found that the place where the power coat is not present on the rudder pedals is a bit too much to the right.
I had to pull the brace slightly inboard also to ensure the nylon block holes sit straight on my drawn line. Clamp the block on the flange and check for your center line through the holes in the nylon block.
When you see the line centered, drill #12 through the flanges.

Here 's the final result after doing this for each rudder position.



If you have read my previous articles on the rudder pedals, you may have noticed something akward.
The holes in the picture below only accomodate for 3 pedals positions while I drilled the side longerons for 4 positions reusing the 4th hole location for the fourth position.
I also said not to bother doing that and the reason why can be seen below. If you install the nylon block for the 4 th position, you will see that the hole wil be very very close to one of the other holes from another position.
The reason this happens is because the length of the side nylon blocks (4") is longer then then length of the center nylon block (3" 1/2).
This makes that re-using that one hole was not the best of ideas after all.
No matter what you come up with here, if you install the blocks even further, then the forward hole of the center block comes further then the length of the brace. So whatever you do, you can't get that 4th position on.

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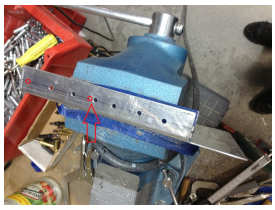
I did like Dan Checkoway did and didn't bother about the extra hole and just moved on with 3 positions. If it turns out that I need shorter pedals, I can always remake a bigger brace later on when it becomes more clear how much leg length you actually have when the seats are installed. It's kind of guessing work for now.

This is how the holes would have lined up when I would have drilled the 4th position. As you can see, the edge distance between the two holes would be much less then at least 2 diameters.



Here's the brace in it's full glory in my most backward position (shortest) with AN3 bolts temporarily put in place.

One more small task to do: make some lightning holes in the part because this is 0.063" material and quite heavy. I drilled the exact positions according to the plans when you leave the full length.
I decided to keep full length for now as I can always cut a part away if the pedals work out well in the 3rd position in once I can really try them with the seats installed.

Center drilled and then used the fly cutter to get the excess material out.

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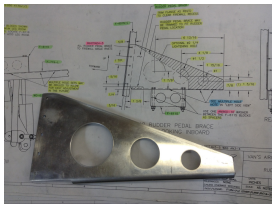
Here's a picture with everything nicely cleaned up.
I also noticed that the plans call for a 1" height on the narrow side. The brace is now still about 1" 1/2 so I measured the 1" height from the narrow end and drawn a line toward the top.

Cut away the excess on the top and here is is, the brace according to spec in the plans, ready to go in the closet for a while together with the rest of the rudder assembly as it would only be in the way for the rest of the construction process.



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