

It's been a very productive weekend. I took some days off to dedicate to working on the plane.

The time has come to work on the rudder pedals construction. I have been postponing this for a while but before starting rivetting, I have to drill the positioning holes for the rudder pedals on the side stiffeners.

Vans instructs to drill multiple positions on the F-719-L and R forward skin stiffeners. The nylon blocks will rest on these stiffeners and multiple holes are allowed to provide different distance positions for pilots with longer or shorter legs. Which brought me to the first question: how do you determine those positions. Well there isn't much of a choice here. The nylon block drilled holes kind of define the pattern.

I decided to go with the Dan Checkoway method and planned to make provisions for four adjustment positions, at 3 1/16", 4 1/8", and 5 3/16", and 6 1/4" aft of the firewall.

This worked out just perfectly with the aft bolt hole being shared in two patterns. Don't even bother with that fourth position, you'll see why in a later article....

But first things first, in order to position the rudder pedals in the fuselage, you must have the brake cylinders installed on the pedals... and in order to have the brake cylinders installed, you need to have the pedals mounted in the rudder weldings. Oops... hmmm... nothing done so far, so some more thinking work ahead.

First I made a small quick and dirty jig with two wood blocks hanging over the workbench so I could rest and clamp the pedals on the workbench on the nylon blocks.



Next I enlarged the #30 holes I made before and opened them up to #12 for an AN3 bolt.

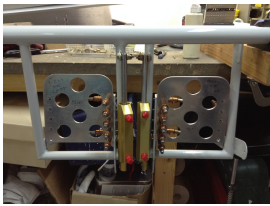
Some people install a single AN3 bolt through these holes (I think length 34). You have to order these separately and Vans doesn't have them so I didn't bother too much about it for the moment and went with the Vans way.

I can still think about this later on but I see no real reason to do this.



Installed the pedals after reaming the steel weldments and temporarily installed castle nuts to fasten the pedals.

Then installed the top side of the brake cylinders. (those golden shiny thingies in the middle)



I used the checkoway method for determining the position to drill the cylinders to the bottom of the pedals and scratched my head for quite a bit before actually drilling the holes.

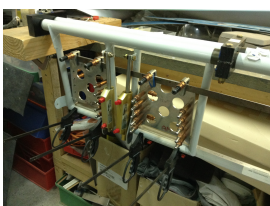
What you want here is that the steel weldment bottom of the rudder pedals are aligned, which means the pedals will be in their neutral position.

Some people have found small errors in the pedals weldments making the pilot pedals aligned but the passenger side pedals slightly unaligned. You want to make sure the pilot side is fully aligned.

You also want the top of the rudder pedals to be in line. The plans kind of imply the following...if you were to drop a plumb bob from directly between the rudder pedal tubes, that would dictate the neutral position of the pedal bottoms. The left pedals are angled forward, and the right pedals are angled aft. The brake pedals basically split the difference.

To ensure all this, first I clamped a piece of angle to the bottom of the steel weldments and clamped them with spring clamps in order to align the pedal base. This is kind of hard because of the round powder coated paint on them that makes it slippery and hard to clamp.

Next I took a small bar of stock material and clamped the top side of the pedals in between the weldments using cleco clamps.



Next you want to make sure the pedals are vertical. This is what it looks like from above.



another close up view from the back. You see the stock bar going in between the weldments.



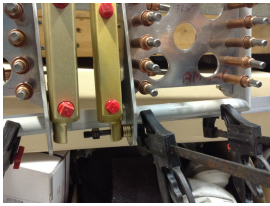
Then I used Dan's method to simplify the drilling process.

The way this works is to take a short threaded #12 drill bit like the ones you get on the angle drill and use this bit to mark the aluminum of the pedals.

I inserted the drill and put some washers in between (just like it would be permanently installed) and then you gently swivel the brake cylinder back and forward.

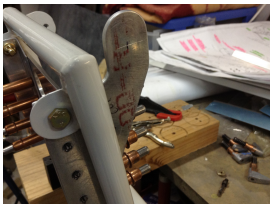
Don't push. The only thing you need is a light marking of the line that the brake cylinder makes on the push side of the metal F-6117A brake side plate.

This way, no matter where the hole will come will be in the fully extended position of the brake cylinder.



Now the marking is made, check the F-6117A and find the center point width wise that crosses the marking you just made.

This ensures you are in the center position on the brake side plate and that the cylinder will be in it's fully extended position.



Center punch, pilot drill and enlarge to #12 for an AN3 bolt.



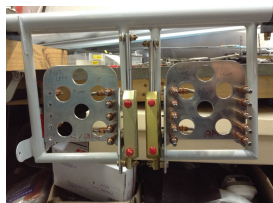
Bit of prep work but fairly simple once you understand the process. I kind of went through the same mental process as Dan did and I can say that indeed, don't overthink this too much, it's really this easy.

The next picture is taken with the both brake pedals attached with bolt to the brake cylinders. As you can see, nice alignment on the pedals.



Front view with brake cylinders on. All screws finger tight as all of this will need to come appart again for priming and final painting so

it's good enough for now.



I had some time left and took up another task I have postponed for a long time.

I still needed to drill a hole for a bushing to pass the static line through the F-705 bulkhead.

There are two places where you can drill here: between the top row of rivets or below them in the open space between the 2 center line rivets.

There's more space in the middle row opening but then the static line would show below the canopy deck and I didn't want that so decided to drill where the mark is.



Made a pilot hole en stepped it up with the needle step drill for the smallest bushing that could hold the static line.



To make it perfect, I also made a hole in the back side of the seatback.



And here it is with the bushings installed. Looks perfect to me.

06/04/2017 - Rudder pedals work - 6h

Category: 3.9. Forward and Center fuselage

Published: Monday, 10 April 2017 12:40

Hits: 1713

