

F-705 bulkhead is a center section where the seat backs connects. It separates the baggage from the seating area. It's also an important bulkhead for connecting the rear spars of the wings to the fuselage. This is actually one of the more critical connections of the plane.

Failure on the wing rear spar to fuselage connection would cause the wing starting to flutter, leading to complete failure of the wing by vibration (oscillation would increase so badly the wing would just break off).

Another function of this bulkhead is to form a support for the flap actuator system.

I started by cutting some stock material according to the dimensions on the plan. The F705-J angle has to be cut from stock, the other two (F705K and F705L) are numbered parts and need to be more or less cut in two pieces as per the dimensions on the plan. These parts will form a support where the seatback slides in. It is a bit of a funny construction.



Next, I drew a centerline over the full length of F705-B center section bar and cut it to length (45" and 3/32). Measure twice... it's a very critical part that will hold your rear spar and you need to have enough edge distance once you drill the wing rear spar to this bulkhead.

Then clamped the F705-B to the F705-A rear spar attach bulkhead. The center line on the bar makes it easy to position the bar. Look through the pre drilled holes and center the centerline in the holes. Measure both sides for equal distance out.

Attached them with cleco clamps and then drilled the holes to #30 and #12 respectively.



Clamped the spacer in between F705B and F605C. It's funny that they want to make you cut away so much of the corner for the interference with the angled piece.

In my case, it looks like the spacer could fit in without interference even without cutting away material.

Making the spacer was a bit tricky. It's thick material and you need

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to cut it from a small piece along the grain of the material. (lengthwise).

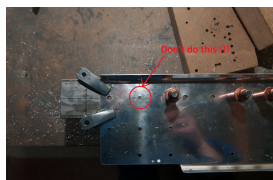
I drew a centerline on the ends and then centered this on the #12 predrilled hole in the F705-A. If you align the spacer with F705A, the hole will be too far to the side of the spacer. Mine came out nice and centered.



I made one mistake though... there is a note on the place at F705 assembly front view that says you should not drill through F605-C on the second hole in the bend. I missed that and drilled through all three.

Since it's a critical part, I contacted Vans and here is the response of Sterling as Vans support:

"After talking to engineering they don't see this as a problem but would recommend you fill this hole with a rivet."



Next, drilled the seatbelt anchors into position. These attach with AN3 bolts through the center section bar.

Vans wants a 3/16 spacing between the L and R anchors. The easiest way to achieve this is to drill first the left anchor, bolt it in place with a castle nut, and then position the right anchor next to it with some long AN3 bolts clamped in between.

AN3 bolts are exactly 3/16"

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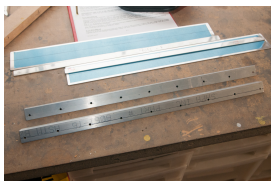
Same principle from above.



Next, enlarged the pilot hole on the bench drill to 5/8 for the snap bushing that will guide the rudder cables.



Drilled the F705-J angles and drawn centerlines on F705-K



Centered F705-L on F705-F (look through the predrilled holes for the centerline)



Then drilled F705-L to the centered position over the predrilled holes in F705-F. There are no dimensions given on the plans so I assumed in

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this case Vans wants you to centerline it leading to same spacing from last rivet left and right. Doing so gives you just enough edge distance left and right.



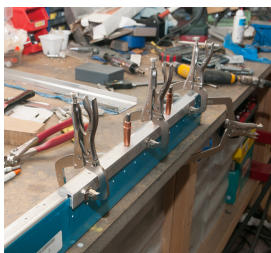
Bent the F705-K to 4 degrees using the small bending bracke I got from harbor freight. It actually takes some force to make the bend.



Then marked a line at 11/16" on the F705-K and centered this line over the holes drilled previously in F705-L



Clamped F705-J in place. First you put F705K in place. This gives you an indication of the aligning points for F705-J. I marked the position with a sharpie, then remove K and positioned J between the lines. One remaining problem is that you need to offset the angle 1/8 inch from the top. The best way to do this is to slide both F705-L bars underneath while clamping and drilling. Both together are 1/8".



closeup shot of F705-L squeezed between angle and F705-F

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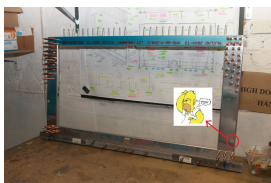
This is the final match drilled assembly of the seatback rests in place.



Both done.



Clecoed the F705 together, ready for matchdrilling.



At that point, I noticed I made another stupid mistake that actually scraps F705D-L.

Look at the picture, stupid me drilled and enlarged the hole of the flap bearing to 5/8 instead of the rudder pass pilot hole.
GRRRRRRR!!!!

I have to go to Chicago in a couple of weeks from now so will order the replacement piece then and have it sent to my hotel.

For now, building on ...