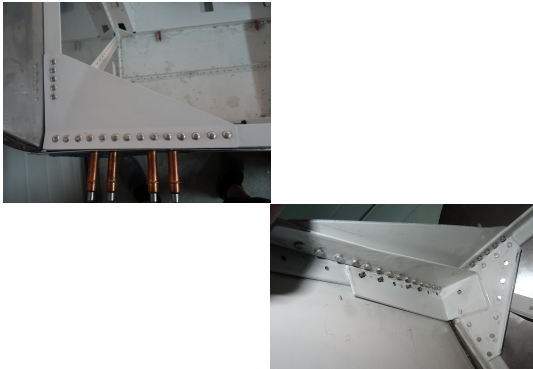
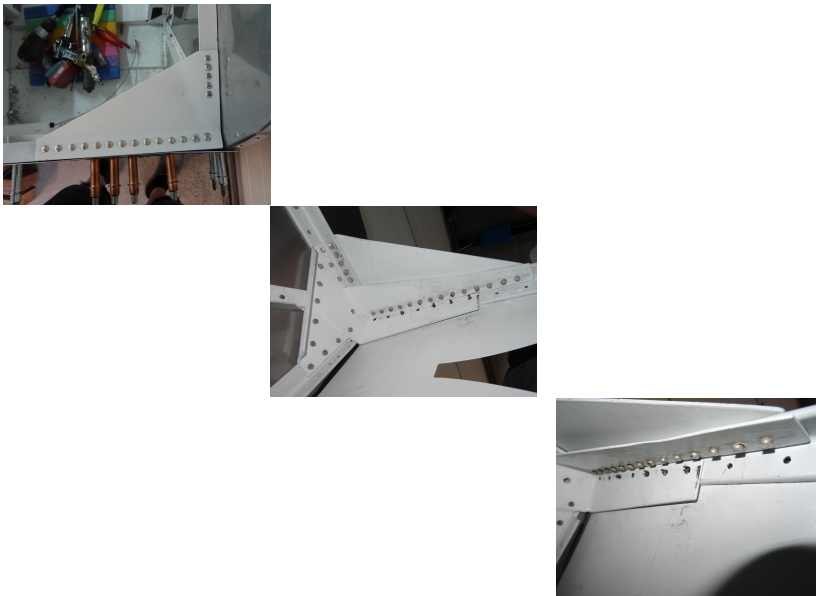


Finished the rivetting of the pilot side forward fuselage gussets. Most of them can be squeezed (aft ones) but the forward ones need to be shot and bucked.

At some places, the angles on the firwall interfere but manager to get it done by myself as no seond pair of hands was available to help this time.



Same thing on the passenger side. Glad this is finally done with after all the hassle with the engine mounts.



Time for a bit of a different challenge : making the vent line in the cabin. You need a left one and a right one. These pass air out of the tanks so the pressure in the tanks can be relieved during temperature changes.

In short, air expands when it's heated, so on a hot day, the trapped

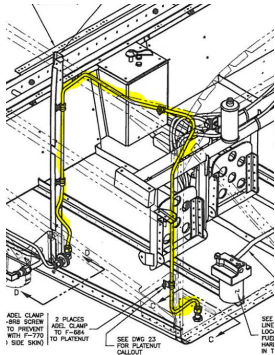
Category: 3.9. Forward and Center fuselage

Published: Monday, 03 June 2019 12:40

Hits: 920

---

air in the fuel tanks would expand and could explode your tank if the air can not escape. In the other direction, air shrinks in cold temperatures and could create a vacuum in your tanks. To solve this, you installed a vent line in the fuel tank. This vent line passes out of the tank, through the side skin of the fuselage and enters the cabin to be passed to the underside of the forward fuselage floor.



The vent line passes up and down through the cockpit and is illustrated on DWG36. It looks funky and it's a bit of a challenge to get this formed in the way as it looks on the plans. Fortunately I did this some years ago for a buddy builder so I still had it in my fingers.

Vans gives you a coil of aluminum tube. You actually get a couple of these so make sure to take the correct one. You will need the 1/4" diameter coil AT0-032x1/4.

First, unroll the coil. I did this by clamping an end in a vise and then gradually using gloves pull the tube straight. Measured the distance required and added some spare length. You don't want to find out you come 1/2 inch short after all the bending and fitting, believe me...



After cutting to length with the tube cutter, you need to produce the first flare. A flare is a coned end of a tube that fits and seals the

Category: 3.9. Forward and Center fuselage

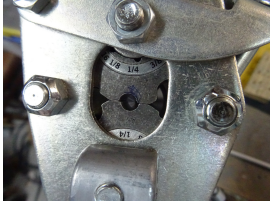
Published: Monday, 03 June 2019 12:40

Hits: 920

---

AN fittings.

As mentioned also in the manual, you need a special tool for this which is specific for airplane fittings. The flare tool has markings on the dies that indicate the diameter of the tubing, so don't forget to adjust these for 1/4" tube.



There are some video's available on EAA video's site that demonstrate the use of such a tool but it's actually pretty simple.

First and most important is to make sure the end of the tube is perpendicular and smoothly sanded in and out. Check with a magnifying glass before making the flare for rough spots. I used 600 grit sanding paper and a small wood block.

Then, don't forget to slip the nut and the collar over the tube, It's impossible to get it on after you made the flare. Except for the first one off course where you can slip it over the other end. But good practice is to slide the collar and nut over before making the flare.

Then slip the tube in the tool, when the screw handle is down, the die moves up and a small stop slides in place that defines the depth of insertion of your tube. Slide the tube in against the stop and close the tool. Then lift the vise and screw it in place. Doesn't have to be super tight. Just to keep it in place.

Next, apply some lube on the cylinder that will form the flare. I usually use tapping fluid. One drop is enough.

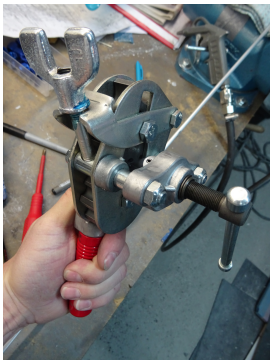
Next you rotate the handle in even speed, gently rotate the handle. It will require 5 or 6 rotations. You 'll have to practice to find out how far to go.

When you think it's enough, gently rotate back and release the handle to inspect the flare for cracks.

A lot of fuel leaks happen due to cracks at the flares so take this step seriously. This is how a flare looks like



The top of the colar should fit over the flare but the flare should not be wider than the diameter of the colare. Otherwise, you won't be able to slide the nut over it.



Then made a first bend by hand, it's not possible to use a bending tool here as the flare is too close to the place where you need to bend.

The bend needs to be just above the colar, the closer the better as it facilitates the bend back around the angle.



Then you bend back to make room for the rudder cable and return back to the side of F-902-L bulkhead. To make sure there is some spacing between the tube and the side skin, I inserted some carton sheets.

Category: 3.9. Forward and Center fuselage

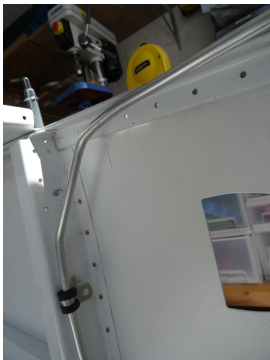
Published: Monday, 03 June 2019 12:40

Hits: 920

---



Near the top, the tube makes a 45 degree bend up and out to root underneath the longeron.



Now comes the more difficult part. You need to root the tube underneath the fuselage gusset, drill a hole for the adel clamp and then root the tube back along the engine mounng towards the F601B-L stiffener on the firewall.

Its a sharp bend in multiple directions and it's hard to picture it when you have it in your hands.



Category: 3.9. Forward and Center fuselage

Published: Monday, 03 June 2019 12:40

Hits: 920

---

Then it goes straight down to the firewall floor and gets 2 final bends of 90° to bring it to the hole you previously drilled in the floor skin.

It's kind of hard fitting as the tube is too long at first. Cut of small portions in the end to make it fit on the AN fitting.



Here's the final view with the adel clamps temporarily installed.

