

After months of bending, rebending and frustration over the canopy frame, I finally took the decision to go on and drill the canopy to the canopy frame.

Am I happy with the result ? well not really, it's impossible to get the rear side bows to comply with the fuselage skin and at the same time have exact measurements for the clearance in the back and heights of the vertical bars in the length.

Changing one parameter has huge impact on other locations. I have been bending so much and so long that I started being afraid of distorting the material and fatigueing the metal.

So this is it, this is what I'm going forward with.

Update after making the windscreen fit: when drilling the canopy to the frame, make sure that you think ahead on how the windscreen will relate to the front side of the canopy. It's a kind of chicken and egg problem. You need to drill now but you still can't really fit the windscreen as it's still not cut. If I had to do it again, I would try to make the rough cut of the windscreen first and check the alignment with the slider before drilling it to the frame. In the end, my windscreen is too high in the center. That's probably because of the high force uncontrolled bending of the rollbar making a high point just at the top. This makes the windscreen sitting higher in the center and the frame to sit lower. If I would have known this, I would have used more spacers under the center part of the frame but once you drill, you're locked in and adding spacers later will only create stress and that's the last thing you want on your canopy. You can get away with some additional spacers but don't exaggerate.

Update on making rear skirt : Try to add spacers in the rear bow underneath the canopy to lift it up as closely as possible to the fuselage skin. Mine is about 5/32 low on the passenger side in the middle of the bow. As I'm going to make an epoxy rear skirt, I'll probably get away with it but I would have added more spacers if I would have to redo it.

Right back to the drilling part.

I started by putting painters tape on the installed canopy frame. The frame makes horrible sounds when moving it now as you had to bend the legs in by 1/2 inch.

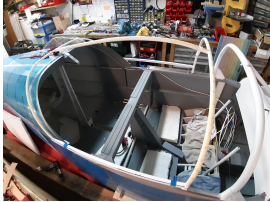
This is one of those points where you really get frustrated doing this job. You try for weeks to get the frame to fit perfectly getting all the dimensions on the side, rear, front, bow right and then they tell you to use some excessive force to tighten front and back by half an inch. You do this blindly as now you can't check anymore until the

Category: 4.3. Slider Canopy

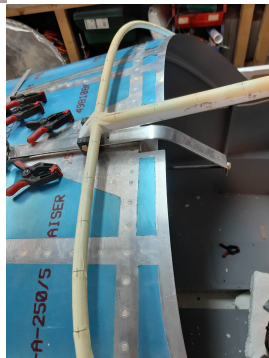
Published: Friday, 17 December 2021 14:34

Hits: 884

canopy is clamped on. I did it by measuring the distance between the horizontal bows, writing down the numbers and shortening the distance another half inch. You can only hope the pressure makes it squeeze overall and not in a specific location. It's one of those places where building a plane is a piece of art rather than a piece of science.



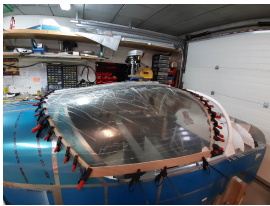
Next I marked the rivet locations on the frame Rivet spacing on the top bar, front and rear bow sides is 2inch. Take care when measuring the side bows that the last rivet is high enough so that it will leave sufficient edge distance on the canopy. I had to play with the distance a bit on the last 3 rivets in order to be on the safe side.



Then clamped the canopy in place. Need any more clamps you asked ? If you are not at this point and wonder how many clamps you need to buy, you better start counting.



Also note I clamped a wood strip on the bottom side holding the canopy well within the side frame bow. This simulates the side skirt location.



I put a large screw in the opening of the canopy latch to keep things centered in position.

Then start drilling away from the top center to the front and back alternating holes.

But before you drill the first hole, hold your horses !

Do you have the proper equipment to drill in acrylic ???? Don't even think about using a regular twist bit. You will be crying big tears for days before you drilled the 5th hole.

You can maybe get away with one, but you can be absolutely sure to crack your canopy without any doubt if you use a regular twist drill. There are methods of dulling a twist drill but I didn't feel safe about it and purchased some acrylic drill bits at Abbeon.

Don't look any further and buy some sizes in [these numbers](#). It's also worth bying a reamer in size 5/32 to drill the final size in the canopy later on. Reamers are safe to use in plexi/acrylic.

I also used a small electric heater on the inside of the cockpit while working on the drilling to gently heat the canopy to working temperatures where it's less brittle.

In the next pictures, the first two holes are drilled.



Using the acrylix drills, you still are faced with the small problem.

Category: 4.3. Slider Canopy

Published: Friday, 17 December 2021 14:34

Hits: 884

The acrylic bits have a hard time drilling through the steel bar.

My technique was to use some wood popsickle sticks :

- first mark the location for the drill bit on the canopy by looking to the impression point on the painters tape.
- then insert the popsickle stick between the frame and the canopy.
- now drill with an acrylic bit through the plexi.
- the gauge of the stick is just enough so that you have a clean full hole in the canopy.
- now remove the popsickle stick and use a regular twist drill to drill the hole in the steel frame using the hole in the canopy as a guide.
- this is safe as the hole in the canopy is fully made. The twist drill will crack the canopy at the last moment of getting through the plexi where the tip just penetrates the plexy and the side hook up in the remaining material.



Top row almost done. I did not need any washers underneath the top row.



Top row done and starting on the front bow alternating drilling left and right .



Drilling complete. No cracks, no disappointments, all good as planned.

03/04/2021 - Drilling canopy to canopy frame - 6h30

Category: 4.3. Slider Canopy

Published: Friday, 17 December 2021 14:34

Hits: 884



Close up view on the rear bow pilot side.



Close up view on the front bow pilot side.



The bottom side of the canopy will still need to be trimmed when I install the side skirt but for now, I'll leave it as is.