

Quest XS - Laminating "L" profile

The laminating and fitting must take place in a room at temperature 20 to 25 degrees C, curing requires the same conditions for a further 24 hours.

Laminating Tools and Supplies:



- epoxy resin
- filler – milled glass fibre 0,2mm with cotton flocks
- carbon fiber fabric 200g/m2
- glass fiber fabric 120g/m2
- acetone
- brush
- mixing cups
- peel-ply (in strooks)
- mixing sticks
- paper towel (handy)
- sandpaper – roughness 80
- paper tape
- scissors
- AL "L" profile for inlamination and longer bolts (20 mm)
- scale 1g accuracy
- latex disposable gloves, protective mask



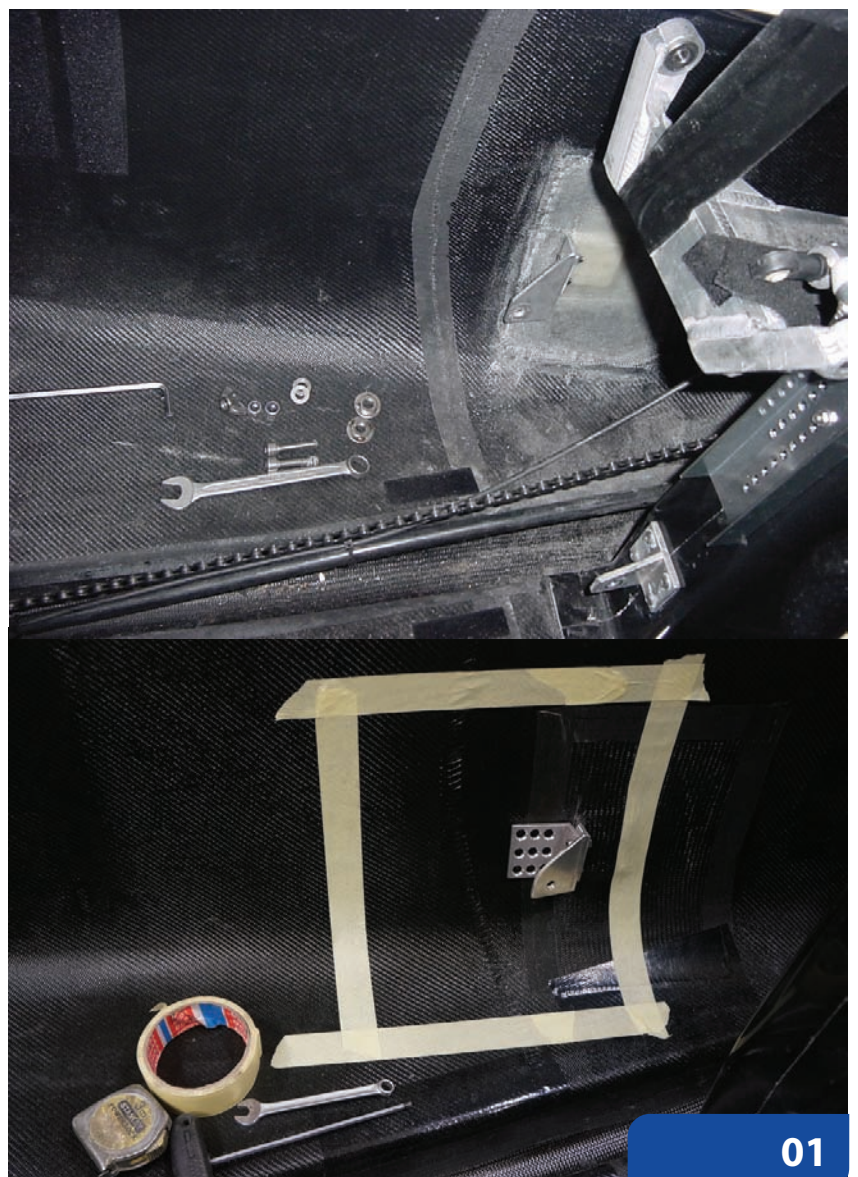
Loosen the wing nut that holds the rear shock-absorber, carefully loosen the Velcro and remove the chain cover.

Take out the two M8 bolts that hold the swingarm and suspend it in a way that it doesn't interfere with the laminating.

You don't have to remove the rear wheel.

Start by placing the "L" profile in its place, just to know how to do it. Then remove it.

Tape a square around the "L" profile – ca 11 x 8,5 inch (28 x 22 cm), just like you see at the photo.

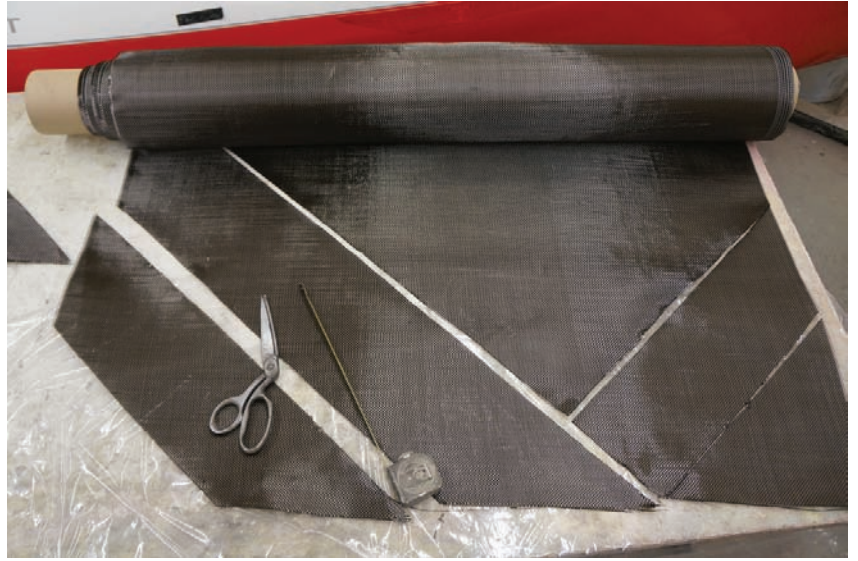


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Make all tools and supplies for lamination ready.

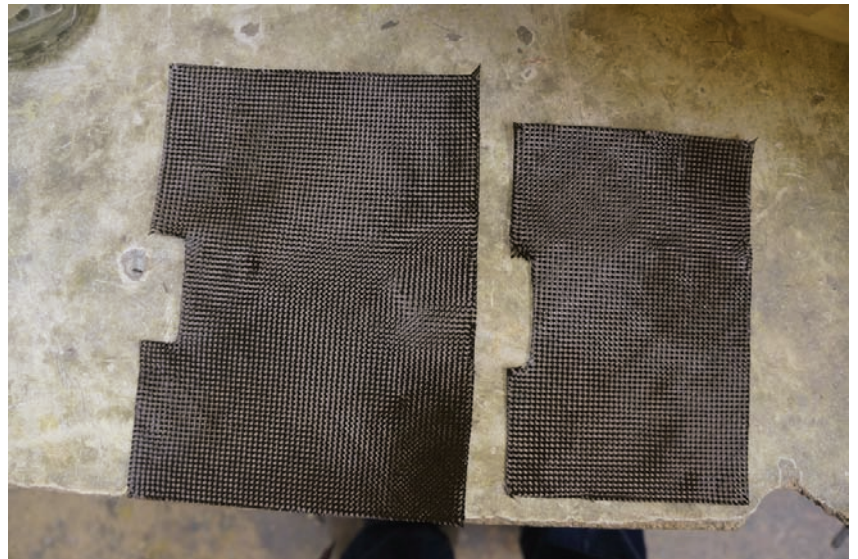
Do you need to cut the fabric yourself?
Cut it diagonal!

Wear protective mask while cutting fabric and sanding the body.



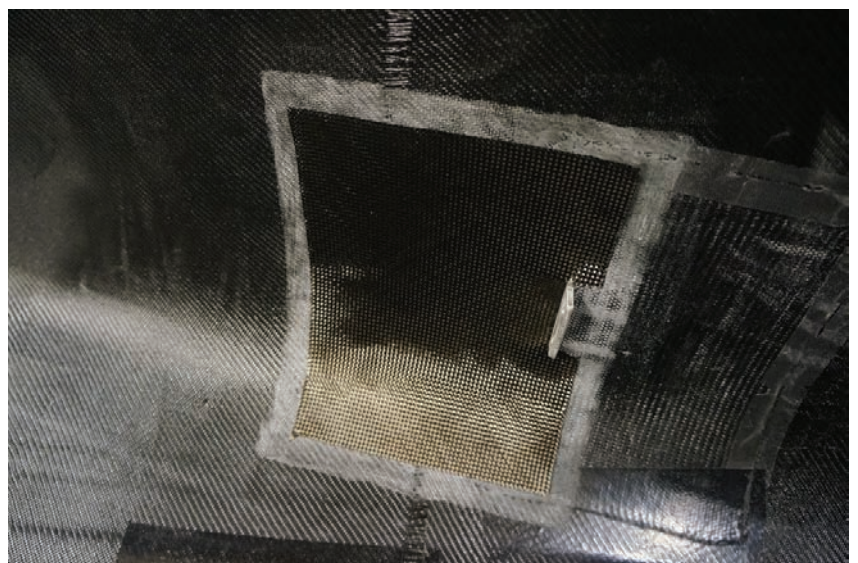
Cut:

- carbon fiber fabric 9,5 x 7 inch (24 x 18 cm) with cut-out (1 inch) in the place where the "L" profile comes;
- carbon fiber fabric 8 x 5,5 inch (20 x 14 cm) with cut out about 0,5 inch;
- two pieces of glass fiber fabric 5 x 3 inch (12 x 8 cm).

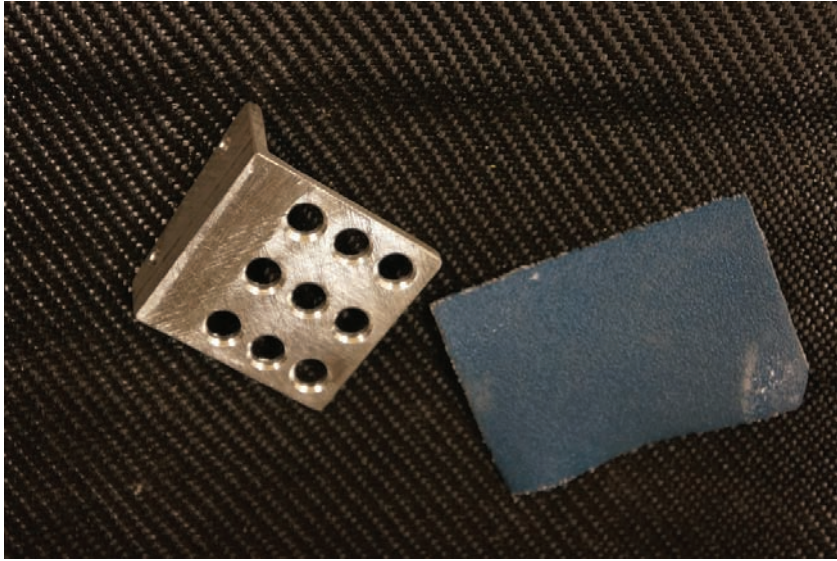


Here you can see the largest piece of carbon fabric placed in the quad-range.

This is meant to show how it fits and where it should be placed. But you start lamination with glass fiber fabric – see later in this text.



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Sand the "L" profile roughly from both (9 holes) sides. Do it just before the lamination.



And place it into the acetone bath.

Sand the square thoroughly. And replace the tape if you have damaged it by sanding.

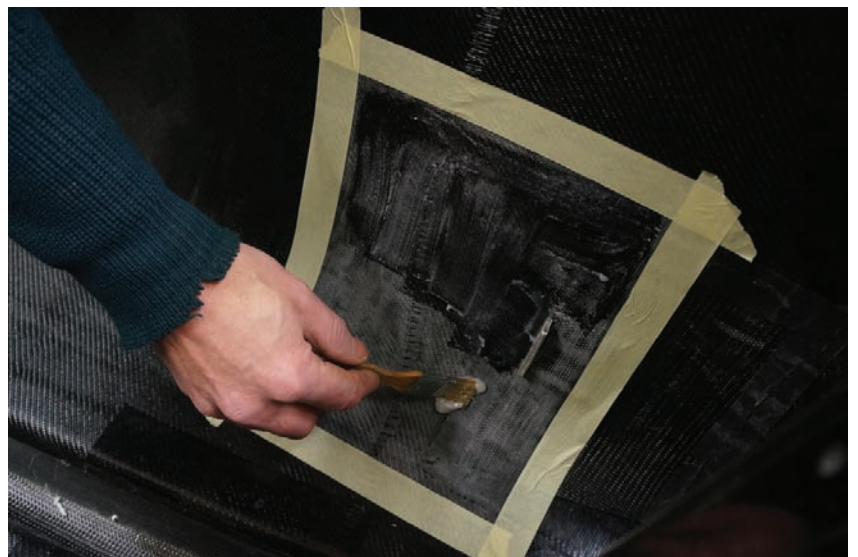
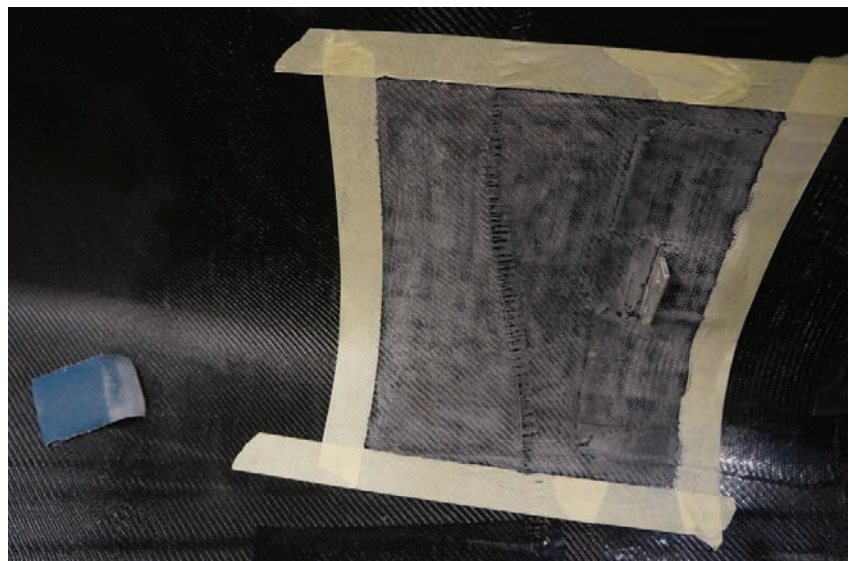
Remove the dust with vacuum cleaner.

When the working with epoxy wear gloves, some people can develop an epoxy allergy.

Mix the resin according the instruction written on the package. Make sure you manage the proper ratio of resin and harder! With 1g accuracy.

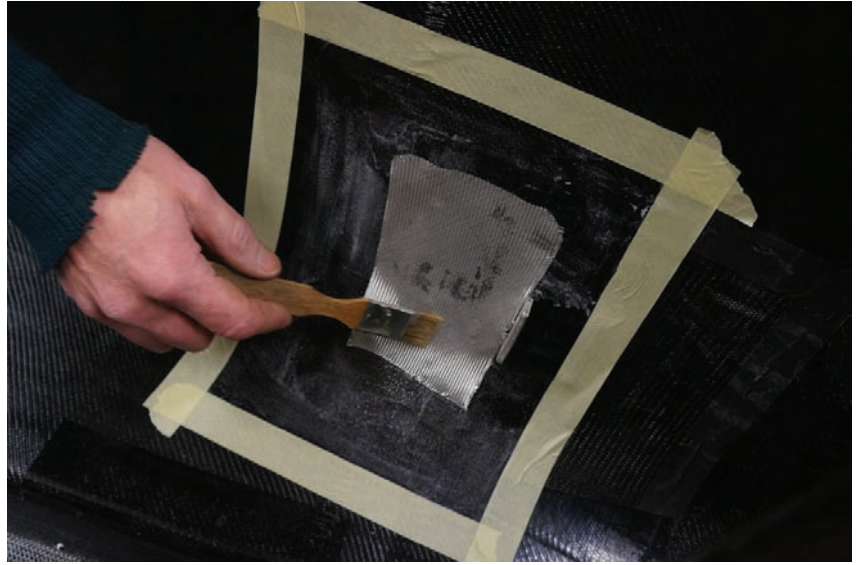
Tip: For complete lamination you will need maximal 60g of the mixture.

Place 1/3 of the mixture in another cup and add the filler (milled glass fiber with cotton flocks). This thick mixture should be easy smear a with brush. And apply it on the whole square.

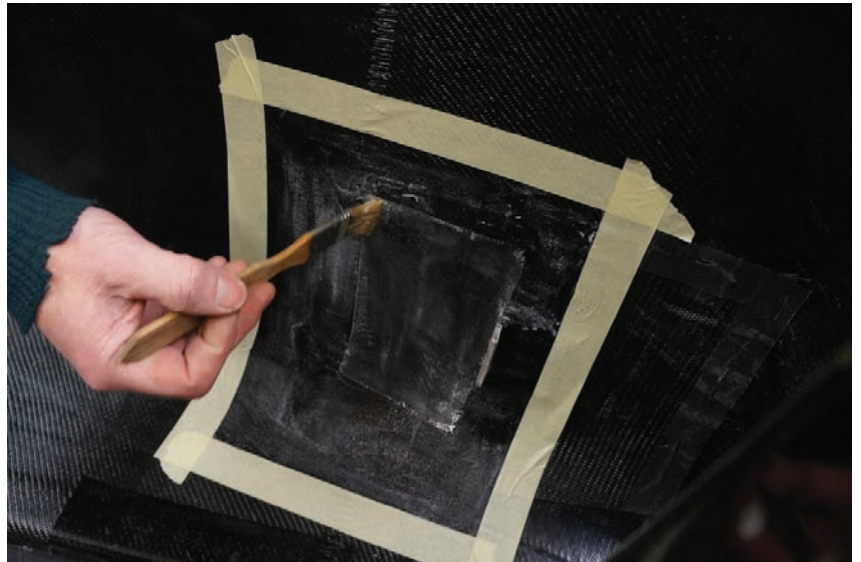


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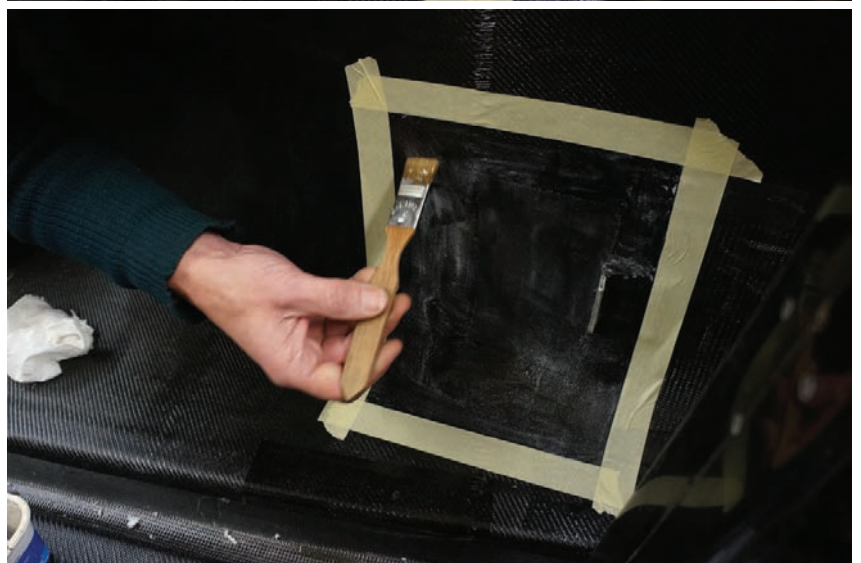
Laminate the first piece of the glass fabric just next to the original "L" profile.



Wet it with the epoxy resin – the fabric becomes transparent (no white spots).



Wet the rest of the square with resin (over the thick resin).

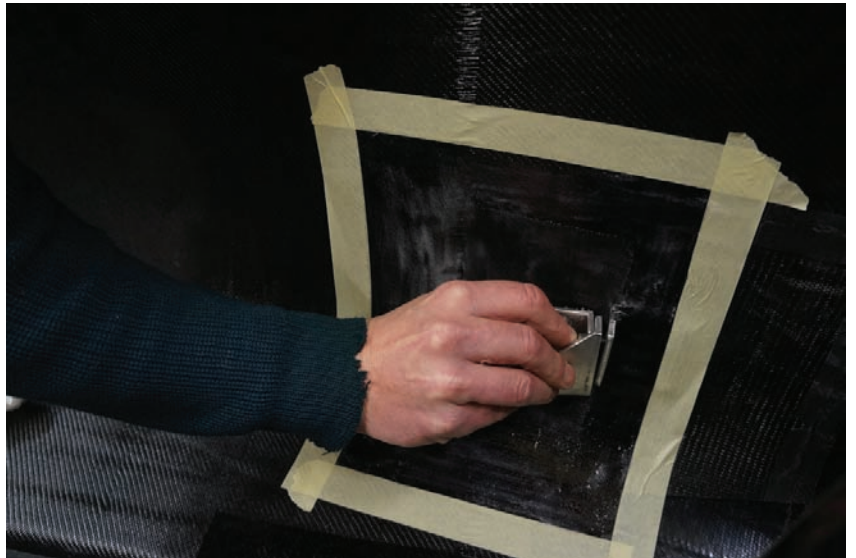


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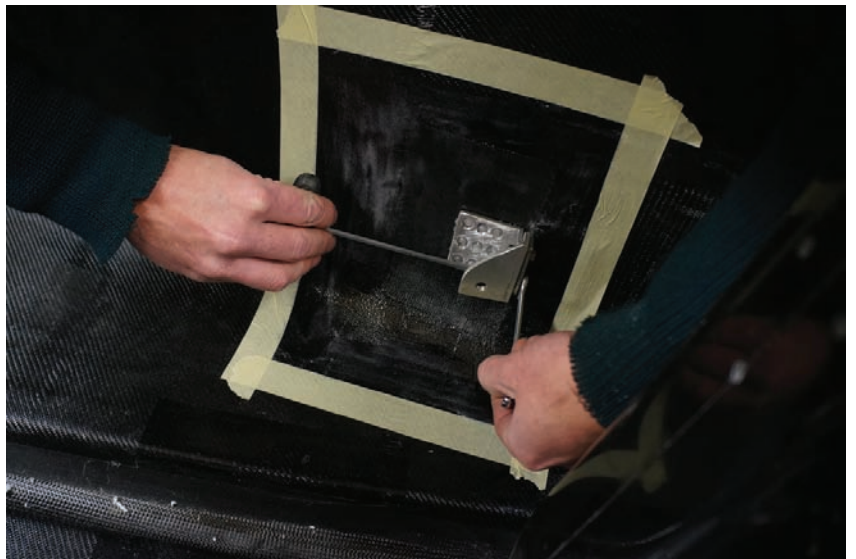
Remove the "L" profile from the acetone bath, let it dry and cover it generously with the thick resin on the side which faces the wall of the body. Make the resin thicker than the one applied earlier with the brush.



And mount it together with the swing arm attachment (in between) on place.



Tighten the bolts (20mm) well.



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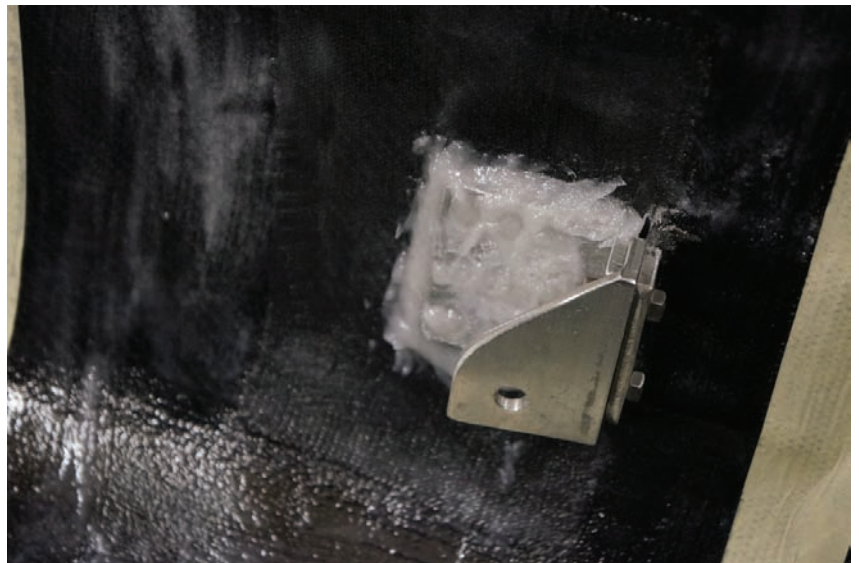
Detail photo of the position of all attachments – "L" profiles.



Add thick resin all over the perforated side of the "L" profile, press it under and into all holes.

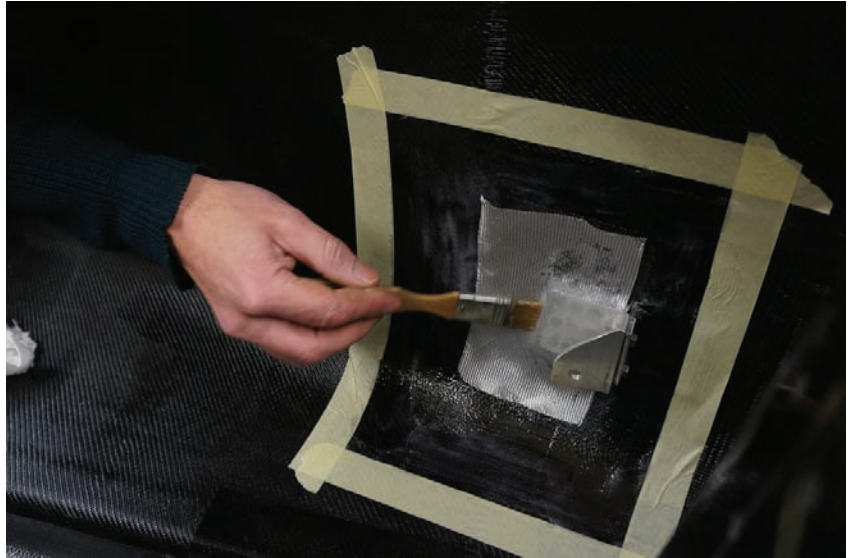


This is the right amount.



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Place the second piece of glass fabric.



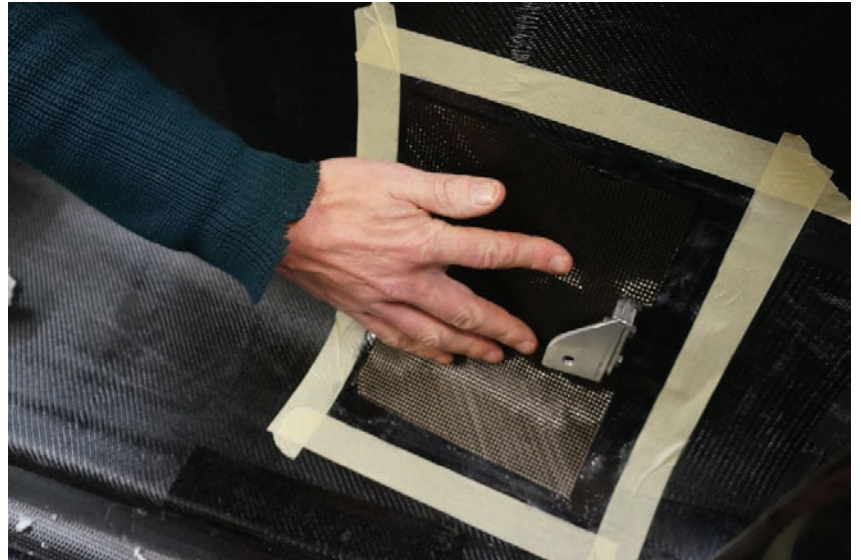
And wet it with resin.



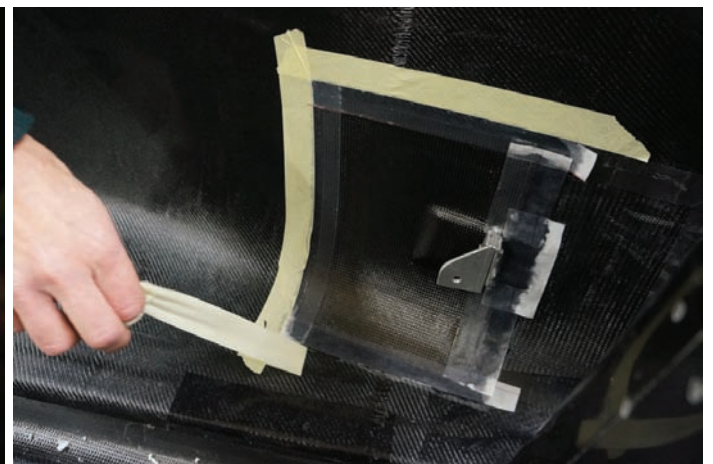
Place the smaller piece of carbon fabric. Impregnated carbon does not become transparent like glass does. You can see a slight difference in the shine of it, look carefully for dry spots. Go over the fabric several times with your brush to eliminate dry spots! Do not smear but stipple.

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Place the largest piece of carbon and impregnate it well with resin.



Cover the edges of carbon fabric with peel-ply. And wet it well with resin. This will avoid sharp edges and make a smooth finish.



Have you finished all your lamination? Remove the paper tape (when the resin is still wet!) and correct by brush places where the peel ply came loose. Do you see still some sanded surface? Paint it with resin.

Your velomobile should stay on the wheels while curing. Don't place it on its side while curing this can cause deformations!

After 24 hours in 20 degrees of Celsius (room temperature) remove the peel-ply strooks. Congratulations, your lamination is finished!

When mounting the swingarm note that the three welded washers, situated in between the swingarm and bracket, have to be mounted with the big washer to the outside.

