Alleweder Velomobile

Assembly instructions

Version 2025.07.09

Prior informations

The Alleweder is available in a kit version to build. By carrying out the assembly, you agree to follow all the instructions in this manual.

You have a minimum technical experience allowing you to undertake the various actions while ensuring your safety.

You have mastery of the tools and machines recommended to successfullycomplete the project.

You are able to install and adjust the various components of the bike, brakes, steering, derailleurs and transmission.

If necessary, get help from a person with sufficient skills.

In the event of non-compliance, modification or customization not mentioned in this notice, we cannot guarantee the proper functioning of the final product.

The EU laws consider you as the builder of the Velomobile. Passion-Vélomobile can not be involved in case of damages caused by assembly defaults.

Tools

Here is the list of necessary tools (not provided)

- Angle grinder (cutting disc + sanding disc)
- Drill
- Rubber hammer + wooden block
- Hammer
- Ruler
- Riveting pliers
- Flat wrenches
- BTR wrenches
- Flat / Phillips screwdrivers
- Thread lock
- Marker pen
- Chain drift
- Paper Scoth
- Cutter
- Cutting pliers
- Multi-grip pliers
- Sandpaper (grit+/-120)
- Vise pliers (optional)
- Hacksaw (optional)
- Gloves and protective glasses
- Ear protection

Basic principles

The work surface must be flat in order to obtain a straight and symmetrical assembly

Communication :
The right, left, front and rear indications always take the logical direction of the velomobile, regardless of its position on the work surface.

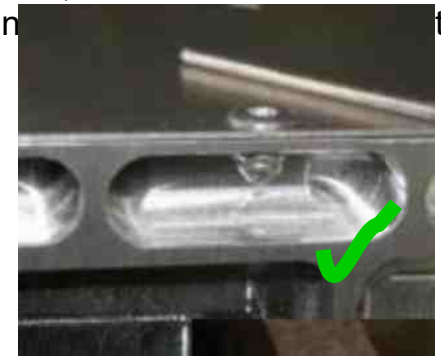
When it is not mentionned, the assembly is with rivets

When a structural element or mechanic have a symetrical equivalent, (left wheel-right wheel, left sheet-right sheet...), the assembly of the both have to be done, even the notice shows only one side.

Bolting :
Steel screws are harder than aluminum. Check the correct position of the screw before tightening, otherwise the aluminum thread could be damaged. Use threadlocker for each bolting.

Riveting :
Most holes are already drilled. When this is not the case, use the 3.3mm drill bits provided. After each drilling, remove any burrs an tween the two parts to be assembled.

When it comes to drill into a machined part, make sure the drilling is through-hole



A rivet cannot hold in a solid part.

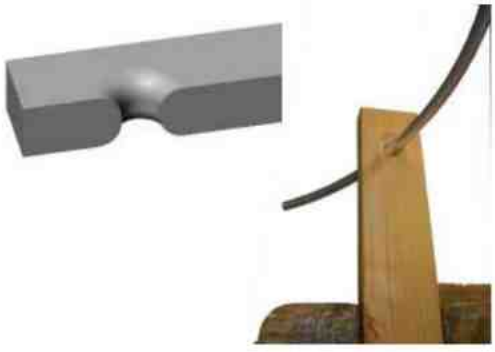
In case of a riveting error, simply drill through the rivet. If the drill bit goes crooked, don't insist. Grind the rivet to create a flat area and repeat the operation.

Sheet metal :
The sheets have a side with better looking than the other. Make sure the nice face is the visible one when you make the assembly
The sheets are thin enough to be bent by hand. To help you, rigid adhesive tape is provided. Use it to hold sheets in position before riveting.
Fasten the rivets one by one from the stating point of avoid any gap between the sheet and the rib.

Cutting :
In order to obtain an optimal aesthetic result, certain sheets must be cut. This leaves roomfor maneuver during assembly. Use an angle grinder with a metal disc. Warning: usegloves, helmet and protective glasses. After each cut, sand the edges to remove burrs

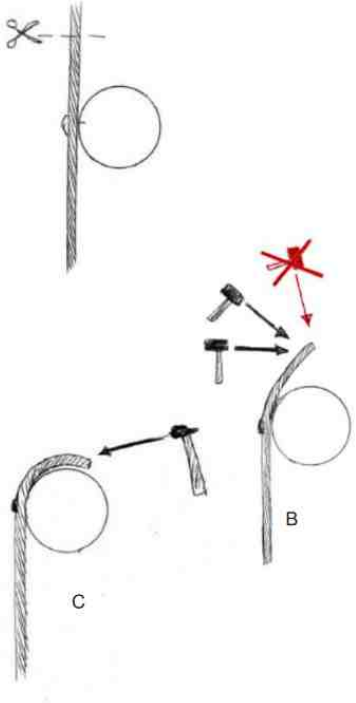
Tube bending:
The wheel arches require bent tubes. The main bending is carried out at the factory, but it will be necessary to adjust it manually in order to perfectly match the shape.

To do this, use a piece of wood in which you have drilled a hole with rounded edges. By a succession of slight folds, you will obtain beautiful curves.
Do this carefully, excessive bending may rupture the tube!



Hammering:
Around the access hole and wheel arches, the sheets will have to be hammered to better fit the shape of the tube. Use a rubber hammer and tap the sheet metal
gradually by making several passes.
Use a wooden block to finish hammering

The sheets have to be cut before hammering. the sheet metal overhang must not exceed 15mm



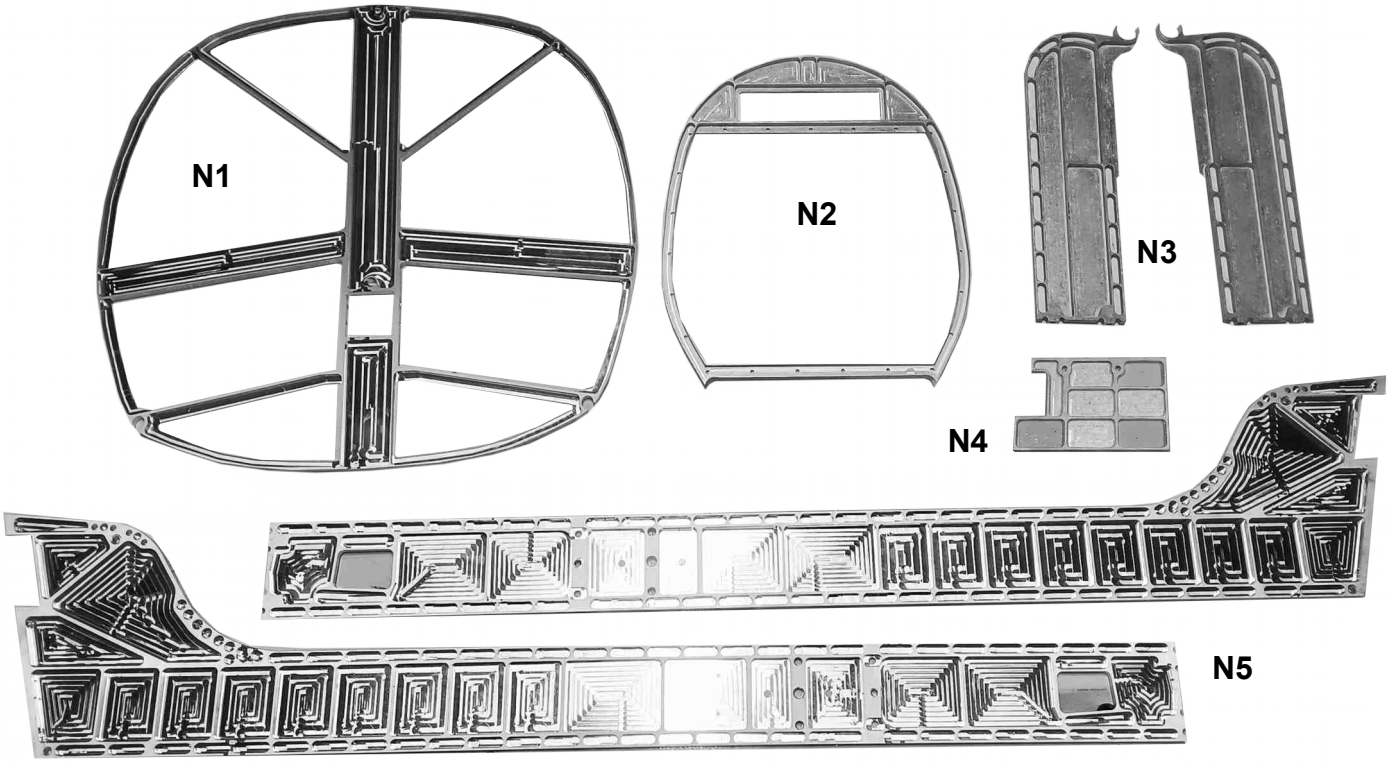
Ball bearings :
The kit have 6 and 8 mm ball bearings. It can be separated in two parts, a pin secures the assembly.

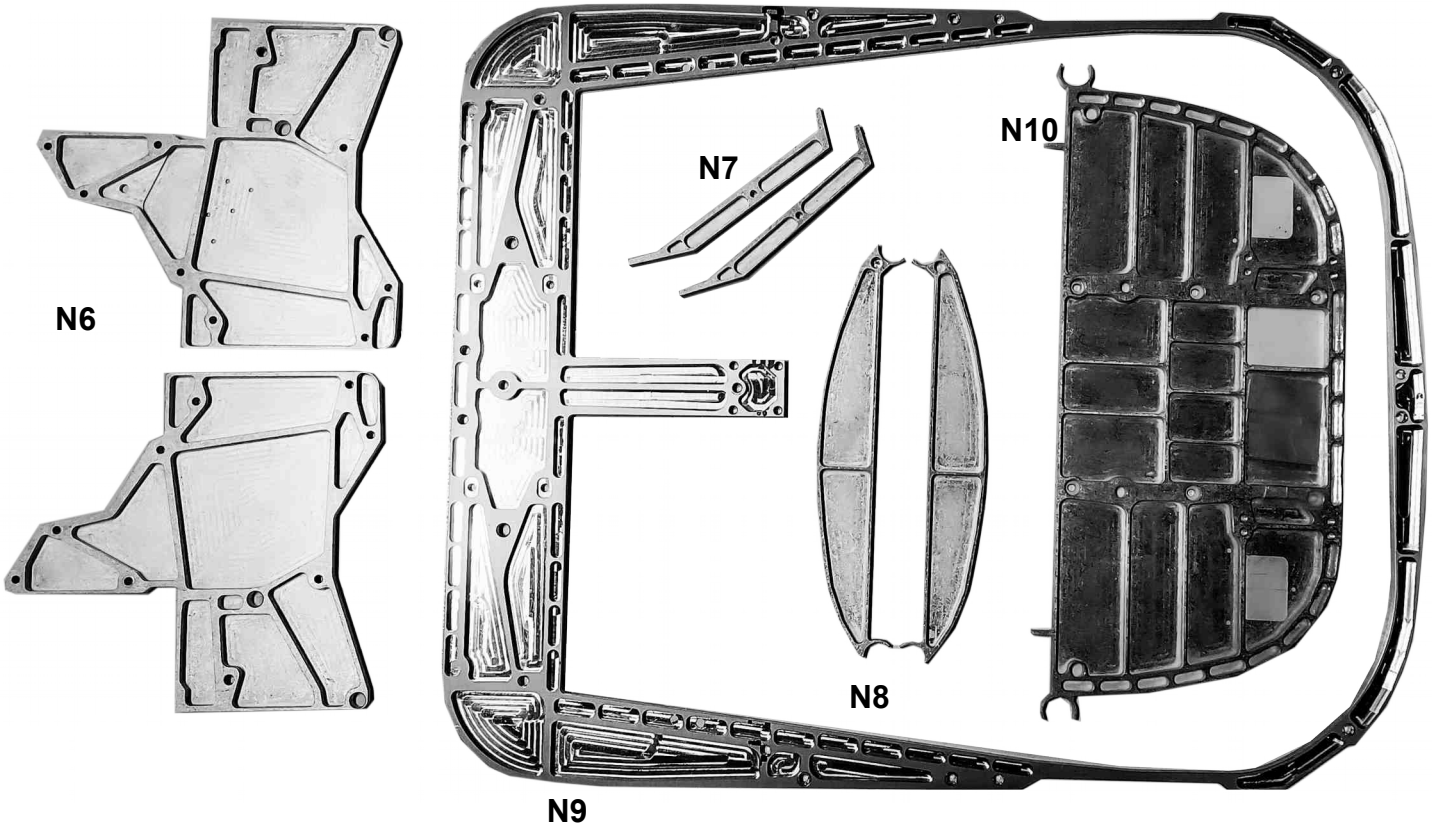
Put some grease when doing the maintenance

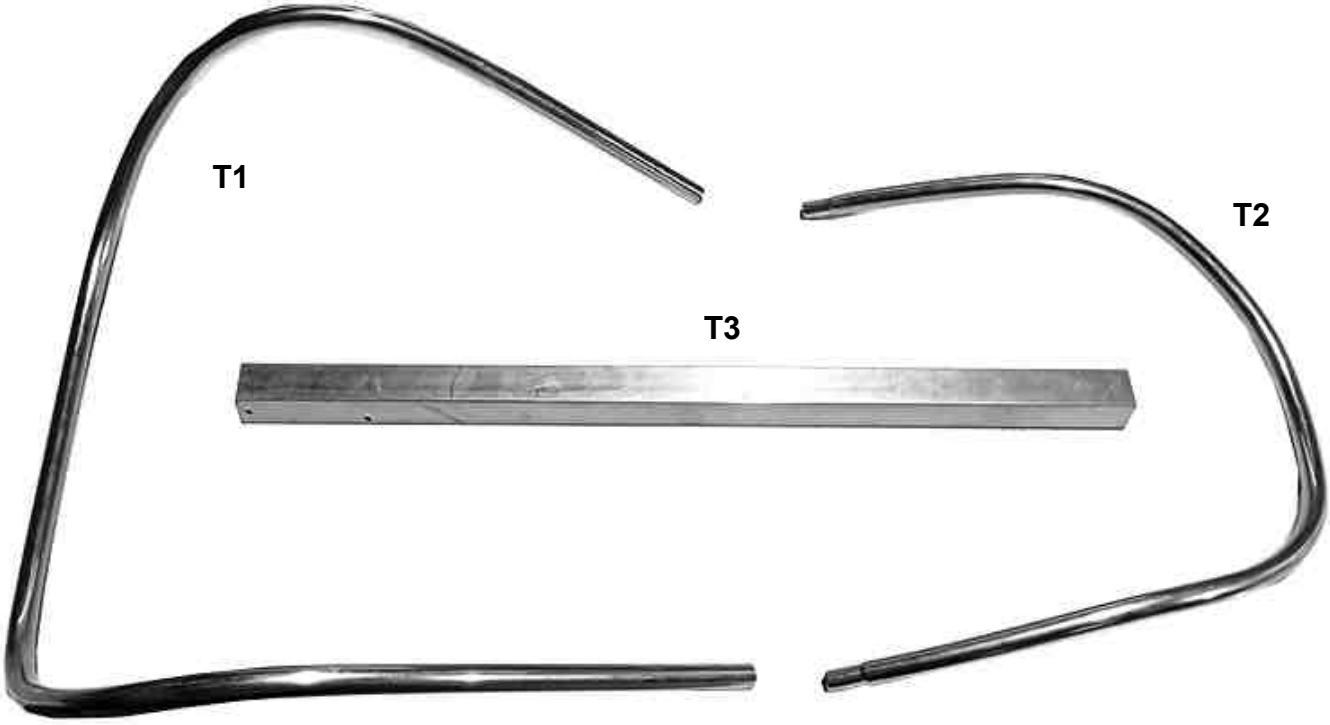
Check that the all pins are well in place before using the bike.

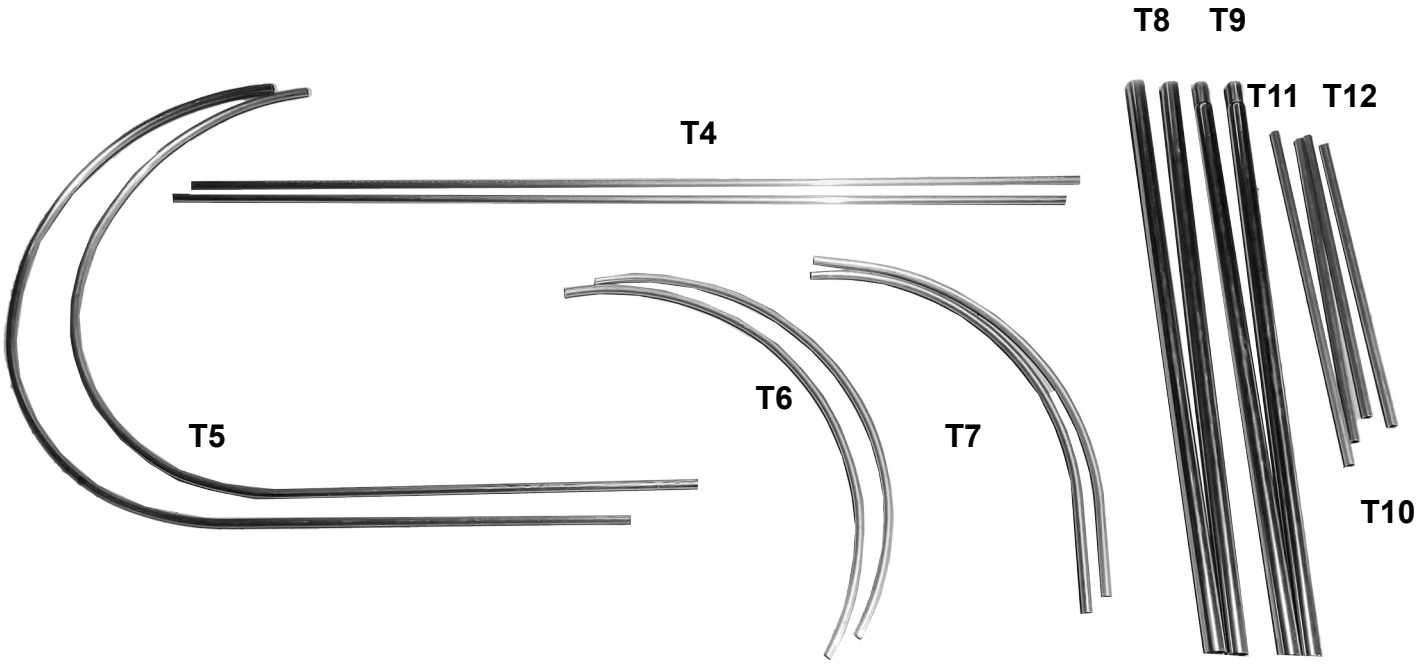
Threadlock : Loctite 243 is the recomanded one. It makes a regular lock.

Components

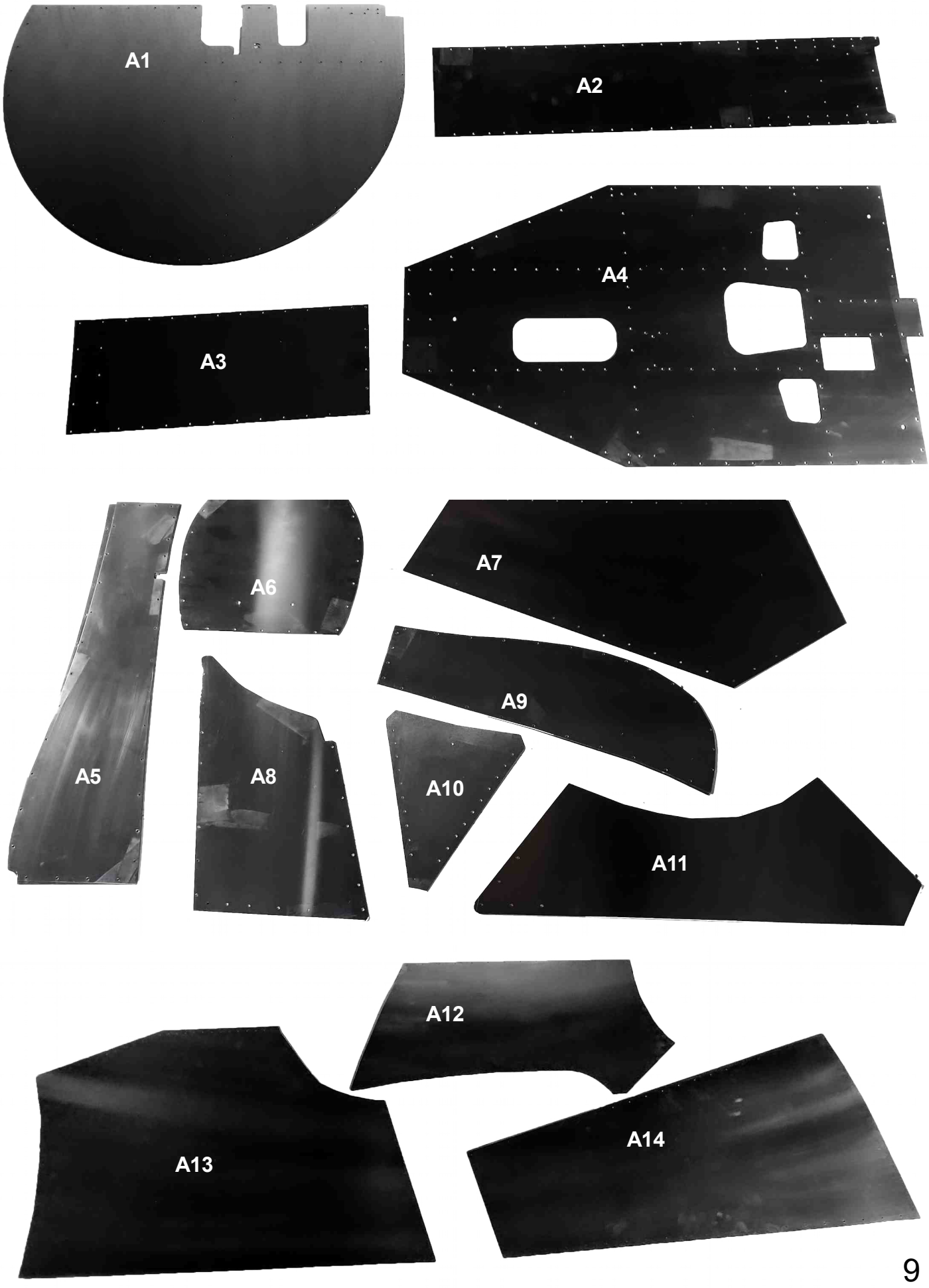


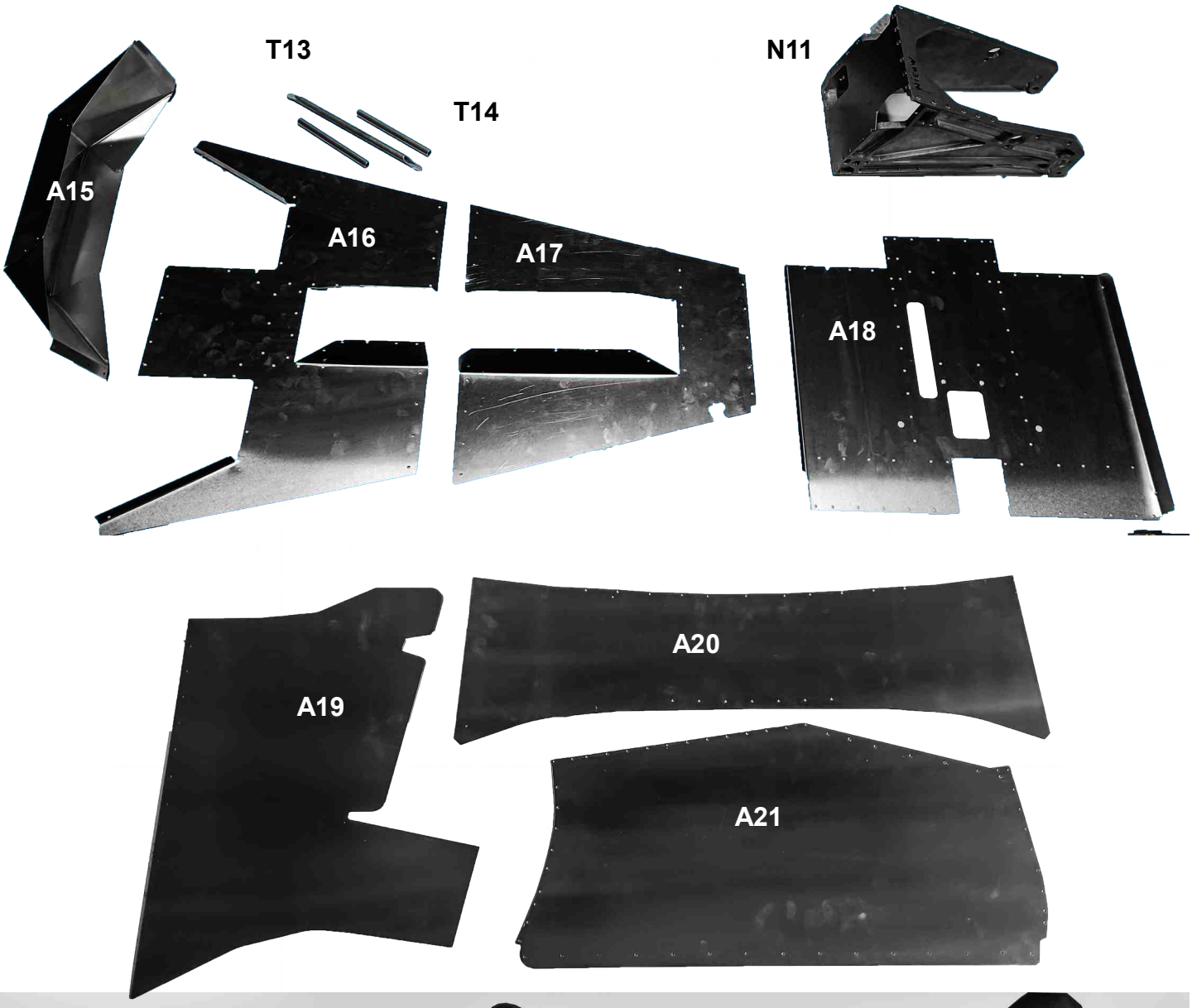


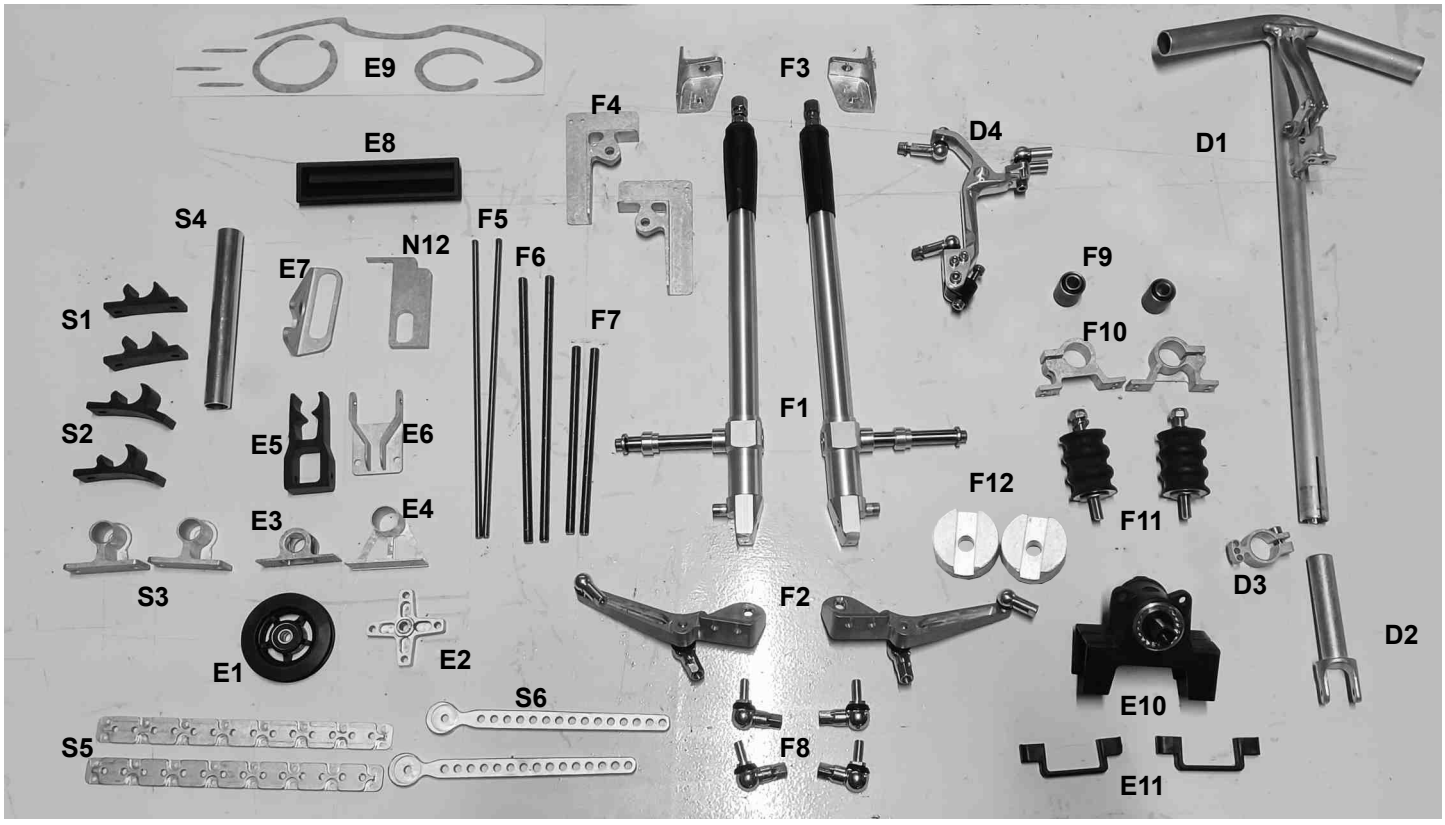

T1
T2
T3

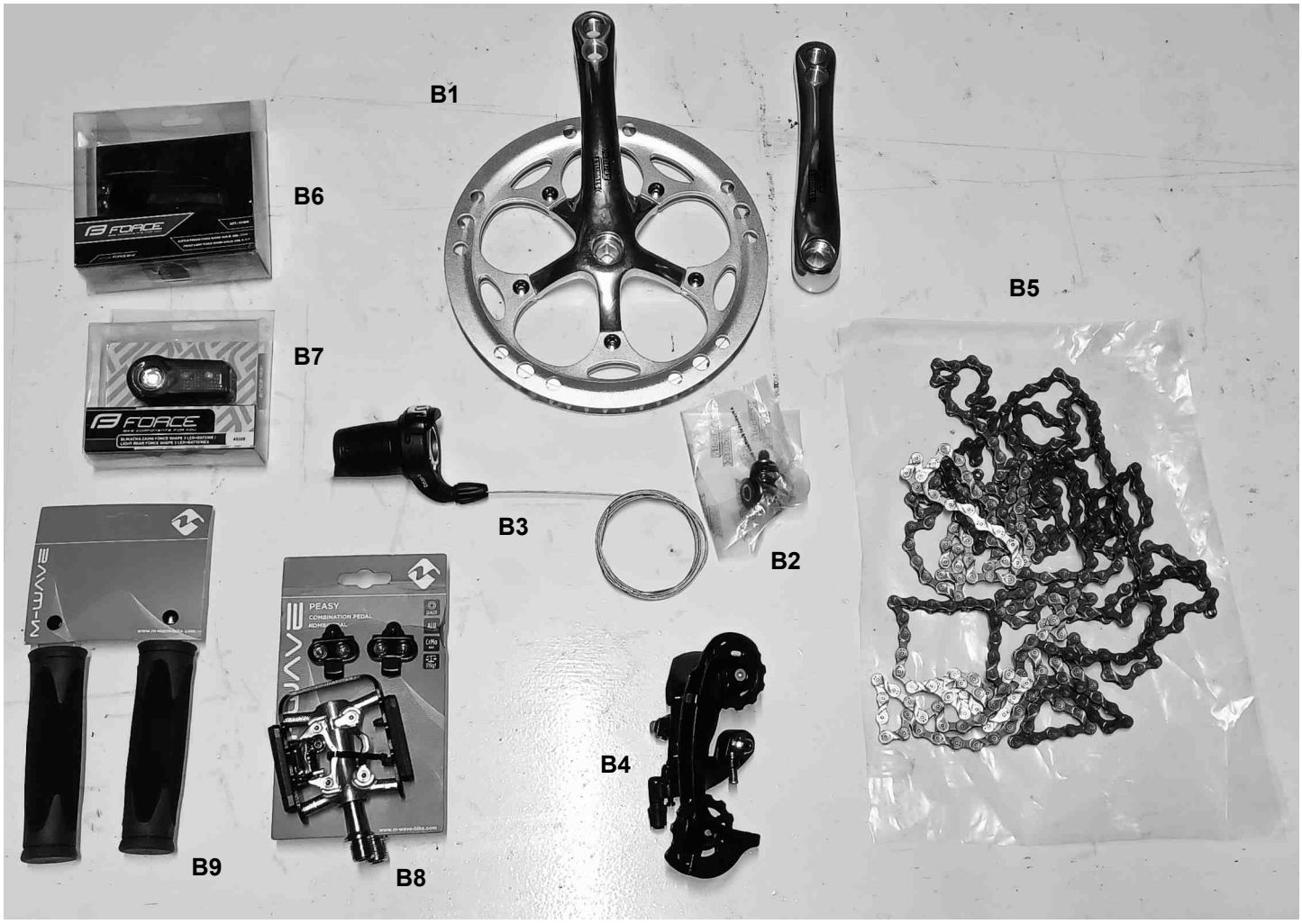

T8
T9
T11
T12
T4
T6
T7
T5
T10


Tp 1 (55cm)
Tp 2 (75cm)
Tp 3 (145 cm)


A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14


T13
T14
N11
A15
A16
A17
A18
A19
A20
A21


E9
F4
F3
E8
D4
D1
S4
F5
N12
E7
F6
F9
S1
F7
F10
S2
E5
E6
F1
F12
E3
E4
F11
S3
F2
D3
D2
E1
E2
S6
E10
S5
F8
E11


B1
B6
B5
B7
B3
B2
B4
B9
B8

Tubes

T1 - Front entrance (1)
T2 – Rear entrance (1)
T3 - Boom (1)
T4 - Foot hole (2) + 1 extra
T5 - External wheel arch (2)
T6 - Front internal wheel arch (2)
T7 - Internal wheel arch rear (2)
T8 – Rear structure 1 (2)
T9 - Rear structure 2 (2)
T10 - Floor 1 (1)
T11 - Floor 2 (2)
T12 - Entry tube support (2)
T13 - Rear wheel arch reinforcement 1 (1)
T14 - Rear wheel arch reinforcements 2 (2)

Tp1 - Bottom bracket tube (1)
Tp2 - Tube under seat (1)
Tp3 - Chain return (1)

Sheets

A1 - Wheel arch 1 (2)
A2 - Chassis 1 (1)
A3 - Chassis 2 (1)
A4 - Chassis 3 (1)
A5 – Wheel arch 2 (2)
A6 - Rear side (1)
A7 - Front body 1 (2)
A8 - Inlet tube support (2)
A9 - Wheel arch 3 (2)
A10 - Tail body 1 (1)
A11 - Central body 1(2)
A12 – Central body 2 (2)
A13 - Tail body 2 (2)
A14 - Front bodywork 2 (2)
A15 - Rear wheel arch 1 (1)
A16 - Rear wheel arch 2 (1)
A17 - Rear wheel arch 3 (1)
A18 – Floor (1)
A19 - Front body 3 (2)
A20 - Central body 3 (1)
A21 – Underbody panels (2)

Ribs

N1 - Nose (1)
N2 - Tail (1)
N3 - Bottom reinforcements (2)
N4 - Chassis center (1)
N5 - Chassis sides (2)
N6 – Boom support (2)
N7 – Under-chassis reinforcements (2)
N8 – Inlet tube supports (2)
N9 - Main rib (1)
N10 - Rear bulkhead (1)
N11 - Rear fork (1)
N12 – Tp2 tube support (1)

S1 - seat back clip (2)
S2 - seatseat clip (2)
S3 - Low seat supports (2)
S4 - High seat support 1 (1)
S5 - Seat supportbars (2)
S6 - High seat support 2(2)
F1 - front suspensions (2)
F2 -Front brackets (2)
F3 – Upper suspension support (2)
F4 - Reartie rod support (2)
F5 – M6 threaded steering rod (2)
F6 – M8 central tie rod (2)
F7 - Tie rod rearM8 (2)
F8 – Ball joints M8 (8) M6(4)
F9 – Axle bushes (2)
F10 –Rear fork support (2)
F11 –Suspension bushes (2)
F12 – Silent bloc spacer

Pieces

E1 – Caster (1)
E2 – Caster support (1)
E3 – Tp3 tube support(1)
E4 – Front lighting support (1)
E5 – Tiller hook (1)
E6 – E5 support (1)
E7 – Tp1 tube guide (1)
E8 – Rear handle (1)
E9 – Sticker(2)
E10 – Bottom bracket (1)
E11 –Bottom bracket bushings (4)
D1 –Tiller (1)
D2 – Tiller holder (1)
D3 – Tiller collar (1)

Divers

20 mm cable grommets (6)
6mm cable grommets (6)
Plastic collars (15

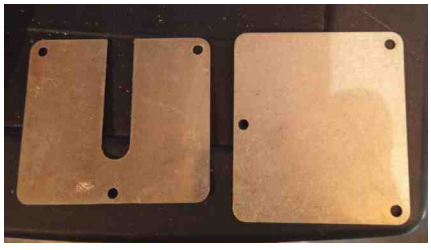
B1 – Crankset + Chainring (1)
B2 – Bottom bracket screw (2)
B3 – Derailleur control (1)
B4 – Rear derailleur (1)
B5 – Chain (1)
B6 – Front lighting (1)
B7 – Rear lighting (1)
B8 – Spd pedals (2)
B9 – Handles (2)
B10 – Brake/derailleur housing
B11 – Brake spacer (2)
B12 – Brake plates (2)
B13 – Brake pull dropouts (2)
new version bended steel
mounted on F1

tools

Z1 – Long rivets
Z2 –Short rivets
Z3 – 3.3mmdrill bits
Z4 – Reinforcedadhesive tape
Z5 –Sealant

Special parts infos

Front chain tensioner, you can use it or not.



These little sheets are to cover the 2 openings on N10.

Tubes T4 : The kit need 2 but we supply 1 extra.

Bolts, nuts and washers

H

C

R

P

M5f, M6f, M8f, M10f

M6, M8

M8

M8s

M6L

W8RL (rubber)

W8RM (rubber)

W8L

W8

W8s

W6e (thick)

W6

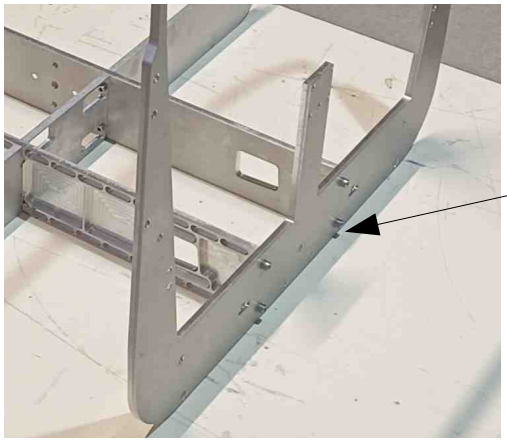
W5L

W5

Frame

Bolt the main rib N9 with the sides N5. The parts should be positioned with the machined faces towards the rear or towards the sides.

Use thread lock and apply firm tightening.



R 5x20 (x4)

Bolt the rear face N10 with the R 5x10 screws

Note that the thread is deliberately inclined

N4, N3
The N4 rib is fixed with 3 screws (machined side towards the rear). The fourth screw does not fit on N4, it is located at the bottom right

R 5x20 (x4)

E1, E2
R8x40
P6x20 (x2)
P6x12 (x2)
W6 (x4)
W8S (x1)

Assemble the support and the Chain idler, use thread lock.
The P 6x20 screws are vertical
The P 6x12 screws are horizontal
W8S have to be on R 8X40 before fixing the idler

TP2 (75cm)
N12
Grommet 20mm (x2)
Plastic collars (x2)

Attach N12 behind the caster, the top should be aligned with the top of the frame. Position the tube adding a cable grommet on each side to hold the tube in position and add 2 collars.

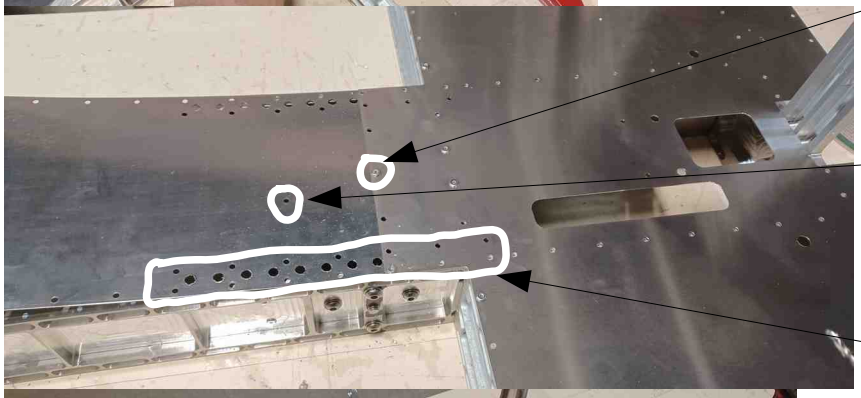
Add a little velcro secured with a colar to avoid any tube movements

F9 (x2)
F10 (x2)
R5x20 (x4)
R6x10 (x8)
A2
A18

Fix the F10 supports securely with thread lock, grease then place the F9 silent blocks without tightening them for the moment.

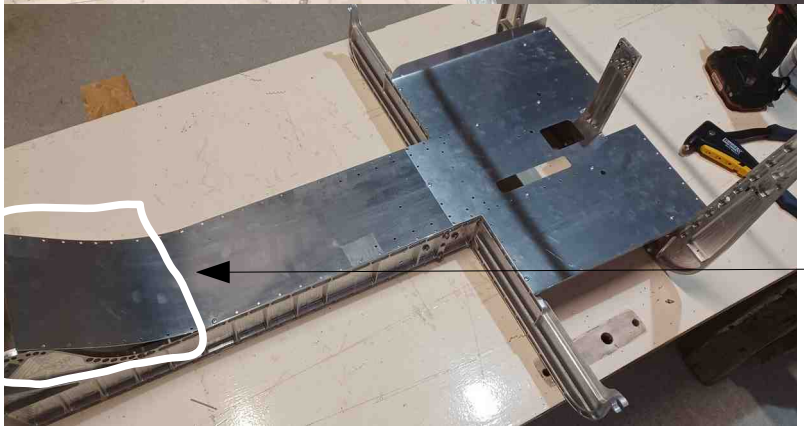
Position the A18 sheet by aligning the 2 holes on the crosspiece, fasten 2 rivet to hold in place

Postition the A2 sheet below the A18 sheet, fix 1 rivet here

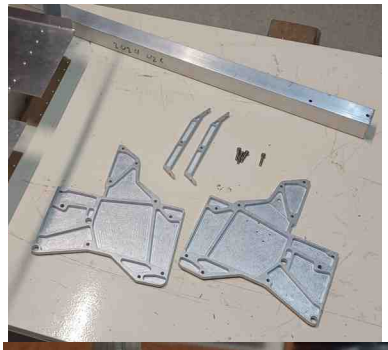


This hole have to be in front of N12, fix 1 rivet

Do not put a rivets in these places (seat support area



Do not put rivet in this area, fix all other rivets on A18



T3, N6 (x2), N7 (x2), E5, E6

Do not tighten the screws before the next step

Position the N6 ribs (machined side inwards)

Position T3 tube, serial number on top, opened side on front

Place 5 screws R5x65 without tightening them

Add 2 screws R5x20 at bottom only

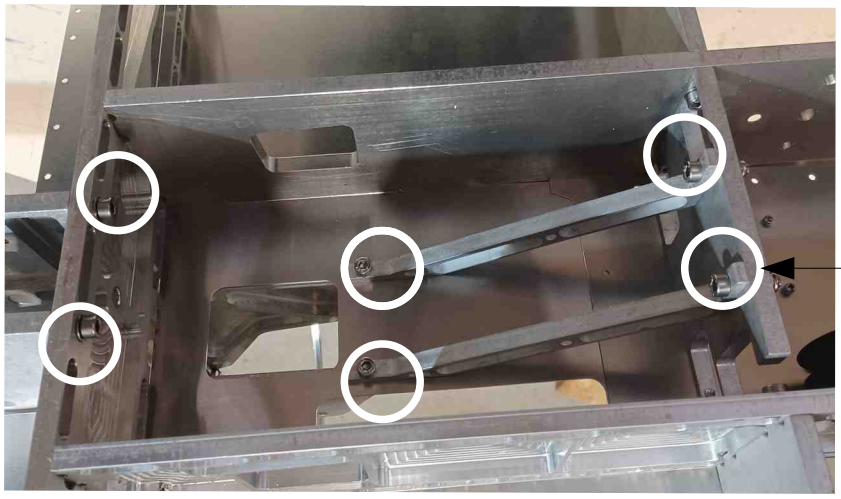
Fix E6 with R 5x20

Fix E5 with P 6x12 (the picture shows old screws)

Turn the chassis over, being careful not to damage the main rib.

R 5x16 (x6)
W5 (x2)
M5F (x2)

Position N7 and add R 5x16 with threadlock, but let them free for the moment



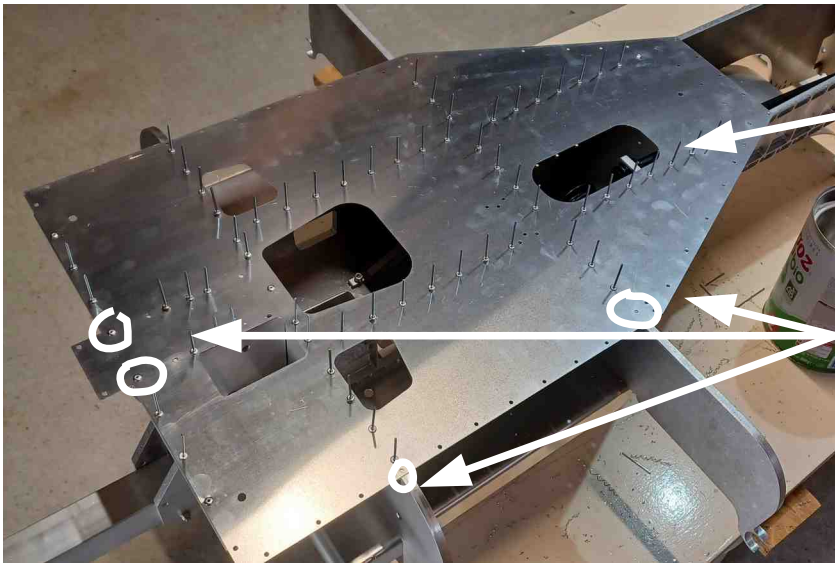
These 2 screws are on the back side, fiw them with 2 nuts M5f + W5

When all screws take their position, tighten them, also the ones of the previous step. I is sometime needed to insist before having the right alignment of the various parts

Position Sheet A3 below Sheet A4

Place a rivet to align them with each other before fixing them to the chassis

Don't put rivets here



The A4 sheet must have the opening facing the chain idler.

Make sure the holes are facing the ribs

Do not fix rivets there, a tube will come later

Place the tubes:

T11 (420mm)
T10 (380mm)

Please note, the photo shows the chassis right side up

Bend the sheet like this and put 2 rivets

Position **F4** supports, fix it with 2 rivets

Insert T4 tube, it goes to F4

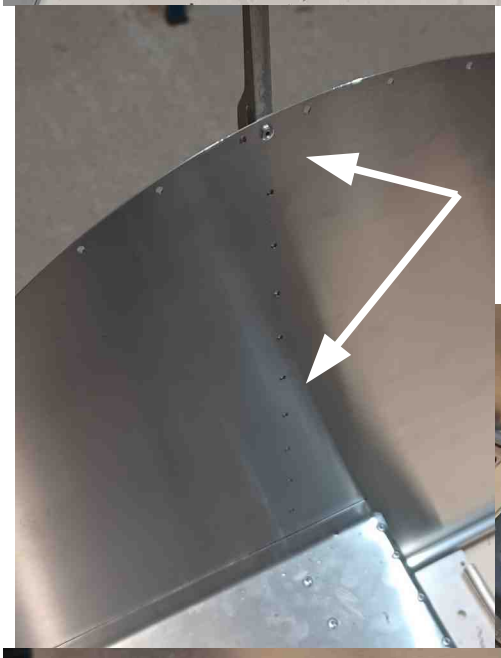
Do not put rivets in this area, a sheet will come later

Turn the fram upside and fix E7

Wheel arches

Place the A1 sheets. You have to force a little to slide them into place.

First, fix the bottom with some rivets



Align carefully the main rib with the vertical holes. Ad a first rivet and finich riveting

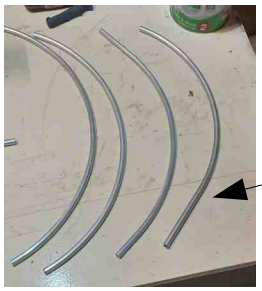
Add rivets to fix the Sheet and F4 together

F3 (x2)
R 6x16 (x2)
R 6x20 (x2)

Firmly secure the F3 front suspension supports using thread lock and washers.
The picture shows F3, left wheel arch

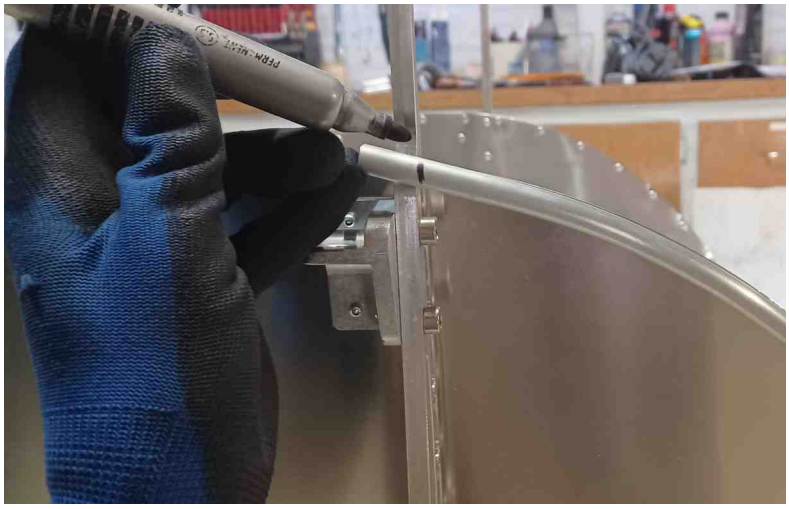
R6x20

R6x16



Prepare the T6 and T7 tubes, the T7 tubes are to be positioned behind the wheel arch. They have a longer straight side, it is to be inserted downwards, through the F4 supports

The tubes are pre-bent, but the adjustment must be completed by hand. This step is meticulous, take your time and proceed with small corrections, so as to gradually approach the exact shape



When the adjustment is complete, the excess tube must be cut off. Sand the cutout to remove burrs

Vise pliers can be handy for holding the tube while drilling and riveting.

Continue with the T6 tubes. adjust, cut the excess and fix them.

Fix a rivet on the wheel arch base

The A5 sheets have to be fixed to the rear of the wheel arch, the notch allows the assembly to be correctly positioned.

Position the A5 sheet as in the photo.

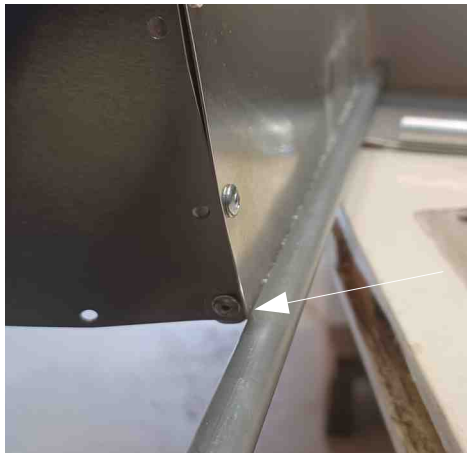
Attach a few rivets to hold it

At the other end, you have to straighten the sheet a little so that the holes are in front of the tube.

Before fixing the rear of the wheel arch, check that the sheet metal is horizontal.

Drill the holes from the inside wheel arch and fix the rivets from the outside

Add the A9 sheets (above A5) Start by fixing them to the A5 sheets then bend them gradually on the tube



If any holes fall opposite other rivets, make another hole next to them.

The T5 tubes form the outer side of the wheel arch. The adjustment will require special attention. The objective is to follow the edge of the sheet, this time in all 3 dimensions!

This is the most difficult step of the kit ;)

Set a starting point by marking the location of the first hole, then hold the tube with vise pliers.

Take the time to achieve the ideal curve, then cut off the excess.

Try to not drill or rivet the tube before it is completely adjusted, it can break the tube. A tolerance of 3-4 mm can be made up when riveting by applying light force.

Underbody

Connect the T8 and T9 tubes together, add 2 rivets.

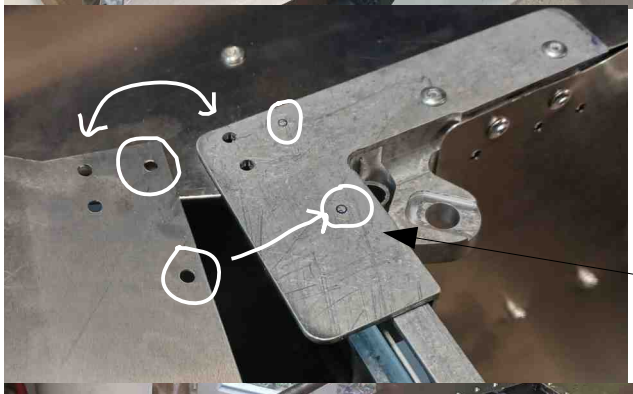
Place them in the supports provided for this purpose.
There is no recommended direction

The rear bracket should be bent slightly to accommodate the angle of the tube

Add rivets to hold the tube in position

Turn the frame over and prepare the A21 sheet

position the A21 sheet as in the photo (here, right side of the velomobile)
Do not fix rivet



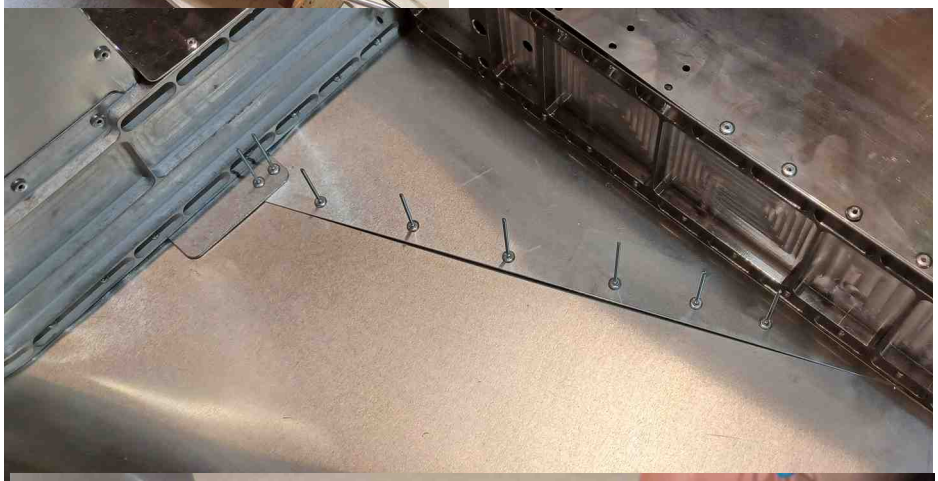
Before insert the A21 sheet below F4, put it above and take marks of the 2 holes

Next you can slip the sheet below F4 (could need some force)
<u>And fix only the 2 rivet that fix the rib</u>

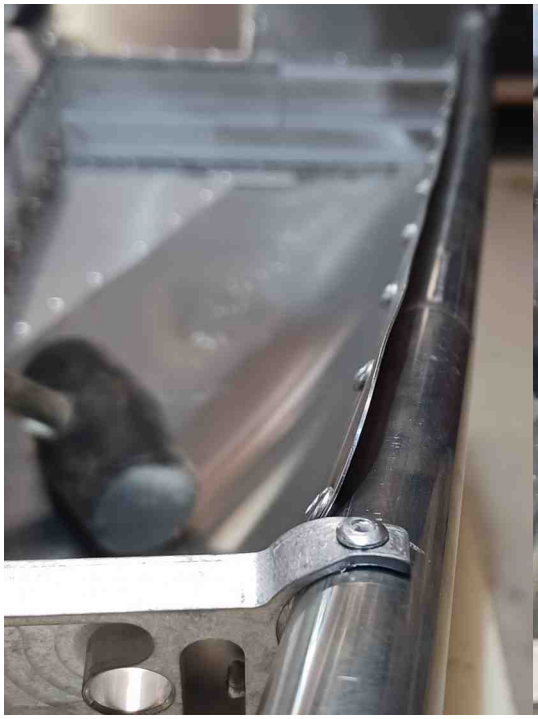
Fix rivets on the flat area, but not on this place, you will fix them from the inside

Before continuing riveting, pass the sheet metal under the tube then finish riveting. Repeat the operation on the other side.

Turn the frame over, now you can put the rivets on the remaining holes.



Rivet the sheet metal onto the tube



Using a rubber hammer, bend the sheet metal around the tube.

Assemble **A16** & **A17**

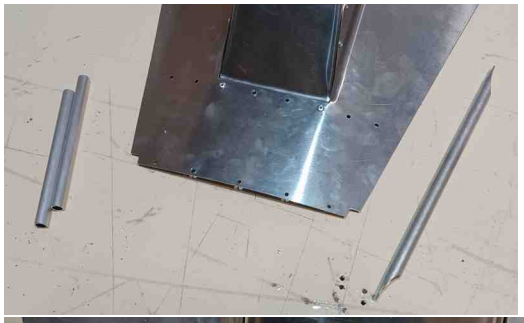
Do not put rivet on the last hole

From below, slide the A15 sheet

A few holes already present will help you obtain the correct alignment.

Secure the rivets.

Prepare tubes **T13** and **T14**



Present the T13 tube on the rear of the wheel arch. With a felt-tip pen, mark the location of 2 holes.

The tube must be fixed from below, the marking will help you find the right position. put the rivets.

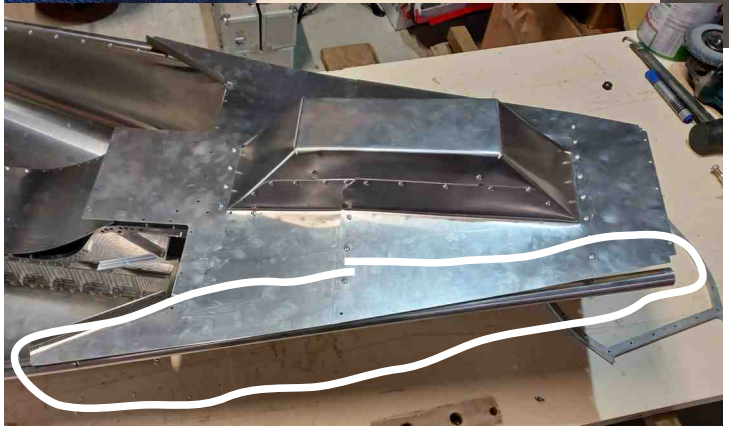
Take the T14 tubes and drill a hole in one end.

You can then fix a first rivet for each tube, do not fix the following ones.

Position the assembly on the frame, the notches hold it in the correct position.

The T2 tubes must be positioned in the slots provided. Don't rivet them right away.

Before positioning the back tubes, fix the rib N2, it will then guide the tubes into the correct position.



You can now complete the riveting along the tubes. Depending on the version of your kit, the holes must be drilled, a gap of 4 cm is suitable

Finish riveting the T14 tubes then continue to rivet the sheet metal onto the N10 rib, while drilling, respect the angle of the rib. Otherwise the drill may slip

Bend the sheet metal then add the rivets. Be careful that the rivets are opposite a hole to allow the rivets to crimp freely.

The real crossing position is not exactly like the picture because we moved it about few cm, but the process is the same.

Place the T12 tubes on the two notches, they must be pinched slightly so that they can be inserted

Present sheet A8 and attach 1 rivet..

At the other end, present the rib N8 (the large part is upwards, the photo shows N8 on the right side of the velomobile)

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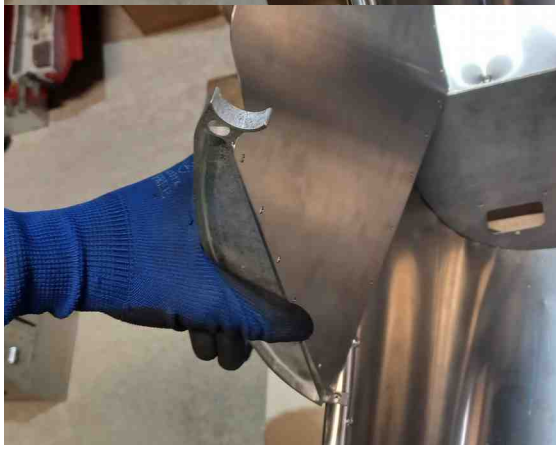
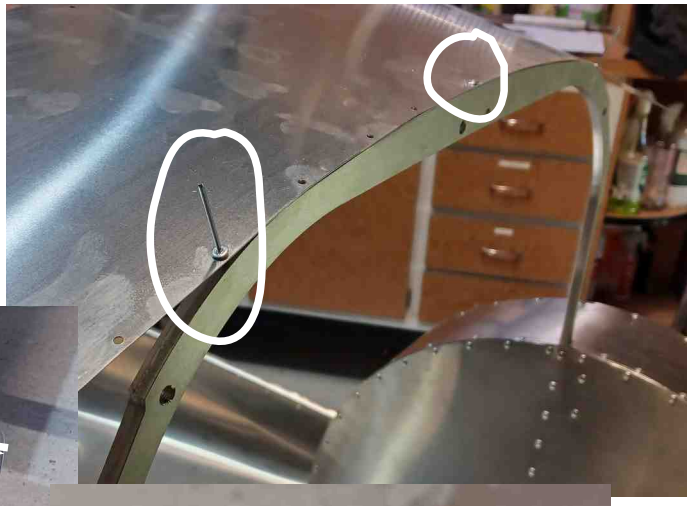


Fix rib N8 on the tube then bend it slightly to align it with sheet A8. fix the remaining rivets.

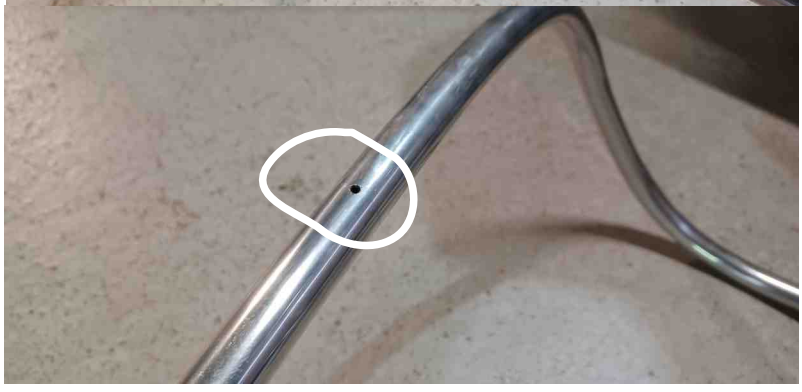
Entrance hole

Present sheet A20. Fix 1 rivet in the center and add two other rivets without crimping them at the ends. This will bend the sheet metal and give it a tilt.



Assemble tubes T1 and T2 , check A distance (top to top), cut if necessary and add a rivet.

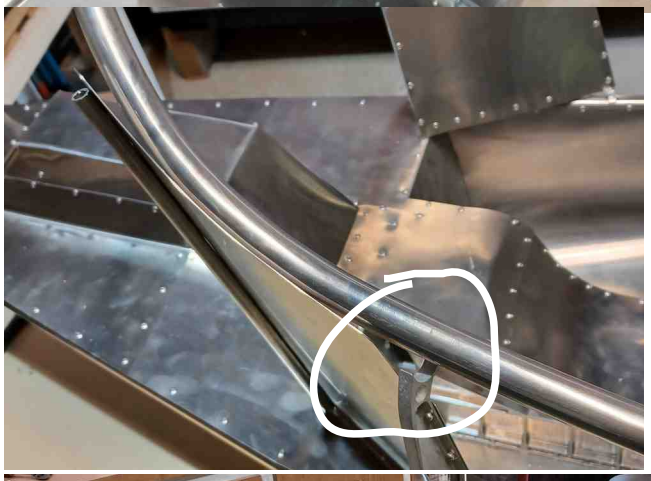
Drill 1 hole of 8mm at the lowest point, it is used to remove dirt and avoid noise. (On each side)



Prop the tube to give it an inclination close to reality.
Drill a hole (rivet size) in the center of the tube on the front part.
The middle of the tube (front and rear) is already traced at the factory

Present the tube on the frame. Fix the central rivet on the front part

The rear part rests on the N8 supports
Bend the A20 sheet, holding it with adhesive tape, do the same for the rear part of the tube



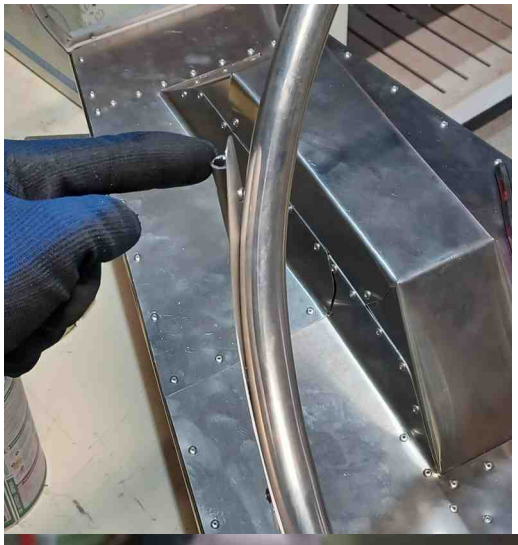
The front must be at 610-620mm from floor to top of the tube

the rear must be at 455-465mm from Floor to the top of the tube.

The ends of the supports should be bent slightly to fit the tube

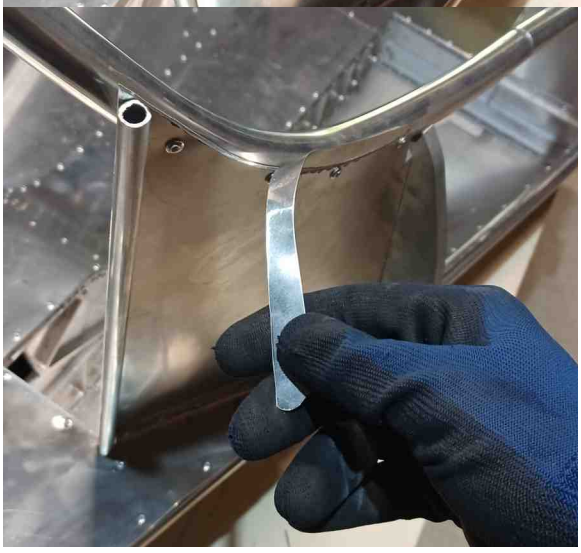
Fix a rivet

Attach 4 rivets. (location to be traced yourself)



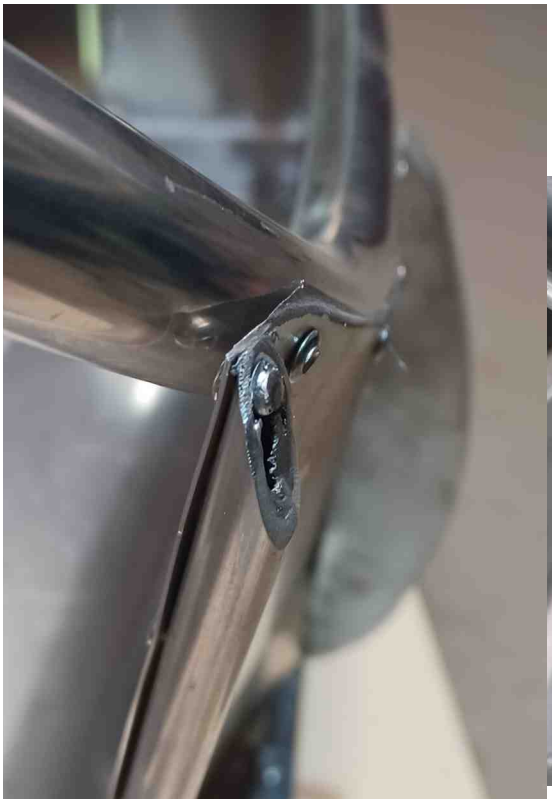
This end (T14 + A8) risks hindering the installation of the bodywork. It is necessary to cut it.
The goal is to reduce excess as much as possible.
Trace and cut.

By making a superficial cut pass, you can then finish the cut by hand by bending the sheet several times in a row.



Cut the tube as in the photo then sand the edges to remove the burrs and further reduce the bulk.

If possible, ad a rivet



Body

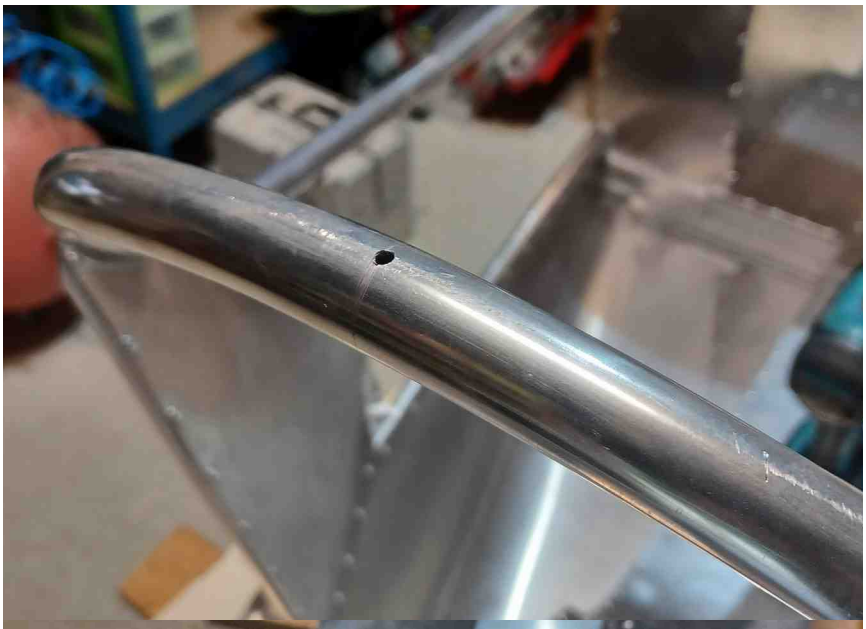
Assemble sheets A10 and A13 (x2) together.
Take care that the rivets are well
inserted before crimping them, use a wedge to raise the sheet metal if necessary.

Do not put rivet on these places

The central part is not drilled.

Drill the holes from below

Then attach the rivets on top.



Drill a hole (rivet size) at the top of the back of the T2 tube

Do the same for the rib N2

Place the assembled sheets and attach 2 rivets to align everything.

Bend the sheet and hold it firmly with adhesive tape.
The sheet must be perfectly pressed against the rib N2 and the tube T8

The N8 ribs may not be perfectly aligned with the sheet metal, adjust them by hand if necessary.

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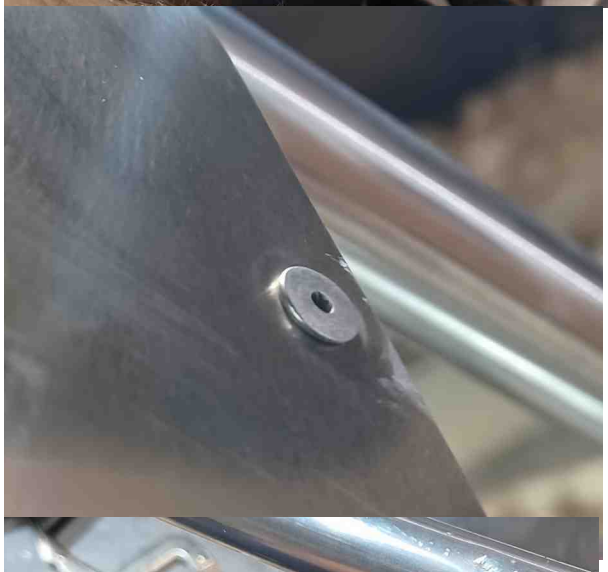
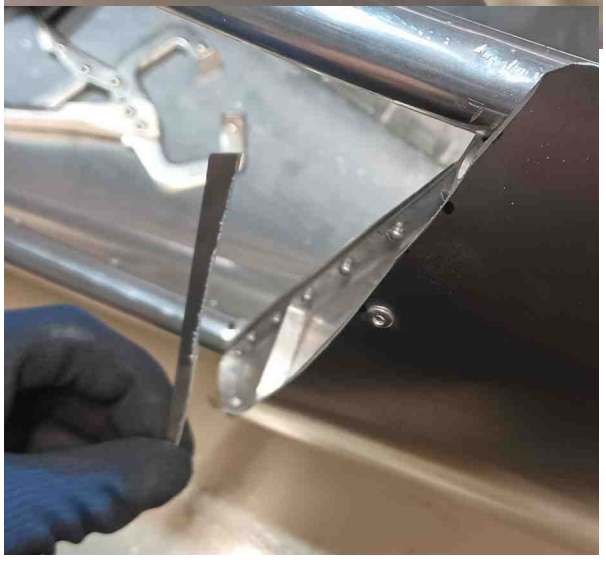
The rib does not have a normal curve, we can spot 2 flatter areas and this is where 2 rivets must be placed.



Sand the heads of these rivets to reduce their size, another sheet will come on top.

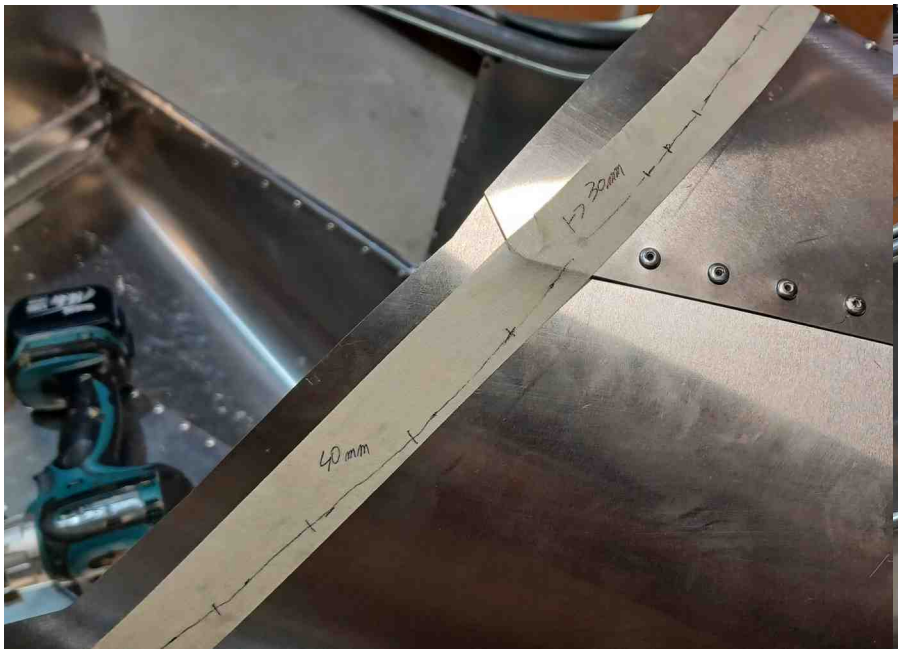


Cleanly cut out the sheet metal that exceed from the rib

Apply paper tape. It will help mark the location of the holes.

The scribing tool allows you to mark the center of the tube

You can then mark the holes by taking a 40mm gap for the side sheets and 30mm for the top sheet. Fix the rivets



In the same way, trace the center of rib N2 and take 30 mm of space between each drilling.

Fix the rivets

Turn the velomobile over, ensure that the sheet metal is well covered with adhesive tape, then continue tracing, drilling and riveting.
Take 40mm of space between each drilling

Trace the tube following the axis of the rivets already in place

Present the sheet A12 on the velomobile

The covering must be distributed to the right and left.

Fix 2 or 3 rivets and check if by bending the sheet, the distribution is still balanced to the right and left
Fix the remaining rivets, then turn the velomobile over

Use tape and don't hesitate to apply tension to press the sheet metal into the correct position.

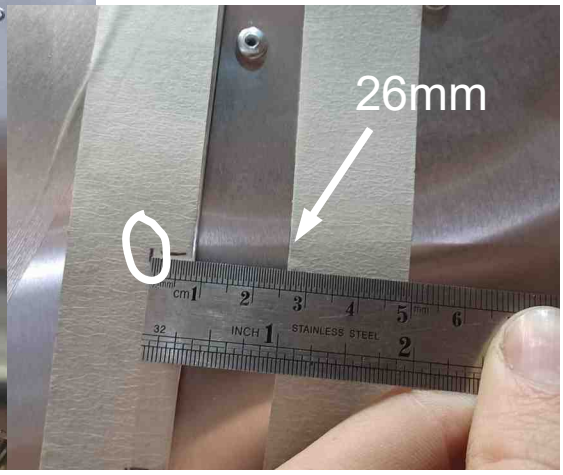
Attach a few rivets to the bottom of the wheel arch

You need to trace the holes in the rear part. They must be opposite the N8 ribs which are only 8mm thick. Here is the method:

Using a meter, add marks 30mm from the edge, along the entire height of the sheet.

Place a tape (1) along these marks, you now have a line 30mm from the edge. Add a tape (2) to the edge of the sheet metal to be drilled

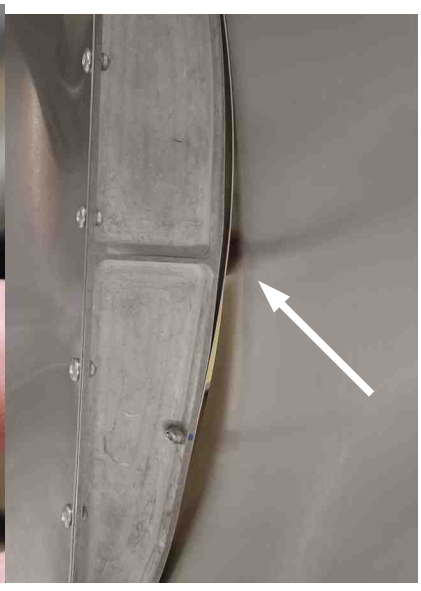
Take the measurement of 26mm (30-4mm) and make drilling marks on the tape (2) Take a gap of 30mm between each drilling.



Don't drill right away!

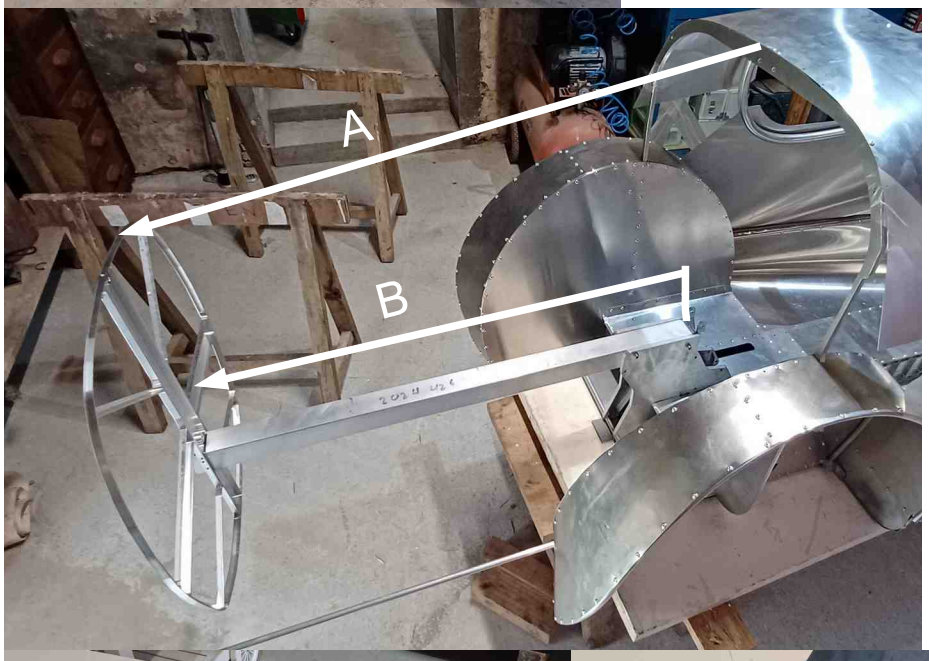
The N8 ribs have a reinforcement in the middle. The rivets must not fall out!

By placing your finger on the edge of the sheet metal, you will be able to see its reflection from the inside and thus check whether or not you need to offset a drilling.



Complete the drilling and install the rivets.

Insert the N1 rib (machined side towards the rear) onto the boom while inserting the two T4 tubes into the holes provided.
It is normal to force it, just be careful not to break one of the parts.



The final position is reached when
we obtain a distance of:
(A) - 850 mm between the top of rib N1 and the top of rib N9
(B) - 784 mm between the rear N1 and the start of the boom

In normal position, N1 have to be inclined forward

Check if the boom is still well aligned with the center of the velomobile .

connect the A14 sheets.
The correct side to rivet is the one whose holes go to the edge of the sheet metal.

Place a block under the riveting area to help you with the operation.
Do not put rivets in the holes at the ends.

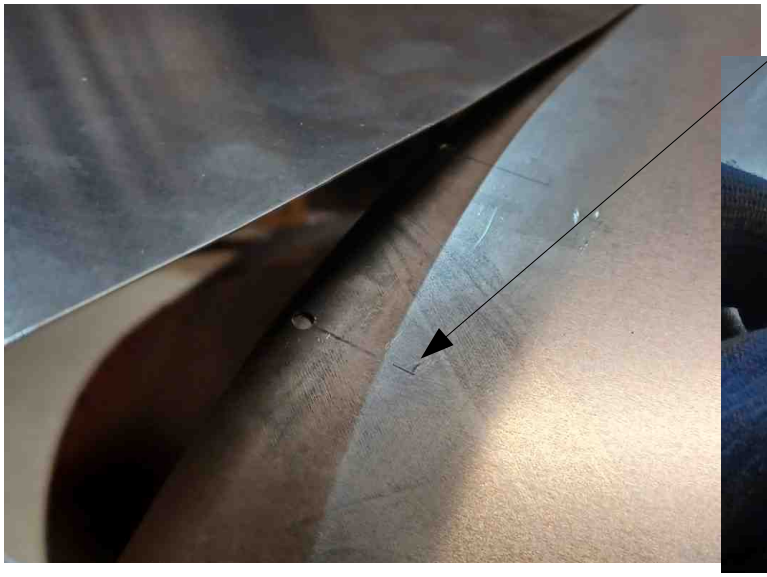
Remove the 3 rivets
previously fixed on page 37

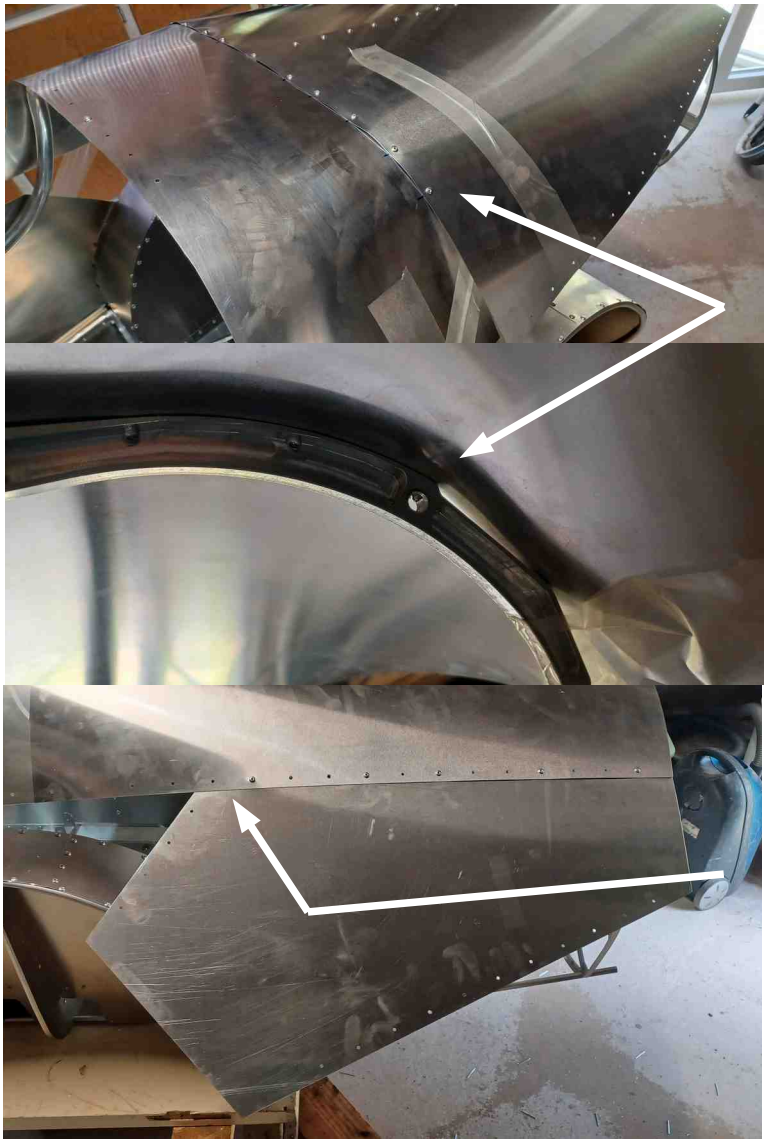
Lay the assembled sheets and attach a rivet to each end

Maintain the curvature of the sheet with adhesive tape

If the boom (T3) is not straight, the sheet metal will be short on one side (like here in the photo), adjust it before Riveting the side.

Put a mark at 20mm from the hole, position the sheet and report the hole position on it, now you know where to drill





Secure the rivets until you reach the recess. Don't go any further.

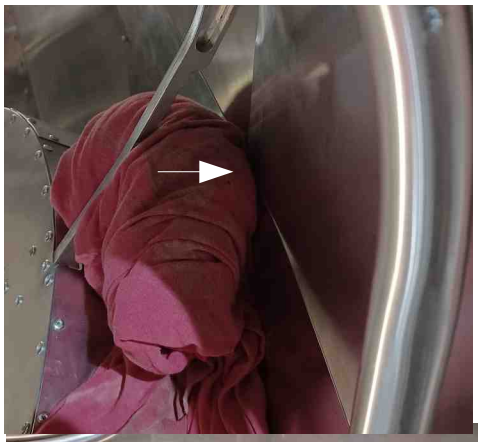
Fix the A7 sheets from below the sheets
A21 Do not put rivets at the last hole

Add the A19 sheets below the A7 sheets

Bend the sheets and hold it with adhesive tape.

Place sheet A11 under all other sheets, except A12
The holes already drilled give you the starting position. Attach a few rivets

Before tracing the future holes, add adhesive tape to press the sheets together and obtain a final shape.

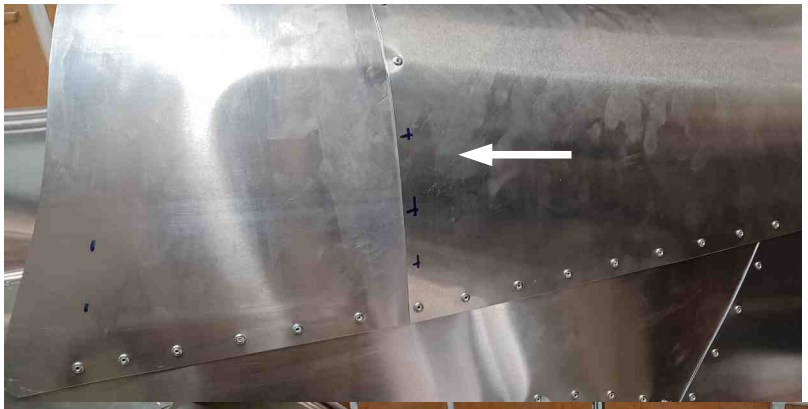


From the inside, place a rolled up cloth to maintain pressure
against the sheet metal and achieve a regular convex shape.

You can then mark the holes. Attach 2 or 3 rivets to hold the sheets and drill the following holes.

When riveting the central part, be careful not to press too much on the sheet to maintain a convex shape

Do not put rivets in this area now

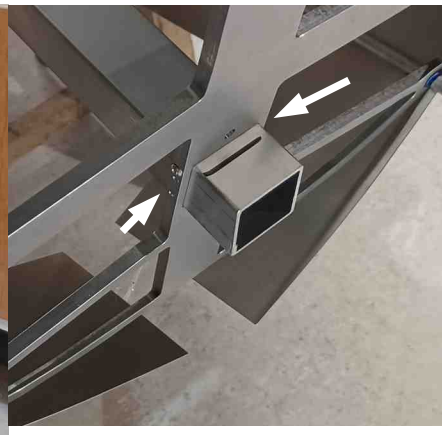


Trace and rivet the area where we stopped previously.

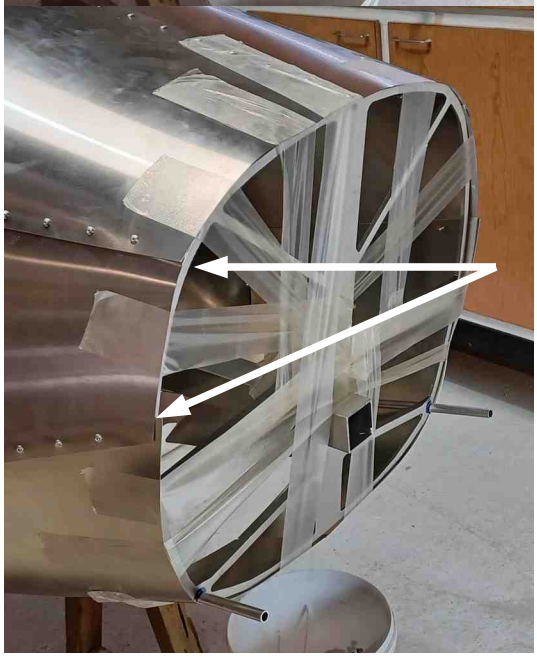
Trace the drilling marks around the opening,
take a gap of 30mm between each rivet

Fix the rivets

Now it is better to use trestles



Adjust the position of the forehead rib, then secure it with 4 rivets on the boom



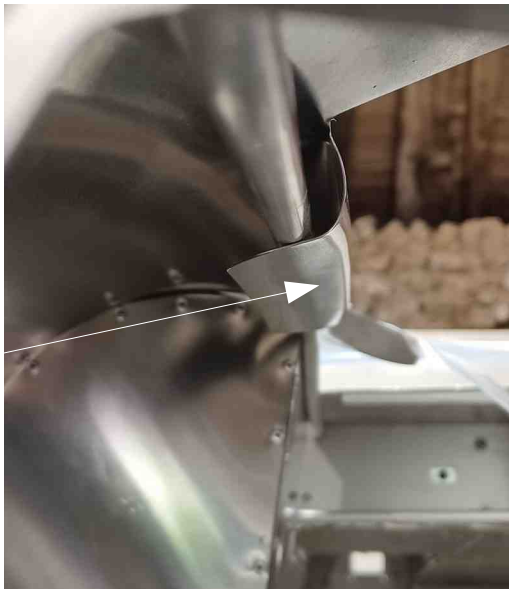
Cover the sheet metal with adhesive tape and attach one rivet in line with the others.

This rivet should also attach to the rib. Take the time to draw marks before drilling.

Fix around 8 rivets on the N1 rib

Insert a rod into the boom, you can now easily turn the velomobile onto the trestles

Fix the sheet metal with adhesive tape then add a rivet to maintain the position. By hand, bend the sheet metal around the tube



Connect the 2 sheets, being careful not to push them when drilling

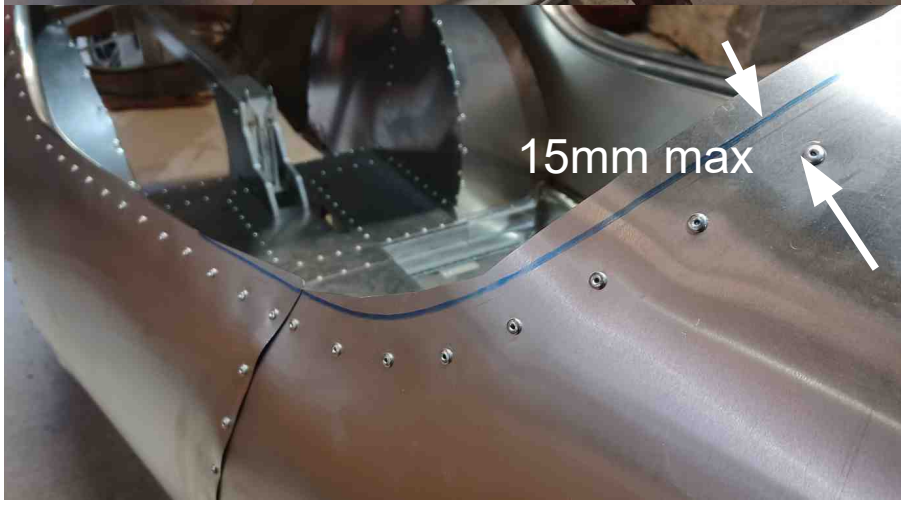
Fold the edge of the sheets against the wheel arches and add 2 rivets
You can now draw the marks and finish drilling the wheel arches.

Finishes

The excess sheet metal must be cut off.
Draw a reference line, trying to maintain a regular distance from the bent tube. (here, approximately 8mm)
Subsequently you will bend this sheet with the rubber hammer

Do the same wherever the sheet metal can be cut

Warning, the sheets can't exceed 15mm from the rivet. Above that, the hammering can be not perfect



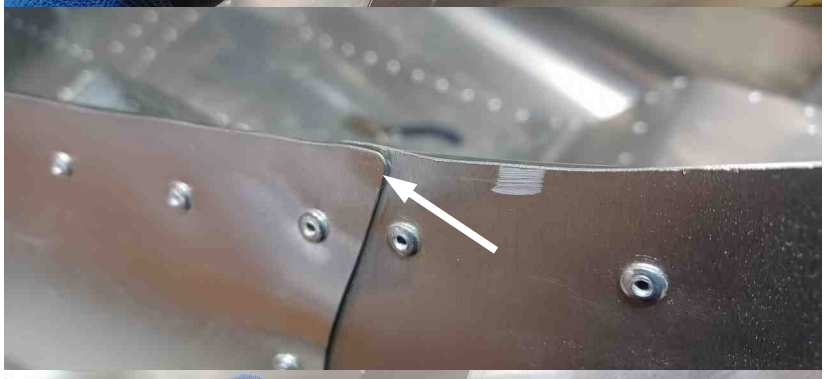
Don't forget the back part. Cut the sheet flush with rib N2

Do the same if necessary for rib N1

One or two cutting passes are enough, you can then cut small segments and remove them easily by hand.

Avoid right angles, make rounding to avoid tears.

Sand all the burrs and make roundings where there is an angle in the sheet metal.



Make this area round.
Note that after the hammering step, you can fix a rivet here

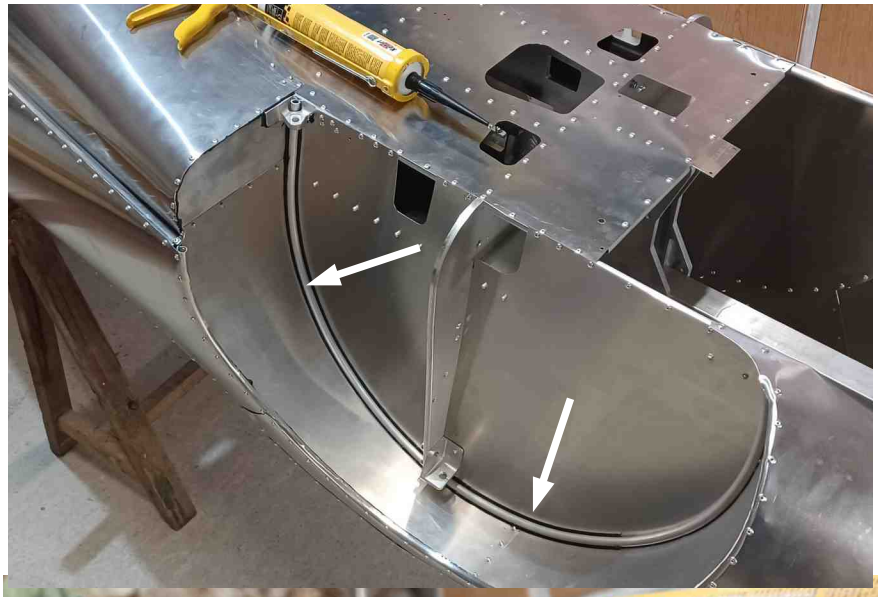
Using an abrasive cloth helps soften the edges.

Start to hammer the sheet metal gradually by multiplying the passes.
Continue using a wooden block to remove the wrinkles.
By using a normal hammer, the creases disappear even more easily, but be careful, it may leave marks.

Be patient and continue to hammer till the sheets show something nice.

Fix the rivet

Waterproofing



Add sealant to the front and rear wheel arches.

It takes 12 hours for the sealant to dry, plan to end your day with this step.

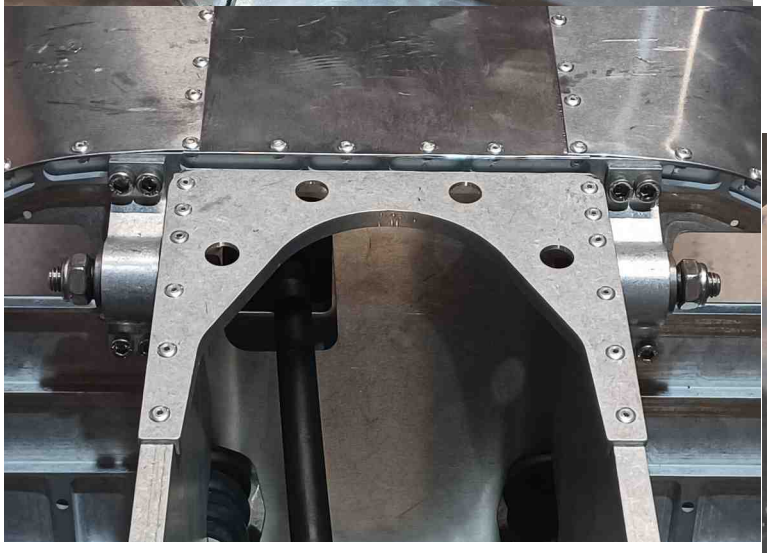
Mechanical

Prepare the N11 rear fork, F11 silent blocks and F12 spacers

H 10x55 (x2)
W8L (x2)
W8 (x2)
M8F (x2)
M10F (x2)

Place the W8L washers + F12 spacers on the silent blocks and screw them onto the fork. The spacer can be mount in two positions : +5mm or +10mm.
+10 mm is okay for everybody

Position the fork and position the H 10x55 screws from the inside of the fork.
Add the M10F nuts and center the assembly correctly.
You can then firmly tighten the F2 brackets

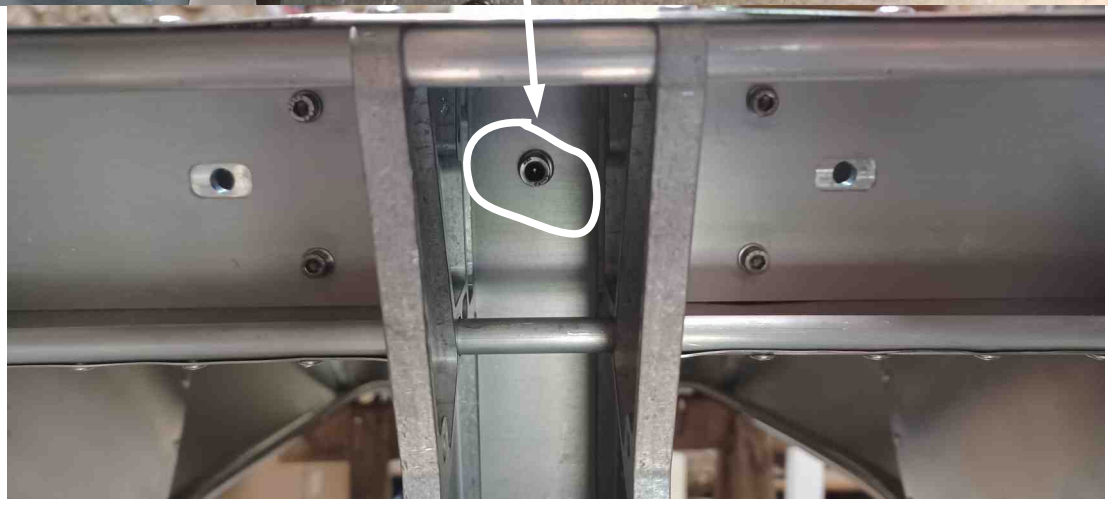


From the inside of the velomobile, add a W8 washer and an M8F nut to secure the other end of the silent blocks.

Prepare theD4steering mechanism

R 6x20 (x1)
R 6x15 (x1)
W6 (x2)

The ball joint (1) is to be fixed on the right on N6 with R6x16. The bottom ball joint (2) is to be fixed against the main rib N9, the screw R6x20 is to be placed in front of the rib N9. Add threadlocker



The new steering system cnaged a little bit : the fixation of the ball joint (1) if fixed to a new part wich connect the two N6 ribs. See pictures next page.

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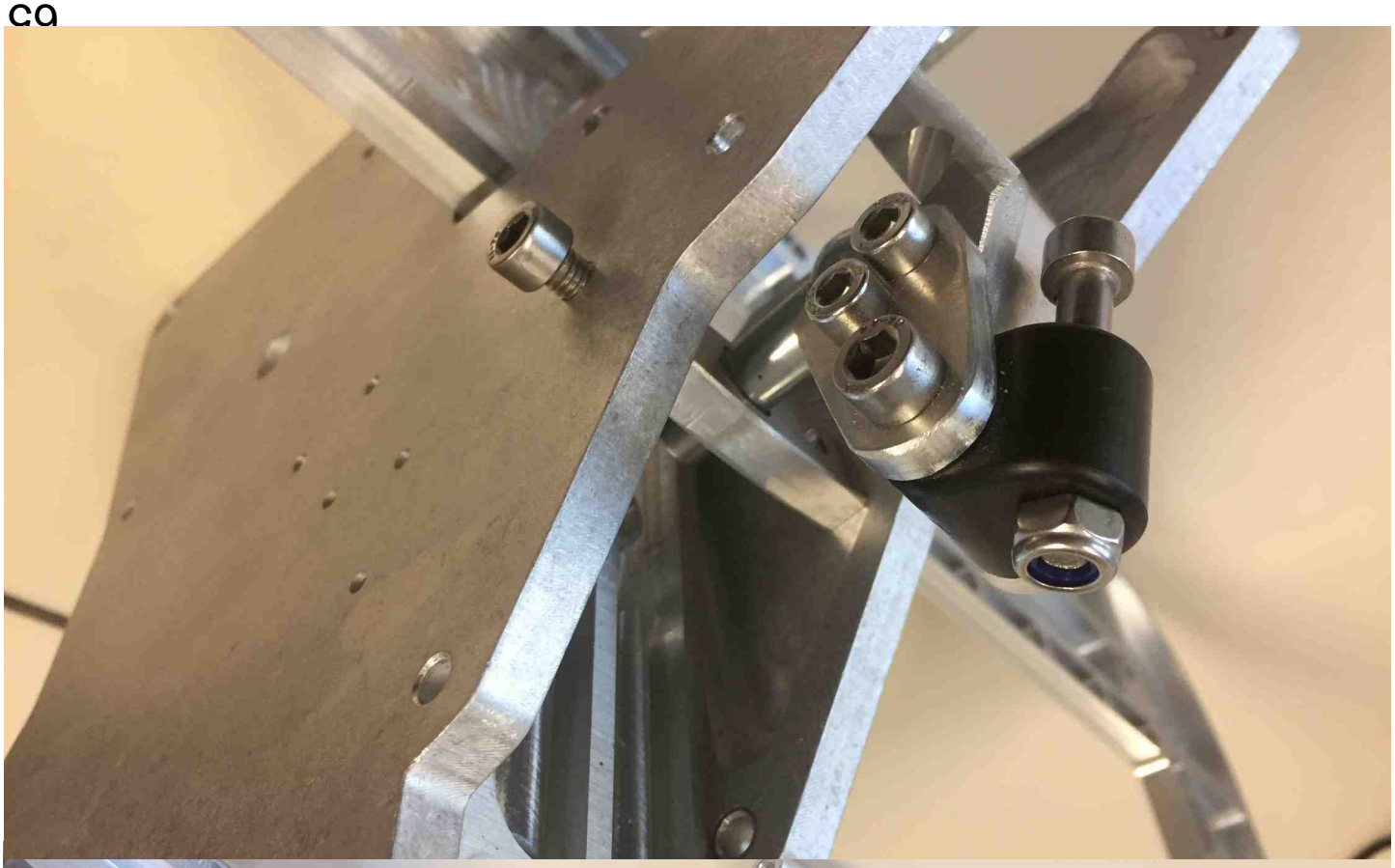
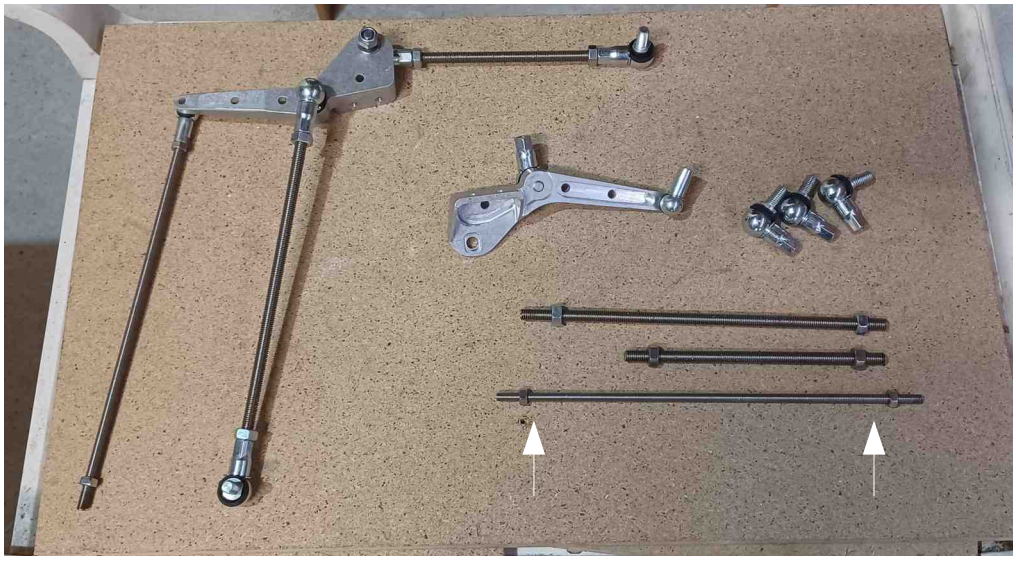


Assemble the front axle linkages. First put a M8 nut on the ends of the 8mm threaded rods, do the same with M6 on the 6mm threaded rods.



Attach them to the ball joints and steering legs. Screw the rods all the way but do not thigthen them.

Prepare the brake plates
B12, B11spacers
R 6x16 (x2)
R 6x20 (x1)
P 6x16 (x1)
M6F (x1)
W6 (x3)
M8F (x4)
W8 (x4)

In your kit, the slim M8 nut is not needed. The closed m8 nut and m8 nut locked together

Secure the steering bracket to the suspension with two screws R6x16 + W6 washer, add threadlocker

Connect the threaded rods with the velomobile. Use M8F nuts + W8 washer for the rear tie rod

Screw the 6mm threaded rods completely into the steering ball joints

Secure the center tie rods, use M8F nuts and W8 washers

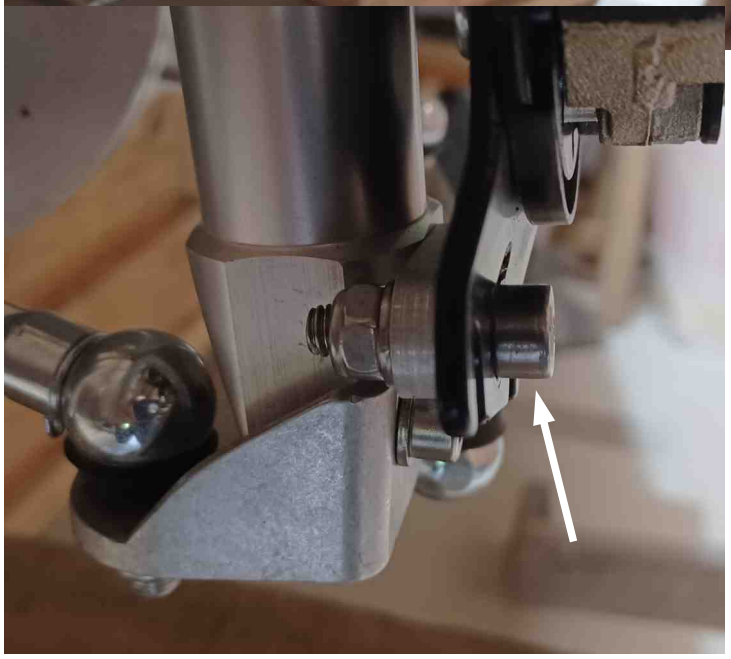
B13 Is already mounted on the strut. It have to oriented to the back of the velomobile.

Place spacer B11 as pictured

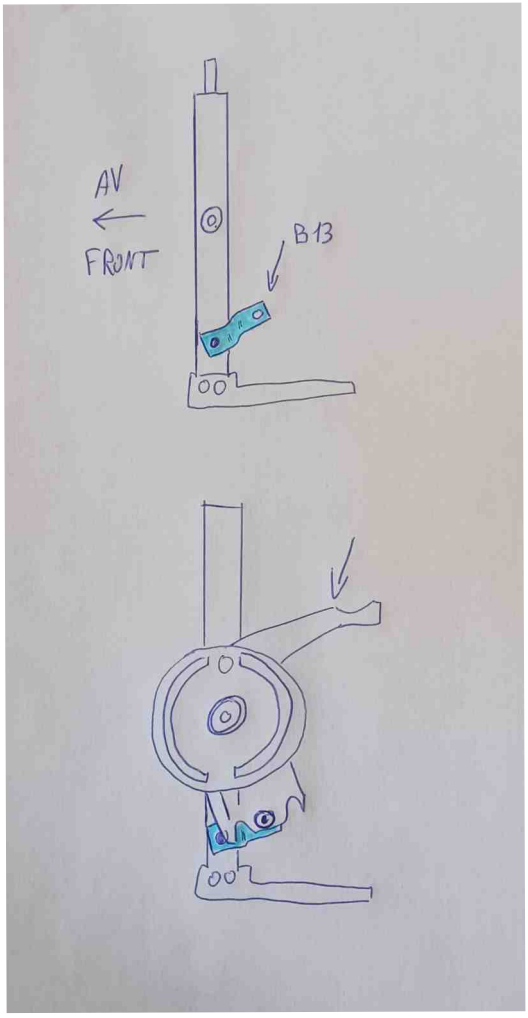
The following pictures show the previous assembly positions. On next page you can see the good brake plate position.

Insert the brake plate onto the wheel axle.

The brake lever should be facing backward

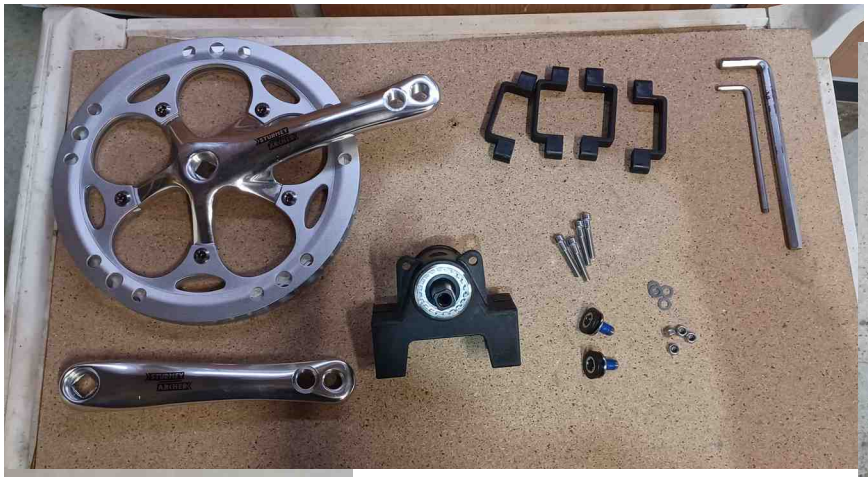


Secure the bottom bracket with an R 6x20 screw, W6 washer and nut M6f



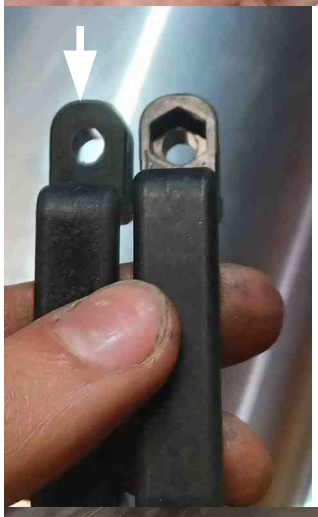
Here is the left strut.
B13 is oriented to the rear of the velomobile

The brake plate have its lever oriented to the rear of the velomobile



Assemble the chainring and cranks.
Please note that the chainring must be on the right side.

=> a mark (K or R) is indicated on the support

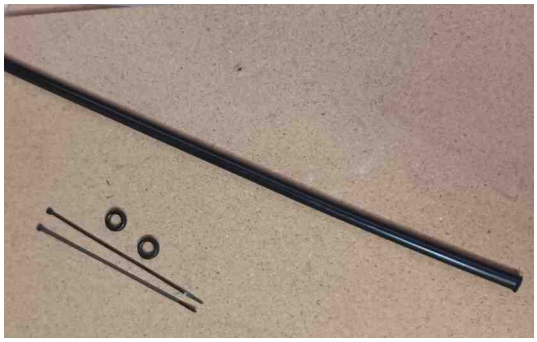


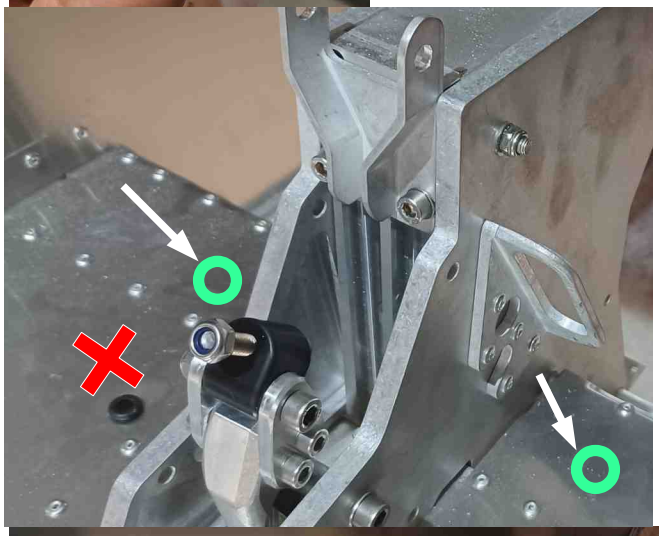
Mount the pedals, classic thread on right side, reverse thread on left size. Place the bracket holder on the boom and secure it with the aluminium clamps and R6x35 screws

The picture shows old plastic clamps

Place the pedal board in the middle of the boom without tightening the clamps.

Put a blanket to protect the aluminium sheets if you let fall something

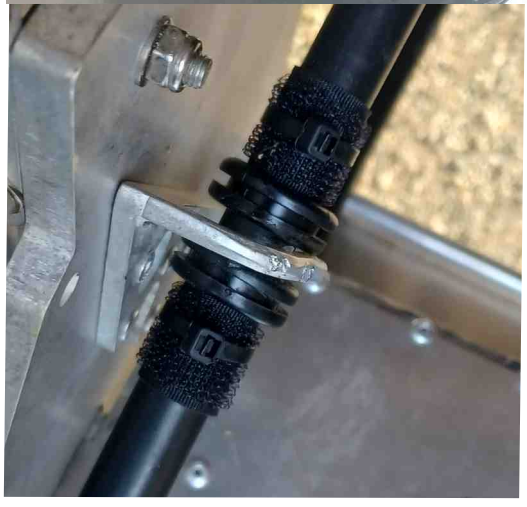




The original cable grommet is not the good one. Drill two new holes (8mm) more to the front and put the cable gromet

Position the Tp1 tube (60cm) with the rubbers on either side of the E7 guide.

Place it so that it is about 2cm from the bottom idler.



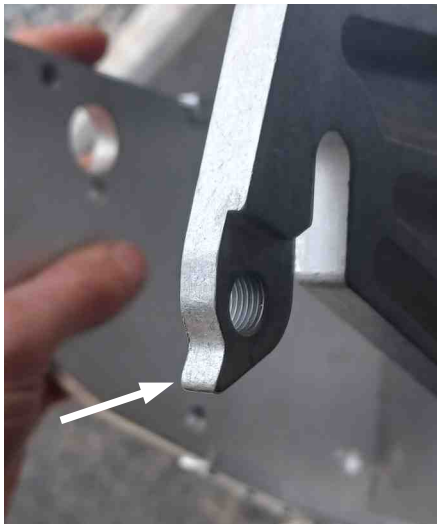
Secure the position by adding Velcro + plastic collars.

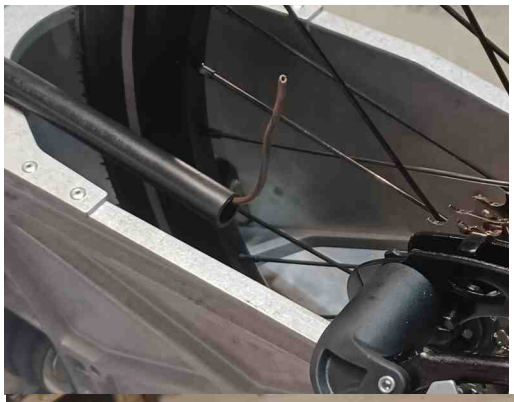
Place the E3 support then insert the Tp3 tube (150cm). It should stop approximately 10cm from the rear wheel axle

Also add velcro and collars to secure the tube.

Install the rear wheel, the cassette must be on the right side of the velomobile

Screw the rear derailleur onto its support
The derailler have a stop bolt. Make sure that it takes place without any resistance.





Prepare the chain (undo the knots) and insert a wire into the Tp3 tube.
Connect one end of the chain and pull it through the tube

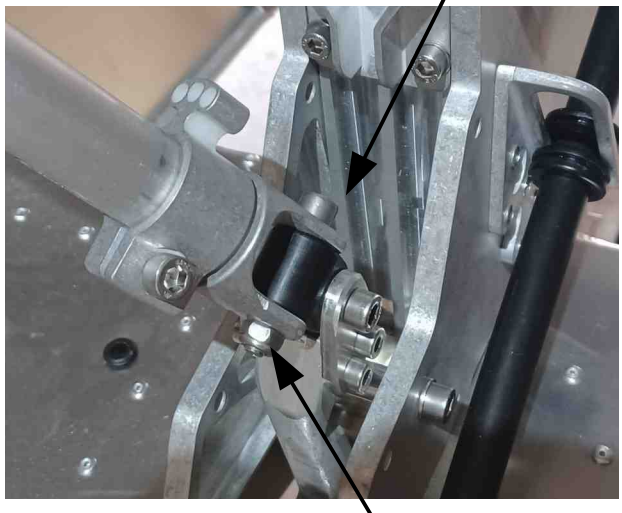
With the length, the chain can become twisted. By twisting it by hand to the right and left, you can deduce the central position

Join the crankset, go around it then return to the Tp1 tube, then the roulette, then the Tp2 tube then the cassette.

Pass the chain around the different derailleur pulleys and connect it to the other end.

Prepare the D1 handlebar, insert the D3 collar with R 6x15 screw, insert the D2 sleeve and fix the assembly on the velomobile, using a R 6x35 screw and M6F nut

Tighten the collar firmly. The handlebar will not be completely locked, after road tests you can add a rivet to fix the position.



The aluminium already have a thread, the nut is here to secure the assembly

We supplied a front chain tensioner. You can use it or not. It permits to change the crank position without adjusting the chain lenght.

It could be pratical if you plan to use the velomobile with someone smaller or taller.

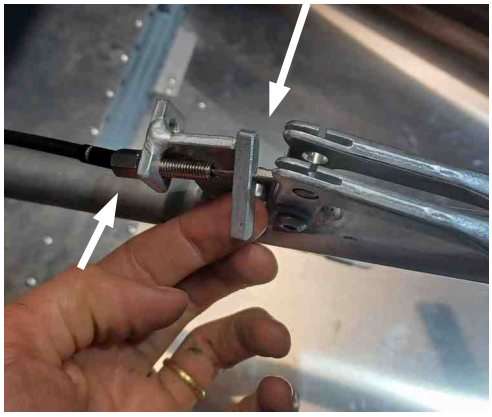
First, find the max lenght position that you will need. Position the tensioner near of it, under the bom.

Take enought time to align and mark the best position before drilling the holes and fixing rivets

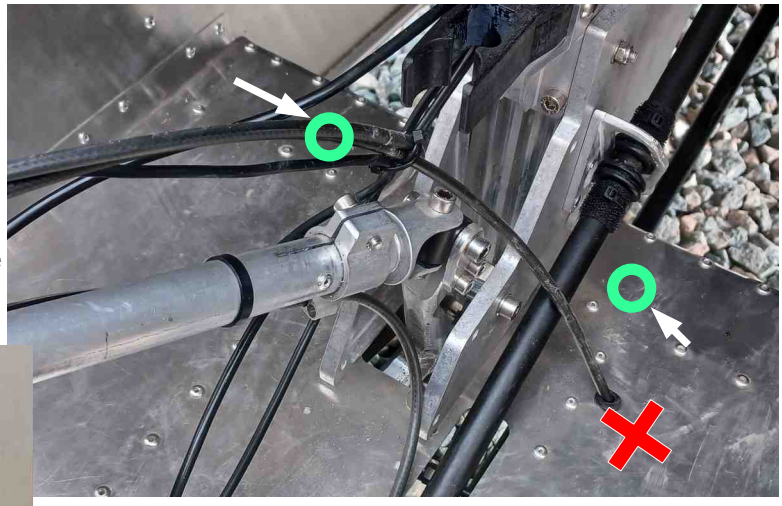
Replace the original idler by the50mm one supplied.

The picture shows another sytem, but the position is correct

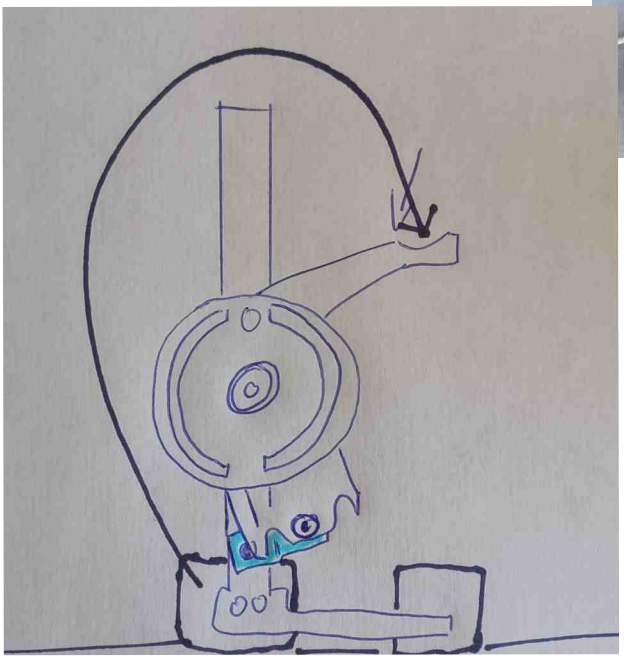
If the 2 sizes difference is too wide, the „short position“ will meet a limit :
The chain will grip less teeth so it can rip a little when you put a lot of power on pedals.



Install the brake cables, remembering for the left one, to add the parking brake pin before inserting it into the housing. The long side of the pin should be facing down
The duct stops must be screwed in all the way



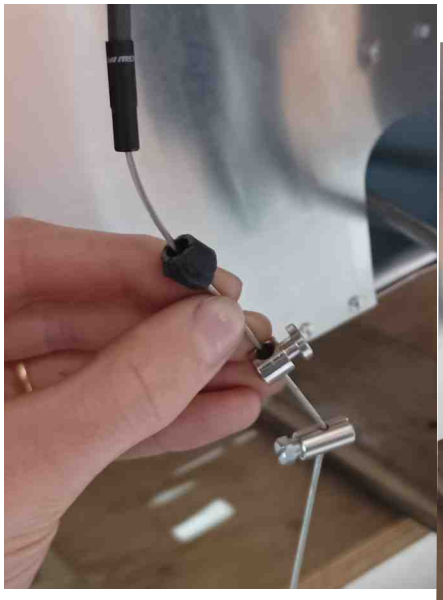
Pass the outtercables through the cable grommets in the floor.



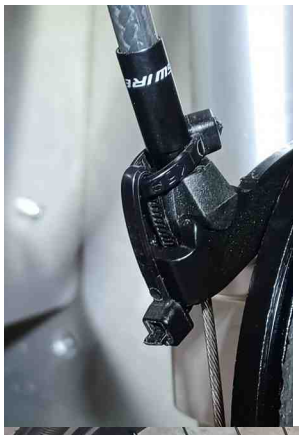
Put the outtercabler trought the wheel arch

Secure the sheath against the front axle with a plastic collar without tightening it too much (the sheath must remain free)

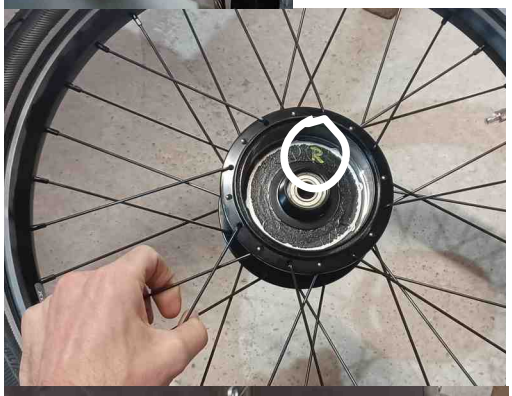
Add the following elements to the cable in order:
- Duct stop 1
- Duct stop 2 (large hole upwards)
- Cable clamp 3



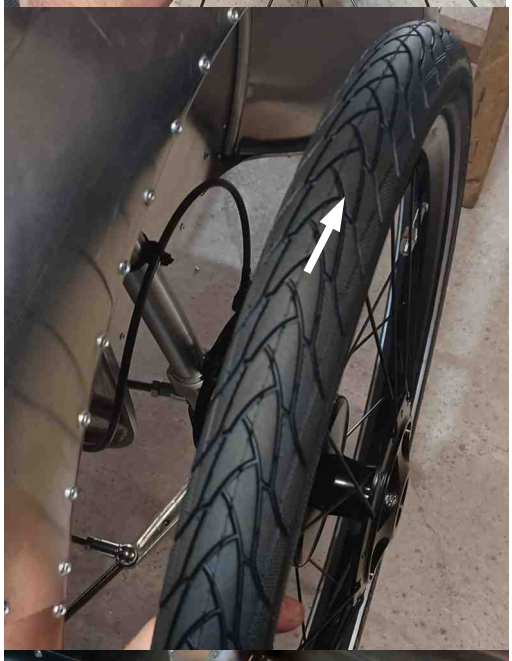
Install the outtercable and its duct stop 1 on the brake lever.
Place duct stop 2 in its housing.
Tighten the cable clamp lightly, it will need to be adjusted later.



Add two small plastic collars as pictured.
Their purpose is to prevent the sheath from dislodging in the event of an impact.



Take the wheel and mount the tire + its inner tube. Please note, there is a right wheel (R) and a left wheel (L)
The tire must be mounted in the corresponding direction of rotation



Insert the wheel onto its spindle. An internal spacer can sometimes shift inside the hub. with your finger you can align it.

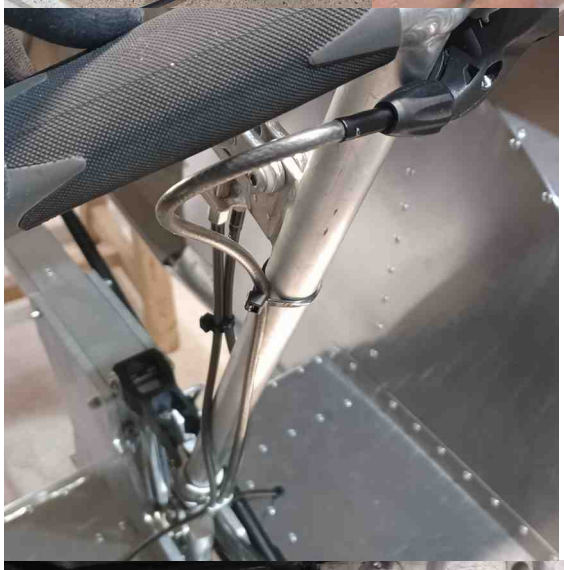
Tighten the wheel with an R 6x16 + **W6e**, adding a drop of threadlock.

It is likely that when trying to brake, the handle will come against the handlebar. Moving the position of the cable clamp will solve this.

Be careful, too much tension in the cable will cause permanent braking. Once you have found the ideal position, tighten the cable clamp definitively.

Be careful, excessive force can shear the cable.

Install the derailleur shifter.
The outter cable must be below the handlebar.



Pass the outtercable through the housing and attach it to the handlebars with plastic collars.

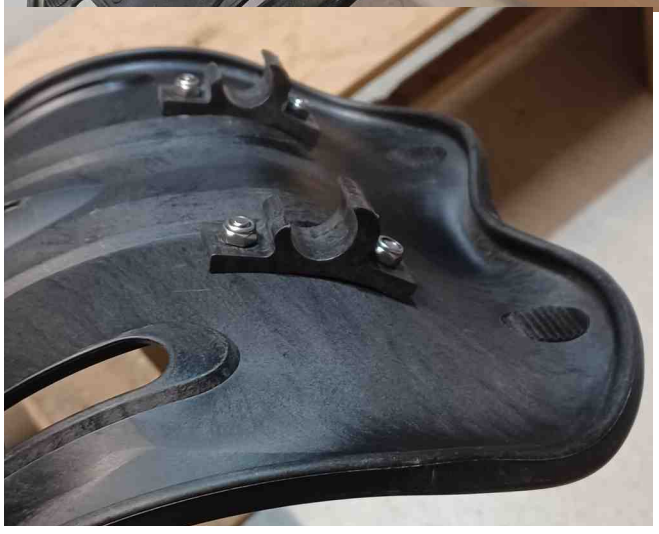
At the level of rib N10
Add a cable grommet in the hole provided for this purpose and bring out the sheath.

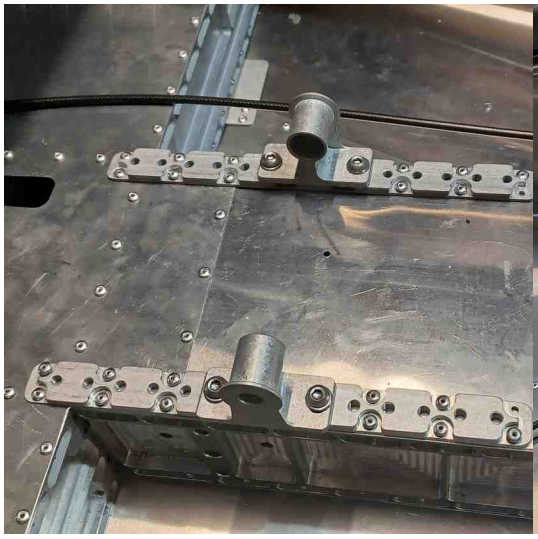
Place the derailleur control on gear 9. Make sure the chain is on the smallest gear.
You can attach the cable to the rear derailleur (temporary).

Install the handles. A drop of soap can make installation easier. You have to cut them to the right size.

Assemble the rear seat support. The two large R 6x80 screws meet in the center. Fix the long M6L nut on half of a screw by blocking it with a second M6 nut, add the tube and close the assembly

Attach the plastic supports to the seat, S1are at the backrest level, S2are at the seat level.
Secure them with C 6x12 screws and M6F nuts (do not put washers)



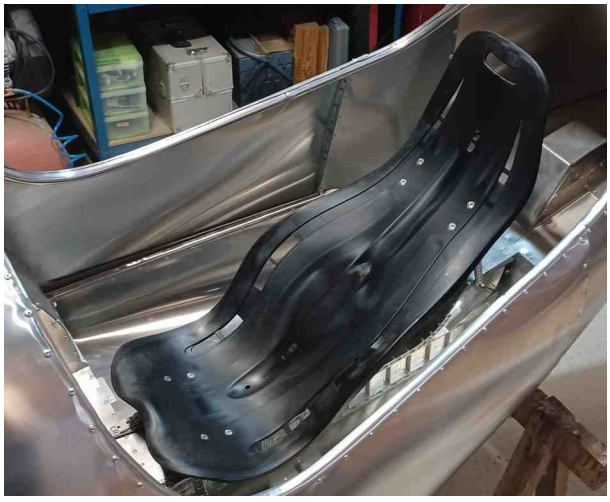


Rivet the S5 bars then install The S3 supports (P 6x12 screw + W6 washer)

Fix the rear support (2 R 6x16 screws + W6 washer).

The S3 supports position shown in the photo is suitable for most of users.

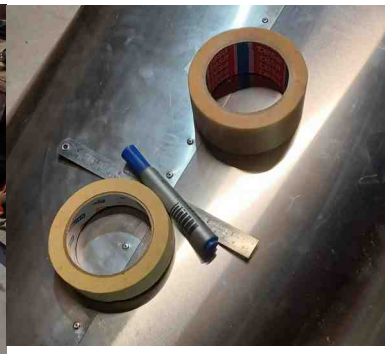
If you chosen the electric lighting option, it is the best moment to fix it



You can now install the seat

rivet the A6 sheet and add The E8 handle

Nose



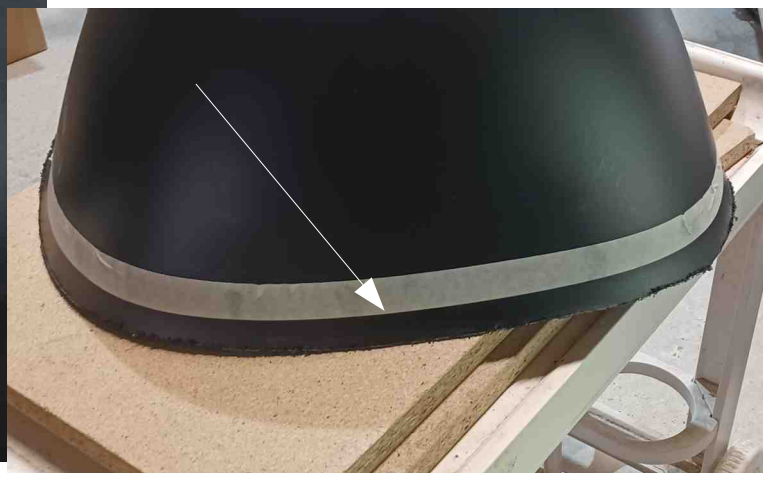
Place the velomobile on its wheels then prepare paper tape and tracing material

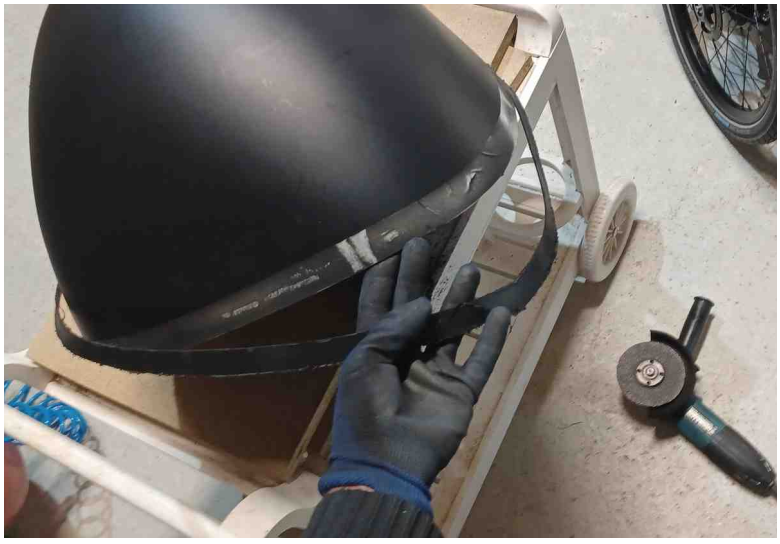
Present the nose respecting the top indicated inside.
Adjust the nose until you find an aesthetically pleasant position,
then secure it with tape.

It will be necessary to cut the nose cleanly but first, mark its position with a marker all around and remove the nose.

The trace tells you the distance the nose is covered.
The cut must leave a minimum of 15 mm to allow the installation of the rivets.
Here:
- 30mm of overlap on the top, we can remove 15mm on the top of the nose.
- 25 mm of overlap on the sides, we can remove 10 mm on the sides of the nose.

Transfer these measurements to the nose and add adhesive tape to define the border to be cut.





Cut it carefully with a thin disk. Be careful this releases a lot of dust.

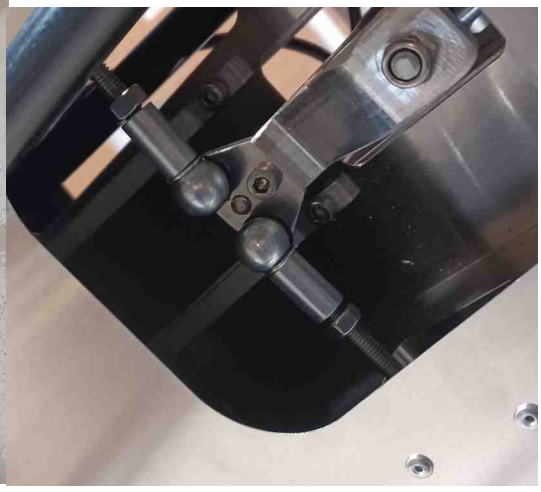
Remove burrs and lightly sand to round the edge

Present the nose respecting the margins calculated previously (15mm above, 10mm on the sides...)

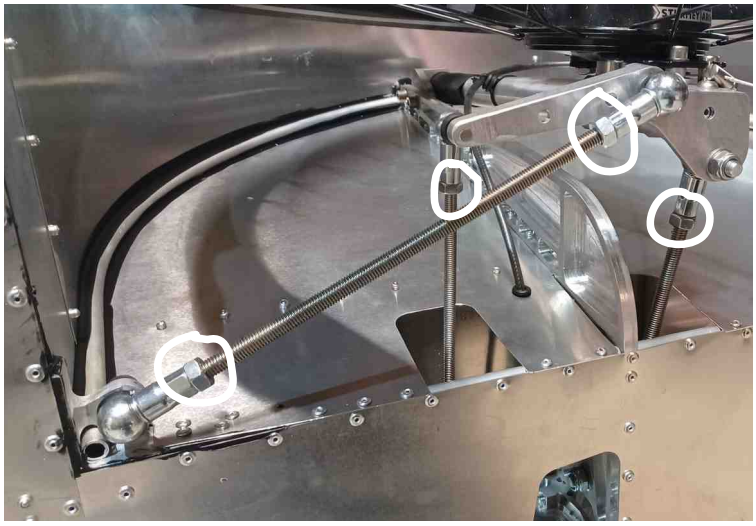
Hold it with adhesive tape then drill and install the rivets (6 rivets are enough)

Settings

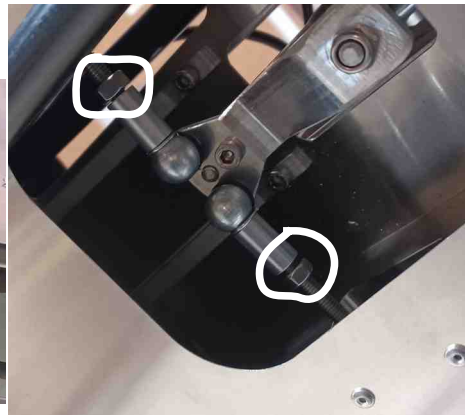
If the wheel is not already centered in the wheel arch, you can adjust the length of the rear tie rod by disconnecting then unscrewing the ball joints 1 or 2 turns.
Please note, at least 10 mm of threaded rod must be in the ball joint.

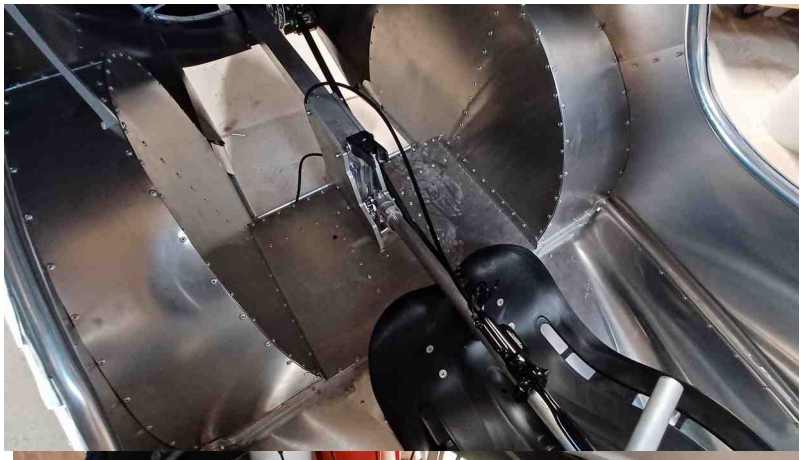


Check the alignment and adjust it by varying the length of the steering rods. Using a velomobile parallelism toll is the best way, but you can clamp two straight square tubes on the wheels and check the gap on front and rear.



When the train is correctly adjusted, lock all the nuts against the ball joints



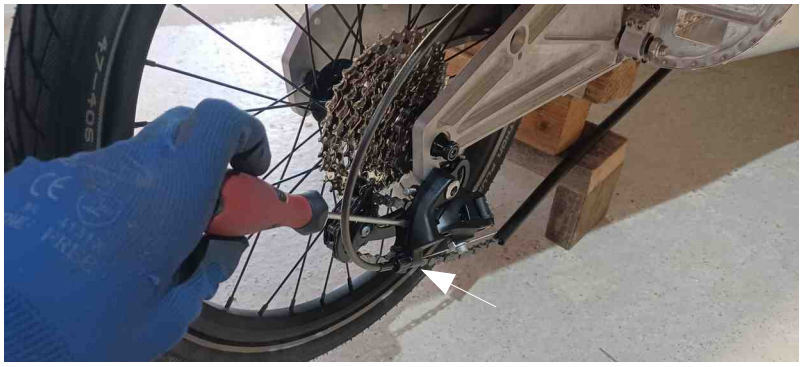


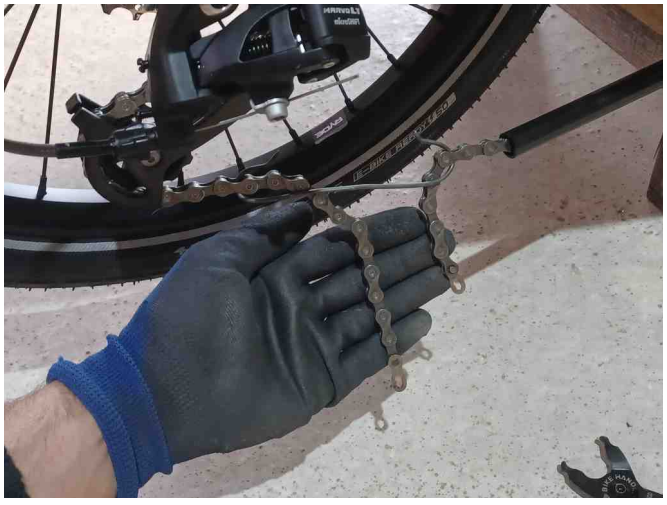
Adjust the position of the seat and the crankset to your body shape, tighten the bottom bracket rings firmly then place the rear of the velomobile on a block

Make sure the derailleur is in position 9 (small gear)
If it does not work, you have to chack the stop screws (see nect page) or untighten the cable to make it free.

With a small flat screwdriver you can adjust the H and L stops of the derailleur. They define the limits to prevent the chain from going beyond the cassette sprockets.
The stop H is adjusted with the chain on the small sprocket, the stop L is adjusted with the chain on the large sprocket.
When the Stops are well set, tighthen the cable checking that the tension is near 0 but let no play.

To align the derailleur in front of a cog, adjust the cable tension, either at the derailleur or at the shifter.

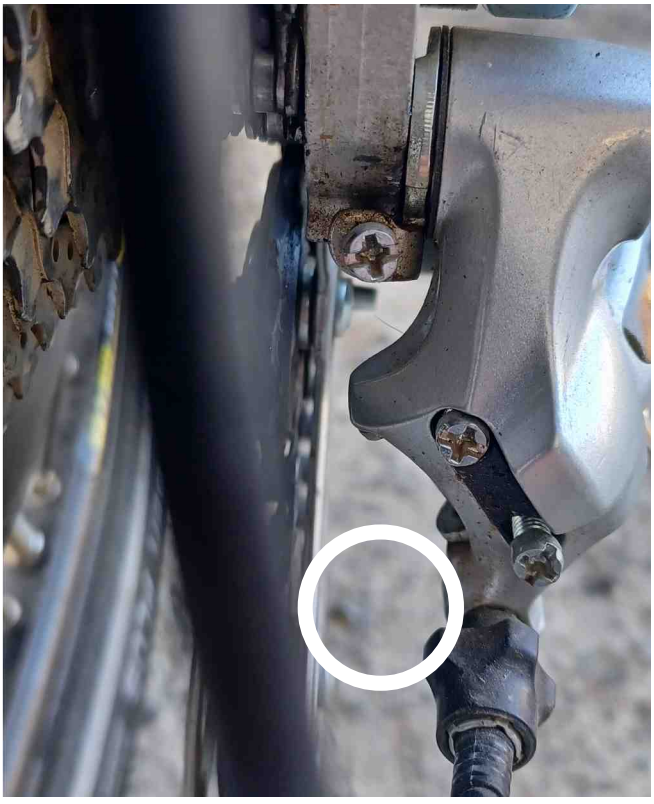




It is necessary to adjust the chain length. Disconnect the quick link and remove the necessary links.

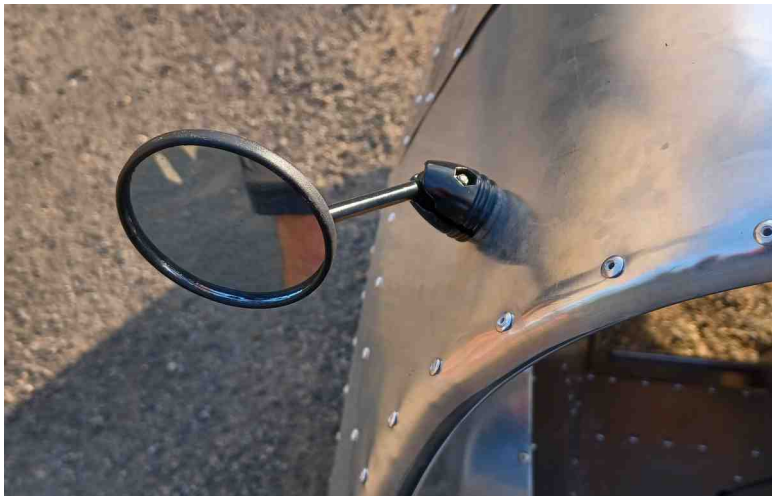
In position 1 (large gear), the derailleur must ensure almost max tension (90%)

If the derailer idler touch the large gear of teh cassette, you have to adjust the stop screw showed next page



If the screw is too much tighten, the derailer idler will be far from the cassette and will loose some precision when shifting

Equipments

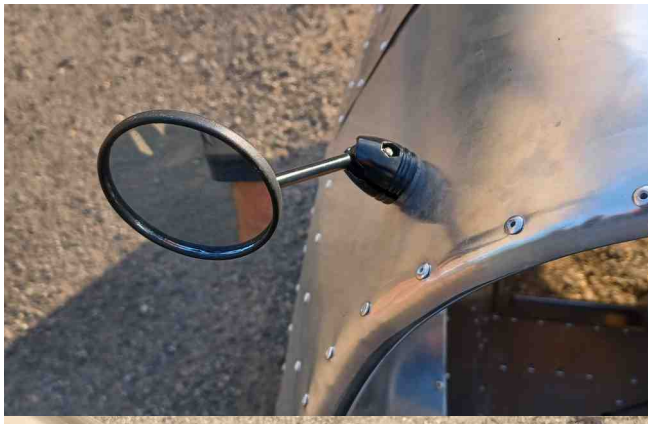


The bottom part of the mirror is fix on the P6x20 head.

Put the mirror 11cm from the velomobile entry (to anticipate the hard cover)

Use W8RL on each sides of the alu sheet, ad W6L and M6F nut.

Equipment



Install the mirrors. If you want to add a hard cover, the base of the mirror should be 10 cm from
the edge. Use W8L washers on each side of the sheet metal

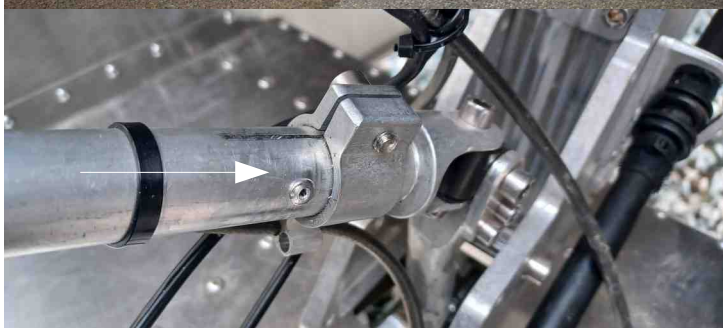
Install the front headlight. It is necessary to remove a few
rivets before installing the E4 support. Preferably choose a place where 2 sheets join for better longevity

Undo the rear light cover and remove the hook (a small tab can be lifted with a flat screwdriver)

Make a hole in the bottom of the cover and insert the screw P5x16

The lights must be mounted with a W8RM rubber washer and W5L.

Place the lights wherever you want.
(Another light was being tested during the photo)



Take the first test drives with caution. Check the effectiveness of the brakes. Balance the braking (right and left) by adjusting the housing stops on the tiller.

Adjust the rear derailleur if necessary.
With hand force, you can rotate the tiller on its axle. Once you have found the perfect Center position, you can drill and add a rivet to lock it in place

You have completed the assembly of the Alleweder!
Do not hesitate to give us feedback on the difficulties encountered and your suggestions on the velomobile or the instructions.

We remain at your disposal for any requests, advice, spare parts and maintenance

Passion-Vélomobile
www.passion-velomobile.com

Technical support, tutorials and advices :
www.alleweder-velomobile.com