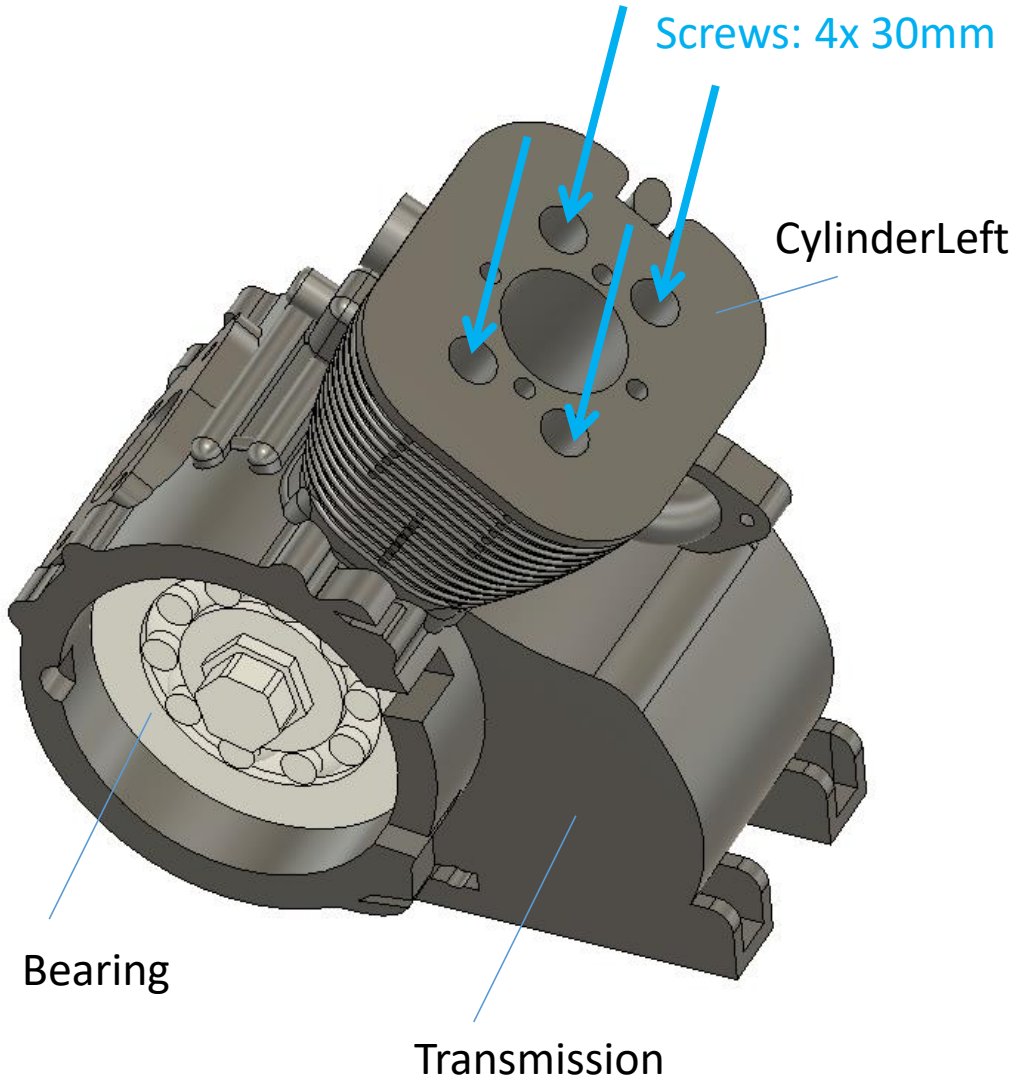
HONDA SHADOW VT125

Assembly instruction

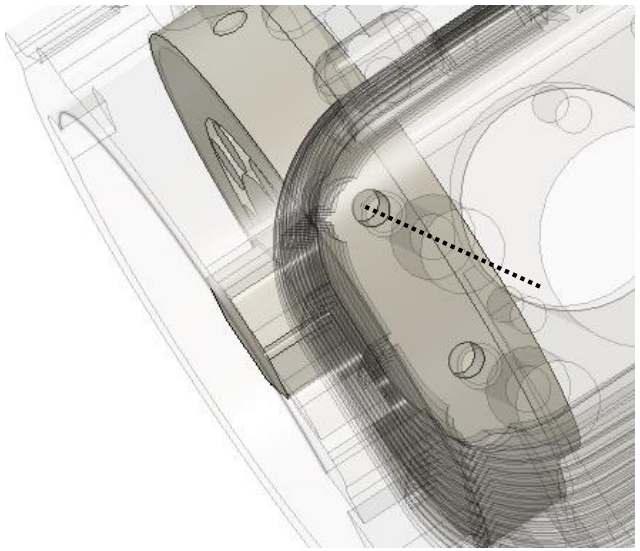
Initial notes

- Majority of screws are M3 and just few are M2, therefore most of slides specify just the recommended length of the M3 screw.
- All screws (except M2) are countersunk type: 
- There are few parts screwed with M2 screws, then I made appriopriate instruction in the corresponding slide.
- It is wise to thread the hole before screwing the part.
- Some holes are surrounded by a small PLA amount (e.g. FrontBreak). To avoid breaks, I slightly screwed it into the hole and touch the screw with a soldering iron for a few seconds to make it hot enough to start softening the PLA slightly, then continuing threading. It is occasionally visible on a movie in Youtube.
- Naming of the parts does not necessarily match to the correct naming in the real motorbike, because I am not a mechanic and don’t know the correct terminlogy.

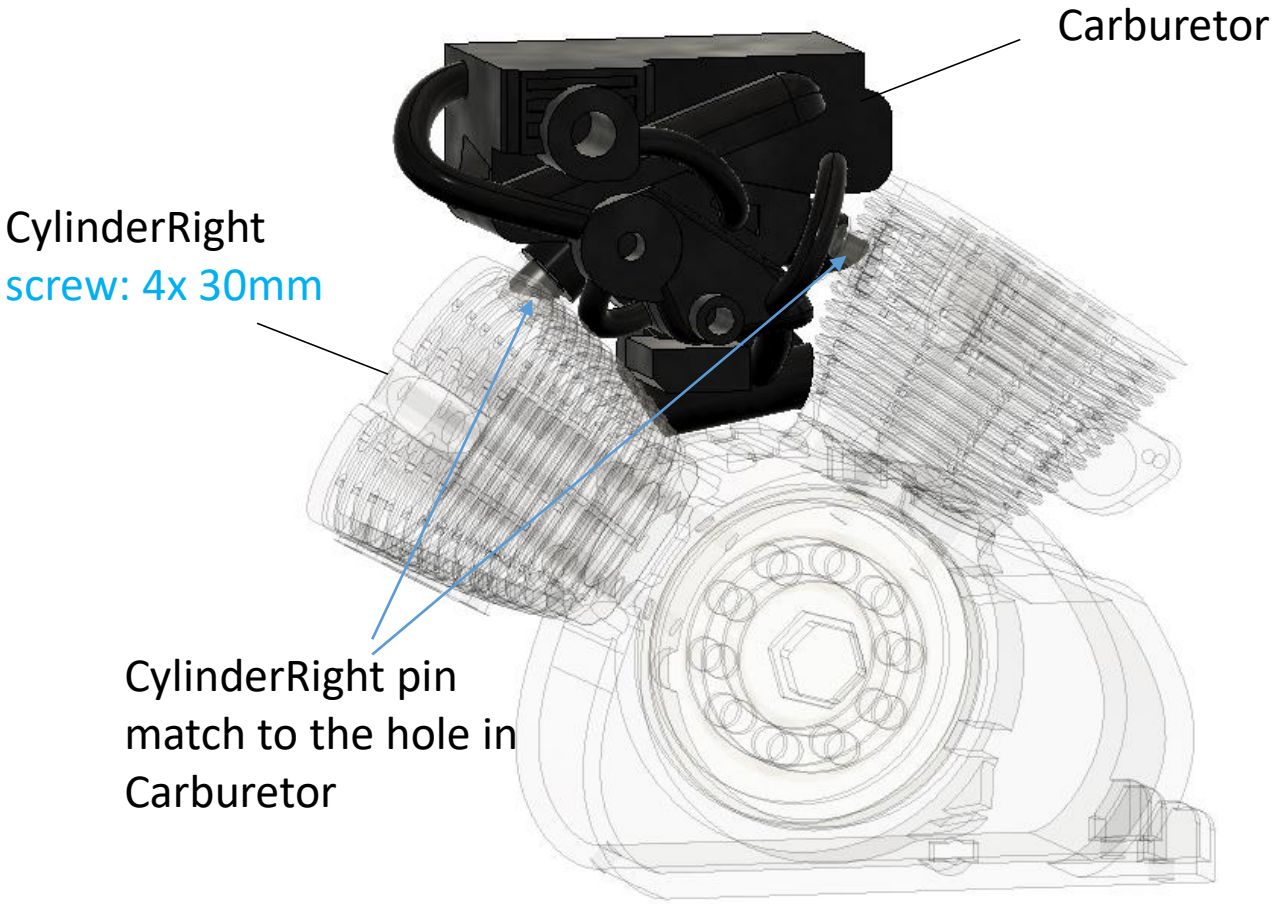
Engine



Insert the **Bearing** into the **Transmission**. Screw **CylinderLeft** to **Transmission** using 30mm length M3 screws. The screws keep/lock the bearing at correct position.

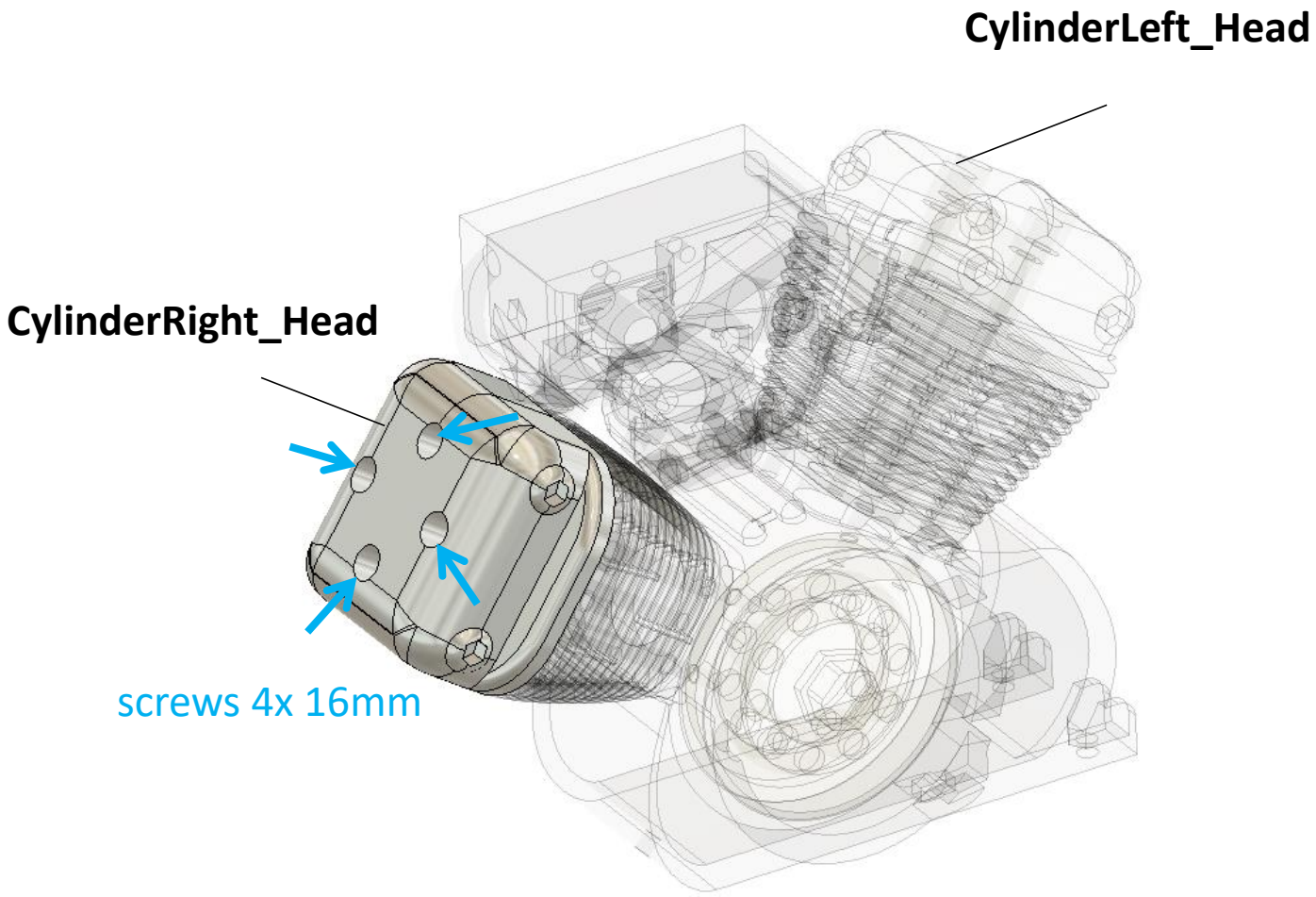


Engine



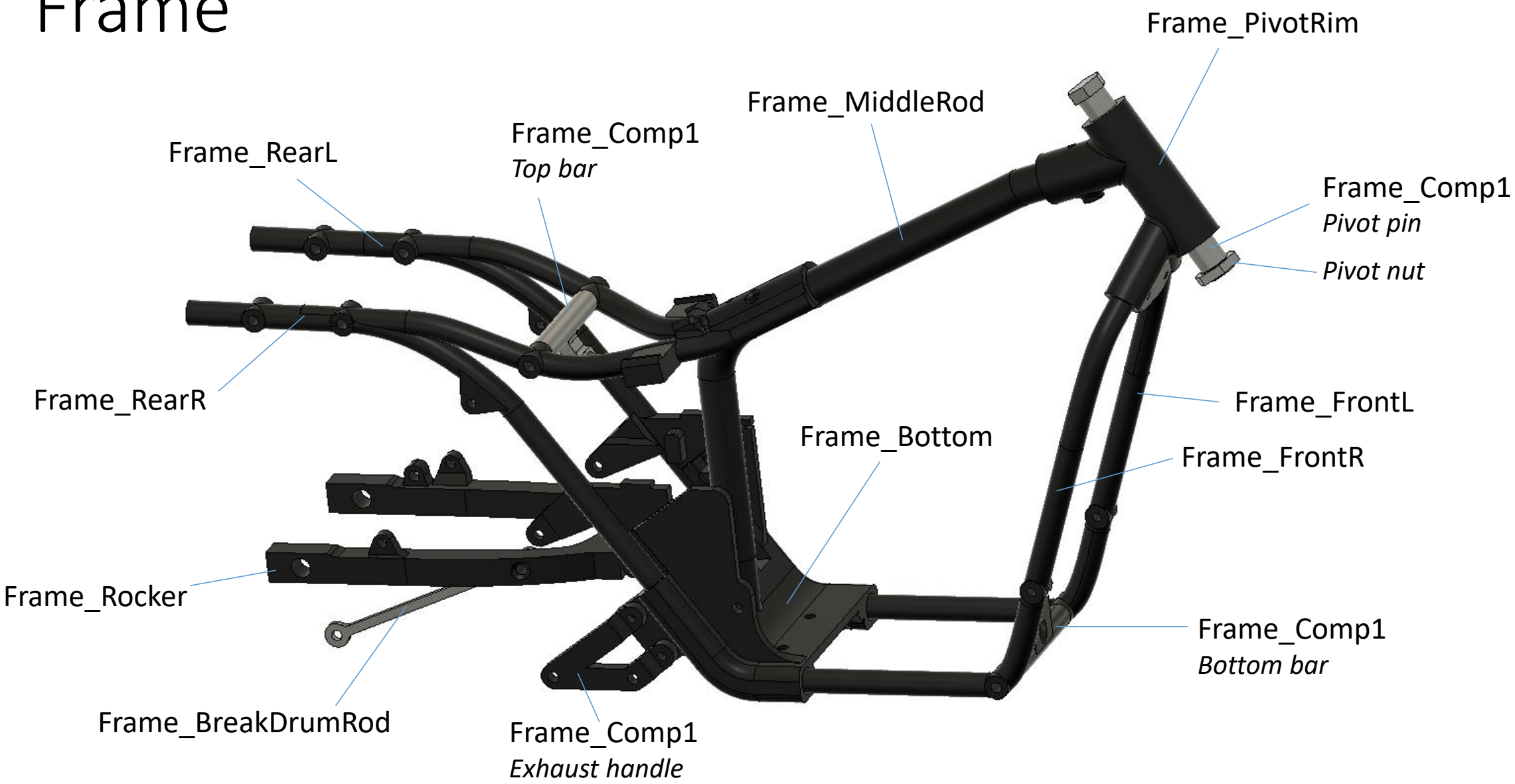
Assembly **Carburetor** by matching pins and holes to the both cylinders. Then screw the **CylinderRight.**

Engine

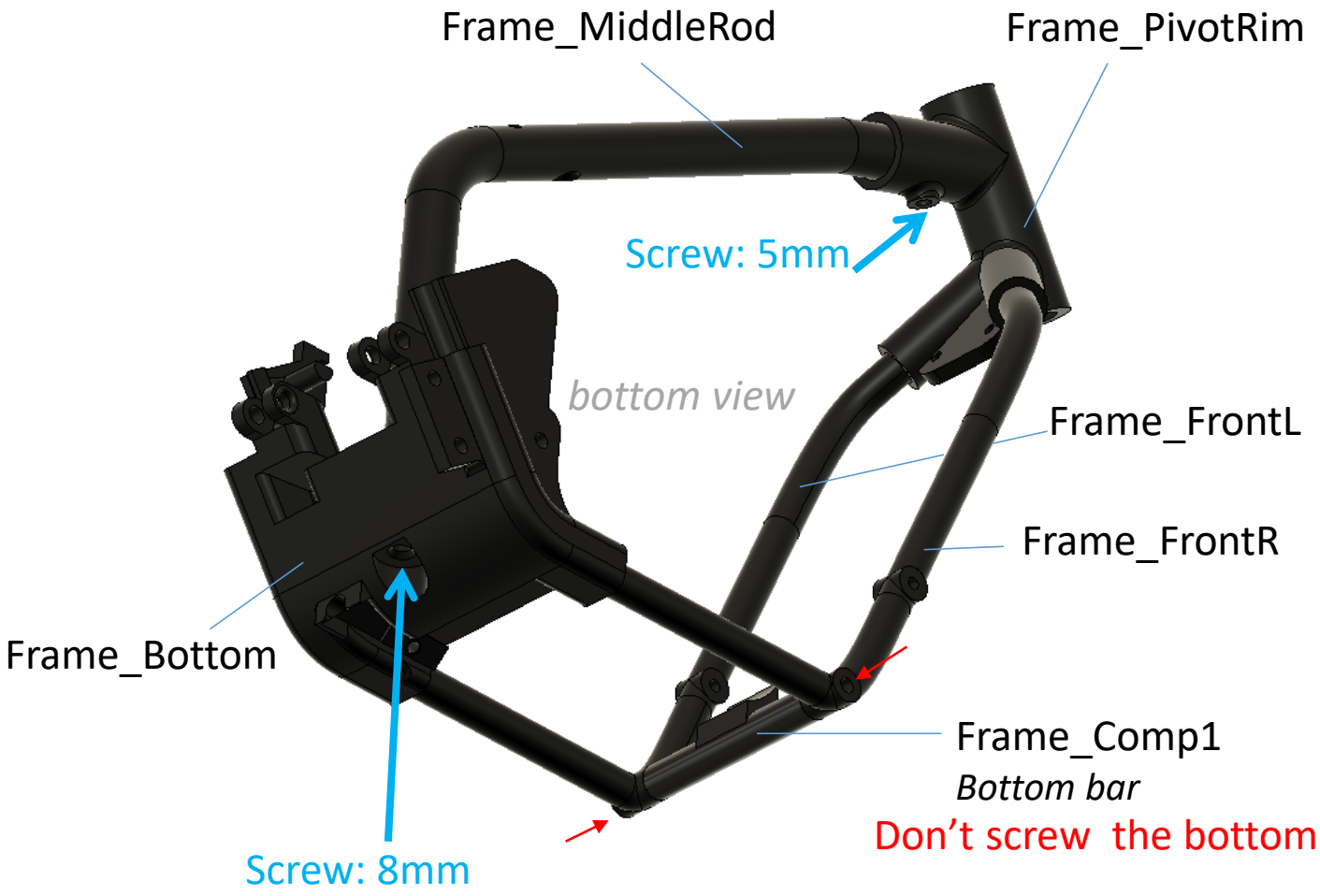


Assembly **heads** to both cylinders.

Frame


Frame_PivotRim
Frame_MiddleRod
Frame_Comp1
Top bar
Frame_RearL
Frame_Comp1
Pivot pin
Pivot nut
Frame_RearR
Frame_FrontL
Frame_Bottom
Frame_FrontR
Frame_Rocker
Frame_Comp1
Bottom bar
Frame_BreakDrumRod
Frame_Comp1
Exhaust handle

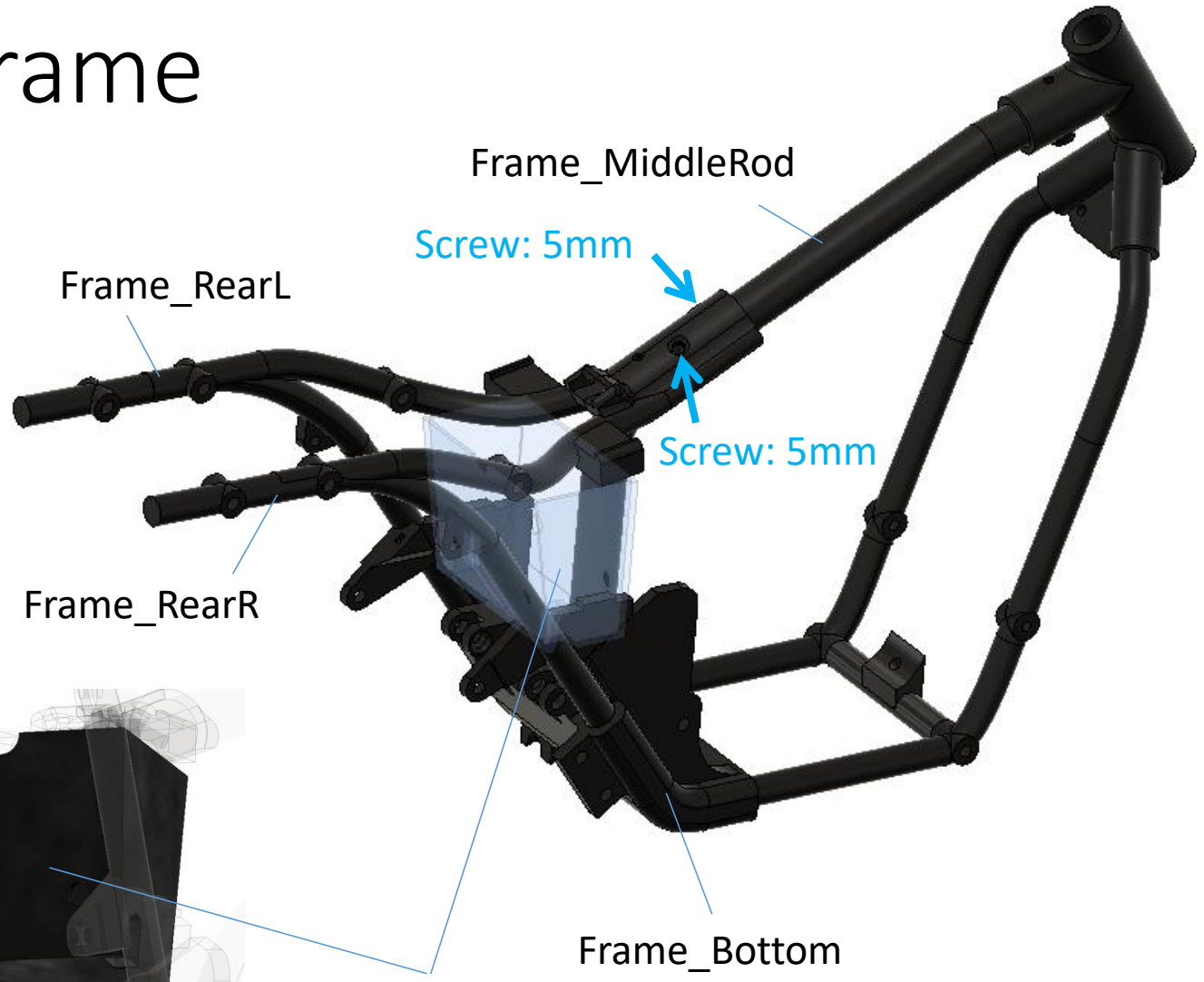
Frame

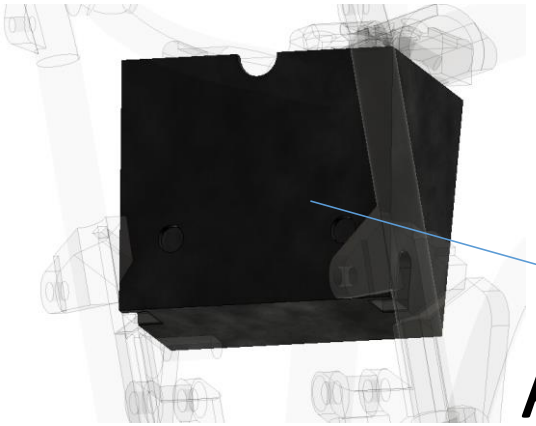


Don’t screw the bottom bar at this stage.

Push on the **Frame_FrontL** and **Frame_FrontR** and **Frame_MiddleRod** into the PivotRim and Frame_Bottom. Only MiddleRod is screwed.

Frame





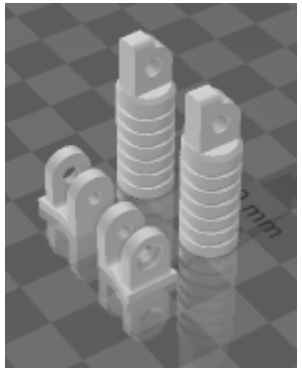
AccuBox

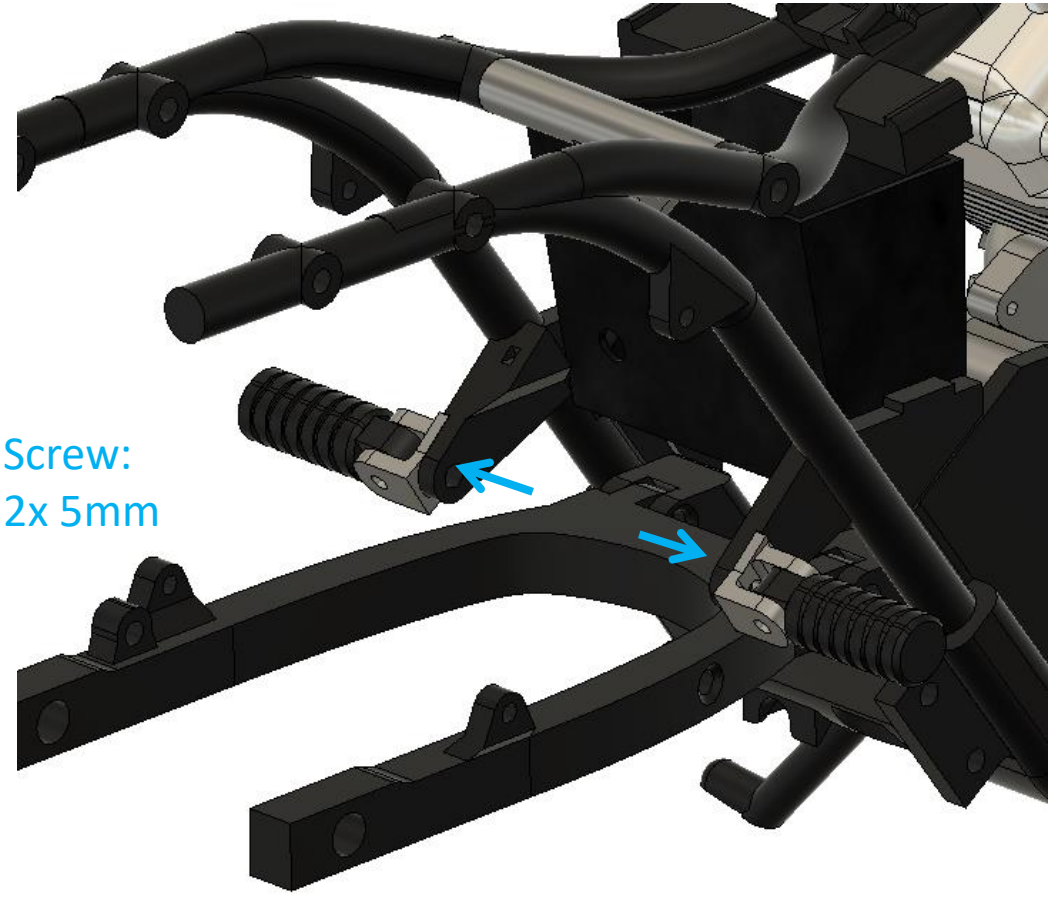
Put **Frame_RearL** and **Frame_RearR** into the Frame_Bottom. Put the **AccuBox** before screwing.

Next, screw it to the MiddleRod using short screws (5mm).

Frame
Rear foot rest

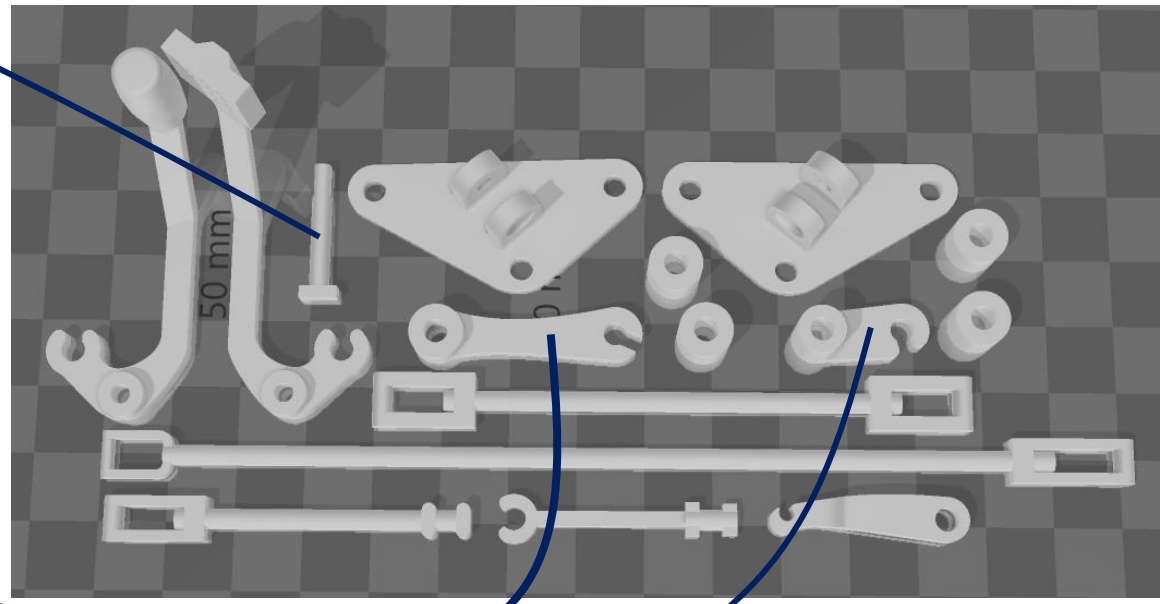
FootRests_Passenger.stl





Frame

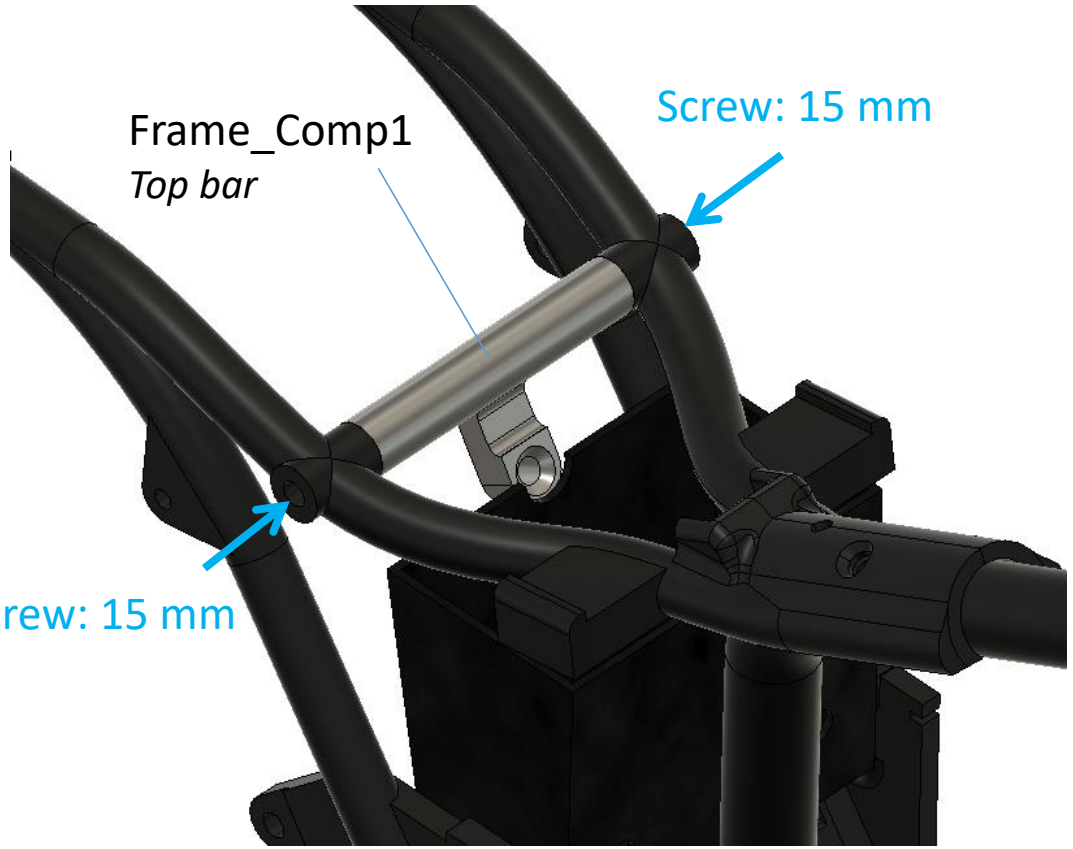
PedalsSystem_All.stl



This is part of rear brake pedal system. It need to be assemble now.

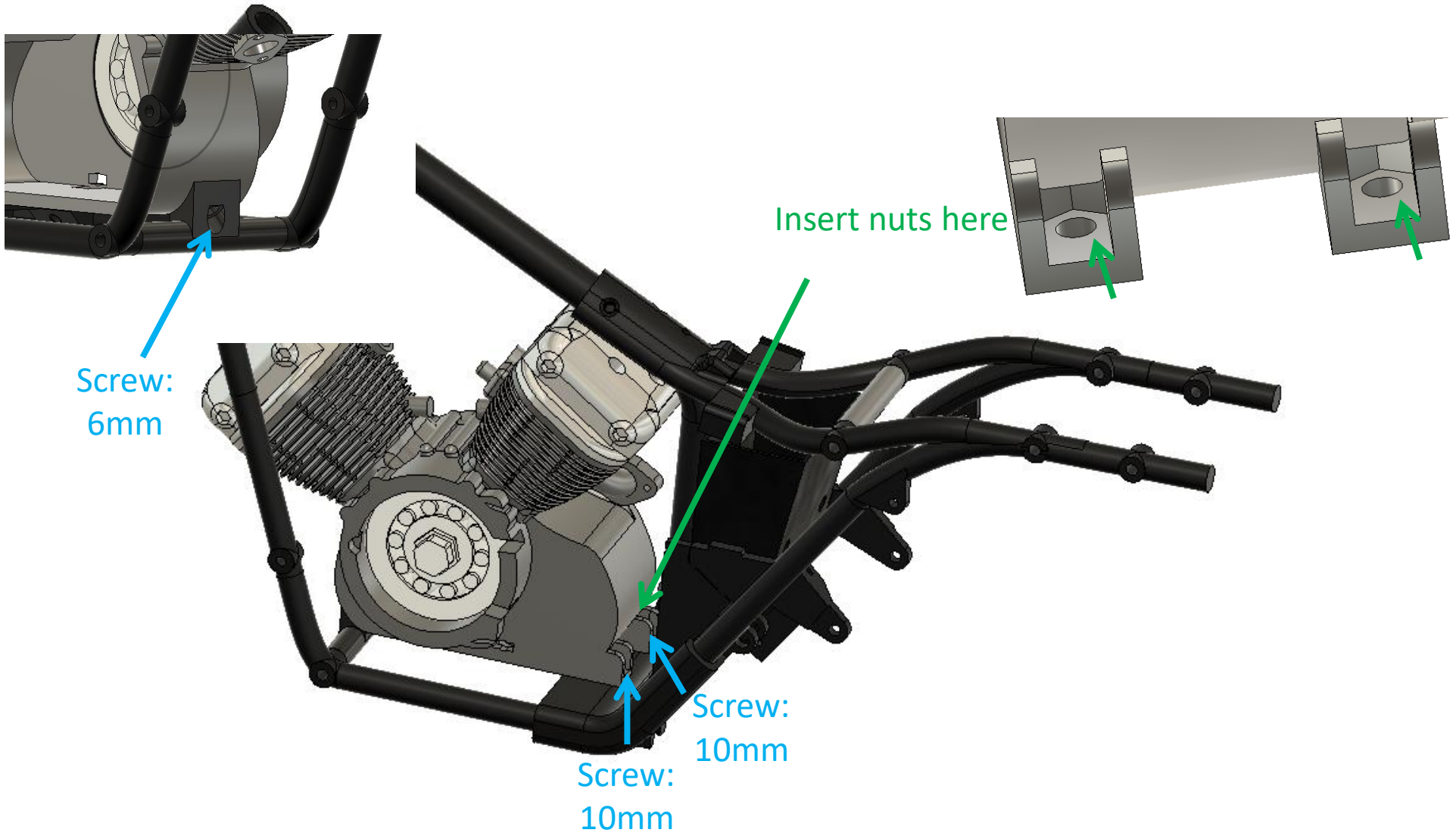
You may need to slightly treat the surface of these parts to fit them. Use a knife.

Frame

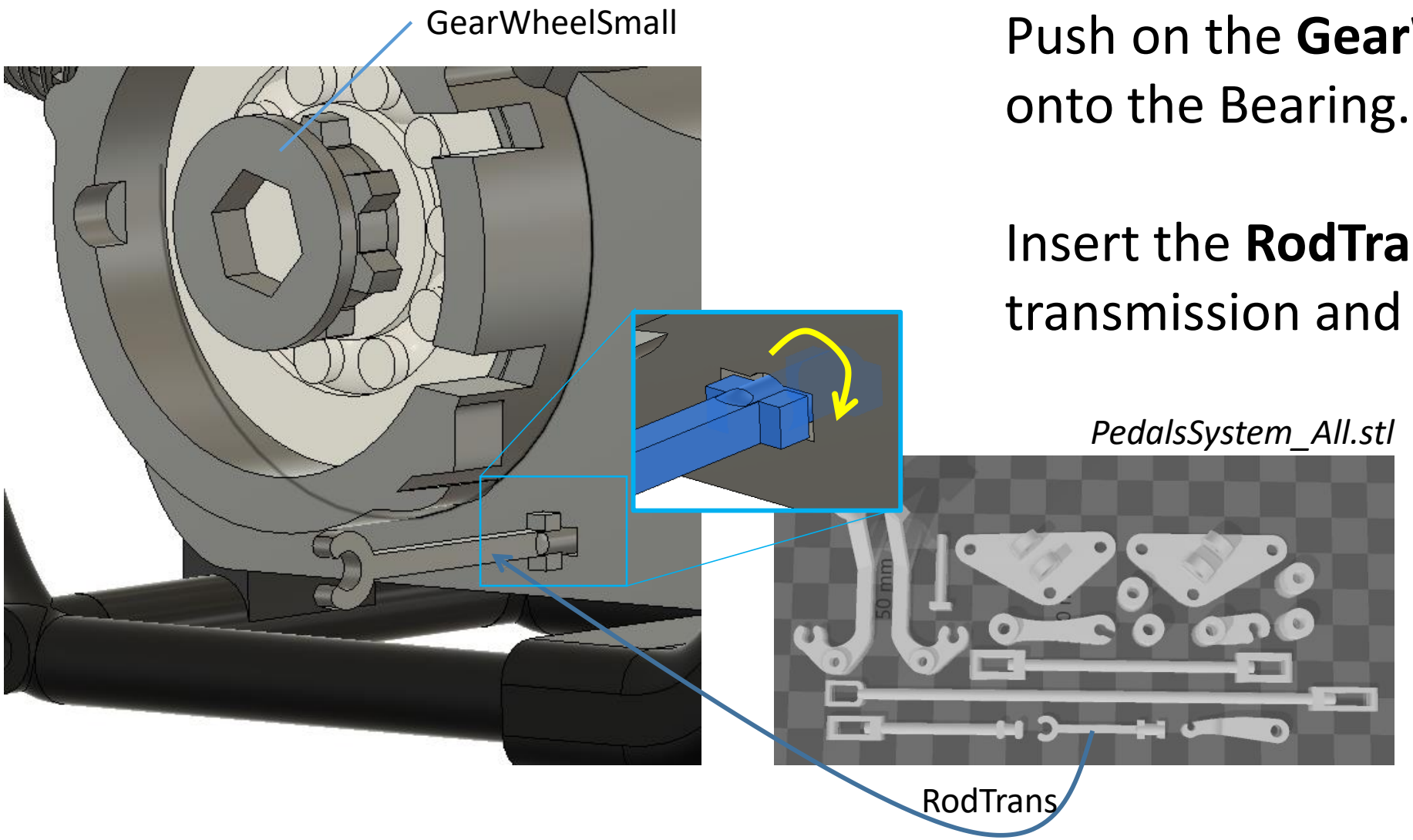


Screw the **Tob bar**

Assemble engine into the frame



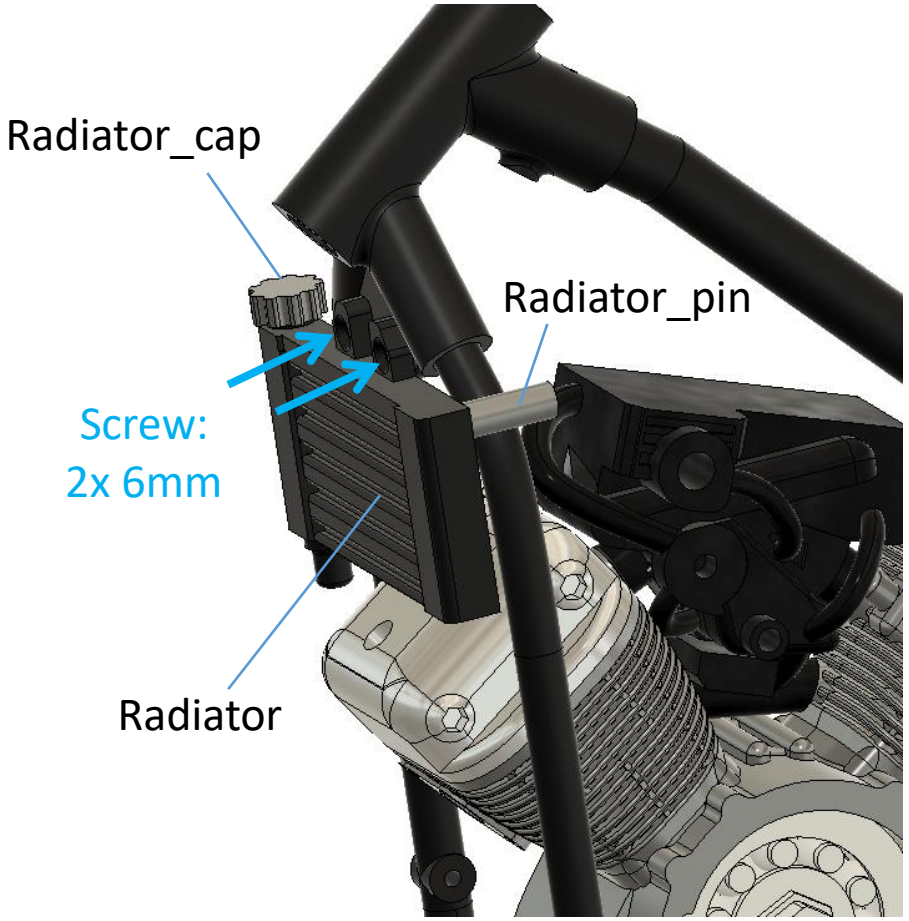
Assemble engine into the frame



Push on the **GearWheelSmall** onto the Bearing.

Insert the **RodTrans** to the transmission and turn 90deg.

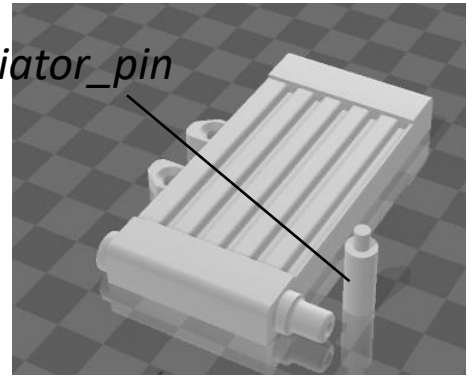
Radiator



Radiator is attached to the **Frame_PivotRim** with two screws M3 6mm.

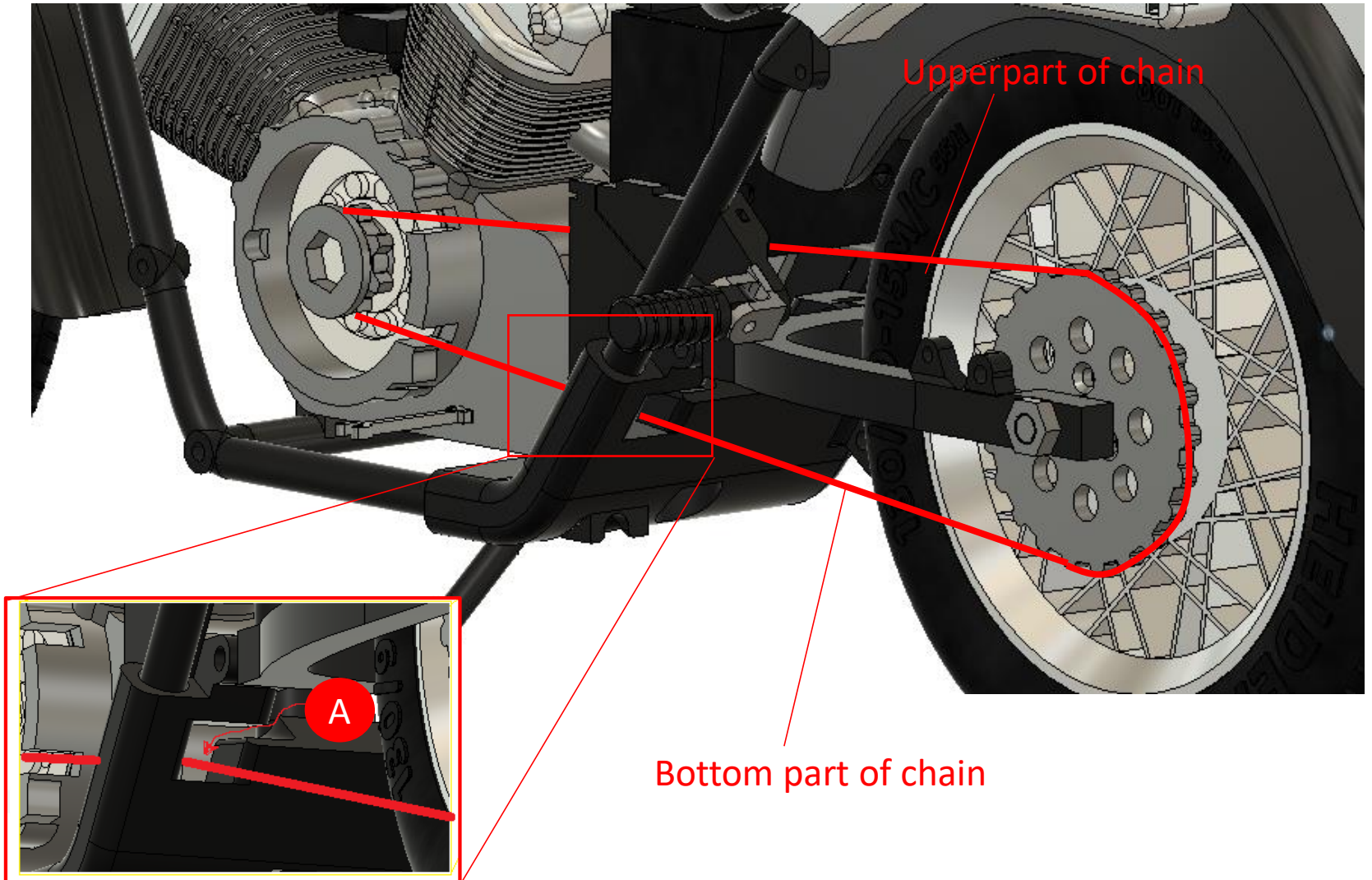
Radiator_pin fits tightly to the hole in the back of the radiator.

Radiator.stl



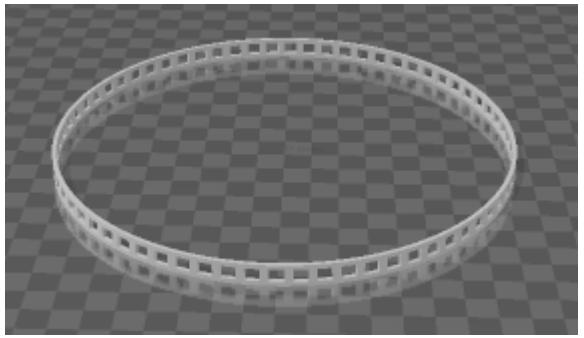
Radiator_cap also fits tightly, glue is not needed.

Rocker

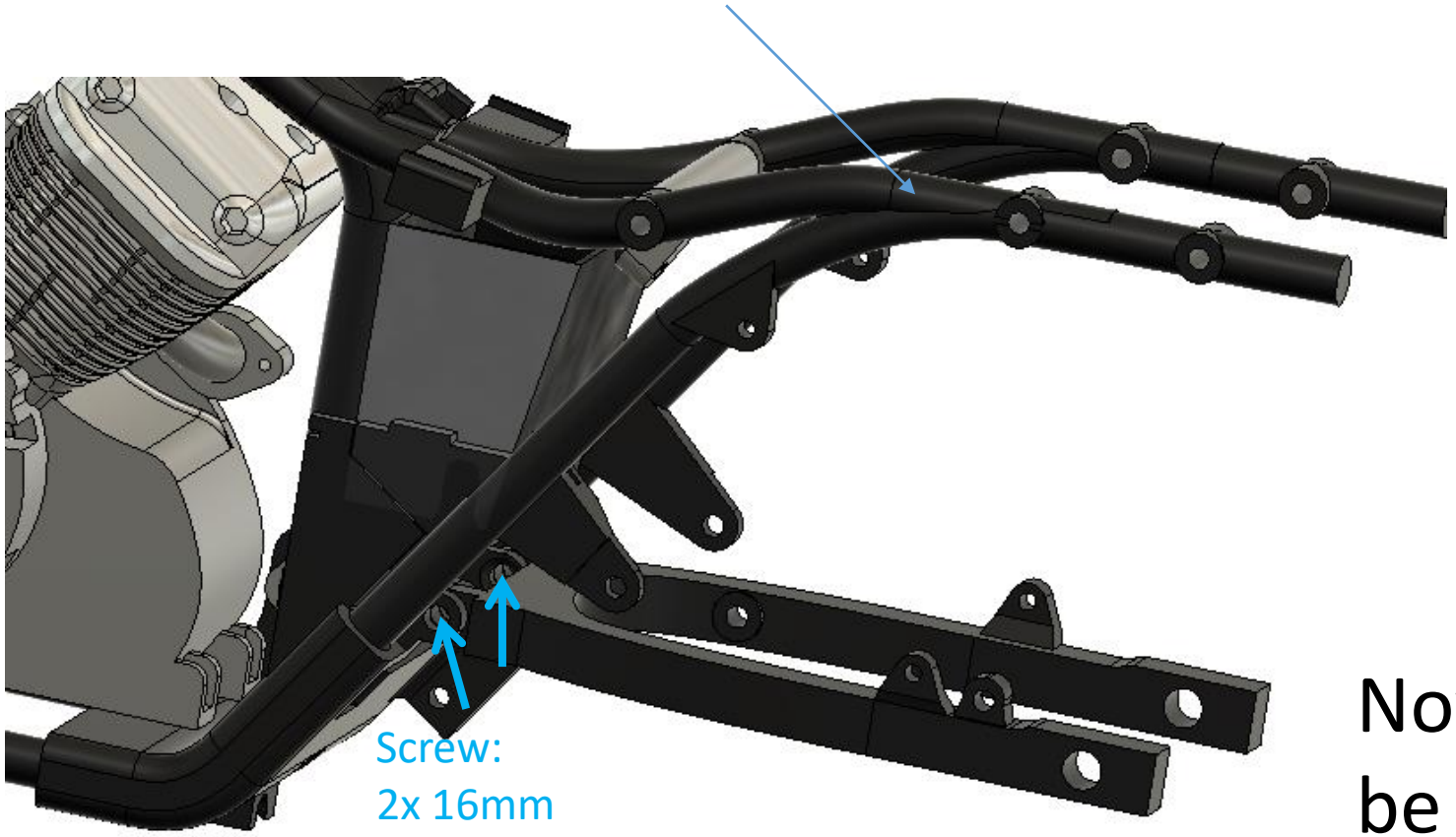


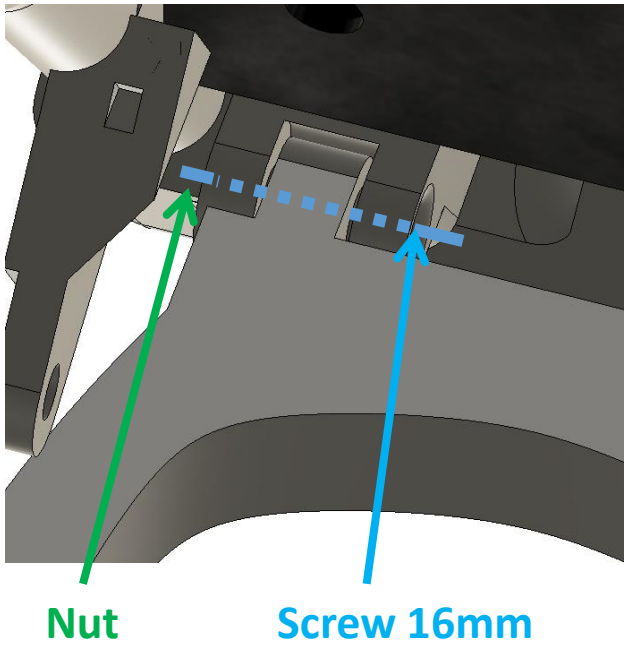
Before attaching the **rocker**, the **chain** need to be inserted. The bottom part shoud be guide through the slot **A**. The upper part should go around the rocker.

Chain.stl



Rocker





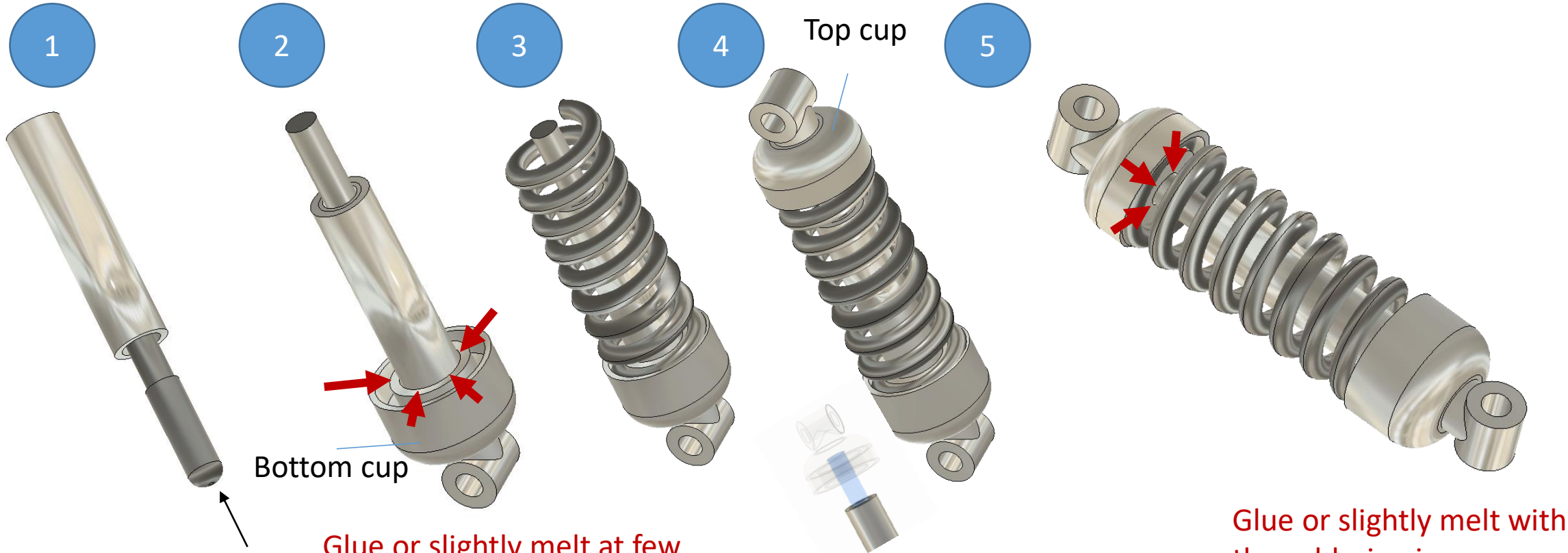
Now the rocker can be attached.

Note: the chain will isn't shown on next slides

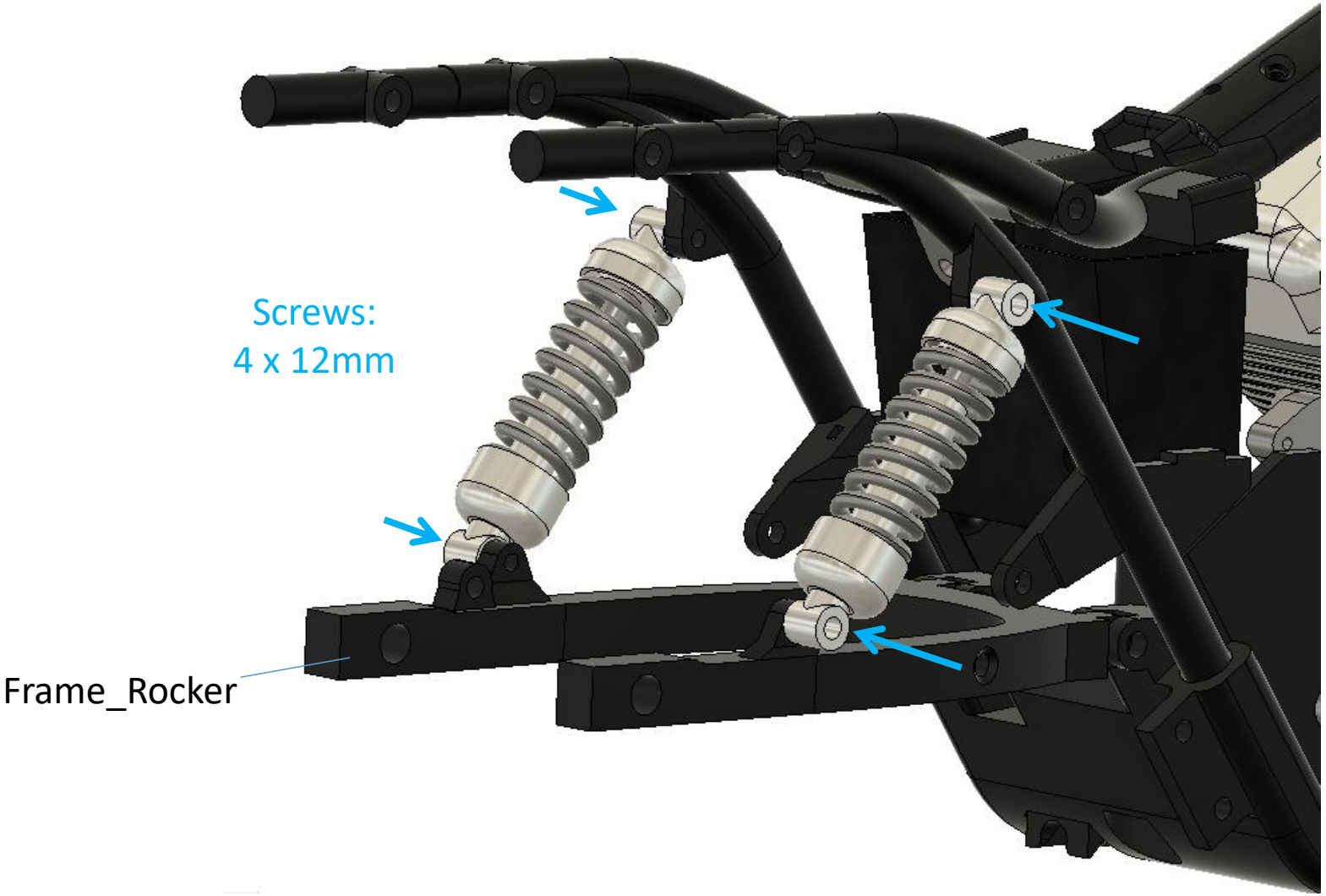
Dampers

Make two pieces.

Spring parameters:
Length: 40mm
Diameter: 14mm
Wire diameter: 1.5mm
You can buy in an DIY store

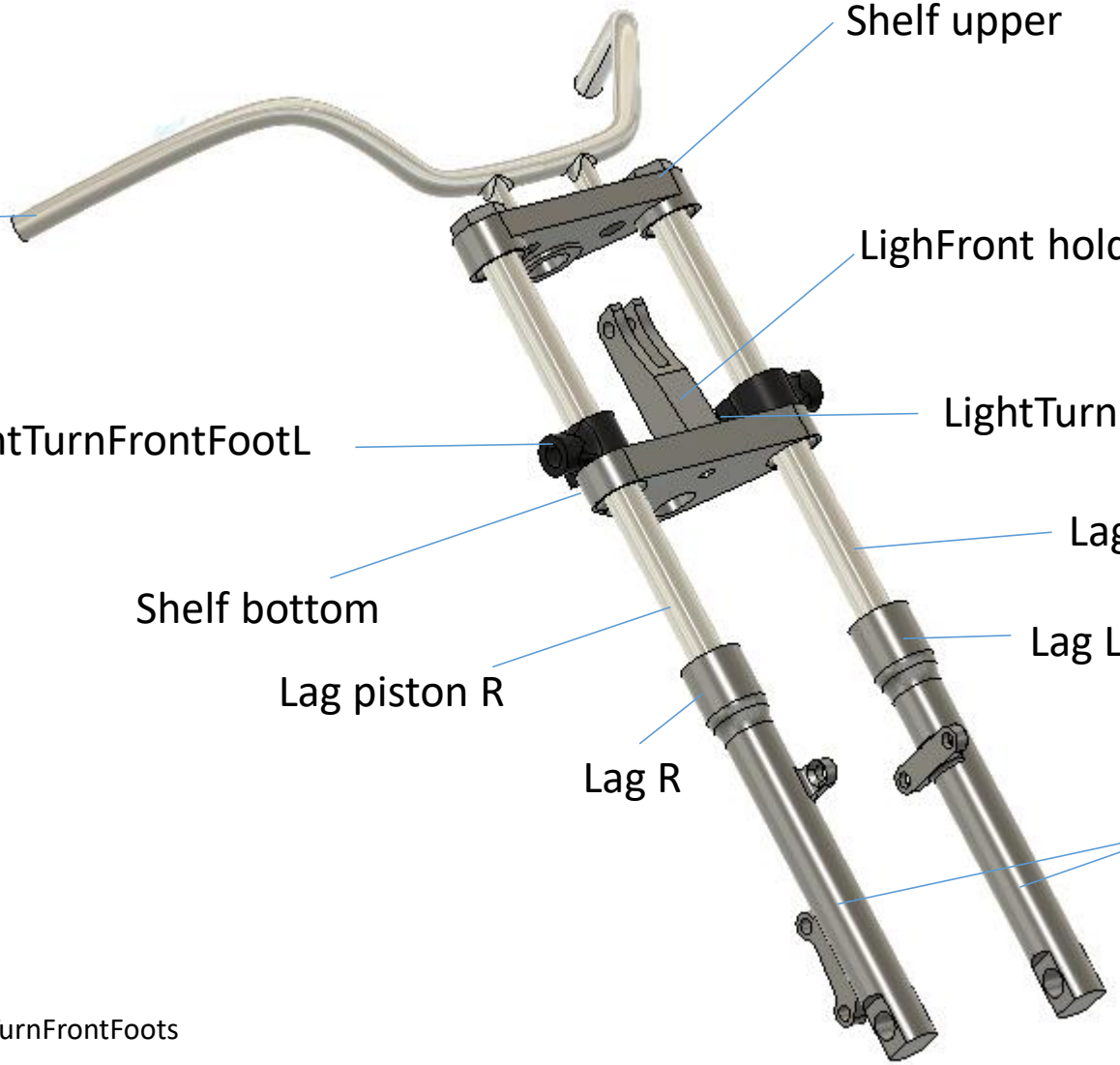


Assemble dampers to the frame



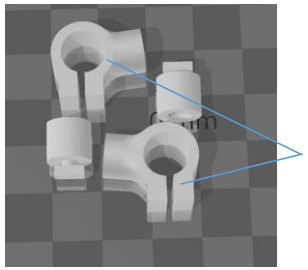
Make thread gently within the holes in the frame and rocker. Soldering iron can help here.

Lags

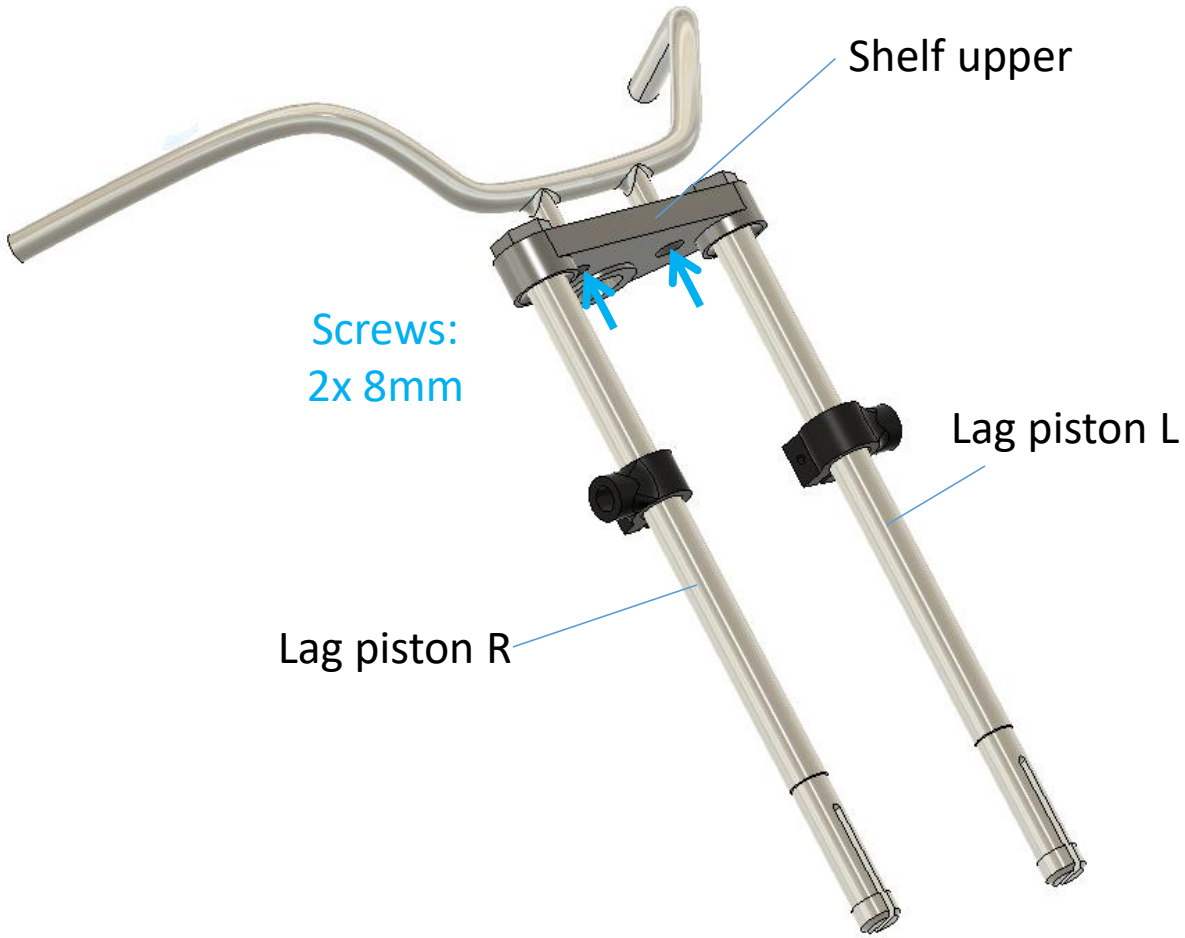


Two springs inside:
Length: 25mm
Diameter: 7.7mm
Wire diameter: 0.8mm
You can buy in an DIY store

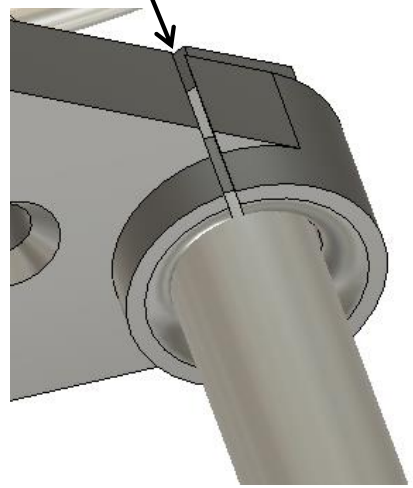
IndicatorsFoots.stl



Lags



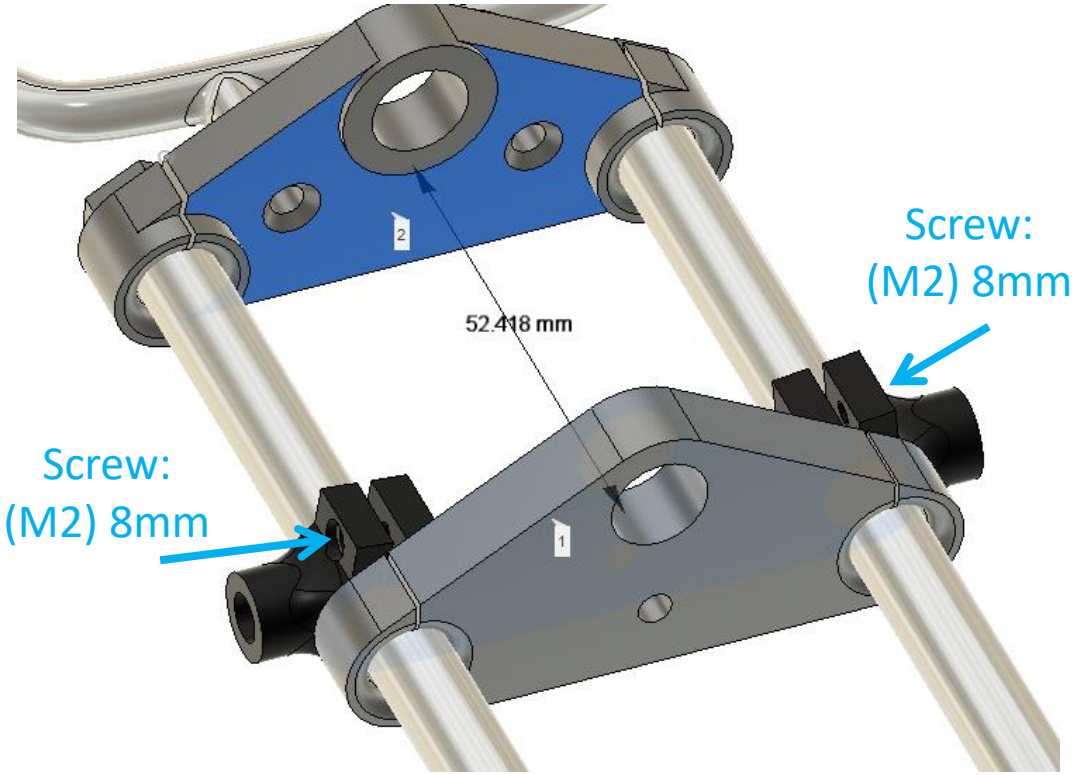
Insert two **Pistons** into **Shelf upper**.
Use flat screwdriver to gently expand the hooks, if necessary.



Next, insert the two **LightTurnFrontFoots**.

Now you can screw the handlebar.

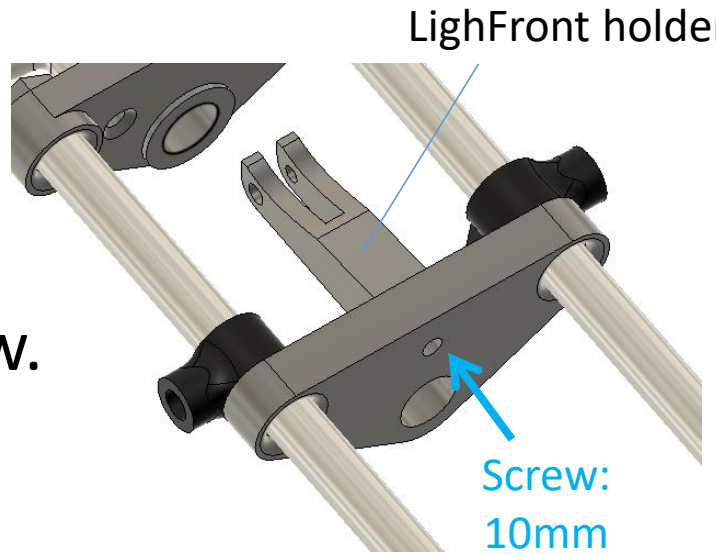
Lags



Next, insert the **Shelf bottom** at distance ~53mm below the upper one. You may use the screwdriver again.

The indicator foots are tightened by smaller screws M2/8mm.

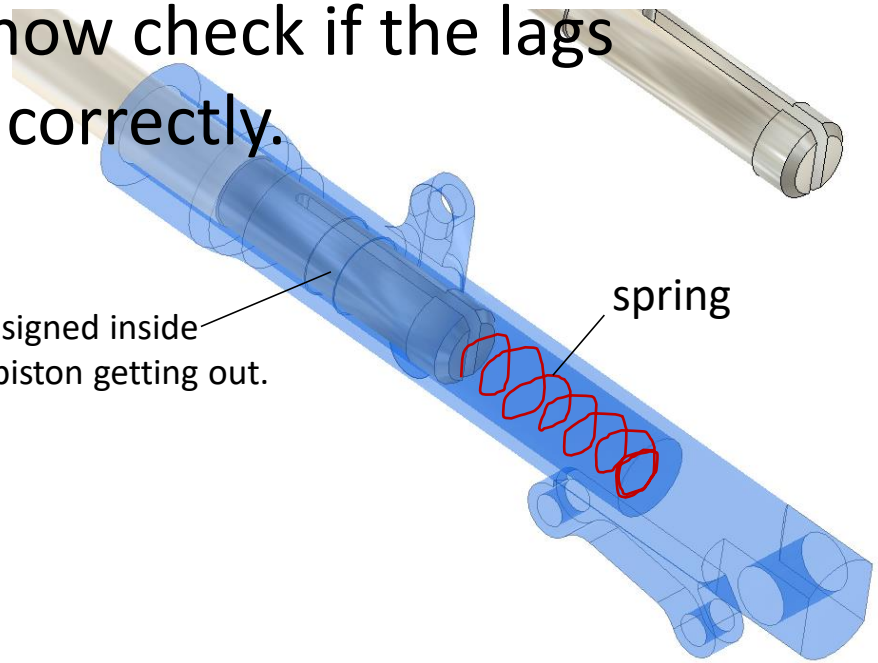
Front light holder is screwed by 10mm M3 screw.



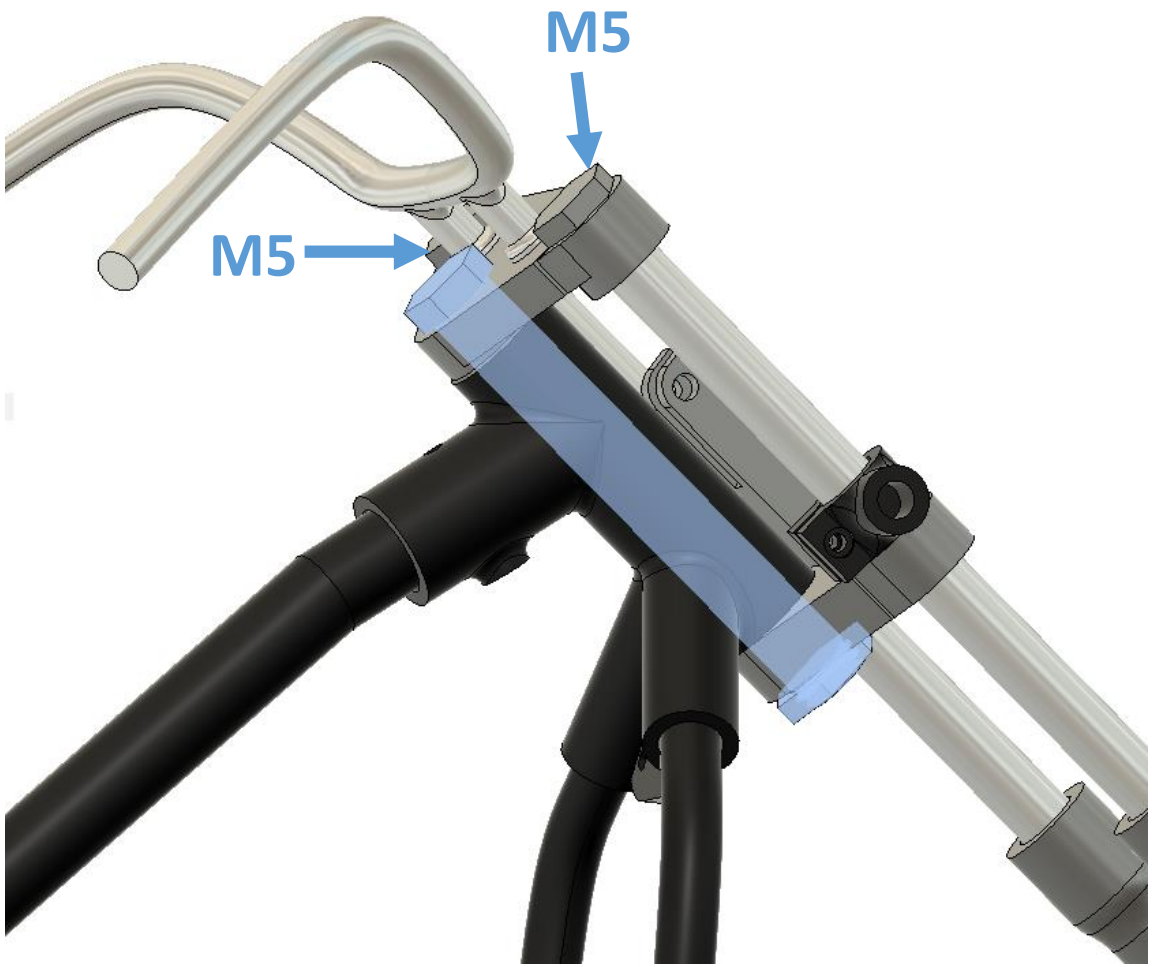
Lags

Then, put the two springs (0.8x7.7x25mm, not shown on the picture) into the lags and slip them onto the pistons. The pistons should ‚click' slightly at the latch ring.

You may now check if the lags springing correctly.



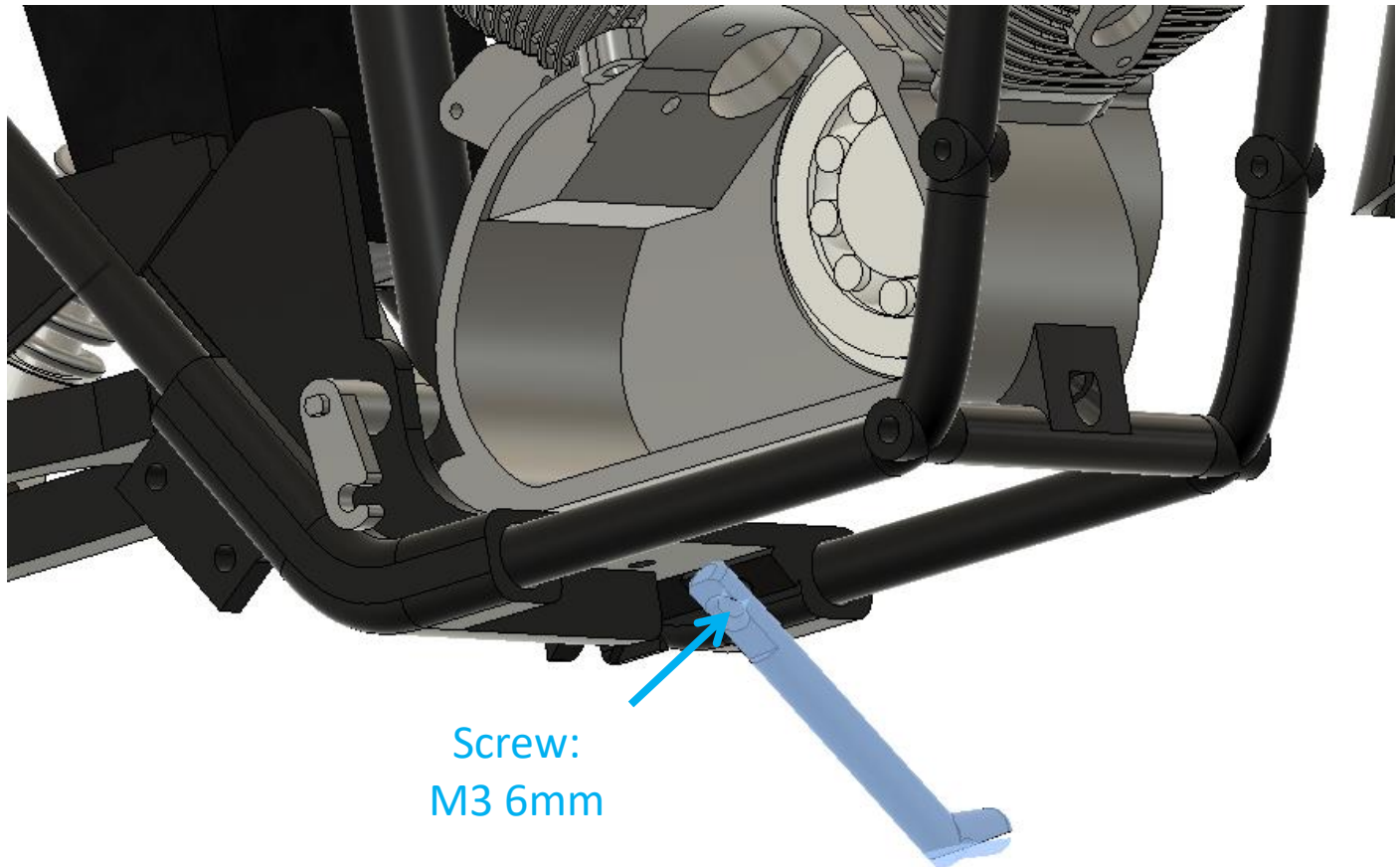
Attach Lags to the Frame



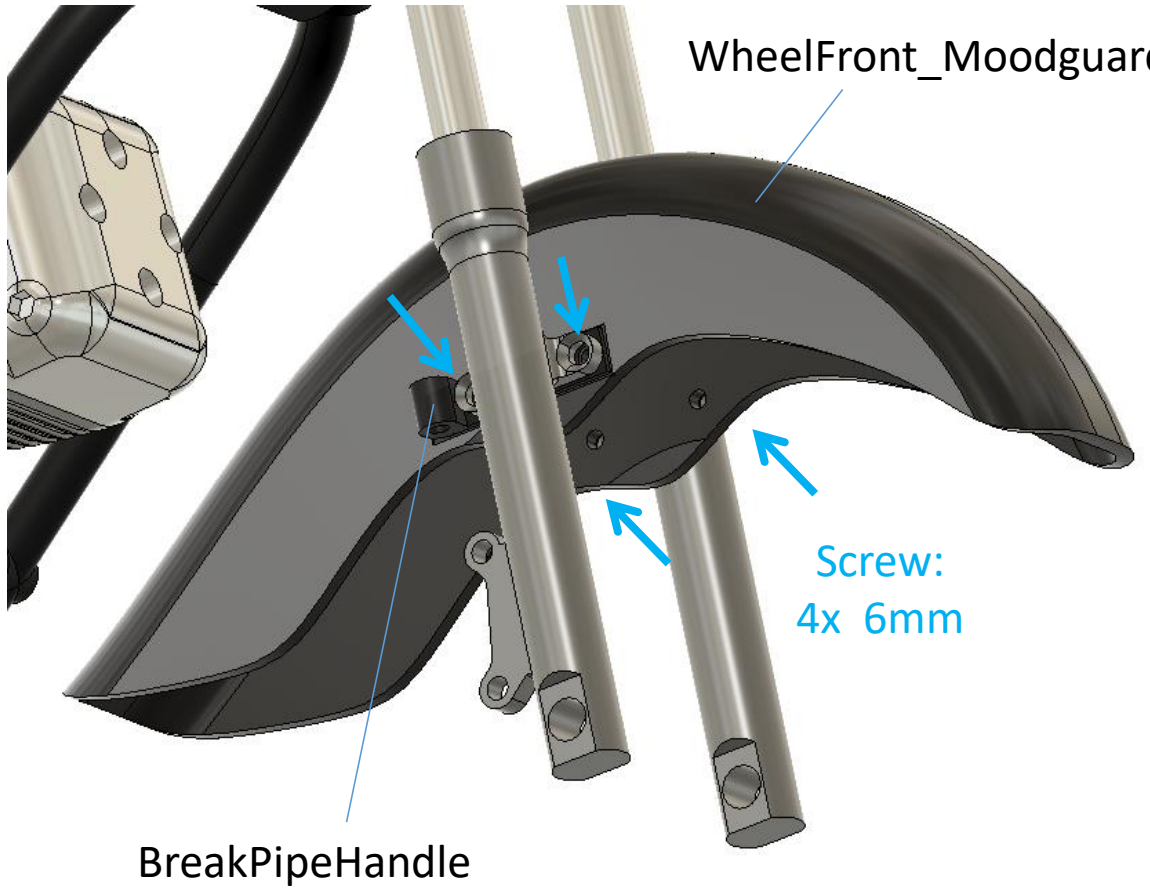
Attach Lags to the Frame by using a pin and nut from *Frame_Comp1.stl.*

There are two M5 screws put from the top of the pistons. These are only esthetic effect and does not keep the pistons attached to the Shelf Top. If there is too big loose of M5 screw, use some glue or the like.

Foot

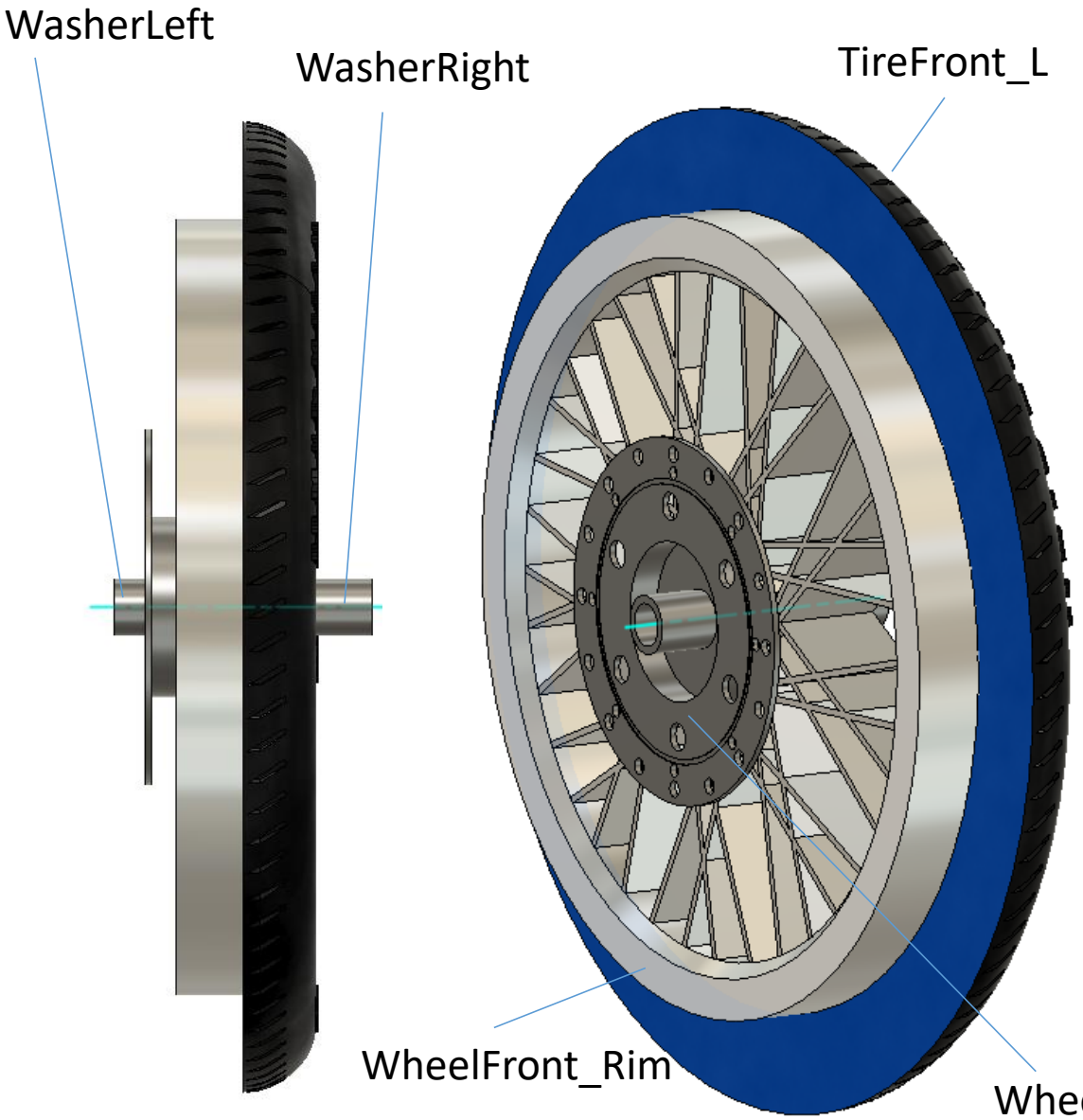


Front Moodguard



Moodguard is screwed to the lags straightforward.
At the right side it is needed to put a kind of washer called **BreakPipeHandle**. It will handle the dummy wire of the front brake.

Front wheel

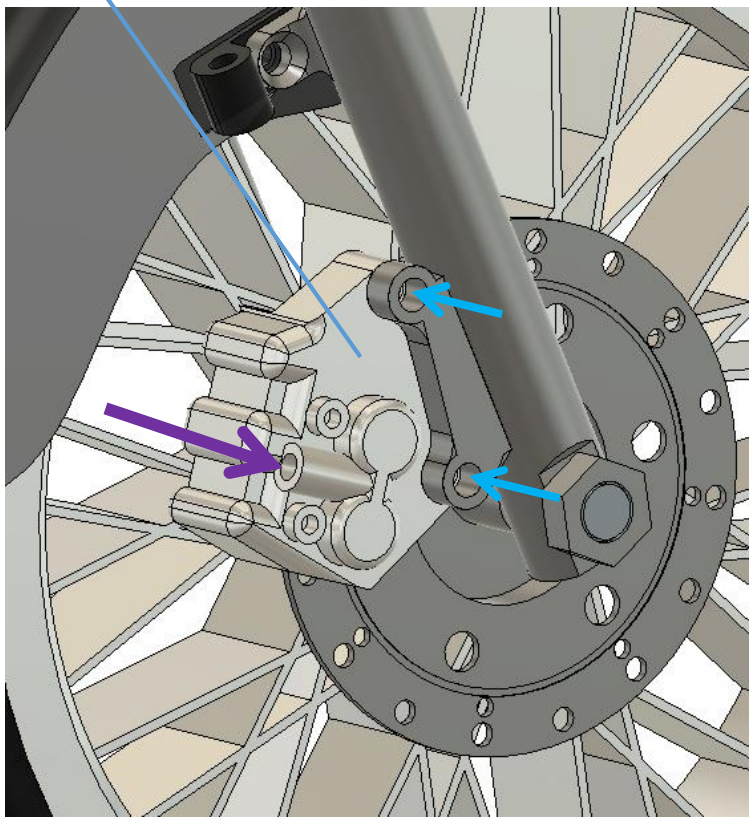


Both halves of tire should be glued.
The **BreakDisk** fits tightly to the **Rim** (no screws required).
The tire should fit tightly onto the rim if made of flexible filament (no need to glue).

Now the wheel can be attached to the lags using an **Axle** and a **Nut** (from *WheelFront_AxleNutWashers.stl*)

Front break

FrontBreak

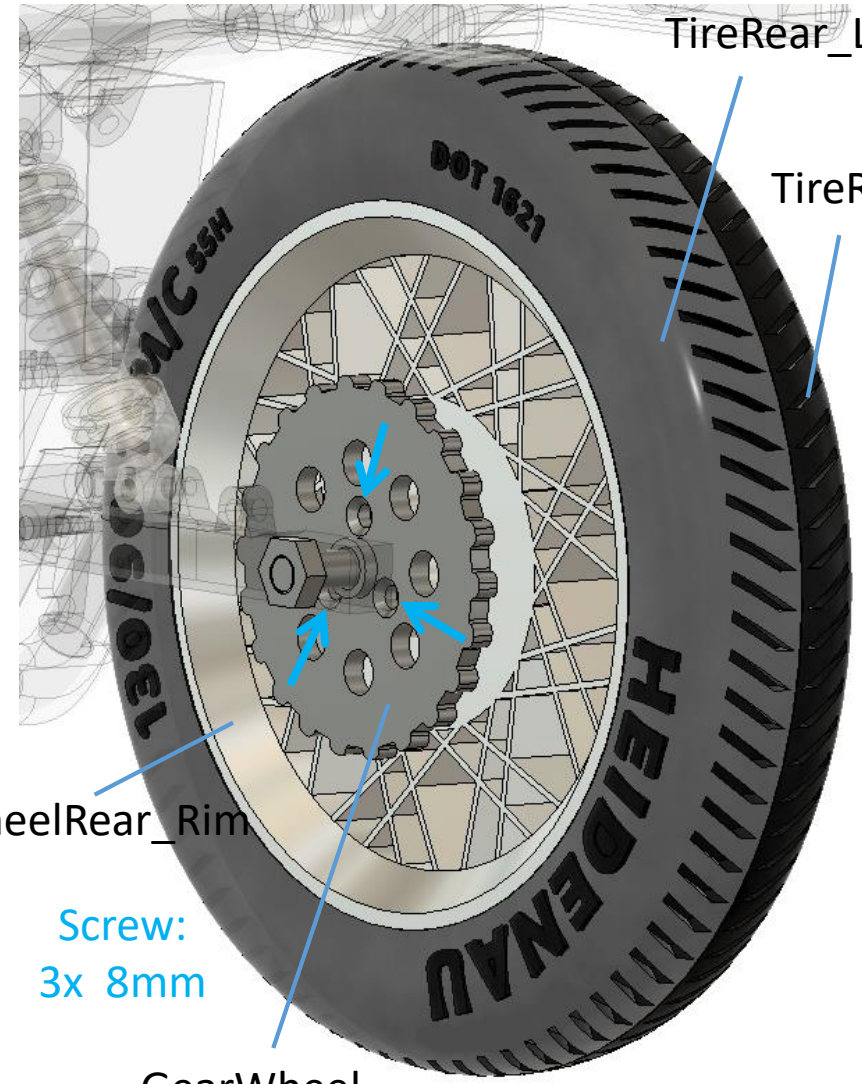


Screw:
2x 8mm

FrontBreak is screwed to the right lag using two M3 screws 8mm length. When threading holes in the FrontBreak, use the soldering iron.

Before attaching it to the lag, use a drill with 3mm drill bit and enlarge the hole indicated by violet arrow. There will be wire of diameter ~3mm attached here to immitate the break wire.

Rear wheel

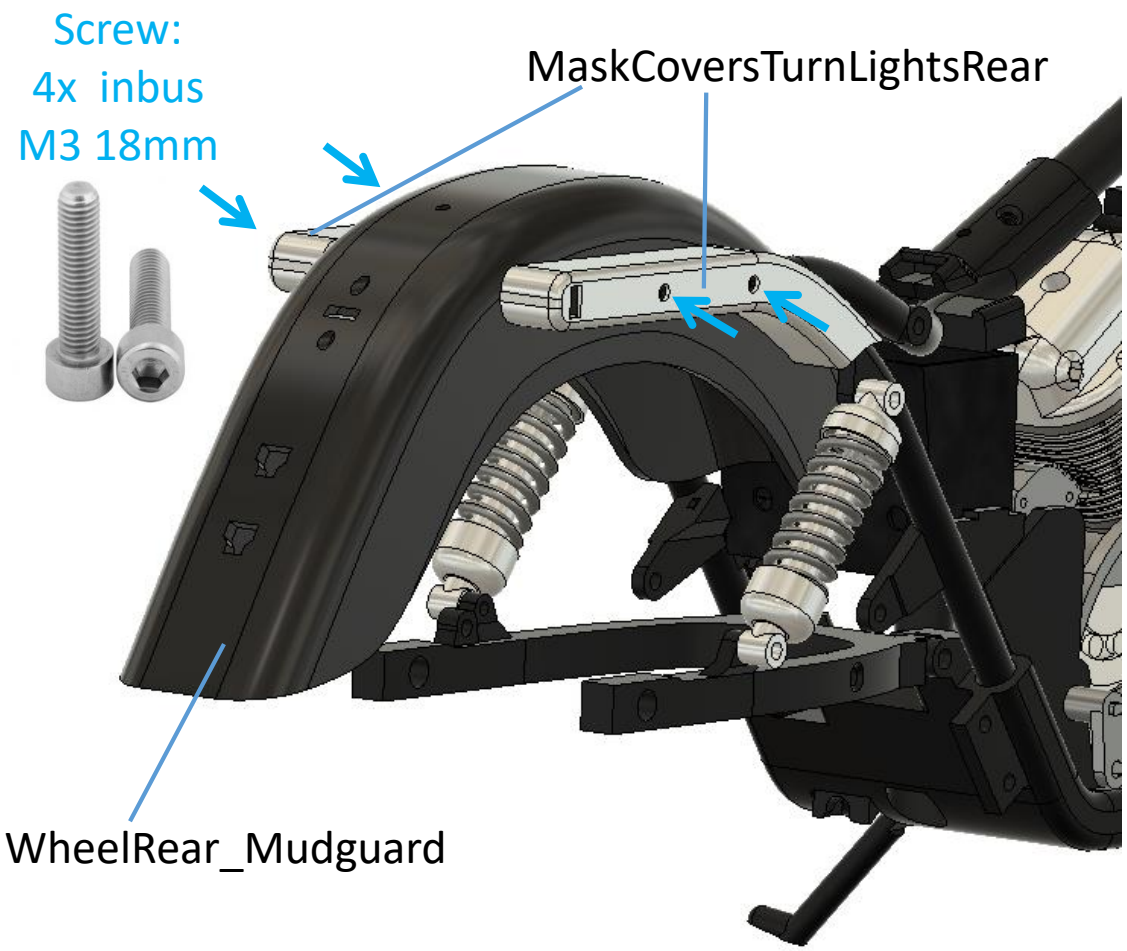


The two halves of the tire need to be glued.

GearWheel is attached using three M3 screws 8mm.

RearBreakDrum is just put onto the axle and can turn freely.

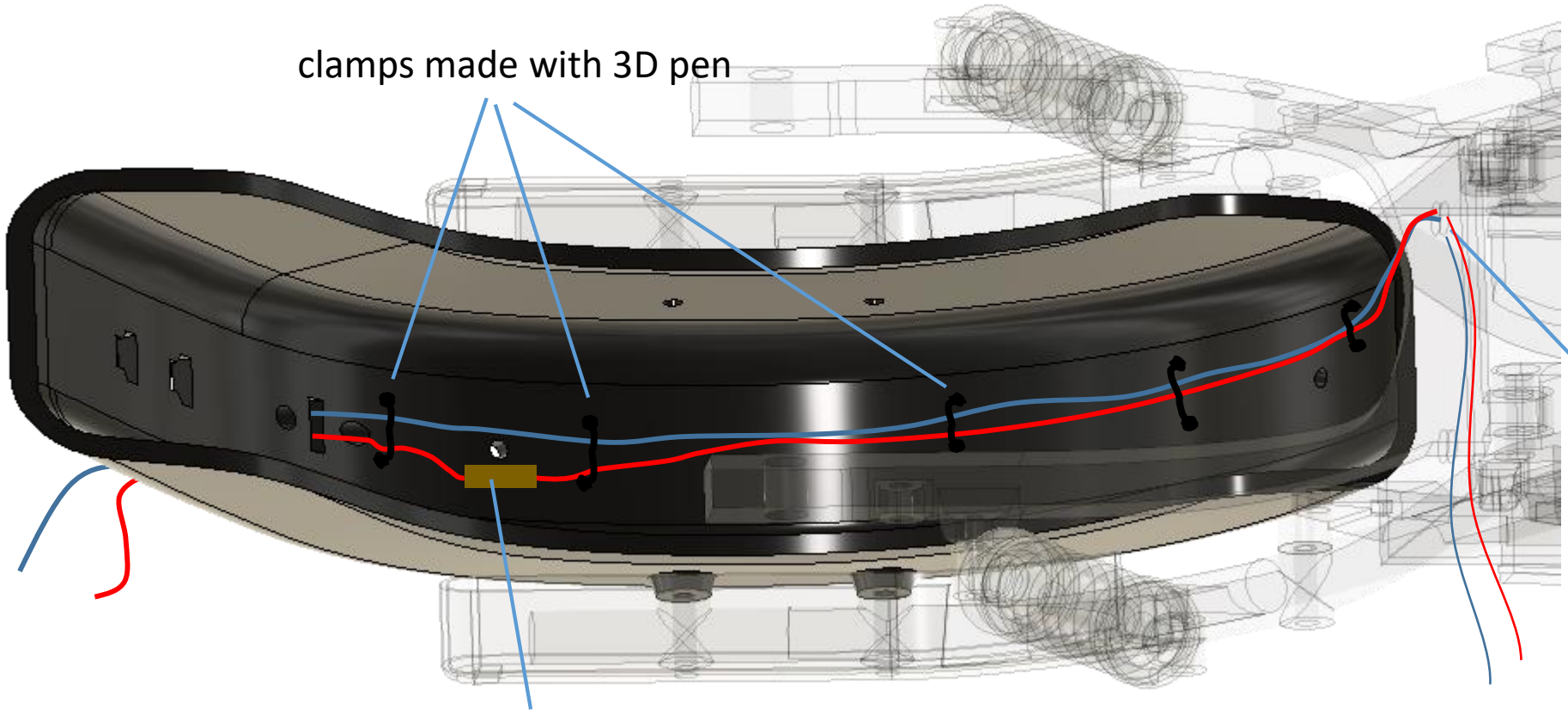
Rear Moodguard



Moodguard is screwed to the frame using inbus long 18mm M3 screws through **MaskCoversTurnLightsRear** and the fifth screw as shown below.

Rear Moodguard – Led Rear light wiring

You can skip this part if you don’t plan to make LED lights



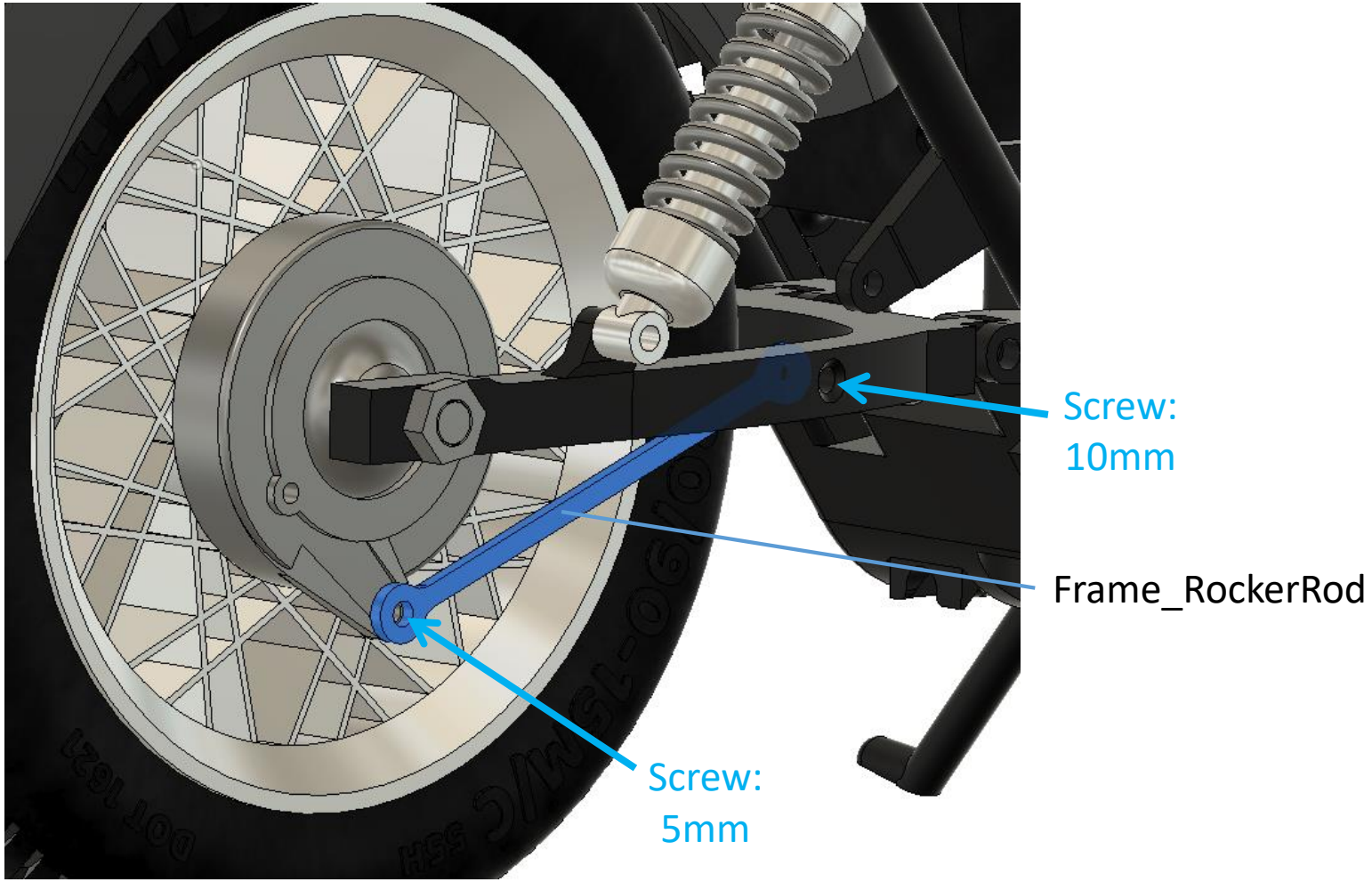
Note: the resistor can be put anywhere.
E.g. you can assemble it with diode.

Fix the wires using 3D pen (or any other way).

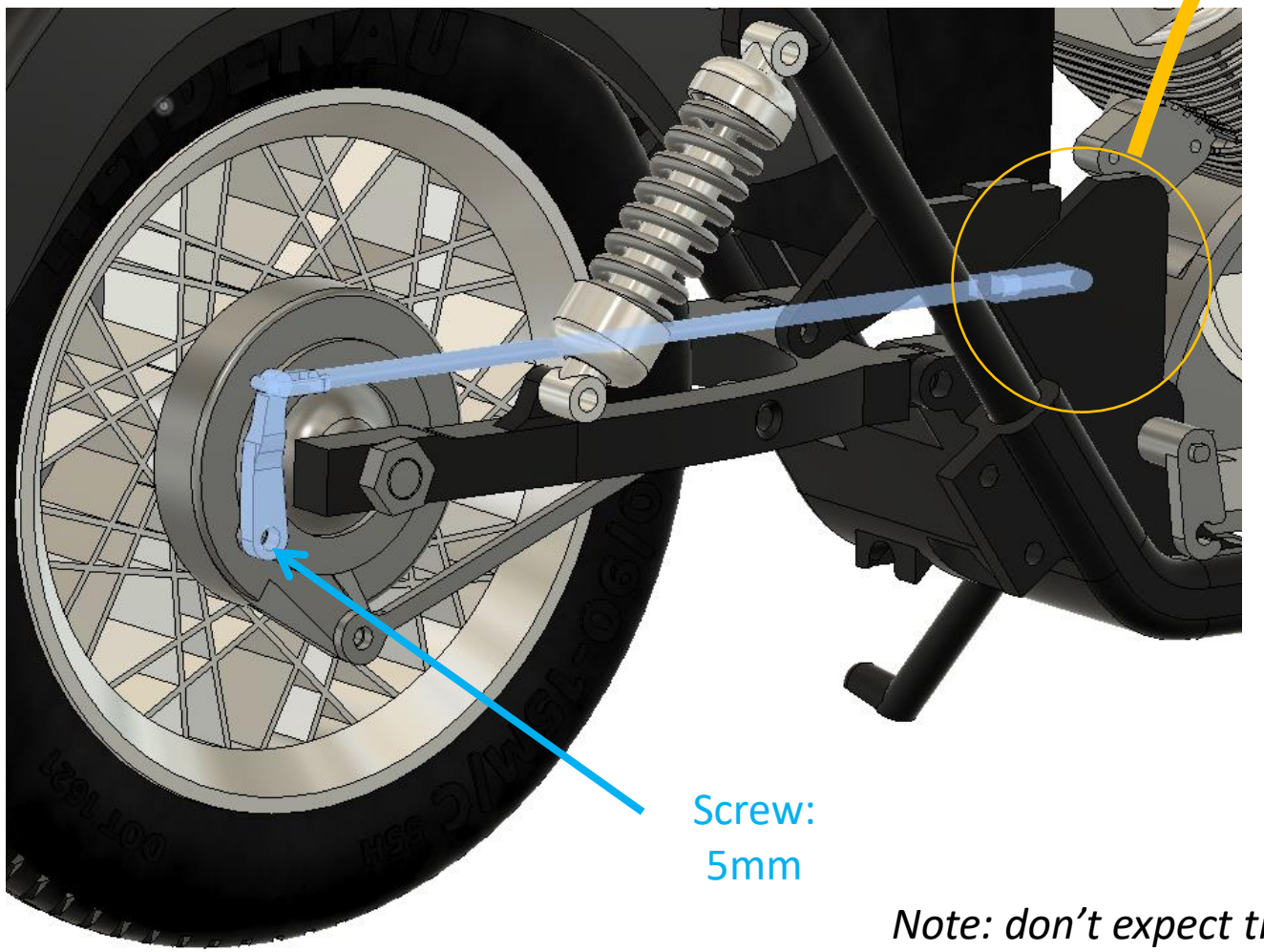
Pass the wiring through the hole in **AccuBox.** Leave some 15cm length free

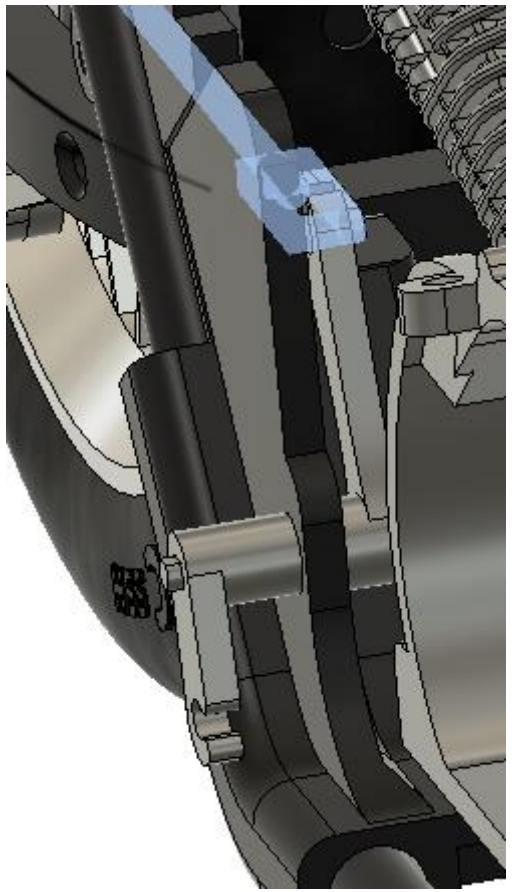
Attach rear wheel to the rocker

Rocker-drum rod



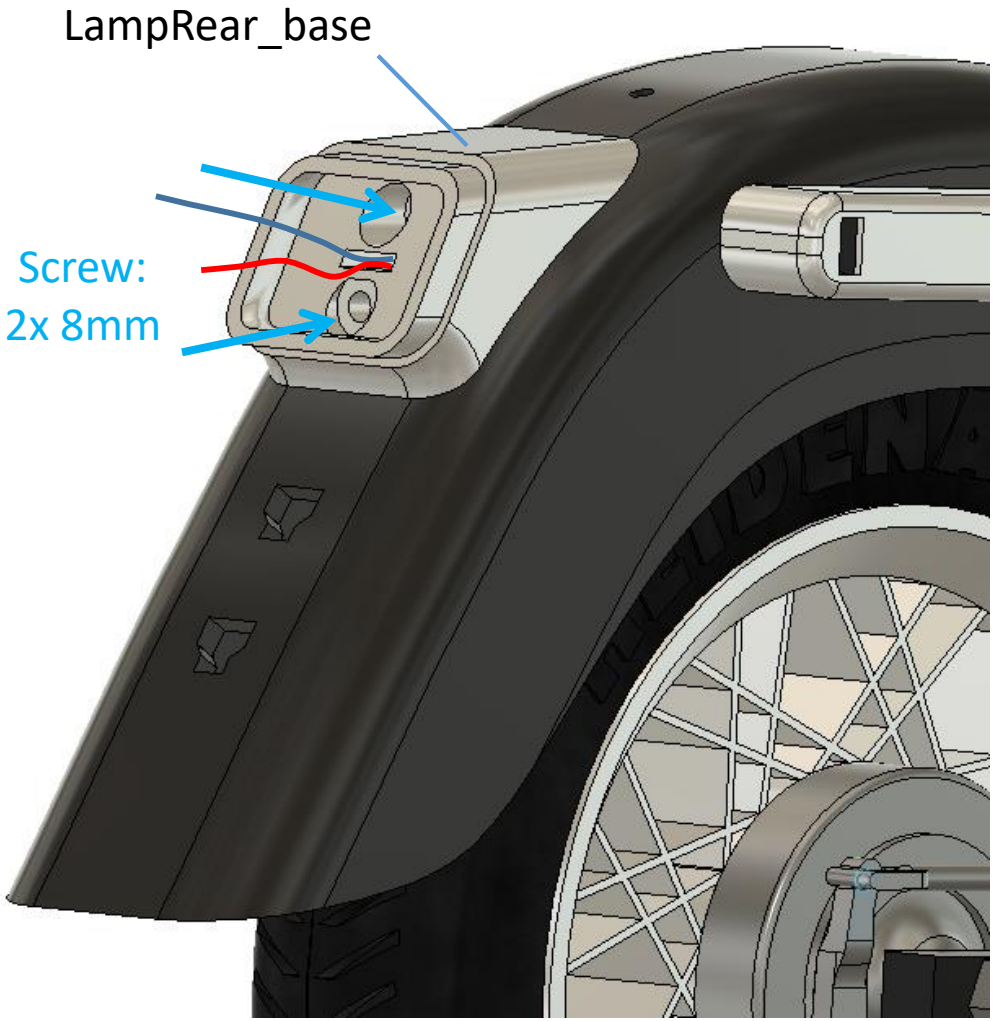
Rear break system





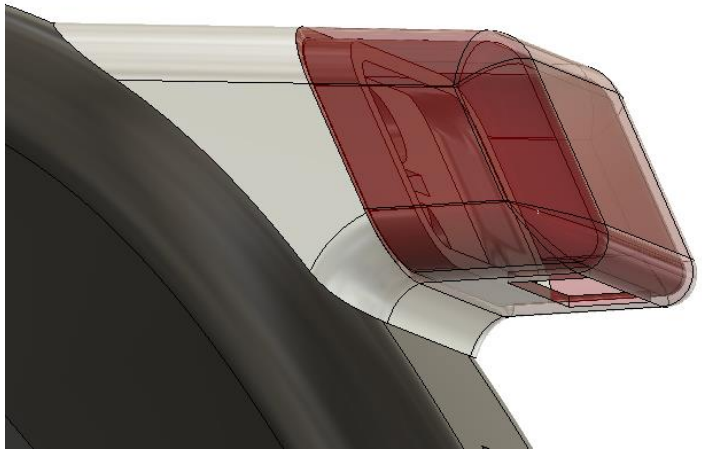
Note: don't expect the rear break will really work. It is dummy!

Rear lamp base



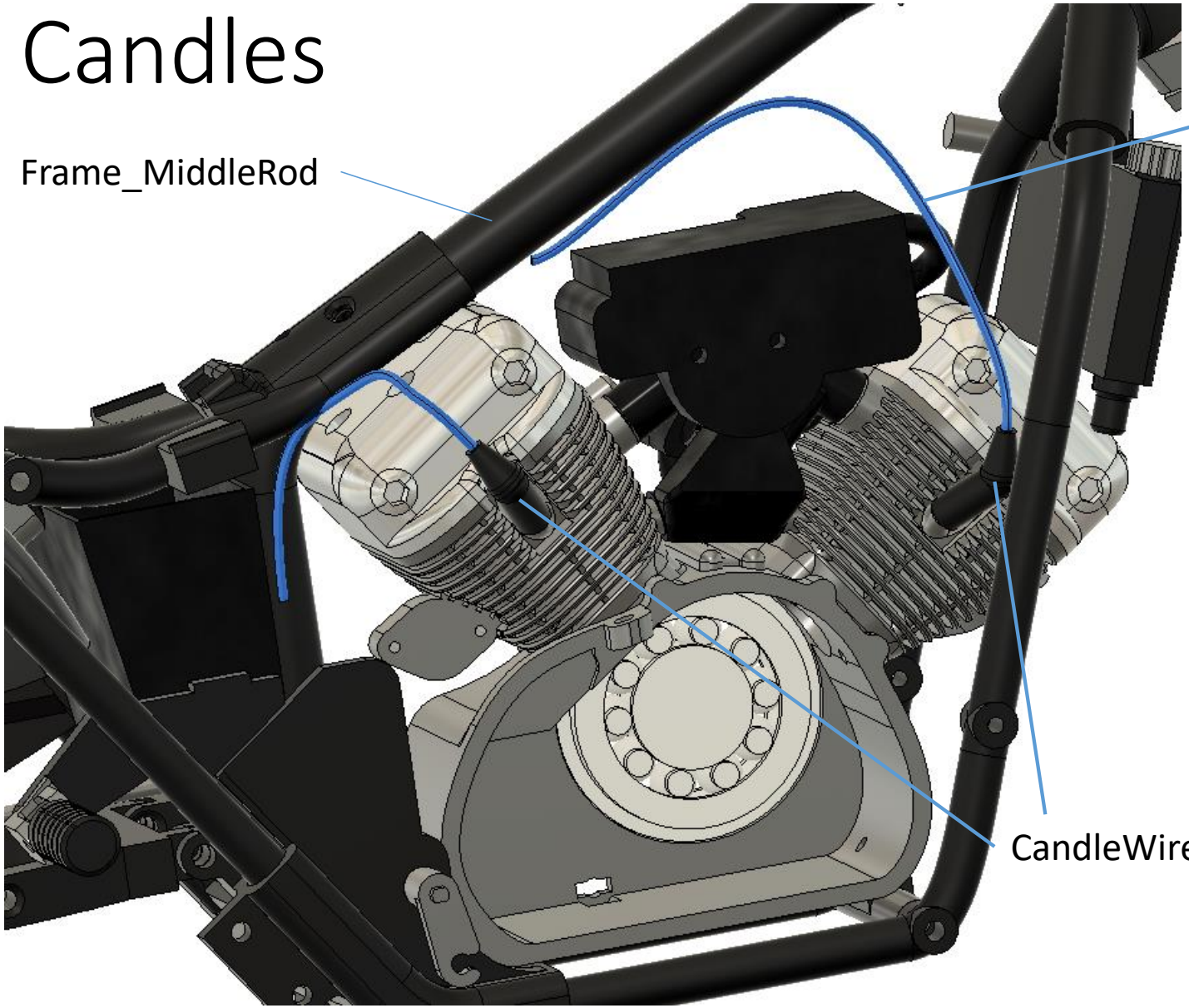
Terminate the two wires with the red led. You need to figure out the best way, it is not defined.

I made a small PCB with SMD resistor and 3mm diodes: red shining straightforward, white shines down trough the hole to illuminate the ID plate. When you shape your own light, try on with the shade for best effect.



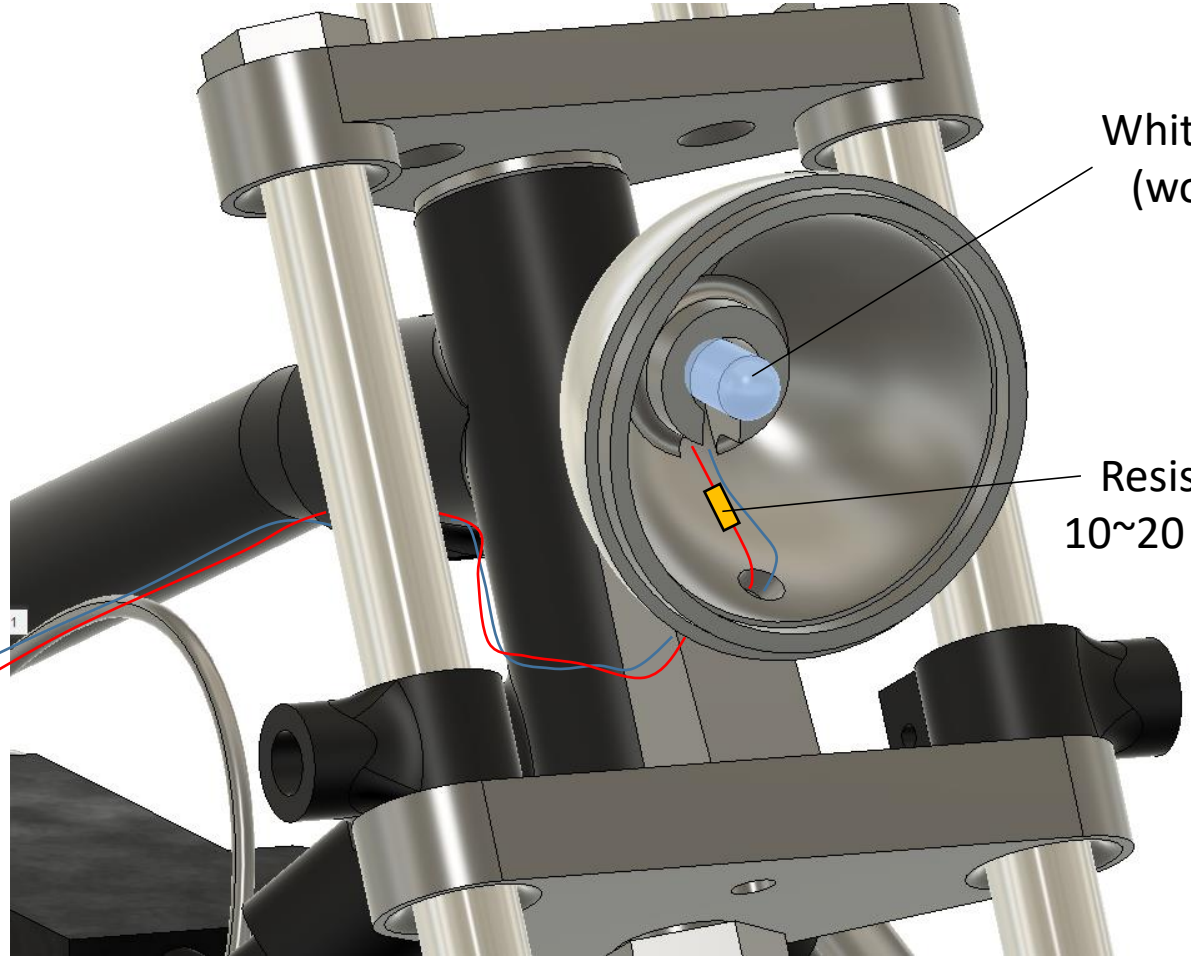
Once you make your light, put the shade on (no screws).

Candles



Make two dummy wires from black elastic filament. Attach the wires to the bottom of the middle rod using an insulating tape, or 3D pen, or the like.

Front light

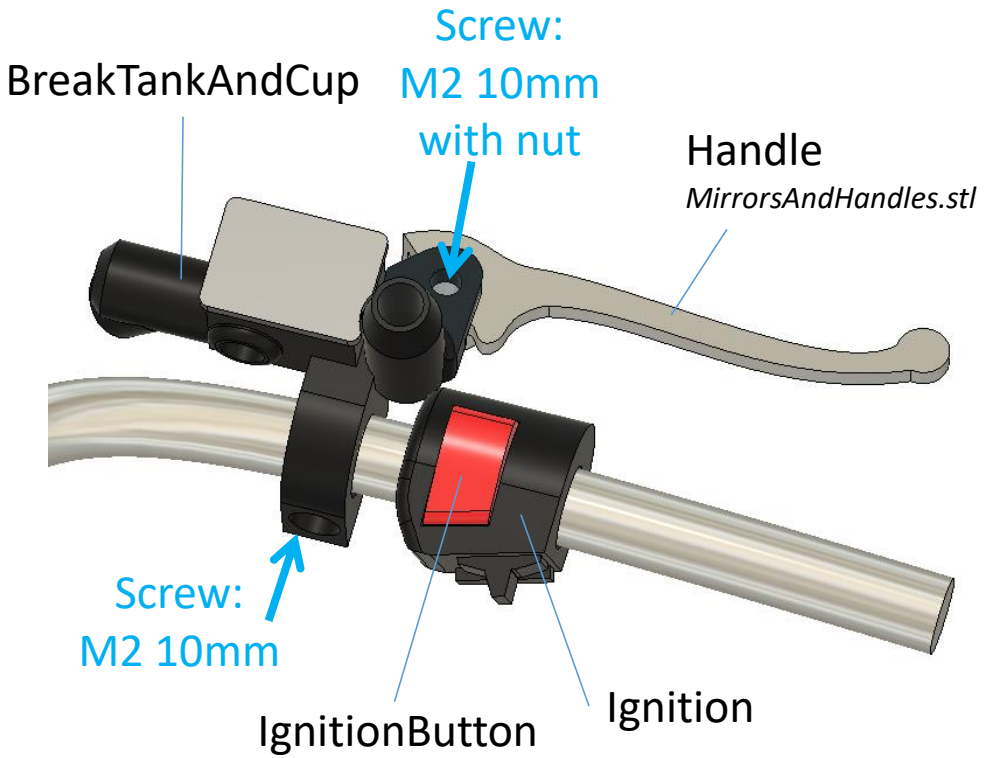


Note: You can skip electrical wiring if you don’t want the light

Front light

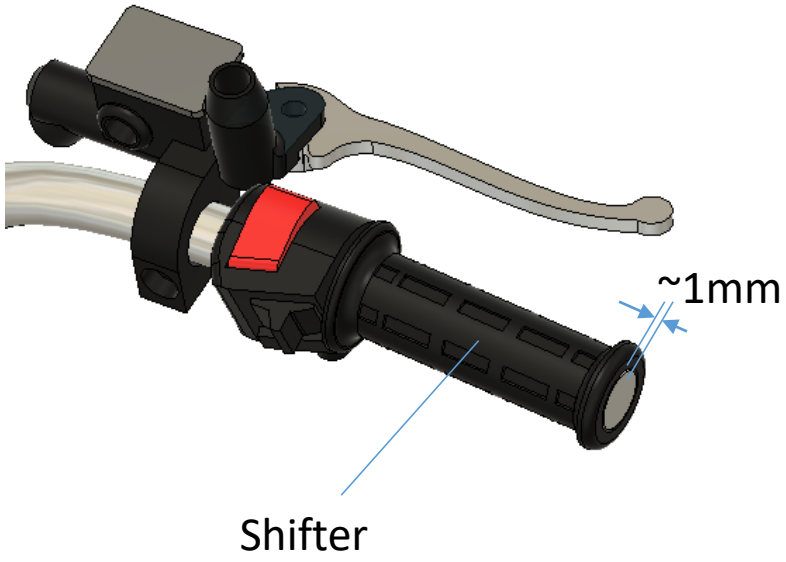
Put the lens and attach the ring.
It just fit tightly.

Right controls on handlebar



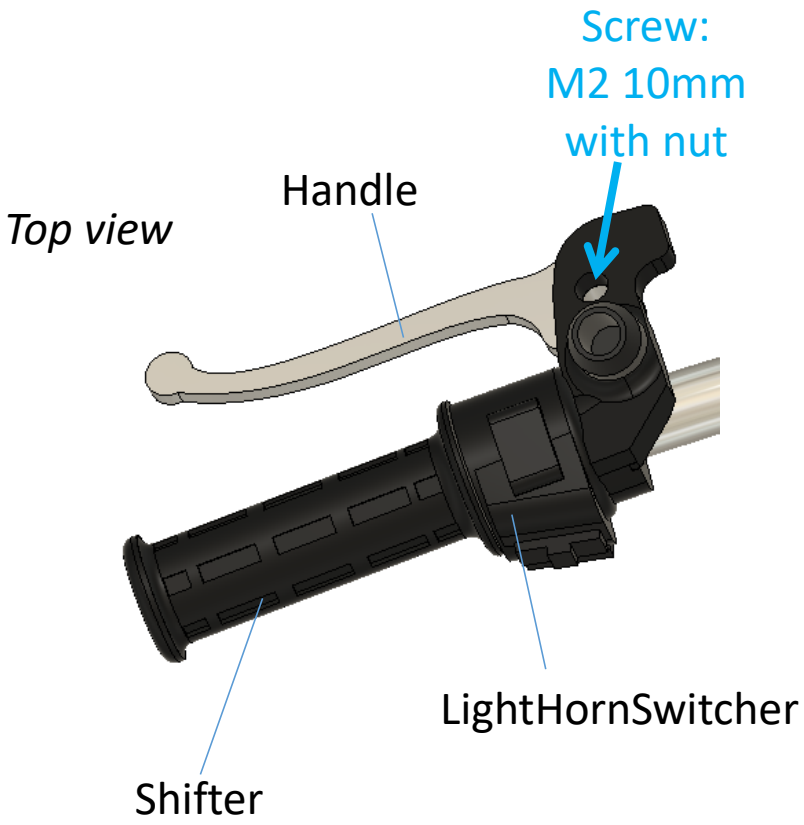
At first mount the **IgnitionButton** into the **Ignition** part. Next screw the **handle** to the **BreakTankAndCup** using M2 screw 10mm with nut.
Then slip the **BreakTankAndCup** onto the handlebar and use screw M2 10mm to block it. Slip the Ignition part – it is not fixed by any screw.

Right controls on handlebar

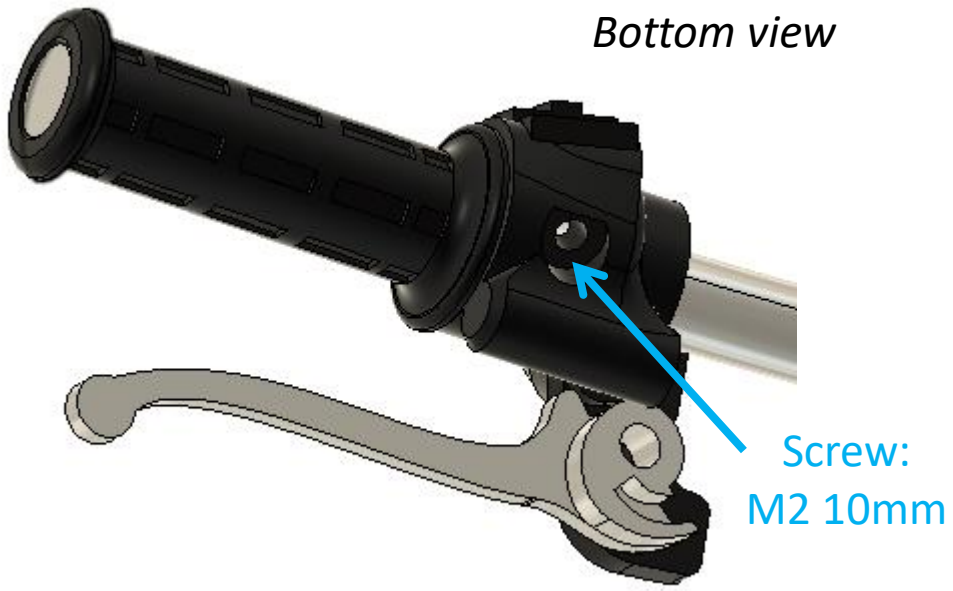


Slip the **Shifter** onto the handlebar so it sticking out ca. 1mm.
Now you need to use a soldering iron (or other heater) to melt the PLA slightly thus preventing the Shifter to slip out.

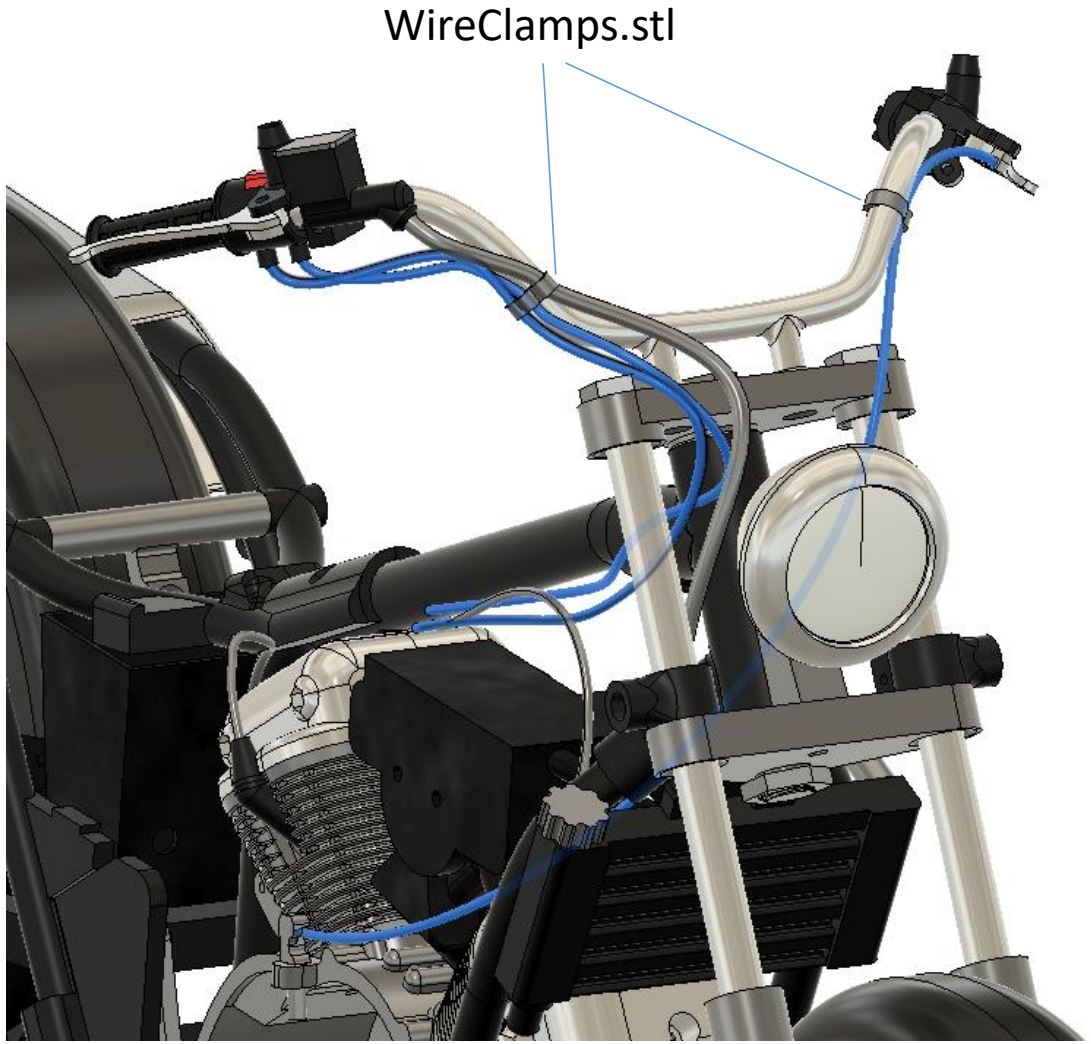
Left controls on handlebar



The left side of handlebar assembly is the same way.



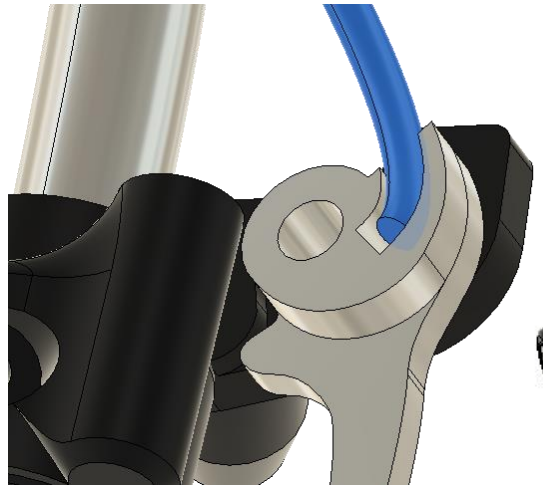
Wiring

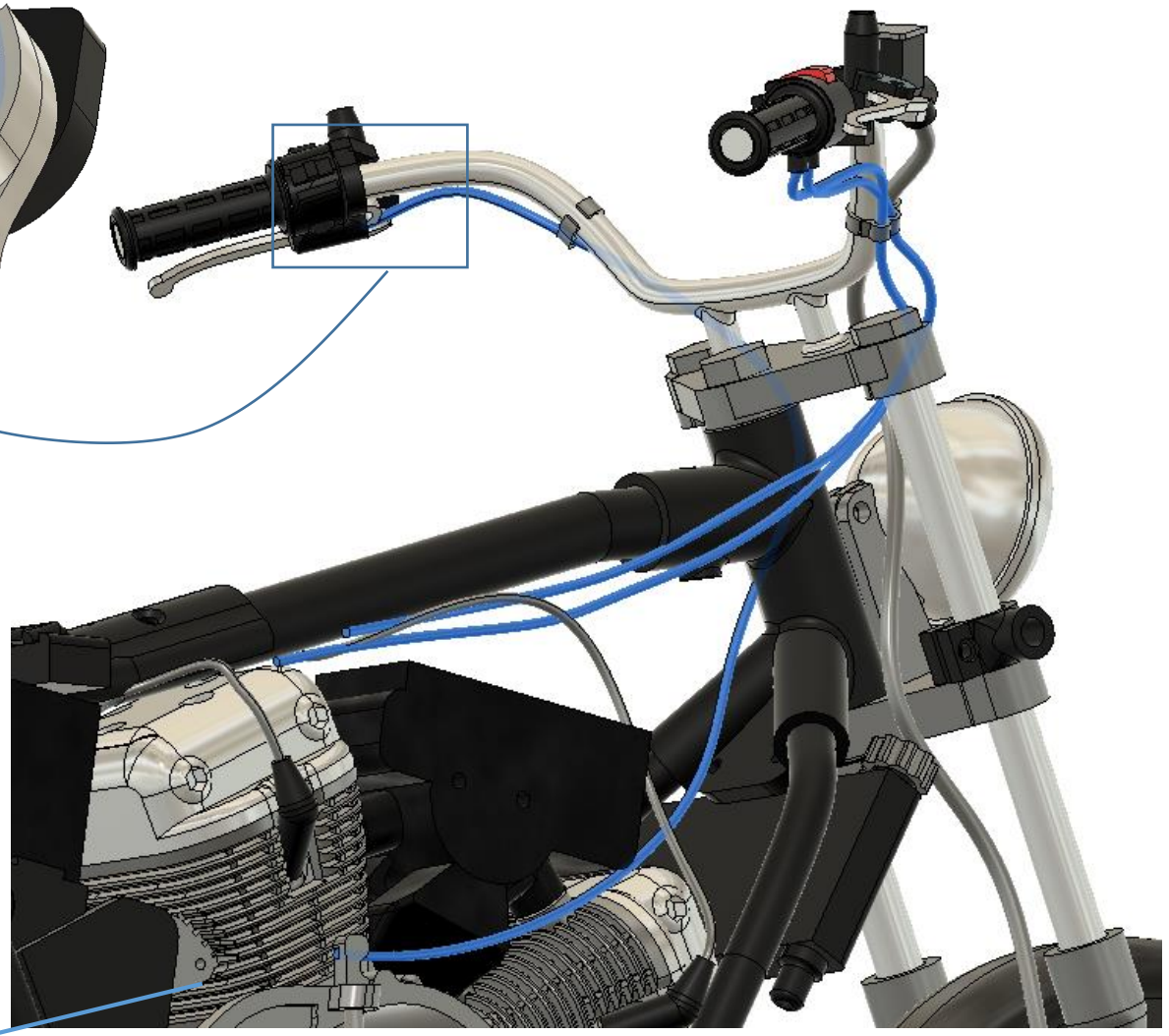


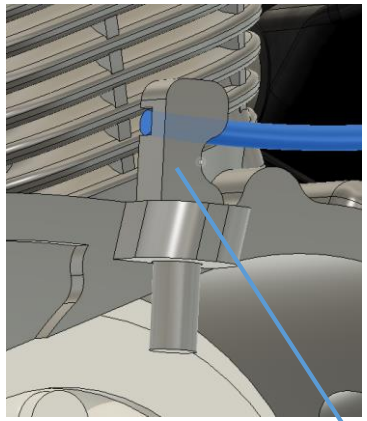
There are thre wires:
Two from the right handle, one (clutch) from the left handle.
The wires are made of elastic filament.
The wires are dummy, therefore you can end them up under the middle rod of the frame (e.g. by insulating tape).

Wiring

Mount clutch wire to the **TransmissionPin** (glue or soldering iron).
Similarly, attach the other end to the handle.

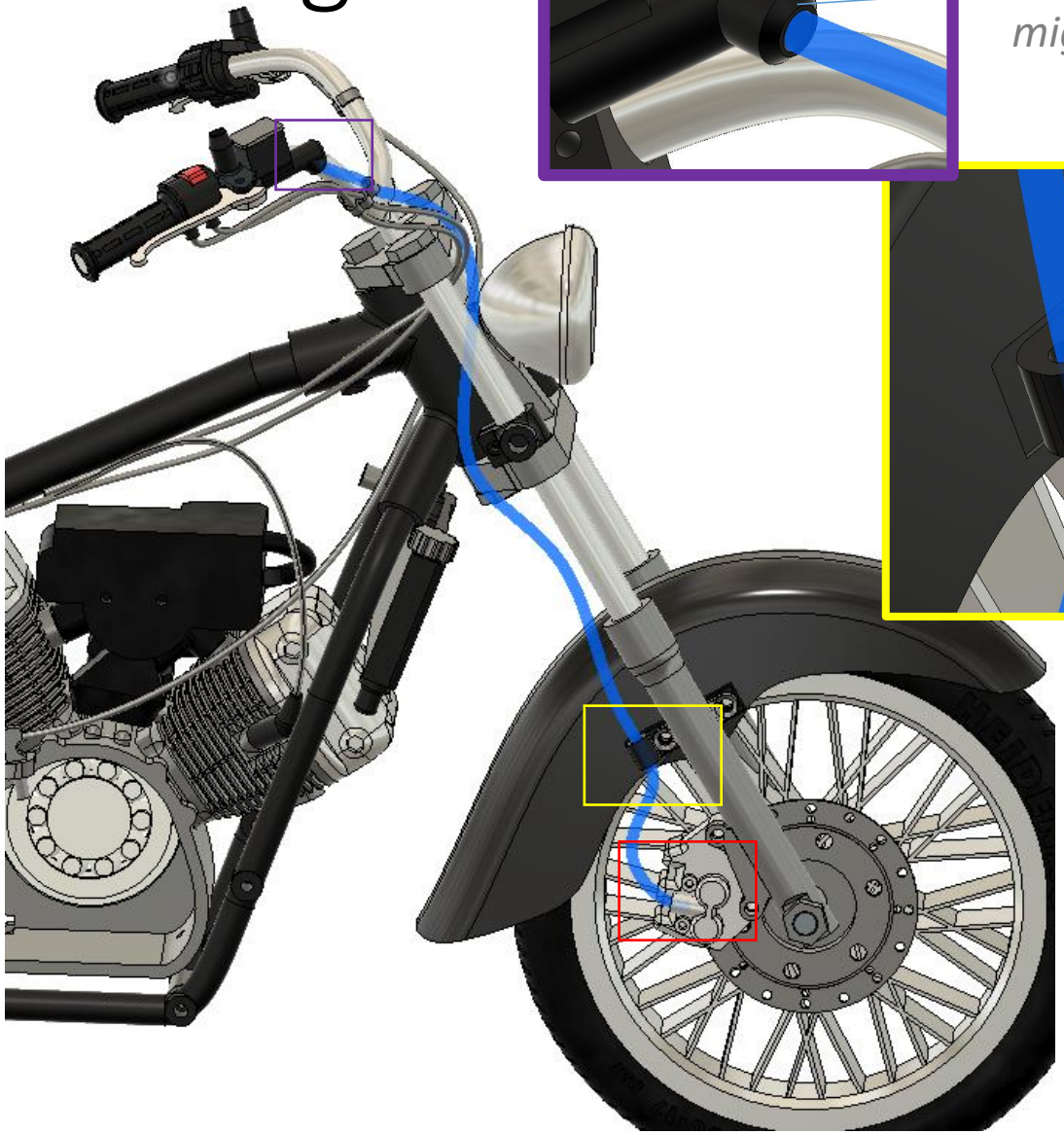


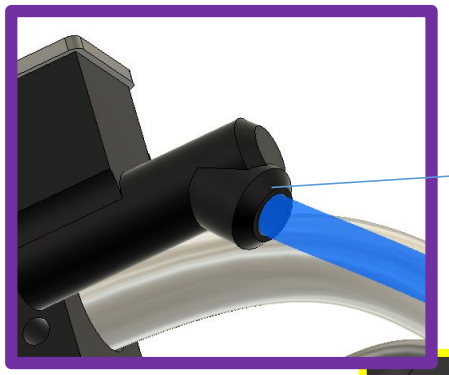




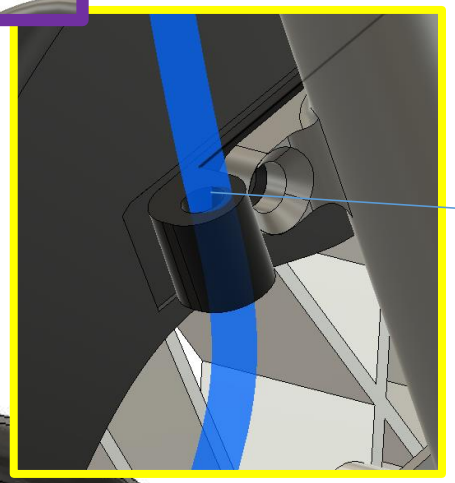
TransmissionPin

Wiring

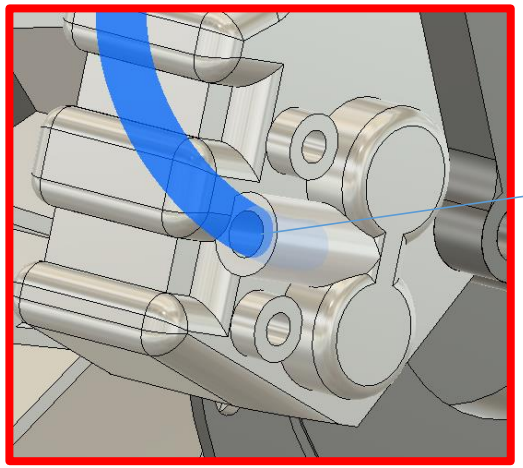




3mm drilling might be required



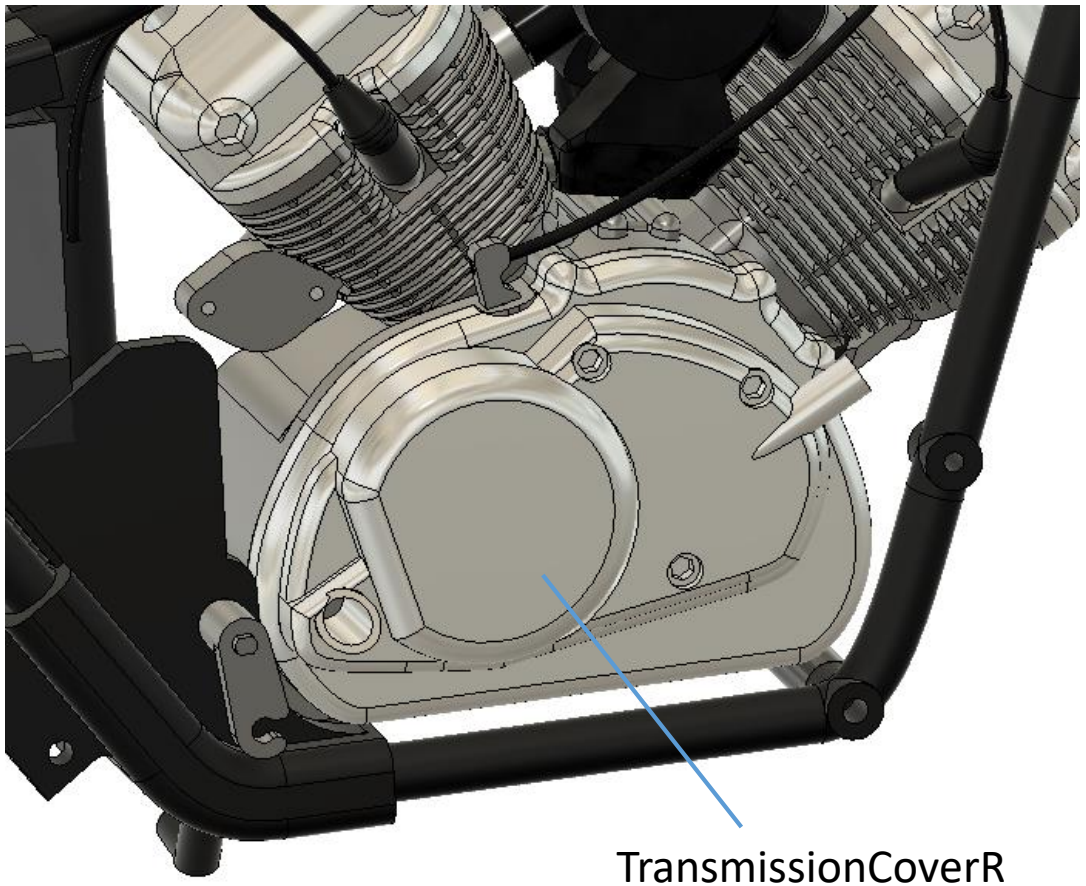
3mm drilling might be required



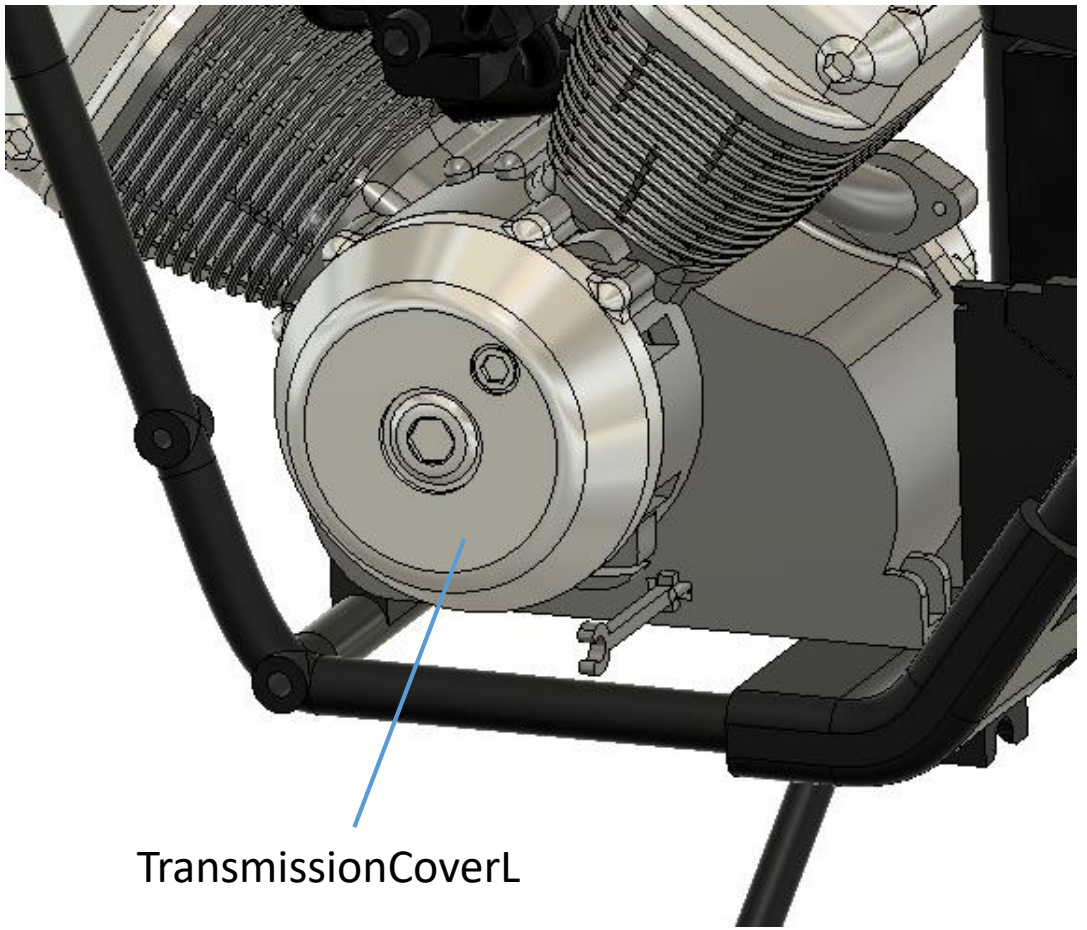
3mm drilling might be required

Break wiring is made of an electric cable (any kind you can find in your drawer) in black insulation and diameter 3mm.

Transmission cover

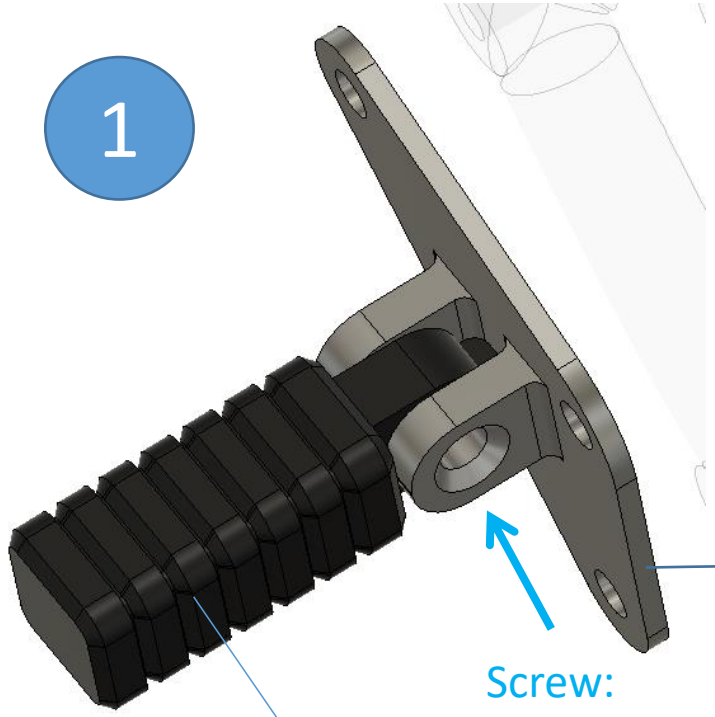


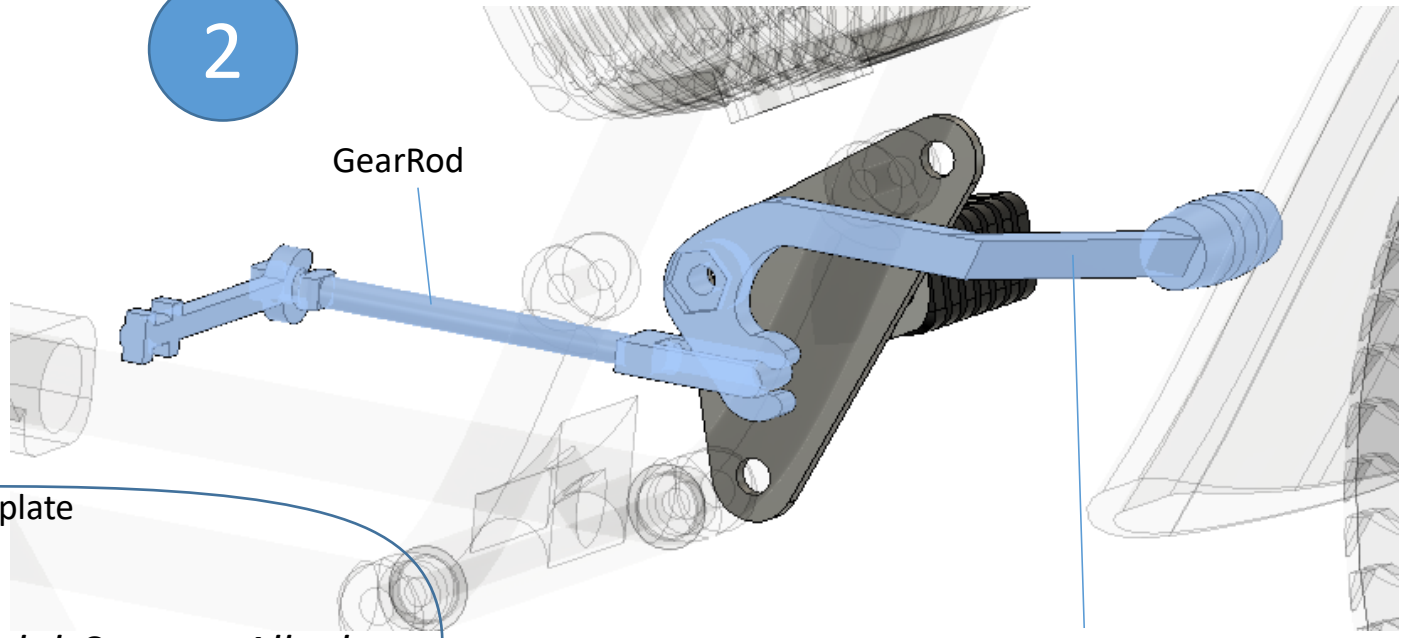
TransmissionCoverR



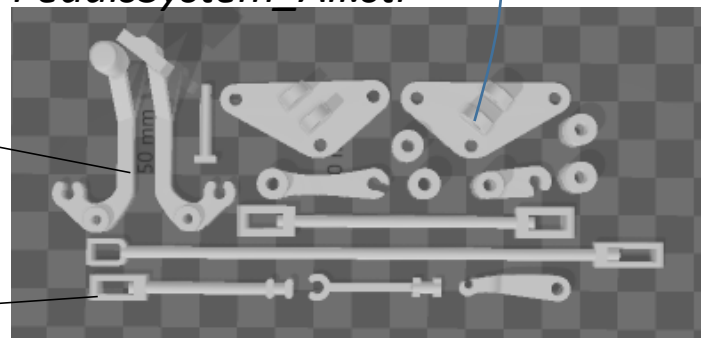
TransmissionCoverL

Gear pedal

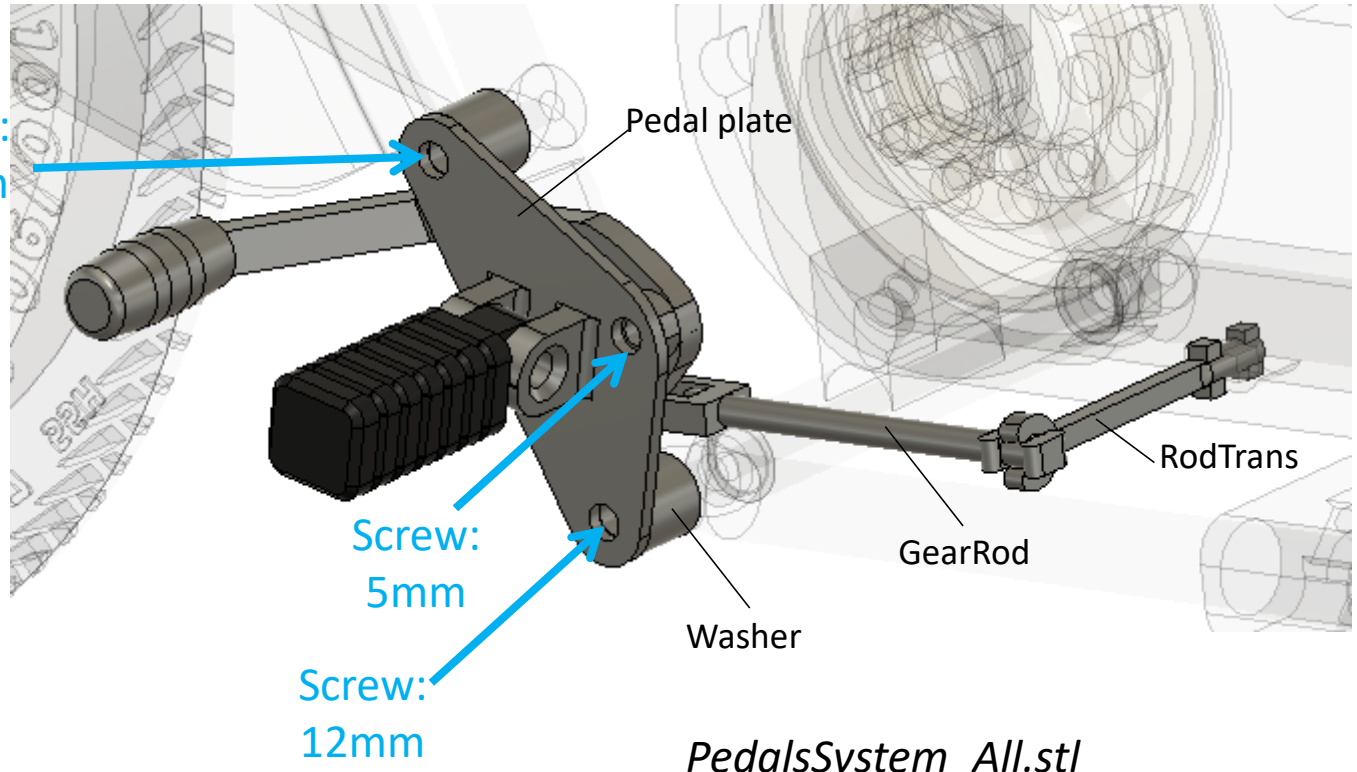




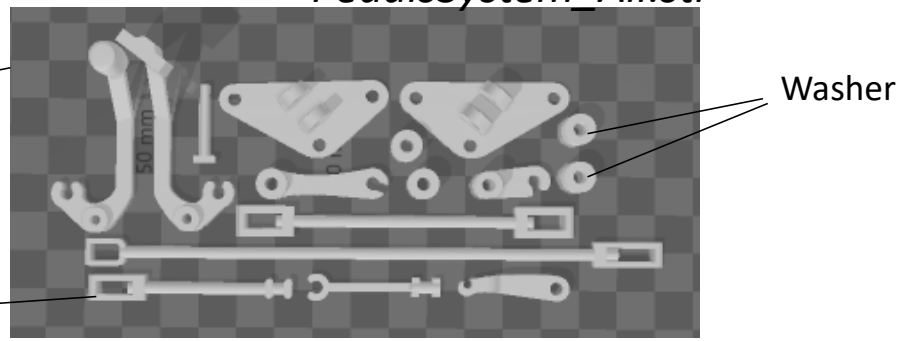
PedalsSystem_All.stl



Gear pedal



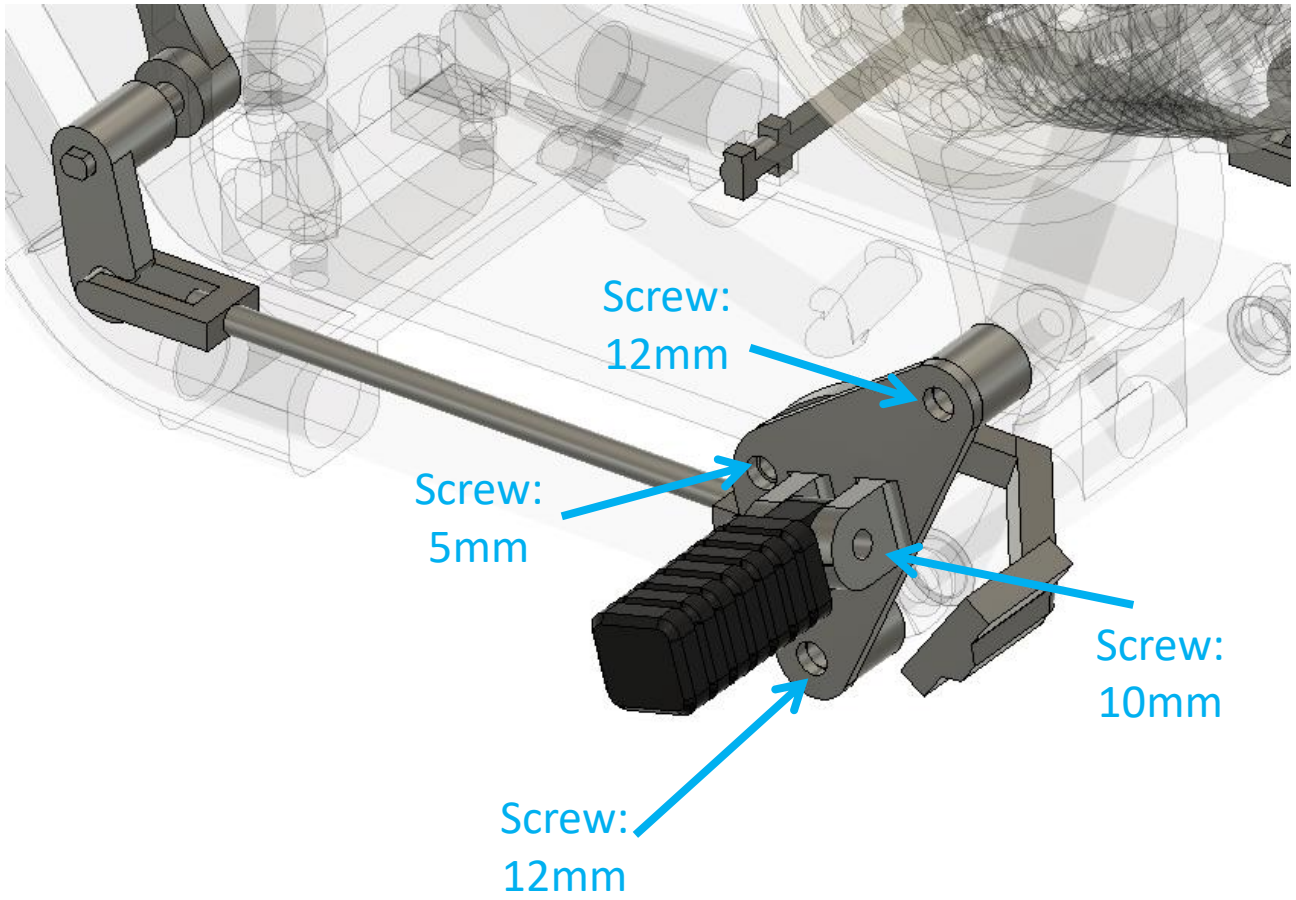
PedalsSystem_All.stl



First, gently screw the gear pedal to the pedal plate, so it can move. Next, attach the pedal plate to the frame using 2x screws 12mm.

Finally connect the GearRod to the RodTrans.

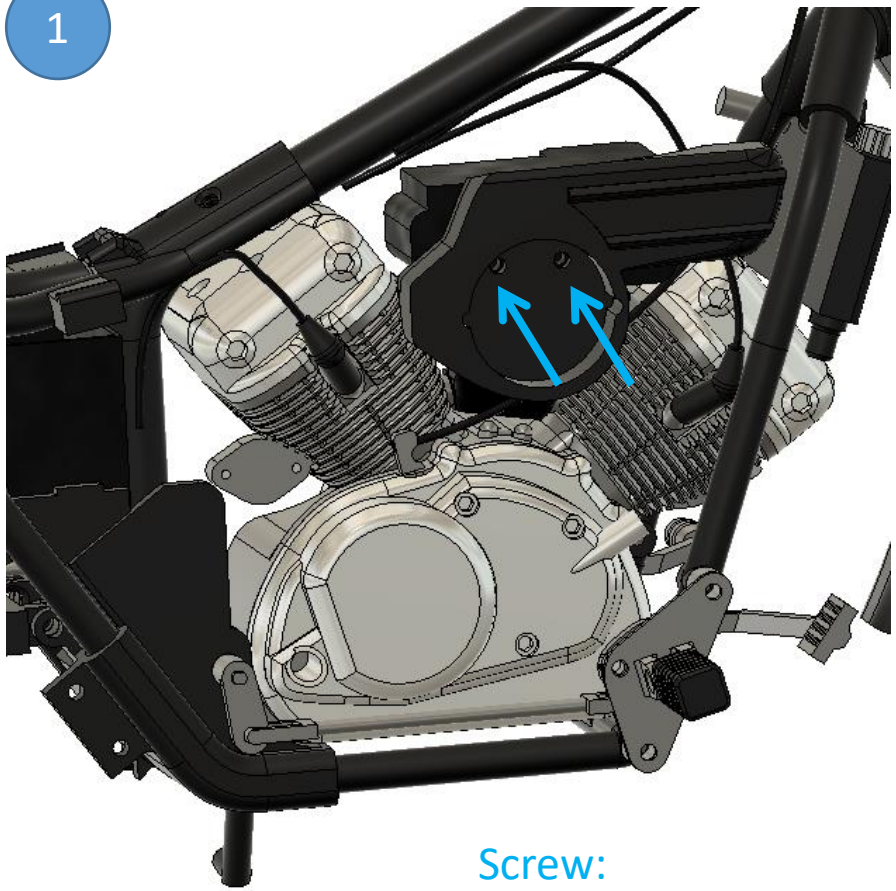
Break pedal



Break pedal is assembled the same way as gear pedal.

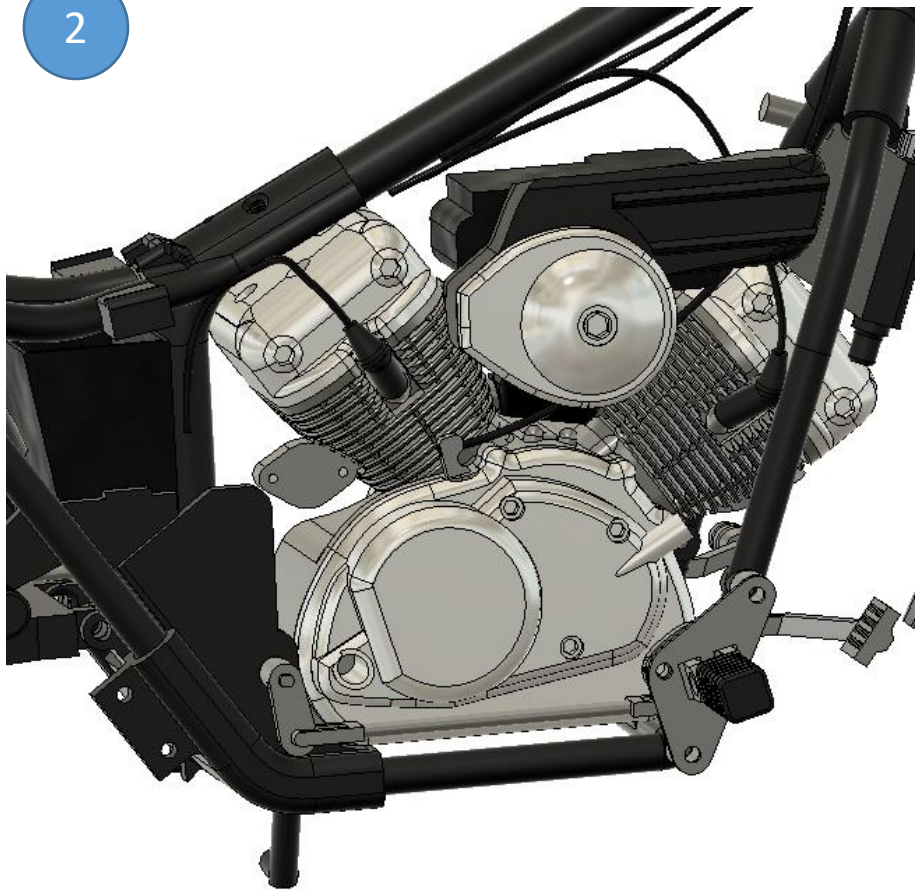
Air filter

1



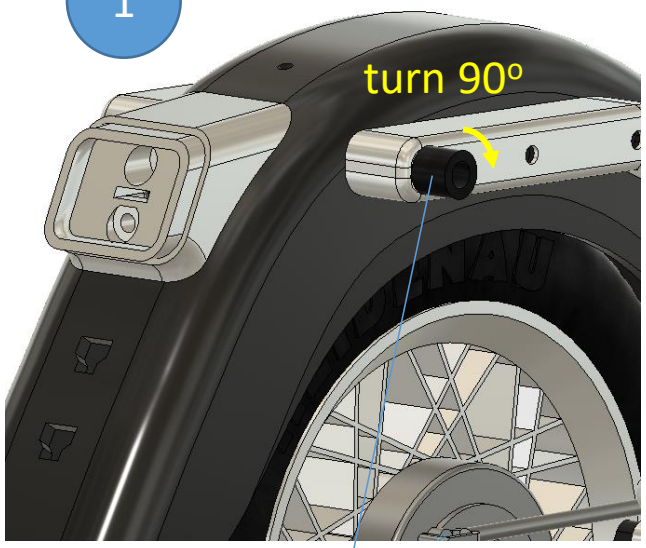
Screw:
2x 8mm

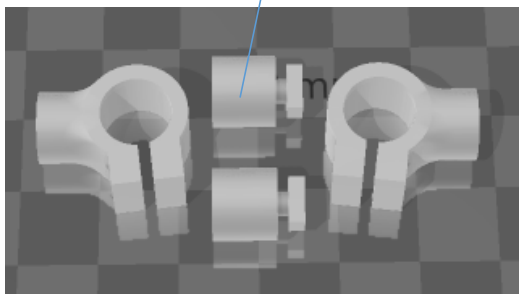
2



Rear turn lights

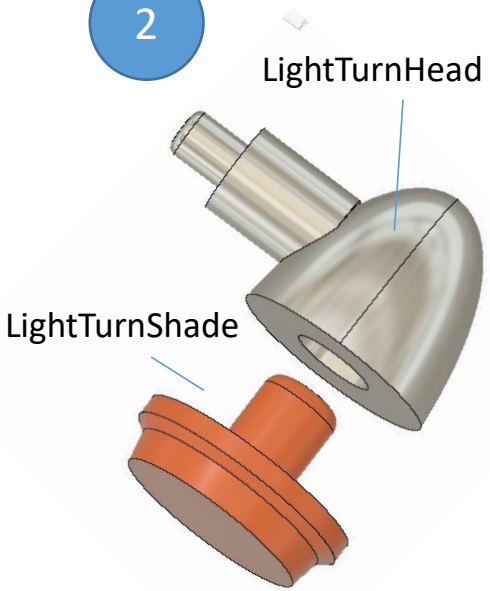
1





LightTurnFeet.stl

2

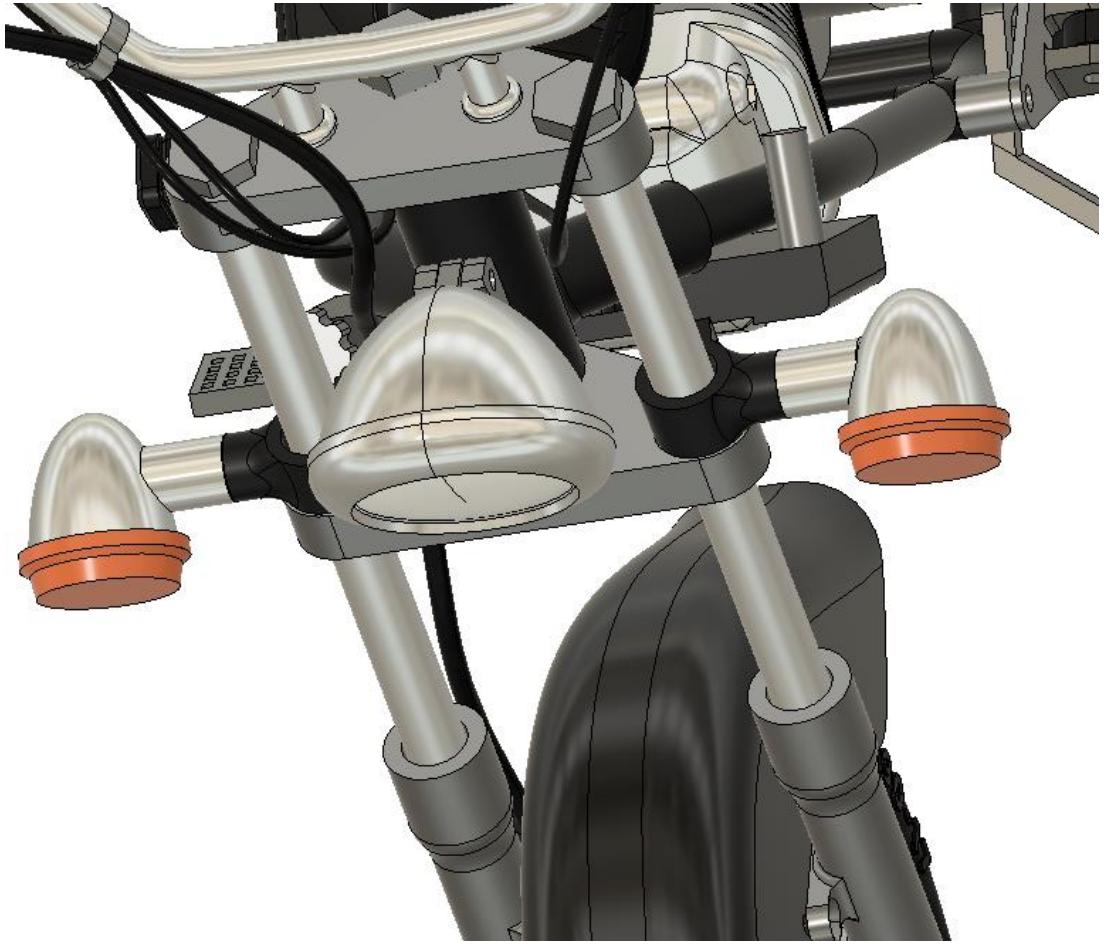


Insert the **Shade** into the **Head**

3

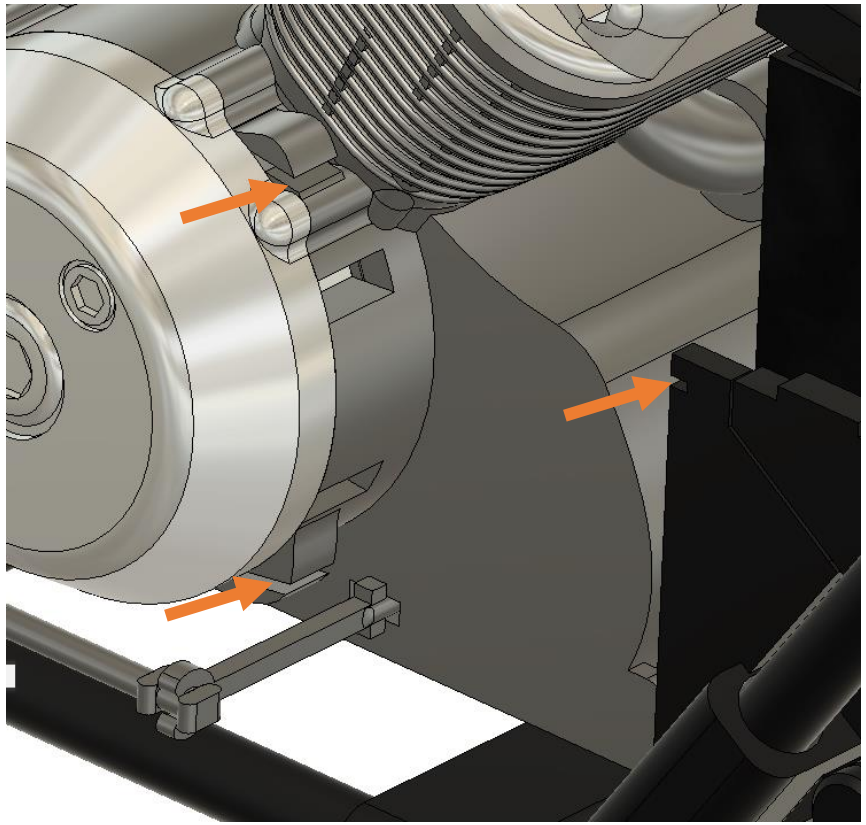
Insert turn light into the foot

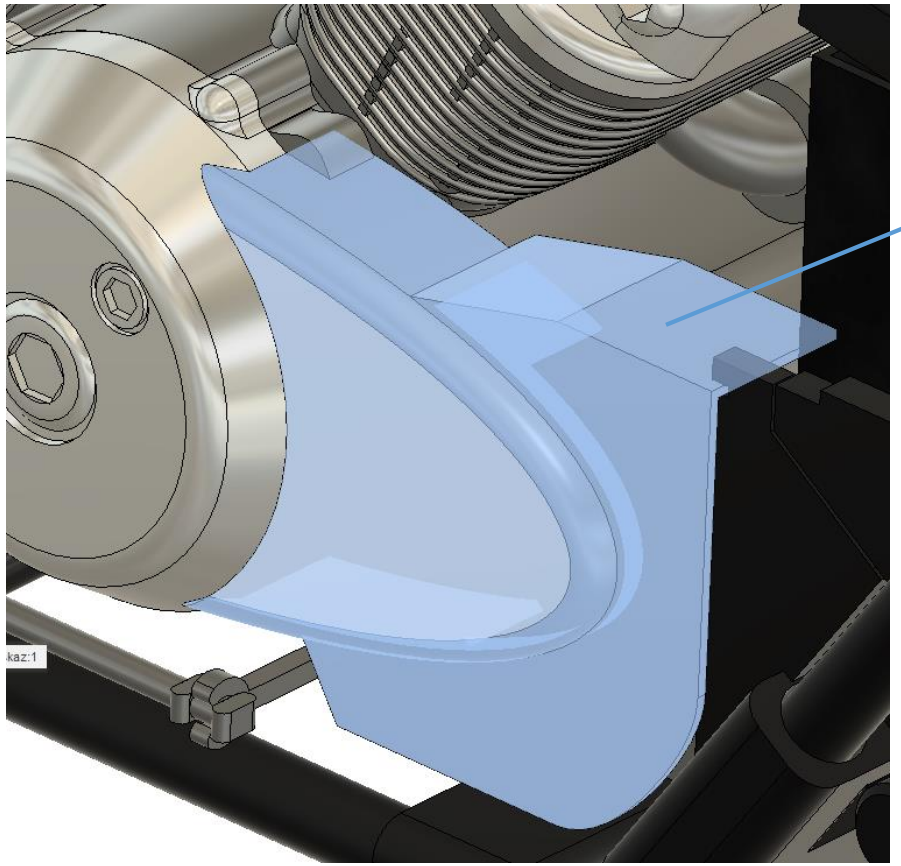
Front turn lights



Mount the front turn lights similarly.

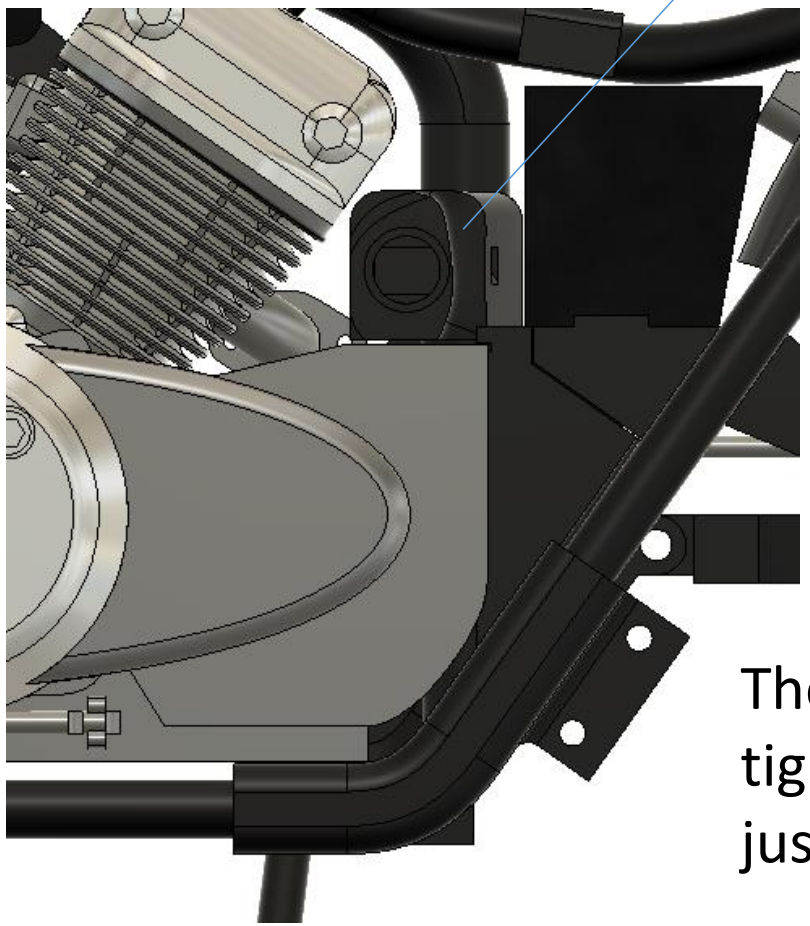
Transmission mask



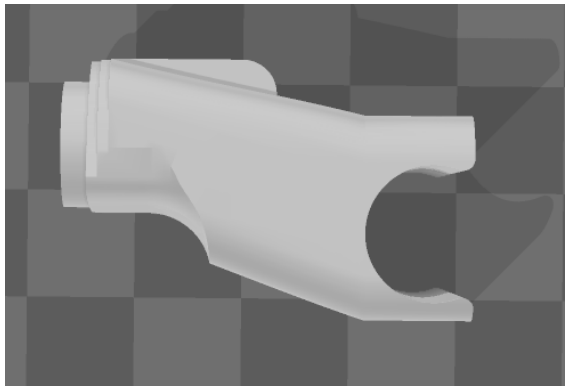


TransmissionMask is slip into the gaps shown by orange arrows

Ignition switch

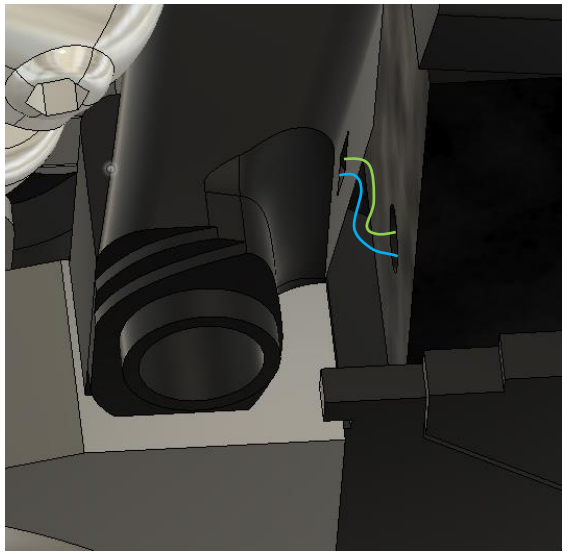


IgnitionSwitch.stl



The ignition switch is attached tightly to the frame's middle rod just under the TransmissionMask.

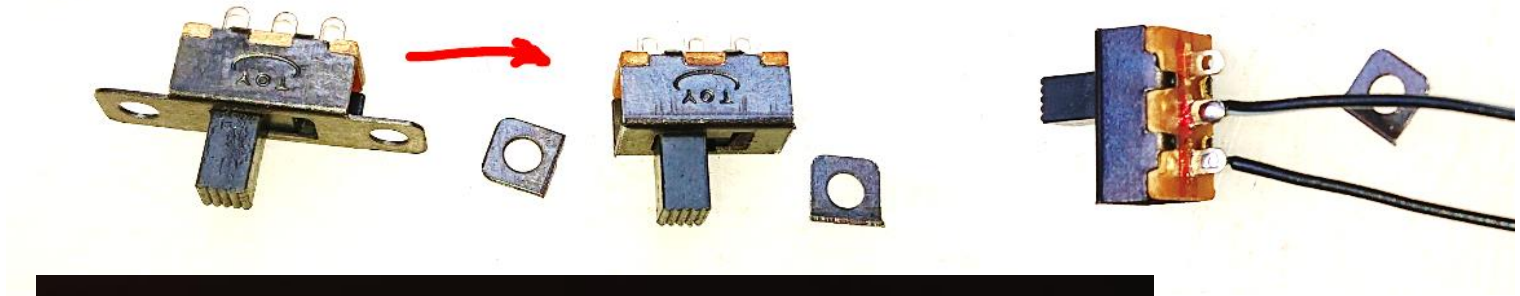
Note: if you make LED ligths:

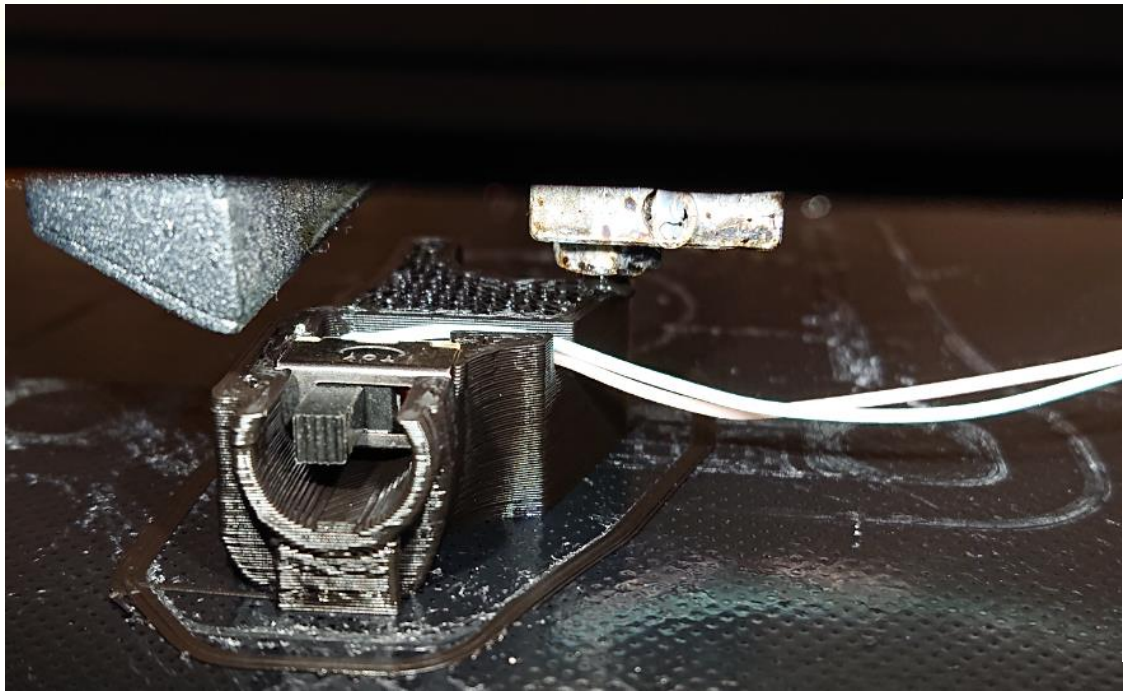


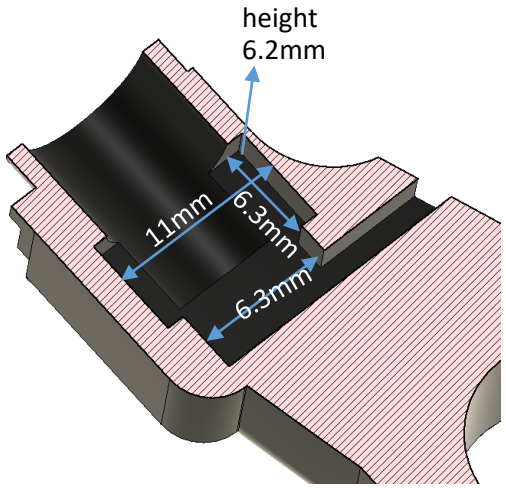
Guide the electrical wires through the hole of AccuBox.

Ignition switch – printing (if you make LED lights)

SM12F11G7





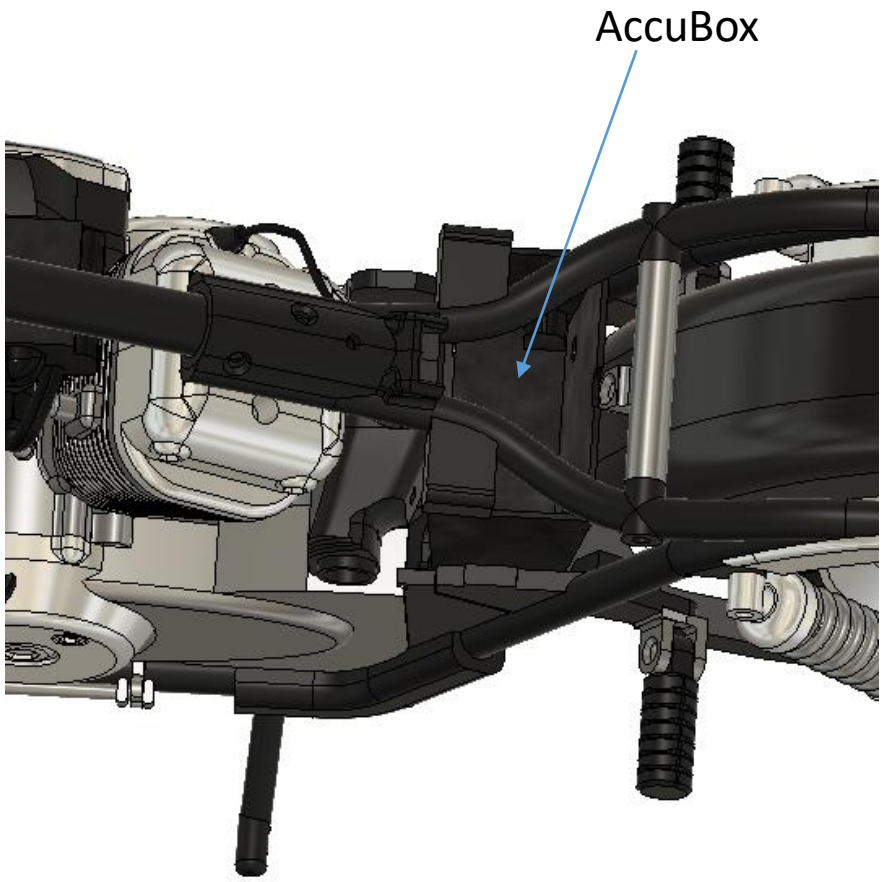


The switch SM12F11G7 is used. Cut the tails.
When the print reaches appriopriate height (check in your slicer which layer number), pause the printing and put the switch inside.

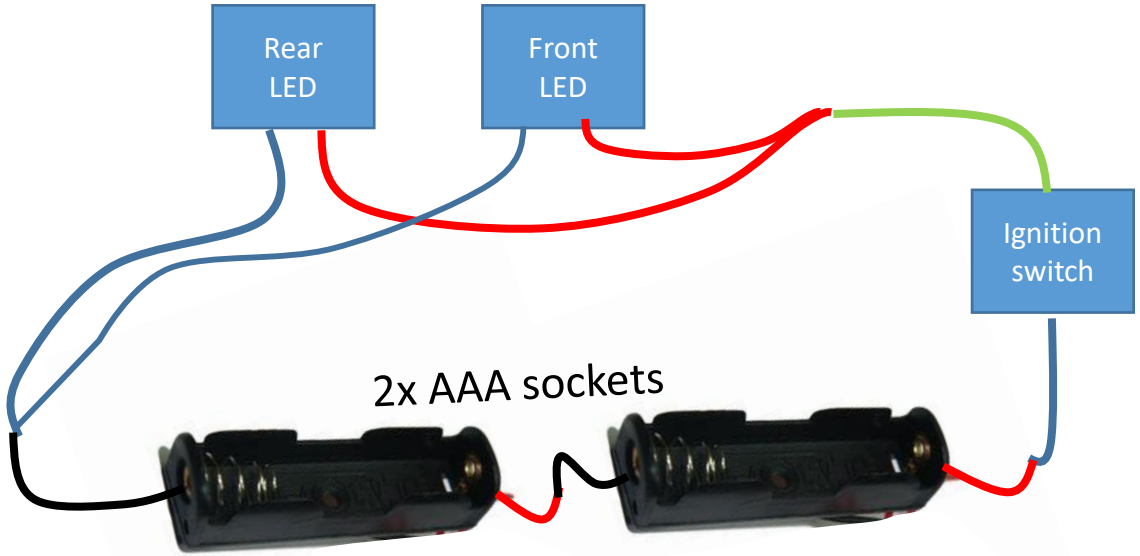
If you don't make LED lights, just print it without pausing.

You may use different switch type, but be aware of the available space. I put here the dimensions.

Finishing electrical wiring



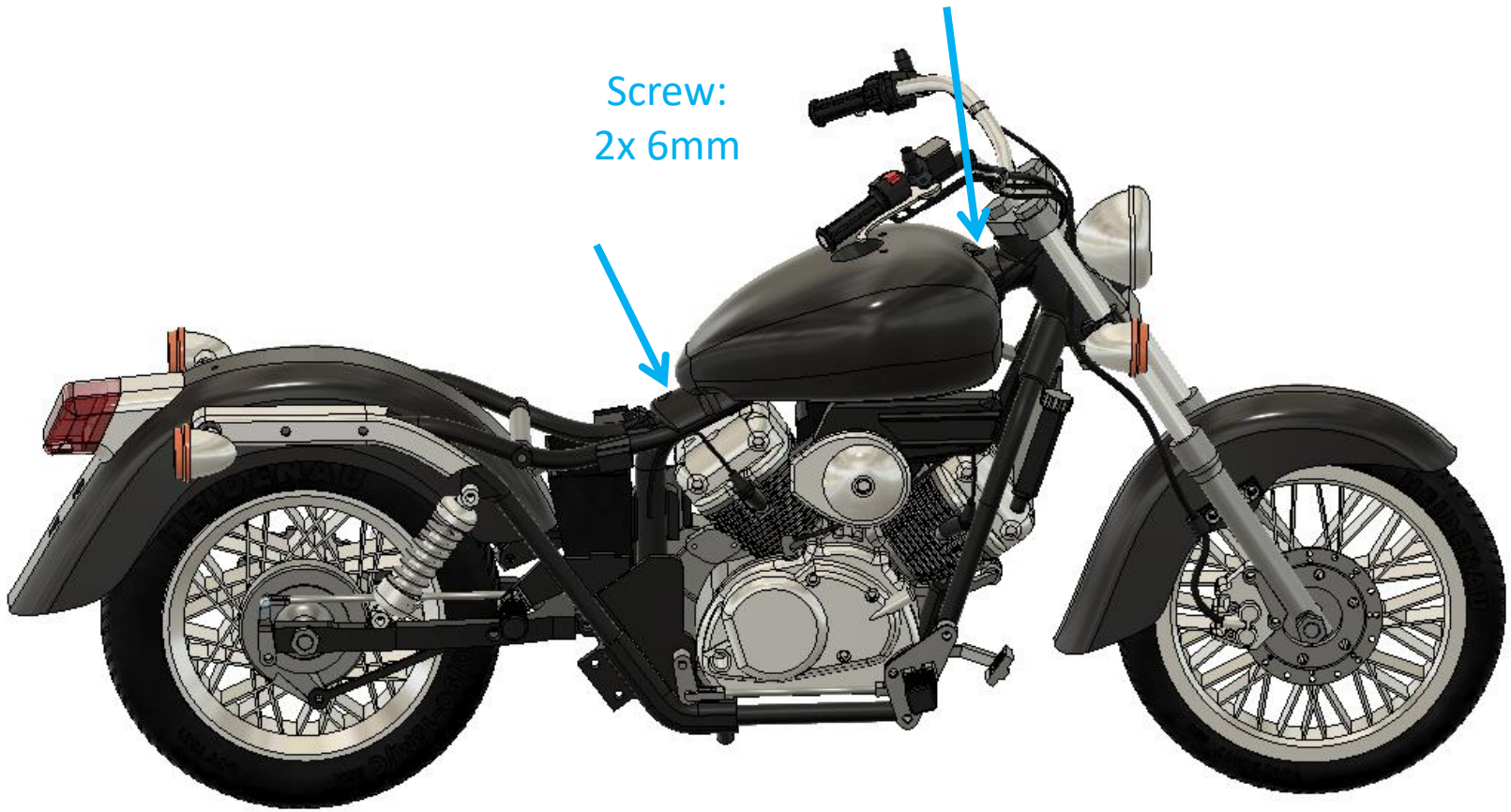
Now you can finish electrical wiring.
Use two AAA batteries in single



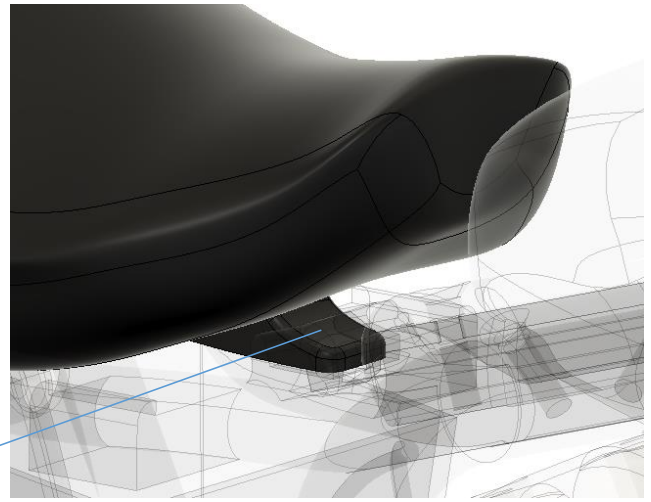
And put the batteries into the **AccuBox.**

It fits hardly, find the position.

Fuel tank



Saddle



The seat's tab must go into the recess. One screw fixes the seat.

If you make LED lights, be aware of batteries sitting well inside the AccuBox, otherwise you may have too much resistance to properly screw the seat.

Dial

Ring

5mm LED Green

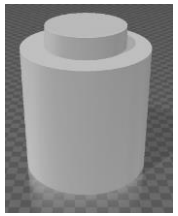
5mm LED Green

5mm LED Green

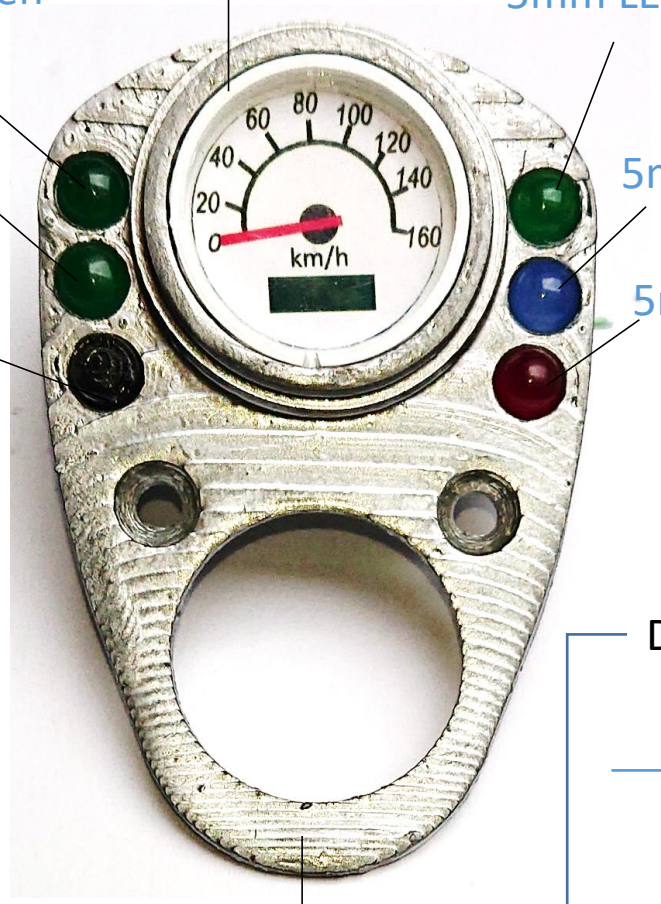
5mm LED Blue

5mm LED Red

Microswitch.stl



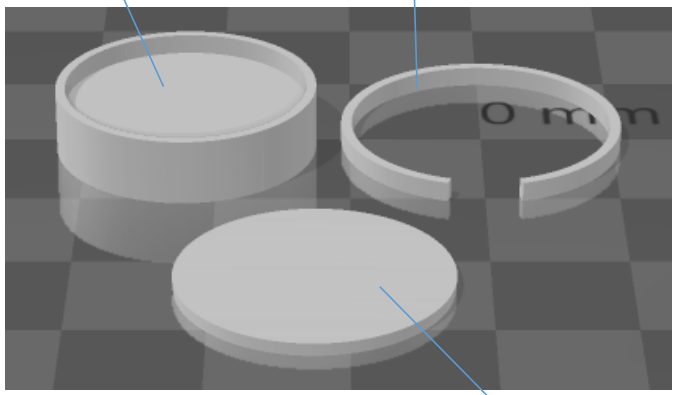
Microswitch



Cut off collar and pins of each LED

Stand

Ring

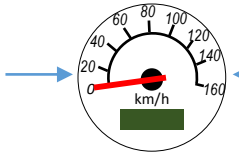


DialStandRingTool.stl

Tool

DialPanel.stl

Dial scale 1:1



1.95 cm

Print this with high quality and cut precisely.

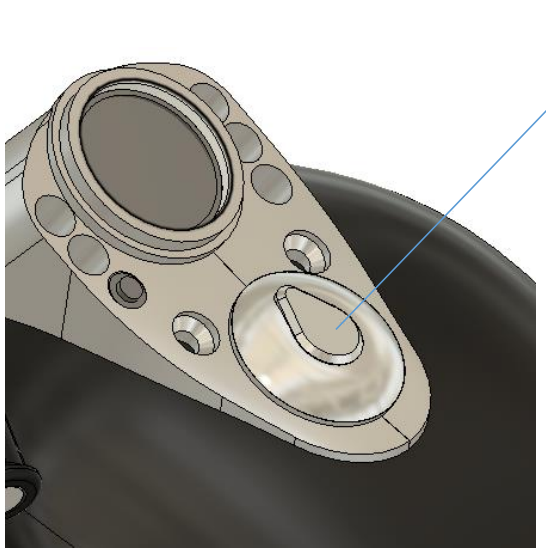
Assembly steps:

1. Prepare the LEDs as shown above.
2. Press the LEDs and microswitch into propper holes;
3. Glue the printed dial into the **Stand**
4. Cut a circle of diameter 20mm from a transparent foil (you can use the **Tool**) and put it at the Stand (it lays at it's top Edge)
5. Insert the **Ring** at the top

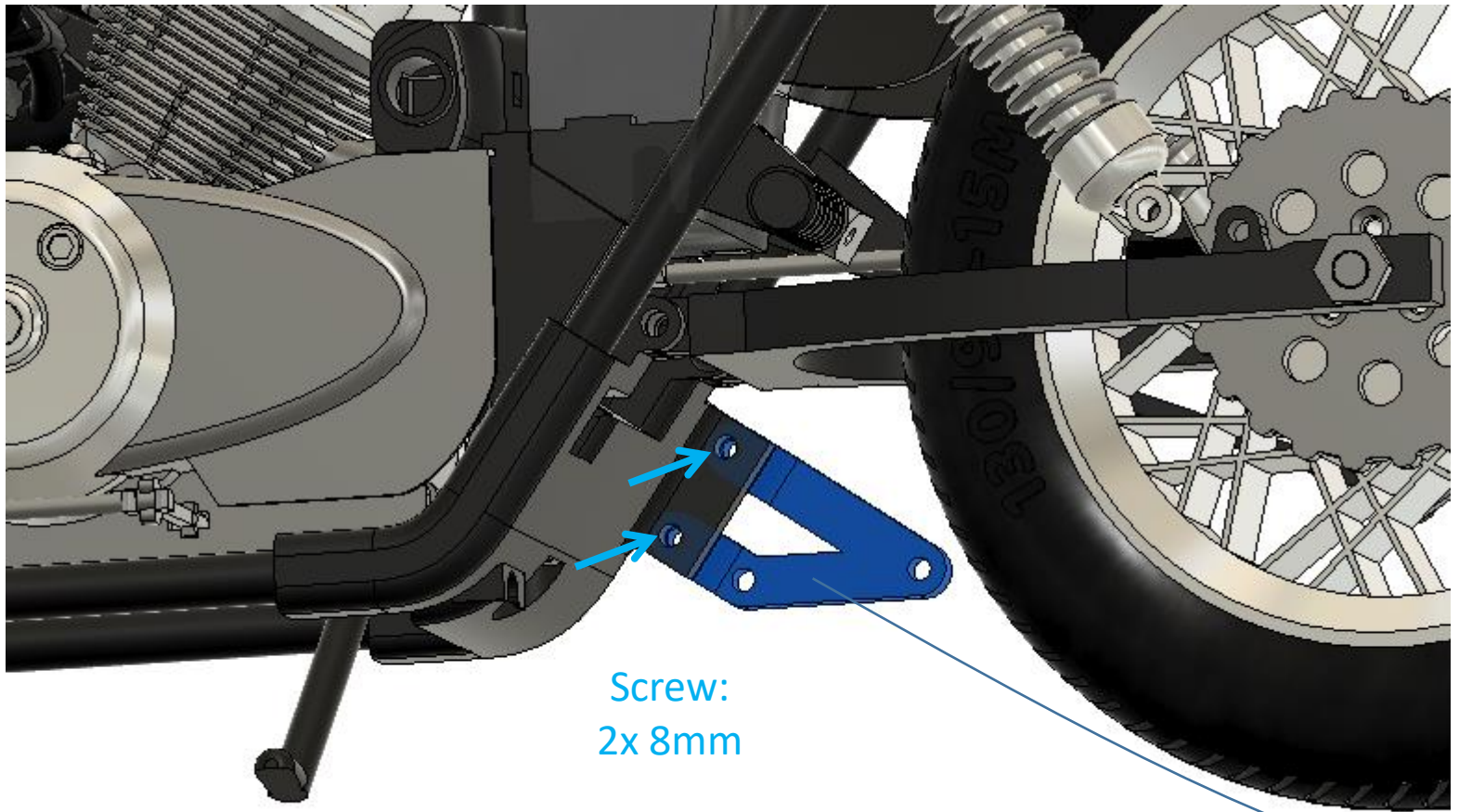
Dial

Fix the dial panel to the fuel tank using two screws.

At last press the **FuelCap.**

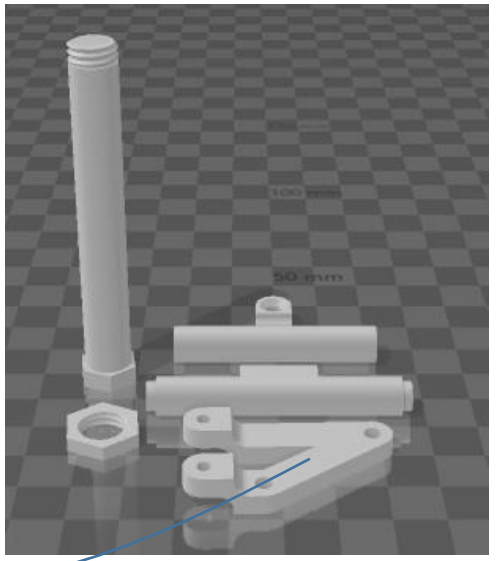


Exhaust pipes



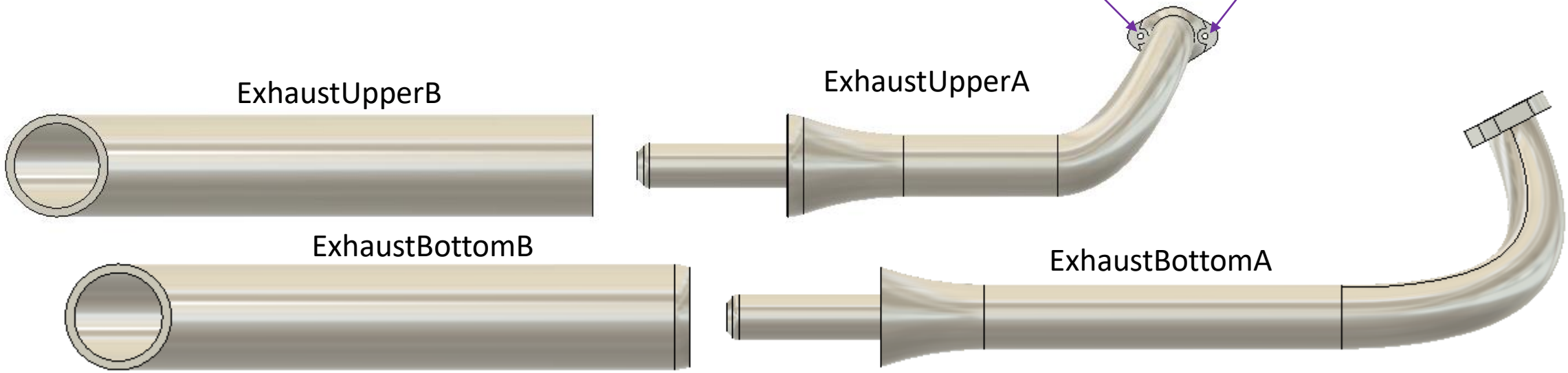
Attach the pipes holder

Frame_Comp1.stl



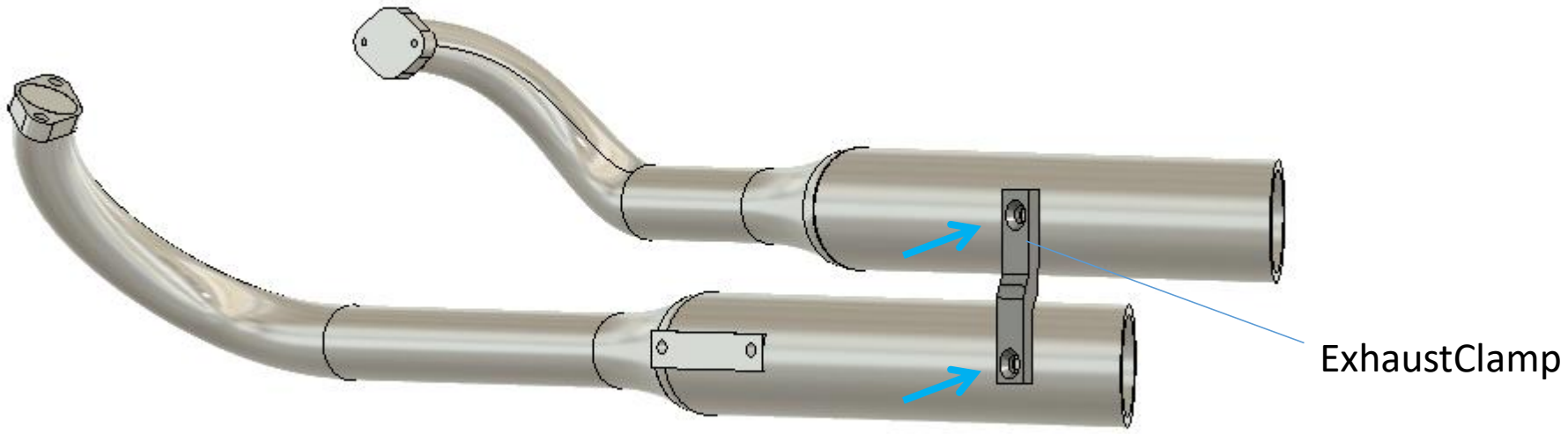
Exhaust pipes

!!! Use 2mm drill to make the hole bigger
I had some print quality issue when the hole was bigger.
Therefore I had to make it smaller and use drill in postprocess.



Slip the part B onto the part A. It should fit tightly.
Keep orientation accordingly.

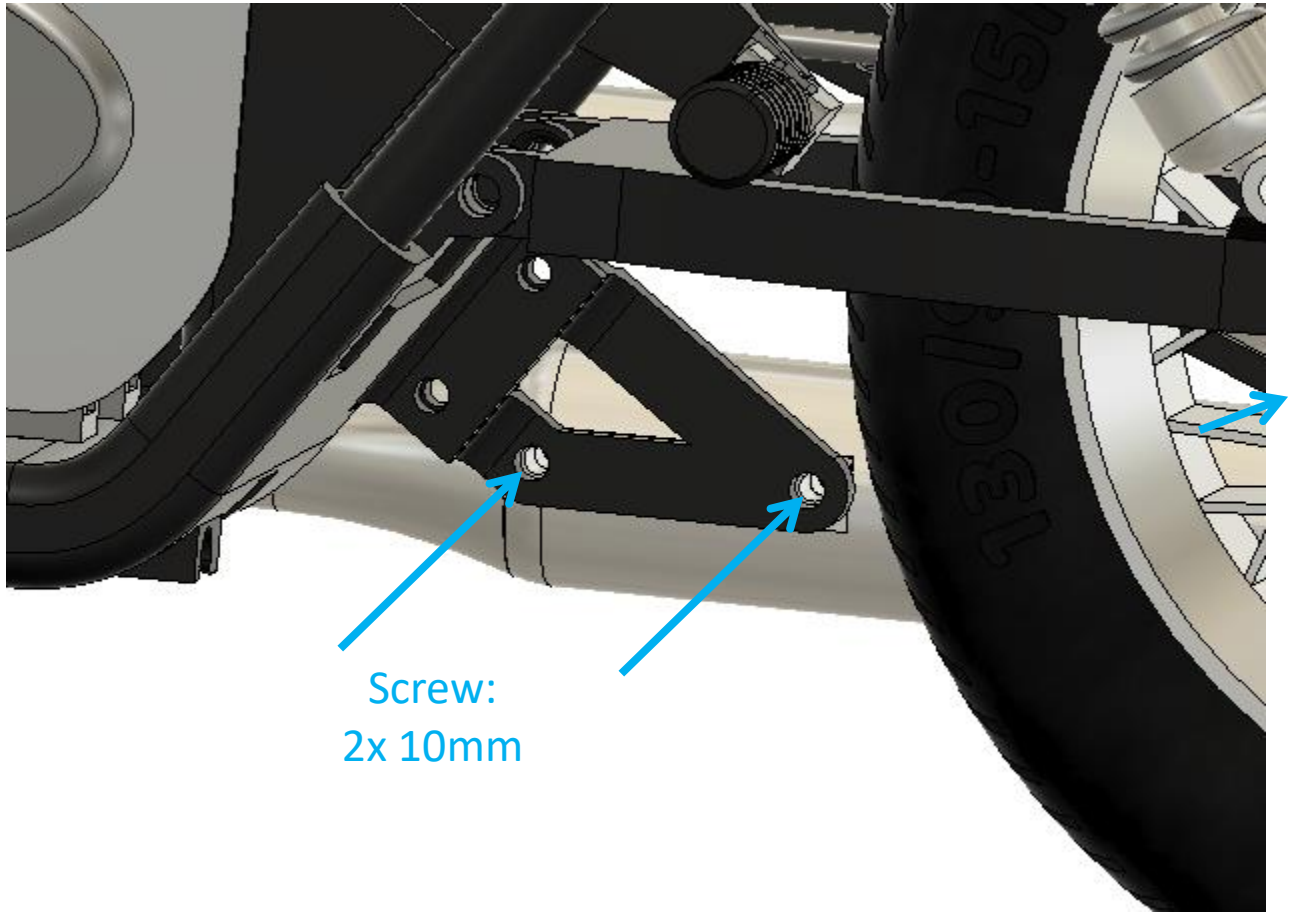
Exhaust pipes



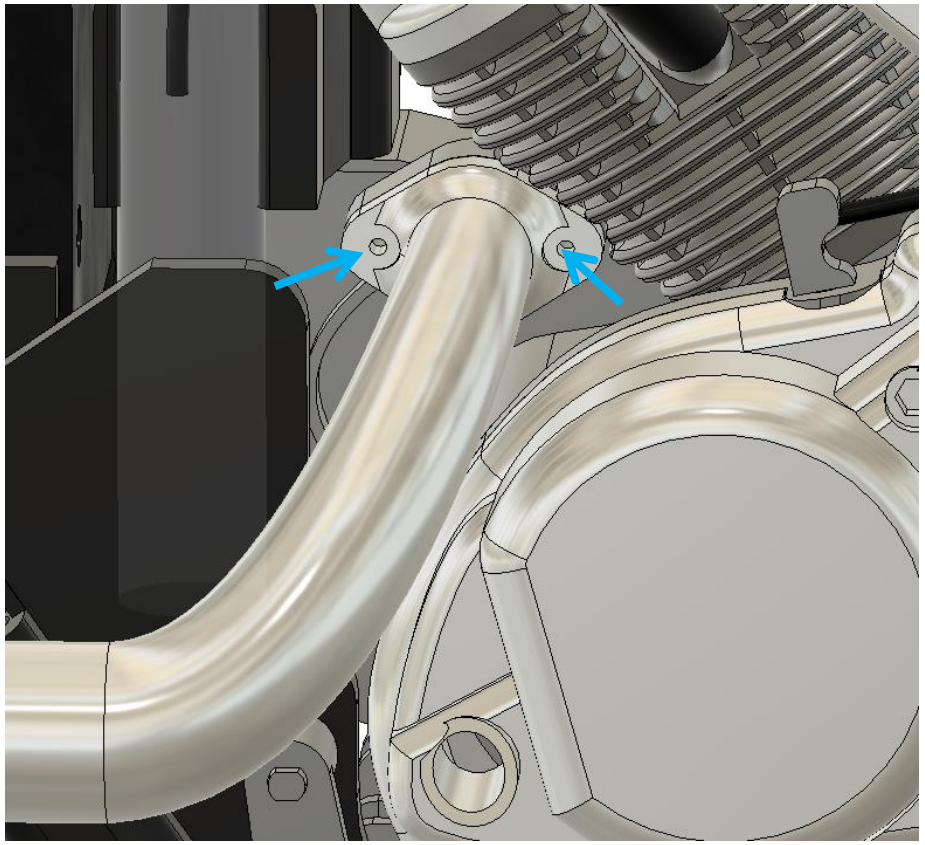
Screw:
2x 5mm

Screw the two exhausts pipes using **ExhaustClamp** part.
Screw it gently, let it move slightly.

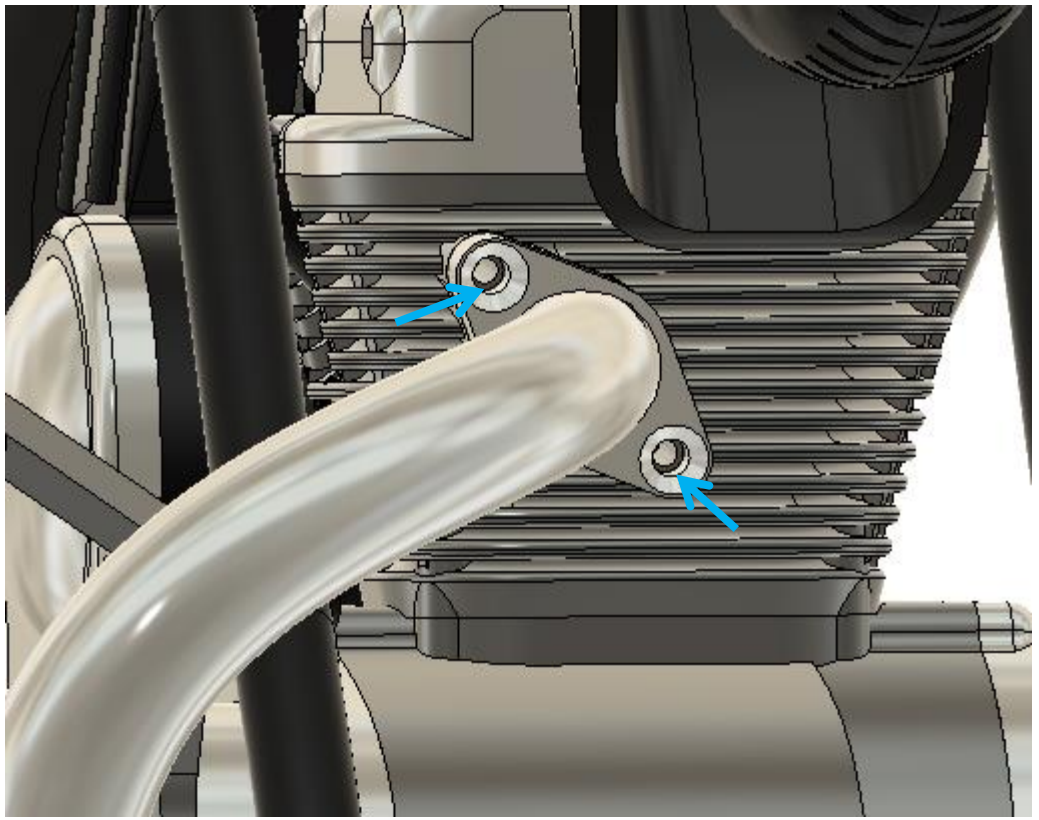
Exhaust pipes



Exhaust pipes

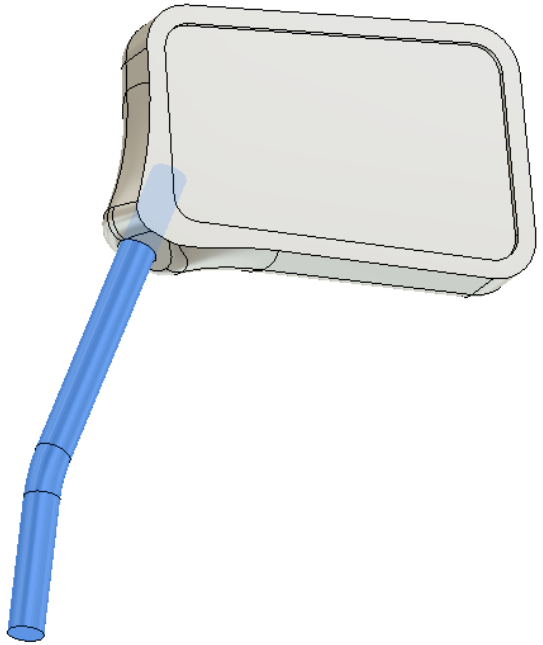


Screw:
(M2) 2x 8mm



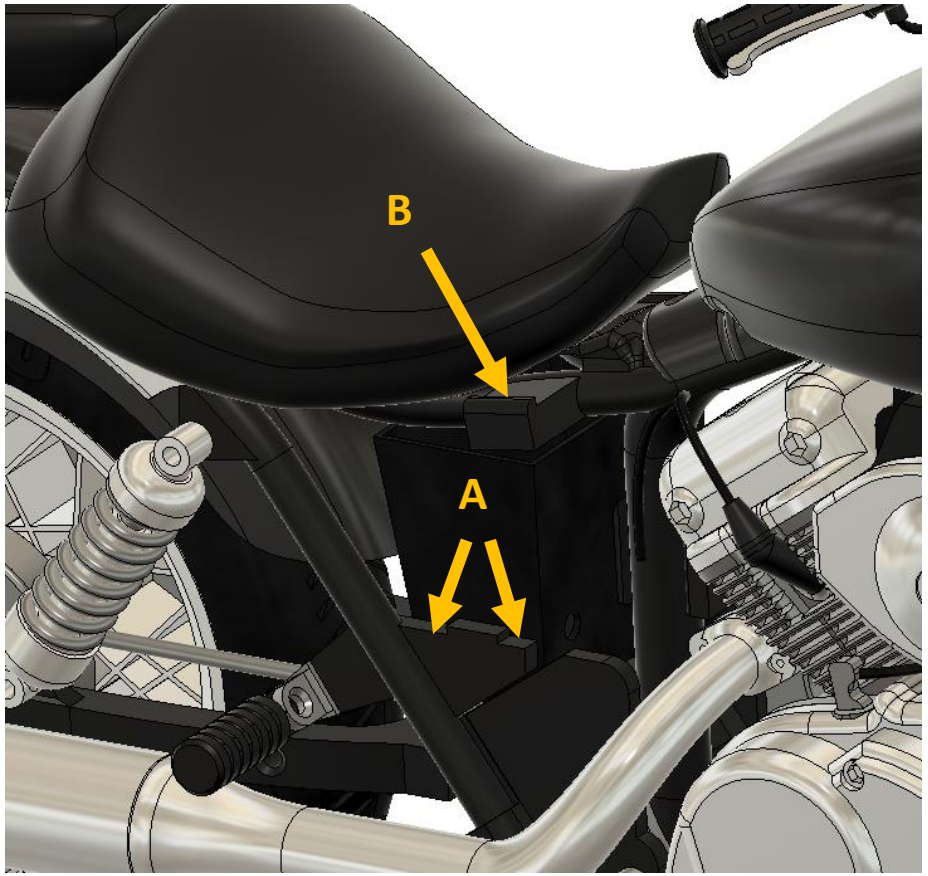
Screw:
(M2) 2x 8mm

Mirrors

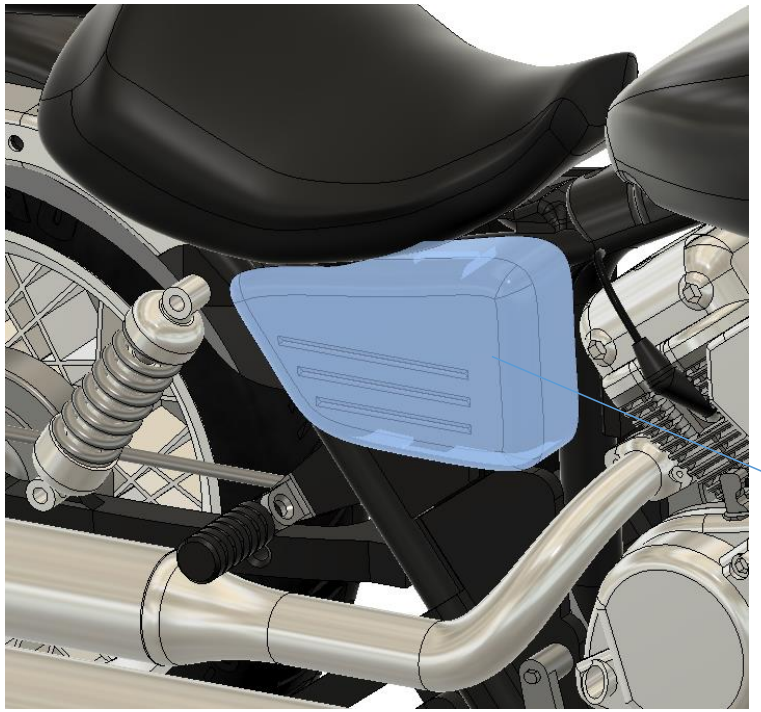


Mirrors are mounted on the push. Set the correct angle.

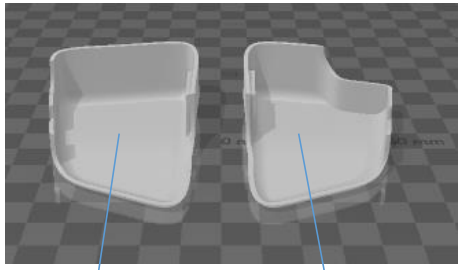
Side cover Right



Side cover lays at points A and is latched at point B.



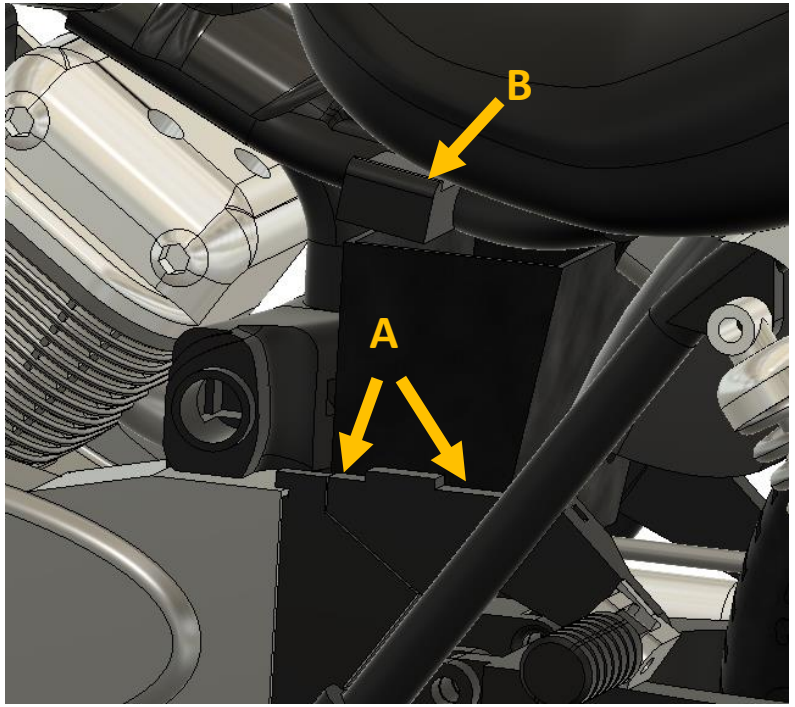
SideCovers.stl

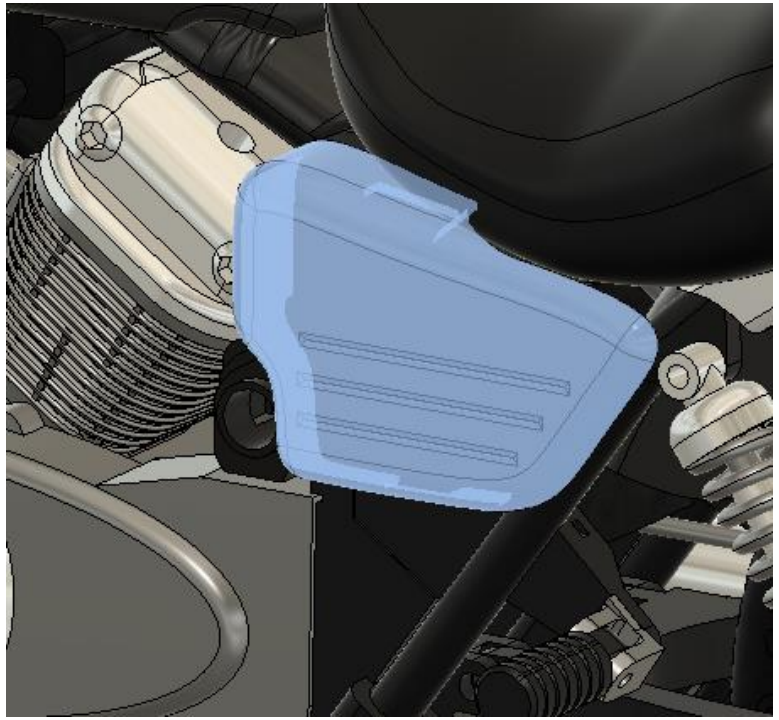


Side cover Right

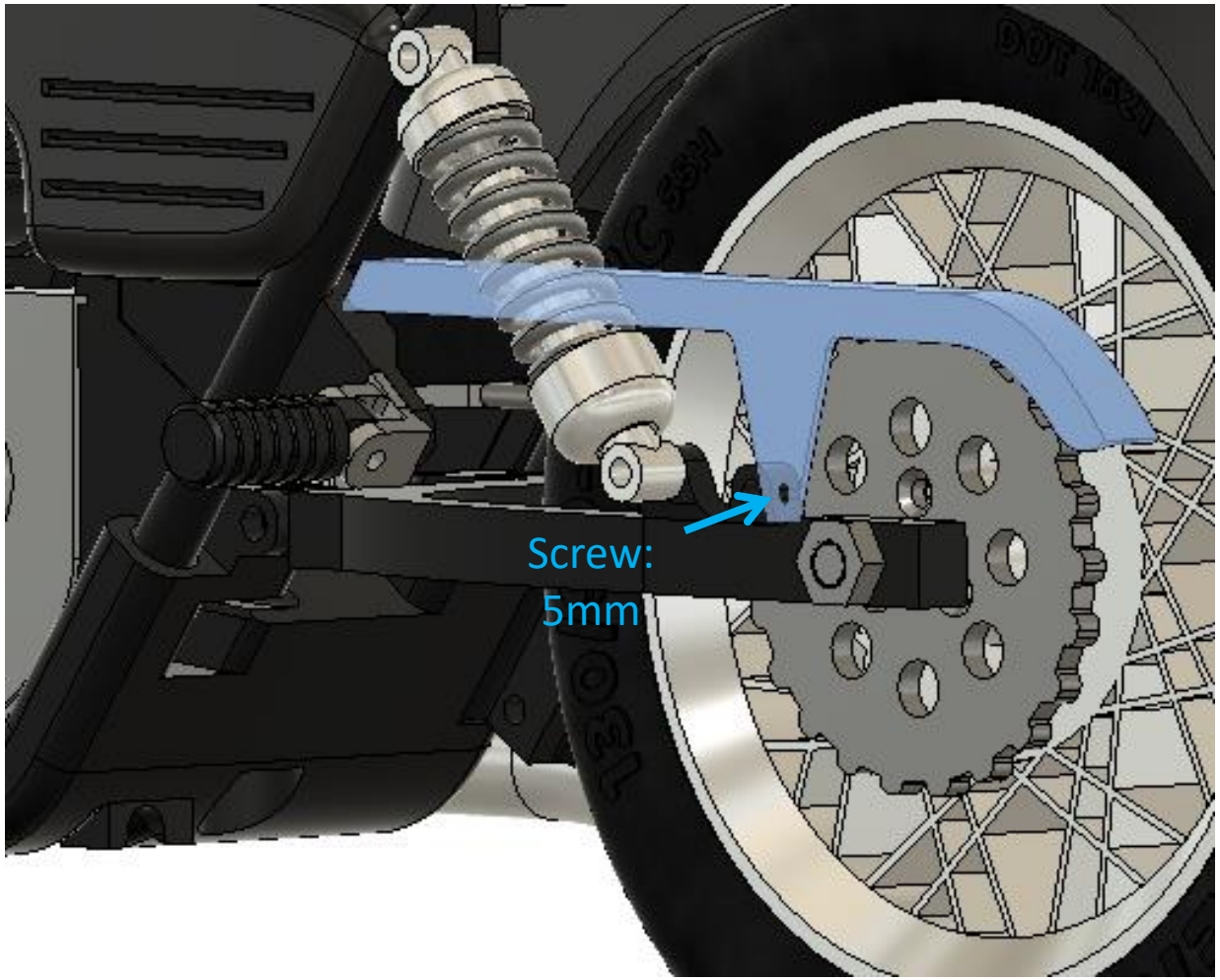
Side cover Left

Side cover Left

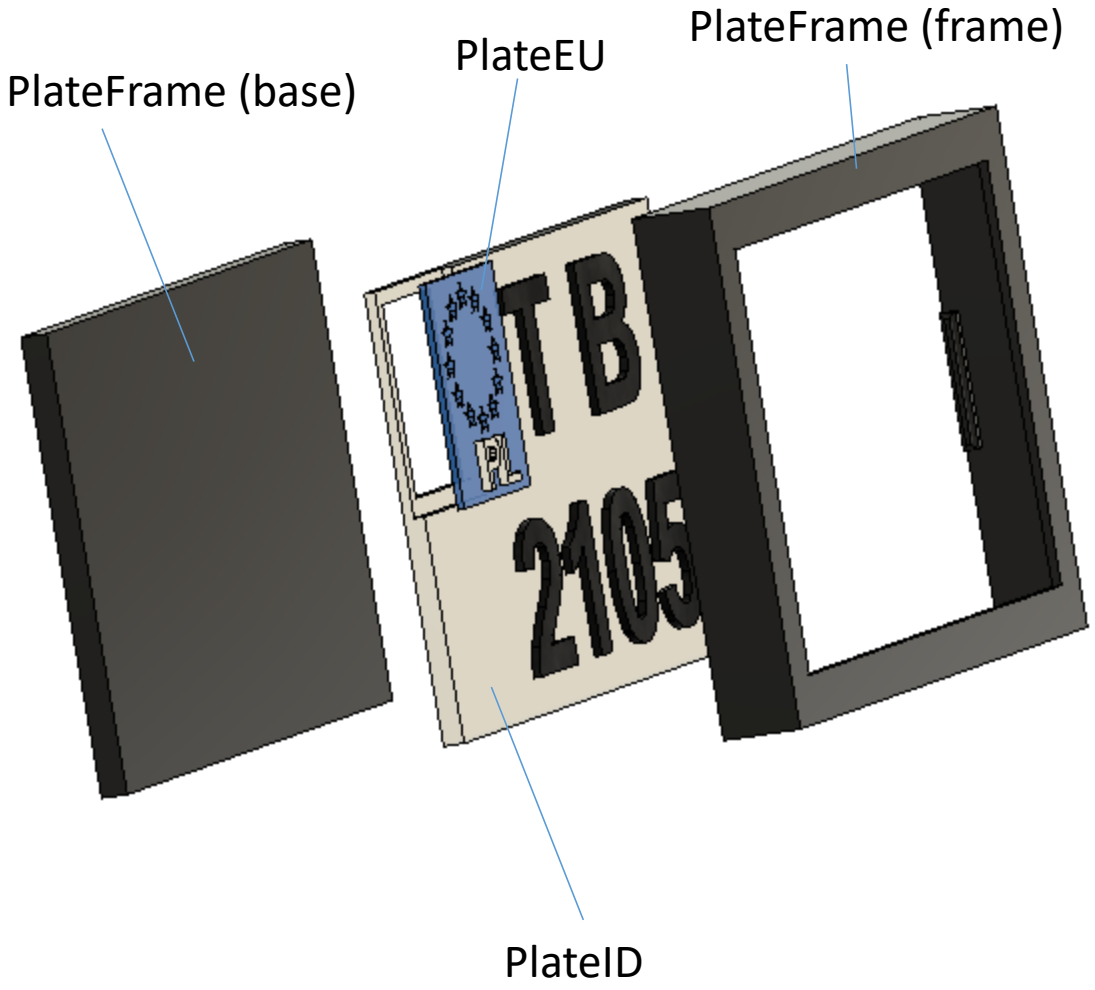




Chain guard

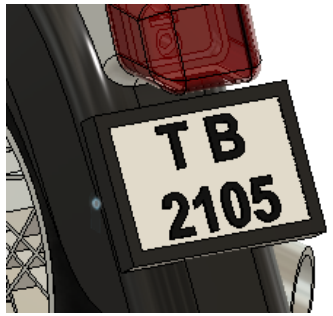


ID plate



Most difficult part to do is EU plate.
To make small yellow stars, you need 3D pen. Put the EU plate upside down at a flat surface, then use 3D pen to fill the stars. After that process the backsurface using a knife. Next, use the 3D pen again to attach the EU plate to the ID plate.

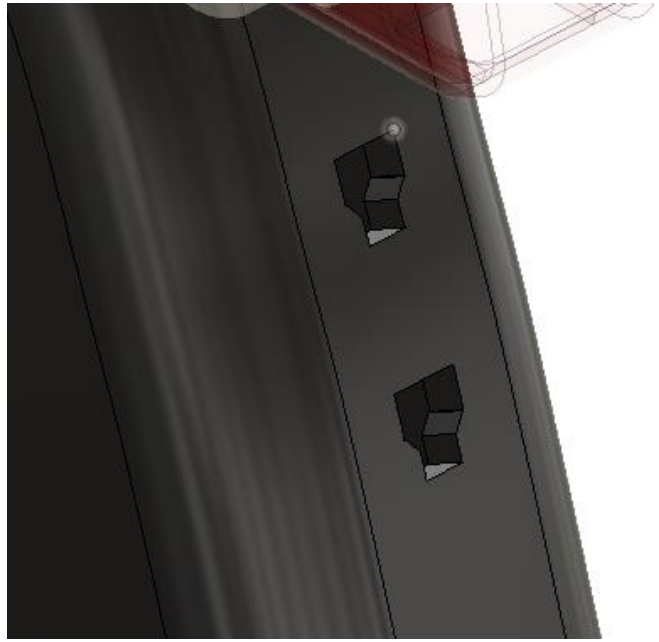
To obtain best effect, both the EU plate and ID plate need to be paused during the printing to change th filament color.

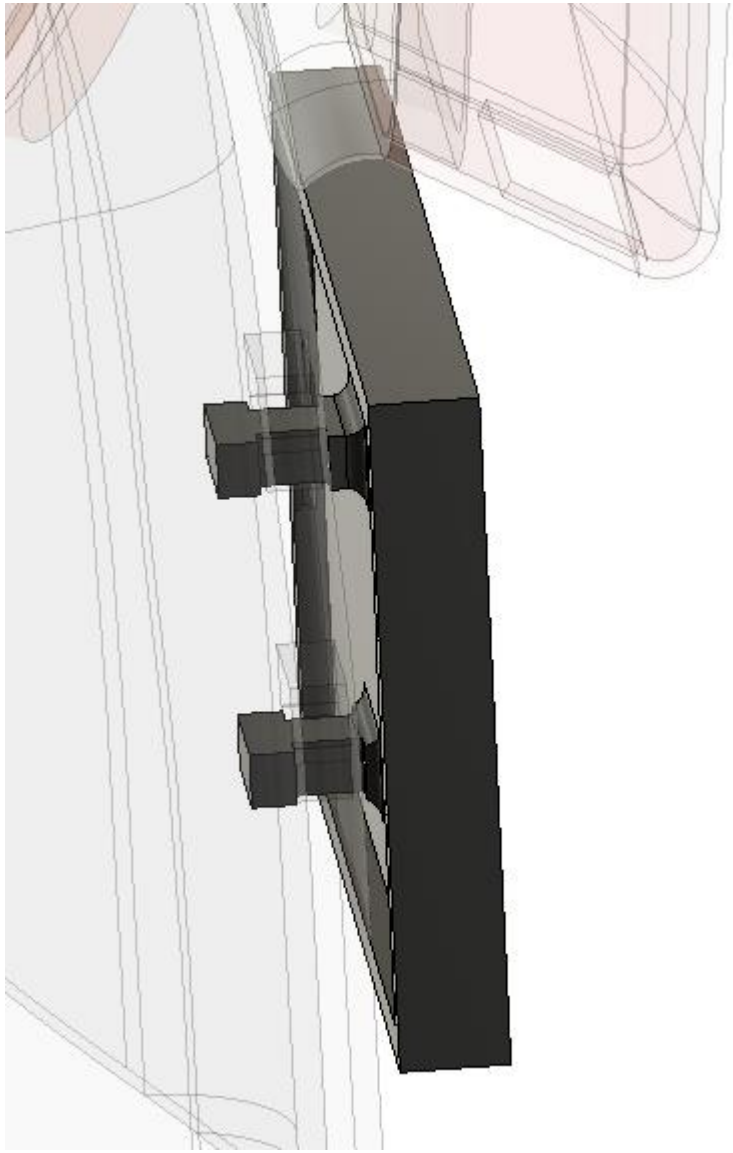


Alternatively, you can use **PlateID_noEU** file.

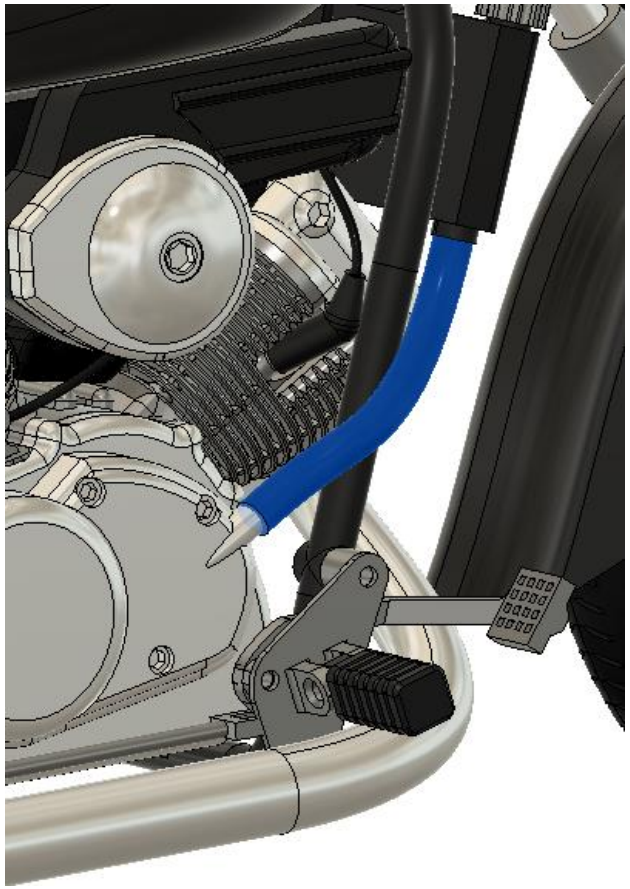
ID plate

The ID plate is slip to the two holes in the moodguard.



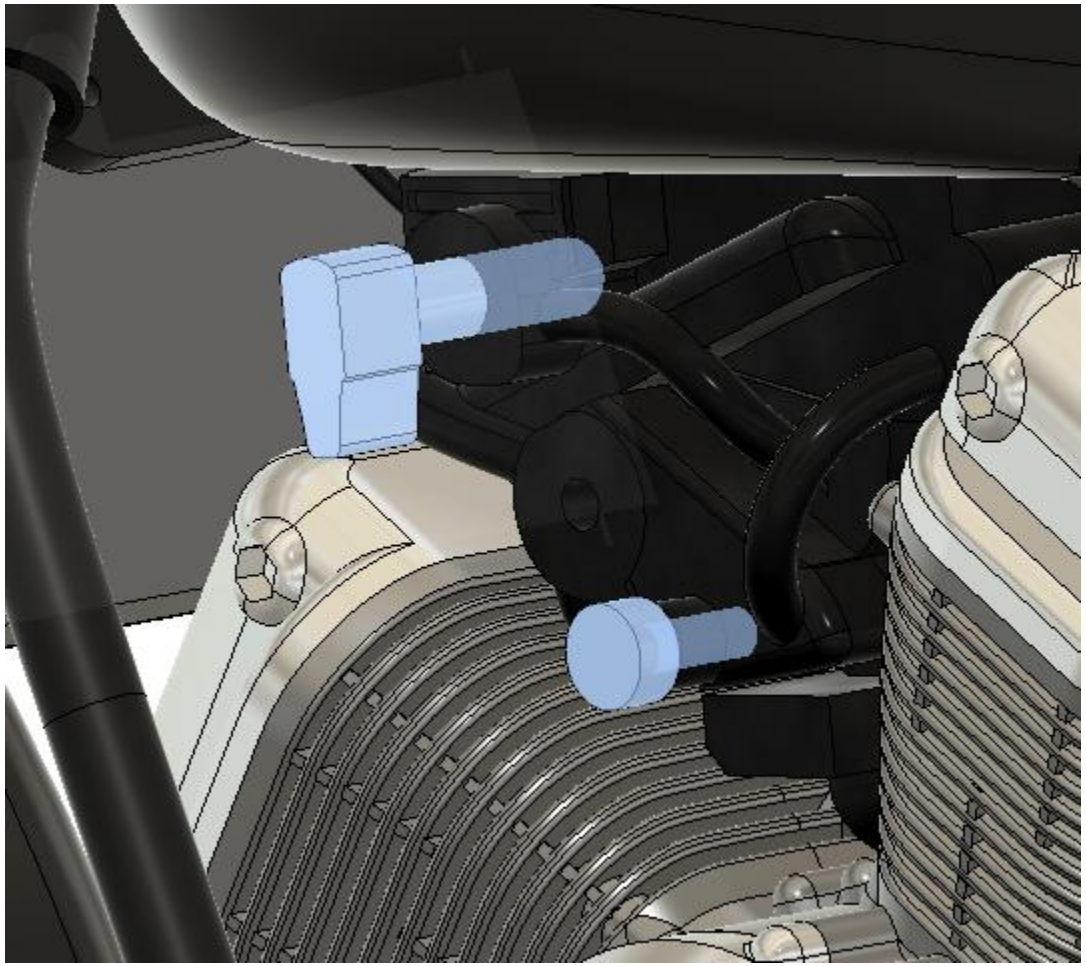


Pipes



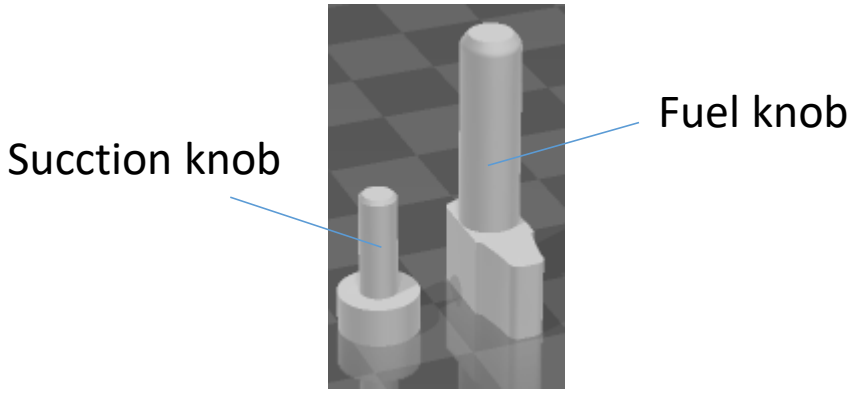
The two pipes: one connecting radiator with the transmission, second one from radiator to the cylinder, need to be done from e.g. a heat-shrink tubing or some wire lagging. You need to choose the right diameter.

Knobs



Final step:
Two knobs: sucction and fuel switch ar push into the appropriate holes in the carburetor part.

FuelAndSucctionKnobs.stl



Congratulate!

Your HONDA SHADOW VT125 is finished.