

# Build Guide - Model 9: Bamboo 4x4

3D printed radio controlled  
4WD scale model.

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Version 1.0.2



# Model 9: Bamboo 4x4 – version 1.0.2 changelog

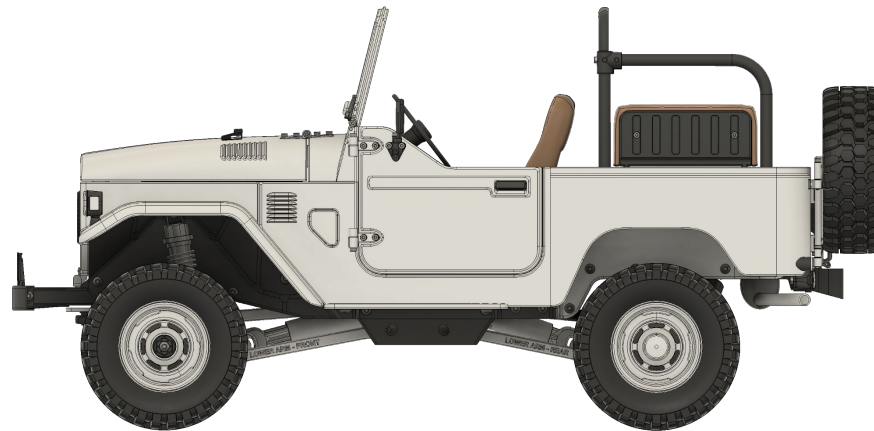
Changelog:

- “Model 9: Bamboo 4x4” v1.0.2, release date: March, 2022
  - BeltDrive 4x4 v1.1 - 3 service holes with covers
  - BeltDrive 4x4 - two sizes of the “Pulley Shaft small”
- “Model 9: Bamboo 4x4” v1.0.1, release date: January 9, 2022
  - BeltDrive update – changed screw holes positions to resolve potential collision with “Central of the Chassis” part.”
    - Print 23A - Belt Drive Gearbox - 1
    - Box Rear A.stl
    - Box Rear B.stl
  - “Side Body Panel” – integrated printing support redesign for more comfortable supports removal
    - Print 8 - Body 3 - Side Body Panel
    - Side Body Panel - left.stl
    - Side Body Panel - right.stl



## Bamboo 4x4 – version 1.0.2 technical specs.

- Dimensions: 48 cm (51cm with spare) length, 21 cm width, 25.8 cm height
- Model weights roughly 2,65 kg (including battery)
- Permanent rear wheel drive with opened differentials (locked differential alternatively)
- Remote controlled steering and speed control
- Suspension with real springs and dampers for good off-road capabilities
- Reduction BeltDrive 4x4 gearbox with 1:20 gear ratio
- Doors, hood and trunk can be manually opened, rear seats can be folded
- Removable battery cover





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# Before you start

- Get ready all tools.
- Buy necessary parts that cannot be printed (screws, bearings, motor etc.), parts are listed on next pages.
- Make sure that your **printer is calibrated** well – print our “calibration part” to ensure that you can fit bearings on shafts properly! Calibration part is located on “Print 0 - Calibration”.
- Use **higher printing temperatures** – use about 210-215°C for PLA to have firm layer adhesion!
- You can use some **heat-resistant filament** (PC Blend) for specific drivetrain parts noted later in this Guide.
- Bamboo 4x4 includes 2 different wheel designs. Both designs shares the same tire dimension, so feel free to choose the right design for you:

- For “Wheel F”, print plates with “Wheel F” in name.



- For “Wheel G”, print plates with “Wheel G” in name.





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# Are you **new** to the Radio Controlled models?

Don't worry, Radio Controlled (RC) models are not as complicated as they can look! However, it's a good to know some basics before you will start buying parts.

Most mechanical parts in our products will be 3d printed on your own printer, so we will focus here on RC electronics.

On-line beginners guides:

- [Steemit.com](https://www.steemit.com) – a basic introduction to RC car models
- [Instructables.com](https://www.instructables.com) – another beginners guide, general (not focused on car models)
- [Youtube](#) – a nice video showing RC electronic basics

If you have any questions regarding our models, feel free to ask us (or other 3dsets builders) on our Facebook discussion group, available here: [Facebook – 3D Sets](#)





## Bamboo 4x4 – version 1.0.2: What do you need?

- **LINKS for PARTS PURCHASE!** ➔ list of required non-printed parts is here (continuously updated): [click for non-printed parts spreadsheet](#)
- Print Filament: To print this model you will need around 3000 g of print filament in total (3300 g for Hardtop version). We print our models from PLA material. If you will use the geared gearbox with 540DC motor, you should use **ASA/Prusament PC Blend filament for Motor Pulley, Motor Frame**, as it has better temperature resistance. **For the differential gears its recommended to use Prusament PC Blend**. You can use variable color for chassis and body. Tested and recommended filament: [Fillamentum PLA Extrafill](#) or [Prusament PLA](#).
- Gearboxes choices ([more info about gearboxes is on page 53](#)):
  - **BeltDrive 4x4 gearbox** (recommended option):
    - Model is driven by brushless motor **3530** - size
    - **Timing belts: HTD 144-3M-06** (HTD profile, 144 mm long, 3 mm teeth distance, 6 mm wide) – 4 pcs
    - All parts can be printed from PLA or other filaments
  - **Geared Gearbox** (older design):
    - Model is driven by 540 DC motor (27 T)
    - All gears and shaft are 3D printed. Don't use PETG, ASA or ABS for gears!
- Steering servo in standard size (39x19,5x38,5mm) – minimum torque: 10kg, optimum 20kg
- Speed controller (ESC) max size 40x30x25mm
- Ball Bearing 10x15x4 mm - 6700ZZ: 38 pcs. (or less depending on gearbox type and axles configuration)
- Shock -Coil springs, inner diameter max 18mm, length 75-90mm: 4 pcs.
- Rubber tires - Outer Diameter: 90-100mm, Inner Diameter: 46-48mm
- 7.2V (2S) Battery with dimensions max 136x48x26mm
- Electric connectors: 2 pairs (battery connectors, motor <-> ESC connectors)
- Twin cable & soldering equipment
- Clear Binding Covers, or any transparent foil up to 0,5 mm thick – material for “Glass”.
- Grease and Thread Locker for securing fasteners on moving parts

## Bamboo 4x4 – version 1.0.2: Required hardware

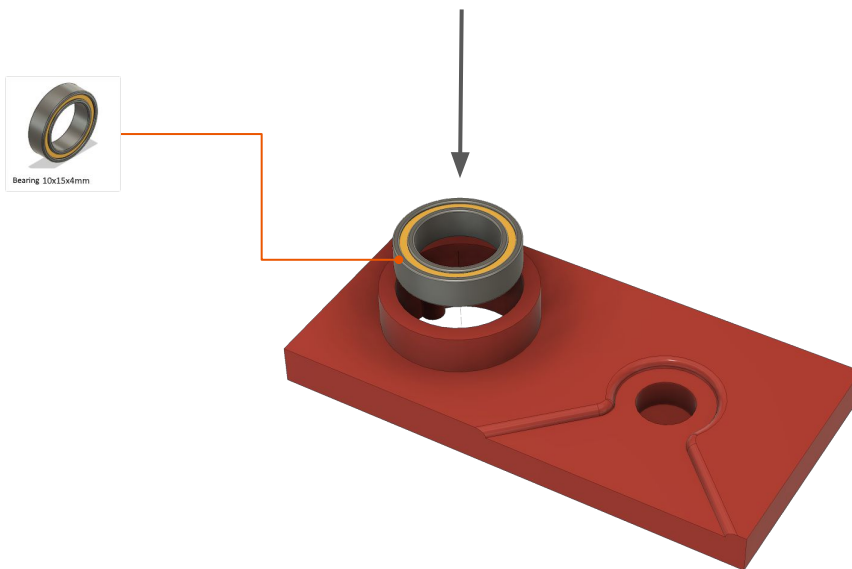
Screws and nuts (in metric size):

- M2x6: 124 pcs.
- M2x8: 40 pcs.
- M2x10: 61 pcs.
- M2x12: 3 pcs.
- M2x16: 9 pcs.
- M3x6: 12 pcs.
- M3x8: 31 pcs.
- M3x10: 62 pcs.
- M3x12: 34 pcs.
- M3x16: 33 pcs.
- M3x20: 4 pcs.
- M3x25: 8 pcs.
- M3 nuts: 30 pcs.
- M3 locknuts: 15 pcs.
- M3x6 **Socket(!)** Head: 2 pcs.
- M3x10 **Socket(!)** Head: 2 pcs.
- M3x6 Set Screw : 2 pcs.



# Check 3d printer calibration!

Please at first test whether the bearing can be inserted into the calibration part. If you have problems or the bearing fits too loose, please make sure that the printer is properly calibrated. Dimensions of the printed parts should match dimensions of the 3d model.





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# Bamboo 4x4 – Chassis & Rear Body

In this procedure you will assemble the chassis and rear body of the car.

Required print plates:

- “Print 0 - Calibration”
- “Print 1 - Chassis 1”
- “Print 2 - Chassis 2”
- “Print 3 - Chassis 3”
- “Print 4 - Chassis 4”
- “Print 6 - Body 1”

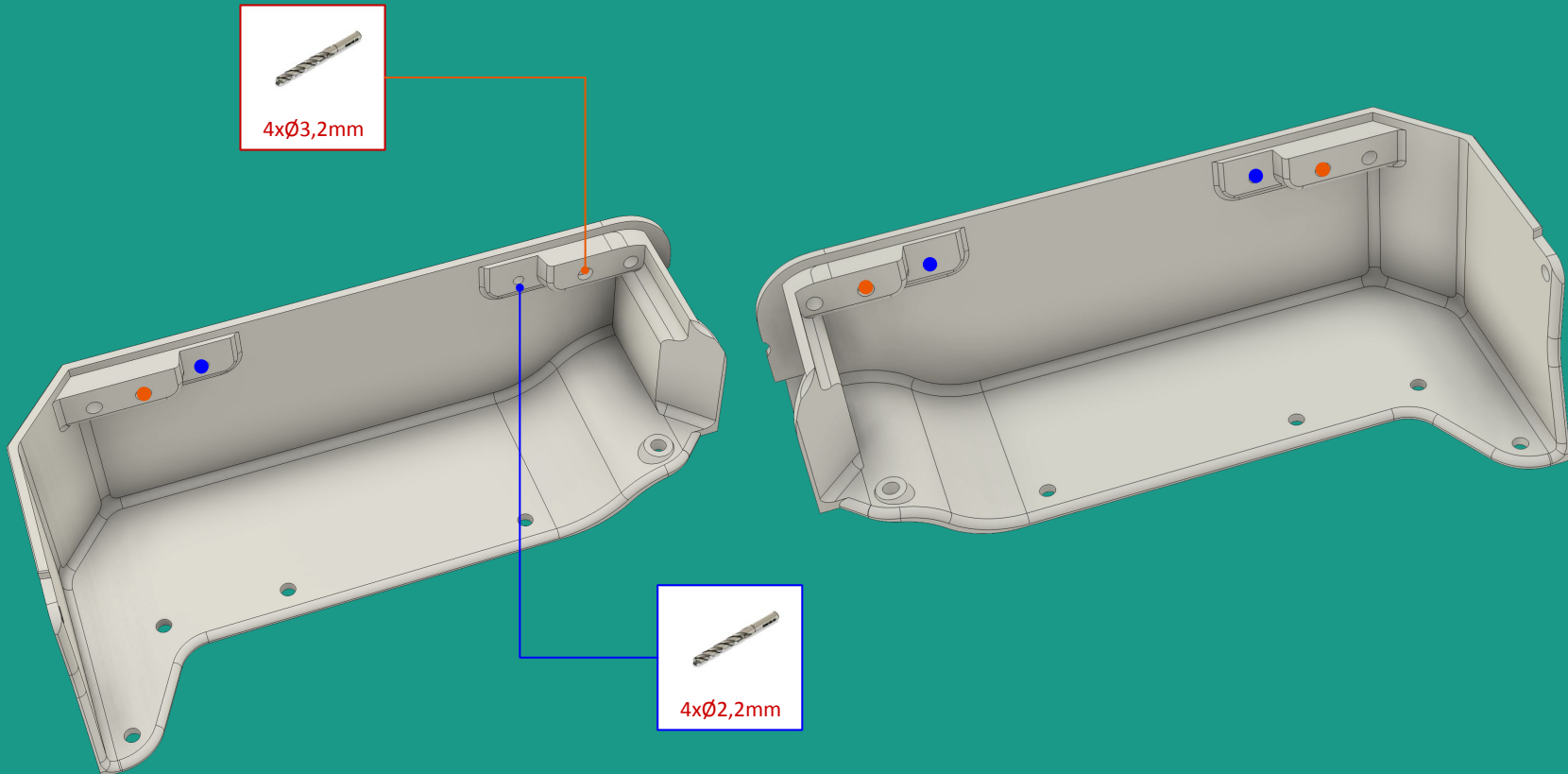
Non-printed parts:

- Screw M2x6: 7 pcs.
- Screw M2x8: 1 pcs.
- Screw M3x6 socket head: 2 pcs.
- Screw M3x10: 12 pcs.
- Screw M3x12: 12 pcs.

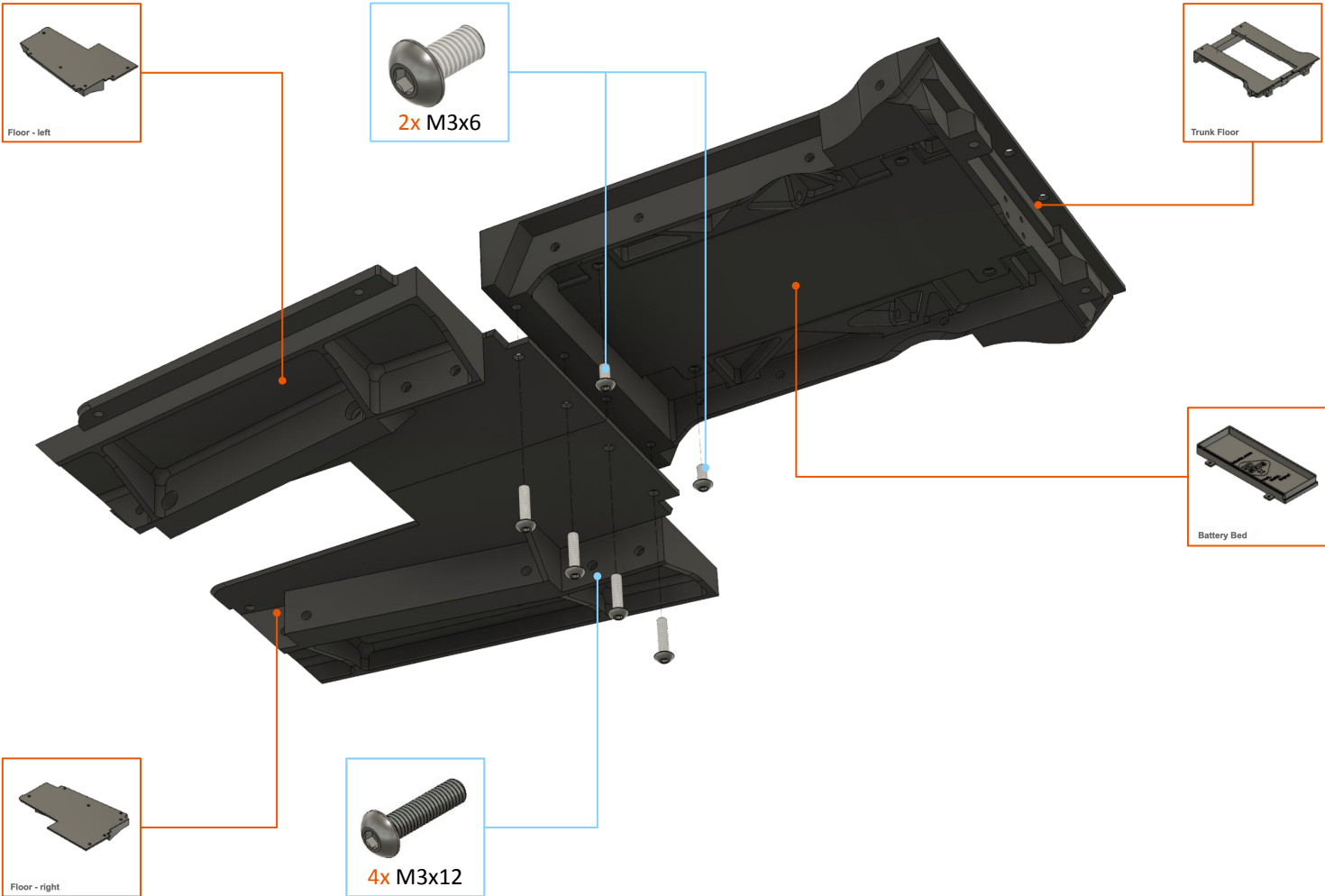
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# Postprocessing – drilling holes

Please carefully drill through the marked holes that have not been printed through to make printing easier.

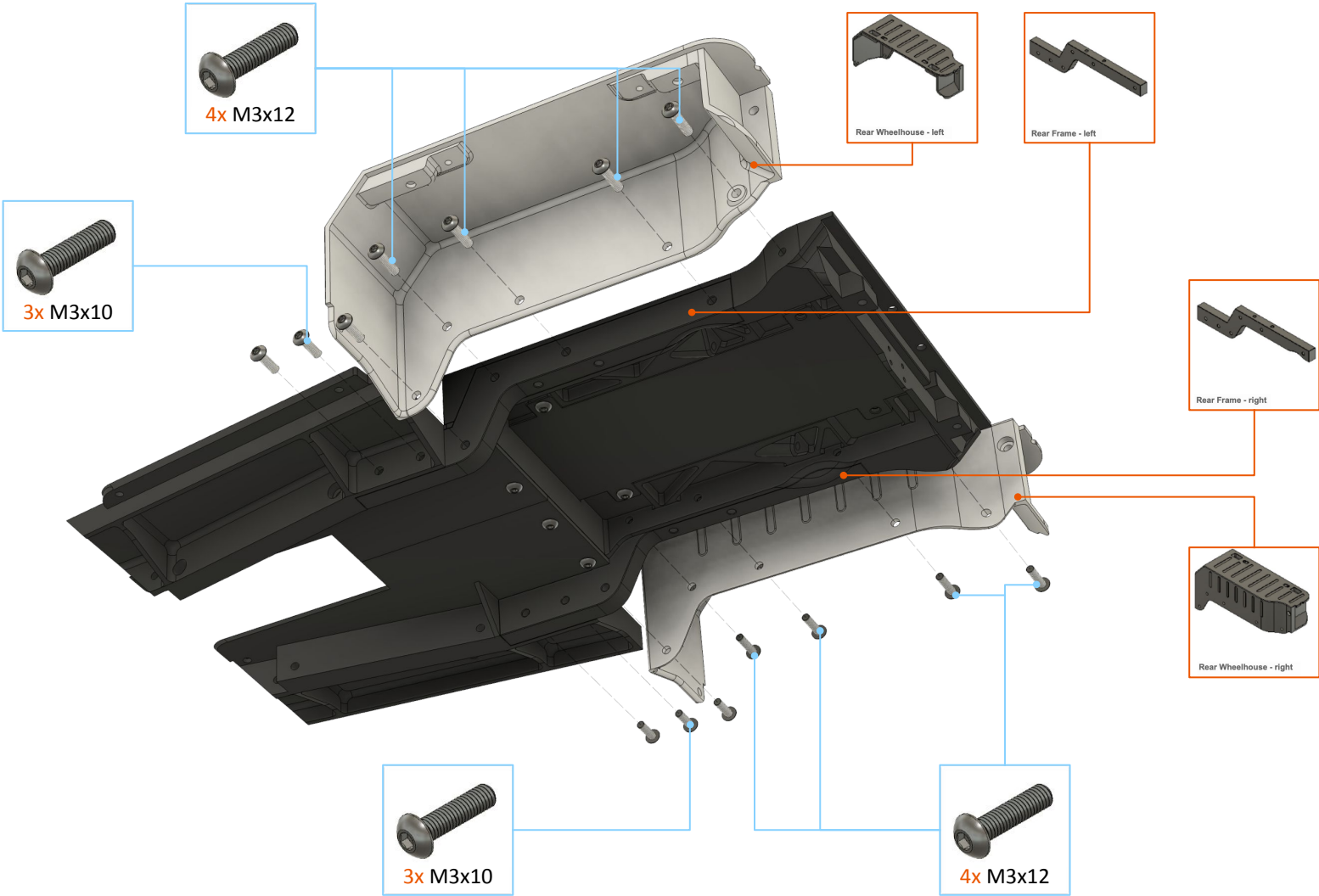


# Chassis - step 1/2

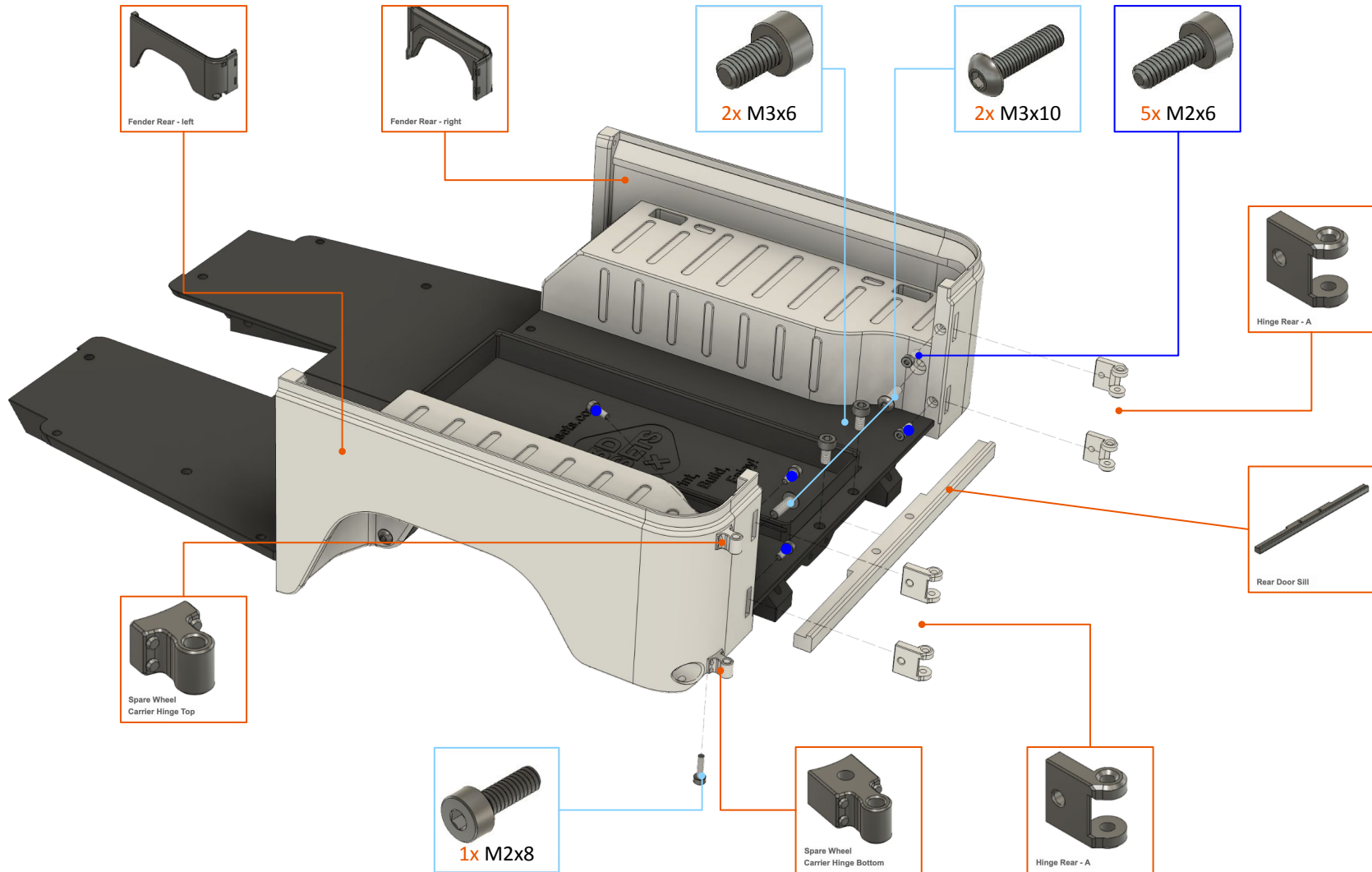




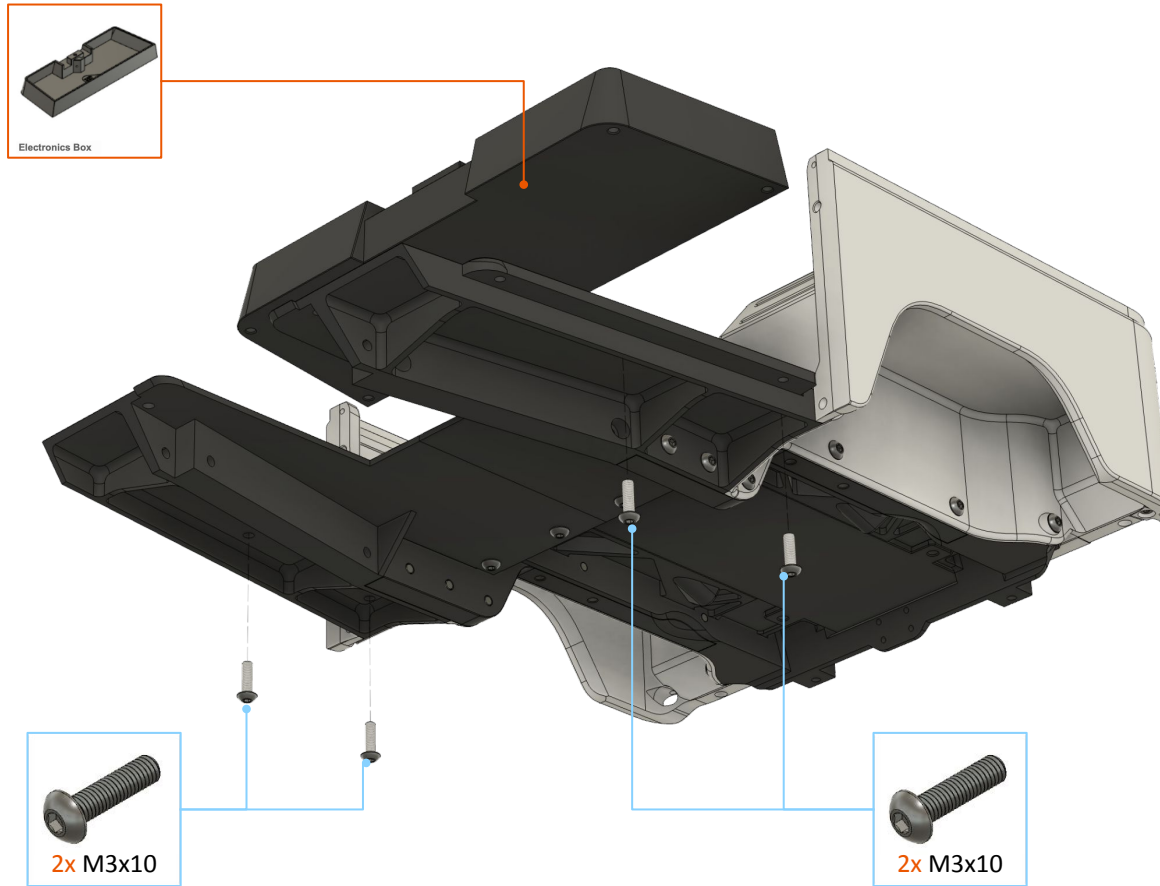
# Chassis - step 2/2



# Rear Body - step 1/2



# Rear Body - step 2/2



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# Bamboo 4x4 – Front Body

In this procedure you will assemble the front bodywork of the car.

Required print plates:

- “Print 2 - Chassis 2”
- “Print 5 - Front Wheelhouse”
- “Print 7 - Body 2 + Hinges + Dashboard”
- “Print 8 - Body 3 - Side Body Panel”
- “Print 9 - Body 4 - Front Window - bottom”
- “Print 10 - Body 5 - Front Body + Fender Flare”
- “Print 11 - Interior 1 + Details 1”
- “Print 12 - Lights 1”
- “Print 13 - Front Grill”

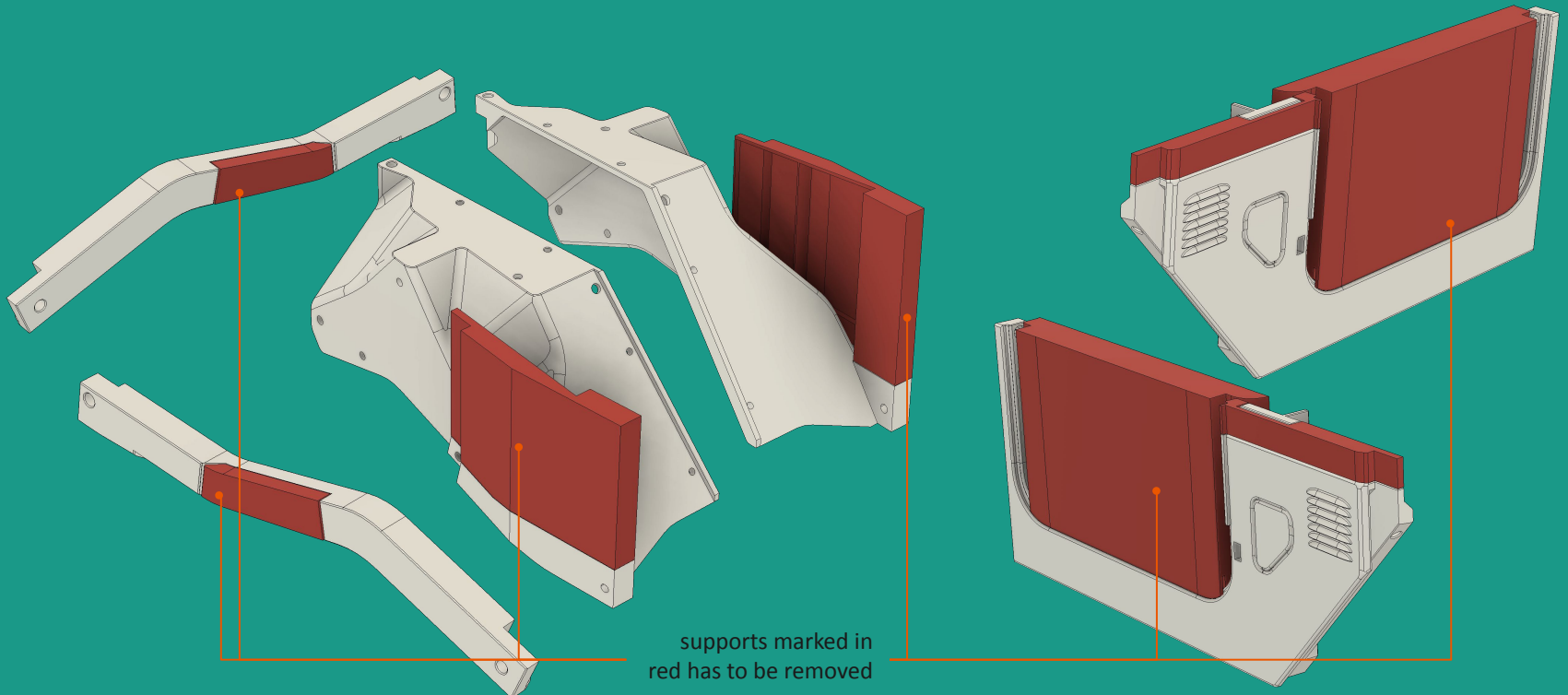
Non-printed parts:

- Screw M2x6: 12 pcs.
- Screw M2x10: 1 pcs.
- Screw M3x6: 4 pcs.
- Screw M3x8: 4 pcs.
- Screw M3x10: 10 pcs.
- Screw M3x10 socket head: 2 pcs.
- Screw M3x12: 3 pcs.
- Screw M3x20: 2 pcs.

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# Postprocessing – removing supports

Before you start building, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!

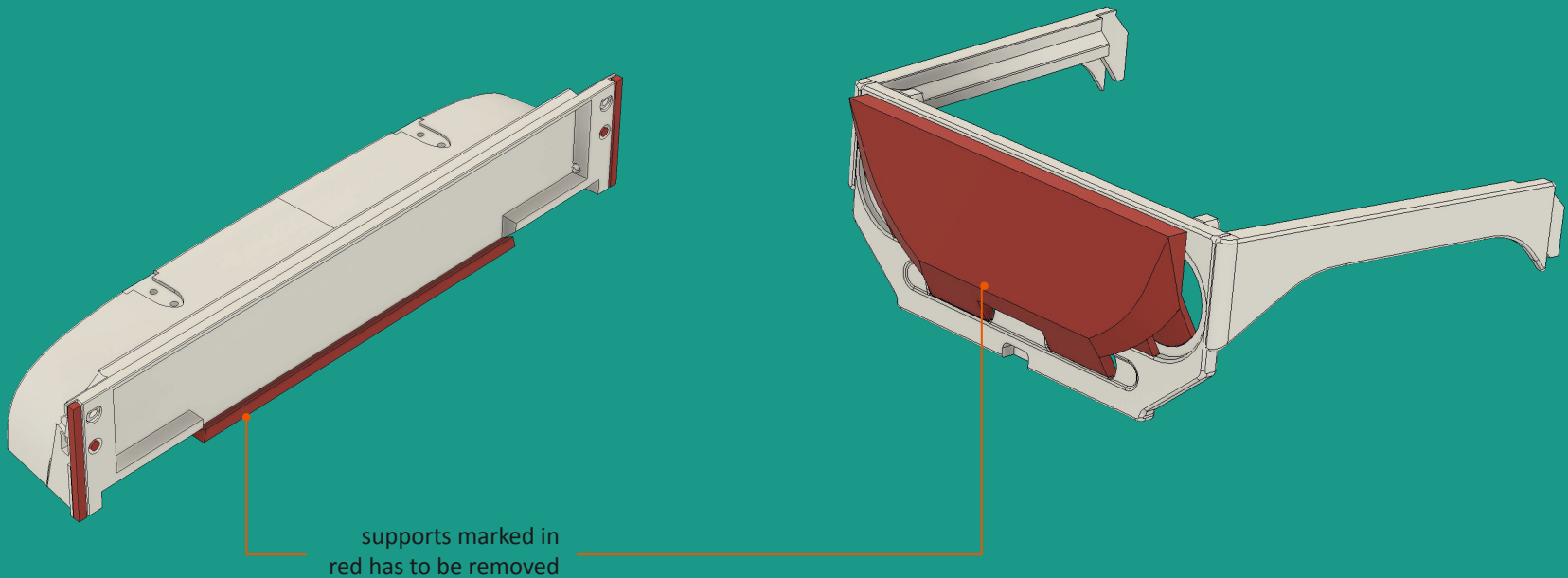




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# Postprocessing – removing supports

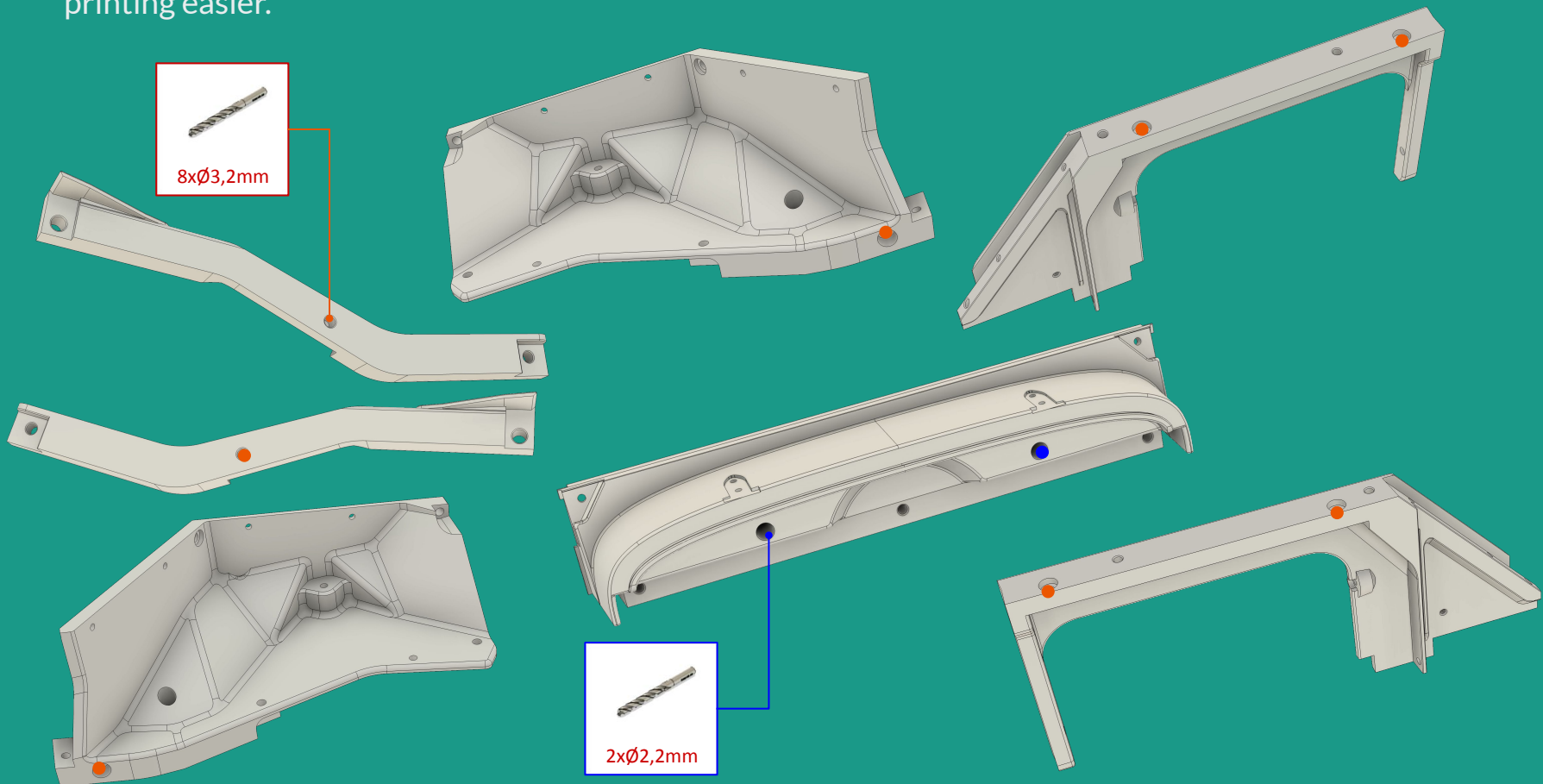
Before you start building, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!



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# Postprocessing – drilling holes

Please carefully drill through the marked holes that have not been printed through to make printing easier.

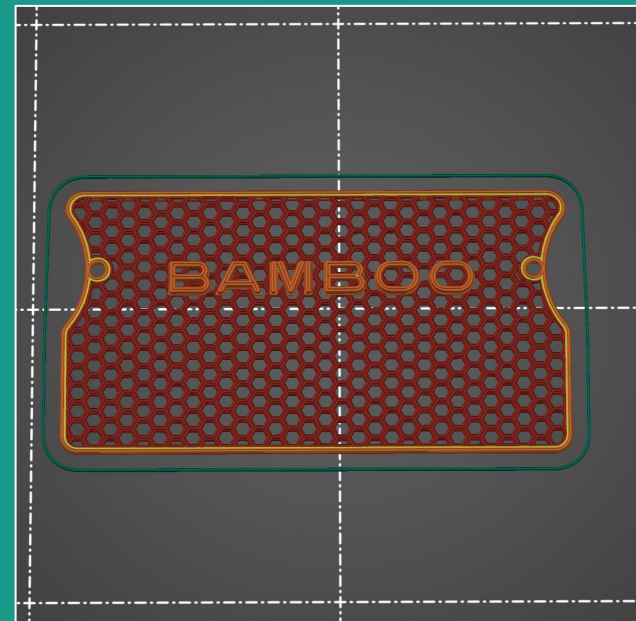
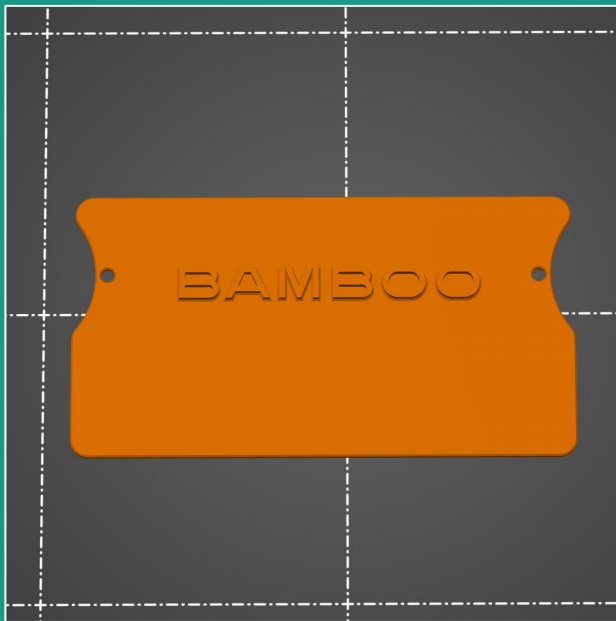


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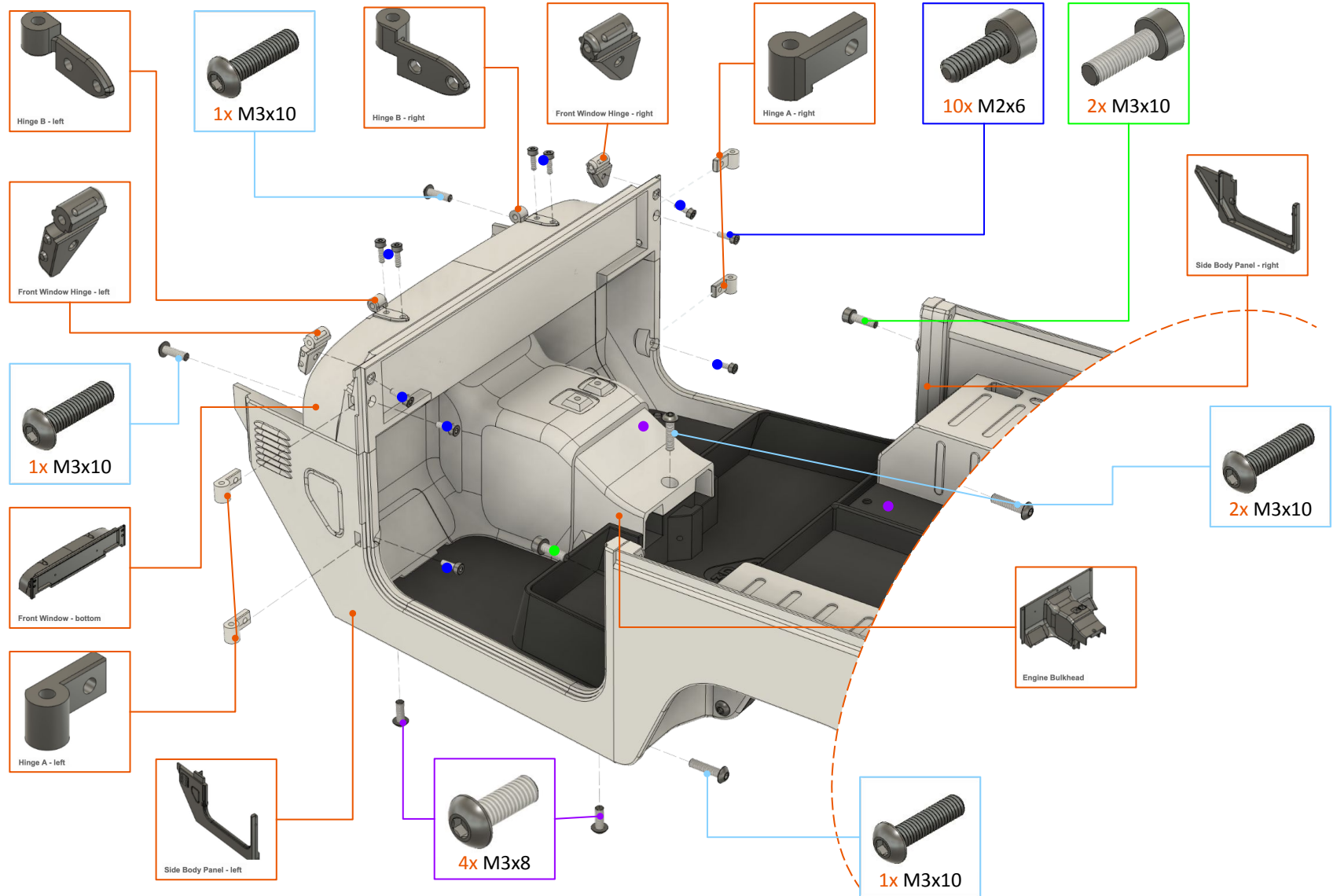
# Front Radiator Screen

If you will print the part “Front Radiator Screen” from the .stl file instead of printing from provided gcode, please use following slicer setup:

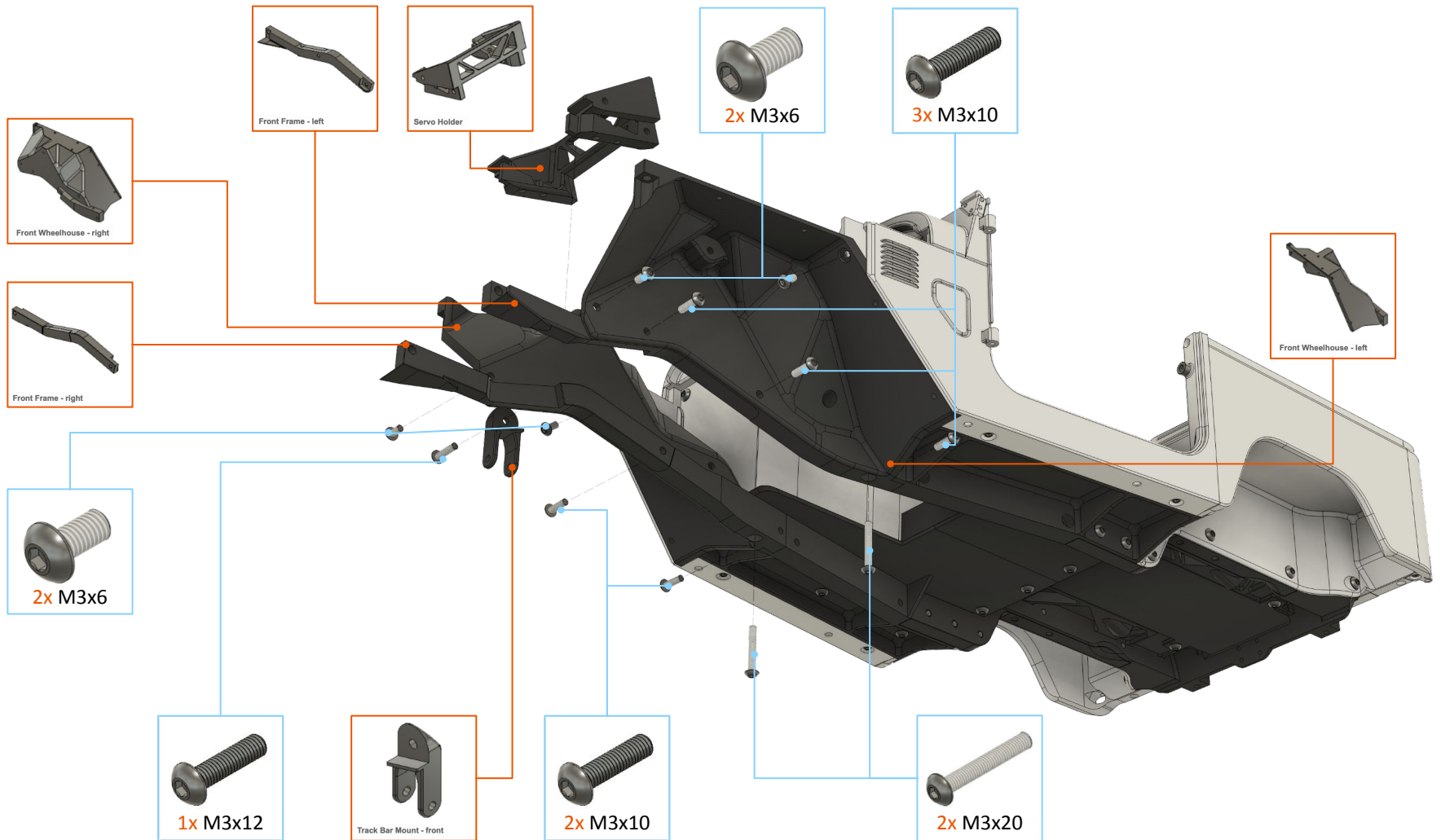
- Solid layers - Top / Bottom (0 layers)
- Infill density: 30%
- Infill type: Honeycomb
- Perimeters: 2



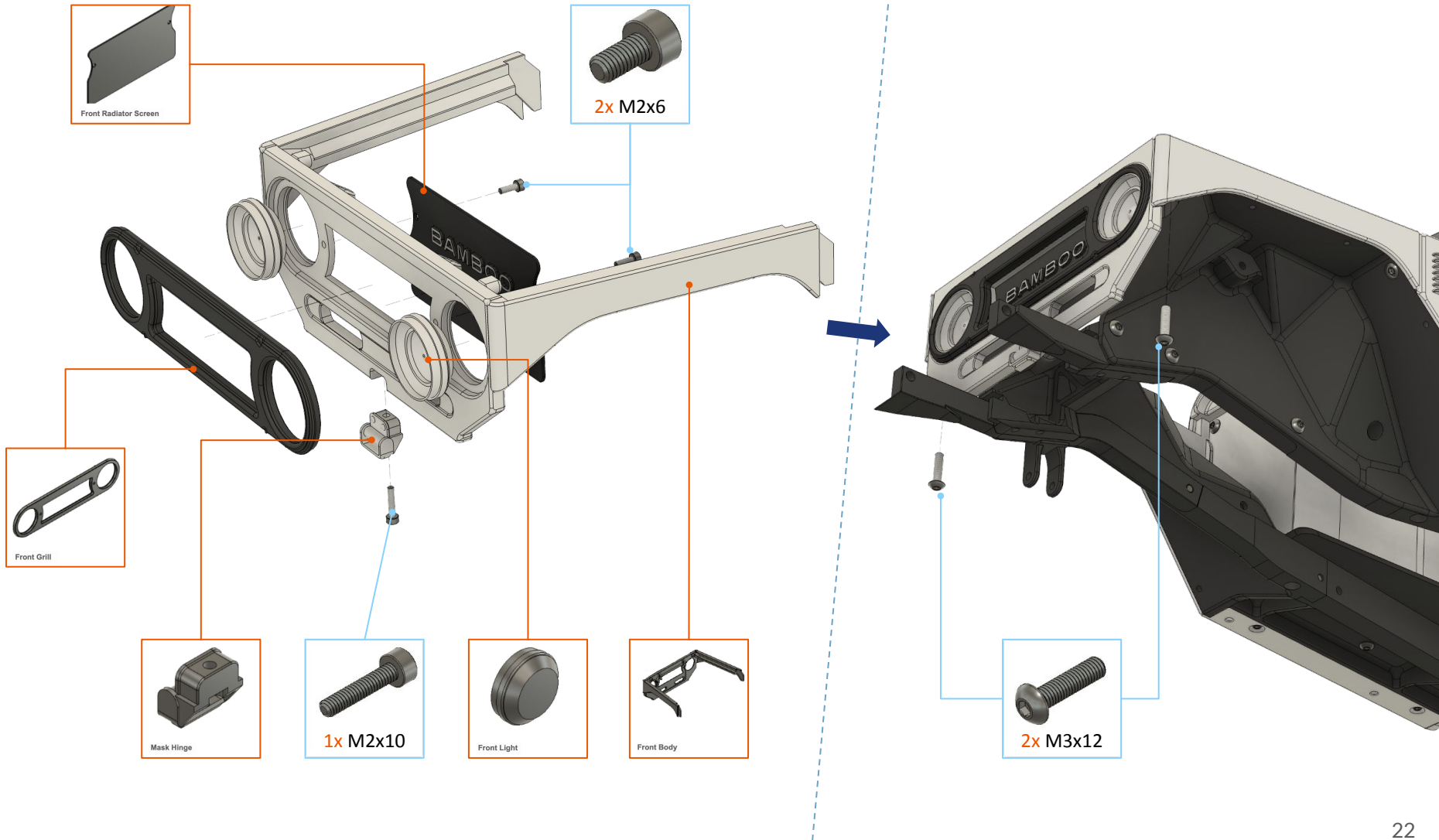
# Front Body - step 1/4



# Front Body - step 2/4



# Front Body - step 3-4/4



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# Bamboo 4x4 – Interior

In this procedure you will assemble the Interior of the car.

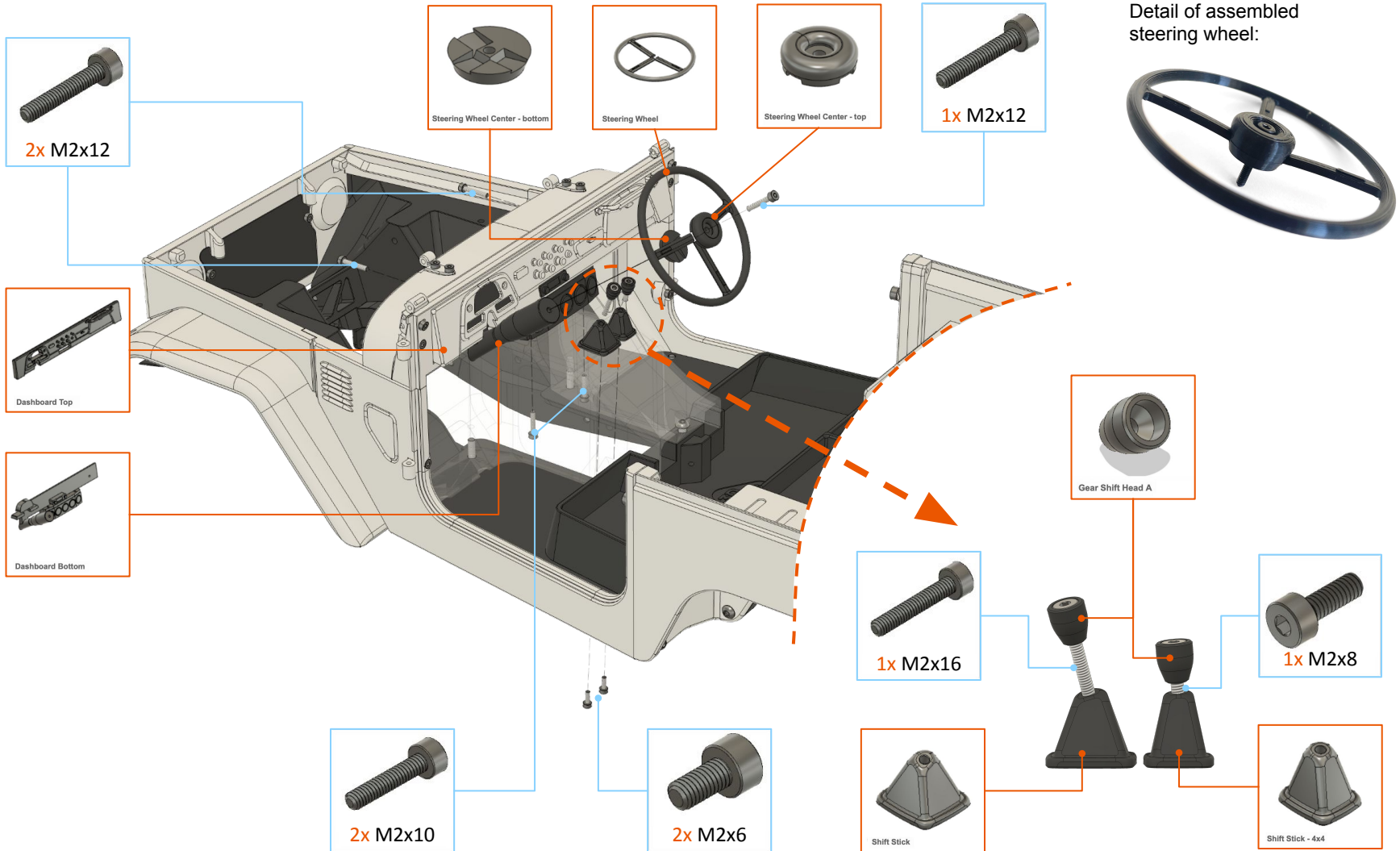
Required print plates:

- “Print 7 - Body 2 + Hinges + Dashboard”
- “Print 11 - Interior 1 + Details 1”

Non-printed parts:

- Screw M2x6: 2 pcs.
- Screw M2x8: 1 pcs.
- Screw M2x10: 2 pcs.
- Screw M2x12: 3 pcs.
- Screw M2x16: 1 pcs.

# Interior – step 1/1





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# Bamboo 4x4 – Lights

In this procedure you will assemble the Lights.

Required print plates:

- “Print 10 - Body 5 - Front Body + Fender Flare”
- “Print 12 - Lights 1”
- “Print 14 - Lights 2 + Licence Plate”

Non-printed parts:

- Screw M2x8: 4 pcs.
- Screw M2x10: 6 pcs.
- Screw M2x16: 2 pcs.
- Screw M3x10: 2 pcs.

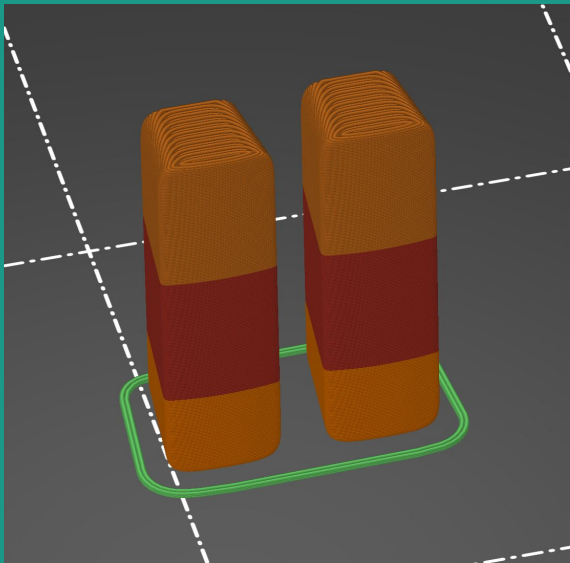
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# Rear Lights & Turn Signal Front Glass:

You can print Rear Lights and Turn Signal Front Glass with filament changes to achieve color results. Please, setup filament changes in layer heights described below (setup is for layer height 0,15mm):

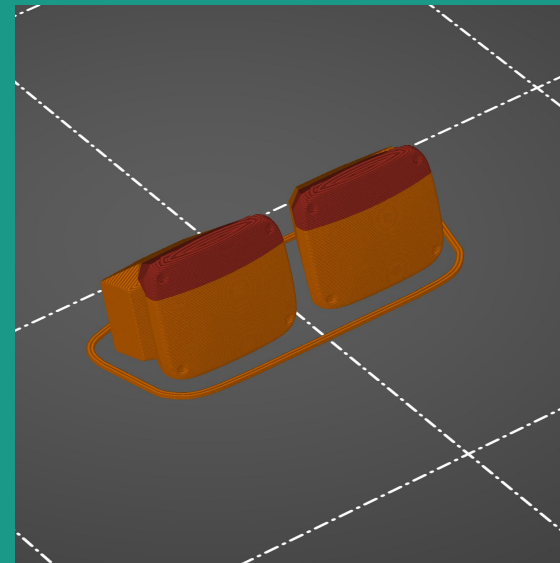
Rear Lights:

- Layer 51 - height 7,7mm
- Layer 128 - height 19,25mm

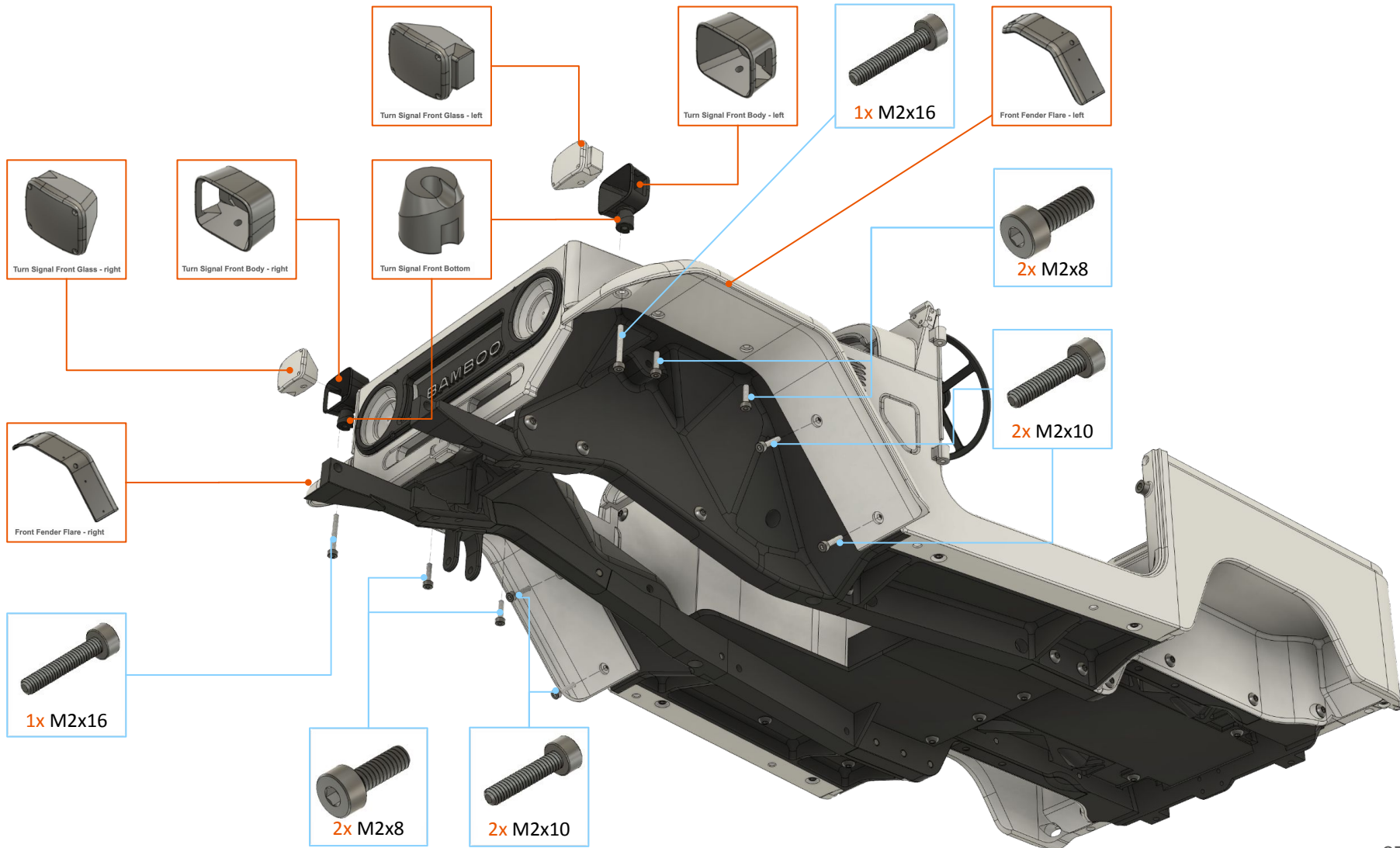


Turn Signal Front Glass:

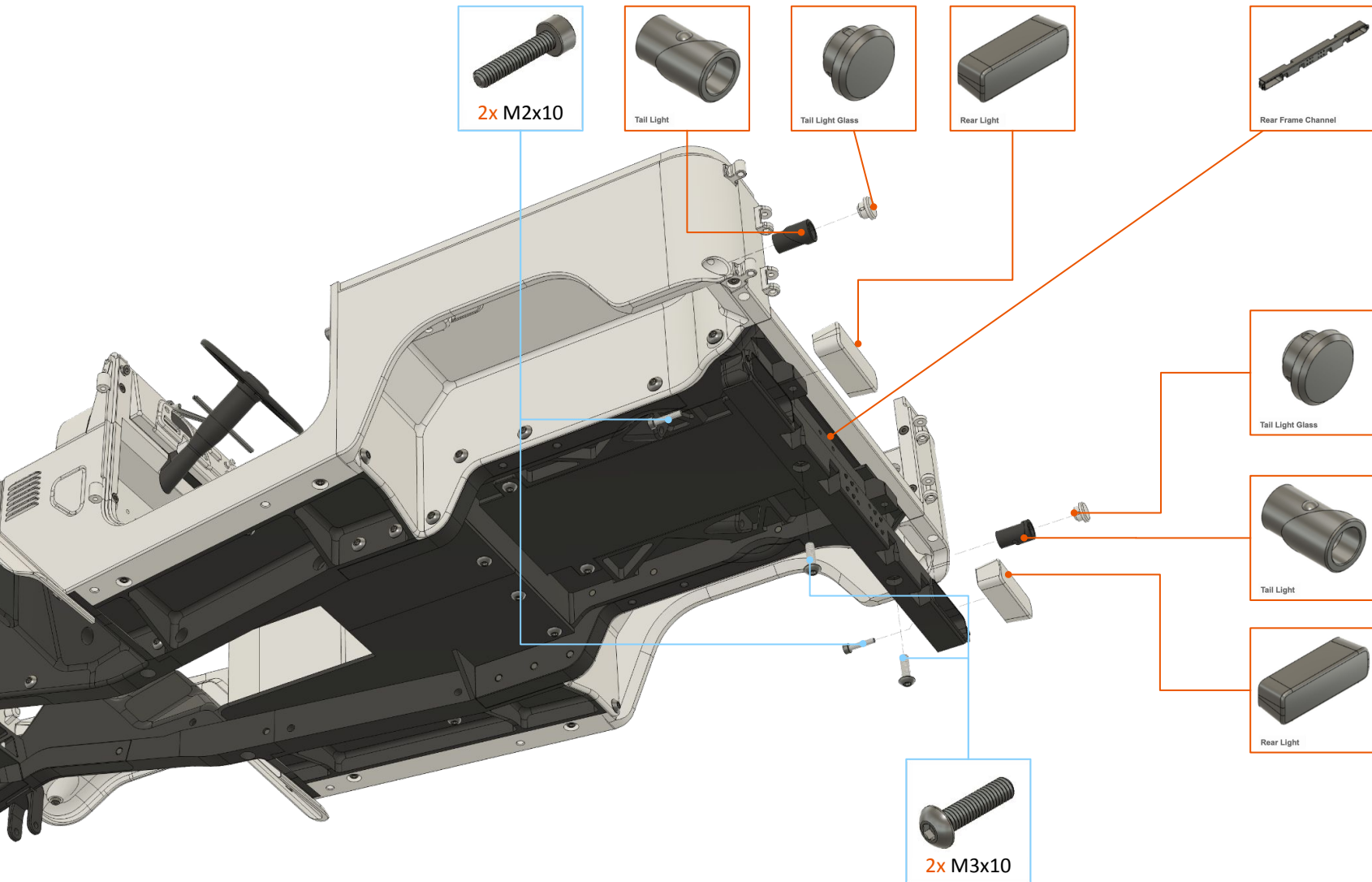
- Layer 66 - height 9,95mm



# Front Lights installation



# Rear Lights installation



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# Bamboo 4x4 – Hood & Front Window

In this procedure you will assemble the Window of the car and Hood.

Required print plates:

- “Print 15 - Body 6 - Hood”
- “Print 16 - Body 7 - Front Window + Side Step”
- “Print 18 - Front Window Frame + Switch Holder”
- “Print 19 - Bumpers + Details 2”

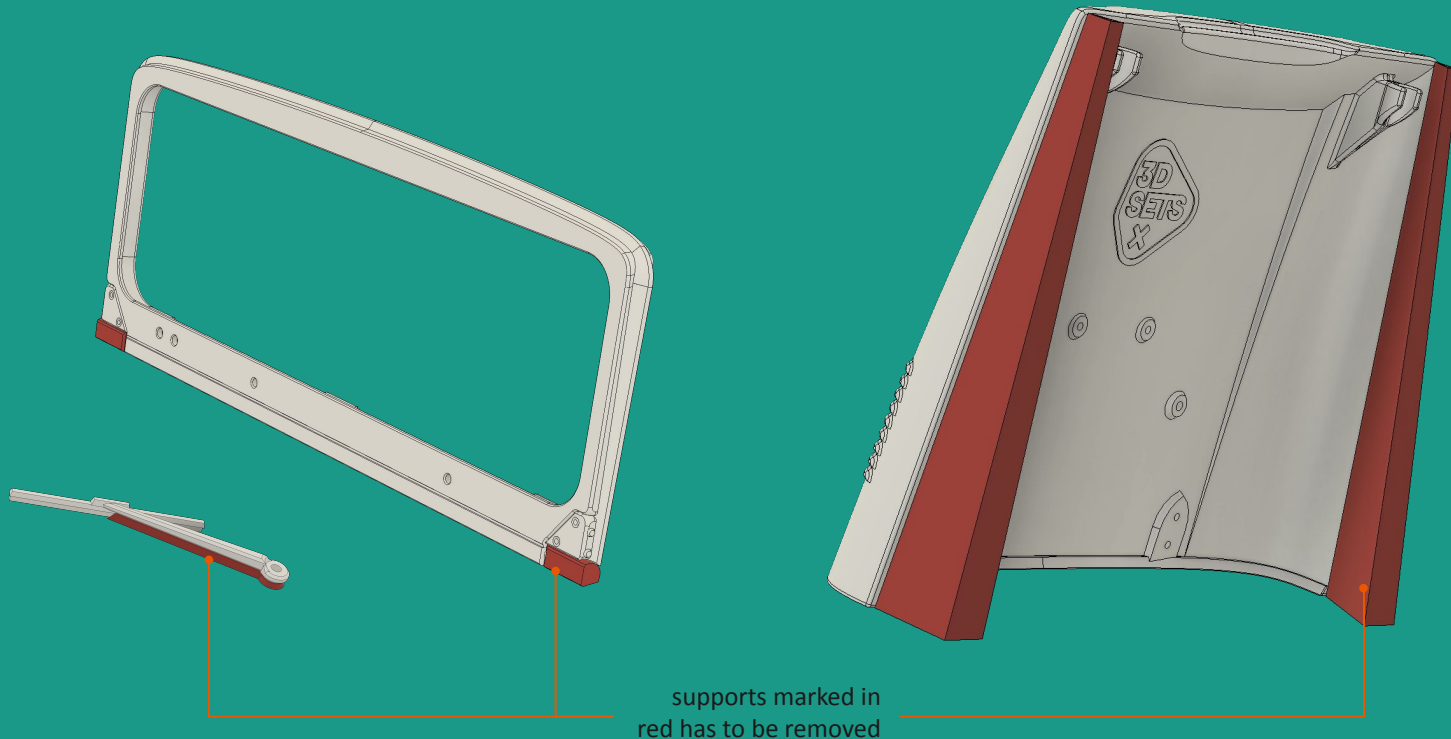
Non-printed parts:

- Screw M2x6: 8 pcs.
- Screw M2x8: 2 pcs.
- Screw M2x10: 2 pcs.
- Screw M2x16: 2 pcs.

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# Postprocessing – removing supports

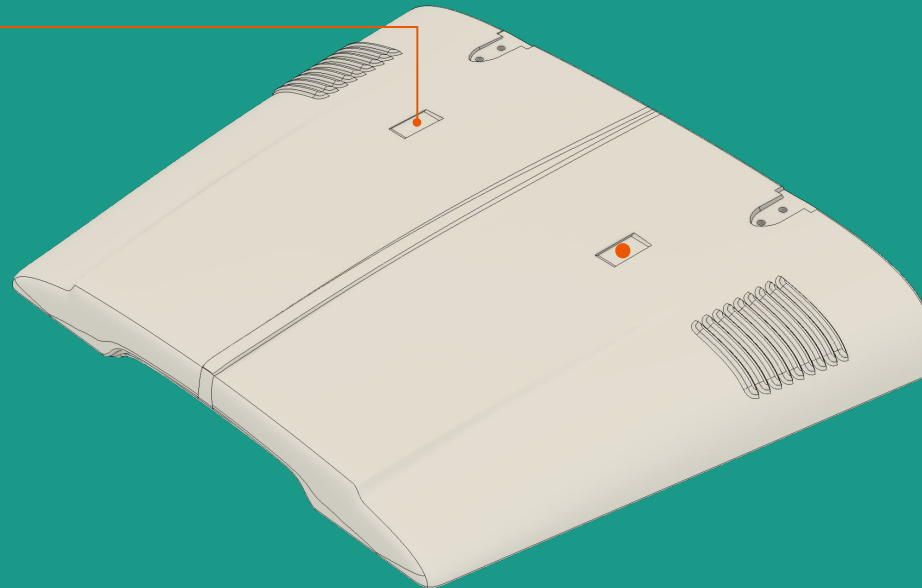
Before you start building, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!



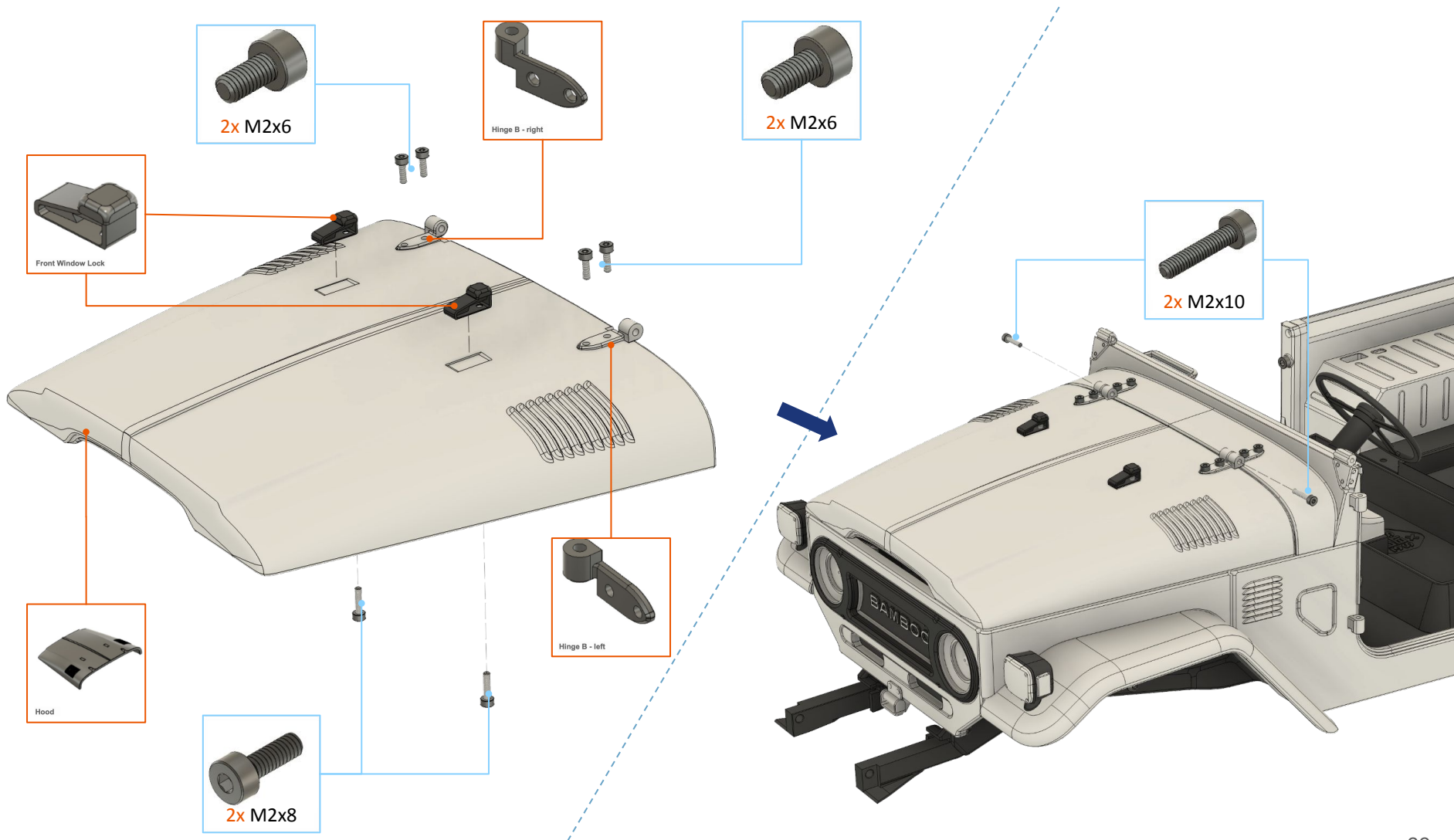
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# Postprocessing – drilling holes

Please carefully drill through the marked holes that have not been printed through to make printing easier.



# Hood - step 1-2/2

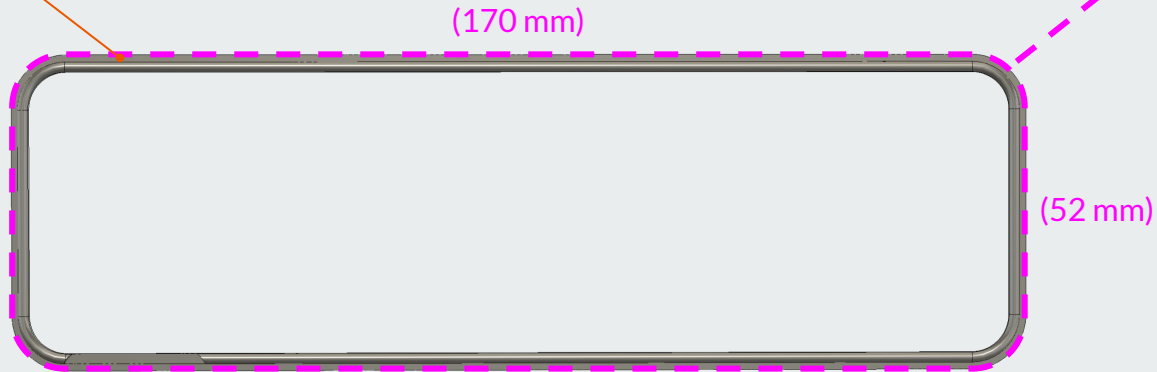
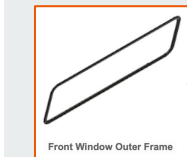




# Front Window Glass

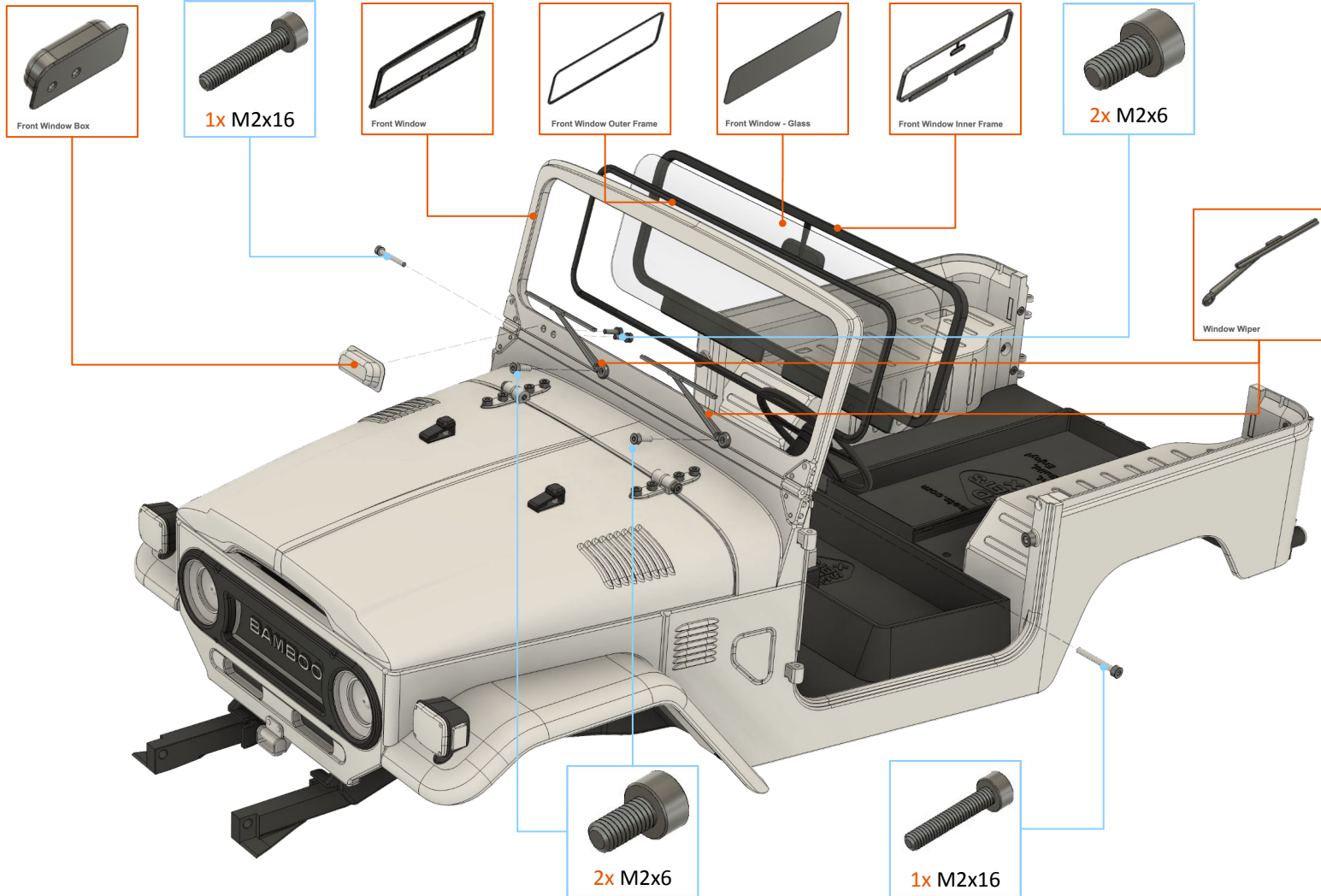
At first, you will make a “glass” from any transparent foil up to 0.5 mm thick. Thicker material is more durable than thinner, but we found that “Clear Binding Covers” are OK.

Place the printed template on the foil, sketch the shape to foil and then cut the foil by scissors or sharp knife.



3d print the template and then use the sheet of transparent foil, max. 0.5 mm thick.

# Front Window



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# Bamboo 4x4 – Bumpers & Exhaust

In this procedure you will assemble the Bumpers of the car and Exhaust.

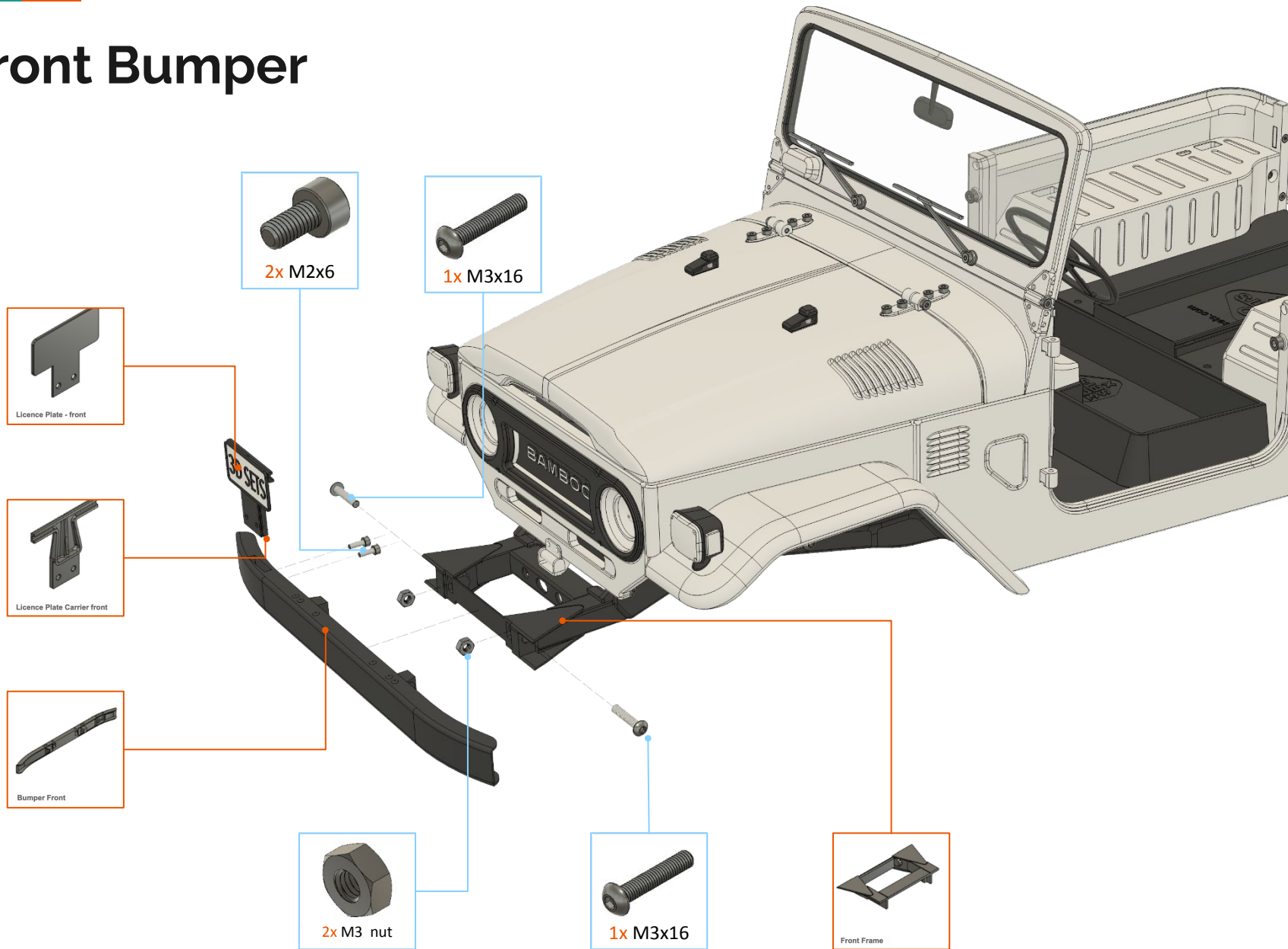
Required print plates:

- “Print 14 - Lights 2 + Licence Plate”
- “Print 19 - Bumpers + Details 2”
- “Print 35 - Licence Plate”

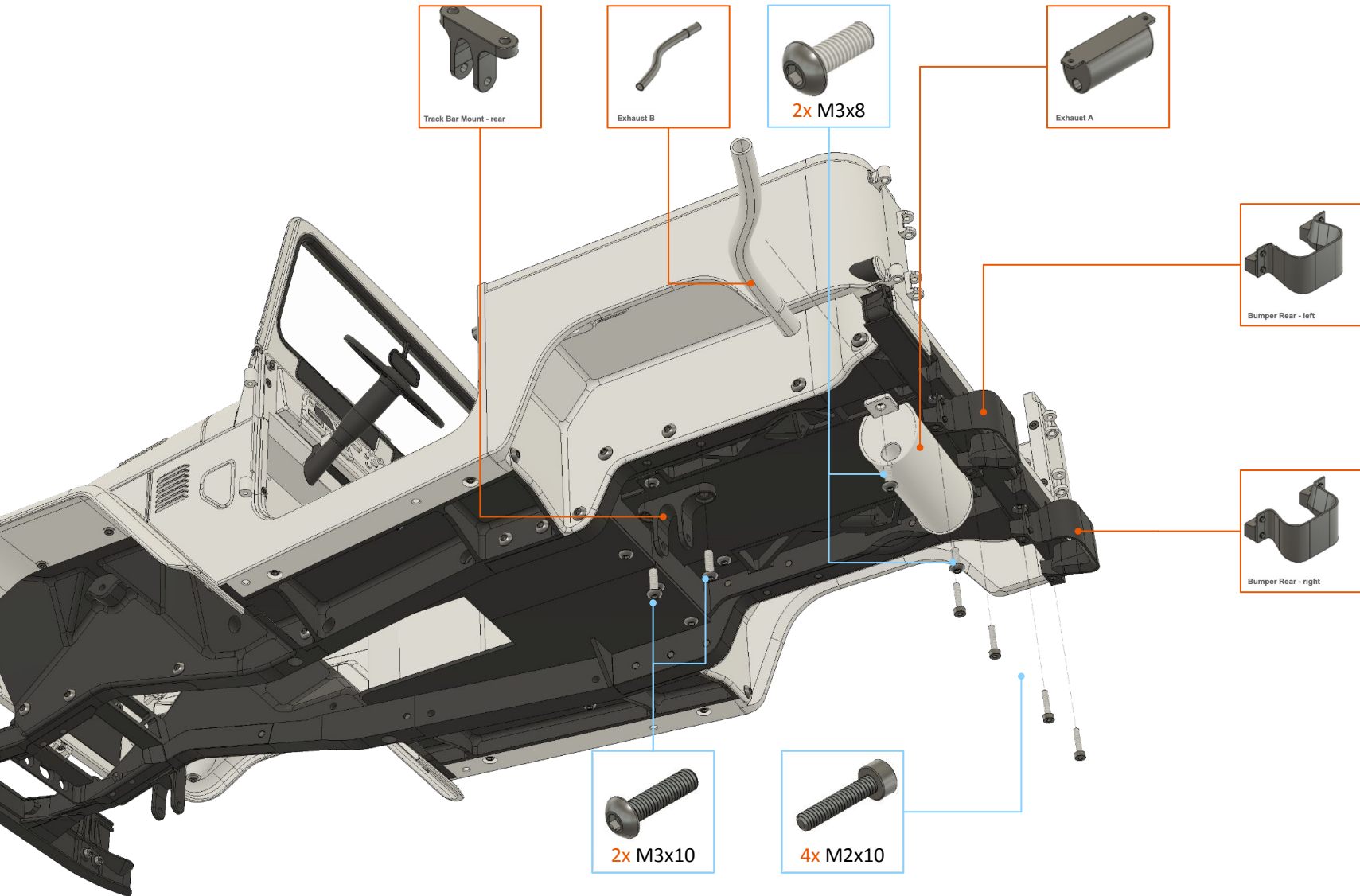
Non-printed parts:

- Screw M2x6: 2 pcs.
- Screw M2x10: 4 pcs.
- M3 nut: 2 pcs.
- Screw M3x8: 2 pcs.
- Screw M3x10: 2 pcs.
- Screw M3x16: 2 pcs.

# Front Bumper



# Rear Bumper & Exhaust



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# Bamboo 4x4 – Seats

In this procedure you will assemble the car Seats.

Required print plates:

- “Print 17 - Front Seat Box + Spare Wheel Carrier”
- “Print 20 - Seats”
- “Print 21 - Rear Seats - frame”

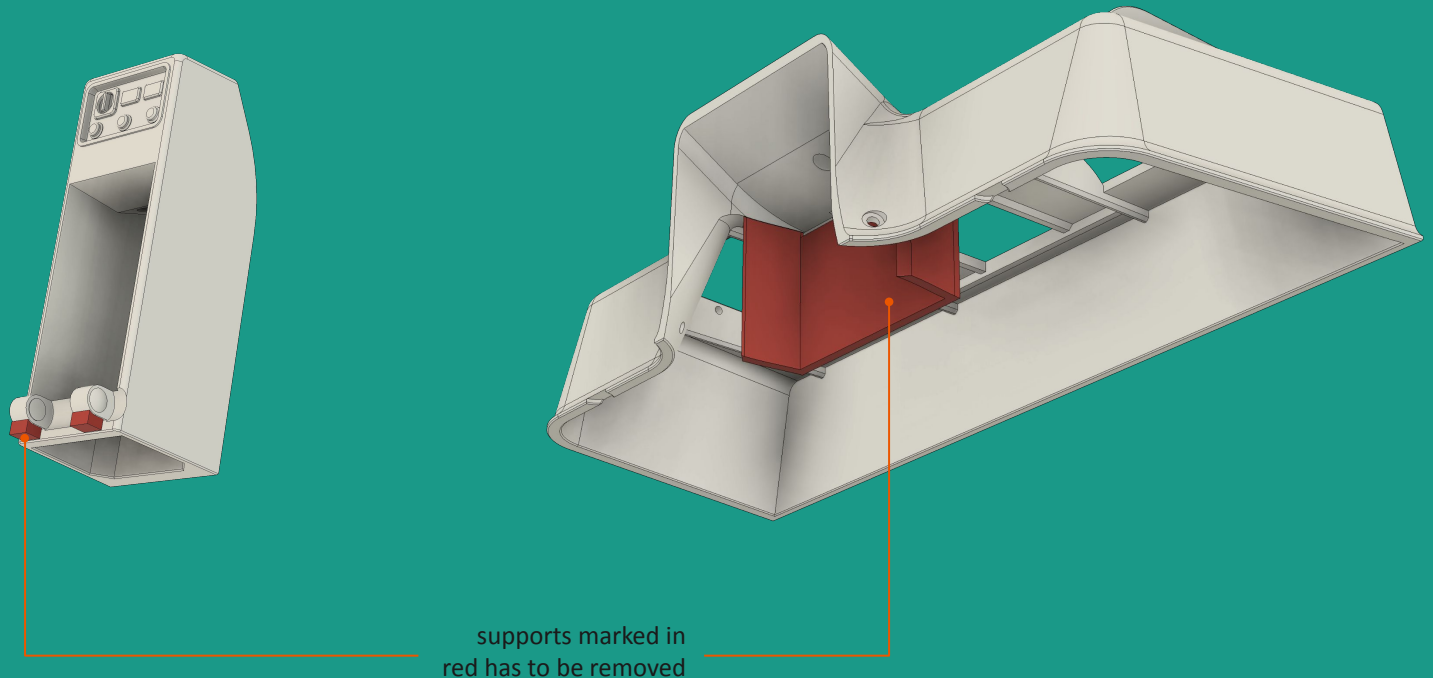
Non-printed parts:

- Screw M2x6: 10 pcs.
- Screw M2x8: 5 pcs.
- Screw M2x10: 1 pcs.
- Screw M3x8: 4 pcs.
- Screw M3x12: 4 pcs.

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# Postprocessing – removing supports

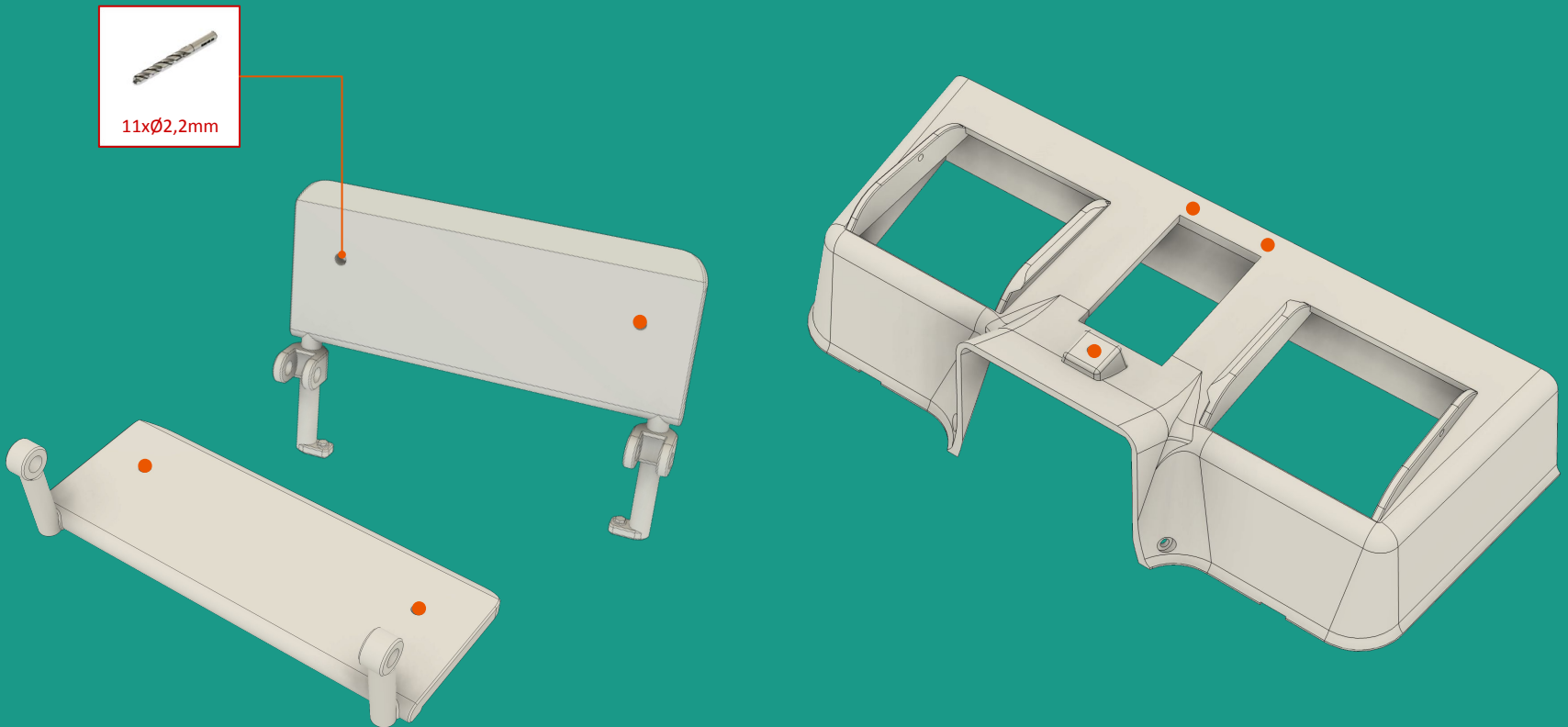
Before you start building, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!



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# Postprocessing – drilling holes

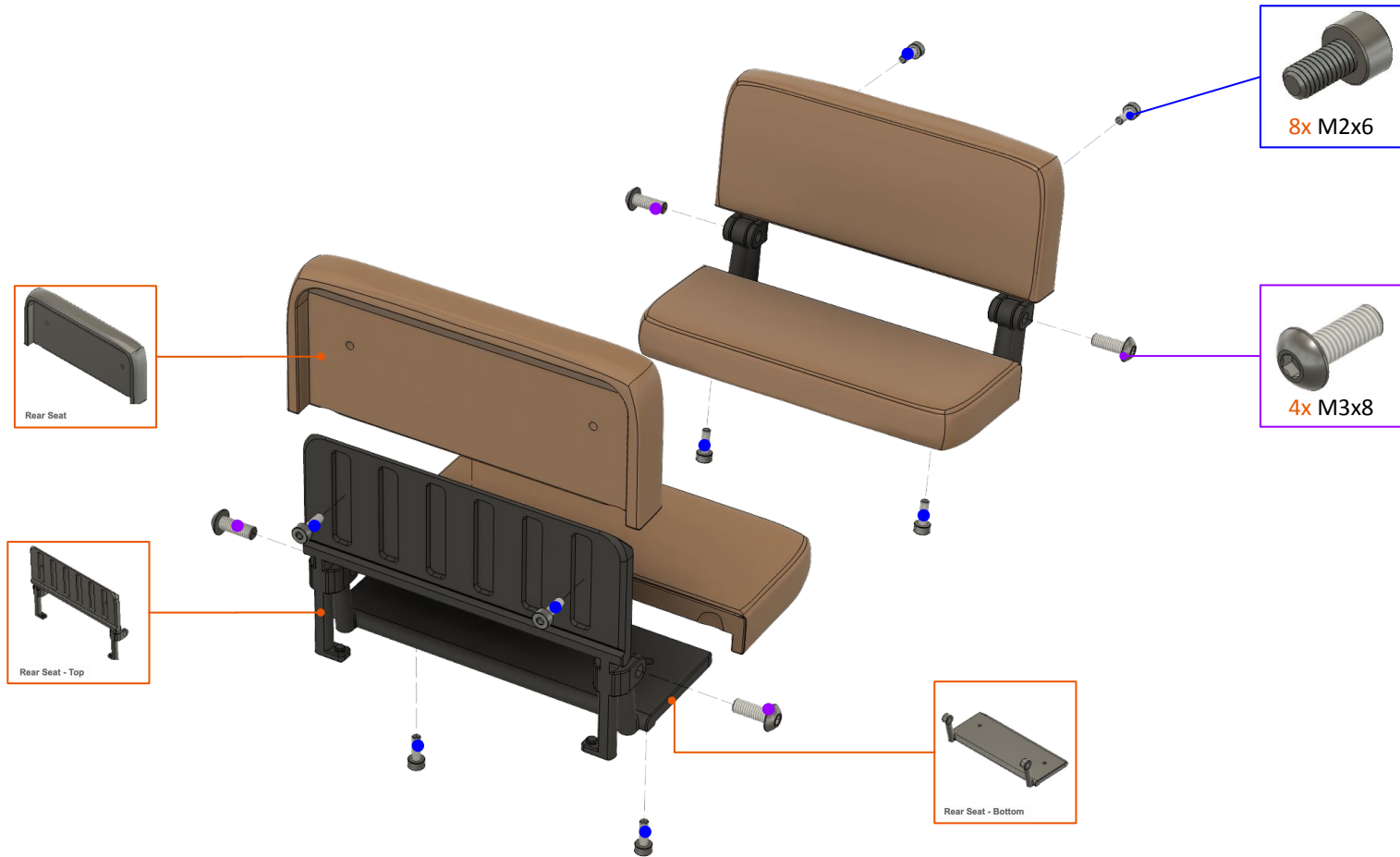
Please carefully drill through the marked holes that have not been printed through to make printing easier.





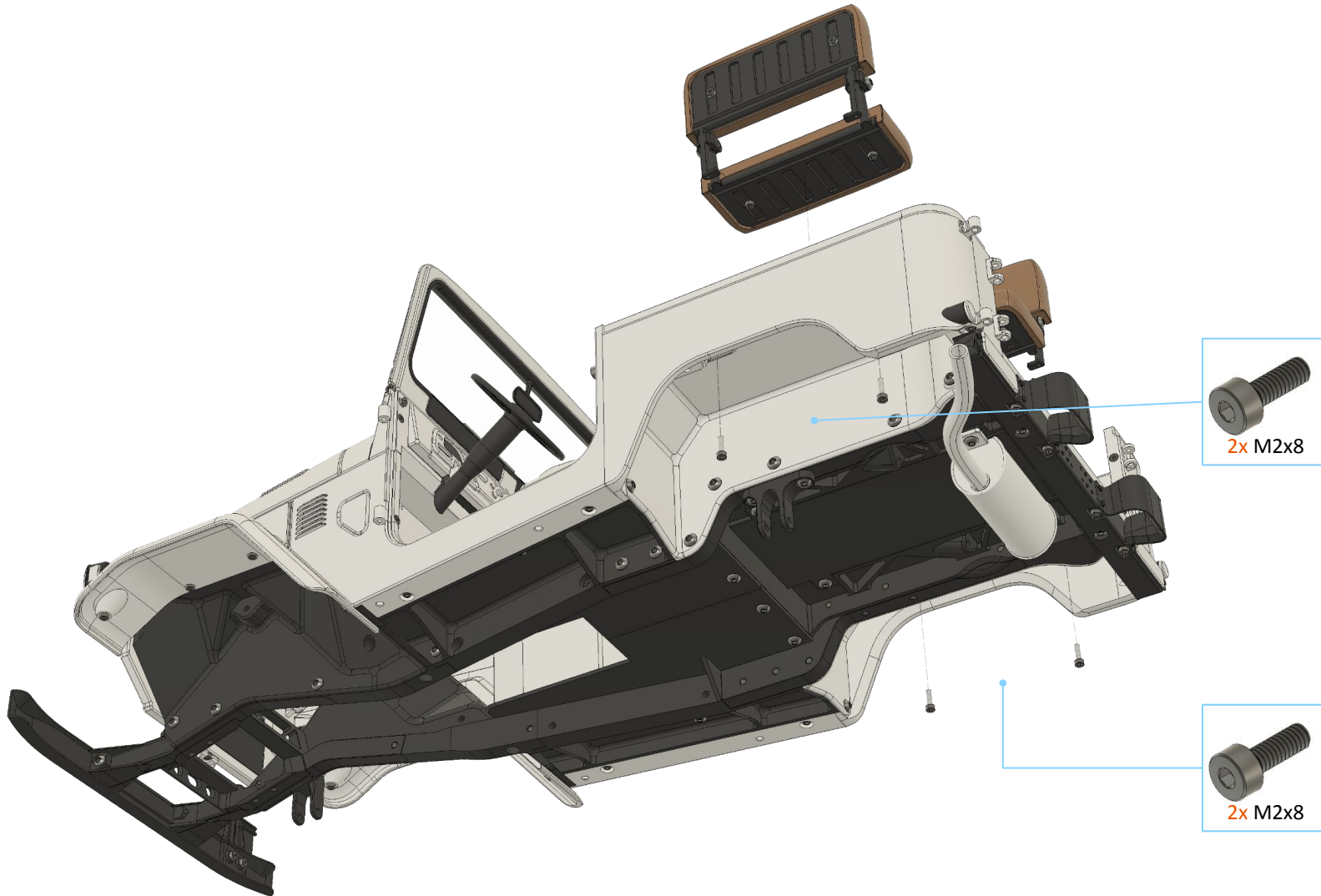


# Rear Seats – step 1/2





# Rear Seat – step 2/2



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# Bamboo 4x4 – Roll Cage

In this procedure you will assemble the Roll Cage.

Required print plates:

- “Print 22 - Roll Cage”

Non-printed parts:

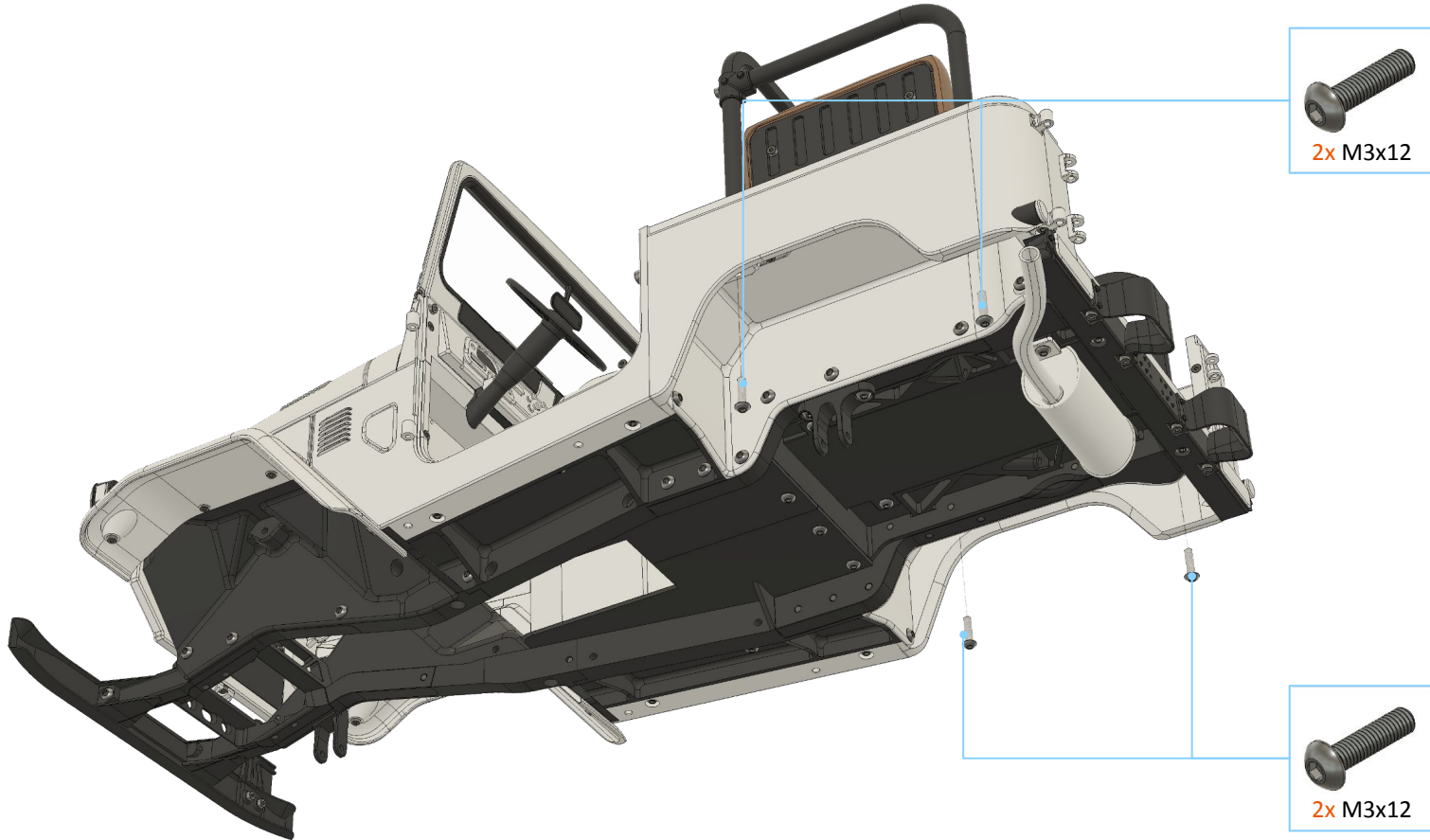
- Screw M2x16: 2 pcs.
- Screw M3x12: 4 pcs.

# Roll Cage – step 1/2





# Roll Cage – step 2/2



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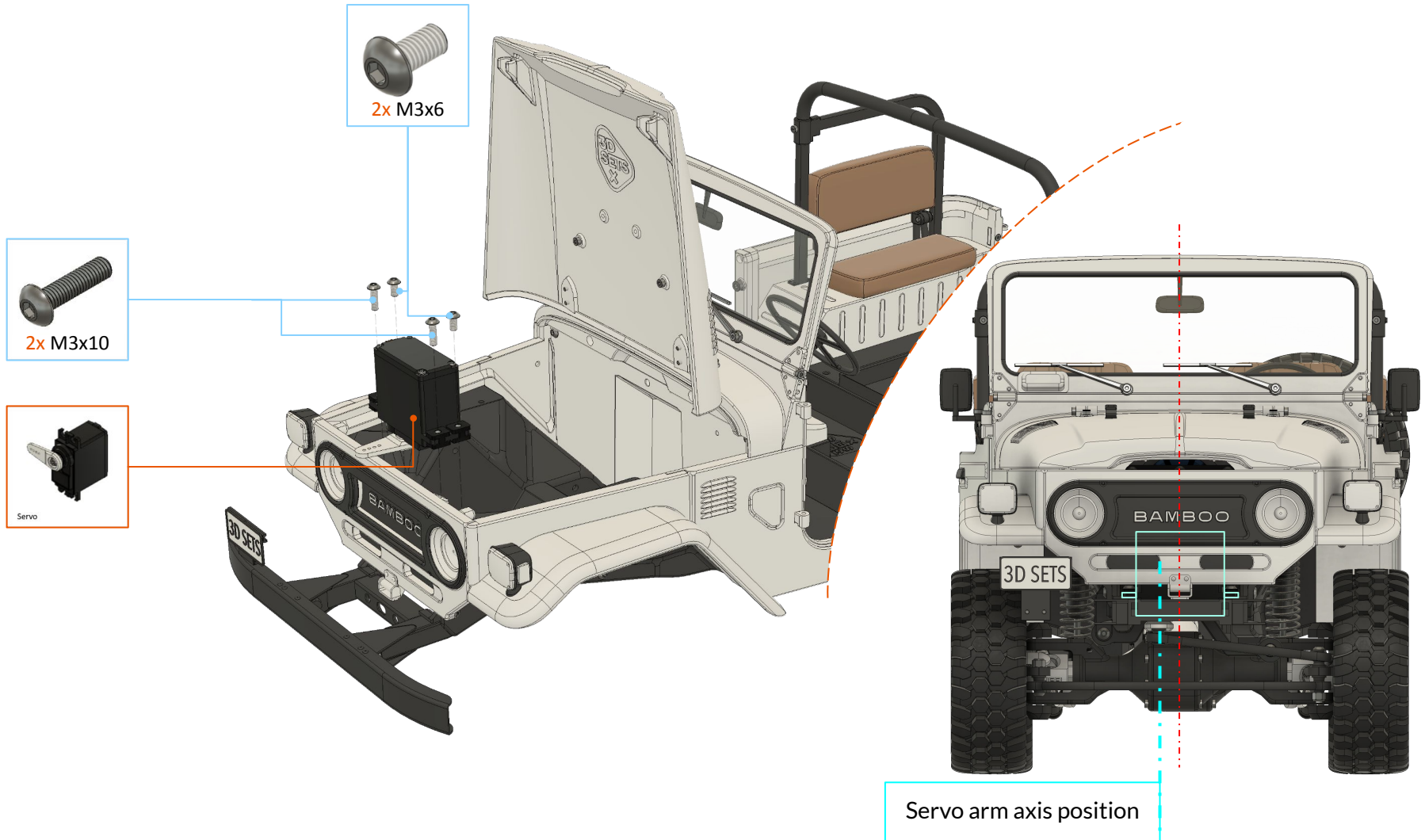
# Bamboo 4x4 – Steering Servo Installation

In this procedure install electronic steering servo.

Non-printed parts:

- Screw M3x6: 2 pcs.
- Screw M3x10: 2 pcs.
- Steering Servo

# Steering Servo installation





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# Axle Arms

In this procedure you will assemble the Axle Arms and Steering Rods. These parts consists of “arms” and “ball joints” and they need to be pressed together.

Required print plates:

- “Print 0 - Calibration”
- “Print 1 - Chassis 1”

Non-printed parts:

- Grease
- Any Hammer or Vise (for pressing)

# Arms + Ball joints

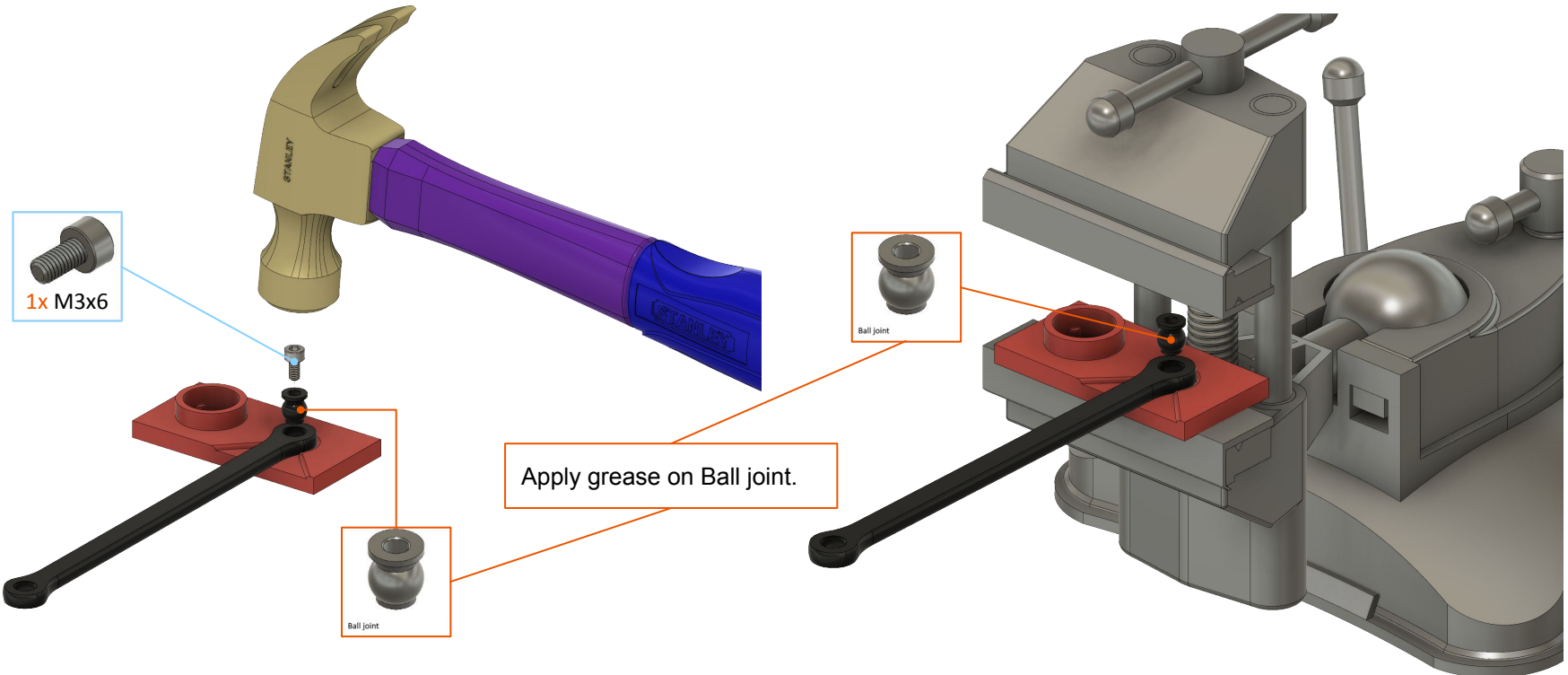
## Option A: use a hammer

Be careful as you can break the arm if you use too much force!

Press Ball joints in arm ends. Pay attention to combine parts correctly!  
Ball joints requires correct orientation on specific arms – check next page!

## Option B: use a Vise

This is a preferred method as you can proceed slowly.

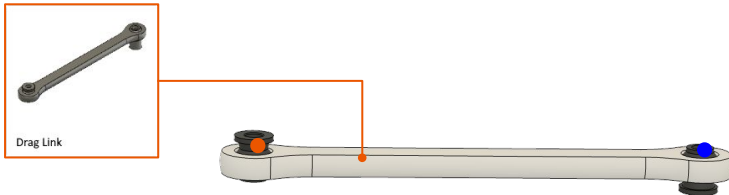
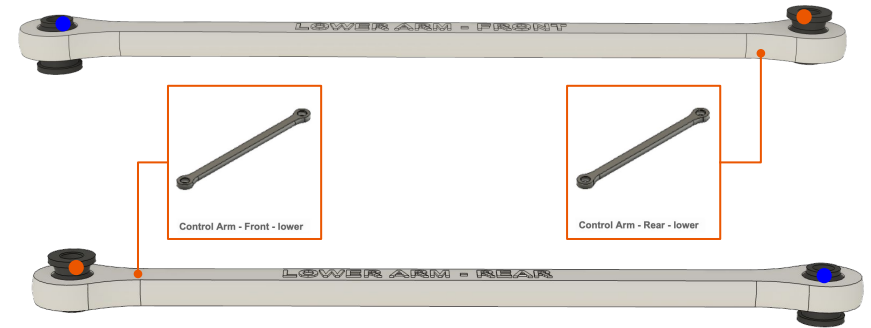
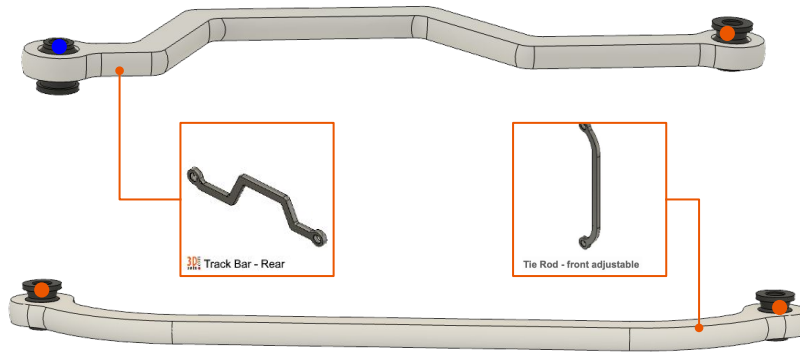
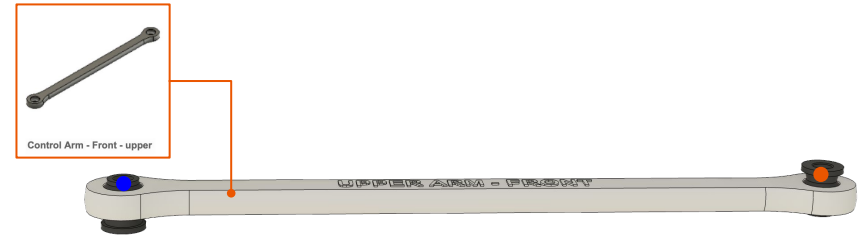
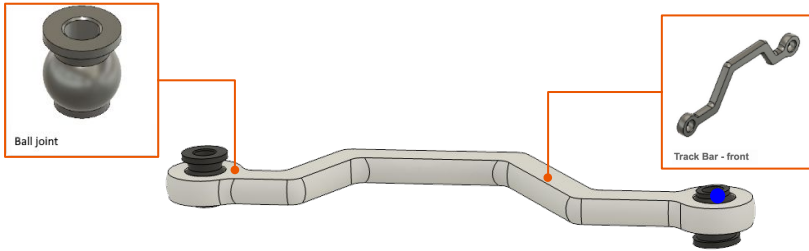


[See this step on YouTube video](#)



# Arms + ball joints

On the pictures below are rendered final Rear Arms assemblies. Please note that some Rear Arms requires opposite Ball joint orientation!



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# Bamboo 4x4 – Centre of the Chassis

In this procedure you will assemble the Centre of the Chassis with Arms.

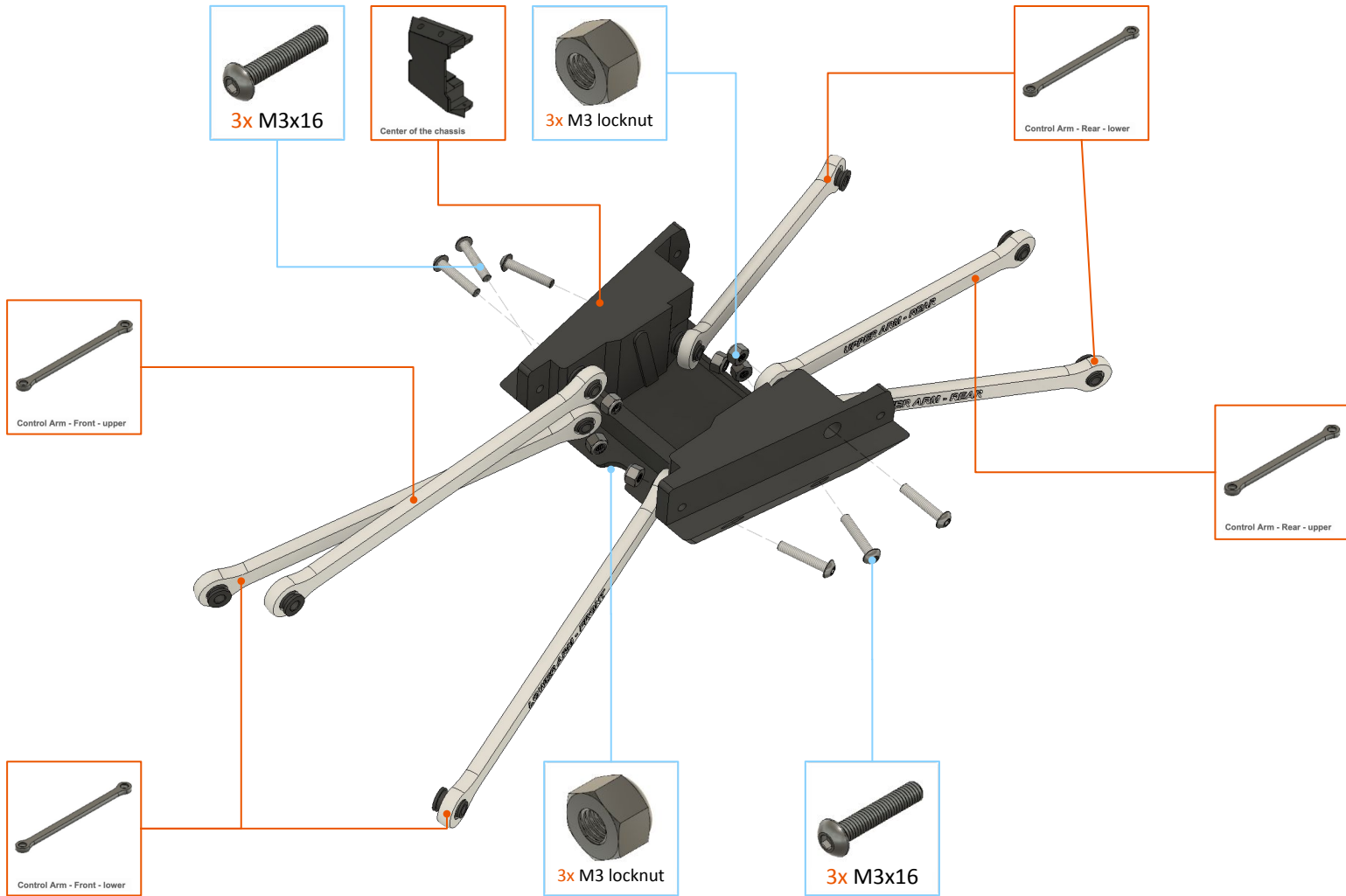
Required print plates:

- “Print 1 - Chassis 1”
- “Print 2 - Chassis 2”

Non-printed parts:

- Screw M3x16: 6 pcs.
- M3 Lock Nut: 6 pcs.

# Centre of the Chassis



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# Bamboo 4x4 – Gearbox choice

There are two different gearboxes available for Bamboo 4x4:

new *BeltDrive 4x4*  
classic *Geared Gearbox*

New *BeltDrive 4x4* features:

- silent running
- brushless 3530 motor compatible
- requires timing belts HTD 144-3M-06
- easy to print
- 2S-3S battery compatible
- slightly faster than geared gearbox
- can be printed from various filaments

*New BeltDrive 4x4* is **recommended choice**. It can handle more power (up to 3S battery) and is very silent. *It is compatible with all 3D Sets 4x4 models.*

For *BeltDrive 4x4*, [proceed to next page \(55\).](#)

Classic *Geared Gearbox* features:

- noisier than *BeltDrive4x4*
- 540-size DC 27T motor compatible
- uses 3D printed gears
- requires more 3D printing experience
- 2S battery compatible
- slower than *BeltDrive 4x4* gearbox
- requires high-quality PLA or high-strength filament (PC Blend, Nylon..)

Classic *Geared Gearbox* is **good choice** if you have **previous experience with** and if you require 540 DC 27T motor and maximum precision of throttle response.

For *Geared Gearbox*, [proceed to page 70.](#)



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# BeltDrive 4x4 Gearbox

In this 8-step procedure you will assemble belted gearbox with the motor. The whole gearbox can be printed from PLA, unless you will drive in some extreme conditions or in very hot environment. To complete this task, get the following parts ready:

Required print plates:

- “Print 23A - Belt Drive Gearbox - 1”
- “Print 24A - Belt Drive Gearbox - 2”
- “Print 25 - Shafts”

Non-printed parts:

- Screw M3x6: 3 pcs.
- Screw M3x8: 9 pcs.
- Screw M3x10: 2 pcs.
- Screw M3x12: 8 pcs.
- Screw M3x16: 8 pcs.
- Screw M3x25: 6 pcs.
- M3 nuts: 22 pcs.
- Electric motor: 1 pc.
- Bearings: 10 pcs.
- Timing Belt: 4 pcs.

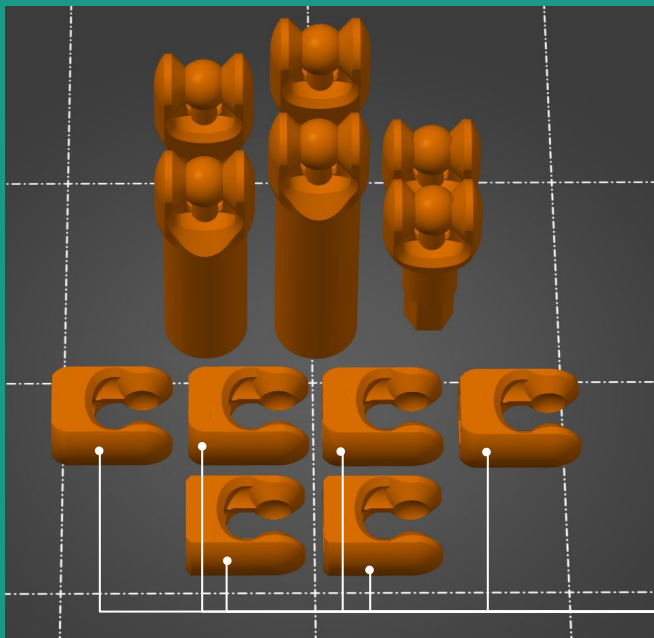


---

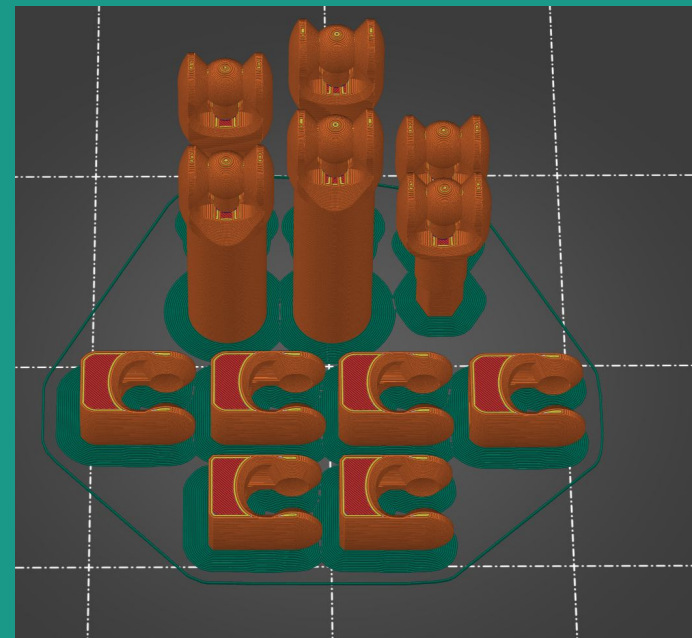
# Shafts

If you will print the part “Shafts” from the .stl file instead of printing from provided gcode, please use following slicer setup:

- Infill density: 100%
- Infill type: Rectilinear
- Perimeters: 3



correct printing bed  
orientation of the  
Drive Shaft - Cardan and  
Front Wheel Shaft –  
marked part **MUST LAY  
FLAT** on the bed!

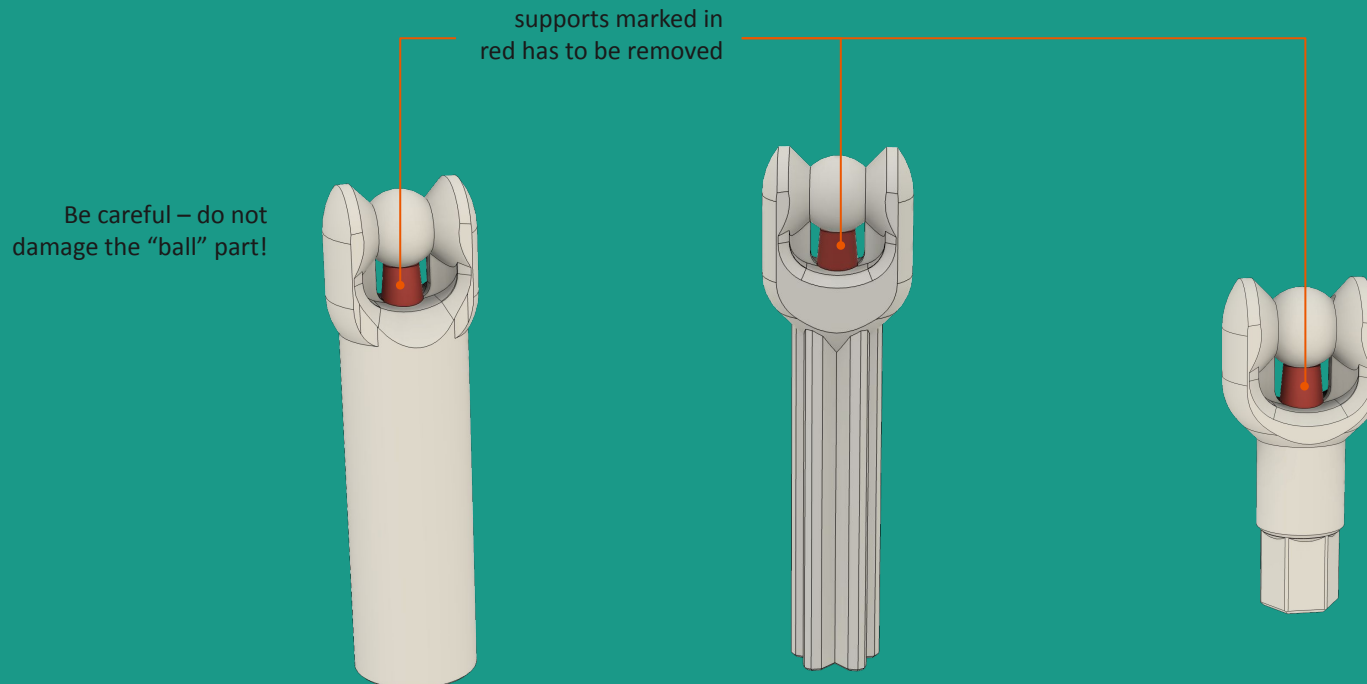




---

# Postprocessing – removing supports

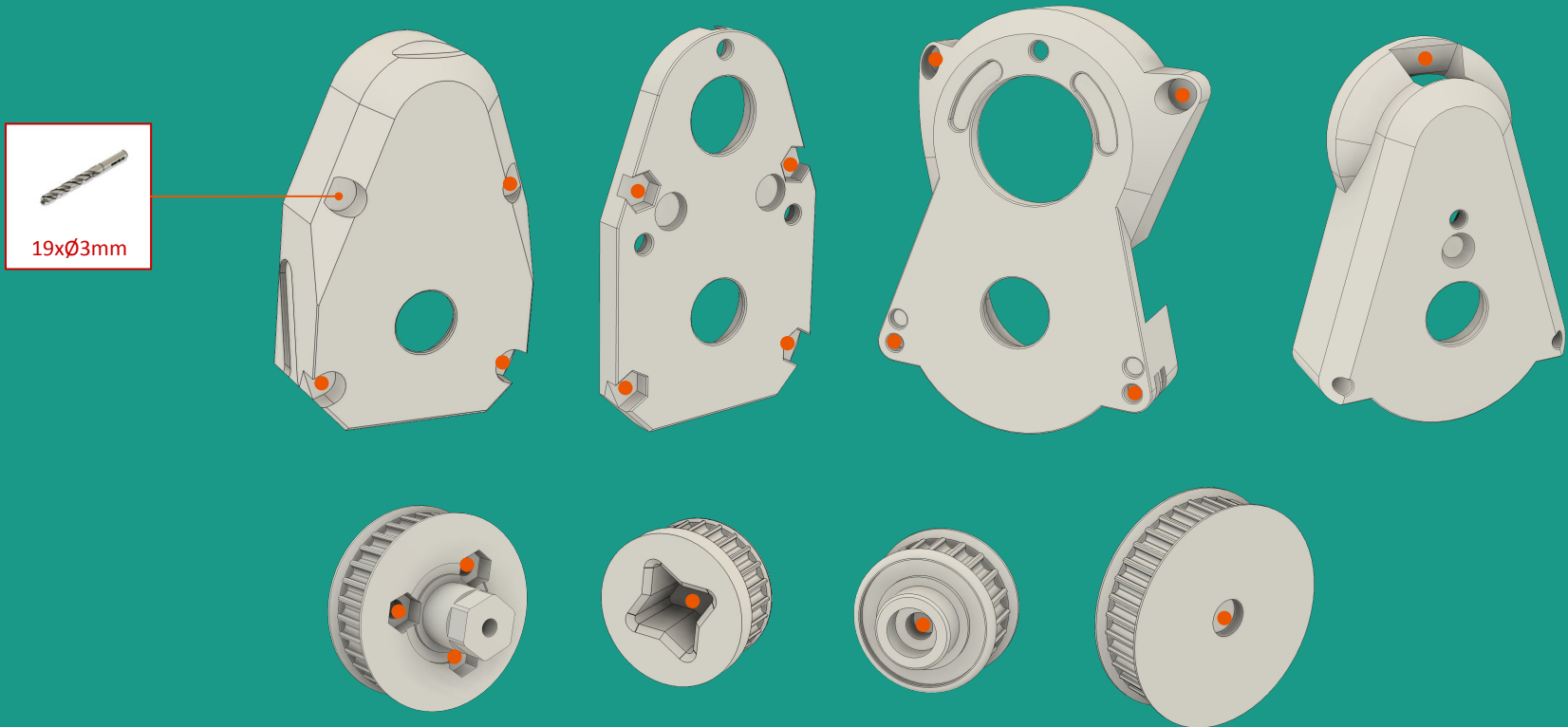
Before you start building, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!



---

# Postprocessing – drilling holes


Please carefully drill through the marked holes that have not been printed through to make printing easier.



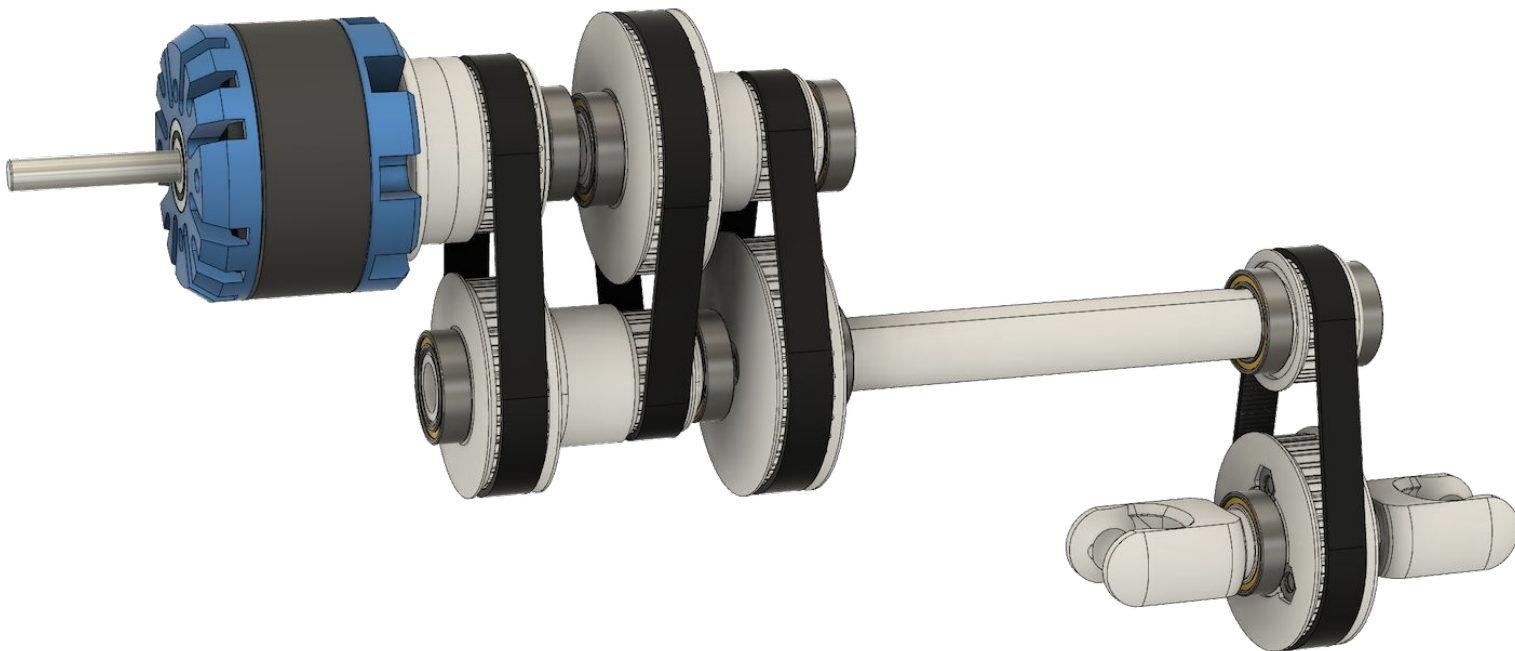
# BeltDrive 4x4 Gearbox – introduction

*BeltDrive 4x4 Gearbox* uses 4 identical timing belts – HTD 144-3M-06 (HTD profile, 144 mm long, 3 mm teeth distance, 6 mm wide).

*BeltDrive 4x4 Gearbox* is **compatible with all 4x4 3D Sets models**, so you can use it in your older Rancher/Landy without any modifications.. With this gearbox model is moving faster and has more power. Gearbox is very **silent and reliable** when assembled properly. Gearbox work with brushless outrunner 750-1000 kV and 2S-3S battery

 Please check motor temperature by hand if you are driving in rough terrain or for long periods! If you are using model in hot weather, please print gearbox case (enclosure) from PET-G or other heat resistant material.

Internal belts/pulley configuration is shown below:



# Important features

## Bearings calibration

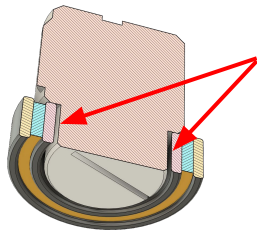
**It is very important to check if small 3d printed shaft ends fit the bearings properly**, because such small printed objects may shrink too much.

There are two sizes of the “Pulley Shaft small” parts (located on print “Belt Drive Gearbox - 2”):

“S” = standard size; “L = larger size



Please try if the “S” sized part fits the bearing without any gap. The bearing must hold on place firmly, otherwise, the gearbox can be damaged! If there is any gap between the bearing and printed part, then use a slightly larger “L” sized part.



**Is there any gap? Then use the “L” marked part!**

## Service holes

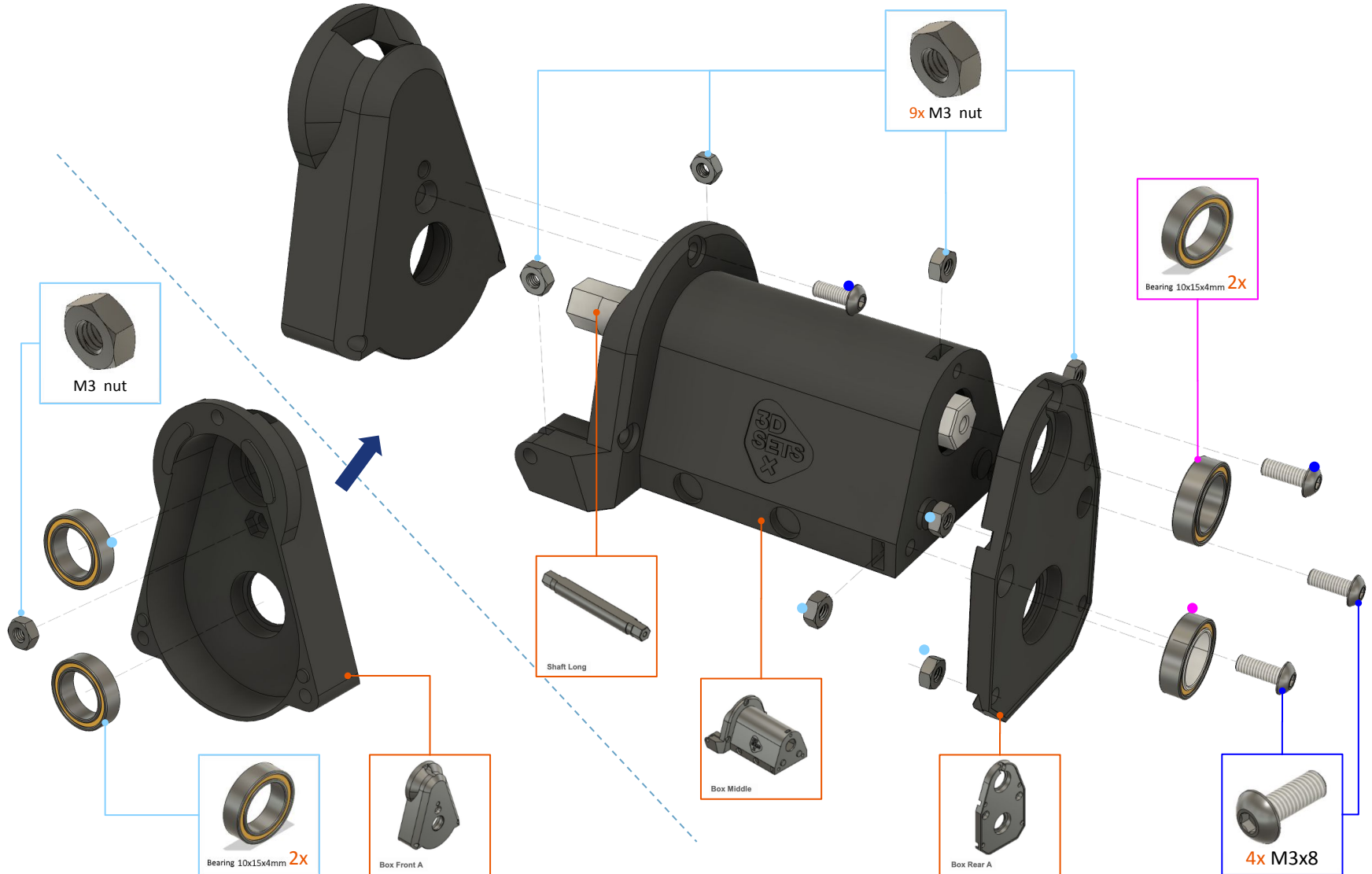
BeltDrive 4x4 v1.1 features 3 service holes with covers. These holes have following purposes:

- to help assembly of the gearbox; you can use the tip of the screwdriver to place belts in their position on the pulleys
- allows you to check the internals of the gearbox without disassembling (heat, noises, wobbling, etc.)

Service holes are marked white on the picture below:



# BeltDrive 4x4 Gearbox – step 1/9



# BeltDrive 4x4 Gearbox – step 2/9

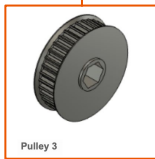
Please secure both screws on shaft with the thread lock and tighten them properly!



Double check that the pulleys are **perpendicular** to the shaft and do not wobble. Make sure there is **NO CONTACT** between the casing walls and the pulleys!

minimum 0.5 mm

minimum 0.5 mm



Pulley 3

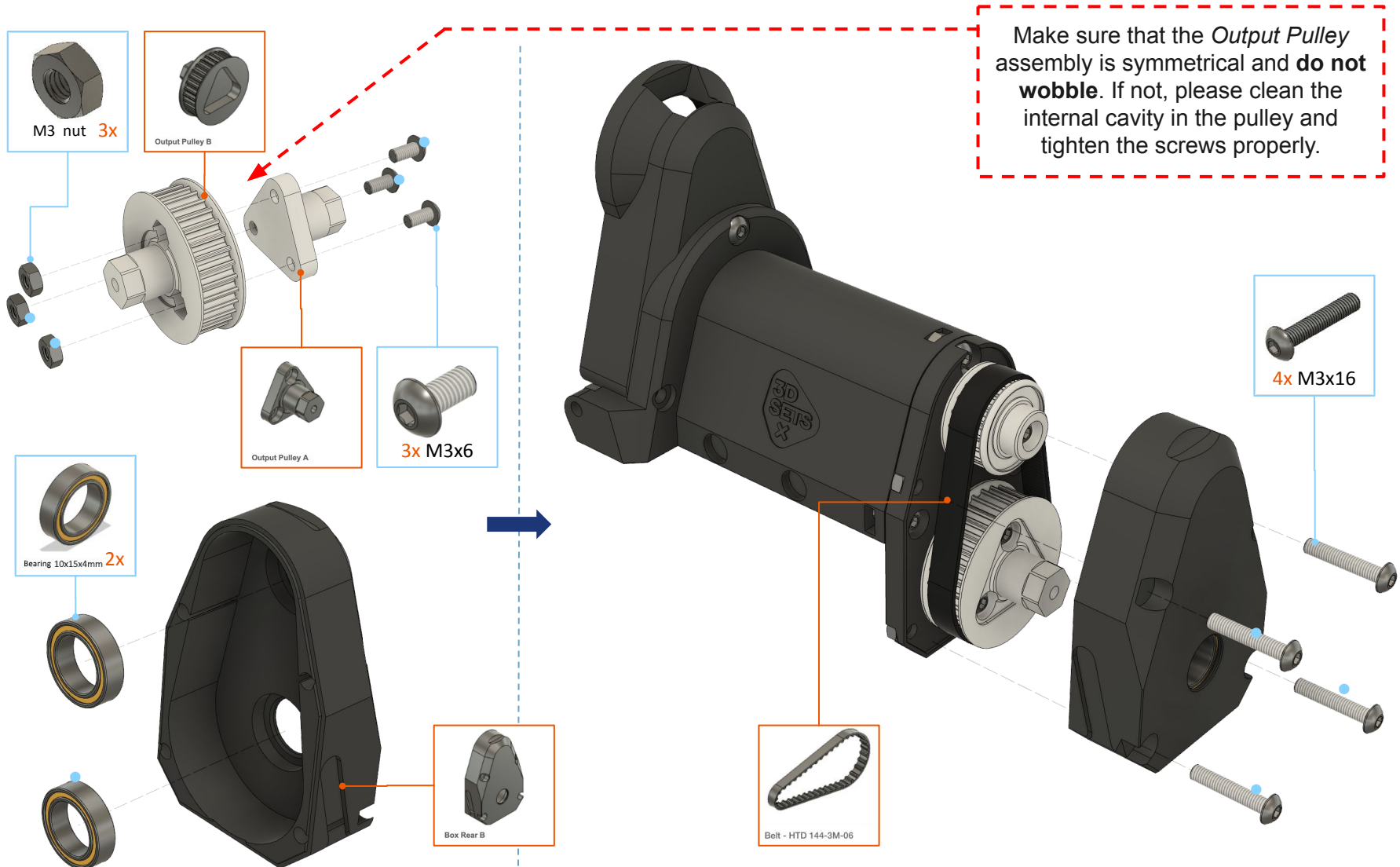


2x M3x12

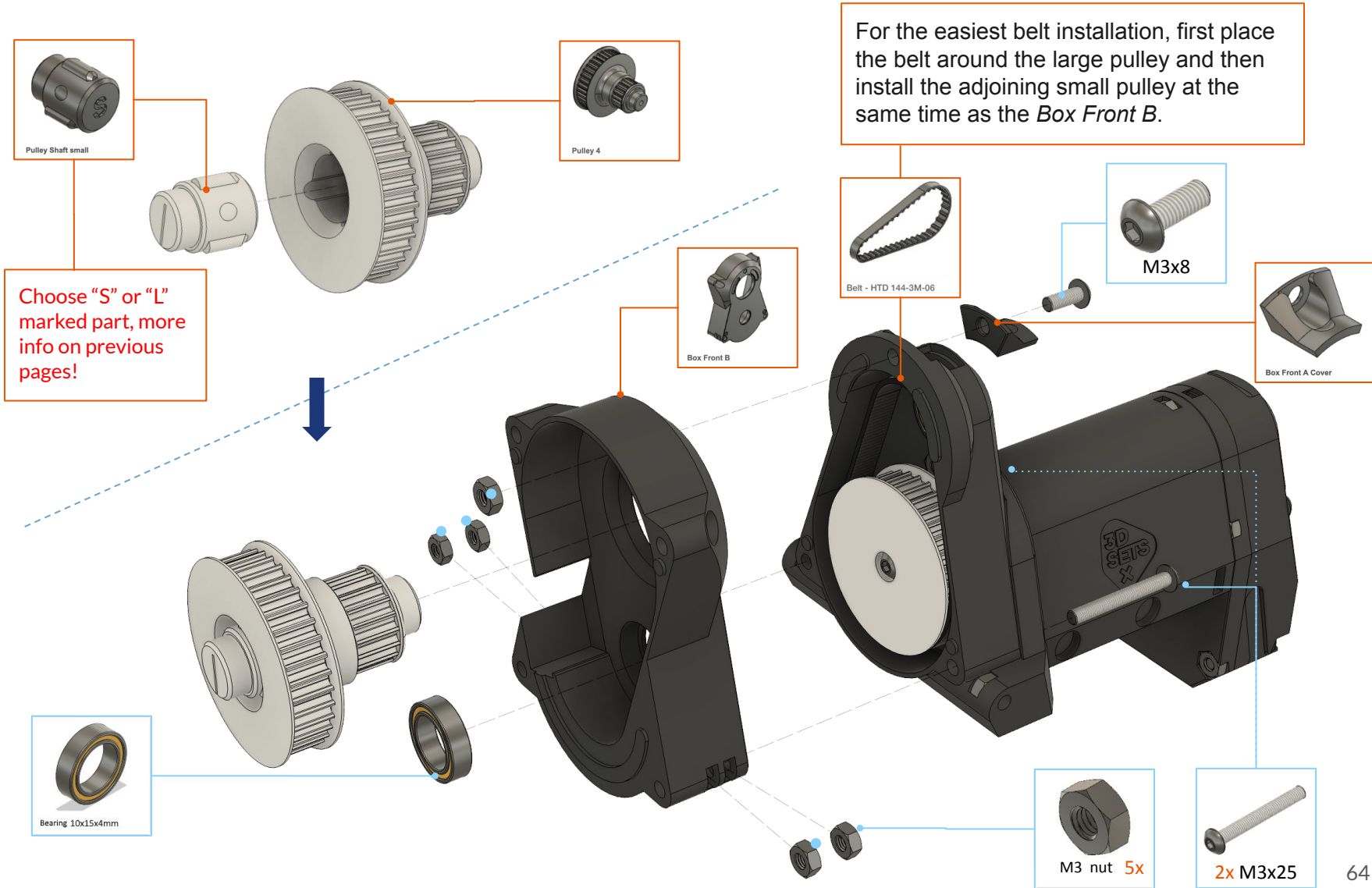


Pulley 2

# BeltDrive 4x4 Gearbox – step 3/9

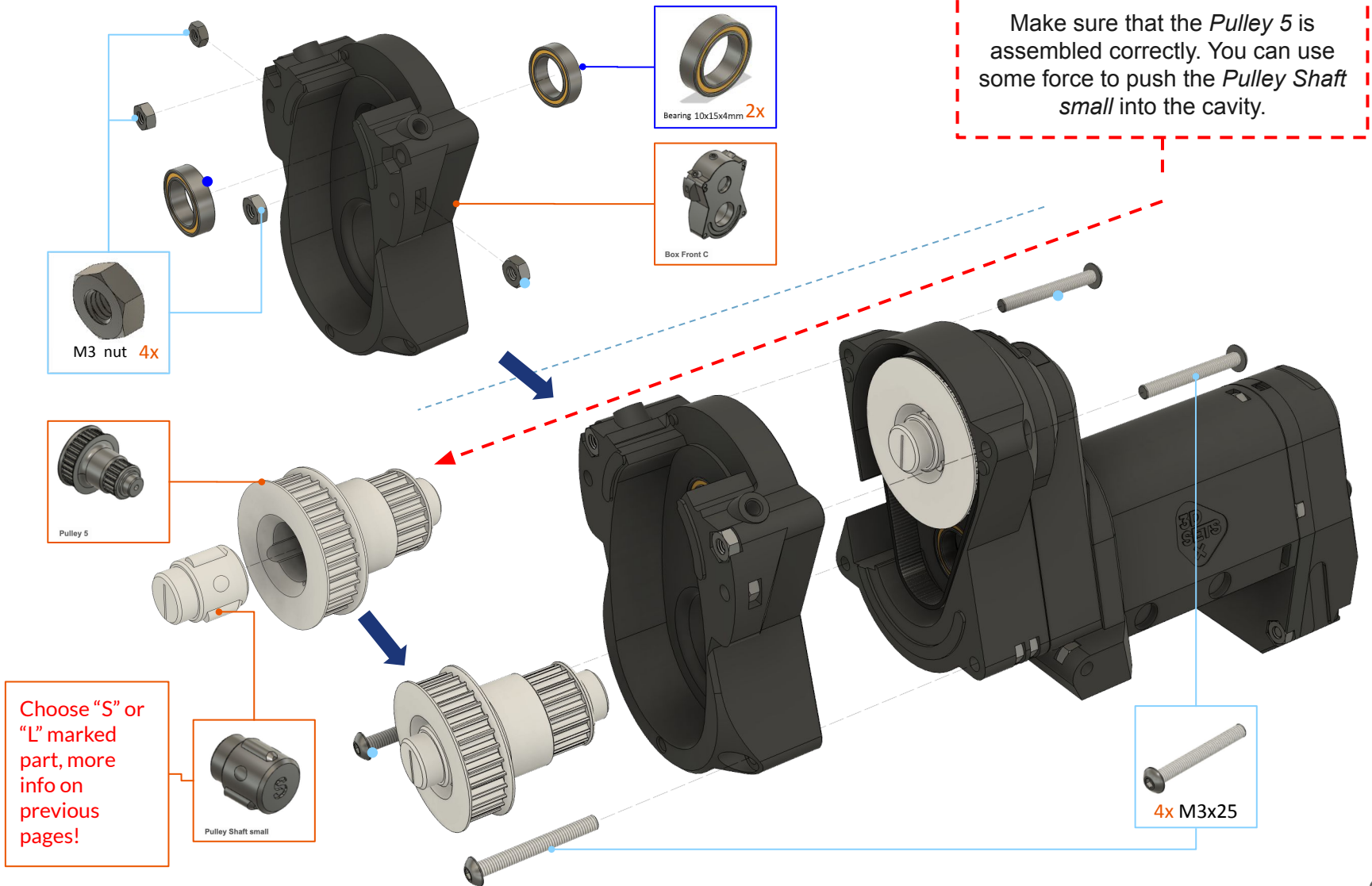


# BeltDrive 4x4 Gearbox – step 4/9

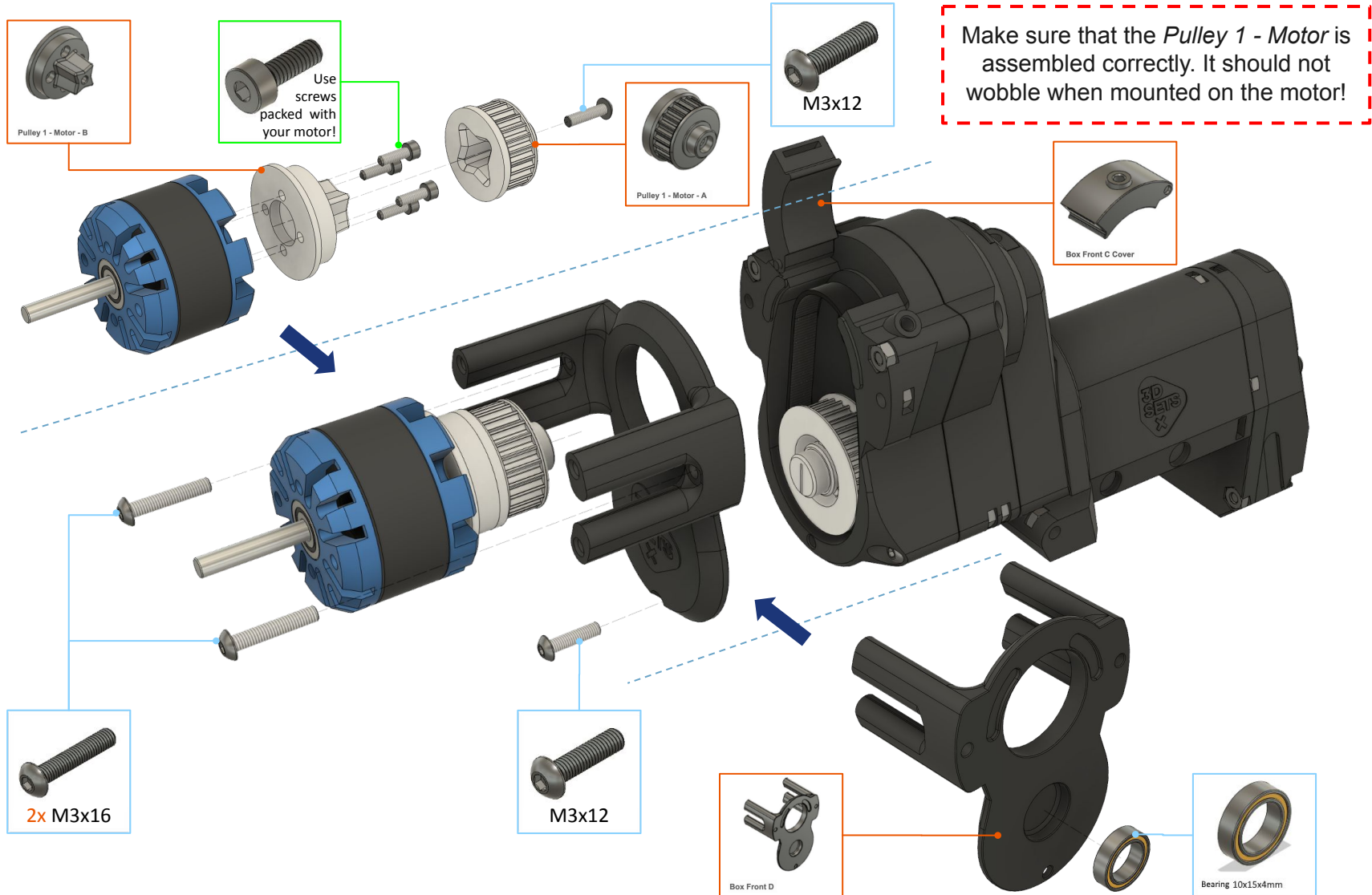




# BeltDrive 4x4 Gearbox – step 5/9

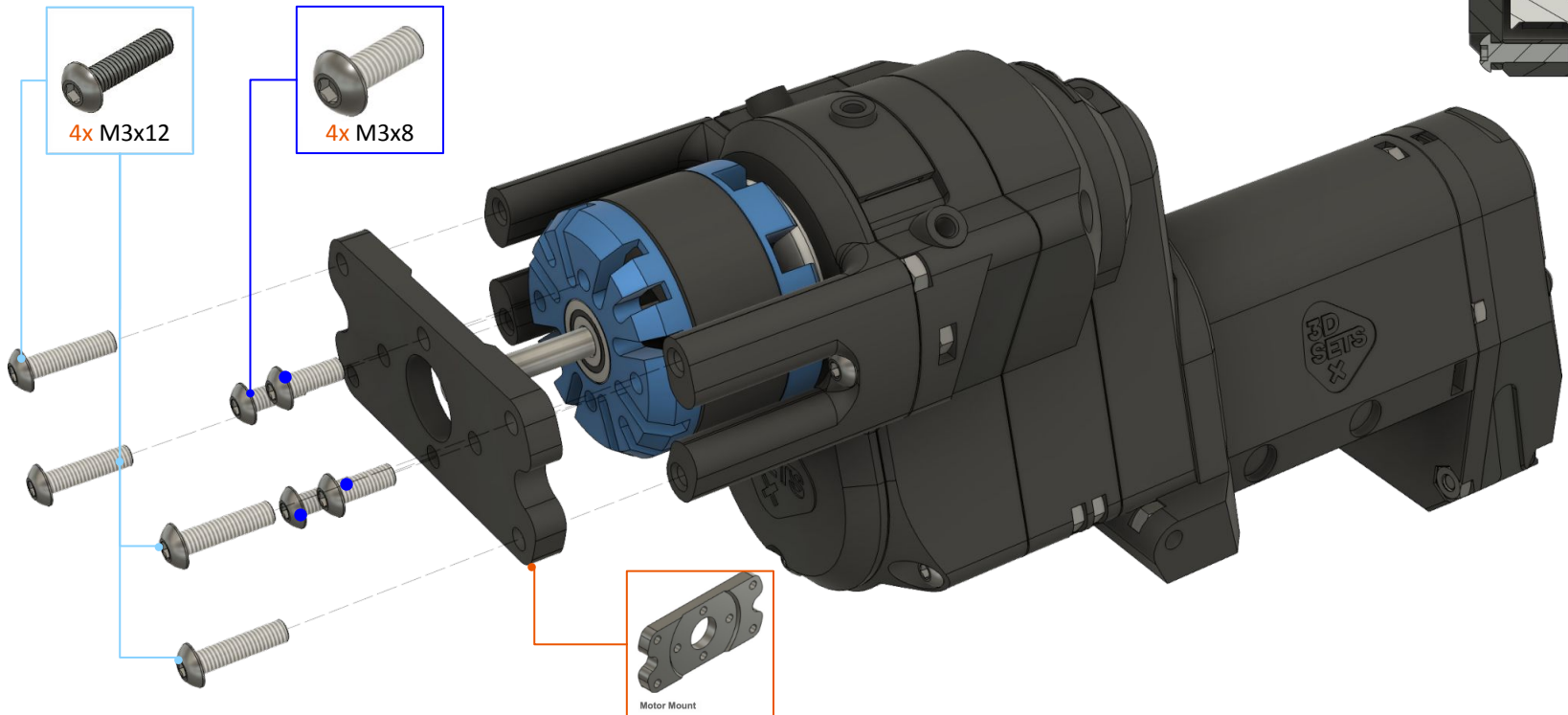
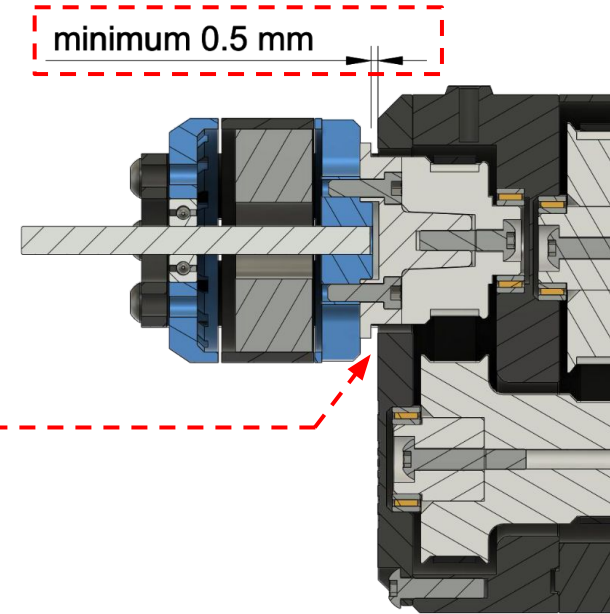


# BeltDrive 4x4 Gearbox – step 6/9



# BeltDrive 4x4 Gearbox – step 7/9

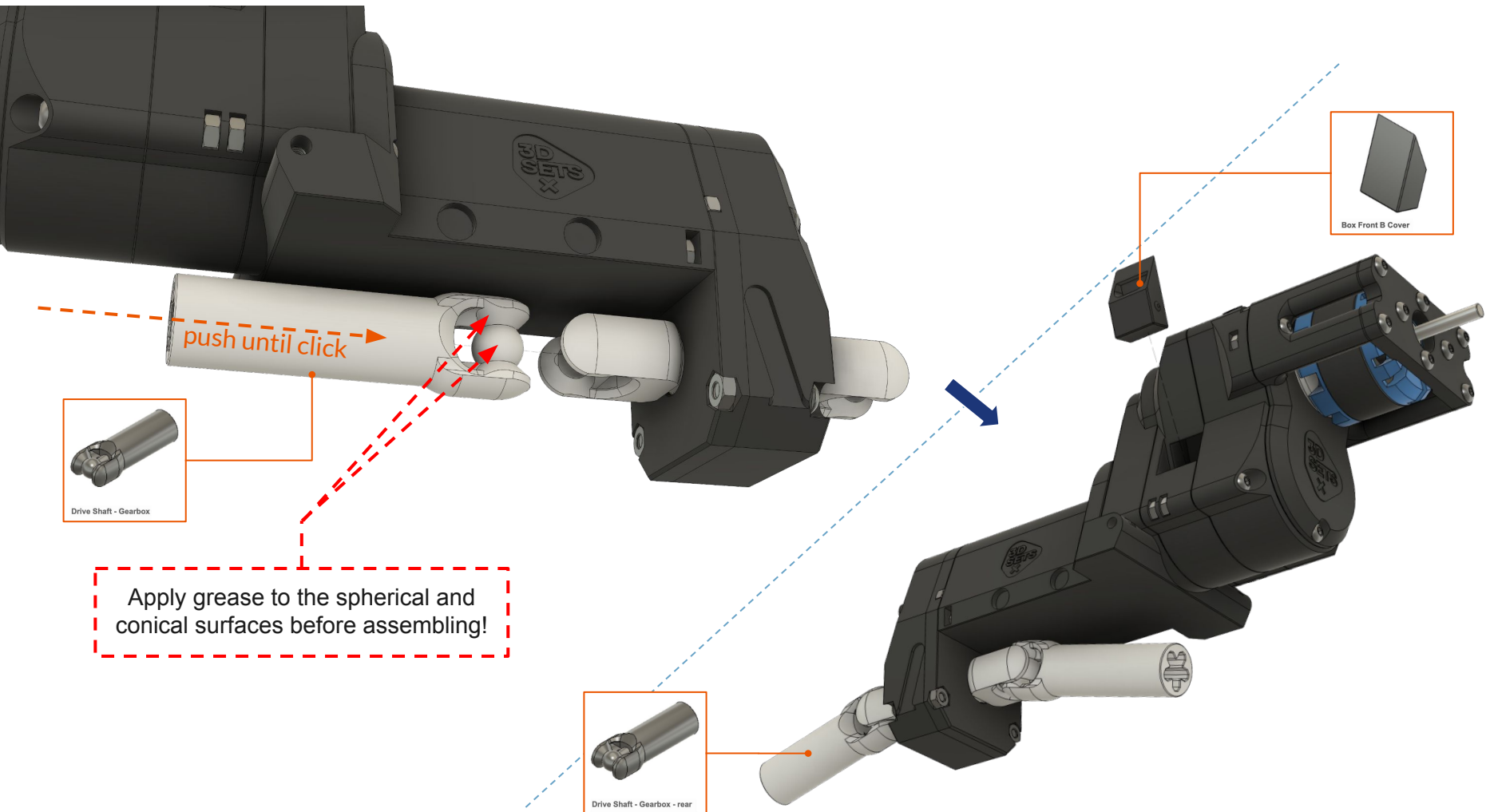
It is very important to check proper motor position - there must be **0.5-1 mm clearance** between the **Pulley 1 - motor rim** and the **Box Front D!** If these parts are too close together, you can adjust their position by underlaying the **Motor Mount** with washers to achieve the correct clearance.



# BeltDrive 4x4 Gearbox – 8/9

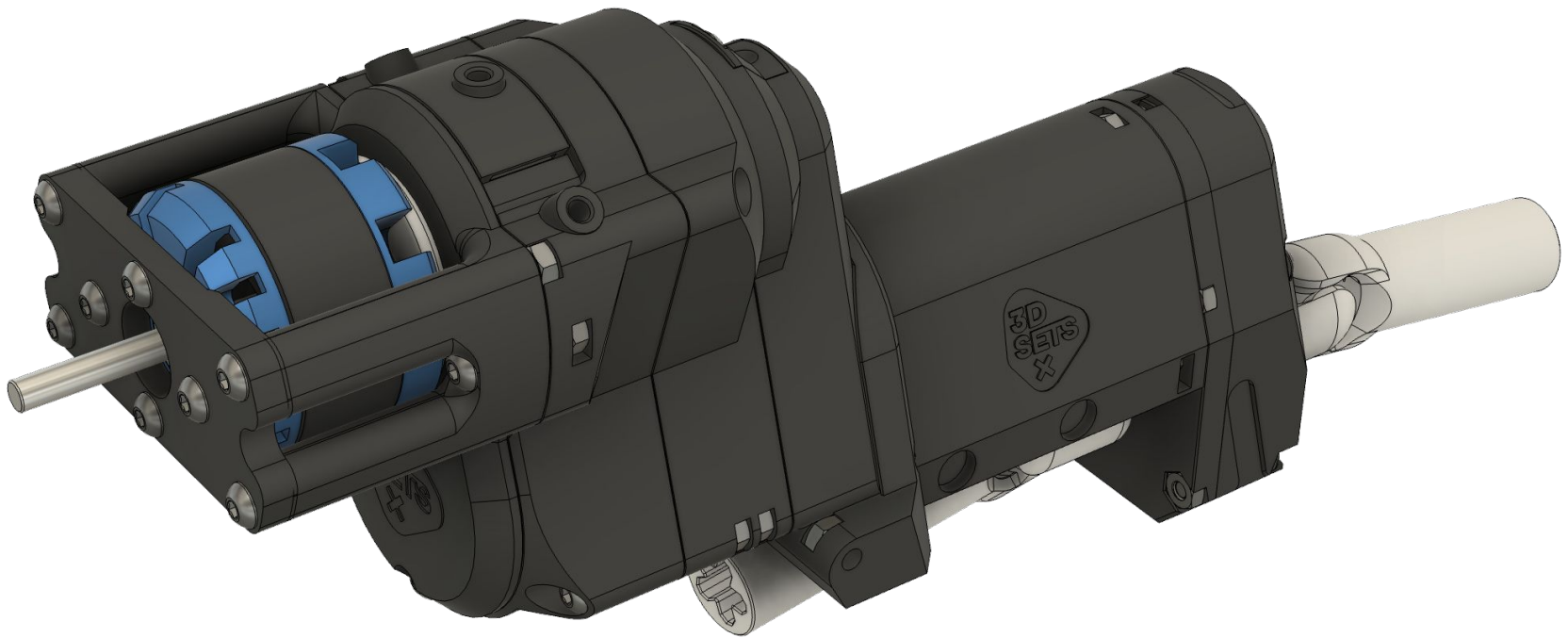


# BeltDrive 4x4 Gearbox – 9/9





# BeltDrive 4x4 Gearbox – finished



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# Geared Gearbox

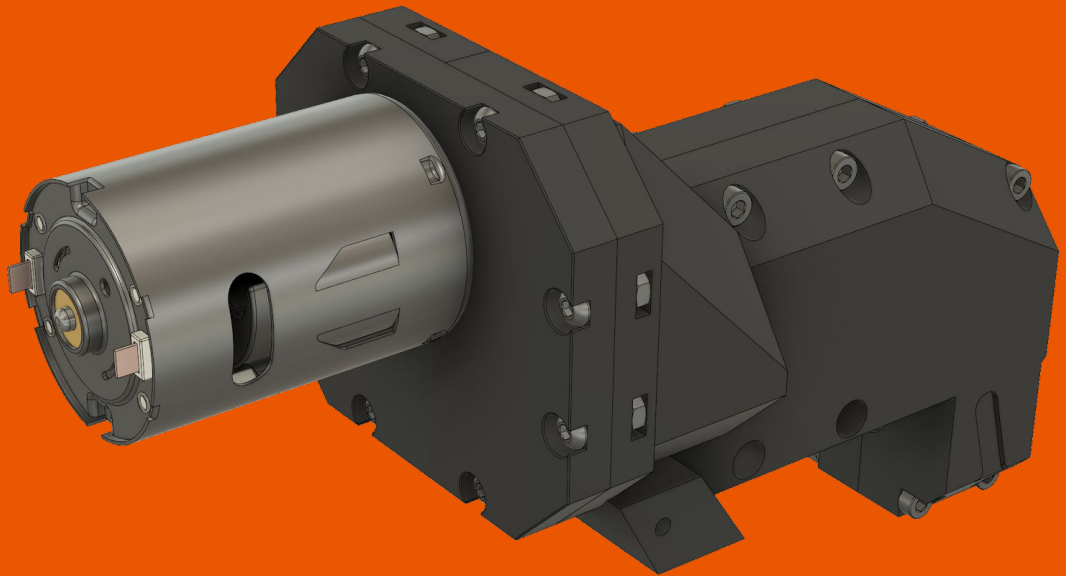
In this 8-step procedure you will assemble the gearbox with the motor. To complete this task, get the following parts ready:

Required print plates:

- “Print 23B - Geared Gearbox - 1”
- “Print 24B - Geared Gearbox - 2”
- “Print 25 - Shafts”

Non-printed parts:

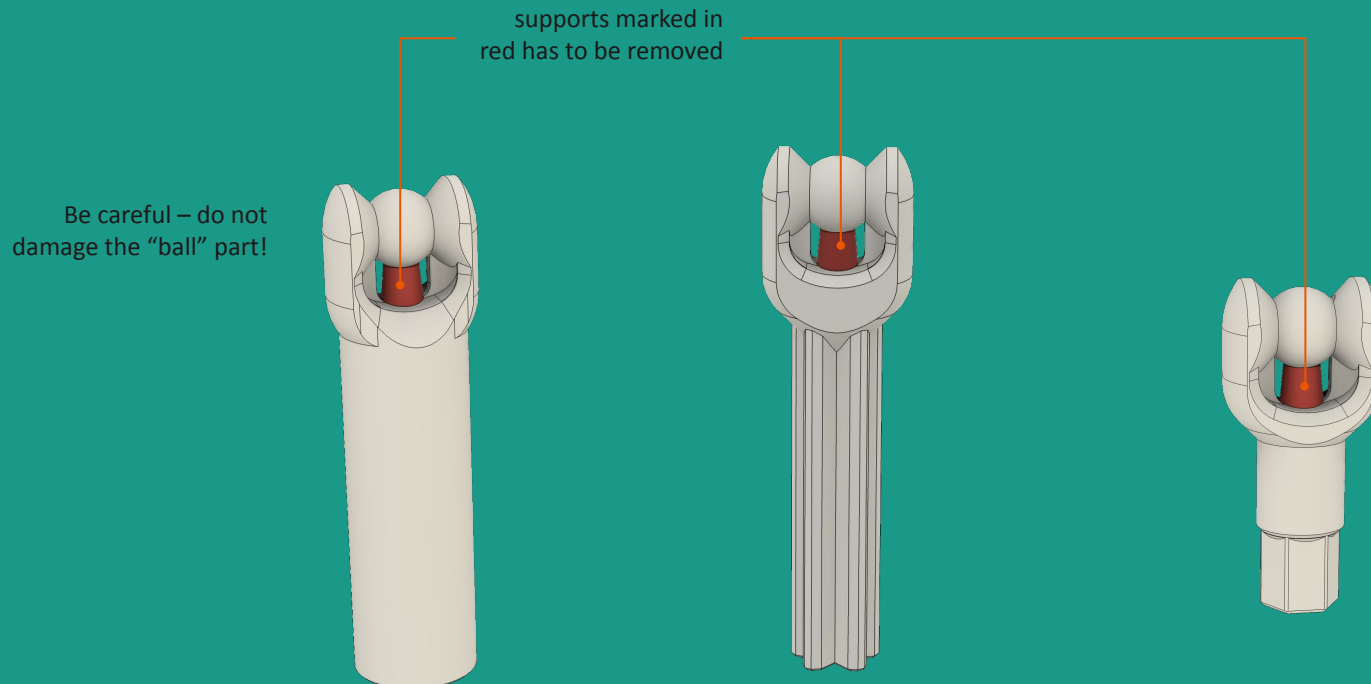
- Screw M3x10: 12 pcs.
- Screw M3x25: 7 pcs.
- M3 locknuts: 7 pcs.
- M3 nuts: 10 pcs.
- M3x6 setscrew: 2 pcs.
- Electric motor: 1 pc.
- Bearings: 12 pcs.
- Grease



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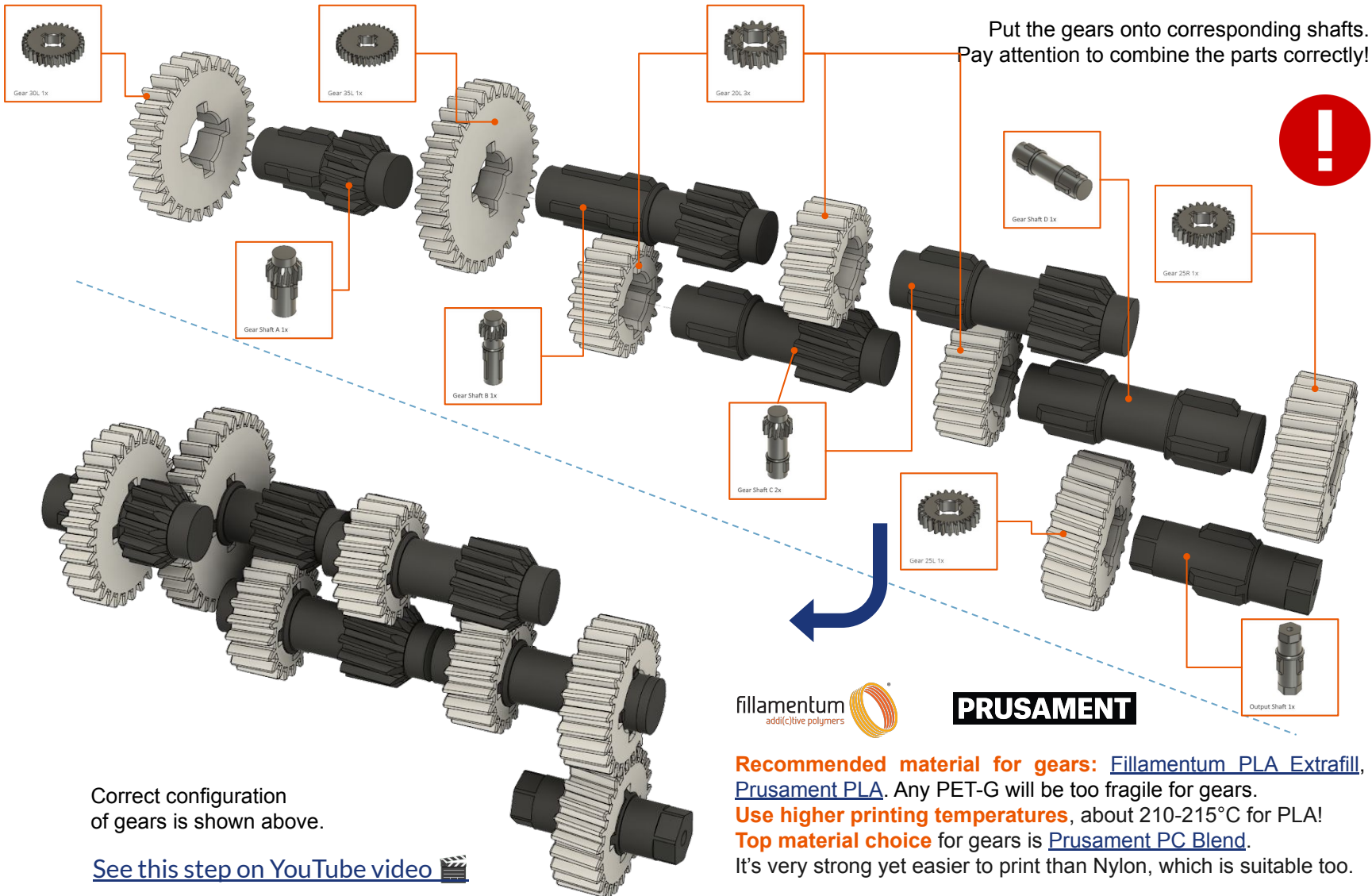
# Postprocessing – removing supports

Before you start building, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!





# Geared Gearbox – step 1/8

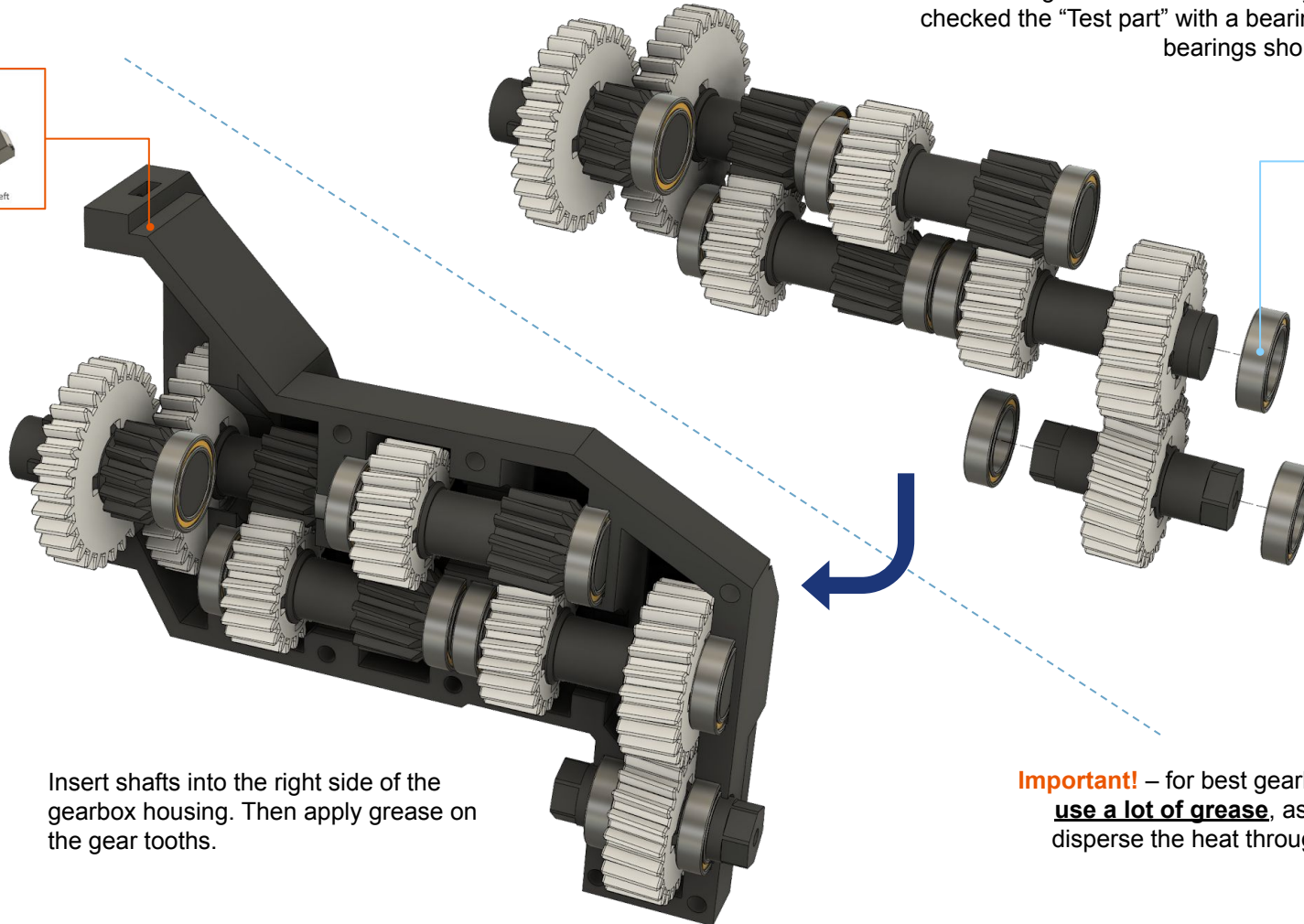
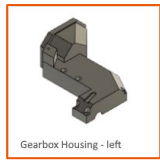


Put the gears onto corresponding shafts. Pay attention to combine the parts correctly!



**Recommended material for gears:** [Fillamentum PLA Extrafill](#), [Prusament PLA](#). Any PET-G will be too fragile for gears.  
**Use higher printing temperatures**, about 210-215°C for PLA!  
**Top material choice** for gears is [Prusament PC Blend](#).  
It's very strong yet easier to print than Nylon, which is suitable too.

# Geared Gearbox – step 2-3/8



Put the bearings on each shaft end. If you printed and checked the “Test part” with a bearing successfully, bearings should fit smoothly.

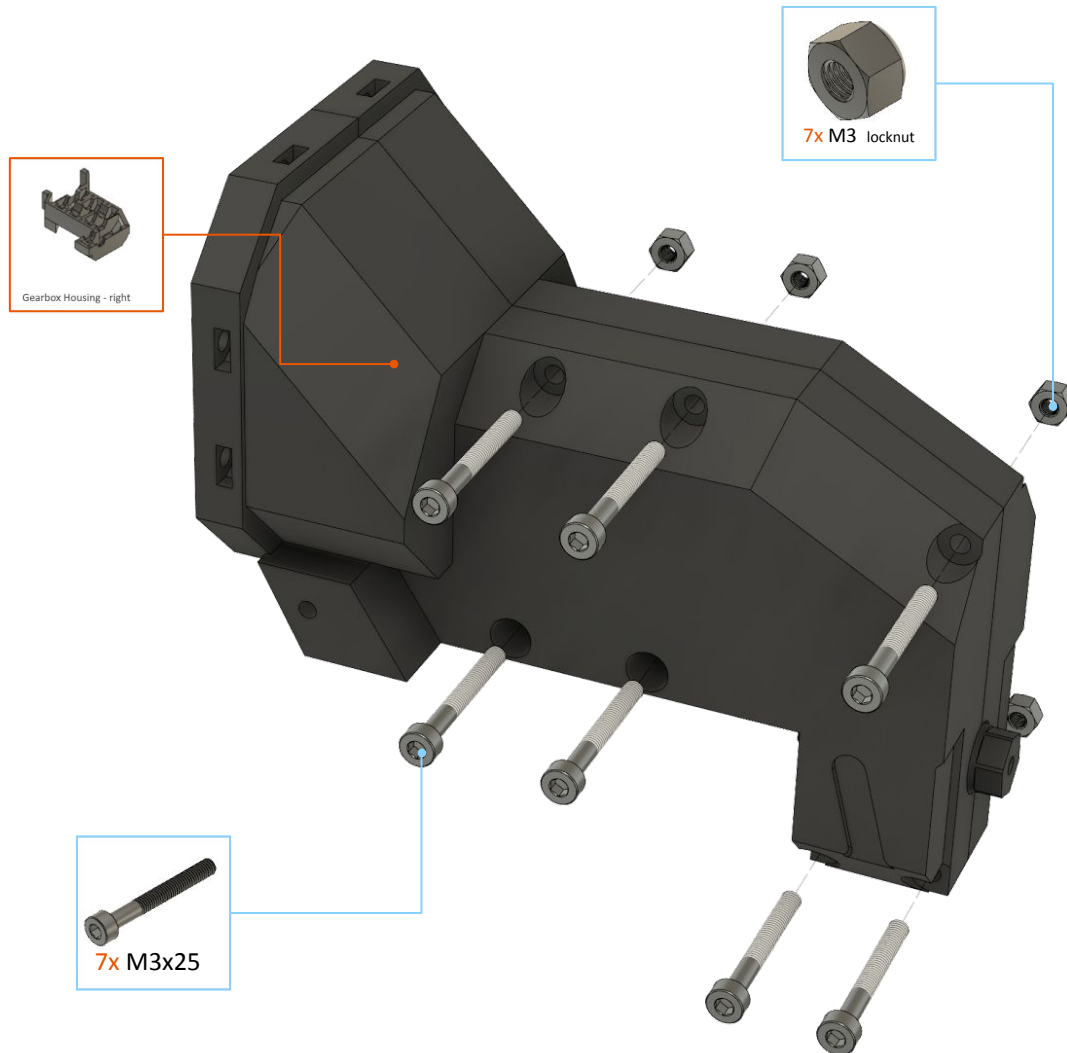


Insert shafts into the right side of the gearbox housing. Then apply grease on the gear teeth.

**Important!** – for best gearbox endurance, use a lot of grease, as the grease will disperse the heat through the gearbox.



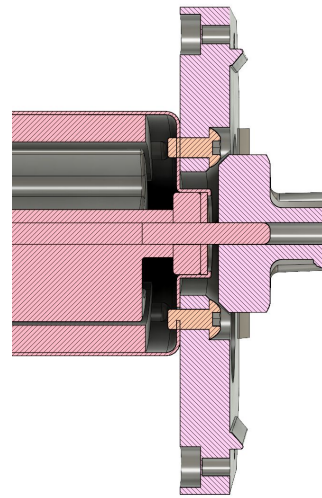
# Geared Gearbox – step 4/8



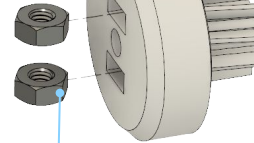
# Geared Gearbox – step 5/8

## Motor pinion – version A:

use this pinion if you are using “round head screws”



Insert nuts into the holes in the motor pinion.



Motor Pinion Gear - Rounded Head



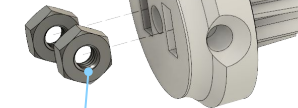
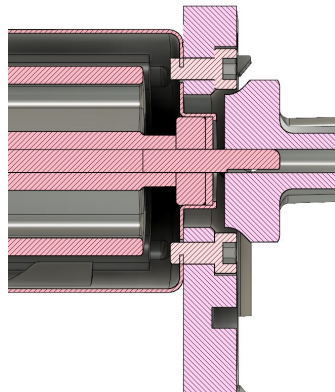
M3 nut



Motor Pinion Gear - Socket Head

## Motor pinion – version B:

use this pinion if you are using “socket head screws”



M3 nut

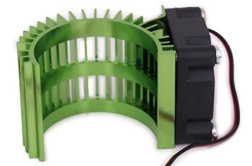
**Recommended material for motor pinion: ABS or CPE**, as the PLA can melt due the heat from the motor shaft and PET is too flexible (pinion will slip from the shaft).

# Geared Gearbox – step 6-7/8

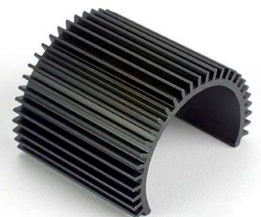
Now mount the motor and bearings to their positions.  
Then install the motor pinion on motor shaft.

**Recommended material for “Gearbox housing - front”:** ABS, ASA, CPE or PET-G, as the PLA can melt due to the heat from the motor if you drive continuously or in warm weather. It is strongly recommended to install an optional motor heatsink, preferably active! Purchase links are [here](#) or use any similar

heatsinks.  
active heatsink



passive heatsink



Motor



Gearbox Housing - front



2x M3x6



2x M3x10



8x M3x10



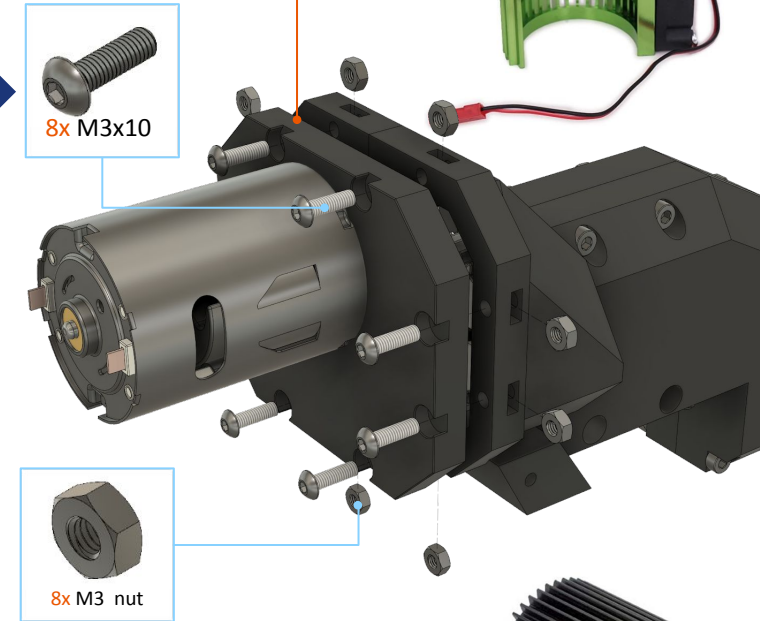
8x M3 nut



Bearing 10x15x4mm 2x

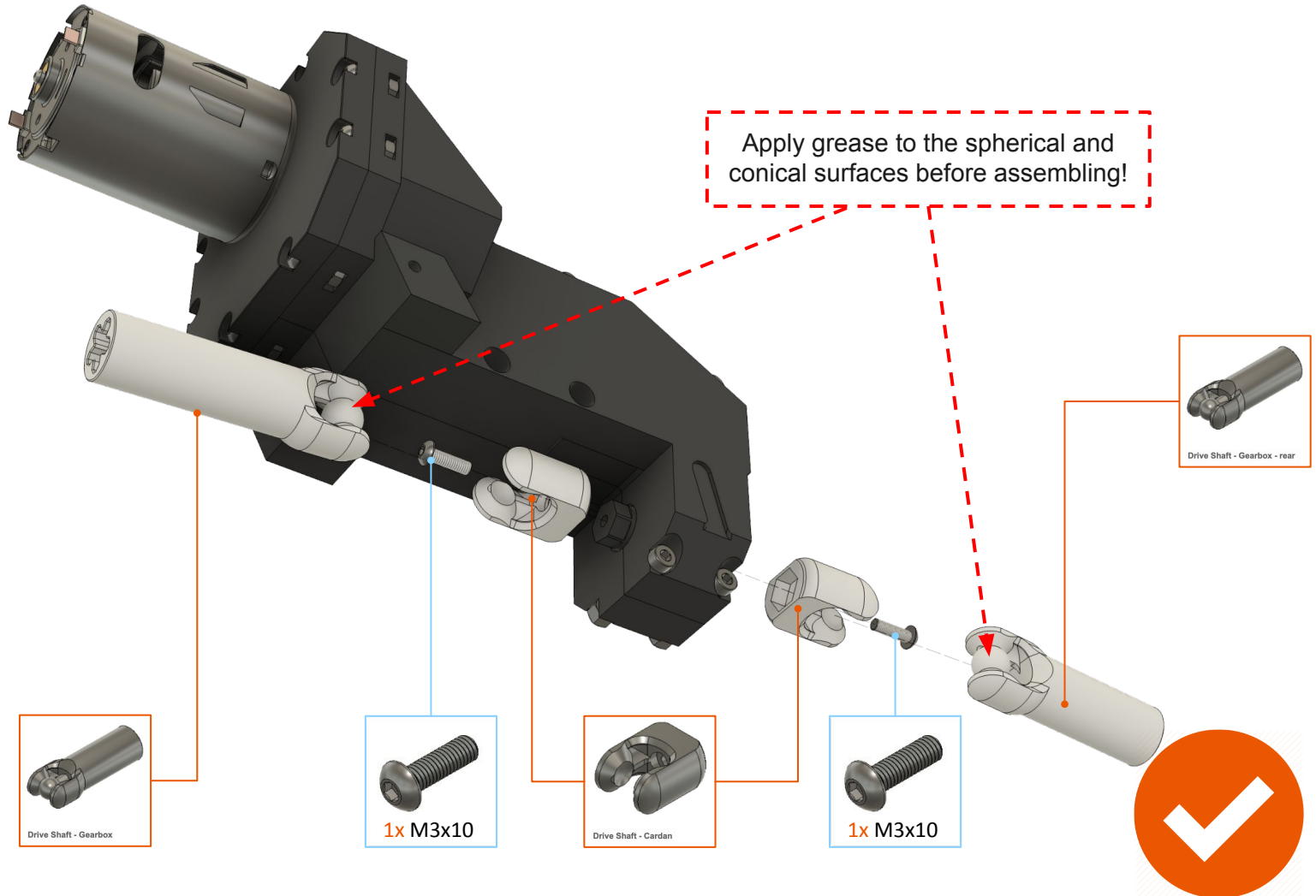


8x Ø3,2mm



**Test the gearbox before mounting to the chassis!**  
You should be able to turn the gearbox output shaft by hand with some force (attach Cardan Joint Yoke to the output shaft). After that, you can connect a 3 - 7 V battery directly to the motor, it should run.

# Geared Gearbox – step 8/8



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# Bamboo 4x4 – Gearbox Installation

In this 1-step procedure you will install Gearbox.

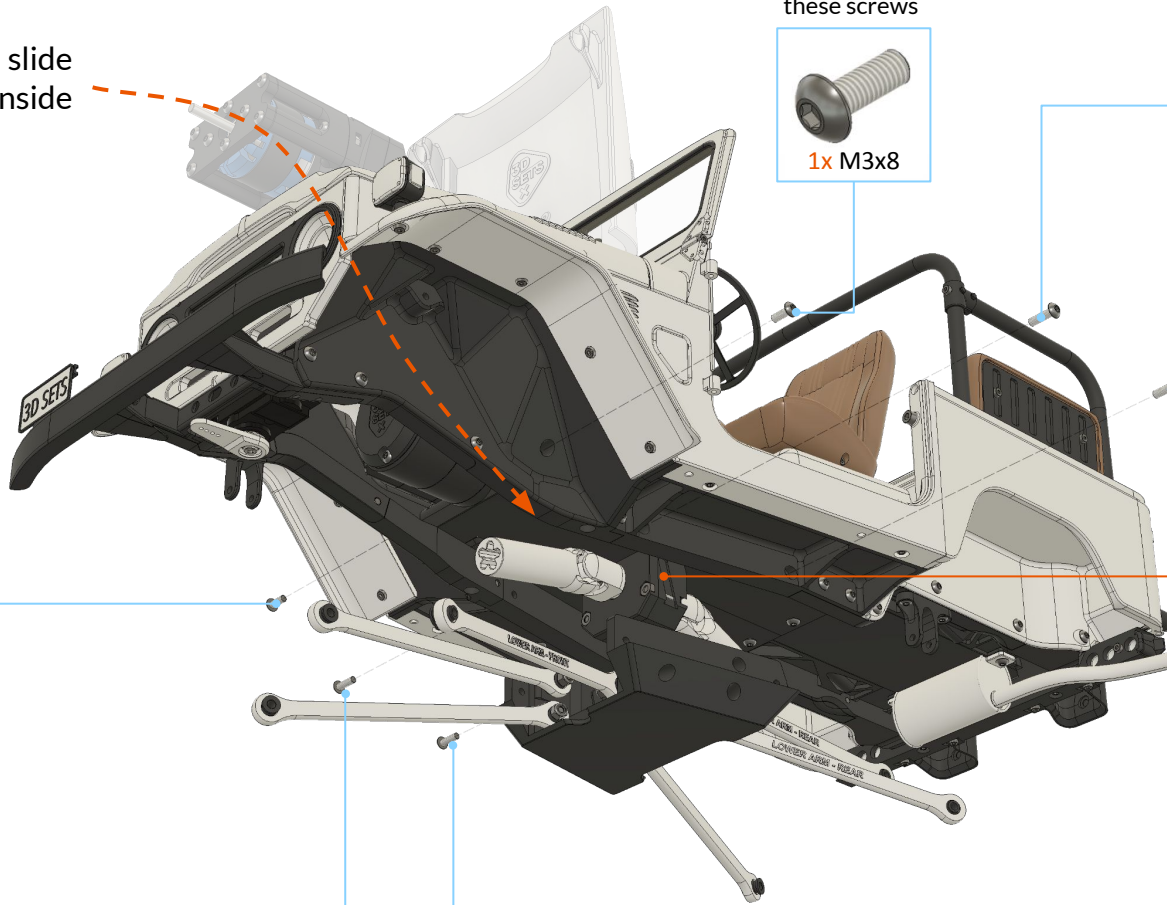
Non-printed parts:

- Screw M3x8: 2 pcs.
- Screw M3x10: 4 pcs.

# Gearbox Installation

Open Hood and slide the Gearbox inside

The gearbox is secured with these screws





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# Bamboo 4x4 – Electronics

In this 2-step procedure you will install all electronics equipment and cables.

Required print plates:

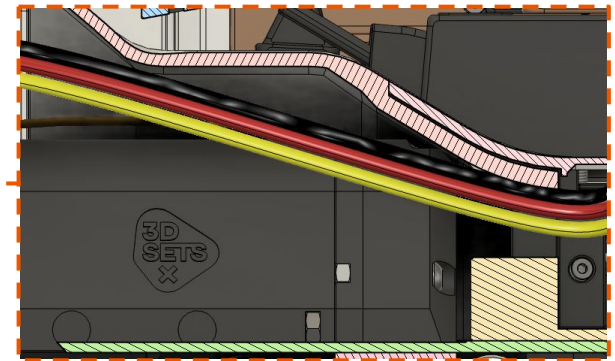
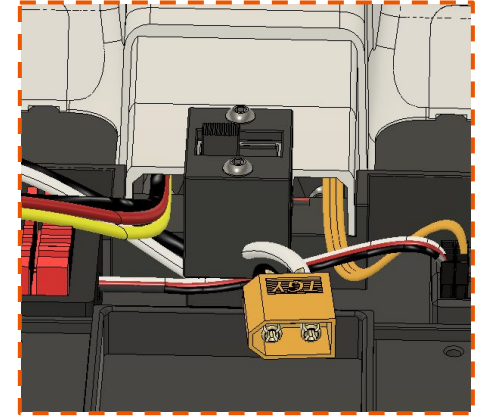
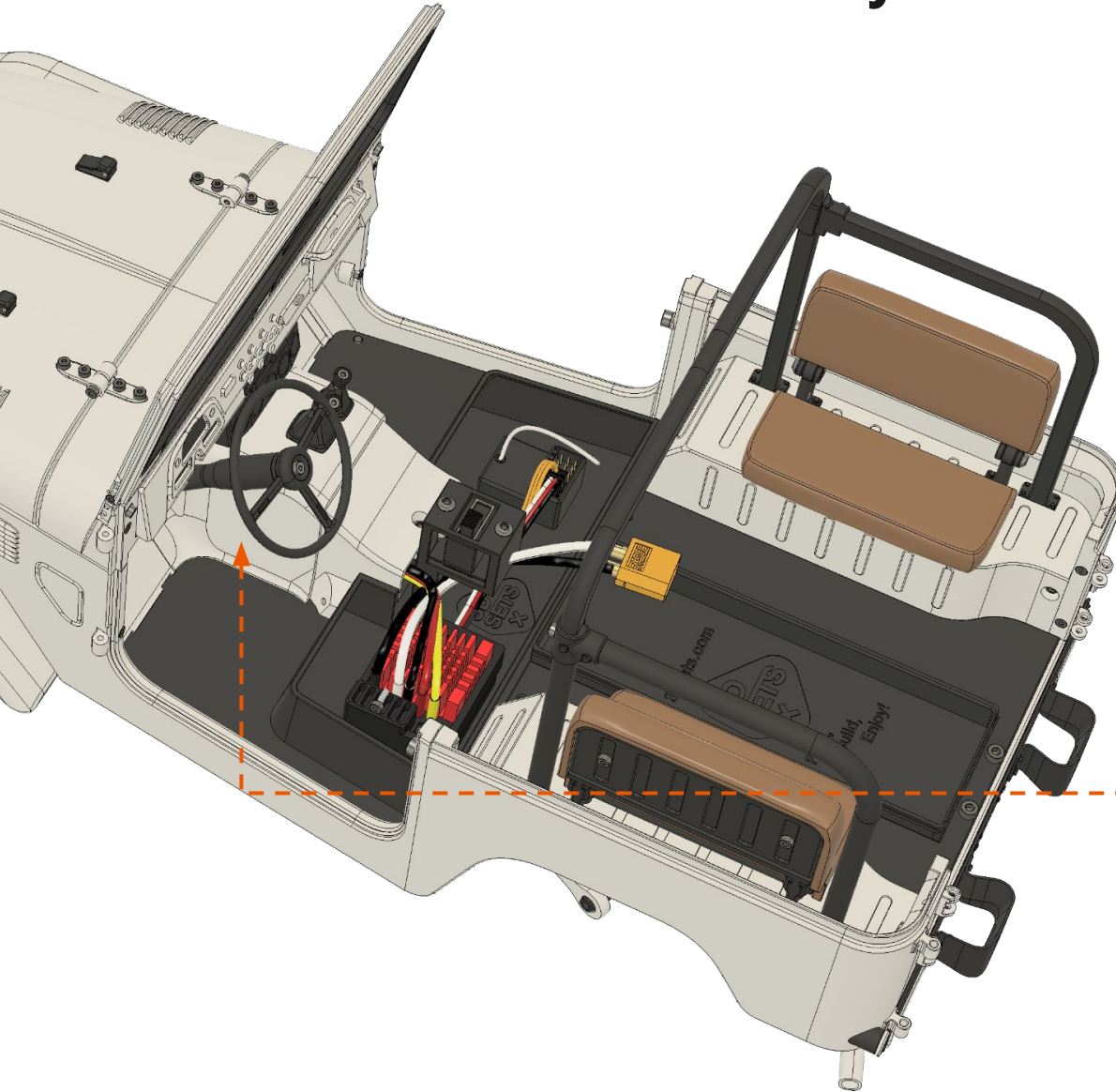
- “Print 11 - Interior 1 + Details 1”
- “Print 18 - Front Window Frame + Switch Holder”

Non-printed parts:

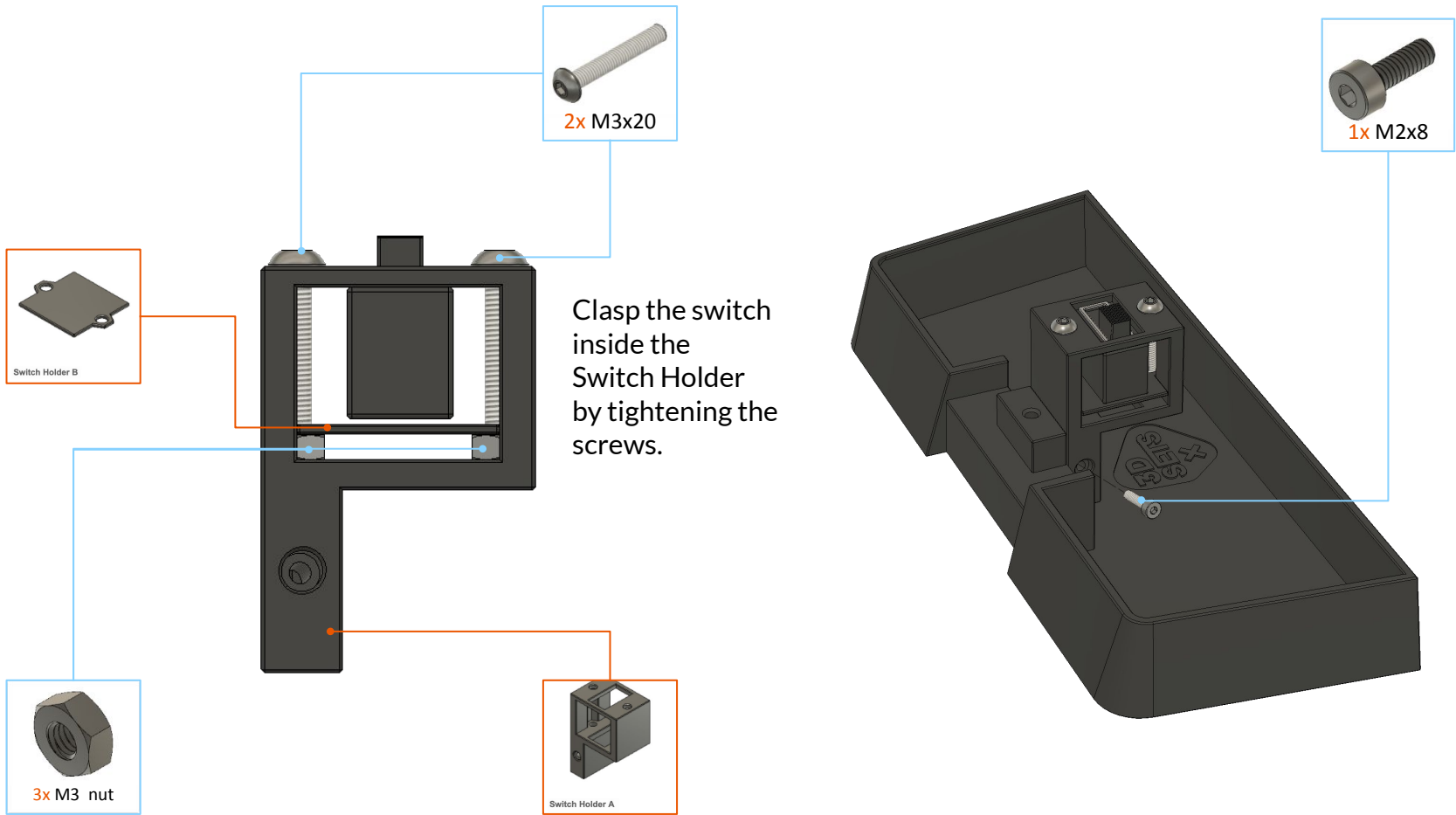
- Screw M2x6: 4 pcs.
- Screw M2x8: 1 pcs.
- Screw M3x20: 2 pcs.
- M3 Nut: 2 pcs.



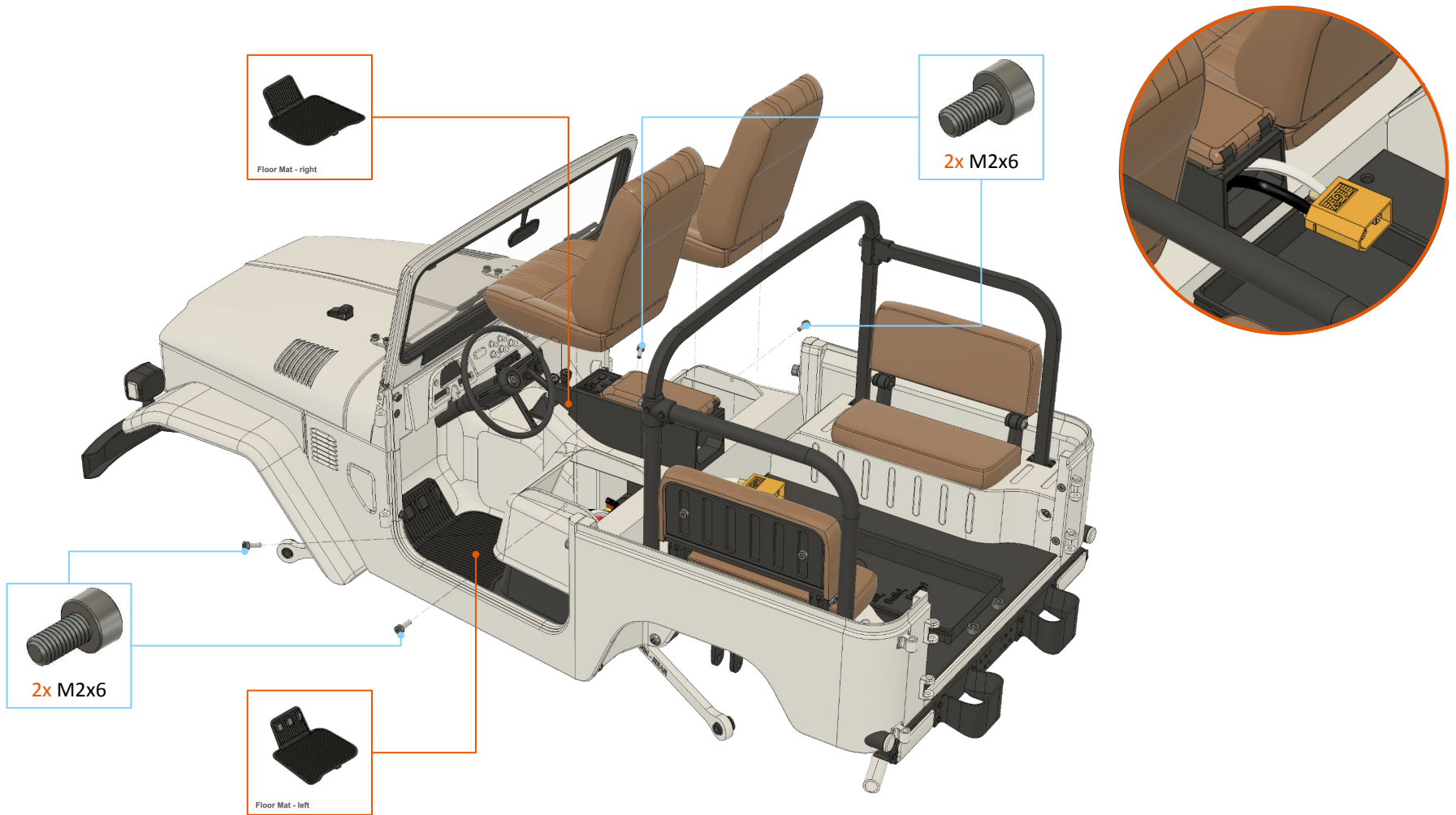
# Electronics and wire layout



# Switch Holder



# Front Seats Installation



# Bamboo 4x4 – Axles choice



There are two different axles available for Bamboo 4x4:

With new *Opened Differential*  
With *No Differential (locked)*

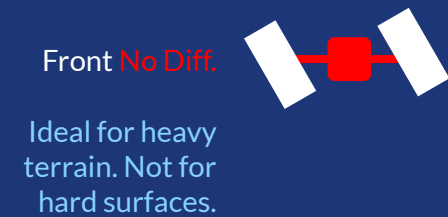
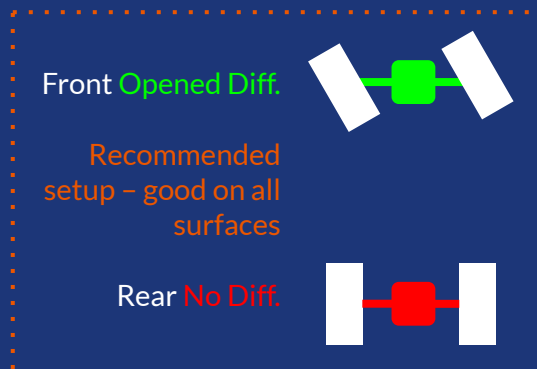
New *Opened Differential* features:

- Medium print and assemble difficulty
- Excellent for indoor driving and exterior hard surfaces
- Excellent maneuverability and small turning radius
- Low drivetrain/gearbox stress

Classic *No Differential* features:

- Easier to print and assemble
- Excellent for heavy terrain driving
- Not recommended for hard surfaces (interior floors etc.) – using locked differentials on both axles results in high stress on drivetrain/gearbox parts.

Both types of axles can be combined to achieve optimum performance:



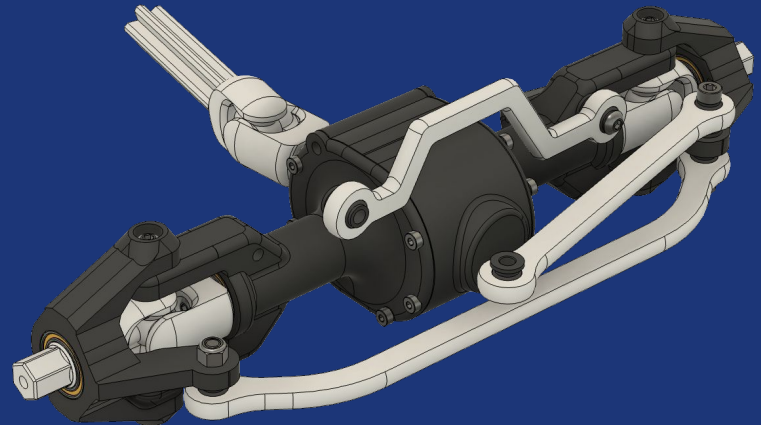
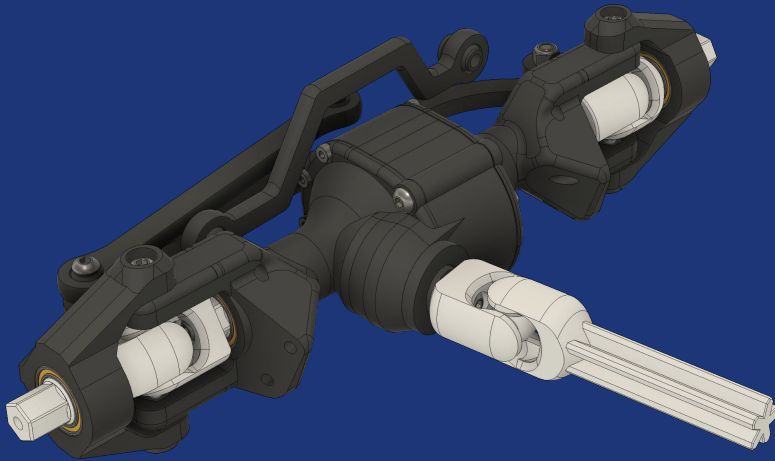
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# Front Axle

On the previous slide, you chose your preferred Axles configuration. Let's start with Front Axle first:

For Front Axle with **Opened Differential**, proceed to next page (87).

For Front Axle with **No Differential**, proceed to page 93.



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# Front Axle – with Differential

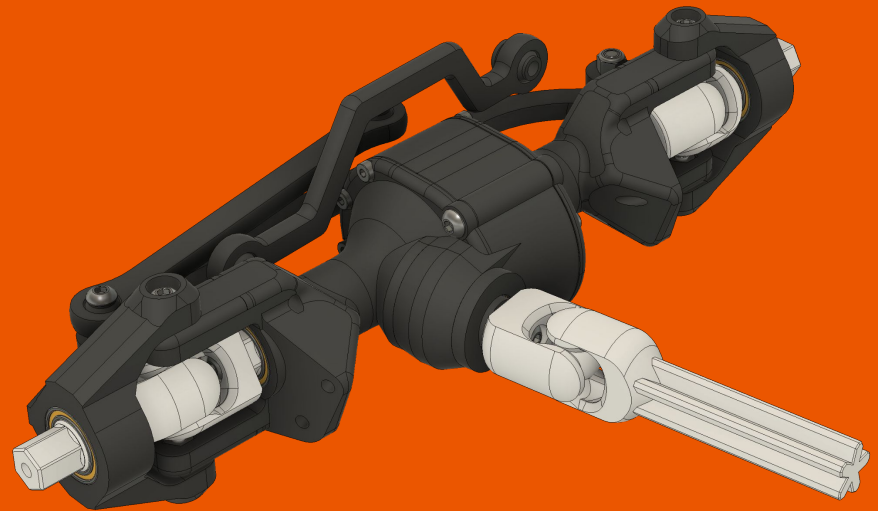
In this 6-step procedure you will assemble the front axle. The axle includes a open differential, driveshaft and complete steering assembly.

Required print plates:

- “Print 25 - Shafts”
- “Print 26B - Differential Axe - 1”
- “Print 27B - Differential Axe - 2” - print from PLA or PC Blend

Non-printed parts:

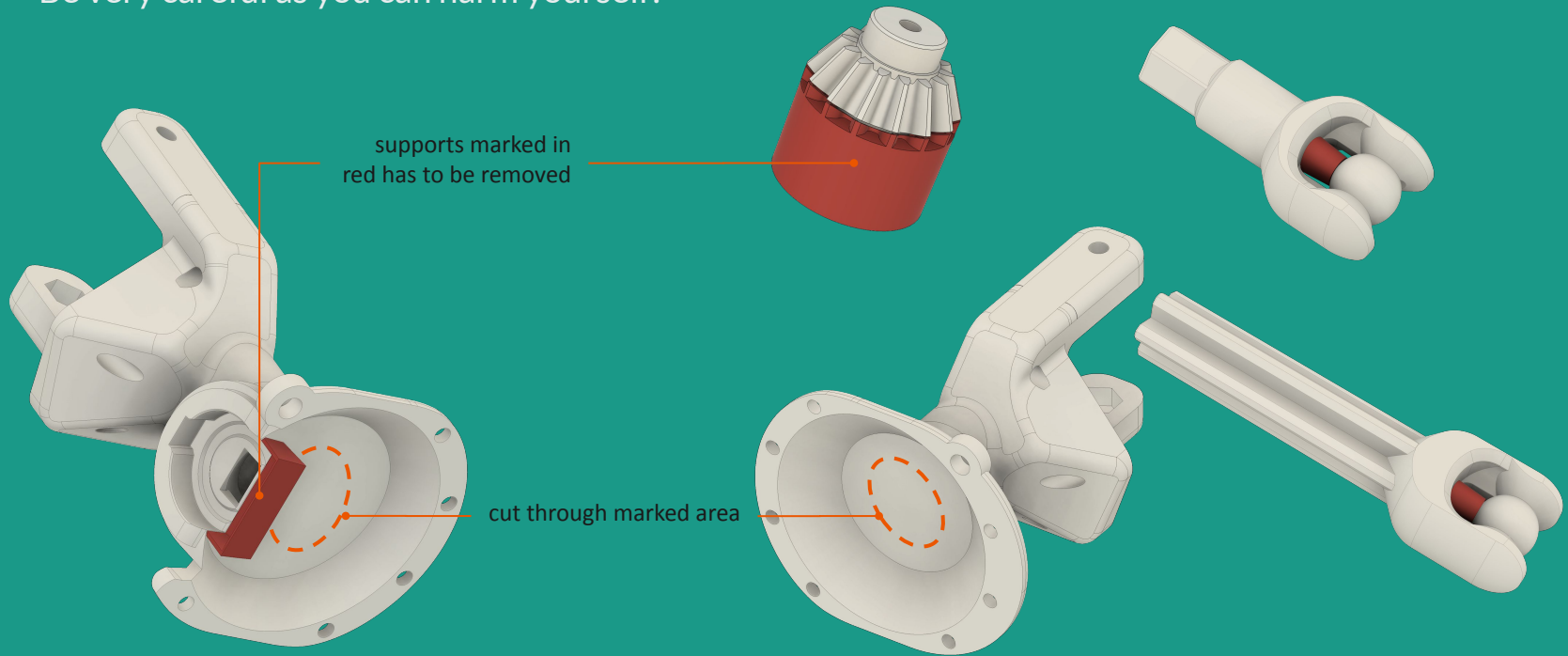
- Screw M2x10: 18 pcs.
- Screw M3x8: 3 pcs.
- Screw M3x10: 10 pcs.
- Screw M3x16: 2 pcs.
- Screw M3x25: 1 pcs.
- Nut M3: 4 pcs.
- Locknut M3: 2 pcs.
- Bearing: 15 pcs.
- Grease



---

# Axles – postprocessing

Before you start building Axles, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!





# Front Axle (with differential) – step 1/6

It is recommended to print these specific parts from high-strength material like **Prusament PC Blend**: specifically the **Axle Gears** and **Differential Pinions**. Do not use ABS or PETG for gears, as they are weaker even than PLA!

**PRUSAMENT**

Axle Gear.

2x M3x10

Bearing 10x15x4mm

Front Axle Shaft - Diff - right



Use screw ISO 7380 or screw with max height head 2mm!

6x M2x10

3x M3x8



Use screw ISO 7380 or screw with max height head 2mm!

Differential Cage A

Axle Gear.

Prusament PC Blend

Open differential – section view:

Apply grease on gear teeth.

Prusament PC Blend  
**PRUSAMENT**

Drive Gear

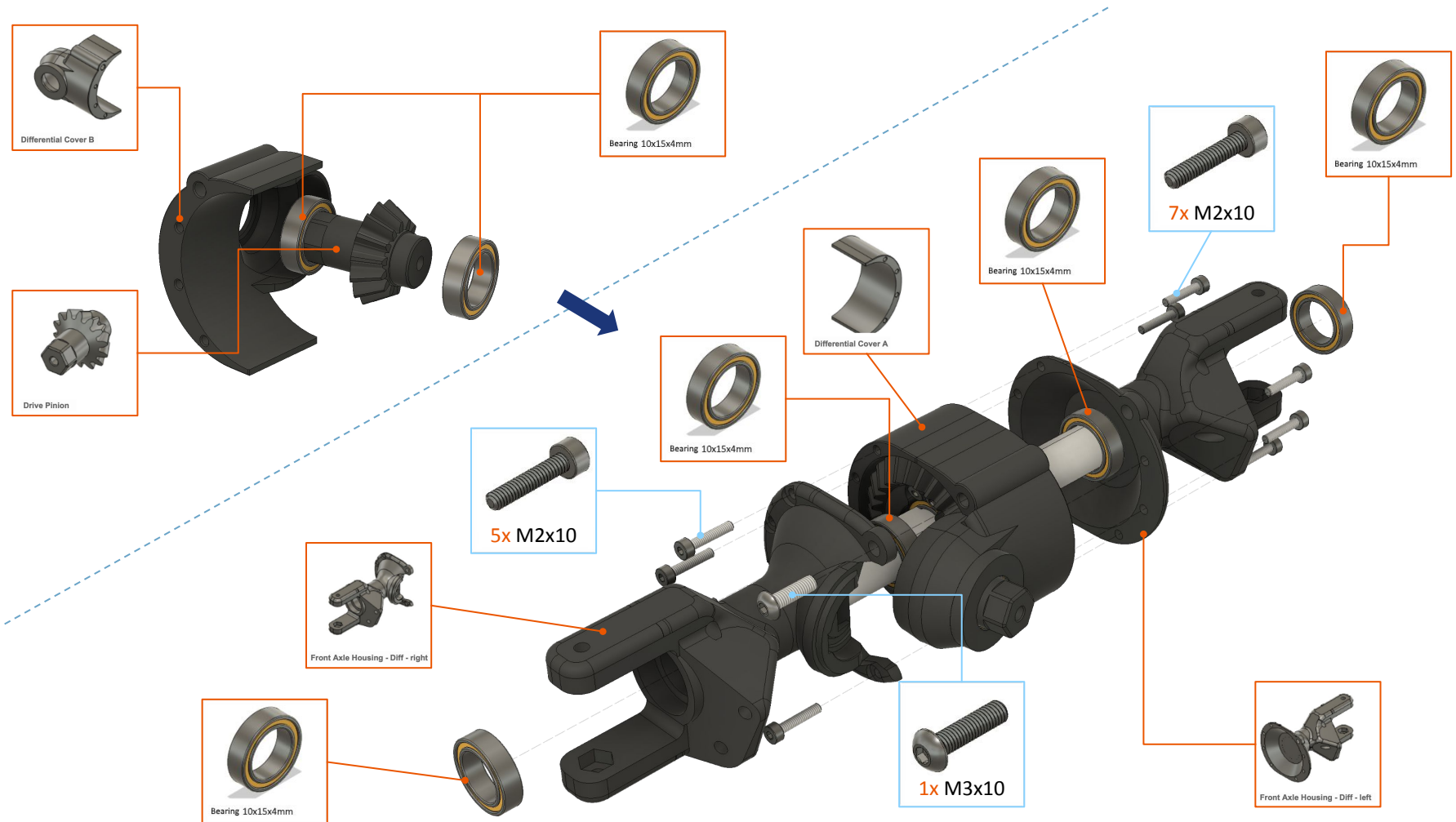
Differential Cage B

Differential Pinion

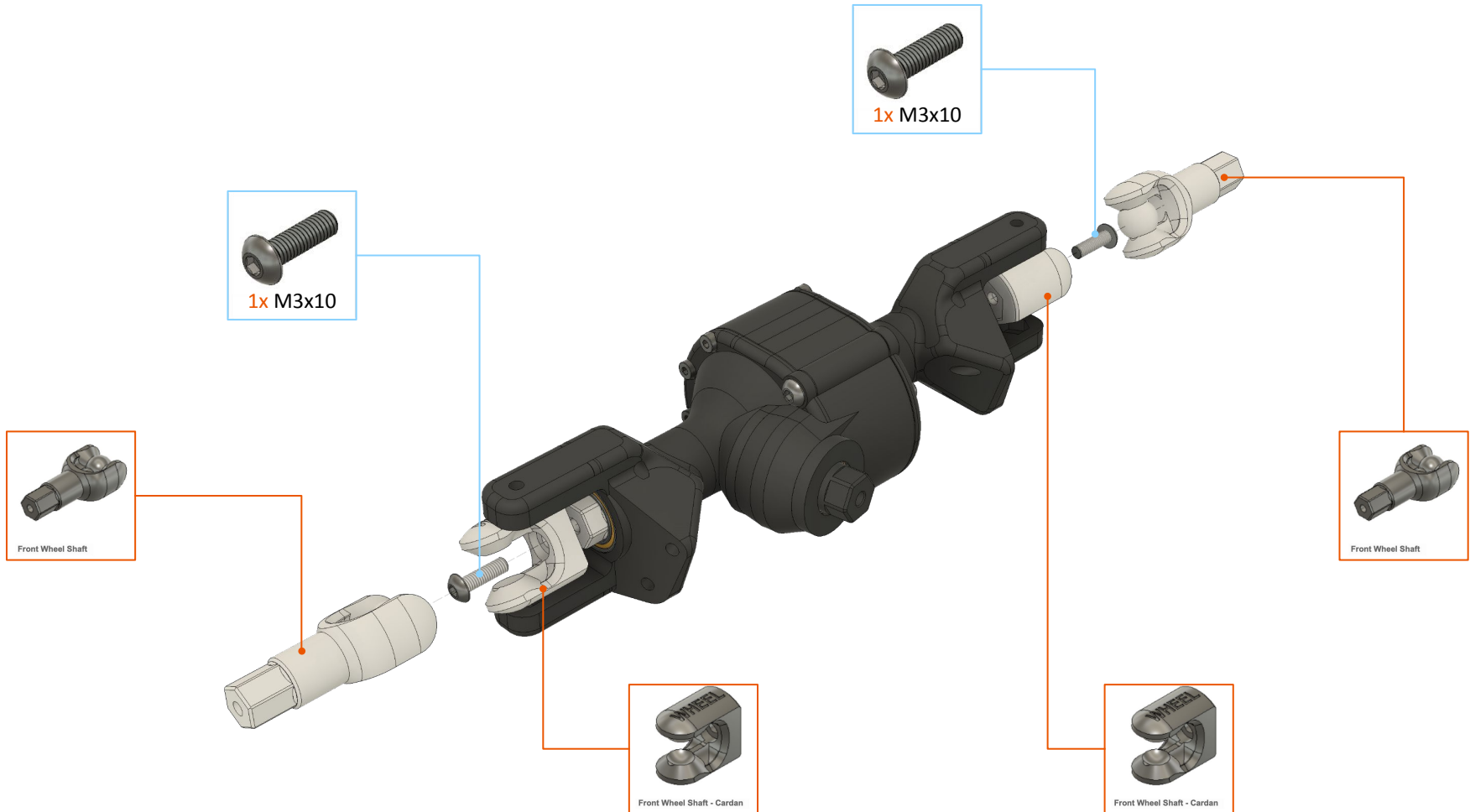


Front Axle Shaft - Diff - left

# Front Axle (with differential) – step 2-3/6

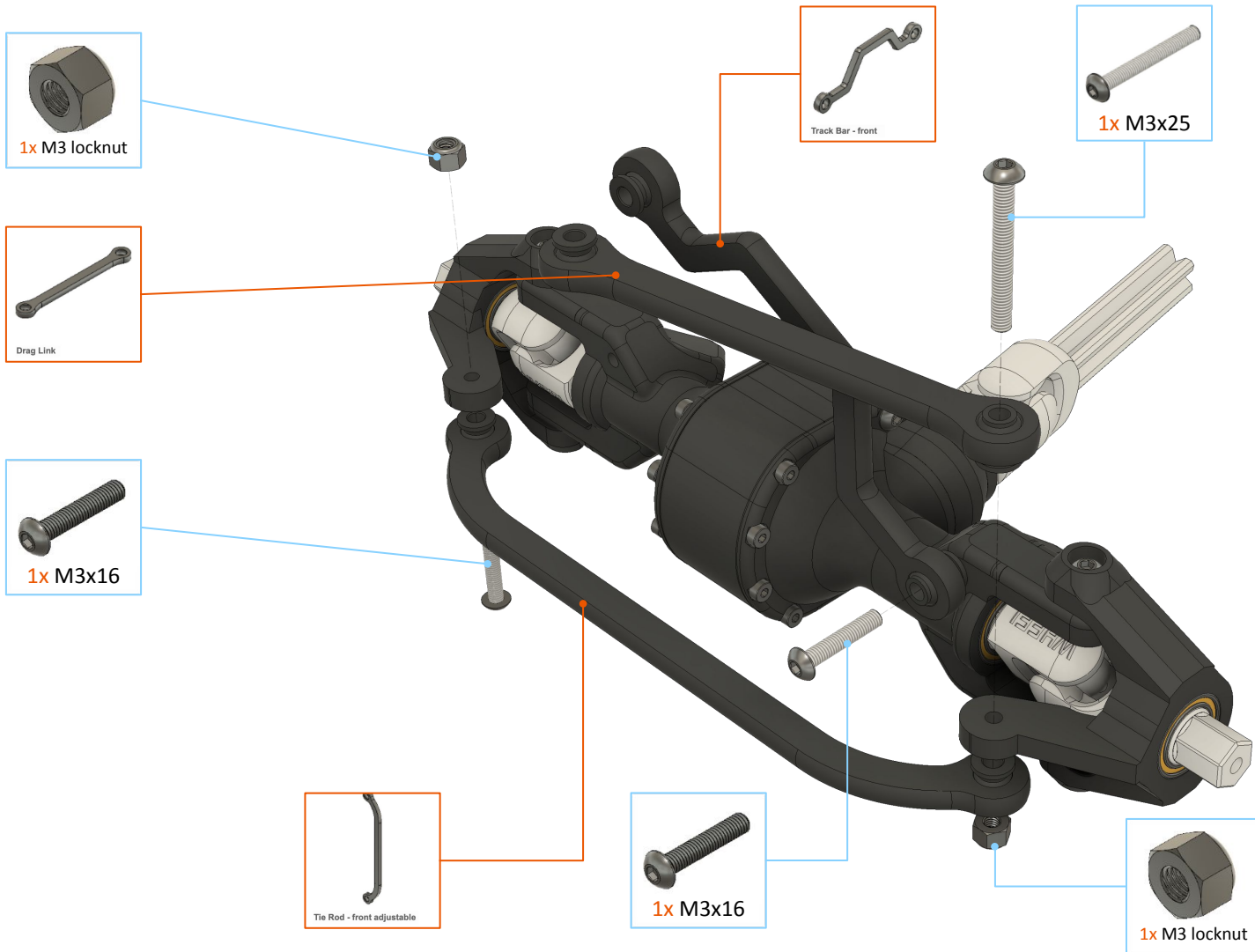


# Front Axle (with differential) – step 4/6





# Front Axle (with differential) – step 6/6



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# Front Axle – No Differential

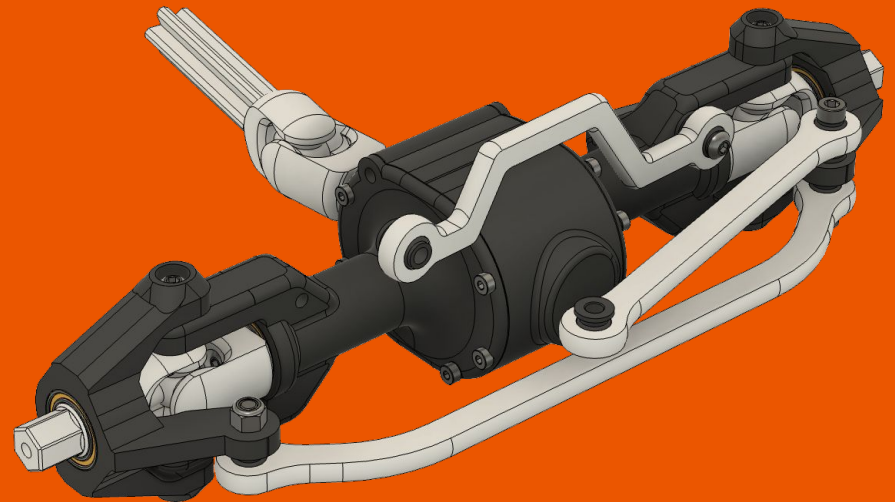
In this 10-step procedure you will assemble the front axle. The axle includes a locked differential, driveshaft and complete steering assembly.

Required print plates:

- “Print 25 - Shafts”
- “Print 26A - Locked Axle - 1”
- “Print 27A - Locked Axle - 2”

Non-printed parts:

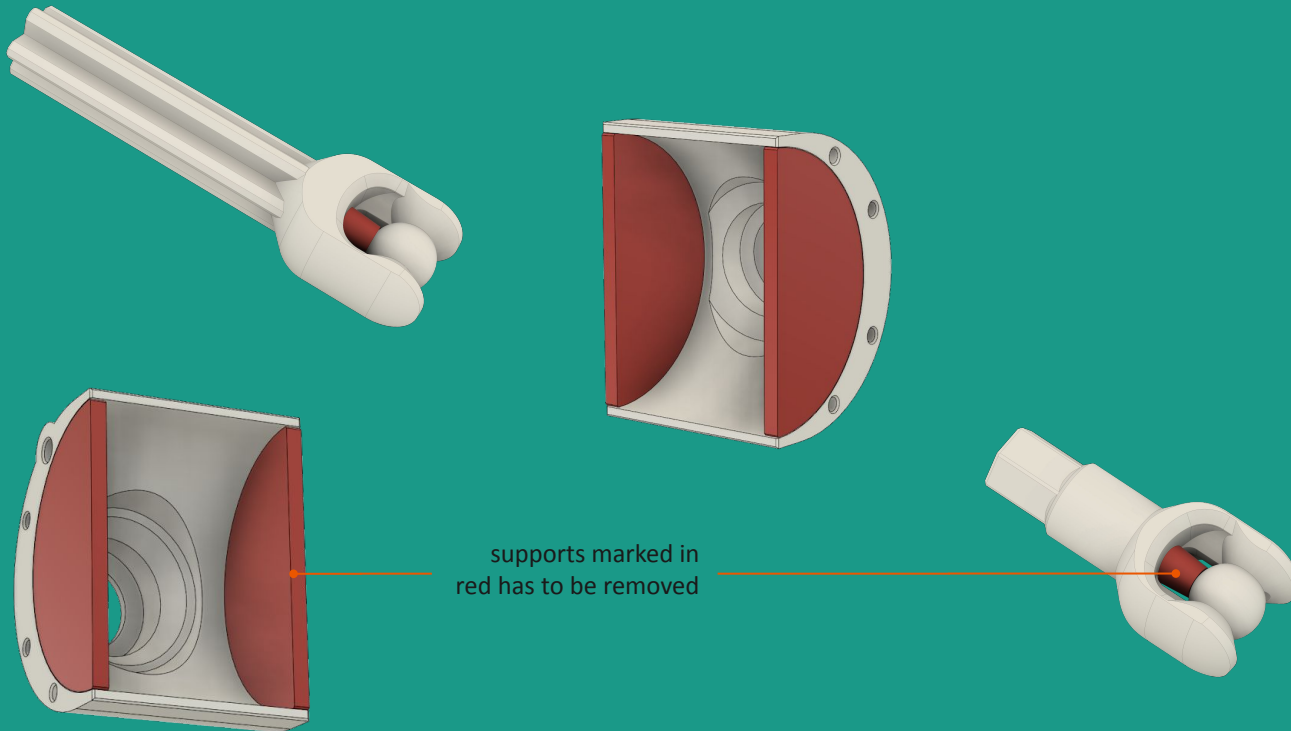
- Screw M2x6: 14 pcs.
- Screw M3x10: 9 pcs.
- Screw M3x16: 2 pcs.
- Screw M3x25: 1 pcs.
- Nut M3: 4 pcs.
- Locknut M3: 2 pcs.
- Bearing: 10 pcs.
- Grease



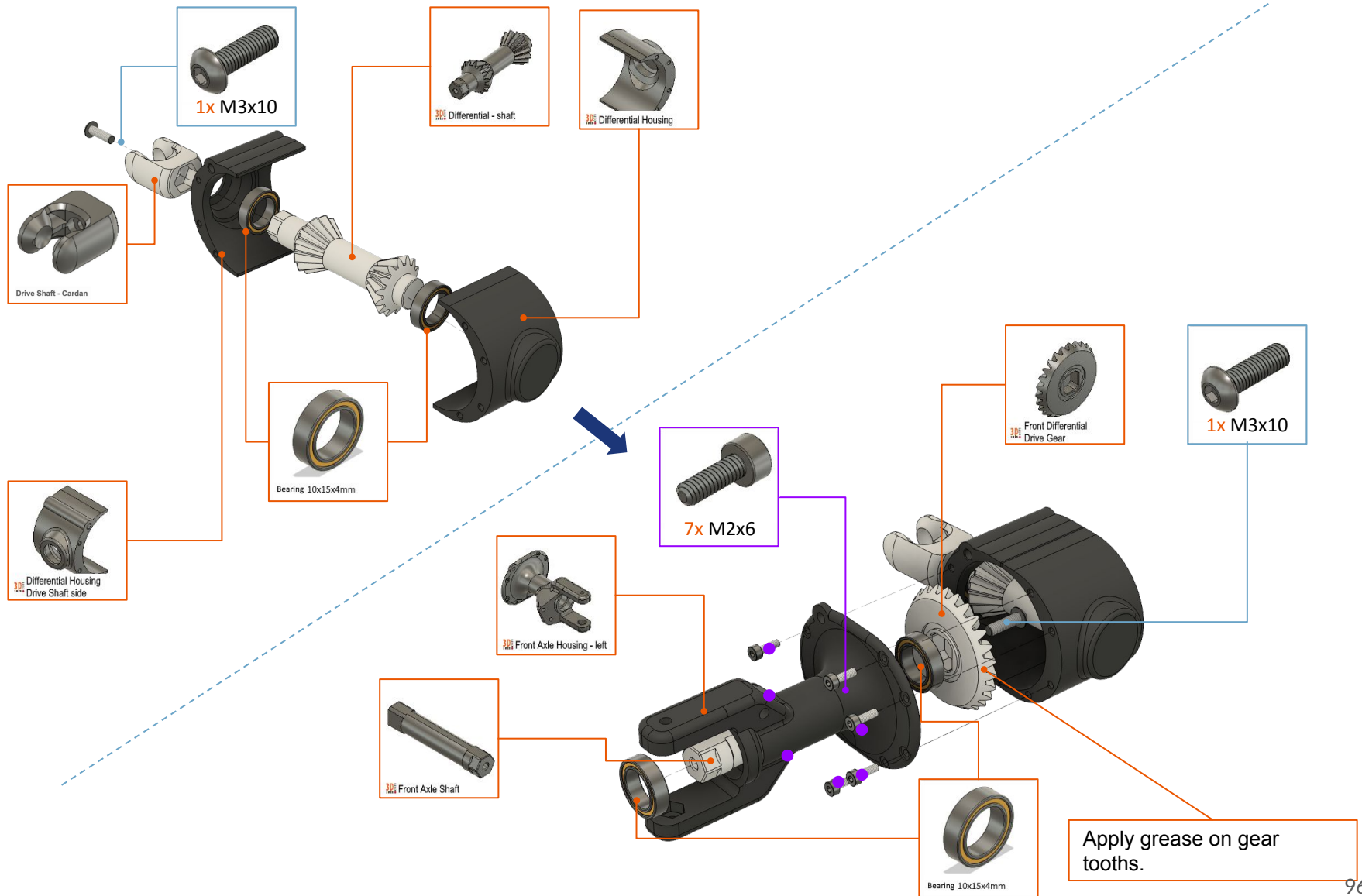
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# Axles – postprocessing

Before you start building Axles, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!

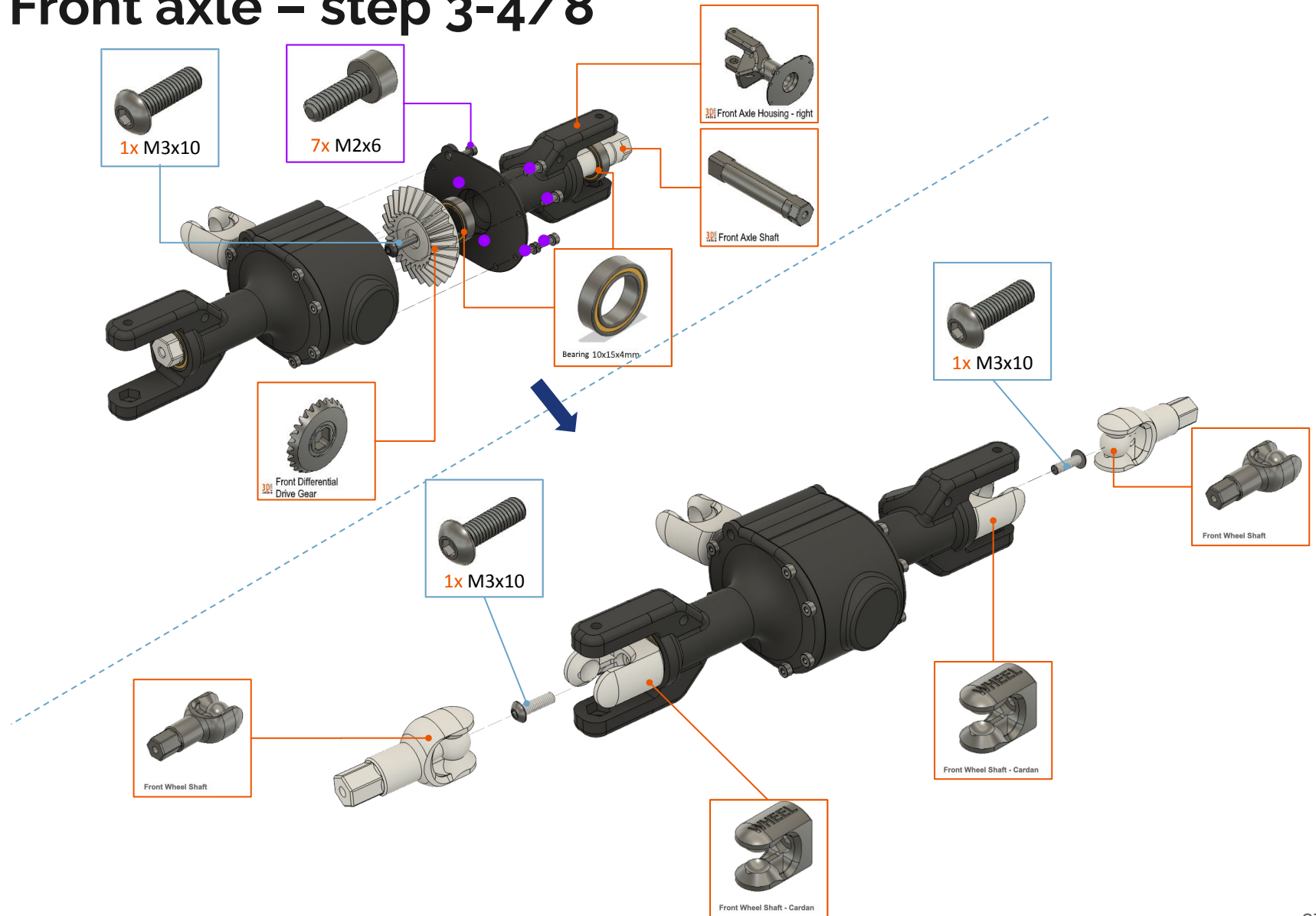


# Front axle – step 1-2/8

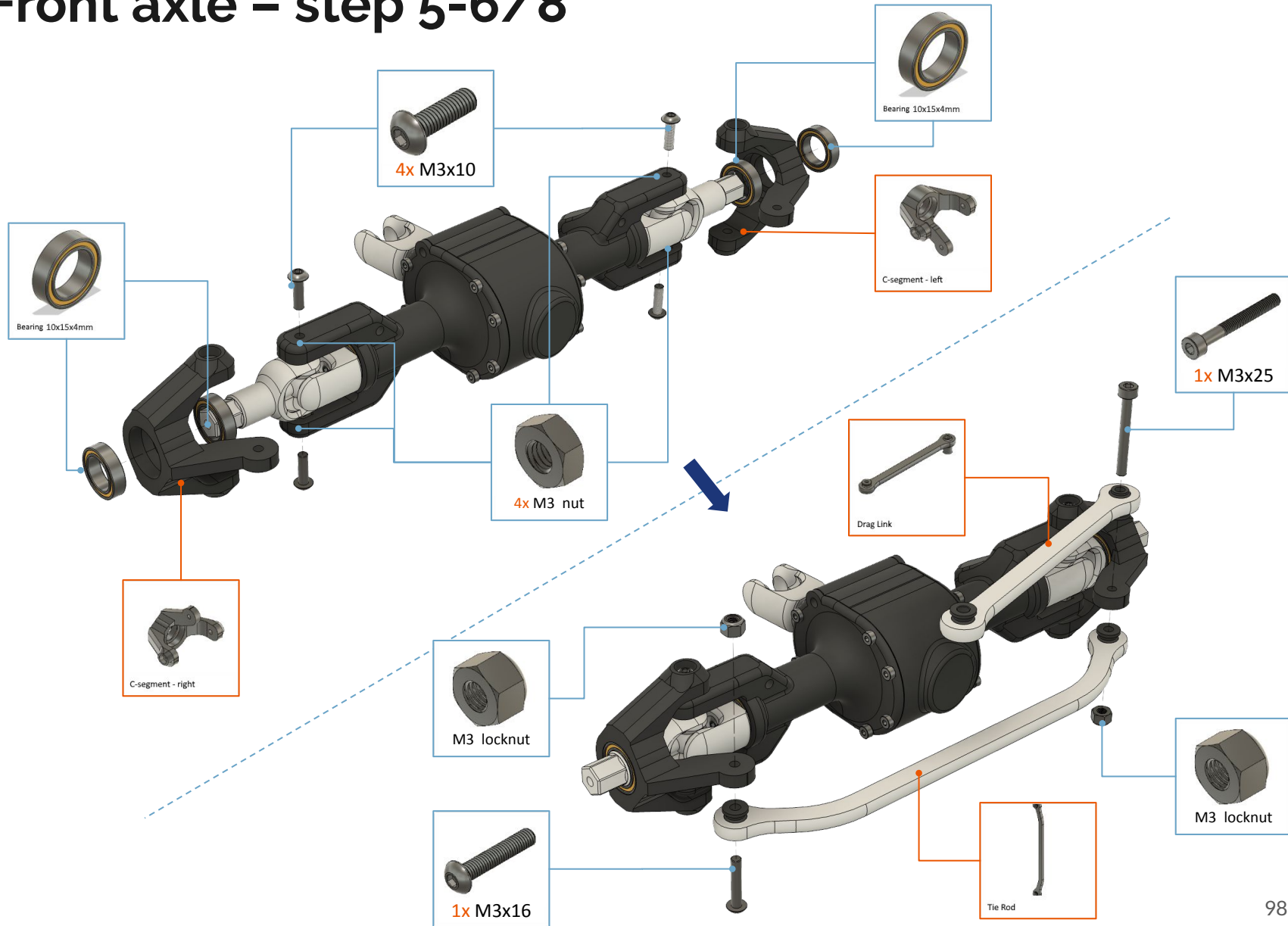




# Front axle – step 3-4/8



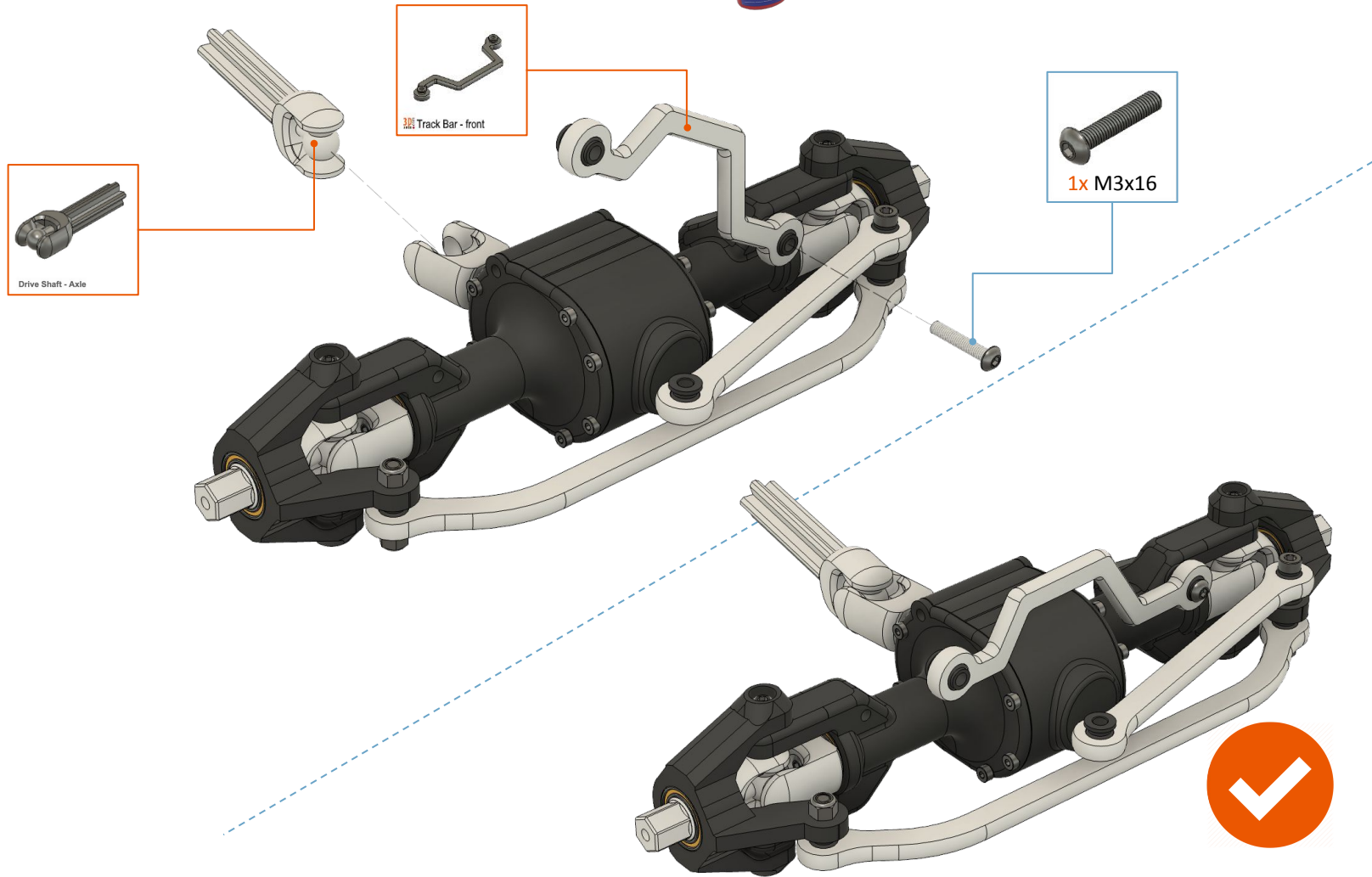
# Front axle – step 5-6/8



# Front axle – step 7-8/8



**Please, use Thread Locker on Cardan Joint Screws!**  
This will prevent the screws from loosening during use.  
Loosening these screws may lead to damage to the drive train.



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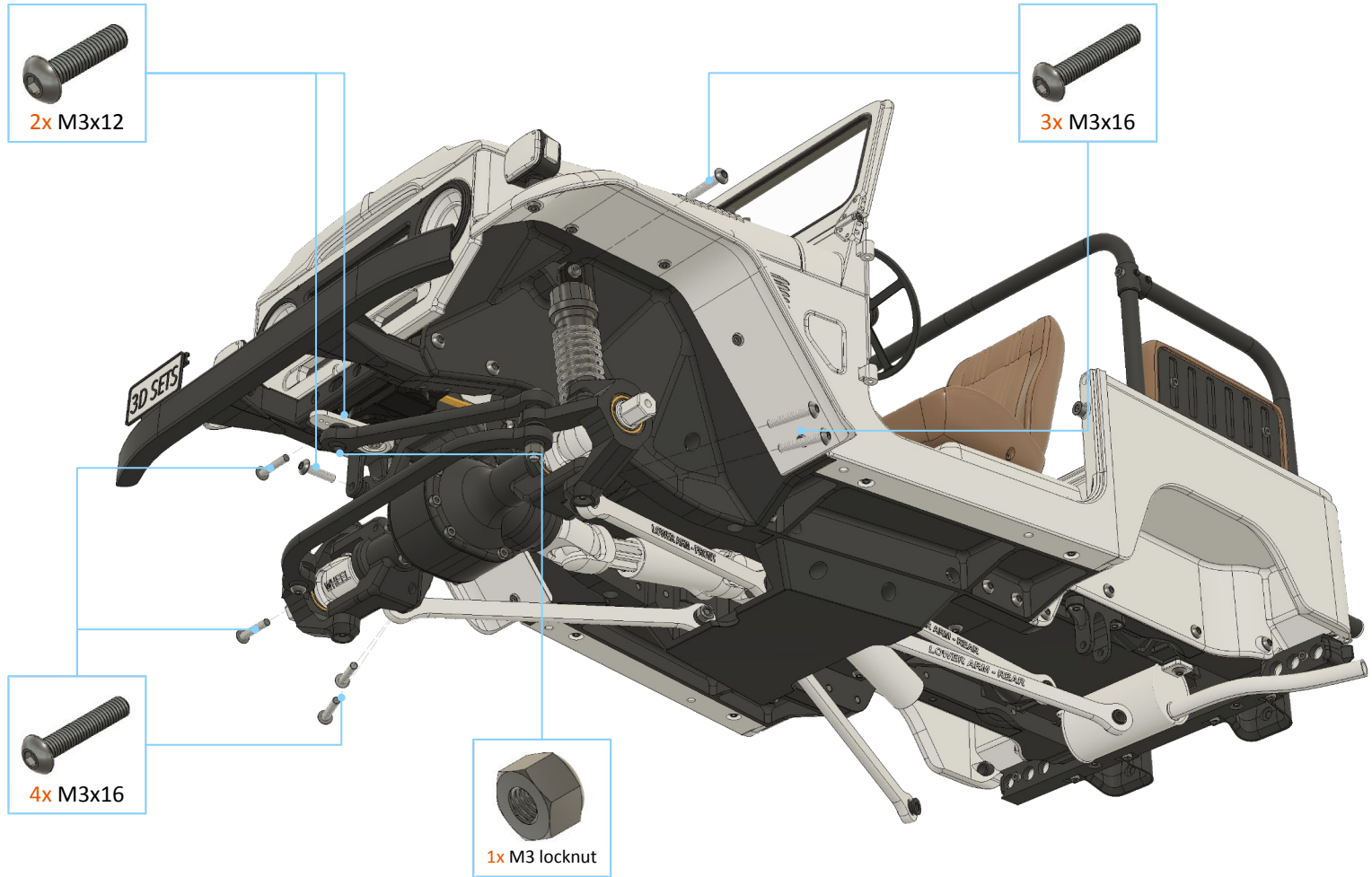
# Front Axle Installation

In this 1-step procedure you will install Front Axle.

Non-printed parts:

- Screw M3x12: 2 pcs.
- Screw M3x16: 7 pcs.
- Lock Nut M3: 1 pcs.

# Front Axle Installation



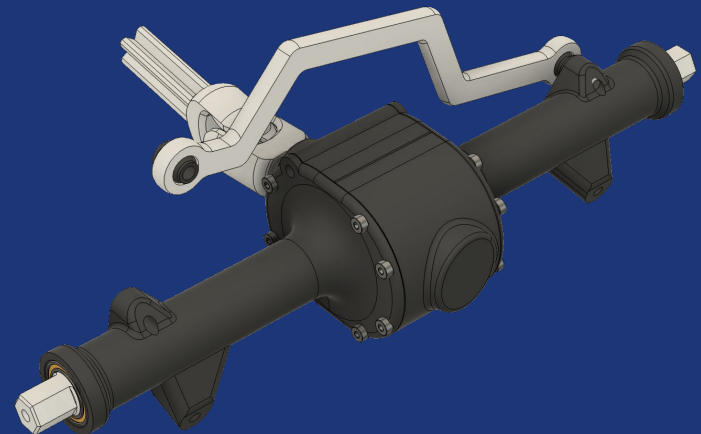
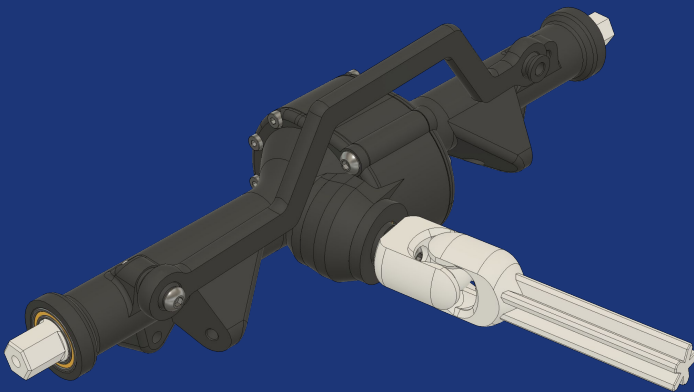
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# Rear Axle

On the [slide 85](#), you chose your preferred Axles configuration. Continue with the Rear Axle:

For Rear Axle with **Opened Differential**, [proceed to next page \(101\)](#).

For Rear Axle with **No Differential**, [proceed to page 105](#).



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# Rear Axle with Differential

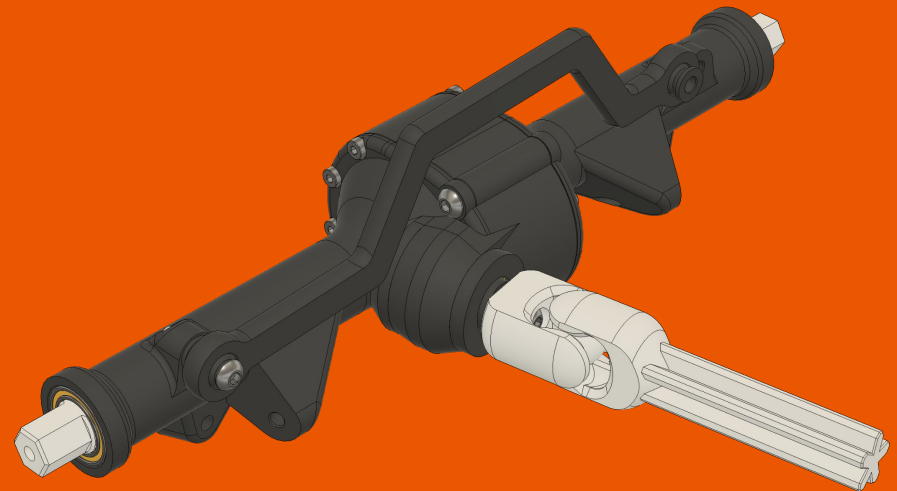
In this 4-step procedure you will assemble the rear axle. The axle includes a open differential and driveshaft.

Required print plates:

- “Print 25 - Shafts”
- “Print 26B - Differential Axe - 1”
- “Print 27B - Differential Axe - 2” - print from **PLA or PC Blend**

Non-printed parts:

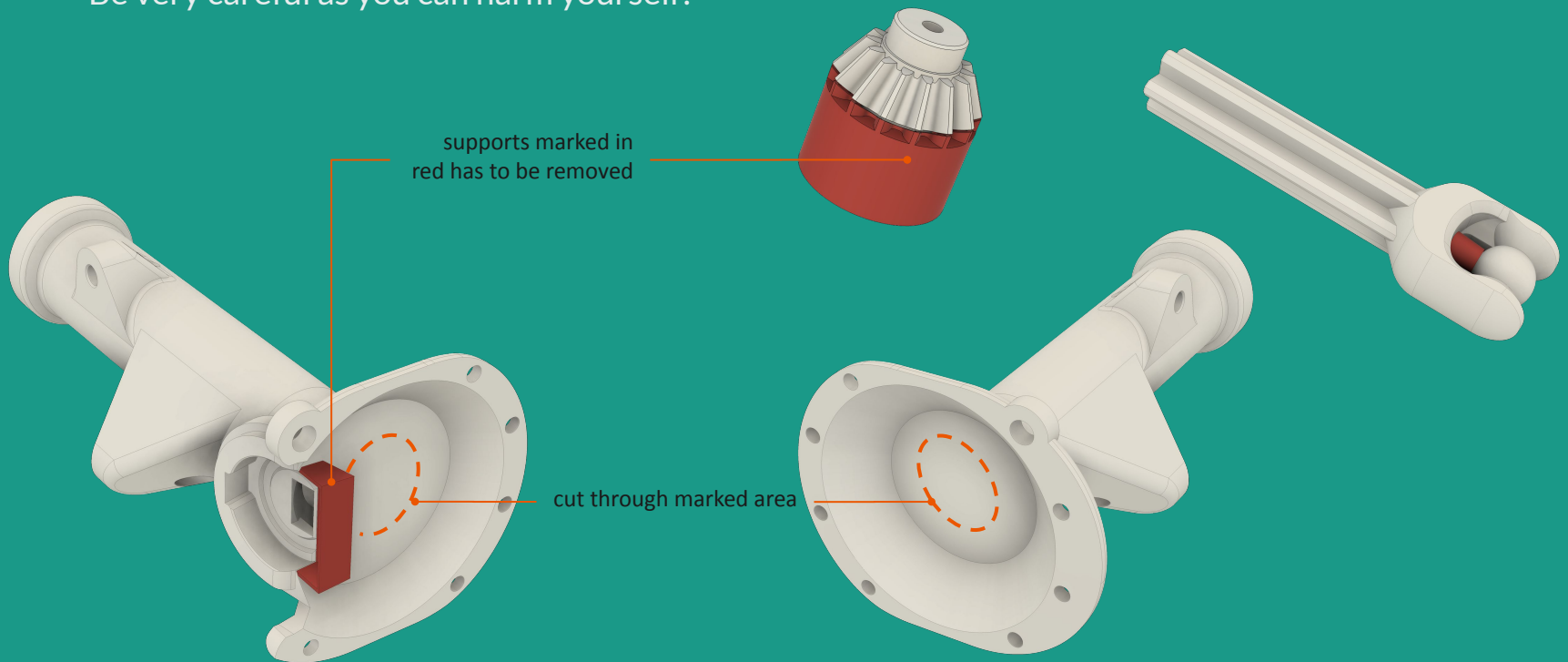
- Screw M2x10: 18 pcs.
- Screw M3x8: 3 pcs.
- Screw M3x10: 4 pcs.
- Screw M3x16: 1 pcs.
- Bearings: 11 pcs.
- Grease
- Thread Locker



---

# Axles – postprocessing

Before you start building Axles, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!





# Rear Axle (with differential) – step 1/4

It is recommended to print these specific parts from high-strength material like **Prusament PC Blend**: specifically the **Axle Gears** and **Differential Pinions**. Do not use ABS or PETG for gears, as they are weaker even than PLA!

**PRUSAMENT**

Axle Gear.

2x M3x10

Bearing 10x15x4mm

Rear Axle Shaft - Diff - right



Use screw ISO 7380 or screw with max height head 2mm!

6x M2x10

3x M3x8



Use screw ISO 7380 or screw with max height head 2mm!

Differential Cage A

Axle Gear.

Prusament PC Blend

Open differential – section view:

Apply grease on gear teeth.



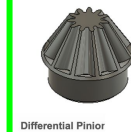
Rear Axle Shaft - Diff - left



Drive Gear



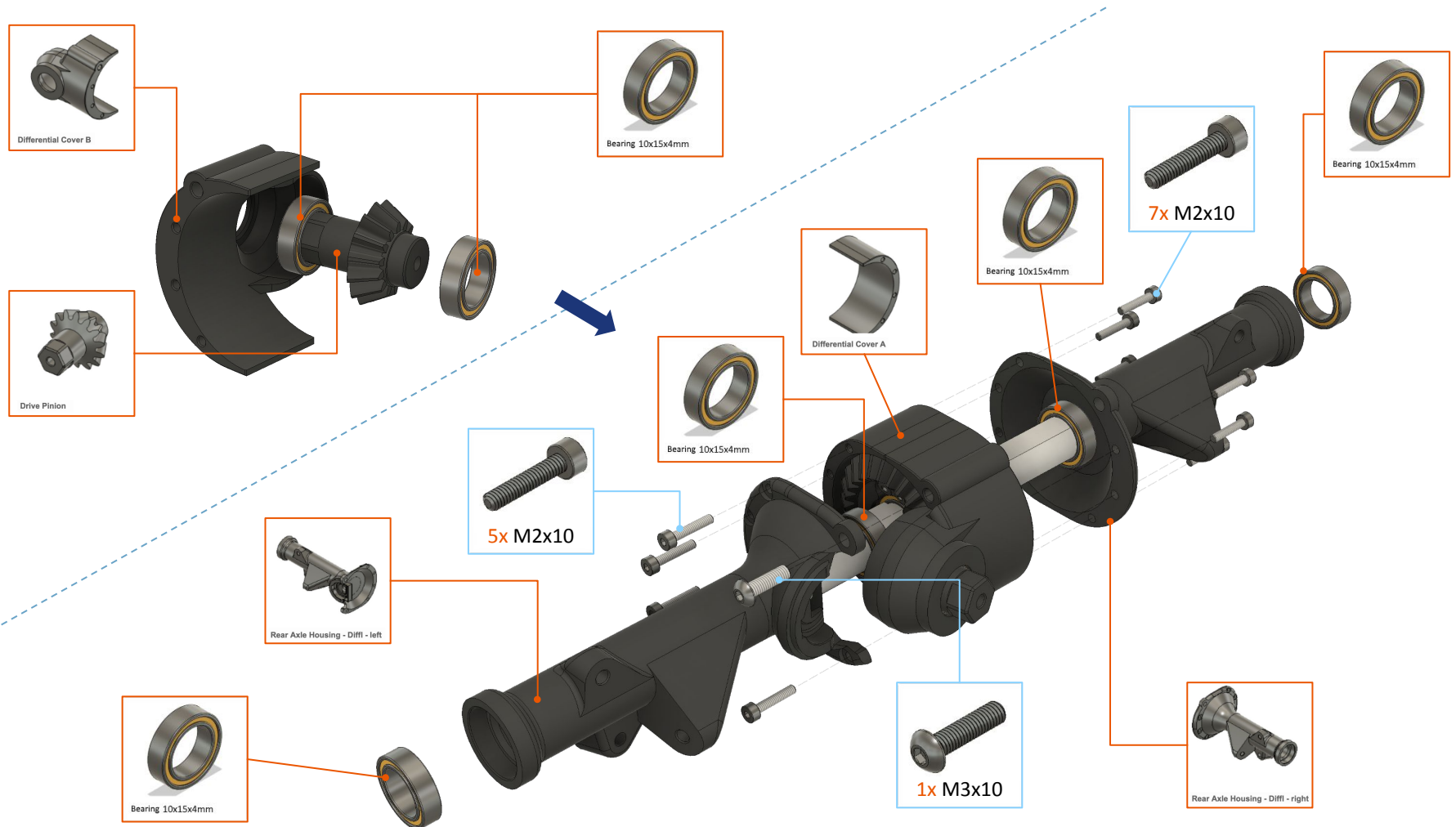
Differential Cage B



Differential Pinion

Prusament PC Blend  
**PRUSAMENT**

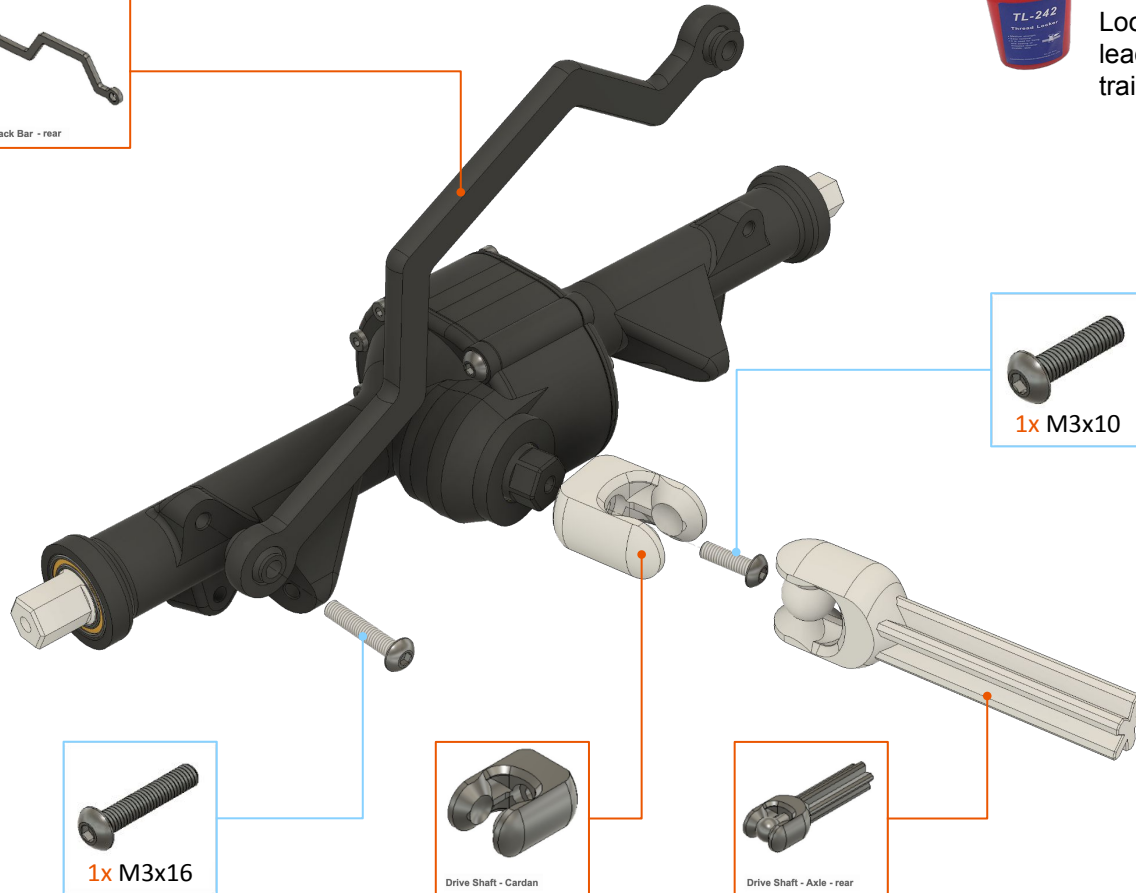
# Rear Axle (with differential) – step 2-3/4



# Rear Axle (with differential) – step 4/4



**Please, use Thread Locker on Drive Shaft - Cardan!** This will prevent the screws from loosening during use. Loosening these screws may lead to damage to the drive train.



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# Rear Axle – No Differential

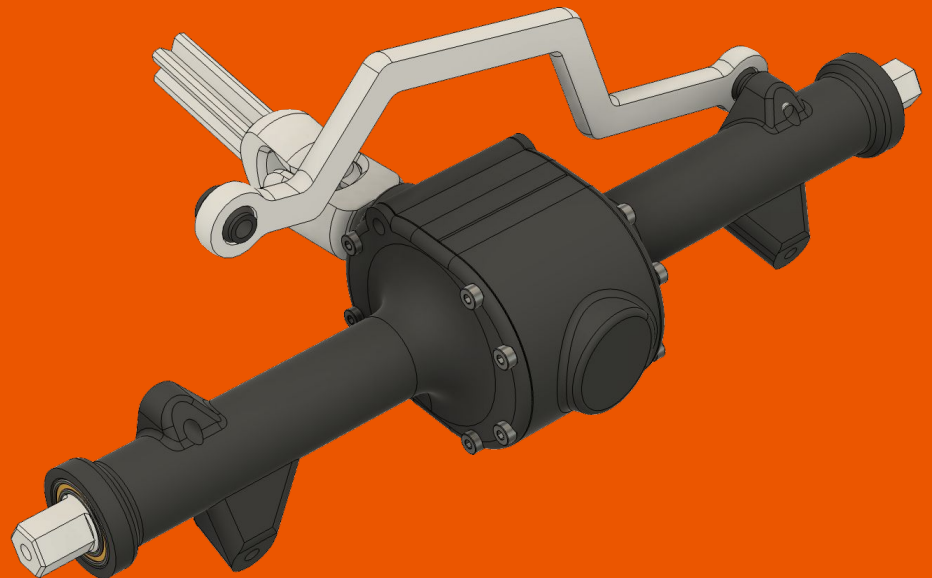
In this 6-step procedure you will assemble the rear axle. The axle includes a locked differential and driveshaft.

Required print plates:

- “Print 25 - Shafts”
- “Print 26A - Locked Axle - 1”
- “Print 27A - Locked Axle - 2”

Non-printed parts:

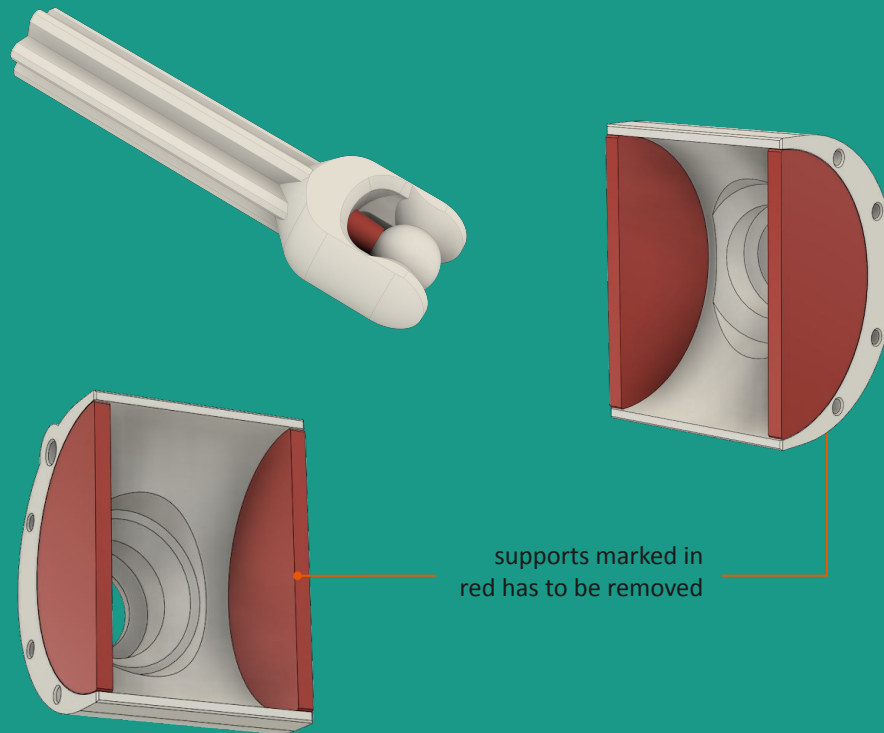
- Screw M2x6: 14 pcs.
- Screw M3x10: 3 pcs.
- Screw M3x16: 1 pcs.
- Bearings: 6 pcs.
- Grease
- Thread Locker



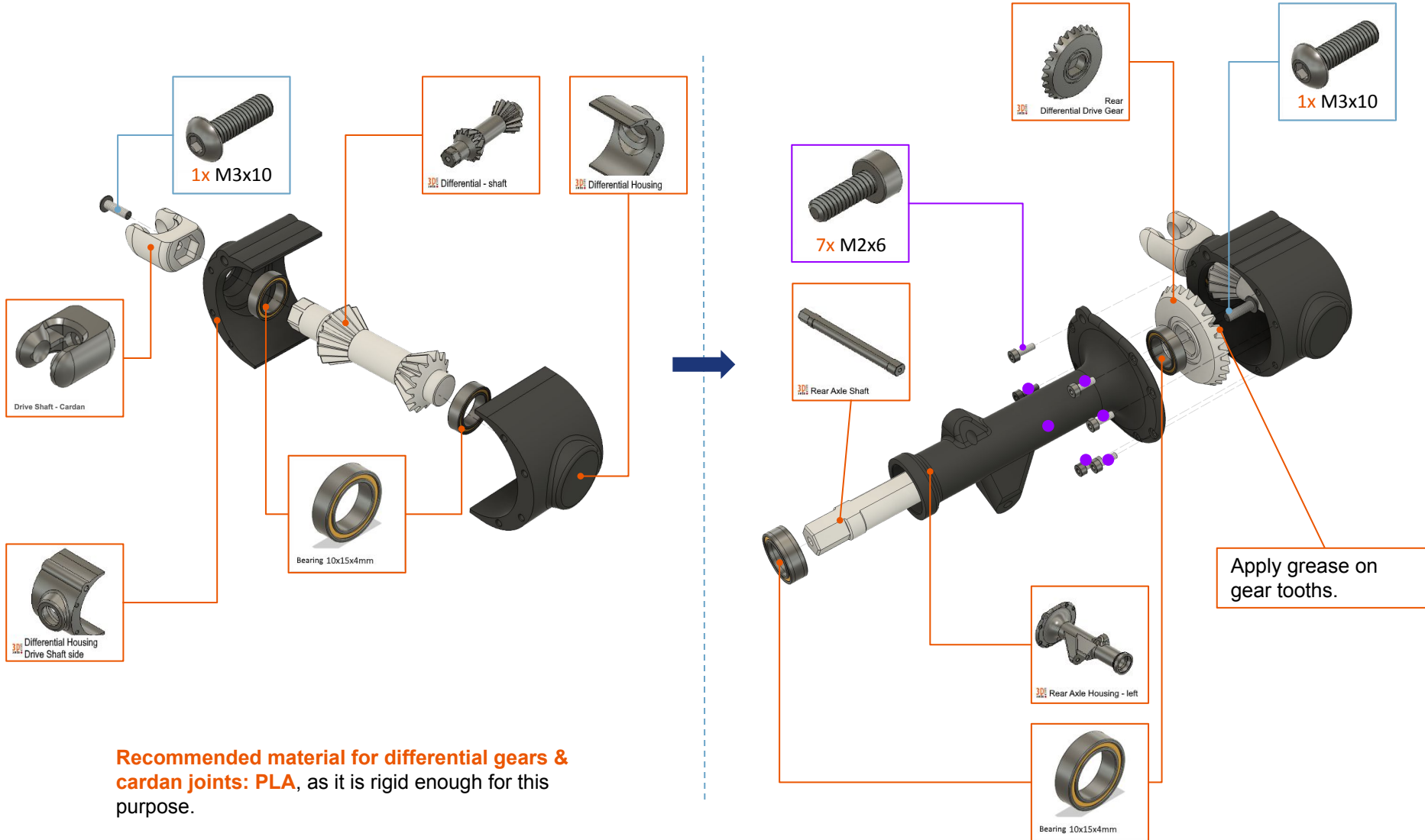
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# Axles – postprocessing

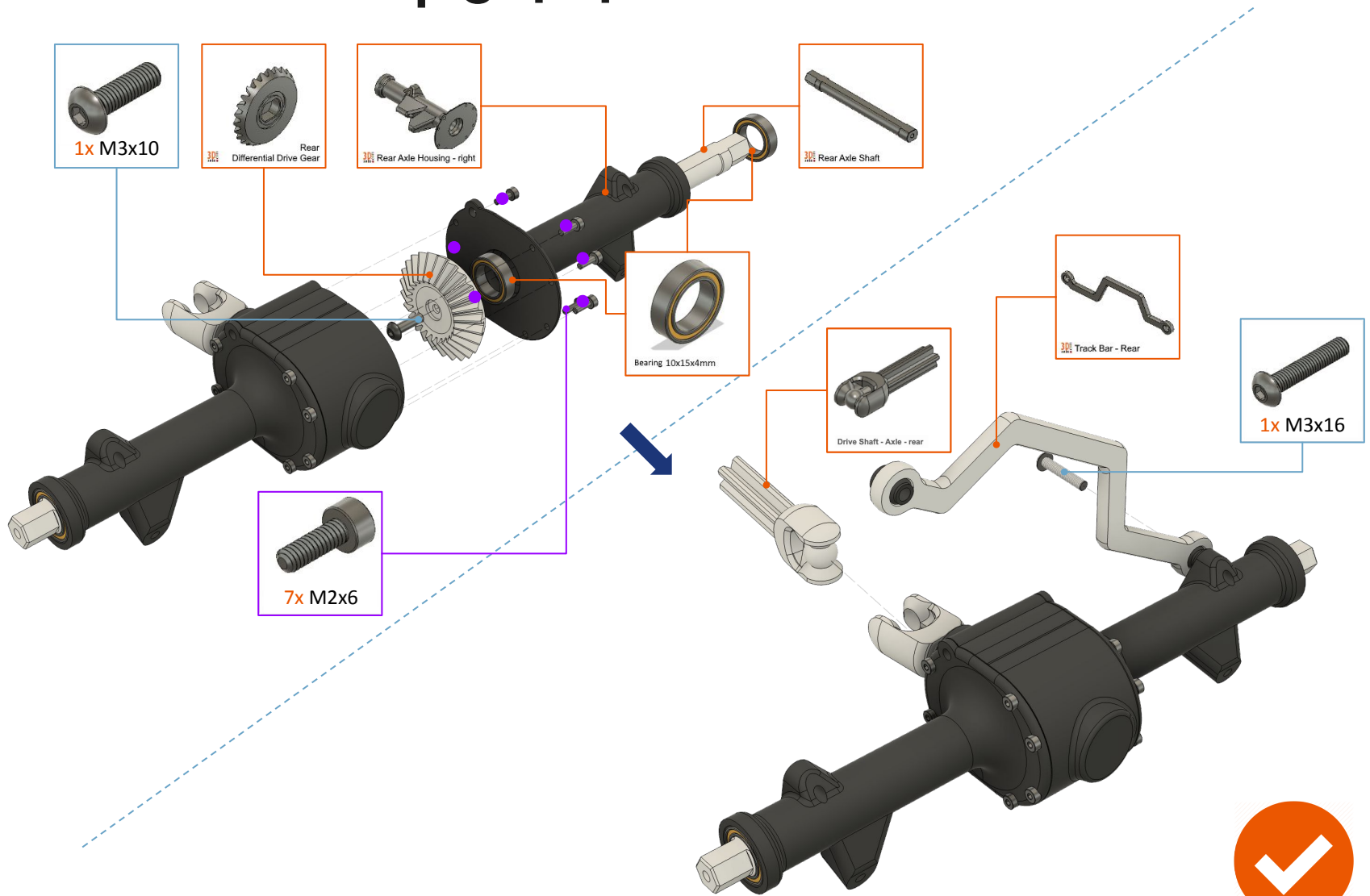
Before you start building Axles, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!



# Rear axle – step 1-2/4



# Rear axle – step 3-4/4



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# Rear Axle Installation

In this 1-step procedure you will install Rear Axle.

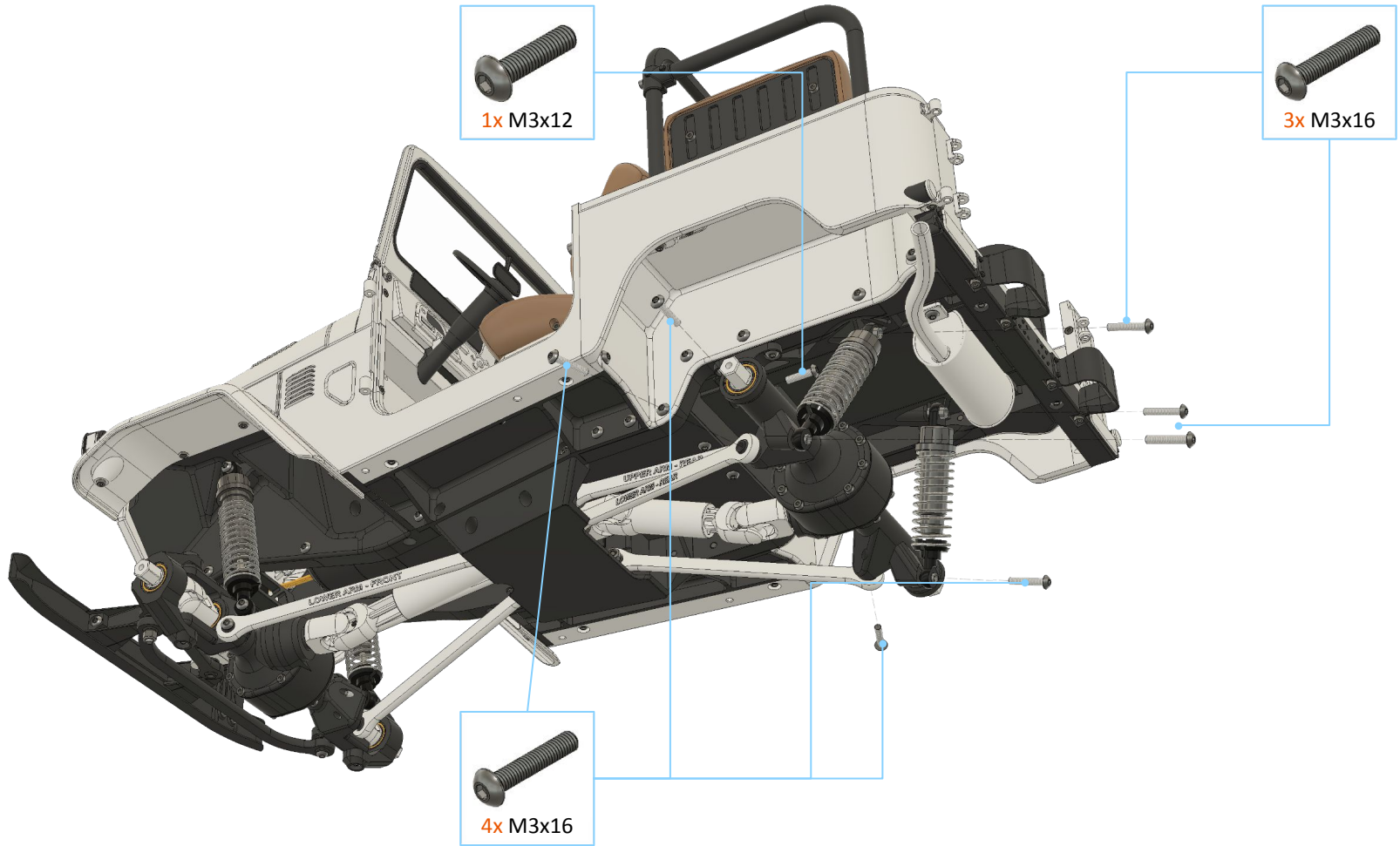
Non-printed parts:

- Screw M3x12: 1 pcs.
- Screw M3x16: 7 pcs.





# Rear Axle Installation



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# Front & Rear Doors, Spare Wheel Carrier

In this 7-step procedure you will assemble the Front Doors, Rear Doors and SPare Wheel Carrier.

Required print plates:

- “Print 7 - Body 2 + Hinges + Dashboard”
- “Print 11 - Interior 1 + Details 1”
- “Print 28 - Door 1”
- “Print 29 - Door Half Interior Panel”
- “Print 17 - Front Seat Box + Spare Wheel Carrier”
- “Print 25 - Licence Plate”

Non-printed parts:

- Screw M2x6: 28 pcs.
- Screw M2x8: 6 pcs.
- Screw M2x10: 9 pcs.
- Screw M2x16: 1 pcs.
- Screw M3x8: 4 pcs.

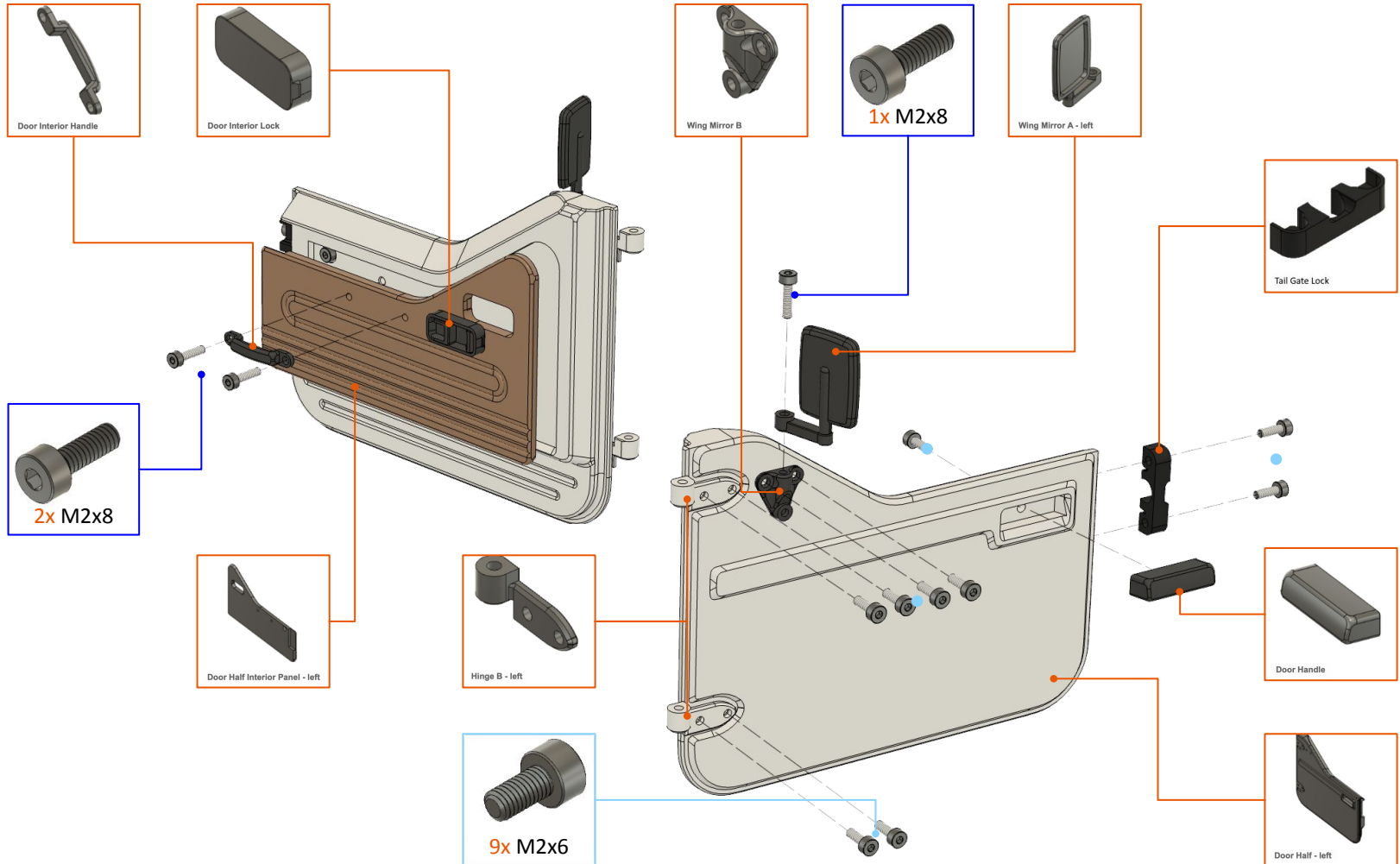
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# Postprocessing – removing supports

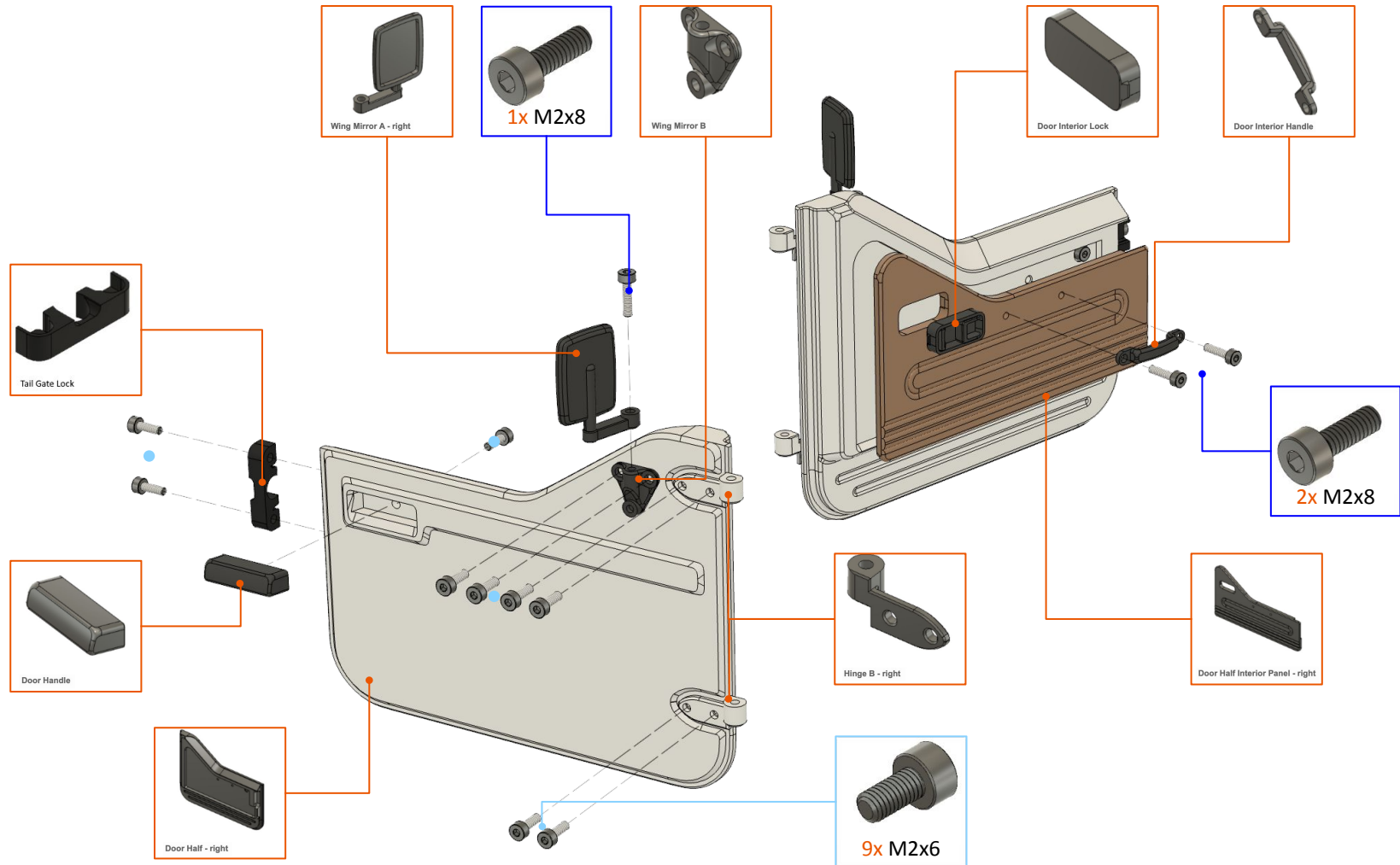
Before you start building, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!



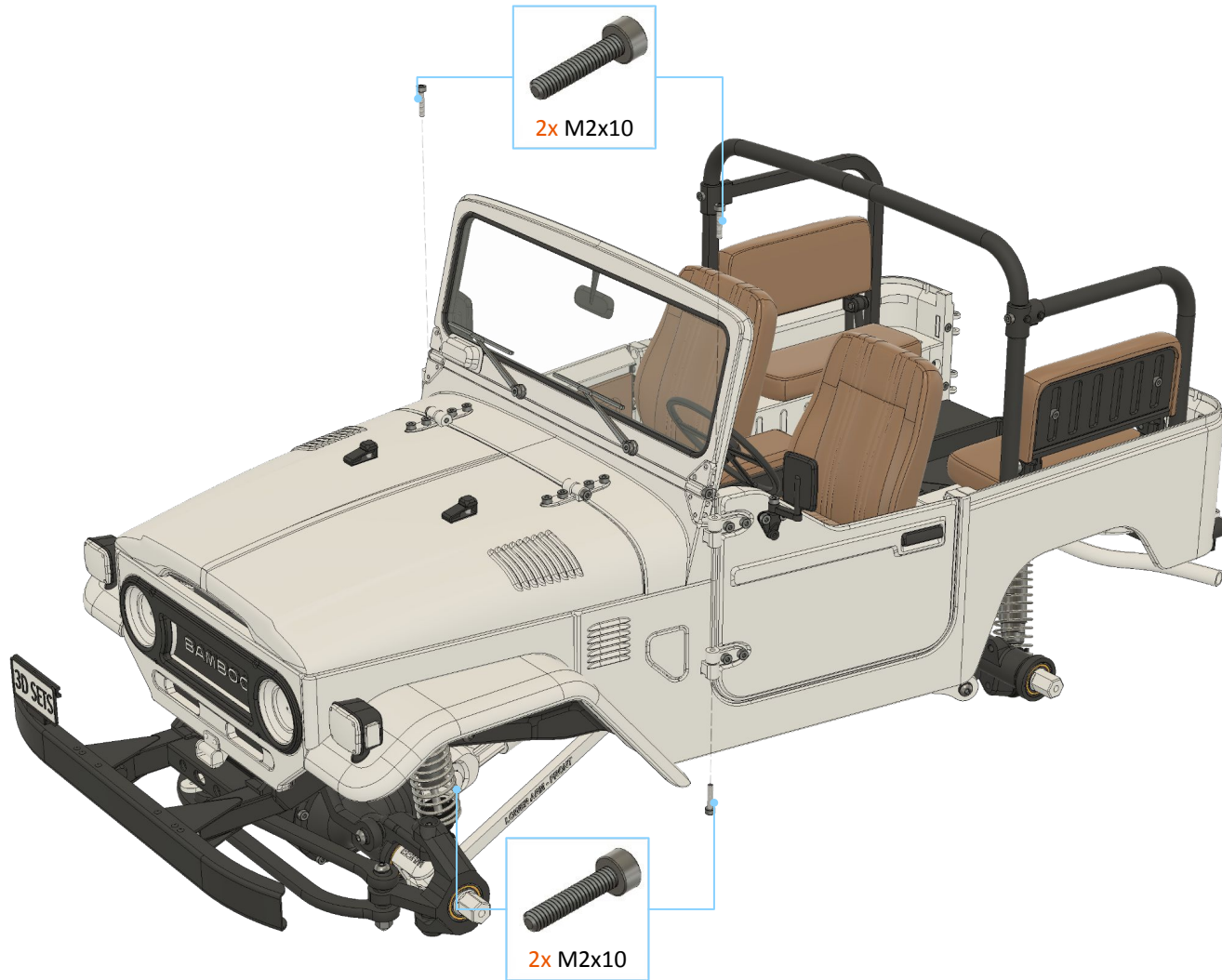
# Door - left



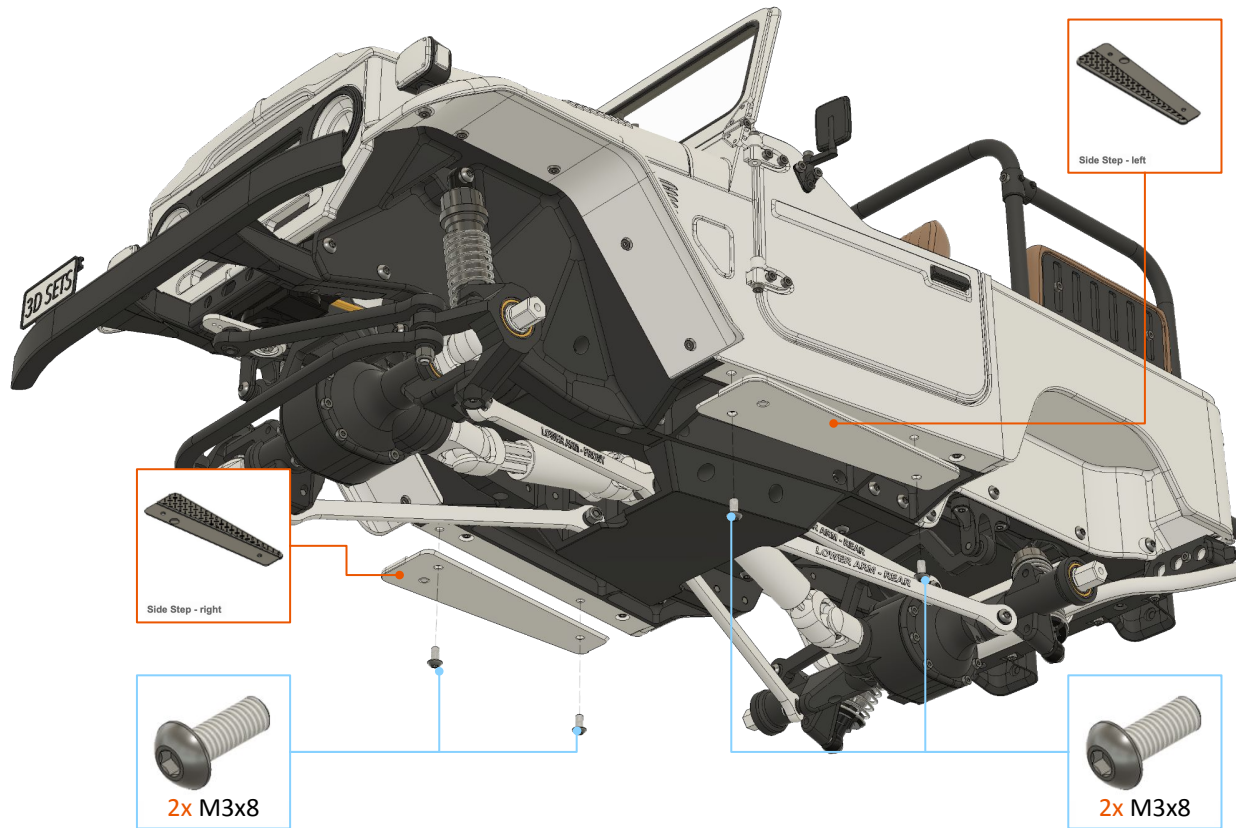
# Door - right



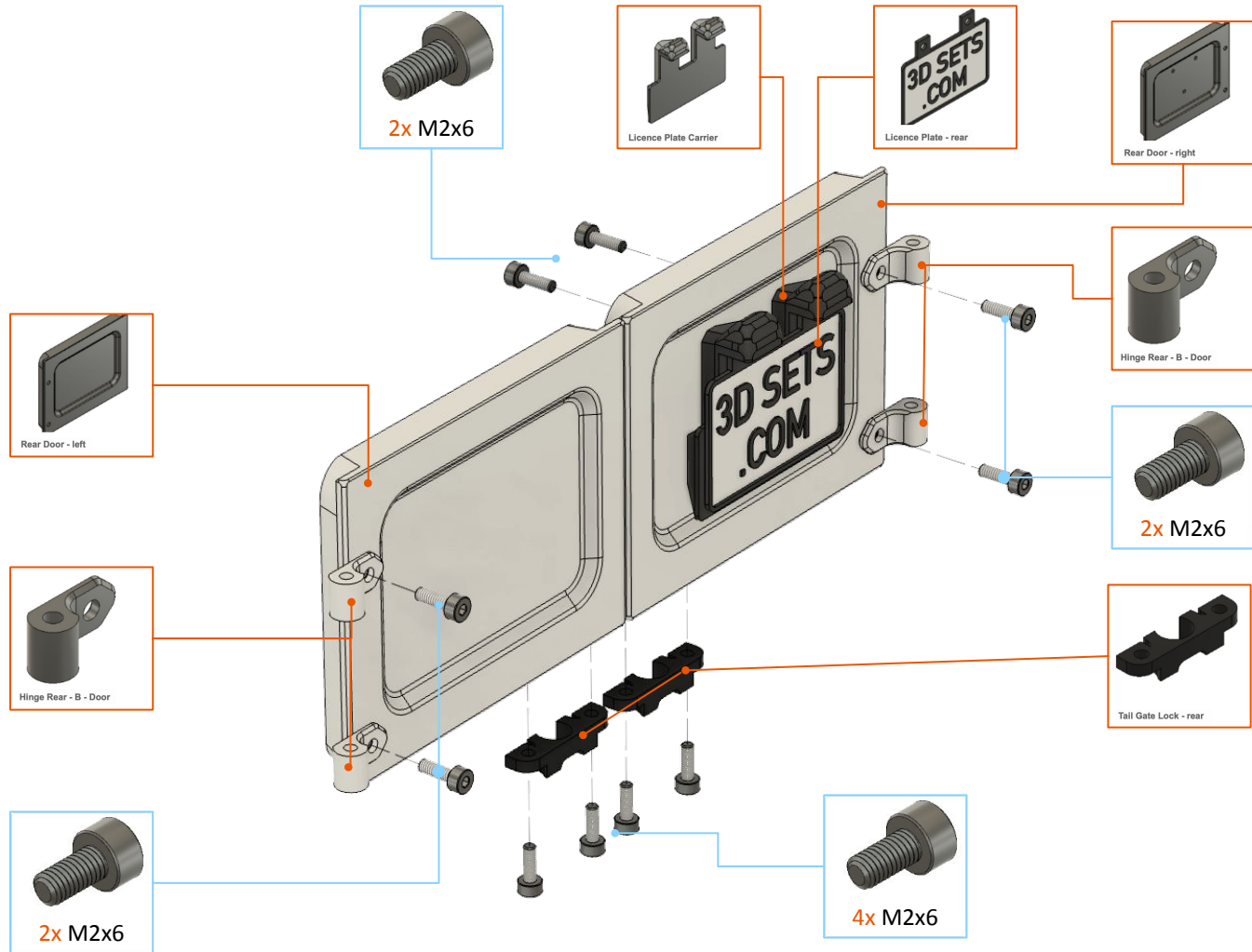
# Doors Installation



# Side Step Installation



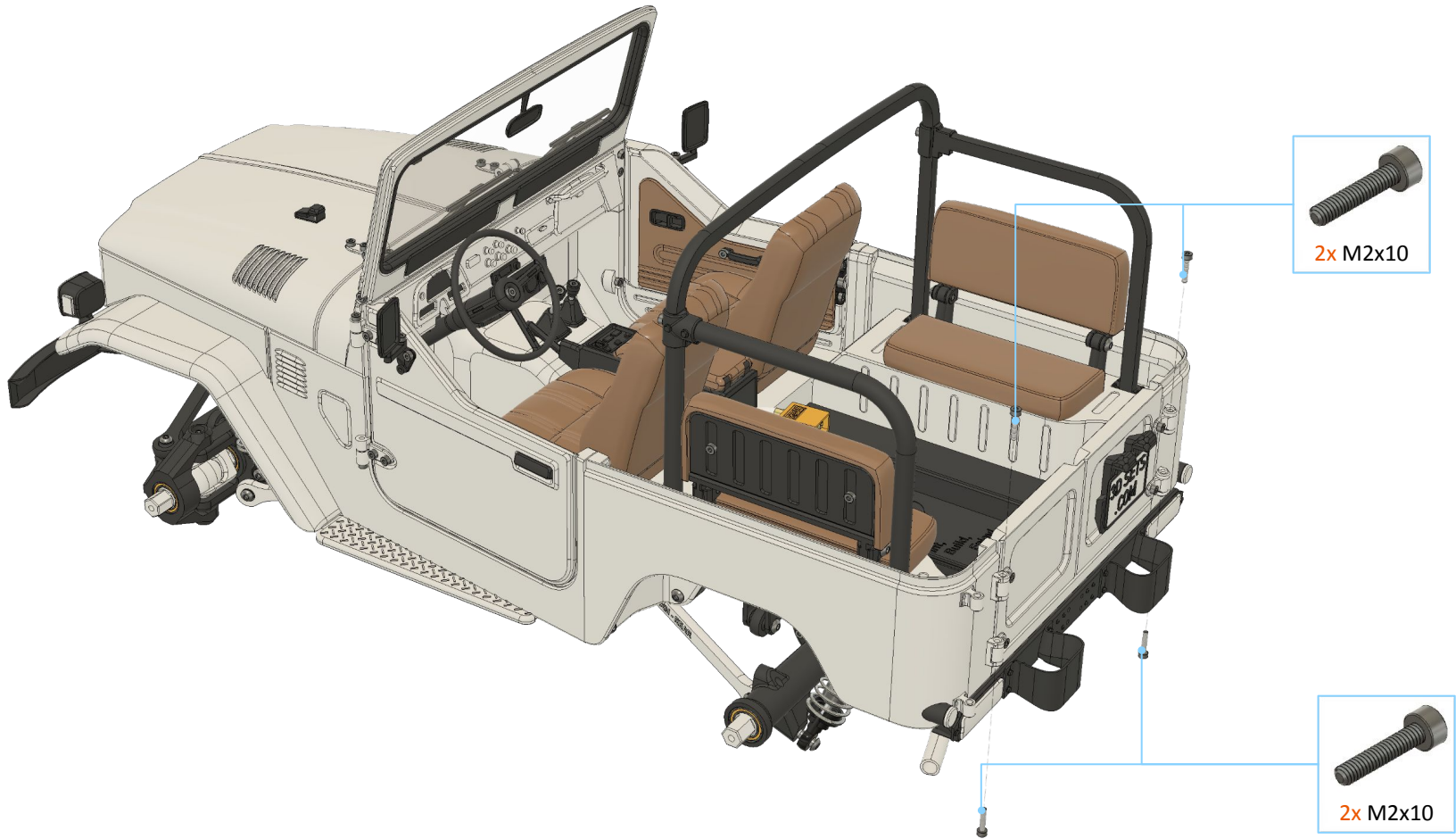
# Rear Doors



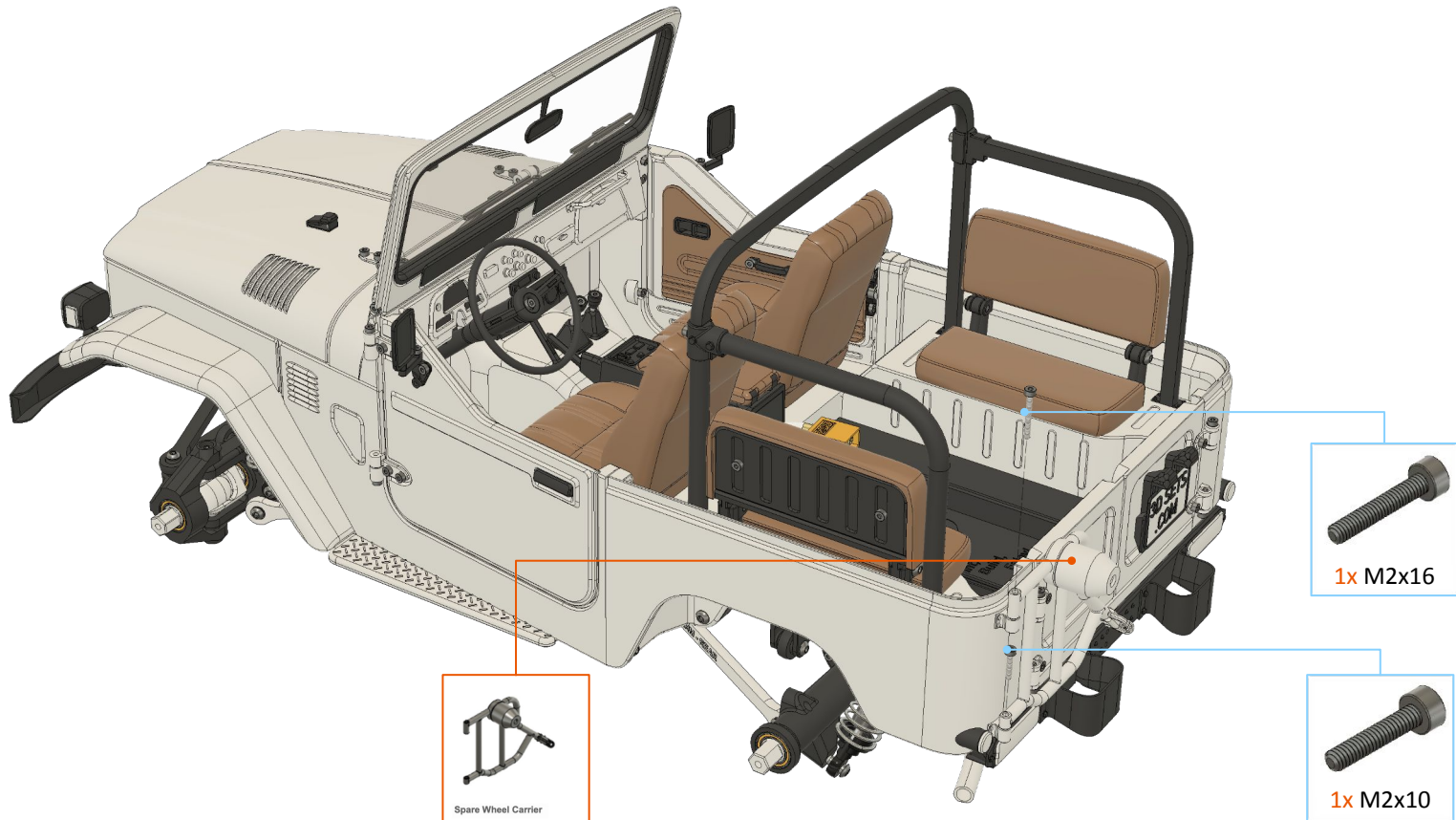




# Rear Door Installation



# Spare Wheel Carrier



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# Subassembly – Wheels

Now you will assemble wheels. You can choose between two different wheel designs:

Wheel F – classic style steel wheels with hub caps.  
Front wheels has longer hub than the rear ones:



Wheel G – modern style casted wheels:  
Front wheels has longer hub than the rear ones:



---

# Wheel F

In this procedure you will assemble the Wheel F.

Required print plates:

- “Print 30A - Wheel F - Inner”
- “Print 31A - Wheel F - Outer”
- “Print 32A - Wheel F - Cap Center + Cap Insert”
- “Print 33A - Wheel F - Cap End”

Non-printed parts:

- Screw M2x8: 20 pcs.
- Screw M3x10: 4 pcs.
- Screw M3x12: 1 pcs.



# Wheel F - front



Hub caps are optional, wheel can be finished without installing them.

# Wheel F - rear



Hub caps are optional, wheel can be finished without installing them.

# Wheel F Installation



---

# Wheel G

In this procedure you will assemble the Wheel G.

Required print plates:

- “Print 30A - Wheel G - Inner”
- “Print 31A - Wheel G - Outer”

Non-printed parts:

- Screw M2x6: 20 pcs.
- Screw M3x10: 4 pcs.
- Screw M3x12: 1 pcs.





# Wheel G - front



# Wheel G - rear



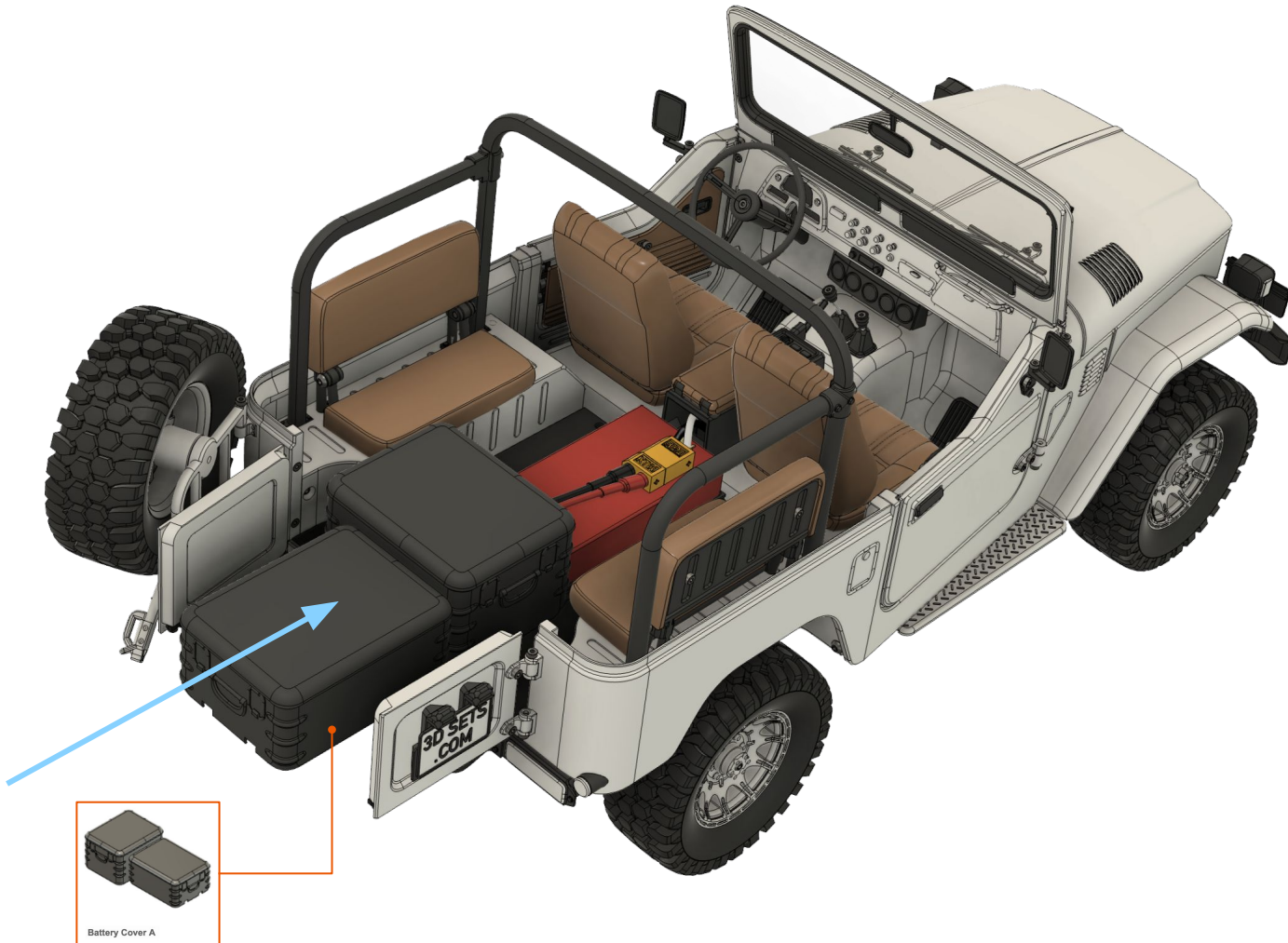


# Wheel G Installation





# Battery Cover



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# Model of the Engine

In this procedure you will assemble the Model of the Engine.

Required print plates:

- “Print 36 - Engine”

Non-printed parts:

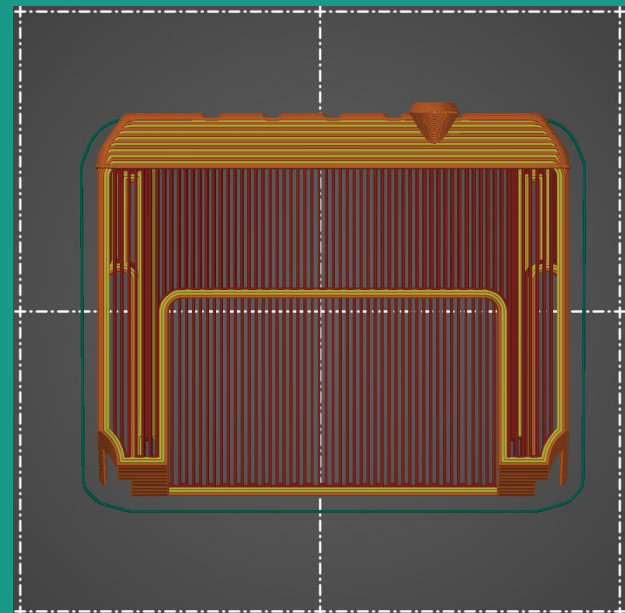
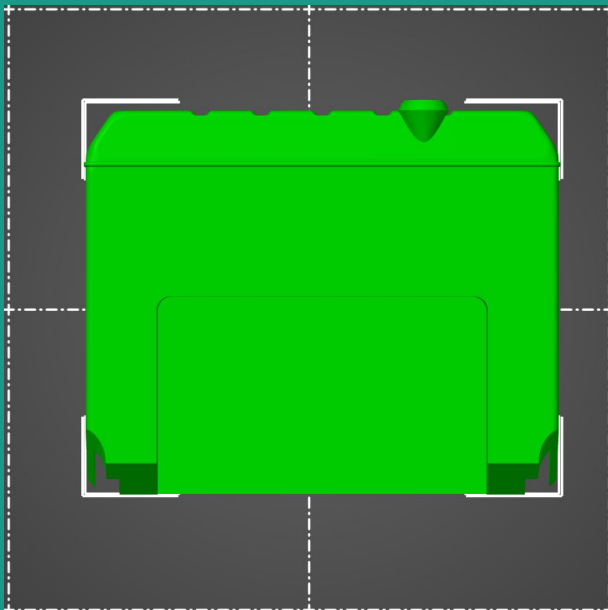
- Screw M2x6: 3 pcs.
- Screw M3x16: 1 pcs.
- Screw M3x6: 3 pcs.

---

# Engine – Radiator

If you will print the part “Engine – Radiator” from the .stl file instead of printing from provided gcode, please use following slicer setup:

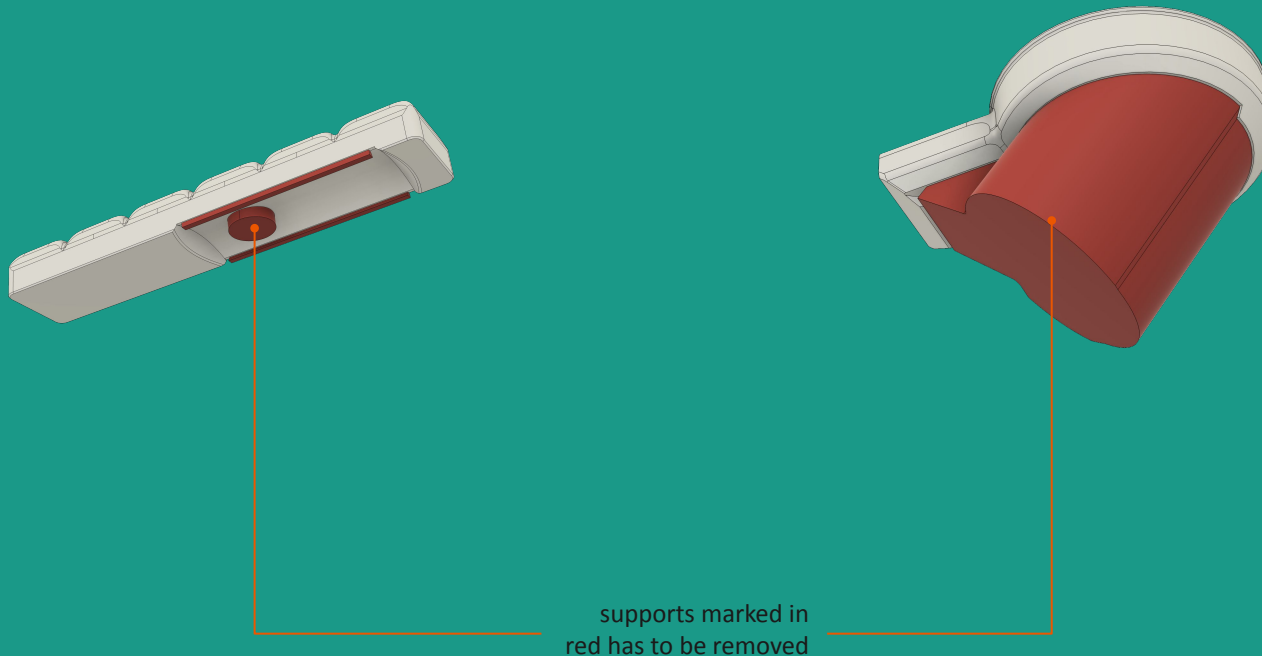
- Solid layers - Top / Bottom (0 layers)
- Fill angle: 90 degrees
- Infill density: 40%
- Infill type: Aligned Rectiline
- Perimeters: 3



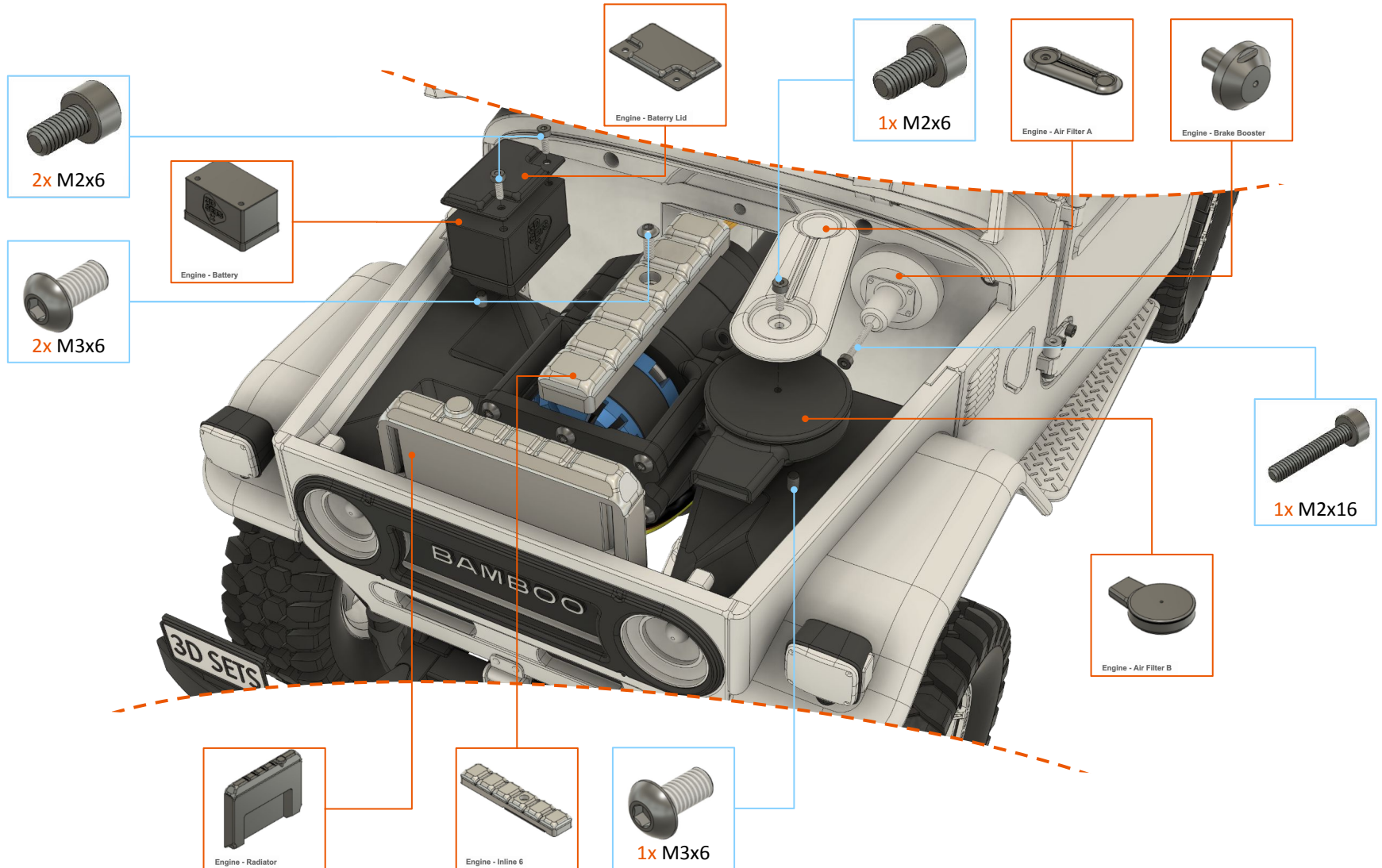
---

# Postprocessing – removing supports

Before you start building, carefully remove printing supports (marked red) integrated to specific parts rendered below. You can use pliers and sharp knife to make the procedure easier. Be very careful as you can harm yourself!



# Model of the Engine








# Finished model





## Bamboo 4x4 - general tips

- Always use a proper battery charger. Bad charging of the Li-Pol battery may lead to a risk of fire!
- Disconnect the battery when the model is not used. The small switch on the ESC doesn't disconnect the battery and the ESC may draw a small amount of current even in OFF-state.
- Do not go into water unless you have waterproof electronics!