



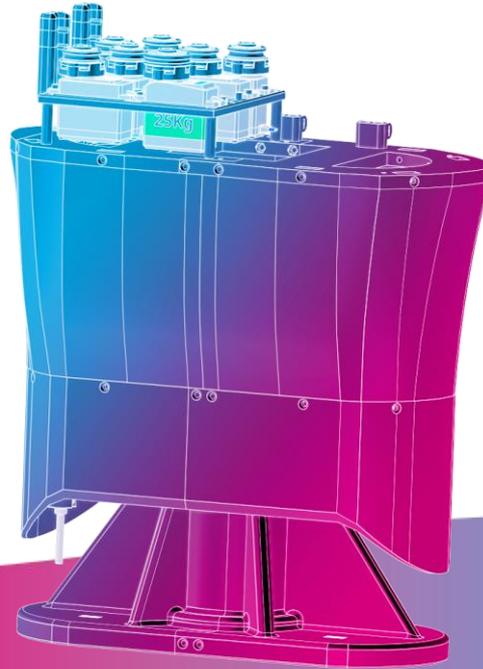
## How to build your robot

[www.pib.rocks/build](http://www.pib.rocks/build)



assembly instructions for:

*UPPER BODY*



You  
Print  
Build  
Develop

*your own robot!*

## Printable and pre-assembled parts



Pib's upper body (ripcage) consists of **15 different printable parts** and is assembled in **13 steps**.

We suggest to assemble the upper body more to the end of your construction, as the upper body houses the majority of the electrical parts.

In order to construct the upper body, you will need to print the parts as seen in the table.

Please note: For better readability we use the abbreviations in the tutorial: B03 instead of B03-Ripcage\_middle\_left.

### Printable parts

**B03**-Ripcage\_middle\_left

**B04**-Ripcage\_middle\_right

**B05**-Ripcage\_helper\_left

**B06**-Ripcage\_helper\_right

**B08**-Electronics\_back

3 x **B12**-Electronics\_hinge

4 x **B16**-Servo\_scaffold\_leg

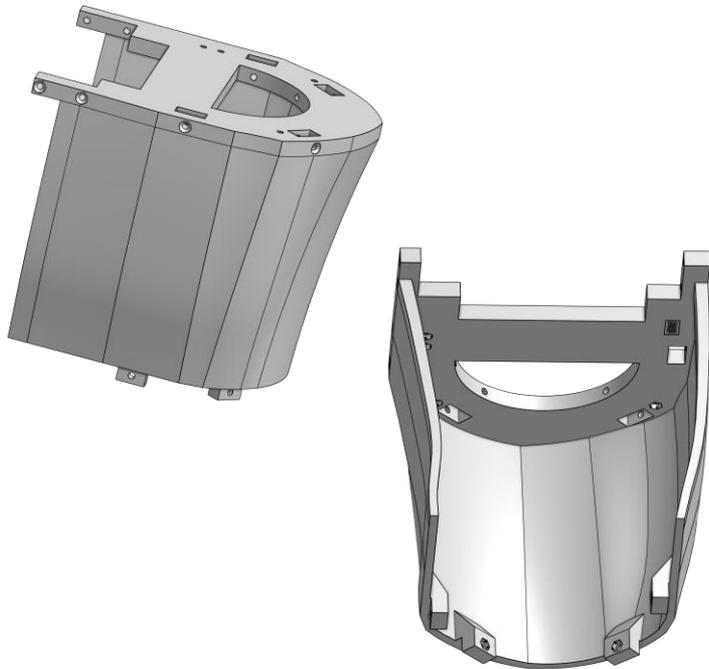
**B17**-Ripcage\_middle\_right\_opening

**B19**-Flat\_stand\_right

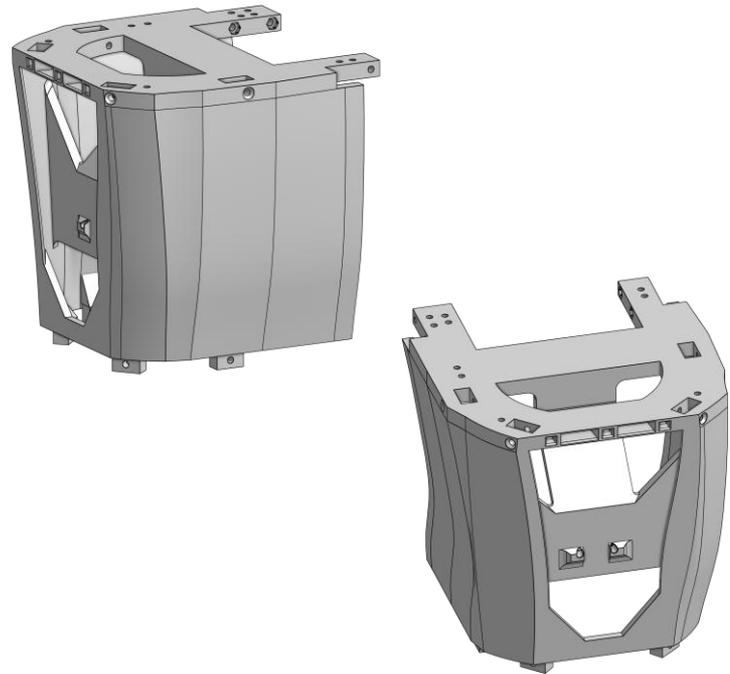
**B20**-Flat\_stand\_left

## Printable parts - Overview

**B03**-Ripcase\_middle\_left

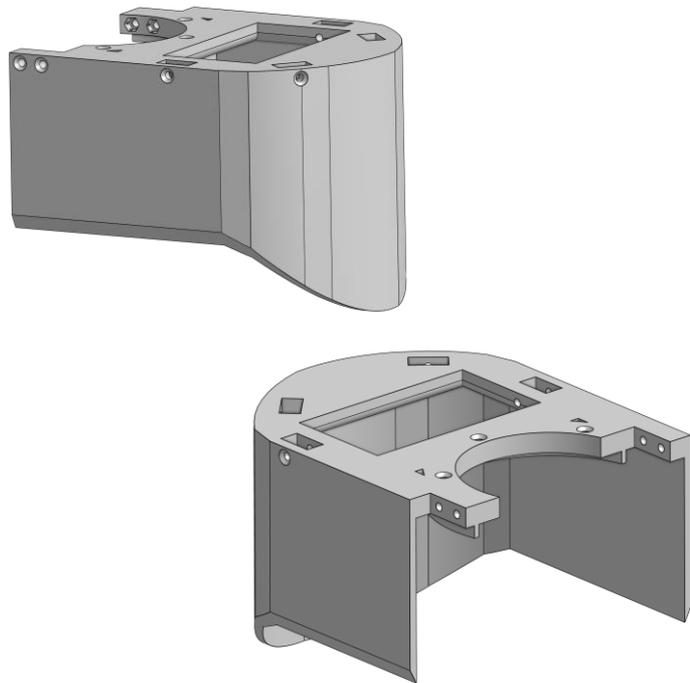


**B04**-Ripcase\_middle\_right

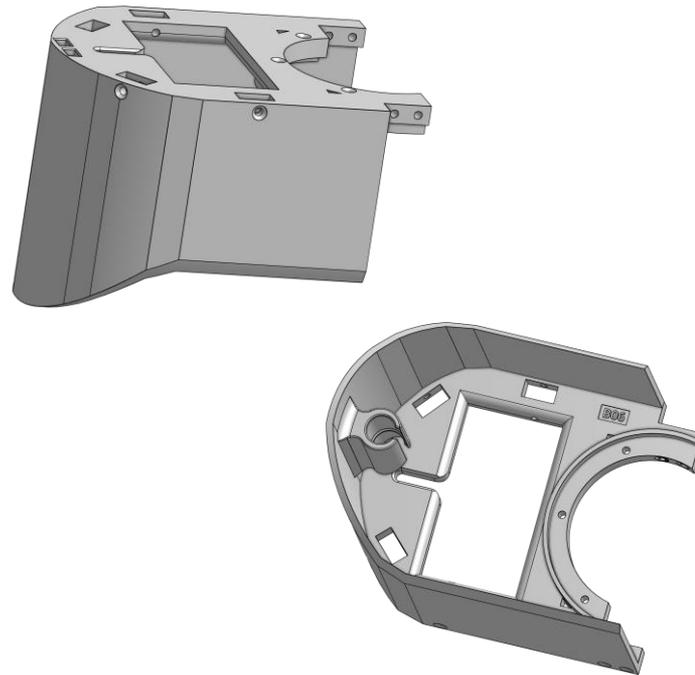


## Printable parts - Overview

B05-Ripcage\_helper\_left

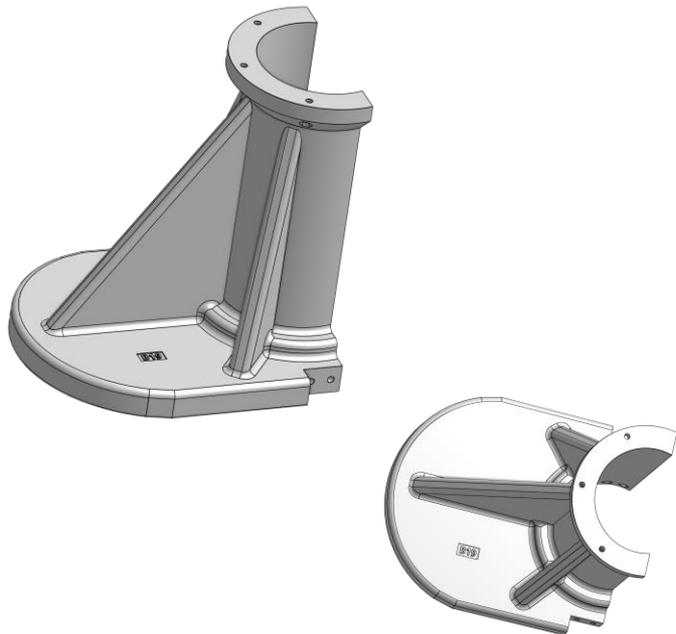


B06-Ripcage\_helper\_right

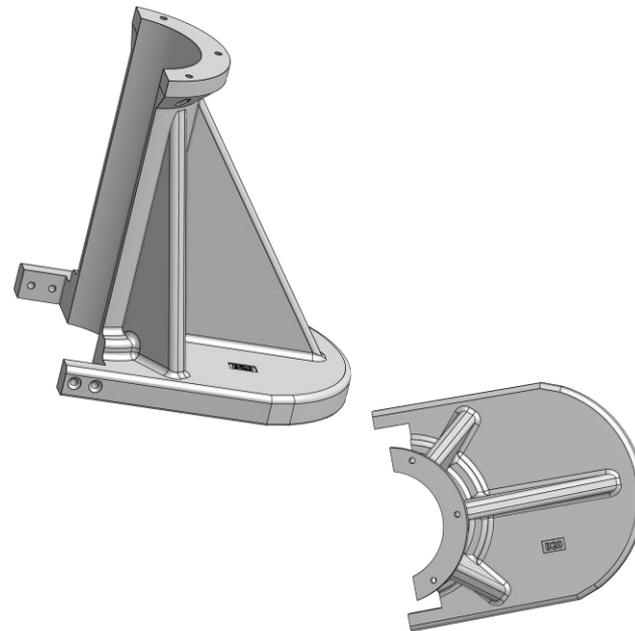


## Printable parts - Overview

**B19**-Flat\_stand\_right

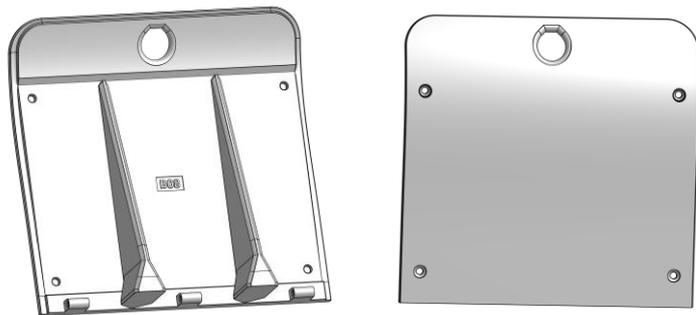


**B20**-Flat\_stand\_left

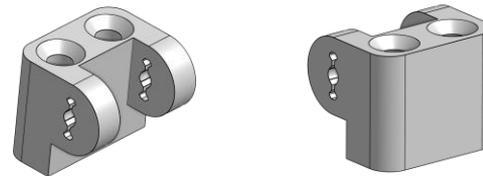


## Printable parts - Overview

**B08**-Electronics\_back



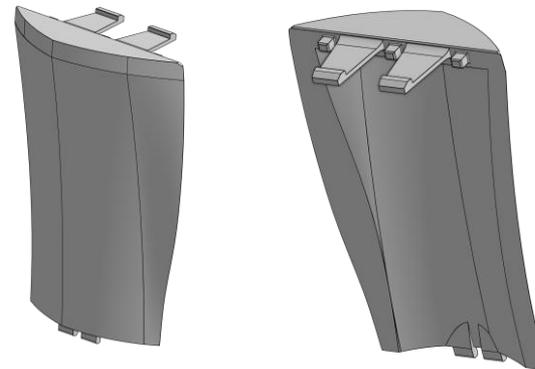
**B12**-Electronics\_hinge



**B16**-Servo\_scaffold\_leg



**B17**-Ripcase\_middle\_right\_opening

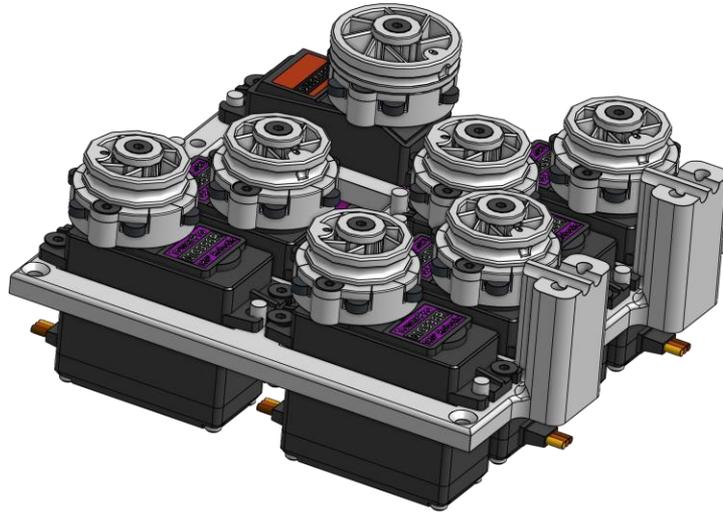


## Pre-assembled parts

You will also need to finish the **internal body**, as this assembly will be needed to build up the upper body.

You can find the tutorial here: <https://pib.rocks/build/how-to-build-pibs-internal-body/>

Internal body



## Non-printable parts



You will also need the following non-printable parts from our pib.Box Master.

If you do not have it yet, you can buy in our shop <https://shop.pib.rocks>.

### Non-printable parts - Electronics

1 x **E13**-SPL-82

1 x **E14**-Power\_Supply-cable

2 x **E03**-TinkerForge\_ServoBrickletV2.0

### Non-printable parts

54 x **S01** M3 nuts

8 x **S02** M3 6 mm screws

4 x **S04** M3 10 mm screws

10 x **S06** M3 16 mm screws

6 x **S08** M3 20 mm screws

6 x **S09** M3 22 mm screws

4 x **S10** M3 25 mm screws

8 x **S11** M3 30 mm screws

4 x **S13** M3 40 mm screws

3 x **M08** 20 mm metal rods

8 x **M13** Distancer

## Build it better: our suggestion for assembling pib



We recommend **tools** for each step. These are a suggestion, you can of course also use other tools.



1-5

We have categorized each step according to its **difficulty** - from **1-5** (1 being the easiest, 5 the hardest)

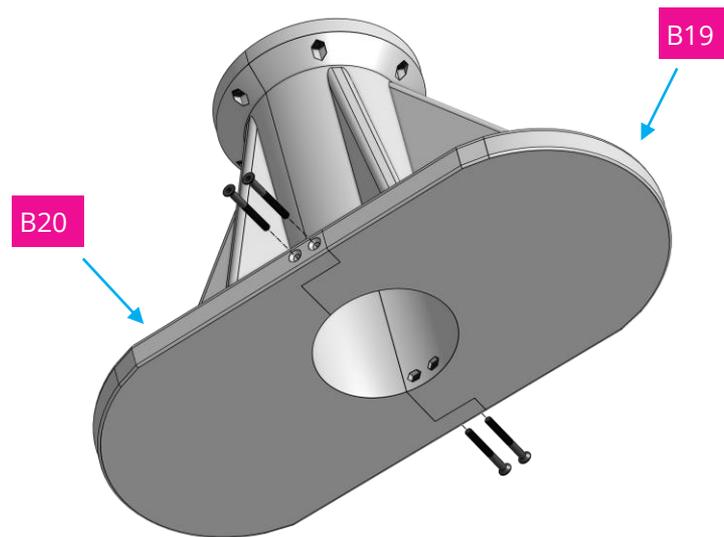
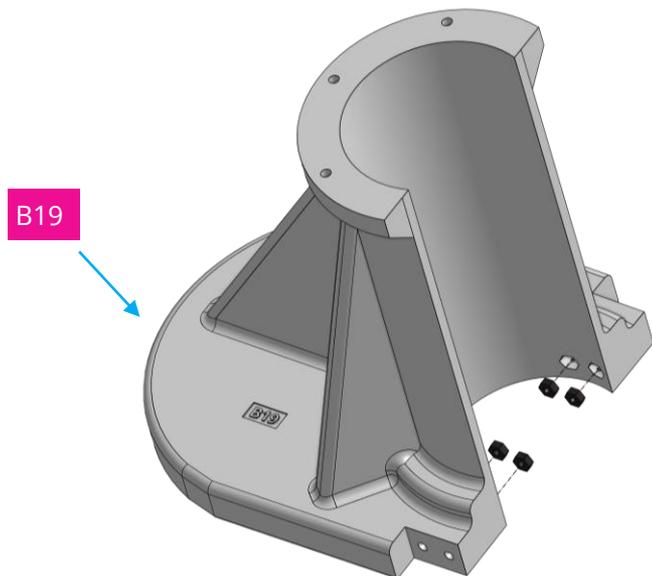


We also show you which **non-printable parts** you need for each step

## Step 1



Place **4 x nuts** in the shown spots in **B19**, then use **4 x 30 mm screws** to fix **B20** to **B19**.



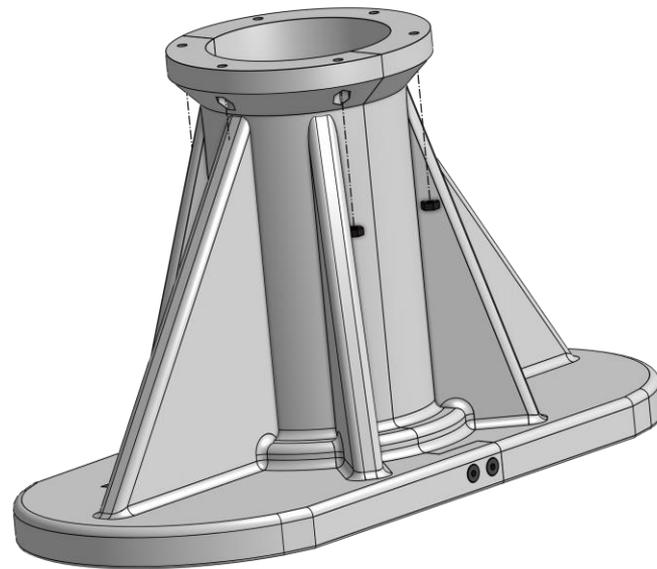
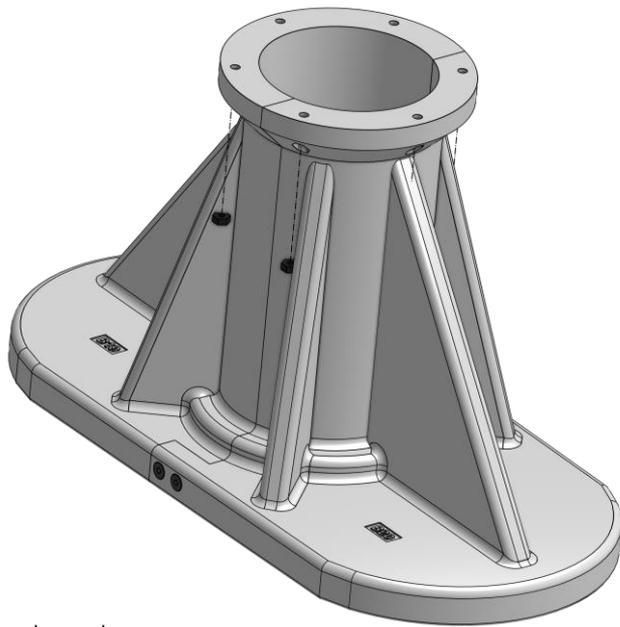
Our tip: use a hammer to gently put the nuts into the holes.

## Step 2



6x

Place **6 x nuts** in shown spots in **B19** and **B20**.



It is easier to put the nuts into place, when you flip the assembly.

### Step 3

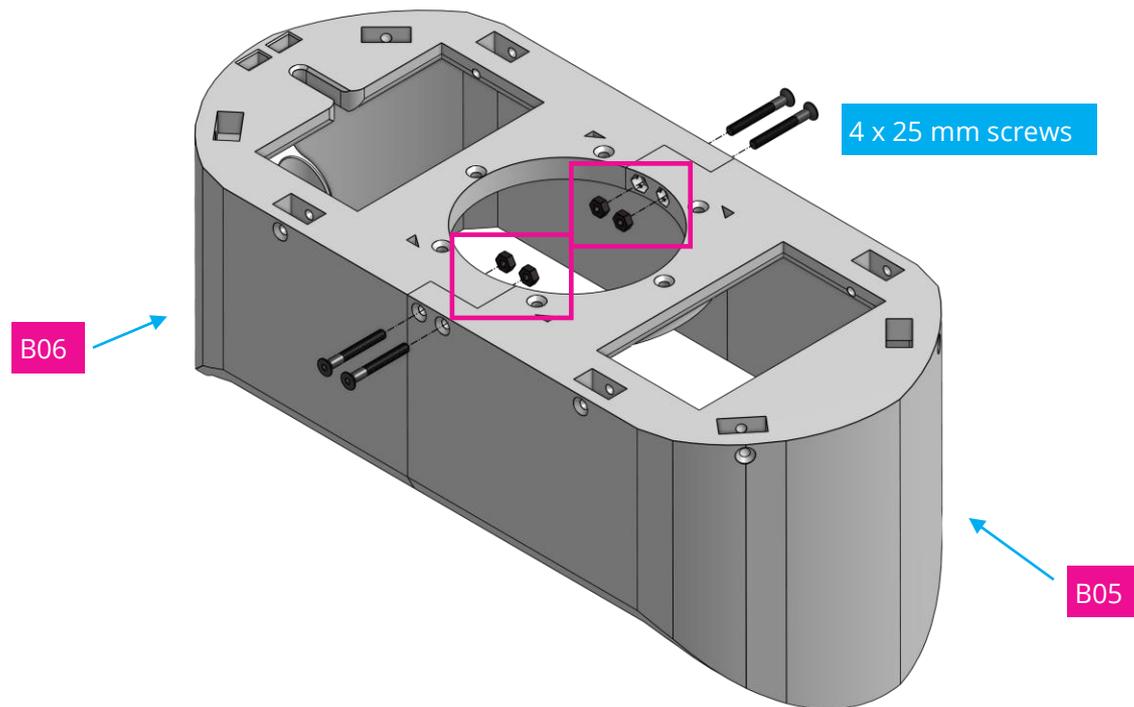
Use **4 x nuts** and **4 x 25 mm screws** to connect **B05** and **B06**.



4x



4x



## Step 4a

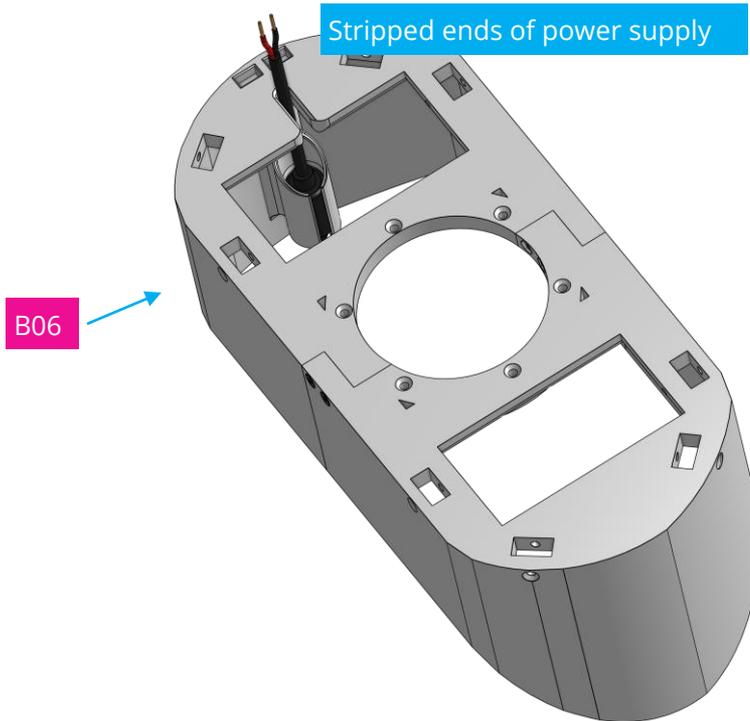


Cut the output barrel of the **power supply E14** as shown in the pictures. (If you haven't done it already in the calibration tutorial)  
Strip the ends of powersupply output wire to ensure the inside copper windings can be seen.



## Step 4b

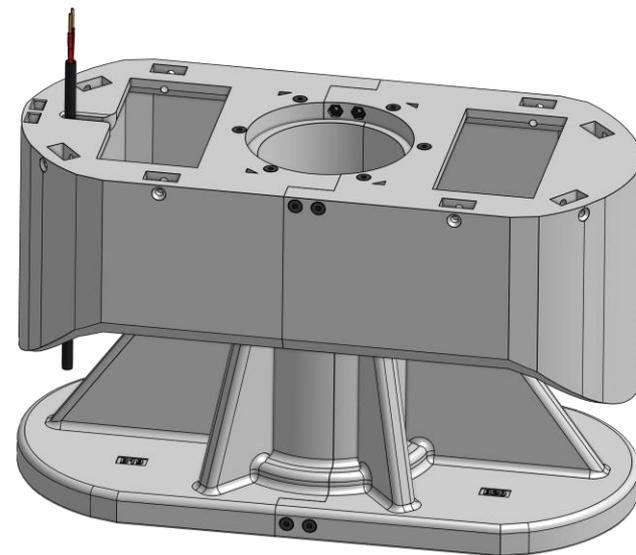
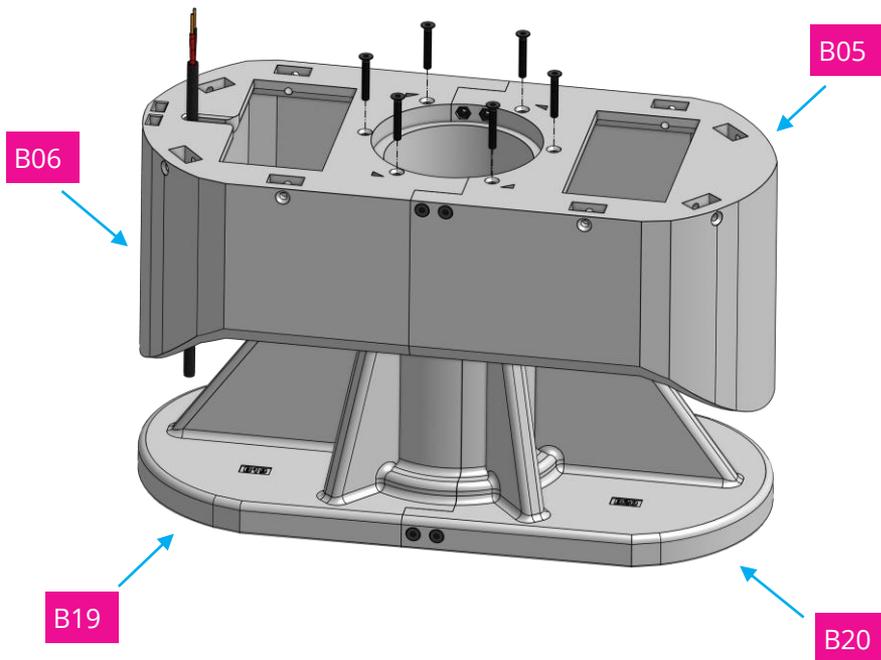
Place the output wire in the shown orientation and spot in **B06**.



## Step 5

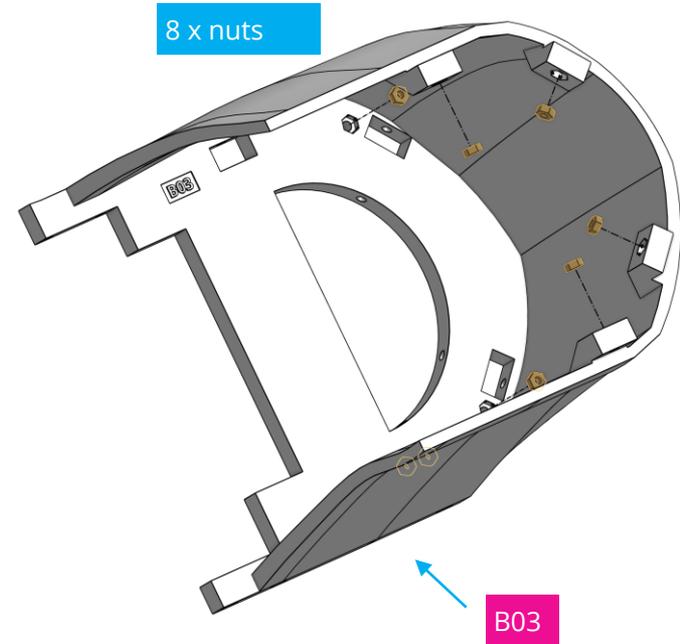
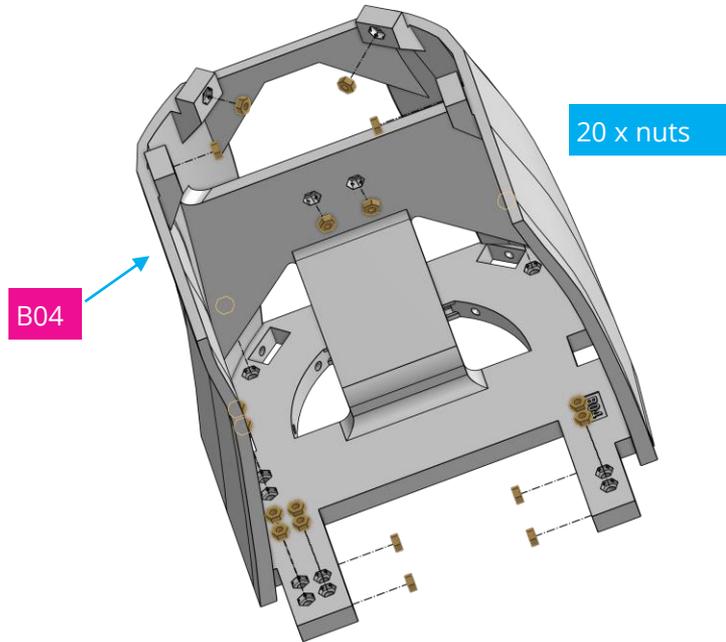
Connect both **assemblies** using **6 x 20 mm screws**.

You may apply some gently force to connect both parts.



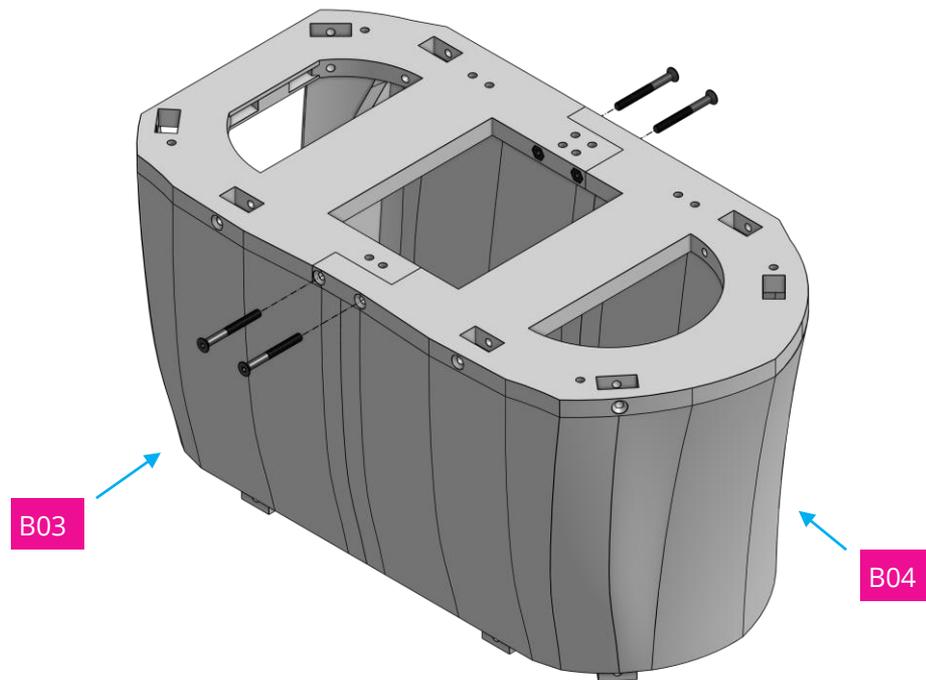
## Step 6a

Place **28 x nuts** in **B03** and **B04**.



## Step 6b

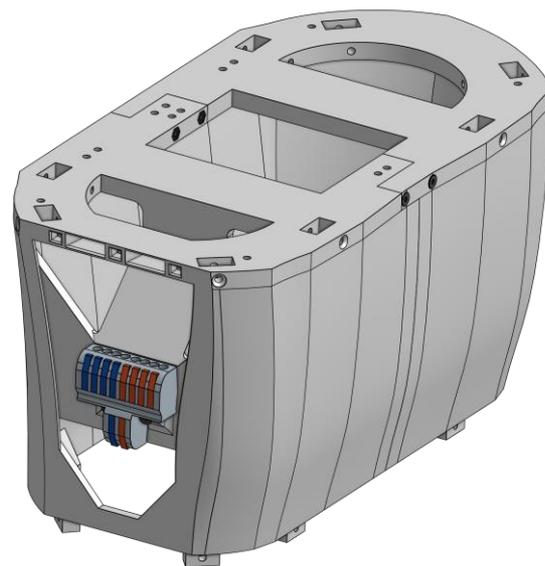
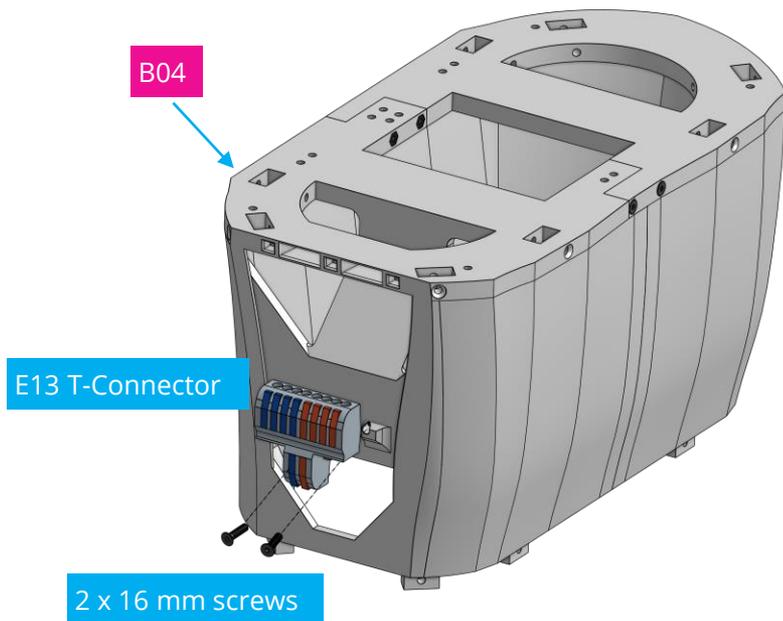
Use **4 x 30 mm screws** to connect **B03** to **B04**.



Make sure, the nuts don't fall out, when you flip B03 and B04.

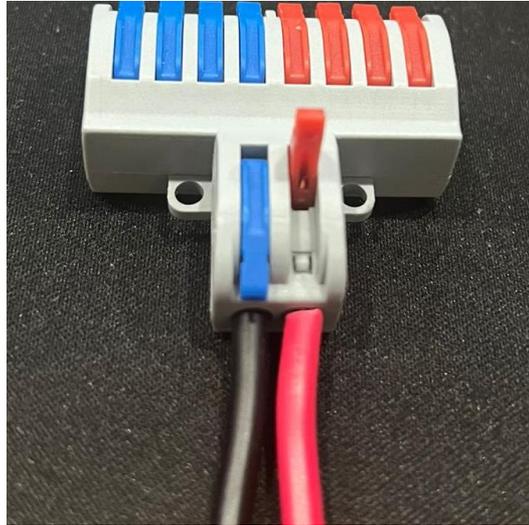
## Step 7a

Use **2 x 16 mm screws** to fix **E13 (T-Connector)** to **B04**.



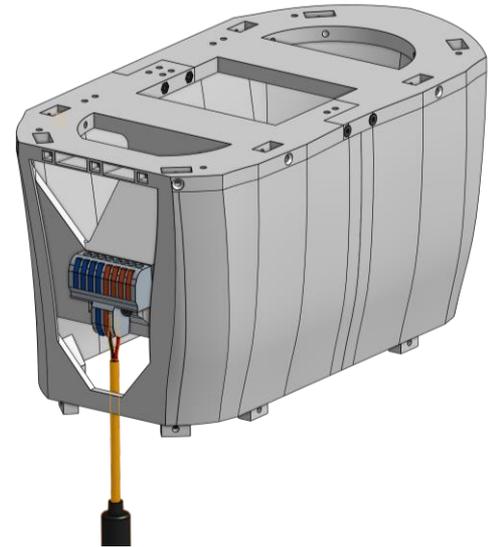
## Step 7b

Pull the red and blue switches in **E13**, insert the copper wires and then close them.



Make sure to place the wires in the correct switches:

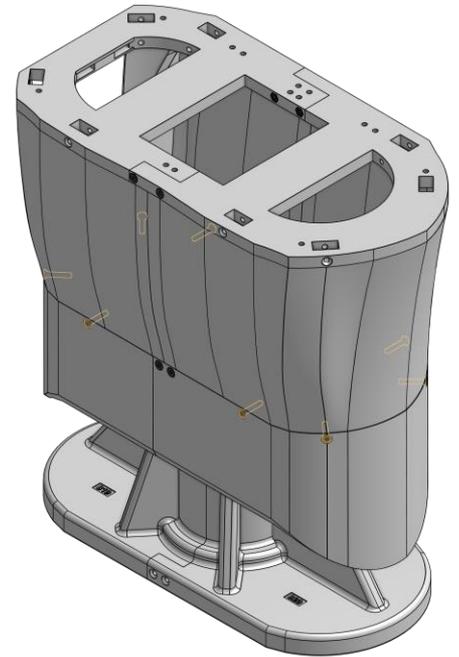
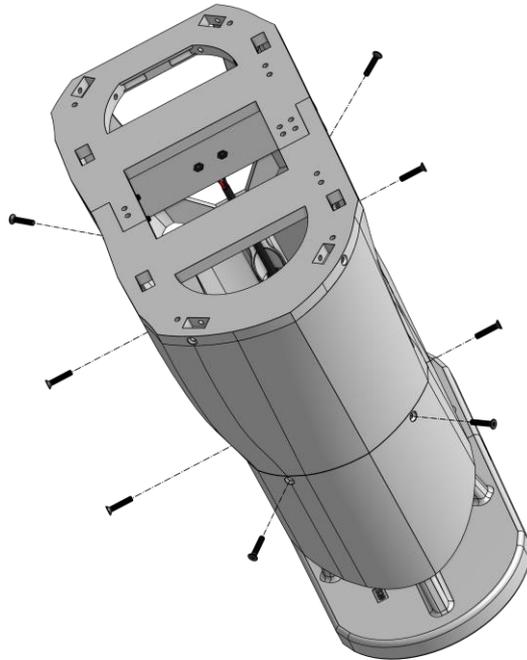
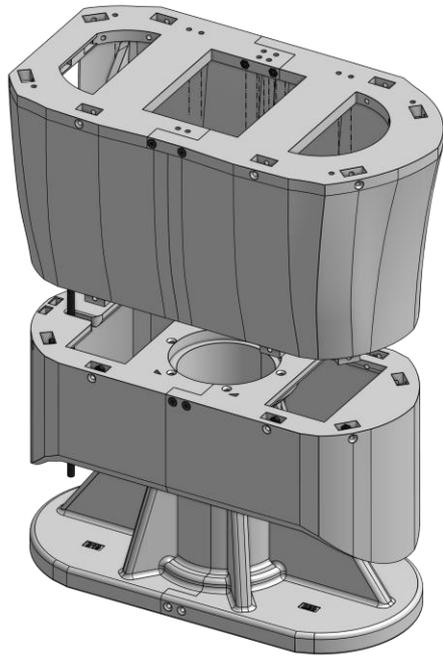
- ✓ **Red** wire to **red** switch
- ✓ **Black** wire to **blue** switch



The assembly of B06 is hidden for better clarity

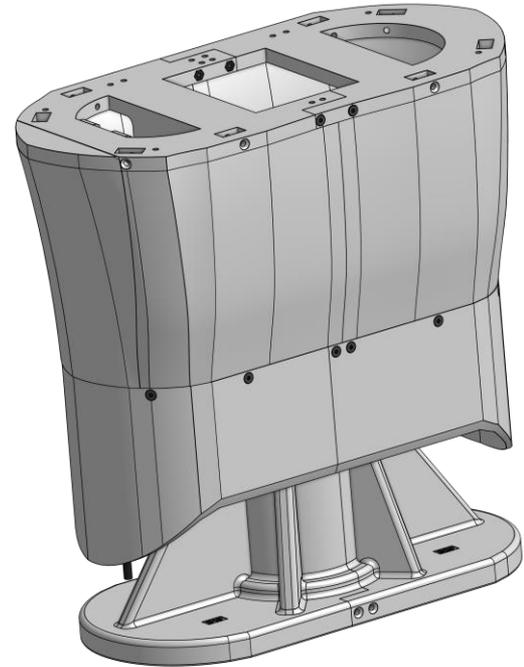
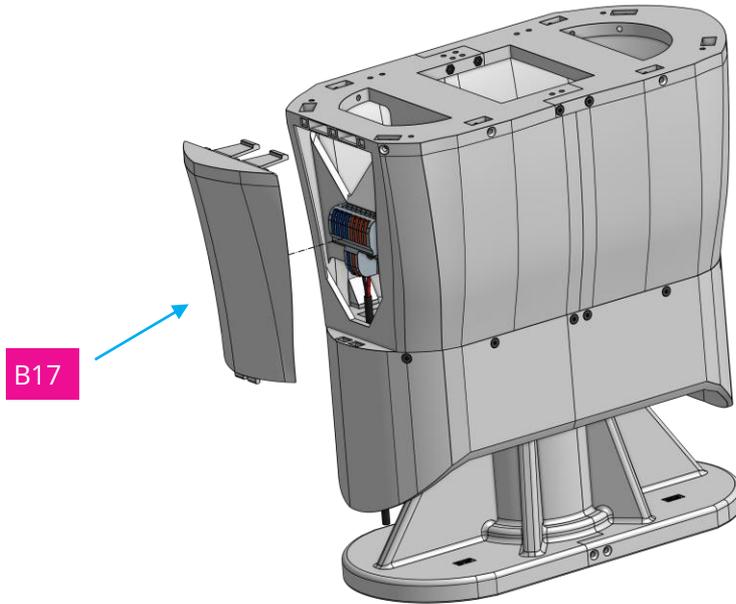
## Step 8

Use **8 x 16mm screws** to fix the **B03-B04 assembly** to the former assembly.



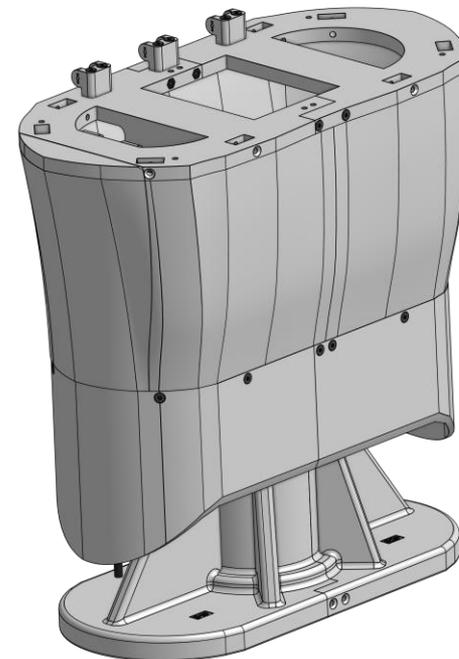
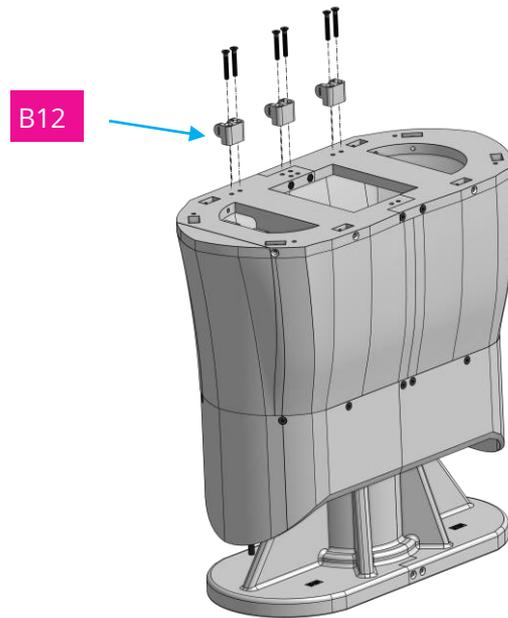
Step 9

Enclose **B04** with **B17** (no screws needed due to snap fit mechanism).



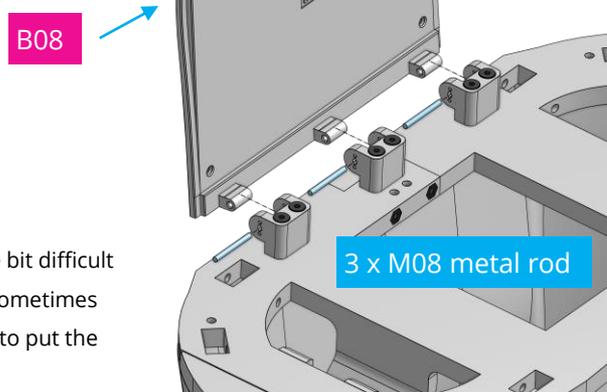
## Step 10a

Connect **3 x B12** parts to ribcage assembly using **6 x 22 mm screws**.

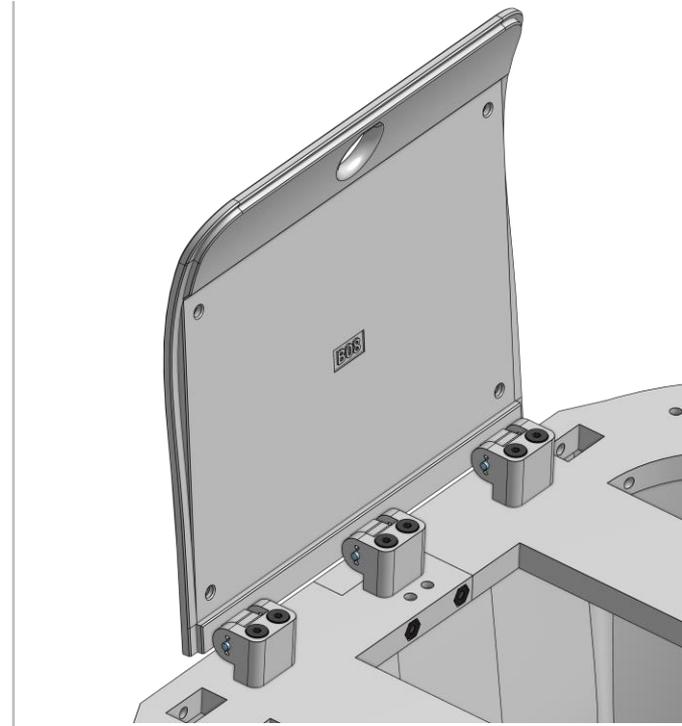


## Step 10b

Use **3 x M08 rods** to connect **B08** to all **B12**.

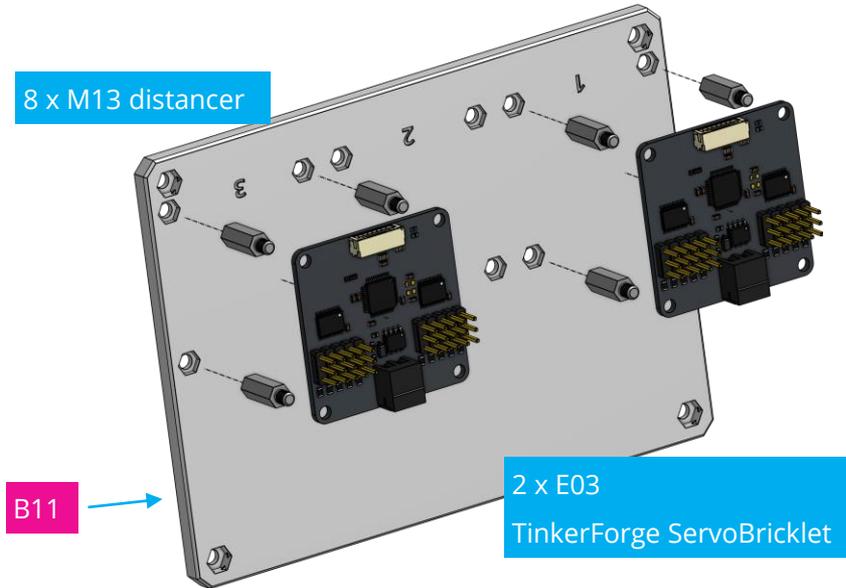


The middle part may be a little bit difficult to reach with a hammer, but sometimes some gently force is sufficient to put the metalrod in place.

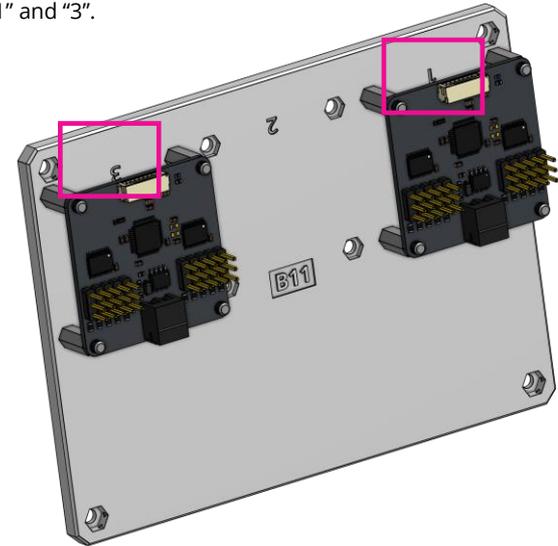


## Step 11a

Place **8 x M13** distancer in the shown spots in B11.  
Then place **2 x E03** ServoBricklets on top of the distancer.

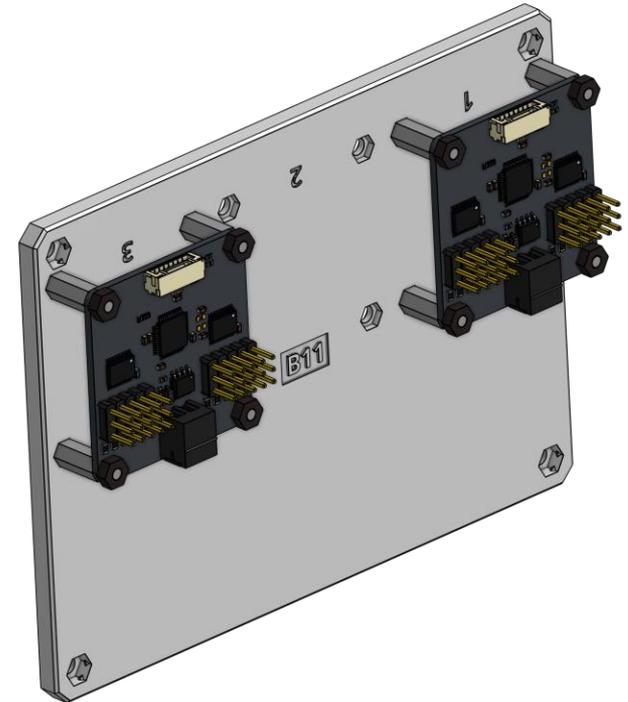
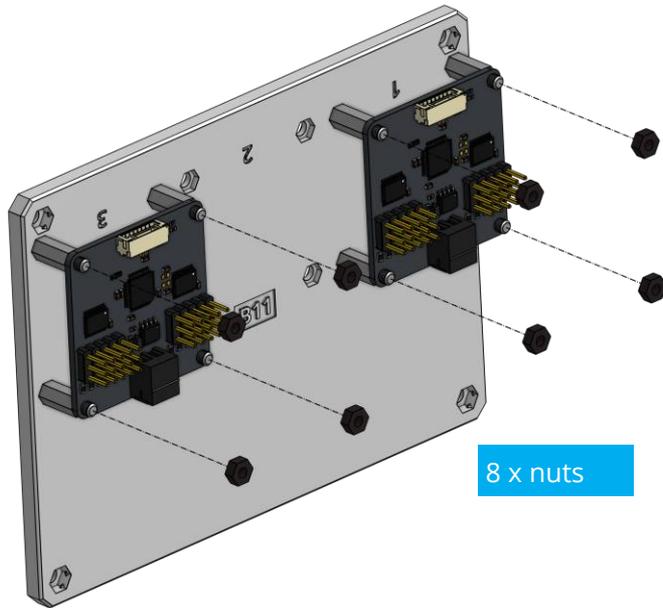


For pib's right arm please use the spots "1" and "3".



## Step 11b

Place **8 x nuts** in the shown spots.



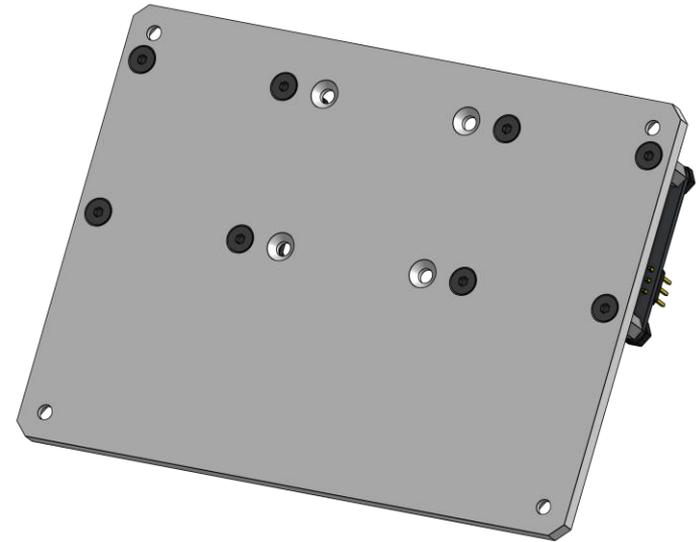
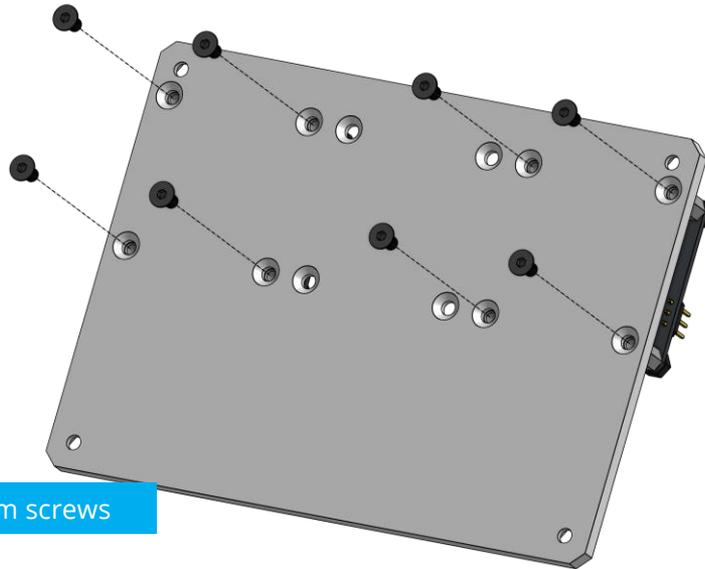
## Step 11c

Secure the assembly with **8 x 6mm screws**.

Be carefull not to loose parts of the assembly while securing it.



8x



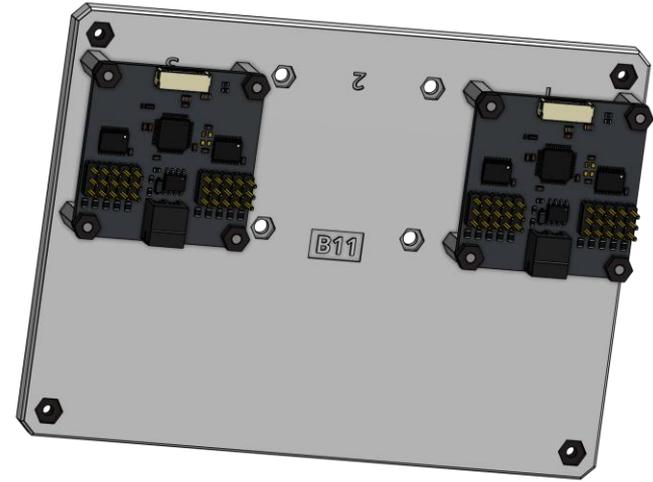
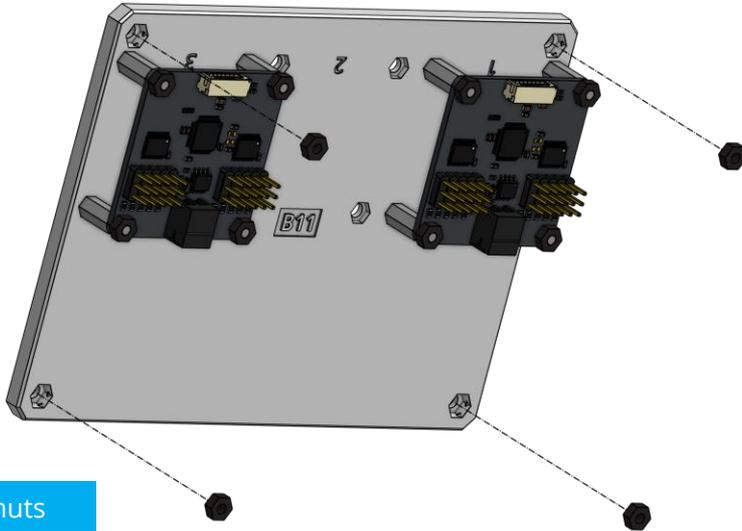
## Step 12a

Place **4 x nuts** in the shown spots in B11.



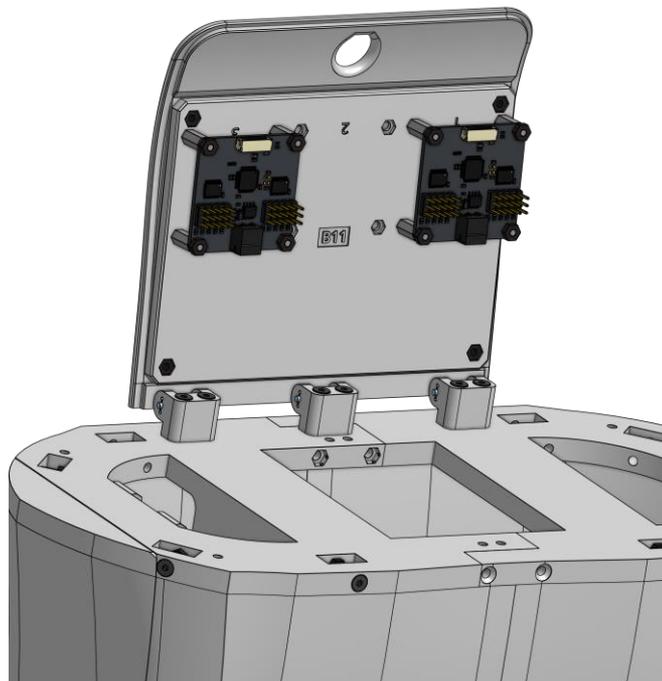
4x

4 x nuts



## Step 12b

Place the assembly from step 11 onto B08.

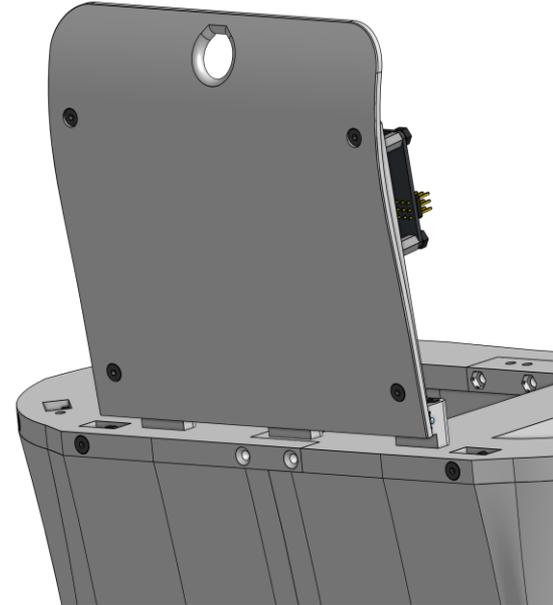
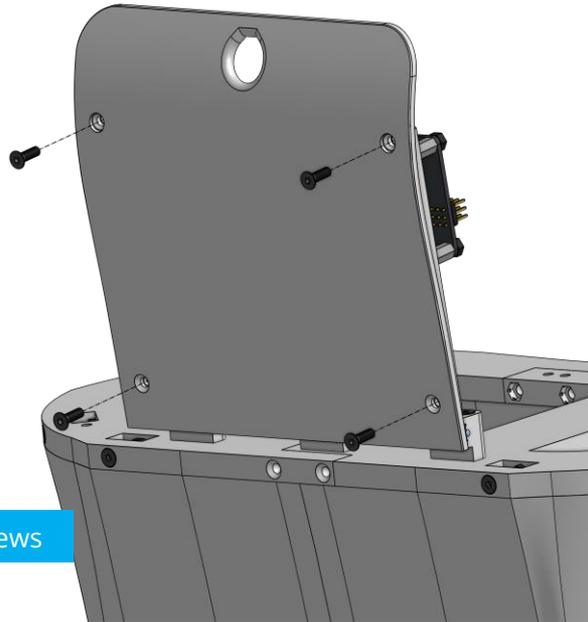


## Step 12c

Secure the assembly with **4 x 10mm** screws.



4x



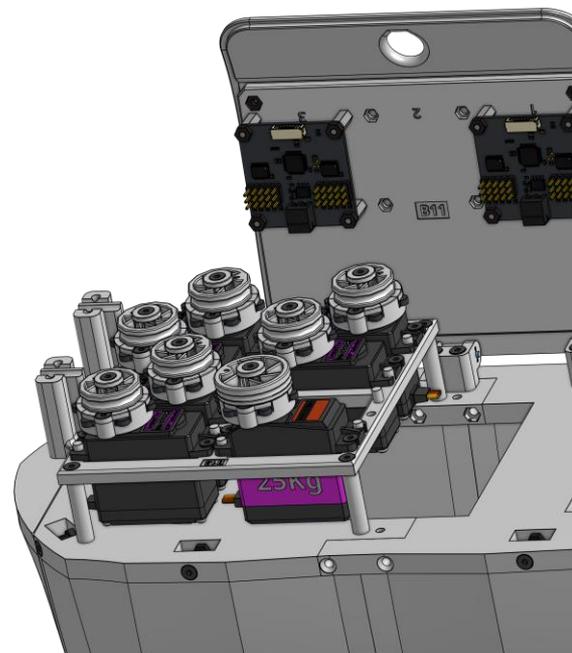
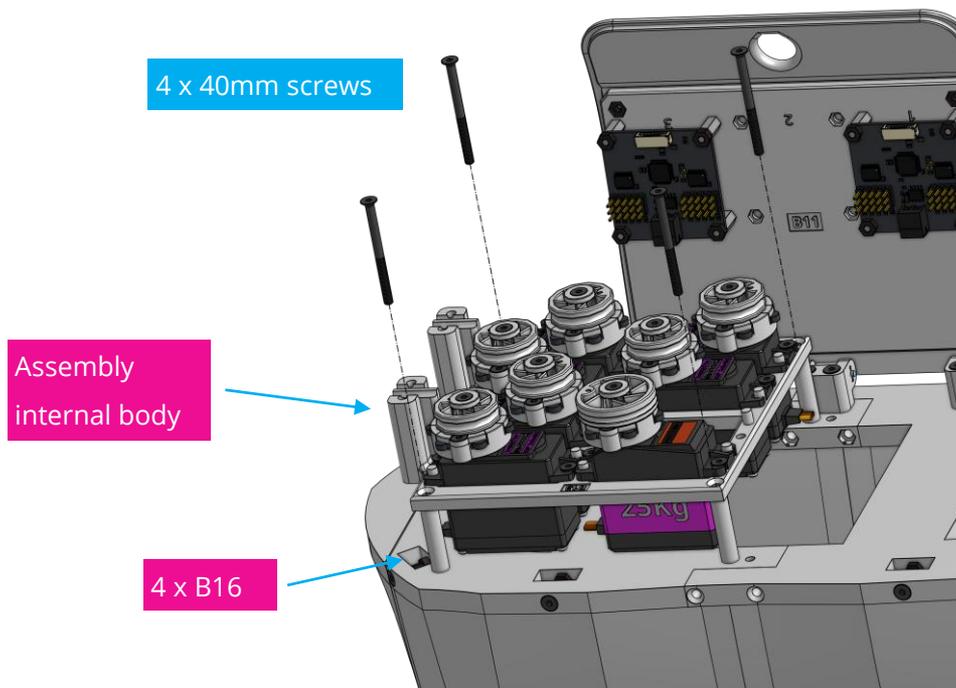
## Step 13



4x

In the last step, we will add the **assembly „internal body“** to the upper body.

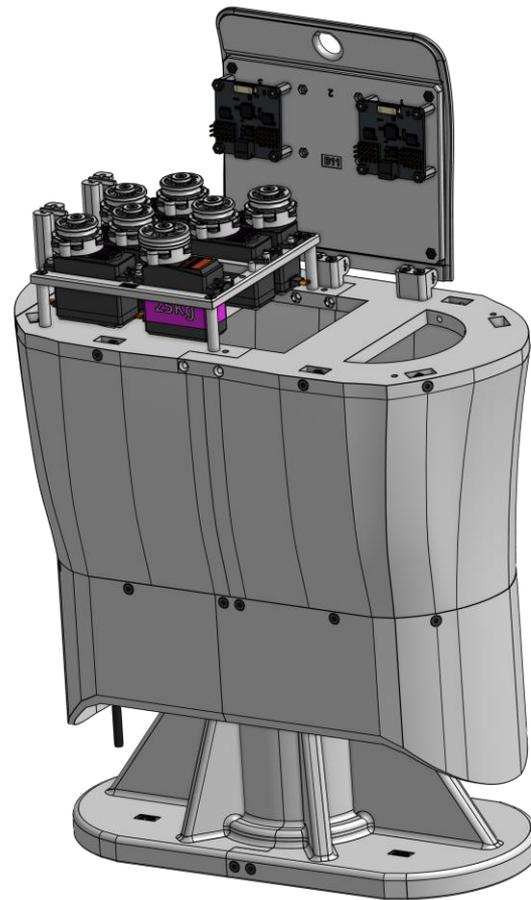
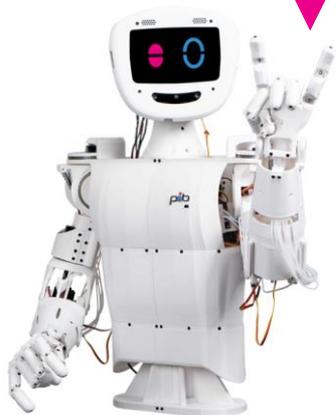
Therefore, place **4 x B16** in the shown spots and connect the internal body and B16 onto B04 of the upper body with **4 x 40 mm screws**.



## Congratulations

You did a great job, pib´s upper body is assembled!

Well done!



## Do you need support?



Or do you need our pib.Box with all non-printable parts?

Or maybe you have some new ideas and improvements?

Please contact us.



**team@pib.rocks**

Send us an email.



**discord.com/invite/GRdpyeDu7P**

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