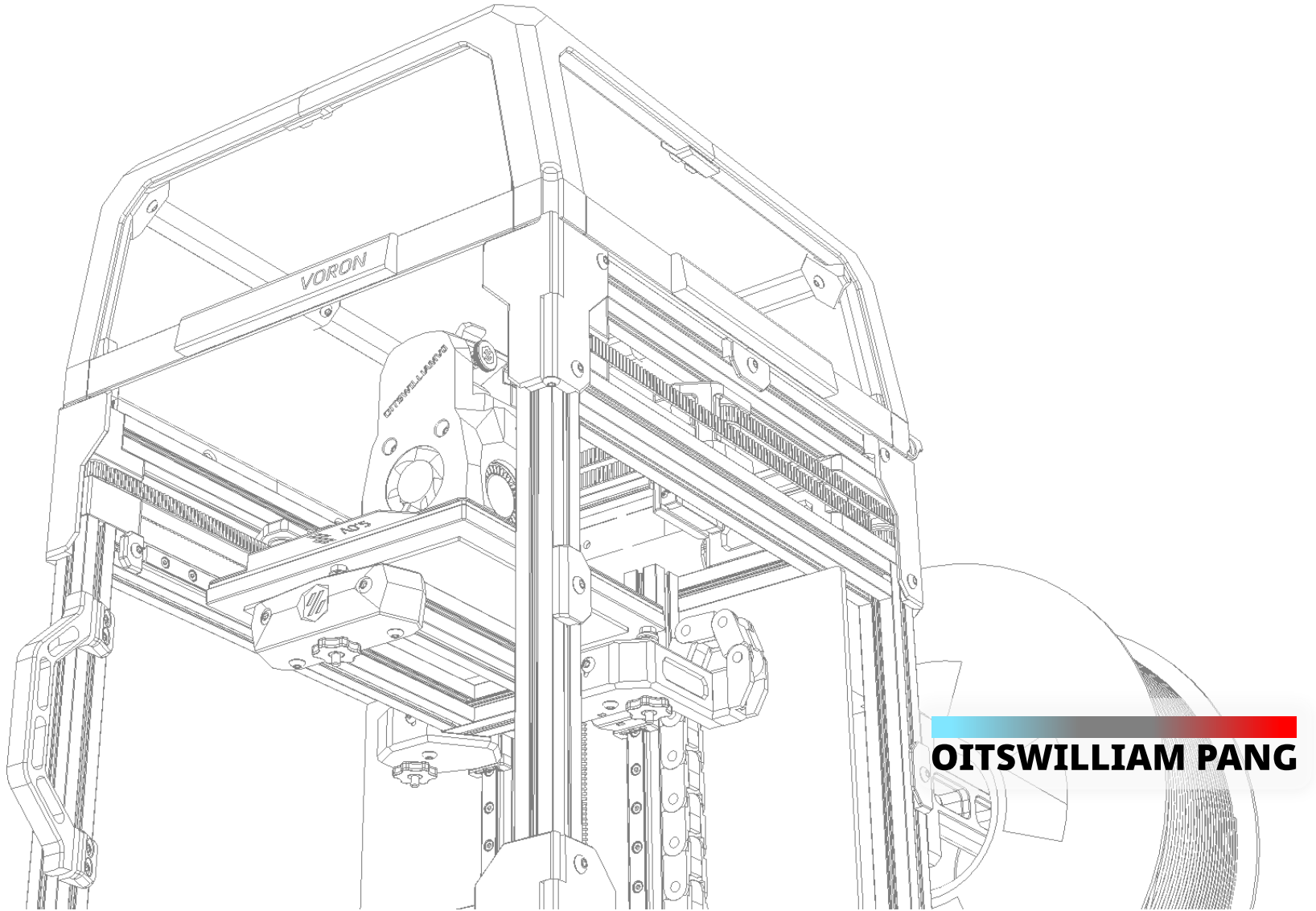
OITSWILLIAMV0

For Voron 0.2
Assembly manual
REV 2023-10-02



OITSWILLIAM PANG

Contents

Before getting started

You are about to read the mod project assembly manual.

This manual only shows the replacement parts and not the original parts that aren't modified or is provided by VORON Design.

Extended skirt parts only show the mandatory steps, although will show replacement parts. Other steps can be followed in normal skirt assembly steps from V0.2 assembly guide.

Please read the printer's original assembly manual for the build from start by visiting here.

About OITSWILLIAMV0

OITSWILLIAMV0 is a Voron 0 mod project after OITSWILLIAMV2, a Voron 2 mod project, that redefines mainly on strength and portability, it also has a route which reduces waste.

The original printer design is made by Voron Design with the crew members. **Oitswilliam Pang is not one of them.**

Extended skirt is a mod that extends the height of Voron 0 skirt which allows you to fit an overpowered Z-axis motor or otherwise things that are currently reserved.

As-is top hat is an extension for V0.1 top hat that adds cam lock and the hinge unit that are introduced in vanilla Voron 0 V0.2. It only requires printing such mod and V0.2 back top panel mount. **However it requires your decision of keeping your V0.1 top hat.**

Users are allowed to contribute such mod to create an impossible modded 3D printers that will change tinkerers' lives.

Warnings

Danger: risk of electric shock

- Even though you can build with this mod from start, if you want to wire, or re-wire, you need to make sure and check that the mains is unplugged.
- Failure doing so which is unplugging the mains power may cause electrocution or even death, especially on regions that use 240V.
- When in doubt, please don't touch the wires connected to the power supply or SSR.

Contribution

Starting in November 2021, every Oitswilliam Pang projects including this will have a dedicated sources and source files for free, which makes them open-source.

If you want to contribute this project, you can visit in GitHub.com/Bunny350.

In other words, each OIWP's projects have their own licensing policies. So if you want to distribute the projects, you need to refer to their licensing policies first.

Support

Having problems building our projects? You can contact us in Facebook or Twitter.
https://www.facebook.com/officialbunny350

However, for the better experience, you can visit and then join Oitswilliam Pang Discord server and receive the community support. Please follow it's rules. https://discord.gg/Cu6e9ra

If you have problems because of the project's errors or simply issues, you can submit them in GitHub.
https://GitHub.com/Bunny350/OITSWILLIAMV0/issues

The manual might be updated overtime, so when you start building, or are trying to build the projects, you might need to get the latest manual if it was left for at least every three months.

Thanks for viewing the manual. Now go on the next page to build the first part.

Part printing

Print guidelines

Each part of the model requires the following set settings, failure to match most of them may result in unexpected damages.
Bold text indicates the recommended value and *italic text* indicates what setting it is being changed.

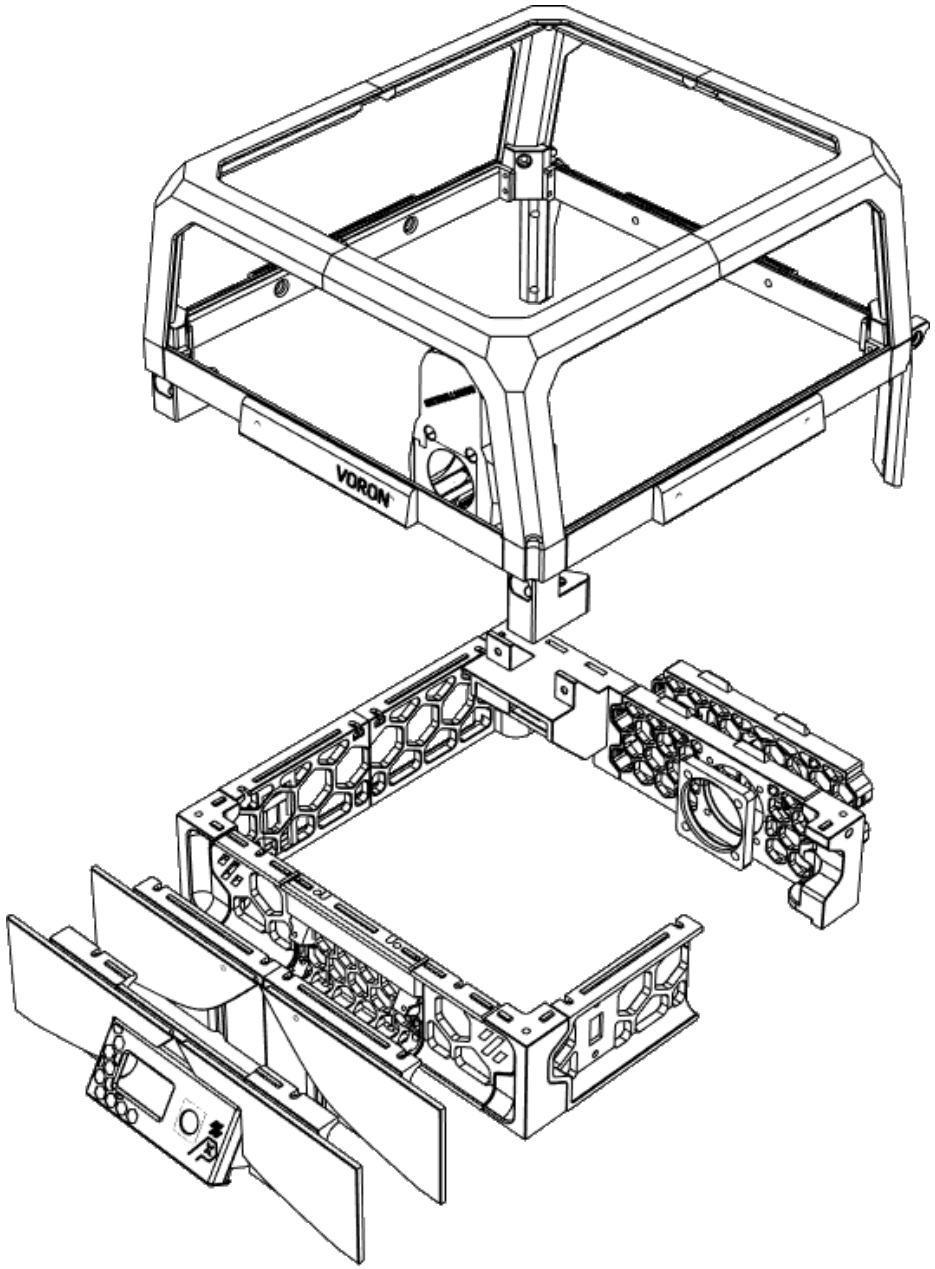
Printer types FDM / FFF or SLS SLA only for parts with no heat-seat parts	Print material: ABS, ASA or PA12 **Prohibits PLA.** Do not use PETG for motion or enclosing parts.
Layer height of **0.2mm** Initial layer height can be **0.2mm or higher**	*Nozzle and extrusion width* must be **forced 0.4mm; if using 0.4mm nozzle**
1.6mm *wall width* Or **4** *wall counts*, excluding tools and jigs	*Infill* must be **at least 40%**, excluding tools and jigs
At least 4 *solid bottom and top layers*.	The best *print speed* is up to **120mm/s**. The speed might be reduced by the hot end flow rate.
Supports are **not required**. Uncheck *generate support* if available.	*Other settings might be depended on your printer.* *Follow it's warnings for proper handling.*

Before assembly

To get started building the project, you may use the following tools:

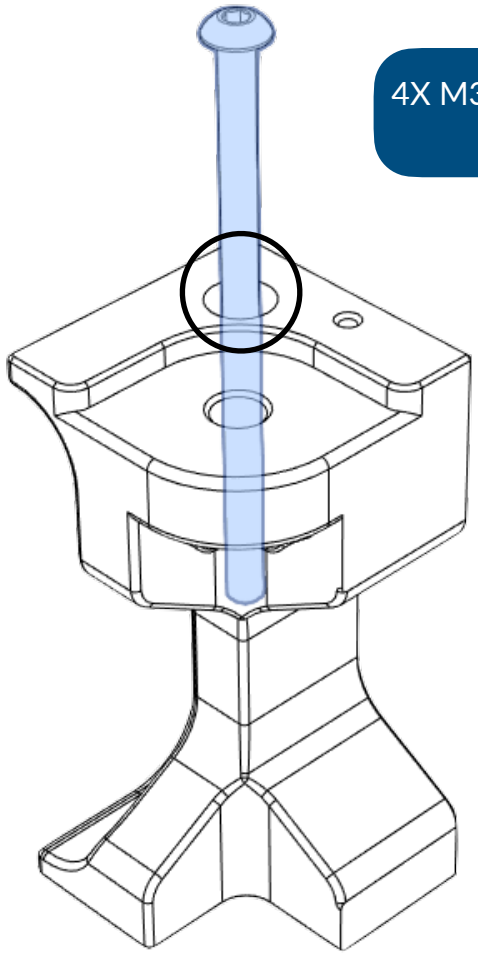
- Soldering iron
- Keystone terminator (if not using Ethernet to Ethernet Keystone jack)

Assembly



Extended skirt

Leggings installation



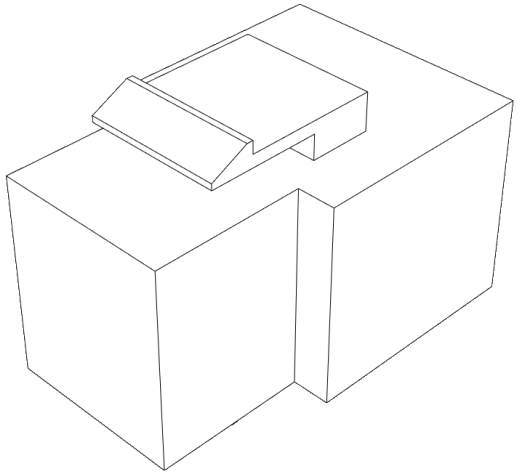
4X M3x55mm BHCS or SHCS

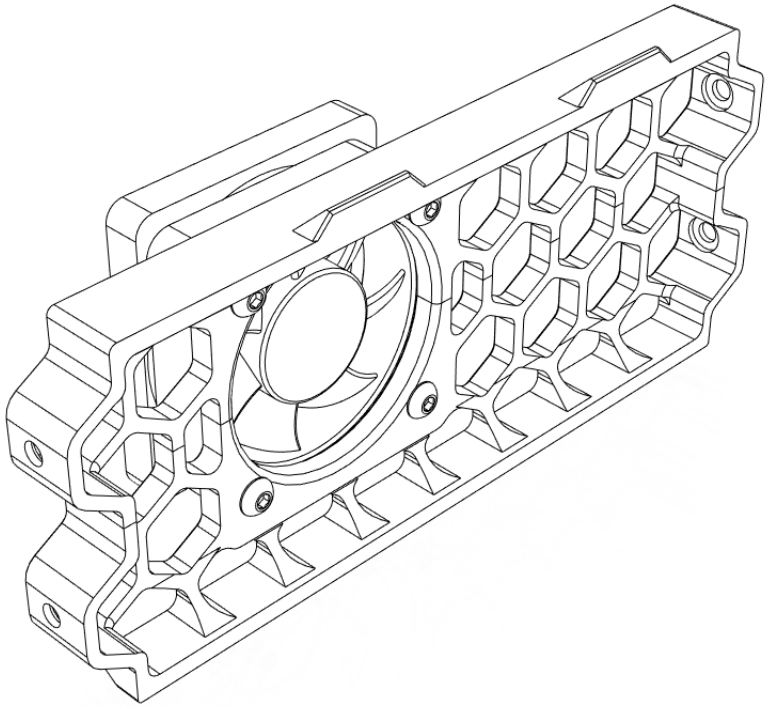
Extended skirt legs

To the center tap holes of bottom side

This step is then repeated on three other sides.

Back





To insert and wire the Ethernet jack, head to the next page.

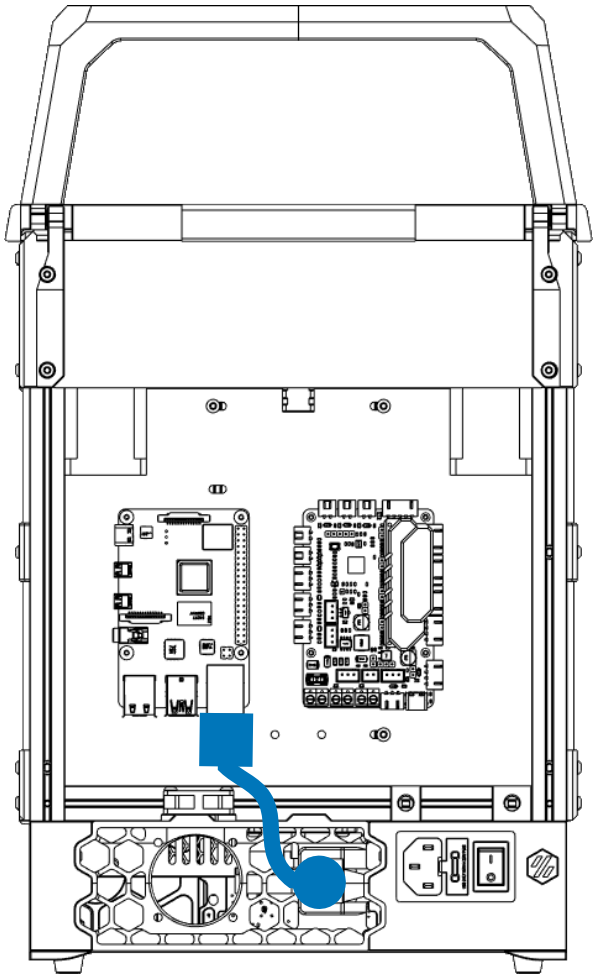
To install the fan, see or skip to page 12.

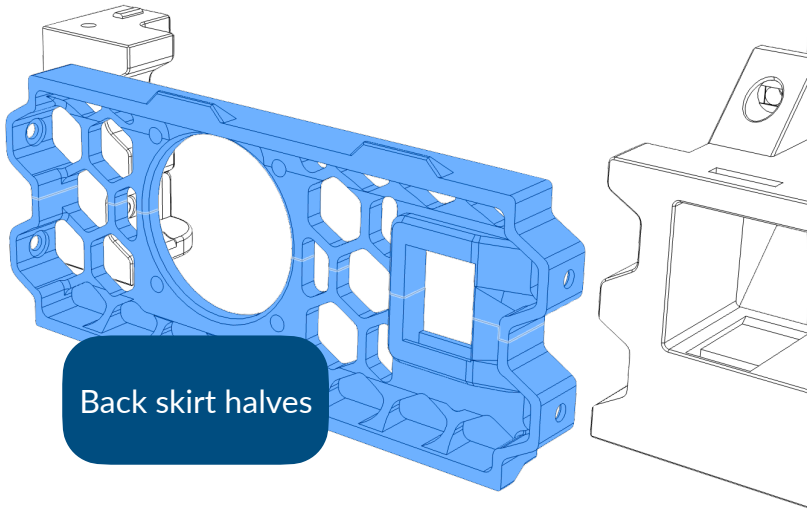
Ethernet keystone jack installation

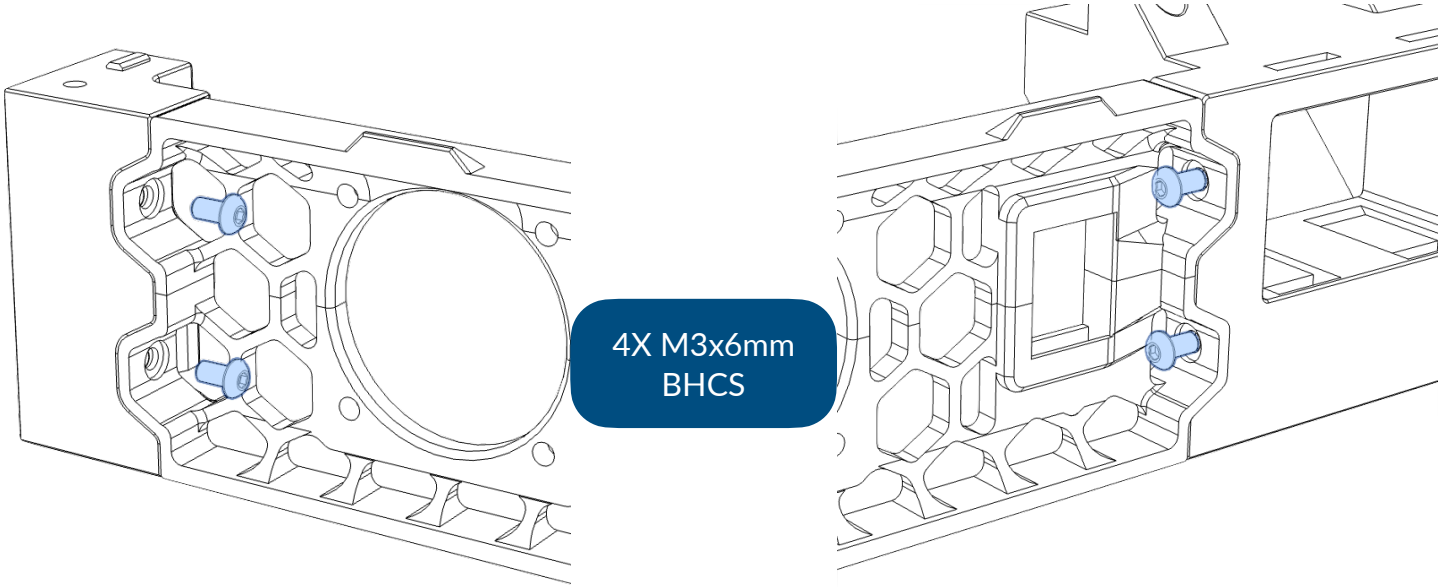
Obtaining the Ethernet cable
This mod requires an Ethernet cable of at least 90mm, but the cable must be between 23 to 24 AWG. There are cables which are as thin as in 28 or 30AWG, but they never properly terminate.

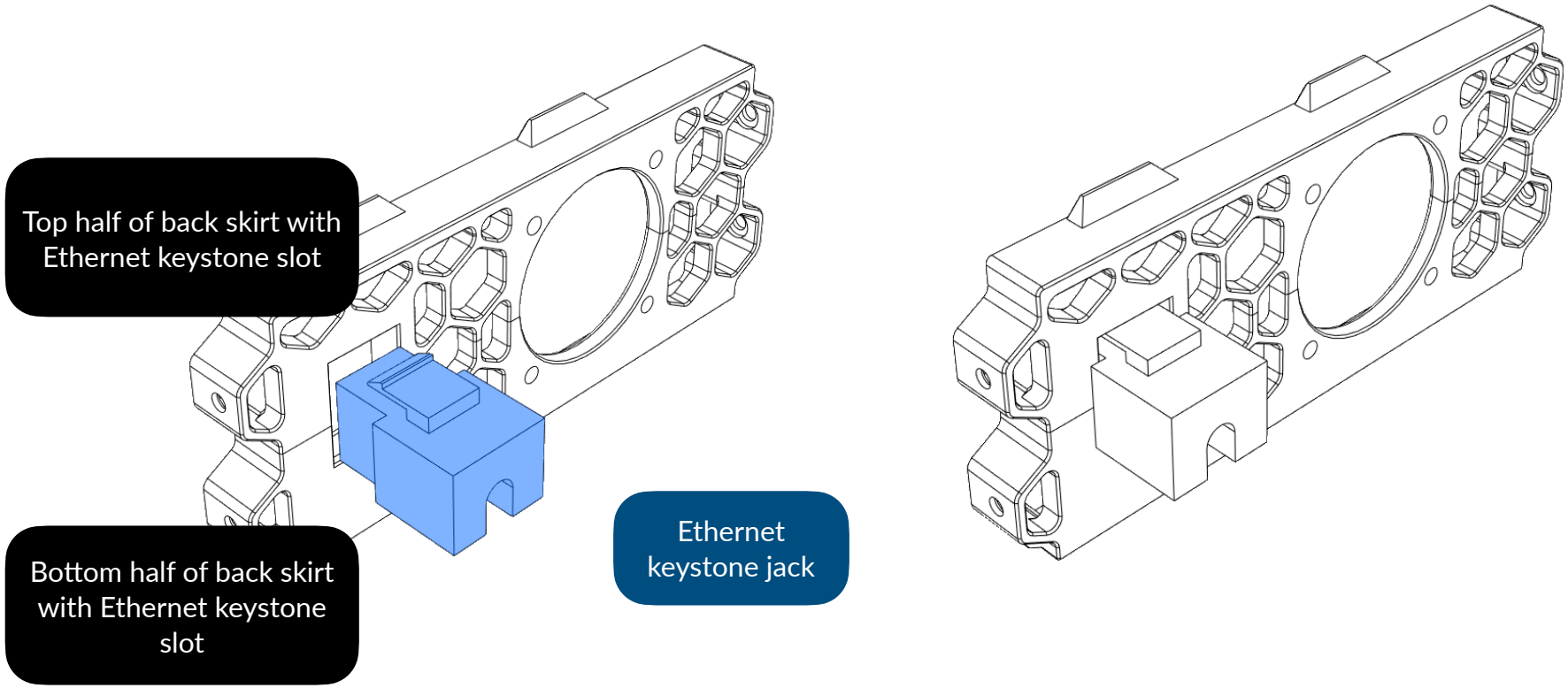
CAT6 keystone jacks may not terminate with CAT5 cables, although CAT5 keystone jacks can terminate with CAT6 cables.

This slot does not support AMP keystone jacks, due to it being too wide.




Back skirt halves

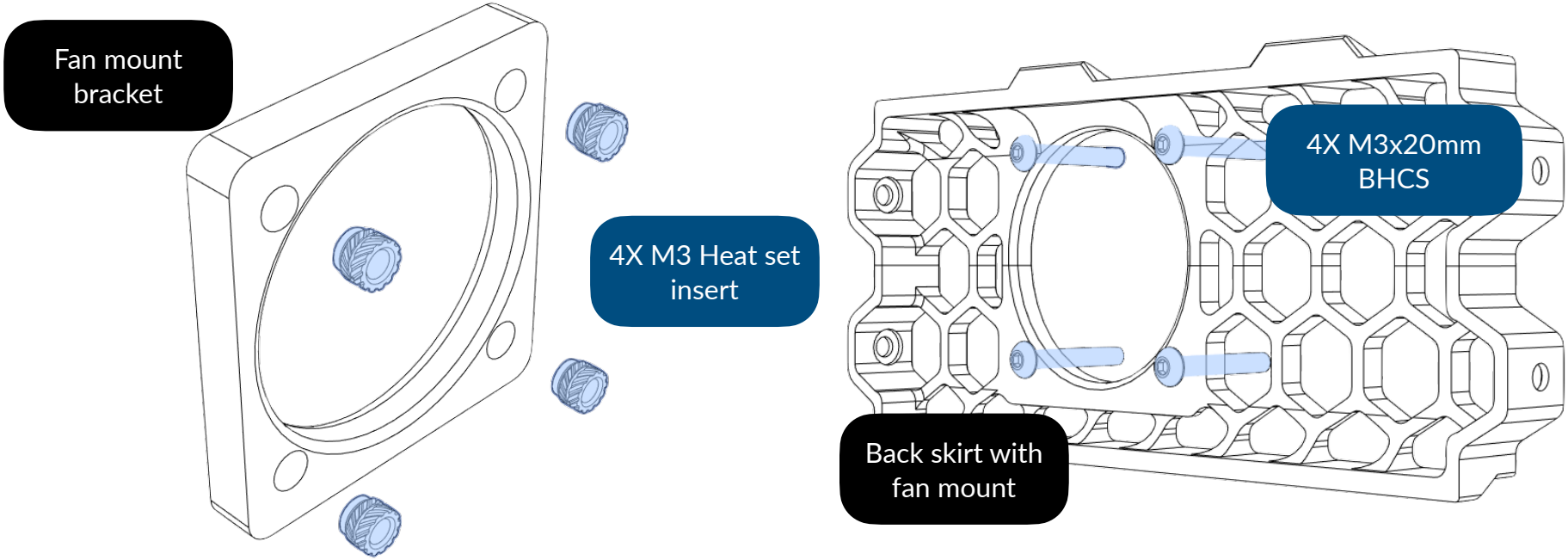

4X M3x6mm
BHCS


Top half of back skirt with Ethernet keystone slot
Bottom half of back skirt with Ethernet keystone slot
Ethernet keystone jack

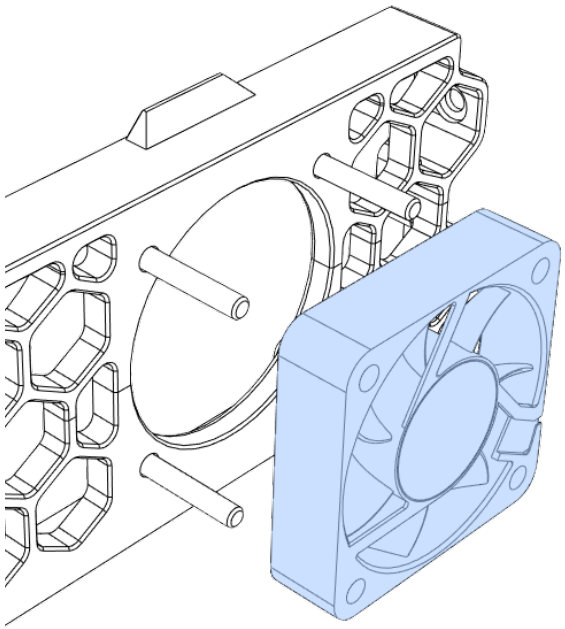
Back skirt fan installation

You may need to turn the printer away from being right-side up to ease the process. This shows right-side up.

Preparation

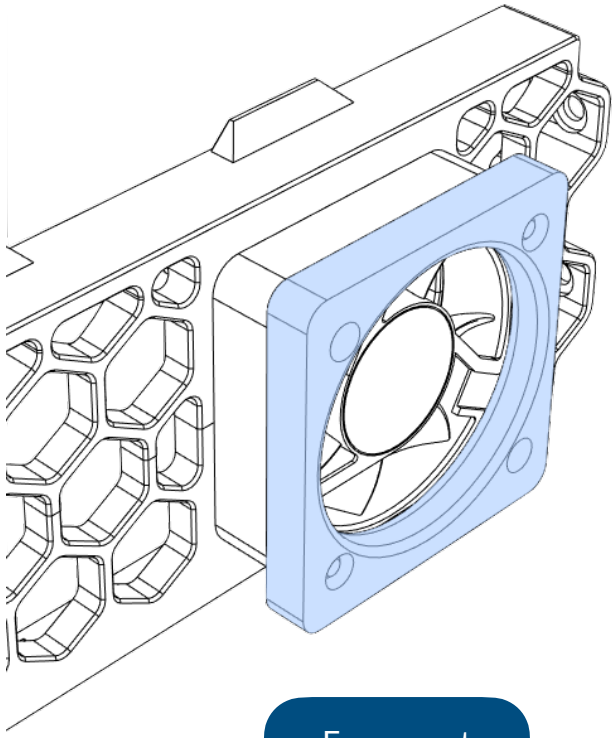


Slotting



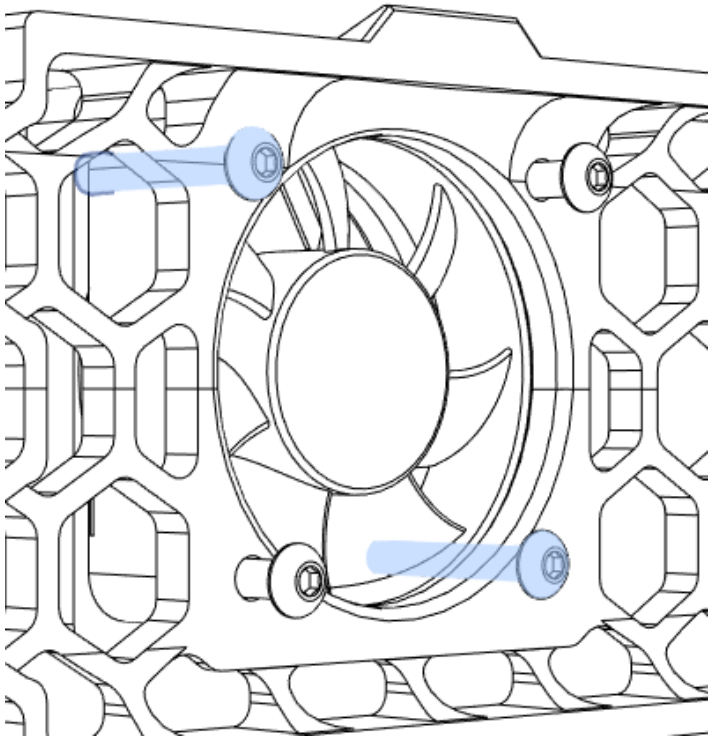
4010 axial fan

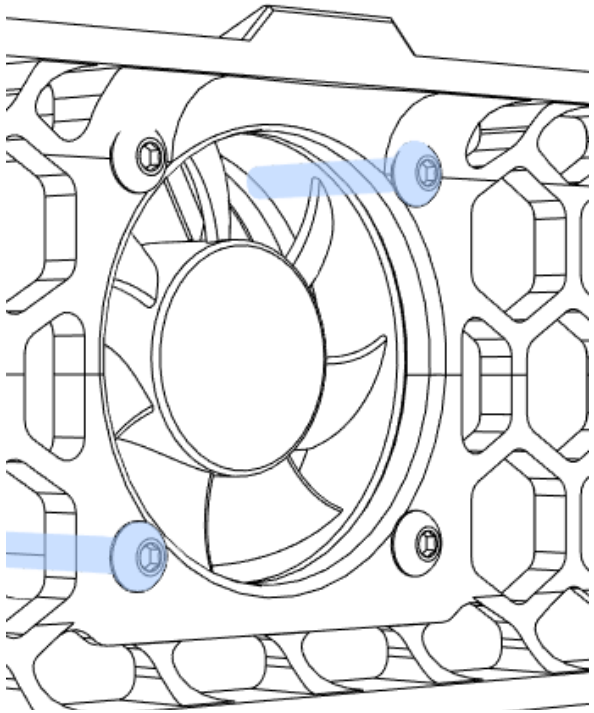
The fan direction must be supposed to push air from outside to the inside. Most fans will push from the impeller to the label side.



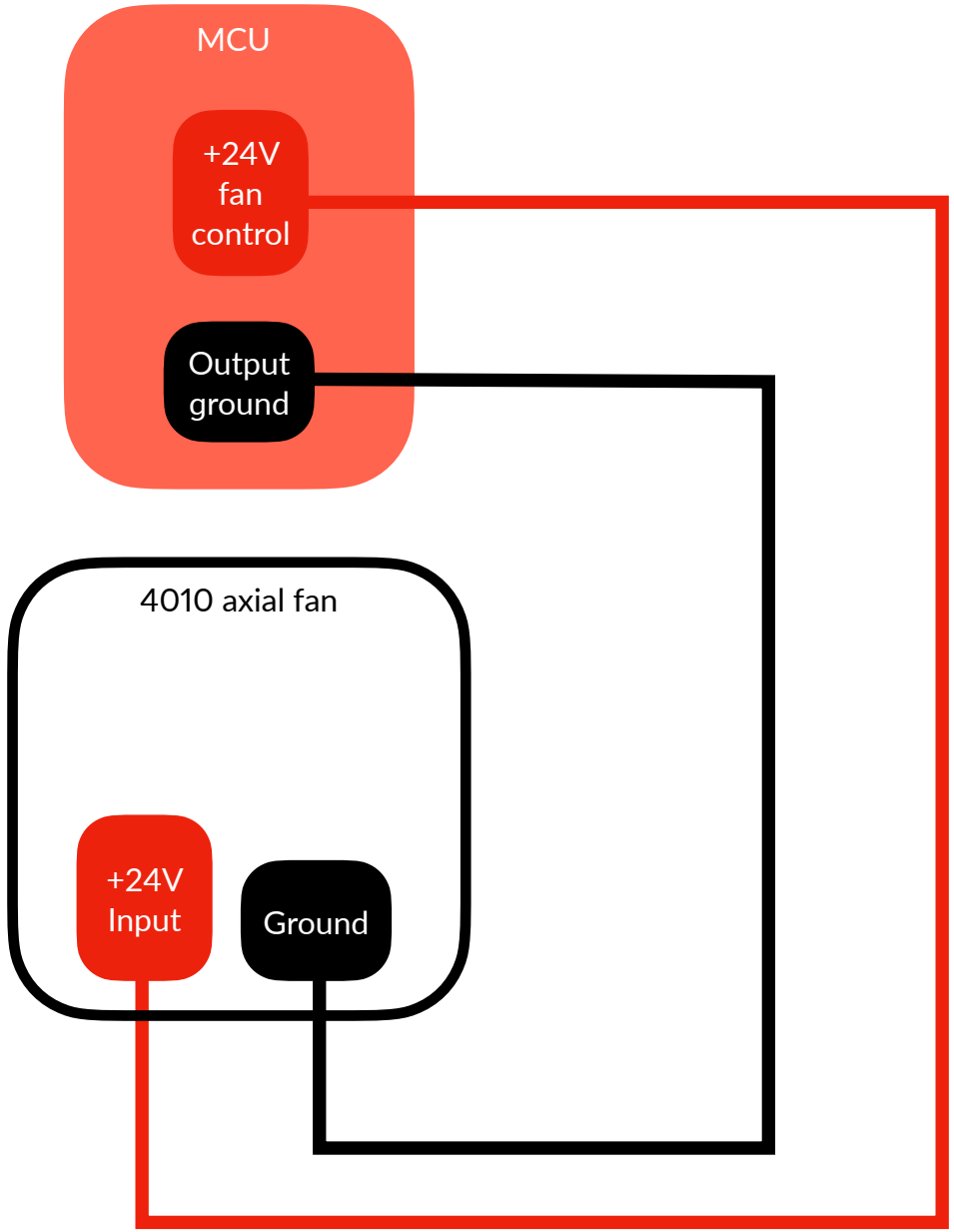
Fan mount bracket

After slotting the axial fan and the mounting bracket, you have to do the cross-pattern when tightening the fan mount screws (4X M3x20mm). This pattern makes the assembly easier.

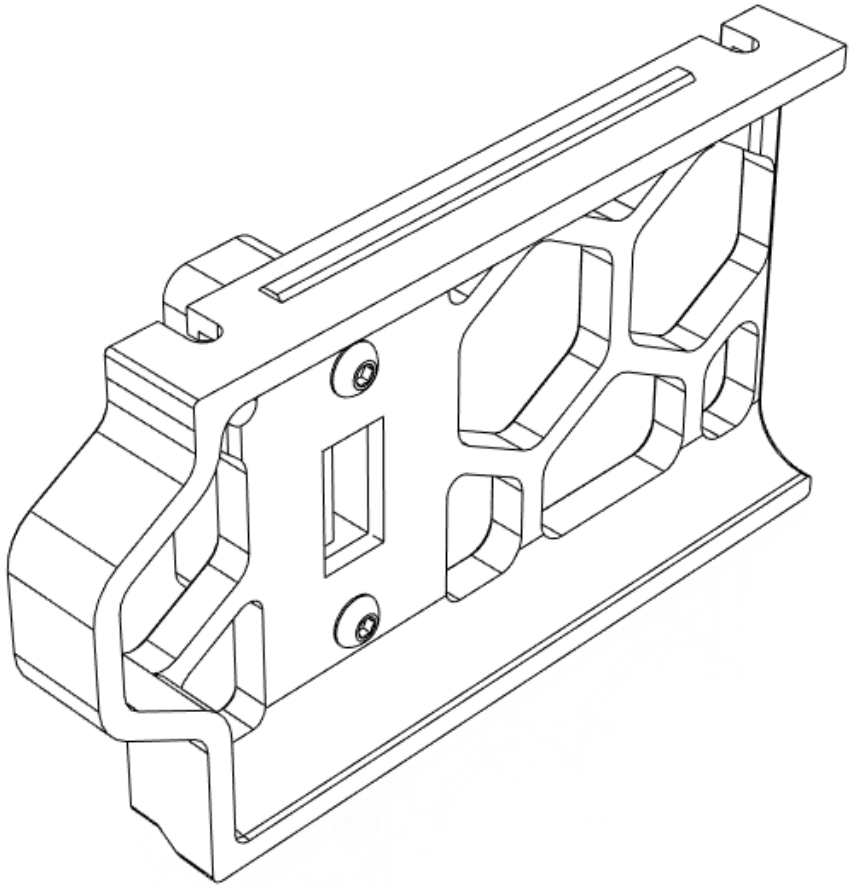


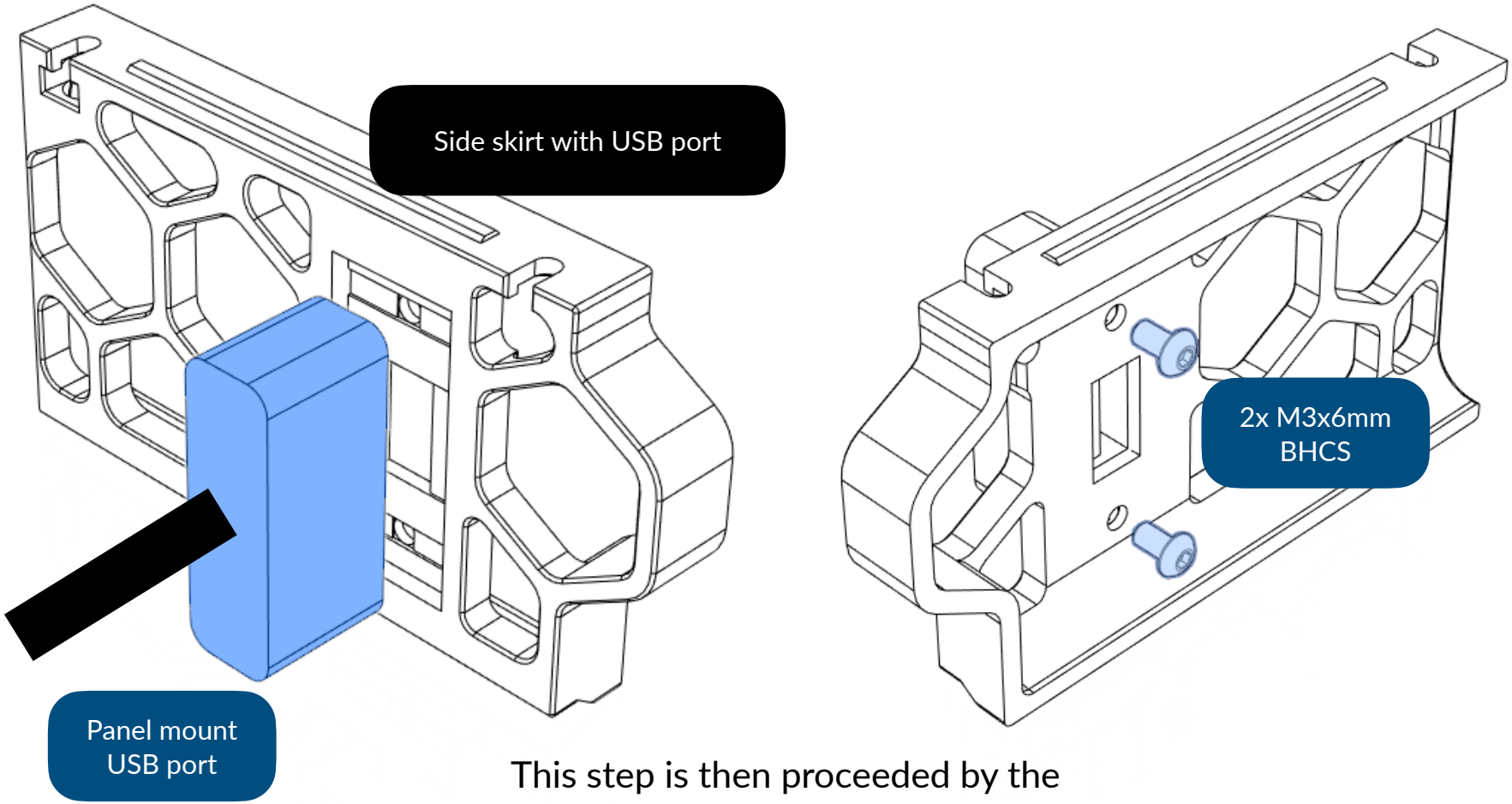


Wiring illustration



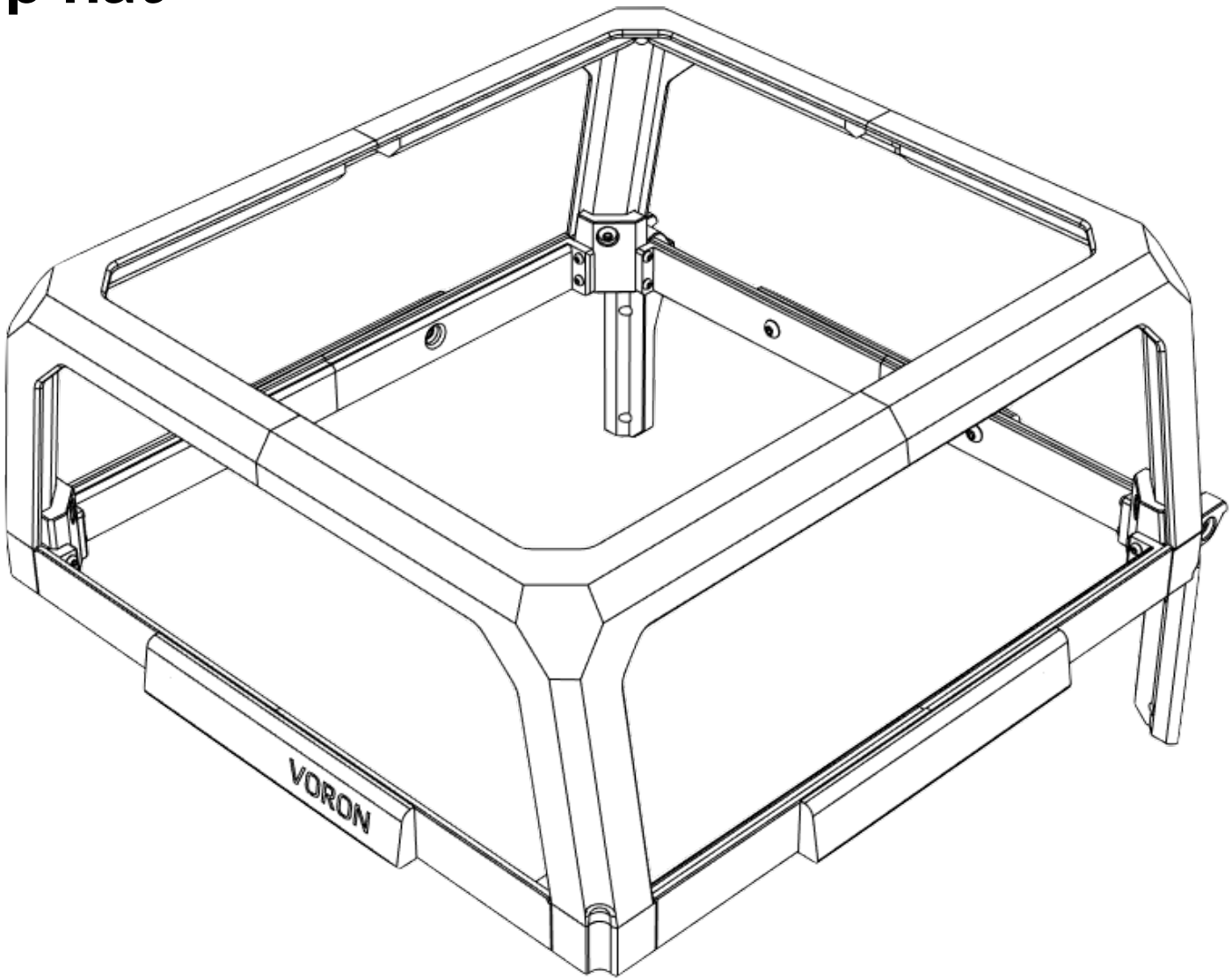
Side skirt USB





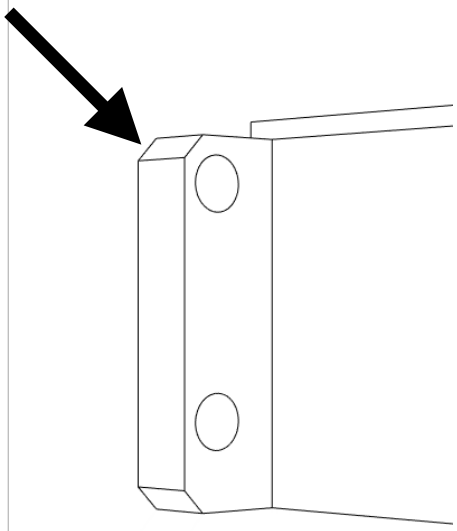
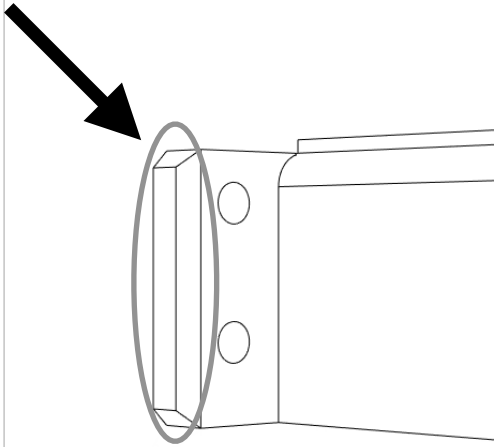
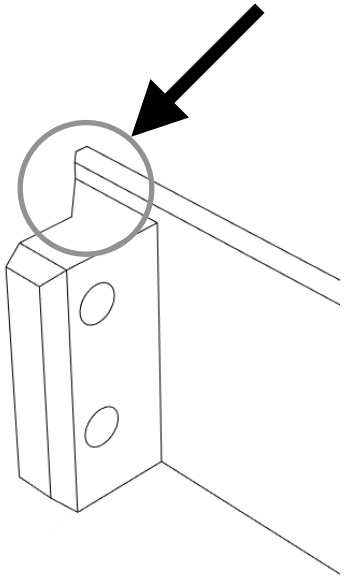
This step is then proceeded by the normal V0.2 assembly manual page 208.

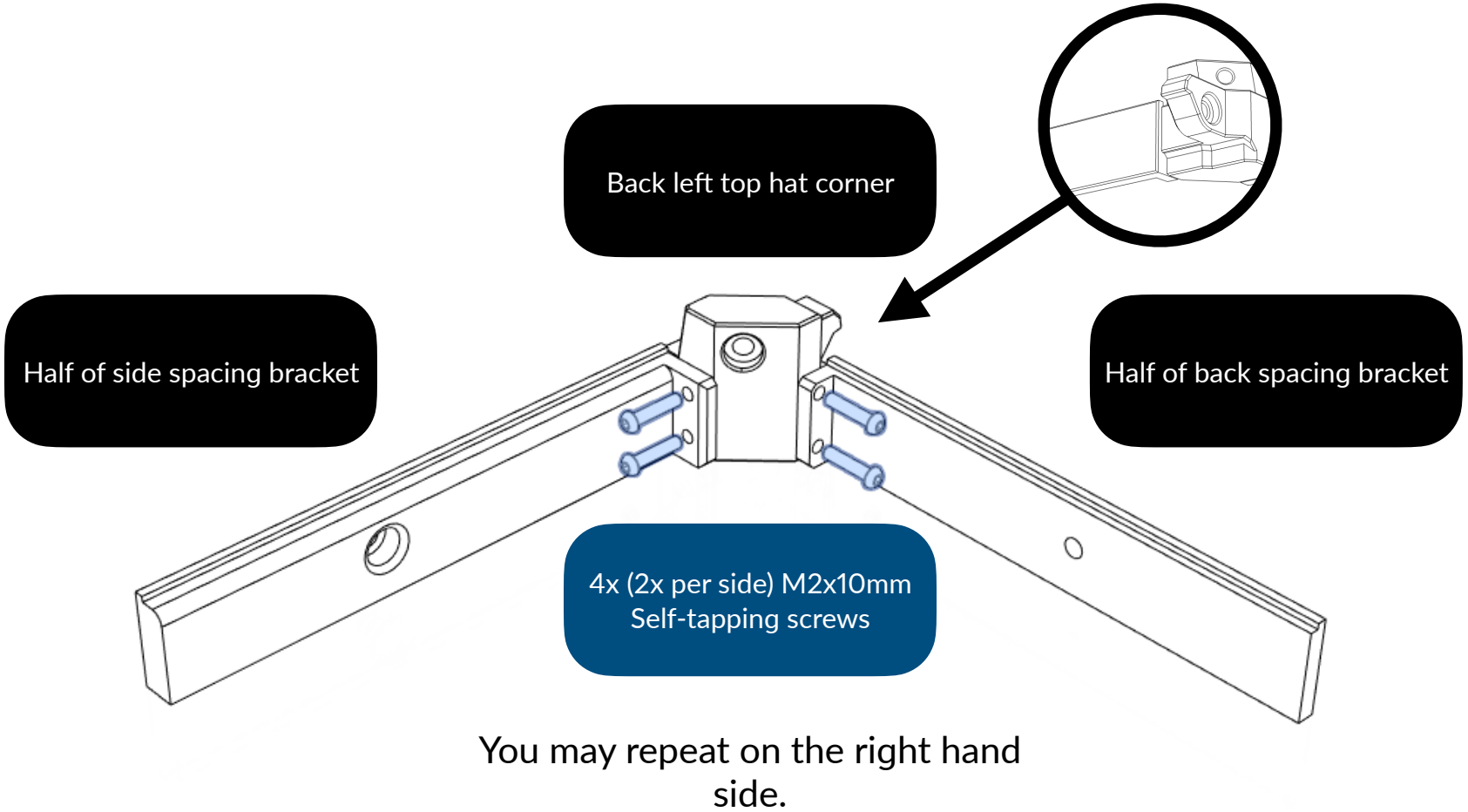
As-is top hat



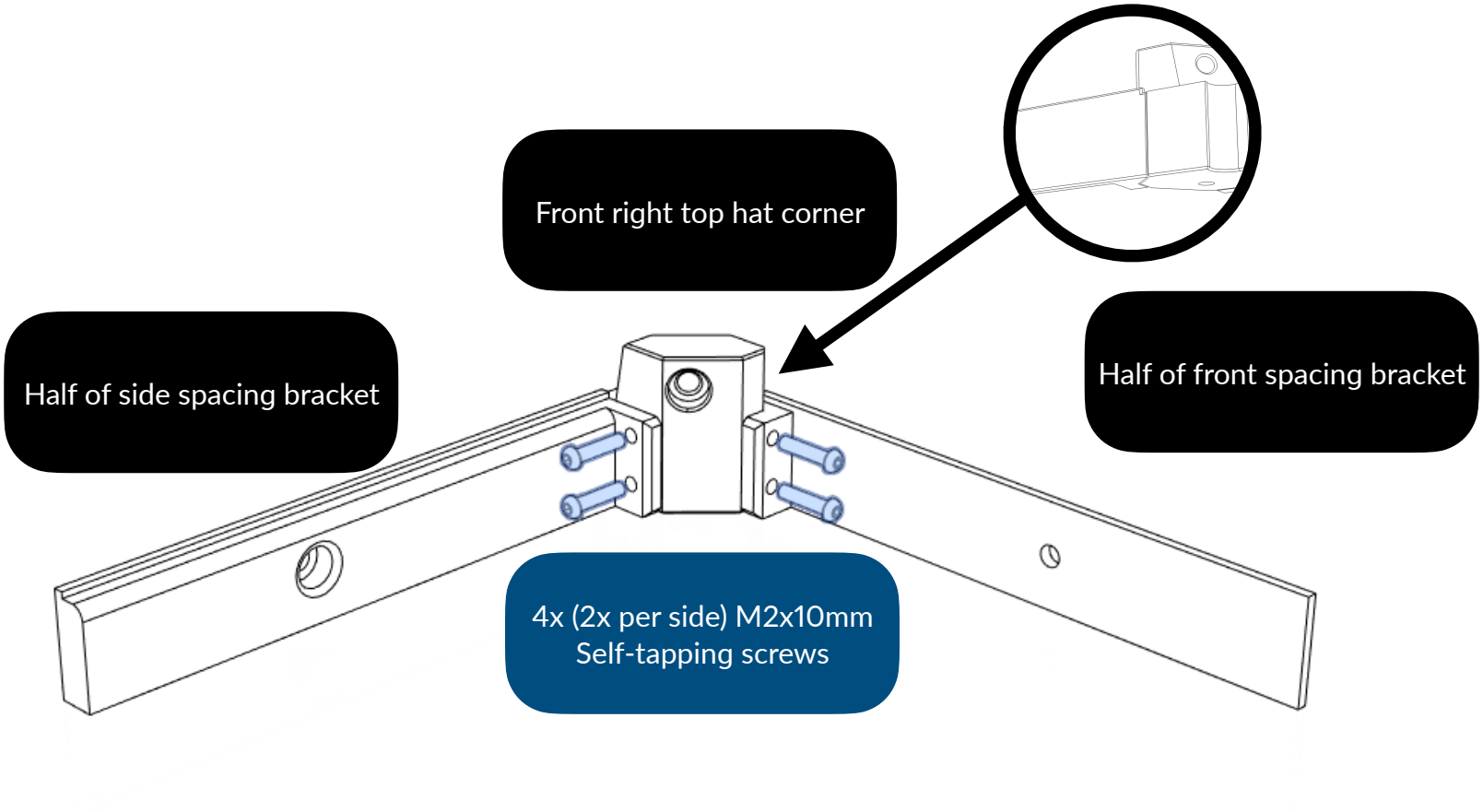
Halo / Ring assembly

These corners and spacing brackets are side-dependent. Please check their alignments before tightening.

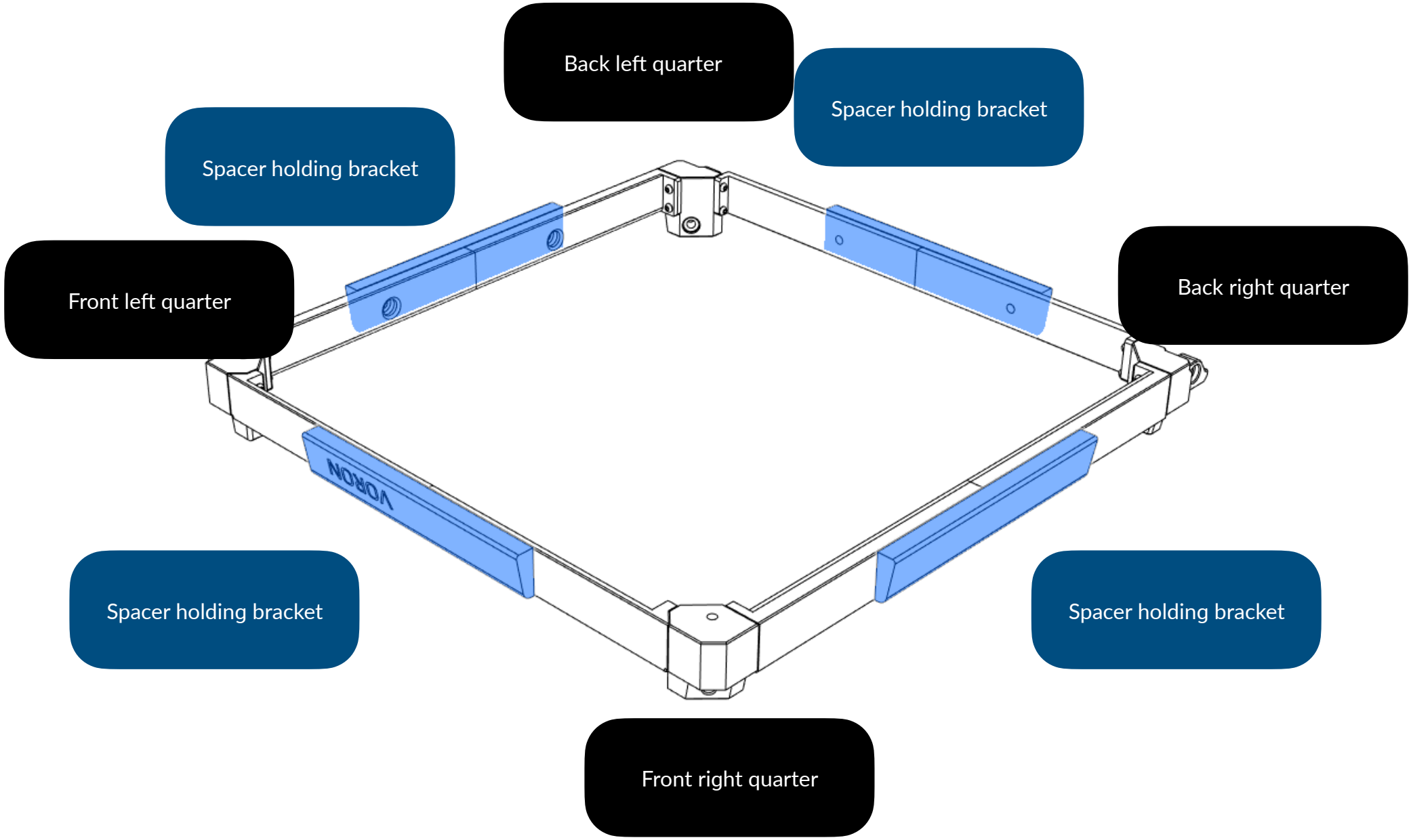
Back side: thin, no chamfered edges.	Left and right sides: thicker than for back side, has chamfered edges	Front side: thin, has flush endings and chamfered edges
		

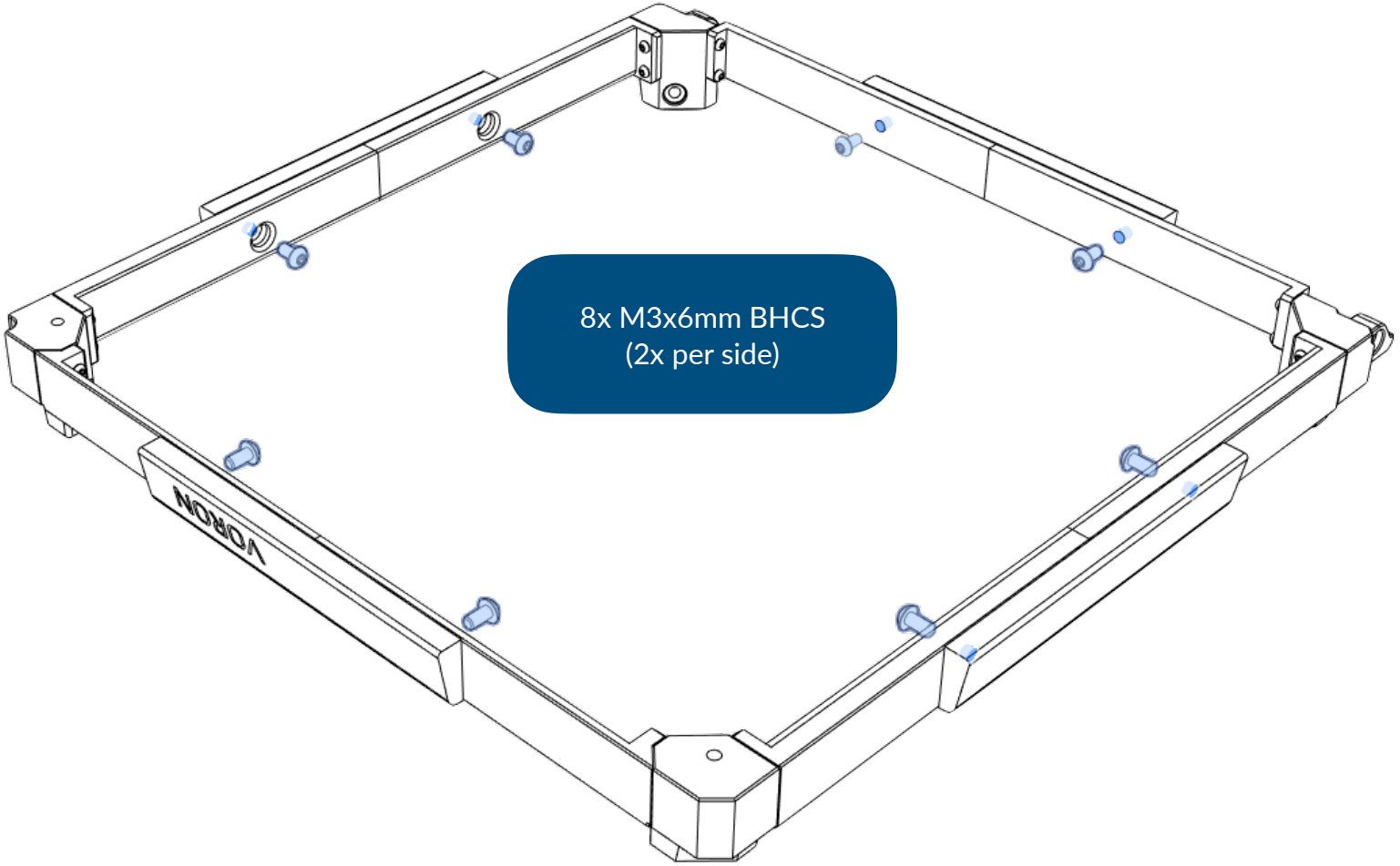


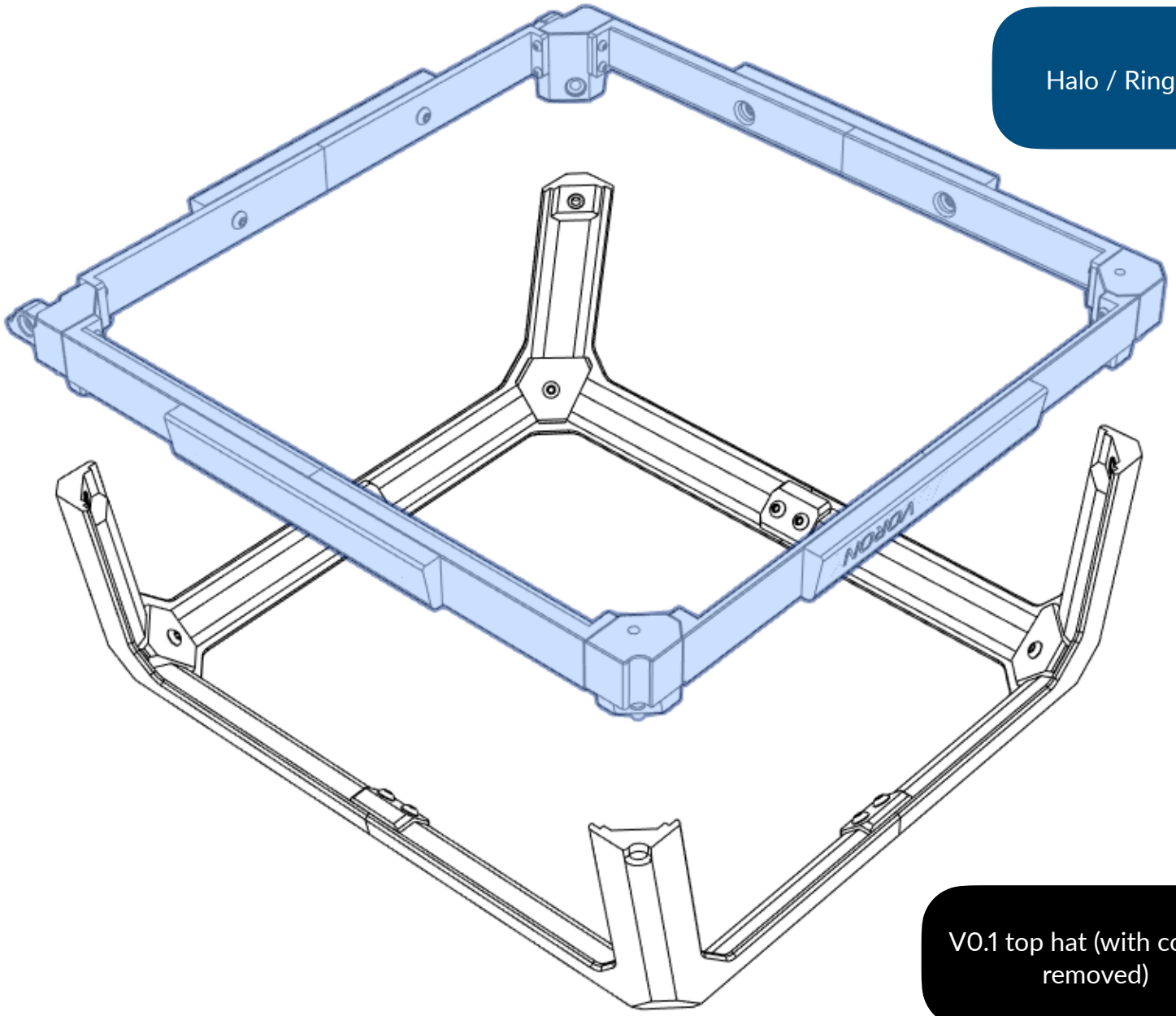
You may repeat on the right hand side.



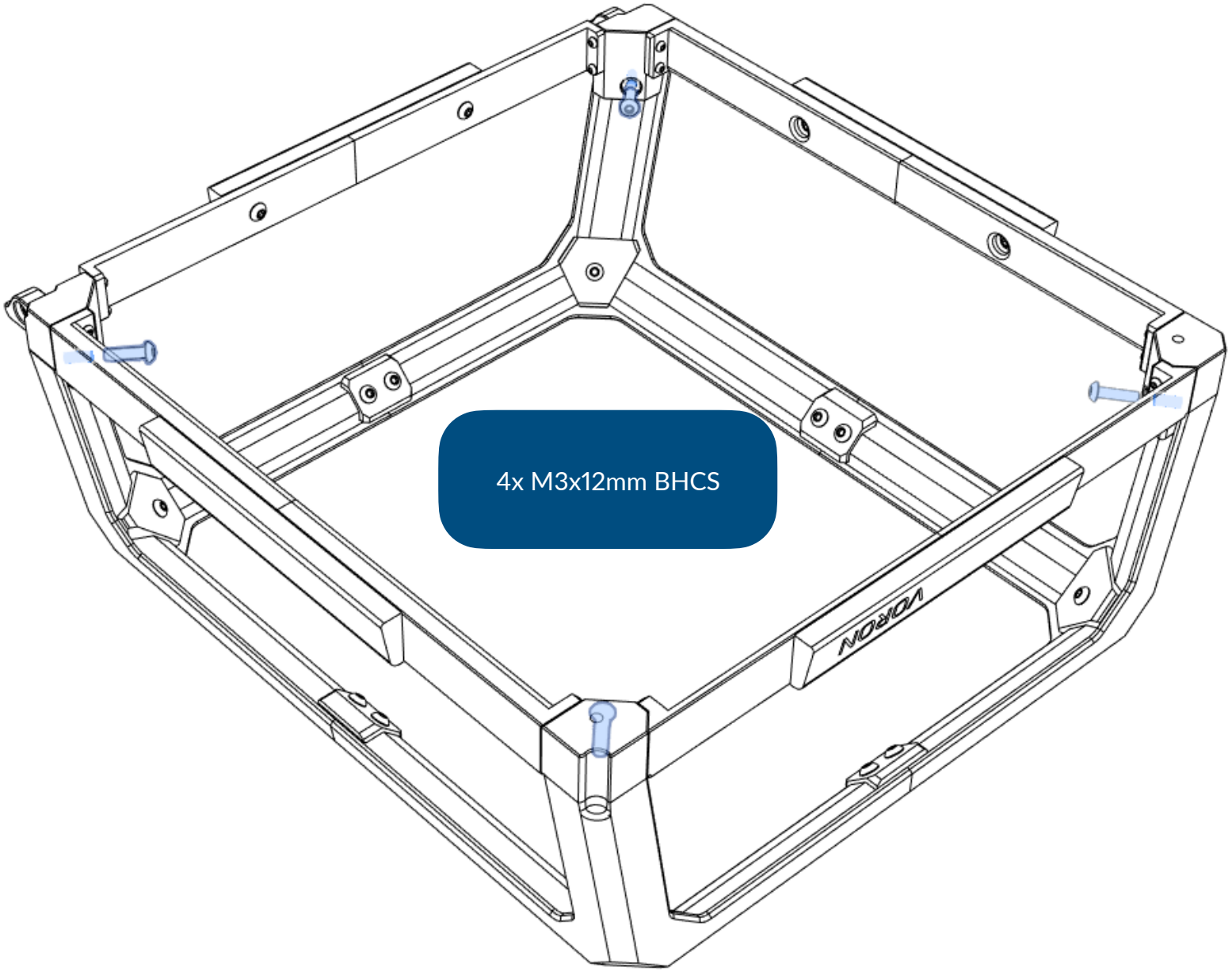
You may repeat on the left hand side.

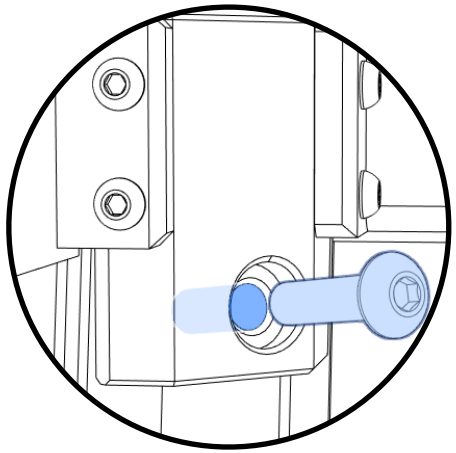

Back left quarter
Spacer holding bracket
Spacer holding bracket
Front left quarter
Back right quarter
Spacer holding bracket
Spacer holding bracket
Front right quarter


8x M3x6mm BHCS
(2x per side)
VORON

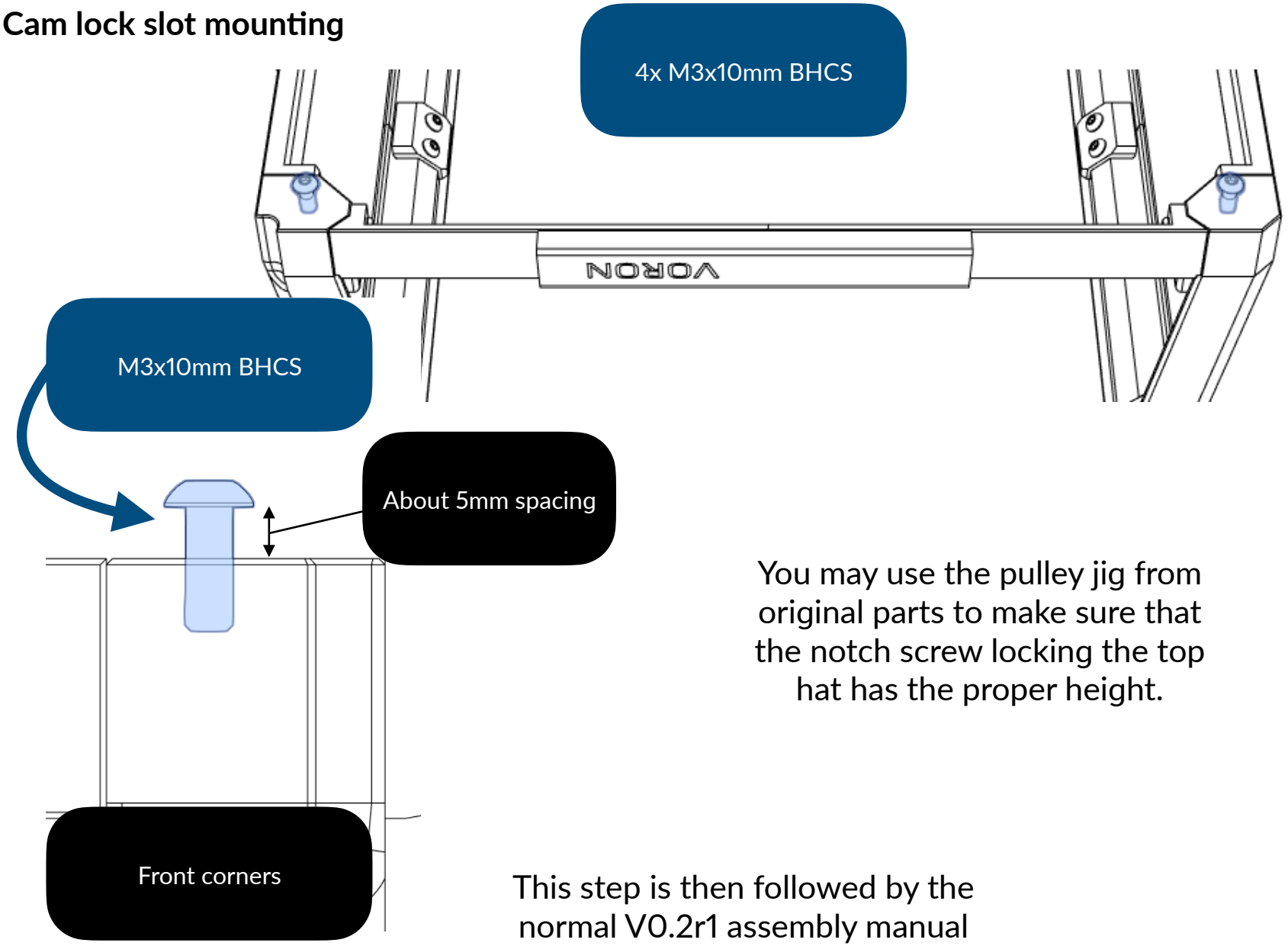


This manual does not show any panels, but still please make sure that you have inserted the panels before.


4x M3x12mm BHCS



Cam lock slot mounting

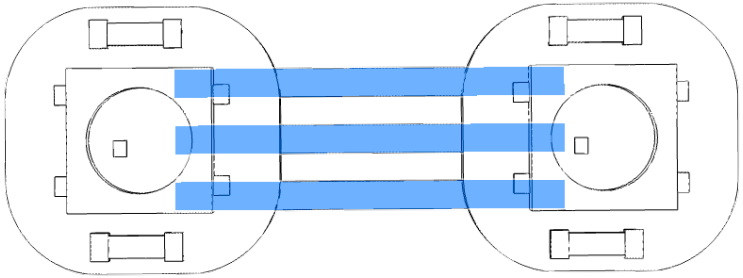


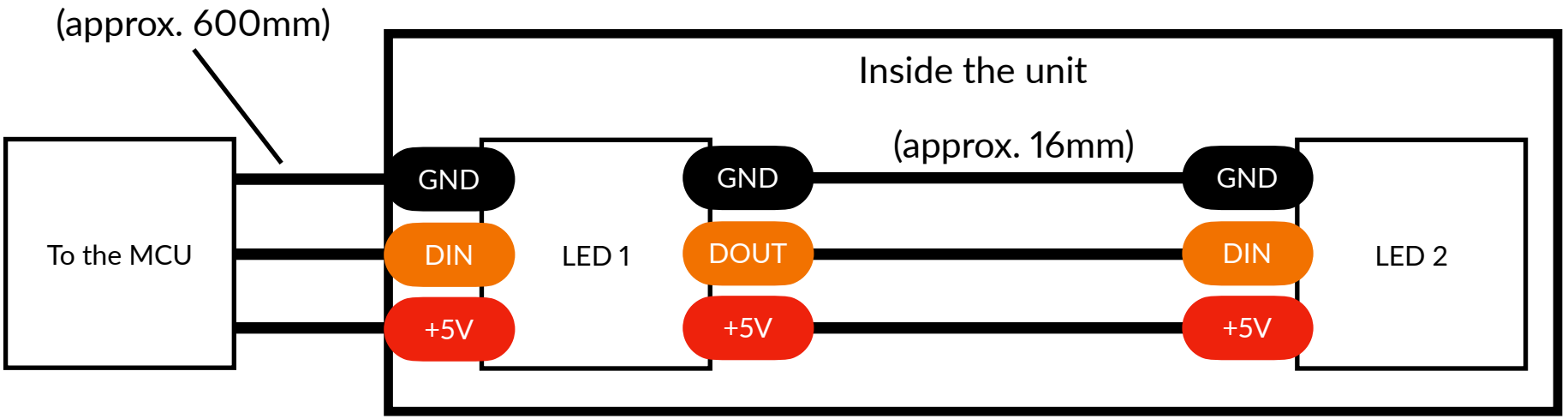
You may use the pulley jig from original parts to make sure that the notch screw locking the top hat has the proper height.

This step is then followed by the normal V0.2r1 assembly manual page 246.

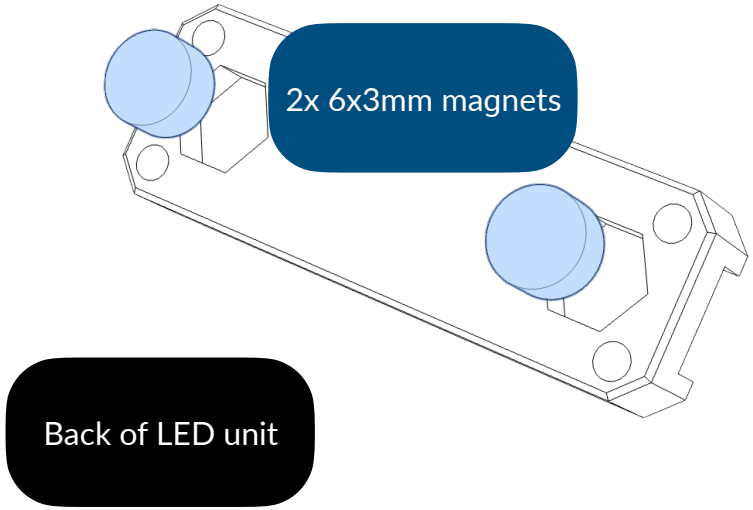
Top hat LED

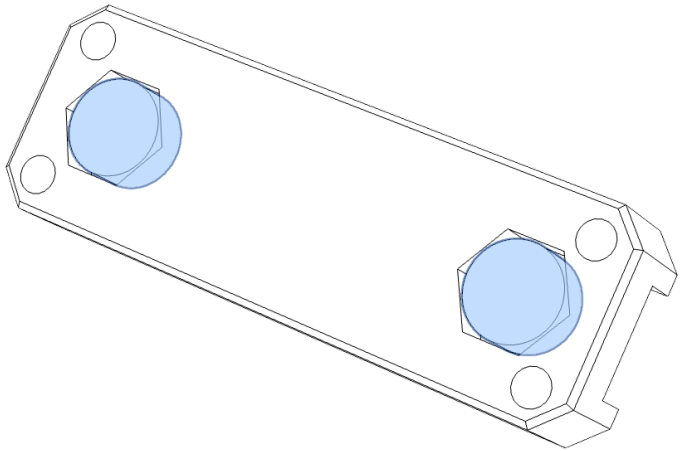
Wiring



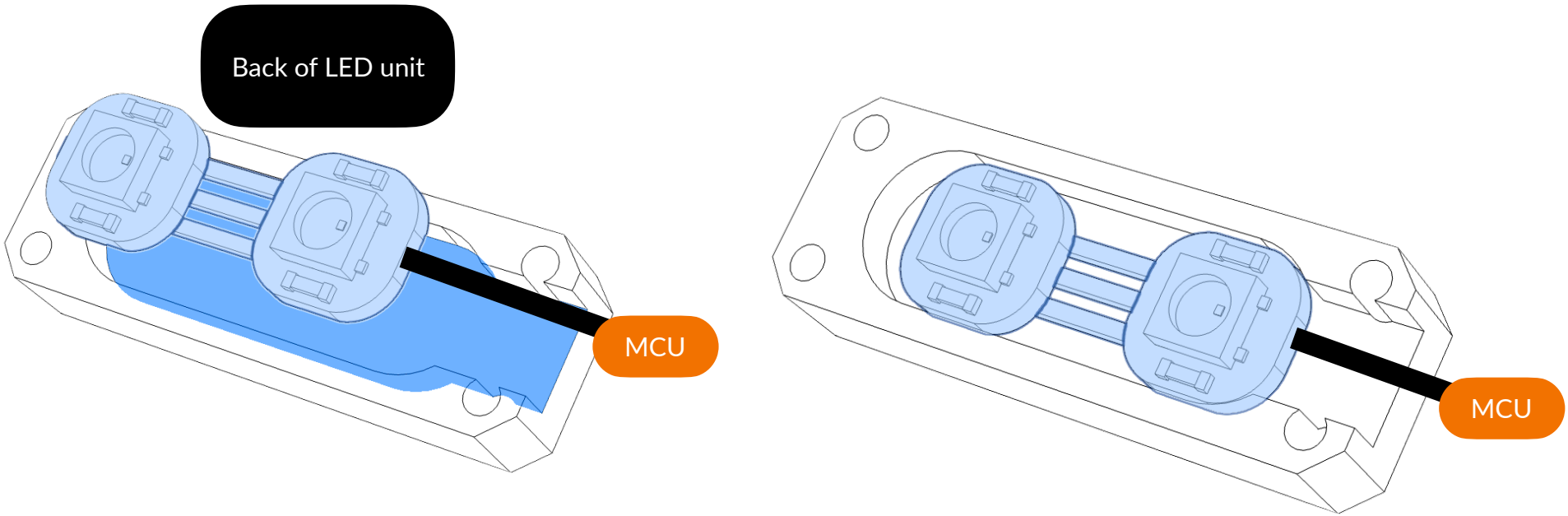


Building LED unit



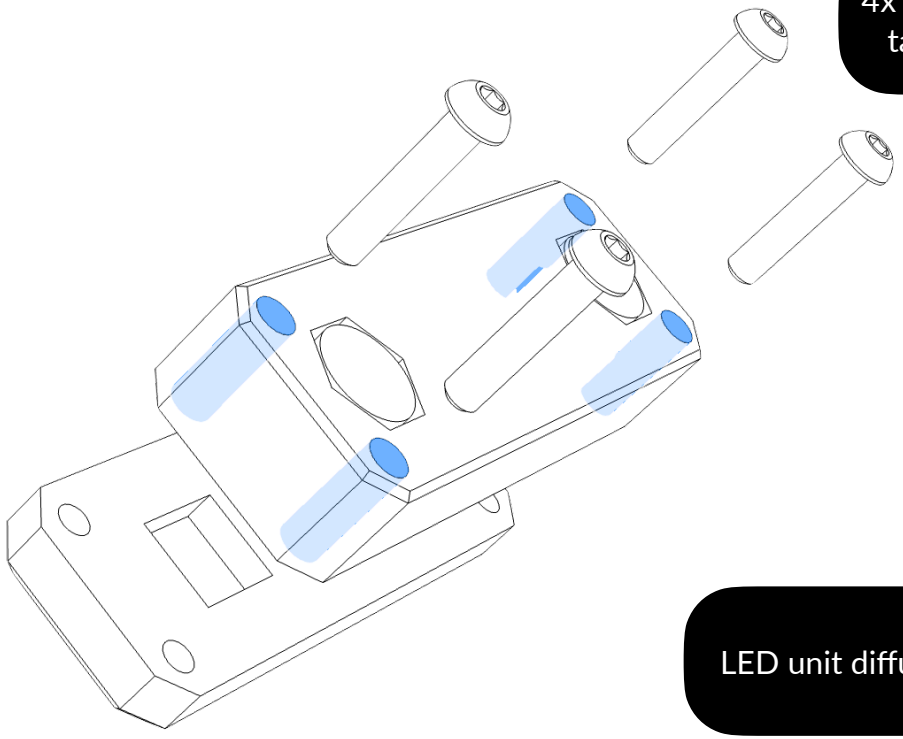


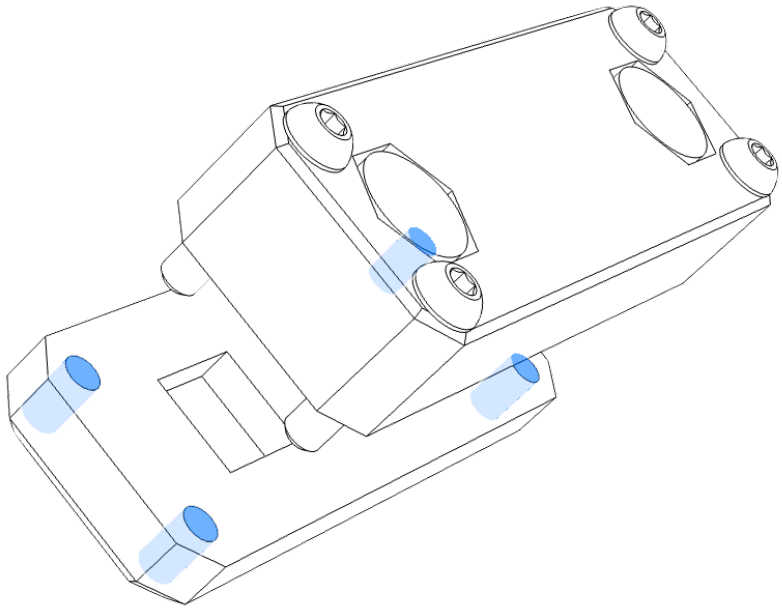
Please make sure it has no or minimal seams. If the magnet is not secure, you may use RTV silicone or superglue to stick the magnets with the part.



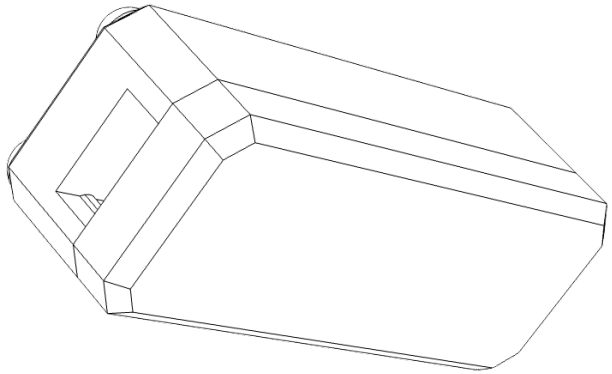
Upside down view.

4x M2x10mm self-tapping screws

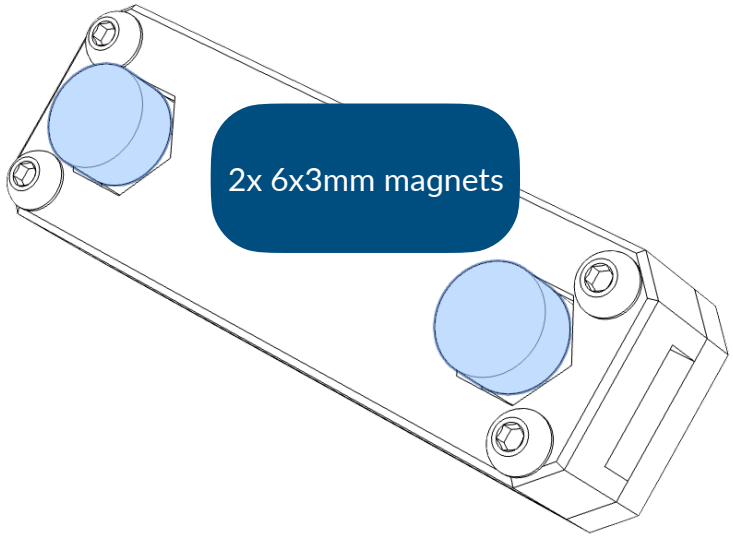




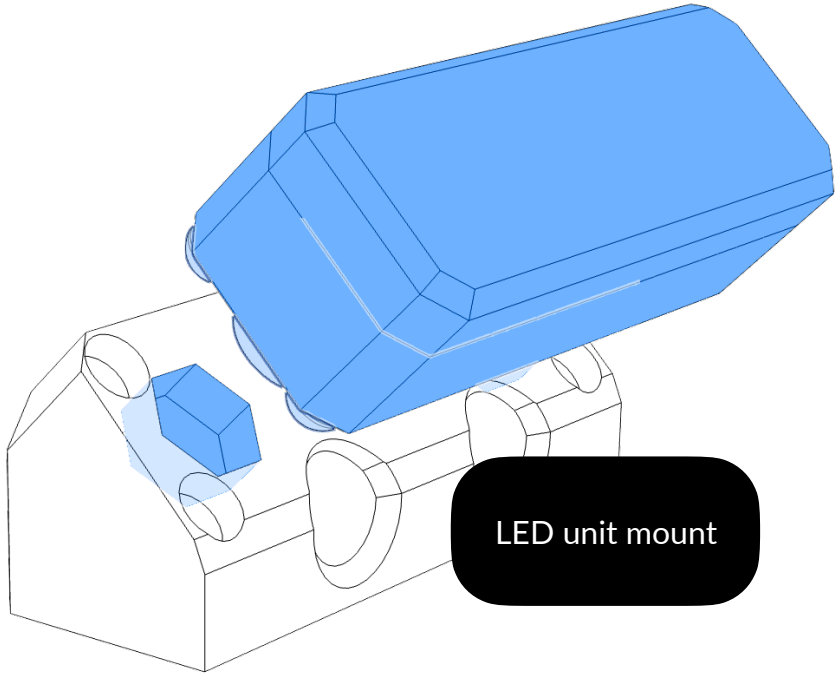
LED unit diffuser

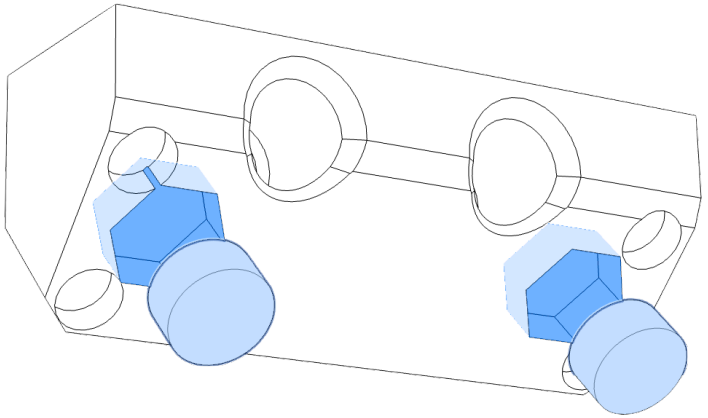


Mounting to the frame



This time we have to attract another magnets to ease assembly.

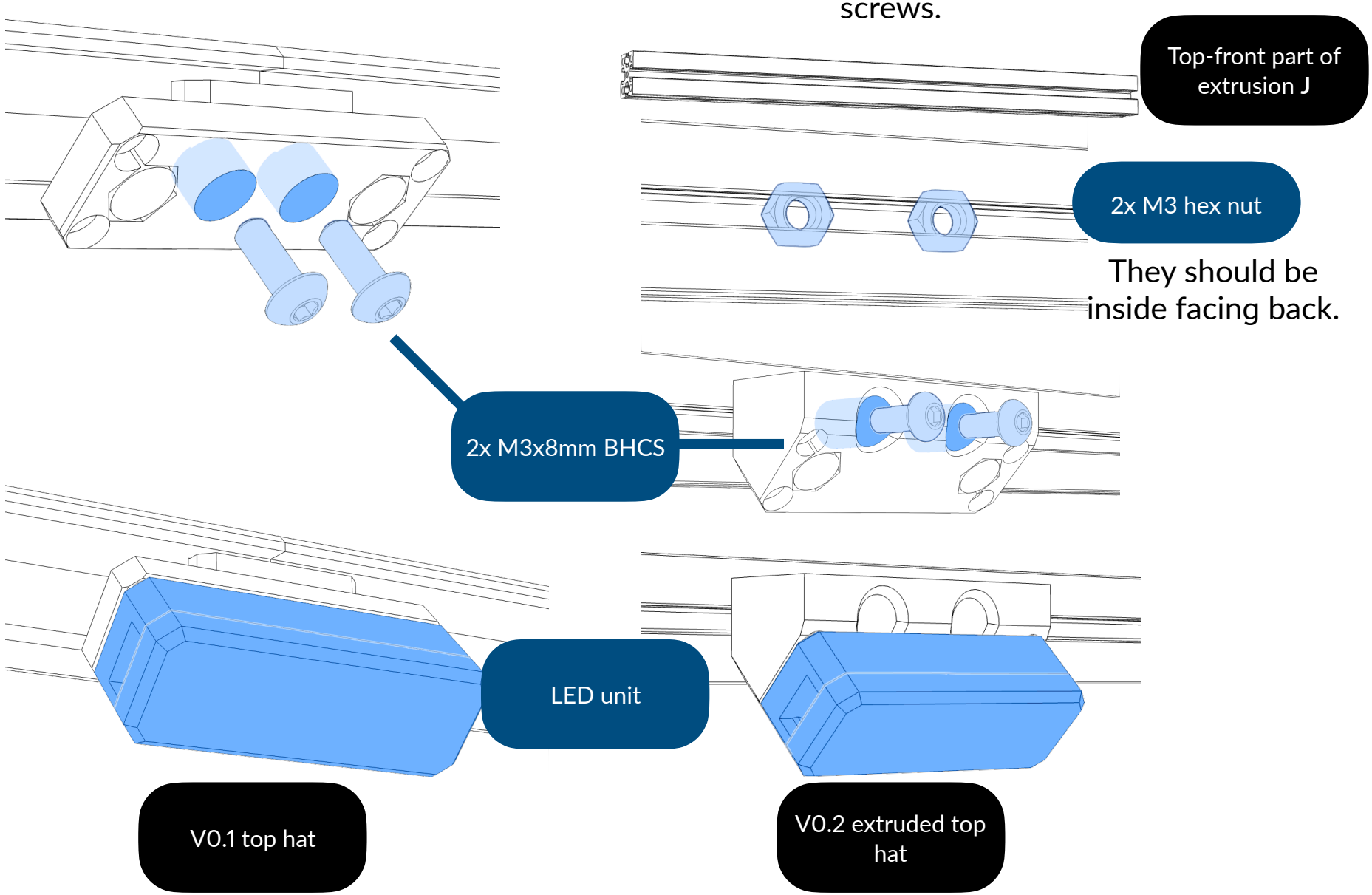




Note: if the holes are too big, you may need to do the traditional method by sticking magnets with RTV silicone or superglue. The attracting side must face outside.

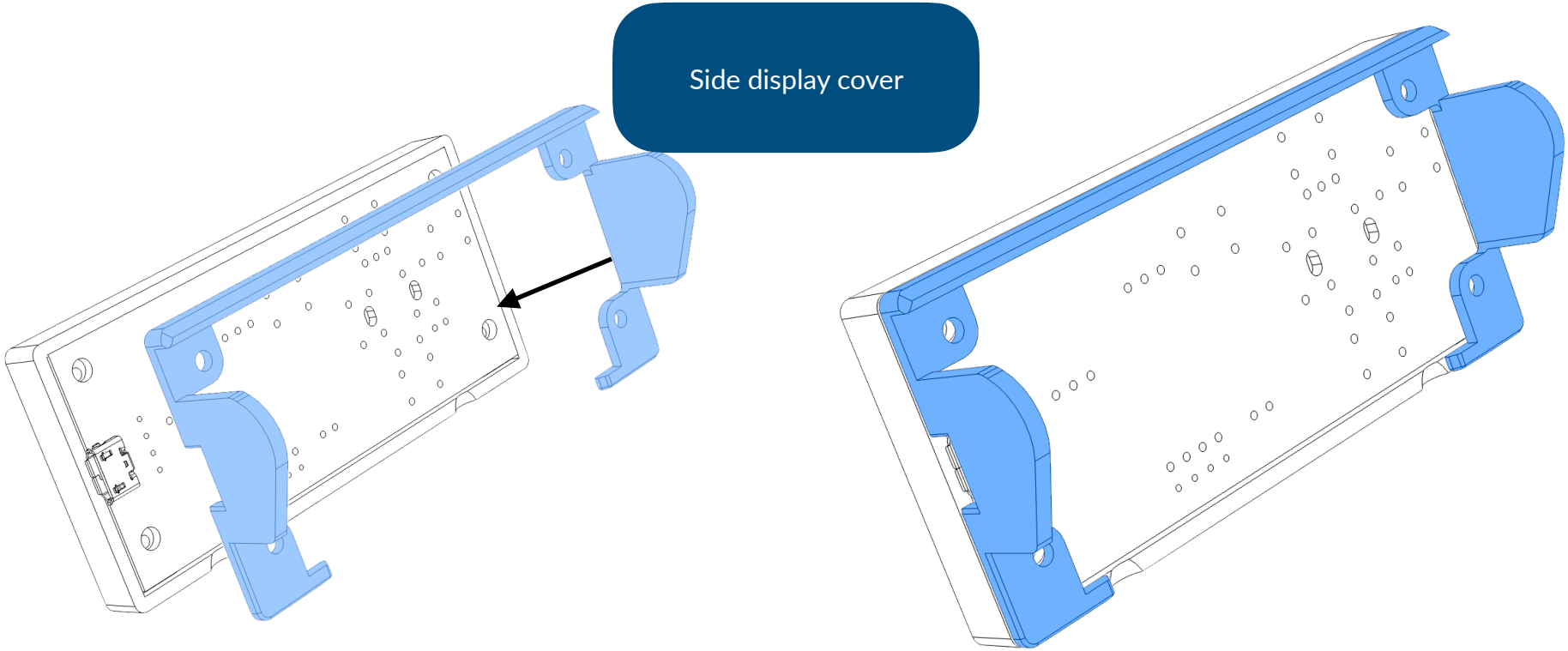
For V0.1 top hat, you can keep M3 screws to secure the mount. No hex nuts are required.

For V0.2 extruded top hat, you need to disassemble the top-front part of top hat and then load 2 M3 nuts and prepare M3*8 screws.



Display cover

This is an add-on for V0.2 display that adds additional protections.



This is then secured with 4x M2x10mm screws and then followed by the third part of page 219 on the normal V0.2r1 assembly manual.

Software configuration

Back skirt fan

This fan needs to be manually assigned in order to run. This code will be put into configuration folder. This fan is recommended to be assigned as controller cooling fan.

```
[controller_fan back_skirt_fan]
pin: 'assigned_pin'
idle_timeout: 60
heater: heater_bed
```

Add new controller fan
Fan pin to be assigned (you need to change to pin assigned to)
Idle timeout (in seconds)
Associated heater pin (set to bed heater)

Top hat LED

This feature adds the ability to add glow that is direct to the front side of the model allowing you to see with minimal light. This code will allow you to do that.

```
[neopixel top_hat_led]
pin: 'assigned_pin'
chain_count: 2
# color_order GRB
initial_RED: 1.0
initial_GREEN: 1.0
initial_BLUE: 1.0
```

Add new LED called top_hat_led
Pin to be assigned
Chain count (add one per LED)
Color order (not required if using defaults)
Emission value on startup

Function key

This feature replaces emergency stop key found in V0 displays. It replaces with multiple functions depending on the printer's situation. When the printer is idle, pressing the function key or previously known emergency button will initialize homing, during printing, pressing it will pause the print. Pressing it again will resume print. You may go to fn_key.cfg for more information.

Assembly complete

Now you can share the mod with any one of us or them, in the near future we will unlock the superpowers of unusual usage of such printer. However this manual does not include unusual guides and troubleshooting guides. This means, if you have problems with this mod, you need to head to https://github.com/Bunny350/OITSWILLIAMV0/issues, join and message in Oitswilliam Pang Discord server or message @officialbunny350 on Facebook.

It's done. While you are at my social
platforms maybe should you follow me?

Manual designed by Oitswilliam Pang.
One-person operated design.
bunny350.github.io