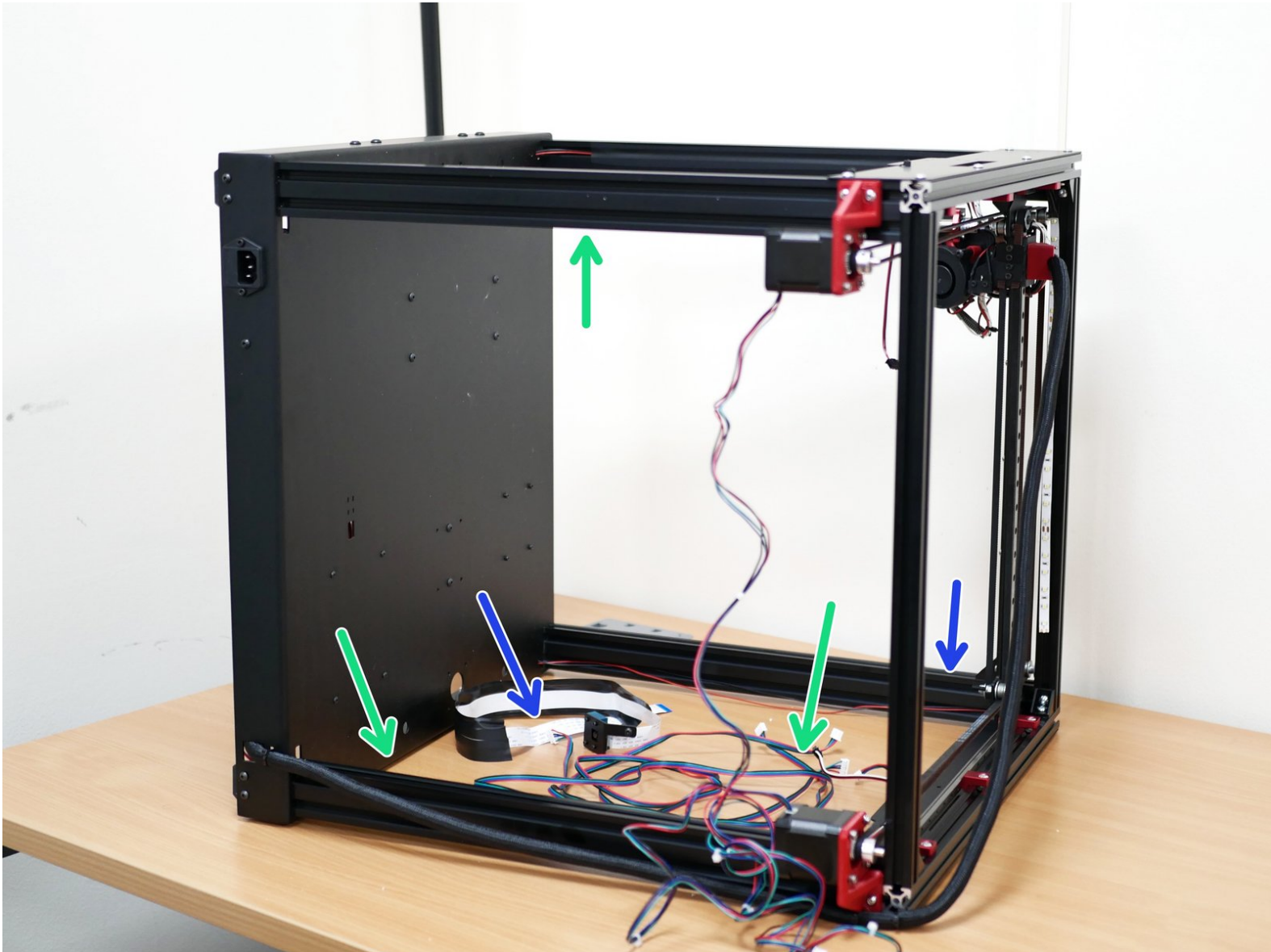


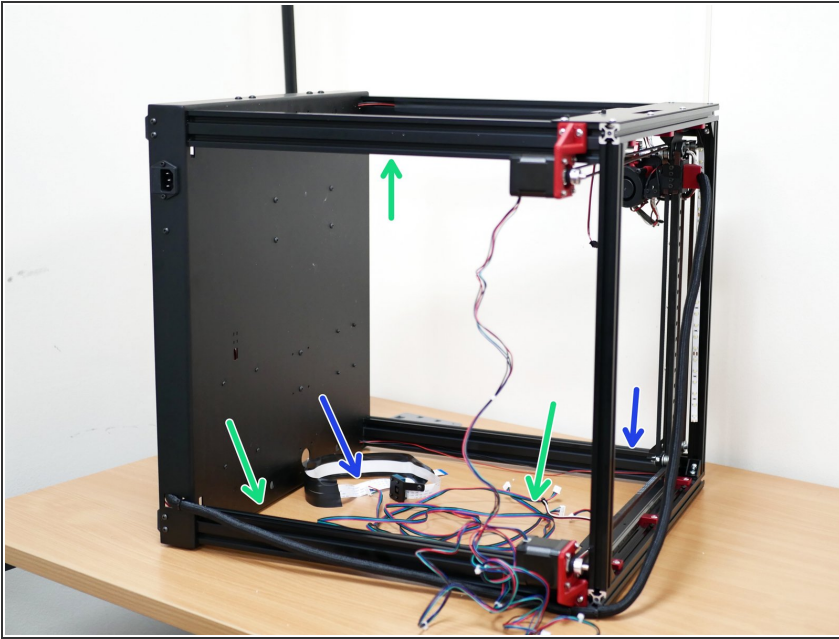
Makertech

Stage 03: Platform/Z-Axis Upgrade

Written By: Makertech 3D

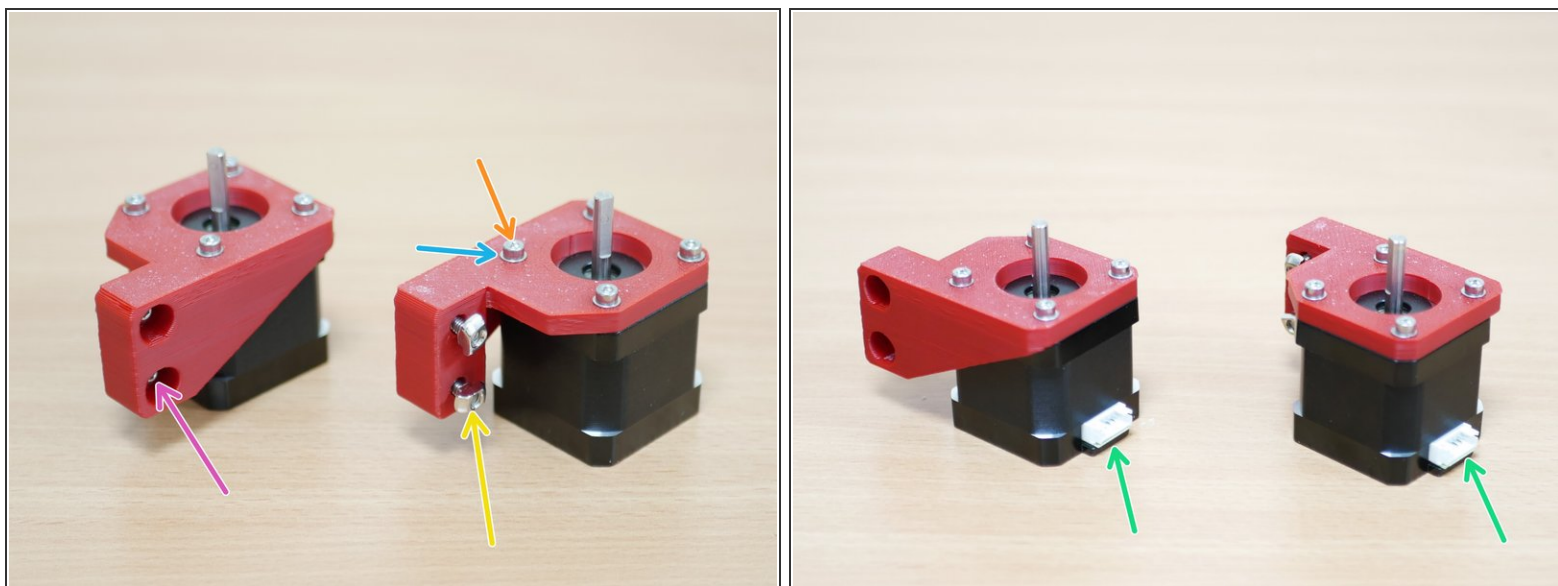


Step 1 — Preparing the Frame



- Remove the old motor cables from the frame.
- ⓘ Unplug them from the control board also and place them to one side.
- If you have the Pi cam installed, also remove it and place it to one side.

Step 2 — Z-Motors - Front

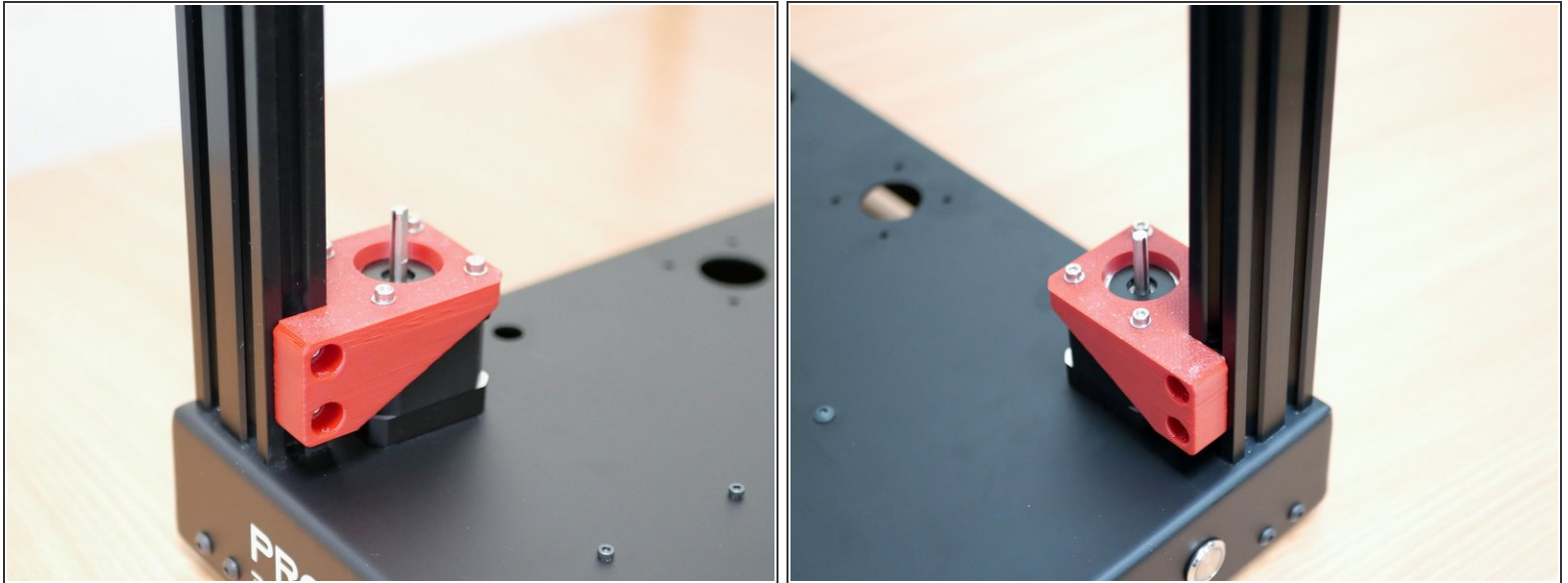



- ❗ Remove the Z-axis motors from the base and fix them onto the 3D printed Z-motor mounts. Serial No. 42BYGH438.

⚠ Note, the mounts are **mirrored**. These two motors will be installed at the front of the base.

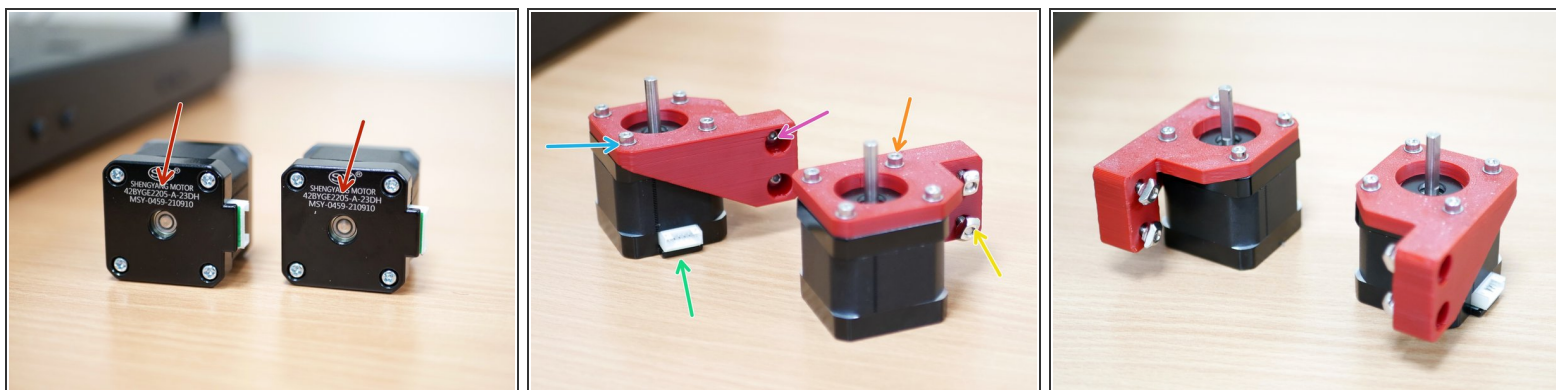
- Orientate the motors as shown with the cable connectors facing away from the mounting holes.
- M3 x 10mm Bolt
- M3 Washer
- M4 x 12mm Bolt
- M4 T-Nut

Step 3 — Z-Motors - Front



-  Secure those motor assemblies to the inside front of the frame as shown.

Step 4 — Z-Motors - Rear

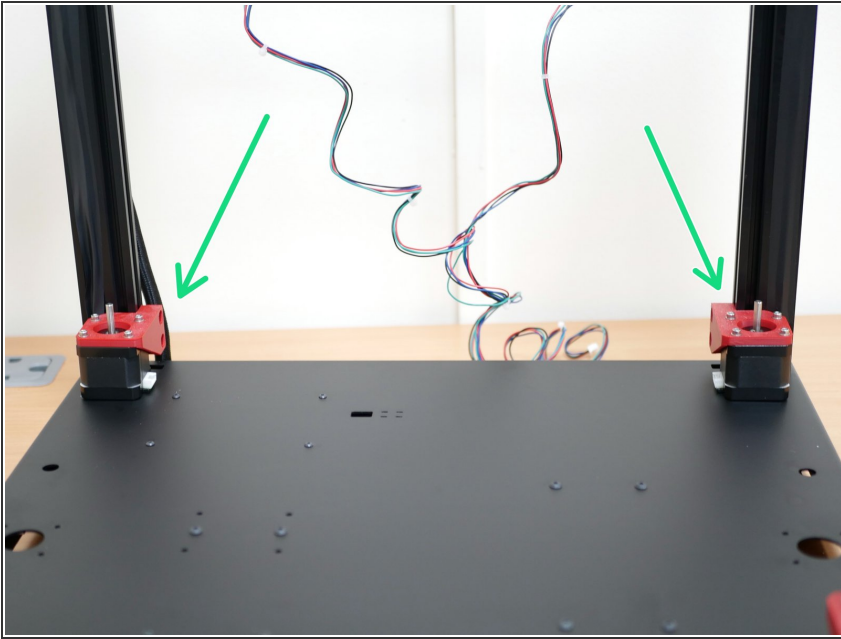


- Take the two motors from the old Top Panel Assembly. The motor number should have a 205 in it.

⚠ As before, the mounts are **mirrored**. These two motors will be installed at the rear of the base.

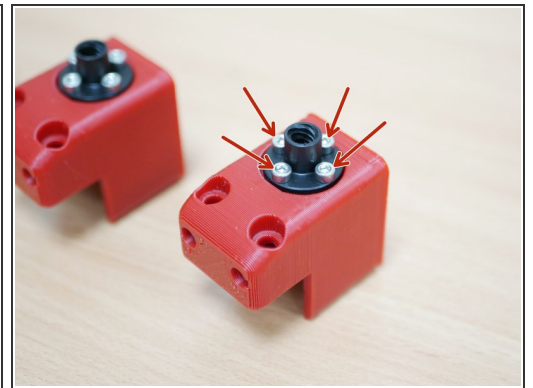
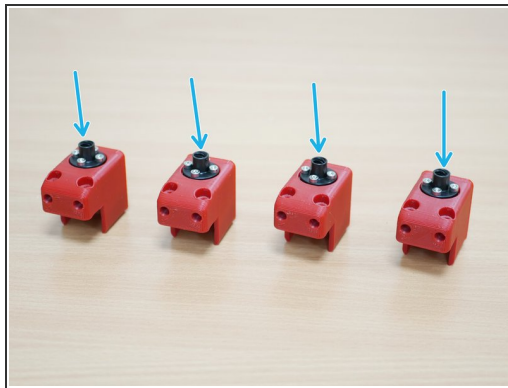
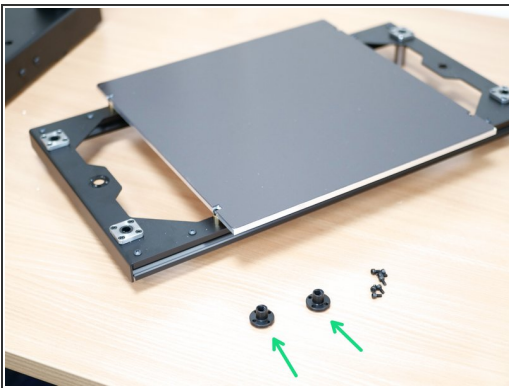
- Orientate the motors as shown with the cable connectors facing the side of the mounting holes.
- M3 x 10mm Bolt
- M3 Washer
- M4 x 12mm Bolt
- M4 T-Nut

Step 5 — Z-Motors - Rear



- Secure those motor assemblies to the inside rear of the frame as shown.

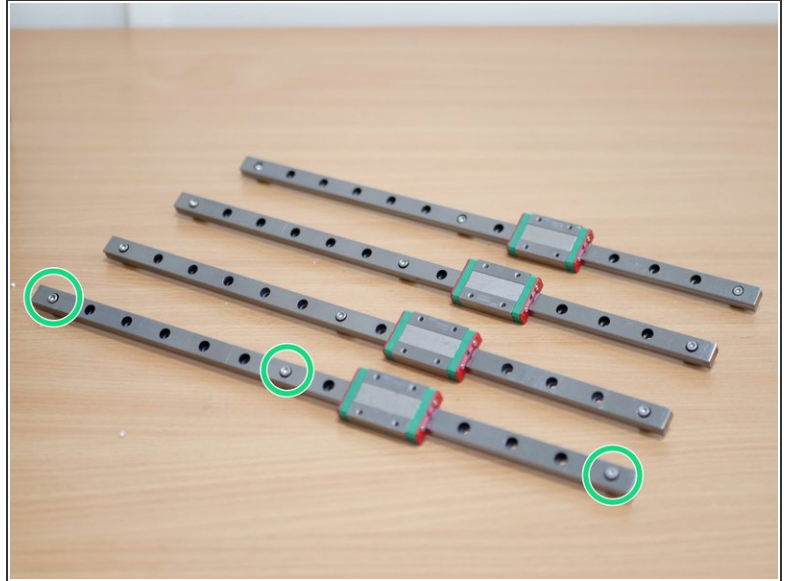
Step 6 — Lead Screw Nuts



- Take the old platform assembly and remove from it the lead screw nuts. The old bolts can be discarded.
- Fix these two lead screw nuts, with the two included in the upgrade kit, to the four 3d printed z-carriage parts.
 - M3 x 10mm Bolt

⚠ These bolts self tap into the 3d printed part, do not over tighten as it will strip the plastic.

Step 7 — Preparing the Linear Rails

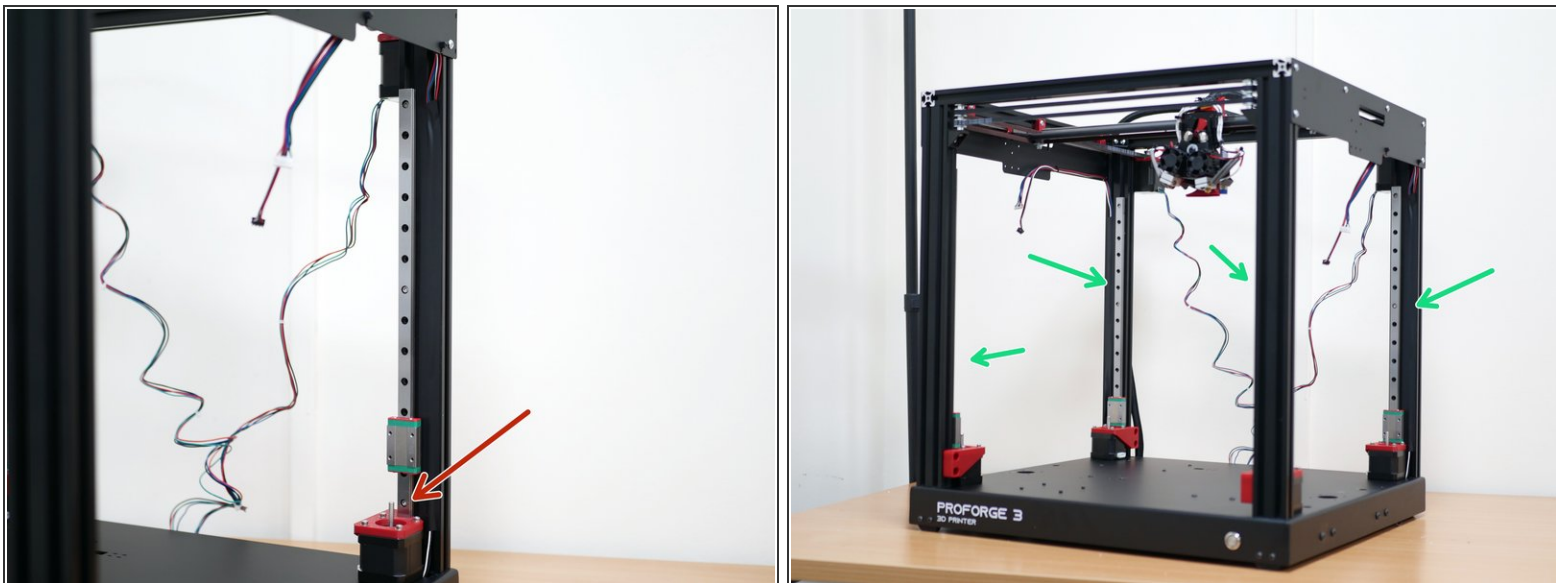


i Prepare the linear rails as shown:

- M3 x 10mm bolt
- M3 T-Nut

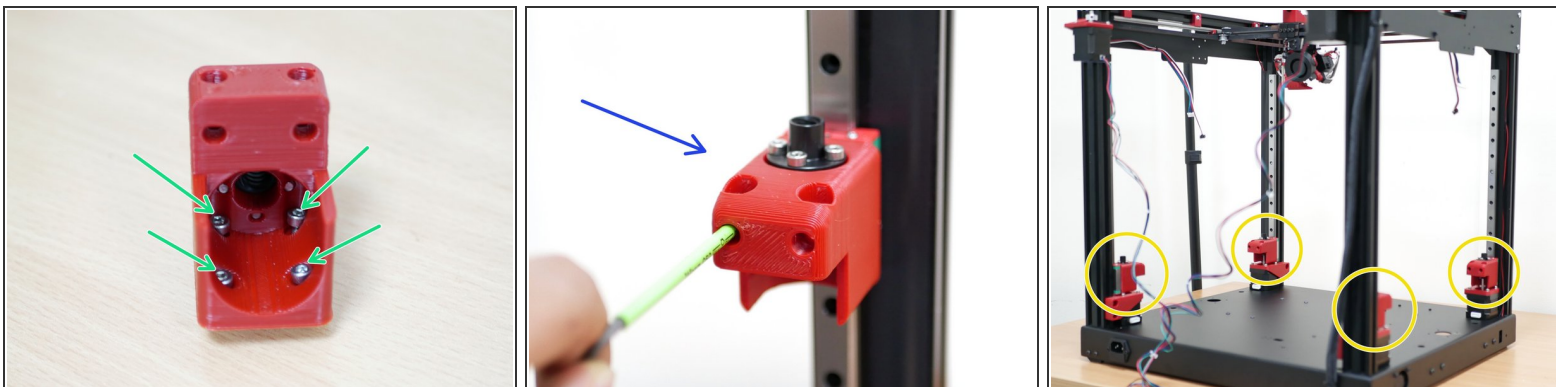
⚠ Be careful that the carriages do not fall off the rails.

Step 8 — Installing the Rails



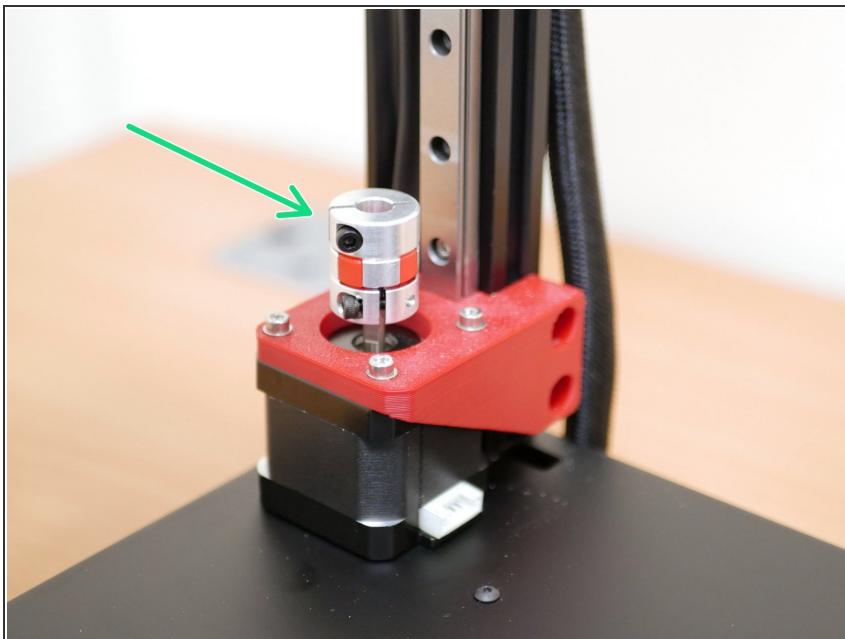
- Fix the rails to the inside of the frame as shown.
- When fixing the rail, **press** it down on the z-motor mount and then **firmly** tighten the bolts to the extrusion.

Step 9 — Z-Carriages



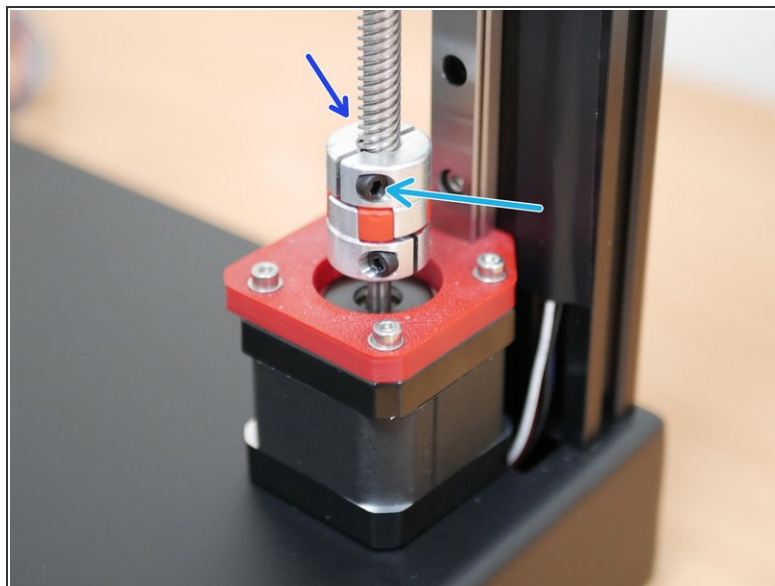
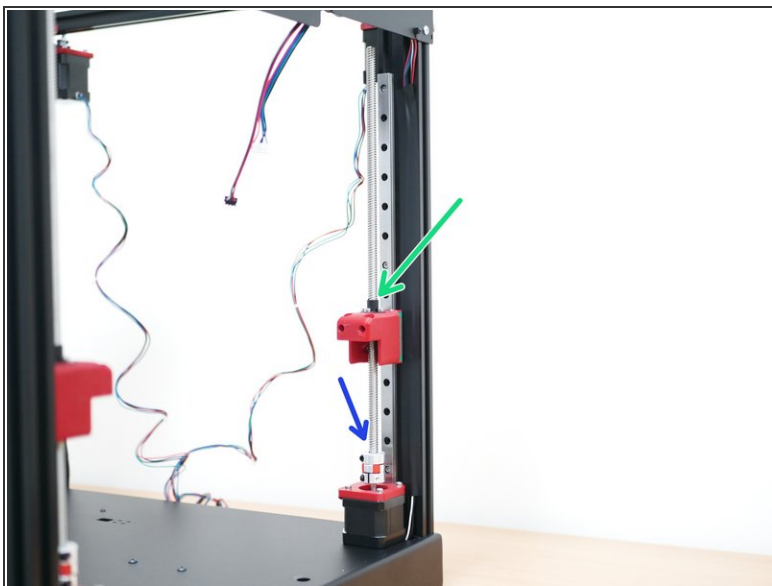
- Drop four M3 x 10mm bolts into a Z-carriage as shown.
- Mount the 3d printed carriage to the rail carriage as shown.
- Repeat with the other three carriages.

Step 10 — Plum Couplings



- Secure the four Plum Couplings to the motor shafts as shown.

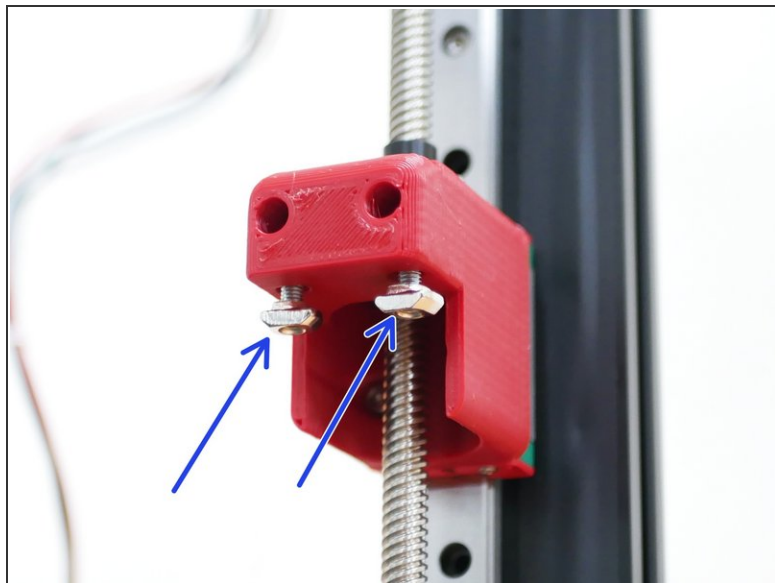
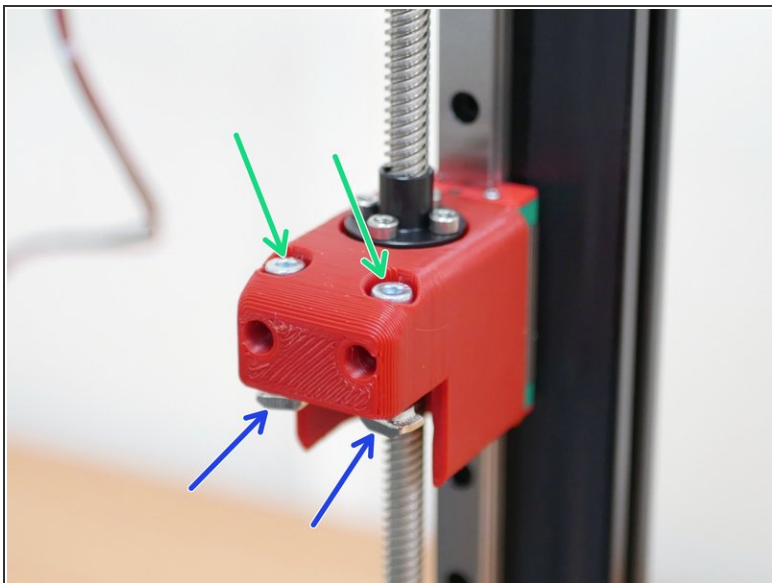
Step 11 — Lead Screws



- Thread the four lead screws (two from the upgrade and two from the original printer) through the top of the lead screw nut.
- Feed it into the Plum Coupling.
- Tighten this bolt to secure it in place.

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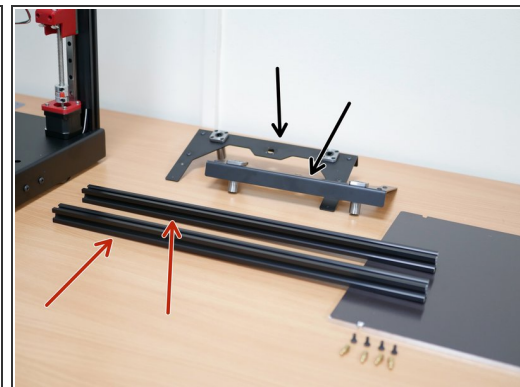
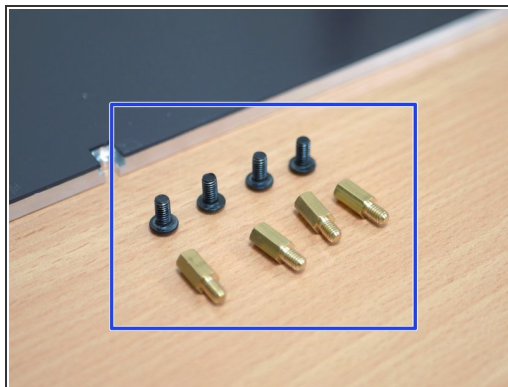
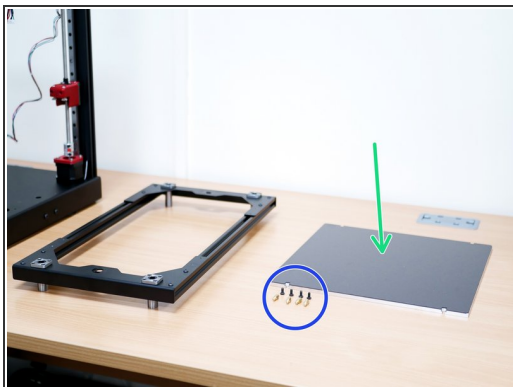
Step 12 — Preparing the Z-Carriages



i Drop into each of the Z-carriages two:

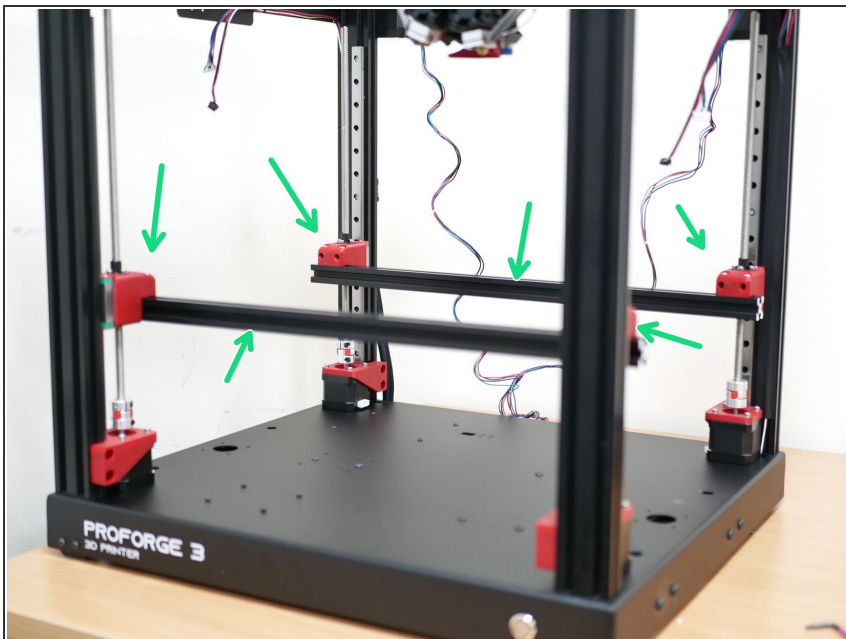
- M4 x 20mm Bolt
- M4 T-Nut

Step 13 — Disassembling the Old Platform



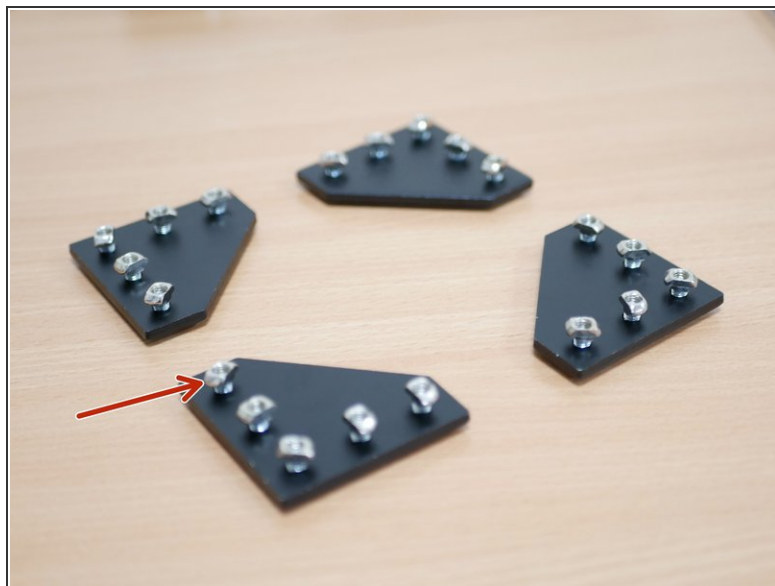
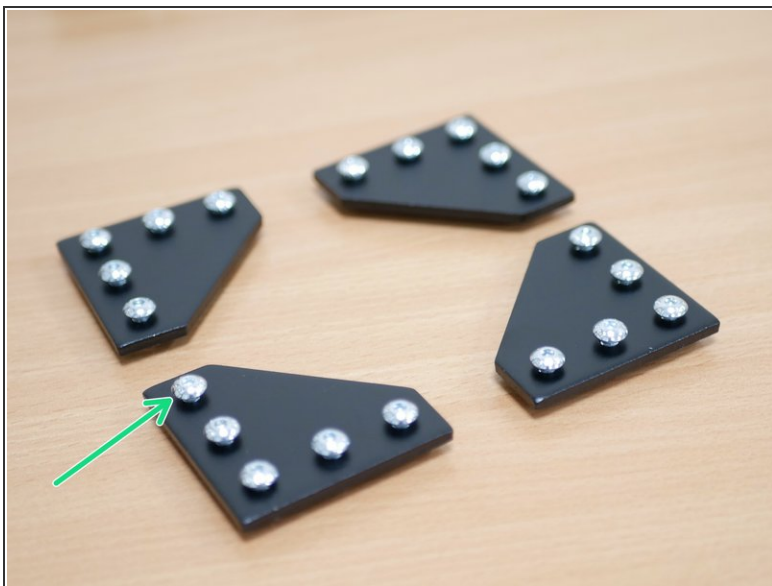
- Remove the print platform from the platform frame.
- Remove the standoffs and M4 bolts - **keep these safe as they will be reused.**
- Remove the extrusions from the brackets.
 - These brackets can be discarded.

Step 14 — Attaching the Extrusions



- Fix the extrusions to the Z-Carriages as shown.

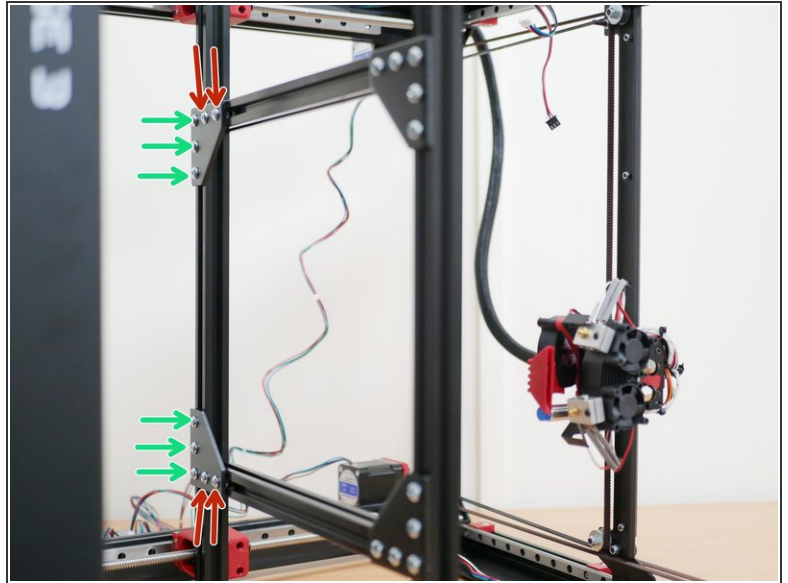
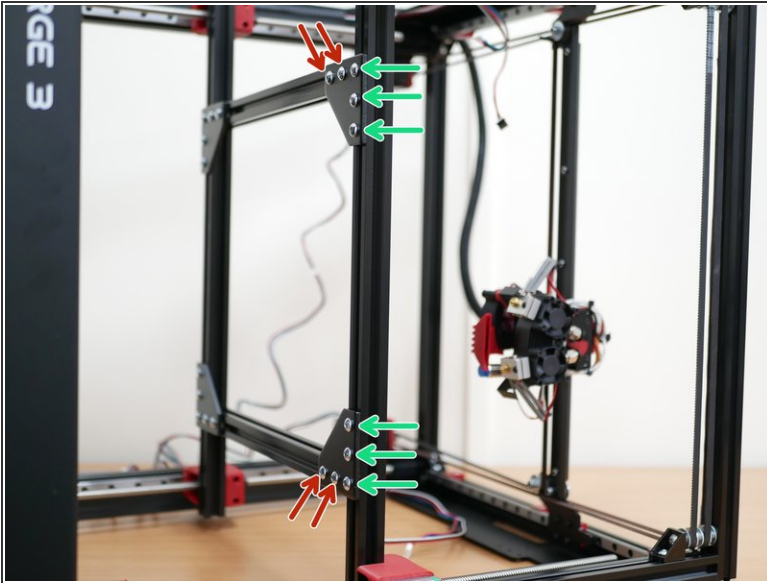
Step 15 — Preparing the Platform Brackets



① Prepare the four platform brackets as shown with:

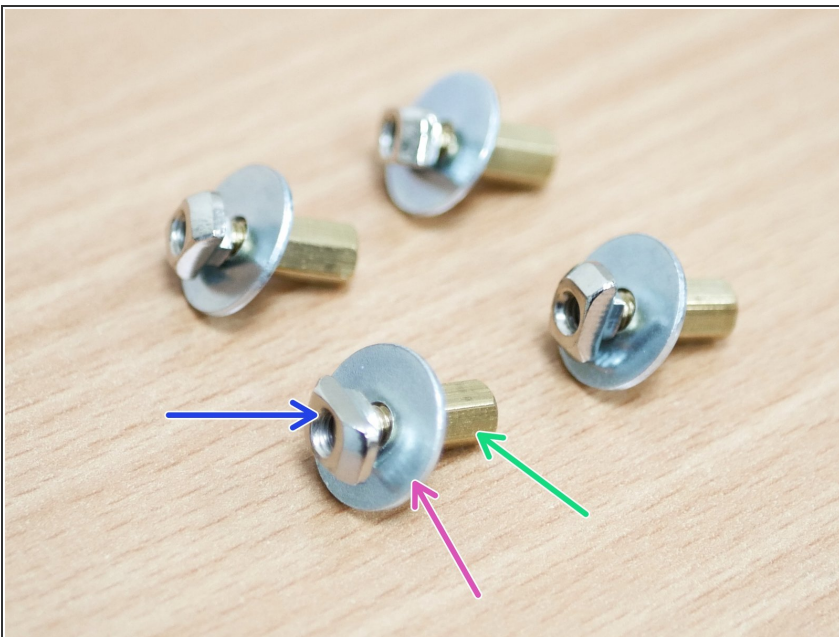
- M5 x 8mm bolts
- M5 T-Nuts

Step 16 — Building the Platform Frame



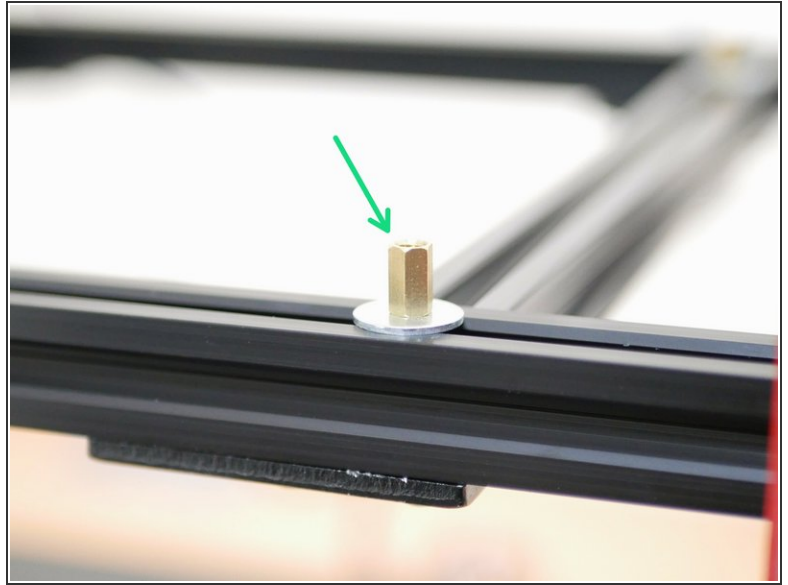
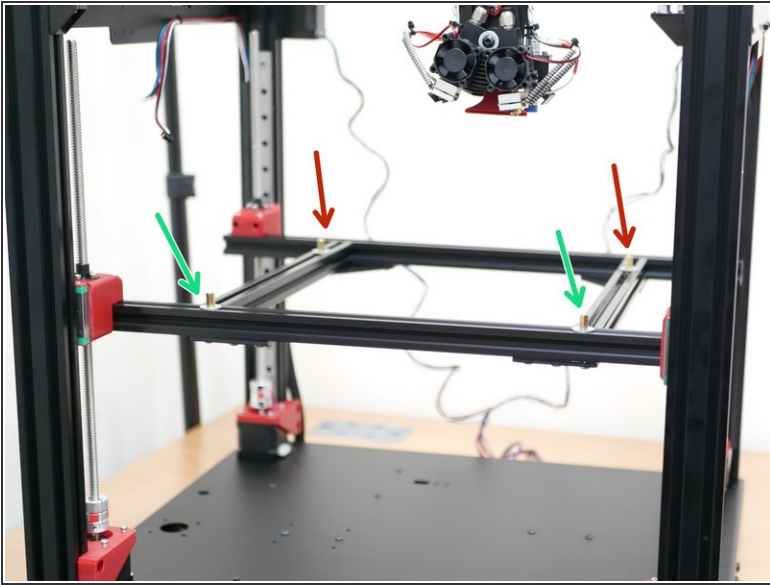
- i** Use the brackets to join together two shorter extrusions with the two longer ones.
- The bolts that attach to the shorter extrusions - secure firmly.
 - The bolts that attach to the longer extrusions - secure loosely so that the shorter extrusions can still slide.

Step 17 — Building the Platform Mounts



- Use the brass stand offs from the old assembly and create four of these assemblies as shown
- M4 Penny Washer
- M4 T-Nut

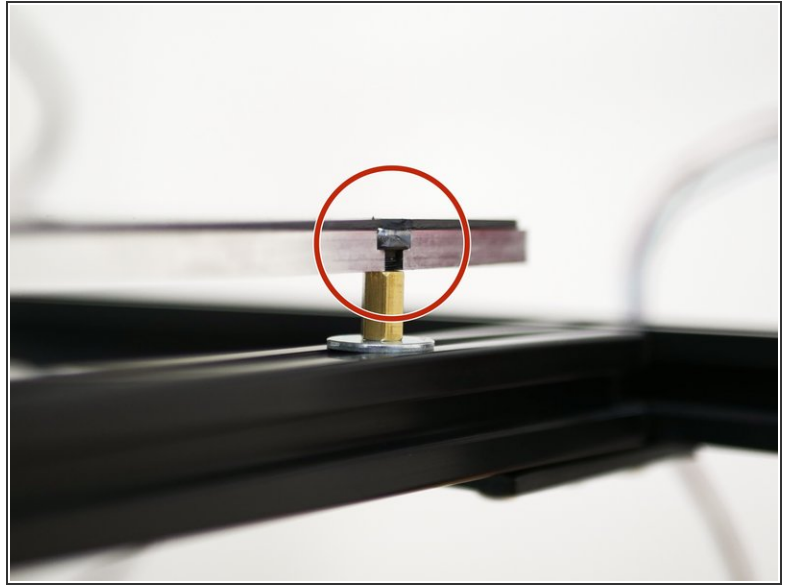
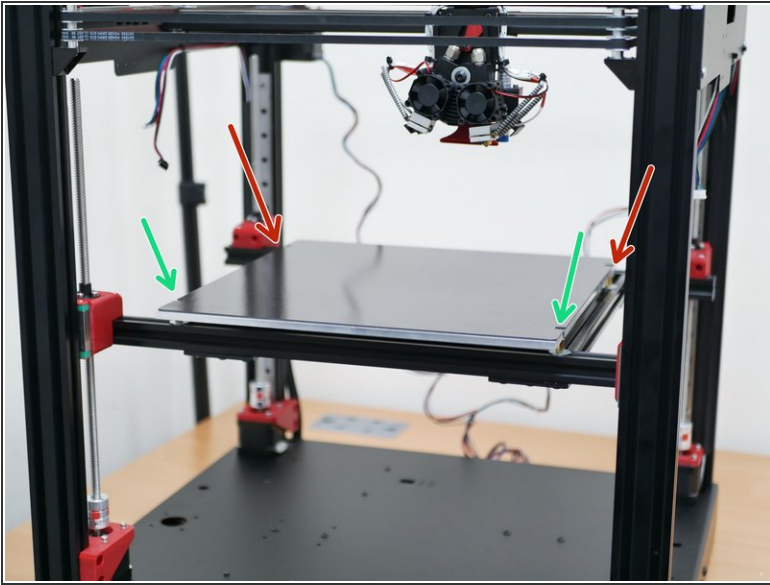
Step 18 — Fixing the Platform Mounts






i **Loosely** fix the platform mounts to the extrusions.

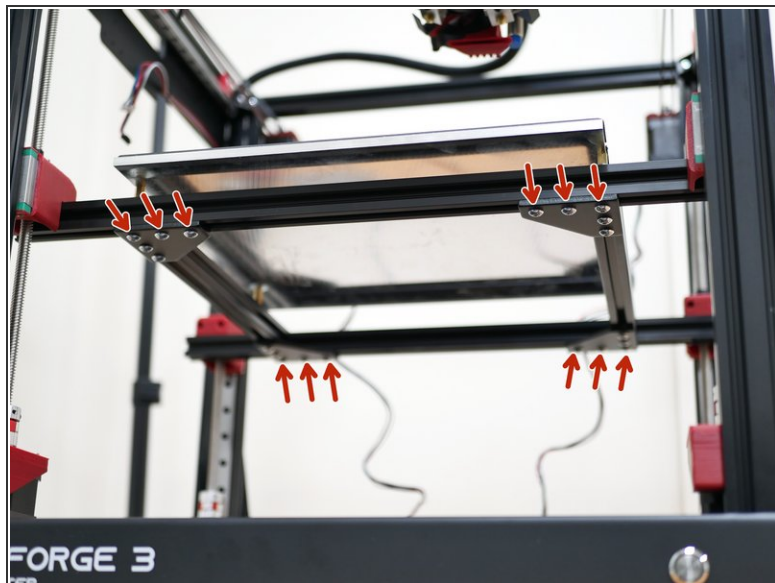
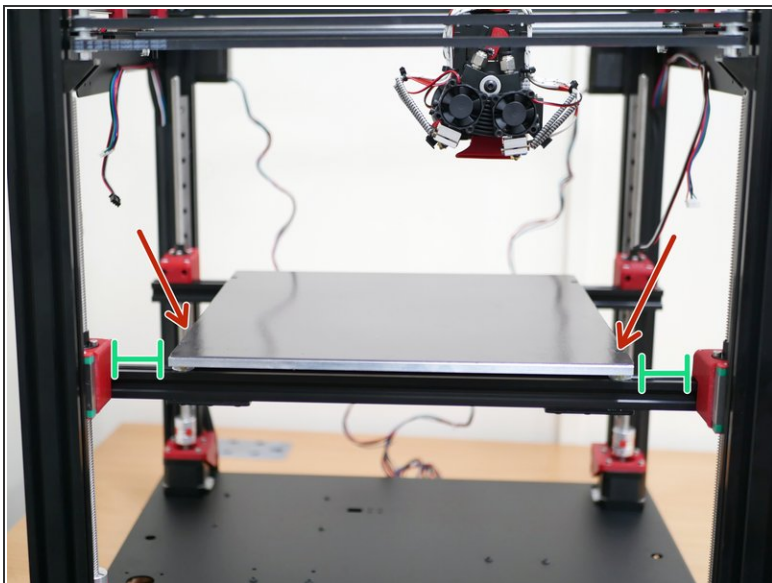
- Position the front two on the longer front extrusion.
- Position the other two on the shorter side extrusions.

Step 19 — Mounting the Platform



-  Mount the platform using the old M4 x 6mm bolts.
-  Firmly tighten the rear bolts and hence the mounts to the shorter extrusions,
 -  Loosely fasten the front two bolts, so that the platform can still slide left and right.

Step 20 — Setting the Platform Position



- i** With the platform still able to slide left and right, adjust its position so that it lines up to the centre of the printer.
- The distance between the edge of the platform and the 3d printed carriage should be approx. 47mm.
- i** When happy it is approximately central, tighten down the remains loose bolts:

 - Front platform bolts
 - Bracket bolts