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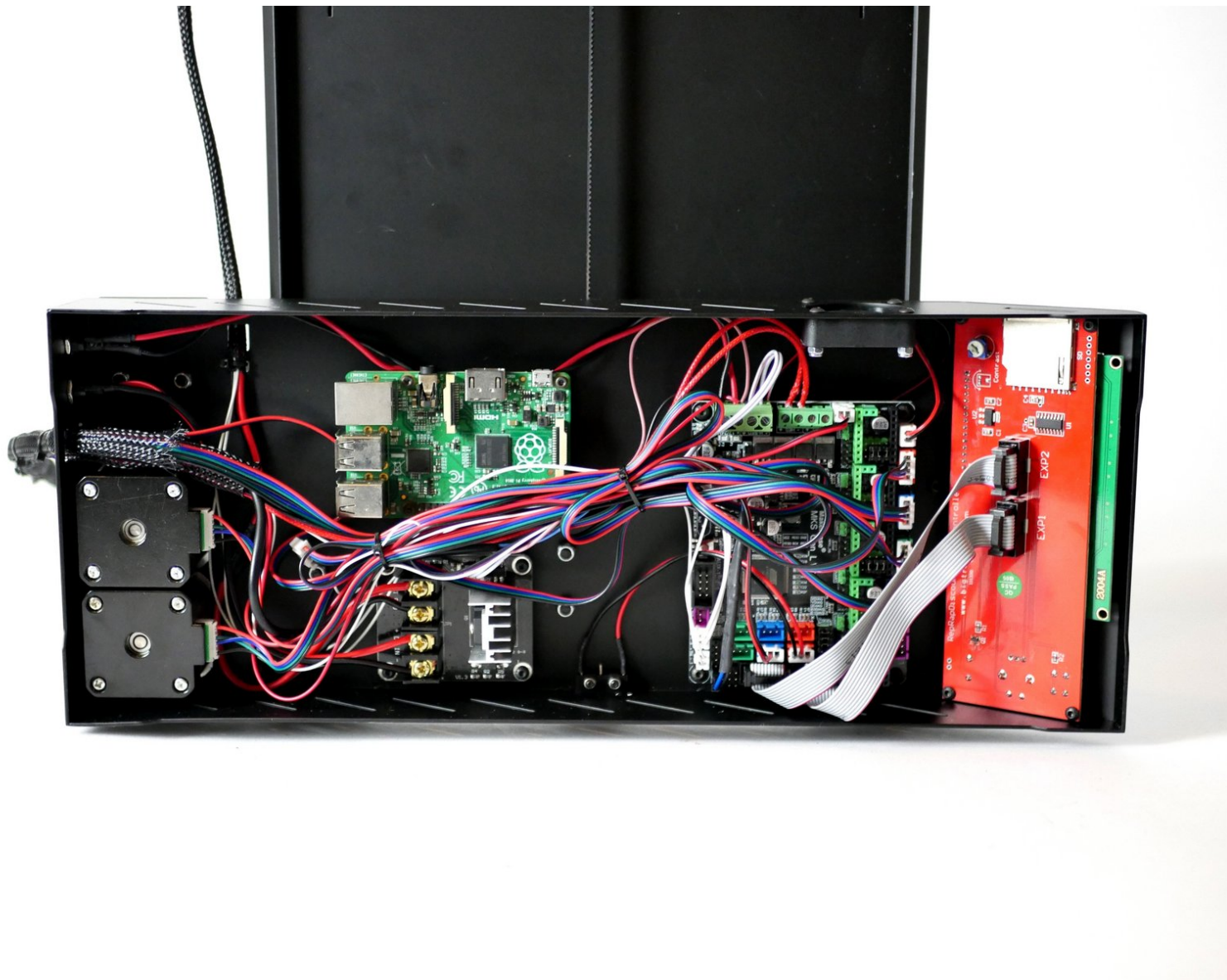
Stage 08: Wiring

Wiring guide for the Axis 3d printer.

Written By: Makertech
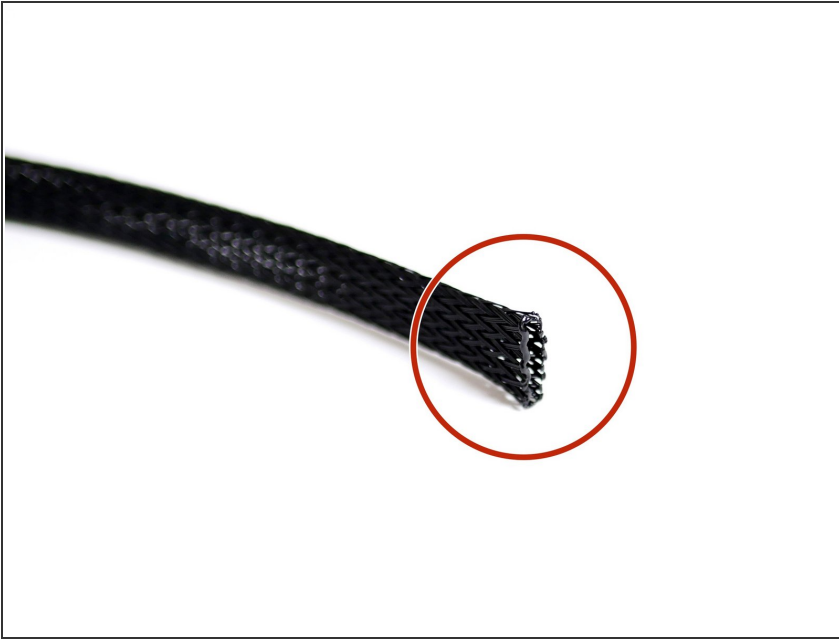
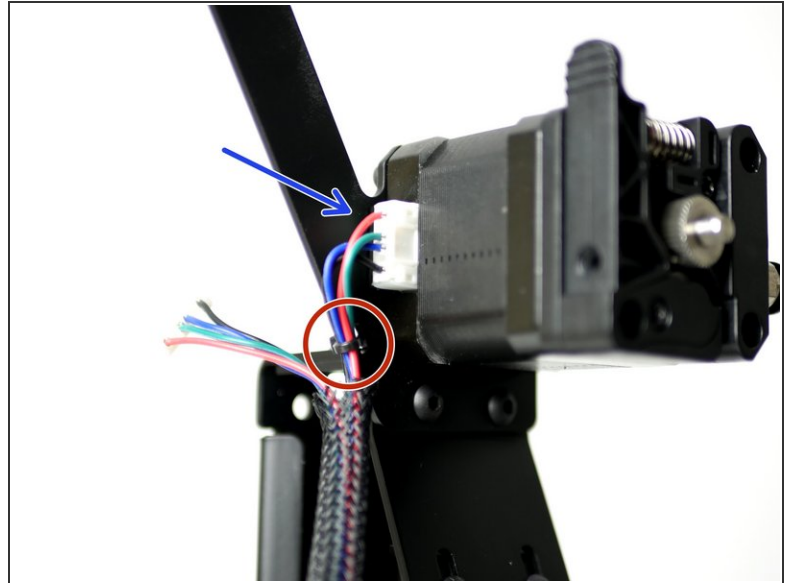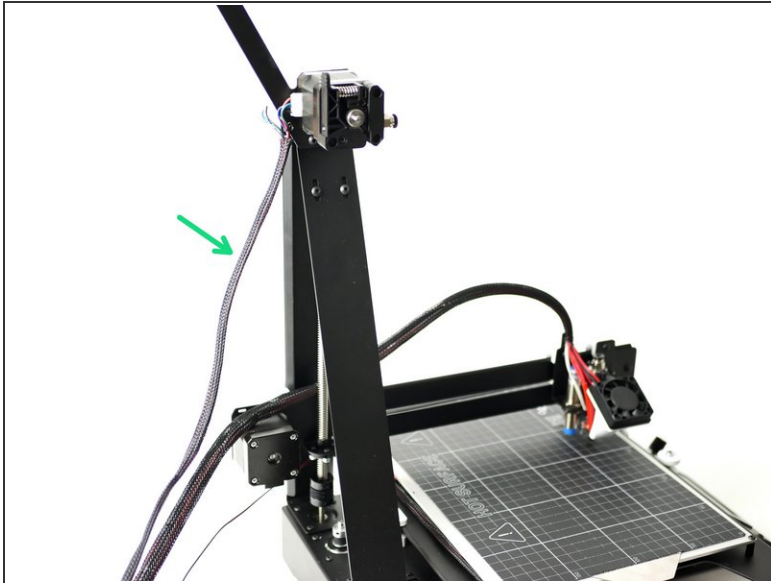This document was generated on 2021-12-26 11:53:29 AM (MST).

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🔧 TOOLS:

- Scissors (1)
- Lighter (1)
- Measuring Tape (1)
- Small flat/cross head screw driver (1)

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Step 1 — Extruder Cable Sleeving

- ⓘ Cut 70CM of the braided cable sleeving.

- ● Use a lighter to melt the ends to prevent fraying.

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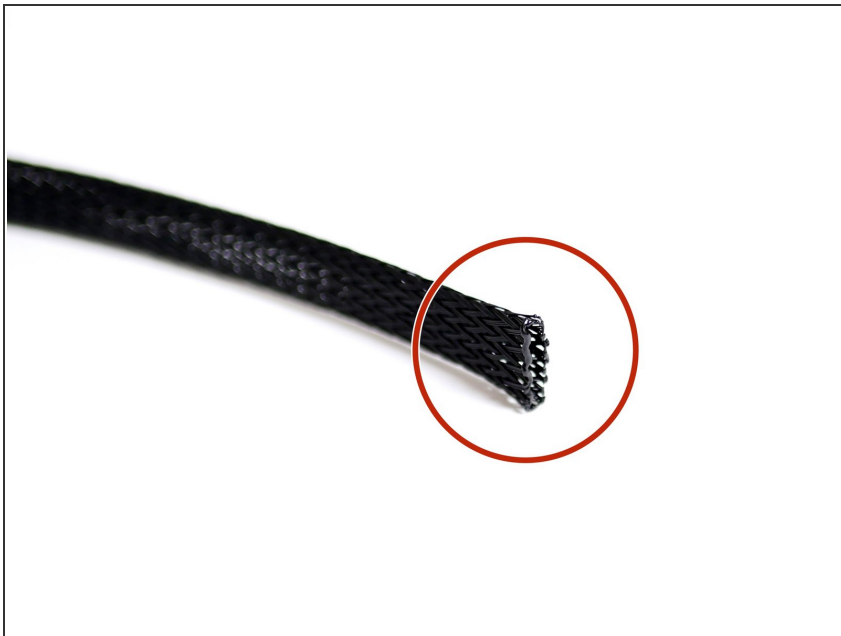Page 3 of 17

Step 2 — Extruder Cables

- Take two 1m motor cables.

- Thread the sleaving over both of them.

- Plug one of the cables into the extruder motor.

- Cable tie that cable to the spool holder bracket.

- 📌 Note, the second cable is there for the dual extrusion upgrade, it is installed now even if you don't have that upgrade.

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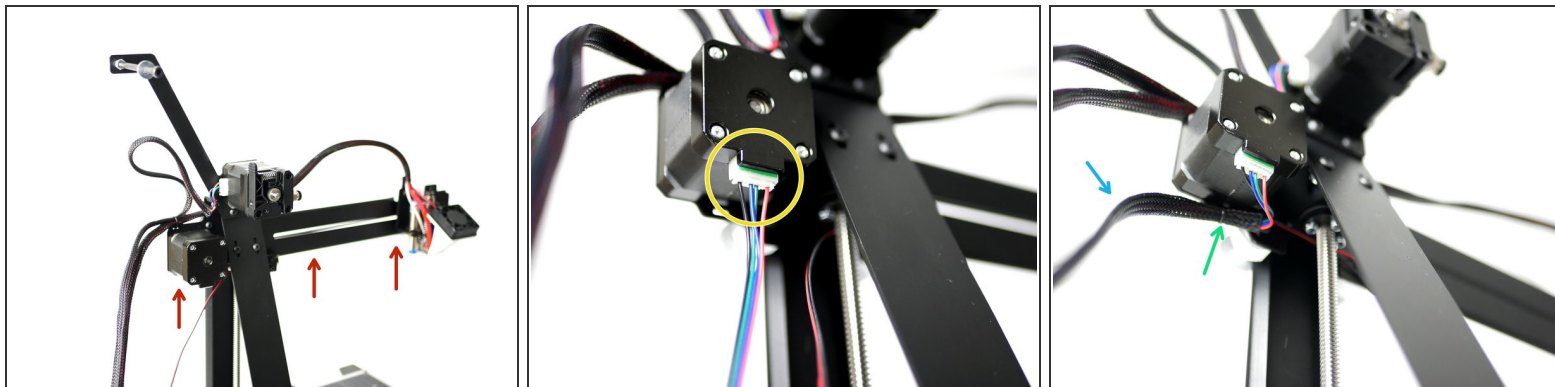Page 4 of 17

Step 3 — Cable Tying to Gantry
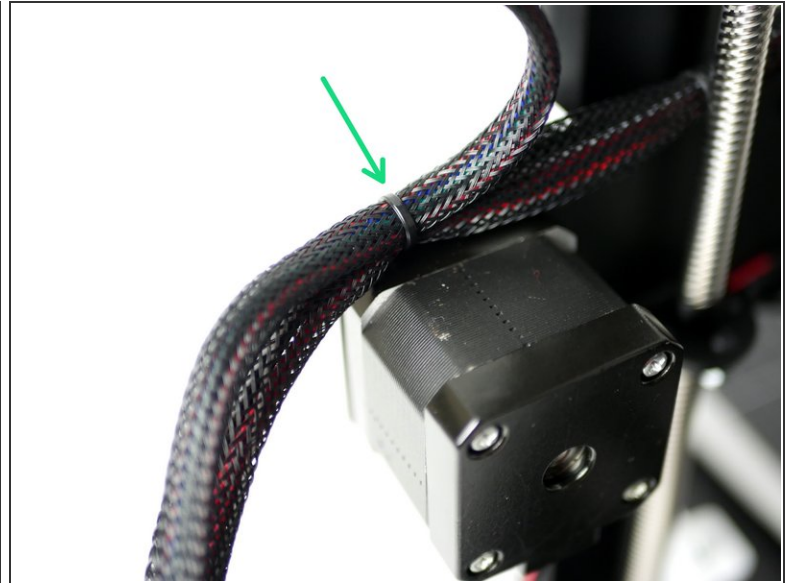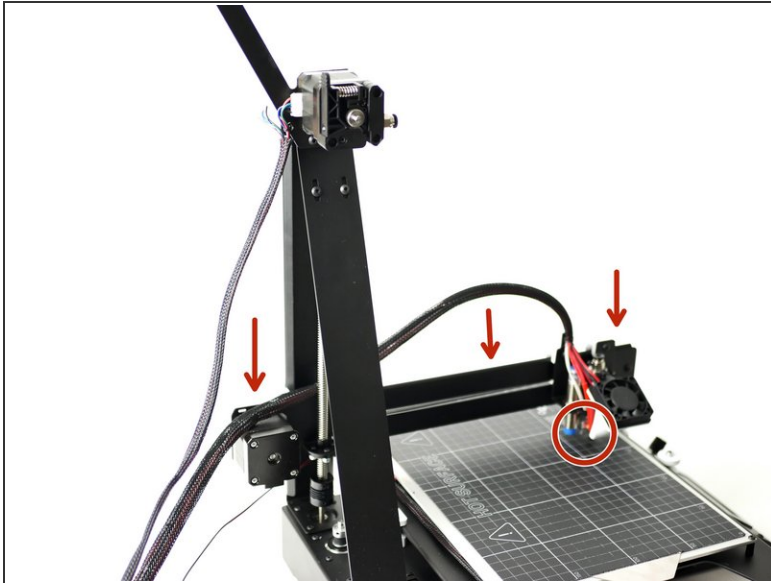
- Turn the lead screw to bring the gantry all of the way down, the hotend should be touching the print surface.

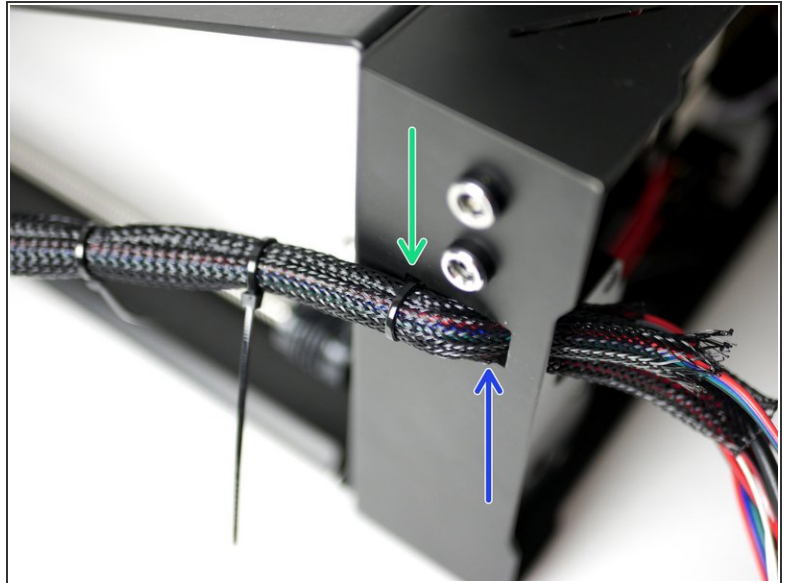- Cable tie both bunches of cables together to the gantry.

Step 4 — Y-Axis Cable Sleeving

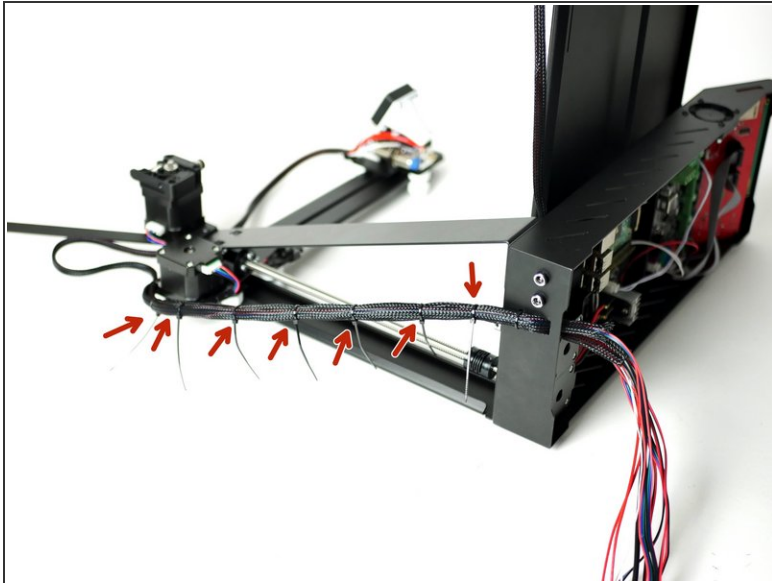- (i) Cut 45CM of the braided cable sleeving.

  - Use a lighter to melt the ends to prevent fraying.

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Step 5 — Y-Axis Cables

- Raise the gantry to the very top.

- Plug a 1M motor cable into the y-motor.

- Slide the 45CM cable sleeving over the motor cable and Y-endstop.

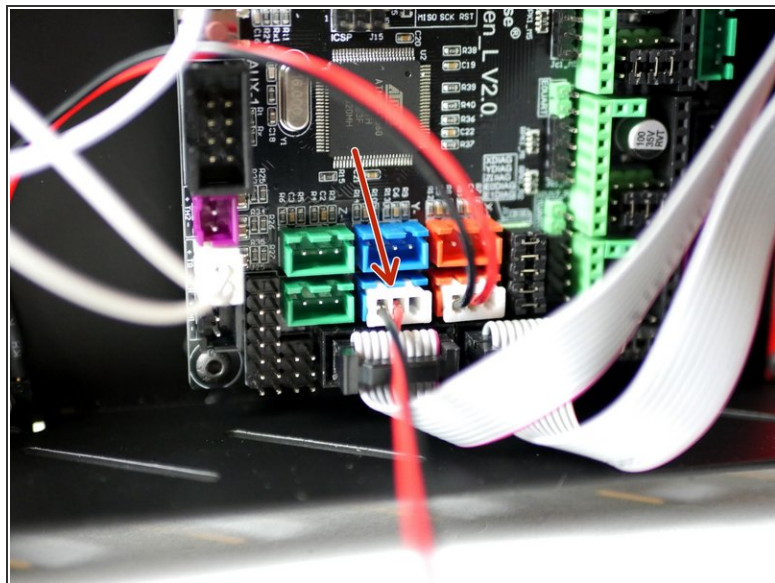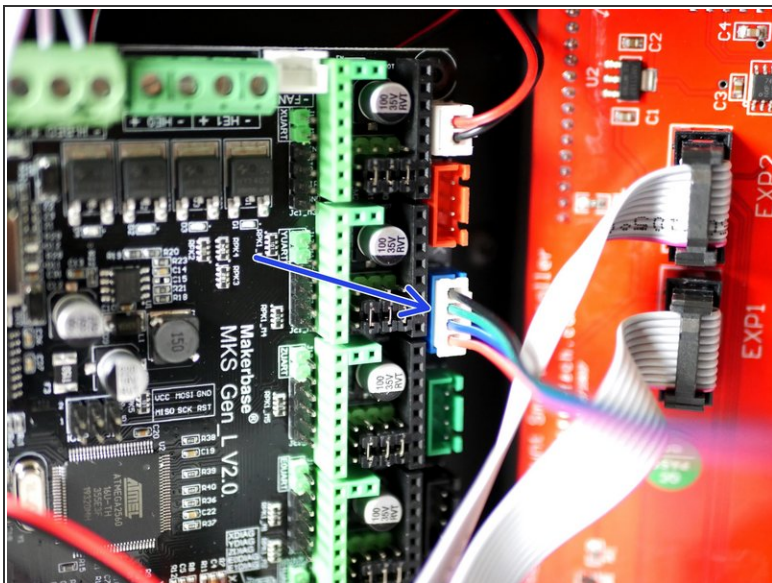- Cable tie to the bottom of the gantry.

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Step 6 — Tying All Cables

📌 Before tying off the cables together, it may be worth using tape to mark what each of the cables is connected to.
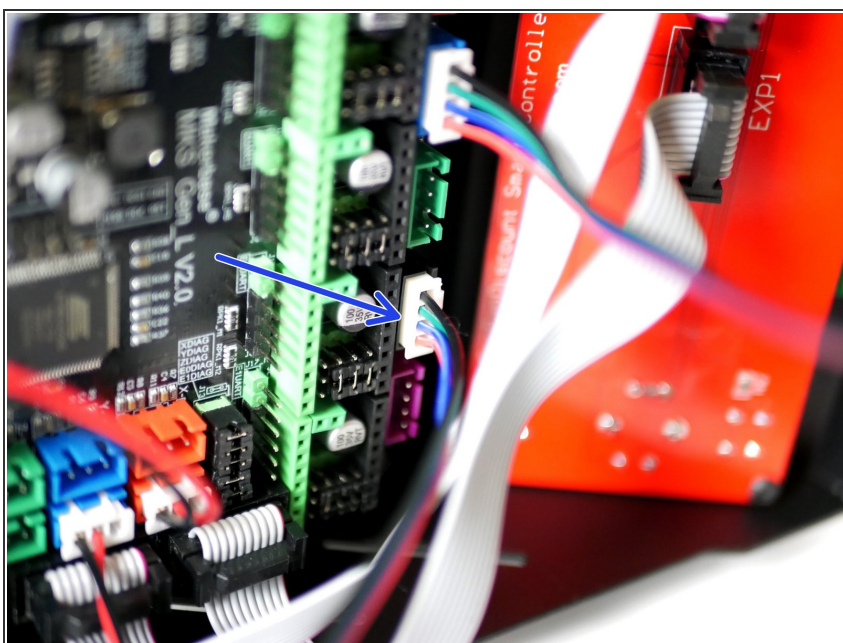
- Place the Axis on its side like shown. Use multiple cable ties to create a single branch of cable.

- Push all of the cables through the square hole in the back of the base.

- Use a cable tie to attach the cable branch to the base.

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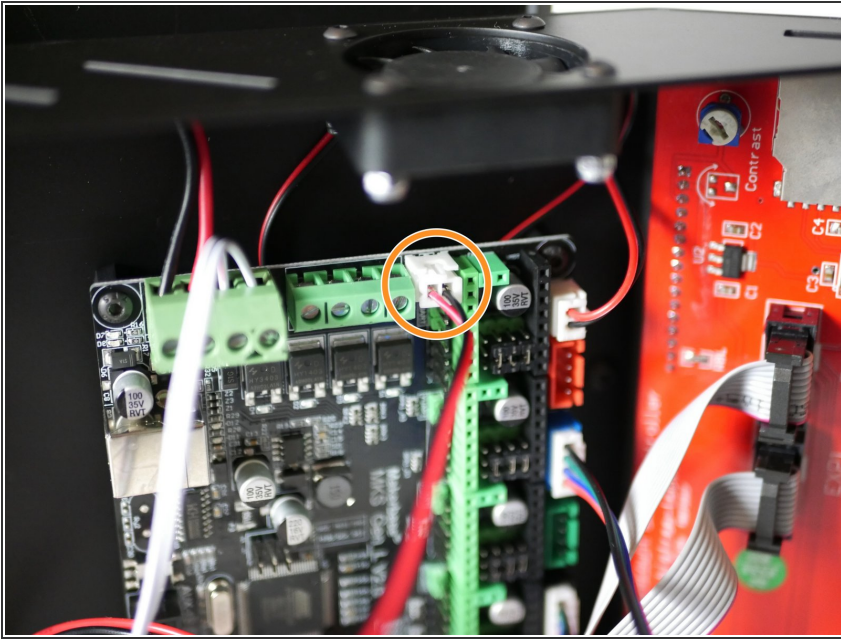Page 7 of 17

Step 7 — Y-Axis Wiring

- Plug the Y-axis (gantry) motor into the control board.

- Plug the Y-endstop into the control board.
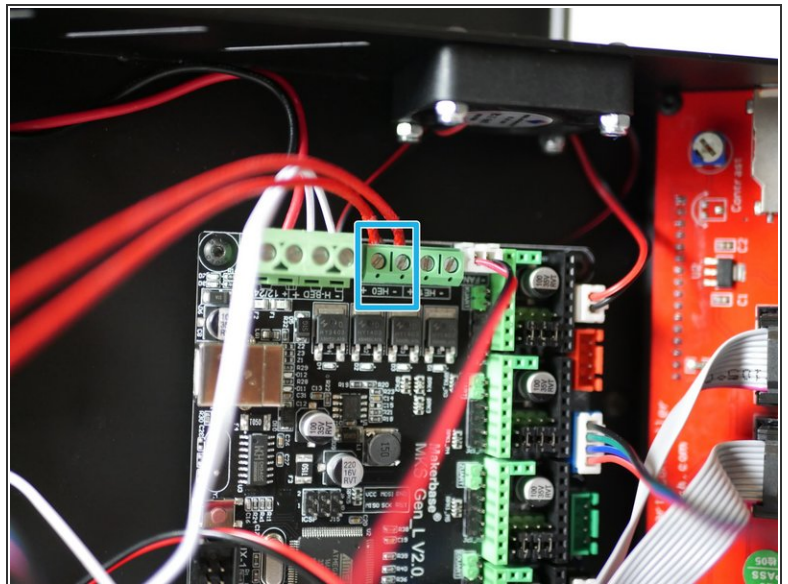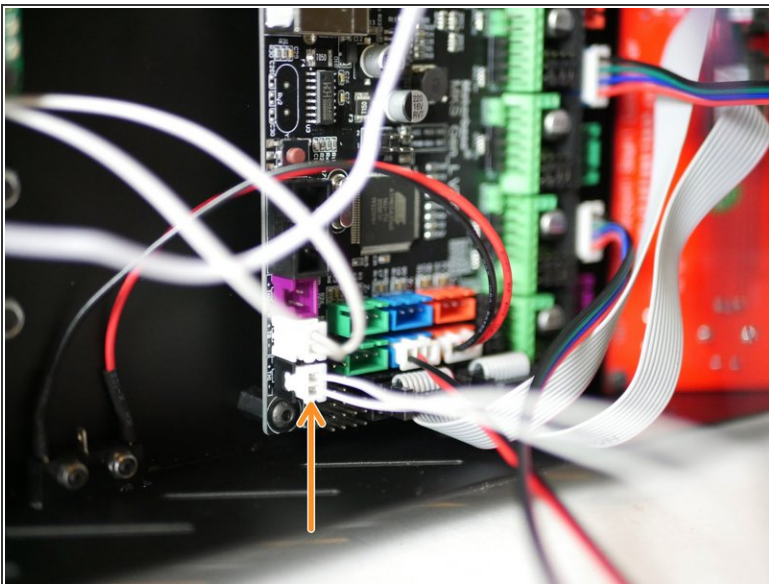
Step 8 — Extruder Motor

- Plug the extruder motor cable into the control board like shown.

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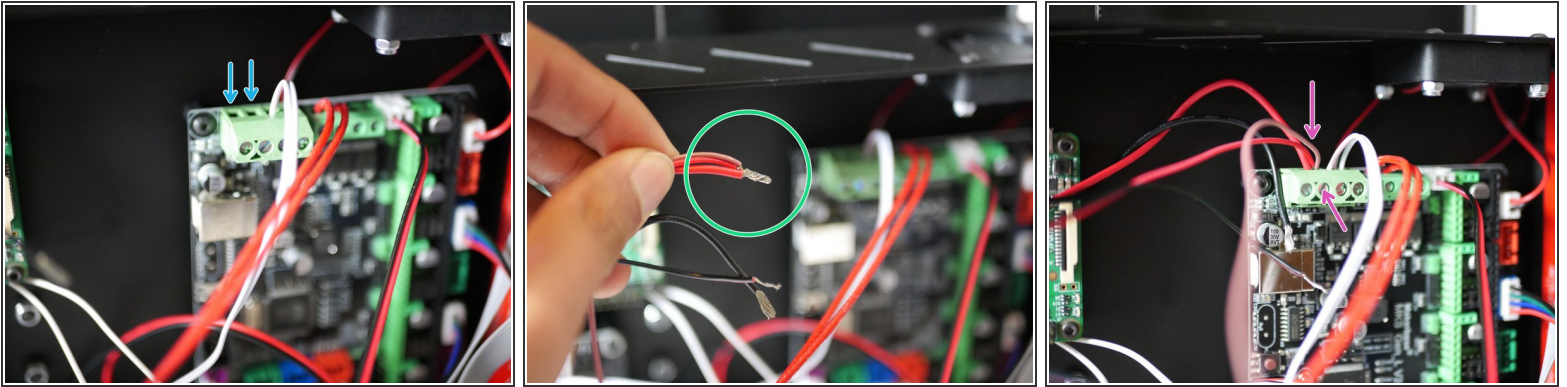Page 8 of 17

Step 9 — Part Cooling Fan

- Plug the part cooling fan cable into the control board like shown.
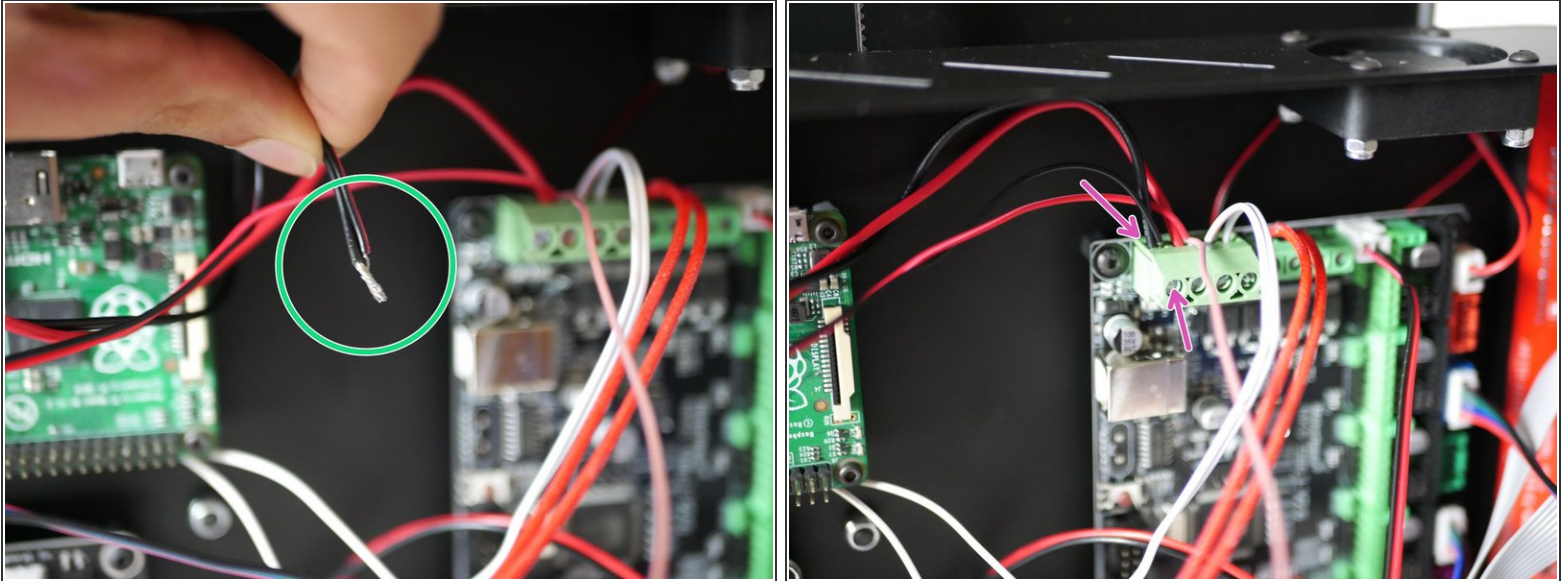
Step 10 — Hotend

- Plug the hotend thermistor into the control board.

- Secure the hotend heater cables to the terminals on the control board.

  - 📌 Their polarity does not matter.

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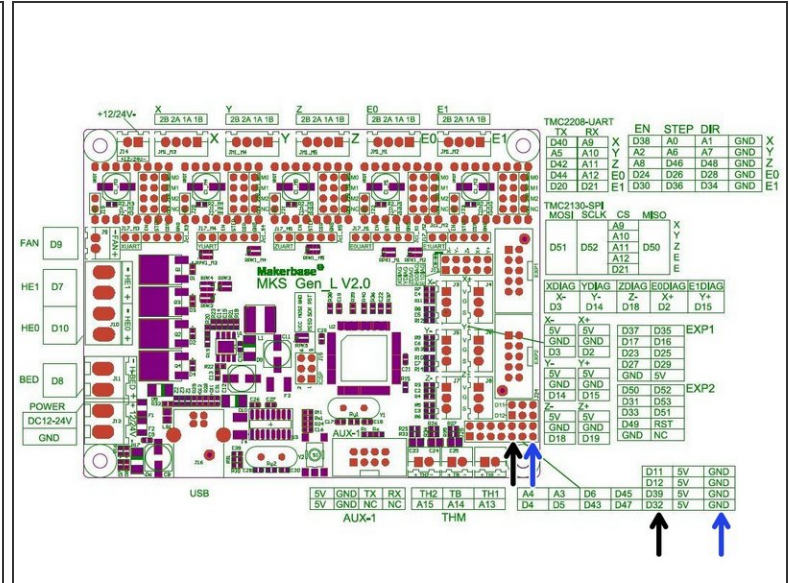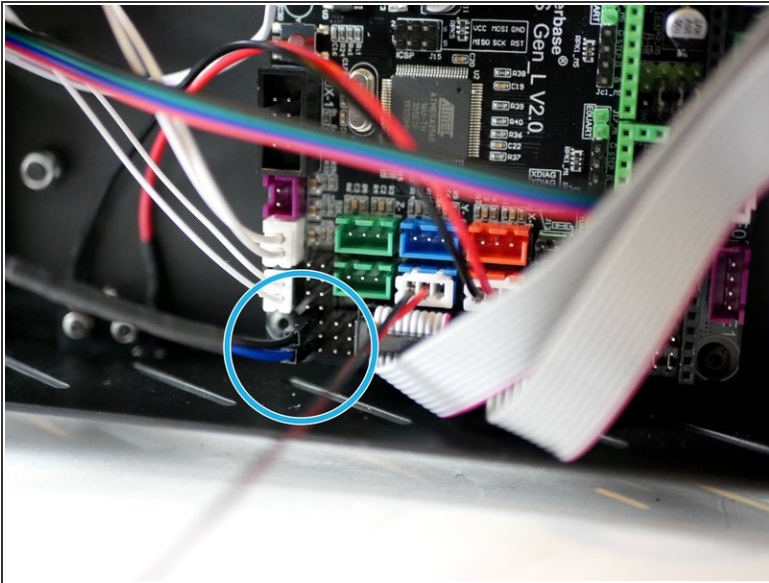
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Step 11 — Hotend Fan and Probe

(i) First prepare the 30mm hotend fan (the smaller fan that connects directly onto the hotend) by cutting of the connector and exposing some of the wire.

- Unplug the power cables from the control board.

- Take the red power cable, the red 30mm hotend fan cable and the brown cable from the probe and wind together.

- Plug all three back into the control board and secure the terminal tightly.

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Step 12 — Hotend Fan and Probe cont.

- Take the remaining black power cable and black cable form the hotend fan and wind together.

- Plug both back into the control board and secure the terminal tightly.

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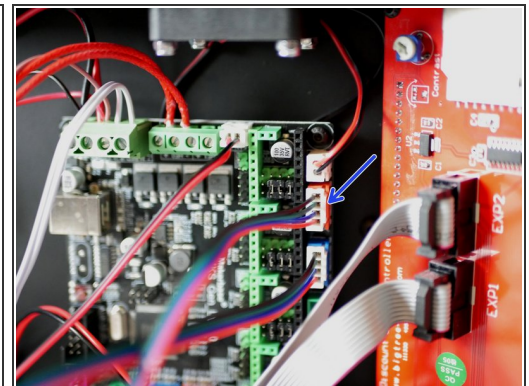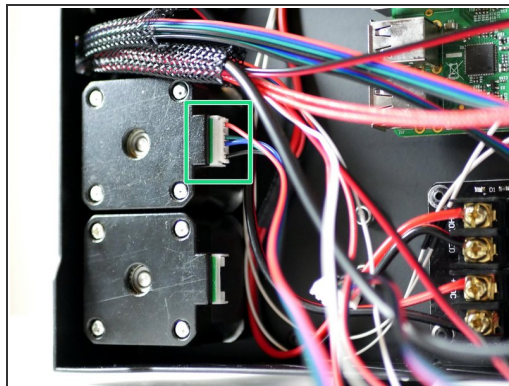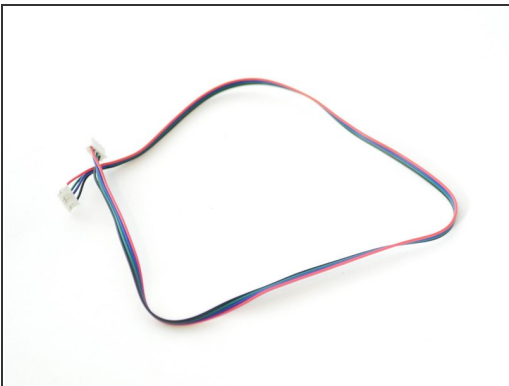makertech-3d.dozuki.com/

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Step 13 — Probe Cables

- Plug the black and blue probe cables into the positions shown on the control board.
  - Black to D32
  - Blue to GND

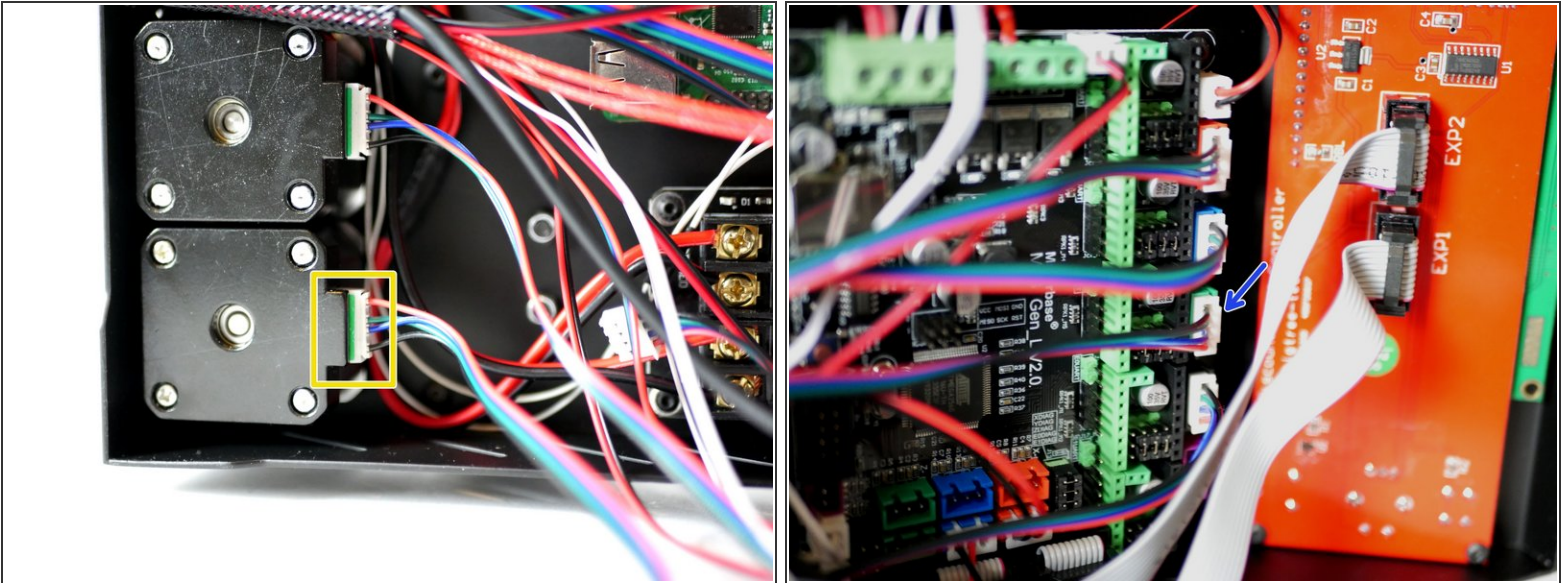⚠ NOTE: There is an empty pin between the black and blue cables!

Step 14 — X-Motor Cable

- ⓘ Take one of the 50CM motor cables.
- Plug one end into the X-motor.
- Plug the other end into the control board.

Step 15 — Z-Motor Cable

(i) Take the remianing 50CM motor cable.

● Plug one end into the Z-motor.
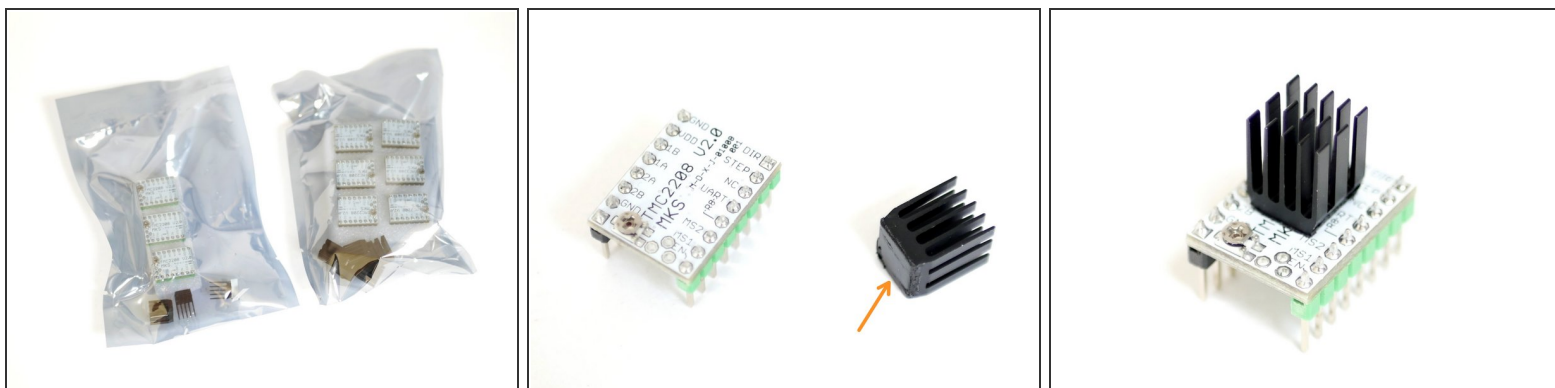
● Plug the other end into the control board.

Step 16 — Tidying the Cables
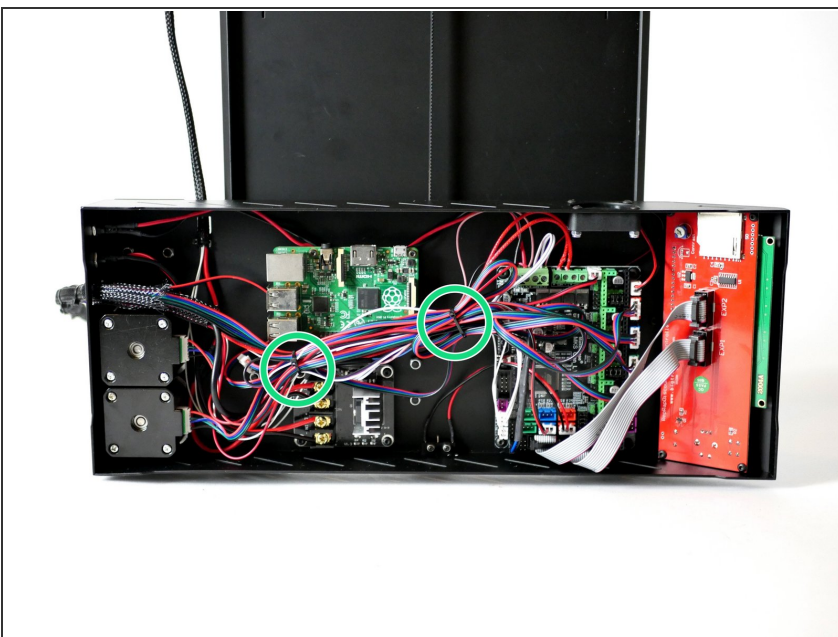
● Use cable ties to bunch the cables up like shown.

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Step 17 — TMC2208 Drivers

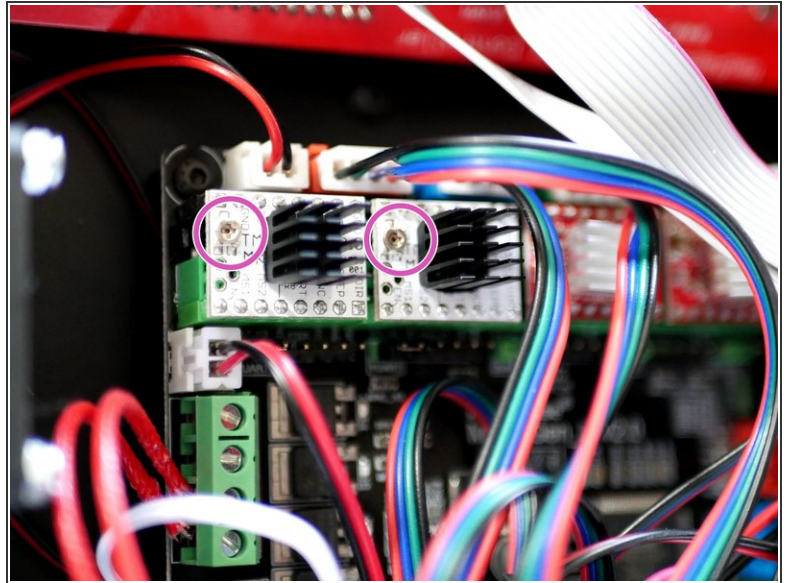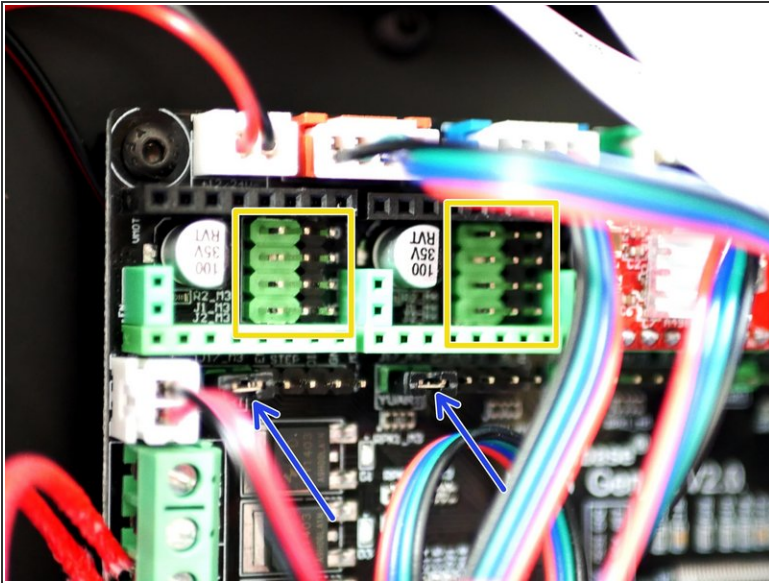📌 Skip this step if you do not have the TMC2208 driver upgrade.

⚠️ The stepper drivers are the most delicate part of the Axis 3d printer and it is why we've also included a spare. Before opening, make sure that you are grounded (touch a large metal object) to avoid any chance of static damage.

ⓘ The TMC2208 upgrade comes with either 3 or 6 drivers. If you have three you can use two on the x/y axes and keep one as spare, if you have 6 you can use them on the X/Y/Z/E0 (and E1 for dual extrusion) and have one spare.

● Prepare the TMC2208 stepper drivers by removing them from their packaging and sticking the heat-sink to the top.

  📌 Make sure that the heat-sink is not touching any of the pins. Orient the fins of the heat-sink as shown.

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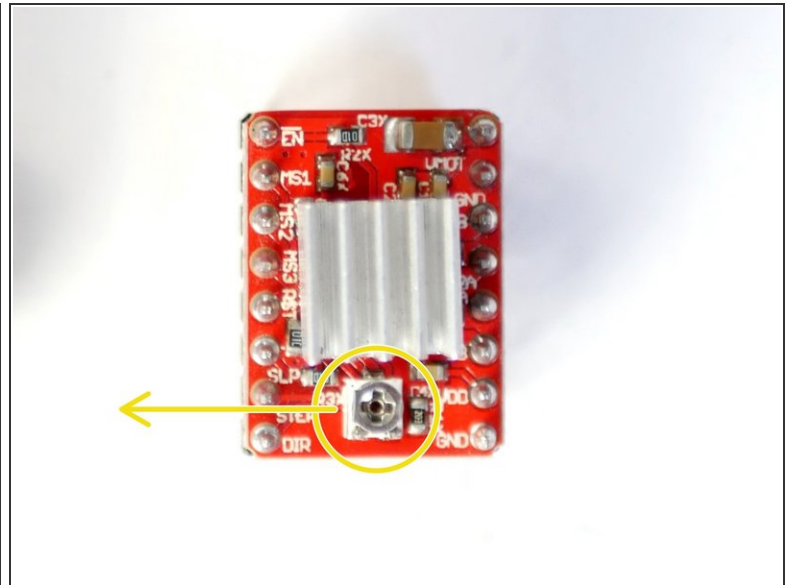Page 14 of 17

Step 18 — Installing the TMC2208 Drivers

⊛ Skip this step if you do not have the TMC2208 driver upgrade.

● To install the TMC2208 drivers you will need to make sure that there are no jumpers plugged in at the stepper driver locations on the control board.

● You will however need to make sure that there is one jumper placed on the UART pins for each axis you have a TMC2208 installed.

● Plug the TMC2208 driver into the positions shown, make sure that the trim-pot is pointing towards the power terminals, installing the driver the wrong way round will destroy it.

⊛ Note, the trim-pot doesn't need adjusting as these drivers allow us to control the current via the firmware.

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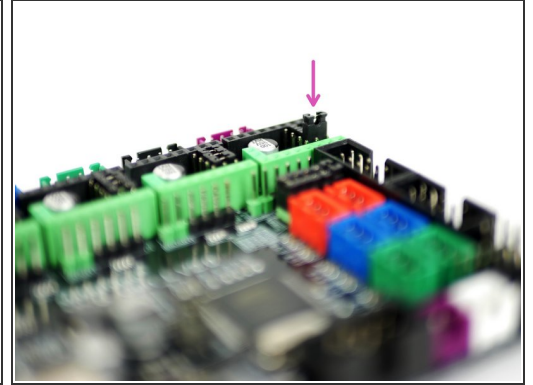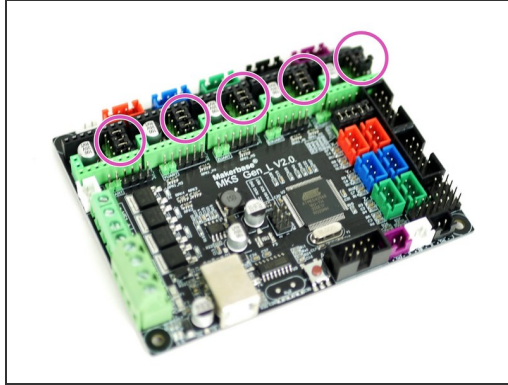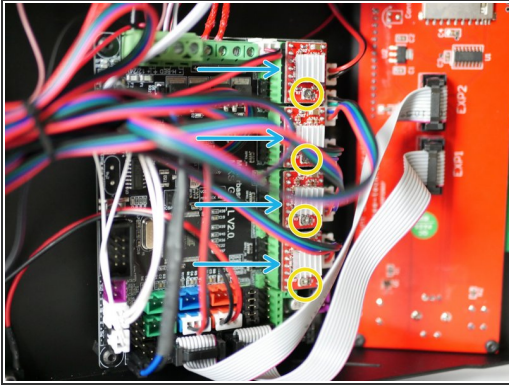
Step 19 — Preparing the Stepper Drivers

⚠ The stepper drivers are the most delicate part of the Axis 3d printer and it is why we've also included a spare. Before opening, make sure that you are grounded (touch a large metal object) to avoid any chance of static damage.

- Prepare the A4988 stepper drivers by removing them from their packaging and sticking the heat-sink to the black chip.

  📌 Make sure that the heat-sink is not touching any of the pins. Orient the fins of the heat-sink as shown.

- **Trimpot:** Adjust the trimpot so that flat side is pointing left as shown in the second photo.

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Step 20 — Installing the A4988 Stepper Drivers

- If you do not have any of the TMC2208 drivers you will need to install the A4988 drivers like shown.

- Under the A4988 driver positions on the control board there needs to be three jumpers installed like shown in the second and third photo.

- Make sure that all of the drivers are orientated with their trim-pots pointing away from power terminals.

  ⚠ Plugging them in the wrong way round will destroy them.

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