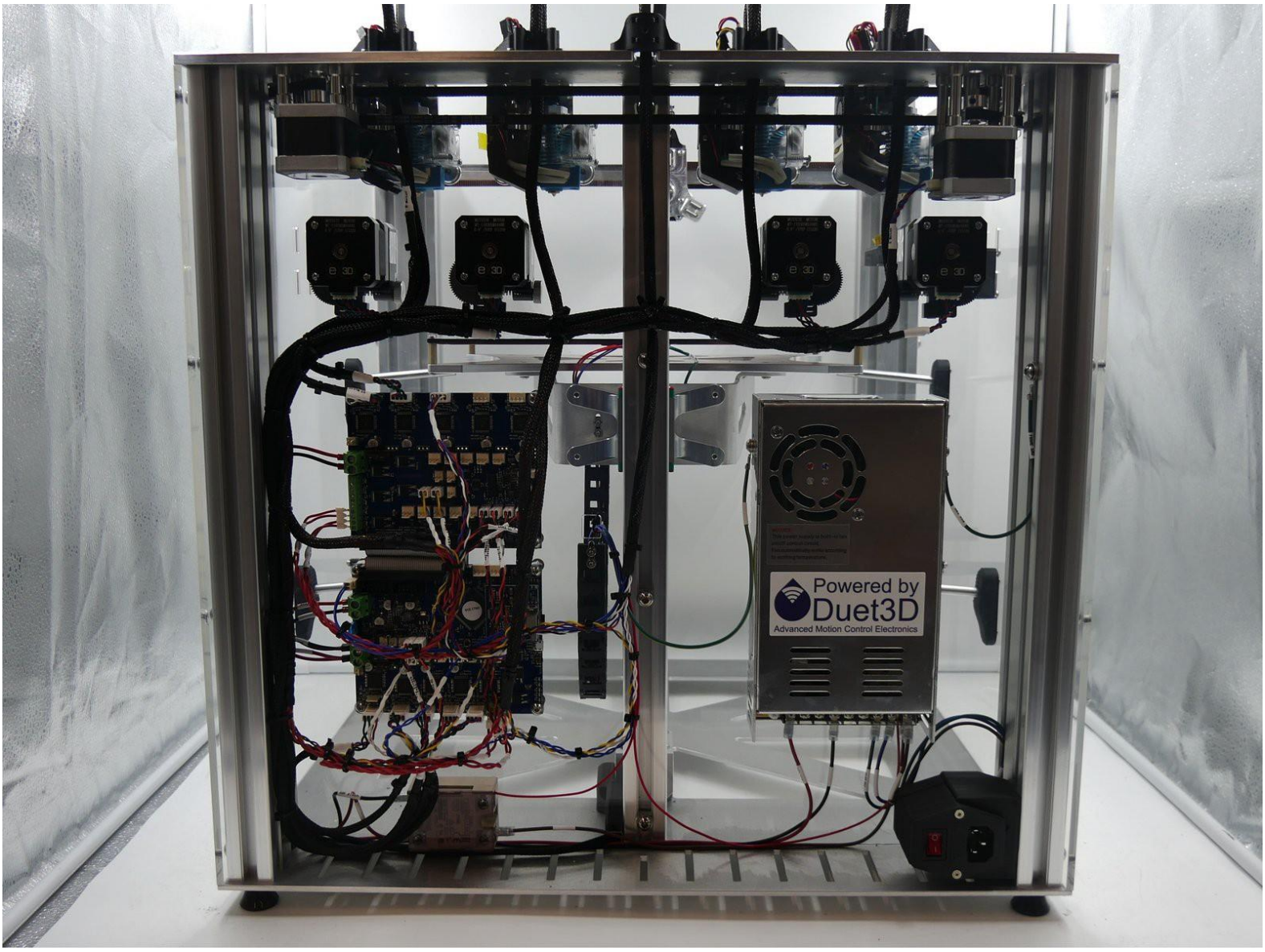
09 - Wiring.

Written By: Greg Holloway



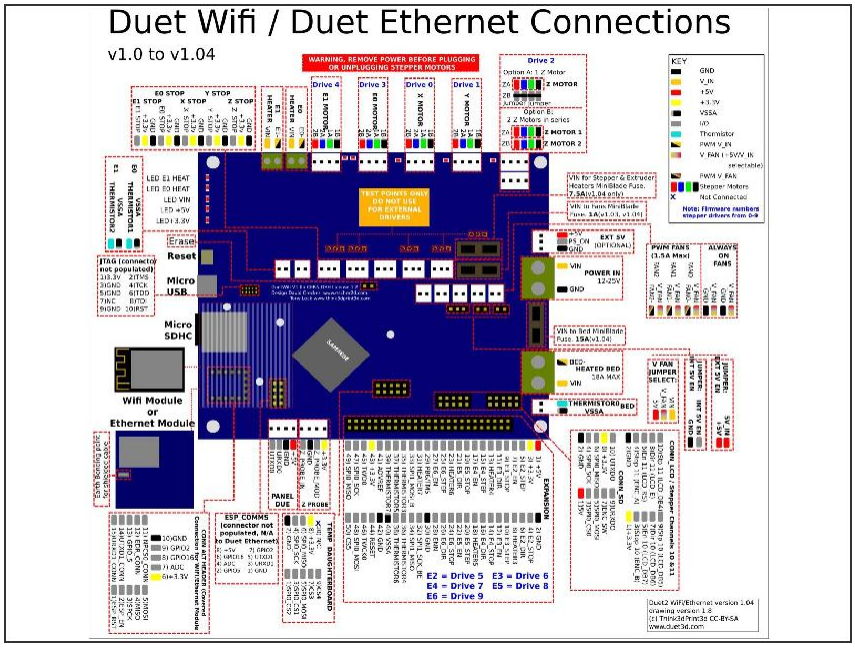
TOOLS:

- Side Cutter (1)

PARTS:

- Duet Wiring Kit (1)

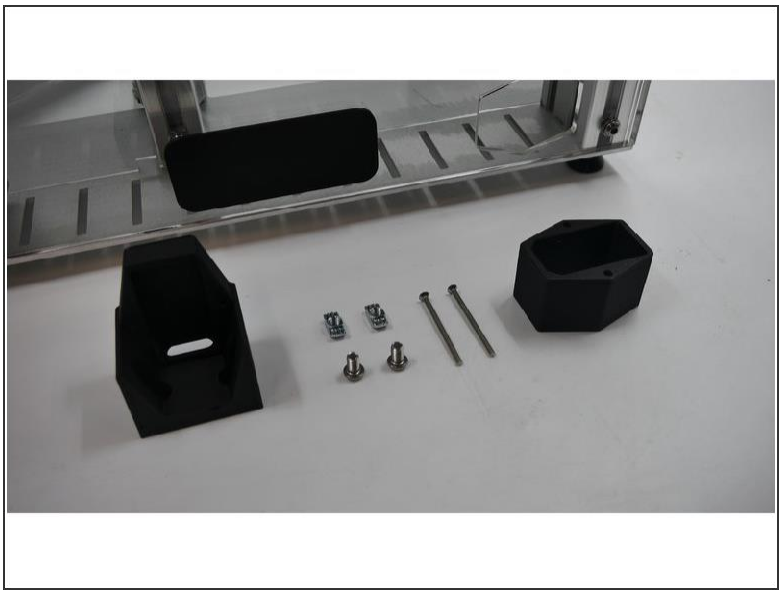
Step 1 — Wiring.

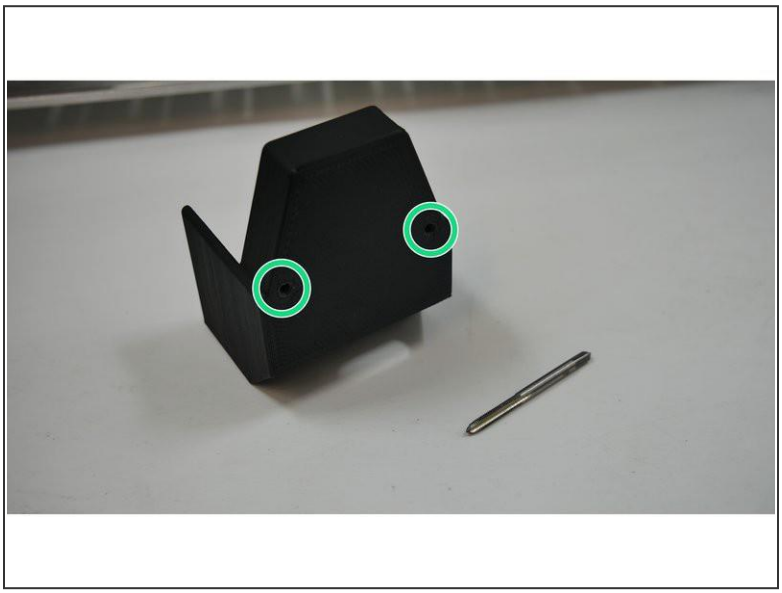


- [ ] Each cable in the Duet Wiring Kit is individually labelled, at each end. If you are not entirely certain of where or how it is to be plugged in or connected to please consult the Duet Wiring Diagrams linked below.

- Duet Wiring Diagrams.

Step 2 — Printed Parts.





- Tap two M3 Threads into the printed part.
- Download the STLs from GitHub.

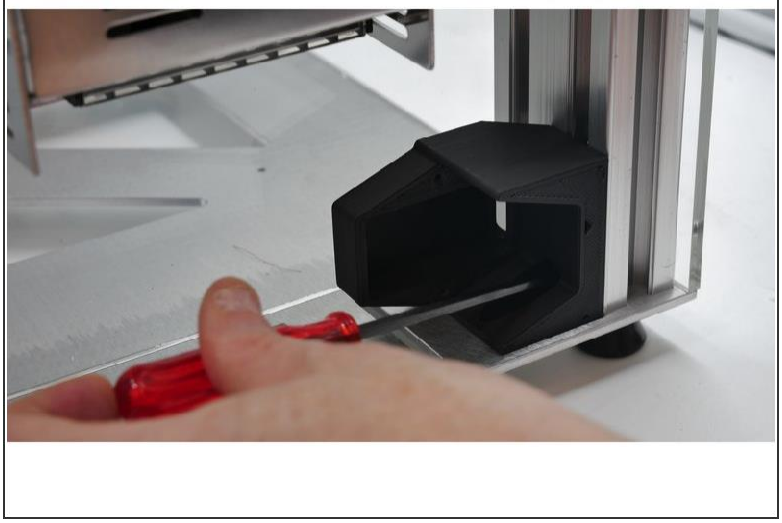
Step 3 — IEC.

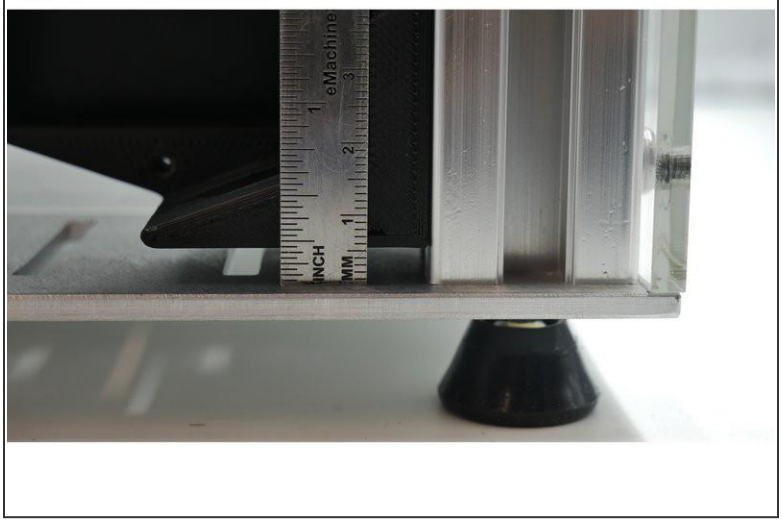
- Pass an M6 Patch-Locked screw through the printed part and into an M6 T-Nut.

☐ Do not use thread lock.

- Align the T-Nuts with the rear extrusion closest to the PSU as shown.

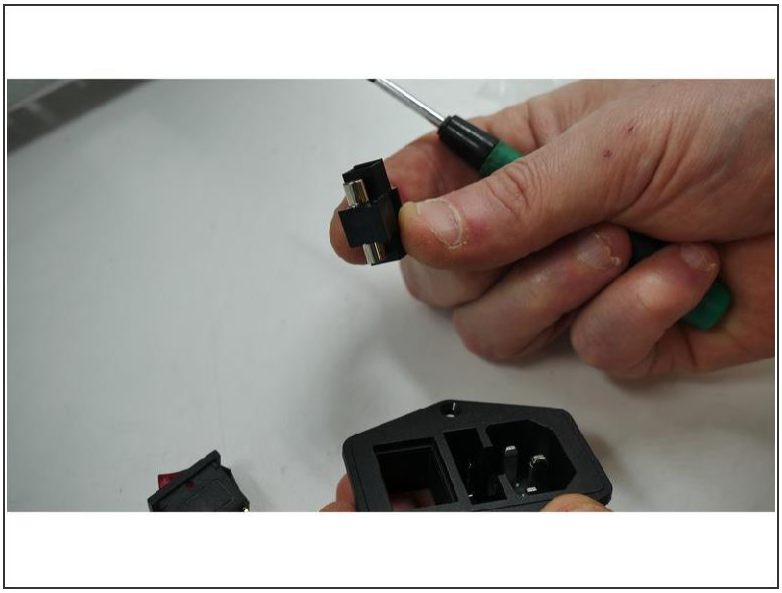
Step 4 — Position.

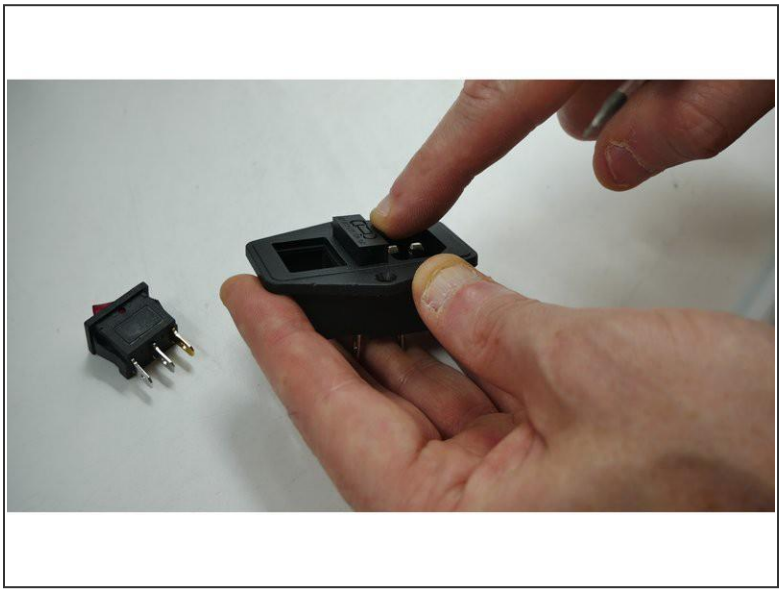




- Loosely tighten the screws.
- Adjust the height of the printed part so it is 5mm off the Base Plate.

Step 5 — Fused.

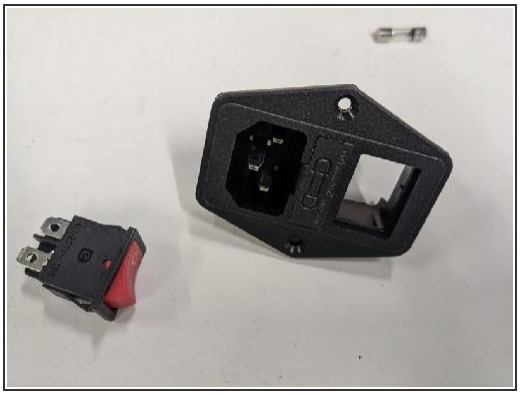


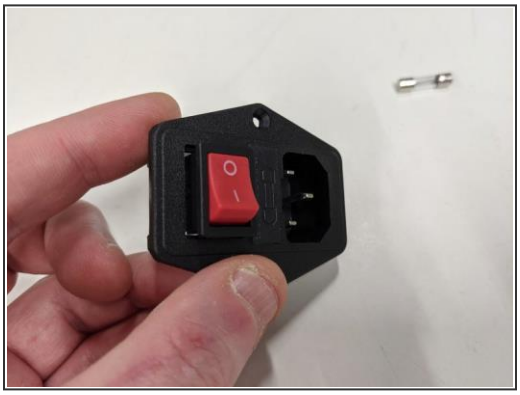


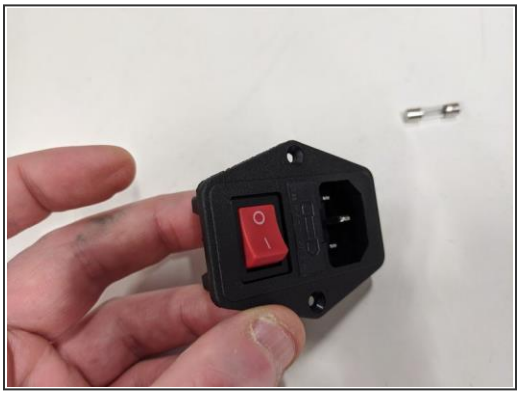
- There are two fuses included. One 5A amd one 12A.
- The 5A fuse is for use with 220V A/C.
- The 12A Fuse is for use with 110V A/C

- [ ] Check you are fitting the correct fuse.
- [ ] Please seek professional advice if you are unsure how to connect A/C mains to the IEC socket.

Step 6 — Switch.

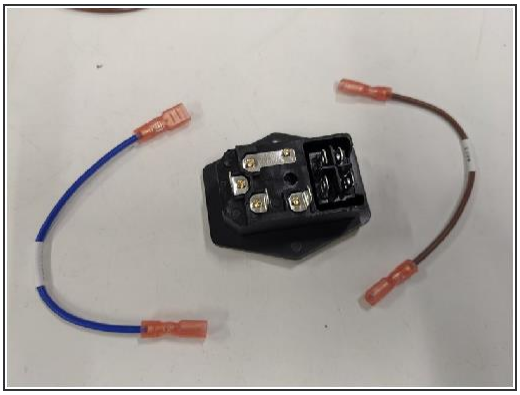
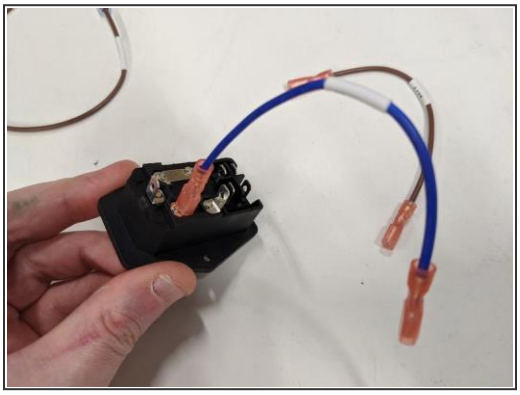
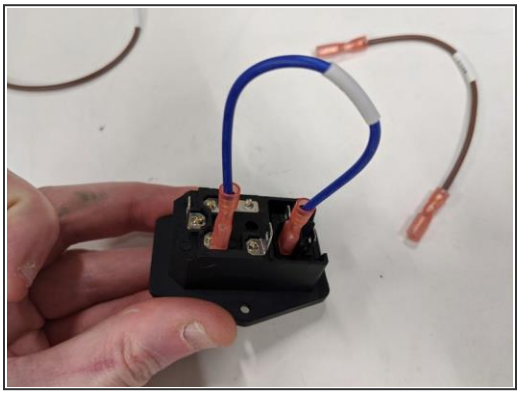






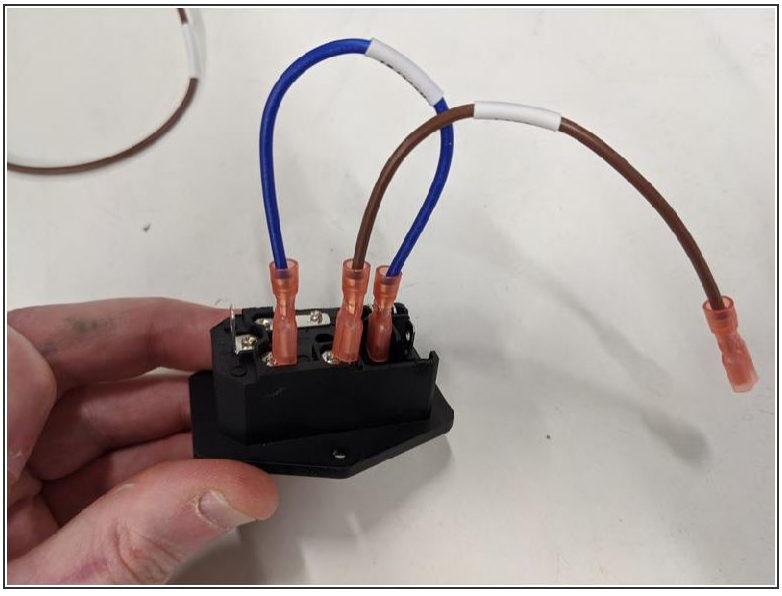
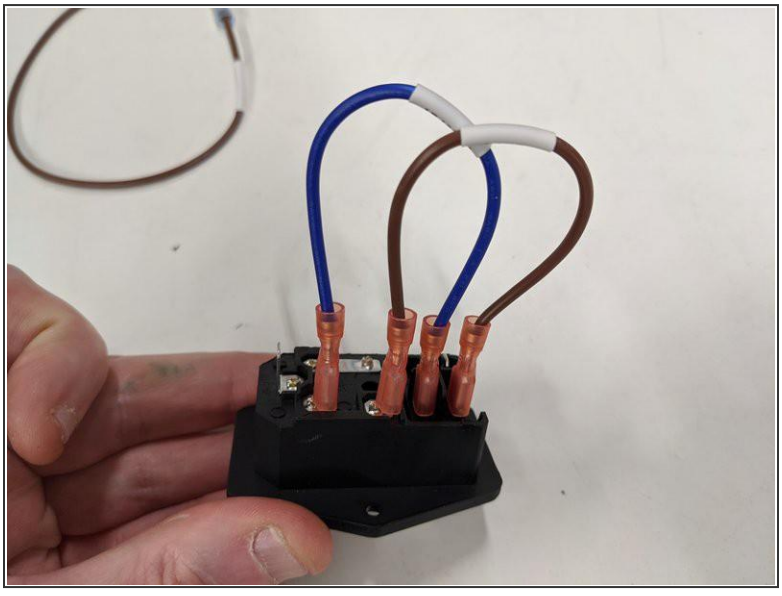
- Insert the switch into the IEC Housing as shown.

Step 7 — Blue Wire.

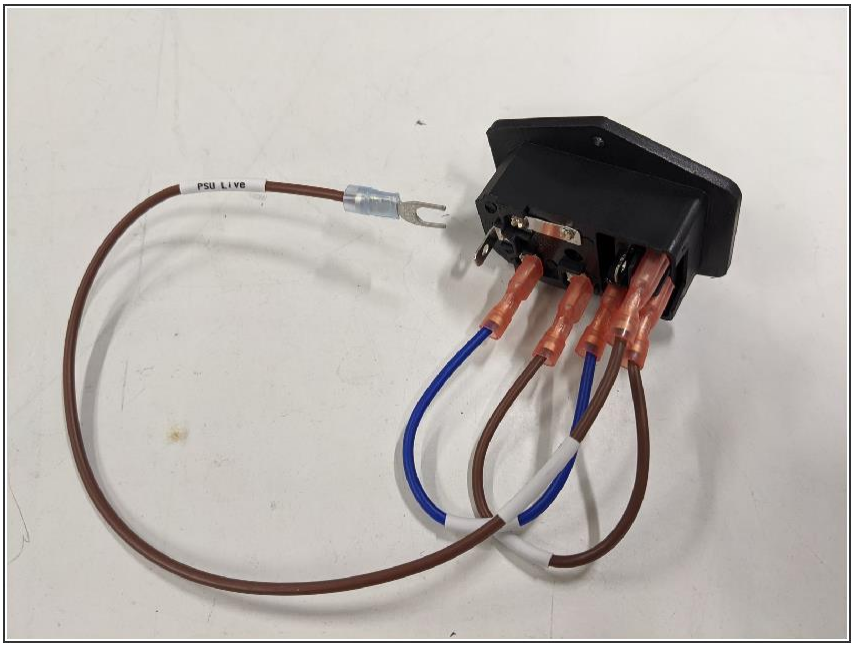
- Plug the Blue Neutral wire onto the IEC housing as shown.
- Connect the other end of the blue wire to the switch as shown.

Step 8 — Brown Wire.

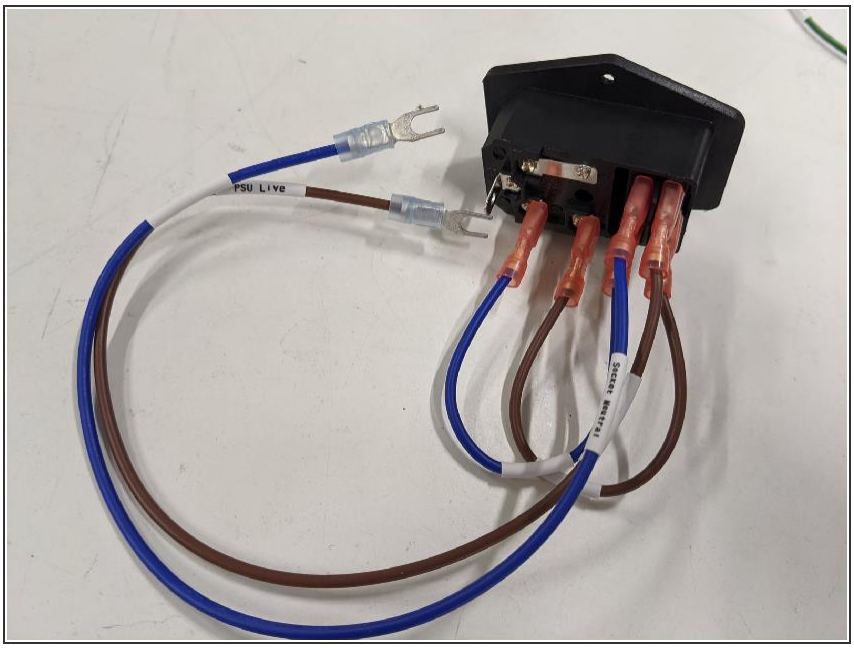
- Connect one end of the Brown wire to the IEC housing as shown.
- Connect the other end of the brown wire to the switch as shown.

Step 9 — Long Brown Wire.



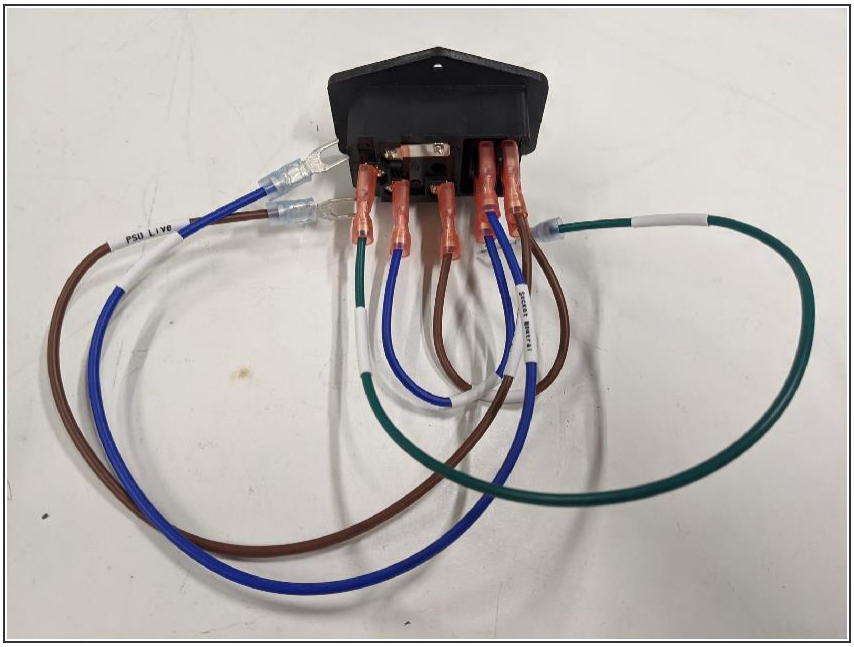
- Connect the end of the brown wire to the switch as shown.

Step 10 — Long Blue Wire.



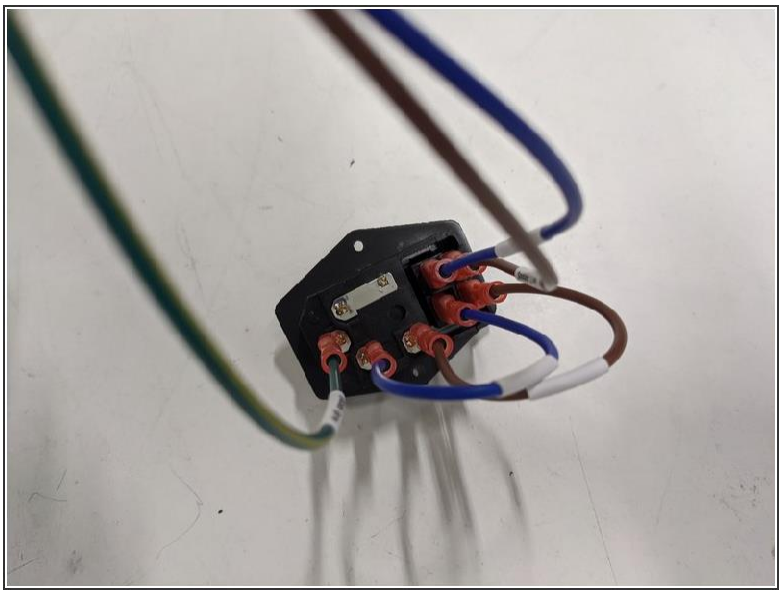
- Connect the long blue wire to the switch as shown.

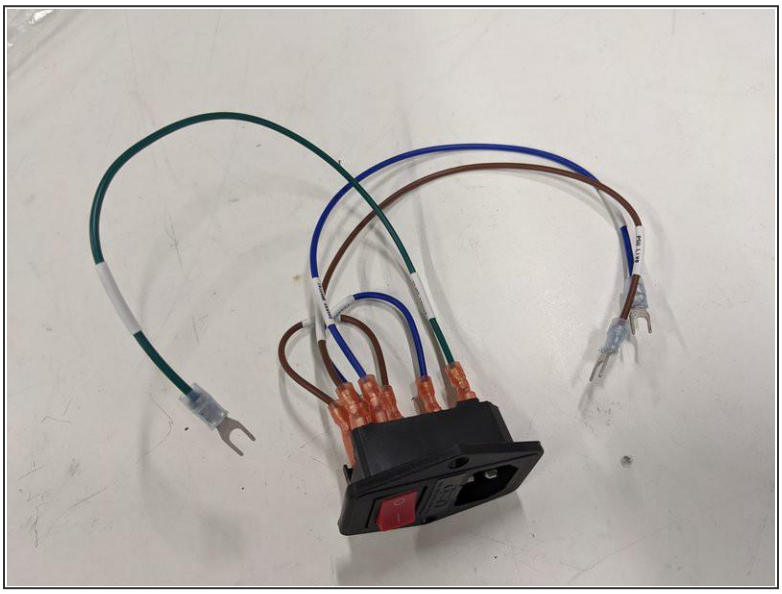
Step 11 — Earth Wire.



- Connect the earth wire to the IEC housing as shown.

Step 12 — Check.

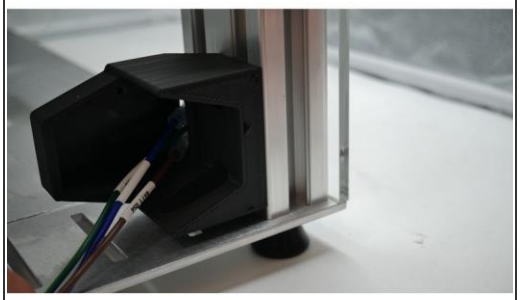


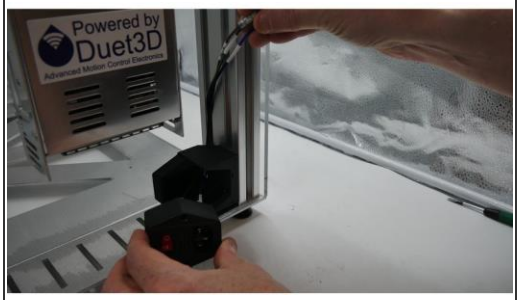


- Check the plug is wired correct before continuing.

- [ ] Please seek professional advice if you are unsure how to connect A/C mains to the IEC socket.

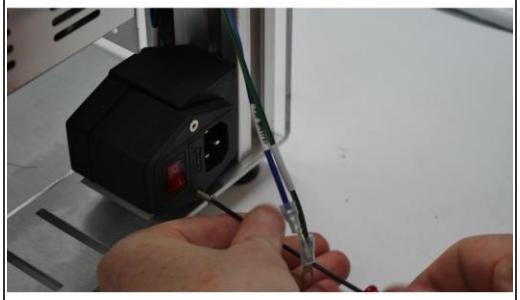
Step 13 — Wires.





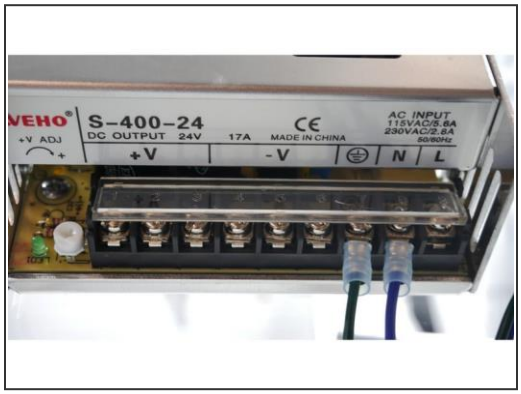
- Pass the wires through the printed part.
- Feed the wires through the opening at the rear of the printed IEC Bracket.

Step 14 — IEC.



- Secure the IEC with two M3 50mm Counter Sunk Screws.

Step 15 — Power.



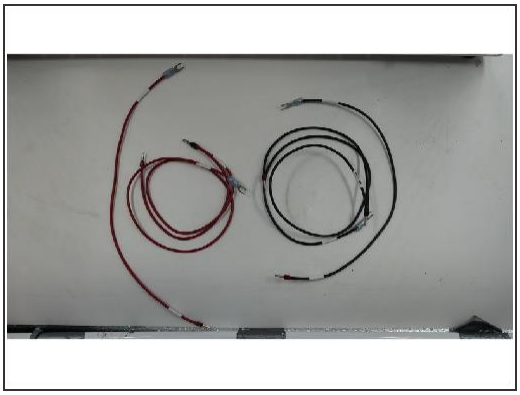
- [ ] If you are not comfortable working with AC wiring please do not attempt to wire in the PSU.

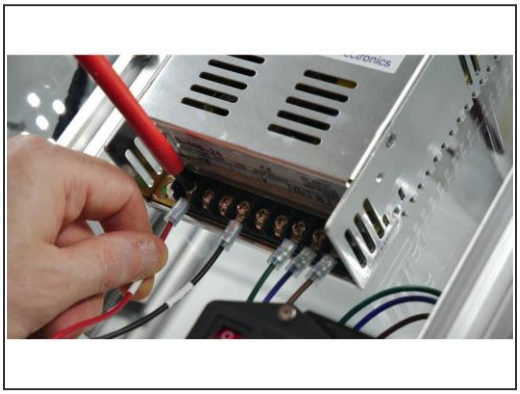
- Connect the Green / Yellow wire to the PSU Earth Terminal.
- Connect the Blue Neutral wire to the PSU Neutral Terminal.
- Connect the Brown Live wire to the PSU Live Terminal.

Step 16 — Wired.

- Correctly connected the PSU and IEC wiring should look like this.

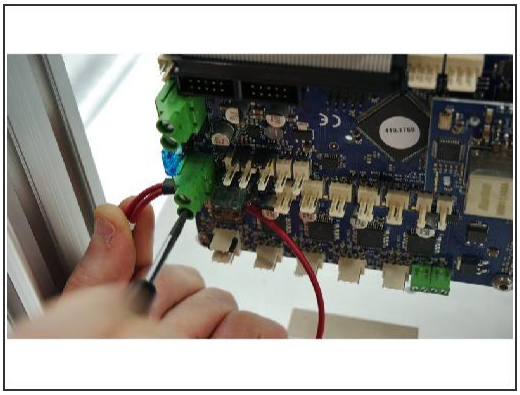
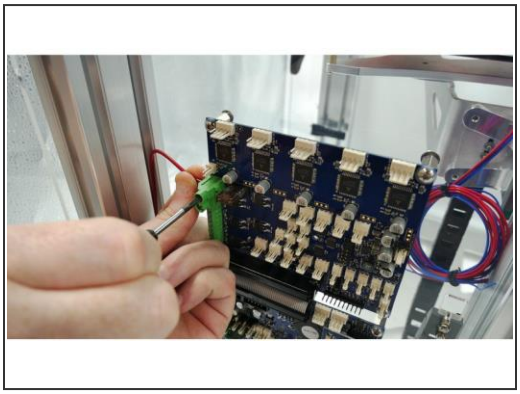
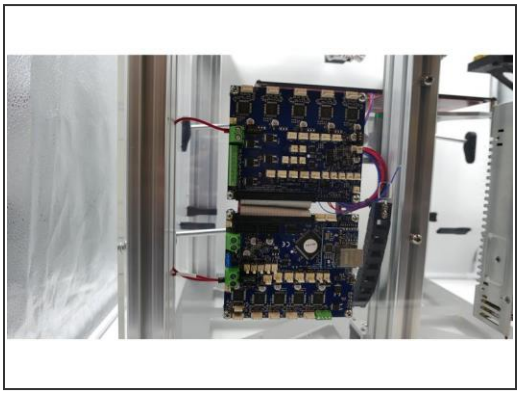
Step 17 — DC.





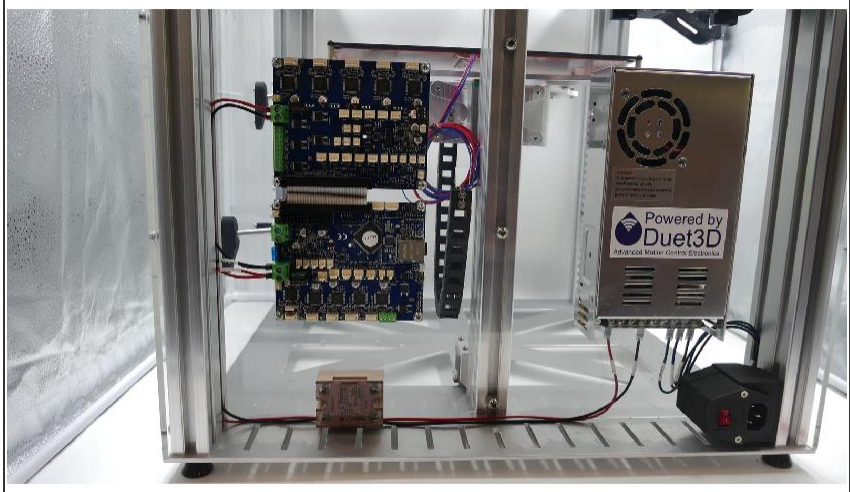
- Plug Black double bound wire into the PSU Negative output.
- Plug Red double bound wire into the PSU Positive output.

Step 18 — DC In.

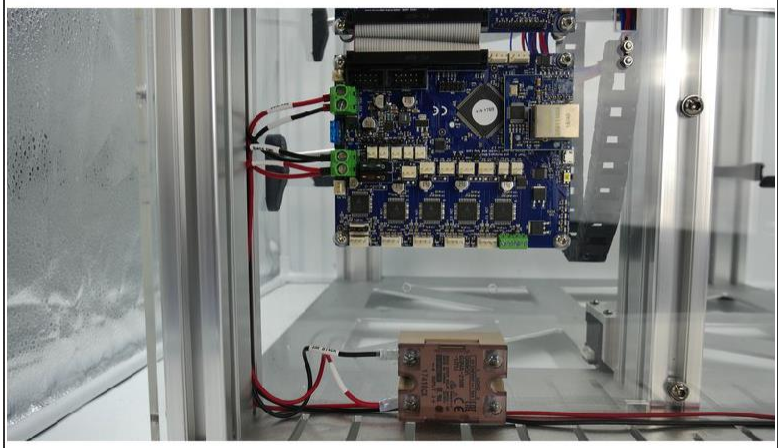
- Pass the wires around the SSR if you have one fitted.
- Connect the Red positive wire to the Duet's positive input.
- Use the double bound extended wire and plug it into the Duex5's positive input.

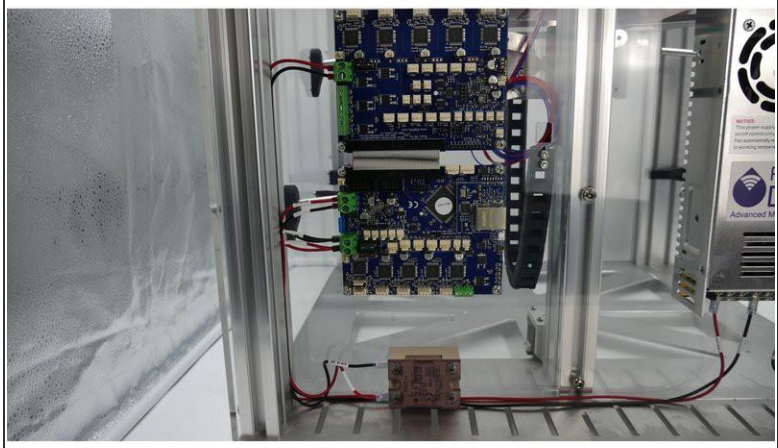
Step 19 — DC In.



- Repeat with the Negative cable.

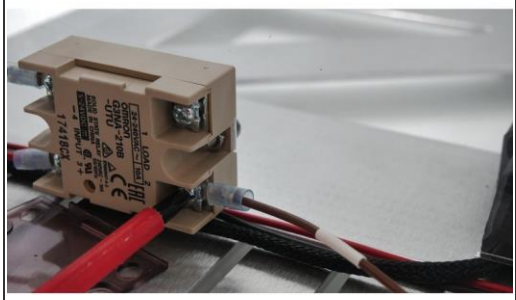
Step 20 — Bed.





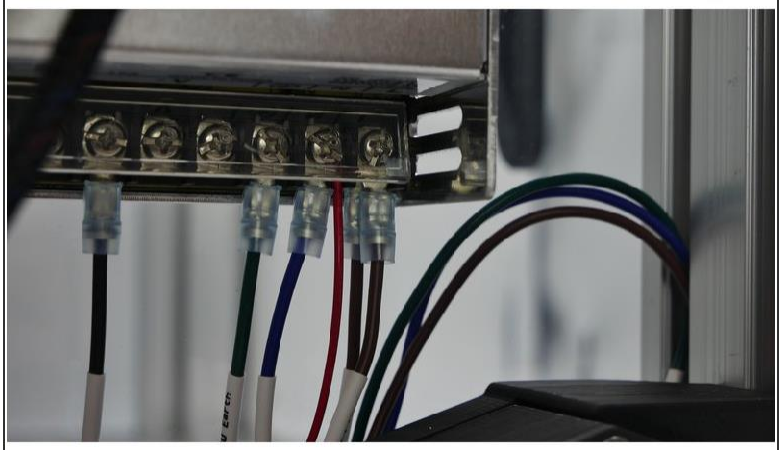
- If you have opted to use the SSR use the two supplied Negative and Positive cables to connect between the Duet's Heated Bed screw terminals and the SSR's Input terminals.

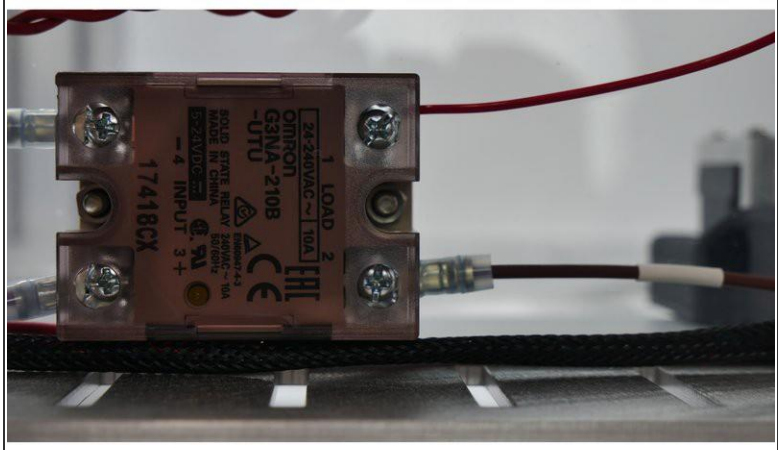
Step 21 — SSR Live.



- Connect the SSR Brown Live wire to the PSU as show.
- Connect the other end to the SSR.

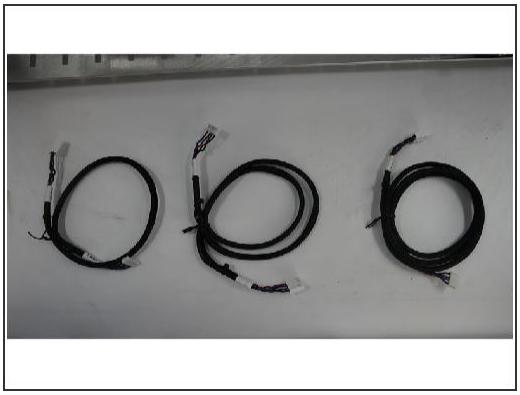
Step 22 — Bed.

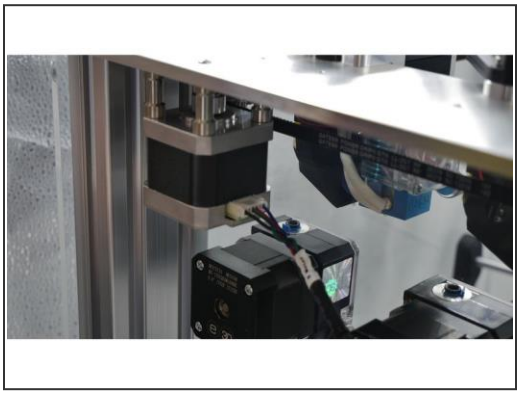


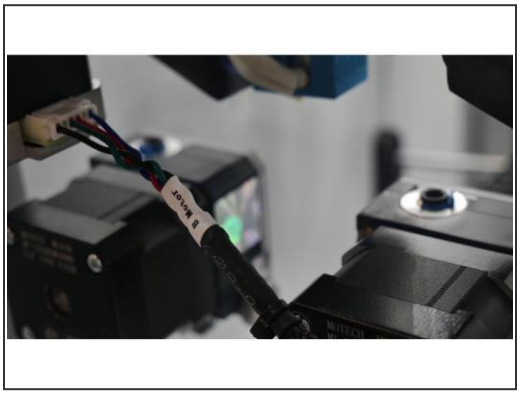


- Connect one of the two Red wires from the HT bed into the Neutral Input on the PSU.
- Connect the other wire into the SSR as shown.

Step 23 — XYZ.

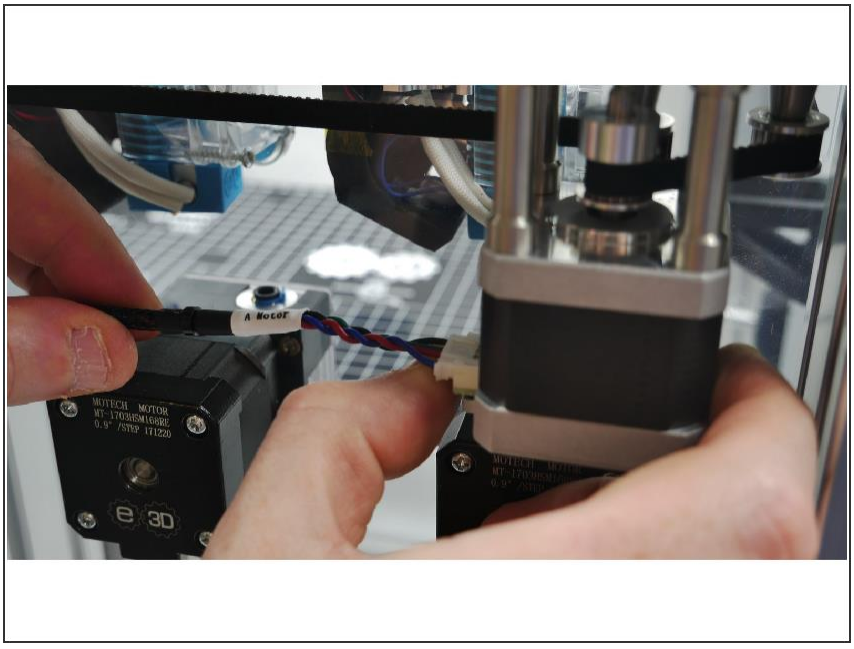






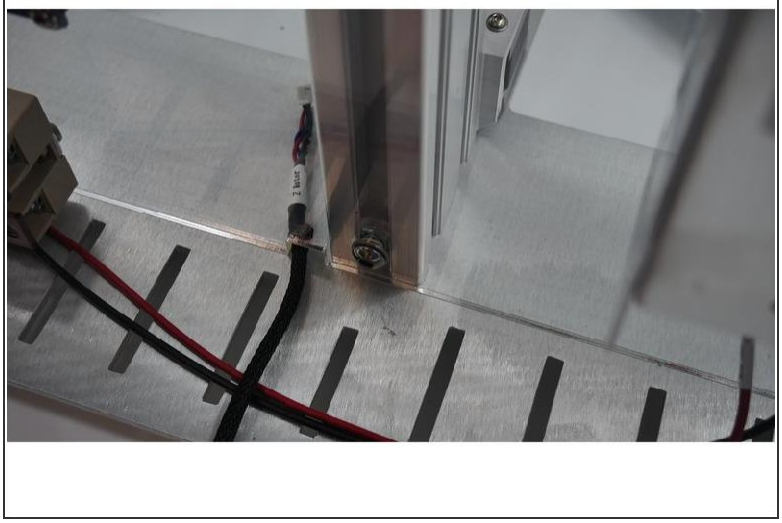
- Plug Motor B cable into the Left side Motor as looking from the back of the printer.

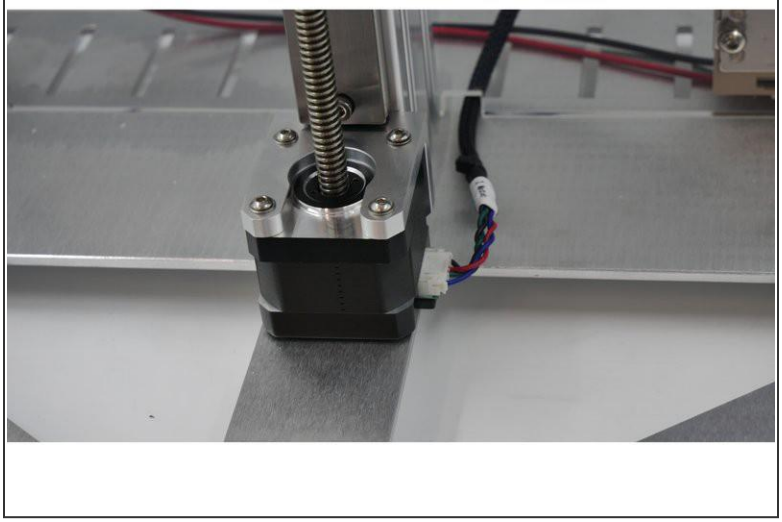
Step 24 — XYZ.



- Plug the A Motor Cable into the right side motor.

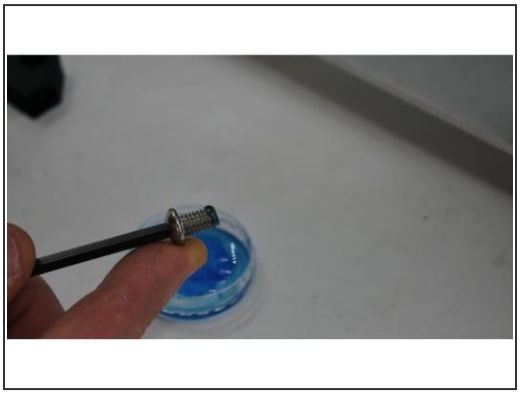
Step 25 — XYZ.

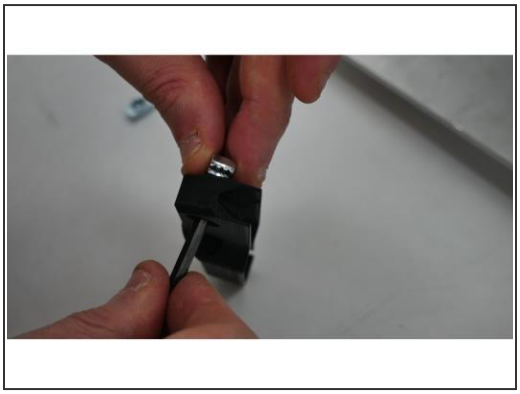




- Feed the Z Motor cable through the hole in the Electronics Panel.
- Plug the cable into the motor.

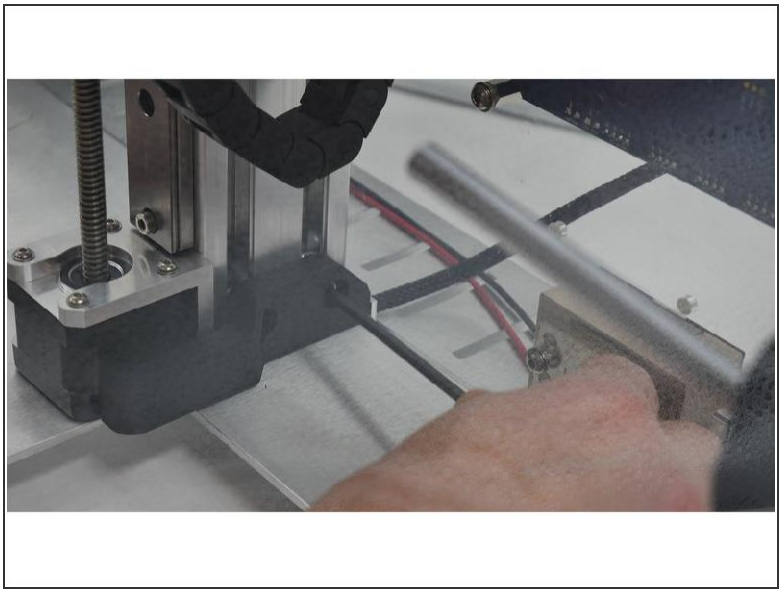
Step 26 — Cover Up.

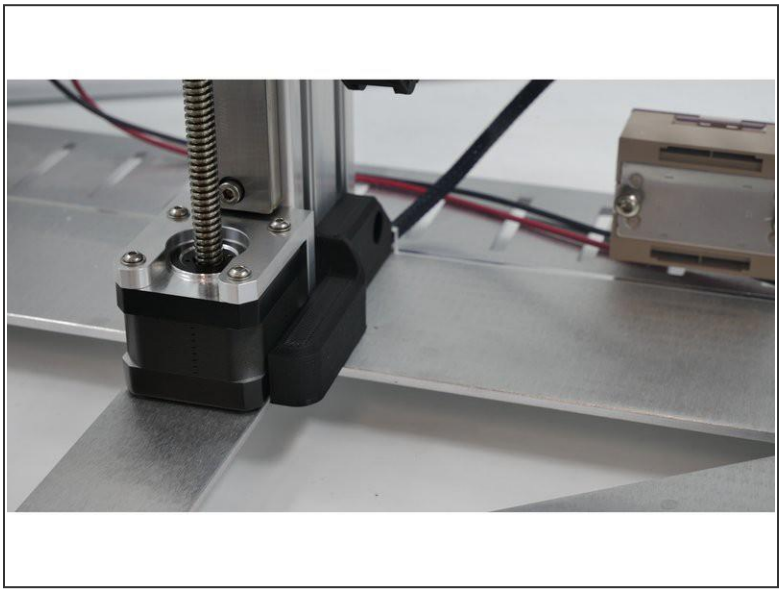




- To two M6 12mm Patch-Locked Button Head Screws apply Thread Lock.
- Pass the screws through the Printed Motor Cable Cover.
- Screw into two M6 T-Nuts.

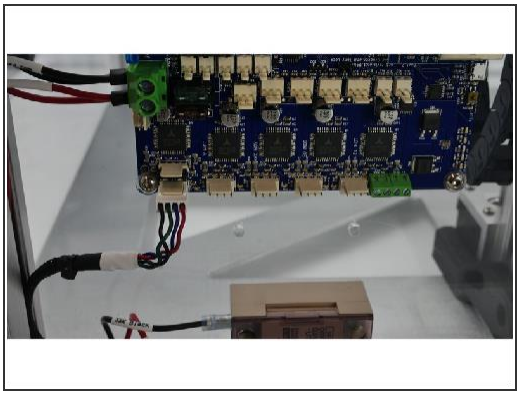
Step 27 — Covered Up.

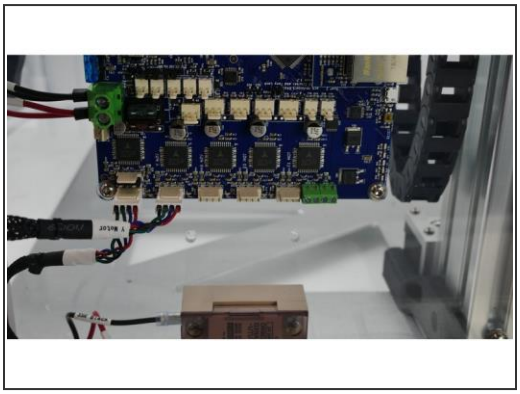


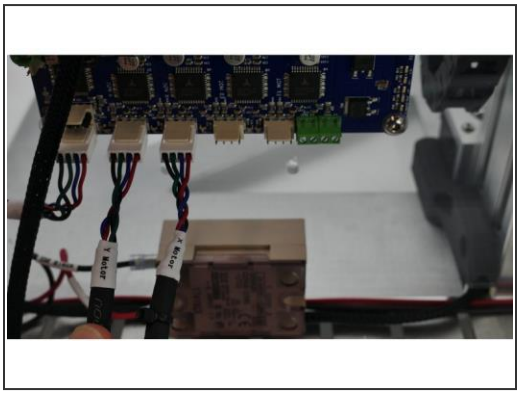


- Affix the Printed Motor Cable Cover as shown.

Step 28 — Cables.

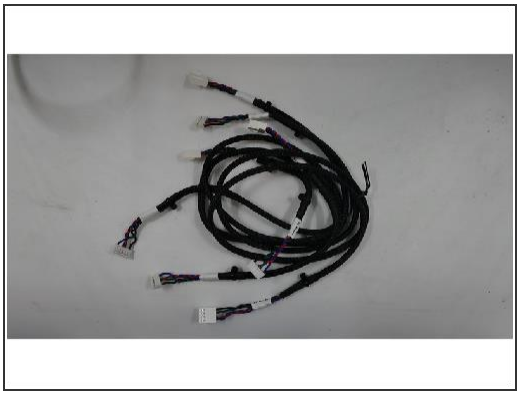
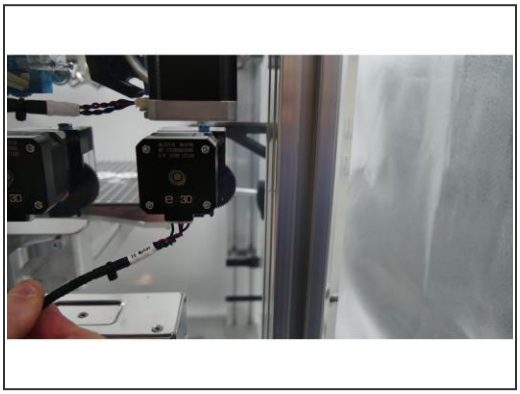
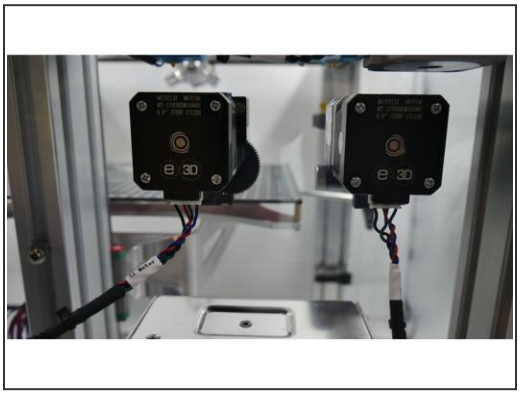






- Plug in the motor cables.

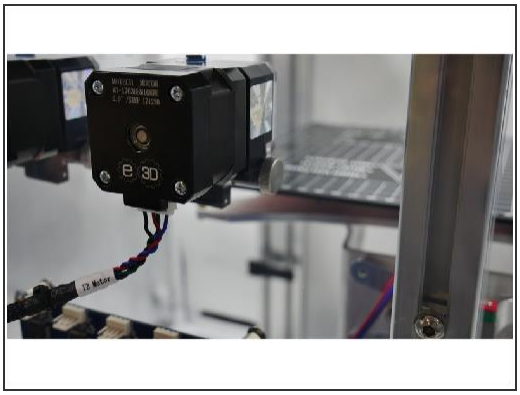
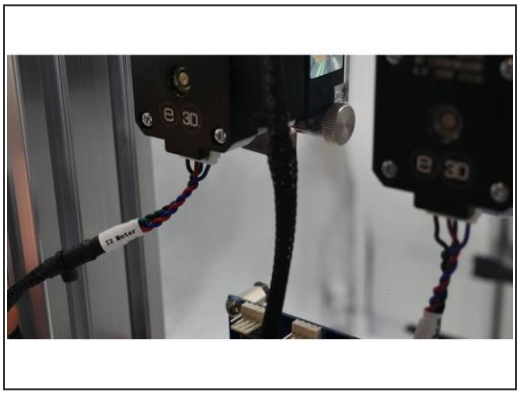
Step 29 — Extruder Cables.

- Plug in the motor cables for T0 & T1.
- Please note this step is the same for both Bowden and Direct Drive setups, the only difference being the length of wires supplied.

☐ T0 is the motor on the right as viewed from the back of the printer.

Step 30 — Extruder Cables.

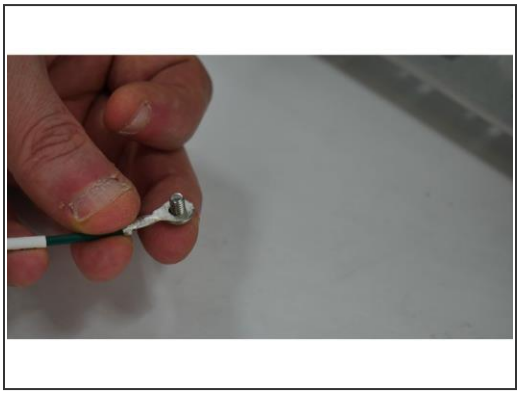




- Plug in the remaining two motors.

Step 31 — Earth.

- Find the short PSU to FRAME GND cable.

Step 32 — Earth.

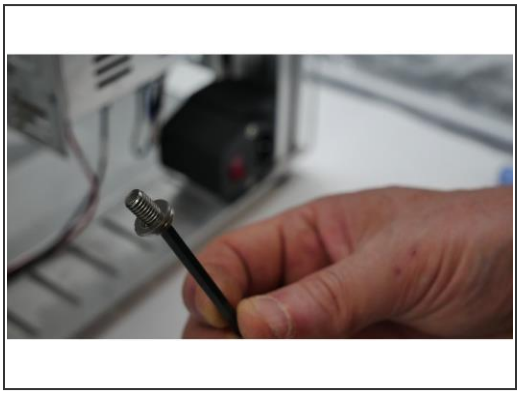


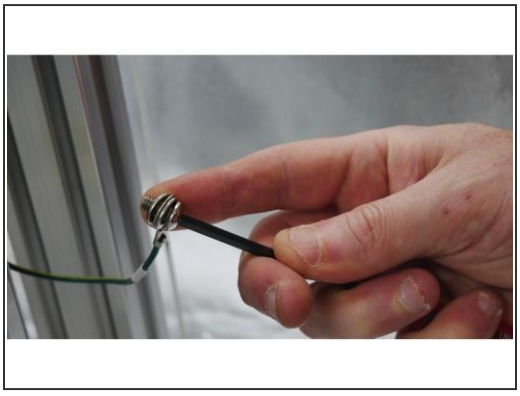
- Place a M4 washer over an M4 6mm Button Head Screw.
- Place the PSU GND ring end over the screw.
- Place another washer onto the screw.

Step 33 — Earth.

- Affix the cable to the PSU as shown.

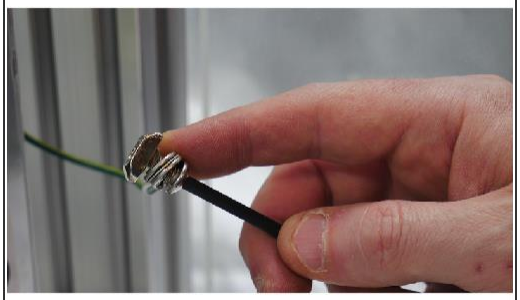
Step 34 — Earth.





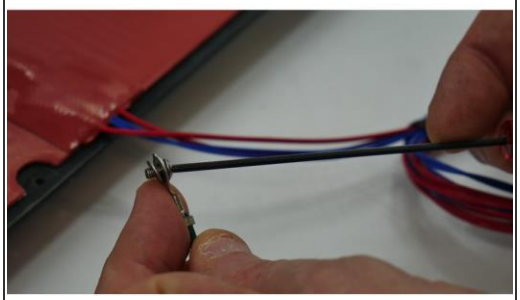
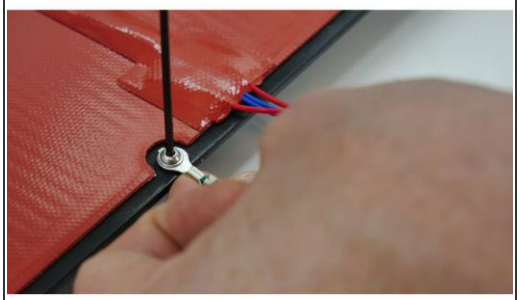
- Place an M6 washer over an M6 12mm Patch-Locked Button Head Screw.
- Place the FRAME GND ring end over the screw.

Step 35 — Earth.



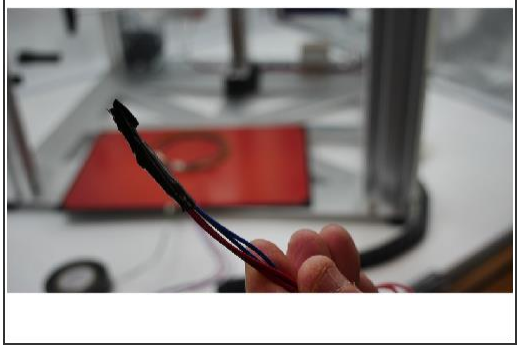
- Place another M6 washer over the screw.
- Add an M6 T-Nut.
- Attach the ground to the extrusion as shown.

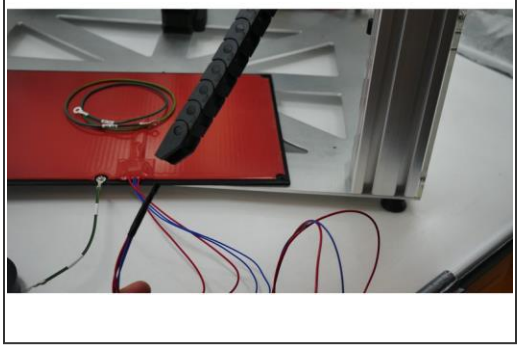
Step 36 — Bed.

- Remove the Bed and Dragchain from the assembly.
- Affix the BED GND to the HT Bed.

Step 37 — Dragchain.

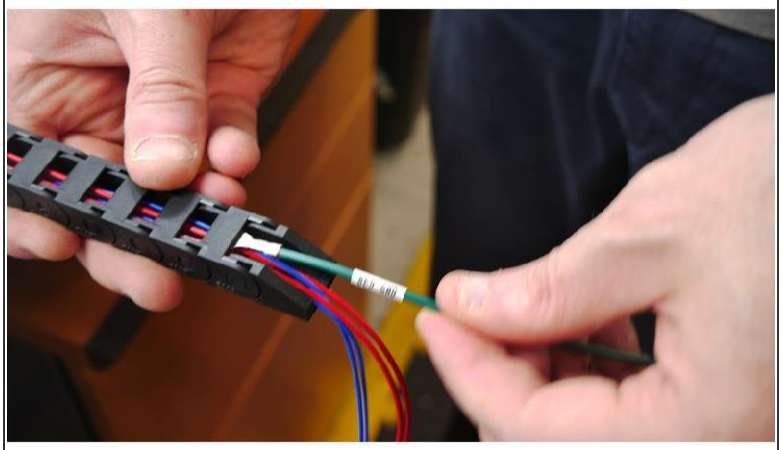


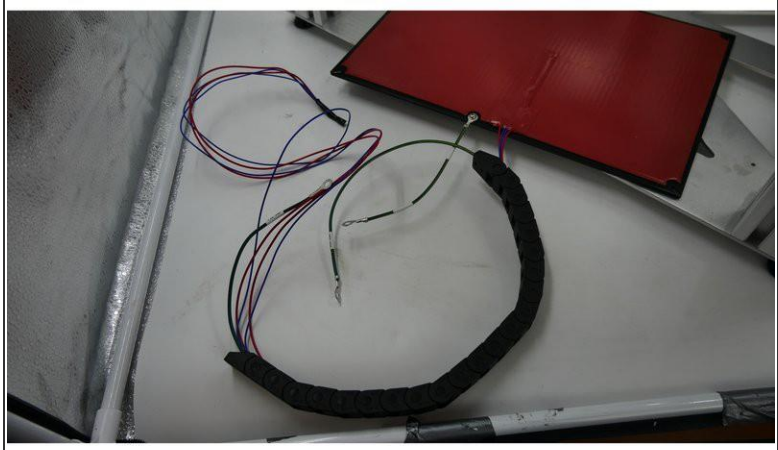


- Bunch the Bed wires and wrap the ends in tape.
- Feed the wires through the Dragchain.

☐ Check the end in which you feed the wires is the correct one.

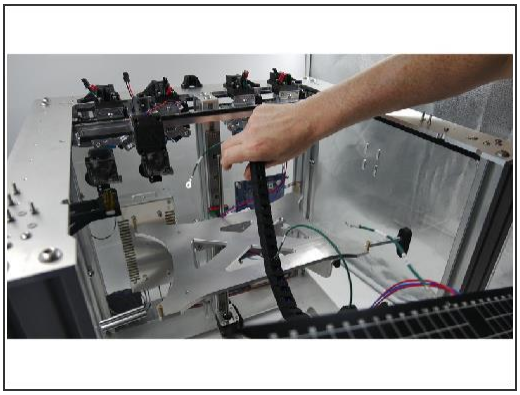
Step 38 — Earth.





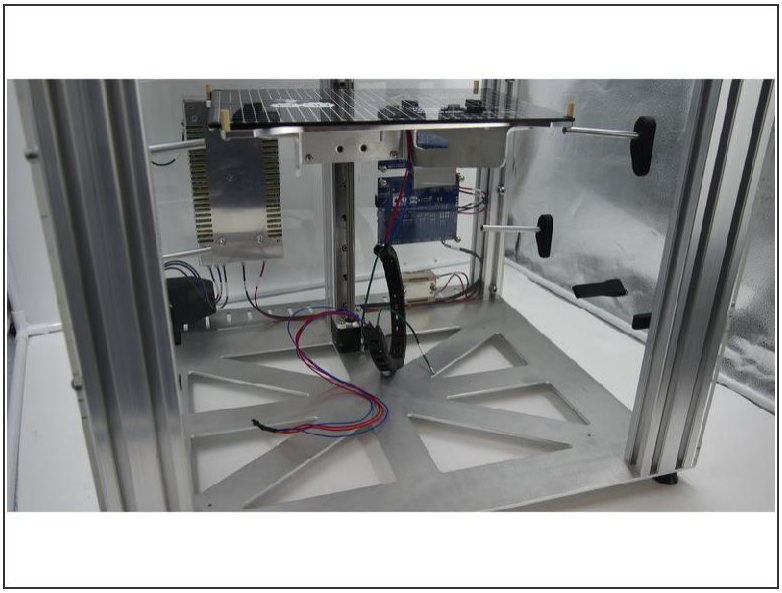
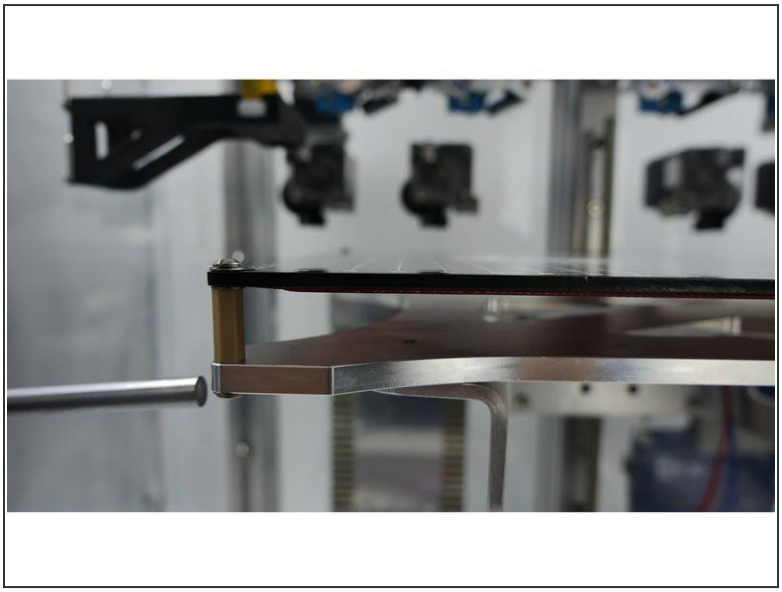
- Feed the longer BED GND through the Dragchain.

Step 39 — Bed.



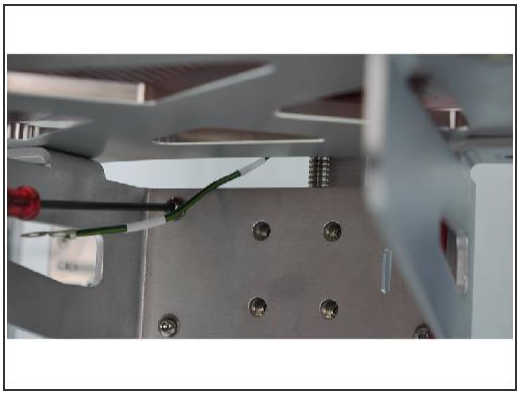
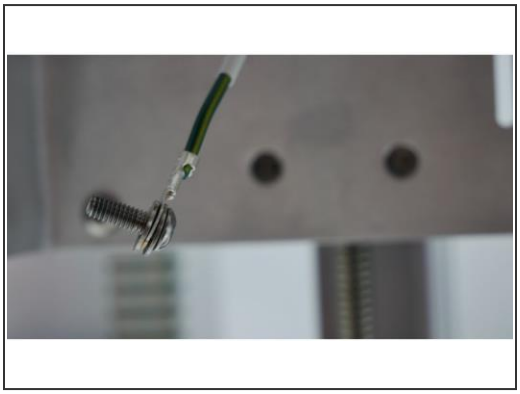
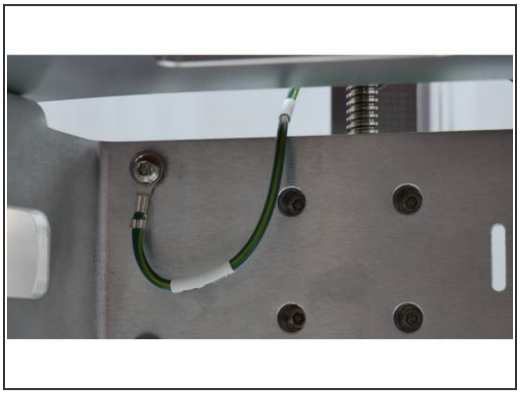
- Pass the Dragchain between the Bed Plate and Bed Bracket.

Step 40 — Bed.

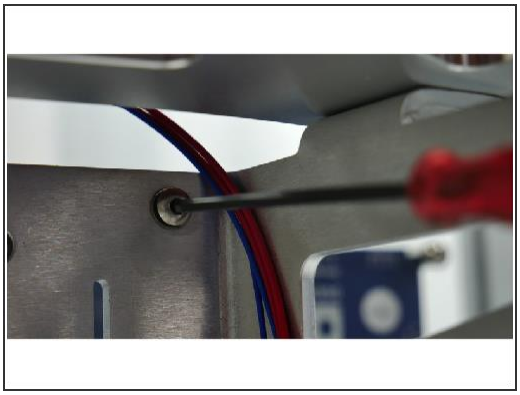
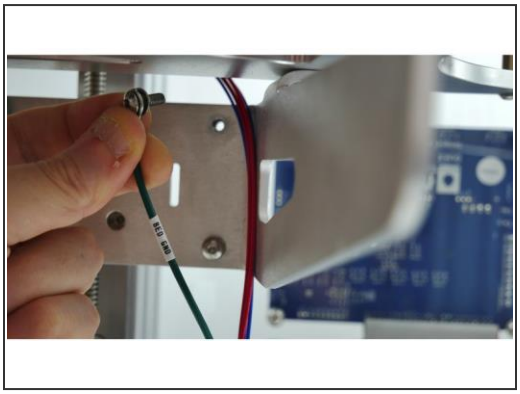
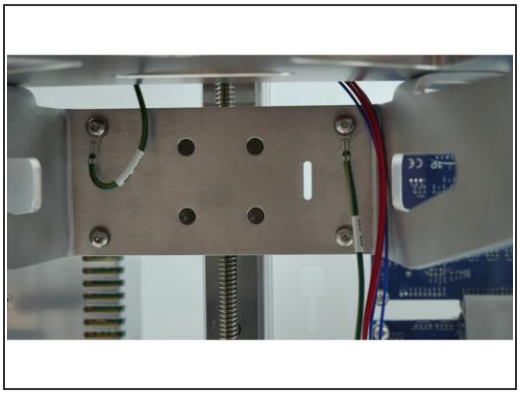
- Reattach the HT Bed to the Standoffs as described in Guide 06.

Step 41 — Undo.

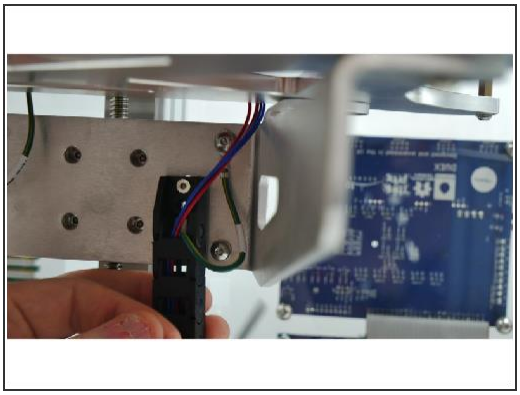
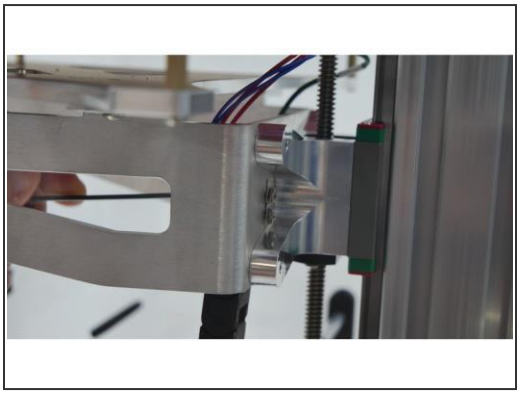
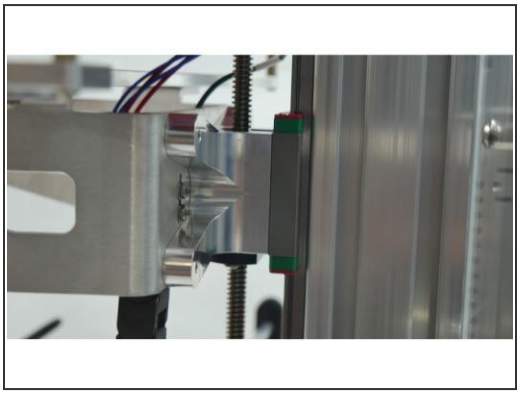
- Undo the top left screw and washer.
- Pass the screw through the ring end of the bed GND cable, add another washer.
- Refit the screw into the assembly.

Step 42 — Earth.

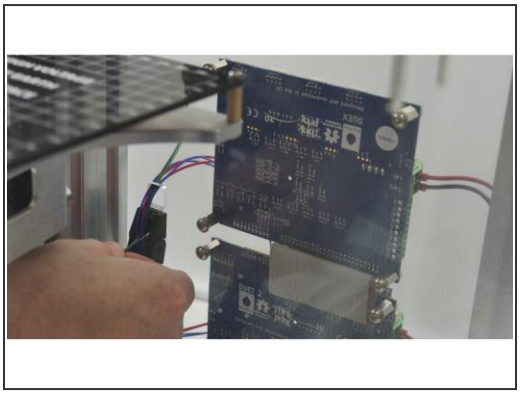
- Remove the top right screw.
- Pass the screw through the BED GND ring end, add another washer.
- Refit the screw.

Step 43 — Dragchain.

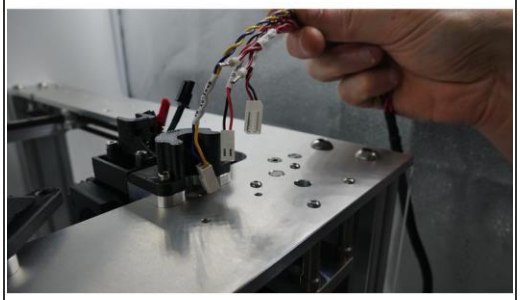
- Reattach the Dragchain to the Bed assembly.

Step 44 — Dragchain.

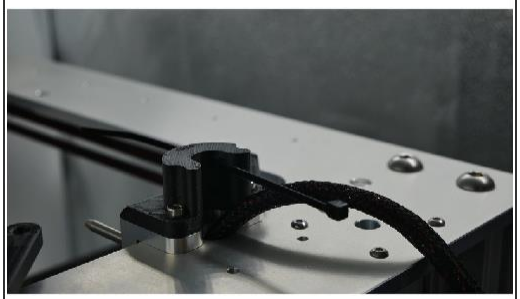

- Pass the wires through the hole in the Electronics Panel as shown.
- Reattach the Dragchain to the Electronics Panel.
- Attack the PSU GND to the PSU.

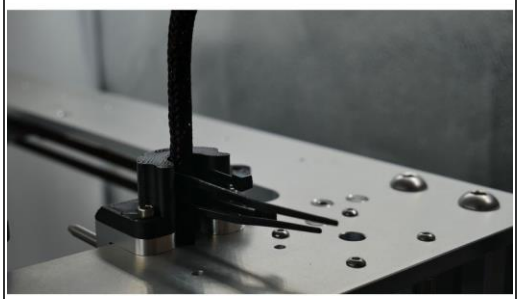
Step 45 — T0 Wires.


- Find the T0 Cable Group.
- Feed the connectors through the Top Plate as shown.

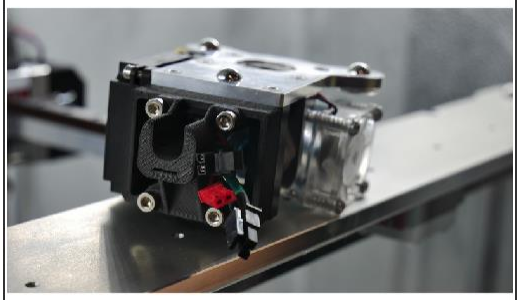
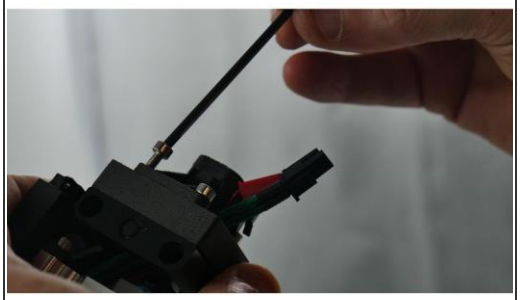
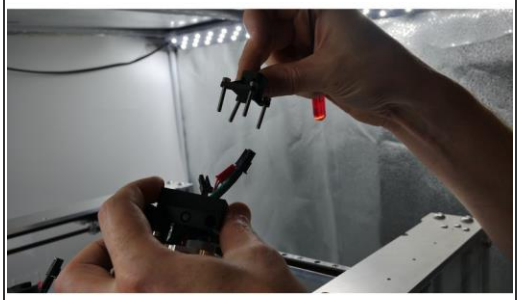
Step 46 — Ties.





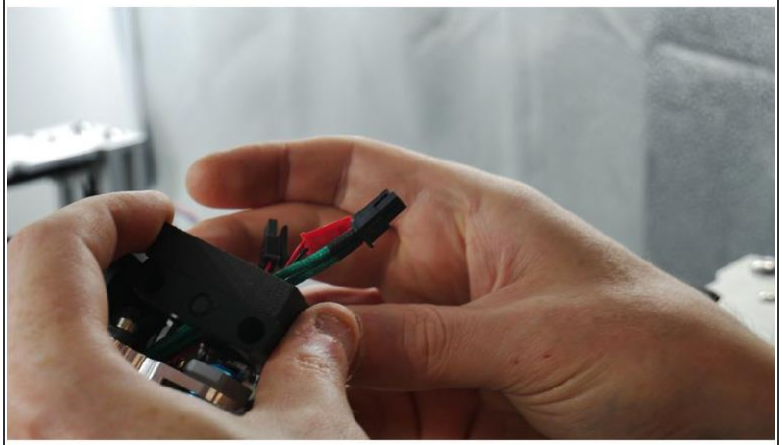
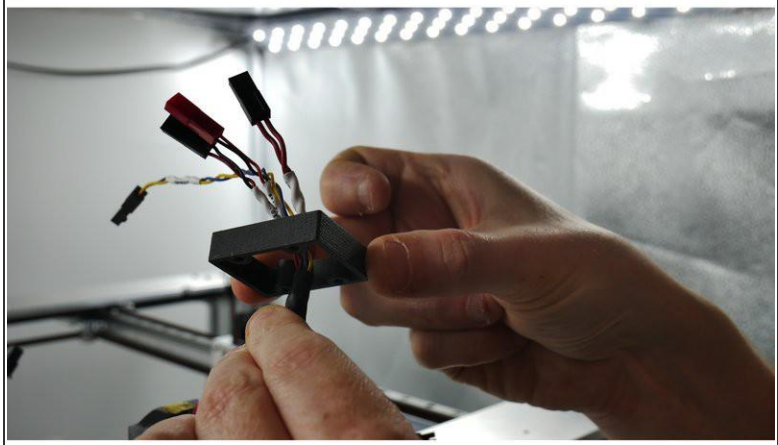
- Pass two Cable Ties into the printed part for T0.

Step 47 — T0.

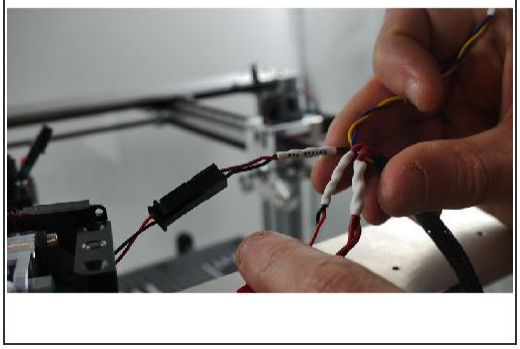
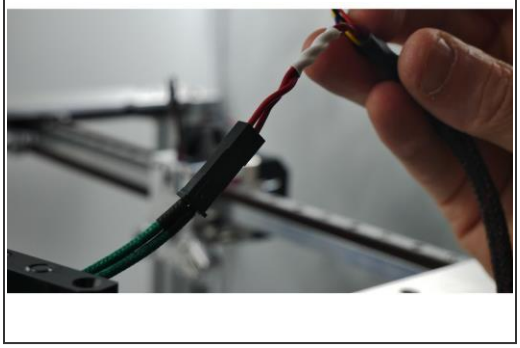
- Remove T0 from it's dock and unscrew the top.

Step 48 — T0.

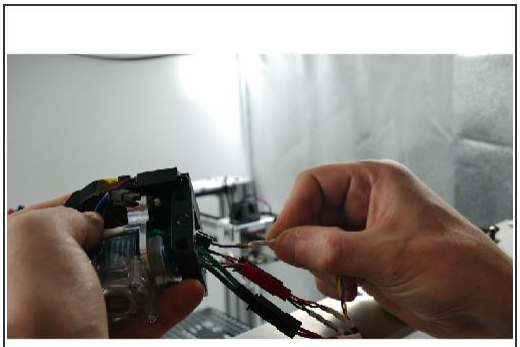
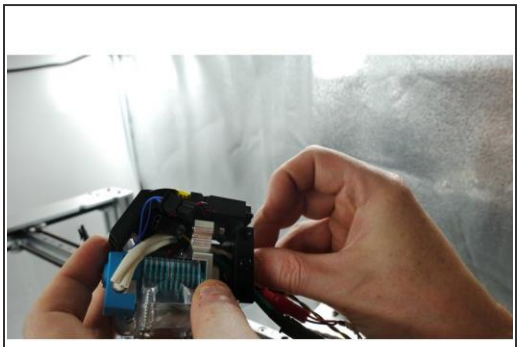
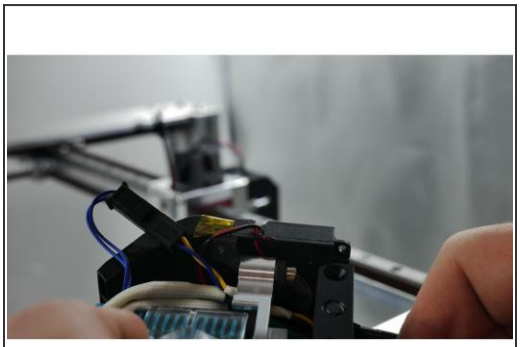
- Remove the rectangle from the top of the tool and pass the T0 wires through it.

Step 49 — T0.

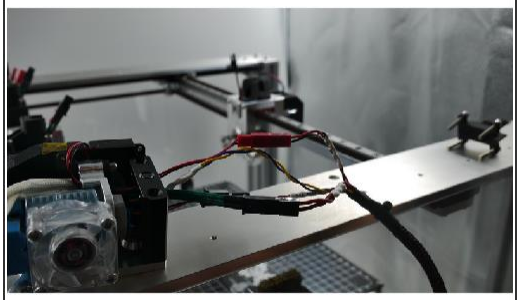
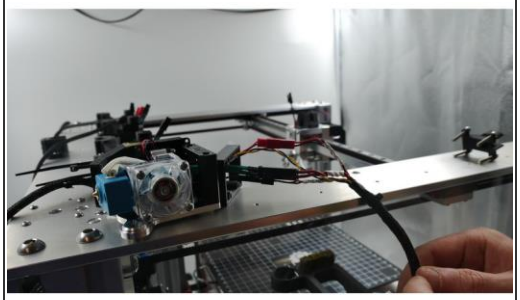

- Connect the Heater Cable.
- Connect the PCF Fan.
- Connect the Hotend Fan.

Step 50 — T0.

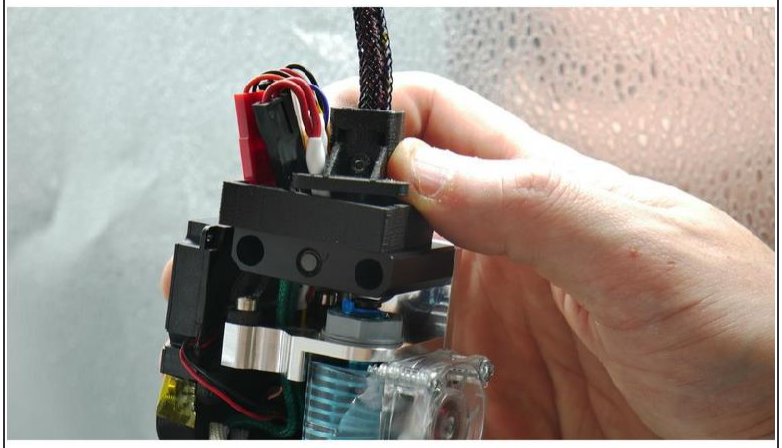
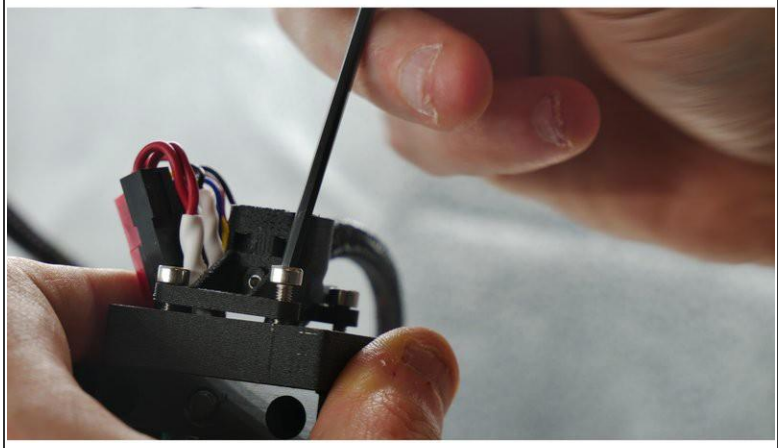
- Pass the Thermistor cable through the openings.
- Connect the Thermistor.

Step 51 — T0.


- Carefully bunch the wires.
- Slide the rectangle down onto the tool.

Step 52 — T0.

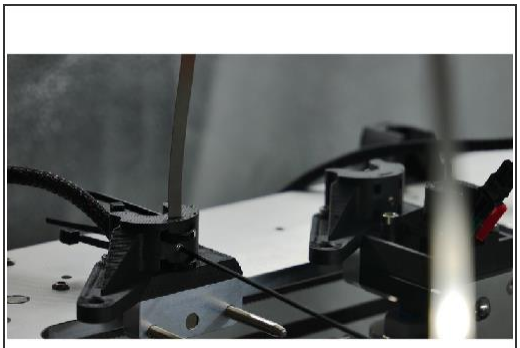
- Reattach the top to the tool.

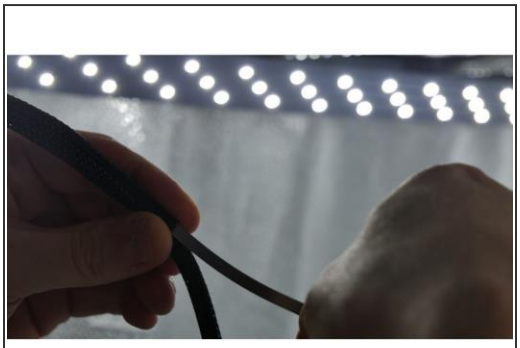
- [ ] Take care not to trap any wires.

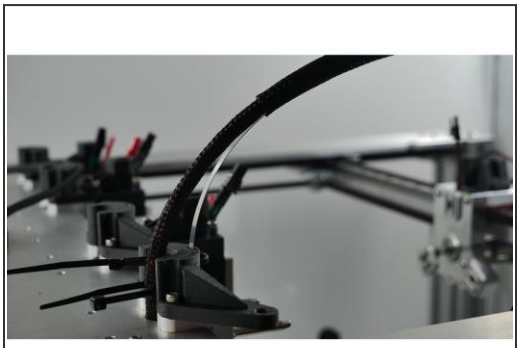
Step 53 — T0.

- Secure the wires with a Cable Tie.

Step 54 — Strip.

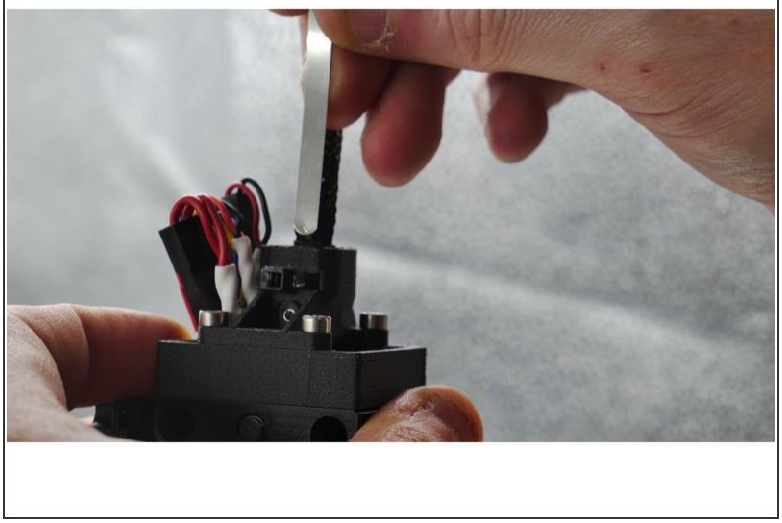


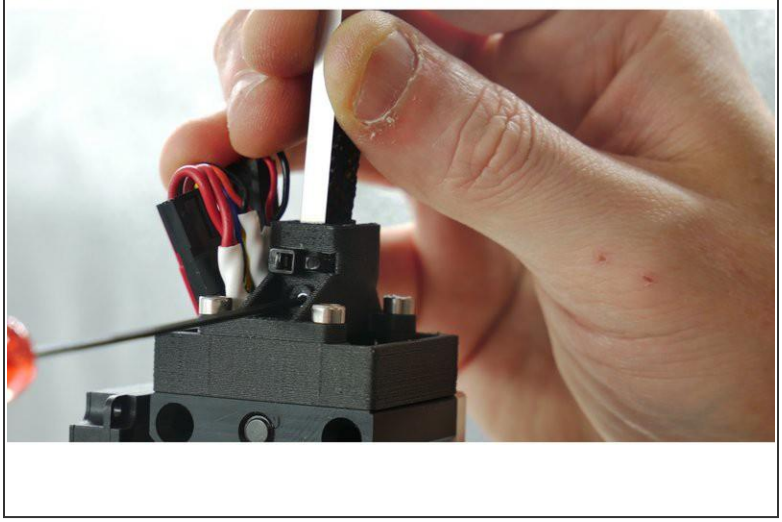




- Secure one end of the metal strip in the printed part atop the Dock.
- Feed the strip through the braided sleeve.

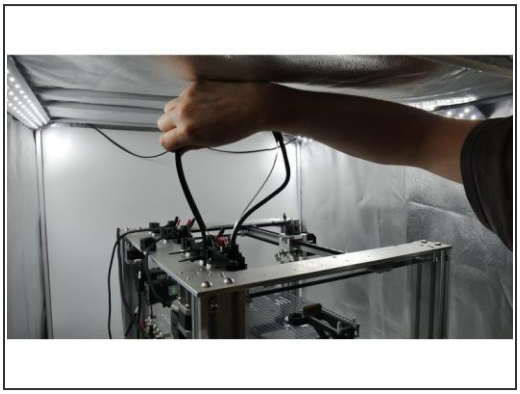
Step 55 — T0.

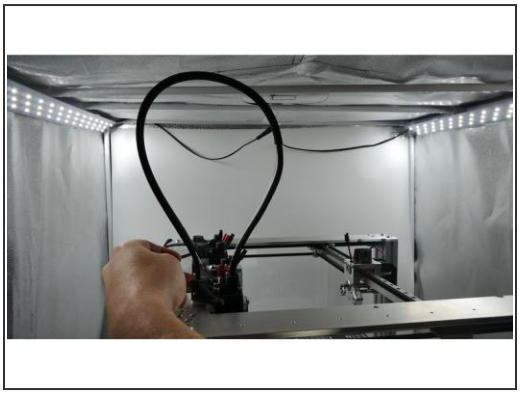




- Insert the strip into the top of the tool.
- Secure using the grub screw.

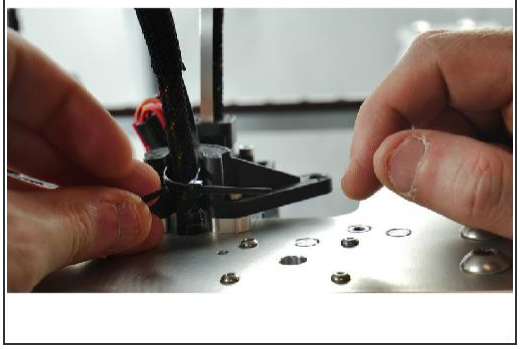
Step 56 — Slack.

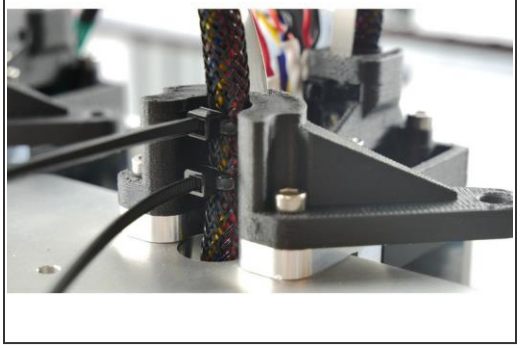


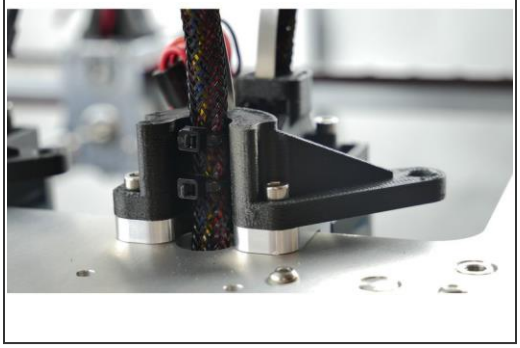


- The length of the T0 Cable Group needs to be correct.
- Place the tool onto the dock.
- Feed any excess cable through the Top Plate.

Step 57 — Cable Ties.

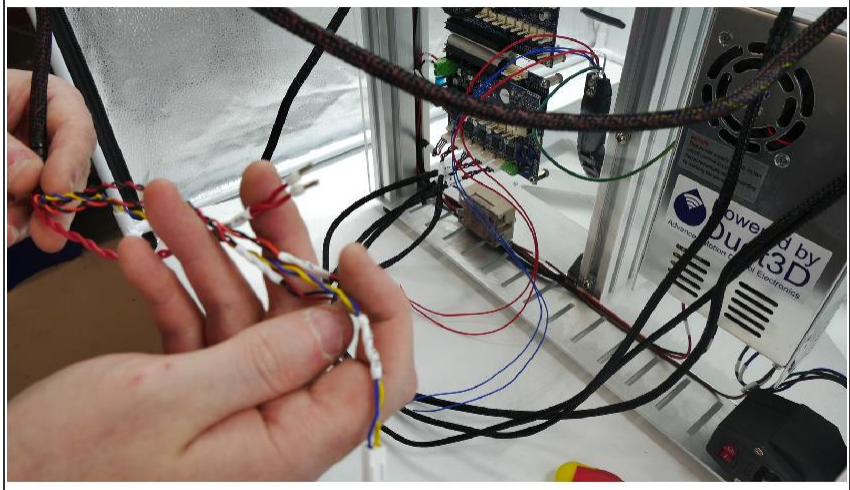






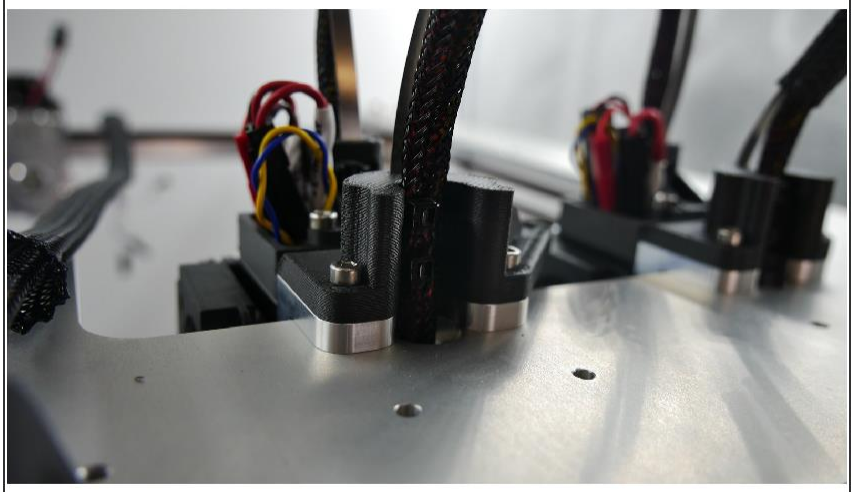
- When happy with the cable legnth use the two cable ties to secure the cable.

Step 58 — Plug.



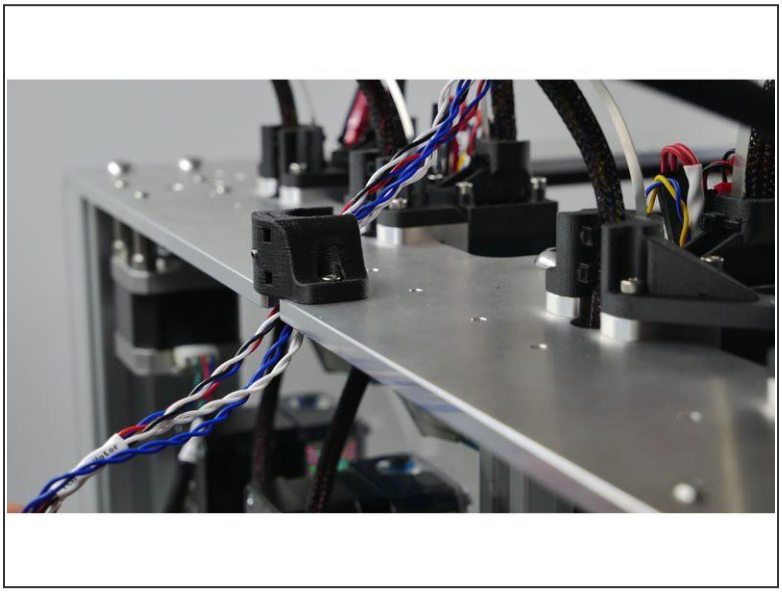
- Plug in the T0 Cable Group.

Step 59 — T1, T2, T3 Groups.



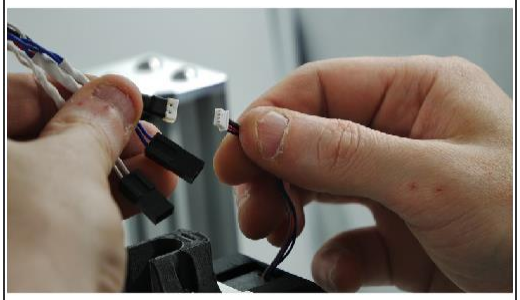
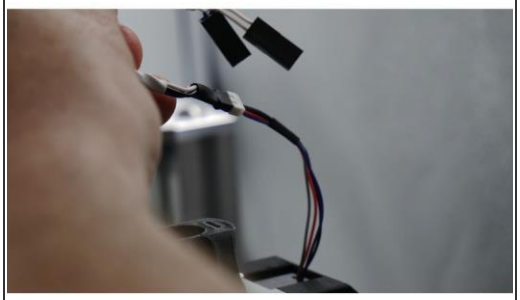
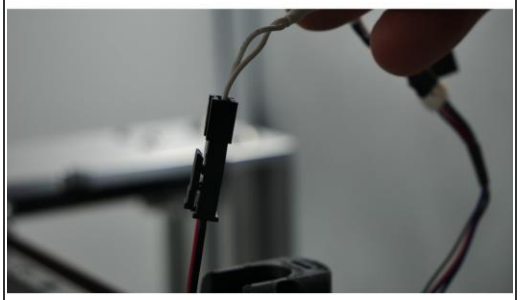
- Fit the other three wiring groups in a similar way to T0.

Step 60 — Toolhead Cable Group.



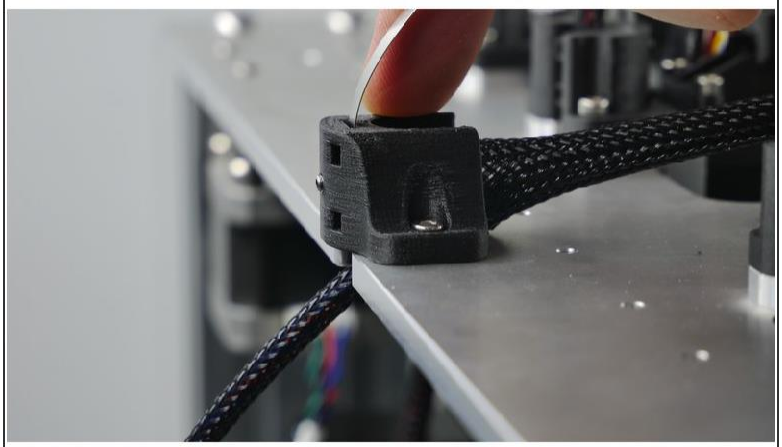
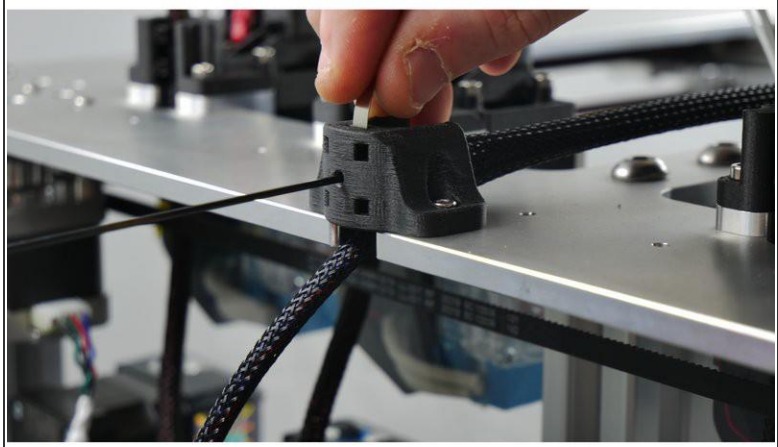
- Pass the cables through the Top Plate.

Step 61 — Head Plug.

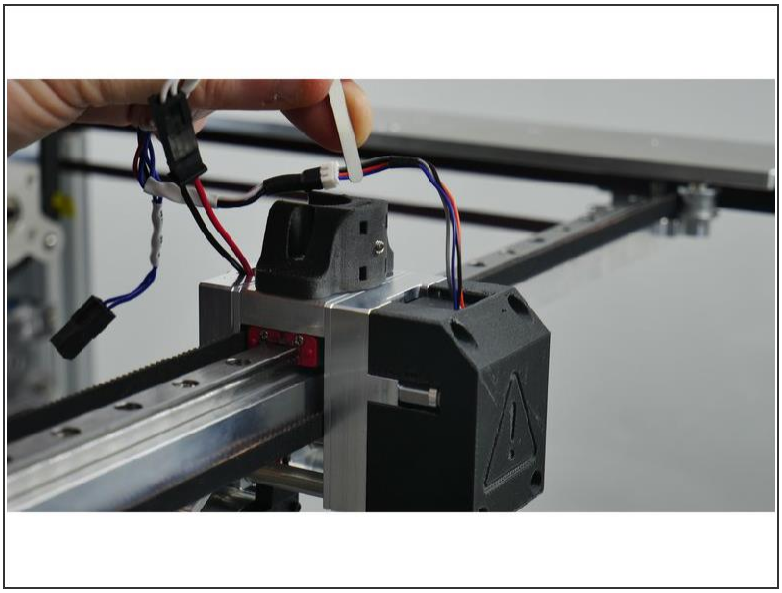
- Connect the Stepper Motor Cable and EndStop cable.

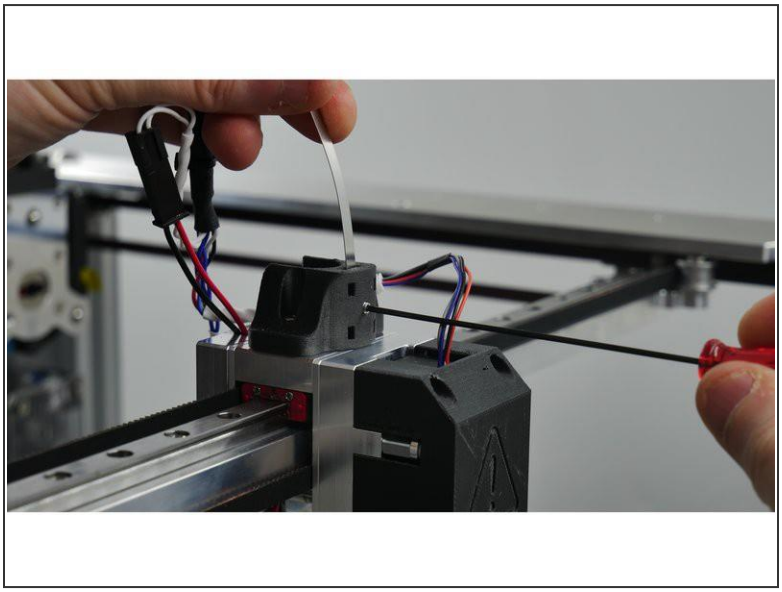
Step 62 — Strip.

- Insert a strip in the printed part and secure using the grub screw.

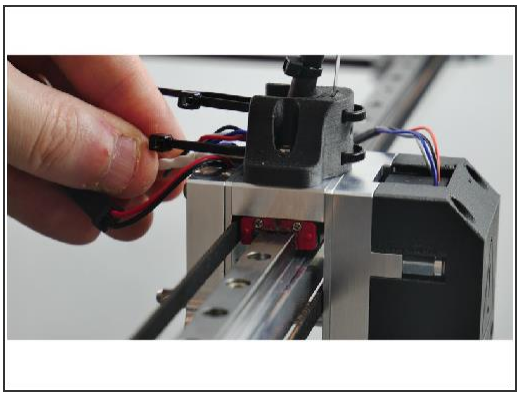
Step 63 — Strip.

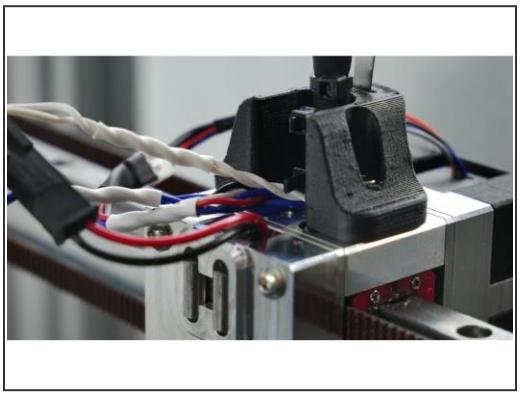


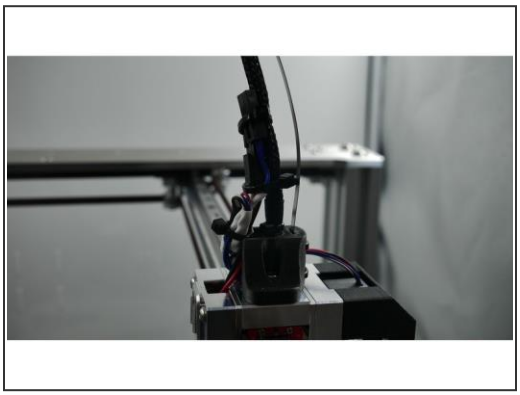


- Feed the strip through the braided sleeving and secure in the X-Carriage printed part using the grub screw.

Step 64 — Secure.

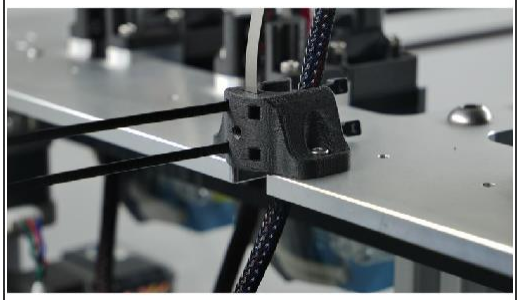
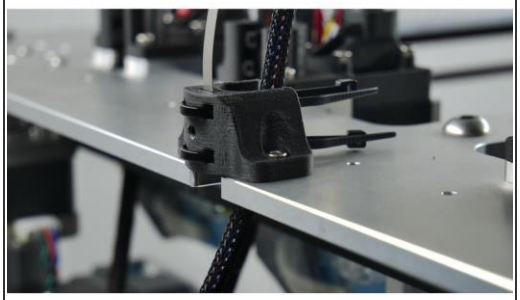






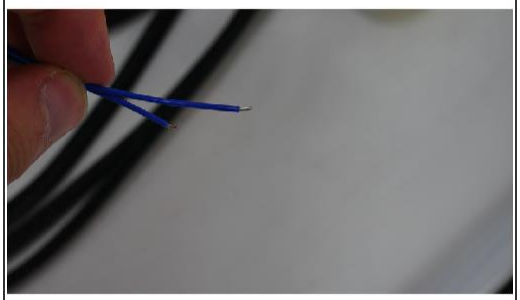
- Secure the cables on the X-Carriage using Cable Ties.

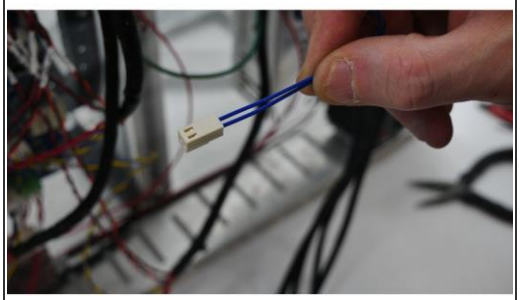
Step 65 — End.


- Adjust the length of the Toolhead Cable Group.
- Secure using Cable Ties.
- Plug the cables into the Electronics.

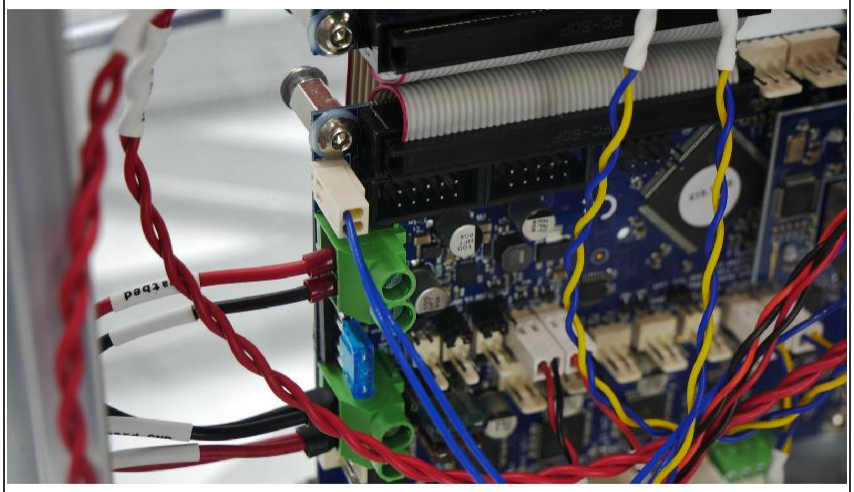
Step 66 — Bed Sensor.



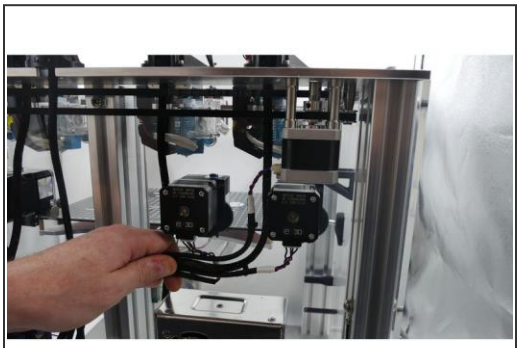
- Strip the end of the Blue wires from the HT Bed.
- Using the supplied connectors from the Duet add a connector to the cables.

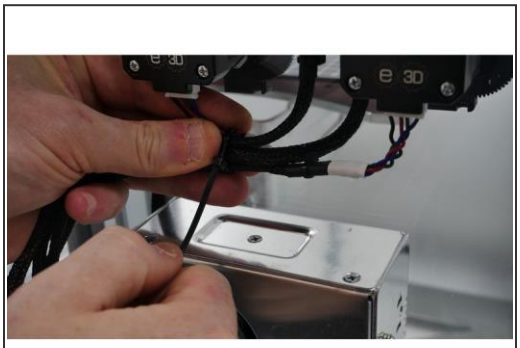
Step 67 — Bed.



- Plug the connector into the Bed Sensor Input on the Duet.

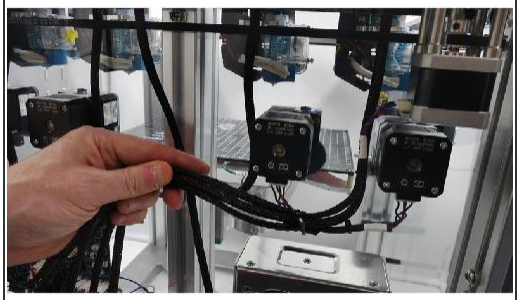
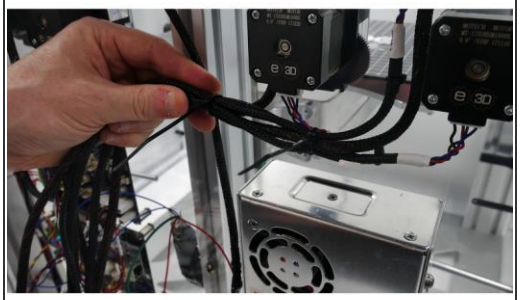
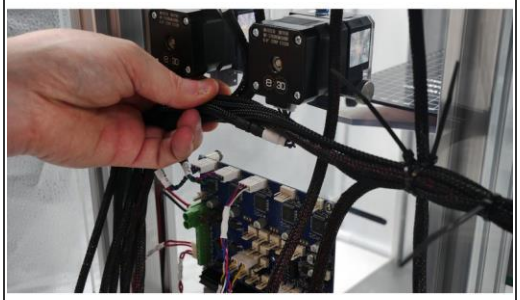
Step 68 — Bunched Up.





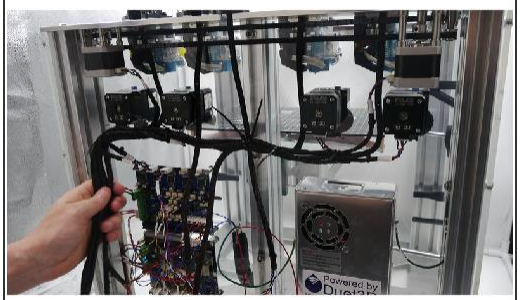
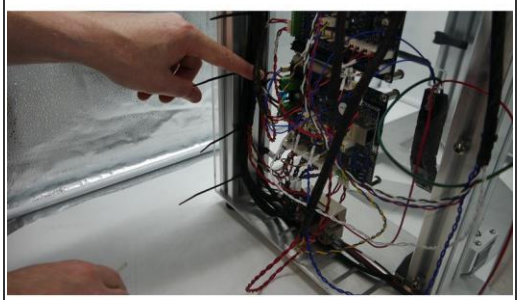
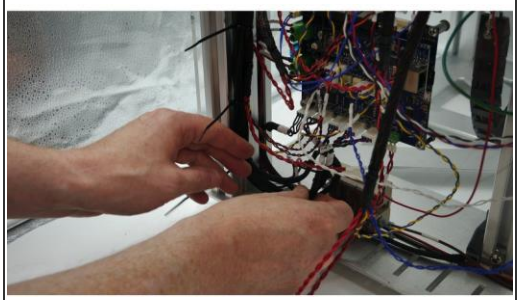
- Next is cable management.
- There isn't a set way of doing this.
- Use the supplied cable ties to create a backbone.

Step 69 — Cables.

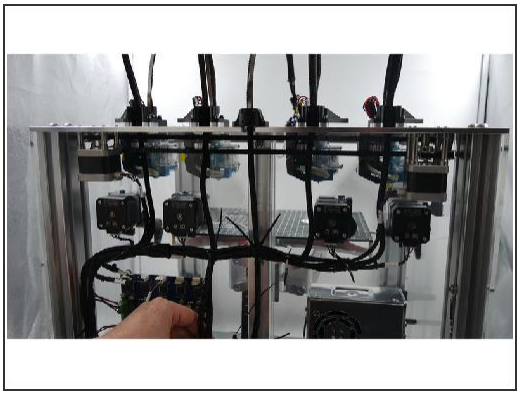
- Tie it up.

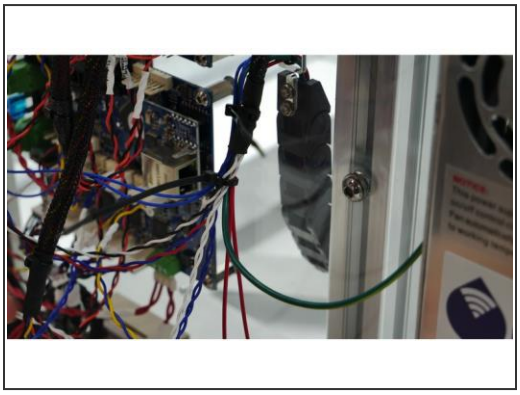
Step 70 — Cable.....

- ...Ties.

Step 71 — Finished.





- When it's all done it should look something like this.
- Extra points awarded if you can get some RGBs in there too.