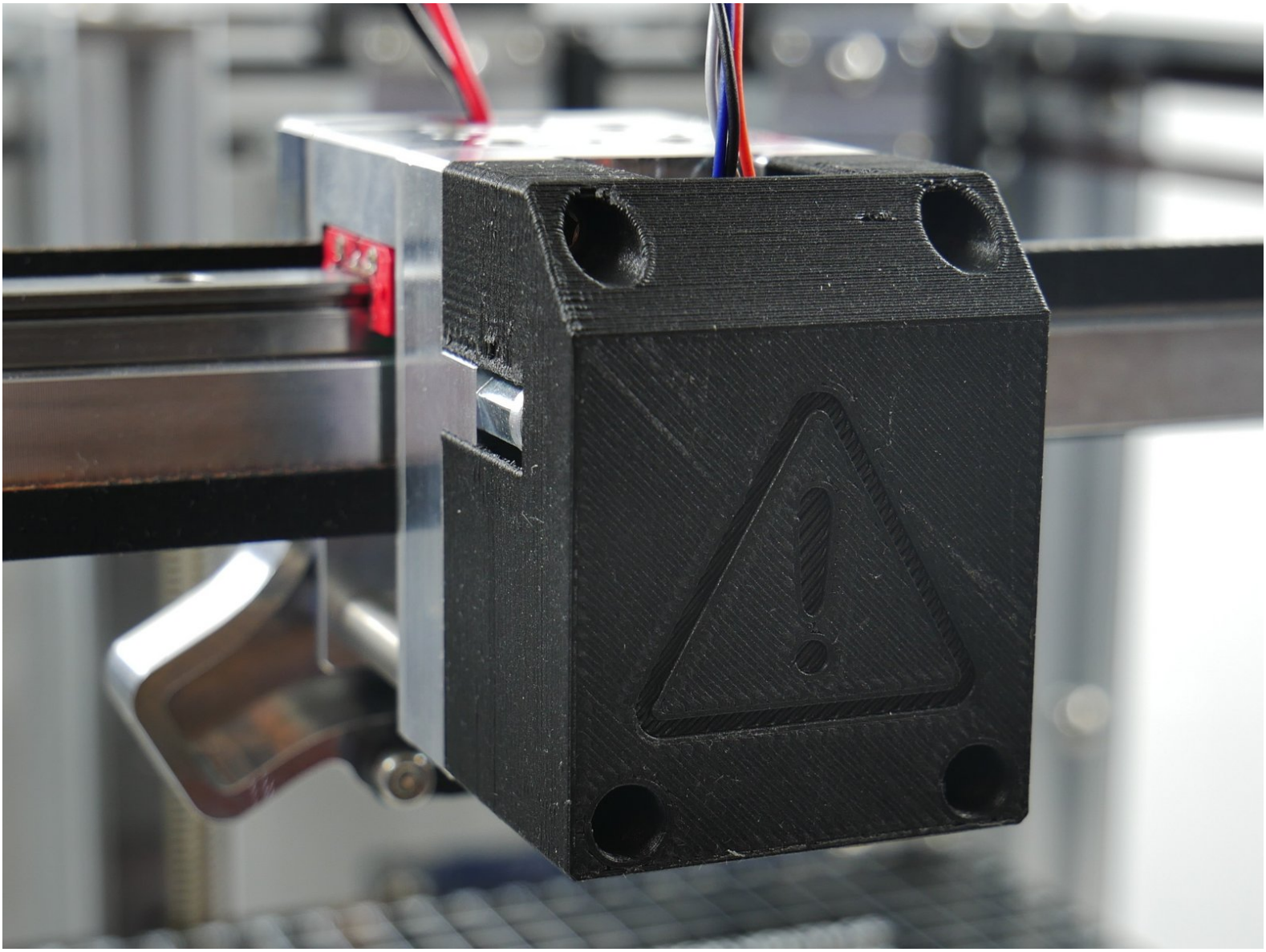
08 - ToolChanger Toolhead Installation.

Written By: Greg Holloway



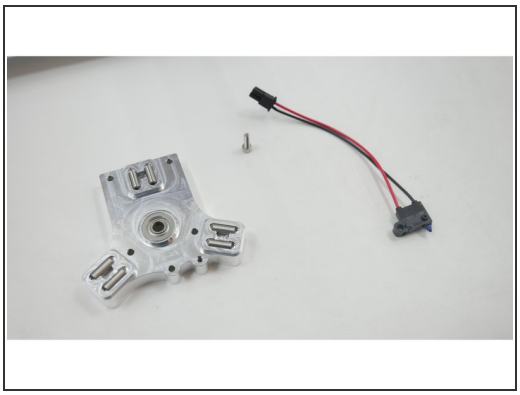
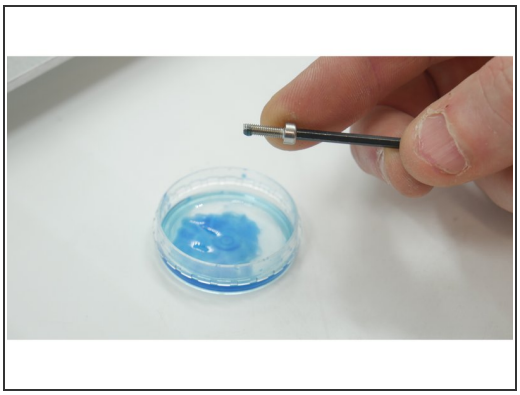
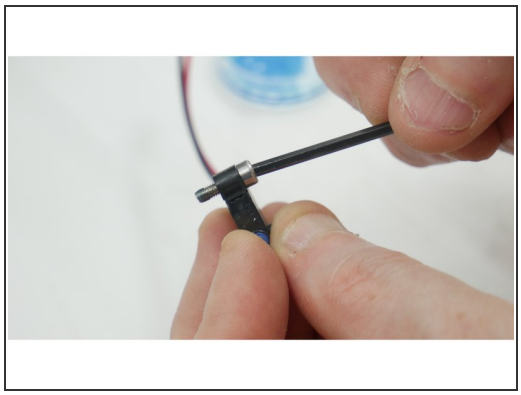
TOOLS:

- 2.5mm Allen Key (1)
- 2mm Allen Key (1)
- 5.5mm Spanner (1)
- Thread-Lock (1)
- Super Glue (1)
- Grease (1)

PARTS:

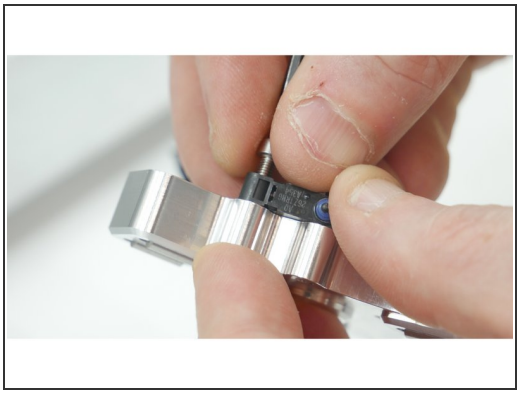
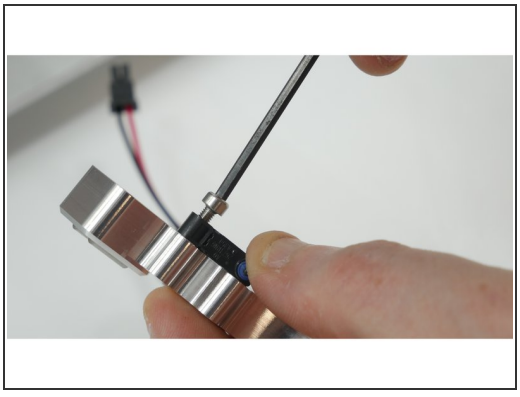
- Coupler Face Plate (1)
- Coupler Back Plate (1)
- Stepper Motor (1)
- Gear (2)
- Shaft (1)
- Endstop (1)
- Fixings Kit (1)
- Printed Tool-Changer Cover (1)
- Printed X-Carriage Cable Bracket (1)
- Printed X-Carriage Cables (1)

Step 1 — Face Plate

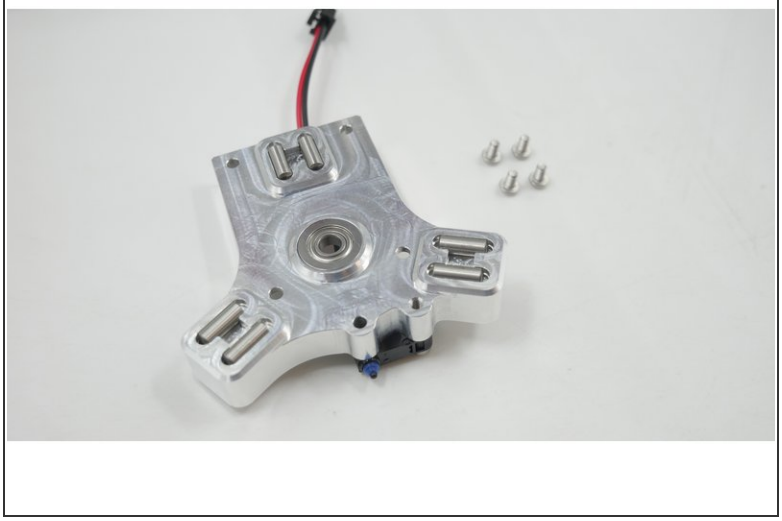
- Apply Thread Lock to an M3 10mm Socket Screw.
- Pass the screw through the Endstop.

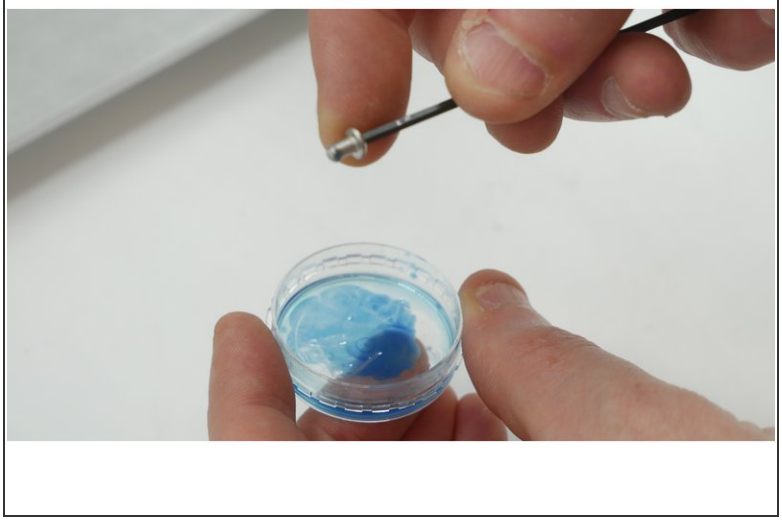
Step 2 — Stop.


- Attach the Endstop to the back of the Face Plate.

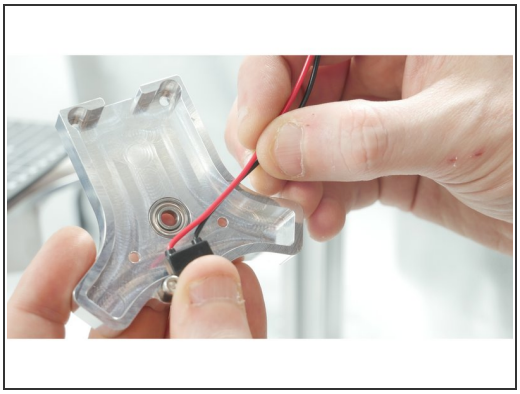
Step 3 — Screws.

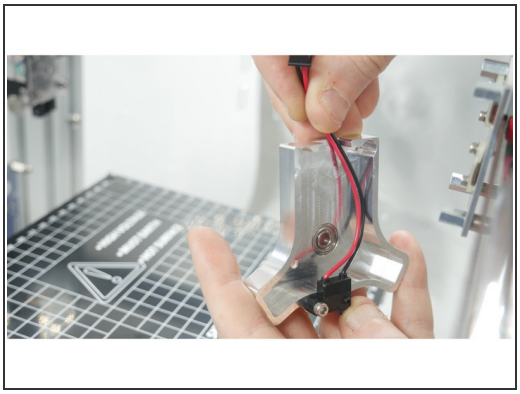


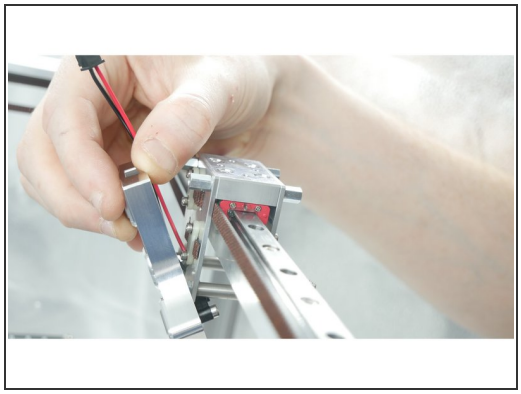


- To 4 x M3 5mm Button Head Screws apply Thread Lock.

Step 4 — Face Plate.

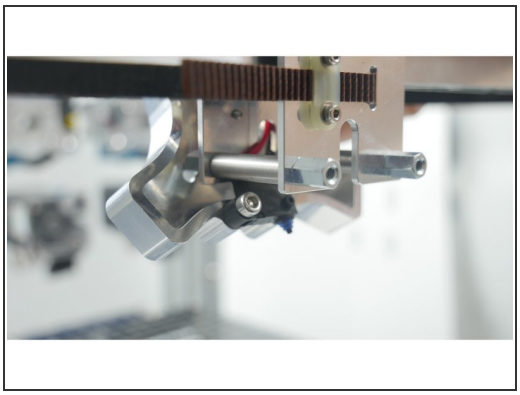
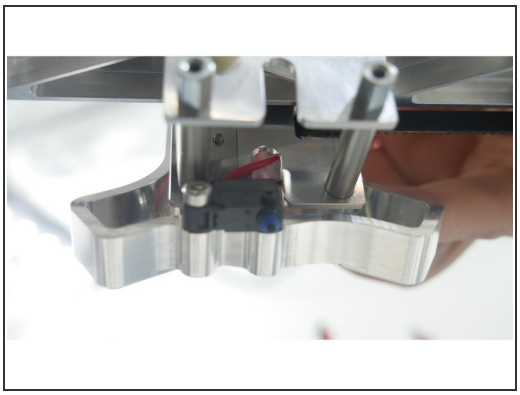
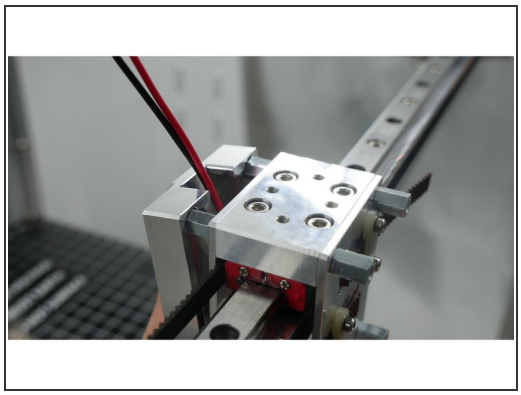






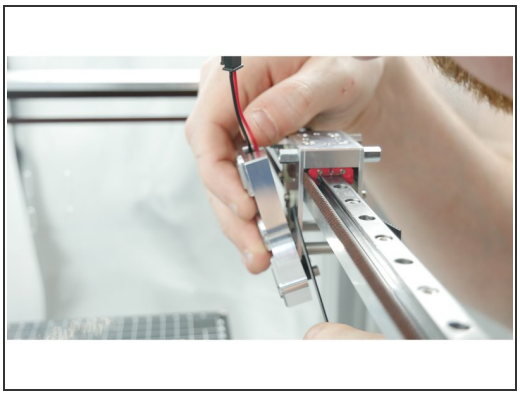
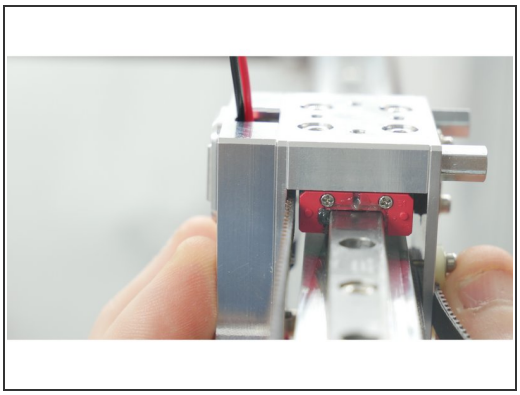
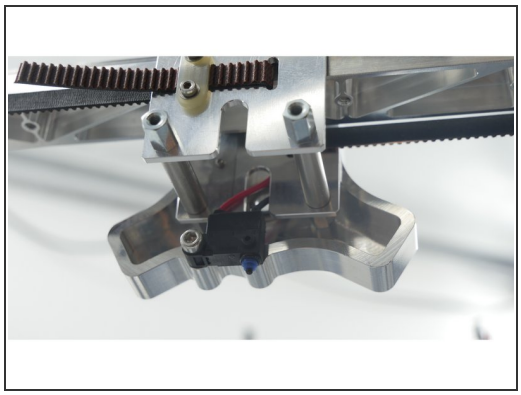
- Move the wires clear of the central bearing.
- Carefully place the Face Plate onto the X-Carriage.

Step 5 — Wires.

- Check the position of the cables and ensure that none are trapped.

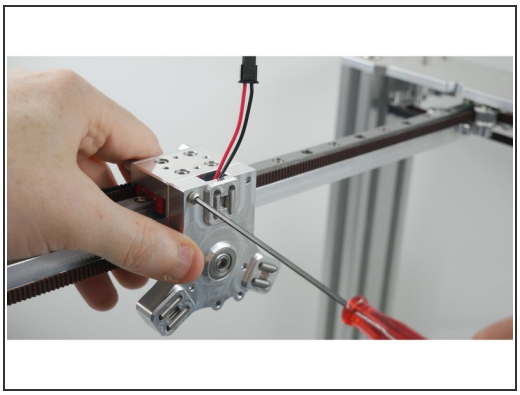
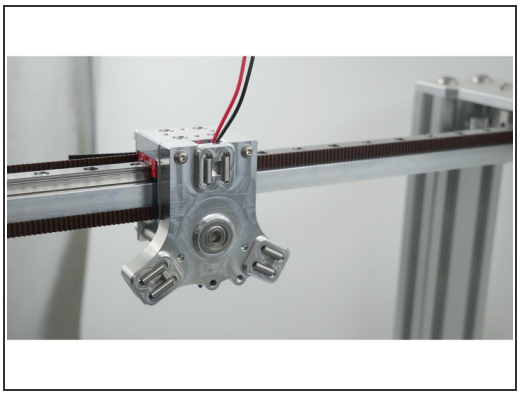
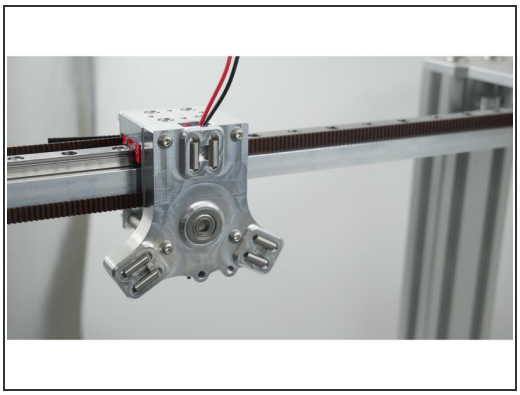
Step 6 — Closed.

- The Face Plate should sit comfortably on the X-Carriage.

⚠ Double check the position of the wires.

Step 7 — Screwed.

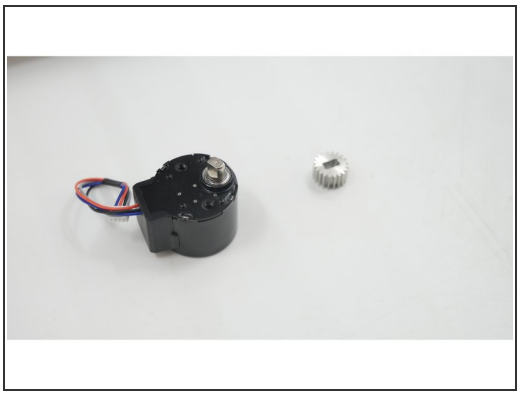
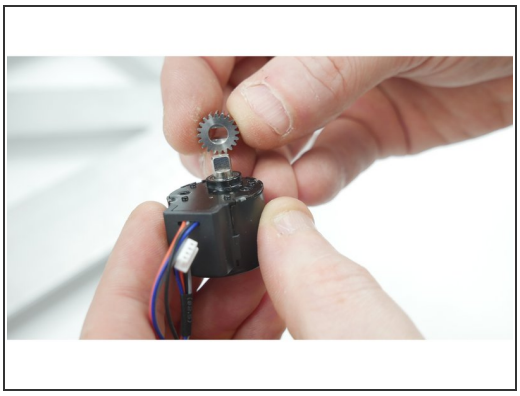
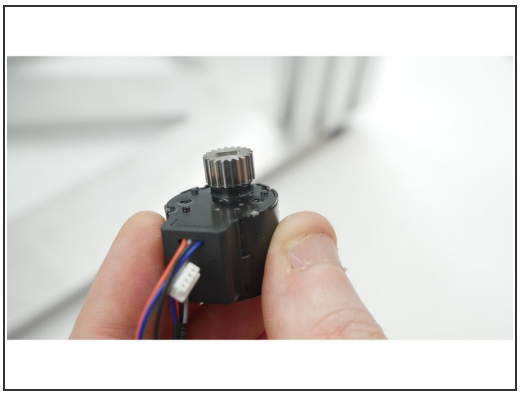




- Secure the Face Plate using the four screws.

⚠ Be careful to check the Back Plate is square to the X-Carriage.

⚠ Check the Face Plate is attached to the correct side of the X-Carriage.

Step 8 — Test Fit.

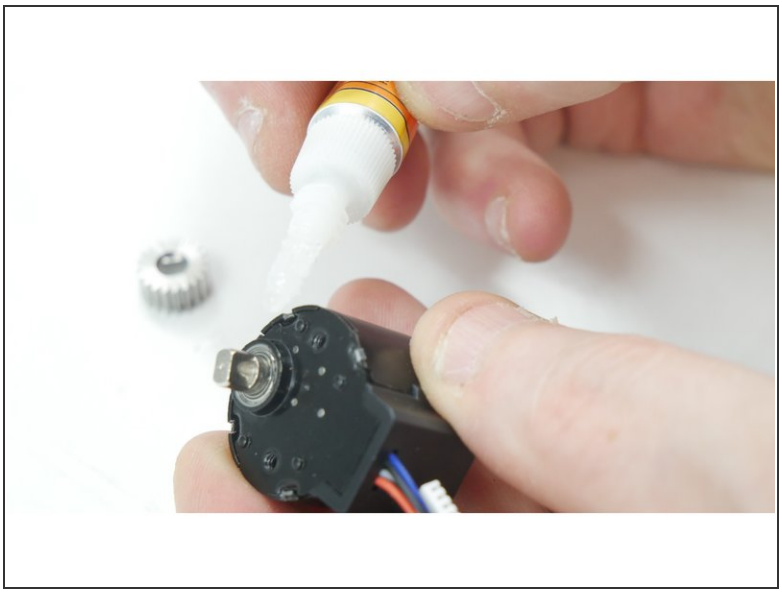




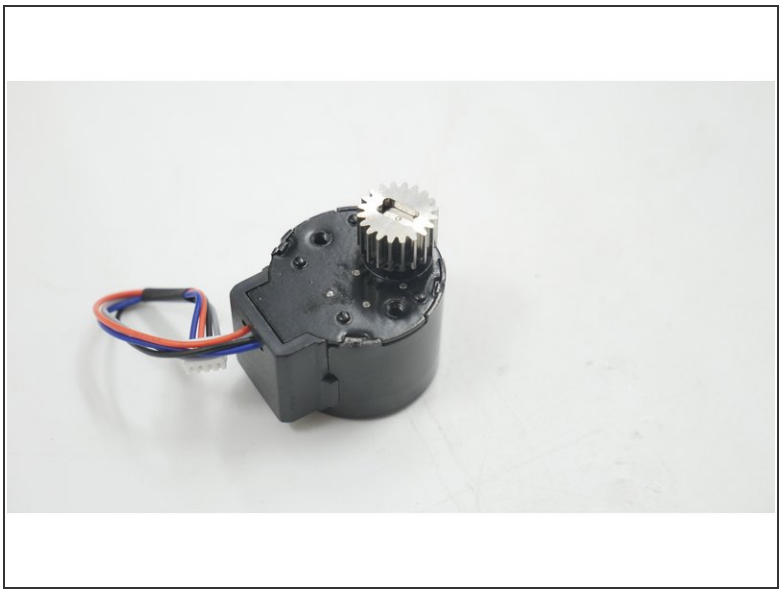
- Check the smaller gear fits onto the motor output shaft.

⚠ It can be a stiff press fit.

ⓘ The round recess in the gear faces towards the motor.

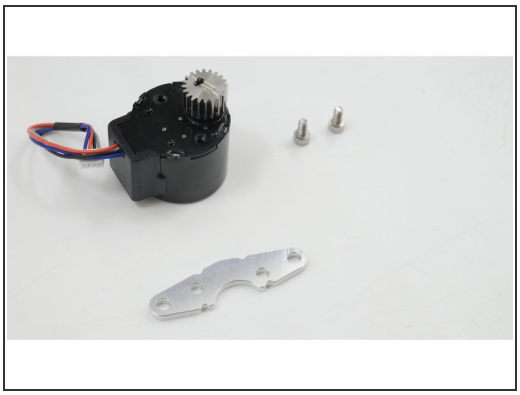
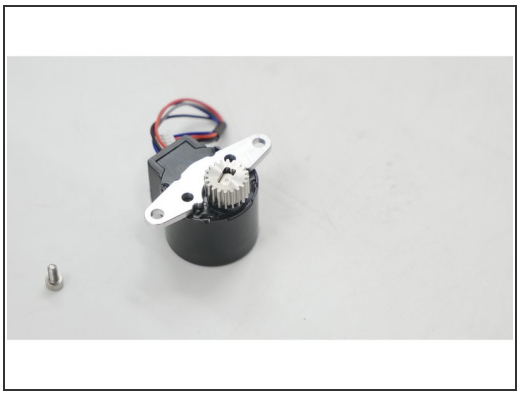
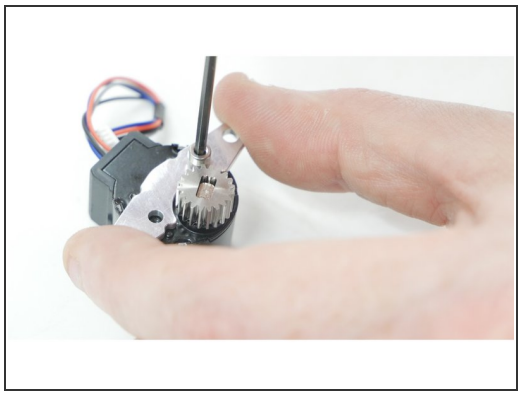
Step 9 — Glue.





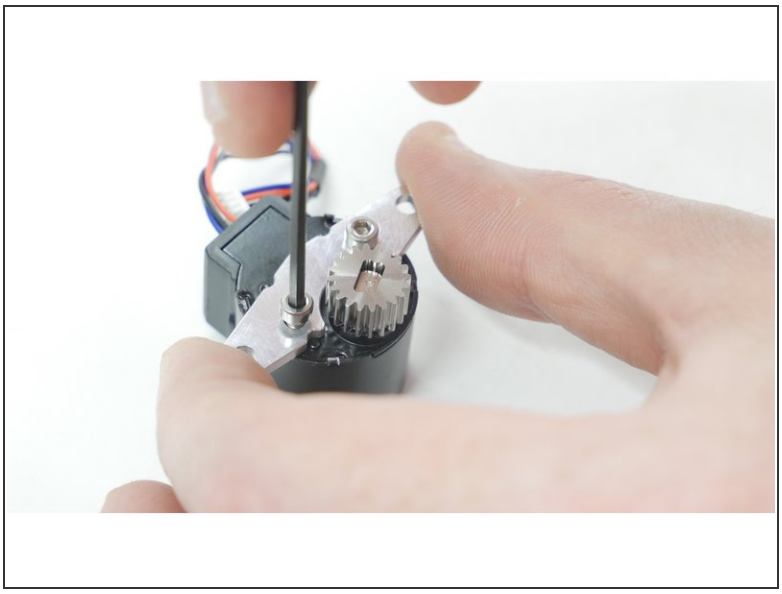
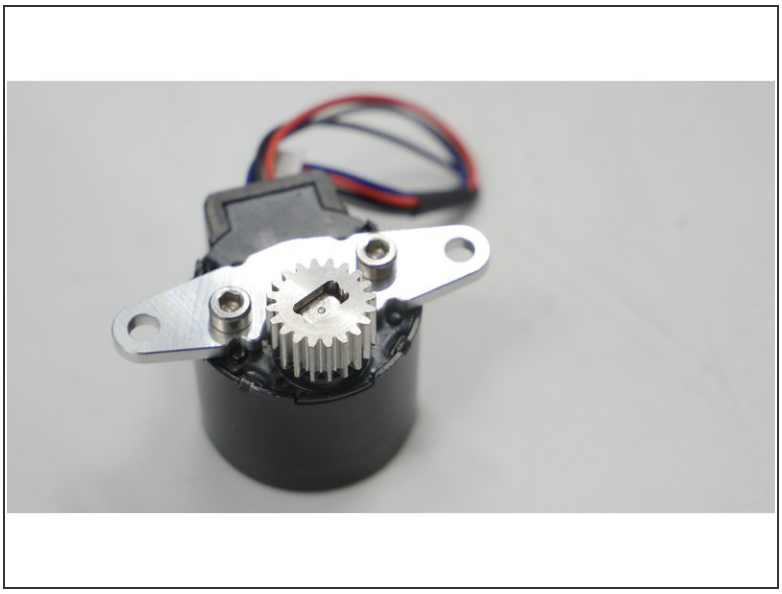
- Apply a small bead of glue to the two flats on the motor output shaft as shown.
- Push the gear onto the motor output shaft.
- Wipe off any excess glue.
- Leave the glue to cure.

Step 10 — Motor.

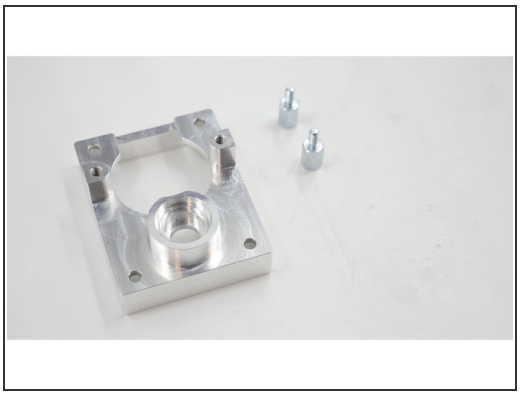
- Position the Motor Bracket on the motor.
- Check you have the holes aligned correctly.
- Screw in one of the M2.5 5mm Screws.

Step 11 — Motor.

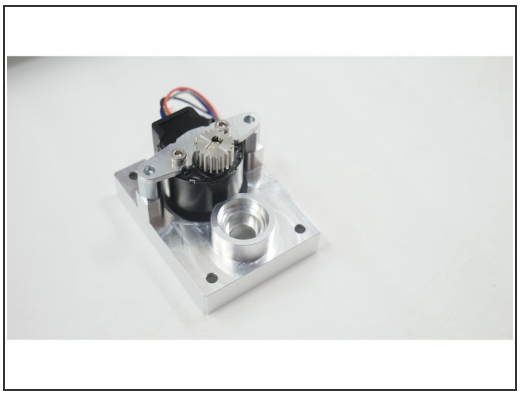
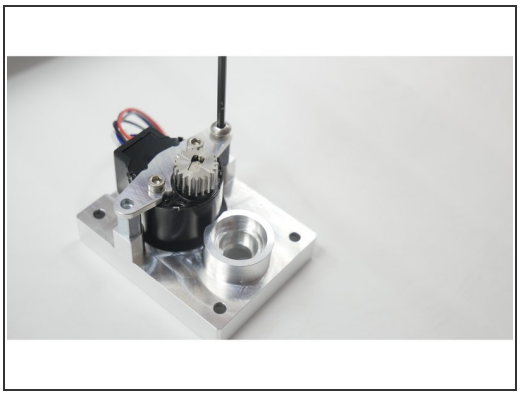
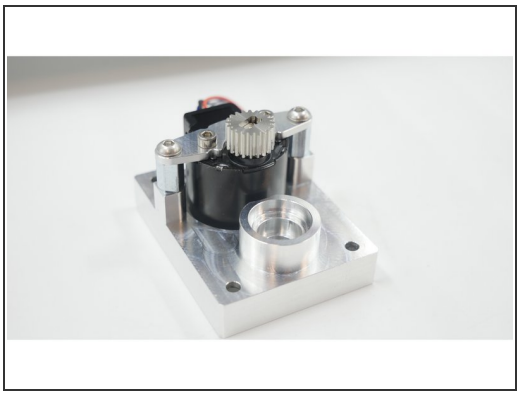
- Fit the remaining M2.5 5mm Screw.
- Be careful not to over-tighten the screws.

Step 12 — Back.



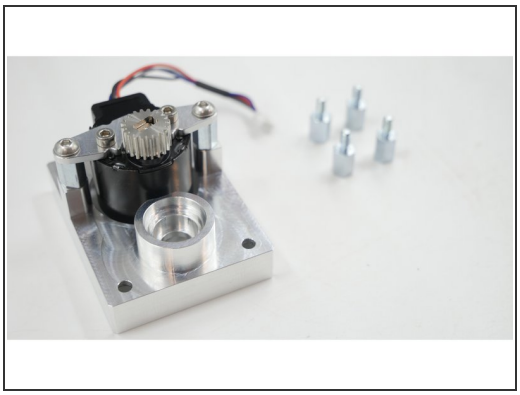
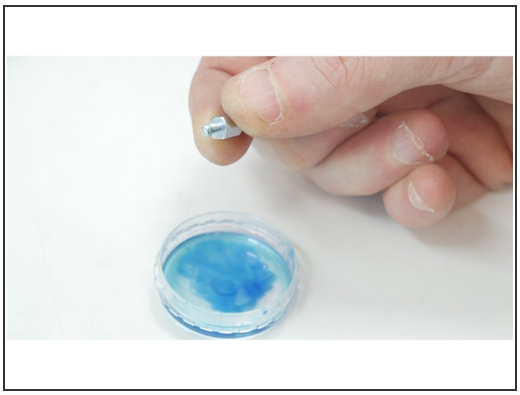
- Apply Thread Lock to two standoffs.
- Fit the standoffs to the Back Plate.

Step 13 — Motor.

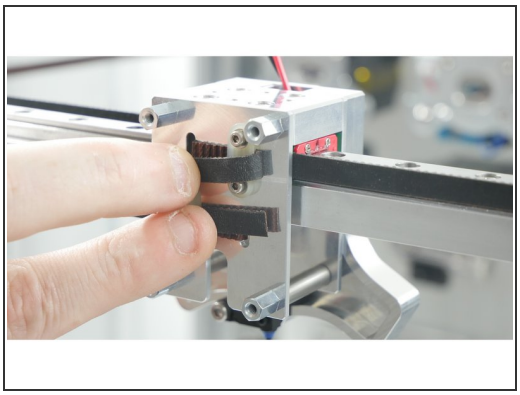
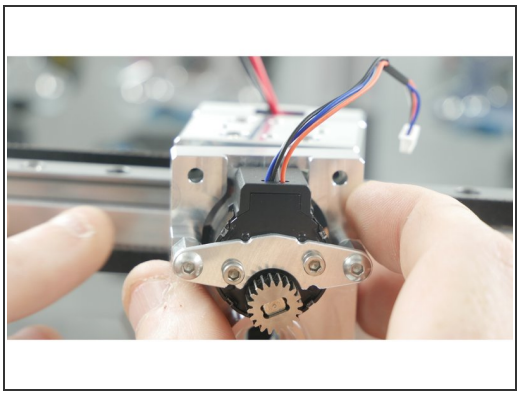
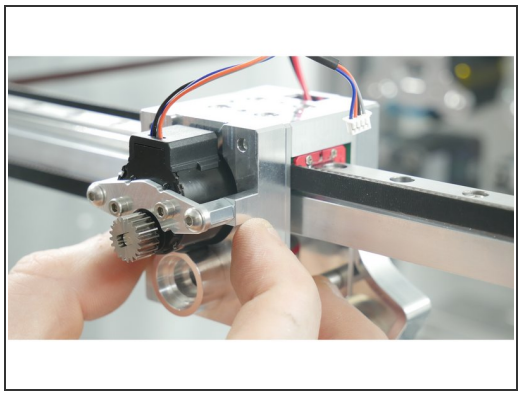
- Place the motor onto the Back Plate.
- Secure using two M3 5mm Button Head Cap Screws.

Step 14 — Standoffs.

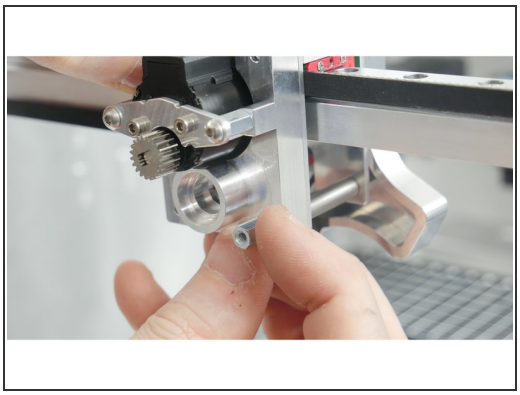
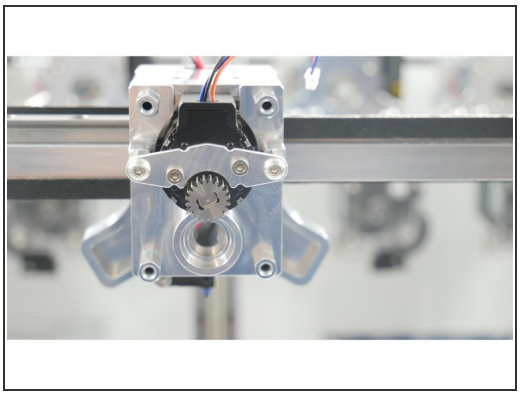
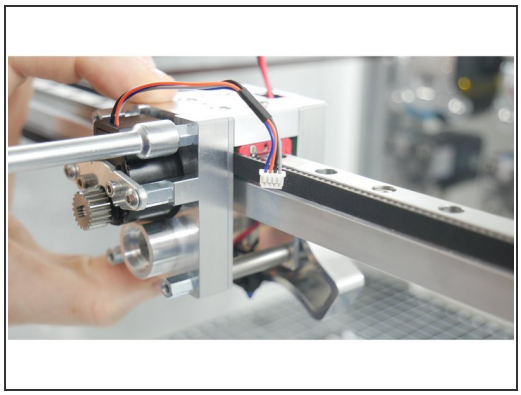

- Apply Thread Lock to four standoffs.

Step 15 — X-Carriage.

- Fold the belt ends on the X-Carriage inwards.
- Fit the Back Plate over the belts.
- Hold the Back Plate onto the X-Carriage.

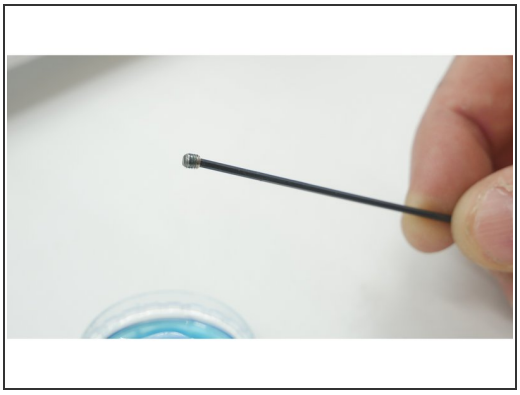
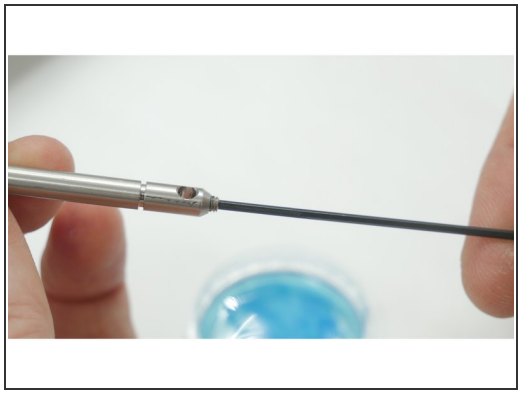
Step 16 — Affix.

- Affix the Back Plate to the X-Carriage using the four standoffs.

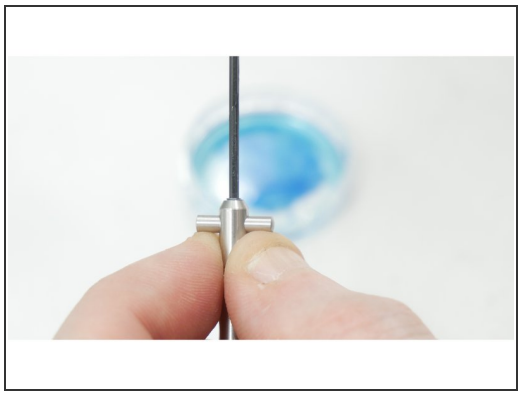
⚠ Be careful to check the Back Plate is square to the X-Carriage.

Step 17 — Shaft.

- Gather the Parts shown.
- To the M3 3mm grub screw apply thread lock and partially screw into the shaft.

Step 18 — Shafted.

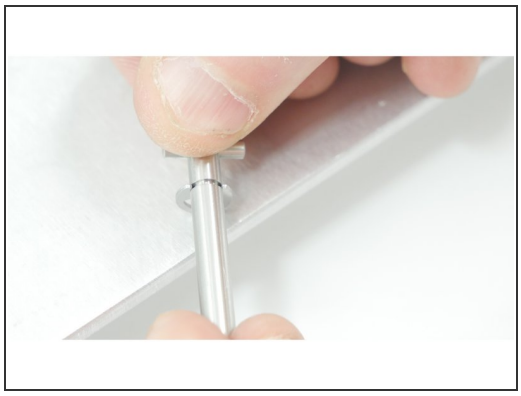




- Insert the 3mm x 12mm Dowel into the Shaft.

⚠ Ensure it is centered.

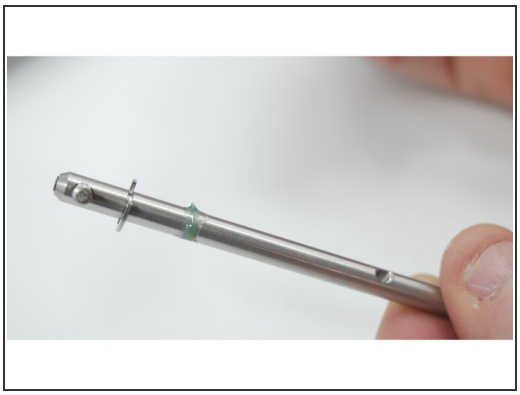
- Tighten the grub screw.

Step 19 — Clip.

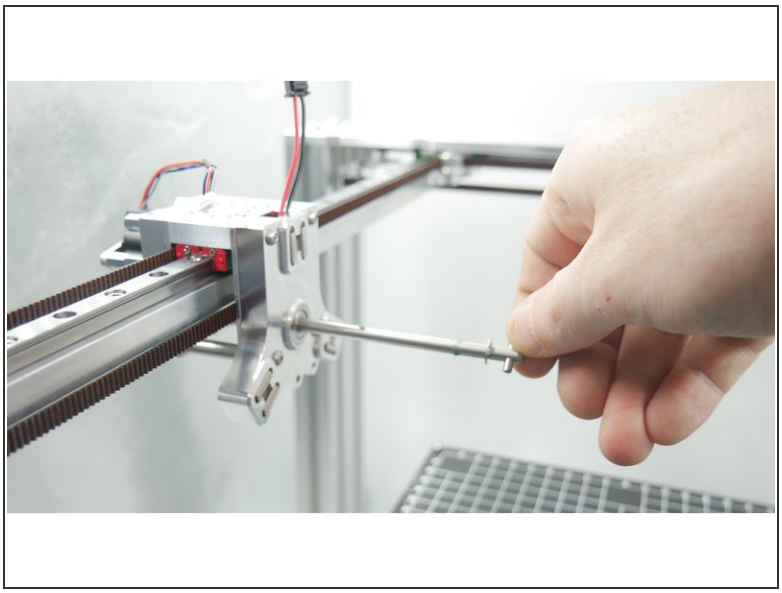

- Place the E-Clip onto the slot in the shaft.
- Press the clip onto the Shaft.

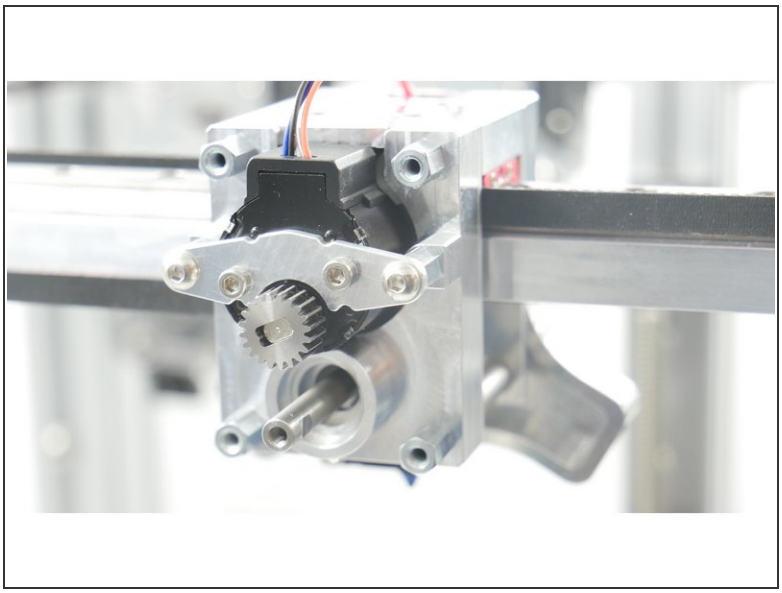
Step 20 — Lubrication.



- Apply grease around the shaft as shown in the photo.

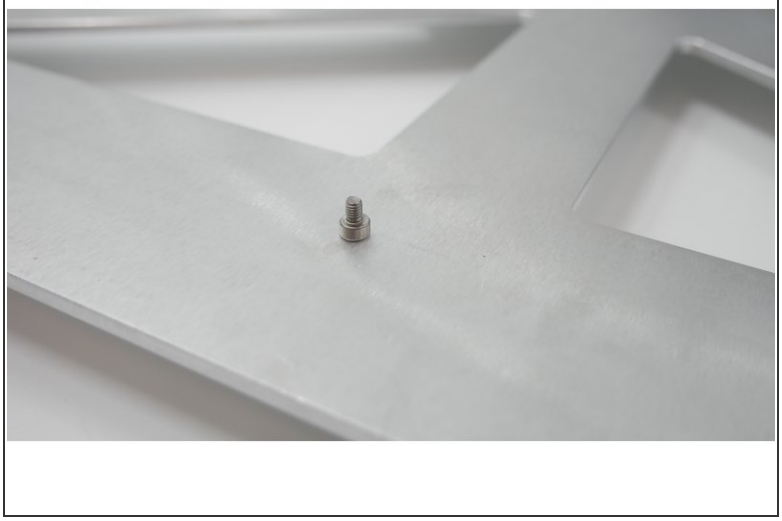
Step 21 — Shafted.

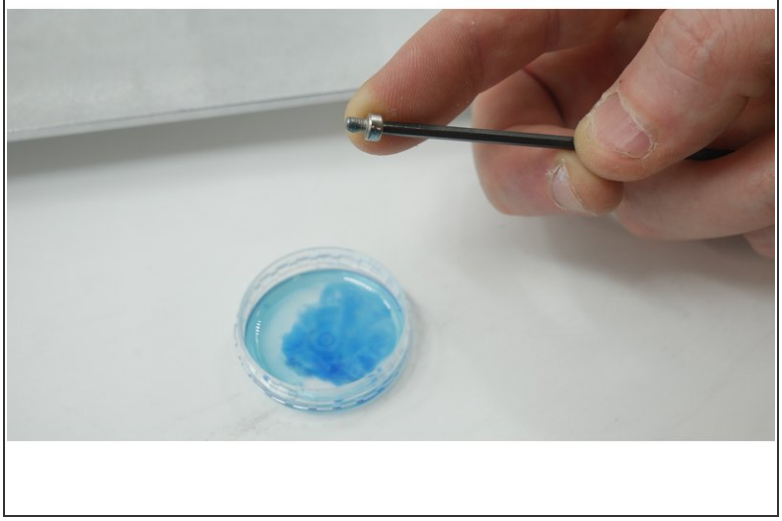




- Slide the shaft into the bearing in the Face Plate as shown.

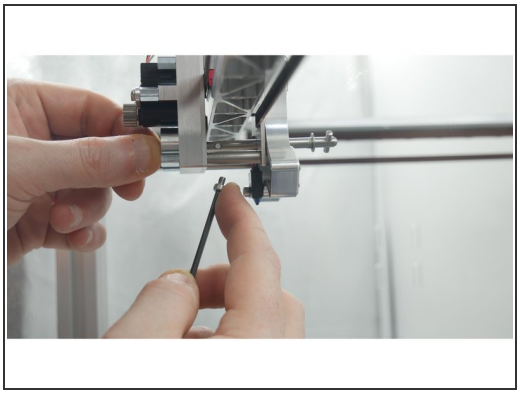
Step 22 — Screw.

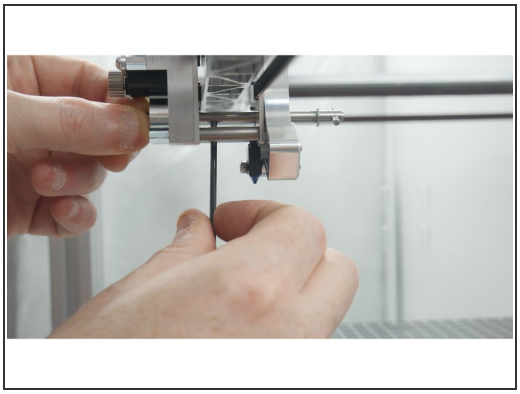




- Apply Thread Lock to an M3 5mm Socket Cap Screw.

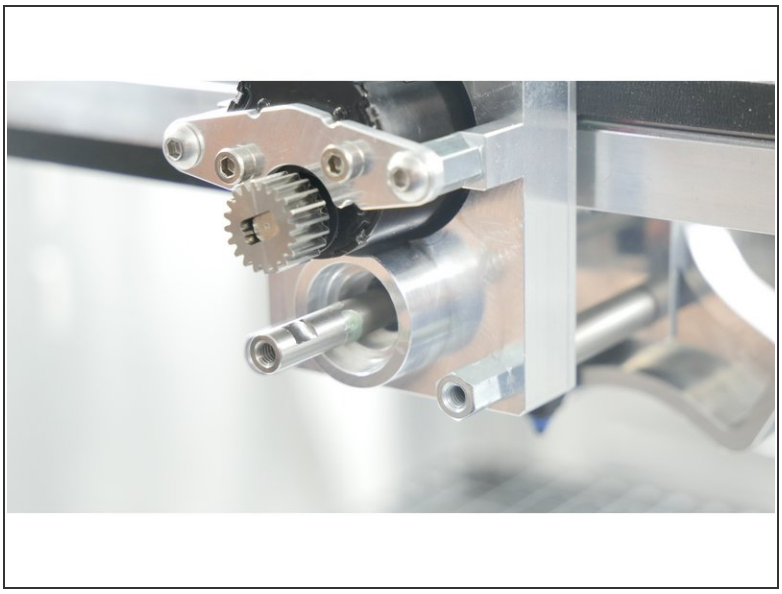
Step 23 — Shaft.





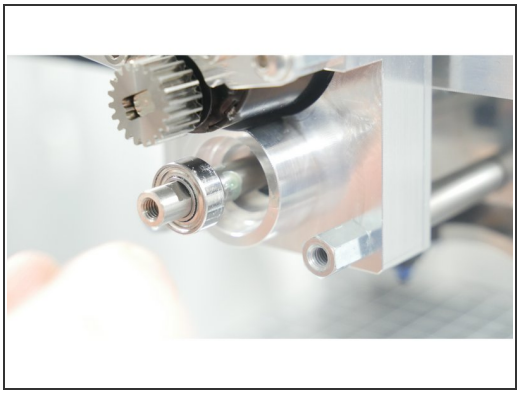
- Slide the shaft forwards until the M3 hole is visible.
- Screw in the M3 Screw.
- Slide the shaft backwards so the screw is behind the Back Plate.

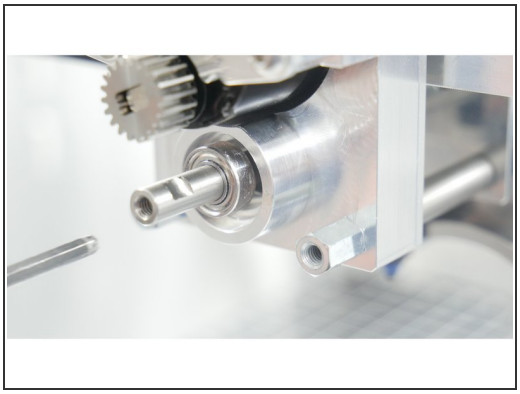
Step 24 — Lubricant.

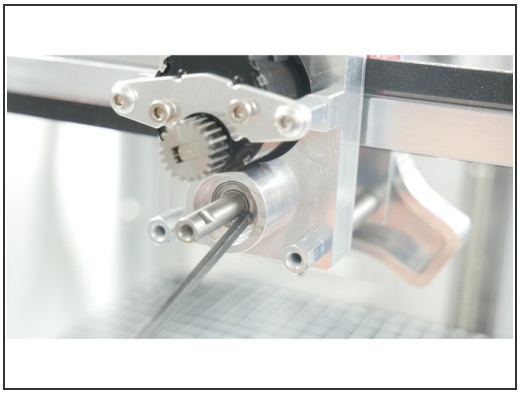


- Apply grease to the shaft as shown.

Step 25 — Bearing.







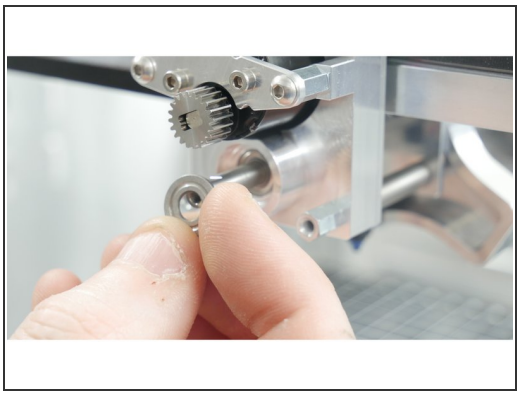
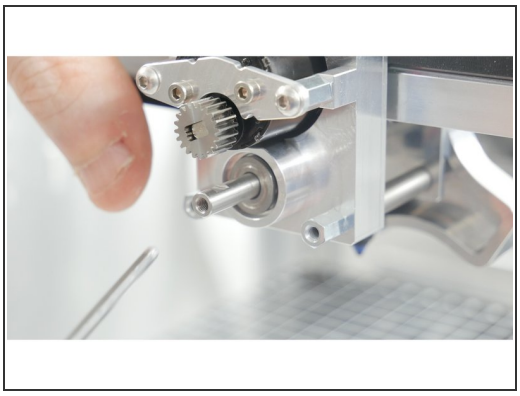
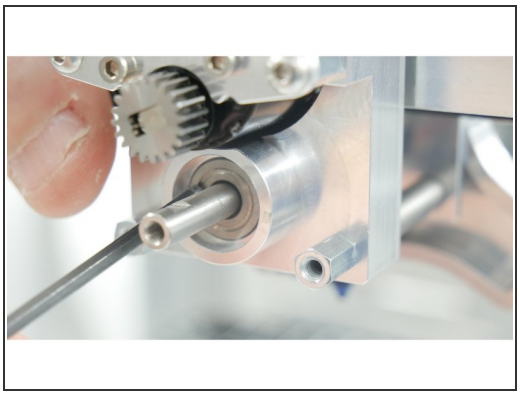
- Slide the MR1052ZZ bearing over the shaft and into the bearing pocket in the Back Plate.

Step 26 — Bearing.


- Unpack the F5-12M bearing.

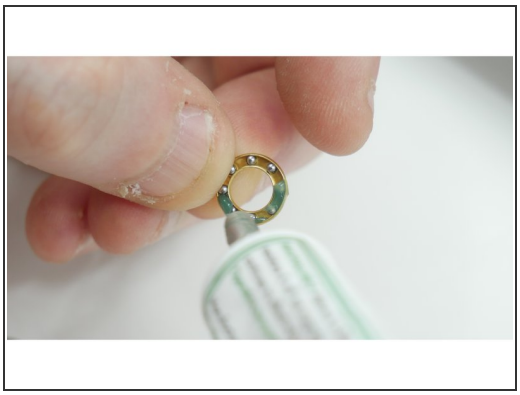
⚠ Note that one of the bearing races has a larger diameter hole than the other.

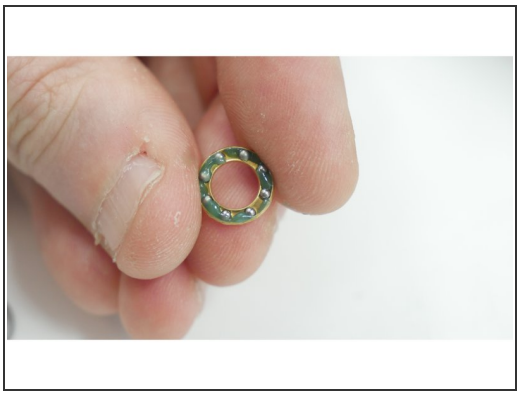
Step 27 — Race.

- Slide the larger internal diameter bearing race onto the shaft with the groove facing outwards.

Step 28 — Lubricate.



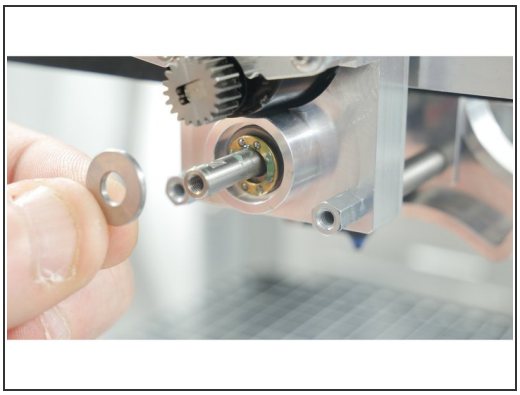
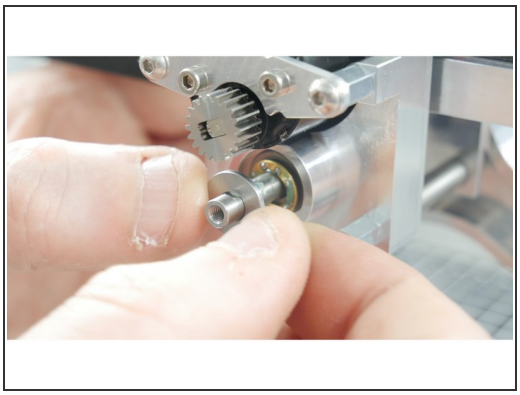
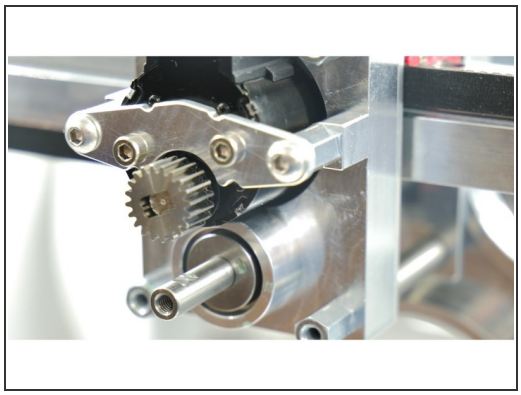


- Apply grease to the bearing pack.

Step 29 — Lubricate.

- Flip the bearing pack and apply grease to the other side.

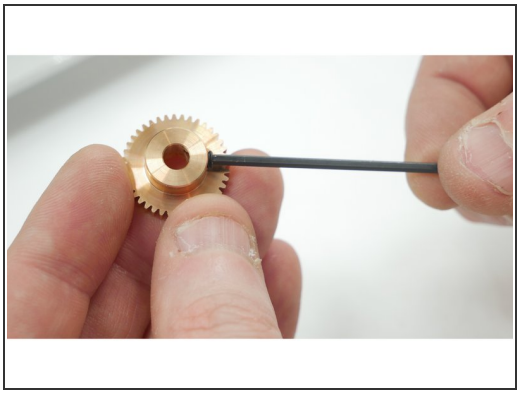
Step 30 — Thrust.

- Slide the remaining bearing race onto the shaft.

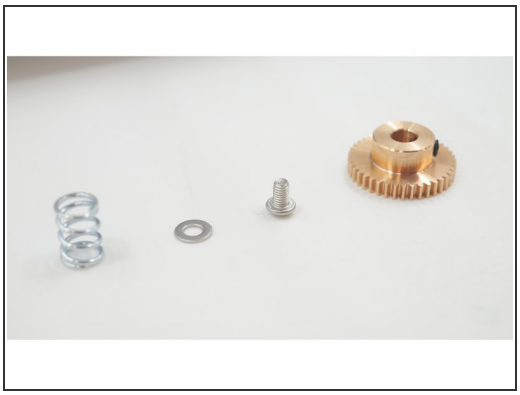
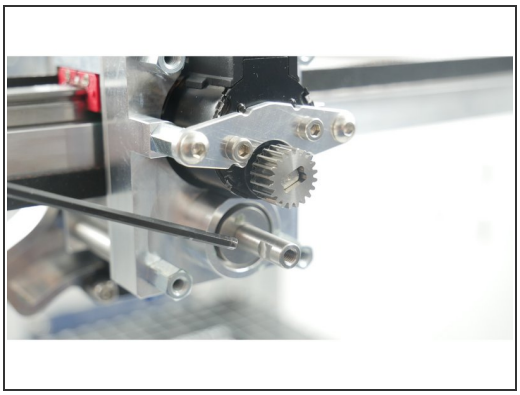
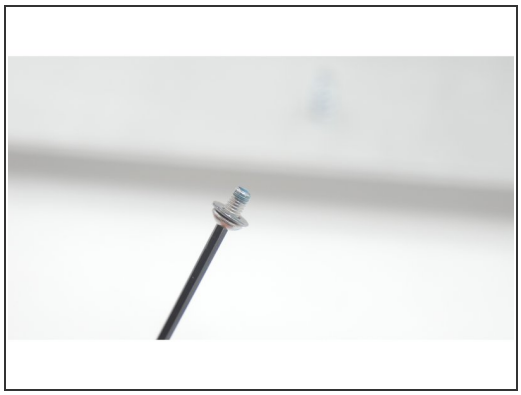
⚠ Ensure the groove in the race is facing inwards towards the bearing pack.

Step 31 — Geared.

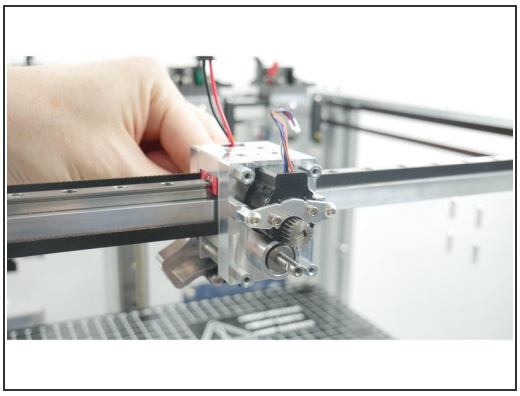
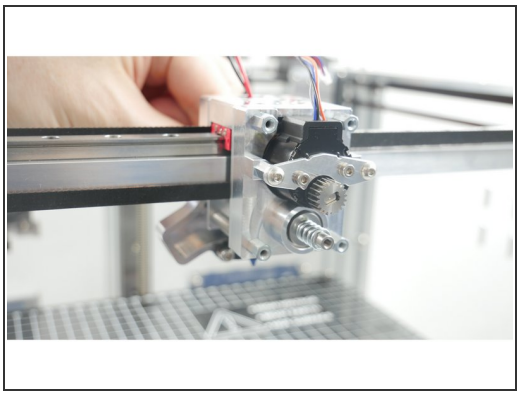
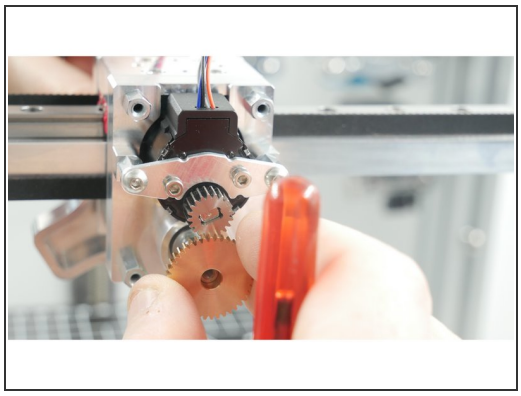

- Fit the M4 3mm screws into the Bronze gear.

Step 32 — Spring Gear.

- Note the position of the flat at the end of the Shaft.
- Place a washer over the screw.
- Apply Thread Lock to the M3 5mm Button Head Screw.

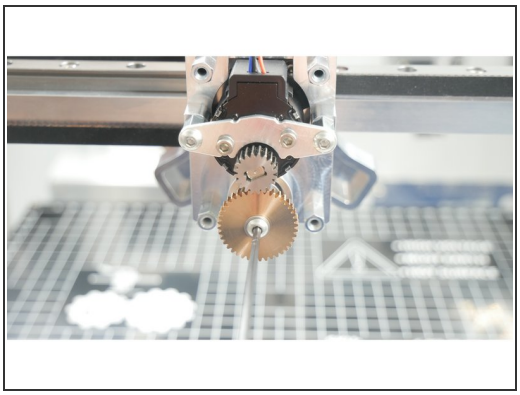
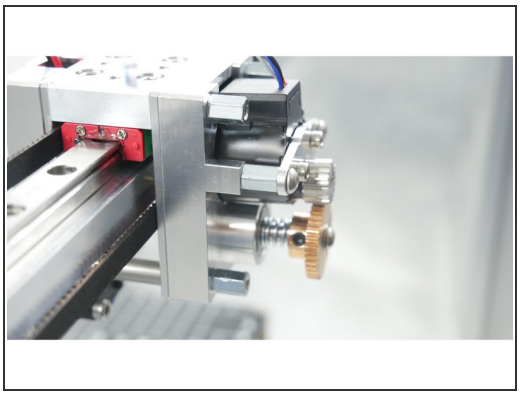
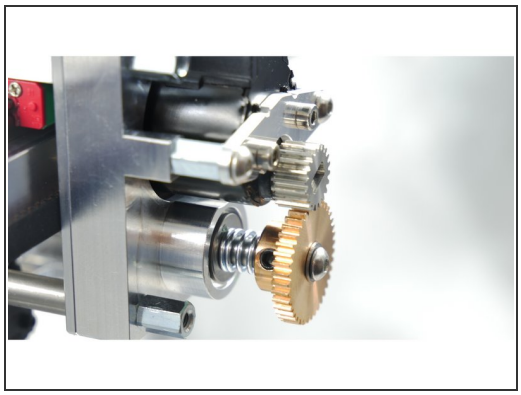
Step 33 — Spring.

- Hold the T-Bar end of the shaft.
- Slide the spring over the other end of the shaft.
- Slide the Bronze gear onto the shaft making sure the grub screw is aligned to the flat on the shaft.
- Loosely tighten the grub screw onto the flat.

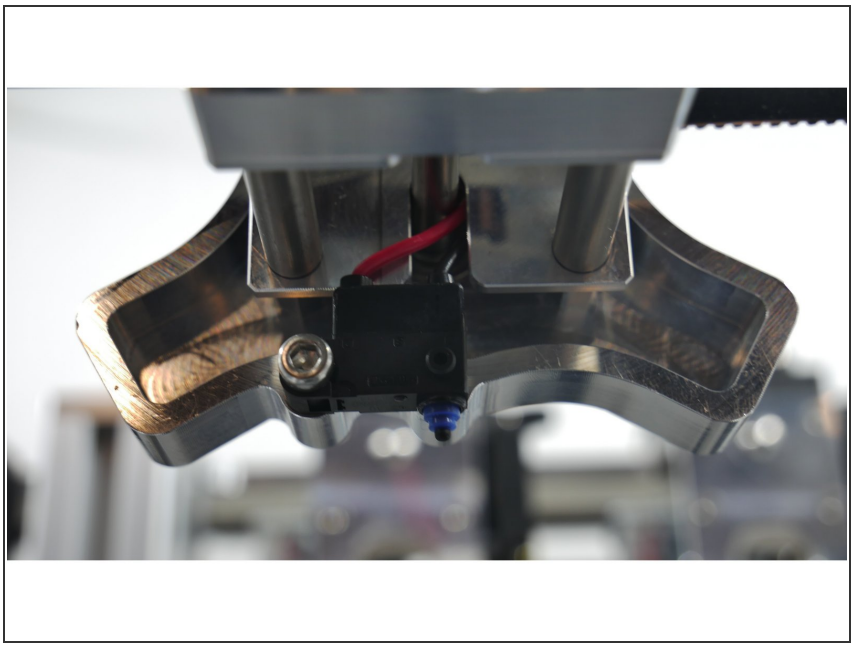
ⓘ You may find it easier to loosen off the two screws holding the stepper motor bracket in place while sliding on the Bronze gear.

Step 34 — Tighten.

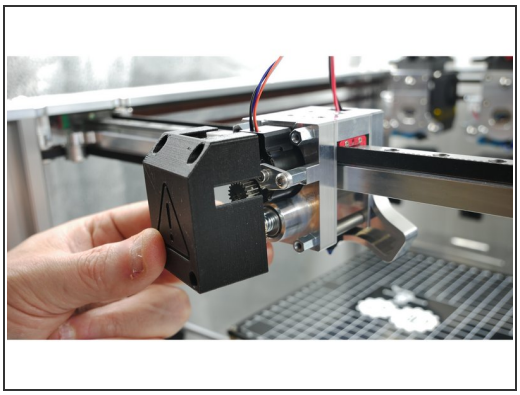
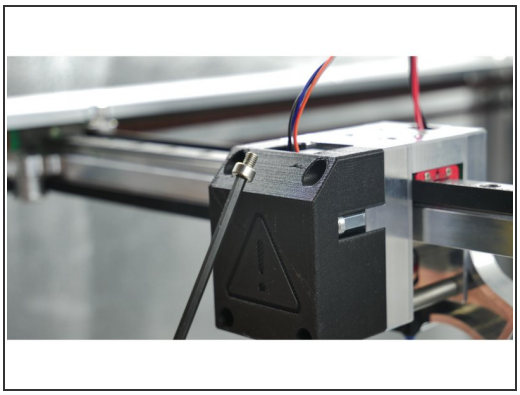
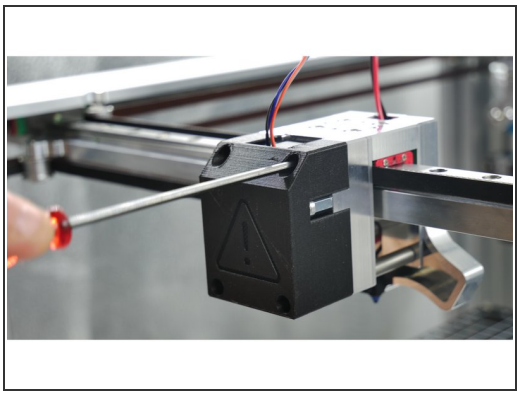
- Screw the M3 screw onto the Shaft.
- Tighten the grub screw in the gear.
- Re-tighten the motor bracket screws if you loosened them off before.

Step 35 — Check.



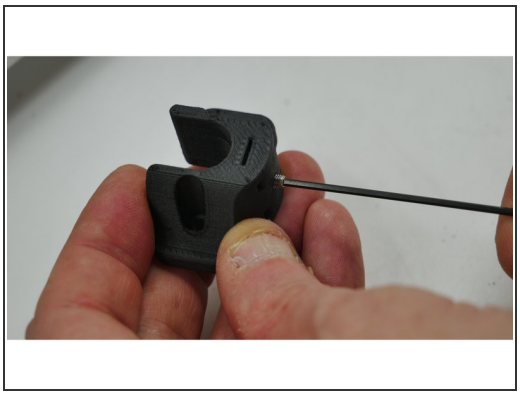
- Check the wires are clear of the Shaft.

Step 36 — Cover.

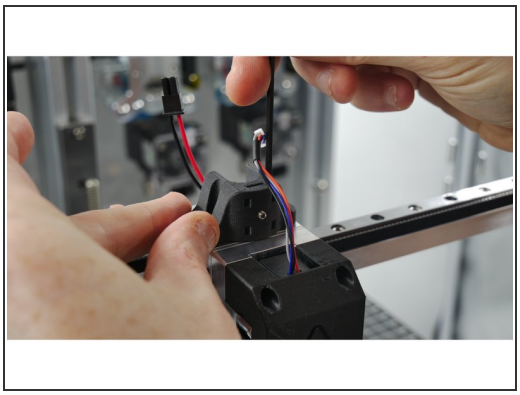
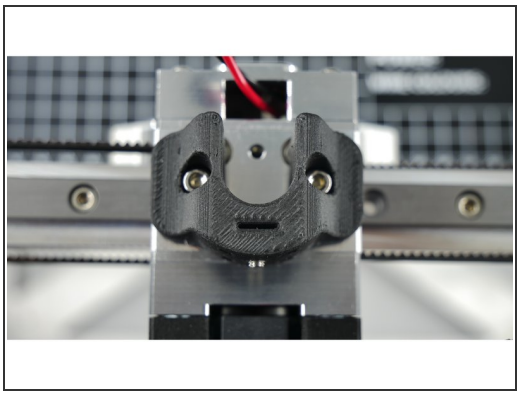
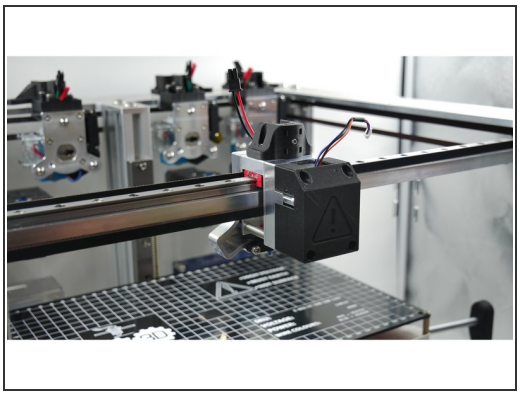
- Place the cover over the Back Plate.
- Secure using four M3 5mm Socket Cap Screws.
- Download the STLs from GitHub.

Step 37 — Brackets.


- Tap M3 Threads into the two Printed Brackets.
- Partially screw in an M3 3mm Grub Screw into each bracket.

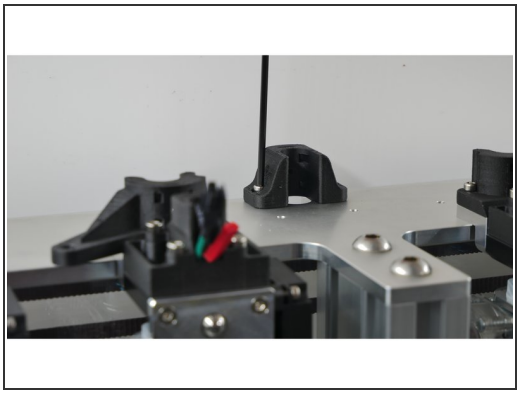
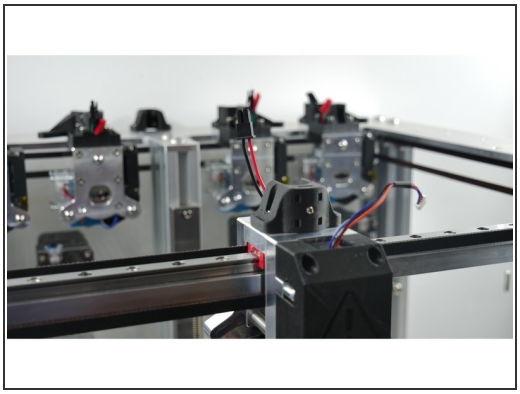
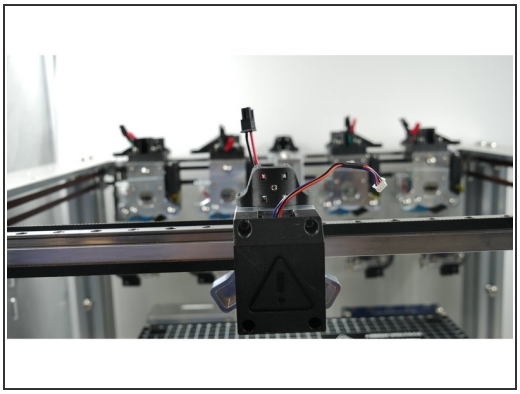
Step 38 — X-Carriage.

- Attach the Printed X-Carriage Cable Bracket to the X-Carriage using two M3 8mm Socket Caps screws.

⚠ Note the orientation of the printed part.

Step 39 — Framed.

- Attach the printed X-Carriage Cables to the frame using two M3 8mm Socket Cap Screws.

⚠ Note the orientation of the printed part.