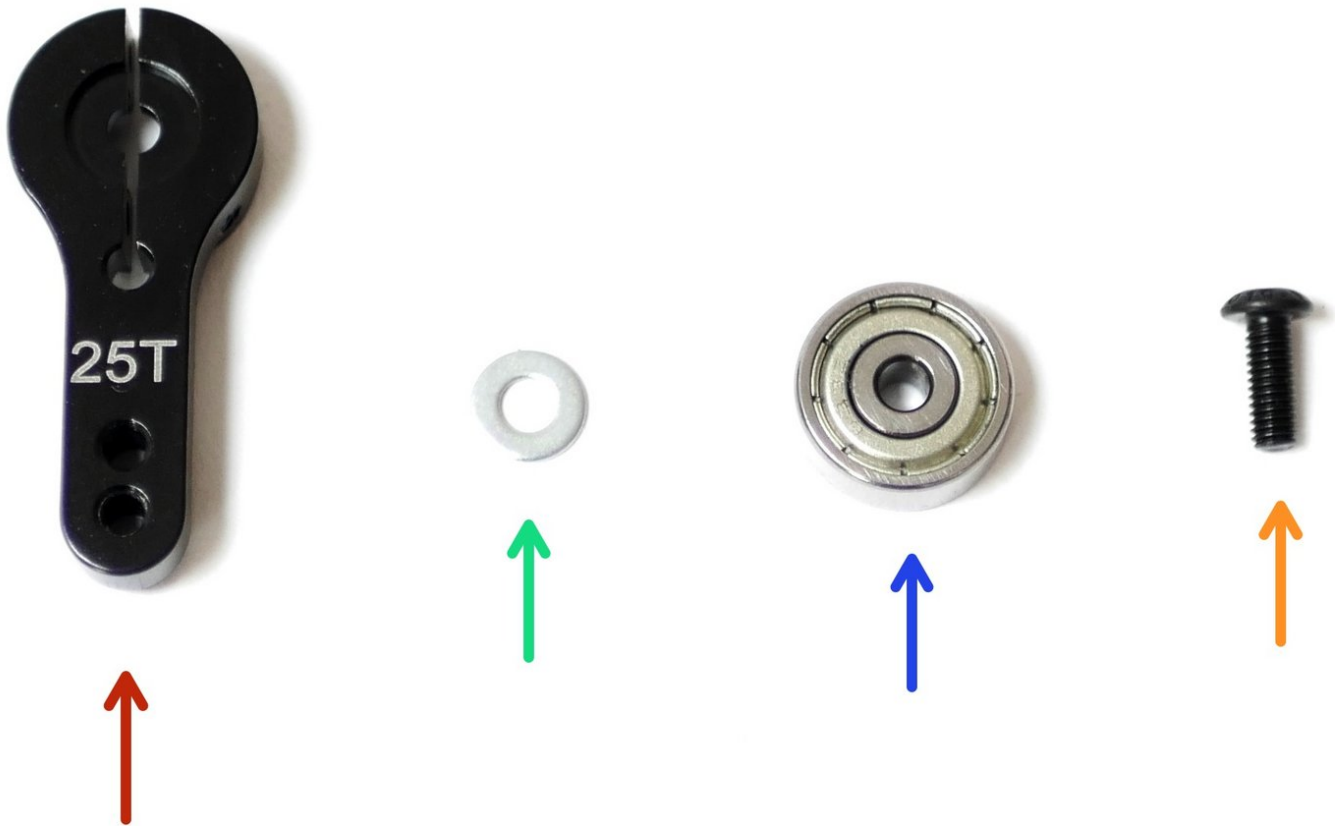


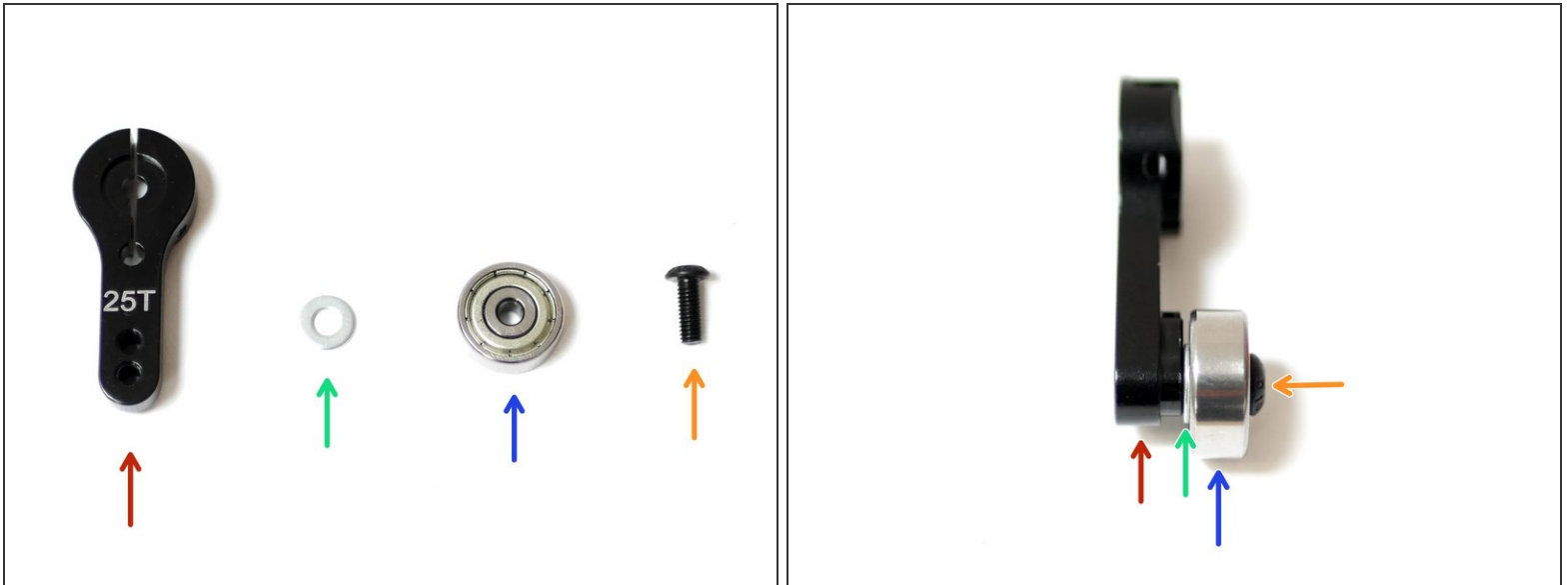
Makertech


DSE Stage 07 - Switching Arm and Z-Offset


Written By: Makertech



Step 1 — Servo Arm

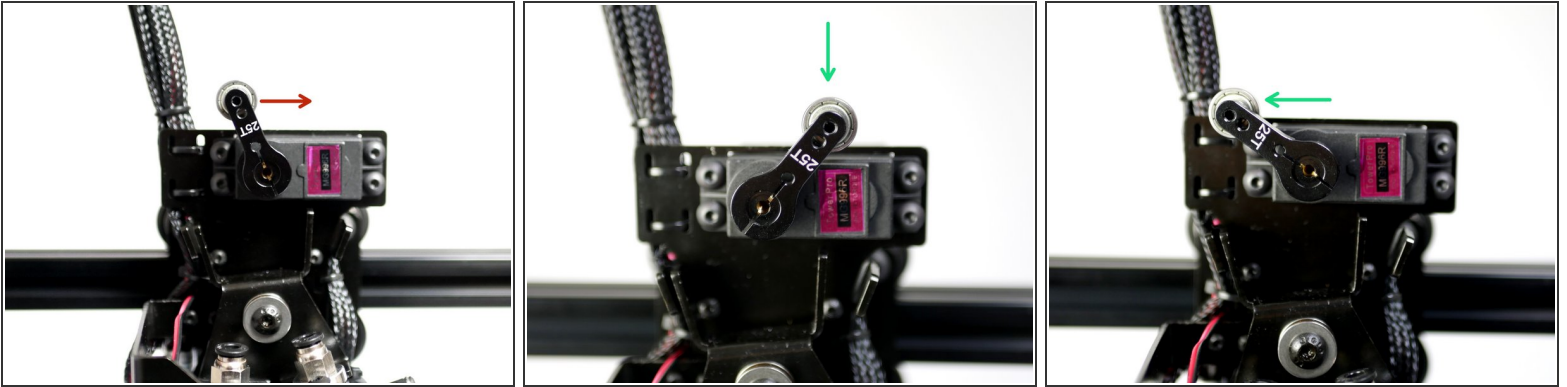


 Power off the printer.

 Build the servo switching arm:

-  Arm
-  M3 Washer
-  Bearing
-  M3 x 8mm bolt

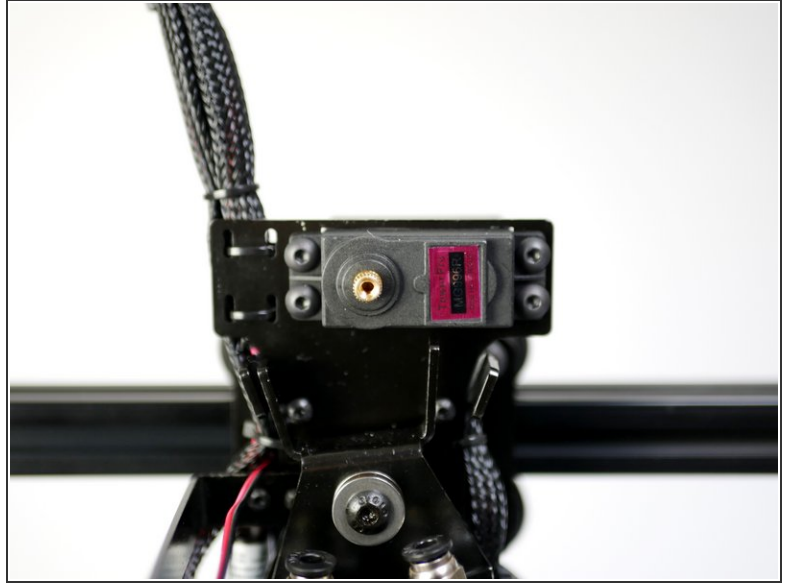
Step 2 — Position Servo





⚠ Make sure the power is off and the printer is **disconnected** from your computer before starting!

- Using the servo arm rotate the servo gear clockwise as far as it will go.
 - Next re-insert the arm as shown in the second photo and rotate the servo gear counter clockwise 120 degrees (third of a full turn) to get to the position shown in the third image.
- i** Remove the arm when done.

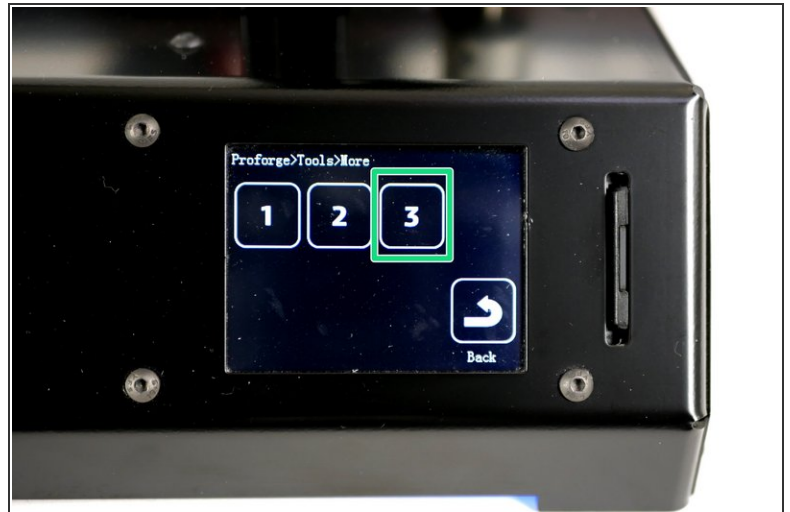
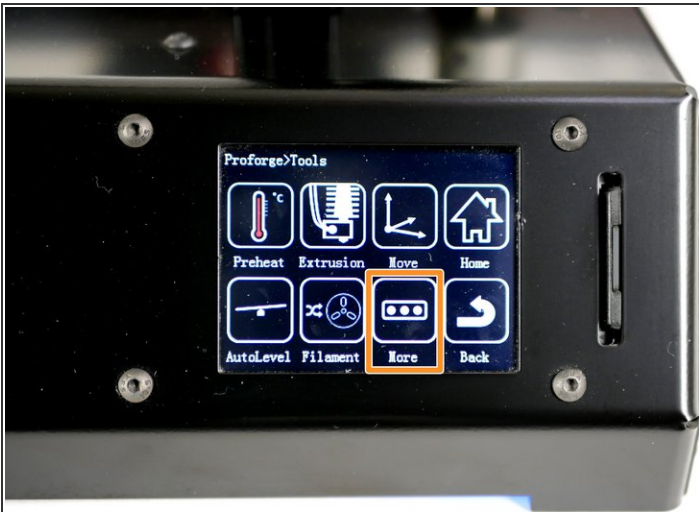
Step 3 — Power On



 Make sure the arm is not attached to the servo.

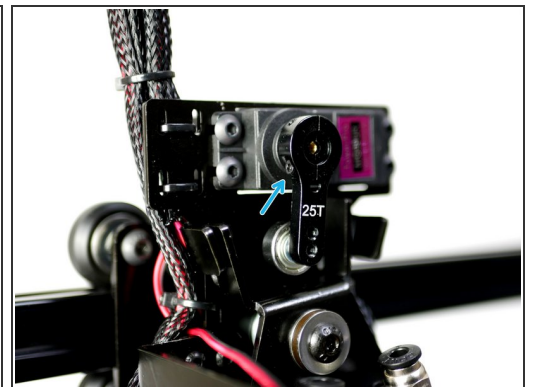
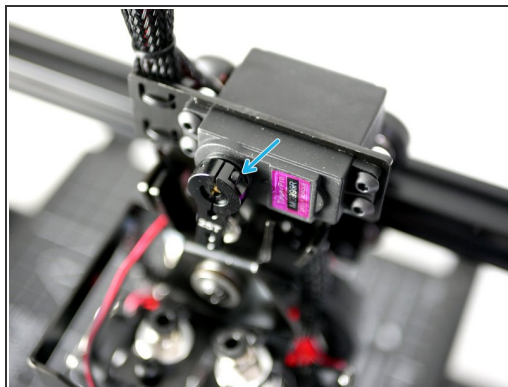
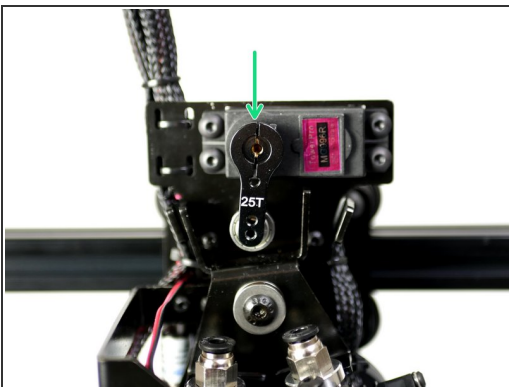
- Power on the printer from the mains.
-  Power on/off a few times until the servo stops moving and to be sure it has settled to the 0 position.

Step 4 — Arm Install Position



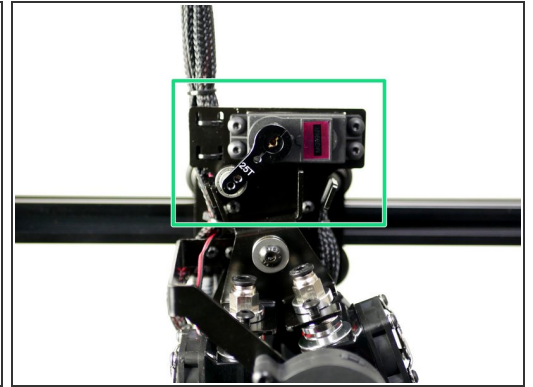
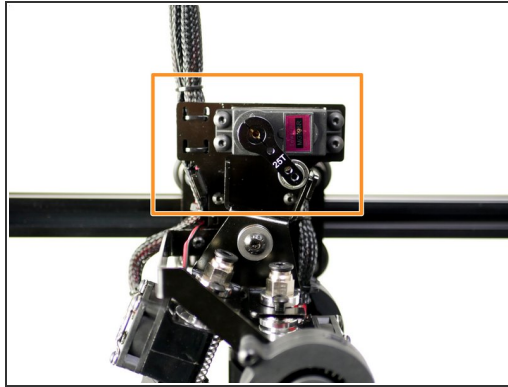
- Go to Tools -> More
- Press button 3
- ⓘ The servo will move to the *arm install position*.





Step 5 — Installing the Servo Switching Arm



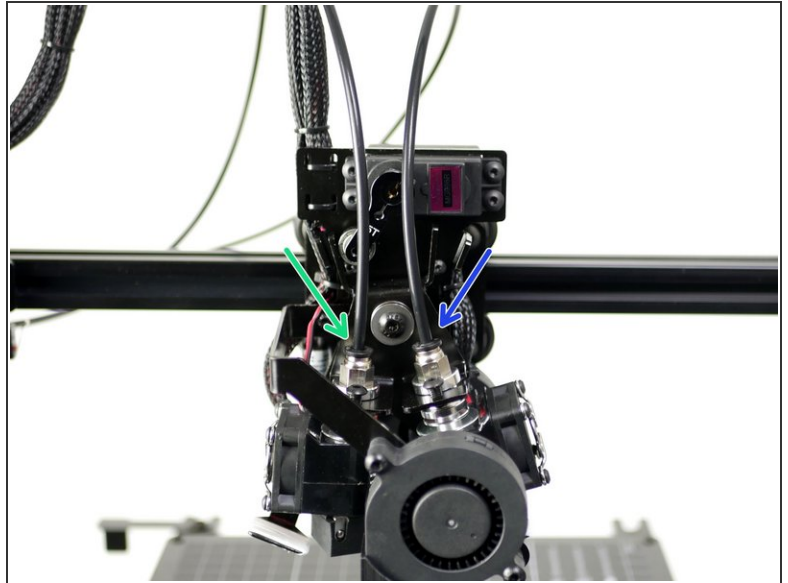
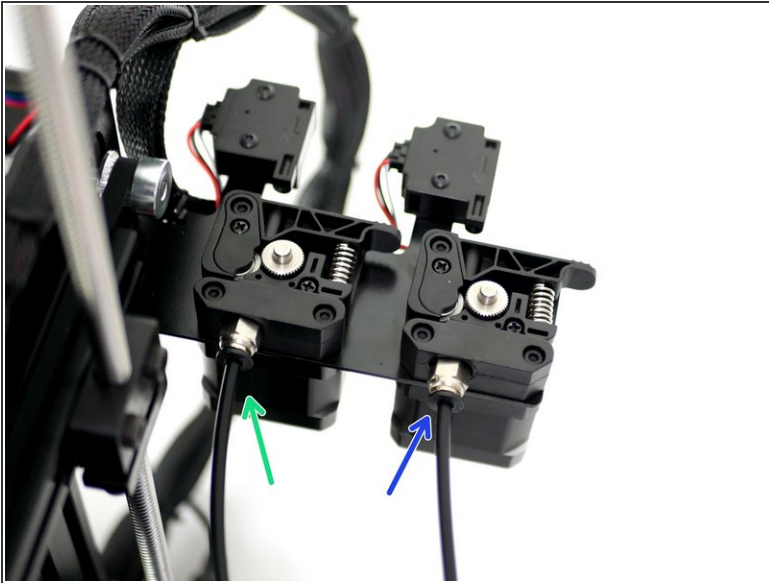
- Install the Arm vertically onto the servo gear with the bearing facing down.
- Install and tighten the two bolts to clamp the arm to the servo gear.
- ☑ The bolts should be in the same bag as the arm.

Step 6 — Selecting Hotends



-  In this order:
 -  Press button 2 to select the Hotend #2
 -  Press button 1 to select the Hotend #1
-  The servo will get warm, this is normal.

Step 7 — PTFE Tubes



i First power off the printer.

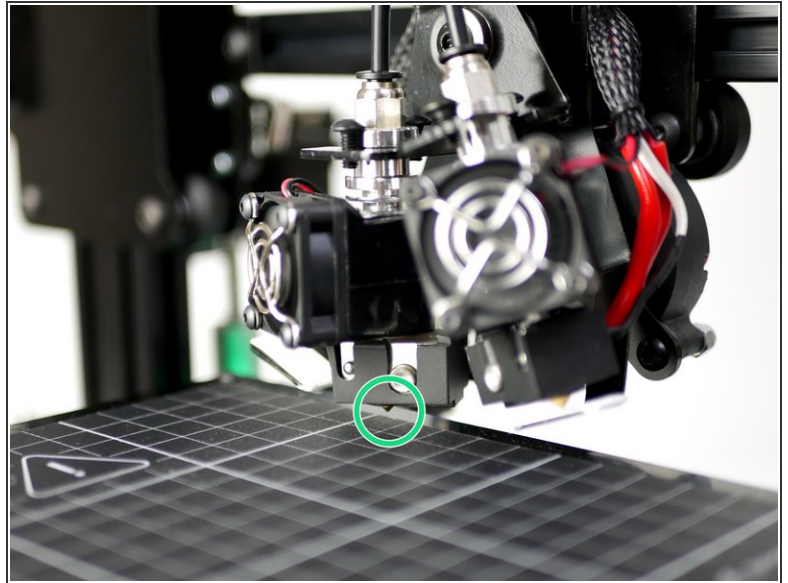
i Install the PTFE tubes:


- Hotend #1
- Hotend #2

⚠ The PTFE tubes should go about 6CM into the Hotend from the top of the coupling. Not sliding a PTFE tubing in all of the way will clog and ruin the Hotend.

i Power back on the printer


Step 8 — Homing X



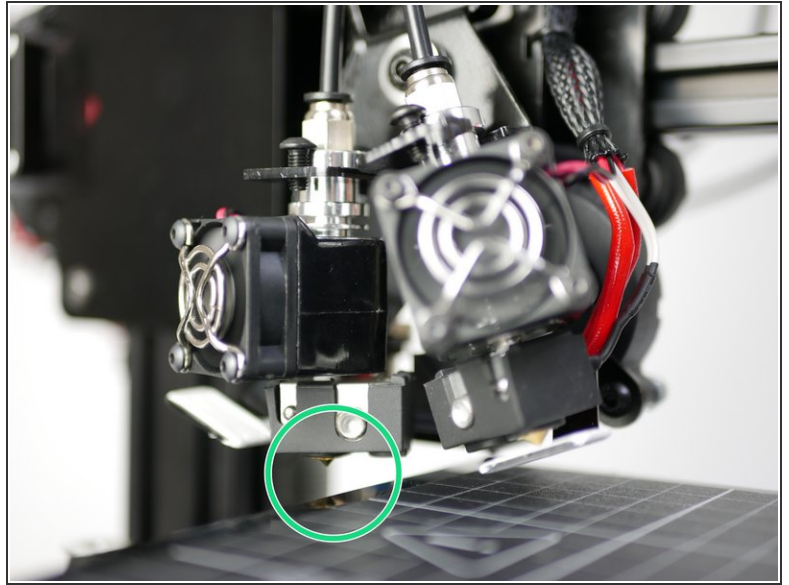
 We've removed the second print fan to give a more clear view of the Hotends.

- Go to Tools -> Home.
- Home X

• With X homed the nozzle should land above the right edge of the print surface.

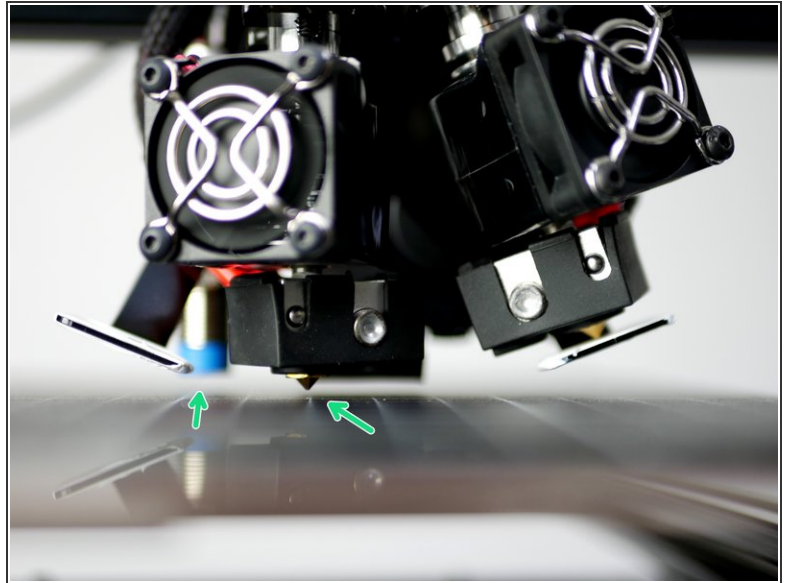
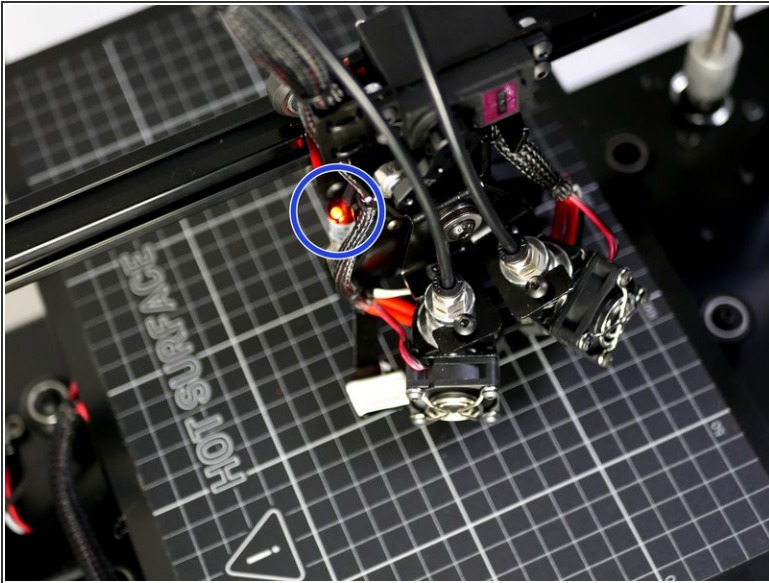
 If you are upgrading from a Proforge 2/2S single setup you will need to move your print platform approx 1CM to the left.

Step 9 — Homing Y



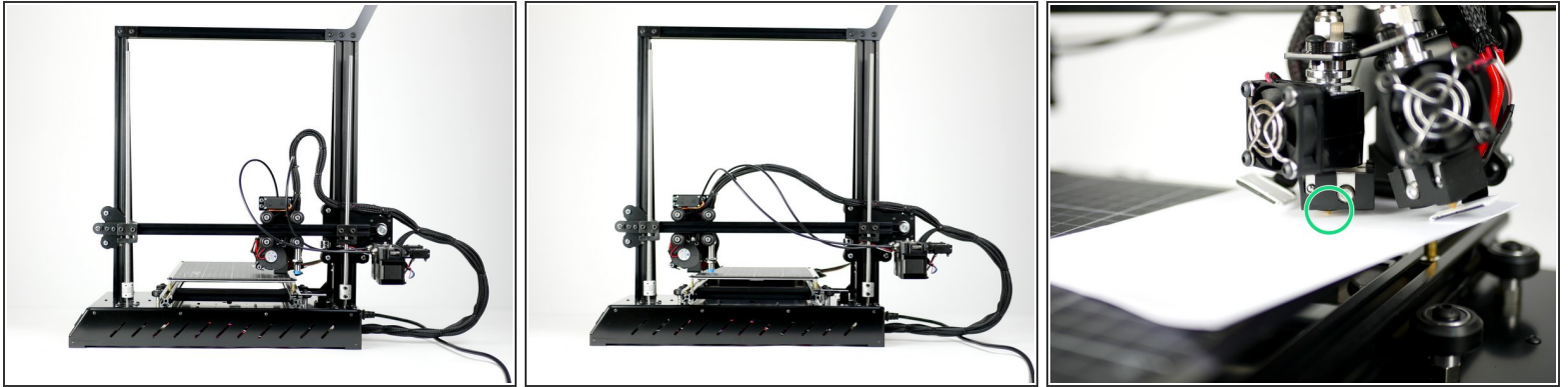
- Home Y
- The nozzle should land about 2cm from the top edge of the print surface, this is OK.

Step 10 — Probe Alignment



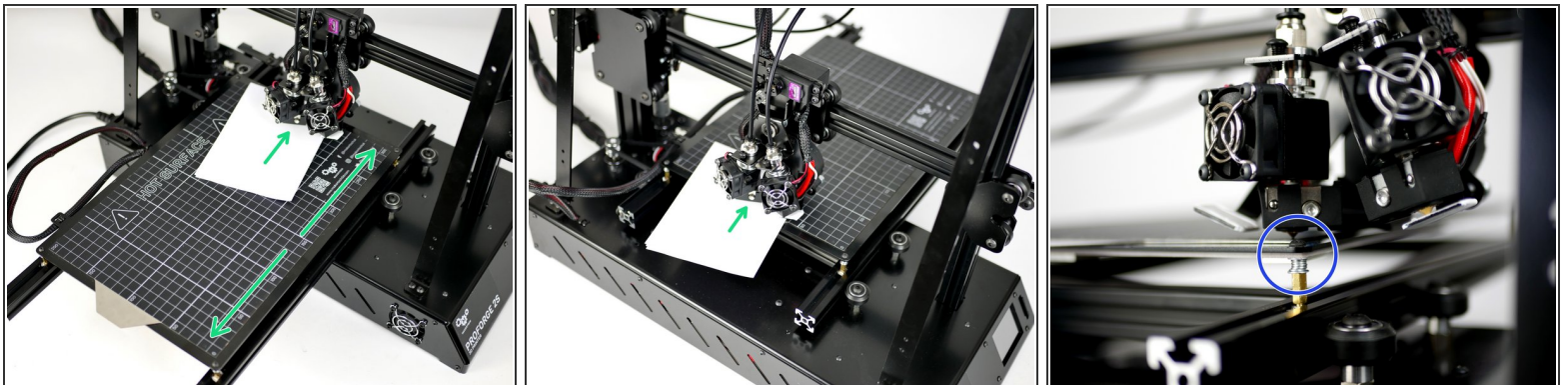
- ❗ If you have the Flexplate upgrade make sure it is on the platform before starting.
- Lower the gantry by hand so that the nozzle comes close to the print surface. Once close enough the red light on the probe should come on.
- The nozzle tip should always remain above the surface when the probe is triggered. The bottom of the probe should always remain above the tip of the nozzle.
- ❗ **Nozzle too close or hits the print surface before the red light on the probe comes on:**
 - Lower the probes position on the mount and check again.
- ❗ **Red light on probe but nozzle tip is too far away (more than 3mm) from the print surface or the probe is coming in contact with the surface before the nozzle:**
 - Raise the probes position on the mount and check again.

Step 11 — Manual Bed Levelling - Proforge 2S



- i** The Proforge 2/2S features automatic bed-levelling but to help get more accurate results we need to first make sure that the bed is physically as level as it can be.
- Adjust the z-motors so to get the distance between the nozzle and print surface along the y-axis (gantry) equal.
 - Use a folded piece of paper to feel the gap between the nozzle and print surface.

Step 12 — Manual Bed Levelling Cont.



- Next use the springs on the platform to level the print surface in the X-direction (or both the X & Y direction if you're building the Proforge 2).
- Use a folded piece of paper to feel the gap between the nozzle and print surface.
- Turn the screw anti-clockwise to raise that corner of the platform.

Step 13 — Z - Homing



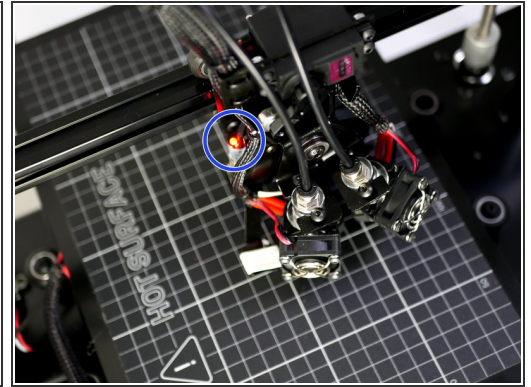
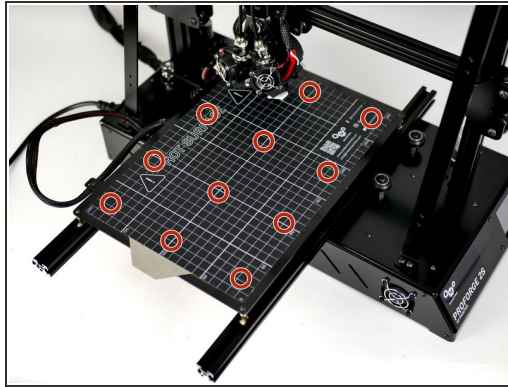
i To check that the probe and bed is set up correctly we are going to Home all of the axes together.

- Using the touch screen go to tools -> Home -> Home All
 - X & Y will automatically home first. Then the probe should move to the centre of the platform and slowly lower until it's triggered.

★ The gantry will go up at first and then begin lowering - this is normal.

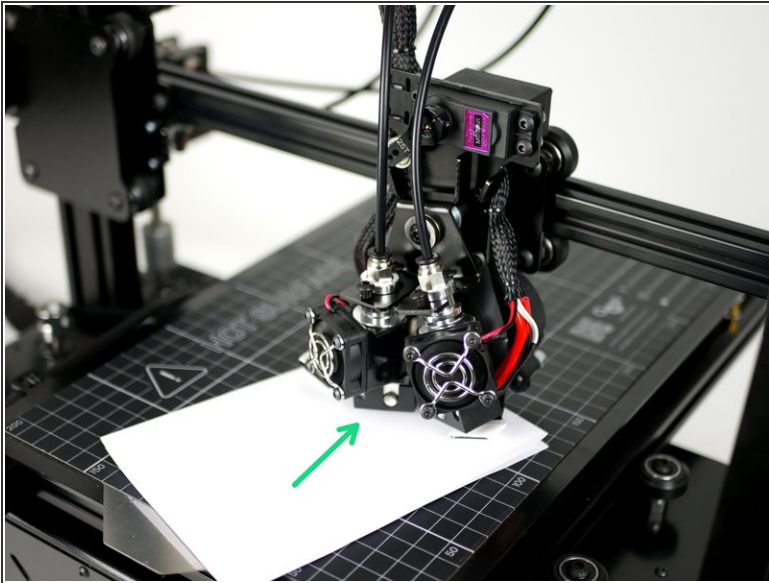
⚠ Have your finger ready on the power switch to power off in the event of a crash. If you do crash the hotend into the platform re-check your probe positioning - it's likely too far above the nozzle and needs lowering.

Step 14 — Auto-levelling



- With a successful Z Home go to Tools -> auto-level. Press ONCE.
- The axes will home again and the sensor will now go around the platform probing 12 points.
⚠ Again, have your finger ready on the power switch to power off in the event of a crash.
- Once the Auto-levelling has been completed, re-home all of the axes to return the nozzle to the centre of the platform.

Step 15 — Z-Offset



- Take the folded piece of paper and place it between the surface and the nozzle of Hotend #1.
- On the touch screen go to Tools -> Move and toggle the distance selector to 0.1mm.
- Use the touch screen display to lower the nozzle (z-axis) in 0.1mm increments until it **begins** to grip the paper.
- Make a note of the Z height displayed on the top right of the touch screen when the paper begins to be gripped. (This value will be 3.00mm to begin with, this is normal.)
- ☑ In this case it ended up being 1.90mm when the paper began to be gripped, but this value will likely be different for everyone.