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SKU M3208

Micro Swiss NG™ Direct Drive Extruder for Creality Ender-3 V2 Neo

INSTALLATION INSTRUCTIONS

TOOLS NEEDED

Gather the required tools before starting the installation

- Phillips-Head Screwdriver
- Flat Head Screwdriver
- Exacto Knife or Utility Knife
- 3.0mm Allen wrench
- 2.5mm Allen wrench
- 2.0mm Allen wrench
- 1.5mm Allen wrench (included with the kit)
- 8mm spanner wrench
- 10mm spanner wrench
- Flush cutters

WHAT'S IN THE BOX

1x Master Extruder Assembly
1x Adaptation plate
1x LDO Stepper motor
1x Fan Shroud
1x Custom extension cable
1x All Metal Hotend assembly
1x 3D printed CR-Touch Bracket
1x 3D printed X Limit Switch Bracket
1x Eccentric nut
1x M5 x .8 x 30mm Cap Screw
1x 5mm ID 10mm OD Washer
1x M5 x .8 Nylon Lock Nut
2x M5 x .8 x 20mm Nylon Patch Cap Screw
4x M2.2 x 8mm Thread Forming Screw
4x M3 x 12mm Thread Forming Screw
1x 7mm spanner Wrench
1x 1.5mm Allen Wrench
5x Zip Ties

PREPARATION

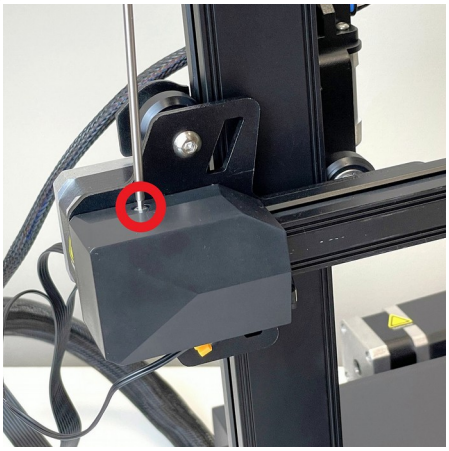
Remove the filament from your original hotend and allow the printer to cool down completely

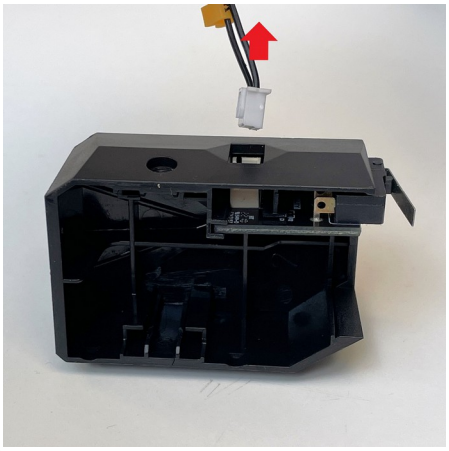
STEP 1 - SAFETY

Make sure the hotend and bed have cooled down to room temperature before starting any work on the 3D printer

⚠ For your safety, turn off and unplug your printer

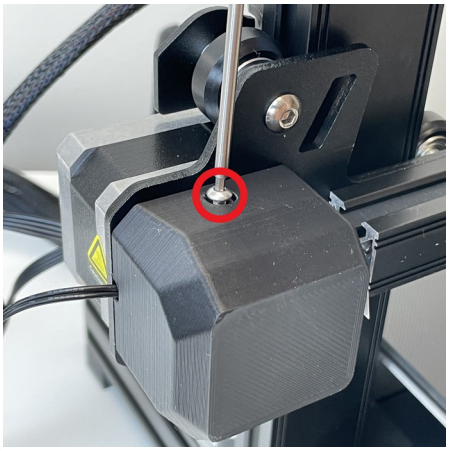
STEP 2 - REMOVE THE ORIGINAL X LIMIT SWITCH BRACKET

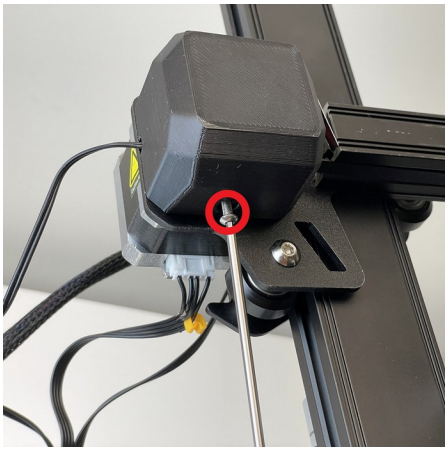




- Remove the two screws holding the original X limit switch housing
(2.0mm Allen wrench)
- Pull the X limit switch housing off of the printer
- Disconnect the wiring from the X limit switch
- Pull the X limit switch out of the plastic housing

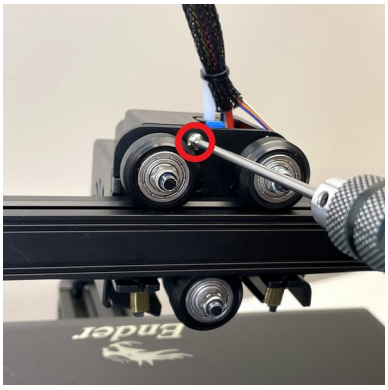
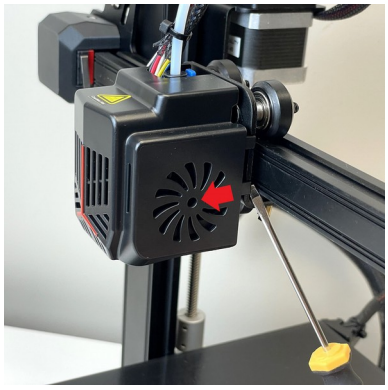
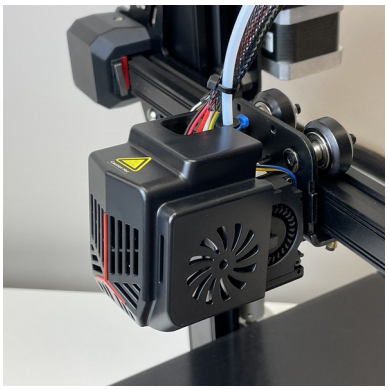
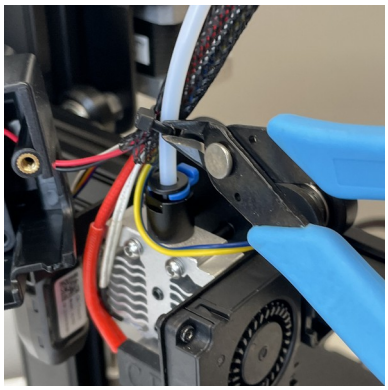
STEP 3 - INSTALL THE NEW X LIMIT SWITCH BRACKET





- Reconnect the cable to the X limit switch
- Place the X limit switch into the provided 3D printed shell
- Place 3D printed cover plate over the switch
- Secure the cover plate inside of the shell using two M3 screws
(2.0mm Allen wrench)
- Attach the new X limit assembly to the 3D printer using the same M3 screws that held the original bracket
(2.0mm Allen wrench)

STEP 4 - REMOVE THE ORIGINAL FAN SHROUD

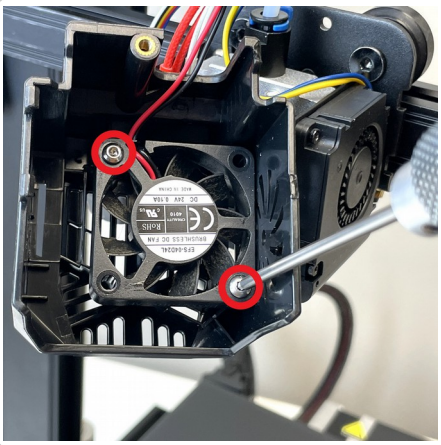
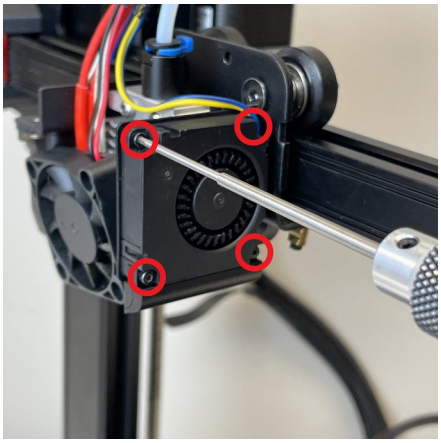





- Remove the single M3 screw holding the fan shroud in the back of the carriage plate
(2.0mm Allen wrench)

- Pull the fan shroud off while lighly prying back the plastic tabs holding it in place
(Flat-head screw driver)

- Cut the zip ties holding the cables and Bowden tube together
(Flush cutters)

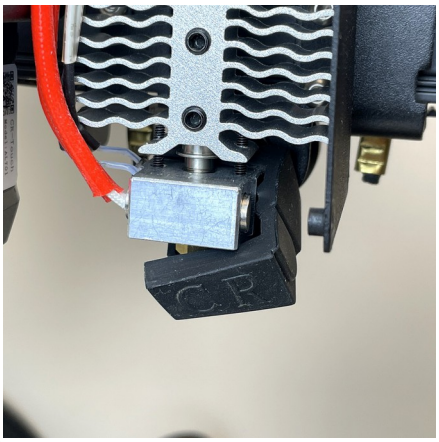
STEP 5 - UNFASTEN THE FANS

- Remove the two screws holding the hotend fan
(2.0mm Allen wrench)

- Remove the four screws holding the part cooling fan
(1.5mm Allen wrench)

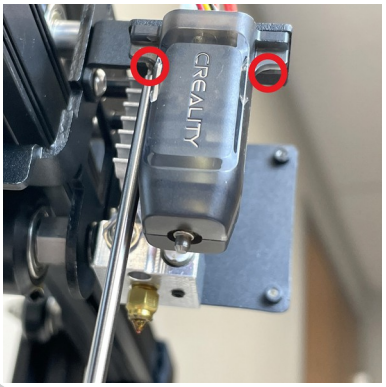
STEP 6 - REMOVE THE SILICONE SOCK



Make sure the hotend is at room temperature before touching the heater block

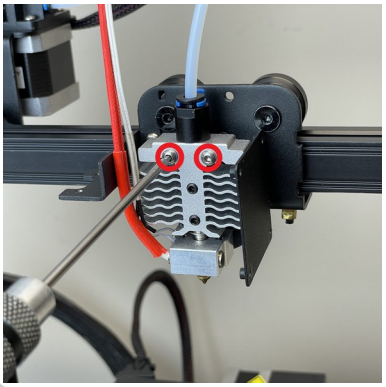
- Pull the silicone sock off of the heater block

STEP 7 - UNFASTEN THE CR-TOUCH



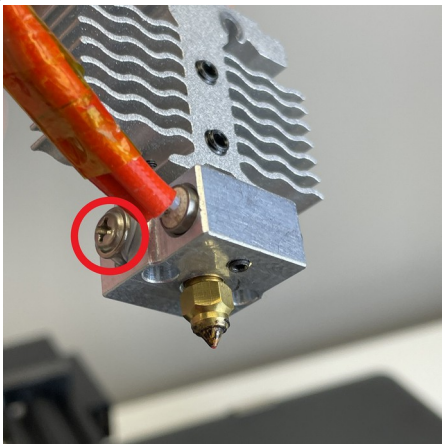
- Remove the two screws holding the CR-Touch
(2.0mm Allen wrench)

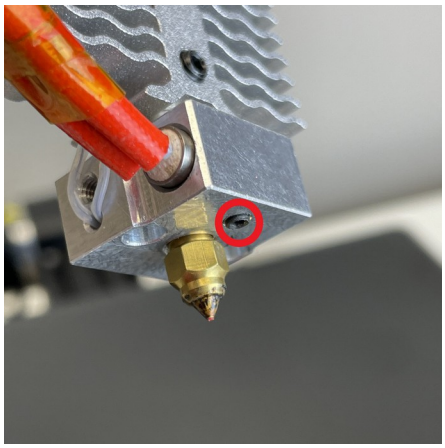
STEP 8 - UNFASTEN THE HOTEND

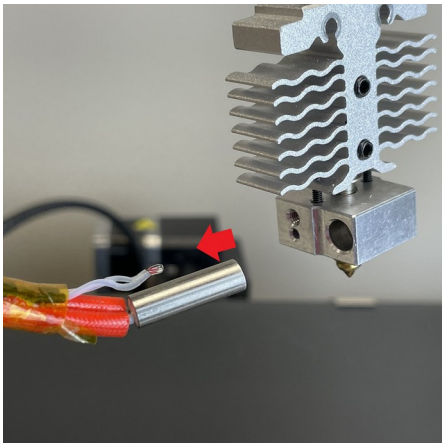


- Remove the two screws holding the hotend on the carriage plate
(2.0mm Allen wrench)

STEP 9 - REMOVE THE THERMISTOR AND HEATER CARTRIDGE





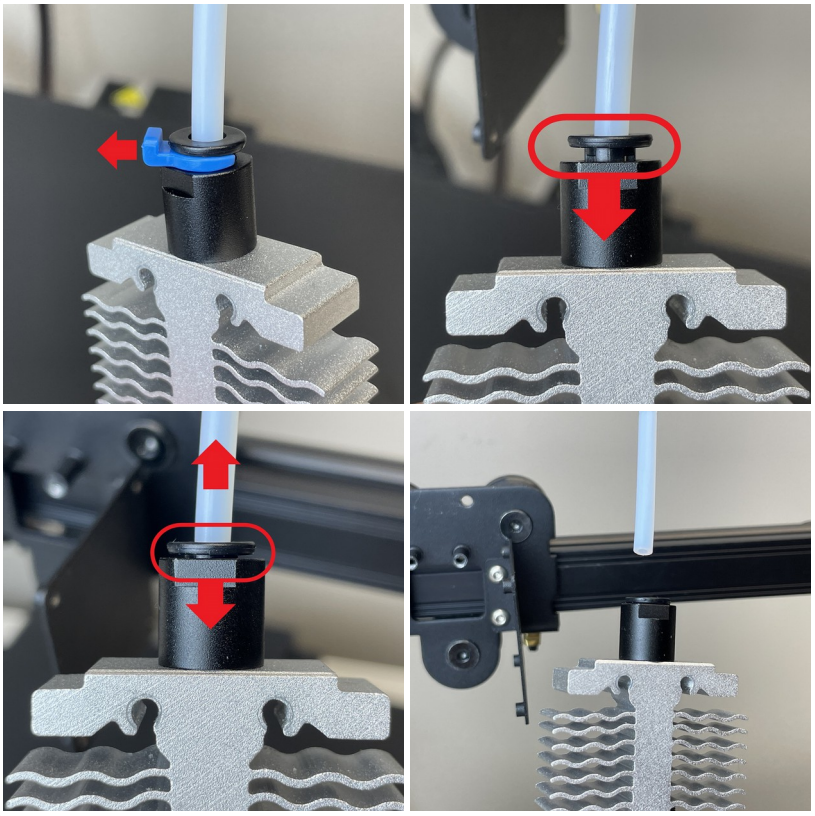


- Remove the Phillips screw holding the thermistor wires
(Phillips-head screwdriver)

- Loosen the set screw holding the heater cartridge
(1.5mm Allen wrench)

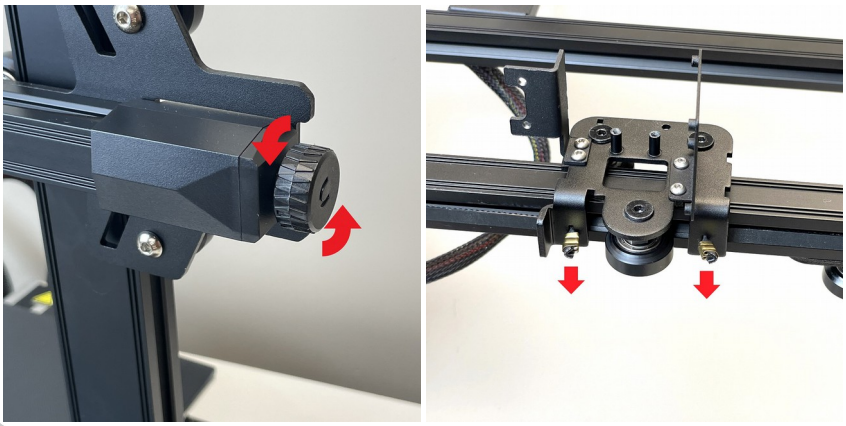
- Pull the heater cartridge and thermistor out of the heater block

STEP 10 - DISCONNECT THE PTFE TUBE FROM THE HOTEND



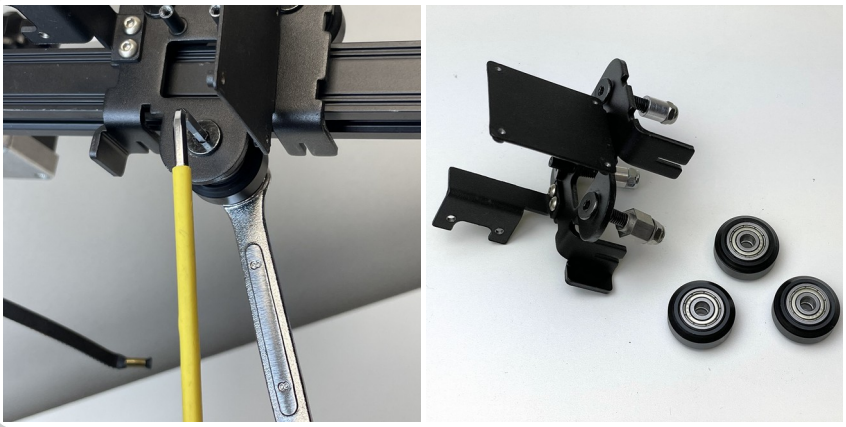
- Pull the blue C-clip out
- While pressing the black Bowden collet down towards the cooling block, pull the PTFE tube out

STEP 11 - DETACH THE BELT



- Loosen the X-axis belt tensioner
- Pull both ends of the X-axis belt out from the slots in the carriage plate

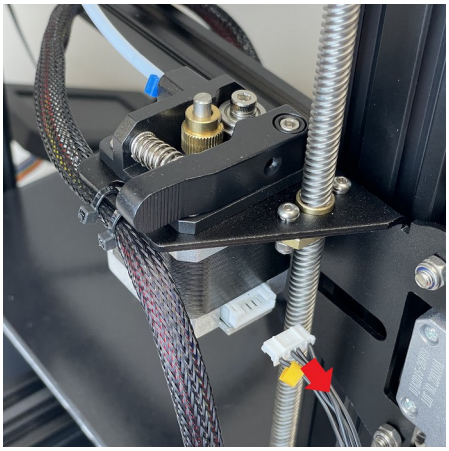
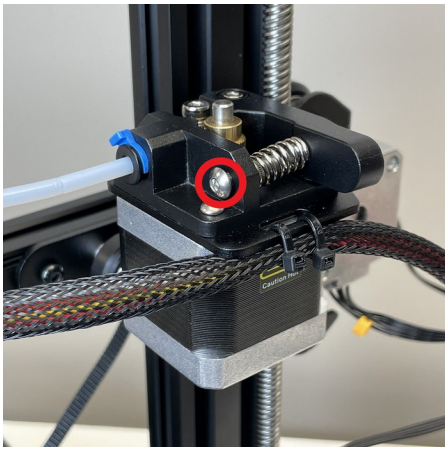
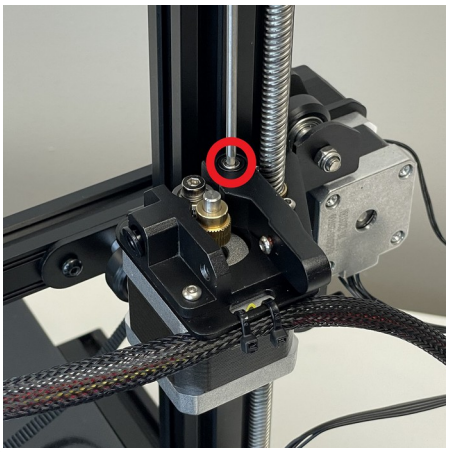
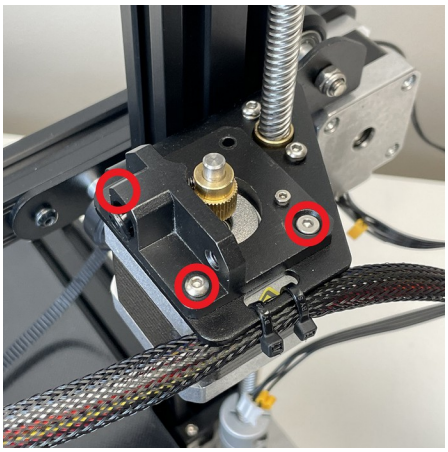
STEP 12 - REMOVE THE ROLLER WHEELS AND CARRIAGE PLATE



- Remove the M5 screws and nut holding the three V-roller wheels
(8mm wrench + 3.0mm Allen wrench)

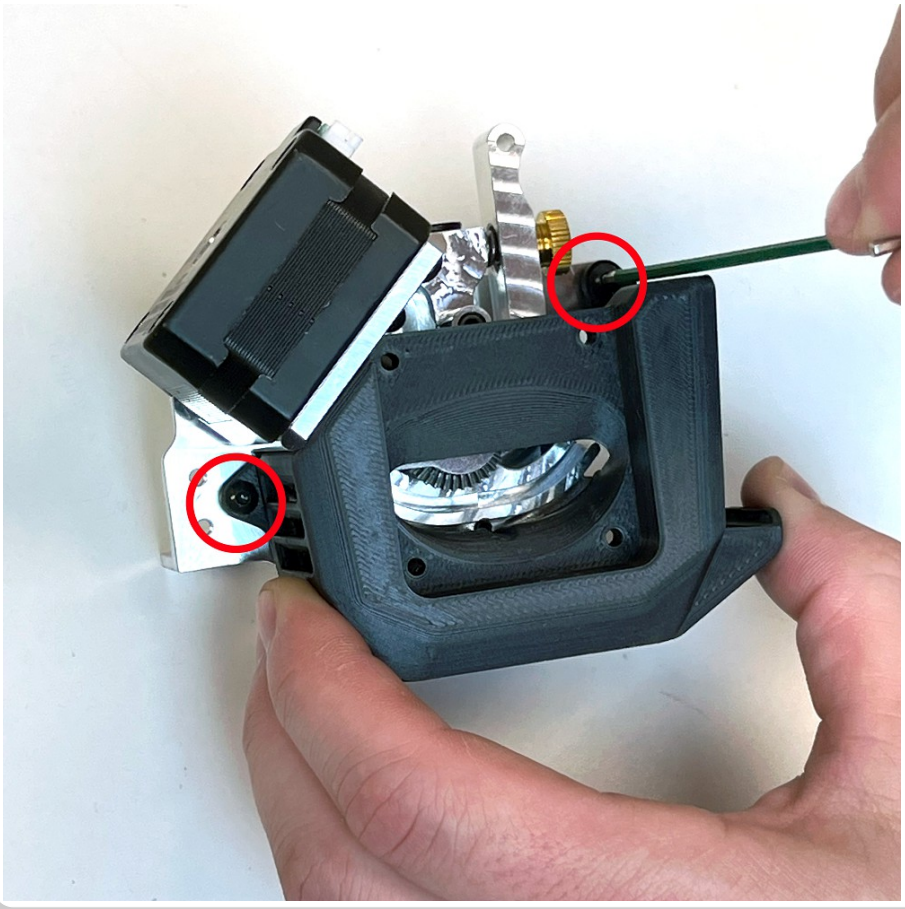
The V-roller wheels will be reused in the new print head

STEP 13 - REMOVE THE ORIGINAL EXTRUDER

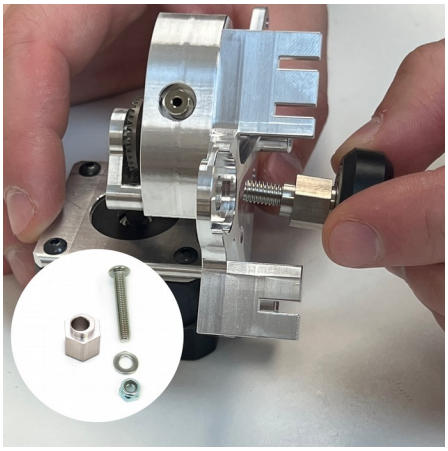
- Disconnect the cable from the stepper motor
- Unscrew the screw holding the spring in place
(2.5mm Allen wrench)
- Unscrew the plastic extruder arm
(2.5mm Allen wrench)
- Remove the screws holding the extruder body and stepper motor together
(2.0mm Allen wrench)

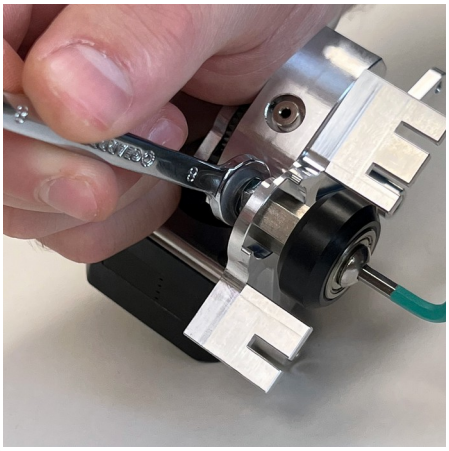
STEP 14 - PREPARE THE NG EXTRUDER FOR INSTALLATION



- Prepare the NG Extruder assembly by removing the 3D printed fan shroud
(2.0mm Allen wrench)

STEP 15 - INSTALL THE ECCENTRIC NUT AND BOTTOM WHEEL





- Insert the longer M5 screw provided with the kit into one of the V-roller wheels

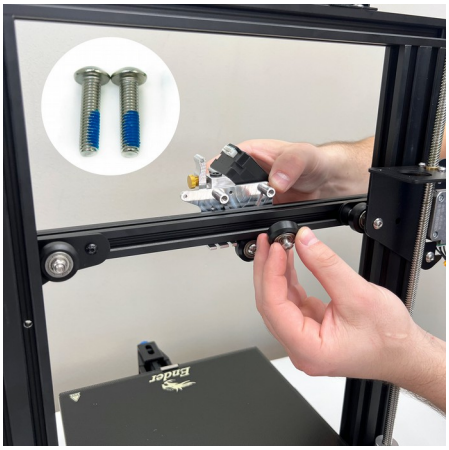
- Place the eccentric nut onto the M5 screw above the wheel
Note the correct orientation – the longer boss should face away from the roller

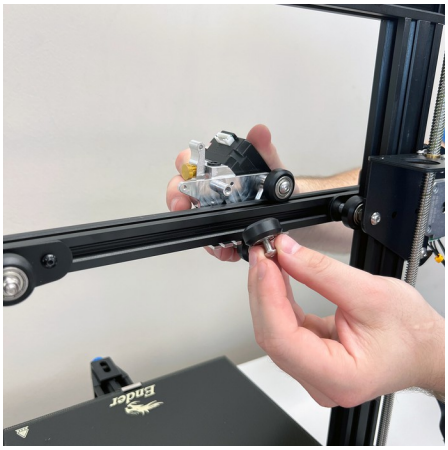
- Insert the end of the M5 screw onto the large hole at the bottom of the adaptation plate

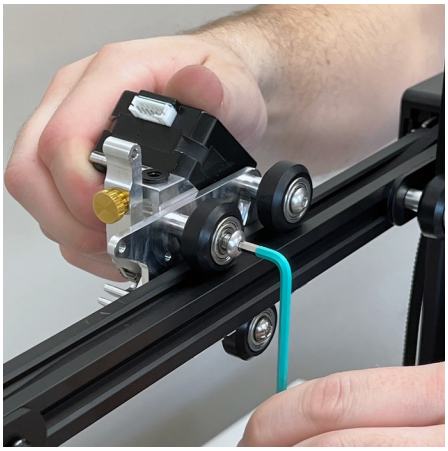
- Place the washer onto the end of the M5 screw

- Install and tighten the lock nut onto the end of the M5 screw, securing the whole assembly in place.
(3.0mm Allen wrench and 8mm spanner wrench)

STEP 16 - INSTALL THE TOP TWO WHEELS





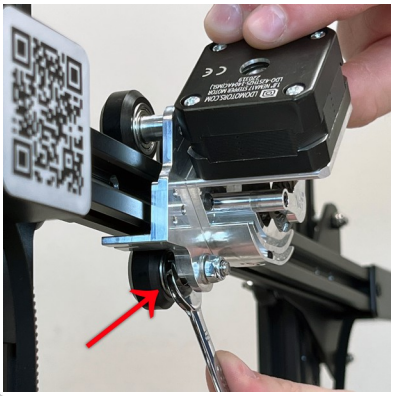


- Insert the shorter two M5 screws into the two remaining V-Roller wheels
Make sure to use the provided nylon patched screws

- While holding the new extruder assembly in front of the 3D printers X axis aluminum extrusion, install the remaining two wheels/screws.
(3.0mm Allen wrench)

If it is difficult to fit the last V-roller wheel, adjust the bottom V-roller position by rotating the eccentric nut using a 10mm wrench

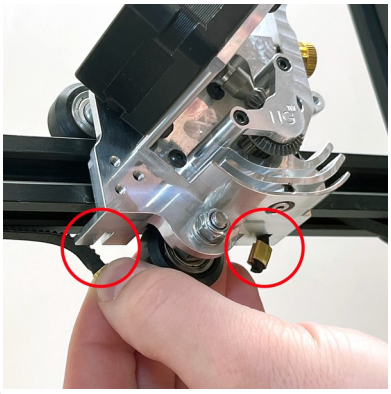
STEP 17 - ADJUST THE WHEEL TENSION

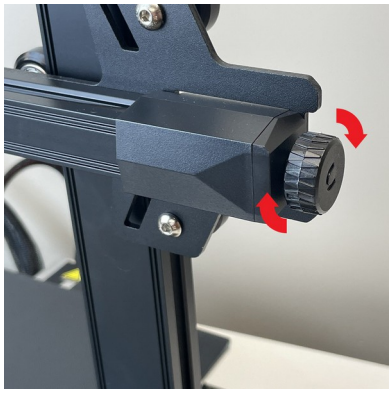


- Adjust the eccentric nut on the bottom wheel to eliminate any carriage wobble
(10mm spanner wrench)

There should be no play/wobble in any of the wheels, but the tension should still be low enough that you can make each individual wheel slip/rotate using your finger while holding the carriage in place

STEP 18 - ATTACH THE BELT



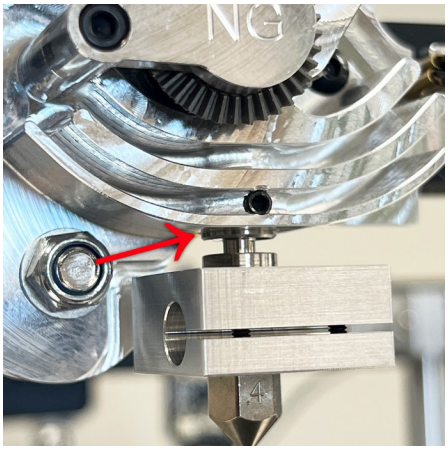


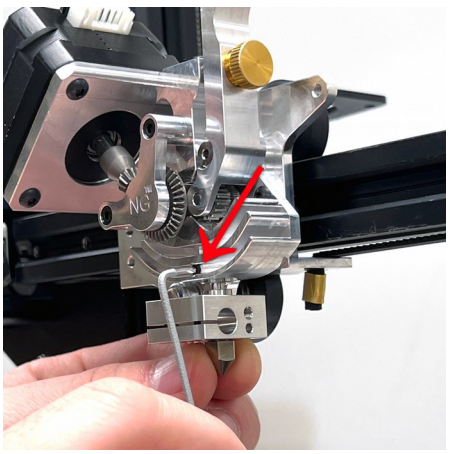
- Insert the ends of the belt into the slots at the bottom of the adaptation plate

- Tighten the X-axis belt

Move the carriage side to side by hand to verify the belt is seated properly and not stuck

STEP 19 - ATTACH THE HOTEND





- Attach the hotend assembly to the extruder

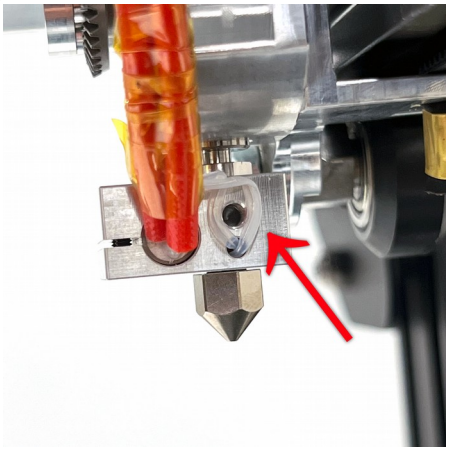
Verify that the thermal break is seated as deep as possible inside of the extruder (compare with reference image on the left)

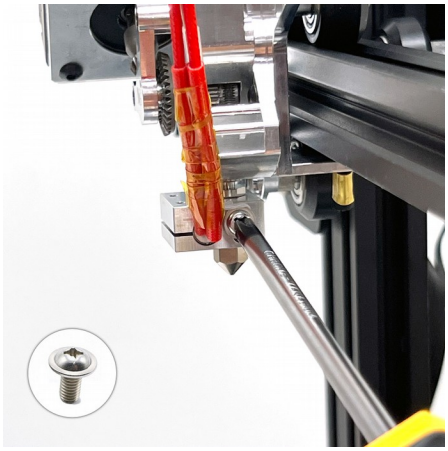
- Tighten the grub screw until its snug
(1.5mm Allen wrench)
Do not over-tighten set screw

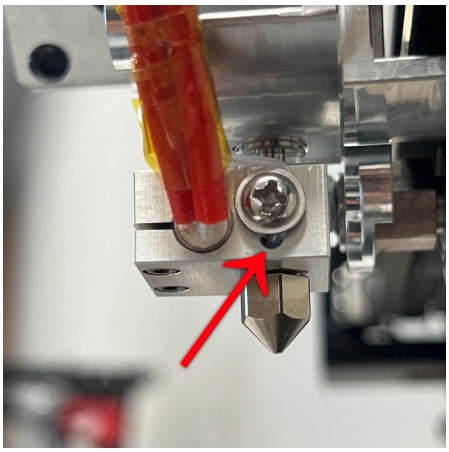
The included nozzle has already been preheated and tightned to spec at the factory

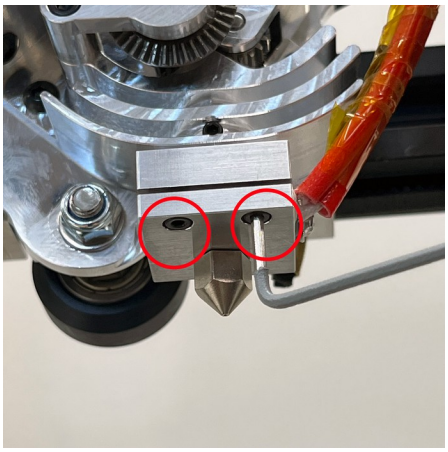
The nozzle replacement procedure can be found on the last pages of this document

STEP 20 - INSTALL THE THERMISTOR AND HEATER CARTRIDGE









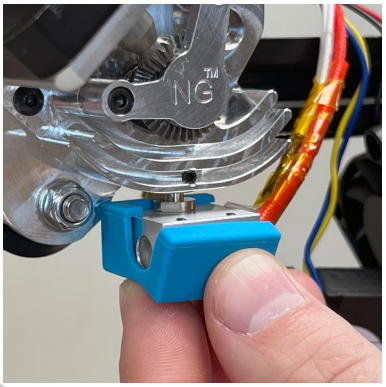
- Insert the heater cartridge and thermistor into the heater block

Make sure the thermistor is fully seated inside of the heater block – the glass bead should not be visible from the outside

- Lighly tighten the Phillips screw to secure the thermistor wires in place
(Phillips-head screwdriver)
Be careful to not over-tighten the screw as this can damage the delicate wires

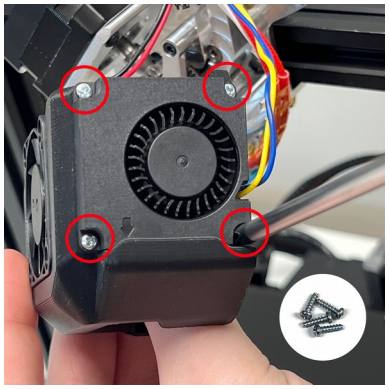
- Secure the heater cartridge in place by tightening the two screws at the bottom of the heater block
(1.5mm Allen wrench)

STEP 21 - INSTALL THE SILICONE SOCK



- Place the silicone sock on the heatear block

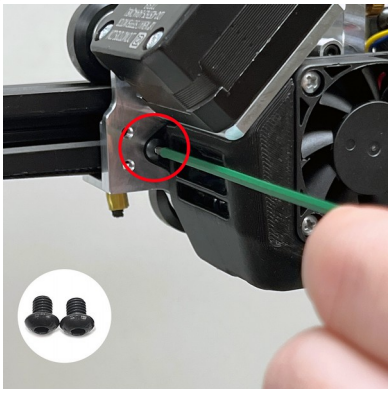
STEP 22 - INSTALL THE FANS

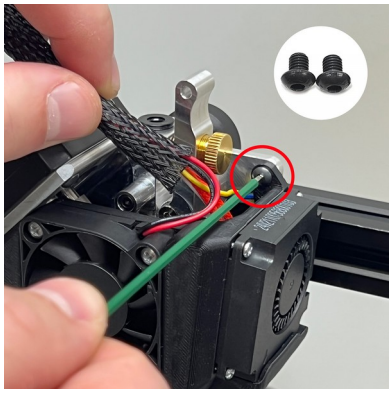


- Attach the hotend cooling fan to the front of the 3D printed fan shroud using the larger self-tapping screws provided with the kit
(Phillips-head screwdriver)

- Attach the part cooling fan to the side of the fan shroud using the smaller self-tapping screws
(Phillips-head screwdriver)

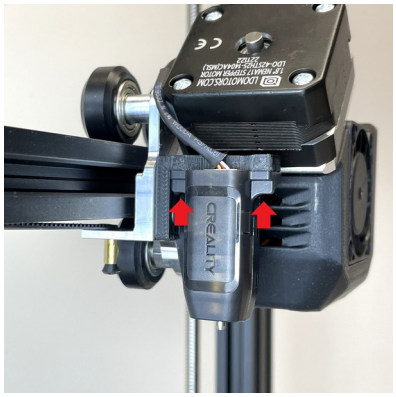
STEP 23 - INSTALL THE FAN SHROUD





- Re-attach the fan shroud to the extruder using two screws (2.0mm Allen wrench)

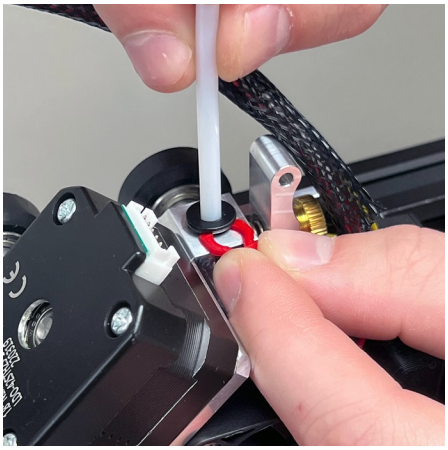
STEP 24 - INSTALL THE CR-TOUCH



- Attach the 3D printed probe bracket using two M3 screws to the holes on the left side of the adaptation plate. (2.0mm Allen wrench)

- Attach the CR-Touch to the 3D printed bracket using two M3 screws (2.0mm Allen wrench)

STEP 25 - INSTALL THE FILAMENT GUIDE TUBE

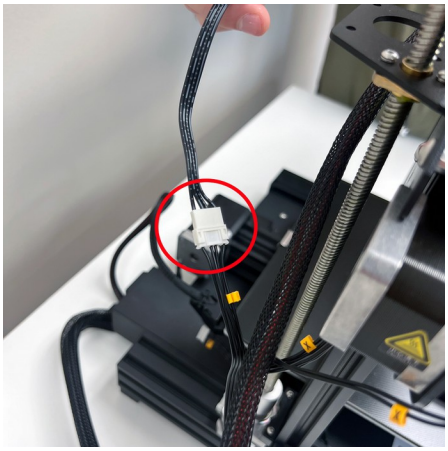


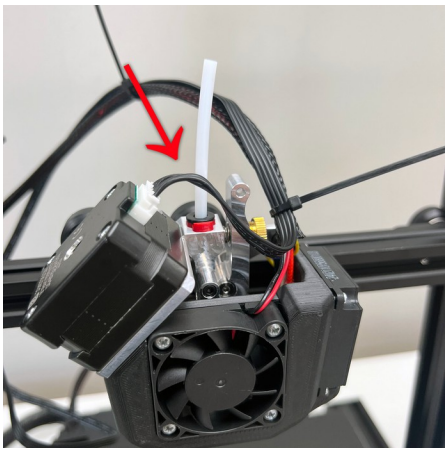
- Cut about 2.5” of PTFE tubing from the original Bowden tube that was previously removed

- Insert the PTFE tube into the top of extruder

- Secure the PTFE tube in place by inserting the red C-clip underneith the black Collet

STEP 26 - INSTALL THE CUSTOM EXTENSION CABLE





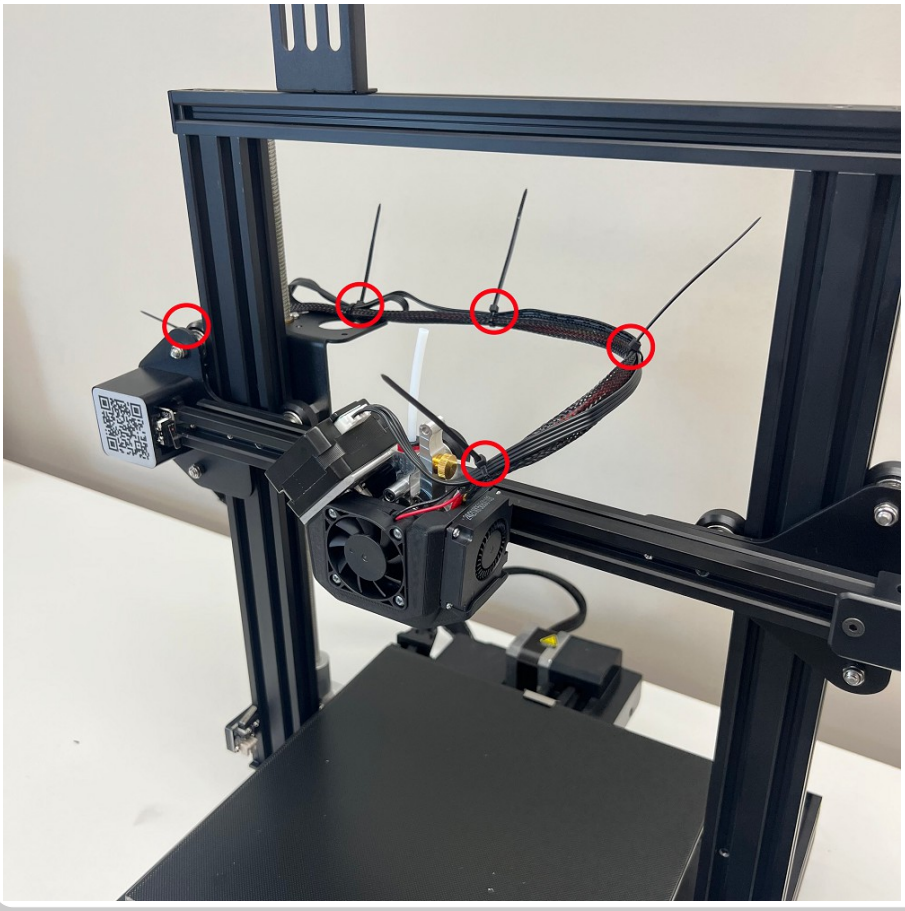
Use the custom extension cable provided with the NG kit - it has the special wiring pinout that is required to connect the LDO motor to a Creality 3D printer

- Connect one end of the NG extension cable to the 3D printer's original E cable

- Connect the other end of the NG extension cable to the LDO stepper motor

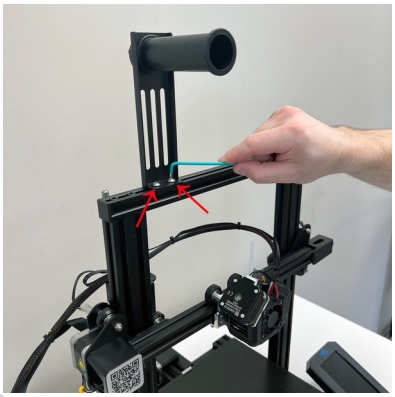
Make sure to give the extension cable some slack near the stepper motor in order to aviod straining the connector

STEP 27 - CABLE MANAGEMENT



- Use the provided zip ties to manage your cables neatly

STEP 28 - MOVE THE FILAMENT HOLDER

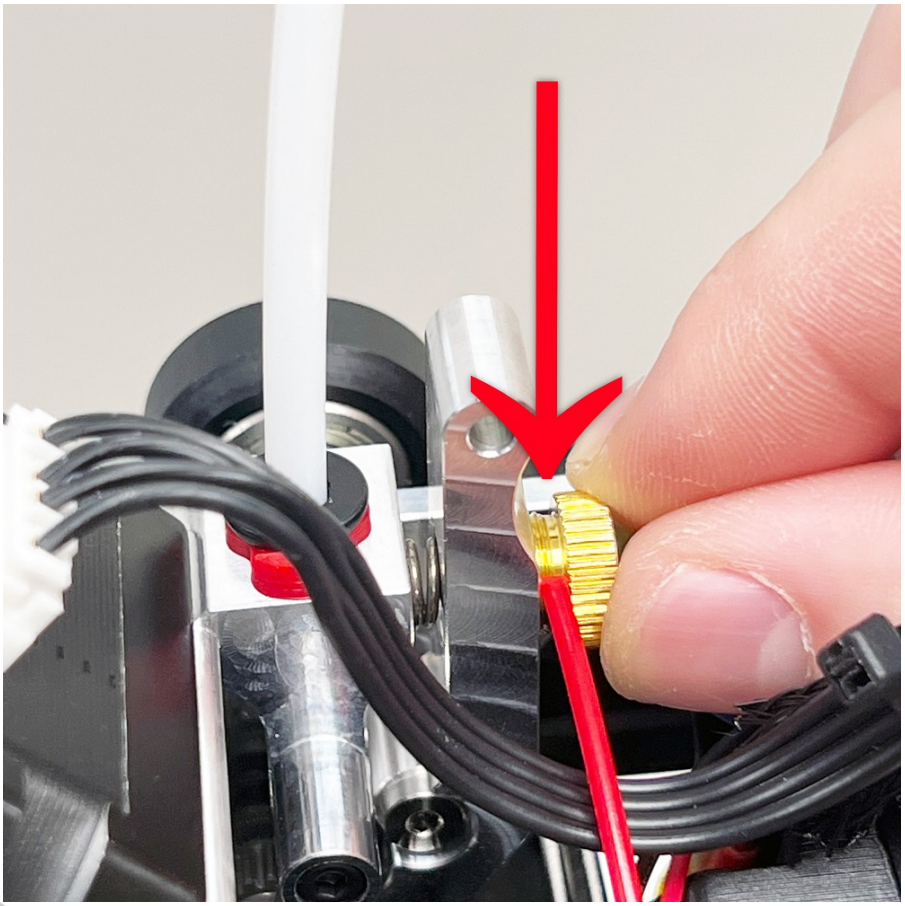


- Loosen the two screws holding the filament spool holder
(3.0mm Allen wrench)

- Reposition the spool holder so that the spool hangs in front of the frame

- Re-tighten the two screws to secure the spool holder
(3.0mm Allen wrench)

STEP 29 - ADJUST THE GEAR TENSION



- Adjust the drive gear tension by rotating the brass knob

The gear tension can be gauged by measuring how much of the brass knob's threads are exposed (Gap between the head of the brass knob to the aluminum extruder arm)

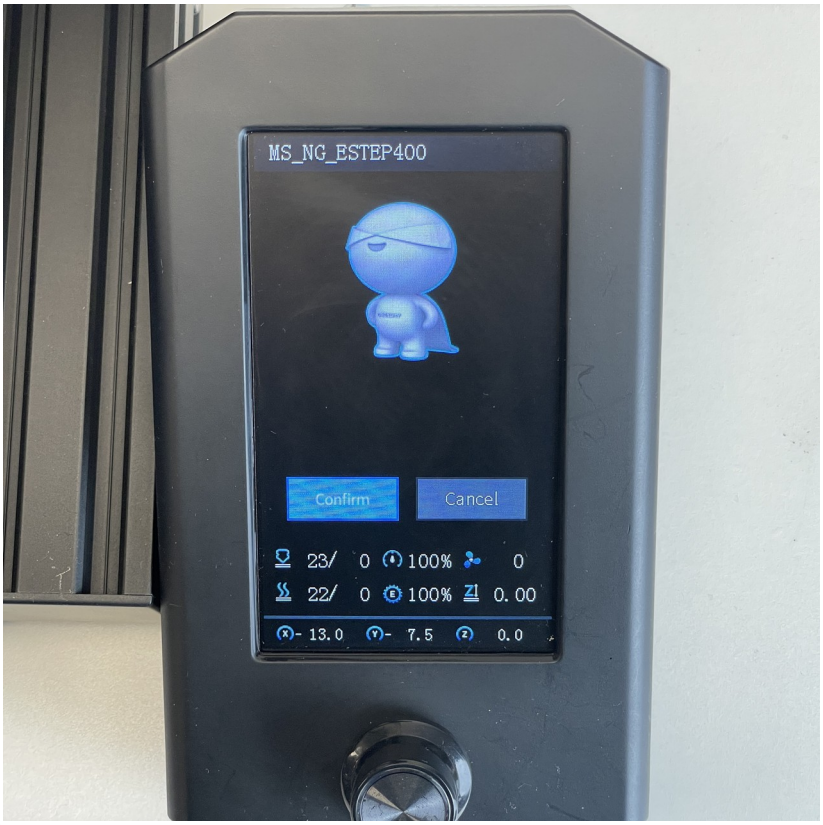
The good starting point for stiff filaments such as PLA, PTEG, ABS is 1.75mm of exposed threads. (Use a piece of 1.75mm filament as a gauge as shown in the image on the left)

For flexible filaments such as TPU, loosen the knob until about 2.75mm of the threads are exposed. (Loosen the knob two full turns, if starting with a 1.75mm gap)

STEP 30 - POWER ON THE 3D PRINTER

- Plug the power cable in and turn the 3D printer on

STEP 31 - UPDATE THE ESTEPS



The E-steps will need to be set to 400 in the printer settings by printing a g-code file

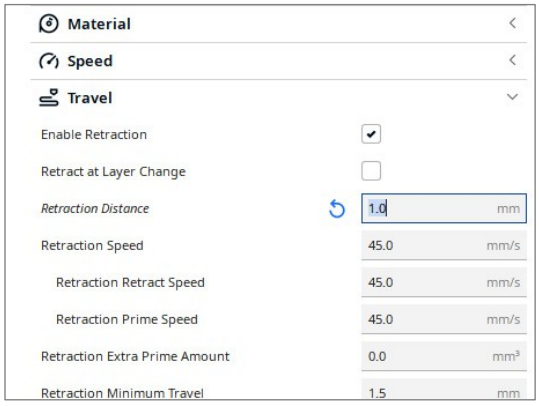
- Download the Esteps G-code from the link below

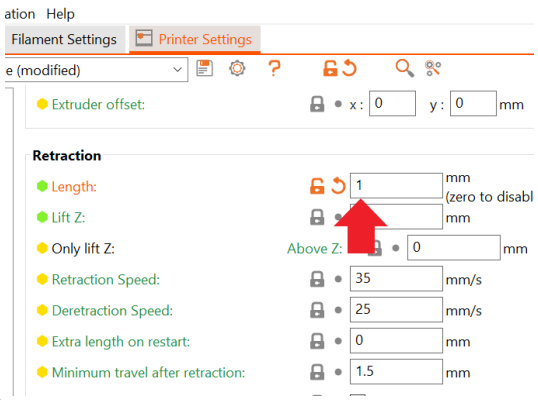
Download

- Save the file onto your SD card
- "Print" the Esteps G-code file

The G-code should take about 15 seconds to finish printing. It will not produce a 3D printed object and will not give a confirmation that it was successful so just give it time to complete before moving on.

STEP 32 – REDUCE THE RETRACTION DISTANCE





- Set the Retraction Distance to **1.0mm** in your slicer software

Do not use any g-codes that were sliced with a Retraction Distance higher than 1.5mm

INSTALLATION COMPLETE!

SERVICE TIPS

REMOVING FILAMENT

- Preheat the hotend to printing temperature
- Press the extruder arm to release the gear tension
- Push the filament down about 10mm to extrude any melted plastic from the hotend
- Quickly pull the filament out of the extruder

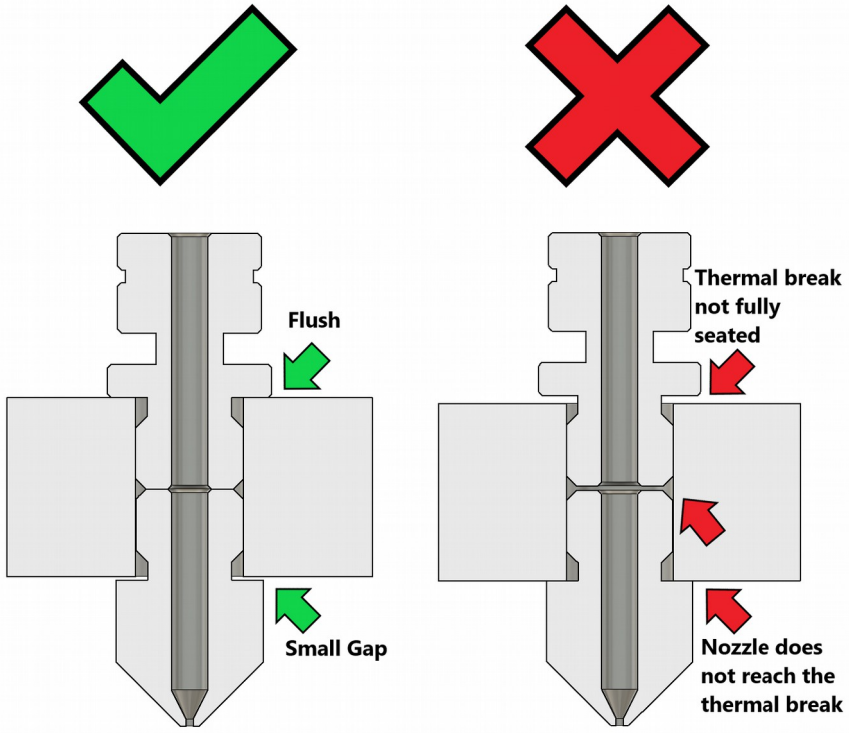
LOADING FILAMENT

- Preheat the hotend to printing temperature
- Cut the tip of the filament at a 45-degree angle
- Straighten the tip of the filament out
- Using the printer menus issue an Extrude command
- Insert the filament into the extruder as the gears are rotating

When loading filament do not press the extruder arm until the filament has made it into the tube below the extruder drive gears

NOZZLE REPLACEMENT PROCEDURE

- Preheat the hotend to exactly **220C**
- Remove the filament from the hotend
- Unscrew the old nozzle, while holding the heater block in position using an adjustable wrench
- Screw in the new MK8 nozzle and torque it to 30-inch pounds (3.4Nm) while holding the heater block in position using an adjustable wrench
- Verify that the thermal break is still seated flush on top of the heater block after installation



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