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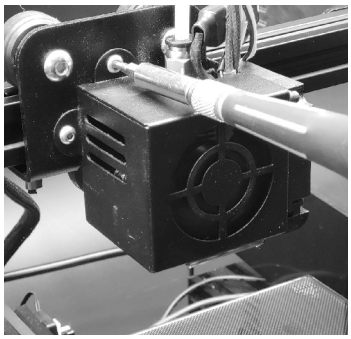
3D PRINTER PARTS & UPGRADES

Warning! Use this product (and modify your 3D printer) at your own risk. Never service your printer or other electronics while plugged in. We are not liable for any injury or damages that occur as a result of the installation or use of this product.

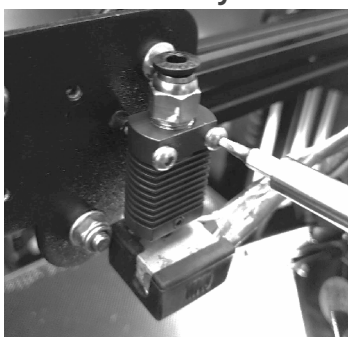
Modular Direct Drive (MDD) V1.0 - Installation Instructions - Creality Hot End / Extruder

Step 1: Remove bowden tube and fan shroud



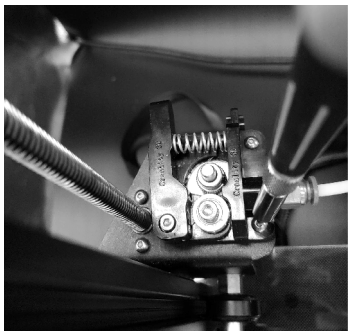
Unload filament and remove the bowden tube. Then remove the fan shroud bolts and set the fan housing aside.

Step 2: Remove hot end assembly



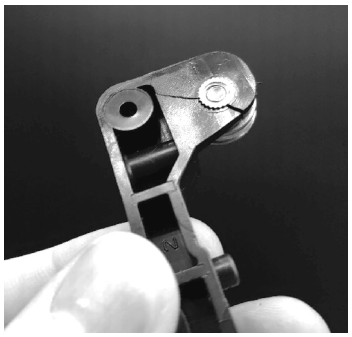
Remove hot end bolts and set the complete hot end aside. Do not strain the wires. This is a good time to clean / service your hot end if desired.

Step 3: Disassemble the extruder



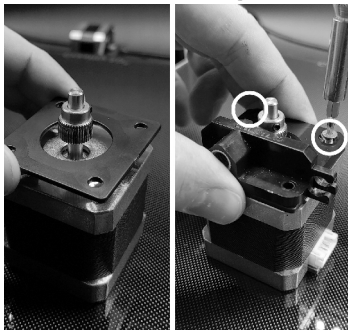
Unplug extruder. Remove the three M3 bolts in the corners of the bracket. Then remove the tensioner arm and the M3 bolt under it.

STOP! Inspect your tensioner arm.



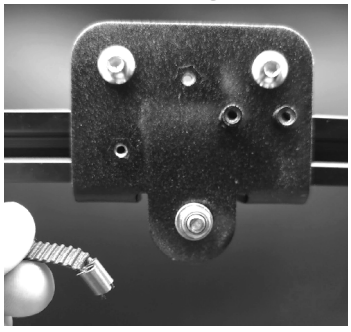
Plastic tensioner arms may crack over time, reducing the amount of tension on the drive gear. Cracked tensioners should be replaced.

Step 4: Reassemble extruder with spacer



Reassemble extruder using 2 of the original M3 bolts (shown). **IMPORTANT:** Note direction of the stepper motor plug (above). Remove factory bowden coupler.

Step 5: Remove belts and X carriage

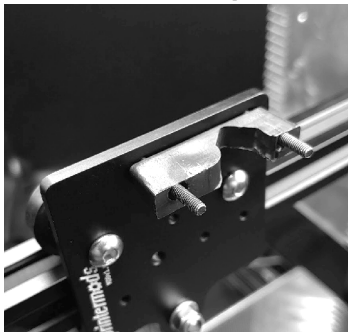


Remove the GT2 belt ends from both sides of the X carriage, but do not remove the belt from the pulleys. Remove X carriage lower bolt, nut and wheel.

Step 6: Assemble the new X carriage

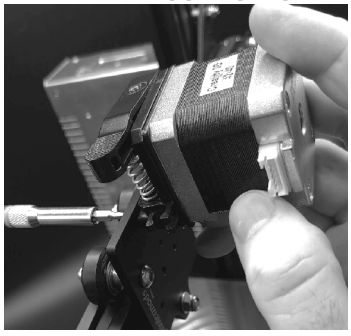
Install the MDD X carriage in the reverse order of removal. Gently tighten the bolts and eccentric nuts until action is smooth and not wobbly. Reattach belts.

Step 7: Install the extruder and spacer



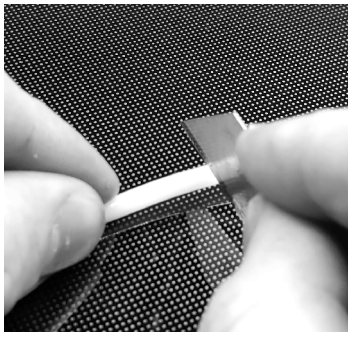
Attach the stepper motor spacer as shown, using the supplied M3x25mm bolts. Then attach the stepper motor assembly with the filament output facing DOWN.

STOP! Verify the direction of the stepper plug.



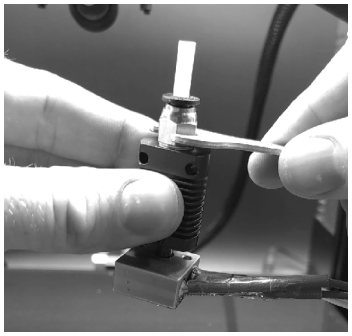
Ensure that the filament input direction is faced UP, and that the port on the stepper motor is facing LEFT (when viewed from the front).

Step 8: Trim PTFE tube as needed



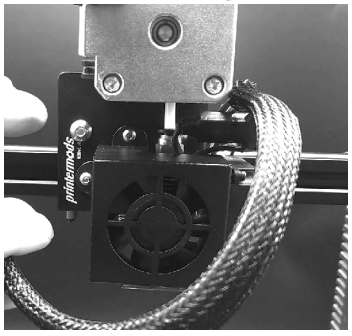
Carefully measure (about 67.8mm for stock) and cut SQUARELY with a PTFE tool or razor. **DO NOT** USE CLIPPERS, AS TUBE WILL CRUSH.

Step 9: Install PTFE into hot end



Screw in new Bowden coupler to heat sink, leaving 1 turn unscrewed. Push PTFE down firmly until flat against the nozzle, then tighten.

STOP! Re-route your hot end wiring.



The hot end wiring must be routed in front of the LEFT SIDE Z rail (when viewed from the front). See completed install photos for reference.

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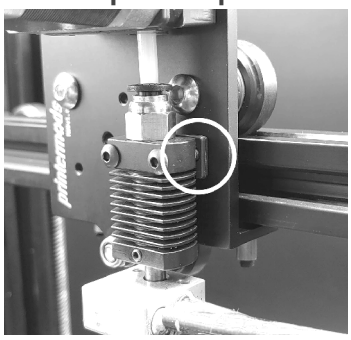
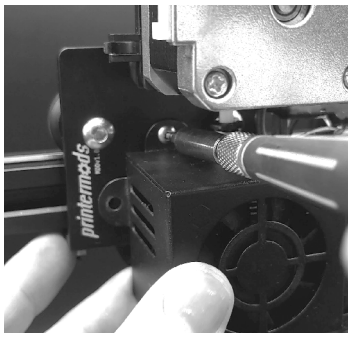
Modular Direct Drive (MDD) V1.0 - Installation Instructions - Creality Hot End / Extruder (cont'd)

Step 10: Install hot end and plastic spacer



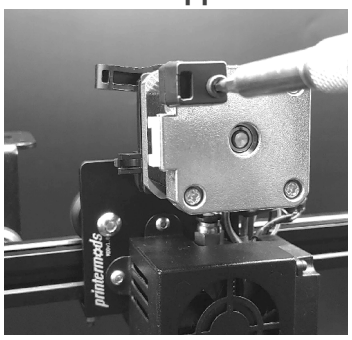
Reuse the lock washers from the factory hot end bolts, and use the supplied M3x20mm bolts to attach the hot end and plastic spacer (in between hot end and x carriage). Insert the PTFE into extruder.

Step 11: Install fan shroud and fans



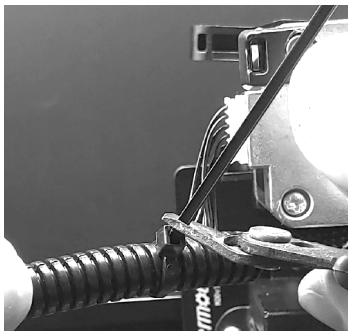
Reconnect the hot end fan shroud, reusing the factory M3 bolts. Be careful not to strain the hot end wiring.

Step 12: Install zip tie anchor to stepper motor



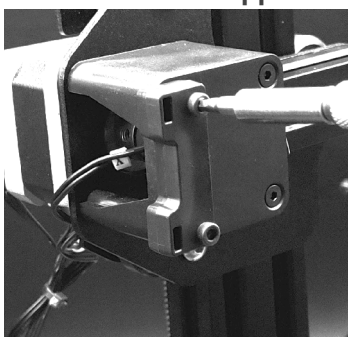
Remove the phillips screw from the top left position of the stepper motor. Using one of the supplied M3x50mm bolts, attach the zip tie anchor and securely tighten.

Step 13: Connect extruder and fasten loom



Connect the extruder using the supplied extension harness. Route to the stepper motor the same as the hot end. Use the supplied split wire loom and zip tie to anchor. You may wish to remove the factory wire protector for easier fitment.

Step 14: Install zip tie anchor to X stepper



Remove QR code sticker. Remove the factory bolts shown and install anchor using supplied M3x50mm bolts. Checking the needed cable length by slowly moving the hot end to its maximum travel (RIGHT), zip tie securely to anchor.

Step 15: Install zip tie anchor to Z stepper

Use the supplied M3x25mm bolt, secure the zip tie anchor to the Z motor. Zip tie securely to the anchor.

This completes the MDD installation.

To get started using your new MDD direct drive system, no firmware changes are required.

You will likely need to reduce your retraction settings in your slicer, as well as disabling other ooze control mechanisms like "coast", "wipe", etc. We recommend trying a starting retraction value of about 1mm for most filaments and tuning from there.

In addition, it's advisable to re-tune your extruder E-steps at this time.