



## How to Replace the Bar Mount Assembly on a MakerBot Replicator 2 Extruder

These are instructions for replacing the bar mount assembly in a MakerBot Replicator 2 extruder. They will require the use of the 2.5 mm hex wrench that came with your bot, a pair of scissors, and, depending on your individual Replicator 2, a small flathead screwdriver.

Before you begin, do the following:

- Unload any filament.
- Turn off the MakerBot Replicator 2.
- Remove the filament guide tube and spool holder.
- Unplug power and USB cables.

### 1. Detach the active cooling duct.

Gently pull the active cooling duct away from the nozzle. Allow the duct to hang.

### 2. Remove the extruder from the gantry.

Use the 2.5 mm hex wrench to unscrew the two bolts holding the extruder to the extruder carriage. Both bolts are on the underside of the extruder carriage -- one at the left and one at the right.

### 3. Free the extruder cable from the clips on the back of the MakerBot Replicator 2.

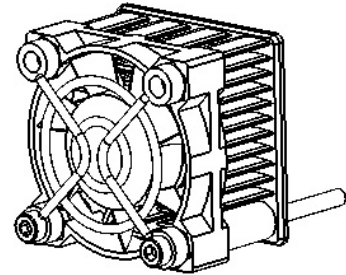
Carefully clip the zip tie attaching the extruder cable to the top clip on the back of the MakerBot Replicator 2. Gently pull the cable free of the other clips. Set the extruder down next to your bot.

### 4. Remove the fan assembly.

Use the 2.5 mm hex wrench to loosen the two bolts at the lower corners of the front extruder fan. Remove the bolts, fan guard, fan, spacers and heat sink as one piece and set them to the side.

#### 5. Remove the motor assembly.

Removing the fan assembly frees the motor assembly. Unplug the motor cable connector and set the motor assembly aside.

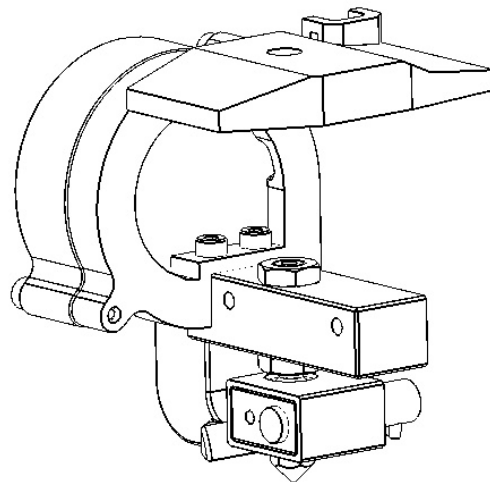


#### 6. Unplug the heater wires.

There are three wires coming out of the back of the thermal core -- the square block covered in Kapton tape that holds the extruder nozzle. The two white wires are the heater wires. Follow them to the black connector next to the active cooling fan. Unplug the connector. There is a black plastic tab at one side of the connection that will release the connector easily.

#### 7. Remove the bar mount.

The bar mount is attached to the active cooling assembly with two black bolts. Use the short end of the 2.5 mm hex wrench to loosen these. It's difficult to get at the bolts, so once they're loose it will probably be easier to loosen them the rest of the way with your fingers.



#### 8. Snip the zip tie securing the end of the extruder cable to the extruder cap.

Be careful not to cut any of the wires inside.

#### 9. Remove the black wire wrapping from the extruder cable.

Find the seam in the black cable and unroll the wrapping. The wrapping will easily pull off of the entire cable.

#### 10. Flip the MakerBot Replicator 2 so that it rests on its left side and the bottom of the machine faces you.

#### 11. Remove the electronics bay cover.

Use the 2.5 mm hex wrench to remove the eight M3x6 bolts holding it on. Set the bolts aside.

## **12. Detach the thermocouple from the Mightyboard.**

The thermocouple attaches to a set of terminals at the bottom right corner of the Mightyboard. If these terminals are secured by buttons, push the buttons on the terminals to release the red and yellow leads. If the terminals are secured by screws, use a small flathead screwdriver to loosen the screws until you can remove the leads.

## **13. Attach the thermocouple from the new bar mount assembly.**

Slide the red and yellow leads on the new thermocouple into the same set of terminals. Remember to attach them to the "A" terminals rather than the "B" terminals. The terminals are labeled "Red" and "Yellow" and it's very important that each lead goes into the correct one. For terminals with buttons, press the buttons on the terminals, slide the leads all the way in, and release the buttons. For terminals with screws, slide the leads in and tighten the screws. Tug on the leads to make sure they're secure. You may find that it's easier to reconnect one lead at a time.

## **14. Return the electronics bay cover to the bottom of the bot.**

Secure it with the eight short bolts and the 2.5 mm hex wrench. Flip the MakerBot Replicator 2 upright again.

## **15. Exchange the old thermocouple for the new thermocouple in the extruder cable.**

The extruder cable is a bundle of wires taped together at intervals. At each place where the bundle is taped, carefully cut the tape, remove the old thermocouple from the bundle, add the new thermocouple to the bundle, and re-tape the bundle.

## **16. Slide old the thermocouple out through the active cooling fan mount.**

Take the end of the thermocouple closest to the old bar mount and pull it through the active cooling fan mount. The bar mount assembly should now be completely detached from your MakerBot Replicator 2. Discard it.

## **17. Add the new bar mount to the active cooling fan assembly.**

Orient the bar mount assembly so the two holes at the left line up with the two holes on the active cooling fan mount and the nozzle points down, or in the opposite direction from the extruder cap. Screw the two bolts in using your fingers. Then tighten them using the short side of the 2.5 mm hex wrench.

Note: At this point you will have two very similar looking pairs of bolts set aside. The shorter ones are the bolts for the bar mount. The longer ones are the ones you will use to attach the assembled extruder to the extruder carriage.

## **18. Connect the new heater wires.**

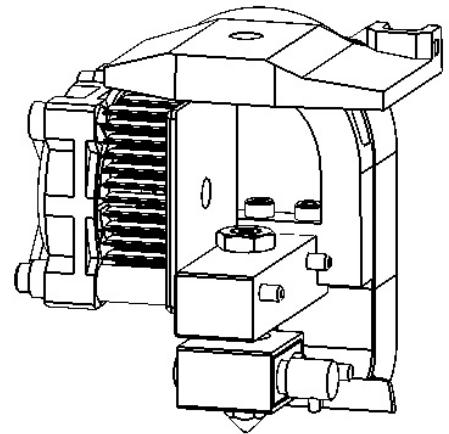
Take the black plastic connector on the two white wires emerging from the back of the new thermal core and plug it into the black connector coming out of the active cooling fan assembly.

**19. Push the heater wire connector and the slack on the heater wires into the cavity formed by the active cooling fan mount.**

Make sure the fan wire connector from the front extruder fan is also pushed into this space.

**20. Add the fan assembly.**

With the fan assembly fully assembled, slide the ends of the fan assembly bolts into the two holes at the front of the bar mount. Slide the fan assembly all the way on, so that a small portion of each bolt emerges on the other side of the bar mount.



**21. Add the motor assembly.**

Slide the motor assembly under the extruder cap. The black plastic drive block should be at the side closest to the heat sink and the two holes at the lower corners of the motor should line up with the ends of the bolts from the fan assembly. Use the 2.5 mm hex wrench to tighten the fan assembly bolts into the motor.

The heater wires may get in the way when you try to secure the motor. Push them as far as you can to the side.

**22. Plug in the motor wire.**

Add the white plastic cable connector from the extruder cable to the top of the extruder motor.

**23. Return the wire wrapping to the extruder cable.**

Wrap the black wire wrapping around the entire length of the bundle of extruder wires.

**24. Zip-tie the wrapped extruder cable to the extruder.**

Position the zip tie as close as possible to the extruder cap and tie it as tightly as you can.

**25. Return the extruder to the extruder carriage.**

Seat the extruder on the extruder carriage and secure it with the two remaining bolts. Snap the active cooling duct back into place.

**26. Return the extruder cable to the clips at the back of the MakerBot Replicator 2.**

Gently push the cable all the way into each of the clips.

The bar mount assembly replacement is complete.