



# MAKERBOT REPLICATOR 2X : TECHNICAL SUPPORT ARTICLE

## THERMOCOUPLER (THERMOCABLE) REPLACEMENT

Version 1.2

This article relates to : **Replicator 2X**

Specifically : **Replacing the Thermocoupler that runs from the heaterblock to the motherboard (pictures right)**

### ABOUT THE CABLE

The thermocoupler (see Fig 1.1) is brown in colour and screws into the top of the aluminum heater block with a hex nut connector (see Fig 1.2) and runs to the Motherboard through the main extruder bundle.

### WHAT CAN GO WRONG

This part is the most fragile within the machine. It can also break through use, and get damaged along the wire at points where it is bent sharply. For these reasons Bilby CNC upgrade the replacement cables to have reinforcing along the entire length of the cable, and wire replacements along a different wire path to reduce bends and resulting fatigue damage.

### FITTING A THERMOCABLE

#### 1. Unscrew the extruder assembly from the gantry.

Unscrew the fan screws at the front of both extruders and remove the fans, small black spacers behind fans, and the aluminum heat sinks. You can now undo the two screws that are under the aluminum mounting block (the long block in Fig 1.3) and lift out the heater block assembly will provide for easier access to the thermocoupler.

#### 2. Remove old cable from the Heater block and attach new one

Unscrew the hex connector (Fig 1.4) from the heater block and screw in the new one. Note : try no to twist the cable, or damage it when screwing in.

#### 3. Change wire path (Fig 1.5)

BilbyCNC recommend wiring the thermocoupler straight up around the outside of the filament feeder system past the drive wheel viewing window, so that it runs around the side and over the top of the filament feeder. This path has less severe bends, and thus is less likely to damage your cable than the original path.

#### 4. Connect the new cable to the motherboard

Turn your machine on its side and remove the plate protecting the motherboard. Connect the cable to the motherboard (note : the cable has a red and yellow cable. If you can not see this easily pull the gold coating back a bit). The motherboard labels the connections "red" and "yellow" (Fig 1.7) We suggest folding the wire into a loop (Fig 1.6) to improve connection as the wire is so thin it can come loose from connectors with normal use.

#### 5. Test it working

Run "load filament" and test it is all working. You can do this with the heater block just sitting in place—does the machine have any errors on startup? All good? Then fit it properly. You need to remove the old cable and insert the new one into the extruder bundle. This will require some zip tie removal and threading.

*BilbyCNC hopes you found this helpful.*

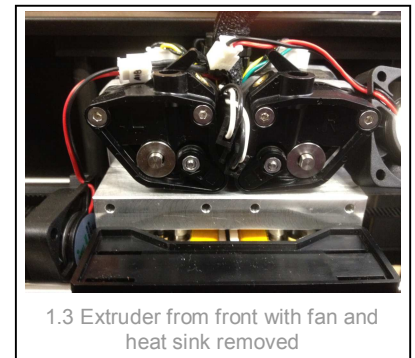
*Please call 1800 245 297 if you need further assistance*



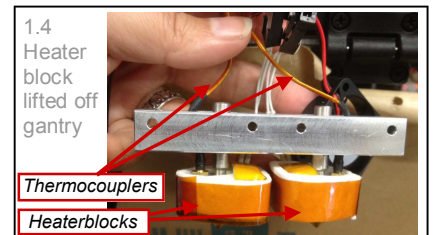
1.1 Thermocable



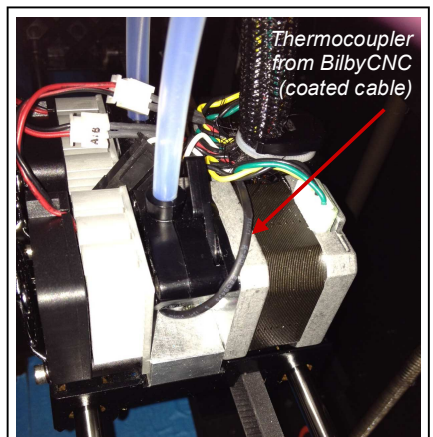
1.2 Hex connector that screws into heater block



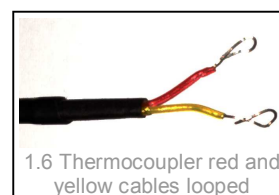
1.3 Extruder from front with fan and heat sink removed



1.4 Heater block lifted off gantry



1.5 New wire path for the thermocoupler straight up to cable bundle next to motor



1.6 Thermocoupler red and yellow cables looped



1.7 Thermocable connected to motherboard