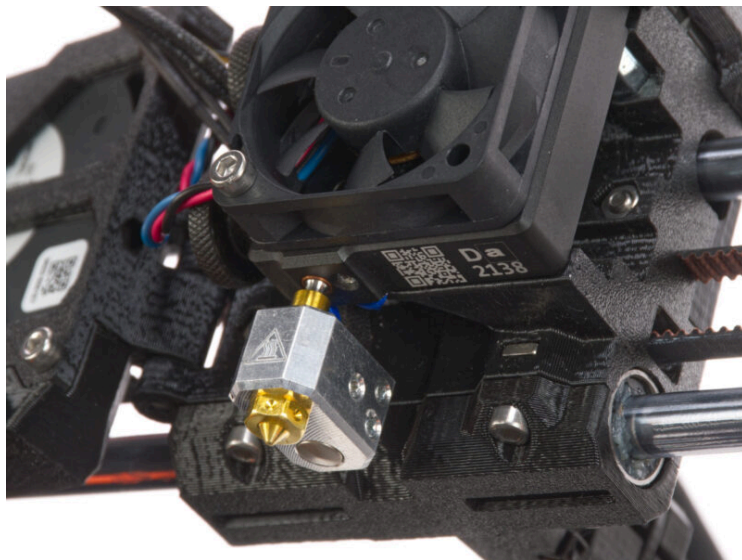


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How to replace a hotend heater (MK4/MK3.9)



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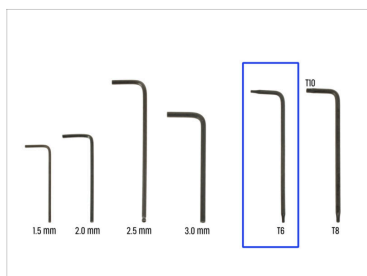


STEP 1 Introduction



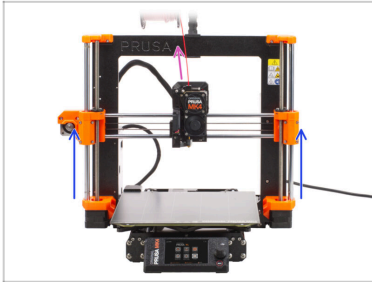
- ◆ This guide will take you through the replacement of the **hotend heater** on the **Original Prusa MK4** and **MK3.9**.
- ◆ All necessary parts are available in our [eshop prusa3d.com](http://eshop.prusa3d.com).
- ⓘ Note that you have to be logged in to have access to the spare parts section.

STEP 2 Tools necessary for this chapter



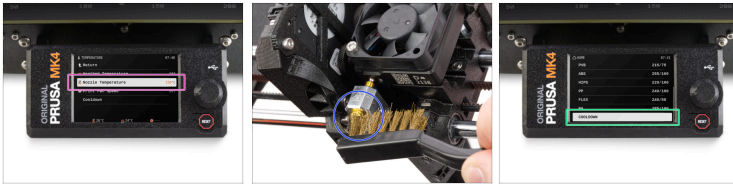
- ◆ **For this chapter, please prepare:**
 - ◆ T6 Torx key
 - ◆ Cloth or piece of fabric 15x15 cm *to protect the heatbed*
 - ◆ Small brass brush *for cleaning the hotend*

STEP 3 Preparing the printer



- ◆ Unload the filament from the printer.
- ⓘ It's recommended to take off the spool holder from the printer.
- ◆ Move the Z-axis to the center position to easily access the extruder from the top and bottom.

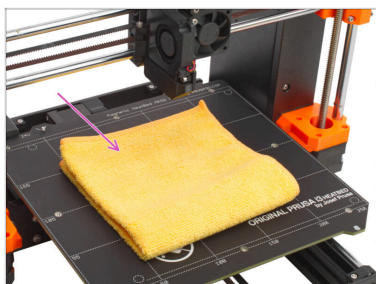
STEP 4 Cleaning the hotend



⚠ WARNING: The hotend and heated bed are very HOT. Do not touch these parts!!!

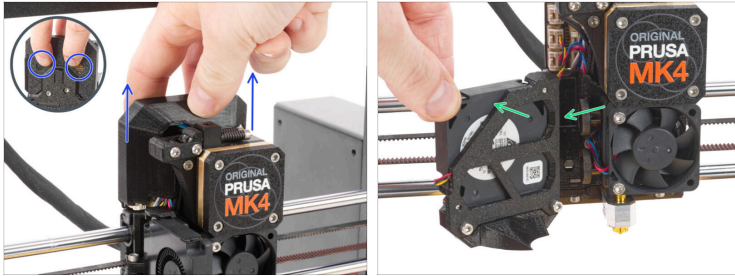
- For the following steps, it is necessary to have the heaterblock and the hotend clean from the remains of the filament.
- ⚠ If you have a Prusa hotend sock on the hotend, remove it.**
- On the printer screen, go to *Control* -> *Temperature* -> *Nozzle Temperature* and using the knob set **250°C**.
- Wait at least 5 minutes. The remains of the filament must be warmed up slightly so that they can be removed more easily.
- Using the brass brush, carefully clean the heaterblock and the hotend from the filament residue. **Avoid contact of the brush with the hotend cables, as this could cause a short circuit.**
- When the heaterblock and the hotend are perfectly clean, cool down the printer. On the screen, navigate to *Preheat* -> *Cooldown*.
- ⚠ Wait until the hot parts are cooled down to ambient temperature. It takes approximately 10 minutes.**

STEP 5 Protecting the heatbed



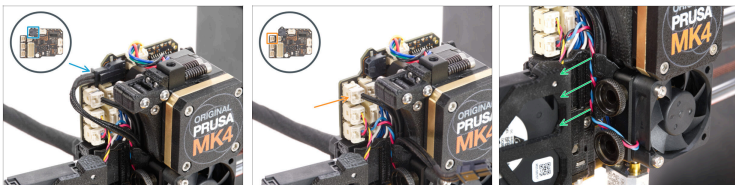
- ◆ Turn the printer OFF and unplug the power cable from the PSU (Power Supply Unit).
- ⚠ **Make sure the printer parts - print head and heatbed are cooled down at room temperature.**
- ⚠ **Turn the printer off and unplug it from the socket!**
- ⚠ **Before proceeding any further, it is recommended to protect the heatbed first!**
- ◆ Take off the flexible steel sheet.
- ◆ Use any cloth or piece of fabric, which is thick enough and cover the heatbed. This will ensure you won't damage (scratch) the surface during the disassembly.

STEP 6 Accessing the hotend cables



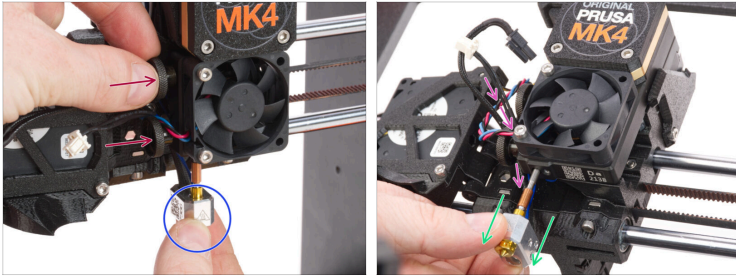
- ◆ Slide the Loveboard-cover up and remove it from the extruder. There are two cutouts on the back of the part, which you can grab for easier removal.
- ◆ Open the fan-door widely.

STEP 7 Disconnecting the hotend cables



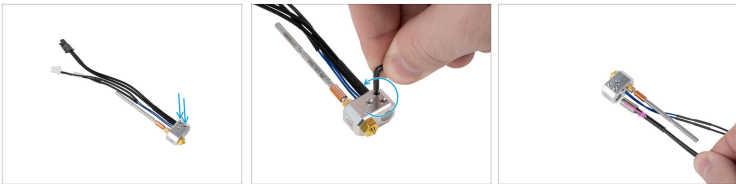
- ⚠ Each connector has a safety latch. **It is necessary to press the latch before disconnecting.** Otherwise, the connector may get damaged.
- ◆ Disconnect the hotend heater cable.
- ◆ Disconnect the hotend thermistor cable.
- ◆ Remove the heatsink fan cable, hotend thermistor, and hotend heater cables from the cable channel and leave them free for now.
- ⓘ If necessary, remove the other cables that overlap them.

STEP 8 Removing the hotend



- ◆ Grasp the hotend with your hand.
- ◆ Use your other hand to loosen the two thumb screws. **There is no need to remove them completely**, a few turns are enough.
- ◆ Slide out the hotend assembly from the heatsink.
- ◆ At the same time push the hotend cables behind the heatsink out of the extruder.

STEP 9 Removing the heater



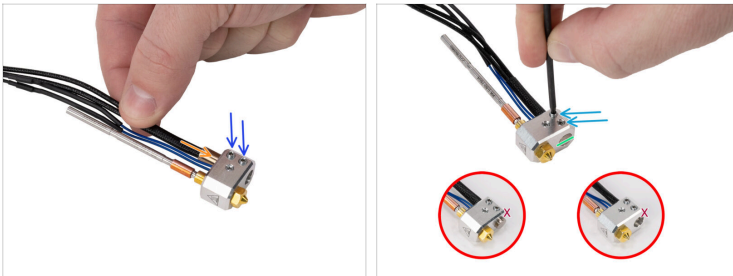
- ◆ Using the T6 Torx key loose the screws.
- ◆ Remove the heater from the heaterblock.

STEP 10 New hotend hotend: parts preparation



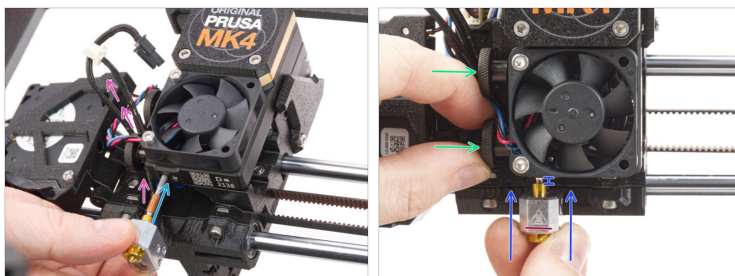
- For the following steps, please prepare:
- ◆ New hotend heater (1x)
- ◆ New grub screws M3x4 (2x)

STEP 11 Installing the hotend heater



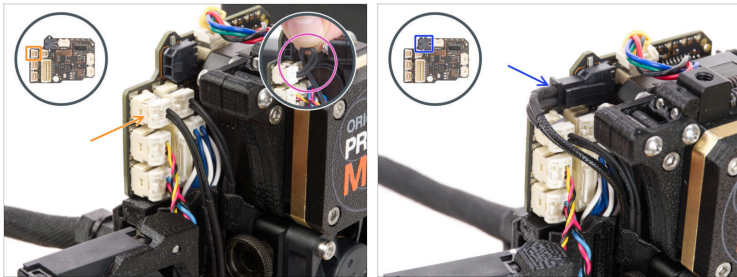
- ◆ Insert new grub screws and screw them using a TX 6 key. **A few turns are enough for now.**
- ◆ Insert the new heater all the way into the heaterblock.
- ◆ Align the bottom surface of the heater with the bottom surface of the heaterblock.
- ⚠ **Make sure your heater is aligned with the bottom side of the heaterblock.**
- ◆ Using a longer side of a TX 6 Torx key, gently tighten two grub screws while keeping the heater in position. **Do not overtighten.**

STEP 12 Inserting the hotend



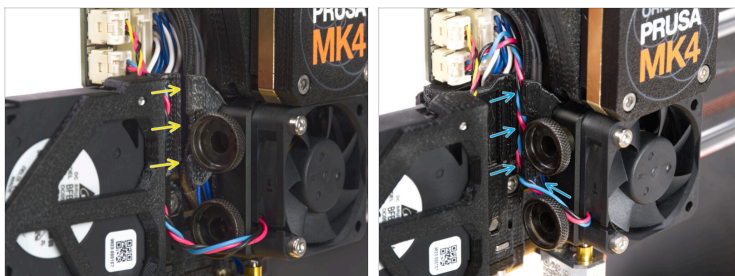
- Locate the hole in the heatsink from the bottom of the extruder and insert the hotend into the heatsink.
- At the same time, push the hotend cable behind the heatsink fan up to the electronics.
- Push the hotend assembly all the way into the heatsink. There should be approximately a 2 mm gap between the heatsink and the brass part of the nozzle.
- Orient the hotend assembly so that the **HOT** symbol on the heaterblock faces forward.
- While pushing the hotend assembly in, firmly tighten the lower thumb screw and the upper thumb screw. **Avoid pinching any cable between the screws and the heatsink!**

STEP 13 Connecting the hotend



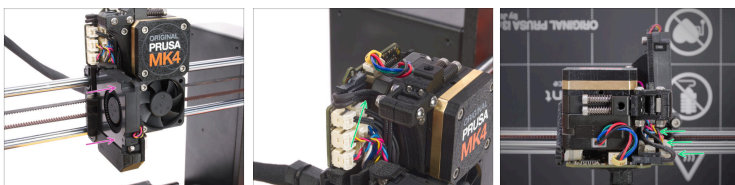
- Connect the hotend thermistor to the top left slot on the LoveBoard.
- If you have the hotend thermistor with a long cable, make a loop near the connector. **Do not twist the cable too much.**
- Connect the hotend heater to the black slot on the upper part of the LoveBoard.

STEP 14 Guiding the hotend cables



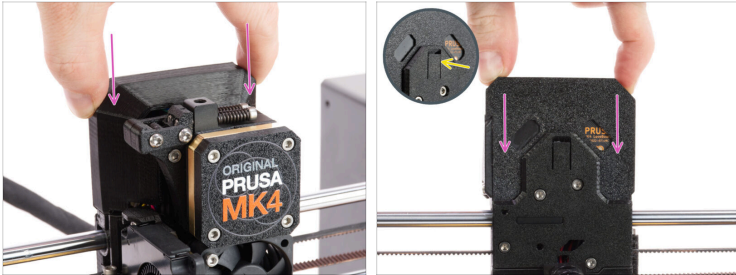
- ◆ Locate the cable channel behind the thumb screws. Guide the hotend thermistor cable through the channel first. Then insert the hotend heater cable.
- ◆ Guide the heatsink fan cable as you can see. Push it in the cable channel.
- ⓘ If you have removed other cables, return them to the channel.

STEP 15 Arranging the cables



- ◆ Close the fan-door.
- ◆ Arrange all the cables according to the picture. All cables must be squeezed as close to the extruder body as possible so as not to interfere with the cover in the next step.

STEP 16 Covering the LoveBoard



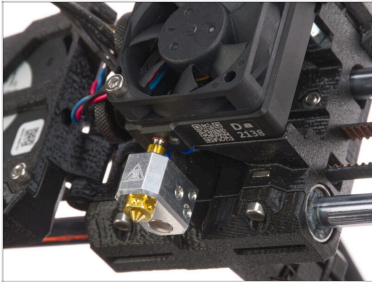
- ◆ Slide the Loveboard-cover on the extruder. And push it down.
- ⚠ **Be careful not to pinch any cables!**
- ◆ When the cover is properly and completely inserted, you will feel a slight "click" of the rear latch.

STEP 17 Final check



- ◆ To check if everything is connected correctly go to *Control* -> *Temperature* -> *Nozzle Temperature* and set any temperature at least above 200°C.
- ◆ Go back to the main screen and watch on the bottom bar to see if the temperature rises.

STEP 18 That's it!



- ◆ **Great job!** You just successfully replaced the hotend heater on your Original Prusa MK4/MK3.9.
