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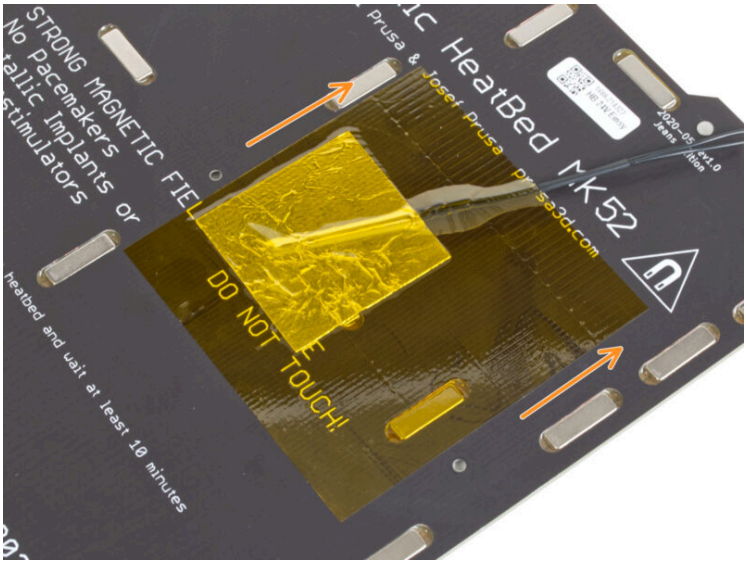
How to replace a Heatbed Thermistor (MK4/S, MK3.9/S, MK3.5/S)



help.prusa3d.com/g649790

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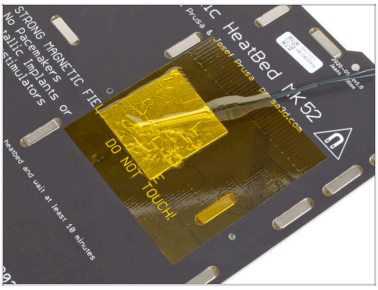
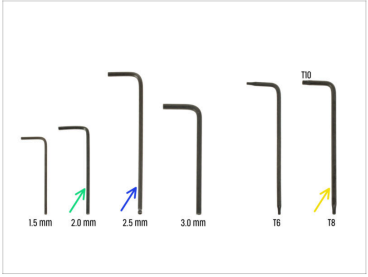
STEP 1 Introduction



- This guide will take you through the **Heatbed thermistor replacement** on your Original Prusa MK4 or MK3.9.
- All necessary parts are available in our eshop prusa3d.com.

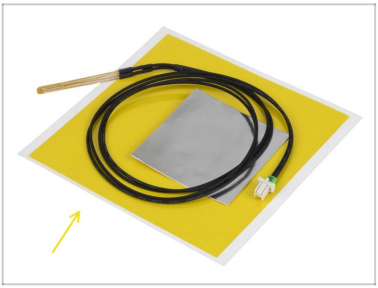
  ⓘ Note that you have to be logged in to have access to the spare parts section.

STEP 2 Tools necessary for this chapter



- **For this chapter, please prepare:**
- 2.0mm Allen key
- 2.5mm Allen key
- T8/10 Torx key
- Phillips screwdriver

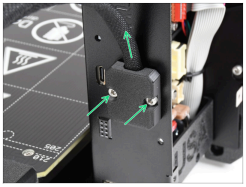
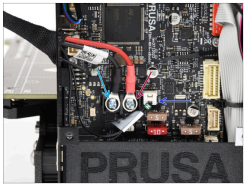
STEP 3 Parts preparation

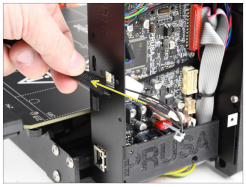


- **For the following steps, please prepare:**
- MK3.9 / MK4 Heatbed thermistor set (1x)

  ⓘ Available on our e-shop.

STEP 4 Removing the cables



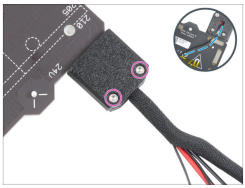
- Remove the heatbed-cable-holder on the back of the xBuddy box, held by two M3x6 screws.
- Remove the heatbed terminal screw holding the black cable.
- Remove the heatbed terminal screw holding the red cable.
- Undo the heatbed thermistor cable.

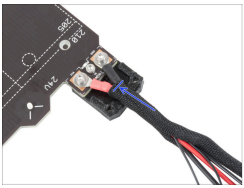
  ⚠ Note there is a safety latch on the connector, which must be pressed in order to be able to disconnect the plug.
- Pull the heatbed cable bundle out of the xBuddy box.

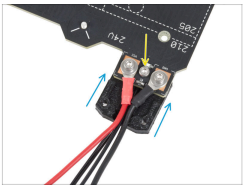
STEP 5 Removing the heatbed

- Remove the eight M3x4bT screws on the heatbed.
- Remove the M3x14bT screw holding the middle of the heatbed.
- There is a spacer in the middle of the Y-carriage part, below the heatbed. Save it for later use.

STEP 6 Cable bundle disassembly

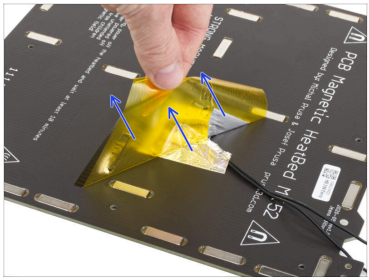


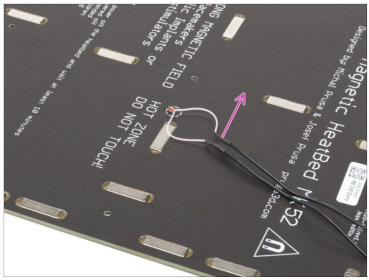




- Remove the two M3x10 screws holding the cable-cover-top part.
- Remove the textile sleeve from the cable bundle.
- Remove the M3x10 screw holding the cable-cover-bottom part.
  - The thermistor cable goes through the cable-cover-bottom part.

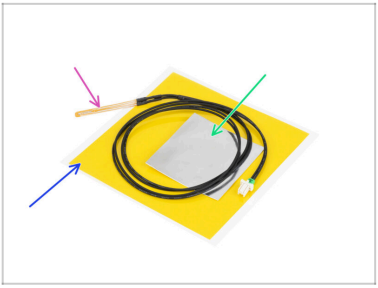
STEP 7 Thermistor removal





- From the bottom side of the heatbed, peel off the yellow Kapton tape and silver aluminum tape.
- Remove the heatbed thermistor cable from the heatbed.

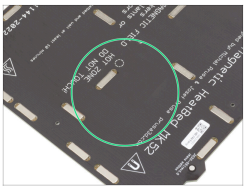
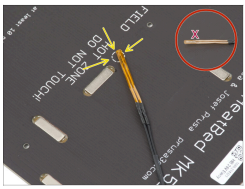
STEP 8 New heatbed thermistor: parts preparation

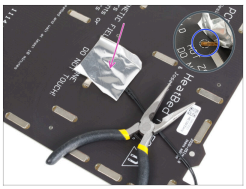


- **For the following steps, please prepare:**
- MK4 Heatbed thermistor (1x)
- Kapton tape (1x)
- Aluminum tape (1x)

⚠ **Pay attention to the instructions!** The "yellow" Kapton tape tends to curl up and you won't be able to restore its initial shape!!

STEP 9 Preparing the heatbed and thermistor

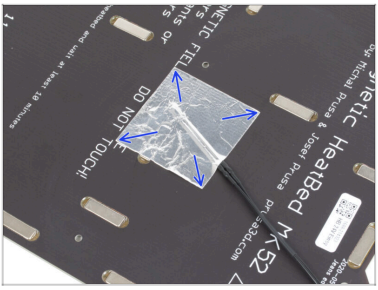


- After you have removed the thermistor and the tapes, clean the entire board to remove any grease. You can leave the glue, which was under the aluminum tape.
- Place the thermistor onto the heatbed. **The tip of the thermistor must be in the circle.**

  ⚠ **If you miss this spot, the printer will read incorrect temperature values.**

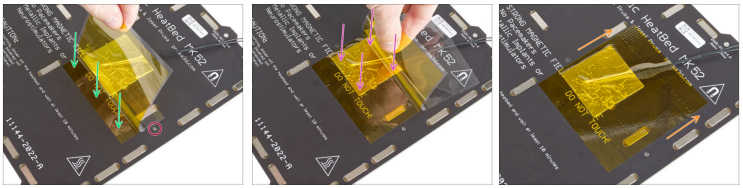
  ⚠ Note which side the sensor is attached to the heatbed.
- Take the silver aluminium tape and carefully peel off the protective film.
- Glue the tape to the heatbed, **BUT ONLY** in the centre of the thermistor (inside the circle shape). We need to double-check the correct position.
- Peel or bend the tape slightly, to reveal the tip of the thermistor.

STEP 10 Covering the thermistor



- Maintain the thermistor position and cover it with aluminum tape. Ensure that the whole thermistor sensor is covered with the tape.

STEP 11 Fixing the thermistor in place



⚠ Now it is time to apply the final "yellow" Kapton tape. **DON'T PEEL OFF the entire tape**, it will curl up!!!

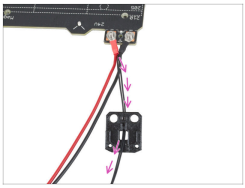
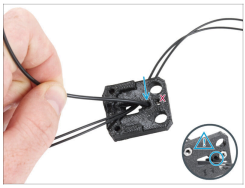
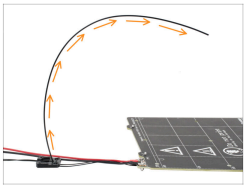
- Peel off about 1 cm (1/2 inch) strip of the Kapton tape and stick it to the heatbed. Make sure the tape adheres properly.

⚠ **Make sure the Kapton tape does not overlap any screw holes in the heatbed.**

ⓘ The Kapton tape has a bigger area than the silver tape. Make sure the silver tape is overlapped from all sides.

- Keep applying the tape. Make sure it doesnt curl too much in the thermistor area.
- Check that the entire adhesive surface is properly attached to the heatbed.

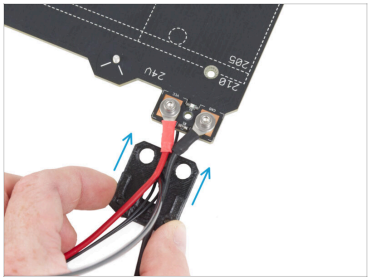
STEP 12 Assembling the heatbed-cable-cover: nylon filament

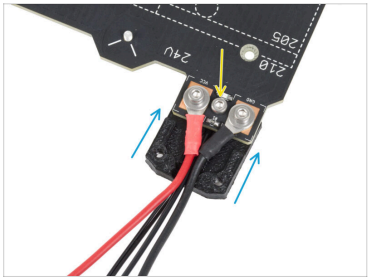




- Guide the heatbed thermistor cable through the heatbed-cable-cover-bottom.
- Make sure the nylon filament goes through the opening in the heatbed-cable-cover-bottom. Don't let the nylon filament stick out too much on the other side. It should not protrude more than 2 millimeters.

  ⚠ When inserting the nylon filament, **ensure that the filament does not damage the thermistor cables under the printed part.**
- Orient the curve of the filament as shown in the third picture.

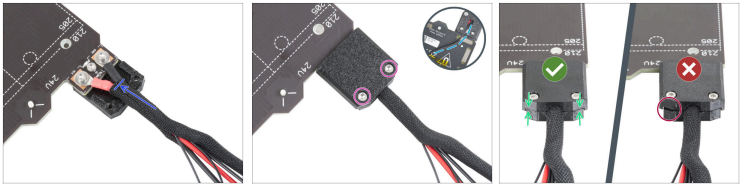
STEP 13 Assembling the heatbed-cable-cover-bottom





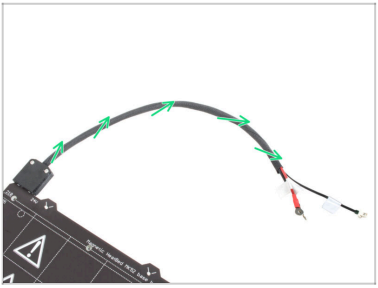
- Slide the cable-cover-bottom under the heatbed cable connectors (M3nN nuts). See the correct orientation in the picture.
- Secure the cover with the M3x10 screw from the top. Tighten the screw firmly.

STEP 14 Assembling the heatbed-cable-cover-top



- Wrap the end of the cable bundle together with the nylon filament in the textile sleeve. Slide the sleeve as far towards the heatbed as possible.
- Attach the heatbed-cable-cover-top onto the junction and secure it with two M3x10 screws.
- On the bottom side, leave a slack on the thermistor cable for one finger to be pushed through.
- Make sure there is not a large gap between the covers.

STEP 15 Wraping the textile sleeve



- Finish wrapping the cable bundle in the textile sleeve. Twist the sleeve around the cables **but do not twist cables inside.**

STEP 16 Attaching the heatbed

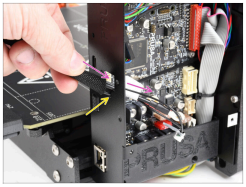
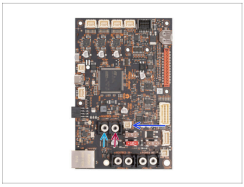
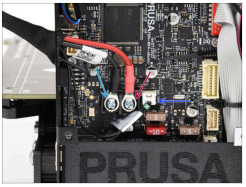

- Place the spacer onto the Y-carriage and align it with the hole in the center.
- Put the heatbed on the Y-carriage and secure it by the M3x14bT going through the spacer. **Do not fully tighten the screw yet.**
- Insert the M3x4bT screws into the remaining holes in the heatbed. **Do not fully tighten the screws yet.**

STEP 17 Tightening the heatbed

- After all screws are in place, tighten them in the following sequence:
  - Center screw
  - First four screws (edges)
  - Last four screws (corners)

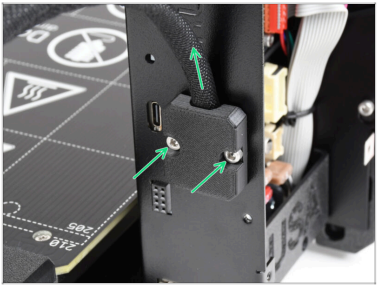
⚠ **Tighten the screws firmly and carefully.**

STEP 18 Guiding the heatbed cables

- Guide the heatbed cables through the square opening on the back of the xBuddy Box.
- Push the filament through the marked hole below the square opening.
- Place the **black** heatbed cable onto the **left** terminal and secure it with the terminal screw.
- Place the **red** heatbed cable on the **right** terminal and secure it with the terminal screw.
- Connect the heatbed thermistor cable to the xBuddy board.

STEP 19 Covering the heatbed cables



- Attach the heatbed-cable-holder to the xBuddy box. The cable bundle must be pointing up. Secure it using two M3x6 screws. Tighten the screws firmly.

STEP 20 Final check

- Connect the printer to the electricity and turn it on.
- To check if everything works correctly, go to Preheat menu.
- Select one of the preheat options such as PLA.
- On the bottom of the screen, you should be able to see the temperature readings increase as the heatbed heats up.

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