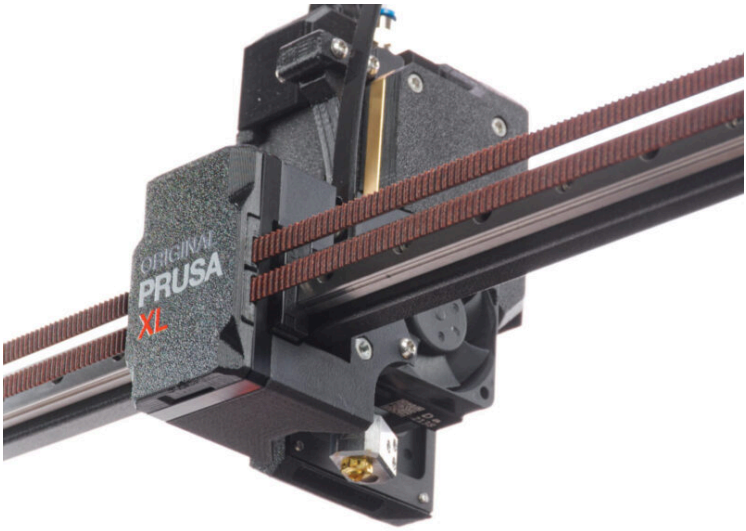
Table of Contents

How to replace a hotend thermistor (XL Single-Tool)



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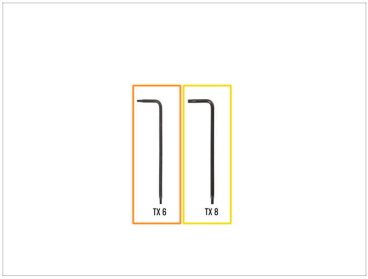
STEP 1 Introduction

- This guide will take you through the replacement of the **hotend thermistor** on the **Original Prusa XL**.
- This manual is for a **single tool only**.
- Hotend Thermistor NTC 100k is available in our eshop.

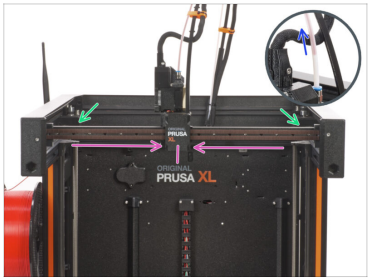
Note that you have to be logged in to have access to the spare parts section.

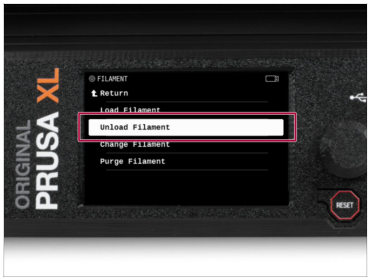
STEP 2 Tools necessary for this chapter



- **For this chapter, please prepare:**
- TX 6 Torx key
- TX 8 Torx key
- A cardboard box for use as a heatbed protection during the assembly. *Hint: use the Prusament box*.
- Small brass brush for cleaning the nozzle

STEP 3 Filament unloading



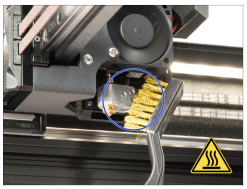


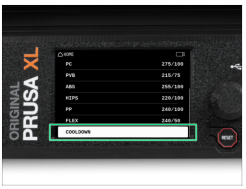
- Manually move the X-axis assembly all the way to the front side of the printer.
- Move the extruder approximately to the center of the X-axis.
- If you have loaded the filament, unload it from the hotend. On the screen, navigate to *Filament -> Unload Filament.*

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

- Remove the filament from the hotend. It is not necessary to completely remove it from the printer. Just a few centimeters (inches) above the extruder.

STEP 4 Cleaning the hotend





⚠ **WARNING: The hotend and heatbed 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 set the temperature to 260°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 from the filament residue. **Avoid contact of the brush with the hotend cables, as this could cause a short circuit.**
- When the heaterblock is perfectly clean, cool down the printer. On the screen, navigate to *Preheat -> Cooldown*.

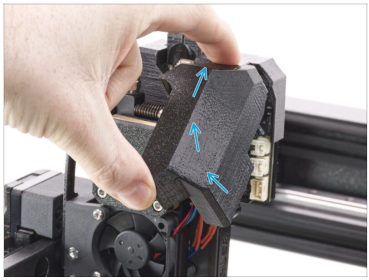
⚠ **Wait until the hot parts are cooled down** to ambient temperature. It takes approximately 10 minutes.

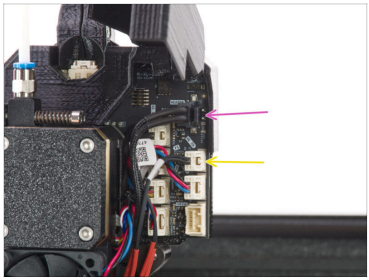
STEP 5 Preparing the printer

Before you proceed, it is recommended to protect the heatbed.

- **Make sure the heatbed is cooled down** to ambient temperature. Place the empty cardboard box approximately to the front center part of the heatbed.
- From the rear side of the printer, turn the power switch OFF (symbol "O").

STEP 6 Disconnecting the hotend



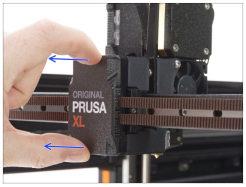


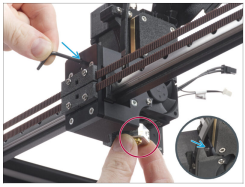
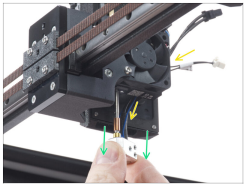
- Open the dwarf-cover-door to access the electronics board.

⚠ 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.
- Leave both cables free for now.

STEP 7 Removing the hotend

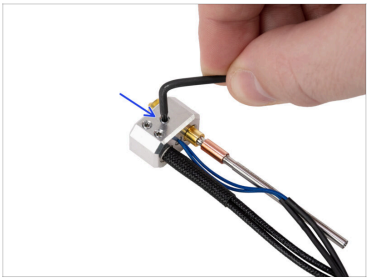


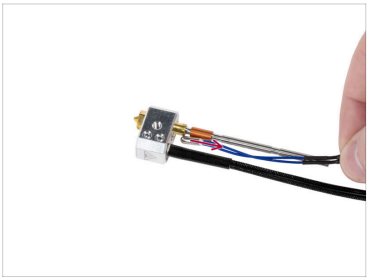



ⓘ If your x-carriage-cover has a hole in it, there is no need to remove the cover. Use the hole to release the hotend.

- Remove the x-carriage-cover from the X-carriage.
- Hold the hotend with your right hand.
- Using your left hand, insert the Torx TX 8 key all the way through the X-carriage until it reaches the grub screw in the extruder. Loosen the screw. **Do not remove the screw, a few turns are enough!**
- Carefully pull the hotend assembly out of the extruder.
- At the same time push the hotend cables behind the fan out of the extruder.

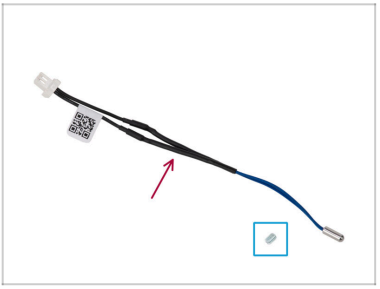
STEP 8 Removing the thermistor





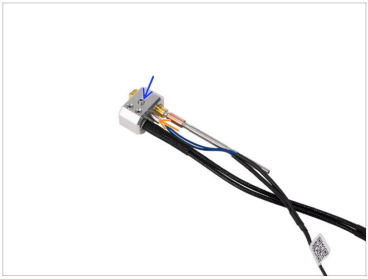
- Using a TX 6 Torx key, loosen and remove the grub screw.
- Pull out the thermistor out from the heaterblock.

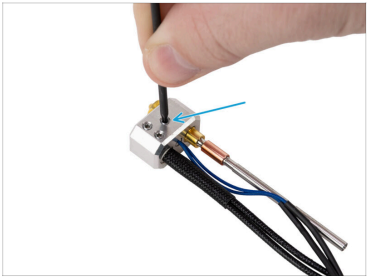
STEP 9 Installing the thermistor: parts preparation



- **For the following step please prepare:**
- New XL Thermistor NTC 100k (1x)
- New grub screw M3x4 (1x)

STEP 10 Inserting the new thermistor

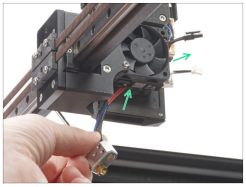
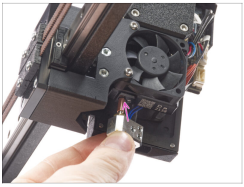
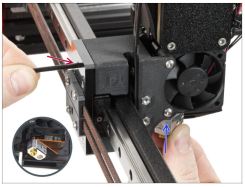




- Insert new grub screws and screw them. A few turns are enough for now.
- Insert the new thermistor all the way into the heaterblock.
- Using a longer side of a TX 6 Torx key, gently tighten the grub screw while keeping the thermistor in position.

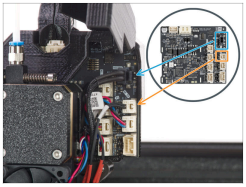
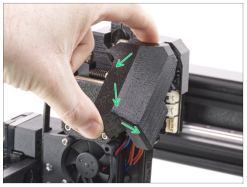
⚠ **Tighten gently but firmly.** Using more force can cause fatal damage to the thermistor.

STEP 11 Inserting the hotend

- Push the hotend cable behind the heatsink fan up to the electronics.
- Locate the hole in the heatsink from the bottom of the extruder and insert the hotend nub into the heatsink.
- Push the hotend all assembly the way in.
- Rotate the heaterblock as in the picture. There must be approximately 35° - 40° angle to avoid damaging the hotend cables.
- Maintain the position and using the TX 8 Torx key tighten the grub screw to secure the hotend. **Do not use extra force while tightening**, it may damage the hotend nub.

STEP 12 Connecting the hotend

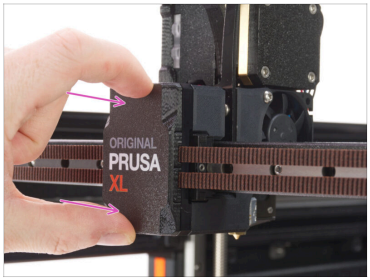




- Connect the hotend heater to the upper slot on the electronics board.
- Connect the hotend thermistor to the lower slot on the electronics board.
- Close the dwarf-cover-door.
- Remove the cardboard box from the heatbed.

STEP 13 Turning the printer ON

- From the rear side of the printer, turn the power switch ON (symbol "I").

STEP 14 Checking the temperature

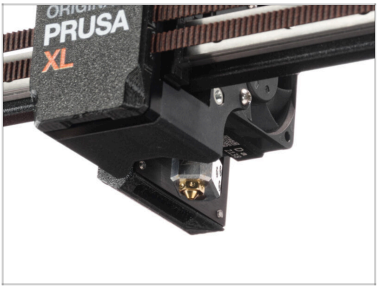


- To check if everything is working, go to *Preheat -> PLA* and on the main screen check if the hotend temperature is increasing.

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

- Snap the x-carriage-cover back onto the X-carriage. You must feel a slight "click" to ensure the cover fits on the part.

STEP 15 That's it



- **Easy, right?** Good job. You just successfully replaced the hotend thermistor on your Original Prusa XL.

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