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How to replace a print fan (MK4S / MK3.9S)



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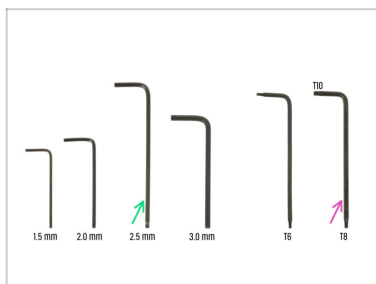


STEP 1 Introduction



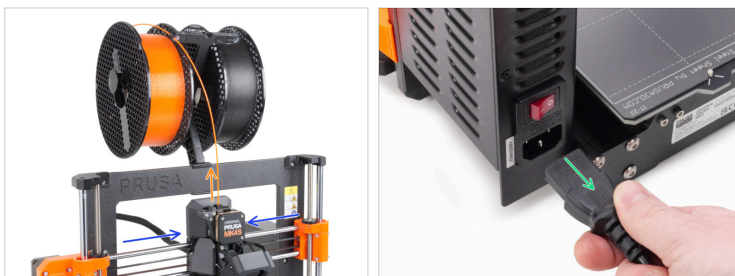
- ◆ This guide will take you through the Print fan replacement on your Original Prusa MK4S or MK3.9S.
- ◆ All necessary parts are available in our eshop [prusa3d.com](https://eshop.prusa3d.com).
- ⓘ Note that you have to be logged in to have access to the spare parts section.

STEP 2 Tools necessary for this chapter



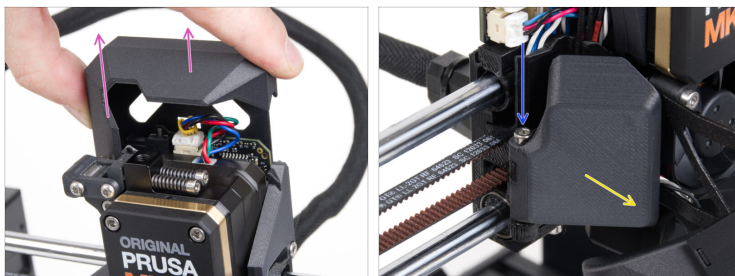
- ◆ **For this chapter, please prepare:**
- ◆ 2.5mm Allen key
- ◆ Torx key T10/8

STEP 3 Preparation



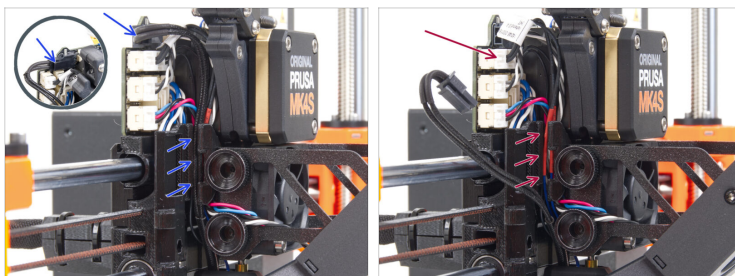
- ◆ Before you start, make sure the extruder on your printer is in the middle of both the X and Z axes.
- ◆ Unload a filament, if it is loaded.
- ◆ Power off your printer and disconnect it from the power.

STEP 4 Removing the covers



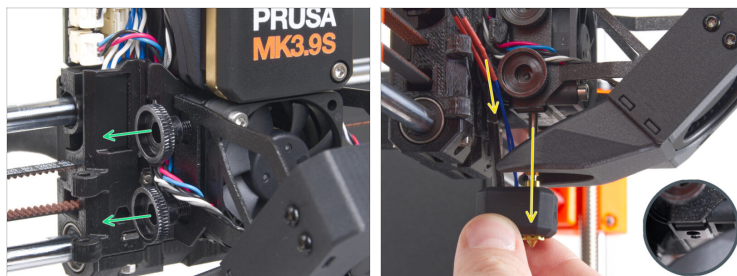
- ◆ Remove the Loveboard-cover from the extruder.
- ◆ Remove the M3x30 screw holding the Fan-door-hinge part.
- ◆ Remove the Fan-door-hinge plastic part.

STEP 5 Disconnecting the hotend



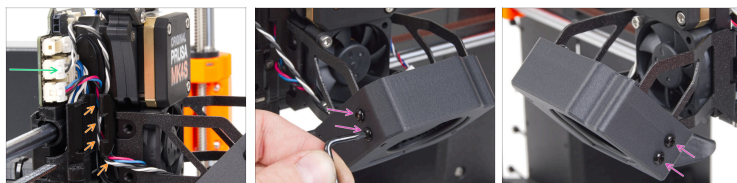
- ◆ Disconnect the hotend heater connector. Dislodge the cable from the groove in the x-carriage part.
- ⓘ Note that there is a safety latch which must be pressed in order to remove the connectors. Proceed carefully to prevent damaging the connectors.
- ⚠ **Proceed carefully to prevent damaging the connectors.**
- ◆ Disconnect the hotend thermistor connector. Dislodge the cable from the groove in the x-carriage part.

STEP 6 Removing the hotend



- Remove the thumb screws fixing the hotend in place.
- Remove the hotend assembly from the extruder.
- ⚠ Be careful not to damage the cables.

STEP 7 Removing the print fan



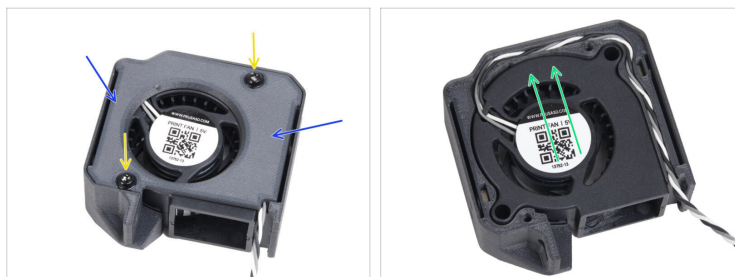
- Disconnect the print fan connector.
- ⓘ Note that there is a safety latch which must be pressed in order to disconnect the connector.
- Dislodge the print fan cable from the groove in the x-carriage part.
- Remove the four M3x5rT screws from both sides of the fan-holder.

STEP 8 Print fan disassembly part 1



- Remove the print fan assembly from the extruder by sliding it out. Watch out for the cable.
- Remove the M3x5rT screw holding the fan-shroud.
- Remove the fan shroud.

STEP 9 Print fan disassembly part 2



- Remove the two 3x8sT screws.
- Remove the fan-case-cover.
- Remove the old print fan and its cable from the plastic part.

STEP 10 Print fan blower: parts preparation



- For the following steps, please prepare:
- New MK4S Print fan blower (1x)

STEP 11 Print fan assembly



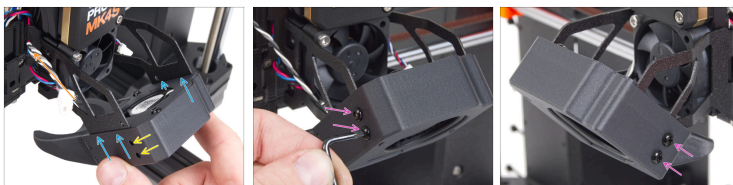
- Insert the MK4S print fan blower into the print fan blower case.
- Guide the print fan blower cable through the cable channel in the Fan-case.
- Close the fan with Fan-case-cover.
- Secure the cover with two 3x8sT screws.

STEP 12 Assembling the fan shroud



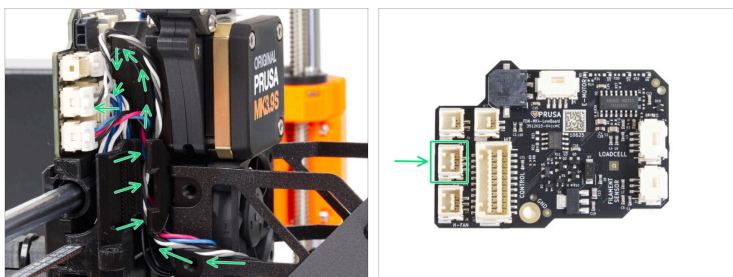
- i** Attach the Fan-shroud to the print fan blower assembly. Notice two teeth on the fan shroud and two rectangular holes in the blower assembly.
- First, insert those teeth into the rectangular cutouts.
- Close the Fan-shroud and secure it with the M3x5rT screw.
- ⚠** Use reasonable force to avoid breaking the parts.

STEP 13 Mounting the print fan blower assembly



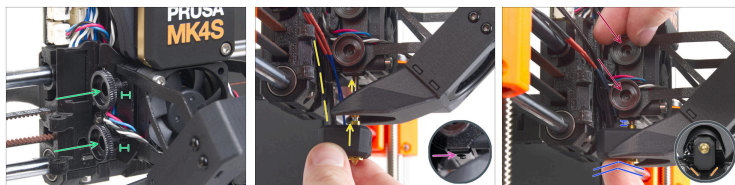
- Take the print fan blower assembly and guide the fan cable through the cutout on the left side of the fan holder.
- i** Use the same cutout through which the heatsink fan cable already guides.
- Slide the side pockets of the print fan blower assembly onto the two “forks” of the fan holder.
- Ensure that the holes of both parts are aligned.
- Secure both parts together using four M3x5rT screws.

STEP 14 Connecting the print fan blower



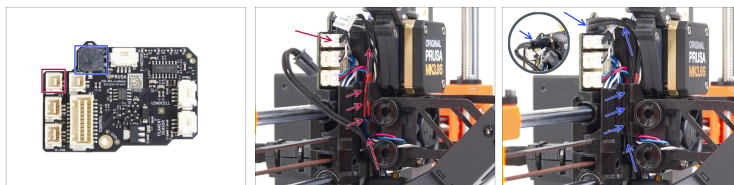
- Guide the print fan blower cable through the cable channel in the X-carriage and plug the connector to the middle slot on the LoveBoard.

STEP 15 Inserting the hotend assembly



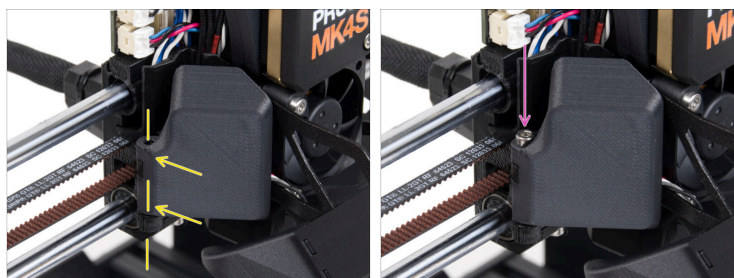
- ◆ Insert two thumb screws into the heatsink. **Do not tighten them completely.** Two turns are enough for now.
- ◆ Look closely at the underside of the heatsink and find the hole for the hotend assembly.
- ◆ Insert the hotend assembly tube in the hole and slide the whole thing into the heatsink.
- ◆ 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.
- ◆ While pushing the hotend assembly in, **firmly tighten both thumb screws.**
 - ⚠ **Avoid pinching any cable between the screws and the heatsink!**
- ◆ From the underside, check that the hotend is oriented correctly. It must fit between the cutouts in the X-carriage.

STEP 16 Connecting the hotend cables



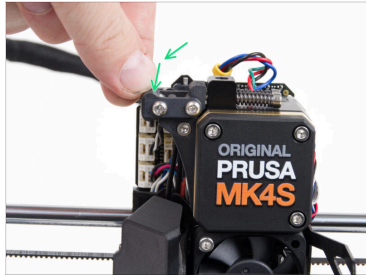
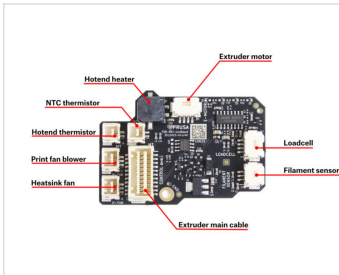
- ◆ Guide the hotend thermistor through the cable channel in the X-carriage and connect it to the LoveBoard.
- ◆ Guide the hotend heater through the cable channel in the X-carriage and connect it to the LoveBoard.


STEP 17 Attaching the Fan-door-cover




- ◆ Attach the Fan-door-cover hinge to its counterpart in the X-carriage. Holes in both parts must be aligned.
- ◆ Insert the M3x30 screw in the hinge on the fan-door. Fully tighten the screw, then loosen it by a quarter turn. **The fan-door must move freely!**

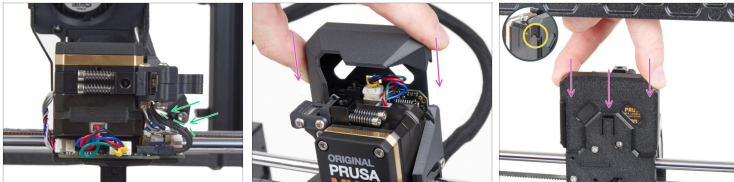
STEP 18 LoveBoard: Wiring check





 **Before covering the electronics, check the connection of all cables.** Click on high-resolution preview in the top left corner.

 Close the idler mechanism if you haven't already done so.


STEP 19 Covering the LoveBoard: top cover



 Push all cables to the extruder to make more space around them. See the picture.

 Slide the Loveboard-cover on the extruder. And push it all the way down. The cover must go behind the X-carriage-back.

 **Be careful not to pinch any cables.**

 Ensure that the two plastic covers fit together perfectly.

STEP 20 Finished



- ◆ The fan replacement is finished. Verify your extruder is assembled as seen in the picture.
- ◆ To test out the fan functionality, visit the menu **Control > Calibrations & Tests > Fan test**.
