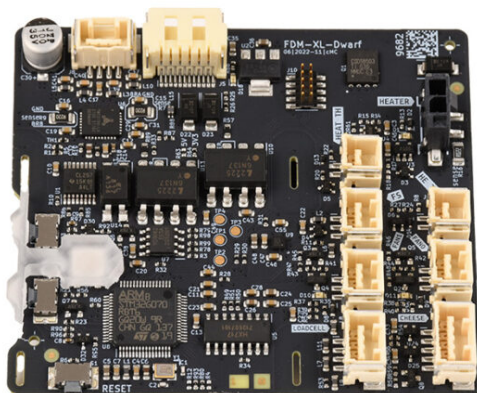


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How to replace a Dwarf board (XL multi-tool)

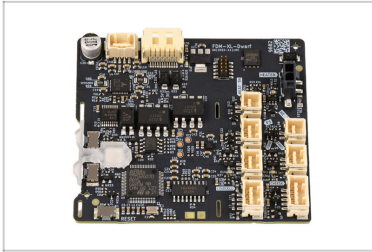


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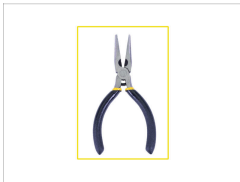
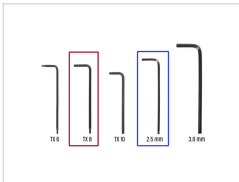


STEP 1 Introduction



- ◆ This guide will take you through the replacement of a Dwarf board on the **multi-tool version of the Original Prusa XL**.
- ◆ 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 Necessary tools



- ◆ **For the following guide, please prepare:**
- ◆ TX 8 Torx key
- ◆ Allen key 2.5mm
- ◆ Needle-nose pliers
- ◆ A cardboard box to use as a heatbed protection during the procedure. *Hint: use the Prusament box.*

STEP 3 Unloading filament



- i** The following step is necessary only if you have filament loaded in the tool that has the Dwarf board to be replaced.
- ◆** On the printer screen, navigate to *Control* -> *Pick/Park Tool* -> *Pick tool*, and select the tool that has the Dwarf board to be replaced.
- ◆** Unload the filament from the hotend. On the screen, navigate to *Filament* -> *Unload Filament*.
- ◆** Cool down the printer to room temperature. On the screen, navigate to *Preheat* -> *Cooldown*.
- ⚠** Wait for the printer to fully cool down to room temperature before proceeding further.

STEP 4 Preparing the printer



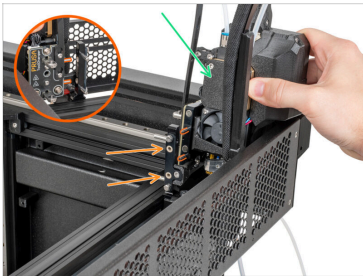
- On the printer screen, navigate to *Control* -> *Pick/Park Tool* -> *Park Current Tool*.
- Turn the power switch OFF (symbol "O").
- From the rear side of the printer, unplug the PSU cable.

STEP 5 Protecting the heatbed



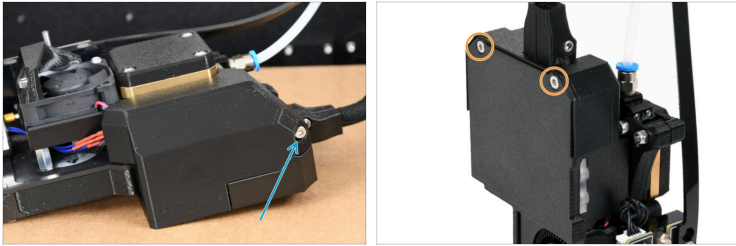
- ◆ Before you proceed, it is recommended to protect the heatbed.
- ◆ Make sure the heatbed is cooled down to ambient temperature. Place the empty cardboard box approximately to the front center part of the heatbed.

STEP 6 Undocking the Nextruder



- ◆ Remove the Nextruder, by pulling it outwards from the metal inserts.
- ⓘ Although a small resistance is expected, as the metal inserts are magnetic, **use moderate force**.
- ◆ Carefully place the Nextruder on the cardboard box.

STEP 7 Removing covers



- Using the 2.5mm Allen key, loosen the M3x12 screw to open the dwarf-cover-door.
- Using the TX 8 key, remove the M3x8bT and open the dwarf-cover-back.

STEP 8 Nextruder cable bundle disassembly



- Push the QSM-M5 fitting on the Nextruder. At the same time, gently pull out the PTFE tube.
- Each connector has a safety latch. It is necessary to press the latch before disconnecting. Otherwise, the connector may get damaged.**
- Disconnect the main cable connector.
- Using a T10 key, slightly loosen the two marked screws.
- Slightly move the cable strip towards the larger key openings, and remove it from the Nextruder.

STEP 9 Disconnecting cables



- ⚠ Each connector has a safety latch. It is necessary to press the latch before disconnecting. Otherwise, the connector may get damaged.
- 🔸 Carefully slide up the dwarf-cover-base.
- 🔸 Disconnect all the remaining connectors from the Dwarf board.

STEP 10 Removing the Dwarf board



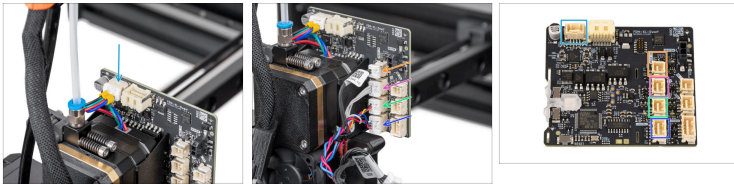
- ⚠ Avoid scratching the board with the divots and with the needle-nose pliers.
- 🔸 Using needle-nose pliers, rotate the divots so that they are positioned vertically, and aligned with the holes.
- 🔸 Carefully slide the Dwarf board out.

STEP 11 Assembling the new Dwarf board



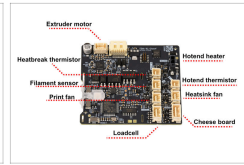
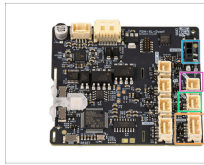
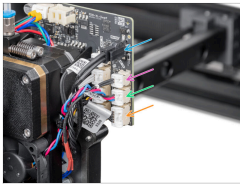
- ⚠️ **Avoid scratching the board with the divots and with the needle-nose pliers.**
- 🟪 Carefully insert the Dwarf board through the divots.
- 🟩 Twist the divots using needle-nose pliers.

STEP 12 Connecting cables



- 🟦 Connect the E-axis motor
- ⓘ The main cable will be connected at a later step.
- ⬛ The right-side area connectors have indications.
- ⬛ Connect the following cables on the first column from the left, starting from the uppermost connector:
 - 🟧 HEAT TH: heatbreak thermistor
 - 🟪 FS: filament sensor
 - 🟩 FAN1: print fan
 - 🟦 Loadcell

STEP 13 Connecting cables



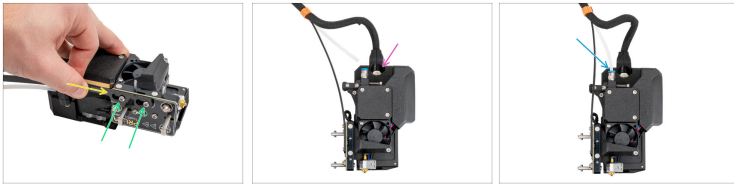
- Connect the following cables on the rightmost column, starting from the uppermost connector:
 - HEATER: hotend heater cable
 - HE TH: hotend thermistor
 - FAN0: heatsink fan
 - CHEESE: cheese board
- Double-check that all cables are connected and in the correct position, apart from the main cable.

STEP 14 Covering Dwarf board top



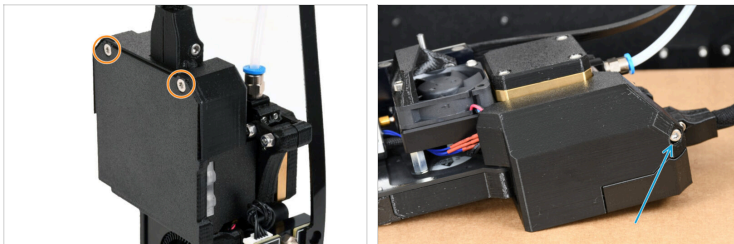
- Carefully slide the dwarf-cover-base onto the Dwarf board.
- ⚠ Avoid scratching or damaging the Dwarf board.

STEP 15 Nextruder cable bundle assembly



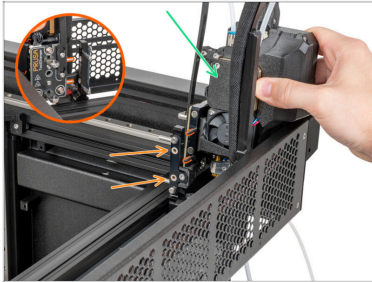
- 🟡 Hook up the keyhole openings in the flexible plate of the cable bundle onto the screw heads.
- 🟢 Using a T10 key tighten the marked two screws.
- 🟣 Attach the cable connector into the top of the Nextruder.
- 🟠 Insert the PTFE tube into the QSM-M5 fitting on the Nextruder. Push it all the way in.

STEP 16 Re-assembling covers



- 🟠 Using the TX 8 key, tighten the M3x8bT to attach the dwarf-cover-back.
- 🟠 Tighten the M3x12 screw and close the dwarf-cover-door.
- ⚠️ **Avoid pinching any cables.**
- ⬛ Remove the cardboard box from the heatbed.

STEP 17 Docking the Nextruder



- ◆ Take the Nextruder and place it carefully next to the dock.
- ◆ Place the two metal inserts through the white holes in the dock. The magnets will help you dock the Nextruder.
- ⓘ Check that the Nozzle seal lightly touches the nozzle.

STEP 18 Final check



- ◆ To check if everything is connected correctly, navigate to *LCD Menu -> Control -> Calibrations & Tests*. From that menu, test the following:
 - ◆ Fan Test
 - ◆ Loadcell Test
 - ◆ Nozzle Heaters Test

STEP 19 It's done



- ◆ That's it! You successfully replaced the **Dwarf board** on your **multi-tool Original Prusa XL**.
