

Repair manual Ultimaker 3

Replacing the print head

For internal use only

Replacing the print head

Important: Make sure the filament is removed, the Ultimaker is turned off and the power supply is disconnected before you start the replacement.

Tip: All orientations are noted as seen from the front of the printer

Note: These instructions are the same for the Ultimaker 3 and Ultimaker 3 Extended.

Equipment/supplies needed

Tools

- 2.0 hex screwdriver
- Print head calibration tool

Parts

- 1x print head



Disassembly

1. Remove the filament

- Attempt to remove the filament manually.
- Push the feeder lever upwards to relieve tension on the filament and pull the material out of the bowden tube.

Tip: If this is not possible because the filament is stuck in the print core, remove the bowden tubes first.



2. Remove the bowden tubes

- Place the print head in the front right corner.
- Remove the two white clamp clips.
- Push down on the tube coupling collet while pulling the bowden tube upwards, out of the print head.

Tip: If there is filament still stuck in the print head, pull the bowden tube upwards approximately 10 cm and cut off the filament. Then manually remove the filament from the feeder.



3. Take the print head out of the printer

- Pull the Y print head shaft forward so it snaps out of the sliding blocks.
- Tilt the left and right sliding blocks so that the X print head shaft also comes loose.
- Rotate the print head 45 degrees so you can lift the print head and shafts out of the printer, then put the print head shafts aside.



4. Remove parts from the flooded print head

- Remove the two tube coupling collets from the top of the print head.
- Remove the four cable clips.
- Then put the print head aside.



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Re-assembly

5. Remove the right motor cover

- Move the Z stage all the way down.
- Grab the motor cover at the top.
- Pull it forwards and then to the left to dislodge it from the panels.
- Remove the cover by pulling it upwards out of the frame.



6. Put the printer on its side

- Manually lift the Z stage all the way up.
- Gently place the Ultimaker 3 on its left side.



7. Loosen the Ultimainboard cover

- The Ultimainboard cover is secured to the bottom panel with two M3x12 bolts. They can be reached from the inside of the printer.
- Use the 2.0 hex screwdriver to remove these front two M3x12 bolts.



8. Remove the Ultimainboard cover

- Pull the front of the cover away from the bottom panel.
- Then slide the Ultimainboard cover towards the front of the printer.



9. Disconnect the print head cable

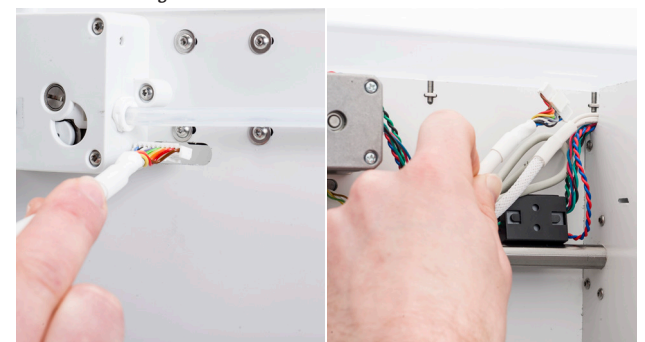
- The print head cable is connected on the front edge of the Ultimainboard
- Push the clip towards the connector.
- Remove the cable from the connector.



10. Remove the print head cable

- Push the other cables in the corner to one side, then carefully feed the print head cable through the hole.
- Run the print head cable through the slot in the back panel.

Tip: There are a lot of cables going through the hole in the bottom panel, so getting the print head cable through can be difficult. Push all the other wiring to the front of the machine and fold the connector to the side. This way you have the most room to manoeuvre the connector through.



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Re-assembly

1. Prepare the new print head

- Take the new print head.
- Place the tube coupling collets in the print head.



2. Feed the print head cable through the printer

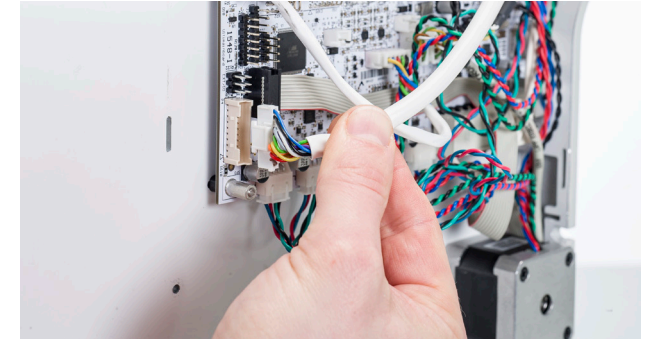
- Move the cable through the slot in the back panel from the outside of the machine.
- Hold all the other wiring to one side and push the connector through the hole in the bottom panel.



3. Connect the print head cable

- The print head cable is connected to the Ultimainboard with the clip of the cable facing towards the front panel.
- Push the cable into the connector until you hear it click.

Note: Make sure that the cable goes straight into the connector; there should be no slack cable going across the Ultimainboard.



4. Put the Ultimainboard cover back in place

- Slide the cover over the Ultimainboard, making sure that no cables are stuck between the cover and the frame.
- First insert the tabs in the back panel. Double check that the flatwire goes through the notch in the cover and is not stuck.
- Fit the tab in at the front of the Ultimainboard cover in the bottom panel.



Tip: Hold the cable of the LED strip against the right panel while doing so, making sure that it goes through the opening in the cover.

5. Secure the Ultimainboard cover

- Secure the Ultimainboard cover to the bottom panel with the two M3x12 bolts.



Tip: Place a finger over the locknut while inserting the bolt from the inside of the printer. This ensures that it stays in place.

6. Place the printer upright

- Turn the Ultimaker 3 upright again.
- Manually move the Z stage all the way down.



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Re-assembly

7. Put the right motor cover back in place

- First align the bottom tab with the notch in the bottom panel, and the bottom right tab with the slot in the side panel. Gently apply some pressure so that the cover snaps into place.
- Push the top right tab into the slot in the side panel.
- Now push the left side of the cover to the left and back. Gently apply some pressure so that the cover snaps into place.

Tip: It may be difficult to get the bottom back tab to snap into the slot in the back panel. If necessary, move the build plate up again to apply pressure directly to the tab.



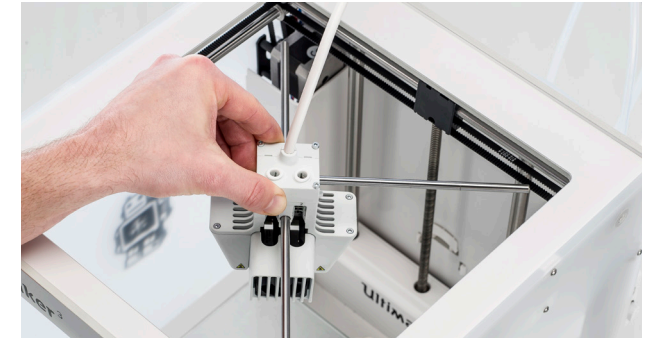
8. Put the shafts back in the print head

- Push the print head shaft X through the bearing. The X shaft is the longer 6 mm axle.
- Push the print head shaft Y through the bearing. The Y shaft is the shorter 6 mm axle.



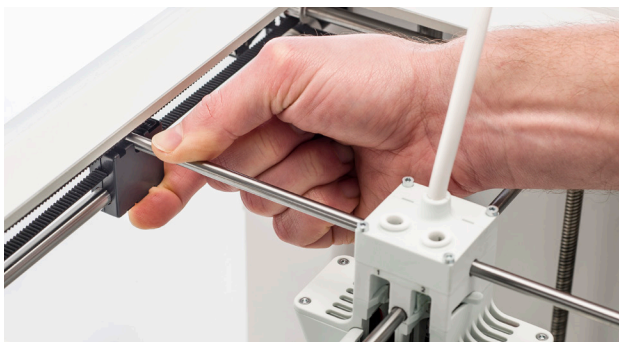
9. Place the print head back in the gantry system

- Put the print head in its original position and align the print head shafts with their sliding blocks.
- Make sure that the ends of the axles are all in between the belts.



10. Secure the print head shaft X

- Tilt the left and right sliding blocks to be able to place the print head shaft X in the notch. Make sure that the end of the shaft is 1 mm from the left panel.
- While supporting the bottom of the sliding block, push down on the end of the shaft until it clicks into place. Do this for both sides.



11. Secure the print head shaft Y

- Tilt the front and back sliding blocks to be able to place the print head shaft Y in the notch. Make sure that the shaft is exactly in the middle.
- Pull the end of the axle upwards until it clicks into place. Do this for both sides.



12. Insert the bowden tubes into the print head

- Push the left bowden tube into the tube coupling collet above slot 1.
- Push the right bowden tube into the tube coupling collet above slot 2.
- Secure the tubes with the two white clamp clips.



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