

# UltiMaker Factor 4

## Repair manual

# Print head



The print head of the UltiMaker Factor 4 features a dual, direct-drive feeder module and intelligent electronics.

The print head is mounted on the carriage on the X beam and can easily be removed from the gantry system. The modular set up allows you to quickly place the print head out of the way when maintenance to the gantry is required, or if you need better access to some print head components. With only a few additional steps, the complete print head can be removed from the printer.

**i Note:** The print comes as two separate service assemblies: the main print head (including housing, motors, fans, and the PCBA) and the feeder module. These modules can be replaced separately. This manual describes replacing the complete print head assembly of the two modules.

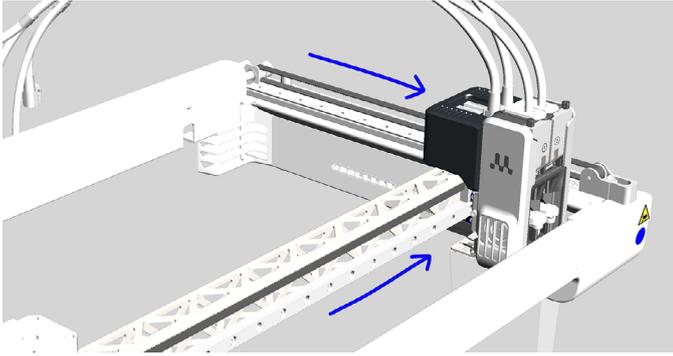
## Requirements

Level	Tools	Parts
<ul style="list-style-type: none"><li>Operator level: ordinary, instructed, or skilled</li><li>Service level: 1</li></ul>	<ul style="list-style-type: none"><li>Hex 2.5 screwdriver</li><li>Tool 2</li><li>Container for small parts</li></ul>	<ul style="list-style-type: none"><li>70-235787 Print head assembly</li><li>70-231132 Feeder module</li></ul>

## Notes

- This repair process requires disconnecting components. Turn off the printer and disconnect the power cable before starting.
- If possible, ensure that all materials have unloaded from the print head and remove both print cores before starting this repair. Otherwise, manually remove the material from the print head and Bowden tubes.
- Never touch the PCBA at the back of the print head. Hold the print head at the sides or at the metal cover at the back.

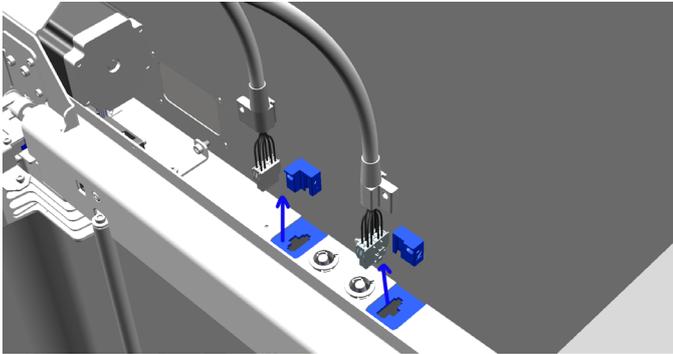
# Disassembly



## 1. Preparation

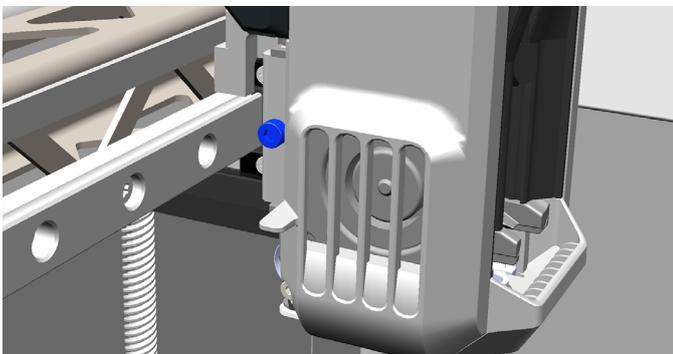
Firmly pull the handle to open the glass door of the build chamber. Place the print head in the front right corner.

**Tip:** In this position, you can access the left side of the print head housing.



## 3. Disconnect print head cables

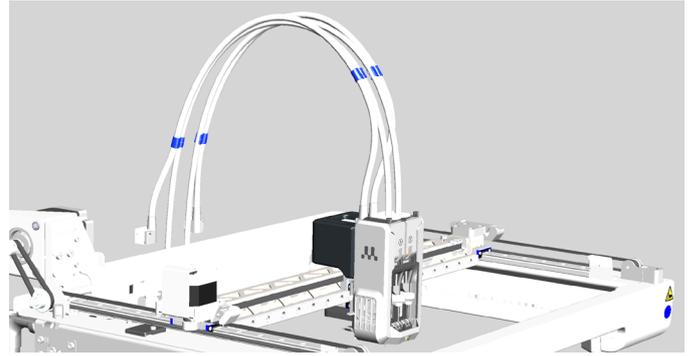
At the back of the chamber, behind the gantry, disconnect the print head cable connectors. Slide the strain reliefs on the cables downward, out of the brackets in the back panel.



## 5. Loosen the print head

While holding the print head in place, use the 2.5 mm hex screwdriver to loosen the M3x50 cap bolt on the side of the print head.

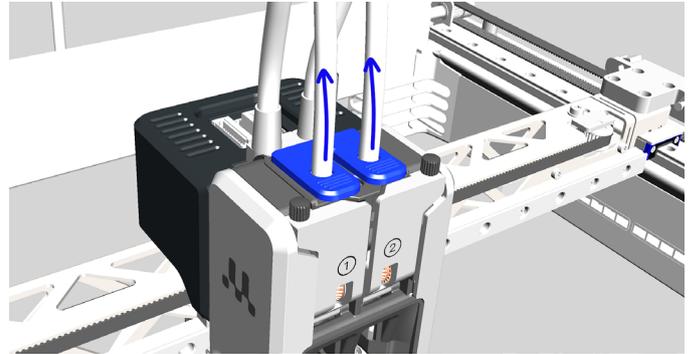
**Note:** Hold on to the print head while loosening the bolt to prevent it from falling off the X beam.



## 2. Remove cable clips

Remove the cable clips that secure the Bowden tubes to the print head cables.

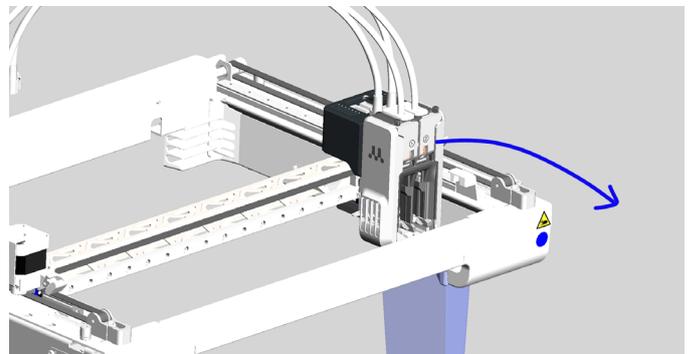
**Note:** The Bowden tubes are not part of the print head assembly and will stay in the printer.



## 4. Disconnect the Bowden tubes

Press down on each side of the collet release clip on the print head and pull the Bowden tubes out of the print head.

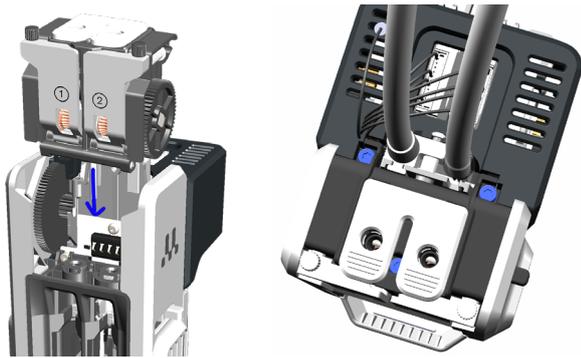
**Note:** The Bowden tubes are not part of the print head assembly and will stay in the printer.



## 6. Remove the print head

Carefully take the print head off the X beam and take it out of the printer.

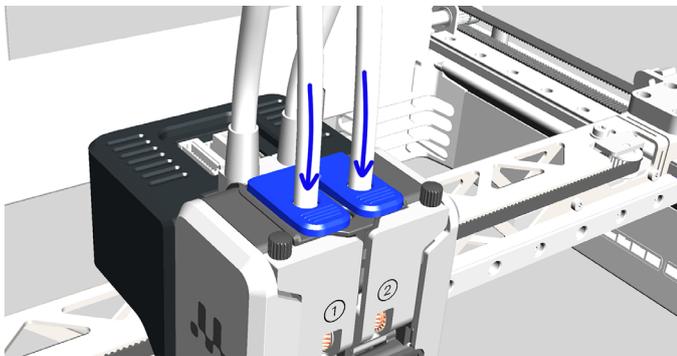
# Reassembly



## 1. Assemble the print head

Slide the feeder module into the print head from the top. Secure it with two M3x8 bolts at the back, and one M3x60 bolt at the front in the middle. Use the Hex 2.5 screwdriver to tighten the bolts.

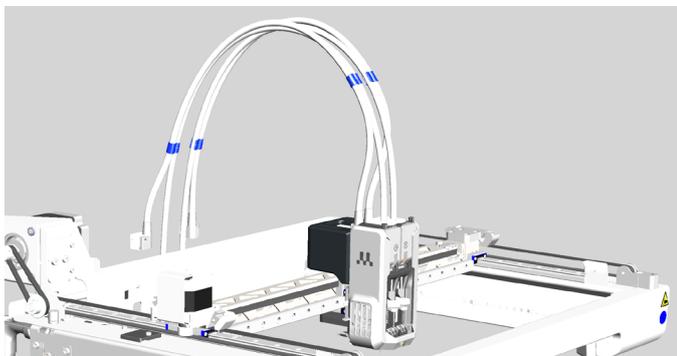
✓ **Tip:** 0.3 Nm is recommended.



## 3. Insert the Bowden tubes

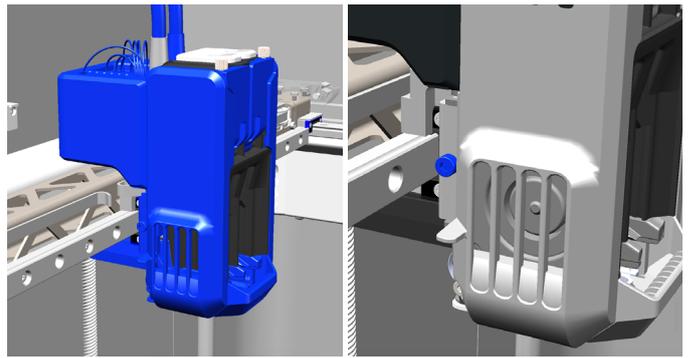
Insert the Bowden tubes into their corresponding holes at the top of the print head.

✓ **Tip:** Press down on the collet release clip while inserting the Bowden tubes to ensure they can be fully pushed in.



## 5. Place the cable clips

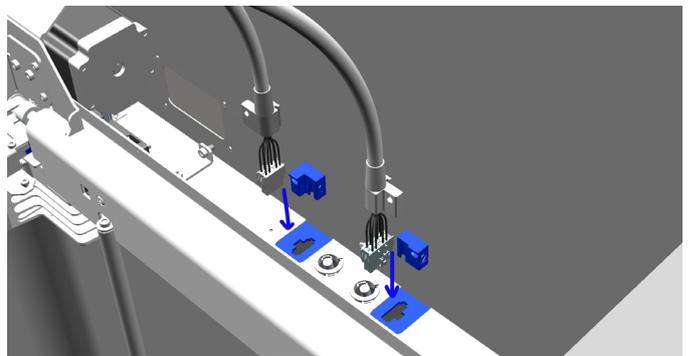
Secure the Bowden tubes to the print head cables using the cable clips and distribute them evenly.



## 2. Install the print head on X beam

Align the print head with the carriage on the X beam. Tighten the M3x50 cap bolt on the left side of the print head using the 2.5 mm hex screwdriver.

i **Note:** Check if it is securely in position. If not, loosen the bolt to realign and retighten.



## 4. Connect the cables

Connect the print head motor cable (left) to the left connector at the back of the chamber and the print head data cable (right) to the right connector. Slide the strain reliefs upward into the brackets (marked 1 = left and 2 = right) to secure the cables.



## 6. Close the door

Push the glass door of the build chamber closed. Ensure it clicks into place.

**Finished!**

# Quality checks

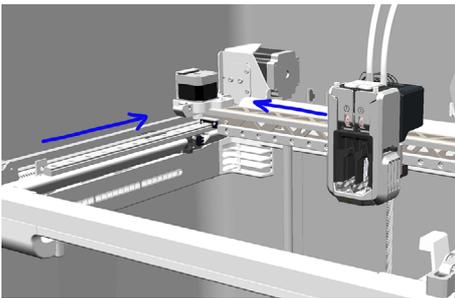
After completing this repair procedure, it is recommended to perform the following checks to ensure that the steps were followed correctly and all components are working properly:



## Turn on the printer

Reconnect the power cable at the back of the UltiMaker Factor 4 and turn on the printer with the power switch.

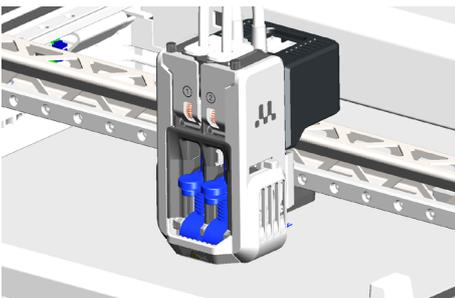
Wait for the printer to finish booting up completely.



## Home print head

In the *Maintenance* menu, select *Print head* → *Home print head*. This will send the print head to its home position in the back left corner.

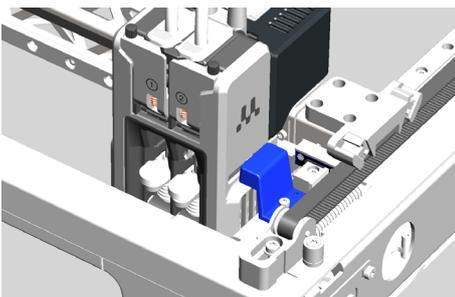
This tests the movement of the head and that it correctly activates the optical limit switches.



## Load print cores

In the *Configuration* menu, select *Print core 1* → *Load* and follow the instructions on the display to load a print core in slot 1. Repeat this for slot 2.

This checks that the print core recognition works correctly.



## Switch bay calibration

After replacing the print head, it is recommended to recalibrate the position of the switch bay to ensure that the second print core will be correctly lifted and lowered during print preparation and dual extrusion print jobs.

In the *Maintenance* menu, select *Print head* → *Calibrate lift switch* and follow the instructions on the display.

## Test print

Finally, run a short test print to check the entire system. To ensure both extruders are checked, start a dual-extrusion print job.

During print preparation, check that the print head correctly homes and reaches the switch bay. During the print, ensure that the print head is moving correctly and accurately within the gantry system. After printing, check the printed part for dimensional accuracy and potential other print quality issues.