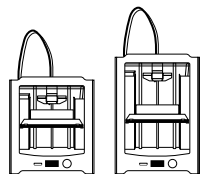
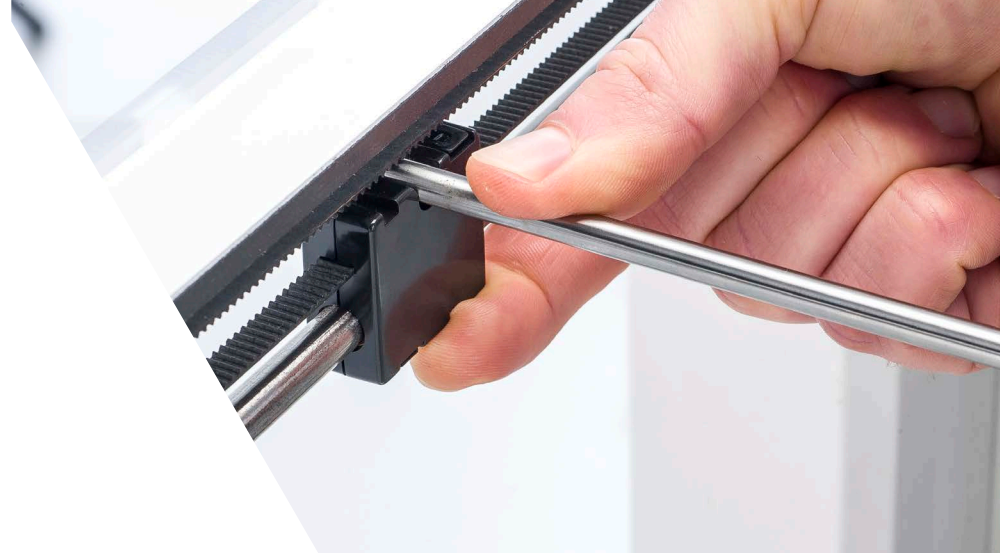


Repair manual



Replacing the sliding blocks



Instructions

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

Note: The instructions for replacing the long belts are the same as for replacing the sliding blocks. The sliding blocks can only be snapped together once; in order to take them apart, you must break them. For this reason, when replacing the belts the sliding blocks also need to be replaced.

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

Equipment/supplies needed

Tools

- Flat sided screwdriver
- 2.0 hex screwdriver / ball head screwdriver
- 0.5 Nm torque screwdriver
- 2x Calibration stick
(See separate instructions: Calibrating the print head)

Parts

- 8x 1255 - Sliding block half
- (4x 1189 - Timing belt GT2 610 mm - optional)

Time

- 40 minutes

Disassembly - Loosen all pulleys

1. 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.



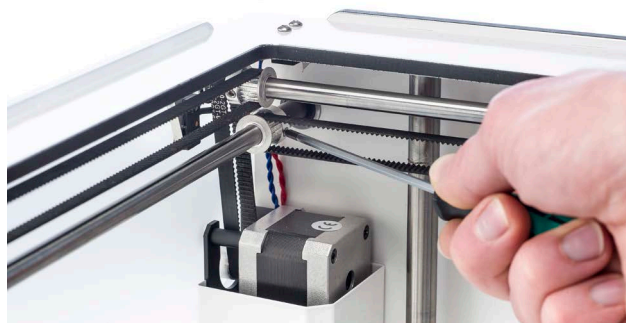
2. Loosen the tension on the short belts

- Use the 2.0 hex screwdriver to slightly loosen the four bolts on the X motor that is attached to the back panel.
- Also loosen the four bolts on the Y motor that is attached to the left panel.



3. Loosen all the pulleys

- Start in the back left corner. Manually move the print head until the set screws of the pulleys are visible.
- Loosen the set screw in each pulley, but do not remove them.
- Going clockwise, repeat these steps for the other corners.



Disassembly - Remove the axles

1. Remove the right Y axle

- Turn the printer so the left panel is towards you.
- Push the right Y axle out through the back panel.
- Remove and set aside the small spacer, three pulleys and the medium spacer.



2. Remove the left Y axle

- Turn the printer so the right panel is towards you.
- Push the left Y axle out through the back panel.
- Remove and set aside the small spacer, two pulleys and the large spacer.



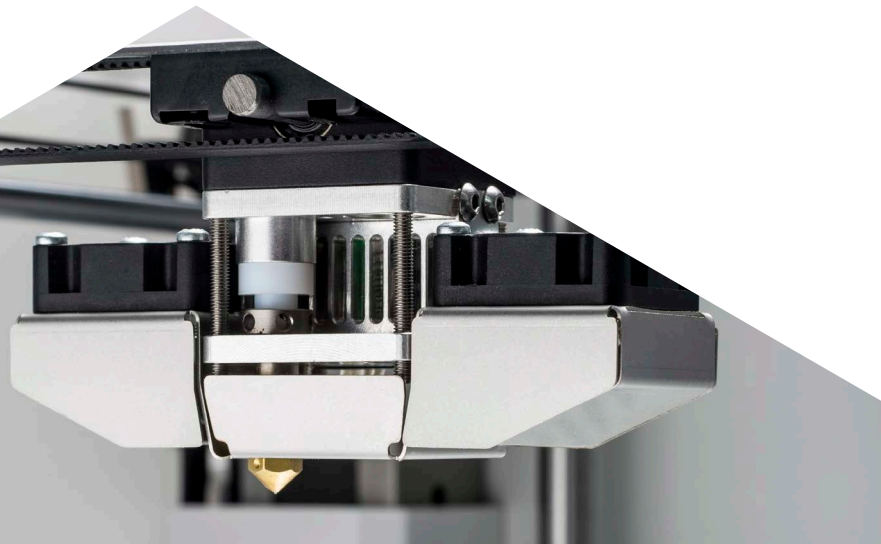
3. Remove the back X axle

- Turn the printer so the front panel is towards you.
- Push the back X axle out through the left panel.
- Remove and set aside the medium spacer, the pulley, the back sliding block with timing belt and the double pulley.



4. Remove the front X axle

- Turn the printer so the back panel is towards you.
- Push the front X axle out through the left panel.
- Remove and set aside the medium spacer, the pulley, the right sliding block with timing belt, the front sliding block with timing belt, another pulley, the left sliding block with timing belt and the medium spacer.



Disassembly - Disassemble the sliding blocks

1. Open the old sliding blocks

- Take a flat sided screwdriver and open up the clips of the sliding block.
- Use the screwdriver as a lever to break it apart.



2. Remove the old parts

- Take out the sintered bushing, belt and spring, these parts can be reused.



Reassembly - Assemble the new sliding blocks

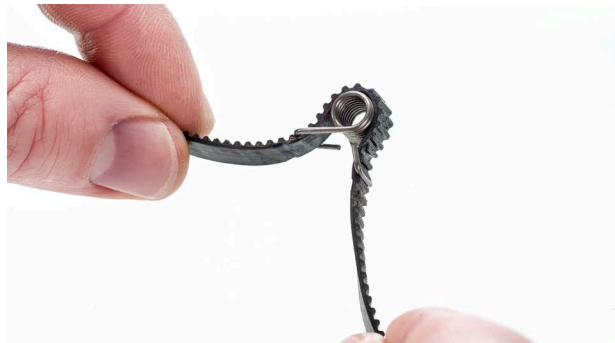
1. Place the sintered bushing

- Place two sliding block halves in the same orientation.
- Put the sintered bushing from the old sliding block in one of them.



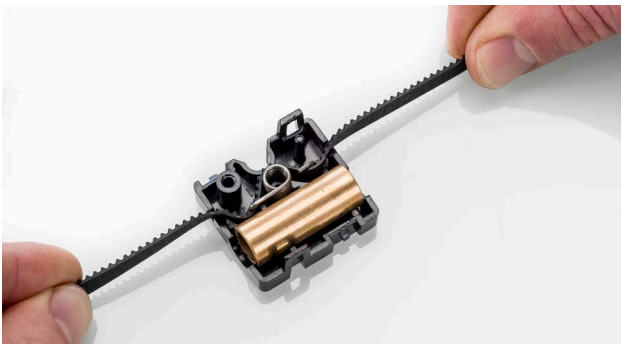
2. Place the belt on the spring

- Take a timing belt and loop the belt around the spring, with the teeth facing outwards.



3. Assemble the sliding blocks

- Pull at the belt on both sides of the spring, straightening it. Place the spring around the pin in the middle of the sliding block. Make sure the teeth of the belt are facing away from the sintered bushing.



- Place both sides of the belt in the small openings in the side of the sliding block half.
- Place the other half of the sliding block on top and apply pressure until it snaps together.
- Repeat these steps for the other three sliding blocks.

Tip: After assembly, pull at the belt on both sides of the sliding block to check the tension of the spring inside.



Reassembly - Insert all axles

1. Place the front X axle back in the frame

- Insert the front X axle through the bearing in the left panel, approximately 5 cm.
- Place a medium spacer and a pulley around the axle. Make sure the wide side of the pulley is towards the left panel. Place the belt of one of the sliding block assemblies around this pulley.
- Push the front axle further right, to approximately halfway, and put a sliding block assembly around the front X axle.



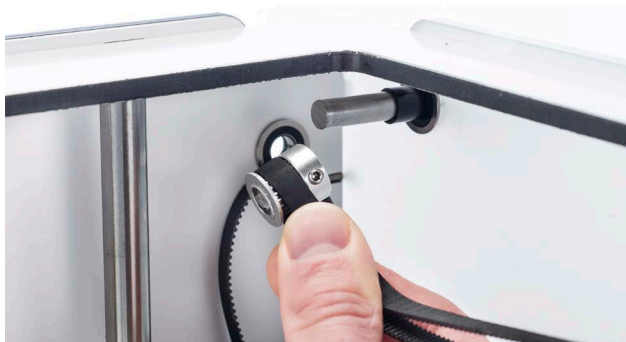
- Push the front axle further right, to approximately 5 cm from the right panel.
- Place a pulley around the axle with the wide side towards the right panel. Place the belt of one of the sliding block assemblies around this pulley.
- Lastly, place a medium spacer around the axle and push the axle into the bearing in the right panel.



Tip: Make sure the axle is in the middle of both bearings and push the pulleys against the frame. This helps to keep the axle in place before the pulleys are tightened.

2. Place the back X axle back in the frame

- Insert the back X axle through the bearing in the right panel, approximately 5 cm.
- Place a medium spacer around the axle.
- Next place the timing belt connected to the front X axle around a pulley and place this on the back X axle. Make sure the wide side of the pulley is towards the right panel.
- Push the front axle further left, to approximately halfway, and put a sliding block assembly around the back X axle.



- Push the front axle further left, to approximately 5 cm from the right panel.
- Place the the timing belt connected to the front X axle around the right side of the double pulley and the short timing belt connected to the Y motor around the left side. Place the double pulley on the back X axle.
- Push the axle into the bearing in the left panel.

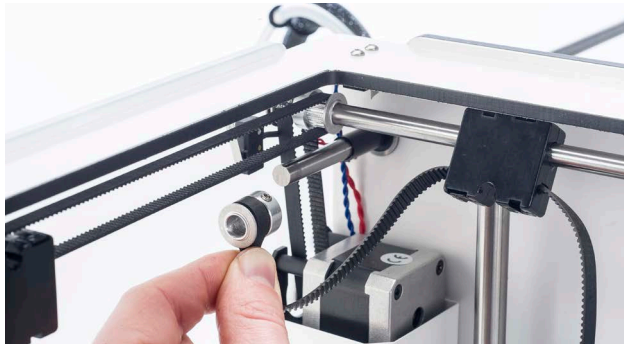


Tip: Make sure the axle is in the middle of both bearings and push the pulleys against the frame. This helps to keep the axle in place before the pulleys are tightened.

Reassembly - Insert all axles

3. Place the left Y axle back in the frame

- Insert the left Y axle through the bearing in the back panel, approximately 5 cm.
- Place the large spacer and a pulley around the axle. Make sure the wide side of the pulley is towards the back panel. Place the belt connected to the back sliding block around this pulley.
- Push the front axle further to the front, to approximately halfway, and push it through the left sliding block.



- Push the front axle further to the front, to approximately 5 cm from the right panel.
- Place the timing belt connected to the front sliding block around a pulley and place this around the left Y axle, with the wide side towards the front panel.
- Lastly, place a small spacer around the axle and push the axle into the bearing in the front panel.



Tip: Make sure the axle is fully inserted into the front panel and push the pulleys against the frame. This helps to keep the axle in place before the pulleys are tightened.

4. Place the right Y axle back in the frame

- Place the short belt connected to the X motor around a pulley and hold this against the bearing in the back panel.
[Caution]
- Insert the right Y axle through the bearing in the back panel and through the pulley with the short timing belt, approximately 5 cm.
- Place a medium spacer around the axle.
- Place the timing belt connected to the back sliding block around a pulley and place this around the right Y axle, with the wide side towards the back panel.



- Push the front axle further to the front, to approximately halfway, and push it through the right sliding block.
- Push the front axle further to the front, to approximately 5 cm from the front panel.
- Place the timing belt connected to the front sliding block around a pulley and place this around the right Y axle, with the wide side towards the front panel.
- Lastly, place a small spacer around the axle and push the axle into the bearing in the front panel.



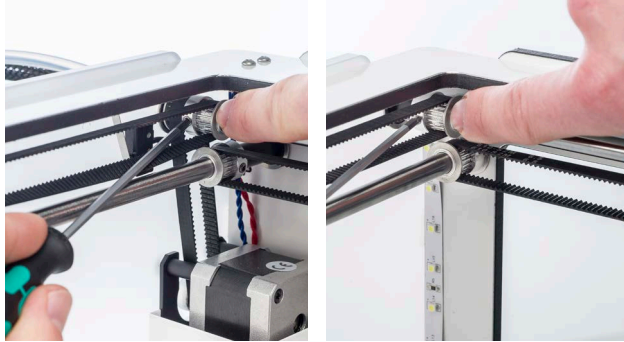
Caution: The orientation of this pulley is different from the others. All other pulleys have their wide side facing **towards** the frame, this pulley has its wide side facing away from the frame.

Tip: Make sure the axle is fully inserted into the front panel and push the pulleys against the frame. This helps to keep the axle in place before the pulleys are tightened.

Reassembly - Tighten the first five pulleys

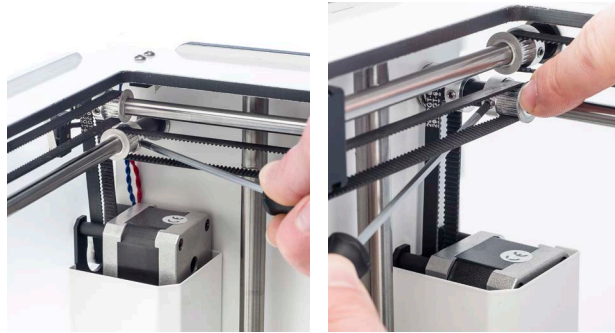
1. Tighten the pulleys on the X axes

- Make sure the X axes are in the middle of the bearings.
- Push the double pulley in the back left corner against the frame and tighten the set screw to 0.5 Nm.
- Push the pulley in the front right corner towards the frame and tighten the set screw to 0.5 Nm.



2. Tighten the pulleys on the Y axes

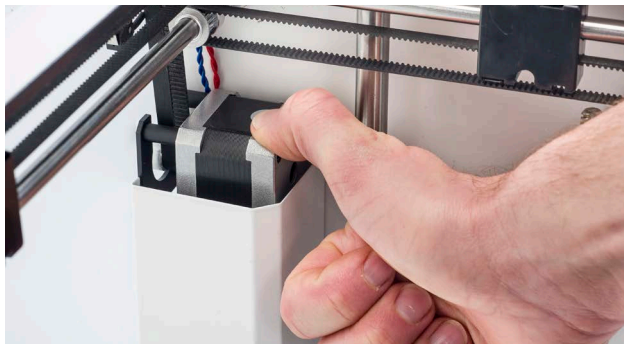
- Make sure the Y axes are fully inserted into the front panel.
- Push the pulley in the back left corner towards the frame and tighten the set screw to 0.5 Nm.
- Push the two pulleys in the back right corner towards the frame and tighten the set screws to 0.5 Nm.



Reassembly - Put tension on the short belts

1. Put tension on the short timing belt of the Y motor

- Firmly push down on the Y motor that is attached to the left panel.
- Use a 0.5 Nm torque screwdriver to tighten each bolt of the Y motor, in a crosswise pattern.



2. Put tension on the short timing belt of the X motor

- Firmly push down on the X motor that is attached to the back panel.
- Use a 0.5 Nm torque screwdriver to tighten each bolt of the X motor, in a crosswise pattern.



Reassembly - Place the print head in the frame

1. Put the shafts through 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.



2. Place the print head in the correct position

- Position all the sliding blocks in the middle of the axes.
- 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.



Tip: The X axles are only secured on one side. Be careful not to push the axles out of the frame when moving the front and back sliding blocks. Hold the axle in place while adjusting the sliding block's position.

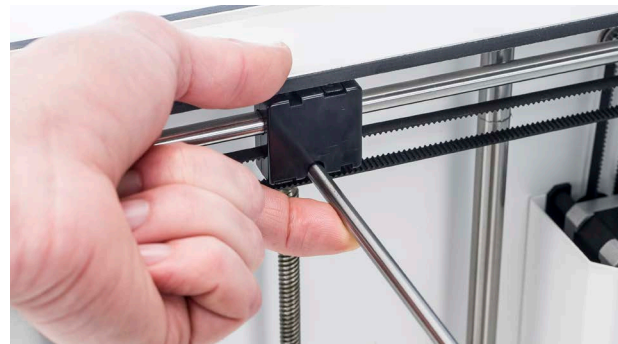
3. Secure the print head shaft X

- 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.



4. 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.



Calibrate the print head

To ensure that the print head shafts are perfectly perpendicular, use the calibration sticks to tighten the other four pulleys. Follow the separate instructions to calibrate the print head.