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idbox! 3D PRINTER

Pack 02

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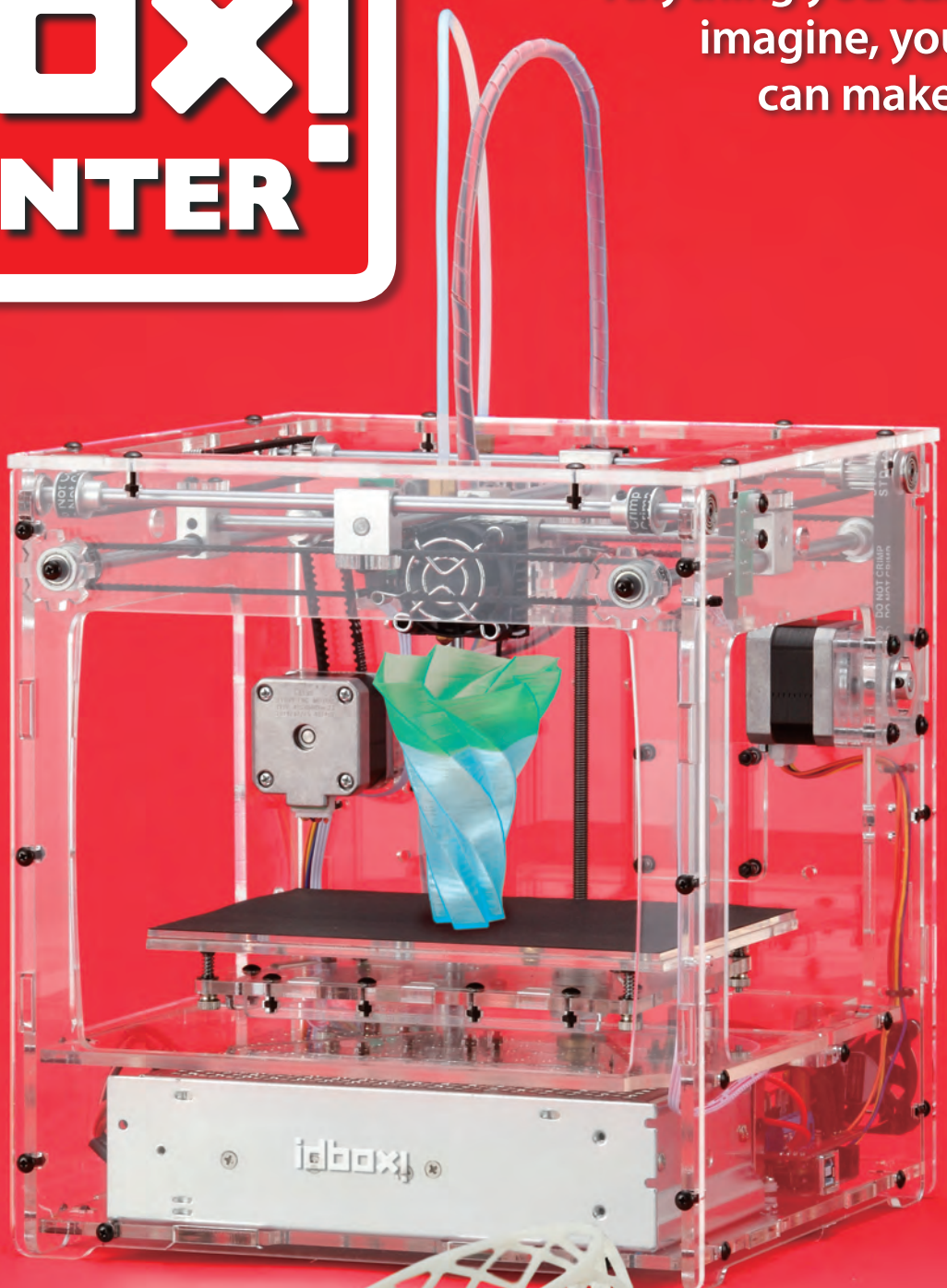
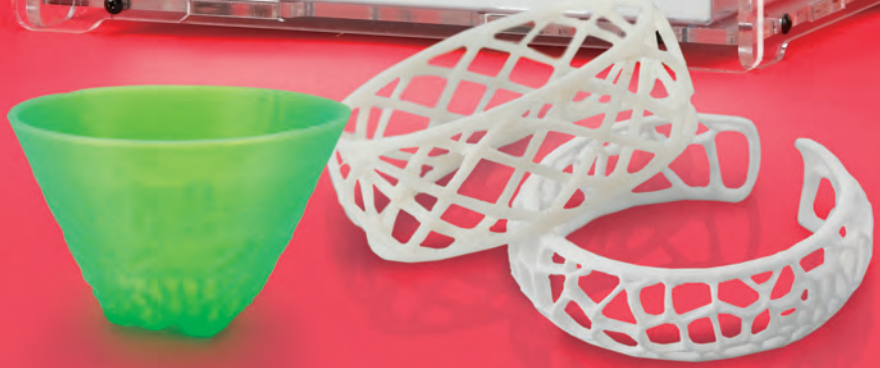
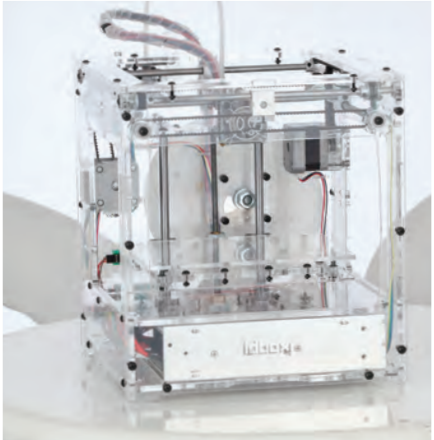




DeAGOSTINI
MODEL SPACE™

BUILD YOUR OWN idbox! 3D PRINTER



CONTENTS

WARNING: Not suitable for children under the age of 14. This product is not a toy and is not designed or intended for use in play. Items may vary from those shown.

DeAGOSTINI MODEL SPACE™
www.model-space.com

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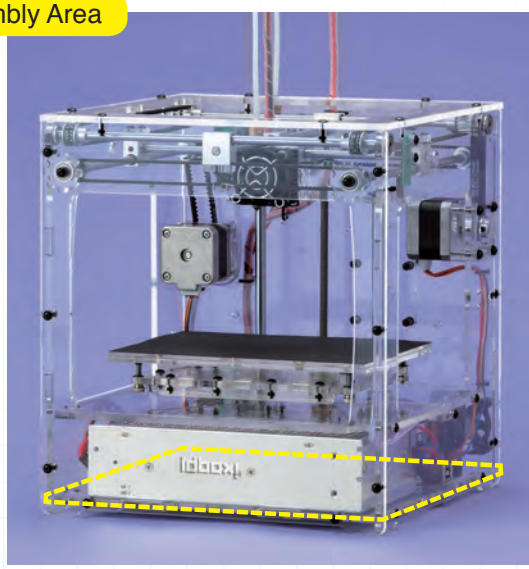
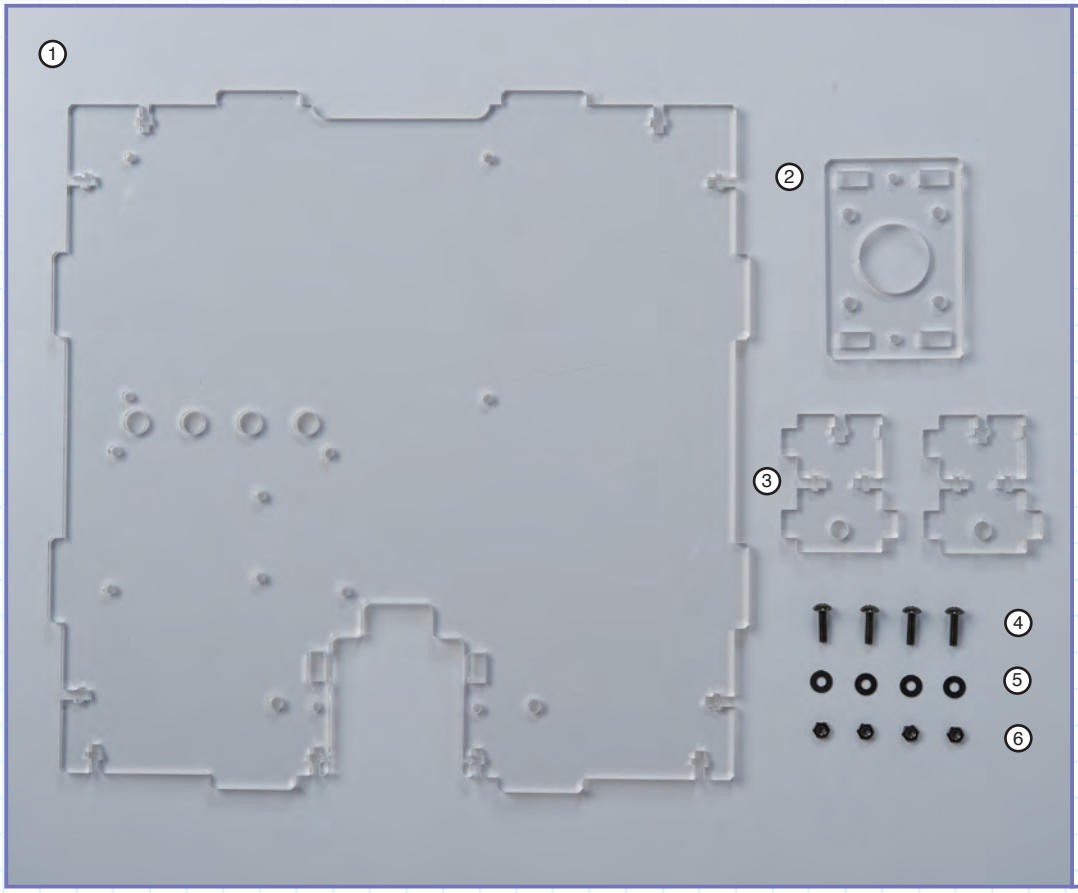
Stage 4 Assembly Area



Stage 4: Install the Z-axis motor bracket

In this stage, you put together a motor mount bracket and then attach this to the base plate of the idbox.

The bracket for the Z-axis motor – the motor that controls the vertical movements of the modelling table – is a U-shaped assembly that also supports the shaft that the motor turns. The three plates of the bracket are held together with two screws and nuts, and the bracket is attached to the bottom panel of the printer with another couple of screws and nuts. The motor and shaft will be added at a later stage.



Stage 4 Components

1: Bottom panel x 1
2: Large bracket plate × 1
3: Small bracket plates × 2
4: M3 truss head screws (14mm) × 4
5: M3 washers × 4
6: M3 nuts x 4

Tools you will need

Phillips screwdriver (size 1)

Useful Items

Wood glue, toothpicks, tweezers

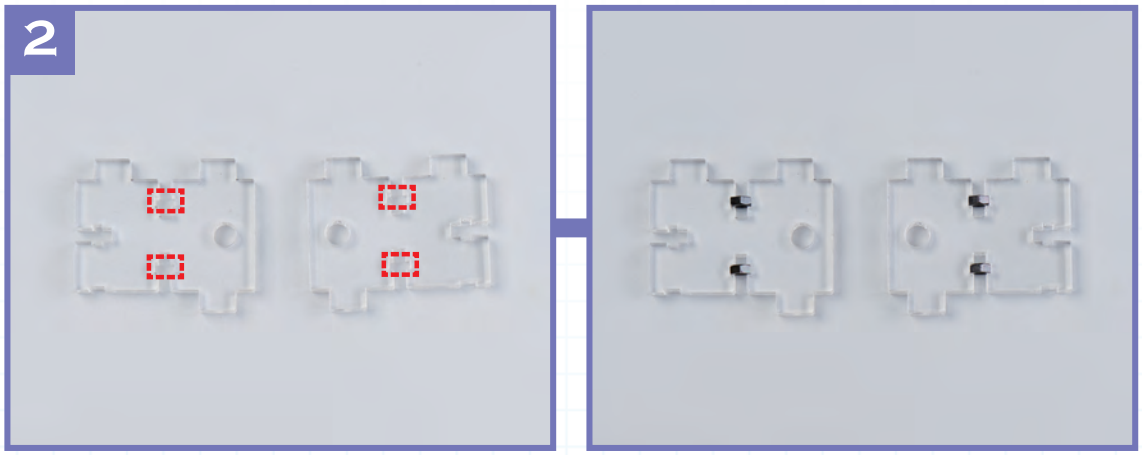
Remove the protective layers

1 Peel the protective layers off the acrylic plates used in this stage: the bottom panel, the large bracket plate and the two small bracket plates. As usual, take care when handling acrylic so as not to scratch it. You can, for instance, make sure your worktop is clean and cover it with paper so the surface is less abrasive.

HINT

If you need to clean the acrylic plates at any time – if they have fingerprints on them after assembly – wipe them gently with a soft cloth such as the type used to clean spectacle lenses.

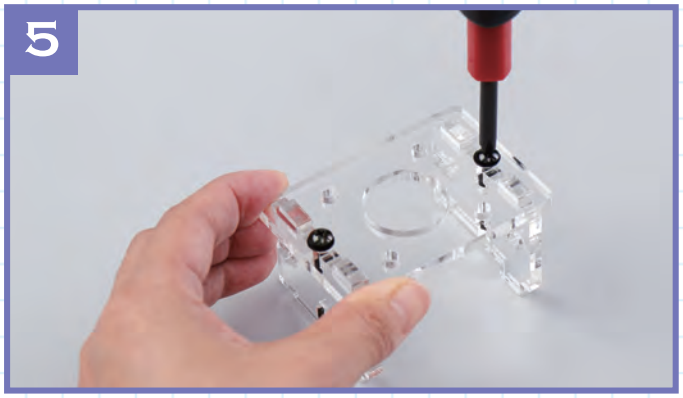
Assemble the bracket



Lay the two small bracket plates flat and put an M3 nut into each of the slots outlined in red in the photo above left. Do not force the nuts in and remember to have the sides of each nut parallel with the sides of the slot. If the nut is hard to fit into one side of the slot, try doing it from the other side.

The two tabs on the upper sides of the small bracket plates fit into the pairs of slots (outlined in red, above) on either side of the large bracket plate. When you fit the tabs of the small plates into the slots in the large plate, make sure that the single tabs on the lower side of each small plate are on the same side as shown above right. If you are concerned that the nuts might drop out while assembling the bracket, use some wood glue to hold them in position, as described in Stage 1 of the Assembly Guide.

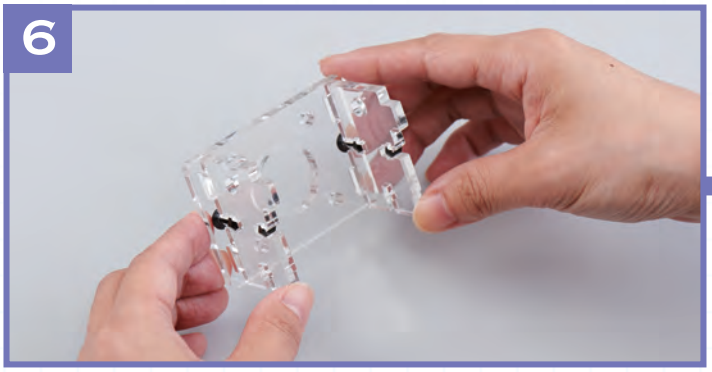
Put an M3 washer onto each of the four 14mm M3 truss head screws.

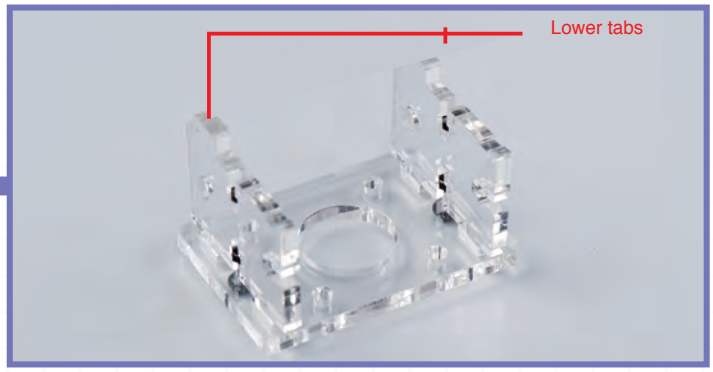


Insert screws into the screw holes in the large bracket plate as shown above and tighten each one loosely. These will be tightened fully later on.

Attach the bracket to the bottom panel

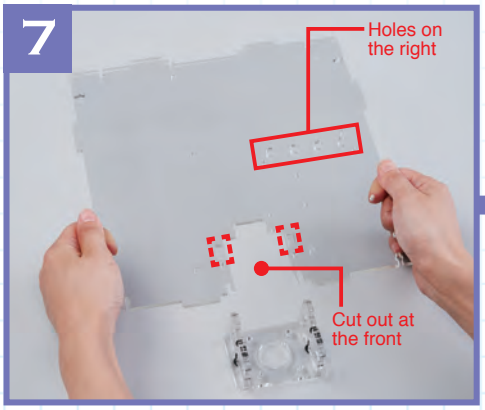
6

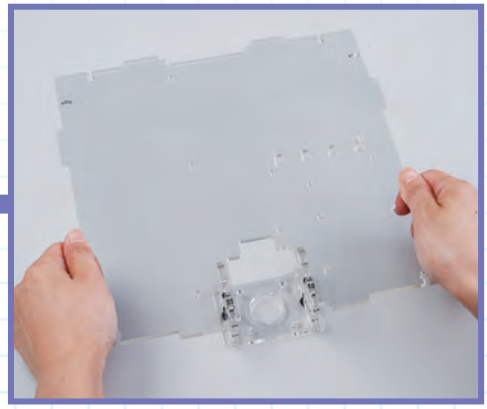




Turn the bracket over so that it is resting on the large bracket plate, with the lower tabs of the small bracket plates facing away from you.

7





Hold the bottom panel so that the four circular holes outlined in red are on the right and the cut-out is at the front and lower it onto the bracket, fitting the two tabs on the bracket into the slots outlined by the red dotted rectangles shown above.

8

Supporting the bottom panel with one hand, insert the 14mm M3 truss head screws (with washers) into their screw holes in the bottom panel and tighten them loosely into the nuts in the brackets using a screwdriver.

9

Turn the panel over and tighten the two bracket screws in turn a little at a time. Turn the panel and tighten the remaining two screws in the same way.

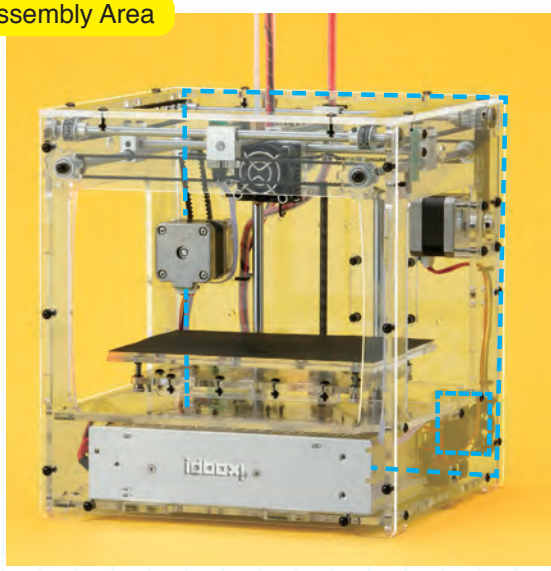
HINT

If screws are overtightened, the acrylic might crack. If this happens, you can repair it using adhesive made for mending acrylic.

Stage finished

The bracket for the Z-axis motor is now assembled and attached to the bottom panel. Store the assembly somewhere safe until it is needed again.

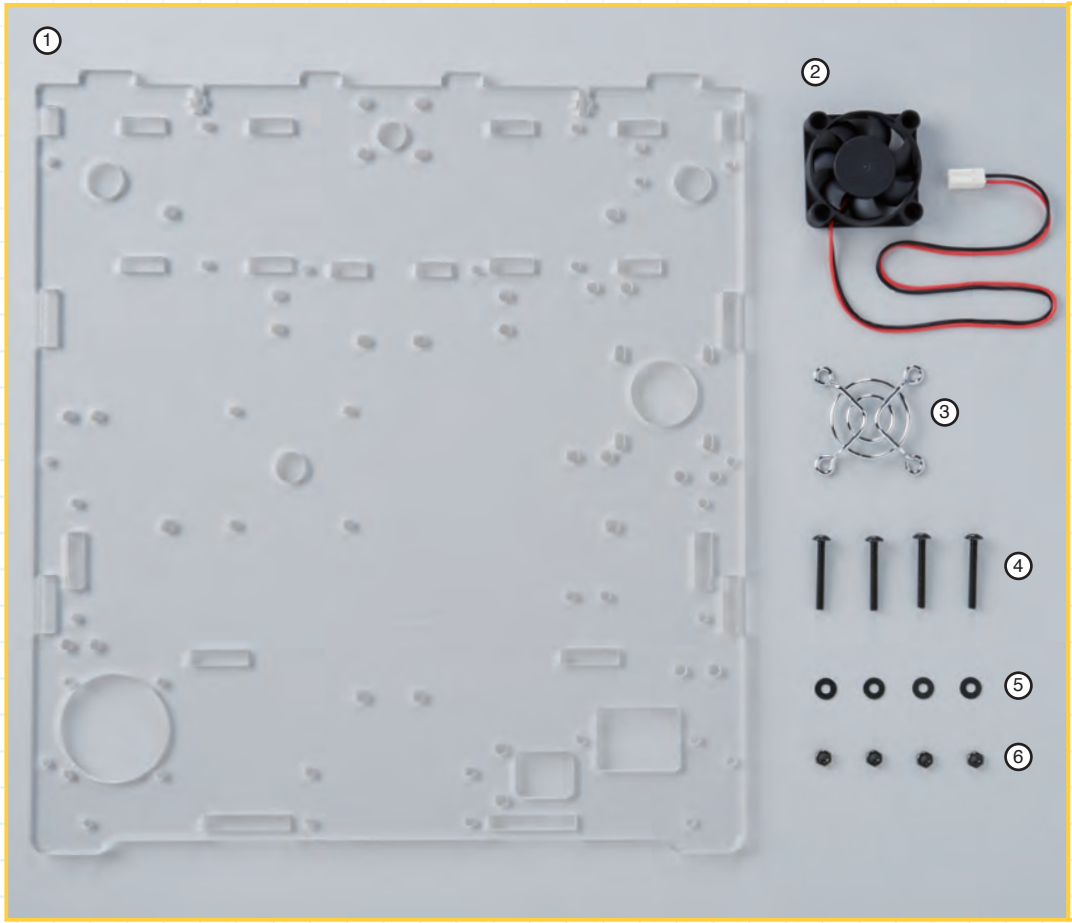
Stage 5 Assembly Area



Stage 5: Install a cooling fan

In this stage, you install a cooling fan on the back panel of your idbox. This extracts air from within the body of the printer to regulate its temperature during operation.

The fan is mounted on what will be the inside of the printer when the printer is assembled. The fan has a metal fan guard that is positioned on the outside. Make sure you install the fan guard so that its metal rings are flush against the rear panel, and ensure the fan is attached so that its cable emerges at the correct place.



Stage 5 Components

1: Back panel x 1
2: Cooling fan x 1
3: Fan guard x 1
4: M3 truss head screws (25mm) x 4
5: M3 washers x 4
6: M3 nuts x 4

Tools you will need

Phillips screwdriver (size 1)

Remove the protective layers

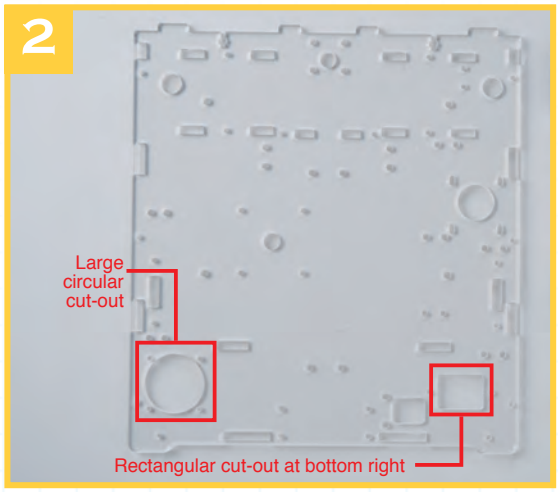
1 Peel the protective layers off the back panel. As usual, take care when handling acrylic so as not to scratch it. You can, for instance, make sure your work top is clean and cover it with paper so the surface is less abrasive.

HINT

Take care when removing the protective backing. You might want to wear gloves when handling acrylic to avoid leaving fingerprints on the shiny surfaces.

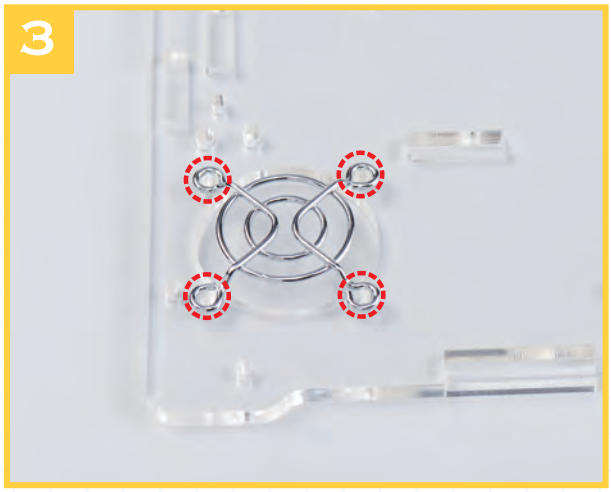
Attach the cooling fan to the back panel

2



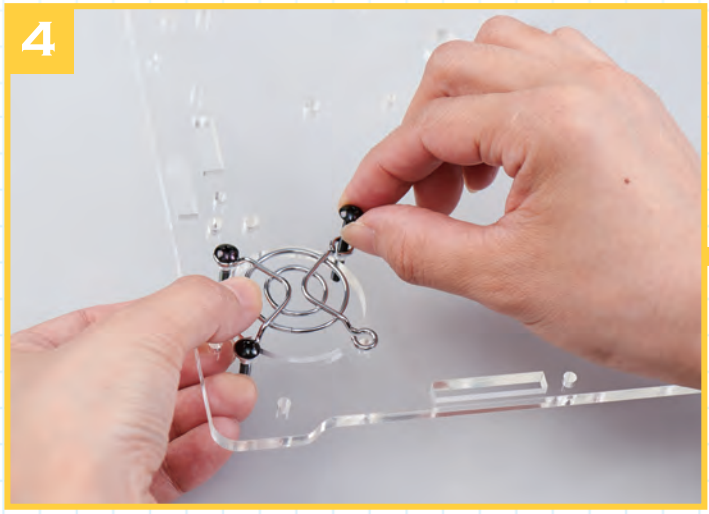
Orient the back panel so that the large circular cut-out is on the left, and the rectangular cut-out is at the bottom right.

3



Place the fan guard over the large circular cut-out, so that the bulge of the guard is facing outward and the four rings are over the screw holes as shown above.

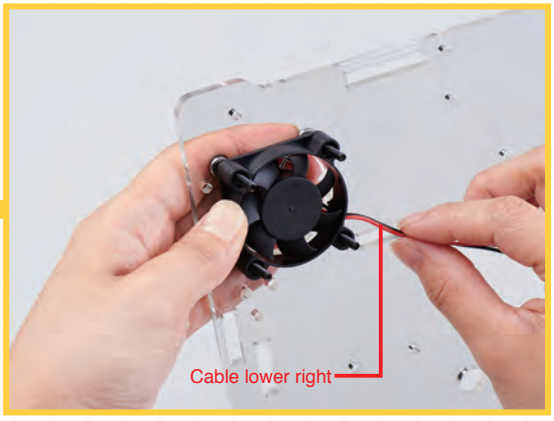
4



Holding the guard in position, lift the panel up slightly so you can put a 25mm truss head screw through each of the rings and its corresponding screw hole.

5

Hold the screws and guard in place. Lift up the back panel so it is resting on its edge, and the shafts of the screws are protruding through the panel, as shown above right.

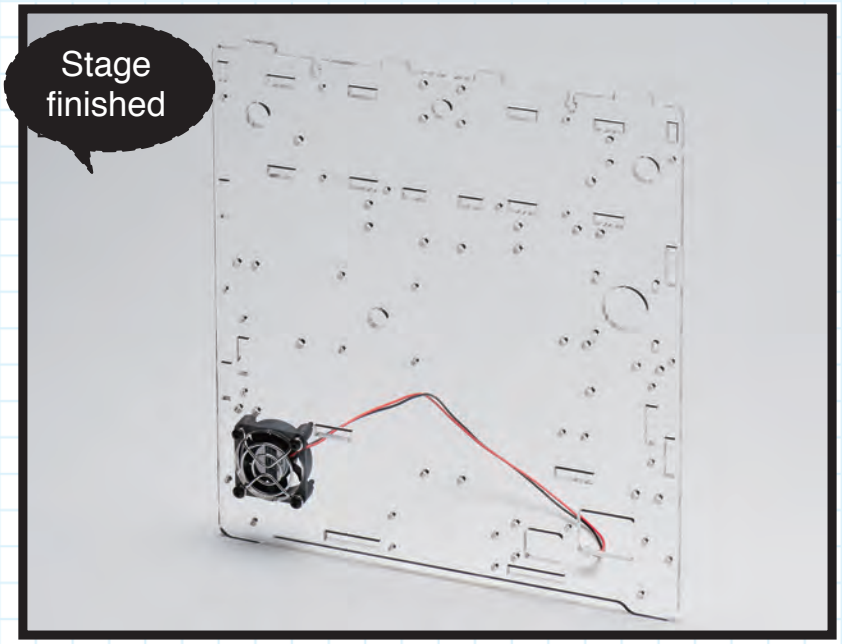


Make sure the side of the fan with the flattened surface faces the panel (this make a seal with the panel) and slot the four screw holes in the fan over the screws. The cable should be at the bottom right, as shown.

Holding the fan in place, put a washer over each of the screws.

Now thread an M3 nut onto each of the screws.

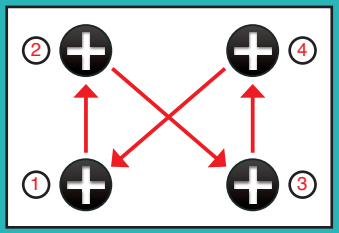
Turn the panel over and, holding the nuts with one hand, turn the screws with the Phillips size 1 screwdriver. See Tightening order box below left.



The cooling fan is now fitted to the rear panel of your idbox printer. When viewed as shown in the photo above, the cable is at the upper right of the fan. Keep the panel safely for the next stage.

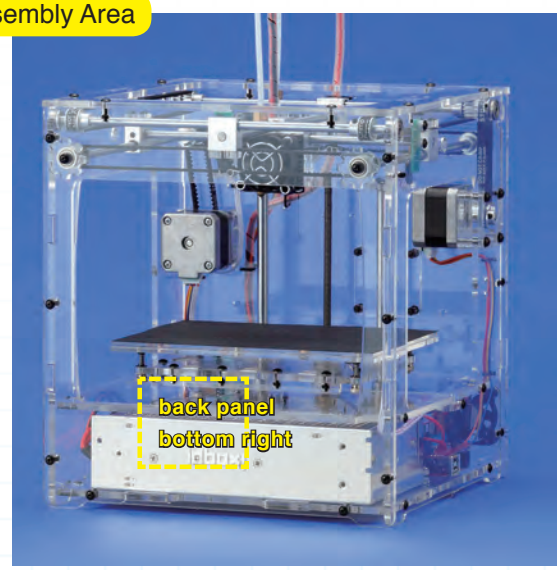
Tightening order

Do not tighten each screw fully all in one go, as you might risk damaging the acrylic panel or the fan itself. Instead, tighten each screw in turn by a small amount, moving from screw to screw in the order shown here.



Tighten each screw little by little and evenly until they are all tightened securely to the same degree.

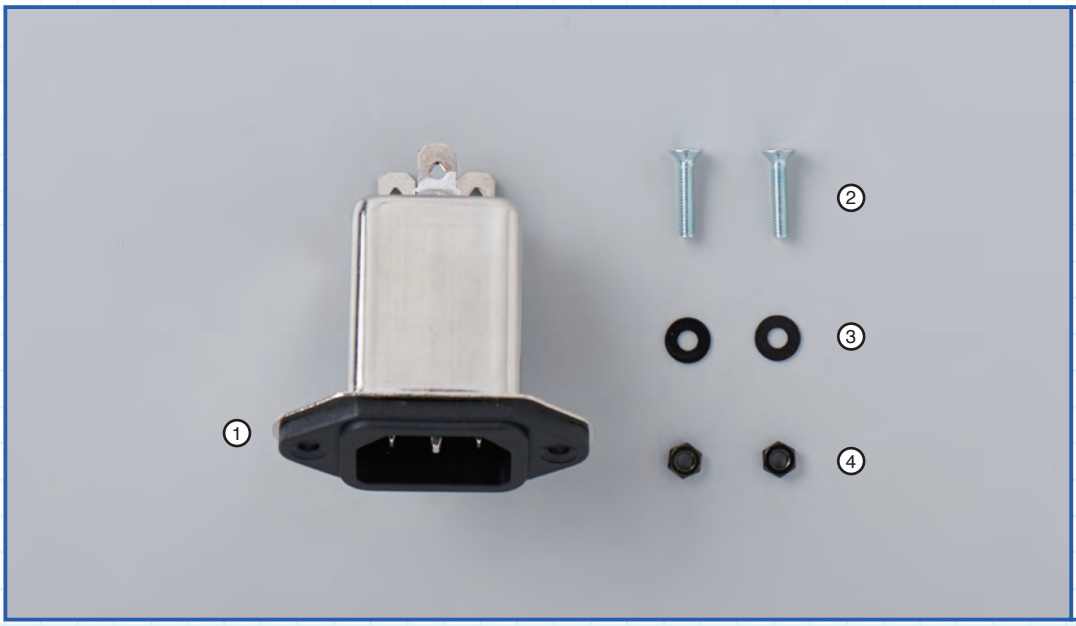
Stage 6 Assembly Area



Stage 6: Install a noise filter

In this stage, you install the noise filter onto the back panel of the printer. This is a simple job involving little more than tightening up a couple of screws.

In Stage 5, you added the fan to the rear panel of your printer. Now you must add the noise filter. This acts as the printer's power inlet and filters out electromagnetic noise, preventing it both from entering and leaving the printer. If you look at the printer from the back, it is located on the lower right of the rear panel.



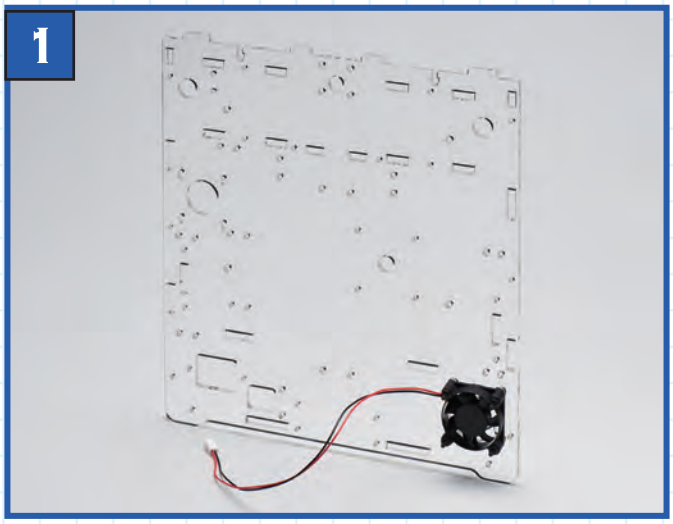
Stage 6 Components

1: Noise filter × 1
2: M3 countersunk screws 15mm × 2
3: M3 washers × 2
4: M3 nuts × 2

Tools you will need

Phillips screwdriver (size 1)

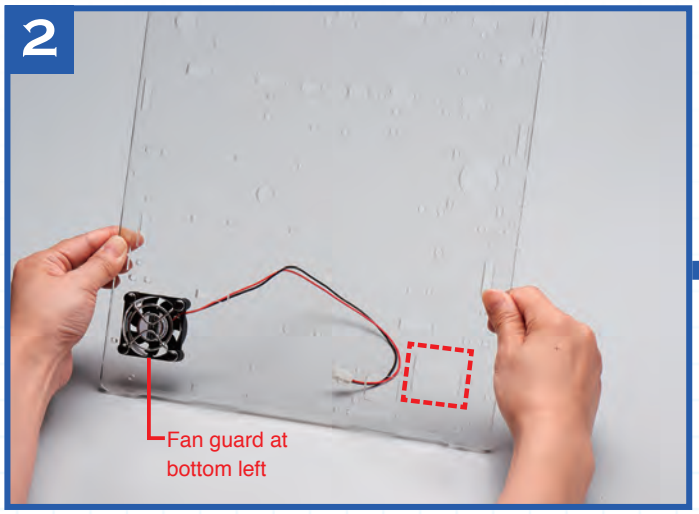
Parts to have ready



Take the rear panel that you installed the cooling fan onto in the previous stage. To prevent scratching the panel, put a sheet of paper on your work surface.

Attach the noise filter to the rear panel

2



Hold the rear panel as shown, with the fan guard at the bottom left. The noise filter fits into the rectangular hole outlined in red in the photo, above left. Orient the filter as shown, with the central pin uppermost.

3

Put a 15mm M3 countersunk screw into each of the screw holes in the filter, as shown above.

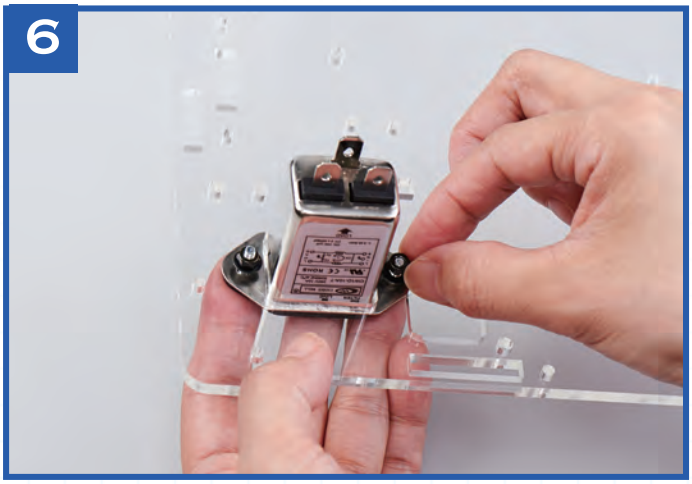
4

Hold the screws in place and turn the panel over.

5

Put an M3 washer over each of the screws.

6



Thread an M3 nut onto each of the screws.

7

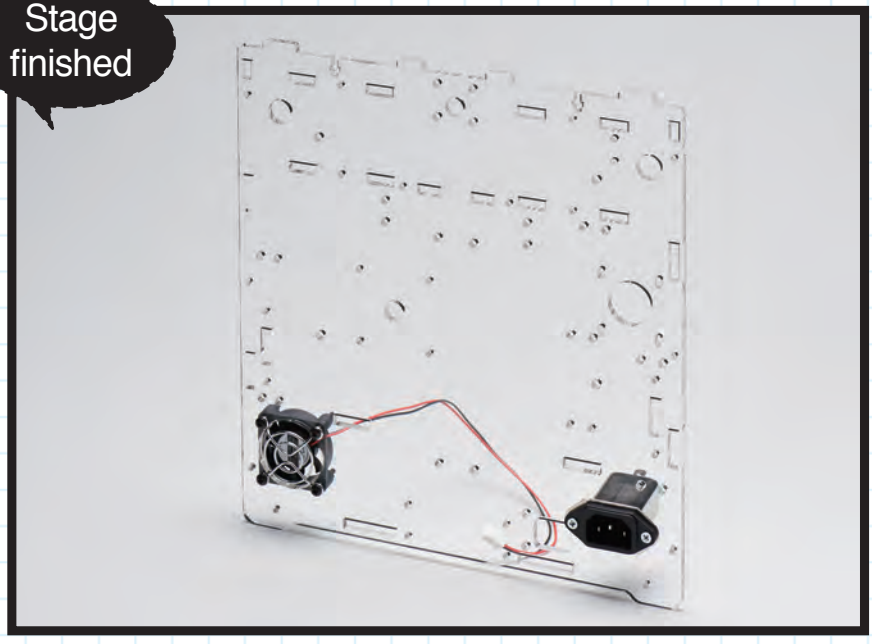
Turn the panel over again and tighten the screws with the screwdriver while you hold the nuts steady with your fingers. Tighten each in turn – a little at a time – to avoid damaging the panel.

CLOSE-UP

What is a noise filter?

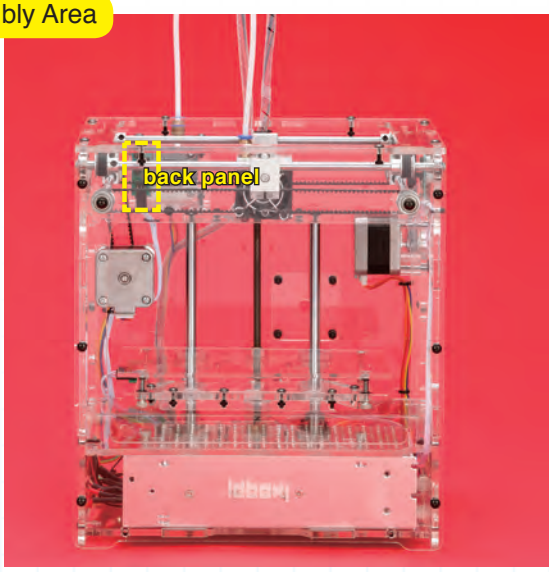
The 'noise' refers to electromagnetic interference, and the filter stops this from entering a device via the power supply and from leaving a device via the power supply. It thus protects the electronics of your printer from interference, and protects devices outside from electromagnetic interference produced by the printer.

Stage finished



The noise filter is now attached to the rear panel. Keep the panel safe for the next stage, when you will install the X-axis limit switch.

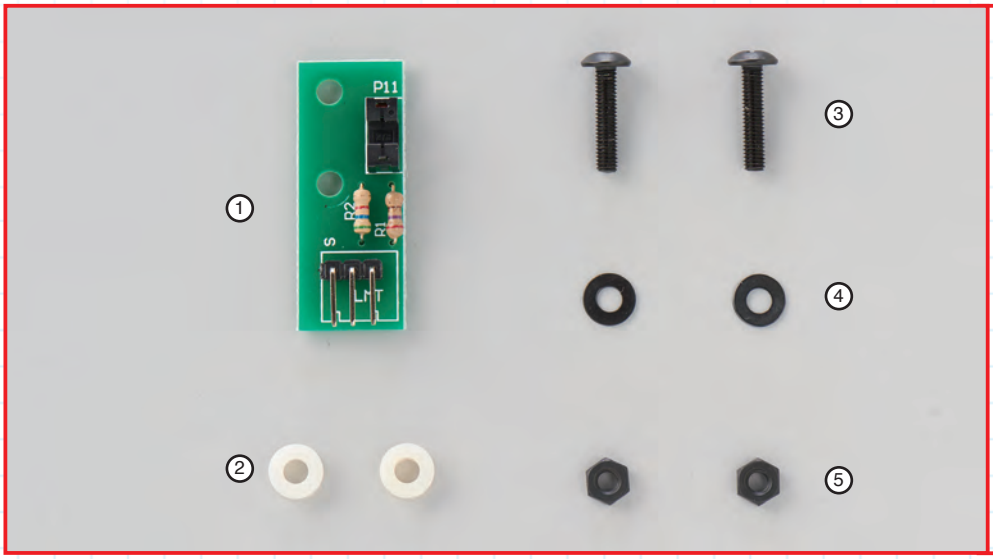
Stage 7 Assembly Area



Stage 7: Install the X-axis limit switch

The cooling fan and noise filter have been attached to the rear panel; now it's time to add the X-axis limit switch. This is another straightforward job, as the limit switch is held onto the rear panel with only two screws. Just be sure to orient the switch correctly!

In this stage, the procedure is similar to Stage 3, in which the Y-axis limit switch was attached. Remember that the switch is a precision part, so take care when handling it. Do not let it get wet, and do not touch any of the components with your bare hands. When you handle the switch, hold it by the circuit board only. Keep it away from dust, heat, high humidity and static electricity.



Stage 7 Components

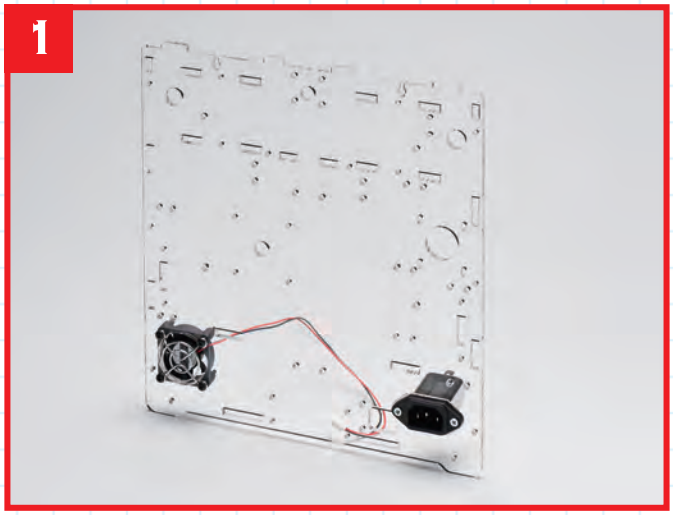
1: Limit switch × 1
2: Spacers × 2
3: M3 truss head screws (14mm) × 2
4: M3 washers × 2
5: M3 nuts × 2

Tools you will need

Phillips screwdriver (size 1)

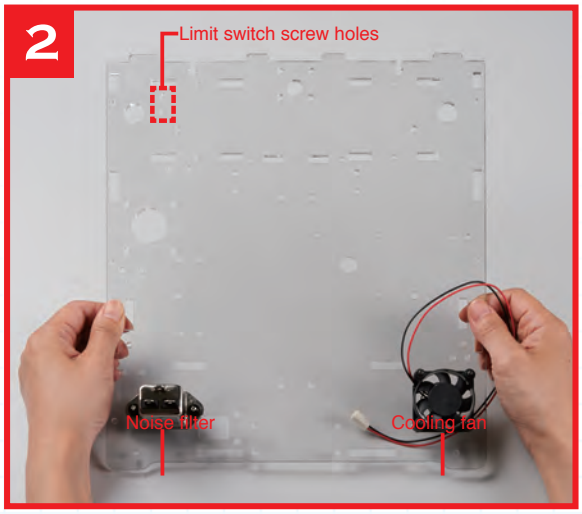
Parts to have ready

1

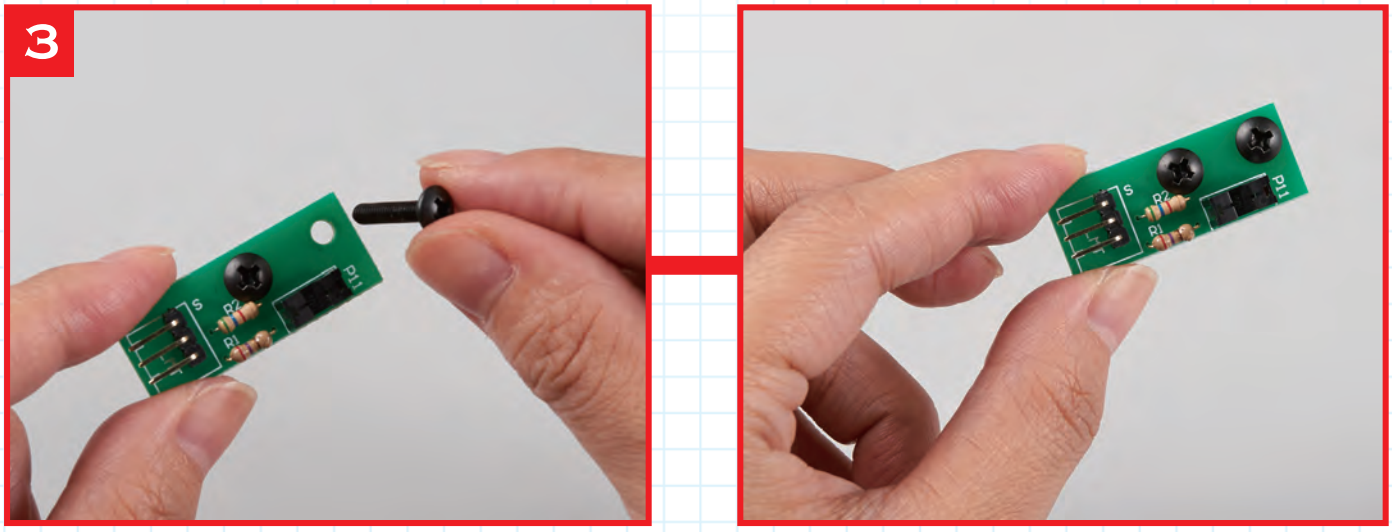


You will need the rear panel for this stage. As usual, when working with the acrylic parts of your printer, put some paper down on your work surface to prevent the parts getting scratched.

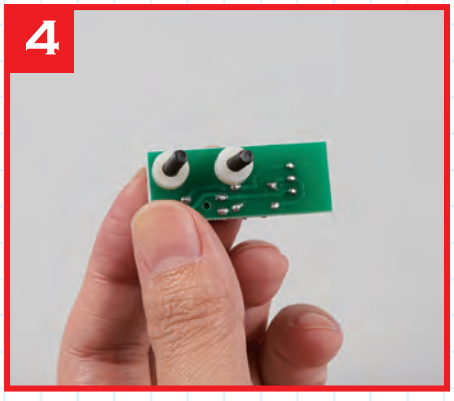
Attach the limit switch to the rear panel



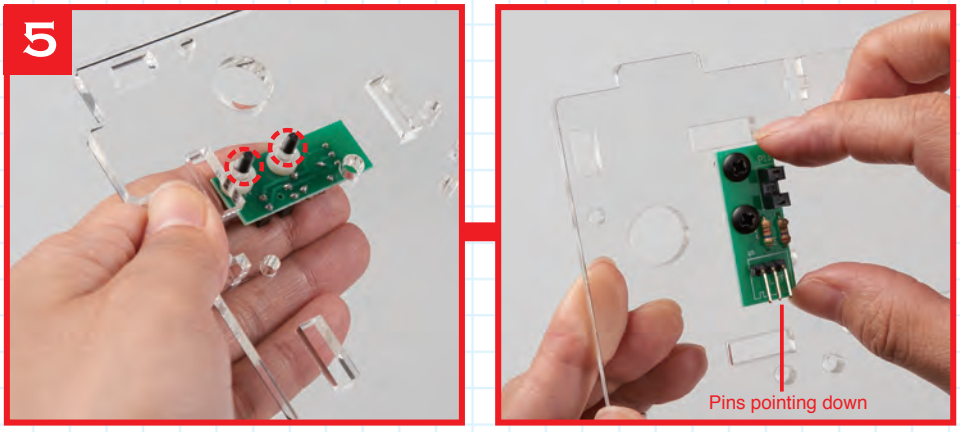
If you hold the rear panel so the noise filter is at the bottom left and the cooling fan is at the bottom right, the screw holes for the limit switch can be found at the top left of the rear panel. They are outlined in red in the photo, left.



Insert a 14mm truss head screw into each of the screw holes in the limit switch, as shown above.



Turn the limit switch around, and, holding the screws in position with your fingers, place a spacer on each of the screws.



Put the screws through the screw holes (ringed in red) on the back panel. Make sure that the metal pins of the limit switch are pointing down, as shown above.

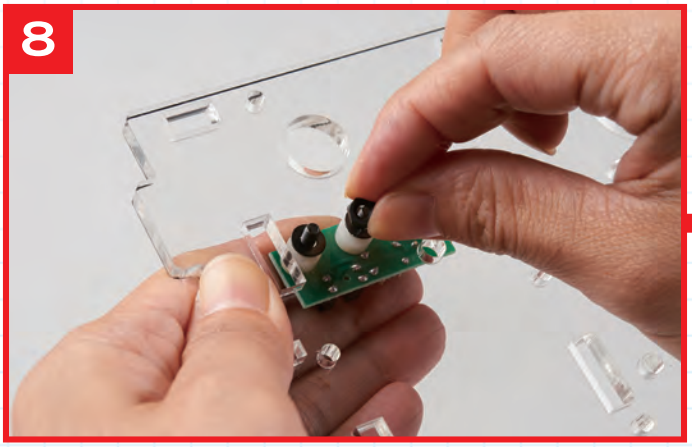
6

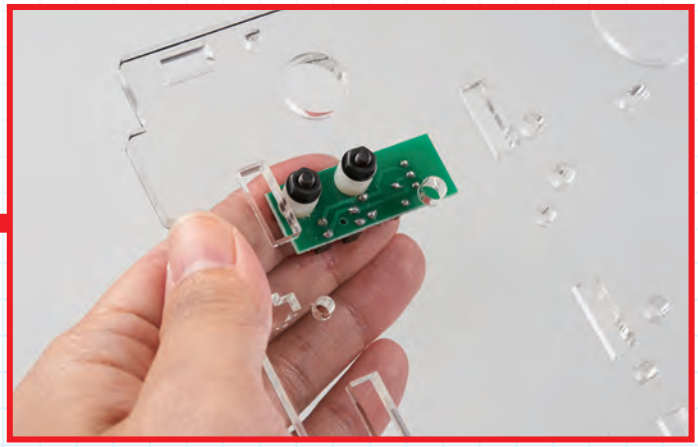
Hold the screws in place and turn the panel over.

7

Put a washer on each of the screws.

8



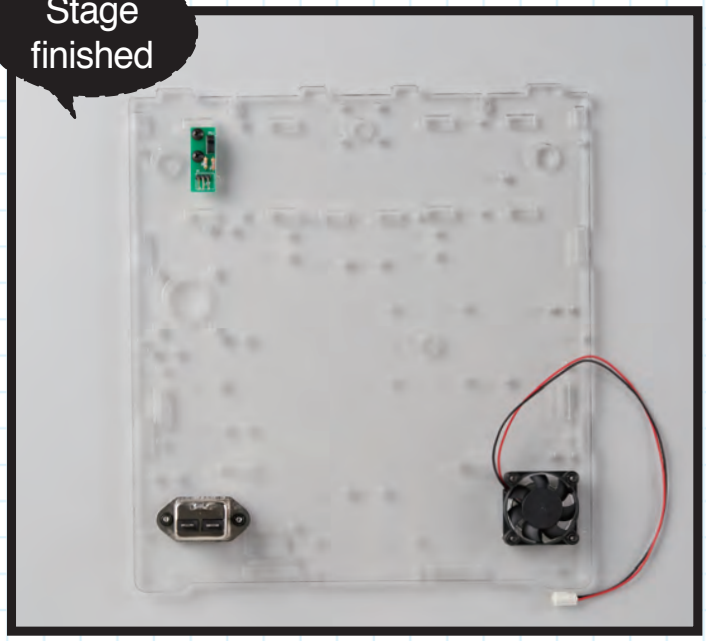


Thread an M3 nut onto each of the screws, and tighten each one with your fingers.

9

Turn the panel over again and, for now, tighten the screws loosely with a screwdriver, just enough to hold the switch securely in place. They will be tightened fully at a later stage.

Stage finished



The rear panel now has three components attached to it – the cooling fan, the noise filter, and the X-axis limit switch. Keep the panel somewhere safe.

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3D PRINTER

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