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CubeX 3D Printer

“Lesson – Leveling the Print Pad and Print Tips, Setting the Z-Gap”

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Objectives

After completing this lesson you will:

- Be able to level the Print Pad to ensure proper printing
- Know how to level the print tips so they are even
- Know how to set the Z-gap to achieve good prints

Leveling the Print Pad

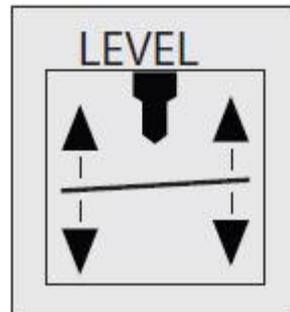
LEVELING THE PRINT PAD

Make sure the Print Pad is securely installed onto the Aluminum Print Plate. Do not perform leveling function without the Print Pad correctly installed.

The aluminum print plate is mounted on three sprung bolts which allow you to adjust the height of the Print Plate in three places.

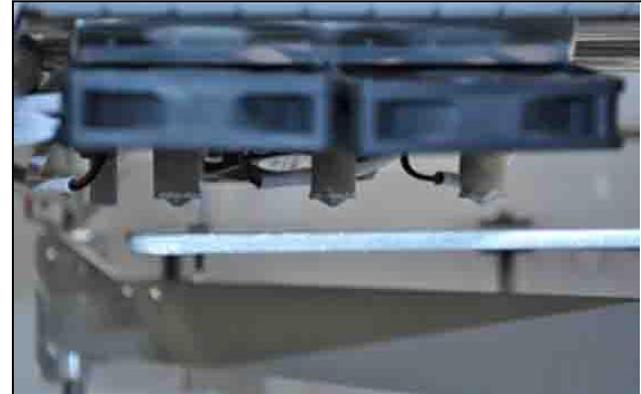
The 'Level' function moves the extruder carriage around the corners of the print area so the operator can adjust the Print Pad support bolts for leveling.

1. Select 'Level' on the touchscreen.

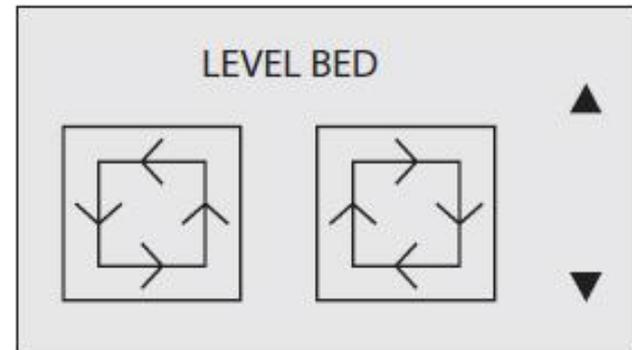


Leveling the Print Pad

2. Use the Up and Down arrows to raise and lower the print plate to adjust the gap between the print tips and Print Pad. Start with approximately 10 mm between the tips and the Print Pad. This distance will enable rough leveling.



3. Touch the 'Clockwise' and 'Counter-clockwise' buttons to automatically move the carriage around the corners of the print area.



Leveling the Print Pad

4. Since the print plate rests on 3 points, it is easiest to level the Print Pad Left to Right first.

Looking from the front of the machine with the print tips at the back of the Print Pad, use the directional controls to move the print tips back and forth Left to Right (not Forward/Back yet).

Observe any changes in distance between the Print Pad and the print tips during each movement along the back of the Print Pad.

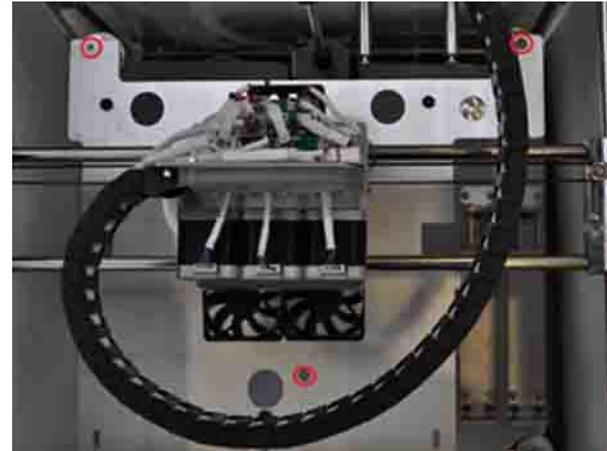


Leveling the Print Pad

5. Using the 3mm hex driver from the tool kit, adjust the height of the rear print bed bolts to make each side level. Leave the Print Pad in place.

6. There is a locking nut beneath each bed bolt that must be loosened with the 8mm wrench before the bolt can be adjusted.

7. It may take several print tip movements and bolt adjustments to ensure that the Print Pad is level.



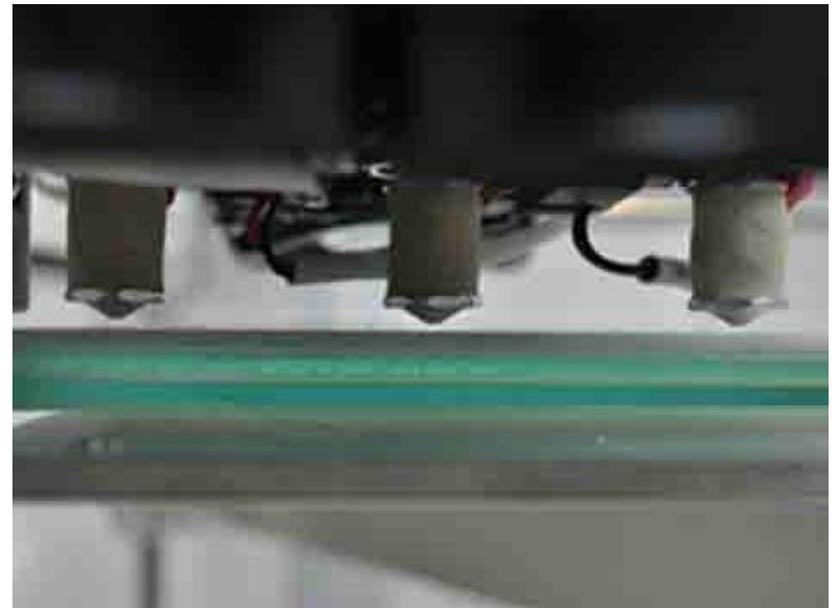
Leveling the Print Pad

8. Once the Print Pad is level Left to Right, move the print tips back and forth Front to Back.

Observe any changes in distance between the Print Pad and the print tips during each movement along the side of the Print Pad.

9. Lower the Print Pad enough to remove it from the print plate. Adjust the front bolt up or down as necessary.

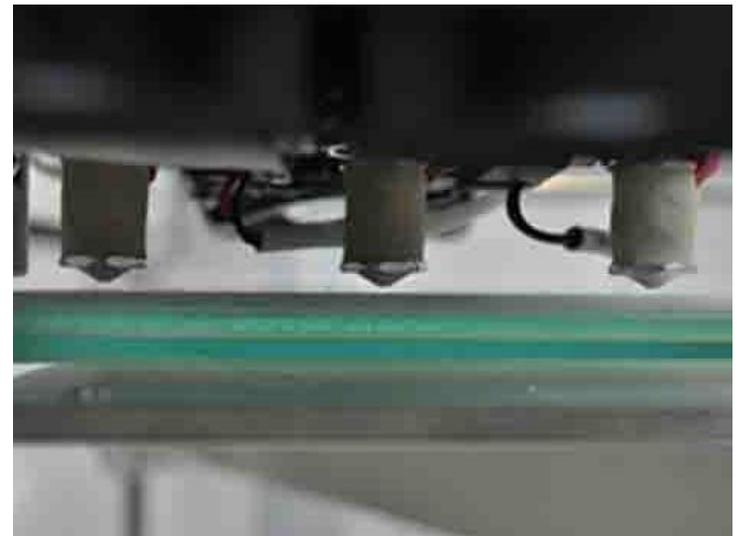
Replace the Print Pad and compare the distance between the Print Pad and print tips. Repeat as necessary until Print Pad is also level Front to Back



Leveling the Print Pad

FINE-TUNING YOUR PRINT PAD

1. Make sure the Print Pad is installed before fine tuning.
2. Use the Up and Down arrows to reduce the gap between the print tips and Print Pad to approximately 2 mm. This will enable finer leveling.
3. Repeat previous steps 1-9 to fine-tune the level of the Print Pad.
4. Click the 'Function' button to leave the 'Level' menu, and return to the main menu.



Leveling the Print Pad



CAUTION: Observe each axis movement and ensure the print jet is not touching the Print Pad. Moving the axis when the print jet is touching the Print Pad will damage both the print jet and the Print Pad. If the print jet touches the Print Pad, immediately lower the Print Pad using the Down arrow.

NOTE: Remember to lock the 3 Print Pad bolts into position by tightening the lock nut under each with the 8mm wrench. To stop the bolt from spinning while you tighten the nut, hold it in position with the 3mm hex driver found on the top side of the Print Pad.

Leveling the Print Tips*

Leveling the Print Tips

After leveling the Print Pad, the print tips must be set to the same level to ensure that the tips not is use do not interfere with the print and to provide a consistent z-gap across all the print tips.

1. Use the Move function to raise the Print Pad most of the way up to the print tips.
2. Power down the CubeX and unplug the power cord.



NOTE: The CubeX must be disconnected from power before proceeding

* CubeX Duo and Trio Only

Leveling the Print Tips

3. Loosen the screws that hold the print tips so they are all loose.

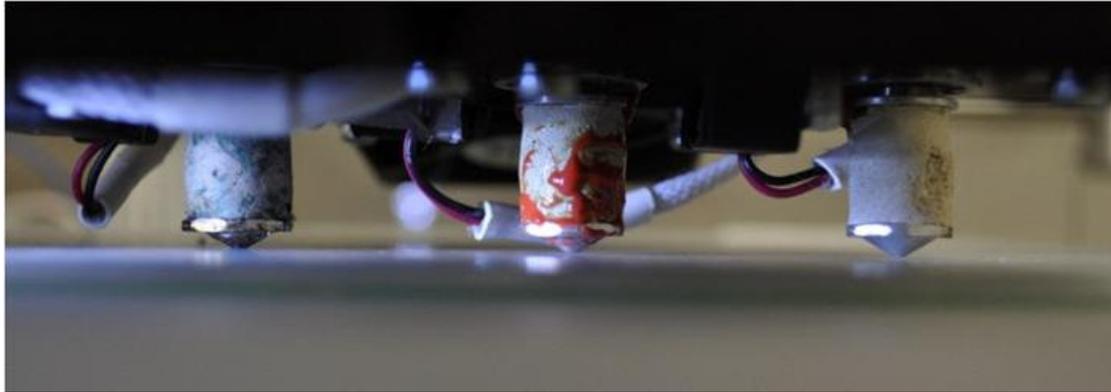


4. Turn the Z-axis drive screw by hand clockwise to raise the Print Pad up until the print tips all touch the Print Pad and are aligned with each other. (Note: The Z-axis drive screw will likely have a thin coating of grease; use gloves or protect your hand with a paper towel if this is a concern)



Leveling the Print Tips

5. Tighten the print tip screws to lock the print tips in place.



6. Turn the Z-axis drive screw by hand counter-clockwise to lower the Print Pad a couple of inches.

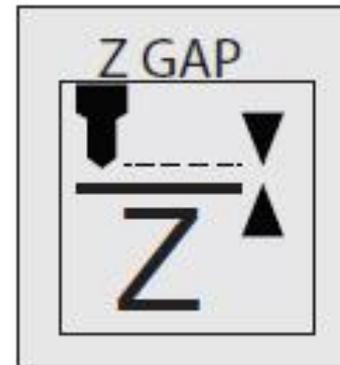
7. Reconnect the Power and turn the CubeX back on.

Setting the Z-Gap

SETTING THE Z-GAP

After leveling the Print Pad and print tips, the print tips must be set to the correct height to ensure that the first printed layer sticks properly (if the print tips are too high, the filament will not stick to the Print Pad; if the print tips are too low, the Print Pad may obstruct the print jet). Use the 'Z Gap' function to accurately adjust the height of the print tips for the first layer.

1. Select the 'Z-Gap' function on the touchscreen.
2. Make sure the print tips are clean. Use pliers or wire cutter to remove any material attached to the print tips.

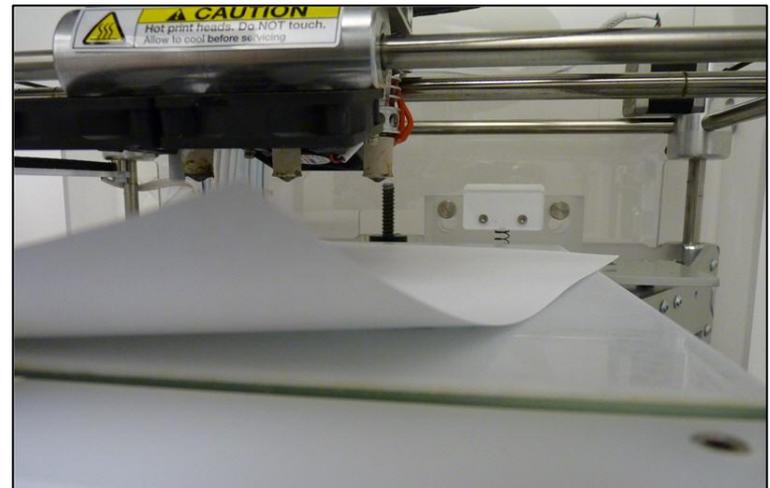


Setting the Z-Gap

3. Observe the gap between the print tips and Print Pad from the front of the machine.(Fig.107) Press and hold the Z +/- buttons to move the Print Pad.

4. Starting with a gap between the Print Pad and the print tips, place a sheet of paper between the print pad and the print tips. Move the Print Pad towards the print tips using the up arrow on the screen.

5. Stop raising the Print Pad as soon as the print tips touch the paper's surface. If the Print Pad goes too far, simply move the Print Pad back down and repeat the approach.



Setting the Z-Gap

6. Slide the paper back and forth while lightly tapping the up arrow on the touch screen.

As the Print Pad rises incrementally, you should start to feel some resistance between the print tips and the paper.

If the print tips touching the paper but with no resistance is 0% and the paper not moving at all is 100%, stop when the resistance between the paper and the print tips is about 30%



Setting the Z-Gap

7. Clicking the 'Function' button gives the option to save the gap setting to the printer's memory, which will be retained even after the printer is powered off. This Z-Gap value will be applied for each subsequent print.



CAUTION: IF THE PRINT JET PUSHES AGAINST THE PRINT PAD TOO HARD, THE PRINT JET WILL BE FORCED INTO THE PRINT PAD FOR THE ENTIRE FIRST LAYER OF PRINTING. THIS WILL DAMAGE BOTH THE PRINT PAD AND THE PRINT JET. MAKE SURE THE PRINT PAD SPRINGS ARE NOT COMPROMISED WHEN SETTING THE PRINT JET AGAINST THE PRINT PAD.