

Fusion3

EDGE 3D Printer

MAINTENANCE: ADJUST Z AXIS POSITION

Revision 4/19/2023

ADJUSTING THE HORIZONTAL POSITION OF THE Z AXIS

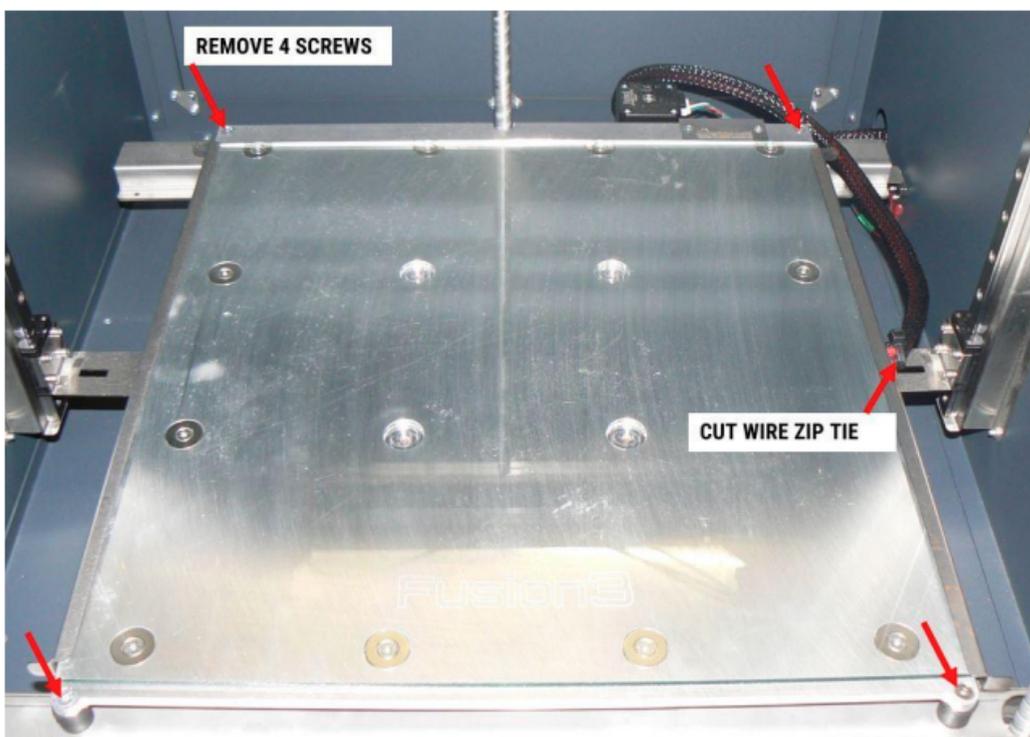
Over time, the Z axis on your EDGE printer may drift in the horizontal plane. Slight shifts up to 1mm generally do not cause problems, but if the Z axis moves too much, you may experience issues such as binding, or problems with the nozzle offset calibration process. This document describes how to adjust the position of the Z axis to resolve those issues.

WHEN TO DO THIS

- If your Z axis binds or runs roughly (make sure it's not out of level first).
- If your nozzle offset calibration fails, or consistently gives you the wrong value, and you can see the probe pin contacting somewhere it shouldn't (the screw head, off the plate, etc)

PROCEDURE

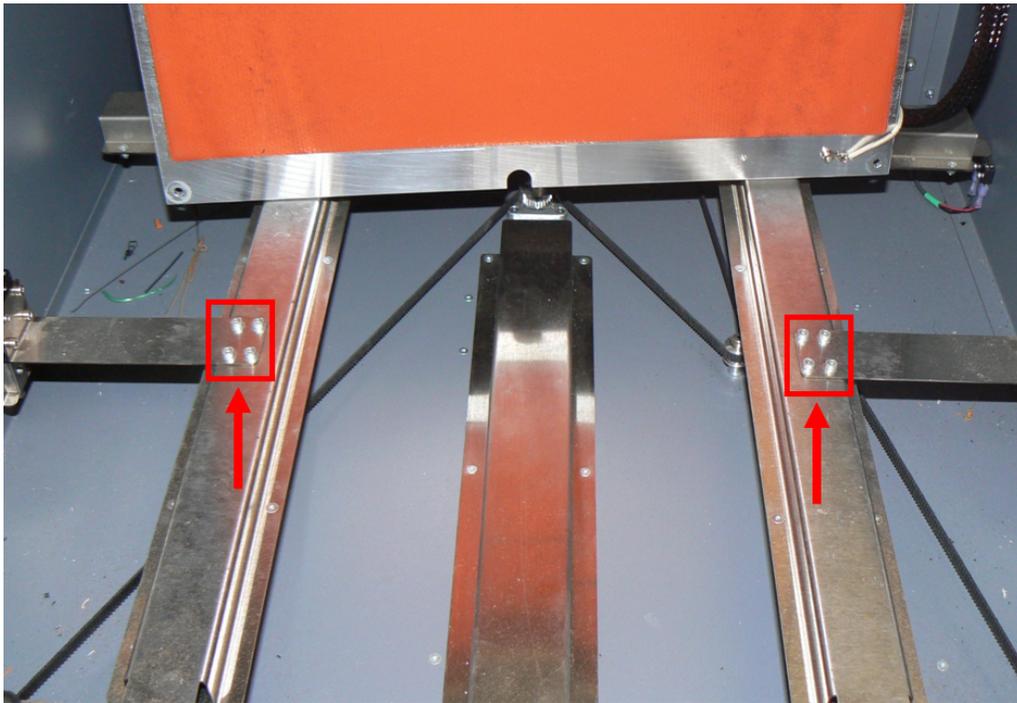
1. EDGE should be off and cold. The Z axis should be towards the bottom.
2. Remove the print surface from the tool plate.
3. Cut the zip tie holding the bed wires to the Z axis arm.
4. Remove the 4 bed bolts at the corners.



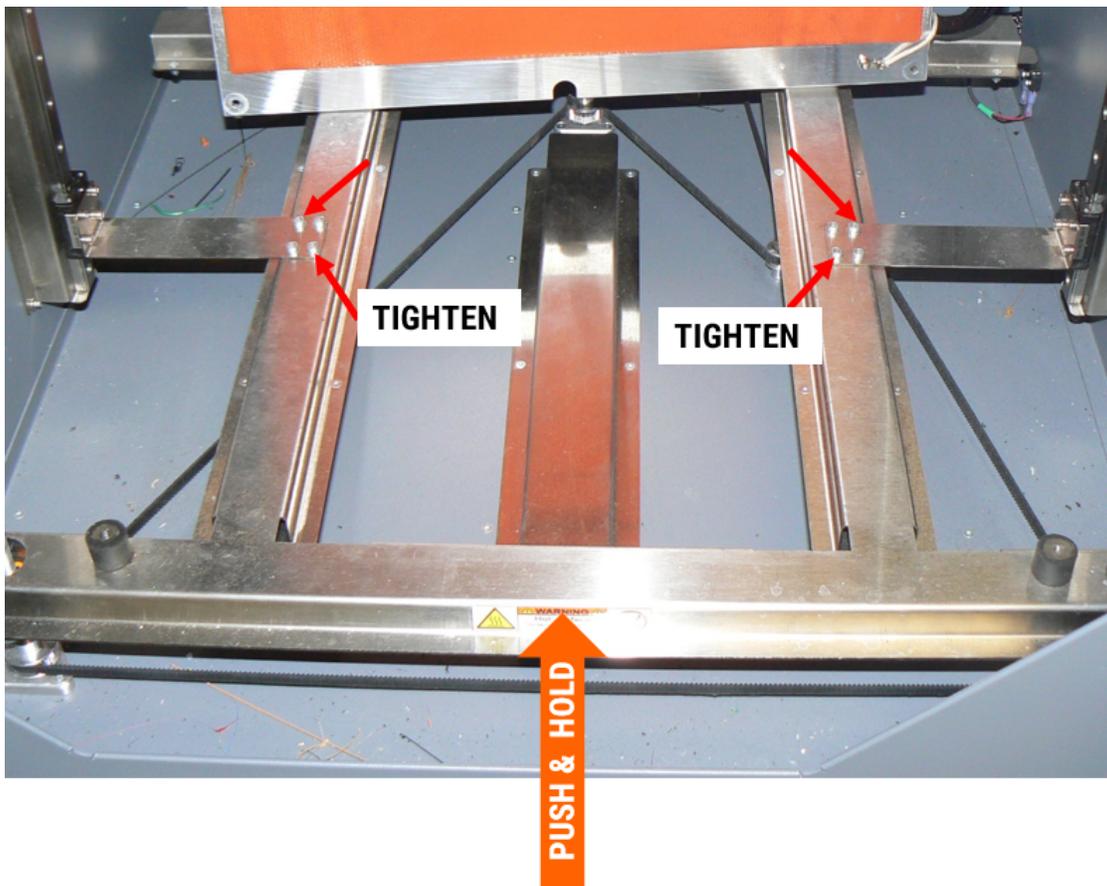
5. Lift the bed up so that it's vertical, but keep it sitting on the Z axis substrate.



6. Remove the insulation so you can see the wing screws.



7. Loosen all 8 wing screws. You don't need to completely remove them, unless you want to add some blue loctite (NOT RED!) or do something else.
8. Firmly push the Z axis in the direction it needs to go (usually backwards). Keep it as square as you can in the machine (don't push on one corner, push in the center).
9. Hold the Z axis in position while you tighten at least 2 of the wing screws on each wing (4 screws total).



10. Tighten the rest of the wing screws. You want these very tight. Max torque is 19 in-lbs.

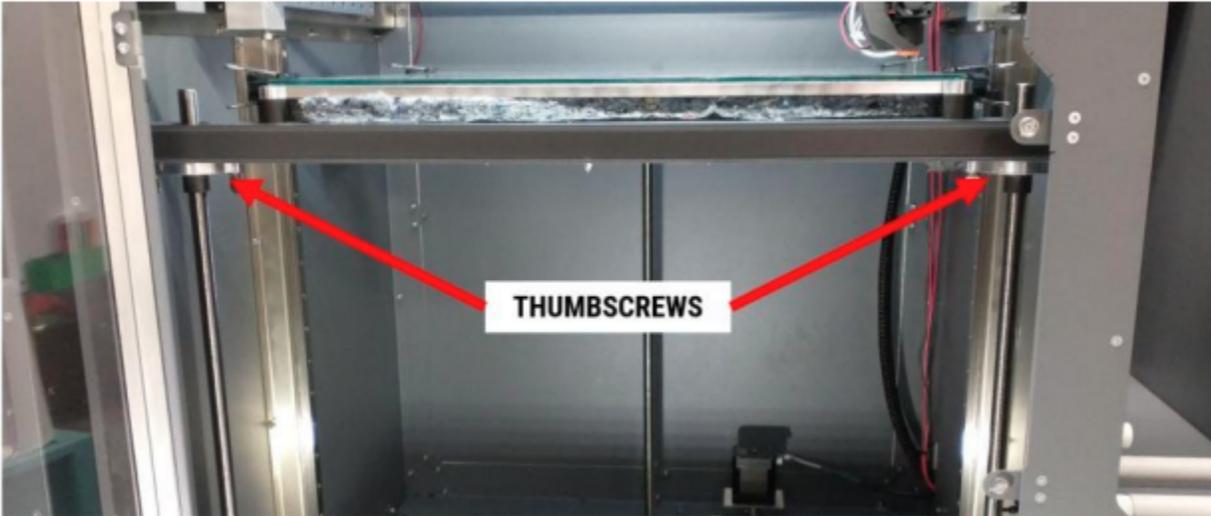
11. Lay the bed back down but don't install it yet.

12. Take a look at your leadscrews. Chances are moving the substrate has caused them to point in strange directions. The back leadscrew is fixed, but the front two have some float we can use to re-align them.

NOTE: Leadscrew alignment effectively limits how far in one direction you can shift the Z axis. The leadscrews must be fairly vertical in order to function well. Otherwise resistance to motion becomes very high and will stall the Z axis motor.



13. Manually raise the Z axis by pulling on the belt, until it's high enough for you to manipulate the manual leveling thumbscrews.



14. Loosen the thumbscrews and pull the leadscrew in whatever direction will get it close to vertical again. Try not to rotate the leadscrew nut.

15. Tighten the thumbscrews and repeat for the other front leadscrew.

16. Run the Z axis up and down by hand and make sure resistance doesn't become very high at the bottom of travel.

a. If it does, you may need to loosen the wing screws again and undo some of the position adjustment you made earlier.

17. Once you're satisfied with your leadscrew alignment, reinstall the bed insulation and the bed. Remember to reinstall the wire zip tie to strain relieve the wires leading to the bed heater.

18. Test to make sure you resolved your original issue. For instance if your nozzle offset wasn't working, run it again and make sure the probe points happen in the right spot.