



TrinityLabs

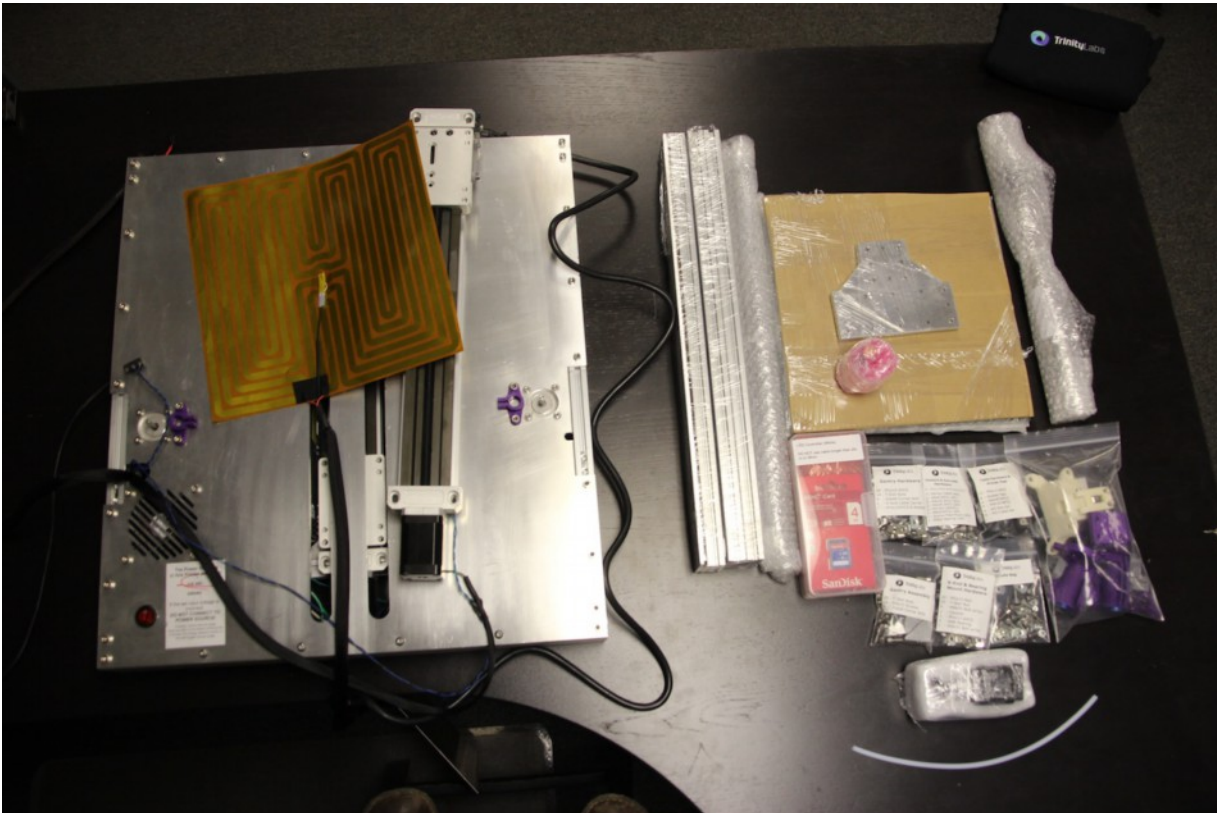
Aluminatus 1.0.1 Assembly Instructions

2013.03.11

TrinityLabs

Aluminatus 1.0.1 Assembly Instructions

You should have the following in your Aluminatus T1 box. If you think you are missing any pieces, or if anything appears to be broken, please contact Trinity Labs for a replacement.



- (1) Base unit with attached X-Carriage SIMO stage and Kapton Heater
- (3) 527mm extrusions for the upper gantry
- (1) LCD box with LCD, connection cable, and SD Card
- (1) Extruder motor and fan
- (1) Printed parts bag
- (1) Pre-wired J-head
- (2) Leadscrews with delrin nuts
- (2) Smooth rods
- (2) Aluminum side brackets
- (1) Borosilicate Glass Sheet
- (1) Laser-etched heat spreader
- (1) Laser-cut aluminum Y-table
- (2) Aluminum table spacers ("dogbones").
- (6) Assorted hardware bags (see following pages)
- (2) 1Lb rolls of filament.

Gantry Assembly Bag



Parts to assemble the three 527mm extrusions and top plate for the upper gantry.

X-End & Bearing Mount Hardware Bag



Parts to mount the x-ends to the x-carriage, the parts to attach the leadscrews, and all the parts to mount the lower bearing mounts.

Table Hardware & Printer Feet Bag



Parts to attach the feet and y-table to the printer.

Hot End and Extruder Hardware Bag



Parts to assemble the extruder and attach the hot-end.

Gantry Hardware Bag



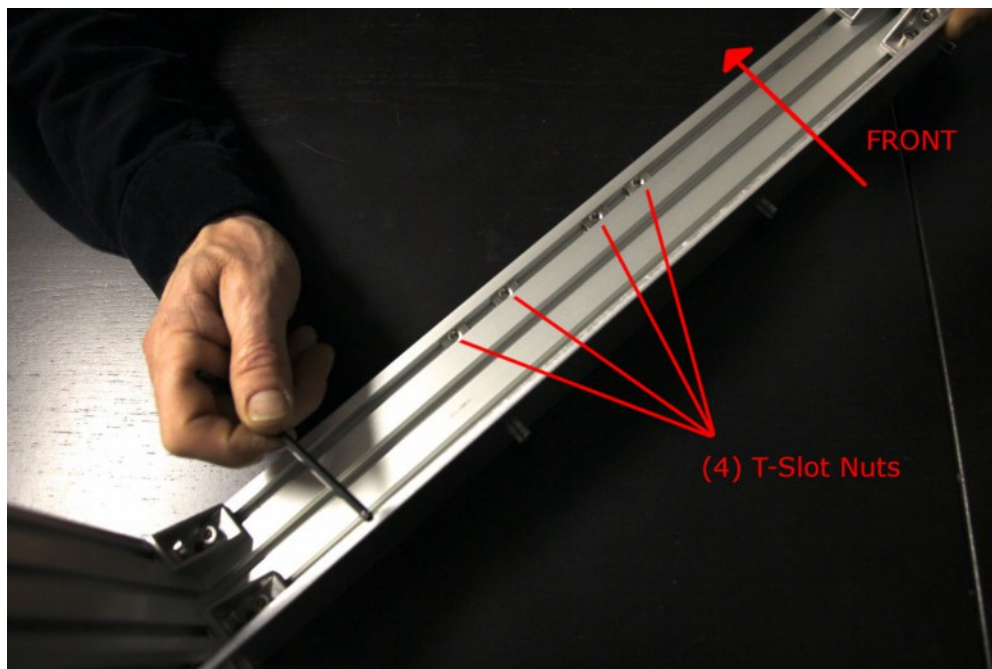
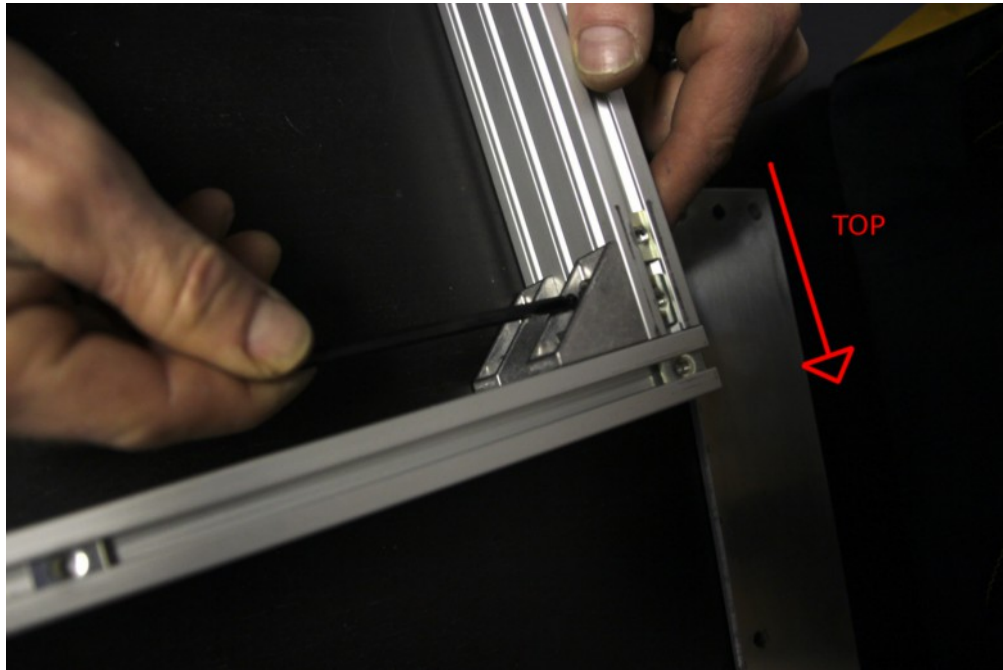
Parts used to attach the upper gantry to the base.
(X-axis carrier will connect to the x-axis with the M3 screw)

Goodie Bag

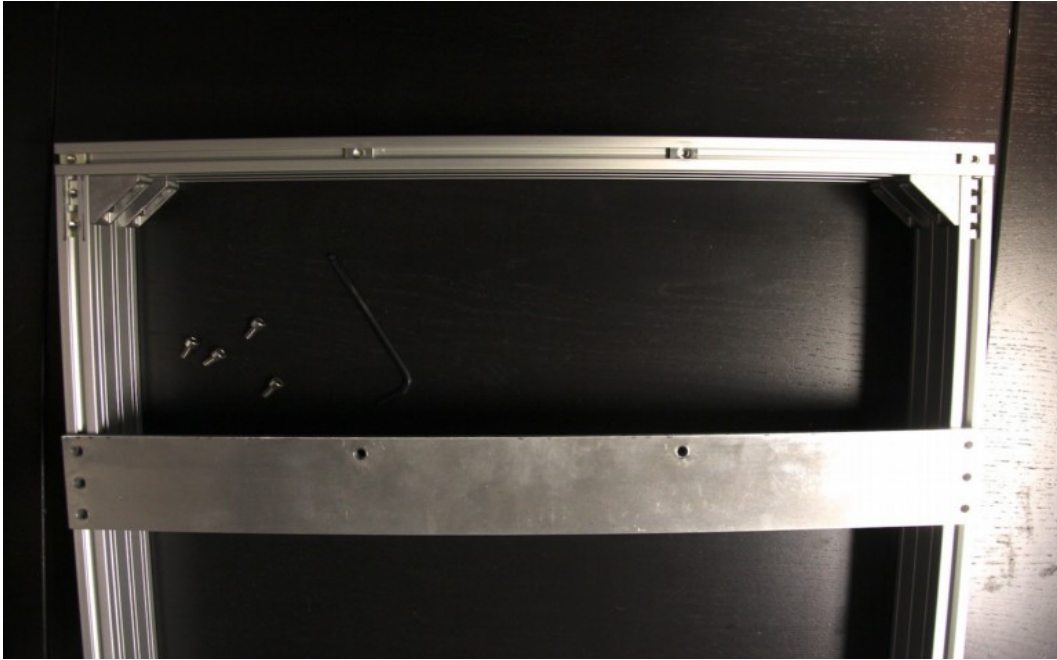


A little bit of everything else. In case of missing parts, for repairs, etc. Enjoy!

Step 1: Assemble the Upper Gantry



Assemble the upper gantry using the four corner brackets. Place the 4 T-Slot nuts in the bottom slot of the top 20x60 extrusion as pictured. Note the orientation of the extrusions, the top extrusion rests on top of the two side extrusions.

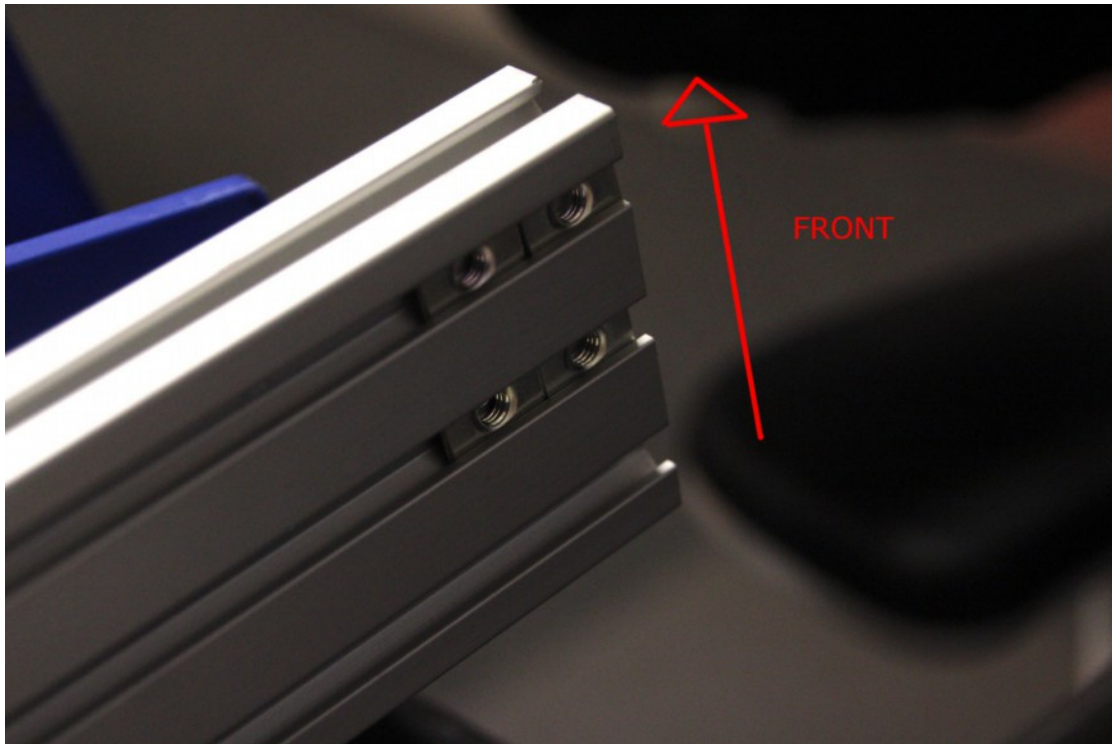


Attach the gantry top support plate with 8 t-slot nuts. This goes on the back of the gantry (on the opposite side of the extrusion where you just placed the 4 t-slot nuts).

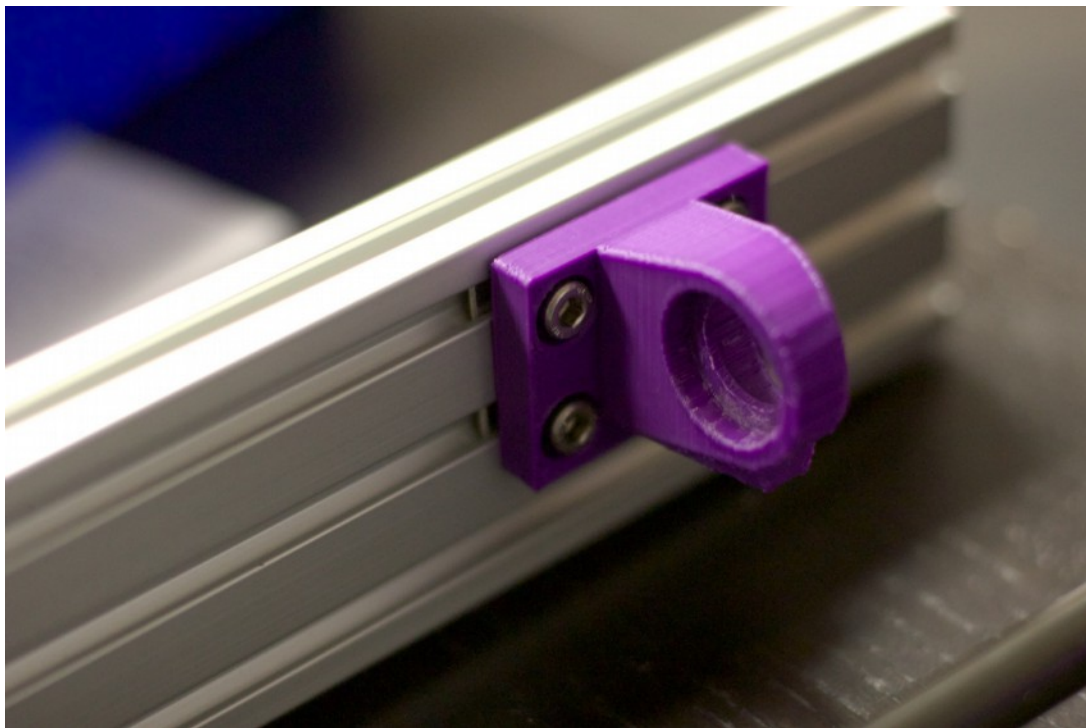


The completed Gantry will look like this.

Step 2: Installing the Lower Bearing Mounts

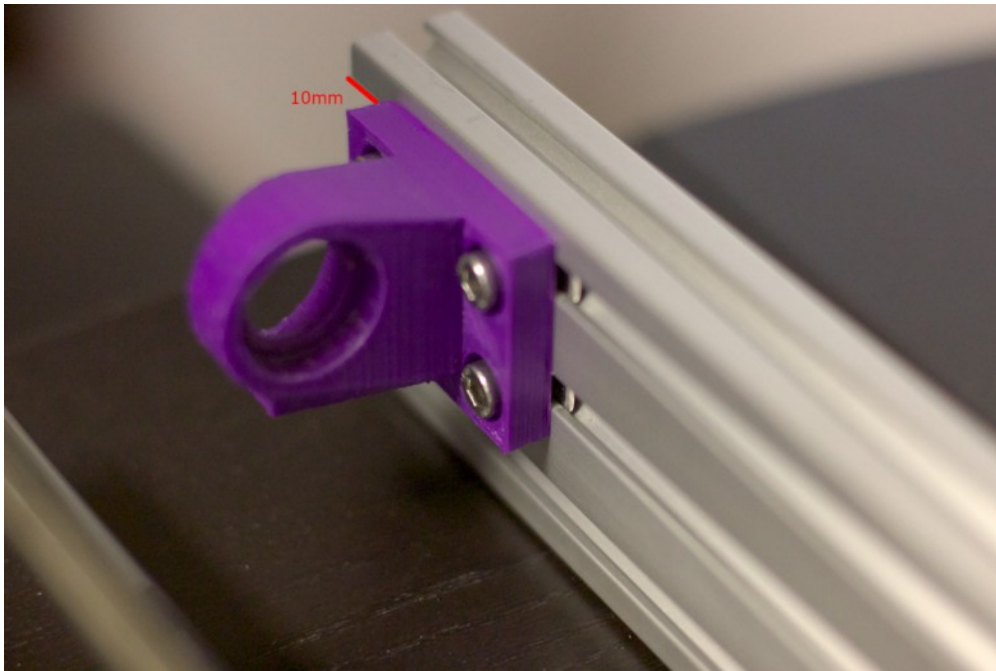


Install four t-slot nuts on the inside of each of the gantry side-extrusions.

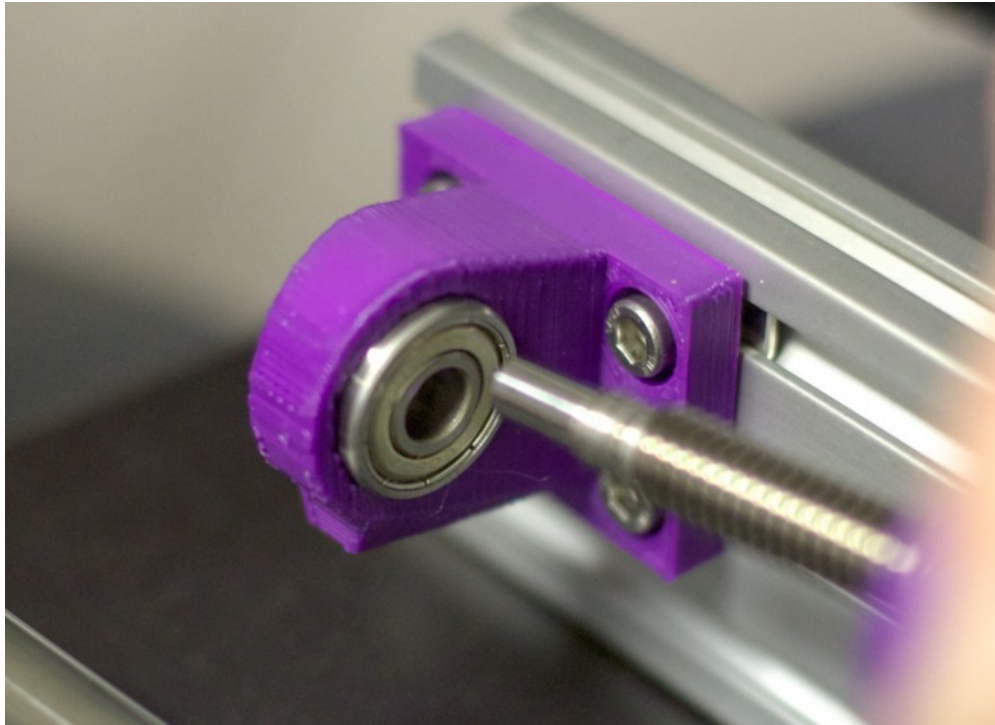


Loosely attach the lower-bearing mount using M5-10 screws as pictured.

Slide each bearing mount down until it is 10mm from the bottom of the extrusion and tighten the M5 screws.



Tip: Use an M5-10 screw to help you line these up with the bottom. These screws are 10mm from the bottom of the head – it makes for a nice 10mm measurement tool.

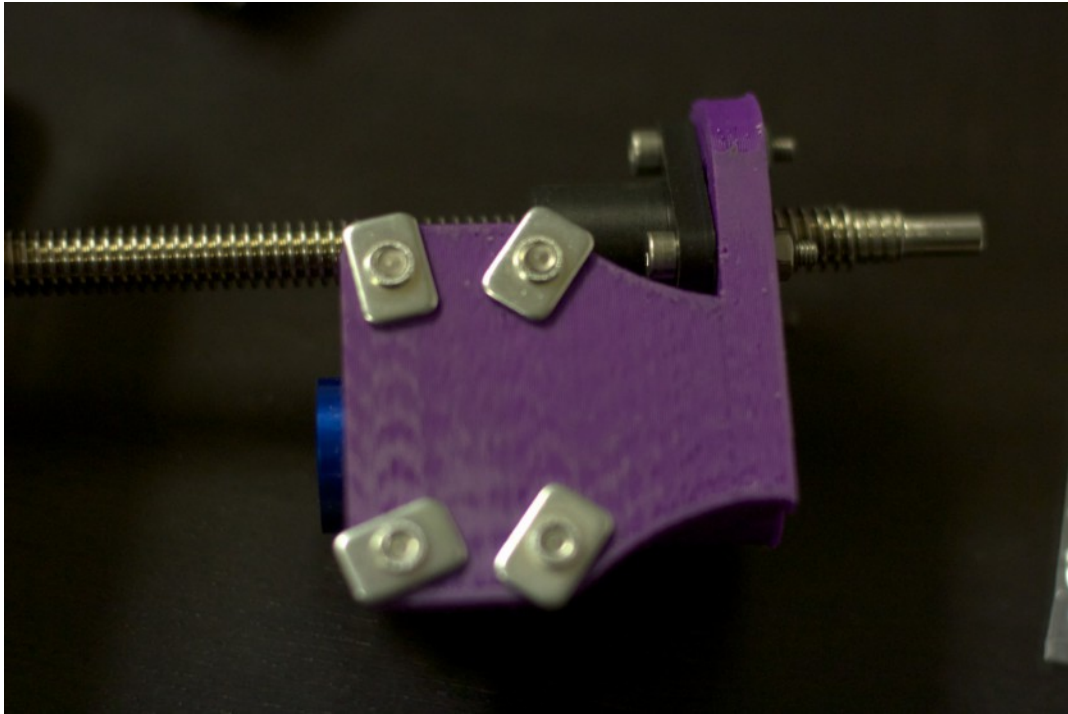


Press-fit a 608zz bearing into the top of each lower bearing mount.

Step 3: Attaching Leadscrews to X-Ends

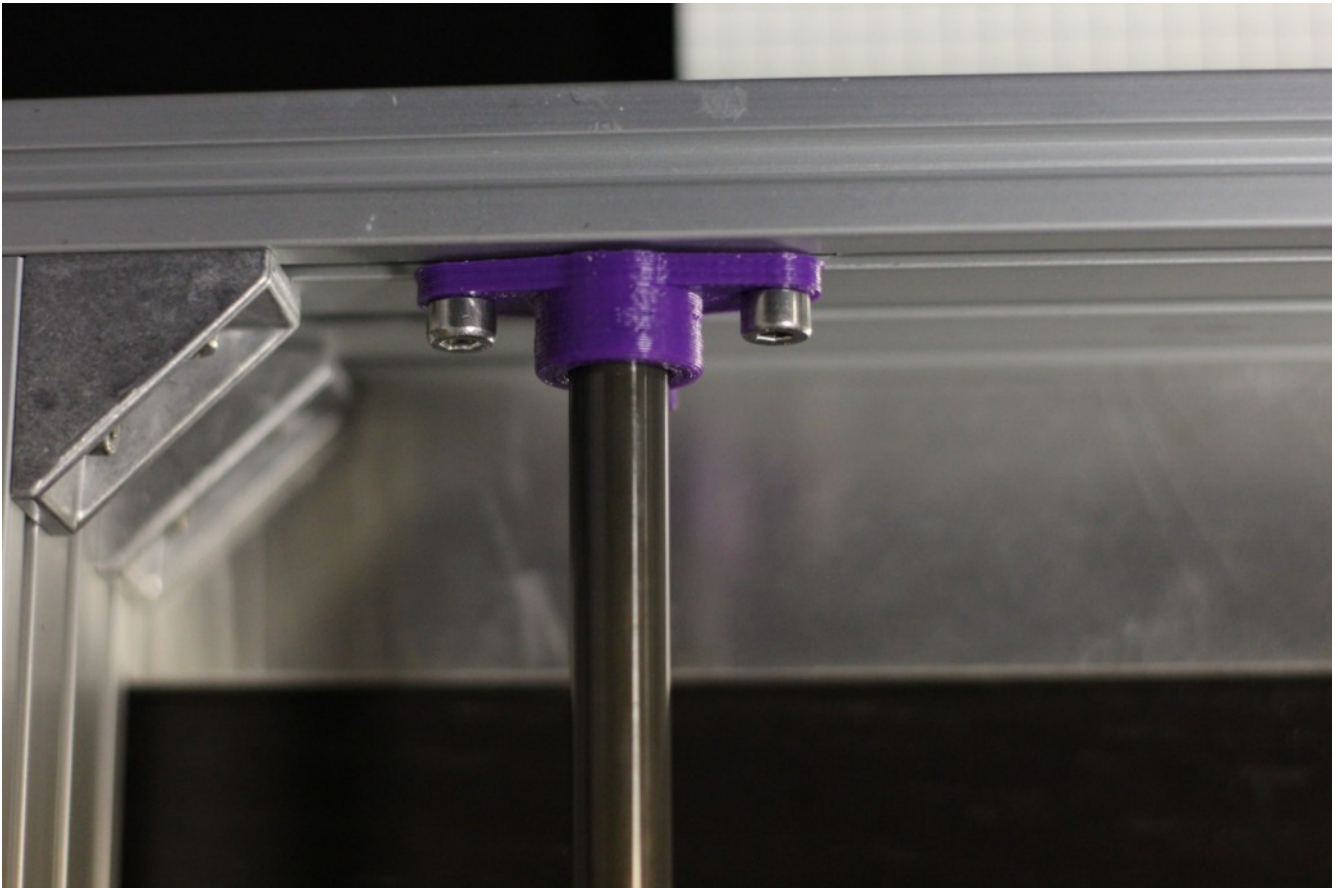


Loosely attach the leadscrew nuts to the x-ends using the the M4-20 bolts and nuts. It is not necessary to fully tighten these yet. Note the orientation of the leadscrew – if your leadscrew does not match this orientation remove the black delrin nut and thread it on in the other direction.



Very loosely attach 4 t-slot nuts to each x-end using M5-10 socket-head screws.

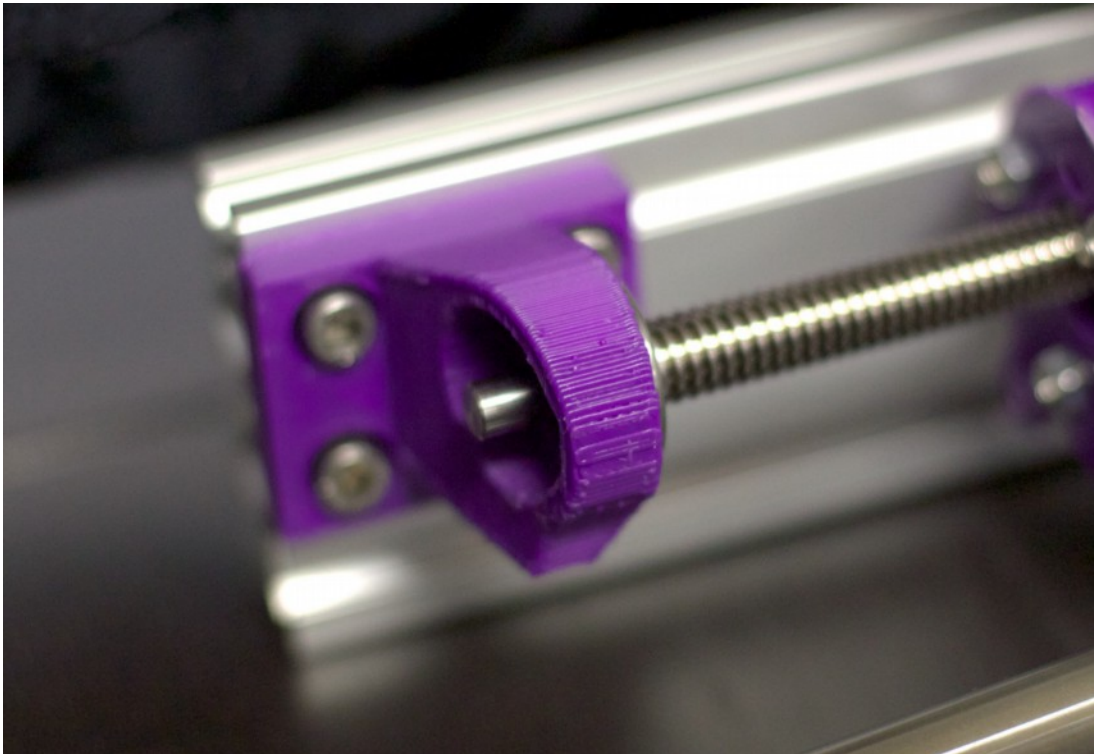
Step 4: Attaching Smooth Rod to Upper Gantry



Insert the smooth rods into the rod clamps (as pictured) and loosely attach them to the top of the gantry using the 4 t-slot nuts that were previously left there.

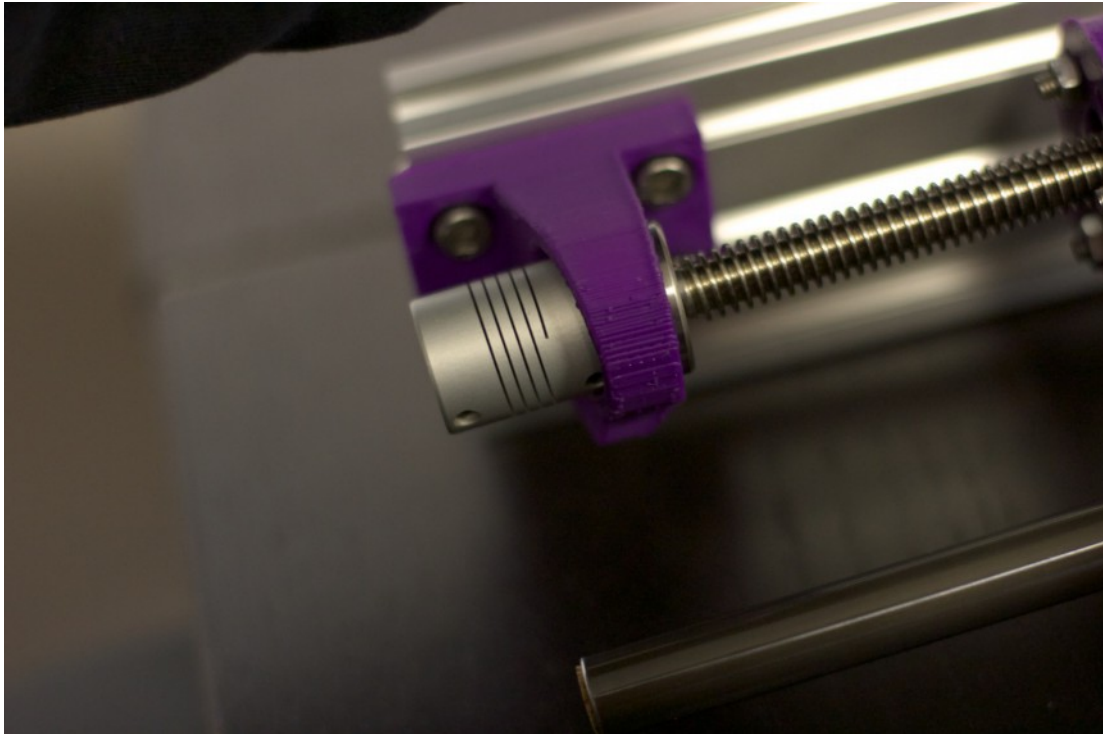
They should be loose enough that they can slide back and forth.

Step 5: Assemble the Z-Axis

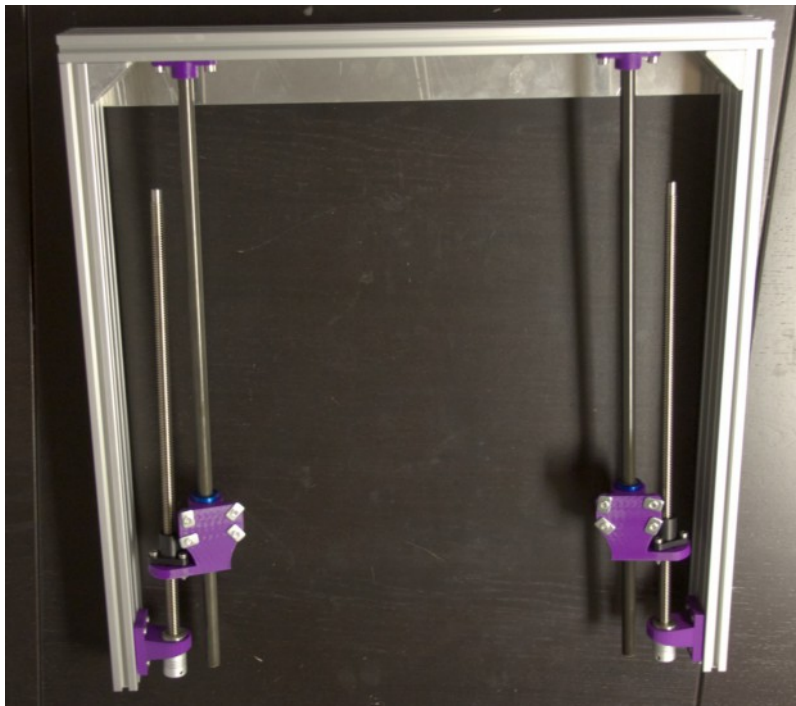


Slide the X-Ends up onto the smooth rod, then drop the leadscrews into the 608 bearings.

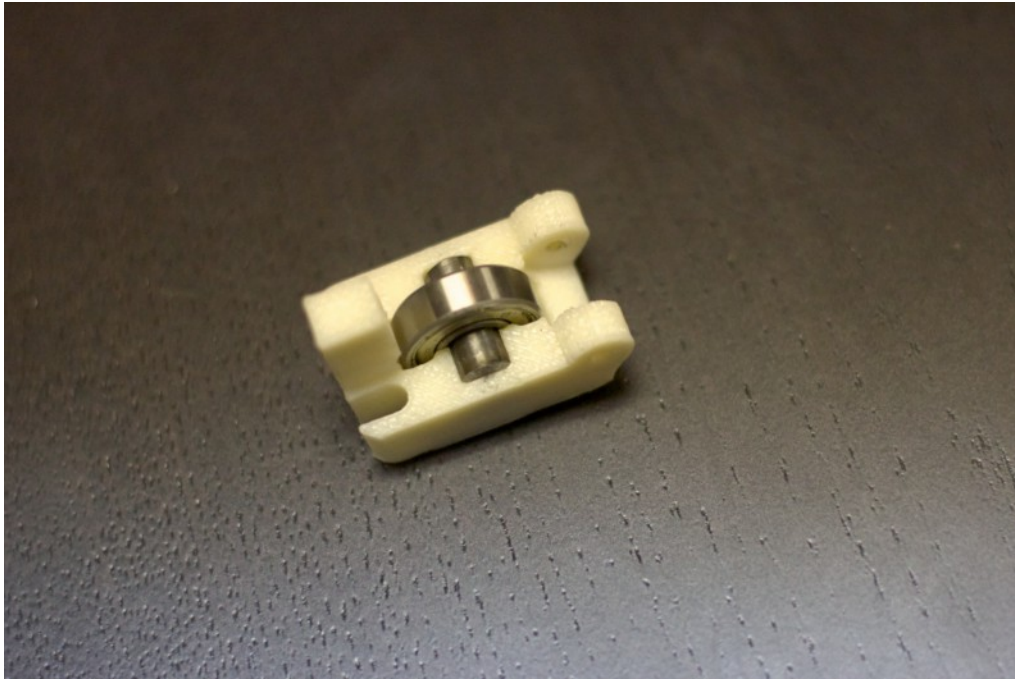
Install the helical aluminum couplers onto the leadscrews using the set screws.



Your Gantry/Z-Axis should look like this before continuing:

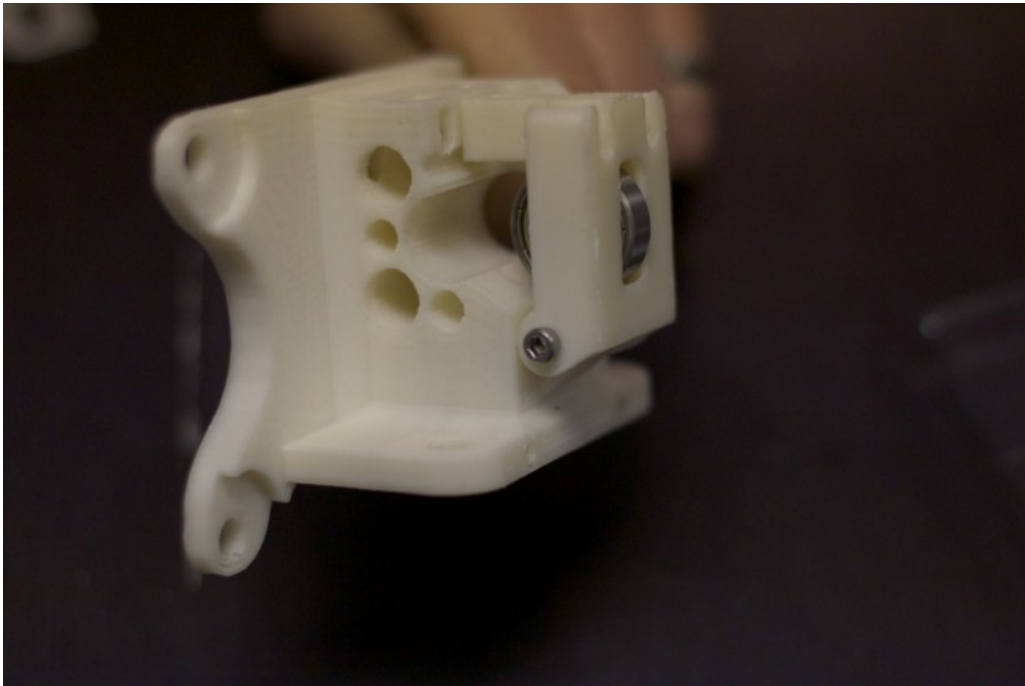


Step 6: Assemble the extruder

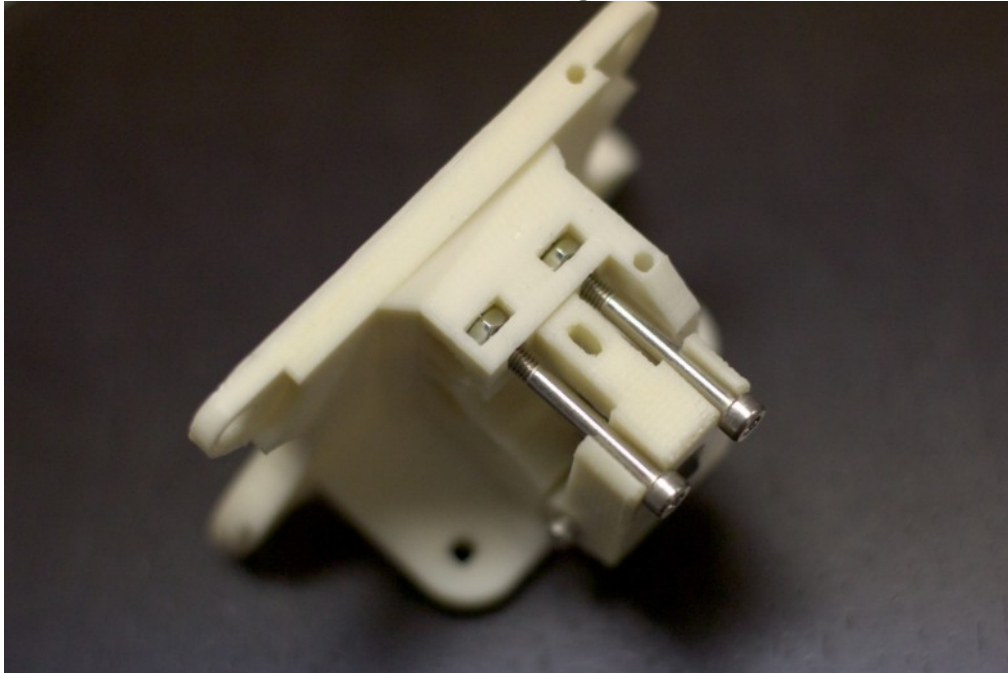


Press-fit the 608 bearing into the extruder idler.

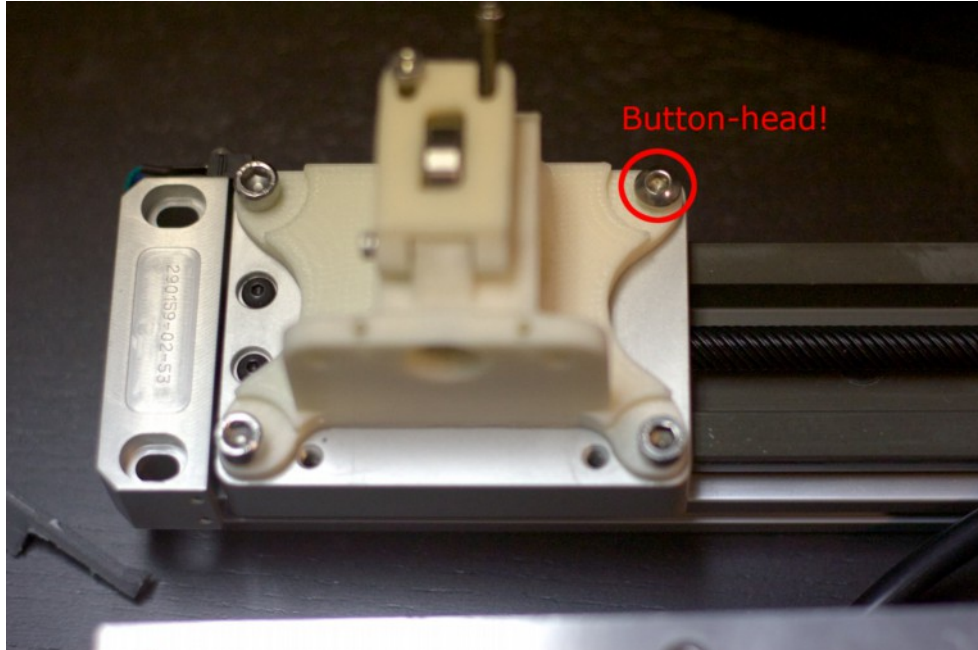
Note: We've heard feedback that some people prefer using this extruder without the smooth rod in the center of the 608 bearing. If you are having trouble tuning your extruder, try removing this bar.



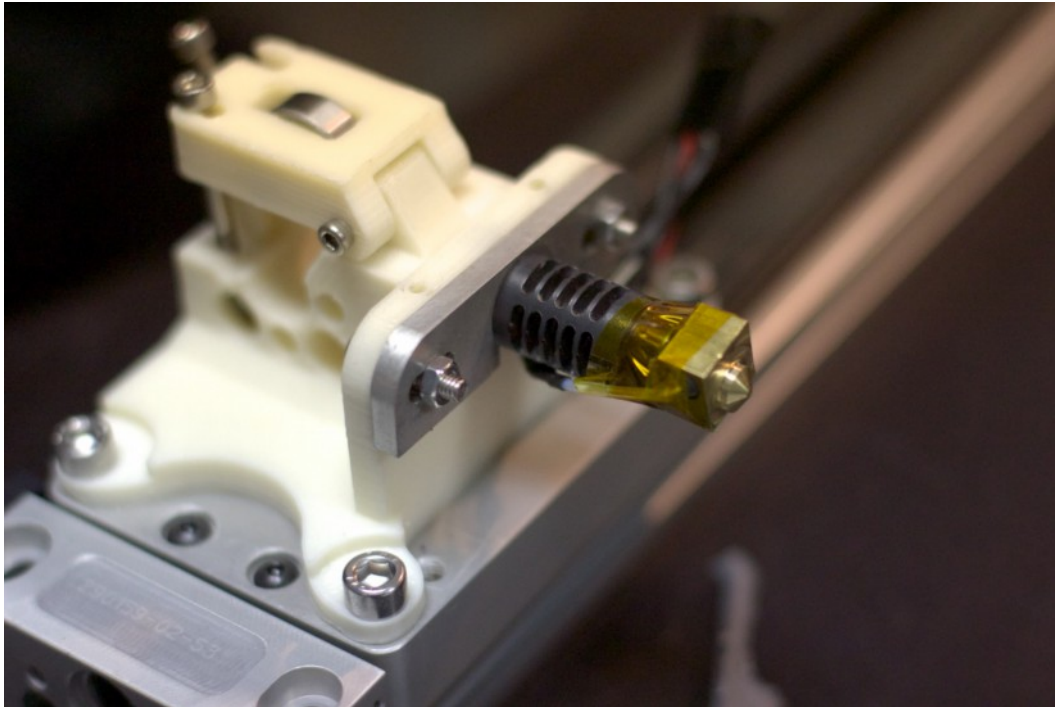
Install the idler using an M3-30 screw/nut. The M3 nut fits on the inside edge of the idler hinge.



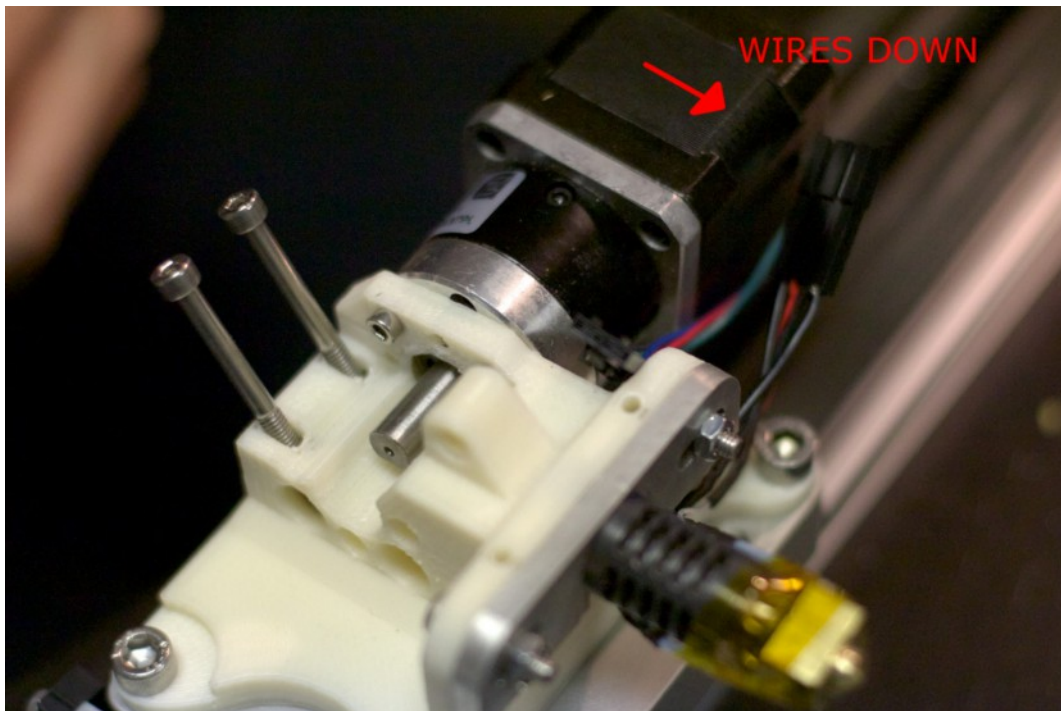
Install the M4x45 screws and nuts.



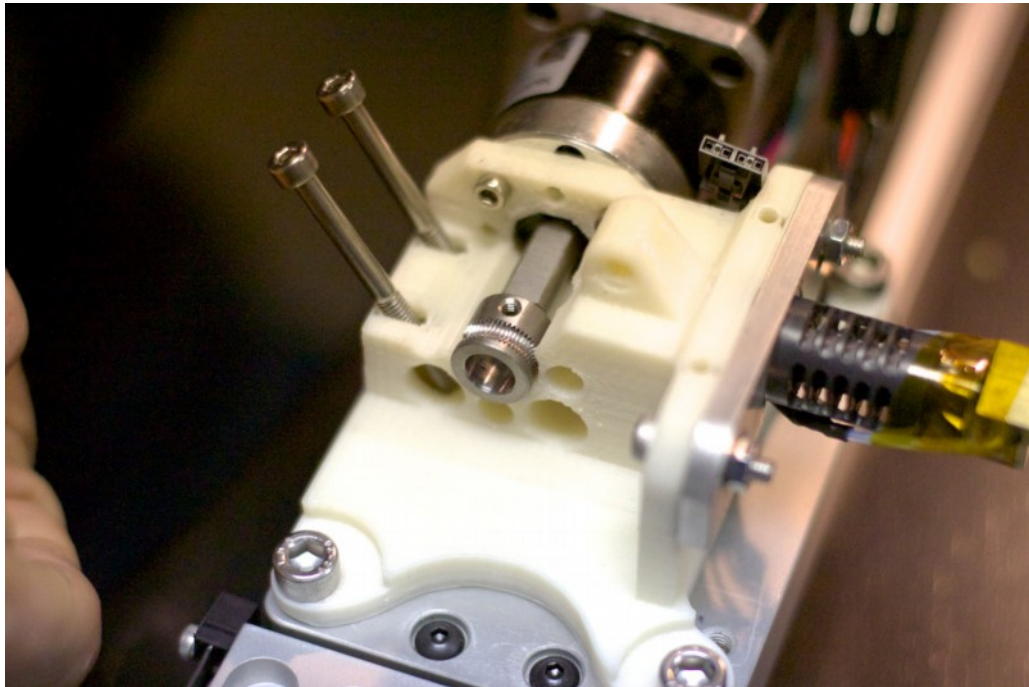
Attach the extruder to the X-axis SIMO stage using the M6 screws. Note the location of the button-head screw.



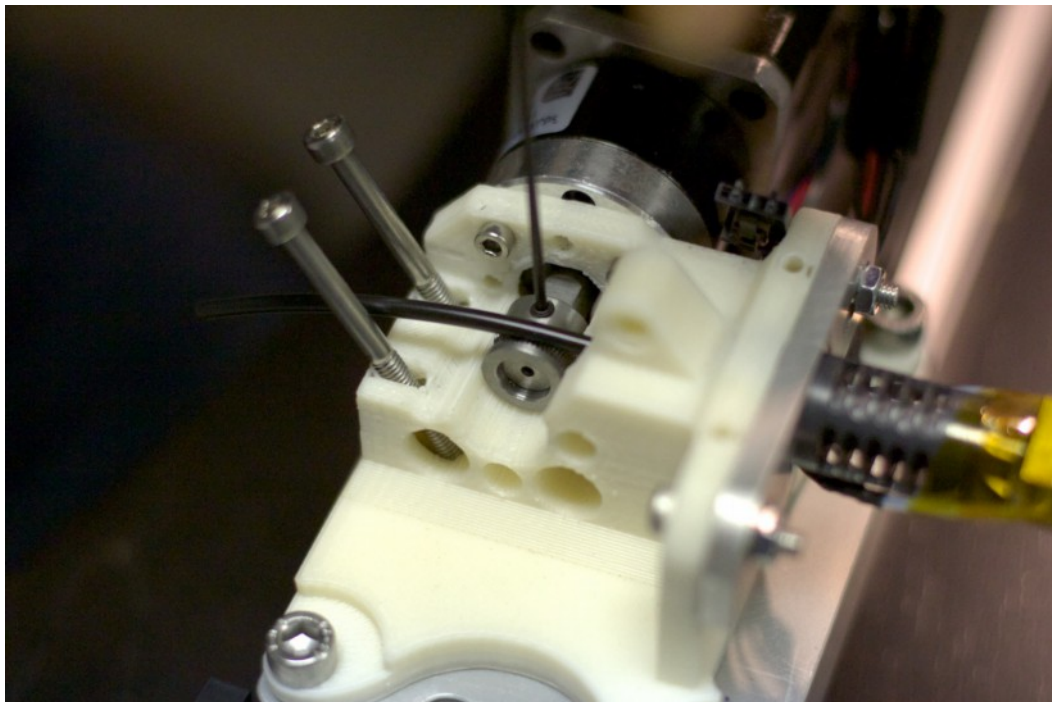
Install the J-head and Groove Mount using M4-16 screws and nuts.



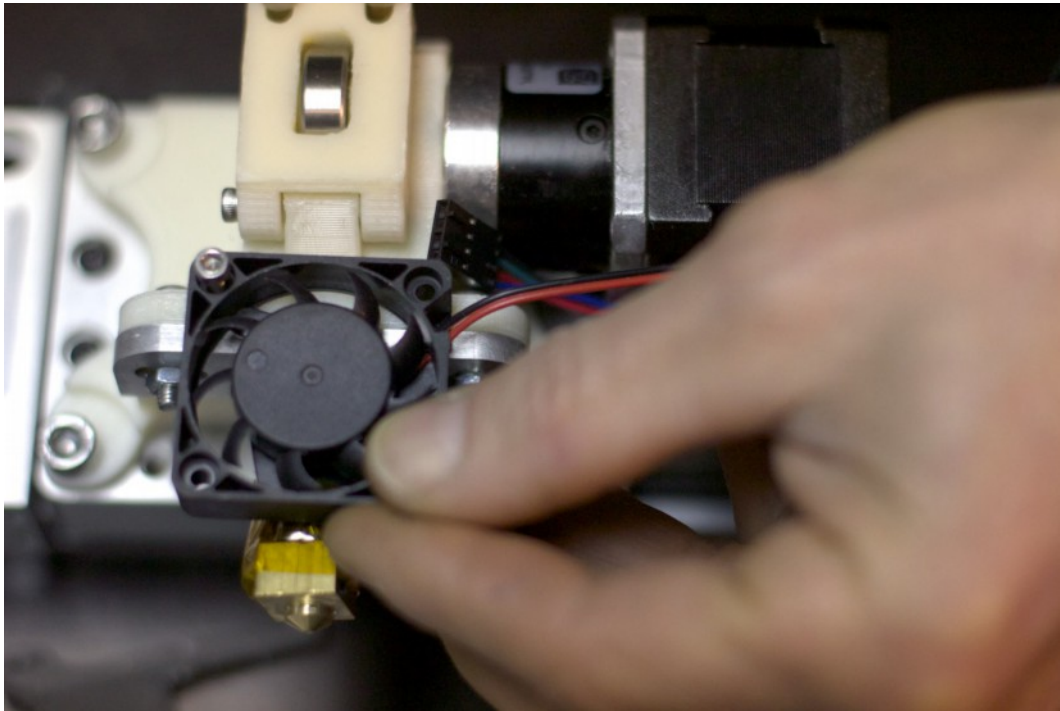
Install the motor using 4x M3-12 bolts. Note the orientation of the motor wires.
(We removed the extruder idler to help take pictures)



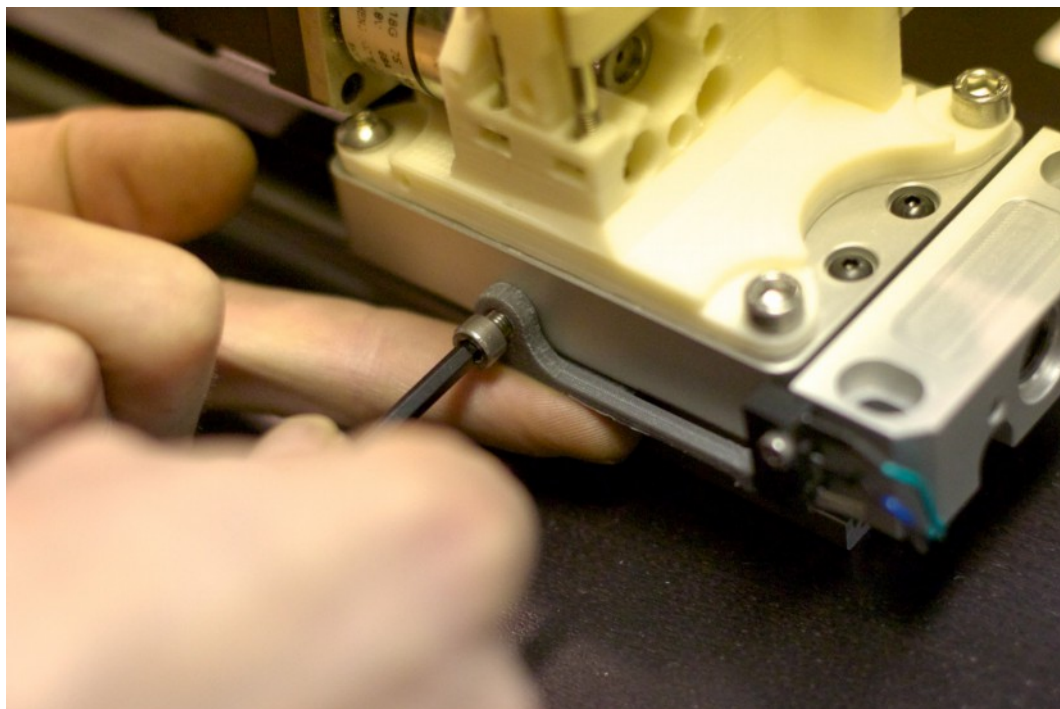
Slide the hobbed gear onto the motor shaft (it can be a tight fit). The set screw should be aligned with the flat of the motor shaft.



Use a piece of the provided filament to line up the hobbed section of the gear with the filament path in the extruder and tighten it down.

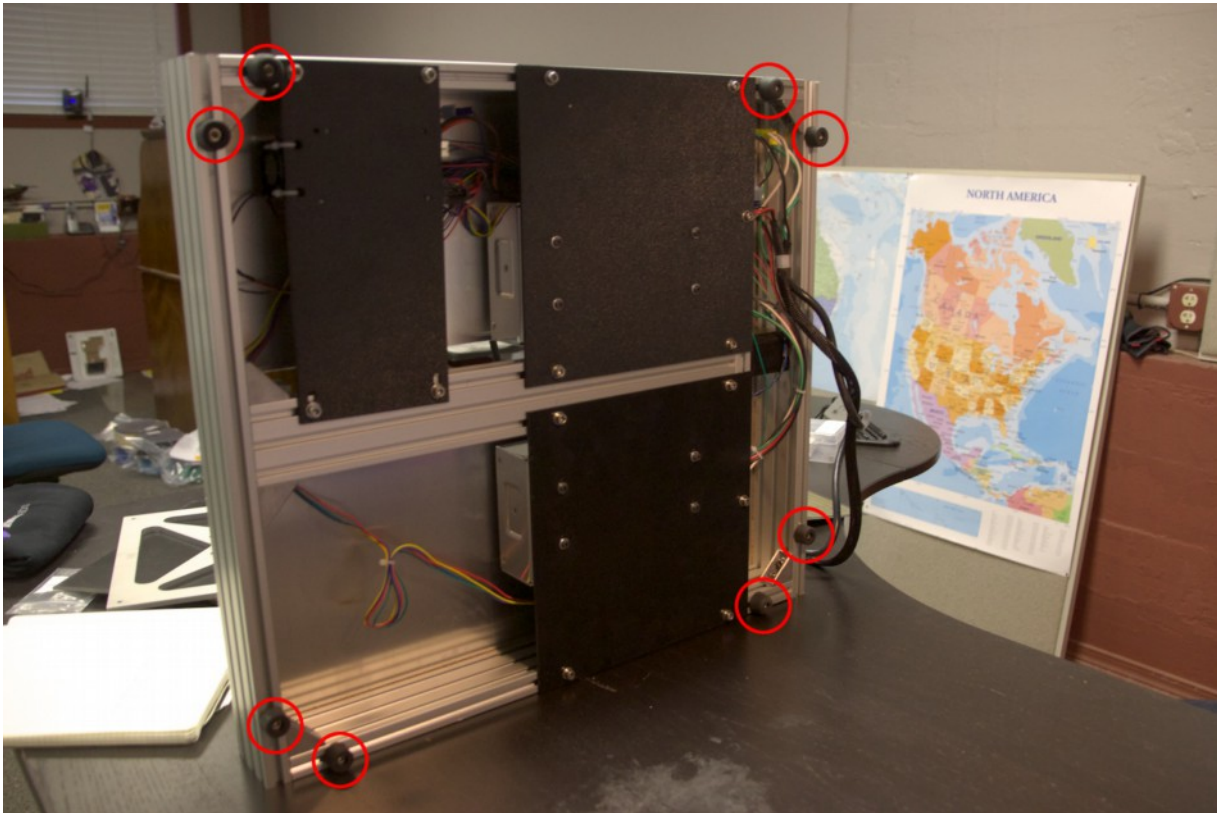


Use two M3-12 screws to attach the fan to the front of the extruder.



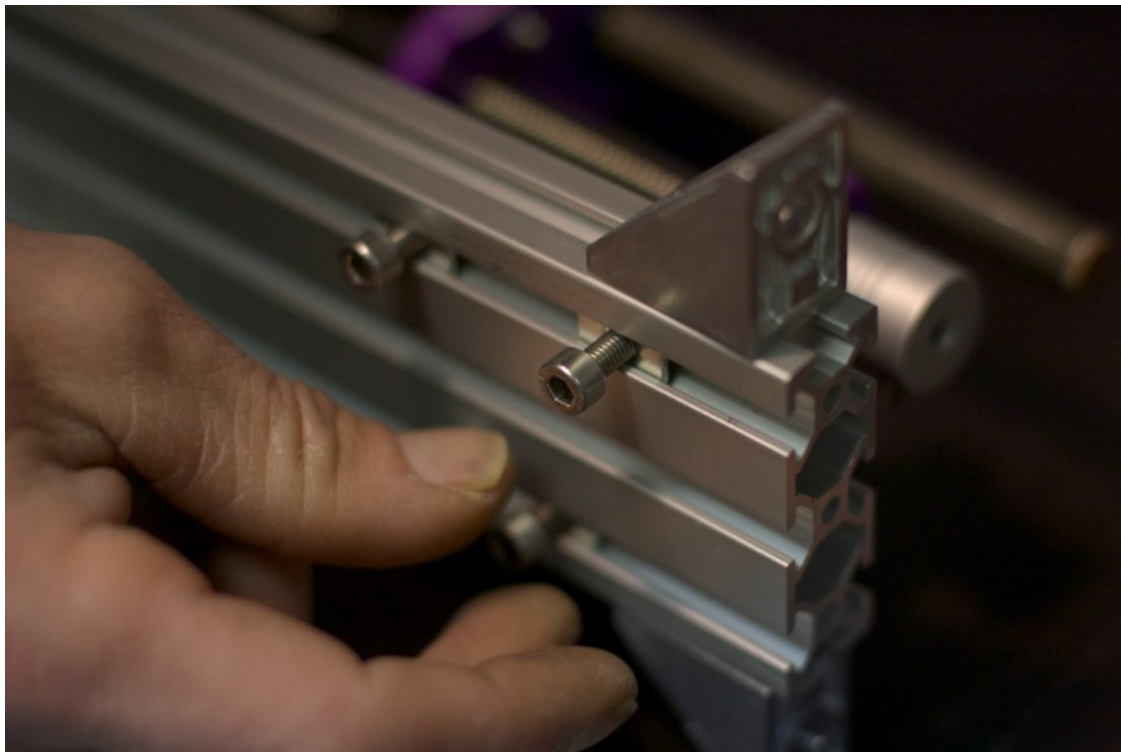
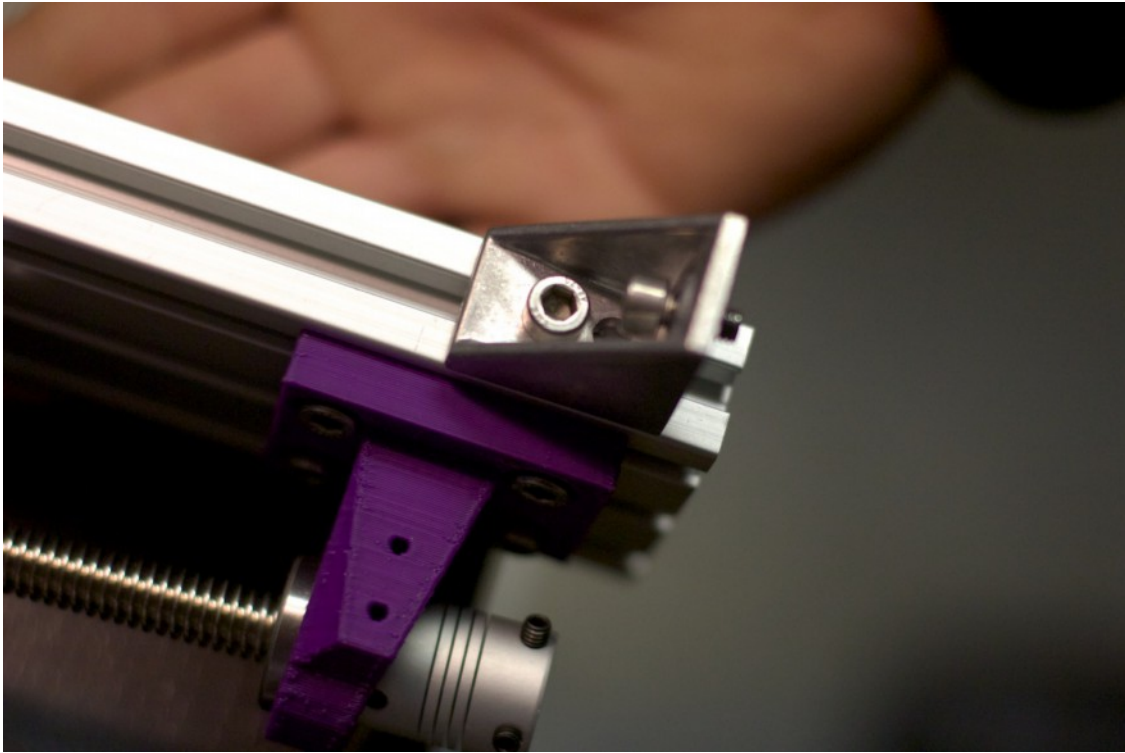
Use an M5-10 screw to attach the endstop flag to the top of the SIMO stage.

Step 7: Attach the Feet

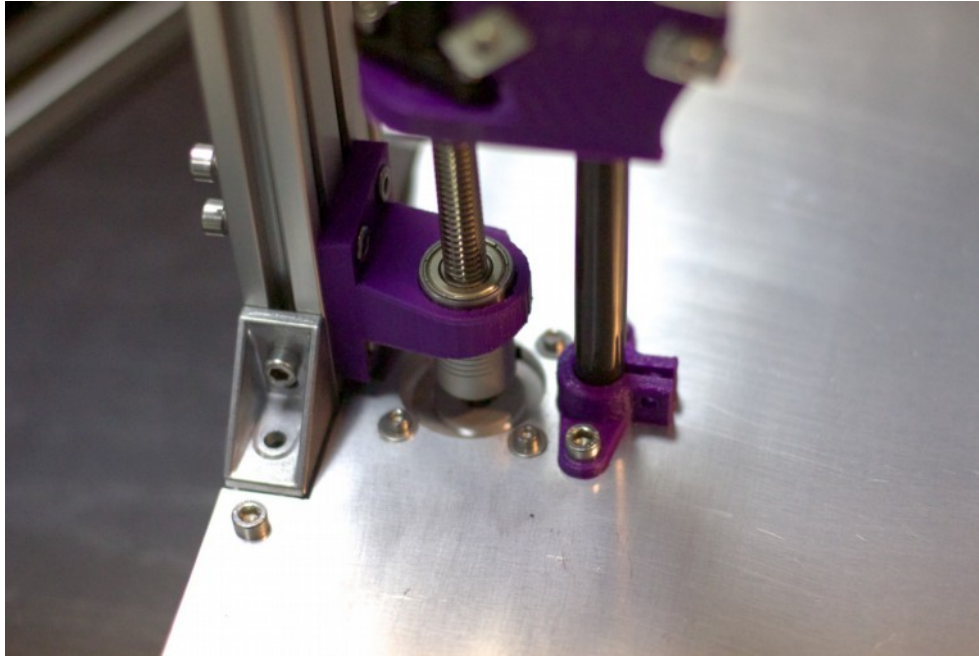


Tip the machine on its side (taking care not to strain the kapton heater or x-axis assembly wires). Attach the feet as pictured.

Step 8: Installing the Gantry



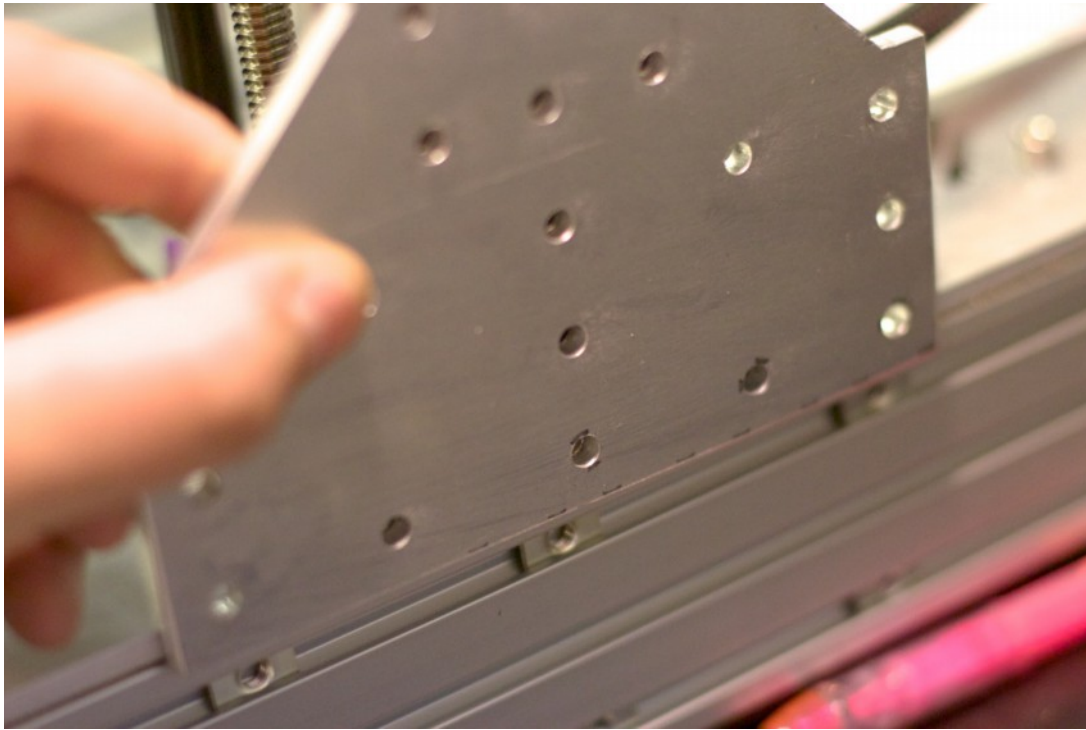
Install four t-slot nuts on the outer sides of the gantry. Use M5-10 screws to hold them in place. Install corner brackets on the front and back sides of the gantry extrusions.



Carefully lower the upper gantry onto the base of the printer. The helical aluminum couplers should fit onto the motors shafts and the smooth rod should fit into the pre-installed smooth rod mount.



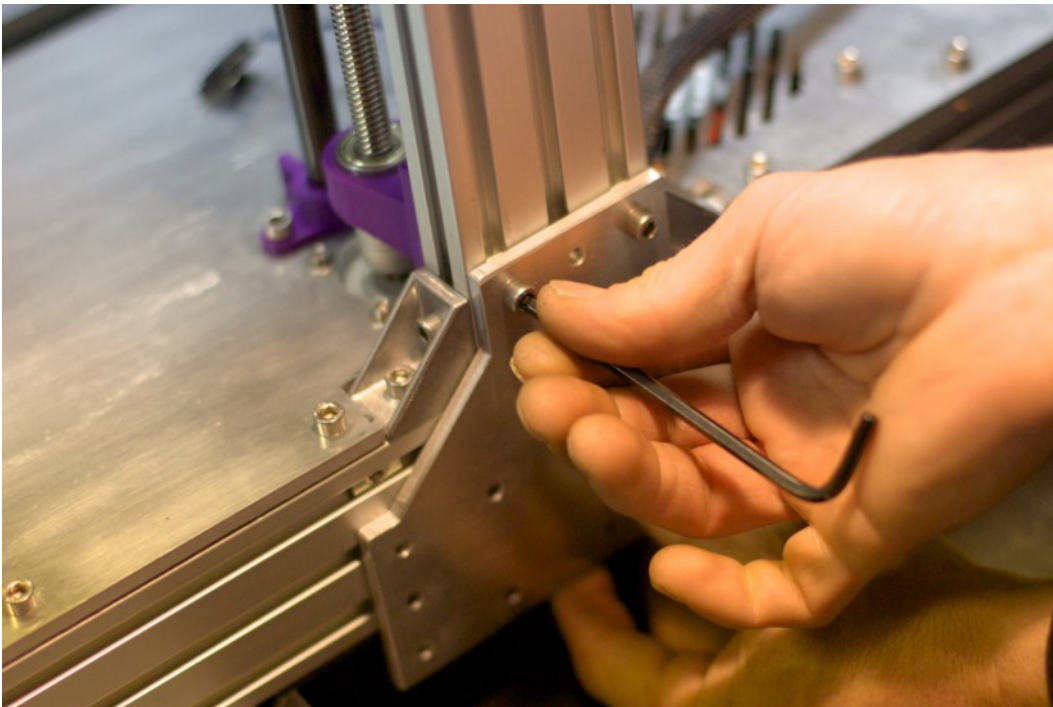
Push the gantry to the front of the aluminum cover plate and tighten the corner brackets.



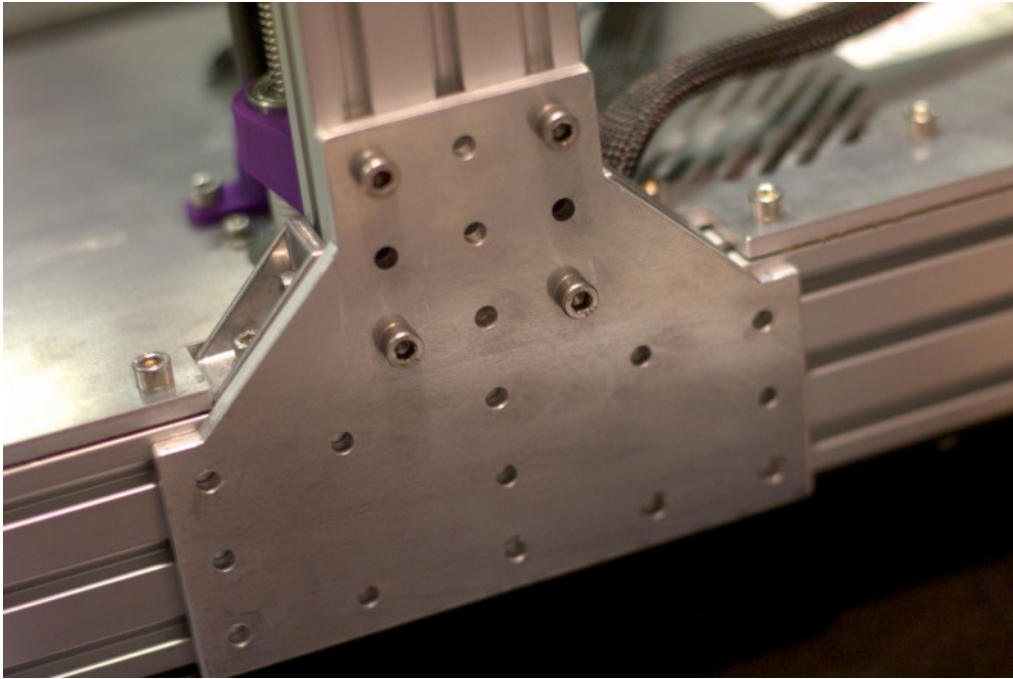
Use the side bracket to line up the pre-installed t-slot nuts on the side of the machine.



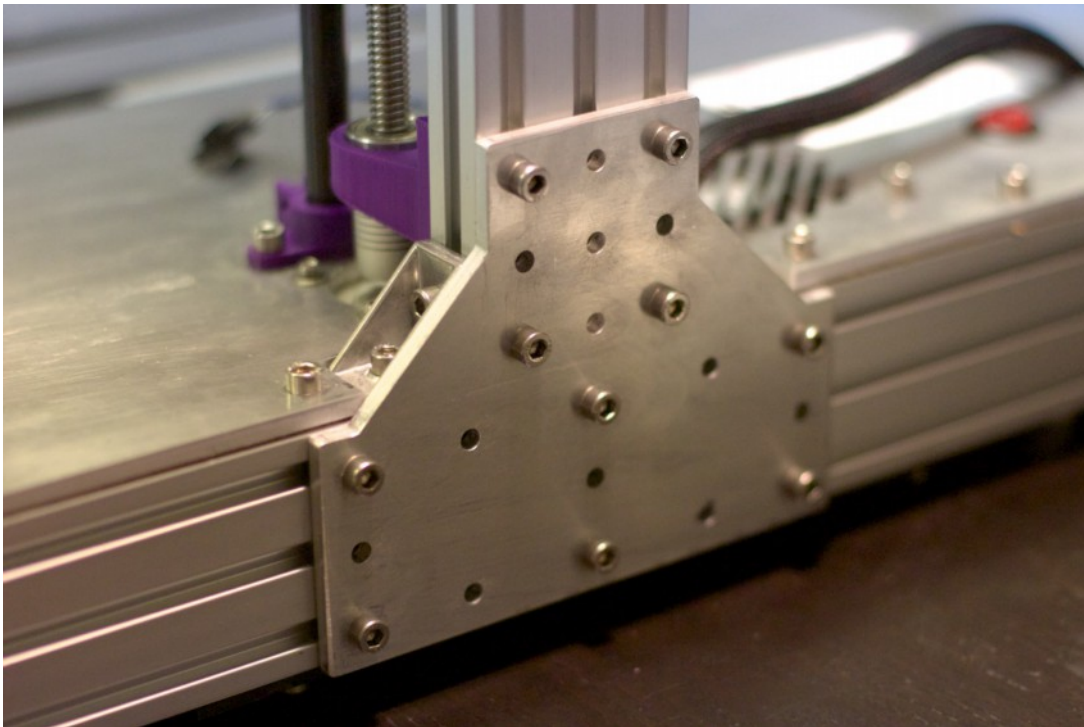
This part of the assembly is easier if you lift the side of the machine off the table a couple of inches.



Install the top two M5-10 screws into the side bracket.

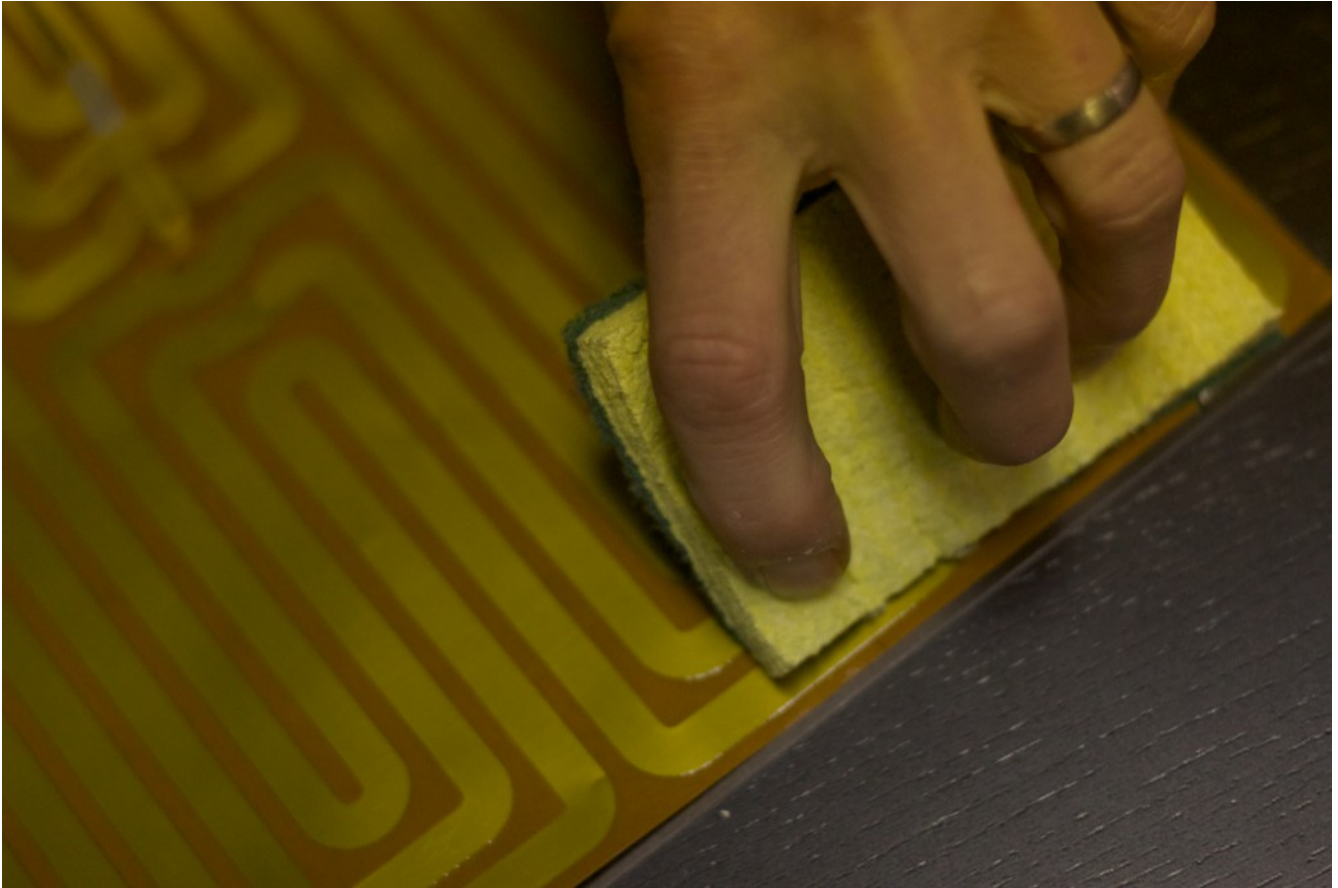


Lift up the bracket and install two more screws.



Install the remaining 6 M5-10 screws.

Step 9: Installing the Kapton Heater



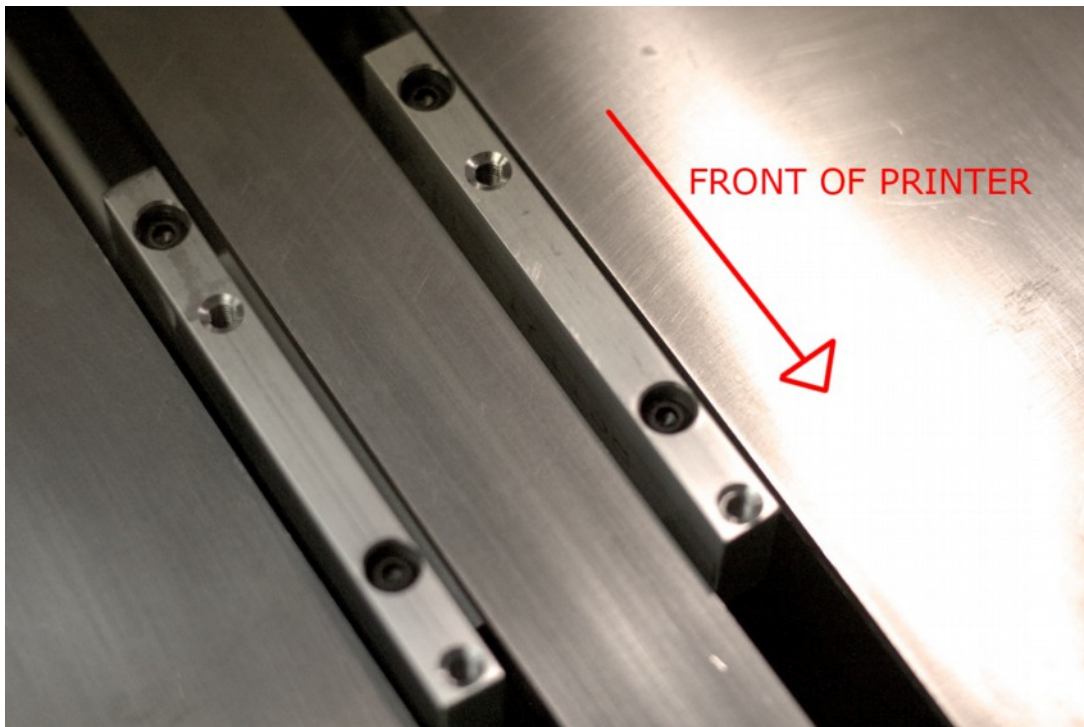
Carefully attach the kapton heater to the metal heat spreader. Take care to avoid having bubbles in the heater.

Tip: *Carefully peel back the adhesive backing on the heater while you apply it. Use a damp sponge or squeegee to removing any air bubbles as your apply it.*

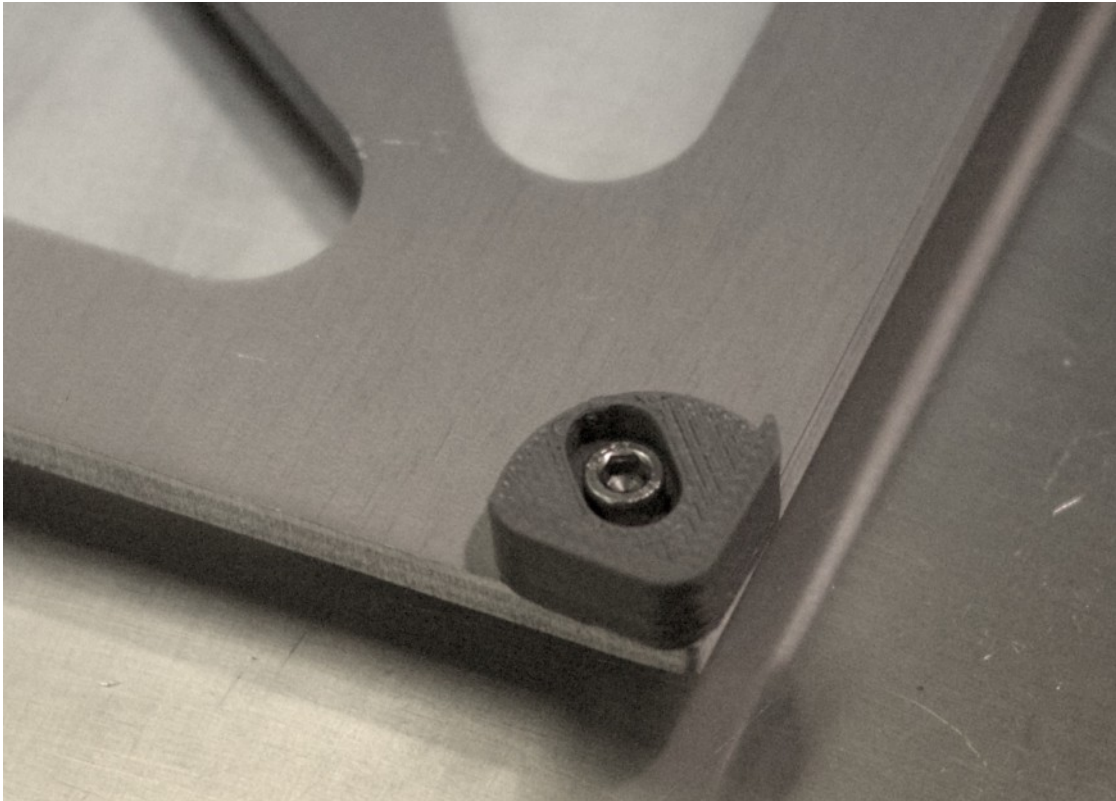
Step 10: Installing the Bed



Find the aluminum spacers and the M6-40 screws.



Install the spacers onto the Y-Axis SIMO stage.



Loosely attach the corners to the laser cut Y-table using M5-12 screws and nuts.

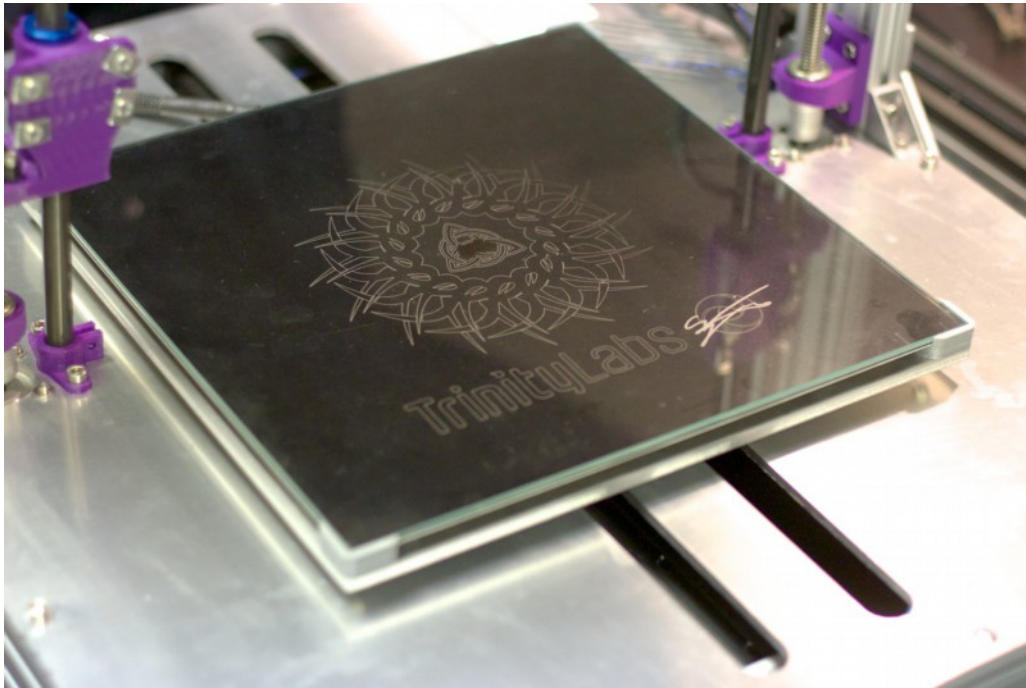


Install the bed onto the spacers using M6-16 screws.

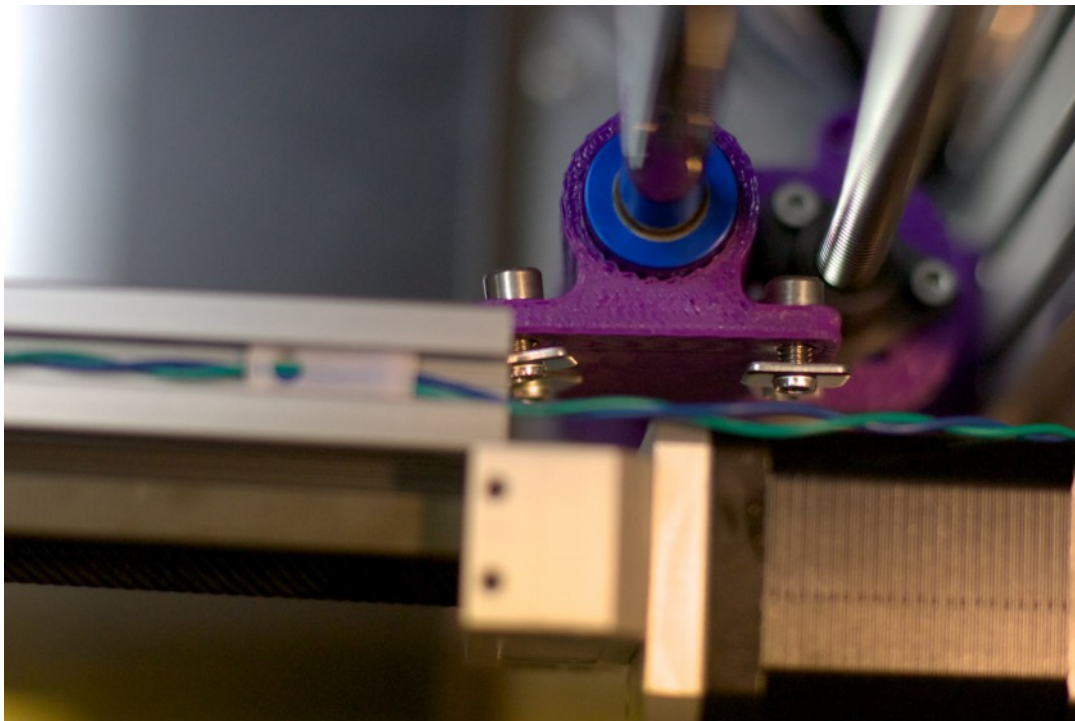


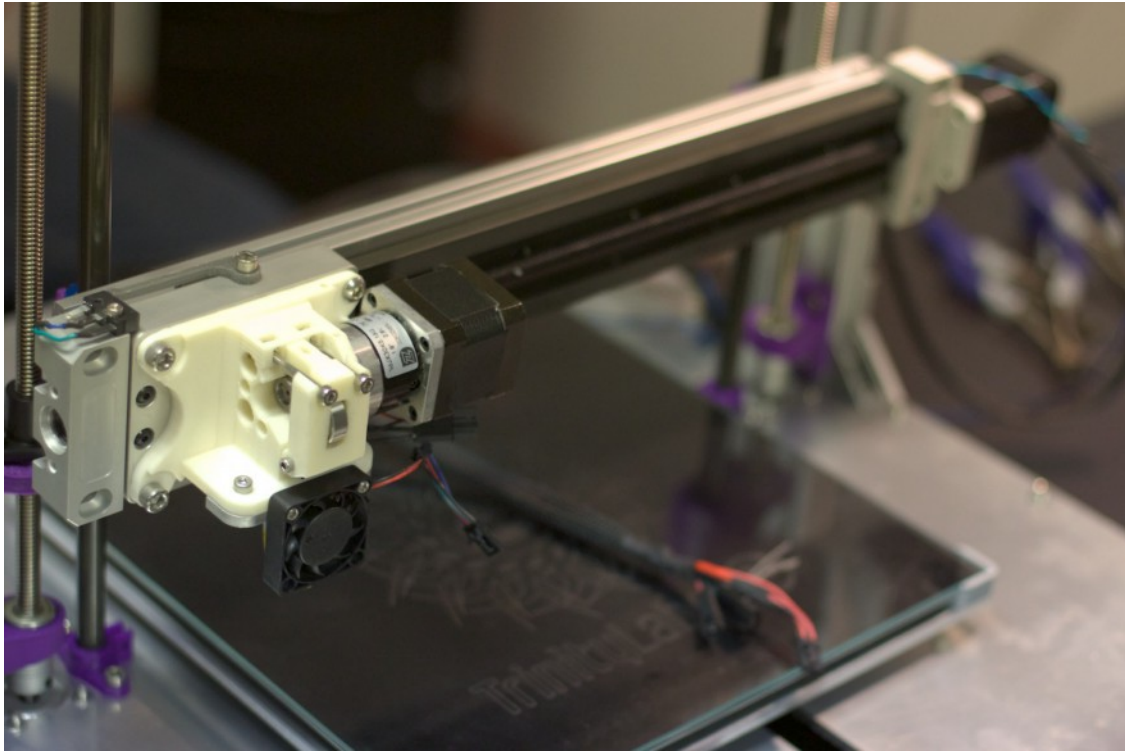
Put the metal heat spreader with Kapton heater attached onto the four corners. Place the borosilicate glass sheet on top. Adjust the printed corners until the fit is snug. Remove the glass and tighten down the corner brackets. Replace the heat spreader and glass (the glass should fit tightly into the corners).

Note: You may need to use a pair of pliers to hold the M5 nut underneath the table while you are tightening down the corners.

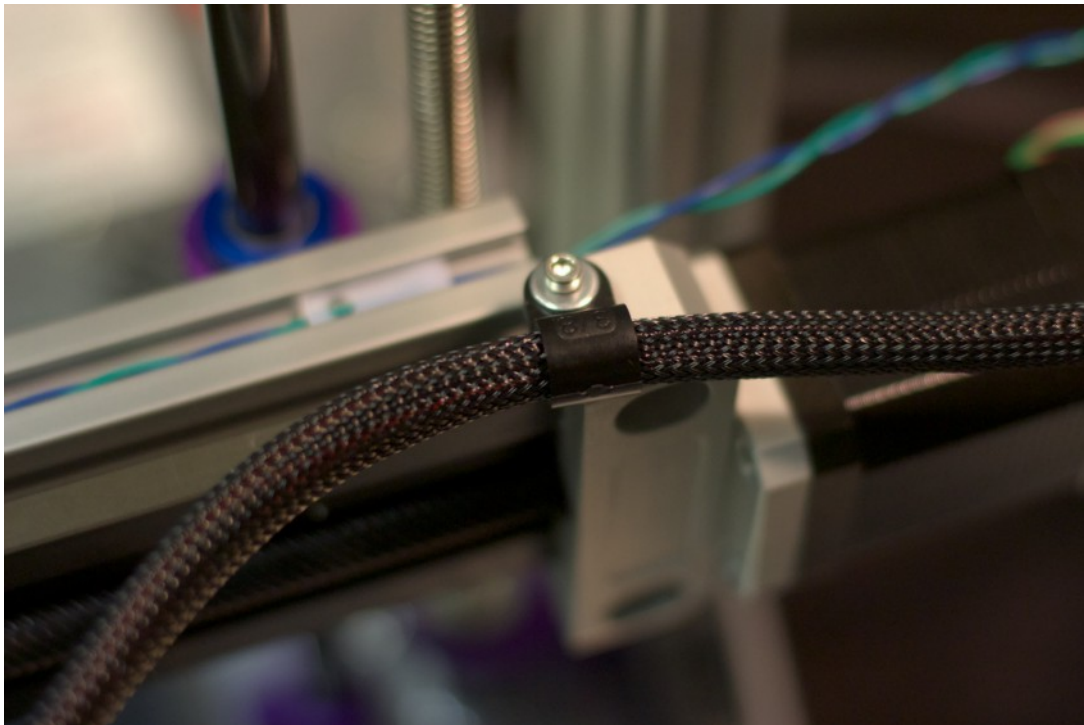


Step 11: Attaching the X-Carriage

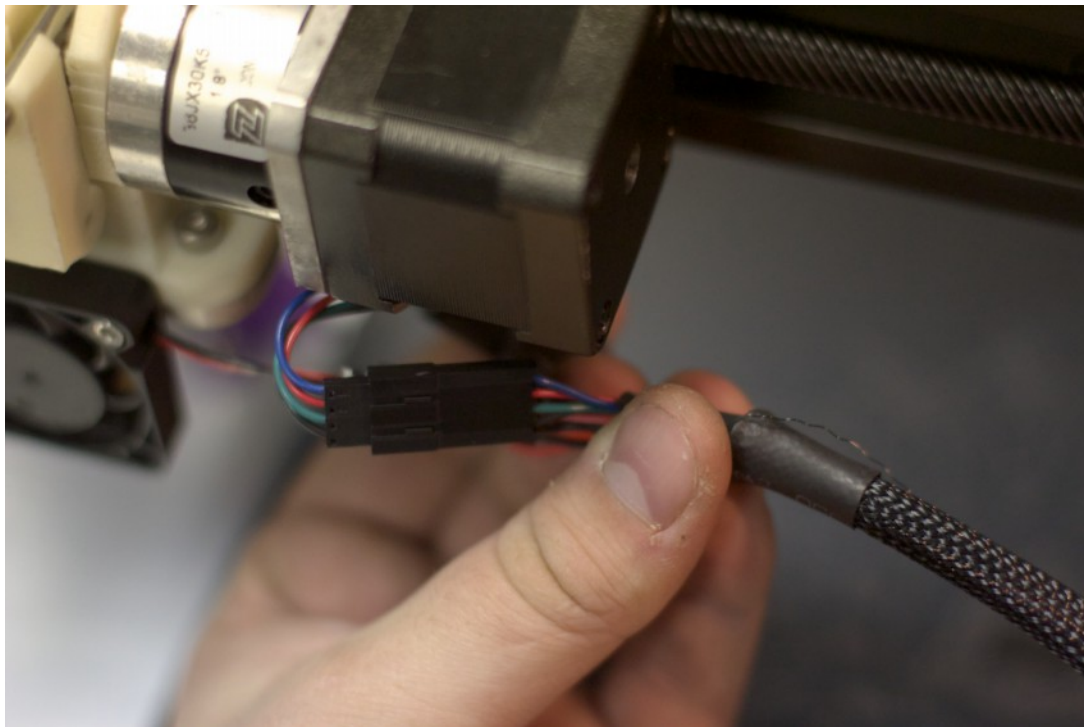




Carefully slide the x-carriage onto the x-ends. Center it on the two x-ends and tighten it down.

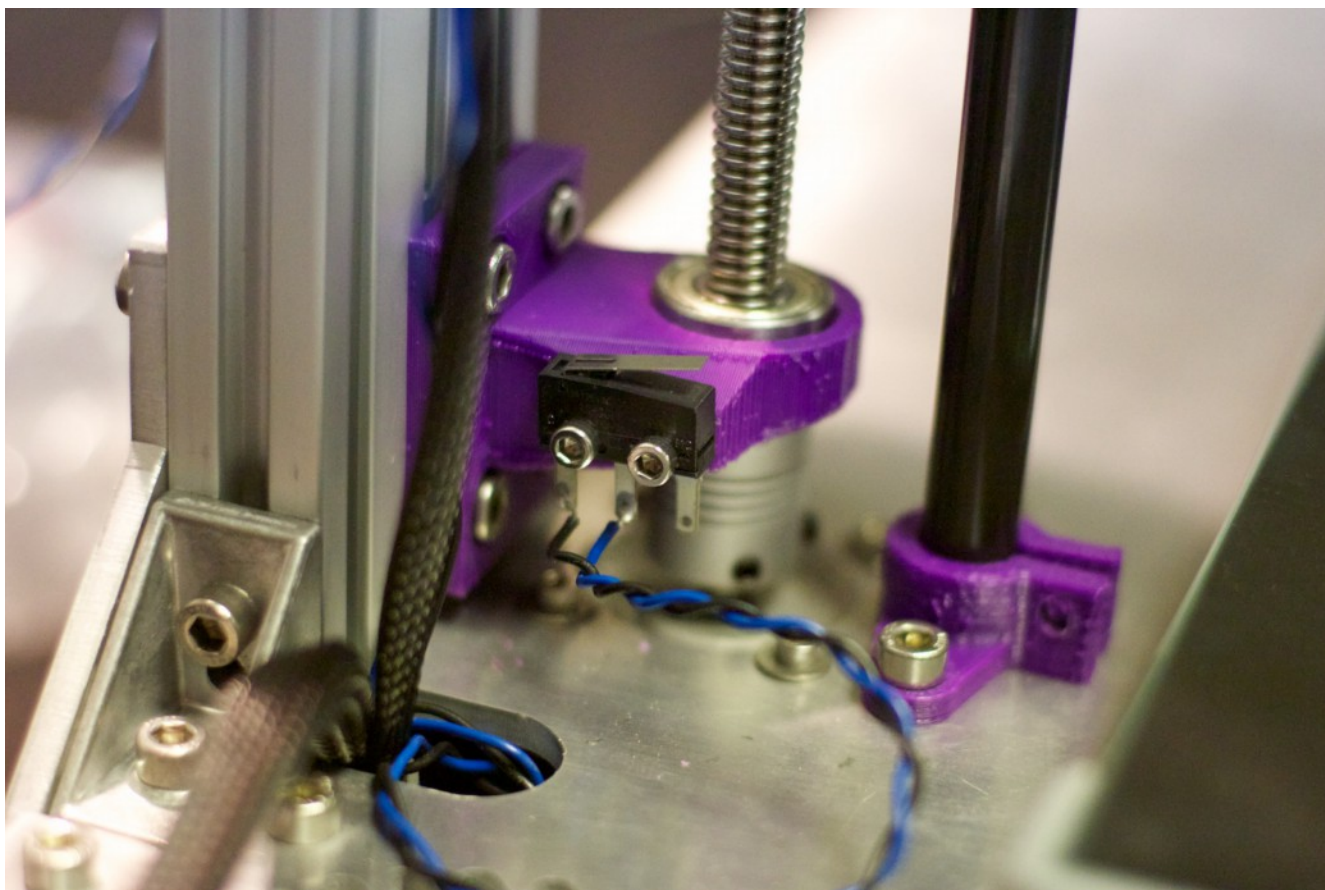


Attach the nylon clip to the X-Axis SIMO stage as pictured. Feed the extruder wires through it – it should be a loose fit.



Plug in the extruder motor, fan and hot end.

Step 12: Z-Endstop



Attach the z-endstop using M3-12 bolts.