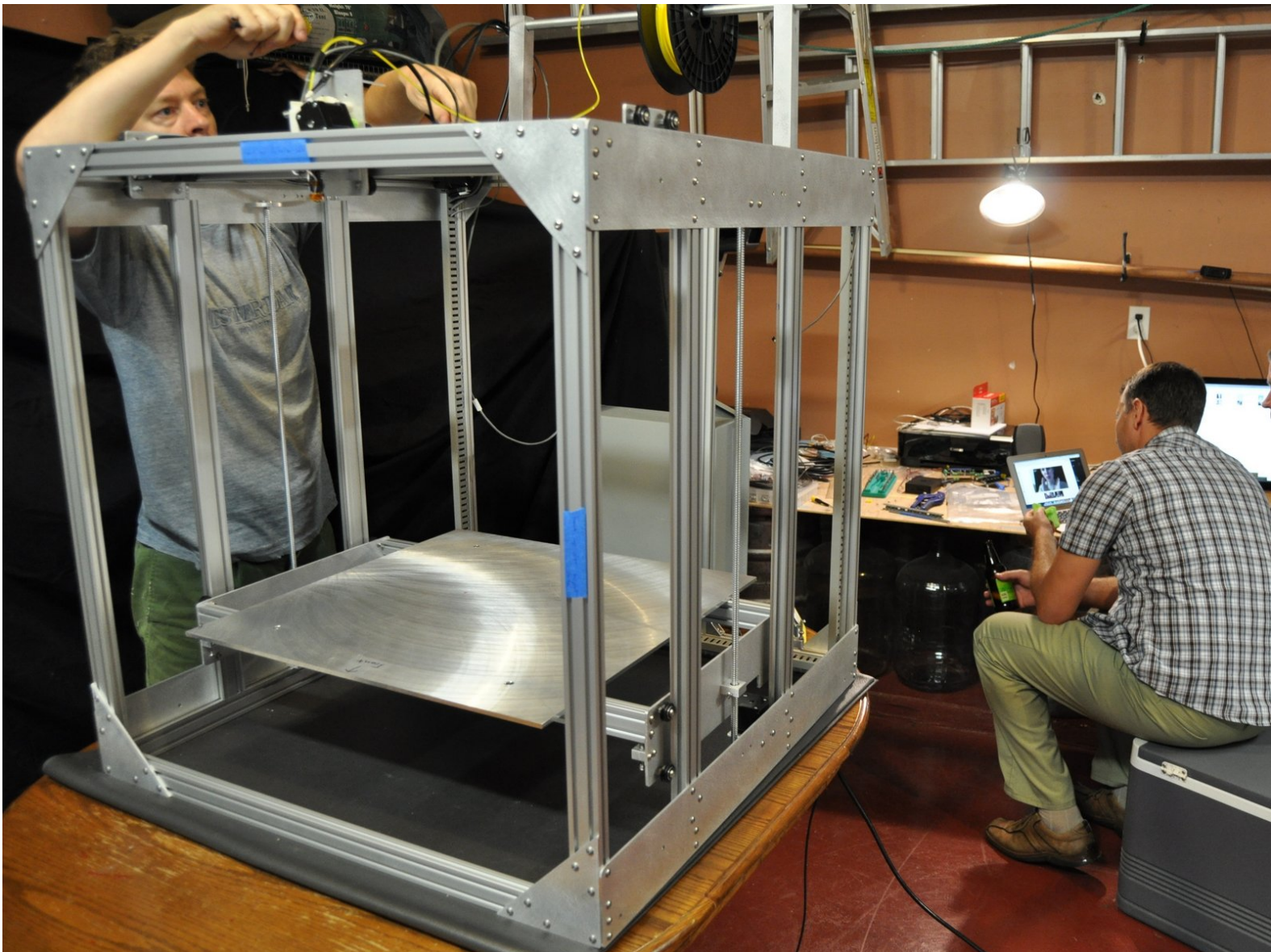


re3D

Assembling Gigabot: "Everything's in the Box"

Here's how to construct your Gigabot after your kit arrives in the mail, or is picked up from Texas. We're writing this guide assuming you're starting from the Gigabot Kit, also known as "Everything's in the Box".

Written By: Chris Gerty





TOOLS:

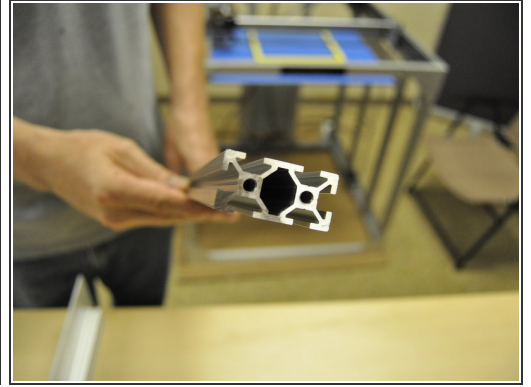
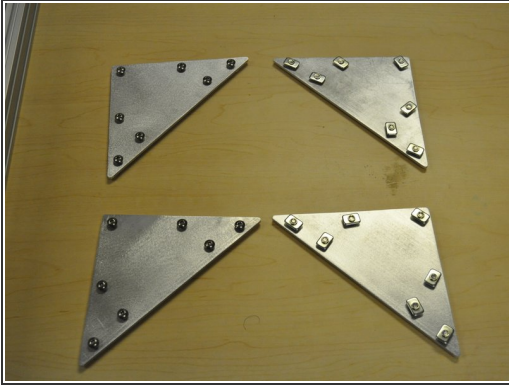
- Flat Surface (1)
 - Towels or cardboard (1)
-

Step 1 — Assembling Gigabot: "Everything's in the Box"



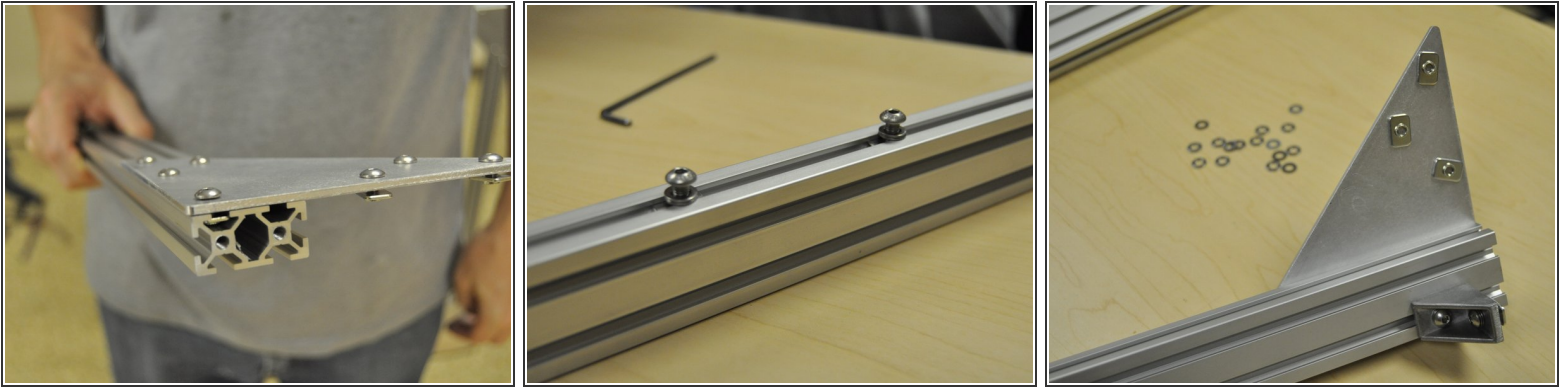
- Find a suitable place to construct your Gigabot
- Find a firm, flat surface that is free from debris.
- Try to assemble where Gigabot will be permanently printing
- ☒ Keep in mind that once constructed, Gigabot will not fit through most standard doors
- Skim through most of this guide, so that you understand the scope of what you need to do, and if you need help from a partner during assembly.

Step 2 — Base Assembly Preparation



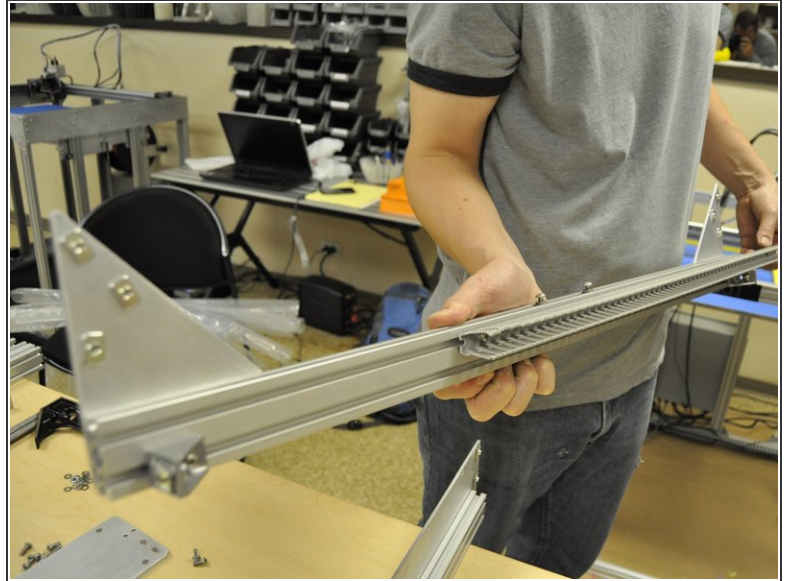
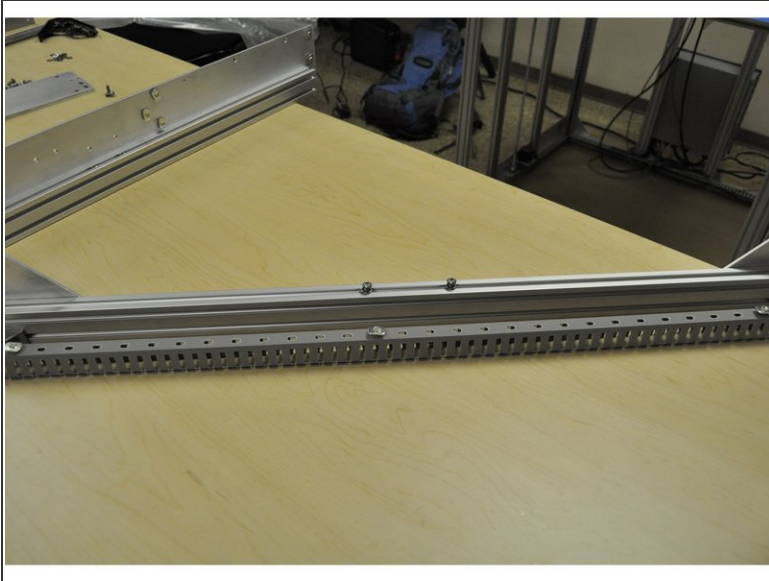
- Locate 4 Corner Plates with no identifiers or logos. **See Fig. 3-1.**
 - Insert an M5 x 8mm BHCS (*button head cap screw*) in all 7 holes and fasten loosely with T-nuts.
 - Locate 4 Triangle Braces. **See Fig. 3-2.**
 - Insert 2 M5 x 12mm BHCS in each Triangle Brace. Use 2 M5 washers per BHCS. Loosely fasten a T-nut on the opposite end.
- Note:** DO NOT use Cross rail with “Gigabot” label until instructed to.
- Locate 2 Cross rails (33.5” extrusion that has 2 tapped holes on each side)(not the Bed Cross Rails). **See Fig. 3-3.**
 - This will be the bottom/back cross portion of the frame.

Step 3 — Base Assembly - Rear/Lower Rail



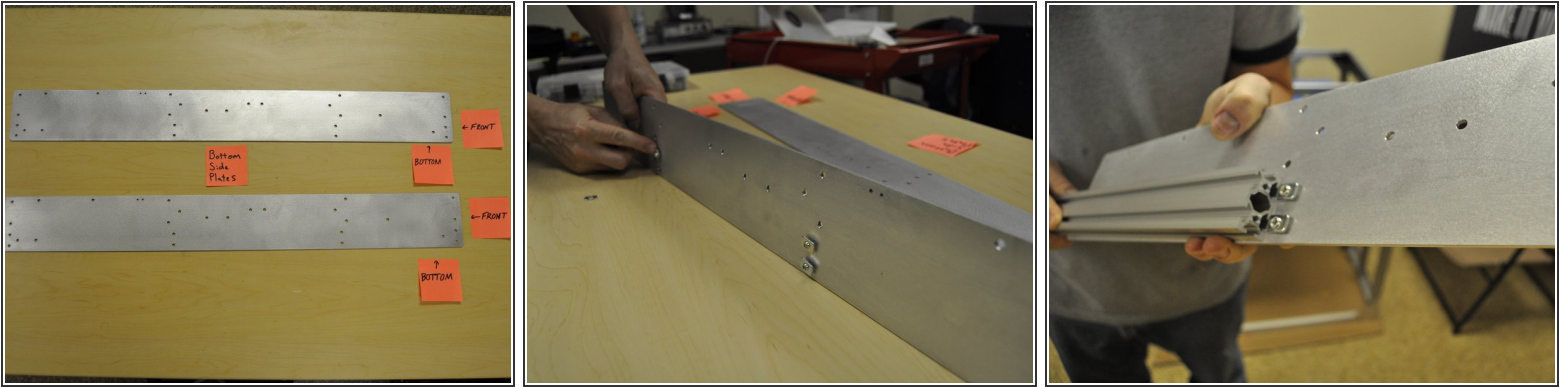
- Install 2 Corner Plates, one to each end of one Cross rail (this will be the rear/lower cross rail). **See Fig. 4-1.**
 - Slide in Corner Plate with T-nuts loosened. Ensure the edges are lined up and the bracket edges are flush with the bottom and end of each rail. Lightly fasten down the bolts to prevent movement.
- Temporarily screw 2 M5 x12mm BHCS (button head cap screws) and 2 M5 washers per BHCS into T-nuts . Insert the 2 T-nuts in what will be the top channel of rail. **See Fig. 4-2.**
 - ❗ **Note: The BHCS and washers will be used later to fasten vertical rails that hold the power box.**
- Fasten a Triangle Brace to each end of rail (lower inner channel). **See Fig 4-3.**
 - Place near end and keep T-nuts loose to allow for adjustment.

Step 4 — Base Assembly – Rear / Lower Cross Rail Panduit Installation



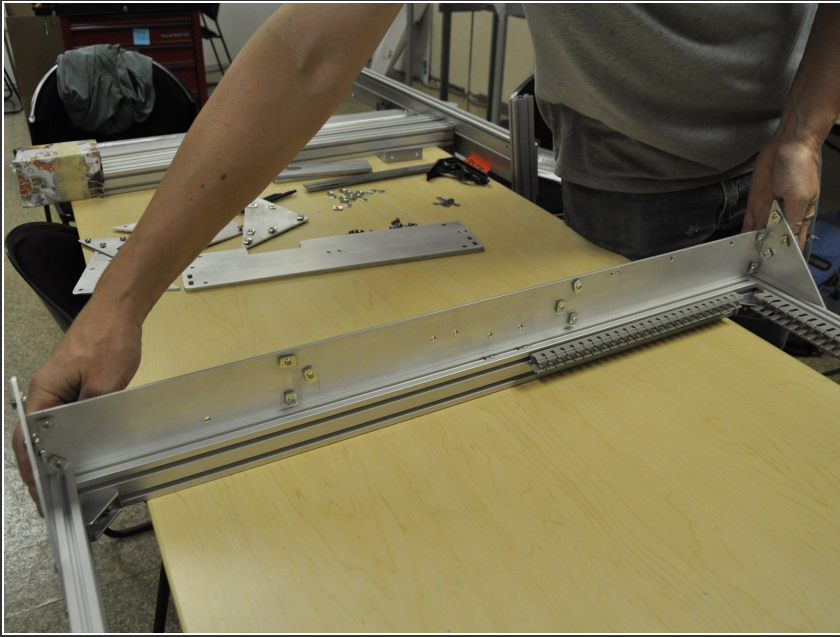
- Locate the 30" long Panduit, this is slightly shorter, and approx. one half the width and height of the larger and longer 30.5" Panduit. **See Fig. 5-1.**
- Fasten 3 M5x8 mm BHCS (*button head cap screws*) evenly along length, and 3 T-nuts to the Panduit piece as shown in **Fig. 5-1**. Spacing of the t-nuts along the Panduit is not critical for this step.
- Keep the bolts loose to slide the Panduit to the top inside channel of the rail, then tighten the bolts. **See Fig. 5-2.**
- Ensure proper orientation of the rail with respect to the Corner plates, by observing 2 T-nuts on the upper channel. **See Fig. 5-2.**

Step 5 — Base Assembly – Side Plate/Rail Preparation



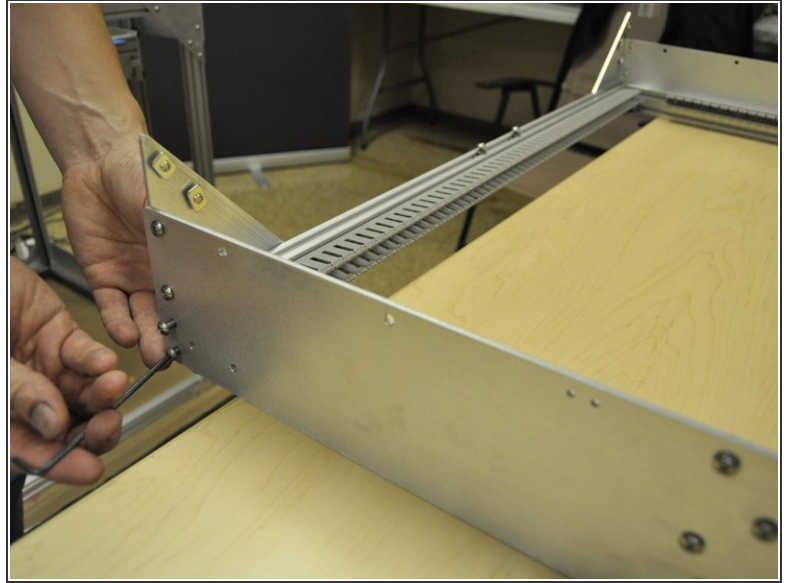
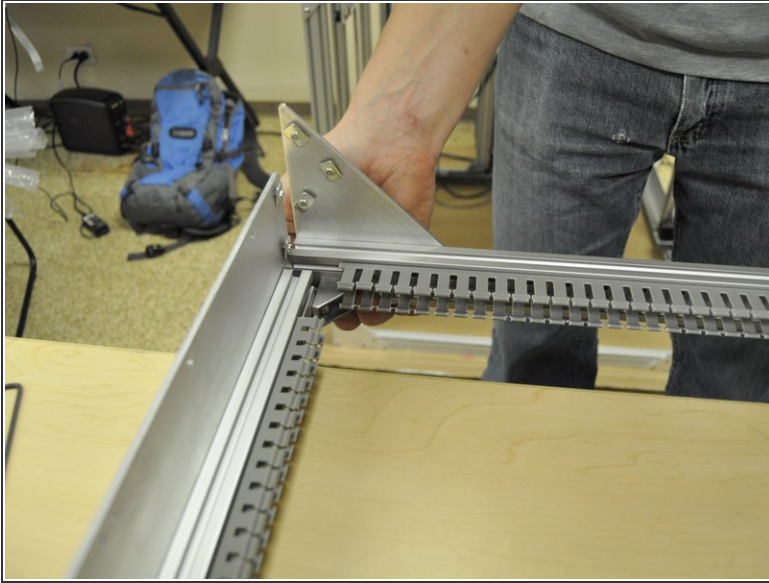
- Locate 2 Side Plates, 2 Common Rails (31.5" long) and 2 12" Panduit pieces (shallow Panduit). Observe orientation of bolt hole patterns. **See Fig. 6-1.**
- Insert 4 M5 x 8mm BHCS (*button head cap screws*) on each side plate. Loosely put on T-nuts.
 - The 4 BHCS should be inserted in opposing directions on each plate. **See Fig. 6-2** for orientation of front.
- Slide 1 common rail on the "inside" side of each side plate and center the rail. **See Fig. 6-3.**

Step 6 — Base Assembly – Side Plate/Rail Preparation



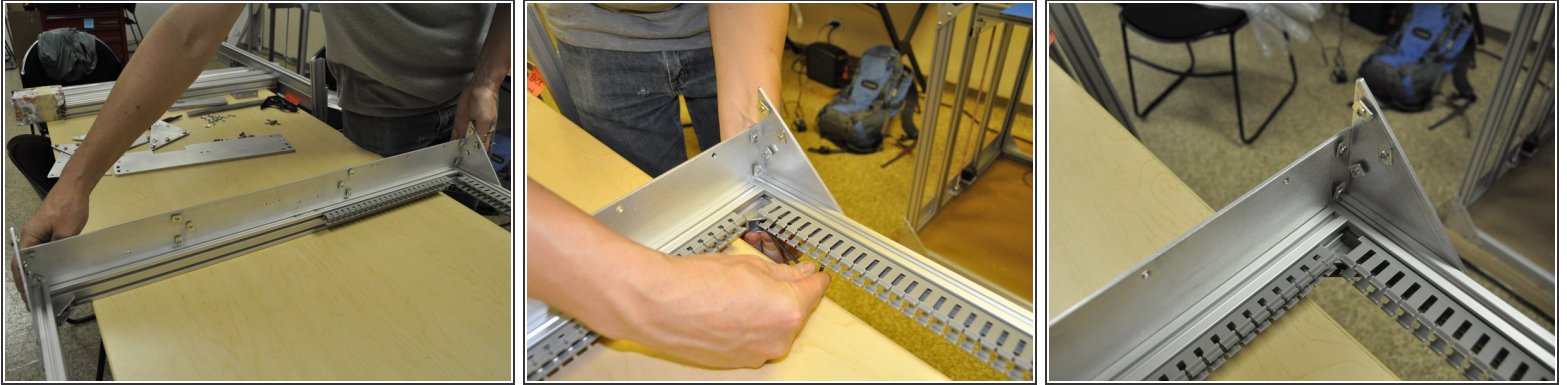
- Install Panduit on each side rail.
- **i DO NOT tighten bolts at this time.**
- Fasten 2 M5x8mm BHCS and 2 T-nuts to the Panduit piece.
- With BHCSs loose, slide the Panduit to the top, inside channel of the rail. **See Fig. 7-1** for orientation.
- Repeat for other side. Then add 6 M5X8mm BHCS to 6 T-nuts above rail on side plates as shown in picture.
- **Warning!!! Warning!!! Warning!!!**
This step is easy to miss, because these T-nuts are not used until step 18. And it can't be done later. Insert 2 T-nuts into the top channel of each Common Rail installed on the side plates. These T-nuts can be seen in the top channel near the end of the Panduit in **Fig. 7-1**.

Step 7 — "Base Assembly & Front Lower Cross Rail Preparation"



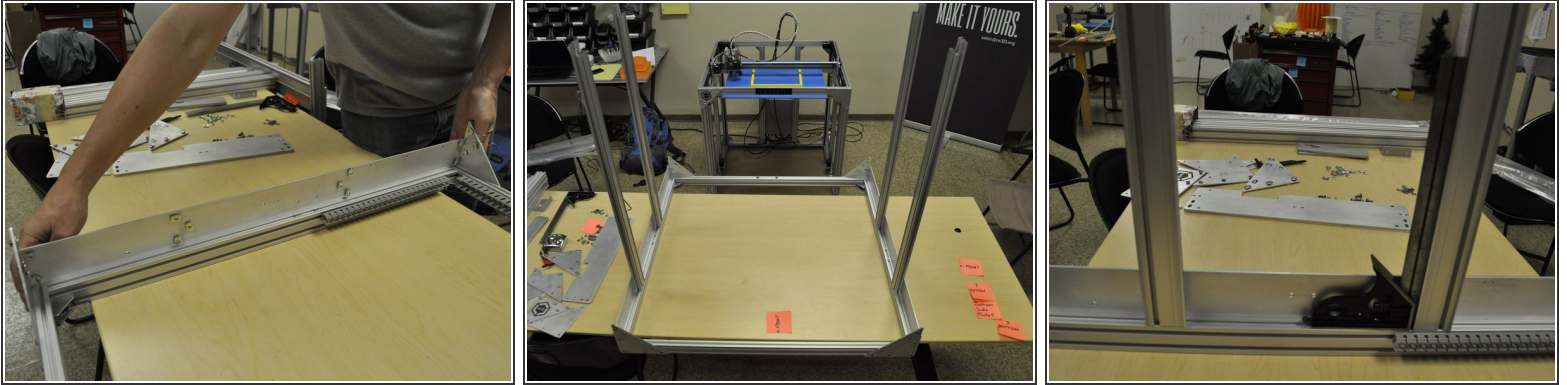
- Orient each side rail on table and connect with the Rear / Lower Cross Rail assembled in step 5 and 6, by sliding the T-nut of the Triangle Brace on each side into the lower channel of each side rail. **See Fig. 8-1**
- Ensure all of the BHCS (*button head cap screws*) are still loose in the Corner Plates and the Triangle Braces. Square the corner and screw in 2 M5 x 12mm BHCSs on each end of the Cross Rail. These are the 2 tapped holes on each end of the rail. **See Fig. 8-2.**

Step 8 — Base Assembly – Installing Front/Lower Cross Rail



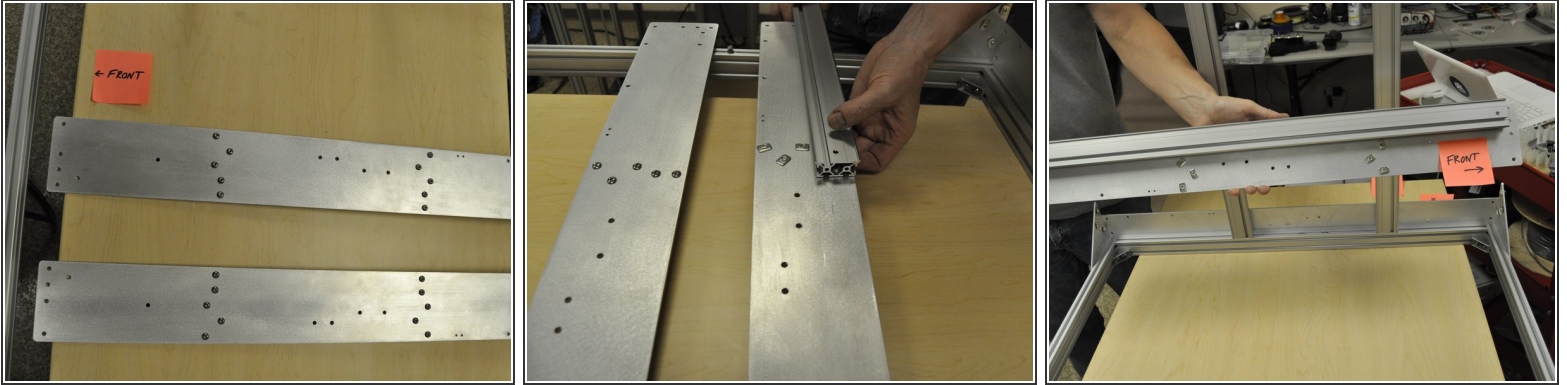
- Position front/lower Cross rail assembly in front to complete the square of the frame base. Assembly should be similar to Rear/Lower Cross Rail assembly **See Fig. 9-1.**
- ❗ **Do not tighten bolts yet.**
 - Square the corners (without tightening any bolts).
 - Insert 2 M5 x 12mm BHCS (*button head cap screws*) through the side plates into the ends of the Cross rail (these are the 2 tapped holes on each end of the rail).
- Align the frame and then tighten the bolts in this order:
 - While compressing the front to back of each side, tighten M5 x 12mm BHCS (4 /side or 8 total). Tighten M5 x 8mm bolts on each side plate. (4 /side or 8 total). **See Fig. 9-2.**
 - Tighten both bolts in each of the 4 triangle braces. While tightening, pull each brace into the corner to ensure it is flush against each Cross and Common rail (8 total). **See Fig. 9-3.**

Step 9 — Z-Upright Preparation and Installation



- Locate the 4 Z-Uprights. These have a notch cut on one end.
- ❗ **Do not tighten T-Nuts yet.**
 - Insert 6 M5 x 8mm BHCS (*button head cap screws*) in each bottom side plate. Attach T-nuts. **See Fig. 10-1.**
- Install each Z-upright with the notch facing up and inside frame. **See Fig. 10-2.**
 - After the extrusion is in place, center it with respect to the bolts (while loose move back and forth and feel for the center position).
 - Square each one at a time and tighten the bolts. **See Fig. 10-3.**

Step 10 — Z- Upper Side Plate assembly preparation



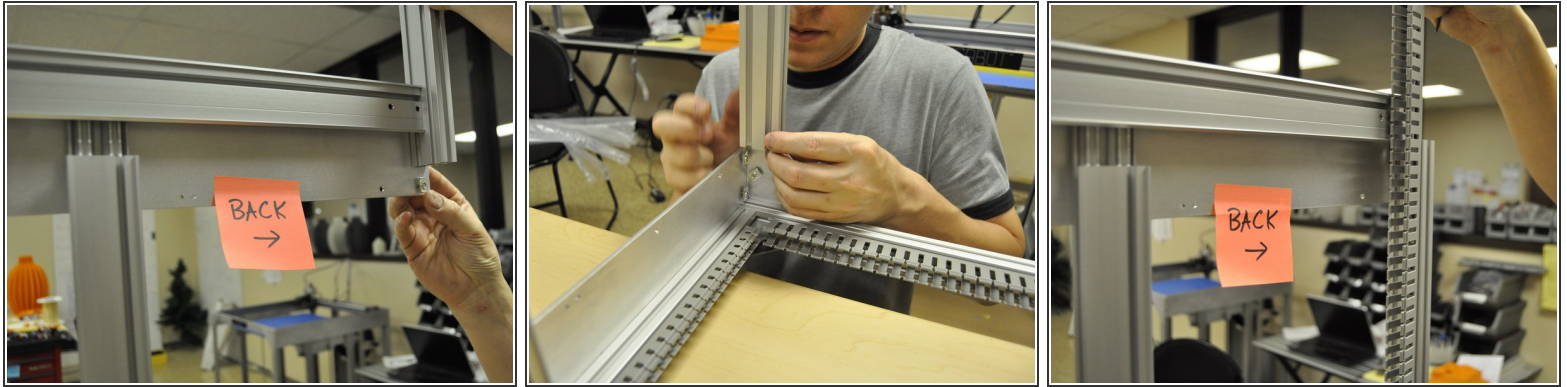
- Locate 2 Side plates.
 - Insert 10 M5 x 8mm BHCS (*button head cap screws*) with T-nuts into each side plate (these will be used to fasten to the Z-uprights). **See Fig. 10-1.**
- Locate 2 Runway Rails (Y-axis). Each rail has a single hole on one side and 2 holes on the other.
- Slide one Runway Rail to each side plate. **See Fig. 10-2.**
 - Note the location of holes on the Runway Rails with respect to the hole pattern on the side plate. **See Fig. 10-3.**

Step 11 — Install Z-Upper side plate assemblies



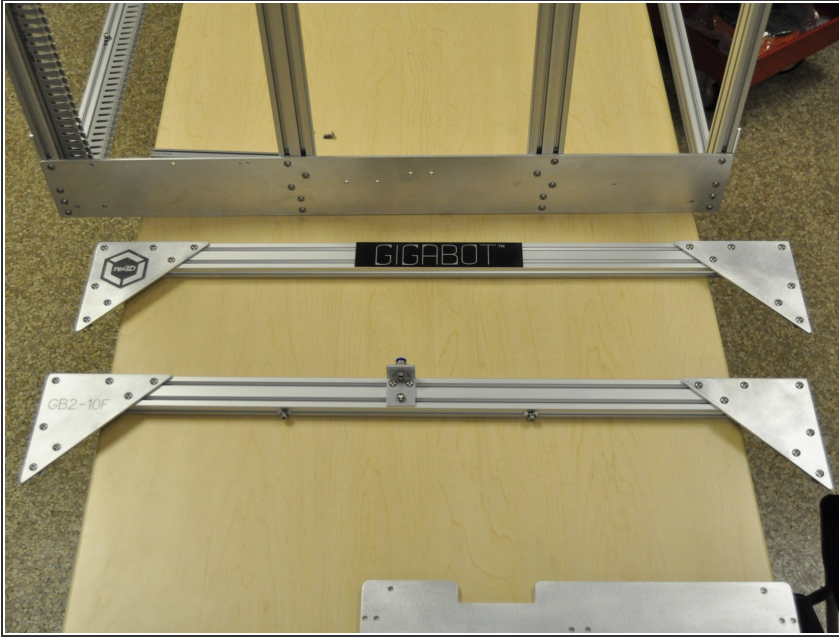
- Slide right and left plates onto vertical supports. Leave BHCS (*button head cap screws*) loose. **See Fig. 11-1 and 11-2.**
- Insert 2 M5 x 8mm BHCSs and T-nuts into remaining 2 holes at each end of each bottom slide plate. (8 total)
- Insert 2 M5 x 8mm BHCSs and T-nuts into 2 holes, mirroring the holes from the previous step, at each end of each top slide plate. (8 total) **See Fig. 11-3.**

Step 12 — Install 4 Vertical Supports (Common Rails)



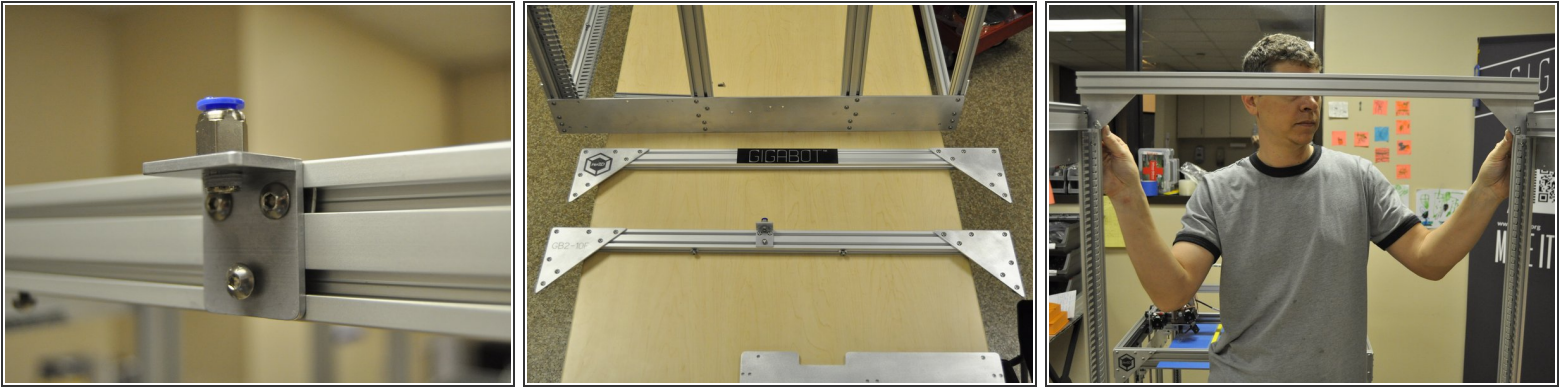
- Locate 4 Common Rails (vertical supports for each corner of frame), and 2 31.5" Shallow Panduits
- For each corner, slide the common rail vertically down, starting at the top of frame. **See Fig. 13-1.**
- Starting with the 2 T-nuts at top corner on the side plate, slide down the rail to connect it with the 5 exposed T-nuts in each corner.
- ❗ **Do not fully tighten BHCS (*button head cap screws*) yet.**
 - Once in place, loosely tighten up 5 BHCSs in each lower corner (3 BHCSs on Corner Plate and 2 BHCSs on Side Plates). **See Fig. 13-2.**
- Install shallow panduit on each rear vertical rail. **See Fig. 13-3.** Note that the shallow Panduit is used on both vertical rails. The image shows deep panduit on one side, but it is actually only intended for the upper and lower rear rails.
- Fasten 3 M5 x 8mm BHCS and 3 T-nuts onto each panduit piece. With the bolts still loose, slide the panduit to the inner channel of the vertical. Tighten bolts at this time.

Step 13 — Preparation for Front & Rear / Upper Cross Rails



- Locate 4 Corner Plates, including the one with the Gigabot logo and the one with the Serial number.
- Locate 2 Cross rails (33.5" extrusion with 2 tapped holes on each side).
- ① **If one of the 2 remaining Cross supports located has a "Gigabot" label, this Cross rail will be used for the front.**
- Insert an M5 x 8mm BHCS (*button head cap screw*) in each of 7 holes of each of the 4 Corner plates and fasten **loosely** with T-nuts. **See Fig. 14-1.**

Step 14 — Assemble and attach Upper Cross Rails



i Attach the re:3D Logo Corner plate to the left and blank Corner Plate to the right.

- **Front Cross Rail Preparation:** Slide in the Corner Plate with T-nuts loosened. Ensure the edges are lined up and that the bracket edges are flush with the edge and end of each rail.
- **Rear Cross Rail Preparation:** Prior to installing the corner plate, place 2 T-nuts on the outside/upper channel and 1 T-nut on the outside/lower channel. Attach the rear filament guide / bracket. **See Fig. 15-1.**
 - Attach the Serialized Corner Plate so that the text is readable and the blank Corner Plate on the other side. Ensure the edges are lined up and that the bracket edges are flush with the edge and end of each rail. **See Fig. 15-2.**
 - **This step is easy to miss too!** Place 2 T-nuts in the bottom channel of rear / upper cross rail. Secure with 2 M5 x 12mm BCHS (*button head cap screws*) and 2 washers each.
- i** **When this Cross Rail is installed these T-nuts and washers will mirror the 2 T-Nuts and washers on the bottom Cross Rail.**
- Slide in the rear and front Cross rail assemblies to the respective sides of the frame from the top. **Do not tighten. See Fig. 15-3.**

Step 15 — Panduit and Complete top of Frame Part 1



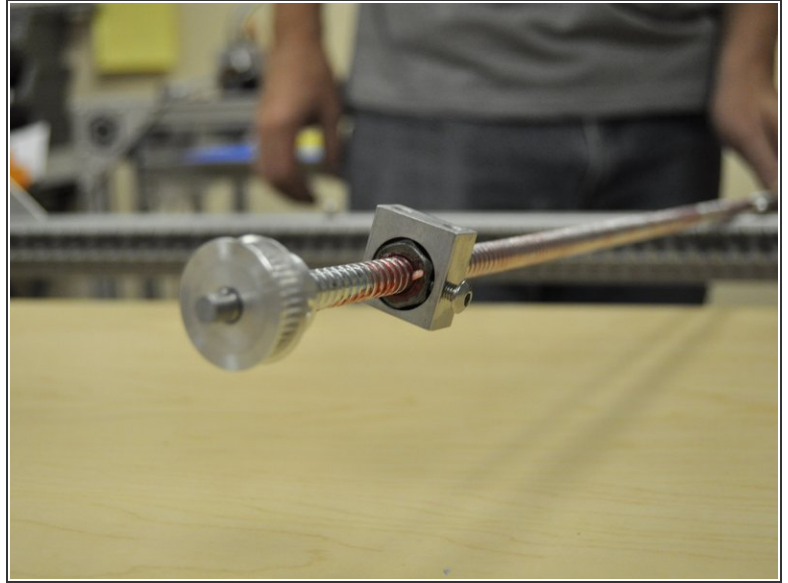
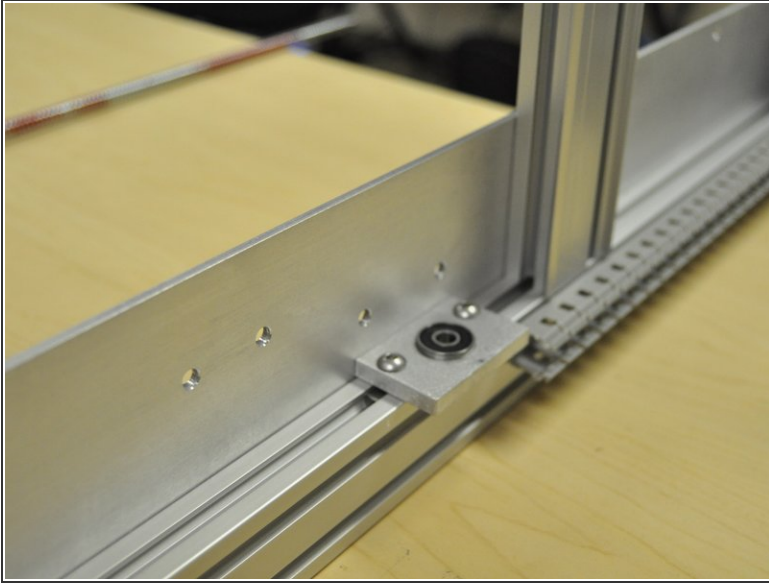
- Install Panduit on right plate. Use 7" length "shallow" Panduit for right support.
- For this installation, hold the Panduit in position and insert 2 M5 x 8mm BCHS (*button head cap screws*) from outside, then fasten with 2 M5 hex nuts from the inside. Tighten bolts at this time. **See Fig. 16-1.**
- Insert 2 M5 x 12mm BCHS through the side plates into the end of each cross rail (8 total). **DO NOT tighten. See Fig. 16-2.**
- Insert 3 M5 x 45mm BCHSs on each side of top side plate.
 - 2 go through the side plate and Runway Rail (Y-axis), near the rear of frame, and 1 goes through the side plate and Runway Rail (Y-axis) near the front of frame.
 - Placement is to ensure frame is aligned. These bolts will be removed in a later step and will be used to attach the Y-Axis motors. **See Fig. 16-3.**

Step 16 — Panduit and Complete Top of Frame Part 2



- **This is a 2-person operation.** Ensure the top of the Runway Rails (Y-axis) is aligned with the top of the corner uprights, then tighten bolts in this order:
 - While compressing the front and rear of each side, tighten M5 x 12mm BCBS (*button head cap screws*) (8 total).
 - Tighten 4 M5 x 8mm BCBS on each side plate. (8 total)
 - Tighten 3 loose bolts in each of the 4 corner plates.
 - Tighten all bolts on the mid section of the side plate. (10 each side)
- Remove the 3 M5 x 45mm BCBS from each side.
- All bolts on the frame should now be tight and the frame should be square.

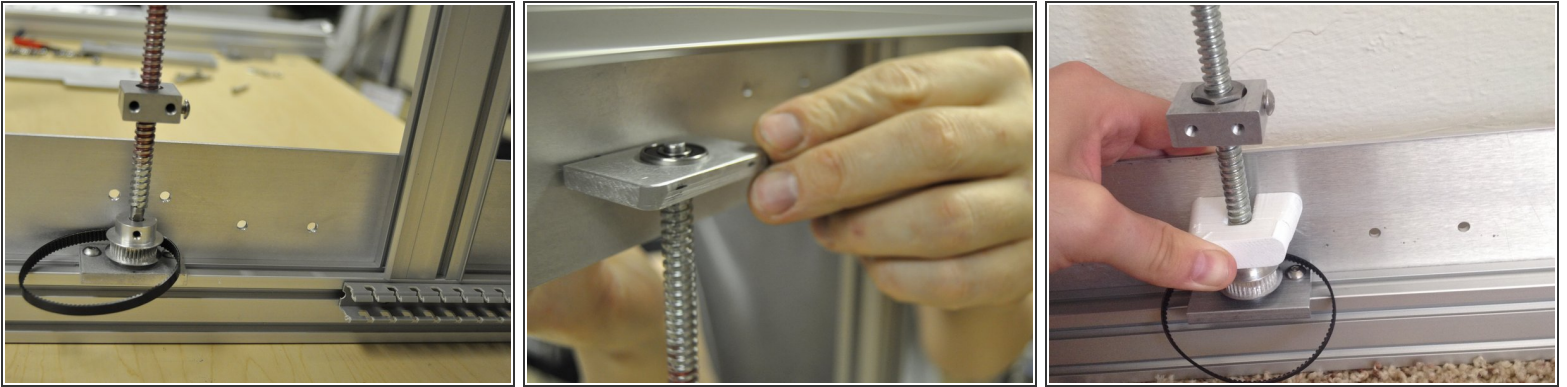
Step 17 — Z-axis Rod assembly preparation



- Locate 2 Lower Bearing Blocks, 2 Upper Bearing Blocks, 2 Z Motor Pulleys, 2 XML Belts (Z-axis), 2 nut cups, 2 ACME threaded rods and 2 threaded rod pulleys.
- Install the Lower bearing blocks on each side (right and left) using the 2 T-nuts already installed and 2 M5 x 12mm BCHS (*button head cap screws*).
- **Position as shown in Fig. 18-1 . Keep bolts loose.**
- Install nut cup on ACME Rod towards bottom of rod (end with 2 flat edges on tip). **See Fig. 18-2 for orientation of nut cup.**

 **Warning:** Threaded rod may have a very sharp thread on bottom (first thread).

Step 18 — Z-axis Rod assembly installation



Note: Repeat the following operations for the left and right sides.

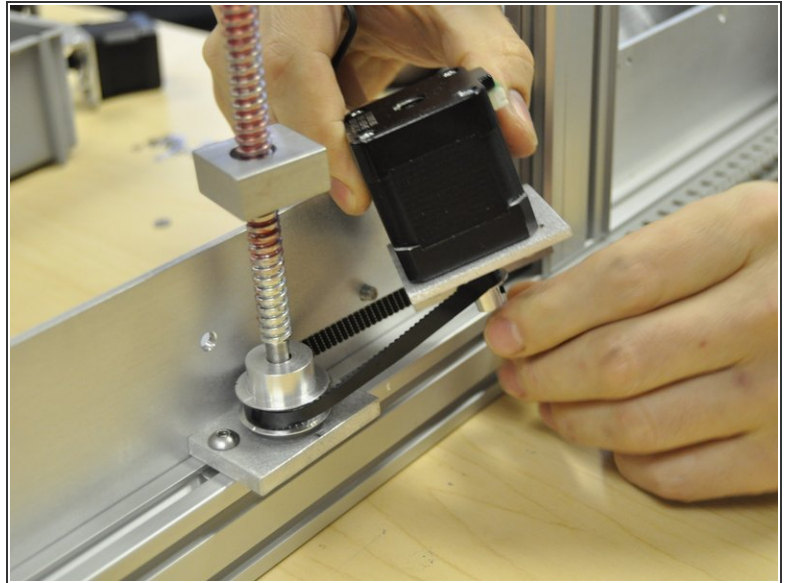
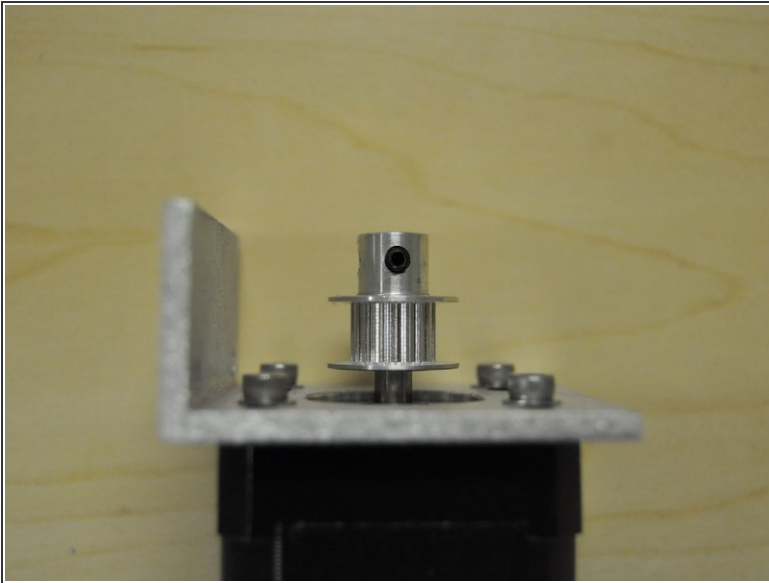
- When installing the two threaded rod pulleys be sure they are positioned 1/16" above the shoulder on the bottom of the threaded rod. Once assembled this will ensure there is a small air gap between the belt pulley and the bearing below it. Install threaded rod pulley on lower end of ACME rod (end with 2 flat edges on tip).
- Tighten 2 set screws against the flat edges of Z-rod.
- Loop XML belt around pulley. **See Fig. 19-1.**
- Install this Z-rod subassembly by first inserting pulley end into lower bearing.
- Install upper bearing block onto Z-rod subassembly. Using 2 M5 x 12mm BCHS (*button head cap screws*), fasten the upper bearing to the inside of the side plate and then tighten the bolts. **See Fig 19-2.**
- Before tightening the lower bearing block, **check the vertical alignment using the two sight holes and the supplied alignment tool (U-shaped 3D printed item in snappy box) on the bottom side plate as seen in Fig. 19-3.** Tighten the bolts once alignment is verified.

Step 19 — Z-Axis Motor Installation Part 1



- Locate 2 Stepper Motors (note there are two type of ground shafts, use the motors with shorter flats), 2 Z-motor shelf, 2 Z-motor pulleys, 8 M3 x 8 mm SHCS (*socket head cap screws*), 8 M3 (tiny) washers, 4 M5 x 8mm BCHS (*button head cap screws*). **See Fig. 20-1.**
- ① **Note: Repeat the following for the left and right Z-axis motor installation. Use Fig. 20-2 to properly orient the Z-motor shelf with respect to motor - the left and right orientations are different.**
- Put the shelf in place and attach it using 4 M3 x 8 mm SHCS with 1 washer per screw. **Leave screws slightly loose** to allow for slop during belt installation. **See Fig. 20-2.**
- Keep amount of slop to a minimum here, since you will have a very awkward angle to turn the bolts to a final tightness.

Step 20 — Z-Axis Motor Installation Part 2



- **Note:** Repeat the following for the left and right Z-axis motor installation. Use Fig. 20-2 to properly orient the Z-motor shelf with respect to motor - the left and right orientations are different.
- **Install Z-motor pulley as shown in Fig. 21-1** , then tighten set screw against flat part of shaft.
 - When installed, you should be able to feel the shaft of the motor only slightly extending beyond the pulley.
- Position motor assembly in installation location and slip the belt around the pulley.
- Fasten the shelf to side plate using 2 M5 x 8mm BCHS (*button head cap screws*), then tighten the bolts.
- Pull the motor away from the Z-rod assembly to put tension on the XML Belt (Z-axis), then tighten down the 4 M3 x 8 mm SHCS (*socket head cap screws*). See Fig. 21-2.

Step 21



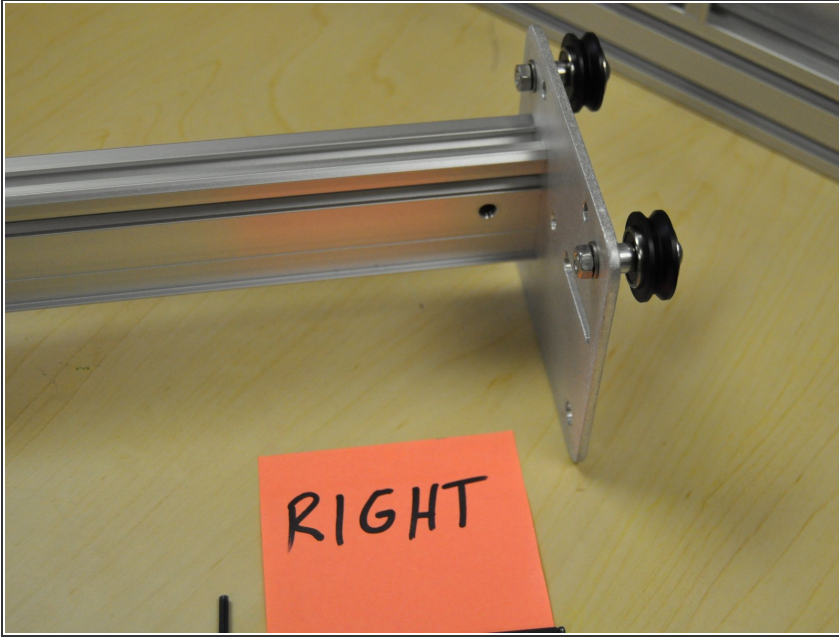
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Step 22 — Bridge Assembly and Endtruck Subassembly



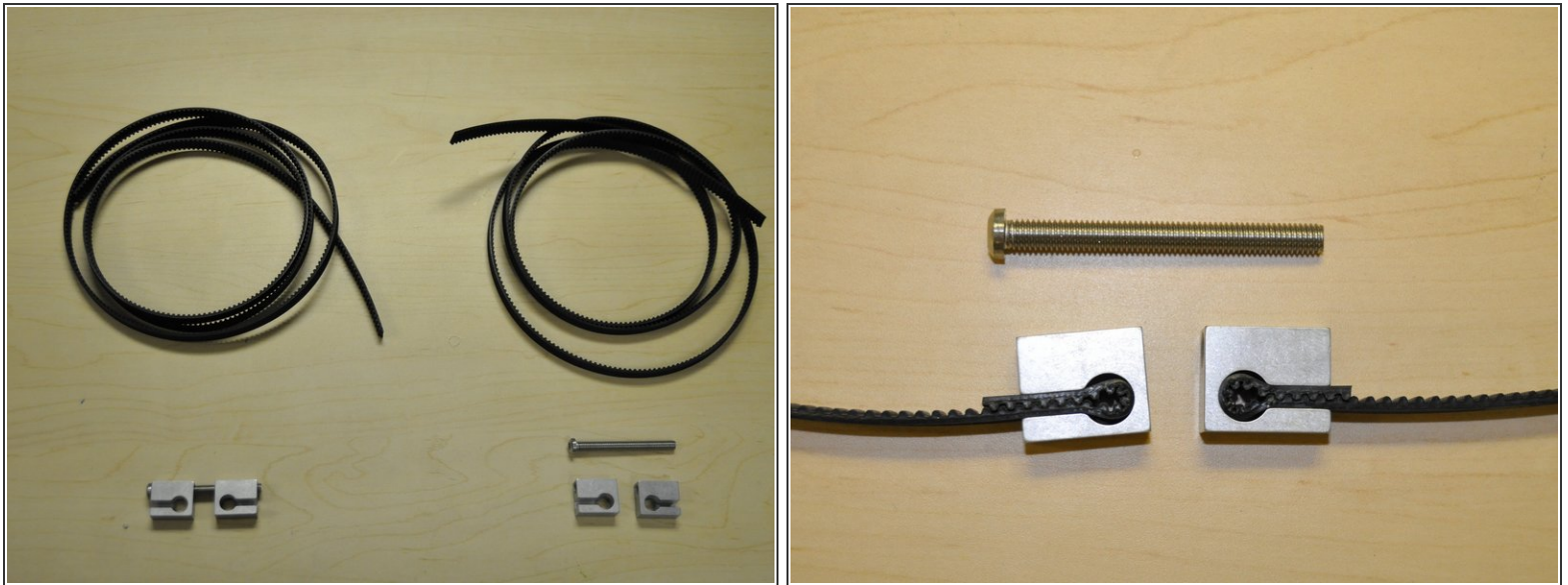
- Locate the Left and Right endtruck plates, 8 V-groove wheels, 4 round spacers, 4 eccentric spacers, 8 M5 x 25mm BHCS (*button head cap screws*), 8 M5 split lock washers, and 8 M5 nuts.
- ⓘ **Note:** Use Fig. 23-1 to distinguish left vs. right plate and clocking of round spacers vs. eccentric spacers.
- ⓘ **Note:** Although pictures may show 4 V-Groove wheels installed, initially only install the V-Groove wheels with round spacers.
- ⓘ **Note:** V-Groove wheels with round spacers are inboard - as viewed in Fig. 23-1 - the right side of the Left assembly and left side of the Right Assembly .
- For each V-Groove wheel installation, install the M5x25 BHCS through the V-groove wheel and then the round spacer. Attach to the plate, fasten using 1 M5 split lock washer and 1 M5 nut and then tighten.
- At this time only attach the round spacer wheel assemblies. **See Fig. 23-2.**

Step 23 — Bridge Assembly



- Locate Bridge Rail (X-axis).
- Attach the Right end plate to rail using 2 M5 x 12mm FHS (*flat head screw*). **See Fig. 24-1 for orientation.**
- Ensure rails on extrusion are facing the slot on the plate. Attach the left plate in a mirror fashion.

Step 24 — Belt subassembly preparation Part 1



- Locate the Belt sub assemblies. There are 3 total belts – the 2 Bridge Belts (Y-axis) (equal length) and 1 Trolley Belt (X-axis). **See Fig. 25-1.**
- Locate 3 Threaded tensioner blocks, 3 Un-threaded tensioner blocks, 3 M6 x 60mm BHCS (*button head cap screws*) and 6 M5 x 20mm FHS (*flat head screws*). **See Fig. 25-1.**
- ⓘ **Note:** When this sub-assembly is complete, the head of each M6 x 60mm BHCS in the picture is adjacent to the un-threaded tensioner block.
- Attach the belt ends - 1 to the threaded tensioner and 1 to the un-threaded tensioner by bending over the belts and squeezing them into their slots. **See Fig. 25-2.**
- **Ensure there is no more than 0.25" (1/4") of the belt end protruding from the block, as in Fig. 25-2.** Also ensure the belt is not twisted when attaching each end.

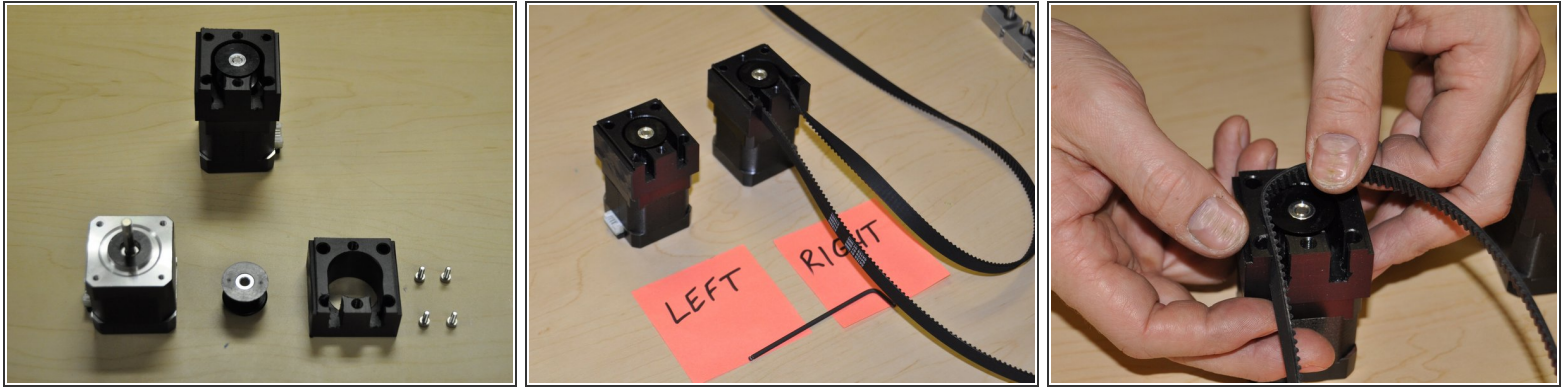
Step 25 — Belt subassembly preparation Part 2



- Use the 4 mm Allen wrench to expand the hole in the belt opening. **See Fig. 26-1.**
- Press in a M5 x 20mm FHS (*flat head screw*) into a tensioner hole and screw it in completely so that the head of the screw is flush. **See Fig. 26-2.**
- Repeat tensioner block installation for each of the 3 belts. **See Fig. 26-3.**

***i* Note: Put aside the Timing Trolley Belt (X-axis) for now.**

Step 26 — Y-Axis Stepper Motor / Mount and belt installation



- Locate 2 Stepper motors (long ground shafts), 2 motor mounts, 2 Black GT2 timing pulleys (plastic) and 8 M3 x 8mm SHCS (*socket head cap screws*). **See Fig. 27-1.**

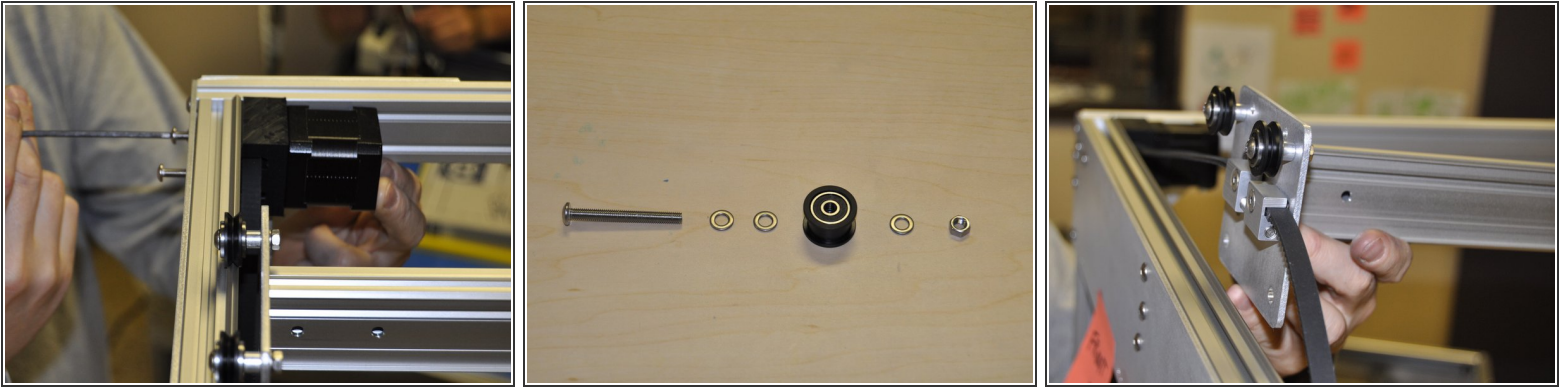
(i) Note: The left and right Y-Axis motors are assembled in unique orientation.

- Place the Pulley on the shaft and fasten. The shaft should be level with the bottom of the bevel on the pulley. **See Fig. 27-2.**
- Attach the blocks using the 4 M3 x 8mm SHCS. **See Fig. 27-3.**
- Install the belt onto the motor.

(i) Note: Use pictures to ensure proper orientation of the tensioner. Bolts should face to the inside.

- With the teeth facing in, pull the belt around the pulley through the gap in the motor block. **See Fig. 27-3.** Pull the belt and push down at the same time to get the belt to slip in place between the pulley and motor block.

Step 27 — Y-Axis Stepper Motor Installation



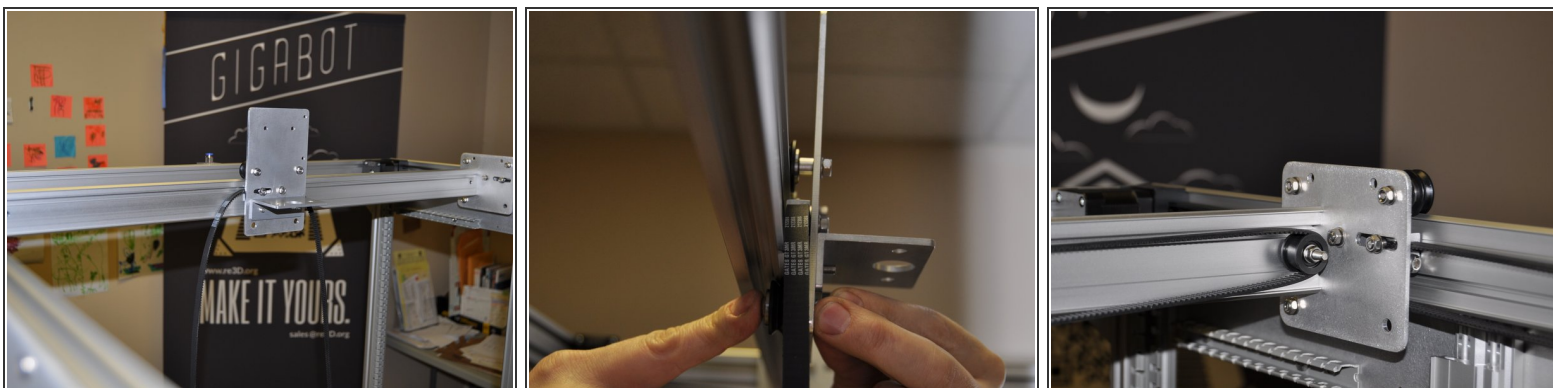
- Locate 2 idler wheels.
 - Attach the left Y-axis motor using 2 M5 x 45mm BHCS (*button head cap screws*) onto the rear left corner of the frame, then tighten (but **DO NOT OVERTIGHTEN**) the bolts. **See Fig. 28-1.**
 - Install the idler pulley: place a bolt through the side plate, 2 M5 washers, the pulley, 1 M5 washer, 1 M5 split lock washer, and 1 M5 nut, in that order. Tighten the bolt. **See Fig. 28-2.**
- i Note: The pulley is oriented with the recessed end facing toward the inside of the Gigabot.**
- With the Bridge assembly placed on the Y-axis rails, install the tensioner blocks to the side plates of the bridge, and use an M5 washer, M5 split lock washer, and an M5 nut to attach, but leave loose for a moment. **See Fig. 28-3.**
 - Pull the belt around the idler pulley. Take up slack in the pulley with the M6 bolts. Tighten nuts on the bridge side plate to lock into place.
 - Install lower wheels with eccentric spacers. This is difficult. Monitor clocking of eccentric spacer, and loosen upper wheels a bit if needed. Good job. Now repeat all of step 28 for the right side. When installing the exccentric spacer, ensure that it is installed with small lip slipping into the side plate hole.

Step 28 — Assembly of Trolley Plate Part 1



- Install Extruder shelf onto trolley plate using M5 x 12mm FHS (*flat head screws*). **See Fig. 29-1.**
- Install two V-groove wheels with round spacers using one M5 x 25mm BHCS, one M5 split lock washer and one M5 nut per wheel. **See Fig. 29-2.**
- Attach the tensioner to the trolley plate using the 3rd belt from step 25. **See Fig. 29-3.**

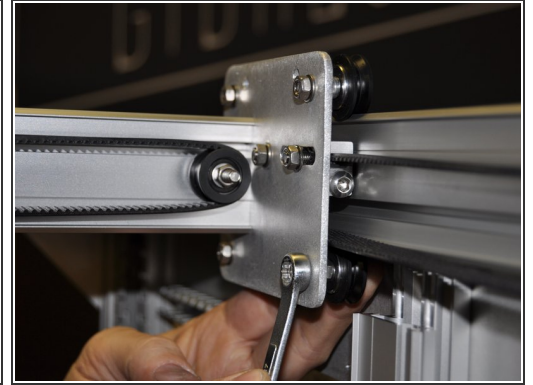
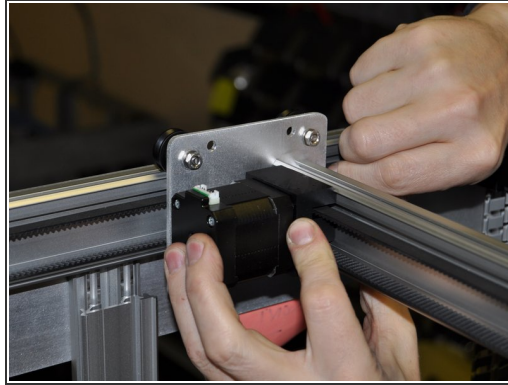
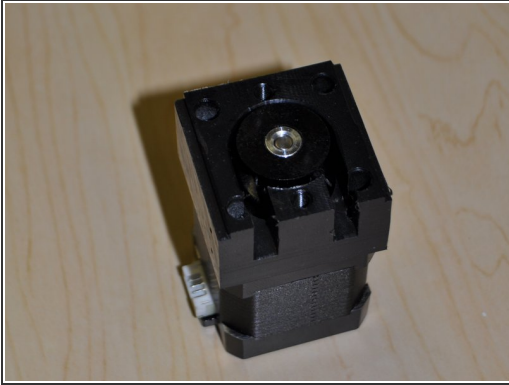
Step 29 — Assembly of Trolley Plate Part 2



- Hang the trolley plate on the bridge rail. **See Fig. 30-1.**
- Attach the eccentric wheels using one M5 x 25mm BCHS, one eccentric spacer, one M5 split lock washer and one M5 nut. While attaching, make sure the belt is between the wheels. **See Fig. 30-2.**
- Attach the X pulley idler. Refer to the picture of the other idler for visual of the parts and orientation (step 28).
- Attach the idler pulley. Ensure the pulley is oriented so that the depression is outside, then tighten the bolts with 2 washers and 1 nut. **See Fig. 30-3.**

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Step 30 — X-motor installation Part 1



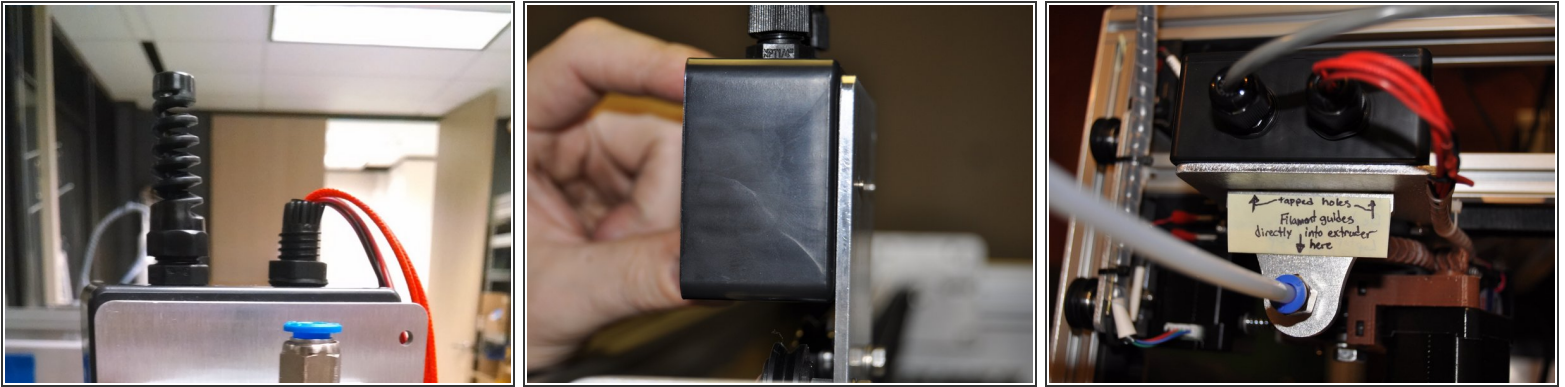
- Locate stepper motor with ground shaft, Motor Mount block and 4 M3 x 8mm SHCS bolts. **See Fig. 31-1.**
- Attach pulley the same way as the Y motors. Attach Motor Mounti block using the 4 M3 x 8mm SHCS.
- Attach belt to motor mount / pulley, then attach motor to bridge rail with two M5 X45mm BHCS (*button head cap screws*). **See Fig. 31-2.**
- Adjust eccentric wheels on trolley and end trucks to ensure contact of wheels to the rail while also maintaining smooth motion. **See Fig. 31-3.**

Step 31 — X Motor Installation Part 2



- Using 8mm wrench and allen wrench, turn spacers and feel for adequate contact. Tighten the nut to lock in the proper clocking of the eccentric spacer.
- Manually move the bridge rail back and forth, checking for smooth motion and contact of the wheels on the rail. Repeat for trolley and adjust eccentric spacers as needed.
- Tighten the X and Y belts using the 4 mm allen wrench to turn the bolt on the tensioner. Belts should be in tension, but [???]. **See Fig. 32-1.**

Step 32 — Installation of Terminal Box



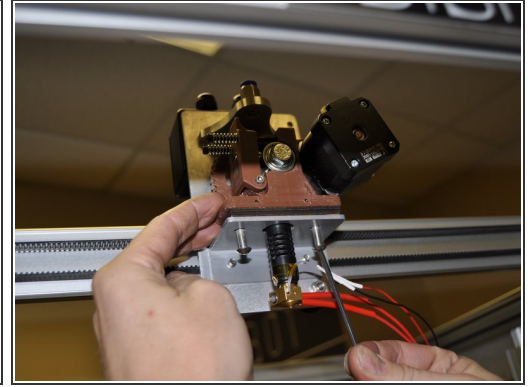
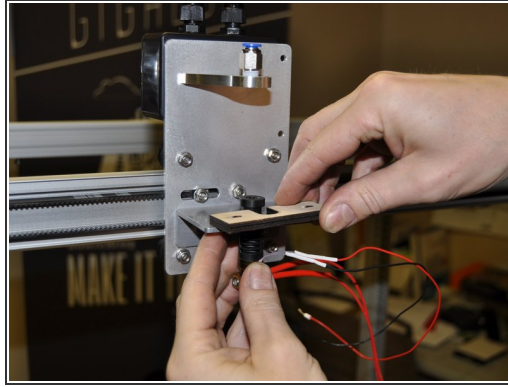
- Remove screws securing box cover and set aside cover.
- Insert the cable gland (for strain relief) on the left exit hole - this will shroud the head cable from the electrical box. **See Fig. 33-1.**
- Inside the box should be a terminal strip secured by 2 M3 X 18mm SHCS (*socket head cap screws*).
- Advance these bolts by approximately 6 turns - enough so that when placed on trolley plate, the bolts protrude through back of plate. **See Fig. 33-2.**
- Carefully place front filament guide on opposite side of the trolley plate. Ensure the tapped holes on the extruder guide match the picture, and are offset, such that there is only a small gap between the right tapped hole and the right edge of the extruder guide.. **See Fig. 33-3.** Ensure that the front filament guide is aligned correctly.
 - While Holding box and guide in place, tighten the 2 bolts.
- Temporarily reattach the box cover.

Step 33 — Extruder Assembly: Gear and Motor Assembly



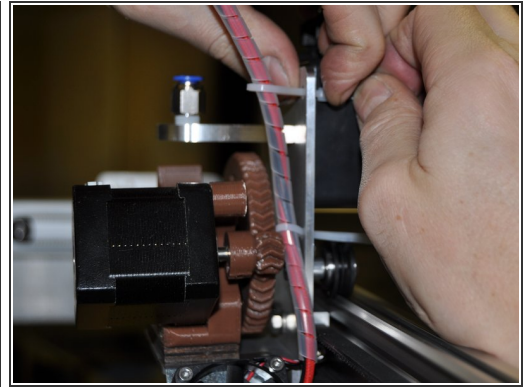
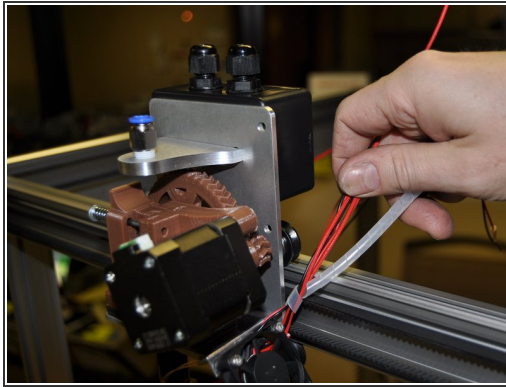
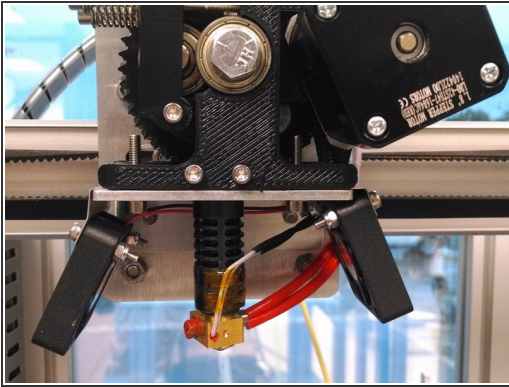
- Locate extruder parts – 2 bags: 1 with brown or black plastic parts and 1 with metal. **See Fig. 34-1.**
 - To assemble these items, use the instructions here:
https://docs.google.com/file/d/0B80A_woX...
- ⓘ **Note: Use 3rd stepper motor ground shaft for the extruder assembly**

Step 34 — Hot End Sub-assembly Part 1



- To assemble these items, use the instructions here: https://docs.google.com/file/d/0B80A_woX...
- If hotend requires assembly, cut 15 inches of wire from the free end of the wire in the EPCOS 100k Thermistor installation kit and use this for next step. **See Fig. 35-1 for final sub assembly.**
- Attach extruder to trolley / extruder shelf.
 - Insert hot end through shelf and lock into place using EITHER a wooden spacer (shown in Fig. 35-2) or two M4 button head screws (provided in the extruder hardware pack).
 - ❗ If you have received an extruder with two small holes in the front, this replaces the function of the wooden spacer to lock down the hot end. Image: <https://www.dropbox.com/s/6swweyblqd3077...>
- Place extruder assembly on shelf and attach using 2 M5 X 25 BHCSs (*button head cap screws*). Keep bolts slightly loose. **See Fig. 35-3.**

Step 35 — Hot End Sub-assembly Part 2



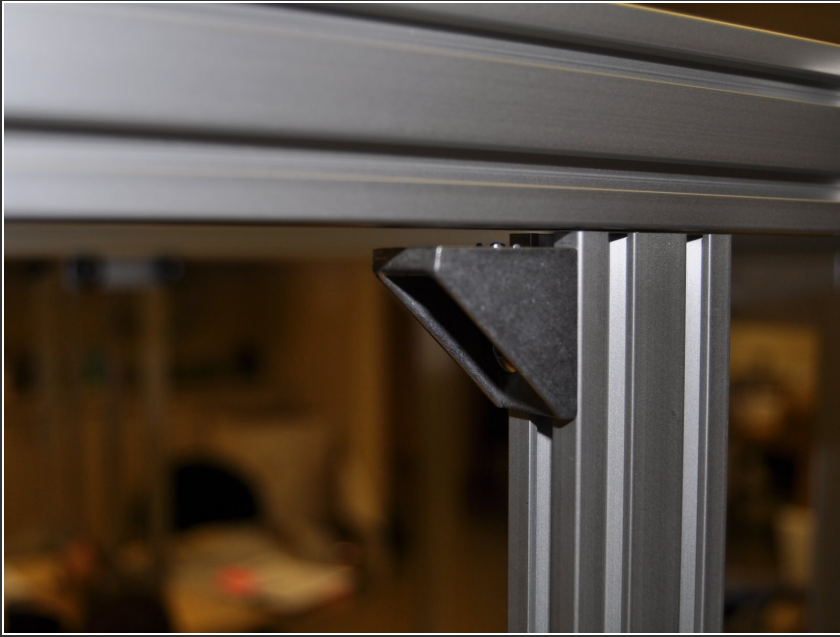
- Attach each fan by wedging in a metal plate between the cold-end and the extruder shelf. Fully tighten the BHC screws. **See Fig. 36-1.**
- ⓘ **Note: Before next step be sure to identify fan wires (red and black). Use small piece of tape.**
- Cut 6 inches of Spirallite starting at the bottom.
 - Use the spirallite to constrain the thermistor, fan and heater wires. **See Fig. 36-2.**
 - Using 2 Zip ties, attach this to the trolley plate (see pictures). Snip off ends of unused zip tie. **See Fig. 36-3.**
- ⓘ **Note: Keep the frame on table for now.**

Step 36 — Electrical Box Preparation (installation of common rails)



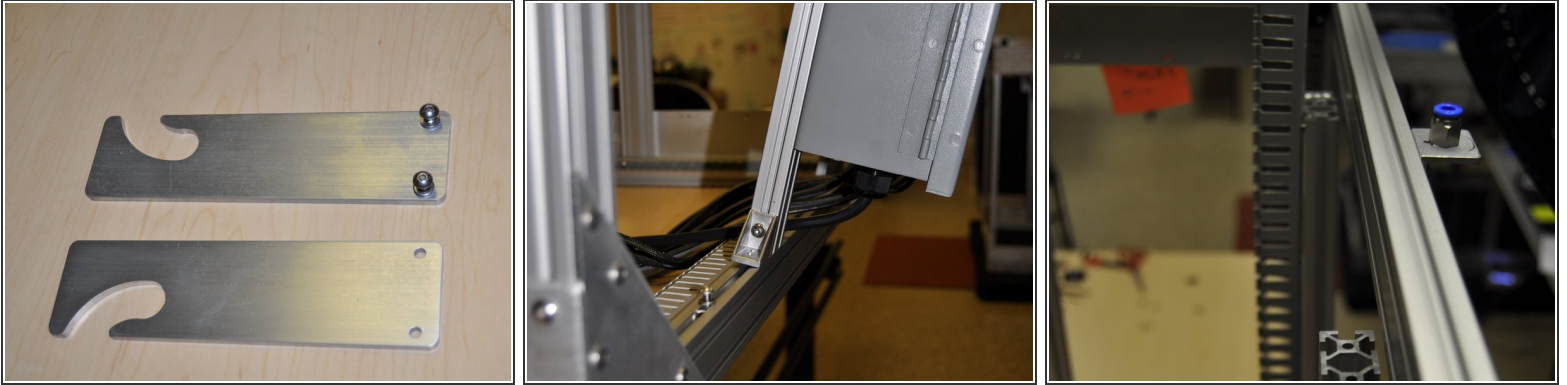
- Locate 2 common rails (last 2 remaining rails), power box with wires, the Viki unit, 4 M5 x 8mm BHCS (*button head cap screws*) and 4 T-nuts. **See Fig. 37-1.**
- Using fingers, needle-nose pliers or hemostats, put M5 x 8mm BHCS into the holes inside the power box. **See Fig. 37-2.**
- Place T-nuts onto each bolt (2 turns). Slide the common rail onto the T-nuts using the outside T slot.
 - Common rail edge and power box side should be flush.
- Before tightening, slide the rail to within 3" (*inches*) of the base of the power box (the side with the black wire bundles).
- Repeat for the second common rail. Fully tighten all 4 BHCSs.

Step 37 — Electrical Box Preparation (common rail hardware installation) Part 1



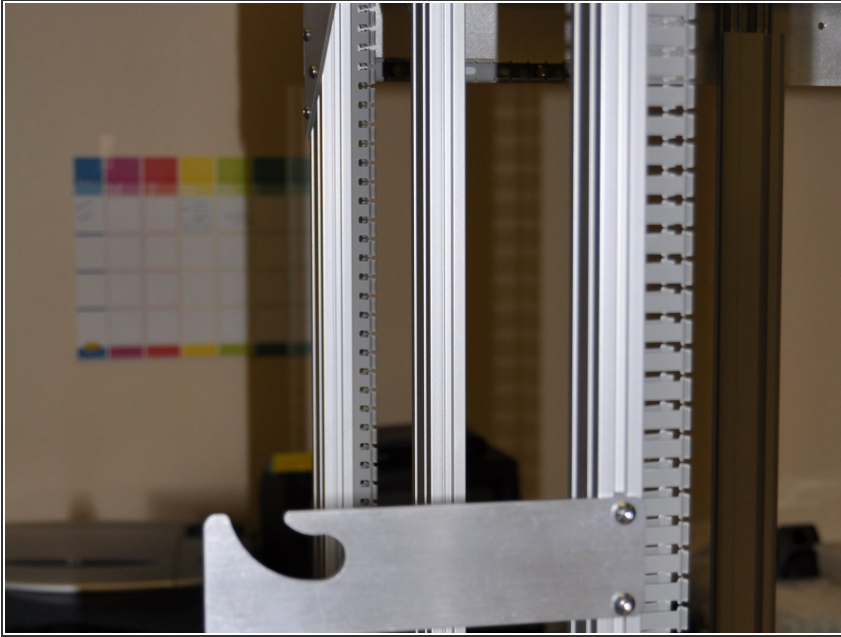
- Locate 4 triangular braces, 8 M5 x 12 mm BHCS (*button head cap screws*) and 16 M5 washers.
- Prior to attaching the upper triangular braces, insert 2 T-nuts into the outboard T slot of each common rail. These will be used later to fasten the filament spool holder.
- Attach the triangular braces to outboard end of each common rail. Attach the bottom triangular braces so that they are flush with bottom edge of rail ends.
- Attach the top triangular braces such that they do not extend beyond the rails. Temporarily tighten them in place. **See Fig. 38-1.**

Step 38 — Electrical Box Preparation (common rail hardware installation) Part 2



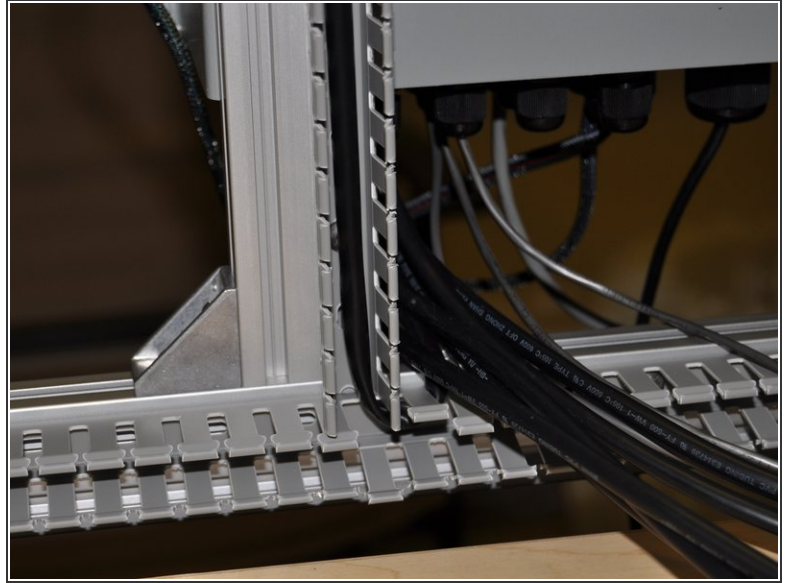
- Locate 31.5" Deep Panduit.
- Loosely attach 3 M5 x 8mm BHCS (*button head cap screws*) with T-nuts.
- Prepare Filament Rod Holders – Install 2 M5 x 12 BHCSs with 2 washers per BHCS and the T-nut loosely fastened. **See Fig. 39-1.**
- Pick up the power box with rails and place it in the rear of the frame. Start by aligning the bottom end of the rails to the cross rail. Cleats on the edge of the triangular braces should catch into the top T slot of the lower cross rail. **See Fig. 39-2.**
- Prior to fastening the upper triangular braces and while holding the assembly in place, insert the Panduit from the top into the internal T slot on the left common rail. **See Fig. 39-3.**
- Insert the Filament Rod holders into the outside T slot. Complete installation of the common rails into position and bring corner braces even with the edge, tightening all corner brace screws per instructions in the next step.

Step 39 — Electrical Box Preparation (common rail hardware installation) Part 3



- Fasten the upper triangular braces in this order:
 - Loosen BHCS (*button head cap screw*) going into the common rail (vertical rail).
 - Slide the triangular brace up to contact the cross rail.
 - Tighten the BHCS going into the upper cross rail.
 - Tighten the BHCS going into the common rail (vertical rail)
 - Repeat for the other upper triangular brace.
- Fasten the bottom triangular braces, ensuring adequate contact to both the common (vertical rail) and cross rail. Slide each filament rod holder to a position 8" (*inches*) from the top and tighten the BHC screws. **See Fig. 40-1.**

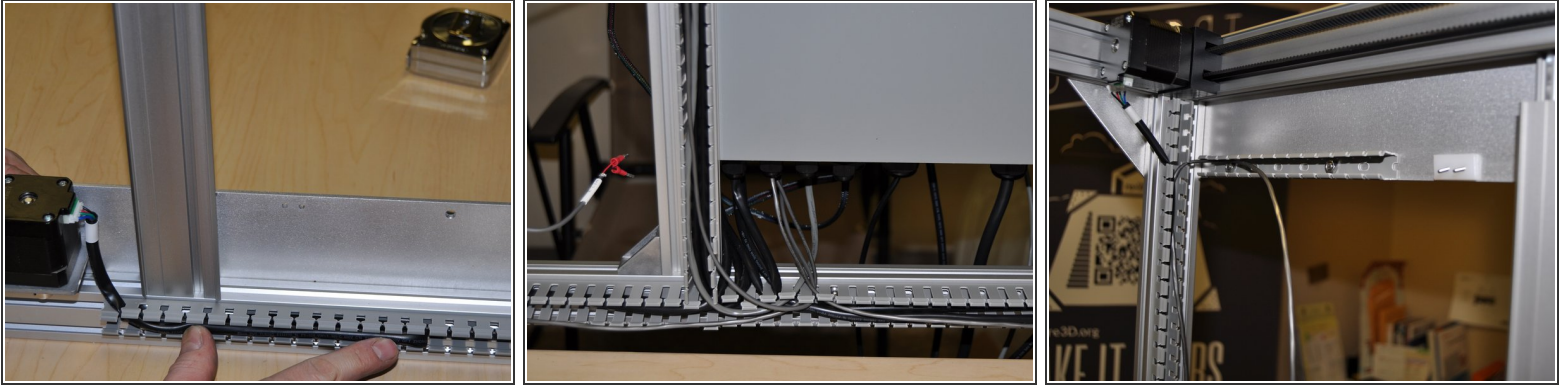
Step 40 — Run Wiring Part 1



Note: All wires are labeled on their ends.

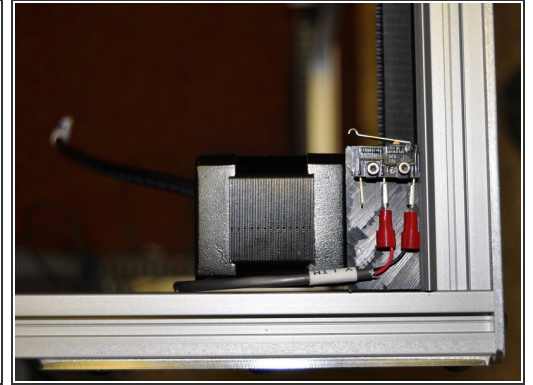
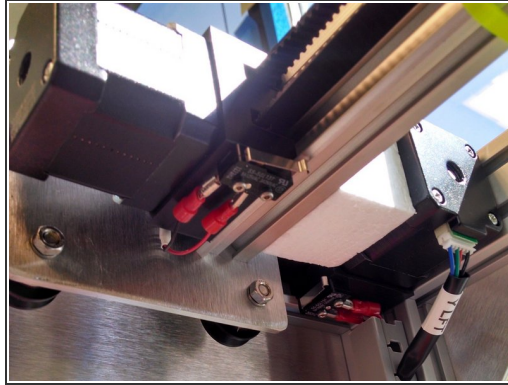
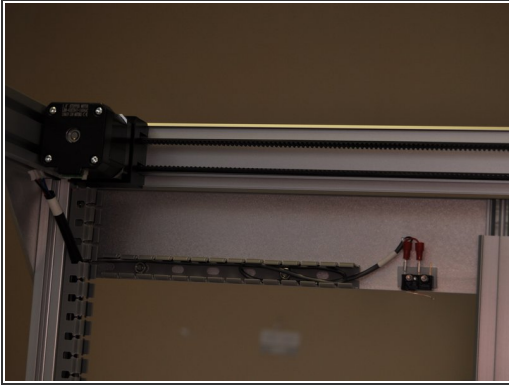
- Pull all wires into the center of the frame except for the USB cable and power cable. **See Fig. 41-1.**
- Locate the motor cables - 6 black wires (black wires with white labeling at the end. Each wire has a white connector attached to it.
- If desired, remove a tooth on the Panduit to allow for all of the cables to enter the Panduit and follow parallel to the X-axis.
- Pull the X-motor cable through the Deep Panduit on the vertical cross rail. Pull the Extruder motor cable through the same slot. **See Fig. 41-2.**
- Pull left and right Y-motor cables through the shallow vertical Panduit on the rear of the left and right sides of the frame. Connect the Y motor connectors to the Y stepper motors.

Step 41 — Run Wiring Part 2



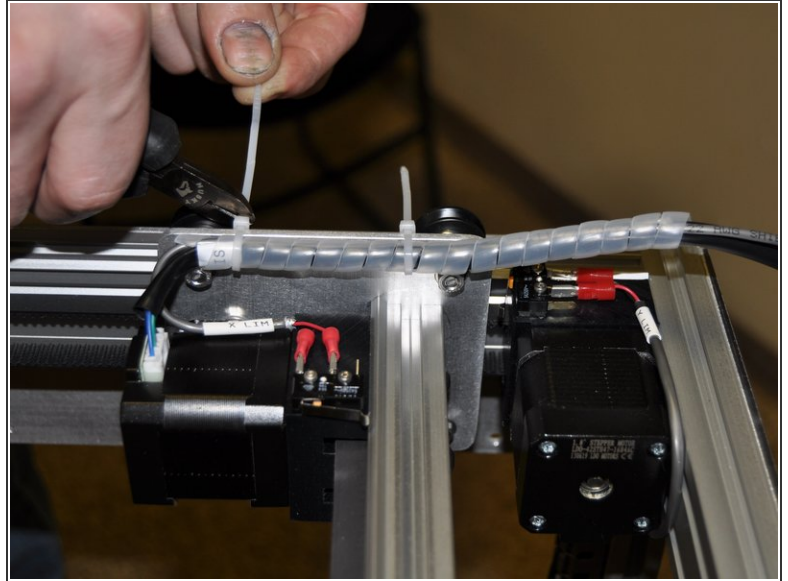
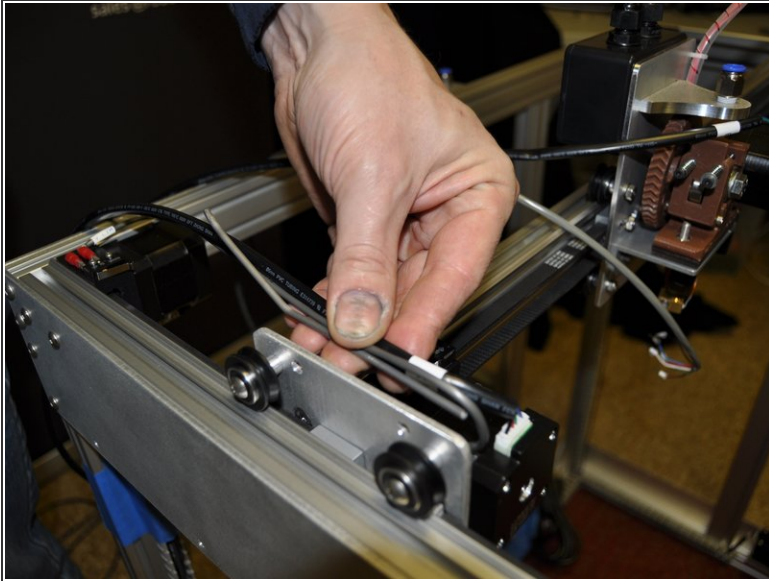
- Pull the left and right Z-axis cables through the left and right sides of the frame. Connect the Z motor cables to the Z stepper motors. **See Fig. 42-1.**
- Locate the gray Limit Switch wires, and the gray (thicker) "head" wiring.
- Run the X Limit switch and head wiring upward through the deep Panduit (the same path used for X Motor and Extruder Motor). **See Fig. 42-2.**
- Run the Y limit wire upward through the left (short) Panduit and run the Z limit wire upward through the right (short) Panduit. **See Fig. 42-3.**

Step 42 — Run Wiring Part 3



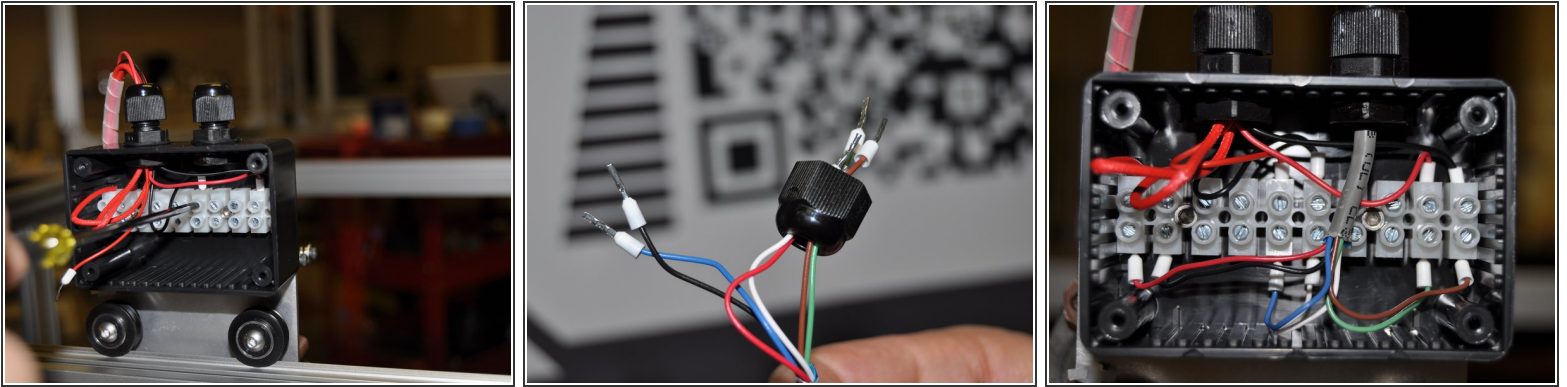
- Install the limit switches:
 - The Z-limit switch on the top right side panel - put in 2 M2 x 18mm SHCS (*socket head cap screws*) and an electrical isolator. Insert the limit switch and fasten with 2 M2 washers. **See Fig. 43-1.**
 - X Limit switch: using 2 M2 x 10mm SHC screws, fasten the limit switch to the bottom of the motor mount block of the X-axis motor on the left endtruck. **See Fig. 43-2.**
 - Y Limit switch: using 2 M2 x 10mm SHC screws, fasten the limit switch to the motor mount block of the left Y-axis motor. **See Fig. 43-3.**
- Limit switch connections (all 3):
 - For all limit switches, connect the red wire to the center post. Connect the black wire to the post adjacent to the fulcrum of the lever.
 - Ensure both Y and both Z motor connections are in place.

Step 43 — Extruder Wire Containment



- Position the bridge toward the back of the frame.
- Connect the X -axis and exterior stepper motor cables.
- Locate 6 inch steel rod and cut 9 inch section of Spiralite.
- **Note: Put a slight bend in the steel rod (see picture). This will ensure the bundle clears the Y stepper motor and limit switch in the home position.**
- Place one end of the steel rod adjacent to the front edge of the left endtruck. **See Fig. 44-1.** While holding the X-limit switch and the X-axis stepper motor cable together with the steel rod, wrap the spiralite around.
- Once completely wrapped, zip tie this bundle to the left endtruck using 2 zip ties and the holes located on the top of the endtruck. Snip the extra tie off once fastened in place. **See Fig.44-2.**

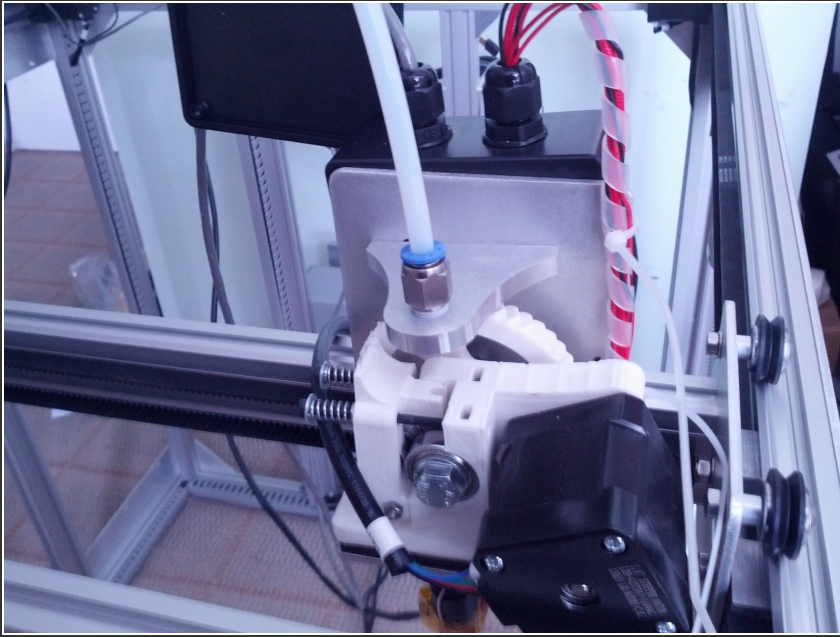
Step 44 — Terminal Box – Wiring



Note: "Left" and "right" are still in reference to looking at the frame from the front.

- Take back cover off of the terminal box.
- Remove the right cable grommet. Insert the heater / thermistor / fan wire bundle through the grommet. Pull wires through the right opening, then loosely screw back in the right grommet.
- Install wires (6) into the top row of screw terminals using **Fig. 45-1** as a guide. For each wire, loosen the screw terminal, insert wire or post (some ferrules are provided) and tighten the screw. (If this is difficult, remove the terminal strip by loosening the 2 SHCS (*socket head cap screws*)).
- Insert the head wire bundle through the left grommet: insert 2 wires at a time, then push the same wires (2 at a time) through the left grommet pass through on the box. Pull through enough wire to allow connection to the terminal block. **See Fig. 45-2.**
- Connect the wires using the same method, this time to the bottom row of the terminal block. The exact position on the terminal block is not critical, but the matching of top and bottom row with intended wires is important. Positive of the fan goes above the green wire and the negative of the fan goes above the brown wire. **See Fig. 45-3.**
- Put the back cover back on the junction box.

Step 45 — Extruder Wire Bundle Containment Part 1



- Position the extruder head to the front right of the frame.
- Look down the filament guide hole on filament guide shelf (installed during terminal box attachment). Ensure the hole is directly above filament entrance to the extruder.
 - If it is offset, remove terminal box and flip the filament guide shelf such that filament will guide directly into extruder.
- Locate push fittings (2) from "Snappy Box".
- Screw one plastic push fitting into the filament guide shelf, and one into rear filament guide shelf. Push plastic filament guide into each of the push fittings.
- Install filament guide rod (with curved end) through bottom of rear filament guide shelf. Loop hook around a M5x12mm BHCS "(button head cap screw)" and tighten.

Step 46 — Extruder Wire Bundle Containment Part 2



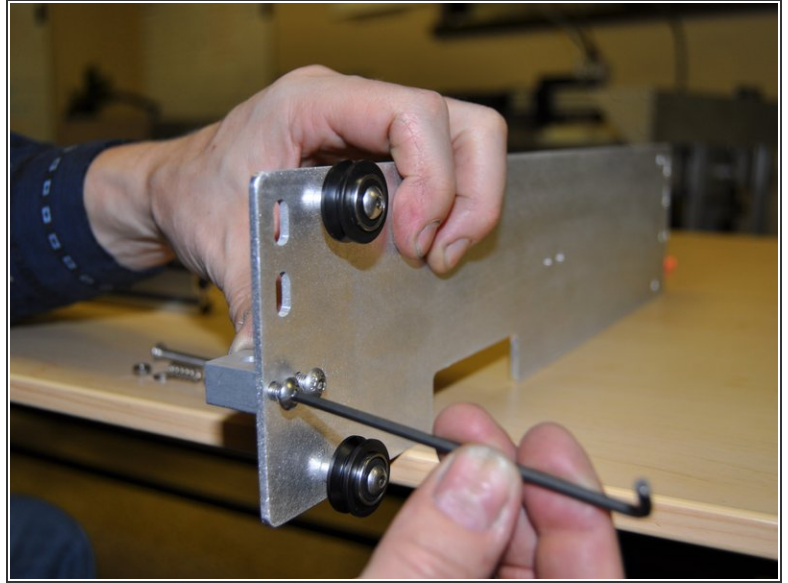
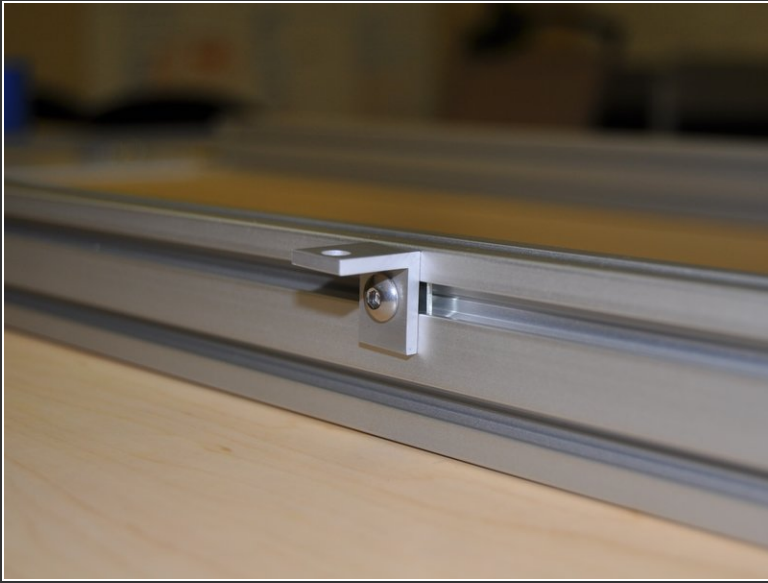
- Starting approximately 3" (*inches*) from the extruder head, wrap the extruder motor, limit switch wires and head wiring with Spiralite. **See Fig. 47-1.**
- At the center of the wire bundle loop, the X-motor and X-limit switch wiring will enter the Spiralite bundle. The filament guide rod will also enter the bundle. **See Fig. 47-2.**
- At approximately 2" from the rear filament guide shelf the plastic filament guide and filament guide rod will exit the Spiralite bundle. **See Fig. 47-3.** Continue wrapping the remainder of the bundle until reaching approximately 6 inches inside the Panduit track.
- Use two 4 inch lengths of Spiralite to constrain the X motor and X limit switch cabling at convenient points in the bundle.

Step 47 — Bed Plate Assembly Part 1



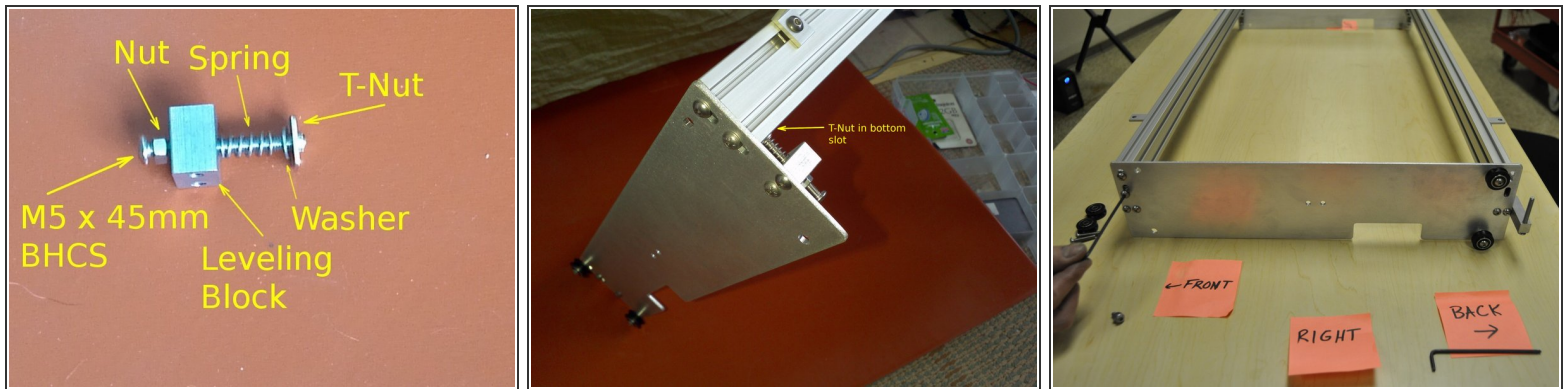
- Locate 2 bed side plates, 2 bed cross rails, 8 V groove wheels, 8 M5 x 25mm BHCS (*button head cap screws*), 4 M5 x 45mm BHC screws, 3 square leveling blocks, and 1 limit switch leveling block. See Fig. 48-1.
- Locate 4 round spacers, 4 eccentric spacers, 20 M5 X 12mm BHCS (*button head cap screws*), 20 M5 washers, 8 M5 split lock washers, 4 leveling springs, 4 M5 X 8mm BHCS, 12 M5 nuts, 4 bed plate angles, 8 T-nuts and 4 M5 x 12mm FHS (*flat head screws*). See Fig. 48-2
- **Note:** Something is incorrect with this parts list. At least 4 M5 x 8 are needed to attach the angle brackets, 8 M5 x 25 for the v groove wheels and 8 m5 nuts. *** I think it's fixed now - please update further if something else is noticed. Thx! -cg

Step 48 — Bed Plate Assembly Part 2



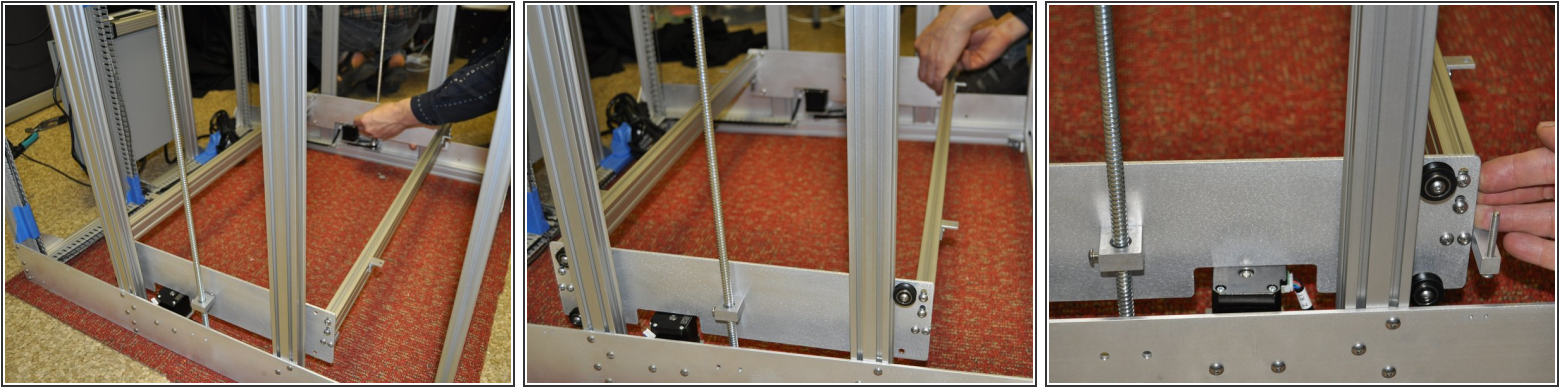
- Place 2 T-nuts into the top T Slot of the bed rails.
 - ❗ **Note: The bed plate angle holes are unique. One is closer to the outer edge of the angle bracket (for the FHS) and one is more centered (for the t-nut and M5x8mm BHCS).**
- For the next step use the holes that are centered to attach angles to the rail. Using M5 x 8mm BHC screws, fasten 2 bed plate angles to each bed cross rail. **See Fig. 49-1.**
- Attach 2 round spacer wheel sets to the back end (closest to notch in plate). Place washer between plate and nut and tighten the screws. **See Fig. 49-2.**

Step 49 — Bed Plate Assembly Part 3



- **I have added a corrected picture.** The spring goes between the block and rail. See Step 60 for ref."
- Attach nut, block, spring, washer and T-nut to the M5 x 45mm BHCS (*button head cap screw*). **See Fig. 50-1.**
- Repeat steps for the second square leveling block.
- Install the left bed side plate to the front bed rail by first inserting the "leveling block" T-nut (from the previous step) into the bottom T-slot of the rail. **See Fig. 50-2.**
- Position the end of the rail onto the bed side plate to line up the 2 threaded holes on the end of rail with the 2 holes on the plate. Fasten each with a M5 x 12mm BHC screw and a washer. Then attach the leveling block to the side plate with 2 M5 x 12mm BHC screws. **See Fig. 50-2.**
- Repeat the previous steps for the rear side of the left bed side plate. Leave the front wheels disconnected for now (the ones with eccentric spacers). **NOTE: Add two t-nuts to the bottom of the rear bed rail if a heated bed is panned (for Panduit attachment).**
- Repeat the above steps for the right side plate with these exception(s): For the right plate, use a limit switch leveling block for the back / right position instead of the square leveling block. **See Fig. 50-3.**

Step 50 — Bed Plate Assembly Part 4



- Attach Bed Plate to Frame:
 - Position the bed assembly in the frame, resting the notched area on the Z-axis stepper motors. **See Fig. 51-1.**
 - Position the nut cup assembly by aligning the holes with the bed plate sides. Using 2 M5 x 12mm BHCS (*button head cap screws*), attach the nut cups to the sides. Hand tighten.
 - Attach 1 V-groove wheel using eccentric spacers to the top / front edge of each side plate. **See Fig. 51-2.**
 - Turn both threaded acme Z-rods (temporarily disconnect motor wires if desired for less friction) to lift the bed plate assembly off of the Z-axis stepper motors. Lift the bed about 1.5 inches - this will give better access to install the remaining V-groove wheels.
 - Install the bottom eccentric V-groove wheels.
 - Manually lower the bed plate by spinning the Z-rods again. Allow the notch edge of each plate to rest on Z-axis stepper motors. This will ensure bed is close to level prior to other adjustments. **See Fig. 51-3.**

Step 51 — Bed Plate Assembly Part 5



- Tighten BHCSs (2 each side) holding nut cup assemblies to bed side plates. Make sure the V-groove wheels with round spacers (back wheels on each side) are tight.
- Finger tighten the eccentric V-groove wheels in front to where they are slightly beyond tight.
- Adjusting the Eccentric wheels:
- While pushing from the back of the bed, use the wrench on the eccentric spacer to adjust contact of V-groove wheel to V guide rail edge. Adjust for slight contact of wheel to the rail. Adjust both eccentric wheels on both sides of the bed plate.

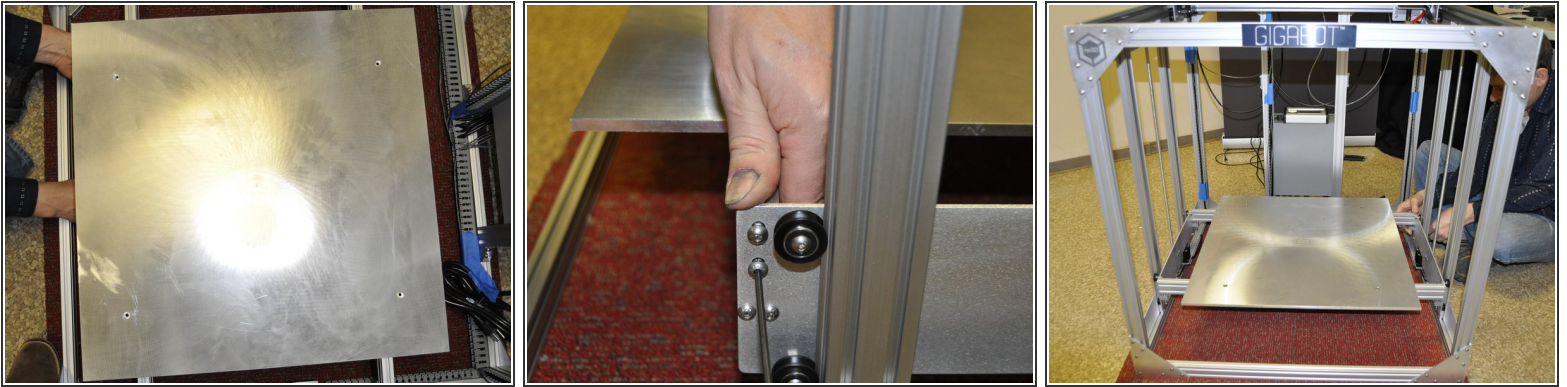
(i) Note: The more contact force, the more rigid. If contact is too little, there will be excessive movement in the bed during operation. However if contact force is too high, the friction will be such that the Z-axis stepper motors will not be able to move the table up and down freely (or the motors will be strained).

- Tighten the eccentric wheels on the X axis carriage and the Y axis trucks. Insert the allen wrench into

the access hole in the side plate to reach the M5 x 25 screw head. **See Fig. 52-1.**

- Tension the X axis and Y axis belts using the 4mm allen wrench. Be careful not to tighten too much or the motors will stall during use. Once the belt tension is set, tighten the M5 nuts that fix the tensioner blocks to the bridge trucks.

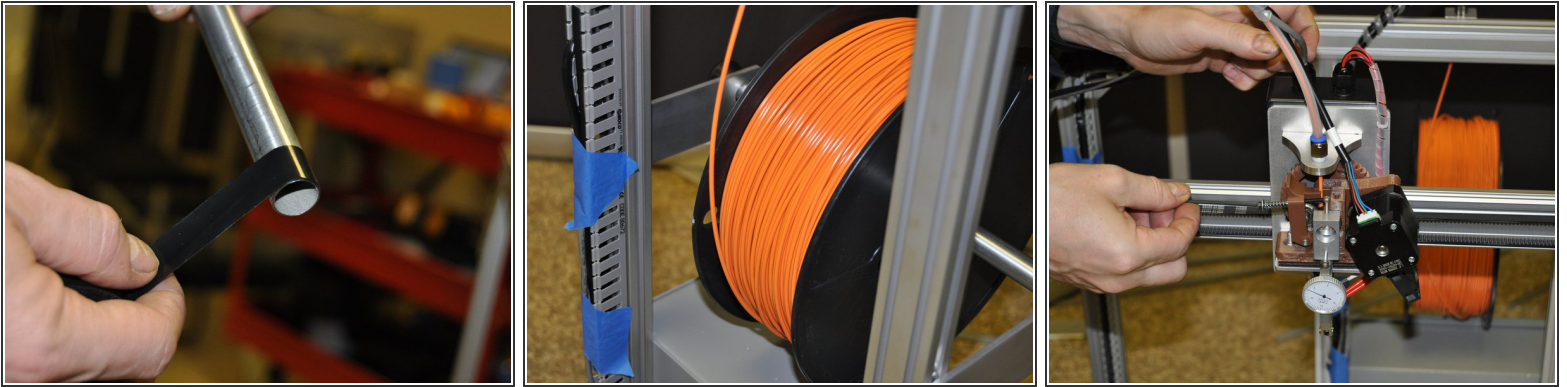
Step 52 — Attaching the bed plate



✦ The bed plate support structure should still be resting on motors. If you plan on installing a heated bed to your Gigabot, you can perform the steps found in [Installing Your Heated Bed](#) now or at any point in the future.

- Position the bed plate in place: Hole spacing is 16 inches right to left and 18 inches front to back. Turn the plate to position the angles on the bed plate structure until holes in both are aligned. **See Fig. 53-1.**
- Loosely attach the bed plate to the angles using the 4 M5 x 20mm FHS (*flat head screws*). Angles (previously secured by T-nuts) should also be loose at this time.
- Make sure rails are properly secured to bed plate:
 - Loosen the 2 BHCS (*button head cap screws*) on each end of the rails. Tighten the bolts (going through angles) that fasten the bed plate to the rails. **See Fig. 53-2.**
 - In each corner, position the rail in the center of the "top to bottom travel" with respect to the holes in the side bed plates and then tighten the M5 BHCSs. **See Fig. 53-3.**
 - Grease the threaded rods: Apply a light coat of grease from the packet supplied along the lengths of the threaded rods.

Step 53 — Filament spool installation



- Wrap 2 turns of electrical tape or similar onto the ends of the filament spool rod. Push rubber end caps into the ends of the taped filament rod. **See Fig. 54-1.**

⚠ Caution: When releasing wrapped filament for first time, be sure that the end does not wrap beneath other loops. This will cause binding while feeding filament.

- Install the filament spool onto the filament rod with filament feeding upward on the inside of the spool. Place the rod on the holder. **See Fig. 54-2.**
- Using a knife, angle cutters, or pencil sharpener, create an angled tip on the end of the filament.
- Insert the filament all the way into the tube and draw the end down into the extruder. Ensure the two M3 bolts on the extruder are removed, then feed the filament into the small extruder hole. **See Fig. 54-3.**
- Install M3 bolts onto the extruder, ensuring a washer and spring are present. Tighten each approximately 8.5 turns to obtain adequate pressure on the filament to the knurled bolt. **See Fig. 54-3.**

Step 54 — Electrical Box Activation Part 1



- Orient the Viki LCD to view its display conveniently.

⚠ Warning: If your local mains voltage is 220V, ensure that your power supply has been set to 220V input - the switch is located on the side of the power supply, or as indicated by inspection sticker.

- Plug in the electrical box to 120V AC current.
- Switch electrical box to “ON”. Ensure the Viki LCD shows “Gigabot Ready” on its display and that the temperature display shows approximately the ambient temperature in the room in degrees Celsius. **See Fig. 55-1.**
- Perform the steps in the software installation quick start guide here: <http://wiki.re3d.org>. or <http://wiki.re3d.org/index.php?title=Qui...>
- Close related applications before the next step.

Step 55 — Electrical Box Activation Part 2



- Plug in Gigabot's USB cable into your computer. Open Pronterface (Printrun). Ensure communication rate is at 250000 and that the correct comm port is selected (it is usually the highest of the possible selections in the associated drop-down menu). Click on the "Connect" button. Note: I had to install
- Observe the firmware's feedback on right side of the screen. The text "Connecting..." and "Printer is now online." should appear.
- In the lower-right corner, type the manual G-code command "M119" to check the limit switches. All switches should return "open".

Step 56 — Testing the Limit Switches Part 1



- Using your finger, depress the Z-limit switch lightly until it clicks. Hold this position and resend the "M119" command via Pronterface. **See Fig. 57-1.**
- Verify the "TRIGGERED" status for the "z_min" limit switch. Repeat this test for the Y ("y_max") and X ("x_min") limit switches.

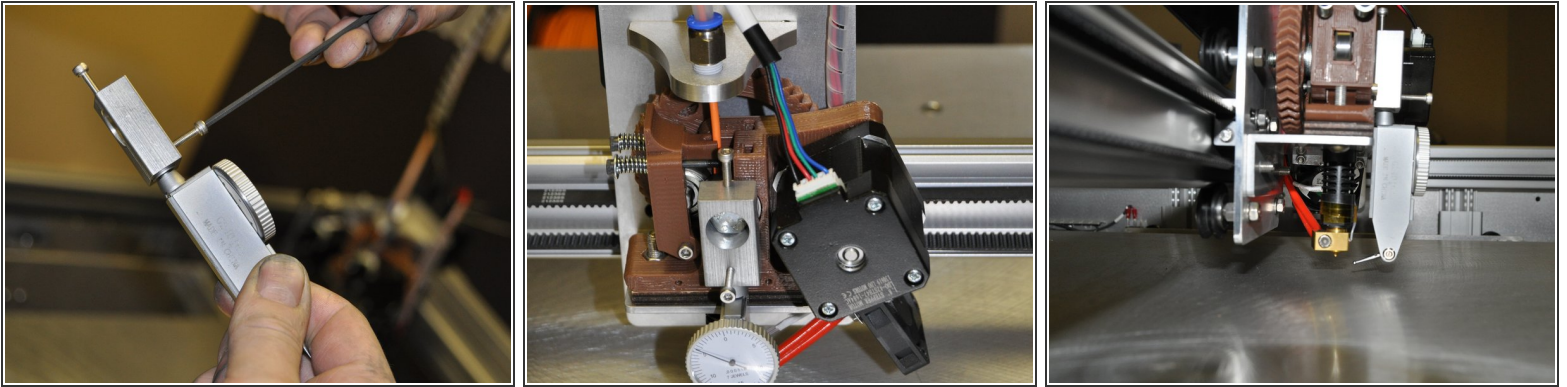
- Slightly loosen the two M5 x 8mm BHCS (*button head cap screws*) securing the bed side plate to the nut cup on both the right and left sides.
- Using your hand, push the print head and bridge rail to the rear of their travel. This will move the delicate hot end tip clear of the bed in case the bed raises too far when it is raised in upcoming steps.
- Verify that both the right and left bed side plates are resting on the Z axis motors to ensure the side plates are at the same height. If adjusting one side, you must hold the motor belt on the other side to ensure it doesn't rotate (the motors are electrically coupled).
- In Pronterface, click on the Z axis home button. This will raise the bed until the Z limit switch stop attached to the bed side plate comes into contact with the Z limit switch lever arm. Once this happens, the bed should move down slightly and then slowly re-contact the switch again.

Step 57 — Testing the Limit Switches Part 2



- Retighten the two M5 x 8mm BHCS (*button head cap screws*) holding the bed side plates to the Z axis nut cups.
- Using either the graphical user interface or the command line, use Pronterface to move the bed in the positive direction (down) to the extent of its travel and then back up to the home switch to ensure smooth and free movement of the bed mechanism.
 - This will also help distribute the grease along the length of the Z axis threaded rod
- Home the X axis using the Pronterface home button. The carriage should travel to the left and contact the home limit switch.
- Using either the graphical user interface or the command line, input the [???] into Pronterface to command the trolley to move to both the positive and negative limits of their travel to ensure smooth operation.
- Repeat for the Y axis. Note that the limit switch is located on the positive extent of the travel as apposed to the X and Z axis where the limit switch is on the negative limit of travel.

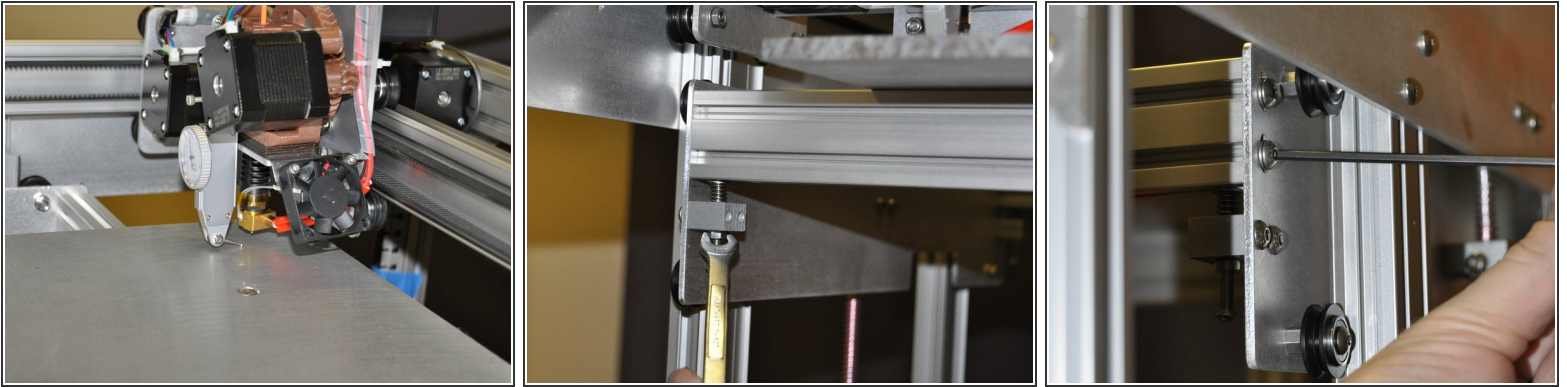
Step 58 — Bed Leveling Part 1



Note: These steps will level the bed and set the Z axis bed height. If you have not yet installed your heated bed, you will need to repeat this step once it is installed.

- Use the supplied dial indicator and dial indicator block. Attach the dovetail mount to the dial indicator and tighten. Insert the cylindrical end of the dovetail mount into the dial indicator block and fix in place using the supplied M3 screw. **See Fig. 59-1.**
- Move the Z-axis in its positive direction approximately 10mm using Pronterface or the Viki. Command the motors off using Pronterface (button on left side of screen).
- Place the dial indicator block over the head of the main extruder bolt and fix it into place using the second M3 screw. **See Fig. 59-2.**
- Swivel the dial indicator feeler arm to form an approximately 20 degree angle to the bed plate as viewed from the side.
- Ensure the dial indicator feeler arm is lower than the hot end so that it contacts the bed surface before the hot end. **See Fig. 59-3.**
- Place the print head near the back left corner of the table and slowly raise the bed until it contacts the dial indicator, moving the needle approximately 0.010 inches (or approximately 90 degrees of needle movement).

Step 59 — Bed Leveling Part 2



- Use your hand to push on the trolley plate (and not the extruder itself), move the print head near all four corners of the bed. **See Fig. 60-1.**

i Note: The long M5 x 45mm hex bolt will remain tight and protruding out of the bottom of the bed rails at all times.

- Determine the lowest corner. Adjust the bed leveling nut on the underside of the bed to pull the three highest corners of the bed down to make the bed level. **See Fig. 60-2.**
 - Repeat this procedure as necessary until the bed is perfectly level.
- Once within 0.005 inches of being level, add slightly more tightness to the M5 x 12mm screws fixing the bed side plates to the bed support rails. **See Fig. 60-3.**
- When the bed is level, finish tightening the M5 x 12mm screws and verify the leveling.
- Remove the dial indicator and return it to its case. Remove the screws from the indicator holder block and place all items into the indicator case.

Step 60 — Bed Leveling Part 3



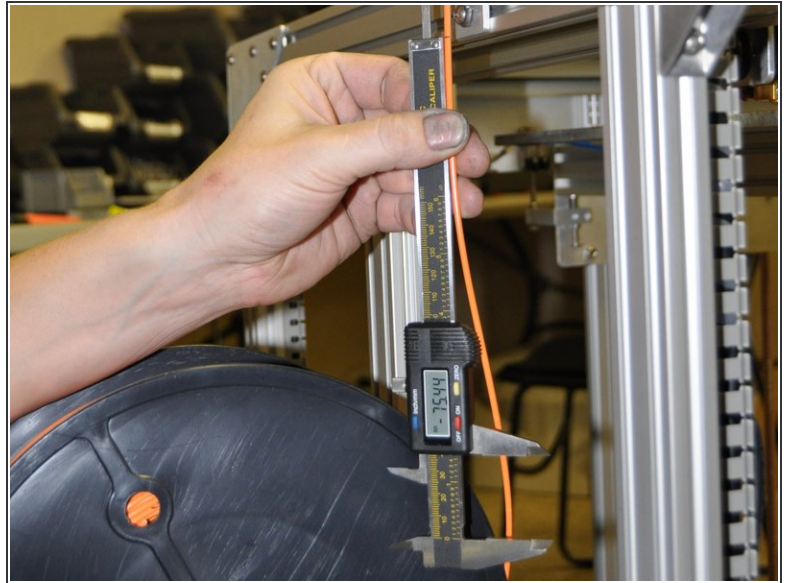
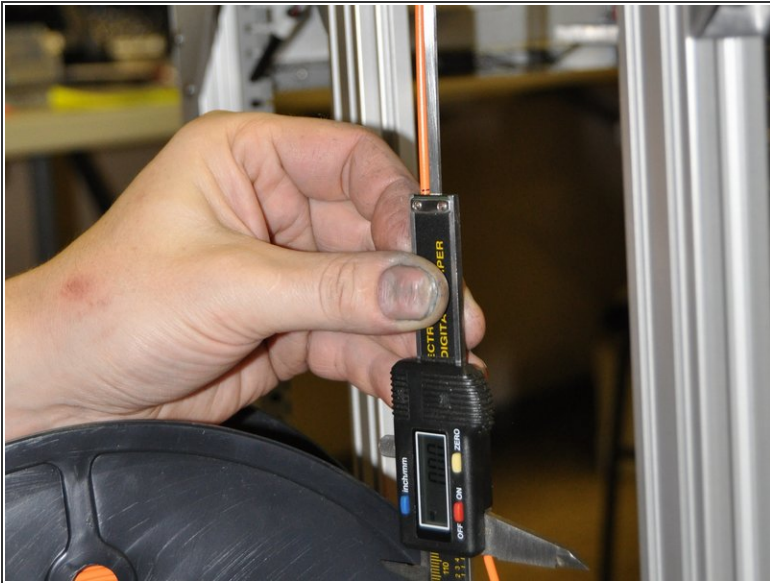
- Apply a layer of blue painter's tape to the bed. The PLA will stick well to the blue painter's tape.
- Move the print head to the rear of its travel in preparation for setting the bed to its home position.
- Use Pronterface to hone (reset[??]) the Z axis. Inspect the gap between the hot end nozzle and the bed.
- As necessary, adjust the screw that comes into contact with the Z limit switch downward to raise the bed, or advance the screw upward to lower the bed.
 - Ensure the lock nut is secured after each adjustment. Achieve a gap equal to the thickness of a piece of copy paper.
- You will be able to make the formal final adjustment once you print a single layer and measure the result to ensure the bed home position is set correctly.

Step 61 — Bed Leveling Part 4



- Test the extruder operation:
 - Using Pronterface, set the extruder temperature to 190 degrees Celsius and wait for it to heat up.
 - Once the hot end is at the appropriate temperature, extrude 5mm of PLA.
 - Watch the filament going into the extruder to ensure it is feeding smoothly.
 - Keep extruding 5mm of PLA until you can see it exiting the bottom of the hot end.

Step 62 — Rough Extruder Calibration Part 1



- Observe the point at which the filament travels into the rear filament guide. Lightly pull any slack out of the length of filament between this point and the extruder.
- Make a mark with a pen or marker approximately 100mm before the filament enters the guide. If using a caliper, zero it from this point. **See Fig. 63-1.**
- Input an extrusion rate of 100mm/min and an extrusion length of 10mm into Pronterface. Then, click "Extrude" 8 times.
- Pause briefly between each extrusion. Once 80mm of filament has been commanded out the hotend, measure what length of filament was actually drawn into the filament guide tube. **See Fig. 63-2.**
- Send the following command to Pronterface: "M503".
- Look for the line of data immediately following "Steps per unit". The number following the "E" is the current calibration for steps per millimeter. Using the following formula, calculate the new steps per millimeter:
 - **new steps per mm = current steps per mm * commanded move / actual mm traveled**

Step 63 — Rough Extruder Calibration Part 2



- Enter the following command into Pronterface: "M92 Exxxx", where xxxx is the new steps per millimeter.
 - ❗ **Note: This number can also change when changing filament or adjusting spring tension in the extruder. You can further refine this number with other print-based tests.**
- Repeat the steps above for marking and measuring the filament to verify that your calibrated number is now registered in the firmware.
- Once you have confirmed the new calibration then update the M92 Exxxx value in: Slic3r -> Printer Settings -> Custom G-code - Start G-code
- Load a small calibration print into the Slic3r interface, export gcode and print.
- Remember, if your heated bed is a raw steel bed (with no black coating), you will need to lay down a layer of blue 3M painter's tape prior to printing. This will ensure your print adheres to the bed and stays in place. This will need to be replaced from time to time as it gets worn.

Have questions? Need help? Email support@re3d.org This guide accompanies our wiki at <http://wiki.re3d.org>