



IPlasma 5.0 Assembly Instructions

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After receiving your crate, make sure there is no damage. Note any damage on the BOL that the freight company has. You will notice all of the foam wrapped parts in the crate. Unwrap all of the pieces and keep them organized.

Frame



Place (2) Frame legs on a flat surface. Place the “L” angle iron on the 2 legs.



Center the slot of the angle iron over the holes in the legs. Install (2) 3/8 bolts from the back side and install the nuts finger tight. Make sure the angle iron is square to the legs and tighten the 3/8 bolts.

Repeat this procedure with the other legs and angle iron.

NOTE: the 4x8 plasma table will have (2) center legs to install.



Install the leveling feet with the 1/2" washers and nuts provided.



Stand up the leg assemblies and add the “J” channel to hold the (2) leg assemblies. Install and center the 3/8 bolts finger tight. (You want these loose to install the gantry later)

NOTE: The 4x8 plasma table has a center support brace to install



Square the “J” channel to the angle iron



Installing the water bed. Place a block of wood underneath the angle iron to keep the water bed raised on the frame (You will need it raised to install the slat support bolts). Install the water bed in between the “J” channel.



Run a bead of silicone in each corner of the water bed



Install the slat supports and tighten the $\frac{1}{4}$ -20 bolts and nuts.

You may silicone the bolts if you plan to have water higher than the bolts in the bed.

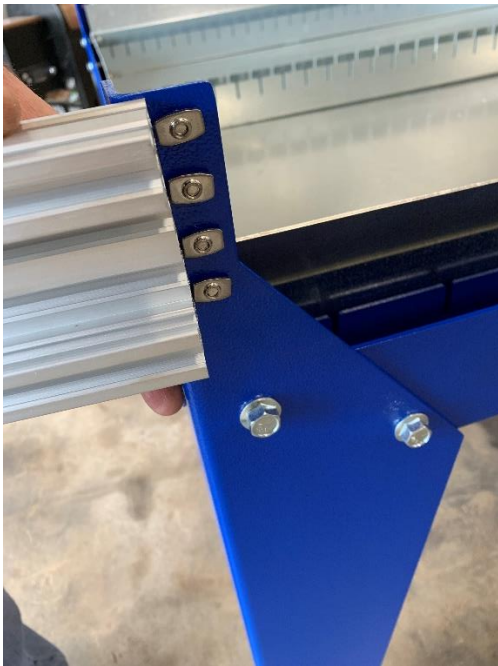
You may now remove the blocks of wood underneath the waterbed.



Using a M5 tap, tap the end holes in all (4) pieces of the c-beam aluminum extrusion



Install the m5x8mm button head screws and T-nuts into the holes on the frame legs, parallel with the “J” channel



**Install the c-beam rails onto the frame by sliding the rail through the t nuts.
Make sure the “C” slot is facing out**



Install (2) end caps on the front side of the machine. The front side of the machine will be the side that you make the end cap flush with the frame leg.

Make sure the belt slot of the end cap is on the bottom outside corner.

Do not install the rear end caps yet.



Install the m5 T-nut, belt clip, washer, and m5 hex head bolt into each side extrusion from the rear and slide them to the front.

Make sure you install them on the bottom outside slot.

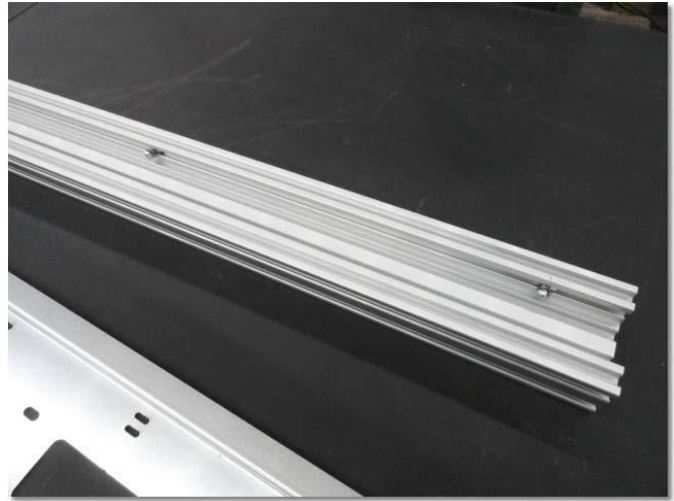
Do not install the rear belt clips yet.



Install the Y-axis homing switch on one of the side extrusions that you plan to put the cable track pan on. Slide the homing switch to the front of the extrusion like the above picture.



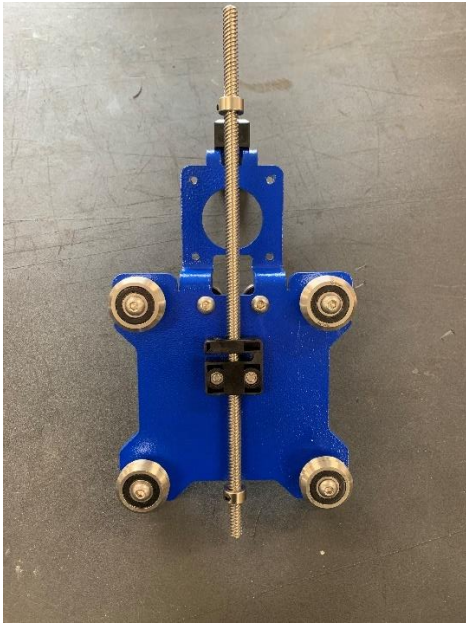
**Installing the cable track pan onto the gantry extrusion.
Place the cable track pan into the C-slot of the extrusion and center it.**



Mark the center of each opening of the cable track pan and then install the m5 t nuts, washers, and m5 bolts. You will then mount the cable track pan square and tighten the bolts.



Take the shortest piece of extrusion and install the lower bearing plate but leave these bolts loose. (Bearing flange inward)



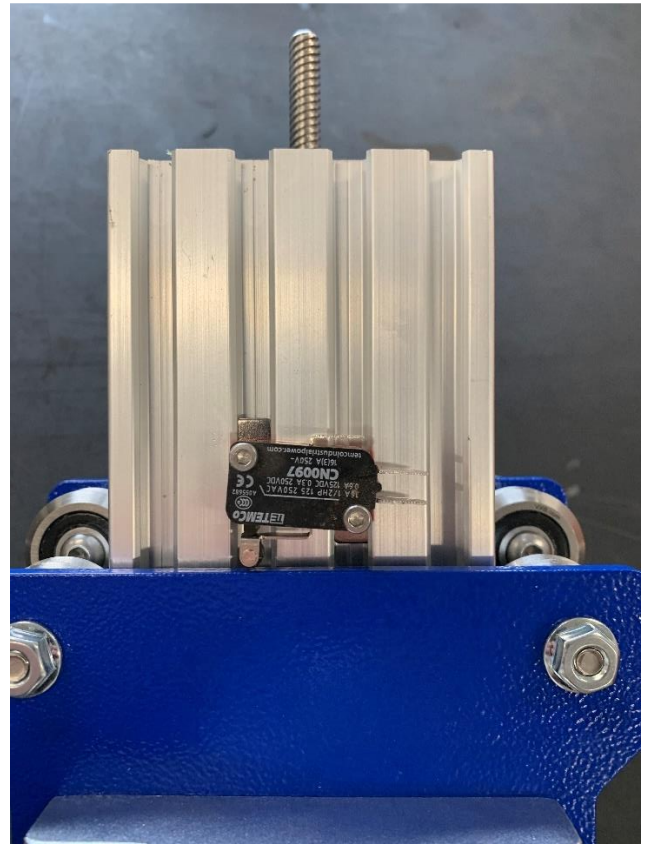
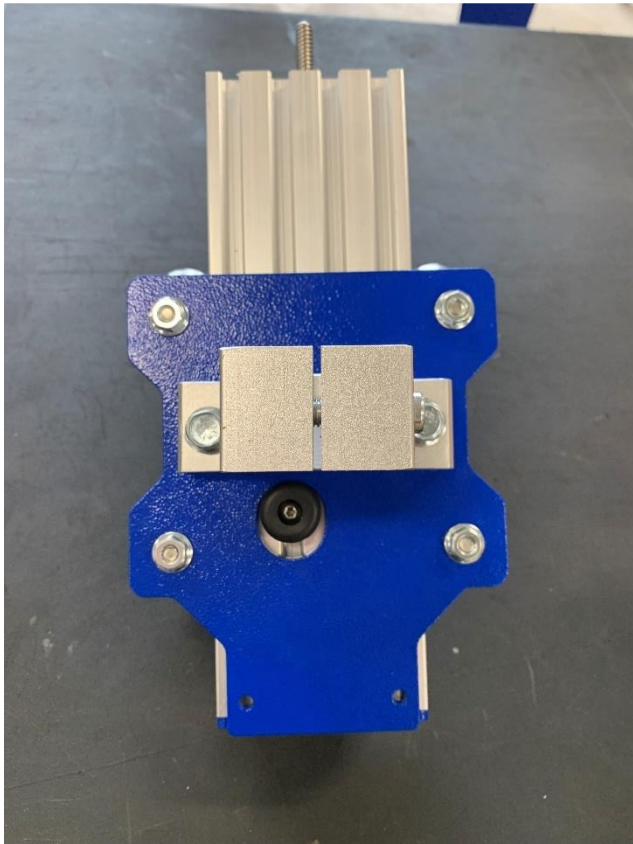
Thread the acme screw into the nut block and slide on the screw collars. You will then slide the short extrusion onto the front wheels of the Z axis carriage with the "C" shape inward. The hex wheel bushings can be adjusted with a 9/16" wrench. You want them just tight enough to where you can almost skid the wheels on the extrusion. The bushings should be preset before shipping but may require some adjustment.



The acme screw should be sticking out of the bottom bearing flange about 1/8". You can then tighten the lower screw collar flush against the lower bearing flange. You may now thread the Z carriage downward and then tighten the (6) lower bearing flange bolts.

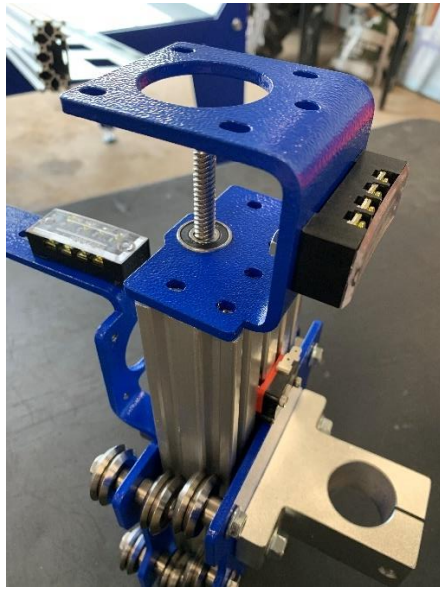


Install the torch mount plate onto the front side of the short extrusion while at the same time sliding the rubber bump stop and t-nut into the extrusion.

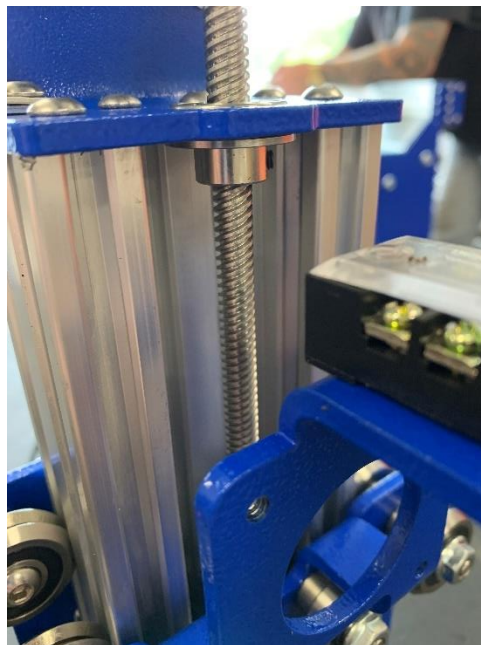


Slide the torch mount plate downward so that it is flush with the bottom bearing flange and then tighten the rubber bump stop.

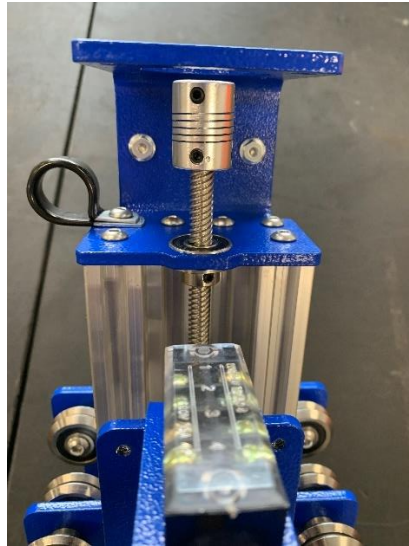
You may now install the floating head switch above the torch mount plate so that it is 1/16" from touching the plate. Make sure the switch looks square and carefully tighten the bolts.



Install the upper bearing flange/motor mount with the m5x8mm button head bolts. Make sure to install the P-clip with the m5x12mm bolt on the right side of the upper bearing flange.



Tighten the upper screw collar flush against the upper bearing flange. You can then raise the Z carriage and tighten the upper bearing flange bolts.



Install the flexible screw coupler to the acme screw.



Make sure that there is no play in any of the bearings. Tighten the eccentric bushings if necessary.



Slide the Z axis assembly onto the gantry extrusion.



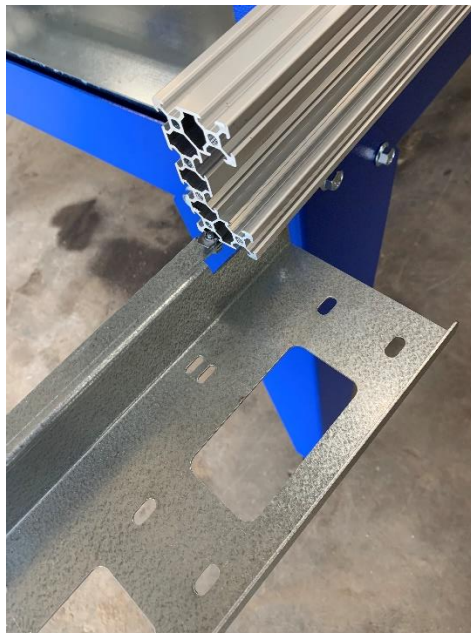
**Install a belt clip, t nut, washer, and m5 hex bolt on the bottom front of the gantry extrusion. (You will need a belt clip on each side of the extrusion)
Install the X axis homing switch onto the left front side of the extrusion.**



Install each side carriage with the m5x8mm button head bolts onto the gantry extrusion with the 45 degree angle facing forward.



Slide the gantry onto the side extrusions from the rear of the table. Make sure the v-wheels are centered on the slots of the extrusion. Tighten the rear frame bolts. Slide the gantry to the front of the table and tighten the front frame bolts.



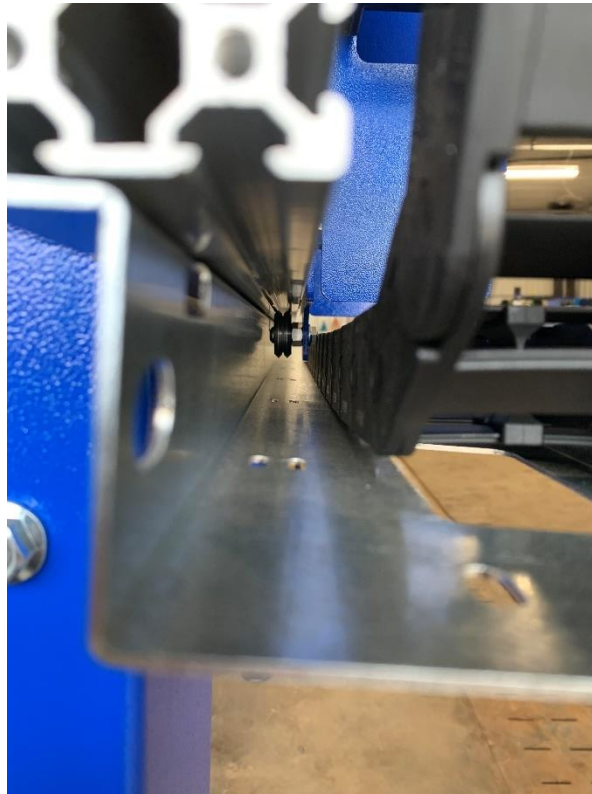
Install the cable track pan to the side extrusion using the t nuts, washers, and m5 hex bolts. **Make sure to install the pan on the same side that you installed the y axis homing switch. Also make sure to use the inside slot of the extrusion.**



Tighten the center bolt and leave the others loose for now.



Install the cable track with the end bracket that is at a 90 degree angle to the cable track links, on the side cable track pan. You will notice that one of the cable track pieces has an end bracket that is at a 90 degree angle. Make sure to press the cable track outwards against the pan as much as possible.



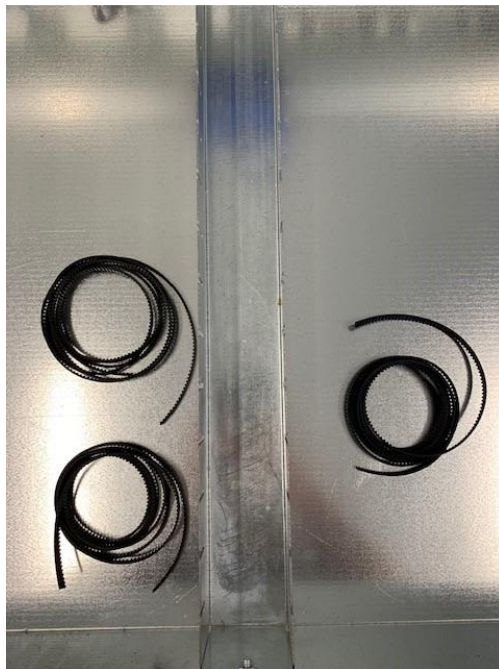
Slide the gantry back and forth to ensure that the bearing hardware does not hit the cable track or cable track pan. You may now tighten the rest of the pan bolts.



Install the rear belt clips, t nuts, washer, and m5 hex bolts to the bottom outside extrusion slot.



You may now install the rear end caps.
Make sure that the belt slots are in the lower outside corner.



Installing the belts. You will have (2) belts that are 69" for the side extrusions and (1) 76" belt for the gantry.

The 4x8 table will have (2) longer belts than the gantry belt.



Take one of the side extrusion belts and insert it with the grooves down into the hole in the side carriage and underneath the tensioner bearing.

Slide the belt down the extrusion slot.

Make sure the belt does not twist while feeding it through.



Slide the other end of the belt the opposite direction and to the end of the extrusion but make sure to leave a loop at the side carriage hole to mount the motor pulley.



Feed the belt through the slots on the end caps.



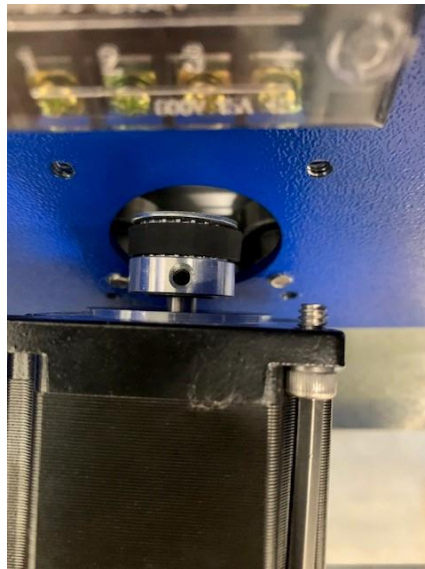
Feed the belt through the belt clip from the bottom side going through the middle slot, up and back through the first oval slot.



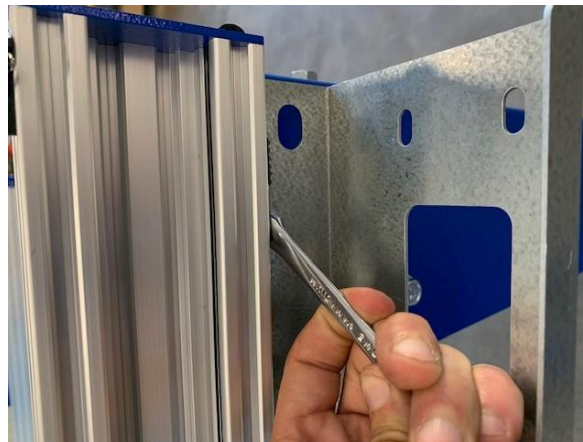
Using the m5 hex bolt, washer, and t nut, install the belt clip to the extrusion.



It is now time to install the stepper motors.



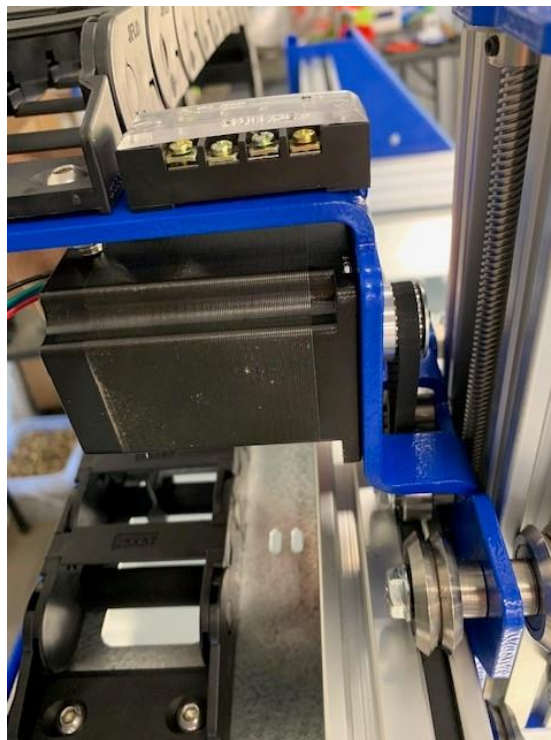
Install one of the motors with a pulley into the side carriage where you just installed the belt. Tighten the motor down with the 10-24 x 3/8" socket head cap screw.



**Pull the slack out of the belts and tighten the belt clips.
Repeat this belt installation on the opposite side.**



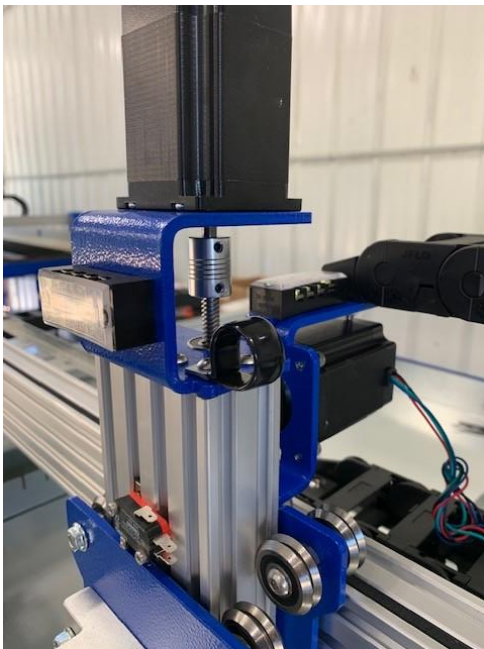
Install the X axis gantry belt. Feed the belt through the Z axis carriage underneath the tensioner belts. Make sure to leave a loop for the stepper motor pulley.



Install the X axis stepper motor



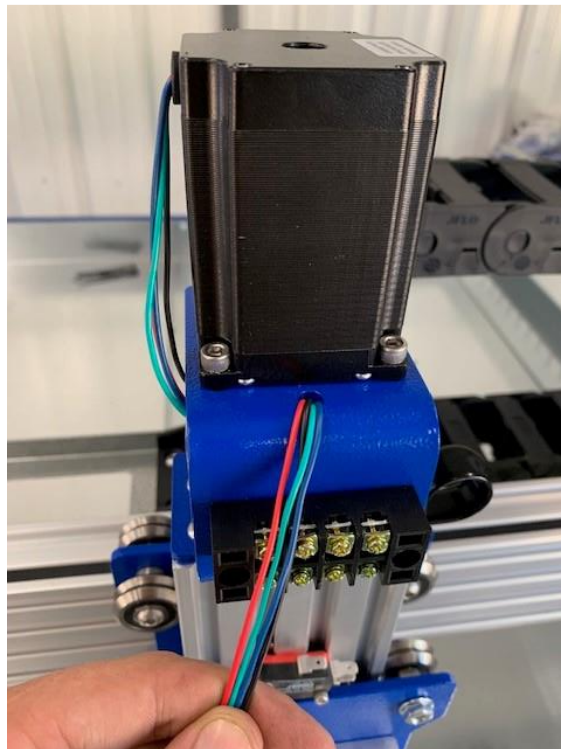
Feed the belt through the side carriage slots and install the belt clips underneath like before.



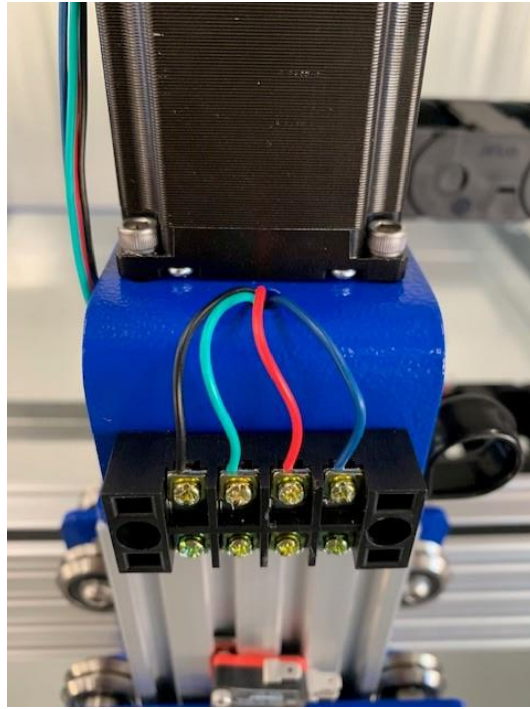
Install the Z axis motor and tighten the set crews on the flexible coupler. Make sure to have one of the set crews on the flat side of the motor shaft.



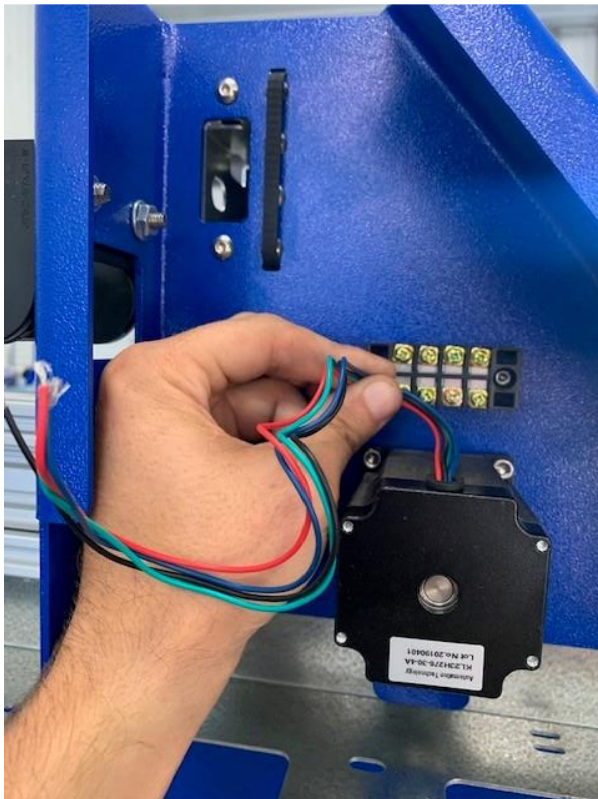
Tighten the 10-24 x 5/8" bolts with the 10-24 nuts



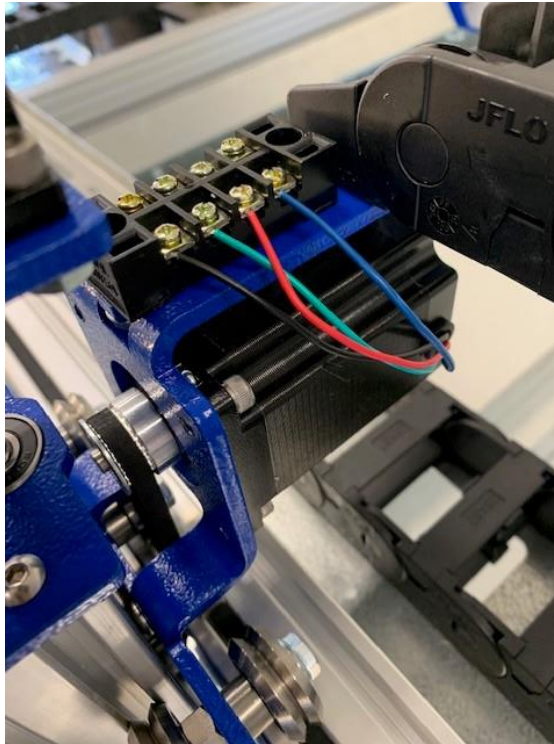
Feed the Z axis stepper motor wiring through the hole in the motor mount. You will be wiring it to this terminal block and can cut off any excess wire.



Wire the stepper motor wiring from left to right.
Black – Green – Red – Blue



Repeat the last step with the Y axis stepper motor which is on the side carriage that the cable track pan is on



Repeat the last step with the X axis stepper motor on the gantry.



Repeat the last step with the A axis stepper motor (The A axis is the second Y motor on the opposite side)

NOTE: THIS MOTOR NEEDS TO BE WIRED DIFFERENT THEN THE OTHER 3 SINCE IT HAS TO SPIN THE OPPSITE DIRECTION TO WORK WITH THE Y MOTOR.

FROM LEFT TO RIGHT

BLACK – GREEN – BLUE – RED



You can now install the motor wires. They are each labeled for which axis they go to. The X axis is going to be on the gantry for left and right movement. The Y axis is going to be the motor on the side that you mounted the cable track pan. The A axis will be on the opposite side. The Z axis is for up and down travel.



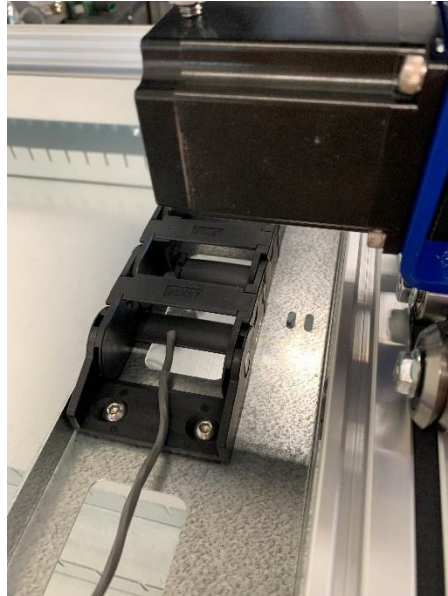
Slide the center dividers on both cable tracks to the outside.



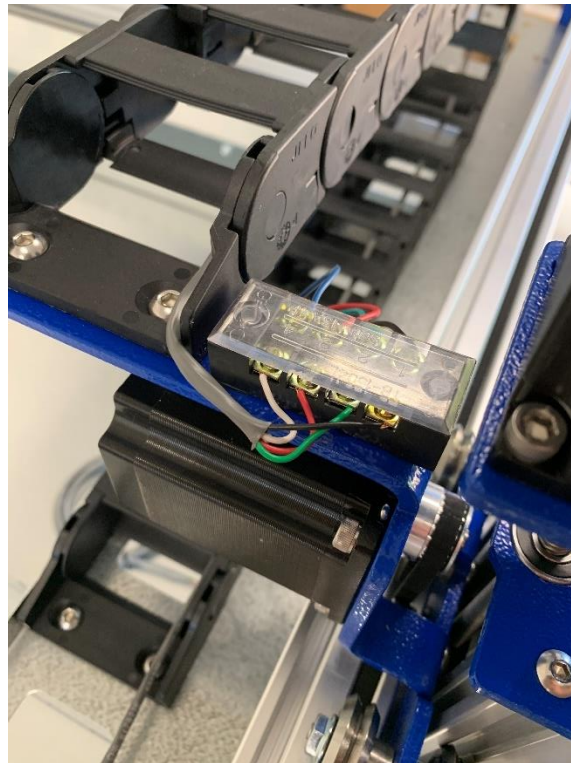
Start feeding the X axis motor wire through the side cable track.



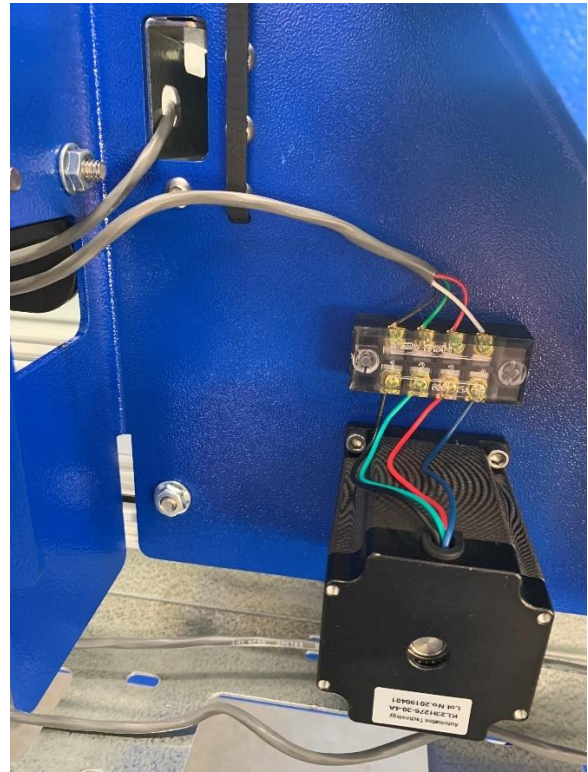
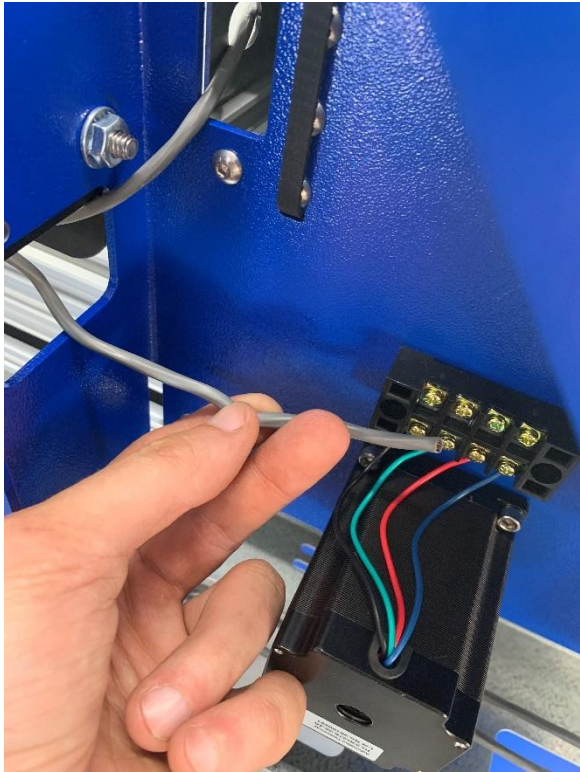
Feed the wire through the side carriage holes like pictured and up through the gantry cable track pan hole.



Feed the wire through the gantry cable track and up to the x axis motor.



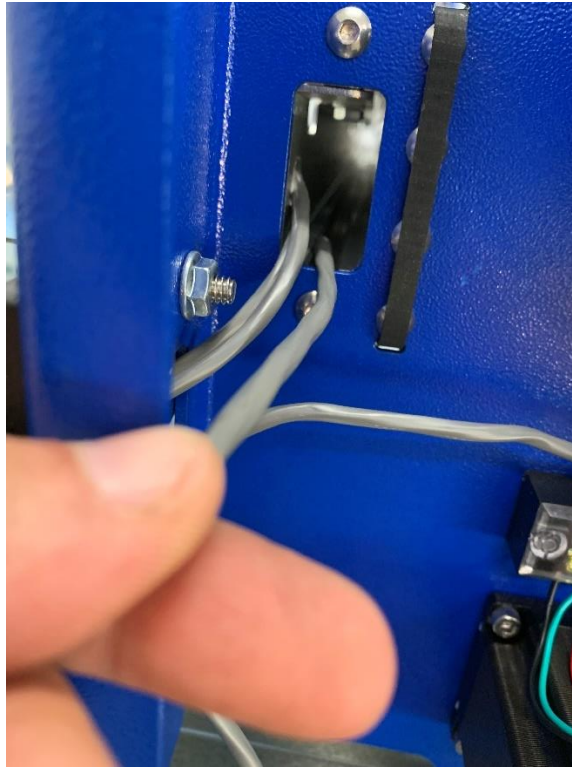
**Wire the x axis motor lead to the terminal block like pictured.
Black to Black, Green to Green, Red to Red, and White to Blue**



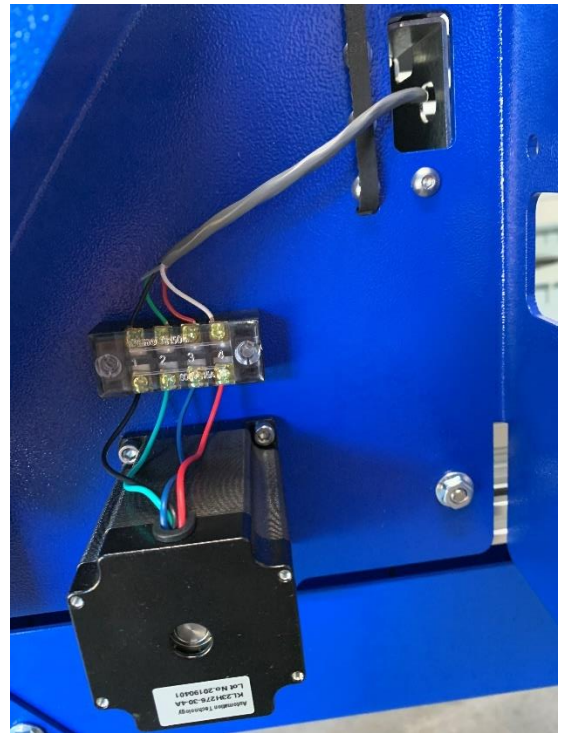
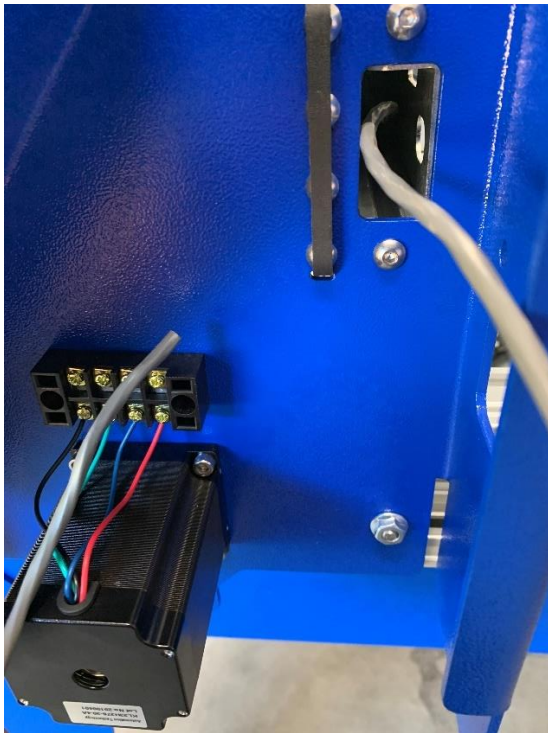
Feed the Y axis wire through the side cable track and directly to the Y axis motor. This should be wired like the X axis.



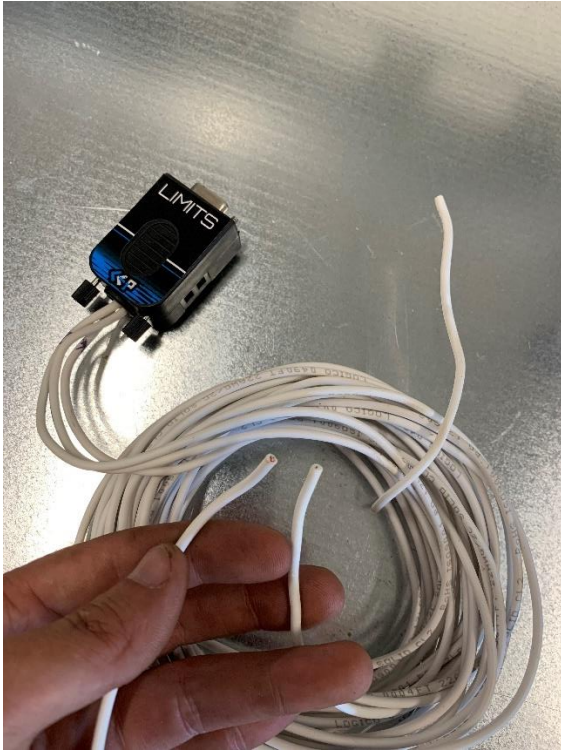
Feed the Z axis wire through the side carriage cable track, up through the holes to the gantry cable track and up to the Z axis motor. This should be wired like the X axis.



Feed the A axis wire through the side cable track. You will need to feed it all the way through the gantry extrusion to the other side. You may want to use a long rod to help feed it through.



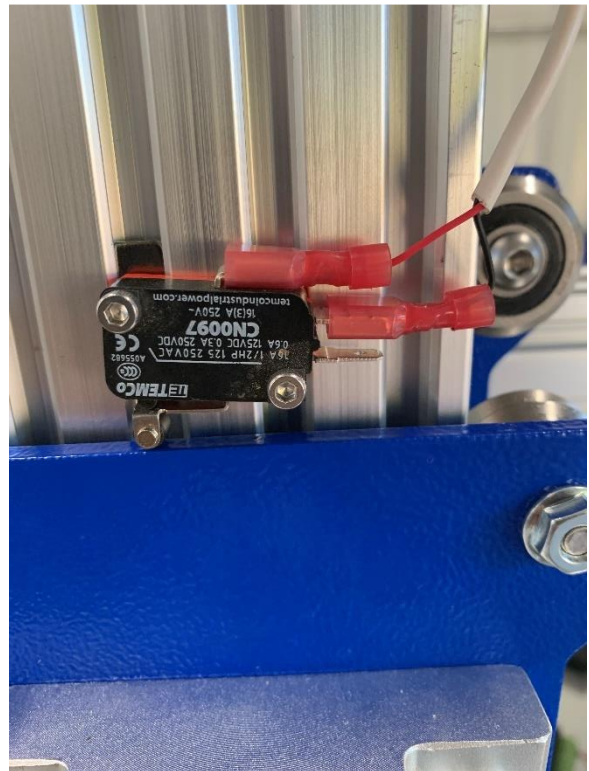
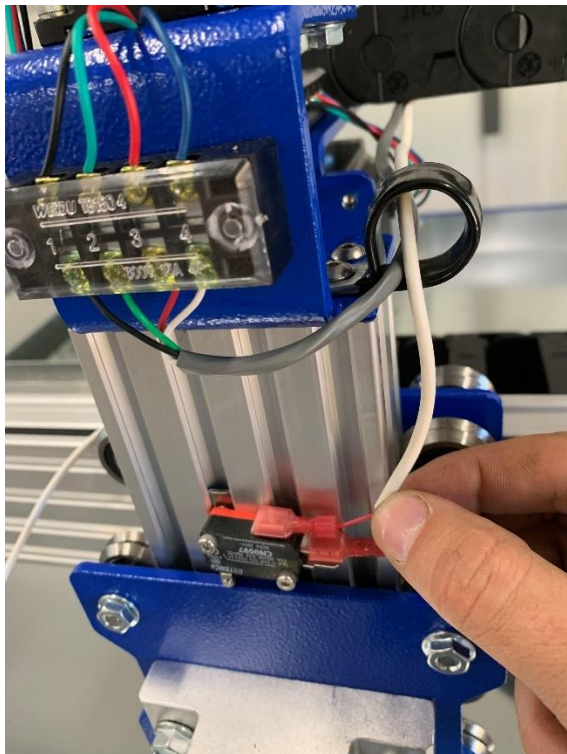
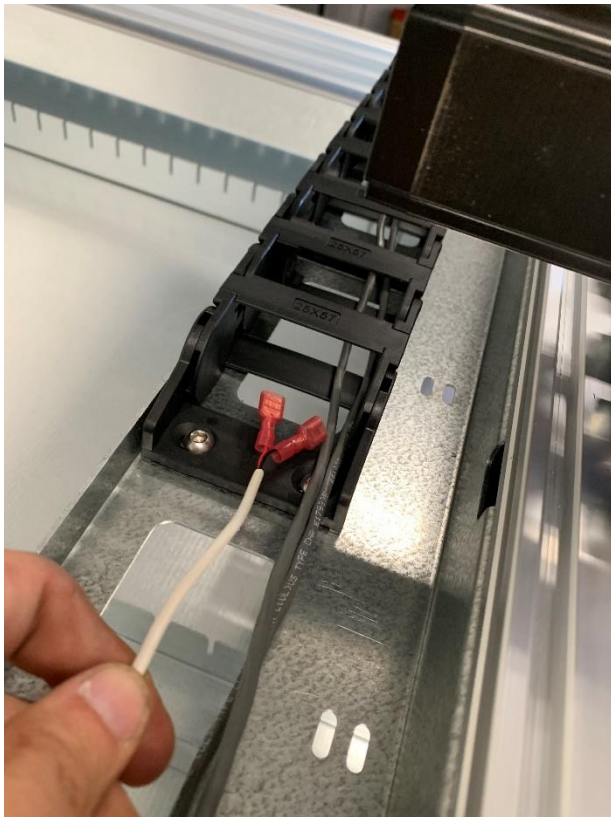
**Pull the A axis wire through the other side and wire it to the motor. This will need to be wired from left to right
Black to Black, Green to Green, Red to Blue, and White to Red**



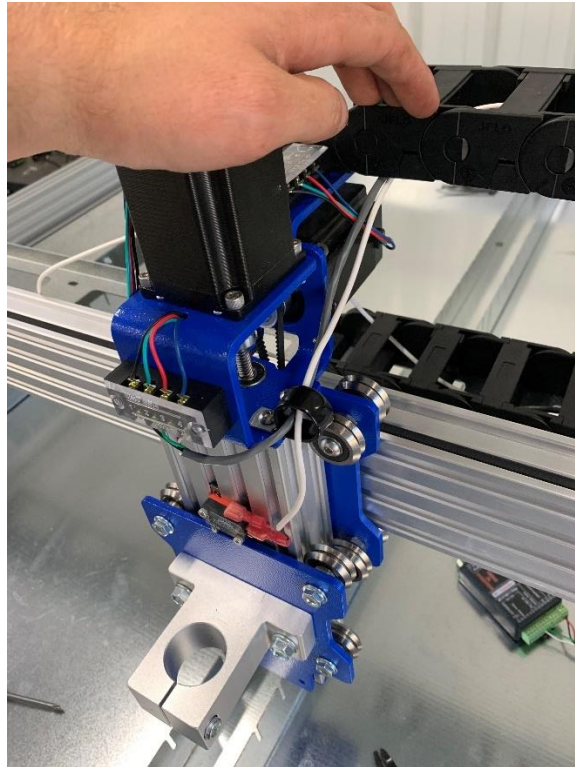
You will now need to wire the homing switches and torch touch off switch. Each wire is a different length so make sure to feed them to the right switch. The longest wire will go to the floating head switch which is on the Z axis above the torch mount. The second longest wire will go to the X axis homing switch on the left side of the gantry. The shortest wire will go to the Y axis homing switch in the front left corner of the machine.



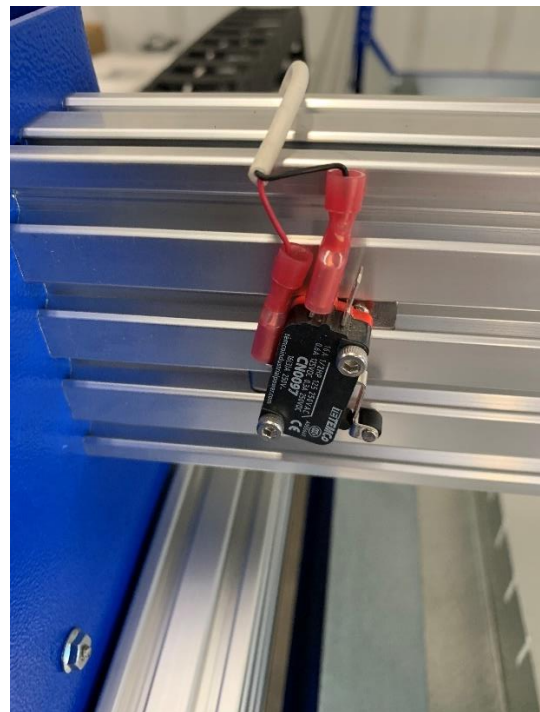
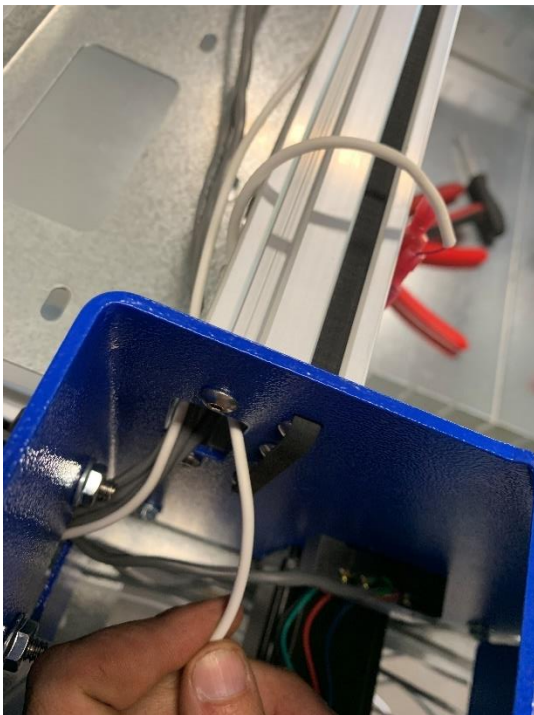
Feed the longest of the 3 wires up through the side cable track and up to the gantry cable track pan.



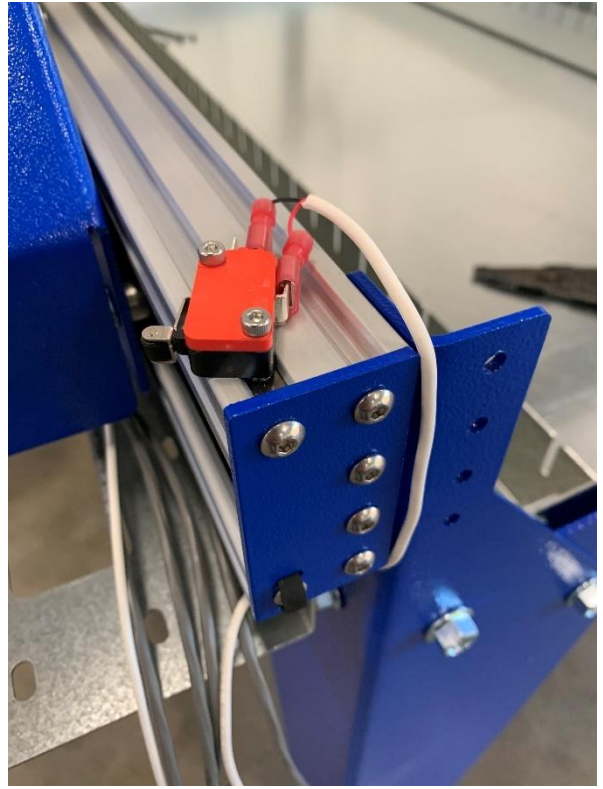
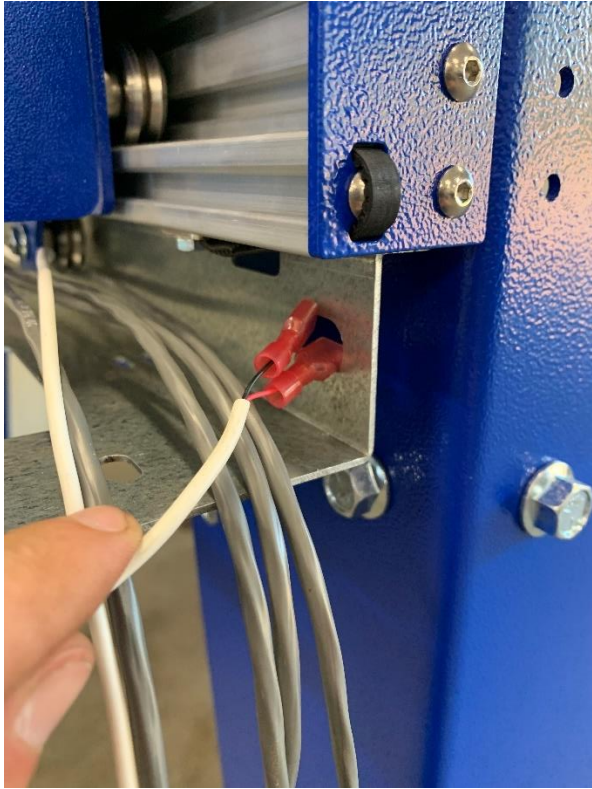
Feed the wire through the gantry cable track and through the P-Clip on the Z axis and wire the **red** wire to the bent terminal on the side and the black wire to the middle terminal



Push down on the Z axis so it travels to its lowest travel to make sure the wires have enough slack.



Feed the second longest wire to the X axis homing switch like pictured. Wire it the same as the floating head switch.



Feed the shortest homing switch wire to the Y axis switch like pictured. It will not go through any cable track.



You can now push the cable track center dividers over to the wire to make room for the torch cable.

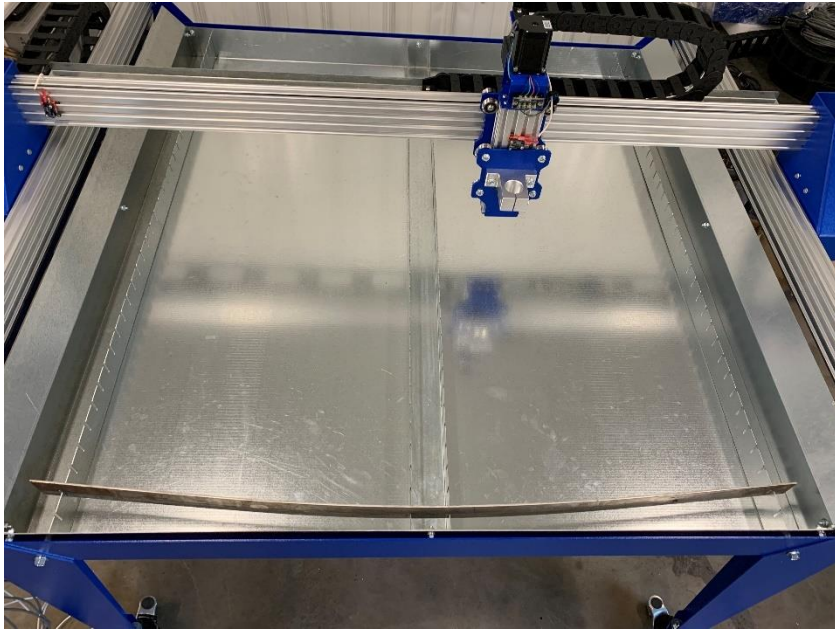
NOTE: Each link of the cable track can be popped open for routing the torch cable.



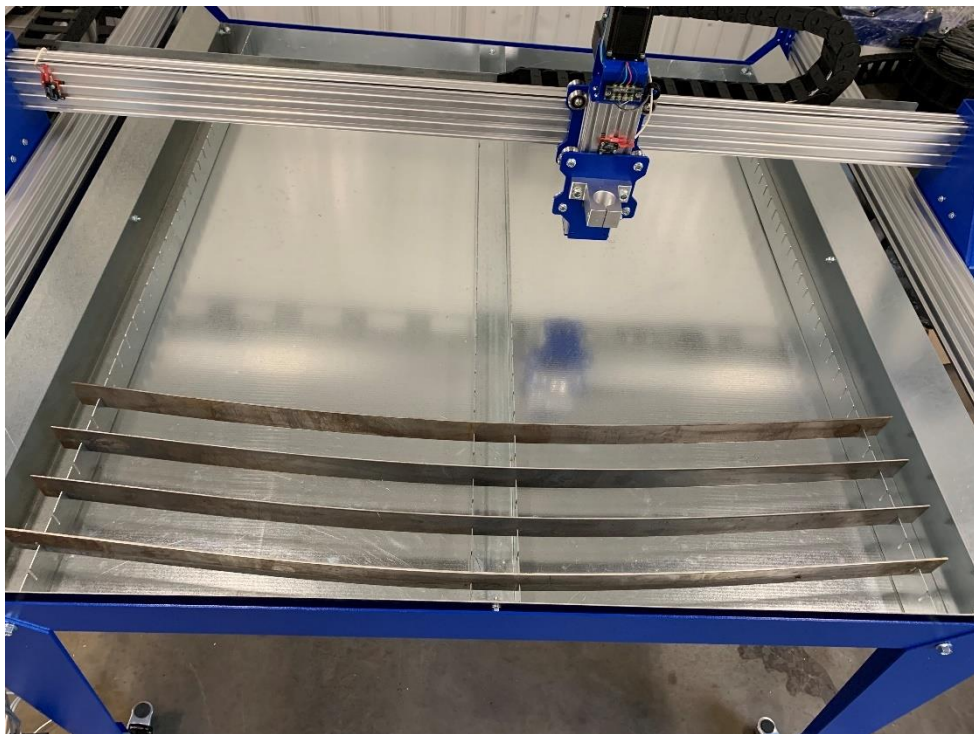
**Zip tie the wires to the inside slots of the cable track pans.
Your torch cable can be zip-tied to the outer slots.**



**Installing the slats. There are 16 slats included for the 4x4 and 32 slats for the 4x8.
They are 1/8 x 2 x 48" HRS. These will need to be replaced or flipped over time.**



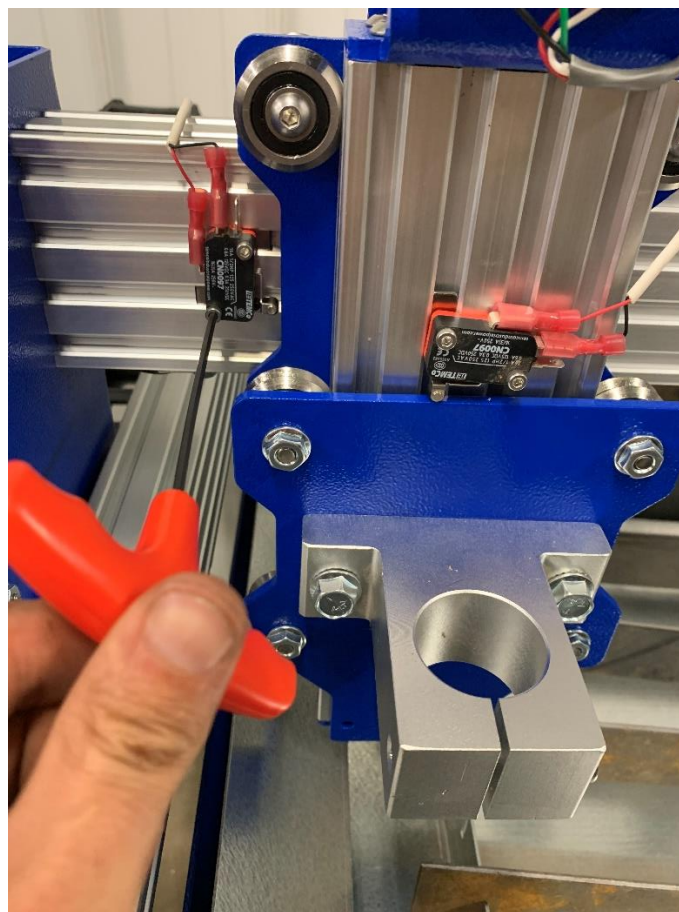
Start with one slat on the first center slot and the second slots on the sides so the slat is bowed.



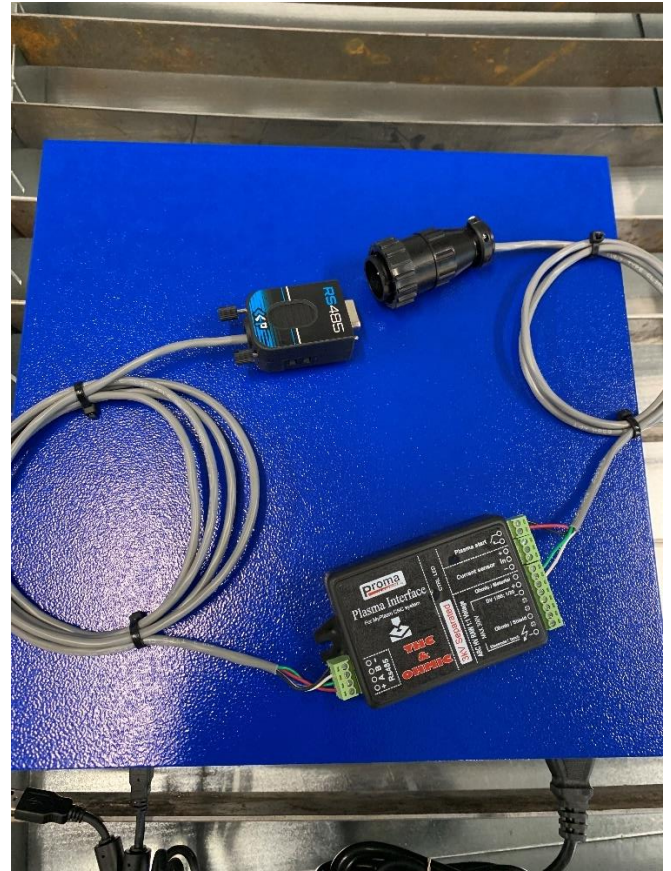
Skip every other slot and install until finished.



Finished slat installation



You may now slide the Z axis to the left side of the gantry until it almost runs out of travel. This is where you want to adjust and tighten the X axis homing switch.



This is what the control box and RS485 interface box is going to look like.

Everything is labeled and comes plug and play to the controller and plasma cutter if you have a CPC port. IF you do not have a CPC port like the round plug provided with the interface box, first check with the plasma cutter manufacture to see if they offer one. If not, you will need to cut the CPC plug off and wire the black and red wire to the torch on/off switch on your plasma cutter. If you want torch height control to work, then you will need to wire the green and white wire to the arc voltage wires on your plasma cutter. Hypertherm and some other manufactures have a voltage divider for reading 20:1 or 50:1 arc volts. You need to make sure you know if your plasma cutter has a voltage divider and if not, you will need to wire the green and white wire to raw arc voltage wires within your plasma cutter and switch the green and white wire on the interface box from 20:1/50:1 to raw arc volts.

This is to ensure your torch height control works correctly.

Optional add ons

Ohmic touch off



Ohmic touch off is a very nice feature when cutting thinner metal that bows. Instead of the floating head switch possibly pushing down on the metal before it activates, causing the pierce height to be incorrect and causing your torch to fire when still touching the metal. Ohmic sensor uses an electric signal so your torch just has to make contact with the metal to touch off.

Not all brands of plasma cutters offer an ohmic retaining cap but for those that do, you will need to install the ohmic retaining cap onto your torch, feed a wire with a spade connector from the ohmic retaining cap back through the cable track and to the Ohmic/Shield on the interface box. You will then need to jump a wire from the Ohmic/Material terminal to the DV 1/50; 1/20 + wire. (In the picture above, you will notice that the black wire is getting jumped to the green wire)

You will then need to go into the MyPlasm CNC software, go to configuration – functions, and turn on Ohmic touch off. If you have a sheet of metal on the table, you can test the ohmic sensor and also the floating head switch (When they are both checked, the floating head switch will be a back up). Jog your torch close to the metal (Less than an inch away), go back into Configuration-Functions and hit test. A properly configured function should be at the pierce height. Adjust the switch ohmic correction or switch correction until it is at an accurate pierce height. You are now set!

