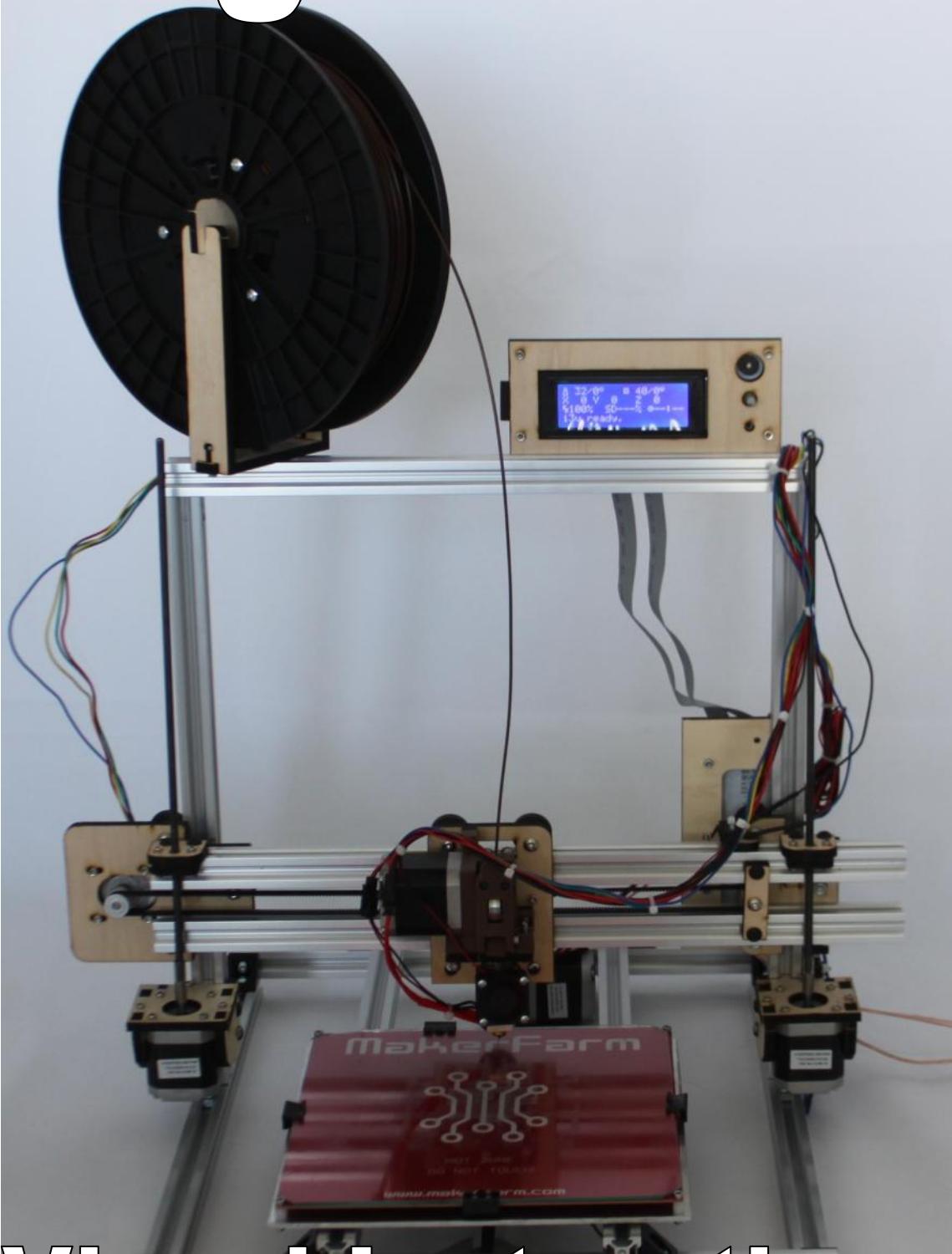


Pegasus 8"



Visual Instructions
MAKERFARM



Read before your build

Maker Farm Inc. Limited Warranty

1. Limited Warranty. Maker Farm Inc. (“MFI”) warrants to the original purchaser (the “Customer”) that the products purchased by Customer from MFI (the “Products”) are free from defects in material and workmanship for a period of thirty (30) days from the date of shipment to Customer for Products, unless otherwise specified by MFI. MFI will accept returns of any non-clearance, unopened, unused and unassembled item ordered directly from www.Makerfarm.com, after the warranty your purchase is final and no returns will be accepted. MFI charges a restocking fee of 20% of the purchase price (price of product, excluding tax and shipping), and in addition the buyer must pay all shipping charges (shipping charges on the initial purchase is not refundable). Once a kit has left our shop there is no way for us to know how it was handled. Therefore, only unopened, unbuilt, kits that have no evidence of an attempted build or use will be refunded less the 20% restock fee. Things like opened/unsealed plastic bags, any marks on the components, etc. Will result in no refund given on the kit. Should you purchase a kit and begin to assemble it, you will not be able to return that kit for a refund.

2. MFI’s Obligation. The sole obligation of MFI, at its option and without charge, is to repair, replace, or refund the original purchase price paid by Customer for, any Product or part, which MFI manufactures and which MFI agrees is defective. Repair parts or replacement Products may be new, remanufactured, or refurbished, at the sole discretion of MFI. All returned parts or Products that are replaced become the property of MFI.

3. Transfer of Other Warranties. In the case of equipment and accessories not manufactured by MFI, if a warranty is extended by the manufacturers thereof and transferable to Customer, MFI shall transfer such warranty to Customer.

4. Exclusions. MFI’s limited warranty provided herein does not cover: (i) normal wear and tear; (ii) transport damage; (iii) failure to follow operation or maintenance instructions; (iv) Customer’s negligent modification (including painting or staining wood pieces), disassembly or attempted repairs of the Product; (v) abuse, misuse or negligent acts; (vi) accidental or intentional damage; or (vii) cosmetic shortcomings which do not influence Product function.

5. Disclaimers. unless expressly set forth in this limited warranty, MFI makes no warranty of any kind whatsoever, express or implied, with respect to any products furnished hereunder. MFI expressly disclaims, where legally permitted to make such disclaimer, any warranties implied by law, including but not limited to any warranty of merchantability or fitness for a particular purpose.

6. Limitation of Damages. IN NO EVENT SHALL MFI BE LIABLE TO CUSTOMER FOR ANY INDIRECT, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, INCIDENTAL OR SPECIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, PROFITS, OR DOWN-TIME (HOWEVER CAUSED AND UNDER ANY THEORY OF LIABILITY, WHETHER THE BASIS OF LIABILITY IS BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY), STATUTE OR ANY OTHER LEGAL THEORY), EVEN IF MFI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. MFI’S TOTAL LIABILITY TO CUSTOMER, FROM ALL CAUSES OF ACTION AND UNDER ALL THEORIES OF LIABILITY, WILL BE LIMITED TO THE AMOUNTS PAID TO MFI BY CUSTOMER. THESE LIMITATIONS SHALL APPLY NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY. THE REMEDIES UNDER THIS LIMITED WARRANTY ARE CUSTOMER’S SOLE AND EXCLUSIVE REMEDIES.

7. Return Merchandise Authorization (RMA) Process for Defective Products.

7.1 A Return Merchandise Authorization (“RMA”) number must be obtained from MFI before Customer can return any Product to MFI for warranty service. An MFI representative will gather the appropriate account and Product information and verify warranty status. MFI must receive notification of the need for warranty service before the end of the applicable limited warranty period. The RMA number must be included on the outside packaging of the returned Product. To obtain an RMA number, please contact MFI by email as follows: elderfarrer@gmail.com

7.2 Any approved RMA should be considered provisional, based on verification of in-warranty status when the Product is received at MFI. If MFI determines that the Product is out-of-warranty, Customer will be notified. At the Customer’s discretion, MFI will either scrap the out-of-warranty Product or return it to Customer.

7.3 Customer is responsible for all shipping charges for RMAs to MFI, and MFI is responsible for all shipping charges to return the Product or its replacement to the Customer. Standard Shipping is used to return products to Customers.

7.4 MFI will typically not decide whether to repair, replace, or refund the purchase price for, any returned Product until the returned Product is received at MFI and the warranty status is confirmed.

7.5 Under special circumstances, if the Customer would like to expedite the RMA process, MFI may agree from time to time to cross-ship a replacement Product after the issuance of an RMA number but before receipt of the returned Product, but MFI shall not be obligated to do so. Cross-ship orders require a valid credit card number or credit account to secure the MFI Product. The Customer’s credit card or credit account will be credited if MFI receives the returned Product within fifteen (15) days of the date on which MFI ships the replacement Product, and provided further that the returned Product was in-warranty.

8. Discontinuance of Products. Notwithstanding any language in this limited warranty to the contrary, MFI shall have the right to discontinue the availability of any Product or components or replacement parts therefor, or to make design changes or improvements in the Products at any time and such discontinuance or change shall not constitute a breach of warranty, or result in liability for MFI under any legal theory whatsoever. MFI shall have no obligation to retrofit, change or improve Products purchased by Customer prior to the discontinuance or change.

9. Other Rights. This limited warranty gives you specific legal rights, and you may also have other rights which vary from State to State, and from Country to Country.

9.1 EXCEPT TO THE EXTENT LAWFULLY PERMITTED, THIS LIMITED WARRANTY DOES NOT EXCLUDE, RESTRICT OR MODIFY STATUTORY RIGHTS APPLICABLE TO WHERE THE PRODUCT IS SOLD, BUT RATHER IS IN ADDITION TO THESE RIGHTS.

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Troubleshooting Guide: [Download](#)

Parts List

Pegasus 8"

This Guide has Hyper links, to use them please click File then Download and open the PDF in your PDF Viewer, if you view the Guide online the Hyper links will not function

Thank you for purchasing the Pegasus 8" Kit. To complete your build you will need a couple other items.

Piece of Glass: 215mm X 215mm then break the corners off to avoid hitting the bolt heads (2.5mm to 3.5mm Thick, most hardware stores will cut it to the size you need, Inside the USA Lowes or Home Depot)

Power Supply: <http://openbuildspartstore.com/12v-30a-power-supply/>

(Get the wire kit also), if the power supply is out of stock you can get any good quality 12v 30amp power supply and 15 feet of 16awg speaker wire.

Insulation: Any insulation that can withstand temps of 120c will work, many people use a Fire Blanket

Hairspray: This will be used as a print surface on top of the glass, Garnier Fructis Extreme #5 is the best print surface, but others have used Blue Painters tape for PLA, Glue Stick or an ABS Slurry.

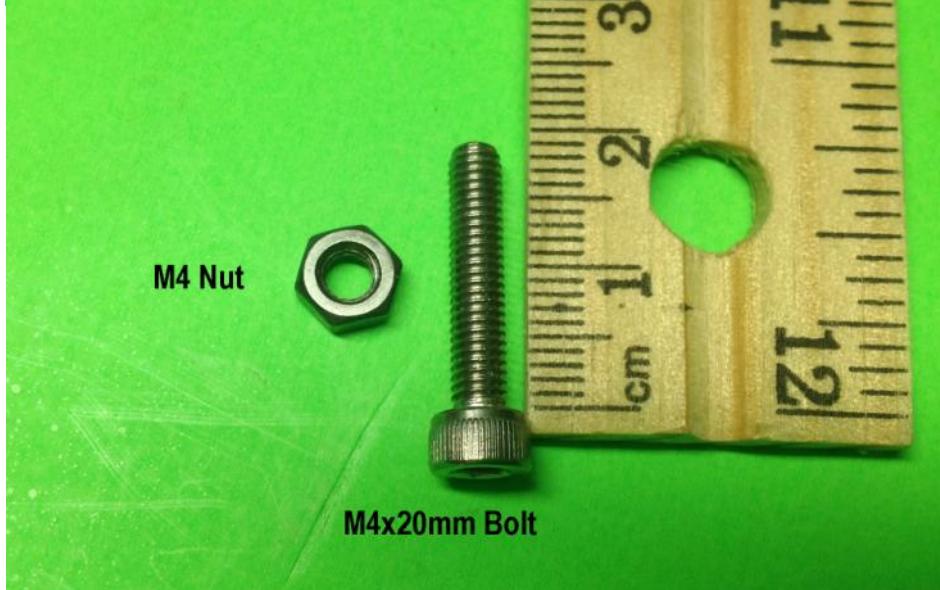
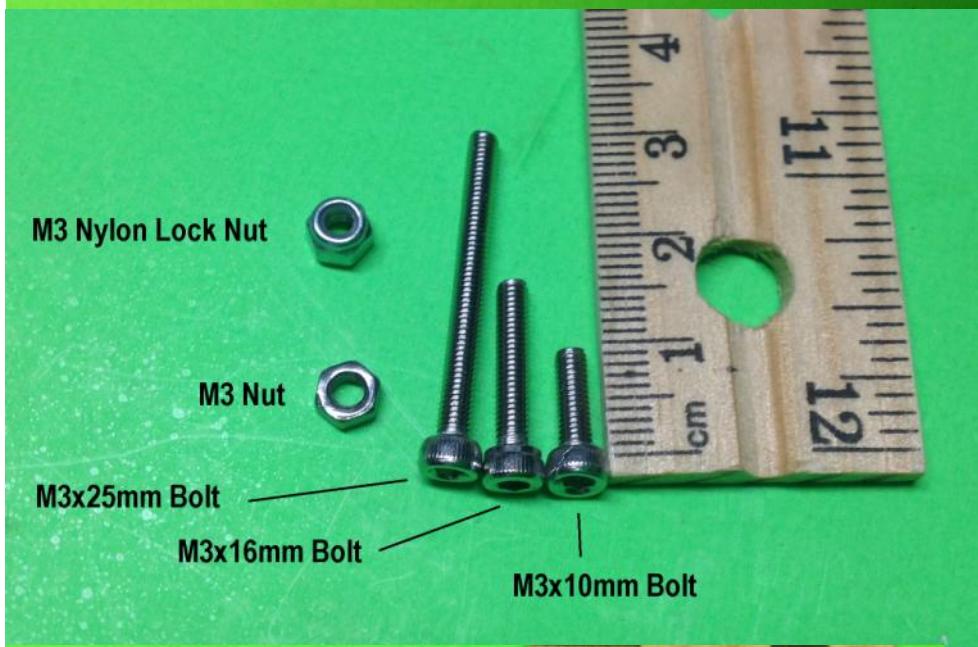
You may also want some filament to print with after you have built your printer. Makerfarm.com does sell filament and if you purchase it with your kit you will receive a discount. If you want to purchase your filament somewhere else make sure you get high quality filament, poor quality filament (Amazon and eBay) will jam and cause problems.

At any time if you have any questions feel free to e-mail or chat via google chat:
elderfarrer@gmail.com

Thanks,
Colin Farrer



Hardware



Hardware



Bed Spring

Eccentric Spacer MR125 Bearing



PreBuilt Derlin Idler

Aluminum
Standoff



X Motor Assembly

Gather the following parts

1 x Wood X motor Bracket

1 x Nema 17 Motor

1 x Gt2 Gear with Set Screw

4 x M3x10mm Bolts

3 x Delrin Idlers

1 x Eccentric Spacer

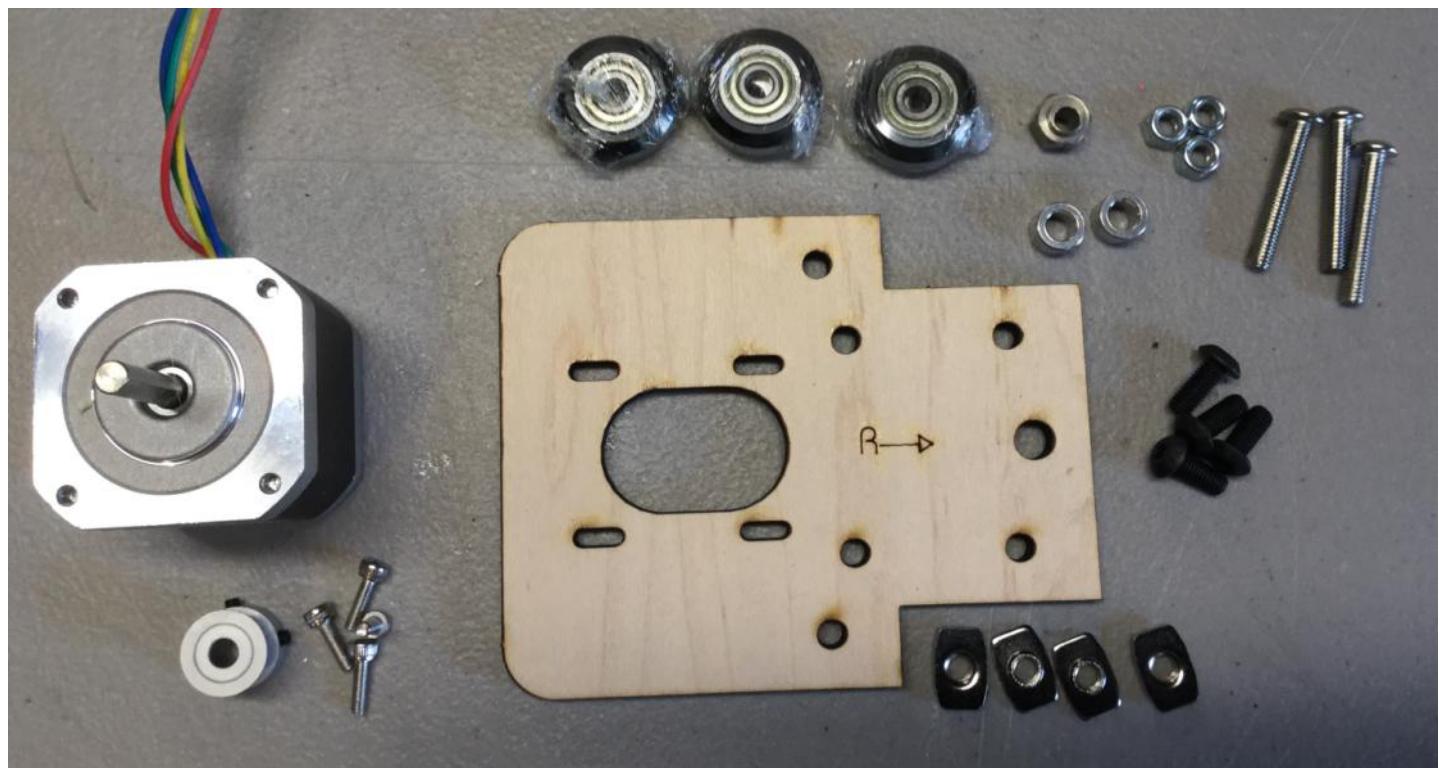
2 x Aluminum Spacers

3 x M5 Nylon Lock Nut

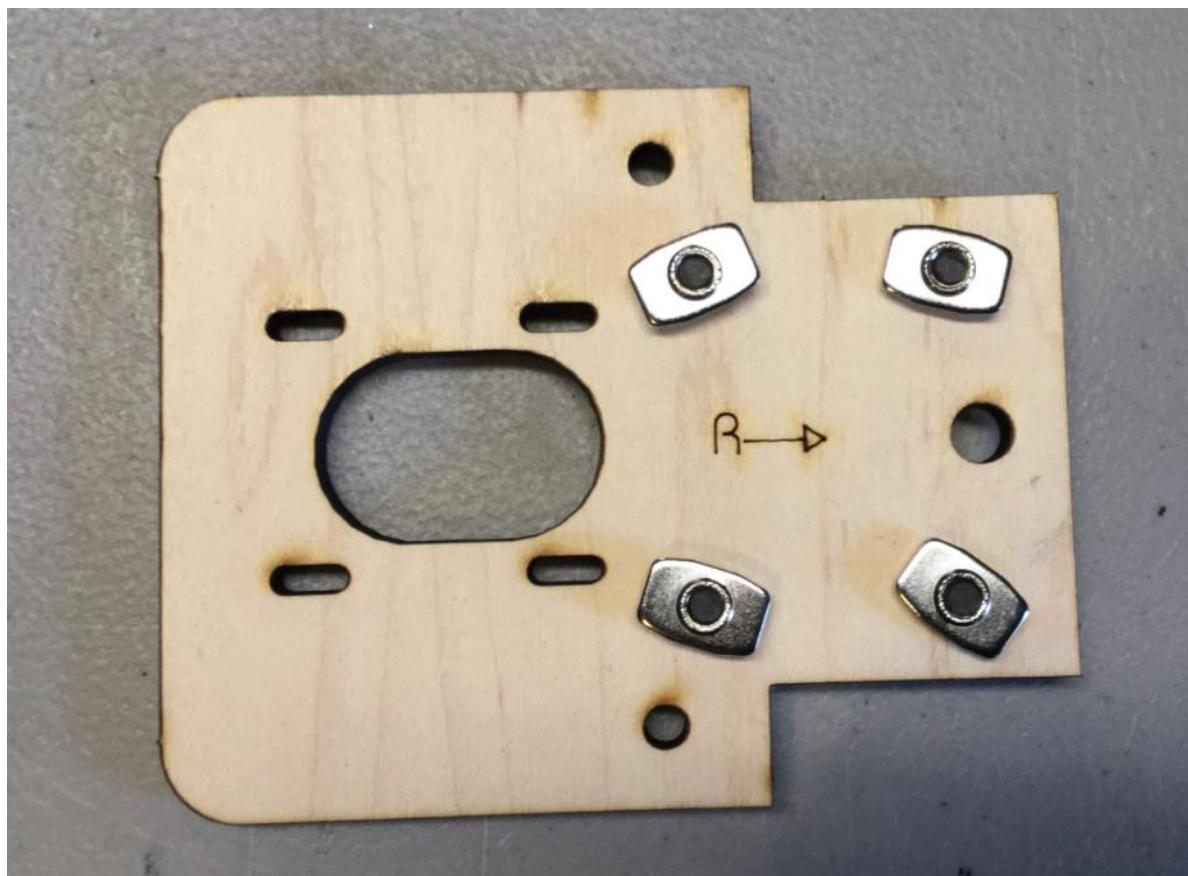
3 x M5x30mm Bolts

4 x M5x12mm Bolts

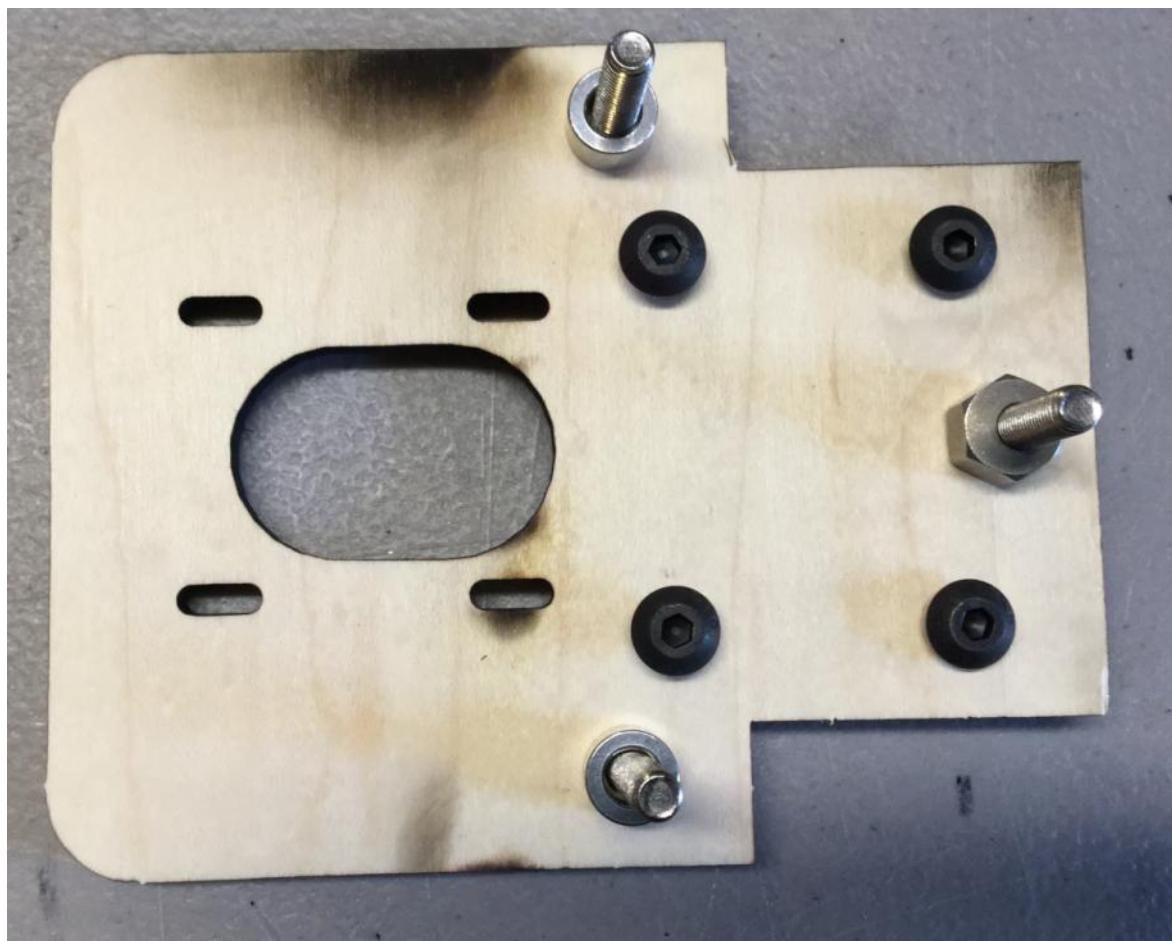
4 x T-Slot Nuts



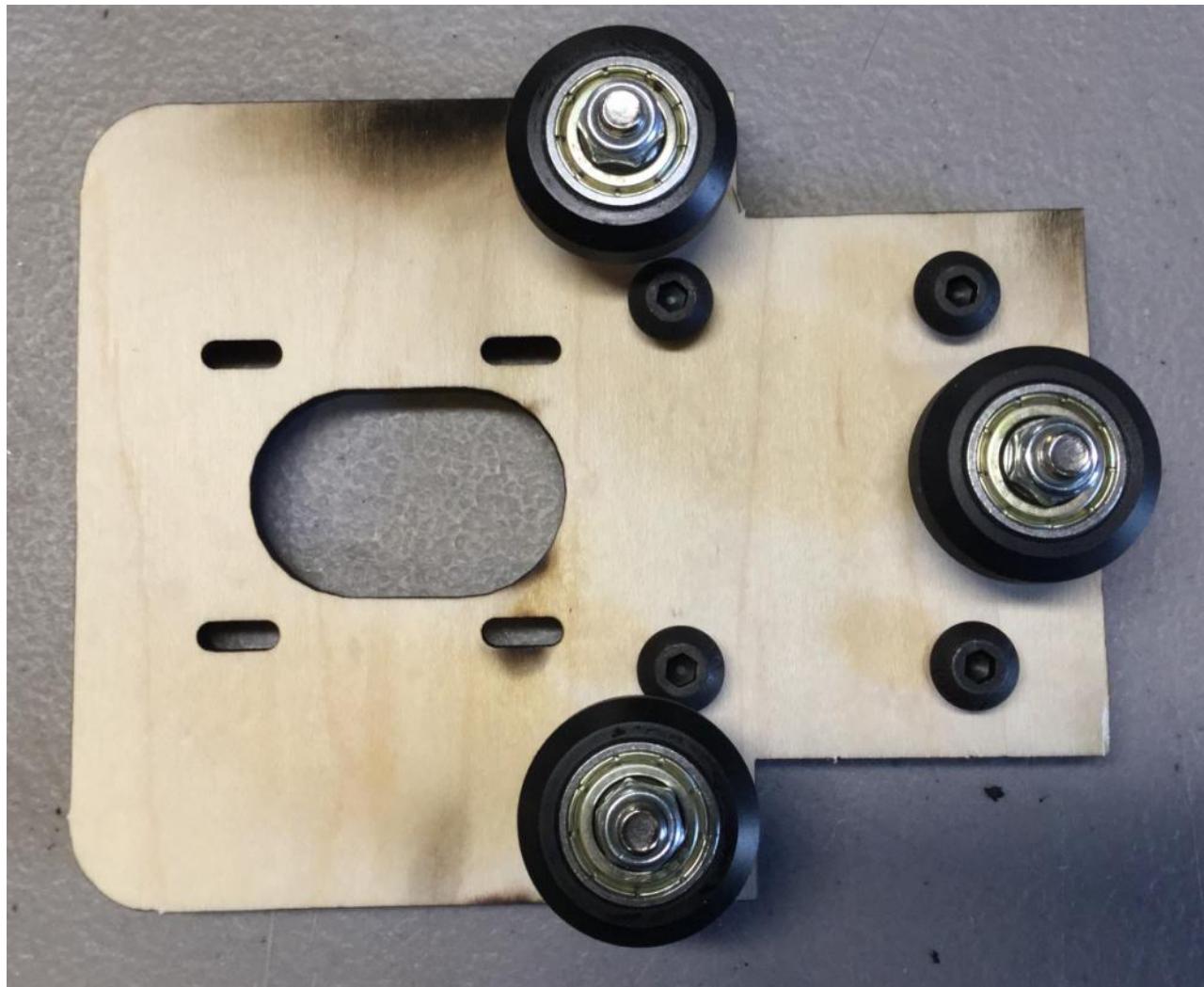
Install 4 M5x12mm bolts in to the wood from the back then install a T-Slot Nut on each of the 4 bolts (Notice the T-Slot Nuts go on the side with the R->)



Flip the Now Install 3 M5x30mm bolts as shown below, then flip the wood over and install an eccentric spacer on the right, push it into the wood and two Aluminum Spacers on the left two bolts.



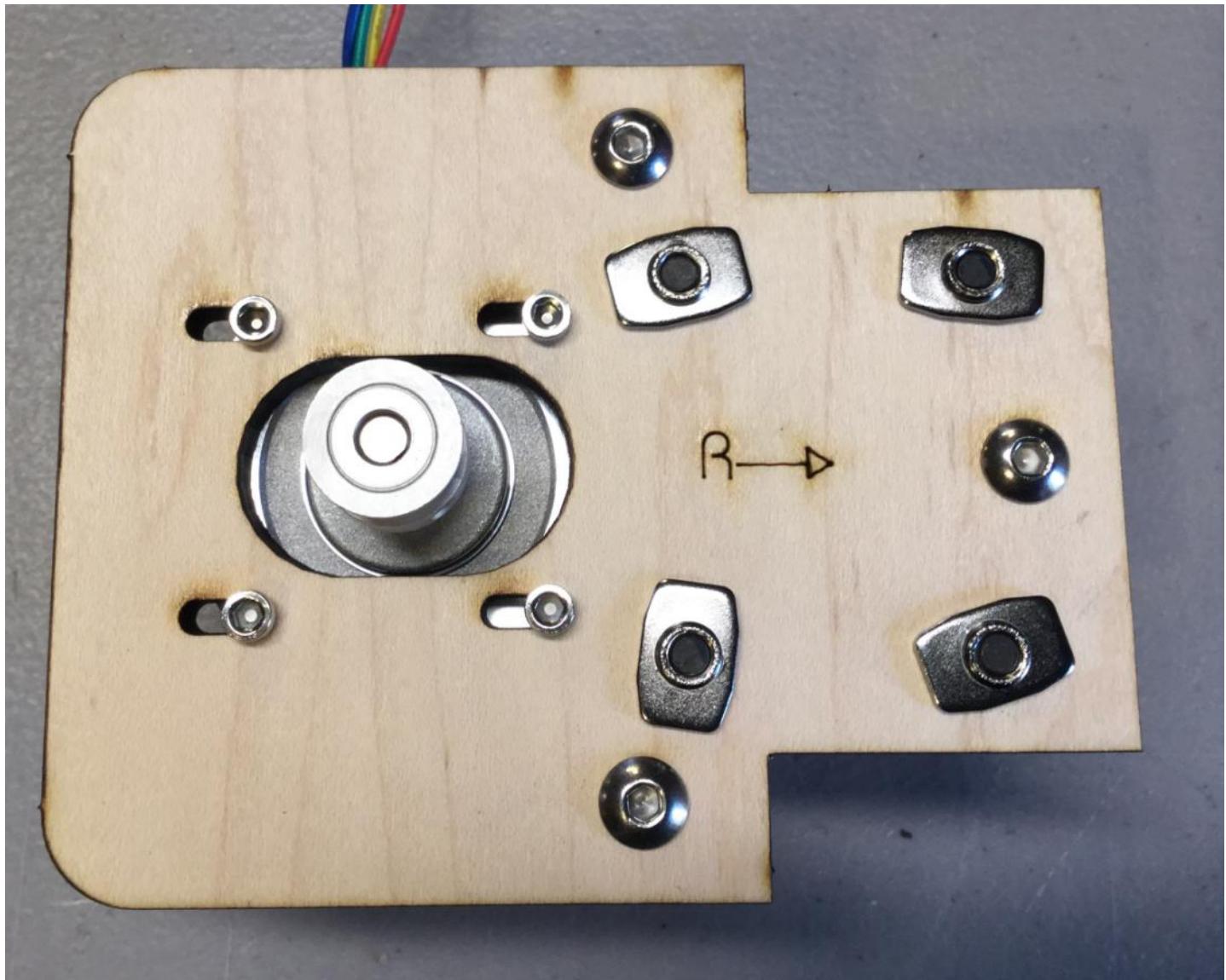
Next Install a Delrin Idler on each of the 3 M5x30mm long bolts then install a Nylon Lock Nut on the 3 bolts and tighten them down. Make sure the delrin still turns freely.



Install the GT2 Gear onto the Motor using the set screw, make sure the set screw hits the flat spot of the motor shaft.



Flip the wood piece back over so you can see the R->, install the motor using the 4 M3x10mm bolts, but leave the bolts somewhat loose at this time. Have your motor wires come out of the top of the X Motor Bracket.

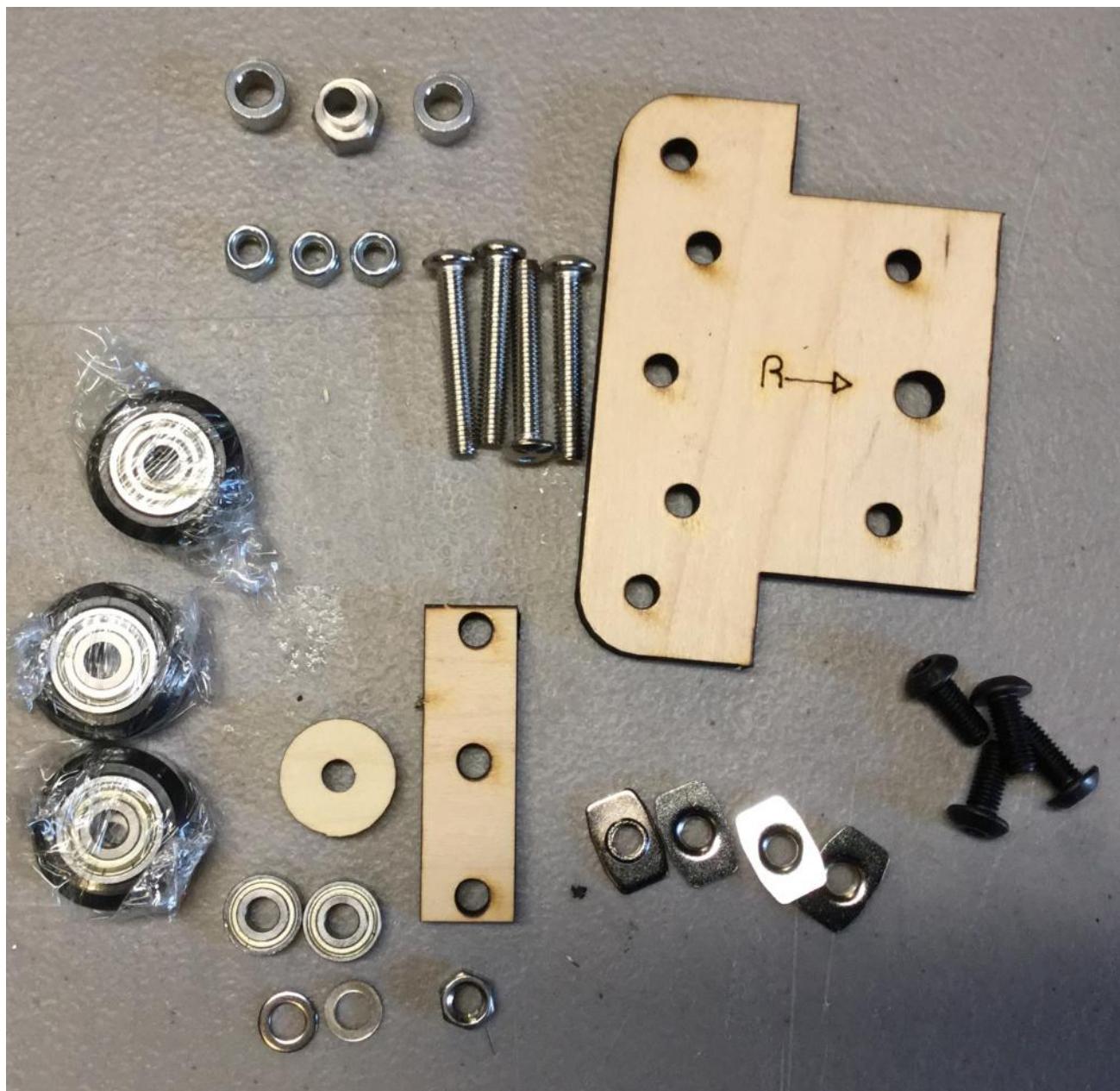


X Idler Assembly

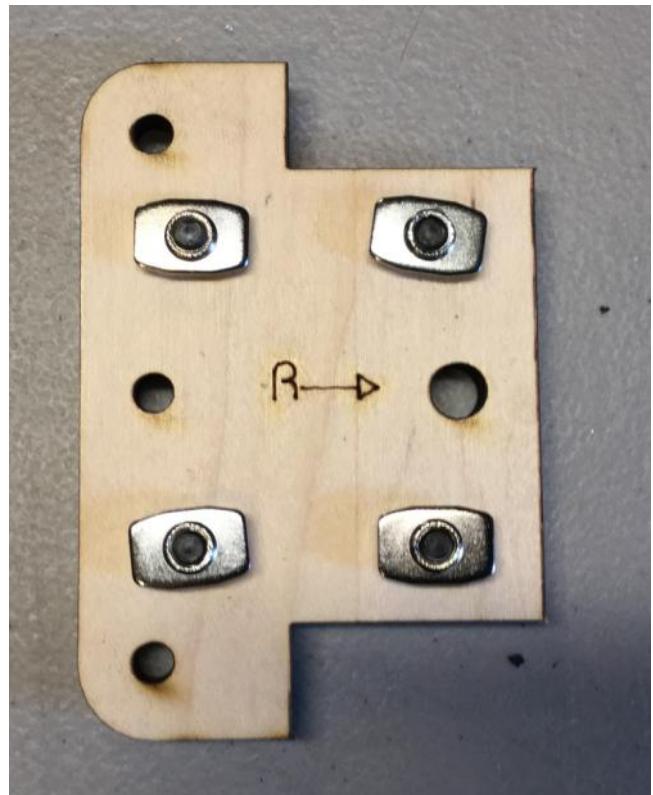
X Idler

Gather the following parts

- 1 Set of X Idler Wood parts (Pictured Below)**
- 3 x Pre Assembled Delrin Idler's (Black Wheel)**
- 2 x MR125 Bearings**
- 3 x M5 Washers**
- 4 x M5x30mm Bolts**
- 3 x M5 Nylon Locknuts**
- 1 x M5 Nut (Regular)**
- 4 x M5x12mm Bolts**
- 2 x Aluminum Standoff**
- 1 x Eccentric Spacer**
- 4 x T-Slot Nuts**



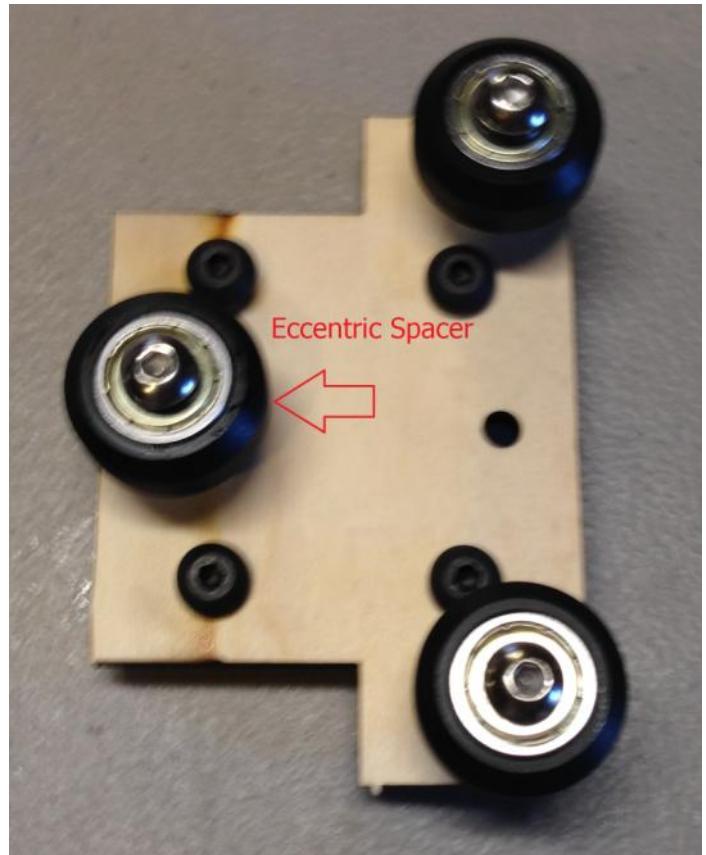
Next Install 4 of the M5x12mm bolts from the back side then flip the wood piece over and install the 4 T-Slot nuts leaving them loose.



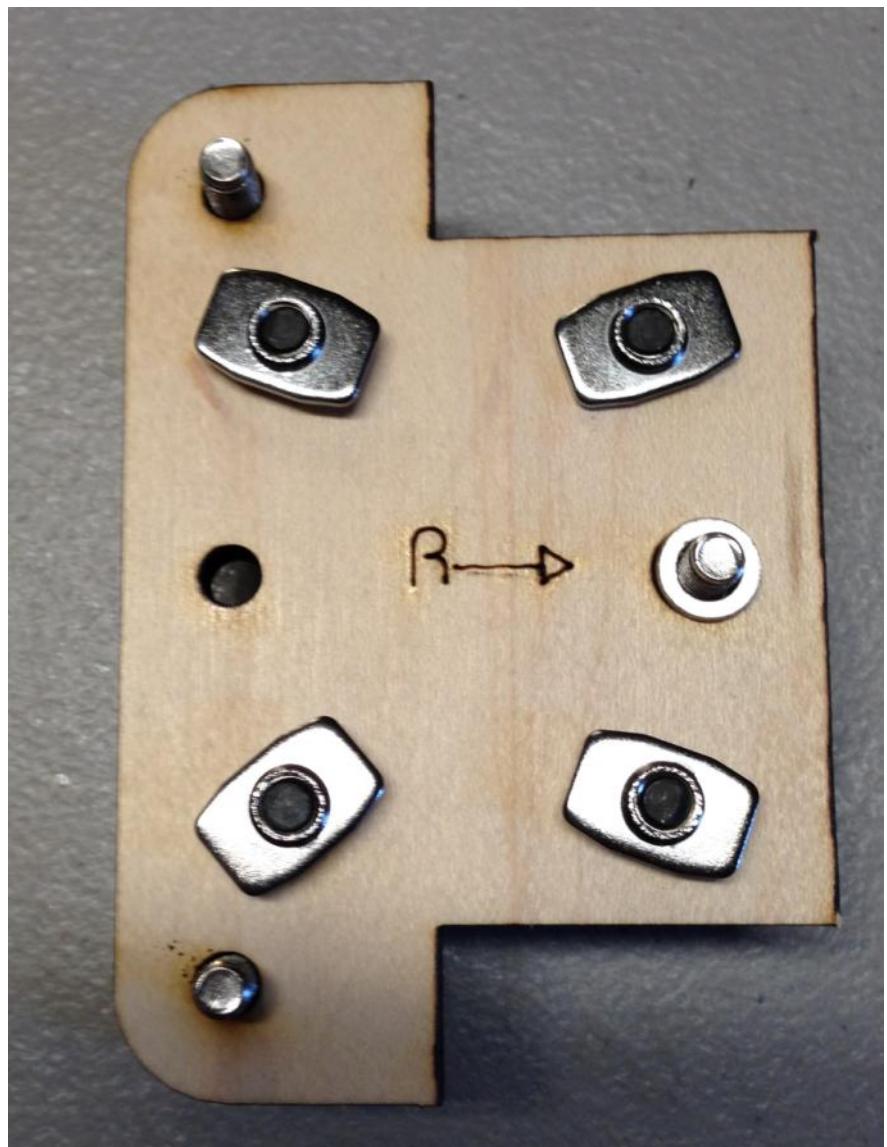
Get 3 Pre Assembled Delrin Idlers, 3 M5x30mm Bolts and two Aluminum Standoffs, install the bolts and aluminum standoffs as shown below



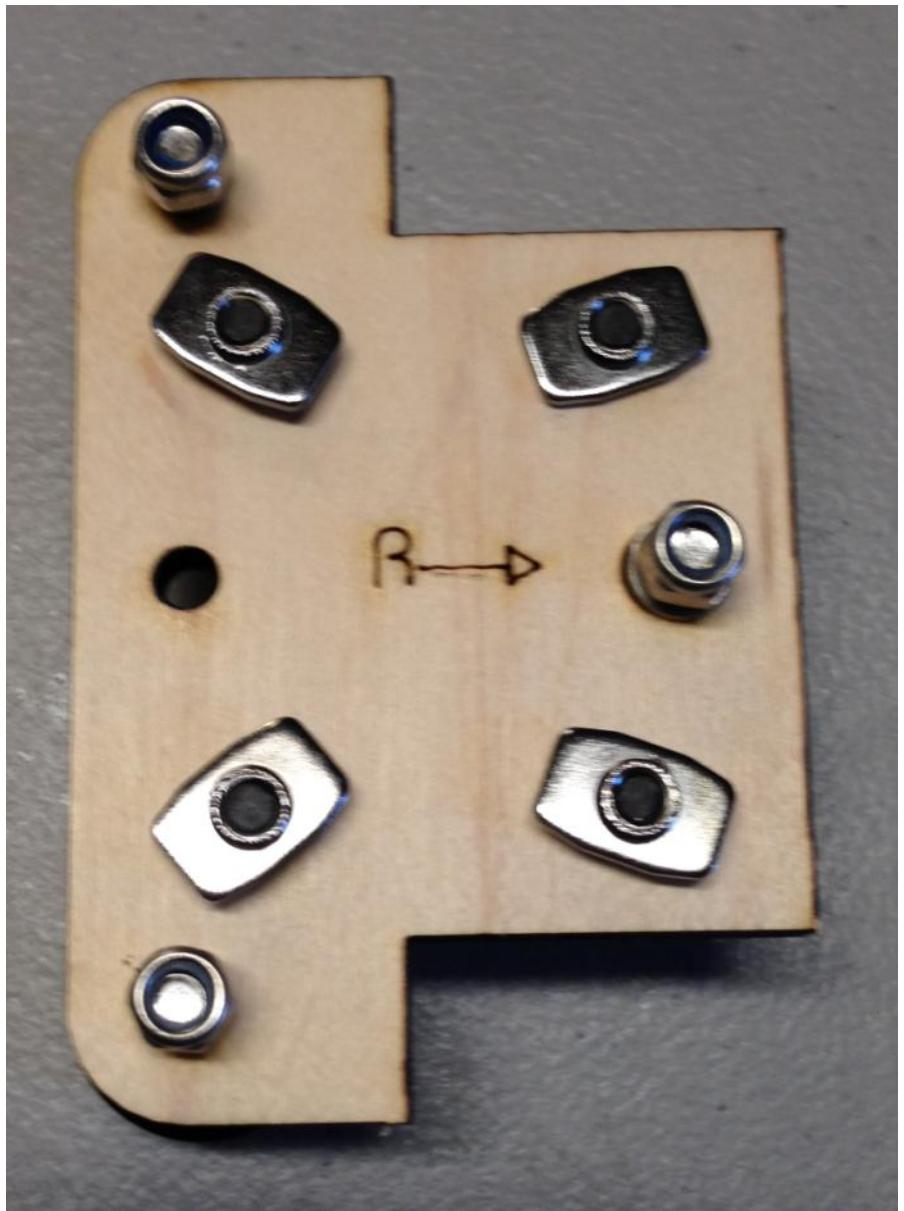
Install an Eccentric spacer in the hole on the left (where the red arrow is) then install the delrin idler and M5x30mm bolt that does not have the aluminum spacer into that hole. Install the other two Delrin Idlers with their aluminum spacers into the two holes on the right.



Flip the piece over and install a M5 washer on the end of the bolt where the eccentric spacer is and where the R-> is pointing.



Install a M5 Nylon Lock Nut onto the 3 M5x30mm bolts and tighten them down, make sure the Delrin idler still turns freely.



Last we will assemble the Belt idler, you will assemble it starting with an M5x30mm bolt, then the rectangular wood piece, an M5 Washer, Two MR125zz Bearings, another M5 washer, the wooden washer and last a regular M5 bolt.



Z Nut Traps

Z Nut Traps

Gather the following parts

1 Set of Wood parts (Pictured here ->)

1 x Regular M5 Nut

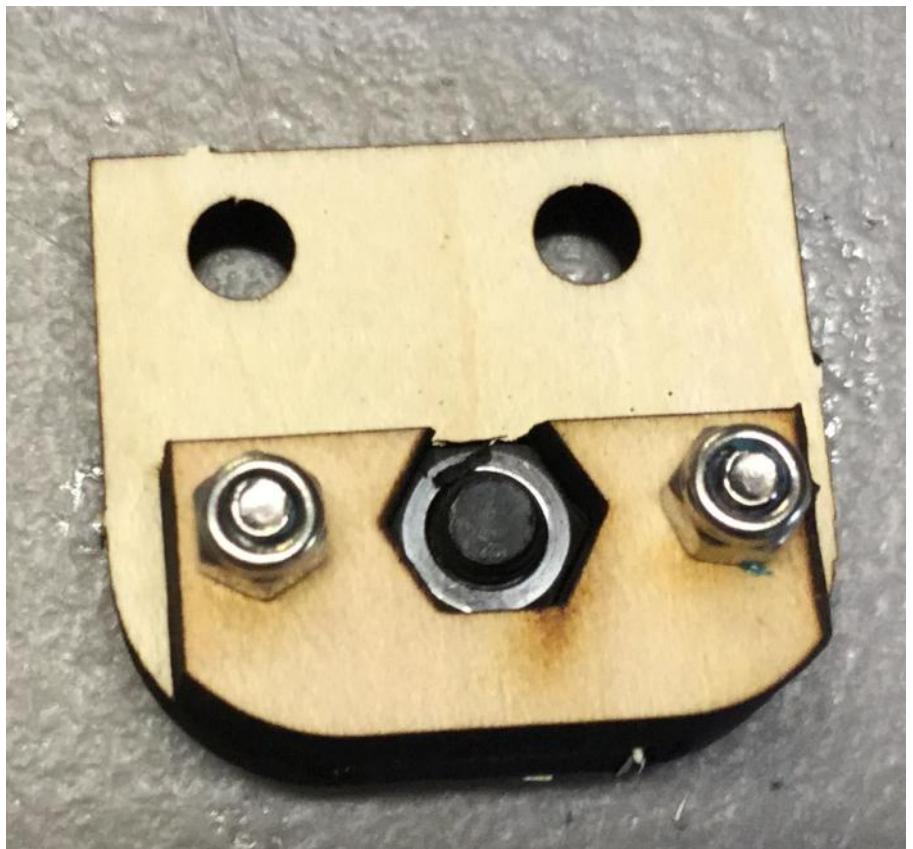
1 x M5x12mm Bolts

4 x M3 Nylon Lock Nuts

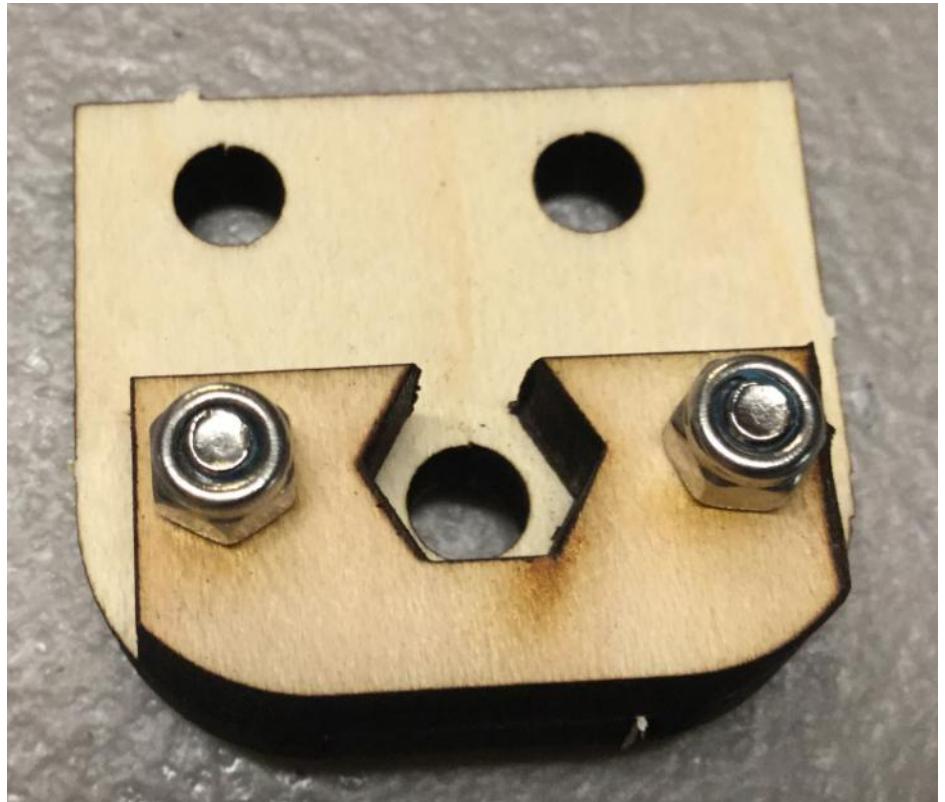
4 x M3x16mm Bolts



Install the M5 bolt and M5 nut into the wood to align the two wood piece, then install two M3x16mm Bolts and an M3 Lock Nut onto each M3 bolt and tighten them down



**Remove the M5x12mm
Long bolt and the Regular
M5 nut then repeat the last
couple steps on the other Z
Nut trap.**

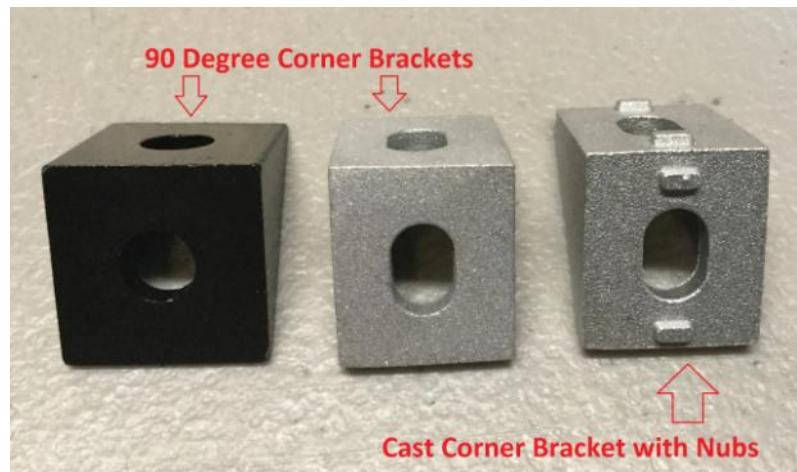


Frame

Frame

Gather the following parts

- 2 Long Aluminum Extrusions
- 4 x 90 Degree Corner Brackets (May be Black or Metalic)
- 4 x Hidden Corner Brackets with 8 Set Screws
- 4 x M5x8mm Bolts
- 4 x T-Slot Nuts



Install an M5x8mm bolt into each of the 4 90 Degree Corner Brackets then install a T-Slot nut onto each bolt. Install 2 set screws into each of the Hidden Corner Brackets then slide the Hidden Corner Brackets and 90 Degree Corner Brackets into the extrusion as shown above then repeat with the other Aluminum Extrusion. So you have two matching setups as shown below.



Do not tighten down the Hidden Corner Brackets yet, we want to adjust them later, you can gently tighten down the Black Corner brackets to keep items from falling off of teh extrusion.

Next Gather the following parts

- 1 Short Aluminum Extrusions**
- 2 x 90 Degree corner brackets**
- 2 x Cast Corner Brackets with Nubs**
- 1 x M5x30mm Bolt**
- 4 x T-Slot Nuts**
- 4 x M5 Washers**
- 2 x MR125zz Bearings**
- 1 x Regular M5 Nut**



Install an M5x8mm bolt into each of the 2 90 Degree Corner Brackets and the 2 Cast Corner Brackets with Nubs then install a T-Slot nut onto each bolt. Slide the 90 Degree Corner Brackets into the extrusion as shown above and gently tighten them to prevent them from falling off.

Next slide on one Cast Corner Bracket with Nubs, insert an M5x30mm Bolt into the Cast Bracket, put two washers on the M5 bolt, then 2 MR125zz Bearings, another 2 Washers then the last Cast Iron Bracket then install the regular M5 Nut and tighten the nut loosely to prevent the items from falling off. Tighten one of the Cast Iron Brackets to prevent the idler assembly from falling off the extrusion.

Next Gather the following parts

- 1 Short Aluminum Extrusions**
- 3 x M5x12mm Long Bolts**
- 3 x T-Slot Nuts**
- 2 x Hidden Corner Brackets with 4 Set Screws**



Install set screws into the corner hidden brackets and install a T-Slot nut onto each of the 3 M5x12mm Bolts. Slide the Hidden Corner brackets and M5 bolts into the extrusion as shown above, gently tighten them to prevent them from falling out of the extrusion.

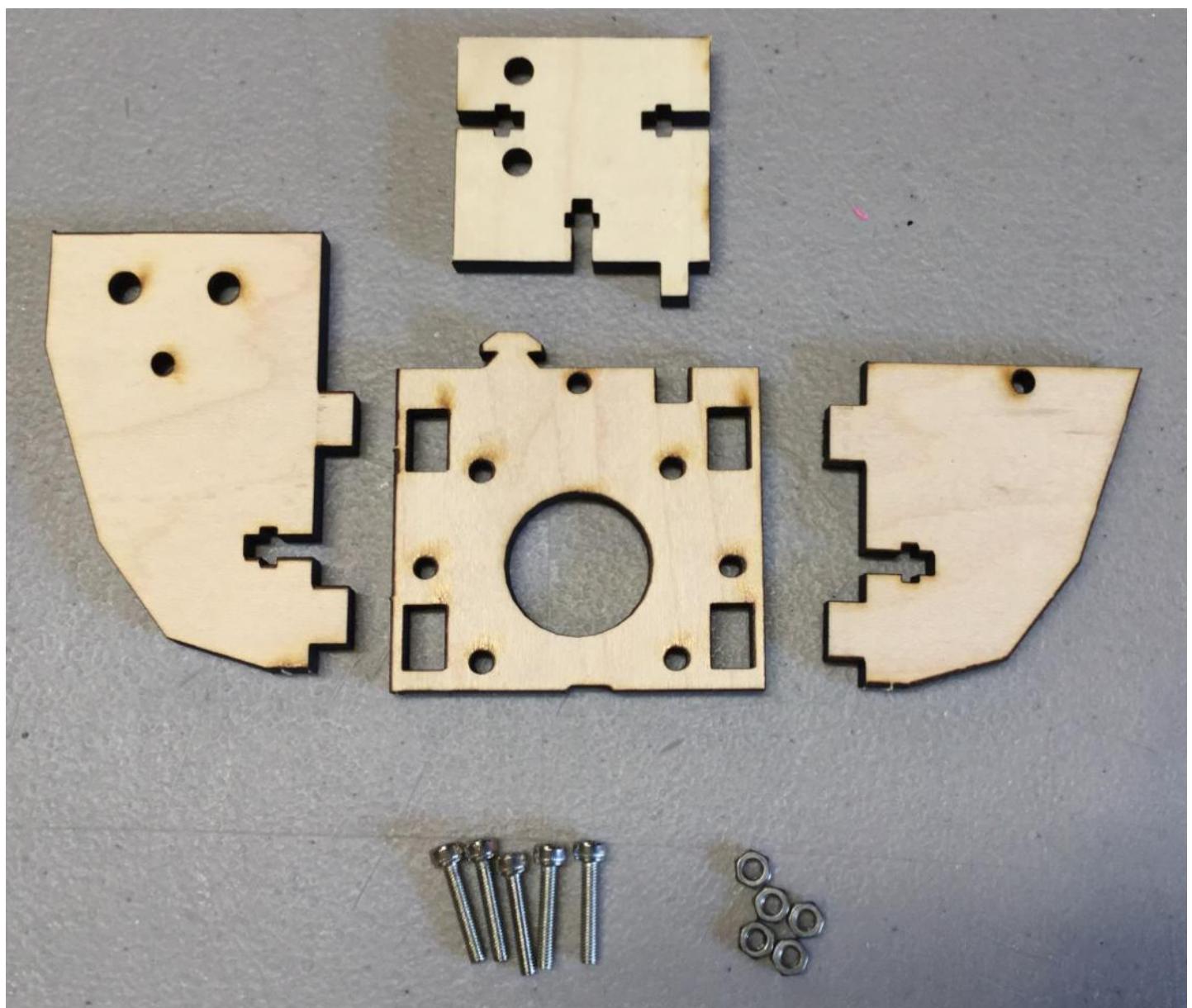
Z Motor Brackets

Next Gather the following parts

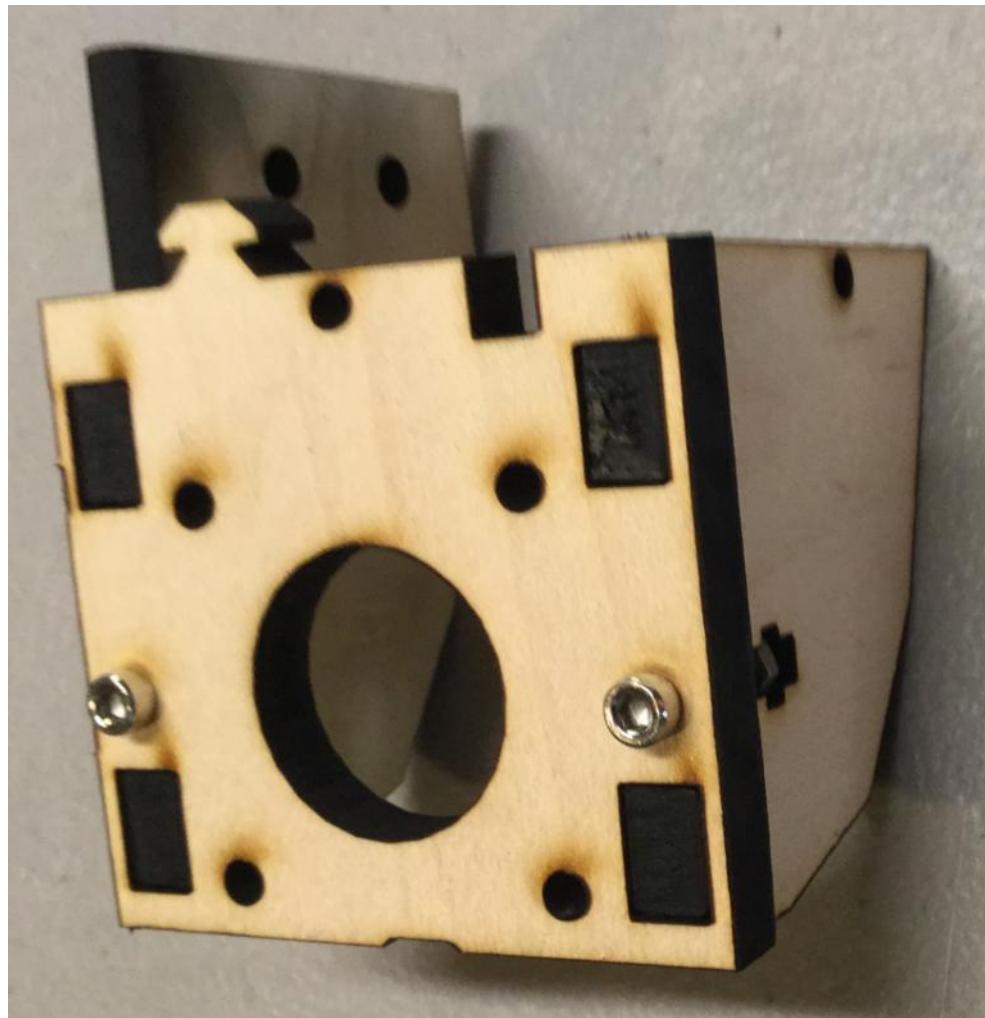
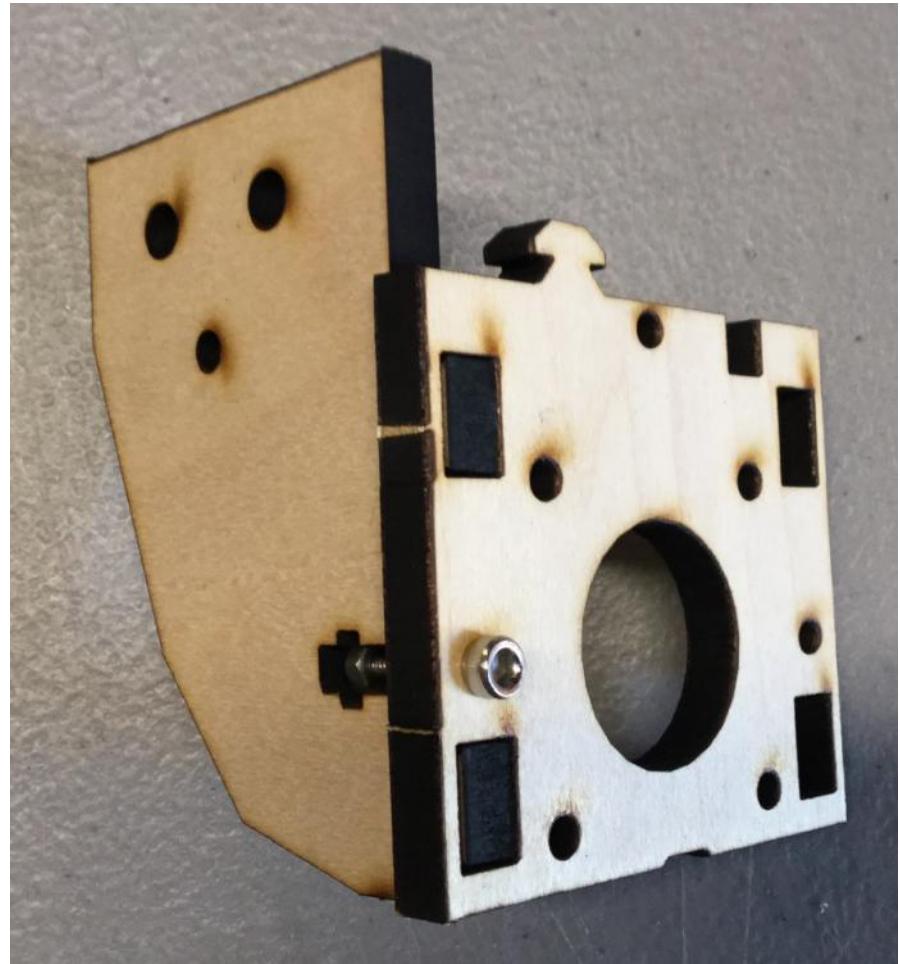
2 x Wood Pieces Shown Below

10 x M3x16mm Long Bolts

10 x M3 Regular Nuts

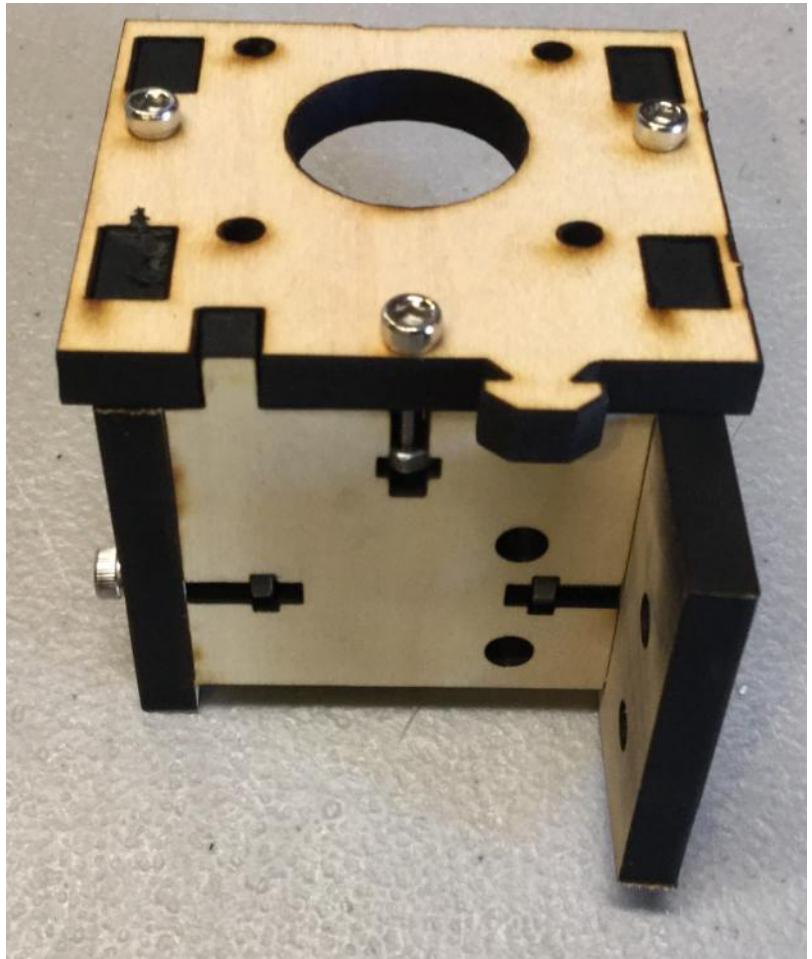


Bolt the two wood pieces shown in the picture on the right with an m3x16mm bolt and regular m3 nut. Make sure the wood pieces are orientated as shown.

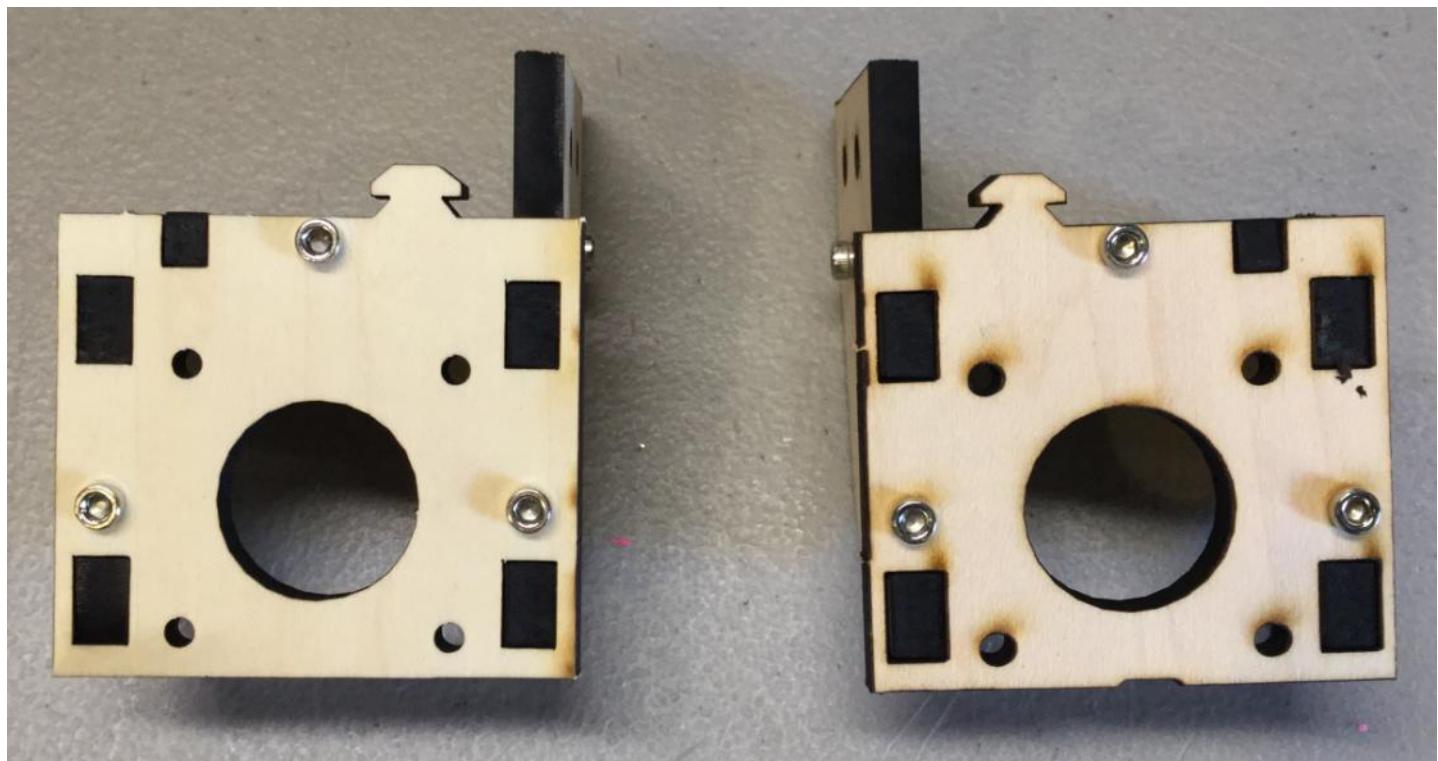


Install the other side piece and secure using an M3x16mm bolt and regular M3 nut.

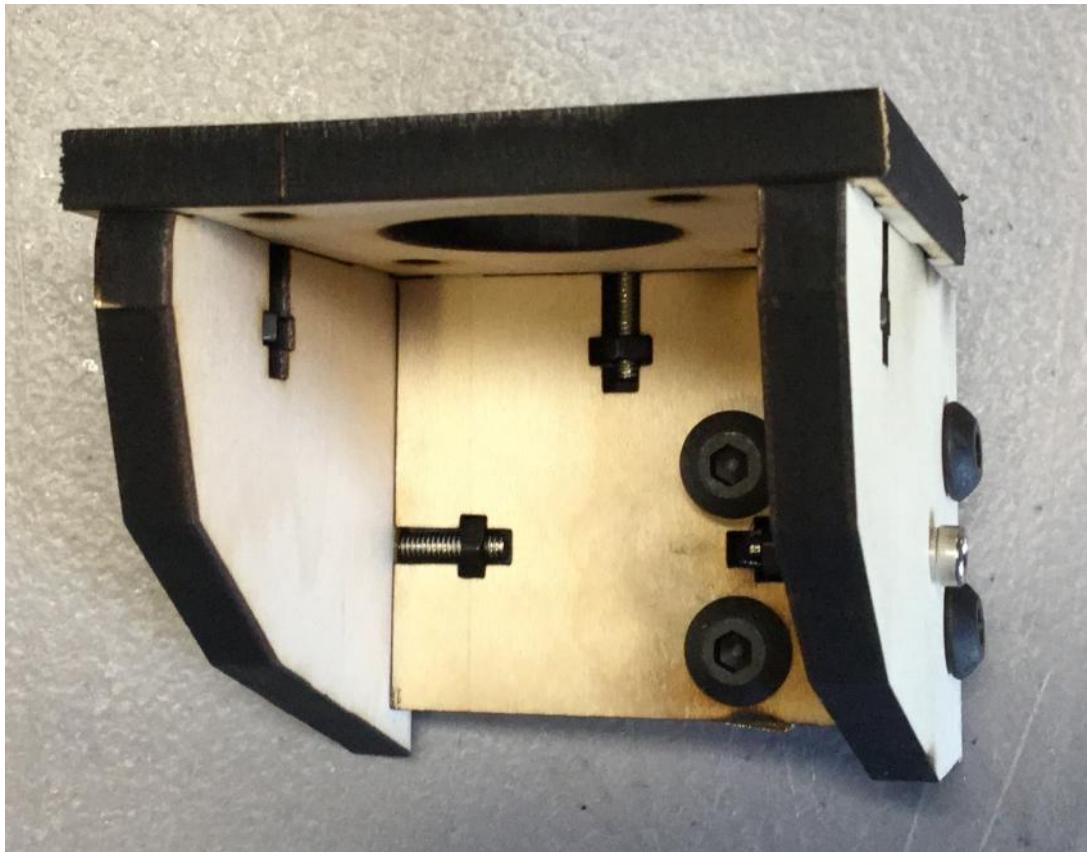
Now install the back wood plate using 3 x m3x16mm bolts and 3 regular m3 nuts.



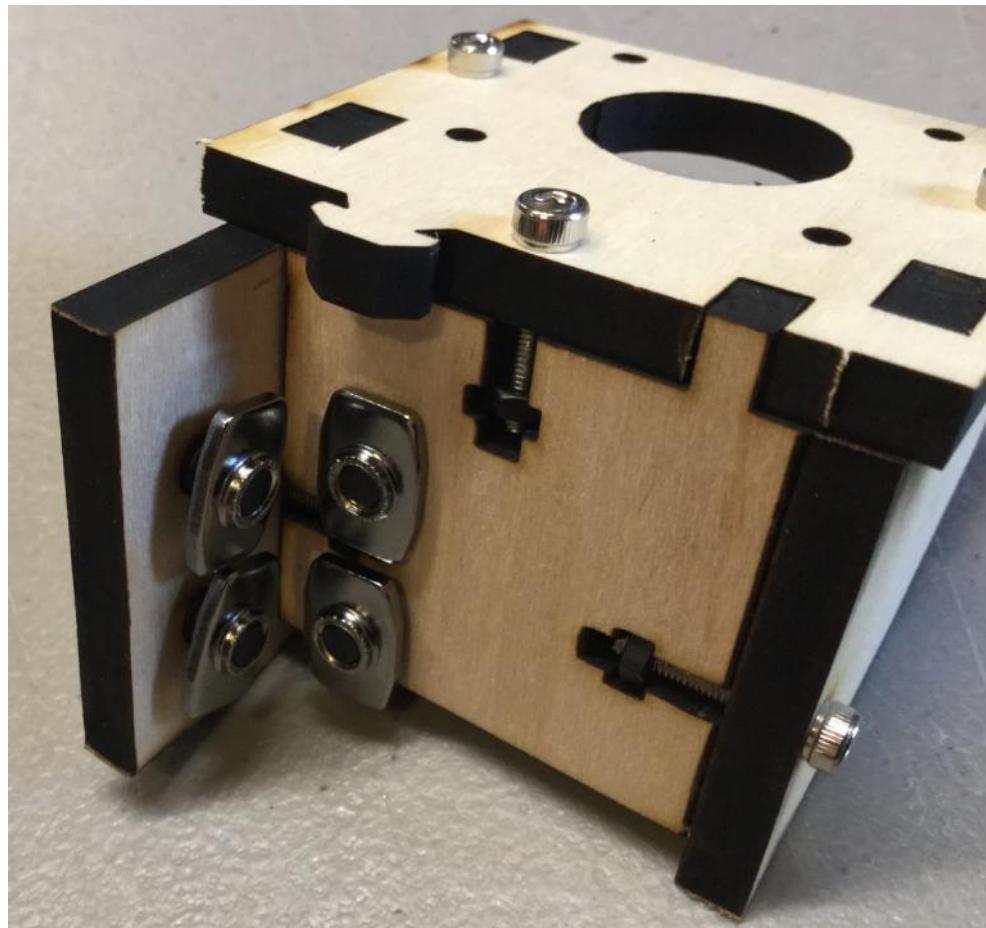
Repeat the previous steps to make a 2nd Z motor bracket that is a mirror image of the first so you have two that look like the picture below.



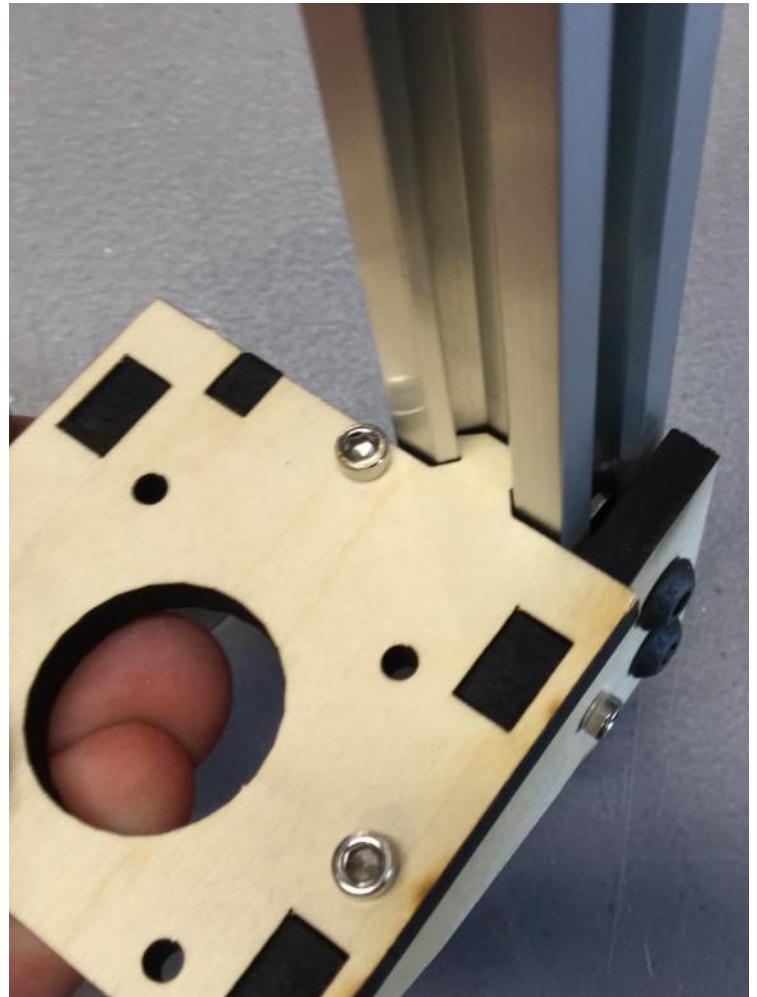
Now install 4 M5x12mm bolts into the 4 holes shown in the picture on the right



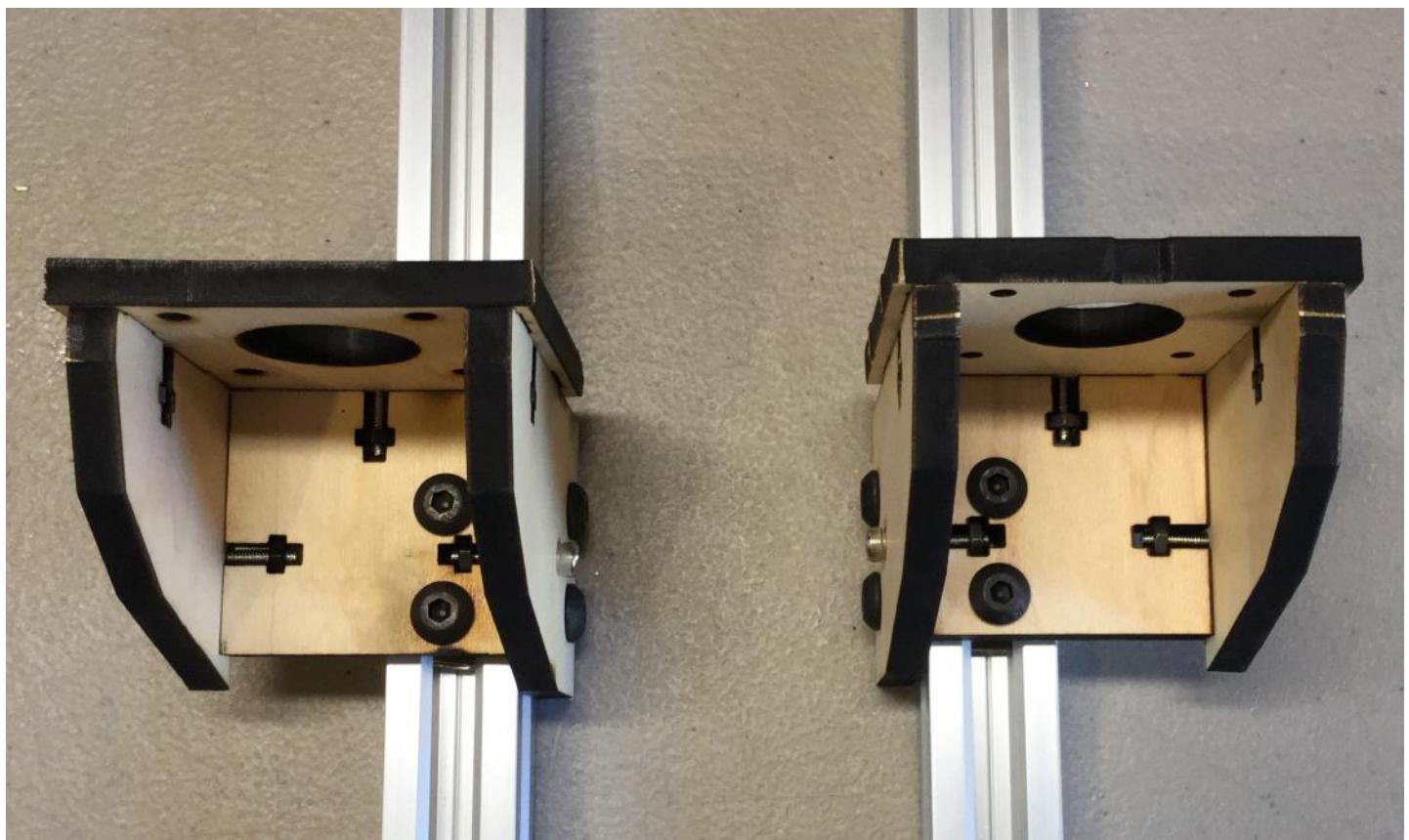
Then install 4 T-Slot nuts onto the bolts



Get a short Aluminum Extrusion and slide it onto the Z Motor Bracket, make sure to align the T-Slot Nuts so all 4 go into the Extrusion



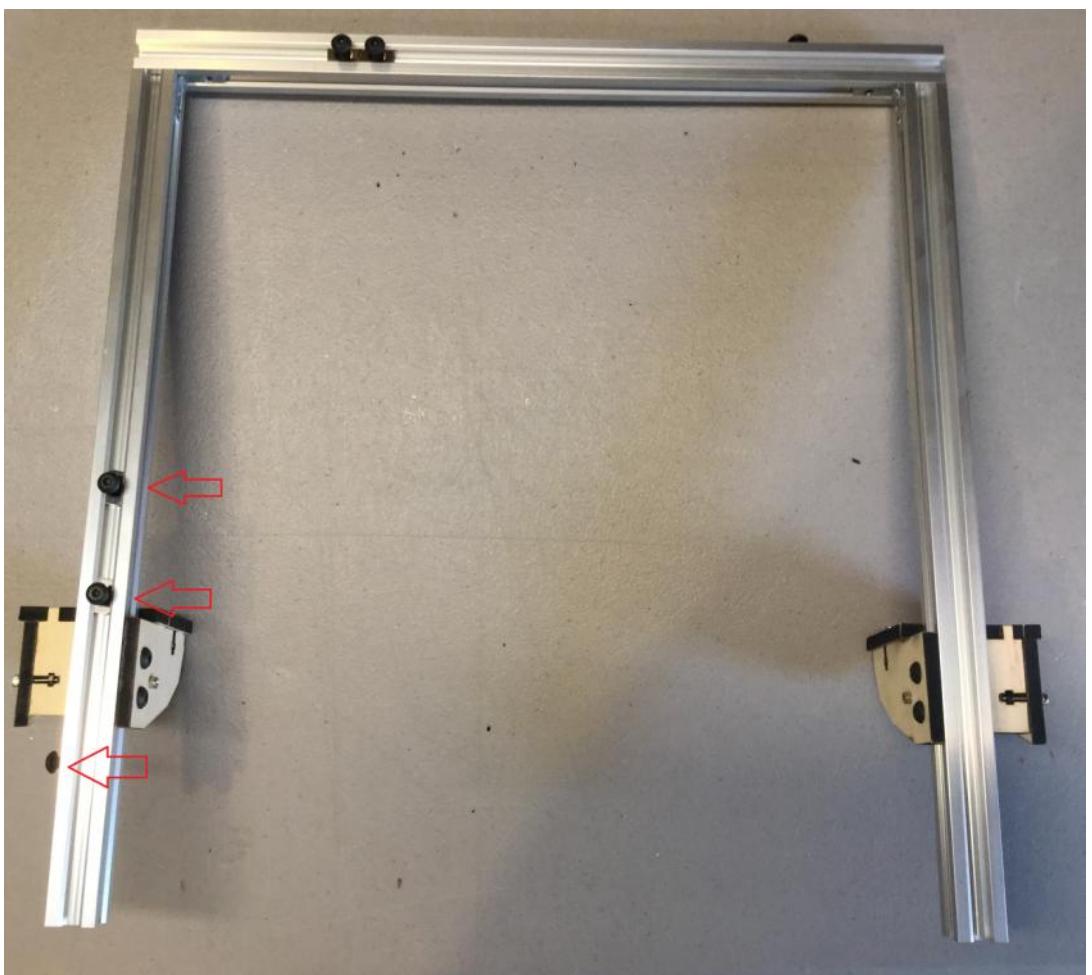
Repeat the process on the other Z motor Bracket



Get the Short Aluminum Extrusion from earlier and slot it into the top of the two Extrusions holding the Z Motor Brackets then tighten down the set screws. (Note the Two M5 Bolts and T-Slot nuts on the top piece are on the back side)



Now flip the assembly over and add three M5x12mm bolts and T-Slots to the left extrusion, two on the back and one of the left side (See the Red Arrows)



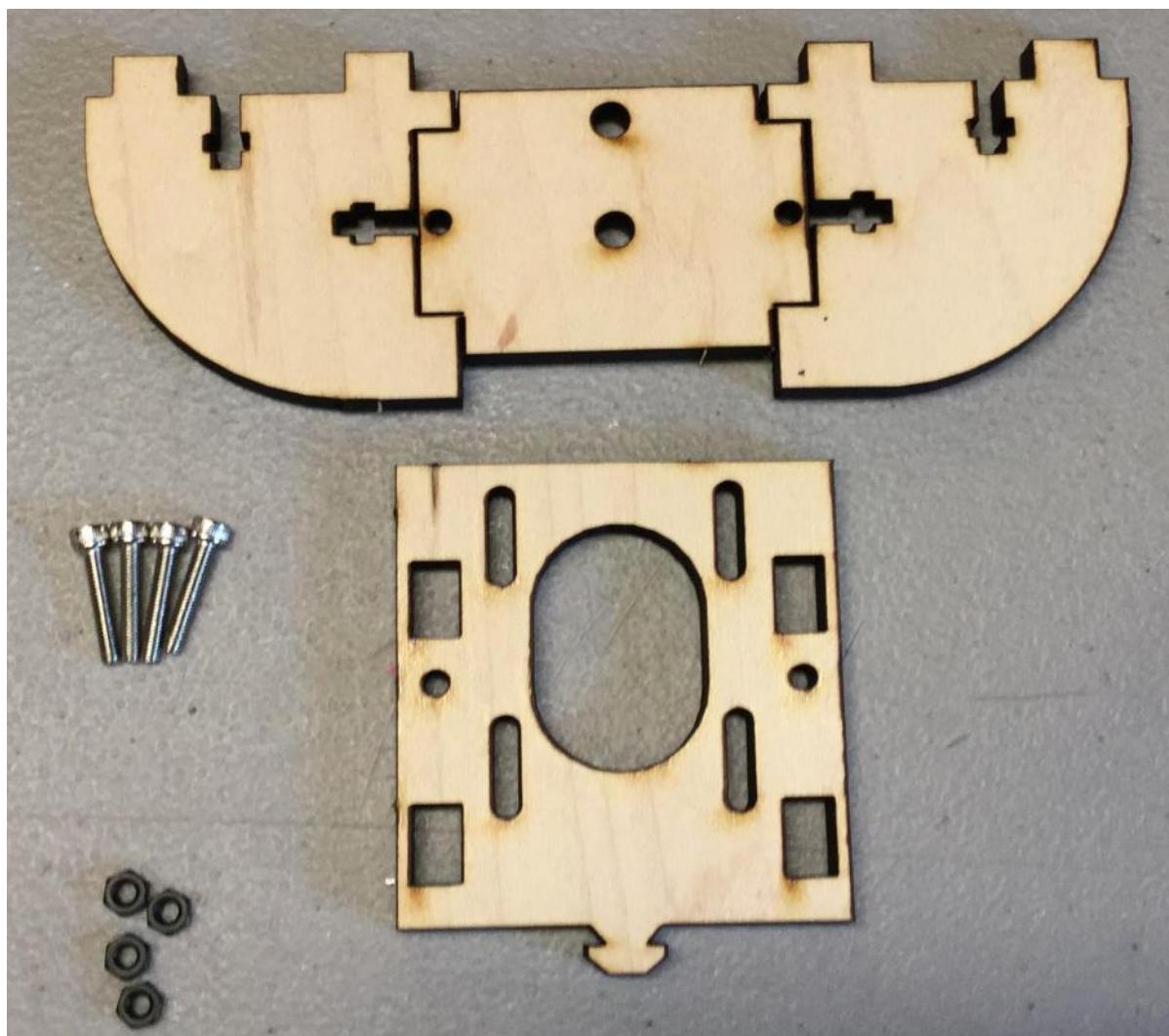
Y Motor Bracket

Gather the following parts

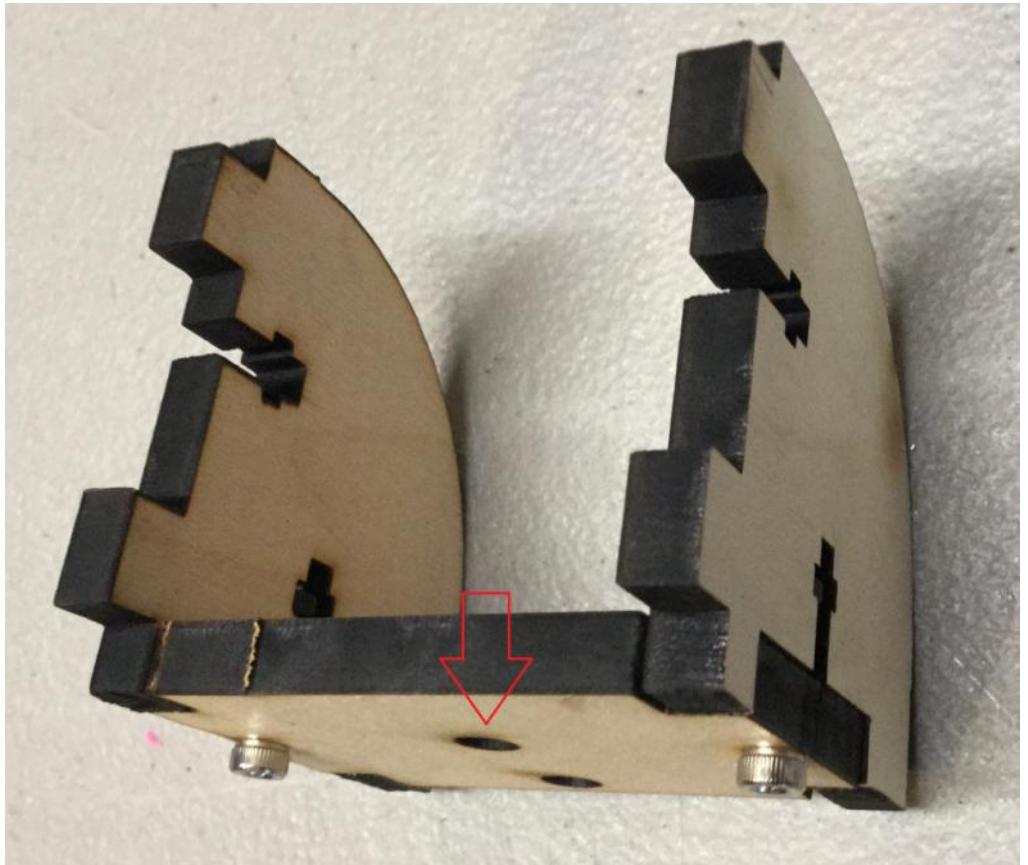
1 Set of Wood parts (Pictured Below)

4 x M3x16mm Bolt

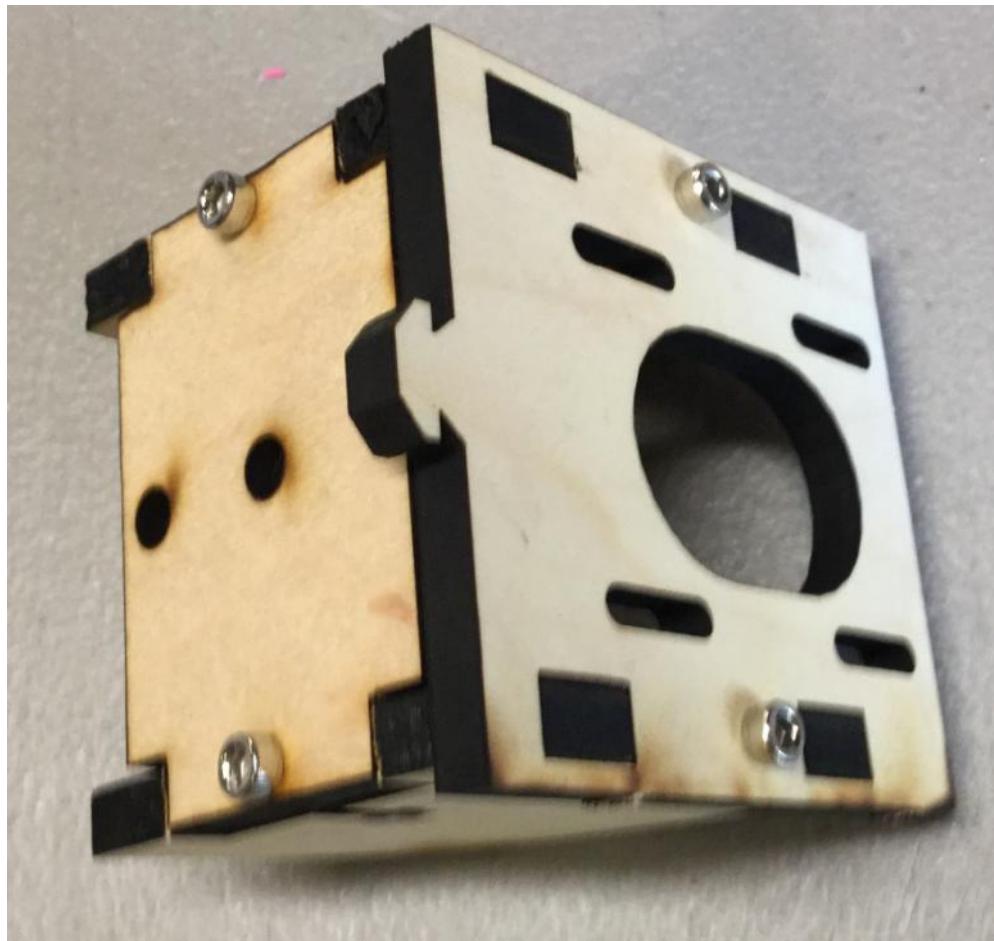
4 x M3 Nuts



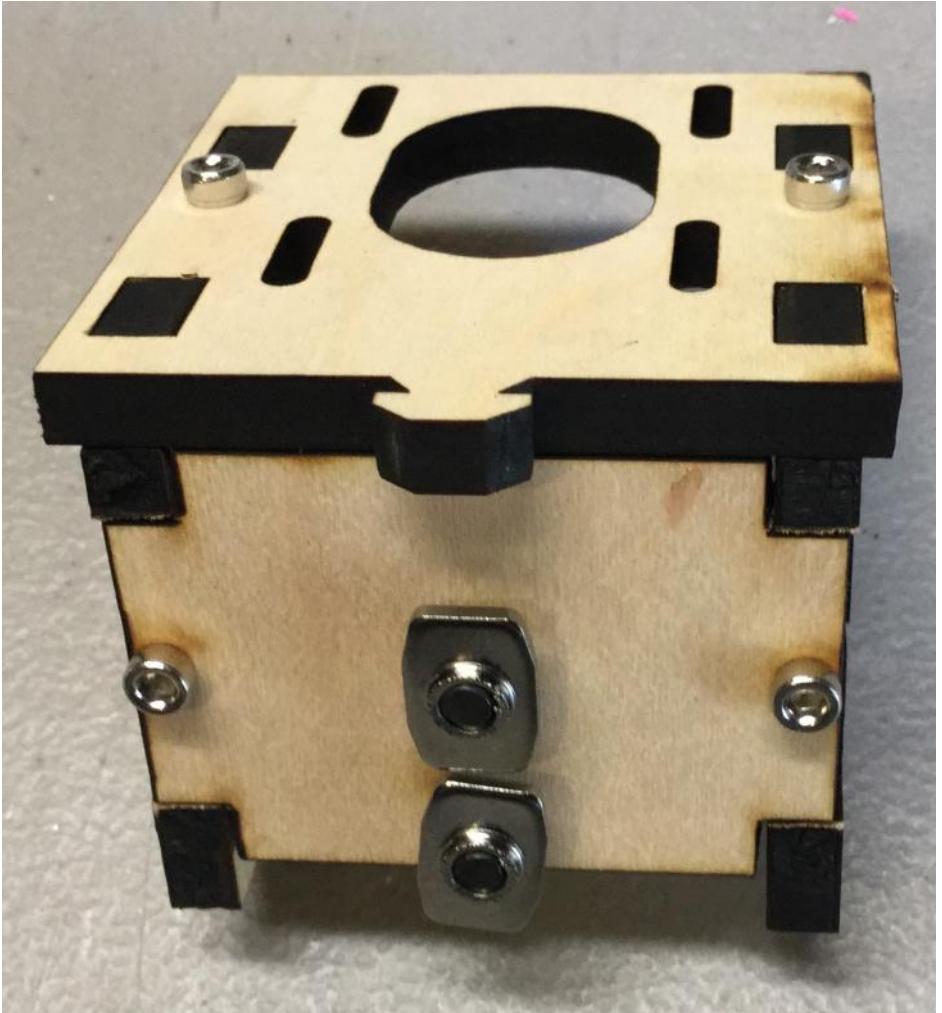
Using 2 M3x16mm bolts and 2 M3 nuts install the two side pieces onto the back plate, make sure the back plate is orientated so the bolt holes are on the bottom as shown below with the red arrow. Make sure the two side plates are orientated as shown in the picture.



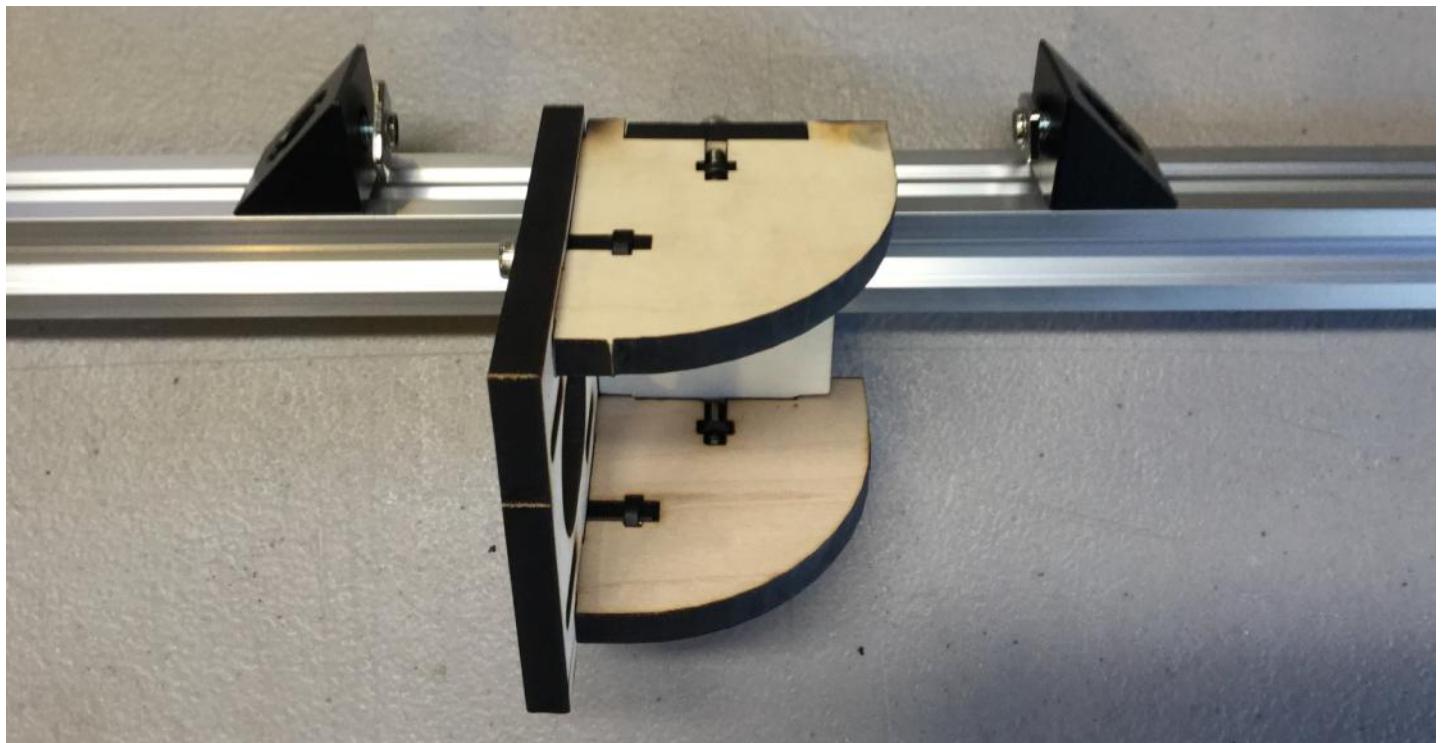
Install the Top plate using two M3x16mm bolts and two M3 nuts.



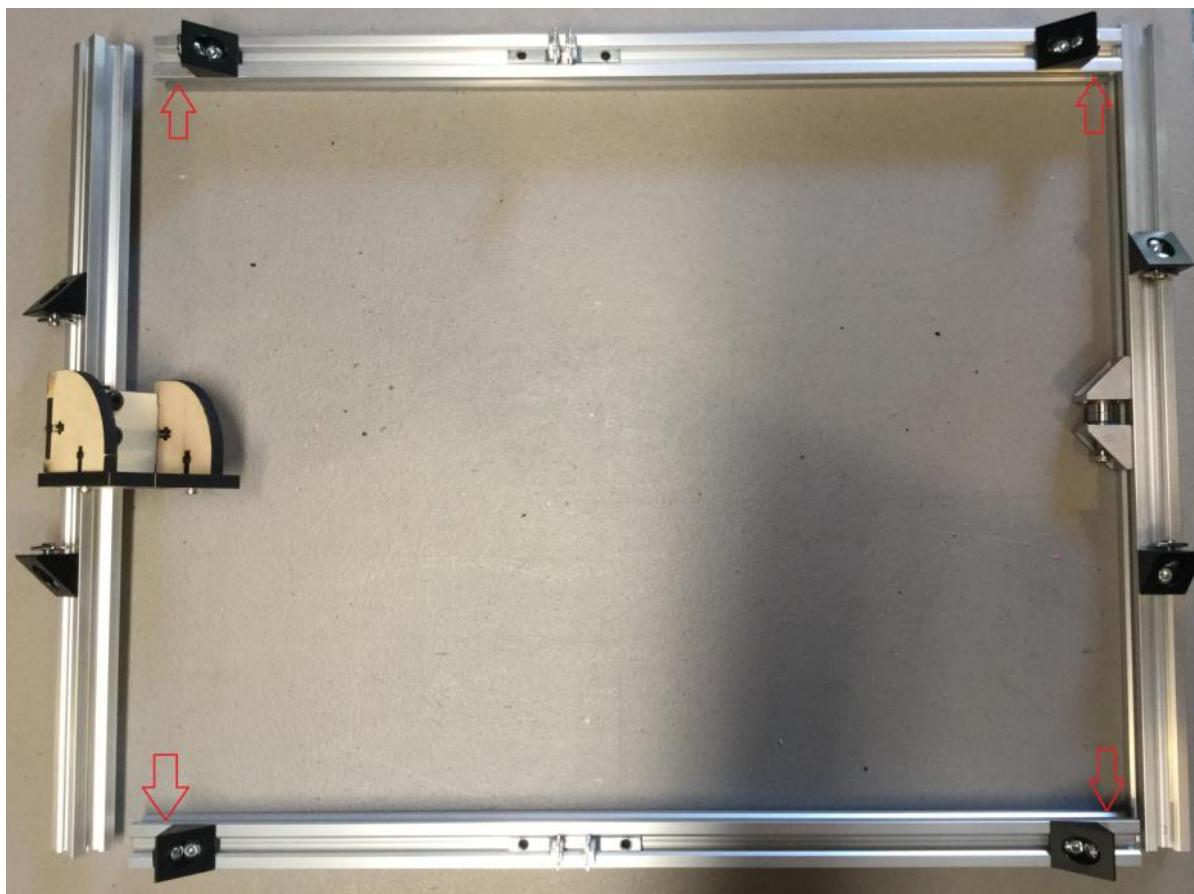
Install two M5x12mm bolts and two T-Slot Nuts onto the back of the Motor Bracket



Get a short Aluminum Extrusion, slide the Y Motor Bracket onto the Extrusion then add two 90 Degree Angle Brackets (Each Bracket will have two M5x8mm bolts and two T-Slot Nuts)

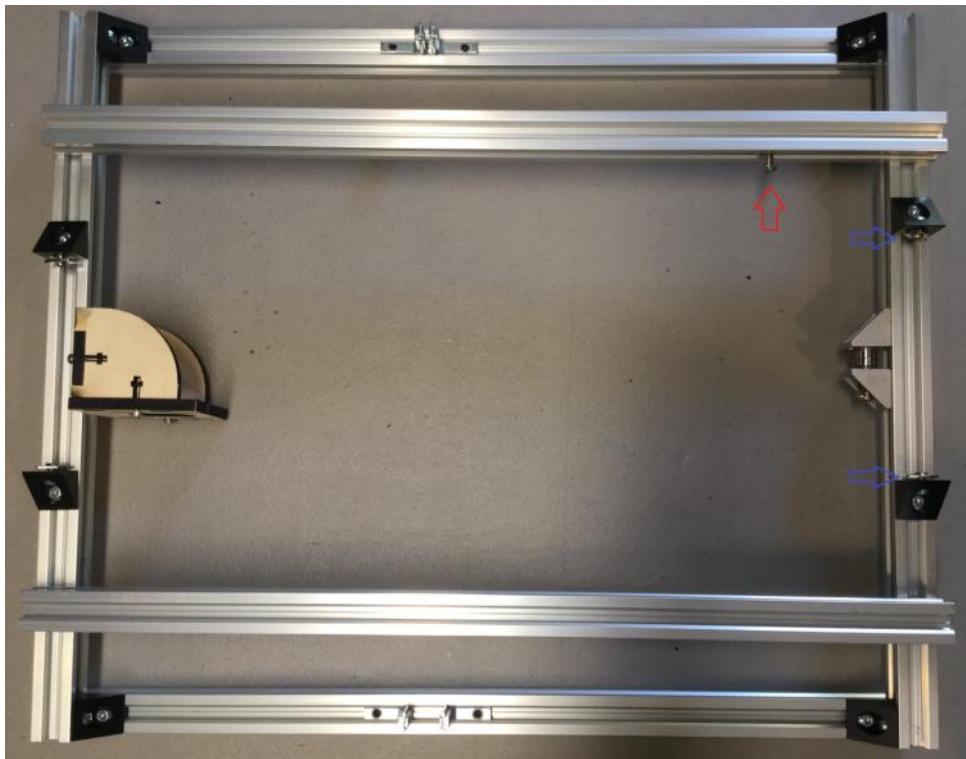


Get the items shown below and arrange them as shown in the picture, install an M5x8mm bolt and T-Slot nut into the 4 90 Degree Angle Brackets (See Red Arrows)

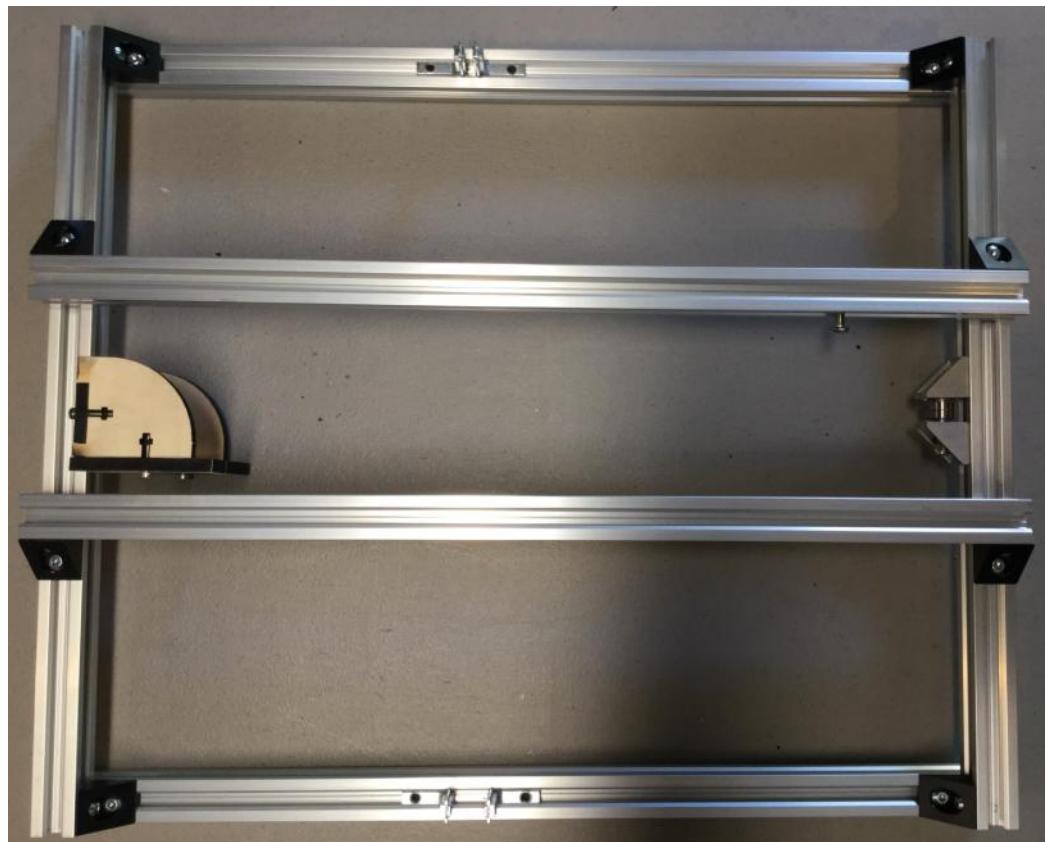


Slide the Short Extrusions into the 90 Degree Angle Brackets and tighten them down.

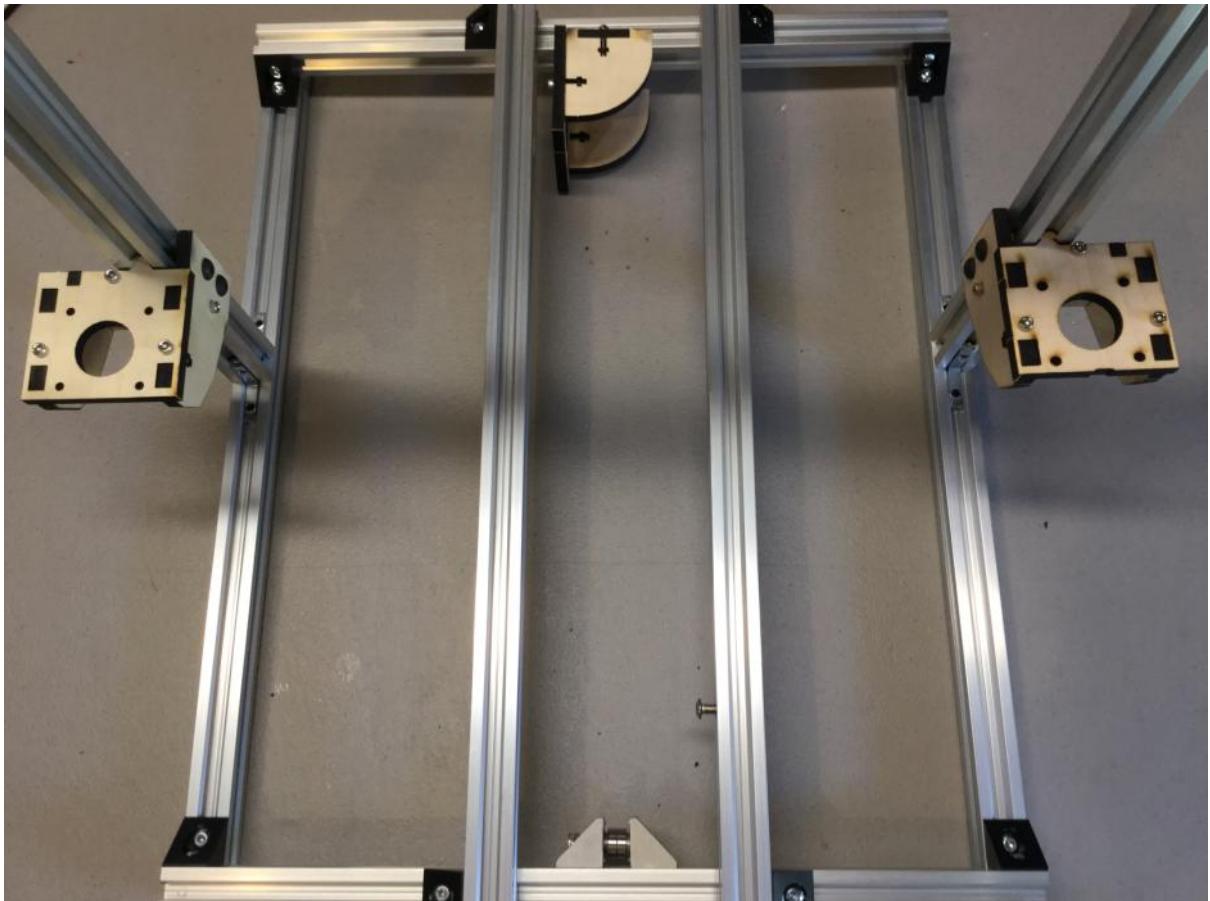
Next get two long aluminum extrusions, add a M5x12mm bolt and T-Slot as shown by the Red Arrow and two M5x8mm bolts and T-Slot Nuts shown by the Blue Arrows.

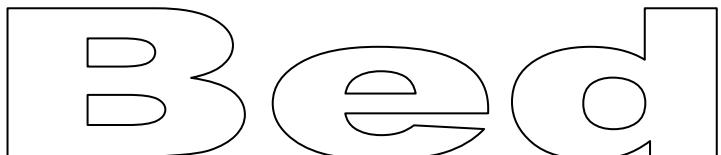
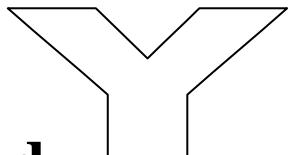


**Slide the 2 long extrusions into the 90 Degree Angle Brackets and tighten them down
(We will adjust the position of them later)**



Now position the 4 hidden corner brackets so we can put the top assembly with the Z motor brackets onto our newly assembled base. Tighten the hidden corner brackets so everything stays together (We will adjust the position of the hidden corner brackets later)





Y Bed

Gather the following parts

1 Set of Y Bed Wood parts or Metal Bed (Pictured Below)

3 x M3x25mm Bolts

1 x M3x16mm Bolt

5 x M3 Nylon Lock Nuts

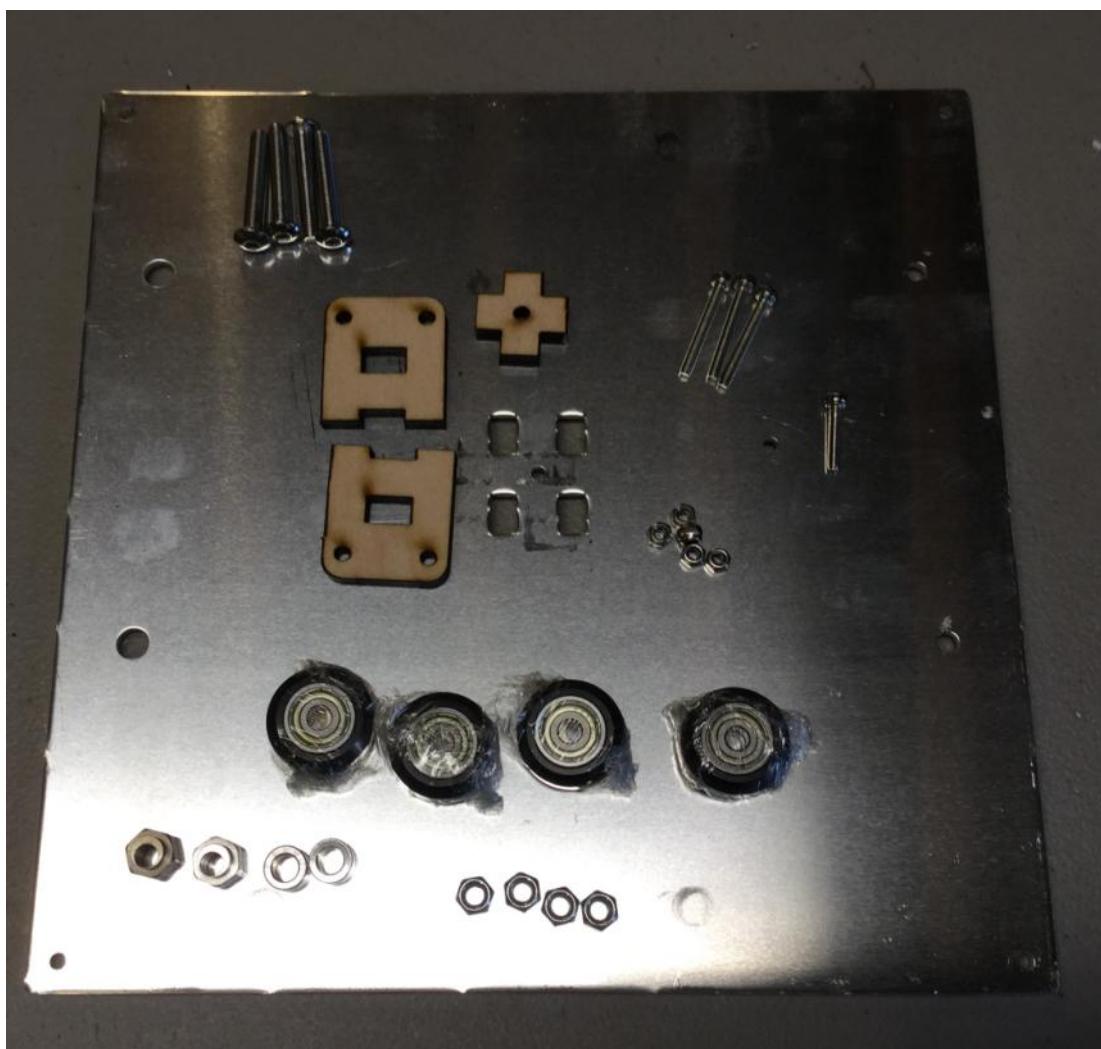
4 x Pre Assembled Delrin Idler's (Black Wheels)

4 x M5x30mm Bolts

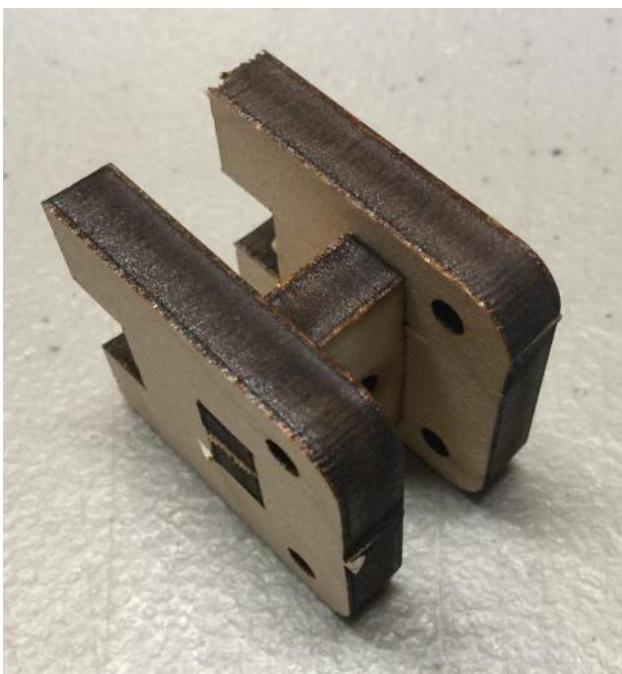
4 x M5 Nylon Locknuts

2 x Aluminum Standoff

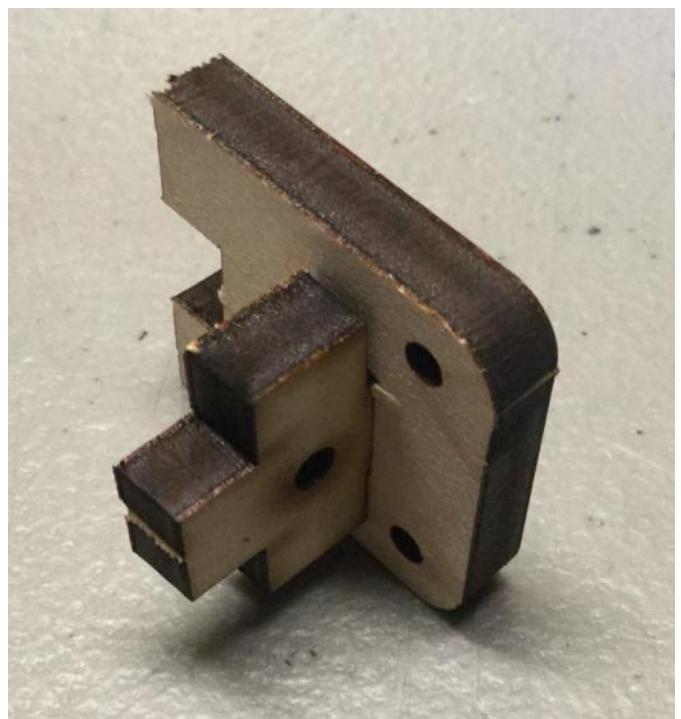
2 x Eccentric Spacer



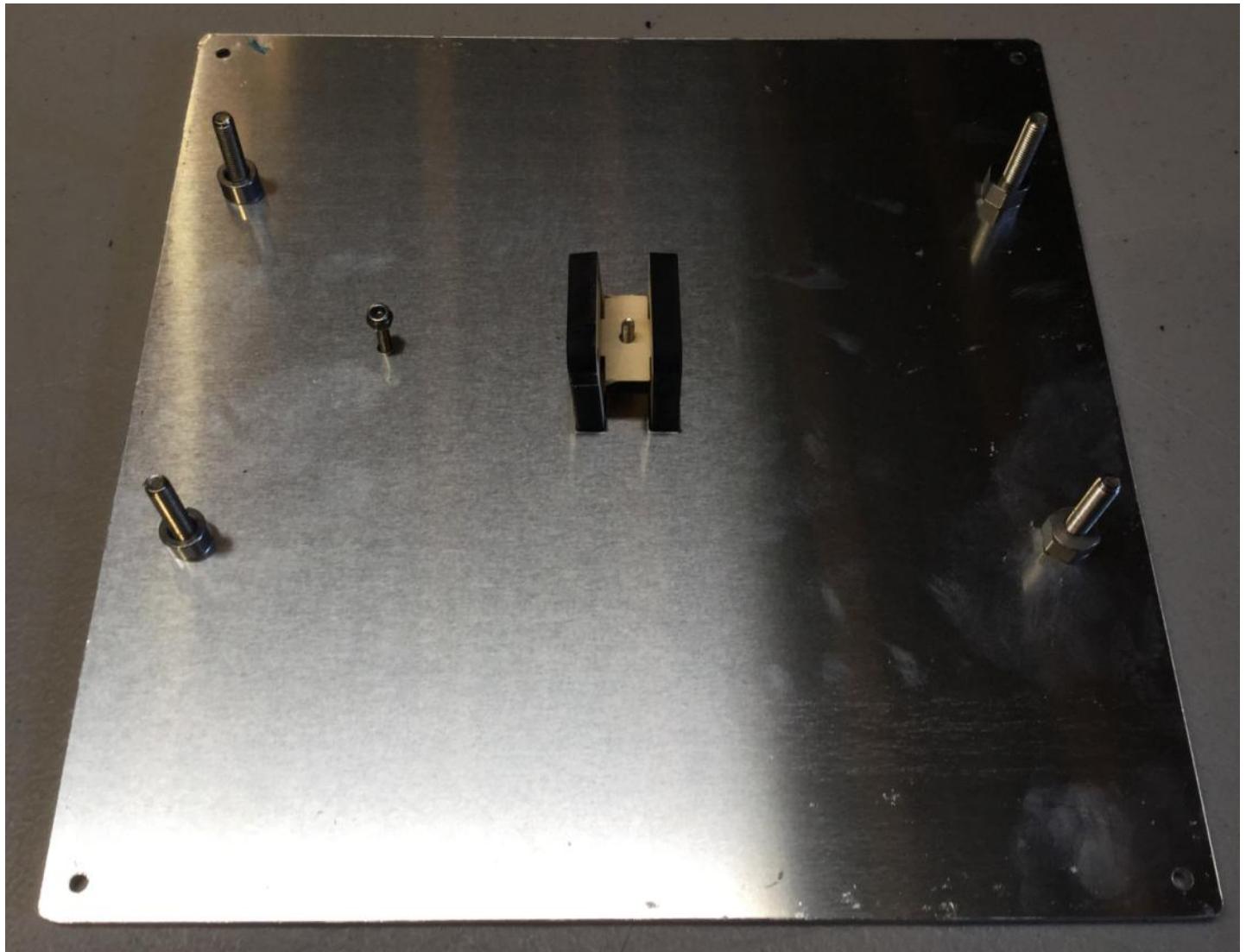
Install the 4 M5x30mm Bolts, one M3x25mm bolt and one M3x16mm bolt into the plate as shown in the picture on the right. Make sure the plate is orientated so the hole for the m3x16mm bolt is on the left as shown by the red arrow.



Get the 3 small wooden pieces put the wooden + Piece into one of the A shaped piece as shown on the right, then install the other side as shown below.



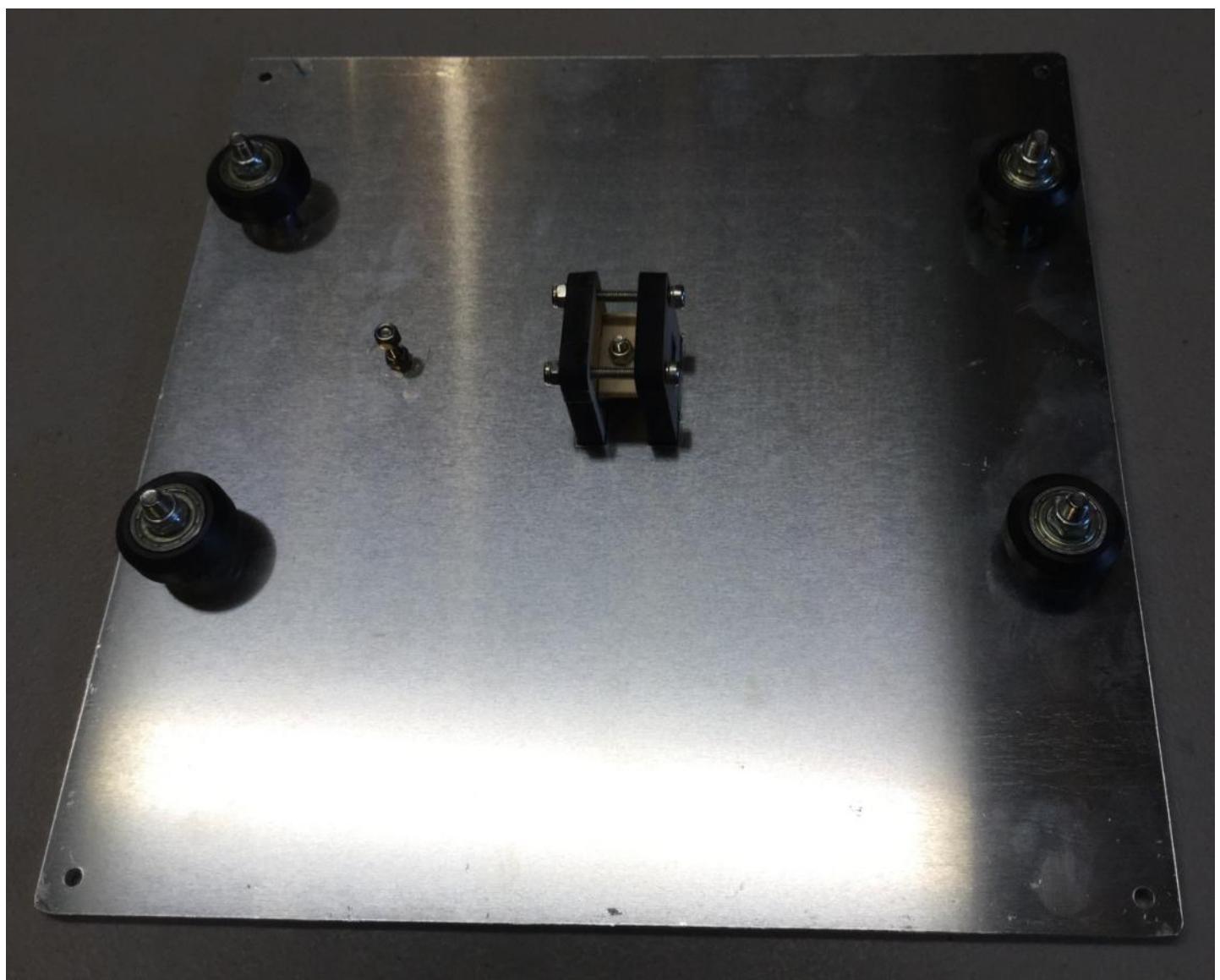
Install the wood pieces into the slots in the center of the bed onto the M3x25mm bolt. Put a Nylon m3 Lock nut onto the M3x16mm Bolt. Put two Aluminum Spacers onto the two left M5x30mm bolts and two Eccentric Spacers onto the right two M5x30mm bolts.



Install a M3 Nylon Lock nut onto the M3x25mm Bolt, you may need to use needle nose pliers to hold the nut while you tighten the bolt, then install two M3x25mm bolts and Nylon lock nuts into the wood piece as shown below, keep these two M3 nuts loose as we will remove them later.

Tighten the Nylon Lock nut on the M3x16mm bolt down all the way then install another M3 Nylon Lock nut on the end of the M3x16mm bolt as shown below.

Install a Delrin Idler on each of the 4 M5 Bolts then a Nylon lock nut to secure them in place, tighten them down, but not enough to prevent them from turning freely.

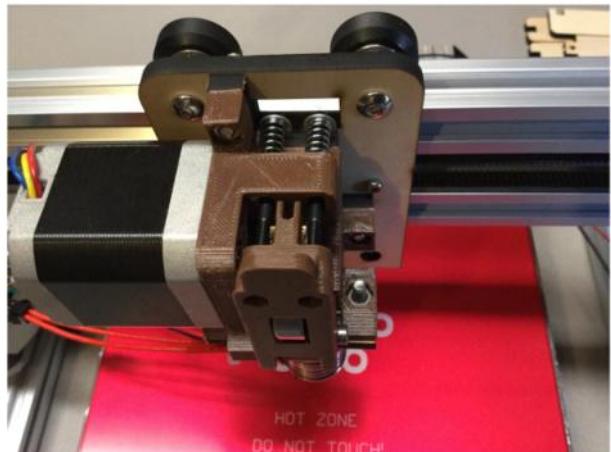


X Carriage

X Carriage

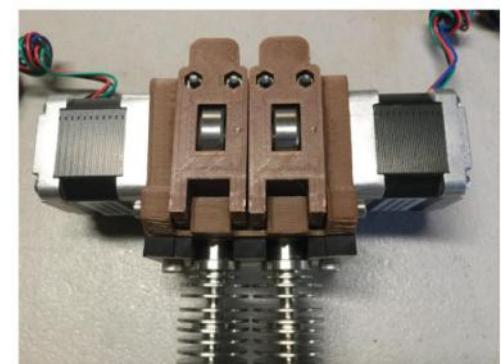
For the Single Extruder Pegasus X Carriage follow this guide:

Pegasus
Single Extruder



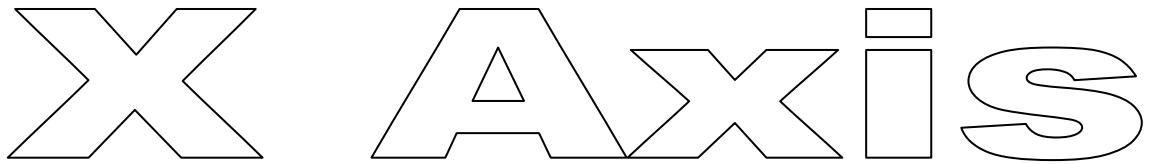
Visual Instructions
MAKERFARM 

Pegasus
Dual Extruder



Visual Instructions
MAKERFARM 

For the Dual Extruder Pegasus X Carriage follow this guide:



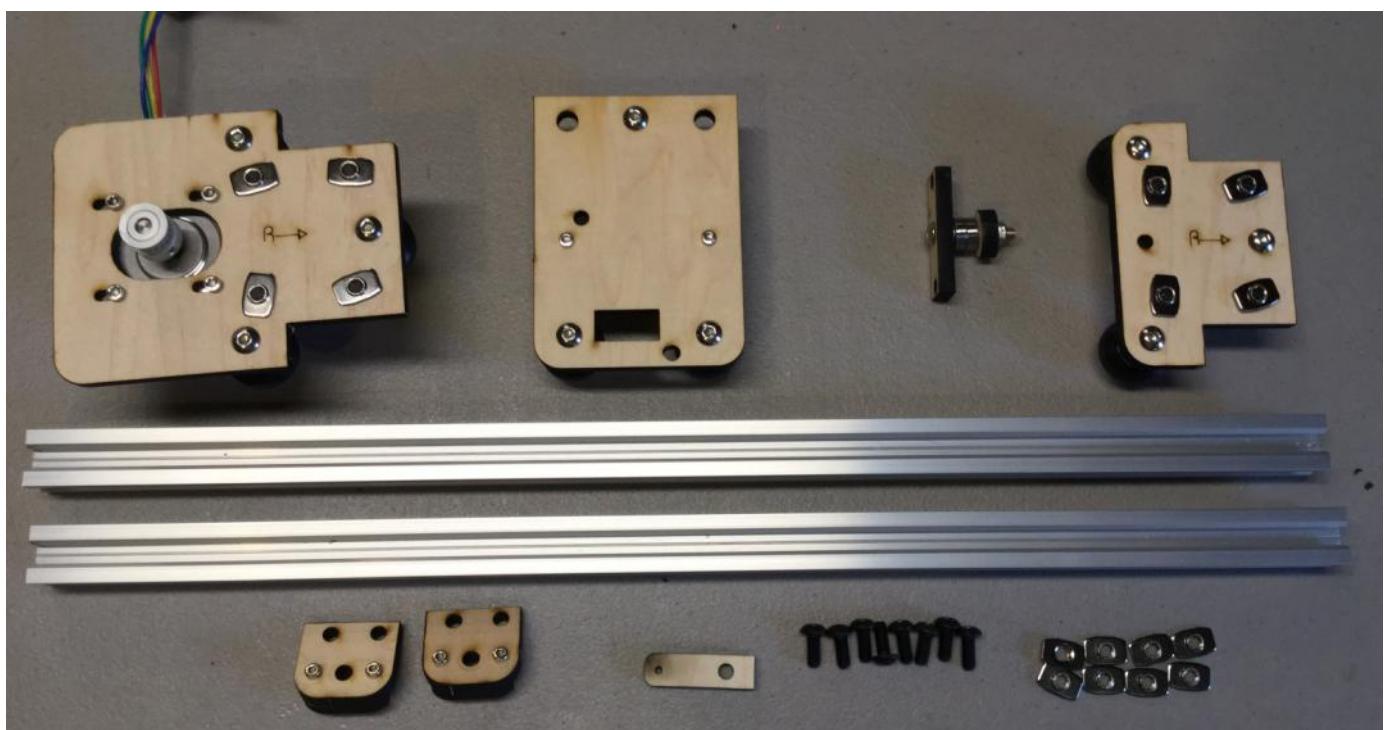
X Axis Assembly

Assembled X Idler, X Motor, X Carriage and Z Nut Traps (See Picture below)

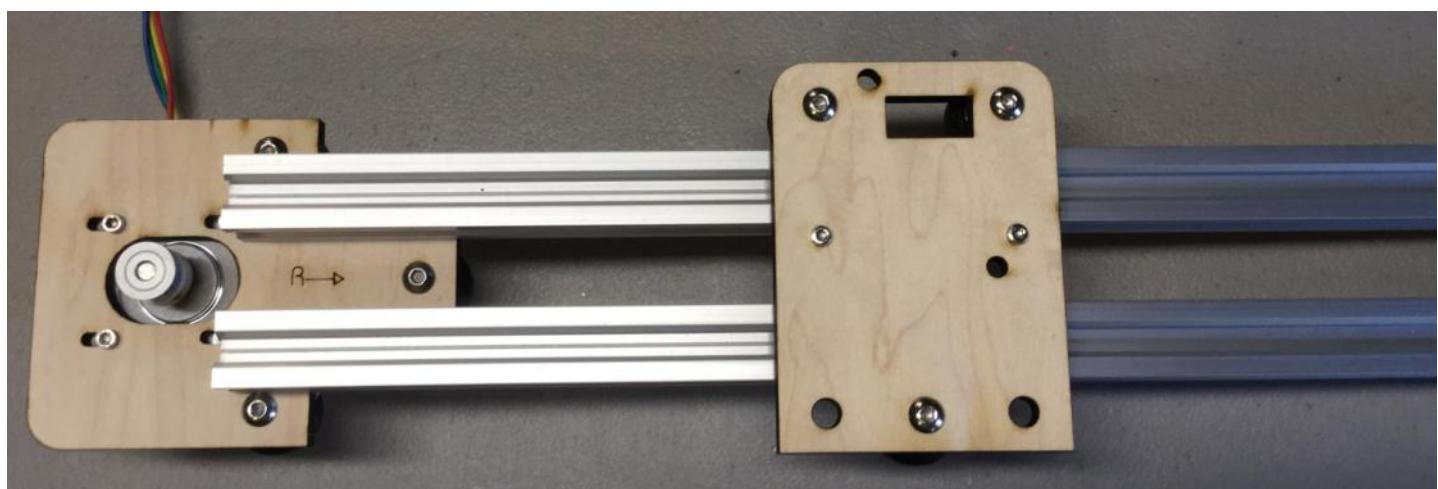
2 x Long Aluminum Extrusion

8 x M5x12mm Bolt

8 x T-Slot Nuts



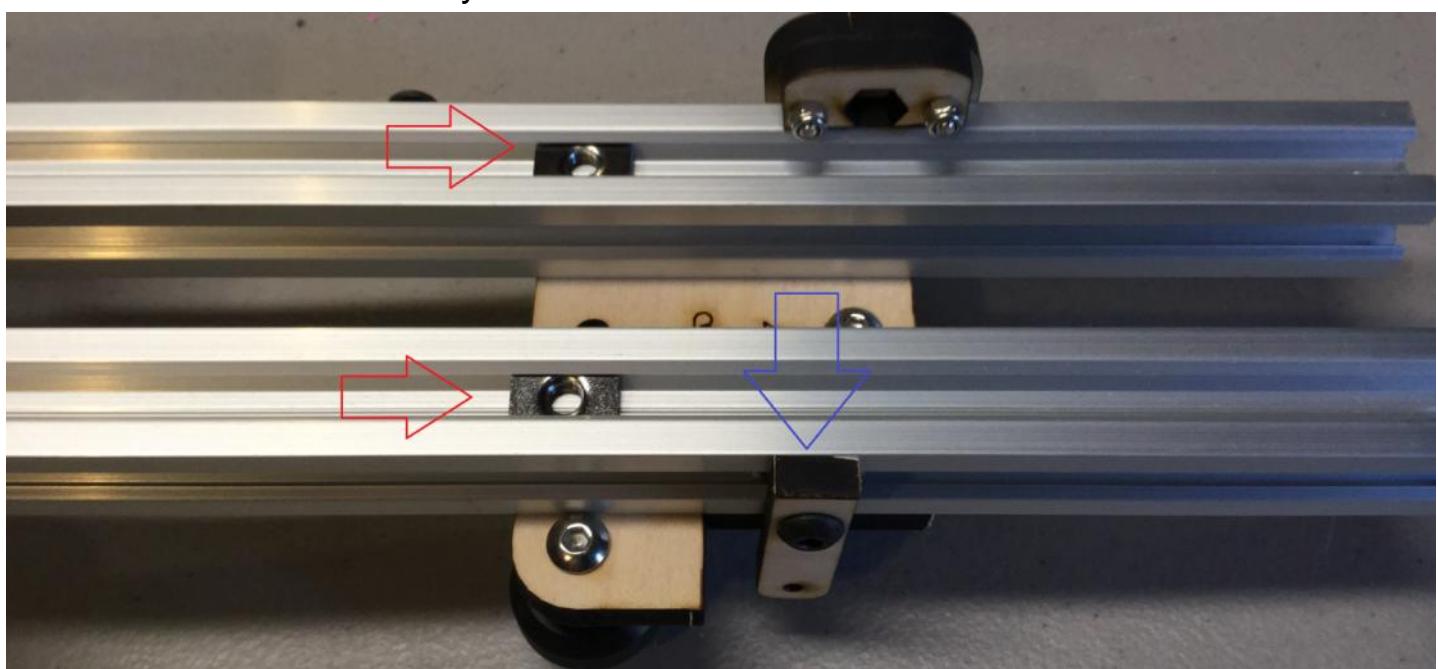
Slide the two Extrusions onto the T-Slot nuts on the X Motor Bracket, push the extrusions away from each other inbetween the two T-Slot nuts then tighten the bolts down, your Extrusions should now be parallel to each other. Slide the X Carriage onto the extrusion as shown below.



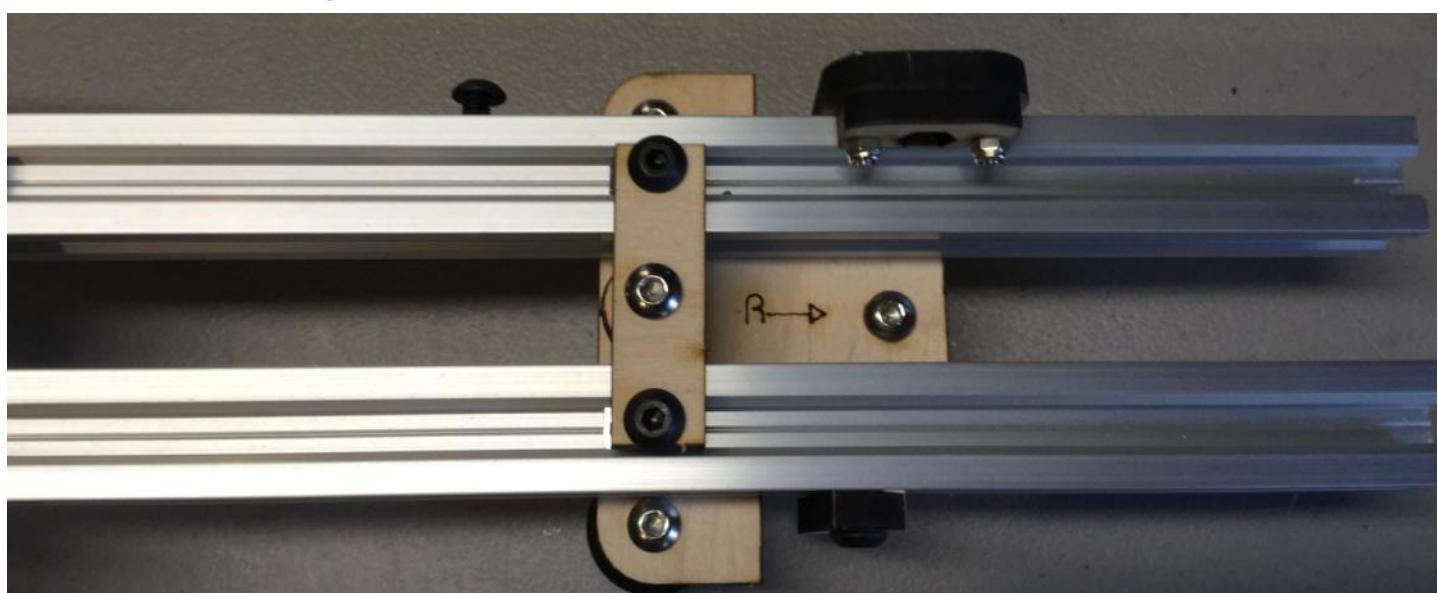
Install a M5x12mm bolt with a T-Slot nut into the top extrusion as shown by the Red Arrow, then Install two M5x12mm bolts and T-Slot nuts into the two Z Nut traps and install them as shown by the Blue Arrows, Last slide the X Idler Bracket onto the back of the Extrusion as shown by the Green Arrow.



Install Two T-Slot Nuts into the Extrusion by the X Idler Bracket as shown by the Red Arrows Below, then install the Adjustable Z endstop piece with a M5x12mm bolt and T-Slot nut as shown by the Blue Arrow

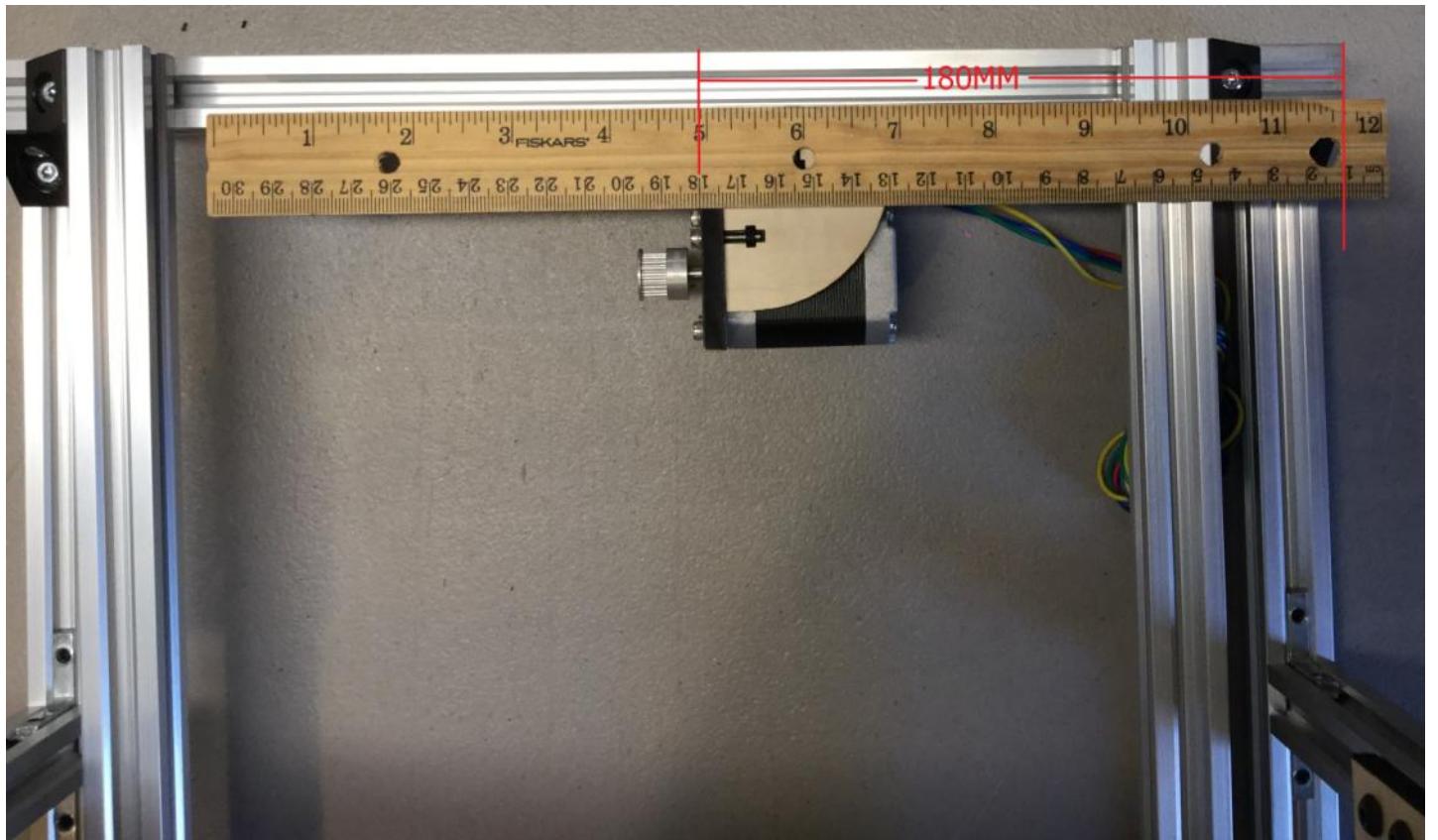


Last Install the Belt Idler onto the two T-Slots using two M5x12mm long bolts, The Belt Idler bolt will go into the hole in the X Idler bracket

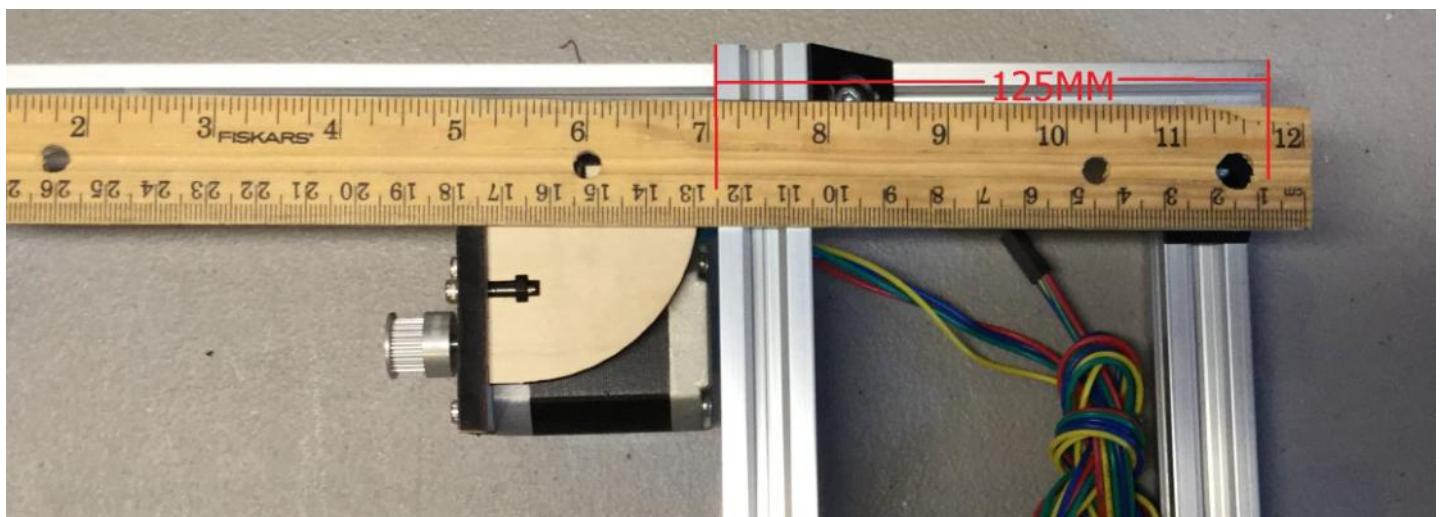


Frame Setup

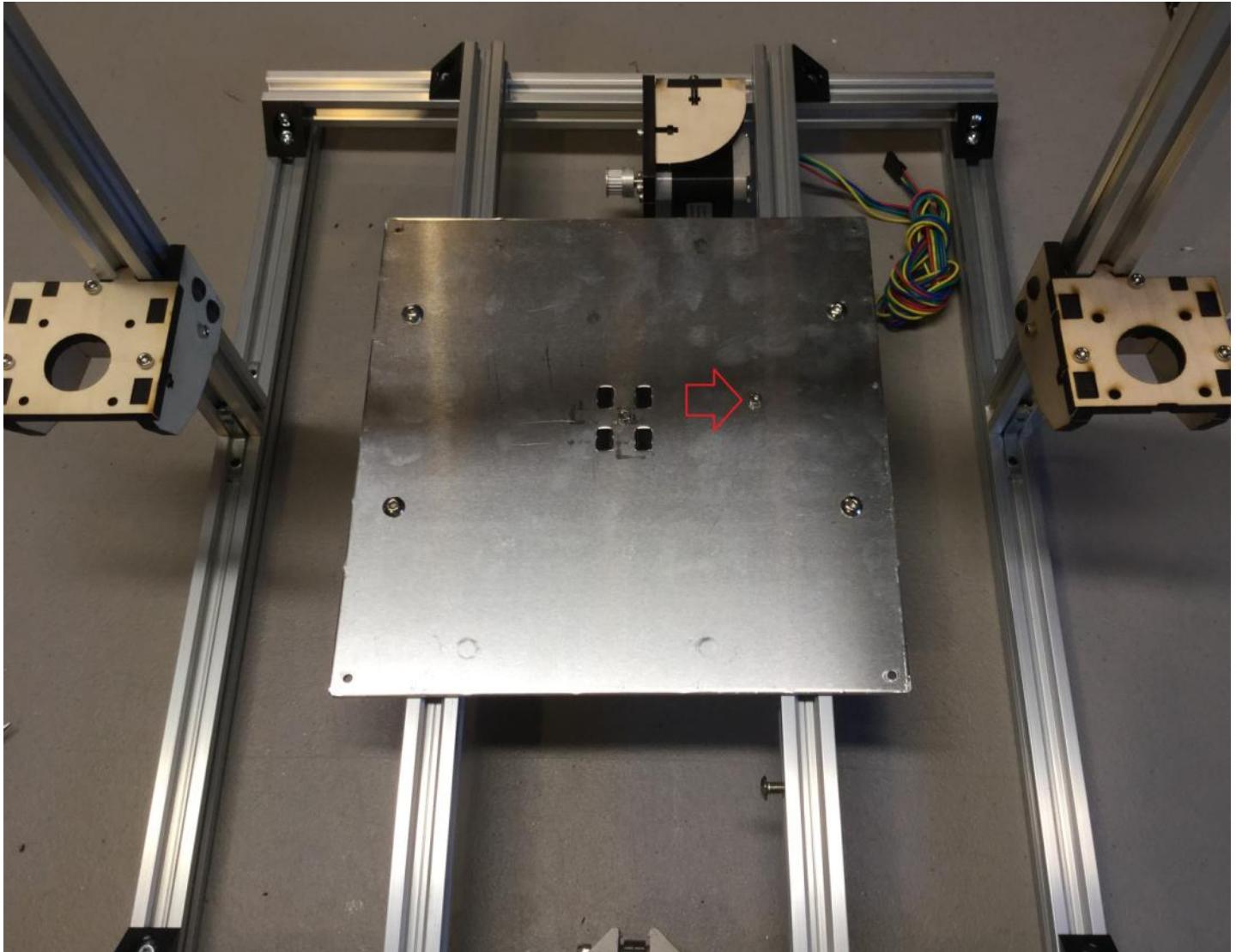
Adjust the Y Motor bracket so it is 180mm from the right edge of the Aluiminum Extrusion it is mounted to as shown below then tighten down the two M5 bolts holding the Y Motor bracket to the extrusion (if its easier you can remove the Motor to do this).



Next move the Aluiminum Extrusion just behind the Y motor so it is 125mm from the right edge of the Aluminum Extrusion the Y motor bracket is mounted to as shown below, then tighten the 90 Degree Angle Bracket in place, then set the front of the same extrusion to 125mm also.



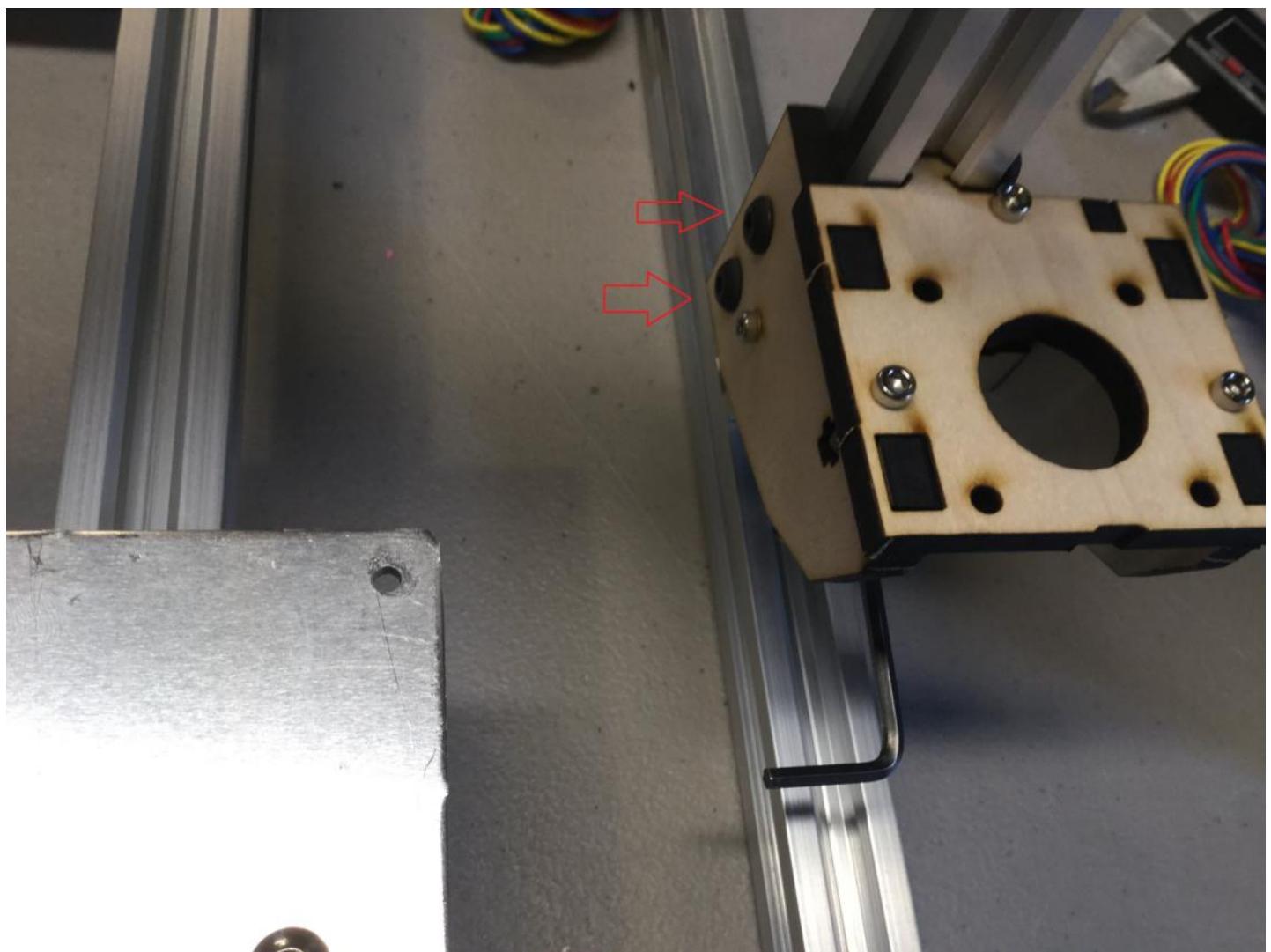
Now put the Heat bed mount onto the extrusion we just tightened into place, make sure the m3x16mm bolt with its two Lock Nuts are on the right back side as shown by the red arrow. Pull the left extrusion the Heat bed mount rides on to the left then while holding it tighten down the extrusion in place so the Heat bed mount moves freely back and forth without any play. (Make sure your eccentric spacers orientated the same direction)



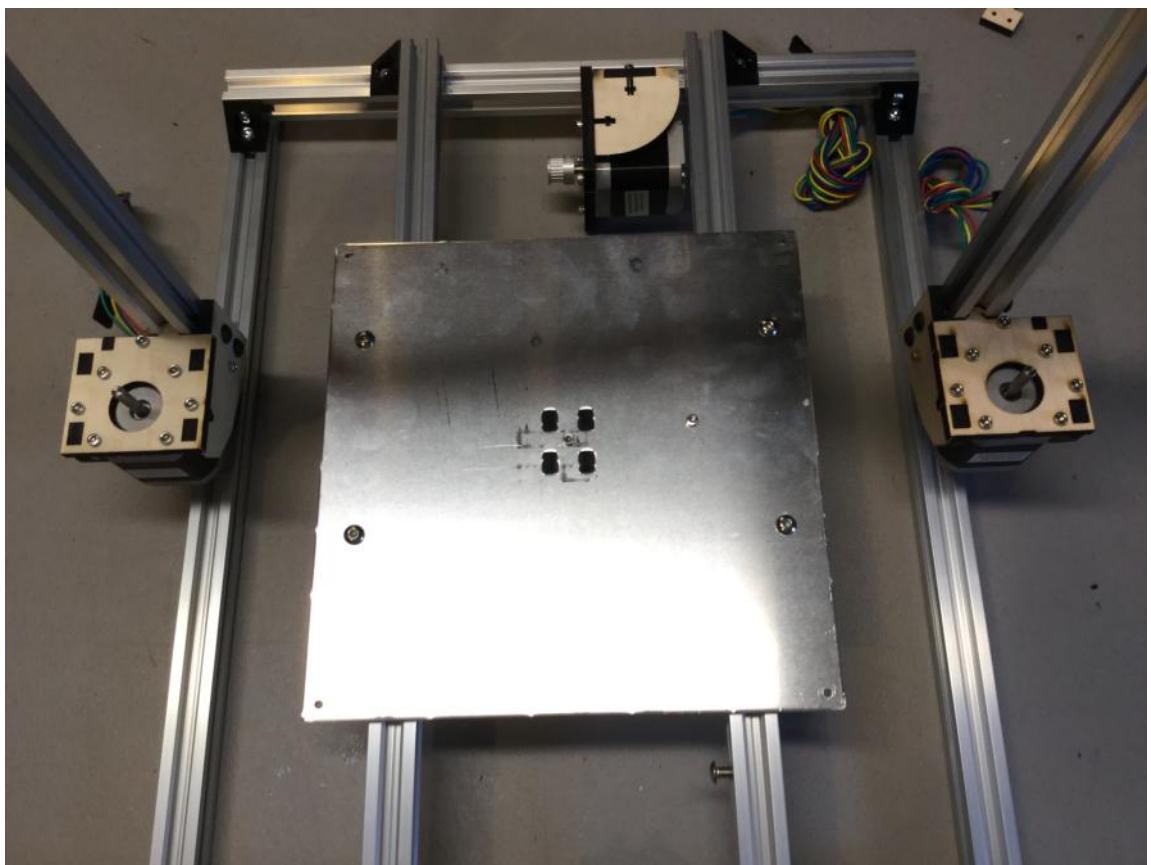
Next we will adjust the Extrusion that the Z motor brackets are mounted to. Adjust them so the front of the extusion (right under the Z Motor Bracket) is 183mm From the back of the extrusion.



Now lower the Z motor brackets down as far as they will go and tighten the 4 bolts on each Z motor bracket (8 bolts total, 4 on each motor bracket) . Two are shown below with red arrows the other two are inside the bracket where the wrench is in the picture below.



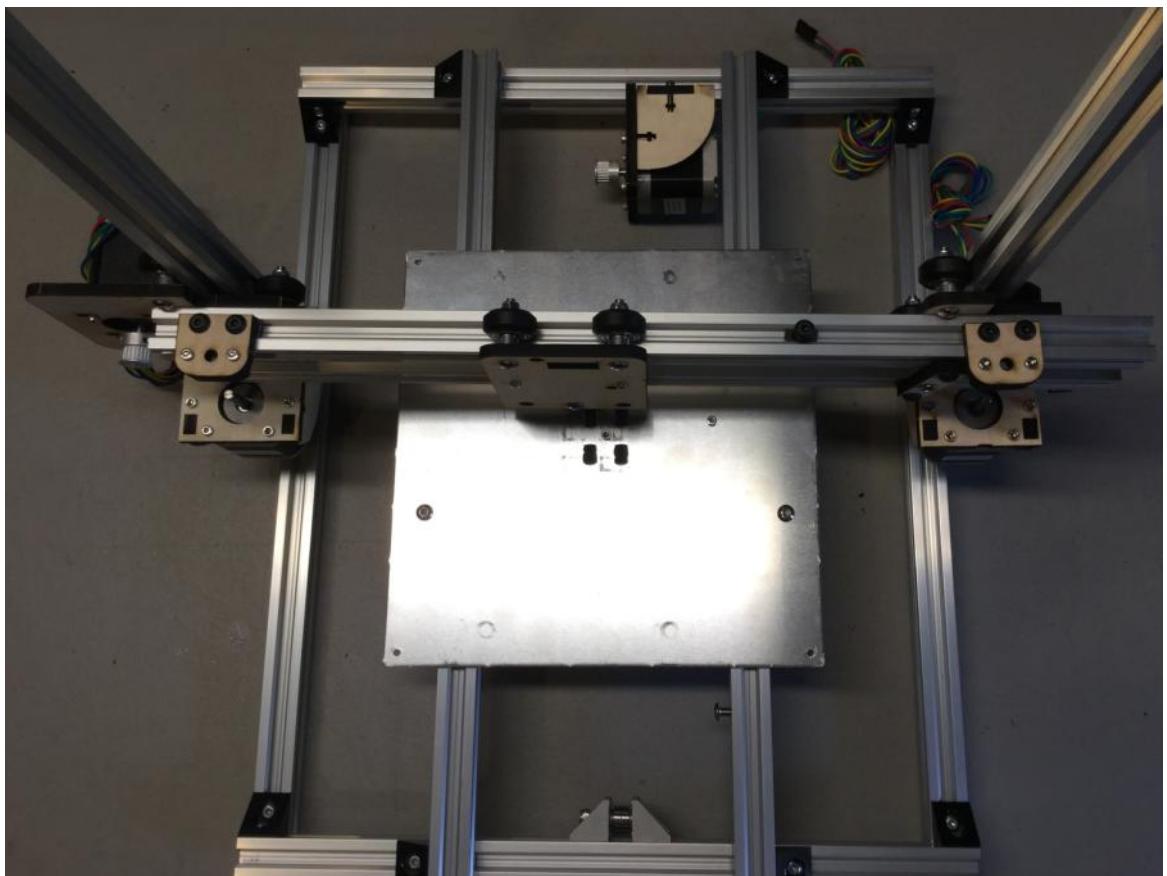
Install a motor into the Z motor Brackets then secure them in place using 4 M3x10mm bolts, Route the wires of the motors so they come out the back of the bracket.



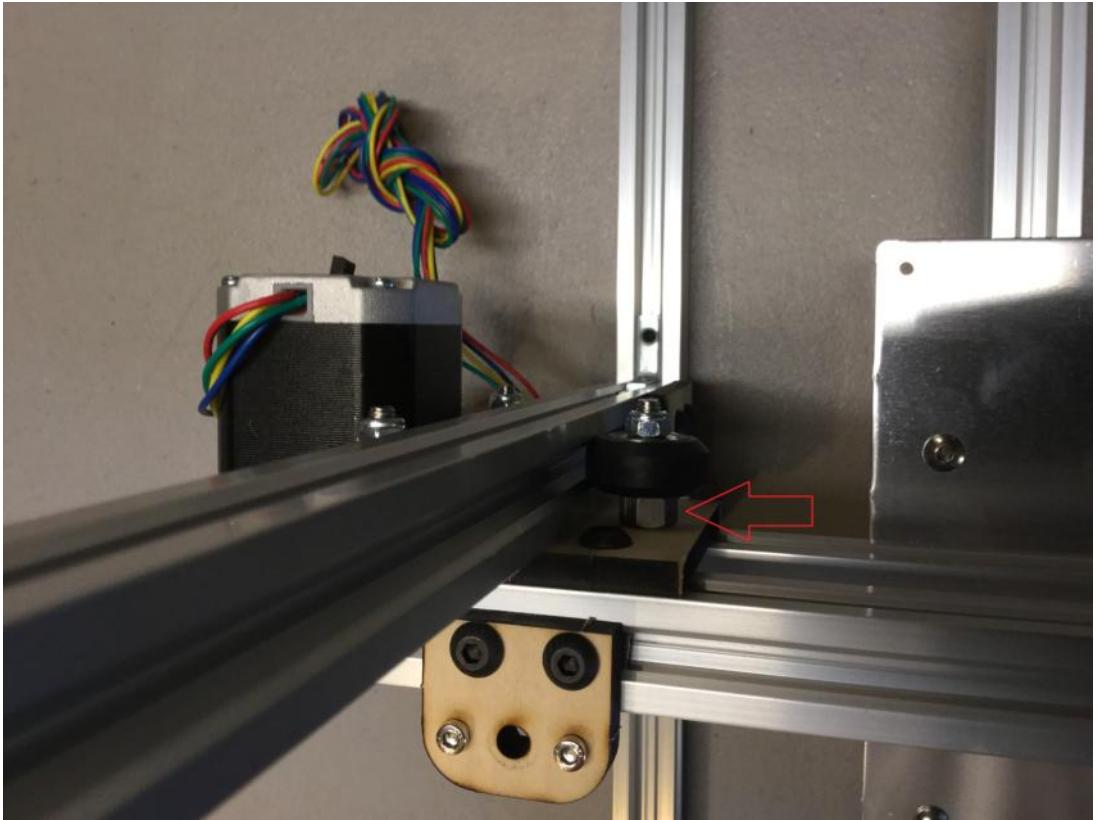
Remove the top extrusion piece then slide the X axis down onto the printer, you may need to loosen the x Motor and X Idler brackets so you can slide them to match the Extrusion.

The Delrin Idlers on the X motor and X Idler should ride on the extrusions v-Slot.

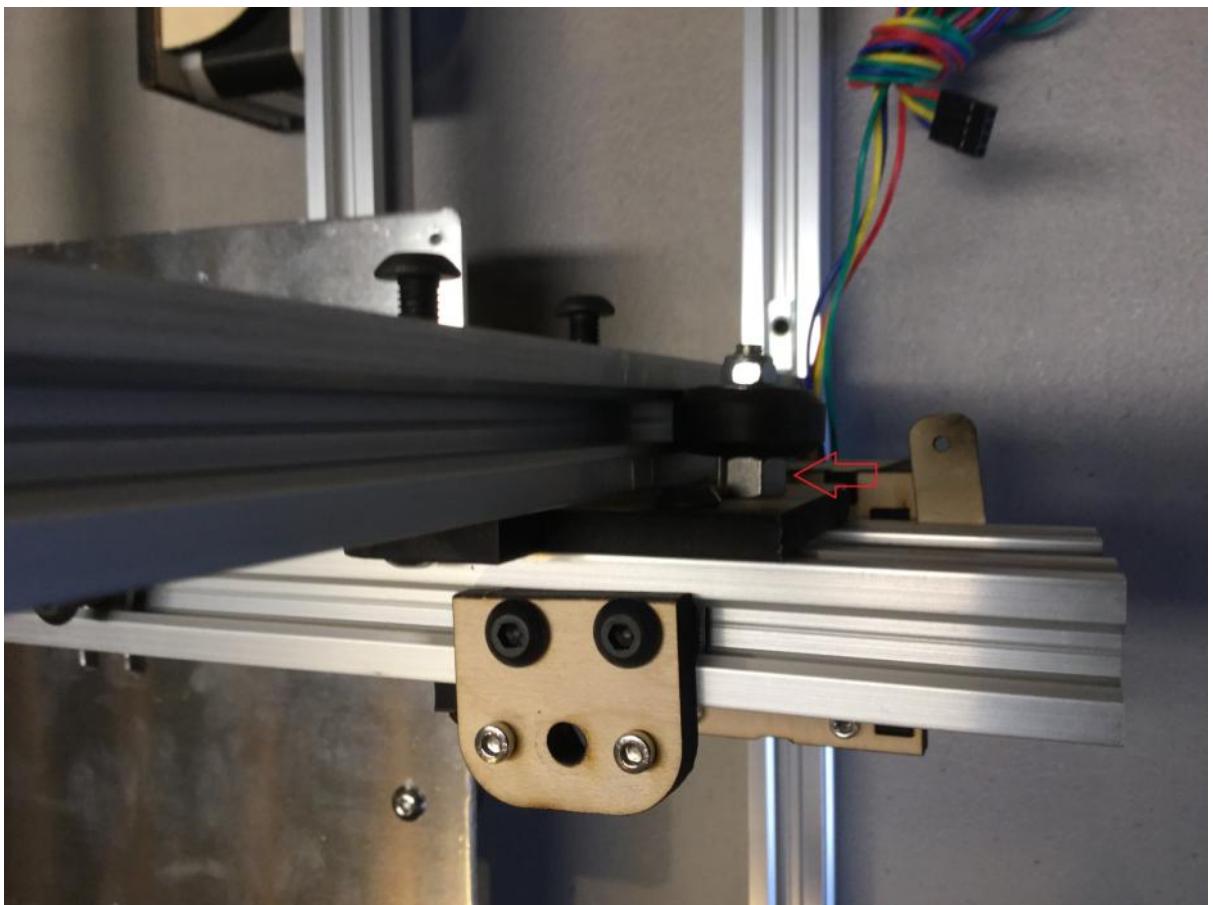
Reinstall the top Extrusion.



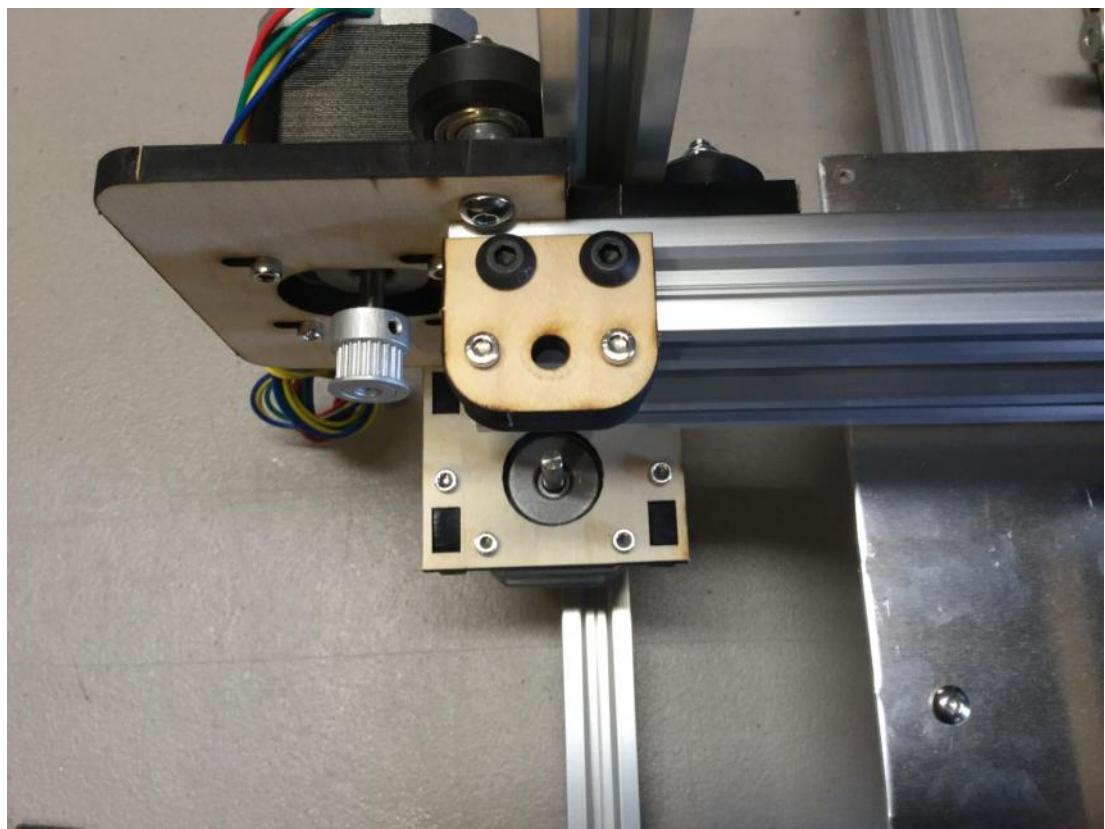
While the bolts that hold the X idler side to the extrusion are loose turn the eccentric spacer on the X motor until you can see that all 3 delrin wheels on the X motor contact the extrusion.



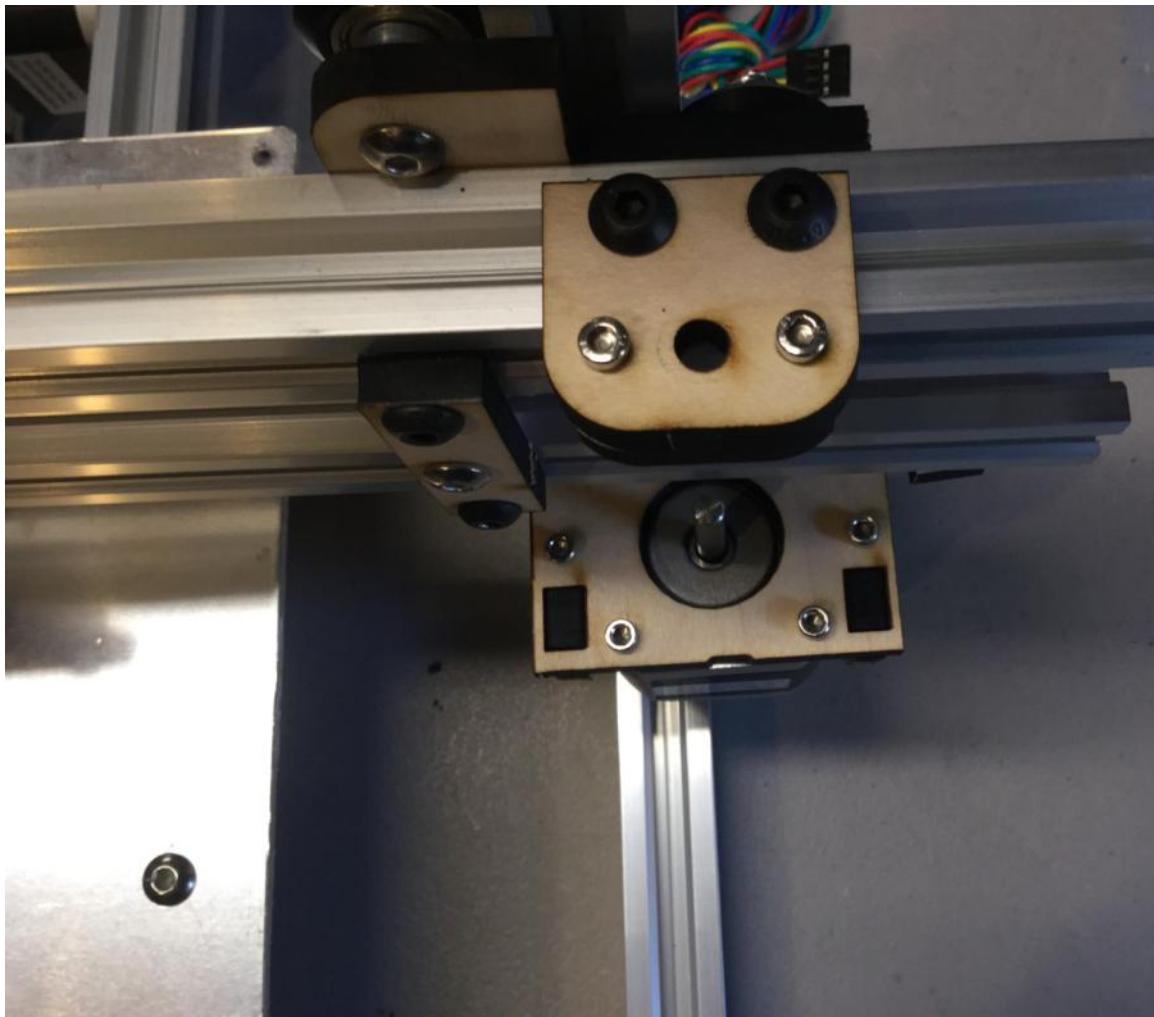
Now tighten the Eccentric spacer on the X Idler side so all 3 delrin wheels contact the extrusion, then tighten down all the bolts holding the X idler and Belt idler to the extrusion.



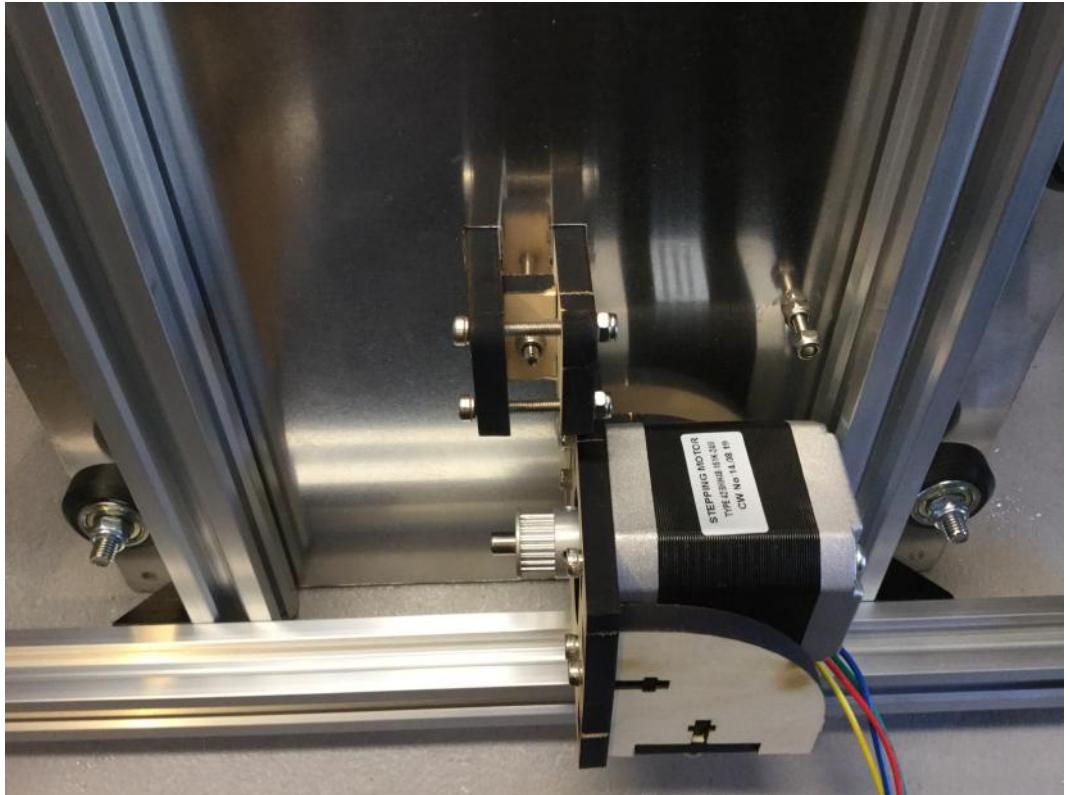
Align the Z nut trap hole with the motor shaft on the X Motor Side then tighten down the bolts holding the Z nut trap to the extrusion.



Repeat the process for the Z Nut trap on the X Idler side before tightening down the bolts.



Next we will install the GT2 Gear onto the Y motor that is under the heat bed mount, turn the printer upside down carefully and align the gears teeth with the wooden mount as shown in the picture, then tighten the gear down with a set screw on the flat spot of the motor shaft.



Now move the Heat Bed Mount to the front of the machine, align the Y Belt idler with the wooden mount as shown, then tighten down the bracket to the extrusion with the red arrow in the picture below, then tighten the M5x30mm bolt that has the washers and bearings, last tighten the bracket with the blue arrow as shown below.

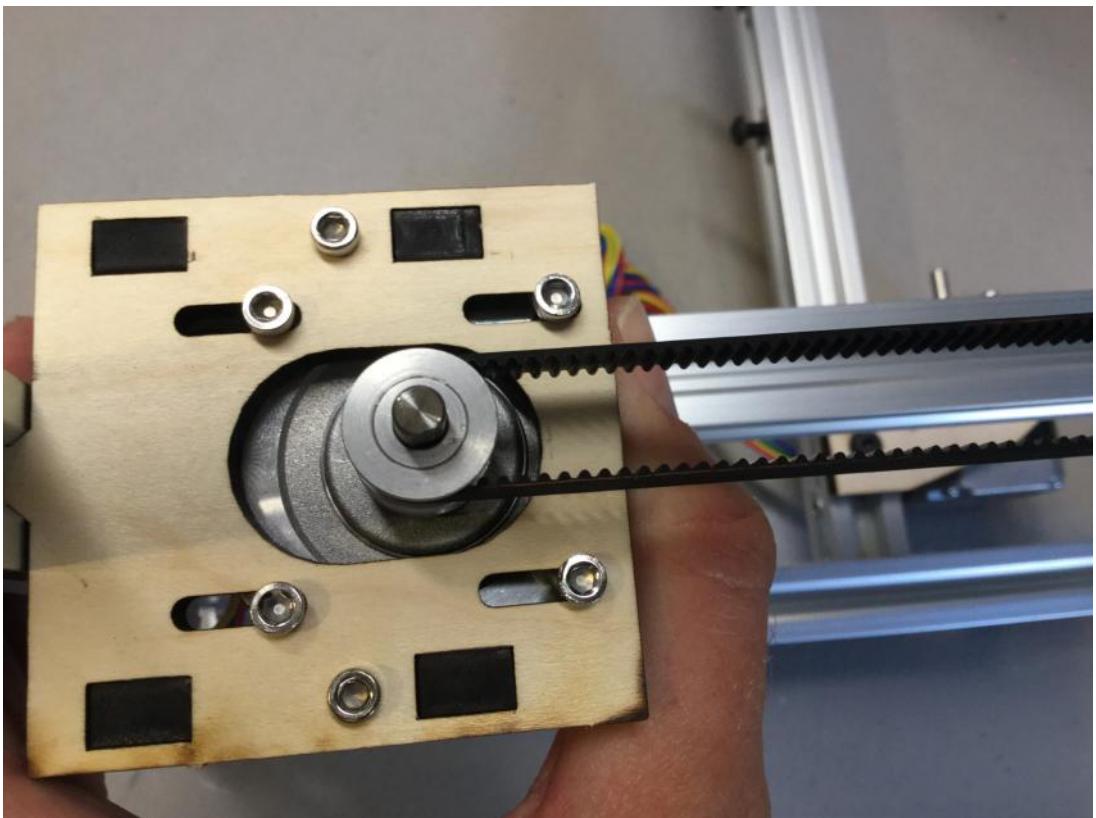


Next get your belt and cut a piece off that is 31 inches long, loop one end over and use a zip tie to secure it, then install that loop onto one of the M3x25mm bolts shown below. Run the other side of the belt through the idler around the gt2 gear and back to the other M3x25mm bolt. (Make sure you Y motor is pulled as far to the front as possible) then loop the other end and install a zip tie before installing it on the other m3x25mm bolt.

Tighten the
Lock nuts on
the M3x25mm
bolts.



Now pull the Y motor to the back of the printer to tension the belt then tighten down the 4 M3x10mm bolts that hold the motor to the Y motor bracket

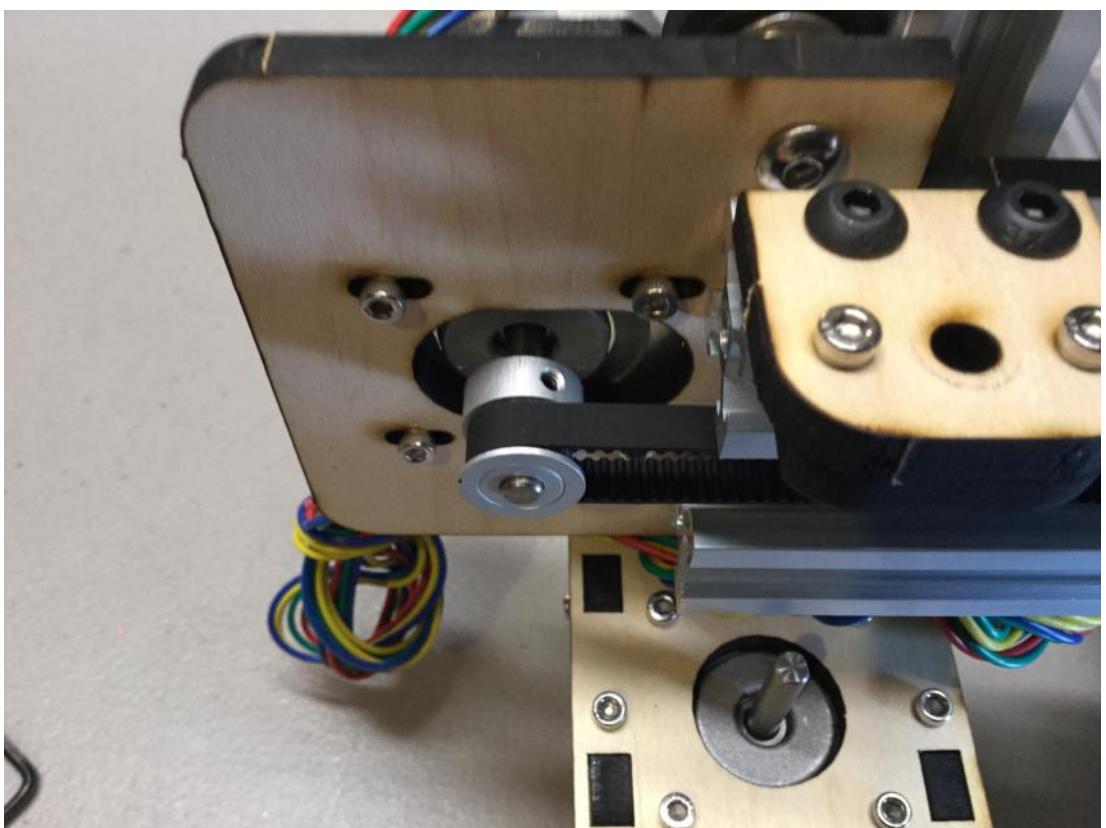


Next get the rest of the belt and cut a piece that is 31.5 inches long if you have a single extruder or 30.5 inches long if you have a dual extruder, loop one end over and use a zip tie to secure it, then install that loop onto one of the M3x16mm bolts on the X Carriage, Run the other side of the belt through the idler around the gt2 gear and back to the other M3x16mm bolt. (Make sure your X motor is pulled as far to the Right as possible) then loop the other end and install a zip tie before installing it on the other m3x16mm bolt. Install M3 Lock nuts on the M3x16mm bolts (use needle nose pliers to tighten the Nylon Lock Nuts.

At this time you can also adjust the Eccentric Spacer on the X carriage so all 3 wheels contact the Aluminum Extrusion.



Now pull the X motor to the left of the printer to tension the belt then tighten down the 4 M3x10mm bolts that hold the motor to the X motor bracket

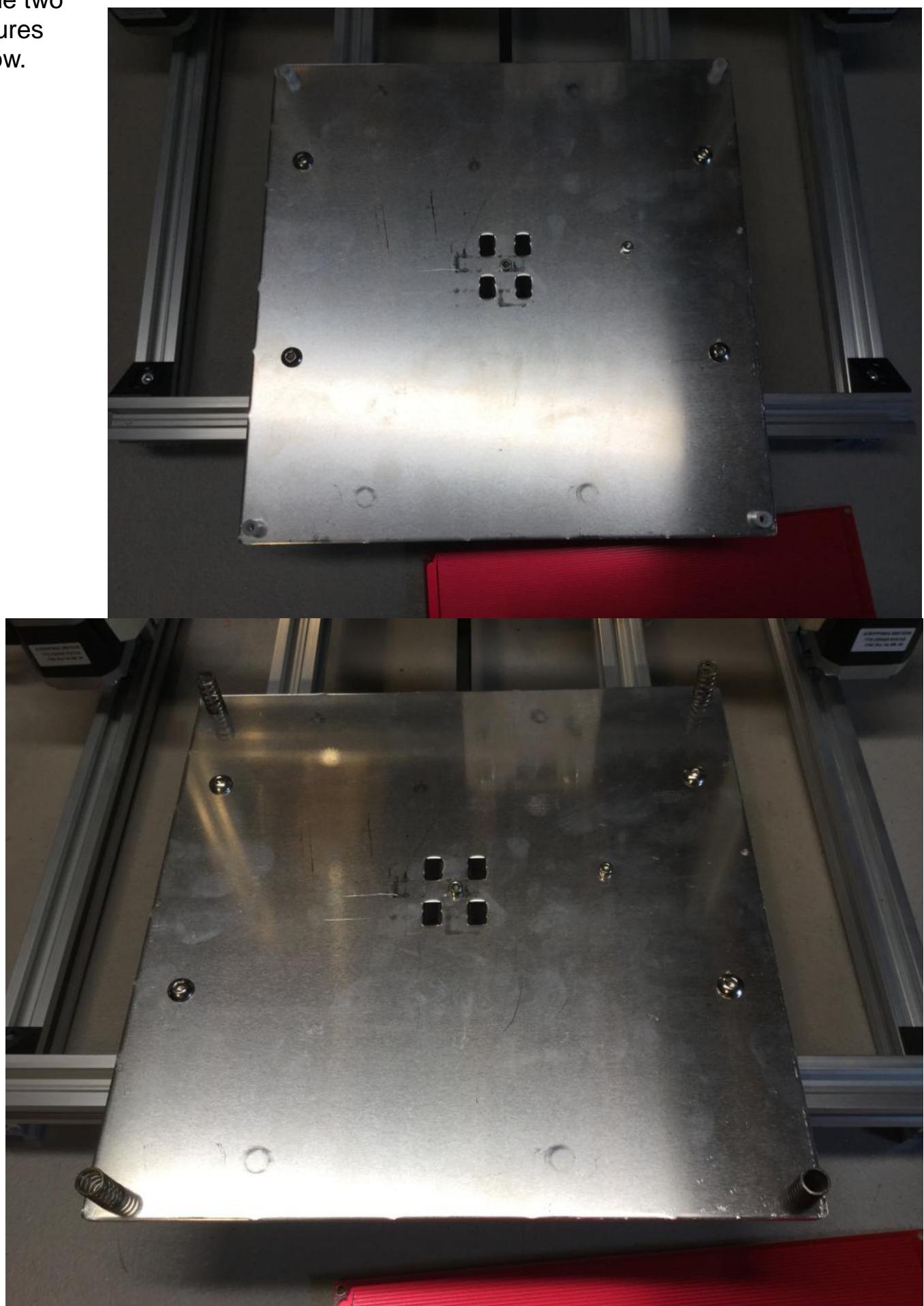


Heat Bed

Get the thermistor for your heat bed and use kapton tape to tape it to the bottom of your heat bed so the glass bead is in the center of the bed (Your kapton tape will not be as wide as the kapton tape shown so you will use more strips of tape)



Depending on the kit you have position the 4 Nylon Spacers, 4 Laser Cut Wood spacers or 4 Springs over the 4 holes in the corner of the heat bed mount as shown in the two pictures below.

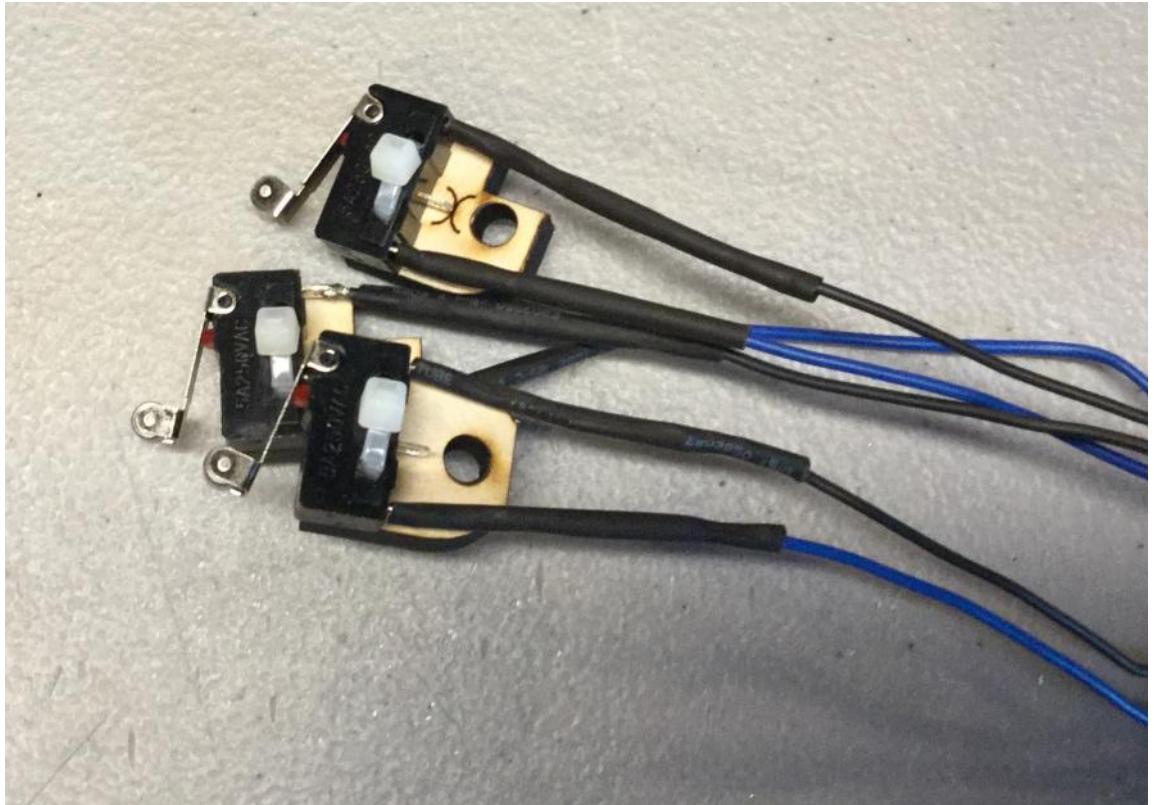


Put the heat bed on top then install 4 bolts through the corners, M3x16mm bolts if you used Nylon or wood spacers and M3x25mm bolts if you used springs, then install an M3 Nylon Lock nut onto each bolt and tighten them down.

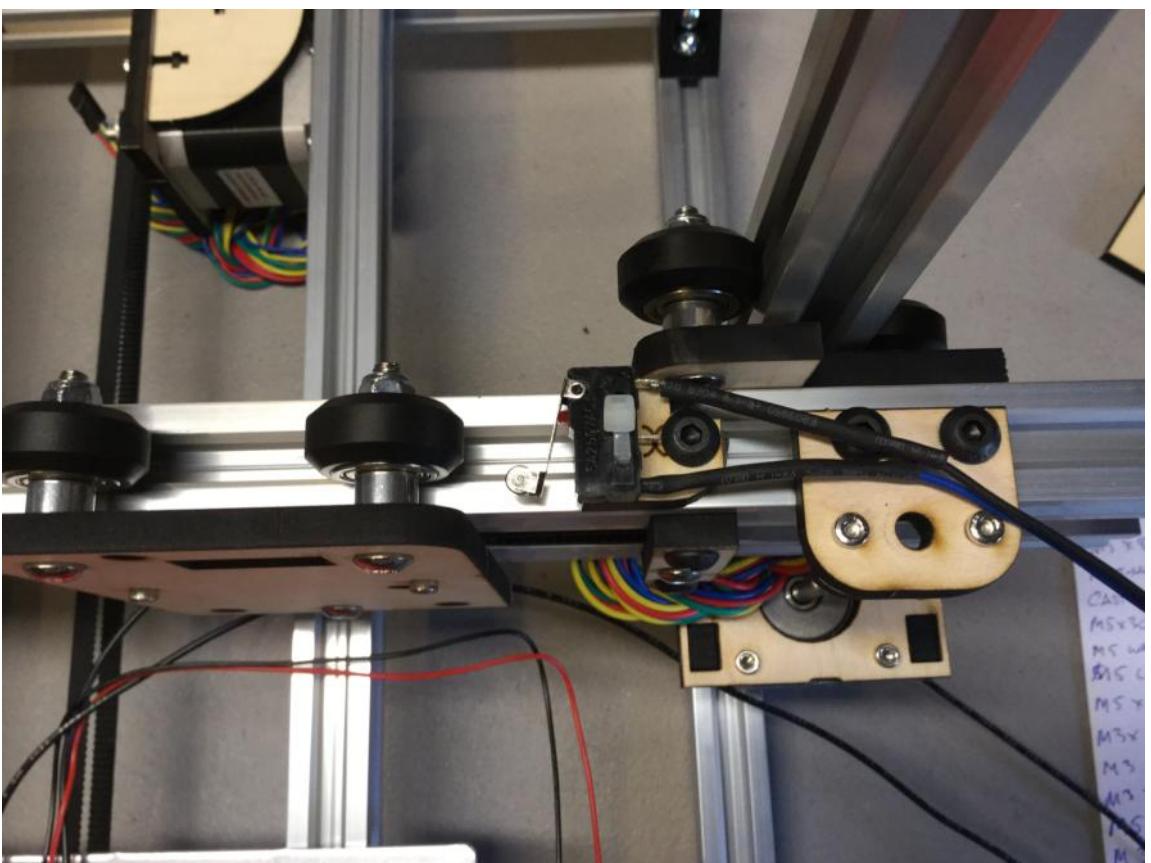


Endstops

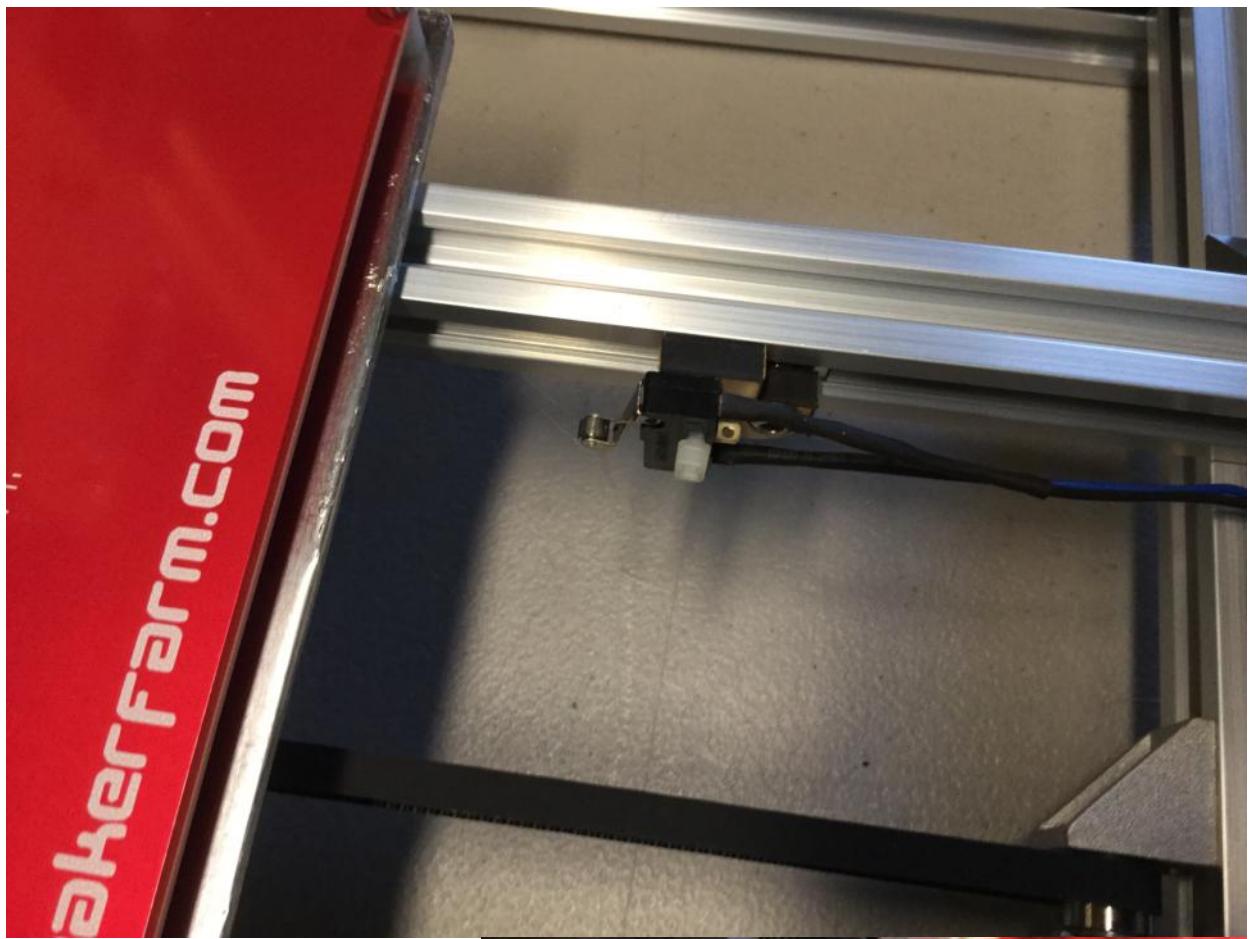
Get the 3 endstops from your kit, if the wires are not already soldered on to the switch solder the wires as shown in the picture, then zip tie them to the wood pieces as shown, make sure all the switches are the same direction.



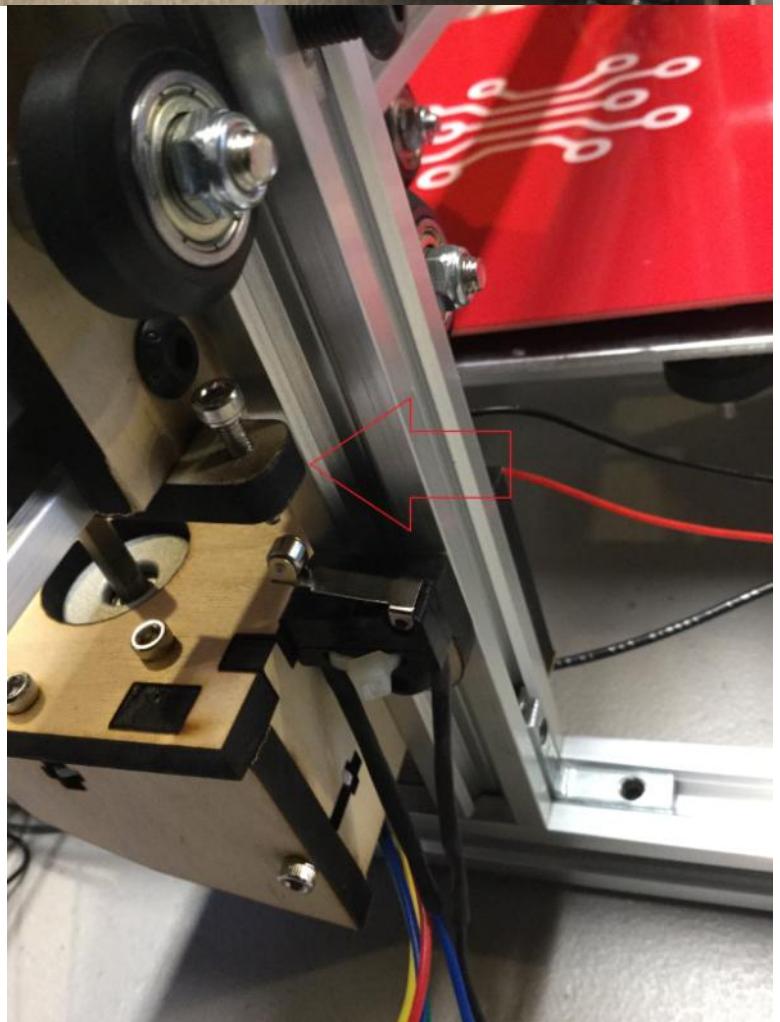
First we will mount the X endstop (X marked on the wood piece) to the top aluminum extrusion of the X axis, remove the previously installed M5x12mm bolt and install the assembly as shown below.



Next the Y endstop, install near the front of the machine, remove the previously installed M5x12mm bolt and install the assembly. The M3x16mm bolt and Nylon lock nut installed under the heat bed will hit the switch. Adjust the switch location so the nozzle is just behind the glass when the switch has been triggered.



The last endstop will be the Z endstop, it will mount just behing the Right Z motor bracket on the previously installed M5x12mm bolt. Once installed add a M3x16mm Bolt to the Adjustable Z endstop piece (See red arrow) then adjust the piece so the bolt is just above the end of the switch. Later we will move the switch up and down for large adjustments of the Z home position and turn the M3x16mm bolt for fine adjustment. Once we have power to the printer we will adjust the Z endstop so the nozzle just barely touches the glass.



LCD installation

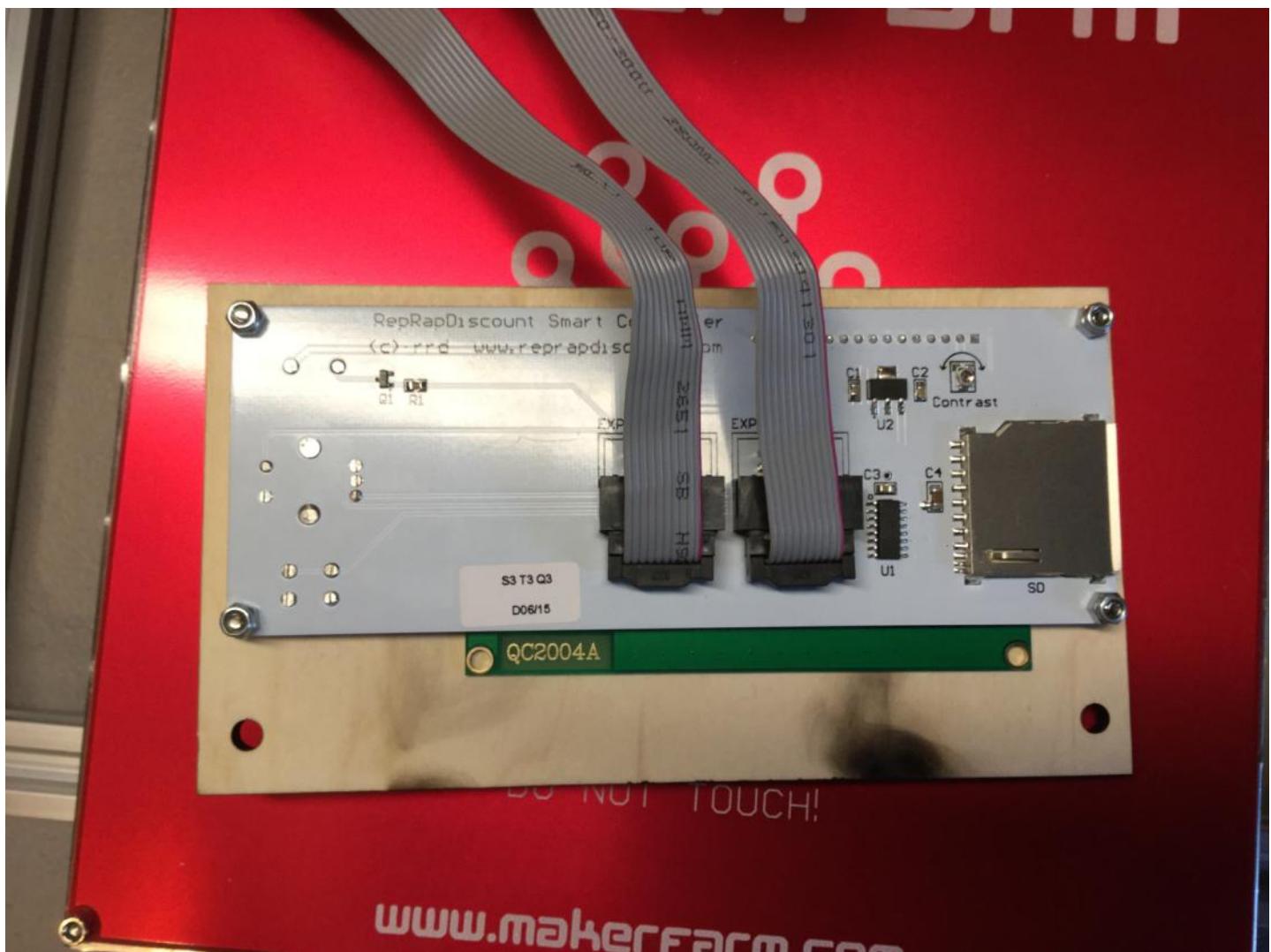
Optional LCD

1 x Wood Parts shown below

4 x M3x16mm Bolt

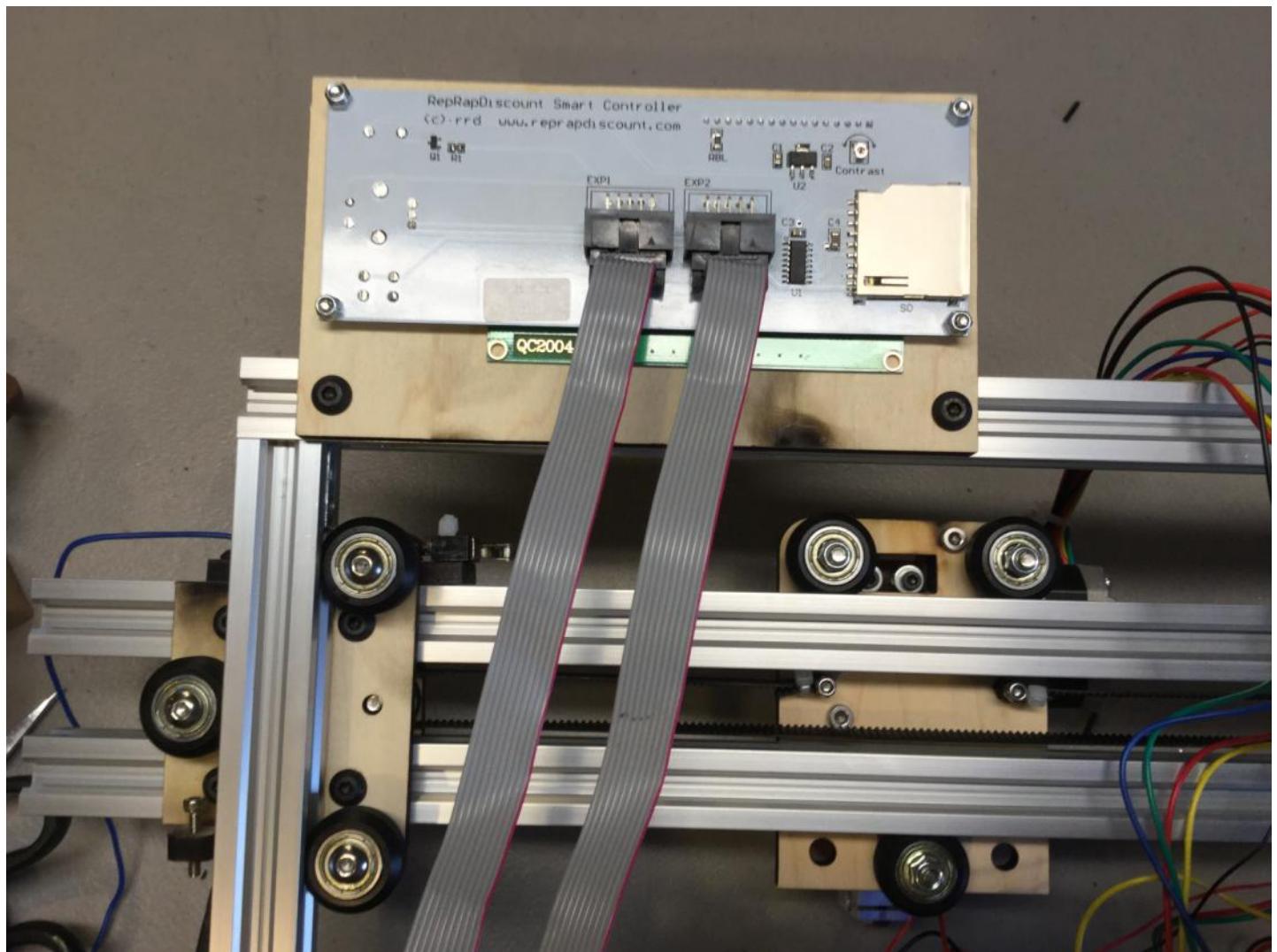
4 x M3 Lock nuts

1 x LCD Interface



Install the LCD into the wood mount using the 4 M3x16mm bolts and 4 M3 Nylon Lock nuts, tighten them down so the bolts are not loose, but they are not flexing the LCD.

Install the LCD mount on the back of the Printer where we previously installed two M5x12mm bolts and T-Slot Nuts as shown below.



E3d Lite6 Hot End

Gather the following parts

1 x Hot End Kit



E3d Lite6
Assembly

Your e3d Fan will connect directly to your power supply, Black fan wire to v- and red fan wire to v+

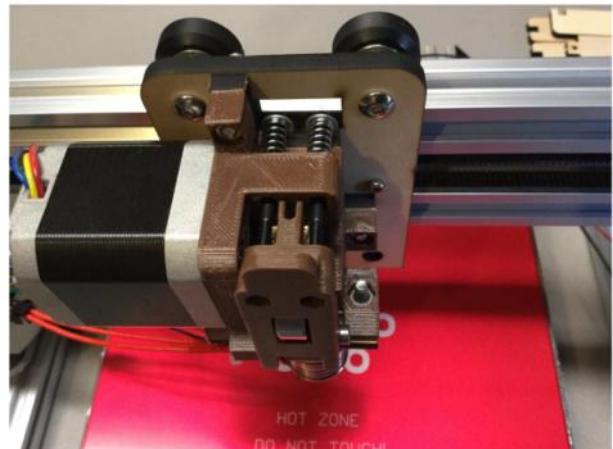
Extruder

Extruder

For the Single Extruder follow this guide:

Pegasus

Single Extruder



Visual Instructions

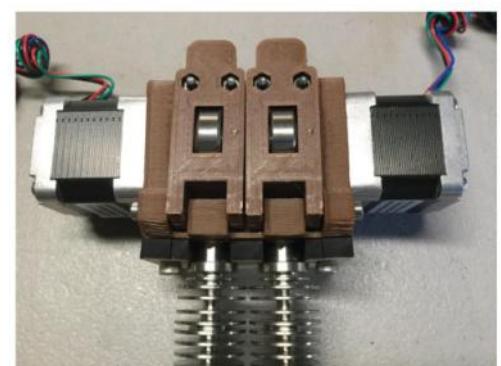
MAKERFARM



Pegasus

Dual Extruder

For the Dual Extruder follow this guide:



Visual Instructions

MAKERFARM



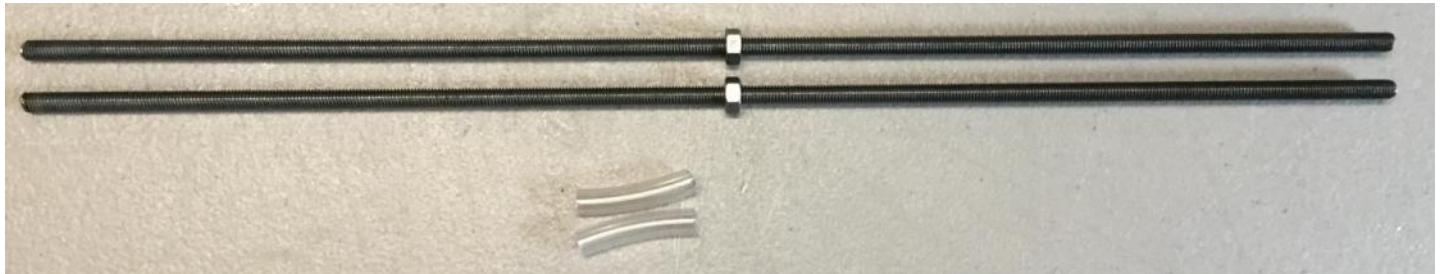
Z Rods

Gather the following items to mount the Z Threaded Rods

2 x M5 Threaded Z Rods

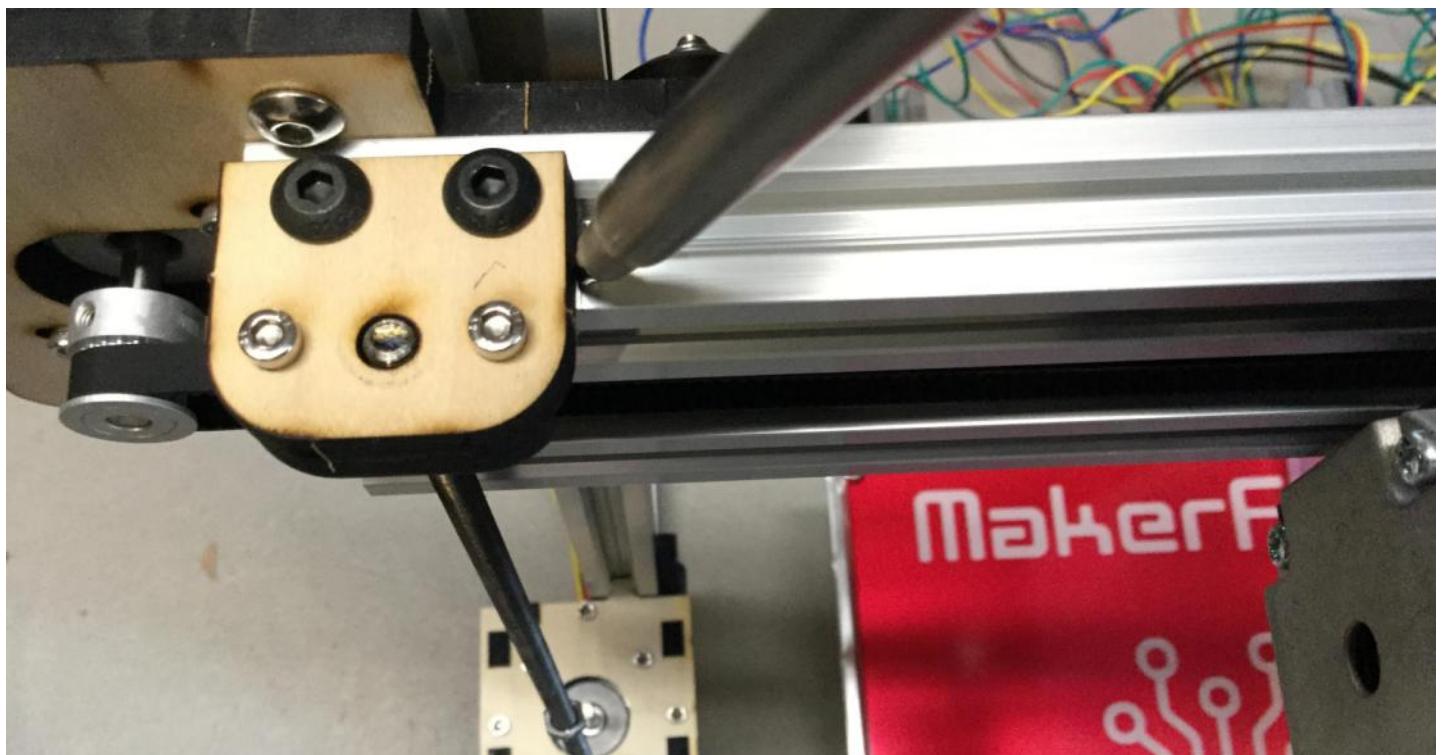
2 x M5 Regular Nuts

2 x Z Coupler Tubes

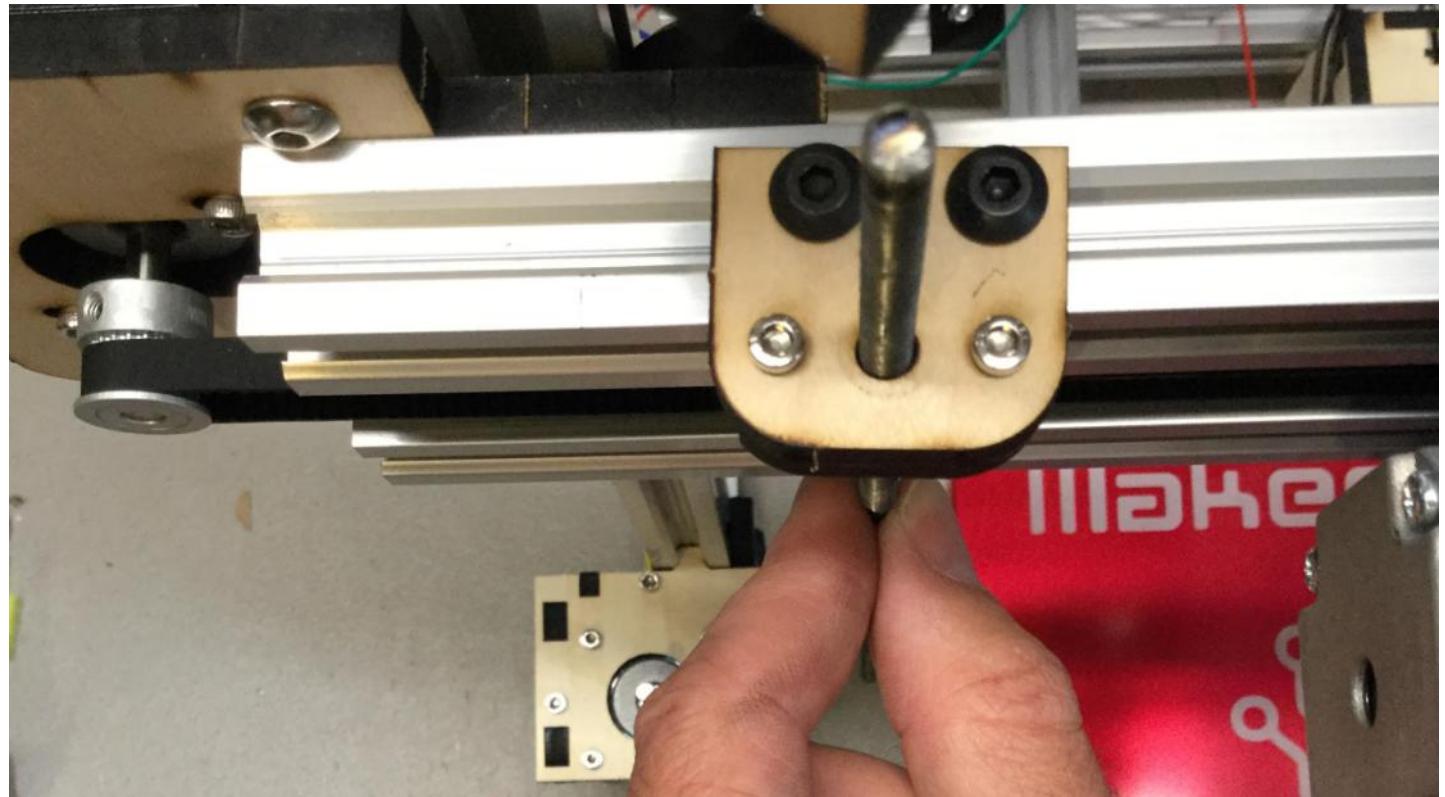


Thread the M5 nuts onto the threaded rods about half way, if the nut won't easily thread onto the threaded rod try the other end of the threaded rod.

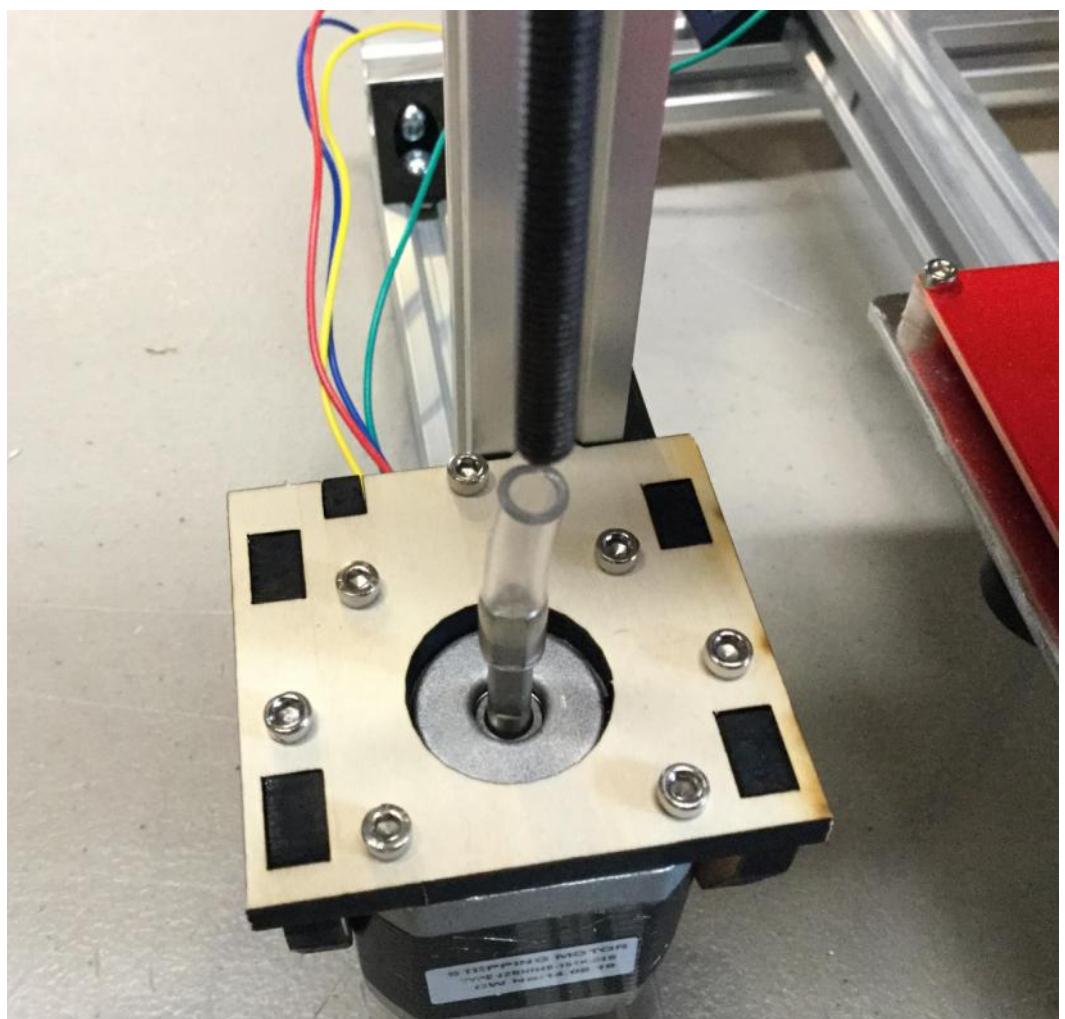
Next, mark the location of both Z nut traps, on the extrusion



Loosen the two bolts holding the Z nut trap to the frame, move the Z nut trap off to the side then push the Z threaded rod up into the nut trap, then move the Z nut trap back in its original place and tighten down the two bolts.



Push the clear tubing half the way onto the motor shaft, then align the threaded rod over the tube and while holding the tube push the threaded rod into the tube.

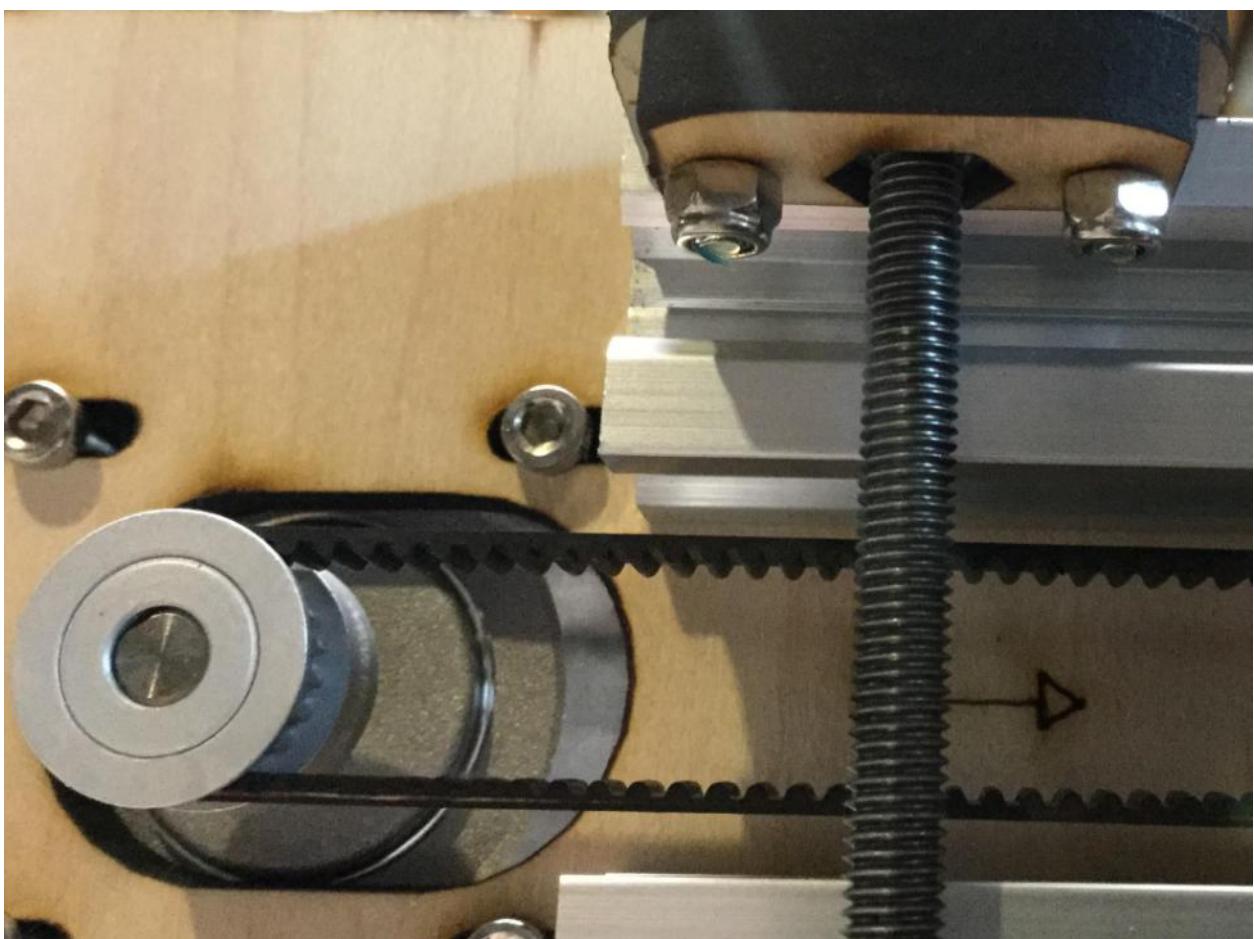
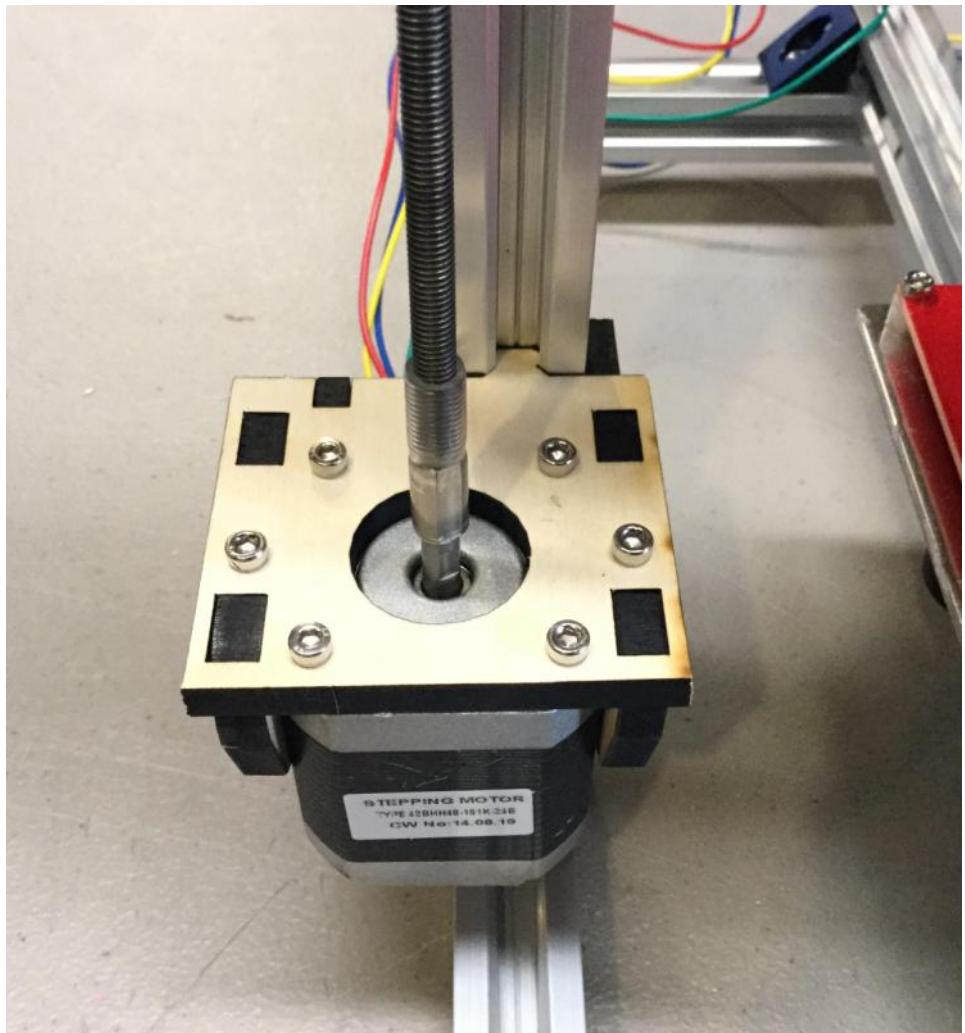


You should now have the threaded rod meeting the motor shaft half of the way into the clear tubing as shown on the right.

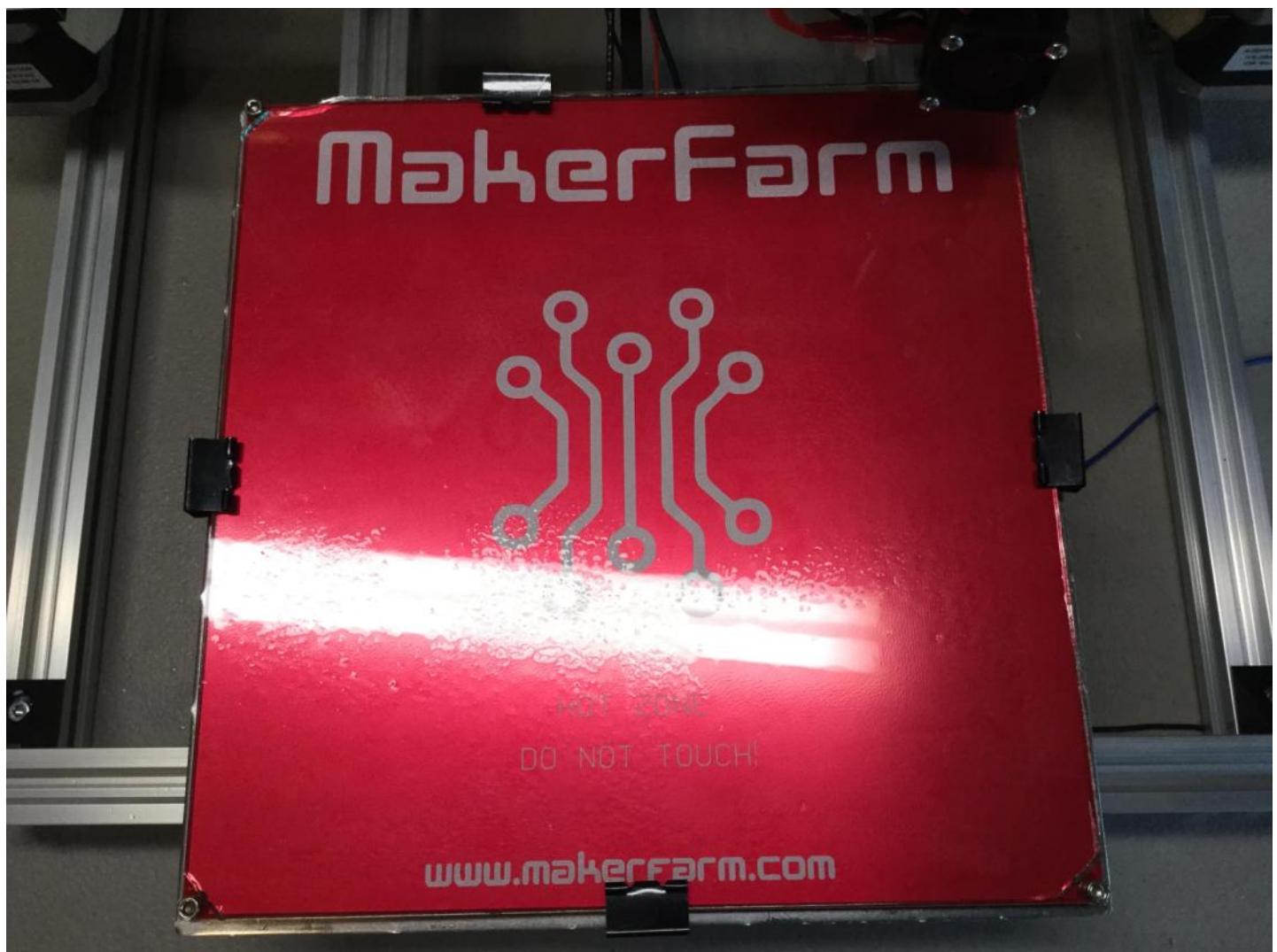
Repeat the process for the other Z motor.

Last align the nuts so they will be recessed up into the Z nut trap as shown in the photo below. Your X axis should now be sitting on the M5 nuts on the threaded rods. If the X axis is not parallel to the heat bed you can hold onto one threaded rod to prevent it from turning and turn

the
other
rod.



Next get the glass and hairspray mentioned on page 4 of the build guide, if you haven't already broken the corners off to clear the bolt heads you can do that now. I use plers to break a small amount of glass in each corner and repeat until the glass will sit flat on the heat bed (The heat bed will not be flat which is why we have glass as a flat print surface) and not on top of the bolts in each corner. Once the glass fits in between the bolt heads spray one side of the glass with the hairspray, usually this should take about 5 seconds to cover the whole glass with the right amount of hairspray. (Usually I spray the glass once a month then every 4-6 months I remove the glass and wash all the hairspray off under hot water). Last use the binder clips to hold the glass to the heat bed (I remove the binder clip legs as they can vibrate or hit the electronics, keep the legs for when you need to put the glass back on the printer)



Ramps Install

Gather the following items to mount the RAMPS Electronics

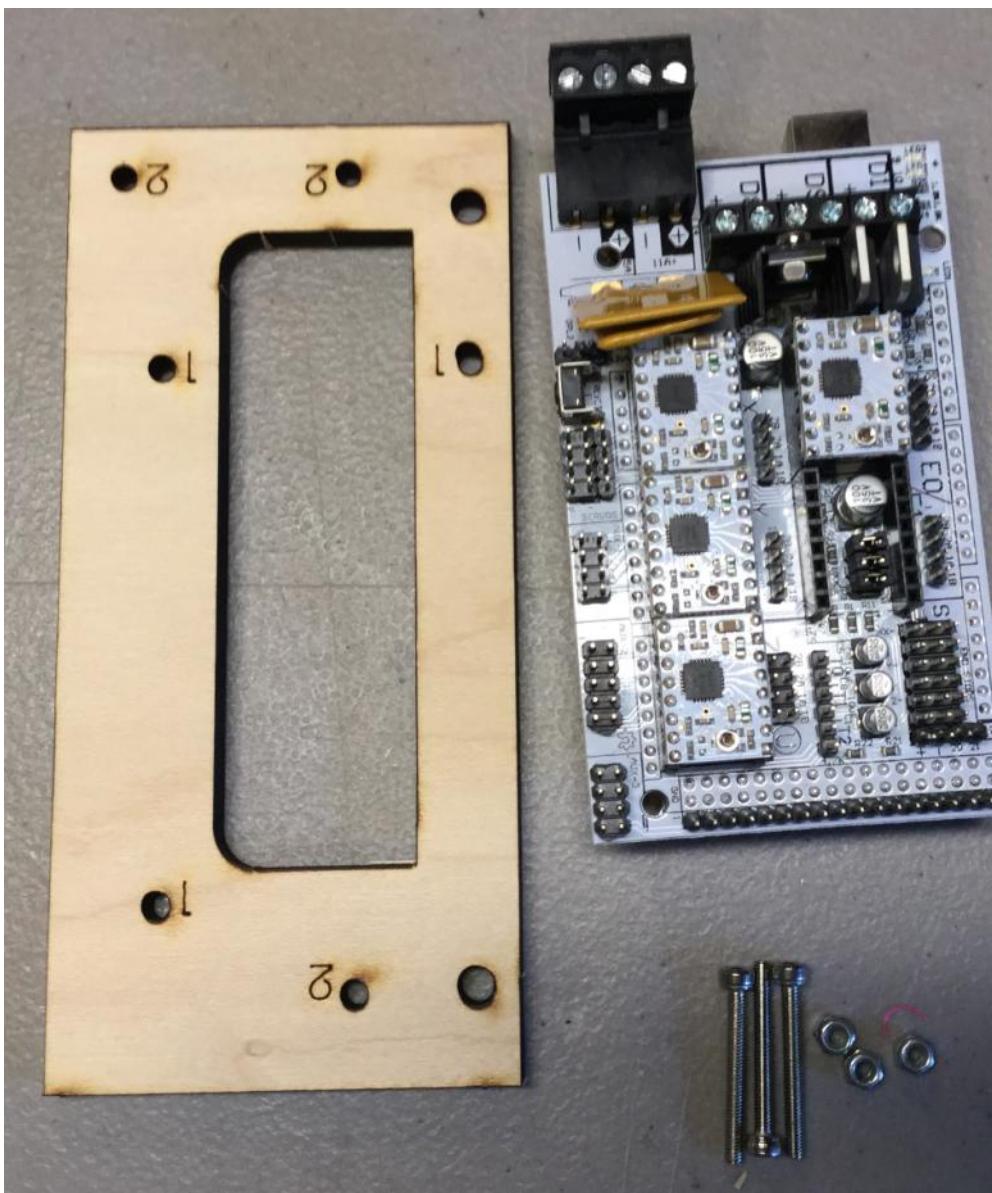
1 x Ramps mounting plate

1 x RAMPS Electronics

3 x M3x25mm Bolts

3 x M3 Nylon Lock Nuts

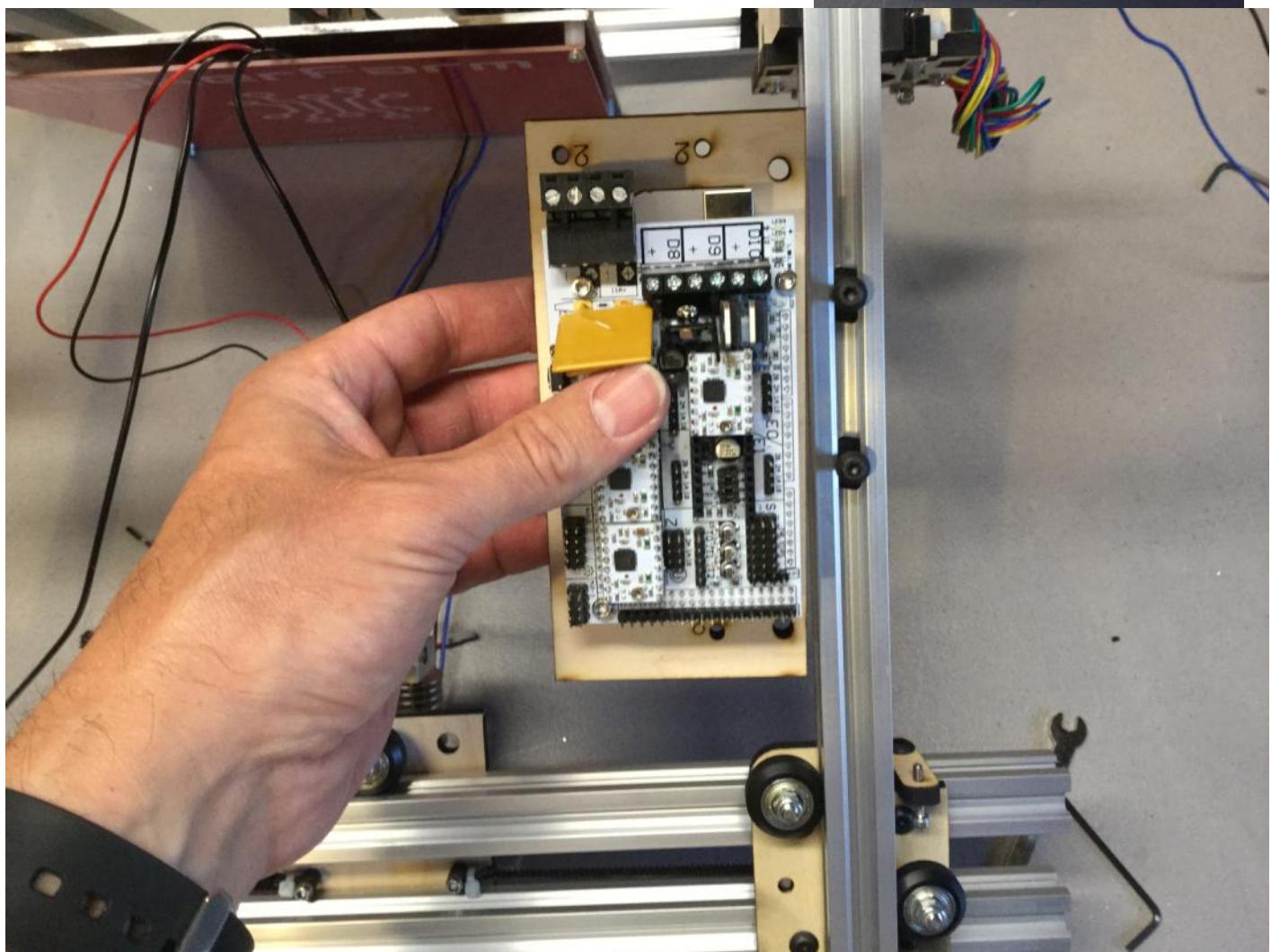
If you RAMPS isn't already assembled as shown below go ahead and follow the RAMPS Assembly guide here: [Download](#)



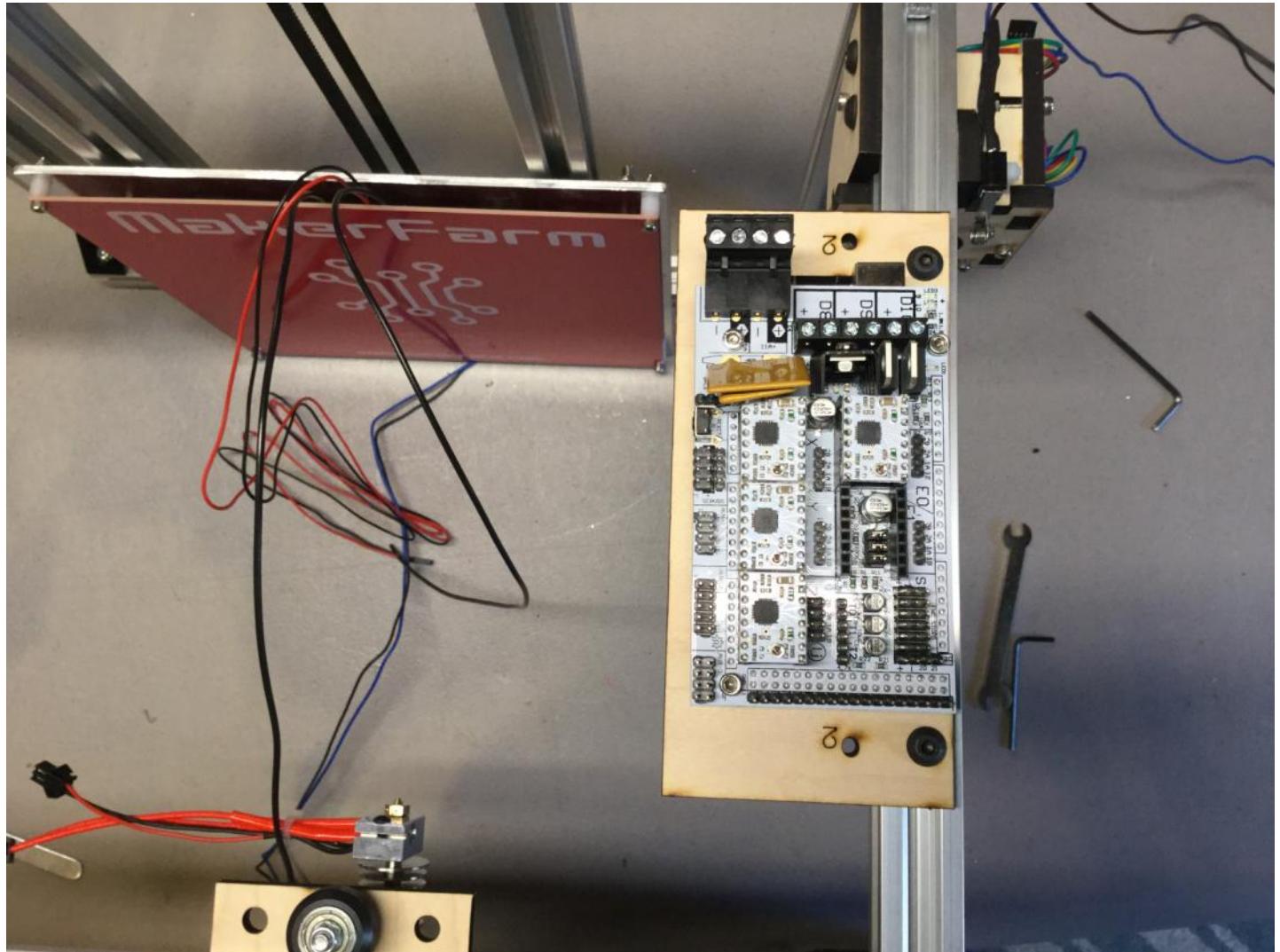
Mount the Ramps to the Mounting plage using the 3 M3x25mm Bolts and Nylon Lock Nuts as shown in the photo on the right.



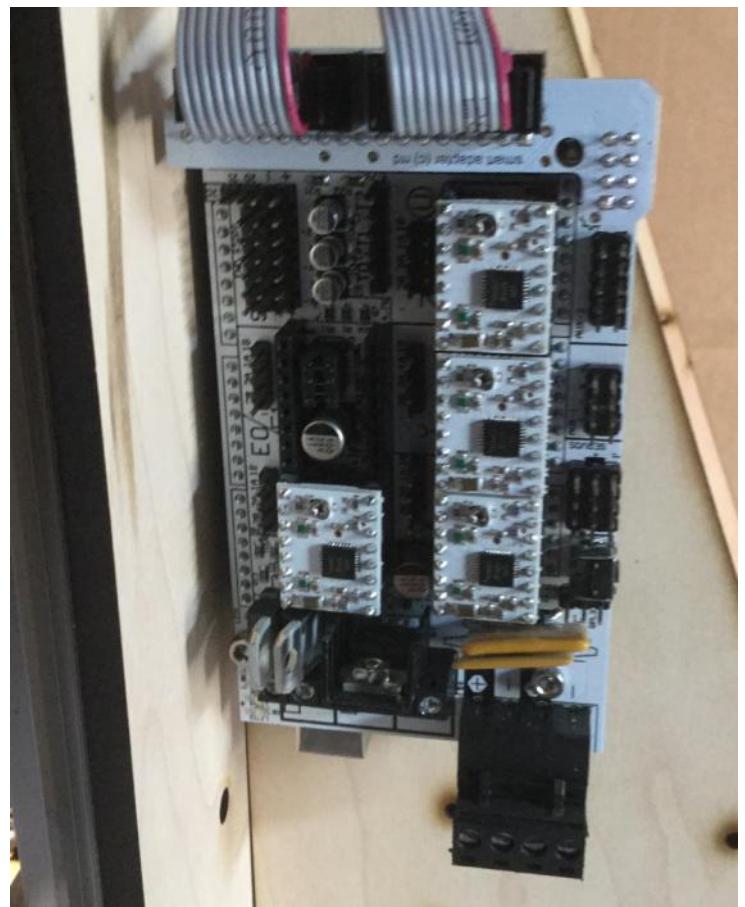
Using the two previously installed M5x12mm bolts mount the Electronics to the back side of the Extrusion that the X idler rides on as shown below (See next page for the picture after it has been mounted)



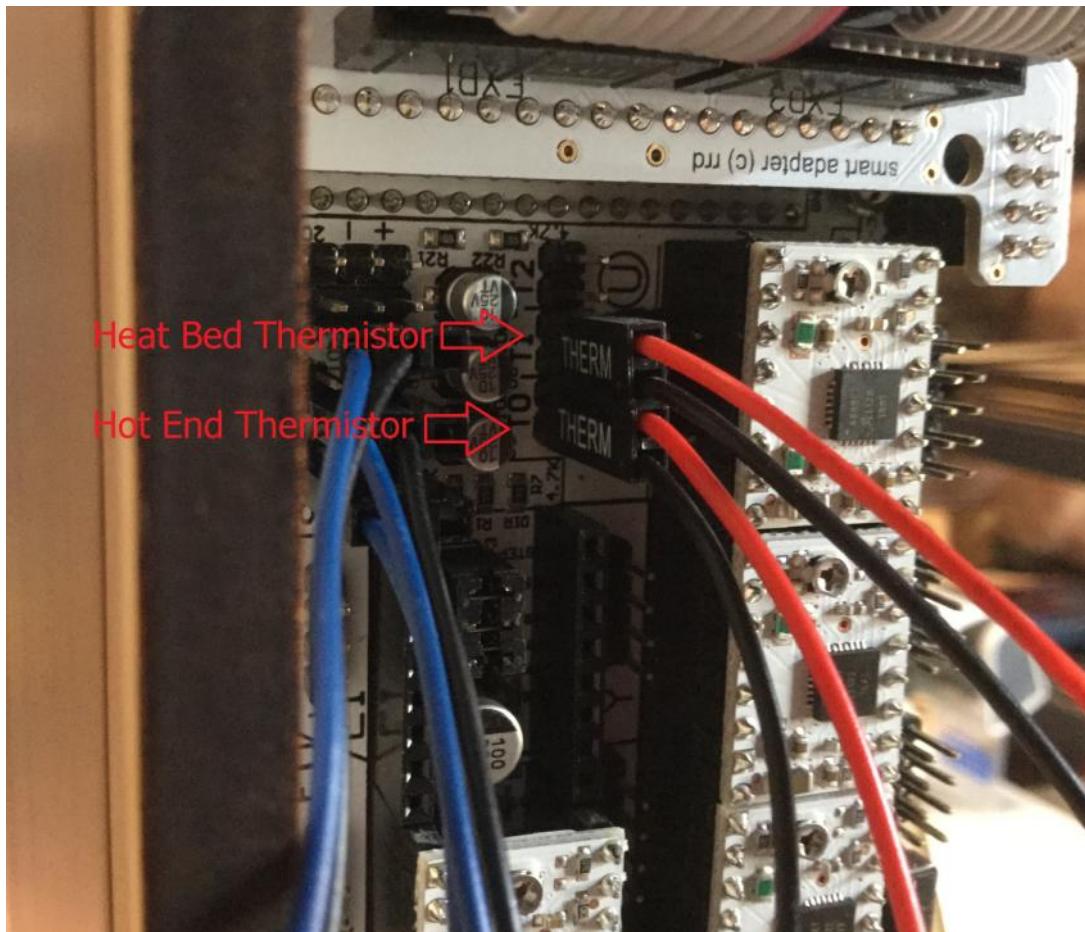
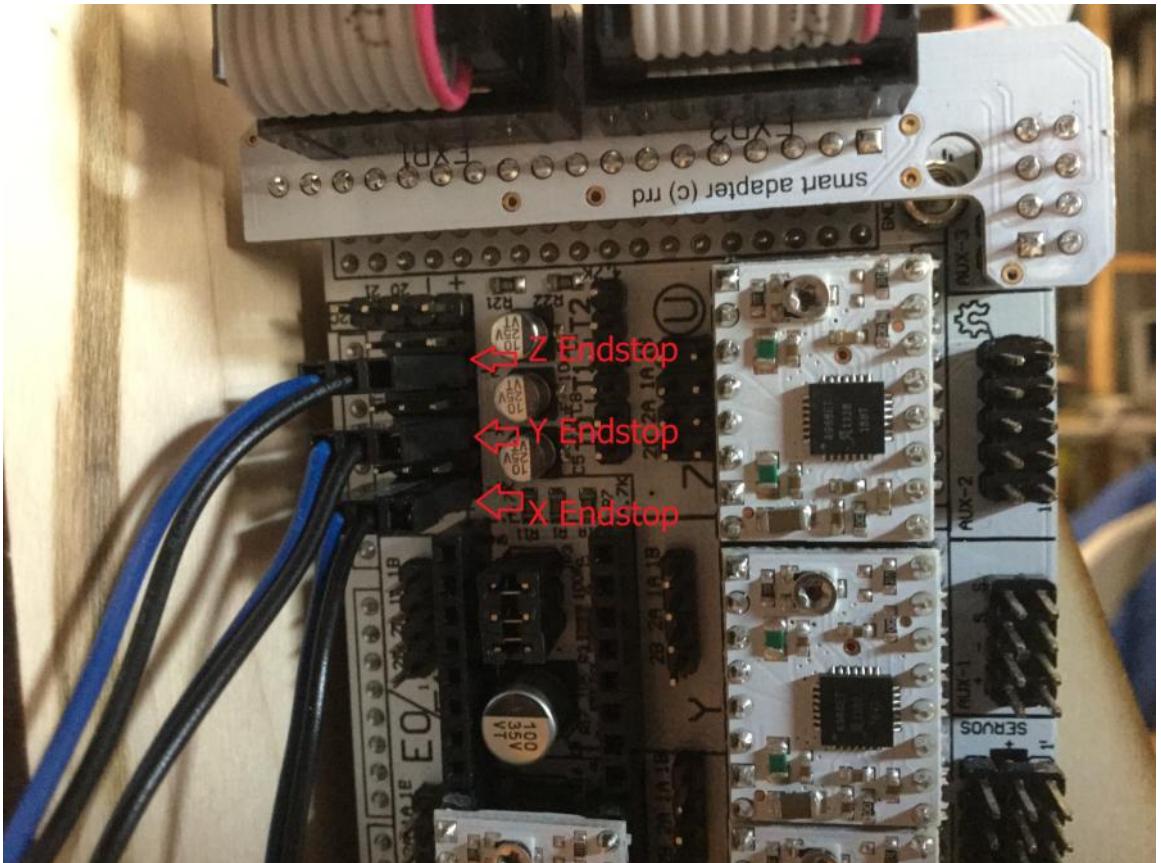
Tighten the two M5x12mm bolts so the Electronics doesn't move.



Connect the Optional LCD to the ramps board by plugging in the Smart Adapter to the top of the ramps as shown in the picture on the right



Next plug in the Endstops, make sure they are plugged in as shown or the printer will not power on.



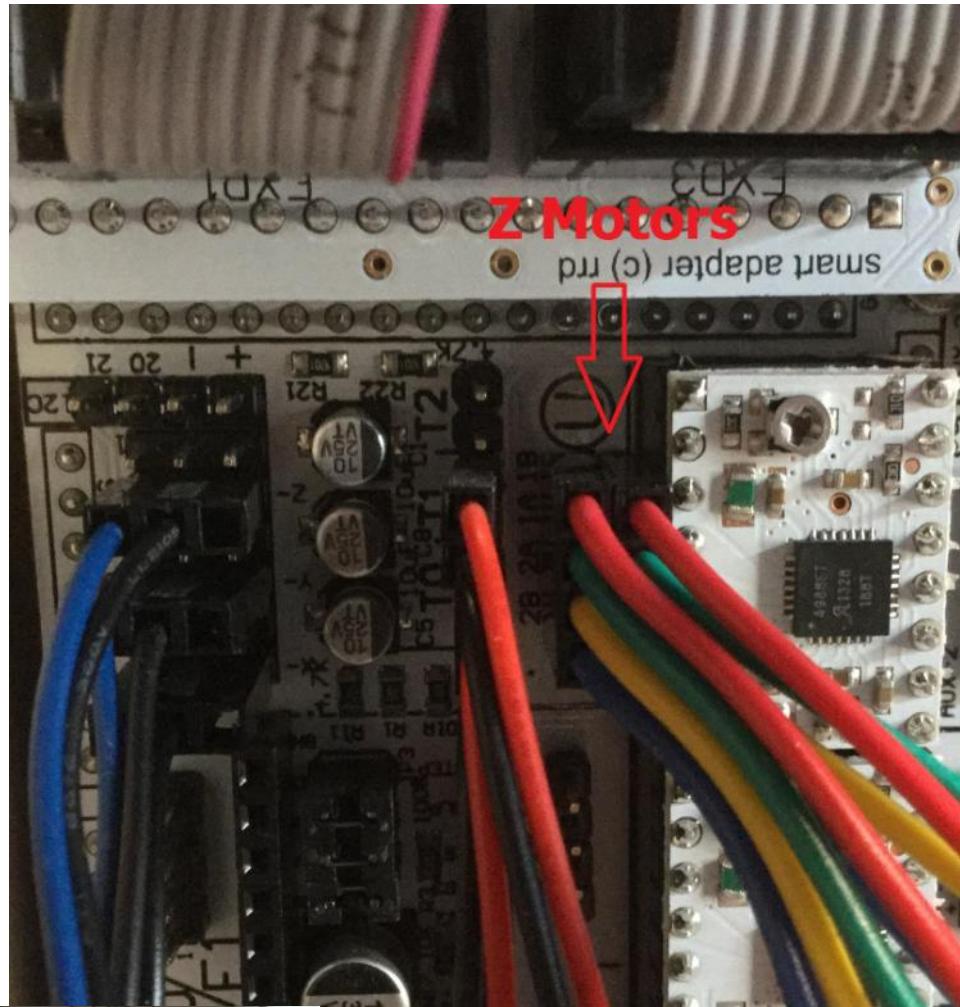
Now plug in the Hot end and heat bed thermistors.

Hot End Thermistor plugs into T0 (For Dual Extruders this is the Right Hot End Thermistor)

Heat Bed Thermistor plugs into T1

For Dual Extruders the Left Hot End thermistor will plug into T2

Next plug in the Z Motors



ZMotors

smart adapter (c) rrd

+ 1 20 21

R22 R21

L21 L22

T1 T2

T3 T4

L1 L2

R1 R2

T5 T6

T7 T8

D1 D2

D3 D4

D5 D6

D7 D8

D9 D10

D11 D12

D13 D14

D15 D16

D17 D18

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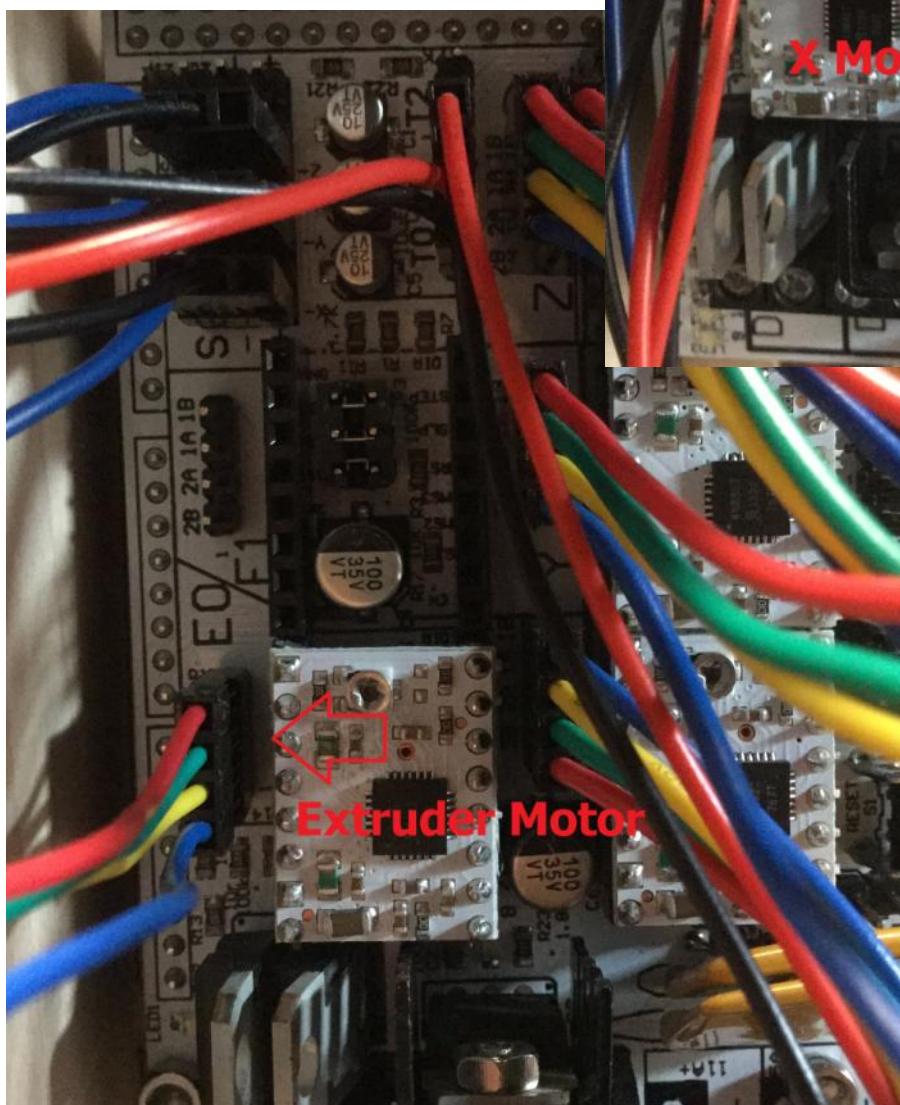
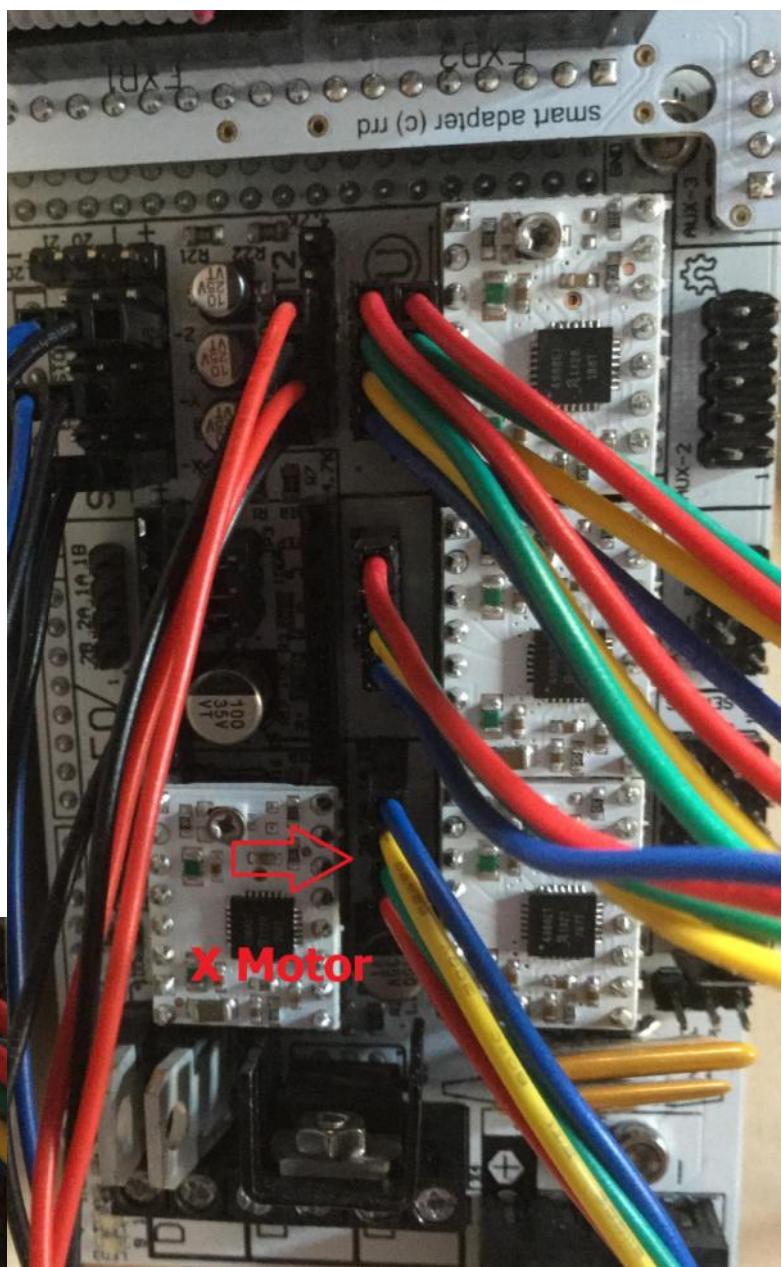
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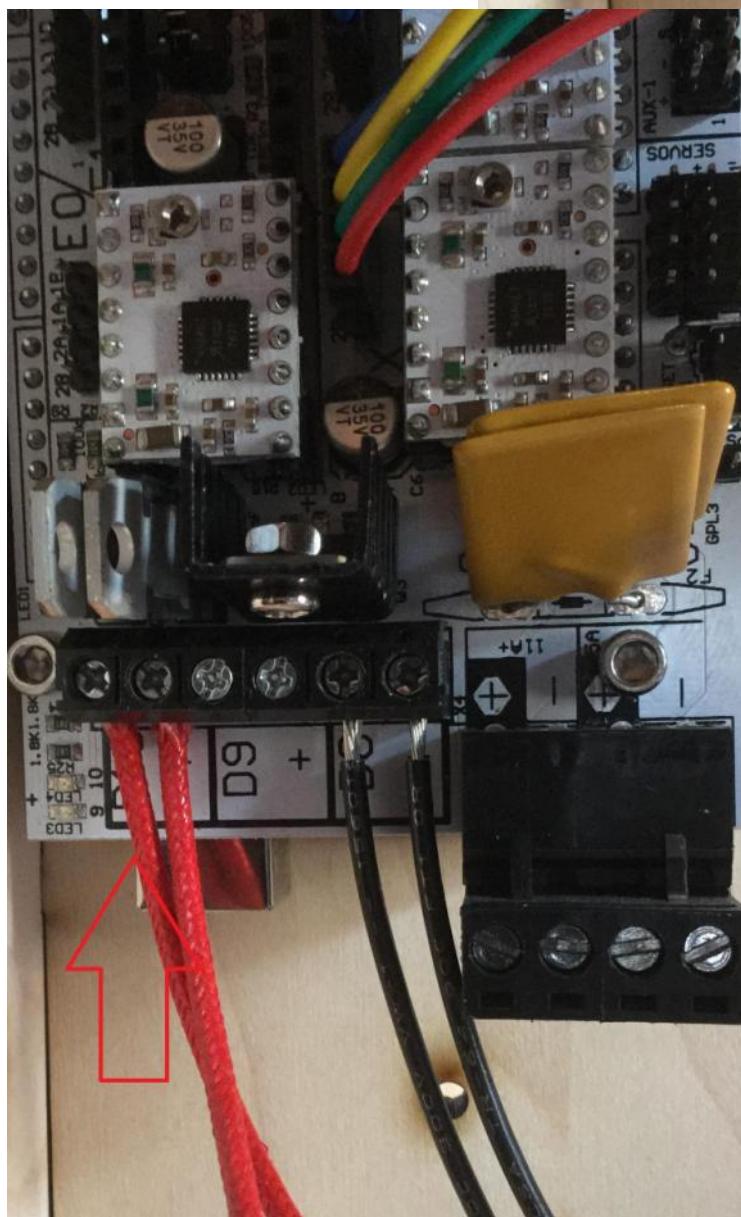
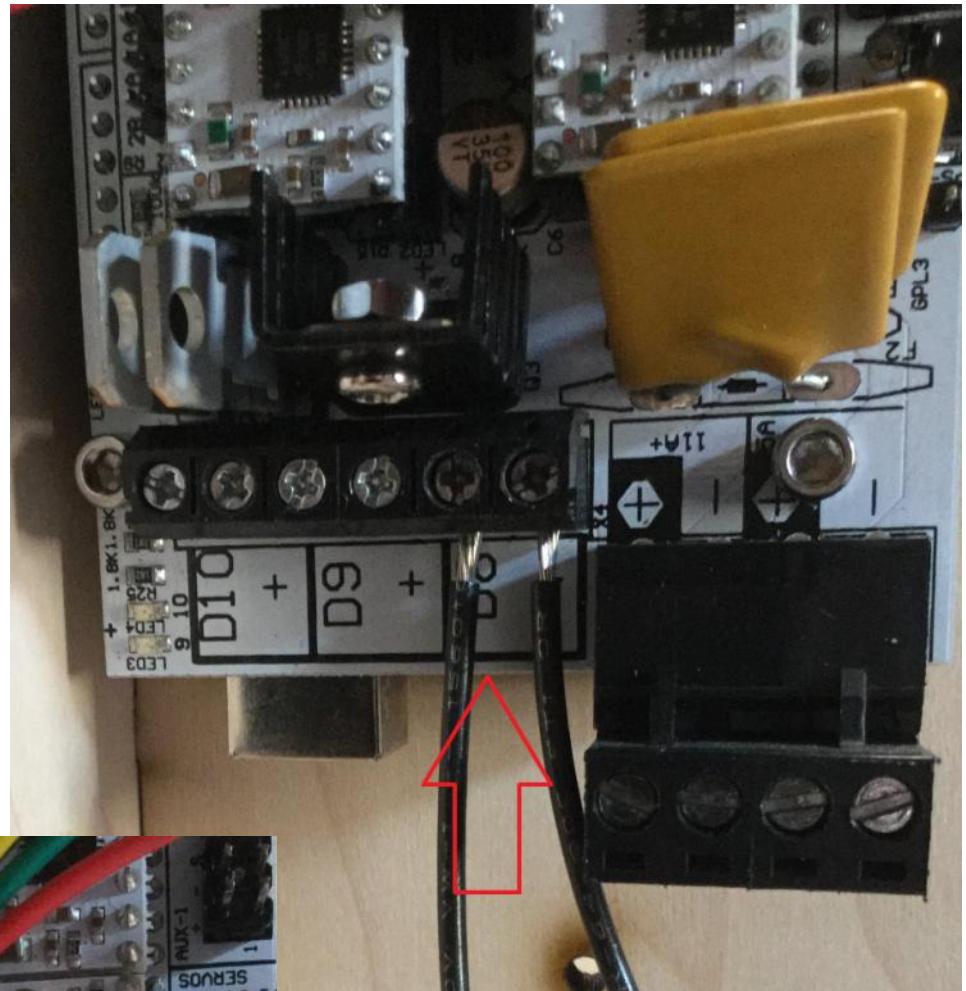
D5012 D5013

Next plug in the Xmotor, Note that the Blue wire is closest to the top of the machine opposite of all the other motor



Now plug in the Extruder Motor (Single Extruder motor will plug into the E0 port, Dual Extruder Right Extruder motor will plug in to E0, Left Extruder will Plug into E1)

Now connect the heat bed wires to the D8 Screw terminals



Last connect your hot end heater to D10
(Dual Extruders the Right Hot End
heater will connect to D10, the Left hot
end heater will connect to D9)

Wiring your 12v Power Supply to your RAMPS



Gather the follow items, your Power Supply, the 16awg wire, power cord, the RAMPS Electronics and Heat Bed Relay (Heat Bed Relay is Optional on the 8" Pegasus).

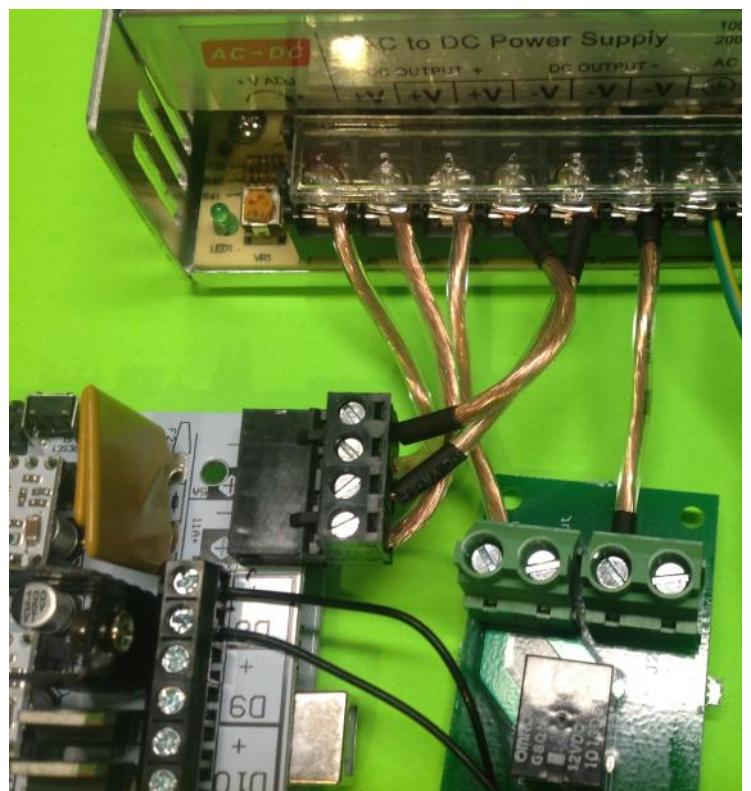
The wires have been shortened in this picture to better show how to wire them, you will wire your power supply and electronics after they are both installed on your printer to make sure they are the correct lengths.

The Power supply will have 6 Power outputs, 3 of them labeled -V and 3 labeled +V. In the picture all the -V wires have black on the ends.

Connect the 3 -V wires from the power supply to the following, One to -on the 5amp RAMPS connection, One to -on the 11amps RAMPS connection and one to J2 on the heat bed relay.

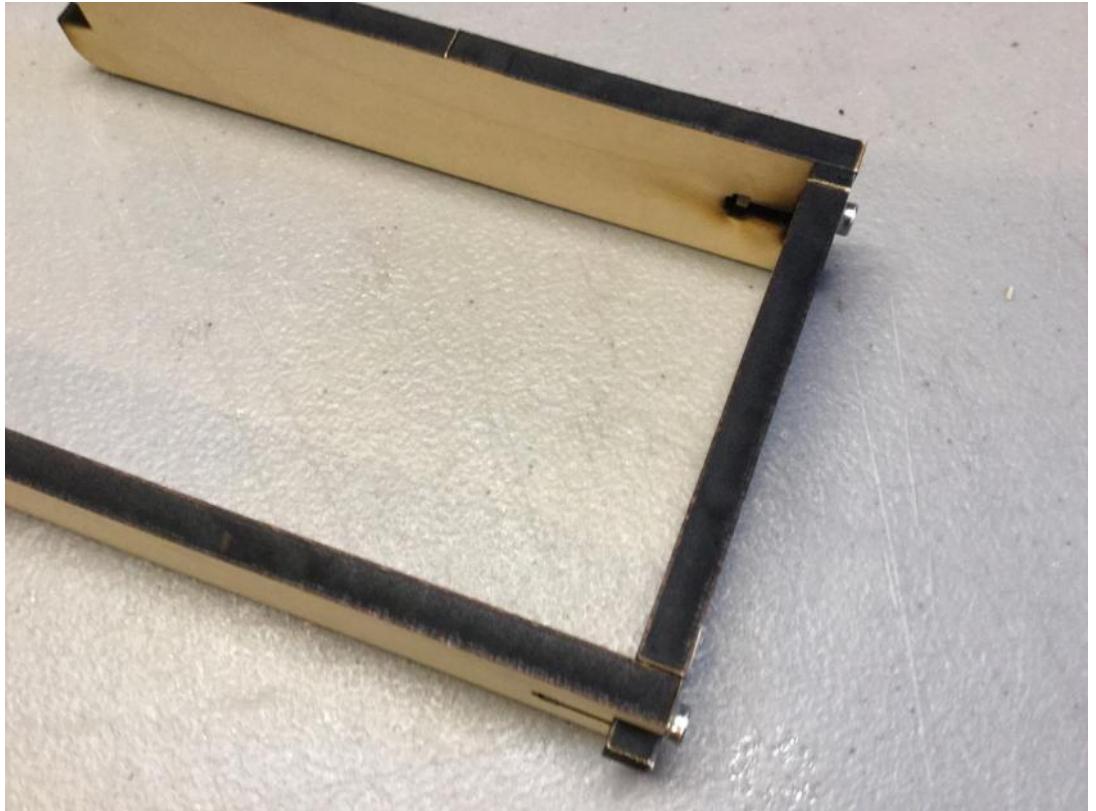
Connect the 3 +V wires from the power supply to the following, One to +on the 5amp RAMPS connection, One to +on the 11amps RAMPS connection and one to J1 on the heat bed relay.

Fans: Connect any Black Fan Wires to one of the V- connectors and all the Red Fan Wires to one of the V+ connectors on the Power supply. Its okay to connect the fans to ports on the power supply already used for other items.



Spool Holder

Install the two Spool holder legs onto the spool holder base using two M3x16mm bolts and two regular M3 nuts as shown in the picture.



Install the spool holder onto the previously installed m5x12mm bolt on top of the machine on the left side, then slide the top wood piece into the spool holder.



The Dual Extruder will use the spool holder top pictured above which you can use to hold 1, 2 or 3 spools.

Downloads

Download the Pegasus Software for your printer here: [Pegasus Software](#)

Arduino Software: www.arduino.cc, download the arduino software version 1.0.6 (Don't get a newer version, get 1.0.6) and install on your PC or Mac.

-[Pronterface Download](#)

Installing firmware on Pegasus

To install firmware on your Pegasus download the Firmware guide: [Download](#)

If you have a Dual Extruder Kit follow the steps in the Dual Extruder Calibration Guide before proceeding: [Dual Extruder Calibration Guide](#)

If you don't have the optional LCD interface skip to page 83 for Pronterface directions.

Initial Tests Video (This will show you how to configure the endstops, this video shows the i3v but the process of adjusting the endstops is the same. After 3:50 in the video it shows how to level the bed if you have bed springs.)

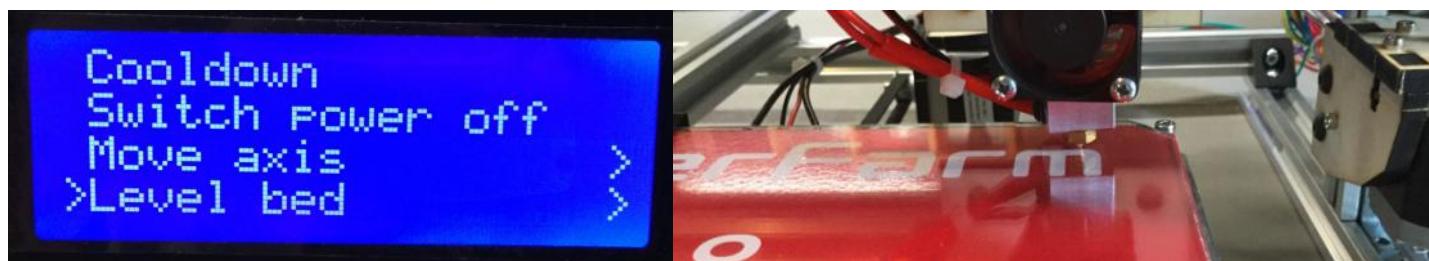
Manual Bed Leveling

The Firmware we use on the Pegasus printer has a “Manual Bed Leveling” Feature, basically we tell the printer when the nozzle touches the glass in 9 different spots then in future prints the firmware will raise and lower the nozzle while printing to accomidate for an uneven or unlevel surface. Now that we have our endstops set we setup the Manual bed leveling feature.

Start at the main LCD screen, push the knob and turn the rotary knob to select “Prepare” then push the knob again.



Then turn the knob until the arrow points at “Level Bed” then push the knob. The printer will home then the nozzle will move to the position shown below. Turn the knob until the nozzle just barely touches the glass then push the knob. The printer will then move to 8 other locations, turn the knob to move the nozzle up or down then when it just barely touches the glass push the knob again.

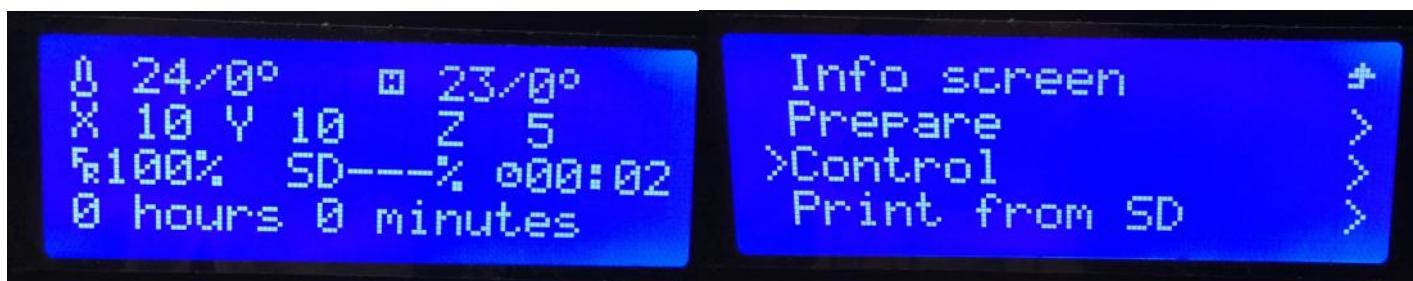


Once complete go back and select the “Control” menu, then “Store Memory”



Temperature Tests

Next we will test that the heat bed and hot end heat up, select the “Control”, “Temperature”, “Bed” then turn the knob until the bed is set to 100. Then go back to “Control”, “Main” then



“Info Screen”, you should see the heat bed temp set to 100c and you should see the temp

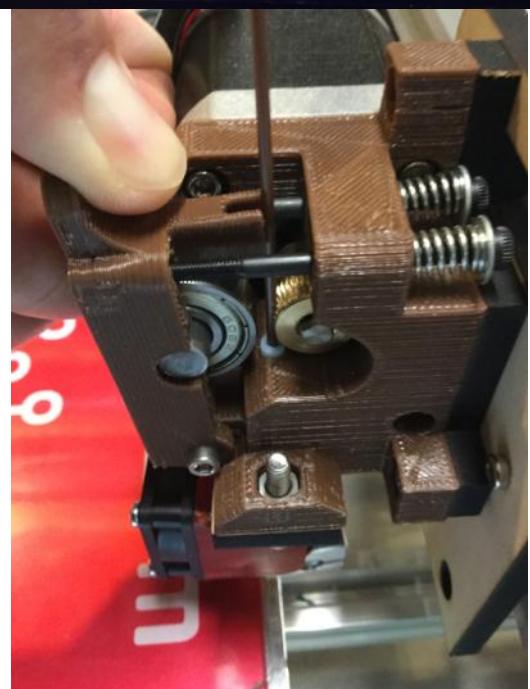


start to rise, while the temp is low check to see if you can feel the temp of the heat bed rising. While the heat bed is heating the hot end temp should stay low and shouldn't rise in temp drastically. Once we know the heat bed is heating look at your hot end fan and verify that it is turning, if it is not make sure your hot end fan is connected directly to the power supply or the Power input of your ramps board, then go back to “Control”, “Temperature”, change the bed temp to 0 then change the hot end temperature to 60. Now go back to the “Info Screen” and verify that the hot end temp is rising.



on the Guidler with your thumb, thread the filament past the MK7 Drive gear and into the PTFE tube, continue to push the filament until the filament stops at the nozzle then release the Guidler. Now is a good time to clean up the wiring of your printer, use the zip ties to keep them out of the way and neat. Make sure you leave enough slack so the extruder can move all the way right and left, the heat bed can move forward and back and the X axis can move up and down.

Now we can install filament into the extruder, pull back



Test Gcode and First Print

In the Pegasus Software/Gcode folder you will find the „Test Gcode.gcode“, „Hollow_Cube_ABS_Pegasus.gcode“ and „Hollow_Cube_PLA_Pegasus.gcode“ Copy all 3 onto your SD Card and install the SD Card into the left side of your LCD Screen.



Now push the LCD knob and select „Print from SD“ then „Test Gcode.gcode“. The printer should home to the back right corner, then you will see the nozzle move to all 4 corners (within 1 inch of the bolt in each corner) then the printer will move back to the home position. This test just shows the movement of the printer so we can see that all 3 axis move correctly.

Next go back into the „Print from SD“ menu, then pick either the „Hollow_Cube_ABS_Pegasus.gcode“ if you have abs filament loaded into your printer or the „Hollow_Cube_PLA_Pegasus.gcode“ if you have PLA loaded. You should see your heat bed start to heat, then the hot end (once heat bed has reached the target temp) after that your printer should start printing. Once the print finishes let the heat bed cool to around 50c, then if the print hasn't popped off of the glass you can try to hold onto the glass around the print and with the other hand quickly pull the cube in one direction to pop it off of the glass. (If you have a dual extruder you can now try to print the dual extruder gcode we created earlier)

To generate gcode for a single extruder or to only print with one extruder from your dual extruder setup do the following:

Open slic3r then click File and Load Config either the ABS or PLA folder in the Pegasus Software\Slic3r\Slic3r 0.9.9 Configs\8 Inch Pegasus. Next click File, Quick Slice and select one of the stl files in the Pegasus Software\Printed Pegasus Parts\Direct Drive Extruder\ then save them to your sd card and print them out as spares.

Your Slic3r will now slice the stl into Gcode which we can copy onto an SD Card and print directly from the LCD interface or we can load the Gcode into Pronterface and print simply by Opening Pronterface, connecting to the printer clicking Load File then Print.

Slic3r Video

Note: if you upgrade your slic3r version to something other then 0.9.9 and if you don't use the slic3r configs on page 95 of this guide you will have print problems.

Using Pronterface

Now that you have everything installed we will open pronterface select the com port that your printer installed to and set the speed to 250000 then click connect.

Next set your Speeds:

mm/min

XY: 3000 Z: 30



Now we are going to test our endstops and make sure the motors are plugged in correctly. First click the  button, your heat

bed should move forward and hit the switch causing the heat bed to stop.

If your heat bed moves to the back of the printer instead you can turn the power supply off, unplug your usb cable and flip the connector around 180 degrees for the Y motor.

Once the Bed moves the correct direction you can adjust the Y endstop until the nozzle is just behind the back edge of the Glass. For the X adjust it so the nozzle doesn't hit the bolt holding the bed to the printer. For the Z endstop there will be an M3 bolt that will contact the switch, you can turn the bolt clockwise and counter clockwise until the correct home position has been reached which will be just barely touching the glass.



Then repeat for the other axis using the

buttons.

Next heat up your heat bed to about 100c by typing in 100 and click the set button to the right of the bed temp. Confirm that the heat bed temperature is rising and then click „Off“ once you know its working.

Next we will test the hot end, first make sure the hot end fan is turning, if its not make sure it is connected directly to the power supply or the power input of the ramps board. Type 225 to the right of „Heater“ and click set in the Heater Row, then to check your temperature click the Check temp occasionally:



Once your hot end has reached 225c set your Extruder speed to 30 and click extrude.



If your filament gets pulled out of the hot end instead of pushing it in then power off the printer and rotate the motor connector for the Extruder Motor.

You should now be able to move your printer in all directions, but your endstops will only be used when you click one of the home buttons so don't keep telling your printer to go past that point. Now you can print some Gcode, go back to page 82, instead of copying gcode to an sd card and printing via the LCD just load the gcode into pronterface and click „Print“

Any questions please e-mail
elderfarrer@gmail.com or you can chat via
google chat (elderfarrer@gmail.com)

Thanks,

Colin

Maker Farm Inc

Troubleshooting Guide: [Download](#)

