

Rotary add on for Longmill.

Here is how I went about getting my longmill to engrave on tumblers, there were some frustrations along the way to be sure, but it was a very satisfying result in the end.

Aftermarket parts purchased:

Rotary -

[https://www.amazon.ca/gp/product/B0B5DF88VB/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_o04\\_s00?ie=UTF8&psc=1](https://www.amazon.ca/gp/product/B0B5DF88VB/ref=ppx_yo_dt_b_asin_title_o04_s00?ie=UTF8&psc=1)



Genmitsu Laser Rotary V2 for Laser Engravers, Laser Cutters, Laser Rotary Roller Attachment, Y-axis Rotary Roller Engraving Module for Laser Engraving Cylindrical Objects, Wine Glass, Tumblers, Pens

Visit the Genmitsu Store  
★★★★★ 2 ratings

\$129<sup>99</sup>

Get 50% off when using your TD Rewards Points. Max discount \$50. Activation required. Limited-time offer, conditions apply.

- [Easy Setup]: The Upgraded Genmitsu Rotary Roller requires no assembly, and you can easily adjust the roller distance with no tools required.
- [Improved Engraving Accuracy]: High Quality Machined Rollers make the new rotary more consistent with better engraving accuracy and fewer missed motor steps. The polyurethane coating of the rollers provide an improved grip and eliminate slipping of the item you are engraving.
- [Wider Material Compatibility]: The Genmitsu Rotary Roller V2 now supports a wider range of cylindrical objects, including wine glass, tumbler, pen, mugs and

Cables to connect to Y-Axis -

Unfortunately the link to the cables no longer works but these are the cables I used

[4-Pin Female to 4-Pin Male ATX EPS Power Extension Cable 7inches CPU Power Supply Converter Cable 2 Pack](#)

Return eligible through Jan. 31, 2023

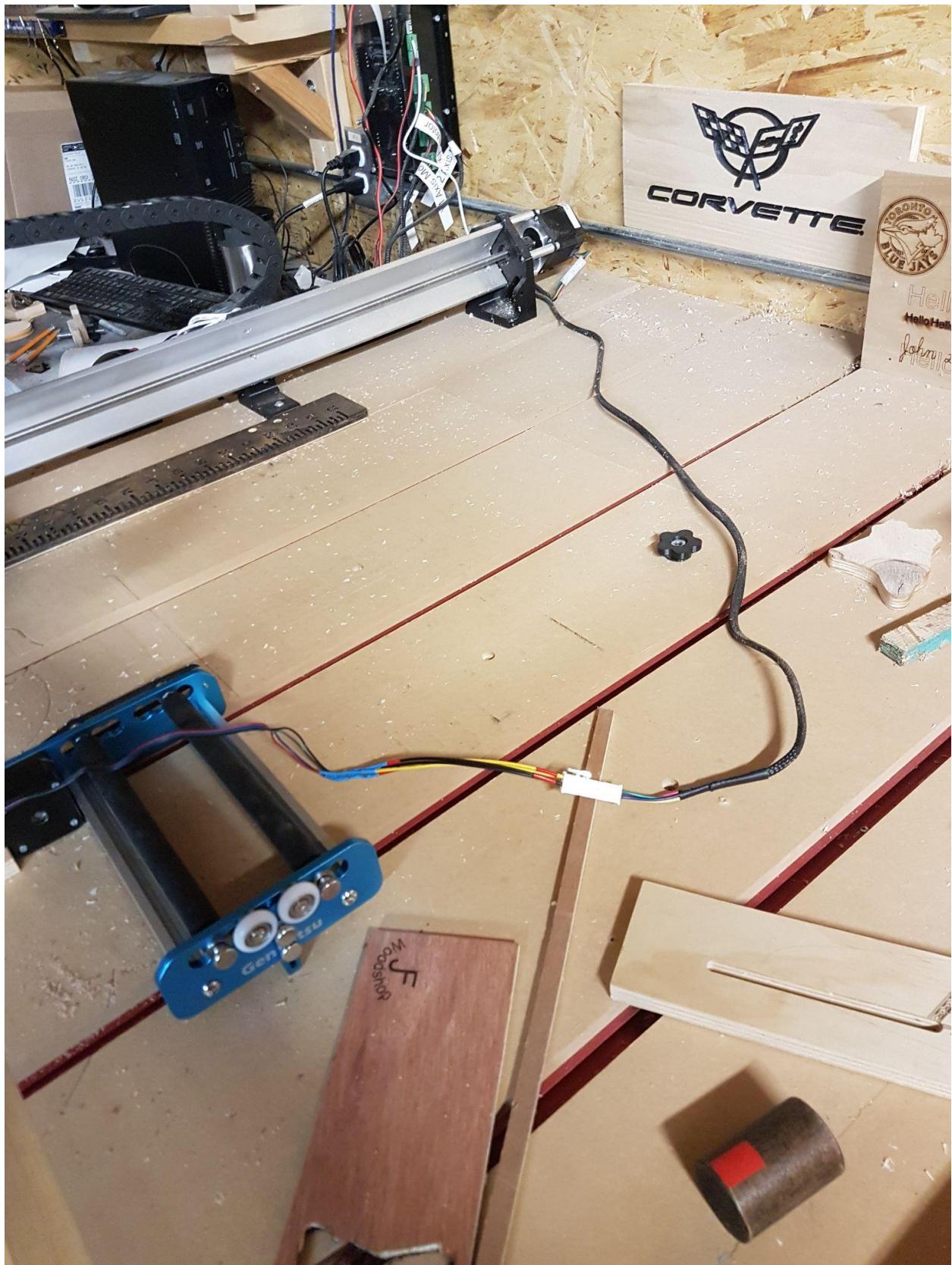


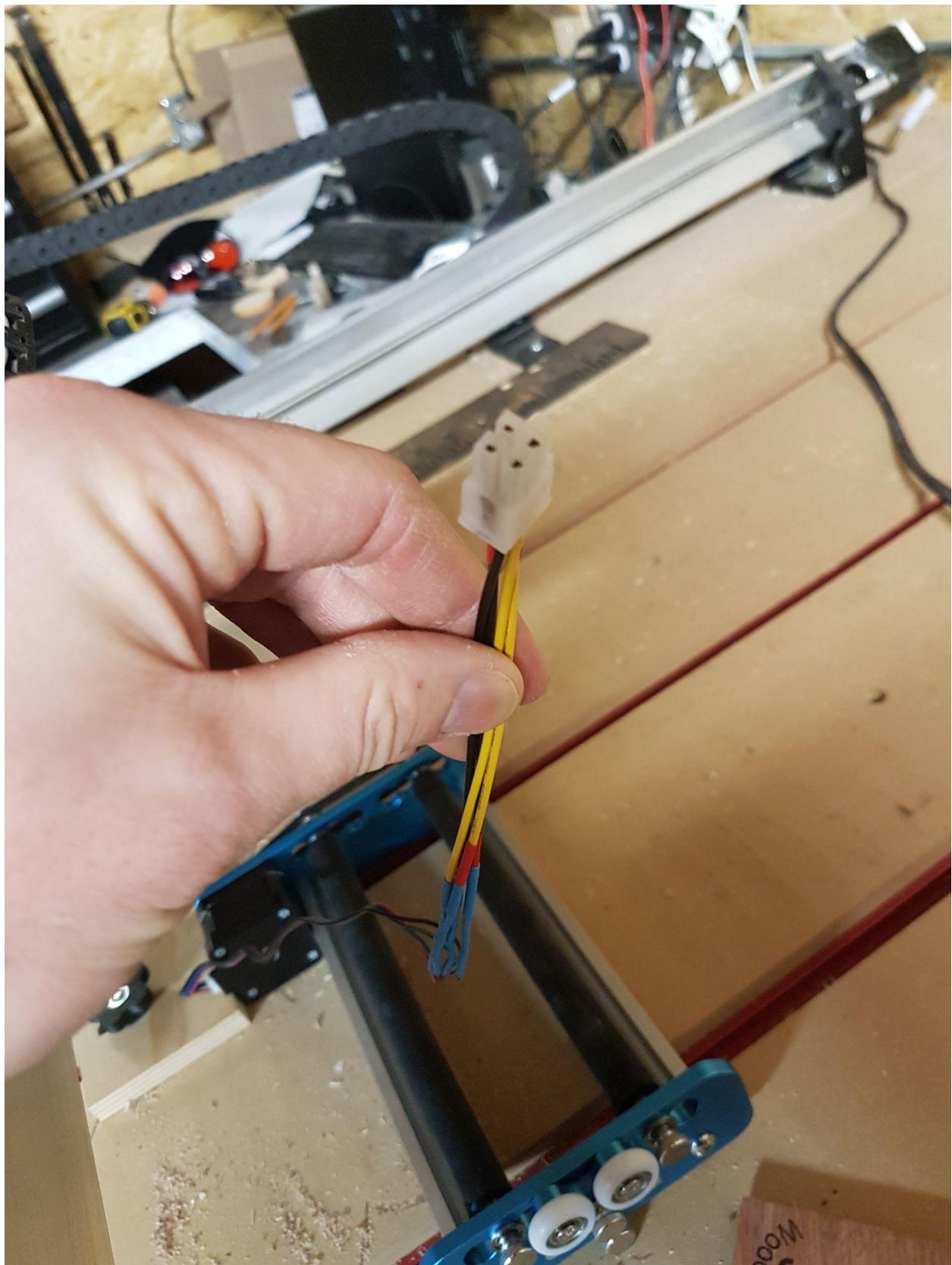
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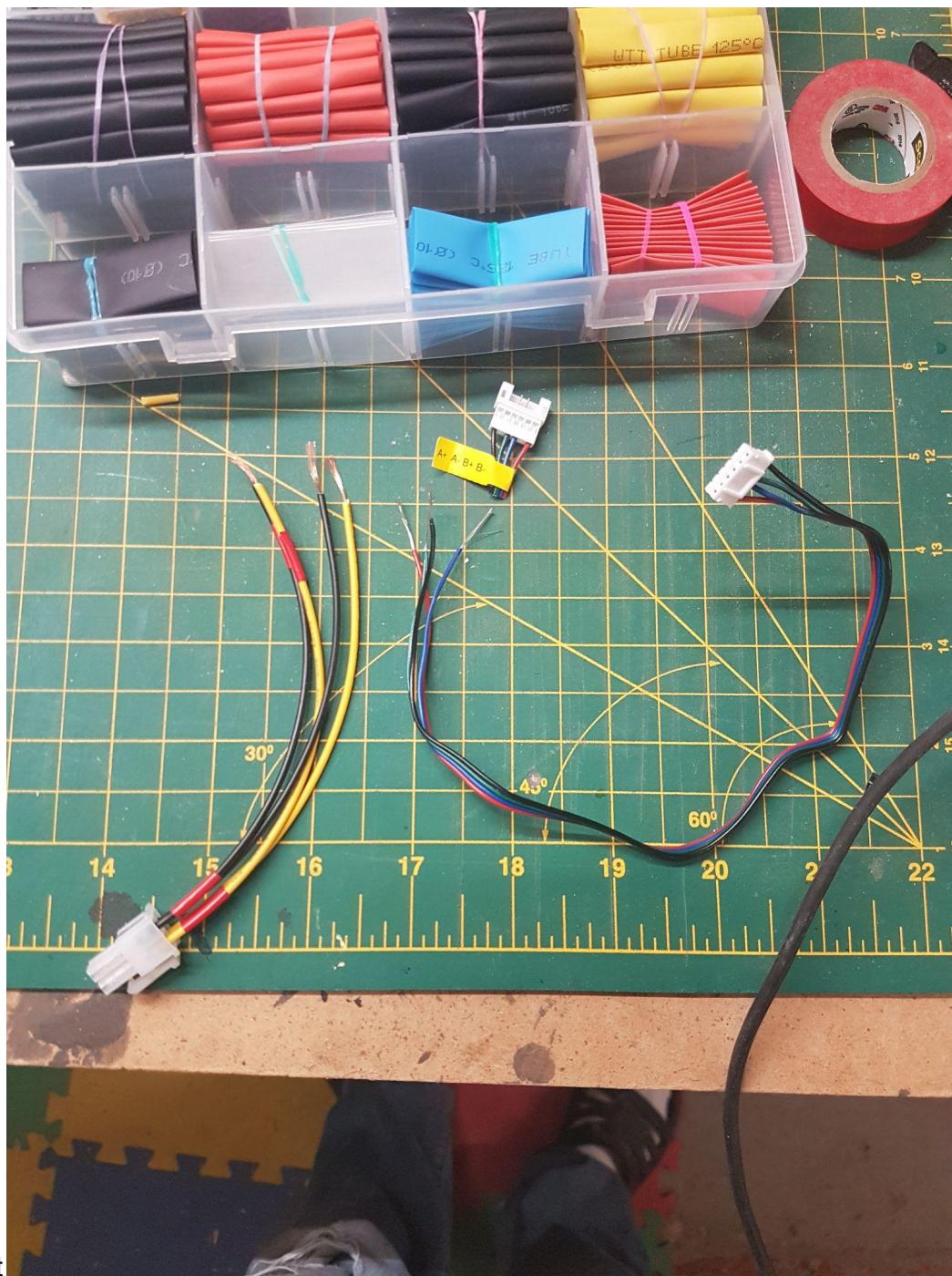
Physical connection -

The connection to be clear for my setup goes from the rotary and plugs into the longest of the y axis cables, which then plugs into the same slot it always is in the controller. (important when using the rotary to unplug the other y axis motor as well)





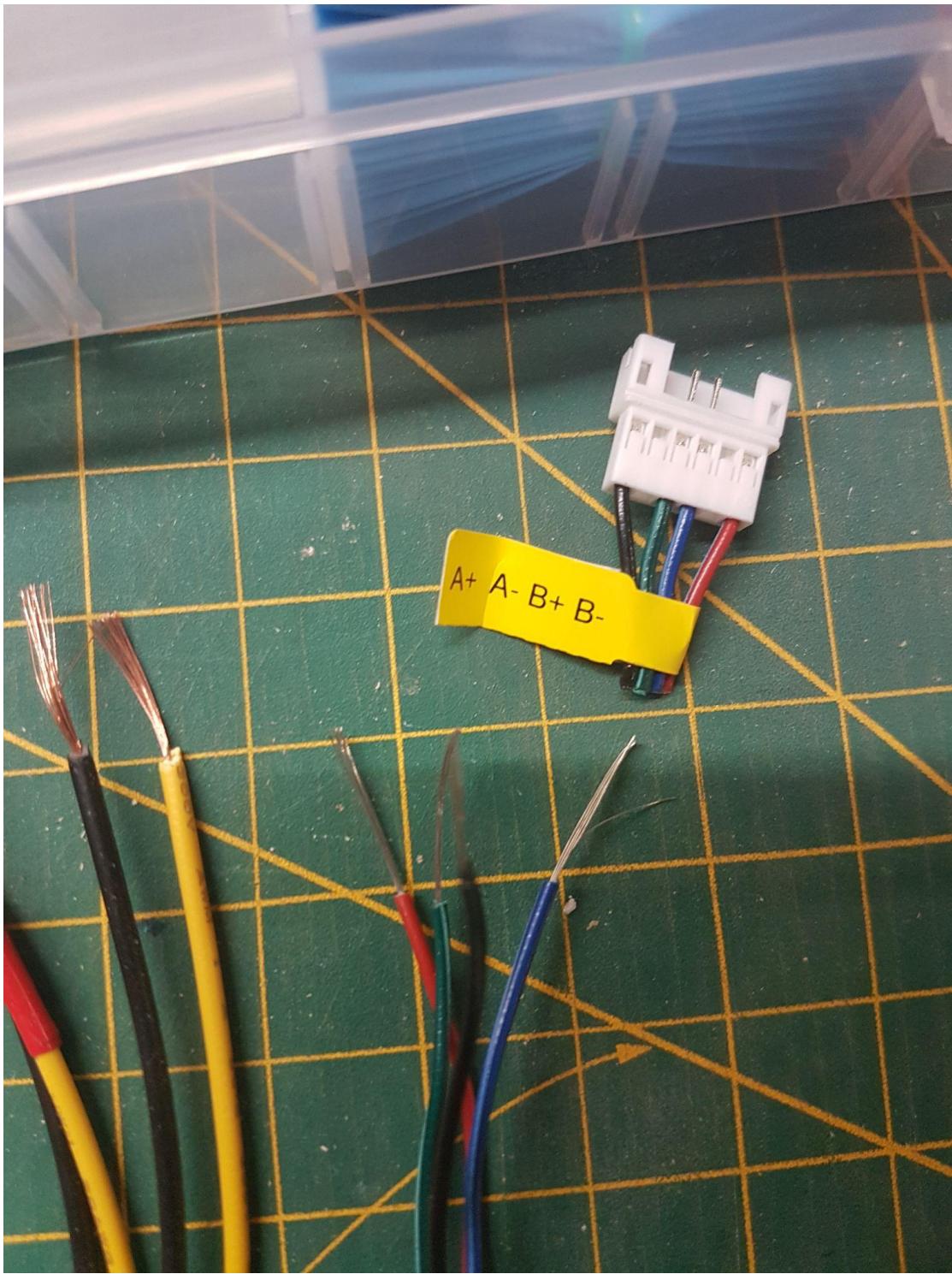
The rotary I got off amazon does not plug into the longmill off the shelf, so I scoured the forum and found that Michael A. had experimented with this. After figuring out which cable was required to connect to the longmill I went about cutting off the original end and soldering in the



replacement

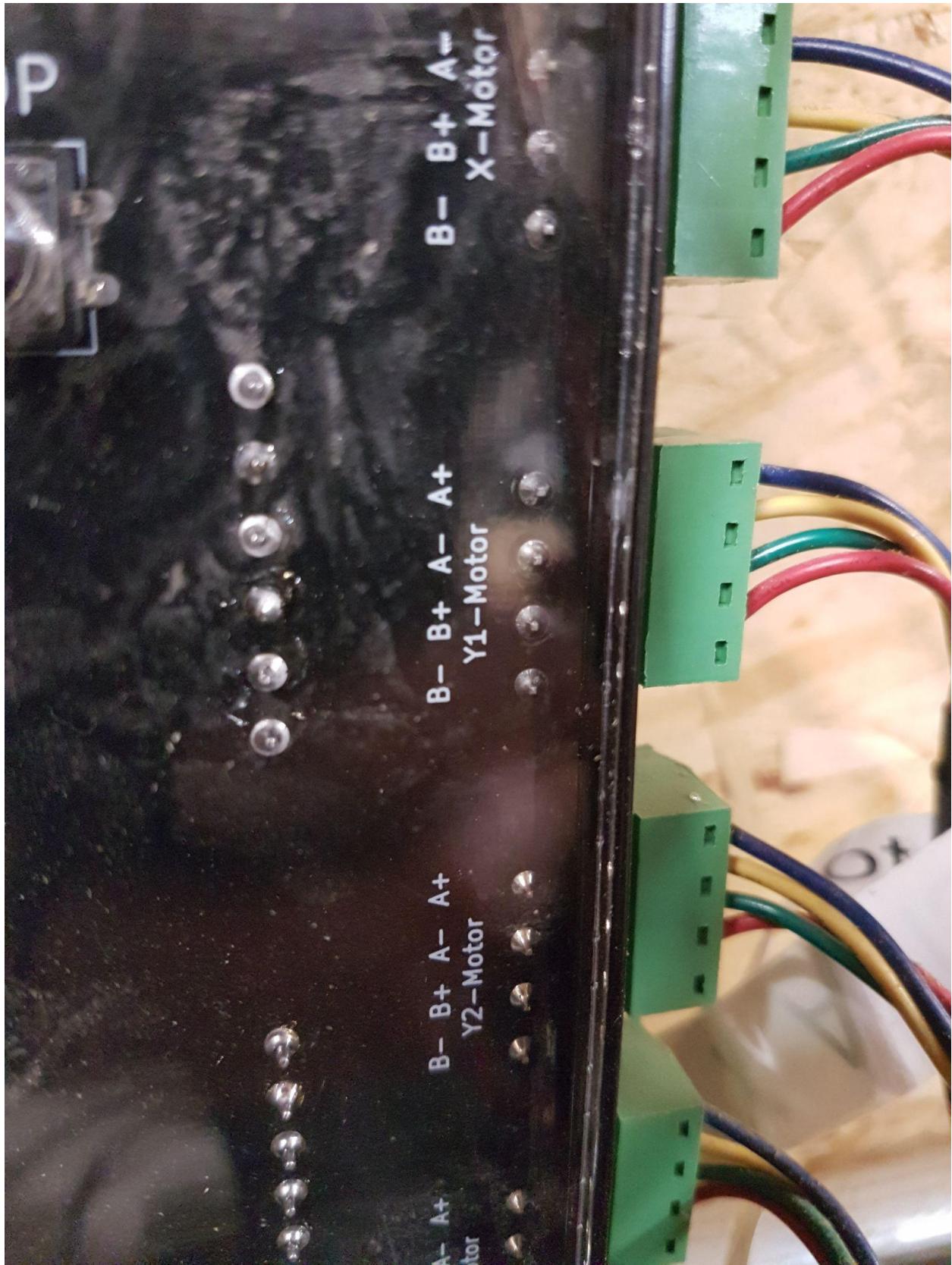


At this step it is important to ensure you are connecting the correct wires to the correct terminations. The rotary has a sticker on the cable indicating the orientation of the wires

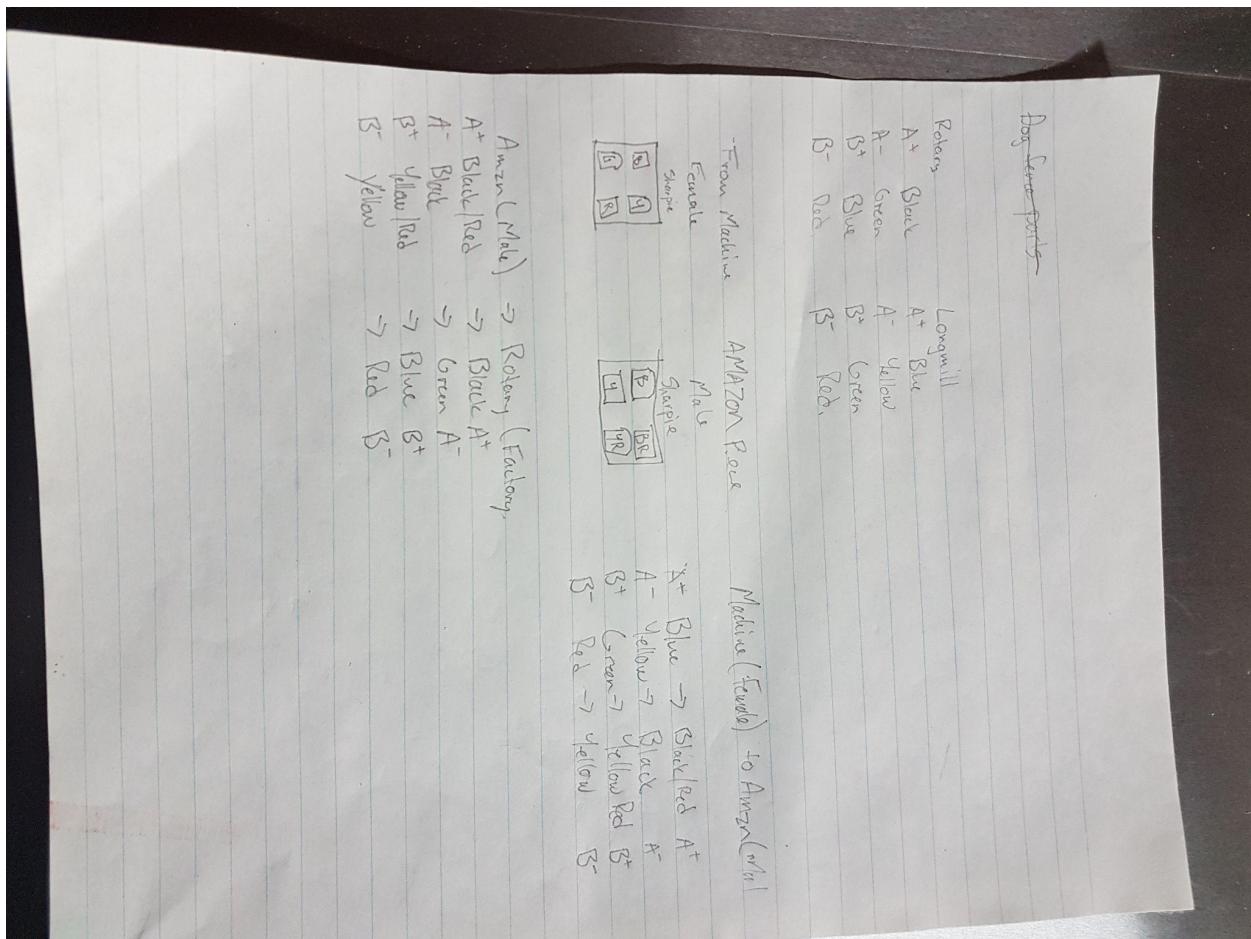


longmill has indication on the faceplate of the controller.

, and the



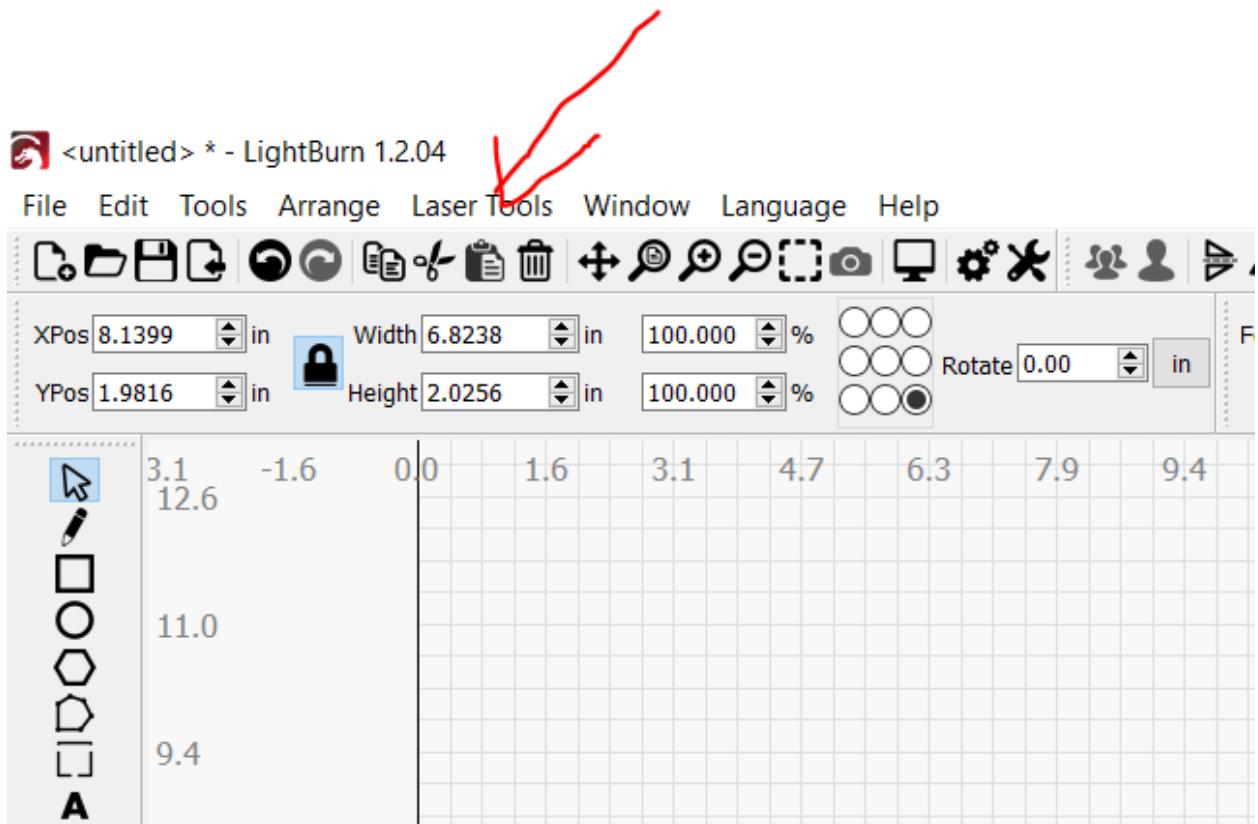
I made a table to keep the wires straight as i traced them back from the controller to the leads from the rotary.



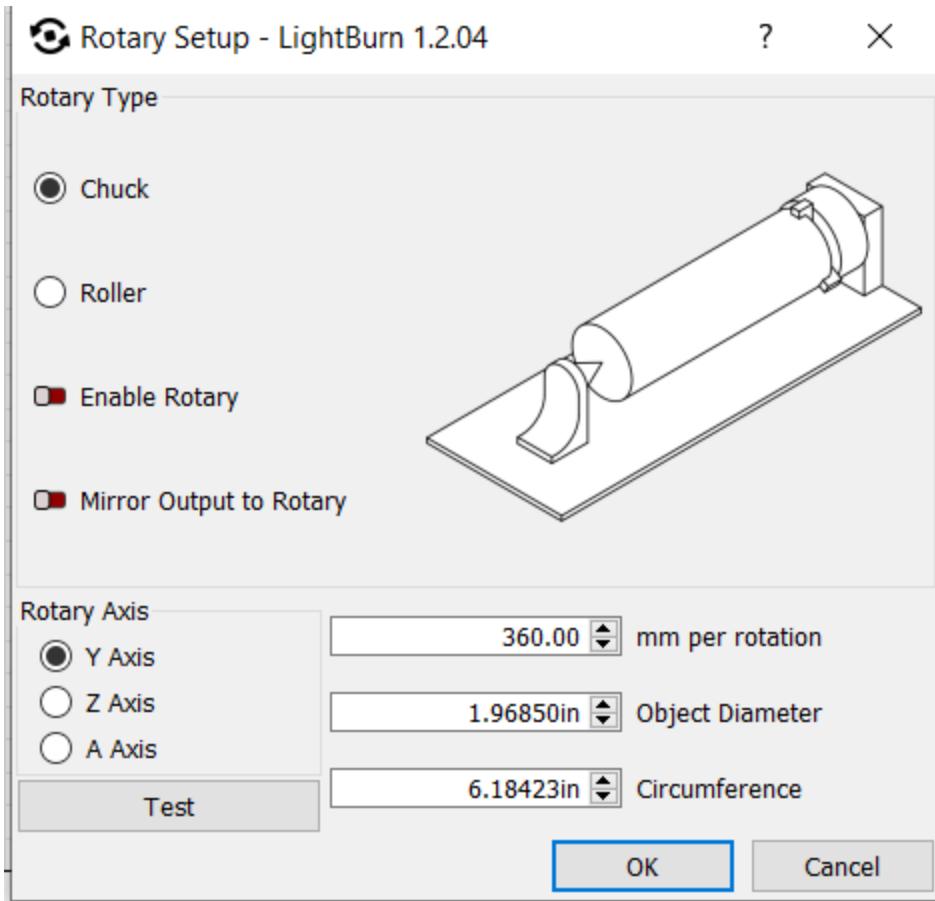
Once you have the connection made and test that it moves using Gsender, dont be alarmed at how fast and seemingly how far the rotors move for each advance of an inch, lightburn has a function that takes this into account and calibrates to your machine.

## Setting up in lightburn -

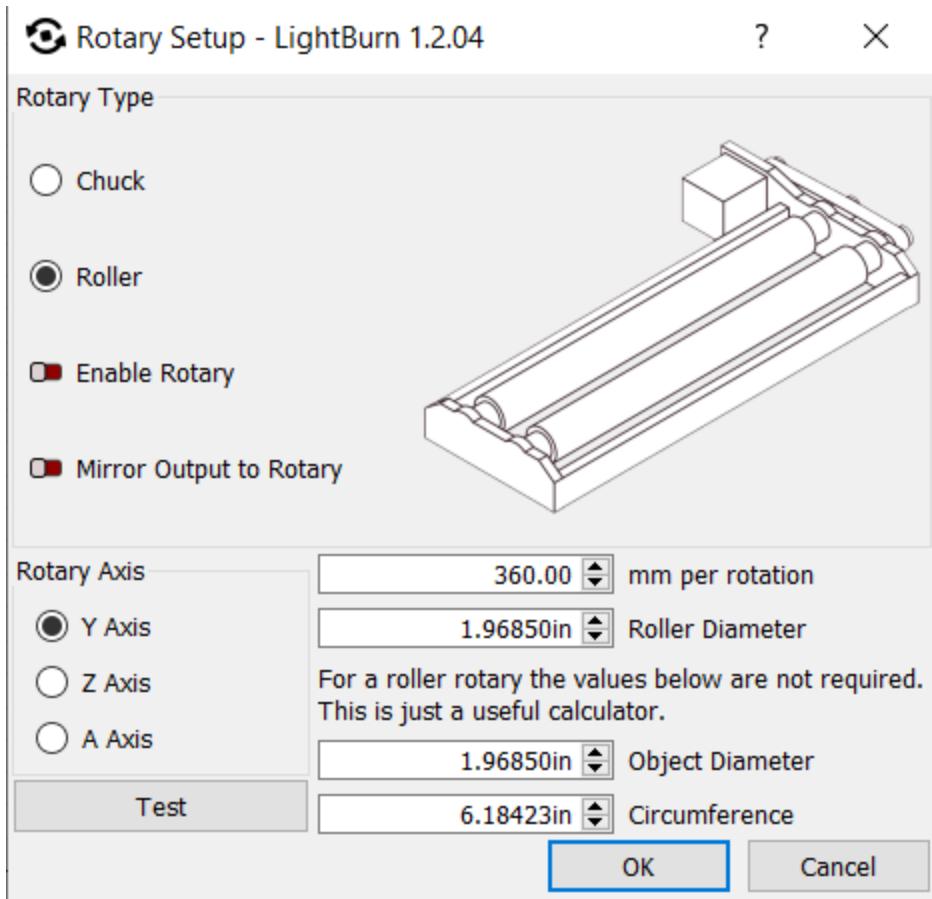
When you open lightburn, you need to open up laser tools - then go to Rotary Setup



Once you open that this is the default that you will find -



For my setup i needed to change it to roller style,



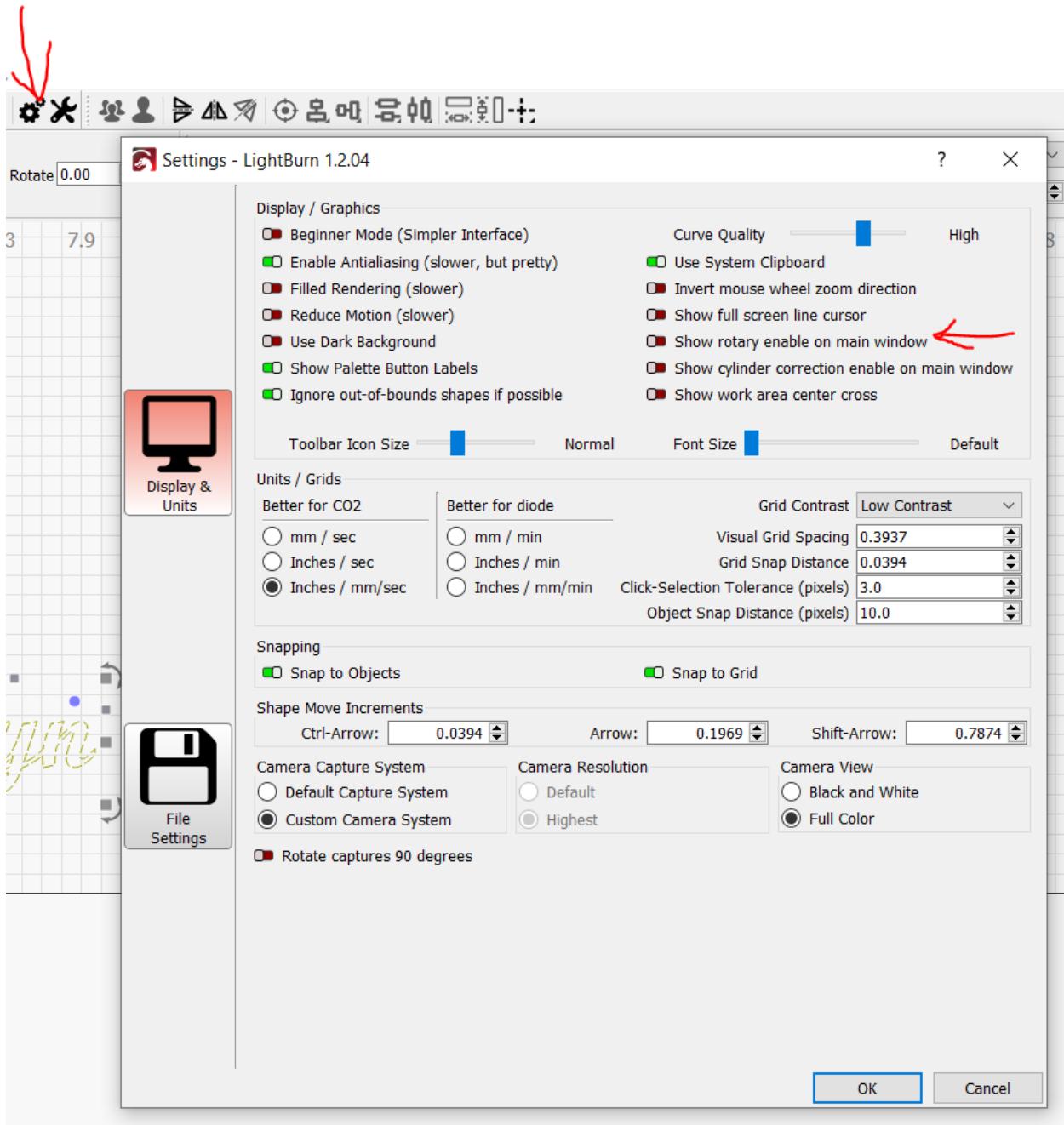
As you see there is a new box once you select roller for roller diameter. As it says in the dialogue box here, the top two values you need for your roller, but the bottom two are only for calculating and don't affect the movement of the machine. For roller diameter, that was included with the rotary, but it is suggested to use a caliper anyways to get an accurate number as this will affect the distance the tumbler moves while engraving.

This video(<https://www.youtube.com/watch?v=qkOooNALZbI>) is how I got the setup dialed in the mm per rotation (in the video it talks about steps per rotation, I'm not sure why but it worked for me by just subbing in mm per rotation everytime steps per rotation is mentioned), after plugging in the roller diameter. Essentially it has you measure the diameter of your test piece so you can calculate the circumference (I used a 1 inch thick dowel) then in lightburn make a rectangle with the height the same as the circumference and run the test. The idea is when you have it dialed in, the two ends of the rectangle will exactly overlap for your burn. Just as a disclaimer this step was incredibly frustrating as there is no guidance in the owners manual for these settings, and lightburn had a default of 360 mm per rotation and I ended up finding that 2.07 mm per rotation was the setting that worked for me. I was obviously frustrated when on the first attempt the dowel rotated dozens of times lol. Below is a picture of my wooden test piece I used, it took me quite a few tries to get it right. Good thing is, once you get this dialed in, you never have to worry about your settings again, because settings are based on roller diameter and how many

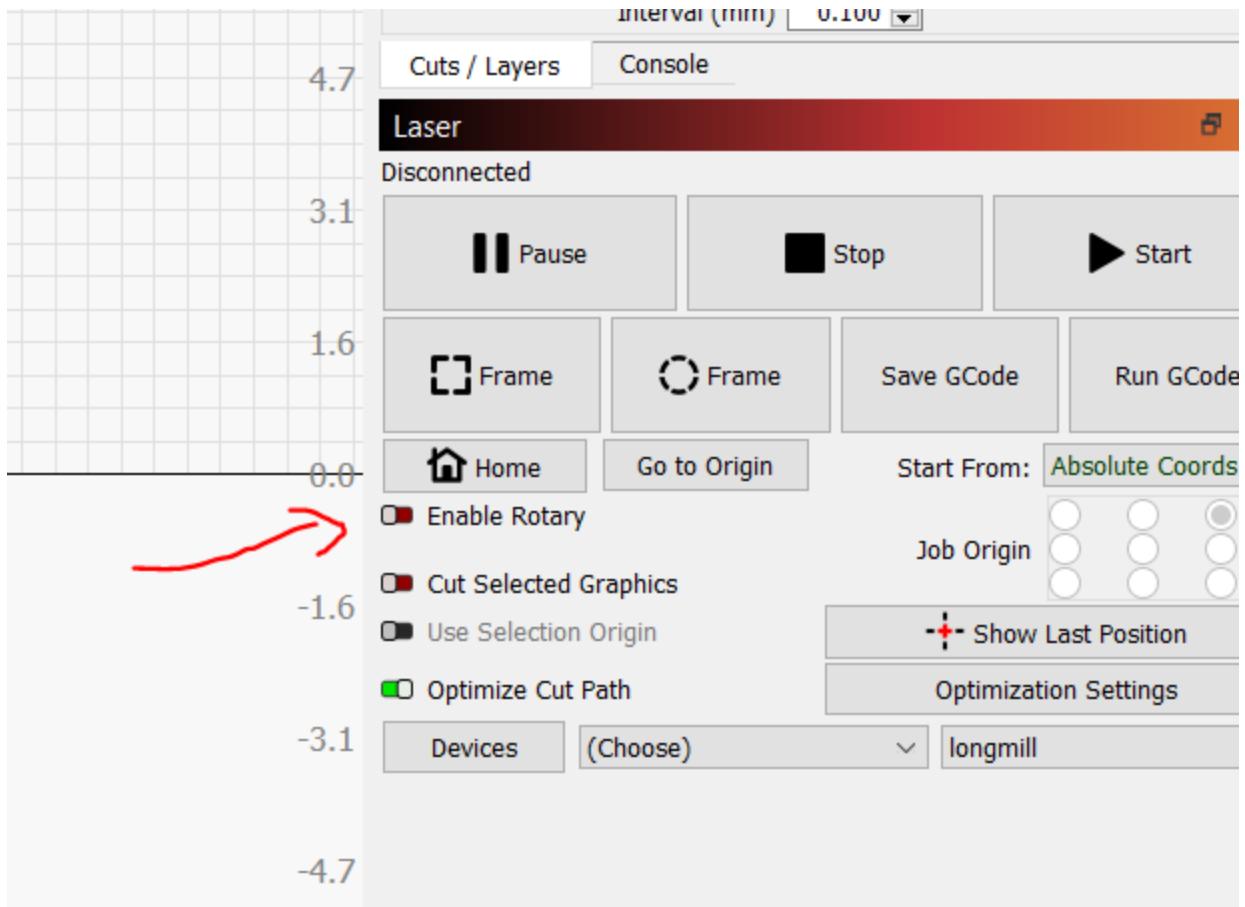
mm per rotation, the diameter of what you are engraving doesn't matter, they will all turn out the same. Took me a minute to think about that math but it does make sense and works in practice.



At this point it is handy to mention to change one display setting in lightburn, since when you do rotary, you must tick the "enable rotary" as it changes the gcode you put out. There is a way to make this show up on the home screen so you don't accidentally leave it on or off. In settings, click the box that says show rotary enable on main window.

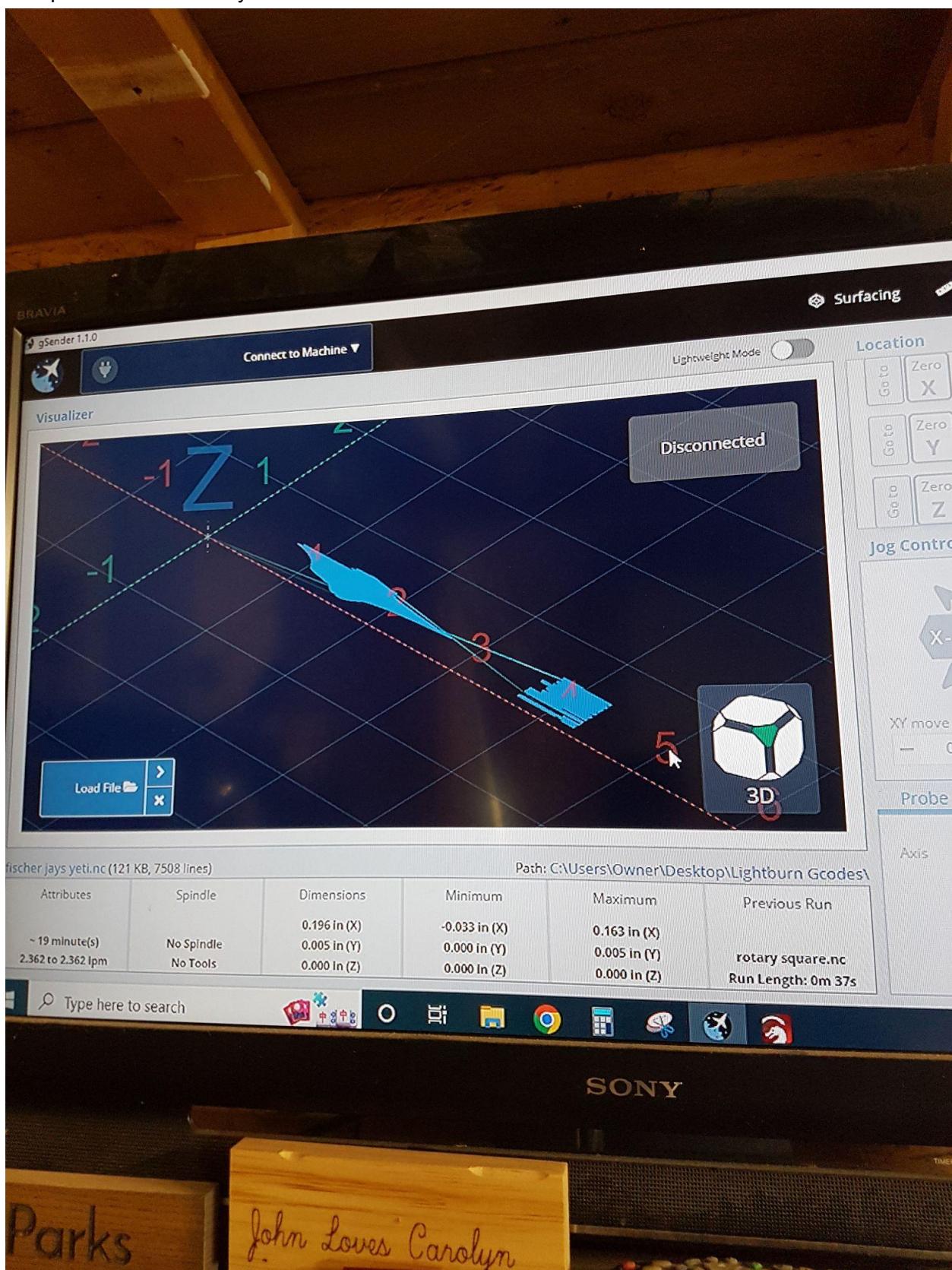


It will then be there on the main window to show you if it is on or off.

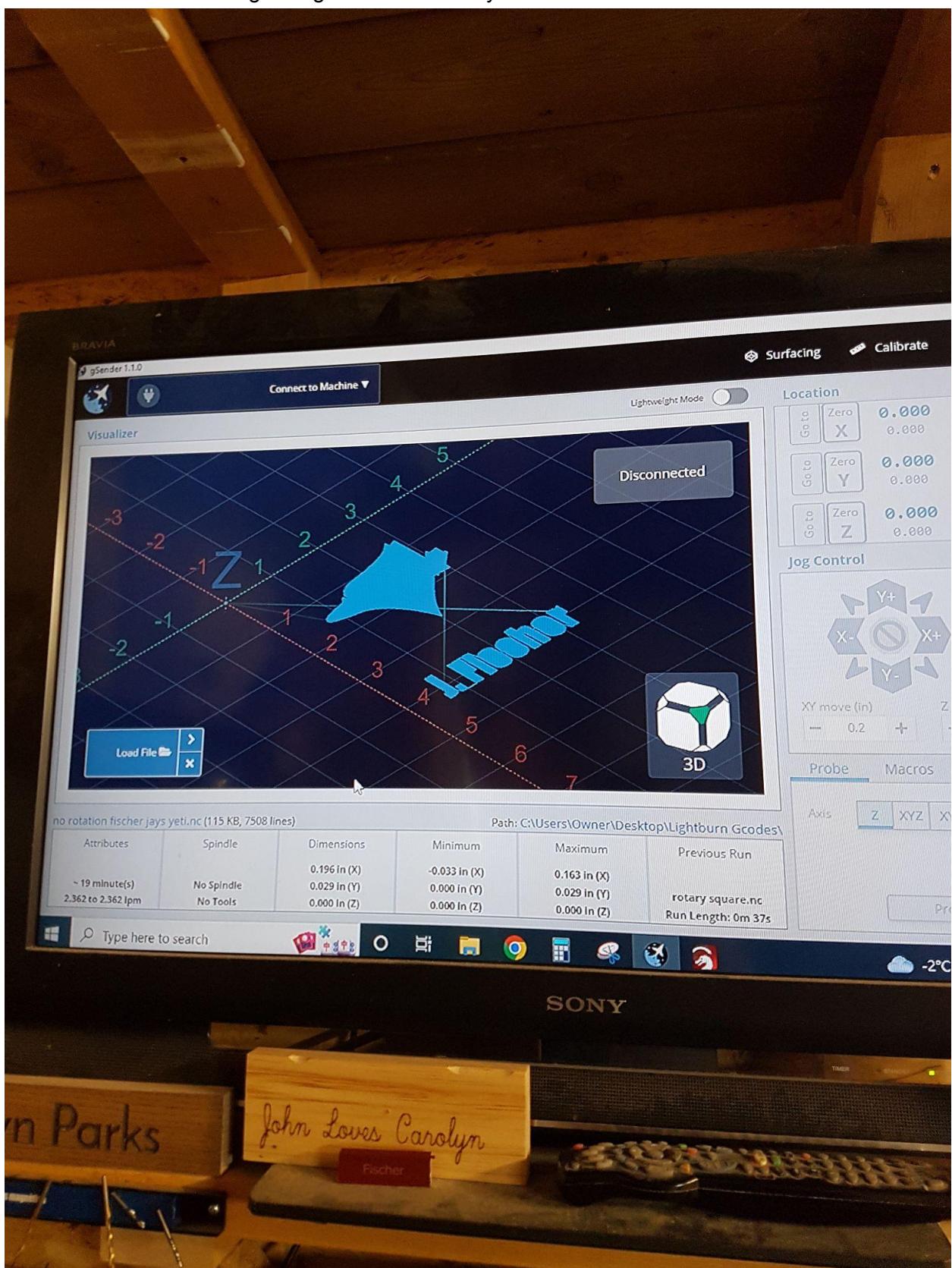


If you do forget the rotary on and off, it will be very obvious when you open your project in Gsender that there is something amiss.

This picture is with rotary enabled

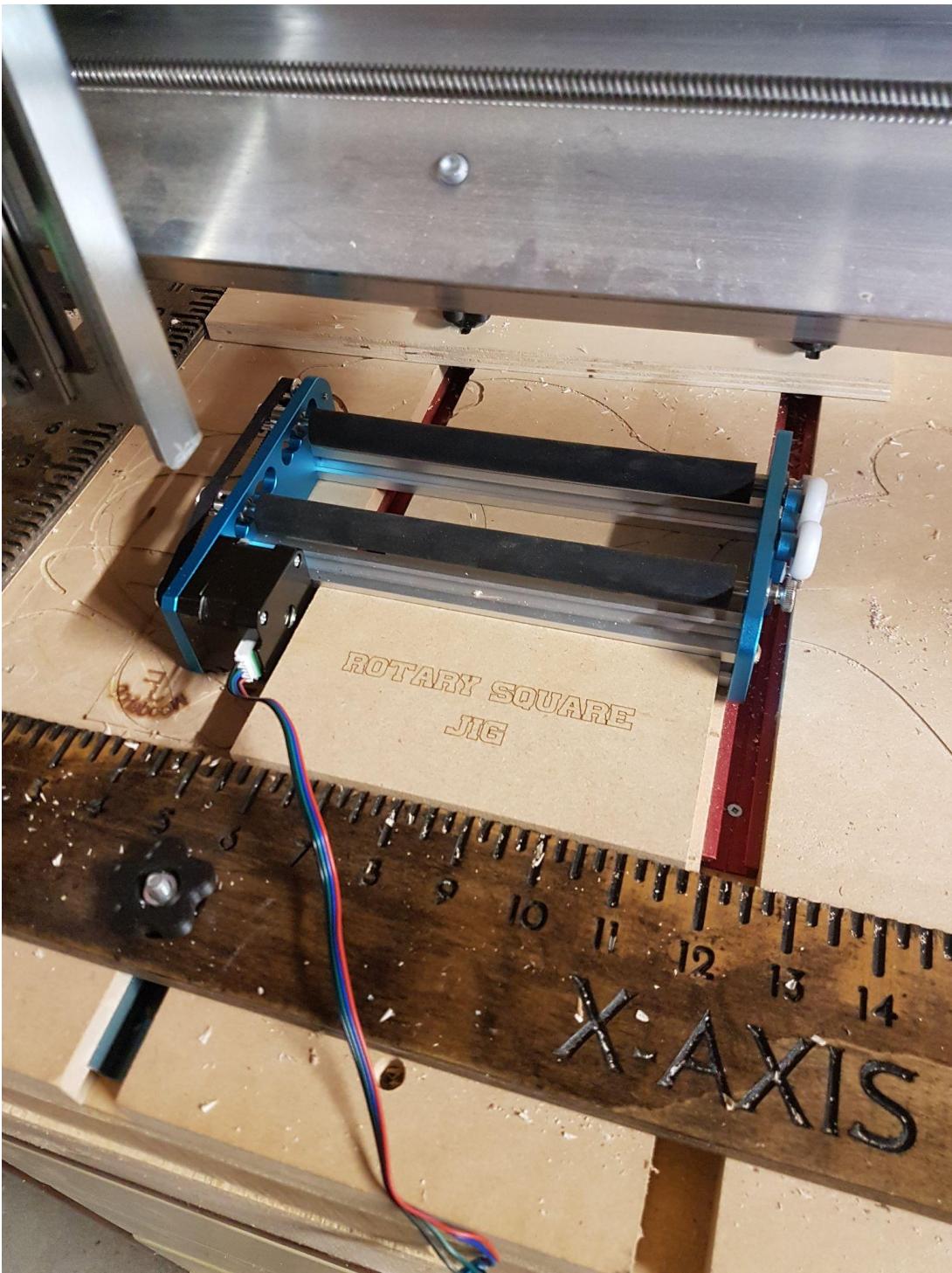


And this is the same design in lightburn with rotary not enabled

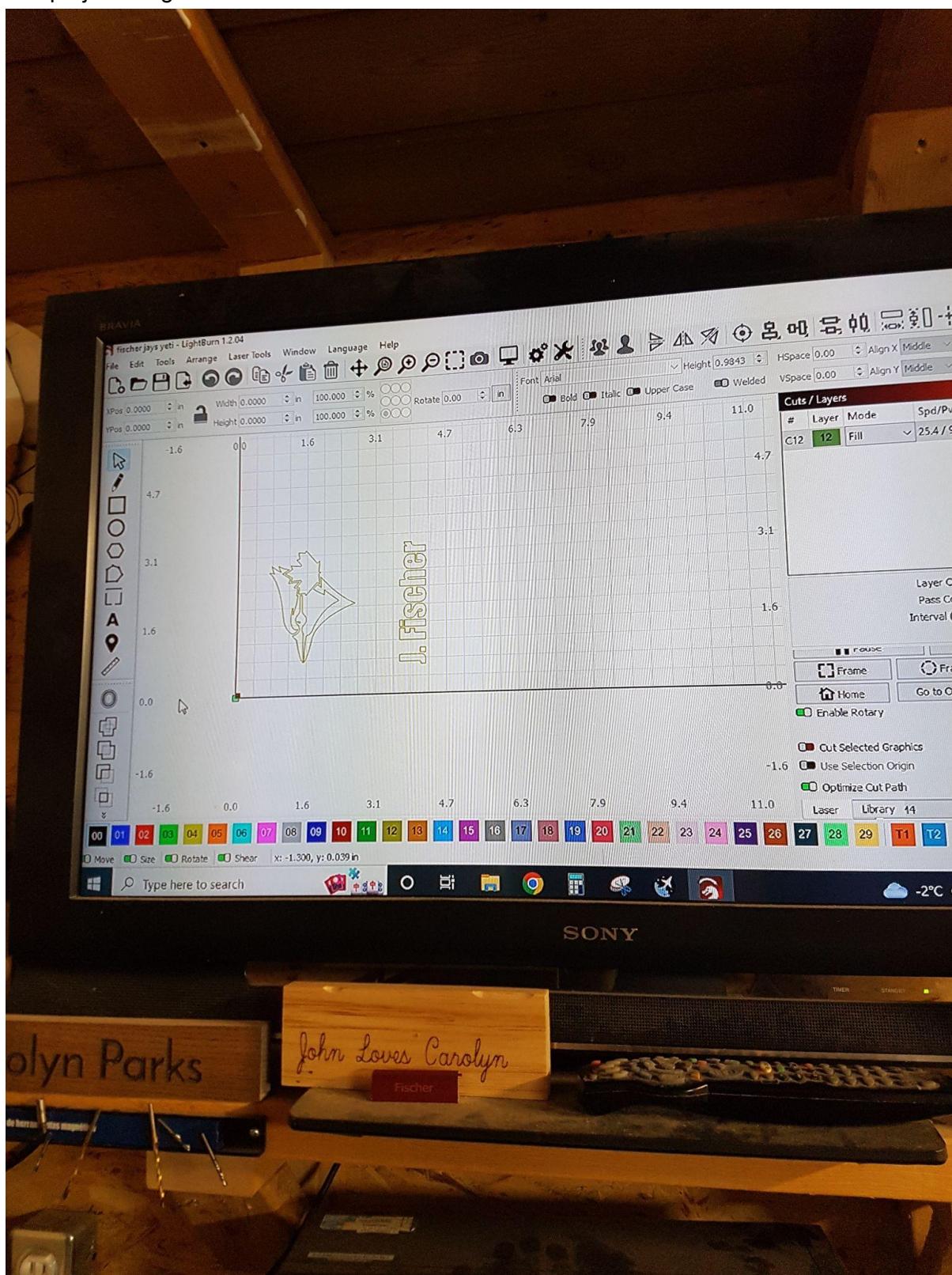


Setup on mill

I have the rotary oriented like this

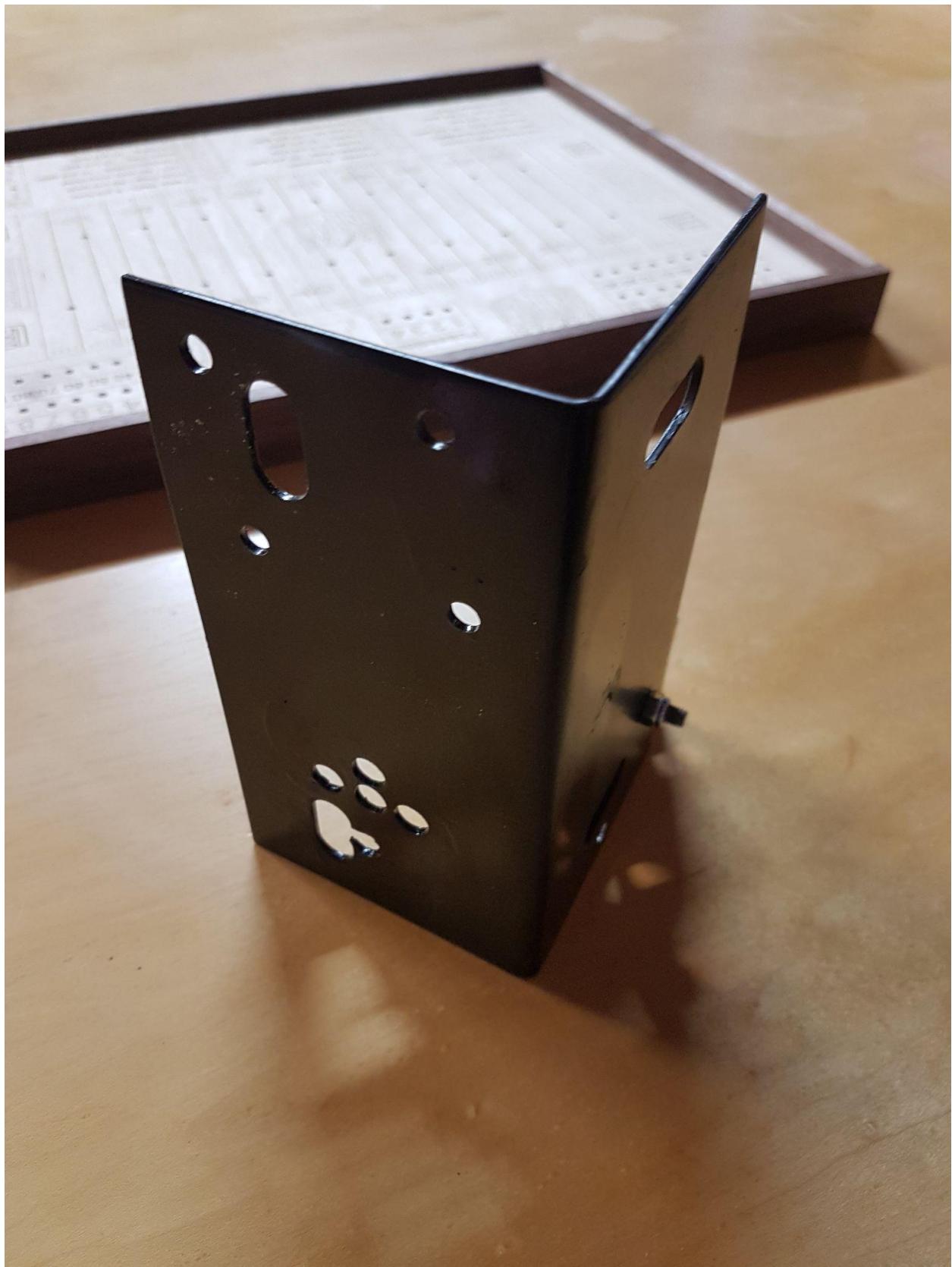


And project in lightburn oriented like this

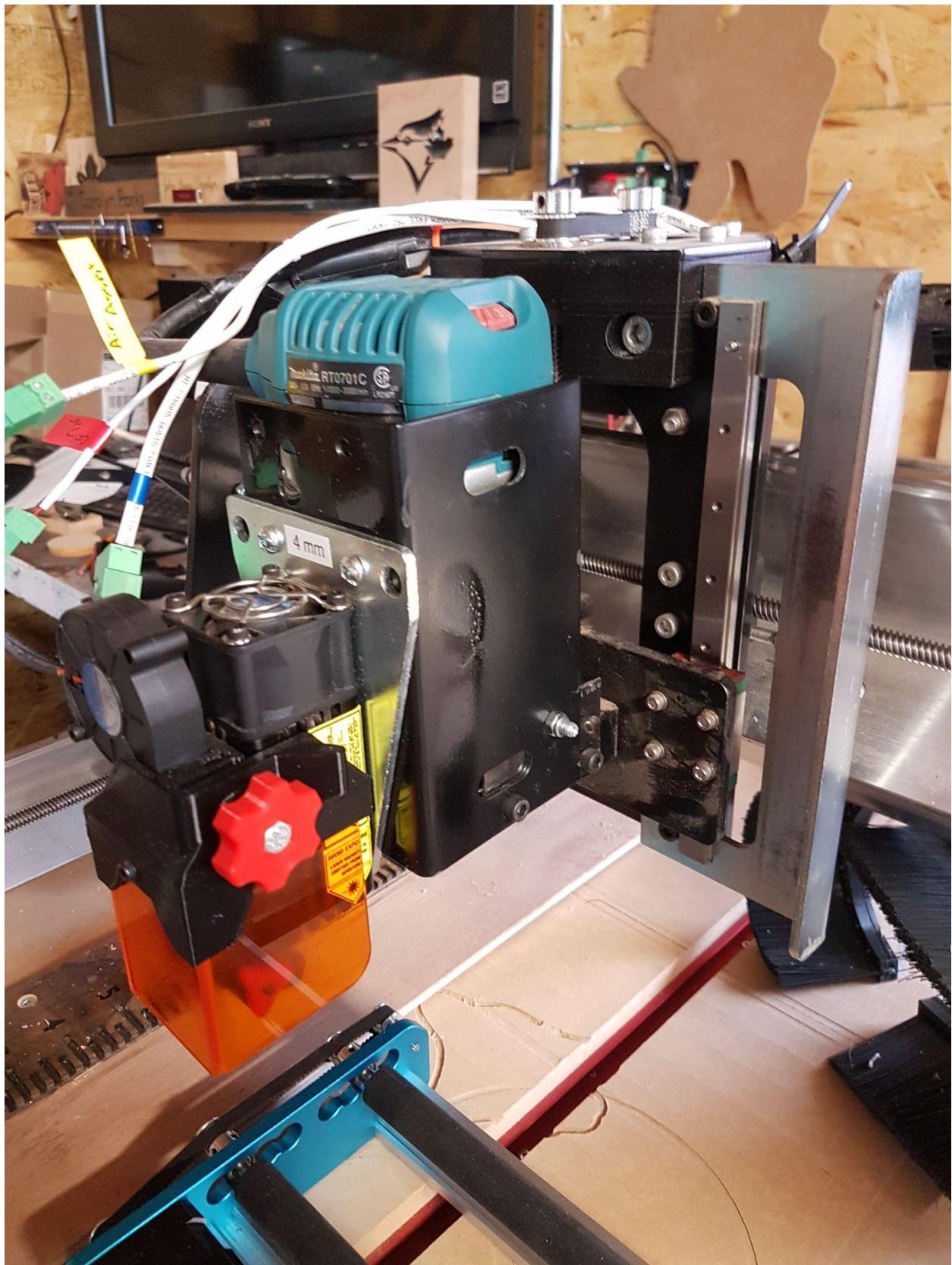


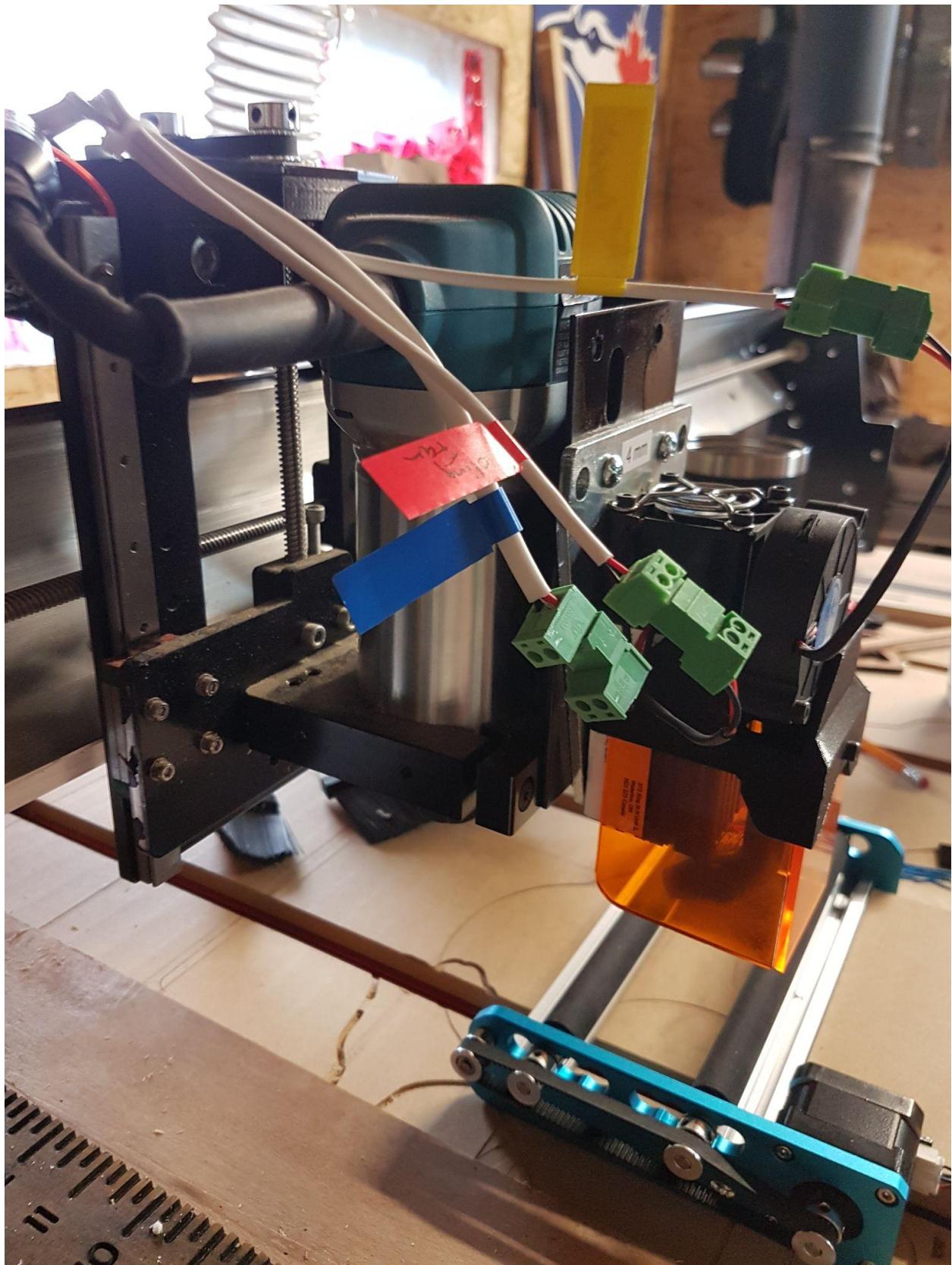
And it comes out correctly on the tumbler.

The mill is also too low to fit the tumbler on the rotary and have clearance for the laser, so i considered embedding the rotary in the bed, but thought this may prove to be messy and a lot of work due to how my bed is constructed so i instead made up a bracket out of some scrap steel I had and made it mount to the side of the router mount ( where i would normally mount the router) In order for this to work i had to loosen the router and slide it all the way to the top of the router holder and re-tighten.

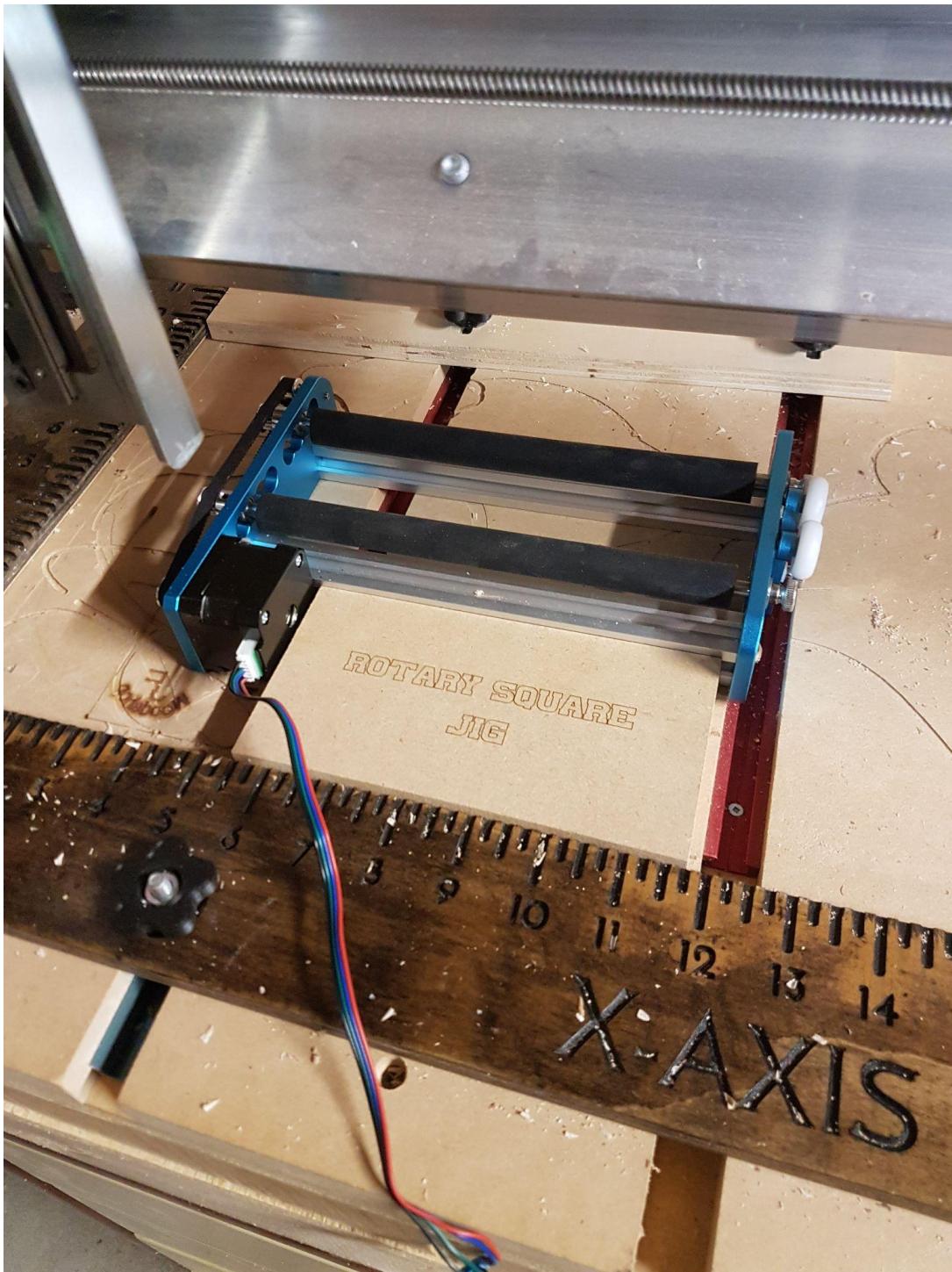








I also use a block to keep the rotary square to my front fence and a clamp lightly at the back to ensure the whole setup doesn't move.



Feeds and speeds

Dip switch 5 is down

Had no idea where to start on this so i just guessed, first attempt was 25.4 mm/s and 60% power, this worked ok, however it was not enough power to get a clean cut (still some powder coating left on the cut) I then tried 70% power same speed and it was better, but required a lot of effort to clean up. I then thought more power would be better so i put it up to 90%. This was a mistake, the cut came out nice, but i think what happened was the ash or whatever is left after the engrave got burned back on to the tumbler, the cut looked good, but it took a lot of effort to clean the residue away. Finally i settled on 80% power and 25.4 mm/sec and it comes out with a clean cut and cleaning the residue away was almost effortless.



This is 25.4 mm/sec 60% power - not quite enough power to remove all the powder coating, as you can see the lettering still has a bit of black in it and is not the shiny stainless that the YETI logo below is.



This is 25.4 mm/s and 70% power cut looks better, but there was a lot of cleanup work required to get it to this point.



This is 80% power 25.4 mm/s nice shiny stainless revealed and very little effort to clean up the cut afterwards.





This is 90% power 25.4 mm/s - top picture is after a lot of scrubbing to remove residue (turned out good but was a lot of extra work) and bottom picture is right off the machine. Wouldnt recommend this much power.

Layout -

Plenty of youtube videos on this, just remember if you are using the yaxis to run the rotary everything in lightburn has to be 90 deg off and rotary enabled.

Clean up -

I use a mr clean magic eraser and la's totally awesome cleaner and they work quite well.

Bottom line -

- Take your time to get calibration bang on as it will help you down the road
- Practice on scrap lots before attempting a real tumbler as they are expensive.
- run an outline in gsender before you carve
- ensure you re-centre where you need to be after running the outline as it always seems to be just a hair off, i havent figured out why yet.
- if you are using the wheels at the end of the rotary to carve something that is not perfectly cylindrical the work piece has a tendency to "walk" down the rotary - going slowly engraving it is very minor but it is there, still trying to come up with an idea for a fix on this.