



FIRST DRAFT - mandalarose

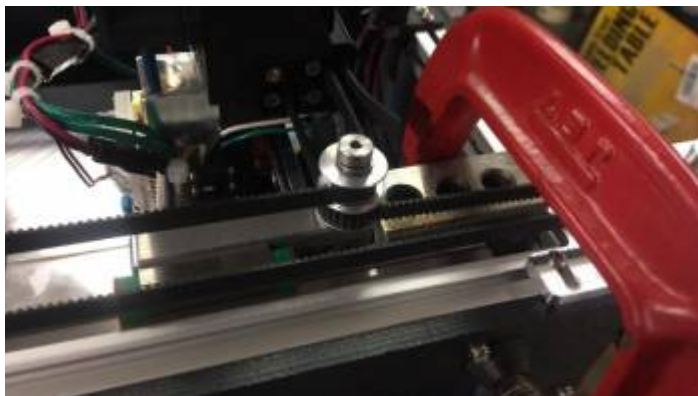
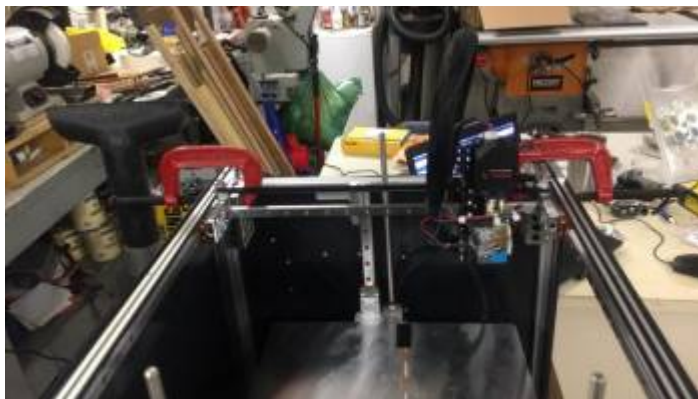
## Aligning the X Carriages & Y Rail

My method relies on 123 blocks (cheaply purchased off amazon). However, some other item that is metal and a consistent thickness, can be used.

All of this should be done before the belts are installed, or with the belts loose.

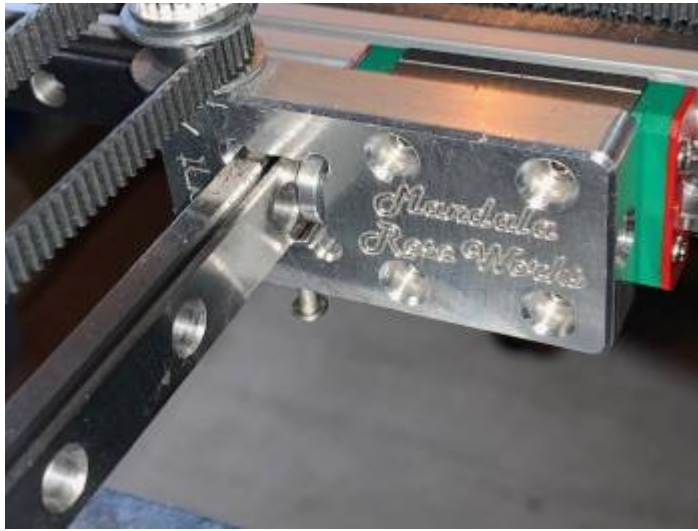
1. Mount the blocks tight against the right extrusions with standard woodworking clamps. I do NOT suggest using spring loaded clamps. Use the kind with a handle and screw to tighten them securely, but not so tight that you damage your front HDPE panel.

2.



3. Now slide the Front and Rear X Carriages with the Y Rail inserted, but not tightened down, over to the right to meet up with the 123 blocks.
4. Insert the spacers that came with your X Carriages in front of the rail on each X Carriage.

5.



6. Under the rail, and above the m3 threaded hole, insert the small square piece of metal that came with your X Carriages.
7. Insert the m3 screw in the bottom of each x carriage and secure them.
8. Insert the m3 screw from the left side of each X Carriage, the end of the screw should go into the divot in the spacer.
9. Tighten them down.

At this point, you should have both of the X Carriages touching the 123 blocks, or you should be within 1-2mm on one while the other is touching.

## Installing the Belts

Now you can go about installing the belts.

1. Loosen the steppers from their mounts so they are all the way in.
2. Install the belts into the belt retainers on the Y carriage, but only screw them in about half way, you want to leave yourself room for fine tuning.
3. Now push the steppers to the right and snug up screws holding the steppers on, first the back one, then the front one. Snug them up so that BOTH front and back carriages are touching the 123 blocks. You want to create some initial tension. If you tighten one too much than the other, it will mis-align the x carriages again, so be careful of it.
4. Now, download a guitar tuner app from your app store. n-Track Tuner is recommended as it displays the frequency.

5. Now, you will start tensioning your belts so they “twang” at a frequency of 58-60hz. Turn the screws on the belt retainers to accomplish this.
6. Remember to make sure that the X Carriages are both touching the 123 blocks as you are doing this. I like to do a full number of rotations tighter on each belt as I test the frequency.

This procedure should get your Y rail aligned correctly and fairly easily once you get the knack of adjusting the tension.

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