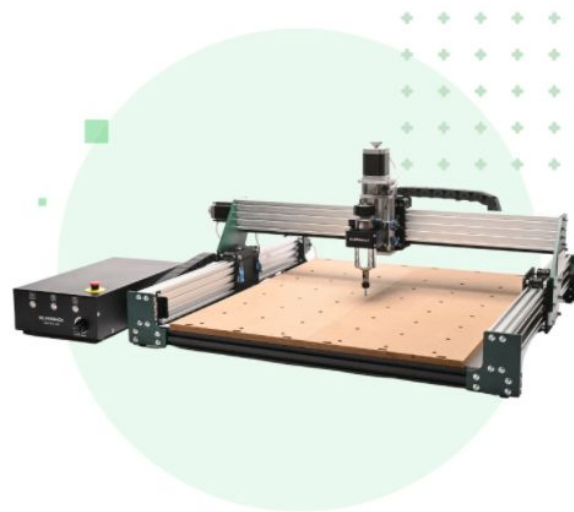




## YORA SILVERBACK BENCHTOP CNC ROUTER 6060

### LEAD SCREW REPLACEMENT

Version 1.0 • March, 2022



# Purpose

This Manual is intended for retrofitting 12mm Lead Screws to the Yora SilverBack Benchttop CNC Router; replacing the 10mm Lead Screws found on early production units.

This manual is designed to cover this process only, and is not a complete manual.

Before beginning assembly, we recommend conducting an inventory using the Packing List to ensure all components are present.

Please read these instructions carefully before assembling your machine to prevent possible damage to your machine.

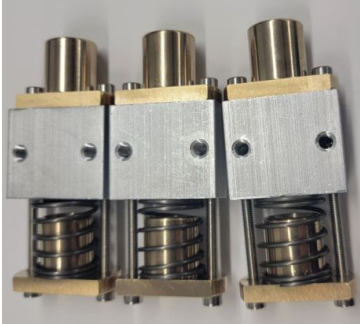


# Contents

Part 1: Packing List

Part 2: Mechanical Assembly

Part 3: Configuration Changes

# Part 1 Packing List

Item	Size	Picture	Quantity
Backlash Assemblies			3
Bearings			6
12mm Lead Screws			2 - Y Axis 1 - X Axis

# Part 2 Mechanical Assembly

## Preliminary Steps

- For ease of access, position the X axis near the middle of the gantry; and the Y axis near the front of the machine.
- After setting position; ensure that the Controller is turned off, and the power cord unplugged.
- Ensure that your work area has ample room around the machine to place major components.

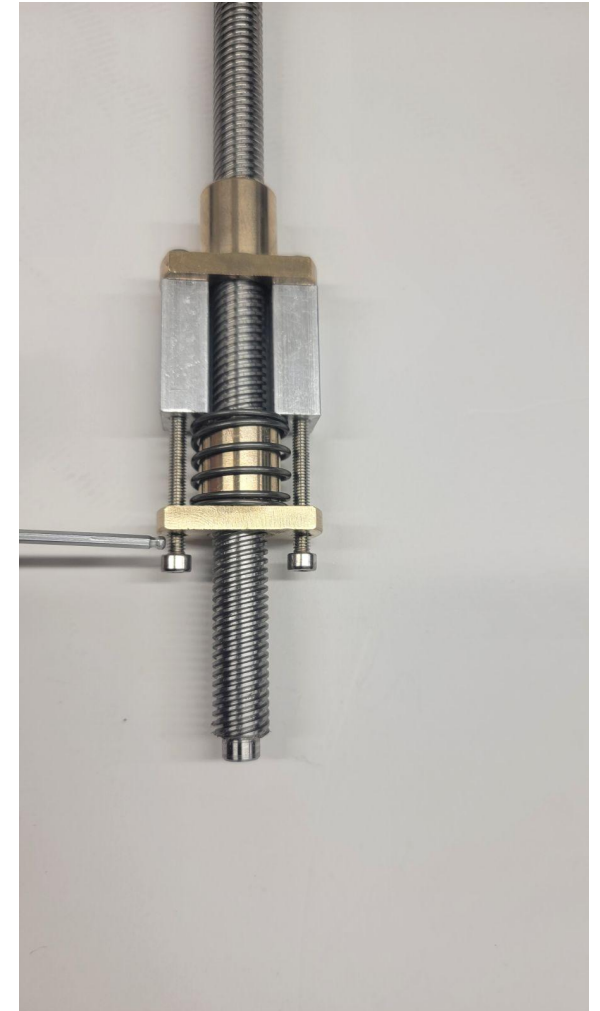
## Part 2 Mechanical Assembly

### Step 1 - Prepare New Lead Screws <sup>1/2</sup>

Install the Backlash Assemblies to the Lead Screws; starting at the end of the Lead Screw with the small shoulder.

Ensure that the spring-loaded nut is towards the shoulder of the Lead Screw, as shown.

Depress the spring-loaded nut slightly to install, providing some tension on the assembly. The spring does NOT need to be fully compressed.



# Part 2 Mechanical Assembly

## Step 1 - Prepare New Lead Screws 2/2

Repeat for all 3 Lead Screws,  
positioning the Backlash  
Assemblies approximately 6 inches  
from the end of the Lead Screws

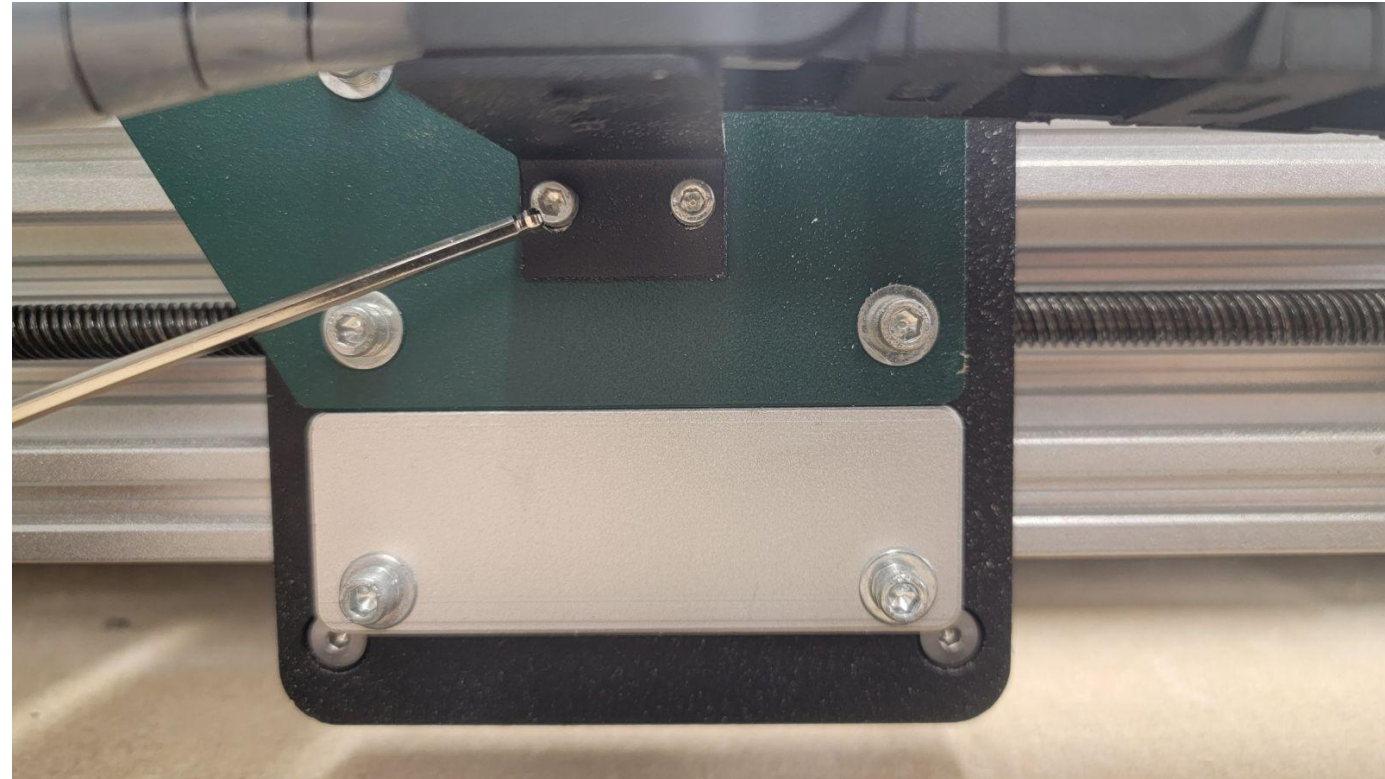




## Part 2 Mechanical Assembly

### Step 2 - Remove X Axis Assembly <sup>1/4</sup>

Remove the 2 screws holding the Y Axis drag chain bracket to the X Axis side plate; this is necessary to allow the X Axis to be moved to one side.





# Part 2 Mechanical Assembly

## Step 2 - Remove X Axis Assembly 2/4

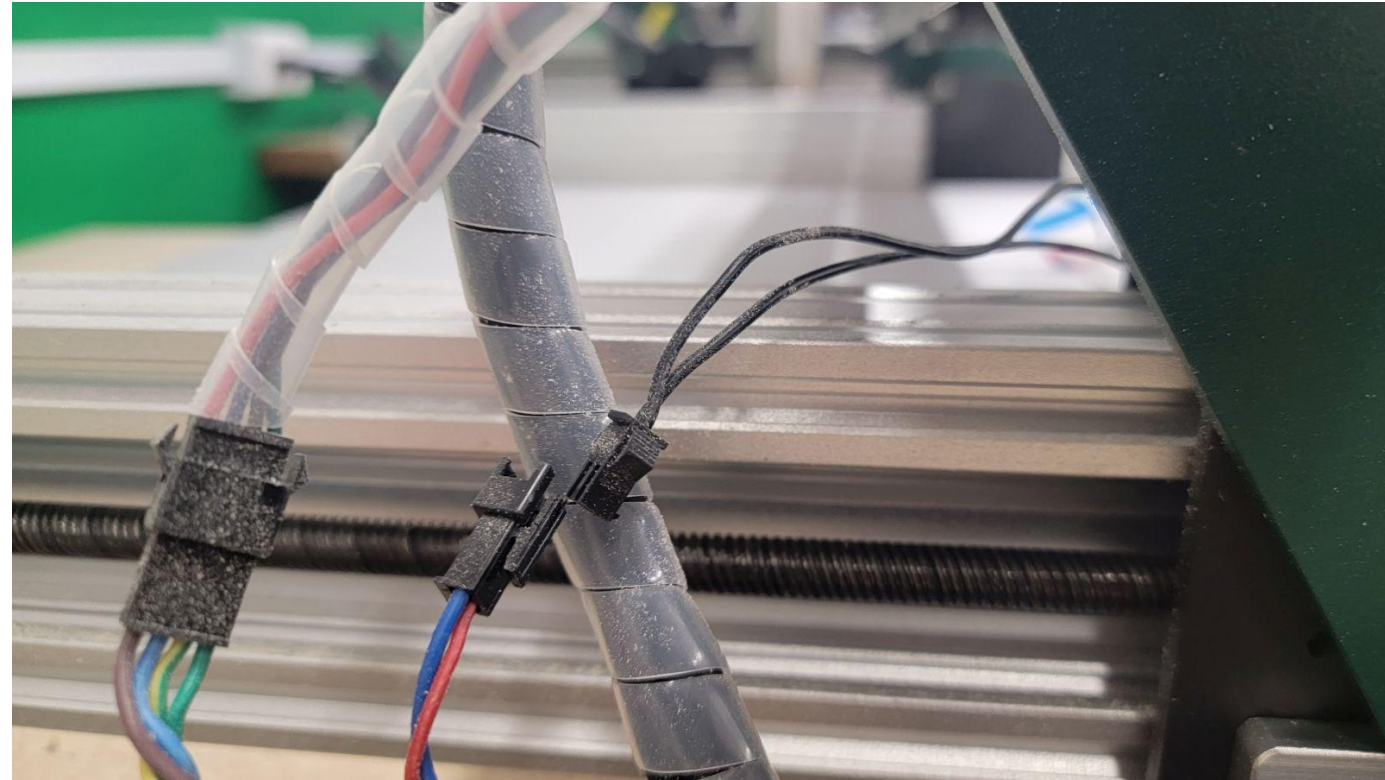
Remove the 4 screws on each side of the machine, holding the X Axis Assembly to the Y Axis side plate



# Part 2 Mechanical Assembly

## Step 2 - Remove X Axis Assembly <sup>3/4</sup>

Unplug the Y Axis limit switch connector on the left side of the machine, to prevent damage to the wiring.



# Part 2 Mechanical Assembly

## Step 2 - Remove X Axis Assembly 4/4

Carefully lift the X Axis Assembly off the machine and set it on the left side of the work surface.

There is no need to remove any other wiring, but use caution when moving to avoid damage to the wiring harness and drag chain.

The spindle holder mount will keep the X Axis Assembly from falling over.



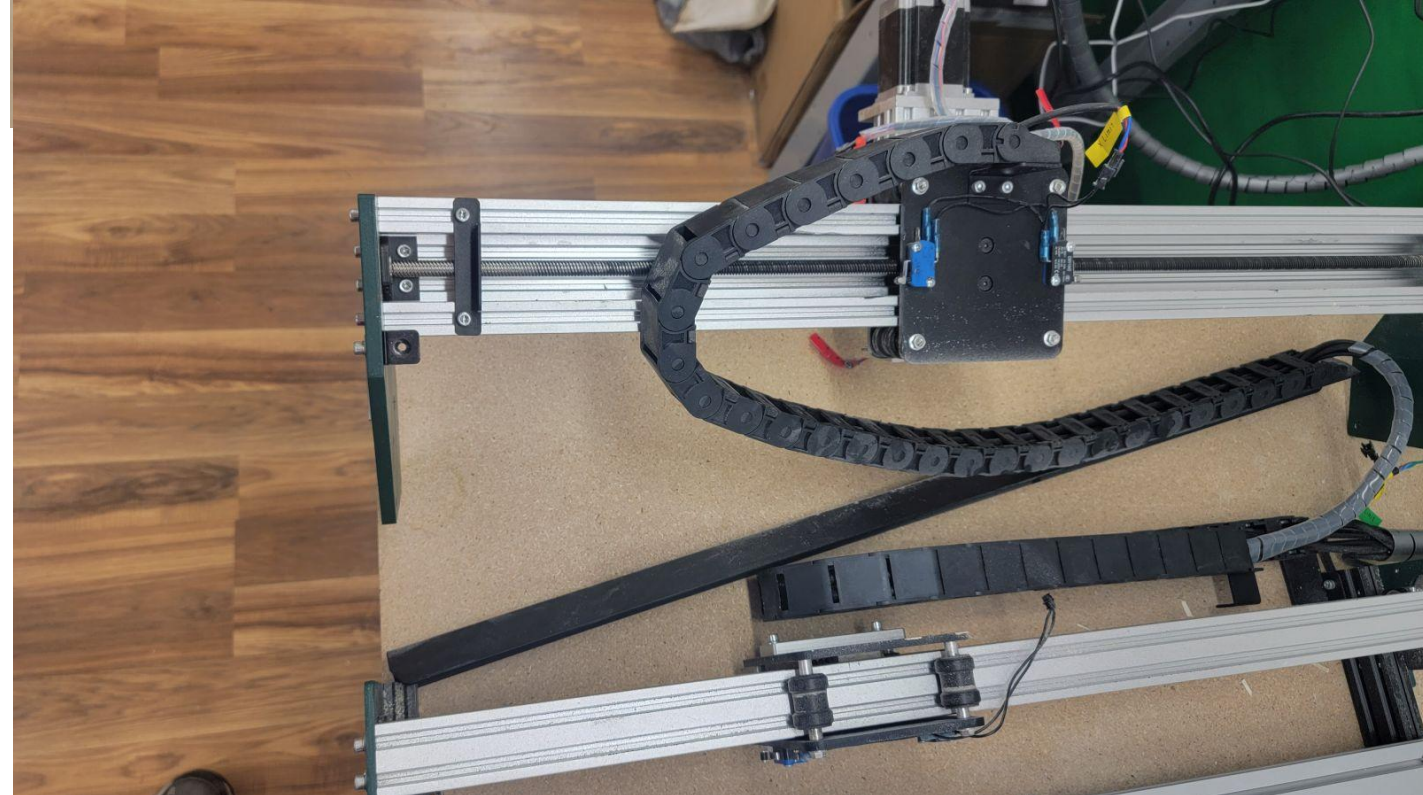
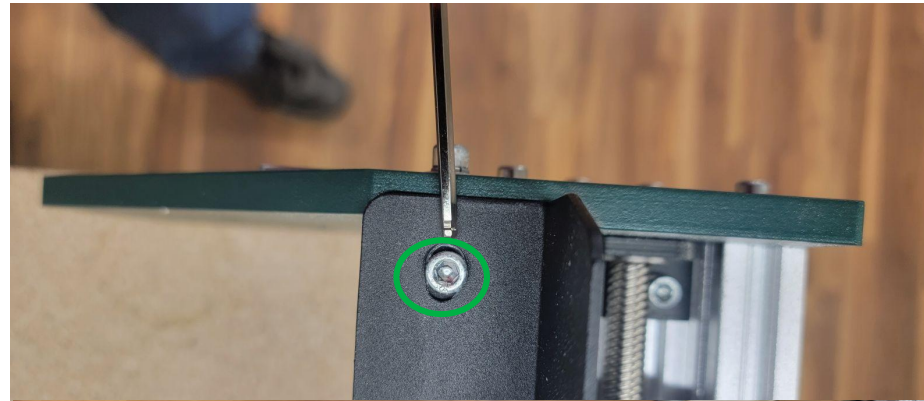


## Part 2 Mechanical Assembly

### Step 3 - Replace X Axis Lead Screw 1/11

Remove the 2 screws attaching the Drag Chain Support Rail to the rear of the X Axis Assembly.

Allow the Support Rail and drag chain to set on work surface.

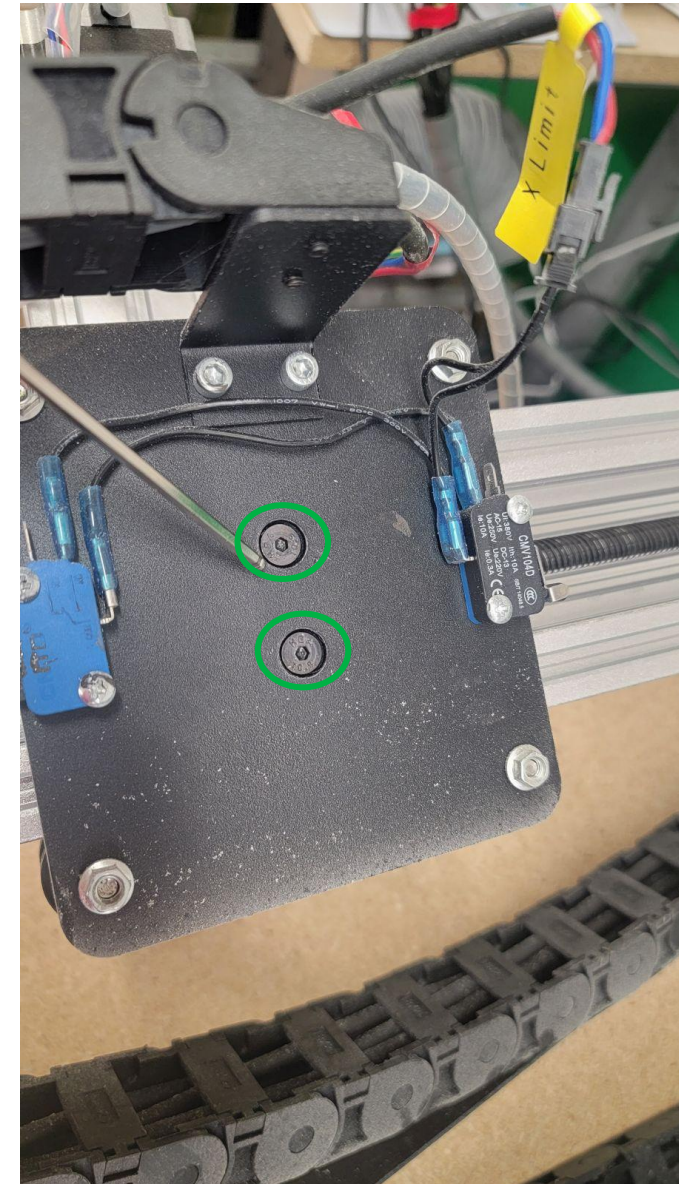


# Part 2 Mechanical Assembly

## Step 3 - Replace X Axis Lead Screw 2/11

Remove the 2 screws holding the X Axis gantry plate to the Backlash Assembly on the Lead Screw.

This will allow the X Axis gantry to slide freely on the rail; use caution to ensure it does not slide and cause injury or damage.



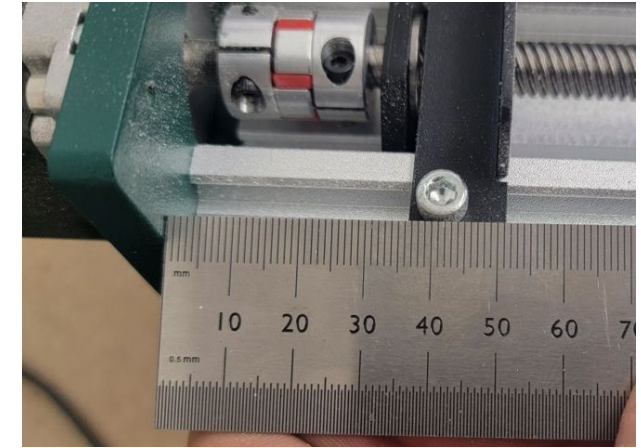
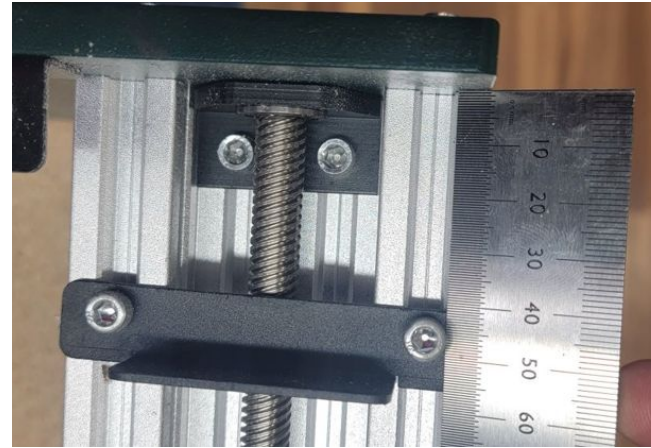


# Part 2 Mechanical Assembly

## Step 3 - Replace X Axis Lead Screw 2/11

Note and record the measurement for position of the X Axis limit switch contact plates (approximately 50-55 mm, your machine may vary).

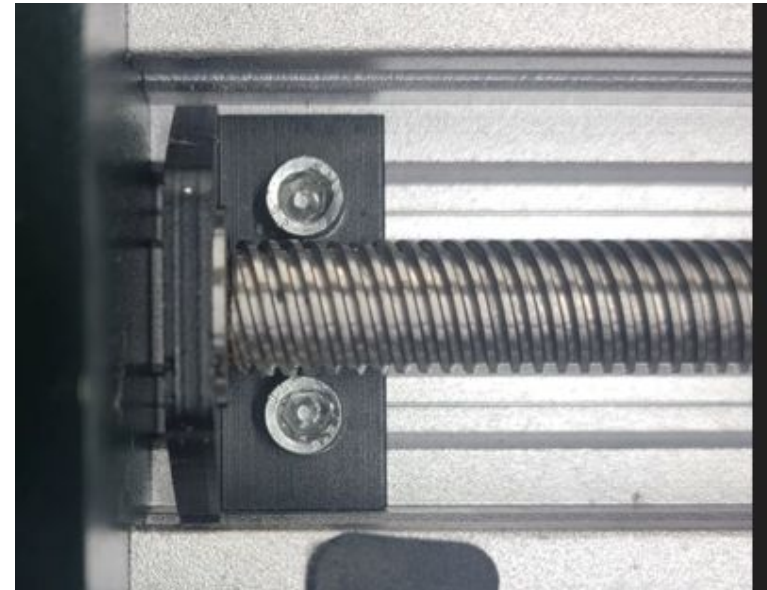
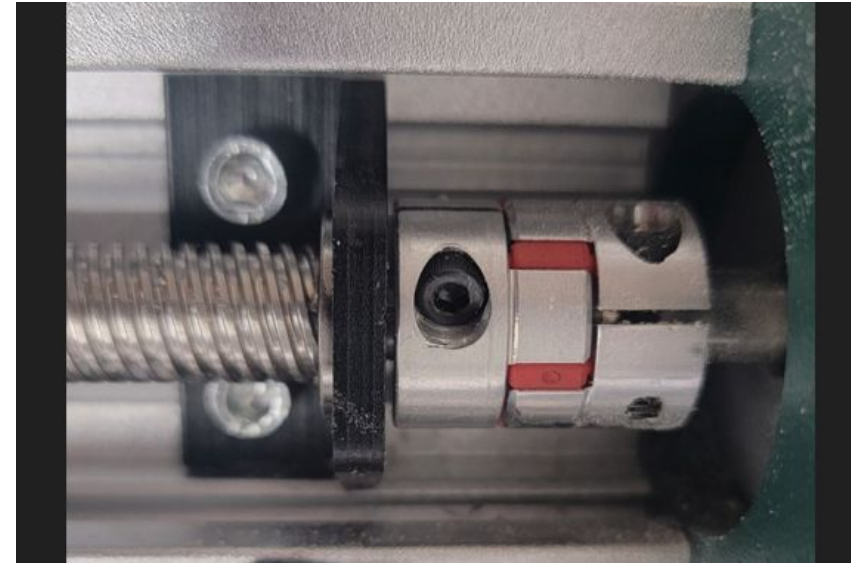
Remove the top screw, and loosen the lower screw, allowing the plates to swing clear of the Lead Screw.



# Part 2 Mechanical Assembly

## Step 3 - Replace X Axis Lead Screw 4/11

Remove the 2 screws attaching each bearing holder to the rail; one near the motor coupler, and one at the far end of the rail





## Part 2 Mechanical Assembly

### Step 3 - Replace X Axis Lead Screw 5/11

Slide the X Axis gantry towards the motor end of the rail; this will allow clearance to remove the lead screw.

Carefully lift the end of the lead screw and remove the bearing holder and bearing.



## Part 2 Mechanical Assembly

### Step 3 - Replace X Axis Lead Screw 6/11

Carefully slide the lead screw out from beneath the X Axis gantry plate; it may require a bit of effort to separate the coupling.

The orange elastomer part of the coupling may stay with the motor side of the coupling; this is nothing to cause concern.





# Part 2 Mechanical Assembly

## Step 3 - Replace X Axis Lead Screw 7/11

Position the removed lead screw so that the coupling and bearing holder can be accessed

Loosen the set screw and clamp screw on the coupling; and remove the coupling, bearing holder, and bearing from the end of the lead screw.

Discard the removed bearing and lead screw.



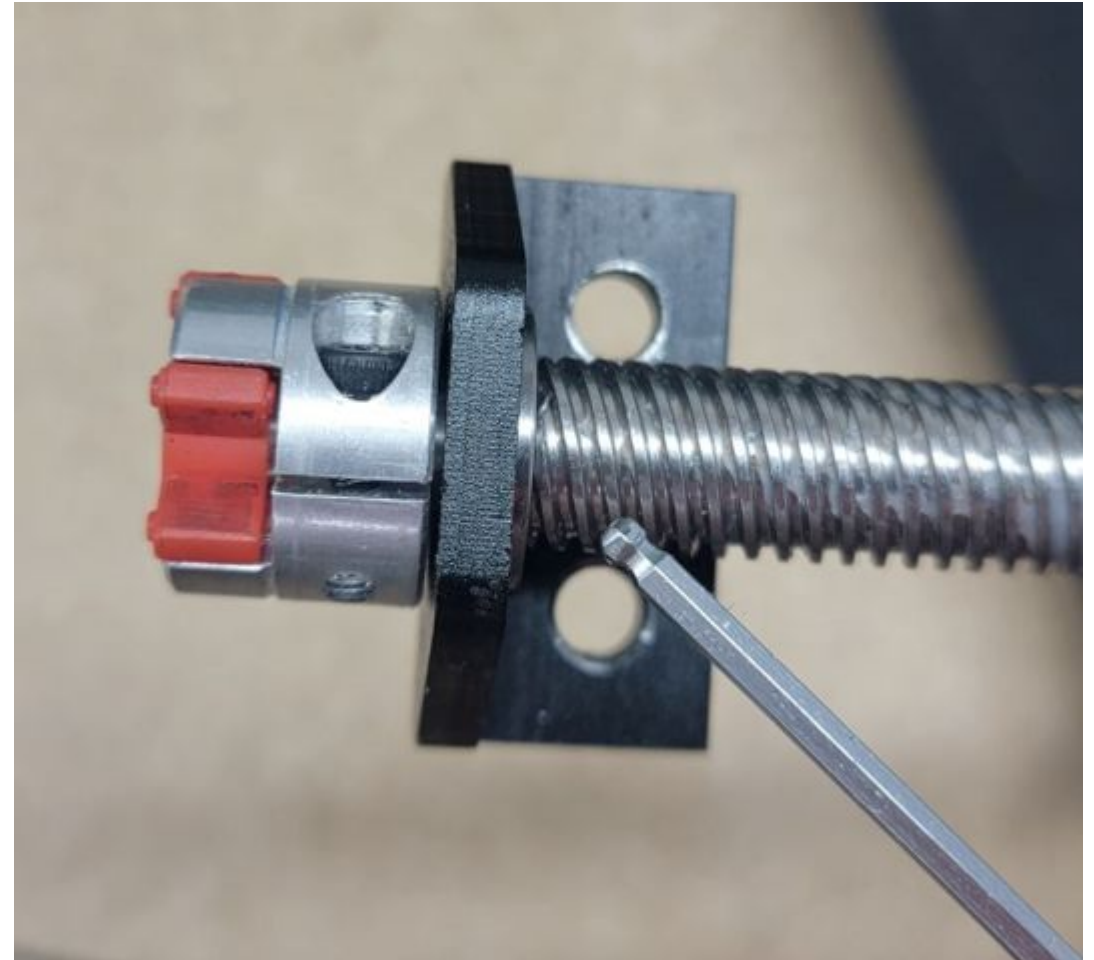
# Part 2 Mechanical Assembly

## Step 3 - Replace X Axis Lead Screw 8/11

Install the new bearing, bearing holder, and coupling on the long shoulder of the new lead screw.

Note the flange on the bearing should be on the inside of the bearing holder.

Ensure there is a small gap between the coupling and bearing holder, to prevent interference.



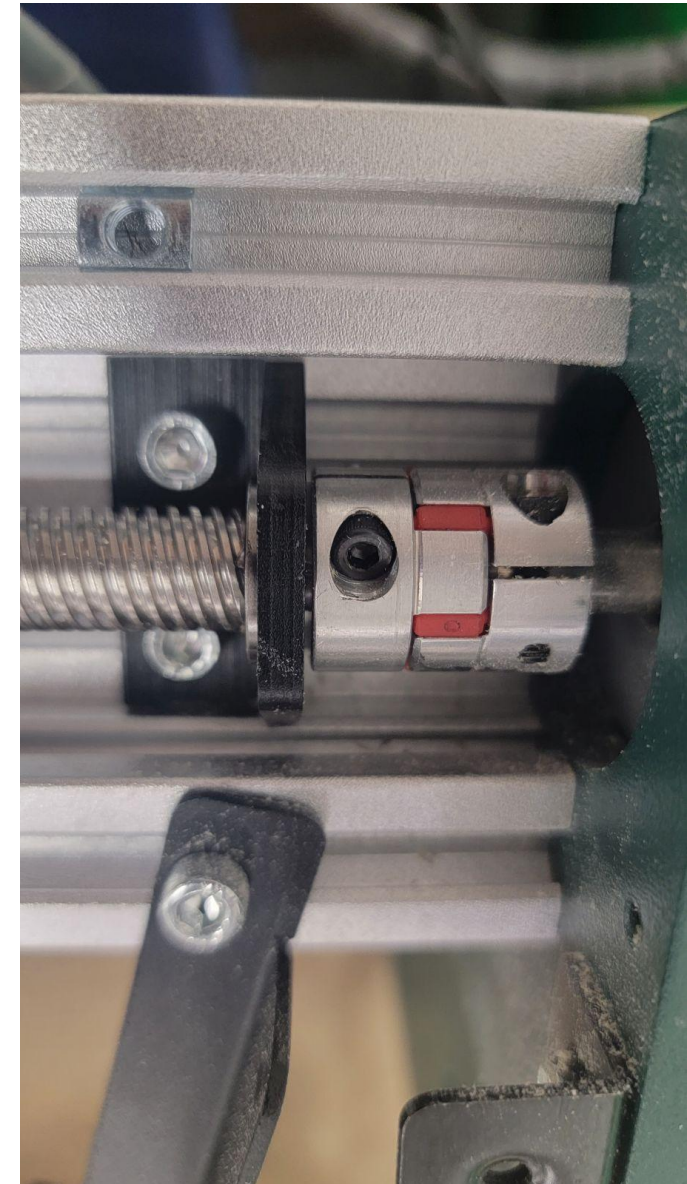
# Part 2 Mechanical Assembly

## Step 3 - Replace X Axis Lead Screw 9/11

Carefully slide the new lead screw into the rail, ensuring the Backlash Assembly is positioned with the flat face outward.

Ensure the coupling engages correctly with the motor side.

Reinstall the screws holding the bearing holder, ensuring the flange side of the bearing is seated at the base of the shoulder on the lead screw.



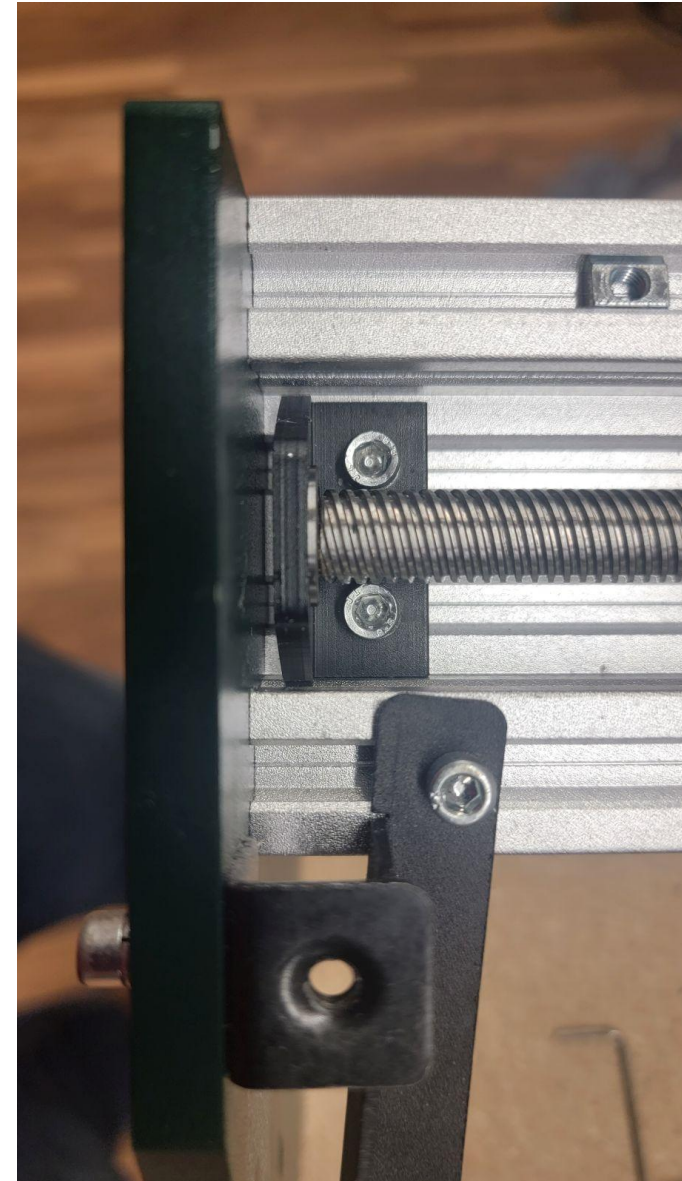


# Part 2 Mechanical Assembly

## Step 3 - Replace X Axis Lead Screw 10/11

Reinstall the bearing holder at the far end of the lead screw, ensuring the flange side of the bearing is seated at the base of the shoulder on the lead screw.

NOTE - the bearing holder may no longer be against the X Axis side plate due to variations in lead screw length; this will not impact travel capability of the machine.



# Part 2 Mechanical Assembly

## Step 3 - Replace X Axis Lead Screw 11/11

Reinstall the limit switch contact plates, ensuring that they are placed in the same position as recorded earlier.

Slide the X Axis gantry plate over the Backlash Assembly, and reinstall the 2 screws attaching the plate to the Backlash Assembly.

Reinstall the Drag Chain Support Rail.

Manually turn the lead screw to verify smooth operation of the X Axis; if there is any binding, check the bearing holders to ensure they are not misaligned.

**DO NOT REINSTALL X AXIS ASSEMBLY TO MACHINE YET!**



## Part 2 Mechanical Assembly

### Step 4 - Replace Y Axis Lead Screws 1/9

Remove the 2 screws holding the support plate to the Y Axis gantry plate.

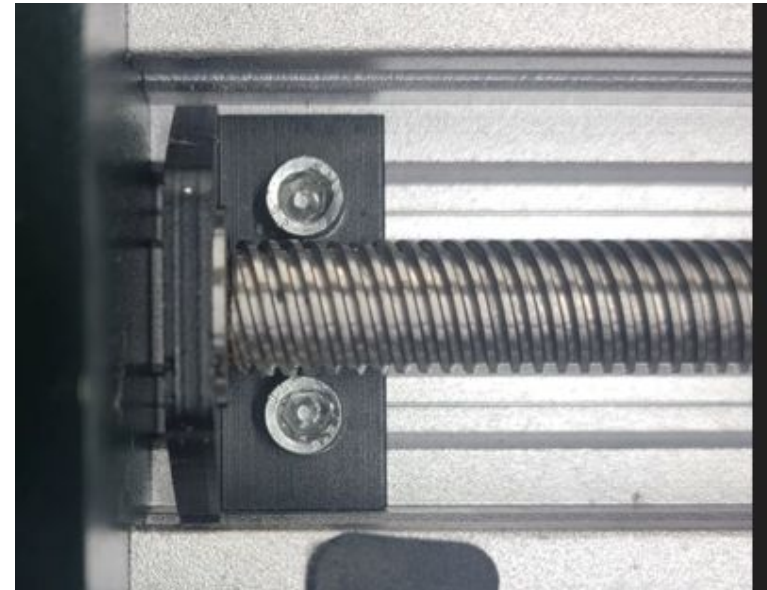
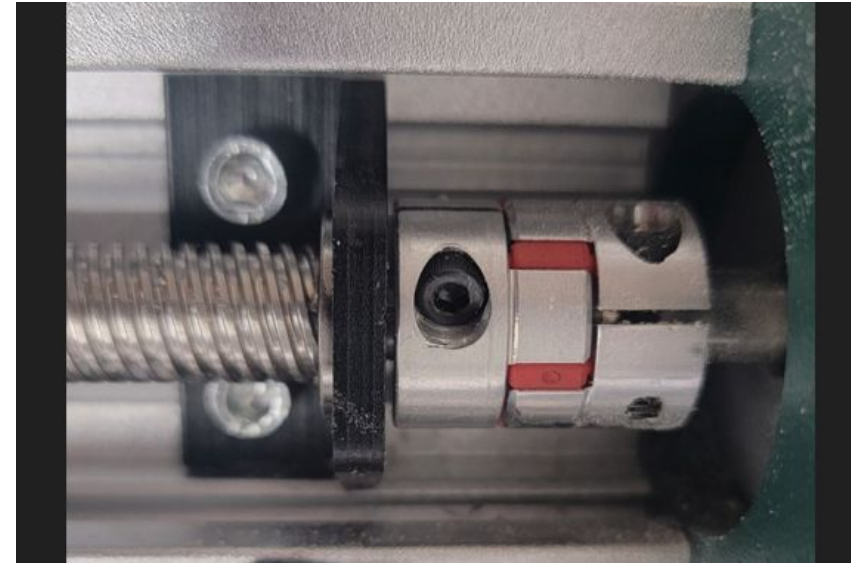
Remove the 2 screws holding the gantry plate to the Backlash Assembly, and slide the gantry plate towards the motor end of the rail.



## Part 2 Mechanical Assembly

### Step 4 - Replace Y Axis Lead Screw 2/9

Remove the 2 screws attaching each bearing holder to the rail; one near the motor coupler, and one at the far end of the rail



# Part 2 Mechanical Assembly

## Step 4 - Replace Y Axis Lead Screw 3/9

Carefully lift the end of the lead screw and remove the bearing holder and bearing.



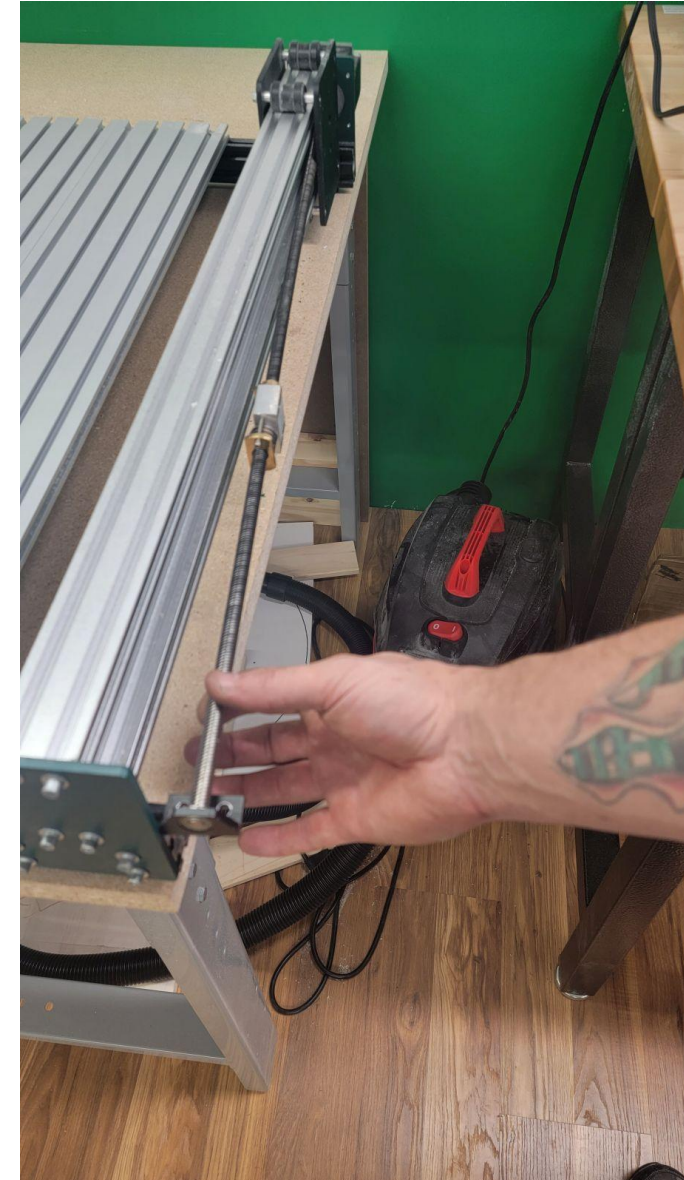


## Part 2 Mechanical Assembly

### Step 4 - Replace Y Axis Lead Screw 4/9

Carefully slide the lead screw out from beneath the Y Axis gantry plate; it may require a bit of effort to separate the coupling.

The orange elastomer part of the coupling may stay with the motor side of the coupling; this is nothing to cause concern.



# Part 2 Mechanical Assembly

## Step 4 - Replace Y Axis Lead Screw 5/9

Position the removed lead screw so that the coupling and bearing holder can be accessed

Loosen the set screw and clamp screw on the coupling; and remove the coupling, bearing holder, and bearing from the end of the lead screw.

Discard the removed bearing and lead screw.



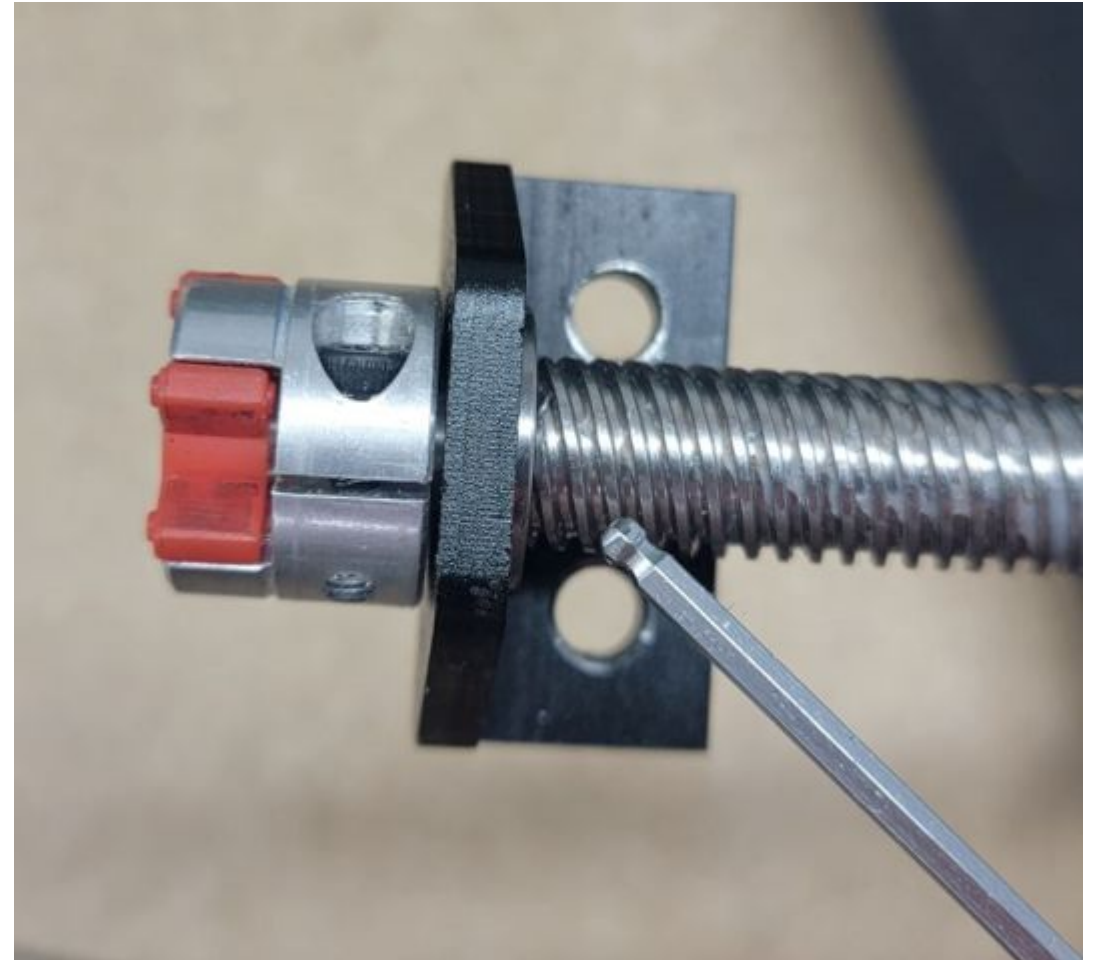
## Part 2 Mechanical Assembly

### Step 4 - Replace Y Axis Lead Screw 6/9

Install the new bearing, bearing holder, and coupling on the long shoulder of the new lead screw.

Note the flange on the bearing should be on the inside of the bearing holder.

Ensure there is a small gap between the coupling and bearing holder, to prevent interference.





## Part 2 Mechanical Assembly

### Step 4 - Replace Y Axis Lead Screw 7/9

Carefully slide the new lead screw into the rail, ensuring the Backlash Assembly is positioned with the flat face outward.

Ensure the coupling engages correctly with the motor side.

Reinstall the screws holding the bearing holder, ensuring the flange side of the bearing is seated at the base of the shoulder on the lead screw.



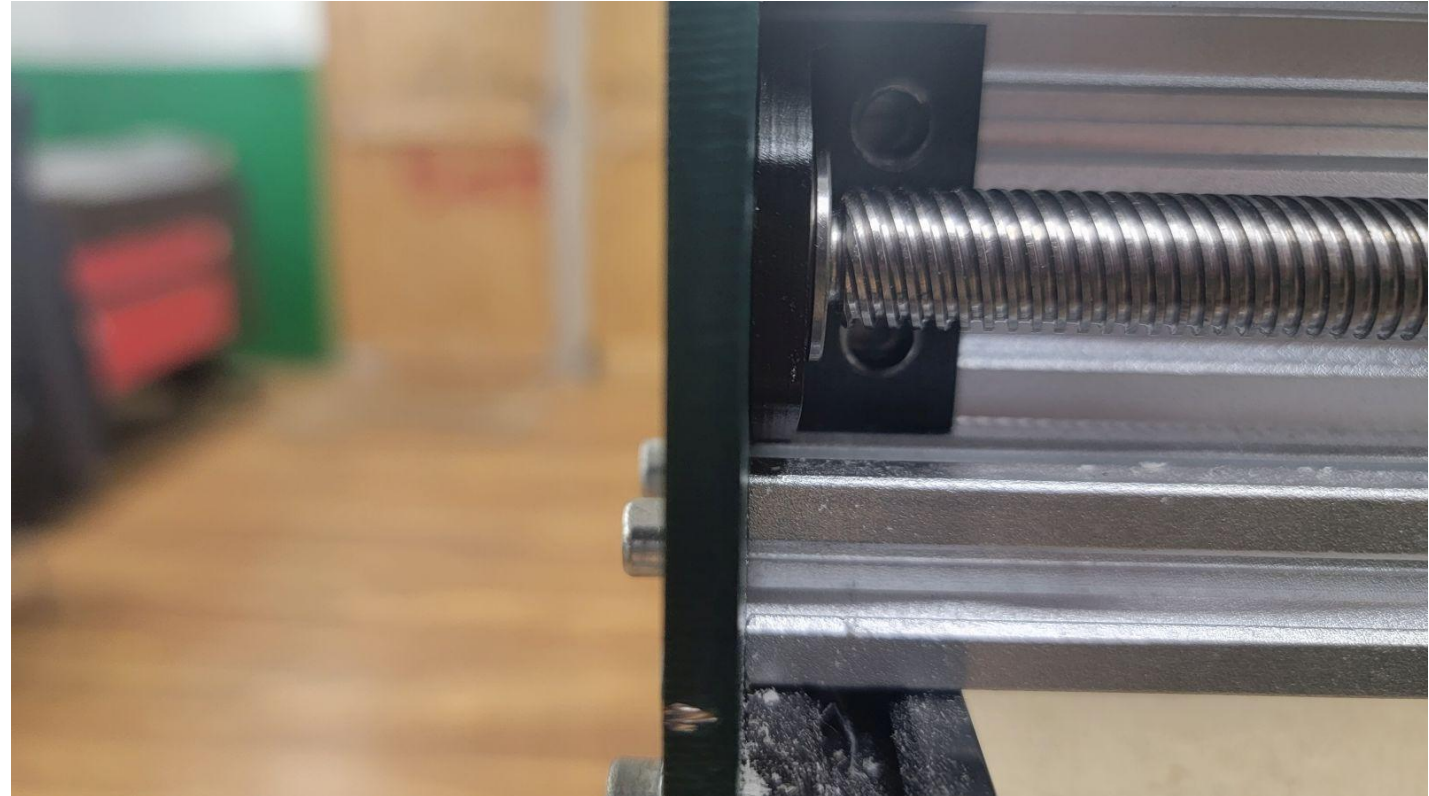


## Part 2 Mechanical Assembly

### Step 4 - Replace Y Axis Lead Screw 8/9

Reinstall the bearing holder at the far end of the lead screw, ensuring the flange side of the bearing is seated at the base of the shoulder on the lead screw.

NOTE - the bearing holder may no longer be against the Y Axis front plate due to variations in lead screw length; this will not impact travel capability of the machine.



## Part 2 Mechanical Assembly

### Step 4 - Replace Y Axis Lead Screw 9/9

Slide the Y Axis gantry plate over the Backlash Assembly, and reinstall the 2 screws attaching the plate to the Backlash Assembly.

Reinstall the support plate as shown.

REPEAT STEP 4 FOR OTHER SIDE Y AXIS.

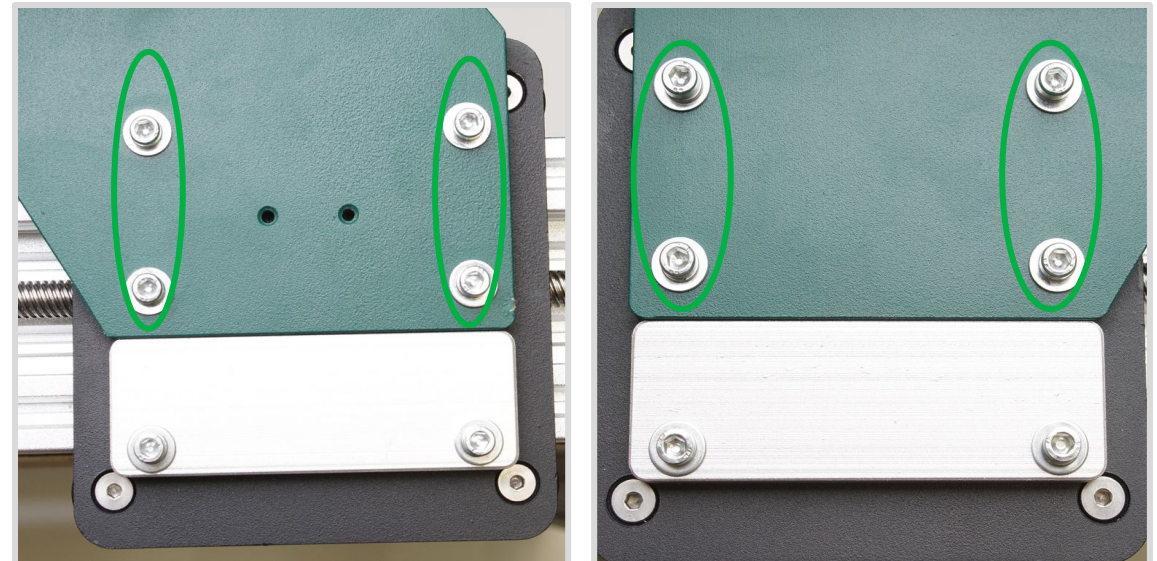


# Part 2 Mechanical Assembly

## Step 5 - Reinstall X Axis to Frame

Carefully lift the X Axis Assembly, and reattach the X Axis Assembly to the Y Axis gantry plates

NOTE - If any additional movement of the Y Axis is needed after this Step, ensure that BOTH Y Axis Motors are adjusted simultaneously.

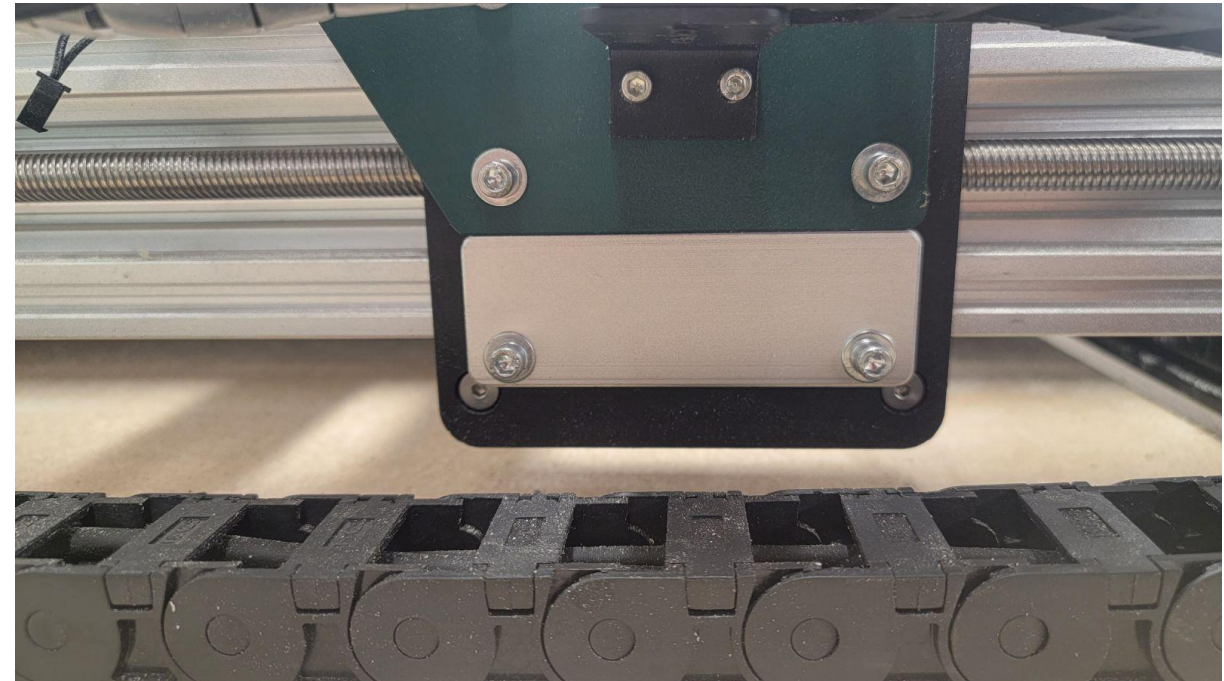




# Part 2 Mechanical Assembly

## Step 6 - Reattach Y Axis Drag Chain Bracket

Reattach the Small Drag Chain Bracket to the left side X Axis plate, as shown.



## Part 2 Mechanical Assembly

### Step 7 - Reconnect Y Axis Limit Switch

Reconnect the Y Axis limit switch harness at the left side of the machine



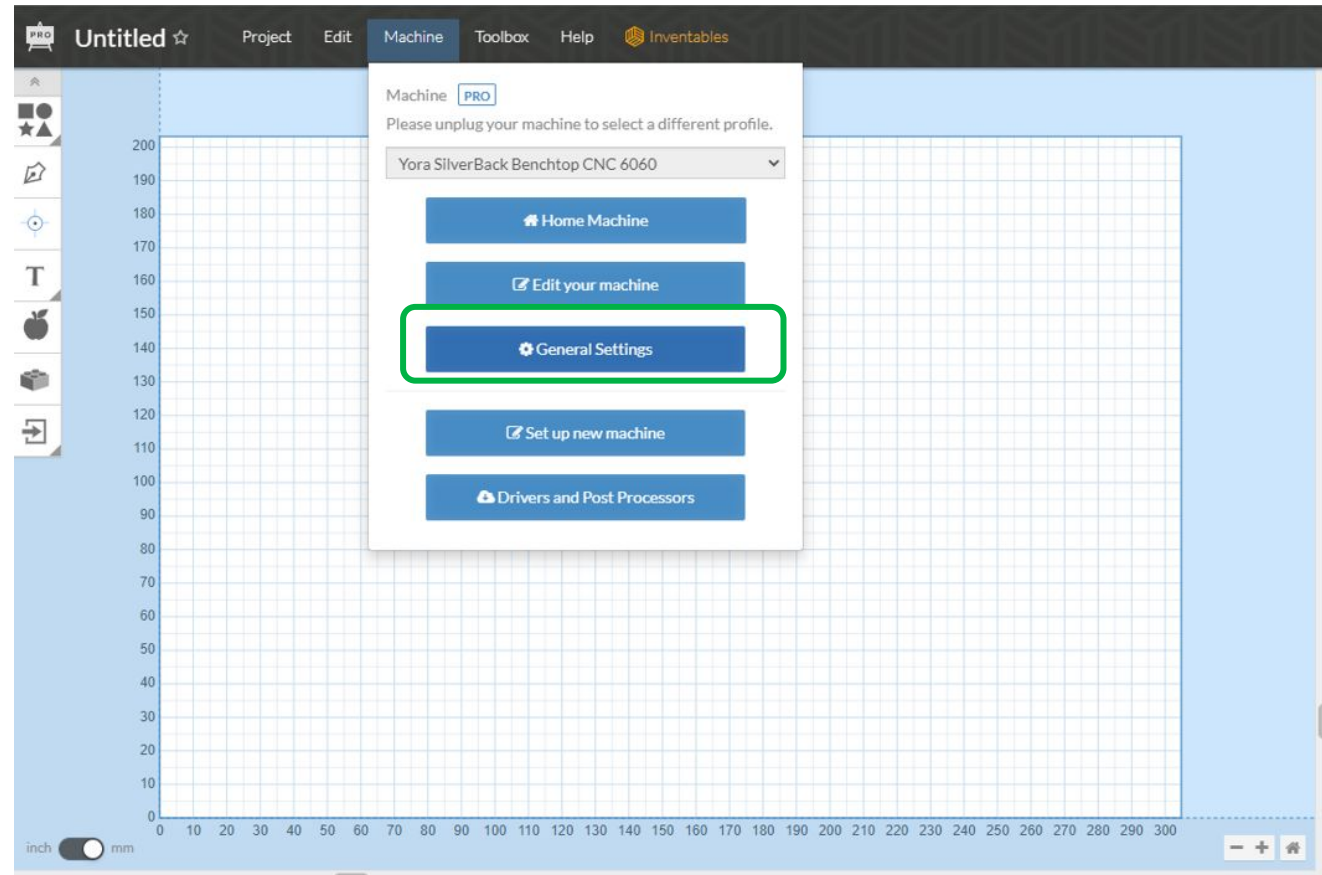
# Part 3 Configuration Changes

## Step 1 - Access Machine Inspector 1/2

Configuration changes are required to match the larger diameter lead screws.

With the machine turned on and connected to the computer, access your Easel account.

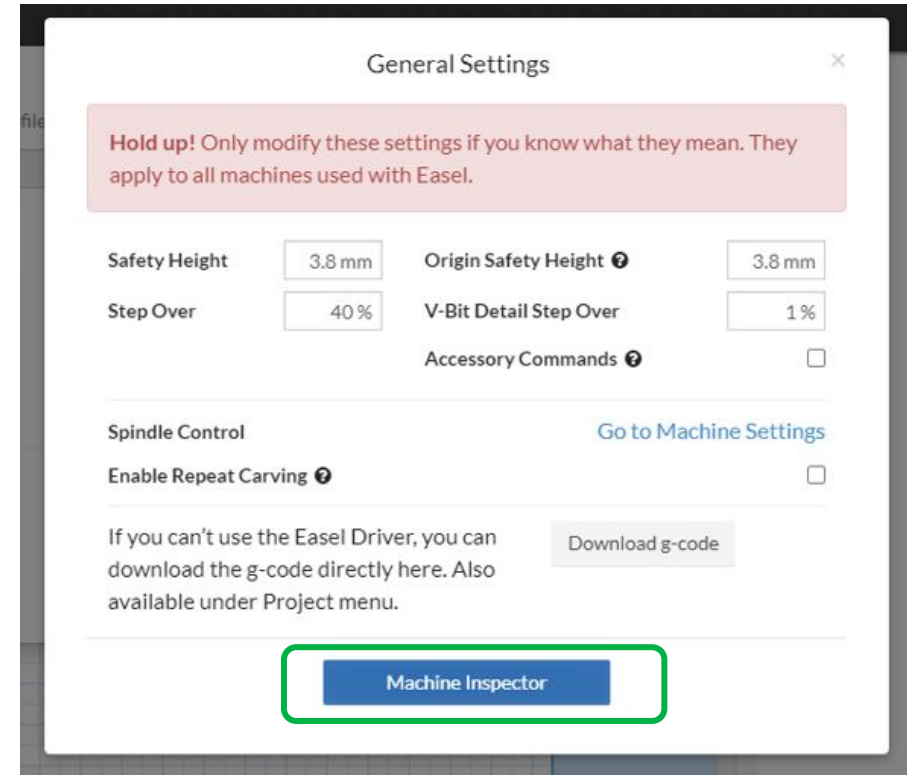
Select the Machine menu, then click on the “General Settings” button



# Part 3 Configuration Changes

## Step 1 - Access Machine Inspector 2/2

On the General Settings screen that opens; click on the “Machine Inspector” button.





# Part 3 Configuration Changes

## Step 2 - Edit Configuration 1/2

In Machine Inspector, scroll down (if necessary) to the Console section.

By default, the Console should display the current GRBL configuration settings.

If for some reason these settings are not displayed, type \$\$ into the Console command box and press Enter.

The settings that need to be modified are the \$100 and \$101 settings.

Current value for those settings is 160.000



A screenshot of the "Machine Inspector" software interface. The window title is "Machine Inspector" with a close button (X) in the top right corner. At the top, it shows "Firmware Version: Grbl 1.1h" on the left and "Easel Driver Version: 0.3.20" on the right. Below this, there are three main sections: "State" with a dropdown menu showing "idle"; "Machine position (mm)" with a box containing "X: 0.000", "Y: 0.000", and "Z: 0.000"; and "Work position (mm)" with a box containing "X: 0.000", "Y: 0.000", and "Z: 0.000". The "Homing Switches" section has a heading and a note: "Check the switches &amp; buttons status below. ● means switch or button is pressed, ○ means switch or button is not pressed." Below this are three radio buttons labeled "X", "Y", and "Z", all of which are currently unselected (○). The "Z-Probe Status" section has a heading and a note: "Easel reports ● when the probe is not plugged in, or when the probe has been plugged in and the leads are touching. When the probe is plugged in but leads are not touching, Easel reports ○." Below this is a radio button labeled "No contact", which is currently unselected (○). The "Console" section at the bottom has a text input field with the placeholder "Press enter to send line" and a "Show status" checkbox on the right. Below the input field is a list of GRBL configuration settings, including "ok", "\$132=55.000", "\$131=600.000", "\$130=600.000", "\$122=300.000", "\$121=300.000", "\$120=300.000", "\$112=2000.000", "\$111=2000.000", "\$110=2000.000", "\$102=160.000", "\$101=160.000", "\$100=160.000", "\$32=0", "\$31=0", and "\$30=10000". The "\$101=160.000" and "\$100=160.000" lines are highlighted with a green rectangular box.

# Part 3 Configuration Changes

## Step 2 - Edit Configuration 2/2

To change the required configuration values, type the following commands into the Console command box, pressing enter between each command:

\$100=200

\$101=200

This will change the steps/mm setting to accommodate the new larger lead screws.

### Console

Press enter to send line

ok

→ \$101=200

OK

→ \$100=200

OK

\$132=55.000

\$131=600.000

\$130=600.000

\$122=300.000

\$121=300.000

\$120=300.000

\$112=2000.000

\$111=2000.000

\$110=2000.000

# Part 3 Configuration Changes

## Step 3 - Reset Controller

For best results, the controller should be restarted.

Turn off the controller power switch, and disconnect the USB cable.

Reconnect the USB cable and turn the controller back on.

Your machine upgrade is now complete, and you may continue with your next project.

If you have any questions or concerns regarding this process; or run into any problems, please contact us at [support@yorahome.com](mailto:support@yorahome.com)

Thank you for being a part of the YoraHome family!





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