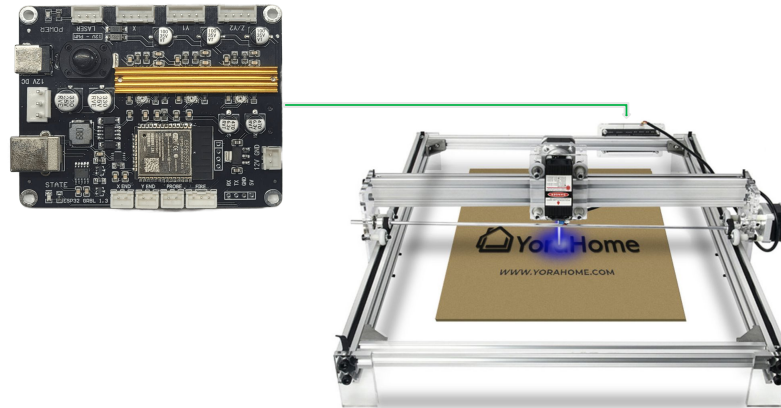# YoraHome

YORAHOME CNC LASER ENGRAVING MACHINE 6550

32-BIT CONTROL BOARD INSTALLATION

Version 1.0 • September, 2022

Purpose

This Manual is intended for retrofitting the 32-Bit Control Board to the YoraHome CNC Laser Engraving Machine 6550; replacing the original 8-Bit Control Board.

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.

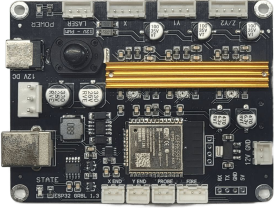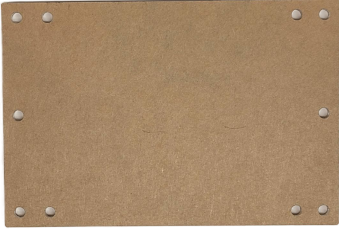Please read these instructions carefully before installing your board to prevent possible damage to your machine.
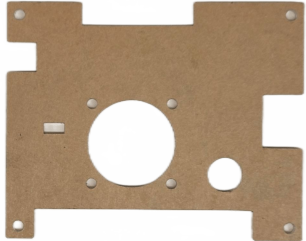
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Contents

Part 1: Packing List

Part 2: Assembly

Part 2: Default GRBL Settings

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Item	Size	Picture	Quantity
32-Bit Control Board			1
Rear Acrylic Mounting Plate	4mm Thickness		1
Front Acrylic Mounting Plate	4mm Thickness		1

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Item	Size	Picture	Quantity
USB Cable			1
Cooling Fan	30x30x10 - 12VDC		1
Fan Mounting Pins	White Nylon		4

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Item	Size	Picture	Quantity
M3x6 Socket Head Screws	NOTE - Extra hardware is included in this kit; in the event of loss.		5
M3x8 Socket Head Screws			5
M3x6x6 Board Standoffs - M/F threads			5
M3x13 Board Standoffs - F/F threads			5

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Part 2 | Assembly

Preliminary Steps

- For ease of access, position the 6550 with the Control Board facing you.
- 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 allow room to work.

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Part 2 Assembly

Step 1 - Removal of 8-Bit Control Board 1/3

Disconnect all wire harnesses from the control board:
- X Axis Stepper Motor
- Y Axis Stepper Motor
- Laser

(It is recommended that you temporarily label at least one of the stepper motor wire harnesses, to prevent errors on reassembly)

NOTE - Photos used in this manual show a machine equipped with Dual Y Axis motors; your machine may only have one Y Axis Stepper Motor

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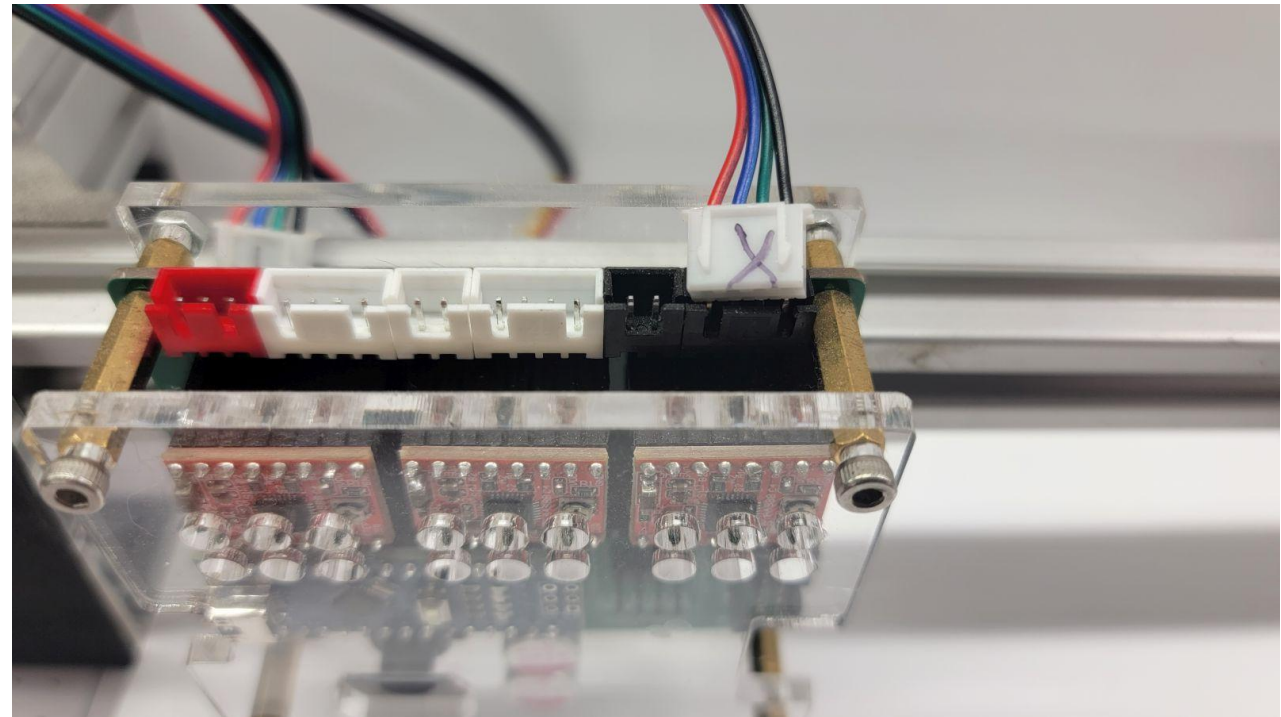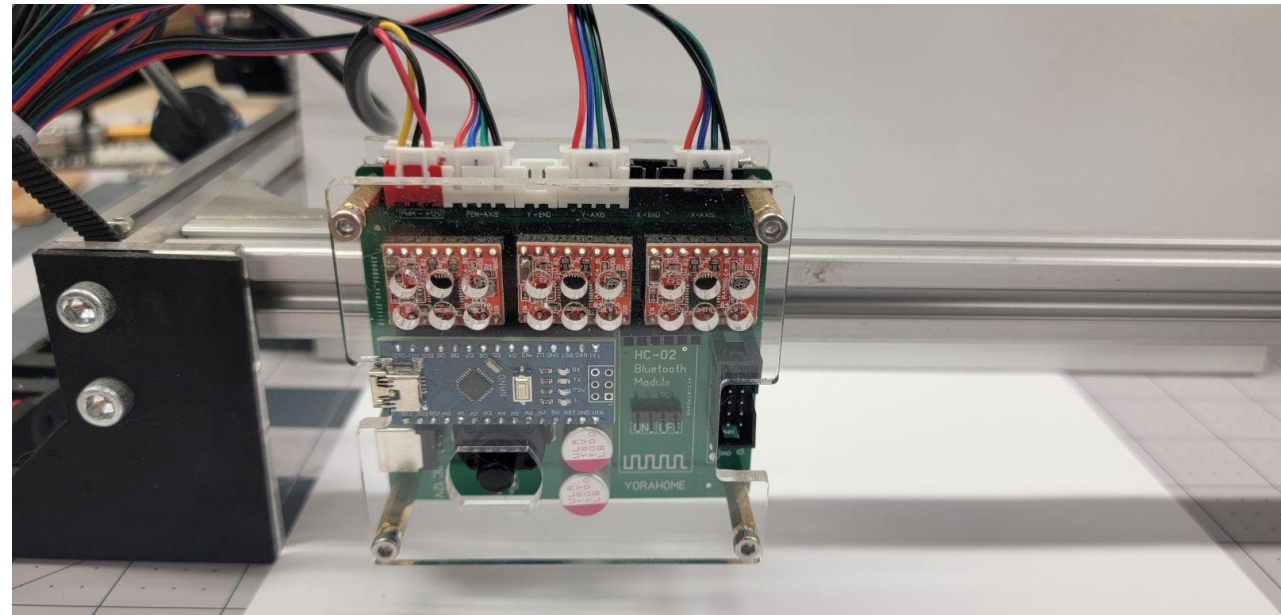
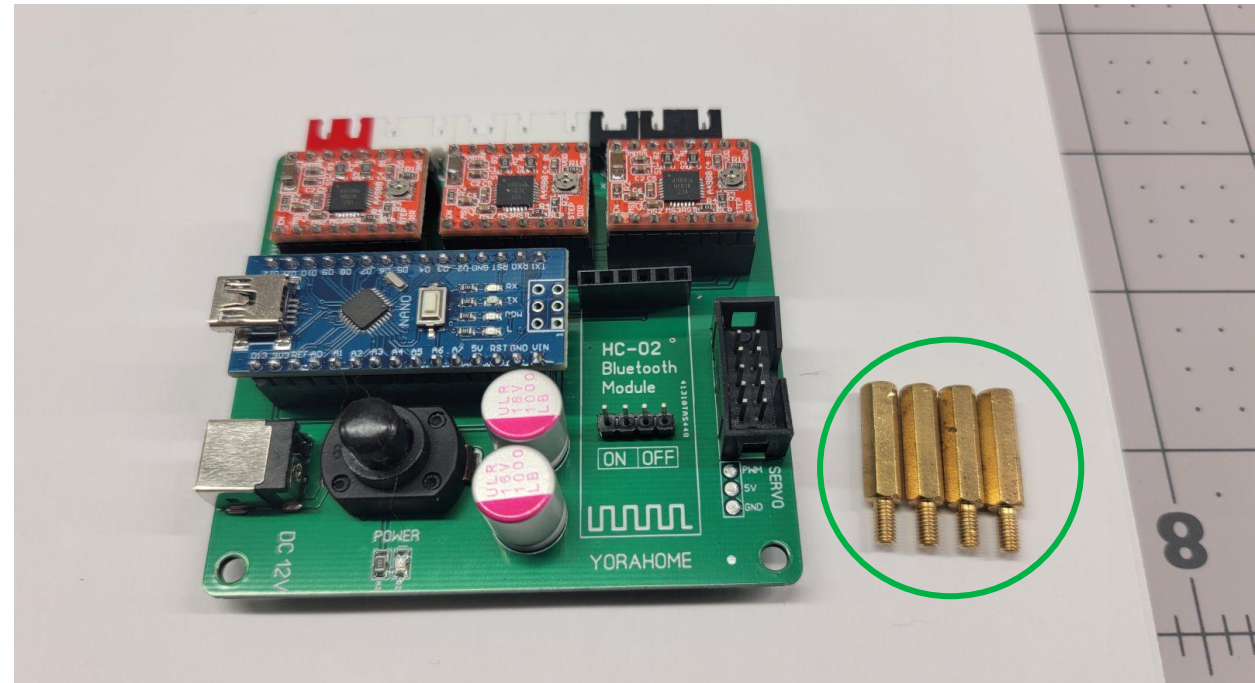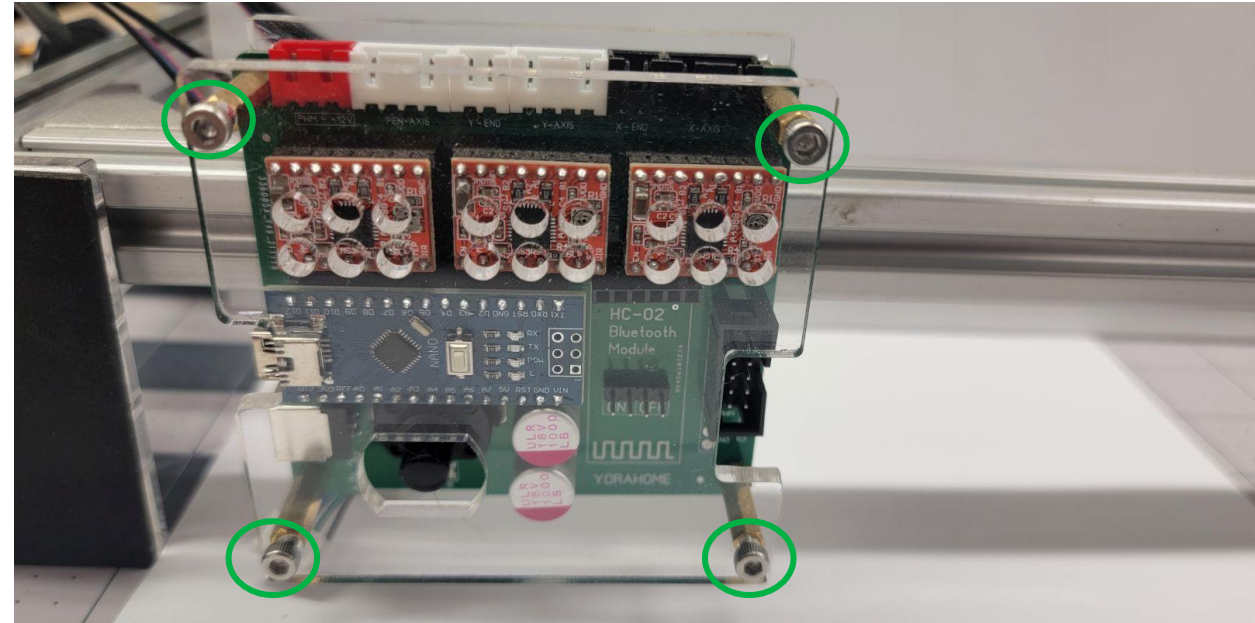## Step 1 - Removal of 8-Bit Control Board 2/3

Using the appropriate hex key (included with your original machine purchase), remove the 4 screws holding the Front Acrylic Plate over the control board.

Remove the brass standoffs which are retaining the control board to the Rear Acrylic Plate, and remove the control board.
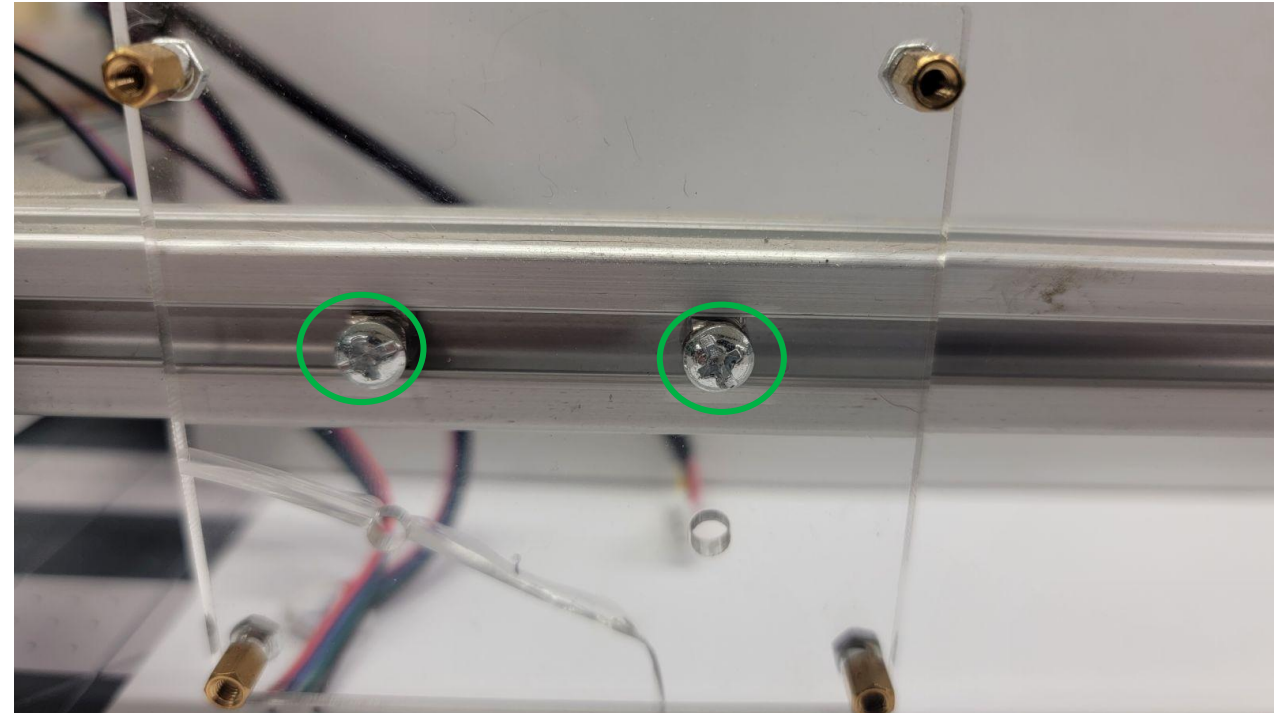

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Part 2 Assembly

Step 1 - Removal of 8-Bit Control Board 3/3

Remove the 2 screws holding the Rear Acrylic Plate to the machine frame.

KEEP THESE 2 SCREWS AND T-NUTS FOR INSTALLATION OF THE NEW CONTROL BOARD.

We recommend retaining the original control board and all associated mounting hardware, as a reserve/spare part.
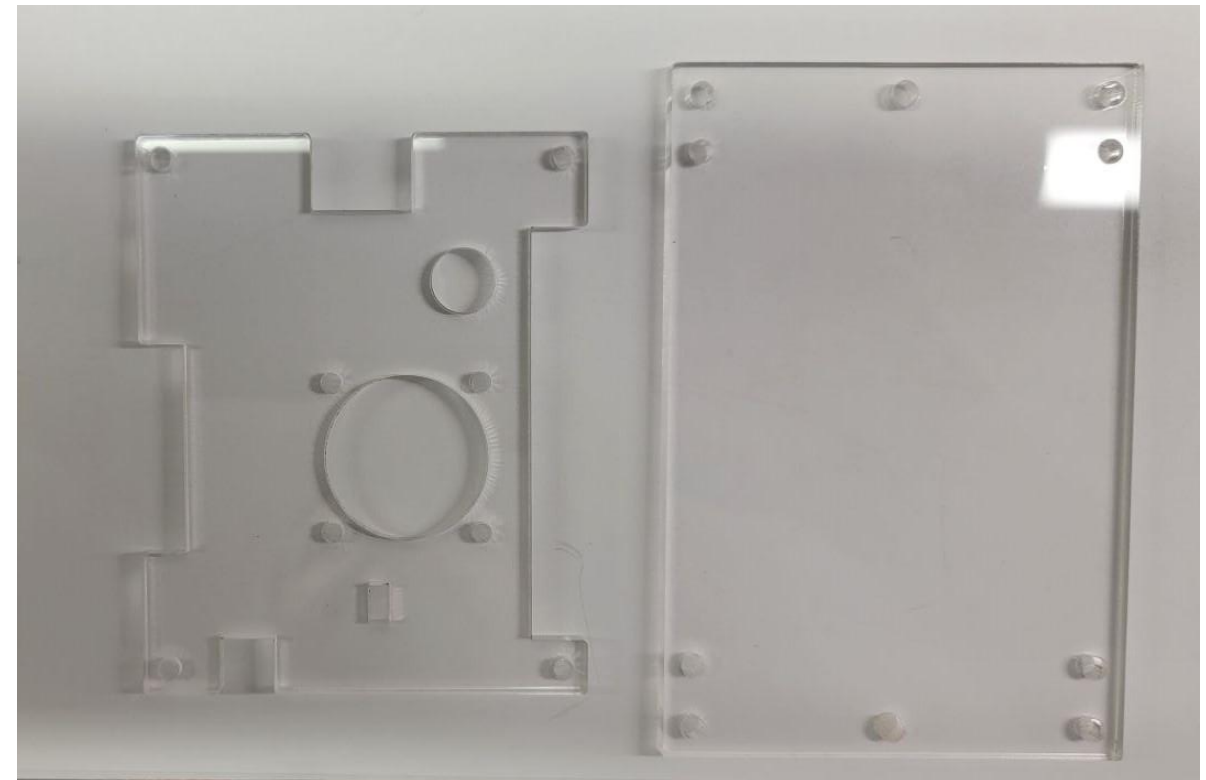
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Part 2 Assembly

Step 2 - Preparation of 32-Bit Control Board 1/6

Carefully remove the protective paper covering from the Front Acrylic Mounting Plate and Rear Acrylic Mounting Plate.

Careful use of a small flat screwdriver or knife may help with removal of the protective paper.
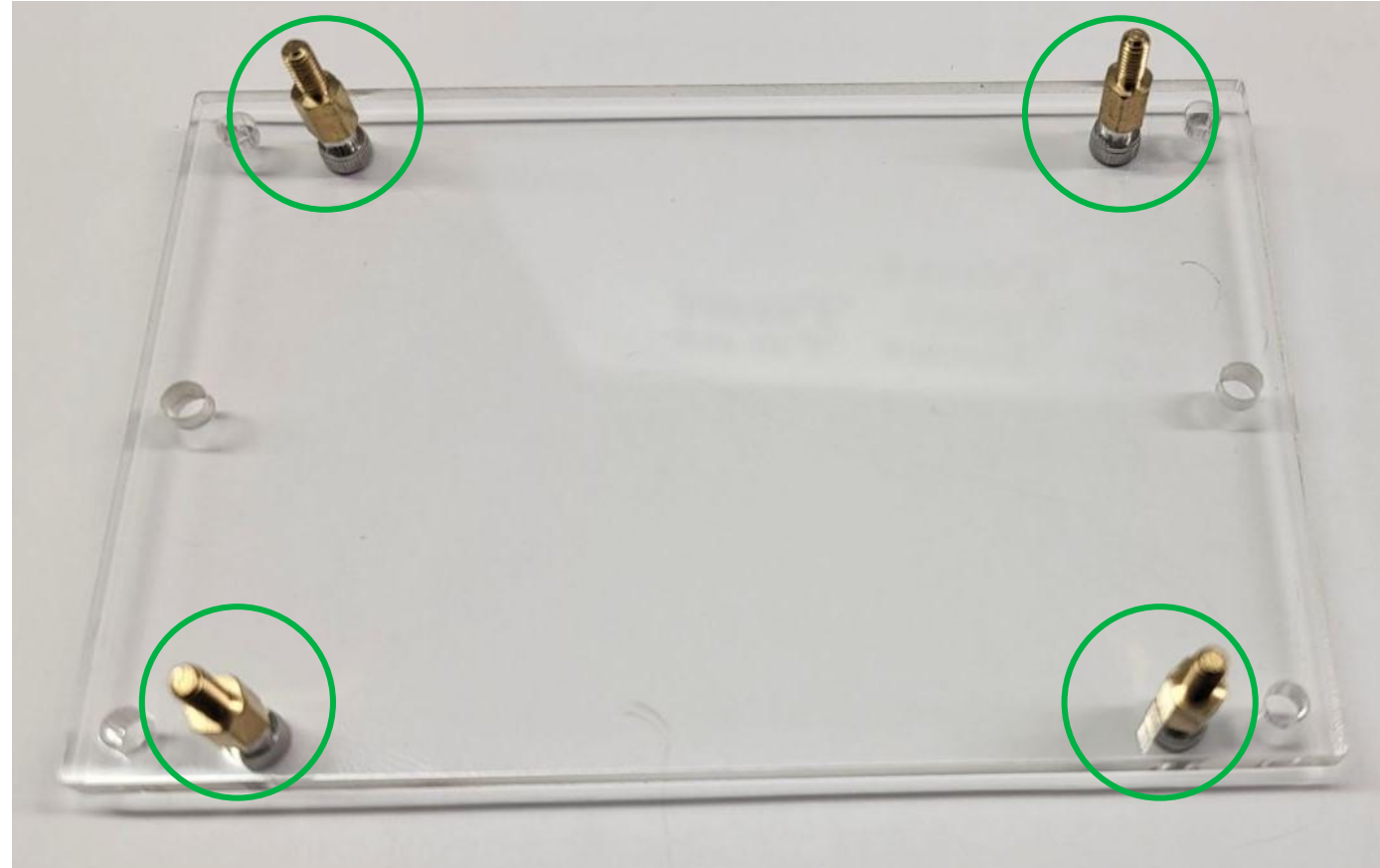

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Part 2 Assembly

Step 2 - Preparation of 32-Bit Control Board 2/6

Using the M3x6 Screws and M3x6x6 Board Standoffs; secure the standoffs to the Rear Acrylic Mounting Plate, as shown.

NOTE - Be sure to use the inner-most holes for mounting the standoffs.

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Part 2 Assembly

Step 2 - Preparation of 32-Bit Control Board 3/6

Carefully place the new control board on the standoffs, ensuring that there is no part of the bottom of the control board contacting the Rear Acrylic Mounting Plate.

Using the M3x13 board standoffs, secure the control board to the Rear Acrylic Mounting Plate.

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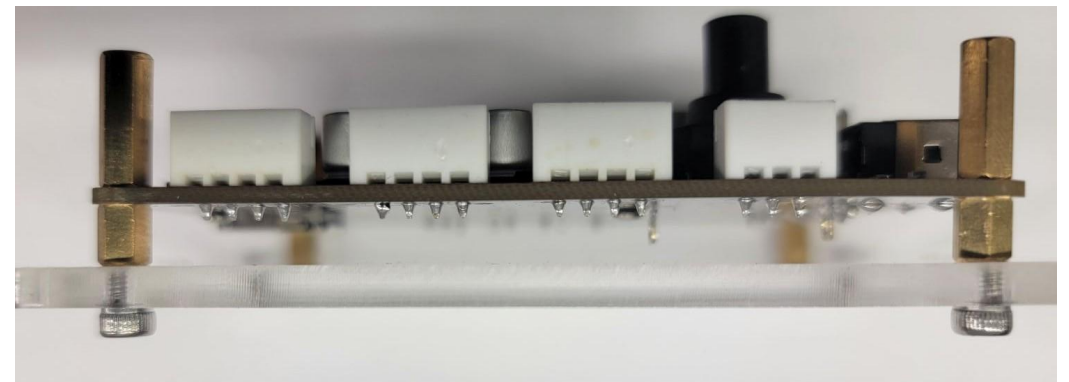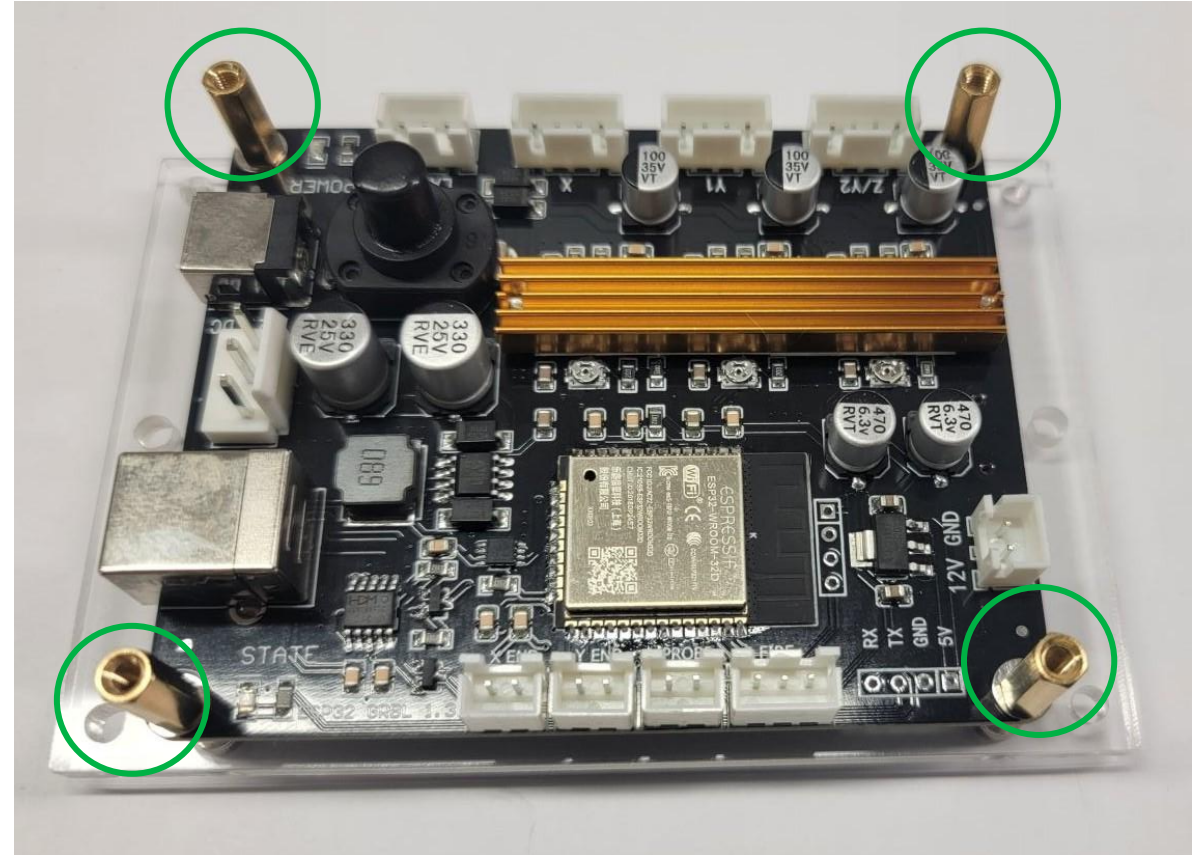
Part 2 Assembly

Step 2 - Preparation of 32-Bit Control Board 4/6

Using the M3x8 screws, secure the Front Acrylic Mounting Plate over the control board.

Ensure that the hole in the Front Acrylic Mounting Plate is properly positioned to allow access to the control board power switch.

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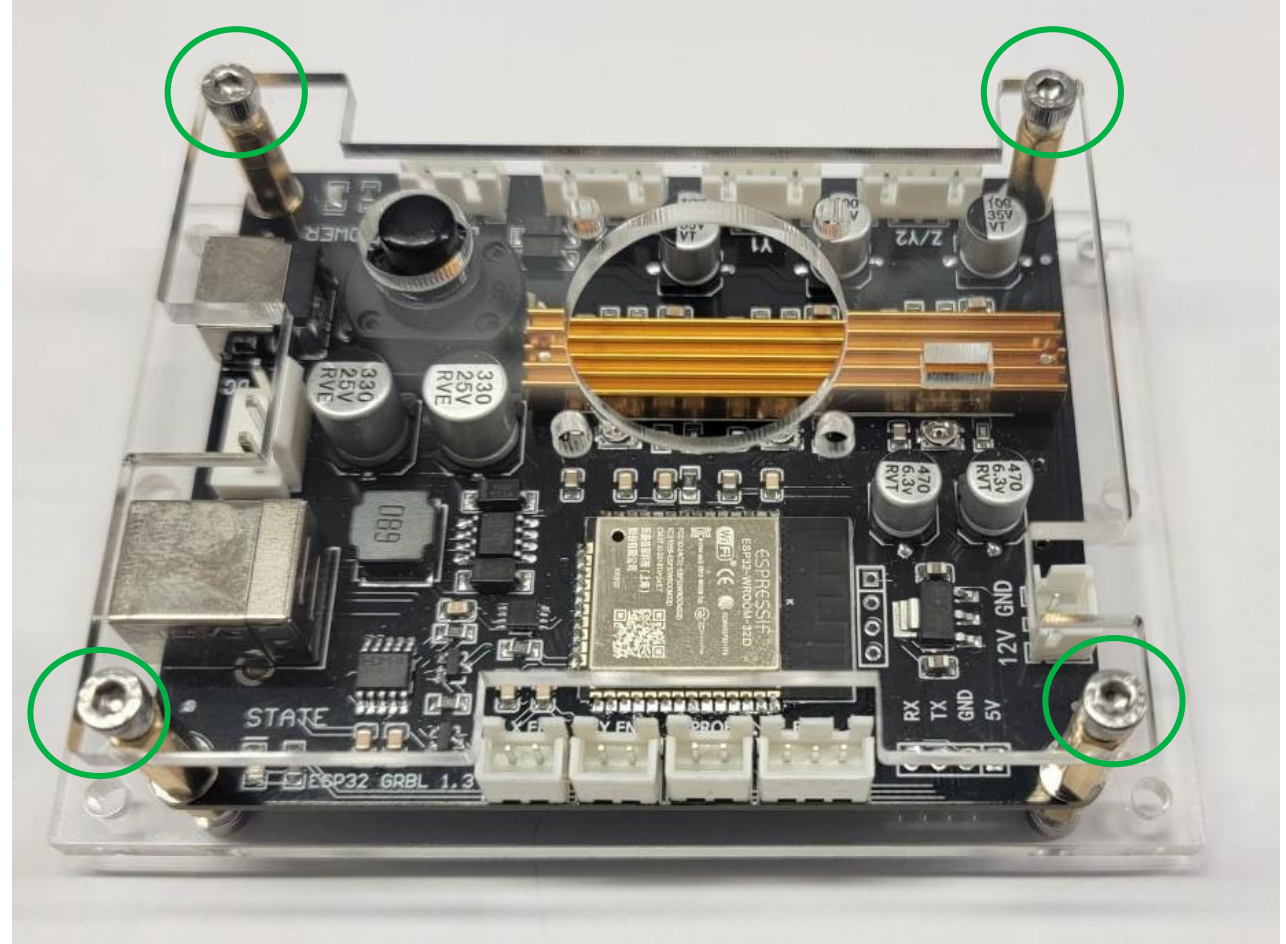**Step 2 - Preparation of 32-Bit Control Board** 5/6

Position the Cooling Fan over the opening in the Front Acrylic Mounting Plate.

NOTE - Ensure the fan is installed with the support frame facing out, as shown, and that the wire harness can reach the connection on the Control Board.

Press the Fan Mounting Pins through the Cooling Fan housing and into the Front Acrylic Mounting Plate to secure the fan.

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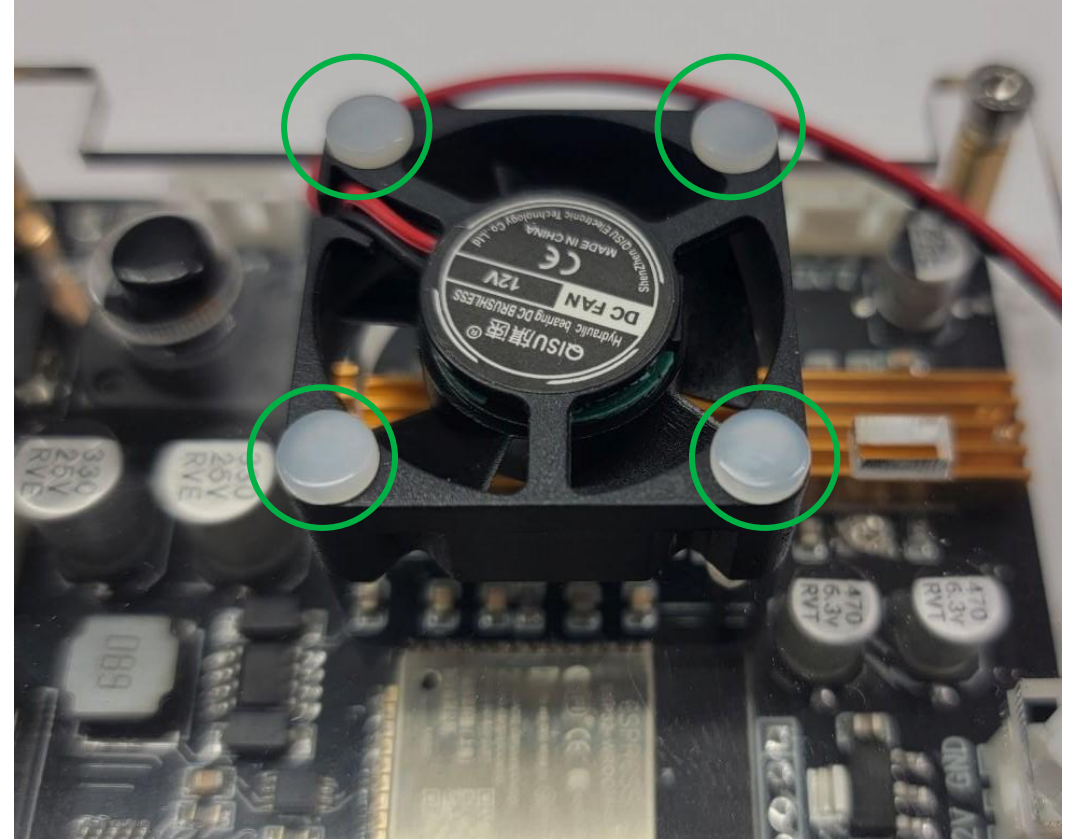
Step 2 - Preparation of 32-Bit Control Board 6/6

Plug the Cooling Fan wire harness into the provided connector on the Control Board.

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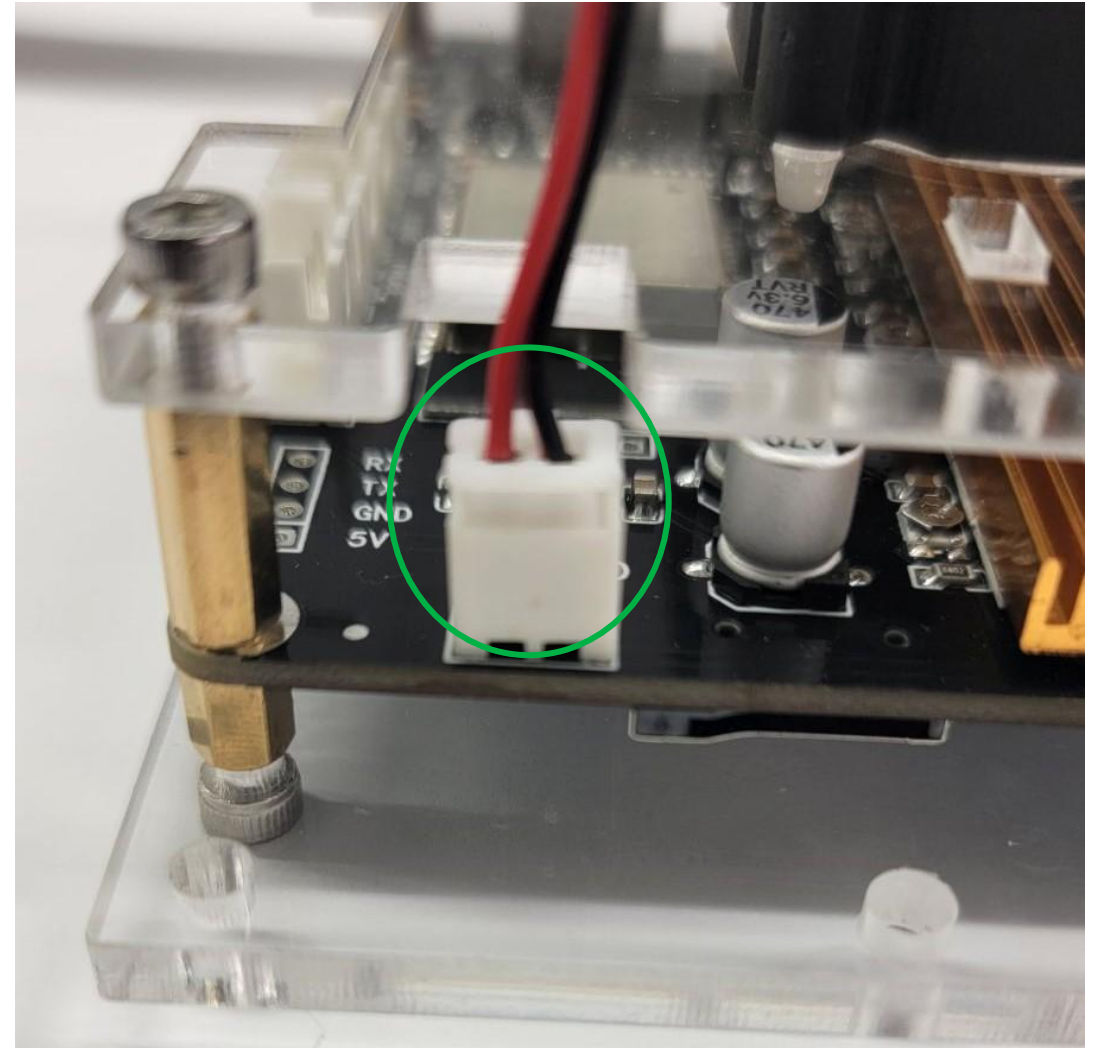
Part 2 Assembly

Step 3 - Install Control Board to Machine Frame

Using the 2 Screws and T-Nuts removed in Step 1 (3/3); mount the new Control Board assembly to the Machine Frame as shown.

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Part 2 Assembly

Step 4 - Wiring Connections

Connect the wire harnesses to the respective ports on the Control Board, as shown.
- X Axis Stepper Motor
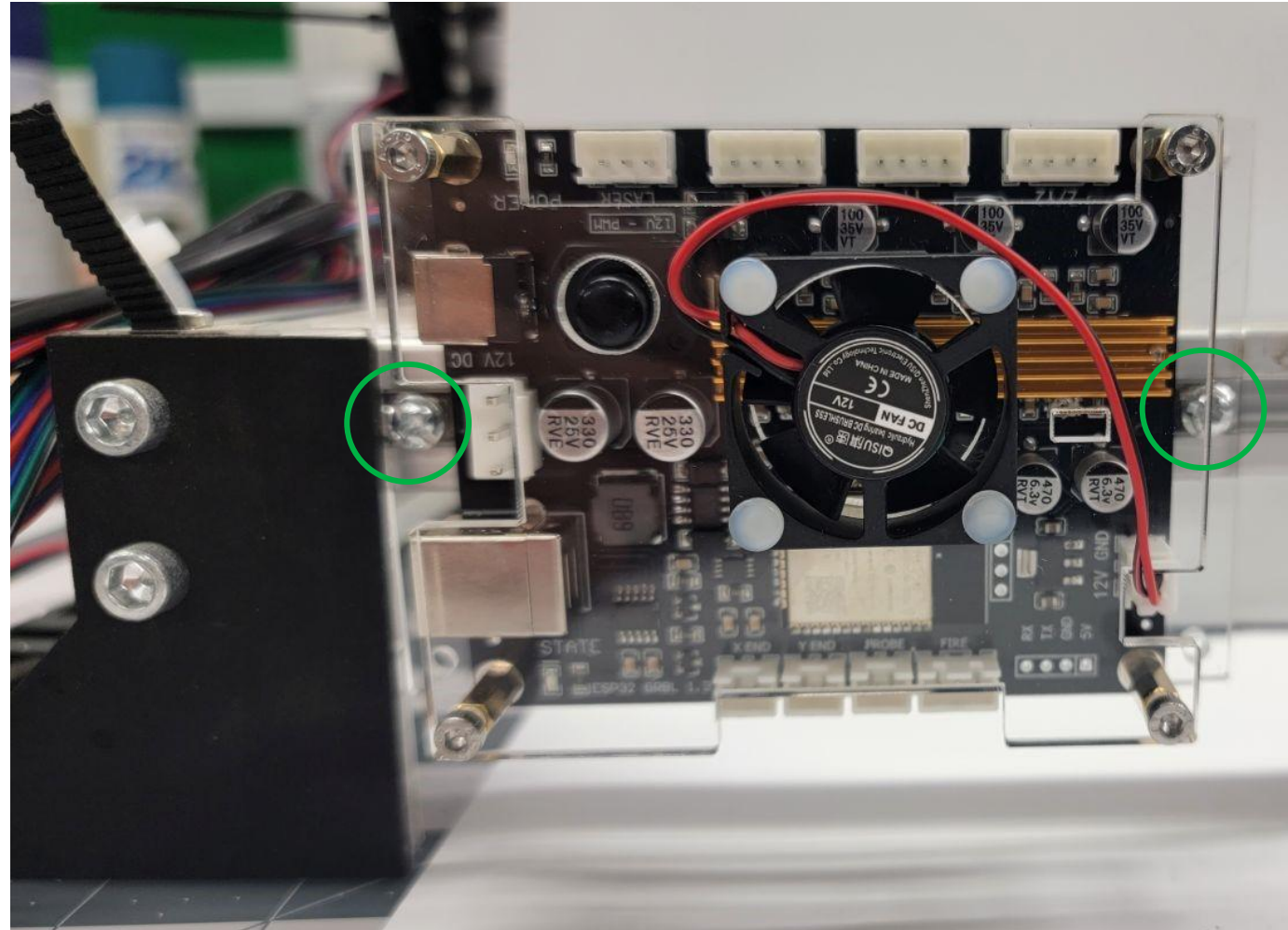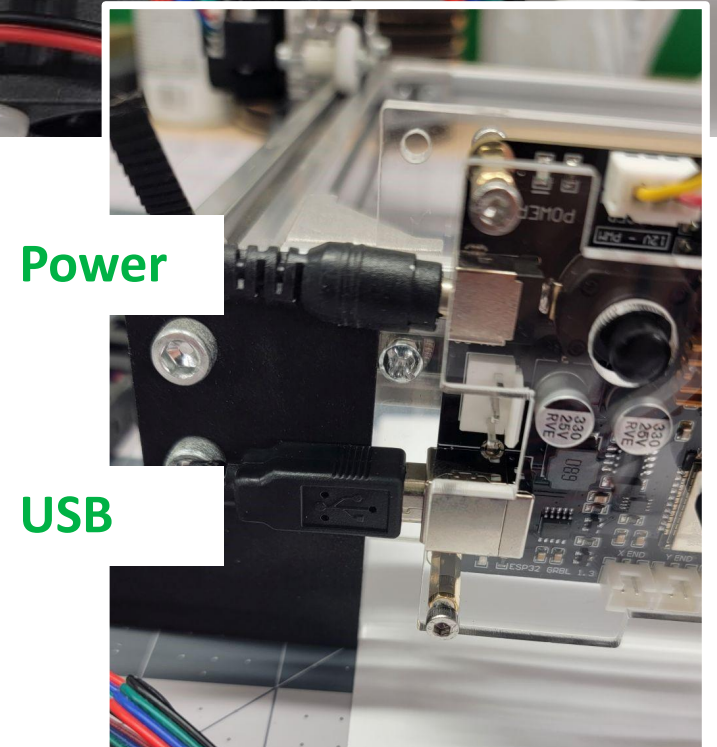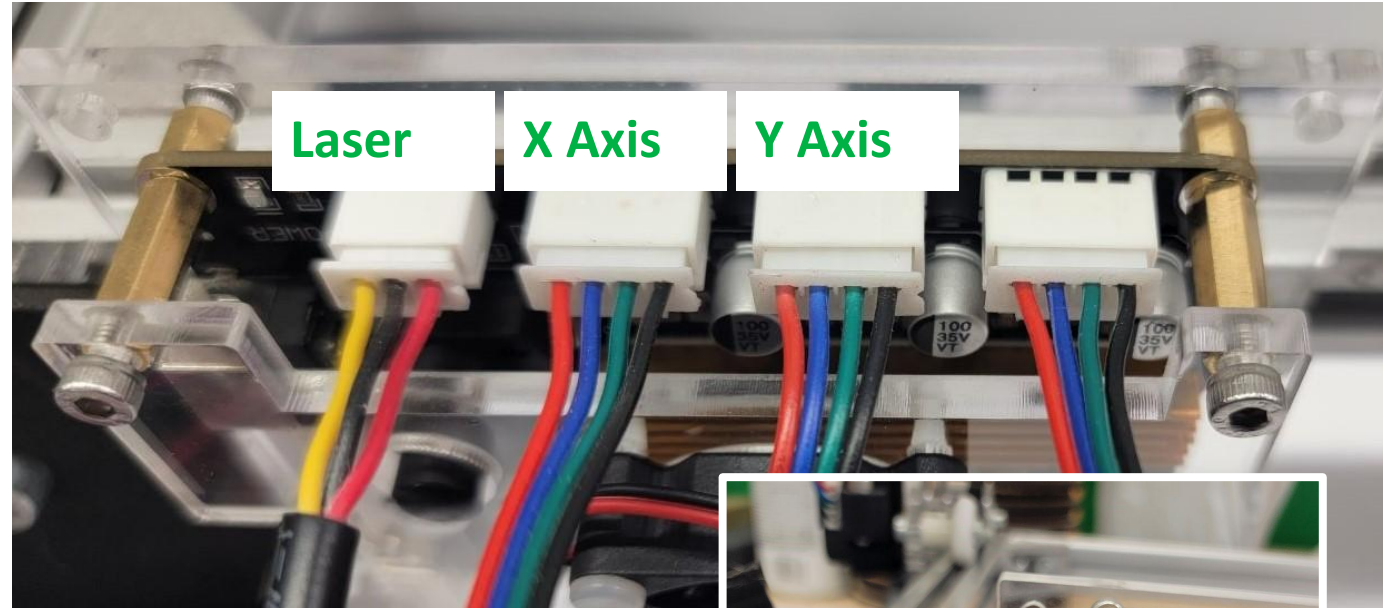- Y Axis Stepper Motor
- Laser

The remaining connectors on the control board will not be used at this time.

Reconnect power supply, and connect to computer using provided USB Cable.

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Laser   X Axis   Y Axis

Power

USB

Part 3 Default GRBL Settings

$0=3 (Step pulse time)
$1=254 (Step idle delay)
$2=0 (Step pulse invert)
$3=5 (Step direction invert)
$4=0 (Invert step enable pin)
$5=1 (Invert limit pins)
$6=0 (Invert probe pin)
$10=1 (Status report options)
$11=0.010 (Junction deviation)
$12=0.002 (Arc tolerance)
$13=0 (Report in inches)
$20=0 (Soft limits enable)
$21=0 (Hard limits enable)
$22=0 (Homing cycle enable)
$23=1 (Homing direction invert)
$24=500.000 (Homing locate feed rate)
$25=3000.000 (Homing search seek rate)
$26=250.000 (Homing switch debounce delay)
$27=1.000 (Homing switch pull-off distance)
$30=1000.000 (Maximum spindle speed)
$31=0.000 (Minimum spindle speed)
$32=1 (Laser-mode enable)

$100=80.500 (X-axis travel resolution)
$101=80.500 (Y-axis travel resolution)
$102=100.000 (Z-axis travel resolution - not used)
$103=100.000 (A-axis travel resolution - not used)
$104=100.000 (B-axis travel resolution - not used)
$105=100.000 (C-axis travel resolution - not used)
$110=10000.000 (X-axis maximum rate)
$111=10000.000 (Y-axis maximum rate)
$112=5000.000 (Z-axis maximum rate - not used)
$113=1000.000 (A-axis maximum rate - not used)
$114=1000.000 (B-axis maximum rate - not used)
$115=1000.000 (C-axis maximum rate - not used)
$120=1000.000 (X-axis acceleration)
$121=1000.000 (Y-axis acceleration)
$122=4000.000 (Z-axis acceleration - not used)
$123=200.000 (A-axis acceleration - not used)
$124=200.000 (B-axis acceleration - not used)
$125=200.000 (C-axis acceleration - not used)
$130=300.000 (X-axis maximum travel)
$131=300.000 (Y-axis maximum travel)
$132=300.000 (Z-axis maximum travel - not used)
$133=300.000 (A-axis maximum travel - not used)
$134=300.000 (B-axis maximum travel - not used)
$135=300.000 (C-axis maximum travel - not used)

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