

Class 3 Shopbot First Project

General how to get setup

This document will walk you through the first steps in getting the machine setup for your first project. It will not be a complete step by step for all projects but it is a good place to start as you learn and get more familiar with setup and project execution.

Power on the table

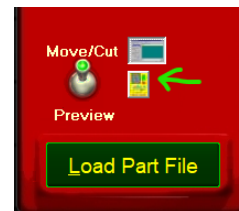
- Red Switch on Yellow background of main control box to the right side of the computer podium.
 - Trouble shooting
 - Is is plugged in?
 - 220v(spindle) is at back of machine center
 - 110v(motion and control) is to rear of machine right side (red and black cable)
 - Is the Estop pushed?
 - Reminder that if you reset the estop.. you must push the reset button.
- Signing into the PC (Maker/Make312!)

Warming up the spindle (see document on wall)

- Can use timer program on PC to time your steps.
- Use the Motor drive buttons that are on the wall (Drive) to the right of the computer podium.
- Follow the speeds and times from the document above the PC monitor (on wall)

Zero the X and Y Axis'

- Perform a "Cut" Zero X and Y using the proximity switches.  C3 - Home X_Y Axes using Prox Switches
- This will move the table to find its true Zero for X and Y positions.
- Move the machine spindle to the project zero point.
 - Manual moves are done inside the Shopbot app.
Yellow button on the red dialog. ----->
 - Move spindle to Current corner offset is (X:8.2") (Y:1")
- Update machine to have the project position as its Zero.
 - Perform a Zero X&Y once in position.



Put your first bit in the spindle.

Using Metric bits in an imperial collet is dangerous and will damage the collet.

- Move the spindle to a good location near the front of the bed. Maybe 30Y and 6X
- Use the Spindle wrenches to secure the bit in the collet. Not too tight.. just a little more than snug.

Secure your material to the bed.

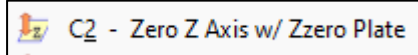
- Move the spindle to a location out of the way of where you will want to secure your material.
- Place your material on the bed and set a corner in the corner stops.

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- Using the push clamps and some scrap material, secure your material to the bed in 2 directions against the corner stop.

Zero the Z Axis

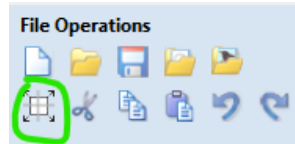
- Move the spindle to the center of what you expect to be the working area of your material.
- Place the probe plate below the bit you have secured in the spindle/collet.
- from the PC, Perform a “Cut” Zero Z using probe/ plate



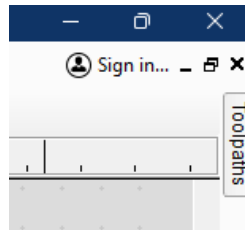
Export your Tool paths for the Shopbot

- Plug in your USB drive
- Open your project in VCarve (it will ask if you want to get a license, the answer is yes)

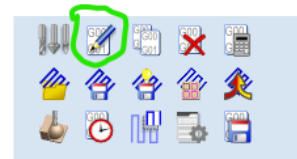
- Set the proper thickness of your material (left side) and click OK.



- Use the tool paths dialog (right side)



- Review each tool path for depth in relation to the new material thickness. For tool path where you would cut through your material, be sure to set it to the correct depth. Use the edit button to review and edit each tool path.



Chip load (review)

Proper chip load is important. Review each cut to make sure you are getting the proper chip load for your bit and material.

Math for setting the correct speed of the Spindle

$$\text{RPM}/60 = \text{Frequency}$$

Export your tool paths

For best results separate your toolpath exports into a file for each tool or too change. If you have 2 tools and you only need to change from one to the other once, you should have 2 files.

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Preview your project in Shopbot software

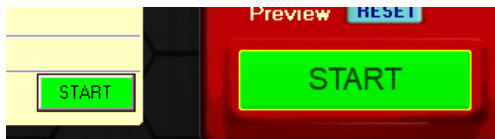
- Switch the Shopbot into preview mode using the on screen lever switch.



- Use the Load Part File button to load your tool paths.



- To get your cuts to show on the preview you must use one of the start buttons.



The function of the preview is mostly to see that you have placed your material correctly.

Moving on...

- Close the preview dialogs. Be careful to not exit out of Shopbot if you do, you likely will want to reZero everything.

Load your part file /toolpaths for execution

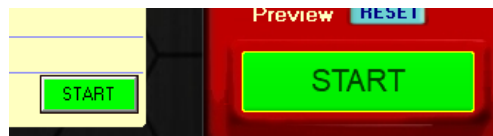
- Ensure that Shopbot is in Move/Cut mode.



- The spindle should be in a location that if it has to move to the location of the first cut, it can do so without hitting any obstructions like hold downs. Move it manually if needed.
- Click on the "Load Part File" button.



- Turn on the Spindle to the proper Speed (do the math)
- Locate the E-Stop button box. So you can pick it up or hit it quickly if needed.
- Click on Start when you are ready.
- Follow the screen prompts.
- Pick up the E-Stop button if you are moving to watch your work. Take it with you. ☺



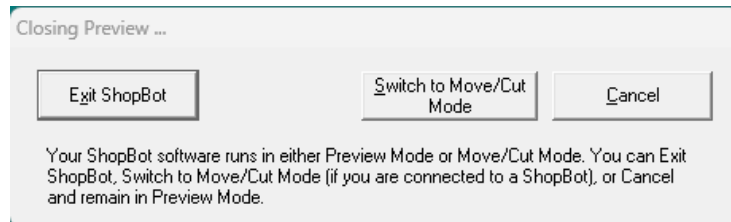
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- Watch the magic.

Notes/tips:

- Use the blast gate for the drum sander to trigger the vacuum system. Don't open it very far.
- Ensure you did not use a profile path where you should have used a pocket path.
- Cutout toolpaths should be last.
- Be sure to check your zero point orientation in preview mode in the shopbot.
- Don't forget to wear eye and ear protection
- If you use the e-stop button you will need to release the button and then push the reset button on the main control box under the machine. It is also good practice to rezero all axis after using the e-stop.
- If you power off the machine for any reason, you must rezero all axis before you continue your tool paths.
- Don't forget to remove your thumb drive when you are done.
- Clean up after

This dialog can be confusing.



Most of the time you want to select "Switch to Move/Cut Mode".

This will not start any processes. You will need to reload your part file/tool paths and hit start so it is safe to select this