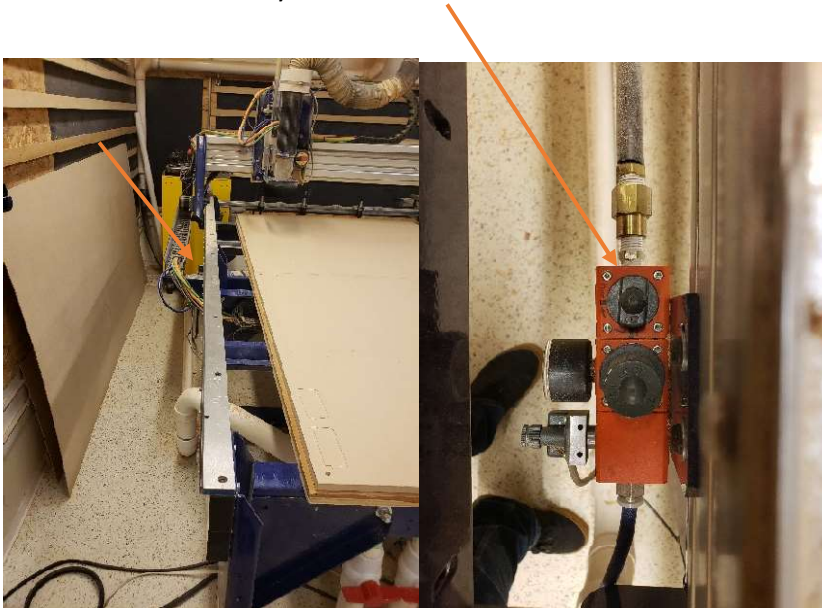


Shopbot Startup and Operation

1. Turn on power (red switch to vertical) and verify that key is turned to the right (shown below)




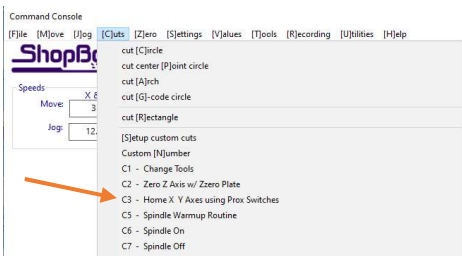
2. Verify air pressure is on. If the air pressure is on you will hear a hissing sound after turning the power on. (valve is located on side of the table closest to the wall) Shows valve in the ON Position



- Verify that the E-Stop is not depressed, then press the **blue Reset** button on the control box

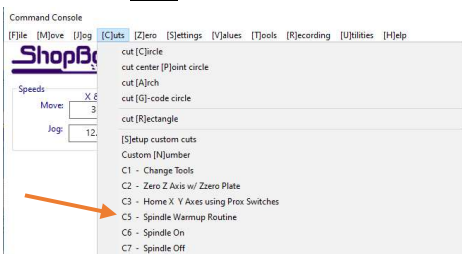


- Open the Sb3 Program on Bottom task Bar on the screen 
- Run the **C3** command to home and reference X,Y, and Z axis

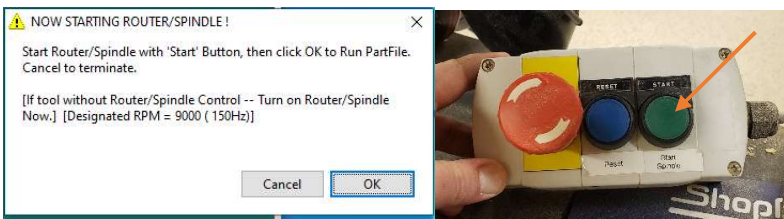


(This command can be clicked on through the Cuts drop down or entered directly in the command line)

- Run the **C5** Command to warm up the Spindle

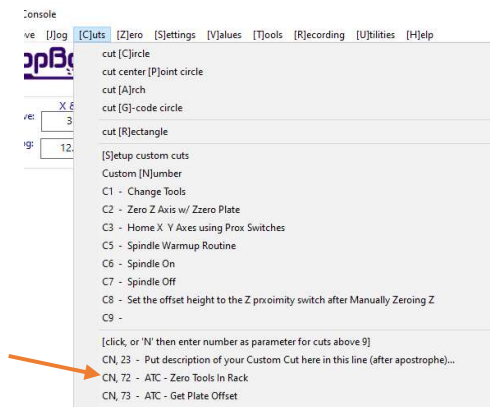


The warning below will appear, before clicking **OK** Press the green “Start Spindle” button on the control box. *Failure to do so will cause the spindle to not start.*

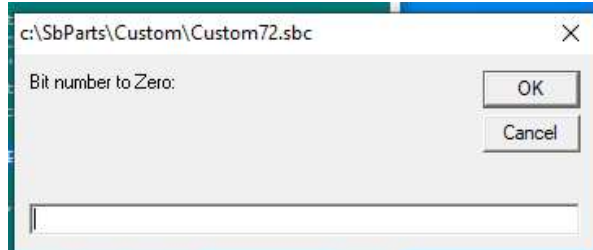


Note: The spindle warm-up takes around 10mins this is a good time to finish processing V-Carve files

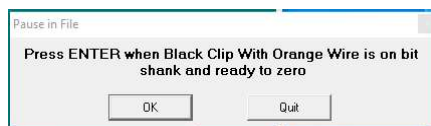
- You must run the **CN72** command to measure the cutting tools you will use for the job.



- The first prompt asks which tool number you wish to reference



- The machine will pick up the tool and move above the reference plate then prompt you to place the clip on the tool.
- The new process eliminates the clips. Use the blue hexagonal puck that is wired to the back of the gantry. Place it on the aluminum platform directly beneath the spindle.

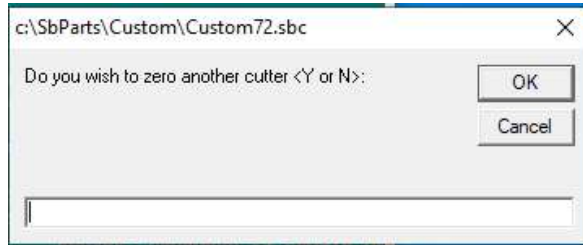


When you press enter, the tool will descend until it contacts the plate.

- The spindle will jog into the plate and make contact. You will then be prompted to remove the clip from the tool. Return the puck to its holder.



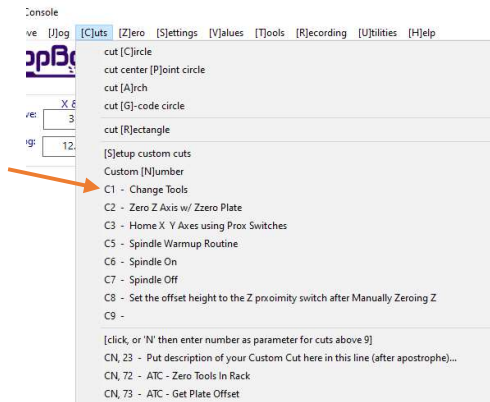
- The program then asks if you wish to reference another tool. Enter “Y” for yes or “N” for no



- If you enter “Y” the program begins again with which tool you want to reference, and you repeat this process until all tools you intend to use have been referenced. Entering “N” ends tool referencing routine and you are reminded once again to verify that the tool clip has been removed.

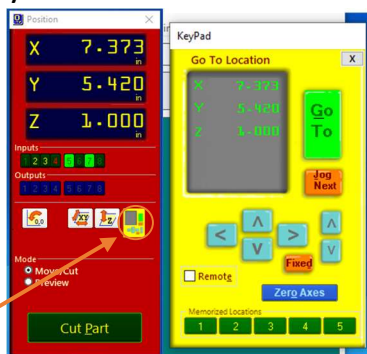
*Notes: The tool reference operation is to measure the difference in length between tools. It does **NOT** measure the table or your material. If you experience a crash of the machine during this operation refer to machine crashes in the troubleshooting guide.*

- If you are only using one tool or need to switch to a different tool use the **C1** command to change to a new tool.



- Enter the tool number you wish to switch to.
Note: Tool #0 indicates no tool in spindle and will return any tool you have in the spindle.

- Jog the machine to the position on the table where you wish to measure your table or material Z reference using Keypad. Shortcut “K”



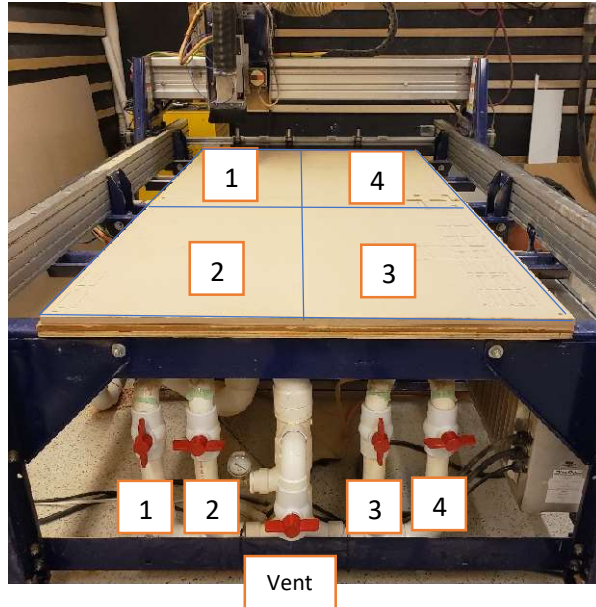
Machine can be jogged with on screen arrows or keyboard arrow keys. PageUp and PageDn control spindle up and down on keyboard.

Note: It is possible to jog the machine to its x, y, and z limits causing a crash. If this happens refer to machine crashes in the troubleshooting guide.

Note: It is also important to close the keypad window before running any other commands this may cause a software crash. If this happens refer to software crashes in the troubleshooting guide.

10. It is recommended that the Vacuum table is on prior to measuring machine or material zero.

- Turn the vacuum zones you are using by adjusting the valves on the front of the machine



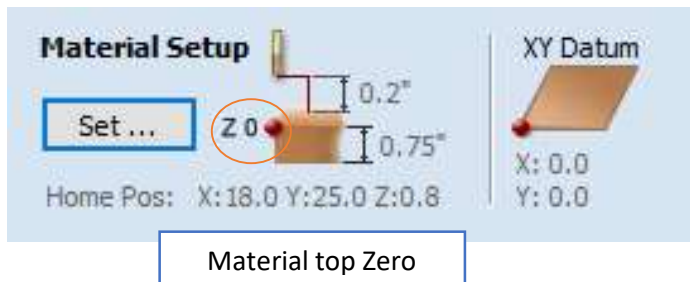
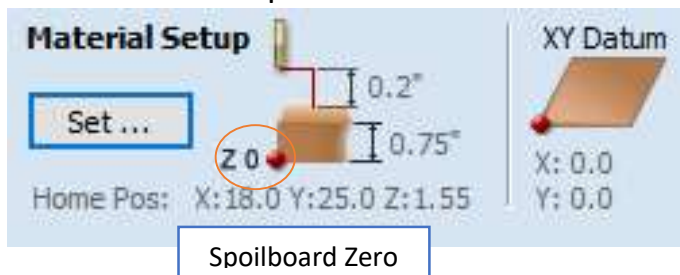
The vertical valves are open. In this picture vacuum zones 1 and 3 are enabled. The middle "Vent" valve can be opened to relieve vacuum pressure from the table but should always be closed during normal operation.

- To turn on the table vacuum use the rotary switch on the wall.



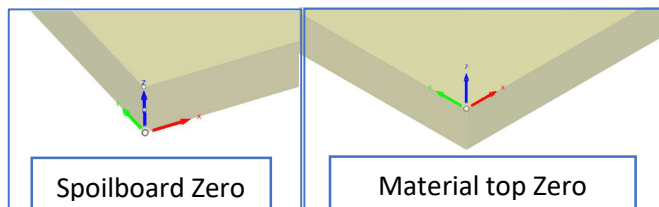
Note: Avoid turning the vacuum on and off multiple times per job. Instead, to change material just turn off the vacuum zones with the valve. Closing all valves does not hurt the vacuum pump.

11. Verify which Z 0 location you are using. In V-Carve the image in the top right corner shows the program Z 0 location. The first image shows a machine bed or spoilboard zero the second shows a top of material zero.



Regardless of which zero position you use it is important that you accurately know the thickness of your material. Ideally you should measure this with calipers.

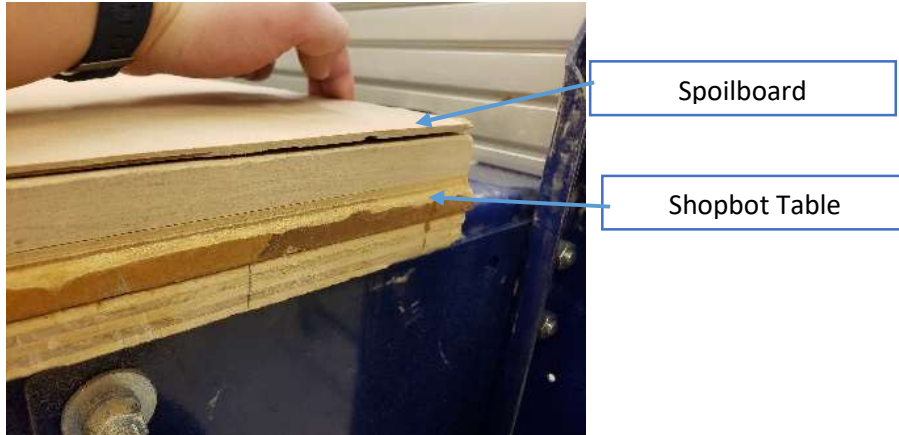
In Fusion 360 the first image shows a machine bed or spoilboard zero the second shows a top of material zero.



- If you are using the machine bed or spoilboard zero place the spoilboard on the Shopbot Table. Then place the Z zero plate on the

spoilboard. Be sure the vacuum zone where you are performing your zeroing is active.

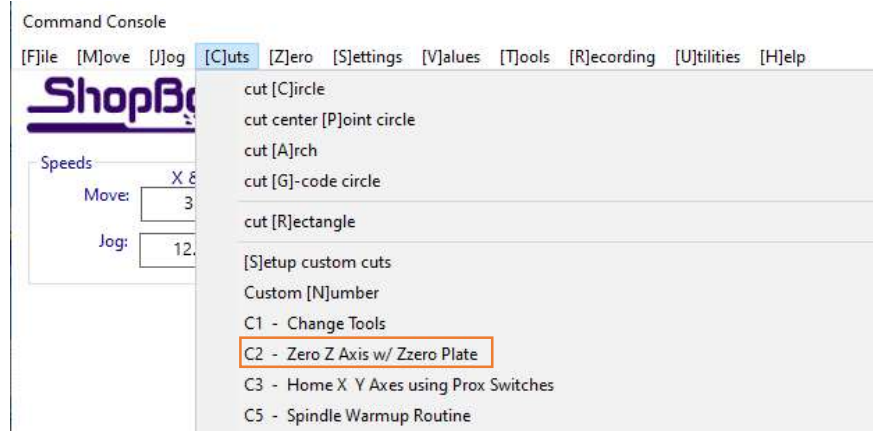
- If you are using Material surface zero place the spoilboard on the Shopbot table then place your material on top of the spoilboard. Place the Z zero plate on top of your material.



- Once you have verified your zero and placed the spoilboard and material. Place the blue hex puck beneath the spindle and tool.



- Use the C2 Command to set the Z zero with the Zero plate



- Next you will see the window below pop up. Click OK once you have positioned the Zero Plate.

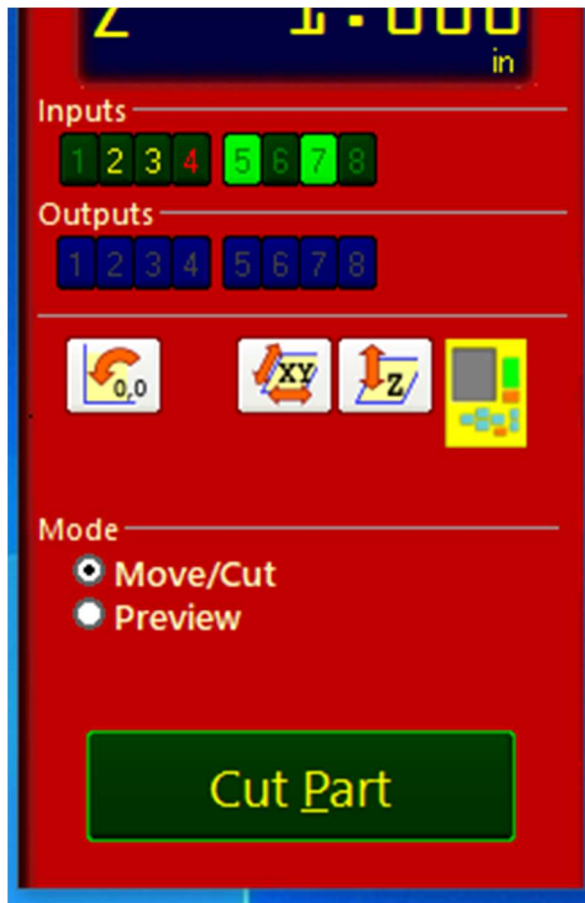


- The spindle will touch off on the plate twice, then the Z zero will be set. **Be sure to put the puck away before clicking OK on the box shown below.**

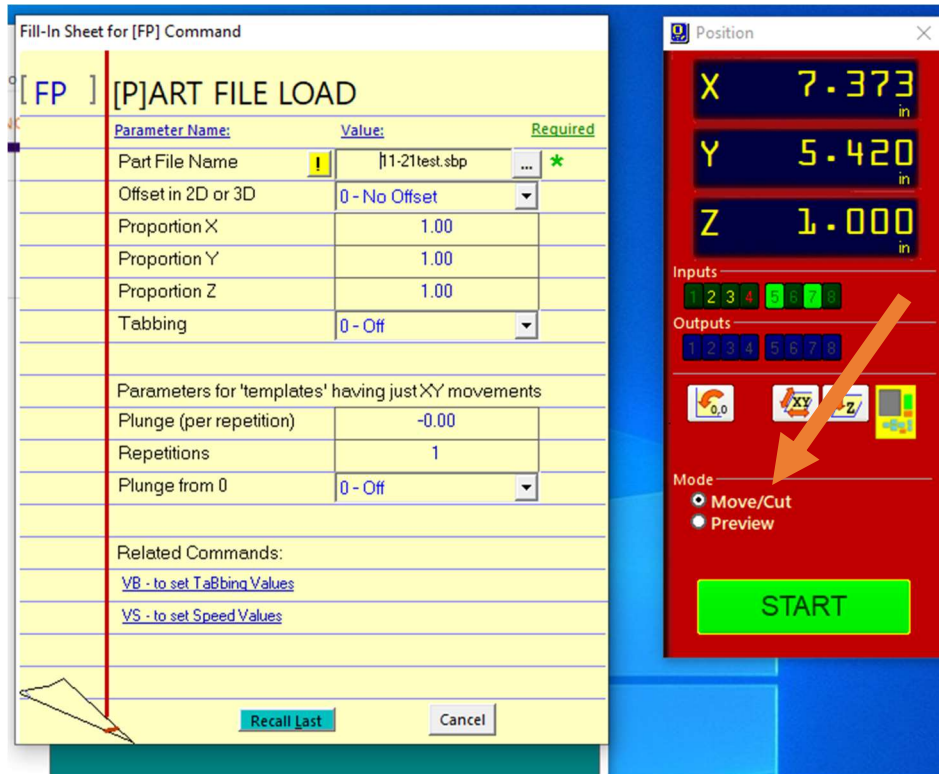


12. You are now ready to run your job!

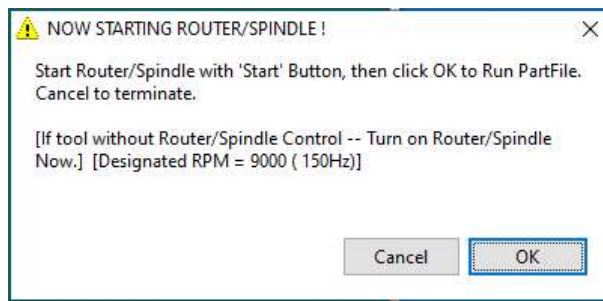
- Click "Cut Part" on the control window



- Once you have selected your .sbp file click the large green start button to run your file



- You will again see the Spindle Start dialogue box. Be sure to press the Green start button before clicking OK. Failing to do this will cause the machine to run with the spindle not on.



13. While your program is running.

- Pressing the space bar will pause your job
- When resuming

ShopBot CNC Router - Toolpath Software

You can use any CAM software that can post process for a ShopBot PRS Alpha 9648 with tool changer and speed control. We support the two applications listed here.

For 3D drawing and toolpathing, use Fusion 360

Fusion 360 from Autodesk is available for download here. There are many tutorials available to get you up to speed on drawing (CAD) and tool pathing (CAM)

For 2D work, the software is simpler.

Setup Guide Video:

<https://www.youtube.com/watch?v=vqHy2buN3Oo>

<https://www.youtube.com/watch?v=gZV9qxFTE5Q>

You can download the VCarvePro trial software here. Once installed, if you enter the mHUB makerspace key that follows, you will be able to bring your VCarve file to the shop and create a toolpath file that can run on the Shopbot. To enter the code below click on Help-> About VcarvePro Trial Edition -> Enter Makerspace ID

B72FF-60EA8-7C064-BB075-E4421-7116E-0D4BF

Think of VCarve Pro as a tools for sign makers and wood workers. It is mainly 2D, or 2.5D. It has basic drawing ability and good toolpath ability. Turn to Fusion 360 for very good 3D modeling tools and excellent tool pathing tools. F360 does have a steeper learning curve.

Find the vCarvePro tool file (.tools) with our standard set up in our six tool changer on the equipment page. Your project can utilize any bits you see fit, but you will save time and trouble if you use the standard bits that are set up in the machine. In the software, you will import this set of six tools into the tool library.