

Router Table Manual

300 Series & 100 Series

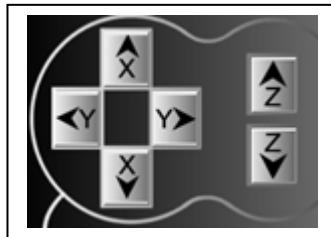
Quick Start-up Guide



This will give you step by step instructions on getting started with your new CLN CNC Router Table.

Shortcut Keys

- Jog Machine- Arrow Keys



- Jog Speeds-



- Spindle Speed (RPMs)- Plus/ Minus Keys on your Key Board or use the slide bar on the program



- Spindle Jog up/down- Page Up / Page Down Keys
- Feed Rate- Insert key to increase feed rate, Delete to Decrease (To jump back to original feed rate press Ctrl + Delete or Ctrl + Insert)
- Pause- Space Bar
- Resume- Enter

Setting Up Your New Table

* Have a licensed electrician set up the main power to your machine and vacuum hold down pump.

* Before getting started make sure you have the corresponding post or driver installed on the computer where you prepare your artwork. If you have not correctly installed the post/ driver, your Artwork software will not work with our Router Table. Please contact one of our Router Table Specialists for assistance. (1-877-256-1043)

1. Automatic Tool Changing Tables: **STOP!** Before using your table you must calibrate your ATC Carousel. It is imperative that your tool changer is calibrated properly before using your table to avoid breaking bits and or ATC Carousel. **Please see the “Calibrating The ATC” Section before going any further.**

-Manual Tool Changing Tables proceed to step two.

2. Turn on main power switch at control box.
3. Push the “Start Up” button to turn on computer.
4. Locate the CLN Icon on the desktop and double click the Icon to start the program.

You should always be ready to pause the machine or hit the Emergency Stop.

*You can pause at any time by pressing the space bar on your keyboard.

5. **Seek Limits**- The first thing you must do when opening the program for the first time is Home the Table by pressing “SEEK LIMITS”. You will notice when you first open up the CLN Program the XYZ values are highlighted in red, and if you try to perform any operation on the machine it will give you an error that reads, “ERROR SEEK LIMITS FOR XYZ”. Simply click the button on the screen that says “Seek Limits”. The machine will now begin to move. What the machine is doing is finding the absolute positions for each axis. It will first find the limit for Z, then Y, then X. If your machine is equipped with a carousel tool changer or a knife it will also seek limits for those axis as well.



6. **Warming Up Your Spindle**- Before you turn the Spindle on or begin cutting, you must run the Warm Up procedure to ensure you safely warm your spindle up before cutting. Make sure your Spindle is empty of tools or has an approved tool in the Spindle, depending on the HP of your spindle the warm up procedure will turn the spindle upwards of 24,000 rpms. As some bits are not designed to turn this fast, please check with the manufacture of the tool before spinning a tool at these rpms.

- Click “Spindle Warmup” to begin the warm up sequence. **Please note, once the button is clicked the spindle will begin to turn, keep hands and objects away from the spindle to avoid personal injury.** You can abort the Warm Up procedure at any time by clicking the abort button. However the entire Warm Up procedure must run before you begin cutting. If you abort, you must start the procedure again and it will start from the beginning.

- This is a 5 minute procedure. It will run the spindle at 50% of the max RPM’s for 2 minutes, 75% of the max RPM’s for 2 minutes, then 100% of the max RPM’s for 1 minute.

7. Surfacing your Spoil Board- You are now ready to surface your MDF Spoil Board.

- For MTC Tables, install your surfacing bit.

-For ATC Tables Click the largest number in your tool library. For example “Tool 11”

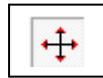
*For ATC Tables the largest tool in your tool library is designated for a surfacing bit. By default “Tool 11” has an offset built into the tool calibration routine which is designed for a 1 ¼” spoil board cutter. If you are going to be using a different size tool for surfacing your spoil board please contact one of our router table specialists for assistance.

-Turn on your Vacuum Hold Down.

-Now, jog your spindle down until you are in contact with the Spoil Board.

*If you reach a low limit on Z you will have to turn your soft limits off. Proceed with caution and, jog your spindle down until your bit is in contact with the spoil board. Once you reach your desired location make sure you turn your soft limits back on.

- Below is an example of the soft limits icon. When the icon is highlighted and pressed down this mean the soft limits are on. When the icon is flat and gray the soft limits are off. Soft Limits are limits set by the software on your table. These are limits that protect you from cutting too far into your spoil board and also from crashing into hard stops on the table.



-Once you have your bit in contact with the Spoil Board, leave your bit in this position and click “Surface Table”.

***The Machine will now begin to make rapid movements, make sure all personnel and all objects are clear from the cutting surface.**

-The first move the machine will do is lift up the Z axis. Then it will come over to the lower right hand corner of the table and begin its surfacing routine. The routine will surface .02” off the top of the MDF board.

-The purpose of this routine is to ensure that the mdf spoil board is perfectly flat and also to make the mdf permeable to allow for maximum air flow to hold your material down to the cutting surface. This routine should be performed on both sides of the mdf, when you have a new board.

-When the machine is finished surfacing the table it will ask you to press enter to proceed in setting the machine bed height. It will then move over to the table probe and pause and ask you to make sure the bit is lined up with the probe. You want to make sure that when the bit comes down the touch the probe the cutting blades of the bit are going to come in contact with the probe.

* In most cases you will only be able to make one of the cutting blades touch the probe.

-Once the bit touches the probe it will automatically set the machine bed height, there is no need to set the machine bed height after you surface the table when using the Surface Table Routine. The machine will remember the location of the machine bed even after you power down your machine.

* To check if you have set the Machine Bed correctly, slowly jog the spindle down to the top of the Machine Bed, you should only be able to jog your machine down .01 past the Sacrificial MDF Board, this is a safety limit to ensure you do not cut past the MDF and into the Phenolic. **If your bit goes past this limit you have not set the machine bed correctly and you are in danger of cutting through the MDF Board into the Phenolic and ruining your table top. Please carefully read step 7 again and repeat the process.**

Important

You must now recalibrate all of the tools in the tool changer and the probe.

Basically, when you change the machine bed height, you will have to tell tools where the new machine height is. So you must recalibrate the tools. “See number 9.”

8. Manually Setting the Machine Bed- If you wish to manually set the machine bed rather than using the surfacing routine built into the table, install a tool into the spindle by either using the quick release button on the left side of the spindle for Quick Release Spindles, or tightening the collet on Manual Tool Changing Spindles, Endmills work best for this process. To set the position of your sacrificial cutting surface, use the “Slow” feed rate setting and lower the router bit until it comes in contact with the top of the MDF Sacrificial board. If the bit stops before it reaches the top of the MDF then you must turn off the soft limits by clicking the “Soft Limit” icon (). Once you have reached the desired location be sure to turn the soft limits back on.

Make sure you turn “Soft Limits” back on to avoid crashing your table into the stops.

Once you have the bit in the correct Z location, leave the bit in this location, and click “Set Machine Bed”, the machine will then go over and touch the table probe. You have now set the top of the machine bed. This only needs to be done the first time you set the Machine Bed or when you resurface the MDF Sacrificial Board. (Note- if you use the surfacing routine built into the table, that routine will set the machine bed for you and there is no need to manually set the machine bed.)

* To check if you have set the Machine Bed correctly, slowly jog the spindle down to the top of the Machine Bed, you should only be able to jog your machine down .01 past the Sacrificial MDF Board, this is a safety limit to ensure you do not cut past the MDF and into the Phenolic. **If your bit goes past this limit you have not set the machine bed correctly and you are in danger of cutting through the MDF Board into the Phenolic and ruining your table top.** Please carefully read step 7 again and repeat the process.

Important

You must now recalibrate all of the tools in the tool changer and the probe. Basically, when you change the machine bed height, you will have to tell tools where the new machine height is. So you must recalibrate the tools. “See number 9.”

9. Calibrating your Tool/ Tools- For MTC tables, each time you put a new tool in the spindle the first thing you must do is calibrate that tool. To do so simply click “Calibrate Tool”. The Router will lift the Z Axis up and come over to the table probe and slowly move down until it touches the probe.

- What this does is tell the machine where the tip of the bit is in relation to the machine bed.
- In order to correctly set up material and process a job you must have a calibrated bit.
- For ATC Tables, you must calibrate each tool in either your carousel or rack before setting up material and or running any files.
- With ATC tables you have two options when it comes to calibrating your tools. You can either calibrate one tool at a time by selecting each tool individually and then clicking “Calibrate Tool”, or you can calibrate all of your tools with one click by clicking “Calibrate All Tools”.

*Please note that in order to use the “Calibrate All Tools” routine you must have a tool in each position.

- Once you have calibrated your tools the machine will remember their position even after you power the machine down so there is no need to recalibrate them.
- If you happen to break and or replace a tool in the tool changer you will then need to recalibrate that tool.
- For ATC tables you must also calibrate the probe. This is to be done whenever you resurface the machine bed.
- Simply Click “Calibrate Probe”. The Machine will unload the current tool in the spindle (if applicable) and then the Material Probe will come over and touch the Table Probe to calibrate the Material Probe.

Processing A Job With Your New Router

-Using your Router is simple, follow these steps to get started using your Router.

1. Setting Material Home- Once you have calibrated your tool/tools (for ATC) you are now ready to begin using your table.

- Place the material you wish to route on the table, positioned in the lower right hand corner of the table.
- Turn on your vacuum hold down or make sure the material is clamped securely to the machine bed.
- Move your router bit to the lower right X & Y position of the material. Then click “Set Corner”.
- This will set your material home. You will notice the X&Y values now read 0.000.
- Now whenever you press “Material Home” the machine will return to this position.

2. Setting Material Height – make sure either your vacuum hold down is turned on or your material is clamped securely to the table top.

* For Tables equipped with a calibration touch pad- To set the material height, **MAKE SURE YOUR BIT HAS BEEN CALIBRATED.**

-Now, jog the spindle over the material and then place the calibration block on the material directly underneath the spindle and bring the bit down until it is about 4 inches above the Material Block.

- Click “Material Height”, the bit will move down slowly to the block, touch it and move up 1 inch. This will set Z zero at the top of the material.

-To test that your material has been set properly slowly jog the bit to the top of the material, the Z location should read 0.000 when the bit comes in contact with the top of the material.

* For Tables without a Calibration Touch Pad- you can manually set your material height (Make sure the bit that is in the spindle has been calibrated) slowly jog the Spindle down until the bit comes in contact with the top of the material and then press “Zero Z”. You have now set your material height.

*For Tables equipped with an ATC and a Material Probe, simply jog the spindle on top of the material and click “Probe Material”. The spindle will unload the current tool and return to the

position it was when you clicked “Probe Material”, it will then lower until the probe touches the material. Now your material Zero has been set.

3. Importing a file to your Router -To import a file click, File> Open > Then locate your file on your Network or External Drive > you must relocate this file on the C: Drive of the Router > now open this file from your C: Drive

-You can view the file by going to the VIEW (shortcut key)



***Note** – if you do not relocate your file and you run it from your USB Drive or Network, you risk temporarily losing this file (due to bad connection) in the middle operation and can ruin the material you are cutting and/ or ruin your machine.

4. Running the File- Now you our ready to run the job, press the GREEN circle at the top left of the program, for MTC Tables the router will calibrate the bit on the table probe then start the cutting process, for ATC Tables the file will begin processing.

5. Pausing and Aborting a Job- To pause press the space bar. To abort the job click on the RED circle icon with an “X” on it. If you wish to pick up the job where you left off, take note of which line you aborted the job on.

6. Restarting your Job- You can resume your job by clicking the blue arrow icon located directly to the right of the green icon. A message box will pop up on your screen and ask you which line you wish to proceed on. Type in the line you wish to proceed on and press enter. The machine will then pick up the job from the line you have entered.



- We at CLN of South Florida, Inc. would like to thank you for purchasing CLN Equipment. If you have any further questions after reading through this manual please feel free to contact one of our Router Table Specialists for assistance. (1-877-256-1043)

Calibrating Your ATC Carousel

When you receive your new CLN Router the Automatic Tool Changer will be detached for shipping proposes. You will have to manually calibrate the ATC after reinstalling the carousel on the gantry. Follow these steps to calibrate your ATC.

1. With the main power off. Install the ATC Carousel on the gantry using the supplied hardware and reconnect the Step Motor wires and yellow sensor wire into their designated location.
2. Leaving the main power off, install your Empty Tool Holders into the Carousel. Tools are not needed for this process and it is strongly suggested that you leave the tools out to avoid injuries. Tool Holders snap into place easier by slightly twisting them while pushing them into place. To prevent pinching your fingers, gloves are recommended for this step.
3. To align the spindle with the ATC you must use a $\frac{1}{4}$ inch Socket Headed Cap Screw installed into a tool holder using a $\frac{1}{4}$ in Collet. Place the bolt in the Collet so that the head of the bolt is facing down when installed in the spindle. This will guide you in lining up the spindle with the tool holders in the carousel.
4. Now turn on the main power and start the computer. Start the CLN Program.
5. Insert the tool holder with the $\frac{1}{4}$ inch Bolt described in step 3, into the spindle by pressing the quick release button on the side of the spindle.
6. When aligning the spindle with the tool holders. Make note of the new locations using the worksheet on page 9 to make notes on the locations of your Tool Holders.
7. In the text field at the top of the program type G92 then press enter this will clear all material homes and you will be working in Absolute Mode, now “SEEK LIMITS” “ when the machine comes to a stop you will be working off of machine home. Then type “C0” then press enter. The tool carrousel will move very close to tool position of 1. For this process you will have to turn off the “Soft Limits” (). **Use extreme caution when the Soft Limits switch is off, you can very easily run your machine into the stops or the ATC Carousel when this switch is turned off.** Slowly and carefully move the spindle over to the ATC making sure your “Z” location is high enough to clear the

other tools in the Carousel. Now slowly bring the spindle down so you can line up the top tip of the Tool Holder with the head of the bolt in the Spindle. If the tip of the Tool Holder does not line up exactly with the head of the bolt in the Spindle, the spindle will not secure the tool correctly and you will be in danger of throwing a tool out of the Spindle's grasp. Make adjustments to the C and Y Axes if needed to line up the Tool Holder with the spindle. To jog the C Axis use the "Home" and "End" buttons on your keyboard and use the arrow keys to Jog the Y Axis. Increasing the value of C will move the Carousel clockwise and decreasing the value of C will move the Carousel counterclockwise. You can make fine adjustments to your "Y" Axis by clicking on the ".001 or .01" buttons underneath the Jog arrow and jog the machine forward or backward.

8. Now that we have found our C and Y Axes locations, we must now find our Z Axis location. For this next step we must shut down the computer and turn off the main power of the machine.
9. Carefully remove all of the tool holders from the spindle.
10. Turn the main power on and start up your computer.
11. Open the CLN Program and "Seek Limits".
12. In the Text Field type G49 and press enter, this will clear any tool height compensation and you will be working in Absolute Mode for Z.
13. In the Text Field type in the C Axis location you found for Tool One and press enter. This will move your carousel into the tool changing position of the first tool.
14. Turn off the Soft Limits and proceed with caution.
15. To find the Z Axis height slowly jog the spindle over to the carousel. The tool holder you have in the spindles possession should line up perfectly with the tool holder fork on the carousel. You can adjust the height of the Spindle using the arrows on the screen or the "Page Up" and "Page Down" buttons on your keyboard. Once you have the spindle in the right Z location make note of the position on your screen.
16. Repeat this process for all of the remaining tools.

17. Now that you have lined up all of your tools we must save these new locations into the computer. Click on Settings > Tool Positions and then enter in the information from the worksheet into the text fields for each tool. The X value should be set to zero.
18. Now shut down the computer and turn the main power to the machine off.
19. Remove all of your tool holder.
20. Install all of your tools into the tool holders using the corresponding collet and install the tool holders into the carousel in your desired locations.
21. Turn the main power of the machine on and start up your computer.
22. Bring up the CLN Program and “Seek Limits”.
23. In the text field type in L110 T0 and press enter. You will notice at the bottom right hand corner it will read “No Tool”. This means that the machine thinks it does not have a tool in its posession. Once you have confirmed the screen reads “No Tool” and there is no tool in the spindle you may proceed to the next step.
24. Now you are ready to get started with your new table, please proceed to Step 6 in the “Getting Started” section of your manual.

*Always remember to wear safety goggles, ear protection and proper etire when running your CLN Router Table.

Default locations			New Locations		
Tools	C	Y	Z	C	Y
T1	0	79.45	5.00		
T2	36	79.45	5.00		
T3	72	79.45	5.00		
T4	108	79.45	5.00		
T5	144	79.45	5.00		
T6	180	79.45	5.00		
T7	216	79.45	5.00		
T8	252	79.45	5.00		
T9	288	79.45	5.00		
T10	324	79.45	5.00		

Complete CLN Router Shortcut Keys

- **Jog Speed**
 - Fast – (F4)
 - Medium – (F3)
 - Slow – (F2)
- **Machine Jog Keys**
 - Left – (Left Arrow)
 - Right – (Right Arrow)
 - Forward – (Up Arrow)
 - Backward – (Down Arrow)
 - Spindle Up – (Page Up)
 - Spindle Down – (Page Down)
- **Spindle RPM's**
 - Increase – (+)
 - Decrease – (-)
- **Feed Rate**
 - Increase – (Insert)
 - Decrease- (Delete)
 - Jump to 100% - (Ctrl & Delete)
- **Machine Operation**
 - Start File – (Enter)
 - Restart – (Ctrl & R)
 - Single Step – (Ctrl & P)
 - Abort – (Esc)
 - Pause – (Space Bar)
 - Open File – (Ctrl & O)
 - File History – (Tab)
 - Edit File – (Ctrl & E)
 - Simulate – (Ctrl & S)
 - View File – (Ctrl & V)
 - Soft Limits On/Off – (Ctrl & L)
 - Resume – (Enter)

File Editing Shortcut Keys

- **Copy** – (Ctrl & C)
- **Paste** – (Ctrl & V)
- **Cut** – (Ctrl & X)
- **Find** – (Ctrl & F)
- **Find & Replace** – (Ctrl & H)
- **Undo** – (Ctrl & Z)
- **Redo** – (Ctrl & Y)
- **Display what line your cursor is on** – (Ctrl & G)