



# COMPONENT SYSTEMS MANUAL



206006

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Some images on your system may not be exactly as pictured  
as we are continually making system improvements to make it  
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## To Our Customers

Thank you for purchasing a Ready2 System. No Matter if you chose to purchase the lift, fence or all components this system brings the speed and precision of computer-controlled machinery to your shop.

This manual tells you about each of the Ready2 systems and how to operate and maintain them. Please read the manual carefully. The manual also includes our warranty and important safety information.

This manual has been written with the assumption that the owner is familiar with the basic aspects and operation of a router and router table, as well as techniques for the safe operation of woodworking power tools. Information in this manual is subject to change without notice.

Again, thank you for purchasing a Ready2 System. We are confident you will be pleased with the performance. If you ever have any questions or comments, feel free to contact us at the address below.

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# Serial Number Information

Record your Ready2 System serial number here for safe keeping.

## Controller Serial Number:

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**Warranty**

Next Wave Automation warrants to the original retail purchaser of a Ready2 System machine and purchased from an authorized Ready2 System distributor that the Ready2 System and any Ready2 System accessories purchased with the Ready2 System machine will be free from defects in material and workmanship for ONE YEAR from the date of purchase. This warranty is for parts and labor to correct the defect, and does not cover the cost of shipping the defective item(s) to Next Wave Automation for repair.

This warranty does not apply to defects arising from normal wear and tear, misuse, abuse, negligence, accidents, unauthorized repair or alteration, or lack of maintenance. This warranty is void if the Ready2 System machine or any portion of the Ready2 System machine is modified without the prior written permission of Next Wave Automation, LLC, or if the Ready2 System machine is located or has been used outside the country of residence of the authorized Ready2 System machine distributor from whom the Ready2 System machine was purchased.



Please contact Next Wave Automation to take advantage of this warranty. If Next Wave Automation determines the Ready2 System machine or Ready2 System accessory is defective in material or workmanship, and not due to normal wear and tear, misuse, abuse, negligence, accidents, unauthorized repair or alteration, or lack of maintenance, then Next Wave Automation will, at its expense and upon proof of purchase, send replacement parts to the original retail purchaser necessary to cure the defect. Next Wave Automation will repair the Ready2 System machine or Ready2 System accessory provided the necessary Ready2 System machine component is returned to Next Wave Automation, shipping prepaid, with proof of purchase and within the warranty period.

Next Wave Automation disclaims all other express or implied warranties, including fitness for a particular purpose. Next Wave Automation shall not be liable for death, injuries to persons or property, or incidental, consequential, contingent or special damages arising from the use of the Ready2 System machine.

## Safety

### Ready2 System Operations Safety Instructions

1. Read and follow all safety and operating instructions before using the Ready2 System (R2R). This includes reading the manual(s) for the router and router table that you'll be using the Ready2 System with. Take the time to orient yourself to the R2R and the workflow steps.
2. Take small steps early in use – this will enable you to use the R2R safely and effectively. Practice each step a few times early on without running the router for example. Again, this orientation process will help you to use the R2R safely and effectively.
3. Ensure that you have a positive system in place to make sure that power is not applied to the router while testing the initial position of a work piece, adjusting the position of the tool, changing a bit, or setting up associated clamps, hold downs, or jigs.
4. Ensure that the material or work piece is firmly secured before starting any cutting operation. Also, be sure that all clamps, hold downs, and jigs are not in the path of the cutter – and do not interfere with the movement of the R2R.
5. Always wear eye and ear protection while operating your Ready2 System.
6. Keep miscellaneous equipment off the router table and the R2R. This includes areas behind and to the side of the R2R.

7. Never leave the router table and R2R unattended while it is running. A work piece slippage, unexpected cutting error or other unexpected event might occur. This could result in injury as well as damage to the Ready2 System.

8. Never attempt to remove chips, dust, or debris from the machine while it is running with your hands or fingers, or by placing a vacuum device into the field of operation – near the cutter.

9. Maintain your router, router table and R2R. Keep the work area clean and debris free. Follow the recommended maintenance practices for the router and table.

## **Ready2 System Hardware and Project Safety Instructions**

Depending on which components you purchased, your Ready2 System may consist of a Fence, Lift, Ready2 Interface Control, the router table, and the router.

The Ready2 System has an electronics control unit and display, a stepper motor, and external ports that connect to the electronics control unit. These are all precision electronic devices and are susceptible to damage from power surges, static discharges, inappropriate power supply, and other unexpected electrical events. It is recommended that the R2R power supply be plugged into a surge protector to minimize the opportunity for damage to occur because of a power surge. You may also want to use a dedicated electrical circuit for the Ready2 System. Turning on a shopvac or other power tool on the same leg may cause a momentary change in the power supplied to the Ready2 System. If you know that the power

you receive fluctuates significantly, you may also want to use a power conditioner and battery backup device. This will ensure the longest life of your Ready2 System electronic components. A minimal battery backup will enable you to gracefully stop the job in progress at the time of the power loss, thus minimizing the possibility of damage to the Ready2 System, electronics and router.

Do not expose the system to high humidity – this may cause condensation on the electronics and result in abnormal behavior or even a short in the electronics.

You should not operate your Ready2 System machine during a thunderstorm unless you have an appropriate surge protector in place to prevent circuits from being damaged by excessive line voltage.

Keep static charges from discharging into the stepper motor. If you think this may become an issue, a grounding wire can be added to one bolt head of the motor.

## Overview

### General – Ready2 System

The Ready2 System brings the speed and precision of computer controlled machinery to your router table. The R2R comes standard with several programmed apps. The four main apps are designed to produce box joints, dado joints, half blind dovetail joints and step and repeat operations.

The R2R uses a tight-tolerance worm drive to precisely move the fence or lift in relation to the bit. Once the component is 'zeroed' to the bit, you can program the R2R for one or more cuts spaced at specific distances from your cutter. You can save up to 10 fence positions and 10 Lift positions in the R2R's memory in case you want to come back later and do another run of specific parts.

The R2R's apps take the guesswork out of cutting dovetails, box joints and dados. Simply enter the diameter of your bit and the width of your work piece and R2R's program will automatically determine spacing and setup the cuts. The Step & Repeat operation supports tasks like creating flutes spanning the width of the board.

NOTE: Some apps will only work with the Entire System (Lift & Fence)

## Ready2 - Quick Start Connections

1. **Always have the system powered OFF when connecting and disconnecting the 9 pin and 15 pin cables. Electronics can blow if this is not done!**
2. Only one power supply is needed for the system for any of the above configurations. Power may be connected to the 2.1mm power jack on either the LIFT or FENCE.



**LIFT Only Configuration: Plug power supply into LIFT**

The LCD can be connected directly to the LIFT using a 15:9 pin adapter and DB9M-M Cable



**FENCE Only Configuration: Plug power supply into FENCE**

The LCD can be connected directly to the FENCE using a 15 pin cable (9 pin cable and adapter not used)



**LIFT & FENCE Only Configuration: Plug power supply into either LIFT or FENCE**

The LCD is connected directly to the FENCE using a 15 pin cable. The LIFT is then connected from the FENCE to the LIFT using a 9 pin cable. The 15:9 adapter is not used.

## Troubleshooting:

1. Isolation is a good troubleshooting technique. Connect only one device, LIFT or FENCE, keeping in mind which device is causing the problems.
2. When seeing strange things on the system, executing the Factory Restore App (located in the Apps menu) can be helpful.
3. If connecting only the LIFT to an LCD which displays both LIFT and FENCE buttons → Pressing the FENCE buttons actually control the LIFT

## Touch Plate

The Touch Plate accessory included with the Fence Option can be used to obtain faster, more accurate setups. Just plug it into the R2R. Attach the magnet to the router bit collar and place the plate against the fence. The R2R will establish the zero and home position the instant the bit makes contact with the touch plate. This same Touch Plate is used with the CNC Shark system offered by Next Wave Automation through a network of authorized distributors and web store and connects directly into the Ready2 Interface.



Touch Plate

## Workflow

A typical workflow is:

- Install the desired bit in the router.
- Enter the Bit Diameter in the R2R Setup Operations menu.
- Zero the R2R fence and or lift to the bit.
- Set the Max and Min Fence and or Lift Positions in the R2R Setup Operations menu.
- Select the desired application.
- Make the appropriate entries in the application parameters.
- Set the material on the miter fence and clamp.
- Move the miter fence beyond the R2R fence zero position so that it will not interact with the first move of the R2R fence when a routing application is started.
- Run the application, keeping the material properly aligned against the R2R fence.
- Move the miter fence beyond the R2R's fence position at the end of the application
- Run applications as desired during a given session, repeating some of these steps when a bit is changed.
- Return the R2R to the home/zero position prior to turning off the R2R (recommended).



## Travelling Beyond the Mechanical Extents

If you have not set the Max Fence Position and/or a Min Fence Positions in the setup section, the R2R unit may attempt to move beyond its mechanical extents.

If this occurs, the digital readout on the LCD Control Panel will continue to register even though the fence or lift is 'stuck'. At this point, you must reset the Zero/Home position as it is no longer known to the R2R unit.

This same condition can also occur if you have a fixed object in the travel path of the R2R unit (like a jig, or a stack of wood 'behind the fence') causing the unit to bind.

In both cases, you should re-establish the zero/home position.

To minimize over travel, you can set both the Fence / Lift Min Position and Fence / lift Max Position by following the prompts in the Setup menu.

## Securing the Workpiece

As with any routing application, it is important to secure the workpiece. Due to the precision of the R2 units, any creeping of material during a cut can cause a joint to be too loose or too tight. Any pictures shown in this manual that do not reflect this recommendation are used in order to provide visibility on other aspects of the R2R operation.

## Troubleshooting

When you are not getting consistent or expected outcomes, the troubleshooting steps to consider are the same as when using a router table with a stationary fence.

- Check the application parameters (bit diameters, tail to tail spacing, cut depth, step depth, etc.)
- Check that the R2R mounting brackets tight (R2R movement not consistent, R2R fence coming out of square to the table miter fence)
- Ensure that the material is positioned square to the R2R fence, router table deck and/or miter fence (pins cut at an angle, pins appear to be cut at different depths)
- Ensure that the material is square and not cupped/warped (pins cut at an angle, blind dovetail joints at different heights)
- Ensure that the router bit is square to the table surface – from all angles (pin not perpendicular to the material face, depth of pin not consistent from side to side)
- Ensure that the R2R fence is perpendicular to the router table surface (pin width not consistent ‘front to back’, pin not perpendicular to the material face, blind dovetail cut at an angle)
- Ensure that the R2R fence is perpendicular to the miter fence (pin width not consistent ‘front to back’, pin not perpendicular to the material face, blind dovetail cut at an angle)
- Ensure that the router table is maintaining the bit height for the duration of the application use (pin height not consistent)
- Ensure that the R2R lead screw coupler is tight and that there is no debris interfering with the R2R movement (fence movement distance not correct)

## System Accuracy

The step accuracy of the R2R fence movement is 0.001 inch. The overall system accuracy – i.e. ‘how good of a joint’ – is at best 0.001 inch. Other places where system error can be induced include:

- R2R fence position (perpendicular to router table surface and perpendicular to miter fence)
- Bit not perpendicular to the router table surface (from all directions)
- Material positioning
- Actual bit width used with application (measured vice read off of the packaging and assumed to be correct)
- Bit height accuracy

# Ready2 System Assembly Instructions

## Fence

The core components of the Ready2 Fence are shown in the figure below.



### R2R Core Components

## Tools Required

You will need the following tools to assemble your R2R unit:

- 1/8" hex wrench
- 5/32" hex wrench
- 5/16" box wrench
- #2 Phillips screwdriver
- 2 straight boards (to align the fence to the table's miter slot (if so equipped))
- Machinist square
- Straight edge

## Assembly

1. Unpack the Ready2 Fence System and verify that all items are present.



### R2R - What's In The Box

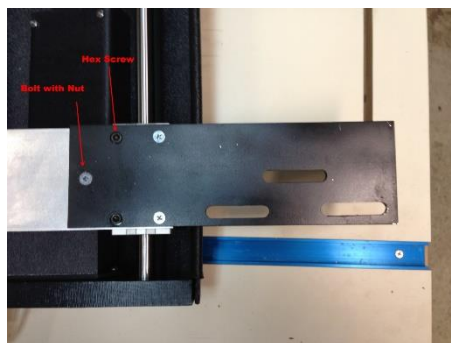
R2R Manifest:

- Ready2 Fence Unit
- Fence
- R2R Mounting Brackets (2)
- Pan head screw – 5mm x 20mm (6)
- Locking nut – 5mm (2)
- Power supply (packaged with purchase of R2 Interface)
- Touch plate (packaged with R2 Interface)

2. Assemble R2R mounting brackets – the mounting brackets are attached to the R2R using the 5mm x 20 mm pan head screws and locking nuts. With the R2R unit turned upside down, you'll find 2 threaded holes in the bearing bar and a third hole on the gantry carrier. There are 4 holes on the mounting bracket that correspond to the end location on the

bearing bar – 2 of the holes enable the mounting bracket to clear the 2 hex bolts already mounted in the bearing bar. There is also one hole on the mounting bracket that corresponds to the hole in the gantry carrier. Place the mounting bracket on the R2R unit and screw in 2 pan head screws into the bearing bar until snug. Insert the third pan head screw through the gantry carrier hole and attach the locking nut – until snug. You will need to use the 5/16 box wrench with the nut. Then tighten each of the three pan head screws. Repeat this for the other mounting bracket.

This is also a good time to ensure that the hex nuts already mounted on the bearing bar are tight. Use the 5/32" hex wrench for this check.



**Attaching the Mounting Bracket**

## Mounting the R2R and Squaring the R2R Fence

Set the R2R unit on the router table with the fence facing the router bit. Ensure that the bit is either removed from the router or positioned below the router table surface.

Insert the T-bolts through the slots in the table and the R2R mounting bracket and attach the T-knobs until they are somewhat snug. With the R2R fence relatively square to the miter channel, tight the T-knobs. Use the Fence- or Fence+ buttons to move the fence so that it is 3" – 4" from the R2R mounting brackets.



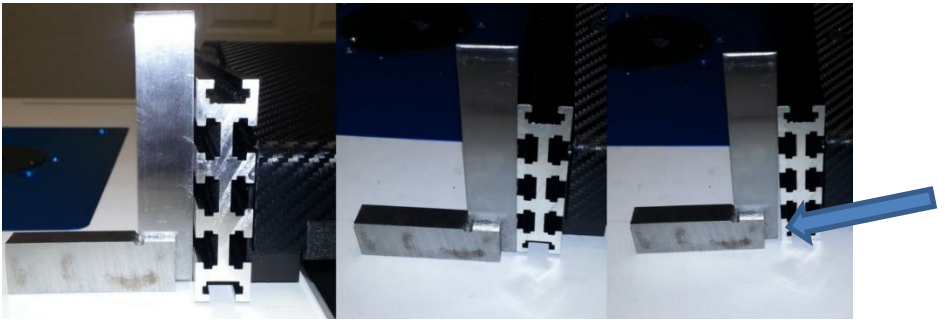
**Figure 1 - R2R Fence Positioned 3" - 4" From Mounting Bracket**

Next, you will square the R2R fence to the router table top, and then square it to the router table's miter slot.

## Squaring the R2R Fence to the Router Table Top

This procedure demonstrates techniques for squaring up the Ready2 System fence. Once squared, the fence should be at 90° to the table top. The fence used in the following pictures was exaggerated to clearly show problems and is not typical of Ready2 System systems.

1. Place Machinist square between the table surface and the fence surface and check for gaps



## Checking the R2R Fence Being Square to Router Table Surface

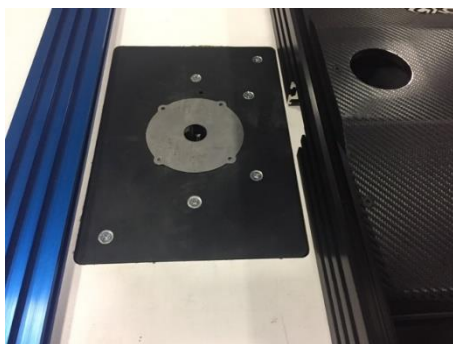
A simple way to correct for minor gaps is to place shims between the Ready2 System mounting wings and the table.





## **Squaring the R2R Fence to the Router Table's Miter Slot**

1. Insert one straight edge (or board) into the table's miter slot and another flat down on the table between the first board and the fence as pictured below.



### **Using 2 straight edges to Square R2R Fence to Miter Slot**

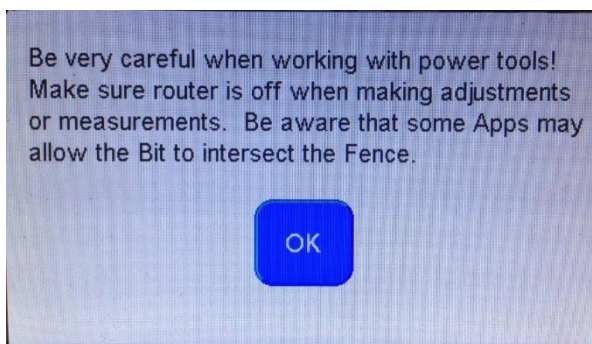
2. Loosen mounting bolts which hold down mounting wings to the table.
3. Move Fence towards straight boards until fence are almost touching the boards using the Fence- and Fence+ buttons.
4. Loosen the T-knobs on the R2R mounting brackets. Manually push fence towards the boards so that the fence is aligned with the boards.
5. Once your fence is aligned with the boards, tighten the T-knobs on the mounting brackets to the table.

## Ready2 Fence Only System Checkout and Jog

Apply power to the R2R by plugging in the power cable. Press the 'Continue' button at the start up screen and the 'OK' button on the safety message panel.

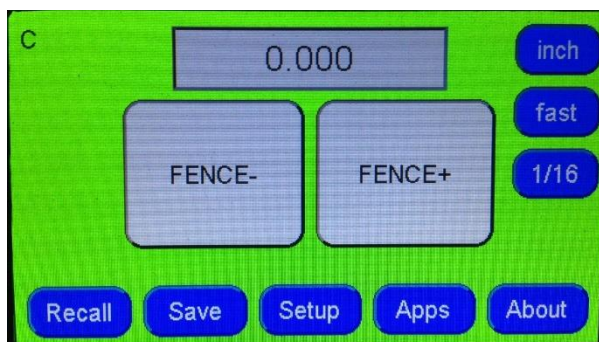


**R2R Startup Screen**



**R2R Safety Reminder Screen**

You can press the Fence- and Fence+ buttons to move the fence.



### R2R Control Panel Home

If You are adding the Ready2 Lift you will want to email [support@nextwaveautomation.com](mailto:support@nextwaveautomation.com) to get the updated software version that supports the Lift / Fence combo

Installing software updates is covered in a separate section of this manual.

## Ready2 Fence Only System Control Panel

Both the Fence and Lift are controlled by the Controller Ready2 Interface, when purchasing the Fence only the controls will look different than the complete system package.

The Ready2 System Control Panel is used to control the R2R's operation in relationship to your router. You use the control panel to zero the R2R, set the cutter size, position the R2R fence, run an application, and update the R2R.

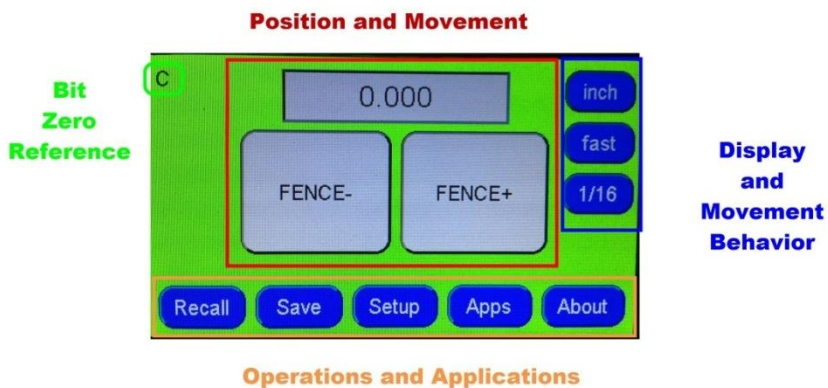
### Control Panel Layout

The R2R's Control Panel layout has 4 distinct areas:

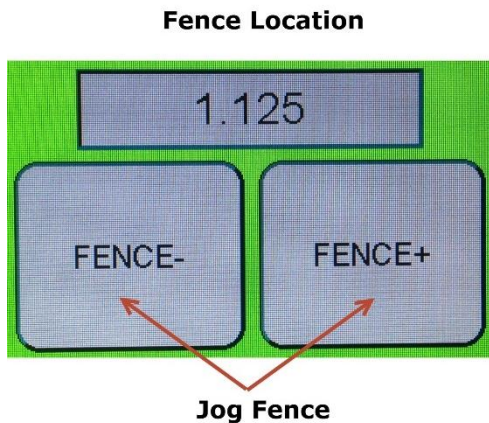
- R2R position and movement
- R2R display and movement behavior
- R2R operations and applications
- R2R Bit Zero Reference

### Position and Movement

The position and movement area displays the current location of the R2R fence in relation to the bit, and enables you to accurately jog the fence to a desired position. The display unit of measurement is controlled by the top right-hand button in the display and movement behavior area. The speed of movement and distance travelled with each button press are controlled by the middle and lower right buttons in the display and movement behavior area.

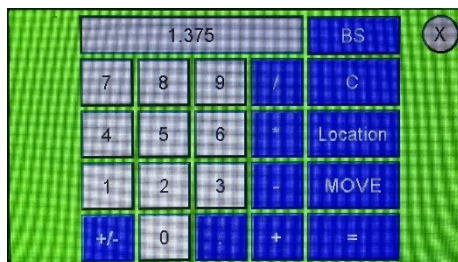


Ready2 Fence Only System Control Panel Layout



## Position Calculator Panel

You can press on the fence location display to open the Position Calculator Panel.



### Position Calculator Panel

You can use the keypad to enter a value, then press the 'Move' key to move the R2R fence to that location.

- The 'BS' key is a backspace
- The 'C' key clears the current entry
- The 'Location' key provides the current location of the R2R fence
- The 'Move' key moves the fence to the position entered in the fence display

You can press the 'X' to return to the home menu.

## Display and Movement Behavior

There are 3 buttons in the display and movement behavior area of the control panel.



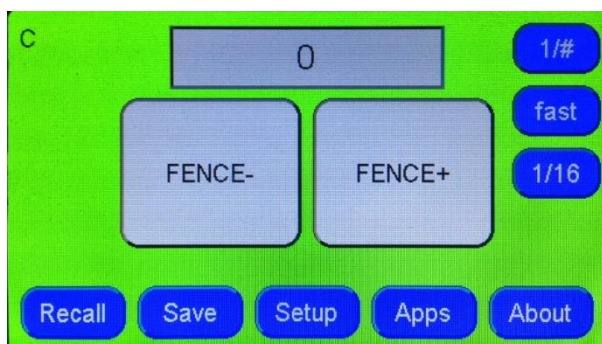
Display and Movement Behavior Buttons

## Display Units Button

The display units button controls the type of units displayed in the fence location box. The button text and resulting units are:

- inch – display is decimal inches
- mm – display is millimeters
- 1/# - display is in English fractions

You toggle to the desired mode by pressing the button until the desired mode is displayed.



Display Units Set to 1/#

## Jog Speed Button

The jog speed button controls the speed of the fence movement when pressing the 'Fence-' and 'Fence+' buttons. There are 3 speeds – fast, medium and slow. You toggle to the desired mode by pressing the button until the desired mode is displayed.

## Jog Travel Distance Button

The jog travel distance button enables you to establish the distance the fence moves with a given press of the 'Fence-' or 'Fence+' buttons. The distances available for you to choose from are based on the display units selected.



Display Units	Jog Travel Distances
Inch	1/2, 1/4, 1/8, 1/10, 1/16, 1/32, 1/100
mm	#.1 (0.1), #.5 (0.5), 1, 5, 10, 20
1/#	1/2, 1/4, 1/10, 1/16, 1/32, 1/100

You toggle to the desired distance by pressing the button until the desired distance is displayed.

The behavior of the jog is to move the fence to the nearest multiple of the jog travel distance selected with the first move. Subsequent moves will be to the entire jog travel distance. For example, in inch display mode, having selected the jog travel distance of 1/2, and the current location of the fence is 3.438. Pressing the 'Fence+' button will position the fence to 3.500 – not 3.938. The next press of 'Fence+' in this case would position the fence at 4.000.

### Bit Zero Reference

Either the letter 'C' or 'E' will be displayed in the bit zero location of the home menu. The 'C' indicates that the zero is set to the center of the bit. The 'E' indicates that the zero is set to the edge of the bit.

### Operations and Applications

The operations and applications buttons provide access to the R2R setup, applications, saving and retrieving 'favorite' positions, and the About panel. You access the desired operation or application by pressing the appropriate button. These buttons will be covered in detail in following sections of the manual.

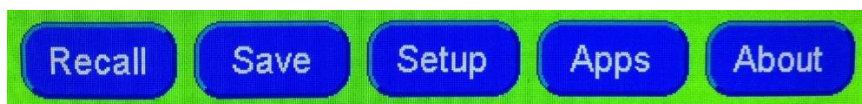


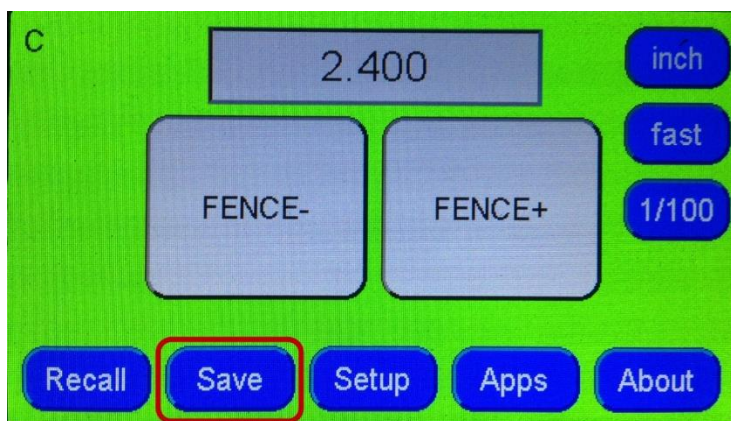
Figure 2 - Operations and Applications Buttons

## Saving and Retrieving a Fence Position

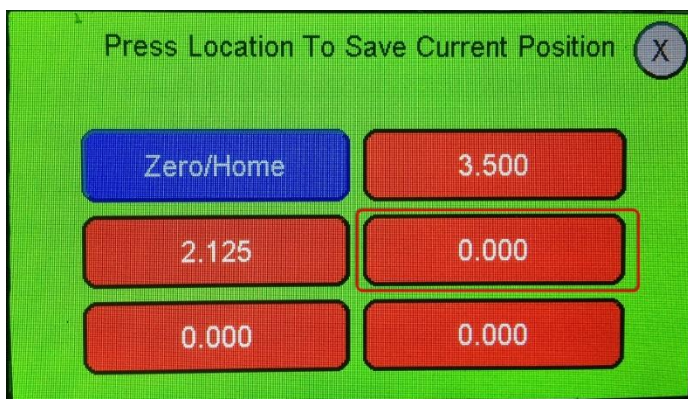
You can store up to 5 'favorite' fence positions using the 'Save' operations and applications button. You can then jog to a 'favorite' fence position by using the 'Recall' button.

### Save Button

You can save the current fence position to enable rapid movement to that location in the future by pressing the 'Save' button to open the save panel. You can save up to 5 locations. Once the panel is open, press the desired button to store the current location. Any current value in the button selected will be over written with the current fence location.



Opening the Save Operations Panel – Fence at 2.400 Inches



### Save Panel - Selecting a Storage Location

If you are setting the fence zero, you would press the 'Zero/Home' button (blue one).

If you open the Save Operations Panel and do not want to make a new entry, you can exit the panel by pressing on the 'X' in the upper right corner of the panel.

### Recall Button

You can now move the fence to a 'favorite' position by opening the Recall operations panel. This also includes the Zero/Home position.



**Figure 3 - Opening the Recall Operations Panel**

## Setup Operations

From the Setup menu, you can set the bit diameter, determine how the fence is oriented with regard to the bit, and set the parameters – with resulting R2R behavior – for the jog speeds, LCD brightness, sound volume, fence minimum and maximum position, and touch plate thickness.

You will want to ensure you have the proper values set for the Fence Min Position and Fence Max Position. This will keep you from jogging the R2R fence beyond the mechanical extents.

You access the Setup menu by pressing the 'Setup' button from the home menu.

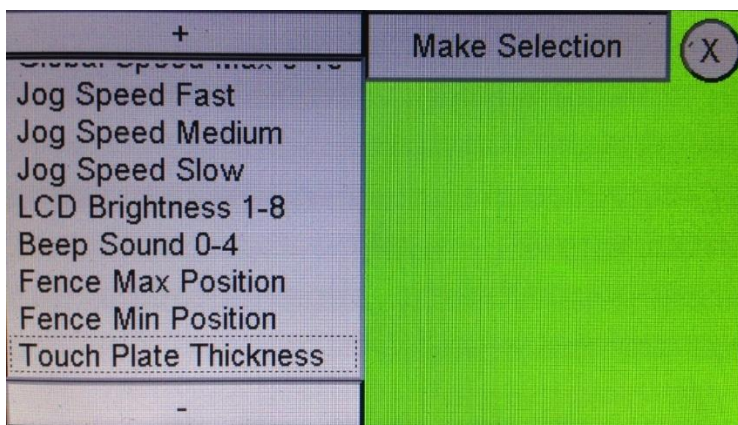


### Selecting the Setup Menu from the Operations and Applications Menu

The Setup parameters are listed on the left side of the panel. The full list of Setup parameters cannot be displayed simultaneously. You can scroll through the list of choices by pressing the '+' and '-' buttons at the top and bottom of the Setup parameter list.



### Setup Menu - Top of List



### Setup Menu - Bottom of List

You can return to the home panel at any time by pressing the 'X' in the upper right corner.

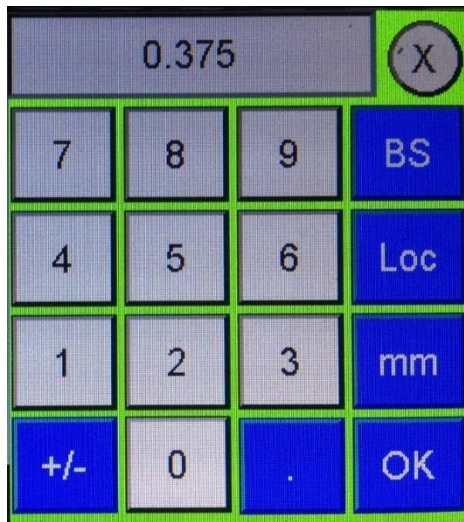
Press on the name of the Setup parameter to display the current R2R parameter settings in the right side. To move to another Setup parameter, simply press the name. There is no 'close Setup parameter' function. Again, the 'X' in the upper right corner will return you to the home panel.

Each Setup parameter is set using a numeric value. The value is displayed in a box along the top of the parameter editor on the right side of the panel. To change the value, press on the box where the current value is displayed. This will open up the parameter keypad which you can use to change the value. Enter the desired value using the keypad and press the 'OK' button. You can also press the 'XX' button to close the parameter keypad.

The parameter keypad is also used by the Applications function.

Each of the Setup parameters has a minimum and maximum value. While you can enter a value that exceeds the range and press the 'OK' button, the R2R will store the minimum or maximum value – not the value that was entered.

The units of the numeric value displayed are either decimal inches or millimeters where the parameter is associated with a length or distance. This is controlled by the Display Units selected. 'inch' and '1/#' result in the display of decimal inches. 'mm' results in the display of millimeters. The Display Units plays no role in the display of the numeric value when the parameter is a metric (a number with no units of measurement).



**Figure 4 - Parameter Keypad**

- The 'BS' key is a backspace.



- The 'Loc' key provides the current location of the R2R fence.
- The 'mm'/'inch' button displays in the opposite numeric system from what is selected in the 'Display Units' button on the home menu. For example, this enables you to enter a value that is metric when the 'Display Units' is set to 'Inch' or '1/X'. Type in the value and press the 'mm'/'inch' button.
- Press the 'OK' button to set the entry and close the setup panel in use.

Each of the setup parameters is discussed in the following sections.

## Bit Diameter

The diameter of the bit you are using is entered here. For an end mill, ballnose, and dovetail bit, enter the maximum width of the cutter (the max diameter of the cutter).

For a v-nose bit, enter the width of the bit at the depth of cut. If you are going to make multiple passes to achieve the final depth of cut, you should set the width of the v-bit cutter at the 'final' depth of cut.

For the most accurate results, you should use a caliper to measure the diameter of the bit in use. It is not unheard of to have purchased a 1/4" for example, that is actually 0.221 in diameter.



Display Units	Minimum	Maximum
Inch – 1/#	0.030 in	3.000 in
mm	0.800 mm	76.2 mm

**Bit Diameter - Min and Max Parameters**



**Bit Diameter Parameter Settings**

It is important to note that ‘Bit Diameter’ is a global variable. Whenever it is changed, that is the bit diameter that the R2R will use for all operations and applications. You can change the ‘Bit Diameter’ from the Setup menu, as well as each Application menu.

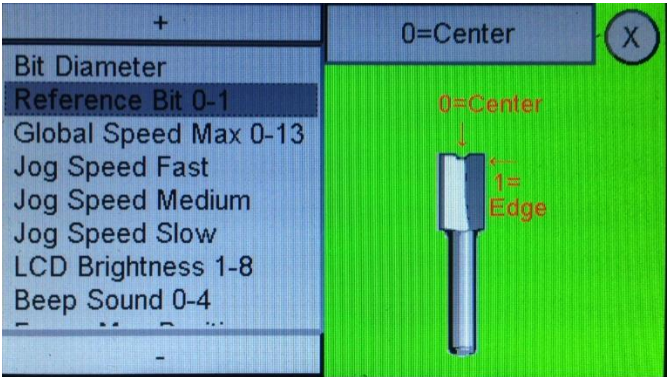
Users are encouraged to update this parameter with every physical bit change. Users are also encouraged to double check the bit diameter setting before running an application.

### Reference Bit 0-1

The Reference Bit parameter tells the R2R how you established the Zero/Home position with regard to the bit.

Reference Bit Value	Reference Bit Location
0	Center
1	Edge

Figure 5 - Referent Bit Parameters



Reference Bit Parameter Settings

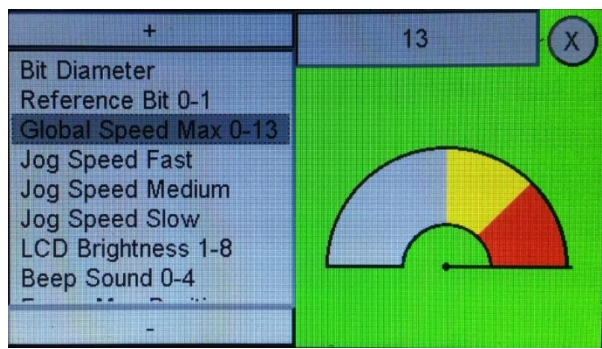
The reference location you choose to use is up to you and in most cases, is a personal preference based on how you think of the bit location with regard to the fence. All the Applications will ‘work’ in either mode. The Applications are based on the center of the bit reference.

## Global Speed Max 0-13

The Fence Speed Max parameter sets the maximum speed of travel of the R2R. This parameter will override the Jog Speed Fast, Medium, and Slow parameter settings.

Minimum	1
Maximum	13

### Fence Speed Min and Max Parameters



## Jog Speed Fast – Medium – Slow

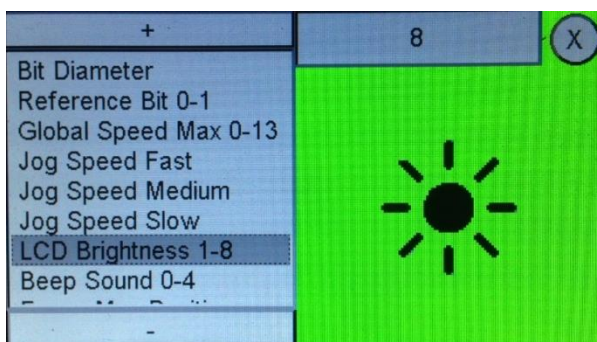
The Jog Speed parameter setting sets the speed of travel of the R2R when the ‘fast’ movement behavior button is selected on the home panel. This parameter is only associated when this button is invoked. You can in fact enter a value that is less than a value entered for the Jog Speed Medium and/or Jog Speed Slow parameters.

Minimum	0
Maximum	13

## Jog Speed Fast Min and Max Parameters



## Jog Speed Fast Parameters Settings



## LCD Brightness and Beep Sound are 1-8

The LCD Brightness and Beep sounds are controlled the same way from the menu.

Minimum 1

Maximum 8

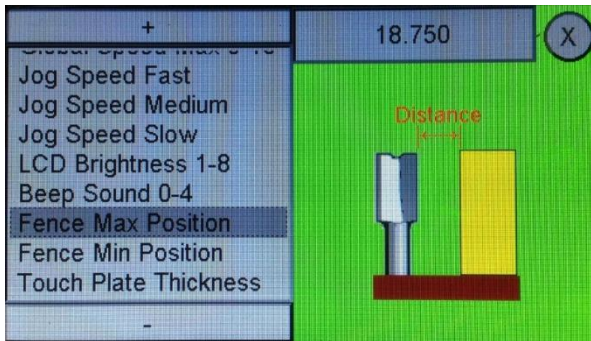
## LCD Brightness Min and Max Parameter

## Fence Max Position

The Fence Max Position parameter setting controls the maximum travel in the positive direction from the Zero/Home position. Depending on where you set this in relation to the maximum travel of the R2R fence, the maximum allowable value you can enter in this parameter may in fact exceed the movement capability of the R2R unit.

Display Units	Minimum	Maximum
Inch – 1/#	0.000 in	18.75 in
mm	0.000 mm	476.3 mm

### Fence Max Position - Min and Max Parameters



### Fence Max Position Parameters

While the current maximum value is 18.75", the maximum mechanical extent of travel is 9.25". The maximum position of the fence in your configuration is also influenced – typically limited – by the depth of the table from the router bit to the 'back edge' of the table. In some cases, the Fence Max Position will be less than 9.25"

Using the Fence+ button, move the R2R fence until the mounting bracket is close to the R2R fence. You can and should adjust the speed to Slow, and continue movements until the mounting bracket is close to the fence. You will find that it doesn't have to be positioned at the very last turn of the lead screw.

Read the current position value from the Control Panel. Enter this value – or a value that is slightly less if desired, into the Fence Max Position setup menu.

Once the value is entered, you do not have to reset this value unless the R2R system has been reset. This value is stored and maintained on the R2R when the unit is off.



**Fence Max Position Value Set**

If you exceed the mechanical extent, you hear a distinct noise coming from the lead screw nut slipping. At this point, you have lost your zero/home position and you should reset this before returning to set the Fence Max Position.

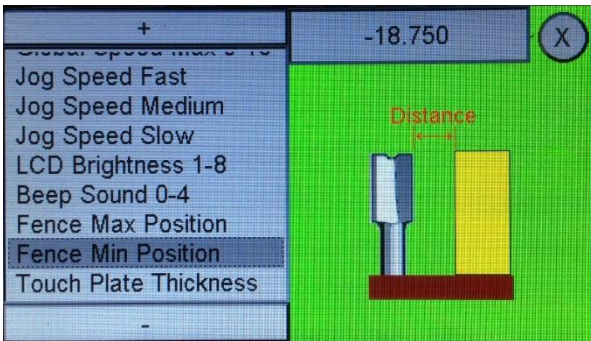
You should check the ‘correctness’ of the Fence Max Position (and Fence Min Position) after setting a new zero/home position. In most cases, as long as you are not going to the very limit of the mechanical extents, you will not have to change this value.

## Fence Min Position

The Fence Min Position parameter setting controls the maximum travel in the positive direction from the Zero/Home position. Depending on where you set this in relation to the maximum travel of the R2R fence, the maximum allowable value you can enter in this parameter may in fact exceed the movement capability of the R2R unit.

Display Units	Minimum	Maximum
Inch – 1/#	0.000 in	-18.75 in
mm	0.000 mm	-476.3 mm

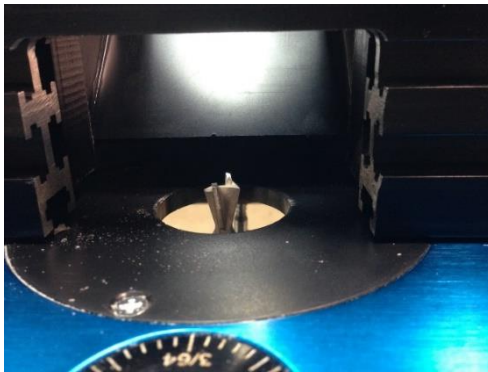
**Figure 6 - Fence Min Position - Min and Max Parameters**



**Figure 7 - Fence Min Position Parameters**

While the current maximum value is -18.75", the overall maximum mechanical extent of travel of the R2R unit is 9.25". The Fence Min Distance is typically a negative number, enabling the fence to position itself on the miter slot side of the bit on the router table. You also want to use a value that results in the R2R movement not running the bit into the dust removal housing that is on the inside of the R2R unit and 'behind' the fence.

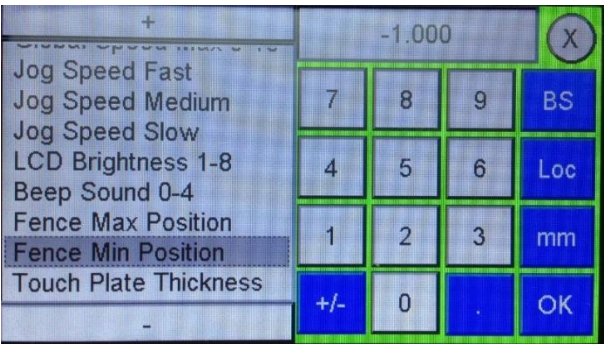
Using the Fence+ button, move the R2R fence until the R2R fence is slightly beyond the bit and reasonably close to the bottom of the dust collector chute on the 'back side' of the R2R fence. You can and should adjust the speed to Slow, and continue movements until you have positioned the R2R fence to the desired location. Any position of the R2R fence where the bit is behind the face of the R2R fence, and not engaging the dust collector chute is appropriate.



**Bit Behind Fence and Not Engaging the Dust Collector Chute**

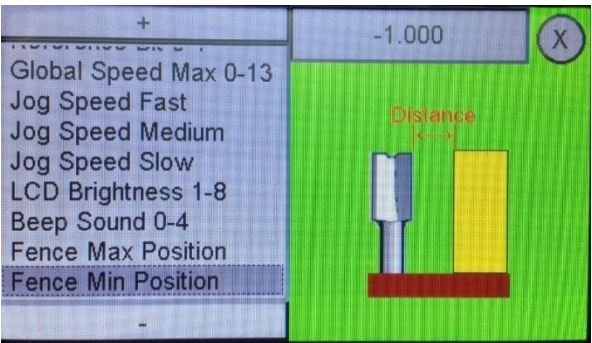


Read the current position value from the Control Panel. Enter this value – or a value that is slightly less if desired, into the Fence Min Position setup menu.



**Entering Fence Min Position Value**

Once the value is entered, you do not have to reset this value unless the R2R system has been reset. This value is stored and maintained on the R2R when the unit is off.



**Fence Min Position Value Set**

If you exceed the mechanical extent, you hear a distinct noise coming from the lead screw nut slipping. At this point, you have lost your zero/home position and you should reset this before returning to set the Fence Min Position.

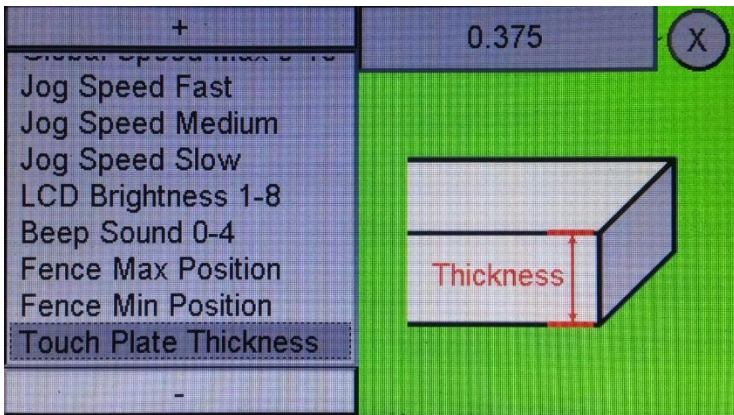
You should check the 'correctness' of the Fence Min Position (and Fence Max Position) after setting a new zero/home position. In most cases, as long as you are not going to the very limit of the mechanical extents, you will not have to change this value.

## Touch Plate Thickness

The Touch Plate Thickness parameter setting sets the thickness of the touch plate. This parameter setting is used by the Touch Plate Fence application.

Display Units	Minimum	Maximum
Inch – 1/#	0.000 in	3.000 in
mm	0.000 mm	76.2 mm

### Touch Plate Thickness - Min and Max Parameters



### Touch Plate Parameters

## Applications

From the Applications (Apps) menu you can zero the R2R fence using the touch plate, cut a box joint, dado, and blind dovetail, cut using the step & repeat behavior, clear the favorites (stored fence locations) memory, and set the R2R's settings to the factory defaults.

You access the Setup menu by pressing the 'Apps' button from the home menu.



**Figure 8 - Apps Button on the Home Menu**

The Applications are listed on the left side of the panel. With the first release, all of the available applications can be seen without scrolling. When this list is longer than a single display space, you can scroll through the list of choices by pressing the '+' and '-' buttons at the top and bottom of the Applications list.

You can return to the home panel at any time by pressing the 'X' in the upper right corner.

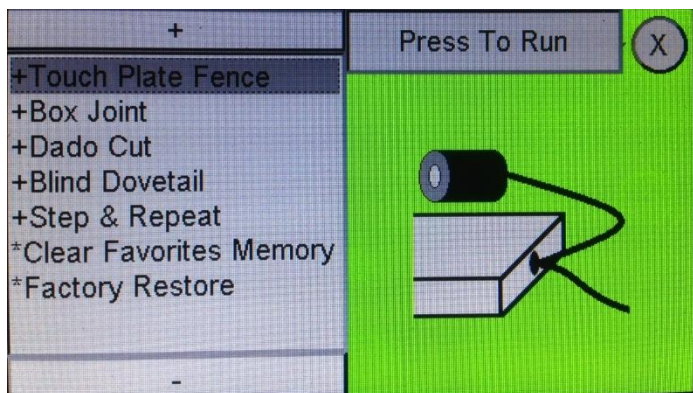
Press on the name of the Application to display the application in the right side. Press the 'Press to Run' button to open up the selected application settings choices on the left-hand side of the panel. Once the 'Press to Run' has been selected and the Application menu is displayed on the left side, pressing the 'X' will return you to the Applications menu, not the home menu. There is no 'close Application menu' function. Again, the 'X' in the upper right corner will return you to the home panel.

## **Touch Plate Fence**

The Touch Plate Fence application enables you to zero the R2R fence to the bit mounted in the router using the touch plate accessory (purchased separately).

You should ensure that the Bit Diameter in the Setup Operations menu is entered correctly for the bit currently mounted in the router prior to running the Touch Plate Fence application.

After selecting the Touch Plate Fence application, press the 'Press to Run' button.



### Touch Plate Fence Application

From the application menu, you can establish the Fence Speed – the speed at which the fence will move when the touch plate fence is being run – as well as run the Touch Plate Fence application.

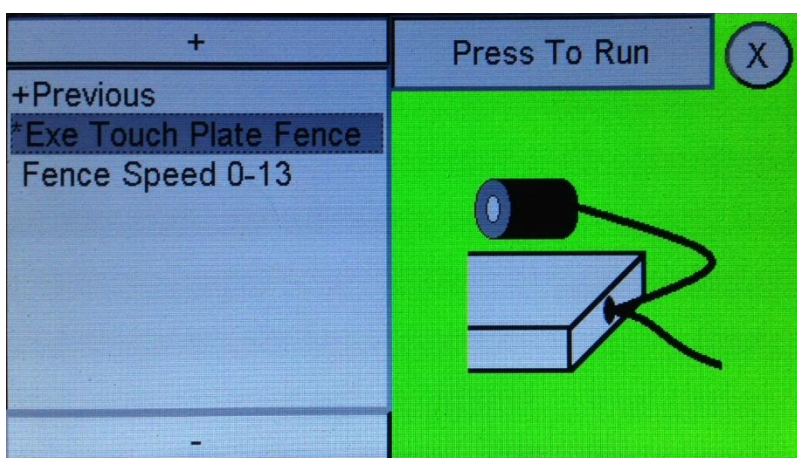
### Fence Speed 0-13

Use this to set the speed of the fence movement when this application is run. The default is 5.

Press the numeric box to open the parameter keypad, enter the desired value and press the 'OK' button to set the value.

## Exe Touch Plate Fence

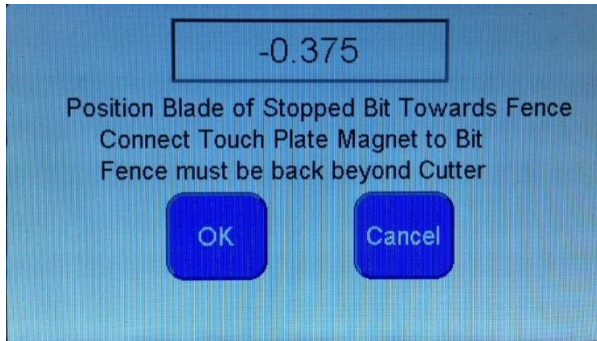
This is the application that will set the R2R fence zero. Move the fence away from the router bit. Ensure that the bit is positioned in a manner so that the maximum cutting distance is perpendicular to the R2R fence. Ensure that the touch plate is plugged in (jack is on the external connections panel at the back of the R2R). Place the touch plate against the fence and attach the magnet on the side of the bit opposite the R2R fence.



### Exe Touch Plate Fence Application Menu

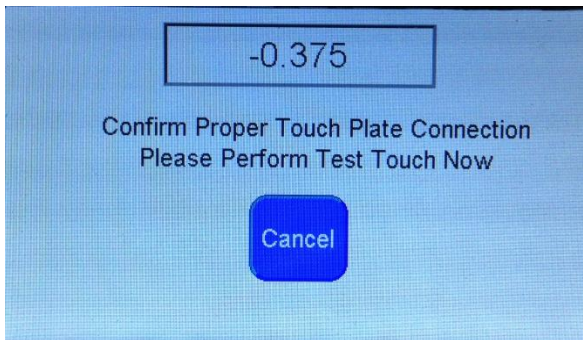
Once you've completed these steps, press the 'Press to Run' button to start the application.

The first panel that appears reminds you of the steps that are required to be completed prior to the actual execution of the application.



### Exe Touch Plate Application Panel 1

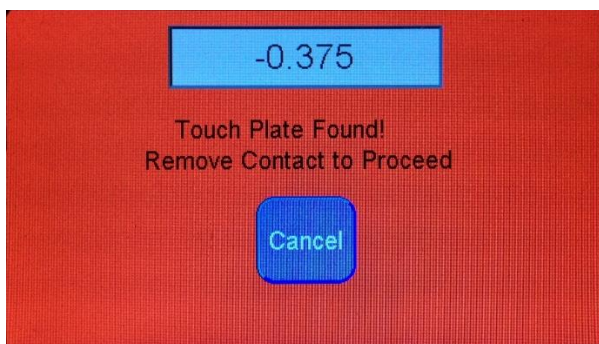
Once the conditions are met, press the 'OK' button to proceed. During the next step you will confirm that the R2R recognizes when the touch plate comes into contact with the bit.



### Exe Touch Plate Application Panel 2

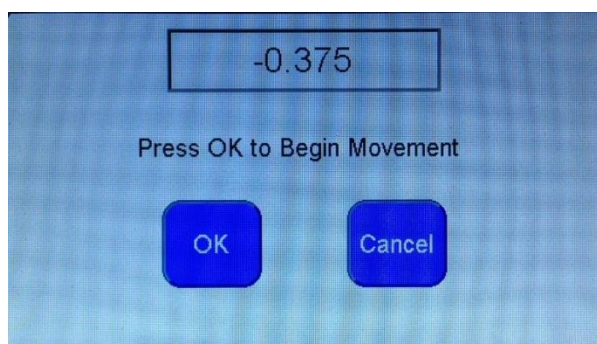
Perform the test by moving the touch plate in contact with the bit (which has the magnet attached to it). If the test is successful, you will see the panel below.





### Exe Touch Plate Application Panel 3

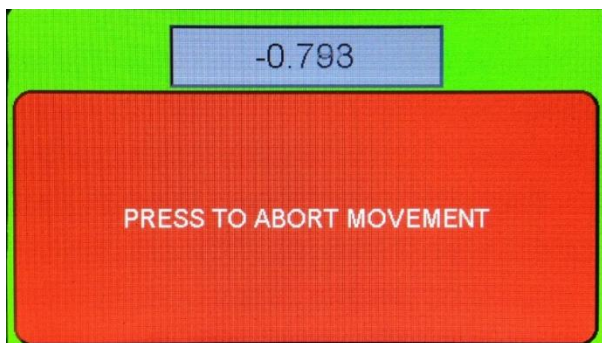
Move the touch plate to remove contact with the bit and the next panel appears.



### Exe Touch Plate Application Panel 4

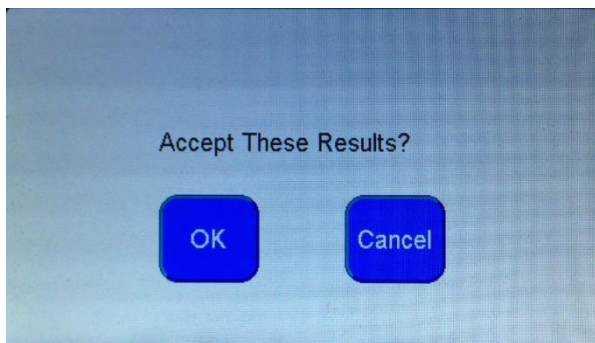
Ensuring that the touch plate is flush against the R2R fence, press the 'OK' button to start the application. The panel that is open while the R2R fence is moving to make contact with the bit enables you to cancel the movement at any time.





#### Exe Touch Plate Application Panel 5

The R2R fence movement will stop once the touch plate comes into contact with the bit. The panel below will be displayed.



#### Exe Touch Plate Application Panel 6

Press the 'OK' button to accept the new Zero/Home position. Press the 'Cancel' button to discard the outcome of the application and maintain the current Zero/Home position. Pressing either will return you to the Touch Plate Fence menu.

This completes the set-up for the Ready2 Fence System, if you also purchased a lift continue here, if not jump to the Apps section.

## Ready2Lift Assembly Instructions

Your Ready 2 Lift will be delivered without the top plate installed and will look like the Lift in the picture below.



Remove both the front and the back-clamping bolts. Loosen the bolts that hold the clamp to the lift, you'll notice that one side of the clamp is slotted to allow the clamp to move out of the way and allow the router to slide in more easily.

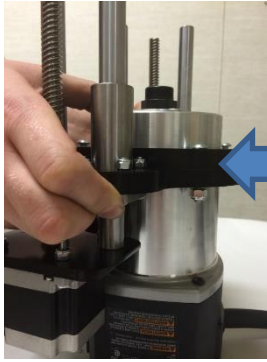


### R2L Core Components

When installing the router be sure to line up slots with the pins on the router to allow clearance as seen below.



Slide the Porter Cable 7518 router motor into the Ready2Lift clamping mechanism. Line the top router motor to just below the top of the bearing shown in photo below.



Re-install clamping bolt and tighten to secure router motor.



Tighten all four screws of clamping base.



Place router plate on top of Ready2Lift posts and secure with bolts supplied.



Place completed Ready2Lift into Router table and connect the serial cable into either the R2R Fence or R2 Ready2 Interface Controller (purchased Separately)

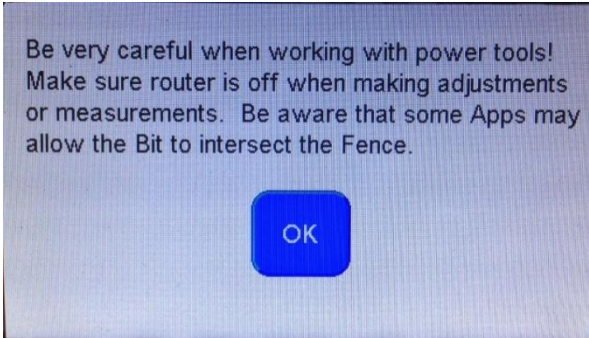


If you've added a lift to your existing R2R you will need to update the software by contacting [support@nextwaveautomation.com](mailto:support@nextwaveautomation.com)

Installing software updates is covered in a separate section of Ready2Rout or Interface manual or can also be found online at [www.NextWaveAutomation.com/downloads](http://www.NextWaveAutomation.com/downloads)

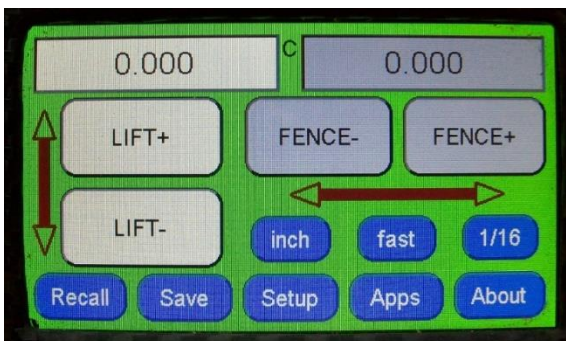
## Ready2Lift Checkout and Jog

Power is supplied to the R2L through the serial cable from either the R2R or R2 Interface. Once you turn on power to either the R2R or R2 Interface, press the 'Continue' button at the start up screen and the 'OK' button on the safety message panel.



**R2L Safety Reminder Screen**

You can press the 'Lift-' and 'Lift+' buttons to raise or lower the lift.



**R2L Control Panel Home**

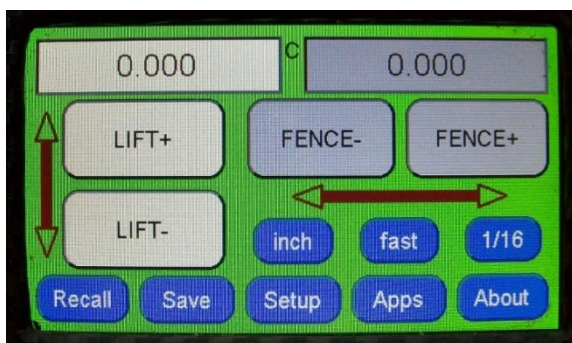
## Ready2Lift Control Panel

The Ready2Lift Control Panel is used to control the R2L's operation in conjunction with your router. You use the control panel to zero the R2L, set the cutter size, run an application, and update the R2L.

### Control Panel Layout

The R2L's Control Panel layout has 4 distinct areas:

- R2L position and movement
- R2L display and movement behavior
- R2L operations and applications
- R2L Bit Zero Reference



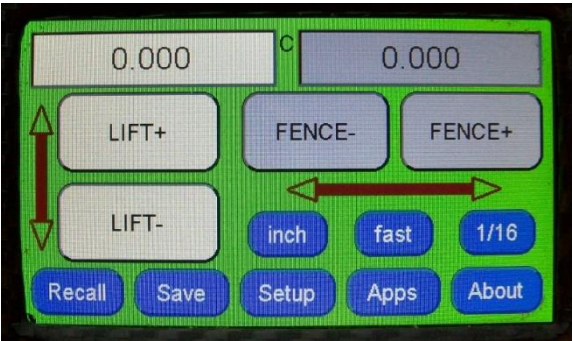
Ready2Lift Control Panel Layout

### Position and Movement

The position and movement area displays the current location of the R2L in relation to the bit, and enables you to accurately jog the bit to a desired position. The display unit of measurement is controlled by the top left hand button in the display and movement behavior area. The speed of movement and distance travelled with each button press are controlled by



the middle and lower right buttons in the display and movement behavior area.



Position and Movement Buttons

**Position Calculator Panel**

You can press on the R2L location display to open the Position Calculator Panel.



Position Calculator Panel

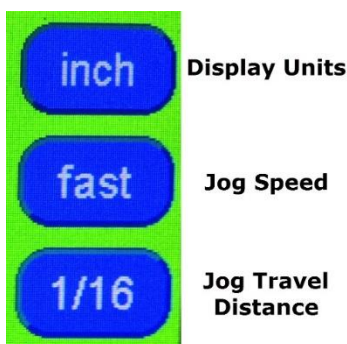
You can use the keypad to enter a value, then press the 'Move' key to move the R2L to that location.

- The 'BS' key is a backspace
- The 'C' key clears the current entry
- The 'Location' key provides the current location of the R2R fence
- The 'Move' key moves the fence to the position entered in the fence display

You can press the 'X' to return to the home menu.

## Display and Movement Behavior

There are 3 buttons in the display and movement behavior area of the control panel.



### Display and Movement Behavior Buttons

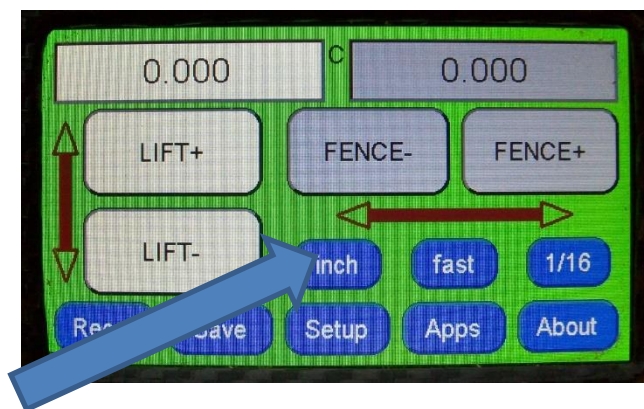
#### Display Units Button

The display units button controls the type of units displayed in the R2L location box. The button text and resulting units are:

- inch – display is decimal inches
- mm – display is millimeters

- 1/# - display is in English fractions

You toggle to the desired mode by pressing the button until the desired mode is displayed.



**Display Units Set to 1/16"**

### **Jog Speed Button**

The jog speed button controls the speed of the bit movement when pressing the 'Lift-' and 'Lift+' buttons. There are 3 speeds – fast, medium and slow. You toggle to the desired mode by pressing the button until the desired mode is displayed.

### **Jog Travel Distance Button**

The jog travel distance button enables you to establish the distance the R2L moves with a given press of the 'Lift-' or 'Lift+' buttons. The distances available for you to choose from are based on the display units selected.

Display Units	Jog Travel Distances
Inch	1/2, 1/4, 1/8, 1/10, 1/16, 1/32, 1/100
mm	#.1 (0.1), #.5 (0.5), 1, 5, 10, 20

1/#

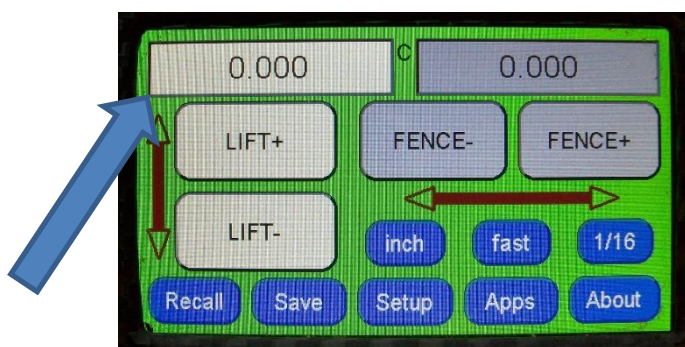
1/2, 1/4, 1/10, 1/16, 1/32,  
1/100

You toggle to the desired distance by pressing the button until the desired distance is displayed.

The behavior of the jog is to move the R2L to the nearest multiple of the jog travel distance selected with the first move. Subsequent moves will be to the entire jog travel distance. For example, in inch display mode, having selected the jog travel distance of 1/2, and the current location of the R2L is 0.438. Pressing the 'Lift+' button will position the bit 0.500 – not 0.938. The next press of 'Lift' in this case would position the R2L at 1.000.

### Bit Zero Reference

Either the letter 'C' or 'E' will be displayed in the bit zero location of the home menu. The 'C' indicates that the zero is set to the center of the bit. The 'E' indicates that the zero is set to the edge of the bit.



Bit zero reference

## Operations and Applications

The operations and applications buttons provide access to the R2L setup, applications, saving and retrieving ‘favorite’ positions, and the About panel. You access the desired operation or application by pressing the appropriate button. These buttons will be covered in detail in following sections of the manual.



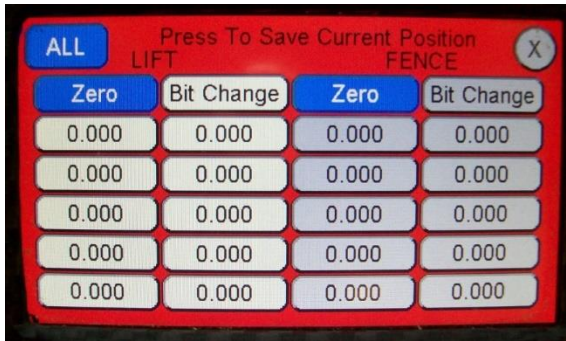
**Operations and Applications Buttons**

## Saving and Retrieving a R2L Position

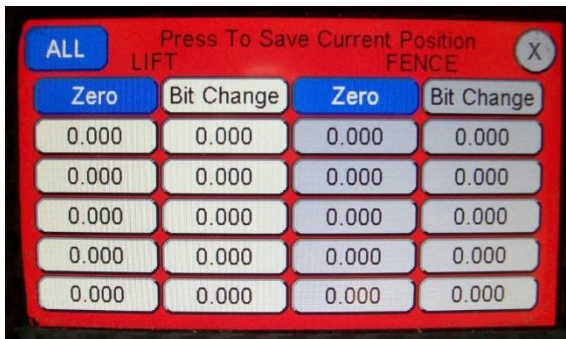
You can store up to 10 ‘favorite’ height positions using the ‘Save’ operations and applications button. You can then jog to a ‘favorite’ position by using the ‘Recall’ button.

### Save Button

You can save the current fence position to enable rapid movement to that location in the future by pressing the ‘Save’ button to open the save panel. Once the panel is open, press the desired button to store the current location. Simply touch a location and any current value in the button selected will be over written with the current R2L location.



### Opening the Save Operations Panel – Lift locations on Left



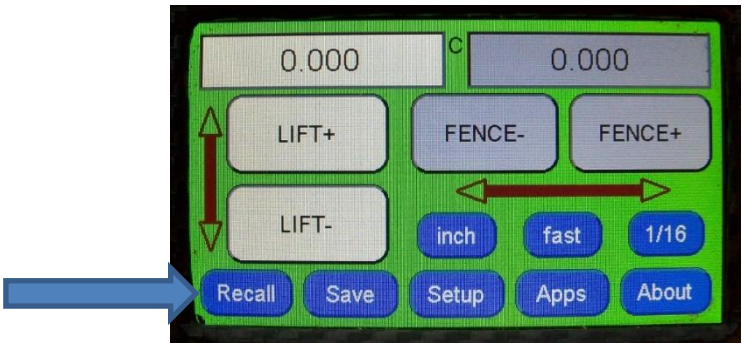
### Zero/Home

If you are setting the R2L zero, you would press the 'Zero/Home' button (blue one).

If you open the Save Operations Panel and do not want to make a new entry, you can exit the panel by pressing on the 'X' in the upper right corner of the panel.

# Recall Button

You can move the R2L to a ‘favorite’ position by opening the Recall operations panel. This also includes the Zero/Home position.



Opening the Recall Operations Panel

Select the desired R2L position by pressing on appropriate button.



Recall Panel

You are always able to cancel movement by pressing the red 'Abort' button.



**Recall Abort Movement Button**

If you open the Recall Operations Panel and do not want to move the fence, you can exit the panel by pressing on the 'X' in the upper right corner of the panel.

## Setup Operations

From the Setup menu you can set the bit diameter and set the parameters – with resulting R2L behavior – for the jog speeds, LCD brightness, sound volume, R2L minimum and maximum position, and touch plate thickness.

You will want to ensure you have the proper values set for the R2L Min and Max Position. This will keep you from jogging the R2L beyond the mechanical extents and thus having to reset zero.

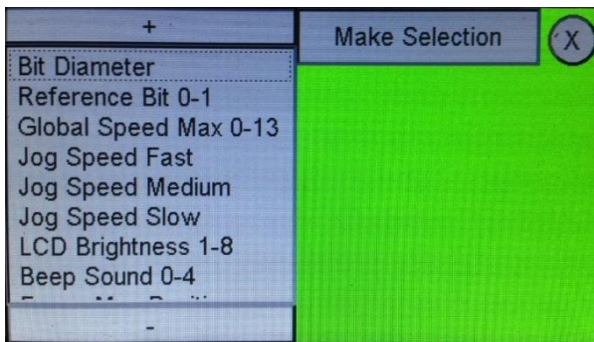
You access the Setup menu by pressing the 'Setup' button from the home menu.



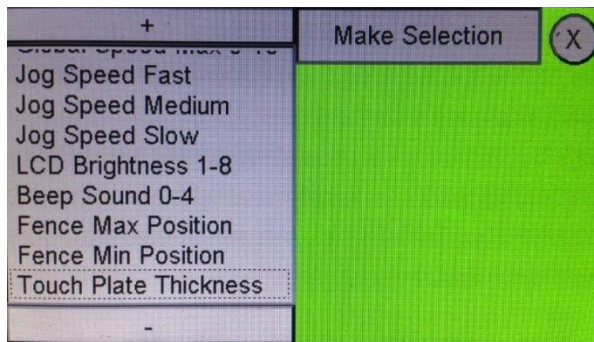


### Selecting the Setup Menu from the Operations and Applications Menu

The Setup parameters are listed on the left side of the panel. The full list of Setup parameters cannot be displayed simultaneously. You can scroll through the list of choices by pressing the '+' and '-' buttons at the top and bottom of the Setup parameter list.



### Setup Menu - Top of List



### Setup Menu - Bottom of List

You can return to the home panel at any time by pressing the 'X' in the upper right corner.

Each Setup parameter is set using a numeric value. The value is displayed in a box along the top of the parameter editor on the right side of the panel. To change the value, press on the box where the current value is displayed. This will open up the parameter keypad which you can use to change the value. Enter the desired value using the keypad and press the 'OK' button. You can also press the 'XX' button to close the parameter keypad.

The parameter keypad is also used by the Applications function.

Each of the Setup parameters has a minimum and maximum value. While you can enter a value that exceeds the range and press the 'OK' button, the R2L will store the minimum or maximum value – not the value that was entered.

The units of the numeric value displayed are either decimal inches or millimeters where the parameter is associated with a length or distance. This is controlled by the Display Units selected, 'inch' and '1/#' result in the display of decimal inches. 'mm' results in the display of millimeters. The Display Units plays no role in the display of the numeric value when the parameter is a metric (a number with no units of measurement).

## Bit Diameter

The diameter of the bit you are using is entered here. For an end mill, ballnose, and dovetail bit, enter the maximum width of the cutter (the max diameter of the cutter).

For a v-nose bit, enter the width of the bit at the depth of cut. If you are going to make multiple passes to achieve the final depth of cut, you should set the width of the v-bit cutter at the ‘final’ depth of cut.

For the most accurate results, you should use a caliper to measure the diameter of the bit in use. It is not unheard of to have purchased a 1/4" for example, that is actually 0.221 in diameter.

Display Units	Minimum	Maximum
Inch – 1/#	0.030 in	3.000 in
mm	0.800 mm	76.2 mm

### Bit Diameter - Min and Max Parameters



### Bit Diameter Parameter Settings

It is important to note that ‘Bit Diameter’ is a global variable. Whenever it is changed, that is the bit diameter that the R2L

will use for all operations and applications. You can change the ‘Bit Diameter’ from the Setup menu, as well as each Application menu.

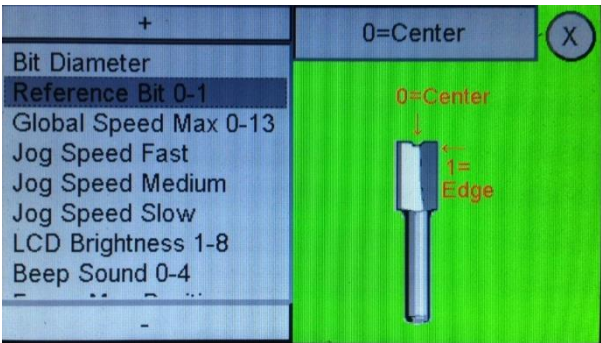
Users are encouraged to update this parameter with every physical bit change. Users are also encouraged to double check the bit diameter setting before running an application.

**Reference Bit 0-1**

The Reference Bit parameter tells the R2L how you established the Zero/Home position with regard to the bit.

Reference Bit Value	Reference Bit Location
0	Center
1	Edge

Referent Bit Parameters



Reference Bit Parameter Settings

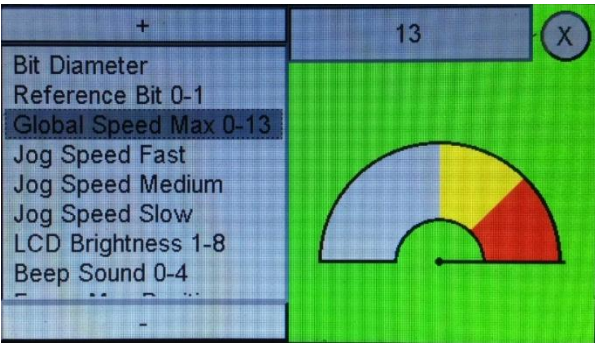
The reference location you choose to use is up to you and in most cases is a personal preference based on how you think of the bit location with regard to the fence. All Applications will ‘work’ in either mode. The Applications are based on the center of the bit reference.

### Global Speed Max 0-13

The Fence Speed Max parameter sets the maximum speed of travel of the R2L. This parameter will override the Jog Speed Fast, Medium and Slow parameter settings.

Minimum	1
Maximum	13

Fence Speed Min and Max Parameters



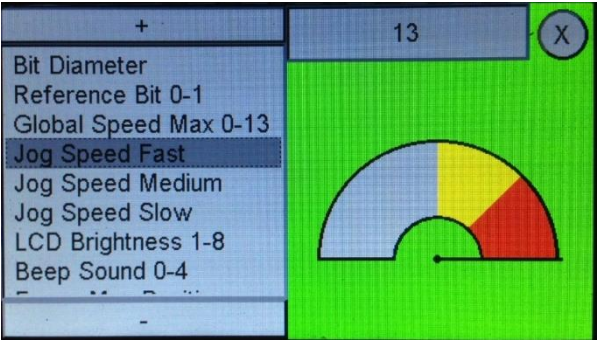
Fence Speed Max Parameter Settings

### Jog Speeds Fast/Med/Slow

The Jog Speed parameter setting sets the speed of travel of the R2L when the ‘fast’- Med - Slow movement behavior button is selected on the home panel. This parameter is only associated when this button is invoked. You can in fact enter a value that is less than a value entered for the Jog Speed Medium and/or Jog Speed Slow parameters.

Minimum	0
Maximum	13

Jog Speed Fast Min and Max Parameters



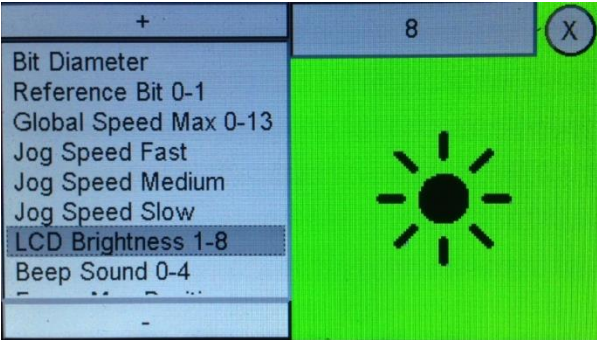
Jog Speed Fast Parameters Settings

LCD Brightness 1-8

The LCD Brightness parameter setting controls the brightness of the R2L’s LCD display.

Minimum	1
Maximum	8

LCD Brightness Min and Max Parameters



LCD Brightness Parameters

### R2L Max Height Position

The R2L Max Height Position parameter setting controls the maximum travel in the up direction from the Zero/Home position. Depending on where you set this in relation to the maximum travel of the R2L, the maximum allowable value you can enter in this parameter may in fact exceed the movement capability of the R2L unit.

Display Units	Minimum	Maximum
Inch – 1/#	0.000 in	10 in
mm	0.000 mm	254 mm

R2L Max Position - Min and Max Parameters



Fence Max Position Parameters

While the current maximum value is 10”, the maximum mechanical extent of travel is 4.75”. The maximum position of the lift in your configuration is also influenced – typically limited – by the position of the router in the lift. In some cases, the lift Max Position will be less than 4.75”



Read the current position value from the Control Panel. Enter this value – or a value that is slightly less if desired, into the R2L Max Position setup menu.



**Entering R2L Max Position Value**

Once the value is entered, you do not have to reset this value unless the R2L system has been reset. This value is stored and maintained on the R2L when the unit is off.

**Exceeding R2L Mechanical Height Extent**

If you exceed the mechanical extent, you hear a distinct noise coming from the lead screw nut slipping. At this point, you have lost your zero/home position and you should reset this before returning to set the Fence Max Position.

You should check the ‘correctness’ of the Max Height Position (and Min Height Position) after setting a new zero/home position. In most cases, as long as you are not going to the very limit of the mechanical extents, you will not have to change this value.



## R2L Min Height Position

The R2L Min Height Position parameter setting controls the maximum travel in the down direction from the Zero/Home position. Depending on where you set this in relation to the maximum travel of the R2L, the maximum allowable value you can enter in this parameter may in fact exceed the movement capability of the R2L unit.

Display Units	Minimum	Maximum
Inch – 1/#	0.000 in	-10.00 in
mm	0.000 mm	-254 mm

### Fence Min Position - Min and Max Parameters

Read the current position value from the Control Panel. Enter this value – or a value that is slightly less if desired, into the Min Height Position setup menu.



### Entering Min Height Position Value

Once the value is entered, you do not have to reset this value unless the R2L system has been reset. This value is stored and maintained on the R2L when the unit is off.

### Exceeding R2L Mechanical Min Extent

If you exceed the mechanical extent, you hear a distinct noise coming from the lead screw nut slipping. At this point, you have lost your zero/home position and you should reset this before returning to set the R2L Min Height Position.

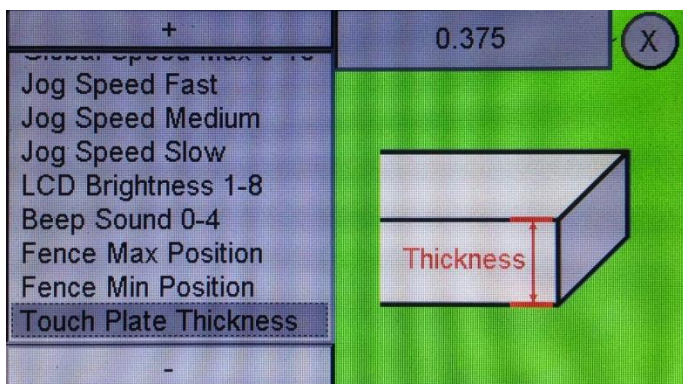
You should check the ‘correctness’ of the R2L Min Height Position (and R2L Max Height Position) after setting a new zero/home position. In most cases, as long as you are not going to the very limit of the mechanical extents, you will not have to change this value.

### Touch Plate Thickness

The Touch Plate Thickness parameter setting sets the thickness of the touch plate. This parameter setting is used by the Touch Plate Fence application.

Display Units	Minimum	Maximum
Inch – 1/#	0.000 in	3.000 in
mm	0.000 mm	76.2 mm

**Touch Plate Thickness - Min and Max Parameters**



**Touch Plate Parameters**



**R2L Min Position Parameters**

While the current maximum value is -10", the overall maximum mechanical extent of travel of the R2L unit is 4.75".

Using the Lift- or Lift+ button, move the R2L until the bit is slightly below the inserts. You can and should adjust the speed to Slow, and continue movements until you have positioned the R2L to the desired location. Any position of the R2L where

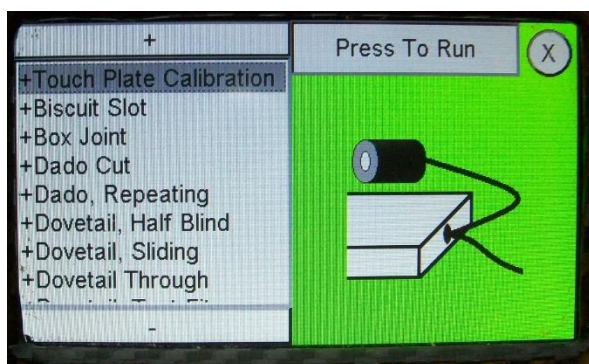
the bit is below the insert and not engaging the bit is appropriate.

## Touch Plate Height

The Touch Plate application enables you to zero the R2L bit mounted in the router to the table surface using the touch plate accessory.

You should ensure that the Bit Diameter in the Setup Operations menu is entered correctly for the bit currently mounted in the router prior to running the Touch Plate application.

After selecting the Touch Plate application, press the 'Press to Run' button.

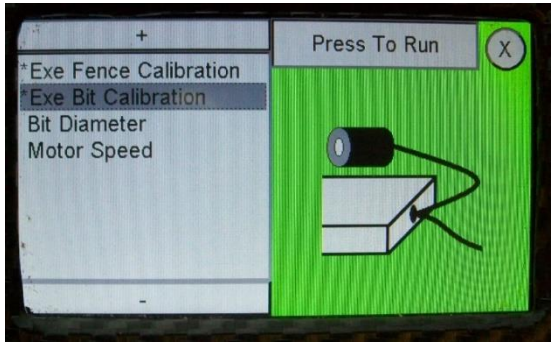


### Touch Plate Calibration Application

## Exe Touch Plate

This is the application that will set the R2L to zero. Move any fence away from the router bit. Ensure that the touch plate is plugged in (jack is on the external connections panel at the back of the Ready2Route or Interface). Place the touch plate

against the table surface and attach the magnet on the side of the bit or collet. Please make sure the magnet is attached to the non-painted side of the bit or collet.



**Exe Touch Plate Bit Calibration Application Menu**

Once you’ve completed these steps, press the ‘Press to Run’ button to start the application.

The first panel that appears reminds you of the steps that are required to be completed prior to the actual execution of the application.



**Exe Touch Plate Application Panel 1**

Once the conditions are met, press the 'OK' button to proceed. During the next step you will confirm that the R2L recognizes when the touch plate comes into contact with the bit.



**Exe Touch Plate Application Panel 2**

Perform the test by moving the touch plate in contact with the bit (which has the magnet attached to it). If the test is successful, you will see the panel below.



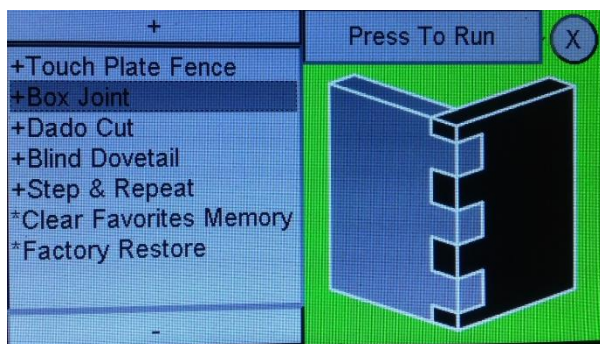
**Exe Touch Plate Application Panel 3**

## Running a Typical Application:

Nearly all applications run in a similar manner. After selecting the app, you will be prompted for material size, bit size, and height. After inputting these variables, the Ready2Rout will auto calculate and step you through the application, just follow the onscreen prompts. We will use the box joint app as an example.

### Box Joint

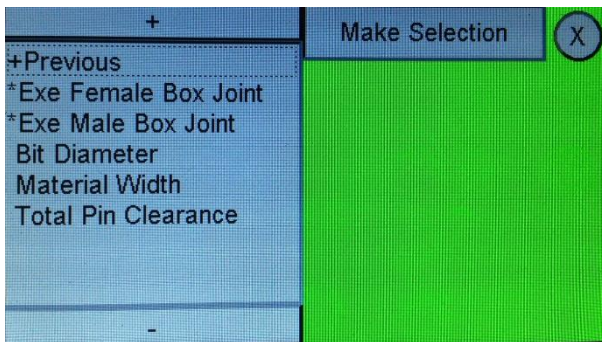
The Box Joint application enables you to create a male and female box joint. After selecting the Box Joint application, press the 'Press to Run' button to open the Box Joint application menu.



**Figure 9 – Selecting the Box Joint Application**

From the application menu, you can establish bit diameter in use, the material width, the total pin clearance – and run the Female and Male Box Joint applications.



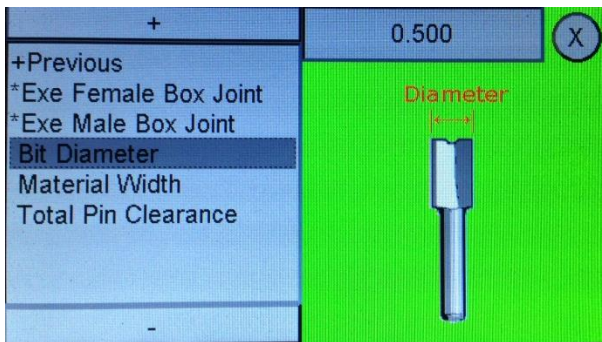


**Figure 10 - Box Joint Application Menu**

You should review the bit diameter, material width and total pin clearance settings prior to running either the Exe Female Box Joint or Exe Male Box Joint applications.

## Bit Diameter

The diameter of the bit you are using is entered here.



**Figure 11 - Bit Diameter Menu**

Press the numeric box to open the parameter keypad, enter the desired value and press the 'OK' button to set the value.



It is important to note that 'Bit Diameter' is a global variable. Whenever it is changed, that is the bit diameter that the R2R will use for all operations and applications. You can change the 'Bit Diameter' from the Setup menu, as well as each Application menu.

### Material Width

The width of the material you are using is entered here.

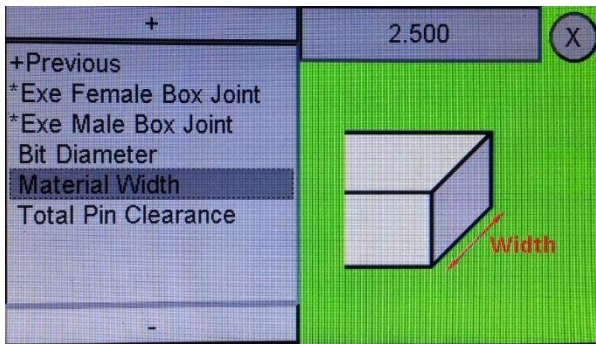
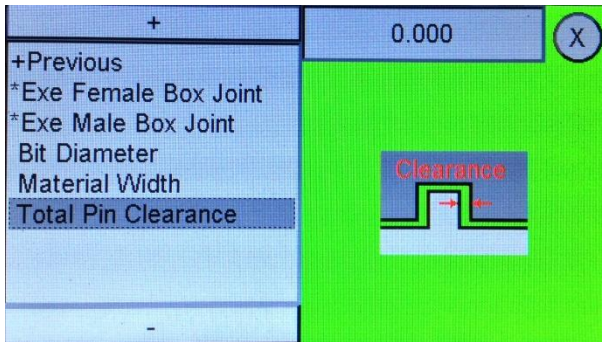


Figure 12 - Material Width Menu

Press the numeric box to open the parameter keypad, enter the desired value and press the 'OK' button to set the value.

### Total Pin Clearance

The width of clearance you want the pin to have. The male pin width will be trimmed by half of the clearance value on each side of the pin. The female pin width is not affected by this setting

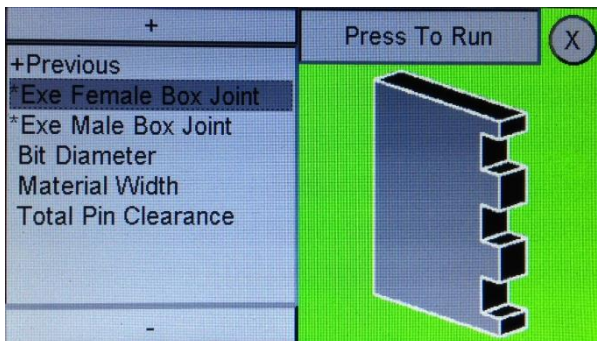


**Figure 13 - Male Pin Clearance Menu**

Press the numeric box to open the parameter keypad, enter the desired value and press the 'OK' button to set the value. The maximum value is 0.250.

### Exe Female Box Joint

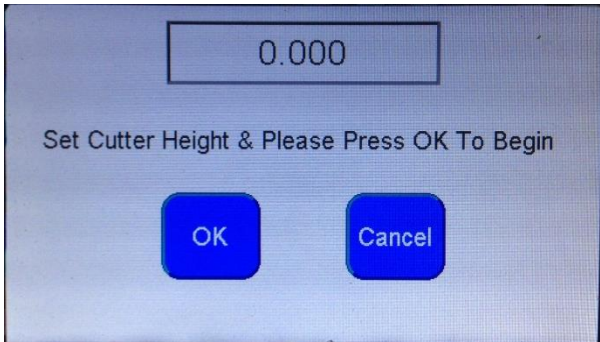
Use this application to create the female box joint.



**Figure 14 - Exe Female Box Joint Menu**

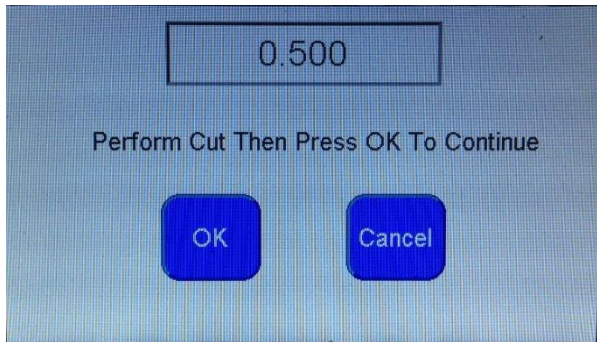
Ensure that the miter fence is moved beyond the R2R fence zero/home position. Press the 'Press to Run' button to start the application.

The panel below will appear with the start of the application. This is one last opportunity to check the cutter height and material placement on the miter fence. Start the router and press 'OK'.



**Figure 15 - Exe Female Box Joint Panel 1**

The R2R fence will move to the first cutting position and the panel below will appear.

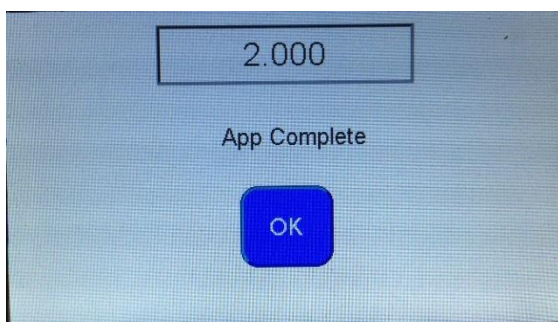


**Figure 16 - Exe Female Box Joint Panel 2**

Do not immediately press 'OK'. You first need to make the cut...

Adjust the miter fence so that the material clamped to it is against the R2R fence and secure the miter fence. Make the cut. Then press 'OK'. The R2R fence will move to the next position for cutting and let you know it is ready for you to perform the cut.

When the last move has been made, the cut has been made and the 'OK' button pressed to continue the application, the panel below will appear – letting you know that the application is complete.

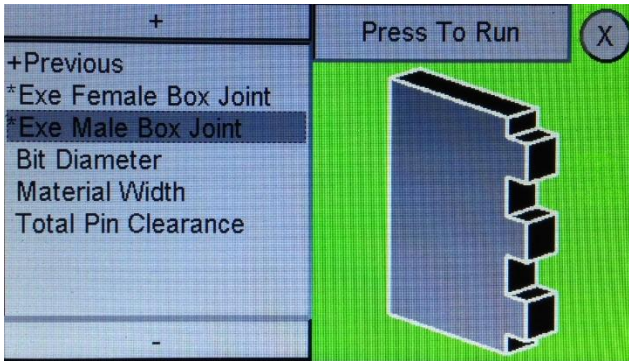


**Figure 17 - Exe Female Box Joint Panel 3**

Press 'OK' to complete the application and return to the Box Joint menu.

## Exe Male Box Joint

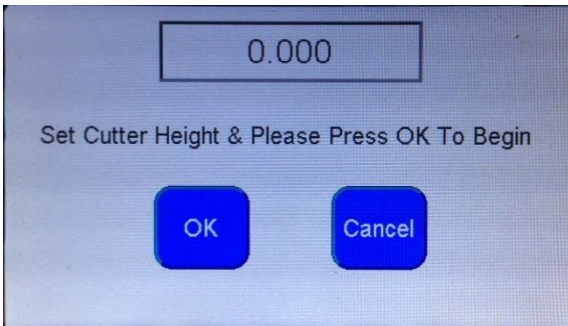
Use this application to create the male box joint.



**Figure 18 - Exe Male Box Joint Menu**

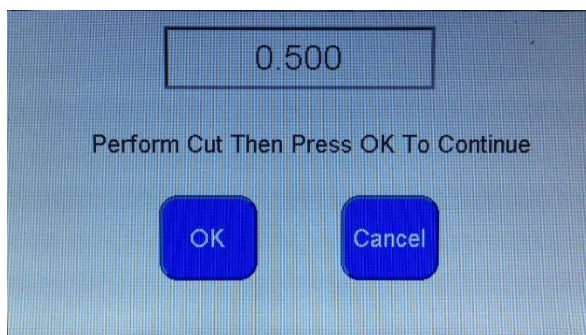
Ensure that the miter fence is moved beyond the R2R fence zero/home position. Press the 'Press to Run' button to start the application.

The panel below will appear with the start of the application. This is one last opportunity to check the cutter height and material placement on the miter fence. Start the router and press 'OK'.



**Figure 19 - Exe Male Box Joint Panel 1**

The R2R fence will move to the first cutting position and the panel below will appear.

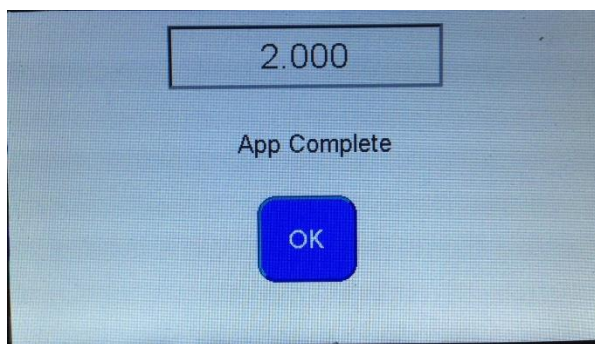


**Figure 20 - Exe Male Box Joint Panel 2**

Do not immediately press 'OK'. You first need to make the cut...

Adjust the miter fence so that the material clamped to it is against the R2R fence and secure the miter fence. Make the cut. Then press 'OK'. The R2R fence will move to the next position for cutting and let you know it is ready for you to perform the cut.

When the last move has been made, the cut has been made and the 'OK' button pressed to continue the application, the panel below will appear – letting you know that the application is complete.



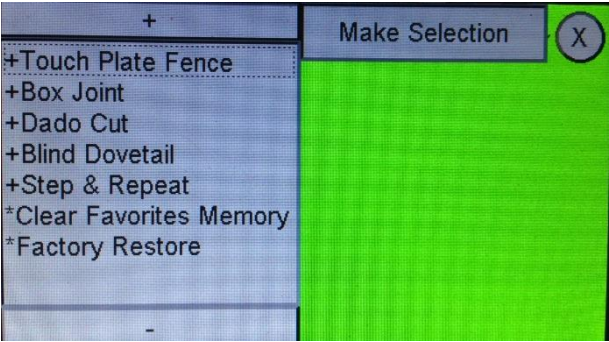
**Figure 21 - Exe Male Box Joint Panel 3**

Press 'OK' to complete the application and return to the Box Joint menu. You should now have a perfectly made box joint.



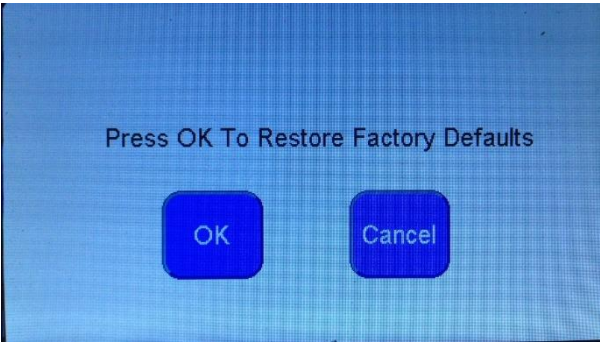
# Factory Restore

The Factory Restore application resets the R2R software and all the parameters to the factory default settings.



**Figure 22 – Selecting the Factory Restore Application**

The panel shown below is displayed immediately upon selection of this application.



**Figure 23 – Factory Restore Application Panel**

If you are sure you want to reset the R2R to the factory defaults, press the 'OK' button. You can press the 'Cancel' button to cancel the clearing action.



Once a factory restore has been performed, it is recommended to power off the unit and power back on, therefore finalizing the Factory Restore process.

## Setting the Fence Zero Without the Touch plate

Setting the fence zero without a touch plate is a straight forward process.

1. Position the fence so that the router bit to be used is 'behind' the R2R fence. Ensure that the bit is positioned in a manner so that the maximum cutting distance is perpendicular to the R2R fence.
2. Place a straight edge against the R2R fence
3. Toggle the Jog Travel Distance to an appropriate value and use the 'Fence-' and 'Fence+' to move the R2R fence until the bit is just touching the straight edge.
4. Open the Save Current Position panel and press the 'Zero/Home' button. Click 'OK' to set the 'new' home position.
5. Press the Location bar to open the position calculator panel.
6. If:
  - a. Bit Reference = 0 (Center) – enter in the value that is half the bit diameter. Press the 'Move' button to move the fence.
  - b. Bit Reference = 1 (Edge) – enter in the value that is the bit diameter. Press the 'Move' button to move the fence.
7. Open the Save Current Position panel and press the 'Zero/Home' button. Click 'OK' to set the 'new' and final home position based on the bit in the router and the bit reference selected.

8. The R2R is now 'zeroed' without using the touch plate.

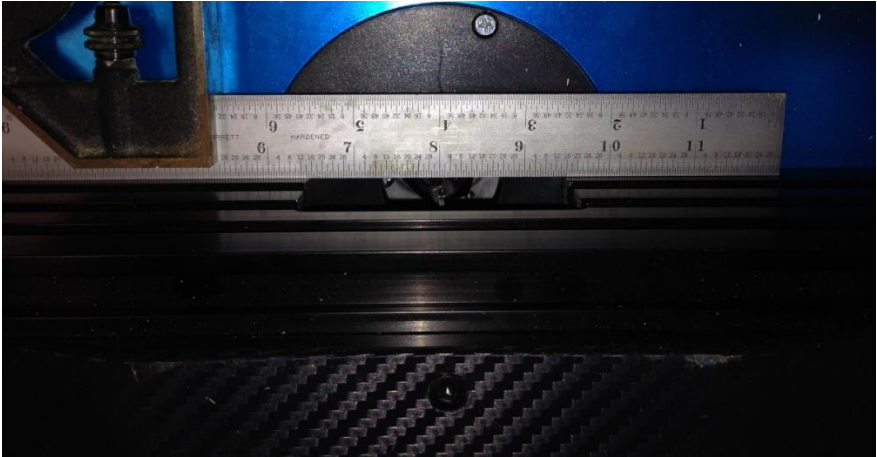


Figure 24 - Straight Edge Against R2R Fence

### About

The 'About' button displays information about the software installed on the R2R unit.

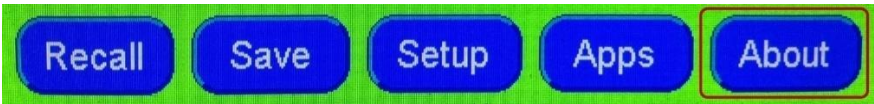
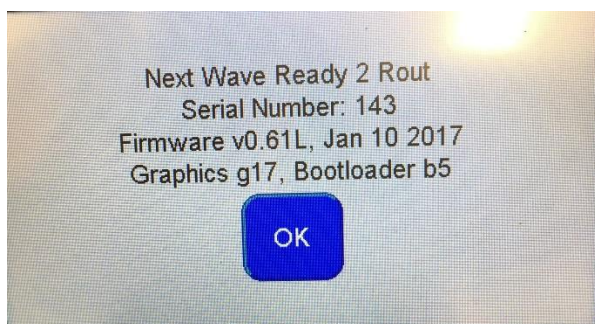


Figure 25 - Selecting the About Menu from the Operations and Applications Menu

The about panel opens – the information can be compared with information on the latest version information found on the Next Wave Automation website.



**Figure 26 - About Panel**

You can close the panel by pressing the 'OK' button.

## Upgrading the Firmware

The firmware on the R2R can be upgraded using a USB flash drive that has the files required to perform the upgrade.

The firmware files can be obtained from Next Wave Automation's web site, and consist of 2 files:

- 'image.hex' – the application software image file
- 'graphics.hex' – the resource data file

Copy these files to the root of the USB flash drive. Do not place them in a folder on the flash drive expecting them to be read during this process. For this process to work, the 2 files must be in the root directory of the flash drive.

With the power cable unplugged –

- Insert the USB flash drive in the port on the external connections panel

- Insert the touch plate plug and press and hold the magnet to the touch plate while applying power.

Apply power to the R2R by plugging in the power cable.



**Figure 27 - Shorting Using the Touch Plate**

Once powered the system will:

- Beep once to indicate successful processor boot. This can always be heard even when the application begins.
- Beep twice to indicate it found “image.hex” and is beginning to download it. During the download, the LED on the USB Thumb drive should blink indicating file access.
- Beep three times to indicate it found “graphics.hex” and is beginning to download it. During the download, the LED on the USB Thumb drive should blink indicating file access.
- Beep four times to indicate it finished the download of “graphics.hex”
- It will then reboot into the Calibration screen.

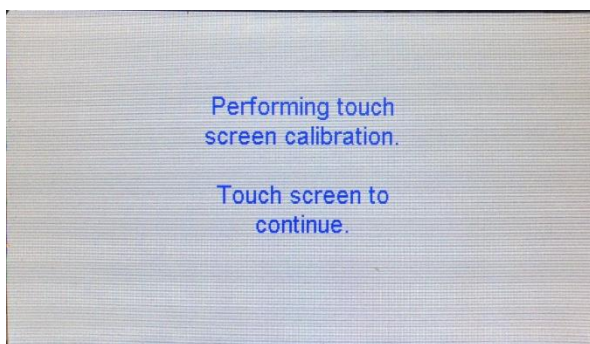
- The first time the R2R runs after a firmware update, it will poll the user to perform a touch screen calibration. Simply follow the prompts presented during the touch screen calibration.
- Once the calibration is finished, turn off the R2R. Take out the shorting plug (if used) and the USB flash drive.
- Turn on the R2R. The user will hear one quick beep indicating successful processor boot, followed by two slower beeps signifying the R2R has started.

After restarting the R2R, you may need to go to the Apps menu and run the Factory Restore application. The website posting of the upgrade files will state whether this is a requirement or not.

## **Calibrating the Touch Panel**

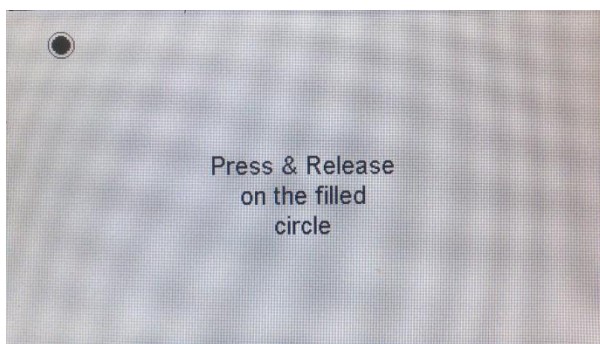
There may be times when the performance of the touch panel seems poor – the button press is not resulting in the expected outcome. You should perform a touch screen calibration when this occurs.

To start the touch screen calibration, turn the unit off. With your finger pressed on the touch panel, turn the unit on. The Touch Panel Calibration screen will display. Release your finger from contact with the touch panel.



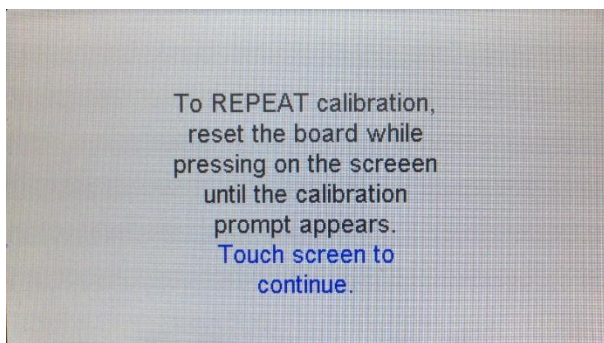
**Figure 28 - Touch Panel Calibration - Initial Screen**

Touch the screen to continue. Follow the steps, touching each of the radial buttons as prompted. It is recommended to use a stylus for this process to achieve calibration accuracy.



**Figure 29 - Touch Panel Calibration**

After tapping on the radial buttons in each corner, the completion panel will display. When you touch the panel one more time, the R2R software will load and you will be presented with the startup screen.



**Figure 30 - Touch Panel Calibration - Last Step**

## **Maintenance**

### **Routine**

- You should periodically remove the unit from the router table and clear any dust and debris from the underside.
- Clean and lube the lead screw and bearing rails with a Teflon/silicon spray and wipe any excess off.
- Check the lead screw coupler set screws to ensure they are tight. If they get loose, apply a dab of wood glue and reseal them.

### **Control Box Fuses**

There are no replaceable fuses in the R2R unit. There is a fuse in the electronics that will engage under certain conditions. To reset this fuse, remove the power cord from the R2R and wait 5 minutes before plugging it back in.

## Repair Parts

Repair parts for the Ready2 System are available online in the Next Wave Automation Store at the Next Wave Automation web site – [www.nextwaveautomation.com](http://www.nextwaveautomation.com).



# Ready to Rout Specifications

## General

- To space and cut box joints, simply enter the diameter of your bit and the width of your workpiece and the system automatically positions the fence for the cuts.
- Touch screen can be used to indicate the router bit width, and to convert to metric decimals or fractions. For example, you can use a 1/4" bit to rout a 12mm dado without complicated calculations or measurements.
- Firmware updates are made via USB port on the rear of the fence
- Tight-tolerance lead screw precisely moves the fence in relation to the bit.
- Up to ten Fence & ten Lift positions can be saved in the system's memory so you can come back later and repeat the operations.

## Rates and Accuracy

- Fence movement accurate to within 0.001"
- Reproduction accuracy depends on the precision of the setup and alignment.

## Fence Travel

- The maximum travel distance of the R2R unit is 9.25".
  - The maximum distance your setup is capable of is also influenced by the depth of the router table surface from the cutter to the 'rear' edge of the router table.

