

RAZOROPTIMAL

DEFECT, OPTIMIZE, & MORE

RazorOptimal User Manual

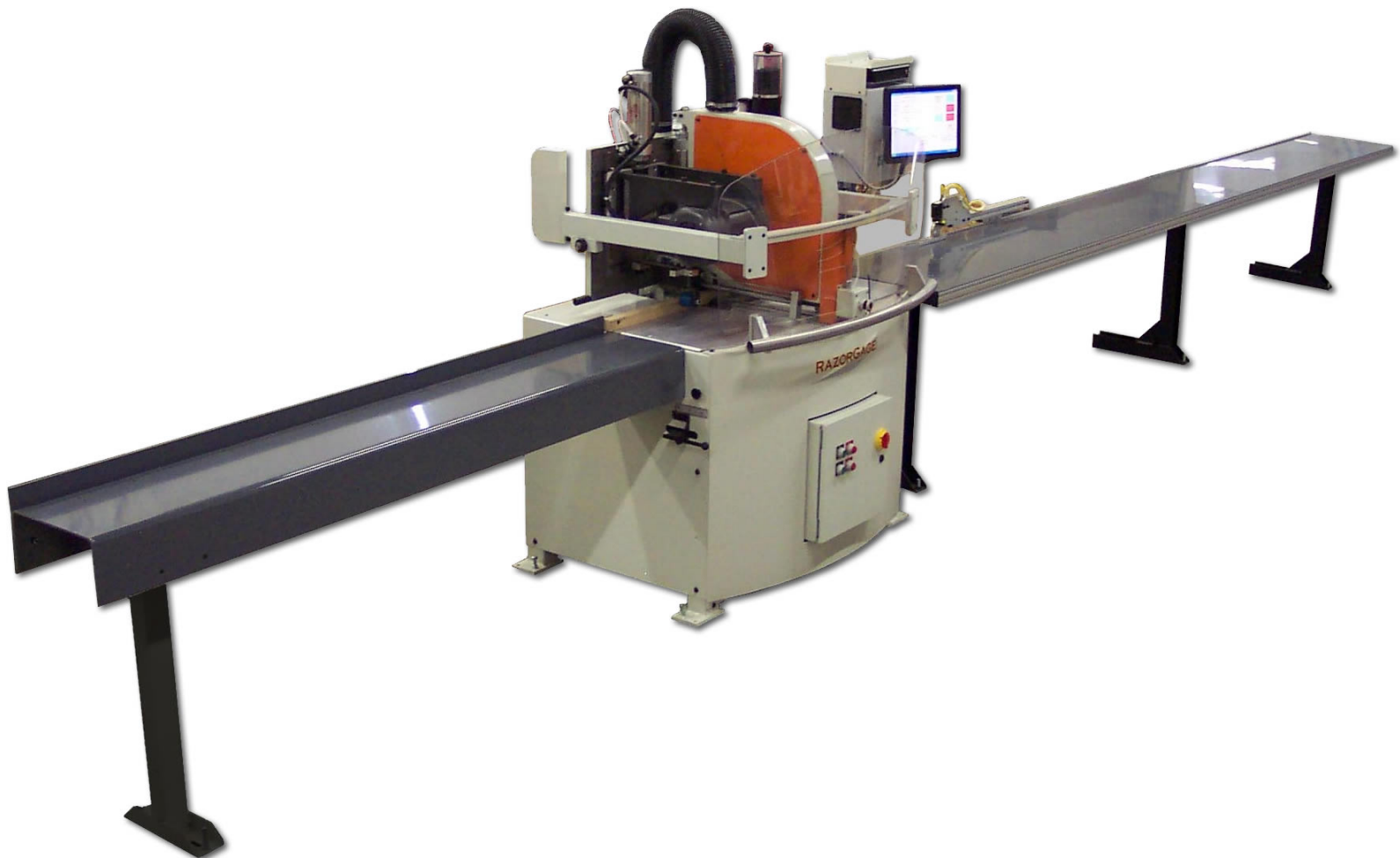
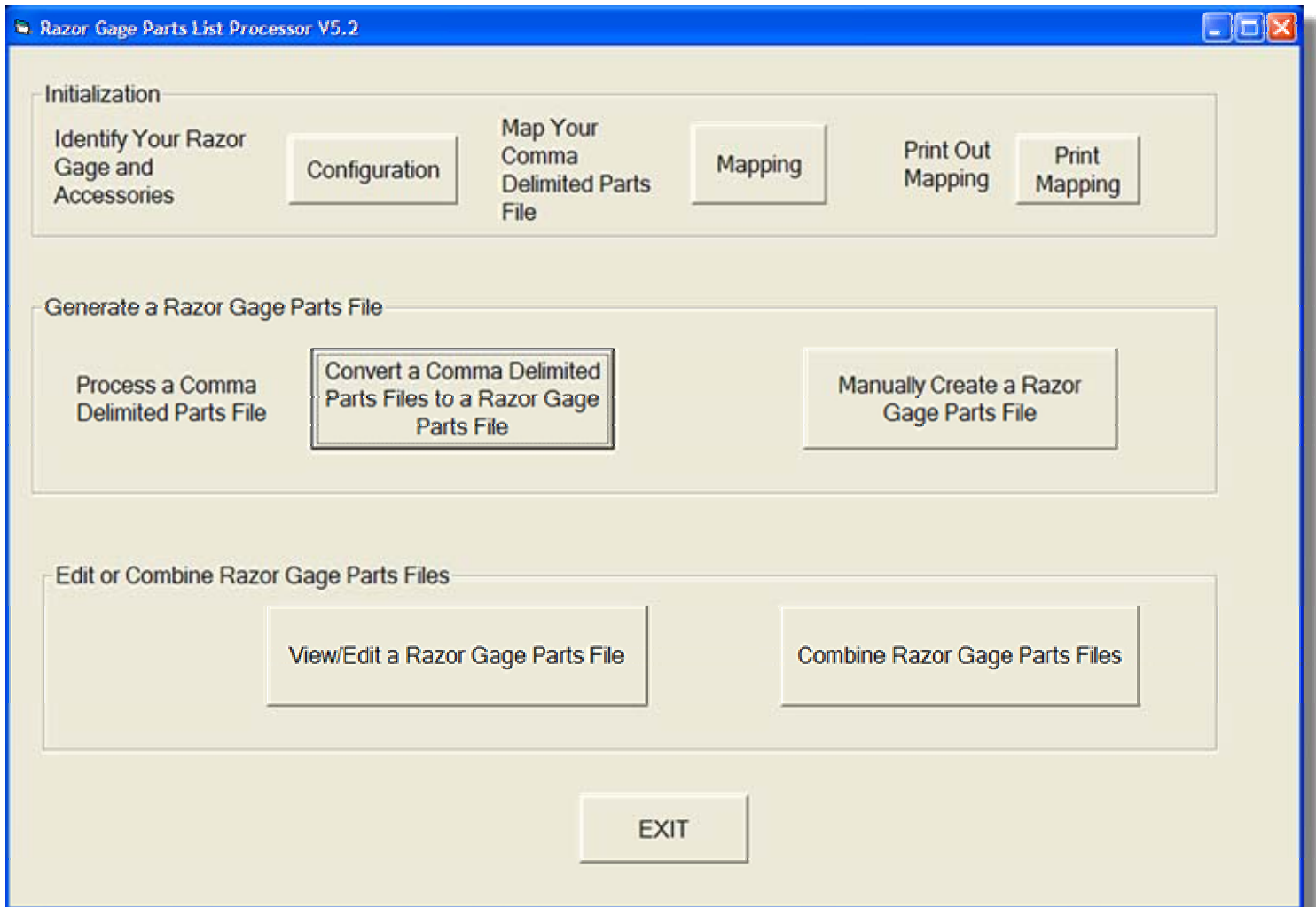


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Parts List Processor

Before any file can be used with the RazorOptimal software, it must be run through the Parts List Processor. See your Parts List Processor manual for further instruction.



First Use Setup

Home Offset

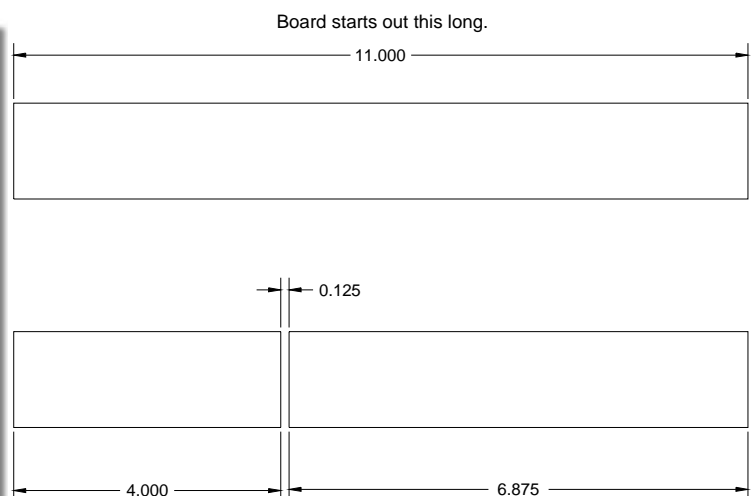
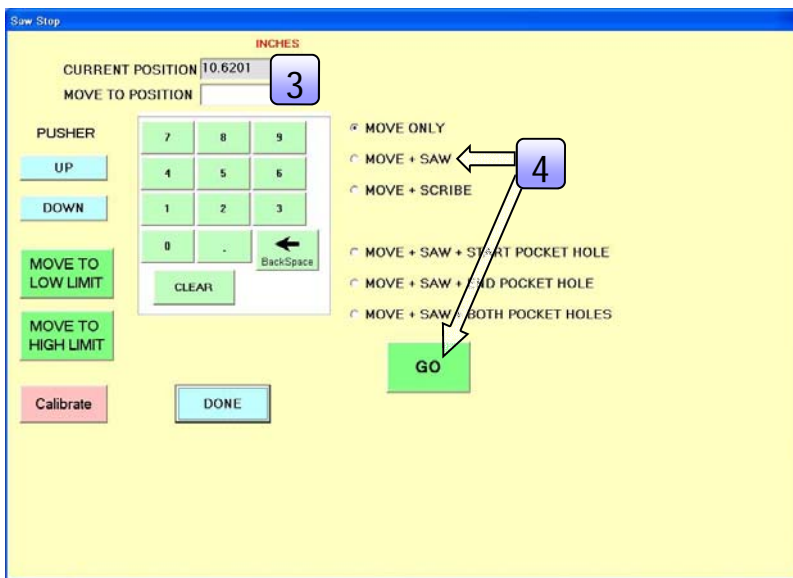
Before using your RazorOptimal system, the home offset must be adjusted. This only has to be done the first time you operate your machine. With the pusher in Home position, follow these steps:

- 1 From the main screen, press **Saw Stop**
- 2 Place a piece of stock with one square trimmed end against the pusher, with the trimmed end against the pusher.
- 3 Enter the Current Position in the Move to Position box
- 4 Choose the Move + Saw option and press **GO**. The pusher will not move, but the saw will cycle.
- 5 Measure the part cut as accurately as you can.
- 6 Cut 3-4 more boards and measure, and write down the average length.
- 7 This length will be entered as the Home Offset. (PG 15)

Saw Kerf

The saw kerf refers to the amount of material the saw removes in a cycle. Using the Saw Stop screen, follow the steps below to obtain the saw kerf.

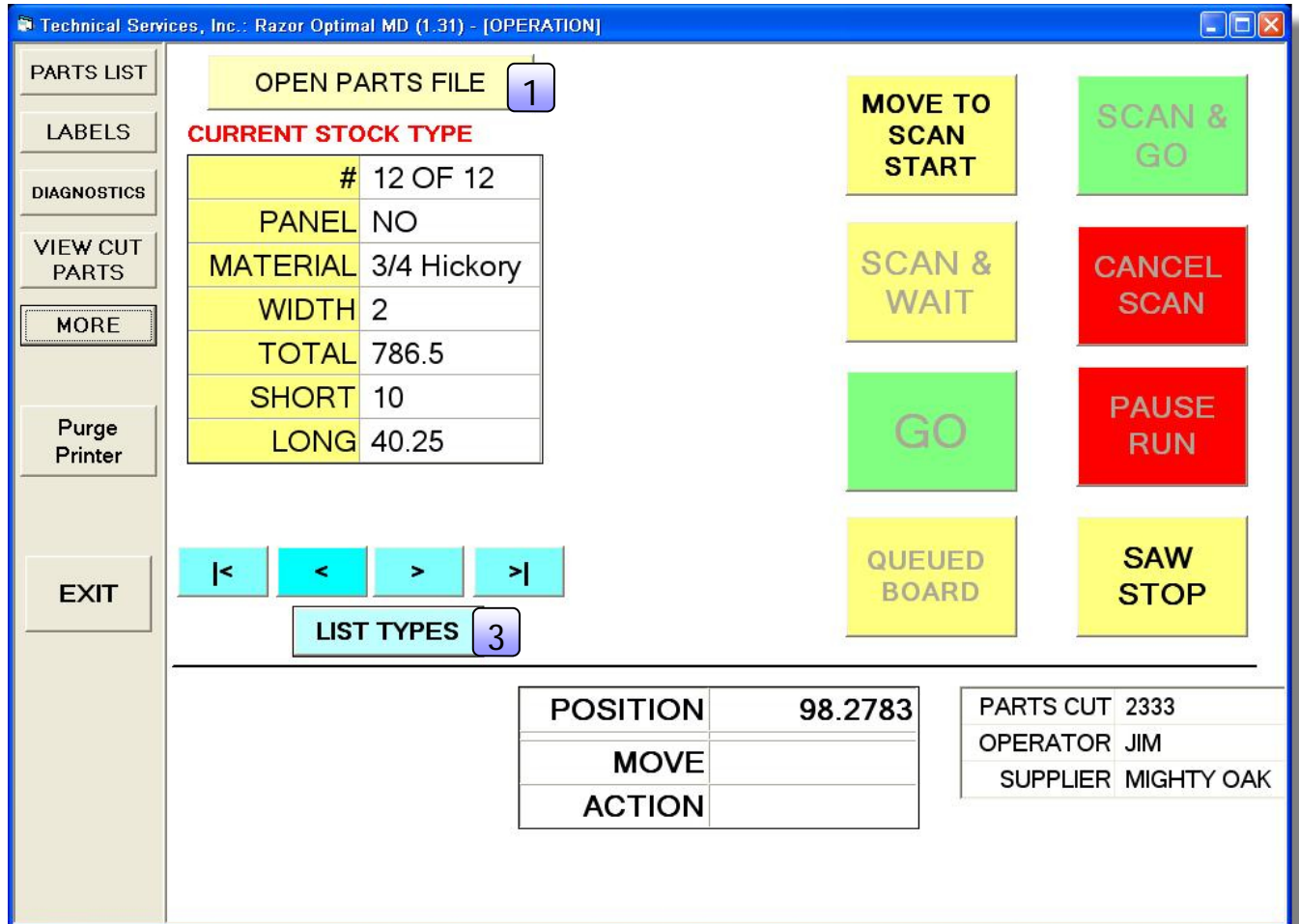
- 8 Cut a board to some length. Measure it precisely.
- 9 Cut the same board into two pieces.
- 10 Precisely measure the two pieces.
- 11 Subtract the length of the two pieces from the length of the original board. This quantity is the saw kerf. (PG 16)



Cut board in two and measure the two parts made from that board.
 Subtract the lengths of the two parts from the length the board was to start with to get the KERF:
 $11.000 - 4.000 - 6.875 = .125 = \text{KERF}$

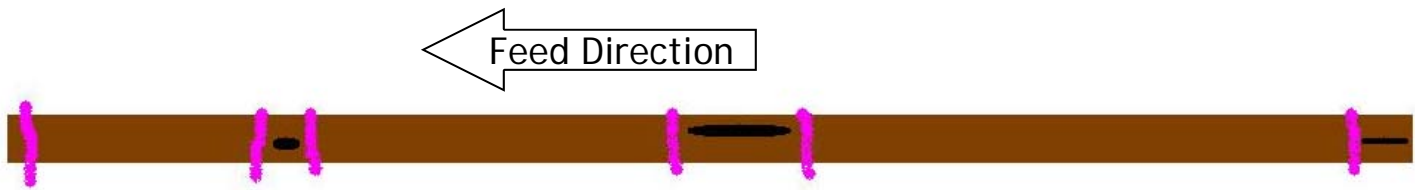
Operations

To begin cutting parts, follow the steps below



- 1 Press **Open Parts File**
- 2 Select the cutlist you want to open. When the cutlist opens, it will be sorted by material type. Types are determined by the species, thickness, and width of the wood.
- 3 Choose a type you wish to run. Use the navigation keys to change type. Use the **List Types** button to see all remaining types.
- 4 Place a piece of stock matching the material type you are running on the table.

Defecting (Crayon Option)



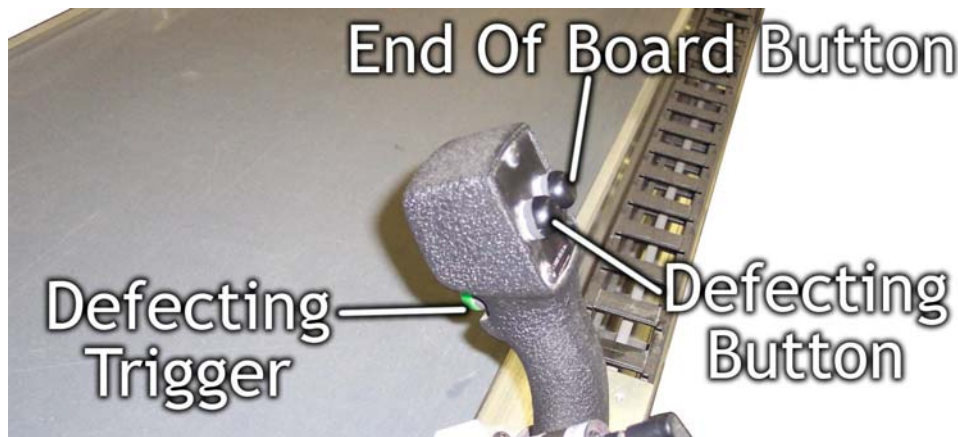
Mark the leading edge trim cut **(Required)**.

Mark the beginning and end of each defect.

Mark the trailing edge trim cut (Optional).

If you prefer to cut out the crayon marks, press settings, then scan. This screen will allow you to adjust how far away from the crayon mark the RazorOptimal will cut.

Defecting (Joystick Option)



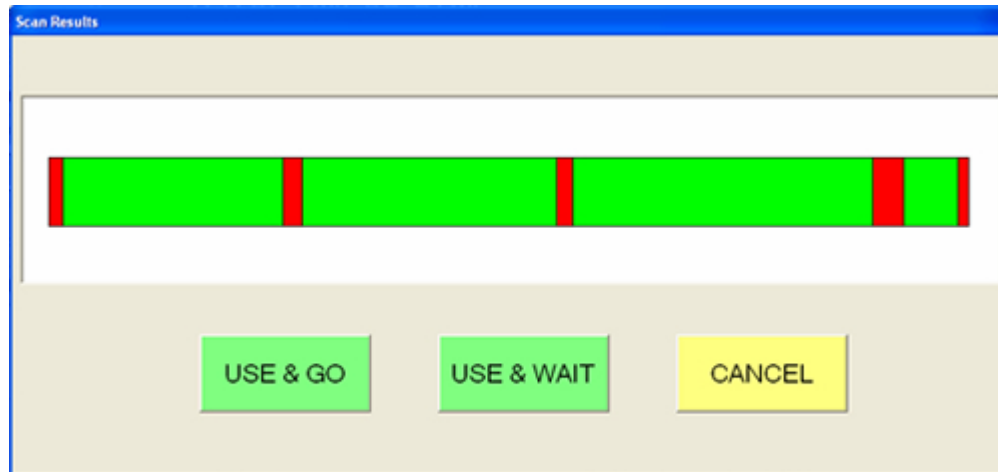
- 1 Put the board against the hard stop.
- 2 Put the joystick against the hard stop.
- 3 For defects that are unacceptable for all applications:
 Pull the defecting trigger at the beginning of the defect.
 Move the joystick to the end of the defect.
 Release the trigger.
- 4 For defects that are acceptable for some applications:
 Press and hold the defect button at the beginning of the defect.
 Move the joystick to the end of the defect.
 Release the defect button.
- 5 When you reach the end of the board, press the end of board button.

Scanning and Cutting

After defecting, press **Move To Scan Start**. The scanner will move to scanning position. Then press **Scan & Wait** or **Scan & Go**. Scan and Go will scan for defects and start cutting automatically.

Scan & Wait

If you push **Scan & Wait**, a diagram will appear showing the defects the fluorescent crayon scanner picked up during the scan. Defects show up in red bands, and clear spans show up in green bands.



This is a good idea to use when you're just getting started so that you can check to make sure you're making the crayon marks dark enough for the scanner to read.

Press **Use & Go** to accept the scan and start cutting parts.

Press **Use & Wait** to accept the scan and return to the main screen where you'll have to press GO to continue

Press **Cancel** to clear the scan and start over. If you press **Cancel**, then you'll have to press **Queued Board** to delete that scanned board from the queue.

Once you've accepted the scan and initiated process the RazorOptimal will cut the optimal parts from the board to minimize waste. While the machine is processing the board you can begin defecting a new board. When the previous board is finished the pusher will return to the scan start position so you won't have to push **Move To Scan Start** every time. Just place the defected board against the fence, crowd it against the back of the pusher foot, and press either **Scan & Wait** or **Scan & Go**.

RazorOptimal Screens

Main Screen

CURRENT STOCK TYPE	
#	12 OF 12
PANEL	NO
MATERIAL	3/4 Hickory
WIDTH	2
TOTAL	786.5
SHORT	10
LONG	40.25

POSITION	98.2783
MOVE	
ACTION	

PARTS CUT	2333
OPERATOR	JIM
SUPPLIER	MIGHTY OAK

Most buttons on the main screen have been covered in the preceding text. Those that weren't covered are rather self-explanatory.

If you wish to pause the run, press **Pause Run**. If you wish to cancel the scan, press **Cancel Scan**.

The information at the bottom of the screen is for display purposes only. The buttons on the left side take you to various other screens.

RazorOptimal Screens

Parts List

When you press **Parts List** on the main screen, the following screen appears.

Parts List Menu

SELECT THE OPTION YOU WANT, THEN CONTINUE

DELETE PARTS (STANDARD AND PANEL PARTS)

EDIT STANDARD PART QUANTITY

EDIT PANELS

ADD MANUAL PARTS

CONTINUE

DONE

Delete Parts (Standard and Panel Parts)

DELETE Parts From Parts List

DELETE SELECTED ROW(S)

CANCEL ALL DELETIONS

DONE

WidthLeft for Panels includes extra Panel Width

File_Name	PANEL	QTYLEFT	PART	WIDTH	WIDTHLEFT	MATERIAL	LENGTH	POCKET HOLE
R82.rdb	NO	1	Drawer Box Side	2.3125	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	2.3125	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	2.3125	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	2.3125	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	2.3125	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Sub Front	2.3125	N/A	5/8 prefin maple	9	1
R82.rdb	NO	1	Drawer Box Sub Front	2.3125	N/A	5/8 prefin maple	25	1
R82.rdb	NO	1	Drawer Box Sub Front	2.3125	N/A	5/8 prefin maple	25	1
R82.rdb	NO	1	Drawer Box Side	3.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	3.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	3.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	3.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	3.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	3.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Sub Front	3.9375	N/A	5/8 prefin maple	9	1
R82.rdb	NO	1	Drawer Box Sub Front	3.9375	N/A	5/8 prefin maple	9	1
R82.rdb	NO	1	Drawer Box Sub Front	3.9375	N/A	5/8 prefin maple	9	1
R82.rdb	NO	1	Drawer Box Side	6.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	6.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	6.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	6.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	6.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	6.9375	N/A	5/8 prefin maple	20.5	1
R82.rdb	NO	1	Drawer Box Side	6.9375	N/A	5/8 prefin maple	20.5	1

Rows Deleted: 0

PURGE THE ENTIRE PARTS LIST

TOP

ONE
UP

ONE
DOWN

PAGE
UP

PAGE
DOWN

BOTTOM

Most of the buttons are self-explanatory. If you wish to delete a part from the list, highlight the part with your finger and press **Delete Selected Parts(s)**. If you have a keyboard handy, hold down the ctrl key while you are selecting parts to select multiple parts to delete.

RazorOptimal Screens

Parts List

Edit Standard Part Quantity

Edit Standard Parts

STANDARD PARTS: SELECT A PART TO CHANGE THE QUANTITY

NEW QTY LEFT

7

8

9

←

BackSpace

4

5

6

CLEAR

1

2

3

0

UPDATE

Cancel All Changes

DONE

TOP

ONE UP

ONE DOWN

PAGE UP

PAGE DOWN

BOTTOM

- 1 Select the part of which you wish to change the quantity.
- 2 Enter the desired quantity in the New Qty Left box.
- 3 Press **Update**
- 4 Press **Done**. This will save the quantity changes
- 5 If you do not want to save changes, press **Cancel All Changes**.

RazorOptimal Screens

Parts List

Edit Panels

Edit Panel Parts

PANEL PARTS: SELECT A PART TO ADD ADDITIONAL PANELS OR EDIT WIDTH LEFT

WidthLeft for Panels includes Extra Panel Width

Cancel All Changes DONE

File_Name	PART	WIDTH	WidthLeft	WidthCut	MATERIAL	LENGTH	POCKET HOLE

TOP
ONE UP
ONE DOWN
PAGE UP
PAGE DOWN
BOTTOM

ADD 1 PANELS LIKE THE SELECTED PANEL

☒ With WidthCut=0
☐ With Same WidthCut

ADD

CHANGE WIDTH CUT FOR SELECTED PART

NEW WIDTH CUT

UPDATE

7 8 9
 4 5 6
 1 2 3
 0 .

BackSpace

CLEAR

- 1 Select the part you would like to change.
- 2 Adjust the number of panels and the new width cut for the selected part.
- 3 When you are done editing your panels, press **Done**.
- 4 If you wish to exit without saving, press **Cancel All Changes**.

RazorOptimal Screens

Parts List

Add Manual Parts

This screen exists for the purpose of adding parts to the current cutlist manually at the machine. We call these parts Manual Parts. When you add them to the cutlist they will appear with a material type of MANUAL. Manual Parts of differing thickness and width will be grouped accordingly.

The labels printed for Manual Parts will not have any information that is not on this screen. Pieces of information such as Cabinet Number or Job Number that may be present for parts coming from a cabinet design software package will not show up on parts added to the cutlist manually.

To add Manual Parts:

Fill in the Quantity, Thickness, Width, and Length fields, then press **Add The Parts(s)** to add those parts to the main cutlist.

The **Delete All Manual Parts(s)** button will delete all manual parts ever entered into the cutlist. If you wish to delete individual manual part groups from the cutlist use the **Parts List** screen.

When you're done adding parts manually just press **Done** to return to the **Main Screen**.

RazorOptimal Screens

Labels

The screenshot shows the 'Print Label Layout' dialog box. It has a title bar and a yellow background. In the top left corner, there is a checkbox labeled 'PRINT LABELS' with a '1' in a blue circle next to it. To the right of this checkbox are 'DONE' and 'CANCEL' buttons. Below this, there is a section titled 'Ink Jet Parameters' with a '2' in a blue circle next to it. This section contains two input fields: 'PRINT HEAD OFFSET' with a value of '5' and 'INCHES', and 'MINIMUM DISTANCE OF LABEL START FROM START OF PART' with a value of '0.75' and 'INCHES'. Below this is a section for label fields with a '3' in a blue circle next to it. It has two rows, 'LINE 1' and 'LINE 2', and three columns, 'FIELD 1', 'FIELD 2', and 'FIELD 3'. Each cell contains a drop-down menu and a text input field. For 'LINE 1', the values are 'MATERIAL', 'WIDTH', 'x', and 'LENGTH'. For 'LINE 2', the values are 'PART', 'ROOM', and 'FILE_NAME'. At the bottom of the dialog, there are three checkboxes: 'Print Length as fraction' (checked), 'Print Width as fraction' (checked), and 'Print Thickness as fraction' (unchecked). An 'On-Screen Keyboard' window is overlaid on the bottom right of the dialog, showing a standard QWERTY keyboard layout with function keys and a numeric keypad.

- 1 Here you can enable or disable label printing by checking or un-checking the box next to PRINT LABELS in the upper left corner of the screen.
- 2 You can also set the Print Head Offset. This value is the distance from the print head to the saw blade.
- 3 Select the information you want printed on your parts using the drop-down menus.

RazorOptimal Screens

View Cut Parts

The screenshot shows the 'Board Part Labels' window. It has a title bar 'Board Part Labels' and a menu bar with 'CUT PARTS', 'DELETE TOP BOARD', and 'CLOSE'. The main area is a list of parts: 'MP MP', 'MANUALPART 2 X 4', 'MP MP', 'MANUALPART 2 X 4', 'MP MP', 'MANUALPART 2 X 4', 'MP MP', 'MANUALPART 2 X 4', 'MP MP', 'MANUALPART 2 X 4', 'MP MP', and 'MANUALPART 2 X 4'. The last item is highlighted in yellow. To the right of the list are buttons: 'TOP', 'ONE UP', 'ONE DOWN', 'PAGE UP', 'PAGE DOWN', 'BOTTOM', and 'Return Selected Part to Parts List'. At the bottom left is an 'Enable' checkbox and a 'DELETE ALL' button.

The View Cut Parts screen is an easy interface to see what parts have been cut. You can also return parts to the cutlist by pressing **Return Selected Part to Parts List**. To delete the top board, press **Delete Top Board**.

More

The screen below will take you to numerous operations. Each option on this screen will be explained in further detail on the following pages.

The screenshot shows the 'Other Operations' window. It has a title bar 'Other Operations'. The main area contains several buttons and text labels: 'Parameters for machine operation' with a 'PARAMETERS' button; 'Labels Displayed' with a 'Display Labels' button; 'Define how parts are sorted' with a 'SORTING' button; 'Enter or select operator, supplier' with an 'OPERATOR SUPPLIER' button; 'Set Units: Inches or mm' with a 'UNITS' button; 'Cut from Parts List or Defect Removal' with an 'OP MODE' button; 'View Encoder Type' with an 'Encoder' button; 'View/Change the Stroke, Home Side' with a 'SETUP' button; and 'Ports, Defect Method, Ink Jet, Accessories' with a 'Startup Settings' button. There is also a 'DONE' button. A red text label 'PASSWORD DISABLED' is visible, and an 'Enable Password' button is located to its right.

Parameters

Position

Enter the Lower Limit Offset value here. It tells the pusher how far from the saw it is when at the lower limit.

If the RazorOptimal jams and you need to back it up to clear the jam, this value is the distance it will back up when pressing unload.

Motion

This screen is where you set the speed of the carriage. Acceleration and deceleration can also be set in this screen.

Parameters

Saw

PARAMETERS

SAW

SAW KERF INCHES

SAW CLAMP TIMER milliseconds

SAW TIMER milliseconds

SAW UN-CLAMP TIMER milliseconds

1. Turn on Clamp Valves
2. Delay * Saw Clamp Timer
3. Turn on Saw Valve
4. Delay * Saw Timer
5. Turn off Saw Valve
6. Delay * Saw Un-Clamp Timer
7. Turn off Clamp Valves
8. Move

☐ TURN OFF HORIZONTAL CLAMPS

This screen can help you get the most productivity out of your RazorOptimal.

The saw cycle is where you can gain the most speed out of the system so **playing with these timers to fine-tune your process is crucial to getting all the productivity you can out of the machine.**

Basically the cycle can be described this way:

- 1 The RazorGage pusher advances the board the proper amount to achieve a length
- 2 When the pusher comes to a stop, the clamps are energized.
- 3 The SAW CLAMP TIMER is started. The clamp timer is the amount of time from when the clamps are energized and the saw cycle is started. This should basically represent the amount of time it takes for the clamps to clamp the board. This is usually around 100 milliseconds.
- 4 Once the SAW CLAMP TIMER has timed out the saw cycle is begun at which time the SAW TIMER is started.
- 5 The SAW TIMER determines how much time elapses from the beginning of the saw cycle to the release of the clamps. When the SAW TIMER times out then the clamps are released and the SAW UN-CLAMP TIMER begins.
- 6 When the SAW UN-CLAMP TIMER times out the pusher advances the board to the next part.

Parameters

Panels

The screenshot shows the 'PARAMETERS' dialog box with the 'PANELES' tab selected. The left sidebar contains buttons for POSITION, MOTION, SAW, PANELES (highlighted), FIT, and SCAN. At the top of the main area are 'DONE' and 'CANCEL' buttons. The 'PANELES' section has two input fields: 'EXTRA PANEL LENGTH' with a value of 1.25 INCHES, and 'EXTRA PANEL WIDTH' with a value of 2.53 INCHES.

Enter any extra length or width you would like on your panels in the appropriate box.

Fit

Use this screen to change the fit settings.

The screenshot shows the 'PARAMETERS' dialog box with the 'FIT' tab selected. The left sidebar contains buttons for POSITION, MOTION, SAW, PANELES, FIT (highlighted), SCAN, PARTS, ENCODER, COM, REPORTS, SCRIBE, and SPACE BALL. At the top of the main area are 'DONE' and 'CANCEL' buttons. The 'FIT' section includes a 'CLEAR SPAN YIELD TARGET (%)' field set to 50, an unchecked 'SHOW YIELD WARNING' checkbox, and an 'OPTIMIZATION METHOD' section. Under 'OPTIMIZATION METHOD', 'FIRST FIT DECREASING (RECOMMENDED)' is selected with a checked 'With Yield Checking' option, and 'EXHAUSTIVE ENUMERATION' is unselected. The 'MAXIMUM ITERATIONS' field is set to 10000, with a note 'Recommended: 10000' below it. An 'On-Screen Keyboard' window is overlaid at the bottom of the dialog.

Parameters

Scan

This screen is where you can adjust your defecting scan settings.

The screenshot shows the 'PARAMETERS' window with the 'SCAN' tab selected. The left sidebar contains buttons for POSITION, MOTION, SAW, PANELS, FIT, SCAN (highlighted), PARTS, ENCODER, COM, REPORTS, SCRIBE, and SPACE BALL. The main area has 'DONE' and 'CANCEL' buttons at the top. Below them is the 'SCAN' section with the following settings:

- SCAN START POSITION (FROM LOW LIMIT): 10 INCHES
- SCAN SPEED: 40 INCHES
- PUSHER WIDTH: 12.25 INCHES
- CRAYON MARK OFFSET: 0.5 INCHES
- SENSOR DIFFERENCE: 1 INCHES
- BOARD SENSOR KERF: 0.06 INCHES
- SCAN UNITS: ☒ ENCODER ☐ INCHES
- MINIMUM TRIM AT START: 0.25 INCHES

Parts

Use this screen to track how many parts have been cut on your RazorOptimal. To reset the counter, press **Zero Parts Cut**.

The screenshot shows the 'PARAMETERS' window with the 'PARTS' tab selected. The left sidebar contains buttons for POSITION, MOTION, SAW, PANELS, FIT, SCAN, PARTS (highlighted), and ENCODER. The main area has 'DONE' and 'CANCEL' buttons at the top. Below them is the 'PARTS' section with the following settings:

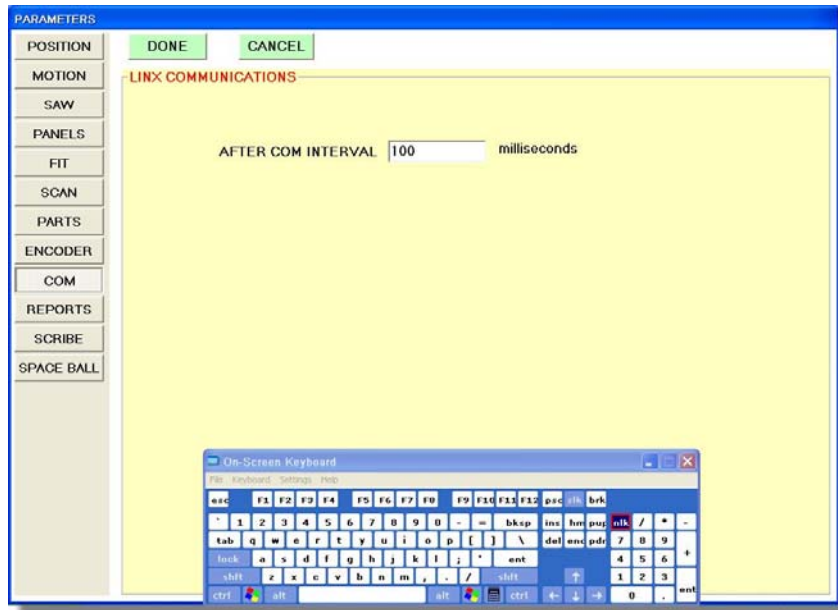
- PARTS CUT: 2458
- ZERO PARTS CUT button
- ☐ DELETE PARTS FILE AFTER OPENING AND RETRIEVING PARTS

Parameters

Encoder

The encoder screen is password protected. The parameters change the settings of the encoder and should not be changed.

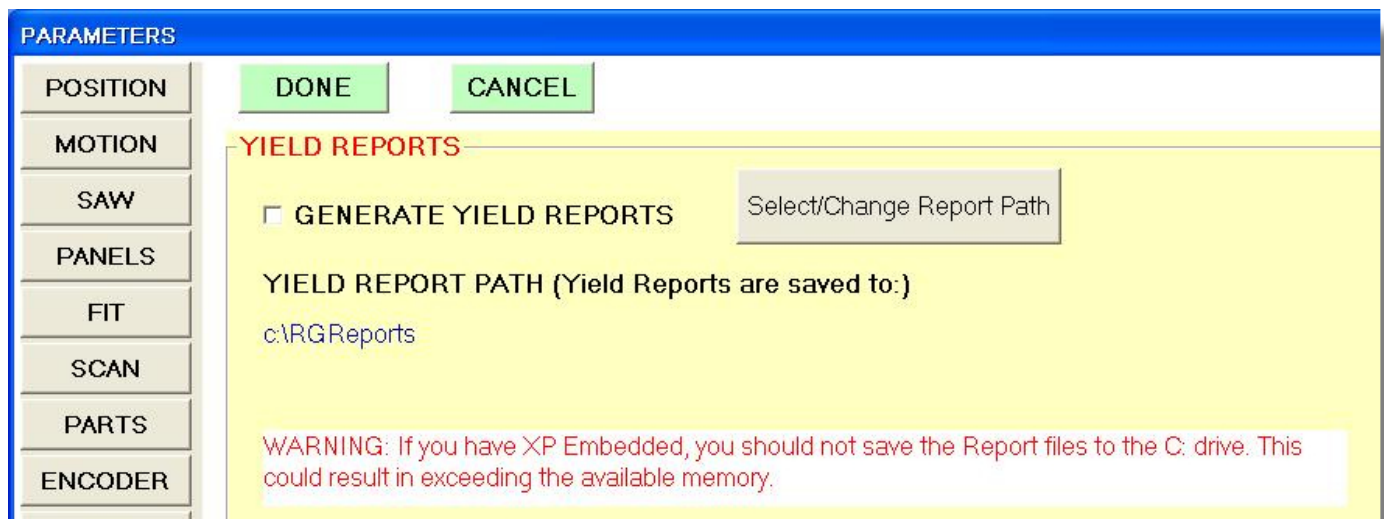
COM



Use this screen to enter the COM interval.

Reports

The reports settings allow you to enable or disable generating yield reports. To change where the reports are saved, press **Select/Change Report Path**.



Parameters

Scribe

PARAMETERS

POSITION MOTION SAW PANELS FIT SCAN PARTS ENCODER COM REPORTS **SCRIBE** SPACE BALL

SCRIBE

SCRIBE OFFSET 0 INCHES

SCRIBE CLAMP OFFSET 0 INCHES

Use this screen to enter the distance between the scribe and the saw blade. You can also enter the scribe clamp offset in this screen.

Space Ball

PARAMETERS

POSITION MOTION SAW PANELS FIT SCAN PARTS ENCODER COM REPORTS SCRIBE **SPACE BALL**

SPACE BALL

SPACE BALL OFFSET 8.75 INCHES

AFTER SPACE BALL DELAY 0 milliseconds

Use this screen to enter the distance between the space ball inserter and the saw blade. You can also enter the delay after the space ball is inserted.

Display Labels

Display Labels

YOU CAN ENTER LABELS TO USE FOR DISPLAY

DB Name	Display Label
MATERIAL	MATERIAL
WIDTH	WIDTH
THICKNESS	THICK
UF_1	ROOM
UF_2	POCKET HOLE
UF_3	UF_3
UF_4	UF_4
UF_5	UF_5
UF_6	UF_6
UF_7	UF_7
UF_8	UF_8
UF_9	UF_9
PART	PART
LENGTH	LENGTH

SELECT USER FIELDS TO DISPLAY IN PARTS LISTS

DB Name	Display Label	Display in Parts List
UF_1	ROOM	<input type="checkbox"/>
UF_2	POCKET HOLE	<input checked="" type="checkbox"/>
UF_3	UF_3	<input type="checkbox"/>
UF_4	UF_4	<input type="checkbox"/>
UF_5	UF_5	<input type="checkbox"/>
UF_6	UF_6	<input type="checkbox"/>
UF_7	UF_7	<input type="checkbox"/>
UF_8	UF_8	<input type="checkbox"/>
UF_9	UF_9	<input type="checkbox"/>

Save Changes DONE

On-Screen Keyboard

File Keyboard Settings Help

esc F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 psc slk brk

tab 1 2 3 4 5 6 7 8 9 0 - = bksp ins hm pup nlk / * -

q w e r t y u i o p [\ del enc pdr 7 8 9 +

lock a s d f g h j k l ; ' ent 4 5 6 +

shift z x c v b n m , . / shift 1 2 3 ent

ctrl alt [] alt ctrl ← ↓ → 0 . ent

Here you can edit the user defined parts fields. You can also select which labels are displayed in the parts list by checking or un-checking the "Display in Parts List" checkbox.

Sorting

Stock (Material Type) Definition

Determines the Fields used to define different feed stocks

Available fields

THICK
ROOM
UF_3
UF_4
UF_5
UF_6
UF_7
UF_8
UF_9
PART
FILE_NAME

> <

Stock definition: Parts are sorted by first item, then second item, then third item, etc.

MATERIAL
WIDTH
POCKET HOLE

Shift Up
Shift Down

Update Stock Definition DONE

Change the order in which parts are sorted. Highlight the field you wish to sort by, and press the **>** button to add it to the list. To shift a field up or down, highlight the field and press **Shift Up** or **Shift Down**.

Operator/Supplier

Use this screen to select, add, and remove operators and suppliers. To add an operator or supplier, type in the name and press **Add New Name**. Select the operator or supplier from the drop-down menu. To delete an operator or supplier, select the appropriate name and press **Delete Selected Name**.

Units

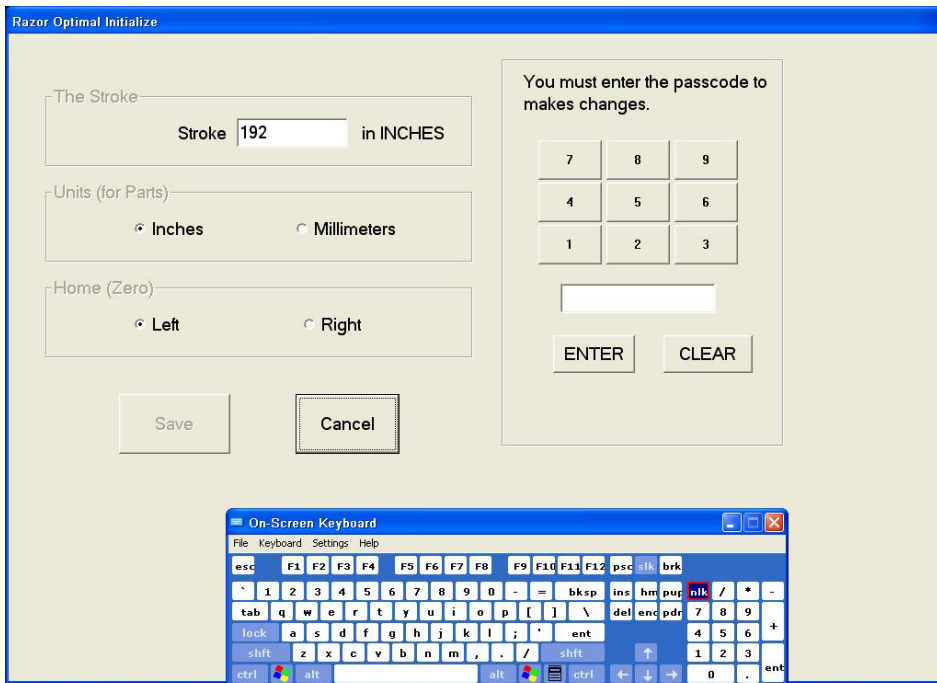
This screen will change your units settings to inches or millimeters. These settings should only be changed when there is no board waiting to be cut and no parts in the parts list.

Op Mode

Switch between regular mode and defect removal mode with this screen.

Defect removal mode only removes defects that have been marked. It does not perform operations from a cutlist.

Setup



Razor Optimal Initialize

The Stroke
Stroke in INCHES

Units (for Parts)
☒ Inches ☐ Millimeters

Home (Zero)
☒ Left ☐ Right

Save Cancel

You must enter the passcode to makes changes.

7	8	9
4	5	6
1	2	3

ENTER CLEAR

On-Screen Keyboard

File Keyboard Settings Help

esc F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 psc blk brk

1 2 3 4 5 6 7 8 9 0 - = bkspc ins hm pur blk / * -

tab q w e r t y u i o p [] \ del enc pdr 7 8 9 +

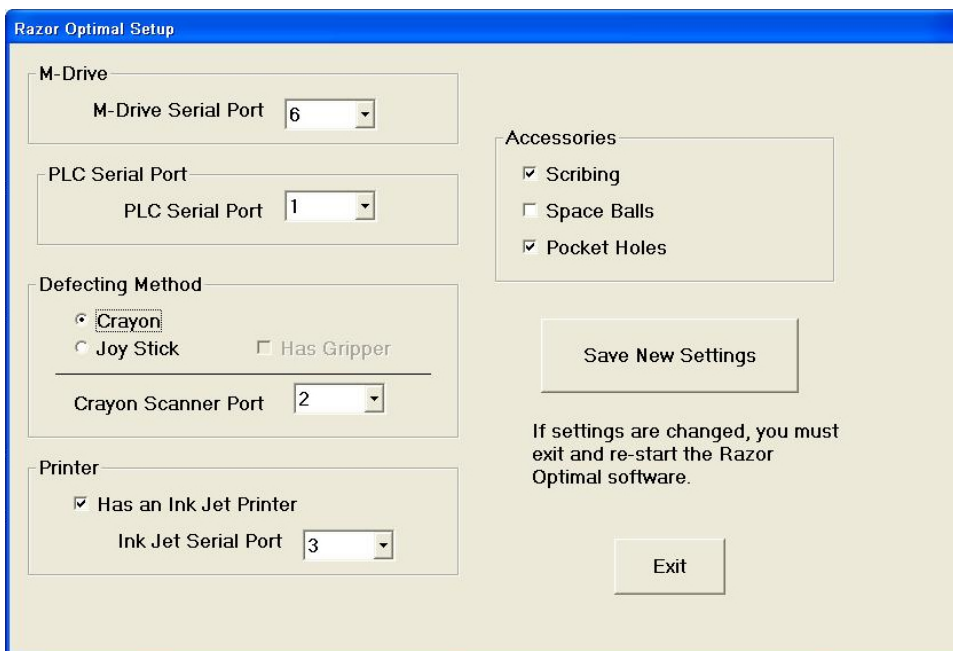
lock a s d f g h j k l ; ' ent 4 5 6 +

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The setup screen is password protected. These settings should not be changed.

Startup Settings



Razor Optimal Setup

M-Drive
M-Drive Serial Port

PLC Serial Port
PLC Serial Port

Defecting Method
☒ Crayon ☐ Joy Stick ☐ Has Gripper
Crayon Scanner Port

Printer
☒ Has an Ink Jet Printer
Ink Jet Serial Port

Accessories
☒ Scribing
☐ Space Balls
☒ Pocket Holes

Save New Settings

If settings are changed, you must exit and re-start the Razor Optimal software.

Exit

These are the settings for the options and accessories you have installed with your RazorOptimal.

These are pre-set from the factory, but can be changed if you order additional components.

Routine Maintenance

Greasing

Your RazorGage is greased before shipping. The bearing rail is a one-time grease rail, so no periodic greasing is required.

Replacement Parts

Part

Part No

Mechanical

Bearing Rail	RG10028
Drive Belt	RG10108
Drive Pulley	RG10037
M-Drive Rotary Encoder	RG10984
M-Drive Linear Encoder	RG10985
Gearbox	RG10978
Linear Encoder Reader Head	RG10091
Linear Encoder Tape	RG10109
Idler Pulley	RG10031
Idler Block	RG10030
Dust Seal	RG10123

Electrical

Power Switch	RG11016
Solid-State PC	RG10973
Touch Screen Monitor	RG10740

Miscellaneous

Motor Cable (2 Meter)	RG10672
Extension Cable (USB)	RG10610
Power Cable (M-Drive)	RG10988
I/O Cable (M-Drive)	RG10987
Communications Cable (M-Drive)	RG10986
Crayons (Box of 50)	RG10844
Joystick Laser w/ Power Cord	RG10180
Flex Rated Cable for Joystick	RG10181
Ink (Black Porous) Box of 6 (Cart #4500)	RG10952
Ink (Black Non-Porous) (Cart #4600)	RG10957
Inkjet Printer	RG10951
Drills	RG10816
Drill Holder	RG10889
Drill Drive Belt (Short)	RG10936
Drill Drive Belt (Long)	RG10937

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