SmartShop Composite Fabricator
Owner's Manual

LAGUNA

Laguna Tools
744 Refuge Way, Suite 200
Grand Prairie, TX 75050
lagunatools.com

Scope of This Manual

This manual outlines the basic procedures for unpacking, installing, and operating the SmartShop Composite Fabricator with Fanuc controls.

For detailed instructions and videos, please go to www.lagunatools.com.

Customer Service

For technical support, please contact Laguna Tools: Call Customer Service at +1 (800) 332-4094 or email customer_service@lagunatools.com. Please note the machine type in the subject line.

In the space provided, record the serial number, model number, and install date of the machine.

Serial No.	
Model No.	
Install Date:	

Revision 02 V02 (03/11/2025)

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1.0 General Information and Safety

1.1 Overview

SAVE THIS MANUAL. Keep this manual for the safety warnings, precautions, assembly, operating, inspection, and maintenance procedures. Read this Owner's Manual in its entirety prior to assembly or operation. Refer to www.lagunatools.com for the latest manual revision.

Read and understand all warnings and operation instructions before using any tool or equipment. Always follow basic safety precautions to reduce the risk of personal injury. Improper operation, maintenance, or modification of tools or equipment could result in serious injury or property damage. Laguna Tools equipment is designed for specific and limited applications. This product should not be modified nor used for any application other than its intended use.

PERSONAL SAFETY IS THE RESPONSIBILITY OF THE OPERATOR.

1.2 Safety Signs and CallOuts

Safety signs and callouts draw attention to potential hazards during machine operation. This Owner's Manual uses the following callouts to indicate the importance of each safety message.

⚠ DANGER

An imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

A potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

A potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTE

A helpful tip from Laguna Tools technical staff.

1.3 Safety Warnings

1. Failure to comply with safety instructions may lead to personal injury and/or damage to the equipment. Do not operate the machine unless familiar with all safety instructions, warnings, and signs.
2. Do not operate the machine with the electrical cabinet door open–High Voltage Supply Inside.
3. The machine must be properly electrically grounded. The power supply must be connected with a permanently fixed electrical wire.
4. Keep children and non-operators away from the machine.
5. Operators must be familiar with the installation, operation, and service of the machine. Only proper operation can ensure the safe and smooth running of the machine.

⚠ WARNING

Automated machinery involves moving parts which pose a potential hazard to personnel. Be aware of machine movement at all times.

⚠ WARNING

Only allow qualified service personnel to do electrical installation or repair work, and always disconnect power before accessing or exposing electrical equipment to reduce risks.

⚠ CAUTION

Machine bits are sharp and pose a cutting hazard. Do not handle without gloves or while machine is in operation.

1.4 Additional Safety Information

1. All motion parameters have been set up by Laguna Tools. If any modifications are required, please have a professional operator perform the changes.
2. Safety Signs should be attached to places that are easy to spot.
3. Use the machine only in clean areas free from excessive moisture or flammable objects.
4. The machine must be level. Level the machine if the ground is uneven.
5. Keep the machine, electrical cabinet, and surrounding area clear of obstructions and free from excessive moisture.
6. Keep the machine, electrical cabinet, and cables away from excessive heat, flammable substances, and sharp objects.
7. Do not attempt to exceed the limits of the machine.
8. Disconnect power to all system components when not in use, when changing accessories, and before servicing. Remove the switch keys or lock-out the machine to prevent unauthorized use and child-proof the workshop.
9. Exercise care with machine controls and around keypad to avoid unintentional start-up.
10. Keep cutting tools clean and sharp.
11. Lubricate and change accessories when necessary.
12. Cables and cords should be inspected regularly.
13. Keep controls clean and dry.
14. Keep a copy of this manual for future reference.
15. Perform daily inspection of the machine for damaged, loose, or improperly adjusted parts or any condition that could affect safe operation. For your own safety, do not operate the machine with damaged parts.
16. Stay alert at all times while operating the machine.
17. Always wear safety glasses and hearing protection.
18. Know where the emergency stop switch is located.
19. Never operate machinery under the influence of drugs or alcohol, when tired, or when distracted.

20. Do not wear clothing, apparel, or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to reduce the risk of slipping and losing control or accidentally contacting cutting tool or moving parts.
21. Never stand on the machine. Serious injury may occur if the machine is tipped or if the cutting tool is unintentionally contacted.
22. Consult the Owner's Manual or Laguna Tools for recommended accessories. Using improper accessories will increase the risk of serious injury or damage.

2.0 Receiving the Machine

Following delivery and before the driver and riggers have left, inspect the packing, invoice, and shipping documents. Next, ensure there is no visible damage to the packaging or the machine. All damage must be noted on the delivery documents and signed by the receiver and the delivery driver. Contact Laguna Tools Customer Service as soon as possible in case of damage. It is advisable to photograph and document any shipping damage. The original packaging is required to return damaged equipment to Laguna Tools.

NOTE

Sawdust may be found in the machine upon arrival. This is because the machine has been tested prior to shipment from the factory and/or Laguna Tools. Laguna Tools tests all machines prior to shipping, but some adjustments may have to be undertaken by the customer. These adjustments are covered in the various sections of this manual.

Most large machinery will be delivered on a tractor trailer 48 to 53 feet long. Please notify a Sales Representative with any Delivery Restrictions. The customer is required to have a forklift (6000 lbs. or larger is recommended) with 72-inch forks or fork extensions.

NOTES:

3.0 SmartShop Composite Fabricator Overview

The SmartShop Composite Fabricator is specifically designed for cutting Aluminum Composite Panel (ACP) or Aluminum Composite Material (ACM). ACM is a widely used term describing flat panels that consist of a non-aluminum core bond between two aluminum sheets. Aluminum sheets can be coated with PVDF or polyester paint. ACPs are frequently used for external cladding of buildings (building facades), for insulation and for signage. Laguna has fabricated the perfect machine to conquer this material.

3.1 Features of the SmartShop Composite Fabricator

- Huge machining area 5′ X 16′ , 6' X 20 *Custom sizes available
- Unique Pressure "Shoe" design for optimum depth accuracy- even if the panel is not completely flat
- Helical Rack and Pinon drives on X and Y axes. Ball screw on Z axes
- 1, 2 and 3 spindle design. Also available with ATC spindle
- (3) 6HP Italian HSD spindles shown on machine below
- Planetary Gear Boxes on all 3 axes
- 6 Zone Vacuum Table
- 750W FANUC© Servos Drive Motors
- FANUC© 0i-MF PLUS Control System

3.2 Components

Figure 3–1: SmartShop Composite Fabricator Components

1. **Vacuum Control Valves** – The machine has six (6) vacuum control valves that can be used to restrict vacuum to the desired vacuum table zones.
2. **Pop-Up Repositioning Pins**– Pins that align the material being cut
3. **Spindle Plate** – Houses three spindles that are cable of cutting multiple materials
4. **Gantry**– The gantry straddles the table. It is moved along the length of the table by a helical rack and pinion.
5. **Vacuum Table** – The bed of the machine consists of a sturdy steel frame with a composite worktable that enables holding projects securely with vacuum.

3.3 Electrical Cabinet and Control Panel

Figure 3–2: Electrical Cabinet

1. **Main Disconnect Switch** – Turn clockwise to turn on the machine power. Turn counterclockwise to turn off power to the machine.
2. **Control Display Screen** – The operator's screen, soft keys, and keypad.
3. **Control Panel** – Machine controls.
4. **Manual Pulse Generator (MPG)** – A remote allowing the operator to manually control the tool gantry and spindle.
5. **Electrical and Ethernet Connections** – Openings for the routing of electrical cables between the electrical cabinet and the machine and a port to connect an ethernet cable.

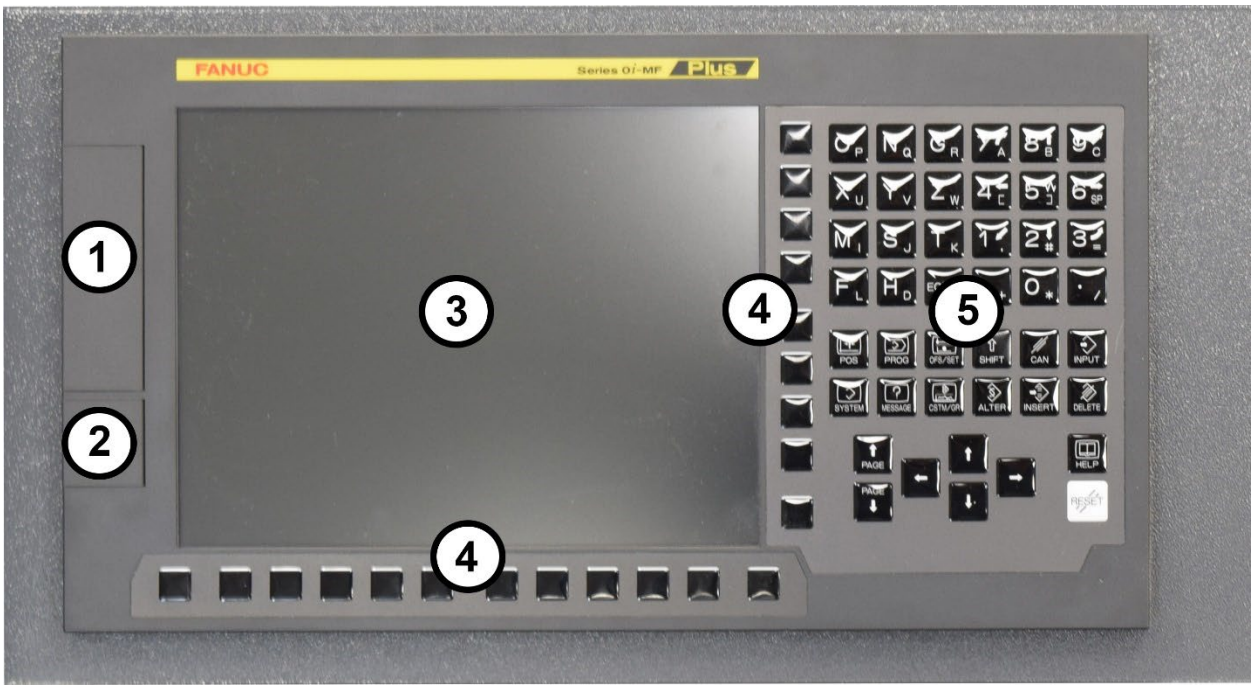


Figure 3–3: Control Display Screen

1. **Memory Card Slot** – Slot for the machine CF memory card.
2. **USB Drive Slot** – Slot for a USB Drive.
3. **Display Screen** – Displays soft key functions and operation information.
4. **Soft Keys** – Keys which correspond with functions displayed on the Display Screen.
5. **Keypad** – Hard keys (keys with a static function).

Figure 3–4: Control Panel

1. **EZ Plus Button** – Press the EZ Plus button at any time to return to the MAIN SCREEN.
2. **Cycle Start** – Executes the loaded program.
3. **Vacuum Pump One** – Turns Vacuum Pump One ON/OFF
4. **Switch ON/OFF** – Turn clockwise to turn on the Control Display Screen. Turn counterclockwise to turn off the Control Display Screen.
5. **Feed Hold** – Halts execution of the current program.
6. **Vacuum Pump Two** – Turns Vacuum Pump Two ON/OFF.
7. **Emergency Stop** – Press to stop all operation of the machine in the case of an emergency.

Figure 3–5: Manual Pulse Generator (MPG)

1. **Emergency Stop** – Press to stop all operation of the machine in the case of an emergency.
2. **Enable Switch** – Press and hold to enable button functionality. This safety feature helps prevent accidental operation.
3. **Axis Select** – Turning this knob clockwise and counterclockwise selects the axis to be moved.
4. **Speed Select** – Turning this knob selects the distance per tick of the hand wheel on the selected axis.
5. **Handwheel** – Moving this knob clockwise and counterclockwise manually moves the tool gantry and spindle at the selected speed and along the selected axis.

4.0 Machine Placement

When unpacking the SmartShop Composite Fabricator, separate all enclosed items from the packing materials and inspect each for damage. Save the packaging materials until all issues concerning missing or damaged items have been resolved.

4.1 Placement

Select the area where the SmartShop Composite Fabricator will be operated. The physical environment where the SmartShop Composite Fabricator is located is important to safe assembly and operation. Before removing the SmartShop Composite Fabricator from its packaging consider the weight load, electrical installation requirements, lighting, dust collection, and space allocation available for the machine and accompanying materials.

Guidelines for properly placing the machine follow:

1. There should be sufficient area around the machine to facilitate easy access to the workpiece, perform maintenance, and provide safe egress in the event of an emergency.
2. Select a solid level floor rated to hold the weight of the SmartShop Composite Fabricator and workpieces under both static and dynamic loads. Laguna Tools recommends concrete flooring. Consult a licensed and experienced professional if in doubt.
3. Locate the SmartShop Composite Fabricator close to a power source and dust collection.
4. Allow an area for the storage of workpiece materials, finished products, and tools.
5. Leave ample space around the machine for the operator to handle both the equipment and the materials being cut.
6. Leave enough space around the machine to open or remove doors/covers as required by the maintenance described in the Owner's Manual.

4.2 Dust Collection

Allow enough space for proper dust collection from the SmartShop Composite Fabricator. For optimal operation, ensure that the machine is located in a dry environment free from excessive moisture, extreme weather conditions, hazardous chemicals, or airborne abrasives.

4.3 Electrical Requirements

The SmartShop Composite Fabricator requires permanent, direct power installed by a qualified electrician familiar with industrial best practices. Ensure that all power cords are protected from traffic, moisture, chemicals, or other hazards. For safety, always have a qualified electrician assess grounding and any further electrical needs.

4.4 Lighting

Ensure that the lighting your machine is placed under is sufficient to safely perform regular operation and maintenance. Any glares, shadows, or strobe lighting which may distract or prevent the operator from safely operating the machinery should be removed from the working area.

4.5 Unpacking Your Machine

Unpacking the SmartShop Composite Fabricator will require tin snips, a knife, and a wrench.

1. Using the tin snips, cut the banding that is securing the SmartShop Composite Fabricator to the pallet.
2. Ordered parts will be packed on the machine.
3. Professional riggers are required for installation of the SmartShop Composite Fabricator.
4. Approaching the machine from the long side and lift the machine by the frame taking care that there are no cables or pipes around the forklift tynes. The caterpillar track tray, vacuum hoses, air lines, and cables under the SmartShop Composite Fabricator are very susceptible to pinch and crush damage.
5. Lower gently to the floor.

5.0 Assembly and Setup

5.1 Fitting the Dust Hose

1. Fit a 6-inch dust hose (not supplied) to the dust collection port located at the top of the machine and secure using a hose clamp. Verify the clamp is tight.
2. The dust hose will follow the spindle head across the entire worktable. If there is insufficient slack, the hose may be damaged or broken. It is recommended that the hose be suspended from the ceiling of the shop with sufficient slack so as not to restrict movement. This will prevent the dust collection hose from becoming a tripping hazard or interfering with the machine during operation and causing damage.

5.2 Electrical Connections

The main power cable is connected to the main disconnect switch on the front of the electrical cabinet. A qualified electrician must carry out the electrical installation of the SmartShop Composite Fabricator.

This machine requires a 220 Volt power connection.

5.3 Compressed Air Connection

The machine is supplied with an air regulator. The input air regulator will need to be adjusted to 6 bar (85 psi) once the machine has been connected to the air supply (an air pipe is not supplied). This will ensure the machine always has the minimum required air pressure. To adjust the air pressure, pull the cap down and rotate until the gauge reads the correct pressure. Once the pressure is adjusted, push the cap up.

The input regulator has a moisture trap that must be emptied if more than 1/3 full or stagnant.

Figure 5-1: Air Regulator

It is important that the air supplied to the machine is CLEAN DRY AIR. The machine will not perform consistently if the air is damp or dirty; dirt and moisture will block the valves. Damp or dirty air will damage the machine and dramatically shorten the service life of the machine.

NOTE

We recommend attaching an air dryer to the compressed air system to help reduce moisture in the lines.

Moisture in the lines can cause damage to the machine and reduce the supplied air quality.

⚠ CAUTION

If conducting repair on the pneumatic system, close the air valve.

5.4 Connecting the Vacuum Pump

The machine is provided with a 2-inch pipe for the hose connection to the vacuum pump. Connect the other end to a vacuum pump.

5.5 Changing Collets and Router Bits

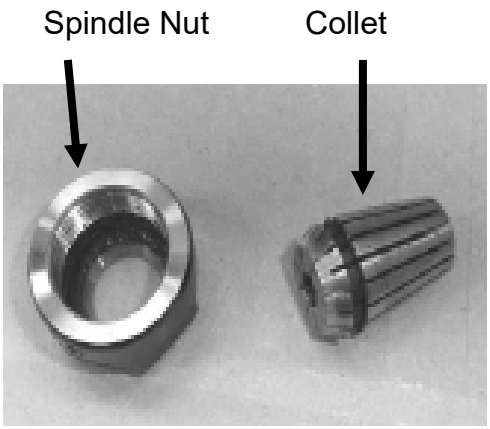
Tools needed

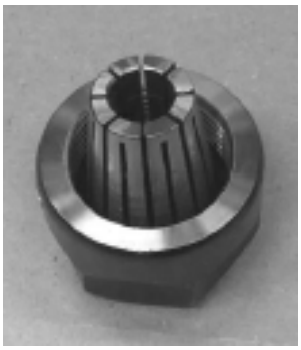
- 30mm wrench
- 22mm wrench
- Collet
- Spindle nut
- Router bit

NOTE

Disconnect the power to the machine before changing or fitting the router bit.

1. Select the desired spindle nut, router bit, and a collet of correct size.





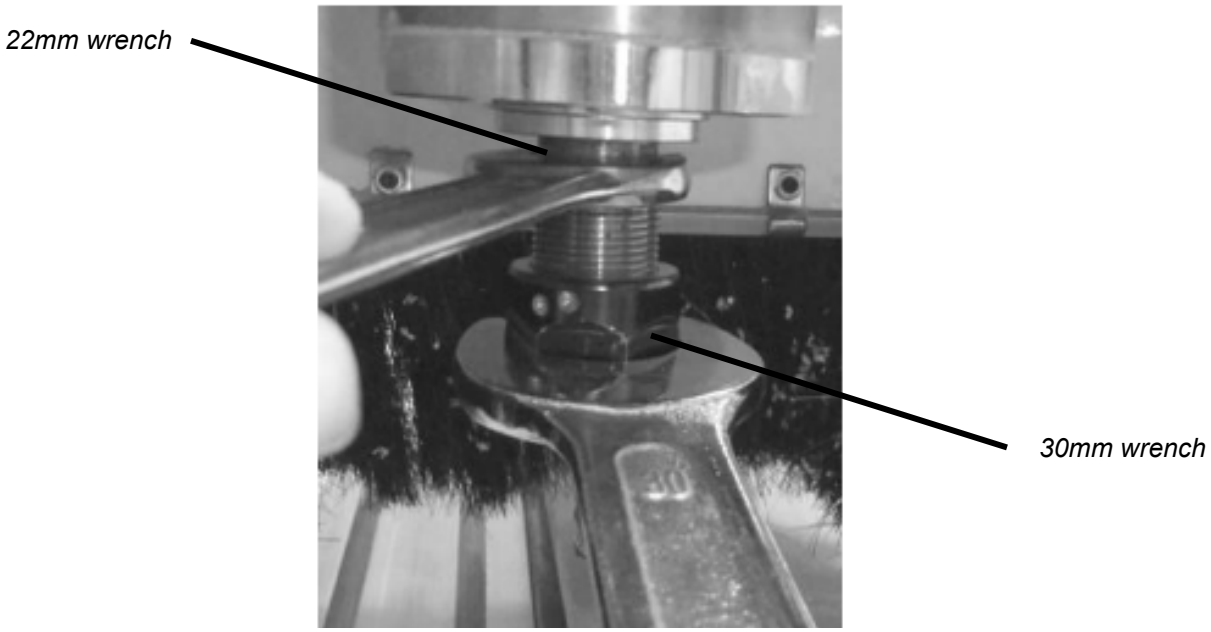
2. Fit the collet into the spindle nut. Press the collet into the spindle nut until it snaps into place.

3. Hand tighten the spindle nut onto the spindle thread.

NOTE

The router bit must not be fitted into the collet until the collet has been fitted into the spindle nut. With the router bit fitted in the collet, the collet cannot compress and snap into the spindle nut.

4. Place the bit into the collet, but note that the flute (cutting edge) of the router bit must not be inside the collet and should be a minimum of 1/16 " outside the collet.
5. Hold the router spindle with the 22mm wrench and tighten the spindle nut with the 30mm wrench. Do not overtighten.



To remove the collet

1. Remove the router bit if there is one in the collet.
   a. Allow the bit to cool down if it's hot.
2. Hold the router spindle with the 22mm wrench and loosen the spindle nut with the 30mm wrench.
3. Remove the spindle nut from the spindle.
4. Hold the spindle nut in place and squeeze the collet inward. (the collet will compress)
5. Pull the collet out of the spindle nut. (it might take a lot of force)
6. Refer to Section 5.5 to insert a new collet.

NOTE

Keep the collets clean and blow all dust out of the slots. Fine dust accumulates and will affect the clamping ability and cut quality.

5.6 Vacuum Table and Spoil Boards

The Spoil Board has three (3) functions:

1. **Protects the vacuum table from the router bits** - Set the depth of the router bit set to exact spoil board height. Without a spoil board, the machine would cut into the vacuum table.
2. **Transfers vacuum between the table and the workpiece** - Inexpensive Medium-Density Fiberboard (MDF) is the best material for this function.
3. **Provides a cheap, disposable work surface** – Unlike a wooden table, a disposable spoil board can be resurfaced without impacting the life of the machine.

5.7 Spoil Board Preparation

When you purchase your MDF spoil board it should be no thinner than ¾ inch. However, it is not recommended that your spoil board be thicker than one (1) inch.

The MDF that you purchase will not be perfectly flat. The SmartShop Composite Fabricator will be cutting to accuracy in the order of a few thousandths of an inch so the spoil board will need to be machined to ensure a flat surface. Over time, when the spoil board has been skimmed many times and has been reduced to ½ inch thick or less, discard it and start a new spoil board.

1. Cut your spoil board to the size of the bed of the machine.
2. Prior to placing the spoil board onto the vacuum table, verify the table is perfectly clean and free from sawdust and dirt. If there is sawdust etc. on the table, it will change the height of the spoil board and it will not be flat. It is strongly recommended that you do not wipe or brush the table clean.
3. Turn on the vacuum.
4. Fly cut the total surface of the spoil board. Only cut the minimum needed to achieve a flat surface over the entire board. Skim the surface several times during the life of the spoil board to clean it up and skim only the minimum off the surface.
5. Once the face is flat, remove the vacuum, turn the spoil board over, and repeat the process for the other face of the spoil board.

Spoil boards are porous and will absorb moisture. Over time, the absorption of moisture will change the dimensions of the board. Day-to-day changes are normally insignificant and will occur across the entire board evenly. However, if liquids are spilled on the board, it will be absorbed and cause the board to grow in the affected area. Do not allow the board to get wet. If an accident should happen, remove the board from the machine and allow it to dry. Drying may take several days. Meanwhile, use a new board. Once the wet board has completely dried it may be possible to recut and re-use. If the board cannot be cut flat, it should be scrapped.

5.8 Using the Vacuum Table

NOTE

Creating a good vacuum ensures parts are held securely.

The vacuum table uses suction to hold down and prevent material from moving during the machining process. The vacuum table has 6 zones and you can set the configuration to suit the type of work that you will be producing. Each zone is controlled by a switch that is located at the front of the machine. The table has two holes in each zone that extract the air and generate the vacuum. The table has grooves that ensure that the air is extracted evenly across the zone

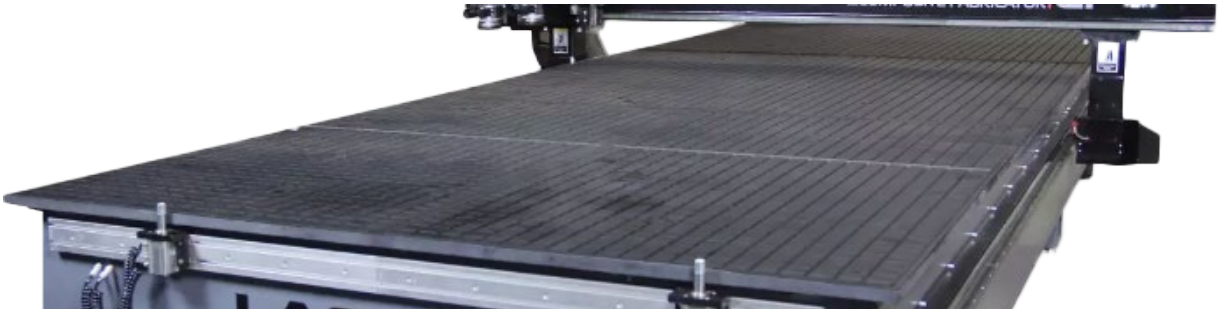


Figure 5–1: Vacuum Table

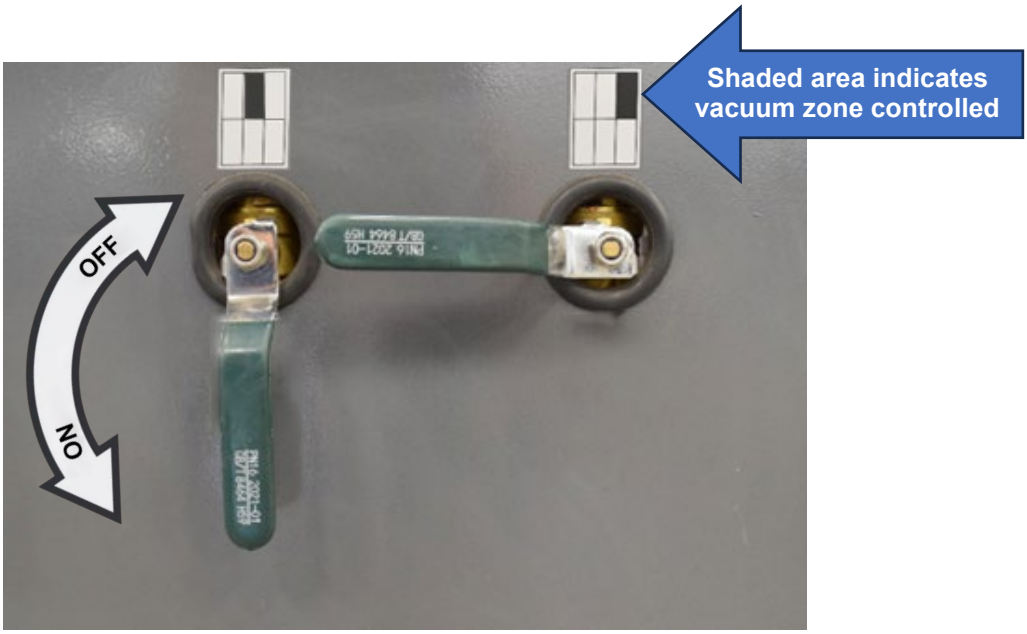


Figure 5–2: Vacuum Zone On/Off Switches

5.9 Fitting the Vacuum Table Gasket

If you are cutting material that only requires a small vacuum zone, you may need to configure a different size vacuum zone. This can be achieved by fitting a gasket into different grooves.

It is recommended that 3 zones are initially created, each one completely across the table. This can be changed at a later stage.

Vacuum Zone

1. Evenly press the foam rubber gasket into the groove around the zone you're constructing.

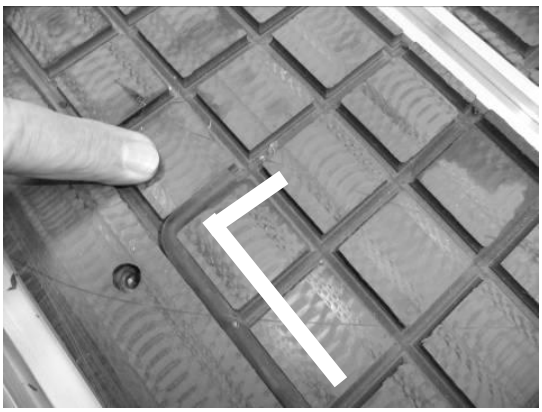


Figure 5–3: Start Point Foam Rubber Gasket Turned In

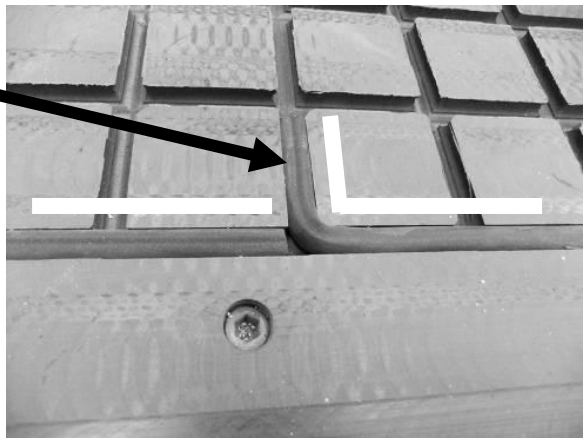
Figure 5–4: Inserting Gasket

NOTE

Do not stretch the foam rubber gasket while you are fitting it into the groove in the vacuum table.

2. Turn in the gasket at the beginning to allow for stretching and relaxation over time. This initial turn helps maintain a good seal and prevents the need to discard the gasket if it falls short.

Gasket Turned in



3. Cut any excess gasket off.

4. Reconfigure if needed.

6.0 Operation

6.1 Turning on the SmartShop Composite Fabricator

Turn on the Main Disconnect switch. Turn the SWITCH ON/OFF key clockwise to power on the Control Display Screen. The system will boot to the MAIN SCREEN.

The EZ PLUS button may be pressed at any time to return to the MAIN SCREEN.

6.2 Keypad and Hard Keys

The SmartShop Composite Fabricator keypad is composed of hard keys (i.e. keys with a function that cannot be changed. The keypad contains Text Editing, Display Mode, and Navigation keys.

6.2.1 Text Editing (ONG) Keys

The Text Editing, or ONG, keys are used to input data into the buffer.

Figure 6–1: Text Editing (ONG) Keys

EOB – Semicolon.

SHIFT – Use to access the letters and symbols in subscript.

CAN – Cancel or backspace.

INPUT – Copy the text from the input buffer to the control.

ALTER – Use to overwrite selected data.

INSERT – Use to insert data at the cursor.

DELETE – Clears data in the input buffer.

6.2.2 Display Modes and Navigation Keys

The Display Mode keys are used to change the information displayed on the Control Screen. The Navigation keys are used to navigate (up, down, left, right) fields on the Control Screen.

Figure 6–2: Display Modes and Navigation Keys

Display Modes

POS – Displays the current position. Soft keys functions are coordinate systems: Relative, Absolute, Machine, or Distance To Go.

PROG – Displays the active program.

OFS/SET – Press to store work offsets and tool length offsets.

SYSTEM – Displays the FANUC System background.

MESSAGE – Displays the alarm or operator message screen.

Navigation Keys

Arrow Keys – Used to navigate the fields on the Control Screen.

PAGE (Up) – Navigates to the top field.

PAGE (Down) – Navigates to the bottom field.

HELP – Displays details on the current alarm, operations methods, and a parameters table.

RESET - Stops the current program or operation and reverts the program to the initial power on state.

NOTE

Do not press the RESET button during a tool change.

6.3 Control Screens and Soft Keys

Press the soft key to the right of or beneath each label to activate the corresponding function.

⚠ CAUTION

Be aware the machine gantry and spindle will move when executing many of the Control Screen commands.

6.3.1 Main Screen

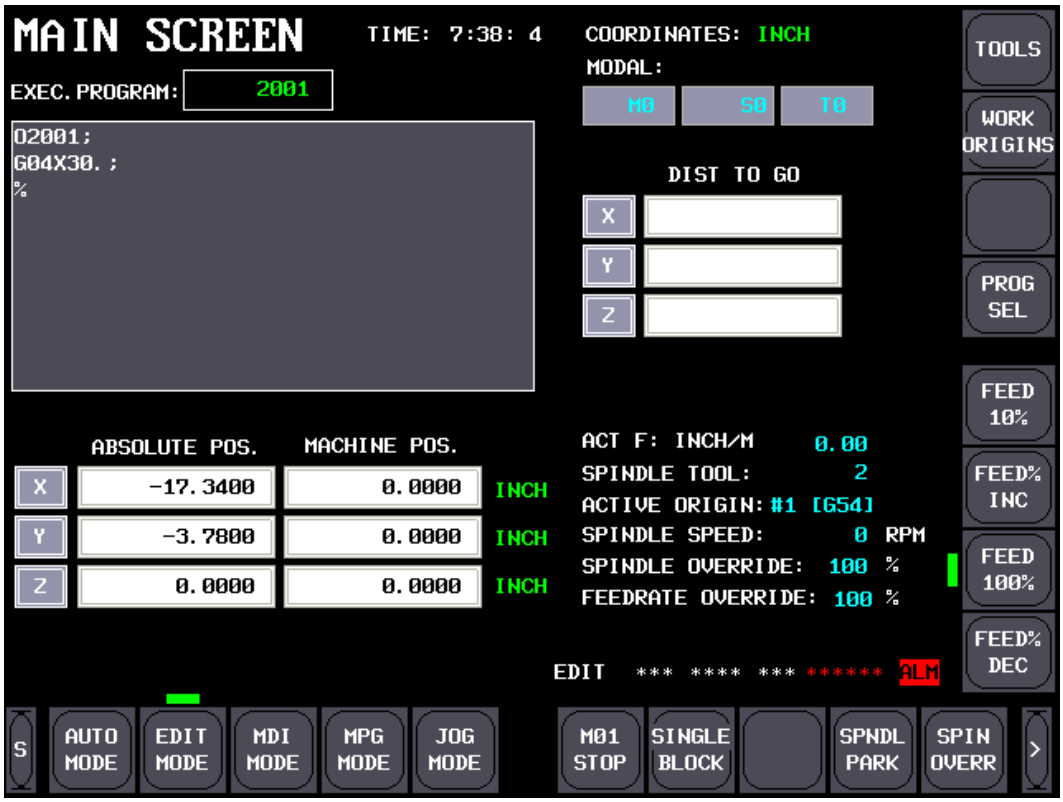


Figure 6–3: Main Screen

Screen Elements

EXEC. PROGRAM – The FANUC program number. The contents of the selected program are displayed in the box below the EXEC. PROGRAM.

TIME – The current time.

COORDINATES – Imperial or metric measuring system.

MODAL – Displays the (M0), Spindle Speed, and Tool Number.

DIST TO GO – Displays the distance remaining in a move operation.

ABSOLUTE POS. – The distance from the Home position including offsets.

MACHINE POS. – The distance from the Home position.

ACT F: INCH/M – Displays the feed-rate.

SPINDLE TOOL – Active spindle number

ACTIVE ORIGN – Displays the currently active Origin.

SPINDLE SPEED – Current movement speed of the spindle.

SPINDLE OVERRIDE – Displays the Spindle Override rate.

FEEDRATE OVERRIDE – Displays the Feed-rate Override.

(EDIT, MDI, JOG, etc) – This line displays the current mode.

Horizontal Soft Key Functions

AUTO MODE – Allows the operator to start the currently loaded program. Press the CYCLE START button to execute the program. Press FEED HOLD to halt the program.

EDIT MODE – Allows the operator to edit the program.

MDI MODE – Manual Data Input (MDI) allows the operator to manually enter and execute G-Code.

MPG MODE – Allows the operator to precisely move the spindle without modifying saved code. by spinning the MPG handwheel.

JOG MODE – Allows the operator to rapidly move the spindle using the jog interface.

M01 STOP – Enables an optional program stop if an M01 command is encountered in the program. Press CYCLE START to resume program operation. If M01 STOP is not selected, M01 commands are ignored during operation. This is often used for debugging G-Code, checking progress, or mid-operation adjustments.

SINGLE BLOCK – Causes the machine to pause after executing each of line of G-Code. To step through a program, press CYCLE START to execute each line of G-Code.

SPNDL PARK – Lifts all spindles.

SPIN OVERR – Navigates to the SPINDLE screen.

> - Navigates to AUX SCREEN.

Vertical Soft Key Functions

TOOLS – Navigates to the TOOL SETTINGS screen.

WORK ORIGINS - Navigates to the WORK ORIGIN screen.

PROG SEL – Navigates to the PROGRAM SELECT screen.

FEED 10% - Sets the Feed-rate Override to 10%.

FEED% INC – Increases Feed-rate Override by 5%.

FEED 100% - Sets Feed-rate Override to 100%.

FEED% DEC – Decreases the Feed-rate Override by 5%.

6.3.2 Tool Settings Screen

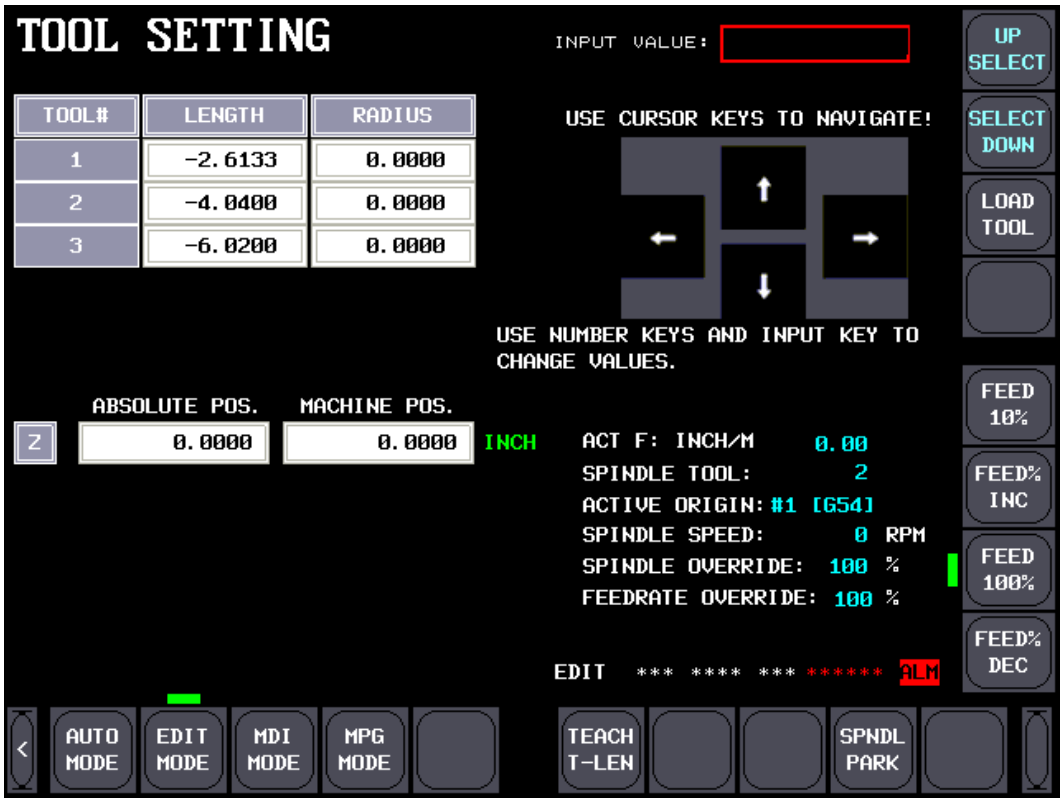


Figure 6–4: Tool Settings Screen

Screen Elements

TOOL# - The tool number

INPUT VALUE – Displays the input value for Tool Length or Radius.

Horizontal Soft Key Functions

Teach T-LEN – Teach tool length

SPNDL PARK – Places the spindle into the home position.

Vertical Soft Key Functions

UP SELECT – Selects and highlights the Tool # by moving upward.

DOWN SELECT – Selects and highlights the Tool # by moving downward.

LOAD TOOL – Load the selected tool in the spindle.

HOOD UP – Raise the dust hood.

How to load a tool:

1. Highlight the tool using UP SELECT and SELECT DOWN.

2. Press LOAD TOOL.

6.3.3 Work Origin Screen

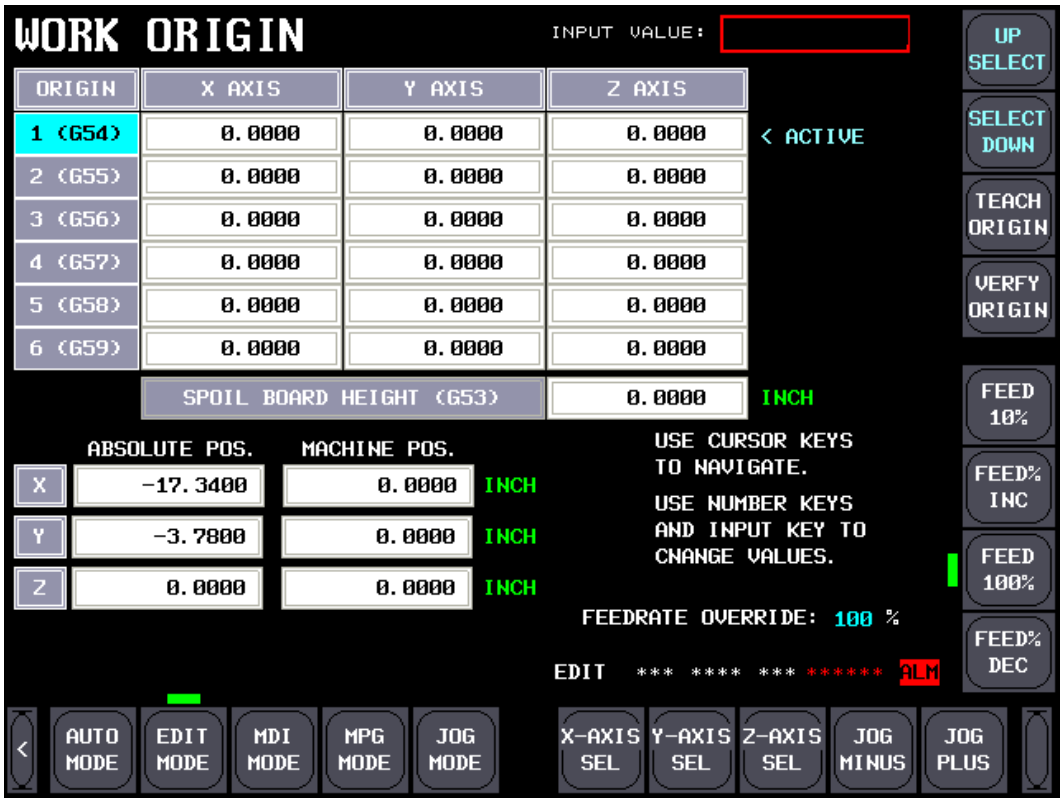


Figure 6–5: Work Origin Screen

Screen Elements

ORIGIN – The selected Origin point followed by the X, Y, and Z-Axis coordinates.

INPUT VALUE – Displays input data.

SPOIL BOARD HEIGHT – Height of the spoil board in inches.

<ACTIVE – Indicates the currently active Origin point.

Horizontal Soft Key Functions

X-AXIS SEL – Selects the X-Axis

Y-AXIS SEL – Select the Y-Axis

Z-AXIS SEL – Select the Z-Axis

JOG MINUS – Jog the selected axis in the negative direction

JOG PLUS – Jog the selected axis in the positive direction

Vertical Soft Key Functions

UP SELECT – Move Origin selection up.

SELECT DOWN – Move Origin selection down.

TEACH ORIGIN – Save current X and Y-Axis coordinates to selected Origin value fields.

VERIFY ORIGIN – Display and verify the machine Origin. Gantry and spindle will move along X and Y-Axis to selected Origin coordinates.

⚠ CAUTION

Be aware the machine gantry and spindle will move when pressing the VERIFY ORIGIN command.

6.3.4 Program Select Screen

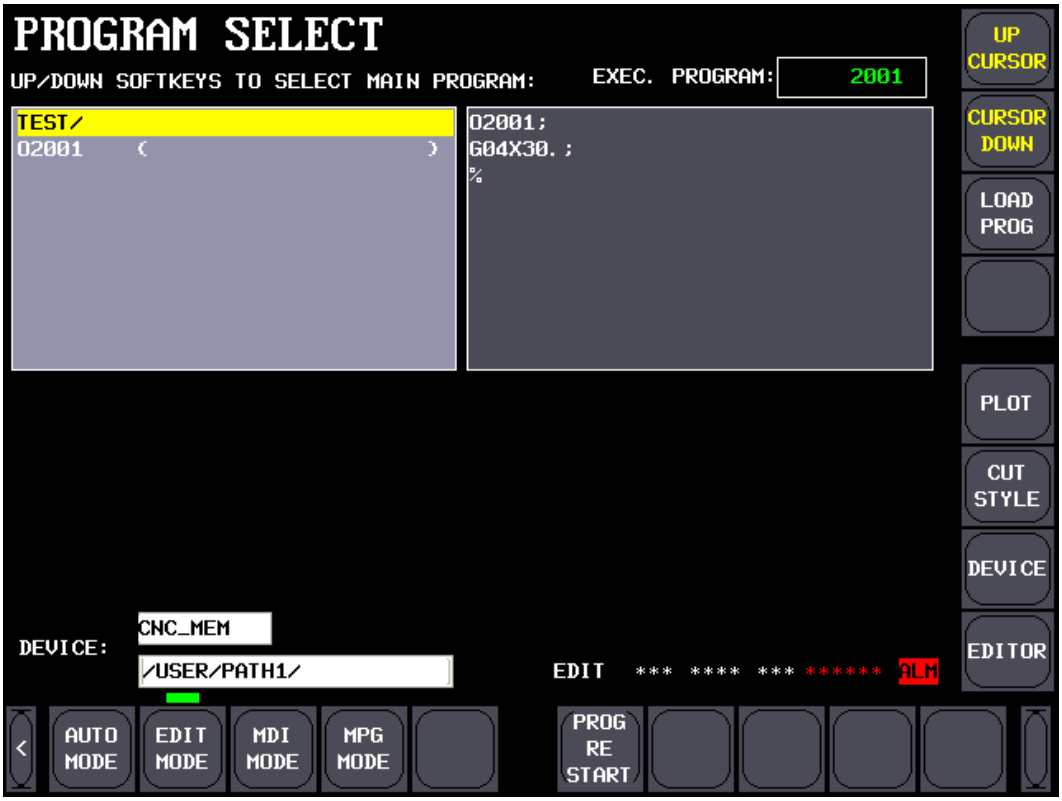


Figure 6–6: Program Select Screen

Screen Elements

The box on the left displays a list of programs. The box on the right displays the contents of the selected program.

DEVICE – Displays the program source.

Horizontal Soft Key Functions

PROG RE START – Restarts the program.

Vertical Soft Key Functions

UP CURSOR – Move the selection up.

CURSOR DOWN – Move the selection down.

LOAD PROG – Load the selected program.

PLOT – Navigates to the PATH GRAPHIC screen.

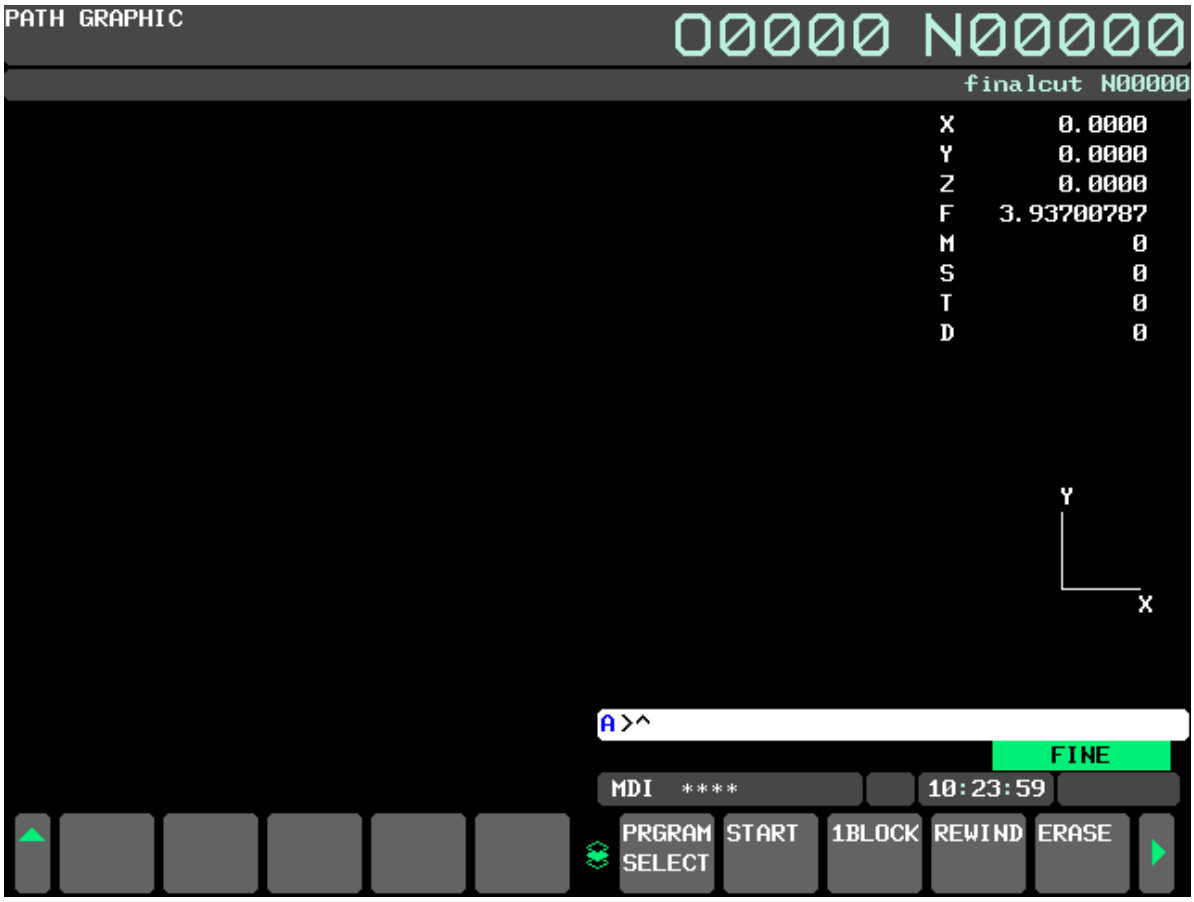


Figure 6–7: Path Graphic Screen

CUT STYLE – Sets the FINE SURFACE values.

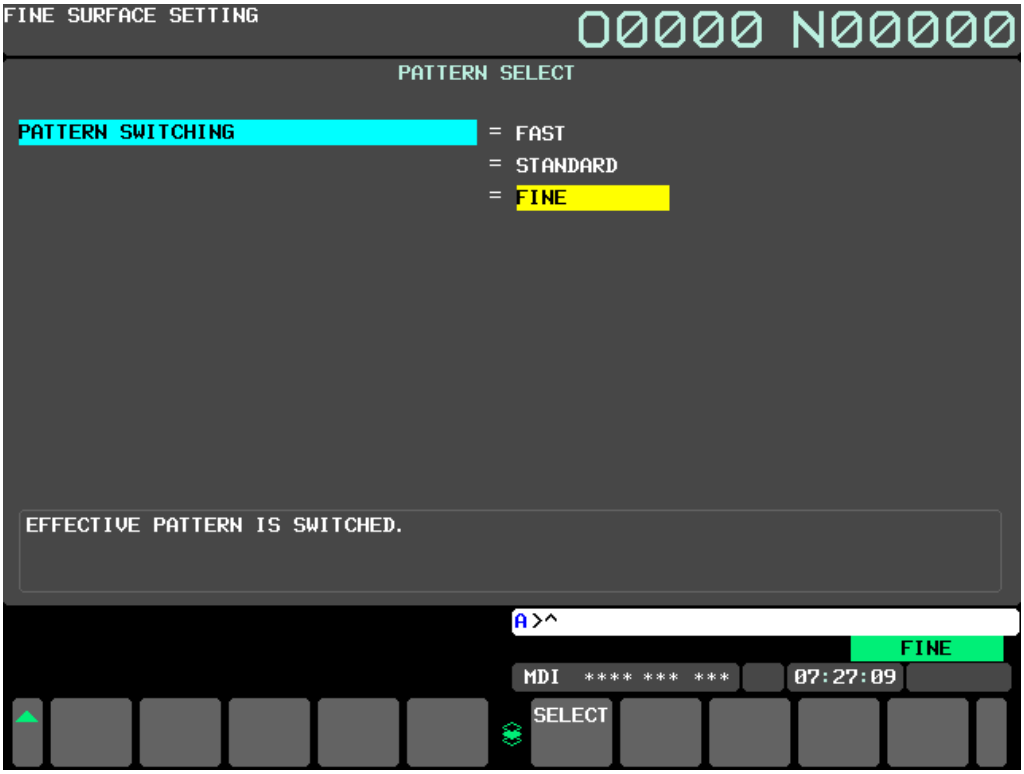


Figure 6–8: Fine Surface Setting Screen

DEVICE – Opens the PROGRAM FOLDER screen.

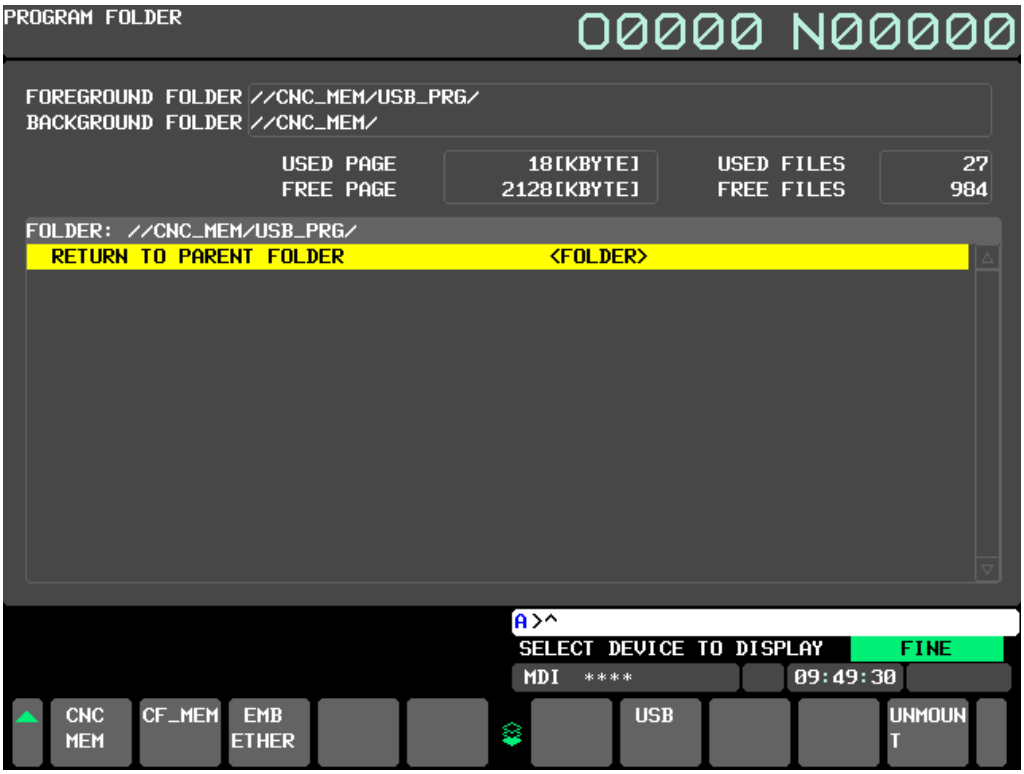


Figure 6–9: Program Folder Screen

EDITOR – Opens the PROGRAM screen

Figure 6–10: Program Screen

7.0 Tool Touch Off

Tool touch off is used to measure different tool lengths.

To execute a tool touch off:

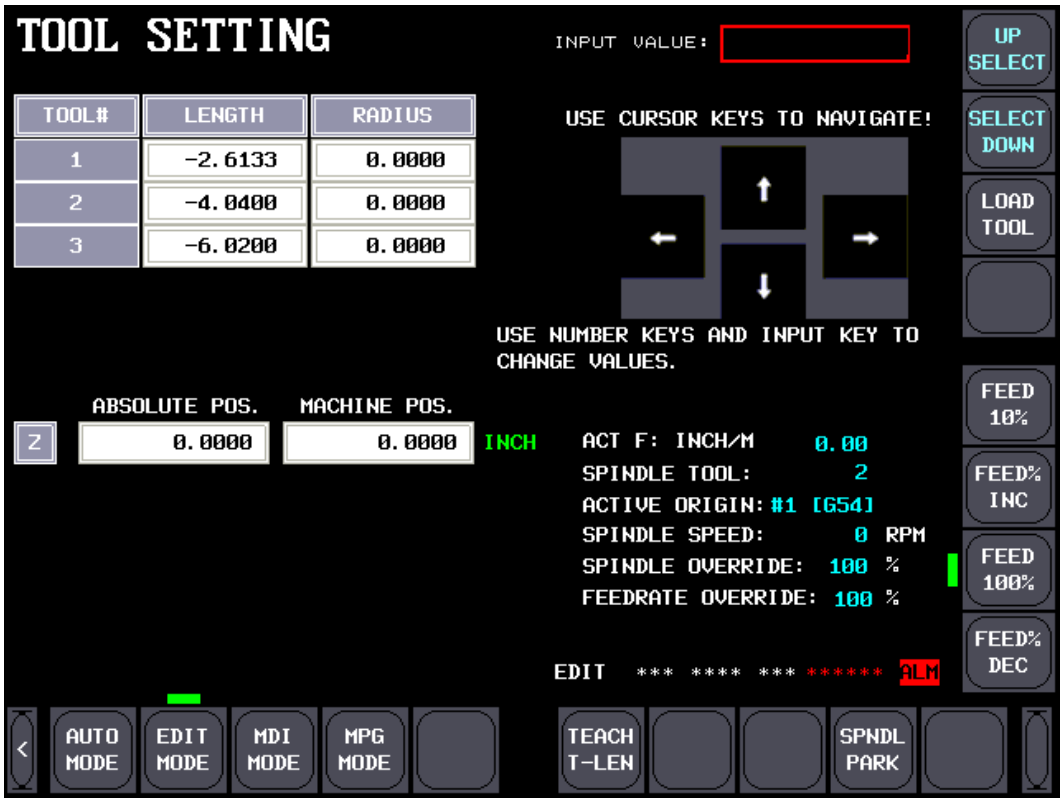


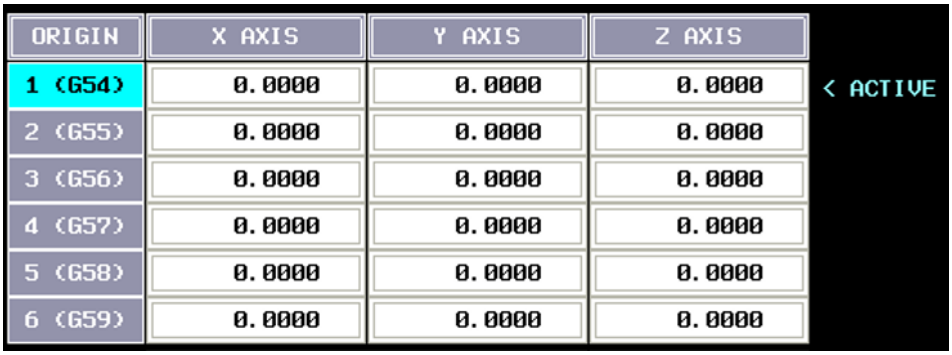
Figure 7–1: Tool Setting Screen

1. Jog the spindle down to where the CF shoe touches the surface of the material.
2. Press 

3. Tool touch off is now complete.

8.0 Setting the Origin

The user will not need to set the origin as it is already preset by Laguna tools.



ORIGIN	X AXIS	Y AXIS	Z AXIS	
1 (G54)	0.0000	0.0000	0.0000	< ACTIVE
2 (G55)	0.0000	0.0000	0.0000	
3 (G56)	0.0000	0.0000	0.0000	
4 (G57)	0.0000	0.0000	0.0000	
5 (G58)	0.0000	0.0000	0.0000	
6 (G59)	0.0000	0.0000	0.0000	

Figure 8–1: G-Codes that are to remain at zero

In Figure 8-2 above, the origins G54-G59 are to remain at zero.

The work origin should remain at zero.

9.0 Cutter Depth

9.1 Adjusting Cutter Depth Using the Gliding Pressure Shoe System

NOTE

The cutter depth is controlled by the distance from the bottom of the shoe to the length of exposed cutter. The shoe rides on the top of the ACM material to accommodate differences in flatness across the entire sheet.

1. Loosen the lock plate.
2. Hand thread the shoe up by hand.
3. Remove the shoe.
4. Insert the tooling.
5. With enough clearance to pass the shoe, tighten the tooling.
6. Re-install the shoe.
7. In MPG mode, jog the tool to front edge of the table and lower the tool until it touches the spoil board.
8. Jog the tool slightly past the edge of the spoil board.
9. Lower the tool down to the desired cut depth.
10. Hand thread the shoe down until it touches the spoil board.

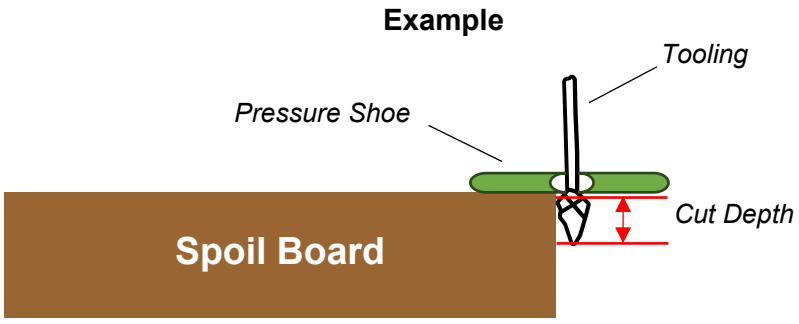


Figure 9–1: Example of Adjusting Cutter Depth Using the Gliding Pressure Shoe System

11. Tighten the lock plate against the shoe.

10.0 Maintenance

Table is based on 30 hours of use a week						
	Daily	**Weekly**	**Monthly**	**Every Three Months**	**Every Six Months**	**Yearly**
Check the tool blades for chips and dullness	X					
Clean the collets and spindle holes. Uncleaned spindle holes may affect cut quality and pose a safety hazard if significantly dirty. Uncleaned spindle holes may affect cut quality and may pose a safety hazard if significantly dirty.	X					
Remove all tooling from the spindle at the end of the day. Do not leave any tooling in the spindle overnight. This includes tool cones, collets, router bits, etc. Leaving any tooling in the spindle overnight can cause the tooling to get dirty, stuck, rust, and cause damage to the spindle.	X					
Clean the router bits	X					
Clean surface dust	X					
Clean the x and y-axis rack rails and the z-axis screw guides		X				
Check the dust extraction for blockages, as large pieces could cause blockages		X				
Inspect the overall machine for damage and loose or worn parts.		X		X		

Check lubrication level and fill with 10wt oil lubricant if necessary		X				
Disconnect power at the wall and clean the dust form the cabinet and fan covers			X			

10.1 Cleaning the Helical Racks

The helical racks on the SmartShop Composite Fabricator may collect dust and debris which can interfere with the smooth operation of the gantry and spindle. Clean with a plastic brush following the angle of the grooves. Lubricate with a thin layer of lithium grease; gently wipe away excess.

10.2 Cleaning the Spindle Tray

The spindle tray will accumulate oil and may drip onto the worktable or project if not kept clean. To clean the tray, remove the four (4) Allen screws shown in Figure 7-7 and wipe the tray clean.

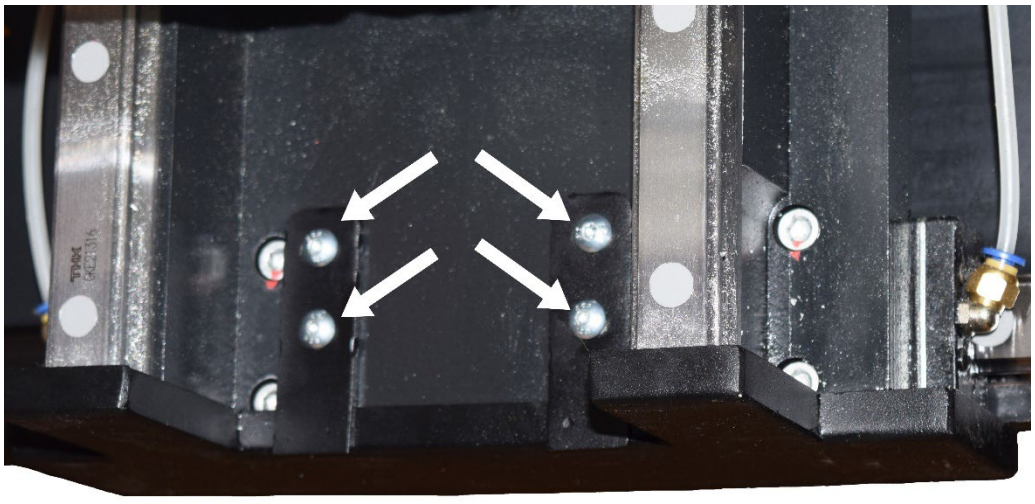


Figure 10–1: Allen Screws

Replace and tighten Allen nuts until snug; do not over-tighten.

10.3 Lubrication

The pneumatic system does not need any type of lubricant. Some types of lubricant can damage the machine and compromise its functionality.

10.4 Diagnostic PMC Inputs Screens

The Programmable Machine Control Inputs and Outputs can be tested can accessing diagnostics from the SERVICE MODE Screen. A green address light verifies the input/output is +24 volts. A red light indicates the input/output is 0 volts.

Figure 10–2: Service Mode Screen

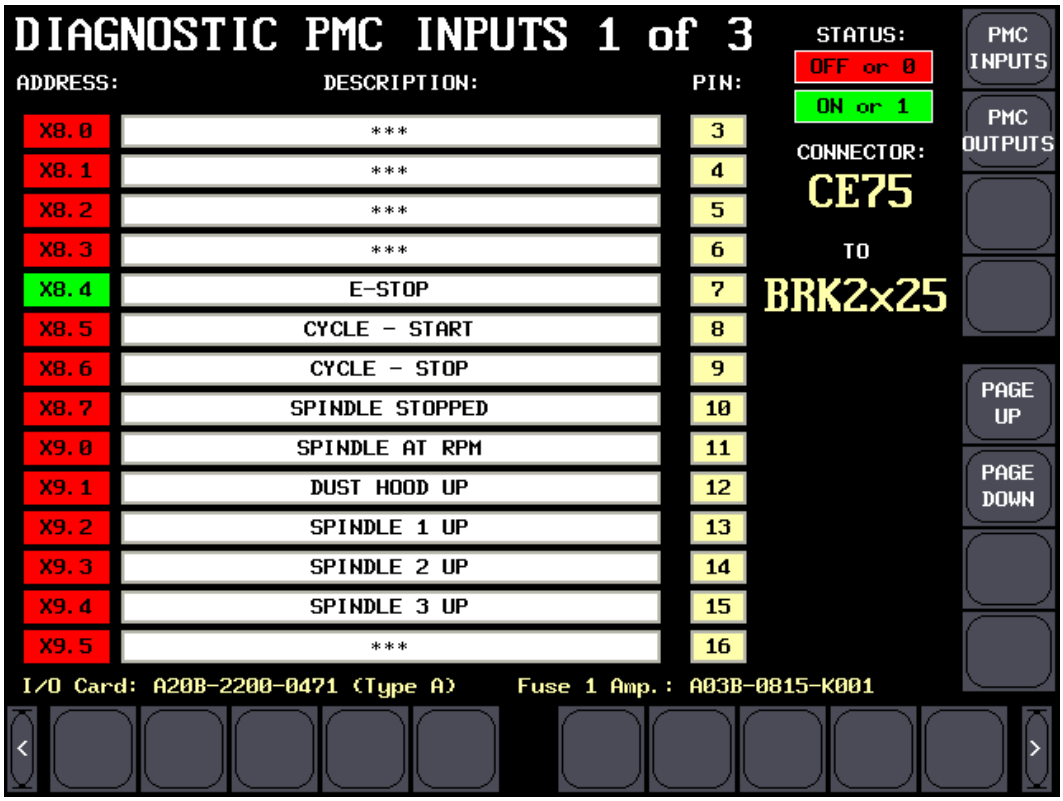


Figure 10–3: Diagnostic PMC Input Screen 1 of 3

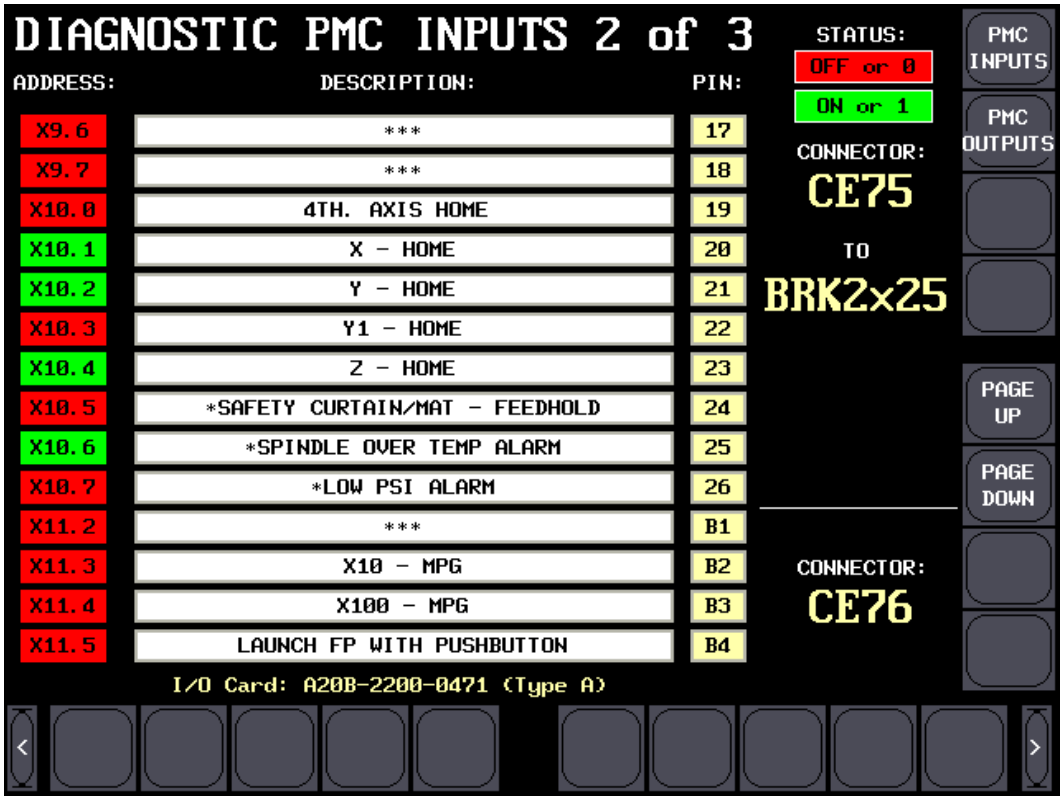


Figure 10–4: Diagnostic PMC Input Screen 2 of 3

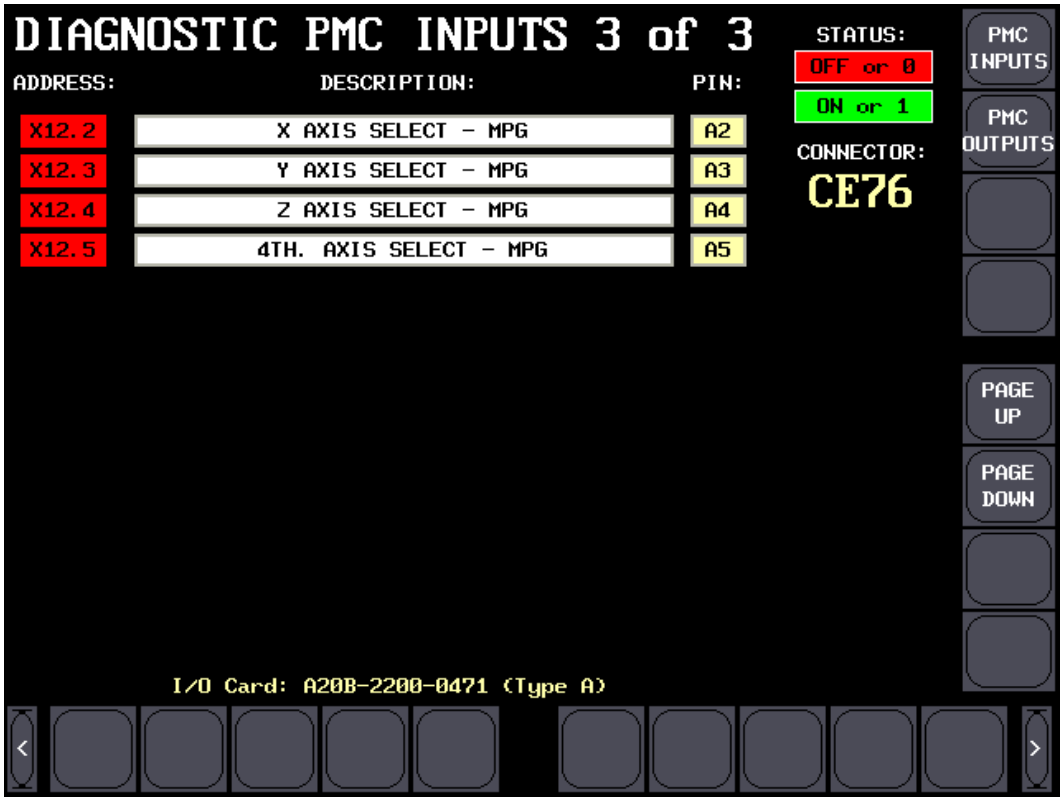


Figure 10–5: Diagnostic PMC Input Screen 3 of 3

Vertical Soft Key Functions

PMC INPUTS – Opens the DIAGNOSTIC PMC INPUTS screen.

PMC OUPUTS – Opens the DIAGNOSTIC PMC OUTPUTS screen.

PAGE UP – Move the list up.

PAGE DOWN – Move the list down.

10.4.1 Axis Referencing

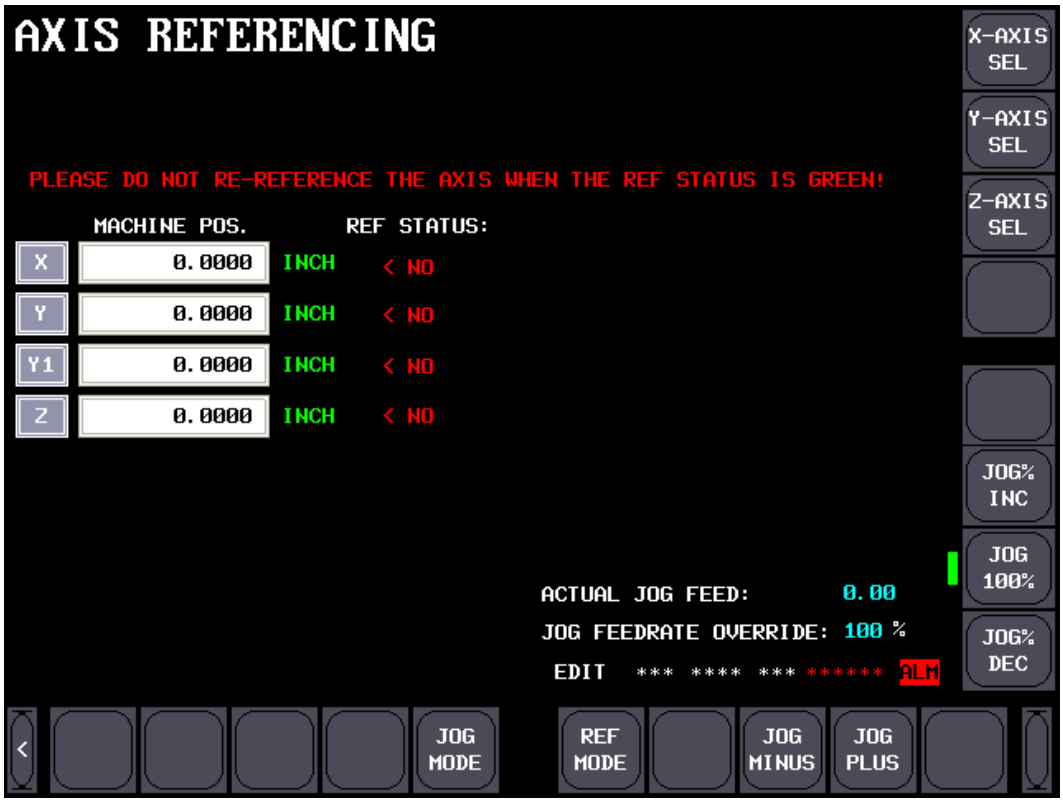


Figure 10–6: Axis Referencing Screen

Screen Elements

MACHINE POS. – Displays the machine position for the axis coordinates.

REF STATUS – Tells if the axis has already been referenced or not.

ACTUAL JOG FEED – Displays the actual jog feed rate.

JOG FEEDRATE OVERRIDE – a feature that allows the user to change the jog speed of a CNC machine

Vertical Soft Key Functions

X-AXIS SEL – Select the X-Axis

Y-AXIS SEL – Select the Y-Axis

Z-AXIS SEL – Select the Z-Axis

Horizontal Soft Key Functions

REF MODE – Allows the operator to manually move the machine's axes.

JOG MINUS – Jog the selected axis in the negative direction.

JOG PLUS – Jog the selected axis in the positive direction.

10.4.2 CF Setup

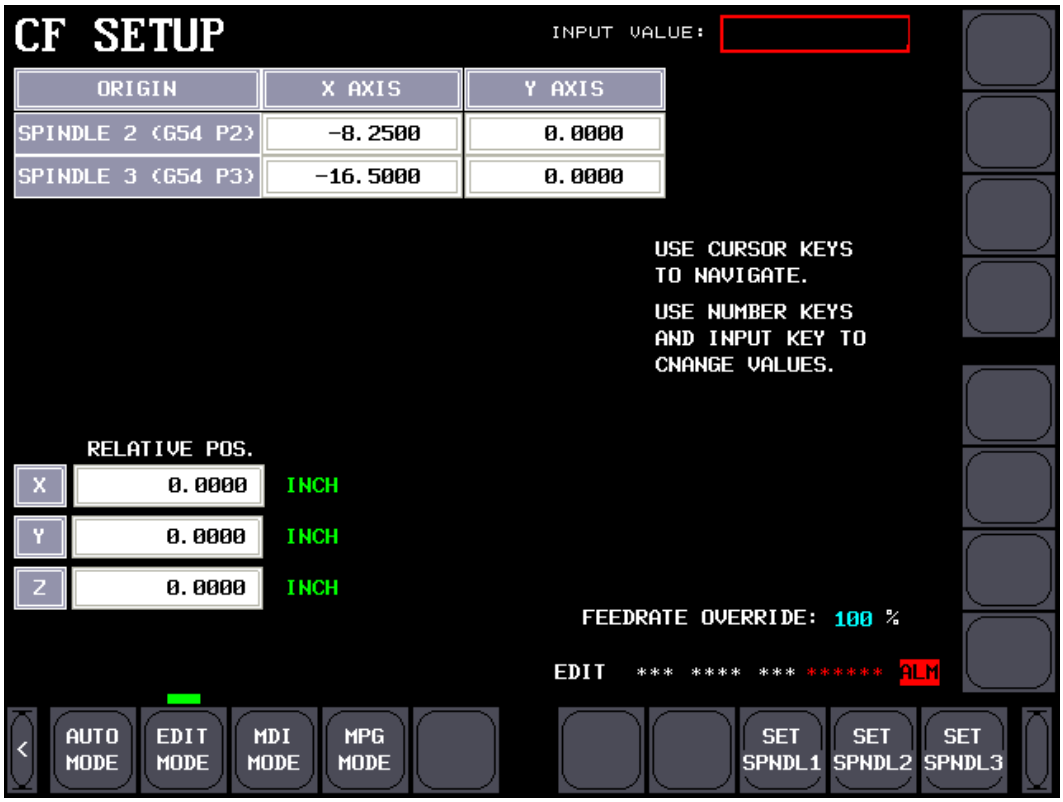


Figure 10–7: CF Setup Screen

Screen Elements

Origin – The selected spindle Origin point followed by the X and Y axis coordinates.

Relative Pos – The distance from the Origin point that is set

Horizontal Soft Key Functions

SET SPNDL 1 – Sets the origin (G54) for spindle 1

SET SPNDL 2 – Sets the origin (G54) for spindle 2

SET SPNDL 3 – Sets the origin (G54) for spindle 3

10.5 Diagnostic PMC Outputs Screen

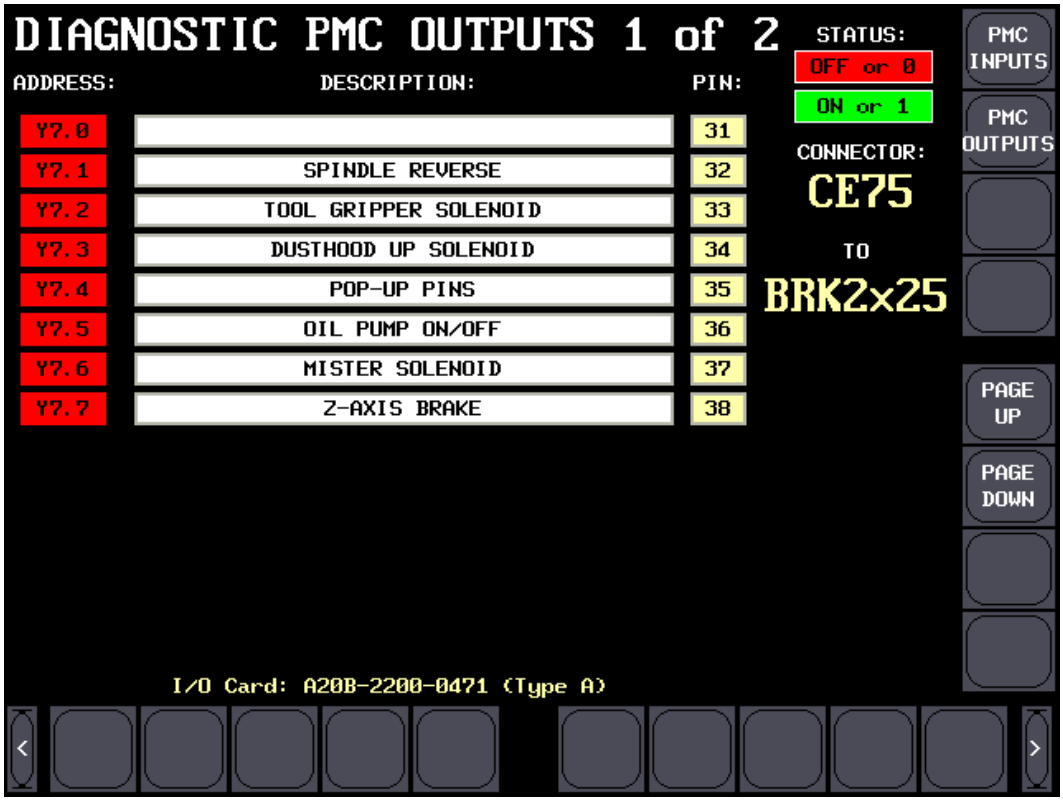


Figure 10–8: Diagnostic PMC Output Screen 1 of 2

Vertical Soft Key Functions

PMC INPUTS – Opens the DIAGNOSTIC PMC INPUTS screen.

PMC OUPUTS – Opens the DIAGNOSTIC PMC OUTPUTS screen.

PAGE UP – Move the list up.

PAGE DOWN – Move the list down.

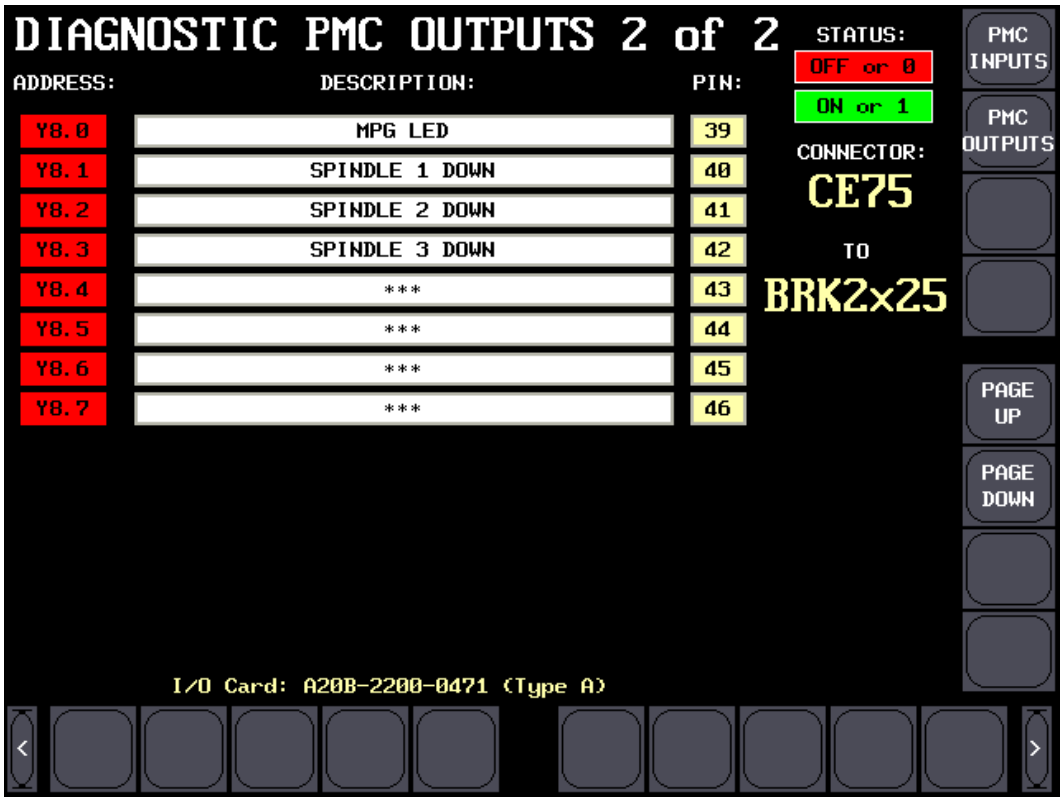


Figure 10–9: : Diagnostic PMC Output Screen 2 of 2

NOTES:

11.0 Troubleshooting

Problem	Cause(s)	Solution(s)
Machine will not start	• Emergency stop is engaged • Power cords are loose or unplugged	• Disengage the emergency stop • Verify that cords are not loose or unplugged
Vacuum pump blowing, not sucking	Wiring is faulty	Swap one pair of wires.
Spoil board has poor suction	Spoil board has moisture in it	Replace the spoil board
Vacuum pump does not reach operating speed when starting	• Connections are not fully connected • Incorrect voltage and frequency • Loose nuts on wire connection slices	• Check the connections on the motor terminal block • Check the incoming voltage and frequency corresponds with the motor data plate • Check the nuts are screwed to the wire connection slices
Motor overheats	• Machine has been ran for too long • Excessive outside temperature	• Wait until motor has cooled down
Squeaking noise	• Bearings are not lubricated	• Lubricate the bearings
Machine vibrates	• Machine is not level on the floor	• Re-level the machine
Motor tries to start but will not turn.	• Jammed spindle • Motor faulty	• With the power disconnected from the machine, try to turn the spindle by hand. If the spindle will not turn, check the reason for the jamming. • Replace the motor

Motor Starter cuts out blower	• Incorrect setting on the motor starter • Motor starter trips too fast • Blower is overloaded i.e. pressure difference is too high)	• Check the motor data plate and set • Use a motor starter with a time delay trip • Increase the inlet or outlet diameter of the application, on pipework increase the diameter of the pipework, avoid restrictions in the line. Limit the pressure different by limitation valves.
Required pressure difference cannot be achieved	• Blower or motor rating selected was too small • Filters are contaminated • Pressure loss into pipe diameter, avoid restrictions • Leaks on the system	• Clean filters or change filters if necessary • Use bigger pipe diameter.

NOTES:

12.0 Warranties

Dealer Machinery Warranty

New woodworking machines sold by Laguna Tools carry a two-year warranty effective from the date of dealer invoice to customer/end-user. Machines sold through dealers must be registered with Laguna Tools within thirty (30) days of purchase to be covered by this warranty. Laguna Tools guarantees all new machines sold to be free of manufacturers' defective workmanship, parts, and materials. We will repair or replace, without charge, any parts determined by Laguna Tools, Inc. to be a manufacturer's defect. We require that the defective item/part be returned to Laguna Tools with the complaint. The end-user must request a Return Material Authorization (RMA) number from Customer Service. Include the RMA number with any and all returned parts/components requesting warranty coverage*. Any machines returned to Laguna Tools must be returned with packaging in the same manner in which it was received. A part or blade is being returned must have adequate packaging to ensure it is not damaged during shipping. In the event the item/part is determined to be damaged due to lack of maintenance, cleaning, or misuse/abuse, the customer will be responsible for the cost to replace the item/part, plus all related shipping charges. This limited warranty does not apply to natural disasters, acts of terrorism, normal wear and tear, product failure due to lack of maintenance or cleaning, damage caused by accident, neglect, lack of or inadequate dust collection, misuse/abuse or damage caused where repair or alterations have been made or attempted by others.

* The issue of an RMA number is for reference only; it DOES NOT indicate acceptance of the warranty claim.

CNC Limited Warranty

New CNC machines sold by Laguna Tools carry a one-year warranty effective from the date of shipping. Laguna Tools guarantees all new machines sold to be free of manufacturers' defective workmanship, parts, and materials. We will repair or replace, without charge, any parts determined by Laguna Tools, Inc. to be a manufacturer's defect. If the defective item/part is determined to be damaged due to lack of maintenance, cleaning or misuse/abuse, the customer will be responsible for the cost to replace the item/part, plus all related shipping charges. This limited warranty does not apply to natural disasters, acts of terrorism, normal wear and tear, product failure due to lack of maintenance or cleaning, damage caused by accident, neglect, lack of or inadequate dust collection, misuse/abuse or damage caused where repair or alterations have been made or attempted by others.

Laguna Tools, Inc. is not responsible for additional tools or modifications sold or performed (other than from/by Laguna Tools, Inc.) on any Laguna Tools, Inc. woodworking machine. Warranty may be voided upon the addition of such described tools and/or modifications, determined on a case-by-case basis. Software purchased through Laguna Tools, Inc., is not covered under this warranty and all technical

support must be managed through the software provider. Normal user alignment, adjustment, tuning, and machine settings are not covered by this warranty. It is the responsibility of the user to understand basic woodworking machinery settings and procedures and to properly maintain the equipment in accordance with the standards provided by the manufacturer.

Parts under warranty are shipped at Laguna Tools, Inc.'s cost either by common carrier, FEDEX ground service, or a similar method. Technical support to install replacement parts is primarily provided by phone, fax, e-mail or Laguna Tools Customer Support Website. The labor required to install replacement parts is the responsibility of the user. Laguna Tools is not responsible for damage or loss caused by a freight company or other circumstances not in our control. All claims for loss or damaged goods must be notified to Laguna Tools within twenty-four (24) hours of delivery.

Please contact our Customer Service Department for more information. Only NEW machines sold to the original owner are covered by this warranty.

For warranty repair information, call 1-800-332-4094.

No Modifications Allowed or Sold

Laguna Tools, Inc. is not responsible for additional tools or modifications sold or performed (other than from/by Laguna Tools, Inc.) on any Laguna Tools, Inc. woodworking machine. Warranty may be voided upon the addition of such described tools and/or modifications, determined on a case-by-case basis. Normal user alignment, adjustment, tuning, and machine settings are not covered by this warranty. It is the responsibility of the user to understand basic woodworking machinery settings and procedures and to properly maintain the equipment in accordance with the standards provided by the manufacturer. Parts, under warranty, are shipped at Laguna Tools, Inc.'s cost either by common carrier, FEDEX ground service or a similar method. Technical support to install replacement parts is primarily provided by phone, fax, e-mail, or Laguna Tools Customer Support Website. The labor required to install replacement parts is the responsibility of the user. Laguna Tools is not responsible for damage or loss caused by a freight company or other circumstances not in our control. All claims for loss or damaged goods must be notified to Laguna Tools within twenty-four (24) hours of delivery. Please contact our Customer Service Department for more information. Only new machines sold to the original owner are covered by this warranty.

For warranty repair information call 1-800-332-4094.

Laguna Tools Warranty

WARRANTY & REGISTRATION

Thank You!

Welcome to the Laguna Tools® group of discriminating industrial machinery owners. We understand that you have a choice of where to purchase your machines and appreciate the confidence you have in the Laguna Tools® brand.

Through hands-on experience, Laguna Tools® is constantly working hard to make innovative, precision products. Products that inspire you to create works of art are a joy to operate and encourage your best work.

Laguna Tools®
Imagination, Innovation, and Invention at Work

Warranty & Registration

Every product sold is warranted to be free of manufacturer's defective workmanship, parts, and materials. For any questions about this produce, the intended use or what it was designed for, customer service, or replacement parts, please contact our customer service department:

Laguna Tools® Customer Service
744 Refuge Way, Grand Prairie, Texas 75050, USA
1-800-234-1976
customerservice@lagunatools.com
www.lagunatools.com/why/customer-service/
8AM. To 5PM PSF. Monday through Friday

For warranty claims or to report damage upon receiving-please reach out to our warranty department:

Laguna Tools® Warranty Service
744 Refuge Way, Grand Prairie, Texas 75050, USA
1-800-234-1976
customerservice@lagunatools.com
www.lagunatools.come/policies/warranty
8AM to 5PM PST, Monday through Friday

Registration

To prevent voiding this warranty, all products sold must be registered within thirty (30) days of receiving the product. Registering the product will enable the original purchaser to receive notifications about important product changes, receive customer service, and be able to file a warranty claim against defective workmanship, parts, or materials.

REGISTER HERE!
https://lagunatools.com/policies/warranty/

Who is Covered

The applicable warranty covers only the initial purchaser of the product from the date of receiving the product. To file such claims, the original purchaser must present the original receipt as proof of purchase.

What is Covered

The warranty covers any defects in the workmanship of all parts and materials that make up the machine unless otherwise specified. Any part determined by Laguna Tools® to have a defect will be repaired or replaced (and shipped), without charge. The defective item/part must be returned to Laguna Tools® with the complaint and proof of purchase in the original packaging that it was received in. In the event the item/part is determined to be not covered by this warranty, the customer will be responsible for the cost to replace the item/part and all related shipping charges

Warranty Limitations

This limited warranty does not apply to natural disasters, acts of terrorism, normal wear and tear, product failure due to lack of maintenance or cleaning, damage caused by accident, neglect, or lack-of inadequate dust collection. The warranty may be voided against proof of misuse/abuse, damage caused where repair or alterations have been made or attempted by others, using the product for purposes other than those described as intended use (unless with consent by Laguna Tools®), modification to the product, or use with an accessory that was not designed for the product. It is the responsibility of the user to understand basic woodworking machinery settings and procedures and to properly maintain the equipment in accordance with the standards provided in this manual.

Length of Warranty

All new machines and optional accessories sold through an authorized dealer carry a two-year warranty effective from the date of receiving the product. Machines sold for either commercial or industrial use have a one-year warranty. Wearable parts like throat plates, bandsaw guides, etc., have a ninety-day warranty.

Table A-1 Warranty Lengths

2 Year – New Machines Sold Through an Authorized Dealer
2 Year – Accessories Sold as Machine Options (excluding blades)
1 Year – Machines Sold for Commercial or Industrial Use
1 Year – Blades and Accessories outside or Machine Options
90 Days – Wearable Parts

Aside from being free of defects upon receiving, consumable parts, like cutters and abrasives, are not covered by this warranty unless otherwise stated by Laguna Tools®. These parts are designed to be used at the expense of the operator and are available for replacement or inventory purchase. The determination of a consumable part will be made on a case-by-case basis by Laguna Tools®.

Shipping Damage

Laguna Tools® is not responsible for damage or loss caused by a freight company or other circumstances not in the direct control of Laguna Tools®. All shipping-related claims for loss or damage to goods must be made to Laguna Tools® within twenty-four hours of delivery.

How to Receive Support

To file a warranty claim, please contact the warranty department at 1-800-234-1976. To receive customer service or technical support, please contact the customer service department at 1-800-332-4094. Parts, under warranty, are shipped at the expense of Laguna Tools® either by common carrier, FedEx ground services or similar method. Technical support to install replacement parts is primarily provided by phone, fax, email, or the Laguna Tools® Customer Service Support Website.

LAGUNA

Laguna Tools, Inc.

744 Refuge Way, Suite 200

Grand Prairie, TX 75050

1-800-234-1976

www.lagunatools.com