SmartShop 4 Auto Loader Owner's Manual

SKU/Model Number(s):

MCNC SS4 Auto load 4x8 FANUC

LAGUNA

Laguna Tools
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Scope of This Manual

This manual outlines the basic procedures for unpacking, installing, and operating the SmartShop 4 Auto Loader with pre-labeler

For detailed instructions and videos, please go to www.lagunatools.com. Refer to www.lagunatools.com for the latest manual revision.

Customer Service

For technical support, please contact Laguna Tools Customer Service by phone 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 DRAFT (03/13/2025)

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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.

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 Call-Outs

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, may result in death or serious injury.

CAUTION

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

NOTE

A helpful tip from Laguna Tools staff.

1.3 Intended Use

The machine is designed to cut wood, acrylics, wood-fiber composites, certain plastics, and non-ferrous metals. Do not use this machine for anything other than its intended use.

1.4 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 SmartShop Auto Loader 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 the machine is in operation.

1.5 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.

1.6 Proposition 65 Warning of Harmful Exposure

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm. Some examples of these chemicals are:

- Lead from lead-based paint.
- Crystalline silica from bricks, cement, and other masonry products.
- Arsenic and chromium from chemically treated lumber.

The risk of exposure varies depending on frequency of use. To reduce exposure to these chemicals, work in a well-ventilated area and work with approved safety equipment, such as face or dust masks that are specifically designed to filter out microscopic particle

⚠ DANGER

Fire Warning

Use extreme caution when cutting flammable materials such as wood or acrylic. Keep the machine clean by following the supplied maintenance schedule and always have a fire extinguisher ready to extinguish a fire. Take extreme caution when cutting acrylic materials as they are more volatile than other materials.

Never leave the machine running unattended.

The tools sold by Laguna Tools are safe when used properly, as described by the American National Safety Institute, the UL Standards of safe tool use, and the IEC standards of safe tool use. Laguna Tools is in no way responsible for injury or death that occurs while using this product.

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 Machine Placement

When unpacking the SmartShop Auto Loader, 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.

3.1 Placement

Select the area where the SmartShop Auto Loader will be operated. The physical environment where the machine is located is important to safe assembly and operation. Before removing the machine 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 a safe exit path in the event of an emergency.
2. Select a solid level floor rated to hold the weight of the machine and workpieces under both static and dynamic loads. Laguna Tools recommends concrete flooring. Consult a licensed and experienced professional if in doubt.
3. Position the machine 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.
7. **Do not** place or operate the machine in a highly magnetic area.

3.2 Dust Collection

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

3.3 Electrical

The machine 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.

3.4 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.

4.0 Overview

Engineered to excel and built for speed. The SmartShop Auto Loader, complete with clean sweep technology, is a game-changer for the cabinet making industry and those shops looking to produce the maximum number of orders with quick and reliable delivery times.

Primarily designed for the panel processing sector with automatic part labeling, industry leading Fanuc controls & 1500-Watt Fanuc servo drives. This revolutionary workhorse provides the speed and accuracy to handle your most demanding production level applications. Labeling by itself.

4.1 Features

- 18HP HSD Spindle 5,000-24,000 RPM
- Multiple Table Sizes
- 5×5 HSD Boring Block
- Automatic Loading & Off-Loading Tables
- Automatic Labelling System (optional)
- FANUC® Oi-MF Control System
- 1,500W FANUC® Servo Drive Motors
- Up To 3,000 IPM Rapid Speed
- 12 Position Servo Rotary Auto-Tool Changing System
- 6 Zone Vacuum Table
- Helical Rack & Pinion X,Y Axis, Ball Screw Z Axis
- Heavy-Duty One-Piece All-Steel Frame

4.2 Components

- One (1) SmartShop 4 Auto Loader Router Table
- One (1) Off Loader Conveyor Table
- One (1) Infeed Scissor Lift Table
- One (1) Control Cabinet with Fanuc controls
- Vacuum Pump(s)

4.3 Control Cabinet

① **Process Light:** Illuminates different colors depending on the process that is underway.

Red Light -Alarm indication.

Yellow Light -Machine is in the manufacturing process.

Green Light -Machine is ready to perform the next process.

② **Fanuc Control Screen & Buttons:** Used for displaying and inputting functions for the machine.

③ **Manual Pulse Generator (MPG):** Allows the operator to manually control the machine position in pulsating movements.

④ **Main Disconnect:** This switch turns all components ON/OFF.

4.4 Off Loader Table

1 **Conveyor Table:** Area where the cut material is placed to be off loaded . There is a stop sensor on the end to prevent the material from falling off the table.

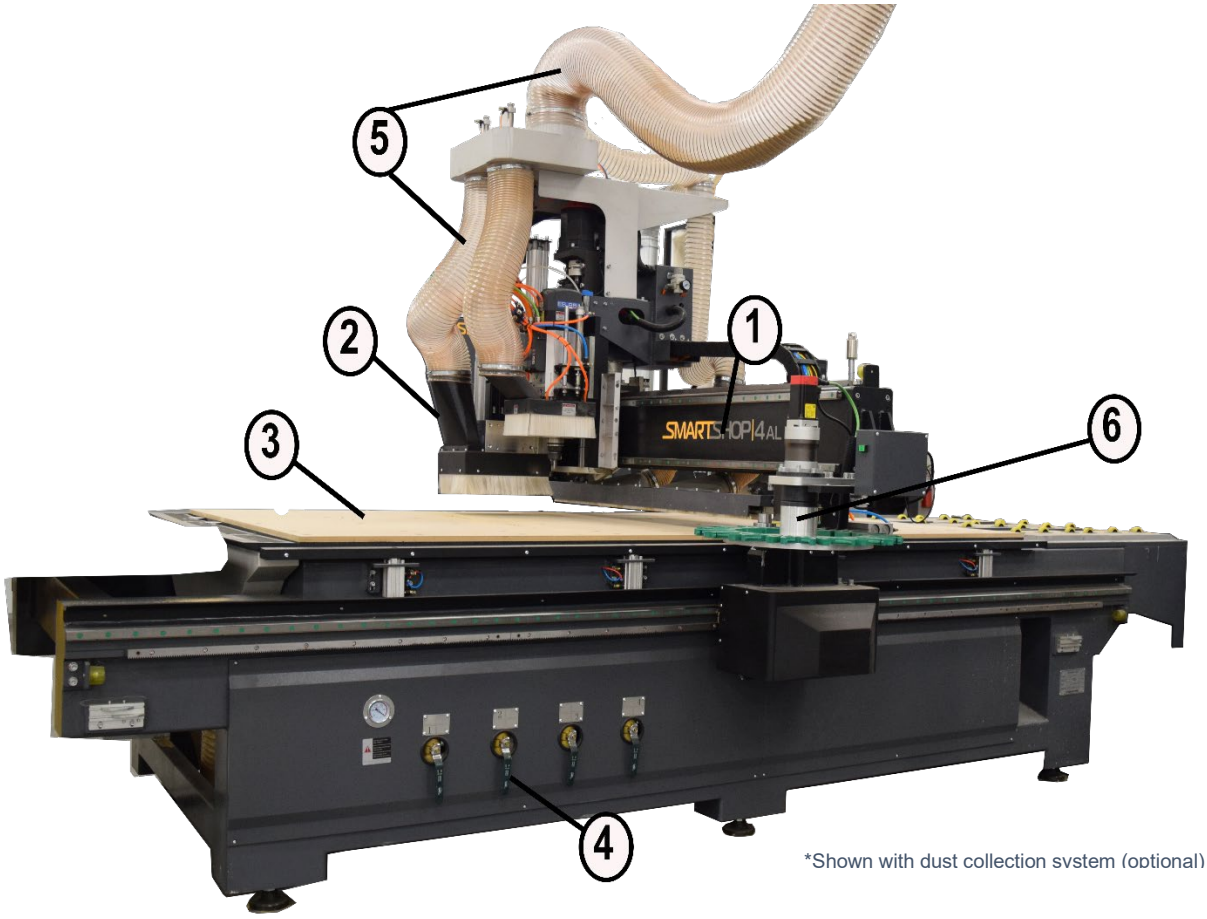
2 **Dust Brusher:** A brush that removes any dust or debris from the cut material.

3 **Controller Box:** A box that houses the controls for the conveyor table.

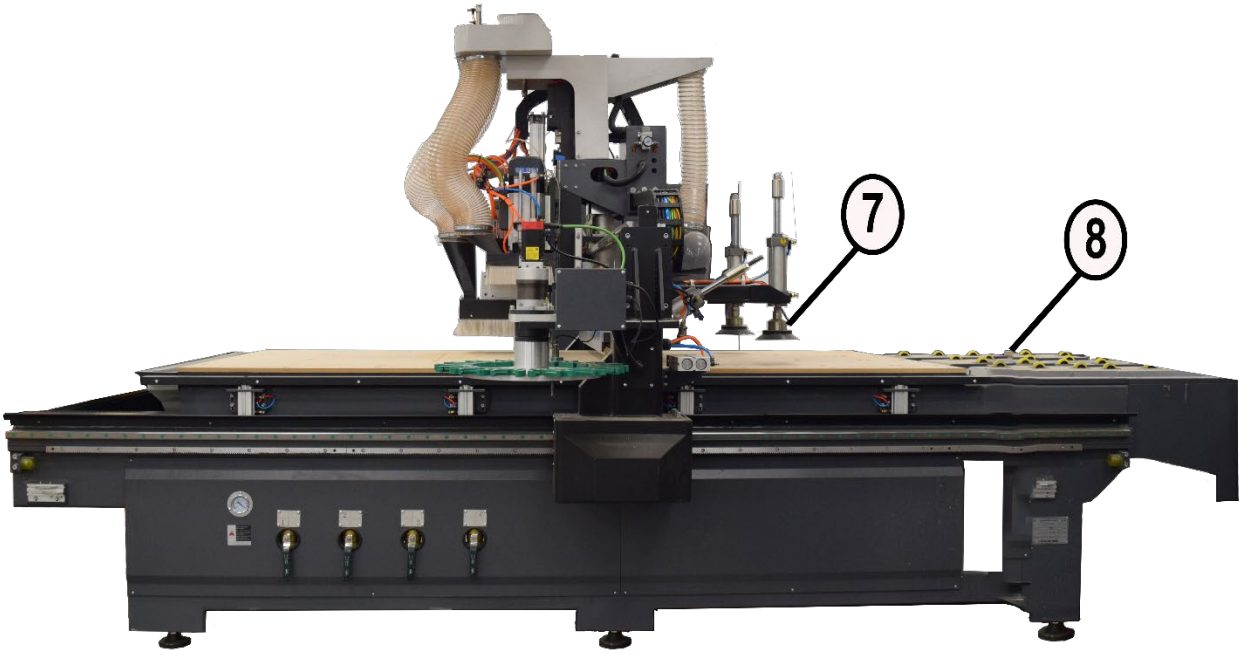
4 **Dust Collection Port:** Catches and collects the dust runoff.

5 **Conveyor Table Motor:** This motor powers the conveyor table.

4.5 Router Table



*Shown with dust collection system (optional)



1. **Gantry:** The gantry straddles the bed and carries the Electro-Spindle and the X, Y and Z axes motion components. It is moved along the length of the bed by precision Helical Rack-and-Pinions with drive motors on each end of the gantry.

2. **Dust Hood:** The dust shroud connects the dust collection vent to the spindle to create a controlled path for the dust to travel.

3. **4-Zone Vacuum Table:** The bed of the machine consists of a heavy steel all-welded frame with a composite worktable that is machined for use with a vacuum pump. The 4-zone vacuum table provides suction in four different zones that the operator can adjust.

4. **Air Control Valves:** Turns the table vacuum suction on/off.

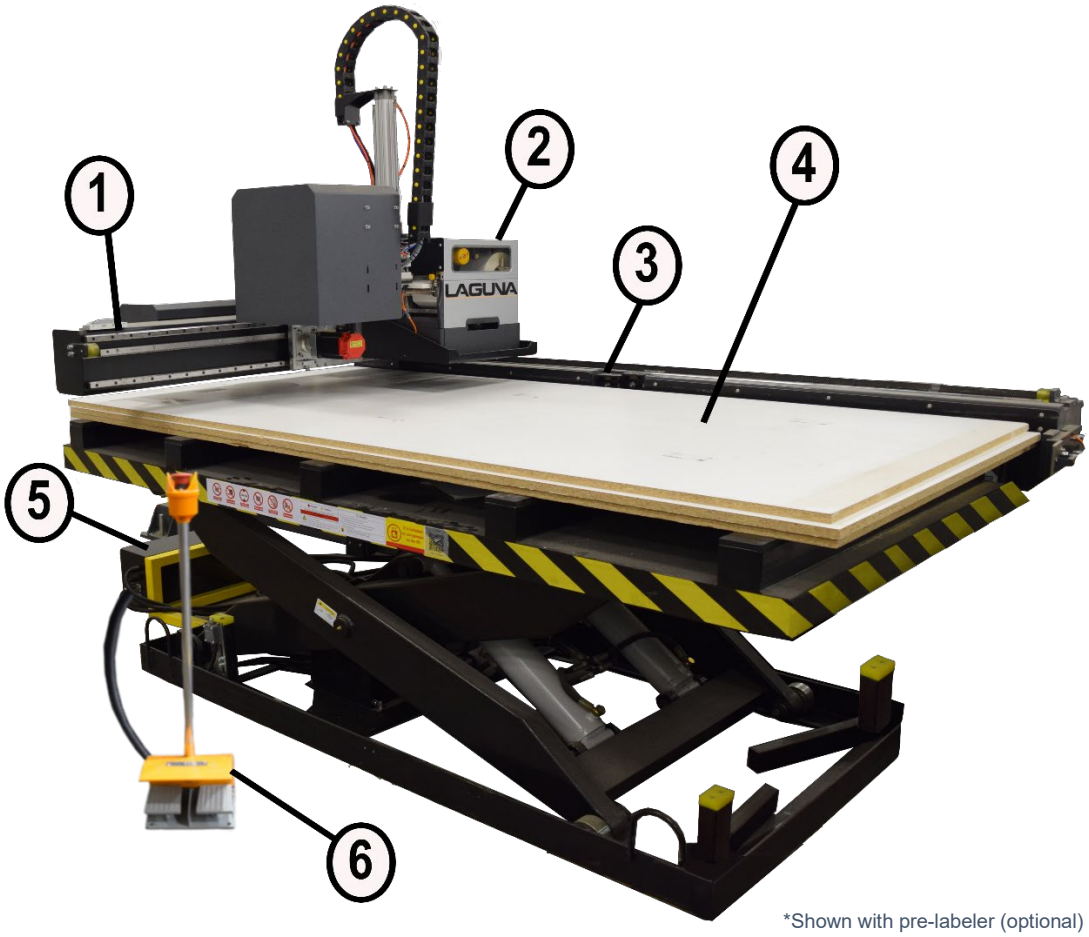
5. **Dust Collection Hose:** Pathway for the dust to travel.

6. **16 Position Automatic Tool Changer (ATC):** Houses the tool cones in place and rotates to the called tool when commanded.

7. **Suction Cups for Product Transfer:** The suction cups lift the material up and hold it to transfer to the router table.

8. **Roller Table:** Uses roller wheels to help smoothly transfer material to the router table.

4.6 Scissor Lift Table



*Shown with pre-labeler (optional)

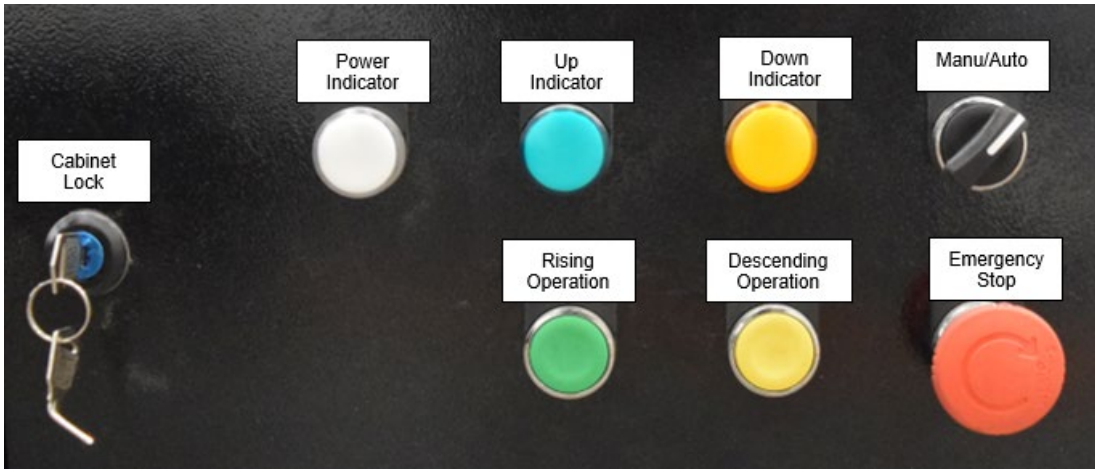
① **Contilever Gantry:** This gantry houses the printer and printer motor. This gantry helps label and align the workpiece.

② **Label Printer:** Prints and applies labels to material to be cut.

③ **Material Height Sensor:** This sensor automatically stops the lift when the loaded material is aligned with the roller table for unrestricted movement.

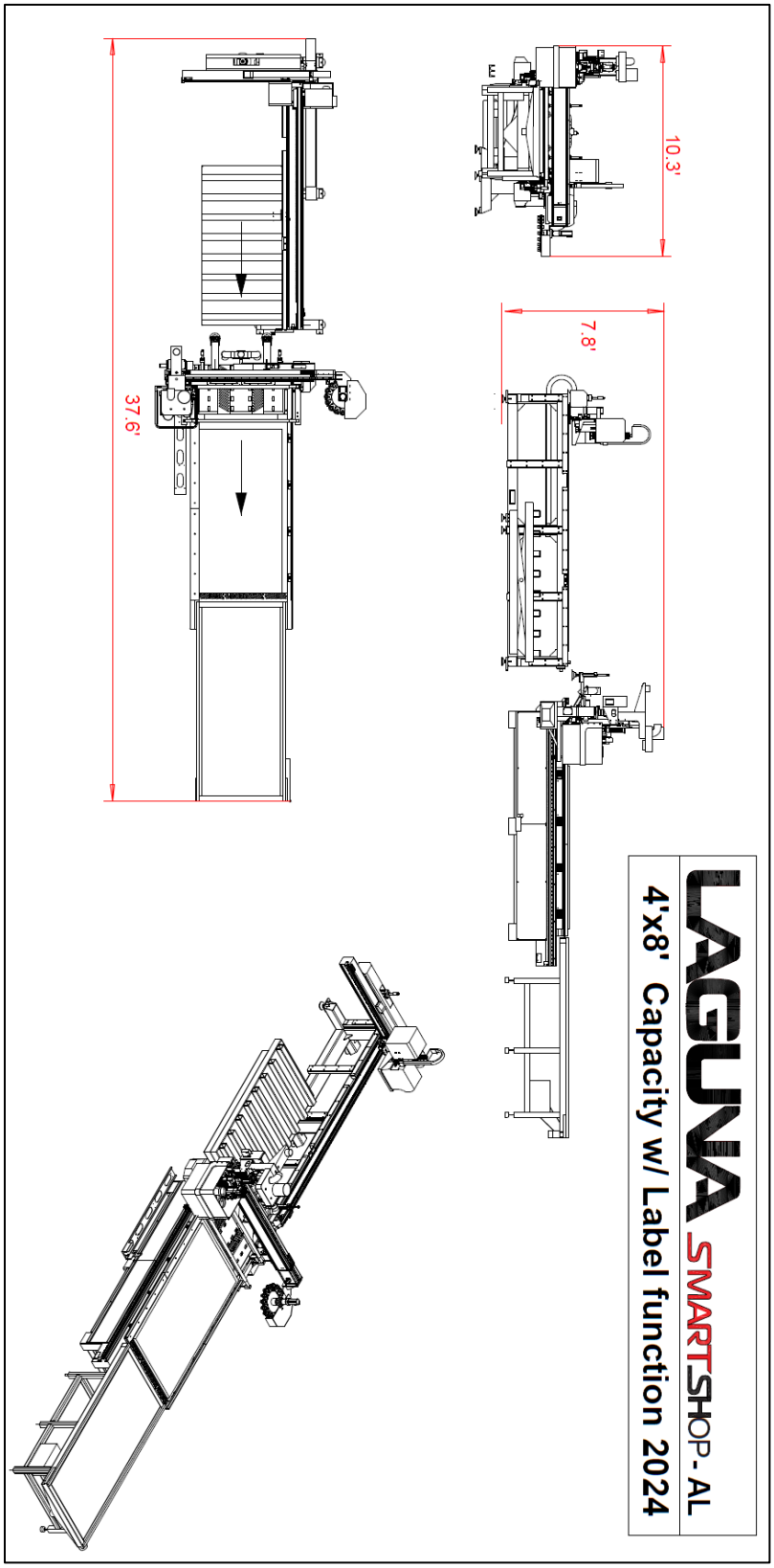
④ **Scissor Lift Table:** This table houses the loaded material that is to be cut.

⑤ **Control Box:** A box that houses the controls for the scissor lift table.

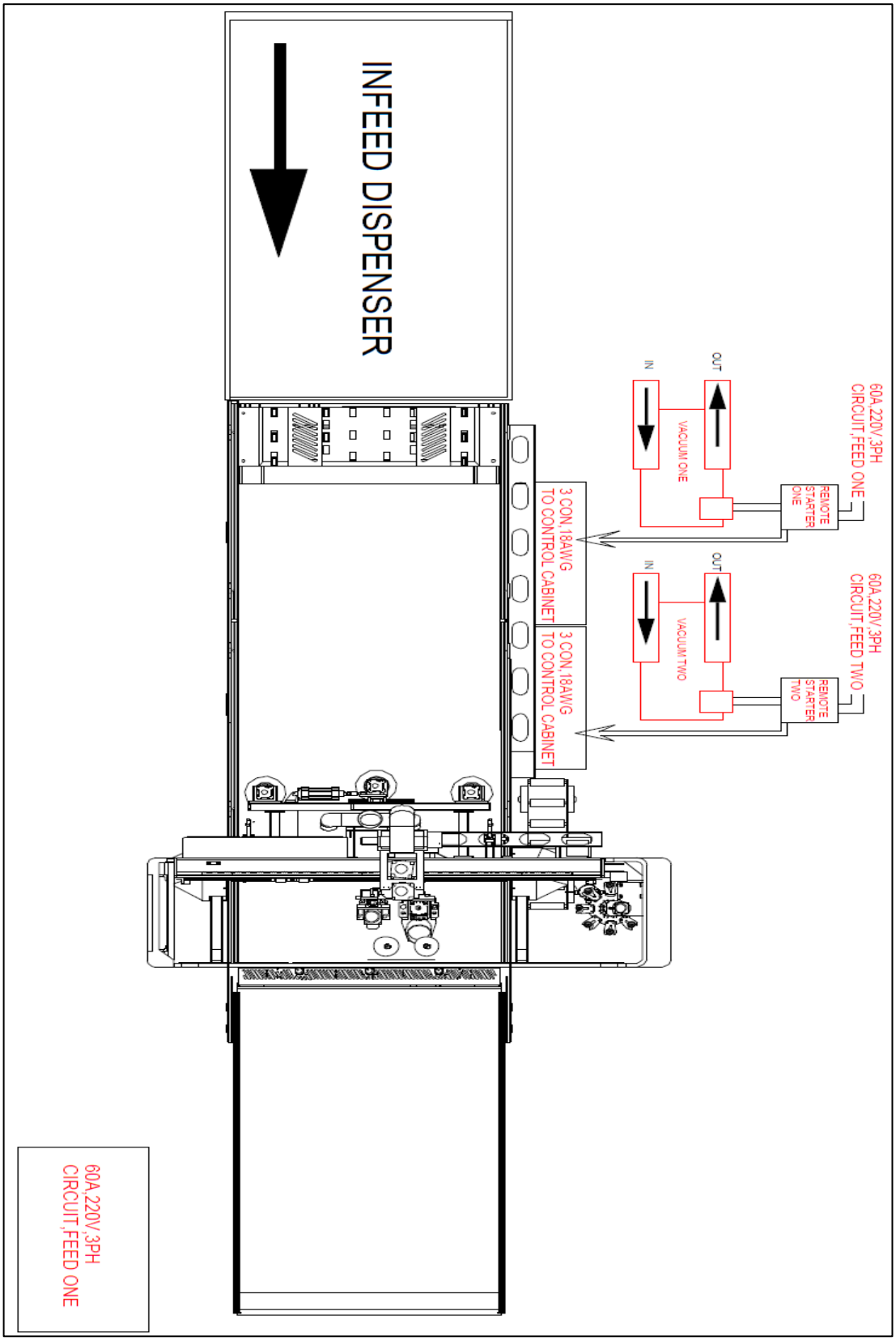


⑥ **UP/DOWN Control Pedals:** Raises/lowers the scissor lift when pedals are pressed.

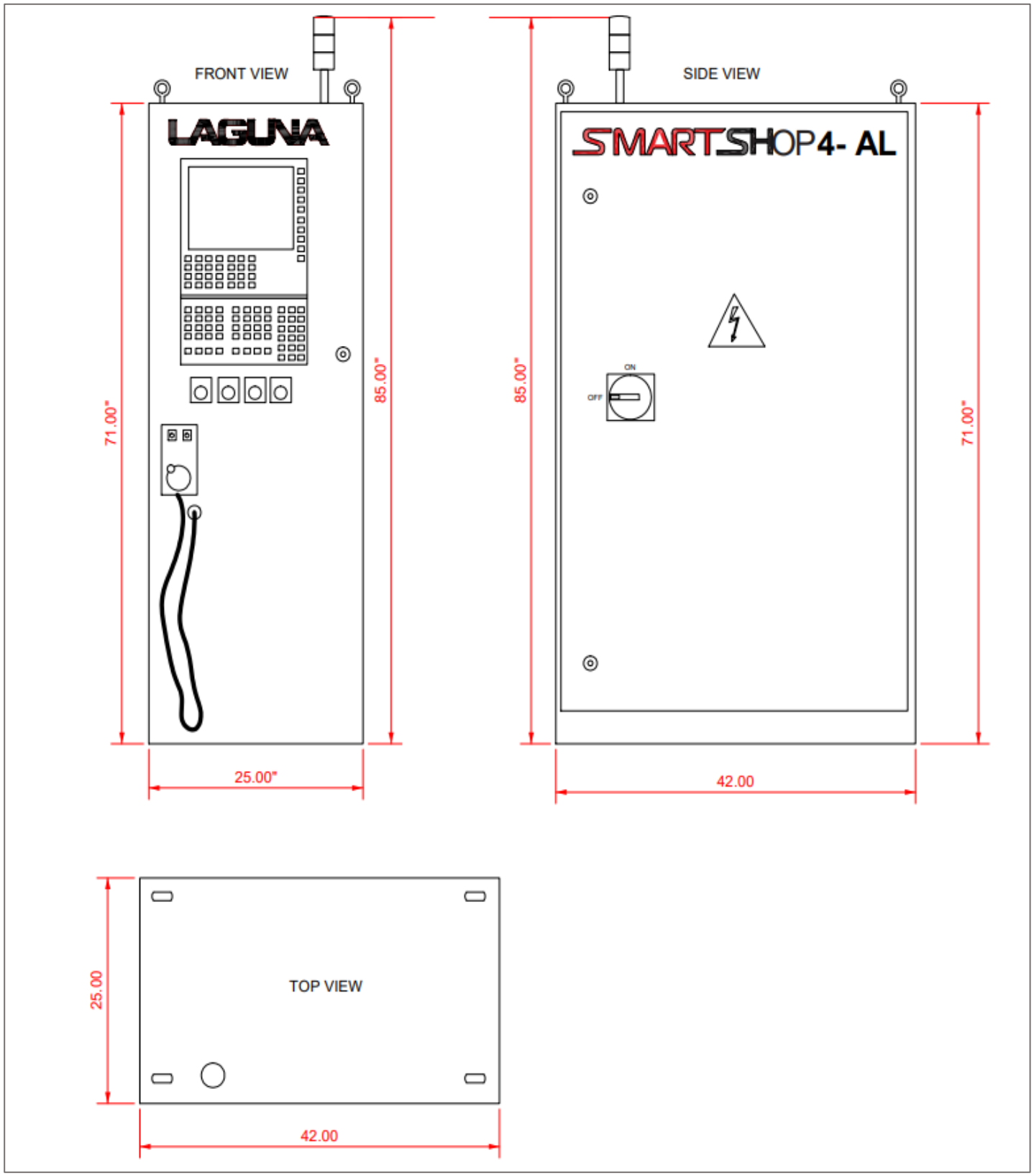
5.0 Specifications and Dimensions



5.1 Common Vacuum Layout



5.2 Control Cabinet Dimensions



5.3 Specification Table

Specifications 4x8 Model	
POWER REQUIREMENTS	220-240V , 45 amp (Vacuum Choice affects amps)
FOOTPRINT	104" x 421"
WORKING AREA *(RECOMMENDED)*	152" x 520"
GANTRY CLEARANCE	7"
SPINDLE	18HP, liquid cooled
SPINDLE RPM	5,000-24,000
RAPID TRAVEL	3,000 IPM (inches per minute)
MAMIMUM CUTTING SPEED	1,000
COMPRESSED AIR REQUIREMENTS *(FOR AUTOMATIC TOOL CHANGER)*	7-12 CFM (cubic feet per minute) @ 100 PSI (pounds per square inch) of clean dry air.
DUST PORT DIAMETER	8" (inches)
PRECISION HELICAL RACK AND PINION DRIVE SYSTEM FOR X AND Y AXES	25mm Heavy Duty Linear Bearing All Axes
CONTROLLER	Fanuc
TABLE TOP	Phenolic grid w/tee slots
SOLID STATE HOME SWITCHES	YES
HEAVY DUTY WELDMENT TUBULAR STEEL FRAME	3100 lbs (pounds) or 1406 kg (kilograms)
CENTRALIZED LUBRICATION SYSTEM FOR ALL AXES	YES
VACUUM TABLE ZONES	4 Zones w/ Valves

6.0 Compressed Air Requirements

This machine requires compressed air for the ATC (automatic tool changer). 7-12 CFM (cubic feet per minute) @ 100 PSI of clean dry air is required.

NOTE

It is recommended to attach 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.

7.0 Electrical and Vacuum Pump Requirements

The SmartShop Auto Loader 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.

The SmartShop Auto Loader machine requires a 220-240V power source (vacuum choice affects Amps)

The vacuum pump(s) power requirements depend on the model and quantity that is chosen.

VACUUM PUMP REQUIREMENTS				
	BECKER 8.6 HP	**BECKER 12.1 HP (SK)**	**BECKER 17 HP**	**BECKER 24 HP**
1 Pump (3 phase, 208V)	29A , 168CFM	35.4A, 174CFM	61.3A, 270CFM	72A, 335CFM
2 Pumps (3 phase, 208V)	58A, 336CFM	70.8A,348CFM	122.6A, 540CFM	144A, 670CFM
1 Pump (3 phase, 480V)	13A, 168CFM	16.7A, 174CFM	29.5A, 270CFM	34A, 335CFM
2 Pumps (3 phase, 480V)	26A, 336CFM	33.4A,348CFM	59A, 540CFM	68A, 670CFM

8.0 Unloading and Unpacking the Machine

NOTE

All shipping related claims for loss or damaged goods must be made to Laguna Tools within 24 hours of delivery.

Contact Laguna Tools customer service department to make claims for any damaged items/parts.

The original packaging is required to return damaged goods within the warranty period.

The machine should be delivered on a trailer by one or a combination of these methods:

1. In a crate
2. In a box
3. Heat shrunk in plastic
4. Sitting on a pallet

BEFORE unpacking your new machine, inspect the packaging, invoice, and the shipping documents supplied by the driver. When unpacking the machine, verify there are no signs of damage to the parts or machine you have received.

See the components section to cross reference the parts you should receive.

⚠ WARNING

The customer is required to have a forklift (6000 lbs. or larger is recommended) with 72-inch forks or fork extensions.

⚠ WARNING

Unload the machine with care. DO NOT pinch, crush, or damage any components that are on/around the machine.

⚠ WARNING

This machine is heavy. Seek assistance from an experienced professional if you have any doubt about the following unboxing or set up procedures.

DO NOT attempt any procedure that you feel is unsafe or you believe you do not have the physical capability of achieving.

⚠ CAUTION

When determining location, verify there is sufficient room around the machine. If you cannot fully open all the doors around the machine, it cannot be installed or serviced in the future if necessary.

Tools needed:

- *Crowbar or prybar*
- *Forklift or pallet jack*
- *Drill with Phillips head bit*
- *Tin snips*

BEFORE moving the machine to the desired location, verify that there is sufficient room around the dust collector to facilitate easy access to the workpiece, perform maintenance, and provide a safe exit in the event of an emergency.

1. Use a forklift (6000 lbs. or larger is recommended) with 72-inch forks or fork extensions to unload the machine from the trailer.
2. Move the machine to a desired location.
3. Use tin snips to cut and remove any straps.
4. Use a drill with Phillips head bit to remove any screws that are securing the machine to the pallet/crate.
5. If necessary, use the prybar to remove any surrounding wood.
6. Use the forklift to lift the machine and remove the pallet/crate.
7. Lower the machine gently to the floor.
8. Ensure that all parts/components are present and in good condition.

9.0 Assembly & Setup

⚠ WARNING

Do not connect to a power supply until set-up is complete. Do not perform any of the following steps, installations, or adjustments with the machine connected to a power source unless directed to do so.

Tools & items needed:

- *Knife or cutting tool*
- *Tin snips*
- *Forklift (6000 lbs. or larger is recommended)*

1. After unloading the machine, make sure that all straps, plastic wrap, and surrounding wood are removed.
2. Use a forklift to remove the control cabinet from the machine.

⚠ CAUTION

Be cautious of the cords running from the electrical cabinet to the machine.

DO NOT rip or fray them when removing the electrical cabinet.

⚠ CAUTION

The vacuum pump is heavy and requires a forklift to move.

3. Use the forklift to remove the vacuum pump(s) from the table.

4. Remove any other components from the machine and set them to the side.

NOTE

All shipping related claims for loss or damaged goods must be made to Laguna Tools within 24 hours of delivery.

Contact Laguna Tools customer service department to make claims for any damaged items/parts.

The original packaging is required to return damaged goods within the warranty period.

9.1 Leveling the Machine

Before positioning the conveyor table and scissor lift table, the router table will need to be leveled first.

Tools & items needed:

- *Crescent wrench*
- *Level*
- *Forklift, pallet jack, or 2-ton floor jack*
- *Six (6) leveling feet*
- *Six (6) bolt/nut combos*

1. Place a level on the machine to see if it is level.
   a. If the machine is level, installing the leveling feet is optional.
   b. If the machine is not level, the leveling feet will need to be installed.

9.1.1 Installing the leveling feet on the Router Table

The machine comes with six leveling feet.

1. Use a forklift, pallet jack, or 2-ton floor jack to slightly lift the machine of the ground.

Figure 9–1: Pallet Jack Lifting the Machine

2. Align the metal feet to the feet hole(s)

Figure 9–2: Aligning the Metal Feet

3. Place the bolt/nut combo into the hole(s).
4. Turn the nut clockwise until it is snug against the metal.

Figure 9–3: Inserting and Turning Bolt Against the Metal Foot

5. Slowly lower the forklift or jack and move it away from the machine.
6. Place a level on top of the table to check for levelness.
7. Use the crescent wrench to turn the nut clockwise/counterclockwise to make any leveling adjustments.

Figure 9–4: Using a Crescent Wrench to Adjust and Tighten the Bolt/Nut Combo

8. Recheck for levelness and adjust as needed.

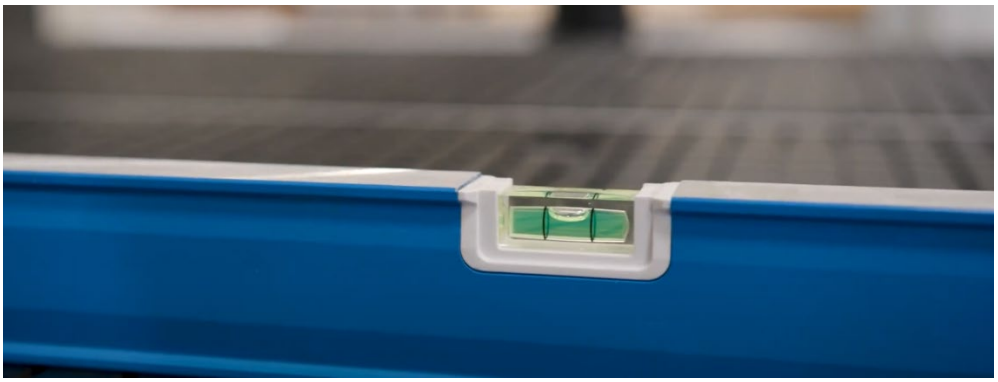


Figure 9–5: Checking for Levelness

9. Apply steps 1-8 to all six feet.

9.2 Leveling the Conveyor Table

The conveyor table is pre-installed with leveling feet.

1. Use the crescent wrench to turn the nut on the leveling feet clockwise/counterclockwise to make any leveling adjustments.

NOTE

We highly recommend aligning the conveyor belt with the dust collection port for seamless material transfer.

9.3 Leveling the Scissor Table

After all electrical and compressed air connection are made, the scissor table can be aligned with the rear of the router table and leveled by using the foot pedals.

10.0 Electrical Connections

Tools & Items Needed

- *10mm socket or wrench*
- *7mm deep socket or wrench*
- *Phillips screwdriver*

⚠ CAUTION

A qualified professional is required to perform the electrical installation.

The onsite technician will assist in the electrical installation process.

10.1 Power supply

⚠ WARNING

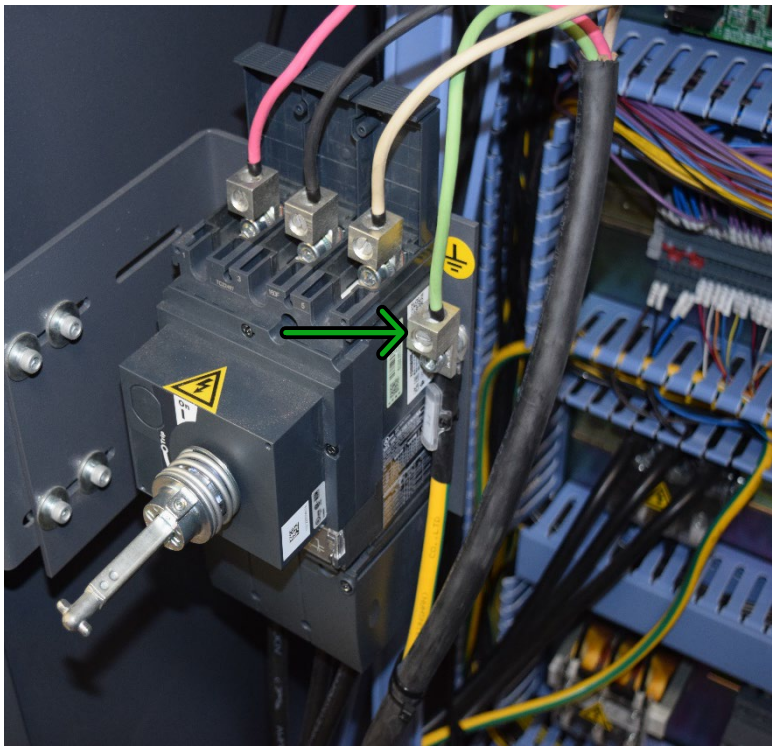
Do not connect to a power supply until the set-up is complete. Do not perform any of the following steps, installations, or adjustments with the machine connected to a power source unless directed to do so.

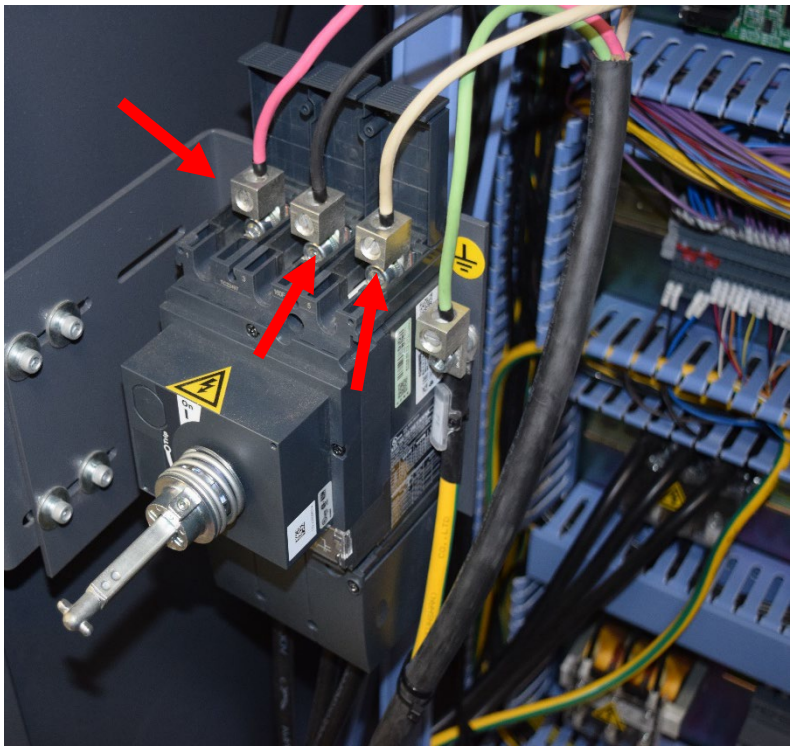
1. Use the included key to unlock the fasteners and open the side panel of the control cabinet. Notice the ports on the outside bottom rear of the control cabinet.

Figure 10–1: Ports on the rear of Control Cabinet

2. There should be a power supply cord with a red, black, and brown wire inside. Run this power supply cord through one of the ports.
    a. Push them through into the control cabinet.

3. Connect the ground wire (green) to the contacts shown in the figure to the right.
    a. Use a Phillips screwdriver to tighten it.





4. Connect the red, black, and tan wires to the contactors.
    a. Use a Phillips screwdriver to tighten them.

The technician on site will set up all other electrical connections.

11.0 Compressed Air Connection

This machine requires compressed air for the ATC (automatic tool changer). 7-12 CFM (cubic feet per minute) @ 100 PSI of clean dry air is required.

NOTE

It is recommended to attach 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 air quality supplied to the machine.

Tools & Items Needed:

- *Air compressor with air hose (not supplied)*

11.1 Connecting Air to the Machine

1. Insert the air hose into the connector.

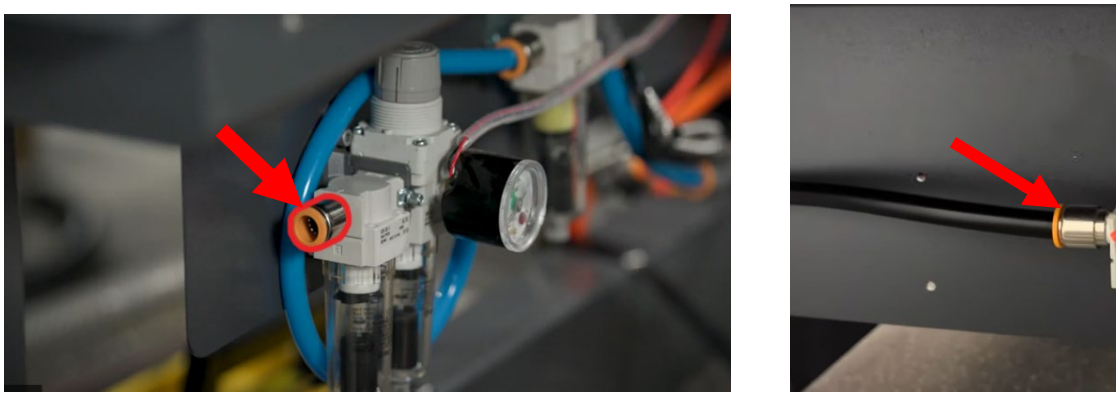


Figure 11–1: Air Hose and Connector

12.0 Dust Collection

Dust collection is required for this machine. This ensures that the machine can optimally perform.

A dust collection will come with these component(s):

- One dust collection machine

These other components the operator will need to purchase:

- Dust collector hose
- Dust shroud

NOTE

We recommend purchasing a dust collector that is capable of 3000-5000 CFM (cubic feet per minute) of suction power.

Dust collection can increase the air quality and cleanup of the workspace.

1. Fit the dust shroud (not supplied) to the two air cylinder rods and clamp in position with the clamping nuts.
2. Fit a dust collector hose (not supplied) to the dust shroud and secure with the clamp. Ensure it is tight.
    a. If the clamp is loose, the hose and shroud can fall off.

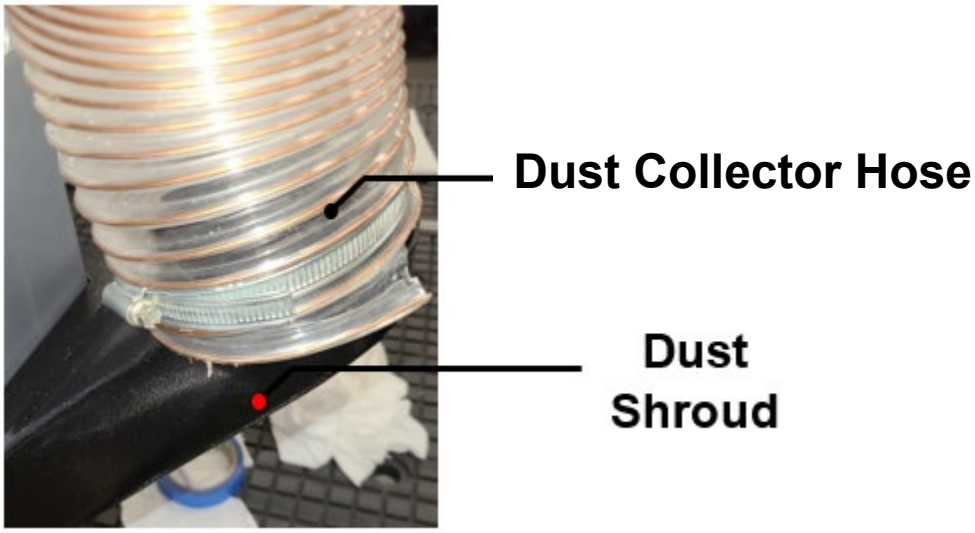


Figure 12–1: Dust Collector & Shroud

NOTE

To avoid a trip hazard, we recommend suspending the dust collector hose from the ceiling.

Confirm there is sufficient slack when suspending it so that there is no restriction in movement.

Insufficient slack may break or damage the dust shroud and hose.

13.0 Pre-Labeler

The Pre-Labeler is a component that prints and applies labels to material to be cut,

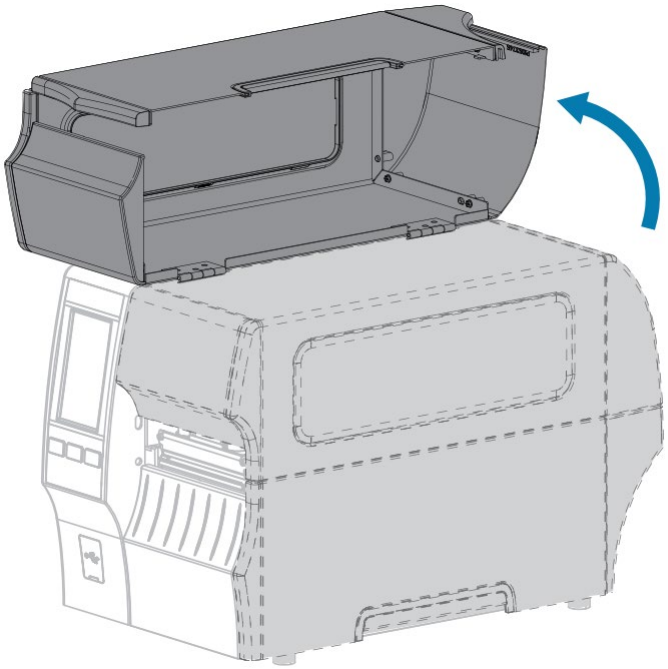
13.1 Removing & Installing Labels

⚠ WARNING

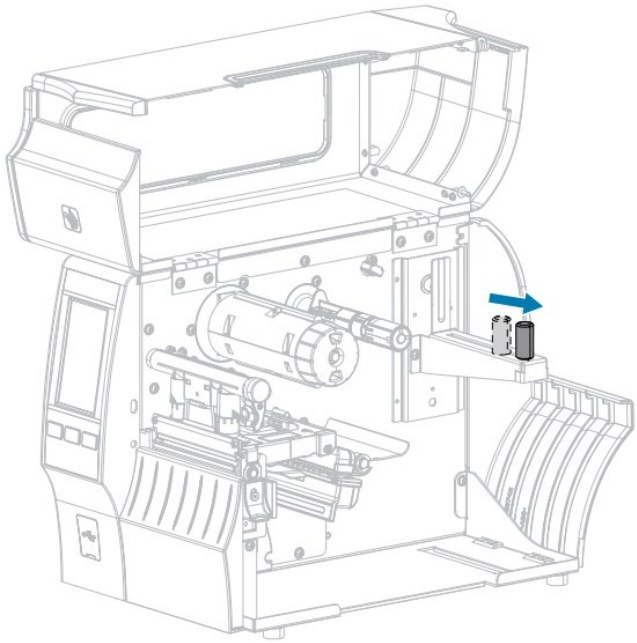
The printhead may be hot and could cause severe burns.

Allow the printhead to cooldown.

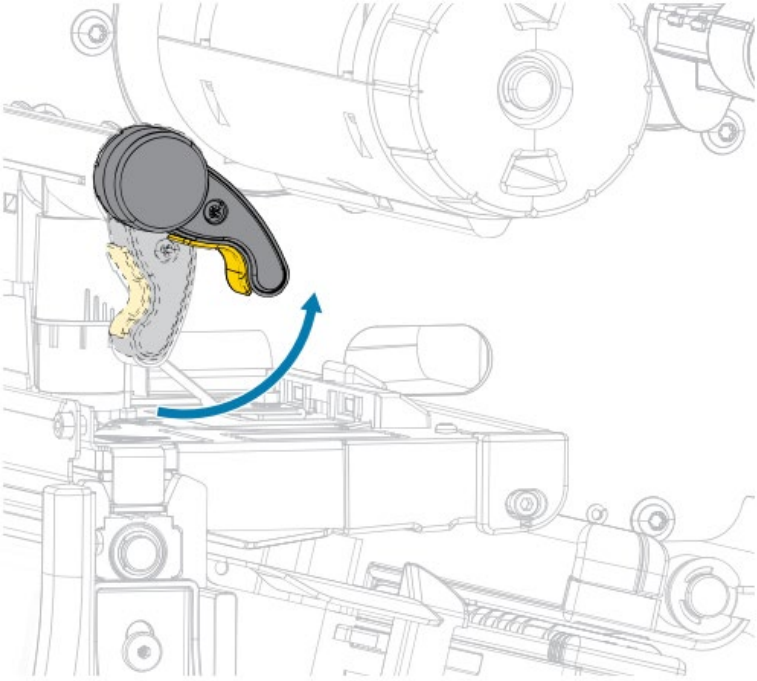
1. Raise the printer door.



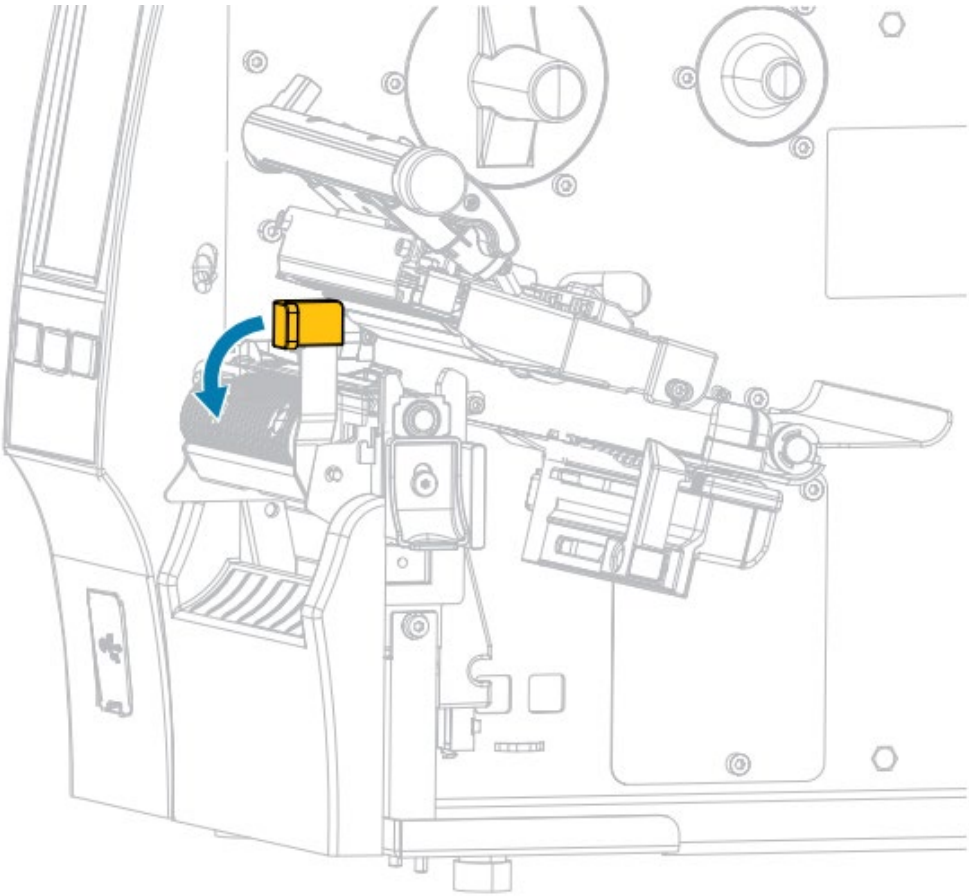
2. Slide the media supply guide out and remove the empty roll.



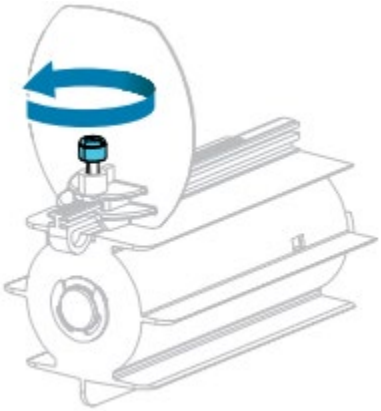
4. Rotate the open lever upward.



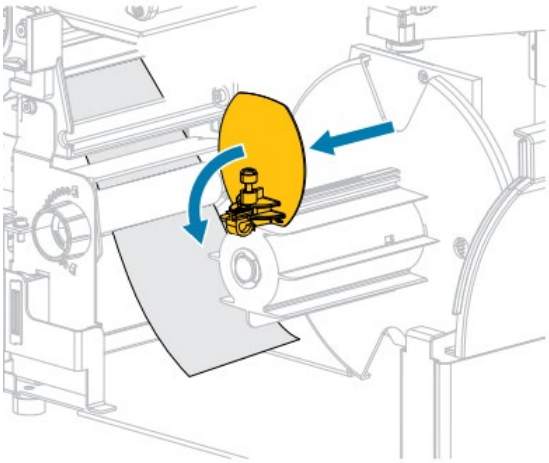
5. Push down the peel assembly release lever.



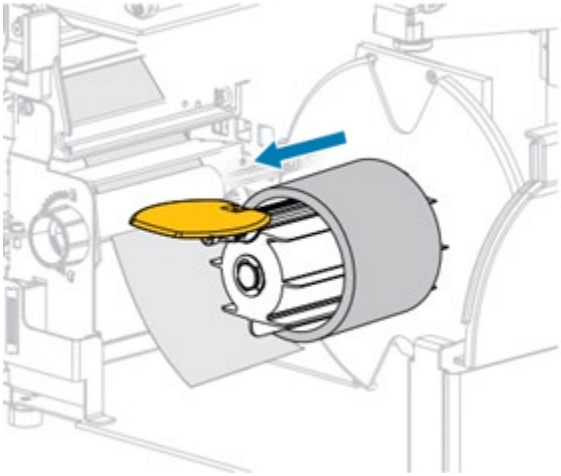
6. Loosen the thumbscrew on the rewind spindle.



7. Slide the rewind flap out and fold it down.

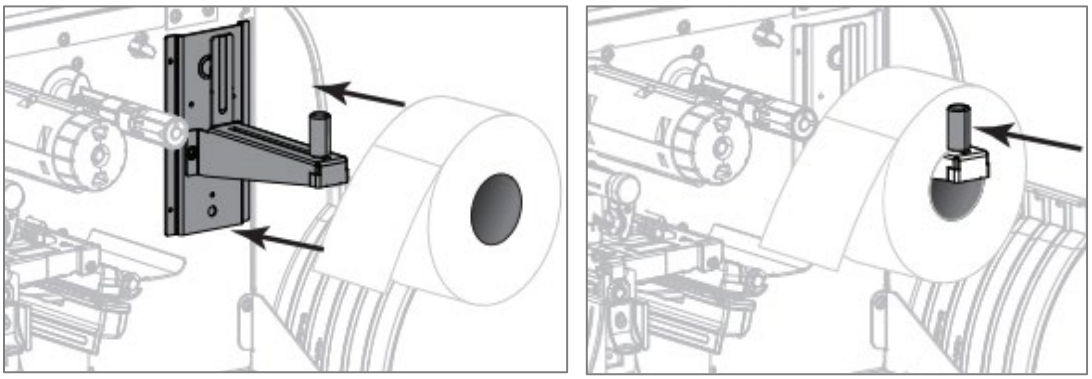


8. Remove the roll from the rewind spindle.

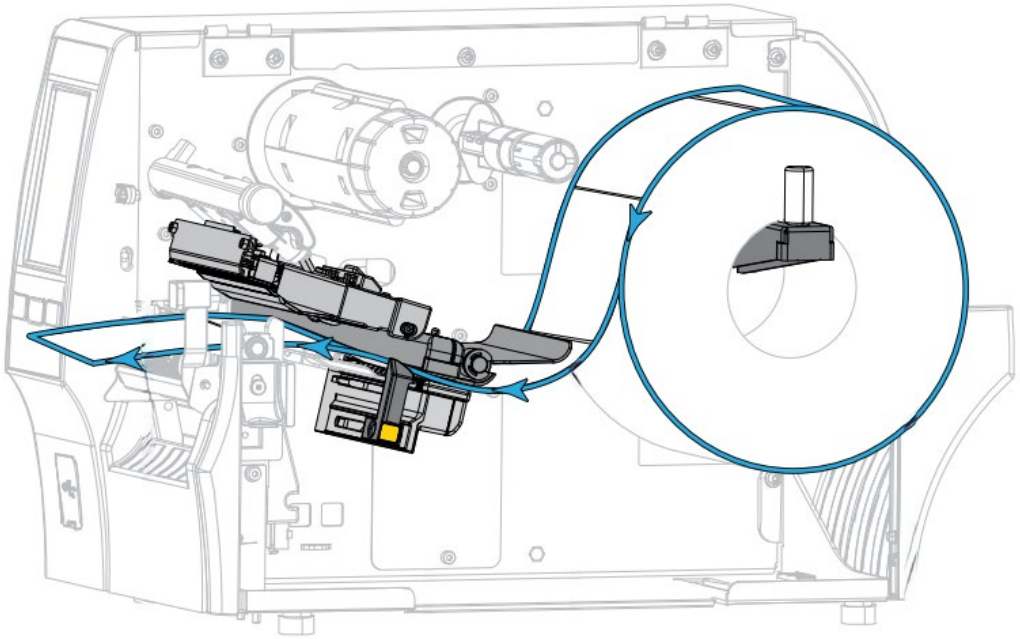


9. Remove any labels that are dirty or damaged and properly discard them.

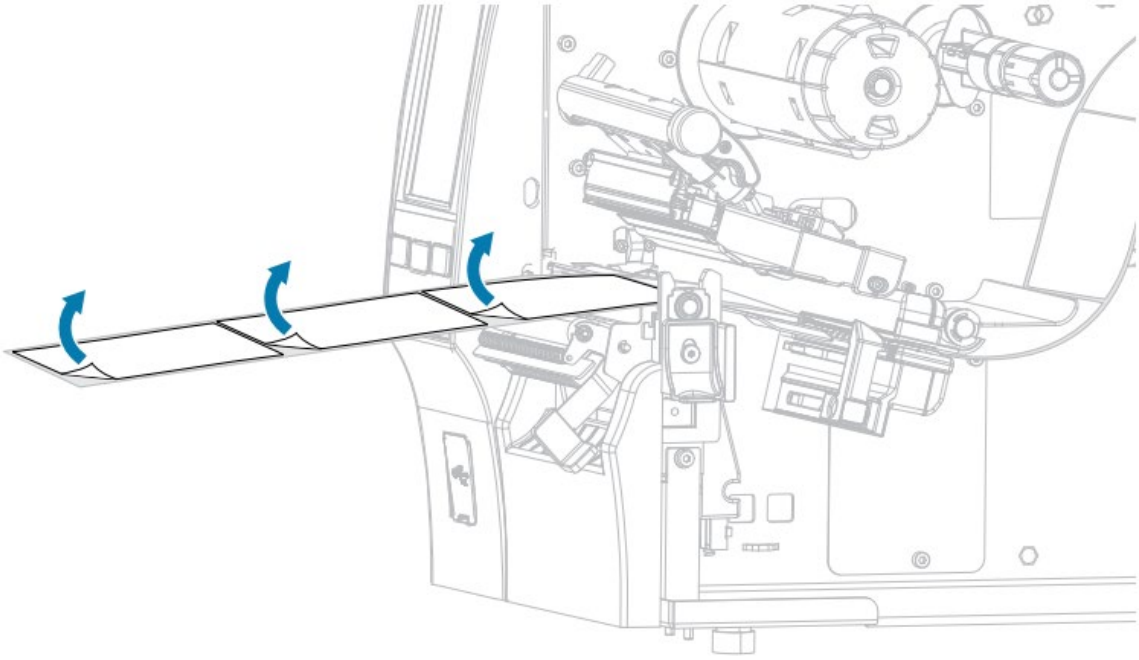
10. Insert a new roll onto the media hanger and push in the media supply guide all the way back.



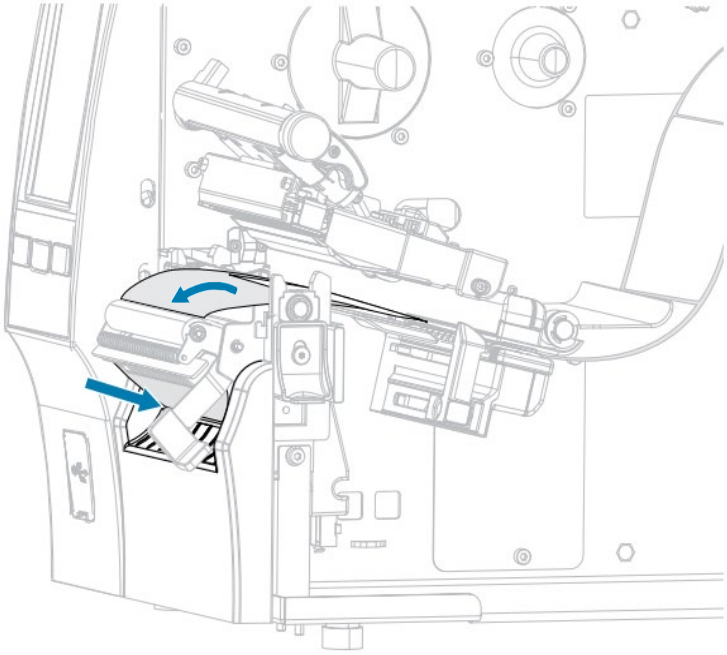
11. From the media hanger, feed the label under the dancer assembly, through the media sensor, and under the printhead assembly.



12. Extend approximately 18 in. (500 mm) of media out of the printer. Remove the labels from this exposed media, leaving just the liner; keep one label for later use but discard the rest.

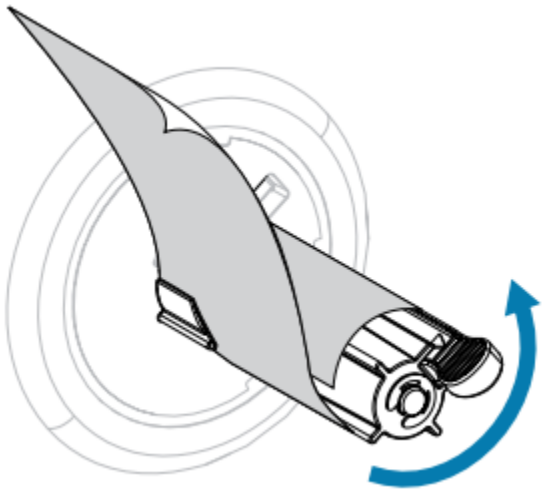


13. Feed the liner between the rubber roller and metal plate, pulling it through the big gap that's directly below the metal plate. The liner should sit between the two metal plates.

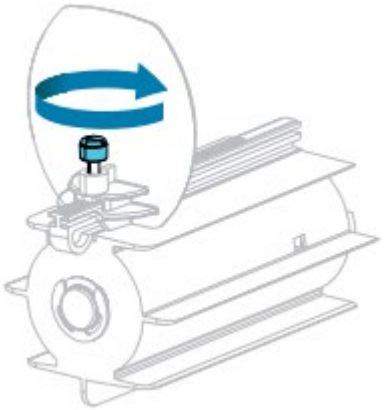


14. Place the liner against the back plate and slightly wrap it around the rewind spindle. Choose a flat spot on the rewind spindle and stick the saved label on top of liner, sticking it to the spindle.

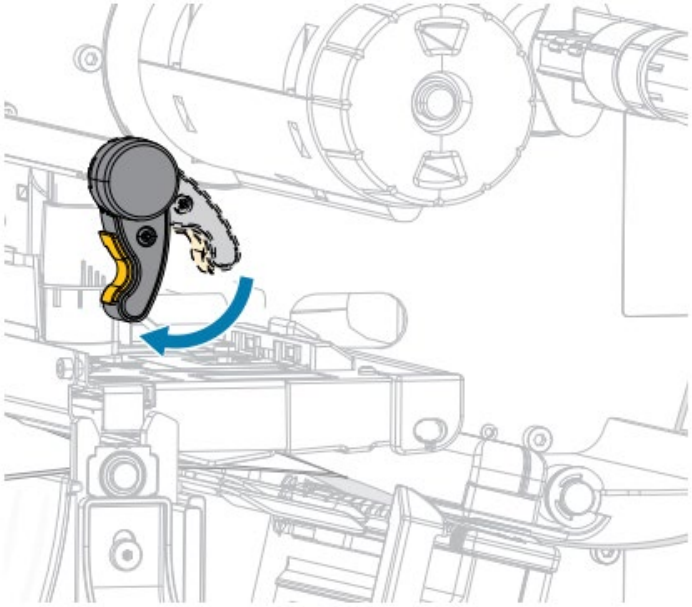
15. Hand-turn the spindle counterclockwise two rotations to help secure the media.



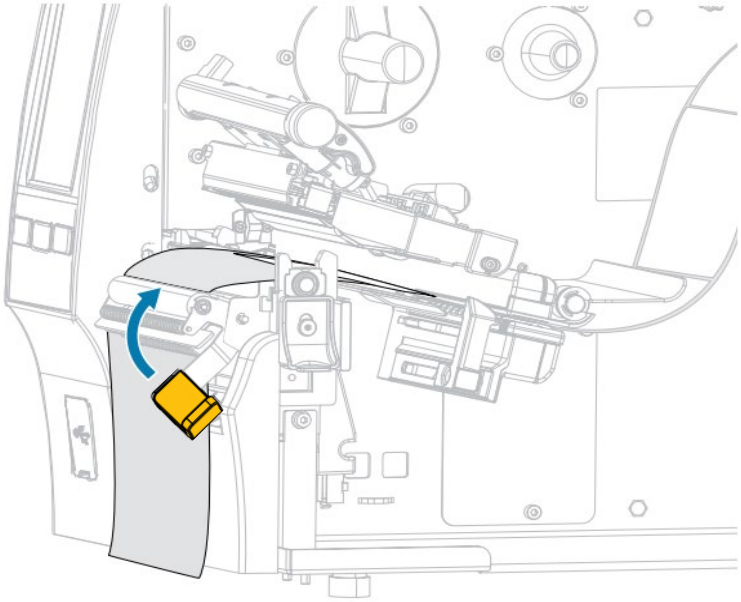
16. Slide the rewind flap in and fold it up.
17. Tighten the thumbscrew on the flap.



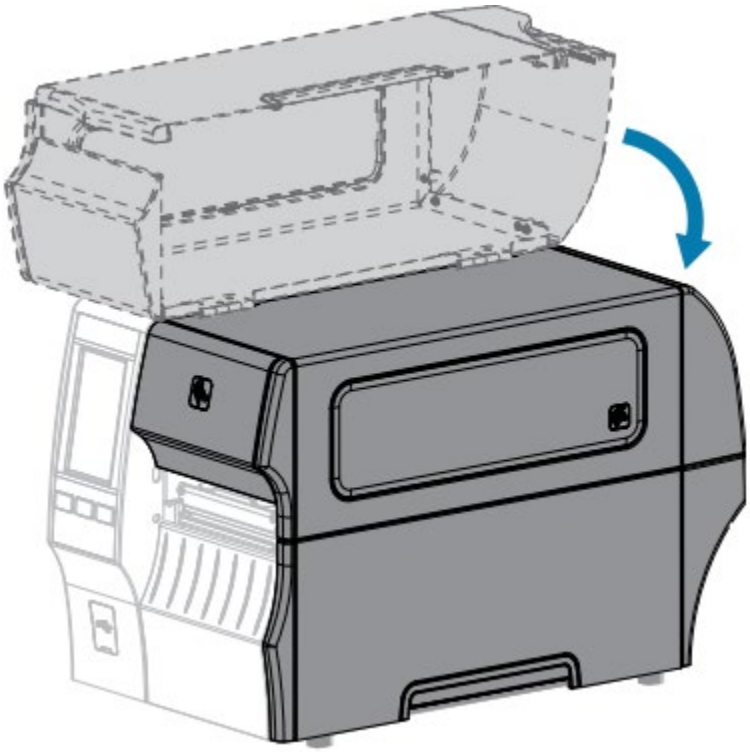
4. Rotate the printhead open lever downward to lock the printhead in place.



5. Push the peel-off release lever up to close the assembly.

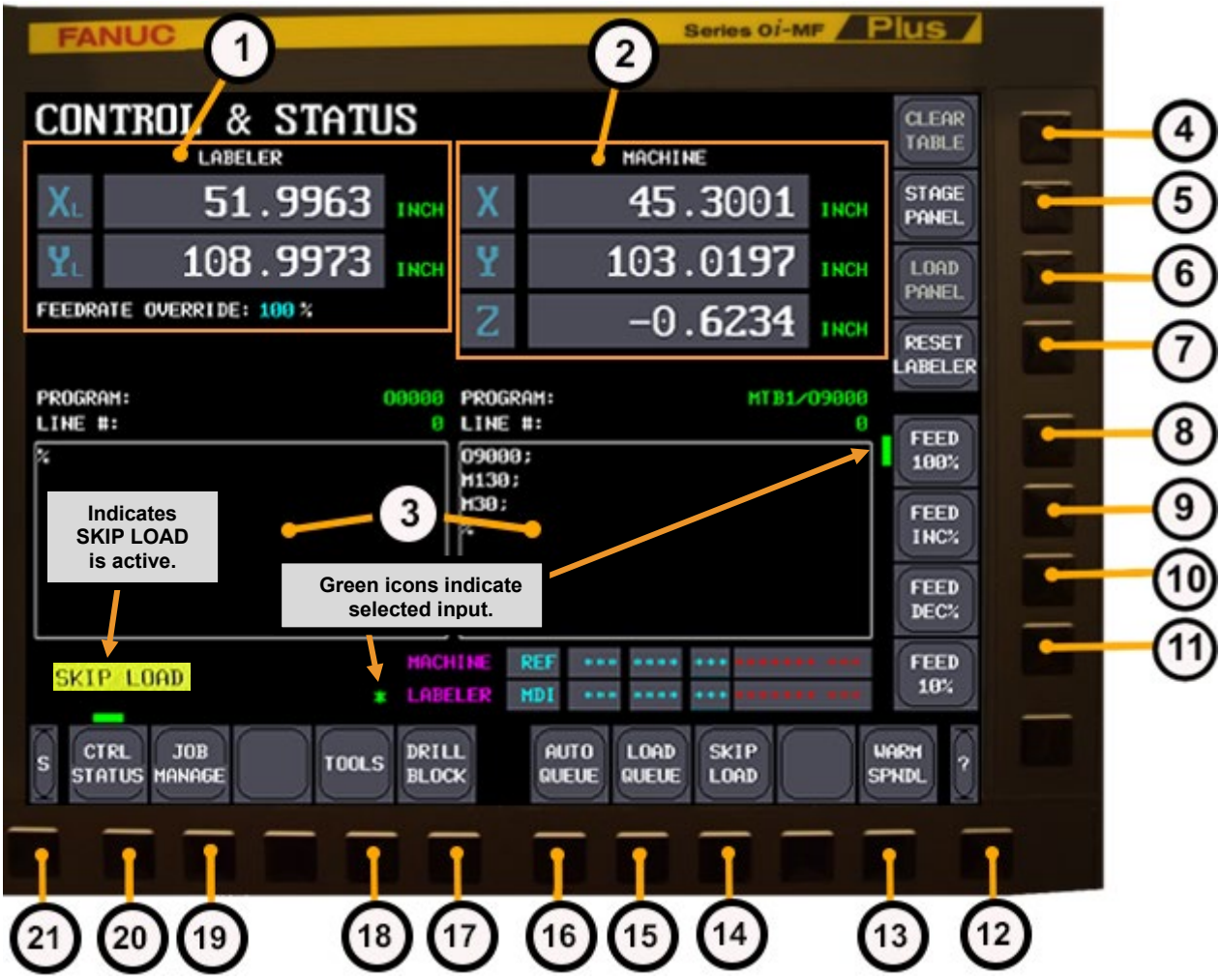


6. Close the printer door.



14.0 Fanuc Controls

14.1 Control & Status Screen



1. **Labeler Display Window-** Displays the X and Y coordinates on the labeler path.

2. **Machine Display Window-** Displays the absolute coordinates on the machining path.

3. **Program Window(s)-** Displays the main program contents on each path

4. **Clear Table Button-** Only works when "M" (Machine path) is selected. Clears router table without loading the next sheet of material.

5 **Stage Panel-** Only works when "L" (Labeler) path is selected. Prepares the next piece of material on labeler for transfer.

6 **Load Panel-** Only works when "M" (Machine) path is selected. Transfers and aligns material

7 **Reset Labeler/Machine-** When "L" (Labeler) path is selected, the labeler resets al pistons and moves to the default position. When "M" (Machine) path is selected, all the rails and pushers do not move the machine.

8 **Feed 100 % -** Increases the feed rate of the selected path by 100% speed capacity.

9 **Feed Inc % -** Increases the feed rate of the selected path.

10 **Feed Dec %-** . Decreases the feed rate of the selected path

11 **Feed 10 %-** Increases the feed rate of the selected path by 10% speed capacity

12 **Help**- Opens the help screen.

13 **Warm Spindle**- Allows the spindle to reach a stable operating temperature before machining.

14 **Skip Load**- Skips the loading process and only executes machining G-code. Skip load is cleared on reset and rewind

15 **Load Queue-** Loads queue that is on file.

16 **Auto Queue-** Automatically starts next job file when activated. Hold 3 secs to activate. press feed hold to deactivate. Auto queue also deactivates when an alarm is present.

17 **Drill Block-** Opens the drill block screen.

18 **Tools-** Opens the tool screen.

19 **Job Manager-** Opens to the job manager page.

20 **Control Status-** Opens to the control status screen.

21 **Service-** Opens the service screen. Only available when PWE=1

14.2 Job Manager Screen

The job manager screen is a screen that shows the job(s), file(s), and material(s) that are uploaded to the controller.

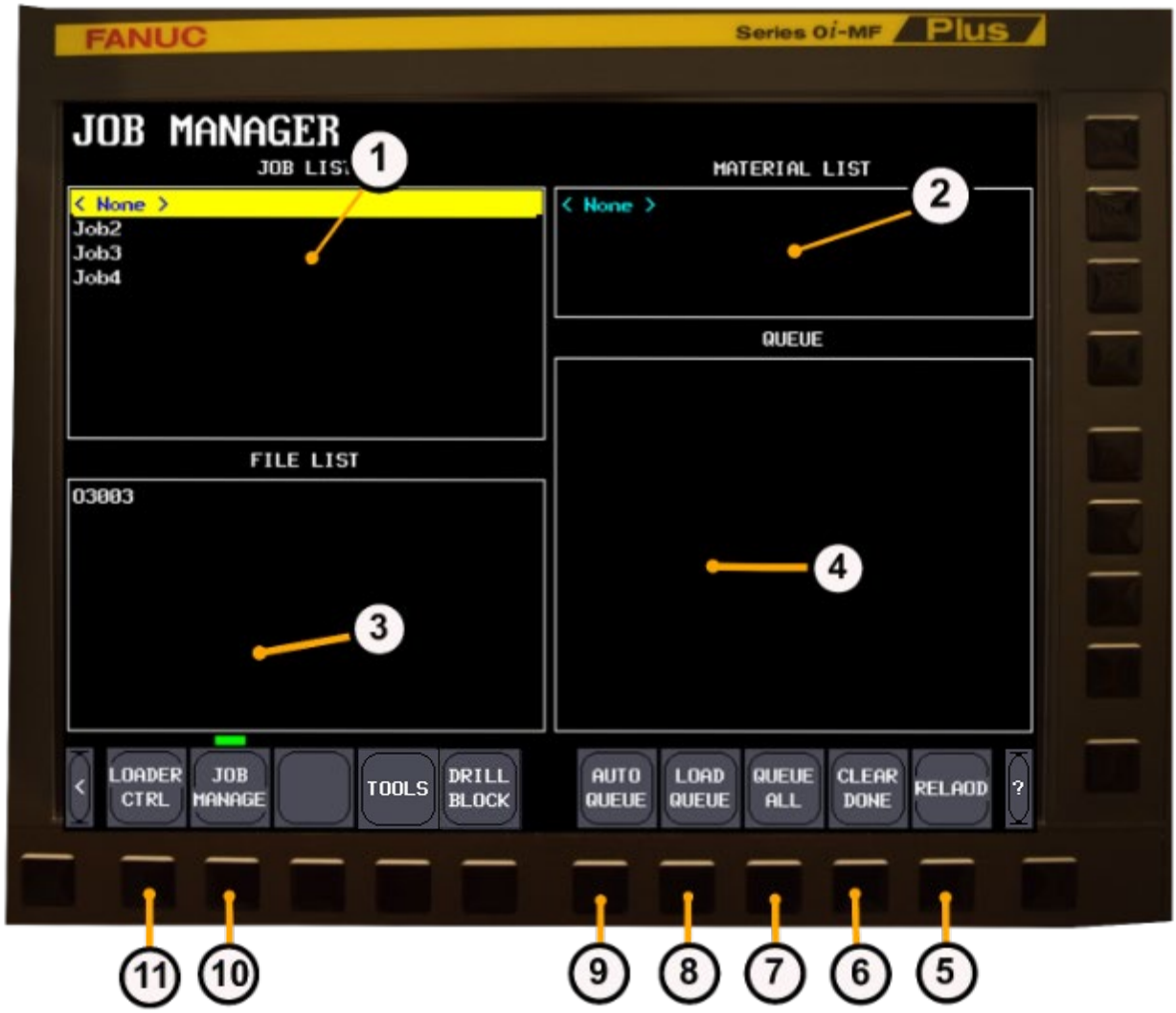
The maximum number of files that can be in each list is as follows:

Job List: Up to 50

File List: Up to 100

Material List: Up to 10

Queue: Up to 100



① **Job List Window**-Lists the current job file(s) that are loaded into the controller.

② **Material List Window-**Displays the material(s) that are loaded into the job list.

③ **File List Window-** Displays the files in the selected materials folder.

④ **Job Queue Window-**Displays the job files in queue that are to be cut.

⑤ **Reload-**Updates the job list window if any new job file(s) were uploaded.

⑥ **Clear Done-**Moves finished job files from the Jobs List to the to the Done List

⑦ **Queue All / Clear Queue-** When "Queue All" is displayed, this button loads all files that are in the "File List Window" into the "Queue Window". When "Clear Queue" is displayed, this button moves all files in the "Queue Window" into the "File list Window".

⑧ **Load Queue-** Loads the start queue file. Holding the "M" or "L" button just loads the selected the path.

⑨ **Auto Queue-** Hold 3 secs to enable. Automatically starts the next job file in the queue.

⑩ **Job Manage-** Displays the job manager page.

⑪ **Loader Control-** Displays the Control and Status page.

14.3 Upper Keypad Layout

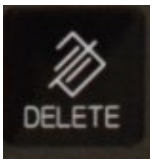
Reset: Resets the selected path to its.default state. When in "Edit Mode", this rewinds the path.

Keypad-Can input letters, numbers, symbols, and other characters.

Alter: Use to overwrite selected data.

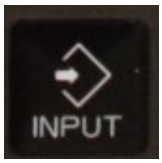
Insert: Inserts the selection.

Cancel: Deletes the last character or symbol that was inputted.



Delete: Deletes the selection.

Shift: Some buttons have subscript characters on them. This button toggles to the subscript character.



Input: Inputs the selection.

Pos: Displays the true position screen.

System: Displays the system menu screen.

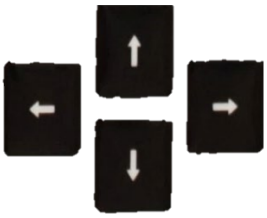
Prog: Displays the program menu screen.

Message: Displays the message & alarm screen

Offset Setting: Press to store work offsets and too length offsets.

CSTM/GR: Toggles through screens one at a time.

Help: Displays the help screen that shows the operation of an MDI key.



Arrows: Used for navigation.

Page Up/ Page Down: Used for full page navigation.

14.4 Lower Keypad Layout

Auto: Starts the program automatically. This button will only function when "M" or "L" is selected.

Edit: Displays the edit screen. Edits the G Code. This button will only function when "M" or "L" is selected.

MDI: Manual Data Input. Allows the operator to manually enter commands. This button will only function when "M" or "L" is selected.

Remote: Not used.

Single Block: Not used.

Block Skip: Not used.

OPT STOP: Not used.

Teach: When prompted, can set values.

Restart: Not used.

MC Lock: Not used.

Dry Run: Not used.

LC Cycle Stop: Stops the cycle on the Loader Control path. Pressing this will disable the "Auto Queue"

LC Cycle Start: Starts the cycle on the loader control path Must be used simultaneously with machine path "cycle start"

Cycle Stop: Stops the cycle on the machine path. Pressing this will disable the "Auto Queue"

Cycle Start: Starts cycle on the machine path.

PRG Stop: Stops the program.

Ref: Enables the machine to reference mode. This allows the operator to home the machine during the initial setup or anytime the motor is unplugged.

Jog: Moves the spindle one increment of measure. This button will only function when "M" or "L" is selected.

Inc: Not used.

Handle: Enables the operator to use the Manual Pulse Generator (MPG) handwheel. This button will only function when "M" is selected.

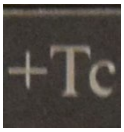
X 1: Sets the step distance incremental mode to .0001 times the speed.

x10: Sets the step distance incremental mode.001 times the speed.

X100: Sets the step distance incremental mode to .01 times the speed.

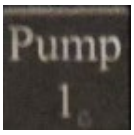
x1000: Sets the step distance incremental mode to .1 times the speed.

-Tc: Rotates the tool changer counter-clockwise.

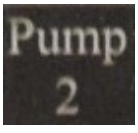


+Tc: Rotates the tool changer clockwise.

OiL: Oils the machine.



Pump 1: Turns on vacuum pump 1.



Pump 2: Turns on vacuum pump 2.

PuP: Not Used

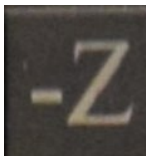
ALL OFF: Turns off all vacuum pumps and disengages pop up pins.

L: Selects the Labeler path as the active path.

M: Selects the Machine path as the active path.

EZ+: Returns to the "control and status screen" (home screen).

+Z: Raises the spindle along the Z-axis.



-Z: Lowers the spindle along the Z-axis.

+Y: Moves the spindle up along the Y-axis when the "M" path is selected. Moves the labeler up along the Y-axis when the "L" path is selected.

-Y: Moves the spindle down along the Y-axis when the "M" path is selected. Moves the labeler down along the Y-axis when the "L" path is selected.

+X: Moves the spindle up along the X-axis when the "M" path is selected. Moves the labeler up along the X-axis when the "L" path is selected.

-X: Moves the spindle down along the X-axis when the "M" path is selected. Moves the labeler down along the X-axis when the "L" path is selected.

Rapid: Quickly moves different axes when pressed simultaneously with corresponding axis button(s).

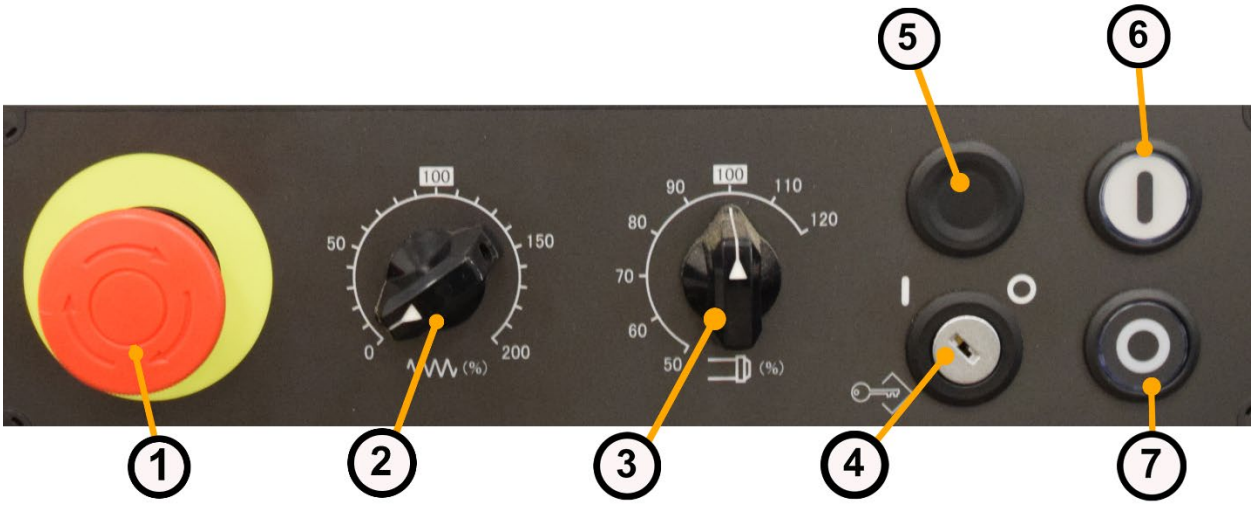
OT-OR: Not Used

Spindle Clockwise: Rotates the spindle clockwise

Spindle Stop: Stops the spindle from rotates

Spindle Counter-Clockwise: Rotates the spindle counterclockwise.

14.4.1 Dial Control Layout

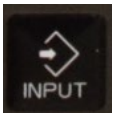


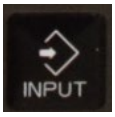
1	**Emergency Stop**-Stops all function(s).	5	Not used.
2	**Feed Dial-** Controls the cut rapid/jog feed rate on the machine path.	6	Not used.
3	**Spindle Speed Dial-** Controls the spindle rotation speed.	7	Not used.
4	Not used.		

15.0 Operation and Test Run

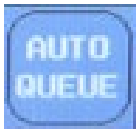
1. Verify that all electrical connections are connected correctly.
2. Turn ON the main power switch.
    a. Wait for the machine to boot up.
3. Verify all design parameters and upload the design file from Mozaik or other CAD software.
    a. If using Ethernet, file share the files to the control cabinet.
    b. If using a USB thumb drive, drag and drop the files into the USB thumb drive.
        i. Unplug the thumb drive and plug it to the USB slot on the control cabinet.
        ii. Press 

> **Folder > Operate > Device change > USB**
        iii. Highlight the desired folder > **select** > **copy** > **device change** > **DTSVR** > **job folder** > **input** > **operate** > **paste**
4. Once the files are uploaded, press 

.
5. Highlight the desired job in the **job list** area and press 

6. Highlight the desired file(s) in the **file list** area and press 

to transfer them to queue.
7. Press 

to queue the file(s).
8. Press the 

button for 3 seconds to turn on auto queue.
9. Press 

.
10. Press 

cycle start on the machine path
11. Confirm that all components are running correctly.
12. Confirm that the material was cut correctly.
13. If all components work and the material was cut correctly, any job file can now be completed.

NOTES:

16.0 Changing the Router Bit and Collet

Tools needed:

- *Collet*
- *Spindle nut*
- *Tool cone*
- *Bit*
- *Spanner wrench*

Assembled Tool Cone

1. Select the desired router bit and a collet of correct size.
2. Press fit the collet into the spindle nut until snaps in place. There should be a "snap" sound if done correctly.

Figure 16–1: Pressing Collet into Spindle Nut

3. Grab and turn the tool cone upside down and place it in the tool bracket as shown in Figure *16-2* below.

Figure 16–2: Tool Cone in the Tool Bracket

4. Place the spindle nut over the tool cone.

Figure 16–3: Spindle Nut on Cone

5. Place the desired bit into the nut.
    a. There is a reference point on the bit. **DO NOT** go past this point. The flute (sharp slots) of the router bit should be a minimum of 1/16 inch outside the collet. The bit should not bottom out in the tool cone.

Figure 16–4: Placing Bit into the Collet

6. Hand-tighten the nut and then turn a spanner wrench clockwise to tighten it until snug. **DO NOT** overtighten it.

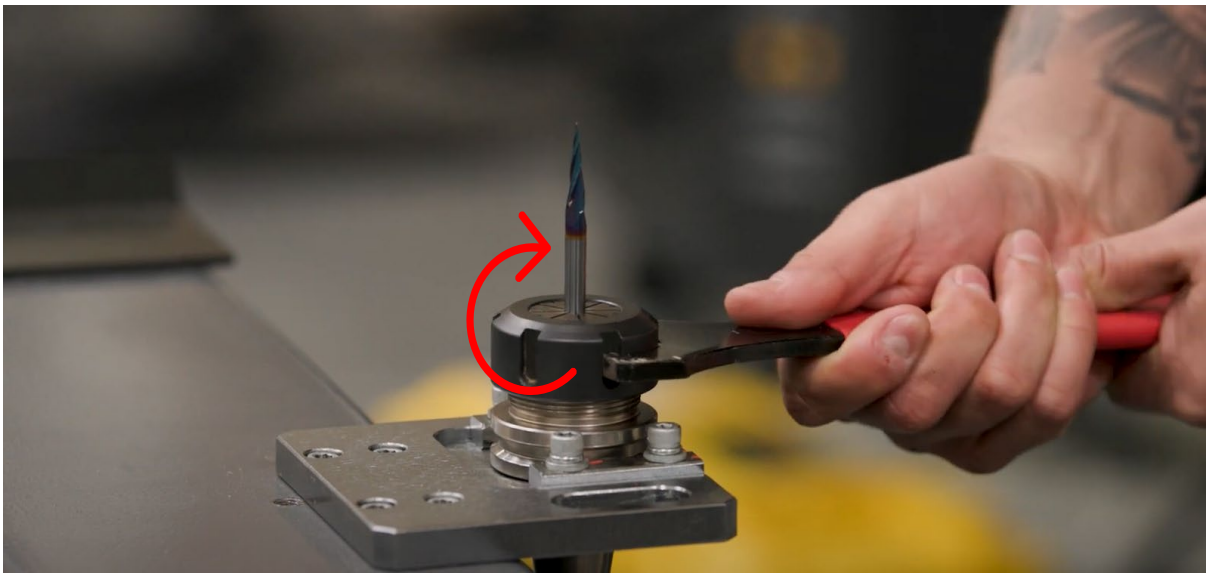


Figure 16–5: Tightening Spindle Nut with Spanner Wrench

7. Remove the assembled tool cone from the bracket and place it in the ATC (auto tool changer) rack.

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.

16.1 Removing a Collet

To remove the collet:

1. Remove the tool cone from the spindle and place it in the tool bracket.
2. Loosen the spindle nut using the spanner wrench.
3. Remove the router bit if there is one in the collet
    a. Allow the bit to cool down if it's hot.
4. Remove the spindle nut from the tool cone.
5. Hold the spindle nut in place and squeeze the collet inward. (the collet will compress)
6. Pull the collet out of the spindle nut. (it might take a lot of force)
7. Select a new collet and press fit into the spindle nut until a "snap" sound is heard.

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.

17.0 Spoil Boards

Spoil boards (supplied) are boards that help protect the vacuum table from damage from machining.

A sheet of porous material (usually MDF [Medium-Density Fiberboard]) is bolted down on top of the vacuum table.

The panel material that is to be machined is placed on top of the spoil board, and the vacuum passes through the through it and holds the panel material down as it is machined.

The purpose is to limit vacuum infiltration through grooves in the spoil board. This also allows the processing of various nests without any setup time on the machine.

17.1.1 Functions of the Spoil Board

1. To protect the vacuum table from damage. The cutter extends only a few thousandths of an inch past the material thickness. Without the spoil board, the cutters could damage the surface of the vacuum table.

2. To transfer the vacuum suction from the table to the job. This means that the spoil board must be porous to allow air flow to the panel material. Low cost MDF (Medium-Density Fiberboard) has proven to be a very good material for this purpose.

17.1.2 Making the Spoil Board

Before making a new spoil board, ensure all plastic bolts are removed from the old spoil board.

The spoil board is made of 4' x 8' ¾" MDF board that is bolted down to the machine using ½" plastic bolts.

NOTE

We highly recommend using a ¾ inch thick MDF spoil board to help prevent damage to the vacuum table.

MDF is a very porous material, which allows the vacuum table suction to flow through the board and hold the material in place.

NOTE

Never try to use a bowed (curved) MDF panel as a spoil board. The vacuum may not pull the board flat on the table.

1. Remove all bolts that hold down the spoil board and remove the old spoil board.
2. Make sure that the table is clean and free from sawdust and dirt.
3. Cut the spoil board to the size of the router table (4' x 8')
4. Place the spoil board on the vacuum table, being careful not to displace the vacuum gasketing.
5. Install and tighten the plastic bolts back into their respective ports.
6. Turn on the vacuum pump(s) and check for leaks.

Figure 17–1: 1/2 inch Plastic Bolt for Spoil Board

NOTE

We recommend sealing the edges of the spoil board with hard candle wax or non-water based products. Sealing the edges will improve the holding ability.

17.1.3 Precautions Regarding Spoil Boards

The spoil board is porous and will absorb moisture. As moisture is absorbed, the dimensions of the board will change.

In general, this will not be a problem, as the changes from day to day are not that excessive and will typically be over the complete board.

There are, however, exceptions:

1. It is good practice to keep material on the top surface of the spoil board overnight to prevent warpage due to uneven moisture absorption by the material.

2. Once a spoil board has been used and has kerf cuts that resulted from machining parts, it is a good idea to replace, or fly cut the surface.

3. The spoil board must completely cover the table and must be properly bolted down. If the spoil board is not bolted down or does not cover all the vacuum slots, the vacuum suction may be lost or not exist. This will cause the panel material to not pull down onto the spoil board effectively.

⚠ WARNING

Do not touch the vacuum pump while operating. Surface temperature of blowers will be more than +140 Degree Fahrenheit/+60 Degree Celsius

18.0 Selecting the Correct Router Bit

18.1 Straight Router Bit

These are the standard router bits that are commonly used with handheld routers and are readily available at home centers. They will work but will generally not produce the edge finishes that are available with the spiral designed router bits.

Figure 18–1: Straight Router Bits

18.2 Up Shear Router Bit

These bits have flutes that are spiraled upward (a standard twist drill is an example of this type of bit). This bit design removes the chips from the kerf (slit made by cutting) but tends to chip the top surface, especially on veneers or melamine surfaces.

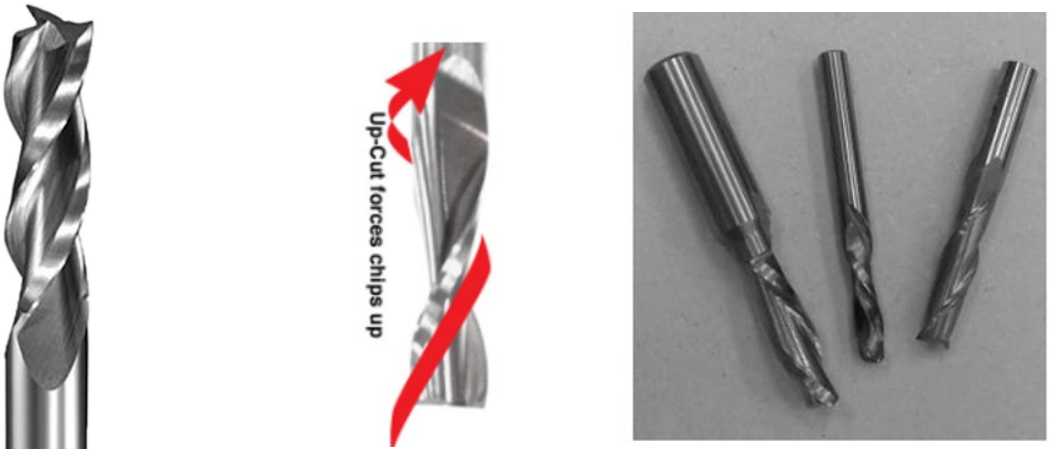


Figure 18–2: Up-shear Router Bits

18.3 Ball Nose Router Bit

Ball nose router bits are a variation of the up-shear bit design but have radiuses on the ends. These bits are typically used for 3D surfacing applications.

Figure 18–3: Ball Nose Router Bit

18.4 Down Shear Router Bit

These bits are like the up shear, but with an opposite spiral that tends to pack the chips into the kerf. These bits prevent chipping the material surface, especially with veneers or melamine surfaces. They are an excellent choice for machining dadoes and other joinery that do not extend completely through the material.

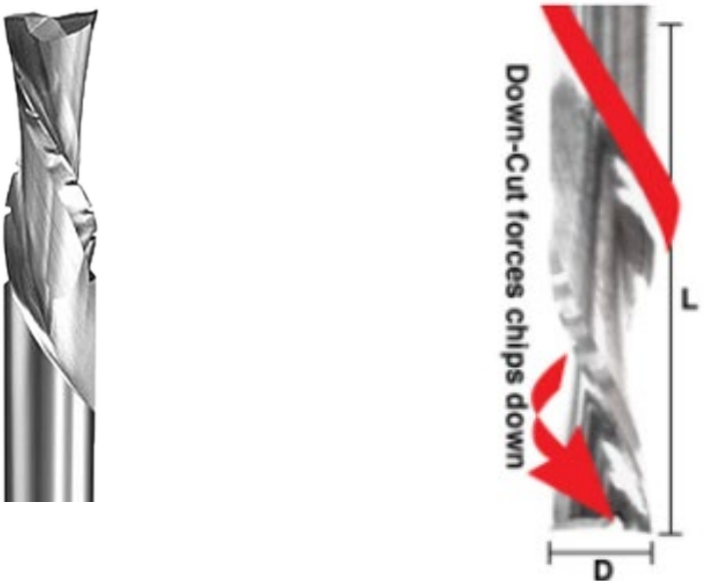


Figure 18–4: Down Shear Router Bit

18.5 Combination Router Bit

These bits combine the advantages of both up shear and down shear designs. The top section of the tool is down shear to prevent chipping the top surface of the material, and the lower part of the bit is up shear to prevent chipping the bottom surface of the material.

Figure 18–5: Combination Router Bit

18.6 Compression Router Bit

Compression router bits are the preferred bit for machining veneered plywood as well as melamine-surfaced product. A variation of the bit is called the "Mortising Compression" router bit. With this bit, the up shear portion of the bit is less than ¼" in length so that the bit can be used on ¼" veneered plywood and for dados.

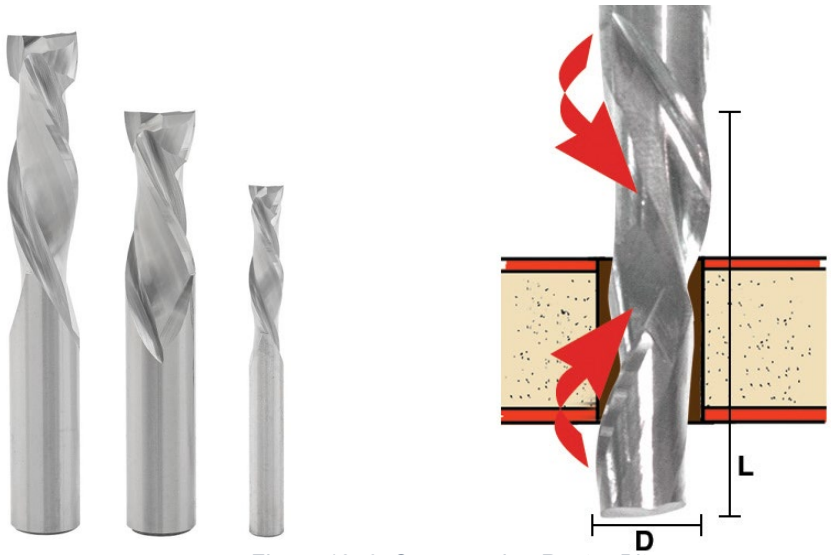


Figure 18–6: Compression Router Bit

18.7 Form Router Bit

Form router bits typically are available in standard profiles such as round over, ogee, cove, etc. Router bits that have a shape associated with them would be classified with this group.

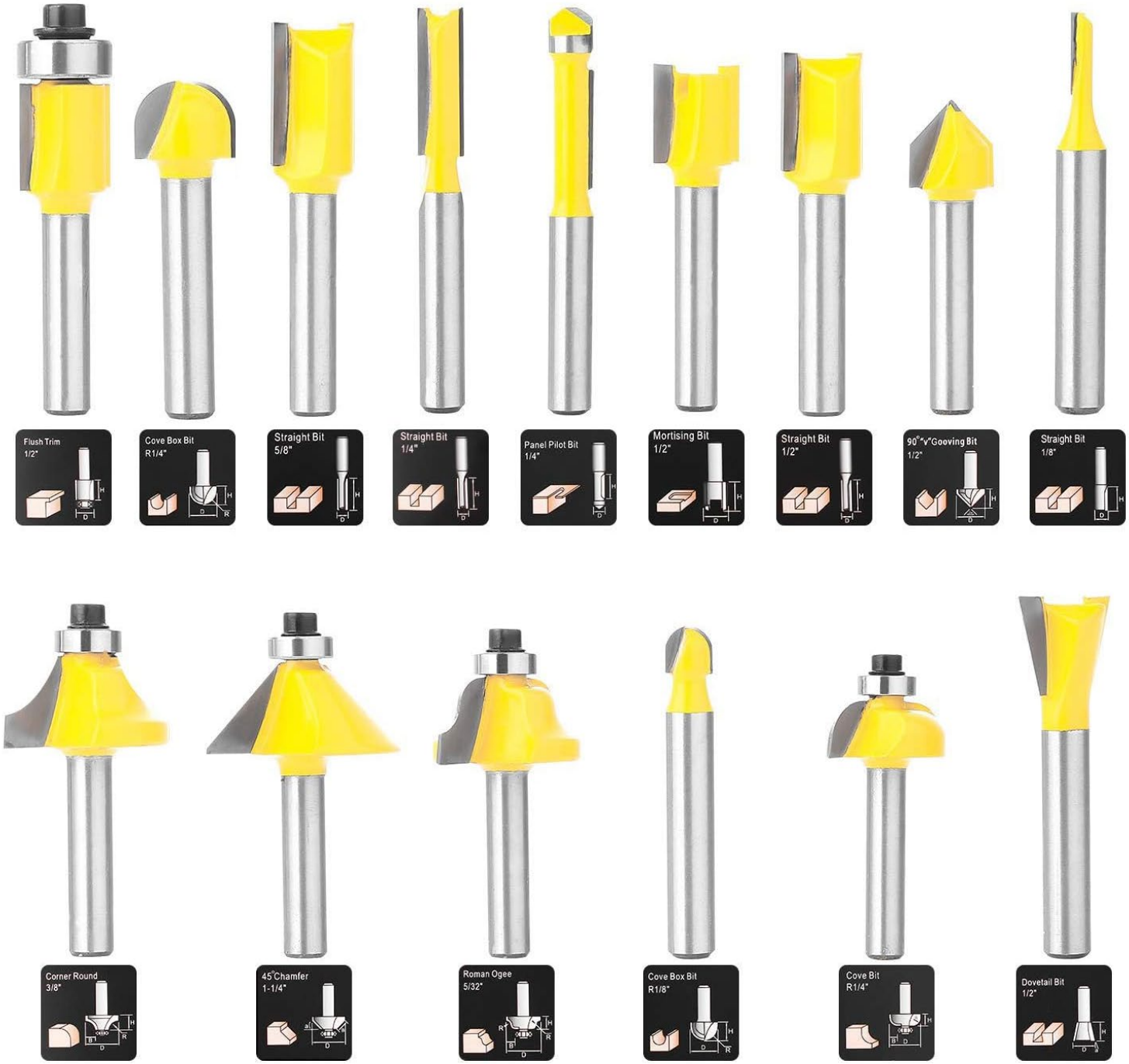


Figure 18–7: Form Router Bits

19.0 Manual Pulse Generator Mode (MPG) Handwheel

The manual pulse generator mode allows the operator to manually to move the spindle axes by spinning the MPG Handwheel.

1. Press the 

button to enable to MPG handwheel. (a light on the MPG will illuminate.)
2. Select the desired axis to move
    a. *The 4 and 5 function are not used.*
3. Turn the handwheel in the clockwise (CW) direction to move the spindle in the positive direction .
4. Turn the handwheel in the counterclockwise (CCW) direction, the machine will move in the negative direction. The speed is determined by the selected speed value.

20.0 Jog Mode

Jog mode allows the operator to jog the spindle or labeler in small increments in different directions.

20.1 Labeler Side

1. Press the 

button.
2. Press the 

button.
3. Press the 

or 

buttons to move the labeler up/down along the x-axis.
4. Press the 

or 

buttons to move the labeler up/down along the y-axis.

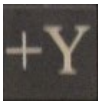
20.2 Machine (Spindle) Side

1. Press the 

button.
2. Press the 

button.
3. Press the 

or 

buttons the move the spindle up/down along the X-axis.
4. Press the 

or 

buttons to move the spindle up/down along the Y-axis.
5. Press the 

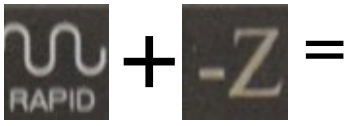
or 

buttons to raise/lower the spindle along the Z-axis.

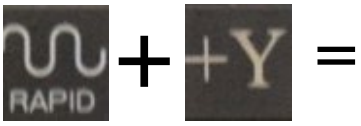
Press the 

button simultaneously with the corresponding axis button(s) to quickly move the spindle.

Quickly lowers the spindle height along the z-axis.

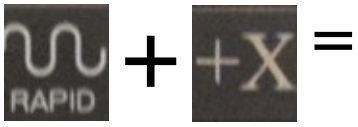


Quickly raises the spindle height along the z-axis.



Quickly moves the spindle up, along the y-axis.

Quickly moves the spindle down, along the y-axis.



Quickly moves the spindle to the left, along the x-axis.

Quickly moves the spindle to the right, along the x-axis.

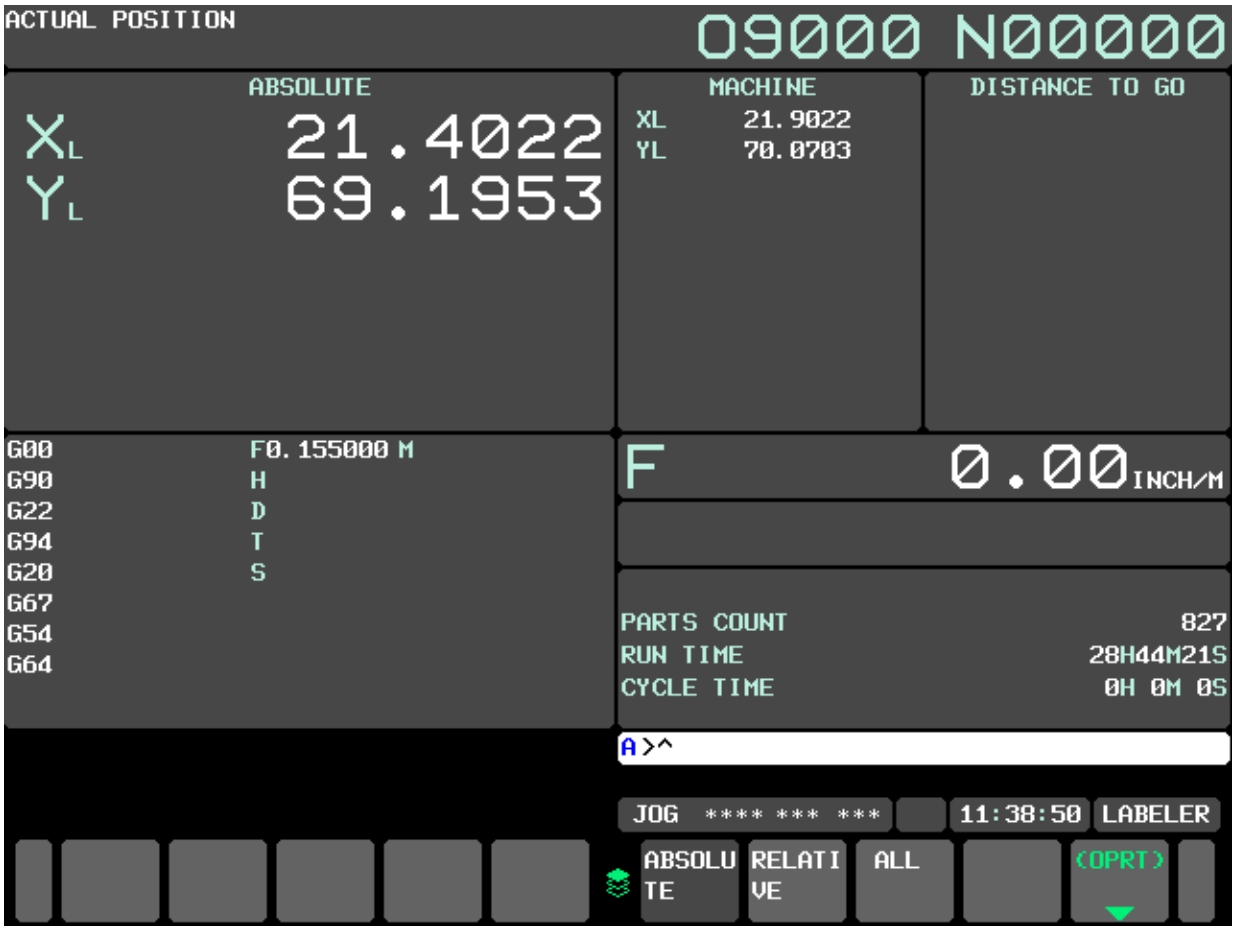
21.0 Position Button

21.1 Actual Position Labeler Side

While the  path is selected, Press the 

button to toggle to the actual position screen.

This screen displays the coordinates for the labeler.



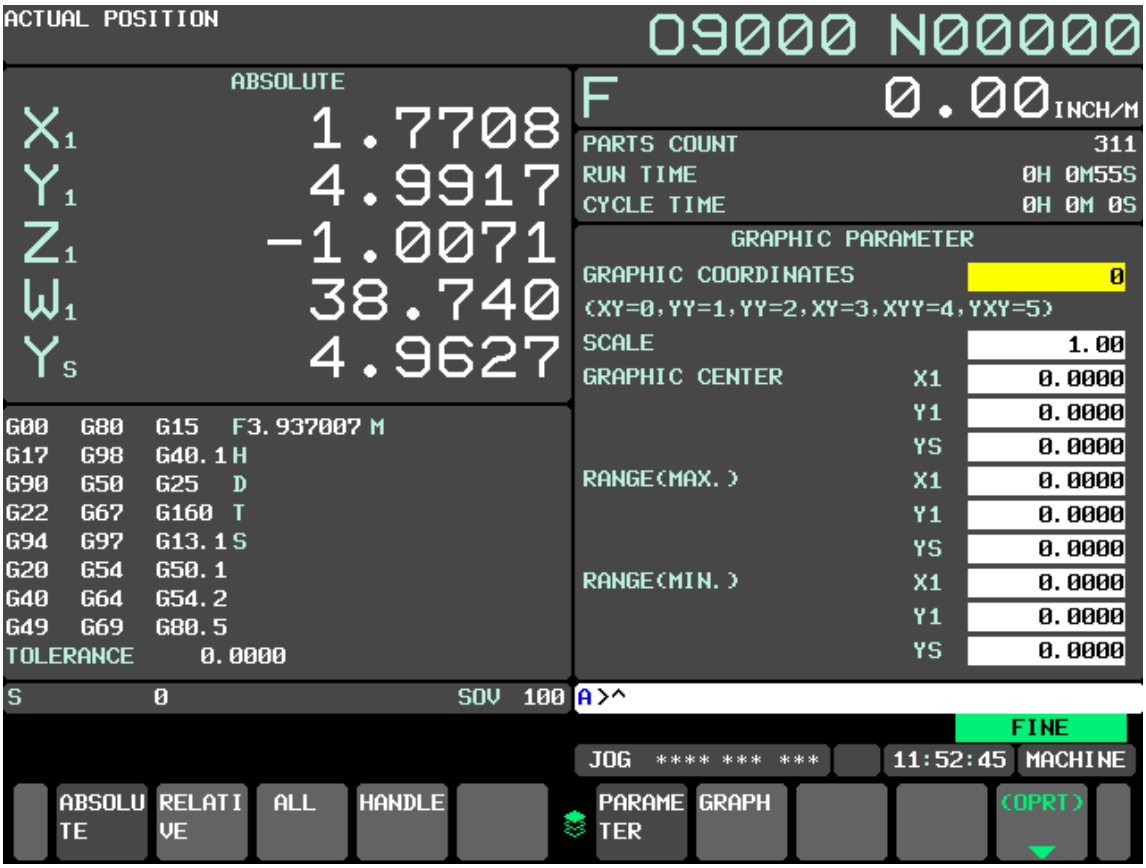
21.2 Actual Position Machine Side

When the 

path is selected, Press the 

button to toggle to the actual position screen.

This screen shows the coordinates of the spindle location.



22.0 System Button

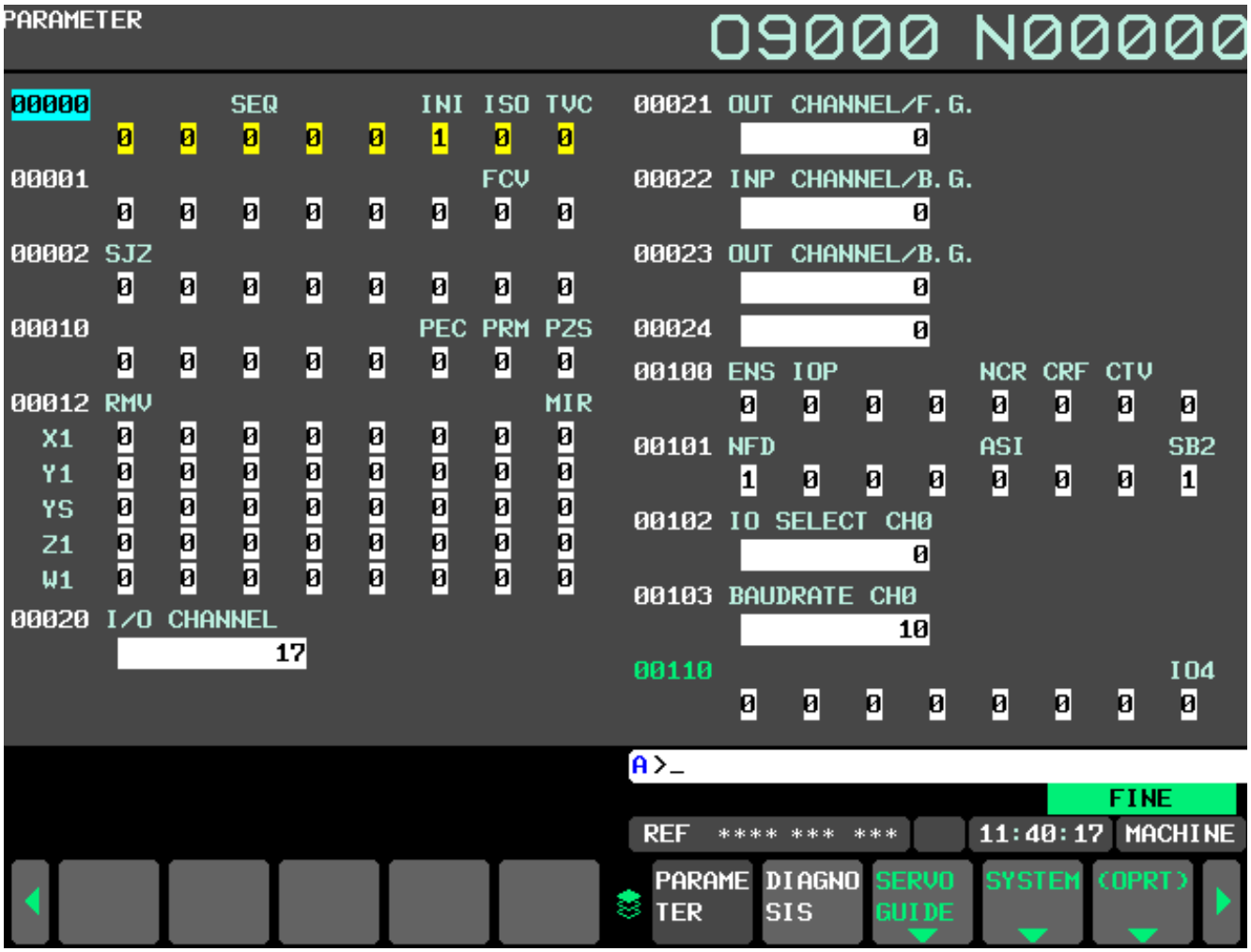
These screens below show the parameters for the selected paths.

22.1 Machine Side

When 

is selected and the 

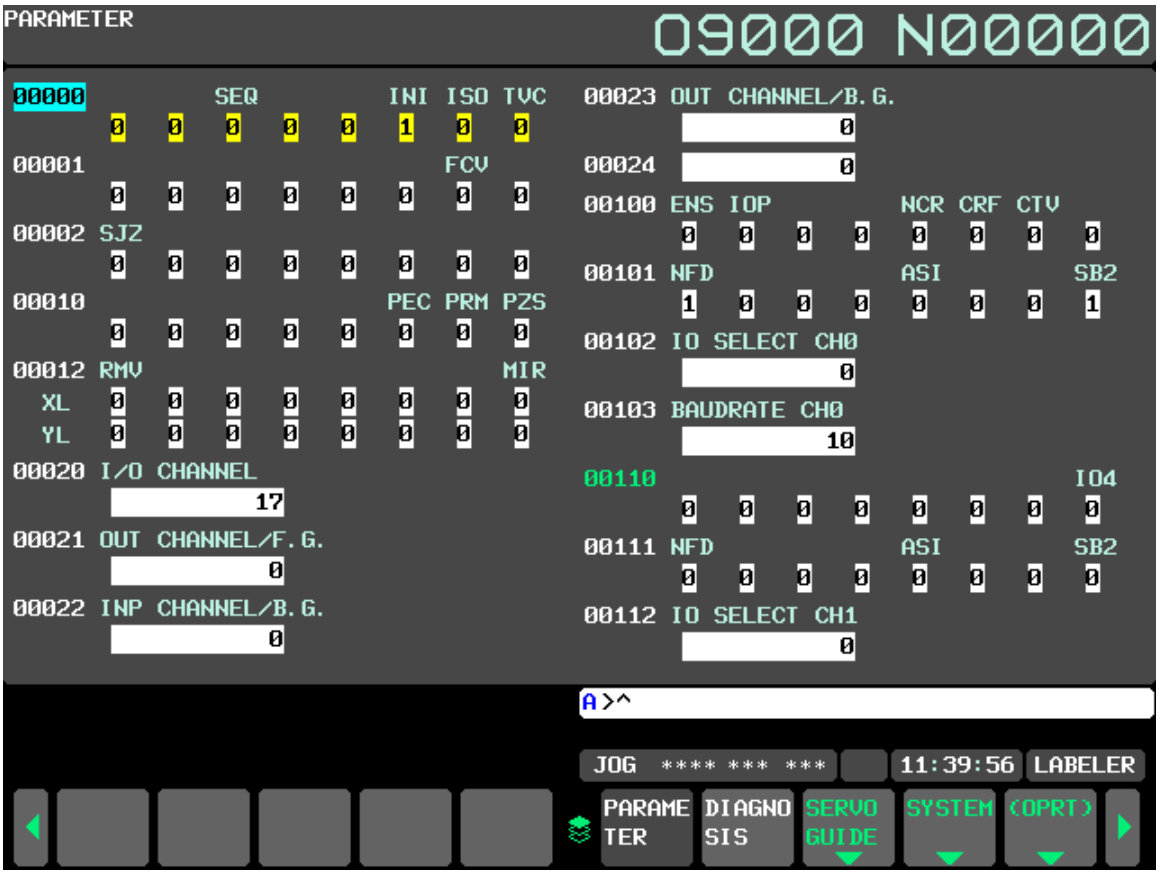
button is pressed, the parameter screen below is shown.



22.2 Labeler Side

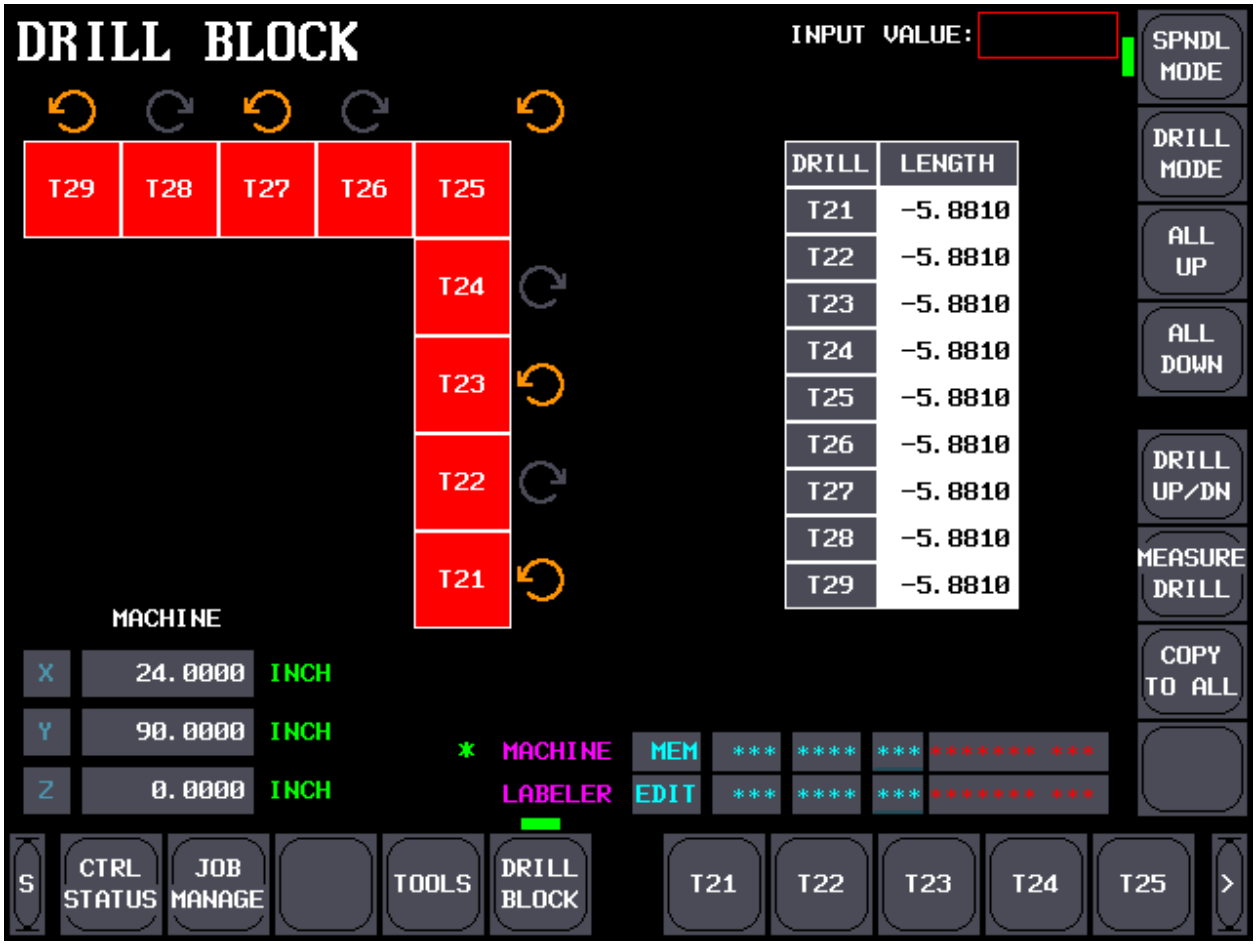
When  is selected and the 

button is pressed, the parameter screen below is shown.



23.0 Drill Block Screen

23.1 Drill Block Main Screen



24.0 OFS/SET Screen

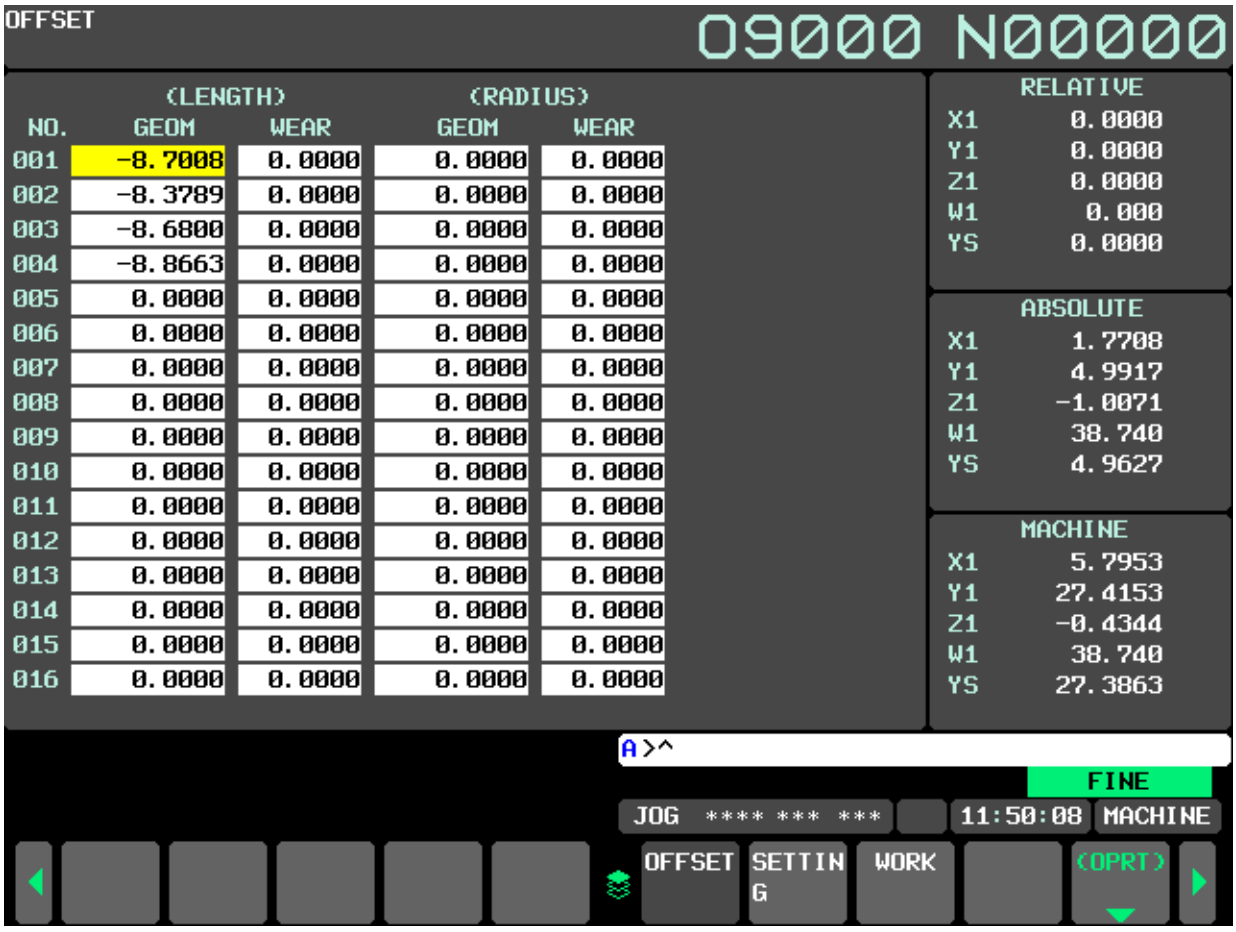
When 

is selected and the 

button is pressed, this will be the screen displayed.

This screen shows a more in depth look at the spindle coordinates and measurements.

This screen shows the tool lengths, drill lengths, and work offsets & drill offsets



25.0 Safe to Cut Materials

This machine can cut multiple materials including:

- Any type of wood
- Wood-fiber composites
- High Density foam
- Plastics
- Non-ferrous metals (*not iron based*)


Any Type Of Wood


High-Density Foam


Plastics


Non-Ferrous Metals

26.0 Alarm Message Screen

The alarm message screen displays any alarm or error message that is present.

To access the alarm message screen:

1. Press 

to view any alarm messages.

If an alarm is present, a screen with an alarm message will be shown. The figure below is an example of an alarm message.

26.1.1 Clearing Alarms

1. After the issue has been resolved, press 

while on the alarm message screen to clear any alarms.

27.0 Tool Screen

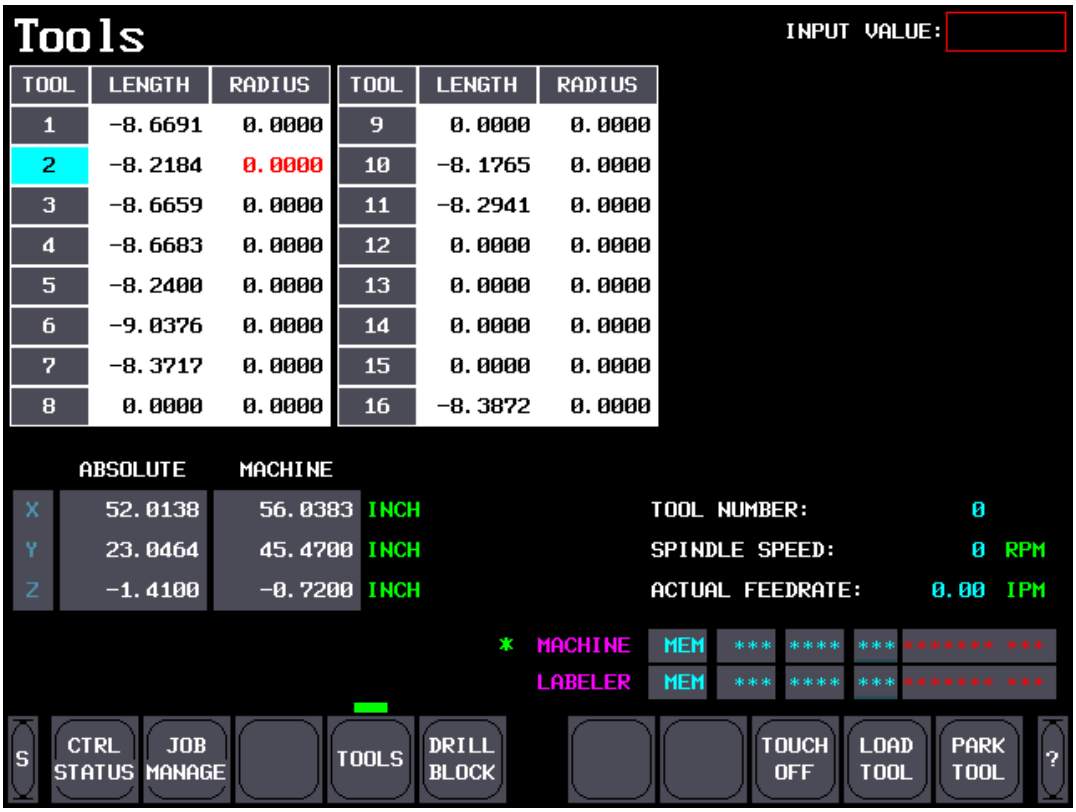
This screen shows the tools that are inputted into the machine.

It also shows the tool number that is currently active.

- Performs a tool touch off on the selected tool.

-Loads the selected tool into the spindle.

- Parks the active tool that is in the spindle.



28.0 Automatic Tool Changer

The automatic tool changer (ATC) adds another layer of automation to the CNC machine. The advantages of an automatic tool changer are as follows:

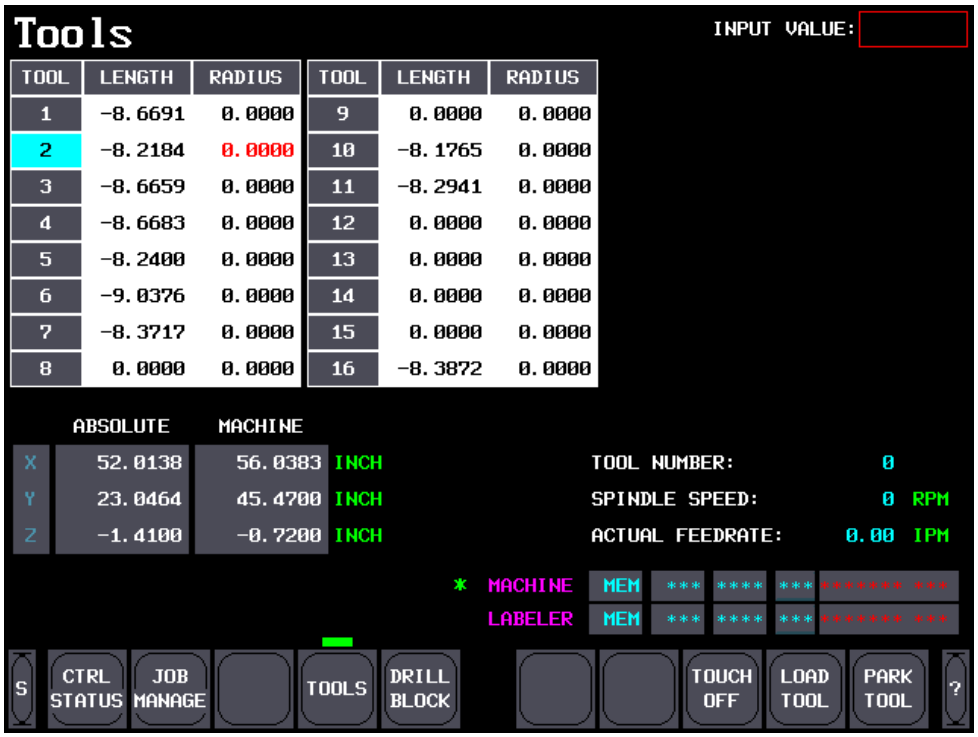
- ATC increases the machine's productivity
- Helps to minimize total machining time
- Increases the flexibility of the CNC Machine
- Improves tool carrying capacity of the CNC Machine

28.1 Executing Tool Call Commands (Tool Changes)

The ATC supports 12 tools. Tool changes are made by executing tool call commands. A tool call command parks the current tool if one is loaded, and loads the desired tool. There are two options to execute a tool call command.

To execute a tool call command:

Option 1 (recommended)



1. Use the arrow keys to highlight the desired tool.
2. Press 

.

⚠ WARNING

The machine will move! Keep all body parts away!

Option 2

Tool Commands	Description
T0	Parks Tool
T1-T12	Changes tool, activates last stored tool measure.

To execute a tool call command:

1. Press 

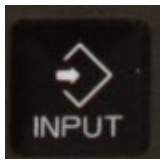
2. Press 

3. Press 

4. Type in **M06T#** (# represents any desired tool number 0-12)
    a. For example, if tool number 12 was desired, **M06T12** would be typed in.
    b. For example, if tool number 4 was desired, **M06T4** would be typed in.
    c. Any tool that is in the spindle will be parked before a new tool is loaded.

5. Press 

(a semicolon will appear)

6. Press 

   a. *The command code will be displayed on the left side.*

5. Press 

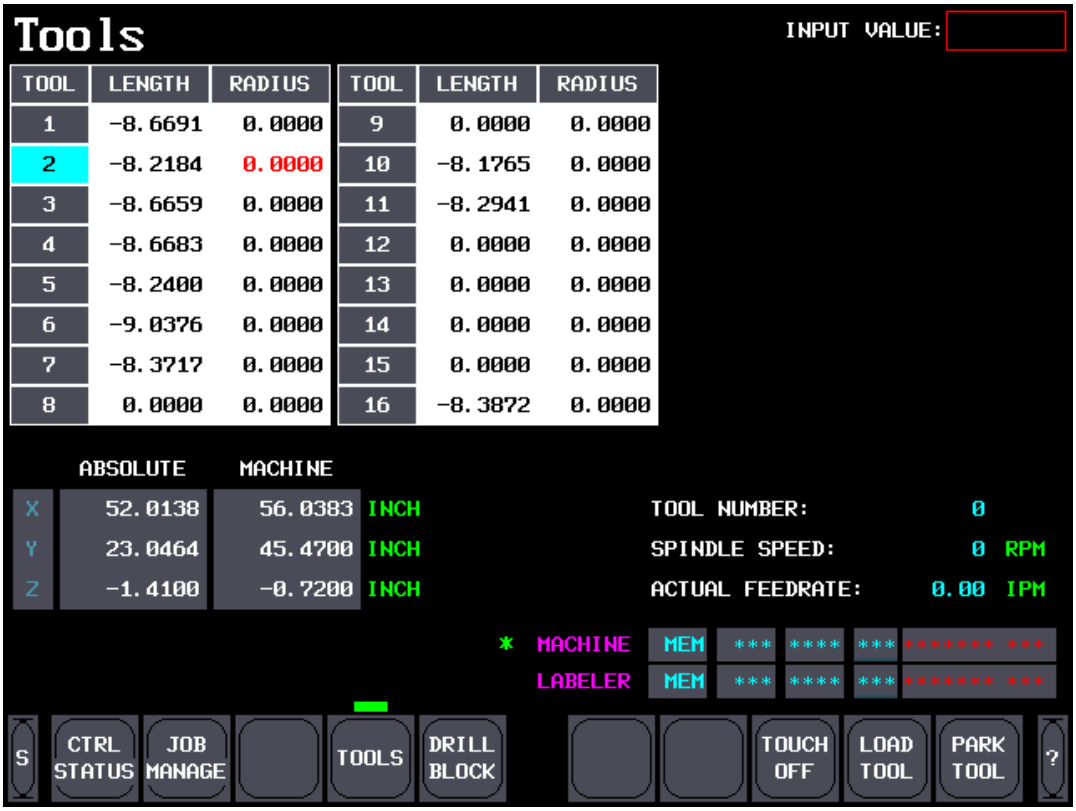
   a. **WARNING! THE MACHINE WILL MOVE! KEEP ALL BODY PARTS AWAY!**

29.0 Tool Touch Off (TTO)

A Tool touch off (TTO) is used to measure different tool lengths. When a tool touch off is performed, the machine spindle moves to the TTO puck and touches it three times. There are two options to execute a tool touch off.

To execute a tool touch off:

Option 1 (Recommended)



1. Use the arrow keys to highlight the desired tool.
2. Press 

.

⚠ WARNING

THE MACHINE WILL MOVE! KEEP ALL BODY PARTS AWAY!

Option 2

To execute a tool touch off:

1. Press 

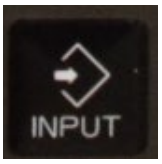
2. Press 

3. Press 

4. Type **M401T#** (# represents any desired tool number 0-12)
    a. For example, if tool number 12 was desired, **M401T12** would be typed in.
    b. For example, if tool number 4 was desired, **M401T4** would be typed in.

5. Press 

(a semicolon will appear)

6. Press 

   a. *The command code will be displayed on the left side.*

7. Press 

on the machine path.

   a. **WARNING! THE MACHINE WILL MOVE! KEEP ALL BODY PARTS AWAY!**

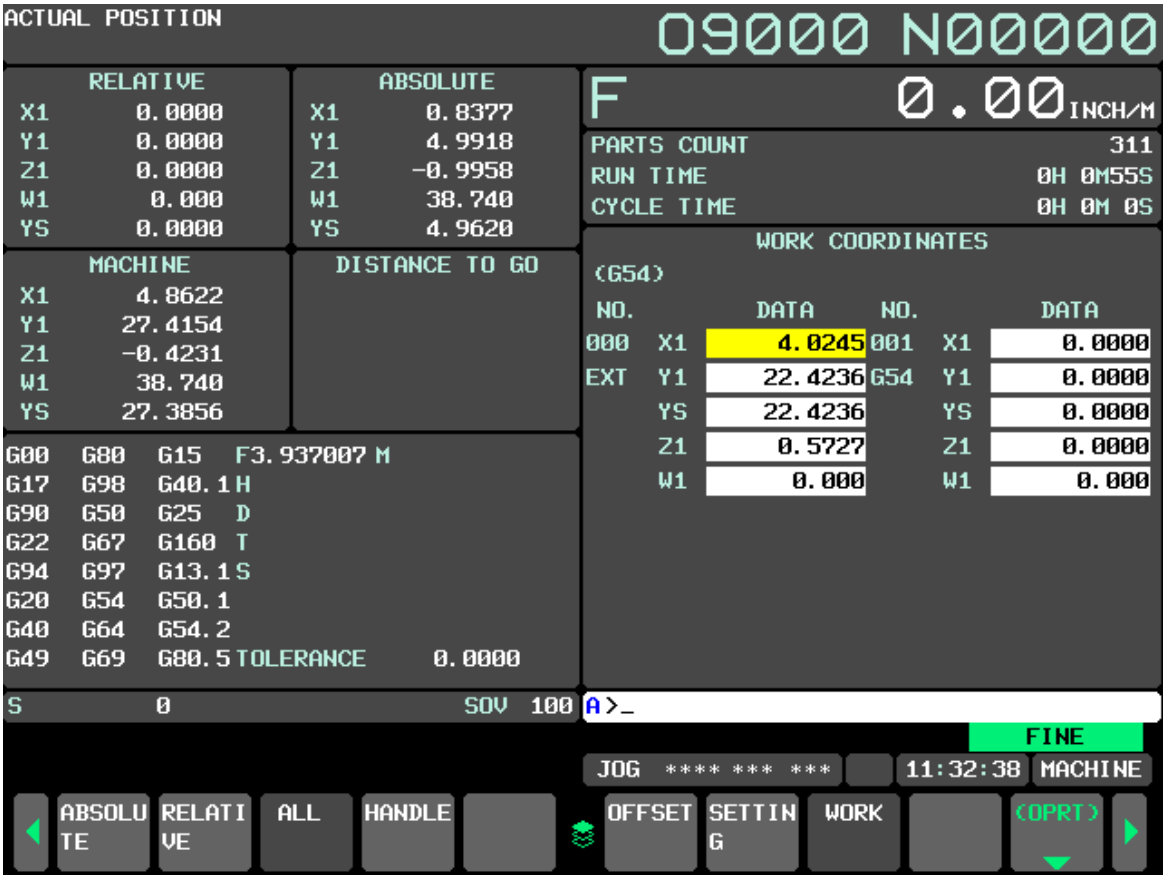
30.0 Setting the Origin

30.1 Machine Path

1. Press 

2. Press 

until the screen shown below is displayed.

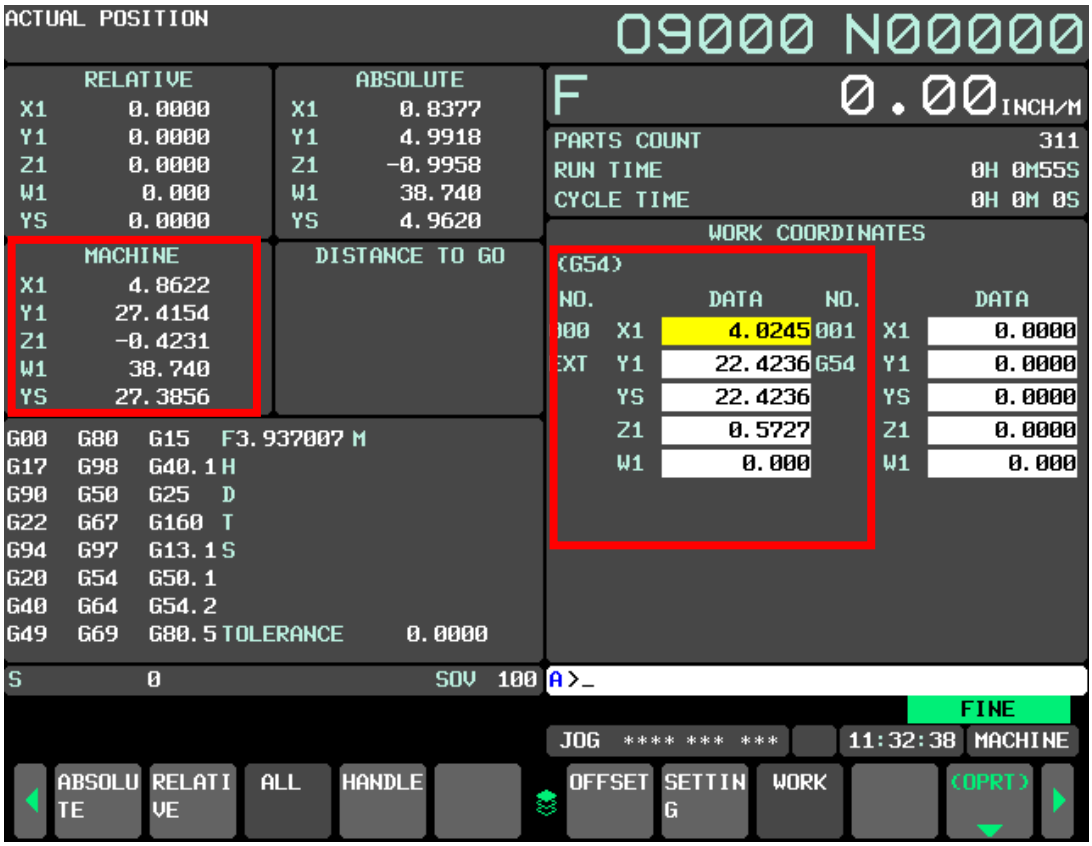


3. Jog the spindle to the lower left corner of the spoil board.

4. Press 

on the screen.

5. Press 



Coordinate Description	
X1	X axis coordinates
Y1	Y axis coordinates
YS	Y slave axis coordinates
Z1	Spoil board thickness
W1	Tool changer

6. Type the **machine** coordinates into the **work** coordinates.
    a. For the **YS work coordinates**, enter 0
    b. Do not type in any **W1 work coordinates.**

31.0 Homing the Machine

Homing the machine will ensure that the machine positioning is accurate and that accurate cuts can be made.

31.1 X-Axis

1. Press 

2. Press 

and then press 

31.2 Y-Axis

1. Press 

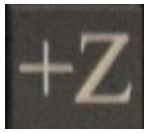
2. Press 

and then press 

31.3 Z-Axis

1. Press 

2. Press 

and then press 

32.0 Service Screens

To access the service screen press 

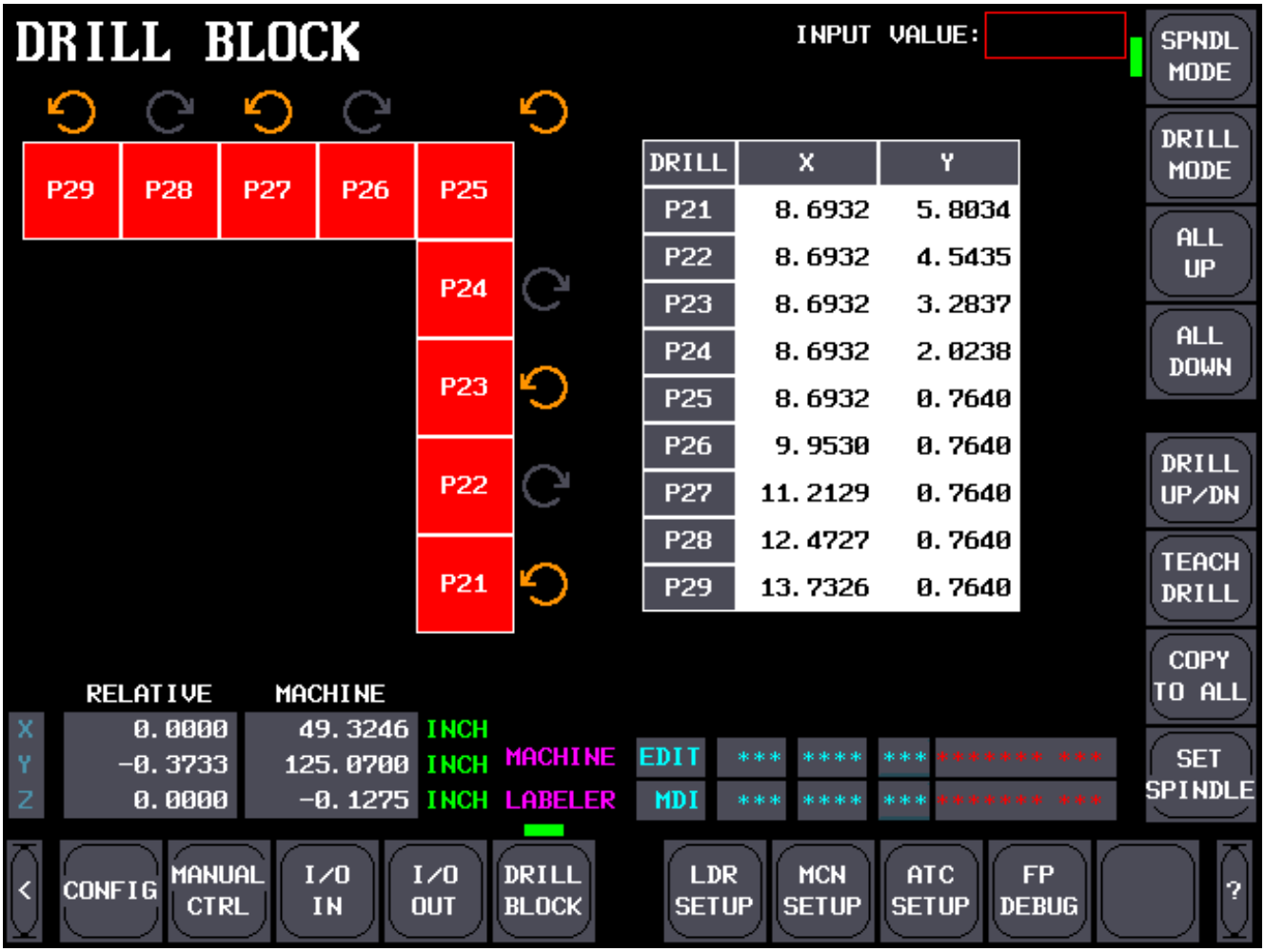
.

The service screen(s) allows the operator to view internal codes that can be viewed for operating and troubleshooting concerns.

Parameter Write Enable (PWE) must equal 1 for the service screen to appear.

This is set by Laguna Tools and will not need to be accessed unless there are certain troubleshooting issues.

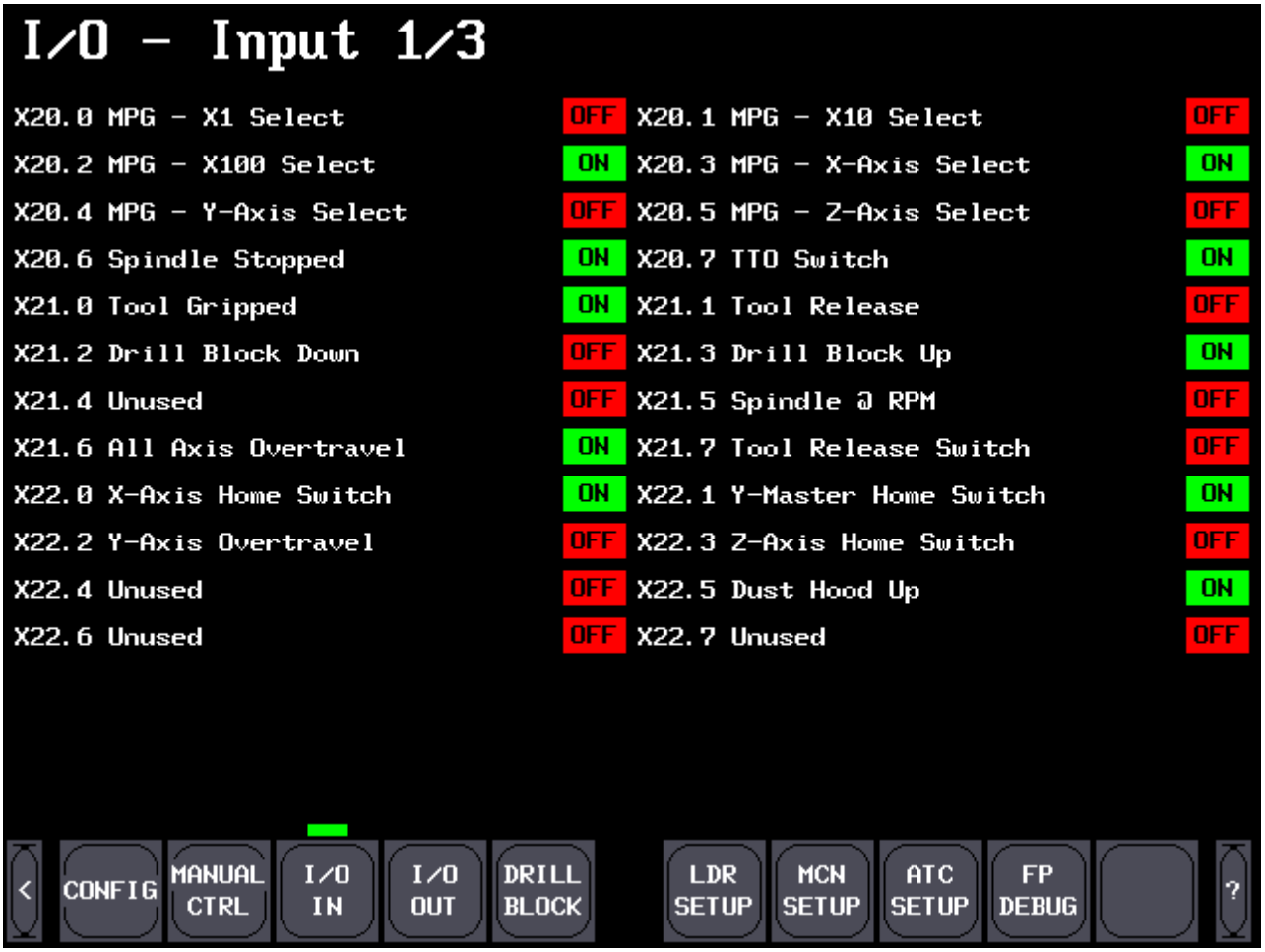
32.1 Drill Block Service Screen

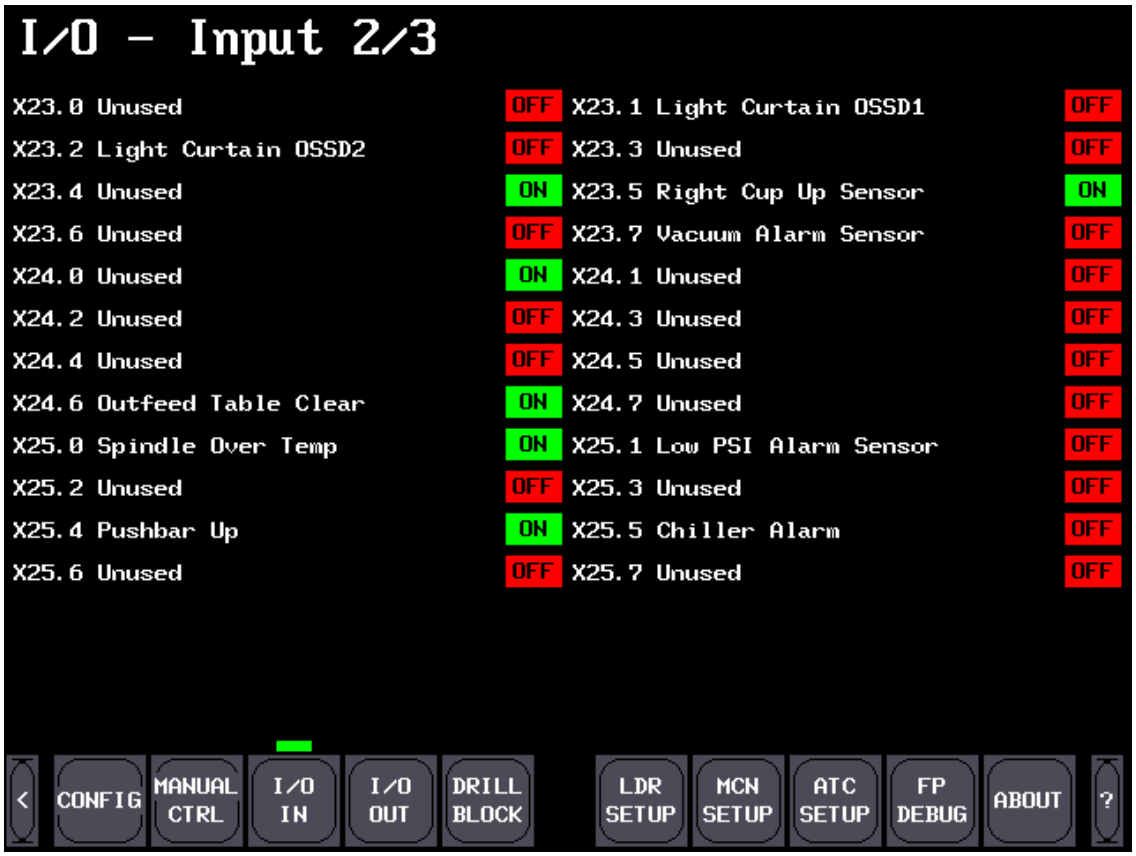


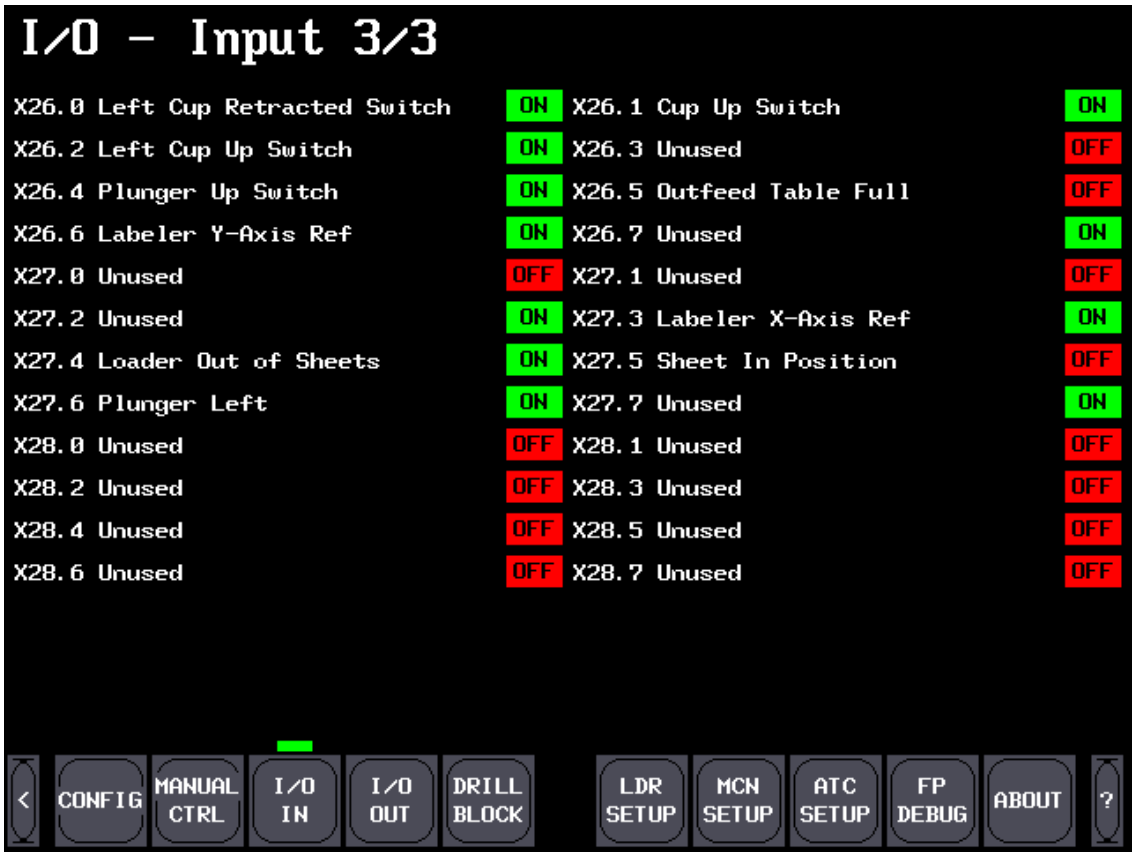
32.2 I/0 Input Screen

Use the 

buttons to toggle through the screens.



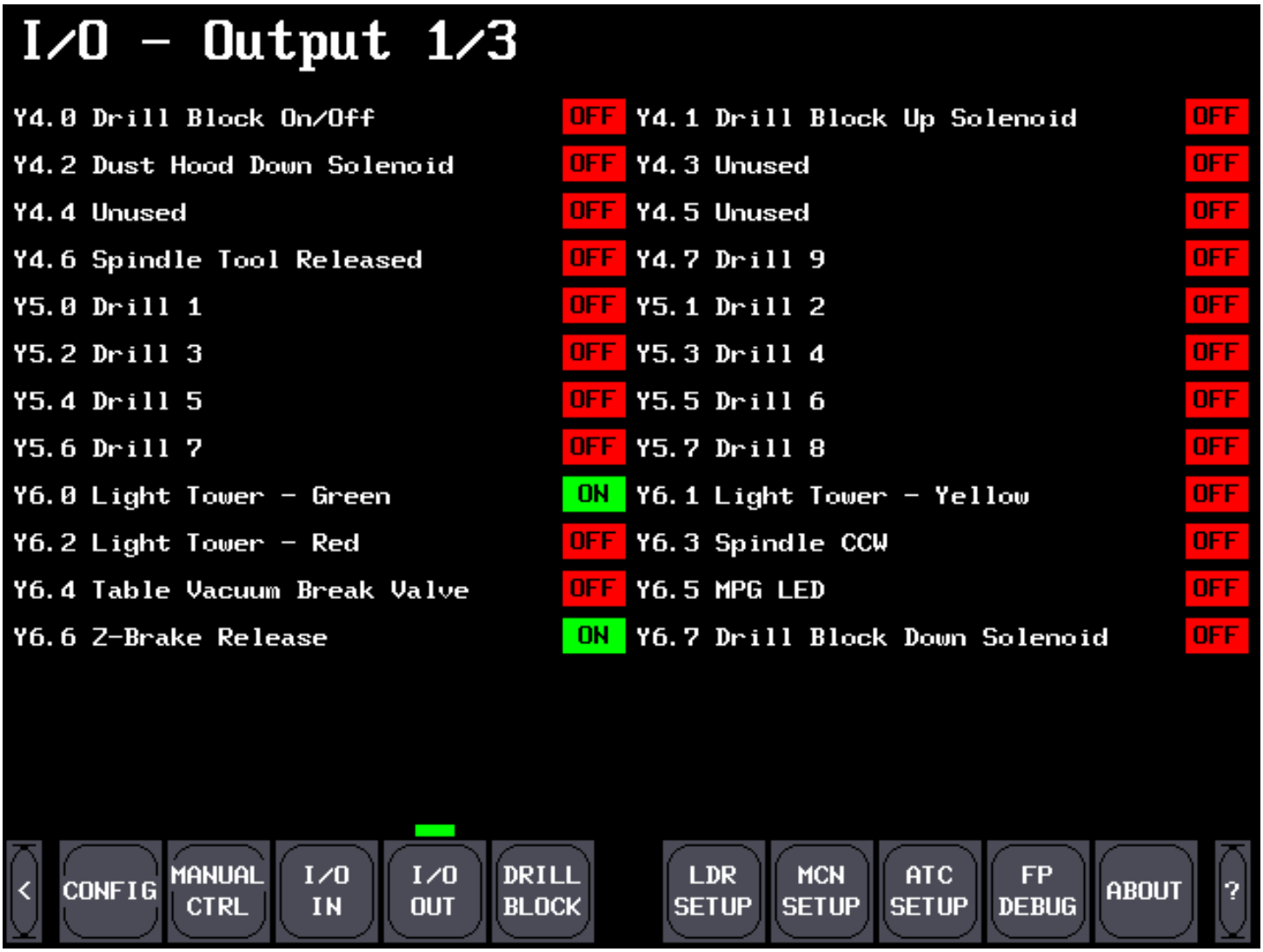

I/O - Input 2/3
X23.0 Unused OFF
X23.1 Light Curtain OSSD1 OFF
X23.2 Light Curtain OSSD2 OFF
X23.3 Unused OFF
X23.4 Unused ON
X23.5 Right Cup Up Sensor ON
X23.6 Unused OFF
X23.7 Vacuum Alarm Sensor OFF
X24.0 Unused ON
X24.1 Unused OFF
X24.2 Unused OFF
X24.3 Unused OFF
X24.4 Unused OFF
X24.5 Unused OFF
X24.6 Outfeed Table Clear ON
X24.7 Unused OFF
X25.0 Spindle Over Temp ON
X25.1 Low PSI Alarm Sensor OFF
X25.2 Unused OFF
X25.3 Unused OFF
X25.4 Pushbar Up ON
X25.5 Chiller Alarm OFF
X25.6 Unused OFF
X25.7 Unused OFF
<
CONFIG
MANUAL CTRL
I/O IN
I/O OUT
DRILL BLOCK
LDR SETUP
MCN SETUP
ATC SETUP
FP DEBUG
ABOUT
?

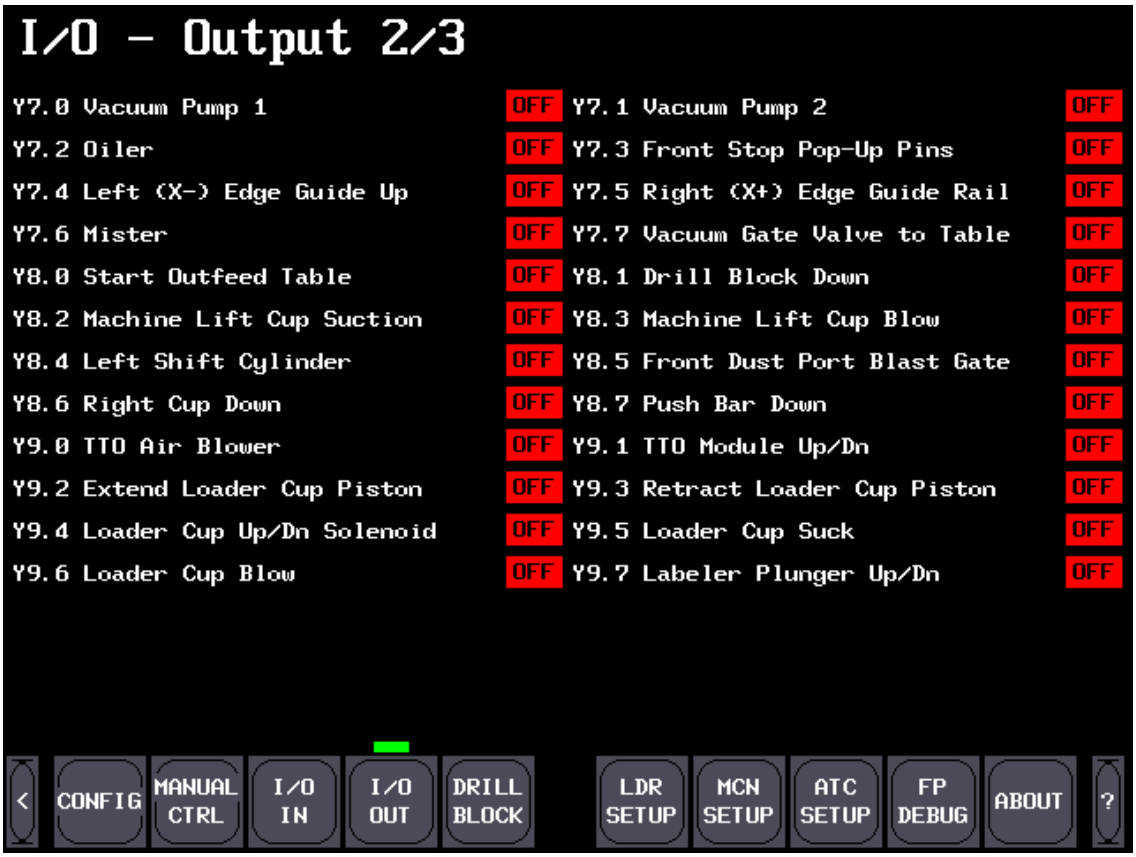

I/O - Input 3/3
X26.0 Left Cup Retracted Switch ON
X26.1 Cup Up Switch ON
X26.2 Left Cup Up Switch ON
X26.3 Unused OFF
X26.4 Plunger Up Switch ON
X26.5 Outfeed Table Full OFF
X26.6 Labeler Y-Axis Ref ON
X26.7 Unused ON
X27.0 Unused OFF
X27.1 Unused OFF
X27.2 Unused ON
X27.3 Labeler X-Axis Ref ON
X27.4 Loader Out of Sheets ON
X27.5 Sheet In Position OFF
X27.6 Plunger Left ON
X27.7 Unused ON
X28.0 Unused OFF
X28.1 Unused OFF
X28.2 Unused OFF
X28.3 Unused OFF
X28.4 Unused OFF
X28.5 Unused OFF
X28.6 Unused OFF
X28.7 Unused OFF
<
CONFIG
MANUAL CTRL
I/O IN
I/O OUT
DRILL BLOCK
LDR SETUP
MCN SETUP
ATC SETUP
FP DEBUG
ABOUT
?

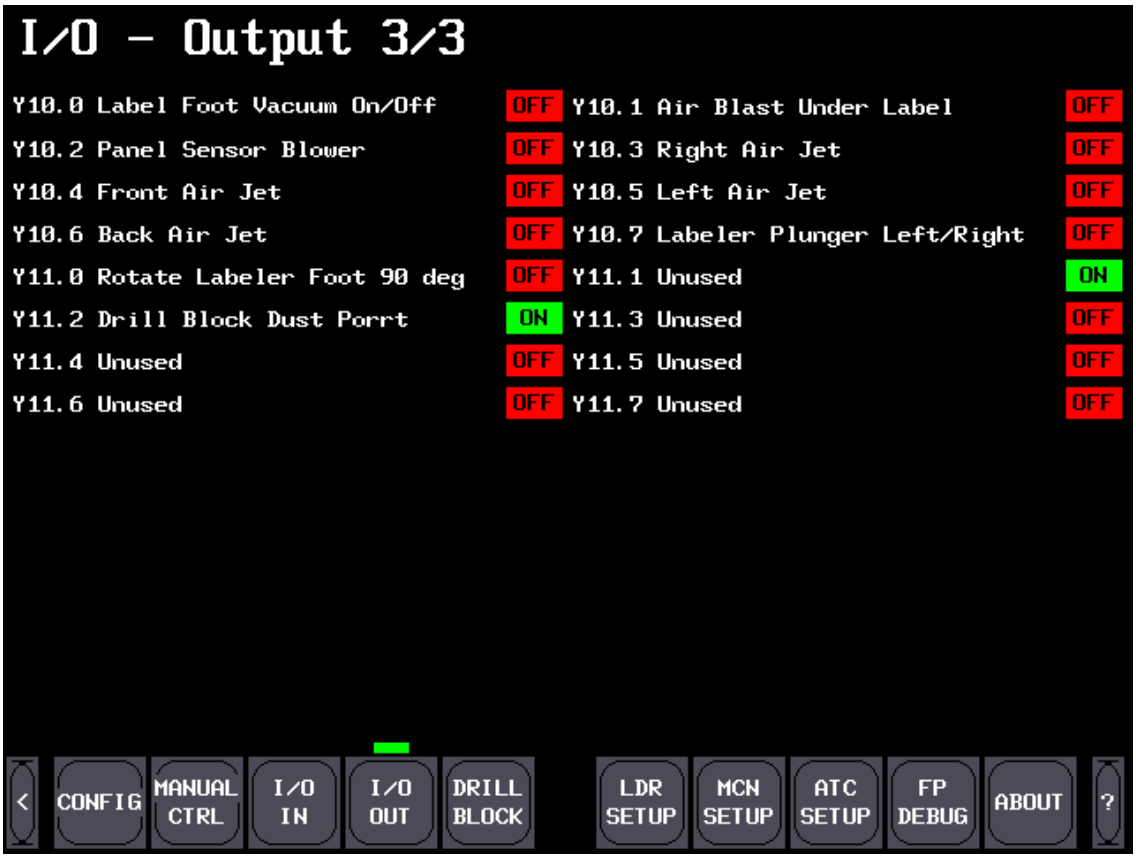
32.3 I/O Output Screen

Use the 

buttons to toggle through the screens.

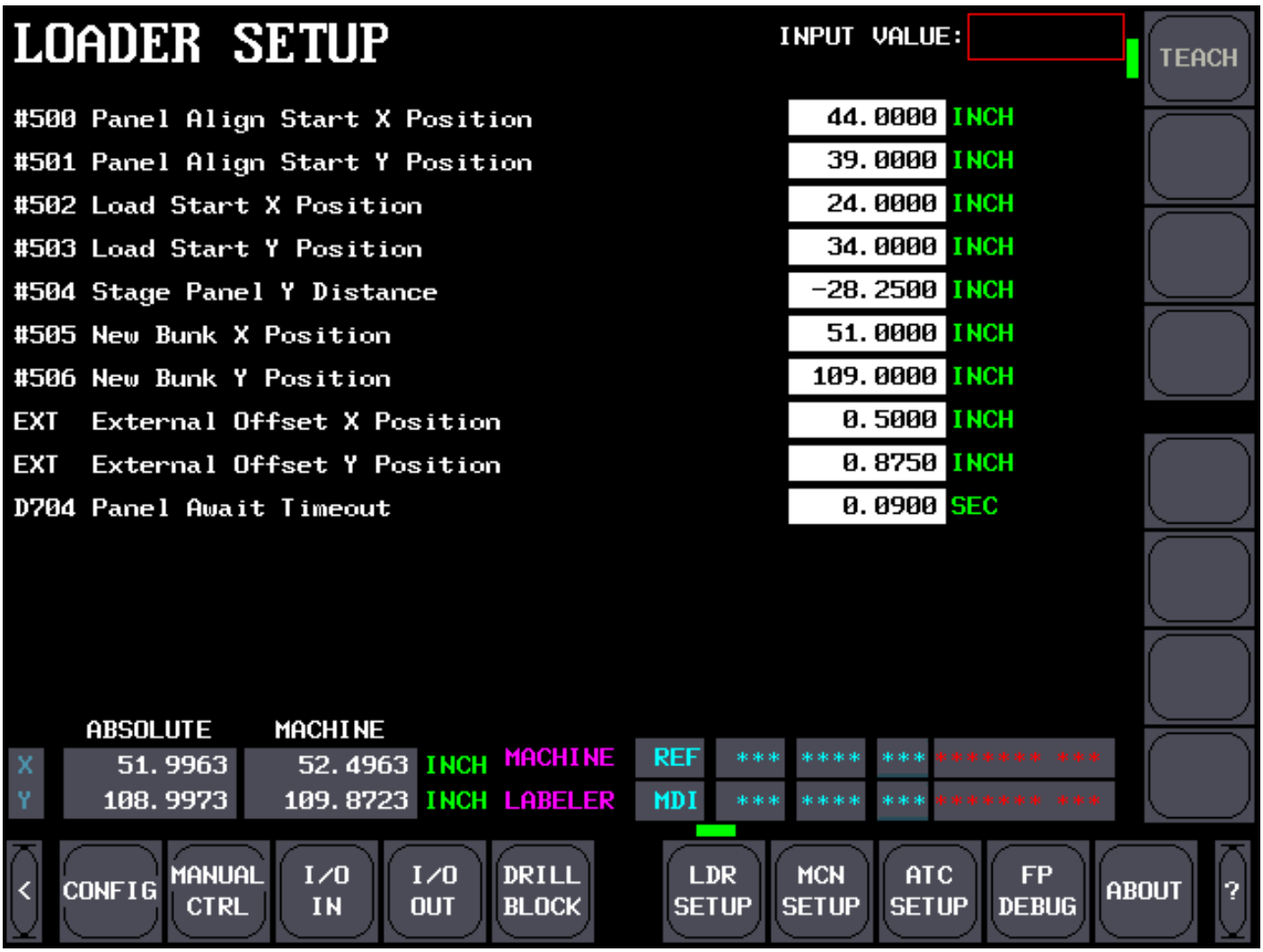



I/O - Output 2/3
Y7.0 Vacuum Pump 1 OFF
Y7.1 Vacuum Pump 2 OFF
Y7.2 Oiler OFF
Y7.3 Front Stop Pop-Up Pins OFF
Y7.4 Left (X-) Edge Guide Up OFF
Y7.5 Right (X+) Edge Guide Rail OFF
Y7.6 Mister OFF
Y7.7 Vacuum Gate Valve to Table OFF
Y8.0 Start Outfeed Table OFF
Y8.1 Drill Block Down OFF
Y8.2 Machine Lift Cup Suction OFF
Y8.3 Machine Lift Cup Blow OFF
Y8.4 Left Shift Cylinder OFF
Y8.5 Front Dust Port Blast Gate OFF
Y8.6 Right Cup Down OFF
Y8.7 Push Bar Down OFF
Y9.0 TTO Air Blower OFF
Y9.1 TTO Module Up/Dn OFF
Y9.2 Extend Loader Cup Piston OFF
Y9.3 Retract Loader Cup Piston OFF
Y9.4 Loader Cup Up/Dn Solenoid OFF
Y9.5 Loader Cup Suck OFF
Y9.6 Loader Cup Blow OFF
Y9.7 Labeler Plunger Up/Dn OFF
< CONFIG MANUAL CTRL I/O IN I/O OUT DRILL BLOCK LDR SETUP MCN SETUP ATC SETUP FP DEBUG ABOUT ?

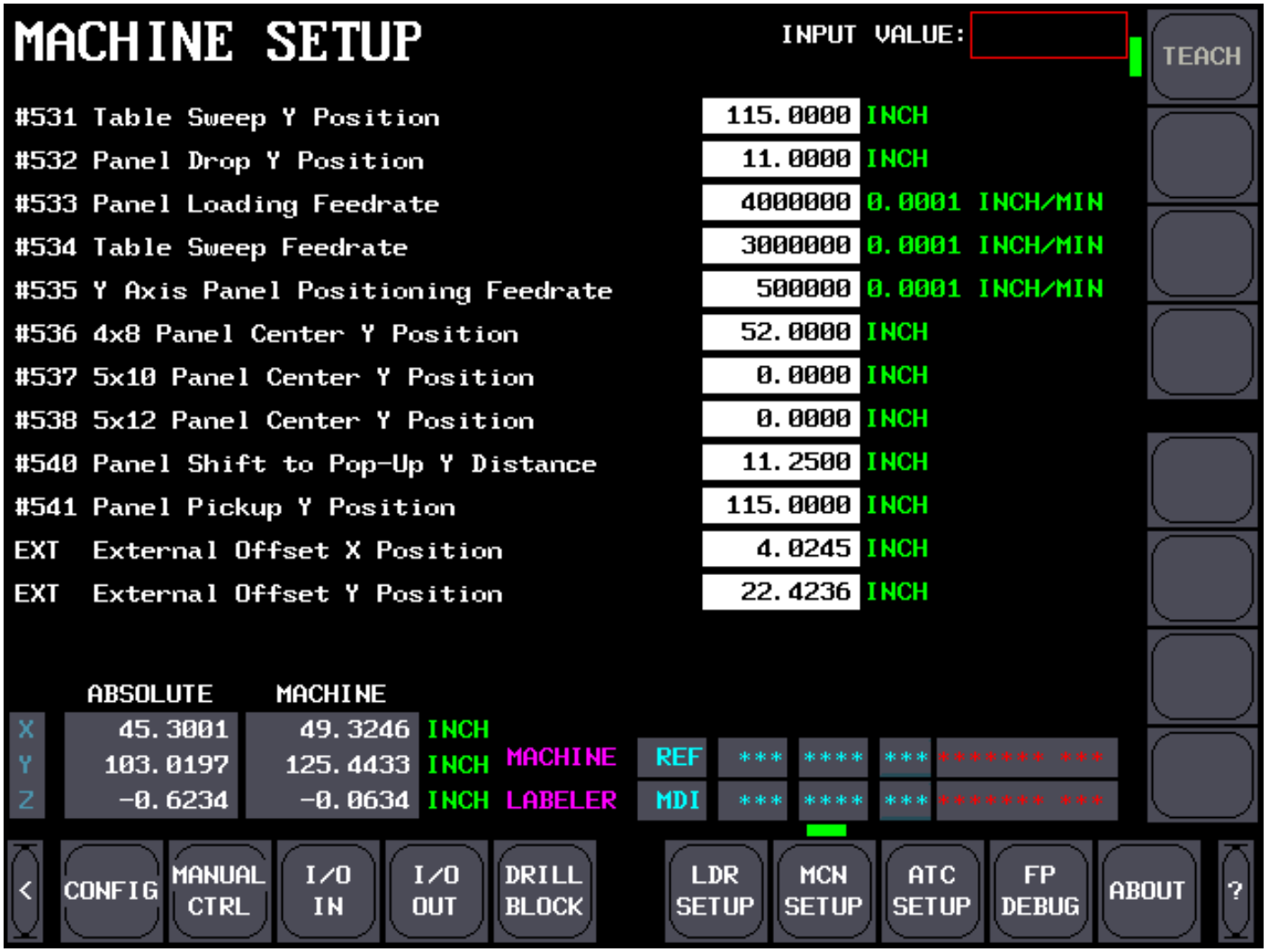

I/O - Output 3/3
Y10.0 Label Foot Vacuum On/Off OFF
Y10.1 Air Blast Under Label OFF
Y10.2 Panel Sensor Blower OFF
Y10.3 Right Air Jet OFF
Y10.4 Front Air Jet OFF
Y10.5 Left Air Jet OFF
Y10.6 Back Air Jet OFF
Y10.7 Labeler Plunger Left/Right OFF
Y11.0 Rotate Labeler Foot 90 deg OFF
Y11.1 Unused ON
Y11.2 Drill Block Dust Porrt ON
Y11.3 Unused OFF
Y11.4 Unused OFF
Y11.5 Unused OFF
Y11.6 Unused OFF
Y11.7 Unused OFF
< CONFIG MANUAL CTRL I/O IN I/O OUT DRILL BLOCK LDR SETUP MCN SETUP ATC SETUP FP DEBUG ABOUT ?

32.4 Loader Setup

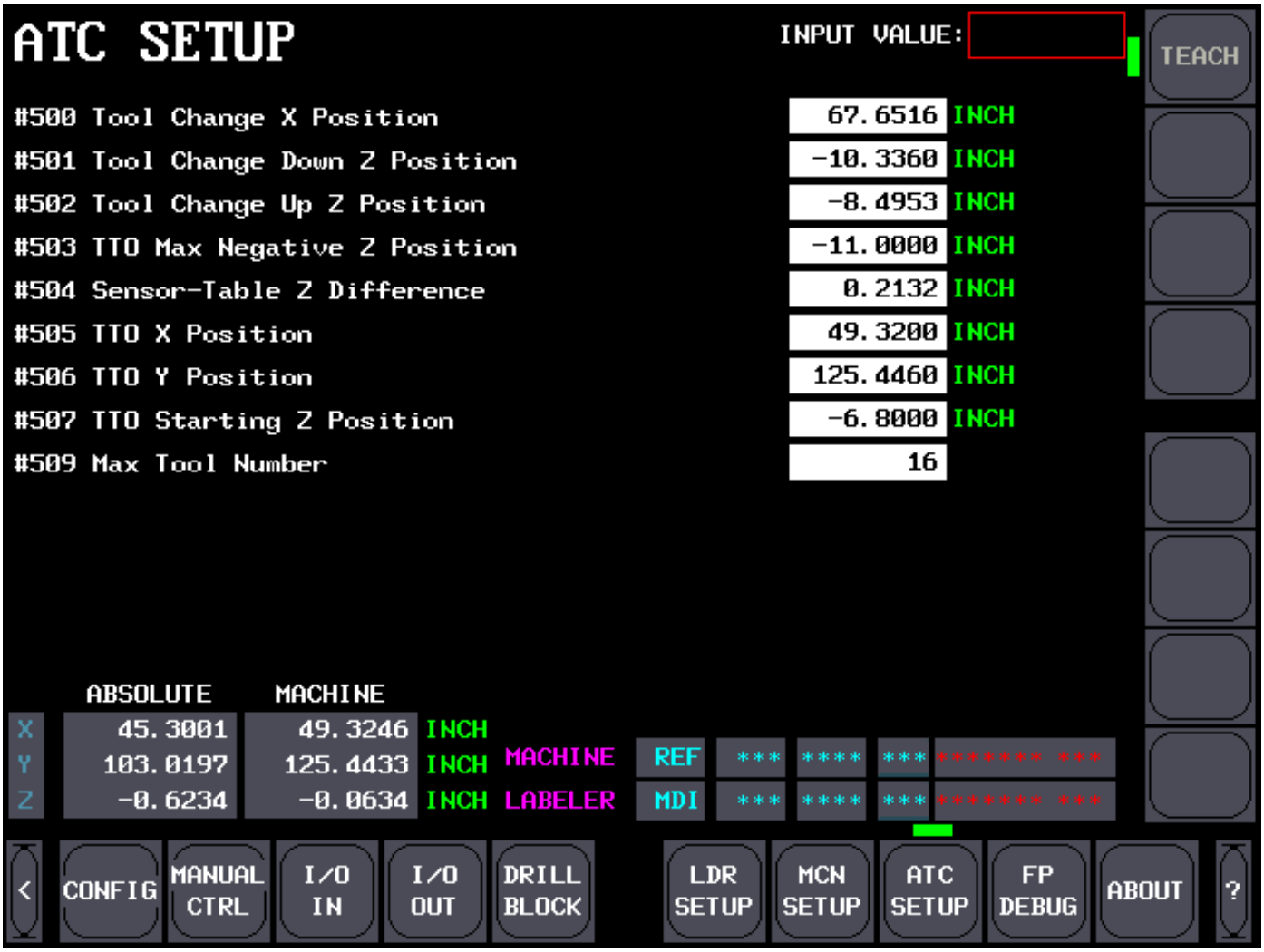
When prompted, press the TEACH button set value(s). TEACH will turn white when the feature is prompted.



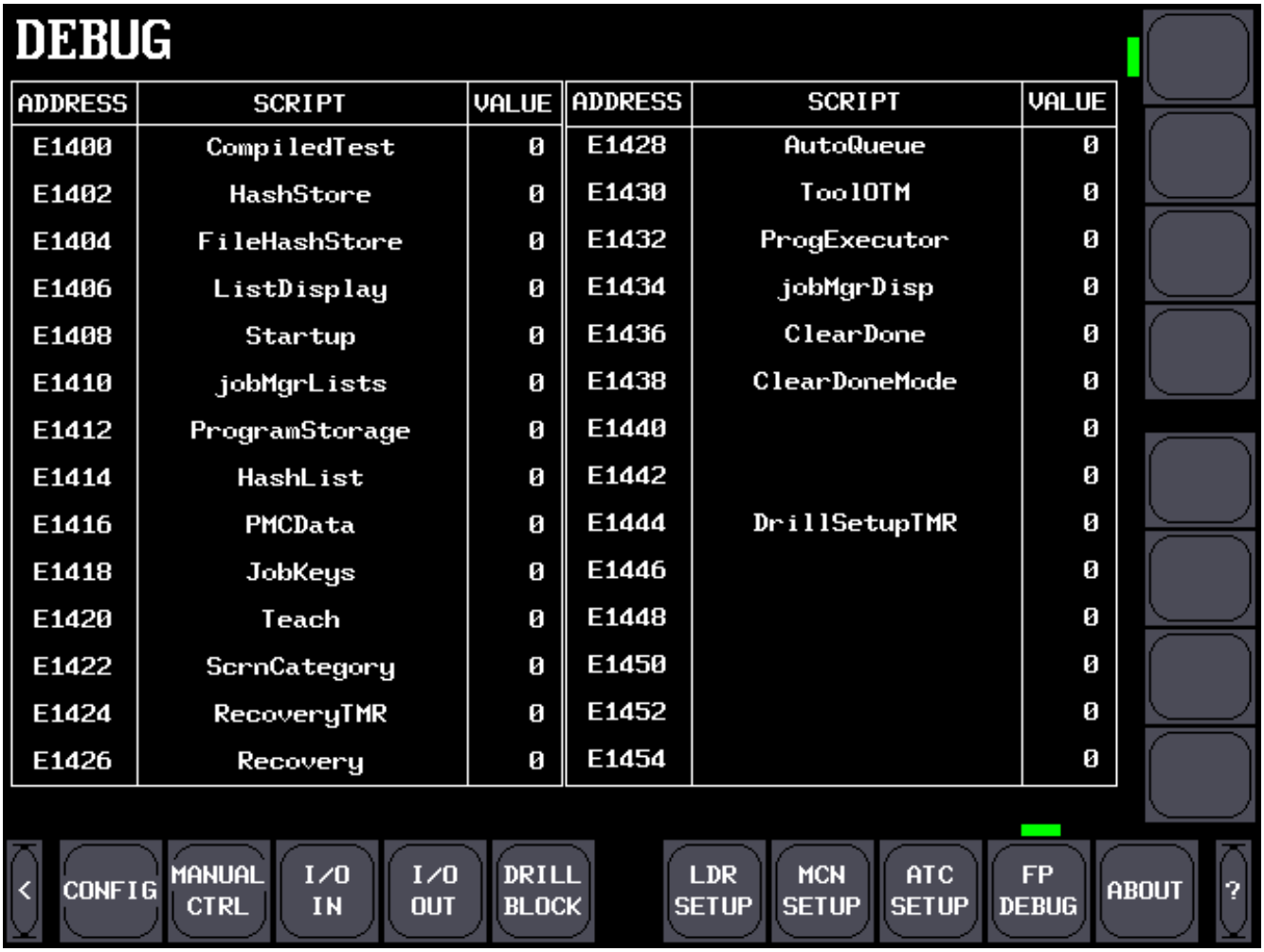
32.5 Machine Setup



32.6 ATC Setup Screen



32.7 Debug Screen



33.0 Help Screens

To access the help screen, press 

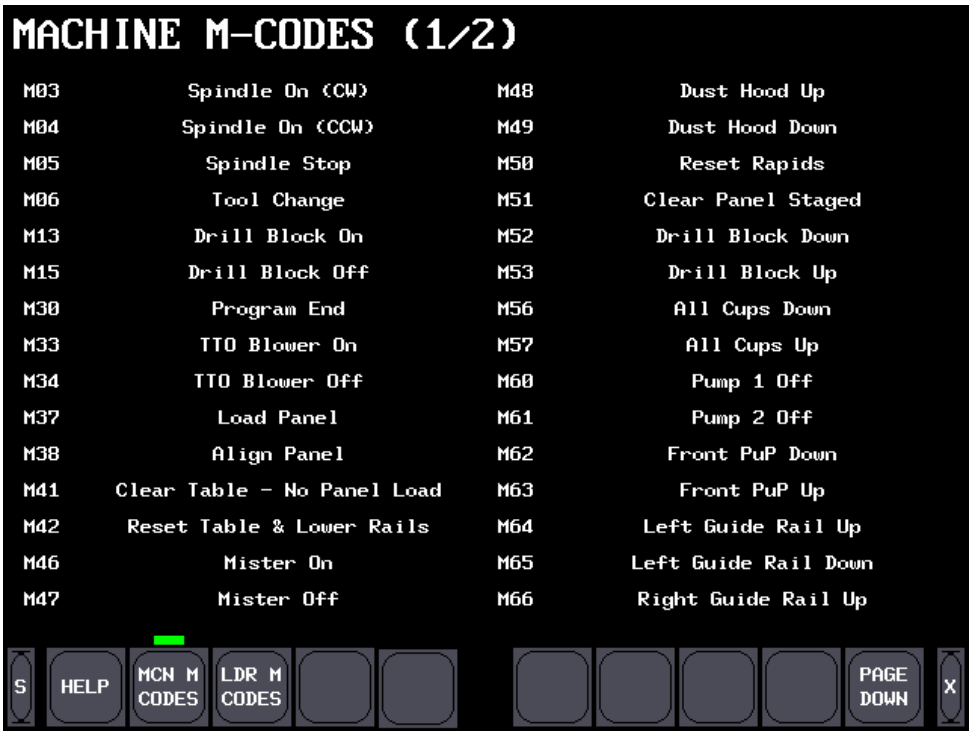
.

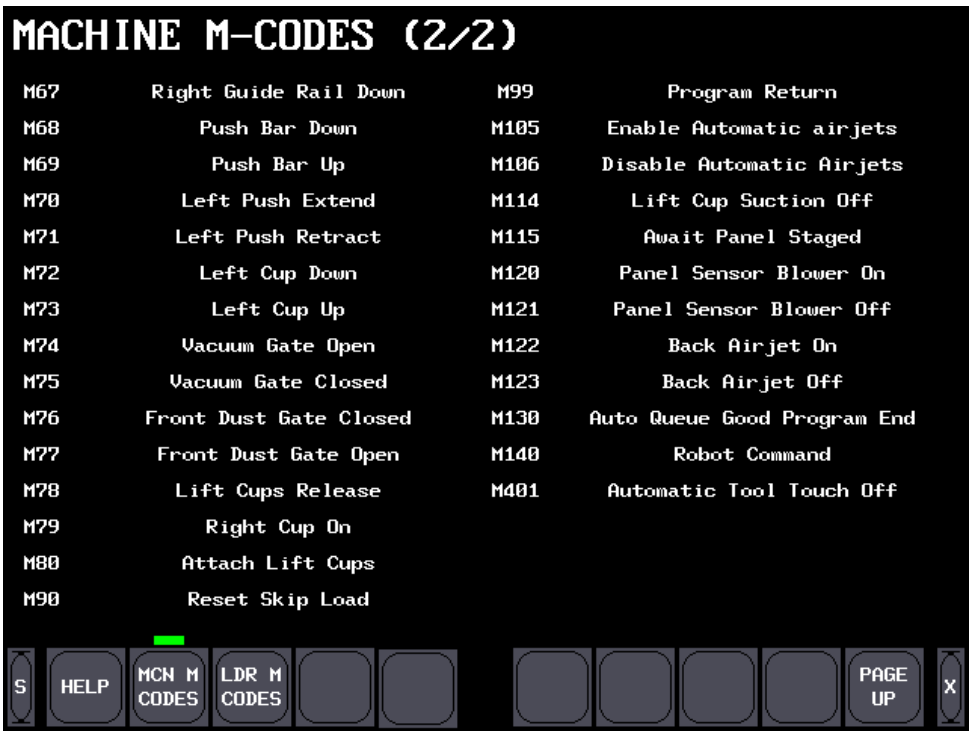
The help screen(s) show the help screen and the M-Codes for the machine and loader.

33.1 Machine M-Codes

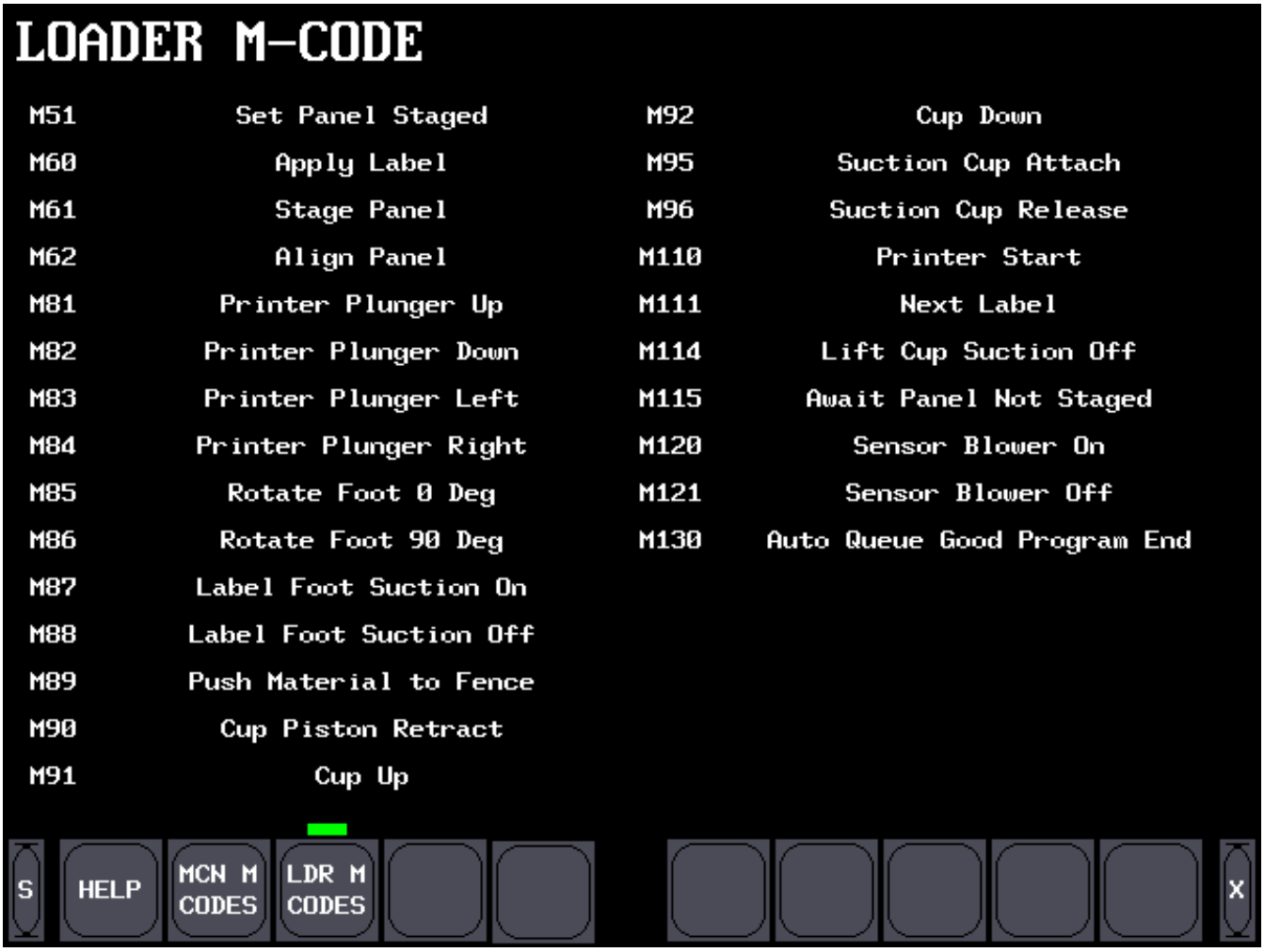
This screen shows the M-Codes for the Machine side. Use the 

buttons to toggle through the screens.





33.2 Loader M-Codes



34.0 Emergency Recovery

The emergency recovery is a function that resets the machine to its default mode.

The emergency recovery should only be used if the machine is not functioning correctly and cannot be troubleshooted with the assistance of a trained Laguna representative.

To perform an emergency recovery:

1. Press **edit mode**> **Prog**> **folder**> **operate**> **device change**> **CF**> **Select** *joblist.dat*> **delete**
2. Power the machine off. Wait 10 seconds.(this allows the machine to shut down correctly)
3. Turn the machine on. Wait for the machine to power up.
4. Turn the machine off again and wait 10 seconds.
5. Turn the machine on again and wait for the machine to power up.

35.0 Maintenance

As with any machine, to ensure optimal performance you must conduct regular maintenance.

Failure to follow maintenance procedures will void the warranty.

⚠ WARNING

Always disconnect power to the machine before performing maintenance. Failure to do this may result in serious personal injury or damage to the machine.

Table 30-1: Maintenance Table

Table is based on 30 hours of use a week						
	Daily	**Weekly**	**Monthly**	**Every 500 Machine Hours**	**Yearly**	**As Needed**
Wipe the ballscrews and prismatic guides and ensure they are dust free.	X					
Apply a 3 in 1 light machine oil to ballscrews and prismatic linear guides using a clean cloth. Move the machine through travel limits to properly disperse lubricant.	X					
Refill the oil reservoir with a 30 weight non-synthetic motor oil.						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.	X					

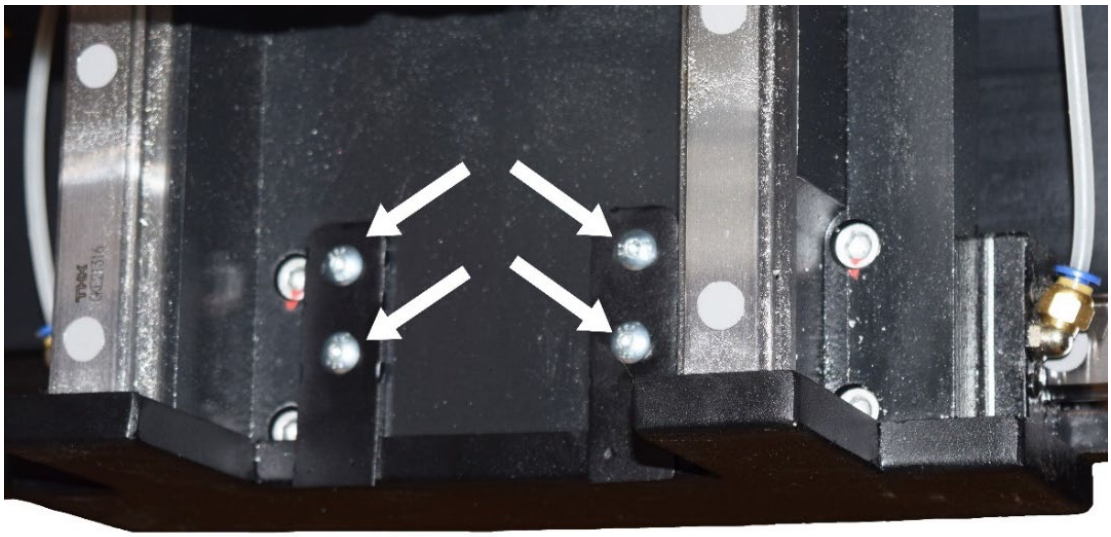
Leaving any tooling in the spindle overnight can cause the tooling to get dirty, stuck, rust, and cause damage to the spindle.						
Check that all electrical connectors are fitted correctly and are not loose.	X					
Check coolant levels in reservoir.	X					
Check the tool blades for chips and dullness	X					
Ensure that slots in the collets are free of sawdust and debris.	X					
Clean the collets and spindle holes. Uncleaned spindle holes may affect cut quality and pose a safety hazard if significantly dirty.	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	X				
Check the dust extraction for blockages, as large pieces could cause blockages	X	X				
Inspect the overall machine for damage and loose or worn parts.	X	X		X		
Clean machine with compressed air			X			
Disconnect power at the wall and clean the dust form the cabinet and fan covers			X			

35.1 Cleaning the Helical Racks

The helical racks on the SmartShop Auto Loader 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.

35.2 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 the figure below and wipe the tray clean.



Replace and tighten Allen nuts until snug; do not overtighten.

36.0 Troubleshooting

Problem	Causes	Solution
Vacuum pump blowing, not sucking	Wiring is faulty	Switch wires to different terminals
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 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 to 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.
Automatic tool changer not working	• Air compressor not turned on • Air hose incorrectly connected. • Moisture in the air line	• Confirm air compressor is on • Confirm air hose is connected correctly. • Attach an air dryer system and remove the moisture
Labeler is producing low quality prints	• Dust collection tray is dirty •	•

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37.0 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 and/or metalworking machine. The 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 and/or metalworking machine. The 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.

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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.

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 Tools, Inc.
744 Refuge Way, Suite 200
Grand Prairie, TX 75050
1-800-234-1976
www.lagunatools.com