LAGUNA TOOLS

SMARTSHOP COMPOSITE FABRICATOR 20 2021

Owner's Manual- **Receiving Machine, Machine Set-Up, Parts, Glossary, Tool Types used, Water Pump Operation (Optional), Tool Clips, Tool Touch Off, Operations, Warranties.**

Features:

- Huge machining area 6' x 20' — 2000mm x 6000mm *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-Axis. Ball Screw on Z-Axis.
- 1,2 and 3 Spindle Design. Also available with ATC Spindle.
- (3) 6HP Italian HSD spindles shown on the machine below.

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Receiving and CNC Introduction:
Receiving the Machine:

Note: It is probable that your machine will be delivered by a third party. Before you unpack your new machine, you will need to first inspect the packing, invoice, and shipping documents, supplied by the driver. Ensure that there is no visible damage to the packing, or the machine. You need to do this prior to the driver leaving. All damage must be noted on the delivery documents and signed by you and the delivery driver. You must then contact the seller, Laguna Tools, within 24 hours. It is probable that you will find sawdust on your Smartshop CF 20. Laguna endeavors to test all machines prior to shipping.

Introduction to CNC Machines:

The CNC is designed to give you years of safe service. Read this Owner's Manual in its entirety before assembly or use. The advantage of the CNC machine is that it can, in most cases, fully machine the complete job without it being removed from the table so that you have finished parts of high accuracy that are totally repeatable. It can also produce intricate carvings with the purchase of the relevant software. Nesting is also a valuable feature of CNC machining that saves on waste and costs. It is possible to reduce the number of different machines in the shop, as the CNC will perform a multiple of functions and is a must for cabinet makers and serious woodworkers.

Machine Set-Up:

CNC Machine Smartshop CF 20: Machine Set-Up

IMPORTANT: For installation to be efficient and cost effective we require several items to be completed PRIOR to our technician's arrival. Should you have any questions please feel free to call our Customer Service at 1-800-234-1976 or contact your Sales Representative.
Following are the steps you must perform for us to schedule the set-up/training-

1.) Remove all protective coating and packaging.

2.) Check if machine has all the tooling (Tools, Bits, Kits, etc.) components that were placed in your order.
3.) Make sure your building/shop have appropriate electrical voltage and amperage per machine(s).

*Electricians and Service Staff are welcome to contact our Customer Service if they have any questions.

4.) Make sure the main power & vacuum pumps can be connected to the cabinet.
5.) Make sure the machine(s) are leveled with the leveling feet installed.
6.) Clean dry air is vital for the machine(s) performance. Make sure the clean dry compressed air is attached to the machine(s).

Machine Set-Up (Cont'd.):

7.) Prepare adequate supply of materials for practice cutting as well as several 3⁄4" MDF sheets for use as spoil boards (Material to be cut and tested on).

8.) Has the person to be trained to work on the machine(s) by our technician read all the instruction manuals prior to set-up/training?

9.) Make sure the Associates has been trained in the software prior to set-up/training.

Should a technician representing Laguna Tools not be able to come to the site and work on the machines due to the lack of preparedness or inoperable equipment per the above and/or beyond Laguna Tools control any expenses incurred will be passed on to you. The customer will cover all expenses incurred during set up and training on the proper use of the machine(s) including but not limited to: Airfare, Rental Car, Hotel, Parking and/or Toll Fees per Diem, plus $115.50 per hour.

The above points have been read and understood, and the customer will be responsible for any delay and agrees to reimburse Laguna Tools for any additional expenses incurred.

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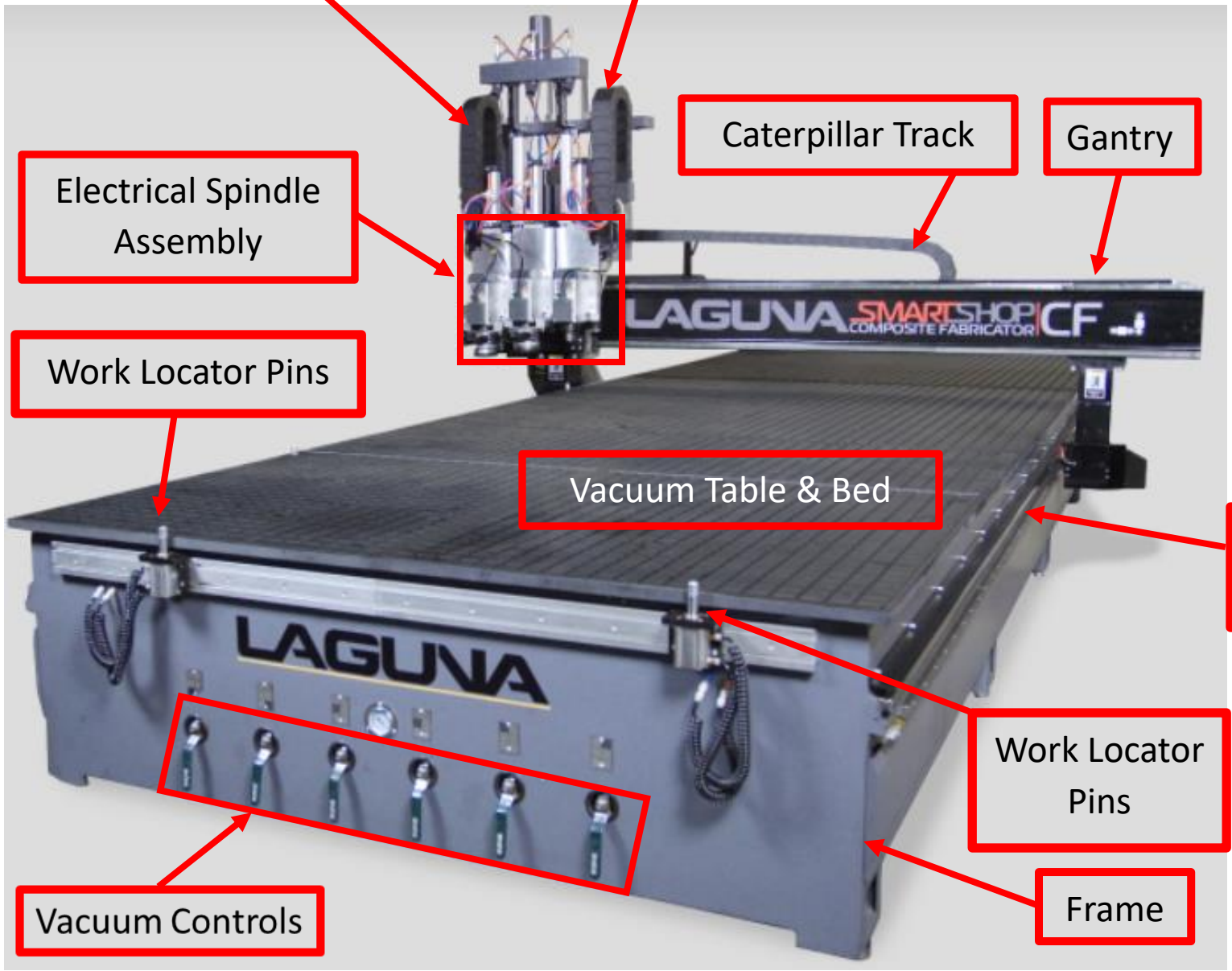
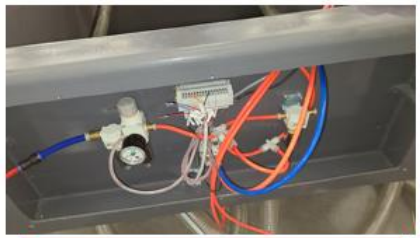
Parts and Main Components of the Smartshop Composite Fabricator 20-



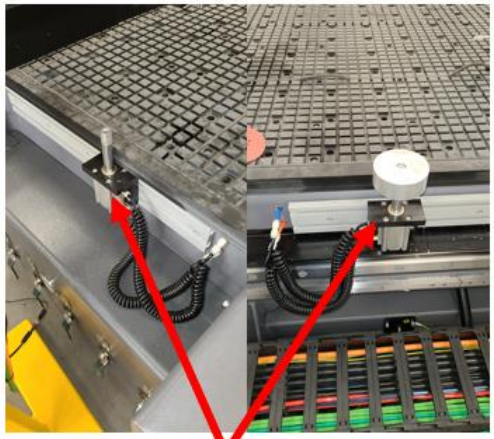
Parts and Main Components of the Smartshop Composite Fabricator 20-

Tool Changer/Clips

Dust Collector

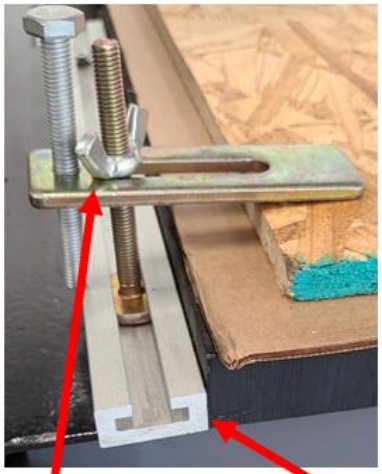


Air Regulator System



Work Locator Pins

Seal Gaskets for Vacuum Bed



Clamp & T-Slot

Electrical Cabinet & Control Panel

Glossary of Main Components of the Smartshop Composite Fabricator 20 (Cont'd.)-

1. **Bed:** The bed of the machine consists of a heavy steel frame with a plastic top that is slotted for the vacuum function. The table has "T-Slots" in the table, which are used to clamp the job or fixtures to the bed.
2. **Gantry:** The gantry straddles the bed and carries the router spindle motion system. It is moved along the length of the bed by a precision rack-and-pinion system that is controlled by the machine controller.
3. **Router Spindle:** The router spindle is moved along the gantry by a precision rack-and-pinion system that is controlled by the machine controller. The router spindle is moved vertically by a precision ball screw system that is controlled by the machine controller.
4. **Frame:** The frame is a heavy welded construction that supports all the other parts of the machine.
5. **Controller/Electrical Cabinet:** The Controller/Electrical Cabinet is located on the side of the machine enclosure and houses all the electrical components for controlling and powering the machine.
6. **Caterpillar Track:** The caterpillar track runs along the side of the machine and across the gantry in a trough and carries all the electrical cables and the spindle cooling tubes if water-cooled spindle is fitted.
7. **Water Pump:** The water pump provides coolant for the router spindle motor (if fitted). Running the router spindle without the cooling pump running can lead to spindle bearing failure.

Glossary of Main Components of the Smartshop Composite Fabricator 20 (Cont'd.)-

8. Vacuum Table: Vacuum table has 6 zones for flexible use.

9. Tool Changer: Tool changer has 8 stations to accommodate a large range of tools.

10. Oiler: The oiler connects to all the relevant slides on the machine and when pumped by hand will lubricate all the relevant slides.

More & Additional Safety Information for CNC Machine:

Additional instructions for the use of the CNC Machine: Like all machines, there is danger associated with the machine. Injury is frequently caused by lack of knowledge or familiarity. Use this machine with respect. If normal safety precautions are overlooked or ignored, serious personal injury may occur. As the CNC is under the control of the onboard machine controller, it is important that you are clear of the cutter when operating the machine.

What you will receive with the Machine:

What is supplied with your machine will depend on the specification of the machine and extras that you order.

More & Additional Safety Information for CNC Machine-

Where to locate your machine:

Before you unpack your machine, select the area where you will use your machine. There are no hard-and-fast rules for its location, but below are a few guidelines.

1.) There should be an area around the machine suitable for the length of wood that you will be machining.

2.) Adequate lighting. The better the lighting, the more accurate and safely you will be able to work.

3.) **Solid Floor:** You should select a solid flat floor, preferably concrete or something similar.

4.) Close to power source and dust collection.

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Fitting the Router Bit into the Router Head-

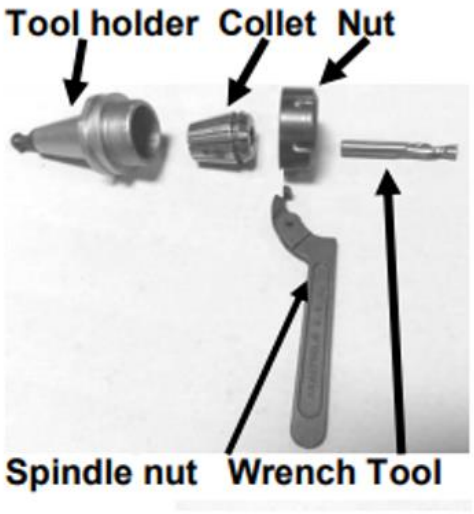
Safety Note: Before changing or fitting the router bit, always disconnect the power from the machine.

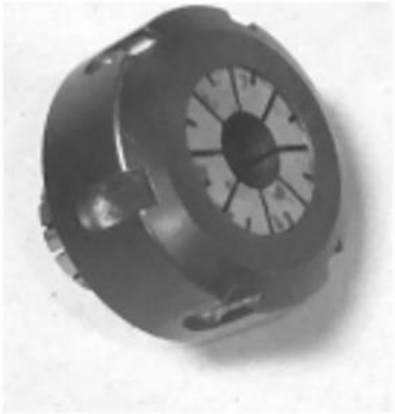
1.) Select a router bit and its relevant collet.

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

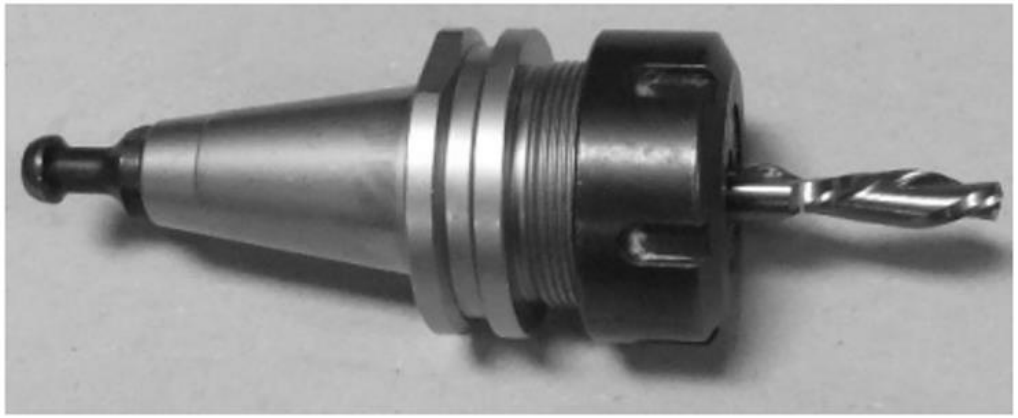
Note: The router bit must not be fitted into the collet until the collet has been fitted into the spindle nut. With the router bit fitted into the collet, the collet cannot compress and snap into the spindle nut. The face of the collet and the face of the spindle nut will be close to flush.

Note: To remove the collet, hold the spindle nut and press the collet on the side. The collet will compress and pop out. Do not try to remove the collet while a cutter is fitted, as the collet will not compress and pop out.





Collet fitted to spindle nut



Fully Assembled.

Fitting the router bit into the router head (Cont'd.)-

3.) Fit the Spindle Nut and Collet Assembly onto the Tool Holder and thread by hand.

4.) Press the bit into the Collet, please note that the flute 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 and tighten the Collet with a Wrench Tool. Do not over tighten.

Note: Use this process for all other router bits that you need to fit, but you will have to change the collet if the shank of the router bit is a different size.

Note: Keep your collets clean and blow all dust out of the slots. Fine dust accumulates and will affect the clamping action.

Machine Operation-

Manual Tool Release: The tool holder can be released from the spindle manually by pressing the green manual release button.

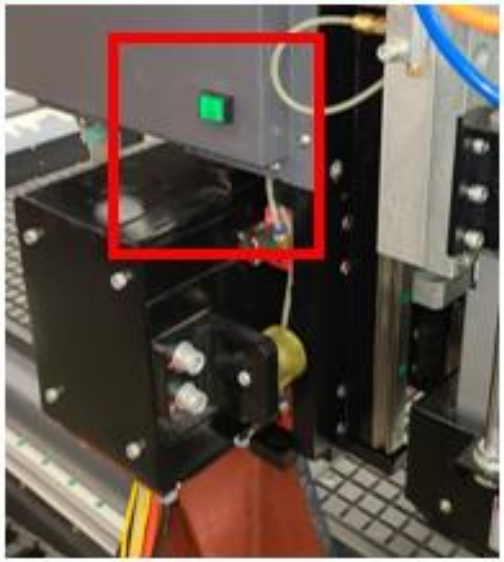
Note: When the green manual release button is pressed, the clamping method is released, and the tool will fall out. Place your hand so that the tool holder (not the cutter) is supported. To manually insert a tool holder, hold the tool holder in the spindle hole while holding the green manual release button. Once the green manual release button is released, the tool holder will be pulled up into the spindle hole and clamped in position.

Note: You will notice that there is air escaping from the spindle hole. This is to blow any dust out of the spindle hole and keep it clean. Note: Keep the tool holders clean, lubricated with Teflon.

Note: The spindle hole is susceptible to rust and must be kept clean and lubricated with a Teflon lubricant.

Note: Depending on the option/model that you purchased, the **"Green Manual Tool Release Button"** may be located on the gantry.

"Green Manual Release Button"



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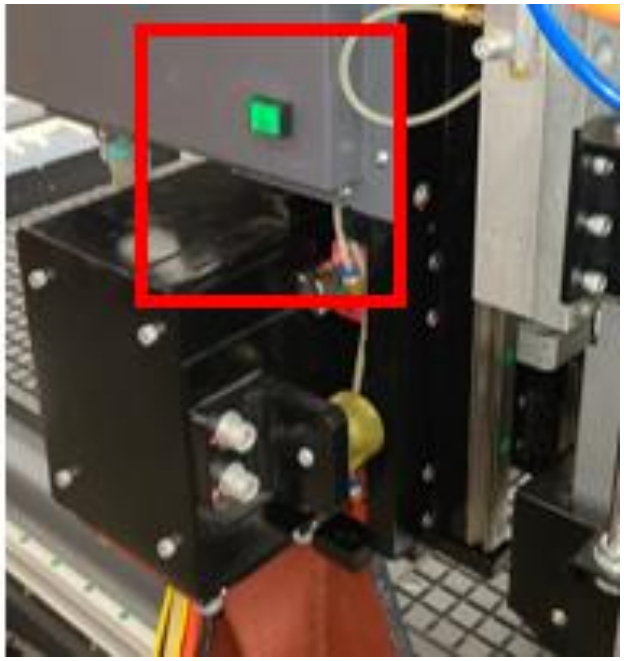
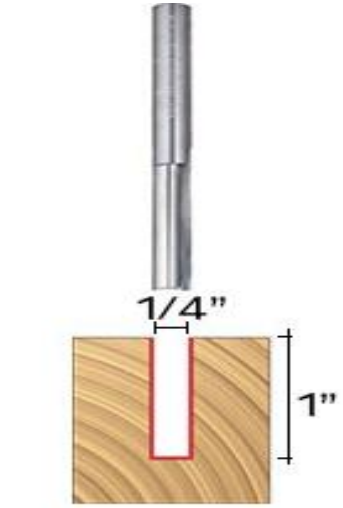


Types of Router Bits that can be used-

Types of Router Bits- There are five (5) basic types of router bits: **1.) Straight, 2.) Up Shear 3.) Down Shear, 4.) Combination (also called compression), and 5.) Form Tools (round over, ogee, etc.).**

1.)Straight Router Bits: These are the standard router bits that are commonly used with handheld routers and are readily available at home centers.

2.) Up Shear Router Bits: 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 but tend to chip the top surface, especially veneers or melamine surfaces. Ball nose Router Bits are a variation of the up-shear bit design but have a radiused end. These bits are typically used for 3D surfacing applications.



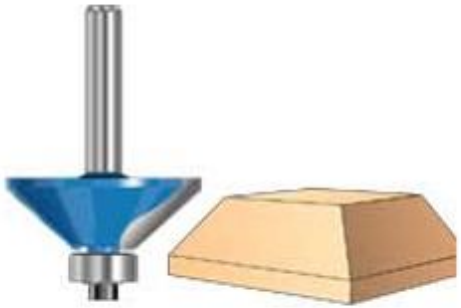
Types of Router Bits that can be used (Cont'd.)-

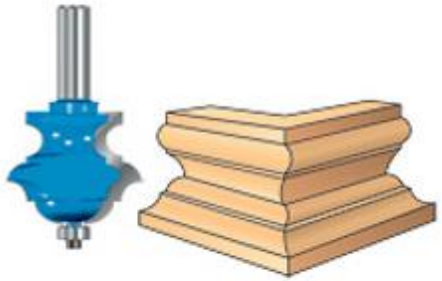
3.) Down Shear Router Bits: These bits are like the up shear but with an opposite spiral that tends to pack the chips into the kerf. These bits prevent chipping the material surface, especially with veneers or melamine surfaces.

4.) Combination (Compression) Router Bits: 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. Combination Router Bits are the preferred configuration for machining veneered plywood as well as melamine-surfaced products. 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 1/4" in length so that the bit can be used on 1/4" veneered plywood and for dados.

Types of Router Bits that can be used (Cont'd.)-

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





Home Switches-

Home Switches- There are three switches that determine the home position of the router head. The switches are factory set, and no adjustment should be required!

If adjustment is required, contact your Service Technician prior to conducting any adjustment.

Water Pump (Optional) Connecting the water pipes to the pump (If ordered)-

Connecting the water pipes to the pump (if ordered):

Safety Note: **Never run the water-cooled motor without the cooling being connected, or the motor could be damaged. It is recommended that the pump be run for at least 5 minutes after the motor has been switched off to remove any residual heat.**

There are two water tubes that come out of the caterpillar track. These are used to provide cooling for liquid-cooled router spindle. You will connect one to the water pump, and the other will be placed in the water container for the return water. It is not important which pipe is used as the return.

1.) Locate the Top of Pail with the (2) Holes for the Water Pump.

2.) Place the (2) separate clear hoses into the Top of the (2) Holes. The fit will be tight, so to keep dirt out of the Pail.

3.) Place end of the Clear Hose provided from the Bottom End of Pale into "Blue Fitting" of the Water Pump, it will lock in automatically, to release the hose from the fitting, press down on the top "Blue Ring" of the fitting, & the hose can be released.

Water Pump (Optional) Connecting the water pipes to the pump (If ordered) (Cont'd.)-

4.) Place the Water Pump into the Pail.

5.) Place the black electrical cord of the Water Pump into the slot of the Pail, leading to an Electrical Outlet.

6.) Fill the Pail with about ¾ full of water (Distilled Water is Recommended).

7.) Place the Water Pump into the Pail and seal the lid onto the pale.

8.) Place pale underneath the Work Bench/Workstation or any place that the Pale is not in the way.

9.) Place the 110v Electrical Plug of the Water Pump into any 110 Volt Outlet for Operation.

Note: If water-cooled spindles are run without cooling, they could be damaged and fail.

Note: You will need to provide a coolant tank with a minimum capacity of 5 gallons. If the shop temperature is high, the tank size will have to be larger. If your shop is likely to be subject to freezing temperatures, antifreeze must be added to the cooling water.

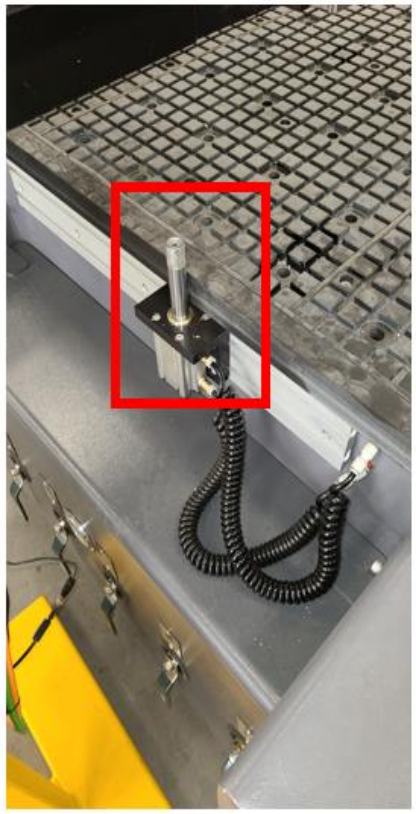
Location Pins-

Optional location pins [optional]:

The machine can be supplied with 5 (Five) pneumatic-activated location pins.

The pins can be extended or retracted by activation of the "Blue" Button on the Control Panel of the Electrical Cabinet. The pins are used as a convenient way to locate a sheet or job onto the vacuum table.

Position Rod Switch- Turns On/Off & Engages the Locator Pins on the Vacuum Bed.

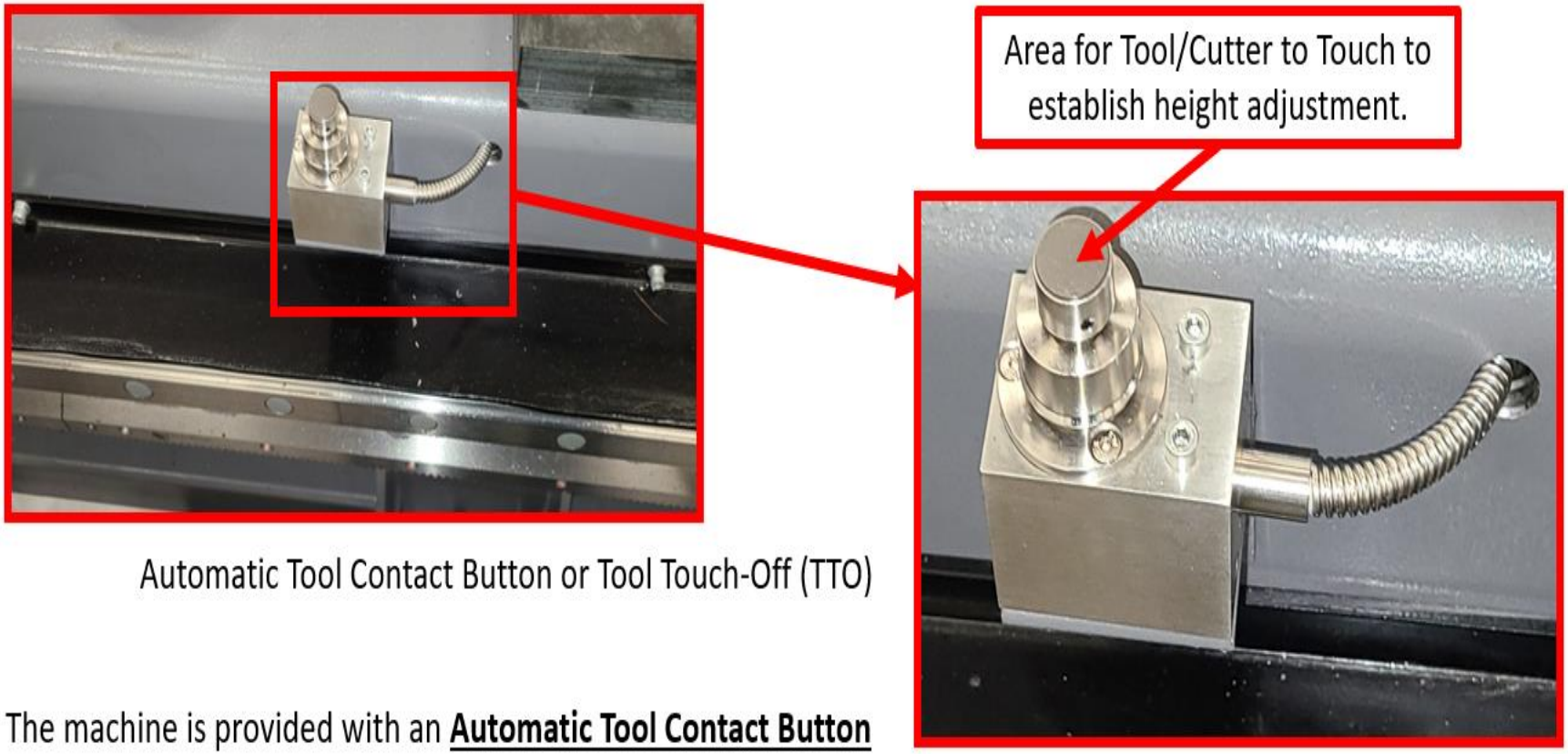


Tools Clips-

Tools Clips or Automatic Tool Changer (ATC)

Tool Changer: The tool changer consists of several tool spindle docking stations (up to a maximum of 8), depending on what was ordered with the machine). The machine knows the location of the docking stations and will recover, and deposit tool spindles as commanded by the program that it is running. Each time that a cutter is inserted into a tool spindle, the distance to the tip of the tool is different.

Automatic Tool Contact Button or Tool Touch Off-



Automatic Tool Contact Button or Tool Touch-Off (TTO)

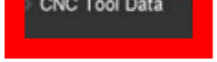
The machine is provided with an **Automatic Tool Contact Button** that, when used, will tell the machine the exact dimension of the tip of the tool in relation to the tool.

Automatic "Z" Origin Point (Tool Touch-Off): The machine is provided with an automatic tool height adjustment. To activate the automatic tool height adjustment, access the tools screen and press "Execute Tool Touch Off" button. This will cause the machine to move to the TTO position, then move down slowly. Once the cutter touches the contact button, electrical contact is made, and the cutter will move up away from the contact button. The machine now knows the height of the cutter.

From “Set-Up” Screen to CNC Tool Data-

“Tools Screen”: This page is used for all data regarding **Tooling Dimensions and Offsets**.

Access button:



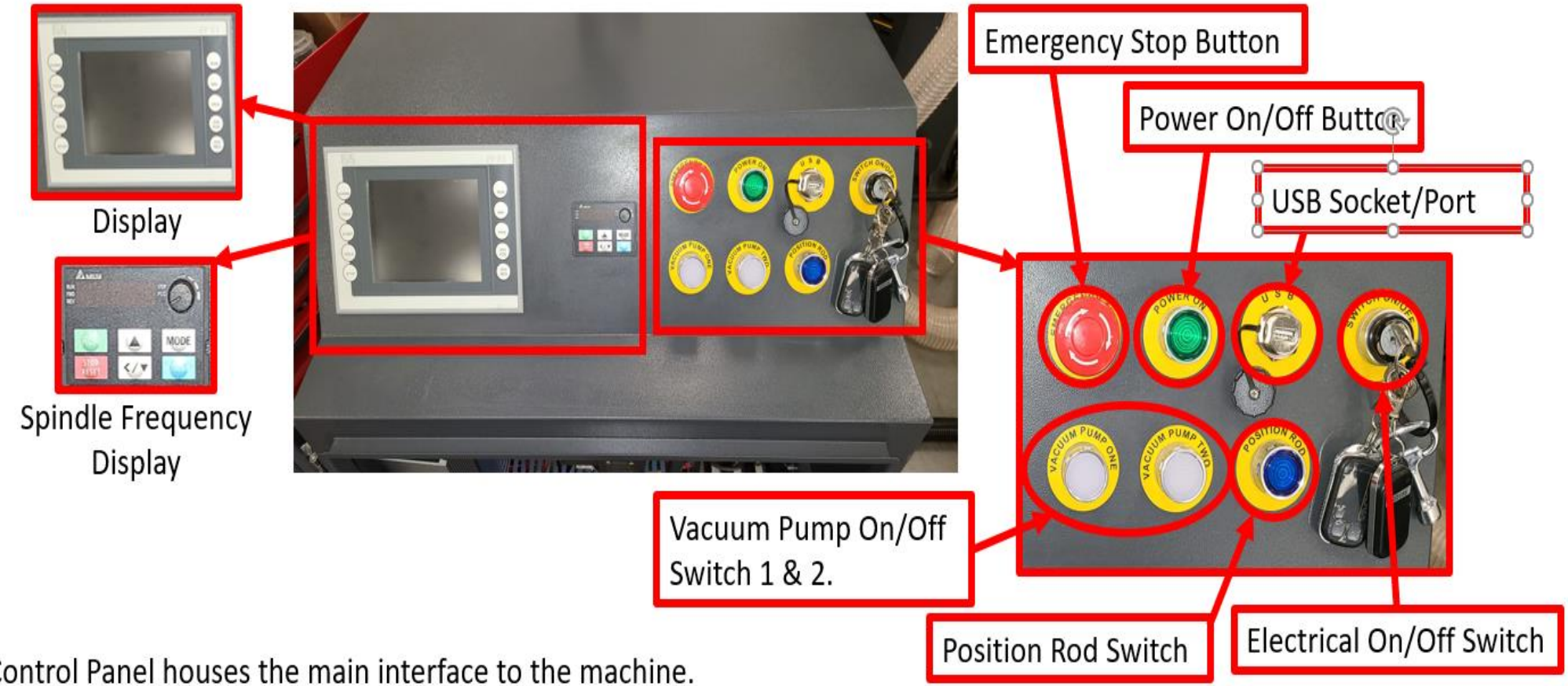
“Execute Automatic Touch Off (TTO)” = Select the tool in which needs to be measured and press **“The Execute Button”**. The machine will gather the correct tool holder and proceed to the TTO switch.
“Z” will rapid to the “Z” pre-dimension in the machine settings then slow until it finds the switch.

“Manual Setting of Tool length” = Use the Jog function to move the cutter to the table or work surface. Press the **“Teach Tool Length Button”** to measure the Z axis distance.
Press **“Set Tool Data”** to write the measurement to the machine settings. Failure to press the **“Set Tool Data”** will lose the measured value.

“Set Tool in Spindle” = This field allows for the manual adjustment of the active tool physically in the spindle. If you manually swap tool cones around you must update the machine so the active tool is properly represented.

“Tool Touch Sensor Input” = This is an indicator to verify the Tool Touch Off (TTO) switch is working properly.

Electrical Cabinet & Control Panel-



The Control Panel houses the main interface to the machine.

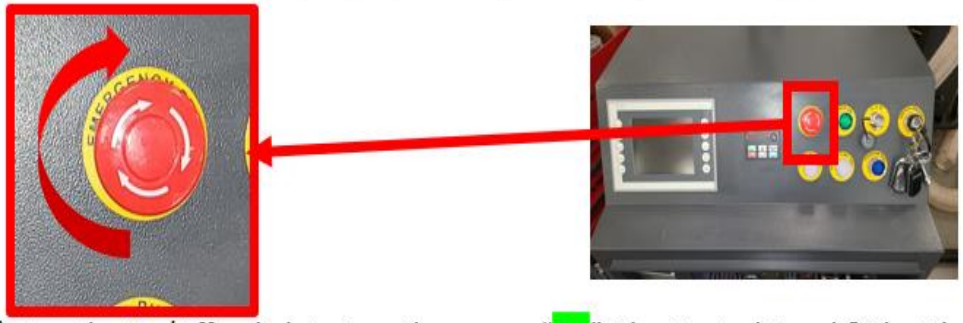
1. Display.
2. Vacuum Pump 1 & 2 On/Off Switch: This turns the vacuum on and off.
3. USB Socket: This is used to input programs into the controller.
4. Emergency Stop Button: To reset the emergency stop, twist clockwise and it will pop out.
5. Electrical On/Off Switch: The Electrical On/Off switch connects the controller to the electrical supply and starts the processor.
6. Position Rod Switch- Turns On/Off & Engages the Locator Pins on the Vacuum Bed.

Turning “On” the Machine-

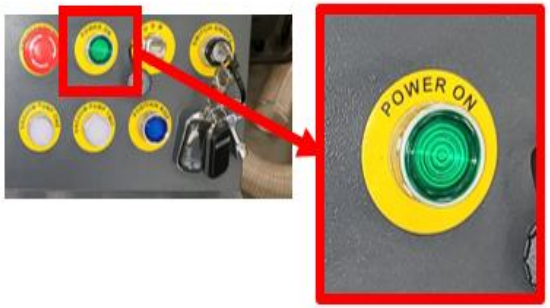
Turning on the Machine:

Note: Before you turn on the machine, remove all tools and other objects from the machine table. Make sure that the table surface is clear of obstructions.

1.) Release the emergency stop by twisting clockwise, and it will pop out.



2.) Turn the On/Off switch to turn the power “On”. The Control Panel & the Display will light up.



3.) Press the “Green Power On” Button to apply power to the Display on the Control Panel

****The router head will move to the home position on the table.

Turning “On” the Machine (Cont’d.)-

Turning “On” the Machine:

Note: Before you turn on the machine, remove all tools and other objects from the machine table. Make sure that the table surface is clear of obstructions.

4.) Press “**MAIN/HOME MACHINE**” Button.

Main Screen Button(s) & Flow-

Main / Home Screen Defined-

Main / Home screen defined: MAIN

Above is the Start-Up Home Screen-

Park Tool = Pressing this button will put the active tool in spindle into its tool holder and leave the spindle **empty.**

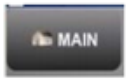
Preventive Maintenance Note-

*******One should never leave a tool in spindle when machine is Idle. Leaving a tool in spindle will cause rust and damage to tool holder and or spindle.**

Verify Origin = Pressing this button will move the machine to whatever ZPO (Z-Point Origin) Coordinates is selected on the Jog screen, G54-G59.

******ZPO (Z-Point Origin) coordinates – These are based on the G54-G59 set and selected from the Jog Screen.**

Main / Home Screen Defined-

Main / Home screen defined: 

Hold = The Hold button is used to Pause a program run. Press the Run button to continue.
NOTE: The spindle stays running during hold. Press stop button to stop the spindle and program.

Run = The Run button is used to start a CNC Program.

Preview Program = This button will open a visual representation of the active program in X and Y axis and provide an estimated run time.

Settings = The settings button enters the Override / MDI screen. This is also accessible from the set-up menu screen under CNC Settings.

Main / Home Screen Defined (Cont'd.)-

Right Side Fields defined:

Select Program drop down window = This field allows you to quickly select a program from the files copied to the controller's memory.

Active Tool = This references the current tool in spindle.

Feed rate = This shows the current federate as dictated by the active program.

Spindle RPM = This shows the current spindle speed.

Start at Block = This is the run from line number function. With the machine in a Stopped state input the line in which you would like to start from and press the Run button.

Start at Tool = This field allows the program to jump to a specific tool for it's starting point. Input the tool number desired then press run. There will be a slight delay while the code is scanned to the requested starting point.

Main / Home screen defined: 

Main / Home Screen Defined (Cont'd.)-

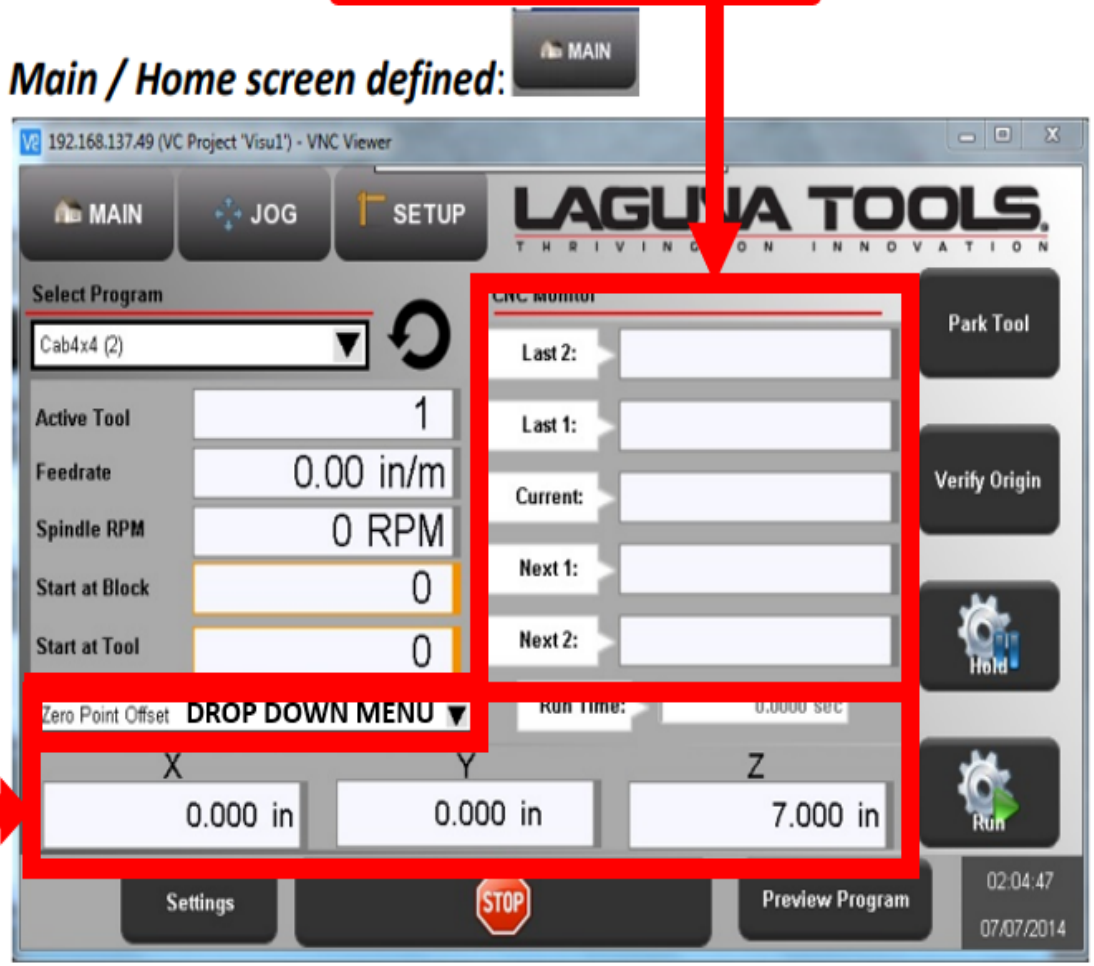
CNC Monitor = These 5 lines are displaying the **CNC "G"-Code** as it is running.

Coord's Selector/Lower Right Drop Down = This is the selector for the X,Y, and Z coordinates displayed at the bottom of the Main Page.

FROM DRP DOWN MENU-

1. **ZPO Coordinates –** These are based on the G54-G59 set and selected from the Jog screen.
2. **Machine Coordinates –** These are the actual distances from machine "Zero".
3. **Relative Coordinates –** These are resettable to zero from current position and equate to a digital tape measure function.

Main / Home screen defined:



Main Screen Buttons & Flow to proceed to CNC Positions-

1. Make sure one is in **"Machine Coordinates"**.

2. From the "Main Screen" select the **"SET UP"** Button, then it will proceed to **"Set-Up"** Screen.

"Set-Up" Screen Appears-

Loading a Program into the Machine-

Loading a Program into the Machine:

1.) Load your program into your USB drive.

USB Drive to Transfer Files.

2.) Fit the USB into the USB slot.

3.) Press the "**MAIN**" Button to get to the Main/Home Screen.

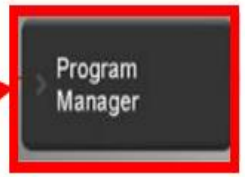
Main / Home screen defined: 

4.) Within the **Main/Home Screen**, go to and Press the "**SET-UP**" Button to go to the Set-Up Screen.

Loading a Program into the Machine-

From the "Main Screen" select the **"Program Manager"** Button, then it will proceed to **"SET-UP"** Screen appears.

Loading a Program into the Machine (Cont'd.)-



Program Manager: This screen is used for the managing the programs within your controller.

5.) Press the "**Program Manager**" Button & the Screen that is shown will appear.

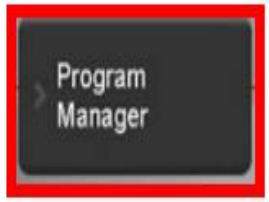
Loading a Program into the Machine (Cont'd.)-

"USER TAB" – TO THE CUSTOMER DO NOT UTLIZE OR USE IN ANY WAY.

"Programs Tab" – This displays the programs within a specified folder.

"Copying Programs to the Controller" - A program must be selectable from the Programs Tab in order to be made active.

"USB Tab" – This displays the programs from a USB Memory Stick when inserted into the USB Drive.



Program Manager: This screen is used for the managing the programs within your controller.

Loading a Program into the Machine (Cont'd.)-

6.) Press the "**USB Tab**" Button to Display Program(s) within a Specific Folder.

7.) Press the "**Programs Tab**" this will display all the Programs within the Folder in the USB Drive.

8.) Press the "**Arrow**" Keys to select a Program or File.

Press the "**Copy Button**" to Copy the program/file within the USB Drive.

"To Copy Programs to the Controller" - A program must be selectable from the Programs Tab in order to be made active.

9.) When the file is highlighted, Press the "**Copy Button**" to Copy the program/file from the the USB Drive.

10.) Press the **"Paste Button"** to insert the **"G-Code"** into the program folder for active selection.

"Refresh Button" = This buttons polls the program storage area and brings the list up to a real time reference.

"Multiselect Button" = This button allows the selection of multiple programs for pasting into another location or deleting.

8.) Press the "**Arrow**" Keys to select a Program or File.

Highlight a program and press the **"Copy Button"**, then open the Programs tab and select an empty field.

The following buttons are standard file manager functions just like those used in P.C.'s. Rename, Create directory, **Copy, Cut, Paste, and Delete** do exacting what they say.

9.) Press the **"Paste Button"** to insert the **"G-Code"** into the program folder for active selection.

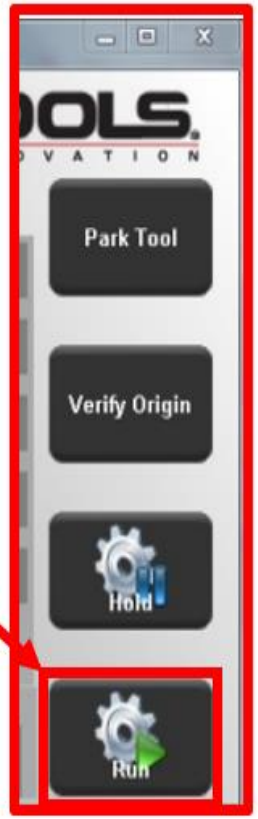
Activate Start Program/File in the Machine -

Safety Note: Ensure that you are cleared of the machine. The spindle will start to rotate and could cause injury.

11.) To start Program, Go to the “Main Menu”, Press “Main”.

12.) When the Main Menu appears, Go to “**Select Program**” Area.

13.) Go to the Dropdown Menu & select Program.

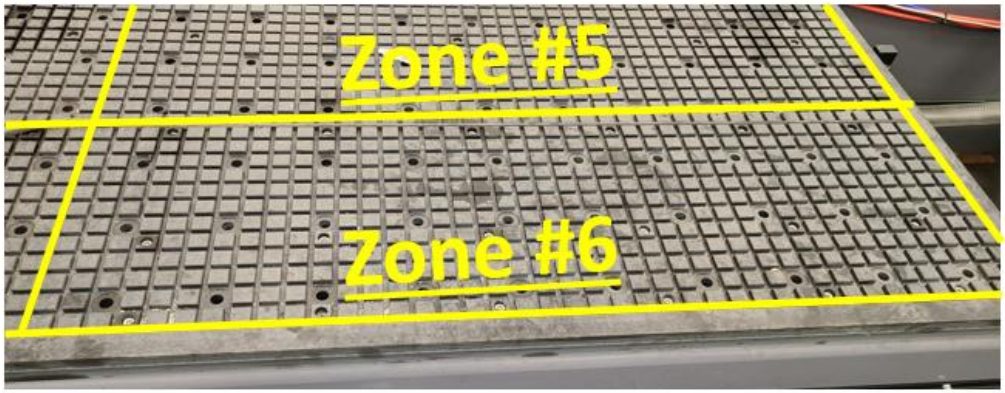


14.) Press “**RUN**” button. The machine will start running the “G Code”.

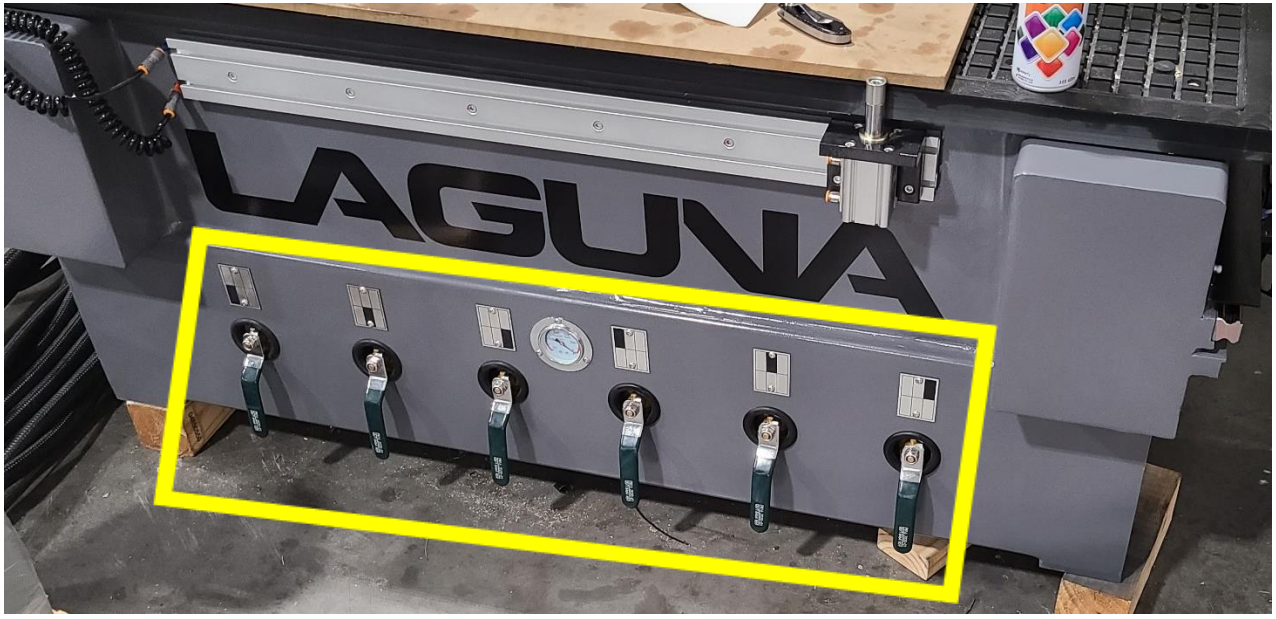
Using the Vacuum Table & Vacuum Zones-

Using the Vacuum Table:
Note-The better the vacuum that is created, the more secure the parts will be held in place.
Follow the below instructions to obtain optimum results.

The Vacuum Table has 6 Zone's and you can set the configuration to suite the type of work that you will be producing.

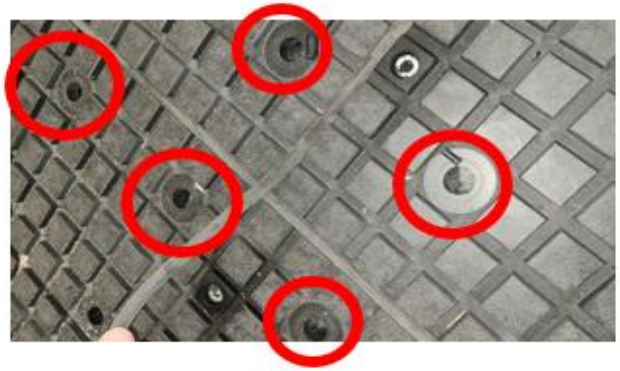


Each zone is controlled by a On/Off Switches that is located at the front of the machine.



Using the Vacuum Table & Vacuum Zones (Cont'd.)-

The table has 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.

T-Slots are also provided to allow you to clamp jobs / spoil boards to the table should it be required.

Fitting the Foam Rubber Gasket-

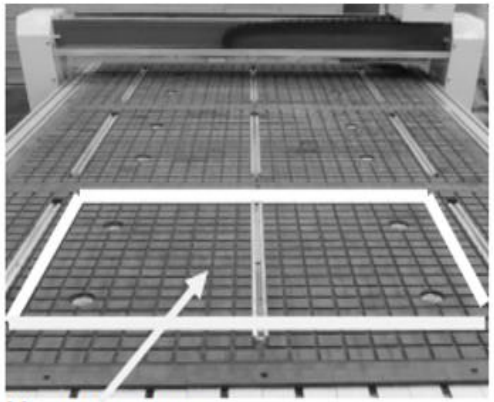
It is important that the foam rubber gasket is pressed evenly into the grove in the vacuum table around the zone that you are constructing.
To ensure a good seal, it is strongly recommended that the gasket be turned in at the beginning (as shown).

The gasket has a tendency to stretch while fitting, and over time it may relax and shorten.

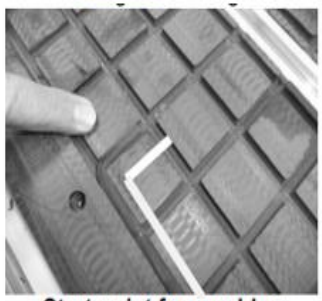
The extra length of gasket allows you to reset it and make the seal again.

If the initial turn is not put in place, there is no margin for error and you may have to discard a complete length just for being one inch short.

It is recommended that you initially create 6 Zones, each one completely across the table. You can change the configuration at a later stage.



Vacuum zone

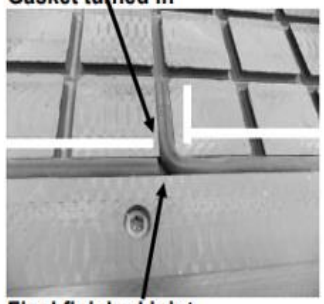


Start point foam rubber gasket turned in

Inserting foam rubber gasket

Cutting end of foam rubber gasket

Gasket turned in



Final finished joint

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

Spoil Board Material and Precautions-

The Spoil Board has 2-Two functions:

1.) To protect the vacuum table from the cutters. You will set the depth of your cutter a few thousandths of an inch deeper than the job thickness. If there were no spoil board, this would mean that you would be cutting into the vacuum table.

2.) To transfer the vacuum from the table to the job. This means that the spoil board must be porous to allow air to be sucked from the underside of the job. We have found that low-cost MDF is the best material for this function.

Spoil Board Preparation-

When you purchase your (**Medium-Density Fiberboard) MDF Spoil Board**, it should be no thinner than 3/4 inch.

Contrary to what you might think, the thicker the MDF (, the better the suction that is created. It is not recommended that your spoil board be thicker than 1 inch.
The MDF that you purchase will not be flat, and the machine will need to cut it to make it accurate.

Accuracy in the order of a few thousandths of an inch is required, so you will have to machine the spoil board flat. After your spoil board has been skimmed many times and is 1/2-inch thick, discard and start a new spoil board. The spoil board edges are very porous and must be sealed. Laguna Tools recommends that a "**Hard Candle Wax**" be used, as it contains no water.
Never use a water-based product to seal the edges of the board, as this will make the board grow and it will be unsuitable as a spoil board.

Spoil Board Material and Precautions (Cont'd.)-

Note: Even some glues contain water and can affect the edges of the spoil board.

Note: Do not confuse flatness with bow. If the board is bowed, the vacuum may not pull the board down and you will lose vacuum. Never use a bowed board as a spoil board.

1.) Cut your spoil board to the size of the bed of the machine.

2.) Place on the vacuum table. Prior to placing the spoil board onto the vacuum table, ensure that the table is perfectly clean, free from sawdust and dirt. If there is sawdust or other debris 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 and use a hand-held blower or vacuum cleaner.

3.) Turn on the vacuum.

4.) Fly Cut (Fly Cutter is a single point cutting tool which is like a lathe tool mounted in a special holder.) the total surface of the spoil board.

Note: Only remove the minimum to achieve a flat surface over the complete surface. You will have to skim the surface several times during the life of the spoil board to clean it up, and you should get into the habit of only skimming the minimum off the surface.

5.) Once one face is flat, remove the vacuum, turn the spoil board over and repeat the process for the other side. (Remember to ensure that the table and spoil board are clean.)

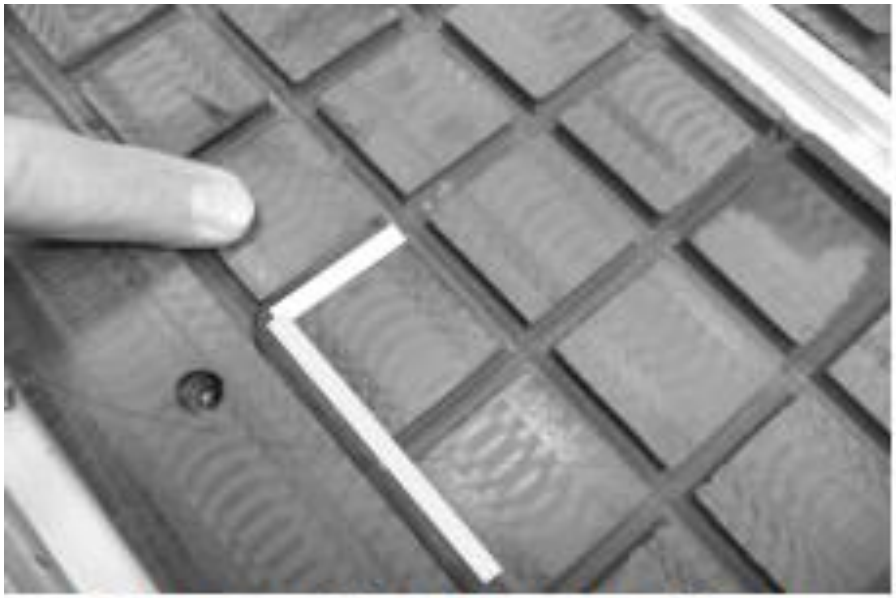
Spoil Board Material and Precautions (Cont'd.)-

Spoil Board:

The spoil board must cover the complete table and sit on the flats around the table. If the spoil board does not cover all the vacuum slots, the vacuum will be lost, and your job will not be pulled down onto the spoil board.

Fitting the Foam Rubber Gasket:

It is important that the foam rubber gasket is pressed evenly into the groove in the vacuum table around the zone that you are constructing. To ensure a good seal, it is strongly recommended that the gasket be turned in at the beginning (as shown). The gasket tends to stretch while fitting, and over time it may relax and shorten. The extra length of gasket allows you to reset it and make the seal again. If the initial turn is not put in place, there is no margin for error, and you may have to discard a complete length just for being one inch short. It is recommended that you initially create 3 zones, each one completely across the table. You can change the configuration at a later stage.



Start point foam rubber

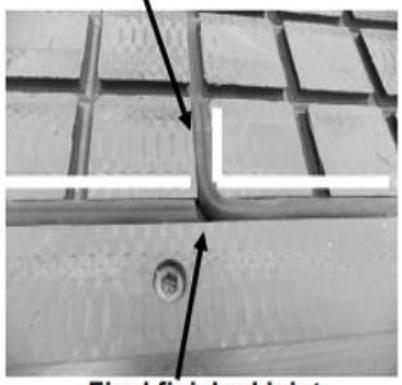
Inserting foam rubber gasket

Spoil Board Material and Precautions (Cont'd.)-

Gasket turned in

Cutting end of foam rubber gasket

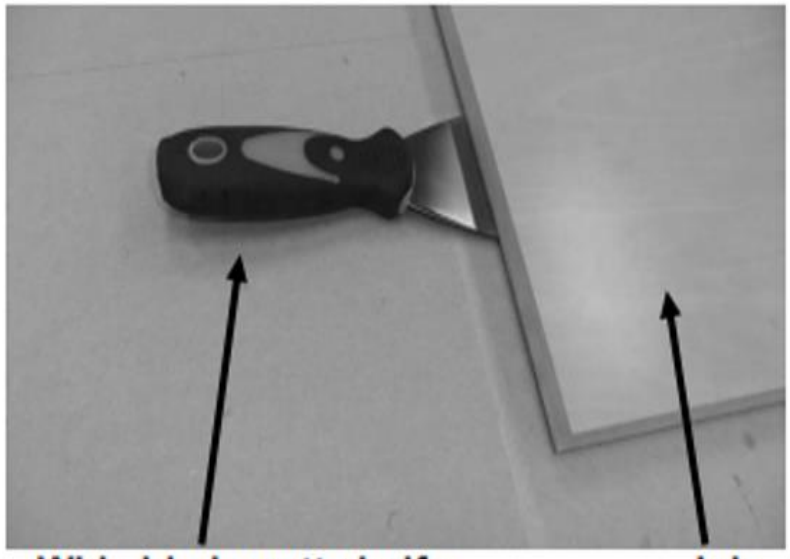
Gasket turned in



Final finished joint

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

Removing the Job from the MDF Spoil Board: The job has a tendency to stick to the spoil board, and it is suggested that you use a wide blade putty knife to lift the job.



Wide blade putty knife Job

Securing Job to Table-

Fitting the job to the table using the T-Slots.

You may find it convenient to clamp the job to the spoil board with the table clamps. This attachment method can only be used if the outside edges are not being machined. When using the clamps, place a piece of packing under the jacking bolt to protect the bed of the machine.

Maintenance & Trouble Shooting-

1.) **DO** verify water level in the spindle reservoir.

2.) **DO** lubricate all ball screws every 8 hours of run. Use 30w oil or lithium white grease lubricant or equivalent to lubricate the ball screws and wipe off any excess to reduce dirt and dust acumination.

3.) **DO** keep your collets clean. Fine dust builds up, and they get tight.

4.) **Note:** When doing carving work, it is necessary to use a much larger volume of water for the spindle-cooling reservoir.

5.) **DO NOT** ever under any circumstances reach over the table or obstruct the movement of the gantry while the machine is powered or running a program.

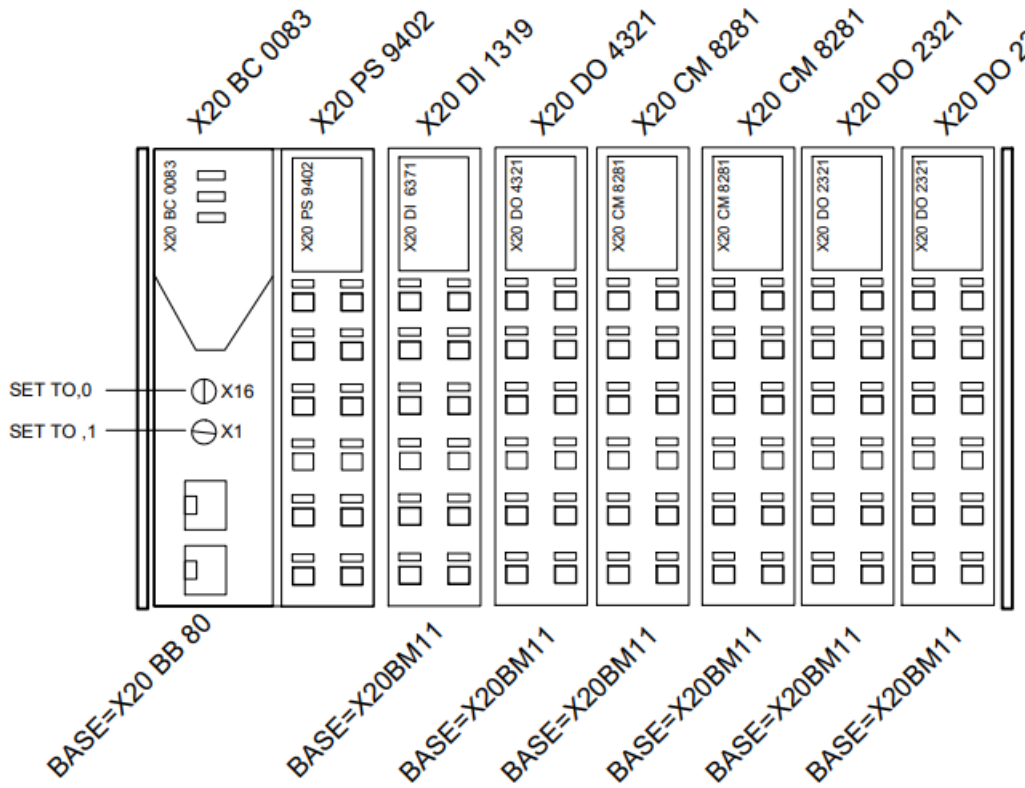
6.) **Note:** ALWAYS Press in the E-STOP button on the control box and turn off main power prior to changing tooling or working on the spindle. Remember to clear alarms caused by the E-STOP button on the alarm pages after the E-STOP has been removed.

7.) **Note:** ALWAYS remove main power prior to working on or servicing the spindles, water pump or reservoir.

8.) **Note:** The E-STOP button MUST be out before turning on the main power (twist and it will pop out).

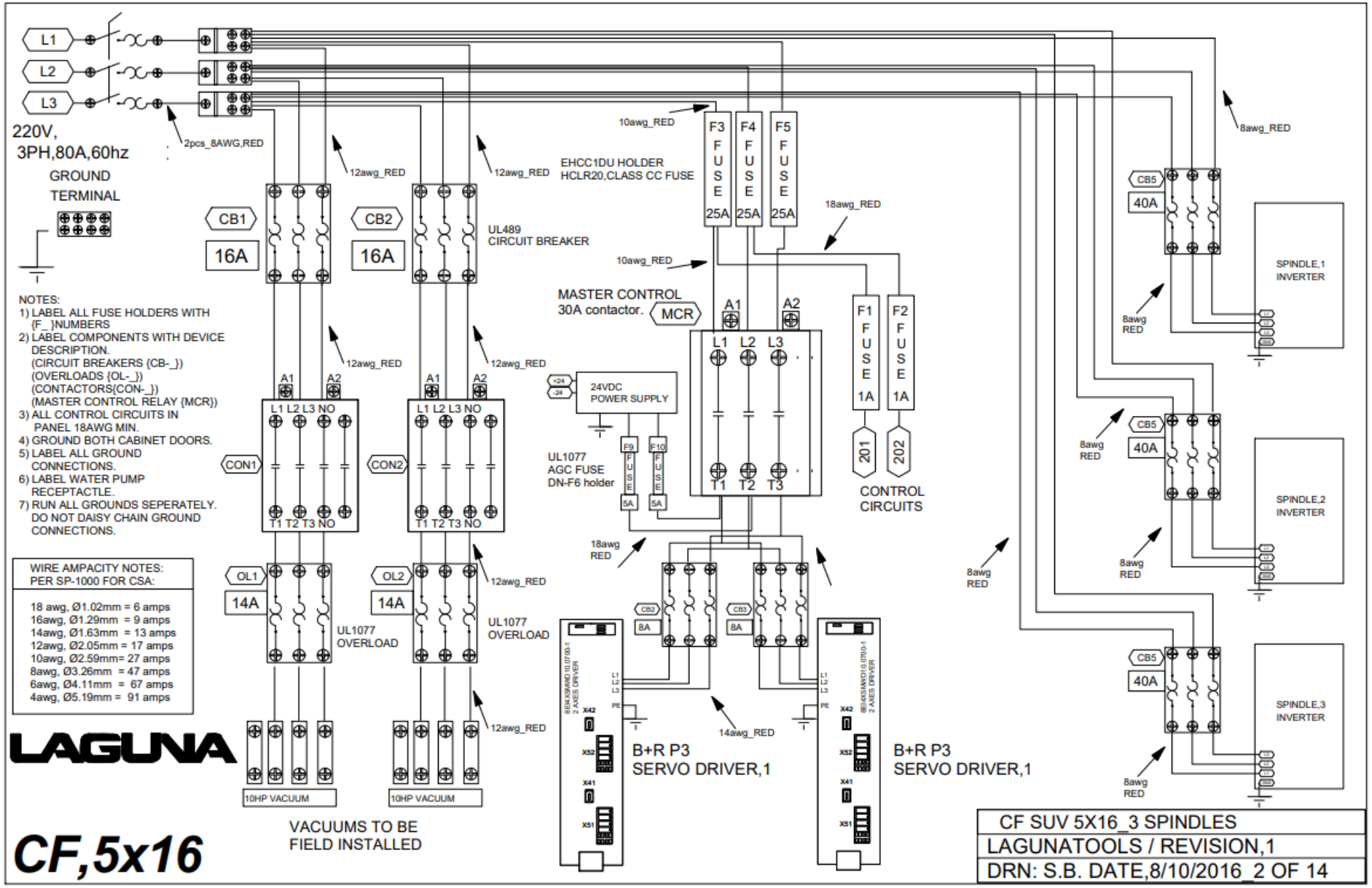
Schematics-

CF SUV B+R

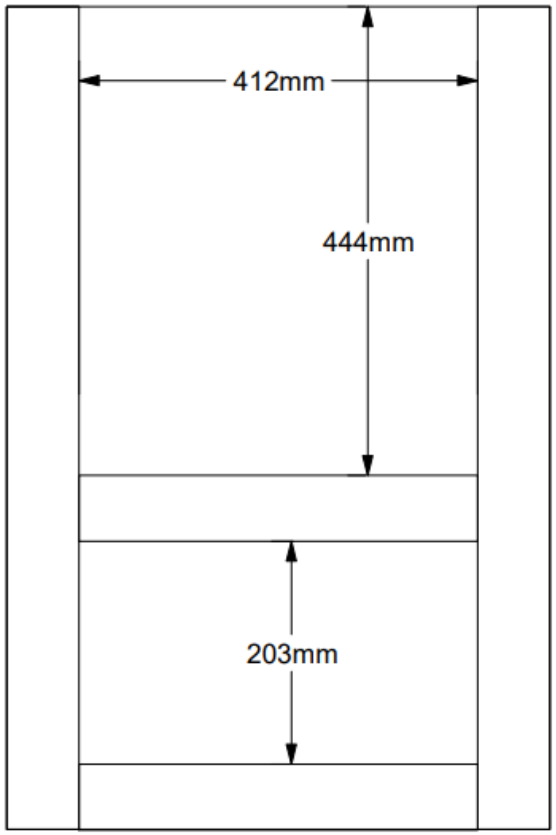


CF SERVO_B+R
PLC RACK ASSEMBLY
LAGUNATOOLS / REVISION,2
DRN: S.B. DATE,12/6/2016_1of14

Schematics (Cont'd.)-

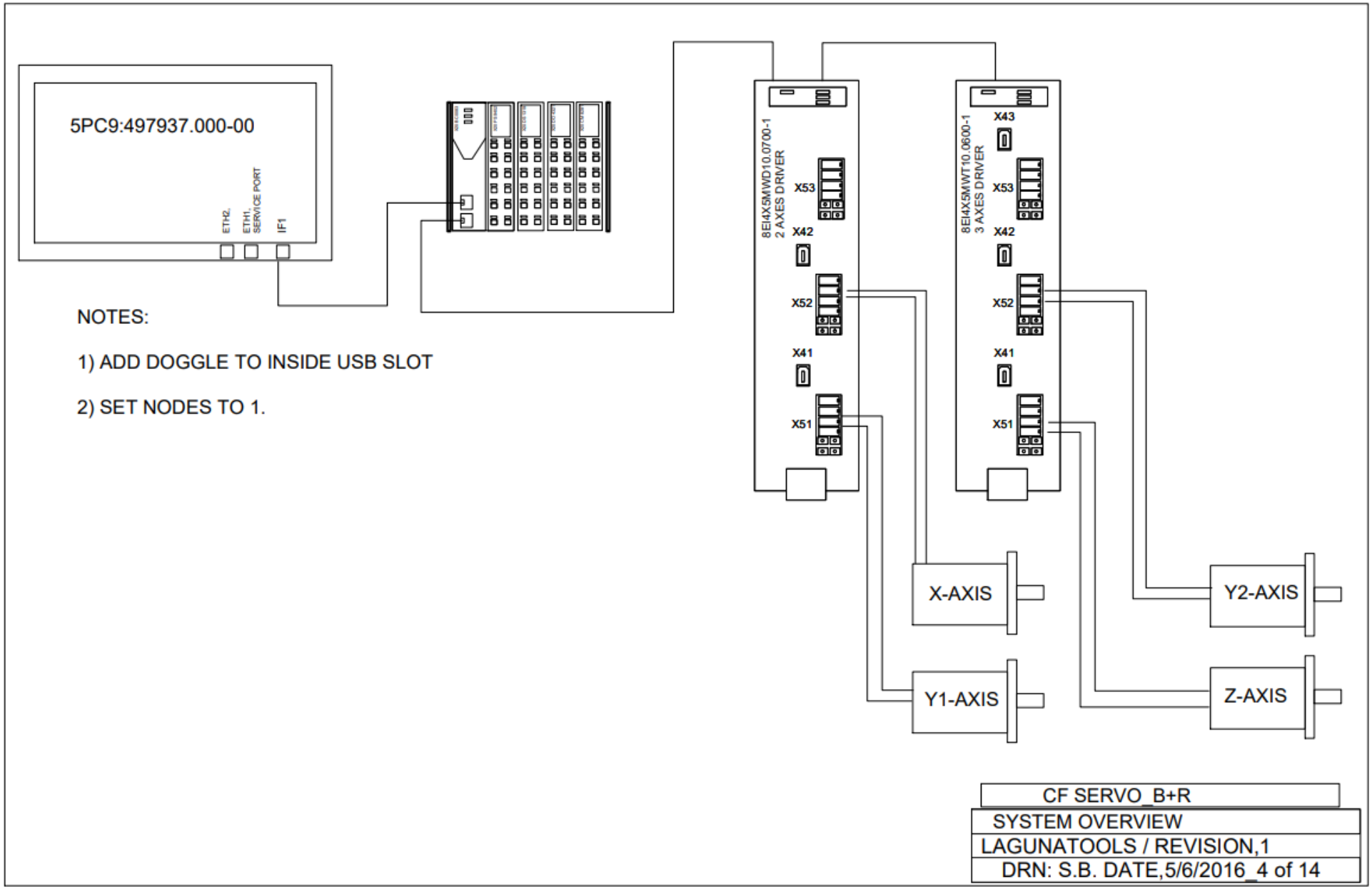


Schematics (Cont'd.)-

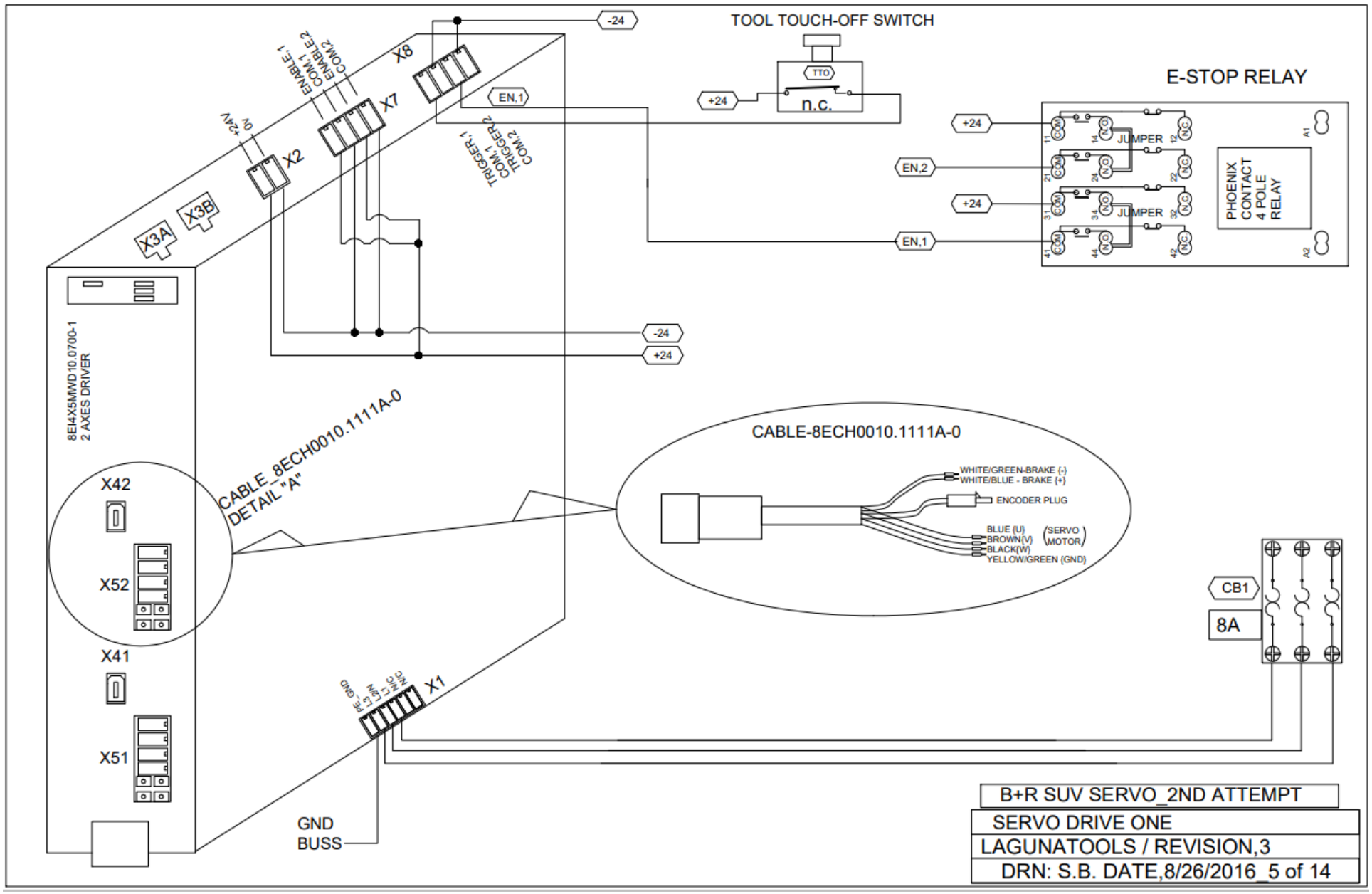


SUV SERVO SIDE OF PANEL
LAGUNATOOLS / REVISION,3
DRN: S.B. DATE,8/12/2016_3 of 14

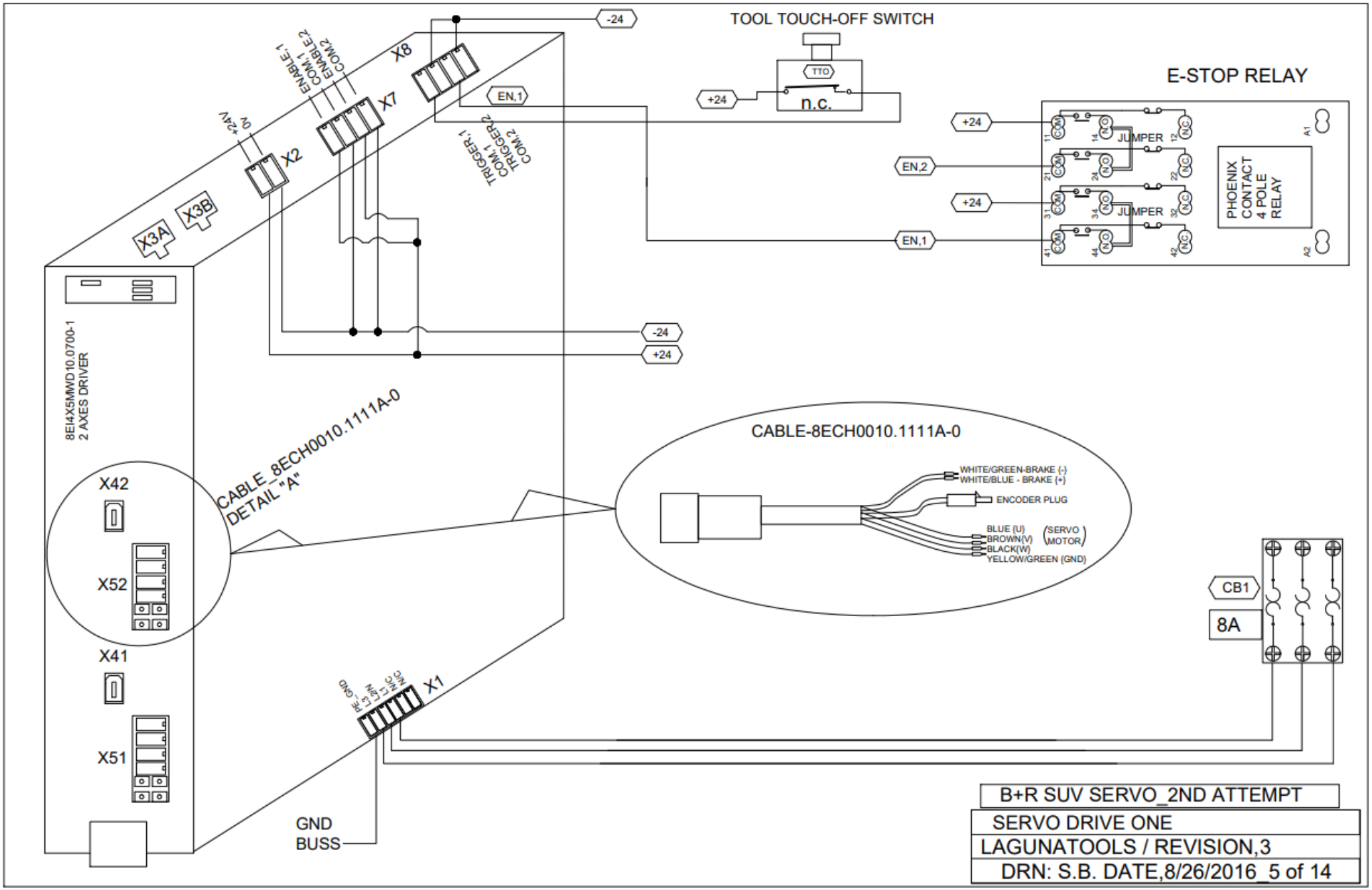
Schematics (Cont'd.)-



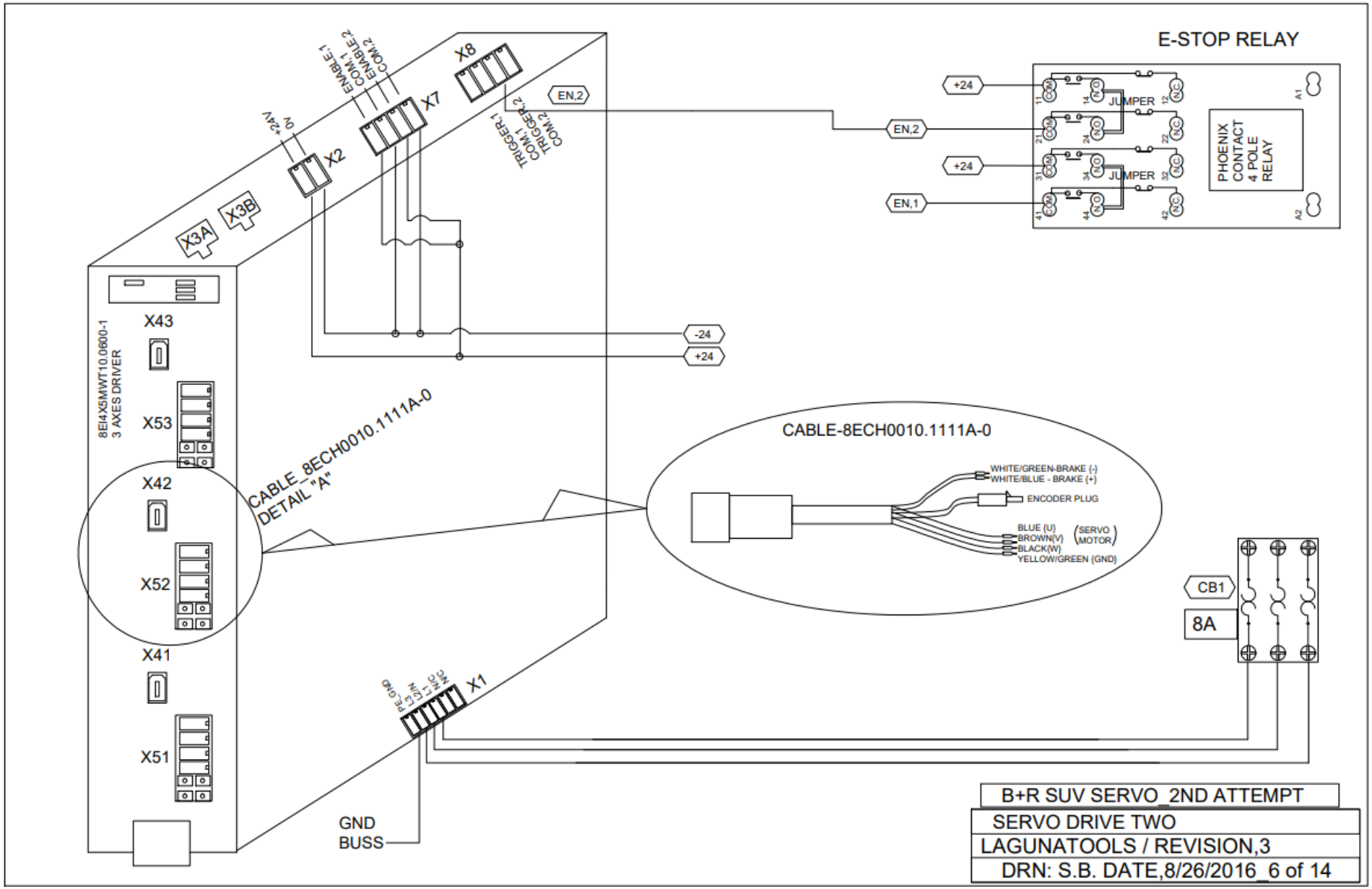
Schematics (Cont'd.)-



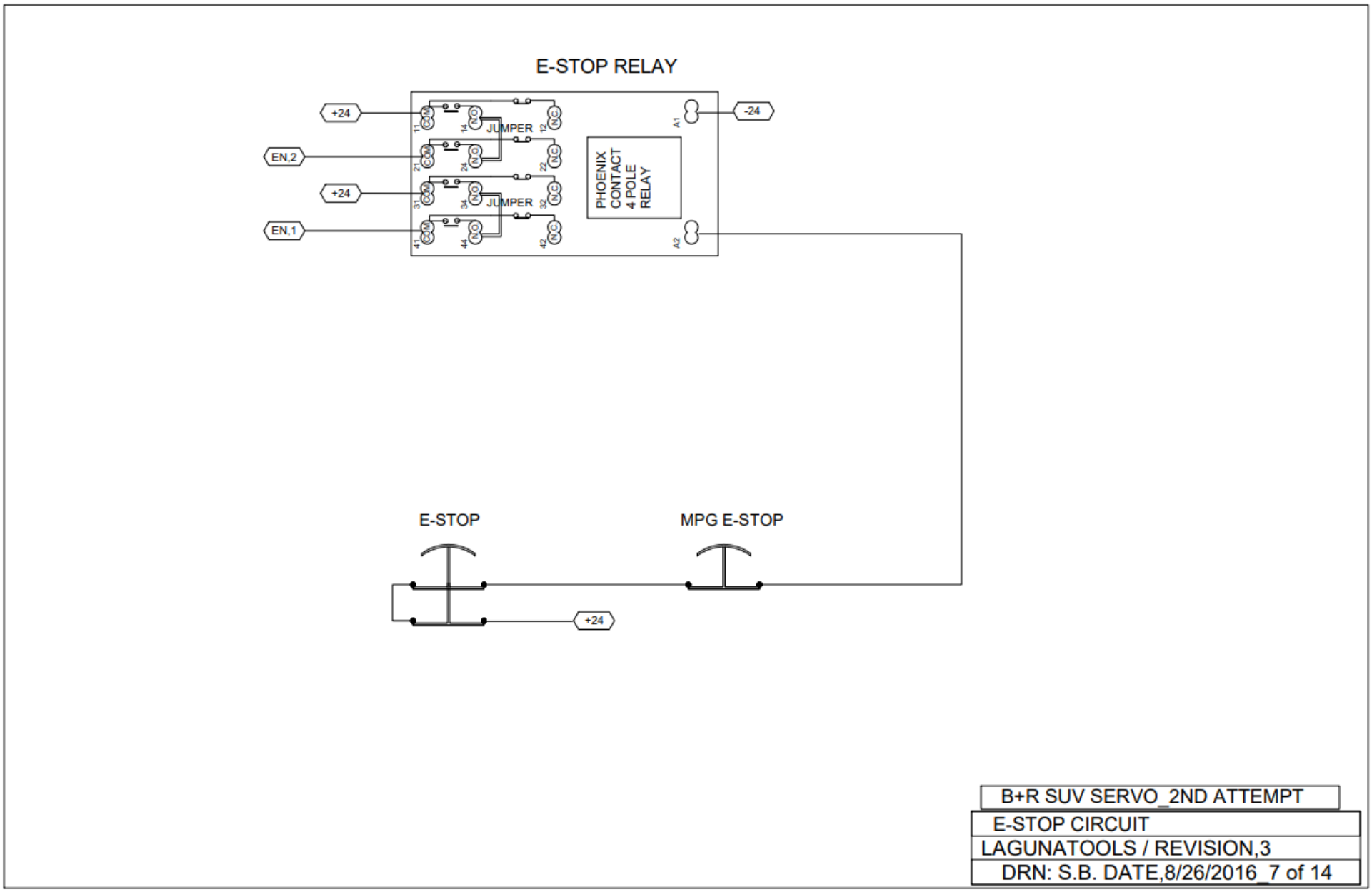
Schematics (Cont'd.)-



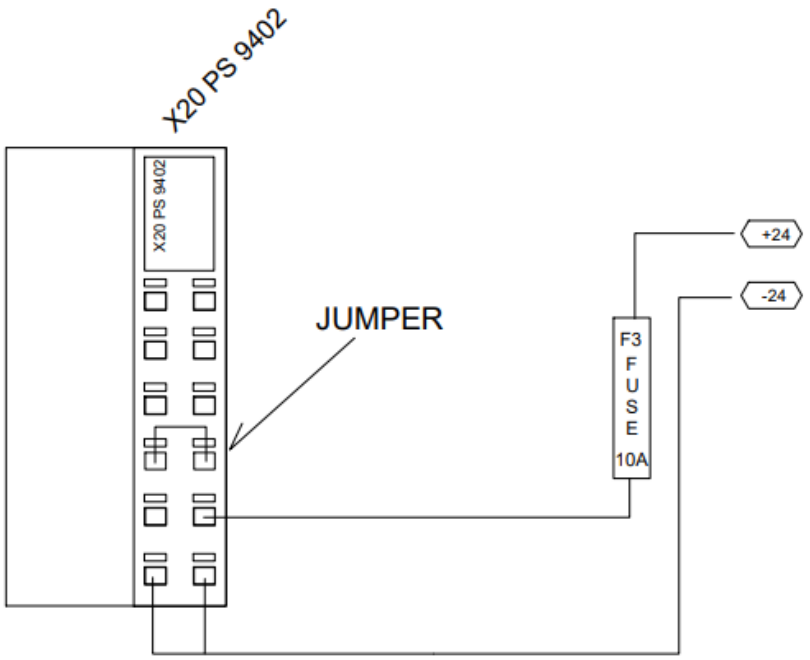
Schematics (Cont'd.)-



Schematics (Cont'd.)-

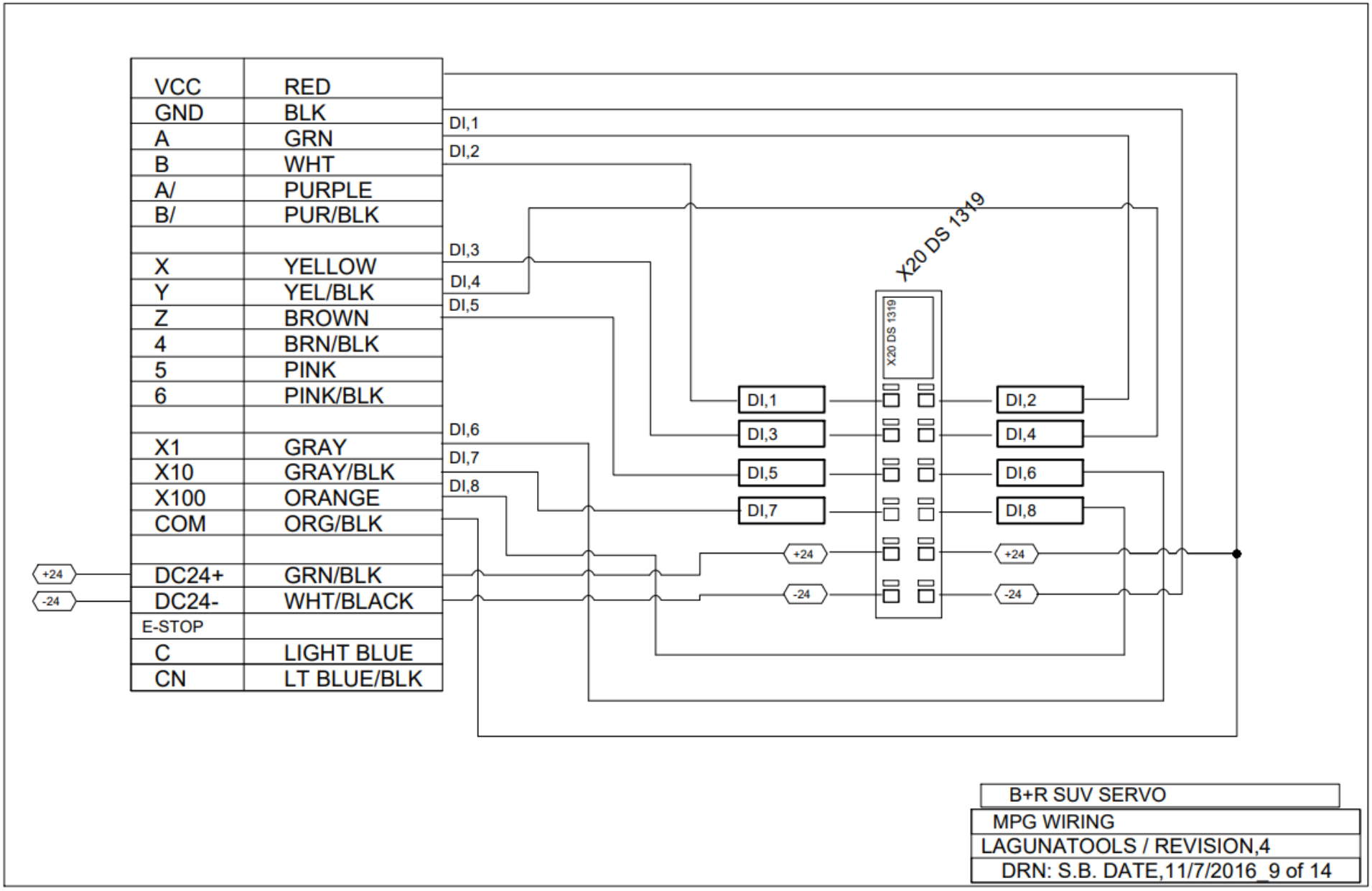


Schematics (Cont'd.)-

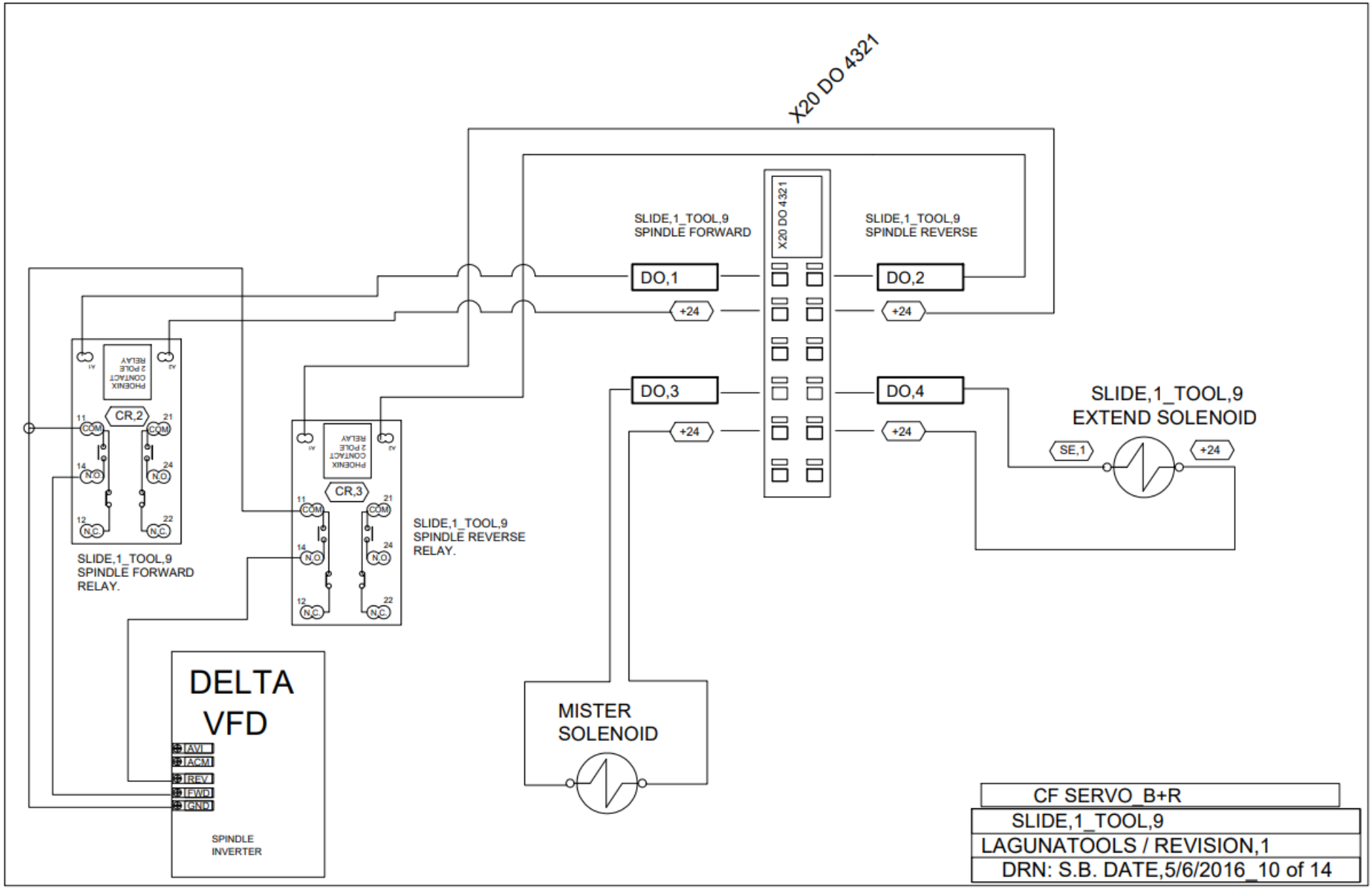


CF SERVO_B+R
P.S. WIRING
LAGUNATOOLS / REVISION,1
DRN: S.B. DATE,5/6/2016_8 of 14

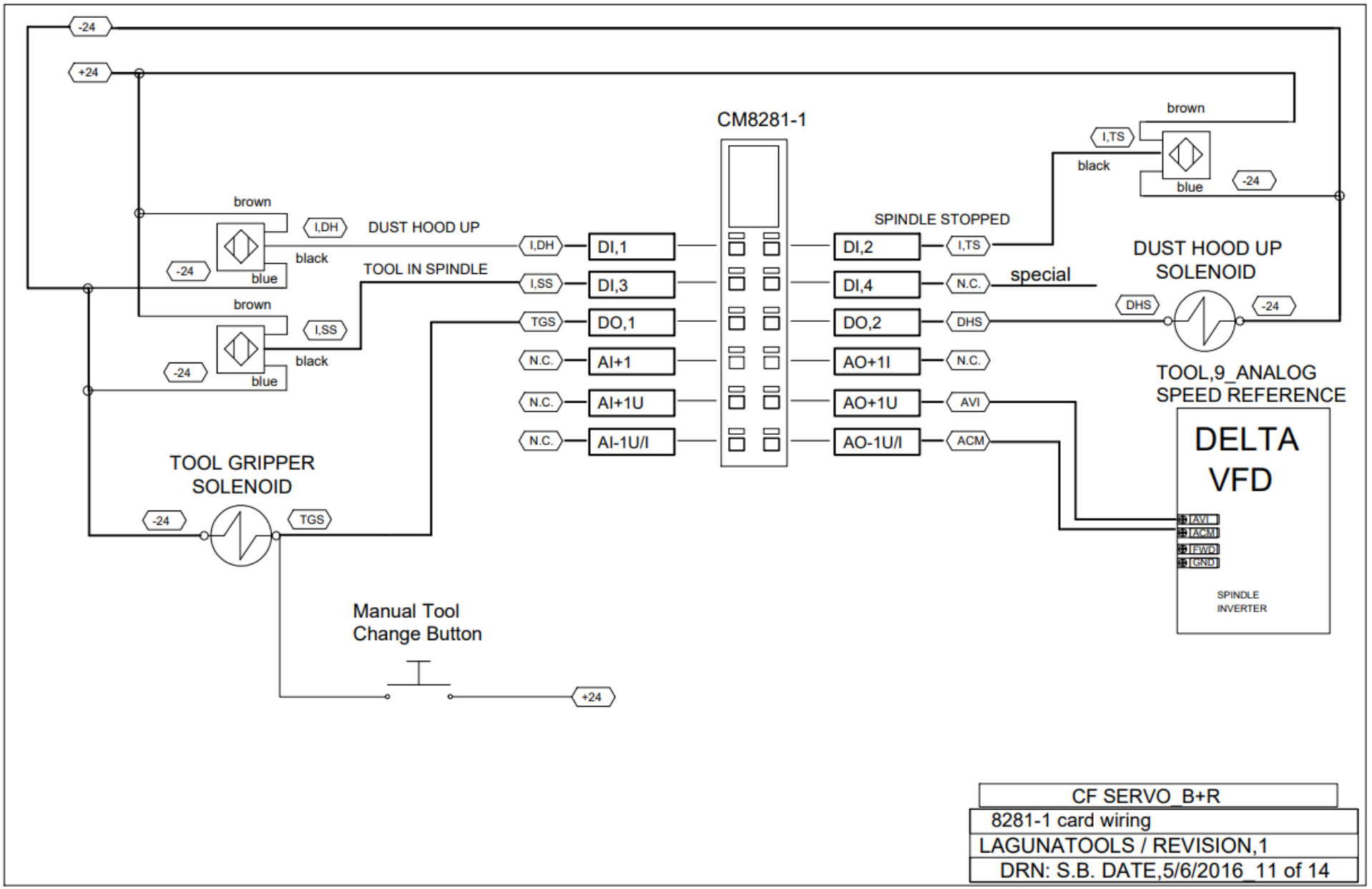
Schematics (Cont'd.)-



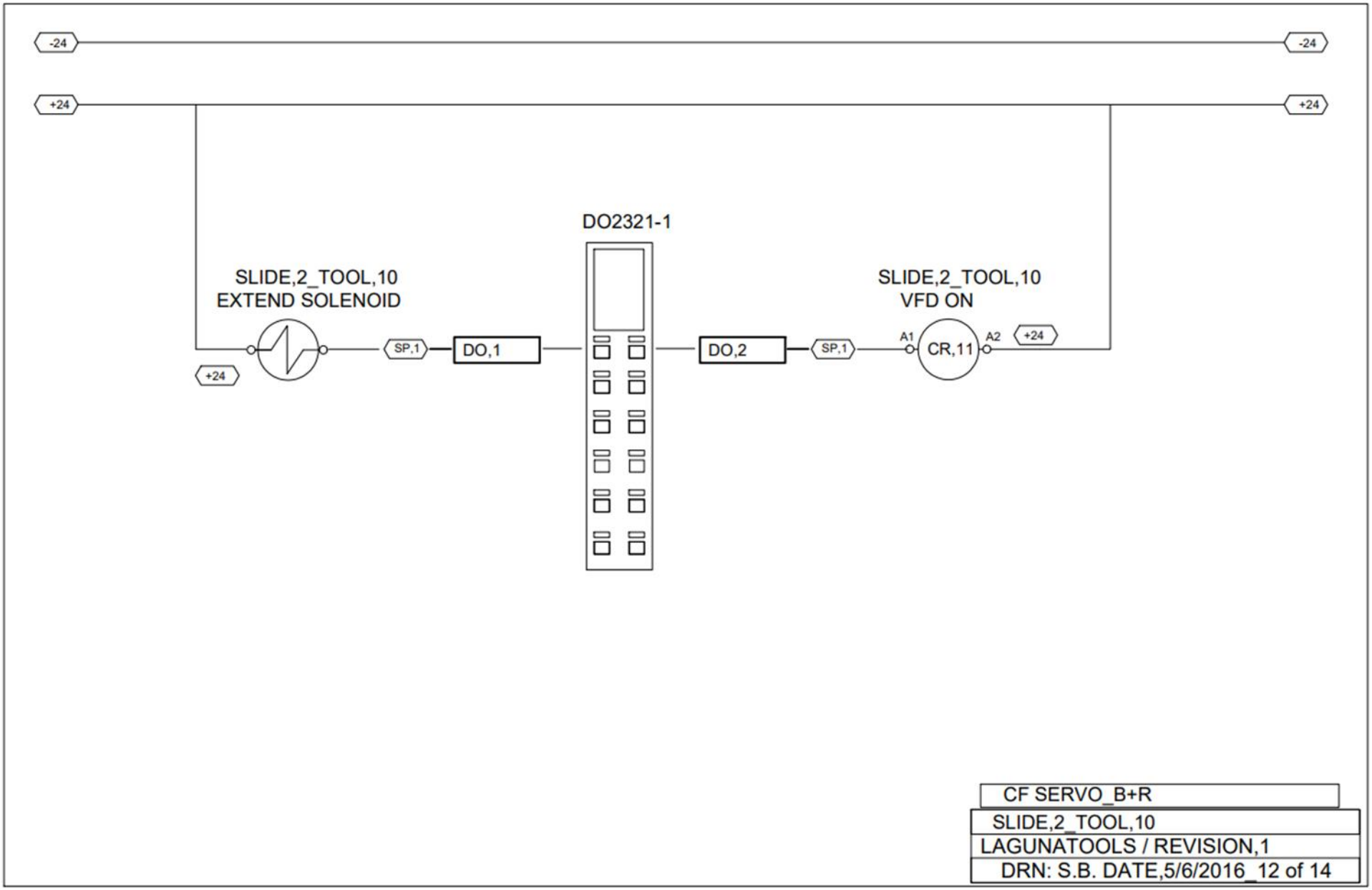
Schematics (Cont'd.)-



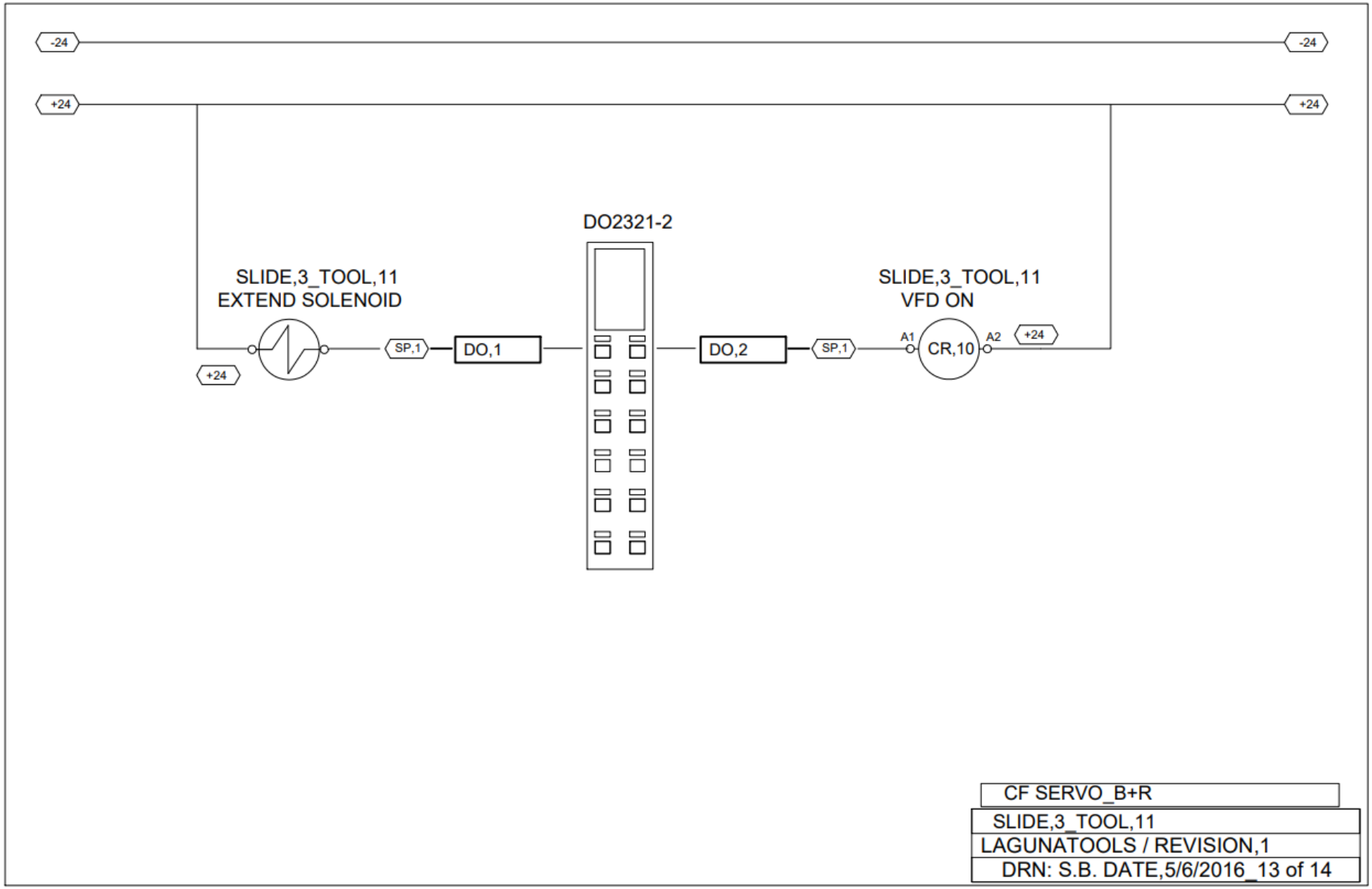
Schematics (Cont'd.)-



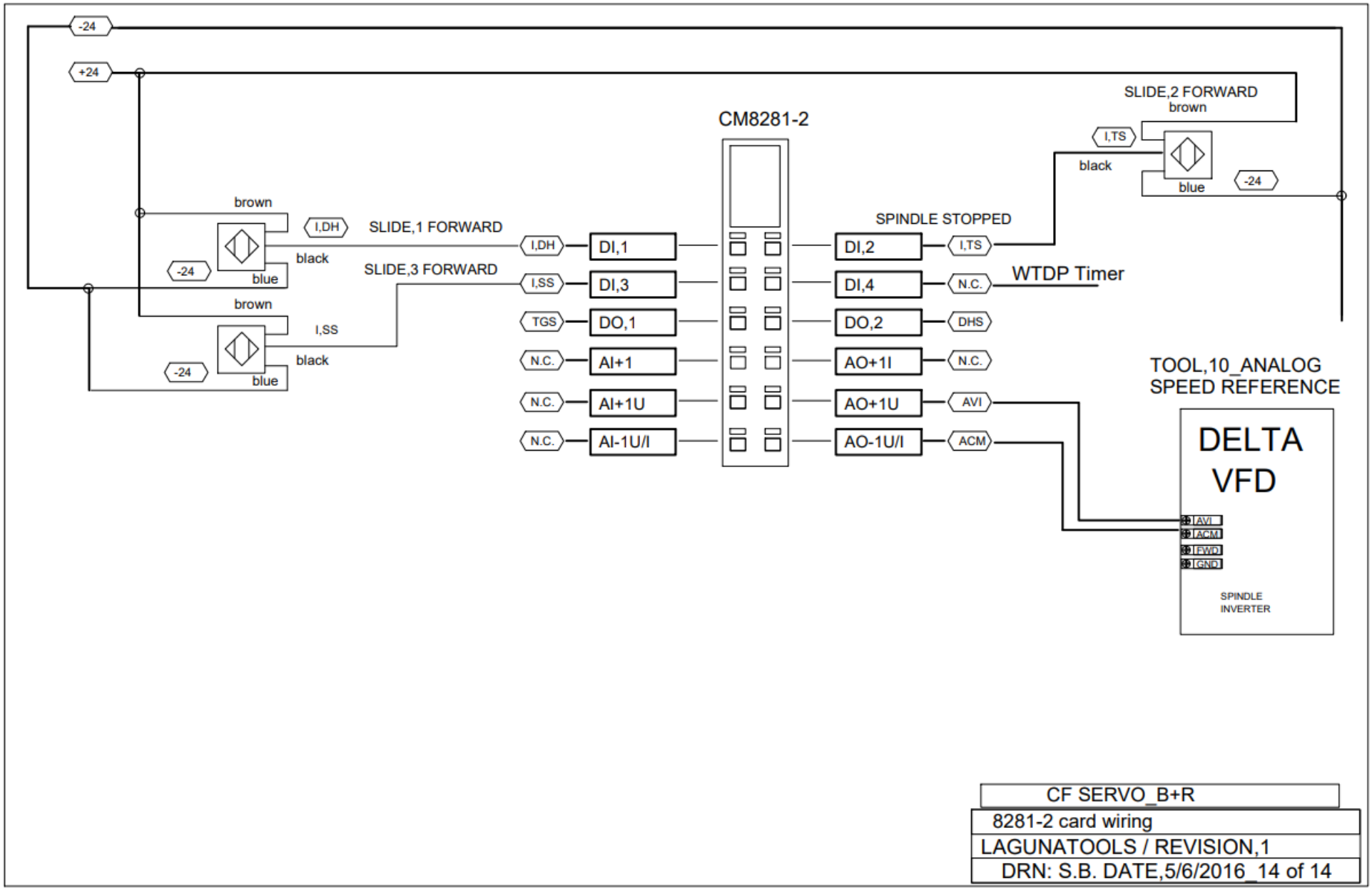
Schematics (Cont'd.)-



Schematics (Cont'd.)-



Schematics (Cont'd.)-



Machine Set-Up-

CNC Machine CF Machine Set-Up

IMPORTANT: For installation to be efficient and cost effective we require several items to be completed PRIOR to our technician's arrival. Should you have any questions please feel free to call our Customer Service at 1-800-234-1976 or contact your Sales Representative.
Following are the steps you must perform for us to schedule the set-up/training-

1.) Remove all protective coating and packaging.

2.) Check if machine has all the tooling (Tools, Bits, Kits, etc.) components that were placed in your order.

3.) Make sure your building/shop have appropriate electrical voltage and amperage per machine(s).
*****Electricians and service staff are welcome to contact our Customer Service if they have any questions.**

4.) Make sure the main power & vacuum pumps can be connected to the cabinet.

5.) Make sure the machine(s) are leveled with the leveling feet installed.

6.) Clean dry air is vital for the machine(s) performance. Make sure the clean dry compressed air is attached to the machine(s).

Machine Set-Up (Cont'd.)-

7.) Prepare adequate supply of materials for practice cutting as well as several 3⁄4" MDF sheets for use as spoil boards (Material to be cut and tested on).

8.) Has the person to be trained to work on the machine(s) by our technician read all the instruction manuals prior to set-up/training?

9.) Make sure the Associates has been trained in the software prior to set-up/training.

Should a technician representing Laguna Tools not be able to come to the site and work on the machines due to the lack of preparedness or inoperable equipment per the above and/or beyond Laguna Tools control any expenses incurred will be passed on to you. The customer will cover all expenses incurred during set up and training on the proper use of the machine(s) including but not limited to: Airfare, Rental Car, Hotel, Parking and/or Toll Fees per Diem, plus $115.50 per hour.

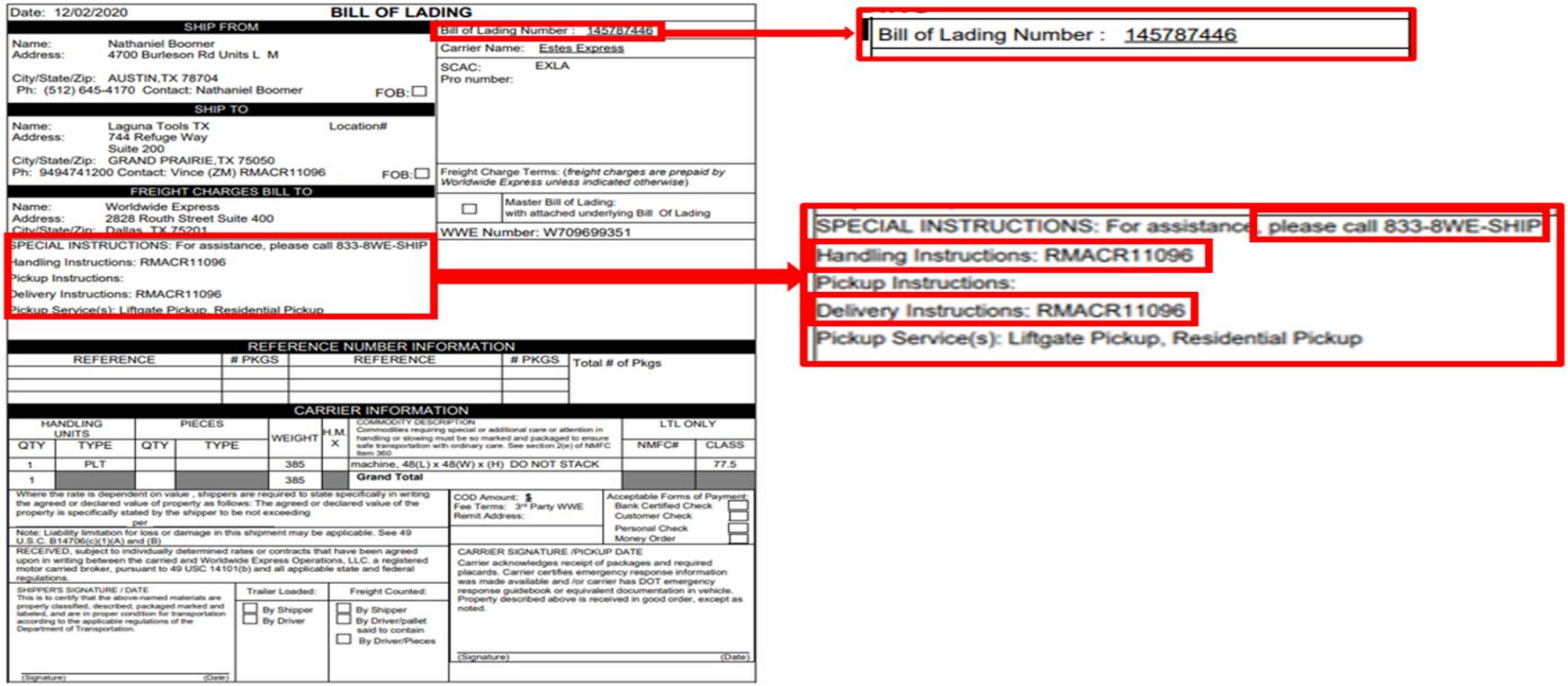
The above points have been read and understood, and the customer will be responsible for any delay and agrees to reimburse Laguna Tools for any additional expenses incurred.

Delivery Protocol-

- Most large machinery will be delivering on a tractor trailer 48'-53' long. Please notify Sales Representative with any Delivery Restrictions.

- Customer is required to have a forklift (6000lb. or larger is recommended) with 72" forks or fork extensions and operator.

- Note any visible damage, torn packaging, scuffs or any abnormal marks on the delivery receipt or Bill of Lading (BOL).



Date: 12/02/2020

BILL OF LADING

SHIP FROM

Name: Nathaniel Boomer
Address: 4700 Burleson Rd Units L M

City/State/Zip: AUSTIN,TX 78704
Ph: (512) 645-4170 Contact: Nathaniel Boomer

FOB: ☐

SHIP TO

Name: Laguna Tools TX
Address: 744 Refuge Way
Suite 200
City/State/Zip: GRAND PRAIRIE,TX 75050
Ph: 9494741200 Contact: Vince (ZM) RMACR11096

Location#

FOB: ☐

FREIGHT CHARGES BILL TO

Name: Worldwide Express
Address: 2828 Routh Street Suite 400
City/State/Zip: Dallas, TX 75201

SPECIAL INSTRUCTIONS: For assistance, please call 833-8WE-SHIP
Handling Instructions: RMACR11096
Pickup Instructions:
Delivery Instructions: RMACR11096
Pickup Service(s): Liftgate Pickup, Residential Pickup

Bill of Lading Number : 145787446

Carrier Name: Estes Express

SCAC: EXLA
Pro number:

Freight Charge Terms: (*freight charges are prepaid by Worldwide Express unless indicated otherwise*)

☐ Master Bill of Lading: with attached underlying Bill Of Lading

WWE Number: W709699351

REFERENCE NUMBER INFORMATION

REFERENCE	# PKGS	REFERENCE	# PKGS	Total # of Pkgs

CARRIER INFORMATION

HANDLING UNITS QTY	HANDLING UNITS TYPE	PIECES QTY	PIECES TYPE	WEIGHT	H.M. X	COMMODITY DESCRIPTION	LTL ONLY NMFC#	LTL ONLY CLASS
1	PLT			385		machine, 48(L) x 48(W) x (H) DO NOT STACK		77.5
1				385		**Grand Total**		

Where the rate is dependent on value , shippers are required to state specifically in writing the agreed or declared value of property as follows: The agreed or declared value of the property is specifically stated by the shipper to be not exceeding _____ per _____

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. §14706(c)(1)(A) and (B).

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carried and Worldwide Express Operations, LLC. a registered motor carried broker, pursuant to 49 USC 14101(b) and all applicable state and federal regulations.

SHIPPER'S SIGNATURE / DATE
This is to certify that the above-named materials are properly classified, described, packaged marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

(Signature) (Date)

Trailer Loaded:
☐ By Shipper
☐ By Driver

Freight Counted:
☐ By Shipper
☐ By Driver/pallet said to contain
☐ By Driver/Pieces

COD Amount: $
Fee Terms: 3rd Party WWE
Remit Address:

Acceptable Forms of Payment
Bank Certified Check ☐
Customer Check ☐
Personal Check ☐
Money Order ☐

CARRIER SIGNATURE /PICKUP DATE
Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and /or carrier has DOT emergency response guidebook or equivalent documentation in vehicle. Property described above is received in good order, except as noted.

(Signature) (Date)

Bill of Lading Number : 145787446

SPECIAL INSTRUCTIONS: For assistance, please call 833-8WE-SHIP
Handling Instructions: RMACR11096
Pickup Instructions:
Delivery Instructions: RMACR11096
Pickup Service(s): Liftgate Pickup, Residential Pickup

Laguna Tools Warranty-

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 30 days of purchase to be covered by this warranty. Laguna Tools guarantees all new machine 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 an RMA (return material authorization) number from Customer Service and include the (RMA) number with all returned parts/components requesting warranty coverage. * Any machines returned to Laguna Tools must be returned with packaging in the same way it was received. If a part or blade is being returned it must have adequate packaging to ensure no damage is received 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.

NOTE: Issuing an RMA number is for referencing materials and issues, it does NOT indicate warranty acceptance/conformity.

Laguna Tools Warranty-

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 machine 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 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 maybe 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 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 woodworkers. 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 manufacturers' defective workmanship, parts, and materials. For any questions about this product, the intended use or what it was designed for, customer service, or replacement parts, please contact our customer service department:

Laguna Tools® Customer Service
2072 Alton Parkway, Irvine, California 92606, USA
1-800-332-4049
customerservice@lagunatools.com
www.lagunatools.com/why/customer-service/
8AM. to 5PM PST, Monday through Friday

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

Laguna Tools® Warranty Service
2072 Alton Parkway, Irvine, California 92606, USA
1-949-474-1200
customerservice@lagunatools.com
www.lagunatools.com/rpolicies/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 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 of 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 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 1-949-474-1200. 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 Support Website.

LAGUNA

Laguna Tools Warranty-

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 maybe 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 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.

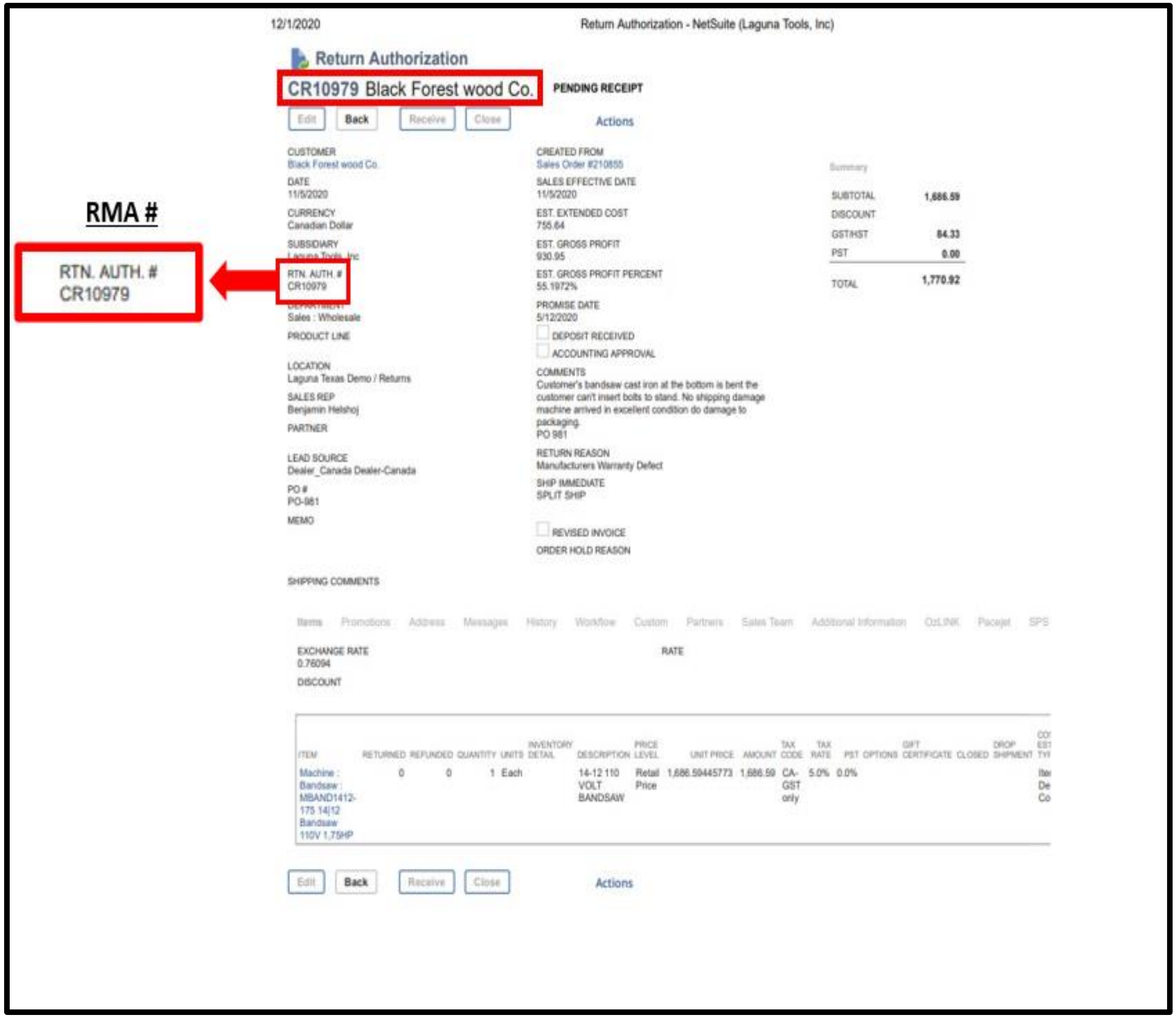
Laguna Tools Packaging/RMA Procedures-

Dealer Machinery Warranty

****Any machines returned to Laguna Tools must be returned with packaging in the same way it was received. If a part or blade is being returned it must have adequate packaging to ensure no damage is received 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.**

We require that the defective item/part be returned to Laguna Tools with the complaint. The end-user must request an **RMA (Return Material Authorization) Number** from Customer Service and include the (RMA) number with all returned parts/components requesting warranty coverage.

Laguna Tools Packaging/Laguna Tools RMA Example-



Laguna Tools Packaging/Laguna Tools BILL of LADING Example-

Date: 12/02/2020

BILL OF LADING

SHIP FROM

Name: Nathaniel Boomer
Address: 4700 Burleson Rd Units L M

City/State/Zip: AUSTIN,TX 78704
Ph: (512) 645-4170 Contact: Nathaniel Boomer FOB: ☐

SHIP TO

Name: Laguna Tools TX Location#
Address: 744 Refuge Way
Suite 200
City/State/Zip: GRAND PRAIRIE,TX 75050
Ph: 9494741200 Contact: Vince (ZM) RMACR11096 FOB: ☐

FREIGHT CHARGES BILL TO

Name: Worldwide Express
Address: 2828 Routh Street Suite 400
City/State/Zip: Dallas, TX 75201

SPECIAL INSTRUCTIONS: For assistance, please call 833-8WE-SHIP
Handling Instructions: RMACR11096
Pickup Instructions:
Delivery Instructions: RMACR11096
Pickup Service(s): Liftgate Pickup, Residential Pickup

Bill of Lading Number : 145787446

SCAC: EXLA
Pro number:

Freight Charge Terms: (*freight charges are prepaid by Worldwide Express unless indicated otherwise*)

☐ Master Bill of Lading: with attached underlying Bill Of Lading

WWE Number: W709699351

REFERENCE NUMBER INFORMATION

REFERENCE	# PKGS	REFERENCE	# PKGS	Total # of Pkgs

CARRIER INFORMATION

HANDLING UNITS QTY	HANDLING UNITS TYPE	PIECES QTY	PIECES TYPE	WEIGHT	H.M. X	COMMODITY DESCRIPTION Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged to ensure safe transportation with ordinary care. See section 2(e) of NMFC Item 360	LTL ONLY NMFC#	LTL ONLY CLASS
1	PLT			385		machine, 48(L) x 48(W) x (H) DO NOT STACK		77.5
1				385		**Grand Total**		

Where the rate is dependent on value , shippers are required to state specifically in writing the agreed or declared value of property as follows: The agreed or declared value of the property is specifically stated by the shipper to be not exceeding per

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. B14706(c)(1)(A) and (B)

COD Amount: $
Fee Terms: 3rd Party WWE
Remit Address:

Acceptable Forms of Payment:
Bank Certified Check ☐
Customer Check ☐
Personal Check ☐
Money Order ☐

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carried and Worldwide Express Operations, LLC. a registered motor carried broker, pursuant to 49 USC 14101(b) and all applicable state and federal regulations.

SHIPPERS SIGNATURE / DATE
This is to certify that the above-named materials are properly classified, described, packaged marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

(Signature) (Date)

Trailer Loaded:
☐ By Shipper
☐ By Driver

Freight Counted:
☐ By Shipper
☐ By Driver/pallet said to contain
☐ By Driver/Pieces

CARRIER SIGNATURE /PICKUP DATE
Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and /or carrier has DOT emergency response guidebook or equivalent documentation in vehicle. Property described above is received in good order, except as noted.

(Signature) (Date)

Bill of Lading Number : 145787446

SPECIAL INSTRUCTIONS: For assistance please call 833-8WE-SHIP
Handling Instructions: RMACR11096
Pickup Instructions:
Delivery Instructions: RMACR11096
Pickup Service(s): Liftgate Pickup, Residential Pickup

Manual Revision Record

Date of Change	Revision#	Engineering/Design Description
7/23/2021	1	New Proposed Smartshop CF Composite Fabricator 20 CNC Manual