



LAGUNA TOOLS

SMARTSHOP SUV MANUAL 2021

**Basic Operations-Main Screen Set-up, Set-up Menus, Machine Settings,
CNC Tool Data, Delivery Protocols, Warranties, Packaging/RMA
Procedures.**



LAGUNA TOOLS

744 Refuge Way

Grand Prairie, TX. 75050

Direct Phone #: (800) 234-1976

Warranty Repair Information: (800) 332-4094



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Main Screen Button(s) & Flow-

Main / Home screen defined:

“Main” Screen

The screenshot displays the 'MAIN' screen of the Laguna Tools CNC software. The top navigation bar includes 'MAIN', 'JOG', and 'SETUP' buttons. The main interface features a 'Select Program' dropdown set to 'Cab4x4 (2)', a 'CNC Monitor' section with tool and spindle status, and coordinate inputs for X (0.000 in), Y (0.000 in), and Z (7.000 in). On the right, there are buttons for 'Park Tool', 'Verify Origin', 'Hold', and 'Run'. A red box and arrow point to the 'MAIN' button at the top left of the screen.



Main / Home Screen Defined-



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-



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 (Cont'd.)-

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-

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



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



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-





CNC Positions-

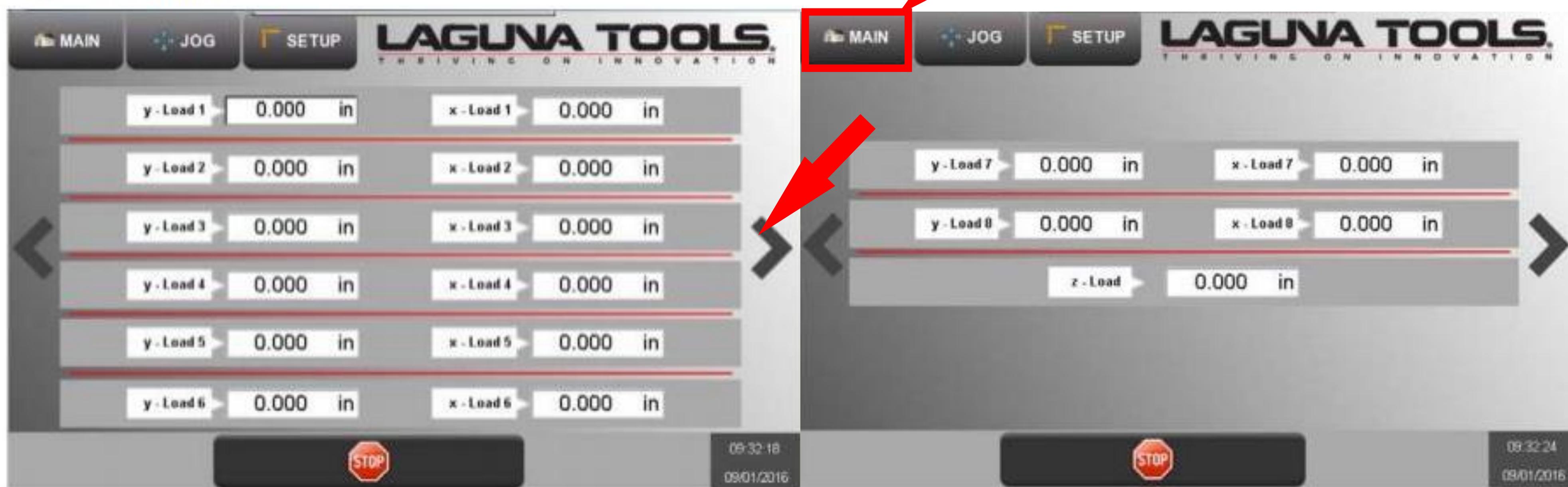
- 2a. Select “CNC Positions” Button.



3. Page displays (8) X-Loads, (8) Y-Loads, and (1) Z-Load

4. Each load # corresponds to # tool location. (X-Load #1, Y-Load #1 and Z-Load correspond to the X, Y, and Z location for tool #1.) Grab X-Load, Y-Load, and Z-Load number(s) for each tool requiring modification.

4a. Press “Main” Button to return to amin/Home Screen.





CNC Positions (Cont'd.)-

5. Press "Main" tab



6. Then press the "**Settings**" Button.





CNC Positions (Cont'd.)-

7. Press white blank box to input an MDI command (Skip to step 10 in unfamiliar)



8. Input X##.###Y##.### with the ## symbols being replaced by a numerical value for X-Load and Y-Load (ex. X12.063Y114.035) this will tell the machine to move to the location for a specific tool, and make changes quicker.
9. Press "Execute command". Machine will move to the X and Y location for which is specified



CNC Positions (Cont'd.)-

10. Press “**Jog**” Button to return to manual page to allow for manual jogging of the machine.



Or you can use your handheld Controller.

Grab one of your tool holders, and remove the pull stud on the top using a wrench.



CNC Positions (Cont'd.)-



11. Or you can use your handheld Controller.
12. Grab one of your tool holders, and remove the pull stud on the top using a wrench.



CNC Positions (Cont'd.)-



13. Using the tool holder with the pull stud removed place into tool clip for tool location being changed.
14. Lower spindle down to $\frac{1}{2}''$ -1" above tool holder in clip. (May have to remove the dust hood to gain visibility.)

-Recommended to use 2 people to finish locating process-

15. Having one person at the tool holder guiding the location, and the other at the controller moving the gantry by jogging, roughly center spindle hole above tool holder (making slight adjustments on X and Y axis at 1%)
16. Once roughly centered, slowly lower the Z axis. Stop every 1/2" to make adjustments on the X & Y (Make sure at 1%)



CNC Positions (Cont'd.)-

17. Lower until flush with the ridge on the tool holder.



18. On that same page, write down X, Y, and Z number. This will be the X&Y location of that specific tool. And Z location for **ALL** tools
19. Press “Setup”





CNC Positions (Cont'd.)-

20. Press "CNC Positions".



21. Press on Y-Load, X-Load, and Z-Load number(s) needing to be changed





CNC Positions (Cont'd.)-

21. Press on Y-Load, X-Load, and Z-Load number(s) needing to be changed

Y-Load	X-Load	Y-Load	X-Load	Z-Load
1	0.000 in	2	0.000 in	
3	0.000 in	4	0.000 in	
5	0.000 in	6	0.000 in	
7	0.000 in	8	0.000 in	0.000 in

22. Input new number specific for X and Y and write down Z value to compare across all tools

23. Press Check mark to confirm new number entered

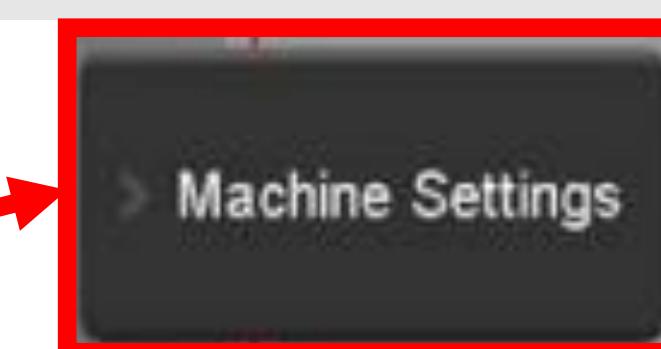
Repeat above process for all tool locations needing to be changed and that Z value matches across all tool locations before proceeding to next step

24. Confirm ALL numbers and settings you want changed have been changed

25. Press power button, and turn machine off for 3-5 seconds. Then turn machine back on.



Machine Settings-



Machine settings screen:

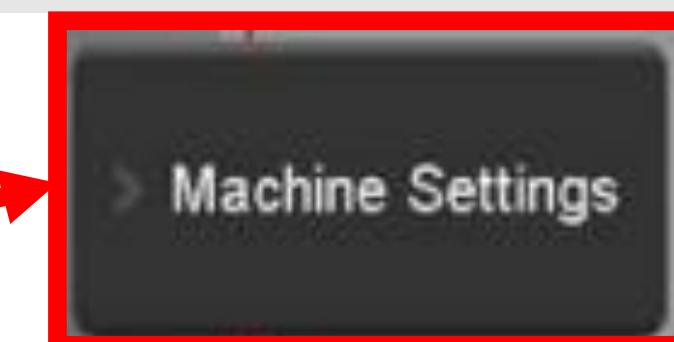


This screen is to manage the machine settings. These settings consist of the Calibration, Tool Changer Locations, and Machines Limits. Pressing the **“Save to CF Button”** will write a copy of the machine settings to the controller's memory.

Pressing **“Save Settings to USB”** is recommended so a hard copy of machine settings is available if service requires them to reinitialize the system. This is also very handy for or service people so your machine can be exactly replicated in our shop for troubleshooting.



Machine Settings (Cont'd.)-



Machine settings screen:



"Import Settings from USB"

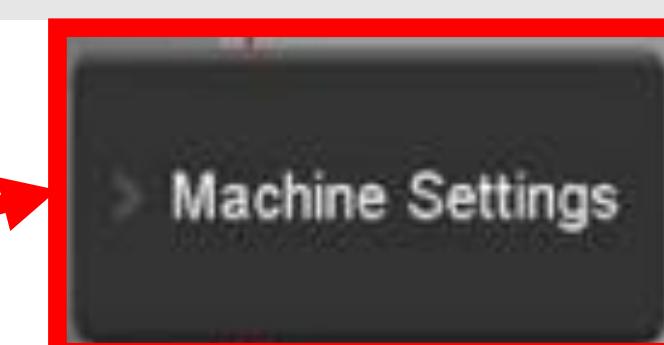
= This is used for recovery purposes if the controller was to be replaced.

"Units Field" = This is used to toggle the machine between Standard and Metric Units of Measure

"Password Field" = This is used to access the much deeper settings that only a Laguna technician would need to access. Servo tuning and motion settings can be done on the controller. This eliminates the need for a technician to be on site for tuning issues if they arise.



Machine Settings (Cont'd.)-



Machine settings screen:



Pressing **“Save Settings to USB”** is recommended so a hard copy of machine settings is available if service requires them to reinitialize the system. This is also very handy for or service people so your machine can be exactly replicated in our shop for troubleshooting.



"G-Code" Edit & Check-



This screen has the tools to check a G-code program and give the ability to manually edit said G-code on the machine.

"Check Code" = This button will a program test by pre-running the code. This will check that the code can be run within the machine limits and **"ZPO"**= "Zero Point Origin".



"Code Editing" = Use the arrow keys and associated buttons to perform quick code edits on the machine.



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

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



Access button:



“Tool Selection Drop Down Field” = Use this to select the tool in which you wish to manipulate. The tool number displayed propagates the fields below with its current data and allows for full manual adjustments if needed.

“Tool Length Field” = This represents the distance from Z home to the end of the cutter. This can be propagated by the automatic touch off routine, manually set with data entry or taught By **“Teach Tool Button”** followed by **“Set Tool Data Button”**.

“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.

“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.



CNC Tool Data (Cont'd.)-

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



Access button:



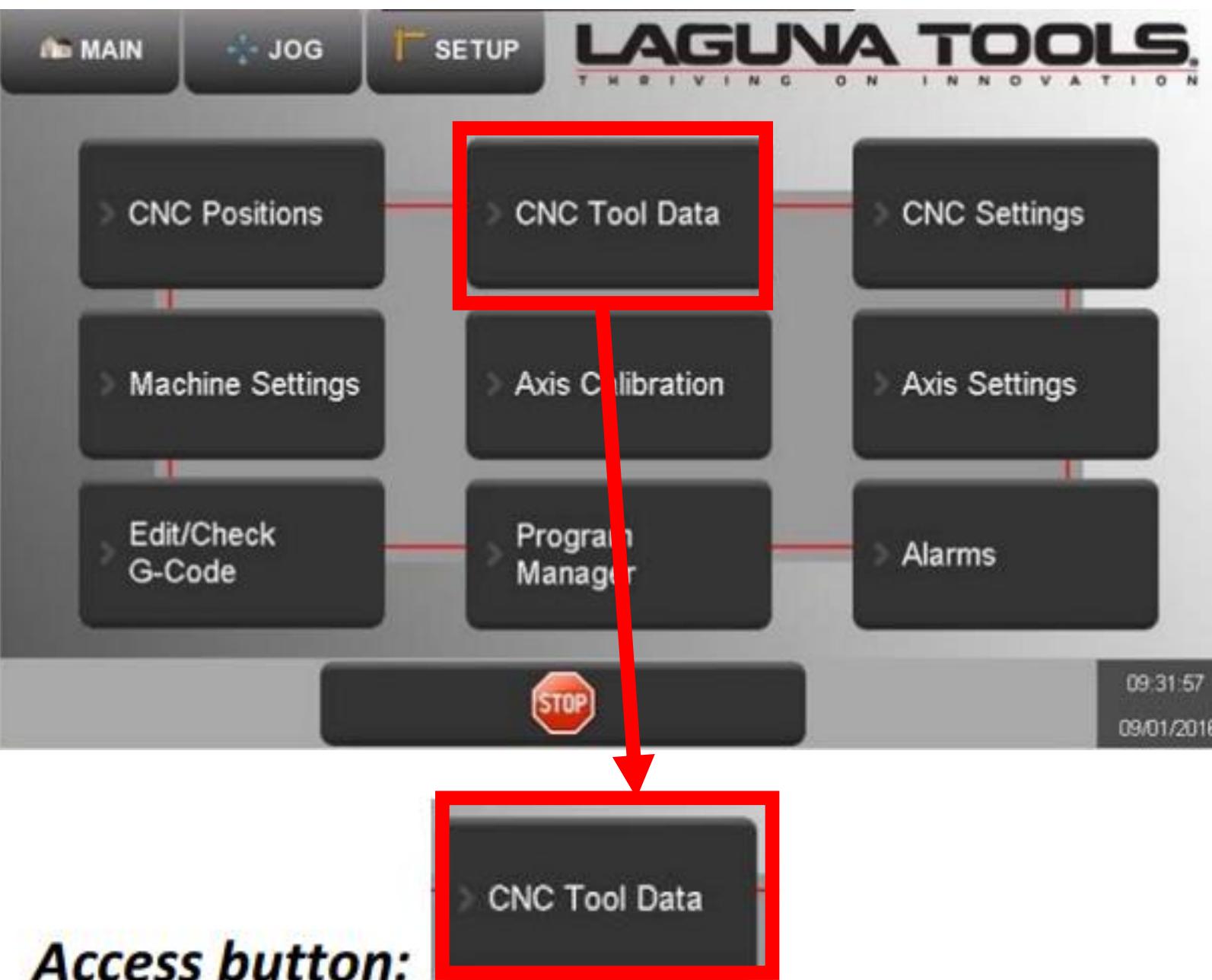
“Tool Selection Drop Down Field” = Use this to select the tool in which you wish to manipulate. The tool number displayed propagates the fields below with its current data and allows for full manual adjustments if needed.

“Tool Length Field” = This represents the distance from “Z” home to the end of the cutter. This can be propagated by the automatic touch off routine, manually set with data entry or taught By **“Teach Tool Button”** followed by **“Set Tool Data Button”**.

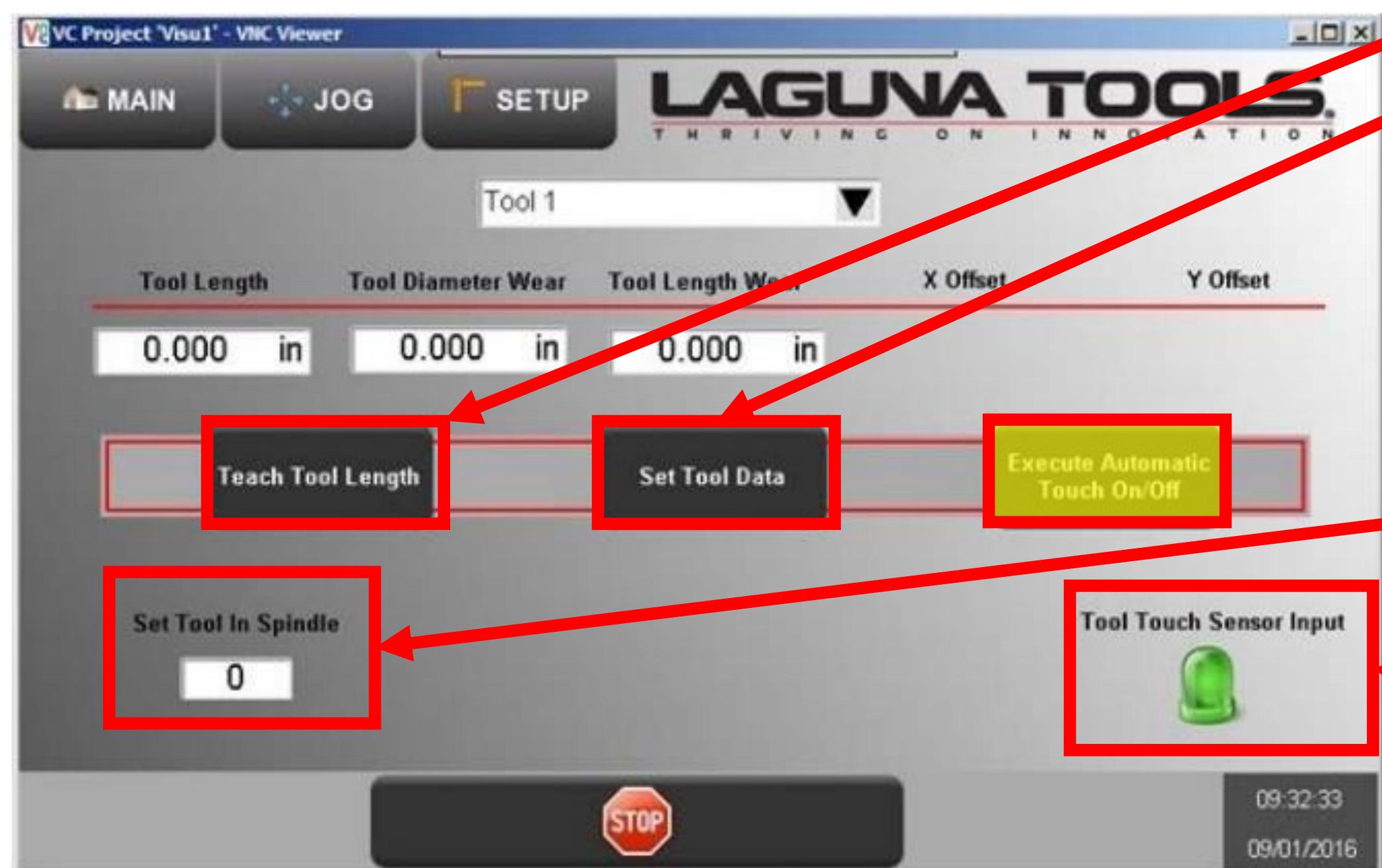


From “Set-Up” Screen to CNC Tool Data (Cont’d.)-

“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.

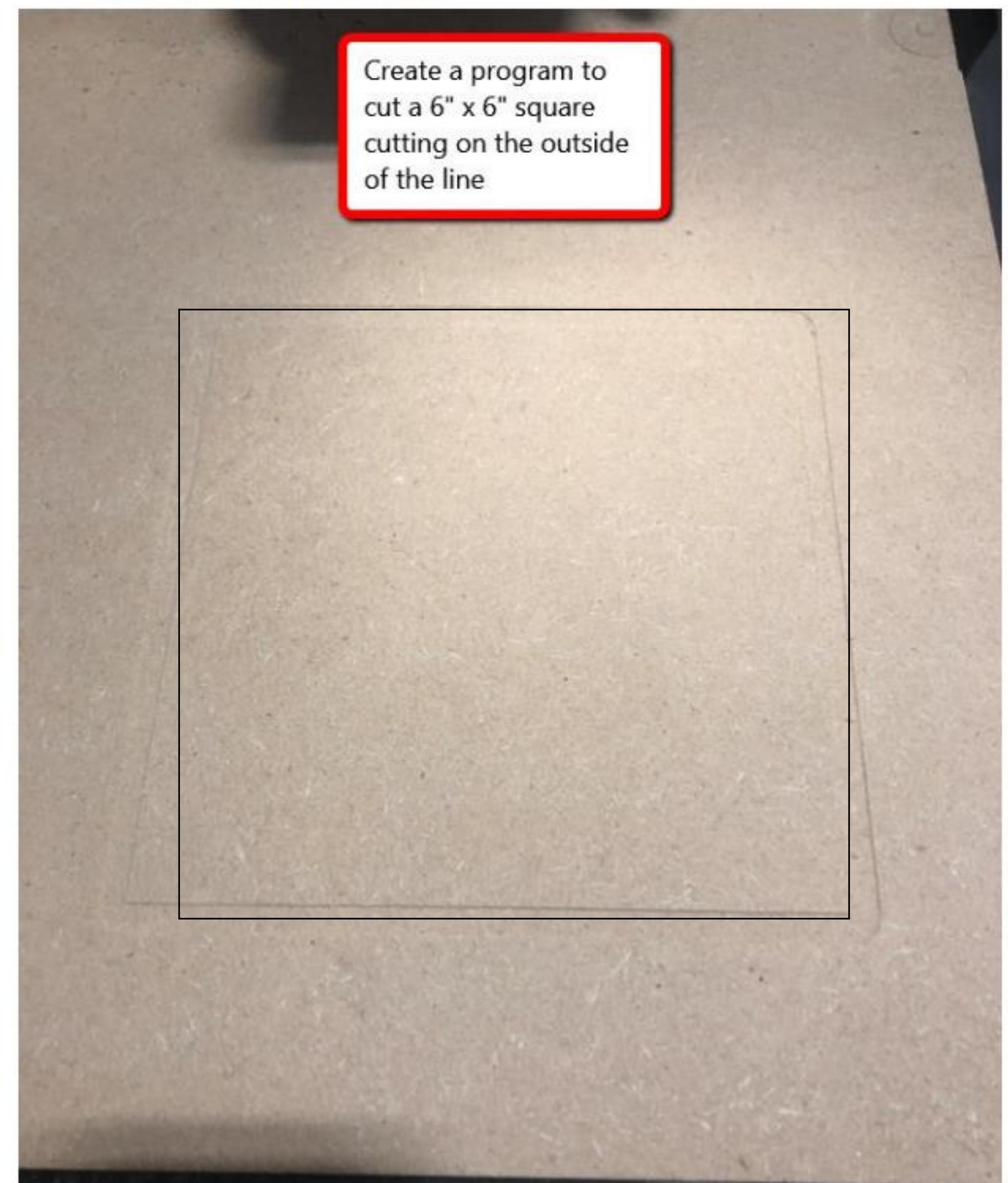
“Tool Touch Sensor Input” = This is an indicator to verify the Tool Touch Off (TTO) switch is working properly.



"Axis Calibration" Procedure-



1. Create a square program for calibration

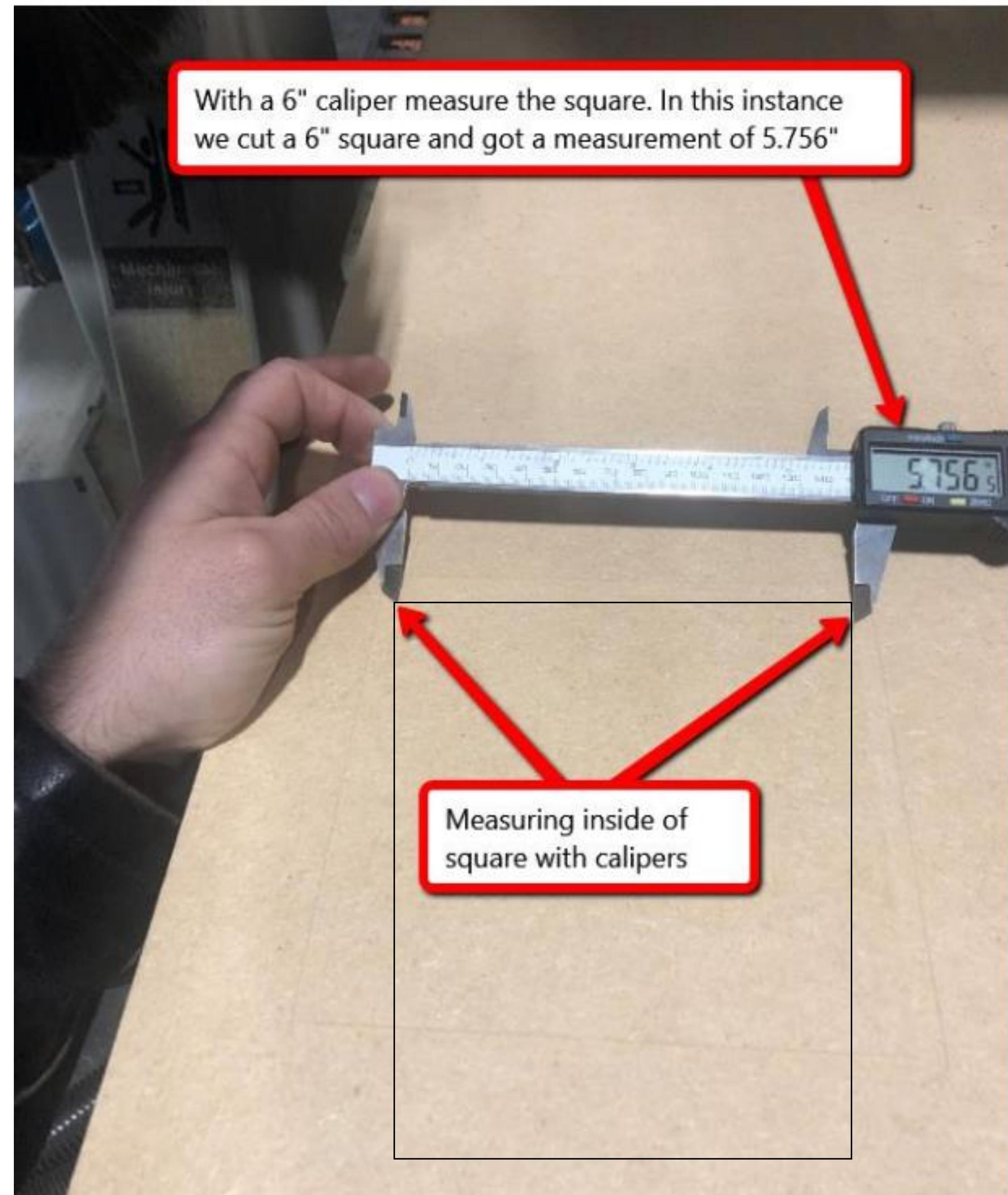




"Axis Calibration" Procedure-



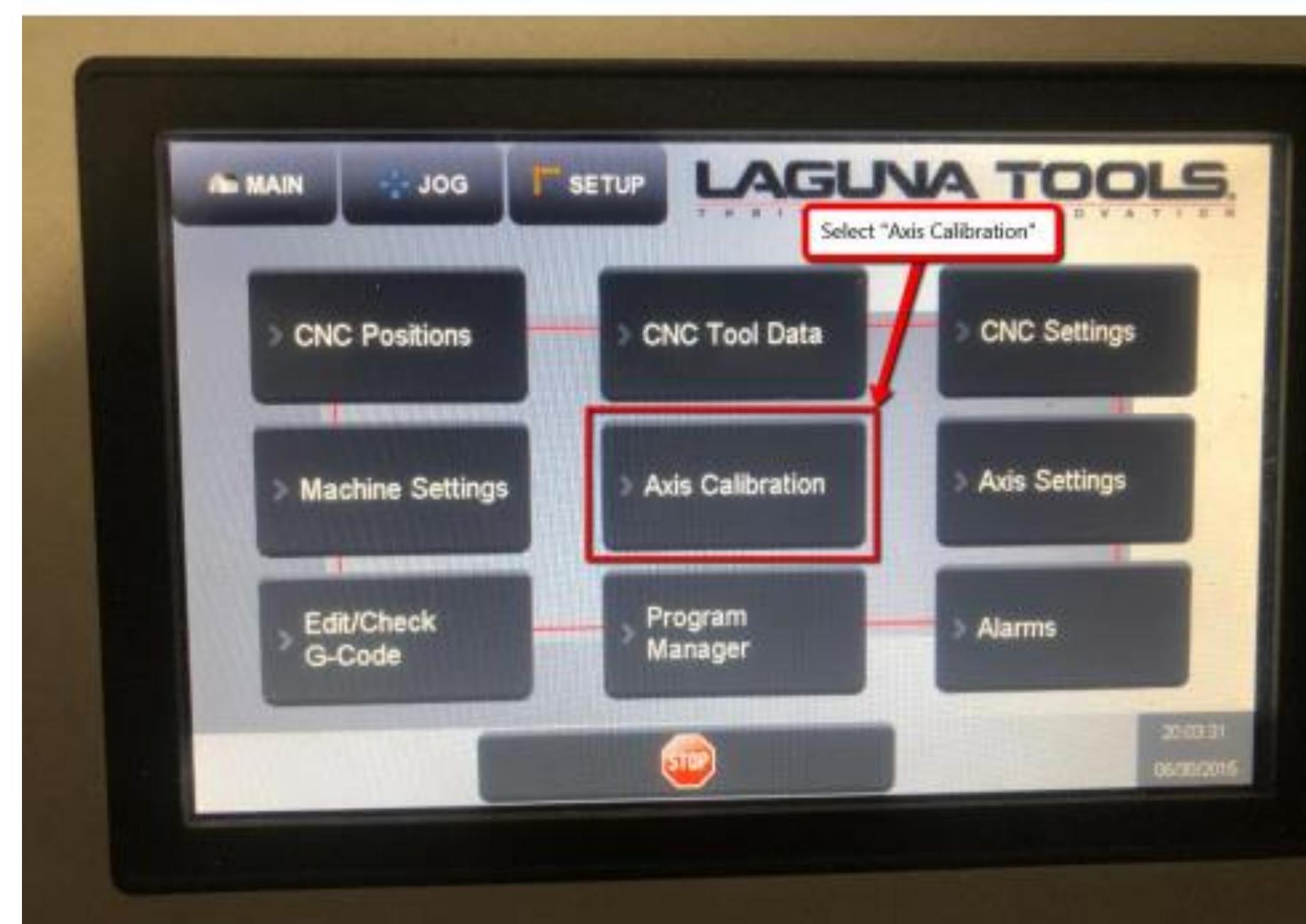
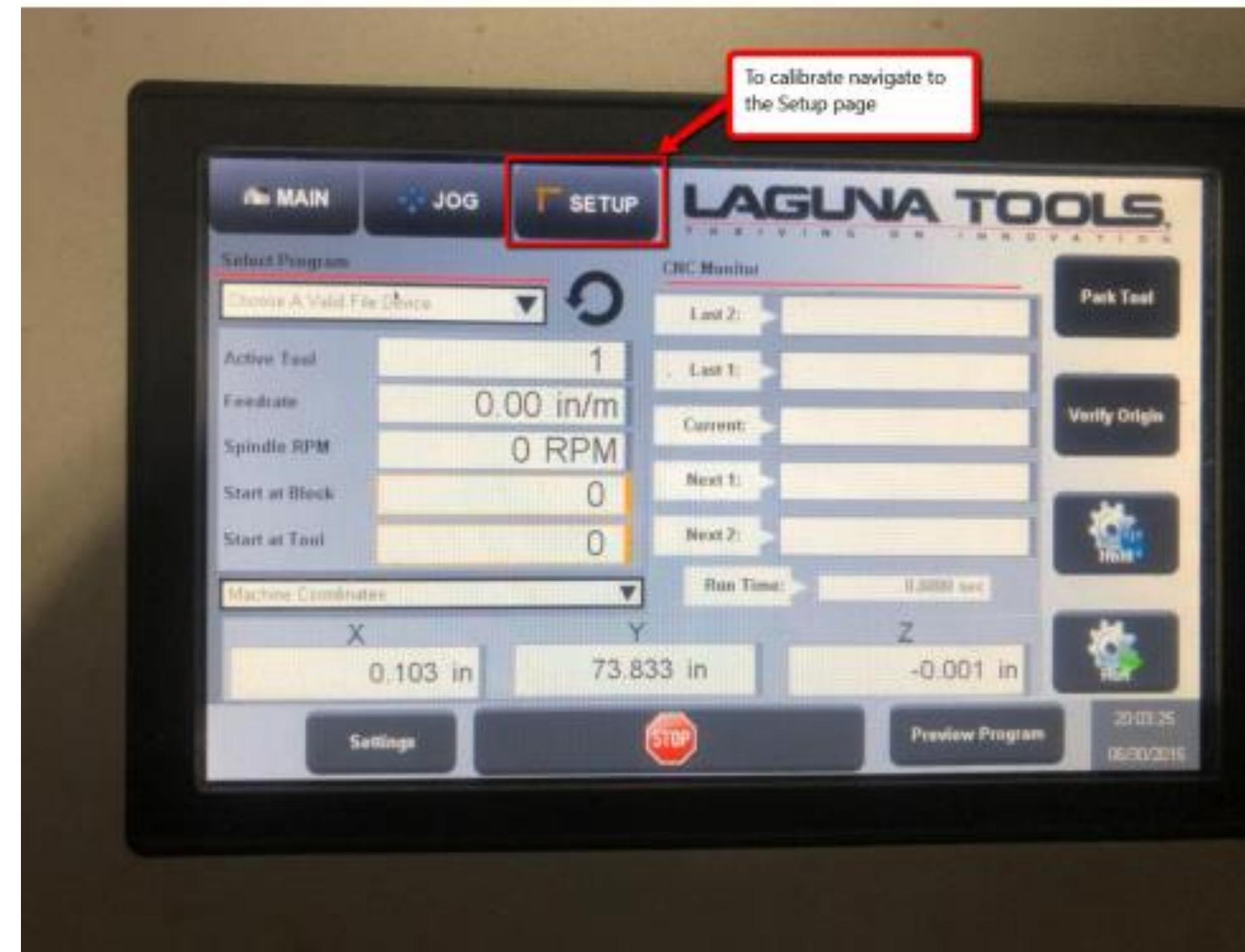
2. Once cut, measure the square to get value needed





"Axis Calibration" Settings-

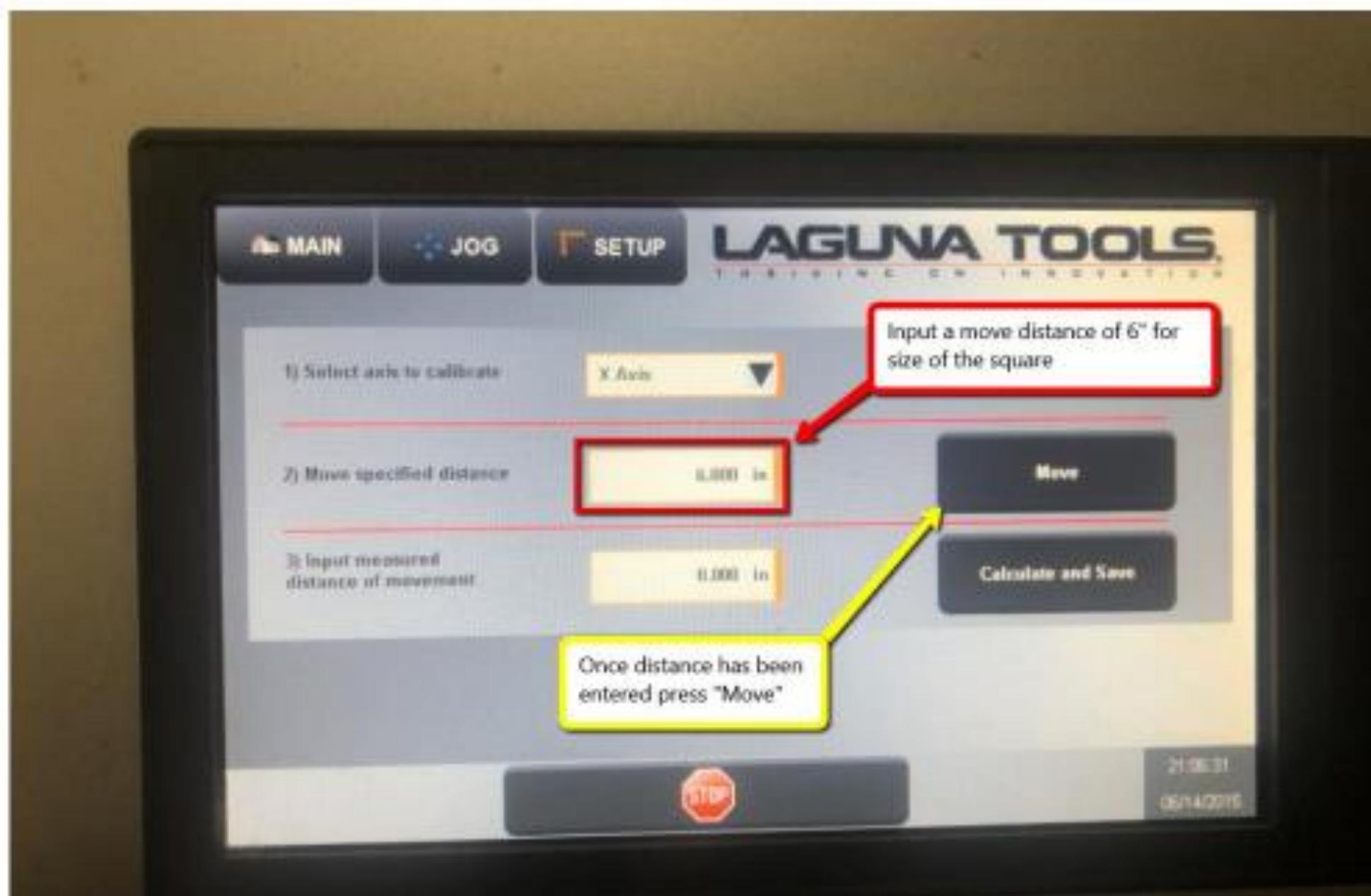
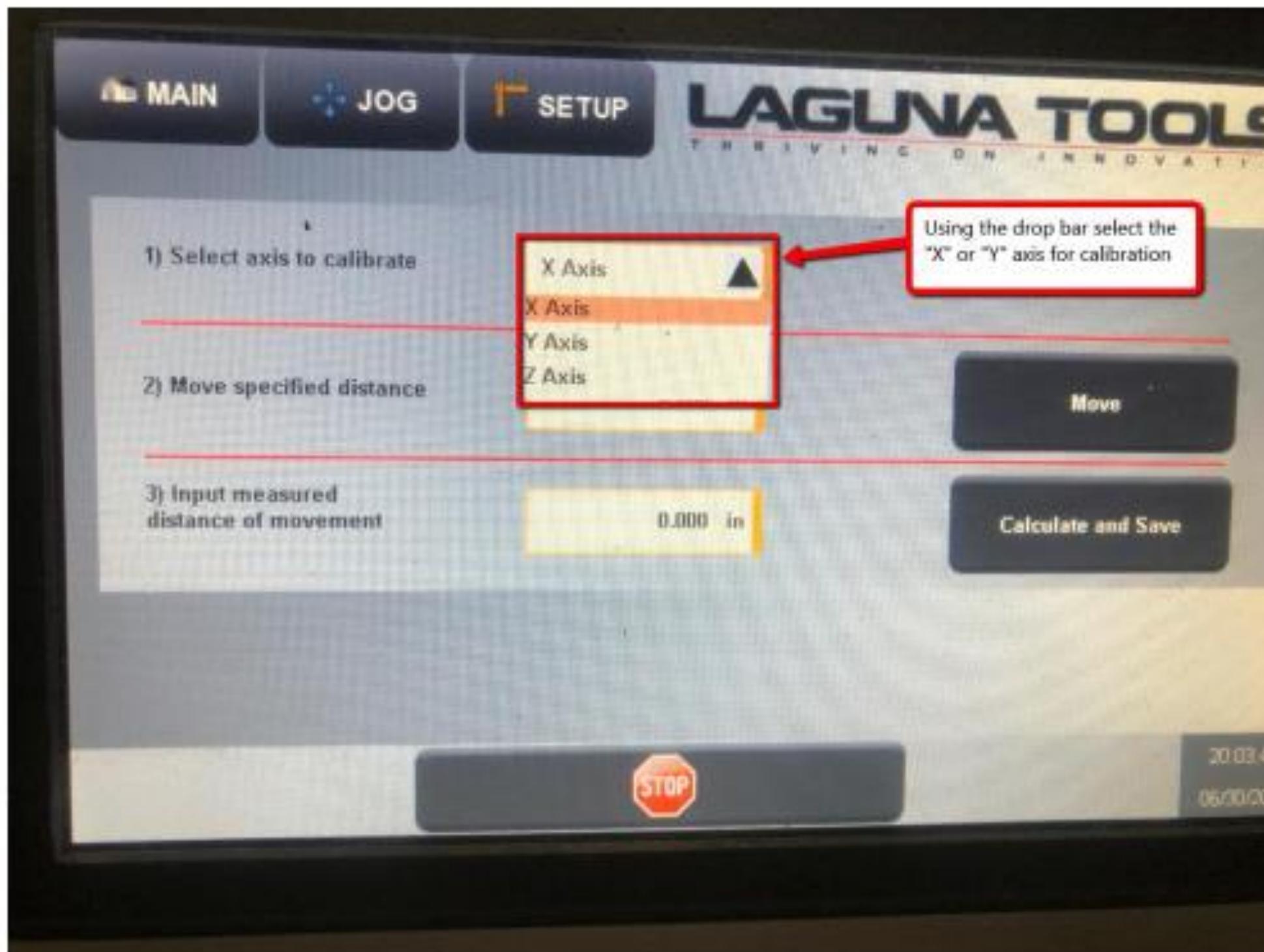
3. Once measured value is obtained go to the calibration page to begin calibration





"Axis Calibration" Settings-

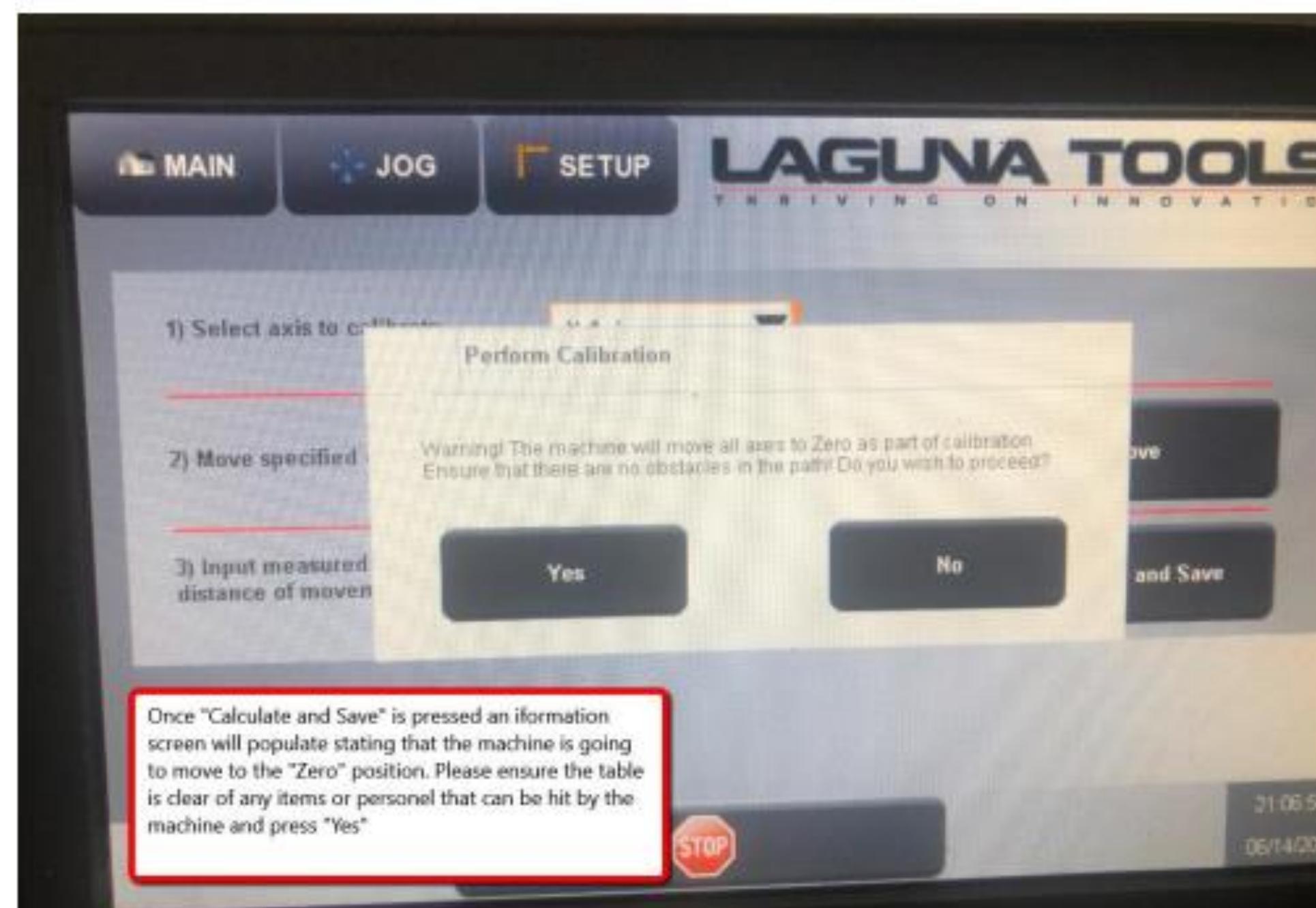
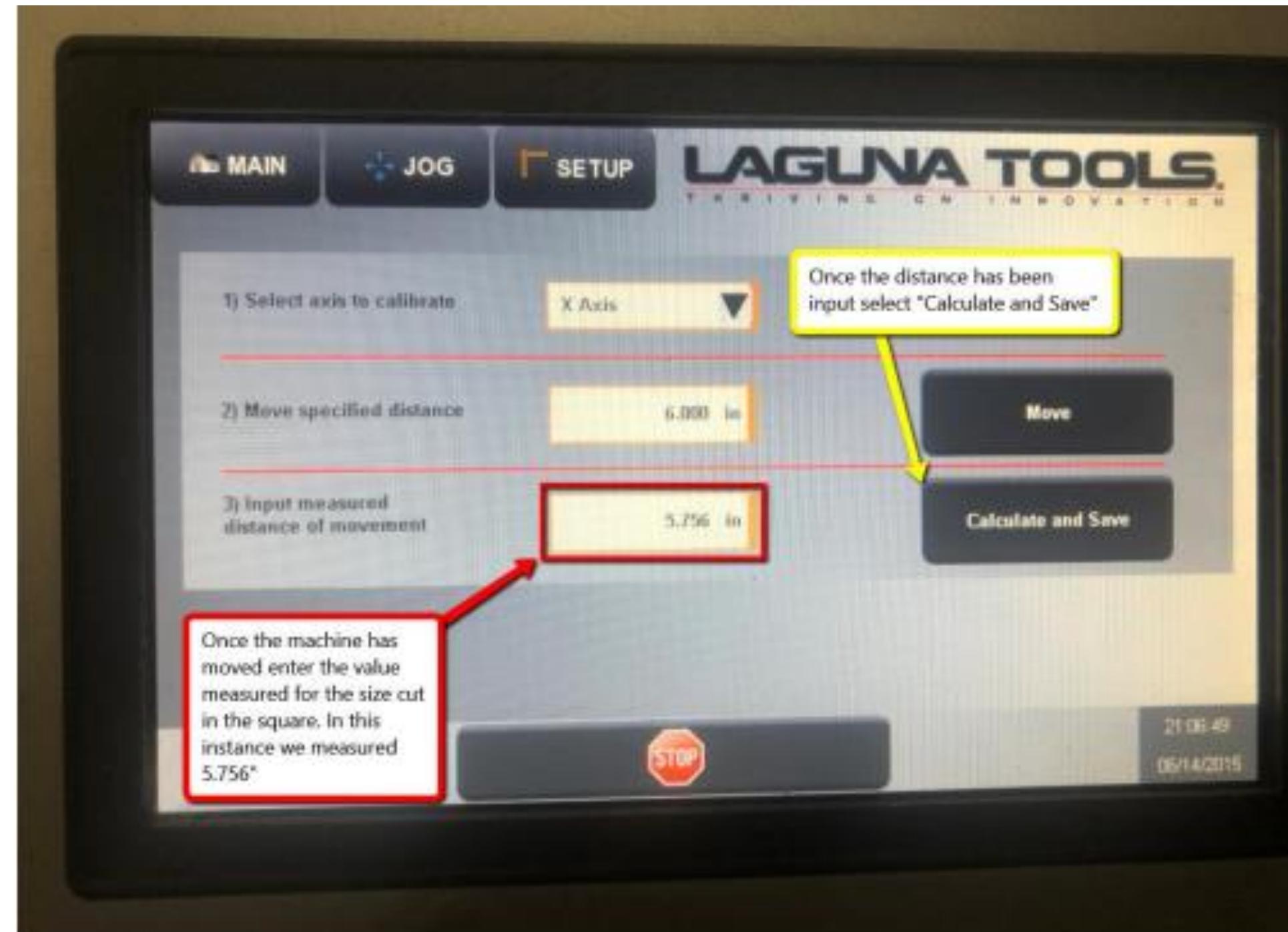
4. Once at the calibration page enter correct information in each field and calibrate





"Axis Calibration" Settings-

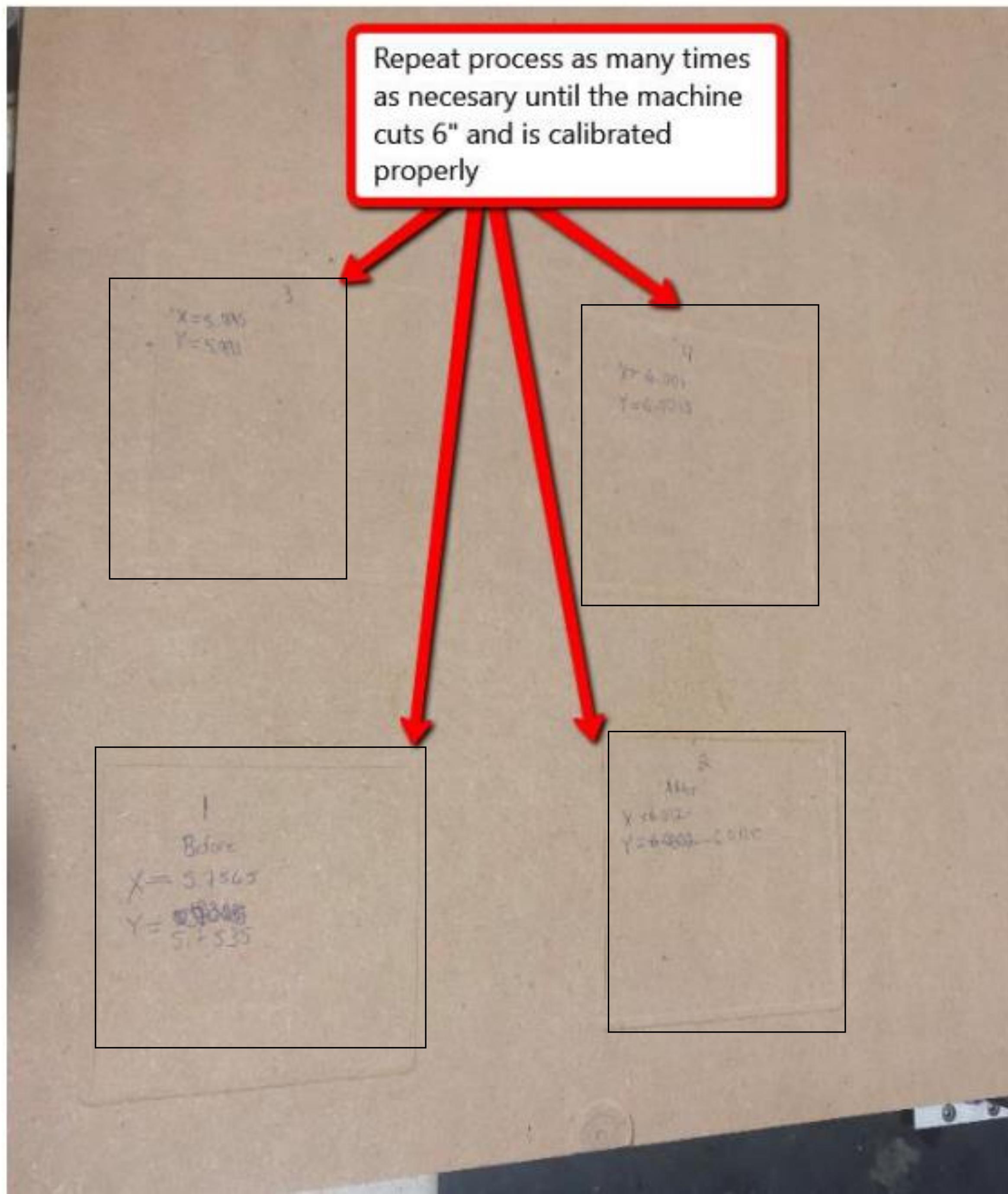
4.) Cont'd.





"Axis Calibration" Settings-

5. Continue process until calibrated for both "X" and "Y"





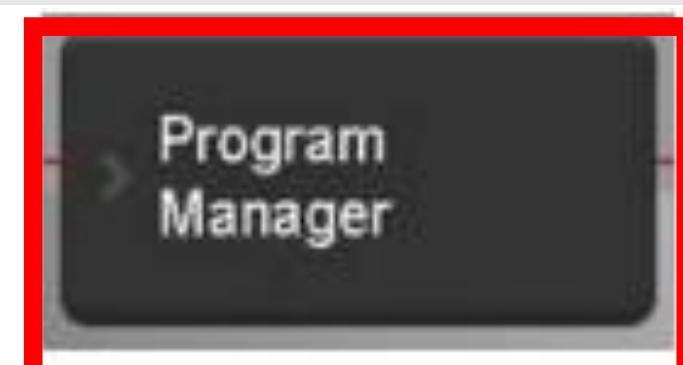
From “Set-Up” Screen to Program Manager-



“USER TAB” – TO THE CUSTOMER:
DO NOT UTILIZE OR USE IN ANY WAY.

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

“USB Tab” – This displays the programs from a USB stick when inserted into the control cabinet.



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



“Copying Programs to the Controller” = A program must be selectable from the Programs Tab in order to be made active.



"Program Manager"-

The screenshot shows the LAGUNA TOOLS software interface. At the top, there are three tabs: MAIN, JOG, and SETUP. The MAIN tab is selected. On the left, there's a navigation tree with categories like CNC Positions, Machine Settings, and Edit/Check G-Code, each with sub-options. A red box highlights the "Program Manager" button under the "Edit/Check G-Code" category. To the right, a "Program Manager" section is displayed with the following text:
Program Manager: This screen is used for the managing the programs within your controller.

Below this, the main workspace shows a file list. The left sidebar has tabs for "User" and "Programs". Under "Programs", there's a folder named "center811.prg". The file list area has columns for "Current Path", "Search Keyword", "Sort" (with dropdowns for Name, Date, Size), and "File(s) 1 / Folder(s)". Two buttons are highlighted with red boxes: "Refresh" and "MultiSelect".

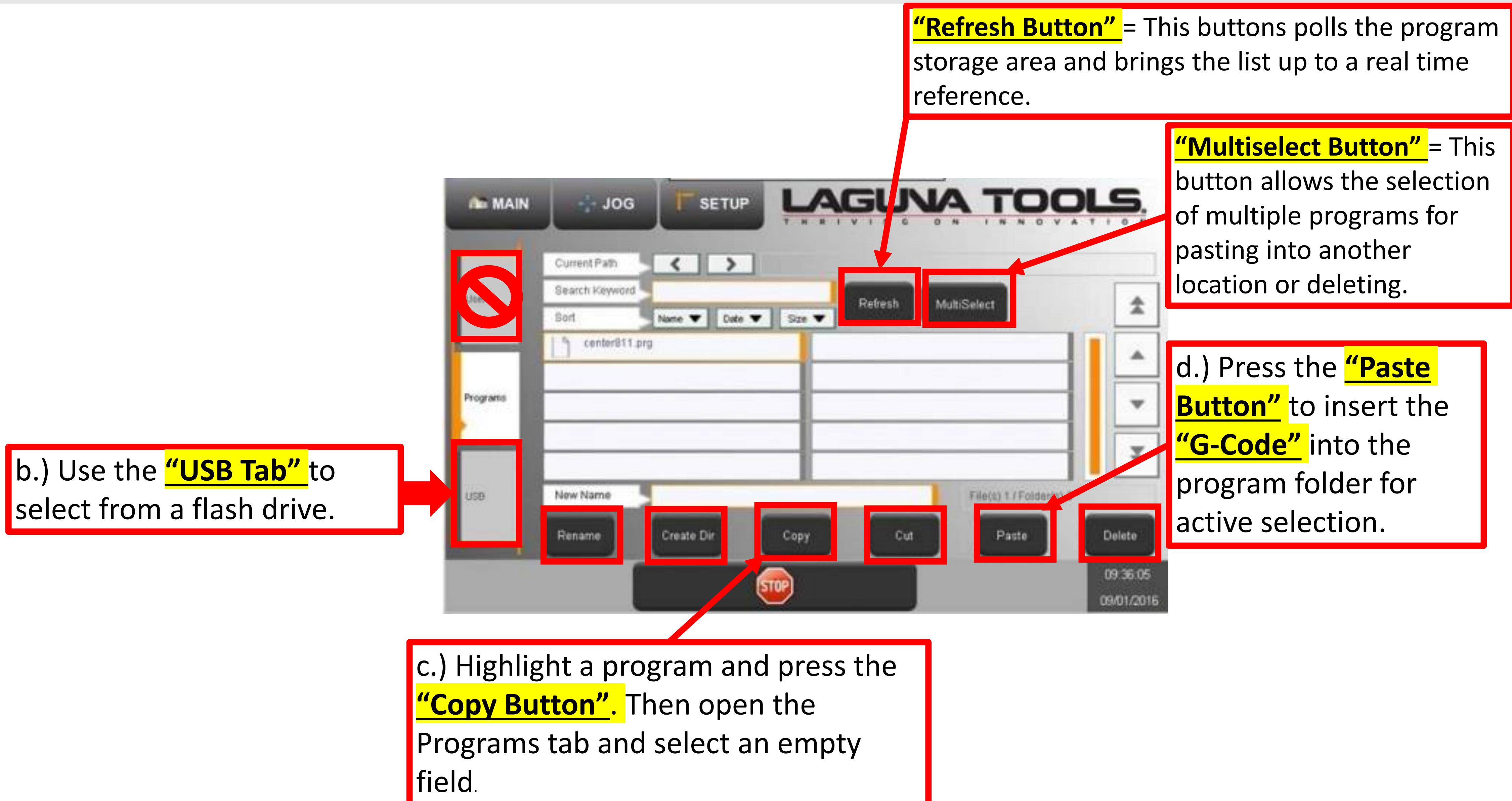
Annotations with red boxes and arrows:

- An annotation points from the "Program Manager" button in the tree to the "Program Manager" section with the explanatory text.
- A large red box surrounds the "Program Manager" section and the "Refresh" and "MultiSelect" buttons.
- An annotation points from the "USB Tab" in the bottom-left of the main window to the "USB" tab in the sidebar.
- An annotation points from the "Copy Button" in the bottom-right of the main window to the "Copy" button in the toolbar below the file list.
- A callout box labeled "c.) Highlight a program and press the **Copy Button**". Then open the Programs tab and select an empty field." points to the "Copy" button.
- A callout box labeled "d.) Press the **Paste Button** to insert the **G-Code** into the program folder for active selection." points to the "Paste" button.

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 exactly what they say.



From “Set-Up” Screen to Program Manager-



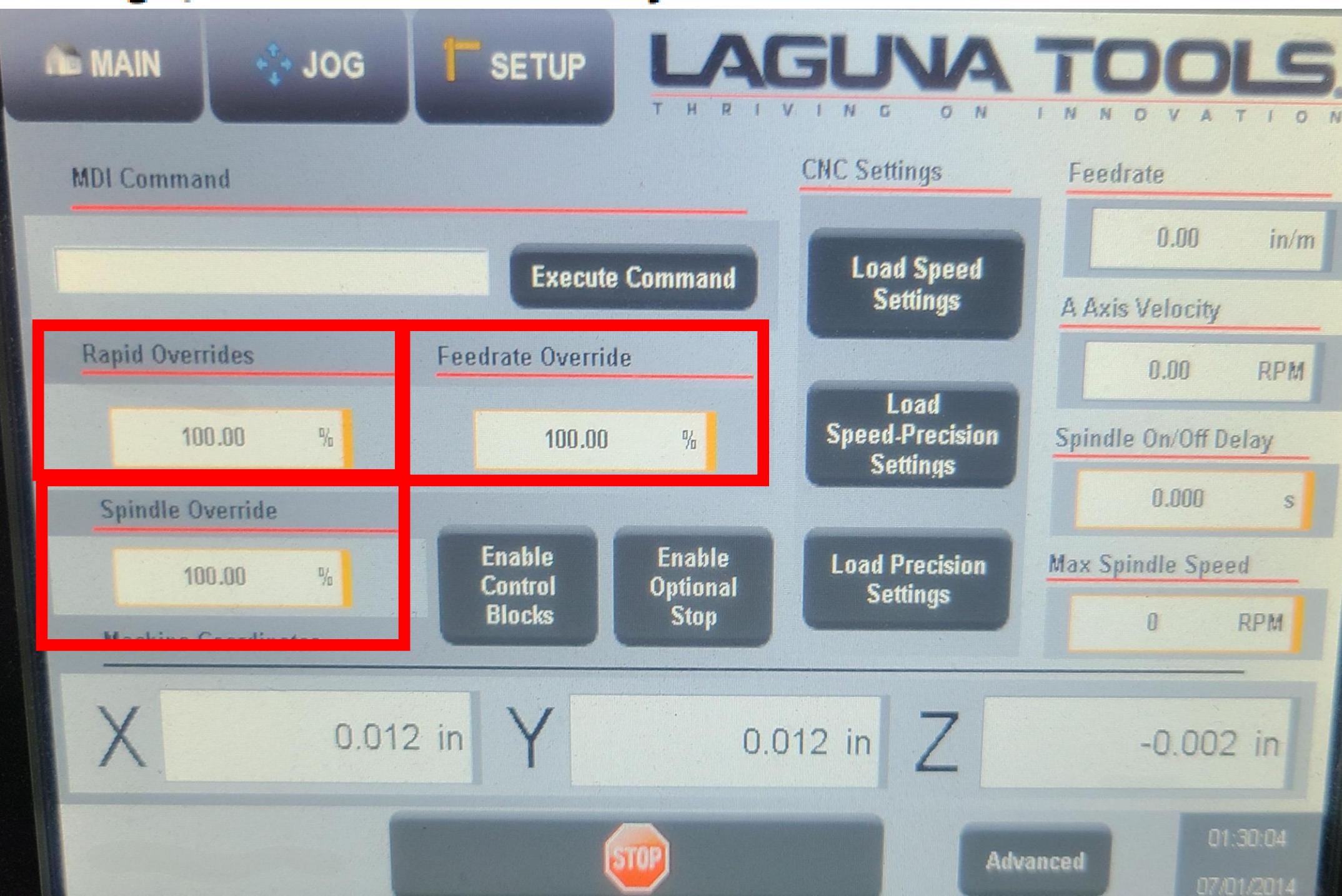
The following buttons are standard file manager functions just like those used in P.C.'s. Rename, Create directory, **Copy, Cut, Paste, and Delete** do exactly what they say.



“CNC Settings”/Override Screen Defined-



Settings / Over Ride Screen defined:



Enter the **“CNC Settings”** page from the Settings button in the lower left of the Main Screen or from the **“CNC Set Up Button”** on the Set-Up Menu Screen.

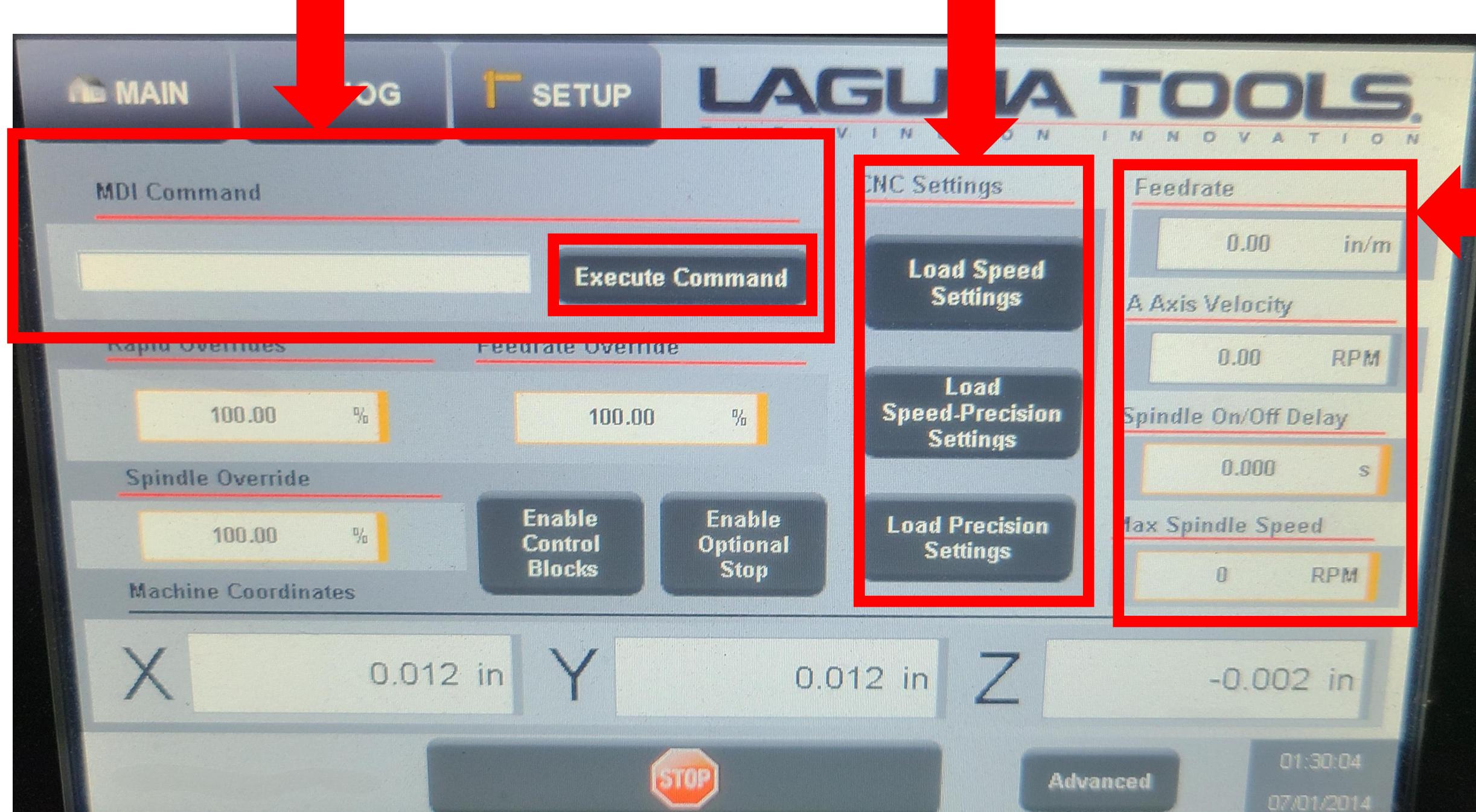
“Overrides” = This screen allows for the adjustment of the **“Rapid Feed Rate”**, **“Cutting Feed Rate”** and the **“Spindle RPM”**. You can adjust all three with a percentage above or below the set parameters while the program is running.



"CNC Settings" (Cont'd.)-

"MDI Field" = Manual Data Input is for executing a single line of code at a time or a **"M Code"**. Simply input the desired function and press **"Execute Command"** to activate.

CNC Settings-
"Load Speed Settings" = ?
"Load Speed Precision Settings" = ?
"Load Precision Settings" = ?



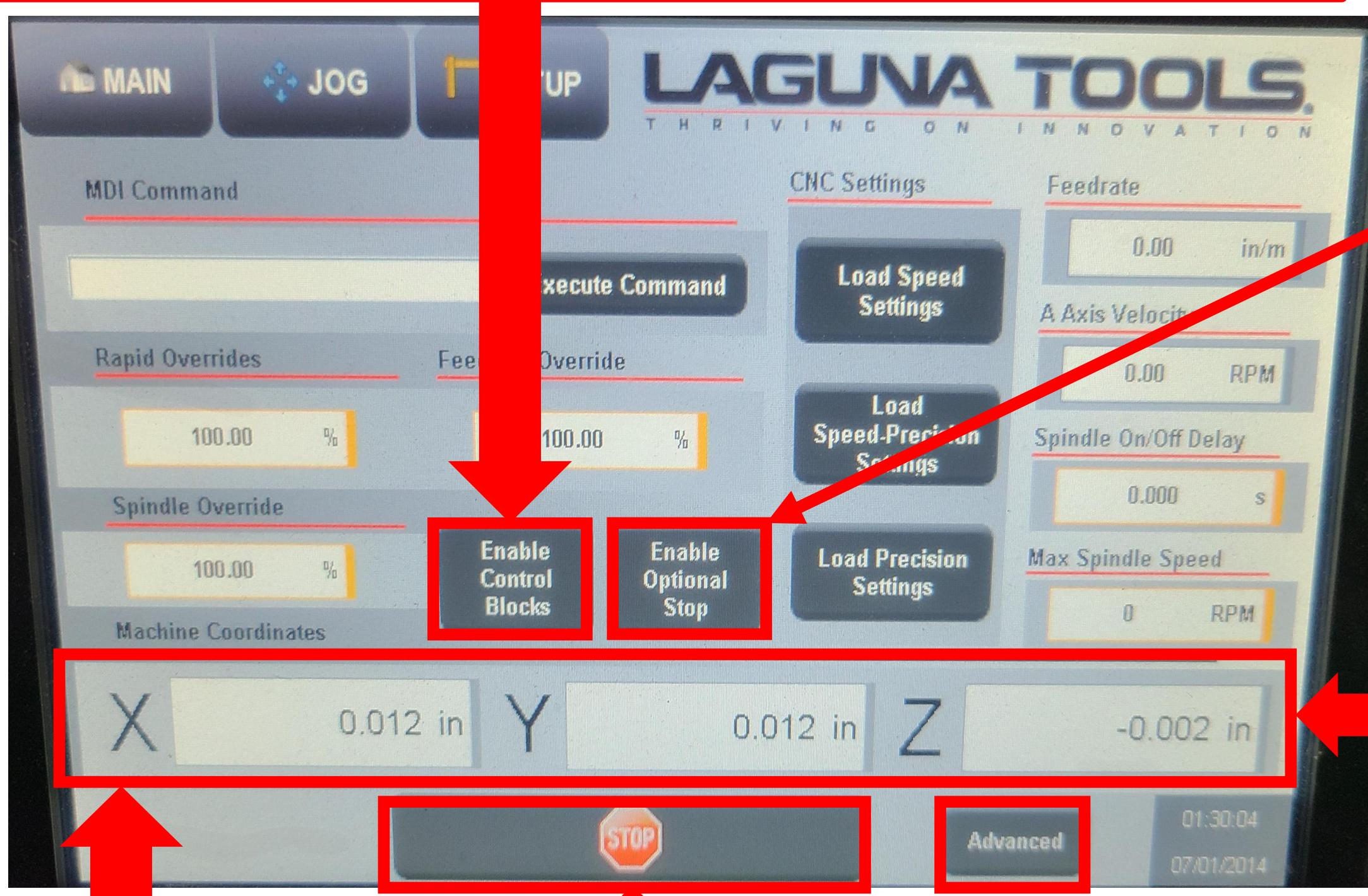
Feed Rates-

"Feed Rate Field" = This field displays the programmed feed rate in the **"G" Code**.
"A Axis Velocity" = This Field displays?
"Spindle On/Off Delay" = This is used to force an On and Off delay in the control of the spindle. This is in lieu of a programmed delay or used as an additional delay to the programmed ramp up and down.
"Max Spindle Speed" = This field must match the maximum speed your speed can rotate. This is only used if your factory spindle is replaced with a different top speed.



CNC Settings (Cont'd.)-

"Enable Control Blocks" = This is function for higher end users that want to use "Control Blocks" such as shown below:



"Enable Optional Stop" = This button enables a M0 to cause a program pause for additional operations or jigging during a program run. Pressing Run Button on the Main screen restarts the program from the pause. With this Button off the "M0" is ignored.

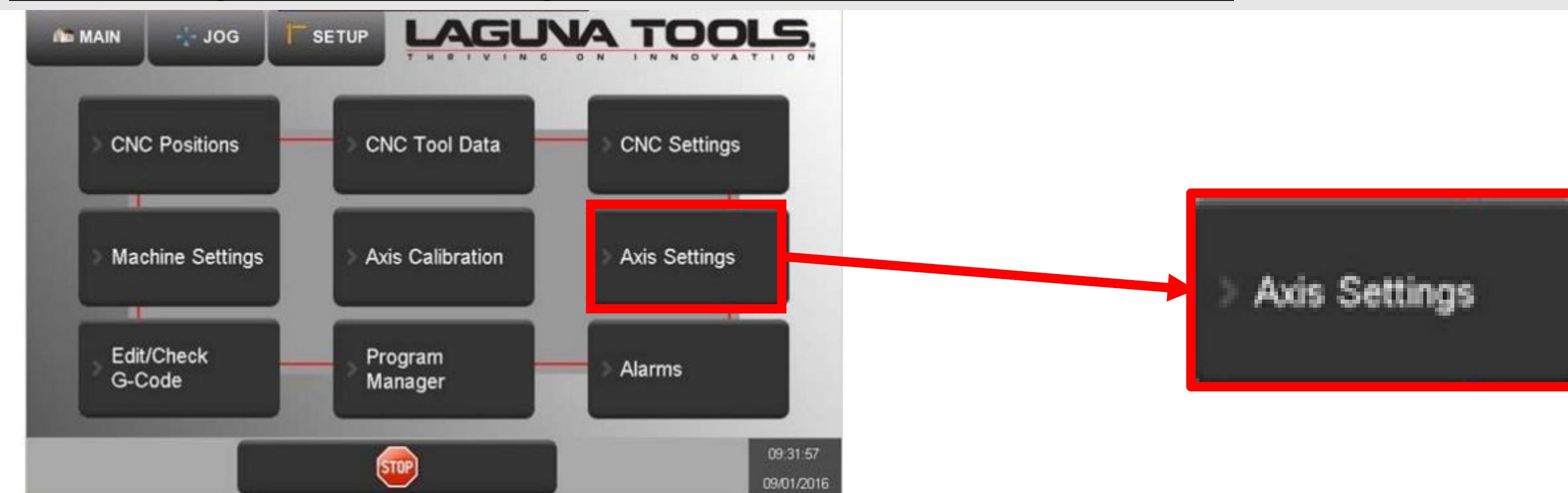
"DRO Display" (Digital Readout Display) = The Digital Read Out's at the bottom of this screen reference the current machine coordinates for X, Y, and Z.

"Stop" = This button cancels the program currently running.

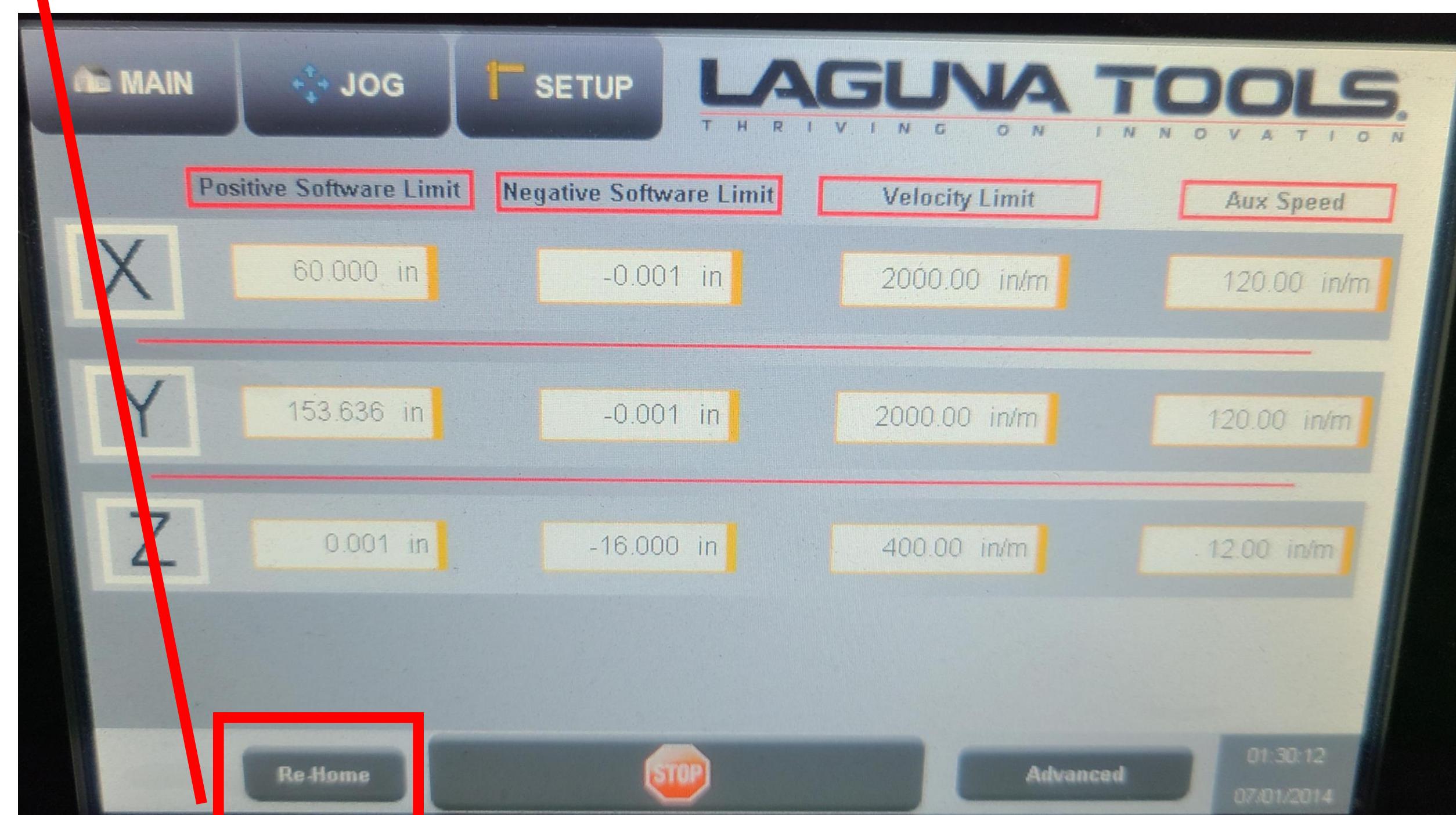
"Advanced" = This can only be accessed by use of a password and is used by technicians to perform Servo tuning adjustments. There are no user functions here.



“Axis Settings” Position-Setting “Absolute Zero”- “Home Zero Button”

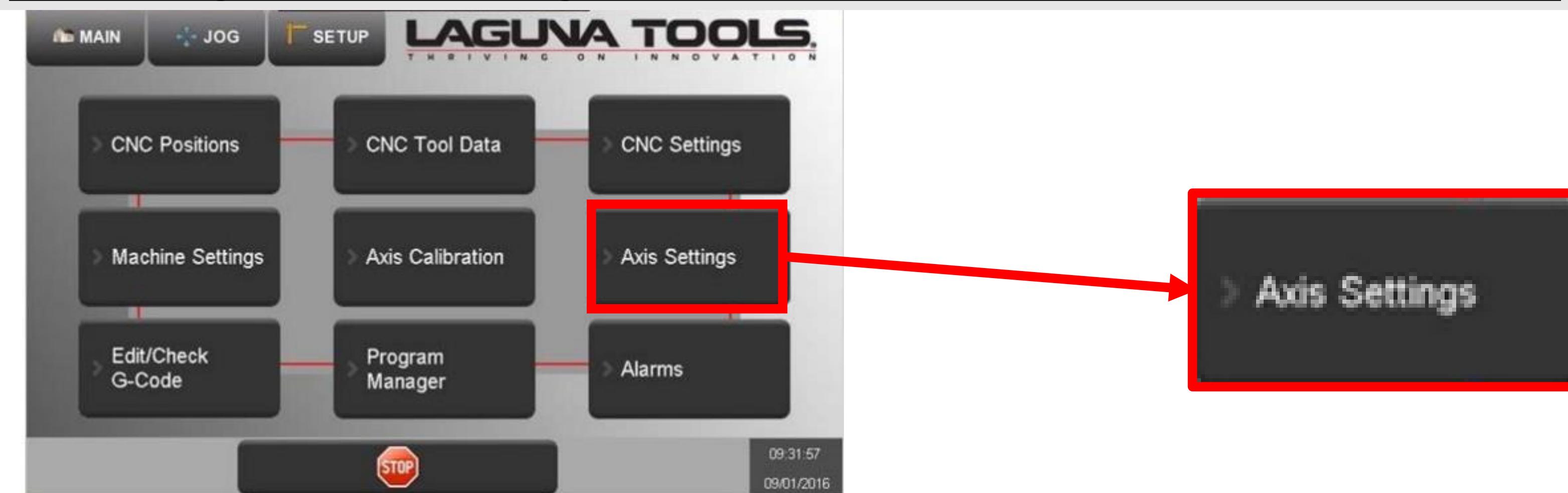


1. Bring all Axis as close to the “Zero” position as possible.
2. Press “**Re-Home Button**” on Screen when homing in to “Absolute Zero (0) on the X, Y, & Z Axis of the Machine.





“Axis Settings” Positions-Setting “Absolute Zero” in case no “ReHome Button” available.



1. Bring all Axis as close to the “Zero” position as possible
2. Turn off machine and manually move the machine so that the end of the linear rails are 3” away from the bearing cards on each Axis.
3. “Y” Axis ABS (ABS=Absolute).





“Axis Settings” Positions-Setting “Absolute Zero” (Cont’d.)

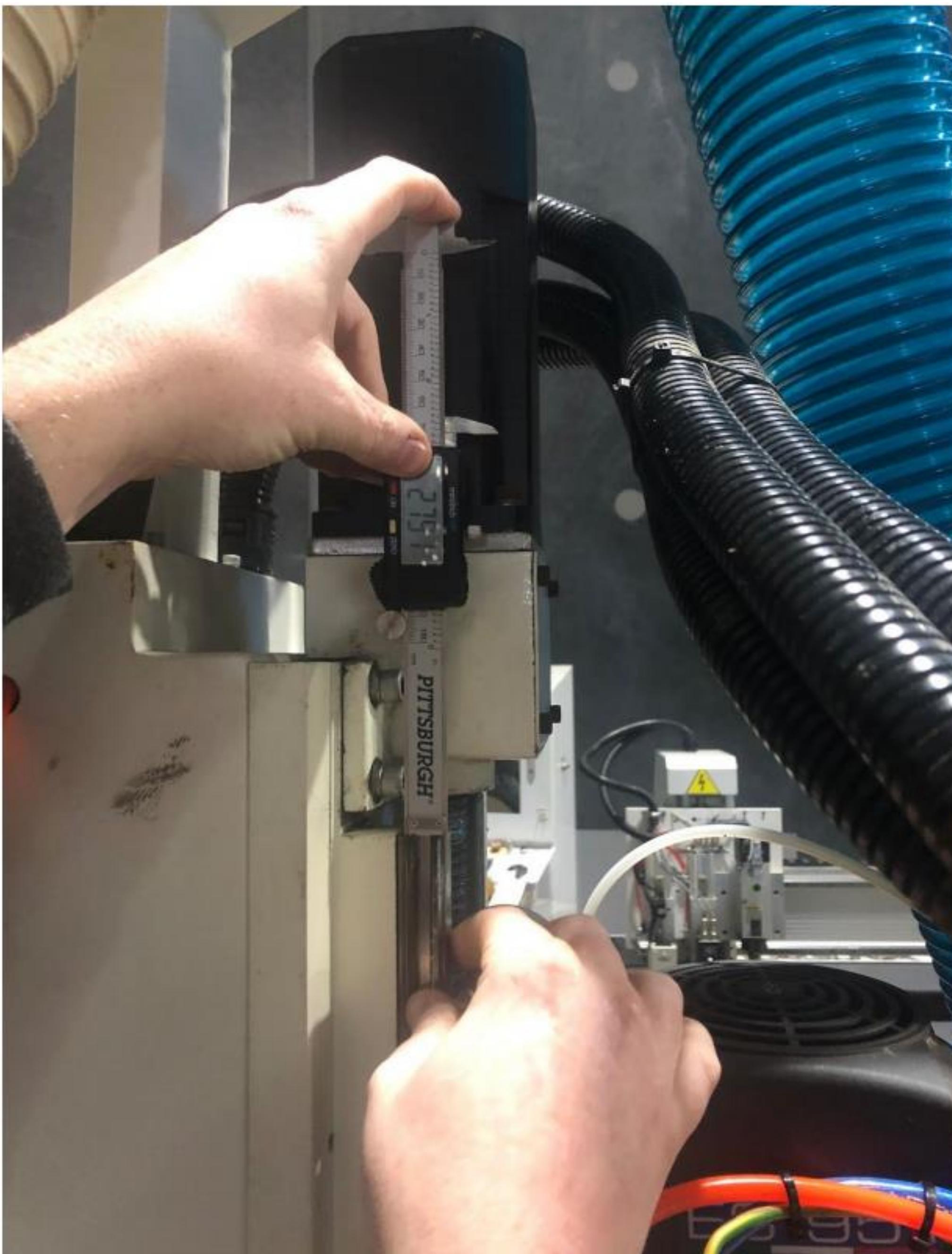
4. “X” Axis ABS (ABS=Absolute).





“Axis Settings” Positions-Setting “Absolute Zero ” (Cont’d.)

5. “Z” axis ABS (ABS=Absolute).



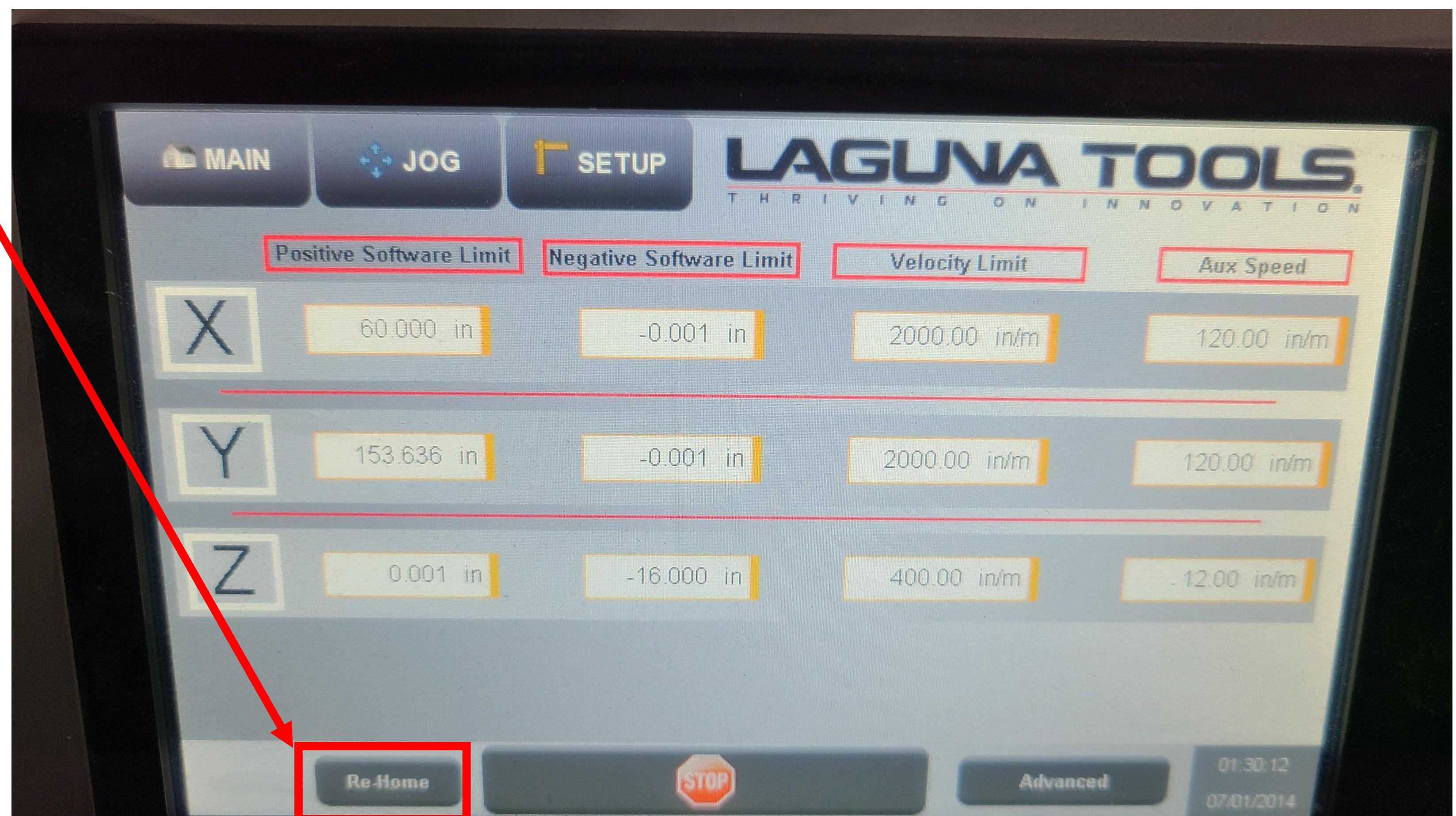


"Axis Settings" Positions-Setting "Absolute Zero " (Cont'd.)

6. Navigate to the Axis Settings page (Setup → Axis Settings).

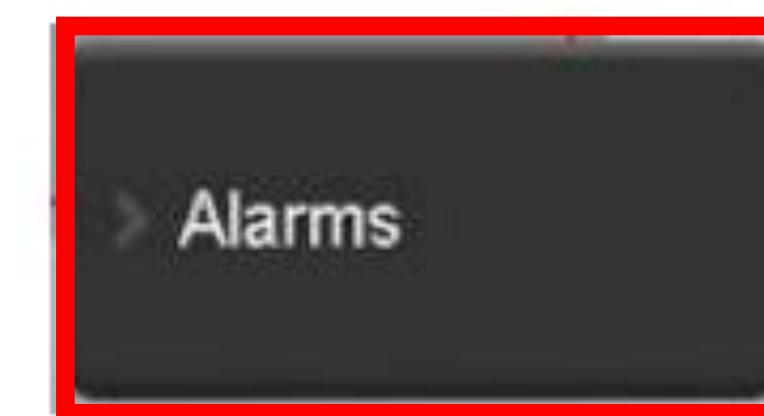
7. Verify that the “X”, “Y”, and “Z” axis are all 3” from end of the rail to the bearing card and the **Press “Re-Home”.**

**Press “Re-Home”
Button.**

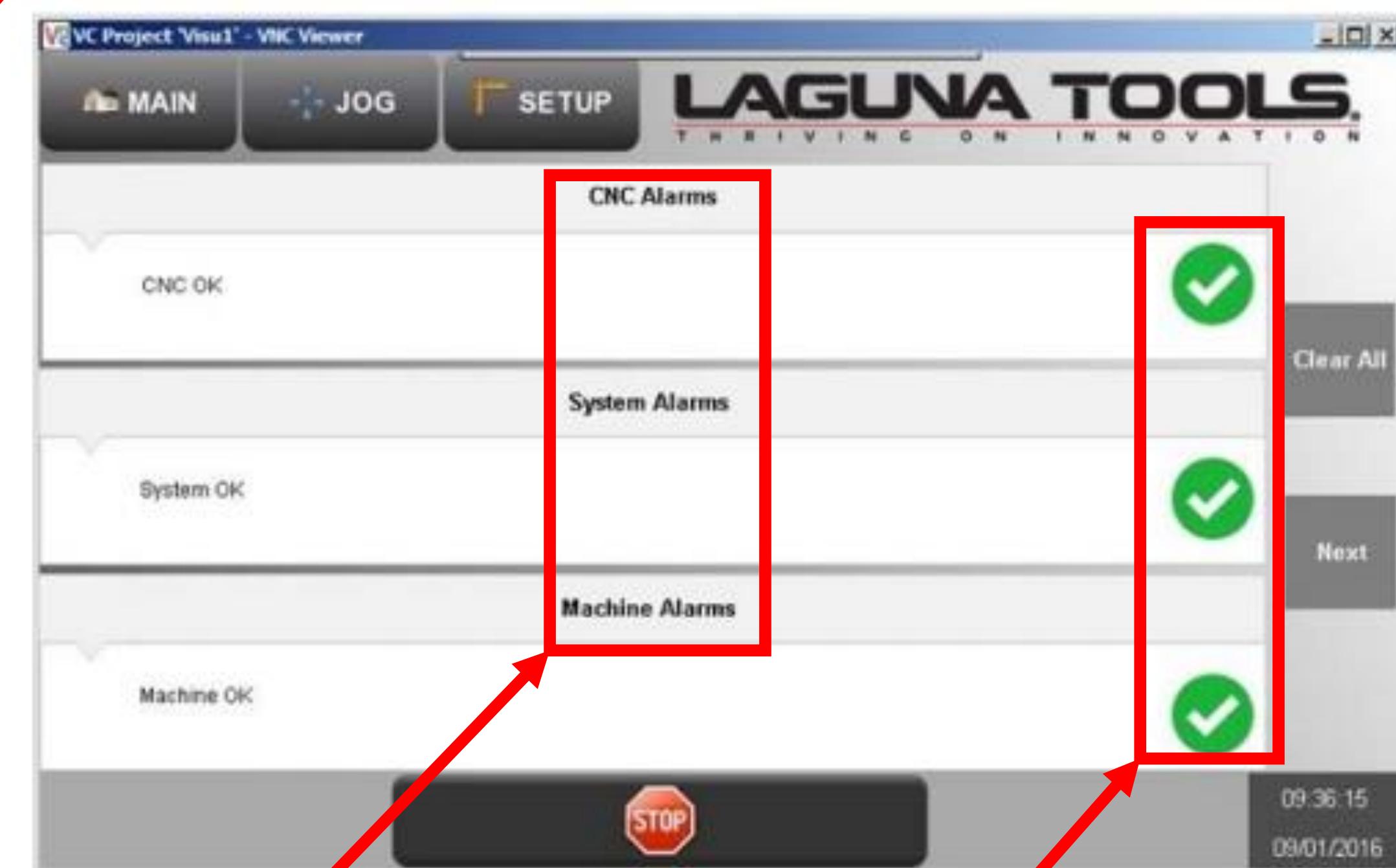




Alarm Screens-



This enters the alarm screens:



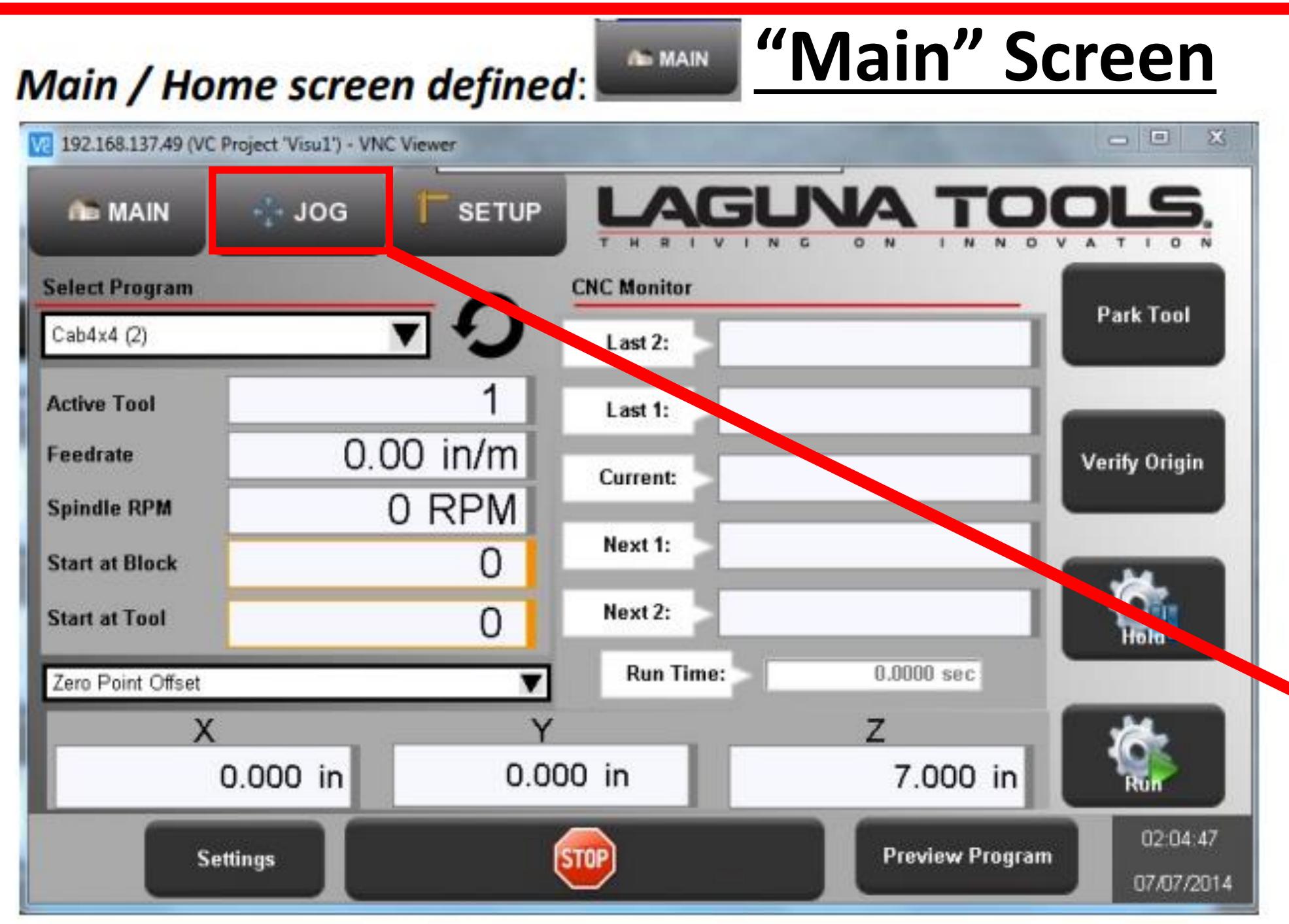
This screen will display the **“3 Types of Alarms”** that can be generated in the controller. The **“Check Marks”** is used to acknowledge and clear a single alarm at a time to see all that occurred.

The **“Next Button”** will open the Axis Specific Alarms page.





Main Screen Buttons & Flow- Main Screen to “Jog” Screen



Jog screen defined:

“Jog” Screen





Jog Screen Defined-

1. **Jog Past "Y" Safe** = This button is used for maintenance and repair issues only. There is no operator function for this.
2. **Dust Hood Up/Down** = This button is used to manually retract or extend the dust hood.
3. **Teach Tool Length** = This button is used to manually set tool length for the active tool. This is handy on the jog page, so you don't have to toggle to the tools page while manually jogging to a Z reference.
4. **Teach Zero Point ZPO** = This button will write the current X and Y locations to the Zero Point Offset selected from the "Upper Right Field G54- G59".
5. **Reset Relative Coord's Display** = This button resets the Relative position of X and Y to Zero. Use would be a digital tape measure.
6. **Disable Switch Limits** = This button is used for maintenance and repair issues only. There is no operator function for this.





Jog Screen Defined (Cont'd.)-

"Jogging Functions" = There are 3 settings for Jogging.
ipm=Inches Per Minute

DROP DOWN MENU for the X Axis, Y Axis, & Z Axis-

1st – Select the Jog type, Either Continuous Jog or a Step jog at a specified increment.

2nd – For continuous Jog, select the percentage of the max speed set in the controller. If **max speed is 1000 ipm**, then 50% Jog speed will move the Axis at 500 ipm.

3rd – For step jog select the step size you wish to increment jog at for each push of the jog + or – button. Use the + and or – button to move the Axis Forward or Back.



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



Main Screen Buttons & Flow-



“Program Preview Screen”





“Settings” Button from Main Menu/ Override Screen Defined-





“Settings” from Main Menu / Override Screen Defined (Cont’d.)-

“MDI Field” = Manual Data

Input is for executing a single line of code at a time or a **“M Code”**. Simply input the desired function and press **“Execute Command”** to activate.

“Feed Rate Field” = This field

displays the programmed feed rate in the **“G” Code**.

“Spindle On/Off Delay” = This is

used to force an On and Off delay in the control of the spindle. This is in lieu of a programmed delay or used as an additional delay to the programmed ramp up and down.



“Max Spindle Speed” = This field must match the maximum speed your spindle can rotate. This is only used if your factory spindle is replaced with a different top speed.



Main Menu “Settings” / Override Screen Defined (Cont’d.)-

“Enable Control Blocks” = This is function for higher end users that want to use “Control Blocks” such as shown below:

- Control Blocks
- Conditions
- IF Statement
- ELSEIF Chain
- SWITCH Statement
- FOR Statement
- WHILE Statement
- DO Statement



“DRO Display” (Digital Readout Display) = The Digital Read Out’s at the bottom of this screen reference the current machine coordinates for X,Y, and Z.

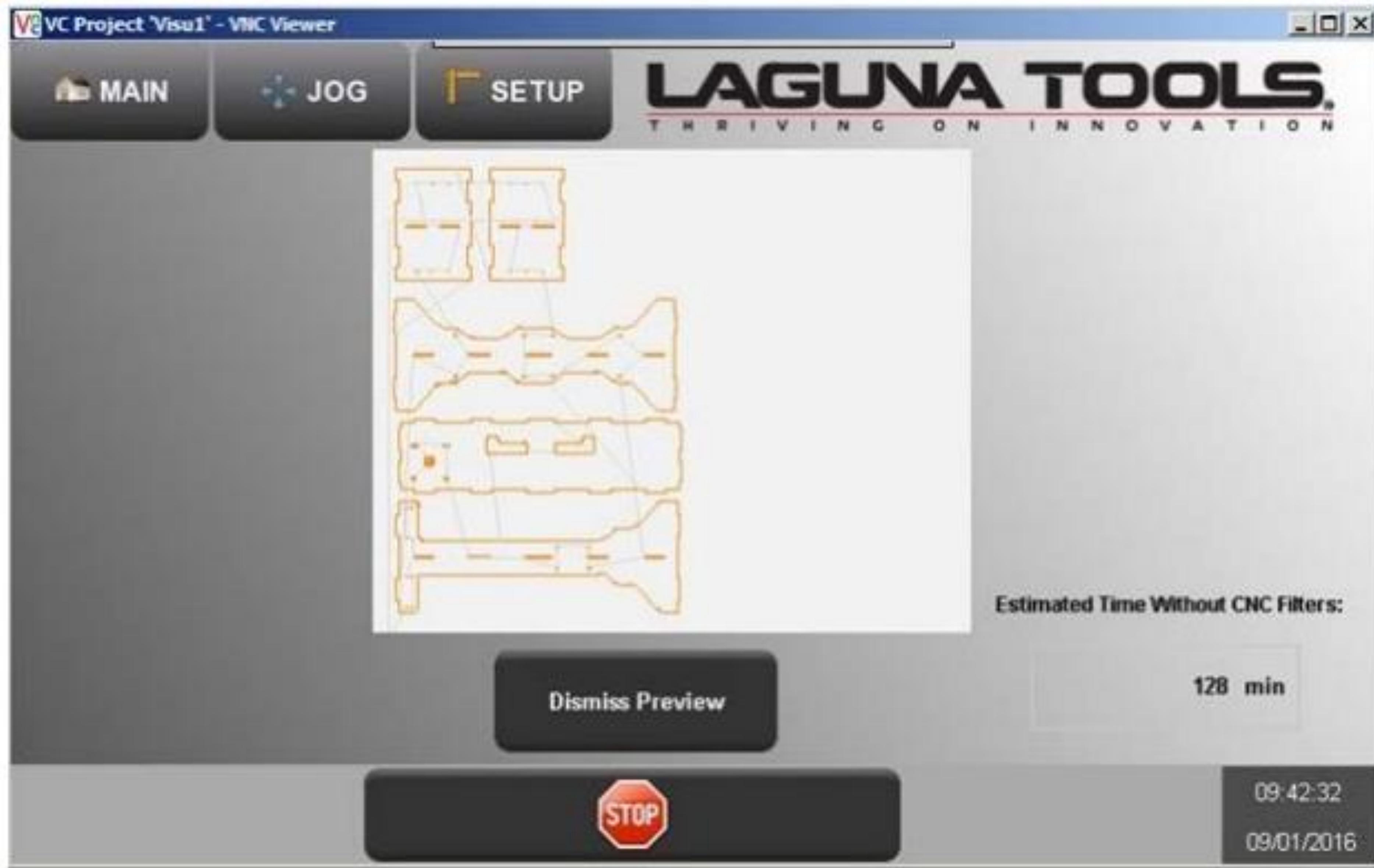
“Stop” = This button cancels the program currently running.

“Overrides” = This screen allows for the adjustment of the **“Rapid Feed Rate”**, **“Cutting Feed Rate”** and the **“Spindle RPM”**. You can adjust all three with a percentage above or below the set parameters while the program is running.



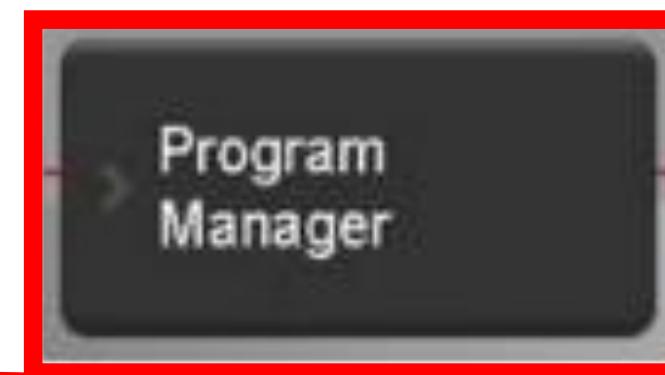
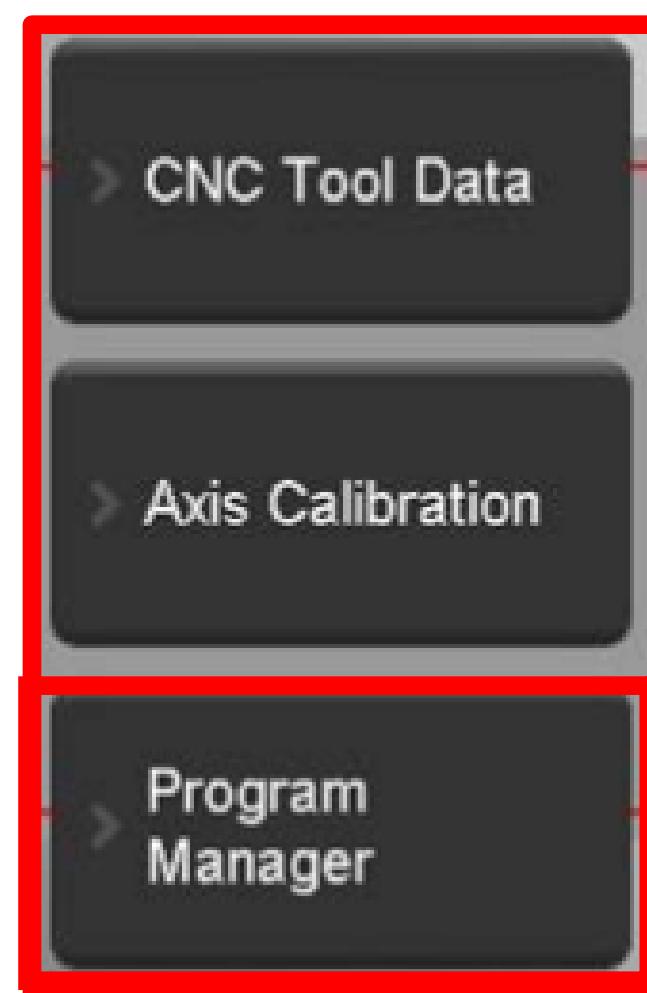
Program Manager-

“Program Preview Screen”: This screen will pre-run the selected “G-Code” and give a X and Y Graphical Representation of the Program as shown below.





Program Manager-



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



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

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

"USB Tab" – This displays the
programs from a USB stick when
inserted into the control
cabinet.

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



Program Manager-

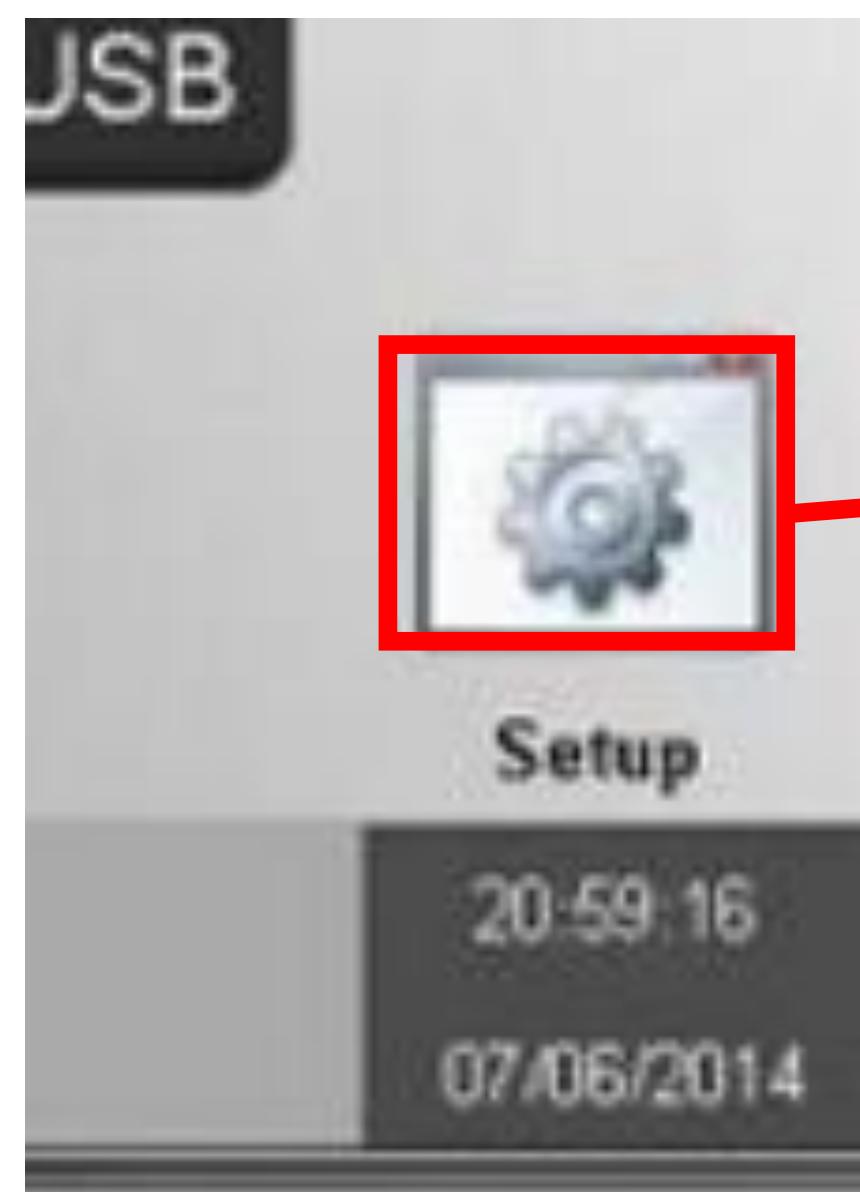
The screenshot shows the Laguna Tools Program Manager software interface. At the top, there are three tabs: MAIN, JOG, and SETUP. The main area is titled "LAGUNA TOOLS" with the tagline "THRIVING ON INNOVATION". On the left, there's a sidebar with a "USB" tab highlighted in red, and a "Programs" tab. The main workspace displays a file list with one item: "center811.prg". Above the file list are buttons for "Refresh" and "MultiSelect". Below the file list are buttons for "Rename", "Create Dir.", "Copy", "Cut", "Paste", and "Delete". A "STOP" button is at the bottom center. On the right side, there are vertical scroll bars and some status information: "File(s) 1 / Folder(s)" and "09:36:05 09/01/2016".

- b.) Use the **"USB Tab"** to select from a flash drive.
- c.) Highlight a program and press the **"Copy Button"**. Then open the Programs tab and select an empty field.
- "Refresh Button"** = This button 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.
- d.) Press the **"Paste Button"** to insert the **"G-Code"** into the program folder for active selection.

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 exactly what they say.



Set-Up / Networking Screen-



This setup button opens the Network settings

screen.

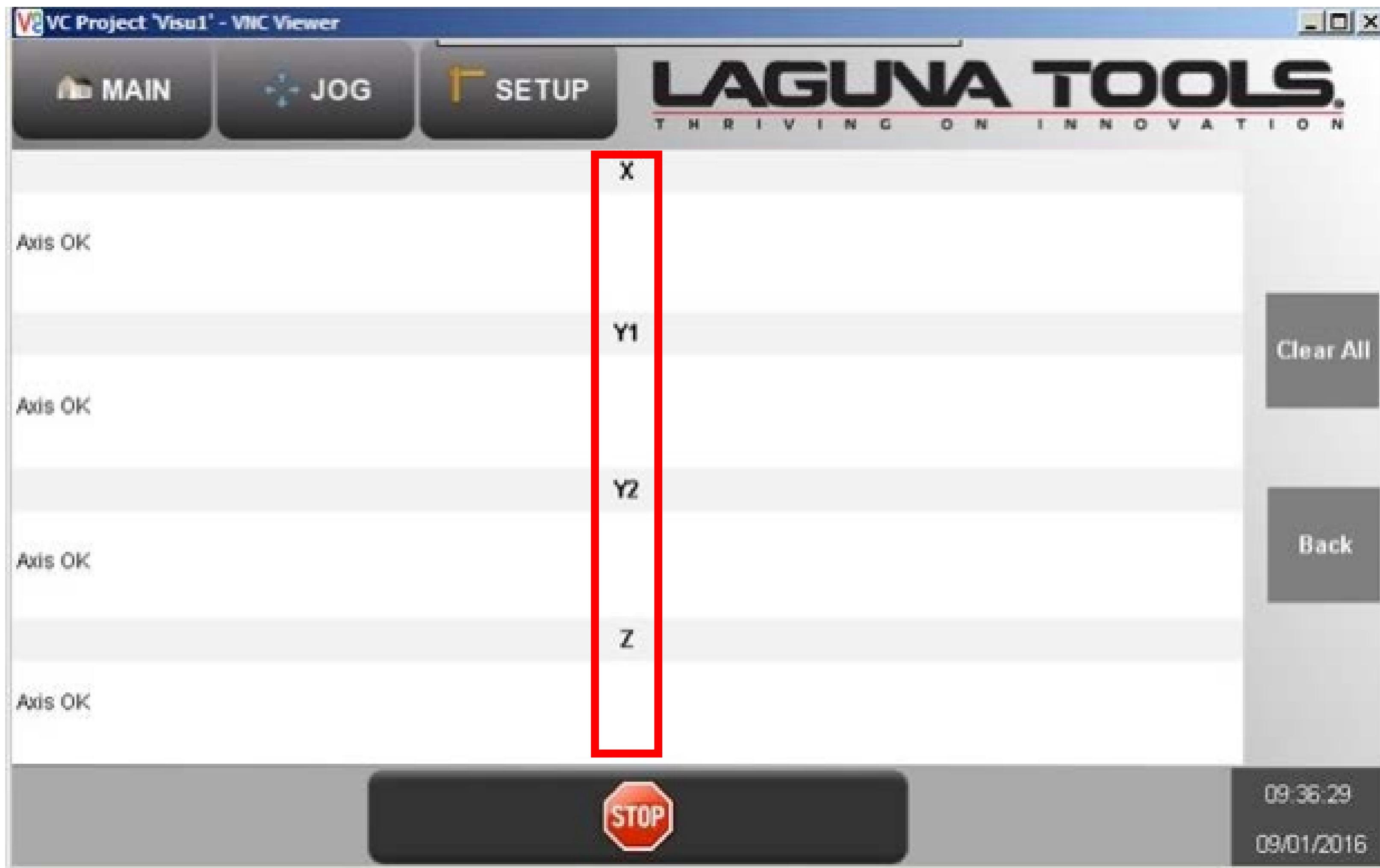


The information contained in this screen is used for networking directly to the controller. This is needed for file transfers and remote diagnostic functions Via a P.C. Network.

See Chapter on making a **“Network Connection”**.



Alarm Screens-

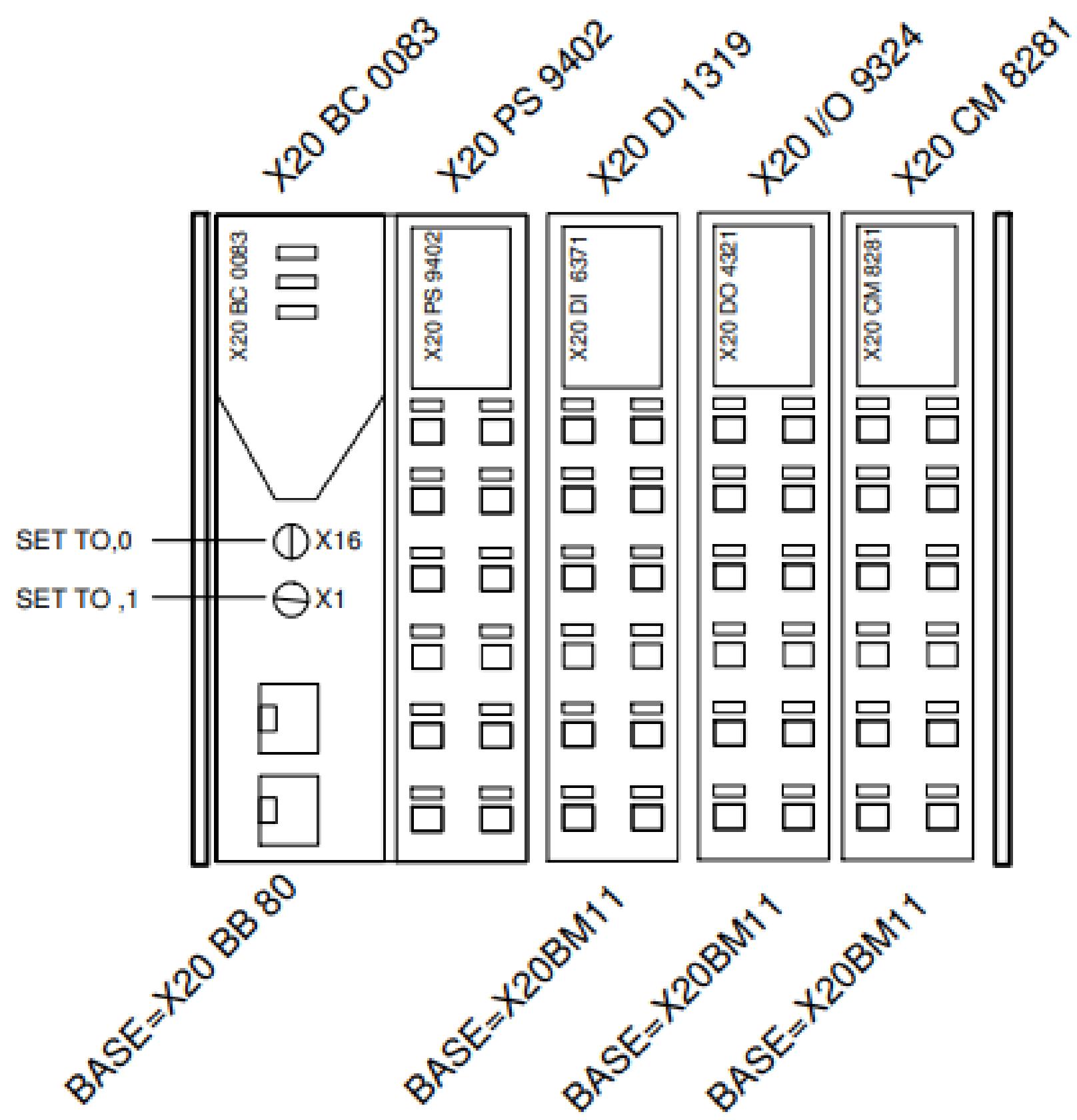


The **“Alarms”** displayed on this screen are Axis Specific.



Schematics-

SUV P3 SERVO BUILD, AS BUILT,12-13-2018_REV,4A

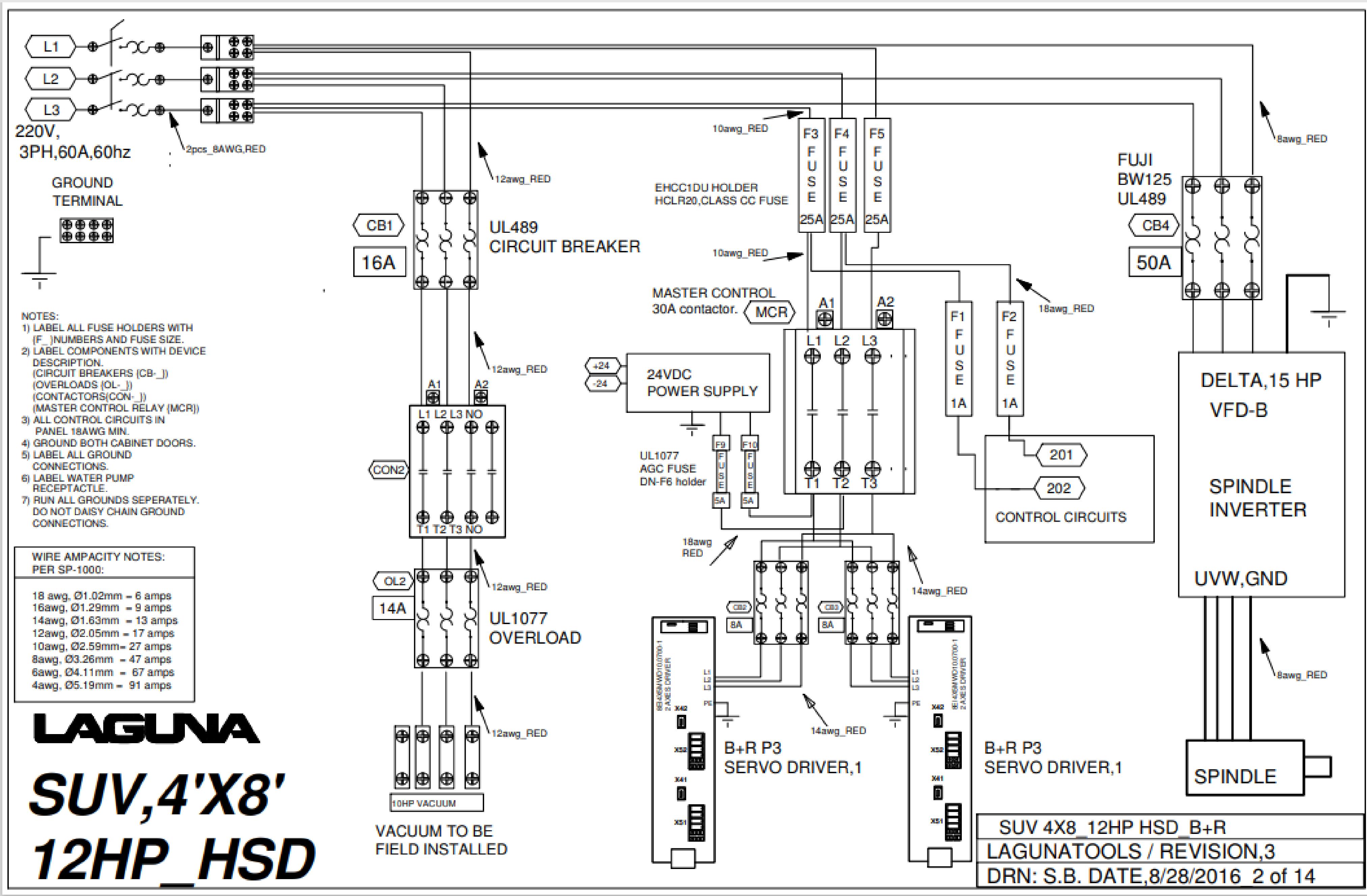


PAGE,1- COVER/PLC RACK CONFIGURATION
PAGE,2-4X8 POWER CONFIGURATION
PAGE,3-5X10 POWER CONFIGURATION
PAGE,4-PANEL LAYOUT
PAGE,5-COMMUNICATION REFERENCE
PAGE,6-E-STOP CIRCUIT
PAGE,7-SERVO DRIVER,1
PAGE,8-SERVO DRIVER,2
PAGE,9-RACK POWER SUPPLY WIRING
PAGE,10-DS1319 CARD WIRING
PAGE,11-IO9324 CARD WIRING - HOME SWITCHES
PAGE,12-CM8281 CARD WIRING
PAGE,13-VFD SETTINGS
PAGE,14- ALARM CONNECTION DETAIL

B+R SUV SERVO
PLC RACK ASSEMBLY
LAGUNATOOLS / REVISION,5
DRN: K.E. DATE,12/13/2018 1of14

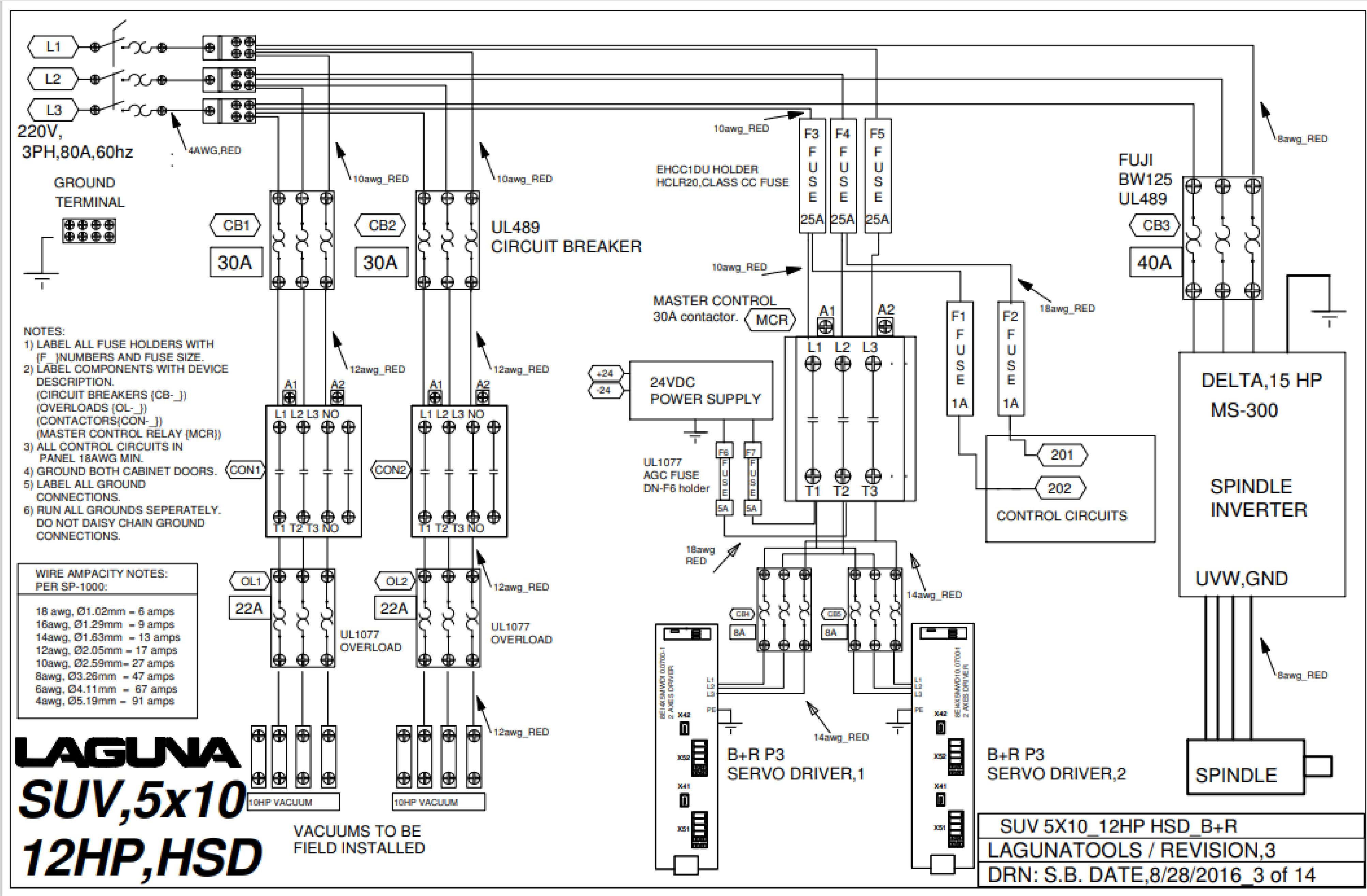


Schematics-



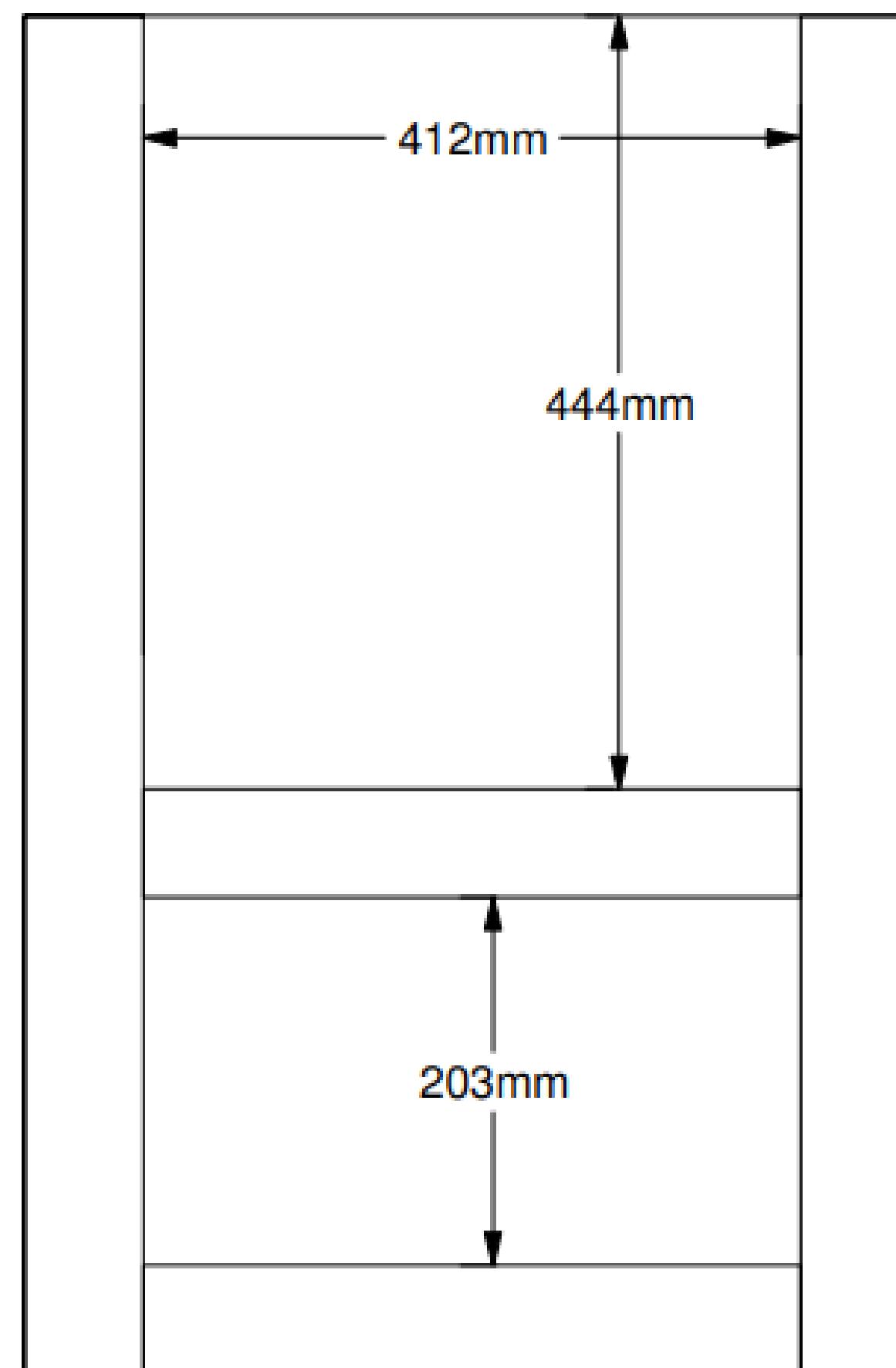


Schematics-





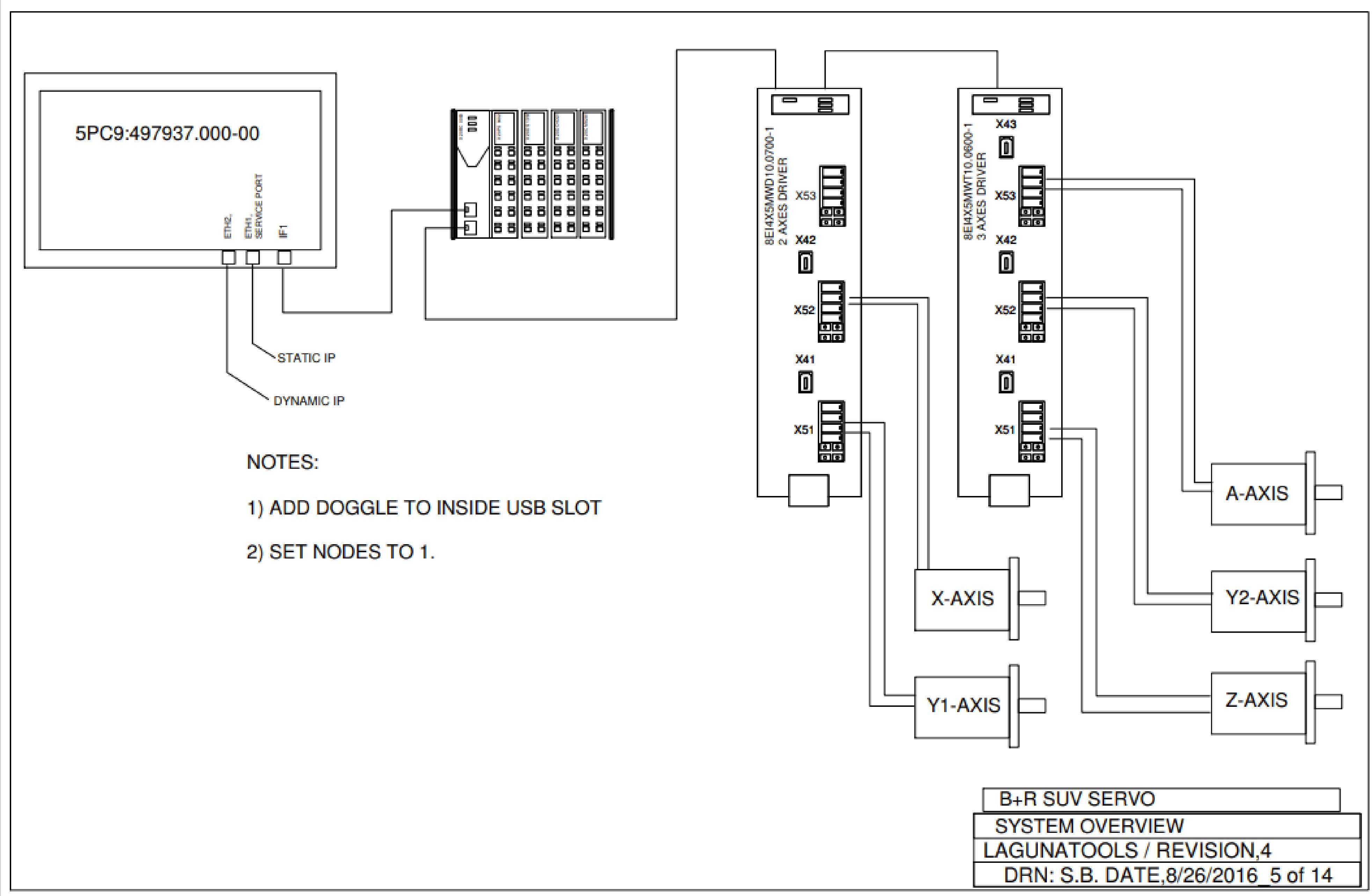
Schematics-



SUV SERVO SIDE OF PANEL
LAGUNATOOLS / REVISION,3
DRN: S.B. DATE,8/12/2016_4 of 14



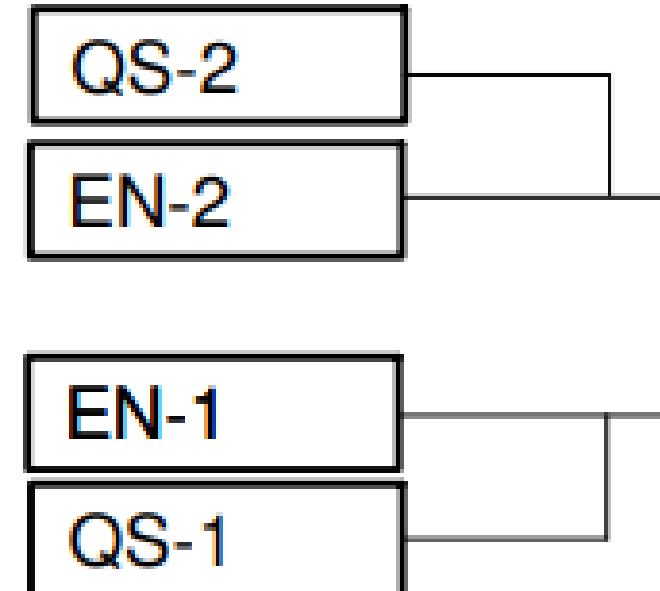
Schematics-



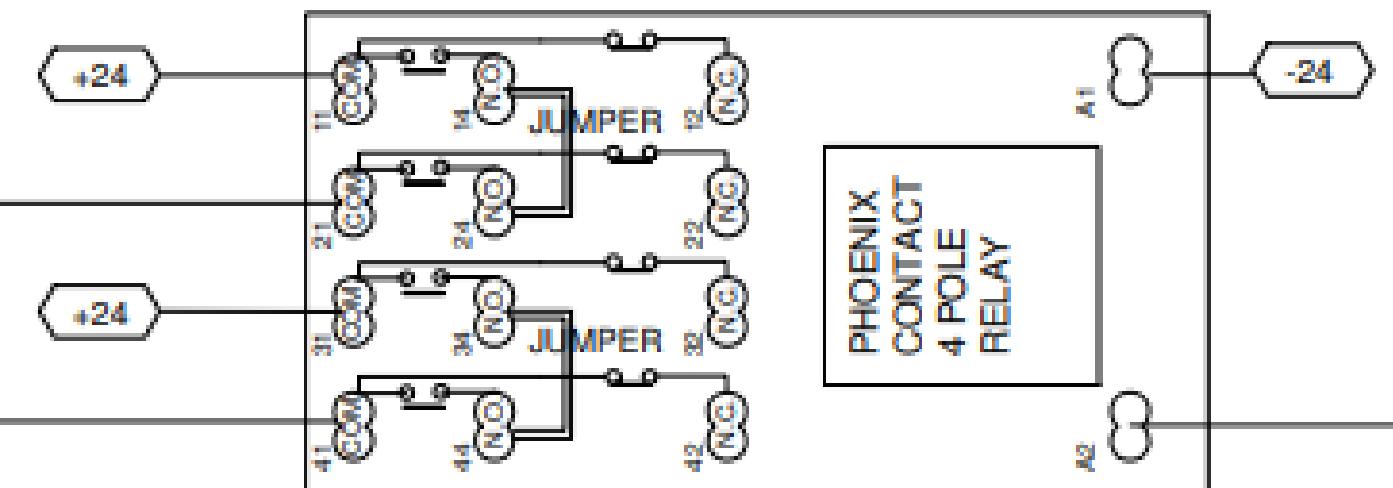


Schematics-

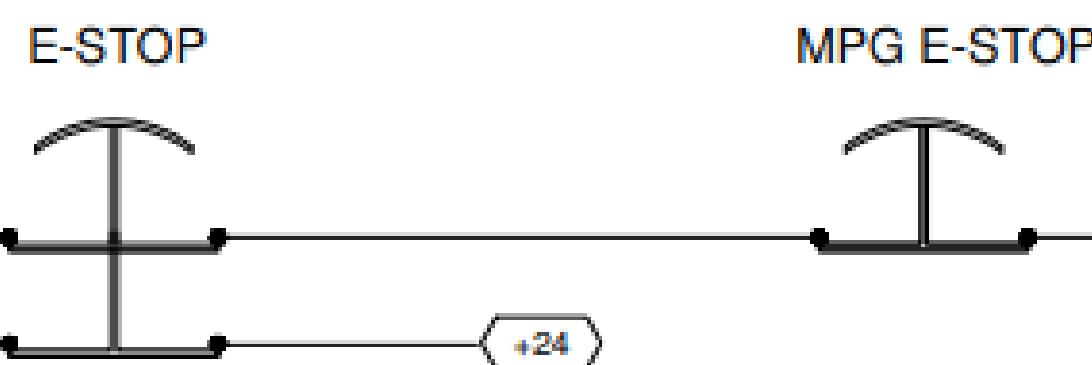
SERVO AMP #2
PAGE 8



E-STOP RELAY



SERVO AMP #1
PAGE 7

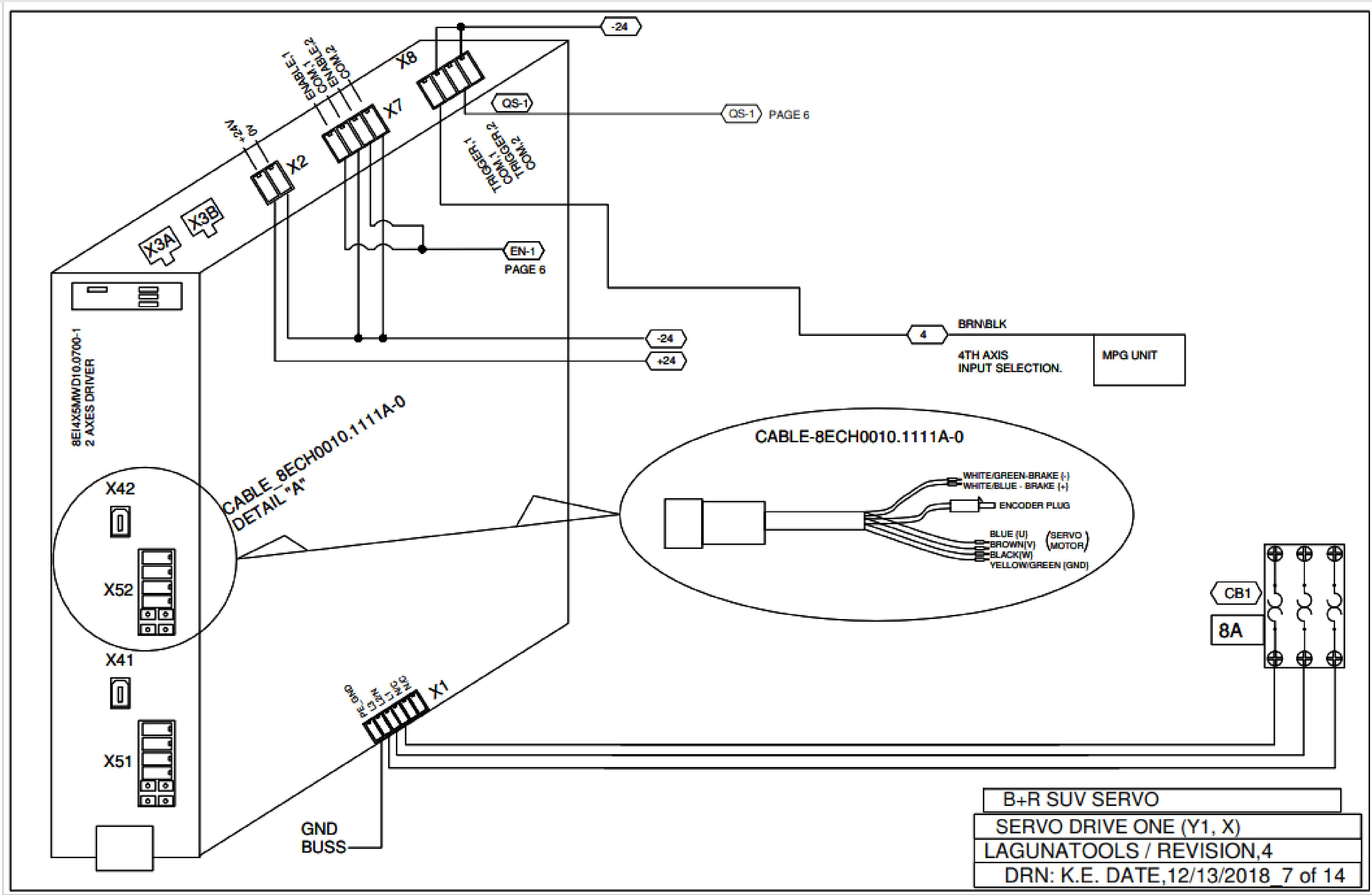


WHEN +24 VOLTS IS REMOVED FROM EN-# AND QS-#
THE SERVO AMPS QUICKLY STOP THE MOTORS
THEN DISABLE HOLDING CURRENT.

B+R SUV SERVO
E-STOP CIRCUIT
LAGUNATOOLS / REVISION,4
DRN: K.E. DATE,12/13/2018 6 of 14

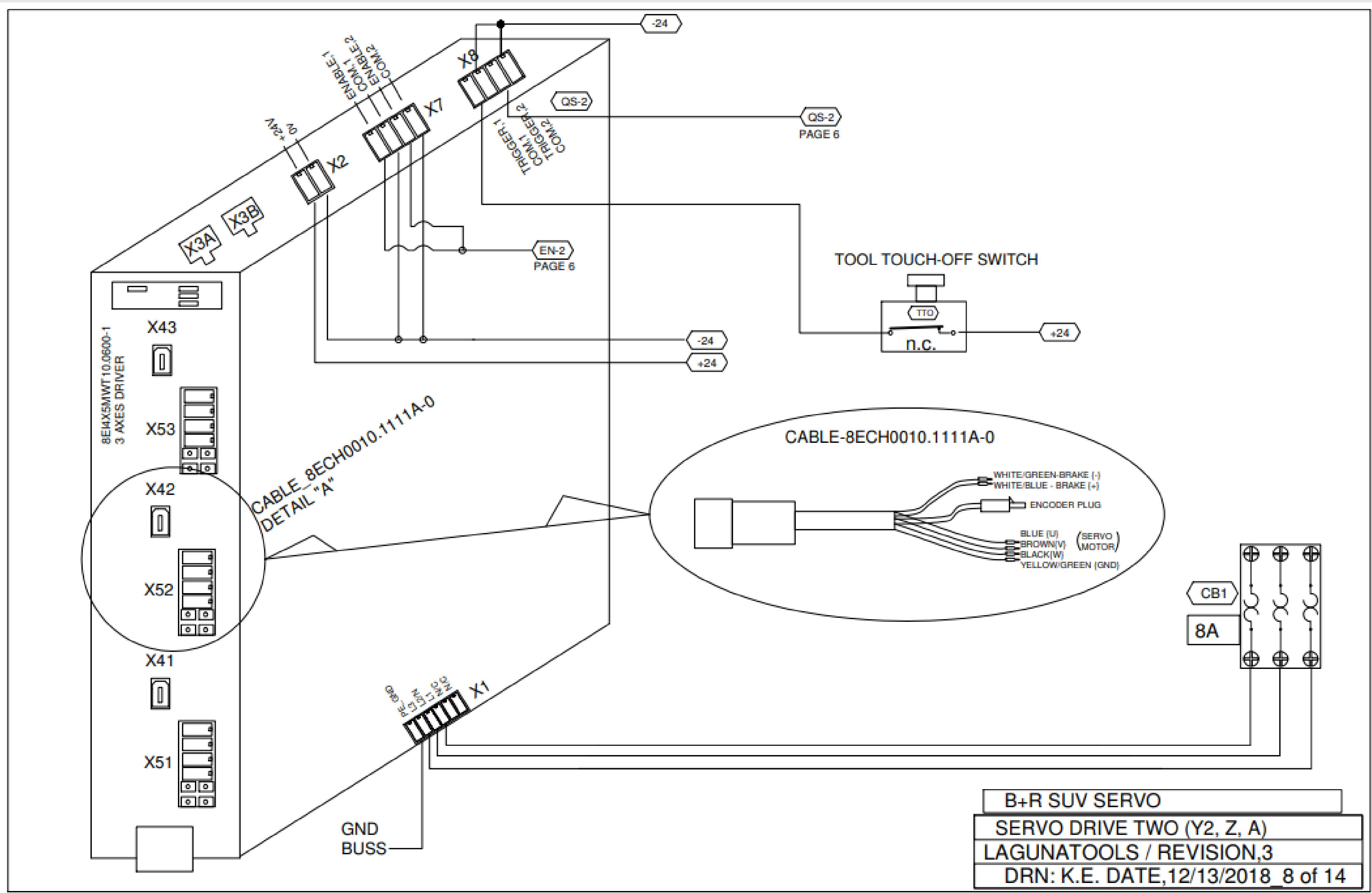


Schematics-



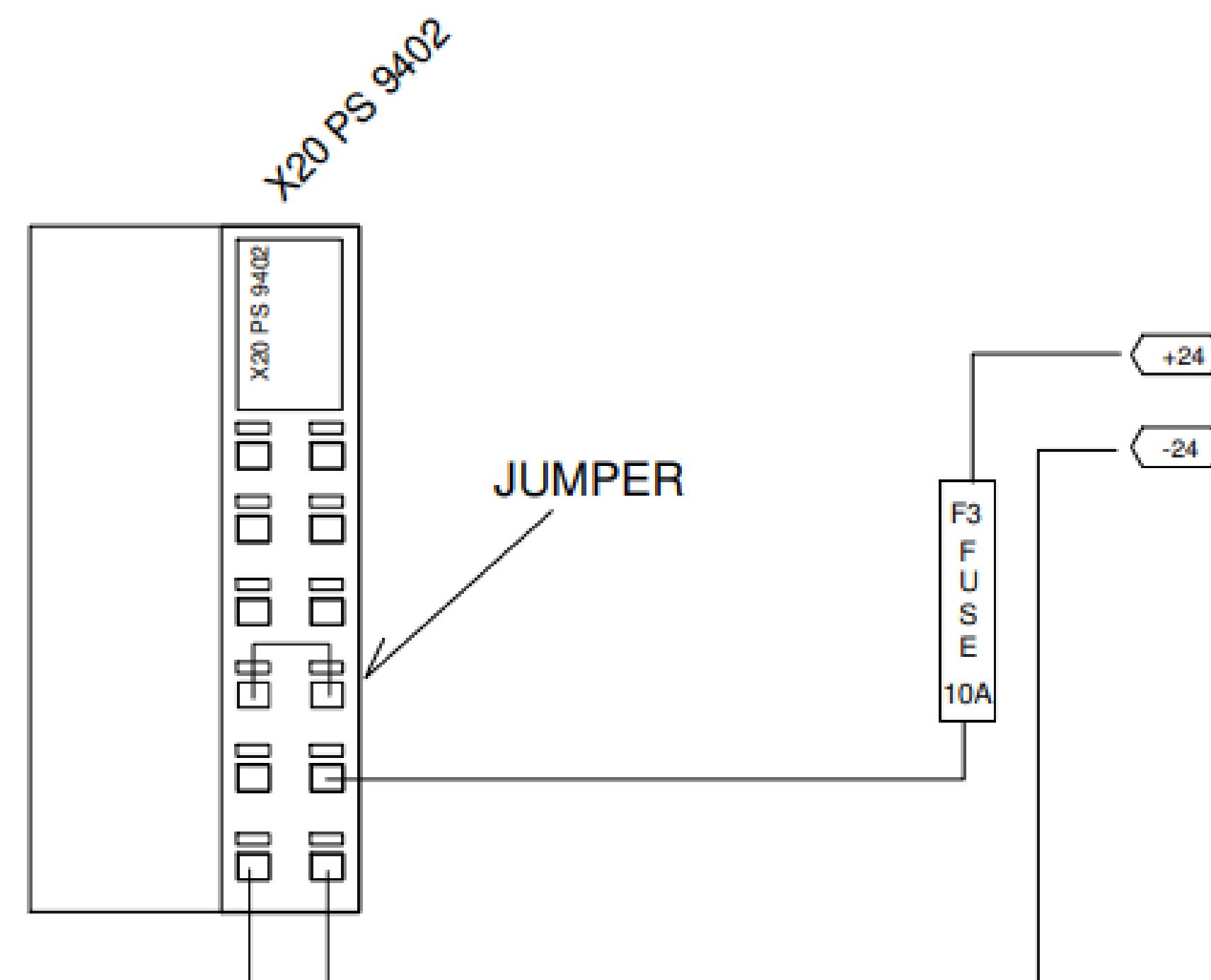


Schematics-





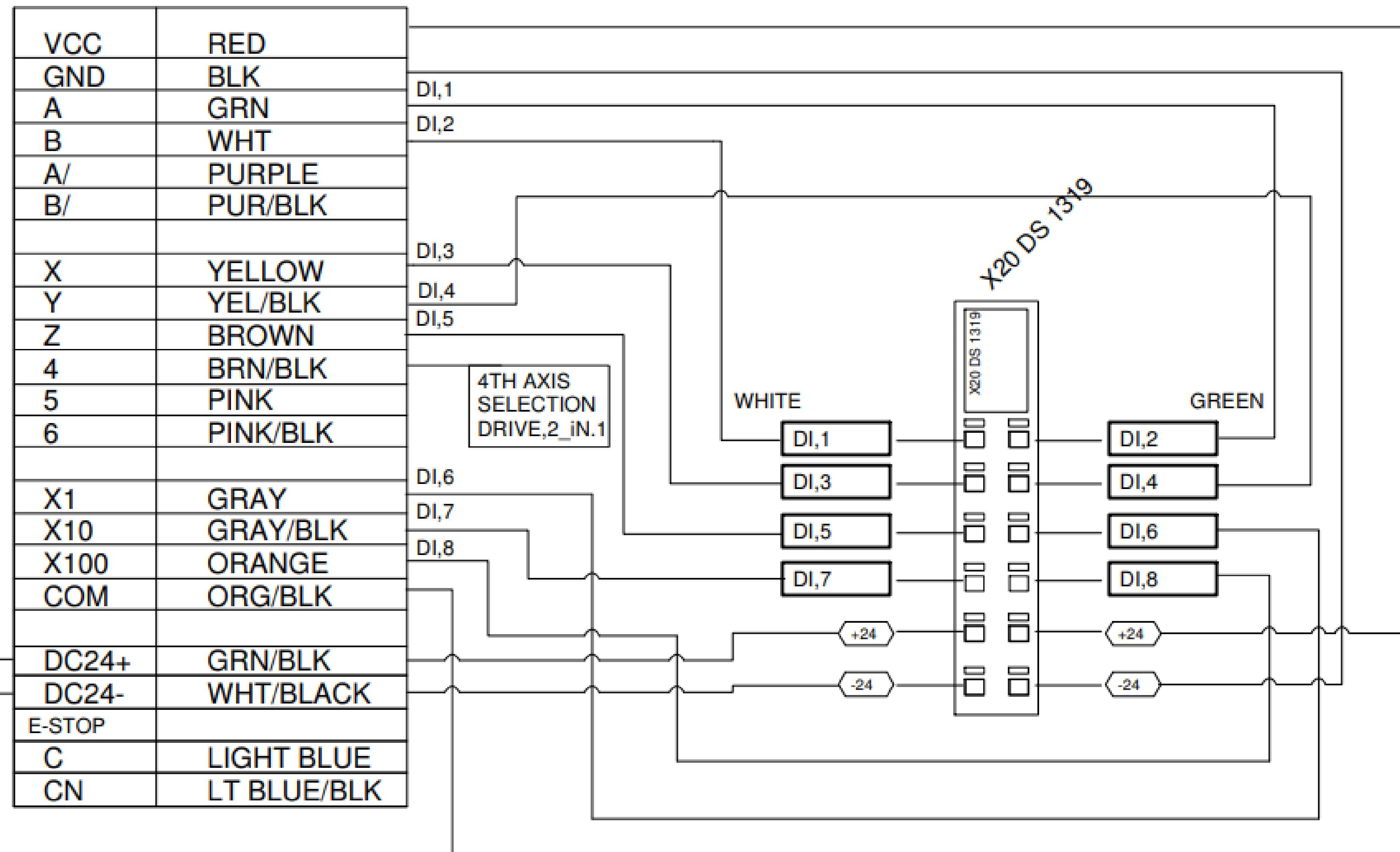
Schematics-



B+R SUV SERVO
P.S. WIRING
LAGUNATOOLS / REVISION,3
DRN: S.B. DATE,8/26/2016_9 of 14



Schematics-



B+R SUV SERVO

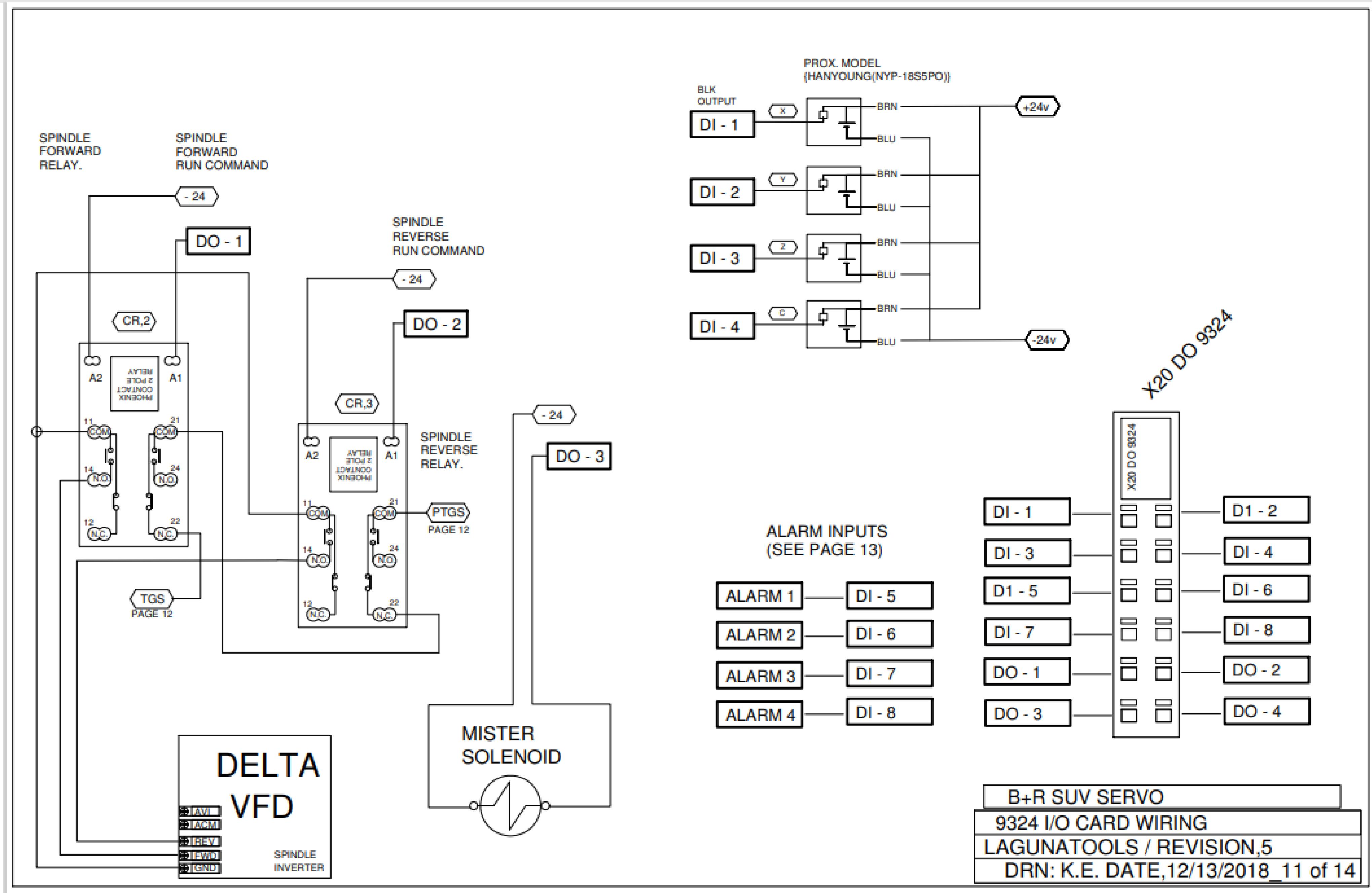
MPG WIRING

LAGUNATOOLS / REVISION,4

DRN: S.B. DATE,11/7/2016_10 of 14

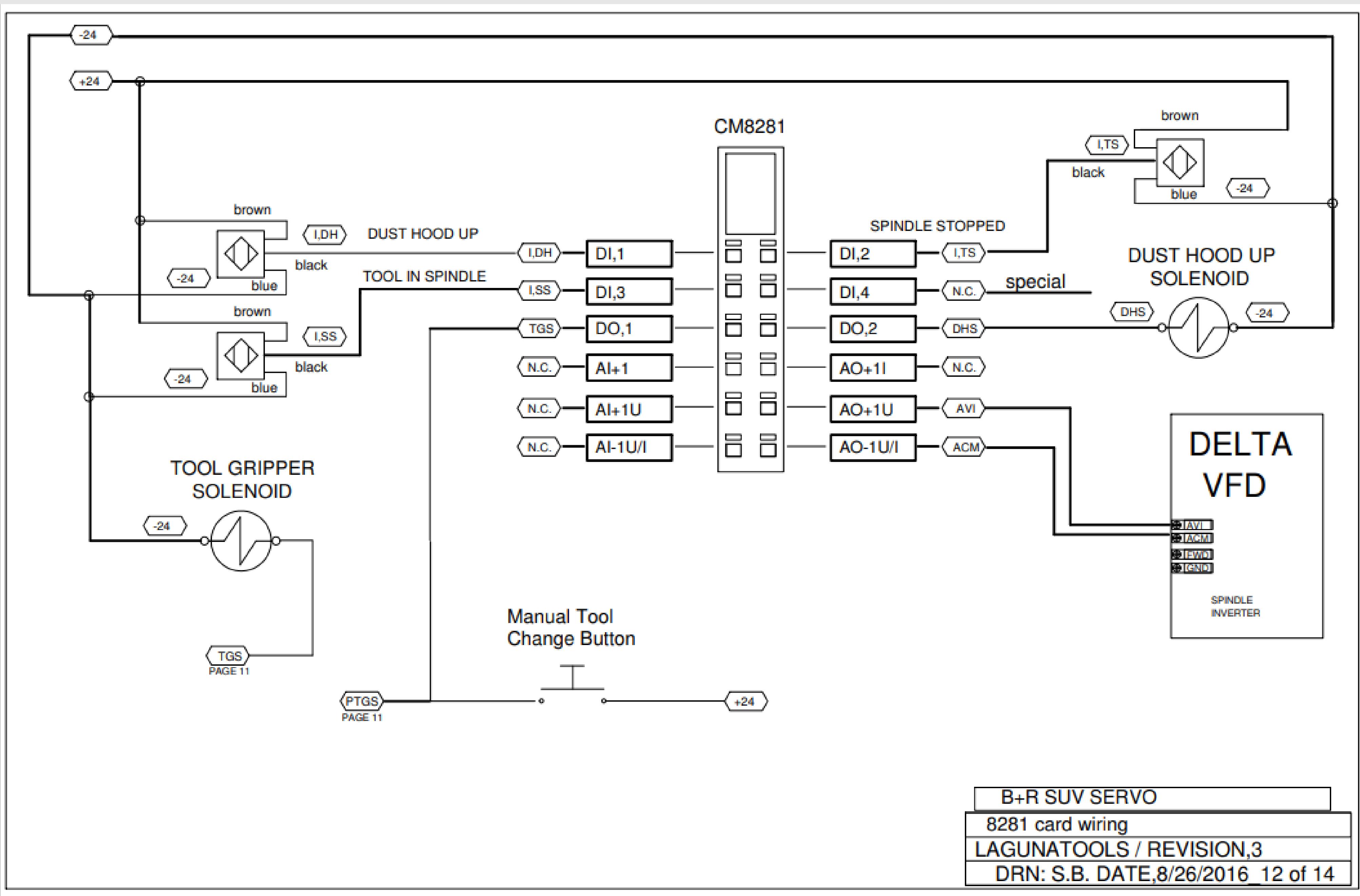


Schematics-





Schematics-



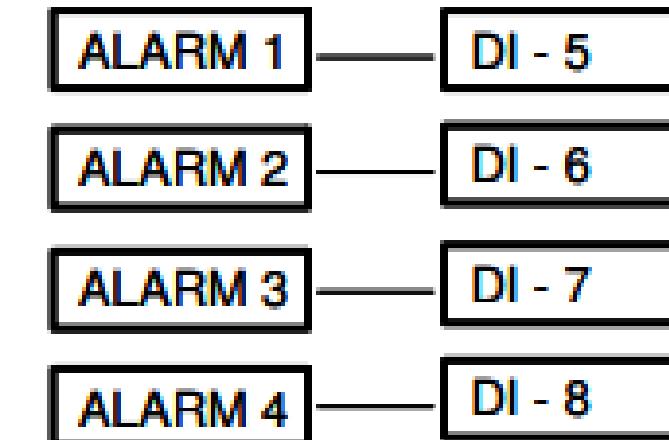


Schematics-

DELTA VFD-B
HSD VFD SETTINGS
24,000RPM

00-00 / 4772
00-07 / 33582
01-00 / 800
01-01 / 800
01-02 / 220
01-09 / 10
01-10 / 10
02-00 / 1
02-01 / 1
02-10 / 1
04-00 / 0
07-00 / 60
07-04 / 4 no. of poles
07-05 / 2
07-06 / 990
08-00 / 60
08-02 / 1
08-03 / 38.4
00-09 / 2

ALARM DESCRIPTION



NOTE:

ALL ALARMS ARE ACTIVE LOW.

UNUSED ALARM INPUTS MUST BE WIRED TO +24VDC.

ALARM 1 - 2 - 3 PRODUCE FEED-HOLD CONDITION.

WHEN ALARM IS CLEARED - MACHINE CAN RESUME OPERATION.

ALARM 4 WILL INHIBIT TOOL CHANGE OPERATION (USE FOR LOW PSI CONDITION).

WHEN ALARM IS CLEARED, TOOL CHANGE OPERATION CAN OCCUR.

INPUT MODULE SHOWN ON PAGE 11.

DELTA VFD-B

220V,10HP VACUUM VFD

01-00 = 60
01-01 = 60
01-02 = 220
02-00 = 0
02-01 = 1MOVE

B+R SUV SERVO

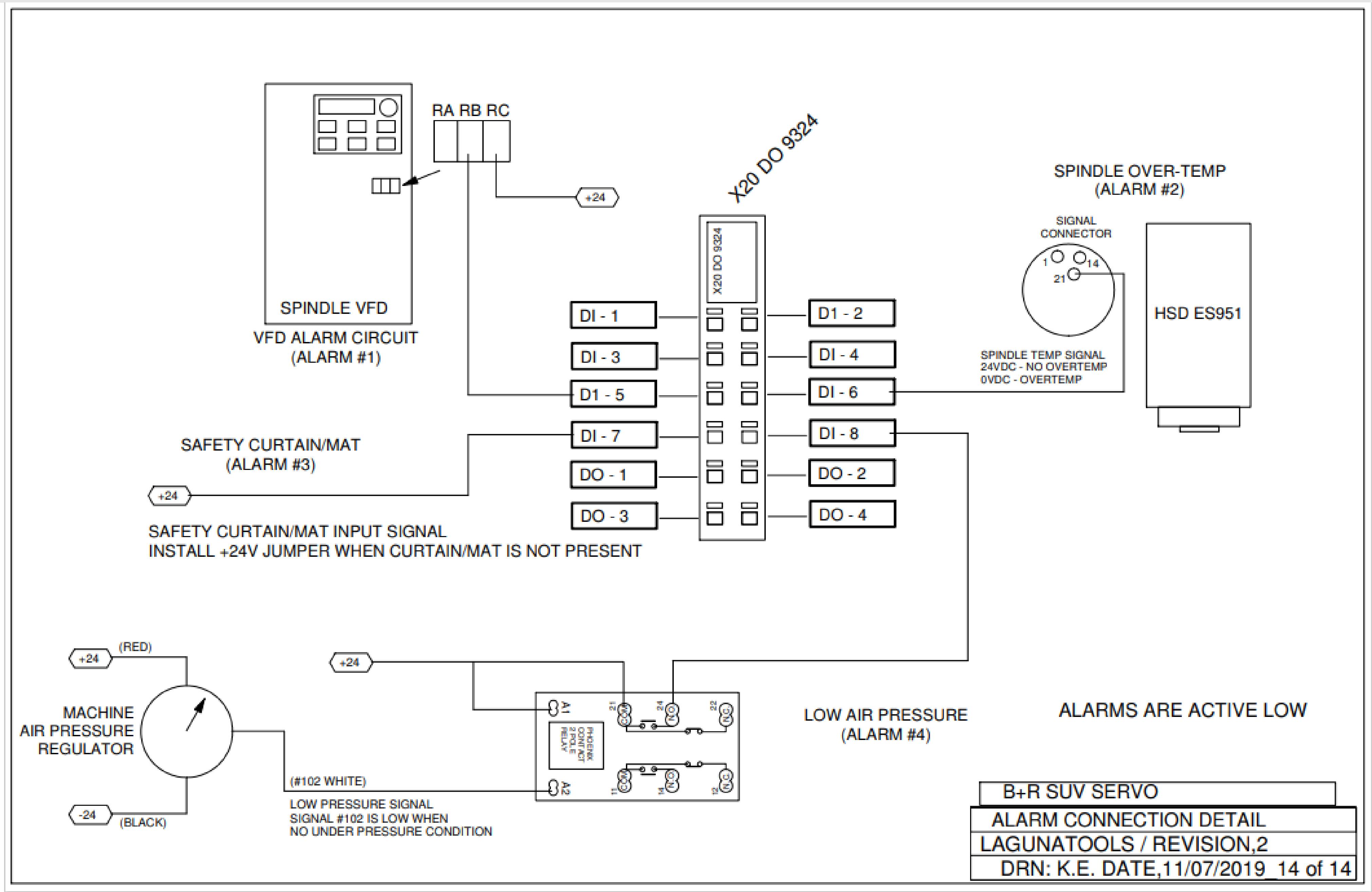
VFD SETTINGS - ALARMS

LAGUNATOOLS / REVISION,3

DRN: S.B. DATE,8/26/2016 13 of 14



Schematics-





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).

BILL OF LADING									
SHIP FROM					SHIP TO				
Name: Nathaniel Boomer Address: 4700 Burleson Rd Units L M City/State/Zip: AUSTIN,TX 78704 Ph: (512) 645-4170 Contact: Nathaniel Boomer					Carrier Name: Estes Express SCAC: EXLA Pro number:				
FOB: <input type="checkbox"/>									
Name: Laguna Tools TX Address: 744 Refuge Way Suite 200 City/State/Zip: GRAND PRAIRIE,TX 75050 Ph: 9494741200 Contact: Vince (ZM) RMACR11096					FOB: <input type="checkbox"/> Freight Charge Terms: (freight charges are prepaid by Worldwide Express unless indicated otherwise)				
FREIGHT CHARGES BILL TO					<input type="checkbox"/> Master Bill of Lading: with attached underlying Bill Of Lading				
Name: Worldwide Express Address: 2828 Routh Street Suite 400 City/State/Zip: Dallas, TX 75201					WWE Number: W709699351				
SPECIAL INSTRUCTIONS: For assistance, please call 833-8WE-SHIP Handling Instructions: RMACR11096 Pickup Instructions: Delivery Instructions: RMACR11096 Pickup Service(s): Liftgate Pickup, Residential Pickup									
REFERENCE NUMBER INFORMATION									
REFERENCE	# PKGS	REFERENCE	# PKGS	Total # of Pkgs					
CARRIER INFORMATION									
HANDLING UNITS	PIECES	WEIGHT	H.M.	LTL ONLY					
QTY	TYPE	QTY	TYPE	X	COMMODITY DESCRIPTION Commodities requiring special or additional care or attention in handling or slowing must be so marked and packaged to ensure safe transportation with ordinary care. See section 2(e) of NMFC item 360.	NMFC#	CLASS		
1	PLT				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)									
RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and Worldwide Express Operations, LLC, a registered motor carrier 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.									
Trailer Loaded: <input type="checkbox"/> Freight Counted: <input type="checkbox"/> <input type="checkbox"/> By Shipper <input type="checkbox"/> By Driver <input type="checkbox"/> By Driver/pallet said to contain <input type="checkbox"/> By Driver/Pieces (Signature) (Date)									
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)									



Parts & Service



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 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. 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. Copyright 2013 Laguna Tools, Inc. ****Warning – no portion of these materials may be reproduced without written approval from Laguna Tools, Inc.**



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.

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.

REGISTER HERE!



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 manner in which 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 any and all returned parts/components requesting warranty coverage.



Laguna Tools Packaging/Laguna Tools RMA Example-

RMA #

RTN. AUTH. #
CR10979

←

12/1/2020 Return Authorization - NetSuite (Laguna Tools, Inc)

Return Authorization

CR10979 Black Forest wood Co. PENDING RECEIPT

Actions

CUSTOMER
Black Forest wood Co.

DATE
11/5/2020

CURRENCY
Canadian Dollar

SUBSIDIARY
Laguna Tools, Inc

RTN. AUTH. #
CR10979

DEPARTMENT
Sales : Wholesale

PRODUCT LINE

LOCATION
Laguna Texas Demo / Returns

SALES REP
Benjamin Helshoj

PARTNER

LEAD SOURCE
Dealer_Canada Dealer-Canada

PO #
PO-981

MEMO

COMMENTS
Customer's bandsaw cast iron at the bottom is bent the customer can't insert bolts to stand. No shipping damage machine arrived in excellent condition do damage to packaging.
PO 981

RETURN REASON
Manufacturers Warranty Defect

SHIP IMMEDIATE
SPLIT SHIP

MEMO

REVISIED INVOICE

ORDER HOLD REASON

SHIPPING COMMENTS

Items **Promotions** **Address** **Messages** **History** **Workflow** **Custom** **Partners** **Sales Team** **Additional Information** **DzLINK** **Pacejet** **SPS**

EXCHANGE RATE
0.76094

DISCOUNT

RATE

ITEM	RETURNED	REFUNDED	QUANTITY	UNITS	INVENTORY	PRICE	PRICE LEVEL	UNIT PRICE	AMOUNT	TAX CODE	TAX RATE	PST	GIFT OPTIONS	CERTIFICATE	CLOSED	SHIPMENT	CO! ES!	TY!
Machine :	0	0	1	Each	14-12 110	Retail	1,686.59445773	1,686.59	CA-	5.0%	0.0%					Item		
Bandsaw :					VOLT	Price				GST						De		
MBAND1412-					BANDSAW					only						Co		
175 14 12																		
Bandsaw																		
110V 1.75HP																		

Actions

Edit **Back** **Receive** **Close**



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: <input type="checkbox"/>	Bill of Lading Number : <u>145787446</u>	Carrier Name: Estes Express	SCAC: EXLA Pro number:
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: <input type="checkbox"/>	Freight Charge Terms: (freight charges are prepaid by Worldwide Express unless indicated otherwise) <input type="checkbox"/> Master Bill of Lading: with attached underlying Bill Of Lading WWE Number: W709699351		
FREIGHT CHARGES BILL TO				
Name: Worldwide Express Address: 2828 Routh Street Suite 400 City/State/Zip: Dallas, TX 75201	FOB: <input type="checkbox"/>			
SPECIAL INSTRUCTIONS: For assistance, please call 833-8WE-SHIP Handling Instructions: RMACR11096 Pickup Instructions: Delivery Instructions: RMACR11096 Pickup Service(s): Liftgate Pickup, Residential Pickup				
REFERENCE NUMBER INFORMATION				
REFERENCE	# PKGS	REFERENCE	# PKGS	Total # of Pkgs
CARRIER INFORMATION				
HANDLING UNITS	PIECES	WEIGHT	H.M.	COMMODITY DESCRIPTION Commodities requiring special or additional care or attention in handling or slowing must be so marked and packaged to ensure safe transportation with ordinary care. See section 2(e) of NMFC Item 360
QTY	TYPE	QTY	TYPE	LTL ONLY NMFC# CLASS
1	PLT		385	machine, 48(L) x 48(W) x (H) DO NOT STACK
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			COD Amount: \$ <input type="text"/> Fee Terms: 3rd Party WWE Remit Address: <input type="text"/>	
Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. B14706(c)(1)(A) and (B)			Acceptable Forms of Payment: Bank Certified Check <input type="checkbox"/> Customer Check <input type="checkbox"/> Personal Check <input type="checkbox"/> Money Order <input type="checkbox"/>	
RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and Worldwide Express Operations, LLC, a registered motor carrier broker, pursuant to 49 USC 14101(b) and all applicable state and federal regulations.			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.	
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.		Trailer Loaded:	Freight Counted:	<input type="checkbox"/> By Shipper <input type="checkbox"/> By Driver <input type="checkbox"/> By Shipper <input type="checkbox"/> By Driver/pallet said to contain <input type="checkbox"/> By Driver/Pieces (Signature) <input type="text"/> (Date) <input type="text"/>

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