



VIPER MAXX PRETREATMENT MACHINE

ADVANCED MENU USE & EXPLANATION

For HMI5001 PLC3020

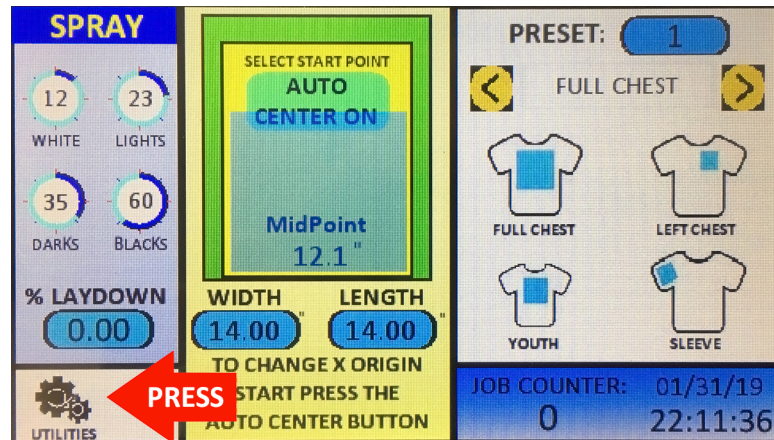
The Viper MAXX has an ADVANCED Menu that allows for complete control over almost every aspect of the machines functions and motion control systems. To access this menu and explain each function on each screen we have created this guide to make it easier for you to navigate.

Please note that changing the default values in the Viper MAXX can cause the machine to not function properly. CHANGE AT YOUR OWN RISK. We have built in a RESTORE DEFAULT function in case you do experience difficulties.

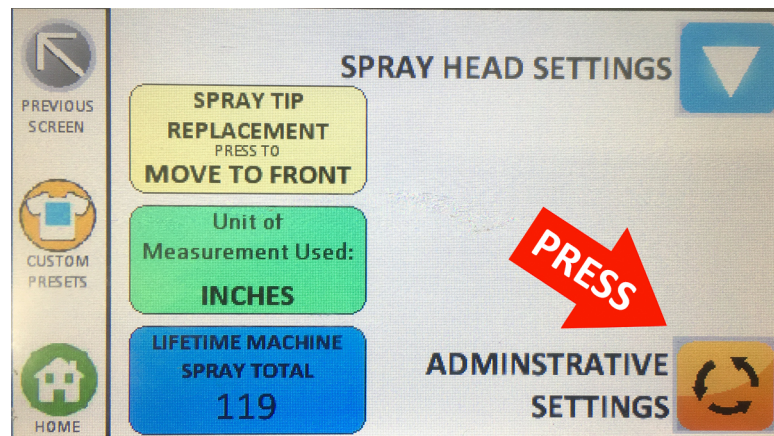
For more in-depth use please visit our TECH SUPPORT page on www.viperxpt.com to view our Video Series on how to use each section and the Viper MAXX.

TO ACCESS THE ADVANCED FEATURES AND FUNCTIONS

1. From the MAIN screen, press the UTILITIES icon.

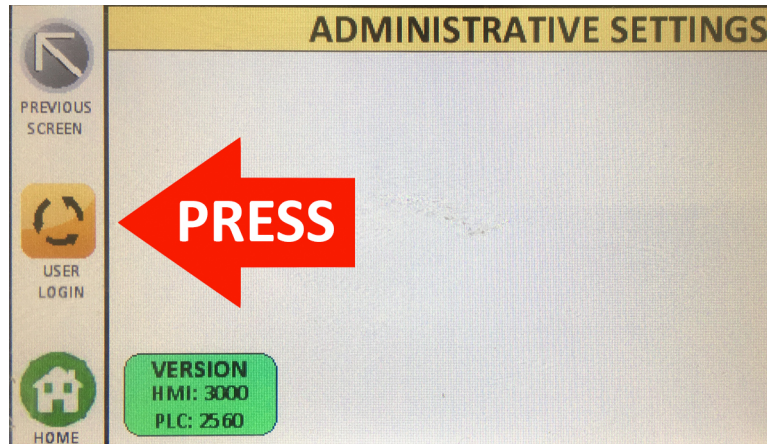


2. Press the ADMINISTRATIVE SETTINGS icon

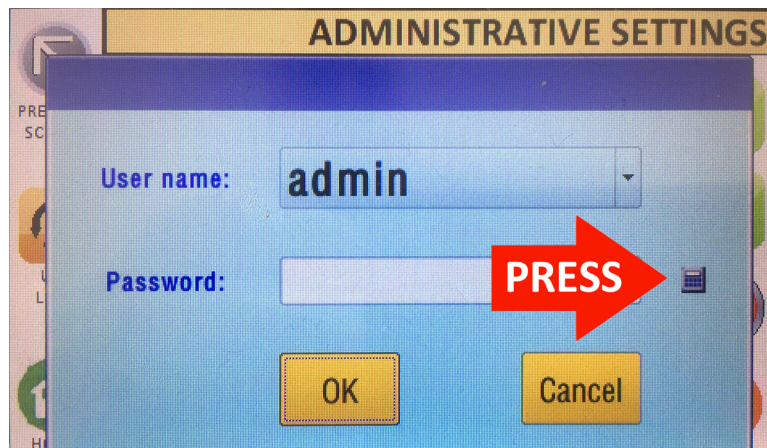


NOTE: On Versions HMI5001 PLC3020 or higher the upper left corner icon may be different and show a SPRAY TEST icon instead of the PREVIOUS SCREEN icon.

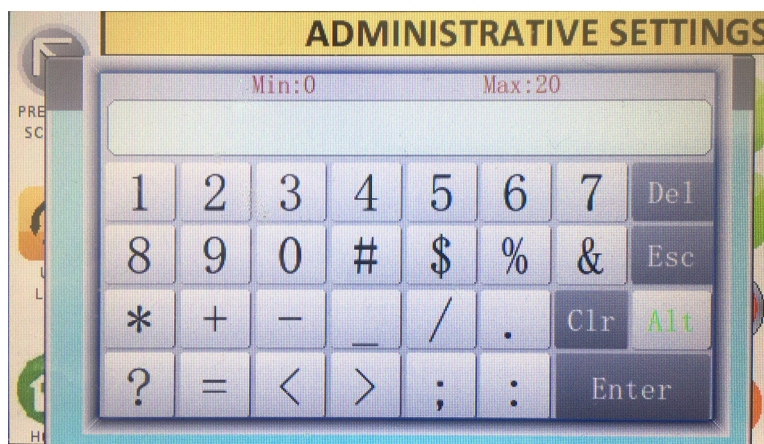
3. Press the USER LOGIN icon.



4. Select ADMIN for USER NAME. Press the Password Keypad Entry Icon to bring up the keypad entry screen.

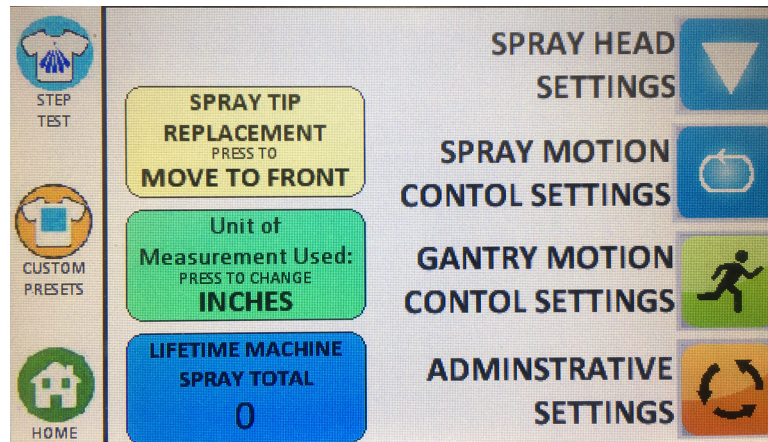


5. Once you have the keypad entry screen, make sure the 'admin' User Name is selected. Enter the password 'USS3509' (without the quote marks). The USS must be in capitals. Use the ALT key on the keypad to alternate between Uppercase/Lowercase/and Numbers screens. Press ENTER when completed.





UTILITIES ICON



NOTE: In versions prior to HMI5001 PLC3020 the upper left icon may show a PREVIOUS SCREEN icon and will not have the STEP TEST feature.

After pressing the UTILITIES icon on the main screen you will see the above options. These options allow for complete control over the VIPER MAXX.

- **SPRAY TIP REPLACEMENT Button:** Pressing this will move the entire gantry to the front of the Viper MAXX and allow for easy removal and replacement of the spray tip. See our online videos on how to do this at www.viperxpt.com in the SUPPORT section for the Viper MAXX.
- **UNITS OF MEASUREMENT USED:** This allows the Viper MAXX to show all units in either INCHES or CM. Simply pressing the button will alternate between the two options.

Please NOTE: If you change from one unit of measurement to the other, you MAY need to reset all the CUSTOM PRESETS for the defaults (i.e. FULL CHEST, LEFT CHEST, YOUTH, SLEEVE) to reset to the proper size and spray locations. By default from the factory the units for the appropriate country are set as are the default spray PRESETS.

- **LIFETIME MACHINE SPRAY TOTAL:** This shows the total number of completed sprays that the Viper MAXX has achieved. You can not reset or change this value. You may be asked this number if calling for technical support.



PRETREATMENT SPRAY STEP TEST

The Above Settings are the defaults for the Versions HMI 5001 and PLC 3020. This feature is NOT available on prior versions of HMI5001 PLC3020. However, the same feature can be accomplished using a bar code scanner and the PDF presets found at <http://www.viperxpt.com/wp-content/uploads/2019/11/Viper-MAXX-Bar-Code-STEP-TEST-for-Proper-Pretreatment-Application-10-35g.pdf>

This control screen allows the user to create a variable zone STEP Spray Test for finding the correct amount of pretreatment to be used for the shirt currently being sprayed.

- This will spray 6 separate columns of pretreatment on the shirt
- Each column can be set to spray a specific amount of pretreatment.
- The SPRAY LENGTH can be set to any length

Typically this is used with STEP 1 being the least amount of pretreatment applied to the shirt, and then each subsequent STEPS 2-6 increase the amount of pretreatment applied to the shirt. By default the amounts seen above correlate approximately to 10-11 and then increase approximately 5 grams per STEP.

SAMPLE SETTINGS FOR 11-35 gram STEP Spray Test in 5 gram Increments

- STEP 1 = Approximately 11 grams (0 Setting)
- STEP 2 = Approximately 15 grams (33 Setting)
- STEP 3 = Approximately 20 grams (52 Setting)
- STEP 4 = Approximately 25 grams (68 Setting)
- STEP 5 = Approximately 30 grams (78 Setting)
- STEP 6 = Approximately 35 grams (84 Setting)

HOW THE SPRAY STEP TEST IS USED:

The user uses this STEP Spray Test to spray a shirt with preset values, cures the pretreatment, and then prints a white BOX across STEPS 1-6. The OPTIMAL amount of pretreatment to be applied to the shirt is the point where the white

ink DOES NOT get any more opaque than the previous STEP. i.e. if STEP 4 and STEP 5 look optically the same (same amount of white opacity and ink coverage) then STEP 4 would be the optimal point – or a value between STEP 4 and STEP 5 (in this case a setting between 68% and 78% in the picture above).

As can be seen below, the optimal amount of pretreatment to be applied for this particular shirt is STEP 5 (roughly a setting of 78% Value for SPRAY LAYDOWN VALUE)



ADJUSTING THE VALUES OF EACH SPRAY STEP

The User can change each value for STEP 1-6 by pressing the Value and then entering the amount desired for that STEP via the touchscreen input. By default the values are approximately a STEP increase of 5 grams+. If desired the user could set the values to target a smaller “window” of pretreatment range such as 11-21 grams in 2 gram increments, as example, below:

SAMPLE SETTINGS FOR 11-21 gram STEP Spray Test in 2 gram Increments

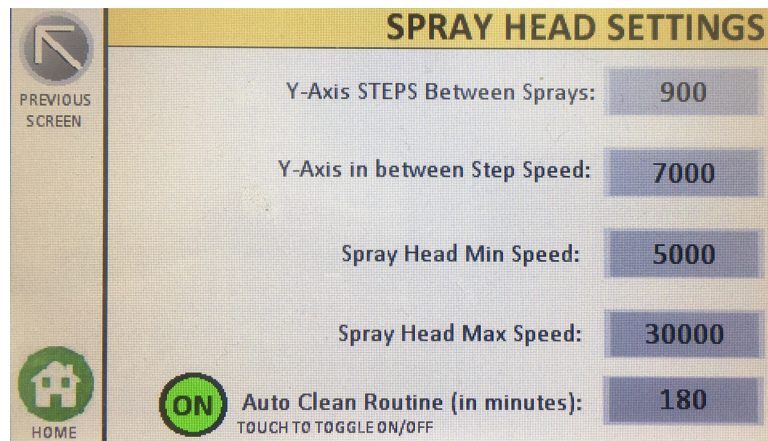
- STEP 1 = Approximately 11 grams (0 Setting)
- STEP 2 = Approximately 13 grams (20 Setting)
- STEP 3 = Approximately 15 grams (33 Setting)
- STEP 4 = Approximately 17 grams (42 Setting)
- STEP 5 = Approximately 19 grams (50 Setting)
- STEP 6 = Approximately 21 grams (58 Setting)

This “tighter” range will allow for finding a more specific value for the optimal pretreatment needed for that particular shirt.

NOTE: The SPRAY STEP TEST will leave a small gap between each “column” or STEP. This allows you to more easily discern white step it is. When spraying the STEP TEST and the shirt is laying ON the platen, STEP 1 is on the right side of the platen and then each subsequent STEP is moved to the left. However, when you pull the shirt off the platen and look at the shirt as you would WEAR the shirt the STEPS 1 – 6 are from the LEFT side of the shirt to the RIGHT.



SPRAY HEAD SETTINGS ICON/SCREEN



The Above Settings are the defaults for the Versions HMI 3000 and PLC 2560

This control screen allows complete control over the spray head motion, steps, and the Auto Clean Routine.

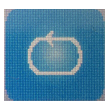
- **Y-AXIS STEPS BETWEEN SPRAY:** This value adjusts how far the gantry moves towards the back of the unit after completing one spray (either to the left or to the right).
 - REMEMBER: one inch is equal to 618.340027 steps. A lower number will cause a smaller movement to the back of the machine and result in more overlap of the spray. Lower this number if there are lighter “bands” in the overlapping spray patterns.
- **Y-AXIS IN BETWEEN STEP SPEED:** This setting controls how fast the gantry moves back one “step” before starting the next spray head movement cycle. The higher the number the faster the motion. The lower the number the slower it will move.
- **SPRAY HEAD MIN SPEED:** This setting sets the slowest speed that the spray head will move when the % LAYDOWN value is set to 100. The lower the number the more pretreatment will be applied to the garment. The higher the number the less pretreatment will be applied to the garment at the MAX % LAYDOWN value.
- **SPRAY HEAD MAX SPEED:** The setting allows full control of the maximum speed that the spray head can travel. Lower numbers result in a slower spray head maximum speed (resulting in MORE pretreatment being applied to the garment). A higher number will result in a higher spray head maximum speed (resulting in LESS pretreatment being applied to the

garment). **NOTE: VARYING THIS SETTING WILL ULTIMATELY RESULT IN POTENTIALLY LARGE VARIATIONS IN THE AMOUNT OF PRETREATMENT APPLIED TO THE GARMENT.**



Both the SPRAY HEAD MIN and MAX SPEED setting values generally should NOT be adjusted.

- **AUTO CLEAN ROUTINE (in minutes):** This setting can be either turned on or off by pressing the round button that shows “ON” or “OFF”. If set to “ON” and the MAXX sits idle for the set number of minutes for this parameter, the MAXX will briefly (250 milliseconds) turn on the spray head and pump and then off. It is designed to keep the spray nozzle “wet” and “open”. Typically if a spray head sits with pretreatment in/on the spray tip and is NOT used for an extended period of time the pretreatment can film over or even dry on the tip. This will cause issues with the spray tip and potentially uneven spray patterns. The AUTO CLEAN ROUTINE will help keep the spray tip “wet”. It can be set for 1 minute or as high as several hours (i.e. 3 hours = 180 minutes).

In dryer climates it is suggested to lower this to 20-30 minutes. This will help keep the machine performing much better by reducing issues with the spray tip.



SPRAY MOTION CONTROLS

SPRAY MOTION CONTROLS		
 PREVIOUS SCREEN  HOME	Y-Axis STEPS Between Sprays:	900
	SprayHead Ramp Up/Down Speed:	600
	Y-Axis in between Step Speed:	7000
	Y-Axis Ramp Up/Down Speed:	410
	Spray Head Max Speed:	30000
	Spray Offset in Steps:	MIN LAYDOWN -400
		MAX LAYDOWN -115

The Above Settings are the defaults for the Versions HMI 3000 and PLC 2560

The SPRAY MOTION CONTROLS screen gives complete control over the spray head movement. Changing these values will cause deviations from the FACTORY DEFAULTS settings and will change how much pretreatment is applied for a given setting. If any of these are changed you must re-test and weigh a shirt based for that particular FLUID LAY DOWN Value.

- **Y-AXIS STEPS BETWEEN SPRAY:** This value adjusts how far the gantry moves towards the back of the unit after completing one spray (either to the left or to the right).
 - REMEMBER: one inch is equal to 618.340027 steps. A lower number will cause a smaller movement to the back of the machine and result in more overlap of the spray. Lower this number if there are lighter “bands” in the overlapping spray patterns.
 - A higher “STEP” count result in a bigger movement and thus less overlapping of the spray patterns. Increase this value if there are heavy “bands” visible in the spray pattern.
- **SPRAYHEAD RAMP UP DOWN SPEED:** This value is the number of steps to achieve the maximum speed setting for the spray head. The higher the number the farther the spray head will travel to get to speed. This will reduce the maximum spray width available to the user. If the spray head rail system is dirty or has pretreatment on it – this can result in binding at lower ramp up/down speeds. Cleaning the rail system and oiling it will allow for the ramp up/down setting to be lower. A setting too low will cause binding no matter even if the rail is cleaned and oiled. Typical settings are between 300-600 steps.
- **Y-AXIS IN BETWEEN STEP SPEED:** This setting controls how fast the gantry moves back one “step” before starting the next spray head movement cycle. The higher the number the faster the motion. The lower the number the slower it will move.
- **Y-AXIS RAMP UP/DOWN SPEED:** This setting controls the number of steps required to get to the maximum STEP SPEED (above). A lower number will allow the STEP SPEED to be achieved faster (and typically with more a jerking motion). A higher number will take it longer to achieve maximum speed and will be slower and typically smoother. Due to the nature of the system there will be an optimal setting for the RAMP UP/DOWN SPEED that will allow for the smoothest motion of the gantry. There is a significant amount of weight to be moved. Moving too quickly will cause the gantry to be jerky. If you adjust the STEP SPEED you may need to adjust this setting to achieve the smoothest motion control possible.

- **SPRAY HEAD MAX SPEED:** The setting allows full control of the maximum speed that the spray head can travel. Lower numbers result in a slower spray head maximum speed (resulting in MORE pretreatment being applied to the garment). A higher number will result in a higher spray head maximum speed (resulting in LESS pretreatment being applied to the garment). **NOTE: VARYING THIS SETTING WILL ULTIMATELY RESULT IN POTENTIALLY LARGE VARIATIONS IN THE AMOUNT OF PRETREATMENT APPLIED TO THE GARMENT.**

This value generally should NOT be adjusted.

- **SPRAY OFFSET IN STEPS (explained):** The speed at which the spray head moves will affect the “registration” of the spray start and stop points. The spray head moves from right to left and then left to right. During the LEFT TO RIGHT motion these settings allow the user to align the starting point of the spray pattern so that both motions (left and right spraying) align properly at the slowest and fastest spray head motion settings).
 - **MIN LAYDOWN:** These values can range from a negative number to a positive number. The MIN value is used when the spray head is running as fast as possible (a % LAYDOWN value of 0). A negative number) i.e. -440, will move the spray pattern to the left 440 steps. 0 is the “neutral” point. Any positive number will move the spray start point to the right.
 - **MAX LAYDOWN:** These values can range from a negative number to a positive number. The MAX value is used when the spray head is running as SLOW as possible and applying as much pretreatment as the machine will allow (a % LAYDOWN value of 100). A negative number) i.e. -440, will move the spray pattern to the left 440 steps. 0 is the “neutral” point. Any positive number will move the spray start point to the right.
 - **NOTE: The default settings generally will give you good alignment so that each step starts and stops where the previous spray pattern started and stopped. It is recommended you do not change these values.**



GANTRY MOTION CONTROL SETTINGS

GANTRY MOTION SETTINGS		
GANTRY MOTION TO FRONT SETTINGS		
	X-AXIS	Y-AXIS
Move To Home Speed:	10000	6000
Axis Move To Front Speed:		8000
Move To Front Ramp Up/Down Speed:	750	1200
MAX Available Steps for this Model:	15000	15600
	INCH	CM
SET STEPS PER:	618.340027	243.440002

The Above Settings are the defaults for the Versions HMI 3000 and PLC 2560

This screen basically handles the motion of the gantry to the FRONT of the Viper MAXX. There are two motion directions – X and Y. X is the LEFT to RIGHT motion. The Y Axis is the FRONT to REAR motion.

For any SPEED setting the lower the number the slower the motion will be. The higher the number the faster. There are typically MAXIMUM values you can enter. These will be indicated on the data entry keypad screen when entering new data.

To enter new values for any of the parameters simply touch/press the data box and the data entry screen will appear and allow you to enter the new value.

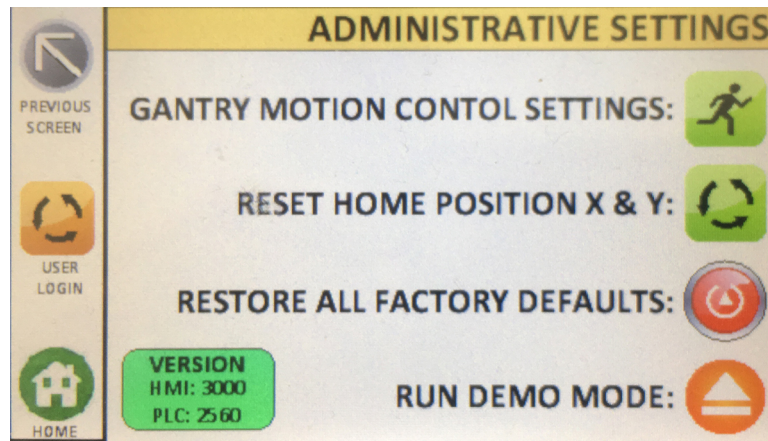
- **MOVE TO HOME SPEED:**
 - The X-AXIS controls the homing speed of the spray head AFTER the MAXX is completed its spray routine.
 - The Y-AXIS controls the homing speed of the main gantry AFTER the MAXX has completed the spray routine.
- **AXIS MOVE TO FRONT SPEED:**
 - The Y-AXIS setting controls how fast the gantry will move to the front of the machine. **WARNING: Setting too fast can cause binding.**
- **MOVE TO FRONT RAMP UP/DOWN SPEED:**
 - X-AXIS: This value tells the MAXX how many “steps” to complete before reaching the maximum MOVE TO FRONT SPEED. Lower numbers will cause the gantry to achieve maximum speed quicker. Higher numbers will cause the unit gantry to achieve maximum speed slower. **WARNING: Too low a number may cause the gantry to bind and not perform properly.**
- **MAXIMUM AVAILABLE STEPS FOR THIS MODEL**

- X-AXIS: Do not change this value. These values are designated for this model and are set for optimum performance.
- Y-AXIS: Do not change this value. These values are designated for this model and are set for optimum performance.
- **SET STEPS PER:**
 - **INCH:** DO NOT CHANGE – this default value of 618.340027 is the number of steps the motor travels to achieve one linear inch.

CM: DO NOT CHANGE – this default value of 243.0002 is the number of steps the motor travels to achieve one linear cm.



The ADMINISTRATIVE SETTINGS Screen.



There are multiple icons on this screen that will be explained briefly below.

- **GANTRY MOTION CONTROL SETTINGS:** This icon takes you to a screen that allows you to control the settings related to the entire gantry motion controls and speeds. (see previous explanation).
- **RESET HOME POSITION X&Y:** Pressing this icon will re-home the spray head and gantry if it is NOT at the home position.
- **RESTORE ALL FACTORY DEFAULTS:** This will take you to the Factory Default Restore screen.
- **RUN DEMO MODE:** Pressing this icon will allow the machine to run in DEMO MODE where it will continuously operate without spraying. This function will only stop when the same icon is pressed again to stop all motion.

- **VERSION:** The bottom left of the main screen shows the HMI and PLC version numbers. Use this when referring to and talking with Viper Technical Support.

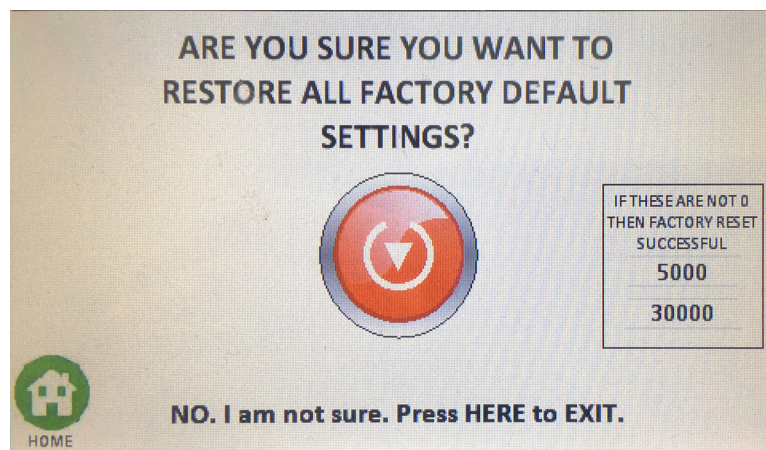


RESET HOME POSITION X & Y:

Press this only if the spray head is NOT at home and not moving. This will cause the Viper MAXX to reset and re-home the gantry and spray head.



RESTORE ALL FACTORY DEFAULTS



If at anytime you have changed some of the variables and the machine does not function as it did originally or it loses data for some reason you can FACTORY RESET the defaults. To do this, simply press the big RED button.

To leave this screen without resetting the defaults, press the HOME icon or where it directs you to press HERE to EXIT.

You can verify factory defaults values are reset by reviewing the numbers in the box on the right hand of the screen. If these are 0 then you know that NO variables are set and you MUST do a FACTORY RESET.



RUN DEMO MODE:

Pressing this button will cause the Viper MAXX to physically run with the current spray parameter settings but the spray head will NOT spray. This is just for running and demoing the machine without actually spraying.