

BacTrol

Bacterial Control System
By DariTech

Installation & Operation Manual

Revision Sheet

Release No.	Date	Revision Description
Rev. 0	9/28/2012	Manual Completion
Rev. 1	9/10/2019	Control Box Update

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-These instructions are supplied with the product and;

- The purpose of this manual is to provide an overview of the safety, installation and operation of this product.
- This manual is designed to be modular and is only in relation to the mentioned product.
- This manual should always be kept with or near the equipment even when the equipment is sold.
- It is the responsibility of the end user to test and maintain the unit to assure continued effectiveness of the machine.
- We reserve the right to make changes due to technical developments in the data and images in this manual.

Arrangement

-This manual is arranged in 4 primary sections, with pages, paragraphs, figures, and tables numbered in sequence.

Section 1 – Safety

-This section contains critical information essential to the safe operation of the machine.

Section 2 – Equipment Overview

-This section contains the purpose of the BacTrol system, and the different type of systems that can be configured to fit various Parlors set-ups.

Section 3 – Installation

-This section describes the list of parts needed and where to connect external power to the BacTrol Cabinet.




Section 4 – Panel Controls

-This section identifies and describes the process to program the BacTrol Cabinet.

Explanation of Symbols

-The following symbols are used within this manual to alert the reader to important information or potentially hazardous conditions.

-Safety Symbols draw attention to adjacent text and should always be read and thoroughly understood.

	WARNING! Warning signals danger to life or health of personnel. Death or serious injury may result if the danger is not avoided.
	CAUTION! Caution signals dangerous situations. Injury may result if the danger is not avoided.
	ATTENTION! Attention signals important information on risks for product or the environment.

Section 1 - Safety

1.1 Obligation of Care

-This product has been designed and constructed while taking careful analysis and standards and other specifications to be compiled with to ensure a safe level of security.

-This safety can only be achieved in practice when all of the necessary measures have been taken. It is part of the owner's obligation to plan and check these measures.

1.2 General

-Operation of the BacTrol system involves high voltage electrical and high air pressures and in some cases chemicals. Safety awareness is essential. Help prevent accidents that may cause injury to you and others or damage to the equipment by observing all the standard shop safety rules at your workplace.

1.3 Precautions

- Know and respect the machinery. Approach moving parts with caution
- Understand the location and function of all machinery and controls.
- Keep hands, feet and clothing away from moving parts.
- NEVER remove / leave exposed guards or railing during operation.
- Always Lock out Tag out machine when shutting down for maintenance.
- Always be attentive for machine malfunctions or unusual noises. These can indicate problems requiring immediate attention.
- Use extreme caution when performing maintenance or troubleshooting procedures for this machine.
- Keep the DOOR TO THE ELECTRICAL CABINET CLOSED! Only authorized personnel may open the door when maintenance is necessary.



Only qualified maintenance personnel should perform maintenance or troubleshooting operations!

For additional safety information you can find local safety procedures via the Web Sites below.

Location	Administrated by	Web Site
In Canada	Canadian Center for Occupational Health and Safety	www.ccohs.ca
In USA	Occupational Safety and Health Administration	www.osha.gov
In European Union	European Agency for safety and Health at Work	www.europe.osha.eu.int

Section 2 – Equipment Overview

2.1 Machine Components

-The BacTrol system by DariTech Inc. is a backflush system for intermediate cluster disinfection; cleans clusters and milk tubes quickly and thoroughly between milking phases. The system is logic controlled, timing sequence for the automated operation of opening/ closing solenoid valves in the backflush cycle.

2.2 Types of Backflush Systems

-The BacTrol system is easily adapted to any Herringbone Parlor or Parallel Parlor layout. These systems can be configured with a Single Vacuum tank (dbl 24 & smaller), Single Vacuum Tank (dbl 24 & larger), a Dual Tank style and / or an Air Blow Out style, making the system easily adaptable for many types of parlor installations.

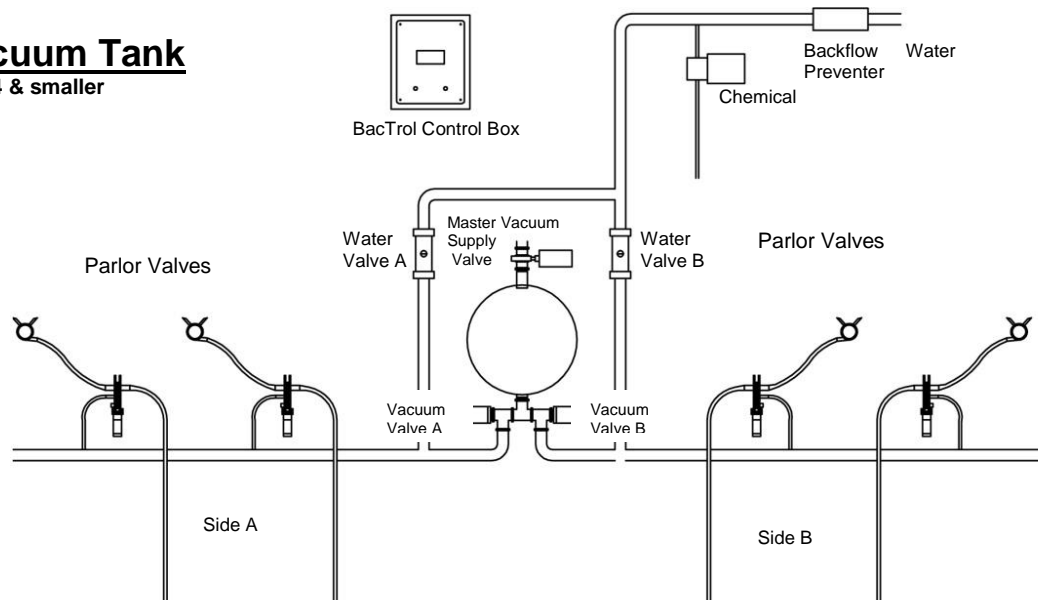
2.3 Configurations

-The following styles can be configured with both Herringbone and Parallel parlors and are options that can be used depending on the need of a milking parlor layout.

Single Vacuum Tank dbl 24 & smaller Layout

-The standard Vacuum Backflush system is attached to a Sweep tank, with a Vacuum supply, for cycling the wash into the system and then back out for further extraction. The BacTrol control box operates and mediates this process.

Single Vacuum Tank Double 24 & smaller



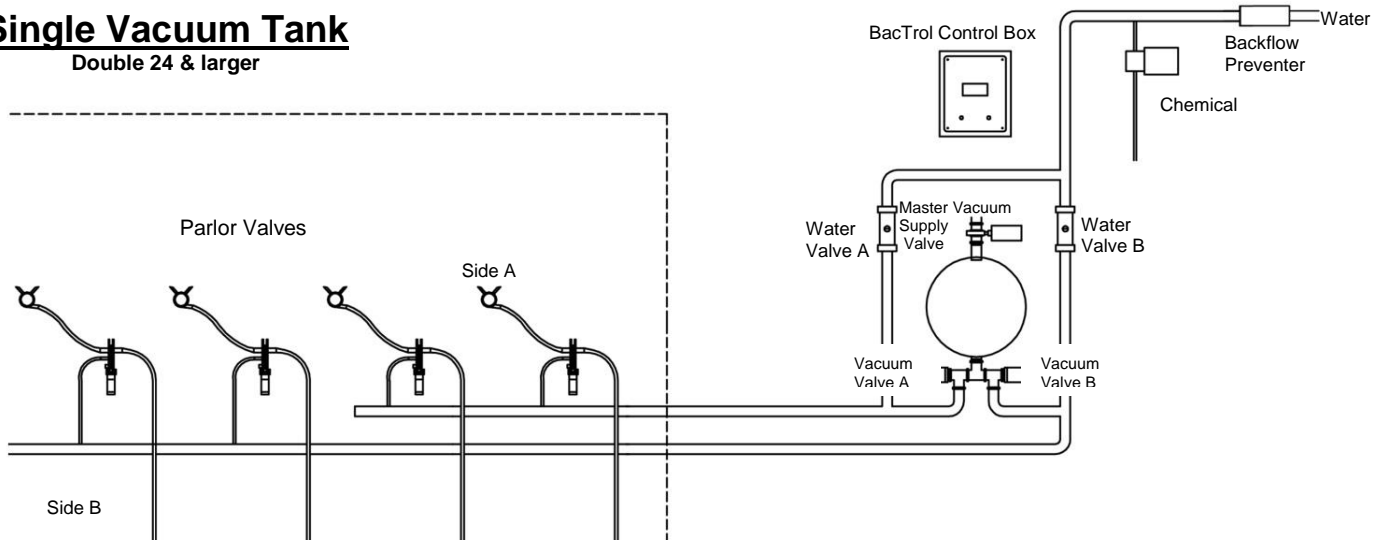
-A Single Vacuum Tank for 24 & smaller (shown above) is designed for up to 24 milking stalls. With fewer milking stalls a backflush can typically be done in one cycle. If more stalls are required, than a larger installation is needed.

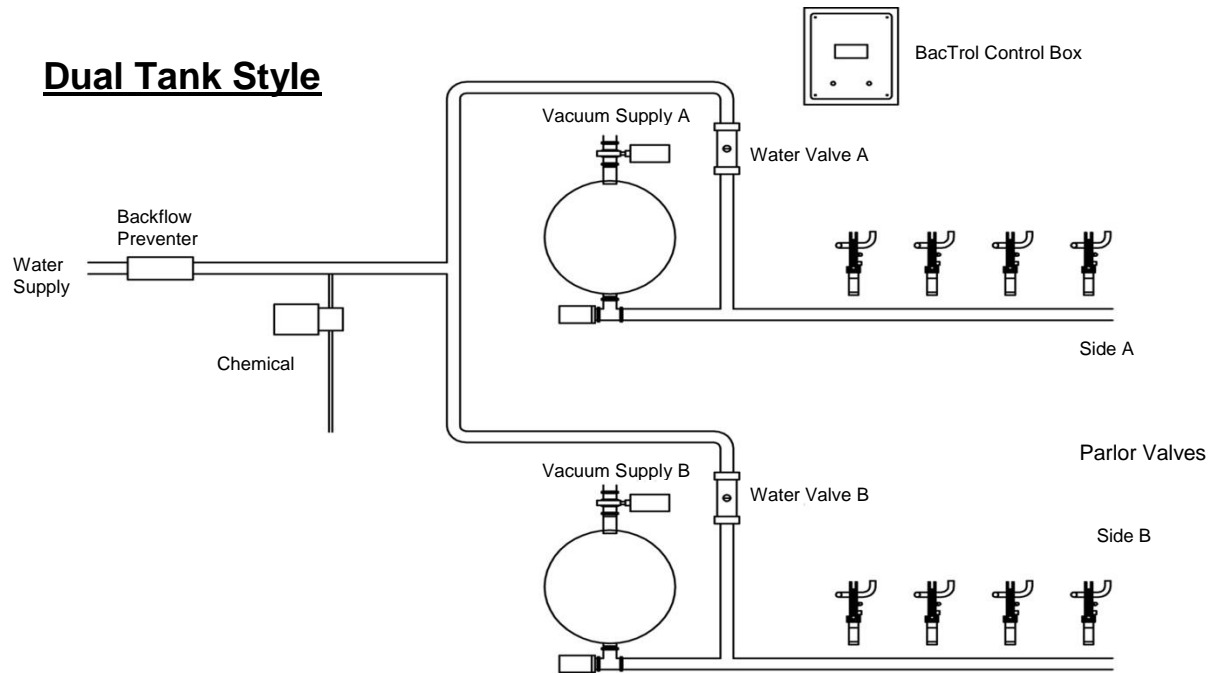
Single Vacuum Tank dbl 24 & larger Layout

-A Single Vacuum Tank for 24 & larger (shown below) is used when the number of milking stalls exceeds 24 units. Larger installations can take longer for a flush cycle to complete a full run, to prevent this larger installations are typically done in two cycles. The first half of the parlor (Side A) will go through a full cycle while the second half of the parlor (Side B) does a milking phase. Once finished, the second half (Side B) will go through its flush cycle and Side A will start a milking phase. This creates a uniform flow between the milking phases, increasing efficiency.

Single Vacuum Tank

Double 24 & larger

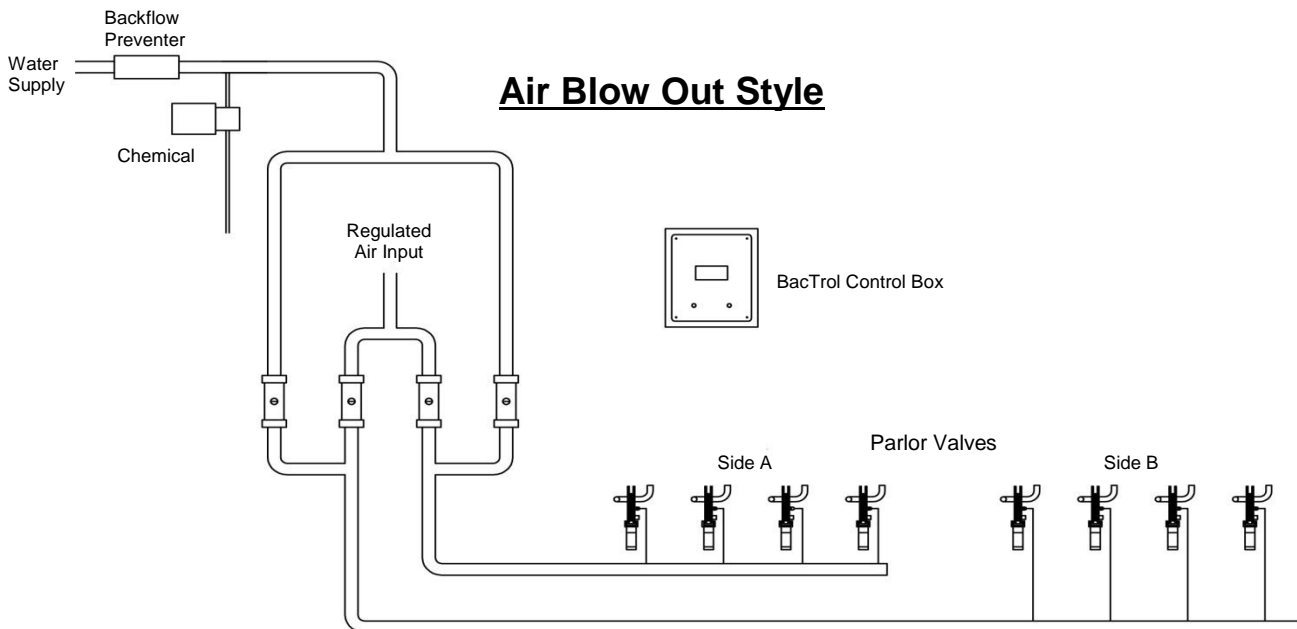




-A Dual Tank Style (featured above) is used in systems with one Sweep tank for each side of the Parlor. This is typically done to prevent lines from crossing operator walkways. The system operates the same as a Single Vacuum tank style and can be used with 24 smaller or larger milking parlor installations.

Air Blow Out Style

-An Air Blow Out style (featured below) is used when a backflush system does not have a Sweep tank for a cycling wash. This type of system is a direct run and will not cycle back through the system, like a sweep tank style. The claws will have to be flipped for the air blow out to work properly (claw cups pointing down).



Section 3 – Installation

3.1 Overview

-This section will cover the supplies needed for a typical backflush installation and the installation of the BacTrol cabinet.

3.2 Supplies Needed

-Dealer Supply Parts needed for installation:

- **Chemical Pumps** - Dry contact provided to connect to pump or solenoid when calling for chemical (see section 3.3 Cabinet Layout for connection hook-ups).



Depending on chemical and injection pump types, it may be necessary to install a mixing chamber directly after the injection pump. This is typically available through the injection pump provider.

General Items:

• Backflush Valve brackets (can be custom ordered from DariTech).	1 per milking unit
• Hardware to mount brackets to wall.	2 each per milking unit
• Hardware to mount valves to brackets (3/8" x 3/4" SS NC Hex bolts).	2 each per milking unit
• Adapters to hook from vacuum supply (for vacuum sweep systems), to 2" tri-clamp master vacuum supply valve.	-----
• Adapters to hook from vacuum valves on bottom of sweep tank to backflush lines.	-----
• Backflush lines - One on each side of the parlor there will need to be one line from the sweep tank mounting location all the way to the back of the parlor.	Length dependent on size of parlor run
• Brackets or straps and fasteners to secure the backflush lines to the pit walls.	Many codes require hangers to be spaced every 10 ft. regardless of size. Check local codes.
• Tees and fittings to reduce the backflush line to 1/2" hose barbs for each valve.	1 per milking unit
• 1/2" Hose and clamps to run from backflush line to each valve	approx. 1 1/2 ft per milking unit
• Fittings and pipe to run water line to bushing and tee into backflush lines before they pass into parlor. This is the line the air operated water valves will mount into.	2 per parlor side
• Air hose tees and fittings for backflush valves	-----
• Electrical contact closure to start backflush. This is typically done with a signal that occurs when the cows are released on the parlor side. If the parlor has air controls, then a pressure switch can be used to give the start signal.	-----



On Controls - To make control box run in succession from one start signal, start signal terminal A and B must be enabled together on the settings screen (section 4.3).

Air Circuitry - General Guidelines for Sizing

- The only fittings provided are on the control box.
- System pressure should operate between 90-100psi.
- Air must be filtered and regulated.

Thread sizing for air ports

- Air Supply input on control box- 1/4" NPT
- Output on solenoid valves in control box – 1/8" NPT
- Master Vacuum Valve – 1/4" NPT
- Vacuum Valves at bottom of tank – 10-32, and 1/8" NPT
- Water Valves – 1/4" NPT
- Backflush Valves – 1/8" NPT

Dealer provided Air tubing sizes:

1. Supply to control box – 3/8" OD
2. Solenoids to Backflush Valves 1/4" OD header line, with reducing tees, OD tubing to each individual valve (will be attached to lines running into parlor. Zip ties will be used to attach to PVC lines running through parlor).
3. Solenoids to Master vacuum valve, vacuum valves, and water valves – 5/32" OD tubing.

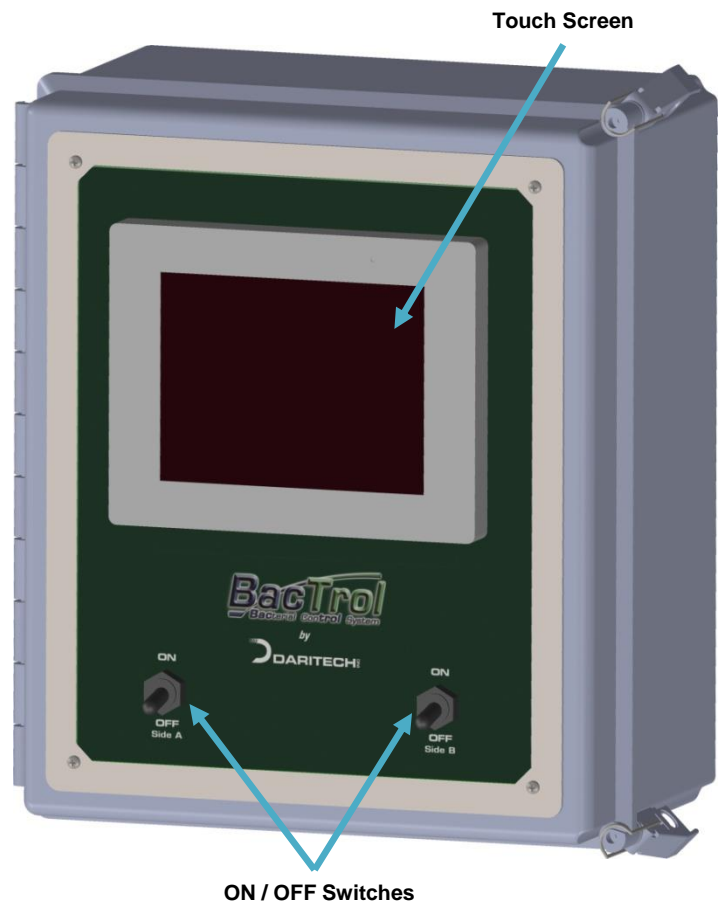
3.3 BacTrol Cabinet

-The BacTrol Cabinet is the brain center for the backflush system. The cabinet controls when each valve will open and close.

-The BacTrol cabinets features a touch screen display for ease of use and toggle switches for control of each parlor side (Side A, Side B).

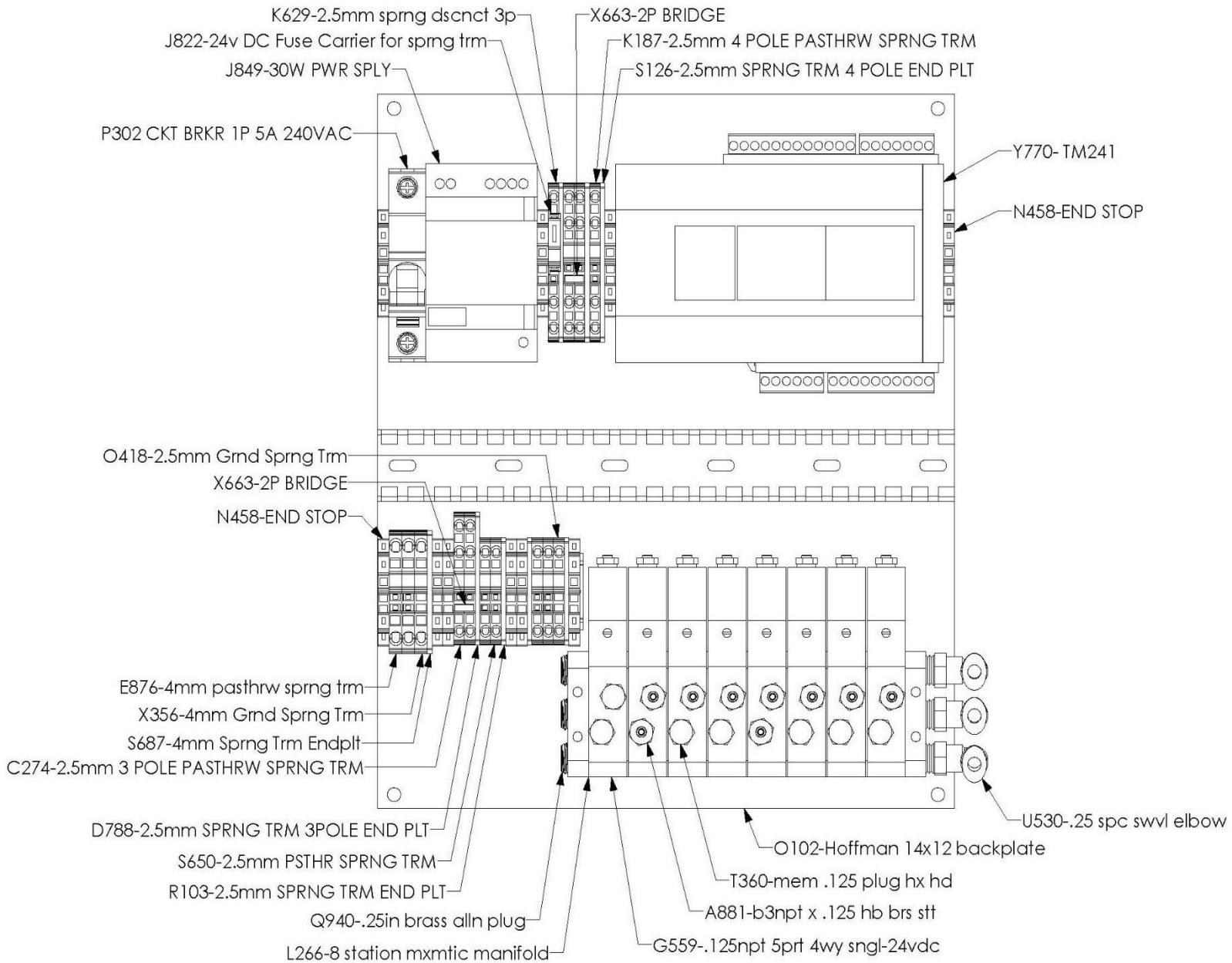
-Before operation, the cabinet will need to be connected to the appropriate valve lines and external power will need to be supplied.

-The following page will show where external power can be connected and the layout inside the cabinet.



ELECTICAL SHOCK HAZARD - Before continuing ensure that all power sources that are to be connected to the unit are disconnected and locked out before proceeding with any wiring or electrical connections.

Cabinet Layout



Section 4 – Panel Controls

4.1 Understanding Screen Layout

-This system is touch screen operated, to operate simply touch the screen where you want to navigate with your index finger to be taken to the selected subject.

4.2 Main Menu Screen



Side:	Status:
Side A	On / Waiting for Start Signal
Side B	On / Waiting for Start Signal

Settings



-The Main Menu screen will display the status of Side A parlor and Side B Parlor. The status will indicate if the system is running, waiting or Turned Off. Status "Waiting for start signal" will indicate that the system is waiting for the remote switch to start the system.

-Pressing the "Settings" button at the bottom of the screen will bring up the settings screen menu. The settings screen menu will allow the set up of the back flush cycle for Parlors A & B.

Settings

Use same steps for both sides: **Disabled**

Single Side Operation: **Disabled**

Side A Step Settings

Side B Step Settings

Service Menu

Device Settings

Back

-On the settings screen you will have several options:

- **Enabled / Disabled** same step for both sides
- **Enabled / Disabled** Single Side Operation (Side B directly starts after side A)
- **Side A Step Settings**
- **Side B Step Settings**
- **Service Menu**
- **Device Settings**
- **Back** will bring you back to the Main Menu.

-Simply press one of these options to bring up that Menu screen.

-On the settings screen there will be two choices; enable steps for both sides or Single Side Operation:

- Leaving “Use same steps for both sides” on Disabled will allow the set up of each parlor side separately.
- Leaving “Use same steps for both sides” Enabled will merge Side A & B Step settings and will appear as shown to the right.
- Single Side Operation will make the start signal run in succession with side A and B.

Settings

Use same steps for both sides: **Enabled**

Single Side Operation: **Enabled**

Step Settings

Service Menu

Device Settings

Back

Parlor Side A Settings Page 1 of 2

	Parlor V.	Vac/Air	Water	Chem.	Air Inj.	Dur.
1	Parlor V.		Water			15 sec
2	Parlor V.		Water	Chemical	Air Inj.	25 sec
3	Parlor V.					60 sec
4	Parlor V.		Water			25 sec
5	Parlor V.	Vac/Air				15 sec
6	Parlor V.		Water		Air Inj.	0 sec
7	Parlor V.	Vac/Air				0 sec
8						0 sec

Total Cycle Duration: 0 sec

Back

Page 2

-The Parlor Settings screen allows you to control the duration that each valve is open. The table is completely interactive and will allow the manipulation of each valve through the desired cycle.

Parlor V.	Vac/Air	Water	Chem.	Air Inj.	Dur.
Parlor Valve	Vacuum / Air Valve	Water Valve	Chemical valve	Air Injection Valve	Duration Valve is open

-A Valve is toggled, on/off, onto the table simply by pressing the column, and row you want to associate the valve with. Pressing row 5 under the column Vac/ Air will toggle the Vacuum Air valve off and will appear blank. Pressing row 5 under Vac/ Air again, will toggle the valve back on for that cycle.

-Pressing any column (1-16) under "Duration" will allow you to set the time that the Valve is open. Setting a duration time to zero will gray out the row and skip it until an input time is set again (all toggled valves will remain in their selected columns, but will not be active on the cycle).

- Press "Back" to return to the Settings screen.



As mentioned above there are 16 rows. Displayed on this page are rows 1-8, pressing "Page 2" at the bottom of the screen will bring you to the next 8 rows (9-16). Page 2 is the same layout as Page 1 and is utilized in the same fashion.

Service Menu:

Off	Master Vacuum Solenoid
Off	Side A Parlor Valves
Off	Side A Water
Off	Side A Vacuum / Air
Off	Side B Parlor Valves
Off	Side B Water
Off	Side B Vacuum / Air
Off	Air Injection
Off	Chemical Pump
Back	

-The Service Menu will allow you to turn on an individual valve(s), on Parlor A & B, for checking and troubleshooting. There are nine valves total, three for side A parlor, three for side B parlor and a master vacuum solenoid, air injection, and chemical pump for the last three valves.

- Press "Off" on any one of the nine valves, listed below, to toggle that valve ON.
-Multiple valves can be toggled on at the same instance.

Master Vacuum Solenoid

Side A Parlor Valves

Side A Water

Side A Vacuum / Air

Side B Parlor Valves

Side B Water

Side B Vacuum / Air

Air Injection

Chemical Pump

- Press "Back" to return to the Settings screen (all the valves will automatically be turned to OFF when leaving the service screen).

Device Settings:

Off Password required to change settings.

Settings Password:

Brightness:

System Configuration Menu

Reset Factory Defaults

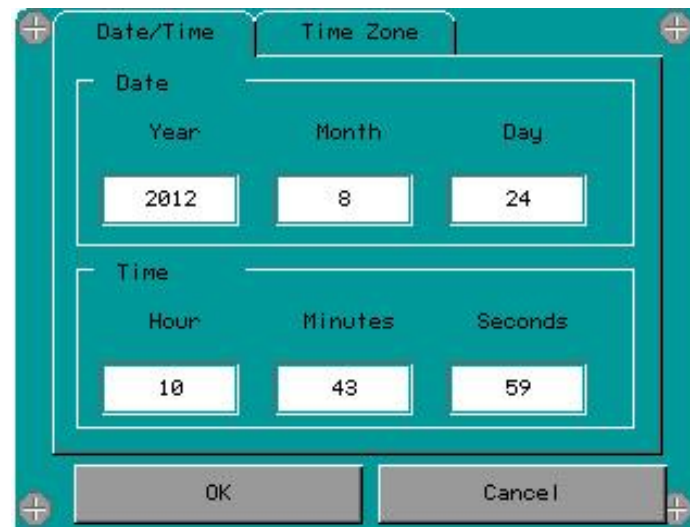
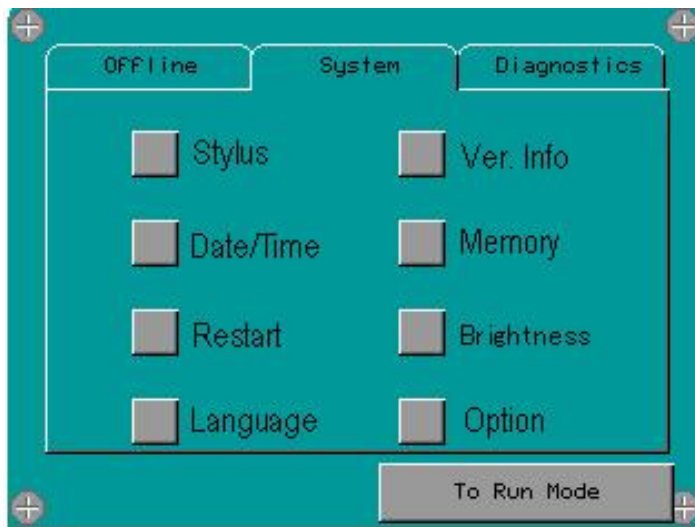
Back

-Device settings screen will allow you to set a password, change the brightness of the screen, access system configuration, and reset to factory defaults.

- Press “Off / On Password required;” this set to ON, will prompt for a password on the Main Menu screen when pressing the Settings button.
- Press “Settings Password” input to bring up a numerical input screen, to enter a 4-digit password to access the system settings.
- Press “Brightness,” the left or right arrow, to increase or decrease the brightness of the display screen.
- Press “System Configuration Menu” to bring up system configuration settings.
- Press “Reset Factory Defaults” to reset all adjusted settings back to their original settings.
- Press “Back” to return to the Settings screen.



This page is written to show / explain the set up of the date/time settings only. Operation of any other feature on this screen is to the risk of the end user.



- Press the Date/Time box to open the Date/Time setting screen.
- Press “To Run Mode” at the bottom of the screen to return to the Device settings page.

Setting the Date/Time



- Press an input that corresponds with the feature above it that you want to set
- A numerical screen will appear.
- Enter the input matching the subject and then hit Enter to input that data.

“Hour,” under Time settings, is a 24 hour setting (1pm = 13 etc.).

- After all the inputs are set hit “OK” at the bottom of the screen to return to the System Configuration screen.
- Hit “To Run Mode” to return to the Device settings page.

For Technical Support, to order Replacement Parts, or for questions about other products, please contact your local dealer.
