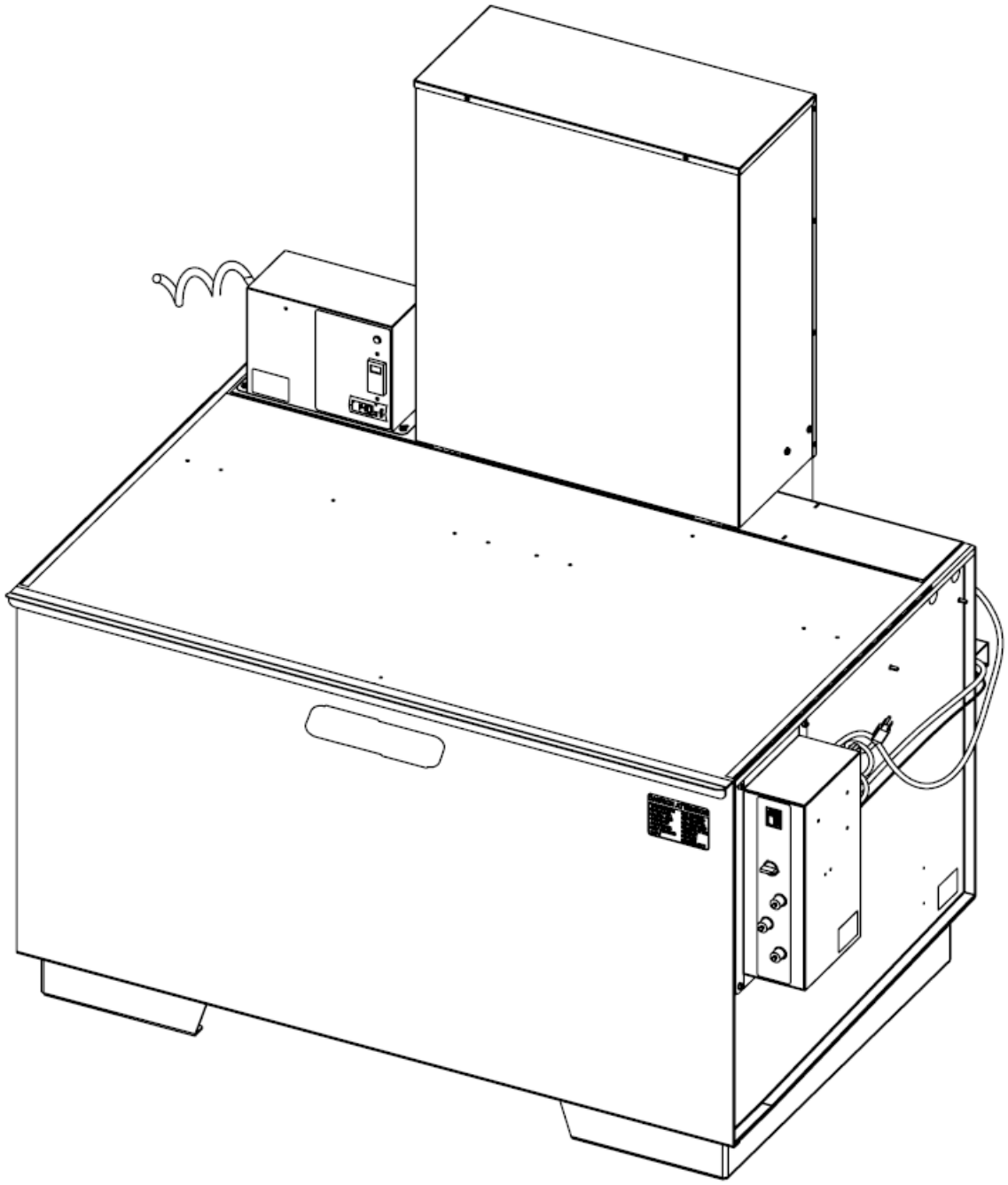

# Model EM150

## INSTRUCTION AND OPERATION MANUAL

AQUEOUS PARTS CLEANER

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# I. Introduction

- Congratulations on the purchase of your Model CM150 Agitation Lift Tank Washer!
- This unit is a large aqueous agitating lift part washer built for heavy-duty tasks using lift agitation to clean deep into crevices and blind holes. Parts can also be lowered to soak as a traditional dip tank. The lift and tray are suitable for parts and batch cleaning up to 750 lbs.
- Read the entire manual before attempting to install or operate this machine.
- Carefully review the Safety Instructions and Information section and all CAUTION, WARNING, and DANGER information. This information will instruct you on how to use this equipment in a safe manner. Keep this manual along with the material Safety Data Sheets (SDS) for detergents in use. Always have this information in easy reach for the operator and all personnel working on or around the equipment.
- Familiarize yourself with the general Maintenance and Troubleshooting of the product. Follow these guidelines to help ensure a long and trouble-free experience. If there are any questions or concerns, please call your local dealer.
- The equipment described in this manual is subject to change. The manufacturer reserves the right to change equipment at any time as part of normal product improvement. Some improvements may have been made after this manual was printed. For the latest information on your equipment, contact the manufacturer.

# II. Safety Instructions and Information

## A. General Instructions

### IMPORTANT SAFETY INSTRUCTIONS – SAVE THESE INSTRUCTIONS

- Read all instructions. Do not attempt to install or use this machine without reading this entire manual. Read and understand all labels, SDS, and this instruction manual before use. Use only as described in this manual. Use only manufacturer's recommended attachments.
- Read and understand the SDS of all chemicals you are introducing to the solution from washing parts.
- If you fail to read, understand, and follow all the procedures in this manual, you may cause or suffer personal injury.
- Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged, until it has been examined by a qualified person.
- If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
- Always unplug equipment from electrical outlet when not in use. Never use the cord to pull the plug from the outlet. Grasp plug and pull to disconnect.
- Care must be taken as burns can occur from touching hot parts. Always wear PPE. Take precaution and wear thermally protective equipment that is suitable for wet environments. This machine is preset to 140°F but contains an adjustable thermostat with a range of 32°F to 212°F. It should not be run below 120°F to minimize chance of foaming and not above 180°F to prevent risk of cavitation. The liquid will be hot. Most surfaces will be hot. All parts removed from the machine will be hot.
- Always wear safety glasses or a full-face shield to protect against chemical splash. Everyday eyeglasses only have impact resistant lenses, they are not safety glasses.
- Keep hair, loose clothing, fingers, and all parts of body away from moving parts.
- Do **NOT** smoke, eat, or drink in the work area.
- To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline). Do not spray aerosols into or around this machine. Install the equipment in an area away from heat, sparks, and open flame.
- Do not use compressed air to dry parts. Do not operate this product in a manner that will cause splashing or mist to form.
- In any emergency, turn off the unit.
- Keep cover closed whenever unit is not in use.
- Do not place parts or equipment on the electrical panel box. It is not designed to support heavy weight, and you run the risk of personal injury or damage to the product.
- Do **NOT** modify these machines.

- These parts washers may employ a safety feature called a fusible link that holds the cover open during use. Do **NOT** modify, alter, or obstruct the operation of the fusible link.
- Disconnect power to the unit before maintenance or servicing of the equipment.

## B. Safety

- **DANGER!** For Aqueous, Heated Applications - This is a HEATED device. This equipment is designed for use only with Aqueous Based Solutions. The use of any other solutions could potentially cause a hazardous condition including risk of fire or explosion. Do NOT add any other chemicals to the cleaning agent including, but not limited to mineral spirits, kerosene, fuel oil, gasoline, or chlorinated solutions.
- **CAUTION!** For Aqueous, Heated Applications - Do NOT allow heater to operate unattended for long periods, such as evenings or weekends.
- **DANGER!** NEVER operate electrical equipment inside of parts cleaner.
- **DANGER!** This machine may utilize HIGH VOLTAGE electricity. ALWAYS disconnect power to the unit before removal of the electrical panel cover. Obtain the services of a qualified electrician for all electrical work.
- Make sure the parts cleaner is connected to a properly grounded power source. Check serial plate for power requirements.
- **WARNING!** Avoid contact with eyes or skin. Wear protective eyewear, gloves, and clothing. Operation should be conducted in a manner, which prevents splashing, or spillage. Any spills should be promptly and properly cleaned up. Soak up all spills with absorbent material. Remove and dispose of all soaked material in accordance with regulatory requirements.
- This machine may come with a door limit switch. **NEVER** modify or defeat the limit switch. An unsafe condition may occur if any unauthorized changes are made.
- Do NOT place heavy objects on edges or front of sink. Although this parts cleaner is designed to be stable, uneven weight distribution could cause a hazardous condition, over which the manufacturer has no control.
- This unit is NOT intended for outdoor operation. To reduce the risk of electric shock, do NOT use on wet surfaces or expose to rain.

## C. Fire

- Fire Extinguisher Type: ABC
- Use a fire extinguisher suitable for flammable liquids and electrical.
- Do NOT use water.
- Do NOT place flammable materials or aerosols on or near equipment.
- Keep the door closed when not in use.
- Be familiar with SDS and fire procedures of all chemicals used on and around the equipment and all chemicals introduced into the solution during the cleaning process.
- Always keep fire extinguisher and protective equipment accessible and near equipment.
- Contact your local fire department for further details.
- In an emergency, disconnect or unplug the electrical supply to the equipment.

## D. First Aid (Medical instructions)

Please note that these First Aid precautions are for uncontaminated cleaning solutions only. Once the solution has been contaminated with oil, grease, antifreeze, etc., safety precautions should be adjusted according to the type of contaminant and the information presented within their SDS details.

- EYES:
  - Contact may cause slight to moderate irritation. For direct contact, flush eyes with water for 10-15 minutes or until the material have been removed.
  - Be sure to remove contact lenses if present and to lift the upper and lower lids during rinsing.
  - If irritation from vapors or mists develops, move the victim into fresh air. Get medical attention if irritation persists.
- SKIN:
  - Prolonged or repeated contact tends to remove skin oils, possibly leading to dermatitis.
  - Wash skin with soap and water. Remove contaminated clothing, rinse shoes, and launder clothing before reuse.
  - If irritation or pain develops or persists, seek medical attention.
- INHALATION (Breathing):
  - Prolonged exposure to concentrate-mist or vapor may cause mild irritation of nasal passages or throat. Remove to fresh air immediately.
  - Do not leave victim unattended. Get medical attention if irritation persists.
- INGESTION (Swallowing):
  - (Uncontaminated cleaning solution) Drink 4 to 8 ounces of water and seek medical attention.
  - <u>DO NOT</u> induce vomiting.

## E. Environmental

Solutions become contaminated when used to clean grease, oils, grime, and other chemicals from parts. Used solution must be disposed of properly. Familiarize yourself with the SDS of the contaminants you are introducing from the cleaning process and follow disposal guidelines for these chemicals. Consult your local environmental management agency for additional guidance and other potentially hazardous materials compliance requirements.

- SPILLS:
  - Avoid spilling solution. Spilled solution can create slippery conditions, clean it up immediately. Close off area to traffic. Wear appropriate PPE to prevent eye and skin contact. Consult the SDS for instructions on clean up and disposal.
- LEAKS:
  - Contain leaks promptly. Notify local environmental authorities if necessary.
  - Do NOT remove devices designed to reduce evaporation except to process work or to perform maintenance.
- DISPOSAL:

- Follow SDS guidelines and the guidance and compliance requirements of your local environmental management agency.

# III. Chemical Selection

- For Aqueous Applications - The selection and proper use of detergent is vital to both the cleaning performance and the operating life of the machine. Not all detergents are alike. Select the proper detergent based on the following criteria.
- For Aqueous Applications - The detergent must have rust inhibiting agents to protect any non stainless parts. Once rusting starts, it can be hard to stop.
- For Aqueous Applications - The detergent should be strong enough to remove the contaminant (s), but not so strong that it attacks the metal substrate.
- For Aqueous Applications - The detergent should leave only an acceptable amount of residue on the parts. For new parts, a “free rinsing” detergent may be required.
- For Aqueous Applications - To be used in a spray washer, the detergent needs to be “low foaming”.
- For Aqueous, Heated Applications - IMPORTANT! When installing the unit, do NOT fill the tank with water unless you have the time needed to heat the water to 140°F, add detergent, and run the wash cycle for at least two (2) hours to coat the pump and fittings.
- For Aqueous Applications - Detergents are characterized as “generally safe” on all metals. This is not an absolute guarantee. If the parts are critical, it is the customer’s responsibility to perform all metallurgical tests.
- For Aqueous Applications - Rust will occur if the wrong detergent is used, if the start-up procedure is not followed, or if the machine is not used on a regular basis.
- If not using a manufacturer supplied chemical, contact Fountain Industries with a supplied SDS of the chemical. Fountain Industries can provide feedback on the chemical to determine if it is safe to use with the machine and will not damage the machine or parts in the machine.

# IV. Installation

Floor plan layout should include adequate access for maintenance, service, and repair. Clearance should allow full opening and closing of the door without obstruction. Install your parts cleaner on a flat, level surface in an area provided with adequate ventilation. Local exhaust ventilation should be used in areas of high vapor concentration. Provisions for determining and maintaining adequate ventilation are the responsibility of the operator.

**WARNING!** This unit is NOT intended for outdoor operation

## A. Shipping Damage

Upon arrival, inspect the carton or crating and the equipment inside for damage. If any damage is found, notify your carrier immediately and save all materials for the carrier's inspector to examine. Failure to promptly report damage could result in denial of your claim.

**IMPORTANT!** Damage claim is the responsibility of the customer.

## B. Unpacking

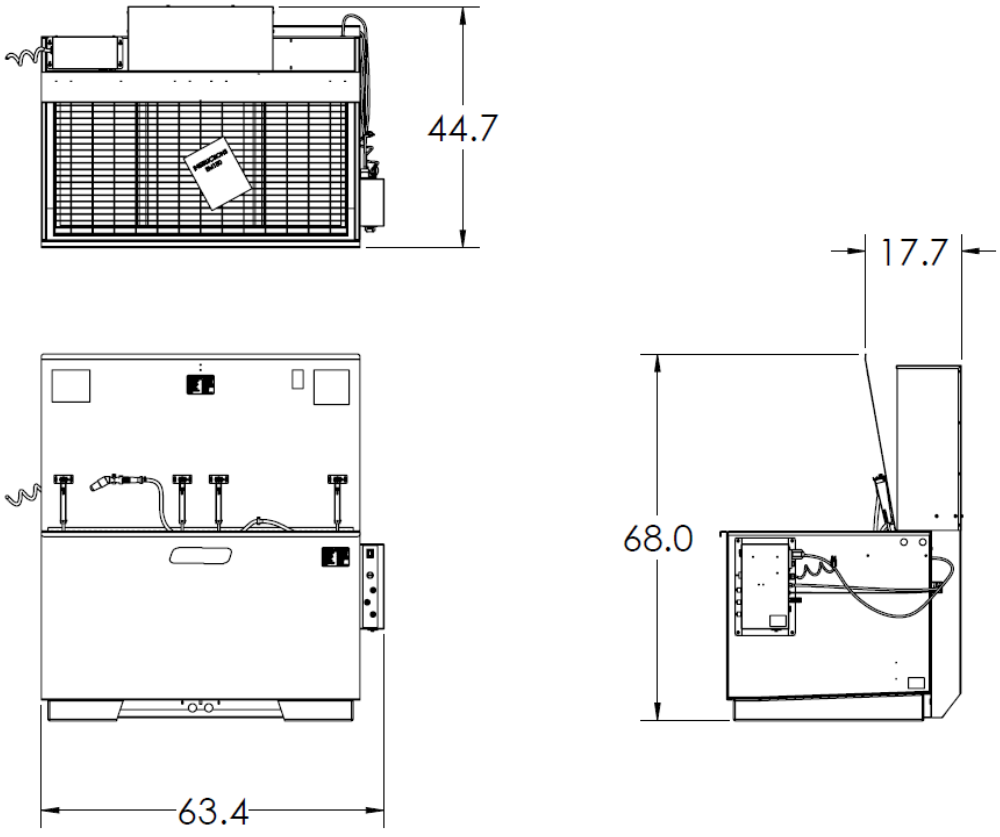
If no damage is found, proceed with breakdown of the carton or protective crating. The equipment is now ready to be lifted out and moved to its installation location.

**CAUTION!** We recommend only moving the unit when completely empty. If the unit does need to be relocated, drain the tank completely and move to the new location via safe means.

**IMPORTANT!** Inspect unit for loose nuts and bolts after shipping. Inspect wiring and wiring connections. Transport can be rough, and it can sometimes shake items loose.

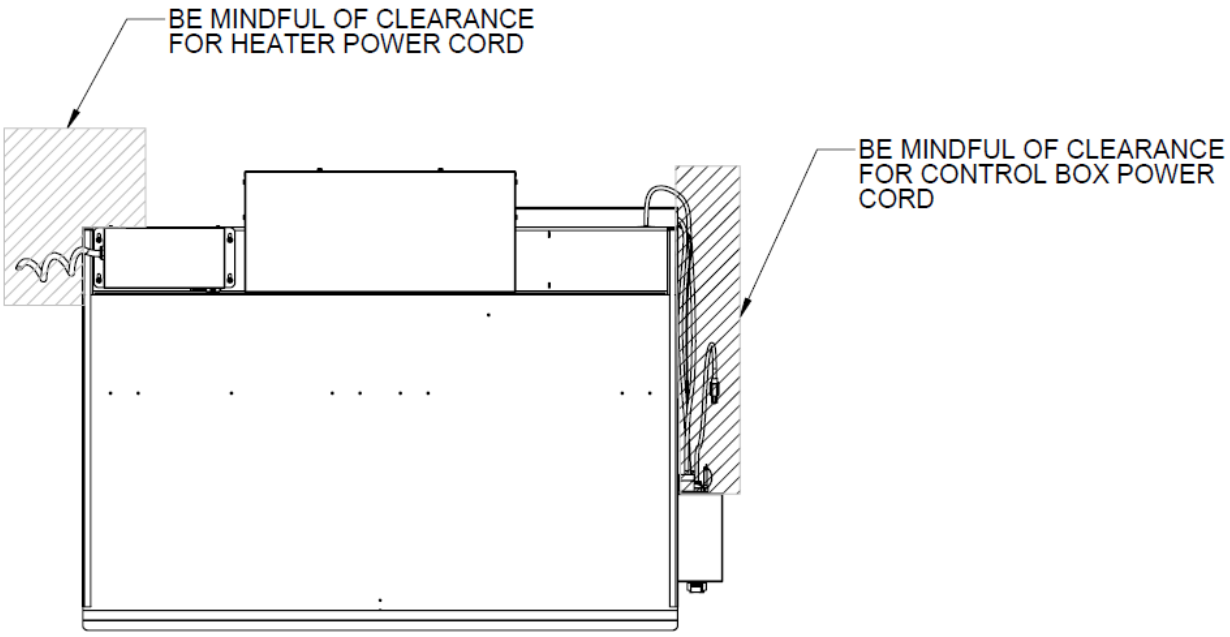
## C. Location

### i. Product Dimensions



- All dimensions are in inches.
- Dry Weight: 950 lbs.
- Wet Weight: 2215 lbs. (at 150 gallons)
- Loaded Weight: 2965 lbs. (with 750 lbs. load)

### ii. Clearance




### iii. Considerations

- Make sure the site is level and smooth
- The floor surface needs to be appropriate for supporting the weight and applied pressure of the unit.
- Plan space around the machine to allow access for maintenance, service, and repair. Refer to the clearance dimensions above as recommendations.
- Plan space in front of and above the machine to allow the door to fully open and close without interference.
- The machine may create steam or vapors. Make sure this steam or vapor will have no adverse effects on the surrounding area.
- The process of removing wet parts from the machine will inevitably result in some solution spilling on the floor. Consider traction mats around the machine and avoid placing the machine next to a walkway.

## D. Electrical Specifications

230V Heater Voltage Range and Phase System:
- Voltage: 230 VAC
- Freq: 60 hz
- Phase: 1 PH
- Amperage: 27.3 A
- Fuse: 35 A Class D Breaker

460V Heater Voltage Range and Phase System:
- Voltage: 460 VAC
- Freq: 60 hz
- Phase: 1 PH
- Amperage: 13.6 A
- Fuse: 20 A Class D Breaker

Control Box Voltage Range and Phase System:
- Voltage: 115 VAC
- Freq: 60 hz
- Phase: 1 PH
- Amperage: 0.6 A

Largest Motor:
- HP: 1/125 HP
- FLA: 0.6 A

## E. Electrical Hook-Up

- The voltage, phase, and current draw of the machine are listed above and on the serial number plate. The wiring diagram is listed below in this manual in the Wiring Schematic section.
- **IMPORTANT!** Always seek the service of a qualified electrician for all electrical work.
- **CAUTION!** Shipping and handling may have loosened one or more wire connections. An electrician should inspect all screw connections and terminal connections before connecting power. Loose connection can cause a hot zone at the loose connection and cause damage to wiring, components, and become a fire or electrical hazard.
- **IMPORTANT!** After power is supplied, an electrician should check the rotation of all motors. The electrician should also be present during “start-up” in case a problem arises.

# V. Machine Controls and Adjustments

## A. Controls Overview Control Box Front

FLOW THROUGH BRUSH PUMP ON/OFF SWITCH
- ILLUMINATES WHEN ON AND SWITCH OUTPUTTING POWER TO THE PUMP.
- IP65 WATER PROTECTION RATED SWITCH

PLATFORM CONTROL
• UP POSITION RAISES THE PLATFORM TO THE TOP POSITION.
• DOWN POSITION LOWERS THE PLATFORM TO THE LOWEST POSITION.
• DOWN IS THE OFF STATE.
• AGITATION POSITION LIFTS THE PLATFORM SLIGHTLY AND BEGINS AGITATING PLATFORM UP AND DOWN.

PLATFORM UP SPEED CONTROL
- CLOCKWISE ROTATION MAKES PLATFORM MOVE UP SLOWER
- COUNTERCLOCKWISE MAKES PLATFORM MOVE UP FASTER

PLATFORM DOWN SPEED CONTROL
- CLOCKWISE ROTATION MAKES PLATFORM MOVE DOWN SLOWER
- COUNTERCLOCKWISE MAKES PLATFORM MOVE DOWN FASTER

AGITATION STROKE/FREQUENCY CONTROL
- INCREASES/DECREASES AGITATION SPEED AND STROKE.
- DO NOT ADJUST HIGHER THAN NECESSARY TO CREATE SMOOTH, TIMELY STROKES.
- HIGHER PART WEIGHT REQUIRES HIGHER SETTINGS.
- ADJUST CONTROL TO A LOWER SETTING FOR LIGHT PARTS.
- IF SET TO HIGH (CLOCKWISE) LIFT STROKE WILL BECOME FULL RISE HEIGHT OF THE LIFT

## B. Controls Overview Control Box Back

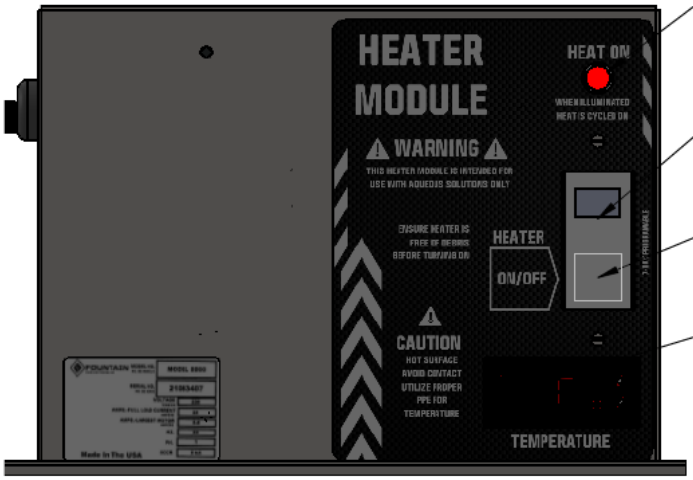
AIR SUPPLY REQUIREMENTS:
PRESSURE: 80 - 120 PSIG
(5.5 - 8.3 BAR)
FLOW RATE: 8 CFM (225 LPM)

5-15R OUTLET
- TOP PLUG FOR SWITCH ON FRONT INTENDED FOR FLOW THROUGH BRUSH PUMP
- BOTTOM PLUG PROVIDES ALWAYS-ON POWER FOR ACCESSORIES LIKE AN OVERHEAD LIGHT KIT INTENDED FOR LIGHT DUTY ACCESSORIES. DO NOT USE POWER TOOLS OR OTHER HIGH AMPERAGE DEVICES AND DO NOT PLUG SUI PLUG INTO OUTLET. 1A MAXIMUM.

AIR SUPPLY CONNECTION
- 1/4" FEMALE NPT FITTING FOR AIR SUPPLY INSTALL.

MAIN AIR REGULATOR FILTER DRAIN VALVE

## C. Controls Overview Heater Module




HEAT ON INDICATOR LIGHT
- IF HEAT IS CYCLED ON THE LIGHT WILL ILLUMINATE RED

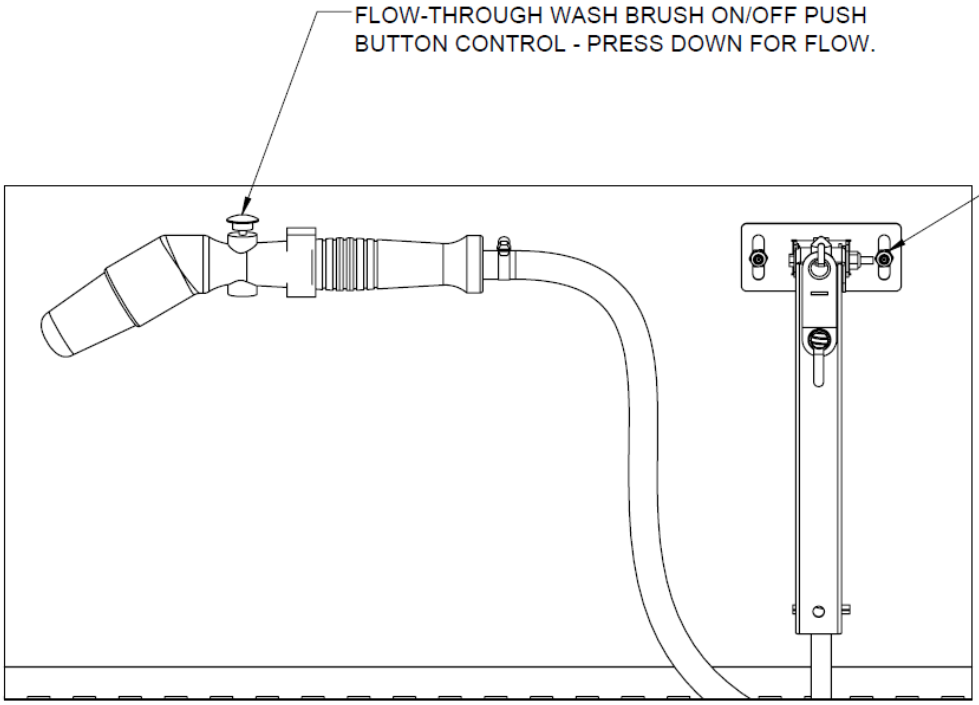
7 DAY SMART TIMER
- PROGRAMABLE SMART TIMER TO SET HEAT ON AND OFF CYCLES PER DAY

HEATER ON/OFF SWITCH
- INTEGRATED IN 7 DAY TIMER

THERMOSTAT CONTROL
- LIVE TEMPERATURE READ OUT OF LIQUID
- PRESET TO 145°F
- PROGRAMABLE TO SET THERMOSTAT DO DESIRED TEMP WITHIN LIMITED RANGE

## D. Controls Overview Inside Tank

- Flow-Through Wash Brush
- Adjustable Lid Positioning



# VI. Start Up

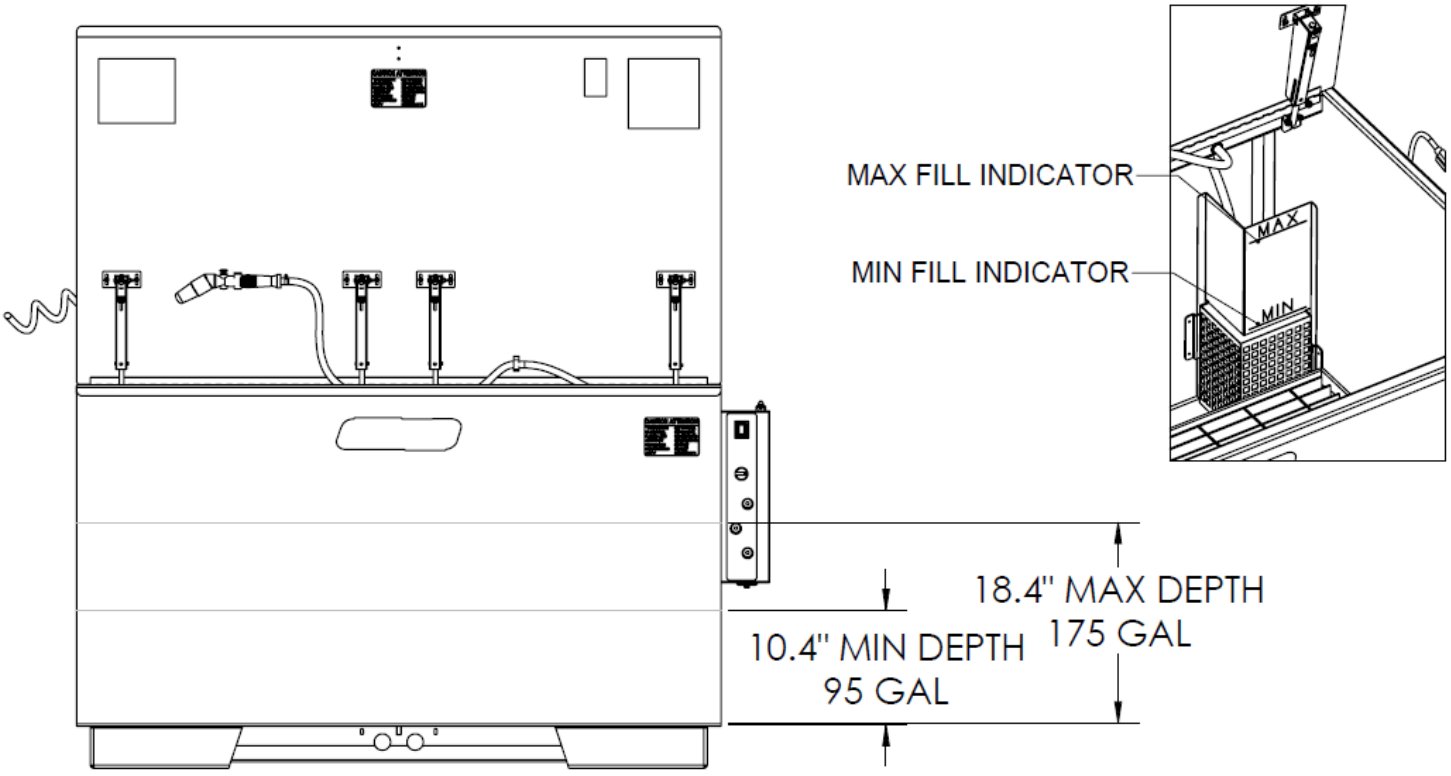
**IMPORTANT!** Use only manufacturers recommended solutions in the machine. If an alternative solution is going to be used, reach out to the manufacturer with a SDS of the chemical so the manufacturer can review and approve the chemical for use in the machine. This is for both your and the machine's safety. Not doing so may cause risk of harm and risk of damage to components in the machine.

**CAUTION!** Only use the correct solution in the machine. This machine is unpainted stainless steel, it is intended to be used with aqueous detergents.

The First Start Up procedure is a first run procedure performed on a new machine or machine that has not been used for an extended period. Follow the procedures below to prepare the unit for standard operation.

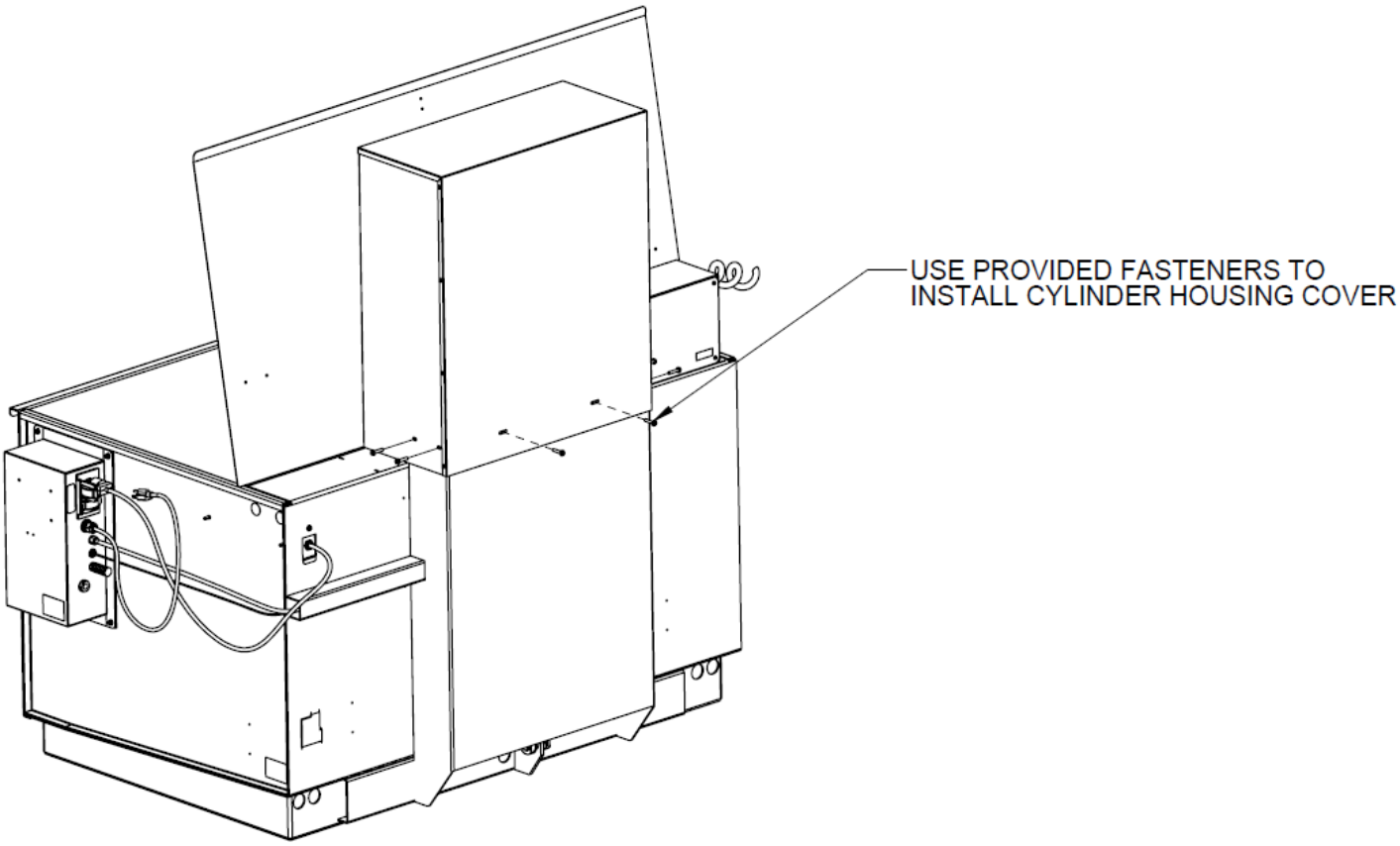
The First Start Up procedure begins after completion of the Installation process. All electrical connections have been checked, all nuts and bolts checked, and an electrician has set up and reviewed electrical including a check of motor rotation if applicable (for 3PH machines).

1) Before connecting power to the unit, make sure all switches are in the OFF position.
2) Fill the machine with solution to the maximum capacity defined below.
    - **MAX CAPACITY: 175 GAL**
    - **MIN LEVEL: 95 GAL**



- **IMPORTANT!** Refer to the mix ratio listed on the detergent bottle. You can also refer to the detergent manufacturer website or contact the manufacturer directly to obtain mix ratio recommendations. The gallon capacity will be a mix of water and detergent at the correct ratio.

3) Install Cylinder Housing. Image below for details



# VII. Operation

**IMPORTANT!** Any person operating this machine shall first read and understand this instruction manual fully. Pay careful consideration to all of the prior sections in this manual. An operator should have good understanding of the machine. Be familiar with all the chemicals used and take the necessary safety precautions when working with and around the machine.

## A. Preparation and Inspection

1) Before starting the machine in the morning, walk around and inspect for damage or leaks.

2) Open the door and check liquid level and top off with solution and at the correct mix ratio if applicable.

3) Inspect the washing components for damage. Inspect door function.

4) Verify there has been no modification or alteration to the machine which could introduce risk of harm

5) Verify there is no Lockout/Tagout or other notifications indicating the machine is damaged and dangerous to use.

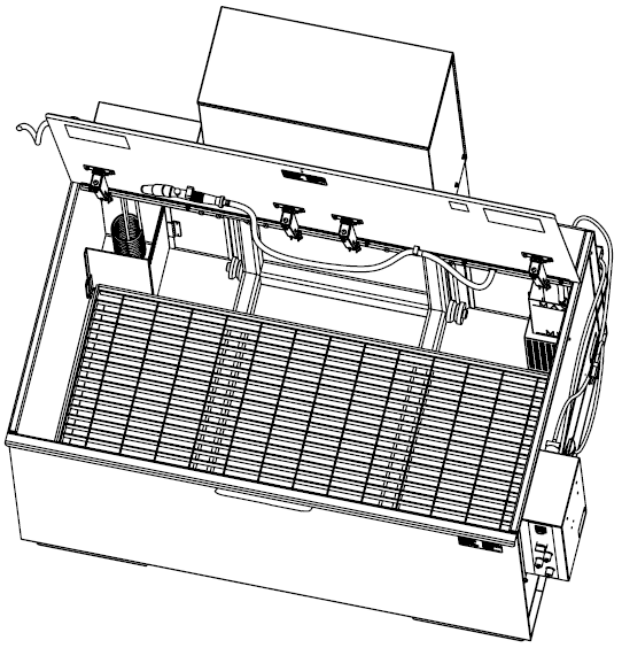
6) Turn ON each function of the machine and verify operation.

7) Test any safety interlock on the machine to verify function.

8) For Aqueous, Heated Applications - Wait approximately 2 hours for full heat up of liquid. The unit is now at operating temperature and can begin normal operation. If the machine is equipped with a 7-day programmable timer, this timer can be programmed to pre-heat prior to the beginning of the work day.

- **CAUTION!** Do NOT operate the unit until the liquid is up to operating temperature. Not doing so will generate foaming. Also, detergent cleaning performance is temperature dependent. The liquid must be hot to clean optimally.

## B. Loading



**DANGER!** The maximum loading capacity of this machine is 750 lbs. This rating is a distributed load rating. This weight must be distributed evenly to achieve the 750 lbs. capacity rating safely.

**IMPORTANT!** The working height of this machine is approximately 10". Parts taller than 10" may not fit into the machine. The working height of this machine is approximately 11" for soak depth for the parts to be fully submerged in the Down position.

Working height reduces to approximately 8" during Agitation, depending on setting and agitation stroke range for parts to remain fully submerged. Taller parts may not be completely submerged in the Down position or during the Agitate function.

1) Verify no obstructions are in front of door before opening.
2) Carefully place parts into the parts washer.
    - **MAXIMUM DISTRIBUTED LOAD: 750 LBS.**
    - When loading small and numerous parts, always distribute the weight evenly across the work area.
    - Very small parts may need to be contained within a parts basket or mesh container to prevent them from falling out of the work area.
    - When loading large and heavy part, always center the part and ideally over any supporting beam under the work area. If more than one large and heavy part is loaded, evenly distribute them across the work area.
    - If a very large and heavy part must be lowered, make sure the first contact point of the part is located over a main support structure. Then continue to lower the part fully and make sure the part is centered after completely lowered.
3) Verify the part fully clears any functional elements of the machine as to not cause risk of damage to the part or machine during the wash process.

## C. Unloading

**CAUTION!** Parts will be HOT after the wash cycle and will be at or near the set operating temperature of the unit. Contact temperatures may exceed 140°F. Always wear proper protective equipment when handling washed parts. Expect high heat, liquid contact, and possible splash.

1) Verify there are no obstructions in front of door before opening.
2) Allow the parts to drip dry if possible. Do NOT use compressed air to dry parts.
3) Carefully remove parts. Pay careful attention to loading balance as you remove parts.
    - **CAUTION!** Parts may be slippery and difficult to hold when wet. Always wear appropriate PPE for the chemicals, temperature, and to protect eyes from splash or spray. When removing parts, drip from parts may wet the floor and may create hazardous walking conditions.
4) Close the door when finished to minimize evaporation losses from the machine.

## D. Shut Off

1) Turn the pump switch to the OFF position. If equipped with a wash timer, the 0 position will automatically be the OFF position.
2) If the machine is equipped with a heater, It is recommended the heat switch remains in the ON position during the entire work period to maintain operating temperature.

Heating may be left ON for as long as is beneficial for the work environment including overnight if the washer is required immediately the next workday. Some machines may be equipped with a 7-day programmable timer for automatic start and stop of the heating function based on operation needs.

3) For Aqueous, Heated Applications - When not using the unit for extended periods of time, the pump switch or timer should be set to the OFF position. If equipped with a heater, the heater switch should be set to the OFF position. turn the heater switch to OFF. If equipped with a 7-day programmable timer, this time can be switched to Manual mode and set to the OFF position. The unit will use nearly no power with functions in the OFF state, although electrical components remain energized. You may also shut off the main breaker power to the unit during inactive times. There is no harm in disconnecting the machine from power for an extended period.

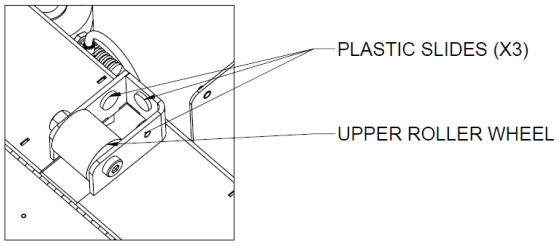
   - **IMPORTANT!** When planning to shut off heating and letting the liquid cool, keep in mind the time it takes to reheat the liquid before you can begin further use. The decision of turning off heating should be made with the allowance of reheating time prior to next use.

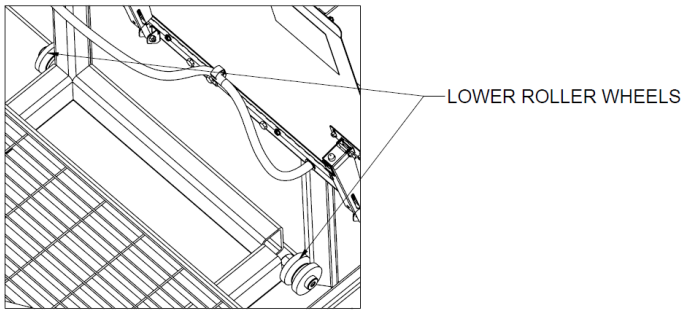
# VIII. Maintenance and Service

Following a proper maintenance schedule is crucial for machine performance and life. Neglect can cause poor operation or damage to components. Below is a recommended maintenance schedule. The needs of your machine and liquid solution will be unique to your operating environment. Track and adapt this recommendation to suit your specific needs. Proper and consistent maintenance is key in maintaining a healthy, high performing machine.

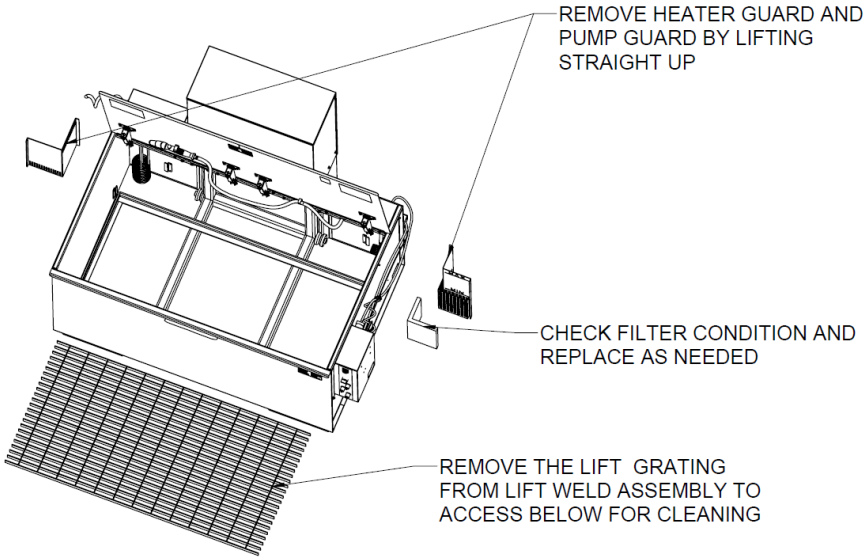
## A. Weekly

- Check debris trays and filter screens on the machine for debris build up. These primary filtering devices can be easily removed, cleaned, and reinstalled. The machine may have several styles of filtering devices between the work area and solution area, between the solution and pump, and at the pump inlet. Familiarize yourself with the equipped filtering devices, inspect, and clean weekly.
- Check plastic slides, upper roller wheel and lower roller wheels. Image below for details.

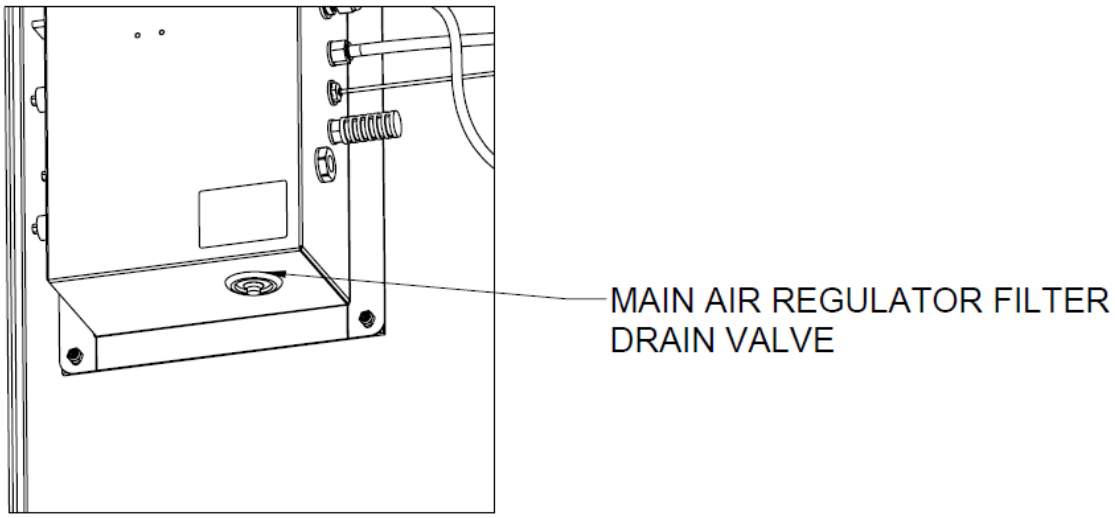



- Check filter condition and replace it as needed. Image below for details.



- Check main regulator filter drain valve.  Image below for details.




## B. Monthly

- Check all external hoses and plumbing for leaks or weaknesses and replace if necessary. Check the hoses during the wash cycle to see if bubbles form in the hose lining.

## C. Use Dependent

### i. Solution

Solution and machine maintenance are crucial to the performance of this machine. We recommend that the solution is monitored daily, and records are kept. This will provide a “baseline” of “clean” readings and will help determine when it may be time clean out the tank. This preventative maintenance will save your company time, effort, and money. Below is a sample maintenance report that is used to great extent to maintain the solutions.

### ii. Sludge

**IMPORTANT!** Removing oil and sludge regularly can greatly promote the life of the cleaning solution and the effectiveness of the machine. Sludge sits on the bottom and cannot be seen. Clean out the tank within the first week of operation to get an idea of how fast sludge will form for your specific parts cleaning operation. Depending on the application, some businesses have to clean-out sludge at least weekly, while others can wait months.

1) Disconnect power to the machine.
2) Drain the solution to a holding tank or drum.
3) Scrape out any sludge from the bottom of the tank. Be careful not to damage any internal components like pump, float switch, or heating elements while cleaning the bottom of the tank. Waste sludge should be contained and handled according to the laws and regulations of the region

## D. Sample Maintenance Schedule

Model: _____ Current Detergent: _____

Month: _____ Date Loaded: ____/____/_____

Water Analysis:

| DATE | __/__/__ | __/__/__ | __/__/__ | __/__/__ |
|---|---|---|---|---|
| Tested By | | | | |
| pH | | | | |
| Conductivity | | | | |
| ppm | | | | |
| % Detergent | | | | |
| Rubber Wheel Condition | | | | |

- A pH/conductivity meter, and an alkalinity titration kit are readily available and easy to use tools that will help monitor the status of the bath. Contact the detergent supplier regarding easy ways to test detergent concentration.
- The chart can be modified to include any relevant data that is necessary to run the machine. (Some items on this chart may not apply to all machines.) The chart should also include a section labeled “Comments”. Any maintenance performed on the machine, or the solution (e.g., changing the solution, adding detergent) can be recorded in this section, including the name of the involved personnel and the date.
- **IMPORTANT!** All service personnel shall read and familiarize themselves with this instruction manual. The service technician should follow all safety procedures and be familiar with machine operation, maintenance, and troubleshooting. A service personnel shall read and familiarize themselves with SDS of any chemicals and contaminants in the machine.
- Record and maintain contact information of your local dealer and service representative.
- Electrical troubleshooting and repair should be performed by a certified electrician. Contact your dealer for a local representative. If no recommended personnel are available, any industrial electrician local to your area can service this product. Replacement parts list and wiring schematics are listed later in this manual.

# IX. Troubleshooting

**IMPORTANT!** All advanced troubleshooting should be performed by a certified electrician.

## A. No power to the unit

1) Verify the unit is wired correctly.
2) Check the main circuit breakers in the supply circuit. If a breaker is tripped, reset and try operating the unit. If the breaker trips again, contact an electrician to troubleshoot the cause.
3) If equipped, check the main fuses on the unit. If any fuses are blown, replace and restart the unit. Monitor for additional failure. If fuses continue to blow, contact an electrician to troubleshoot the cause.

## B. The unit has power, the heat works, but the pump does not turn on

1) If equipped, inspect the door safety interlock switch. Verify that it is being fully depressed when the door is closed. If not, adjust the door safety interlock switch following the procedure in the ADJUSTMENTS section of MACHINE CONTROLS AND ADJUSTMENTS.
2) If equipped, inspect the pump timer and verify it has been adjusted past the 10-minute mark. Does the timer count down?
3) If equipped and above checks have not resolved the issue, have an electrician inspect the pump timer and door safety switch for proper operation and determine if either component requires replacement. A DMM on the Ohm setting can easily verify if these components are functional.
4) **DANGER! Electrical - Disconnect the machine from all power sources.**

   Check wiring connections and verify no loose connections to the motors
5) **DANGER! Electrical**

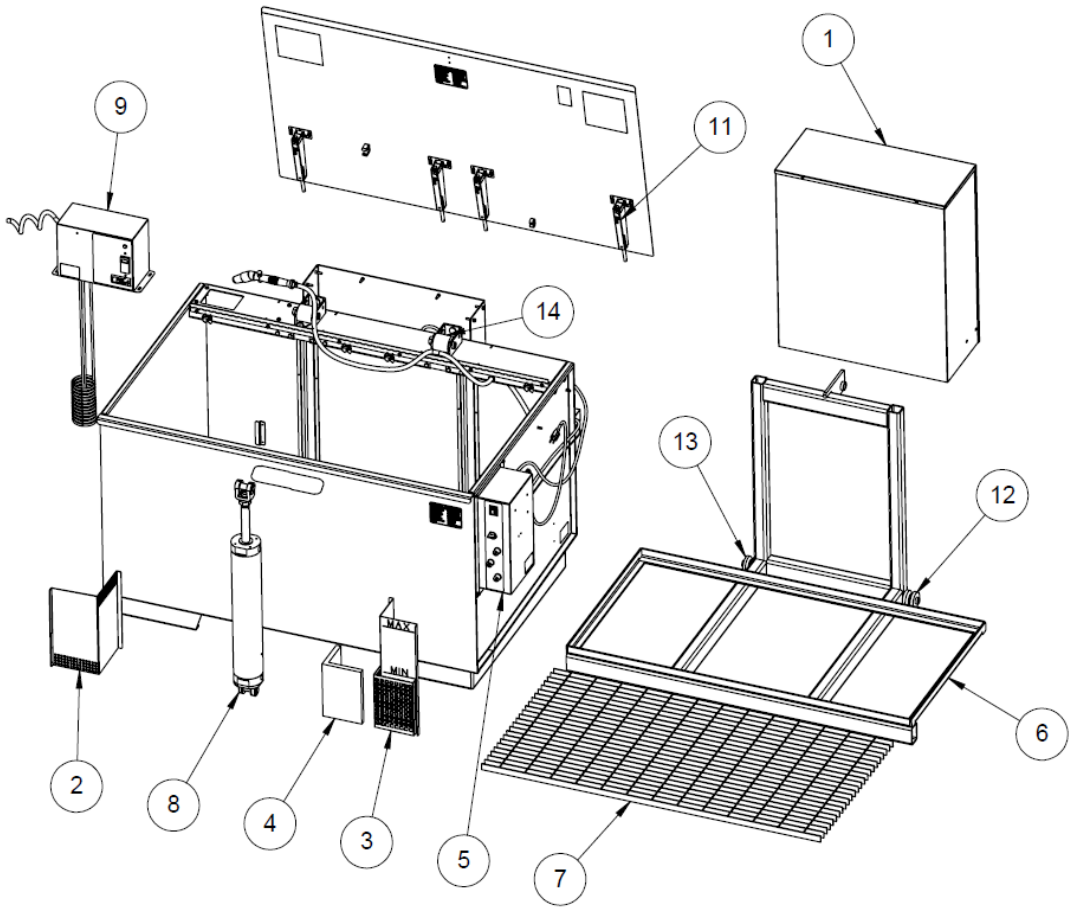
   If equipped with a contactor, there should be an audible “click” and visual movement of the plastic piece at the center of the contactor indicator when the coil closes the contacts. Note, some contactors don’t have visual indication of the contact motions, and this style can not be visually observed or manually tested.
6) If equipped, if the contactor does not seem to operate, have an electrician verify the contactor coil is receiving the correct voltage. If the correct voltage is supplied to the coil inputs and the contactor does not close, then contactor is faulty and needs replacing.
7) Check for any obstruction that may prevent motor rotation.
8) Verify there is no blockage in the pump impeller.
9) Have an electrician check output voltage from the contactor supplying the motor. Verify the motor is wired correctly and is receiving electricity. If electricity is being supplied to the motor and it still does not function, the motor is likely damaged and requires replacing.

## C. The unit has power, the pump works, but the heat does not turn on

1) Verify the heater 7-day timer is active. A hollow light bulb on the display should appear if active. Reference the 7-day timer instructions in the Machine Controls and Adjustments section of this manual.
2) Verify the thermostat temperature is set properly and that it has not been adjusted too low. Reference the digital thermostat instructions in the Machine Controls and Adjustments section of this manual.
3) Check contactor function. There should be an audible “click” and visual movement of the plastic piece at the center of the contactor indicator when the coil closes the contacts.
4) If the contactor does not seem to operate, have an electrician verify the contactor coil is receiving the correct voltage. If the correct voltage is supplied to the coil inputs and the contactor does not close, then contactor is faulty and needs replacing.
5) If the contactor functions, have an electrician inspect the output voltage from the contactor. Verify the heaters are receiving electricity. Inspect the wiring connections to the heaters.
6) If the heater is properly wired and is being supplied electricity from the contactor output, the heater may be damaged and requires replacement. Swap out one heater with a new heater and test the unit.

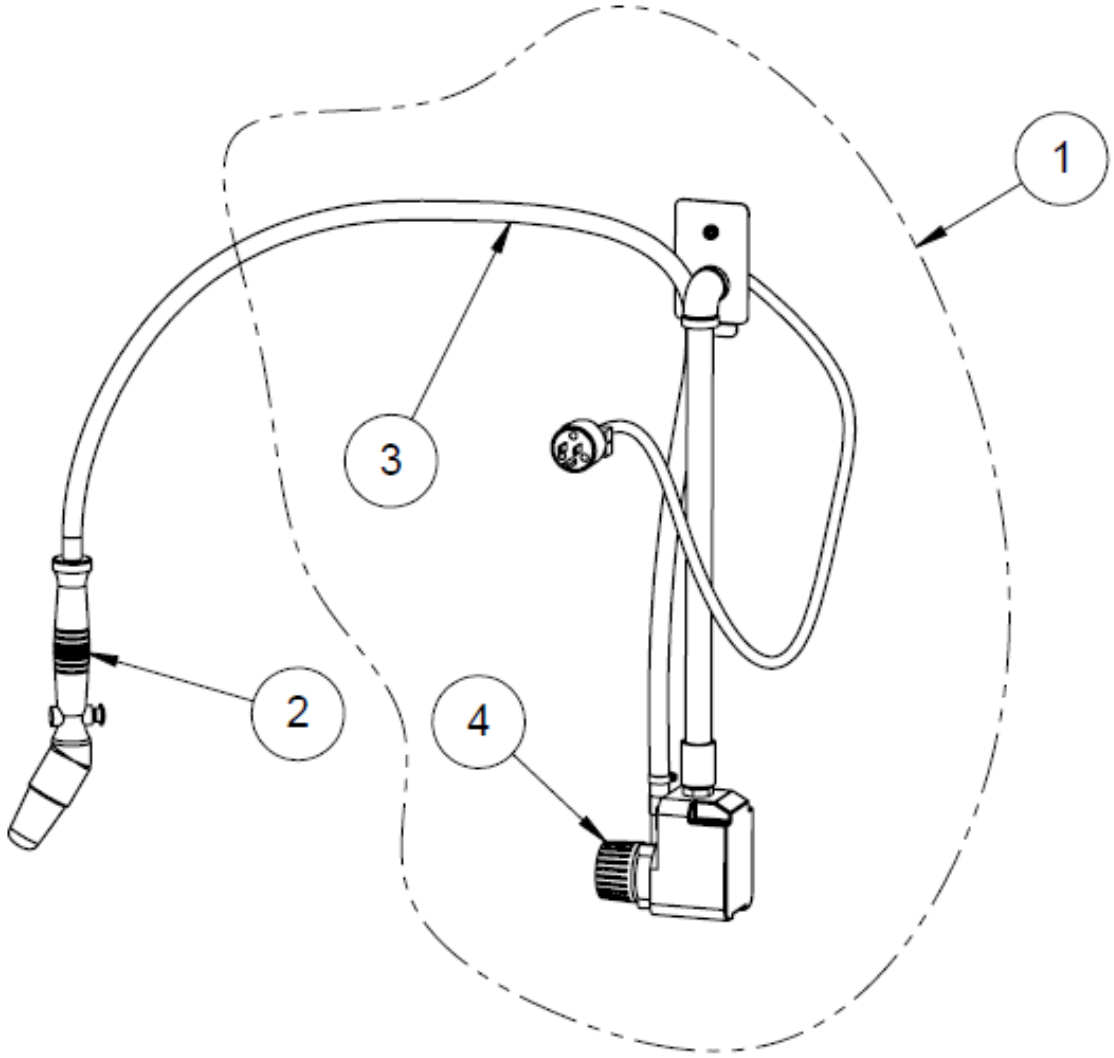
# X. Replacement Parts / Optional Parts

## A. Complete Unit Overview




| ITEM NO. | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | 600320 | HOUSING ASSY,EM150,SS |
| 2 | 600315 | GUARD,HEATER,SS |
| 3 | 600319 | GUARD WELDMENT,PUMP,SS |
| 4 | 700022 | FILTER PAD,5.75X5.75,HOG HAIR |
| 5 | 700020 | BOX ASSY,CTRL,115V |
| 6 | 600251 | LIFT WELD,EM150,SS |
| 7 | 600254 | GRATE,53.50X27.44X,1" BAR,SS |
| 8 | 500012 | CYLINDER,100MM,34.7-53.7,ALUM |
| 9 | 700018 | MODULE,HTR,EM80/EM150,230V |
| | 700019 | MODULE,HTR,EM80/EM150,460V |
| 11 | 100032 | DOOR CLOSURE,SS |
| 12 | 100126 | ROLLER,2.5X.75X1.69,V,NYLOIL |
| 13 | 100125 | ROLLER,2.5X.75X1.5,V,NYLOIL |
| 14 | 100124 | ROLLER,2.5X.75X2.38,NYLOIL |

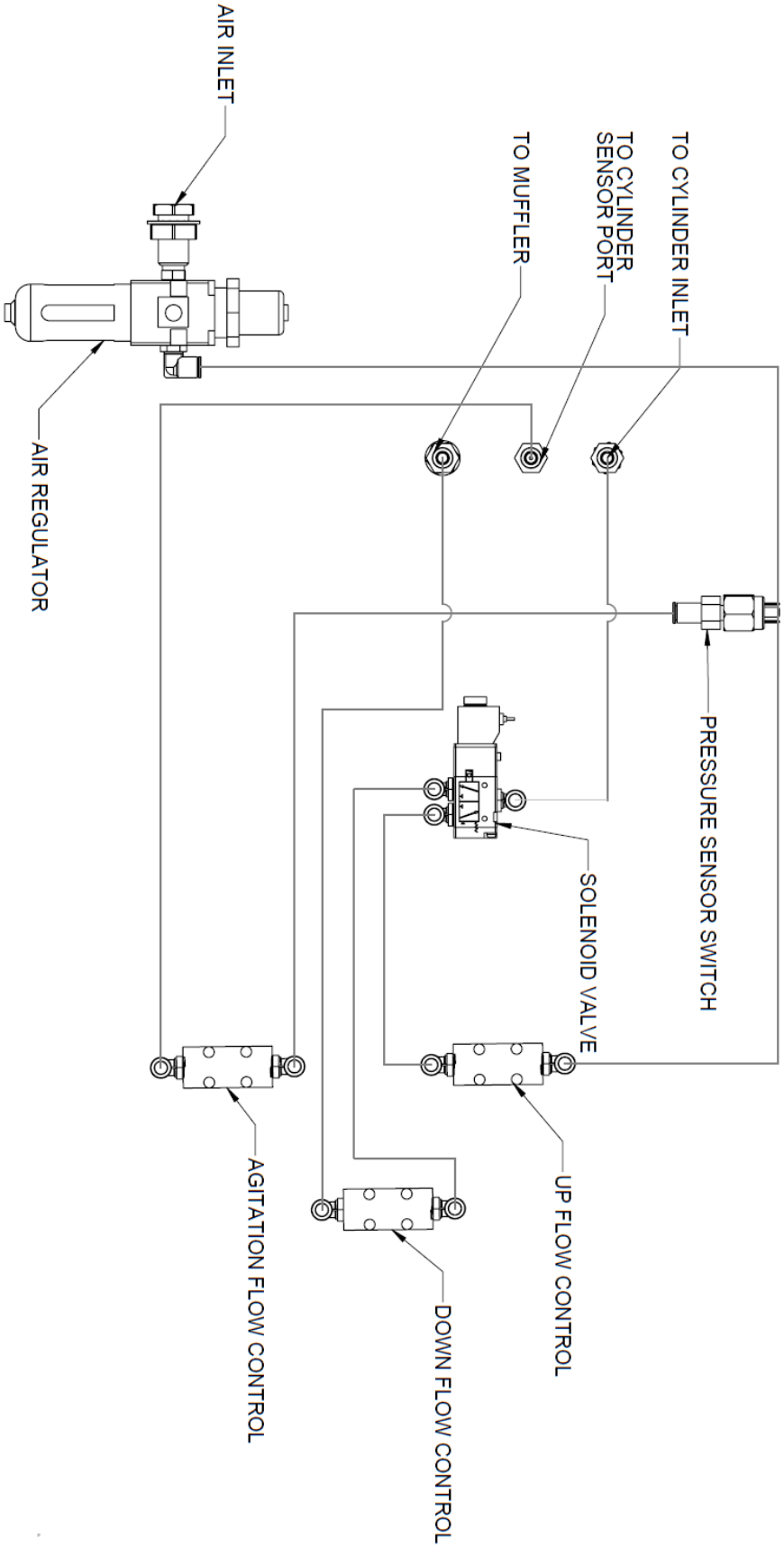
## B. Flow-Through Wash Brush




| ITEM NO. | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | 700021 | PUMP ASSY,VAT,AQ,115V |
| 2 | 400007 | BRUSH,FLO-THRU,ANGLED W/BUTTON |
| 3 | 400004 | HOSE,3/8 ID,30R7 |
| 4 | 500002 | PUMP,ELECTRIC,210GPH |

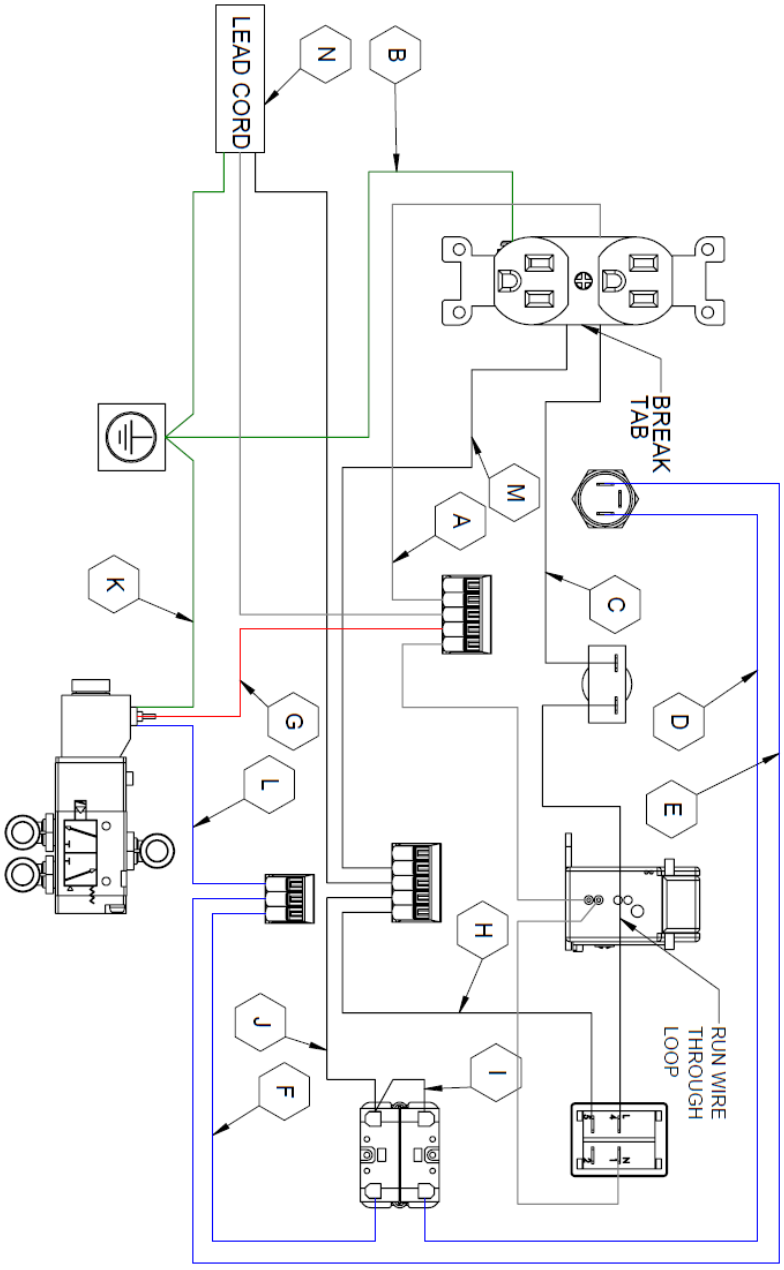
# XI. Wiring Schematics

## A. Pneumatic

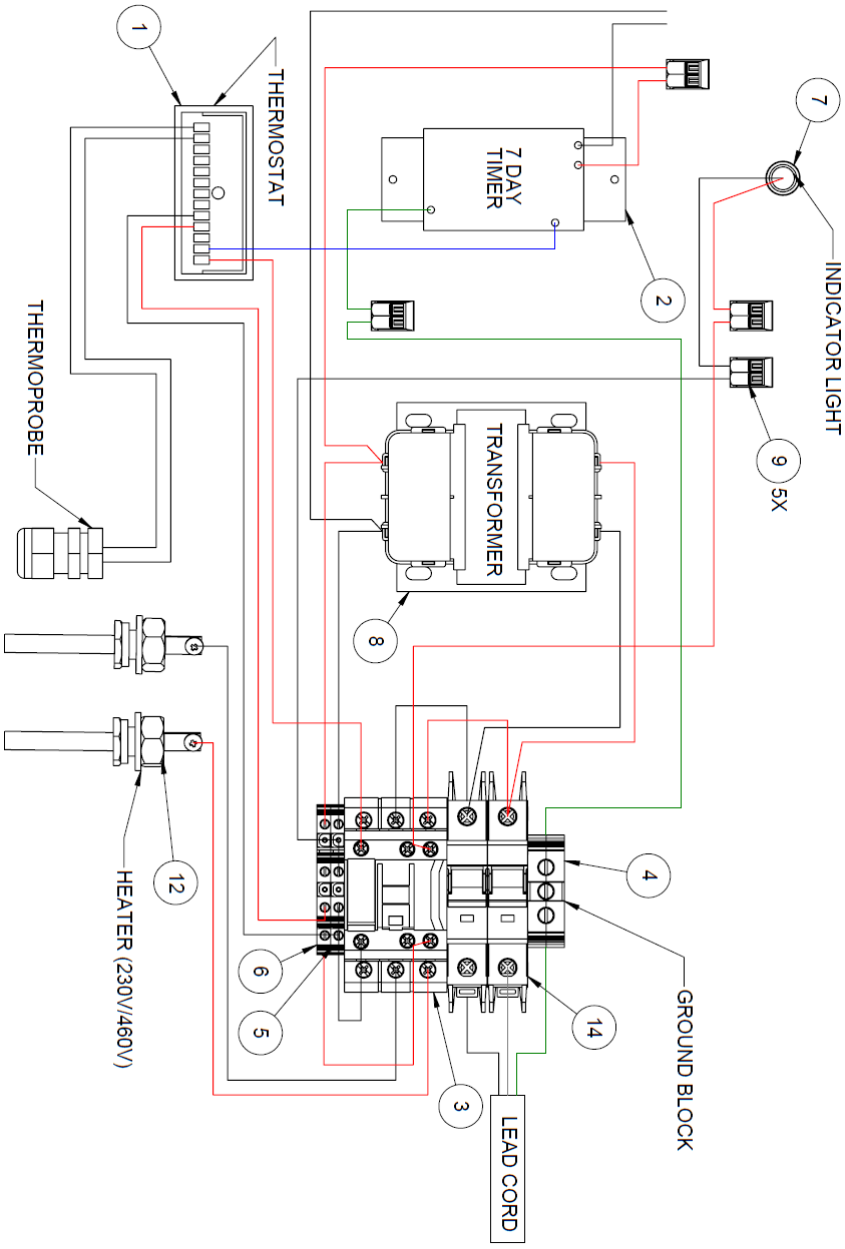


# B. Electrical Control Box 115 V 1 PH

| EM80/150 CONTROL BOX | | | |
|---|---|---|---|
| COLOR | AWG | LENGTH | LABEL |
| WHITE | 16 | 6" | A |
| GREEN | 16 | 6" | B |
| BLACK | 16 | 8" | C |
| BLUE | 16 | 14" | D |
| BLUE | 16 | 18" | E |
| BLUE | 16 | 6" | F |
| RED | 20 | 10" | G |
| BLACK | 16 | 8" | H |
| BLACK | 16 | 4" | I |
| BLACK | 16 | 6" | J |
| GREEN | 20 | 10" | K |
| BLUE | 20 | 10" | L |
| BLACK | 20 | 10" | M |
| GREEN | | | |
| WHITE | 18/3 | 90" | N |
| BLACK | | | |



# C. Electrical Heater 230/460 V 1 PH




| ITEM NO. | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | 200065 | THERMOSTAT,DIGITAL,120V |
| 2 | 200066 | SMART TIMER,DIGITAL,120V,WH |
| 3 | 200067 | CONTACTOR,IEC,38A 120V |
| 4 | 200068 | TERM BLOCK,DIN RAIL,GRD,16MM |
| 5 | 200069 | TERM BLOCK,DIN RAIL,BLK,6MM |
| 6 | 200070 | TERM BLOCK,DIN RAIL,RED,6MM |
| 7 | 200072 | PNL LIGHT,LED,240V,12MM |
| 8 | 200073 | TRANSFORMER,75VA,1PH,OPEN |
| 9 | 200034 | CONNECTOR,LEVER LOCK,2 PORT |
| 10 | 200076 | THERMISTOR,PTC,10FT,SS |
| 12 | 200075 | HTR,6KW,230V SPIRAL |
| | 200081 | HTR,6KW,460V SPIRAL |
| 14 | 200082 | CIRCUIT BREAKER,DIN 3.35A |
| | 200074 | CIRCUIT BREAKER,DIN 3.20A |

# XII. Warranty

**LIMITED WARRANTY AND LIMITATION OF REMEDIES AND DISCLAIMER**.

(1)Fountain Industries, LLC “Fountain” warrants the Equipment to be free from defects in material and manufacture and to conform to specifications for the Equipment at the time of shipment. This warranty is applicable only if the Equipment is installed, operated and maintained in accordance with factory recommendations and procedures, including, but not limited to, the use of Fountain’s approved solutions or accessories. If any Equipment fails to conform to the specifications or samples or any defect in material or manufacture appears within twelve (12) months from the date of initial purchase by end user Fountain’s entire liability, and Customer's or end user’s exclusive remedy, shall be, to either repair or replace such defective Equipment, at Fountain’s option, within a reasonable time after written notification thereof and return of the defective Equipment to Fountain.

(2) THIS WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, ANY IMPLIED WARRANTY ARISING OUT OF COURSE OF DEALING OR OF PERFORMANCE, CUSTOM OR USAGE OF TRADE EXCEPT OF TITLE AND AGAINST PATENT INFRINGEMENT.

(3) LIMITATION OF LIABILITIES; TIME LIMIT FOR FILING ACTION. NEITHER PARTY SHALL UNDER ANY CIRCUMSTANCES BE LIABLE TO EACH OTHER FOR DAMAGES OF ANY KIND, INCLUDING, WITHOUT LIMITATION, DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, REVENUE OR BUSINESS) RESULTING FROM OR IN ANY WAY RELATED TO THE EQUIPMENT, ANY OF CUSTOMER'S PURCHASE ORDERS, THESE TERMS AND CONDITIONS OR THE TERMINATION OR NONRENEWAL THEREOF.

FOUNTAIN’S LIABILITY ON ANY CLAIM OF ANY KIND (INCLUDING NEGLIGENCE) FOR ANY LOSS OR DAMAGE ARISING OUT OF OR RESULTING FROM THIS AGREEMENT, OR FROM THE PROFORMANCE OR BREACH THEREOF, OR FROM THE EQUIPMENT FURNISHED HEREUNDER SHALL IN NO CASE EXCEED THE PRICE OF THE SPECIFIC EQUIPMENT WHICH GIVES RISE TO THE CLAIM. ALL SUCH LIABILITY SHALL TERMINATE UPON THE EXPIRATION OF THE WARRANTY PERIOD AS STATED HEREIN.

These limitations apply regardless of whether such damages are sought based on breach of contract, negligence, strict liability in tort or any other legal theory.

(4) Any action for breach of warranty or any other obligation under these Terms and Conditions must be commenced within one (1) year from the purported date of breach.

(5) Each limitation on liability or remedy set forth in these Terms and Conditions is independent of any other limitation or if they are otherwise held to be unenforceable, that shall not affect the validity of any other such limitation or remedy.

Fountain assumes no liability for any claims for injury or damages to persons or property arising from any chemical manufactured by Customers or by any third party vendors for use in any Fountain’s equipment.

Terms or conditions contained in any Customer purchase order or similar document that in any manner purport to alter, modify, change, or suspend these terms shall be deemed excluded from such purchase order and expressly waived by the Customer.

This limited warranty does not cover or include any consumable/wearable products, such as filters or brushes, associated with such equipment.

Fountain assumes no liability for any unauthorized modifications carried out to the equipment not strictly recommended by the factory procedures or recommendations.

This limited warranty is not transferable, and does not cover any general equipment maintenance, demonstration, installation, routine servicing, calibration or customization of any equipment.

No person is authorized to alter or extend this limited warranty unless made in writing and signed by an authorized officer of Fountain.

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