



USER MANUAL

MODEL:

FBHS-MR

Foot Bath Hand Sanitizer

English (Original Instructions)

Updated: 05/12/20



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WARNING:

1. All personnel using this unit must be familiar with the information contained in this manual. Follow all installation and maintenance instructions.
2. Always wear appropriate footwear. Secure or remove loose items on footwear.
3. Ensure solid footing when operating the unit.
4. Avoid contact of chemicals with skin and eyes. If contact occurs, see MSDS sheet for further first aid measures.
5. Follow safety instructions of chemical manufacturer (MSDS).
6. Always follow plant and OSHA guidelines about the use of equipment.
7. Disconnect power before servicing equipment.
8. Always follow safety precautions and obey warning labels. Failure to do so could result in injury or death.



USER MANUAL: FBHS-MR

READ ALL INSTRUCTIONS BEFORE OPERATING EQUIPMENT



Overview

The FBHS, Foot Bath and Hand Sanitizer, applies a fine mist spray onto the hands through 16 anti-drip nozzles. Concentrated sanitizer and water are pre-mixed in the onboard batch tank before it is applied to the hands. Dual sensors detect travel direction and activate hand spray when the user enters the production area. "Watchdog" timers are programmed into the system to prevent excessive water loss in the event of sensor failure. Level switches in both the foot bath and batch tank detect the liquid level and automatically replenish as necessary.

Specifications

- Construction: 304L stainless steel (frame). LDPE, Polypropylene, Fiberglass reinforced Polyester (grate).
- Weight: 200 lb (90.72 kg)
- Dimensions: 48.5" x 47.5" x 46"
(123.2 x 120.6 x 116.8 cm)
- Water Consumption: 1.5 GPM (3.8 L/m)
- Preset Chemical Dilution Ratio: 1:400*

***NOTE:** Unit tested at 70°F using water with 50 psi injector inlet pressure.

Cleaning Methods

See pages 8 for disassembly and cleaning instructions. For chemistry recommendations:

| Use Case | Chemical Type |
|-----------------|--|
| Organic Soils | Chlorinated Alkaline or Alkaline based foaming cleaner |
| Mineral Buildup | Acid based foaming cleaner |

NOTE: Chemistry used must be compatible with materials of construction (listed above).

System Requirements

Water Supply

- Flow: 5 GPM (3.8L/m) minimum*
- Pressure: 50-60 psi (207-414 kPa)**
- Max Temperature: 70°F (4-38°C)

3/8" supply piping size recommended

WARNING:

DO NOT EXCEED maximum water temperature! Damage can result.

***Minimum pressure must be maintained during specified water flow!**

****For consistent operation of spray nozzles, a water pressure regulator and filter is recommended.**

NOTE: Back flow prevention must be installed in the water line to this unit. Check local codes to ensure proper installation.

WARNING:

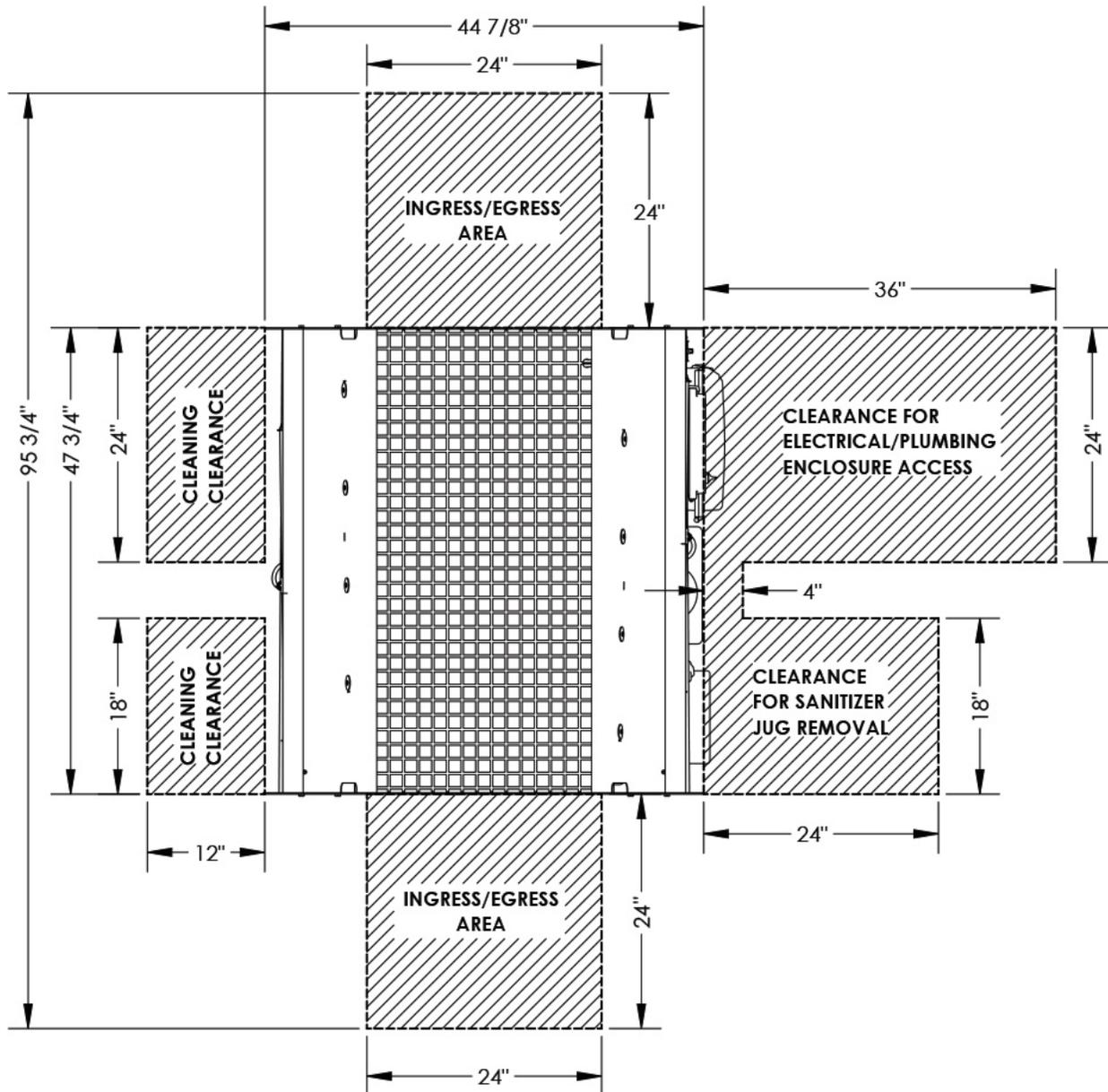
DO NOT use flammable liquids (i.e. alcohol based solutions or similar) without dilution.

Electrical

- 120 VAC Single Phase
- 60 Hz 15 Amps
- Supplied with 8 ft. power cable with NEMA 5-15P plug

Installation

NOTE: For fixed installations, area in front of electrical panel must be clear at least 36"

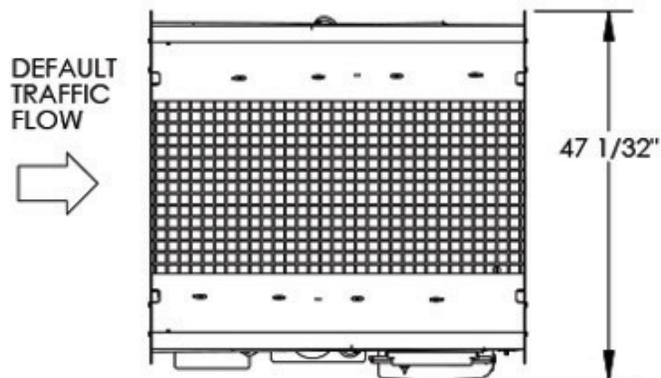


USER MANUAL: FBHS-MR

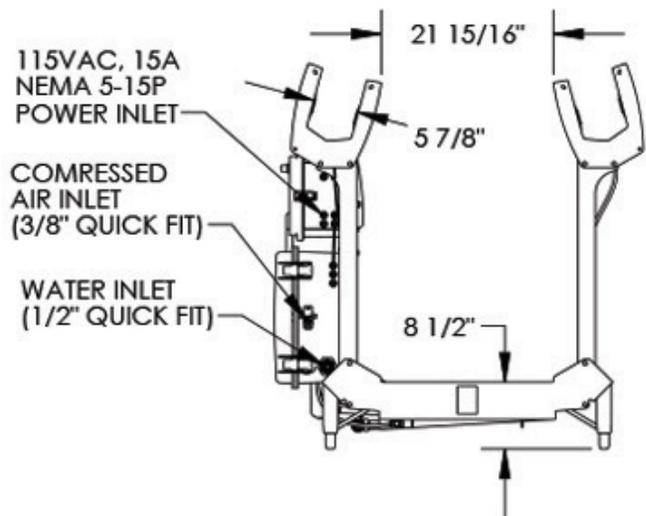
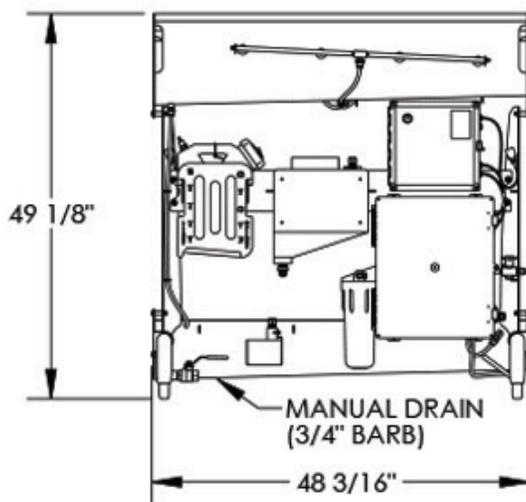
READ ALL INSTRUCTIONS BEFORE OPERATING EQUIPMENT



Installation



NOTE: Traffic flow direction can be reversed by swapping wires on inputs I-00 and I-001 of microcontroller (see electrical schematic for more information).



NOTE: Model -MR (Manual Refreash Foot Bath) is for locations which do not have a dedicated drain. Foot bath level is maintained by float switch and is only refreshed with new sanitizer if and when level drops to a point which activates float switch.

Installation

Physical Set Up:

1. Set unit in desired location.
2. Aspects to consider when deciding on placement:
 - Clearance for general use
 - Location of drain
 - Emergency exit paths or egress
 - Access to control box
 - Connections for water, electricity, and air

NOTE: To move the unit use a pallet jack or a hi-lo to lift from the bottom. Pad the forks to protect the finish.

3. Use a level to make sure the unit is stable and leveled in all directions [Figure 6.1].
4. Connect unit to electrical supply.

Plumbing Connections:

1. Using 1/2" LDPE tubing or similar, connect water to the unit's push to connect fitting [Figure 6.2]
2. Using 3/8" LDPE tubing or similar, connect air to the unit [Figure 6.2].
3. Fill chemical jug with sanitizer product and connect suction line (label jug for identification).
4. If necessary, adjust the dilution ratio by selecting an appropriate metering tip (included) and test.
 - The unit is pre-configured for a 1:400 dilution ratio.
 - The smallest metering tip is a yellow tip with a small tube attached. This tube can be trimmed to alter the dilution ratio. [Figure 6.3]

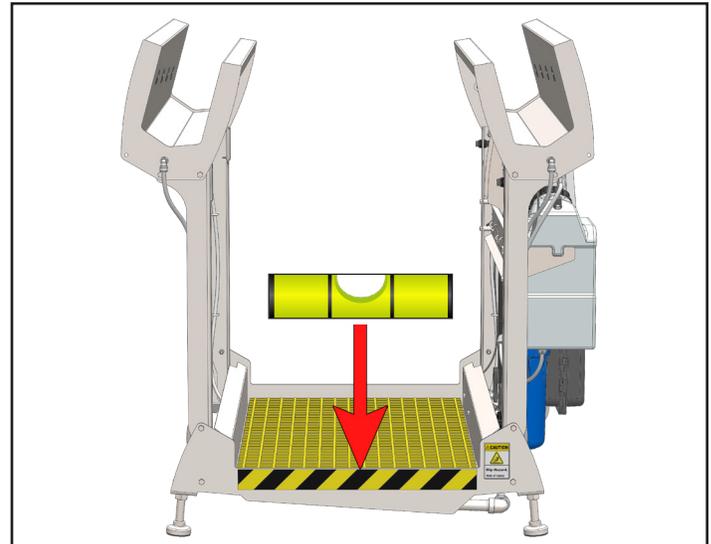


Fig. 6.1: Level and stabilize unit using a leveling device

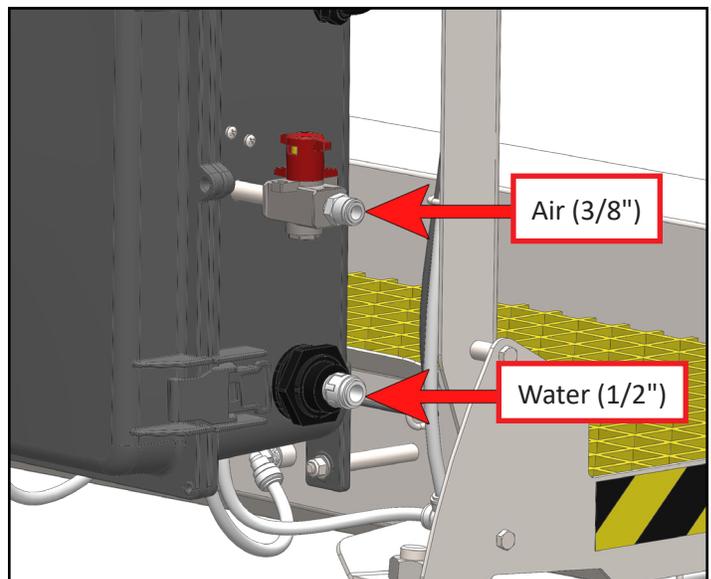


Fig. 6.2: Water and air inlets

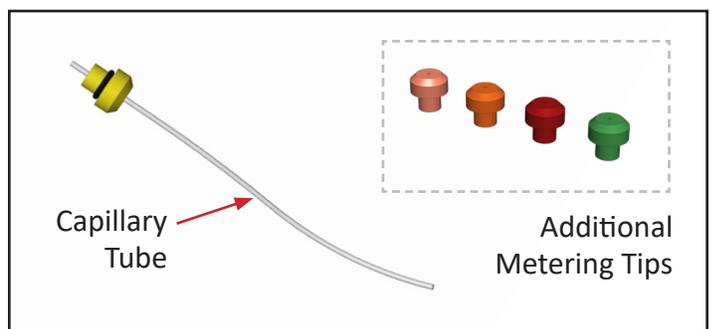


Fig. 6.3: Metering Tips and Capillary Tube

Installation

Plumbing Connections:

- Full length capillary tube results in a dilution ratio of approximately **1:670** at 30-50 psi water inlet pressure.
- When complete, re-connect solution lines to green hose barb of the Venturi Injector located in plumbing enclosure [Figure 7.1].

Priming

1. Turn switch on control box to **ON** position [Figure 7.2].
2. Turn the red-handled compressed air relief valve on the air inlet to **SUP.**
3. Prime hand spray system by activating sensor at front of unit (either by stepping in front of or waving your hand) until solution begins to spray.

NOTE: If the filter cartridge is empty, it may take 10-20 activations of the hand spray before the filter becomes saturated and the pump primes.

4. Use appropriate means (titration or other) to ensure sanitizer is being mixed into hand spray and foot bath at the correct ppm.

Traffic Direction

- The hand spray is designed to activate only when users are entering the unit from one end. The default traffic direction is shown in the previous section.
- The traffic direction can be changed if desired by switching the two black wires in terminals **I-00** and **I-01** on the micro controller (see electrical schematic for more information).

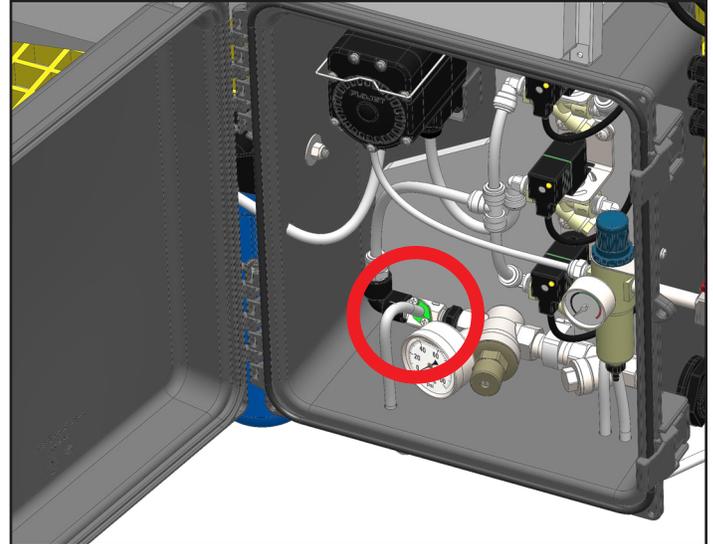


Fig. 7.1: Venturi DEMA Rocket Injector location

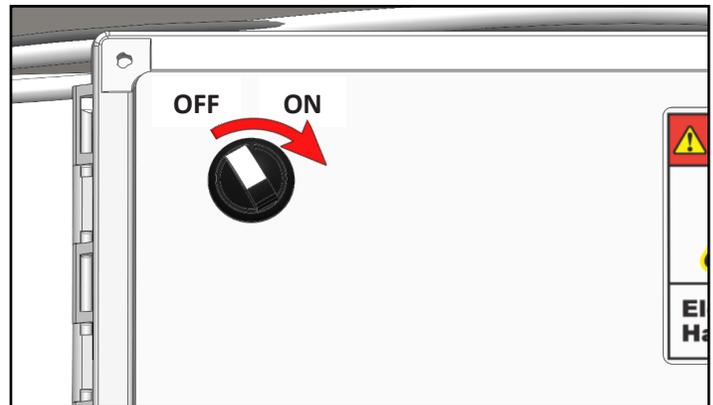


Fig. 7.2: Controller power switch

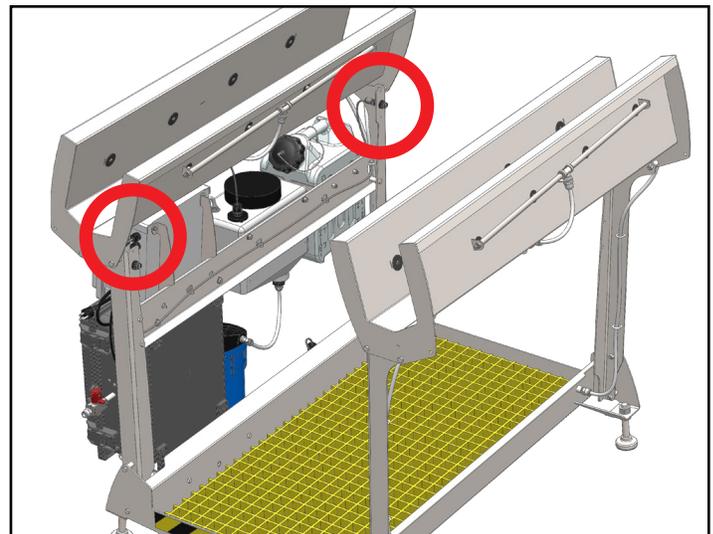


Fig. 7.3: Activation sensor locations

Operation

1. Make sure the drain valve is closed [Figure 8.1]
2. Turn the power switch to “ON” [Figure 8.2]
 - If the batch tank is low or empty, it should begin to fill.
 - If the foot bath is low or empty, it will begin to fill after the batch tank is full.
3. Make sure the red handled air-shutoff valve is turned to “SUP”.
4. Once the foot bath and batch tank are full, the user may step into the unit.
 - The hand spray will activate as soon as the user steps into the unit, and will stop one second after they step off.

NOTE: The hand spray is designed to activate only in one traffic flow direction [Figure 8.3]. Flow direction can be altered if necessary (see page 7 for more information).

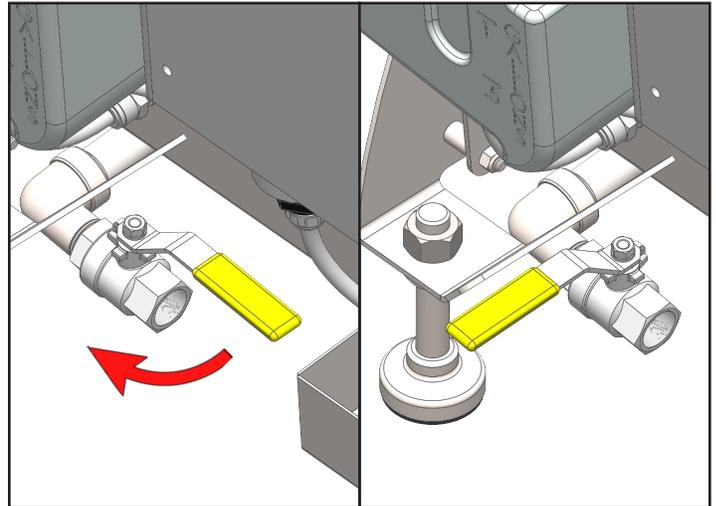


Fig. 8.1: Drain valve open (left) to close (right)

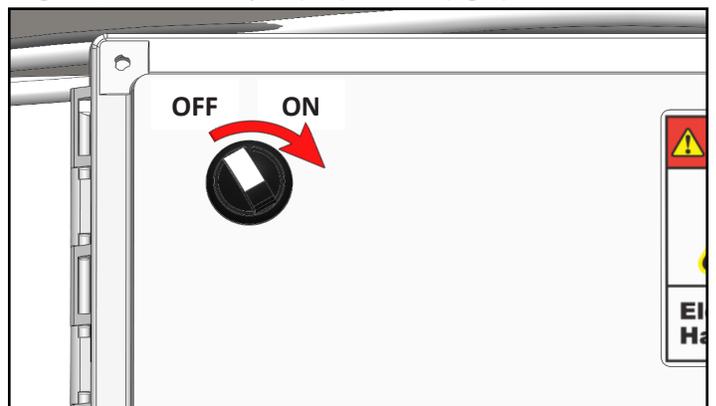


Fig. 8.2: Controller power switch

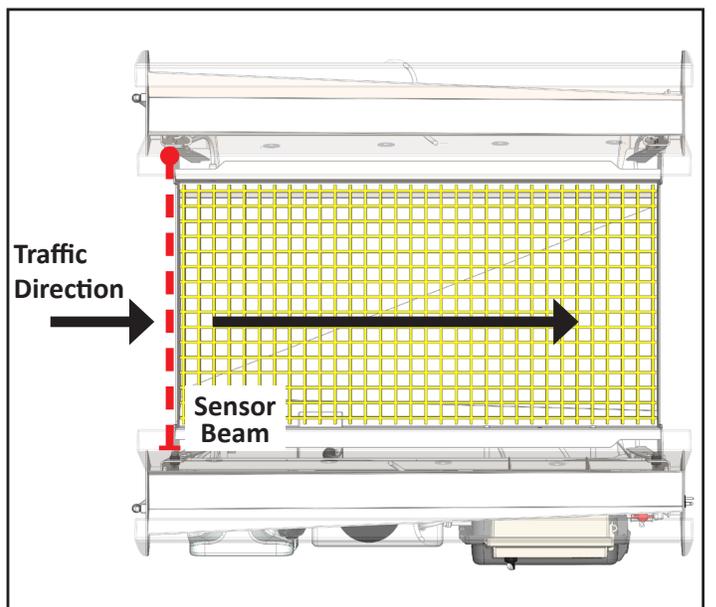


Fig. 8.3: Sensor beam and traffic direction

Cleaning Procedures

Cleaning Instructions

1. Turn the power switch to "OFF" [Figure 9.1].
2. Open the drain valve to drain the foot bath [Figure 9.1].
3. Use a cleaner that will not attack 304 stainless steel or any of the materials listed in the unit specifications.

| Use Case | Chemical Type |
|-----------------|--|
| Organic Soils | Chlorinated Alkaline or Alkaline based foaming cleaner |
| Mineral Buildup | Acid based foaming cleaner |

4. Avoid direct water spray around the control boxes and wiring entering/exiting the control boxes.
5. If necessary, remove the yellow walkway grate to allow better cleaning of the tub [Figure 9.3].

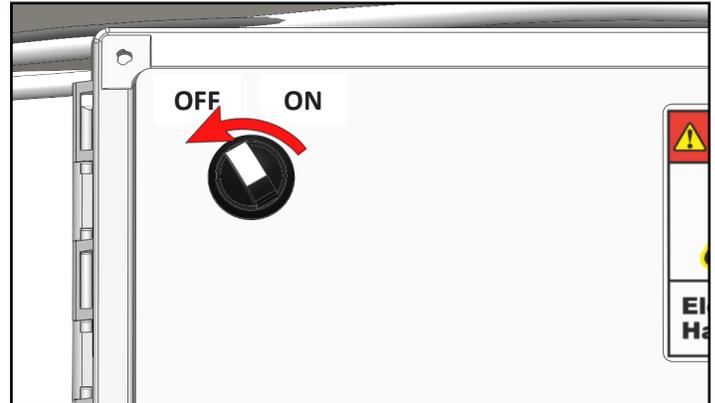


Fig. 9.1: Controller power switch

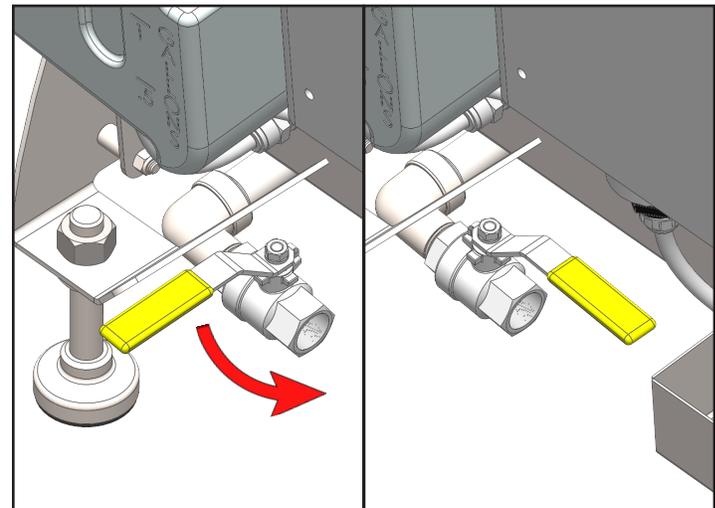


Fig. 9.2: Drain valve closed (left) to open (right)

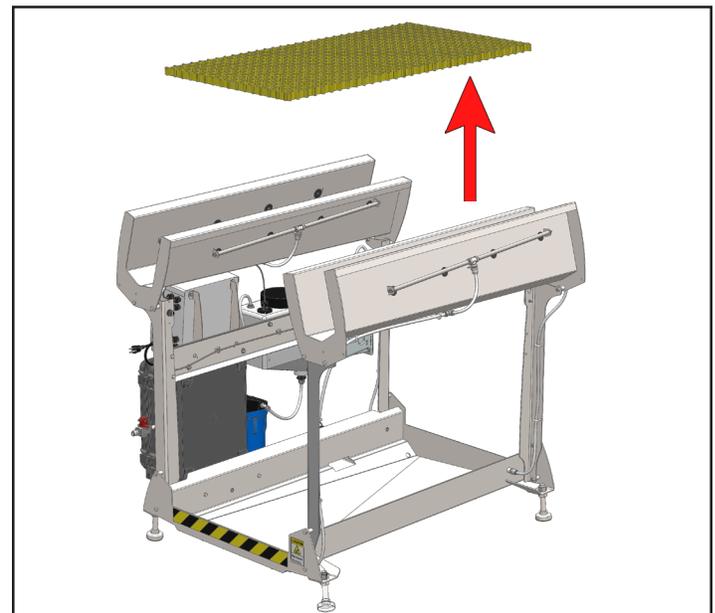


Fig. 9.3: Removing foot grate

Preventative Maintenance

Foot Bath Depth Adjustment

The depth of the foot bath can be adjusted by sliding the foot bath float switch assembly up or down.

1. Loosen the screw band clamp which holds the float switch.
 - Slide float switch upward to increase the depth of the bath.
 - Slide it downward to decrease the depth.
2. Re-tighten screw band clamp. **Do not overtighten.**

Filter Replacement

The filter should be replaced once per year or approximately 50,000 activations (whichever comes first).

1. Turn the switch on the control box to “OFF” to power down the system.
2. Turn red-handled compressed air relief valve to “EXH” to exhaust air pressure.
3. Unscrew the blue filter housing and remove filter
4. Install new filter and replace blue housing, screwing it on hand-tight. **Do NOT use a wrench!**

Nozzle Disassembly and Cleaning

1. Unscrew nozzle from outside of trough using pointer finger and thumb (see parts callout for more information).
2. Remove the rubber shield washer from the nozzle
3. The nozzle can be disassembled by unscrewing the check valve assembly from the nozzle orifice.
 - There is a pintle, a rubber bulb and spring inside the check valve portion of the body. These parts are VERY small - take caution not to lose them! (see below)
4. Clean the body and orifice portion of the nozzle using compressed air and inspect.
5. Re-assemble the nozzle
 - Make sure the small rubber tip and the pintle are seated properly inside the spring and are in the correct orientation. See image below.
6. Reinstall the shield washer and screw the nozzle back into the spray bar.
 - Finger tighten only! **Do NOT use wrenches!**



Troubleshooting

| Problem | Causes | Solutions | Notes |
|-----------------------------|---|--|--|
| The foot bath does not fill | The drain valve was left open while the unit was attempting to fill the foot bath, causing the controller to time out | Close the drain valve. | If the foot bath or batch tank fail to fill up within a specific amount of time, the unit will stop attempting to fill them until it is reset. This Prevents excessive water loss in the event of a failure. |
| | | Reset the unit by turning the power switch to "OFF" and then back to "ON". | |
| | The water supply is turned off or pressure is excessively low | Make sure the water supply is ON and the water pressure regulator on the unit reads at least 50 psi. | |
| | | Reset the unit by turning the power switch to "OFF" and then back to "ON". | |
| | The foot bath solenoid valve is faulty or clogged | Reset the unit by turning the power switch to "OFF" and then back to "ON". | |
| | | Wait for the batch tank to fill, or manually lift the float switch inside the batch tank and then check to see if the orange light on the foot bath solenoid coil connector illuminates. If the light illuminates but no water flows, repair or replace valve. | |

Troubleshooting

| Problem | Causes | Solutions | Notes |
|--|---|--|--|
| The foot bath overflows | The float switch is faulty or out of adjustment | Open the drain valve to lower the water level in the foot bath such that it is below the walkway grating. | |
| | | Reset the unit by turning the power switch to "OFF" and then back to "ON". | |
| | | Test the float switch function as detailed in the maintenance instructions and adjust or replace as necessary. | |
| The hand spray does not function <i>(See Continued....)</i> | The batch tank is empty | Make sure the water supply is on and the water pressure regulator on the unit reads at least 50 psi. | |
| | | Reset the unit by turning the power switch to "OFF" and then back to "ON". | |
| | | Make sure the light on the batch tank solenoid coil connector illuminates and water begins to flow into the tank. If the light illuminates but no water flows, replace the solenoid valve. | |
| | | Test the batch tank float switch function as detailed in the maintenance instructions and adjust or replace as necessary. | If the foot bath or batch tank fail to fill up within a specific amount of time, the unit will stop attempting to fill them until it is reset. This prevents excessive water loss in the event of a failure. |

Troubleshooting

| Problem | Causes | Solutions | Notes |
|--|--|--|-------|
| The hand spray does not function <i>(continued)</i> | Compressed air supply is turned off | Make sure the air supply is on and the red-handled shutoff valve is set to "SUP". The air pressure regulator gauge on the unit should read between 80 and 100 psi. | |
| | The hand spray solenoid valve is faulty or clogged | Check to see if the orange light on the hand spray solenoid coil connector illuminates when the photo eye is tripped. If the light illuminates but the hand spray does not activate, repair or replace the solenoid valve. | |
| | Pump failure | If the hand spray solenoid valve is open, and compressed air is supplied to the pump but it fails to cycle, replace the pump | |
| | Clogged filter | Unscrew the blue filter housing and check filter or debris or clogs. Replace the filter element if necessary. | |
| The batch tank overflows | Faulty float switch | Test the batch tank float switch function as detailed in the maintenance instructions and replace as necessary. | |

Troubleshooting

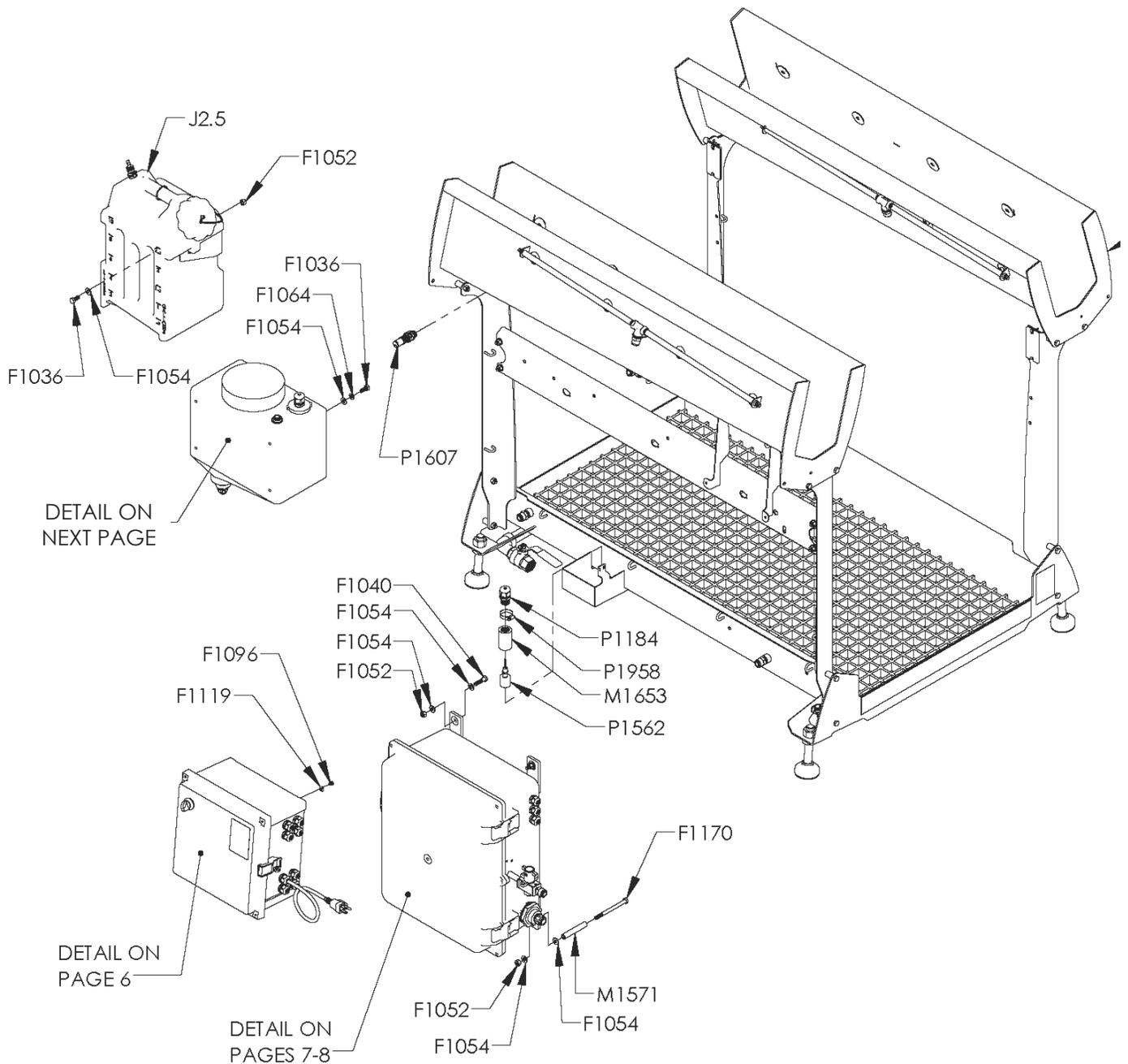
| Problem | Causes | Solutions | Notes |
|---|------------------|--|-------|
| Poor spray performance, or some nozzles spray while others do not | Clogged nozzles | Turn the power switch to "OFF" and turn the red-handled air shutoff valve to "EXH". Clean or replace the nozzles as detailed in the maintenance instructions. Turn the power "ON" and the air to "SUP" and test. | |
| | Clogged Filter | Unscrew the blue filter housing and check filter or debris or clogs. Replace the filter element if necessary. | |
| | Low air pressure | Make sure the pressure gauge on the air pressure regulator reads between 80 and 100 psi. | |



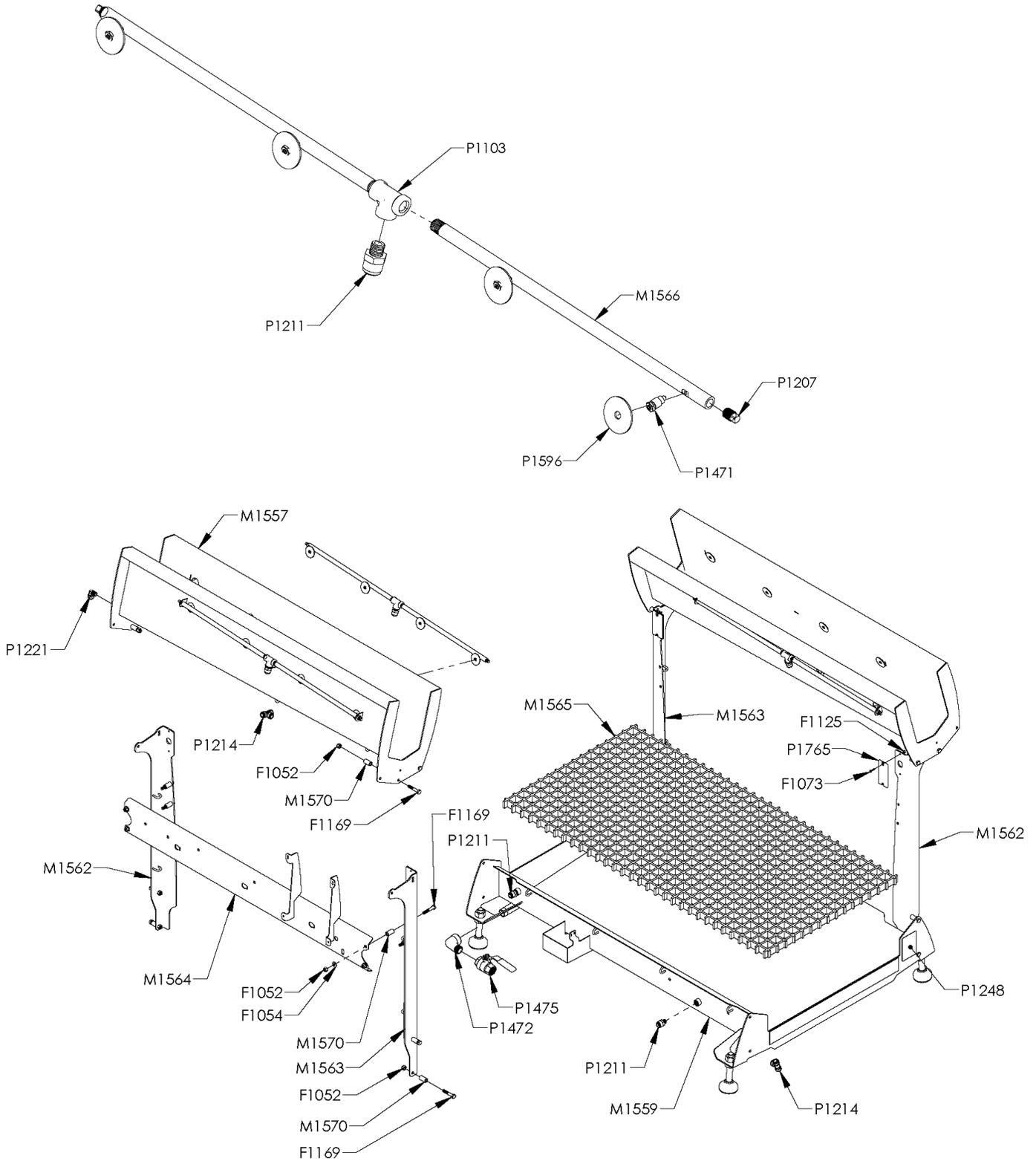
More Information?

Please contact your equipment representative or manufacturer for further support.

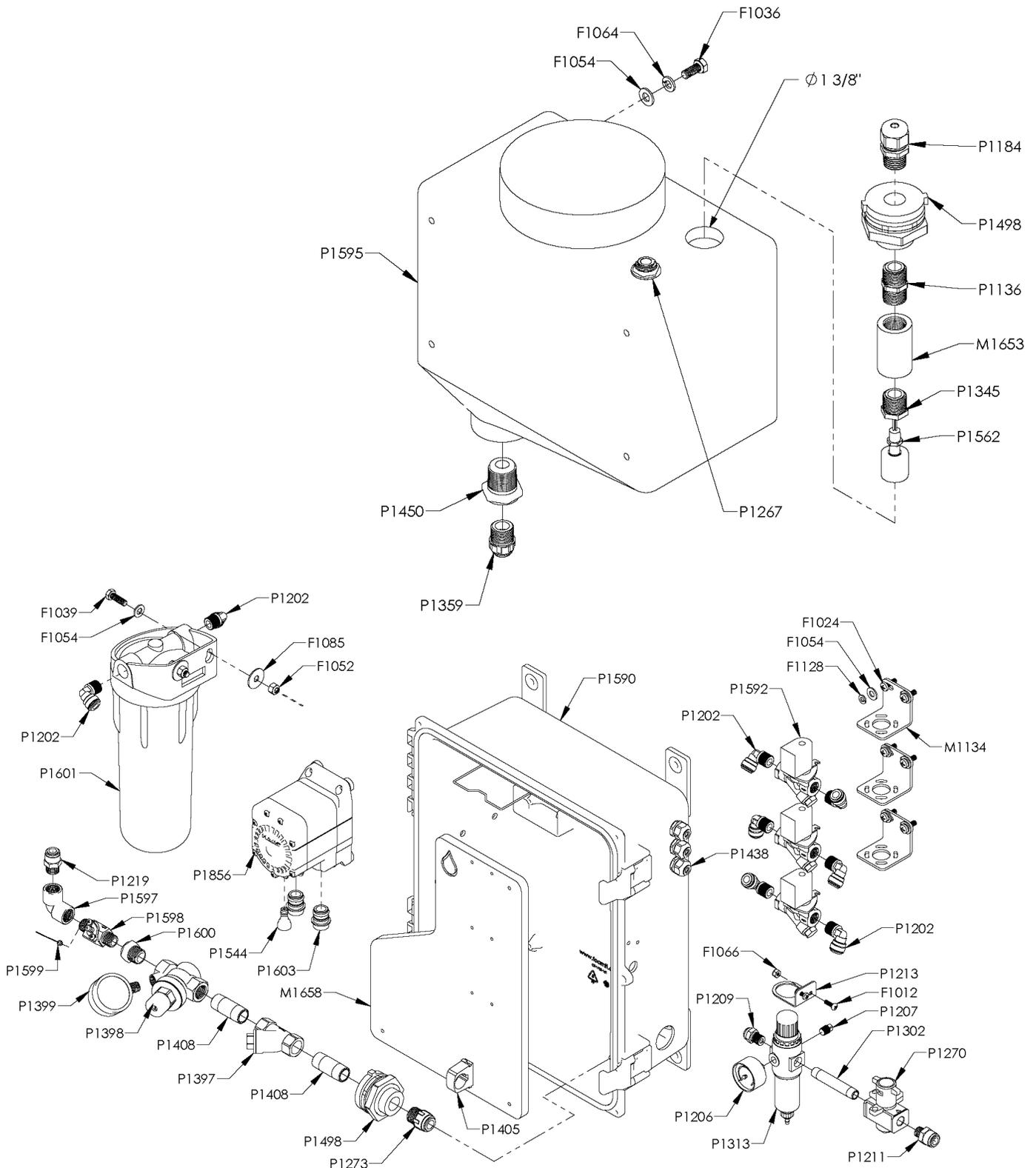
Appendix A - Parts Callout



Appendix A - Parts Callout



Appendix A - Parts Callout



Appendix A - Parts Callout

| PART NUMBER | DESCRIPTION |
|-------------|--|
| F1012 | SCREW MACHINE 10-32 x 5/8 SS PHILLIPS |
| F1024 | SCREW MACHINE 1/4-20 x 3/4 SS PHILLIPS |
| F1036 | BOLT HHC 5/16-18 X 3/4 SS |
| F1039 | BOLT HHC 5/16-18 x 1 SS |
| F1040 | BOLT SHCS 5/16-18 X 1-1/4 SS |
| F1052 | NUT NYLOCK 5/16-18 SS |
| F1054 | WASHER 5/16 SS TYPE A |
| F1064 | WASHER SPLIT LOCK 5/16 SS |
| F1066 | NUT NYLOCK 10-32 SS |
| F1073 | SCREW MACHINE 6-32 x 3/4 SS PHILLIPS PAN HD |
| F1085 | WASHER FENDER 5/16 SS |
| F1096 | SCREW MACHINE 10-32 X 3/8 SS PHILLIPS PAN HD |
| F1096 | SCREW MACHINE 10-32 X 3/8 SS PHILLIPS TRUSS HD |
| F1119 | WASHER #10 SS TYPE A |
| F1125 | NUT NYLOCK 6-32 SS |
| F1128 | WASHER SPLIT LOCK 1/4 SS |
| F1144 | NUT HEX 3/4-10 SS |
| F1169 | BOLT HHC 5/16-18 X 1-3/4 SS |
| F1170 | BOLT HHC 5/16-18 X 4 SS |
| F1179 | WASHER SPLIT LOCK #10 SS |
| M1134 | SOLENOID BRACKET |
| M1557 | FBHS HAND TROUGH WELDMENT |
| M1559 | FBHS TUB WELDMENT |
| M1562 | FBHS UPRIGHT WELDMENT RIGHT |
| M1563 | FBHS UPRIGHT WELDMENT LEFT |
| M1565 | FBHS GRATING |
| M1566 | FBHS SPRAY BAR |
| M1570 | STANDOFF 5/16 X 1/2 X 1 SS |
| M1571 | STANDOFF 5/16 X 1/2 X 3 SS |
| M1652 | FBHS BOX MOUNT WELDMENT |
| M1653 | FLOAT SWITCH COUPLER 1/2" X 2" MACHINED |
| M1658 | FBHS PUMP ENCLOSURE PANEL |
| M1958 | "FBHS CONTROLLER BACK PANEL FIBOX AR1010 |
| P1037 | TERMINAL BLOCK 2 POS DIN RAIL |
| P1103 | PIPE TEE 1/4 SS |
| P1110 | TERMINAL BLOCK 2 POS GND DIN RAIL |
| P1111 | END STOP TERMINAL BLOCK |
| P1118 | SUPPLEMENTARY PROTECTOR 5A |
| P1122 | POWER SUPPLY 24VDC 60W |
| P1136 | PIPE HEX NIPPLE 1/2 X 1/2 POLY |
| P1169 | DIN RAIL 35mm X 225mm LONG |

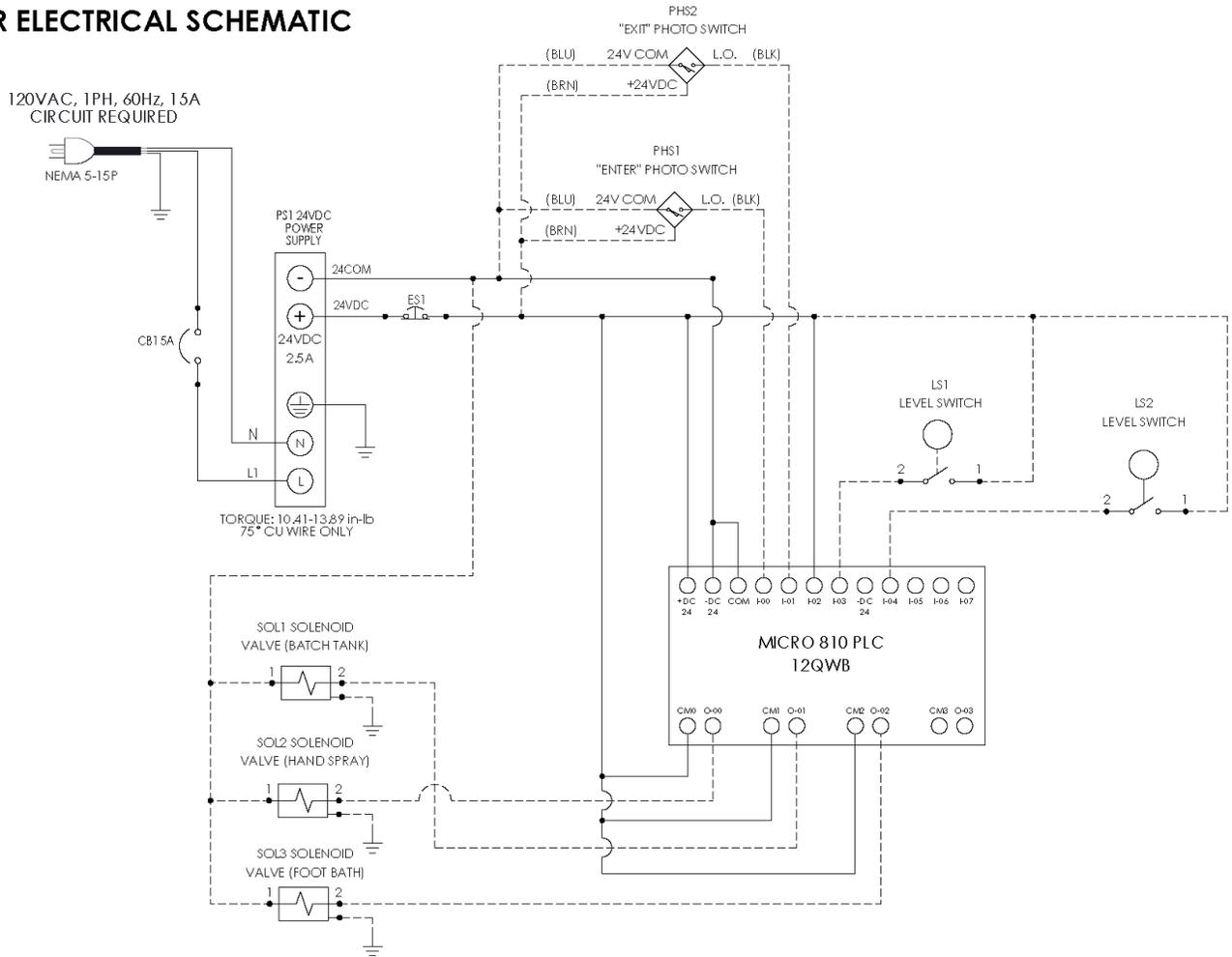
| PART NUMBER | DESCRIPTION |
|-------------|---|
| P1172 | WIRE DUCT 25X60 X 188mm LONG |
| P1184 | CORD GRIP 1/2 NPT X .095-.260 BLK |
| P1187 | SOLENOID CABLE 18mm DIN 24V |
| P1202 | QUICK FIT ELBOW 3/8 NPT X 3/8" TUBE |
| P1206 | GAUGE 1-1/2" DUAL SCALE |
| P1207 | PIPE PLUG 1/8 SQUARE SS |
| P1209 | QUICK FIT ADAPTER 1/4" NPT X 1/4" TUBE |
| P1211 | QUICK FIT 1/4 NPT X 3/8 TUBE |
| P1213 | MOUNTING BRACKET A33-82 |
| P1214 | QUICK FIT 3/8" T JOINT POLYPRO |
| P1219 | QUICK FIT 3/8 NPT X 3/8 TUBE |
| P1221 | QUICK FIT ELBOW 1/4" NPT x 3/8" TUBE |
| P1267 | QUICK FIT BULKHEAD 3/8" |
| P1270 | SHUTOFF/LOCKOUT VALVE 1/4 NPT |
| P1271 | 3/8" OD POLYETHYLENE TUBING- NATURAL |
| P1273 | QUICK FIT ADAPTER 1/2" NPT x 1/2" TUBE |
| P1284 | EXTERNAL THREADED FEET 3/4" X 4" 1100 LB. |
| P1288 | POWER CORD 18-3 SO 5-15P |
| P1302 | PIPE NIPPLE 1/4 X 3 SS |
| P1313 | REGULATOR 1/4" |
| P1317 | SWITCH, 2-POS SELECTOR, 2NO, BLK |
| P1334 | JUMPER- 4 POSITION |
| P1345 | PIPE BUSHING 1/2" X 1/8" PP |
| P1359 | QUICK FIT ADAPTER 1/2" NPT X 3/8" TUBE |
| P1367 | 2.5 GALLON JUG W/ WALL BRKT |
| P1397 | STRAINER Y 1/2" NPT 316SS 100 MICRON |
| P1398 | PRESSURE REGULATOR WATER 1/2" SS |
| P1399 | PRESSURE GAUGE WRG14 |
| P1405 | PIPE CLIP 1/2" |
| P1408 | PIPE NIPPLE 1/2 X 2 SS |
| P1438 | CORD GRIP PG9 X .065-.230 BLK |
| P1450 | PIPE BUSHING 3/4" X 1/2" POLY |
| P1471 | MIST NOZZLE .020 SS FULL CONE WITH CHECK |
| P1472 | PIPE ELBOW STREET 3/4 SS |
| P1475 | BALL VALVE 3/4" SS W/ LOCKING LEVER |
| P1498 | BULKHEAD TANK FITTING 1/2" NPT |
| P1508 | 1/4" OD POLYETHYLENE TUBING- NATURAL |
| P1544 | QUICK FIT AIR INLET 1/4" FLOWJET P56 |
| P1562 | FLOAT SWITCH SPST PVDF 1/8" NPT |
| P1564 | "WIRE, CONTROL CABLE, 20 AWG, 3-CONDUCTOR, UNSHIELDED, GRAY PVC JACKET" |

Appendix A - Parts Callout

| PART NUMBER | DESCRIPTION |
|-------------|---|
| P1586 | ENCLOSURE 10 X 10 X 6 POLY W/ PLASTIC LOCKABLE LATCHES |
| P1588 | MICROCONTROLLER ALLEN BRADLEY MICRO810 |
| P1590 | ENCLOSURE 16X13X8 PLASTIC |
| P1592 | VALVE, SOLENOID, 3/8" PP 24VDC DIN COIL |
| P1595 | TANK 3 GALLON RECTANGULAR CONE BOTTOM |
| P1596 | WASHER 5/16 X 1-1/2 X 1/16 NEOPRENE |
| P1597 | PIPE ELBOW 3/8 POLY |
| P1598 | VENTURI INJECTOR DEMA ROCKET, LIGHT GREEN, .098", 2.3GPM AT 100PSI, SINGLE BARB |
| P1599 | METERING TIP, CAPILLARY TUBE |
| P1600 | PIPE BUSHING 1/2 X 3/8 POLY |
| P1601 | FILTER HOUSING 10 INCH |
| P1602 | FILTER 10 INCH 5 MICRON |
| P1603 | QUICK DISCONNECT INLET/OUTLET FOR FLOJET PUMPS 3/8" |
| P1607 | PHOTOELECTRIC SENSOR 18mm |
| P1764 | MARKING TAPE BLACK/YELLOW 2" WIDE, 1 FOOT |
| P1765 | REFLECTOR FOR PHOTOELECTRIC SENSORS 90mm X 40mm |
| P1856 | FLOJET P56 PUMP SANTO |
| P1945 | VENTURI INJECTOR 1/4" SUCTION LINE AND STRAINER |
| P1958 | HOSE CLAMP WORM GEAR SS- 5/16" BAND |
| P1996 | HEAT SHRINK TUBE, MOISTURE SEAL, 3:1 RATIO |

Appendix B - Electrical Schematic

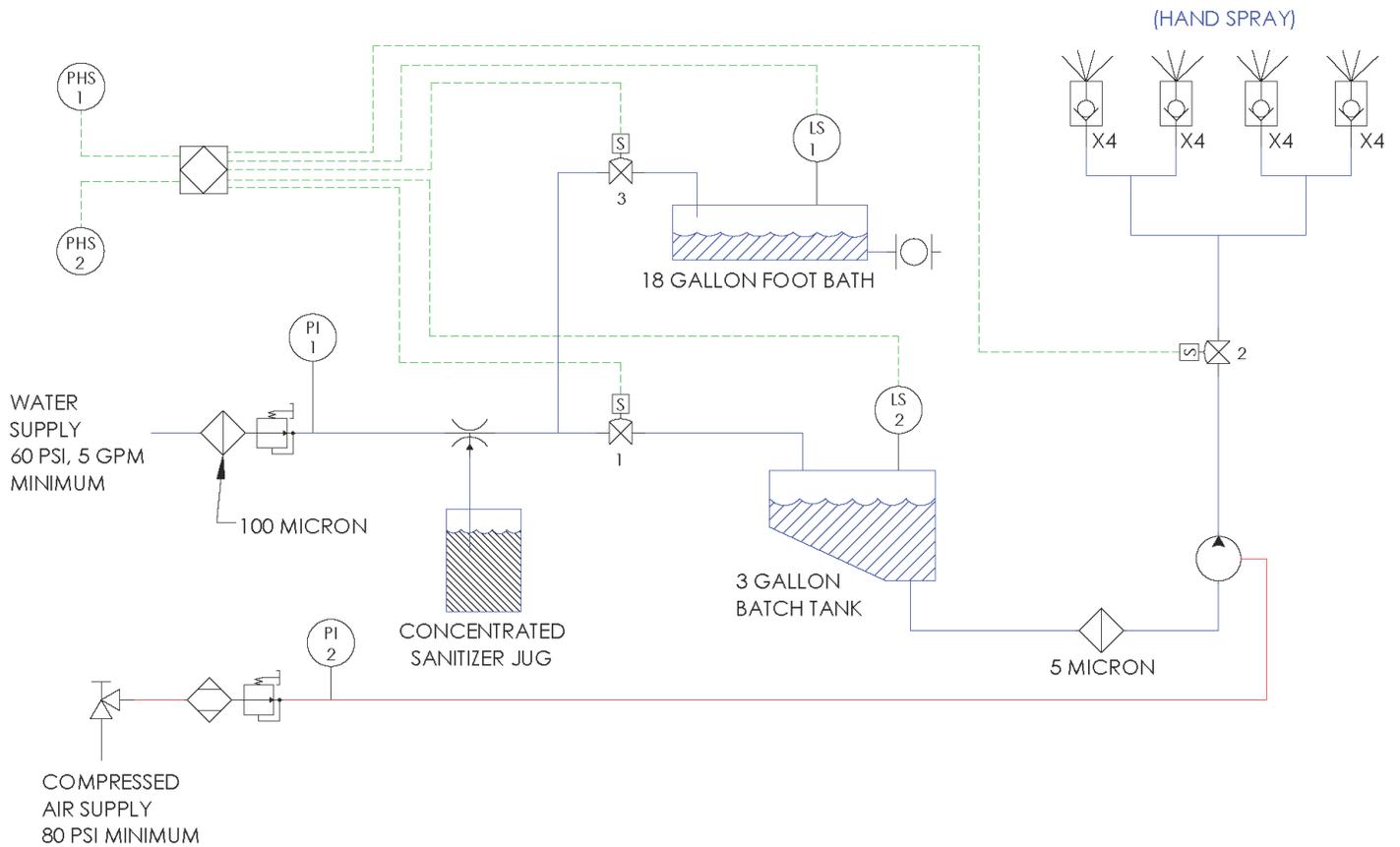
FBHS-MR ELECTRICAL SCHEMATIC



LEGEND
 ----- INDICATES FIELD WIRING
 ———— INDICATES MECHANICAL LINKAGE

Appendix C - P & I Diagram

FBHS-MR PIPING & INSTRUMENTATION DIAGRAM



| | | | | | |
|------------------------------------|--|--------------------|--|----------------|--|
| AIR DRYER | | PRESSURE REGULATOR | | PLUMBING | |
| BALL VALVE, MANUAL | | PUMP | | COMPRESSED AIR | |
| RELIEF VALVE, MANUAL | | VENTURI INJECTOR | | ELECTRICAL | |
| DIAPHRAGM VALVE, SOLENOID OPERATED | | LEVEL SWITCH | | ENVELOPE | |
| FILTER | | PHOTO SWITCH | | | |
| MIST NOZZLE (W/ ANTI-DRIP CHECK) | | PLC | | | |
| PRESSURE INDICATOR | | | | | |