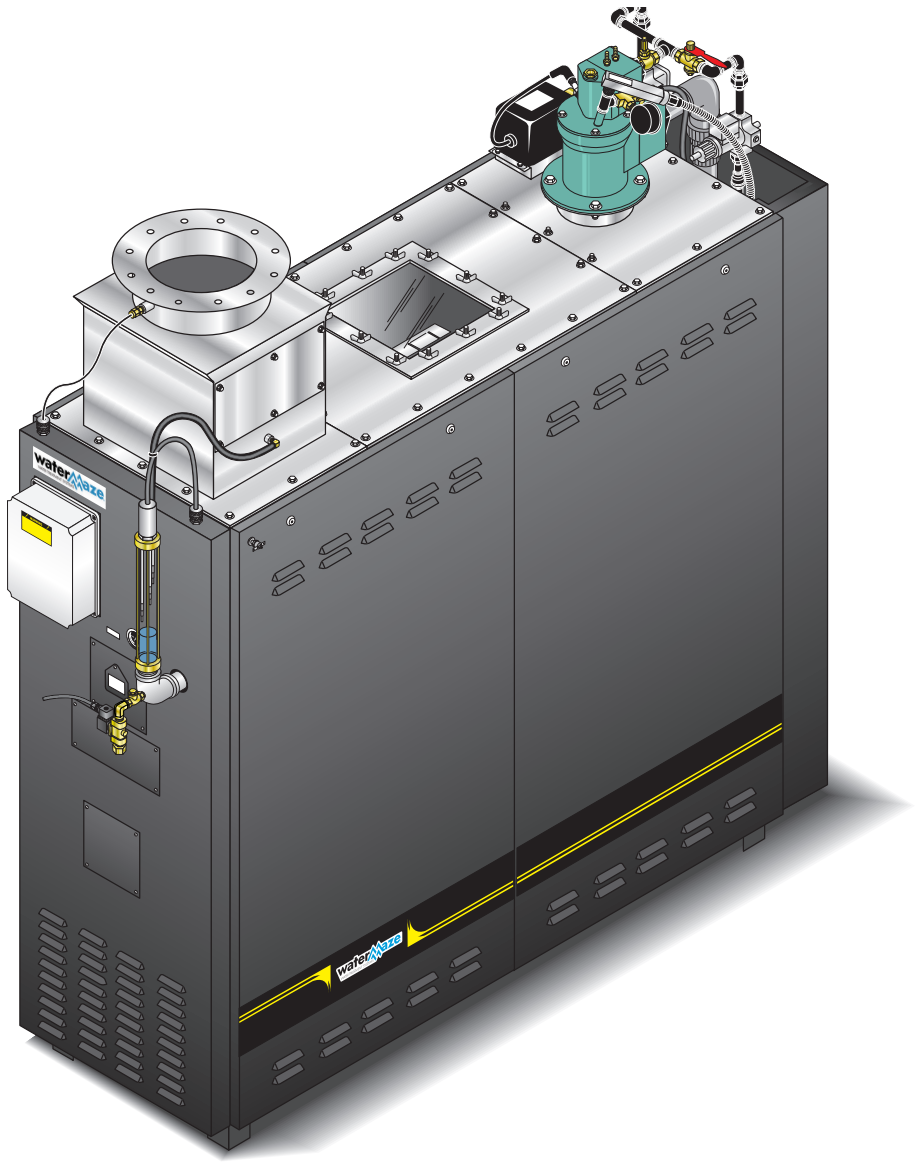
waterMaze
WATER TREATMENT SYSTEMS

WB

OPERATOR'S MANUAL

■ **WB-50A**
1.103-474.0

■ **WB-120A**
1.103-473.0



ETL LISTED

For technical assistance or the Water Maze Dealer nearest you consult our web page at www.wmaze.com

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Model Number _____

Serial Number _____

Date of Purchase _____

The model and serial numbers will be found on a decal attached to the evaporator. You should record both serial number and date of purchase and keep in a safe place for future reference.

INTRODUCTION

Your owner's manual has been prepared to provide you with a simple and understandable guide for equipment operations and maintenance based on the latest product information available at the time of printing. To keep your machine in top running condition, follow the specific maintenance and trouble shooting procedures given in this manual.

NOTE: *WATER MAZE* reserves the right to make changes at any time without incurring any obligations

UNPACKING

1. *WATER MAZE* module with removable doors
2. 20 mesh filter screen in a plastic housing
3. Tube of caulk
4. Operator's manual
5. *WATER MAZE* tool kit and door removal tool
6. *WATER MAZE* 5600 Defoamer
7. Bulk head fitting and strain relief

NOTE: Report any damage to machine or components for claim against the freight line.

Owner/User Responsibility:

The owner and/or user must have an understanding of the manufacturer's operating instructions and warnings before using this *WATER MAZE* machine. Warning information should be emphasized and understood. If the operator is not fluent in English, the manufacturer's instructions and warnings shall be read to and discussed with the operator in the operator's native language by the purchaser/owner, making sure that the operator comprehends its contents.

Owner and/or user must study and maintain for future reference the manufacturers' instructions.

SAVE THESE INSTRUCTIONS

This manual should be considered a permanent part of the machine and should remain with it if machine is resold.

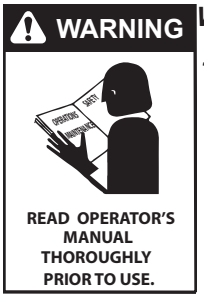
When ordering parts, please specify model and serial number. Use only identical replacement parts.

This machine is to be used only by trained operators.

PLEASE NOTE: *WATER MAZE* is not responsible for procurement of regulatory and/or operating permits that may be required by city, county, state or federal agencies. It is the customer who is responsible for procurement of any hazardous or non-hazardous regulatory and/or operating permits, compliance with codes or other governmental requirements associated with the installation, use, or disposal of waste associated with this equipment. Submerged combustion can be classified as incineration in specific jurisdictions. It is the customer's responsibility for procurement of appropriate local and state permits as needed.

The guidelines listed in the evaporator feasibility report are specific only to the waste stream submitted for evaluation and estimated emissions. Moreover, *WATER MAZE* is not reponsible for the operation or maintenance of the evaporator unit. If the unit is subjected to any waste stream other than that which has been tested by the named laboratory, operation may cause adverse effects on the equipment and will negate any warranty of parts or equipment.

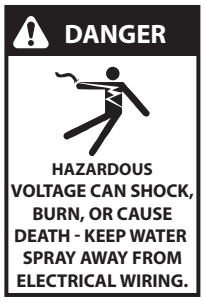
IMPORTANT SAFETY INSTRUCTIONS



WARNING: To reduce the risk of injury, read operating instructions carefully before using.

1. Read the owner's manual thoroughly. Failure to follow the instructions could cause a malfunction of the machine and result in death, serious injury and/or property damage.

2. The installation of the gas line must be done by a licensed gas contractor and in accordance with local and/or national codes.



DANGER: The machine, when installed, must be electrically grounded in accordance with local and/or national codes. Do not spray water near electrical components. Do not touch machine with wet hands or while standing in water.

3. Never make adjustments on machine while it is in operation except those prescribed in this manual.

4. Do not allow high concentrations of flammable fluids, acids, caustic or abrasive fluids to pass through the waste water pump into the combustion chamber.

5. Before servicing this machine, refer to all the MSDS on the material identified in the waste stream. You must comply with all warnings and wear all protective clothing stated on the MSDS.

WARNING: Avoid installing machines in small confined areas. Adequate oxygen is needed for combustion or dangerous carbon monoxide will result.

6. Protect inlet hoses from traffic and sharp objects.

7. Be certain hoses and piping have been connected before operating.

8. Turn the machine off before disconnecting hoses.
9. Inlet influent temperature must not exceed 150°F (66°C).
10. When making repairs, disconnect the machine from the electrical source.
11. The best insurance against an accident is precaution and knowledge of the equipment.
12. *WATER MAZE* is not liable for any modifications or the use of components not purchased from *WATER MAZE*.
13. The *WATER MAZE* and components will freeze if not in operation and must be located in a heated enclosure in cold climates.
14. Running the system or the pump without water will damage the pump and will void the warranty.
15. *WATER MAZE* should be installed and started up by an authorized *WATER MAZE* dealer.
16. This machine can be used with natural gas or propane. A conversion kit can be supplied by the manufacturer to convert the machine to the alternate fuel.

WARNING: If you smell gas, shut off the gas supply valve, extinguish any open flame and test all joints with a soap solution. If the odor persists, call your gas supplier immediately.

WARNING: Do not locate the machine in the vicinity of any flammable vapors, liquids or solids.

17. Only those liquid wastes that have been approved by *WATER MAZE* and the proper regulatory agencies should be placed in the *WATER MAZE* machine. EPA test methods 8260 and 200.7 must be obtained. NOTE: If any other liquids that have not been tested are introduced into the *WATER MAZE* machine, the warranty will be void.
18. ***WARNING: Do not attempt to evaporate flammable wastes of any kind***, i.e., do not process solvents, pure oils, etc.
19. *WATER MAZE* requires a representative sample of the waste stream analyzed for pH, metals, total solids, total suspended solids, oil and grease, foam and chlorides test.
20. High levels of chlorides and fluorides will cause corrosion especially when heated.

ELECTRICAL SAFETY INFORMATION

WARNING: To reduce the risk of injury, read electrical instructions carefully before using.

WARNING: Do not bypass any safety feature. You can cause fires and explosions. Obey the safety precautions in safety instructions.

DANGER: Hazardous voltage can shock, burn or cause death. Ground machine before connecting to power supply.

1. Ground the equipment before connecting it to an electrical power supply.
2. Failure to ground the equipment can cause a severe or fatal electrical shock hazard.
3. Do not ground to a gas supply line.
4. To avoid dangerous or fatal electrical shock, turn OFF the power to the equipment before working on the electrical connections.
5. Supply voltage must be within ± 10% of the nameplate voltage. Incorrect voltage can cause a fire or seriously damage the equipment and voids the warranty. If in doubt, consult a licensed electrician.
6. Connect the equipment to a dedicated circuit with no other equipment on it.

WIRING

1. Install a ground wire and maintain this equipment in accordance with your local electrical code and all other codes and ordinances that apply. Consult your local building inspector for local code information.
2. Ground the equipment permanently using a wire of size and type specified by local and/or National Electrical Code.
3. Connect the ground wire first to the green grounding wire provided. Do not connect the equipment to an electrical power supply until the machine is permanently grounded, otherwise serious or fatal electrical shock hazard may be caused.
4. For the best ground connection, connect to a grounded lead in the service panel or to a metal underground water pipe or well casing at least 10 feet long. If plastic pipe or insulated fittings are used, run the ground wire directly to the metal well casing or use ground electrode furnished by the power company.

5. If 208V single phase is the only available electrical source, the step down transformer must be changed to a 208/120V .500KVA transformer or a buck boost transformer must be installed to raise the voltage to 230V.

PUMP SAFETY

WARNING: Do not pump high concentrations of flammable liquids or explosives such as gasoline, fuel oil, kerosene, etc. Do not use in explosive atmospheres. The Water Maze should only be used with liquids compatible with Water Maze component materials. Failure to follow this warning could result in personal injury and/or property damage.

1. Know the pump application, limitations and potential hazards.
2. Make certain that the power source conforms to the requirements of your machine; 230V single phase for all *WATER MAZE* machines. Always check the serial plate for power requirements.
3. Release all pressure within the system before servicing any component.
4. Drain all liquids from the components before servicing.
5. Check hoses for weak or worn condition before each use, making certain all connections are secure.
6. Periodically inspect sparger tube, nozzle, filter and other system components. Perform routine maintenance as required.

Personal Safety:

a. Keep work area clean, uncluttered and properly lit. Replace all unused tools and equipment.

b. Keep visitors at a safe distance from the work area.

c. Make the workshop safe with padlocks, master switches and power lock out devices.

7. All wiring and electrical connections must be performed by a qualified electrician.
8. Protect the electrical cord by having the electrician run all electrical wiring through conduit from the power source to the machine.
9. Use wire of adequate size to minimize a voltage drop at the motor.
10. Disconnect the power before servicing a motor or other components. If the power disconnect is out-of-sight, lock it in the open position and tag it to prevent unexpected application of power.
11. Do not touch an operating motor. Modern motors are designed to operate at high temperatures.

STANDARD SAFETY FEATURES

The *WATER MAZE* uses electricity, gas and water to operate. These can be fatal if not handled properly. For this reason, the *WATER MAZE* has been designed with safety in mind. The following are standard safety features you will find on all *WATER MAZE* equipment.

Interlock System:

The *WATER MAZE* has an interlock system which must be proven before the burner will ignite. All of these interlocks are proven through the Veri-Flame.

1. **Pre-Ignition Interlocks:**

   a. High/low gas pressure switches

   These switches insure that there is enough gas pressure to operate the burner but not excessive pressure (see page 20).

   NOTE: The low pressure switch is set at 12 water column inches (wci). The high pressure switch is set at 60 water column inches (wci).

   b. Air Pressure Switch

   This switch insures there is at least 12 water column inches of air pressure. NOTE: The High, Low Gas and Air Pressure Switches have internal lights. If there is a failure, the light goes out. See pages 43 & 45.

   c. Gas Solenoid Valve

   This valve must be closed during pre-ignition checks. If open, the system will shut down. NOTE: The WB-50 has three gas solenoid valves. The WB-120 has six gas solenoid valves (see pages 43-45).

   d. 3 Point Sensor Control:

   The evaporation tank must have a minimum amount of water to prevent damage to internal parts due to excessive heat. If the water level is at the bottom rod on the 3 Point Sensor Control, ignition of the burner is prevented (see item 3 page 27).

2. **Post-Ignition Interlock**:

   UV Scanner

   A UV scanner looks for the ignition of the burner. Once the *WATER MAZE* has gone through the interlocks and the 15 second purge process, the burner goes through an ignition sequence. If the burner fails to ignite, the UV scanner shuts down the burner.

Filter:

A 20 mesh screen on the incoming waste water line prevents solids from entering and damaging the pump.

Control Rod:

Automatic wastewater control set points on the 3 Point Level Controller turns the wastewater air pump on and off to control the water level inside the evaporator. The controller also shuts burner off if water level gets to low.

Temperature Control:

Dual, manual reset, and high temperature controls monitor the internal temperature of the evaporator. If the exhaust or water temperatures become too high (225°F) the system shuts down. The temperature is usually in the 180° to 190° range.

Regulator Venting:

A pressure regulator gas vent is provided. The gas vent needs to be plumbed to the atmosphere. If the gas regulator fails, the gas is automatically vented outside, preventing a gas buildup in the location of the *WATER MAZE*. This must be vented to comply with local and/or national codes.

Demister Box:

The demister box contains screens inside that prevent large water droplets from going up the stack (screen hole size is 3/16").

INSTALLATION

Location:

Locate the *WATER MAZE* evaporator on a level concrete surface in a room that is well ventilated. Protect the machine from damaging environment such as wind, rain and freezing temperatures. Leveling feet are provided with all evaporators.

CAUTION: For natural gas, air ventilation should be located near the ceiling. For liquid propane, air ventilation should be located near the floor.

Gas:

The *WATER MAZE* evaporator is available for operation in natural gas or liquid propane.

CAUTION: There are major differences in the adjustments of the evaporators. Do not try to operate the machine using the wrong gas.

The one inch (1") gas supply line on the WB-25, and WB-50 and (one and one half inch (1-1/2") on the WB-120) must have a minimum of 2 psig and a maximum of 10 psig and be of adequate size to supply the necessary volume for proper burner operation. The high/low gas switches require between 12-60 water column inches. There must be a main gas shut-off valve (not provided) in the gas supply line located next to the *WATER MAZE* which can be used as an emergency shut off for repair or maintenance purposes.

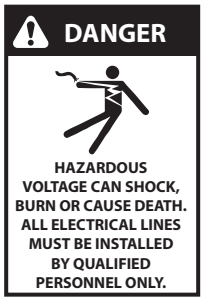
WARNING: The gas line must be installed <u>by qualified personnel only</u>. It must be checked for leaks before installing the WATER MAZE. All gas piping must comply with local and national fuel gas codes.

Connect the main gas line to the 1" or 1-1/2" line on the rear panel of the *WATER MAZE*. This will be labeled "Natural Gas Only" or "L.P. Gas Only" depending on the machine you purchase. Connect the vent line to the 1" vent pipe on the rear panel of the *WATER MAZE* (see figures 1-3).

CAUTION: This vent pipe must be vented to the atmosphere.

Electrical:

The *WATER MAZE* requires 230 volts single phase. Refer to the serial plate for proper voltage and amp requirements for your machine. All electrical lines must be tested with a voltage meter for proper voltage before connecting to the *WATER MAZE*. NOTE: If 208V single phase is the only electrical source available, the step down transformer must be changed to a 208/120V transformer (#6-60011) or a buck boost transformer must be used to increase the voltage.



DANGER: All electrical lines must be installed <u>by qualified personnel only</u>. All installations must be electrically grounded and conform to all local and national electrical codes. Water Maze is ETL listed.

The electrical connection for the *WATER MAZE* is located on the rear panel conduit box using a 1/2" knockout. Electrical conduit must be run all the way to the connection point in accordance with local codes.

Fresh Water:

During initial start up, we recommend using fresh water in the wastewater tank. Fill to mark indicated on sight tube and remove garden hose. Connect the garden hose to the *WATER MAZE* at the female connector located on the 3 point level controller. Open valve partially so back pressure doesn't fill up sight glass tube.

Wastewater:

Wastewater is drawn directly into the evaporator using the air pump supplied. A 20 mesh stainless steel filter protects the pump from debris. The connection between the above ground waste water tank and the machine is made by using a 3/4" I.D. supply hose with common connectors supplied by the customer and is located on

the rear panel with the label, "Wastewater Inlet" (see page 11). NOTE: The *WATER MAZE* is automatically controlled by the 3 point level controller and will supply wastewater as needed after startup.

CAUTION: Foaming detergents will affect the evaporation process in the WATER MAZE. An anti-foaming kit has been installed to control foam.

Venting:

Each evaporator must have its own vent stack. A 10" vent pipe (WB-50) must be installed using the provided exhaust stack adapter to the machine's exhaust stack and be vented to the atmosphere. A 12" pipe must be used for the WB-120 (see figure 4). The top of the exhaust stack should be sufficiently above the roof to allow for proper dispersion of the exhaust. It should be unobstructed and in compliance with all local and federal codes. Avoid bends if possible.

NOTE: If possible, the stack should be a single piece. CPVC is the recommended stack material. If it has seams, the seams must be sealed with a duct sealant to prevent moisture leaks since the exhaust is 100% saturated air. All stacking must be installed **by qualified personnel only.**

NOTE: Exhaust stacking must be water tight.

A straight stack is always the best. If you must have bends, use 45° not 90° elbows. No more than two bends should be used. A vertical discharge design is our ONLY recommendation for a rain cover. A vertical rain cover is an over-sized piece of stack material that is concentric with the stack. The cover extends 6" down over the top of the stack to allow flexibility in positioning fasteners. Both rain protection and back pressure reduction are achieved with this design. It works because rain never falls straight down; it always falls at an angle. Therefore, the cover is made long enough so that any rain will hit the cover's inside wall. Rain then runs down the inner wall and out the angular opening at the top of the exhaust stack (see page 13).

Air:

Connect air to regulator, adjust to 60-100 psi at 10 cfm.

PRE-STARTUP CHECK LIST

Follow all pre-start procedures before attempting to start the WATER MAZE.

1. Level evaporator using leveling feet or anchor machine to floor. Anchoring to floor is the preferred method.
2. Verify the voltage, then connect the electrical lines to the machine. To be done by qualified personnel.
3. Leak test connected gas line.
4. Connect the wastewater line from the storage tank.

   NOTE: the pH of the wastewater should be kept between 8 - 10 in the storage tank.
5. Attach (black) N/O float inside wastewater tank just above outlet so fill pump doesn't suck air.
6. Attach a high heat hose (180°-190°F) to the 3/4" stainless steel elbow located at the back side of evaporator for the auto purge cycle. NOTE: Do not send waste back to fill tank.
7. Attach the stack to the exhaust stack flange.
8. Remove the plugs from the brass orifices on the gas and air line and install the test valves with the brass hose barb fittings (not included). (See page 18.) Make sure the gas line is shut off.

   NOTE: The valves, fittings, and manometers are included in the *WATER MAZE* set-up kit, #7-8200, which must be purchased separately.
9. Connect the high pressure port of the 0 to 50 manometer to the bottom gas orifice port and open the gas line.

   NOTE: Make sure the manometer is zeroed before taking readings. Use the zero set screw at the bottom of the manometer. This will give you the static gas pressure. For measuring the static gas pressure on the WB-50/120, use the valve at the bottom of the machine next to the high gas pressure switch (see page 18). This pressure should be 45 water column inches (wci). Close the valve and remove the manometer. You must have between 12 and 60 wci before the high/low gas switches will allow the burner to ignite.
10. Connect the 0 to 10 manometer to the hose barbs on the gas line and open the valves with the low pressure port of the manometer to the top port of the orifice and the high pressure port to the bottom port of the orifice. This will give you the pressure differential between the high side, before the orifice, and the low side, after the orifice. This will be used later to figure the evaporation rate and to balance the burner. This reading will be taken after start up when the burner is being used (see page 18).

    NOTE: Items 8 through 10 have been set at the factory but installation conditions change so adjustments need to be verified.
11. Open the valve on gas line and wastewater line.
12. Connect purge hose to bottom of combustion tank and run to a separate holding tank. **Do not connect to feed tank.**
13. Connect air.
14. Adjust anti-foam air to 2 psi and UV scanner air to 1/2 psi.

OPERATING PROCEDURE

First, collect the waste stream. This can be accomplished with the use of a catch basin, collection pit, sump or any other process which collects the waste stream in one location. The collection method should allow for oil and solids separation. The waste stream must be stored in an above ground tank to provide a gravity feed situation to the waste stream pump of the evaporator. The *WATER MAZE* air diaphragm pumps are self priming but we do recommend a positive feed system (see figure 3).

1. A fresh water source is connected to the evaporator for the initial fill. The evaporator must have a minimum amount of water before it will operate.
2. With the gas line, gas vent, exhaust vent and electrical connected and main disconnect turned on, push the reset button F1/RST on the timer. NOTE: Whenever the power to the evaporator goes out, the reset button F1/RST on the timer must be pushed.
3. Turn the blower switch to the automatic position. This will engage the blower which will push the water out of the sparger tube. This causes the water level to rise slightly in the liquid level float assembly. If the low water light is still illuminated, attach a garden hose to the back of the machine and fill the tank until the light goes out. Now it is time to turn on the burner.
4. Turn the burner switch to the on position. The system now goes through the interlocks, 1) high/low gas pressure; 2) air pressure; 3) closed gas solenoid, 4) low water, bottom setpoint on the 3 point level control rod. Now a purge cycle will purge the sparger tube with air for 15 seconds to insure that there is no gas in the sparger tube. The burner then attempts to ignite the soft start pilot flame. If there is not an ignition, the UV scanner shuts the system down and the start up sequence must be started over.
5. Once the burner ignites, the waste pump switch can be turned on to introduce wastewater into the evaporator. This will add wastewater to the system through the back of the tank.

   NOTE: The heat from the burner goes through the sparger tube and out a slot in the bottom of the sparger tube, and finally, into the surrounding water. There are five stainless steel screens on a WB-50 and ten on the WB-120, that break down the size of bubbles (from big to small) which increases the surface area and transfers virtually 100% of their heat to the water to increase saturation (screen hole size is 1/16").

Auto Purge:

The unit will automatically purge the waste stream from the combustion chamber at a set time depending on your waste stream. This purged waste stream must be sent to an appropriate discharge holding tank and not back to the feed or inlet holding tank going to ***WATER MAZE.***

PRINCIPLES OF OPERATION

The *WATER MAZE* evaporator is designed to evaporate wastewater. *WATER MAZE* uses a unique method of introducing the wastewater directly into a 2000°F flame. Using submerged combustion technology, the *WATER MAZE* can obtain virtually a 100% heat transfer for a more efficient and less costly method of evaporation.

In order to understand how this system works and why it is superior to any other evaporator on the market, it is important to understand a few aspects of relative humidity, submerged combustion and efficiency ratings of this type of equipment.

First, relative humidity is called “relative” because the amount of moisture a given amount of air can hold is directly related to its temperature. For example, let's say it's snowing. If you were to take a cubic foot of outside air at 20° F, with a relative humidity of 100% and bring this air inside and warm it up to 72°F; the same air would have the same amount of moisture in it, but would have a relative humidity of only 15%. The warmer the air is, the more moisture it can hold. With regard to the *WATER MAZE*, this "thirst" or affinity for moisture in hotter air is especially dramatic at temperatures above 150°F.

Second, it will be of value for you to be familiar with some basics of water heating and evaporation. All of this type of equipment will be rated in terms of British thermal units (BTU's) per hour.

A BTU is the amount of heat necessary to raise one pound of water one degree Fahrenheit.

Let's say we want to evaporate one pound of water:

In order to get our pound of water from 60°F to 212°F, we will have to add 152 BTU's to it (212°F minus 60°F). This is called *“sensible”* heat.

Once this pound of water reaches 212°F, 970 BTU's must then be applied to turn it into a pound of steam vapor still at 212°F. We just want to change it from liquid water to steam vapor and not raise the temperature at all. This is called *“latent”* heat.

Therefore, to get our pound of 60°F water to 212°F steam took 1122 BTU's.

A gallon of water weighs 8.34 pounds. In order to make a gallon of water evaporate, we have to subject it to 8.34 lbs. x 1122 BTU's or, 9357 BTU's.

WB-50
INSTALLATION DRAWING

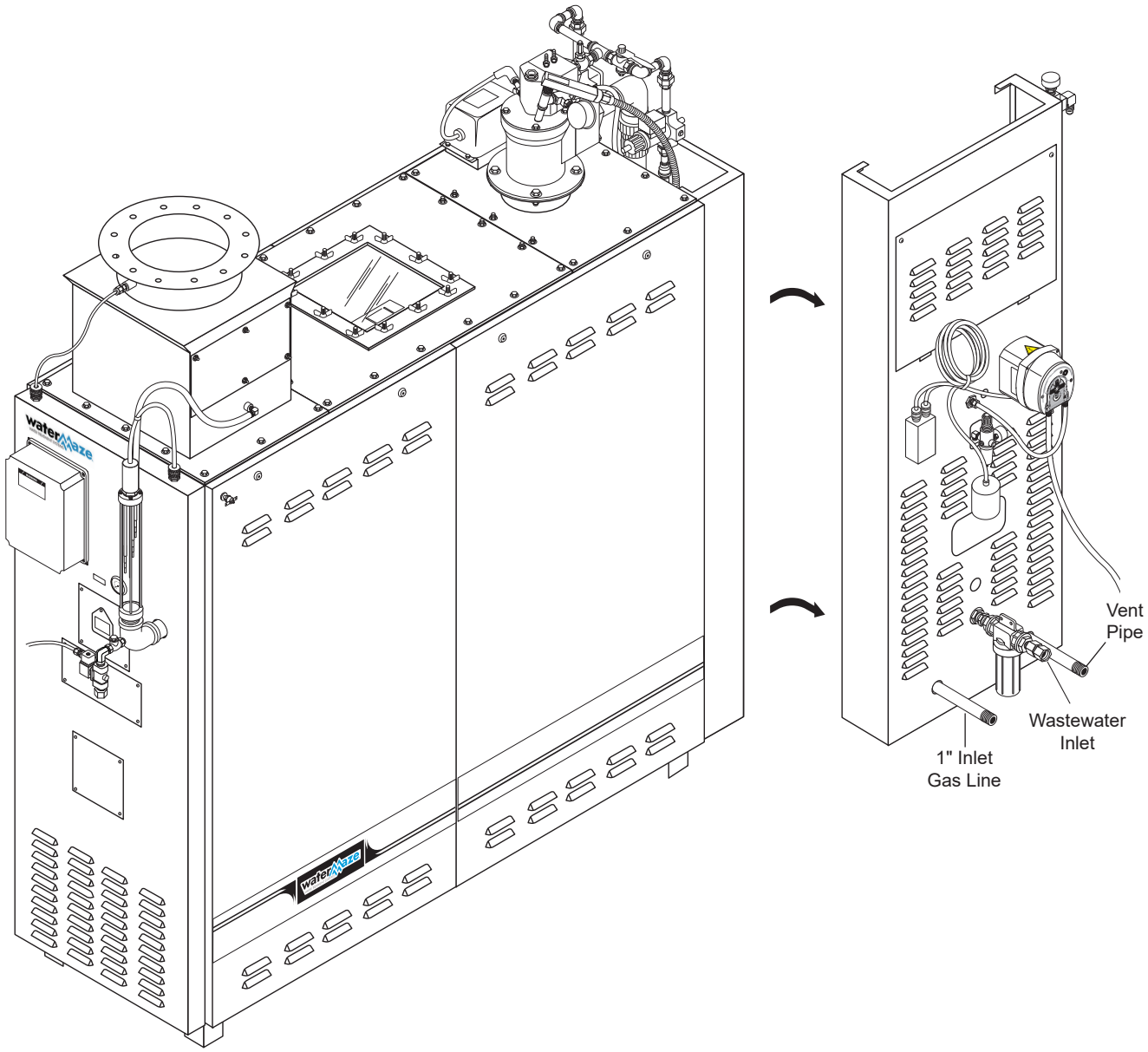


Figure 1

WB-120
INSTALLATION DRAWING

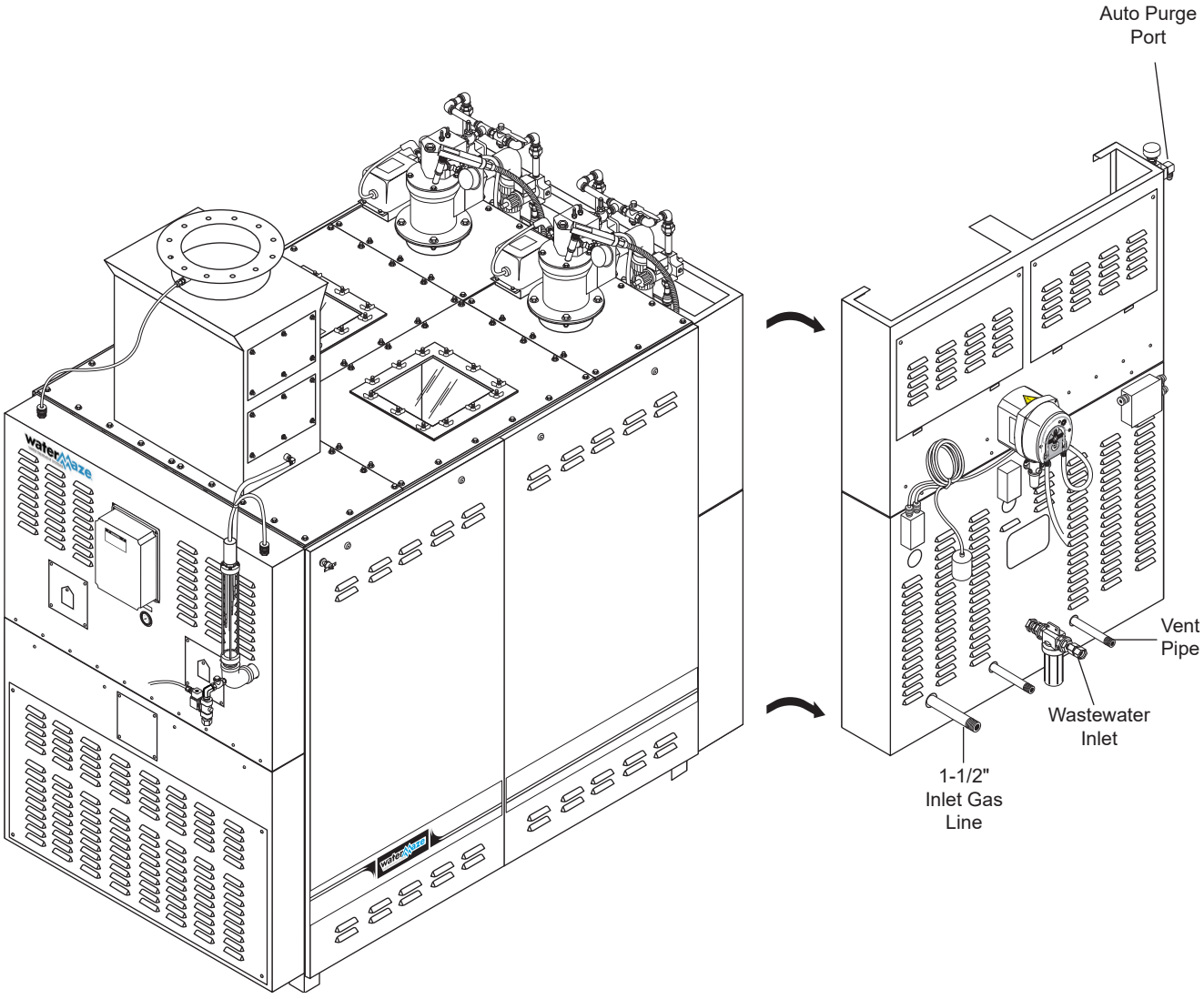


Figure 2

STORAGE TANK CONFIGURATION

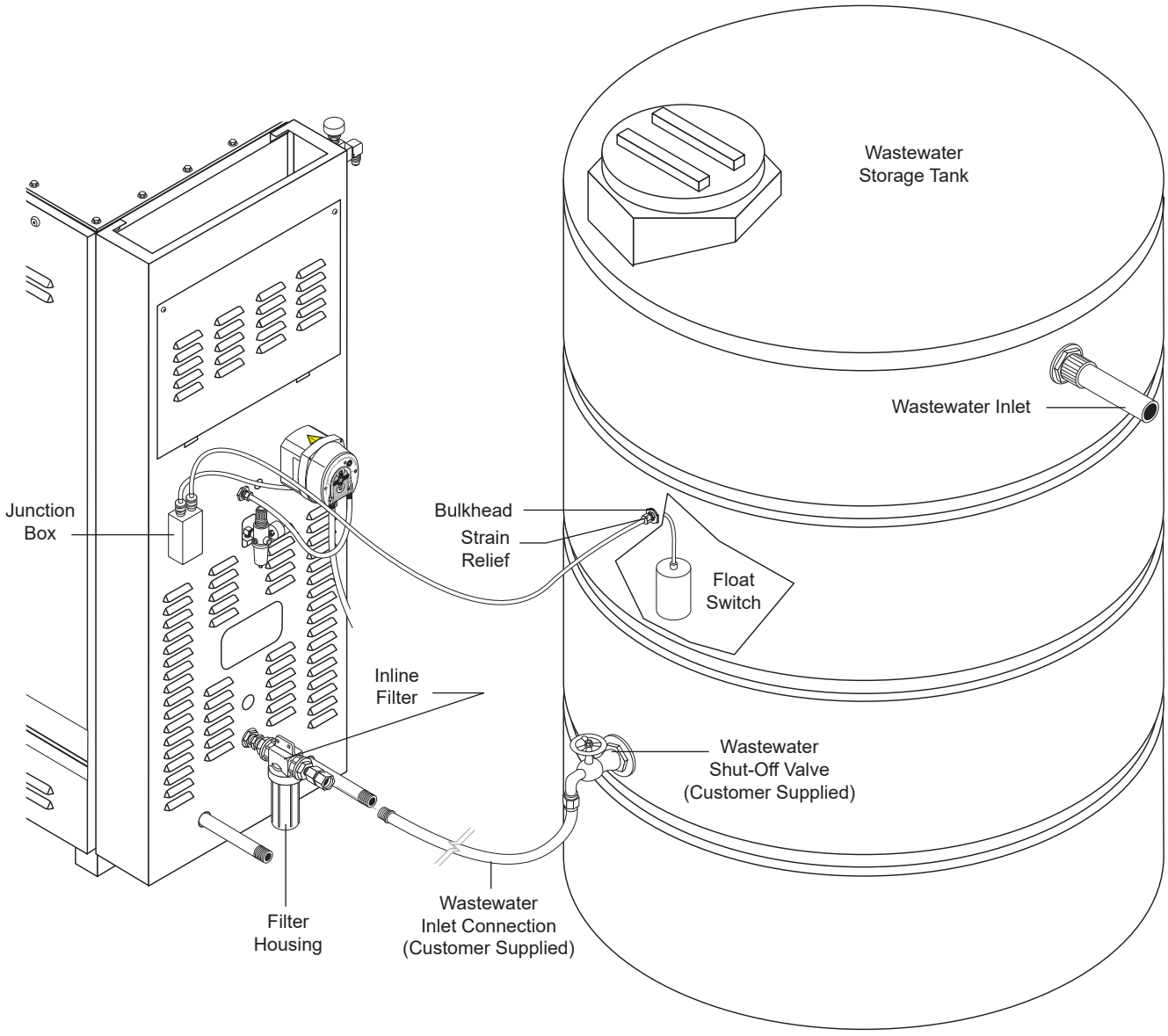


Figure 3

EXHAUST STACKING CONFIGURATION

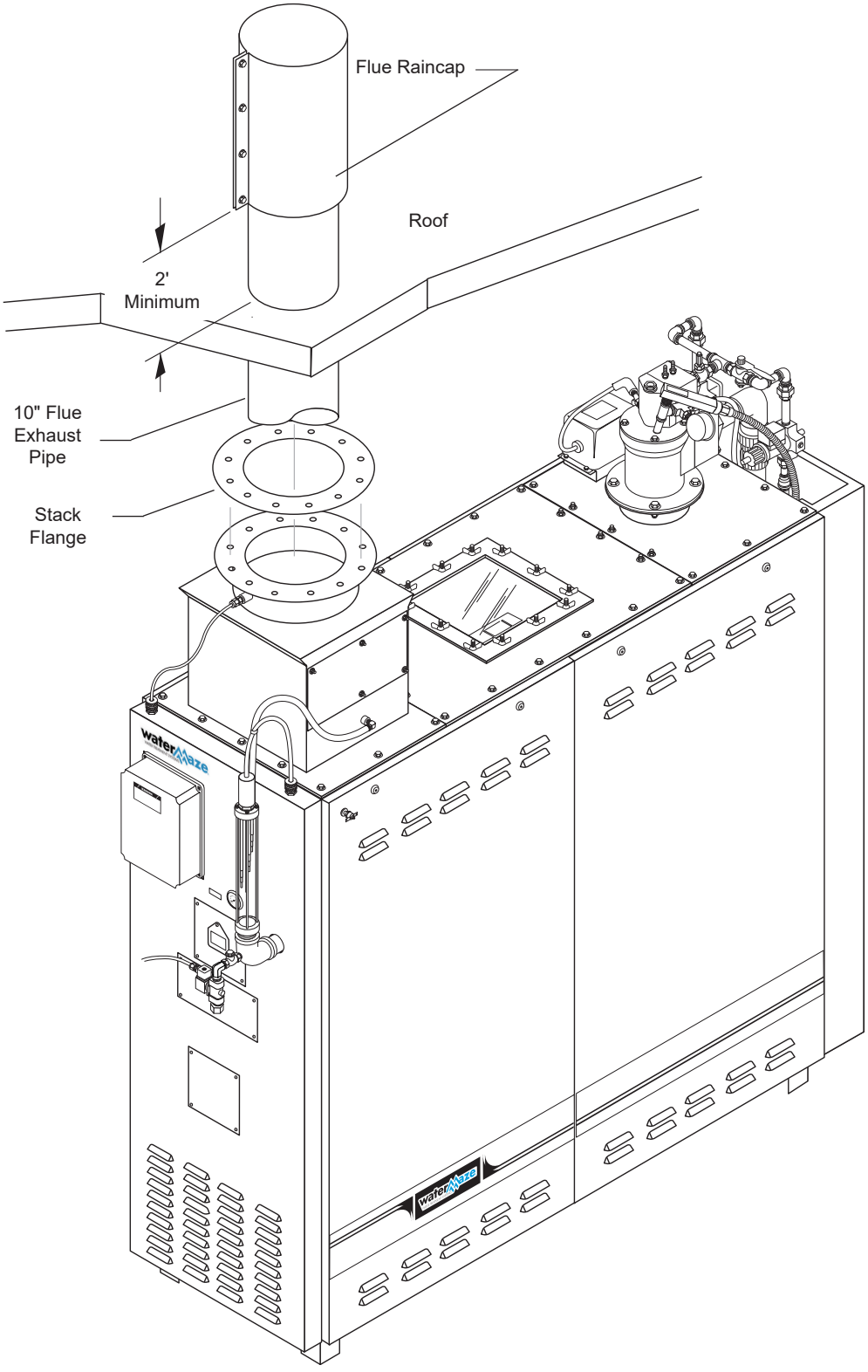


Figure 4

WB-50
FRONT VIEW

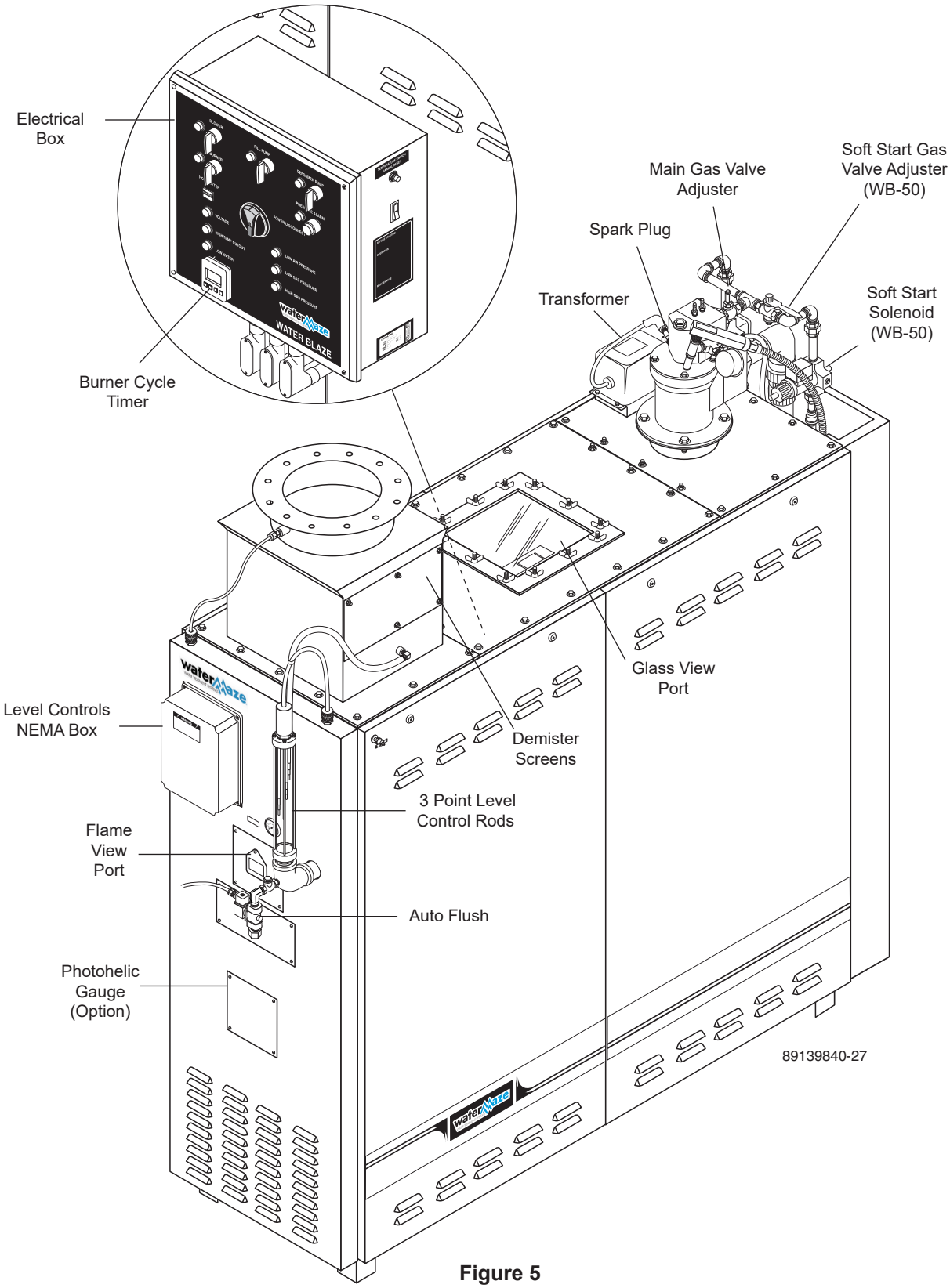


Figure 5

WB-120A
FRONT VIEW

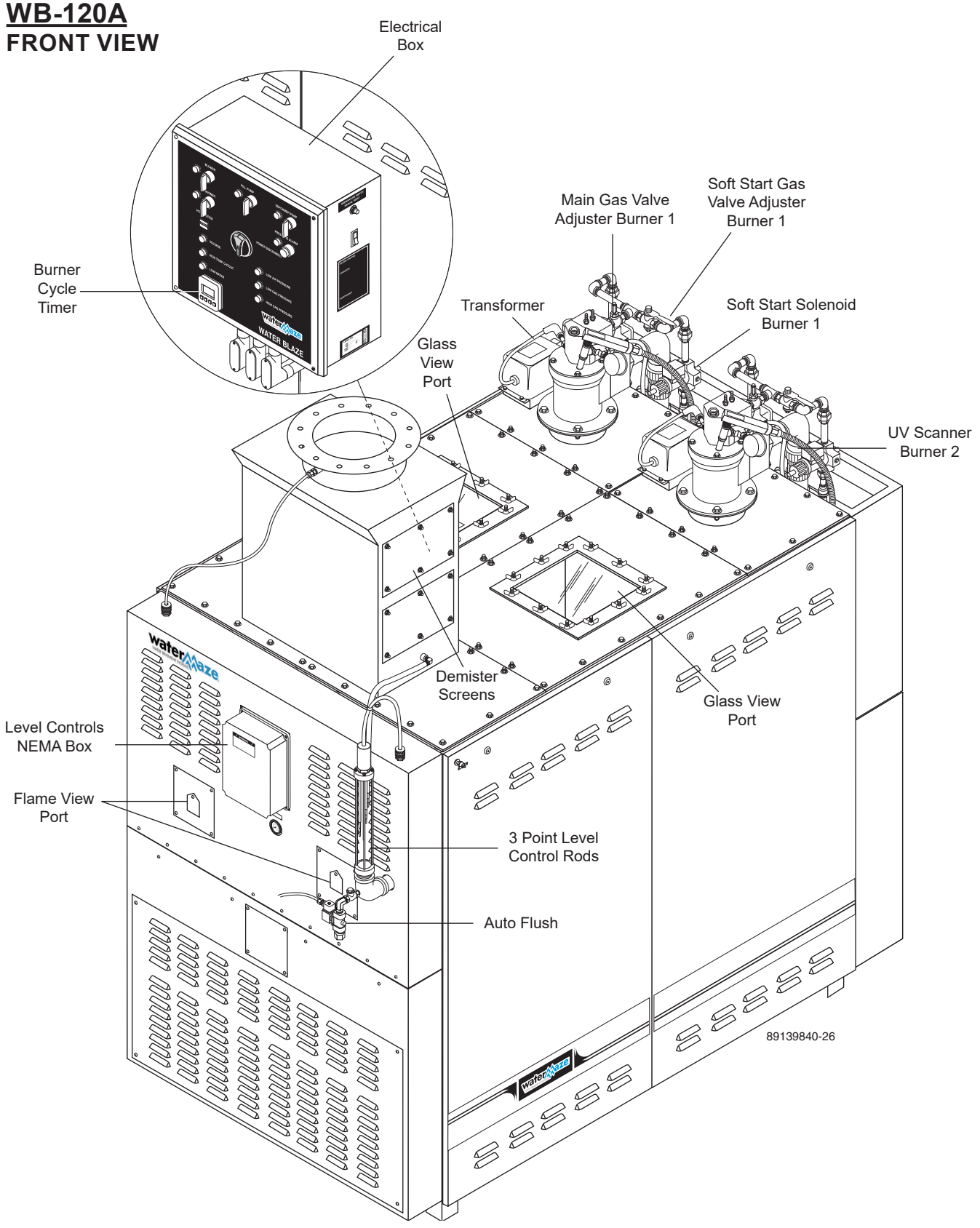
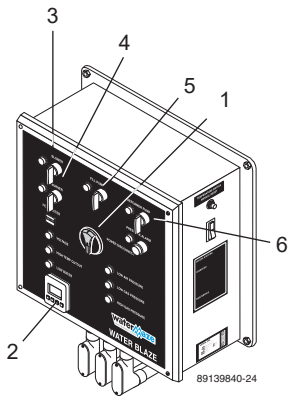
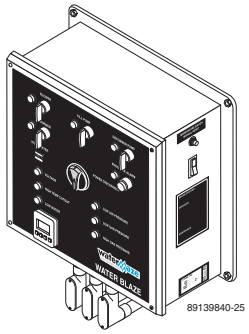


Figure 6

START-UP PROCEDURES

PANEL	PROCEDURE	RESULT
	Turn on the main disconnect switch #1.	Timer (LED screen) lights up.
	Press F1/RST (reset button) #2 on cycle timer.	Powers up the timer (LED screen). Voltage light comes on.
	Turn on the blower switch #3 to desired position (manual or auto-matic). "Manual" will bypass the liquid level float in the customer's holding tank. "Auto-matic" will allow the float to control the on/off operation of the blower.	Blower light turns on. Water level in the sight tube will rise as the water is evacuated from the sparger tube.
	Turn on the burner switch #4.	The interlocks are checked and a green light will be seen on the Veri-Flame. If there is a red light on the Veri-Flame, there is a problem with one of the interlocks that must be corrected.
		After the interlocks are proven, the blower will purge the sparger tube for 15 seconds, then the burner will ignite. If the burner does not ignite within eight seconds, the "UV scanner" will shut the system down. At full burner ignition, burner light turns on.
	Turn on the pump switch #5.	As water is evaporated, the wastewater pump will automatically refill the tank.
	Turn defoamer switch #6 to auto mode.	Anti-foam will be added when fill pump is on. If more defoamer is needed, turn the feed adjustment (See page 48, figure 16) clockwise to increase the speed of defoamer pump.

SHUT DOWN PROCEDURES

PANEL	PROCEDURE	RESULT
(To locate individual items, please see above.) 	Turn defoamer switch #6 to middle off position.	The defoamer light goes out.
	Turn the pump switch #5 off.	The pump light goes out. The waste stream pump shuts down and the solenoid valve closes.
	Turn the burner switch #4 off.	The burner light goes out. The burner shuts down. The gas solenoid closes and the power is cut to the transformer preventing a spark.
		After turning the burner off, let the blower run for at least one minute before turning it off.
	Turn the blower switch #3 off.	The blower light goes out. At this point, the blower shuts down and water from the tank enters into the sparger tube.
	Turn the main disconnect switch #1 off.	The voltage light goes out. All power to the evaporator is disconnected except to timer.
		The water in the evaporator is still HOT at this point. Allow the water to cool before any maintenance is done, i.e., sludge removal.
		If the evaporator is to be left off overnight or longer, shut off the gas supply to the evaporator.

SETTING THE BURNER

The quickest and easiest way to adjust the air and gas differential to the appropriate settings listed below is to purchase the *WATER MAZE* set up kit (#7-8200). Refer to figure 7 for locations on setting the burner. Shut main gas valve off. With 7/16" wrench remove brass plugs from all metering orifices on back side of machine. Install brass valves included in set up kit into each position and close. Turn gas main valve back on. To set static pressure, use 0 - 50 manometer on (D or E). To adjust setting to desired 45 wci, remove cap on gas regulator (F) and turn inside adjustment screw clockwise for higher pressure, counterclockwise for lower pressure. Replace cap. Start machine by turning the blower switch to the "auto" position and burner switch to the "on" position. Once the burner lights, use the 0 - 10 manometer to set the air differential at (B). Note: lower port is high pressure and upper port is low pressure. With hoses in position, open brass valves. Set air differential as per chart below. Note: needle will shake; pinch both hoses lightly together to read number. Adjust by opening or closing main air butterfly and secondary air butterfly (located on left side of burner, up top). Close brass valves. Set the gas differential the same way as the air. Note: read chart for proper gas used. Attach 0 - 10 manometer at (C) and set as per chart. The adjustment valve is located to the right of the burner up top. Remove the brass cap and adjust with a standard screwdriver. You will have to set one burner at a time on a WB-120. Once adjusted, shut off burner and blower. Shut off main gas line. Now remove the brass valves used with the manometers and replace plugs into the air and gas orifices. Turn the main gas back on and follow the procedures for start up. Your evaporator is now in service.

SOFT START IGNITION

To provide a smooth ignition and meet all gas train standards, the WB-50 and WB-120 come standard with the soft start ignition system. Before trial of ignition the Veri-Flame will make sure the top gas solenoid is closed (proof of closure). Once closed, the Veri-Flame will try for a pilot flame. After approximately 8 seconds, the proof of closure solenoid will close and allow the main gas solenoid to open slowly.

Soft start settings: The gas metering orifice SBO-A-1 (A) for the soft start needs to be set on 7 wci for the gas differential. Follow (Setting The Burner) instructions for setting the soft start gas differential.

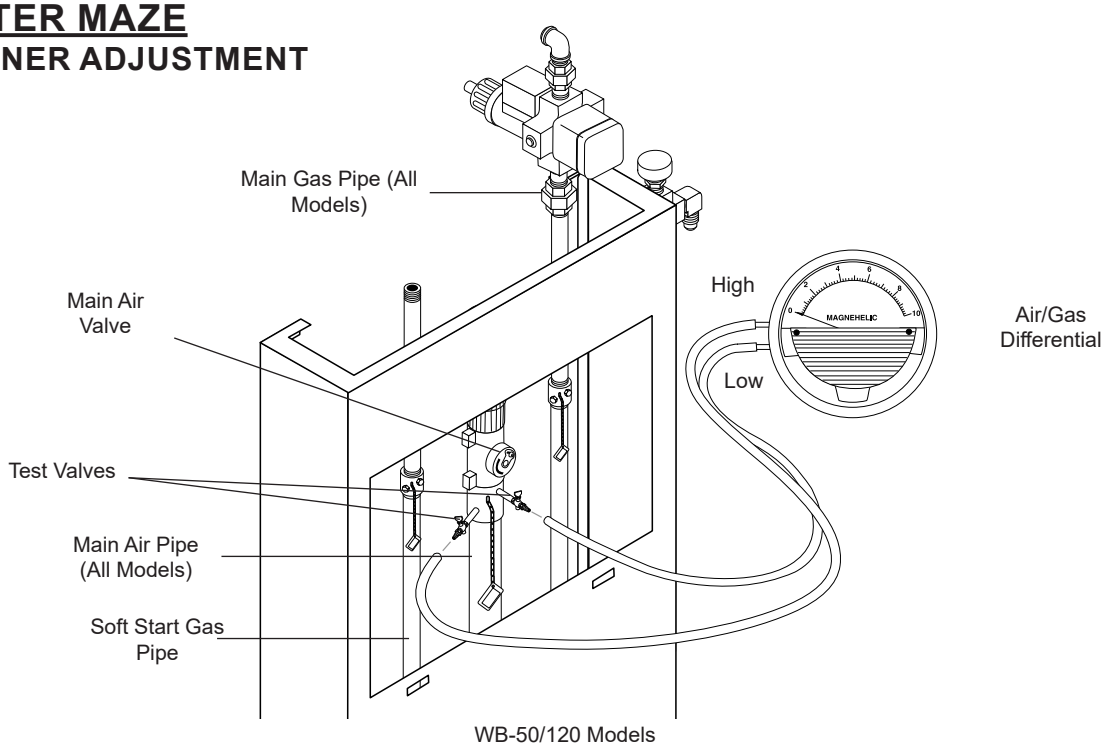
NATURAL GAS:

UNIT	GPH	METERING ORIFICE	GAS DIFFERENTIAL	METERING ORIFICE	AIR DIFFERENTIAL
WB-50A	60	SBO-D-7	5.5	SBO-677	12
WB-120A	120	SBO-D-7	5.5	SBO-677	12

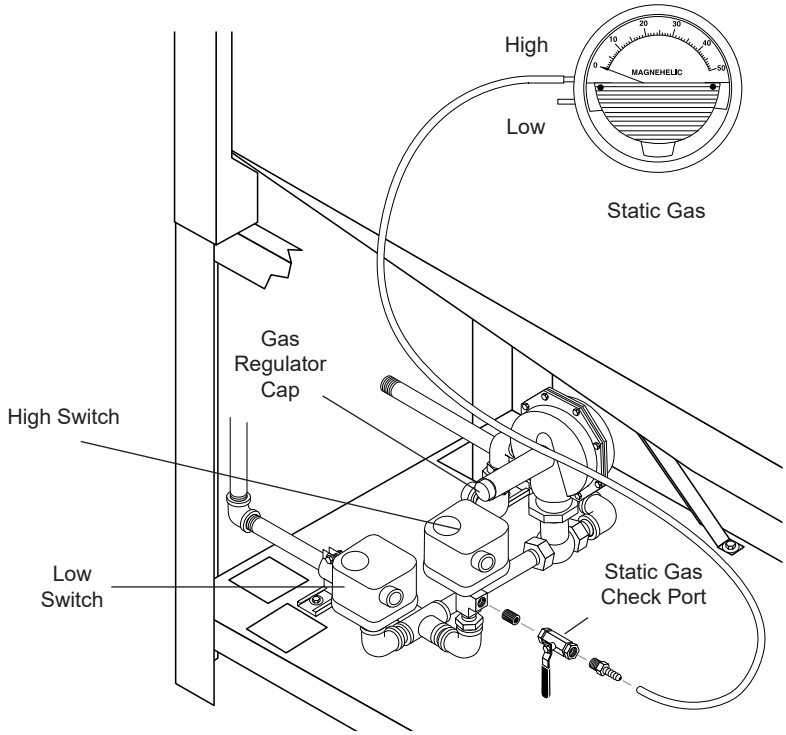
LIQUID PROPANE GAS:

UNIT	GPH	METERING ORIFICE	GAS DIFFERENTIAL	METERING ORIFICE	AIR DIFFERENTIAL
WB-50A	60	SBO-C-3	5	SBO-677	12
WB-120A	120	SBO-C-3	5	SBO-677	12

WATER MAZE
BURNER ADJUSTMENT



WB-50/120 Models



WB-50/120 Models

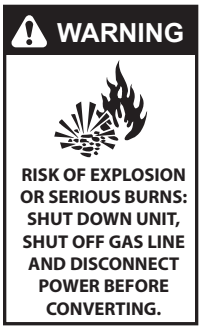
Figure 7

FOAMING

The *WATER MAZE* uses a high volume of air to operate the burner, which pushes the heat out of the sparger tube and into the evaporation tank. There, the air goes through baffle screens to break the air bubbles down into smaller sizes. This process can cause excessive foaming from the detergent used in the washing process if it has any kind of foaming agents. This foam interferes with the evaporation process of the *WATER MAZE* and the foam will go up the stack causing problems with the venting of the *WATER MAZE*.

The best solution is not to use detergents or cleaning compounds that cause foaming. An anti-foam pump is a standard feature on this machine. *WATER BLAZE* has defoamer chemicals available, developed for use in the evaporator.

CONVERTING NATURAL GAS TO L.P. GAS



WARNING: Before converting from natural gas to L.P. gas, be certain that the evaporator is shut down, the water has been cooled, the gas line is shut off and the power is disconnected.

The *WATER MAZE* can be ordered from the factory in natural gas or L.P. gas. Once they are in the field, you must order a conversion kit to change from natural gas to L.P. gas or from L.P. gas to natural gas.

WB-50/120:

The conversion kit for the WB-50/120, natural gas to L.P, is # 8.906-072.0.

Remove the SBO-D-7 and replace it with SBO-C-3. (See items 19 and 21 on pages 42 & 43.) Change the regulator orifice. Remove the 5/8" orifice and replace with the 1/2" orifice.

To replace the orifice, disconnect the 3/4" gas line at the unions above and below the metering orifice. Remove the section of pipe by unscrewing it from the orifice and then remove the orifice by unscrewing it from the pipe above it.

Install the new orifice by applying pipe sealant to the pipe coming from the gas solenoid valve and screw the orifice to the pipe. Apply pipe sealant to the section of pipe that was removed and screw it into the bottom of the orifice. Reconnect at the unions.

NOTE: Be certain that the orifice is installed right side up or the system will not work properly. The orifice has an arrow indicating the flow. If there is not an arrow, look on the side of the orifice where the plugs are located. One has green paint around it, the other has red paint. The plug with green paint goes on the top.

Change the regulator orifice in the gas regulator from 1/2" for natural gas to 3/8" for L.P. gas. Remove the regulator at the unions. The orifice sits in the tee below the regulator unions. Use a 1" socket with an extension to remove the orifice. Put the new 3/8" orifice in. Replace the regulator.

Replace the **"Natural Gas Only"** label with the **"L.P. Gas Only"** label.

Conversion Kits:

8.906-066.0	Factory Conversion from Natural Gas to L.P. WB-50/120, Qty 2 for WB-120
8.906-072.0	Field Conversion Kit from Natural Gas to L.P. WB-50/120, Qty 2 for WB-120
8.906-069.0	Field Conversion Kit from L.P. to Natural Gas WB-50/120, Qty 2 for WB-120

Standard *WATER MAZE* machines are natural gas fired and are so constructed. When propane fuel is specified please add the appropriate conversion part number to the order. Thank you.

VERI-FLAME
#7-8061

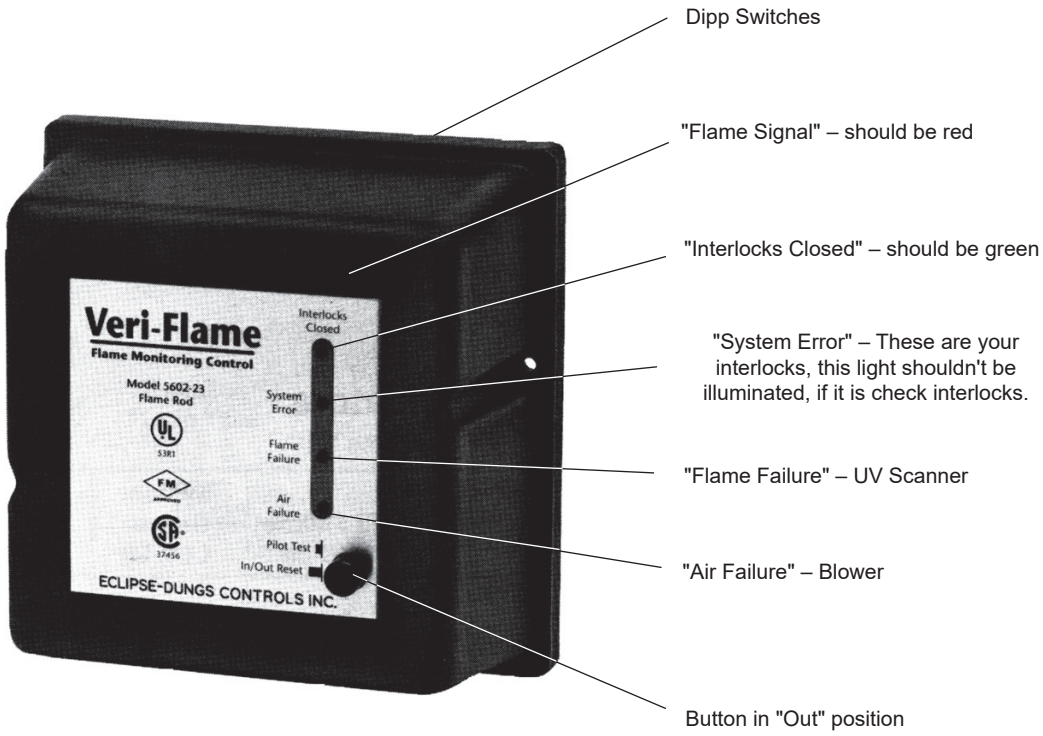


Figure 8

The Veri-Flame is the controller which proves all of the interlocks. It provides for a purge cycle to insure that there are no combustibles in the sparger tube before the trial for ignition (TFI). The length of the purge cycle is determined by the settings on the Veri-Flame. It is preset at the factory for 15 seconds.

If you need to check the settings on your Veri-Flame or if you replace a Veri Flame and it needs to be set, remove the screws holding the cover on and unplug the cover from the back. Dipp switches are located on the reverse side. Set the eight switches as follows: switch 1 ON, switch 2 OFF, switch 3 ON, switch 4 ON, switches 5, 6, 7 and 8 OFF.

If switch 1 is ON, the burner will recycle once after an air or main flame failure. Otherwise, the system will shut down.

A pilot light is not used so switch 2 is set to OFF. Switch 3 controls the amount of time the machine has for TFI. With this switch set to ON, the machine has 10 seconds for TFI. Switches 4 through 8 control the amount of purge time before TFI. Switch 4 gives the machine a 15 second purge before TFI.

A Veri-Flame and U.V. scanner tester is available (#7-8063).

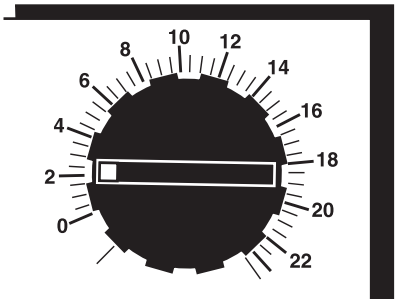
3 POINT SENSOR CONTROL

The 3 point sensor control is part of the safety interlock system and also controls the wastewater air diaphragm pump.

The bottom rod is the low water safety position. If the wastewater level is too low, this rod, working through the Veri-Flame, will not allow the burner to ignite. When the wastewater level drops to the position of the middle rod, there is a demand for water and the wastewater pump turns on. The air diaphragm pump continues to run until the top rod is reached by the wastewater. At this point the pump shuts off. When the level drops to the middle rod, the wastewater pump restarts again.

SETTING LIMIT CONTROL

Adjust the high limit control temperature accordiningly.



230° for the WB-50/WB-120

MAINTENANCE

WARNING: Use protective gloves, goggles and any other protective clothing according to the MSDS reports of chemicals mixed with the waste stream.

The *WATER MAZE* does not require a lot of maintenance, but it does require consistent maintenance. The frequency of maintenance will vary depending on what is in the water that is being evaporated.

WARNING: Shut down the WATER MAZE and allow it to cool before performing maintenance.

General maintenance will consist of removal of any floating oil in the evaporation tank, removal of sludge from the evaporation tank and the sparger tube, removal and cleaning of the liquid level switch and sight tube, cleaning the UV scanner and the ignition plug.

Daily Maintenance Procedures:

1. Turn *WATER MAZE* wastewater pump, burner and blower to the off position.
2. Turn *WATER MAZE* main power disconnect to the off position before initiating maintenance.
3. Connect garden hose to garden hose fitting at the elbow of the liquid level control sight glass. Turn on water, set timer in electrical box for 10 seconds to flush elbow and nipple.31

Weekly Maintenance Procedures:

1. Turn *the WATER MAZE* wastewater pump, burner and blower to the off position.
2. Turn *the WATER MAZE* main power disconnect to the off position before initiating maintenance.
3. If oil removal is necessary, you can remove the oil by removing the access window on the top of the machine and using a shop vacuum to remove the oil.
4. With a sludge catch container in place, open the 1-1/2" sludge ball valve to remove accumulated sludge and concentrated liquid from the *WATER MAZE* tank.
5. When you are sure the water level is below the sparger tube, remove the panel that covers the clean out flange and open the sparger tube clean out access flange. With the supplied tool kit, remove any solids from the inner diameter of the tube and sparger slot. Place the removed solids in a holding container in accordance with disposal regulations. When cleaning of the sparger tube is completed, inspect the inside of it for any deterioration. Reassemble the sparger tube, clean out flange and cover panel.
6. Inspect the inside of the *WATER MAZE* tank, screens and outside of the sparger tube for any build up of solids. This can be done by removing the glass access window on the top of the machine. Remove solids build up if necessary. Replace window and bezel when completed.
7. Remove the demister box access door and inspect screens. If the screens have a build up of solids, remove the screens and clean the inside of the demister box and screens. Reassemble the screens in the demister box and reattach the access door.
8. Remove the 3 point level controller rods by removing the three 3/8" nuts on top of the upper body sight glass holder and slide straight upward. Clean rods with rag. Use a Scotch Brite pad for bottom end of rods.
9. Remove sightglass and clean out hole in lower sightglass holder. If plugged, remove lower sight glass holder from elbow and flush with freshwater.
10. Shut off the wastewater inlet valve (not supplied) located near the wastewater inlet. Unscrew the filter housing and remove the 20 mesh filter screen. Clean and replace the screen. Screw the filter housing back into place and open the wastewater valve.

Monthly Maintenance Procedures:

1. Turn the *WATER MAZE* wastewater pump, burner and blower to the off position.

2. Turn *WATER MAZE* main power disconnect to the off position before initiating maintenance.
3. Turn waste source off. Drain tank after evaporating until low water shut off.
4. Remove top lid of the *WATER MAZE* and thoroughly inspect the interior of the tank and sparger tube. Remove any solids that may have built up on the interior of the tank, sparger tube and air distributor. Rinse the interior of the tank.
5. Remove the ignition plug wire from the ignition plug. Remove the ignition plug from the burner and clean. Inspect the ignition plug for any cracks in the insulation. If cracks are found, replace the ignition plug.
6. Remove the U.V. scanner from the burner, inspect and clean the lens.
7. Refill the *WATER MAZE* tank with water to the minimum restart liquid level. Restart the blower and burner and verify the air/gas ratios with manometers for proper operation of the burner.
8. Thoroughly clean the following: 3 point level controller rods, glass tube, demister screens, wastewater filter and housing.

Semi-Annual Maintenance Procedures:

1. Turn the *WATER MAZE* water pump, burner and blower to the off position.
2. Turn the *WATER MAZE* main power disconnect to the off position before initiating maintenance.
3. Turn waste source off. Drain tank after evaporating until low water shut down.
4. Remove top lid of the *WATER MAZE* and thoroughly inspect the interior of the tank and sparger tube. Remove any solids that may have built up on the interior of the tank and sparger tube. Rinse the interior of the tank.
5. Inspect the blower for proper operation. Check the amp draw, bearing noise and inlet screen.
6. Inspect the wastewater pump for proper operation. Also check for possible leaks in the housing.
7. Inspect hoses for any deterioration.
8. Loosen the air/gas line unions and remove the burner from the mounting flange. Clean the nozzle inside the burner with a small steel brush removing any build up that is obstructing the mixing of the air and gas through the nozzle. Replace the burner mounting gaskets with new gaskets each time the burner is removed.
9. Refill the *WATER MAZE* tank with water to the minimum restart liquid level. Restart the blower and burner and verify air/gas ratios with manometer for proper operation of the burner.

Chlorides/Fluorides

Water evaporation tends to concentrate non-volatile solids in a waste stream. Thus chlorides, fluorides and related corrosion increase as the volume of the waste stream decreases. In order to obtain the maximum life from the *WATER MAZE*, it is important to monitor the chloride and fluoride content of the liquid in the evaporation tank, so the waste can be purged prior to damage by chloride or fluoride corrosion.

Clean Screen:

Shut off the wastewater valve (not included) located near the "wastewater inlet" on the back end panel. Unscrew the filter housing and remove the 20 mesh filter. Clean and replace the screen. Screw the filter housing back into place and open the wastewater valve (See figure 3).

Clean U.V. Scanner & Ignition Plug:

Once a month, the UV scanner needs to be removed and cleaned, usually by wiping the scanner off with a cotton swab and replacing it. Also every month remove the ignition plug and clean it. Check for damage or wear.

Demister Box Screens:

Remove the screens from the demister box and clean them off. Replace them in the demister box. Make sure that the door is secure and the gasket is good so that there are no leaks.

Anti-Foam Maintenance:

CAUTION: Do not attempt to feed chemicals without consulting your chemical feeder dealer or chemical supplier.

1. **Filling the Chemical Tank**

   To avoid running out of chemical, follow a regular schedule of monitoring the chemical supply. Also inspect and clean the strainer by flushing with a compatible liquid, as needed.

2. **Tubing Inspection**

   Inspect all tubing regularly and replace it if deteriorating. Follow the instructions with figure 10 to replace the pump head tubing.

3. **Feeding Adjustment**

   The feed adjustment is under the front cover. Remove the cover and turn the screw clockwise to increase the feed or counterclockwise to decrease the feed. Replace the enclosure cap after making the adjustment. NOTE: Always start with the lowest

feed rate. (See figure 10). Lower feed rate pumps are available.

4. On/Off/ Full Speed Switch

   Now that the system is adjusted, turn the pump on. The pump will come on and inject "anti-foam" into the waste stream when the wastewater pump comes on. The Full Speed setting can be used to fill the feed lines more quickly.

Sludge Removal:

Remove the doors on the right side of the *WATER MAZE*. At the bottom of the evaporation tank you will find a 1-1/2" ball valve. Connect a hose to the valve and place the other end into a container. Open the valve and flush out the sludge. If nothing comes out, you may need to run a wire into the valve to break loose the sludge that has collected in the evaporation tank. Once the sludge has been drained, close the valve.

NOTE: Drain water level below the sparger tube before removing item E (See figure on page 23).

Sparger Tube Cleaning:

The tool kit, (8.903-719.0), consists of four items. Check to ensure that the kit is complete (refer to the drawing).

A. Tool handle (2 pc.)

B. Probe/scraper

C. Trough assembly

Remove the panel that covers the flange assembly (this cover is not shown in this drawing). Use a 3/4" socket to remove the nuts holding the front of the flange assembly (E) from the rear flange assembly (D). Also remove the gasket and check it for damage or wear.

Next, place the trough assembly (C) onto the bottom two studs of the rear flange (D) and replace the nuts to hold it securely in place. Assemble the tool by screwing the tool handle (A) into the probe/scraper (B). Place the probe/scraper tool as far back into the sparger tube as possible. While pulling the scraper forward, scrape out all of the buildup that has accumulated inside of the sparger tube (H) and direct it into the slot of the sparger tube.

Continue until the sparger is clean. Clean out the slot (F) inside the sparger tube. Remove sludge from the bottom of the tank monthly.

Once this is completed, remove the probe/scraper and the trough assembly (C). Make sure the gasket is clean along with the surface area between the front flange (E) and the rear flange assembly (D). Place the gasket over the studs on the rear flange assembly and then do the same with the front flange assembly (E). Use the 1/2" nuts to secure the flange assembly. Refill the evaporator tank and check the flange assembly for leaks. Replace the panel that covers the flange assembly.

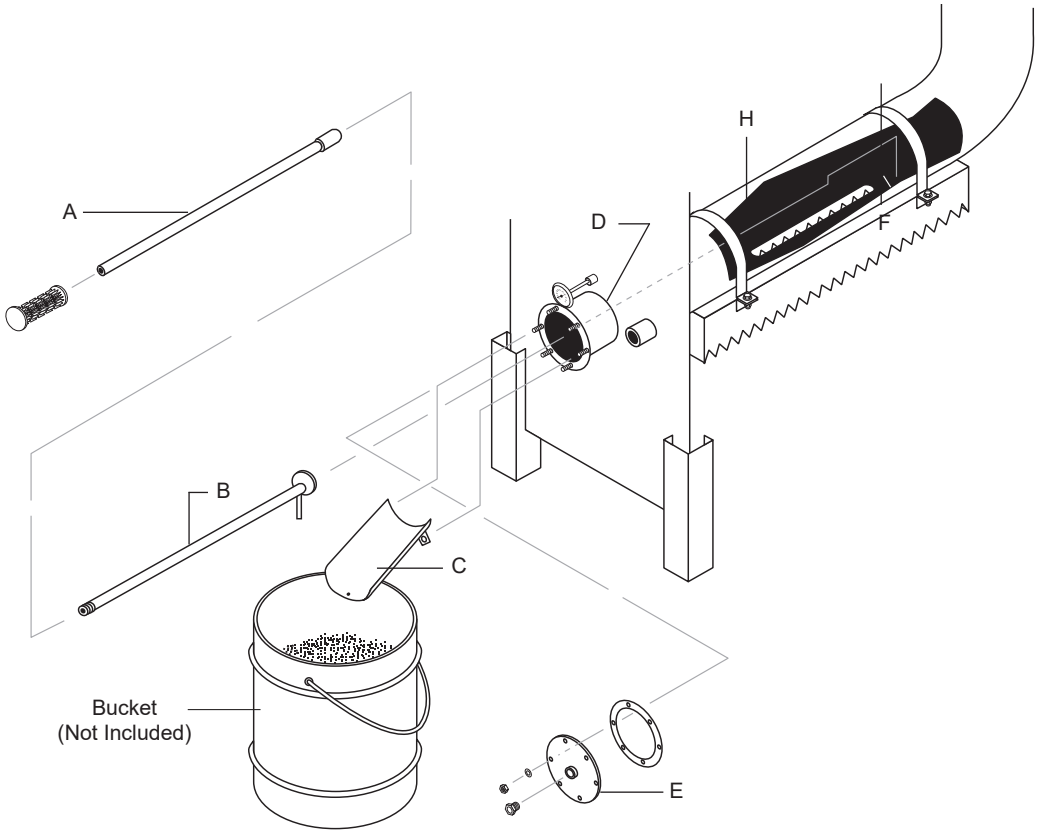


Figure 9

PROGRAMMING OF WATER MAZE CYCLE TIMER

Function Settings

Reset Button. Push to restart machine after batch cycle completed.

Scroll Button. Push to select the different programming modes. Also saves program values.

▲ **Vertical Scroll** changes programming values.

Horizontal Scroll for multiple values. Also changes programming values.

Programming

1. Press and hold button for 2 seconds. **(Entry)** will appear in red. **(Auto Sc)** will appear in green. No change is necessary.
2. Press button once, **(trAngE)** will appear in red. Press ▲ button until **(h.n.O)** appears in green.
3. Press button, **(OPEr)** will appear in red. Press ▲ button until **(31)** appears in green.
4. Press button, **(rSt.P.uP)** will appear in red. **(no)** will appear in green. No change is necessary.
5. Press button, **(Ac Pr S)** will appear in red. **(-N-N)** will appear in green. Press button until far left (-y) is blinking. Press ▲ button until **(-n)** appears. Press button once more and the right **(-y)** will blink. Press ▲ button until **(-n)** is showing.
6. Press button, **(PrESEt)** will appear in red. The value to set is predetermined from the wastewater analysis. This value is known as PRS1(Preset 1). Press the ▲ or buttons until the burner time is achieved.
7. Press button, **(PrESEt)** will appear in red. This value,PRS2(Preset 2) must be set with the same value as (Preset 1). Press the ▲ or buttons to set value.
8. Press button, **(PltrAc)** will appear in red. **(no)** will appear in green. No change is necessary.
9. Press button, **(Ac Out)** will appear in red. **(-L-L)** will appear in green. Press button until the far left **(-L)** value is blinking. Press the ▲ button until **(-n)** appears. Press the once more and the right **(-L)** will blink. Press the ▲ button until **(-n)** is showing.
10. Press button, **(OutrES)** will appear in red. Press the ▲ button until **(0.1 SEC)** appears in green.
11. Press button, **(OutPut)** will appear in red. This value is the autopurge valve #1. For WB-25 or WB-50, this value needs to be set at (300) seconds. For WB-120 the value is (999) seconds. Press the ▲ button until the correct value for your machine appears.
12. Press button, **(OutPut)** will appear in red. This value, auto purge valve #2, must be set with the same value as autopurge valve #1. Press ▲ or buttons to set value.
13. Press button, **(rEUOut)** will appear in red. (-n-n) will appear in green. Press the until the far left (-n) blinks. Press the ▲ button once and the (-y) appears.
14. Press button, **(rEUAnu)** will appear in red. (-n-n) will appear in green. No change is necessary.
15. Press button, **(OutP.uP)** will appear in red. (-F-F) will appear in green. No change is necessary.
16. Press button, **(USr In 1)** will appear in red. (rst -L) will appear in green. Press ▲ button until (Pro.diS) appears.
17. Press button, **(USr In 2)** will appear in red. (rSt -L) will appear in green. No change is necessary.
18. Press button, **(USr In 3)** will appear in red. (rSt -L) will appear in green. No change is necessary.
19. Press button, **(USr FI)** will appear in red. (rSt -L) will appear in green. Press ▲ button until (rStOut) appears.
20. Press button, **(CodE)** will appear in red. (0) will appear in green. No change is necessary.
21. Press button, **(ScroLL)** will appear in red. (no) will appear in green. No change is necessary.
22. Press button, **(FAcSEt)** will appear in red. (no) will appear in green. No change is necessary.
23. Press and hold button for 2 seconds. **(Prog)** will appear in red and **(SAVE)** will appear in green.

To complete setting the timer, first pull the face plate of the timer out of its holder with your fingers. This will expose the internal circuit boards. Along the left side (wall) you will see two (blue) jumpers. Pull upward on the blue jumper not touching the side wall and move it forward one position on the pins. This is the lock out mode for the timer.

Slide the timer back into its holder. Initial programming of the timer is complete. **Once power is supplied to the timer via the main disconnect on the Water Maze, the button must be pushed to set the timer in run mode.**

NOTE: Reprogramming can not be preformed with the blue disable jumper in the forward position. Remember, if reprogramming is to be done, always place the disable jumper in the most forward position when done.

NOTE: Original cycle timer has been preset at factory.

SETTINGS CHART	
MODE	**VALUE SETTING**
Entry	Auto Sc
trAngE	h.n.O
OPEr	31
rSt.P.uP	no
Ac PrS	-n-n
PrESEt	Customer run time value #1
PrESEt	Customer run time value #2
PltrAc	no
Ac Out	-n-n
OutrES	0.1 SEC
OutPut	Auto purge run time value #1
OutPut	Auto purge run time value #2
rEUOut	-y-n
rEUAnu	-n-n
OutP.uP	-F-F
USr In 1	Pro.diS
USr In 2	rSt -L
USr In 3	rSt -L
USr F1	rStOut
CodE	O
ScroLL	no
FAcSEt	no

WATER MAZE CYCLE TIMER QUICK REPROGRAMMING INSTRUCTIONS

Function Settings

Reset Button. Push to restart after power outage.

Scroll Button. Push to select the different programming modes. Also saves program values.

▲ Vertical Scroll changes programming values.

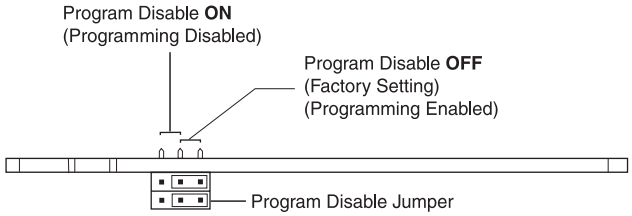
Horizontal Scroll for multiple values. Also changes programming values.

Programming

1. Pull face plate of timer out of its holder in electrical box with your fingers. Along the left side (wall) of the circuit board, the blue disable jumper needs to be pulled upward and moved back one pin position. This will allow for reprogramming. Slide timer back into its holder.
2. Press button until LED screen in green shows (PRS #02). Push the ▲ or button until the new run time appears in green Then press the button once to save the setting for preset 1.
3. Press button once more. The LED screen will show (PRS #02). Push the ▲ or until the value in green is the same value as preset 1. Press button to save setting for preset 2.
4. Remove timer once again from its holder in the electrical box. Change the blue disable jumper back to the most forward pin position. Slide the timer back into its holder in the electrical box.

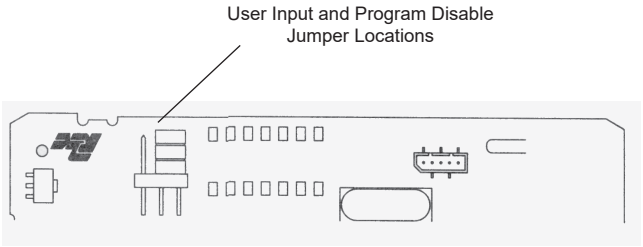
Program Disable Plug Jumper

The program disable plug jumper is used to enable and disable front panel programming. The plug jumper is located on the CPU board.



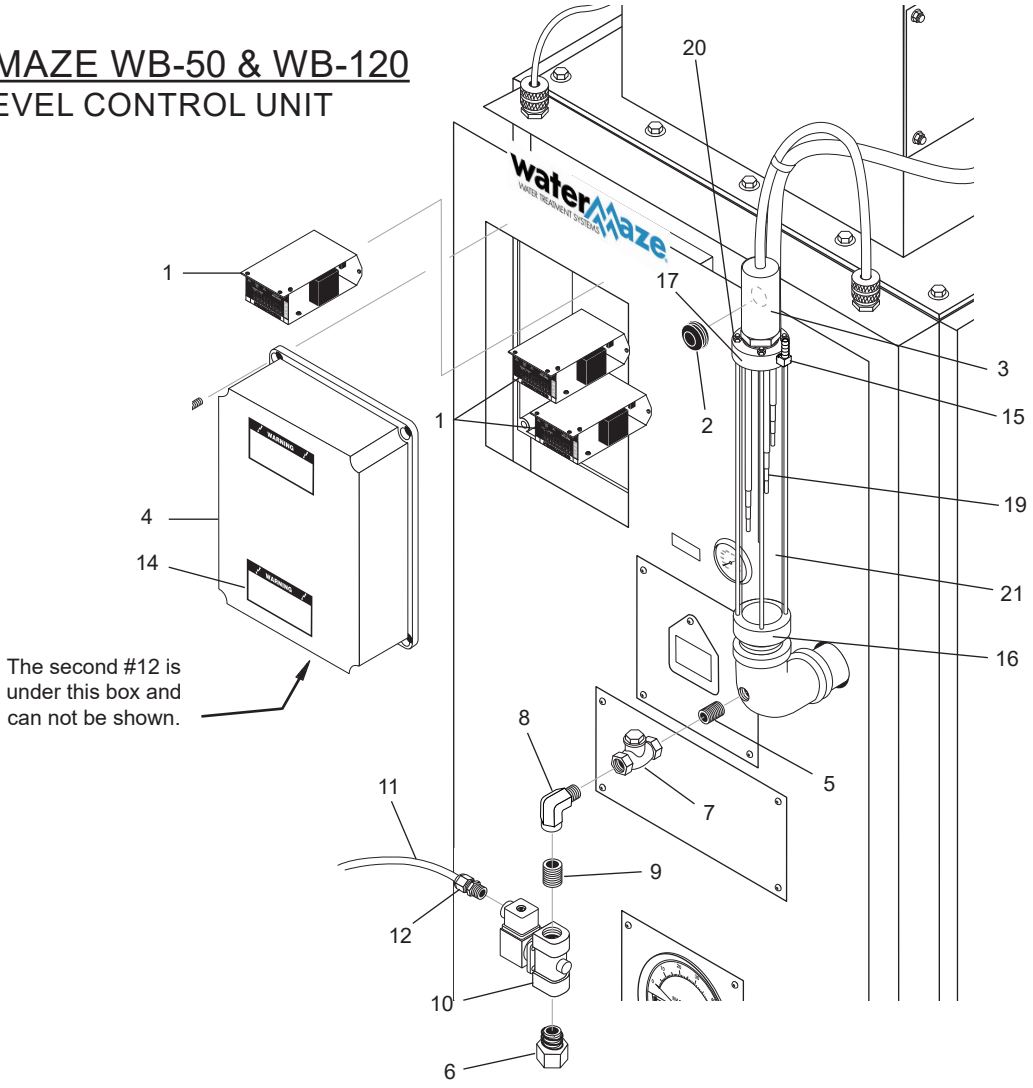
Program Disable Jumper Settings

FIGURE 10



User Input and Program Disable Jumper Locations

WATER MAZE WB-50 & WB-120
WATER LEVEL CONTROL UNIT

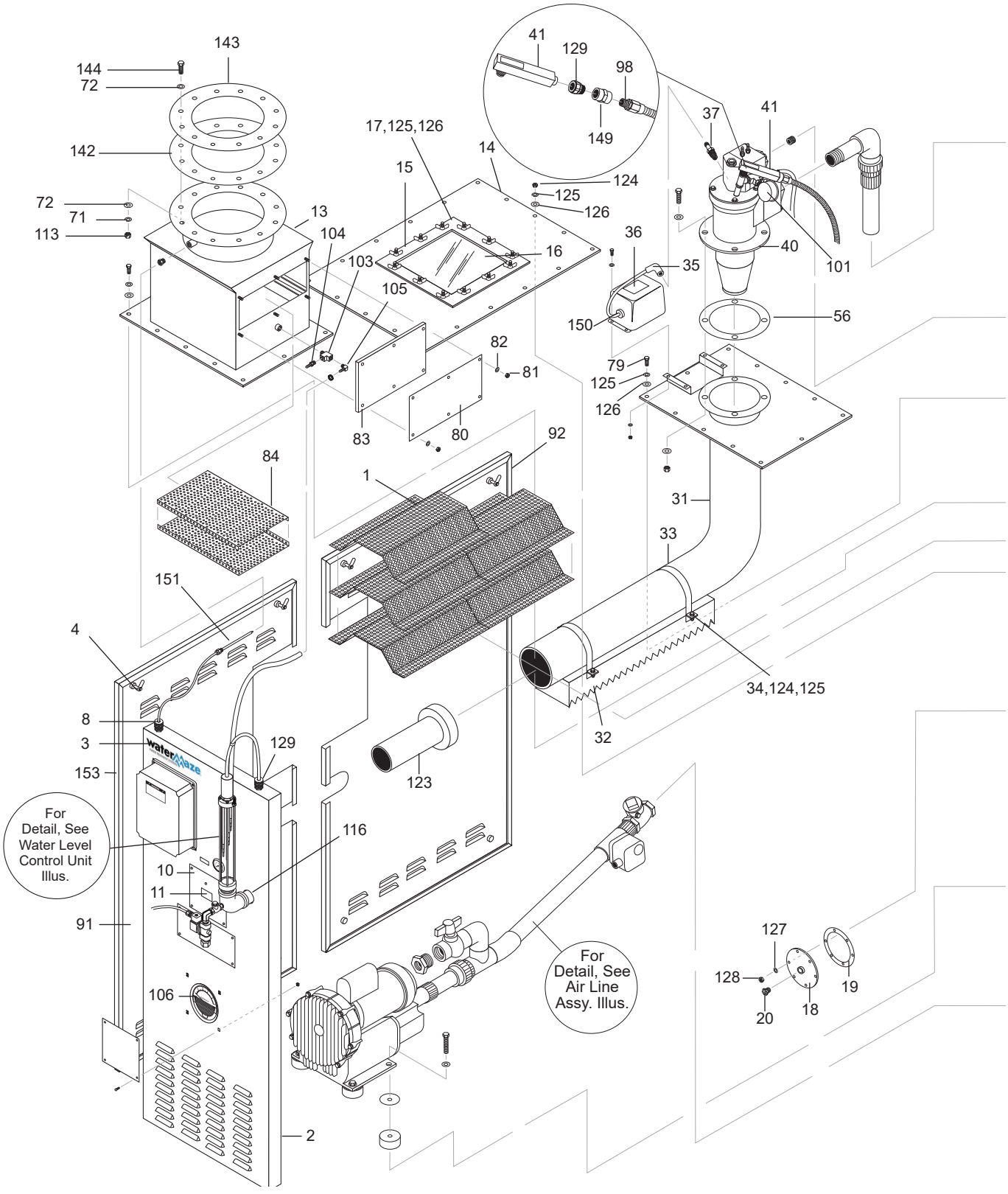


ITEM	PART NO.	DESCRIPTION	QTY
1	8.755-211.0	Controller, Level, Z-Tron IV, LL/HL	3
2	9.802-064.0	Grommet	1
3	8.716-300.0	Sensor, Capacitance, 3 Point	1
4	8.716-290.0	Box, Plastic, 9.8 x 6.8 x 5.61	1
	8.716-291.0	▲ Plate, Back	1
	9.802-515.0	▲ Strain Relief, Strt, LQ Tite	1
	8.913-230.0	▲ Bracket, Controller Mount	1
5	8.706-051.0	Nipple, 1/2" Close, 316L SS	1
6	9.802-146.0	Swivel, 1/2" MP x 3/4" GHF w/Strainer 1	
7	8.751-320.0	Swing Check Valve, 316 SS	1
8	8.706-208.0	Street Elbow, 1/2" MPT x 1/2" FPT 1	
9	8.706-790.0	Nipple, 1/2" Close	1
10	8.713-149.0	Solenoid Valve/ 1/2"	1

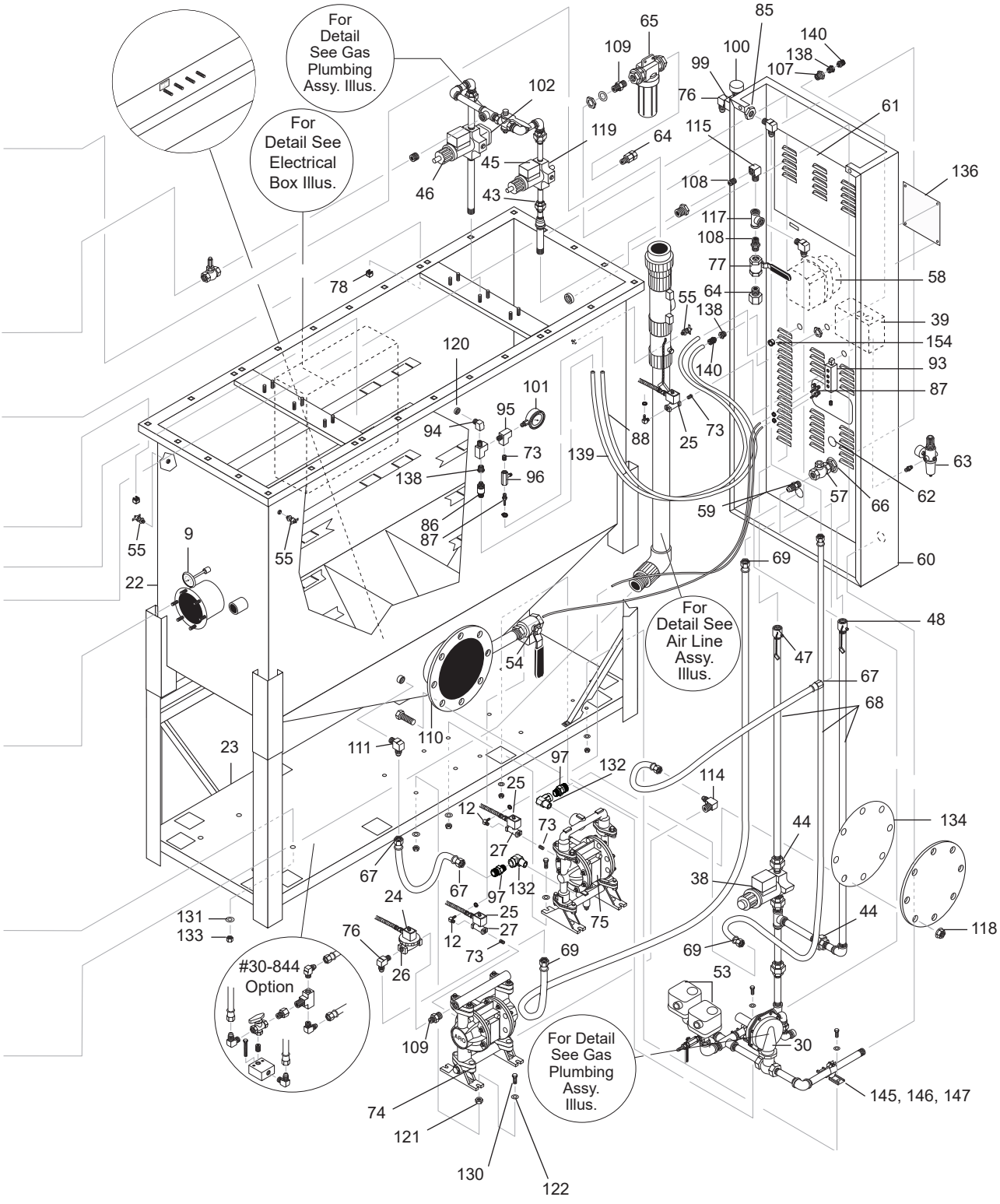
ITEM	PART NO.	DESCRIPTION	QTY
11	9.802-422.0	Cord Service, SEO 16/2	7 ft.
12	9.802-514.0	Strain Relief, LT, 1/2" (1 shown)	2
13	8.716-547.0	▲Connector, 1/2" L/T Straight, Black	1
14	8.758-331.0	Label Disconnect Pwr Supply	1
15	8.706-955.0	Hose BARB 1/4" BARB x 1/8" MPT, 90 DEG	1
16	8.719-973.0	Body, Sight Glass, Lower, 304L	1
17	8.719-977.0	Body,Sght Glss,Uper,3-Point, 304L SS, WB'S	2
18	8.707-383.0	▲Gasket,1/16' Buna, Sight Glass Tube, EV	2
19	8.719-975.0	Rod, 1/4 X 12.5 Sight Glass, 304L 3	
20	8.718-817.0	Nut, 1/4-20, Whiz Loc Flange, SS	3
21	8.706-757.0	Tube,Sight Duran 8330 58MM X 3.5MM X 11	1

▲Not Shown

WB-50A
EXPLODED VIEW LEFT SIDE



WB-50A
EXPLODED VIEW RIGHT SIDE



WB-50A
EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	8.913-019.0	Baffle, Screen	5
2	8.912-987.0	Panel, Control End	1
	9.802-791.0	▲ Nut, Cage, 10/32" x 16 GA	22
	9.802-794.0	▲ Nut, Cage, 1/4" X 12 GA	4
3	9.802-072.0	Trim,6100 B3X1/16 A. w/sponge	51.33 ft.
4	8.719-066.0	Latch, Compression	8
5	8.707-004.0	▲ Swivel, 3/4' JIC, FEM, Push-On, SS	5
6	8.707-177.0	▲ Nipple, 1/4" MAL AIR-P/N-CP21	1
7	9.804-070.0	▲ Connector, BUTT BSVVVV 14X-M	14
8	8.716-571.0	Strain Relief, 1/2" LQ Tite	2
	9.802-524.0	▲ Locknut, 1/2" Conduit	2
9	8.712-157.0	Gauge, Thermometer	1
	8.706-806.0	▲ Nipple, 1/4" x 2-1/2", 316L	1
	8.706-813.0	▲ Coupling, 1/4" Hex, 316L	1
10	8.913-025.0	Plate, Observation	1
	9.802-759.0	▲ Screw, 10/32" x 1/2" BHSOC Black	26
	9.804-567.0	▲ Nut, 10/32", ESNA	5
11	8.913-010.0	Cover, View Port	1
	9.800-028.0	Label, Pilot Light Hole	1
12	8.706-958.0	Hose Barb, 90°, 1/4" Barb x 1/4" Pipe	3
13	8.913-033.0	Box, Demister Assy, 316L	1
	8.913-034.0	Box, Demister Assy, AL-6XN	1
14	8.913-015.0	Lid, Center Plate, 316L	1
	8.913-016.0	Lid, Center Plate	1
15	8.912-972.0	Bezel	1
	8.707-382.0	▲ Gasket, Bezel, All, Buna-n	2
16	8.706-758.0	Cover, Tempered Glass	1
17	8.718-906.0	Nut, 3/8" Wing, SS	8
18	8.913-027.0	Cover Plate w/Viewer	1
19	8.707-397.0	Gasket, Cover Plate, Silicone	1
20	8.718-201.0	Glass, Site, Observation	1
21	9.802-514.0	▲ STRAIN RELIEF, LT, Str, 1/2 NPT,.23-.45D	4
22	8.913-000.0	Tank, Assy, SS 316L	1
	8.913-001.0	Tank, Assy, AL-6XN	1
	8.707-385.0	▲ Gasket, Tank Cover	1

ITEM	PART NO.	DESCRIPTION	QTY
23	8.912-976.0	Base, Assy	1
	8.913-005.0	▲ Raceway, Electrical	1
	8.913-006.0	▲ Raceway, Cover	2
24	8.716-689.0	Solenoid, Coil,120VCF4C05	1
25	9.802-533.0	Solenoid, Coil, 120V	3
26	8.716-690.0	Valve, Solenoid, Parker, 12FS5C2348ACF	1
27	8.716-691.0	Valve Solenoid, 120V	3
28	8.706-475.0	Union, CPVC 80, 1-1/4"	1
29	9.804-082.0	▲ Washer,1/4"X 0.625 X 0.65 STL BLK ZN PLT	4
30	8.717-748.0	Regulator, Rockwell, 3/4"	1
	8.718-172.0	▲ Orifice, Regulator, 1/2", LP	1
30	8.718-173.0	▲ Orifice, Regulator, 5/8", NG	1
31	8.912-005.0	Burner, Sparger Tube Assy, 316L	1
	8.912-006.0	Burner, Sparger Tube Assy, AL-6XN	1
32	8.912-008.0	Distributor, Air, 316L	1
	8.912-009.0	Distributor, Air, AL-6XN	1
33	8.912-014.0	Bracket, WB Distributor Mnt. Ring, 316L	2
	8.912-015.0	Bracket, WB Distributor Mnt. Ring, AL-6XN	2
34	9.802-721.0	Bolt, 3/8" x 1" HH NC, 316LSS	4
35	8.716-994.0	Wire, Spark Plug	1.5
	8.716-707.0	Tubing, Shrink, 3/8, Black, 100' Roll	14
	8.716-992.0	Terminal, Spark Plug, Straight	1
	8.716-993.0	Boot, Ignition Spark Plug	1
	8.716-369.0	Terminal, Ring Tongue P#353105 HighTemp	1
36	8.718-177.0	Transformer, Ignition, 120V	1
37	8.718-185.0	Ignition Plug, 16946-5, Eclipse	1
38	8.718-182.0	Valve, Gas Solenoid, 3/4"	1
39	8.716-321.0	Box, Junction 3 Hole, 1/2"	2
	9.802-483.0	Cover Plate, Junction Box, 2" x 4"	3
	8.716-142.0	▲ Switch, Float, N/O 20PMD WOP 1003825(BLACK)	1
40	8.718-159.0	Burner, Eclipse	1
41	8.718-174.0	Scanner, UV, All	1
42	9.802-103.0	Bushing, 5/8" Snap	1

▲ Not Shown

WB-50A
EXPLODED VIEW PARTS LIST CONTINUED

ITEM	PART NO.	DESCRIPTION	QTY
43	8.706-334.0	Union, 1/2" Black Pipe	2
44	9.802-049.0	Union, 3/4", Black Pipe	5
45	8.718-180.0	Valve, Gas Solenoid, 1/2", MVDLE, Soft Start	1
46	8.718-181.0	Valve, Gas Solenoid, 3/4", MVDLE	1
47	8.718-167.0	Orifice Metering, 3/4", SBO-D-7 (WB-50 {NG})	1
	8.718-169.0	Orifice Metering, 3/4", SBO-C-3 (WB-50 {LP})	1
48	8.718-171.0	Orifice Metering, 3/4", SBO-A-1	1
49	9.804-016.0	▲ Filter Screen Washer, Garden Hose / 30 Mesh	1
50	8.716-580.0	▲ Connector, 1" EMT Compression, TC603	3
51	8.706-780.0	▲ Nipple, 1/4" Hex Brass, P/N-3325-4	3
52	8.706-227.0	▲ Tee, 1/2 X 1/2 X 1/4, Blk	1
53	9.802-517.0	▲ Connector, 1/2" L/T, 90 DGR, Black	27
54	8.707-227.0	Valve, Ball, Brass, 1-1/2", 316L	1
55	8.712-172.0	Switch, Thermostat	3
56	8.707-429.0	Flange 9'Burner Gskt, WB, 1/8'SILCNE60D	1
57	8.707-235.0	Valve, Swing Check, Brass, 1/2"	1
58	8.919-139.0	Pump, Peristaltic, 8-45 gpd, Sekokem	1
59	8.706-799.0	Nipple, 3/4' Close	1
60	8.912-986.0	Panel, Burner End	1
61	8.912-989.0	Panel, Valve Access	1
62	8.707-000.0	Connector, Anchor, 1/2"	1
	9.802-131.0	Elbow, 1/2" JIC x 1/2"	2
63	8.707-331.0	Filter, Regulator, 1/2" w/Gauge	1
64	9.802-146.0	▲ Swivel, 1/2" MP x 3/4" GHF	2
	8.706-970.0	▲ Swivel, 3/4" Fem HS x 3/4" Female	1
65	8.709-179.0	Filter, 3/4" x 20 Mesh	1
66	9.802-052.0	Bulkhead, 3/4" Poly Pro	2
67	9.802-152.0	Swivel, Push-on, 3/4" JIC Fem	3
68	9.802-261.0	H, Push-on, 3/4"	3 ft. 4 ft. 4.33 ft. 7 ft.

ITEM	PART NO.	DESCRIPTION	QTY
69	9.802-151.0	Swivel, Push-on, 1/2" JIC Fem	4
70	9.802-259.0	Hose, Push-on, 1/2"	12 ft.
71	8.749-817.0	Washer, Split Ring	12
72	8.718-996.0	Washer, 3/4	24
73	8.706-777.0	Nipple, Close, 1/4"	2
74	8.715-278.0	1/2" Air Diaphram Pump, Polypro	1
75	8.715-279.0	1/2" Air Diaphram Pump, SS	1
76	8.706-887.0	Elbow, 3/4" JIC X 3/4" MPT, 90 DEG, SS	2
77	8.707-210.0	Valve, 1/2" Ball, 316 SS	1
78	9.802-792.0	Nut, Cage, 3/8" x 12 Gauge	40
79	9.802-721.0	Bolt, 3/8" x 1" S/S NCHH, 316 SS	34
80	8.913-028.0	Demister, Door	1
81	9.804-573.0	Nut, 1/4", SS NC	6
82	8.718-965.0	Washer, 1/4", Flat, SS,	6
83	8.707-391.0	Gasket, Demister Box Door	1
84	8.913-031.0	Screen, Demister, AL-6XN	2
85	8.706-483.0	Bulkhead Fitting, 3/4"	2
86	8.749-860.0	Check Valve, PVC, 1/8" MP	1
87	8.706-941.0	Hose Barb 1/4" x MPT 1/4"	2
88	9.802-254.0	Hose, 1/4", Push-on	3 ft. 4 ft. 2 ft. 4.17 ft. 1.67 ft.
89	9.803-517.0	▲ Washer, 1/2", Split Ring Lock, ZI	4
90	9.802-800.0	▲ Washer, 1/2", Flat(780455)	8
91	8.912-983.0	Door Panel, Right Side	1
92	8.912-982.0	Door Panel, Left Side	1
	8.912-981.0	▲ Door Panel, Side	2
93	8.715-191.0	Manifold, Air, All	1
	8.716-691.0	▲ Valve, Solenoid, Parker	1
	8.706-941.0	▲ Hose Barb, 1/4" Barb x 1/4" ML Pipe	3
	8.706-777.0	▲ Nipple, 1/4" Close	3
	8.706-913.0	▲ Bushing, 3/8" x 1/4" Pipe	2
	8.706-999.0	▲ Connector, 1/4" Anchor	1
	8.706-865.0	▲ Plug, 1/4" Countersunk	1

▲ Not Shown

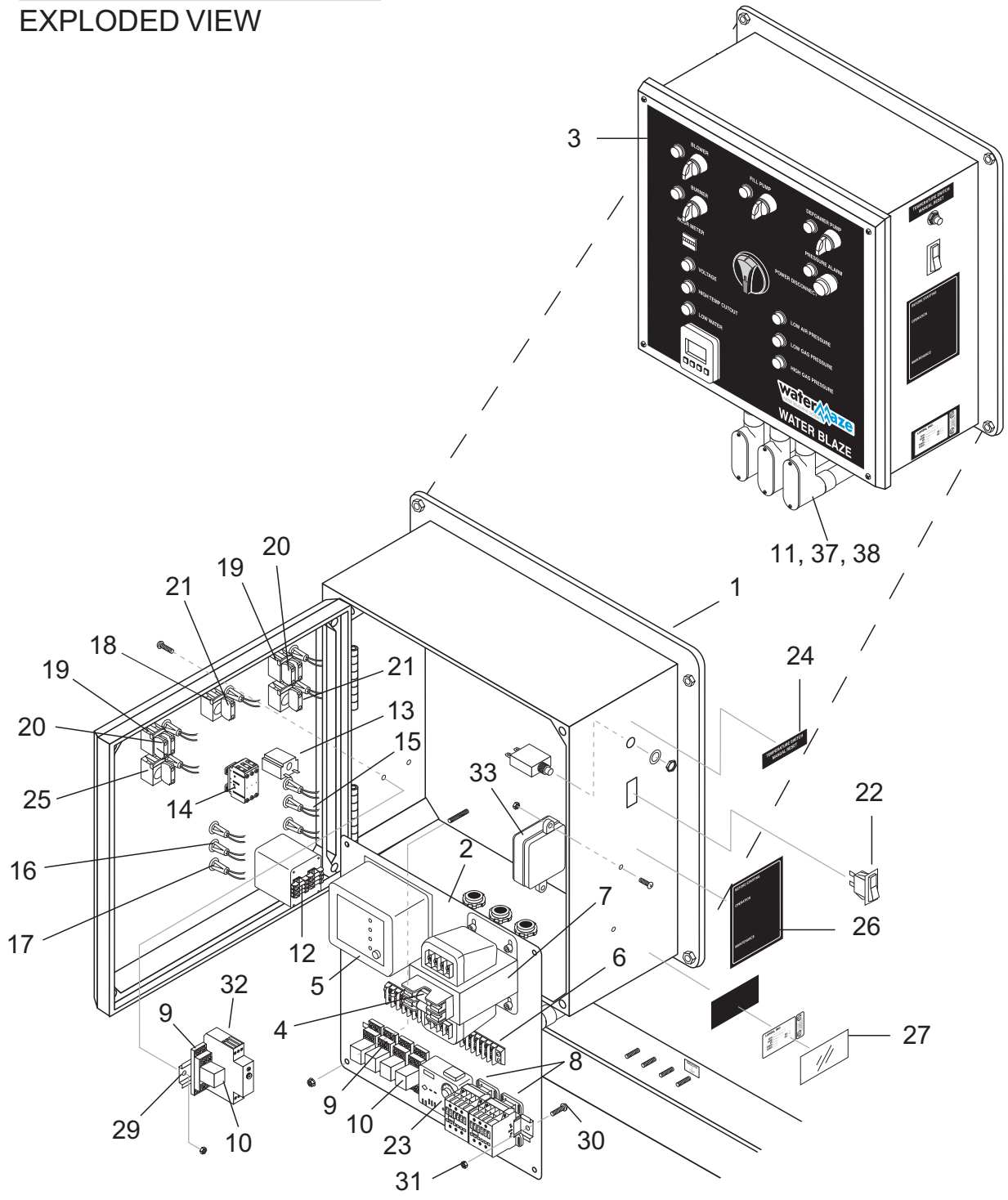
WB-50A
EXPLODED VIEW PARTS LIST CONTINUED

ITEM	PART NO.	DESCRIPTION	QTY
94	8.706-827.0	Nipple, 1/4" Close	3
95	8.706-858.0	Tee, 1/4" Street	2
96	8.707-341.0	Valve, In-line Metering	2
97	8.706-898.0	Nipple, 3/4" JIC x 1/2" MPT, 316L	2
98	8.716-547.0	Connector, 1/2" L/T, Straight, Black	6
99	8.706-223.0	Tee, 3/4, 316SS	1
100	8.707-243.0	Valve, Vacuum Relief, 3/4"	1
101	8.712-155.0	Gauge, Pressure, 0-10 PSI	2
102	8.718-178.0	Switch, Proof of Closure	1
103	8.706-857.0	Tee, 1/8" Street	1
104	8.706-940.0	Hose Barb, 1/4" Barb x 1/8" Pipe	1
105	8.706-955.0	Hose Barb, 1/4" Barb x 1/8" Pipe, 90°	1
106	8.718-200.0	Switch/Gage, Capsu-Photohelic Pressure	1
107	8.706-999.0	Connector, 1/4" Anchor	1
108	8.706-790.0	Nipple, 1/2" Close	2
109	8.706-881.0	Nipple, 3/4" Pipe x 1/2" Pipe	2
110	8.719-969.0	Cover, WB Clean Out Port, 316L	1
	8.707-399.0	Gasket, Flange, Cleanout	1
111	8.706-887.0	Elbow, 3/4" JIC x 3/4"	2
112	9.802-790.0	▲ Nut, 1/2", Hex, NC	4
113	8.718-877.0	Nut, 3/4, Hex	12
114	9.802-132.0	Elbow, 3/4" JIC x 1/2"	1
115	8.706-832.0	Elbow, 3/4" Street	1
116	8.707-145.0	Nipple, 1-1/2" x 4" 316L	1
117	8.706-844.0	Tee, 1/2" Female	1
	8.906-084.0	▲ Water Maze Set Up Kit	1
	8.903-719.0	▲ Tool Kit, Complete, Evap.	1
	8.719-138.0	▲ Defoamer, *WATER MAZE* 5600	1 gal.
118	8.718-894.0	Nut, 7/8" SS	8
	8.719-026.0	Washer, 7/8" Lock	8
119	8.718-160.0	Visual Indicator	1
120	8.706-806.0	▲ Nipple, 1/4" x 2 1/2", 316L	1
	8.706-165.0	▲ Elbow, 1/4", 45°, 316L	1
	8.711-453.0	▲ Nozzle Only, 4020 SS	1

ITEM	PART NO.	DESCRIPTION	QTY
121	9.802-776.0	NUT, 5/16-18, ESNA	8
122	9.802-805.0	Washer, 5/16" Flat, SAE, SS	16
123	8.912-011.0	Assy Adapter, 316L, WB	1
124	8.719-089.0	Nut, 3/8" Hex, NC, 316 SS	16
125	8.719-024.0	Washer, 3/8", SS, Lock	59
126	9.802-808.0	Washer, 3/8", SS Flat	58
127	8.719-021.0	Washer, 1/2", Lock, SS	6
128	8.718-893.0	Nut, 1/2", SS 304, Hex, NC	6
129	8.716-572.0	Connector, Strain Relief, TB2522	3
	9.802-524.0	▲ Locknut, 1/2" Conduit	1
130	8.718-621.0	Screw, 5/16-18 X 1 HHCS SS	8
131	8.725-394.0	Washer, 3/8", SAE, Flat	4
132	8.706-830.0	Elbow, 1/2" Street, Stainless	2
133	8.725-395.0	Nut, 3/8", ESNA, NC	4
134	8.707-399.0	Gasket, Cleanout, Blind	1
135	8.718-817.0	▲ Nut, 1/4-20, Whiz LOC Flange, SS	3
136	8.913-071.0	Cover Panel, WB-25-50, 16GA HRPO	1
137	9.802-771.0	▲ Screw, 10/32" X 3/4", BH SOC CS	4
138	8.706-910.0	Bushing, 1/4" x 1/8, Pipe	1
139	8.711-737.0	Tubing, 1/8" ID, Norprene,	7 ft.
140	8.749-993.0	Fitting, Compression, PVC, 1/4" Tube x 1/8" MP	2
141	8.718-941.0	Screw, #10 x 5/8", Tek	2
142	8.707-398.0	Gasket, 10"	1
143	8.921-271.0	Flange, Stack Adapter	1
144	8.718-705.0	Bolt, 3/4 x 2-1/2"	12
145	8.913-046.0	Channel, Kindorf 4.5', WB-15/25/50	1
146	8.719-098.0	Clamp, Kindorf, C105-1' Pipe	1
147	8.731-149.0	Clamp, 3/4' Kindorf, C105-3/4	1
148	8.718-603.0	▲ Bolt, 1/4-20 X 3/4", HH SS	4
149	8.706-141.0	Coupling, 1/2" Steel Pipe	1
150	9.804-615.0	Cover, Battery Terminal, Red	1
151	8.920-432.0	Assembly, Thermal Tube	1
152	8.924-659.0	▲ Channel, 1.5 x 1.5 x 4.5	1
153	8.706-039.0	▲ Bushing, 3 X 2, Black	1
154	8.706-044.0	▲ Bushing, 1-1/2" X 3/4", Black Pipe	1
155	8.706-287.0	▲ Bushing, 1' X 3/4', 316 SS	1

▲ Not Shown

WB-CONTROL PANEL
EXPLODED VIEW



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WB-CONTROL PANEL
EXPLODED VIEW PARTS LIST

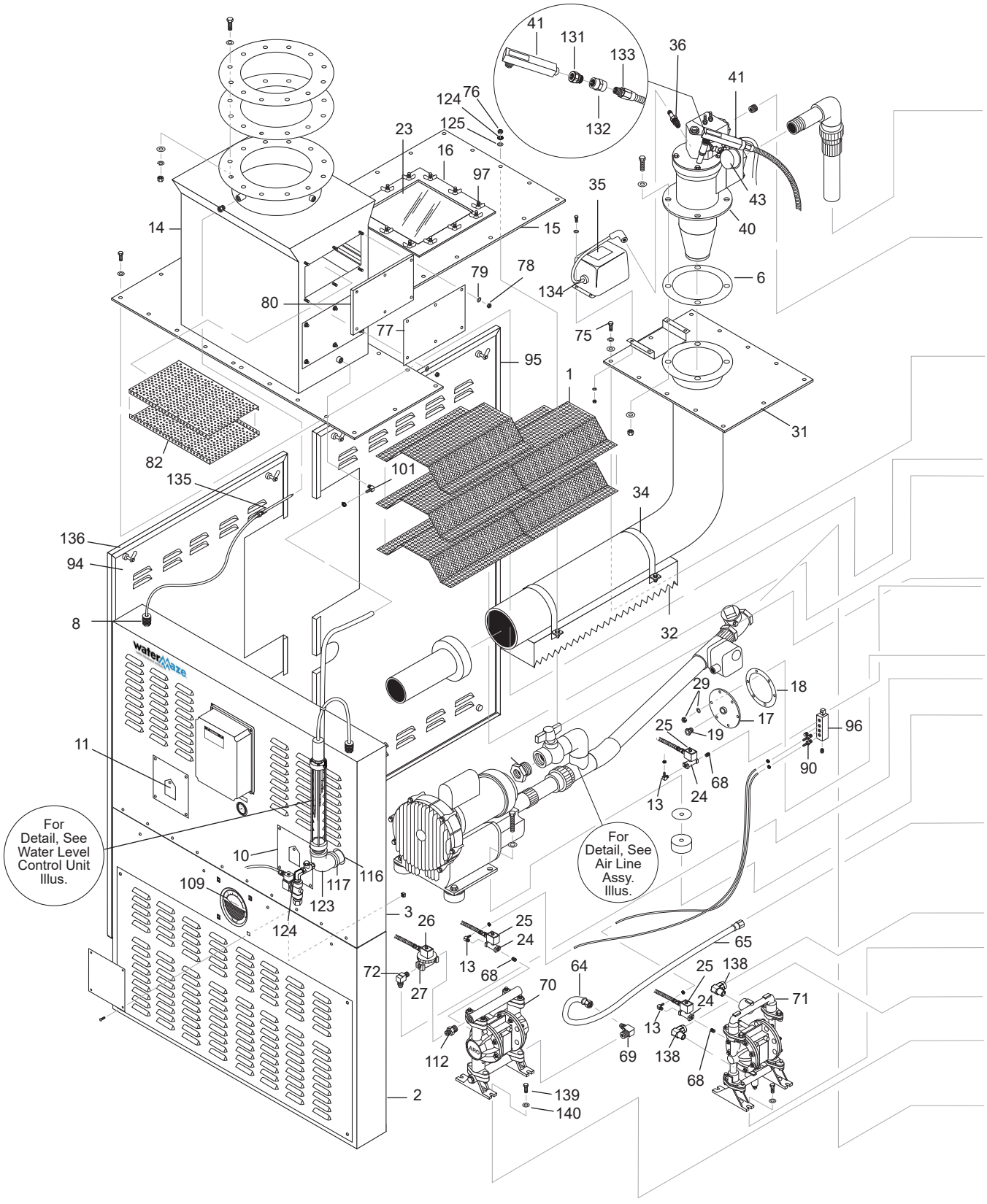
ITEM	PART NO.	DESCRIPTION	QTY
1	8.716-280.0	Box, Plastic, 18" x 16" x 9-1/4" w/Lid (WB-50)	1
	8.716-416.0	Electrical Box (WB-120)	1
	8.716-415.0	Electrical Box Mounting Feet (WB-120)	1
2	8.913-105.0	Stand Off, Control Box (WB-50)	1
	8.913-117.0	Stand Off, Control Box (WB-120)	1
3	8.758-757.0	Label WB-50 Control Panel	1
	8.758-770.0	Label WB-120 Control Panel	1
4	9.802-460.0	Fuse, Paper, Buss, FNM8, 250V Midget 70	1
	8.716-180.0	Fuse KTK-R4, 600V Midget	2
5	8.718-175.0	Controller, UV-Purge	1
	8.718-176.0	Controller, UV-Purge, Base	1
6	9.802-493.0	Block, Terminal, 16 Pole	1
	9.802-494.0	▲ Bar, Jumper	8
7	9.802-550.0	Transformer, Micron, 240/460 - 120/240, .500 KVA	1
	8.716-873.0	Transformer, Micron, 208-115V, .500 KVA (208 Volt Machines)	1
8	8.724-268.0	Contactor, 25 Amp (WB-120A)	3
		(WB-50A)	2
9	9.802-467.0	Base, Relay, Idec (WB-50A)	5
		(WB-120A)	6
10	9.802-468.0	Relay, 120V, Idec (WB-50A)	5
		(WB-120A)	6
11	8.716-330.0	Box, Conduit, 1", 90° (WB-50)	3
		(WB-120)	4
	8.716-331.0	Box, Conduit Cover (WB-50)	3
		(WB-120)	4
	8.716-333.0	Gasket, Box, Conduit (WB-50)	3
		(WB-120)	4
12	8.716-236.0	Timer, Red Lion	1
13	9.802-283.0	Hour Meter (Qty 1- WB-50; Qty 2 - WB-120)	
14	8.754-210.0	Switch, Disconnect	1
15	9.802-455.0	Light, Indicator Green, 125V	5
16	8.716-408.0	Light, Amber, 125V	4
17	8.716-409.0	Light, Blue, 125V	1
18	8.751-910.0	Switch, CH, 2 Pos, ON/OFF (WB-50)	2
		(WB-120)	3
19	8.751-911.0	Switch, CH, 3 Pos, ON/OFF/ON (WB-50)	2
		(WB-120)	3
20	8.751-912.0	Block, Contact, CH, N/C (WB-120)	1
21	8.751-913.0	Block, Contact, CH, N/O (WB-50)	6
		(WB-120)	16
22	8.716-051.0	Switch, Curvette, RGSCC211BBA, 2P, 120/230V	1
23	8.754-117.0	Hi Limit Control, 230F	1
24	8.758-598.0	Label Manual Reset Temperature Switch	1

WB-CONTROL PANEL
EXPLODED VIEW PARTS LIST CONTINUED

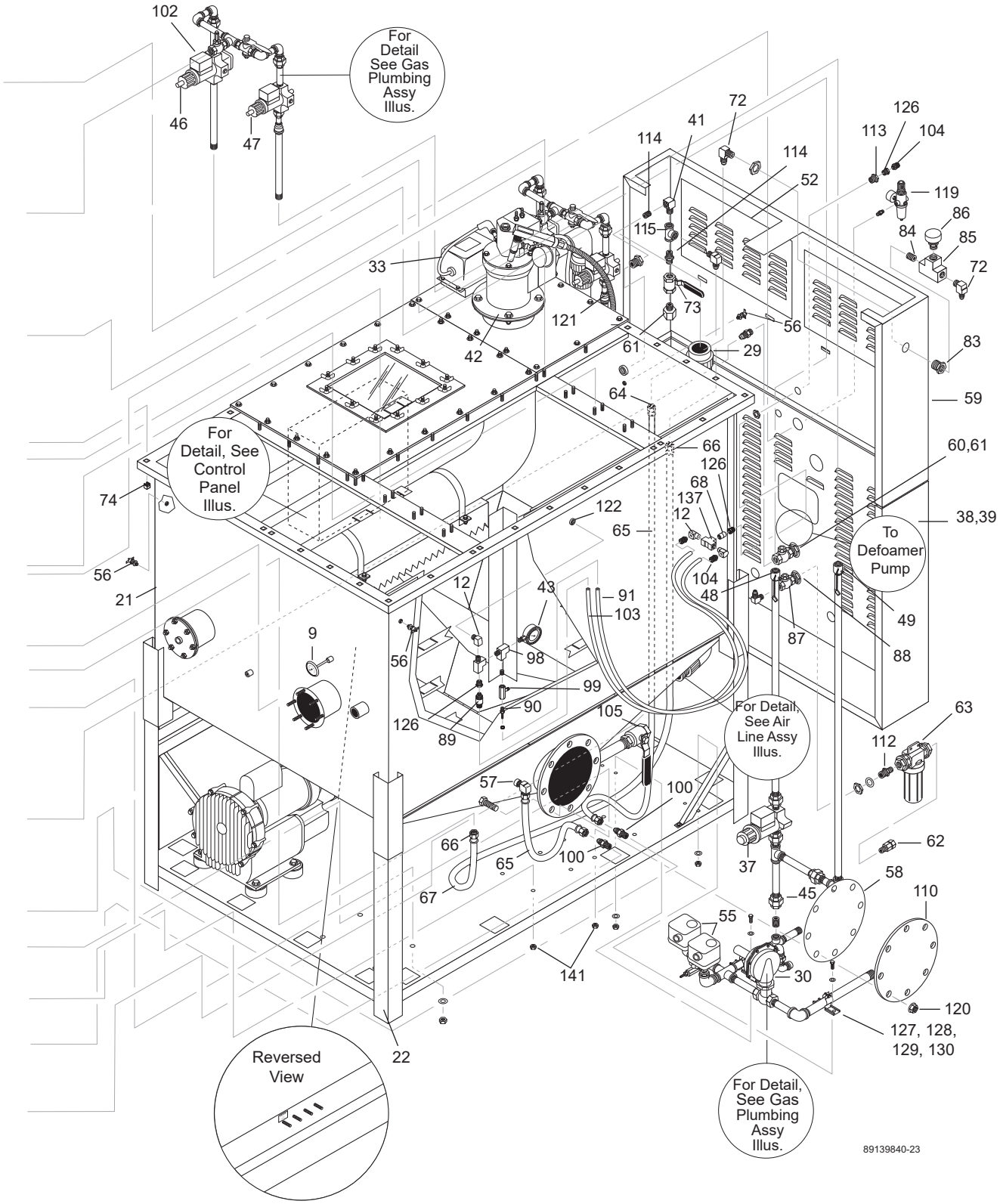
ITEM	PART NO.	DESCRIPTION	QTY
25	8.716-091.0	Switch, Momentary Push, 100S Use w/2-3020	1
26	8.758-733.0	Label Evaporator Instructions	1
27	8.758-330.0	Label Clear Lexan 4.30" x 5.50"	1
28	8.758-327.0	▲ Label Ground Symbol	1
29	9.802-457.0	Din Rail 2"	1
30	9.802-759.0	Screw, 10/32" x 1/2"	8
31	9.802-696.0	Nut, 10/32" Keps	12
32	8.751-306.0	Timer, Multi-Function	1
33	8.716-253.0	Timer, 24 Hour Pin	1
34	8.716-080.0	▲ Handle, Switch, Disconnect	1
35	8.753-352.0	▲ Duct, Wire 2"Gray w/cover (WB-120) (WB-50)	 2.5 0.46
368.753-351.0		▲ Duct, Wire 1"Gray w/cover (WB-120) (WB-50)	 8.5 5.17
37	8.716-010.0	Conduit, Metal 1" EMT (WB-50) (WB-120)	 1.5 ft. 2 ft.
38	8.716-580.0	Connector, Metal, 1" EMT (WB-50) (WB-120)	 3 4
39	8.718-965.0	▲ Washer, 1/4" Flat SAE SS	4
40	8.718-936.0	▲ Screw, #8X1/2" Phillips Zinc Tek	4
41	8.718-937.0	▲ Screw, #8X3/4" Phillips Zinc PLTD HEX	6
42	9.804-595.0	▲End Bracket Entrelec 103-002-26	4

▲ Not Shown

WB-120A
EXPLODED VIEW LEFT SIDE



WB-120A
EXPLODED VIEW RIGHT SIDE



WB-120A
EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	8.913-019.0	Baffle, Screen	11
2	8.913-055.0	Panel, Bottom Front	1
3	8.913-054.0	Panel, Control End	1
4	9.804-070.0	▲ Connector, BUTT BSVVVV 14X-M	9
5	9.802-517.0	▲ Connector, 1/2" L/T, 90 DGR, Black	25
6	8.707-429.0	Flange 9'Burner GSKT, WB, 1/8'SILCNE60D	2
7	8.706-044.0	▲ Bushing, 1-1/2" X 3/4", Black Pipe	2
8	8.716-571.0	Strain Relief, 1/2" LQ Tite	5
9	8.712-158.0	Gauge, Thermometer	1
	8.706-805.0	Nipple, 1/4" x 2-1/2", SCH 40 AL6XN (AL6XN Option)	1
	8.706-814.0	Coupler, 1/4" AL6XN (AL6XN Option)	1
	8.706-806.0	▲ Nipple, 1/4" x 2-1/2", 316L	1
	8.706-813.0	▲ Coupling, 1/4" Hex, 316L	1
10	8.913-025.0	Plate, Observation	2
11	8.913-010.0	Cover, View Port	2
	8.758-511.0	▲ Label Pilot Light Hole	2
	9.802-130.0	Elbow, 90°, 1/2" JIC x 1/4"	2
	9.802-129.0	Elbow, 90°, 1/2" JIC x 3/8"	4
12	8.706-827.0	Elbow, Street, 1/4"	4
13	8.706-958.0	Hose Barb, 90°, 1/4" Barb x 1/4" Pipe	6
14	8.913-052.0	Demister Box, WB-120, 316L	1
	8.913-053.0	Demister Box, WB-120, AL-6XN	1
	8.707-405.0	Gasket, 12" Flange Exhaust (WB-120)	1
15	8.913-015.0	Lid Center Plate, 316L	2
	8.913-016.0	Lid Center Plate, AL-6XN	2
	8.913-017.0	Lid Center Plate	1
16	8.912-972.0	Bezel, All	2
17	8.913-027.0	Cover Plate with Viewer	2
18	8.707-397.0	Gasket	2
19	8.718-201.0	Glass, Site, Observation	2
20	8.706-039.0	▲ Bushing, 3 X 2, Black	2
21	8.913-066.0	Tank Assembly, WB-120, 316L	1
	8.913-067.0	Tank Assembly, WB-120, AL-6XN	1
	8.707-386.0	▲ Gasket, Evaporator Tank	1
22	8.913-060.0	Base, Assy	1
	8.913-064.0	▲ Raceway, Electrical	1
	8.913-065.0	▲ Raceway, Cover	1
23	8.706-758.0	Cover, Tempered Glass	2
	8.707-382.0	▲ Gasket, Bezel, All	4
24	8.716-691.0	Valve, Solenoid, 120V	3
25	9.802-533.0	Solenoid, Coil, 120V	3
26	8.716-689.0	Valve, Solenoid, 120V	1
27	8.716-690.0	Solenoid, Coil, 120V	1
28	8.706-475.0	Union, CPVC 80, 1-1/4"	2
29	8.719-021.0 8.718-893.0	Washer 1/2" SplitRing Lock SS Nut, 1/2-13 HEX SS	12 12
30	8.717-748.0	Regulator, Rockwell, 3/4"	2
	8.718-172.0	▲ Orifice, Regulator, 1/2", LP	2
	8.718-173.0	▲ Orifice, Regulator, 5/8", NG	2
31	8.912-005.0	Burner, Sparger Tube Assy 316L	2
	8.912-006.0	Burner, Sparger Tube Assy, AL-6XN	2
32	8.912-008.0	Distributor, Air, 316L	2
	8.912-009.0	Distributor, Air, AL-6XN	2
33	8.906-087.0	Single, Ignition Wire	2
34	8.912-014.0	Bracket, WB Distributor Mnt. 316L	4
	8.912-015.0	Bracket, WB Distributor Mnt. Ring, AL-6XN	4
	9.802-721.0	▲ Bolt, 3/8" x 1" HH\NC, 316 SS	8
	9.802-808.0	▲ Washer, 3/8" SS Flat	8
	8.719-024.0	▲ Washer, 3/8" SS Lock	8
	8.719-089.0	▲ Nut, 3/8" Hex, NC, 316L	8
35	8.718-177.0	Transformer, Ignition, 120V, All	2
36	8.718-185.0	Ignition Plug, 16946-5 Eclipse	2

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WB-120A
EXPLODED VIEW PARTS LIST (CONT.)

ITEM	PART NO.	DESCRIPTION	QTY
37	8.718-182.0	Valve, Gas Solenoid, 3/4"	2
38	8.716-321.0	▲ Box, Junction, 3 Hole, 1/2"	2
39	9.802-483.0	▲ Cover Plate, Junction Box, 2" x 4"	3
	8.716-327.0	▲ Box, Junction, 4" x 4", 5 Hole, 1/2"	1
	8.716-329.0	▲ Cover Plate, Junction Box, 4" x 4"	1
	8.716-142.0	▲ Switch, Float, N/O	1
40	8.718-159.0	Burner, Eclipse	2
41	8.718-174.0	Scanner, UV, All	2
42	8.718-166.0	Tube, Combustion	2
	8.718-187.0	▲ Gasket, Burner Eclipse, 7"	6
	8.913-014.0	▲ Gasket, Burner Eclipse, 7"	2
43	8.712-155.0	Gauge, Pressure, 0-10 psi	4
44	8.706-334.0	Union, 1/2" Black Pipe	2
45	9.802-049.0	Union, 3/4" Black Pipe	10
46	8.718-181.0	Valve, Gas Solenoid, 3/4", MVDLE	2
47	8.718-180.0	Valve, 1/2" Gas Solenoid MVDLE (Soft Start)	2
48	8.718-167.0	Orifice, Metering, 3/4", SBO-D-7, NG	2
	8.718-169.0	Orifice, Metering, 3/4", SBO-C-3, LP	2
49	8.718-171.0	Orifice, Metering, 3/4", SBO-A-1, (Soft Start)	2
50	8.718-170.0	▲ Orifice, Metering, 2", SBO-677	2
52	8.912-989.0	Panel, Valve Access	2
53	8.718-162.0	▲ Valve, Butterfly, 2"	2
54	8.706-287.0	▲ Bushing, 1' X 3/4', 316 SS	1
55	8.718-179.0	Switch, Gas & Air Pressure	6
56	8.712-172.0	Switch, Thermostat	3
57	8.706-887.0	Elbow, 3/4" JIC X 3/4" MPT, 90 DEG, SS	4
58	8.707-399.0	Gasket, Cleanout, Blind	1
59	8.913-057.0	Panel, Burner End (Top)	1
	8.913-058.0	▲ Panel, Burner End (Bottom)	1
60	8.707-000.0	Connector, Anchor, 1/2"	2
61	9.802-146.0	Swivel, 1/2" MP x 3/4" GHF	2
62	8.706-970.0	Swivel, 3/4" Fem HS x 3/4" Fem	1
63	8.709-179.0	Filter, 3/4" x 20 Mesh	1
64	9.802-152.0	Swivel, Push-on, 3/4" JIC Fem	4
65	9.802-261.0	Hose, Push-on, 3/4"	8 ft.
66	9.802-151.0	Swivel, Push-on, 1/2" JIC Fem	10
67	9.802-259.0	Hose, Push-on, 1/2"	17 ft.
68	8.706-777.0	Nipple, Close, 1/4"	5
69	9.802-132.0	Elbow, 3/4" JIC x 1/2"	1
70	8.715-278.0	1/2" Air Diaphragm Pump, Polypro	1
71	8.715-279.0	1/2" Air Diaphragm Pump, SS	1
72	9.803-557.0	Elbow, 90°, 3/4" JIC x 3/4"	3
73	8.707-210.0	Valve, 1/2" Ball, 316 SS	1
74	9.802-792.0	Nut, Cage, 3/8" x 12 Gauge	40
75	9.802-721.0	Bolt, 3/8" x 1" S/S NCHH, 316 SS	46
76	8.719-089.0	Nut, 3/8" Hex, NC, 316L	50
77	8.913-028.0	Demister, Door	2
78	9.804-573.0	Nut, 1/4", SS NC	12
79	8.718-965.0	Washer, 1/4", Flat, SAE, SS	12
80	8.707-391.0	Gasket, Demister Box Door	2
82	8.913-063.0	Screen, Demister	4
83	8.706-483.0	Bulkhead, 3" FT x FT	1
84	8.706-799.0	Nipple, 3/4" PVC, Close	3
85	8.706-846.0	Tee, 3/4" Female, Pipe	2
86	8.707-243.0	Valve, Vacuum Relief	1
87	8.707-232.0	Valve, Swing Check, Brass, 3/4"	1
88	9.802-052.0	Bulkhead, 3/4" Poly Pro	1
89	8.749-860.0	Check Valve, PVC 1/8" MP	1
90	8.706-941.0	Hose Barb 1/4" x MPT 1/4"	4
91	9.802-254.0	Hose, 1/4", Push-on	15 ft.
92	9.803-517.0	▲ Washer, 1/2", Split Ring Lock, ZI	4
93	9.802-800.0	▲ Washer, 1/2", Flat(780455)	8
94	8.912-984.0	Door Panel, Right Side	1
95	8.912-985.0	Door Panel, Left Side	1
	8.912-981.0	▲ Door Panel	2
96	8.715-191.0	Manifold, Air	1
97	8.718-906.0	Nut, 3/8" Wing, NC, SS	16

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WB-120A
EXPLODED VIEW PARTS LIST (CONT.)

ITEM	PART NO.	DESCRIPTION	QTY
98	8.706-858.0	Tee, 1/4" Street	4
99	8.707-341.0	Valve, In-line Metering	4
100	8.706-898.0	Nipple, 3/4" JIC x 1/2" MPT, 316L	2
101	9.802-790.0	▲ Nut, 1/2", HEX, NC	4
102	8.718-178.0	Switch, Proof of Closure	2
103	8.711-737.0	Tubing, 1/8" ID, Norprene	5 ft.
104	8.749-993.0	Fitting, Compression, 1/4" x 1/8" MP	3
105	8.707-227.0	Valve Ball, 1-1/2" 316L	1
106	8.706-857.0	▲ Tee, 1/8" Street	1
107	8.706-940.0	Hose Barb, 1/4" Barb x 1/8" Pipe	1
108	8.706-955.0	▲ Hose Barb, 1/4" Barb x 1/8" Pipe, 90°	1
109	8.718-200.0	▲ Switch/Gauge, Capsu-Photohelic Pressure	1
110	8.719-969.0	Cover, Clean Out Port, 316L	1
	8.707-399.0	Gasket, Flange, Cleanout	1
111	8.706-832.0	Elbow, 3/4" Street	1
112	8.706-881.0	Nipple, 3/4" Pipe x 1/2" Pipe	2
113	8.706-999.0	Connector, 1/4" Anchor	1
114	8.706-790.0	Nipple, 1/2" Close	2
115	8.706-844.0	Tee, 1/2" Female Pipe	1
116	8.707-146.0	Nipple, 1-1/2" x 8" 316L	1
117	8.913-074.0 8.913-076.0	Elbow, 1-1/2", 316L Elbow, 1-1/2", AL-6XN	1 1
118	8.919-139.0	▲ Pump, Peristaltic, 8-45 gpd, Sekokem	1
	8.718-941.0	▲ Screw, #10 x 5/8", Tek	2
	8.906-084.0	▲ Water Maze Set Up Kit	1
	8.903-719.0	▲ Tool Kit, Complete, Evap.	1
	8.719-138.0	▲ Defoamer, *WATER MAZE* 5600	1 gal.
119	8.707-331.0	Regulator, Air w/ Filter, 1/4" Gauge	1
120	8.718-894.0	Nut, 7/8", SS	8
	8.718-998.0	Washer, 7/8", Flat	8
	8.719-026.0	Washer, 7/8", Lock	8
121	8.718-160.0	Visual Indicator	2
122	8.706-806.0	▲ Nipple, 1/4" x 2-1/2", 316L	1
	8.706-165.0	▲ Elbow, 1/4", 45°, 316L	2
	8.711-453.0	▲ Nozzle Only, 4020S	2
123	8.706-051.0	▲ Nipple, 1/2", Close	1
124	8.719-024.0	Washer, 3/8" Split Ring Lock, SS	98
125	9.802-808.0	Washer, 3/8" SAE, SS (936631)	104
126	8.706-910.0	Bushing, 1/4" x 1/8" Pipe	5
127	8.913-046.0	Channel, Kindorf 4.5', WB-15/25/50	1
128	8.924-659.0	Channel, Kindorf, 1-1/2"x1-1/2"x4.5"	2
129	8.731-149.0	Clamp, 3/4' Kindorf, C105-3/4	2
130	8.719-100.0	Clamp, Kindorf, 1-1/2'	1
131	8.716-572.0	Connector, Strain Relief, TB 2522	1
132	8.706-141.0	Coupling, 1/2" Steel Pipe	1
133	9.802-514.0	STRAIN RELIEF, LT, Str, 1/2 NPT,.23-.45D	1
134	9.804-615.0	Cover, Battery Terminal, Red	2
135	8.920-432.0	Assembly, Thermal Tube	1
136	9.802-072.0	Trim,6100 B3X1/16 A. w/sponge	51.33 ft.
137	8.706-841.0	Tee, 1/4" Female, Pipe	1
138	8.706-830.0	ELBOW, 1/2" Street, Stainless	2
139	8.718-621.0	Screw, 5/16-18 X 1 HHCS SS	8
140	9.802-805.0	Washer, 5/16" Flat, SAE, SS	16
141	9.802-776.0	Nut, 5/16-18, ESNA	8

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WATER MAZE WITH ANTI-FOAM METERING PUMP

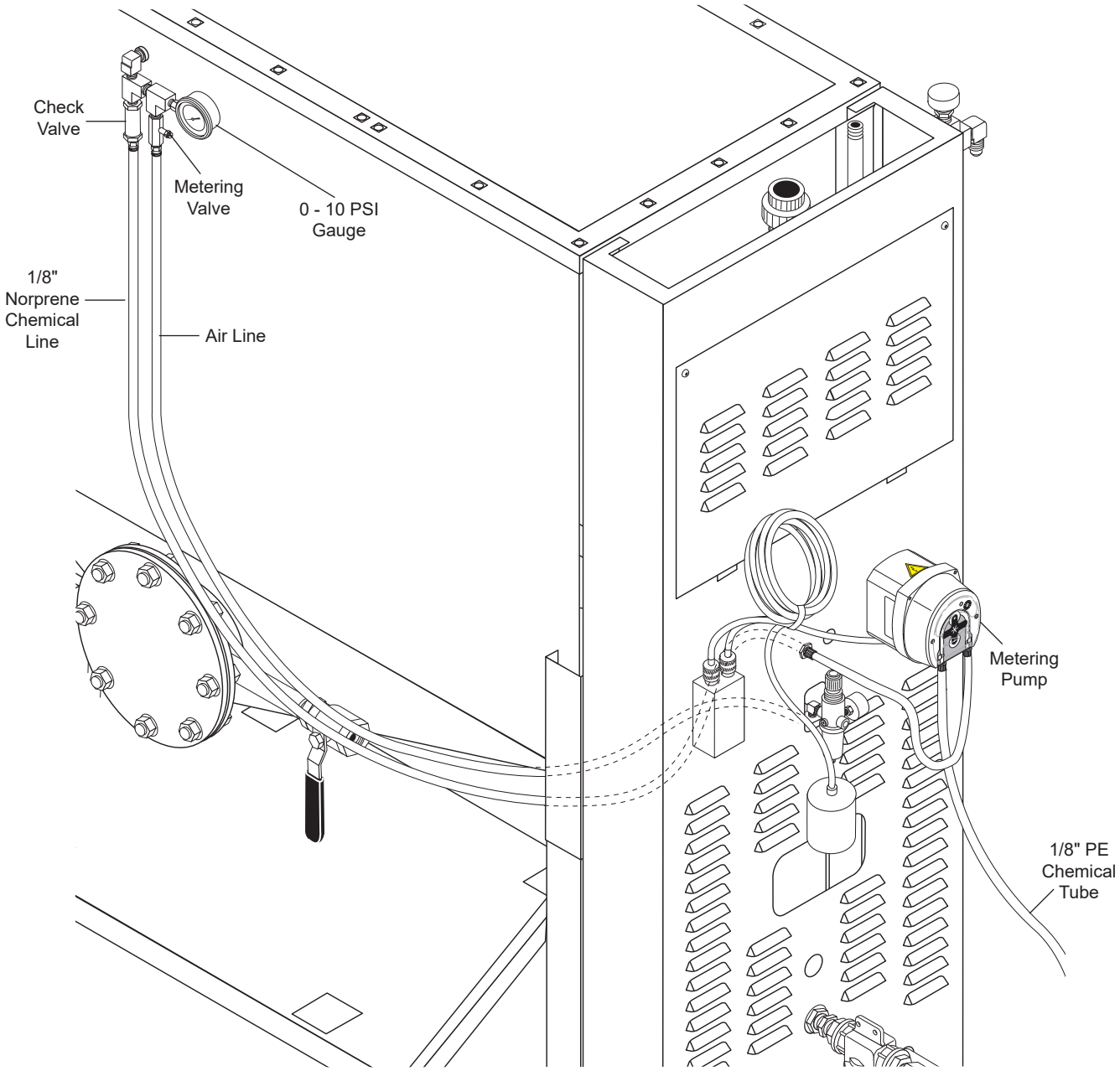
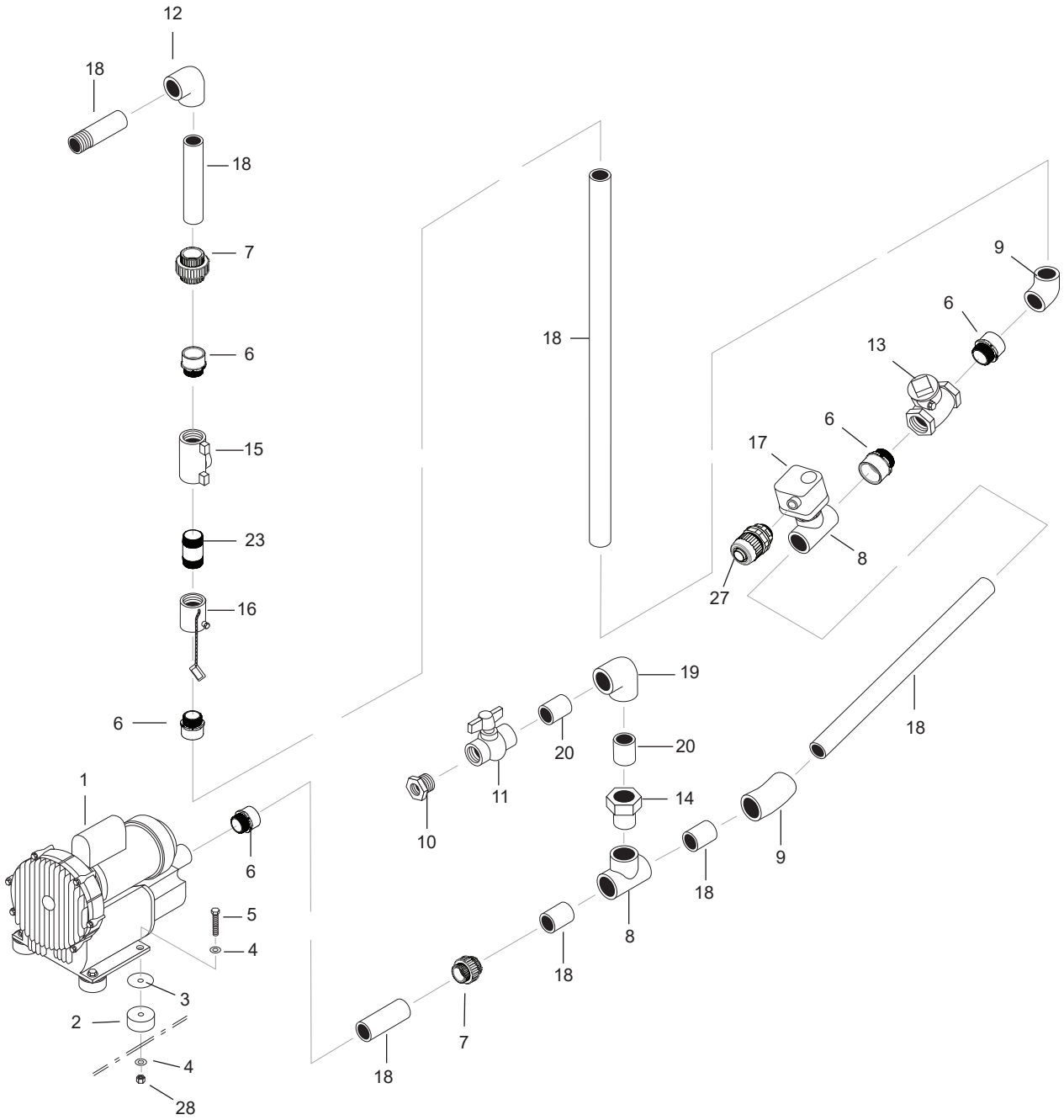


Figure 11

AIR LINE ASSEMBLY
WB-50/120 EXPLODED VIEW



AIR LINE ASSEMBLY PARTS LIST

WB-50

ITEM	PART NO.	DESCRIPTION	QTY
1	8.715-190.0	Blower, Regenerative, 2.5, 120/240V, R6125-2	1
2	9.802-066.0	Pad, Soft Rubber, 50 Duro	4
3	9.802-819.0	Washer, 7/16" x 2-1/2" Zinc PG Foot	4
4	9.802-807.0	Washer, 3/8", SAE, Flat Zinc	8
5	9.802-730.0	Bolt, 3/8" x 2-1/2" GR 5, Zinc	8
6	8.706-452.0	Adapter, 2" Slip x MT, CPVC 80	5
7	8.706-474.0	Union, 2" Slip, CPVC 80, GF	2
8	8.706-435.0	Tee, 2" Slip x Slip x Slip, CPVC 80	2
9	8.706-380.0	Elbow, 2" S x S, XPVC 80, 45°	2
10	8.706-406.0	Bushing, 1-1/2" x 1/2" SPG x FT, PVC 80, Spears Only	1
11	8.707-361.0	Valve, 1-1/2" S, PVC 80, S x S, Molded In Place	1
12	8.706-383.0	Elbow, 2" S x S, CPVC 80, 90°	1
13	8.707-239.0	Valve, 2" Brass, IB904, Swing Check	1
14	8.706-413.0	Bushing, 2" x 1-1/2" Slip, PVC 80	1
15	8.718-162.0	Valve, Butterfly, 2"	1
16	8.718-170.0	Orifice, 2" SBO-677, Metering	1
18	8.706-584.0	Pipe, 2", CPVC 80	6.7 ft.
17	8.718-179.0	Switch, Gas & Air Pressure, GAO-A4-4-6	1
19	8.706-374.0	Elbow 1-1/2" S x S, PVC 80,90°	1
20	8.706-367.0	Pipe, 1.5", PVC 80,	.5 ft.
21	8.716-547.0	▲ Connector, 1/2" L/T, Straight, Black	1
22	8.709-083.0	▲ Clamp,Screw,9/16"W, 2 1/2-3 1/2"D, SS	1
23	8.706-465.0	Nipple, 2" X 4", CPVC 80	1
24	8.706-401.0	▲ Bushing, 2' X 1/2' SLIP X FIPT CPVC 8	1
25	8.706-915.0	▲ Bushing, 1/2" x 1/4", Brass	1
26	8.706-777.0	▲ Nipple 1/4" CLOSE P/N-3326-4	1
27	8.716-547.0	Connector 1/2" L/T, Straight, Blk	1
28	9.802-779.0	Nut, 3/8", ESNA, NC	4

AIR LINE ASSEMBLY PARTS LIST

WB-120

ITEM	PART NO.	DESCRIPTION	QTY
1	8.715-190.0	Blower, Regenerative, 2.5, 120/240V, R6125-2	2
2	9.802-066.0	Pad, Soft Rubber, 50 Duro	8
3	9.802-819.0	Washer, 7/16" x 2-1/2" Zinc PG Foot	8
4	9.802-807.0	Washer, 3/8", SAE, Flat Zinc	16
5	9.802-730.0	Bolt, 3/8" x 2-1/2" GR 5, Zinc	16
6	8.706-452.0	Adapter, 2" Slip x MT, CPVC 80	10
7	8.706-474.0	Union, 2" Slip, CPVC 80, GF	4
8	8.706-435.0	Tee, 2" Slip x Slip x Slip, CPVC 80	4
9	8.706-380.0	Elbow, 2" S x S, XPVC 80, 45°	4
10	8.706-406.0	Bushing, 1-1/2" x 1/2" SPG x FT, PVC 80, Spears Only	2
11	8.707-361.0	Valve, 1-1/2" S, PVC 80, S x S, Molded In Place	2
12	8.706-383.0	Elbow, 2" S x S, CPVC 80, 90°	2
13	8.707-239.0	Valve, 2" Brass, IB904, Swing Check	2
14	8.706-413.0	Bushing, 2" x 1-1/2" Slip, PVC 80	2
15	8.718-162.0	Valve, Butterfly, 2"	2
16	8.718-170.0	Orifice, 2" SBO-677, Metering	2
18	8.706-584.0	Pipe, 2", CPVC 80	13.4 ft.
17	8.718-179.0	Switch, Gas & Air Pressure, GAO-A4-4-6	2
19	8.706-374.0	Elbow 1-1/2" S x S, PVC 80,90°	2
20	8.706-367.0	Pipe, 1.5", PVC 80,	1 ft.
21	8.716-547.0	▲ Connector, 1/2" L/T, Straight, Black	2
22	8.709-083.0	▲ Clamp,Screw,9/16"W, 2 1/2-3 1/2"D, SS	1
23	8.706-465.0	Nipple, 2" X 4", CPVC 80	2
24	8.706-401.0	▲ Bushing, 2' X 1/2' SLIP X FIPT CPVC 8	2
25	8.706-915.0	▲ Bushing, 1/2" x 1/4", Brass	2
26	8.706-777.0	▲ Nipple 1/4" CLOSE P/N-3326-4	2
27	8.716-547.0	Connector 1/2" L/T, Straight, Blk	2
28	9.802-779.0	Nut, 3/8", ESNA, NC	8

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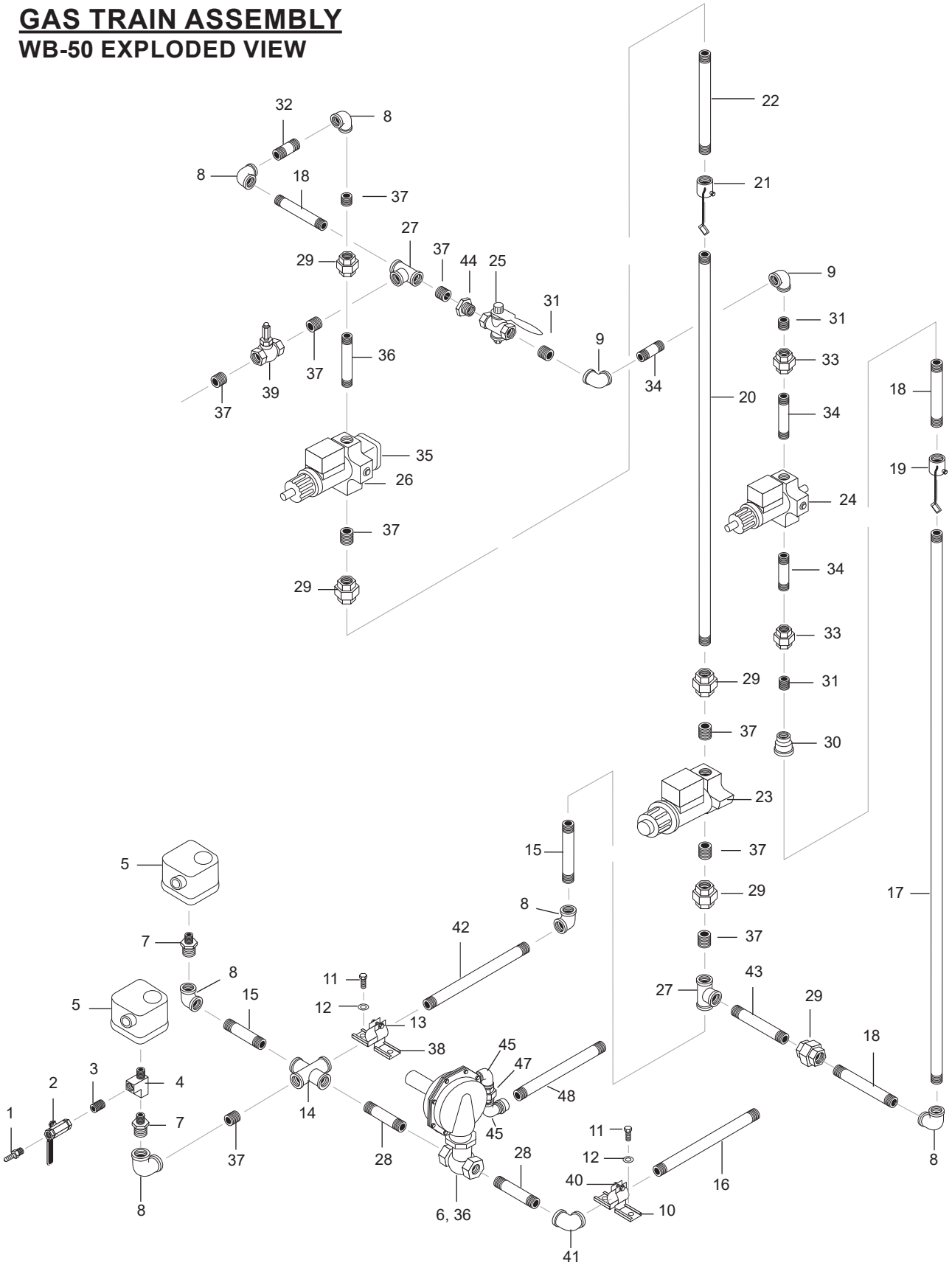
GAS TRAIN ASSEMBLY

WB-50 EXPLODED VIEW



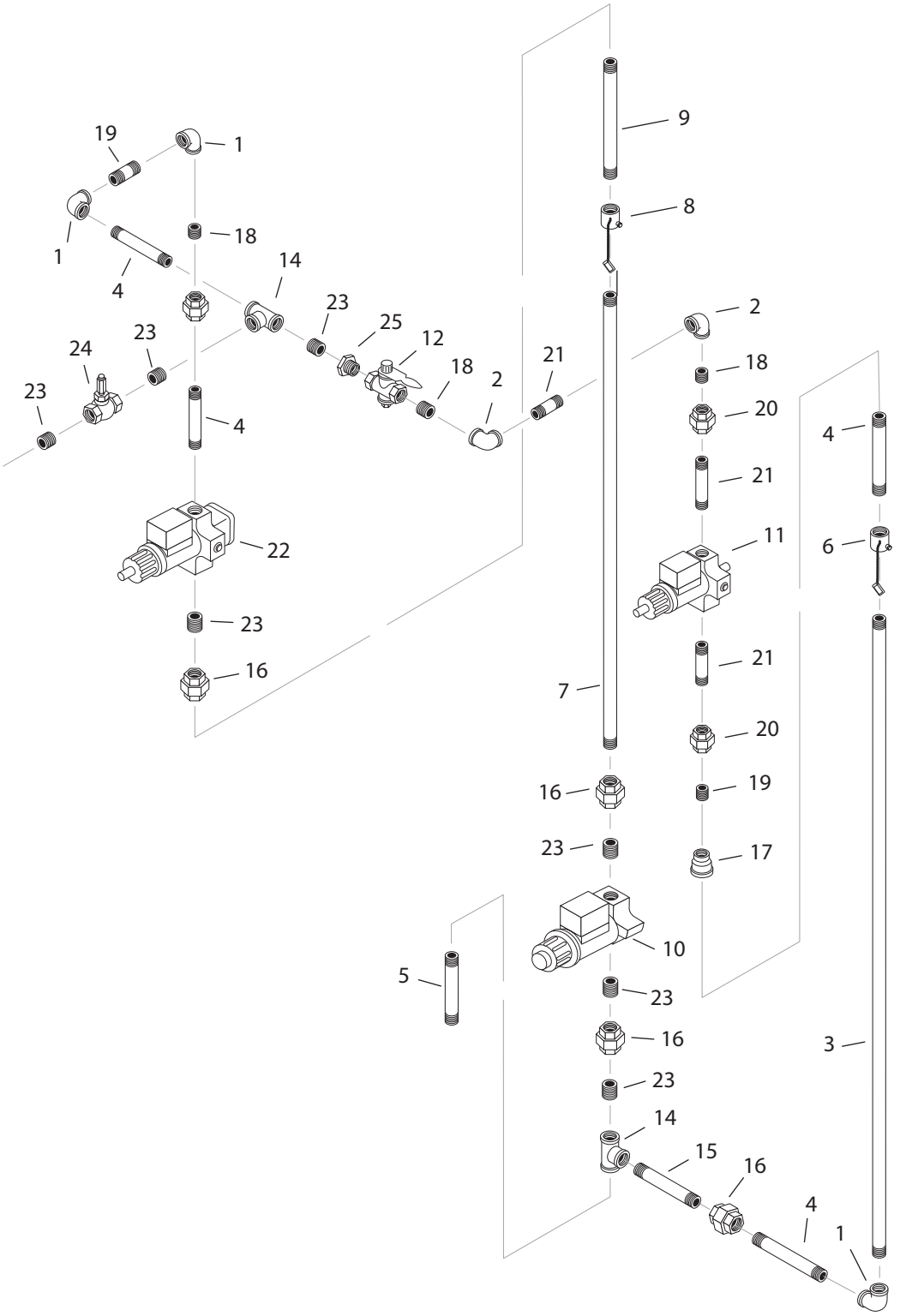
GAS TRAIN ASSEMBLY

WB-50 EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	8.706-941.0	Hose Barb, 1/4" Barb x 1/4" ML Pipe	1
2	9.802-178.0	Valve, Ball, 1/4" Female x 1/4" Female, UL Listed #12	1
3	8.706-777.0	Nipple, 1/4" Close, P/N 3326-4	2
4	8.706-858.0	Tee, 1/4" Street	3
5	8.718-179.0	Switch, Gas & Air Pressure, GAO-A4-4-6	2
6	8.717-748.0	Regulator, Rockwell, 3/4" 143-80-2-12-BW-8	1
7	8.706-923.0	Bushing, 3/4" x 1/4" Pipe	2
8	9.802-027.0	Elbow, 3/4", Black, 90°	6
9	9.802-025.0	Elbow, 1/2" Female, Black	2
10	8.913-046.0	Channel, Kindorf, 4.5"	1
11	9.802-721.0	Bolt, 3/8" x 1" HH/NC, 316 SS	4
12	9.802-808.0	Washer, 3/8", SS, Flat	8
13	8.731-149.0	Clamp, 3/4" Kindorf, C105-3/4"	1
14	8.706-225.0	Cross, 3/4" Black Pipe FIPT	1
15	9.802-021.0	Nipple, 3/4" x 9", Black	1
16	9.802-971.0	Nipple, 1"NPT x 15, SCH 40 Black	1
17	8.706-115.0	Nipple, 3/4" x 35" Black	1
18	9.803-561.0	Nipple, Black Pipe, 3/4" x 5"	3
19	8.718-171.0	Orifice, 3/4", SBO-A-1, Metering	1
20	8.706-114.0	Nipple, 3/4" x 25", Black	1
21	8.718-167.0 8.718-169.0	Orifice, 3/4" SBO-D-7, Metering Orifice, 3/4" SBO-C-3, Metering (LP Option)	1 1
22	8.706-110.0	Nipple, 3/4" x 8" STD, Black	1
23	8.718-182.0	Valve, 3/4", Eclipse, 46040-3 MVD, Gas Solenoid	1
24	8.718-180.0	Valve, 1/2", Eclipse, 46030-2, Gas Solenoid	2
25	8.755-266.0	Valve, Flow, Gas 1/2", Adjustable (WB-50)	1
26	8.718-181.0	Valve, 3/4", Eclipse, 46030-3 MVDLE, Gas Solenoid	1
27	8.706-222.0	Tee, 3/4" Black Pipe	2
28	9.802-018.0	Nipple, 3/4" x 3", Black Pipe	2
29	9.802-049.0	Union, 3/4", Black Pipe	5
30	8.706-070.0	Reducer, 3/4" x 1/2", Bell, Black	1
31	8.706-052.0	Nipple, 1/2" Close, Black	5
32	9.802-019.0	Nipple, 3/4" x 2", Black	1
33	8.706-334.0	Union, 1/2" Black	2
34	8.706-054.0	Nipple 1/2" x 2-1/2" Black	3
35	8.718-178.0	Switch, Proof of Closure, CP1400	1
36	8.718-173.0 8.718-172.0	Orifice, 5/8" Regulator Orifice, 1/2" Regulator (LP Option)	1 1
37	9.802-017.0	Nipple, 3/4" x Close, Black	10
38	8.924-659.0	Channel, 1.5 x 1.5 x 4.5	1
39	8.718-165.0	Valve, Gas, Limiting	1
40	8.719-098.0	Clamp, Kindorf, C105-1" Pipe	1
41	9.802-028.0	Elbow, 1"x3/4", Reducing 90 DGR Black	1
42	8.706-112.0	Nipple, 3/4" X 11" Black Pipe	1
43	8.706-087.0	NIP, Pipe 3/4 X 4" 150WP Blk	1
44	8.706-295.0	Bushing, 3/4" X 1/2" , Steel	1
45	8.706-183.0	Elbow, 1" Street, 90 Deg, Black	2
46	8.706-117.0	▲ Nipple 1" Close, Black Pipe	21
47	8.706-323.0	Union, 1', Black Pipe	2
48	8.706-021.0	Nipple, 1" X 11", Black Pipe	1

GAS TRAIN UPPER ASSEMBLY

WB-120 EXPLODED VIEW One assembly shown. WB120 uses 2 assemblies, (See graphics on page 48.) BOM shows quantities for 2 assemblies.



GAS TRAIN UPPER ASSEMBLY

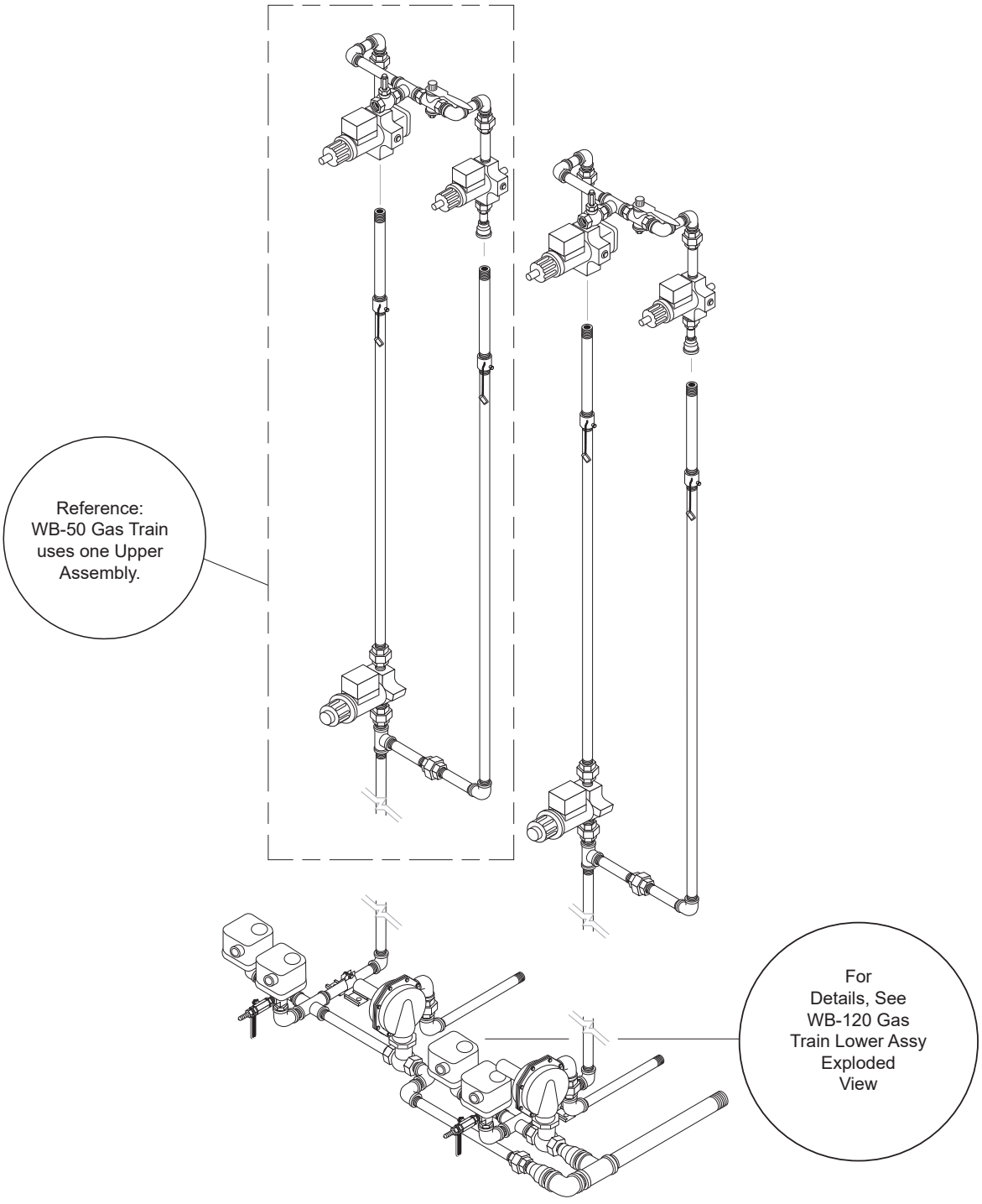
WB-120 EXPLODED VIEW PARTS LIST

BOM shows quantities for two assemblies

ITEM	PART NO.	DESCRIPTION	QTY
1	9.802-027.0	Elbow, 3/4", Black, 90°	6
2	9.802-025.0	Elbow, 1/2" Female, Black	4
3	8.706-115.0	Nipple, 3/4" x 35" Black	2
4	9.803-561.0	Nipple, Black Pipe, 3/4" x 5"	6
5	9.802-021.0	Nipple, 3/4" x 9", Black	2
6	8.718-171.0	Orifice, 3/4", SBO-A-1, Metering	2
7	8.706-114.0	Nipple, 3/4" x 25", Black	2
8	8.718-167.0	Orifice, 3/4" SBO-D-7, Metering	2
	8.718-169.0	Orifice, 3/4" SBO-C-3, Metering (LP Option)	2
9	8.706-110.0	Nipple, 3/4" x 8" STD, Black	2
10	8.718-182.0	Valve, 3/4", Eclipse, 46040-3 MVD, Gas Solenoid	2
11	8.718-180.0	Valve, 1/2", Eclipse, 46030-2, Gas Solenoid	2
12	8.755-266.0	Valve, Flow, Gas 1/2", Adjustable (WB-120)	2
13	8.718-181.0	Valve, 3/4", Eclipse, 46030-3 MVDLE, Gas Solenoid	2
14	8.706-222.0	Tee, 3/4" Black Pipe	4
15	8.706-087.0	Nip, 3/4" x 4", Black 150WP	1
16	9.802-049.0	Union, 3/4", Black Pipe	10
17	8.706-070.0	Reducer, 3/4" x 1/2", Bell, Black	2
18	8.706-052.0	Nipple, 1/2" Close, Black	10
19	9.802-019.0	Nipple, 3/4" x 2", Black	2
20	8.706-334.0	Union, 1/2" Black	4
21	8.706-054.0	Nipple, 1/2' X 2-1/2' Black	6
22	8.718-178.0	Switch, Proof of Closure, CP1400	2
23	9.802-017.0	Nipple, 3/4" x Close, Black	16
24	8.718-165.0	Valve, Gas, Limiting	2
25	8.706-295.0	Bushing 3/4" X 1/2" , Steel	2

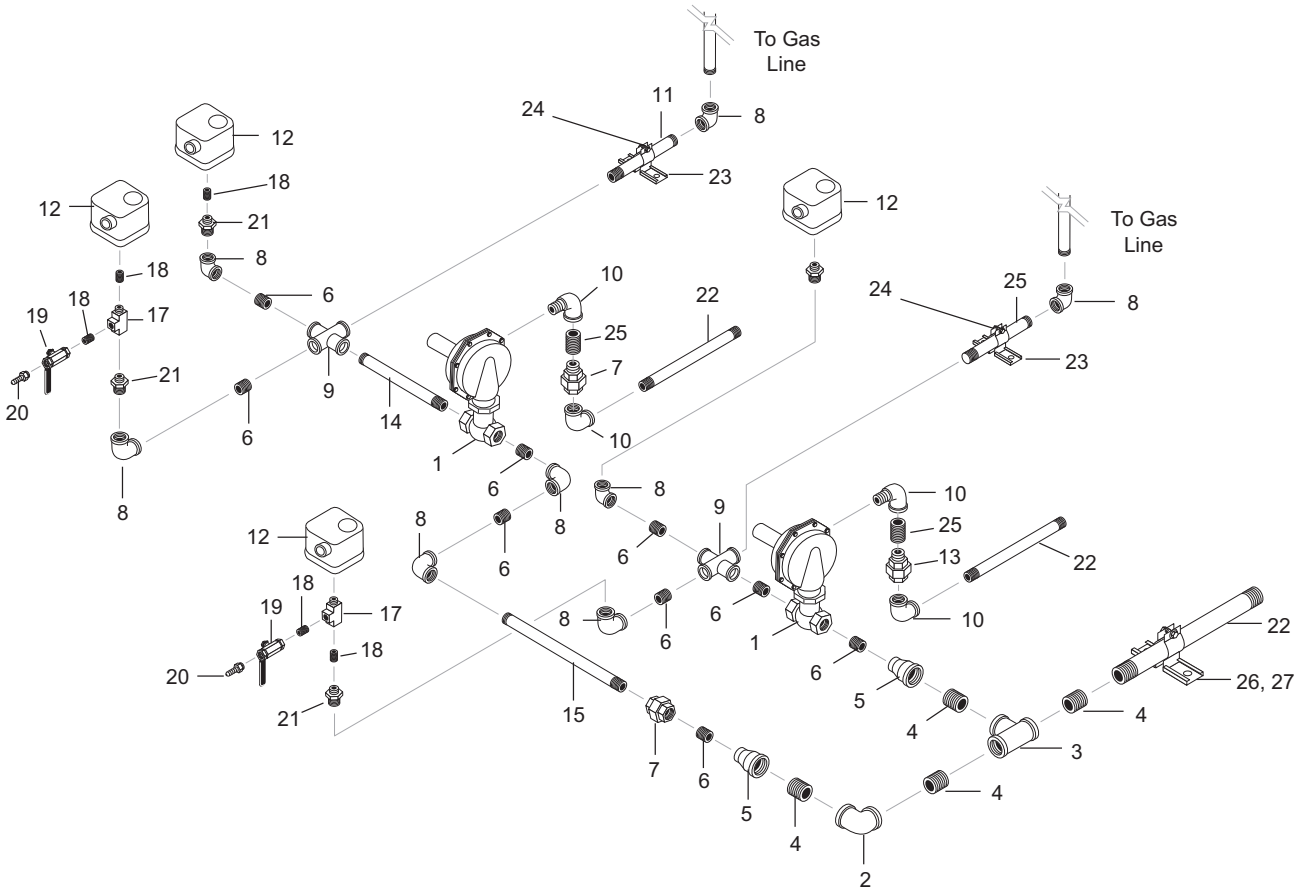
GAS TRAIN ASSEMBLY

WB-120 SHOWN



GAS TRAIN LOWER ASSEMBLY

WB-120 EXPLODED VIEW



ITEM	PART NO.	DESCRIPTION	QTY
1	8.717-748.0	Regulator, 3/4" Rockwell, 143-80-2-12-BW-8	2
2	8.706-195.0	Elbow, 1-1/2" Female, Black, 90°	1
3	8.706-219.0	Tee, 1-1/2", Female, Pipe, Black	1
4	8.706-014.0	Nipple, 1-1/2" Close, Black Pipe	3
5	8.706-072.0	Reducer, 1-1/2" x 3/4", Bell Black Pipe	2
6	9.802-017.0	Nipple, 3/4" x Close, Black	9
7	9.802-049.0	Union, 3/4", Black Pipe	1
8	9.802-027.0	Elbow, 3/4", Black, 90°	8
9	8.706-225.0	Cross, 3/4" Black Pipe FIPT	2
10	8.706-183.0	Elbow, 1", Street, Black, 90°	4
11	8.706-112.0	Nipple, 3/4" x 11" Std, Black	1
12	8.718-179.0	Switch, Gas & Air Pressure, GAO-A4-4-6	4

ITEM	PART NO.	DESCRIPTION	QTY
13	8.706-323.0	Union,1' Black Pipe	2
14	8.706-110.0	Nipple, 3/4" x 8" STD, Black	1
15	9.802-021.0	Nipple, 3/4" x 9", Black	2
16	8.706-020.0	Nipple, 1" x 12-1/2", Black	2
17	8.706-858.0	Tee, 1/4" Street	2
18	8.706-777.0	Nipple, 1/4" Close, P/N 3326-4	6
19	9.802-178.0	Valve, Ball, 1/4" Female x 1/4" Female, UL Listed #12	2
20	8.706-941.0	Hose Barb, 1/4" Barb x 1/4" ML Pipe	2
21	8.706-923.0	Bushing, 3/4" x 1/4" Pipe	4
22	8.706-116.0	Pipe, 1-1/2" x 17", Black	1
23	8.924-659.0	Channel, Kindorf, 1-1/2x1-1/2"x4.5"	2
24	8.731-149.0	Clamp, Kindorf	2
25	8.706-117.0	Nipple, 1" Close Black Pipe	2
26	8.913-046.0	Channel, Kindorf 4.5', WB-15/25/50	1
27	8.719-100.0	Clamp, Kindorf, 1-1/2"	1

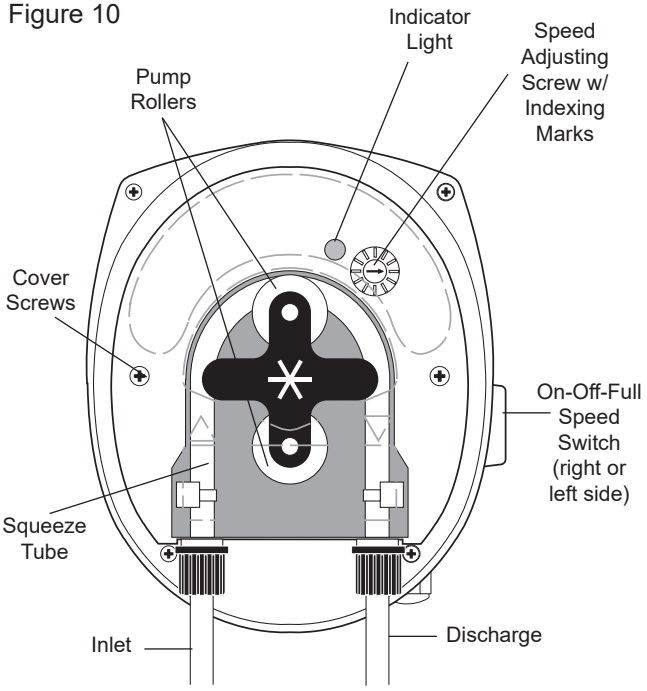
REPLACING PUMP HEAD TUBING:

WARNING: Wear protective gloves, goggles, and other adequate protection for the chemical hazard. Before replacing the pump head, remove chemical from tubing as follows. Remove strainer from chemical tank then run pump until all chemical is removed from the tubing.

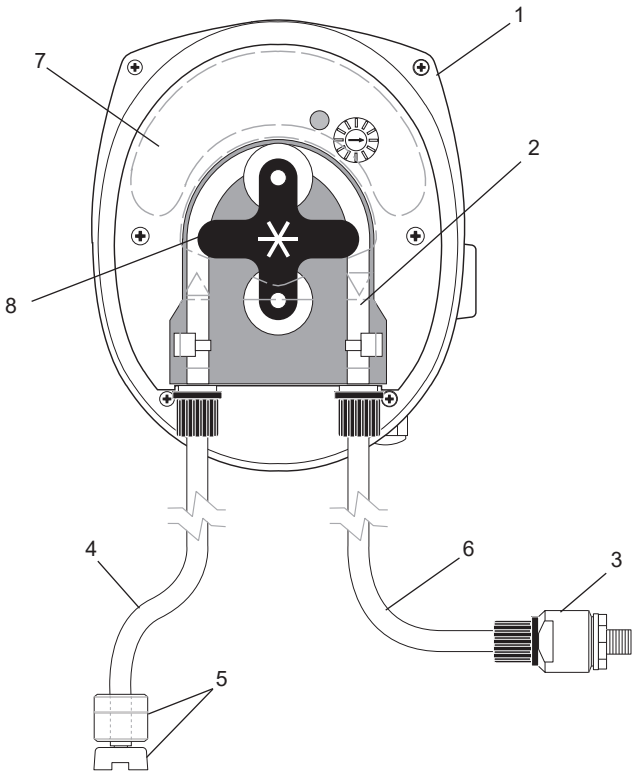
1. Remove the compression fittings from the tubing at the pump head.
2. Pull the suction and discharge tubing from the pump head.
3. Remove the front cover.
4. Rotate the pump rollers to a vertical position.
5. Lift the inlet fitting out of the housing.
6. Pull the tube out while rotating the pump rollers clockwise.
7. Remove the outlet fitting.
8. Install the inlet fitting for the new tube assembly.
9. Press the tube into place in front of a roller while rotating the roller assembly clockwise.
10. Install the outlet fitting.
11. Reconnect the suction and discharge lines.
12. Install the front cover.

CAUTION: DO NOT LOSE THE BEARING FROM THE CENTER HOLE IN THE COVER PLATE.

Figure 10



METERING PUMP AND PARTS LIST



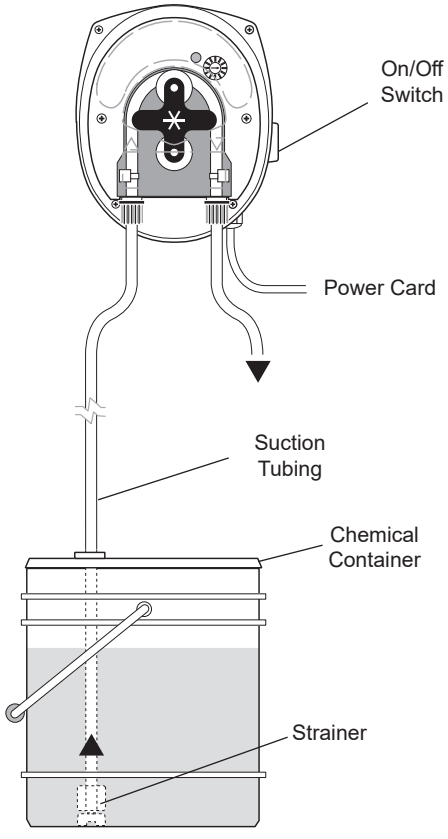
ITEM	PART NO.	DESCRIPTION	QTY
1	8.919-139.0	Pump, Peristaltic, PR-7, 8-45 gpd, Sekokem	1
2	8.750-963.0	Tube, Squeeze, Sekokem, PR-7,* 8-45 gpd	1
3	8.749-860.0	Check Valve, PVC	1
4	8.749-857.0	Tubing, 1/4", PE, Black	AR
5	8.749-863.0	Strainer, w/welght	1
6	8.711-737.0	Tubing, 1/8", ID, Norprene	AR
7	8.751-801.0	Faceplate, PRS-1/PR-7	1
8	8.751-375.0	Roller Assembly, PR-7	1

* Alternative tubing materials are available

SERIES VARIABLE SPEED PERISTALTIC METERING PUMP MODELS VSP 20
#5-2360 TECHNICAL INFORMATION

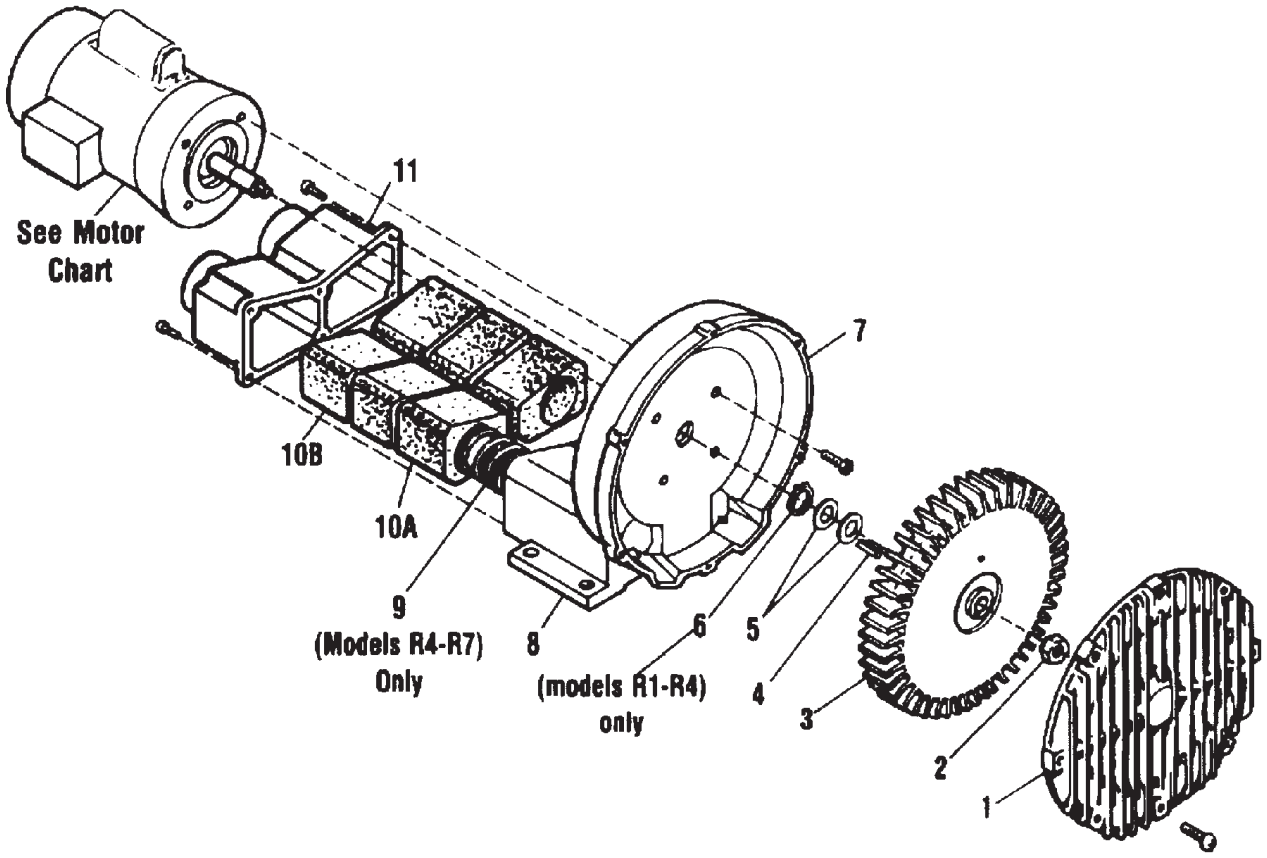
Feed Rate	8 - 45 GPD (1-7 GPD pump available)
Dimensions	5" H x 4" W x 4 1/4" D
Standard Accessories Included	Squeeze Tubing Assy. (Installed) Check Valve, 1/8" MNPT Strainer w/ Ceramic weight
Tubing	Suction: 1/4", Polyethylene Tubing Discharge: 1/8" ID, Norprene,Tubing
Electrical Rating	20-265V 50/60Hz
Materials:	
Pump Head	Polycarbonate
Pump Head Tubing	Sekokem (other materials available)
Strainer and Injection Point Fitting	PVC
Maximum System Pressure	45 psi (maximum allowed at injection fitting)

INSTALLATION DIAGRAM
Figure 11



WB-50/120 REGENERATIVE BLOWER

2.5 HP, 8.715-190.0



ITEM	PART NO.	DESCRIPTION	QTY
1	15-AJ101FB	Cover	1
2	15-BC181	Stop Nut	1
3	15-AJ102FR	Impeller	1
4	15-AB136D	Square Key	1
5	15-AJ109	Shim Spacer(s)	1
7	15-AJ103FQ	Housing	1
8	15-AJ106FR	Muffler Box	1
9	15-AJ113FQ	Spring	1
10A	8.705-471.0	Foam	6
11	15-AJ106FR	Muffler Extension/Adapter Plate	1

Motor Specs	Full Load Amps	HP	RPM	H2O	mbar	cfm	m3h	lbs	kg
115/208-230-60-1	23.6/12.9-11.8	2.5	3450	45	112	215	365	87	39.5

TROUBLESHOOTING

BURNER

PROBLEM	POSSIBLE CAUSE	SOLUTION
FAILS TO LIGHT	Air is in gas line after initial installation	Purge gas line. Repeat ignition trial several times to purge line.
	Ignition transformer malfunctions	Check wiring and proper voltage for transformer. Also clean and gap the spark electrode. Replace if necessary.
	Gas solenoid won't open	Faulty electrical circuit needs repair.
	Not enough air pressure	See TROUBLESHOOTING - Blower
	Low or high gas pressure	Check static pressure and regulate as needed.
	Low water level in the evaporation tank	Fill tank to indicated mark on sight glass.
	Gas line valve closed	Open valve on gas line.
MAIN GAS VALVE OPENS, BUT BURNER FAILS TO LIGHT	Air in gas line after initial installation	Purge gas line. Repeat ignition trial several times to purge line.
BURNER IGNITES BUT GOES OUT AFTER 8 SECONDS	UV scanner failure	Check electrical connection. Replace if necessary
		Check flame signal light to verify if it is illuminated.
		Clean dirt or moisture from scanner.
BURNER SHUTS DOWN DURING NORMAL OPERATIONS	UV scanner failure	Check electrical connection. Replace if necessary.
	Loss of air pressure	See TROUBLESHOOTING - Blower.
	Loss of gas pressure	Check gas line pressure and correct if necessary.
	Sparger tube or air distributor needs to be cleaned	Clean sparger tube and air distributor.
	Not enough water	Refill supply tank. Refill evaporator tank. Restart evaporator.
	Temperature too high Manual reset thermostat shuts burner down	Determine why overheating is occurring. Reset manual reset switch.
BURNER BEHAVES ERRATICALLY, DOES NOT RESPOND TO ADJUSTMENT	Burner internals loose, dirty or burned out	Contact *WATER MAZE* dealer for repairs or replacements.
VERIFLAME INDICATOR LIGHTS ACT ERRATICALLY	The ground is insufficient Voltage is allowed through the neutral wire	Connect a ground wire from the ground terminal bolt to the neutral terminal.
VERIFLAME INDICATOR LIGHT GOES TO FLAME FAILURE	High or low static gas pressure	Readjust static gas pressure.
	Pressure lock in high gas switch	Bleed high gas pressure switch.
	Faulty gas pressure switch	Replace if necessary.

(Continued on next page)A

TROUBLESHOOTING

BURNER

PROBLEM	POSSIBLE CAUSE	SOLUTION
(Burner Continued) **VERIFLAME INDICATOR LIGHT GOES TO AIR FAILURE**	Foaming	Add defoamer.
	Demister screens plugged	Clean demister screens.
	Sparger tube plugged	Clean sparger tube.
	Air distributor plugged	Clean air distributor.
	Faulty air pressure switch	Replace if necessary.
BURNER BUMPS UPON IGNITION	Gas solenoid valve opens too slowly	Adjust gas solenoid valve so it opens quicker.
PHOTOHELIC SHUTS BURNER OFF	Foaming or water in photohelic hose	Add defoamer or drain photohelic hose.

BLOWER

PROBLEM	POSSIBLE CAUSE	SOLUTION
EXCESS VIBRATION	Impeller damaged or contaminated by foreign material	Replace or clean impeller, install adequate filtration.
ABNORMAL SOUND	Motor bearing failed, impeller rubbing against cover or housing	Replace bearings, repair blower and check clearances.
INCREASE IN SOUND	Foreign material or heat can destroy muffler foam	Replace foam muffler elements and filter foreign materials.
BLOWN FUSE	Electrical wiring problem	Have a qualified person check that impeller turns. Also check fuse, wiring diagram and wiring.
MACHINE VERY HOT	Running at too high pressure or vacuum	Install a relief valve and pressure or vacuum gauge.
BLOWER WON'T START	Blower control switch turned to automatic and liquid level in holding tank is low	Turn blower control switch to manual or fill wastewater holding tank.

TROUBLESHOOTING

AIR PUMP

PROBLEM	POSSIBLE CAUSE	SOLUTION
AIR PUMP WON'T START	Long float, top micro switches not energized. Water too high	Keep evaporating or manually lower the water level.
	Air regulator setting adjusted too low	Readjust air regulator to between 50 and 100 psi.
	Air pump solenoid plugged	Clean out.
	No voltage to air pump solenoid coil	Check wiring in electrical box. Replace parts as needed.
	Bad air pump solenoid coil	Replace solenoid coil.
WASTEWATER DISCHARGING FROM AIR PUMP EXHAUST	Check for diaphragm rupture	If ruptured, replace.
	Check for diaphragm nut	Tighten nut.
AIR BUBBLES IN DISCHARGE HOSE	Check connections of suction plumbing	If loose, retighten.
	Check band clamps on intake manifold	If loose, retighten.
	Check o-rings between intake manifold and fluid caps	Replace o-rings if worn.
	Check tightness of diaphragm nut	Tighten nut.
AIR PUMP BLOWS AIR OUT MAIN EXHAUST WHEN STALLED ON EITHER STROKE	Check U cups on spool in major valve	Replace if needed.
	Check valve plate and insert for wear	Replace if needed.
	Check sleeve and o-ring on diaphragm connecting rod	Replace if needed.
	Check o-rings on piston for wear	Replace if needed.
LOW DISCHARGE G.P.M.	Check air supply	Adjust to between 50 and 100 psi.
	Check for plugged discharge hose	Unplug discharge hose.
	For the pump to prime itself it must be mounted in a vertical position so that the balls will check by gravity	Level machine.
	Check for pump cavitation - suction pipe should be 1/2" minimum or larger if high vicosity fluids are being pumped. Suction hose must be noncollapsible type, capable of pulling a high vacuum	Replace hoses if undersized.
	Check all joints on intake manifolds and suction connections These must be air tight	Tighten all joints and connections.
	Check for sticking or improperly seating valves	Clean check valves.
	If pump cycles at a high rate or runs erratically, check piston o-rings for wear	Replace o-rings if needed.

SPECIFICATIONS

MODEL		WB-50A	WB-120A
EVAPORATION RATE	**GPH /LPH**	60 (227)	120 (454)
FUEL USAGE	**BTU**	570,956	1,146,912
FUEL SUPPLY		Natural or LP gas, 2 psig 1" NPT connection	1.5" NPT
VENT STACK	**IN / CM**	10 (25)	12 (31)
TANK CAPACITY	**GAL / L**	86 (326)	182 (689)
POWER SUPPLY		230V 1PH	230V 1PH
	AMPS	11	22
LENGTH/WIDTH/ HEIGHT	**IN / CM**	75.5/32/81 (192/81/206)	80/55/81 (203/140/206)
NET WEIGHT	**LBS / KG**	895 (407)	1690 (768)

WATER MAZE SERVICE LOG

All entries will be recorded in "hours on the machine" at time of cleaning

UV Scanner Cleaned	Ignition Plug Inspected	Clean (20) Mesh Waste Water Screen	Sludge Removal	3 Point Level Rods	Sparger Tube Cleaned	Air Distributor Cleaned

waterMaze
WATER TREATMENT SYSTEMS

LIMITED NEW PRODUCT WARRANTY
WASH WATER / WATER TREATMENT SYSTEMS

WHAT THIS WARRANTY COVERS

All *WATER MAZE* water treatment systems are warranted by to the original purchaser to be free from defects in materials and workmanship under normal use, for the periods specified below. This Limited Warranty, subject to the exclusions shown below, is calculated from the date of the original purchase, and applies to the original components only. Any parts replaced under this warranty will assume the remainder of the part's warranty period. A 60 day grace period will be given for installation.

ONE YEAR PARTS AND 30 DAY LABOR WARRANTY:

All components excluding normal wear items as described below.

WARRANTY PROVIDED BY OTHER MANUFACTURERS:

Motors, which are warranted by their respective manufacturers, are serviced through these manufacturers' local authorized service centers. *WATER MAZE* cannot provide warranty on these items.

WHAT THIS WARRANTY DOES NOT COVER

This warranty does not cover the following items:

1. Normal wear items, such as seals, filters, gaskets, O-rings, packings, pistons, brushes, filtering media, ozone bulbs, sensors, UV scanners, oil-skimmer belt, impedance sensor. Minor leaks covered first time on original start-up only.
2. Damage or malfunctions resulting from accidents, abuse, modifications, alterations, incorrect installation, improper servicing, failure to follow manufacturer's maintenance instructions, or use of the equipment beyond its stated usage specifications as contained in the operator's manual.
3. Damage due to freezing, sludge build-up, chemical deterioration (oxidation, chloride or fluoride corrosion), and rust.
4. Damage to components from fluctuations in electrical or water supply.
5. Normal maintenance service, including adjustments.
6. Transportation to service center, field labor charges, or freight damage.
7. Consumables and water quality.

WHAT YOU MUST DO TO OBTAIN WARRANTY SERVICE

While not required for warranty service, we request that you register your *WATER MAZE* Product by returning the completed registration card. In order to obtain warranty service on items warranted by *WATER MAZE*, you must return the product to your Authorized *WATER MAZE* Dealer, freight prepaid, with proof of purchase, within the applicable warranty period. If the product is permanently installed, you must notify your Authorized *WATER MAZE* Dealer of the defect. Your Authorized *WATER MAZE* Dealer will file a claim with *WATER MAZE*, who must subsequently verify the defect. In most cases, the part must be returned to *WATER MAZE* freight prepaid with the claim. For warranty service on components warranted by other manufacturer's, your Authorized *WATER MAZE* Dealer can help you obtain warranty service through these manufacturers' local authorized service centers.

LIMITATION OF LIABILITY

WATER MAZE'S liability for special, incidental, or consequential damages is expressly disclaimed. In no event shall *WATER MAZE'S* liability exceed the purchase price of the product in question. *WATER MAZE* makes every effort to ensure that all illustrations and specifications are correct, however, these do not imply a warranty that the product is merchantable or fit for a particular purpose, or that the product will actually conform to the illustrations and specifications. Our obligation under this warranty is expressly limited at our option to the replacement or repair at a service facility or factory designated by us, of such part or parts as inspection shall disclose to have been defective. **THE WARRANTY CONTAINED HEREIN IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY WATER QUALITY, MERCHANTABLIITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY LIMITED TO THE DURATION OF THIS WARRANTY.** This warranty gives you specific legal rights and you may also have other rights which vary from state to state. *WATER MAZE* does not authorize any other party, including authorized *WATER MAZE* Distributors, to make any representation or promise on behalf of *WATER MAZE*, or to modify the terms, conditions, or limitations in any way. It is the buyer's responsibility to ensure that the installation and use of *WATER MAZE* products conforms to local codes. While *WATER MAZE* attempts to assure that its products meet national codes, it cannot be responsible for how the customer chooses to use or install the product. Some states do not allow limitations or exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

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