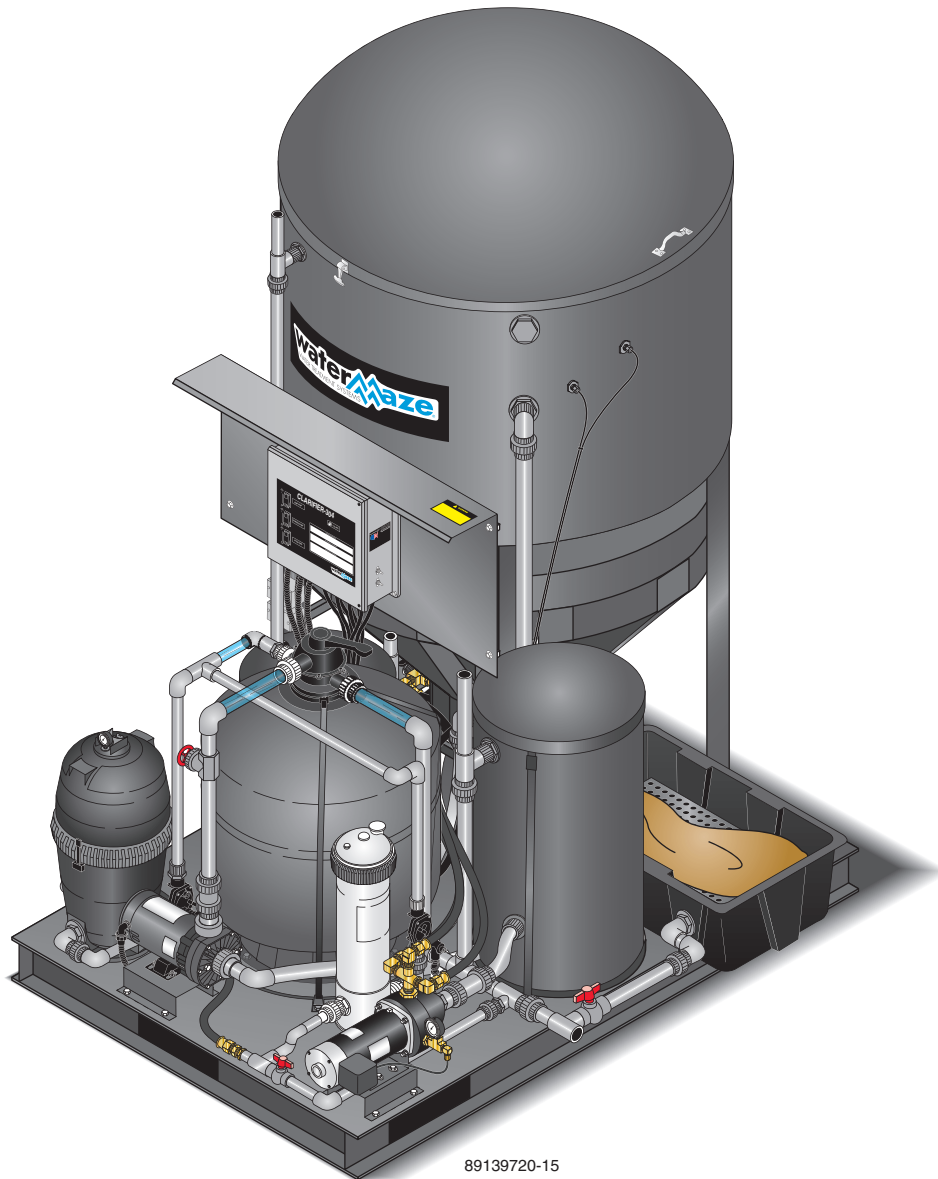


# OPERATOR'S MANUAL

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## ■ CL-304

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89139720-15

For technical assistance or the Water Maze Dealer nearest you,  
consult our web page at [www.wmaze.com](http://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 machine. You should record both serial number and date of purchase and keep in a safe place for future reference.

# INTRODUCTION & IMPORTANT SAFETY INFORMATION

Your owner's manual has been prepared to provide you with a simple and understandable guide for equipment operation 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 troubleshooting procedures given in this manual.

## 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.**

## 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.

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

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

## UNPACKING

1. Coalescing Cone Assembly
2. Sump Pump Assembly
3. Oil Water Decanter Barrel
4. Waste Collection Bag and Pan
5. Exterior Plumbing
6. Fresh Water Make-up Float
7. High Level Control Float
8. Test Strips
9. Operator's Manual

**Note any damage to machine or components for claims against the freight lines.**


## DANGER


### READ CAREFULLY

This feeder is designed to use only Trichloro-s-triazinetriene **OR** Bromine tablets-slow dissolving type **UNDER NO CIRCUMSTANCES** mix Trichlor **OR** Bromine with Calcium Hydrochlorite, with other forms of concentrated chlorine **OR** with other chemicals **FIRE AND EXPLOSION MAY RESULT. NEVER** use oils or grease to lubricate O-ring. Oil in contact with Trichlor **OR** Bromine may result in fire. Lubricate O-ring with Lifeguard Silicone O-ring Lubricant only, available at your dealer. Caution should be used when removing feeder cap. Do not inhale fumes. If shock treatments or Algaecides containing chemicals other than sanitizer tablets in feeder must be used, turn off Feeder **OR** remove tablets until the shock or Algae treatment is complete and all granules have dissolved. Failure to do so may result in granules mixing in feeder causing **FIRE AND/OR EXPLOSION**. The shock or Algae treatment dissolved in water is safe with tablets.



## IMPORTANT SAFETY INSTRUCTIONS


 **CAUTION**




**READ OPERATOR'S MANUAL THOROUGHLY PRIOR TO USE**

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

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

 **WARNING**



**HAZARDOUS VOLTAGE. CAN SHOCK, BURN OR CAUSE DEATH.**

**WARNING:** *Follow the wiring instructions in this manual when connecting the system to the power lines.*

**WARNING:** *All wiring must be performed by a qualified electrician.*

**WARNING:** *Machine must be electrically grounded.*

2. The installation of this machine must comply with local and/or national codes.
3. The machine, when installed, must be electrically grounded in accordance with local and/or national codes. Do not spray water near any electrical components.
4. Never make adjustments on the machine while it is in operation, except for those prescribed in this manual.

## IMPORTANT SAFETY INFORMATION



**WARNING:** Do not discharge concentrations of flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. into the CL-304. Do not use in explosive atmospheres. Failure to follow this warning can produce an explosion resulting in personal injury and/or property damage.

5. Do not discharge gasoline or other volatile hydrocarbons into the CL-304. This could cause a gas vapor build-up inside the CL-304 which could become an explosive mixture.
6. Before servicing the machine, refer to the MSDS's on all the material identified in the waste stream. You must comply with all warnings and wear all protective clothing as stated on the MSDS's.
7. Protect inlet and outlet pipes from vehicle traffic and sharp objects.
8. Inlet water temperature must not exceed 100° F.
9. When making repairs, disconnect this machine from its electrical source.
10. The best insurance against an accident is precaution and knowledge of the equipment.
11. *WATER MAZE* is not liable for modifications or the use of components not purchased from *WATER MAZE*.
12. This machine will freeze and must be located in a heated enclosure in cold climates.
13. Running the system without water will damage the pumps and will void the warranty.

At the time of installation, the flow into the CL-304 must be set.

**NOTE:** Maintenance and water tests must be done routinely.

2. Make certain power source conforms to CL-304 electrical requirements. (Check the serial plate for proper voltage and amperage requirements.)
3. Disconnect the power before servicing.
4. Release all pressure within the system before servicing any component.
5. Drain all liquids from components before servicing.
6. Check hoses for weak or worn condition before each use, making certain that all connections are secure.
7. Periodically inspect pump and system components. Perform routine maintenance as required.



**WARNING:** Wear protective eyewear, foot protection and protective clothing.

8. Personal Safety:
  - a. Wear safety glasses and other applicable protective clothing at all times when working on the CL-304. **NOTE:** Refer to item #6 under Safety Instructions.
  - b. Keep your work area clean, uncluttered and properly lighted. Replace all unused tools and equipment.
  - c. Keep visitors at a safe distance from the work area.
  - d. Make the workshop safe with padlocks and master switches.
9. When wiring an electrical system, follow all electrical and safety codes, as well as the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

**WARNING:** Risk of electric shock.

10. All wiring should be performed by a qualified electrician.
11. The main power must be brought from the circuit breaker and wired into the electrical box on the CL-304. This line must be run through conduit to protect it from damage. A power disconnect should be located next to the machine for maintenance purposes.
12. Protect all electrical cords from sharp objects, hot surfaces, oil, sunlight and chemicals. Avoid kinking the cords. Replace or repair damaged or worn cords immediately. All wiring should be run through conduit.
13. Use wire of adequate size to minimize voltage drop at the motor.

## SYSTEM SAFETY INFORMATION

1. Know the system application, limitations and potential hazards.



**WARNING:** Do not use to pump concentrations of flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. Do not use in explosive atmospheres. Pumps should only be used with liquids compatible with pump component materials. Failure to follow this

**warning can result in personal injury and/or property damage.**

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## IMPORTANT SAFETY INFORMATION

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14. Disconnect the power before servicing a motor. If the power disconnect is out-of-sight, lock it in the open position and tag it to prevent unexpected application of power.
15. Do not touch an operating motor. Modern motors are designed to operate at high temperatures.
16. Do not handle a pump or pump motor with wet hands or when standing on a wet or damp surface or in water.
17. The pump motors are equipped with an automatic resetting thermal protector and may restart unexpectedly. Tripping is an indicating of motor overloading as a result of operating the pumps at low heads (low discharge restriction), excessively high or low voltage, inadequate wiring, incorrect motor connections or a defective motor or pump.
18. **IMPORTANT NOTE:** The sump pump is not a trash pump and is subject to premature failure unless sump baffling or additional protection is provided.

# INSTALLATION INSTRUCTIONS

1. Locate the CL-304 on a containment pad to prevent contamination.
2. Level the machine by using shims that will provide ample support and will not corrode or deteriorate over time.
3. Have a qualified electrician connect the proper power supply to the electrical control box. It is recommended that a ground fault circuit interrupter be installed in the circuit breaker for the CL-304.

**NOTE:** Electrician needs to locate where the power supply will enter the electrical box and punch a hole.

4. Connect the sludge tub assembly by placing the sludge bag support into the sludge tub. Attach the sludge bag onto the sludge inlet fitting using the screw clamp provided.
5. Attach the 2" flex hose to the sludge tub by screwing the hose barbs into the bulkhead connectors, then attach the 2" flex hose to the hose barb using a hose clamp. The return line should gravity return to the catch basin or connect to the return line. The 2" inlet flex hose should connect between the cone tank discharge valve and the sludge bag inlet connector.

6. Build the inlet plumbing from the sump pump discharge port (min. 1-1/2" pipe) to the CL 1-1/2" inlet line. If the pipe is to be under the concrete, use 2" pipe. Lower the sump pump into the sump pit.

**NOTE:** Install a union on the inlet line near the sump so the pump can be easily removed for service.

7. Position the sump pump in the bottom of sump pit.
  - a. Elevate on a stand or cinder blocks, 6" off the pit floor, to keep pump from sucking in rocks or other heavy material that may plug pump or plumbing.
  - b. Position the pump away from incoming water to help prevent cavitation.
  - c. Tie a rope or chain to the pump handle and bring out of the top of the pit for ease of pump removal. Do not lift pump by power cords or plumbing. Have a union installed on plumbing at the top of the pit. Position union so it can easily be reached and opened for pump removal.

8. The High Level Control Float #1 (black, normally open) is the upper float which controls the upper limits of the sump. It prevents the sump from flooding by opening SV1, the rain water solenoid valve. The Fresh Water Make-up Float #2 (grey, normally closed) prevents the sump from running dry by opening SV2, the fresh water solenoid valve. Float tether length must be a minimum of 2" long. Turn-on point for the Fresh Water Make-up Float must be at least 6" above the suction inlet of sump pump. The further the water must travel before reaching the

sump, the higher the float must be placed above the suction intake. On three phase units a third float is needed to protect the sump pump from the possibility of running dry. Position the Low Water Protect Float #7 (black, normally open) 6" above the suction inlet of sump pump. Single phase sump pumps have a float built into them.

Floats must travel their complete arc without:

- Water going over the top of the pit.
- Touching side walls or bottom.
- The pit running out of water.
- Interfering with electrical wiring, plumbing, bottom or side walls of sump, or any object. Attach the floats to the PVC line on the sump pump.

**Check to assure the floats can operate freely.** (See CL-304 Installation View.)

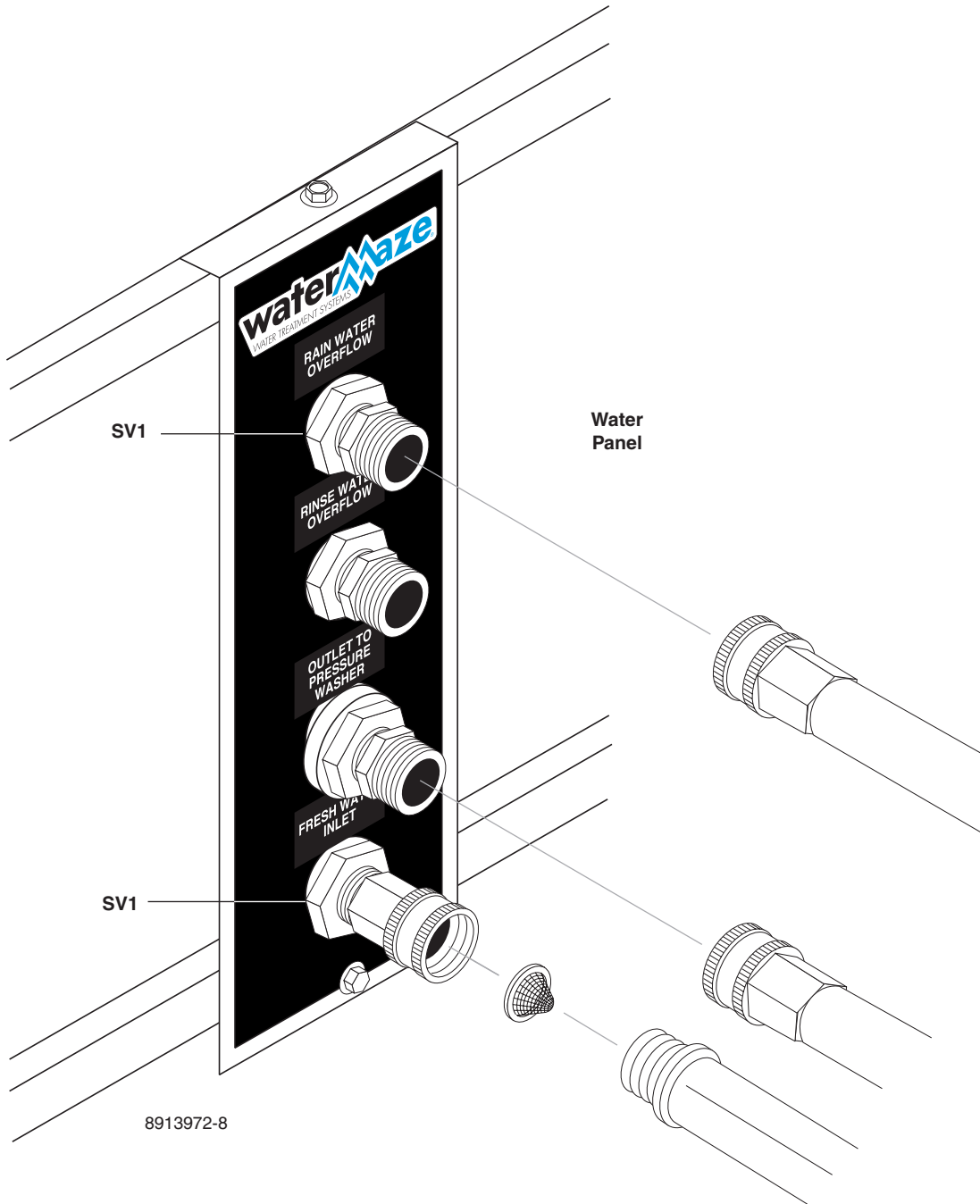
9. Run the electrical cords from the sump pump and floats to the electrical junction boxes near the return line and attach wires. (See electrical diagram). If the sump pump and floats are located farther than 20 feet from the electrical junction boxes, then have an electrician install water tight junction boxes with conduit and proper sized wire to extend the electrical connections.
10. Connect the fresh water line (3/4" GHM garden hose not provided) to the "Fresh Water Makeup" port on the water panel (see Water Panel Illustration).
11. Connect the "Outlet to Pressure Washers" to your pressure washer by using a 5/8" garden hose (not provided). Valve #7 behind the water panel should remain closed until start-up.
12. Connect the "Rain Water Overflow" to a sewer or to storage (line not provided). Valve #8 behind the water panel should remain halfway open.

**CAUTION: Discharge permits are required and must be obtained before any treated water is discharged.**

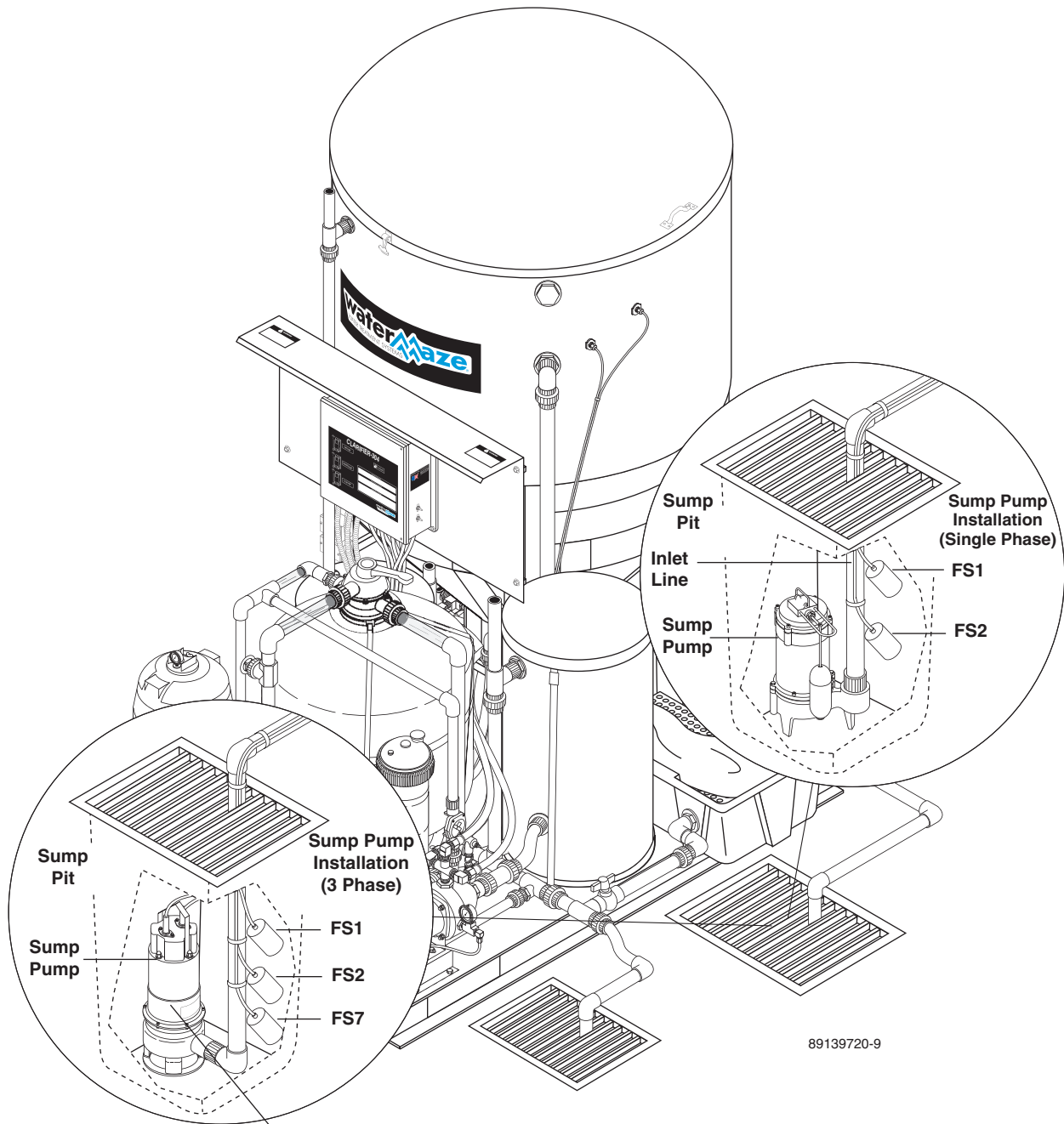
13. Connect a hose to "Rinse Water" outlet if it is to be used. Make sure valve #6 behind the water panel stays closed until rinse water is needed (hose not provided).

**NOTE:** The use of rinse water in a closed loop system will overflow the system and will lead to an overflow situation causing the rainwater overflow valve to open.

# CL-304 WATER PANEL INSTALLATION



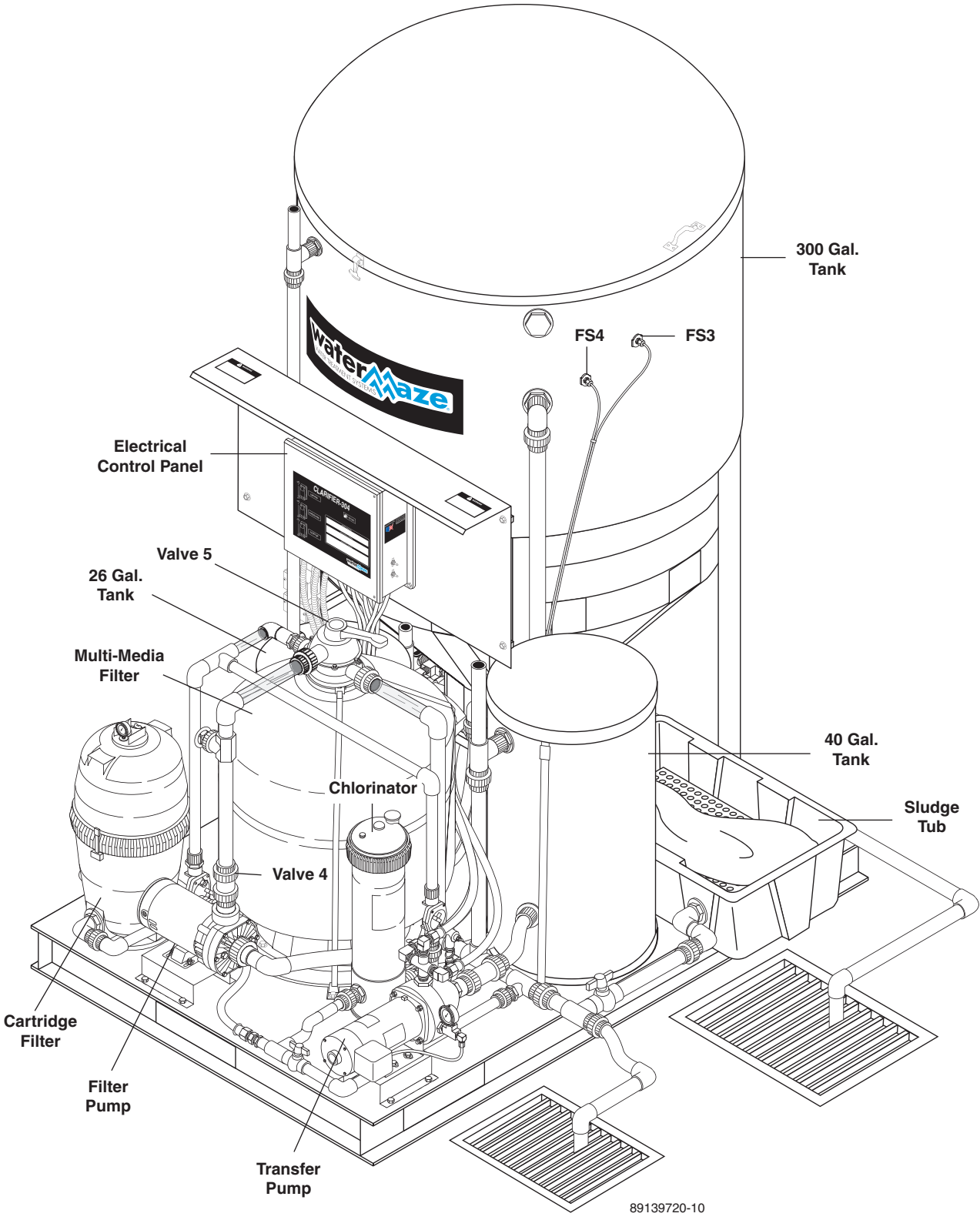
# CL-304 INSTALLATION VIEW



89139720-9

**Sump Pump Not Supplied with Machine.  
See Specification on Page 30.**

# COMPONENT IDENTIFICATION



89139720-10

## OPERATING INSTRUCTIONS

- ▼ The 1/3 HP sump pump pushes the water from the sump and sends it to the CL-304.
- ▼ The solids settle in the bottom of the 300 gallon cone tank.
- ▼ The oil and grease are separated out by the coalescing cones.
- ▼ The skimmer removes the oil and sends it to the oil decanter barrel. This is a routine maintenance item that must be done manually.
- ▼ Processed water runs from the sump to the filter pack and then to the 40 gal. storage tank.
- ▼ With use of a filter timer, water can be circulated from the 300 gal tank through a chlorinator and back to the pit for bacteria control.

### FLOAT LEVEL CONTROLS

- ▼ The High Level Control Float #1 (normally open) is the upper float which controls the upper limits of the sump. It prevents the sump from flooding by opening SV1, the rain water solenoid valve. The fresh water makeup float #2 (normally closed) controls the lower limits of the sump. It prevents the sump from running dry by opening SV2, the fresh water solenoid valve.
- ▼ Float tether length must be a minimum of 2" long.
- ▼ Turn-on point for the Fresh Water Make-up Float must be at least 2" above the suction line intake. The further the water must travel before reaching the sump, the higher the float must be placed above the suction intake.
- ▼ Floats must travel their complete arc without:
  - Water going over the top of the pit.
  - Floats touching sidewalls or bottom.
  - The pit running out of water.
  - Floats interfering with electrical wiring, plumbing, bottom or sidewalls of sump, on any object.
 Attach the floats to the PVC line on the sump pump. **Check to assure the floats can operate freely.**

#### Float Override Switch:

The Float Override Switches are located on the electrical control panel. One switch turns "ON" the sump pump, the other turns "ON" the filter pump. These switches will cause the pumps to run until they are turned "OFF".

**The Float Override Switches must be in the "OFF" position for automatic operations.**

### VALVE LOCATION AND FUNCTION

It is **extremely** important to know the location and function of the valves on the CL-304. Improper positioning of the valves can cause overflow or damage which could result in time consuming clean-up and repairs. Study the section on "Valve Location and Function."

#### Valve 1 -- Flow Control Valve

This valve controls the amount of water allowed into the CL-304 from the sump pump.

#### Valve 2 -- Sludge Drain Valve

This valve should only be opened when draining sludge.

#### Valve 3 -- Oil Skimming Bucket

This valve should be closed except when draining off oil.

#### Valve 4 -- Filter Pack Flow Control Valve

This valve controls the amount of water allowed to flow through the filter pack.

#### Valve 5 -- Filter Control Valve

When set on Filter, this valve allows water to pass through the filter. When set on Backwash, the water passes through the filter in reverse, then passes back to the collection pit.

#### Valve 6-- Transfer Pump Valve

This valve is used to shut off the water supply to the transfer pump for maintenance.

#### Valve 7-- Fresh Water Makeup Valve

This valve is used to control the volume of water allowed into the machine when fresh water is called for.

#### Valve 8 -- Rain Water Overflow Valve

This valve is left open partially. When SV1 opens, some water is allowed to discharge while still providing water for the pressure washer.

#### Valve 9-- Outlet to Pressure Washer Valve

After start-up, this valve is left open all of the time. It controls water to the pressure washer.

#### Valve 10 -- Rinse Water Control Valve

This valve is opened only when rinse water is needed.

#### Valve 11-- Drain Valve

This valve is used to drain the cartridge filter for maintenance.

# OPERATING INSTRUCTIONS

## Valve 12 -- Recycle Flow Control Valve

This valve is used to control the volume of water going back to the collection pit for recycling through the system when the timer activates the solenoid, SV3, for recycling the system.

## FILLING SYSTEM WITH WATER

**Valve 1 -- Open** **Valve 5 -- Filter**

**Valve 4 -- Open**

On initial start-up, or if the system has been drained of water, it will be necessary to fill the system and piping with fresh water. This is done as follows:

Open valves 1, 4, and filter for valve 5.

Make sure the sump is full of water. Adjust the valve positions as noted above. Turn "ON" the pump to allow water to fill the system. You may have to turn the Sump Pump Float Override Switch to the "ON" position to start the pump. When the system is filled, turn "OFF" the Float Override Switch. You may have to turn the pump switch "OFF" to stop the pump. The float controls will automatically fill the filter pac.

### Running

**Valve 1 -- Open** **Valve 9 -- Open**

**Valve 4 -- Open** **Valve 5 -- Filter**

Adjust valves as shown above. When water begins to flow through the CL-304, adjust Valve 1 so that the flow meter reads 5 GPM. Record the flow rate in the operation log. The CL-304 is now operational. Adjust valve #4 to read 5 GPM.

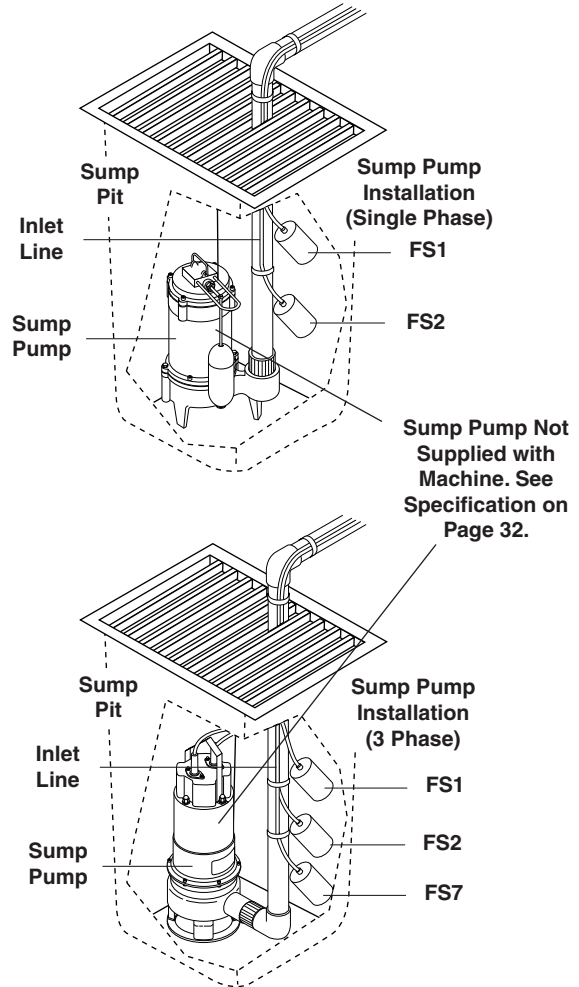
### Backwash Multi-Media Filter

**Valve 1 -- Open** **Valve 9 -- Open**

**Valve 4 -- Open** **Valve 5 -- Backwash**

Position valves for backwash as shown above. Turn the filter pump float override switch to the "ON" position to start pump. Adjust flow to 30 GPM using valve 4.

The water is now flowing in reverse through the Multi-Media Filter taking all the impurities back to the pit. Turn the Float Override to the "OFF" position. Return to the filtering mode. Make sure the Float Override Switch is in the "OFF" position for automatic operation.



## ELECTRICAL

The machine, when installed, must be electrically grounded in accordance with local and/or national codes. Check for proper electrical supply. It is recommended that a Ground Fault Circuit Interrupter be installed in the circuit breaker for all *WATER MAZE* Equipment. The floats in the sump run on 24 volts. For the CL-304 check the serial plate for voltage requirements and amp loads.

**NOTE:** Always test all electrical power supplies for proper voltage before wiring into any equipment. Always verify voltage and amperage requirements on the serial plate before testing electrical supplies.

# START-UP INSTRUCTIONS

## CHECK LIST BEFORE STARTING

	YES	NO
1. Is inlet line connected from the sump pump to the inlet of the CL-304?	_____	_____
2. Is the voltage correct?	_____	_____
3. Is the recycle line connected?	_____	_____
4. Is the Fresh Water Make-up hose connected?	_____	_____
5. Are the floats adjusted correctly?	_____	_____
6. Is the chlorinator filled with 3" pucks?	_____	_____

## START-UP

- ▼ Make sure that the CL-304 is level.
- ▼ Turn "ON" the Fresh Water Make-up hose.
- ▼ Fill the sump and 300 gal. tank with water.
- ▼ Turn the sump pump switch on the electrical control panel to the "ON" position.
- ▼ Adjust the flow of water into the CL-304 using valve #1 to 5 GPM . The water level should be between 5" and 8" below the top rim.
- ▼ Adjust the length of the High Level Control and the Fresh Water Make-up Floats in the sump.
- ▼ Turn "ON" the filter timer inside the control panel by pulling out the pins and rotating the pins to line up with the arrow. This will ensure the water recycles from the 300 gal. tank back to the collection pit. Each pin pulled out will activate the solenoid valve for one half hour.
- ▼ Look over the entire machine for leaks. The machine was hydrostatically tested at the factory but may have been damaged in shipment.
- ▼ Set the chlorinator on its lowest setting to begin with. Adjust as needed.

## START-UP CHECK LIST:

	YES	NO
1. Sump Pump Override working?	_____	_____
2. Water in CL-304 level?	_____	_____
3. Fresh Water Make-up working? (#2)	_____	_____
4. Recycle System working?	_____	_____
5. High Level Control Float working? (#1)	_____	_____
6. Filter Pump Override working?	_____	_____

## GENERAL MAINTENANCE AND SERVICE

### Periodic Maintenance:

1. Turn "ON" the Sump Pump Float Override Switch. The water level in the 300 gal. tank will rise. Continue until the level is high enough for the oil skimmer to begin skimming. Turn "OFF" the override switch when all of the oil has been skimmed off.
2. Monitor the level of oil in the collection drum. Empty as required.
3. Settled solids are collected in the bottom of the cone of the CL-304 tank. The solids must be removed periodically as dictated by the dirt load coming into the machine. The procedure for removal is as follows:  
  
Open Valve #2. Fill up the bag, then shut the valve. Repeat as needed.
4. Check the electrical cords to ensure they are safe, with no damage or cracking.
5. Check inlet and outlet pipes for leaks or damage.

### Cartridge Filter:

The *WATER MAZE* cartridge filter is a high performance industrial filter, manufactured from durable, corrosion-proof materials. It is designed for continuous or intermittent operation. The cartridge filter utilizes a reusable, reinforced polyester filter cartridge element to provide a high degree of water clarity and long filter cycles with absolute minimum care.

### Filtering:

Filtration starts as soon as flow is steady through the filter. As the filter cartridge removes dirt from the water, the accumulated dirt causes a resistance to flow. As a result, pressure will rise and flow will decrease. When the pressure rises 8 - 10 psi above the starting pressure, or when flow decreases below the desired rate, clean or replace the filter cartridges.

### Remove/Replace Cartridges:

#### Removing Cartridge Elements

1. Shut off the pump.
2. Open the drain valve and allow the water to drain from the filter. **NOTE:** To assist the draining process, open the air vent a few turns.
3. Disassembly:
  - a. Unscrew the lock-ring from the top of the filter and lift off.
  - b. To remove filter cover, tap it on the side to break the seal.

## START-UP INSTRUCTIONS

4. To Remove Cartridge Element
  - a. Lift element out of cartridge tank with a slight rocking motion.
  - c. Clean cartridge (see section on Cleaning Cartridges).

### Reinstalling Cartridges

1. Flush and drain any dirt or debris from the bottom of the filter tank.
2. Replace the element into the tank housing, making sure the air bleed hose is visible.
3. Make sure the filter cover flange sealing surface is clean and the O-ring is in place. **NOTE:** The O-ring will need to be lubricated periodically.
4. Replace the filter cover, making sure it is fully seated.
5. Replace the loc-ring and secure hand tight.
6. Close the drain valve, set valves and follow instructions for "Filling System with Water".

### Cleaning Cartridges:

The cartridge filter element can be cleaned by pressure washing inside and out with no more than 1000 psi of pressure, or use a garden hose. After hosing the cartridge, for best results, allow the cartridge to dry and carefully brush pleated surface areas to remove fine particles.

A spare "standby" cartridge filter element is an excellent investment. It provides convenience and assures that your filter will always be ready to operate at peak efficiency. For best results, use only genuine *WATER MAZE* cartridges in your filter.

### Winterizing:

If a heated area is not provided in areas where sub-freezing temperatures can be expected, the entire machine must be drained.

## CHEMICAL MAINTENANCE PROGRAM

### Owner Chemical Maintenance Program to Maintain Recycled Water Quality:

Daily monitoring and adjustment of the CL-304 recycled water chemistry is essential. If not monitored and controlled, the recycled water will become chemically unbalanced resulting in a host of problems such as algae and bacteria growth, obnoxious odors, and iron discoloration. Ultimately it will be unfit for reuse and must be disposed of.

The daily monitoring and adjustment maintenance program presented herein will, if followed, provide

suitable recyclable wash water. The proper maintenance of the water is not complicated and depends upon a few basic principles which are:

#### 1. Physical - effective filtration and recirculation of the water

Effective recirculation of the water through the catch basin, and the CL-304 is achieved only if the system is utilized often (daily 6-8 hours or more) or if the system is set to recirculate the water throughout the total system. The CL-304 has the controls and procedures to achieve continuous effective water recirculation throughout the process. Therefore, if the CL-304 is operated properly, it will achieve the required need of effective filtration and recirculation.

#### 2. Chemical - proper adjustment of alkalinity and pH

The most important factor to control and maintain is the pH of the water (i.e. the acidity or alkalinity). If the recycled water is acidic (low pH) it will dissolve iron into solution. The presence of iron of more than 0.2 ppm will result in rusty staining of virtually anything the water comes in contact with. Alkaline water can cause cloudiness and greatly reduces the effectiveness of chlorination. Many of the cleaning detergents are alkaline and will make the recycled water too alkaline. Also, high alkaline water is difficult to filter and decreases filter media life. The proper pH range to maintain is 6.8 - 7.2.

Alkalinity refers to the soluble salts in the water. These include bicarbonates, carbonates, hydroxides and other alkali compounds. The water's total alkalinity controls its resistance (buffering ability) to large fluctuations in pH levels.

Another factor which should be monitored for proper water chemistry balancing, is calcium hardness. The presence of too much calcium can lead to the formation of scale in the filters.

#### 3. Biological - adequate disinfection, algae, bacteria, and odor control

Chlorination is used to control bacteria, odor and algae formation. For chlorine to be effective, it must be available as free chlorine. If the proper pH and alkalinity is not maintained, or if the water contains dirt particles, the chlorine becomes combined chlorine and will not be effective in the control of algae and bacteria growth. Combined chlorine has only 1/15th the strength of free chlorine. Chlorine can be added by using a filter timer.

Inadequate or improper addition of chlorine could result in algae and bacteria growth. Once algae and a bacterial growth starts, the system must be shock treated. It is best to minimize the chances of algae and bacteria problem.

## CHEMICAL MAINTENANCE PROGRAM

The killing of bacteria by chlorine exists in two phases:

1. The penetration of the active germicidal principal (hypochlorous acid) into the bacterial cell.
2. The chemical combination of this ingredient with the protoplasm (the complex composition which forms the essential part of plant and animal cells). This combining is directly responsible for the death of the organism.

The activity of this germicidal effect is reduced in alkaline solutions (those with a pH greater than 7.5) and expressed as follows:

pH	% of Effectiveness
4.0	100.0
5.0	99.6
6.0	95.8
7.0	69.7
8.0	18.7
9.0	2.2
10.0	0.2

Hypochlorite when added to solutions with a pH lower than 6.0 can produce oxide which is toxic. In vehicle washing, almost all cleaning compounds are alkaline in nature. Hypochlorite will still control bacterial growth and thus smell at higher alkaline ranges, but as the table indicates, its effectiveness is reduced.

To compensate for this inhibited activity, a larger quantity of hypochlorite is used. This will control bacterial growth but will increase operational costs.

Typical hypochlorite has a pH of approximately 11.6. This high pH will only increase the pH of holding tank water making pH adjustment more difficult.

Trichloro-S-Triazine Trione is a chlorine compound which has a pH of 3.0 and when added to holding tanks will aid in the reduction of tank pH levels.

Unlike hypochlorite, which is usually 15 percent chlorine and will produce sodium or calcium salts in holding tanks, these new products are 99 percent chlorine which means that if a solid "puck" of chlorine is used, the total effectiveness of the puck is superior to that of hypochlorite and no negative by-products are produced.

### DAILY CHEMICAL MAINTENANCE

**Step 1.** Collect a water sample from the 40 gal. tank.

**NOTE:** Be sure water is circulating from sump through the CL-304 system and back to the catch basin.

**Step 2.** Using the test strips supplied, measure:

- A. The pH.
- B. The total chlorine (if using chlorine).

- C. The free chlorine (if using chlorine).
- D. The alkalinity (if needed).
- E. The calcium hardness (if needed).

**Step 3.** If the pH is 6.8-7.2 go to Step 4, if not, adjust the pH in the water being recycled between the oil water separator and the pit to pH 6.8-7.2. Muriatic acid or liquid alum can be used to lower the pH. Soda ash (sodium carbonate) or caustic soda (sodium hydroxide) can be used to raise the pH.

Adjust the pH gradually allowing complete mixing after adding chemical. Take a new sample, read the pH and continue to adjust gradually until the desired pH is achieved.

**Step 4.** The total alkalinity should be between 50-150 ppm. If the total alkalinity is too low add sodium bicarbonate to raise it. If total alkalinity is too high, add muriatic acid to bring it within acceptable range. This will also decrease the pH. If the pH goes below 7.0, add sodium bicarbonate to increase the pH. This procedure may have to be repeated several times to get the pH and total alkalinity into the proper range.

**Step 5.** The calcium hardness should not exceed 25 grains. If it is too high, some water must be removed from the system and fresh makeup water added. Alternatively, an ion exchange water softener or an ionizer may have to be added to the system to reduce and maintain lower calcium hardness levels.

**Step 6.** Free chlorine levels should be 1-2 ppm if chlorine is added for additional control. A 10-15% concentrated liquid chlorine is available at pool supply outlets. Household bleach can be used, but contains only 5% chlorine. Chlorine continually dissipates and becomes used up and the chlorine level must be adjusted daily. Remember chlorine is most effective when the pH level is correct (6.8-7.2).

Initially, in order to achieve proper water chemistry balance, extra time is needed. However, once achieved, it can be easily maintained in a minimum amount of time by daily monitoring and adjustment.

## PUMP OPERATION

### (Filter or Transfer)

**WARNING:** Do not touch pumps, pump motors, water or discharge piping when the pumps are connected to electrical power. Do not handle a pump or pump motor with wet hands or when standing on a wet or damp surface or in water. Never touch a pump or discharge piping when a machine is operating or fails to operate. Always disconnect the pump cord (power) before handling.

# PUMP MAINTENANCE AND PRESSURE SWITCH OPERATION

1. The shaft seal depends on water for lubrication. Do not operate the pump unless there is water. Dry running (pump not pumping water) will cause seal damage and eventual pump failure.
2. The motor is equipped with an automatic reset thermal protector. This means if the temperature in the motor should rise unduly, the switch will cut off all power before damage can be done to the motor. When the motor has cooled sufficiently, the switch will reset automatically and restart the motor. If the protector trips repeatedly (cycling on protector) the pump should be removed and checked for the cause of the difficulty. Low voltage, long extension cords, clogged impeller, very low head or lift, etc., could cause cycling. Cycling of the protector will cause eventual motor burnout.

## PUMP MAINTENANCE



### (Sump)

**WARNING:** Before attempting to service, disconnect power from machine. Do not handle the pump with wet hands or when standing on a wet or damp surface or in water. Failure to follow precautions can result in personal injury and/or property damage.

**NOTE:** Only qualified electricians or servicemen should attempt to repair this machine. Improper repair and/or assembly can cause an electrical shock hazard.

1. Bearings in this machine are pre-lubricated. No additional lubrication is necessary.
2. Cleaning - Occasionally clean the sump pit and pump if dirt or foreign matter accumulate. Small stones, gravel, sand, dirt, silt, etc. can clog and damage the pump and pump seal, eventually causing pump failure.
3. Disassembly of the motor prior to expiration of the warranty will void the warranty. It may also cause internal leakage and damage to the machine. If repairs are required, return the pump to a local service station.
4. If the motor has been disassembled or the switch chamber opened after the warranty expiration date, the O-rings and gaskets must be replaced. Care must be taken to assure that the seals, the switch cover and air tube gaskets do not leak.
5. The pump should be checked for proper operation weekly or monthly by watching operation of pump. If anything has changed since pump was new, the pump should be examined, and repaired if necessary.

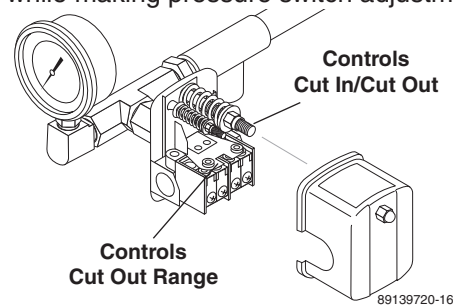
## PRESSURE SWITCH OPERATION



**WARNING:** Live electrical contacts are exposed, so disconnect power first and have work performed by a qualified electrician.

Remove cover of the pump pressure control switch to allow access to the two nuts used to adjust the pump operating pressure. The pressure switch on Water Maze equipment is set at the factory and should not have to be adjusted at start-up, but will need to be verified at start up and maintained regularly at least monthly.

1. The nut on the larger spring in the pump pressure switch, adjusts the pump cut in (cut on) and pump cut out (cut off) pressures simultaneously.
2. The nut atop the smaller spring in the pump pressure switch only controls the cut out range and is used to narrow or widen the gap between the pump cut in and cut out pressures.
3. To cycle the pump less frequently, the gap should be as wide as possible while still allowing the pump to shut off quickly when all outlets are closed. Adjust the smaller spring to widen the gap between pump in and out (on and off). 40-45 PSI (CLP, Rec2-20) or 30 PSI (EC1-300A) is desirable. Adjusting the larger spring should not be necessary.
4. When making pressure switch adjustments, make sure all pump outlets are off or closed, except for the one outlet valve used to relieve and build pressure while making pressure switch adjustments.



## PRESSURE TANK OPERATION



**WARNING!** When the tank has been in service and a change to a higher pre-charge pressure is necessary because of a required change in the pressure switch setting, failure to follow instructions below can cause a rupture or explosion and could cause serious or fatal personal injury and/or property damage.

## PRESSURE TANK OPERATION AND CHLORINE DISPENSER

- Do not adjust or add pressure if there has been a loss of air.
  - Do not adjust the pre-charge pressure if there is visible exterior corrosion.
  - Do not adjust the pre-charge pressure if there has been a reduction of the pump cycle time or the pre-charge pressure compared to its initial setting. A reduction in pump cycle time can result from loss of tank corrosion and any re-pressurization or additional pressure could result in rupture or explosion.
  - Pressure tank pressure is factory set but will have to be checked regularly (at least monthly). Use an air pressure (tire) gauge. Before checking air pressure on the pressure tank, purge all water out of the tank by turning the pump on and pumping all water out of the pressure tank.
1. Our transfer pump water systems use a water pressure tank and water pump with these two pressure operation ranges:  
Cut in (start pumping): 20 PSI  
Cut out (stop pumping): 30 PSI (EC1-300A)  
Cut out (stop pumping): 40-45 PSI (CLP, REC2-20)
  2. Typical factory set air pressure on bladder-type residential water pressure tanks are shipped from the factory with a standard pre-charge of:  
18 psig for models WX-101 and WX-102  
18 psig for models WX-103 and WX-203  
18 psig for models WX-205 and WX-350
  3. Set the well tank air pressure to 2 PSI below the pump pressure switch cut-in pressure. This is usually 18 PSI.

### AUTOMATIC CHLORINE DISPENSER #8.723-207.0

Your *WATER MAZE* HC3315 series chlorinator is designed for maintaining the proper chlorine level in your waste water. Your HC3315 holds up to 15 lbs. Use only Trichloro-S-Triazinetrione tablets in this dispenser. Under normal conditions, nine tablets should provide a minimum of one to two weeks worth of chlorine.

Exercise **EXTREME CAUTION** when opening or servicing your dispenser. Always shut off pump and available valves before opening. Do not inhale fumes from any chemical feeder or container. Protect your eyes, skin and clothing from chemicals at all times. Safety glasses, gloves and protective clothing should be worn when operating or servicing your dispenser. Chemicals should not be allowed on exposed skin surfaces.

**NEVER** open dispenser when pump is running.

Always read label and carefully follow manufacturer's and dealer's recommendations for proper water conditioning and requirements for your particular waste water.

#### Directions For Use.

Before start up of your chlorine dispenser, your water should have a pH balance of approximately seven (7). Follow dealer and chemical manufacturer's directions and instructions.

The chlorine demand for waste water varies based on use, temperature, chemicals, etc. Using a 1,000 gallon pit as a guide, we suggest you place about 7 lbs. of large, slow dissolve chlorine tablets in your dispenser. Check chlorine levels daily. Use the control dial to regulate the amount of chlorine being used.

#### Easy-Lok Cover

##### To Open

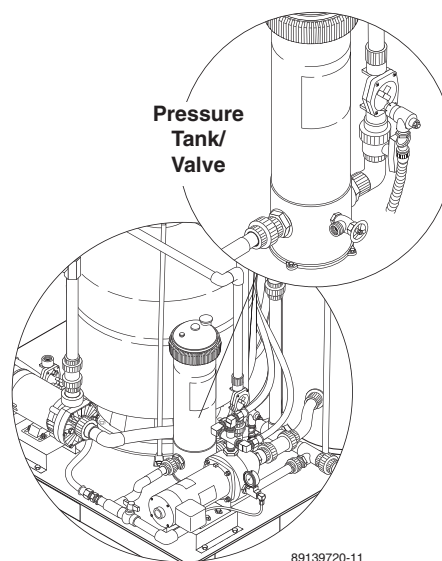
1. Shut off pump and any other in-line valves to prevent back flow, if applicable. Wait one minute.
2. Turn cover cap counterclockwise to open. Caution: Do not inhale fumes.

##### To Close

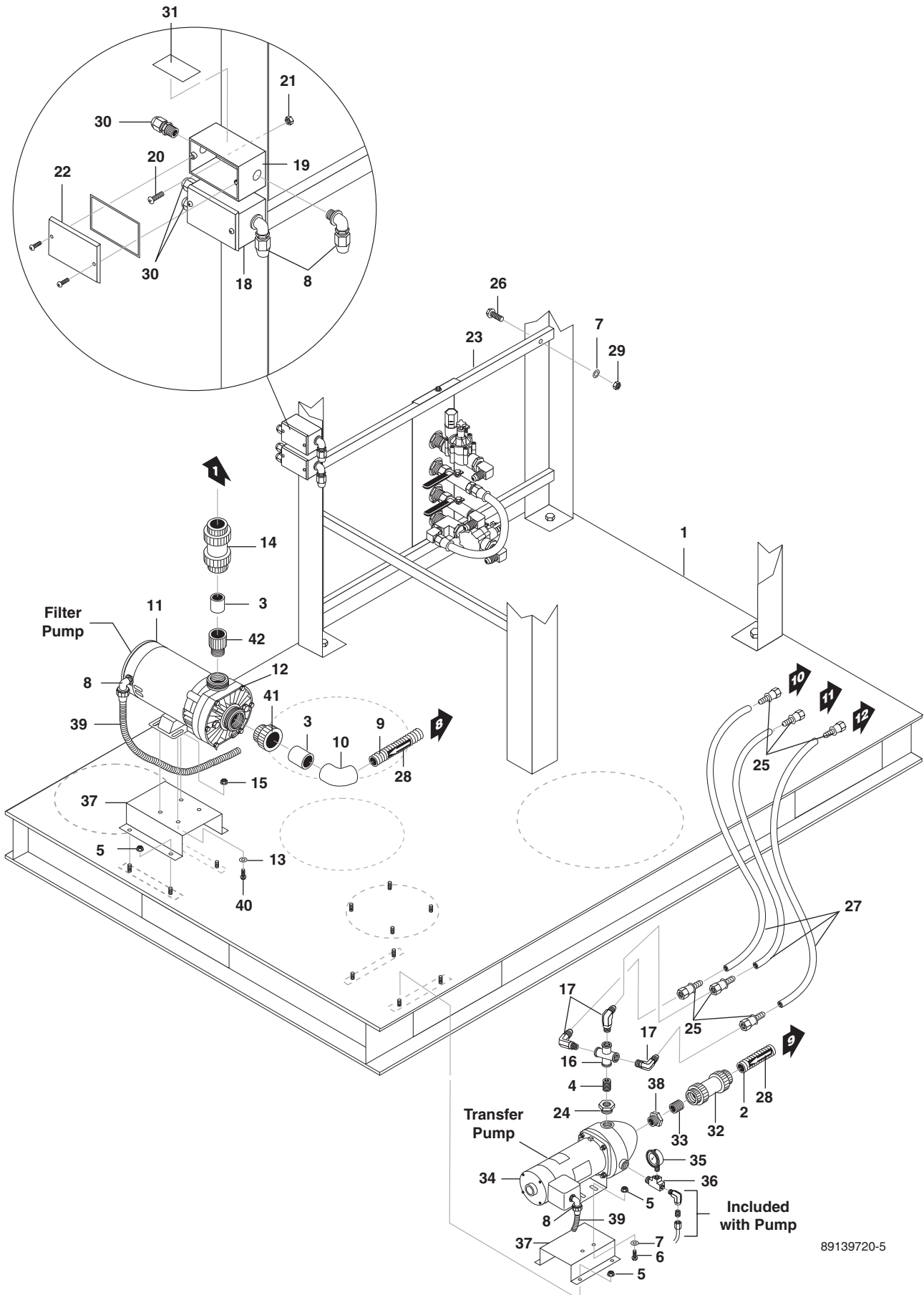
1. Press cover, with O-ring seal, firmly into body. Engage cover cap threads and turn clockwise.
2. Open in-line valves and restart pump.

#### Winterizing

Where freezing temperatures can be expected, drain all water from feeder. Carefully remove undissolved tablets and rinse out dispenser thoroughly with water. Replace cover.



# PUMP PLUMBING BREAKDOWN EXPLODED VIEW

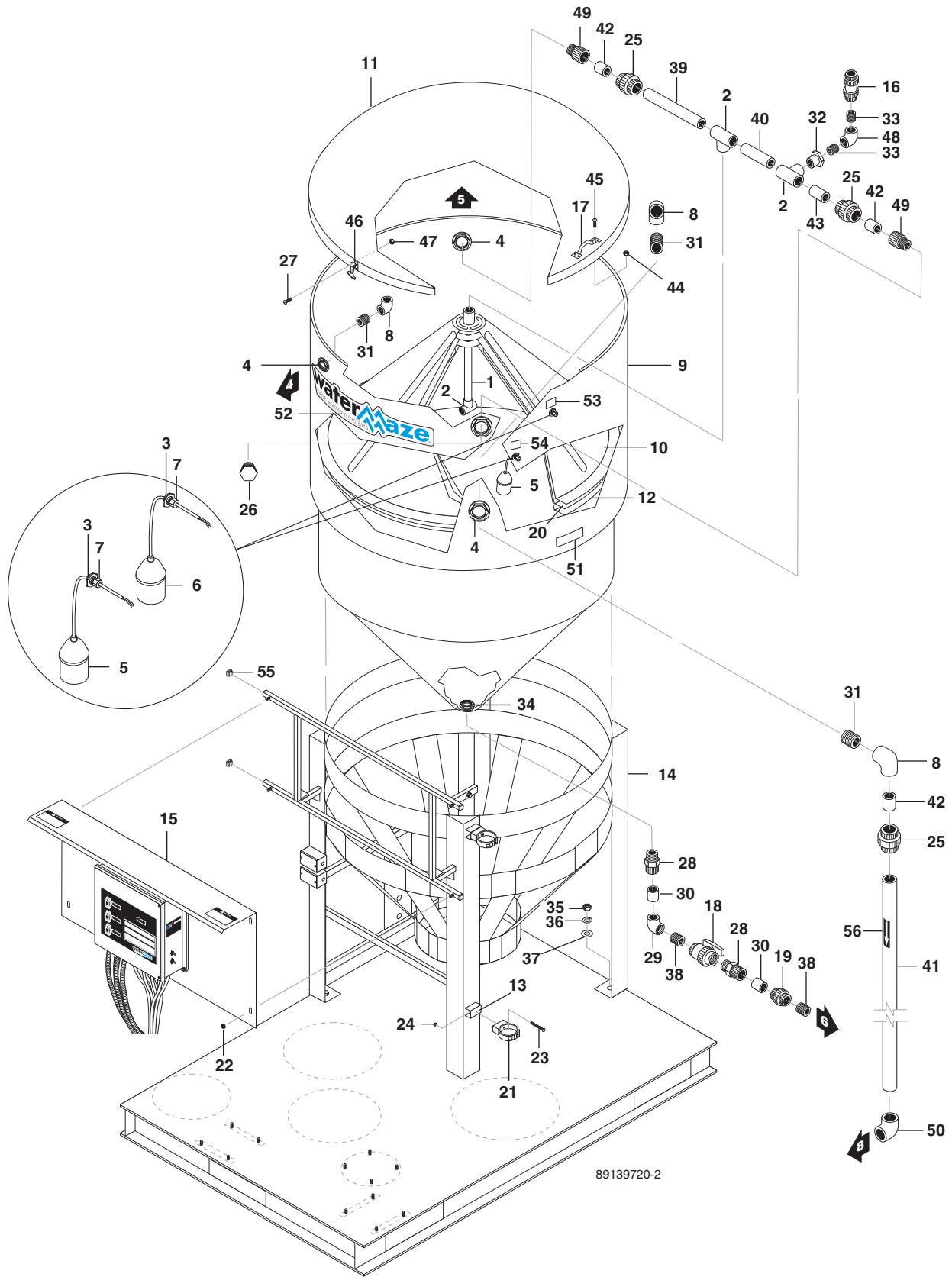


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# PUMP PLUMBING BREAKDOWN EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY.	PART NO.	DESCRIPTION	QTY.	
1	8.913-078.0	Base, CI-304 Welded Assy	1	24	8.706-929.0	Bushing, 1" x 3/4" Barstock	1
	8.913-079.0	Base, CL-304 (SS Option)	1	25	9.802-152.0	Swivel, 3/4" SAE Fem, Push-On	6
2	8.711-812.0	Hose, 1", Gray Conduit	5"	26	9.802-732.0	Bolt, 3/8" x 2-1/2", GR 5, SS	4
3	8.706-367.0	Pipe, 1.5", Pvc 80 1.5 x 2-1/2 (Spacer)	2	27	9.802-261.0	Hose, 3/4" Push-On, 3/4" x 76"	3
4	8.706-800.0	Nipple, 3/4" Hex, Brass	1	28	8.900-474.0	Label, Flow Arrow	2
5	9.802-788.0	Nut, 3/8 Whiz Loc Flange, SS	10	29	9.802-780.0	Nut, 3/8" Stainless, ESNA, NC	4
6	9.802-721.0	Bolt, 3/8" x 1" HH/NC, 316 SS	2	30	9.802-514.0	Strain Relief, LT, STR, 1/2	3
7	9.802-808.0	Washer, 3/8", SAE, SS	6	31	8.940-186.0	Label, Float Switch Junction Box	1
8	9.802-517.0	Connector, 1/2" L/T, 90°, Black	4	32	8.707-300.0	Valve, 1" PVC Ball Check	1
9	8.711-815.0	Hose, 1-1/2", Gray Conduit, Per Foot	36"	33	8.706-439.0	Nipple, 1", PVC 80, Close	1
10	8.706-374.0	Elbow, 1-1/2" S x S, PVC 80, 90°	1	34	8.715-382.0	Pump, 1/2 HP, 115/230V 5 Cyclone	1
11	8.726-026.0	Motor, 3/4 HP, 230V	1	35	8.712-154.0	Gauge, Pressure 0-100 1/4"	1
12	8.726-024.0	Pump, Wet End, 3/4 HP, Center Discharge	1	36	8.706-858.0	Tee, 1/4" Street	1
13	9.802-805.0	Washer, 5/16", Flat, SAE, SS	2	37	8.913-334.0	Pump Rail, Delta 500	2
14	8.707-297.0	Valve, 1.5" PVC Ball Check	1	38	8.706-405.0	Bushing, 1-1/4"x 1" MT x FT, PVC 80"	1
15	8.718-887.0	Nut, 5/16" Whiz Loc Flange, SS	2	39	9.802-448.0	Conduit, Wtr. Tight, Flex, 1/2" ( 1/2" x 10 Ft)	2
16	8.706-852.0	Cross, 3/4" Female Pipe	1	40	8.718-619.0	Bolt, 5/16" x 3/4 NC GR5, SS	2
17	9.803-557.0	Elbow, 3/4" SAE x 3/4", 90°, Brass	3	41	8.750-270.0	Fitting, Compl-1/2" S x 1-1/2" MBT, Blk	1
18	8.716-324.0	Box, Junction 4 Hole, 1/2"	1	42	8.706-441.0	Adapter, 1-1/2" S x 1-1/2 MPT	1
19	8.716-321.0	Box, Junction 3 Hole, 1/2"	1				
20	9.802-699.0	Screw, 10-32" X 3/4" Slot Pan	4				
21	9.802-696.0	Nut, 10/32" NF ST ST KEP	4				
22	9.802-483.0	Cover, Metal, 2" x 4", Weather-Proof	2				
23	8.913-097.0	Rail, CL-304 Water Panel Mount	2				

# CONE ASSEMBLY EXPLODED VIEW

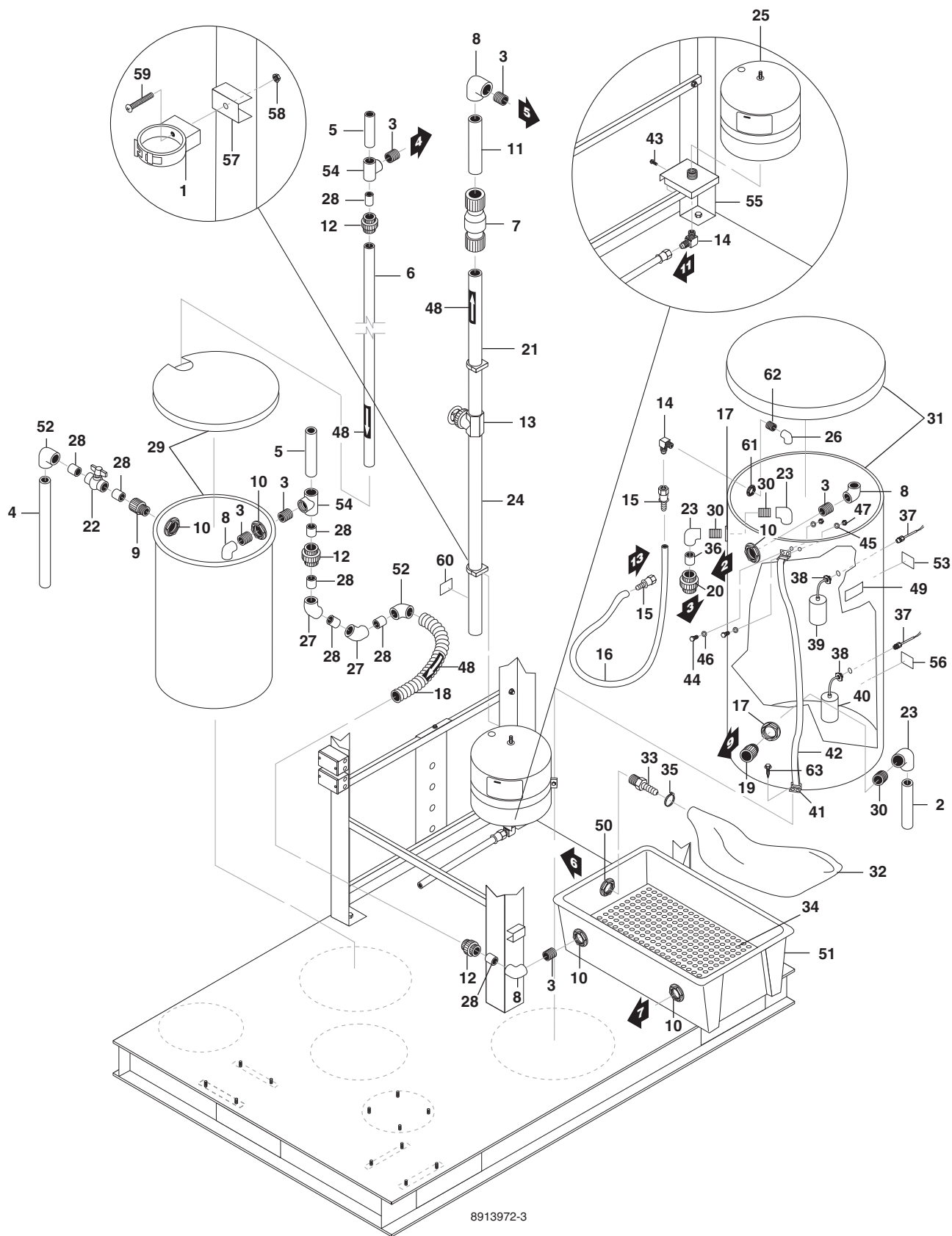


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## CONE ASSEMBLY EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	8.706-367.0	Pipe, 1.5", PVC 80	12 "	33	8.706-467.0	Nipple, 1/2", PVC 80, Close	2
2	8.706-426.0	Tee, 1.5" S x S x S, PVC 80	3	34	8.706-479.0	Bulkhead, 2" NPT, Polypro	1
3	8.750-743.0	Bulkhead, 1/2" Polypro	2	35	8.718-893.0	Nut, 1/2" SS 304, Hex, NC	4
4	8.706-490.0	Bulkhead, 1-1/2" Polypro	4	36	8.719-021.0	Washer, 1/2" Lock, SS	4
5	8.716-142.0	Swth, Float, N/O	1	37	8.718-997.0	Washer, 5/8" Flat SAE, SS	4
6	8.716-145.0	Switch, Float, N/C	1	38	8.706-466.0	Nipple, 2" Close, PVC 80	2
7	9.802-514.0	Strain Relief, LT, STR, 1/2" NPT, .23-.45D	2	39	8.706-367.0	Pipe, 1.5", PVC 80	15 "
8	8.706-372.0	Elbow, 1-1/2" S x T, PVC 80, 90°	3	40	8.706-367.0	Pipe, 1.5", PVC 80	8 "
9	8.719-180.0	Tank, 300 Gal Clarifier, w/o Lid	1	41	8.706-367.0	Pipe, 1.5", PVC 80	52 "
10	8.719-181.0	Cone, CLP5000 Sup Colesc, n, w/Hole/Slot/Lip	1	42	8.706-367.0	Pipe, PVC 80, 1.5" x 2.5" (Spacer)	3
11	8.719-182.0	Lid, 300 Gal Clarifier Tank	1	43	8.706-367.0	Pipe, 1.5", PVC 80	4 "
12	8.719-184.0	Cone, CLP5000 Coalescing, w/ Hole, No Slot	1	44	9.802-696.0	Nut, 10/32" NF ST ST Kep	4
13	8.913-083.0	Spacer, Pipe Clips, Clarifier	2	45	9.802-699.0	Screw, 10/32 x 3/4", Phil Pan, SS	4
14	8.913-138.0	Stand, Tank, CLP5000, Low Profile	1	46	8.706-568.0	Handle, Rubber T, w/Keeper	3
15	8.913-141.0	Panel, Control Mount	1	47	8.718-854.0	Nut, 6/32, Keps, SS	12
16	8.707-298.0	Valve, Ball Check 1/2" PV	1	48	8.706-370.0	Elbow, 1/2" FIPT x FIPT, PVC 80, 90°	1
17	8.706-648.0	Handle, Sandpot Lid	1	49	8.706-441.0	Adapter, 1.5" Slip x MT, PVC 80"	2
18	8.707-349.0	Valve, 2" Single Union Ball	1	50	8.706-374.0	Elbow, 1-1/2" S x S, PVC 80, 90°	1
19	8.706-476.0	Union, 2" FS x FT, PVC 80 Spears	1	51	8.900-529.0	Label, Tank 1, Clar., Lexan	1
20	8.719-183.0	Cone, CLP5000 Coalescing, w/Hole, w/Slot	1	52	8.900-803.0	Label, Water Maze, Logo Small	1
21	8.706-421.0	Hanger, Pipe, 1-1/2" Click #47	2	53	8.900-525.0	Label, FS3 N/C, Clar, Lexan	1
22	9.802-781.0	Nut, 3/8" NC, Whiz Loc Flange	4	54	8.900-527.0	Label, FS4 N/O, Clar, Lexan	1
23	9.803-674.0	Screw, 8/32" x 2" Hanger, Pipe	2	55	8.706-592.0	Cap, 1.25" Square,	4
24	9.802-785.0	Nut, 8/32", Keps	2	56	8.900-474.0	Label, Flow Arrow	1
25	8.706-469.0	Union, 1-1/2" Slip x Slip, PVC 80 Spear	3				
26	8.706-394.0	Plug, 1-1/2", PVC 80	1				
27	9.802-747.0	Screw, 6/32" x 5/8", RND, HB, MCH	12				
28	8.706-451.0	Adapter, 2" Slip x MT, PVC 80	2				
29	8.706-384.0	Elbow, 2" Slip x FPT, PVC 80	1				
30	8.706-583.0	Pipe, 2", Gray, PVC 80, 2" x 2-3/4" (Spacer)	2				
31	8.706-424.0	Nipple, 1.5" x Close, PVC 80	3				
32	8.706-406.0	Bushing 1-1/2" x 1/2" SPGX FT, PVC 80 Spears	1				

# HOLDING TANK EXPLODED VIEW

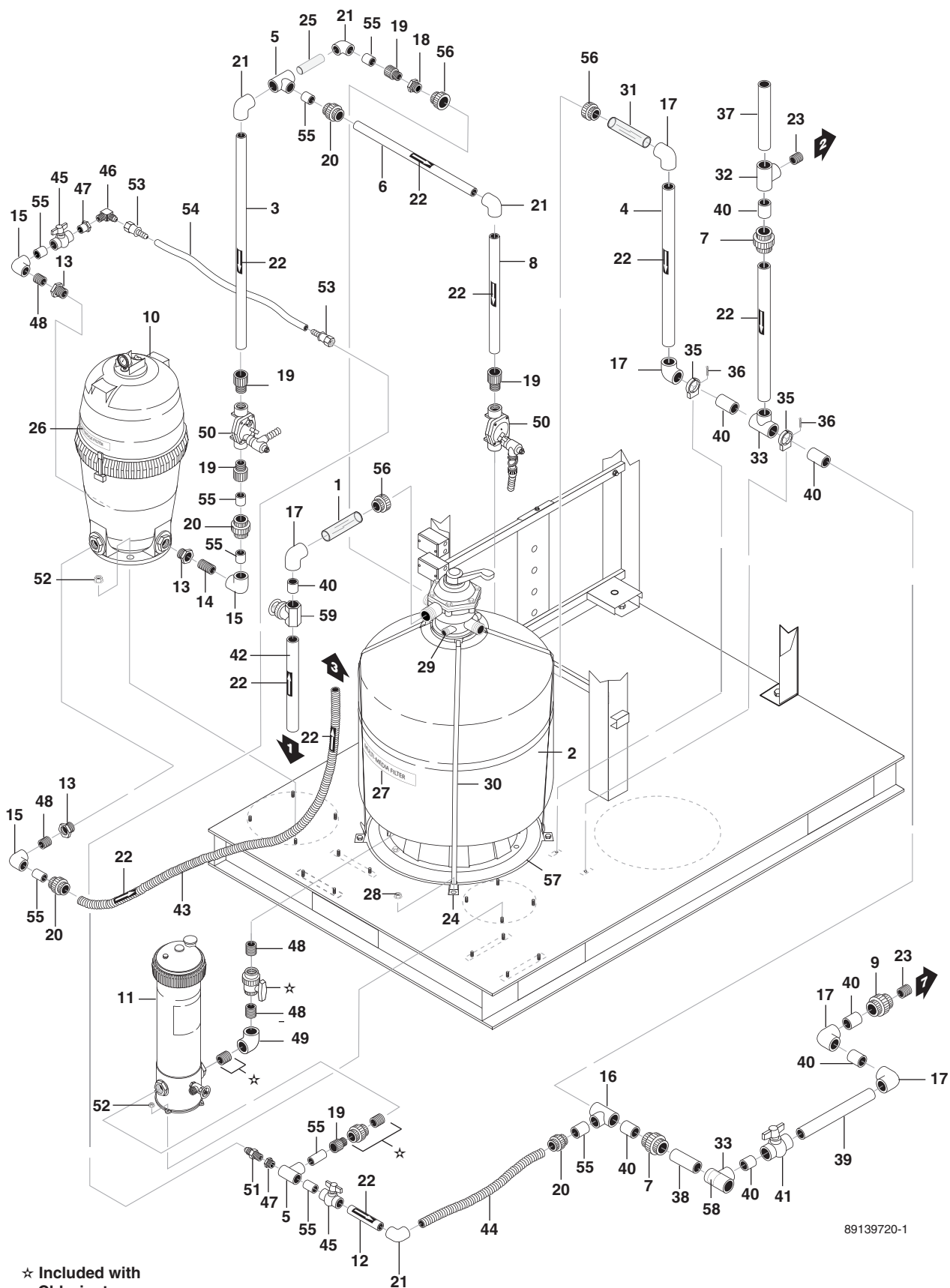


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## HOLDING TANK EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY.	ITEM	PART NO.	DESCRIPTION	QTY.
1	8.706-421.0	Hanger, Pipe, 1-1/2" Click	2	33	8.706-453.0	Adapter, 2" MT x 2" M Hose Insert	1
2	8.706-366.0	Pipe, 1", PVC 80	5"	34	8.913-094.0	Support, CLP Sludge Bag	1
3	8.706-424.0	Nipple, 1.5" x Close, PVC 80	6	35	8.709-083.0	Clamp, Screw, 2-1/2-3-1/2" SS	1
4	8.706-367.0	Pipe, 1.5", PVC 80	14"	36	8.706-366.0	Pipe, 1", PVC 80 1" x 2" (Spacer)	1
5	8.706-367.0	Pipe, 1.5", PVC 80 (1.5"x 8")	2	37	9.802-514.0	Strain Relief, LT 1/2	2
6	8.706-367.0	Pipe, 1.5", PVC 80	52"	38	8.750-743.0	Bulkhead, 1/2" Polypro	2
7	8.707-299.0	Valve, 1.5" Swing Check PVC	1	39	8.716-143.0	Switch, Float, N/C (Gray)	1
8	8.706-372.0	Elbow, 1-1/2 S x T, PVC 80, 90°	4	40	8.716-142.0	Swtch, Float, N/O, .20PM (Black)	1
9	8.706-441.0	Adapter, 1.5 Slip x MT, PVC 80	1	41	8.911-223.0	Mounting Tab, Filter	4
10	8.706-490.0	Bulkhead, 1-1/2" Polypro	5	42	8.709-342.0	Strap, 84", Filter	2
11	8.706-367.0	Pipe, 1.5", PVC 80	12"	43	9.802-799.0	Screw, #14 x 1", Tek, Blk., Zinc	2
12	8.706-469.0	Union, 1-1/2" Slip x Slip, PVC 80	3	44	8.718-753.0	Screw, 1/4"-20 x 3/4" Phil PH SS M/S	4
13	8.707-344.0	Valve, PVC 1.5" Slip x Slip, Gate	1	45	8.718-568.0	Washer, 1/4" Flat SS Sealing Rub	4
14	9.803-557.0	Elbow, 3/4" SAE x 3/4", 90° Brass	2	46	8.718-965.0	Washer, 1/4", SS, Flat	4
15	9.802-152.0	Swivel, 3/4" SAE Fem, Push-On	2	47	8.718-817.0	Nut, 1/4-20, Whiz Loc Flange, SS	4
16	9.802-261.0	Hose, 3/4" Push-On, /Ft	65"	48	8.900-474.0	Label, Flow Arrow	3
17	8.706-484.0	Bulkhead, 1", Polypro	2	49	8.900-530.0	Label, Tank 2, Clar., Lexan	1
18	8.711-815.0	Hose, 1-1/2", Gray Conduit	12"	50	8.706-479.0	Bulkhead, 2" NPT, Polypro	1
19	8.706-409.0	Adapter, 1" MT x Slip, PVC 80	1	51	8.719-179.0	Tub, Black Sludge, Rectangular w/Lid	1
20	8.706-597.0	Union, 1", S x S, PVC 80	1	52	8.706-374.0	Elbow, 1-1/2" S x S, PVC 80, 90°	2
21	8.706-367.0	Pipe, 1.5", PVC 80	16"	53	8.900-526.0	Label, FS5 N/C, Clar, Lexan	1
22	8.707-361.0	Valve, 1-1/2" S 80 PVC S x S Molded In	1	54	8.706-428.0	Tee, 1-1/2" S x S x T (Threaded Center Slip)	2
23	8.706-378.0	Elbow, 1" Slip x FIPT, PVC 80, 90°	3	55	8.913-354.0	Bracket, Surge/Pressure Tank, Deltas	1
24	8.706-367.0	Pipe, 1.5", PVC 80, /Ft	30"	56	8.900-528.0	Label, FS6 N/O, Clar, Lexan	1
25	8.719-176.0	Tank, 4.4 Gal Pre-pressurized, Blue	1	57	8.913-083.0	Spacer, Pipe Clips, Clarifier	2
26	8.706-377.0	Elbow, 3/4" FIPT x FIPT, PVC 80, 90°	1	58	9.802-785.0	Nut, 8/32", Keps	2
27	8.706-379.0	Elbow, 1-1/2" Slip x Slip, PVC 80, 45°	2	59	9.803-674.0	Screw, 8/32" x 2", SS Phil Ph	2
28	8.706-367.0	Pipe, 1.5", PVC 80 1.5 x 2-1/2" (Spacer)	8	60	8.900-458.0	Label, Inlet	1
29	8.719-169.0	Tank, 26 Gal Black Vertical Poly, w/ Lid	1	61	9.802-052.0	Bulkhead, 3/4" Polypro	1
30	8.706-439.0	Nipple, 1", PVC 80, Close	3	62	8.706-369.0	Nipple, 3/4", PVC 80, Close	1
31	8.719-185.0	Tank, 40 Gal Black Vertical Poly, w/ Lid	1	63	9.802-766.0	Screw, 3/8 x 1 HX Wash Head Sheetmetal Zn	2
32	8.719-191.0	Bag, Sludge, Biodegradable	5				

# FILTER TANK EXPLODED VIEW



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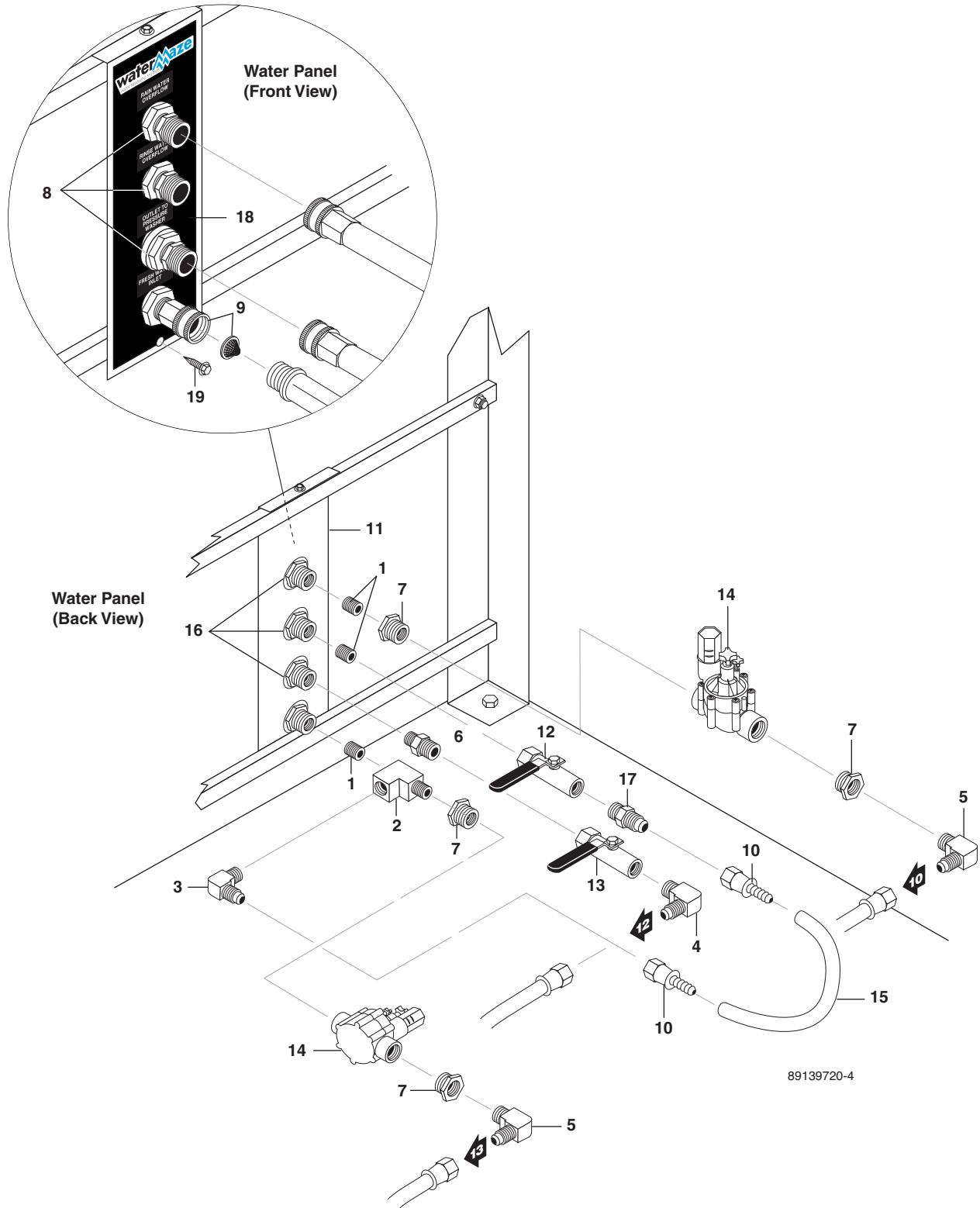
★ Included with Chlorinator

## FILTER TANK EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY.	ITEM	PART NO.	DESCRIPTION	QTY.
1	8.706-360.0	Pipe, 1.5" PVC Clear, /Ft	5.5 In	30	8.709-342.0	Strap, 84", Filter	4
2	8.726-028.0	Filter Tank, 3.1SF, w/Valve	1	31	8.706-360.0	Pipe, 1.5" PVC Clear, /Ft	6.5"
	8.718-922.0	▲ Anthracite #1 .60-.80mm	25 Lbs	32	8.706-428.0	Tee, 1-1/2" S x S x T (Threaded Center Slip)	1
	8.718-920.0	▲ Sand, 20-40,	200 Lbs	33	8.706-426.0	Tee, 1.5" S x S x S, PVC 80	2
	8.718-921.0	▲ Gravel, Bag, 1/8 x 1/4	100 Lbs	34	8.706-367.0	Pipe, 1.5", PVC 80, /Ft	29"
3	8.706-366.0	Pipe, 1", PVC 80, /Ft	32.5"	35	8.706-487.0	Hanger, 2", Click #59, Pipe	2
4	8.706-367.0	Pipe, 1.5", PVC 80, /Ft	30.5"	36	8.718-952.0	Screw, 1/4" x 1.5", SS Hex Head Washer	2
5	8.706-430.0	Tee, 1" S x S, PVC 80	2	37	8.706-367.0	Pipe, 1.5", PVC 80, /Ft	8"
6	8.706-366.0	Pipe, 1", PVC 80, /Ft	17.5"	38	8.706-367.0	Pipe, 1.5", PVC 80, /Ft	6"
7	8.706-469.0	Union, 1-1/2" Slip x Slip, PVC 80	2	39	8.706-367.0	Pipe, 1.5", PVC 80, /Ft	8"
8	8.706-366.0	Pipe, 1", PVC 80, /Ft	14.5"	40	8.706-367.0	Pipe, 1.5", PVC 80 1.5" x 2.5" (Spacer)	8
9	8.706-470.0	Union, 1-1/2" Slip x Thread, PVC 80	1	41	8.707-361.0	Valve, 1-1/2" S 80 PVC S x S Molded	1
10	8.723-204.0	Filter Tank, Cartridge, 125 Sq-Ft, Sta-Rite	1	42	8.706-367.0	Pipe, 1.5", PVC 80, /Ft	10"
11	8.723-207.0	Chlorinator, Sta-Rite, HC3315	1	43	8.711-812.0	Hose, 1" , Gray Conduit	79"
12	8.706-366.0	Pipe, 1", PVC 80, /Ft	6"	44	8.711-812.0	Hose, 1" , Gray Conduit	19"
13	8.706-418.0	Bush Redcr, 2 x 1 PVC-80M PTXFPT	3	45	8.707-359.0	Valve, 1" S 80 PVC S x S Mold	2
14	8.706-455.0	Nipple, 1" x 2" , PVC 80	1	46	9.803-557.0	Elbow, 3/4" SAE x 3/4", 90°, Brass	1
15	8.706-378.0	Elbow, 1" Slip x FIPT, PVC 80, 90°	3	47	8.706-447.0	Adapter, 1", 3/4" S x FIPT, PVC 80	2
16	8.706-431.0	Tee, 1-1/2" x 1-1/2" x 1" Slip, PVC	1	48	8.706-439.0	Nipple, 1", PVC 80, Close	4
17	8.706-374.0	Elbow, 1-1/2" S x S, PVC 80, 90°	5	49	8.706-376.0	Elbow, 1" FIPT x FIPT, PVC 80	1
18	8.706-398.0	Bushing, 1" FIPT x 1-1/2" SP, PVC 80	1	50	8.716-700.0	Solenoid, Valve 120V	2
19	8.706-409.0	Adapter, 1" MT x Slip, PVC 80	5	51	8.706-899.0	Nipple, 3/4" JIC x 3/4" Pipe	1
20	8.706-597.0	Union, 1" , S x S, PVC 80	4	52	8.718-887.0	Nut, 5/16" Whiz Loc Flange, SS	8
21	8.706-373.0	Elbow, 1" S x S, PVC 80, 90°	4	53	9.802-152.0	Swivel, 3/4" SAE Fem, Push-On	2
22	8.900-474.0	Label, Flow Arrow	9	54	9.802-261.0	Hose, 3/4" Push-On, /Ft	47 In
23	8.706-424.0	Nipple, 1.5" x Close, PVC 80	2	55	8.706-366.0	Pipe, 1", PVC 80 1" x 2" (Spacer)	9
24	8.911-223.0	Mounting Tab, Filter	4	56	8.750-270.0	Fitting, Comp, 1-1/2" S x 1-1/2" MBT, Blk	3
25	8.706-361.0	Pipe, 1" PVC Clear, /Ft	5"	57	8.917-819.0	Assembly, Ring, Filter Base, 19.6"	1
26	8.900-452.0	Label, Cartridge Filter	1	58	8.900-461.0	Label, Return	1
27	8.900-451.0	Label, Multi-Media Filter	1	59	8.707-344.0	Valve, PVC 1.5 Slip x Slip, Gate	1
28	9.802-788.0	Nut, 3/8 Whiz Loc Flange, SS	4				
29	8.709-340.0	Strap, Hold Down, Tm-31 & Tm-36 Filters	1				

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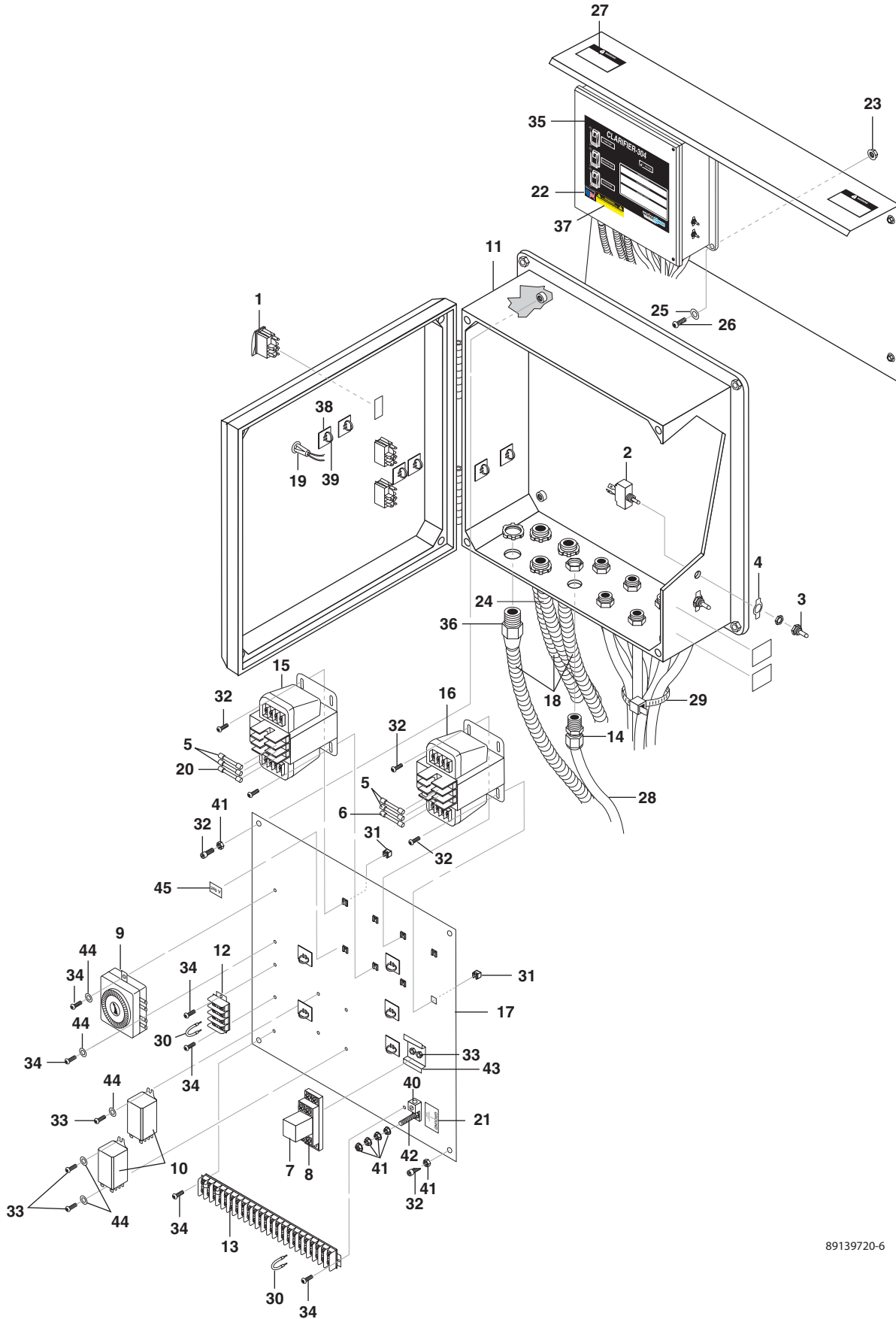
# WATER PANEL EXPLODED VIEW



## WATER PANEL EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	8.706-790.0	Nipple, 1/2" Close	3
2	8.706-860.0	Tee, 1/2" Street	1
3	9.802-131.0	Elbow, 1/2" JIC x 1/2", 90°	1
4	9.803-557.0	Elbow, 3/4" SAE x 3/4". 90°	1
5	9.802-132.0	Elbow, 3/4" JIC x 1/2", 90°	2
6	8.706-881.0	Nipple, 3/4" Pipe x 1/2 Pipe	1
7	8.706-928.0	Bushing, 1" x 1/2" Black Poly Reducer	4
8	8.706-968.0	Fitting, 3/4" Garden Hose x 1/2" Male	3
9	9.802-146.0	Swivel, 1/2" MP x 3/4" GHF w/Strainer	1
10	9.802-151.0	Swivel, 1/2" JIC Fem, Push-On	2
11	8.913-103.0	Plate, Water Manifold	1
12	8.707-211.0	Valve, 1/2" 8201 Brass Ball 400 PSI	1
13	8.707-214.0	Valve, 3/4" 8201 Brass Ball	1
14	8.716-697.0	Solenoid, Water Maze, PVC 24V	2
15	9.802-259.0	Hose, 1/2" Push-on	1.25 ft
16	8.707-000.0	Connector, 1/2", Anchor	4
17	9.802-128.0	Nipple, 1/2" x 1/2" JIC	1
18	8.900-520.0	Label, Water Connection Panel	1
19	9.802-799.0	Screw, #14 x 1" Tek Blk, Zinc	2

# ELECTRICAL CONTROL PANEL EXPLODED VIEW

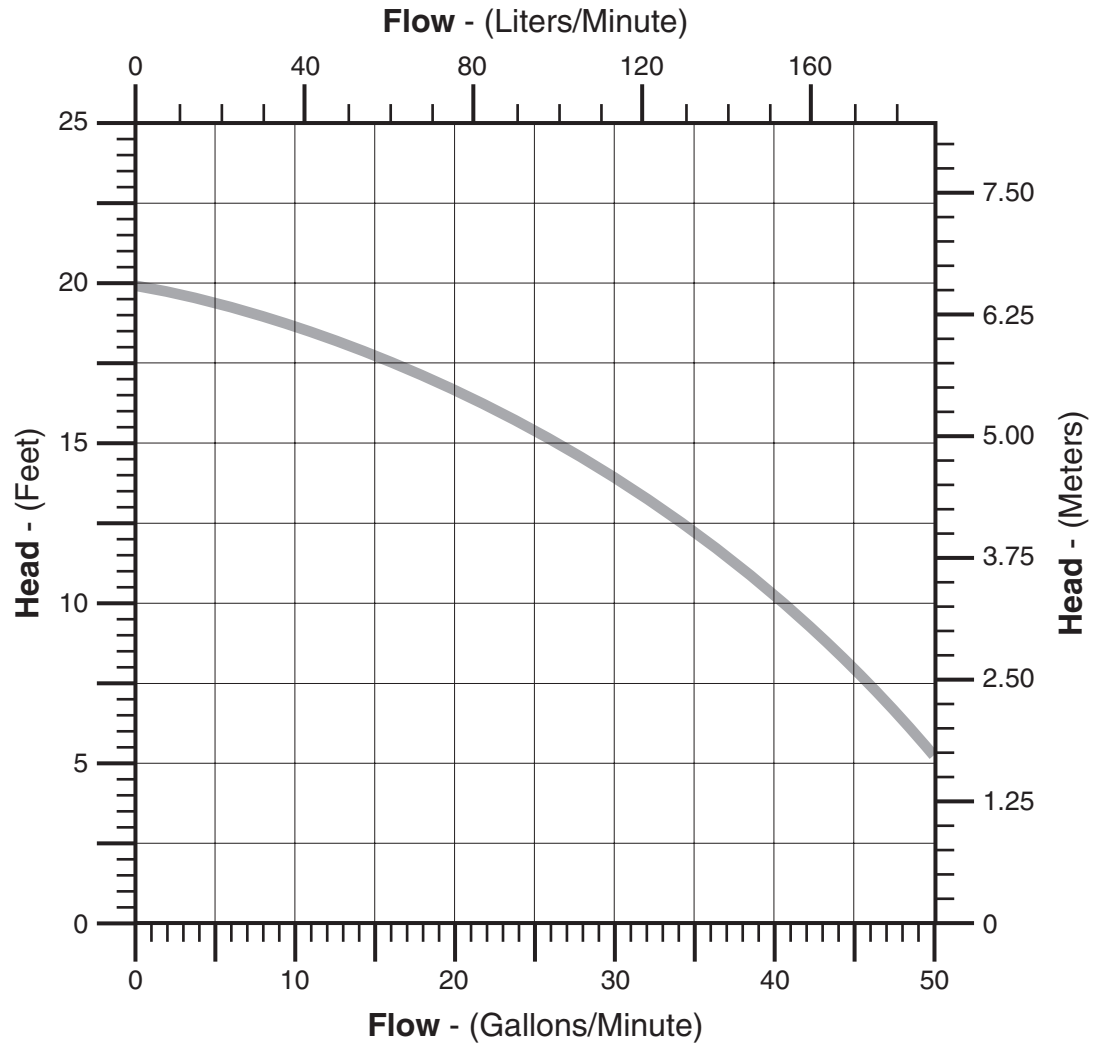


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# ELECTRICAL CONTROL PANEL EXPLODED VIEW PARTS LIST

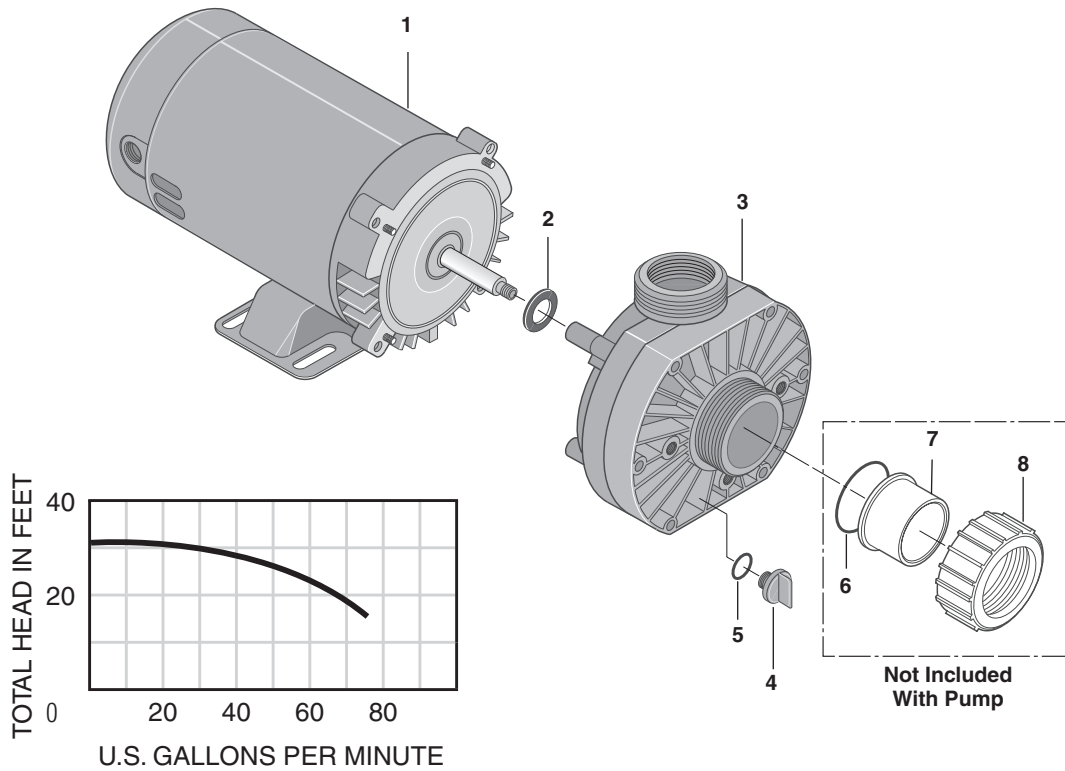
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	9.802-451.0	Switch, Rocker, Carling w/Green Lens 875858	3	29	9.802-511.0	Cable Tie, Black, 11"	3
2	8.716-078.0	Switch, Toggle, 1-1/2 HP, 1-Pole	2	30	9.802-494.0	Bar Jumper	4
3	8.716-081.0	Protector, Toggle Switch, Wtrprf	2	31	9.802-791.0	Nut, Cage, 10/32" x 16 Ga	8
4	8.716-083.0	Plate, On-Off , Toggle Switch	2	32	9.802-759.0	Screw, 10/32" x 1/2" BHSOC Blk	12
5	8.933-007.0	Fuse, KTK-R1 600V Midget Fuse	4	33	8.718-936.0	Screw, 8 x 1/2", Phillips, Zinc Plate Tek	6
6	9.803-977.0	Fuse, 2-1/2 Amp, 250V, FNM2-1/2	1	34	8.718-937.0	Screw, #8 x 3/4", Phillips, Zinc Pltd, Hex, T	6
7	8.716-209.0	Relay, 240V, RH2B-UL-AC240	1	35	8.724-560.0	Label, Clarifier CL-304	1
8	9.802-467.0	Base, Relay, SH2B-05, Idec	1	36	8.716-547.0	Connector, 1/2" L/T, Straight, Black	4
9	8.716-253.0	Timer, 24 Hour Pin, 120V 20A	1	37	9.800-016.0	Label, Disconnect Power Supply	1
10	8.716-264.0	Relay, Sky Mfg. 120V #SKHT-1X	2	38	8.716-533.0	Clamp, Tie Wrap, Adhesive	13
11	8.716-281.0	Box, Plastic, 14 x 16 x 6.75 w/Hinged Lid	1	39	9.802-510.0	Cable, Tie, 4" Black	13
12	9.802-491.0	Block, Terminal, 4 Pole	1	40	8.716-460.0	Terminal, Grounding Lug	1
13	8.716-414.0	Block, Terminal, 23 Pole	1	41	9.802-695.0	Nut, 10/32", Keps	8
14	9.802-514.0	Strain Relief, LT, STR, 1/2 NPT, .23-.45D	10	42	9.802-762.0	Screw, 10/32" x 1-1/4" RH, SL, Blk	1
15	9.802-551.0	Transformer, 240/480V-120V, 50/60Hz, .050KVA	1	43	9.802-457.0	Din Rail, 35mm	1"
16	8.716-883.0	Transformer, 208/230/460V-24/115V, .050KVA	1	44	9.803-675.0	Washer, SS # 8 Flat	6
17	8.913-206.0	Standoff, Elec Box	1	45	8.900-511.0	Label, 220 Volts	1
18	9.802-448.0	Conduit, Wtr. Tight, Flex, 1/2"	10 Ft				
19	9.803-652.0	Light, Indicator, Green-28 Volt	1				
20	9.802-463.0	Fuse, Paper, Buss Fnm-1/2, 250V Midget Td	1				
21	9.800-040.0	Label, Ground Symbol	1				
22	8.900-313.0	Label Assembled In USA	1				
23	8.718-887.0	Nut, 5/16" Whiz Loc Flange, SS	4				
24	9.802-448.0	Conduit, Wtr. Tight, Flex, 1/2"	7.5 Ft				
25	9.802-805.0	Washer, 5/16", Flat, SAE, SS 1					
26	8.718-621.0	Bolt, 5/16" x 1", HH, NC, S/S 4					
27	8.900-522.0	Label, CLP Warning, Do Not Stand or Step	2				
28	9.802-422.0	Cord, Service, SEO, 16/2 /Ft Coleman	59.5 Ft				

# SUBMERSIBLE SUMP PUMP SPECIFICATION



## OZONE PUMP EXPLODED VIEW

Part # 8.917-760.0



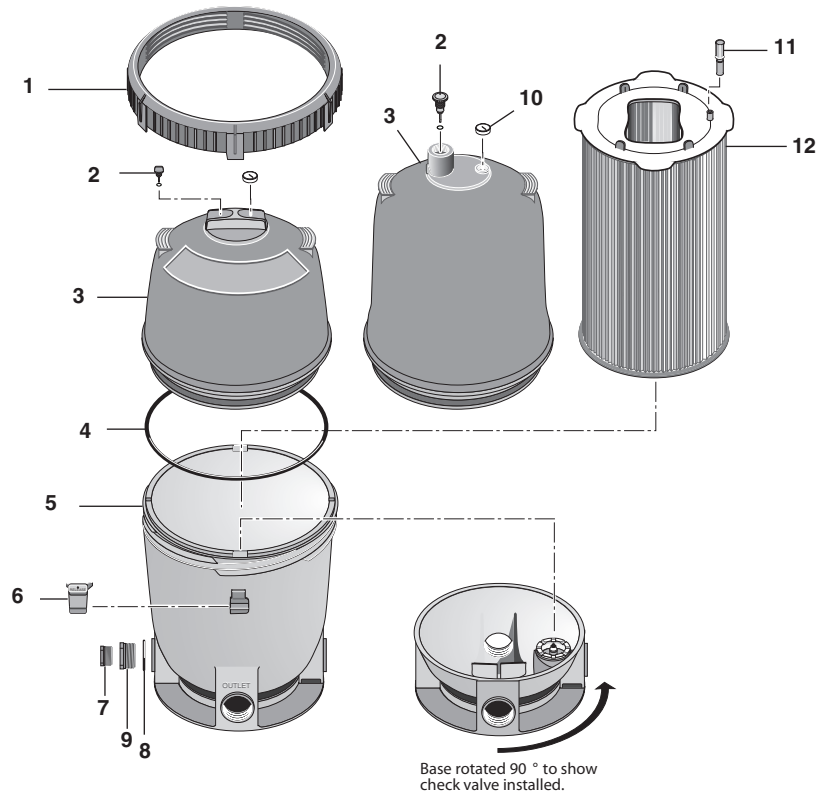
## OZONE PUMP EXPLODED VIEW PARTS LIST

ITEM QTY	PART NO.	DESCRIPTION	ITEM QTY	PART NO.	DESCRIPTION
1	8.726-026.0	Motor, 3/4 HP, 230V	1	6	NA O-Ring
2	NA	Slinger 1	7	NA	Adapter, Union 1-1/2" Slip
3	8.726-024.0	Pump, 3/4 HP, Wet End	8	NA	Collar, Union
4	NA	Drain Plug	Kit:		
5	NA	O-Ring, Drain Plug	6-8	8.750-270.0	Fitting, Compression, 1-1/2" Slip

HP	Volts	Phase	Size		Running Amps	Max. Pressure	Max. Water Temp.
			Inlet	Outlet			
3/4	230V	1	1-1/2" FPT/ 1-1/2" MBT	1-1/2" FPT/ 1-1/2" MBT	5.7	40 PSI	104°F/40°

# CARTRIDGE FILTER ASSEMBLY

## PART #8.723-204.0

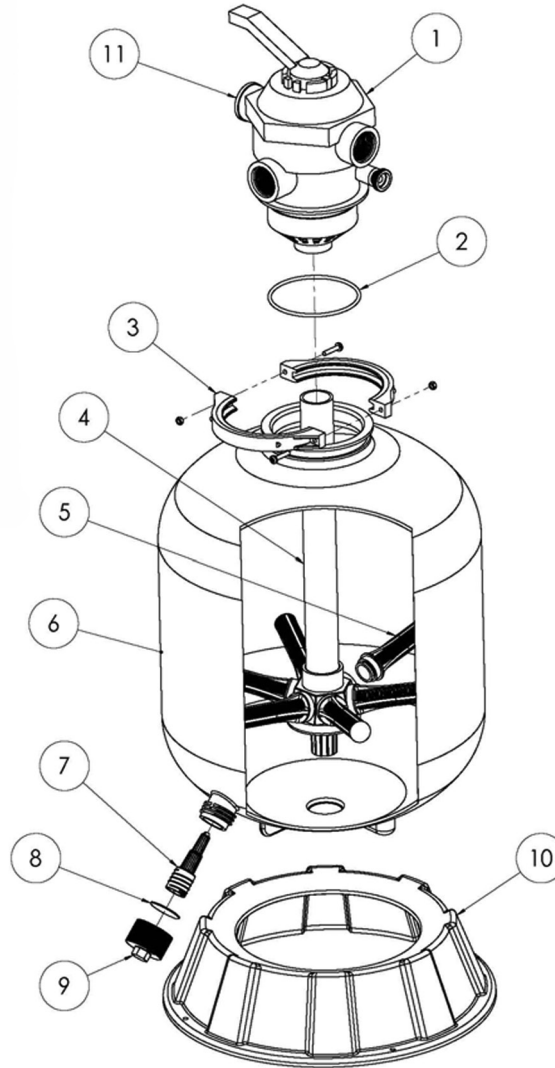


## EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	8.750-004.0	Posi-Lok Ring	1	7	NA	1-1/2" NPT Plug	1
2	8.750-005.0	Air Release Valve Assembly	1	8	NA	O-Ring	1
3	NA	Tank Shell Upper Half	1	9	NA	Adapter Fitting	1
4	8.750-006.0	Tank O-Ring	1	10	8.750-007.0	Pressure Gauge	1
5	NA	Tank Shell Lower Half	1	11	NA	Air Bleed Assembly	1
6	NA	Safety Latch for Ring	1	12	8.723-215.0	Filter Element 125 sq. ft., 10 Micron	1

# MULTI-MEDIA FILTER ASSEMBLY

# 8.726-028.0



ITEM	PART NO.	DESCRIPTION	QTY
1	8.726-030.0	Multiport Valve, Top Mount	1
2	NA	O-Ring, Valve Body	1
3	NA	Clamp Assembly	1
4	NA	Piping Assembly	1
5	NA	Lateral	8
6	NA	Filter Tank w/Drain	1
7	NA	Drain Lateral	1
8	NA	Gasket, Drain Cap	1
9	NA	Drain Cap	1
10	NA	Pedestal	1
11	NA	Pressure Gauge	1

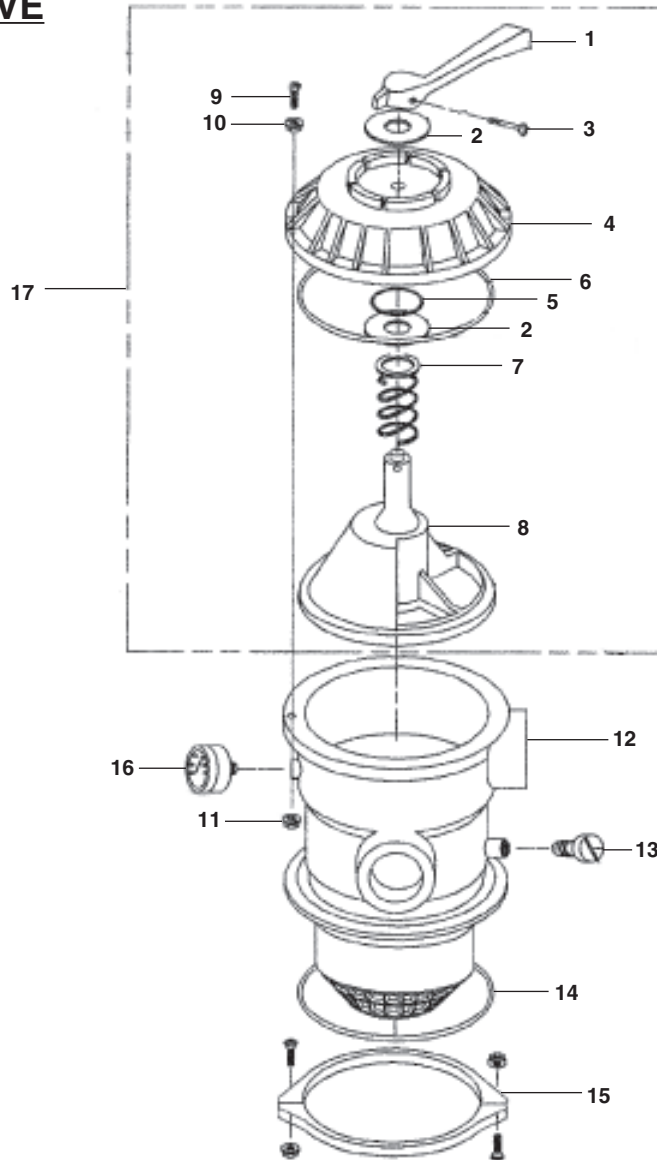
Tank Diameter	Max. Working Pressure	Vert. Clearance	Max. Water Temp	Valve
24"	40 PSI	58"	95°F	6 Position 1-1/2" FPT/MBT

## 6 POSITION VALVE ASSEMBLY

### 6 POSITION VALVE

1-1/2" PORTS

8.726-030.0

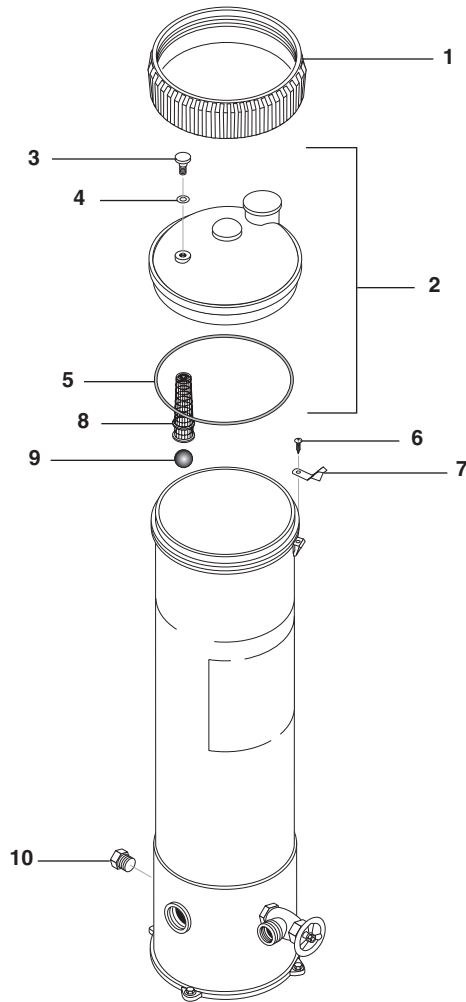


ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	NA	Handle	1	10	NA	Washer	6
2	NA	Washer, Plastic	2	11	NA	Nut, #10-24	6
3	NA	Screw, Handle	1	12	NA	Valve Body w/Diff - Clamp Style 1	1
4	NA	Valve Top, Black	1	13	NA	Air Bleeder w/ O-Ring	1
5	NA	O-Ring Diverter Shaft	1	14	NA	O-Ring	1
6	NA	O-Ring	1	15	NA	Clamp Assembly (See note)	1
7	NA	Spring	1	16	NA	Pressure Gauge	1
8	NA	Diverter w/Gasket	1	17	NA	Valve Top Assy (items 1-8)	1
9	NA	Screw, #10-24	1				

*Note: Clamp halves, nuts and bolts sold only in Assembly*

# SANITIZER ASSEMBLY

PART #8.723-207.0

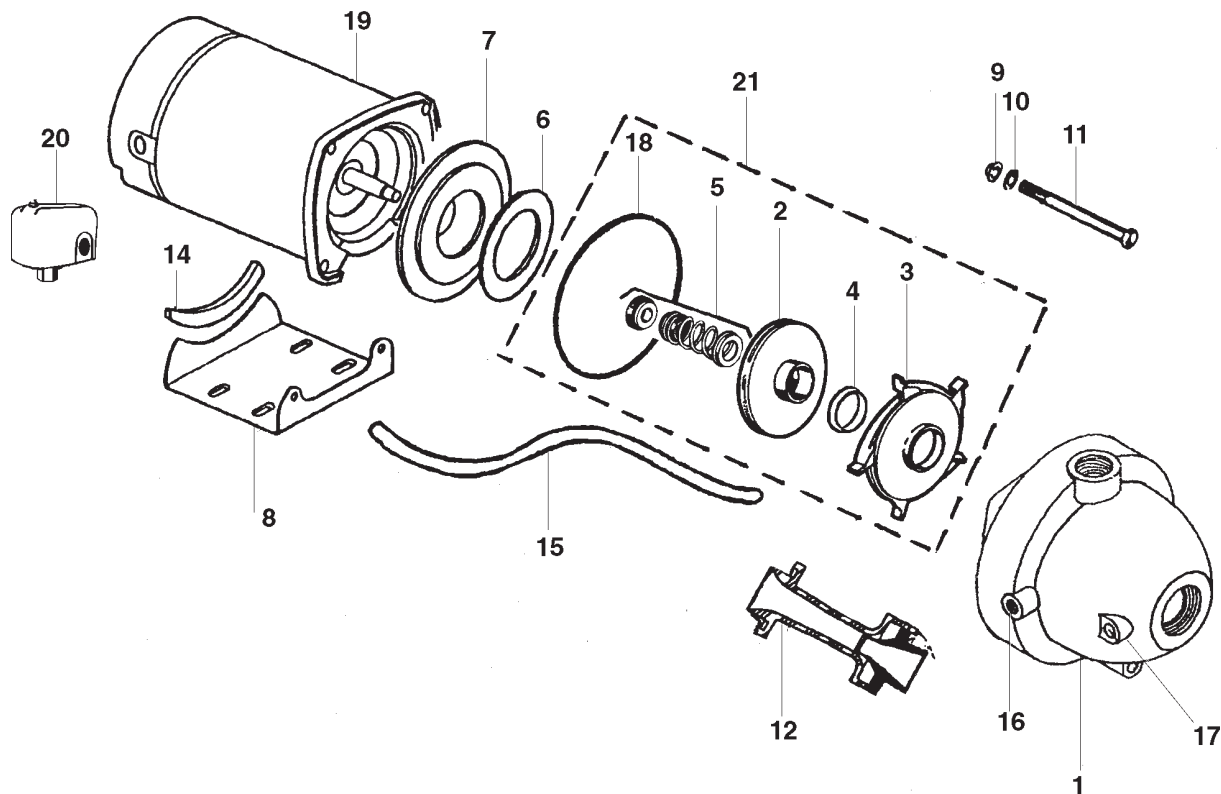


## EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	NA	Lock Ring	1
2	NA	Lid Assembly	1
3	8.750-043.0	Vent Valve	1
4	8.750-044.0	O-Ring vent Valve	1
5	8.750-045.0	O-Ring, Lid, Housing	1
6	NA	Lock Screw	7
7	NA	Lock Spring	1
8	NA	Screen	1
9	NA	Check Ball	2
10	NA	Plug, 1/2" Threaded	1

## TRANSFER PUMP ASSEMBLY

**PART #8.715-383.0**



### EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	NA	Case Assembly	1	12	NA	Noz./Venturi f/5CY	1
2	NA	Impeller 1/2 HP #2794 4-60D, In Kit	1	14	NA	Base Protector	1
3	NA	Diffuser, In Kit	1	15	NA	Tube 1/4" x 14-1/2" Poly-Black	1
4	NA	Wear Ring, In Kit	1	16	NA	Barb Fitting 90 Degree Elbow	1
5	NA	Mechanical Seal, In Kit	1	17	NA	Plug 1/4" Galv.	1
6	NA	Disk	1	18	NA	O-Ring 6" x 3/8" x 3/16", In Kit	1
7	NA	Seal Plate 6-1/2" D	1	19	NA	Motor 1/2 HP 3450 RPM 56Z Frame	1
8	NA	Base w/ #14 Rbr. Protector	1	20	8.716-154.0	Pressure Switch Set 20/40	1
9	NA	Hex Nut 3/8" - 16 PL.	4	21	8.716-795.0	5 Cy. Impeller Repair Kit	1
10	NA	Lock Washer 3/8" Reg.	4				
11	NA	Hex Capscrew 3/8"-16 x 2-3/4" PL.	4				

Brand	Model No.	Listing	Hp	Volts	Phase
Cyclone	5CY	CSA	1/2	115/230	1

Size Inlet	Size Outlet	Running Amps	Max. Pressure	Max. Water Temp.
1-1/4"	1"	12/6	62 psi	120°F/50°C

## TROUBLESHOOTING - CL

PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>NO FLOW OF WATER INTO THE CL-304</b>	Control switch not in "ON" position	Turn switch to "ON" position.
	Power not turned "ON" at breaker box	Turn "ON" power at breaker box.
	Float in sump in down position	Add water to sump.
	Debris in sump impeller	Unplug pump and remove from container.
	Flow valve closed	Open valve.
	Dirt lodged in control valve	Clean as needed.
	Frozen water in lines or valves	Thaw out with warm water.
<b>WATER FLOWING OVER CL-304 TANK</b>	Tank not level	Level tank.
	Water coming in faster than 5 gpm	Adjust flow control valve.
	Discharge line plugged	Remove obstruction.
	Filter pump "Off"	Turn pump switch "On."
	Top float in cone tank stuck or shorted out	Clean and move so it can float freely/replace.

## TROUBLESHOOTING - PUMP

PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>PUMP DOES NOT TURN ON</b>	Circuit breaker shut "OFF"	Turn "ON" circuit breaker.
	Accumulation of trash on float	Clean float.
	Float obstruction	Check float path and provide clearance.
	Defective switch	Have pump serviced by authorized service center.
	Defective motor	Have pump serviced by authorized service center.
	Low line voltage	If voltage under recommended minimum, check size of wiring from main switch on property. If OK, contact power company.
<b>PUMP WILL NOT SHUT OFF</b>	Float obstruction	Check float and float path and provide clearance.
	Pump is air locked (Transfer Pump)	Shut power off for approximately 1 minute, then restart. Repeat several times to clear air from pump.
	Liquid inflow matches pump capacity	Larger pump required.
	Defective float switch	Disconnect switch, check with ohmmeter.
<b>PUMP RUNS BUT DOES NOT DISCHARGE LIQUID</b>	Check valve installed backwards (Transfer Pump)	Check flow indicating arrow on check valve body to insure it is installed properly.
	Check valve stuck or plugged (Transfer Pump)	Remove check valve and inspect for proper operation.
	Lift too high for pump	Check rating table.
	Inlet to impeller plugged	Pull pump and clean.
	Low line voltage	If voltage under recommended minimum, check size of wiring from main switch on property. If OK, contact power company.
	Clogged impeller	Remove housing, unclog.
	Faulty motor protector	Replace pump.
	Very low head or lift	Increase head or lift.
	Sump pit too small	Increase size of pit.
<b>PUMP DOES NOT DELIVER RATED CAPACITY</b>	Low voltage, speed too slow	Check for proper supply voltage to make certain it corresponds to nameplate voltage.
	Impeller or discharge pipe is clogged	Pull pump and clean. Check pipe for scale or corrosion.
	Impeller wear due to abrasives	Replace worn impeller.
<b>PUMP CYCLES CONTINUALLY</b>	Check valve leaking (Transfer Pump)	Inspect check valve for correct operation.
	Low line voltage	If voltage under recommended minimum, check size of wiring from main switch on property. If OK, contract power company.
	Worn or defective pump parts or plugged impeller	Replace worn parts or entire pump. Clean parts if required.
	Pump air locked	Turn pump "ON" and "OFF" several times. Fill hose manually with water.

## TROUBLESHOOTING - PUMP MOTOR

PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>MOTOR WILL NOT RUN</b>	Disconnect switch is "OFF"	Be sure switch is "ON."
	Breaker is tripped	Reset breaker.
	Starting switch is defective	Replace starting switch.
	Wires at motor are loose, disconnected or wired incorrectly	Refer to instructions on wiring. Check and tighten all wiring.
	Pressure switch contacts are dirty (Transfer Pump)	Clean by sliding piece of plain paper (or crocus cloth) between contacts.
<b>MOTOR RUNS HOT AND OVERLOAD KICKS OFF</b>	Motor is wired incorrectly	Refer to instructions on wiring.
	Voltage is too low	Check with power company. Install heavier wiring if wire size is too small. See wiring instructions.
	Pump cycles too frequently	See section on pump cycles continually.
	Defective float switch	Disconnect switch, check with ohmmeter.
<b>MOTOR RUNS BUT NO WATER IS DELIVERED</b>	Pump in a new installation did not pick up prime because of:	
	a. Improper priming	a. Re-prime ( 3 or 4 times may be needed) by stopping and starting motor several times.
	b. Air leaks	b. Check all connections on suction line.
	c. Leaking check valve (Transfer Pump)	c. Clean and or replace check valve.
	Pump has lost its prime through:	
	a. Air leaks	a. Check all connections on suction line, jet and shaft seal.
	b. Water level below suction of pump	b. Lower suction line into water and re-prime.
	Jet or impeller is plugged	Clean jet or impeller. See Maintenance.
	Check valve is stuck in closed position	Replace check valve.
	Pipes are frozen	Thaw pipes. Bury pipes below frost line. Heat pipes below frost line. Heat pit or pump house.

## TROUBLESHOOTING - FILTER

PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>RUNNING AT HIGH PRESSURES</b>	Multi-Media or carbon filter coated with normal accumulation of dirt, etc	Backwash is needed.
	Cartridge filter plugged	Cleaning is needed.
	Obstruction in line	Remove obstruction.
<b>DROP OFF OF DISCHARGE FLOW</b>	Multi-Media or carb absorb filter coated with normal accumulation of dirt, etc	Backwash is needed.
	Valve #1 closed	Open valve.
	Cartridge filter clogged	Clean.
	Pump impeller vanes clogged	Cleaning with a stiff wire through the pump inlet opening will usually work. Alternate method would be to disassemble and clean.
	Air leak on suction side of pump	Check cover gasket, hose, clamps, etc. Replace or tighten as necessary.
	Electric motor running less than rated RPM (underspeed)	Consult pump and motor troubleshooting guide. <b>NOTE:</b> Most motor problems are due to: 1. Undersized or improper wiring. 2. Power cutbacks or a combination of both.
<b>SHORT CYCLES</b>	Multi-Media or carbasorb filter loaded to capacity with dirt, etc	Backwash.

## TROUBLESHOOTING - WATER SOLENOID

PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>VALVE LEAKS WHEN "OFF"</b>	Dirt or debris on diaphragm seat	Clean diaphragm seat.
	Solenoid not fully closed after manual operation	Turn solenoid clockwise to fully seated position.
	Solenoid O-ring damaged or twisted	Turn off water, inspect O-ring and reseal if twisted, replace if damaged.
	Diaphragm damaged	Turn off water, remove bonnet screws and inspect diaphragm for nicks or damage. <b>NOTE:</b> Diaphragm has one bleed hole molded into it. Replace, if necessary, with diaphragm kit.
	Dirt interfering with solenoid operation	Turn off water, remove solenoid and flush seating surface in bonnet and at bottom of solenoid with water.
	Solenoid damaged	Turn off water supply and replace solenoid.
<b>WATER WON'T SHUT OFF</b>	Valve in manual "ON" position	Turn solenoid clockwise to "OFF" position.
	Diaphragm bleed hole blocked	Use Manual Flush Mode. Turn water supply "OFF" and immediately back "ON" to clear blockage. If still blocked, turn off water and inspect diaphragm looking for blockage.
	Damaged solenoid	Turn off water supply and replace solenoid.
<b>LOW OR INADEQUATE FLOW CONDITION</b>	Water running elsewhere using up pressure	Turn off water that is running elsewhere.
	Too many solenoids running at once	Adjust so water is running to only one solenoid.
	Gate valve not fully open	Open gate valve fully.
	Pipeline blockage	Clear pipeline.
<b>VALVE WON'T TURN ON ELECTRICALLY</b>	No power to solenoid	Make sure solenoid has power.
	Low voltage	Make sure there is 24 volts.
	No water pressure	Make sure water pressure is available to valve. Turn off water, without cutting wires, unscrew and swap solenoids between valves. Turn on water and test again. If problem stems from the solenoid, replace solenoid.

## TROUBLESHOOTING SEALS

PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>CRACKED OR BROKEN STATIONARY SEAT (CERAMIC)</b>	Seal ran dry and heated up. When liquid reached seal faces it was cooler, causing thermal cracks	Check to insure seal chamber is full of liquid before starting pump. On high temperature application insure proper flushing at seal faces.
<b>CARBON WASHER SCORED AND GROOVED</b>	Dirty system	Have system cleaned and flushed. Consider use of Tungsten Carbide or Silicon Carbide Rings.
<b>CARBON WASHER WORN UNEVENLY</b>	Seal improperly installed	Check installation instructions for proper assembly.
<b>FLEXIBLE DIAPHRAGM BROKEN</b>	Coupling misalignment	Realign pump and motor.
<b>SHORT SEAL LIFE IN TREATED SYSTEMS</b>	Treatment level and temperature higher than anticipated	Use Viton Elastomers, High Temperature Carbon, Ni Resist Tungsten Carbide or Silicon Carbide Seat.
<b>BUNA DIAPHRAGM HARD &amp; BRITTLE. RAPID CARBON WEAR.</b>	Air leak on suction side of pump	Check cover gasket, hose, clamps, etc. Replace or tighten as necessary.
<b>DIAPHRAGM SOFT AND STICKY; APPEARS TO BE DISSOLVING.</b>	Bellows not compatible with material being pumped	Consult factory for recommendation advising of pumpage and temperature.

## TROUBLESHOOTING - OUTLET TO PRESSURE WASHER

PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>NO FLOW OF WATER TO THE PRESSURE WASHER</b>	Control switch is not in "ON" position	Turn switch to the "ON" position.
	Breaker is not turned "ON"	Turn "ON" the breaker.
	Low level float switch is down	Check float position.
	Debris is in pump impeller	Unplug pump and remove from container. Check impeller. Clean or repair as necessary.
	Flow control valve is in "OFF" position	Open valve.
	No water in 40 gal. tank	Check filters. Refill 40 gal. tank.
	Dirt is lodged in control valve	Clean as necessary.
	Frozen water is in lines or valves	Thaw out with warm water.

## SPECIFICATIONS

<b>MODEL</b>	<b>CL-304</b>
<b>MAXIMUM FLOW</b>	5 gpm
<b>OIL/WATER SEPARATOR CAPACITY</b>	300 gal.
<b>SOLIDS SEPARATION CHAMBER</b>	Yes
<b>ELECTRICAL</b>	230 Volt 1 PH Amps 15
	230 Volt 3 PH Amps 9
	460 Volt 3 PH Amps 5
<b>MEDIA FILTER</b>	330 lbs.
<b>CARTRIDGE FILTER</b>	(1) 125 sq. ft. 10 Micron
<b>OIL SKIMMER</b>	Yes
<b>CHLORINATOR</b>	Yes
<b>COALESCING PACK</b>	94 sq. ft.
<b>FILTERED WATER HOLDING TANK</b>	40 gal.
<b>ORP/pH CONTROLLER</b>	Optional
<b>ELECTRICAL PANEL</b>	Yes
<b>DIMENSIONS (L x W x H)</b>	72" x 72" x 90"
<b>NET DRY WEIGHT (approx)</b>	1545 lbs.

### CONSUMABLE PARTS LIST

**PART NUMBER      DESCRIPTION**

***Water Maze Consumable Parts***

9-029200	.45 x .55 mm Sand (Std. bag size -100 lbs.)
9-029300	1/4" x 1/8" Gravel (Std. bag size - 100 lbs.)
9-029600	.60 x .80 mm #1 Anthracite (Std. bag size - 50 lbs.)
9-52029	5-Way Test Strips
9-52032	pH Test Strips



## 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, MERCHANTABILITY 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.

