

SKID MOUNT CARTRIDGE FILTRATION SYSTEM



Instructions for Operation • Safety • Warranty

This guide describes how fountain systems work. It outlines the basic procedures for operation and maintenance. For specific equipment on the skid, please reference individual owners and operation manuals.

Service and maintenance on these systems is to be done ONLY by trained and experienced personnel.



ELECTRICAL SAFETY

This water feature utilizes high voltage electrical equipment and is therefore potentially dangerous to operating and maintenance personnel if proper procedures are not followed.

Only persons qualified and authorized should be allowed to operate or maintain this electrical equipment. Failure to follow procedures can result in injury, fatal shock, or significant damage to equipment.

GFCI breakers should be tested at regular intervals.



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**Your system may vary
from these photos*

READ THIS FIRST

QUICK START PROCEDURES

EQUIPMENT INSTALLATION

Skid mount system can be installed in flooded suction or in suction lift applications. For flooded suction applications check valves are highly recommended on the discharge/return side of the pumping system. Other installation requirements should meet piping, conduit and wiring design (shop or installation drawings when applicable) to meet local and national codes.

CLEAN AND FLUSH

This Step Is Critical — Fountain supply and suction lines must be clear of all construction debris before pumping equipment is operated. Failure to do this can damage the pumps.

Before skid installation, flush and pressure-check all suction and discharge water lines to the basin.

FILTRATION

Cartridge filters already have a cartridge element installed at the factory.

Note: Chemical feeders do not need to be filled at this time. They can be filled and adjusted after the fountain initial startup is complete.

CHECK FOR LEAKS

Close all of the pumping equipment valves and fill the basin/pool to the specified water level. Watch the water level. If it drops, find and fix the leaks.

Slowly open all valves on the pumping equipment that connect to the basin/pool and fill (prime) the system.

Allow the level to stabilize and check for leaks on the pumping equipment (during shipment and installation, union connections can come loose).

If the pump is above water level and does not automatically fill the pump volute, remove the strainer basket cover and fill the pump with water.

CRITICAL — DO NOT START THE PUMP DRY.



ADJUST THE FOUNTAIN

Adjust the fountain display to the desired effect by adjusting the valves on the discharge lines to the fountain.

NEVER ADJUST FLOW USING THE VALVES ON THE SUCTION LINES — THIS WILL DAMAGE THE PUMP.



Suction isolation valves should be fully open when the system is operating.

START-UP

- Fill fountain basins with water
- Verify that all valves are completely OPEN except for the Display/Nozzle Adjustment Valves. If not previously adjusted, these valves should be initially set at 50% OPEN.
- Start filter pump to verify that it is pumping water by checking the filter pressure gauge. Filter pressure should increase when pump is started.
- Observe fountain operation for at least ten minutes to verify proper operation
- Before leaving the fountain — verify that any sump pumps and vent fans, if so equipped, are operational

SHUT-DOWN

- Turn all pump and lighting circuit breakers OFF. Do not turn off any circuit breaker that powers a protective device such as a sump pump or vent fan.
- Before leaving the fountain — verify that the sump pump, if so equipped, is operational
- If the fountain is to be out of service for an extended period of time, it's recommended that the fountain basins be drained, the nozzles removed and that all open pipes be plugged or otherwise sealed to prevent debris from getting into the piping system. In addition, verify that no chemicals have been left in skimmers or chemical feeders.

WINTERIZATION

- Drain all fountain basins completely and store drain plugs and standpipes in a safe location
- Drain all equipment and piping within the equipment space
- Turn OFF the ventilation system for equipment room unless system is thermostat protected
- Do not turn OFF the power to sump pumps (if so equipped)
- Install plumbers' plugs to seal all open piping connections in fountain pool floors



WARNING! Do not add automotive anti-freeze to fountain, it is poisonous.

GENERAL MAINTENANCE

Each fountain has its own characteristics and features that will determine its general maintenance requirements.

Many variables can affect the maintenance requirement including the operating time, season, surrounding plants, people traffic, quality of the water supply, etc. You will need to determine the maintenance procedures and the required maintenance schedules based upon the experience you gain from living with the fountain in the coming year. The following are some general guidelines to get you started.

Daily

- Clean all the trash and debris from the fountain basins
- Check any skimmer baskets for debris
- Test water for chemical balance with a DPD test kit
- Check the water level(s)

Weekly

- Inspect and clean all the suction strainers and backwash the sand filter (if installed)
- Clean the water level probes (if installed).

Monthly

- If your system is housed in a vault that is equipped with a sump pump, the float should be checked for freedom of movement and moved to check the operation of the pump
- Test all GFCI breakers
- Clean cartridge filter element, high debris load may require cleaning more frequently

Yearly

- Inspect all equipment for wear and loose bolts
- Drain the water from the system and refill with fresh water. When this is done, the water quality levels will have to be manually balanced.

FILTRATION & WATER TREATMENT EQUIPMENT

Airborne debris tends to accumulate in fountains. This debris is often drawn into the suction lines and skimmers in the fountain basin by the pumps. The filtration devices in your system are there to prevent damage to the pumps and to help clean the water before it returns to the basin. Pressure gauges are a good tool to indicate when it is time to clean the filter. If the pressure increases 8-10 psi over the “clean” operating pressure, it is time to clean the filter.

Basket Strainer – is on the inlet side of the pump with a removable lid and a basket that collects debris. The pump must be OFF to clean a basket strainer. To clean, you MUST first isolate it from the water in the rest of the

system by closing valves on either side of the strainer. Failure to do this may cause serious damage, flooding and/or injury to personnel.

Remove the strainer lid, lift out basket, clean it, inspect the o-ring, replace the lid, and open the valves. An air pocket may form in the basket strainer; if so, loosen the lid slightly until water squirts out and then tighten the lid.

Cartridge Filter - has a removable lid and a filter element that collects the debris. The element is disposable and filters much finer particles than do basket strainers. The pump must be OFF to clean a cartridge filter. As with the basket strainer, you MUST isolate the filter from the water in the piping by closing the valves on either side of the filter.

Skimmers - used to remove floating debris and are installed in the wall of a fountain at water level. They are used in addition to floor-mounted suction for the filter pump. Valves regulate how much water is drawn from either the floor suction or skimmers. Adjust the valves so the skimmers draw as much as possible without creating a whirlpool (which draws air into the pump that will damage it). Skimmers have removable baskets that must be kept clean.

Chemical Erosion Feeders - feed a constant amount of chlorine or bromine into the fountain. The feeder is a sealed tank containing chlorine or bromine tablets. A small valve on the feeder adjusts the amount of water that is allowed to flow across the tablets. This concentrated chlorine mixture is then fed into the discharge of the filter. Since the concentrated chemical is very corrosive, all the piping just downstream of the feeder should be PVC.

WATER TREATMENT

Keeping the pool clean and clear will require maintenance and use of water treatment products to provide correct water chemistry. Consulting a pool supply or maintenance company for appropriate chemicals and water treatments is recommended. Monitoring the water parameters and keeping them correct will help to keep the pool looking its best.

Important Chemical Notes

- Always have circulating system in operation when adding chemicals unless instructions advise otherwise
- All dosage is approximate and will vary for different chemical manufacturers
- Follow the instructions on the chemical container
- Never add acid and chlorine at the same time — they will form a toxic gas
- All chemicals are dangerous
- Handle and store in accordance with the manufacturer's instructions

- Treating dirty water is a waste of chemical and should be avoided — water should be filtered first
- Test the water using a test kit
- Your test kit should at least be capable of monitoring chlorine or bromine residual and pH levels
- Follow the directions on your test kit. Test the water approximately every other day — more frequently in warmer weather and less frequently in colder weather. Never add chlorine to the water before testing.

Never rely on previous tests or visual inspection of the pool water. Use the test kit.

- All chemicals are added in proportion to the total gallons of water in the pool(s) (capacity). Estimate your pool capacity by determining the dimensions (in feet) of the pool(s) and following the formulas below.
 - Rectangular: $L \times W \times \text{Avg. Depth} \times 7.5 = \text{pool capacity in gallons}$
 - Round: $\text{Diameter} \times \text{Diameter} \times \text{Avg. Depth} \times 5.9 = \text{pool capacity in gallons}$
 - Oval: $L \times W \times \text{Avg. Depth} \times 5.9 = \text{pool capacity in gallons}$
 - Free Forms: Divide the pool into combinations of the above shapes and add to determine total volume

NOTE: If pool(s) has sloping sides, multiply number of gallons by .85 to estimate.

Generic Testing Do's and Don'ts

- Rinse test vials with pool water before and after test. Never add chemicals before testing.
- Test for acid only when chlorine level is <1.0 ppm. Never rely on previous tests or visual inspections. Use the kit.
- Fill both pH and chlorine vials simultaneously. Do not read results in sunlight.
- Be certain only the prescribed drops are added to vials. After adding test chemicals, do not discard tested water into fountain.
- Read test results immediately against a light background
- Replace test chemicals once a year
- Re-test for residual chlorine at least 30 minutes after administering chemical

NOTE: It is advised to keep an accurate log of maintenance activities including chemical levels, frequency of procedures, etc. This will help estimate future maintenance programs.

WARRANTY

See owner manuals for warranty information on each component