Fountain Owner's Manual

Installation • Maintenance Troubleshooting • Operation

2100 NW 33rd St • Pompano Beach, FL 33069

1.844.432.4303

vertexaquaticsolutions.com • info@vertexaquaticsolutions.com

Hours of Operation
M – F: 8am – 5pm EST

Delivery Of Shipment

Your fountain system was properly packaged, secured and accepted by the freight carrier prior to shipment. It is their responsibility to deliver the shipment without damage.

Apparent Damage or Loss:

Upon delivery if the equipment or container indicates **DAMAGE IN TRANSIT**, such goods should be refused or not accepted until the carrier's agent has noted such on the freight bill. A copy will be given to you, noting the extent and nature of the damage. If any part of the fountain shipment is **LOST IN TRANSIT**, have the shortage noted on freight bill by carrier's agent.

Concealed Damage or Loss:

If damage or loss is discovered that was not apparent upon delivery, notify the carrier immediately to inspect equipment. The inspector will be required to provide a "**CONCEALED BAD ORDER**" report. Inspections must occur within 15 days of original receipt. Do not move damaged goods from original point of delivery. Retain all original packaging and containers for inspection. File a "**FULL VALUE REPLACEMENT**" claim against the freight carrier.

Fountain Pallet and Crate Contents

- Fountain Assembly – flotation collar, pump/motor assembly, intake screen, electrical cables and optional light fixtures.
- Fountain display nozzle(s)
- Fountain control panel

Table Of Contents

Tools And Materials For Installation

- 3/4", 7/16" and 9/16" wrenches & sockets
- Large carpenter's level (minimum 4')
- Small carpenter's level (minimum 8")
- Anchoring devices (see page 10)
- 3' section of pliable copper tubing (included)
- Polypropylene rope: mooring/anchoring

Pre-Installation Voltage and Phase Confirmation

It is ESSENTIAL to confirm that the incoming site voltage and phase match the specifications of the fountain system. Vertex fountain systems DO NOT operate or utilize dual voltage pumps and motors; failure to correct voltages and/or phase issues prior to fountain installation WILL IMMEDIATELY void the warranty. Contact Vertex directly for assistance if corrections need to be made. Use accepted safety practices to prohibit personal injury or damaged equipment.

Safety Notices - WARNING

- Work should be performed by qualified, authorized personnel. Contact Vertex technical support with ANY questions involving installation or operation.
- Use personal flotation devices, protective clothing, gloves and eye protection.
- Disconnect all electrical power and exercise “lock out/tag out” procedures on fountain control panel before performing ANY work or service. Assume all circuits are energized until checked with electrical metering device.
- Never come in contact with the “in water” or floating portion of the system (pump, float, intake, lights, nozzles, etc.) when unit is in operation.
- Do not stand or sit on fountain float.
- Use discretion when lifting any Vertex fountain. Use heavy equipment (backhoe, lull, crane, etc.) when needed to prevent injury.
- All shore electrical work must be performed by licensed electrician and conform to National Electrical Code (NEC) 682, in addition to local codes.
- Control panel must be above any possible flood level.
- Panel should be accessible only to authorized personnel.
- Due to threat of electrical shock, fountain should NEVER be located in areas where swimming or other activities occur.
- Post signs instructing public to stay out of water and away from all fountain equipment.
- Before operation, entire fountain system, *including GFI circuits*, must be tested and approved by licensed electrician.

Contact Vertex Aquatic Solutions technical support with ANY questions or concerns involving installation or operation.

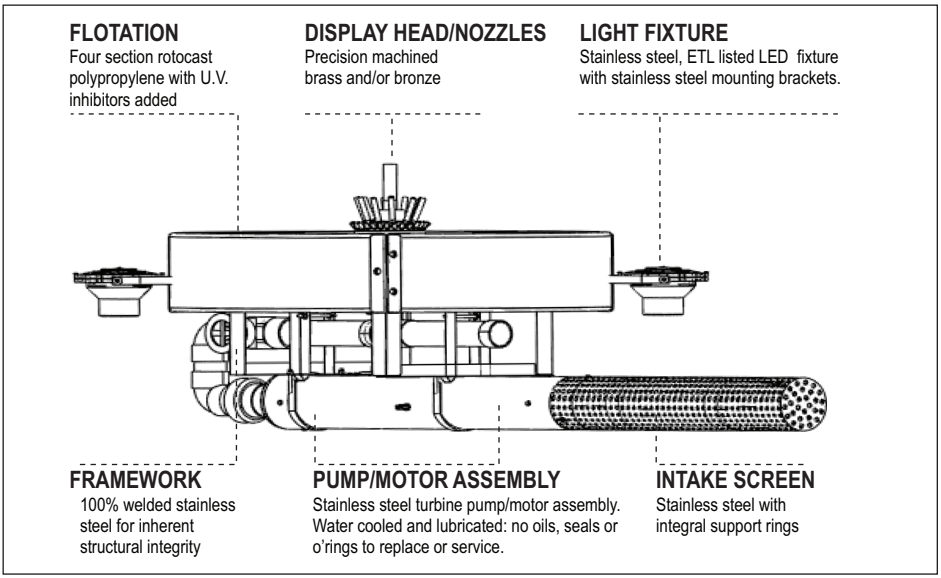
“Typical” Fountain System Operation Overview

Your Vertex Aquatic Solutions floating fountain systems has two primary components: the floating fountain and the electric control panel that are connected by underwater cables.

NOTE: Vertex pumps and submersible lights must be under water to run.

I. Fountain System Components

The owner must choose the proper location and maintain the floating fountain to have the best performance and longest service life. If you do not properly maintain the system, it may fail and cause you to lose warranty coverage.



System Location

- Water depth – there must be sufficient clearance from the bottom of intake screen to lake bottom. Failure can damage screen and allow intake of sediments, damaging pump.
- Aquatic Vegetation/Lake Debris – avoid areas with vegetation and/or debris (trash, foreign objects, etc.) that can clog vital portions of the intake system, causing high amps and motor burnout.

System Maintenance

Fountain requires periodic brushing/cleaning of intake screen, light lenses and display nozzles. See complete instructions under "Routine Maintenance" pg 12.

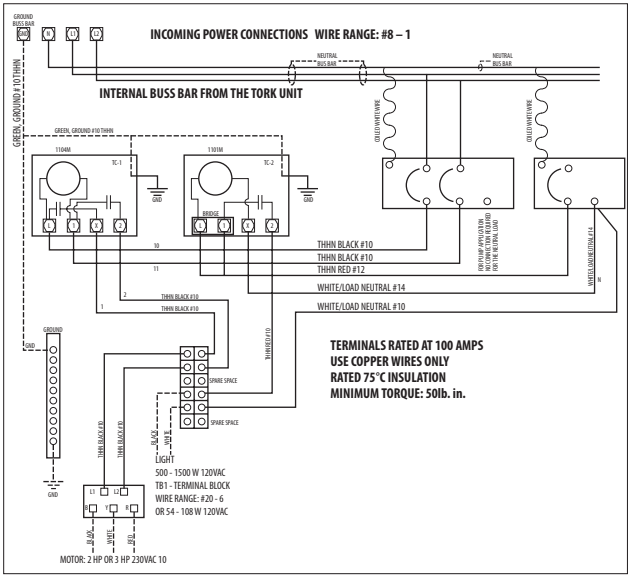
II. Control Panel

The Fountain control panel is pre-wired, ready for installation by a licensed electrical contractor. Installation must meet NEC (National Electrical Code) 682, in additional to any local codes.

Panel Location

- Must be in accordance with NEC 682, in addition to local codes.
- To reduce chance of voltage drop and/or nuisance tripping, the panel should be located as close to fountain as possible – but not in a place that would make it accessible from the water or a boat.

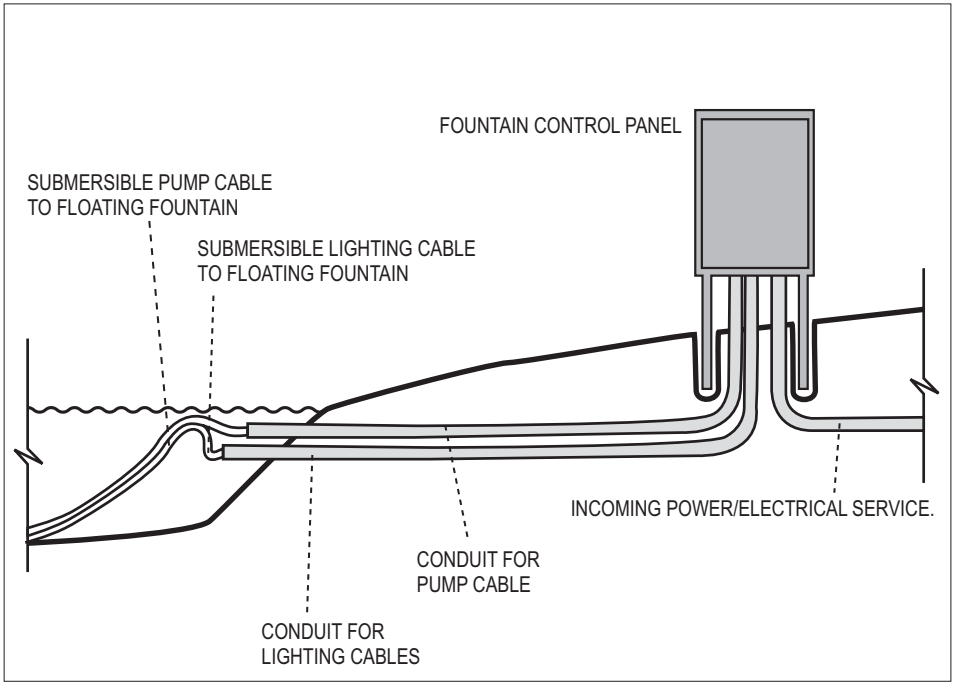
- Ideal location is out of direct sunlight to minimize internal operating temperatures. If not possible, install panel facing North or East to minimize buildup of heat during hottest portion of the day.
- Vertex recommends installation in a protected area designated with warnings/signage indicating "**DANGER: HIGH VOLTAGE"** or similar to discourage unauthorized personnel.



Panel Maintenance

- Minimum of quarterly inspections, with particular attention to: the condition of electrical connections, signs of deterioration and possible infestation from insects or other small animals (frogs, lizards, snakes, etc.) which can cause panel failure.
- See complete maintenance guidelines/procedures under "Routine Maintenance" page 12.

Control Panel & Fountain Installation



WARNING - Hire a qualified licensed electrician to do all work on the control panel

I. Control Panel Installation

It is best to have all shore electrical work completed before installing the floating fountain in the water. Coordination with the electrician will make the process easier. See the for Scope of Work - Electrician below.

The fountain control panel must be installed by a licensed electrician in accordance with Article 682 of the National Electrical Code. Failure may result in hazardous conditions and/or failure of electrical inspection. Consult authorities having jurisdiction (AHJ) for specific local codes/restrictions.

Vertex Aquatic Solutions accepts/assumes no responsibility for installations not in accordance with local and/or national electrical codes.

Installation of Control Panel

Installation of fountain control panel must be by a licensed electrician in accordance with NEC 682 to ensure panel location is above any/all possible high water levels. Submergence of panel poses serious risk of electrical shock and damage to the fountain system.

Scope of Work - Electrician

- Electrical Schematic and labels can be found inside the panel
- Mount NEMA 3R panel enclosure in accordance with NEC 682 in addition to any other codes and/or restrictions.
- Trench and bury sufficiently sized conduit(s) from fountain panel to water's edge, extending conduit(s) far enough into the water to ensure no submersible cable is exposed should low water conditions arise.
- Bring incoming power from the power source into the fountain panel. Incoming voltage must match with the specifications of the fountain panel or failure will result, damaging the system and voiding the warranty.
- Pull submersible cable(s) from fountain through conduit to control panel and perform final connection
- All shore electrical work must conform to National Electrical Code (NEC) 682, in addition to local codes.
- Control panel must be above any possible flood level.
- Panel should be accessible only to authorized personnel.
- Before operation, entire fountain system must be tested and approved by licensed electrician.
- Have the electrician contact Vertex Aquatic Solutions at 1-844-432-4303 for any questions they have about the installation

NOTE: Do not operate fountain and lights until fountain installation has been completed and lights are fully submerged. Operating light(s) out of water will result in damage to bulb(s) and lens(es), voiding the warranty.

NOTE: Connect only 120V to light(s) – higher voltage will result in immediate damage/ failure of bulb(s)

II. Fountain Installation

Lake side Preparation

- Unload inverted fountain as close to water's edge as possible, ideally with gradual slope and in close proximity to control panel and conduit location.
- Attach intake screen to end of pump intake tube with included bolts. DO NOT GLUE. (CAUTION: Edges of steel intake screen can be sharp–exercise caution when handling).
- Uncoil submersible power cable along lake's bank in a loose serpentine fashion to avoid kinking and facilitate eventual pull into lake. (Fig.1)
- Attach one of the polypropylene mooring/anchor lines securely to the fountain frame (to be used in subsequent steps to pull the unit into final position: NEVER pull on or place tension on the submersible power cables).
- Place fountain into water, making sure that unit remains INVERTED. (Fig.2)
- Fountain MUST be kept in the inverted position until pulled into water deep enough to prevent damage to pump/motor tube or intake screen.

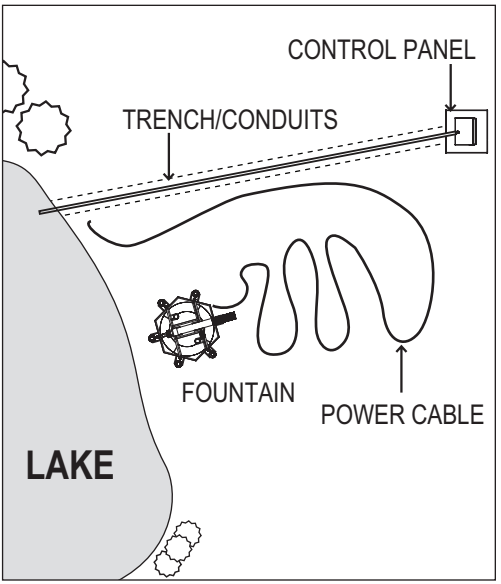


Fig.1

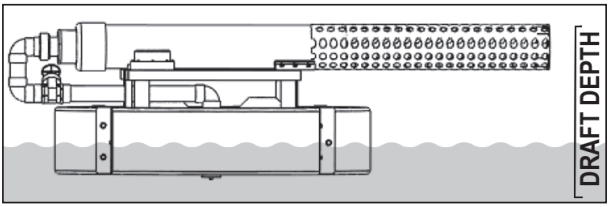


Fig.2

NOTE: Depending on various factors, (size of fountain, weight, site conditions/slope, available manpower, etc.) unit may be manually lifted or require use of heavy equipment. If lifting with equipment, secure straps/chains, etc. to stainless steel welded framework of fountain ONLY – NOT to pump/motor tube or flotation assembly. *Failure to do so will damage fountain and void warranty.*

Inverting the Fountain

- Measure the draft depth of the system from bottom of intake screen to top of float. (Fig.2)
- Once unit is in water deep enough to ensure that the pump tube or intake screen will not strike the lake's bottom, flip/invert the fountain into its upright or normal position. **CAUTION:** inverting/flipping fountain can be dangerous if not extremely careful – make sure everyone is clear of unit prior to attempting.
- Using heavy equipment (lull, crane, etc.), or sufficient manpower; slowly begin to tilt fountain with these precautions: (Fig.3)
    - Flip in direction of deeper, open water.
    - Flip parallel to/along the axis of, the pump/motor tube, not perpendicular to it.

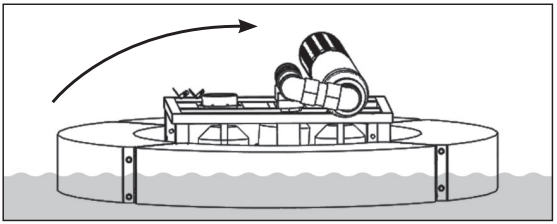


Fig.3

- Allow the momentum and weight of the fountain to invert the unit. Once the pump is submerged, the fountain is ready for the installation of the display nozzle(s).

Install Display Nozzle(s)

- Carefully thread all fountain display nozzles on to appropriate discharge pipes.
- Do not use pipe dope or glue, use Teflon tape only.
- Take special care to avoid cross-threading.
- Do not over tighten - it can damage the discharge pipe threading.
- If unit has shifted during shipment, slightly loosen clamp rods that secure discharge pipes to realign nozzles, retightening when complete. (Fig.4)

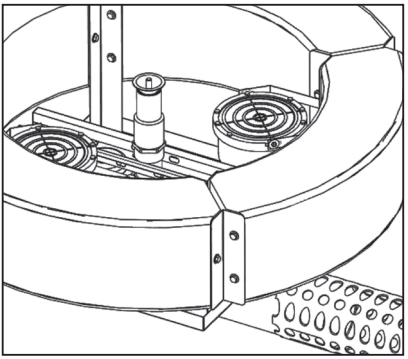


Fig.4

Level Fountain & Nozzles

Tools Needed: Large level (min. 4'), Small level (min. 8"), 3' - 4' length pliable copper tubing

Vertex flotation design utilizes an assembly of individual hollow chambers for water ballast to be added. This allows for exact on-site adjustments, insuring that the fountain and the display is completely level.

- Check overall alignment of the fountain by placing a large level across the top of the float. With no ballast (water) in chambers, unit may initially sit at slight angle. **Keep level on the unit during following steps:**

- Remove ballast plugs found on inside diameter of each float section to allow water to enter each chamber. **NOTE**: On larger fountains with double stacked flotation sections, all bottom flotation chambers should be free of water (no filling procedures necessary).
- To lower flotation chamber to its correct level, insert copper tubing into ballast hole. To stop flow of water, seal end of tube with thumb or remove tubing. (Fig.5)

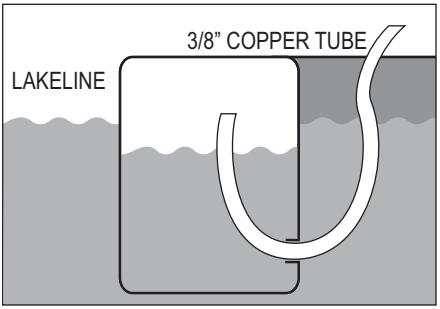


Fig.5

- Should too much water enter chamber(s), insert tubing and blow water out of chamber(s). Evenly lower the fountain flotation until the water level sits at the bottom of the "Aquatic Systems" printed on the outside diameter of each float section. (Fig.6)

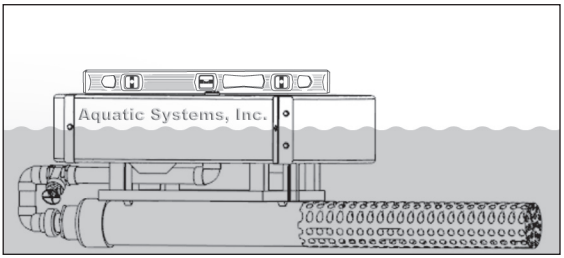


Fig.6

WARNING: the light fixtures must always be below water level. Lights sitting above the water have higher operating temperatures that cause cracked lenses, water intrusion and damage to lights. The warranty will not cover this damage.

- Continue leveling procedure until large level indicates fountain is level both in north/south and east/west directions.
- Once complete, make sure all ballast plugs are replaced and tightened.
- Place small level on top of each display nozzle to ensure proper alignment. If unit has shifted in transit or during installation, re-align nozzle. (See page 8: Installation of Display Nozzles, step #5).

NOTE: Once fountain is in final location and firmly secured into position (see Securing Fountains page 10), check leveling again. Weight of submersible power cables pulling down on fountain may necessitate final leveling adjustment.

Positioning Fountain

With unit now level, carefully begin task of moving fountain into final location. Positioning Guidelines & Procedures:

- Tow unit into place with boat, or pull into place from opposite bank using anchoring/ mooring rope. DO NOT USE SUBMERSIBLE CABLE(S) TO TOW OR PULL UNIT.
- Allow submersible cables to be gently pulled from lake bank into the water as unit is being towed, with close attention to avoid obstructions that may snag or damage cable(s).

- Once in final destination, leave enough cable to ensure it drops to the lake bottom and accounts for any future rise in water level. Failure will result in fountain being “pulled” back toward shore. (Fig.7)
- Secure anchoring/mooring lines to framework of fountain using minimum 3/8” polypropylene ropes.

Securing Fountain

With unit in its final location, securing the fountain can be achieved by either anchoring or mooring methods. Each has pros/cons and should be determined based on individual site conditions before the installation begins. (Fig.7)

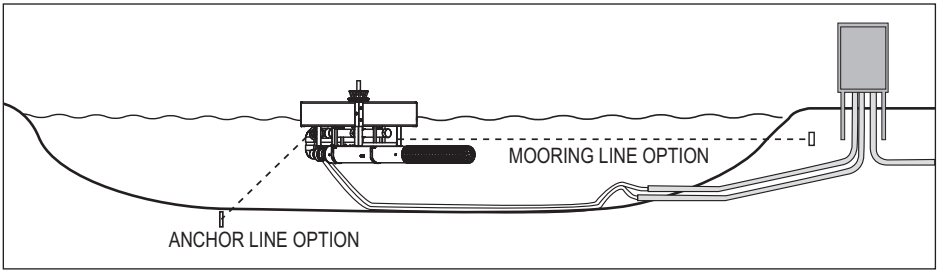


Fig.7

	PROS	CONS
ANCHORING	Less access - allows for greater protection from unauthorized personnel (vandalism). Less chance for snagging - by fish hooks, boat propellers, etc.	Less access - necessitates use of boat to perform maintenance of fountain.
MOORING	Easier access - depending on size of unit and lake, possible to pull fountain to water’s edge for maintenance.	Easier access - allows greater access by unauthorized personnel More chance for snagging - fish hooks, boat propellers, etc.

Anchoring Method 1 (Fig.8)

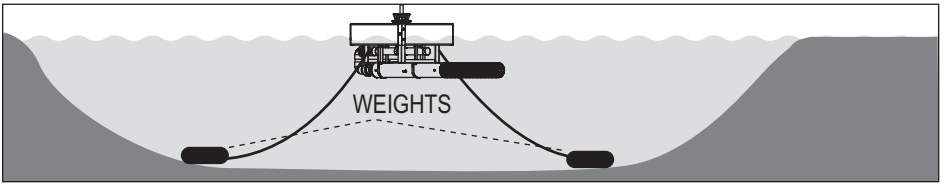


Fig.8

1. Secure minimum of two anchor lines to fountain frame using black polypropylene rope (minimum 3/8” diameter).
2. All anchor lines should be the same/equal distance from the system in the center and each other.

3. Length of anchor lines should be twice the depth of lake at fountain's final location (Example: if lake depth is 10', each anchor line should be 20').
4. Add the following anchors/weight to each anchor line:
    - 1hp – 7.5hp: 40 lbs per line
    - 10hp – 30hp: 50 lbs per line
5. Allow sufficient slack in anchor lines to accommodate water level fluctuations, but NOT enough slack that unit can rotate/spin more than 1/4 turn (when in operation, unit will naturally attempt to rotate; which can result in twisted and, damaged power cables).

Mooring Method 2 (Fig.9)

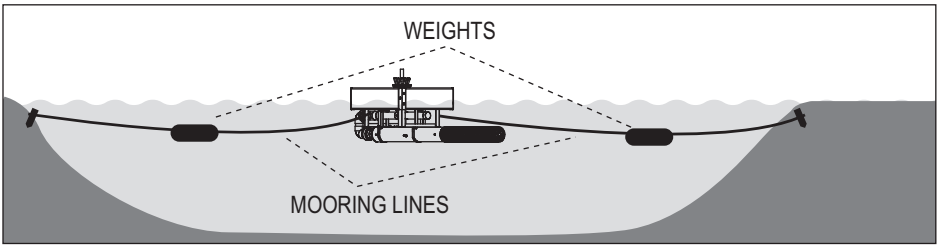


Fig.9

1. The fountain may be moored to the bank instead of anchoring to the lake bottom. This method may be advantageous on small ponds with smaller sized fountains and where vandalism does not pose a threat.
2. Secure minimum of two anchor lines to fountain frame using black polypropylene rope (minimum 3/8" diameter).
3. Length of anchor lines should be sufficient to allow securing just inside water's edge. Drive stakes into lake bottom and secure lines. To prevent mooring lines from floating on surface, secure weight (ex: 3 hole brick) to lines at midway point.
4. Vertex suggests marking mooring stakes for easier location in the future.

Initial Start-up:

Initial system start-up should be performed by licensed electrician, and only after all electrical systems have been thoroughly checked and approved:

- Make sure all terminal connections in the control panel are tight.
- Check incoming power for correct voltage and phase.
- Make sure all breakers are on.
- Start unit only after all personnel are out of water.
- Upon start-up, take amperage readings to ensure unit is running within normal operating range (see information on side door of control panel).
- If not able to confirm visually, check optional lighting is operating by taking amperage reading of lighting circuit.
- Fountain is now ready for any final display adjustments.

Display Adjustments:

Display adjustments must only be made with fountain system off and proper use of lock out/tag out procedures in place to prohibit accidental start-up.

- Ideally, perform final display adjustment during times of calm winds.
- Adjustments can be made to underwater valves (to adjust heights) regulating flow to the nozzle, and/or swivels (to adjust angle of display); depending upon the fountain model (affecting angle of display).
- Make sure all personnel are out of water when restarting unit after adjustment.
- Check amperage levels upon system restart after any adjustments – if regulating valves are restricting too much flow, motor amperage draws can be affected, causing premature failure not covered under warranty.

With final display adjustments made and electrical system checked, set time clocks to desired hours of operation and secure the control panel. Fountain is ready to put into normal daily operation.

III. Routine Fountain Maintenance

Owner accepts responsibility of required scheduled maintenance needed to ensure fountain system functions at optimum performance and within original operational ranges. Failure to perform scheduled maintenance can, and will void manufacturer's warranty.

Routine and scheduled maintenance is vital to ensure long life and optimum performance of our fountains. There are no lubricants to change, seals to replace or o'rings to fail. The only needed maintenance is periodic cleaning/brushing of key fountain components.

Frequency of maintenance is dependent on individual site/lake conditions. Inspect the fountain system no more than 2 months after original installation to assess anticipated cleaning frequency needed.

- Shut fountain system off.
- Always perform necessary lock out/tag out procedures prior to performing any service on the fountain.
- For your safety, always wear coast guard approved personal flotation devices when working in or around water.

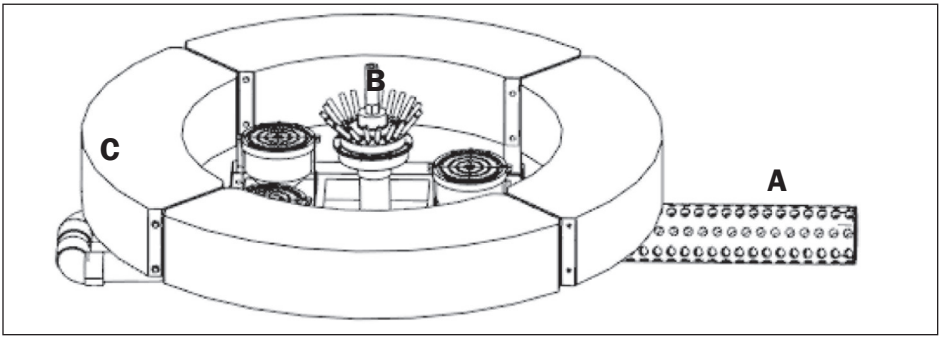


Fig.10

Key Fountain Components to be maintained: (Fig.10)

A - Pump intake screen (Fig.11)

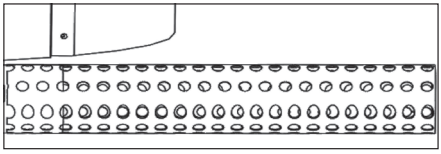


Fig.11

- Take ample time to thoroughly clean any debris, etc from the pump intake screen with heavy wire brush. If needed, attach brush to long handle to ensure complete cleaning.
- **Screen maintenance is VITAL to ensure optimum flow–**not only to maintain optimum display characteristics, but more importantly to maintain optimum operating temperature (and amperage draw) of pump and motor system. Failure in keeping intake free of debris or other obstructions is the #1 cause of premature system failure.

B - Display Nozzle(s) (Fig.13)

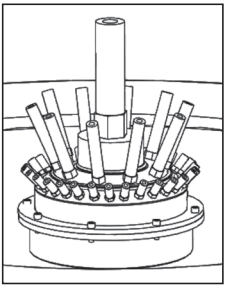


Fig.13

- Use heavy wire brush (pipe cleaner if necessary on smaller jets).
- Promotes original display characteristics.
- Insures optimum flow of pumping system, maintaining ideal operating temperature and amperage ranges.

C - Flotation Assembly

- Use heavy wire brush - neglected float surfaces will begin to show signs of unsightly algae and other aquatic growth.
- Excessive build-up can affect weight of the fountain system, possibly changing the level the fountain sits in water or overall balance of the system.
- Excessive build-up of aquatic growth can make removal during winter conditions much harder and time consuming.

D - Control Panel

- Inspect panel for signs of water intrusion and/or corrosion.
- Inspect for signs of insects or other small animals. Infestation can cause damage to sensitive electrical components, shorting, arching, electrical fire, etc.
- Check time clock settings to ensure proper hours of operation.

IV. Winterize Fountain System

Vertex fountains must be removed from water prior to freezing weather conditions. Failure to do so will result in damage to pump/motor system and void the warranty.

WARNING: Do not sink fountain system below ice level in lieu of removal from water. Certain fountain components are not UL rated for increased water pressure and may fail.

- Turn off/disconnect all power entering control panel.
- Perform necessary lock out/tag out procedures.
- Have a licensed electrician disconnect submersible cables coming into control panel.

- To protect against moisture intrusion, seal bare cable ends with a liquid vinyl product:
  - Loctite® Color Guard Rubber Protectant
  - Rust-O-Leum® Grip & Guard
- Disconnect anchoring/mooring lines.
- Remove fountain display nozzle(s).
- Remove any optional lighting fixtures and mounting yokes if mounted on outside diameter of flotation collar (secure to interior framework with plastic tie wraps).
- Remove water from each flotation ballast chamber by removing plugs, inserting pliable copper tubing and purging. See page 10: Leveling of Fountain Nozzles.
- Slowly and carefully pull or tow unit towards shoreline at point closest to where conduits/ cable enter water.
- Guard against cables catching on any bottom obstructions.
- DO NOT PULL OR TOW BY POWER CABLES.
- Bring up as close to shore as possible without unit touching bottom of lake.
- Secure lifting straps or chains to fountain framework taking care to avoid any PVC plumbing.
- Gently lift unit from water with heavy equipment (crane, backhoe, etc.) to just above waterline.
- Allow remaining water to empty/drain from chambers: float sections are not designed to sustain/carry the weight of ballast water outside of lake.
- Reinsert plugs into each flotation section.
- Secure straps onto one side of fountain framework in preparation of flipping of unit.
- Lift unit, allowing it to flip in lake, exposing pump and motor assembly.
- Remove intake screen.
- Secure straps to frame for removal of unit from lake.
- Lift unit from lake and place on level area of shore.
- Store unit in location protected from freezing conditions.
- For reinstallation, follow instructions contained in pages 6-12.

V. Troubleshooting Guidelines

Symptom	Action to Take
Pump does not run	Check that all breakers and time clocks are set and on.
	Single phase motor: check overload relay resets on motor control box. Three phase motor: check ground fault module, reset button and contactor motor overload reset button.
	Check service disconnect and main breaker in electrical line feeding fountain panel.
	If GFCI breakers trip again or if none of the above solve the problem, then the trouble is internal to the motor or power cable. Contact authorized Vertex Dealer or Vertex Aquatic Solutions directly.
Pump runs but shuts down after short period of time	Check intake screen for blockage and clean as needed.
	If screen is clean and problem persists, call an electrician or pump repair person.
None of the lights come on	Check that all breakers and time clocks are set and turned on.
	Check lenses for debris and sediment buildup.
	Check service disconnect and main breaker in electrical line feeding fountain panel.
	If GFCI breakers trip again or if none of the above solve the problem, then the trouble is internal to the fixture or power cable. Contact Vertex or authorized Vertex Dealer.
One or more lights come on, but not all	Check lenses for debris and sediment buildup.
	Check and replace burned out bulbs and/or gaskets.
	Contact Vertex.
Erratic or uneven pattern from fountain display head	Observe fountain on a calm day. Be certain wind is not at fault.
	Check intake screen for obstruction and clean as needed.
	Clean fountain head orifices.
	If problem persists, it may be due to line voltage.
Fountain Display	Observe fountain on a calm day. Be certain wind is not at fault.
	Check intake screen for obstructions and clean as needed.
	Adjust fountain head(s). Do this only on a calm day when there is no wind.
Flotation collar is not level	Check that all ballast chamber plugs are present and tight.
	Re-level flotation collar.
	If problem persists, there is a leak in one of the chambers. Contact Vertex or authorized Vertex Dealer.
Fountain changes location.	Check for an anchor that has broken loose and resecure.
	Remove excess slack in anchor lines.

VI. Product Warranty

Vertex Aquatic Solutions, a Rentokil Company will warranty parts on any “in water” fountain components (pump, motor, flotation, framework, nozzles, submersible cables, etc.) for a period of 4-years from original date of receipt.

Lighting fixtures (excluding bulbs) shall be warranted for 2-years, and control panel for a period of 1-year from original date of receipt.

Vertex will make sole determination if parts are defective and subject to warranty repair or replacement. If inspection indicates failure due to lack of required maintenance, failure to maintain adequate water depths or failure to maintain specified voltage, warranty shall be voided. Warranty period on all warranty work is equal to the remaining time period of the original new equipment warranty.

Exceptions

- Damage due to freezing conditions are not a manufacturer defect and will not be considered for warranty. See included “Winter Precautions” on page 13-14.
- Foreign objects and/or debris within the fountain pump/motor assembly do not constitute defect and are thus not covered under warranty.
- Vertex fountains are not warranted for use in salt and/or brackish water conditions.

Warranty will also be void if:

- Fountain is dismantled.
- Unauthorized repair has been performed.
- Factory-supplied components or control panel has been altered.

Vertex liability shall be limited solely to replacement or repair. Vertex is not liable for any consequential damages nor for any loss, damages or expenses directly or indirectly arising in connection with the purchase or use of the products.

Warranty claims must be made to an Authorized Vertex Dealer or to Vertex Aquatic Solutions at 1.844.432.4303

vertex
AQUATIC SOLUTIONS
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Hours of Operation: M – F: 8am – 5pm EST