

## MAINTENANCE

The Select Series II Aeration Fountains products do not require yearly maintenance of the motors or pumps. The motors should not be opened for maintenance and doing so will void the factory warranty.

**SUCTION SCREEN CLEANING:** Routine cleaning or inspections of the suction screen is required to assure adequate water flow past the motor to cool it during operation. If the screen becomes fouled with debris the motor can overheat and the spray pattern can be diminished. The mooring and anchoring installation instructions suggest a trip rope for the vertical units so the suction screen can be lifted to the surface of the water for cleaning. The suction screens on the horizontal units are close to the water's surface to make them easy to reach. A stiff bristled household cleaning brush can be used to remove any debris.

**LIGHT LENS CLEANING:** The light lenses should be cleaned to prevent algae and dirt build-up on them. Build-up dims the amount of light that comes through the lenses and can cause them to overheat.

## TROUBLESHOOTING

### GENERAL TROUBLESHOOTING

1. Set Up the Multimeter
  - a.
    - i. Know the range of Ohms available for you multimeter and whether your meter is auto-ranging
    - ii. Set the multimeter to the lowest Ohm (resistance) setting. Resistance is designated by Ohms.
    - iii. Determine how your multimeter designates open line. Observe the reading when both probes are held in the air, not touching.
    - iv. Determine how your multimeter designates continuity. This is done by touching the two (2) probes. This should be either zero or very close to zero. If not zero, this may be resistance internal to the meter and should be subsequent readings. If your meter has an "auto-zero" feature, use it to zero the meter.
  - b. Volts
    - i. Set the multimeter to the highest setting.
    - ii. Select AC volts. This is usually designated by VAC .
  - c. Amps - Use only a clamp ammeter e.g. Amprobe.
2. Check Neutral to Ground Voltage
  - a. Set multimeter to AC voltage, highest rating.
  - b. Check the voltage between Neutral and Ground.
  - c. The voltage should be zero.
  - d. If the voltage is other than zero, the neutral line may be bad.
  - e. A bad neutral may lead to faulty GFCI tripping.
3. Check Input Voltages - reading should be within 10% of nominal voltage.
  - a. Verify voltage rating of control panel matches supply voltage at the rotary disconnect prior to start up.
4. Check Output Voltages
  - a. 1-Phase: Black - Yellow
  - b. 3-Phase: T1 - T2, T1 - T3, T2 - T3
  - c. Analysis
    - i. Each reading should give source voltage.
    - ii. If good, problem is not in control panel although overloads or GFCIs may be too sensitive and cause premature tripping.
    - iii. If zero voltage: Backtrack through components, checking input vs. output voltages, to determine which one is tripped or faulty.
    - iv. If low voltage: Very unlikely, control panel wired incorrectly.
5. Check Amps - reading should be within 10% of nominal voltage.
  - a. 1-Phase - check yellow wire.
  - b. 3-Phase - check each hot wire; readings should be within 5% of one another.
6. If overload tripped - perform "Overload Troubleshooting Procedures"

## TROUBLESHOOTING

### CABLE TROUBLESHOOTING

Two problems affect cable integrity, shorted lines and broken or open lines. The following procedures will determine cable integrity. The cable should be disconnected from both the motor and the control panel. Verify the power is off before removing the cable.

1. Set up the multimeter
  - a. Set the multimeter to the lowest Ohm (resistance) setting. Resistance is designated by Ohms
  - b. Determine how your multimeter designates open line. This is done by observing the reading when both probes are held in the air, not touching.
  - c. Determine how your multimeter designates continuity. This is done by touching the two probes. This should be either zero or very close to zero. If not zero, this may be resistance internal to the meter and should be subtracted from all subsequent readings.
2. Disconnect the cable from the control panel and the load (pump or lights). Both ends must be dry. Verify the power is off before removing the cable.
3. Check for shorted lines. A short is an unintentional electrical path and can be caused by faulty insulation.
  - a. Set the multimeter to the highest Ohm (resistance) setting.
  - b. Take readings by touching the probes to each pair of wires; e.g. red-black, red-yellow, black-yellow, etc.
  - c. Analyse the readings.
    - i. The readings should be the same as the open line readings you observed in step 1b.
    - ii. If the readings designate continuity by giving a zero reading or any reading less than open line, a short exists.
    - iii. If any of the readings with green (ground) indicate continuity, a leak to ground exists.
  - d. Determine the action to take.
    - i. Visually inspect the cable.
    - ii. Any manual connection sites are candidates for inspection, e.g. junction boxes, splices.
    - iii. It may be impossible to determine the location of the short and a new cable may be the best solution.
4. Check for open lines. (An open line is a break in a wire.)
  - a. Set the multimeter to the lowest Ohm (resistance) setting.
  - b. At the control panel, with the cable disconnected from the control panel, join two (2) wires, e.g. red and white, by wrapping the end together. If you have four (4) wires, you may wish to connect the other two (2) together. Note which wires are connected.
  - c. From the other end of the cable select one of the pairs of joined wires and take readings by touching the probes to each wire or socket of the connector.
  - d. Analyse the readings.
    - i. The readings should indicate continuity, (either zero or close to zero). The readings should not exceed a few Ohms.
    - ii. If the readings indicate either open line or a very high number, a break or partial break exists.
    - iii. If a break exists, one or both of the wires tested may be involved.
    - iv. Determine the action to take.
      1. Visually inspect the cable.
      2. Any manual connection sites are candidates for inspection, e.g. junction boxes, splices.
      3. It may be impossible to determine the location of the open line and a new cable may be the best solution.
  - e. Perform these steps for each combination of wire pairs.

### AQUATIC TECHNOLOGIES

*Thank You for Purchasing your Fountains Australia*

## Aqua Control 2HP, 5HP & 7.5HP Series II Fountain