

AquaPure®

by Zodiac Pool Systems, Inc.

6000 Condor Drive

Moorpark, California, 93021 USA

(888) 647-4004

www.jandy.com

DOMESTIC Chlorine Generating Device

AquaPure Model AP1400

REGISTRATION NUMBER 28193 PEST CONTROL PRODUCTS ACT.

Installation and Operation Manual

Maximum Overcurrent Protection - 15A

Use Copper Conductors Only

Disconnect Power before Opening Service Cover

For Outdoor or Indoor Use

Electrical Requirements: 120 / 240 VAC 50/60 Hz 3 WIRE, 2.5 / 1.25 AMP

Maximum Output of Hypochlorous Acid is Equivalent to 600 g of Free Available Chlorine Per Day

3.0 to 3.5 Grams/Litre Salt

The maximum volume of water that can be treated with one unit of

AquaPure Model AP1400 is 113, 600 litres (113.6 m³).

For swimming pools, a minimum of 1 ppm of available chlorine must be maintained.

Controls bacteria and algae in swimming pool water.



Conforms to UL Std. 1081

Certified to CAN/CSA Std. CSA C22.2 No. 218.1

Conforms to NSF Std. 50

TO THE BUILDER: Please leave this manual with the pool owner.

TO THE POOL OWNER: Please save this manual.

WARNING

FOR YOUR SAFETY - This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment by the jurisdiction in which the product will be installed where such state or local requirements exist. In the event no such state or local requirement exists, the installer or maintainer must be a professional with sufficient experience in pool equipment installation and maintenance so that all of the instructions in this manual can be followed exactly. Failure to follow warning notices and instructions may result in property damage, serious injury, or death.

Operating AquaPure model AP1400C without water flow through the cell can cause a buildup of flammable gases which can result in FIRE OR EXPLOSION.

KEEP OUT OF REACH OF CHILDREN

Notice to User

Read all Labels and the Installation and Operation Manual Completely Before Attempting to Operate this Equipment.

This control product is to be used only in accordance with the directions on this label.

It is an offense under the Pest Control Products Act to use a control product under unsafe conditions.

Table of Contents

<p>Section 1. Important Safety Instructions..... 5</p> <p>Section 2. System Description 7</p> <p>2.1 Product Description 7</p> <p>2.2 Electrical Specifications 8</p> <p>Section 3. Installation Instructions 9</p> <p>3.1 Materials and Tools 9</p> <p>3.2 Plumbing Configurations..... 10</p> <p> 3.2.1 Recommended Electrolytic Cell and Sensor Orientation 10</p> <p> 3.2.2 Recommended Plumbing Configuration 11</p> <p>3.3 Installing AquaPure® Control Centres 12</p> <p>3.4 Earth Bonding (Grounding)..... 13</p> <p>3.5 Installing the Electrolytic Cell and Flow/Temp/ Salinity Sensor 14</p> <p> 3.5.1 New Installation..... 14</p> <p> 3.5.2 Replacement of Existing 3-Port Cell (Universal or 2" PVC Unions)..... 15</p> <p> 3.5.3 Replacement of Old 2-Port (Square) Cell with New 3-Port Cell 16</p> <p>3.6 Connection of Chlorine Generator Electronics to an AquaLink™ RS Control System 20</p> <p> 3.6.1 Wiring AquaPure Control Centre to an AquaLink RS Power Centre 20</p> <p>3.7 Operation of External Control/ORP Control Board 21</p> <p>Section 4. Pool Water Preparation 22</p> <p>4.1 Determining Pool Size (Litres of Water in Your Pool) 22</p> <p>4.2 Determining Pool Size (Gallons of Water in Your Pool) 22</p> <p>4.3 Chemistry You Need to Know 22</p> <p>4.4 Optimum Pool Water Conditions 23</p> <p>4.5 Chlorine Testing 24</p> <p>4.6 Salt (NaCl sodium chloride) 24</p> <p> 4.6.1 When to Add Salt? 24</p> <p> 4.6.2 What Type of Salt to Use? 24</p> <p> 4.6.3 How Much Salt to Use? 25</p> <p> 4.6.4 How to Add Salt to the Pool? 25</p>	<p>Section 5. Operating Instructions 27</p> <p>5.1 User Interface Controls 27</p> <p>5.2 Reading the Display..... 28</p> <p>5.3 Operation 30</p> <p> 5.3.1 Operation Without the Use of an External Timer 30</p> <p> 5.3.2 Operation Using an External Timer 30</p> <p>5.4 Startup 31</p> <p> 5.4.1 Shocking 31</p> <p> 5.4.2 Apply Power..... 31</p> <p>5.5 Operating in Winter 31</p> <p>5.6 Recommendations 32</p> <p>Section 6. User Maintenance Instructions ... 33</p> <p>6.1 Daily 33</p> <p>6.2 Monthly 33</p> <p>6.3 Electrolytic Cell Cleaning - As Needed 33</p> <p>6.4 Flow/Temp/Salinity Sensor Cleaning 35</p> <p>6.5 Winterizing 35</p> <p>Section 7. Troubleshooting 36</p> <p>7.1 Problems and Corrective Action 36</p> <p>7.2 Service Codes 39</p> <p>7.3 Level 2 Service Codes 39</p> <p>Section 8. Temperature Conversion 41</p> <p>Section 9. AquaPure® Exploded View and Replacement Kits 42</p> <p>9.1 AquaPure Control Centre Replacement Parts.. 42</p> <p>9.2 3-Port Electrolytic Cell and Sensor Replacement Parts with Universal Unions (2"-2½")..... 43</p>
--	---

Figures

Figure 1.	Typical AquaPure Installation Example With Options.....	7
Figure 2.	Wiring Diagram for the AquaPure® System	9
Figure 3.	Chlorine Generator Cell and Sensor Orientation with Flow Direction	10
Figure 4.	Recommended Plumbing Configuration for Pool/Spa Combination Systems	11
Figure 5.	Recommended Plumbing Configuration for Pool or Dual Equipment Systems	11
Figure 6.	Removing the Control Centre Mounting Brackets from Shipping Position	12
Figure 7.	Mark Holes using Control Centre Mounting Bracket	12
Figure 8.	Reinstall Mounting Brackets on Control Centre	13
Figure 9.	Cell Installation and Flow/Temp/Salinity Sensor	18
Figure 10.	Pipe Cutout	19
Figure 11.	Pipe Cutout (Option 3 - Replace 2-Port Cell and Piping and treat as New Installation).....	19
Figure 12.	Power Connection between AquaPure Control Centre and AquaLink RS Power Centre	20
Figure 13.	Communication Connection between AquaPure Control Centre and AquaLink RS Control System.....	20
Figure 14.	Movable ORP Jumper J14	21
Figure 15.	User Interface.....	27
Figure 16.	Spool Piece Location	35
Figure 17.	AquaPure® Control Centre	42
Figure 18.	3-Port Electrolytic Cell and Sensor Exploded View (Universal Unions).....	43
Figure 19.	3-Port Spool Exploded View	43

Tables

Table 1.	Option Selection Tool	16
Table 2.	Approximate Kilograms (Pounds) of Salt Needed to Obtain 3.0 gpl (3,000 ppm) in Pool	26
Table 3.	Approximate Kilograms and Pounds of Stabilizer Needed to Obtain 50 PPM	26

Section 1. Important Safety Instructions

IMPORTANT SAFETY INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

READ AND FOLLOW ALL INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

⚠ WARNING

To reduce the risk of injury, do not permit children or unauthorized personnel to use this product.

⚠ WARNING

When mixing acid with water, **ALWAYS ADD ACID TO WATER. NEVER ADD WATER TO ACID.**

⚠ WARNING

To reduce the risk of electric shock, fire or injury, service should only be attempted by a qualified pool service professional.

⚠ WARNING

Operating the AquaPure® without water flow through the electrolytic cell can cause a buildup of flammable gases which can result in FIRE OR EXPLOSION.

⚠ WARNING

Installation must be done in accordance with the Canadian Electrical Code (CEC), CSA C22.1. All applicable local installation codes must also be adhered to.

RISK OF ELECTRIC SHOCK, FIRE, PERSONAL INJURY, OR DEATH. Connect only to a circuit that is protected by a ground-fault circuit-interrupter (GFCI). Such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, there is ground current flowing, indicating the possibility of an electric shock. Do not use this unit. Disconnect this unit and contact a qualified service representative before using.

A green colored terminal (or a wire connector marked "G", "GR", "Ground" or "Grounding") is provided within the terminal compartment. To reduce risk of electric shock, connect this terminal or connector to the grounding terminal of your electric service or supply panel with a conductor equivalent in size to the circuit conductors supplying this equipment.

Power supply must be interconnected with pool pump motor power source.

Use of chemicals other than those recommended may be hazardous. Follow the chemical manufacturers instructions.

It is required that the water flow/salinity sensor is installed in the same piping as the electrolytic cell, without any valves or diverters between them. (See Section 2, Figure 1).

The flow/salinity sensor must be mounted as in Section 3.2, Figure 3.

⚠ CAUTION

It is important to note that certain materials used in and around swimming pools and spas may not be compatible with chemicals commonly used to purify pool and spa water (e.g. acids, chlorine, salt, stabilizers, etc.).

As such, Zodiac Pool Systems, Inc. does not warrant or guarantee that the chlorinated water generated by the AquaPure® will not damage or destroy certain types of plants, decking, coping and other materials in and around your pool and/or spa. Before selecting materials to be used in and around your pool and/or spa, please discuss all options with your contractor to assess the compatibility of such materials and chemicals.

Some helpful considerations may include:

- Choosing plants that can withstand splash out of pool water containing chlorine and/or salt and other water purification chemicals.
- All metal components used in and around a pool should be of a high grade, quality stainless steel.
- Careful selection of masonry products. The porosity and hardness of natural stones varies greatly. Therefore we recommend you consult with your builder or stone contractor on the best choice for stone materials around your pool or spa.
- Sealing all masonry products. Professionals in the stone industry specify that even natural stone, especially when used outdoors, be sealed to prevent weathering, staining, and premature degradation. Consult with your stone or deck contractor for the proper sealer for the masonry products you have selected to use around your pool or spa.
- For optimal results, sealers should be reapplied on a regular basis. Reapply the protective sealer on a schedule per the manufacturer's instructions.

SAVE THESE INSTRUCTIONS

Section 2. System Description

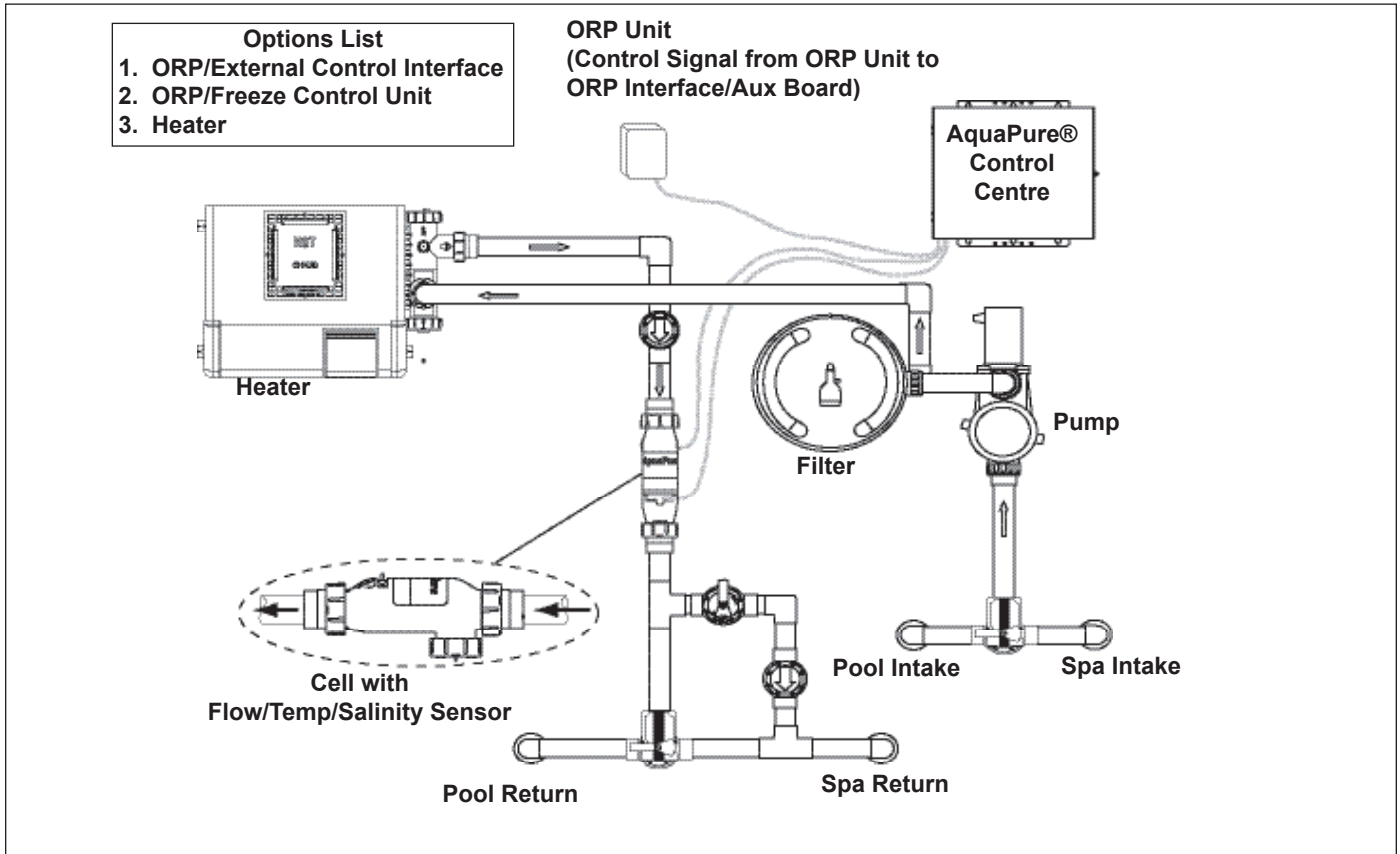


Figure 1. Typical AquaPure Installation Example With Options



ATTENTION INSTALLER: Various application notes (including more detailed instructions) are available from the Dealer covering installation, operation, maintenance, and plumbing of the chlorinator system.

2.1 Product Description

The AquaPure system uses a process known as electrolysis to produce sodium hypochlorite (liquid chlorine) from a low concentration of salt added to the pool water. Hypochlorite kills bacteria, oxidizes organic material, and kills algae then reverts back to salt. The system then reuses the salt and the process starts over again. The systems are comprised of the following components:

AquaPure Control Centre

- The AquaPure control centre converts AC power into low voltage DC current which is required by the cell to perform the electrolysis.
- The LCD display on the user interface offers monitoring of chlorine production, cell modes, salinity level, temperature, water flow and diagnostics.
- The control centre is connected with the pool circulation pump electrical source so that the electrolytic cell can only operate when the pool pump is on. An optional pool pump timer can be utilized to help control this function. The flow portion of the Flow/Temp/Salinity Sensor is a backup device only.

- Electrolytic Cell** The electrolytic cell contains bipolar electrodes which perform the electrolysis and produce chlorine when energized with DC current. Chlorine is generated as pool water containing salt passes through the cell. The chlorine production can be varied by either adjusting the chlorine production level on the power centre or by varying the number of hours the unit is on each day. The system automatically cleans the cell's electrode plates once every 3 hours by reversing the polarity of the electrical current. Whether the system is in forward or reverse, it is still producing chlorine.
- Flow/ Temperature/ Salinity/Sensor** The flow portion of the flow/temp/salinity sensor detects if there is adequate water flow through the cell. The salinity portion of the flow/temp/salinity sensor detects the level of salt in the pool water. This salt level is displayed in grams per litre (GPL)* on the user interface liquid crystal display (LCD) whenever the salinity button is pressed. This eliminates the need to manually test the salinity of the pool water. The pool temperature is displayed by pressing the Temperature button.
*1 gram per litre (GPL) = 1000 ppm (parts per million)
- Pool Pump Timer** A Pool Pump Timer is not included as part of your AquaPure®. It is recommended that a timer or an AquaLink™ RS control system be used to save on energy and prolong the service life of your pool pump and the AquaPure.

2.2 Electrical Specifications

Circuit Protection 2 pole 20 AMP device at the Electrical Panel.

Model AP1400

- Input:** 120 VAC, 50/60 Hz, 2.5 AMPS
240 VAC, 50/60 Hz, 1.25 AMPS
- Output:** 22-30 VDC @ 6 AMPS maximum
- Chlorine:** Maximum output of hypochlorous acid equivalent to 600 g of free available chlorine.
- External Control:** ORP/External Control Connector
AquaLink RS485 Connector

CAUTION

The electronics for the chlorine generator device are factory wired for 240 VAC service. If the available electrical service is 120 VAC then the power supply wiring must be changed to operate on 120 VAC as shown in Figure 2.

The chlorinator's electronics are powered from the LOAD SIDE of the pool circulation pump relay; therefore, if the available electrical service is 120 VAC, then the pump must also be wired for 120 VAC.

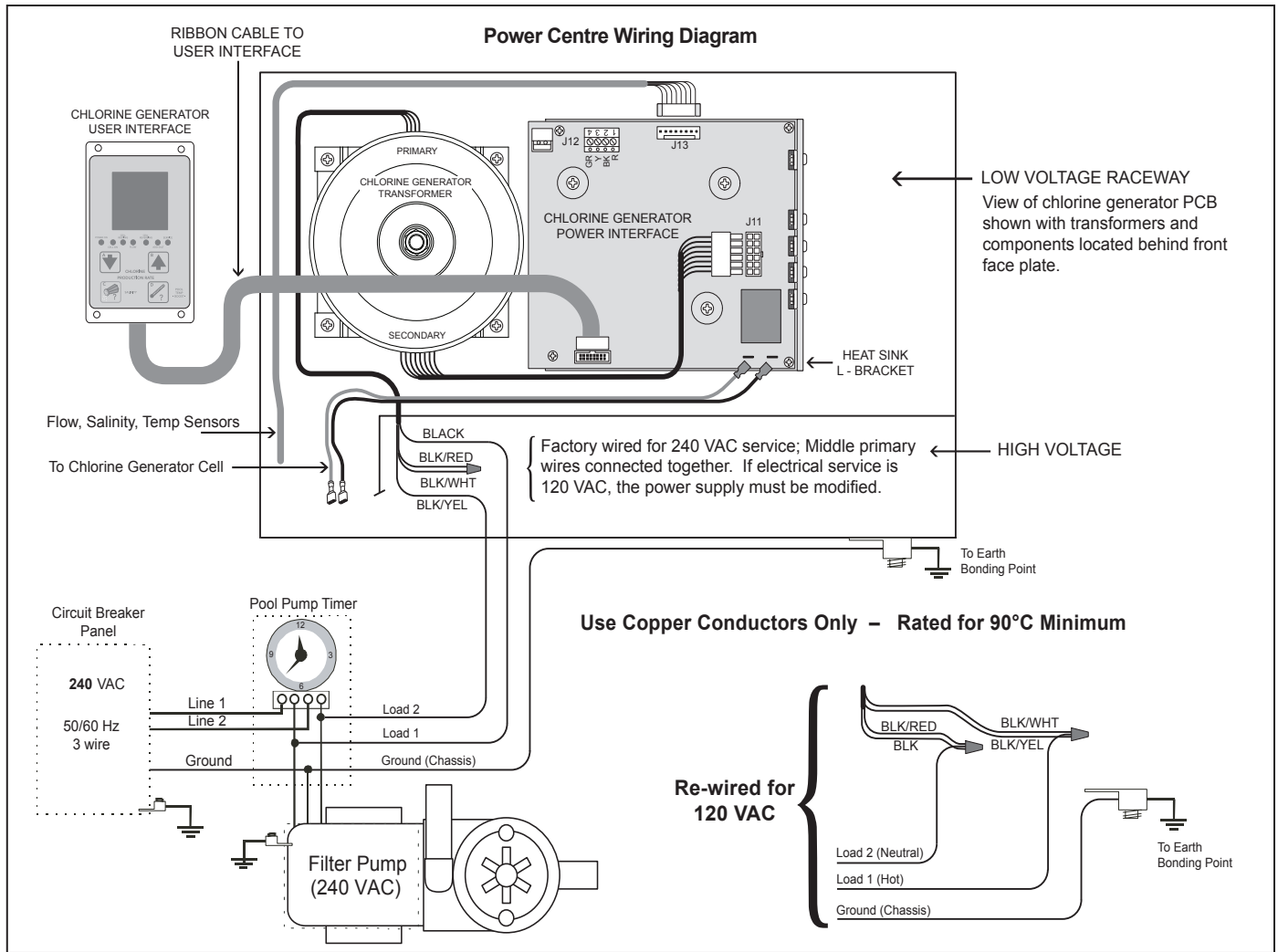


Figure 2. Wiring Diagram for the AquaPure® System

Section 3. Installation Instructions

3.1 Materials and Tools

NOTE Salt not included. See Section 4, Pool Water Preparation.

Installation Materials Furnished	Tools Needed for Installation
<p>PLC1400C Cell Kits</p> <ul style="list-style-type: none"> (1 ea.) Electrolytic Cell with Universal Unions (2"-2½" pipe) (1 ea.) Sensor with 16 ft (4.88m) Cable and O-ring (1 ea.) Universal Union Nut (1 ea.) 4.88 m (16 ft) DC Power Cord (1 ea.) Strain Relief (1 ea.) Owner's Manual - Warranty Information <p>AquaPure Control Centre</p> <ul style="list-style-type: none"> (1 ea.) AquaPure Control Centre (2 ea.) Wire Nuts (1 ea.) Installation Template 	<ul style="list-style-type: none"> Tape Measure Phillips & Flathead Screwdrivers Pliers Hacksaw Voltmeter to determine line voltage of AC wiring to power supply Electric Drill Motor and 6.35 mm (¼") masonry drill bit for mounting power supply on block or stucco wall An NSF®-approved All Purpose Cleaner Primer An NSF approved All Purpose Cement (such as Weld-On 794, 793)

⚠ WARNING

When using electrical products, basic precautions should always be followed, including the following:

- RISK OF ELECTRIC SHOCK WHICH CAN RESULT IN SERIOUS INJURY OR DEATH. Before attempting installation or service, ensure that all power to the device is disconnected/turned off at the circuit breaker.
- Grounding is required. The unit should be installed by a qualified service representative and should be properly grounded. (See Section 3.4, *Earth Grounding*).
- Install to permit access for servicing.
- Read Section 1, *Important Safety Instructions*. **Before attempting any electrical wiring, be sure to read and follow Safety Instructions. Wiring should only be attempted by a qualified professional.**
- All installations must be in accordance with the Canadian Electrical Code (CEC), CSA C22.1. All applicable local installation codes must be adhered to.

3.2 Plumbing Configurations

3.2.1 Recommended Electrolytic Cell and Sensor Orientation

⚠ WARNING

It is required that the water flow/salinity sensor is installed in the same piping as the electrolytic cell, without any valves or diverters between them. (See Section 2, Figure 1).

The flow/salinity sensor must be mounted as in Section 3.2, Figure 3.

Shown below are three (3) different cell and sensor orientations. The third port on the cell is designed for installation of the sensor and for quick viewing of the cell plates. The minimum flow rate is 114 lpm (30 gpm).

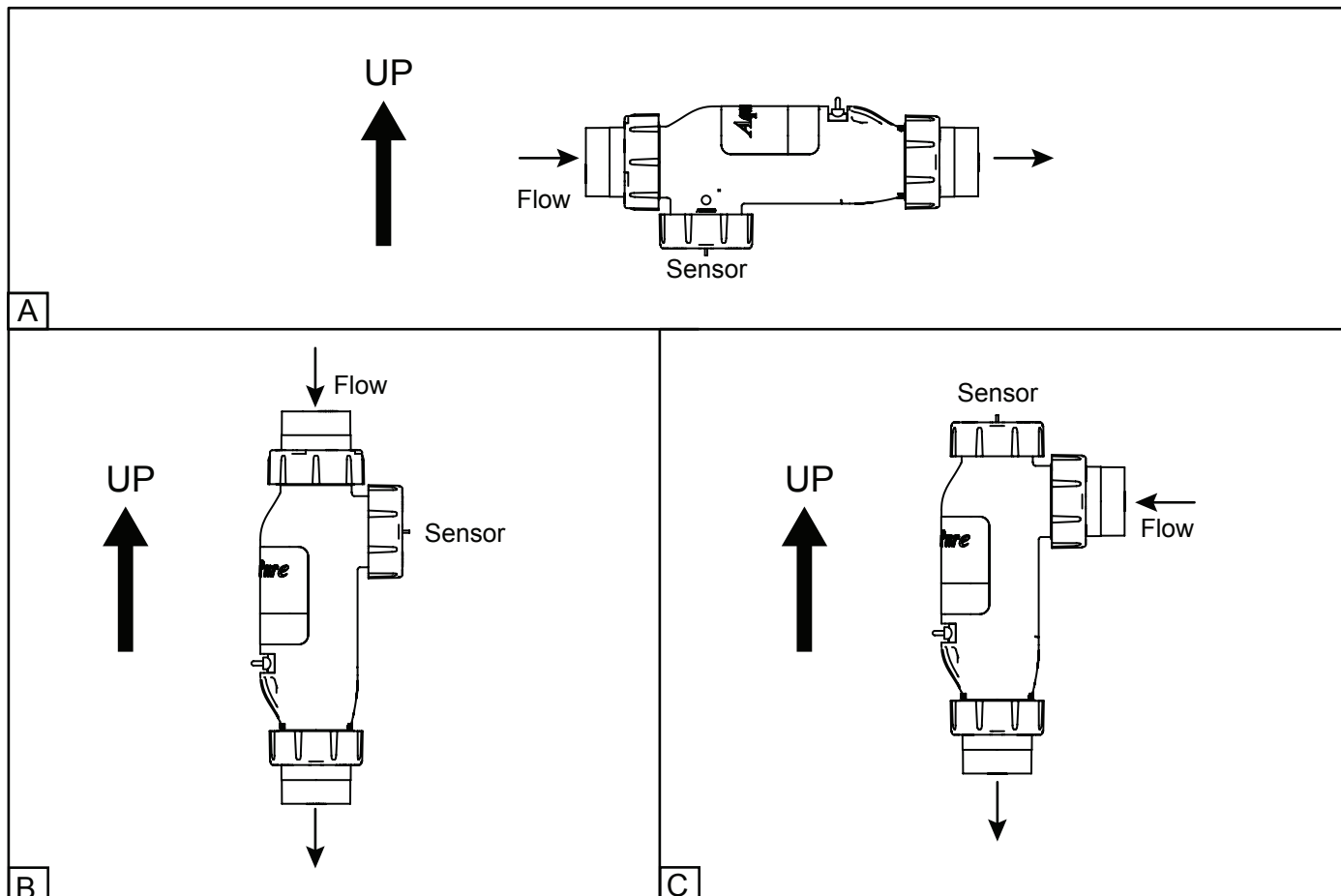


Figure 3. Chlorine Generator Cell and Sensor Orientation with Flow Direction

3.2.2 Recommended Plumbing Configuration

The preferred installation is that the cell and sensor are plumbed in the common line after (downstream) the heater. The sensor is designed to be plumbed into the 3-port cell. Figure 4 illustrates the recommended plumbing configuration, which results in the most reliable operation.

NOTE The AquaPure® system is powered from the LOAD SIDE of the pool circulation pump relay. This ensures that the cell only operates when the pool pump is ON. The flow sensor serves as a secondary protection device to ensure there is sufficient flow for the cell to operate.

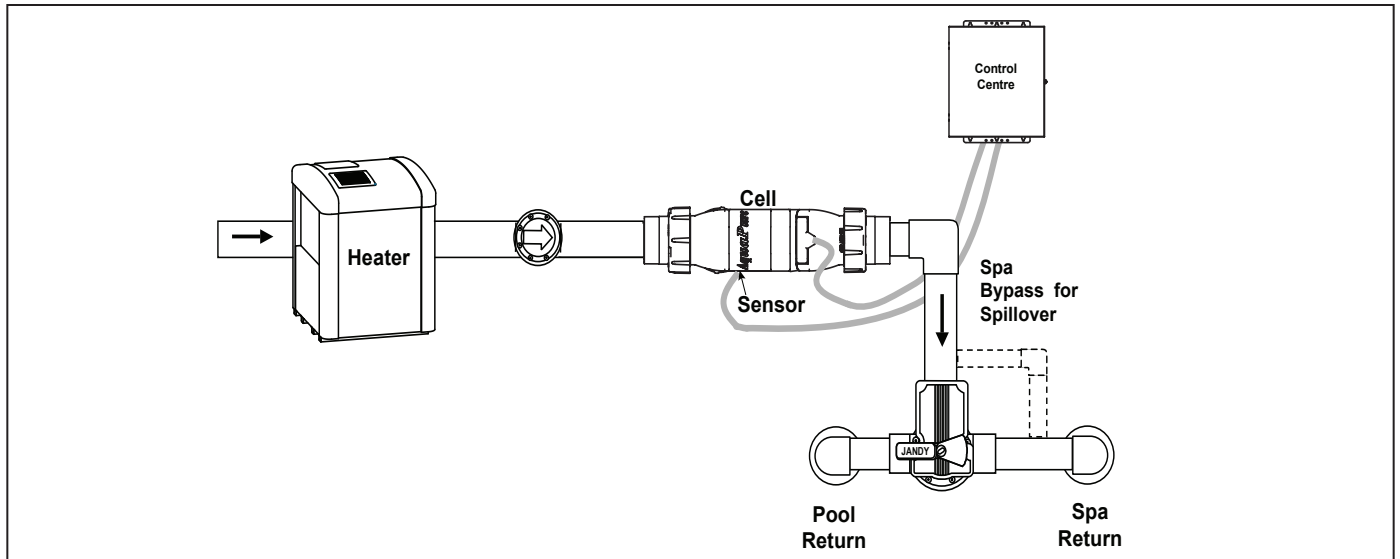


Figure 4. Recommended Plumbing Configuration for Pool/Spa Combination Systems

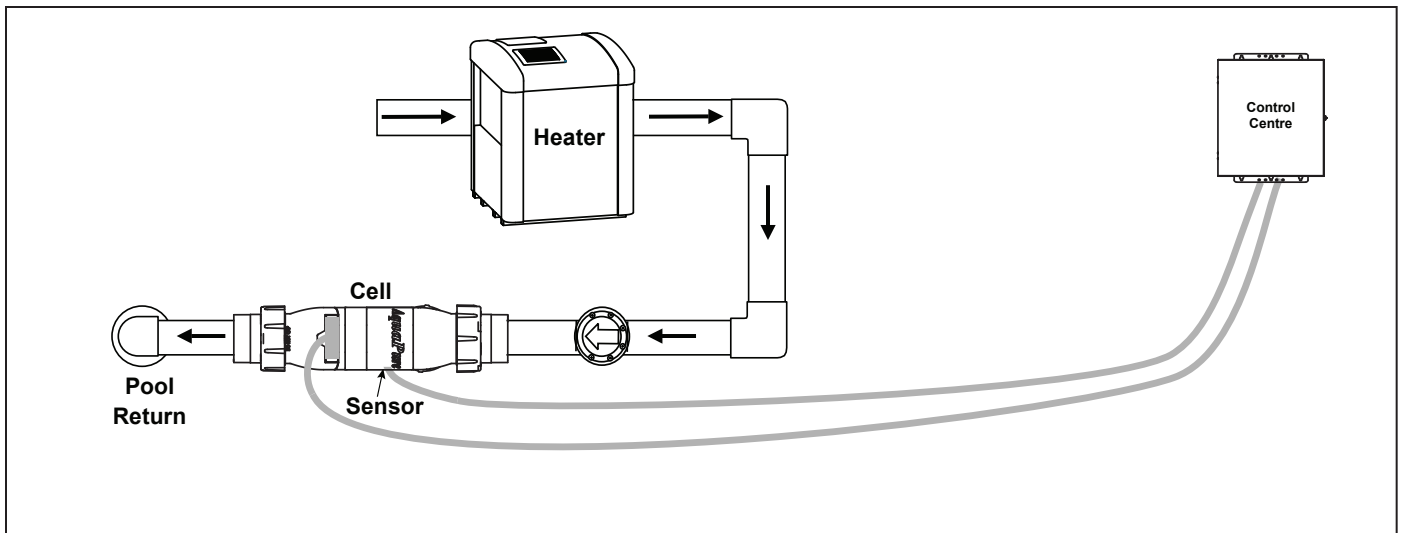


Figure 5. Recommended Plumbing Configuration for Pool or Dual Equipment Systems

3.3 Installing AquaPure® Control Centres

NOTE The control centre should be located at or near the equipment pad.

⚠ CAUTION

The control centre is not to be considered as suitable for use as service equipment. Therefore, it is required to have the appropriate means of disconnection, circuit isolation, and/or branch circuit protection installed **upstream** of the power centre.

1. The control centre must be at least three (3) metres (9.8 feet) away from the pool/spa and 1.5 metres (5 feet) above the ground. All national, provincial/state, and local codes are applicable.
2. The control centre comes with two (2) full length, heavy duty mounting brackets *fastened* to the back of the power centre during shipping. Remove the four (4) screws that are holding the two (2) brackets and the cardboard shipping cover in place (see Figure 6). Remove and discard the cardboard.

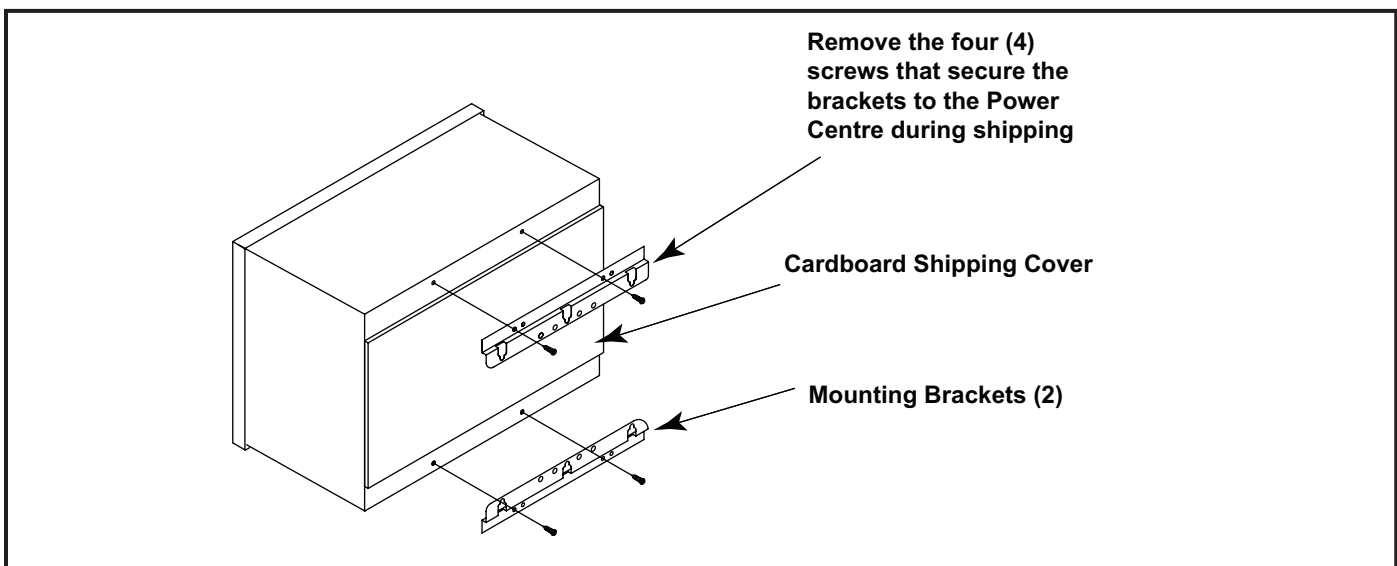


Figure 6. Removing the Control Centre Mounting Brackets from Shipping Position

3. Using the top mounting bracket as a guide, mark three (3) holes on the mounting surface where the power centre will ultimately reside (see Figure 7). Drill the holes in the mounting surface.

NOTE The three (3) mounting holes are 10.2 cm (4") apart centre to centre.

NOTE Use heavy-weight screws. The control centre with all available components installed can weigh up to 22.7 kgs (50 lbs).

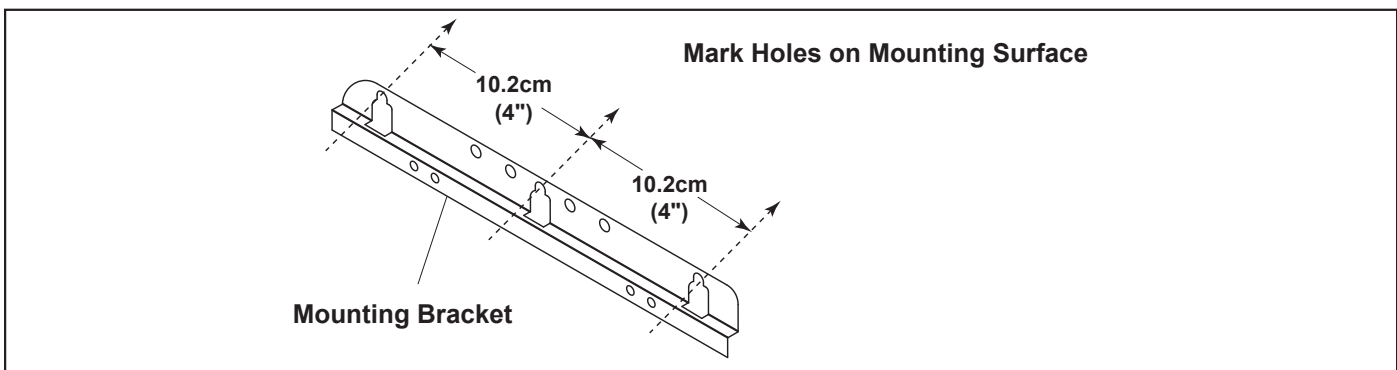


Figure 7. Mark Holes using Control Centre Mounting Bracket

- Reinstall the mounting brackets to the top and bottom of the back of the control centre using the four (4) screws that were removed in *Step 2*. Ensure that the brackets are rotated from the original shipping position (see Figure 8).

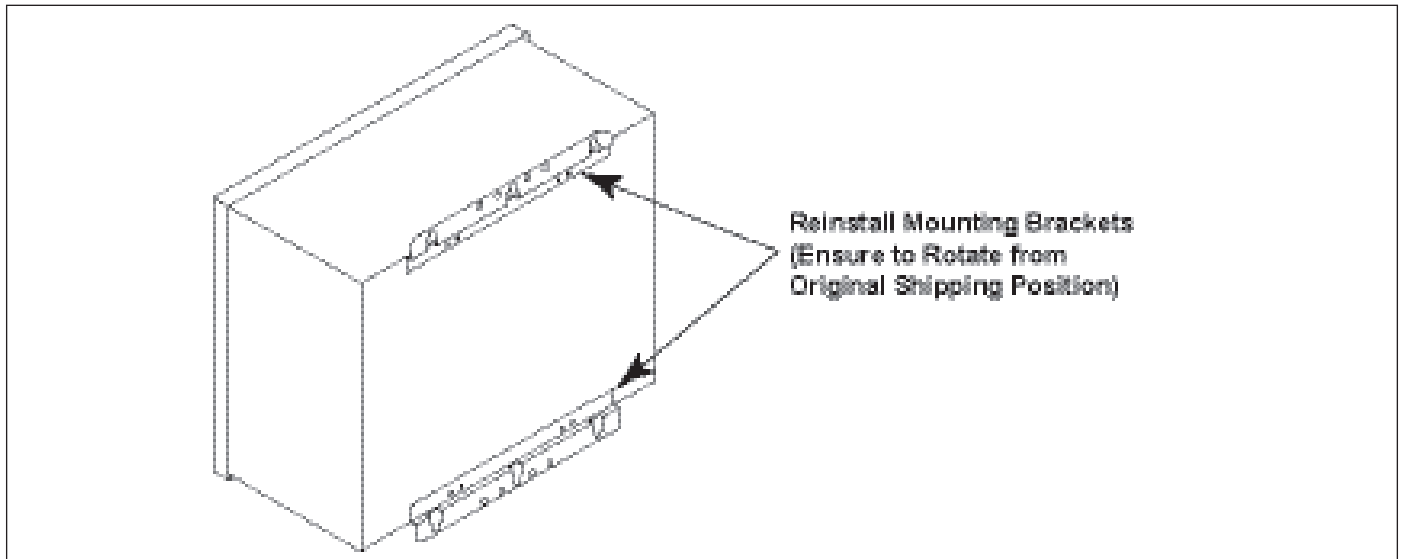


Figure 8. Reinstall Mounting Brackets on Control Centre

- Hang the control centre on the surface using the three (3) holes drilled in *Step 3*. With the control centre in place, mark three (3) holes for the bottom bracket mounting.

NOTE As with the top brackets, the bottom bracket requires three (3) mounting holes. The three (3) mounting holes are 10.2 cm (4") apart centre to centre.

- Drill the holes and install the screws.
- Level the control centre and tighten all screws, ensuring that the control centre is securely fastened to the mounting surface.
- Check source voltage. (All units are factory wired for 240 VAC). ***In order to use on 120 VAC, the internal factory wiring of the power centre must be changed. (See Figure 2).***

3.4 Earth Bonding (Grounding)

A solid, copper # 6 awg (13.3mm²) wire is *recommended* for connecting the control centre to a permanent earth ground connection that is acceptable to the local inspection authority. Refer to your local codes for the acceptable grounding wire gauge. Attach the bonding point located on bottom of the power centre to a common earth bonding point. Do not use the control centre as the common bonding point. Each piece of non-chlorinator related pool equipment requiring a ground should be bonded to the common, approved, earth bonding point.

3.5 Installing the Electrolytic Cell and Flow/Temp/Salinity Sensor

Please choose one of the following instructions to either install or replace the cell and sensor assembly.

3.5.1 New Installation

3.5.2 Replacement of Existing 3-Port Cell

3.5.3 Replacement of 2-Port (square) Cell and Sensor Tee with 3-Port Cell

NOTE: Maximum operating Pressure is 345 kPa or 50 psi - Minimum Flow Rate is 114 lpm (30 gpm).

WARNING

ATTENTION INSTALLER: If the flow/temp/salinity sensor is not installed properly, it may allow the electrolytic cell to operate without water flow. This would cause a buildup of flammable gases resulting in FIRE or EXPLOSION.

- Mount as shown in Figure 11. This will result in the most reliable operation.
- The flow/temp/salinity sensor must be mounted:
 - (1) In one of the available ports in the electrolytic cell
 - or -
 - (2) In the same line prior to the cell with no valves or diverters between the flow/temp/salinity sensor and cell.
- Anytime the flow/temp/salinity sensor is connected or disconnected and reconnected, the AC power to the unit must be turned off and back on (Cycle Power). If power is not cycled, unreliable operation of the flow/temp/salinity sensor will result.

3.5.1 New Installation

1. Be sure pool pump is turned off.
2. It is recommended that the flow/temp/salinity sensor and electrolytic cell be installed in the pool return line after the filter and heater. The cell can be installed in either a horizontal or a vertical position. See Figure 3.
3. Position the flow/temp/salinity sensor and cell in the recommended position (see Figures 1, 3, 4 and 5).
4. Locate a suitable section of pipe, approximately 432 mm (17 inches) long or follow the recommended plumbing diagrams as shown in Figures 4 and 5. The flow/temp/salinity sensor cable and cell DC cord **must** be able to reach from the power centre to this section of pipe.
5. Cut out a 352 mm (13⁷/₈"") section of the 50 mm or 2" pipe to insert the cell. See Figure 12. Glue on unions and install cell.
6. Install the flow/temp/salinity sensor into the 3-Port cell. See Figure 9.
7. Install the strain relief provided with the electrolytic cell kit into the low voltage knock out. Feed the connector end of the flow/temp/salinity sensor cable through the DC cord strain relief fitting. **Be certain the connector is clean and dry**, then plug the cable into the connector on the power centre printed circuit board as shown in Figure 2. (**Do not pull Flow/Temp/Salinity Sensor cable too tight, allow a little slack**).
8. Plug the DC cord into the cell stud terminals protruding from the cell top. The DC cord can be plugged into the cell in either direction.

CAUTION

To avoid risk of damage to the equipment and possible injury, it is important to make sure the DC cable connector is fully seated on the cell stud terminals.

9. Connect the DC cord to the power centre. Feed the DC cord through the same strain relief fitting as the flow/temp/salinity sensor. Plug the DC cord into the two (2) spade connectors of the wiring harness located in the low voltage raceway of the control centre, see Figure 2. This wiring harness establishes the connection between the cell and the power interface PCB.
10. Tighten strain relief fitting screws for the flow/temp/salinity sensor and the DC cord. ***Do not pull Flow/Temp/Salinity Sensor cable or DC Cord too tight. Allow a little slack for the cable inside of power centre enclosure.***

 **CAUTION**

Do not over tighten the strain relief fitting. Over tightening can cause damage to the flow/temp/salinity sensor cable.

11. Prior to reattaching front cover, check the wiring. Be sure the flow/temp/salinity sensor is plugged in. The DC cord should be plugged in. Also, check the AC wiring.
12. Plug one end of the ribbon cable into the back of the user interface and the other end into the J1 connector on the power interface PCB (see Figure 2).

 **WARNING**

To avoid property damage, serious injury or death, do not operate the electrolytic cell without water circulation. A buildup of flammable gases can result in FIRE or EXPLOSION.

3.5.2 Replacement of Existing 3-Port Cell (Universal or 2" PVC Unions)

1. Be sure pool pump is turned off.
2. Unplug DC cable from existing cell. Disconnect the DC cord from the wiring harness as shown in Figure 2. Loosen the strain relief fitting that also contains the cable for flow/temp/salinity sensor. Pull the DC cord out through the strain relief.

 **CAUTION**

Do not allow the DC Cord to pull too tightly on flow/temp/salinity sensor cable as it is being pulled through the strain relief. This may damage the flow/temp/salinity sensor cable and its connection to the printed circuit board.

3. Remove flow/temp/salinity sensor from cell by unscrewing coupling nut on sensor port. The sensor should pull straight out after nut is removed.
4. Remove old 3-port cell body by unscrewing coupling nuts on flow ports. The cell body will be free to pull out after nuts are clear of the threads.
5. Replace existing union o-rings with new o-rings provided with cell kit.
6. Install new cell and tighten coupling nuts.
7. Install the flow/temp/salinity sensor into the available sensor port (See Figure 9).
8. Plug the new DC cord provided with the cell kit, in either direction, into the cell stud terminals protruding from the cell top. Make sure that the plug is fully inserted and bottomed out on the housing.

 **CAUTION**

To avoid risk of damage to the equipment and possible injury, it is important to make sure the DC cable connector is fully seated on the cell stud terminals.

9. Connect the DC cord to the control centre. Feed the DC cord through the same strain relief fitting as the flow/temp/salinity sensor. Plug the DC cord into the two (2) spade connectors of the wiring harness as shown in Figure 2.

⚠ CAUTION

Do not bury the electrolytic cell DC cord or sensor cable directly in the ground. Direct burial can cause damage to an electrical cord/cable.

10. Tighten strain relief fitting screws for the flow/temp/salinity sensor cable and the DC cord. ***Do not pull flow/temp/salinity sensor cable or DC Cord too tight. Allow a little cable slack inside of control centre enclosure.***

⚠ CAUTION

Do not over tighten the strain relief fitting. Over tightening can cause damage to the flow/temp/salinity sensor cable.

11. Check the wiring prior to reattaching front cover. Be sure the flow/temp/salinity sensor is plugged in. The DC cord should be plugged in. Also, check the AC wiring.
12. If disconnected, plug the ribbon cable into the J1 connectors the user interface and the Power Interface PCB (See Figure 2).

⚠ WARNING

To avoid property damage, serious injury or death, do not operate the electrolytic cell without water circulation. A buildup of flammable gases can result in FIRE or EXPLOSION.

3.5.3 Replacement of Old 2-Port (Square) Cell with New 3-Port Cell

1. Be sure pool pump is turned off.
2. Unplug DC cable from existing cell. Disconnect the DC cord from the wiring harness as shown in Figure 2. Loosen the strain relief fitting that also contains the cable for flow/temp/salinity sensor. Pull the DC cord out through the strain relief.

⚠ CAUTION

Do not allow the DC Cord to pull too tightly on flow/temp/salinity sensor cable as it is being pulled through the strain relief. This may damage the flow/temp/salinity sensor cable and its connection to the printed circuit board.

3. Please choose one (1) of the following options (See Table 1):
 - 3a. Option 1 - Retain Existing Sensor in Threaded Tee
 - 3b. Option 2 - Install New Sensor in 3rd Port of Cell (remove old sensor and plug tee)
 - 3c. Option 3 - Replace Section of Piping (eliminate old cell and sensor fittings) and treat as New Installation

Table 1. Option Selection Tool

2-Port Cell Thread Size and Style	Option 1	Option 2	Option 3
2" PVC Male (black)	Yes	Yes	Yes
1.5" ABS Female (White "Hayward" Style)	No	No	Yes

- 3a. Option 1 - Retain Existing Sensor in Threaded Tee
- Remove old 2-Port cell body by unscrewing coupling nuts on ports. The cell body will be free to pull out after nuts are clear of the threads.
 - Replace existing union o-rings with new o-rings provided with cell kit.
 - Install new cell and tighten coupling nuts.

NOTE The 3-Port Cell and 2-Port cell are the same length. The new cell should fit without any need to modify existing plumbing.

- Ensure that the 3rd port is sealed off with provided o-ring, plug and nut. Verify coupling nut is properly hand tightened.
 - Go to Step 4, below.
- 3b. Option 2 - Install New Sensor in 3rd Port of Cell (remove old sensor and plug tee)
- Remove old flow/temp/salinity sensor by unscrewing it from the threaded tee.
 - Replace sensor with 1 ½" National Pipe Taper (NPT) plug.
 - Disconnect the flow/temp/salinity sensor from the Power Interface PCB as shown in Figure 2. Loosen the strain relief fitting that also contains the cable for the DC cord. Pull the flow/temp/salinity sensor cable out through the strain relief.
 - Remove old 2-port cell body by unscrewing coupling nuts on ports. The cell body will be free to pull out after nuts are clear of the threads.
 - Replace existing union o-rings with new o-rings provided with cell kit.
 - Install new cell and tighten coupling nuts.

NOTE The 3-Port cell and 2-Port cell are the same length. The new cell should fit without any need to modify existing plumbing.

- Install the new flow/temp/salinity sensor into the 3-port cell (See Figure 9).
 - Feed the connector end of the flow/temp/salinity sensor cable through the DC cord strain relief fitting. Be certain the connector is clean and dry, then plug the cable into the connector on the Power Interface PCB as shown in Figure 2 (Do not pull flow/temp/salinity sensor cable too tight, allow a little slack).
 - Go to Step 4, below.
- 3c. Option 3 - Replace Section of Piping (eliminate old cell and sensor fittings) and treat as New Installation.
- Cut out section of pipe that contains cell, sensor, and fittings. Glue straight couplers or reducing coupler onto open ends of piping. Make sure to leave enough length to fit in new cell (see Figure 11).
 - Go to Step 1, Section 3.5.1 New Installation
4. Plug the DC cord, in either direction, into the cell stud terminals protruding from the cell top. Make sure that the plug is fully inserted and bottomed out on the housing.

 **CAUTION**

To avoid risk of damage to the equipment and possible injury, it is important to make sure the DC cable connector is fully seated on the cell stud terminals.

- Connect the DC cord to the control centre. Feed the DC cord through the same strain relief fitting as the flow/temp/salinity sensor. Plug the DC cord as shown in Figure 2.

⚠ CAUTION

Do not bury the electrolytic cell DC cord or Sensor cable directly in the ground. Direct burial can cause damage to an electrical cord/cable.

- Tighten strain relief fitting screws for the flow/temp/salinity sensor cable and the DC cord. Do not pull flow/temp/salinity sensor cable or DC Cord too tight. Allow a little cable slack inside of control centre enclosure.
- Check the wiring prior to reattaching front cover. Be sure the flow/temp/salinity sensor is plugged in. The DC cord should be plugged in. Also, check the AC wiring.

⚠ CAUTION

Do not over tighten the strain relief fitting. Over tightening can cause damage to the flow/temp/salinity sensor cable.

- If disconnected, plug the ribbon cable into the J1 connectors the user interface and the Power Interface PCB (See Figure 2).

⚠ CAUTION

Do not operate the electrolytic cell without water circulation. A buildup of flammable gases can result in FIRE or EXPLOSION.

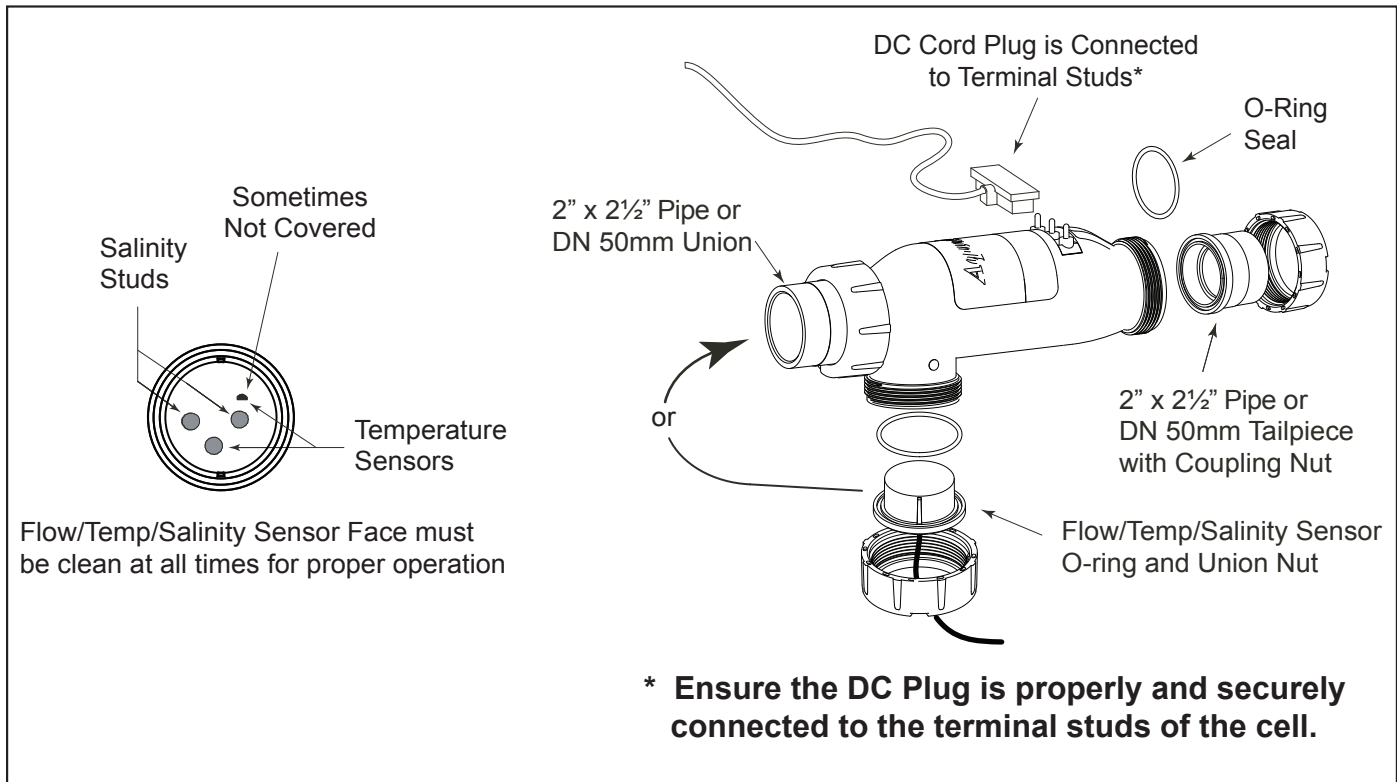


Figure 9. Cell Installation and Flow/Temp/Salinity Sensor

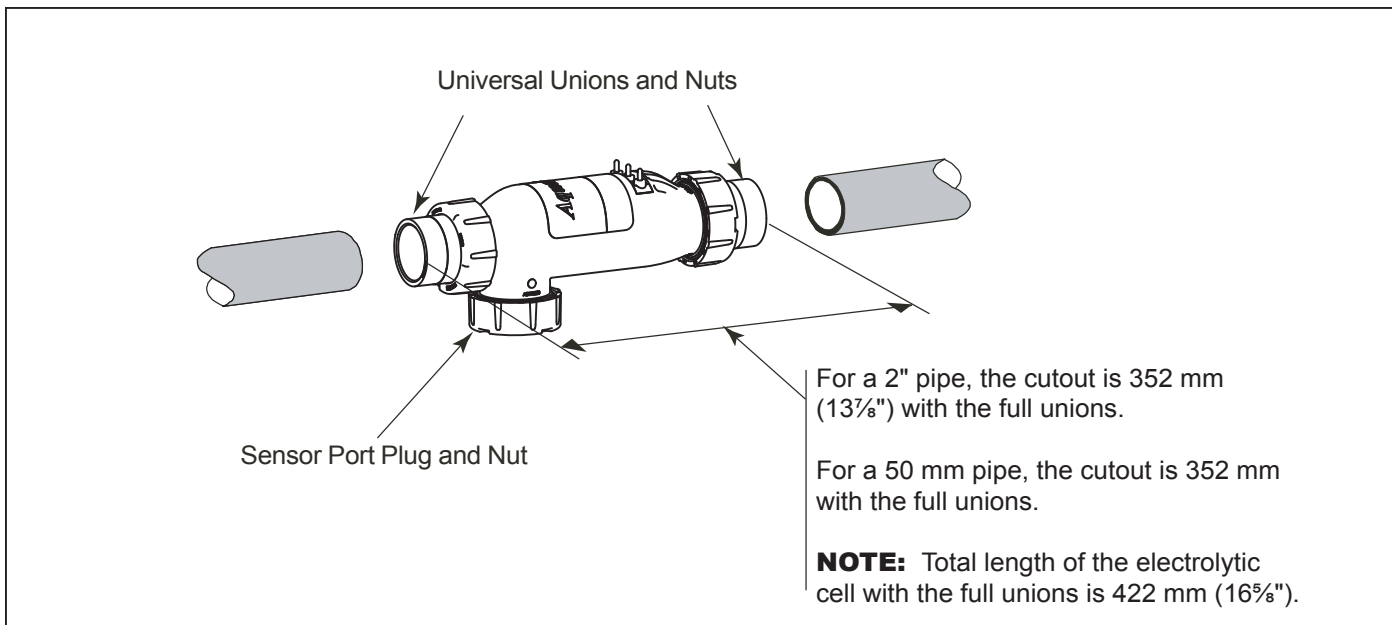


Figure 10. Pipe Cutout

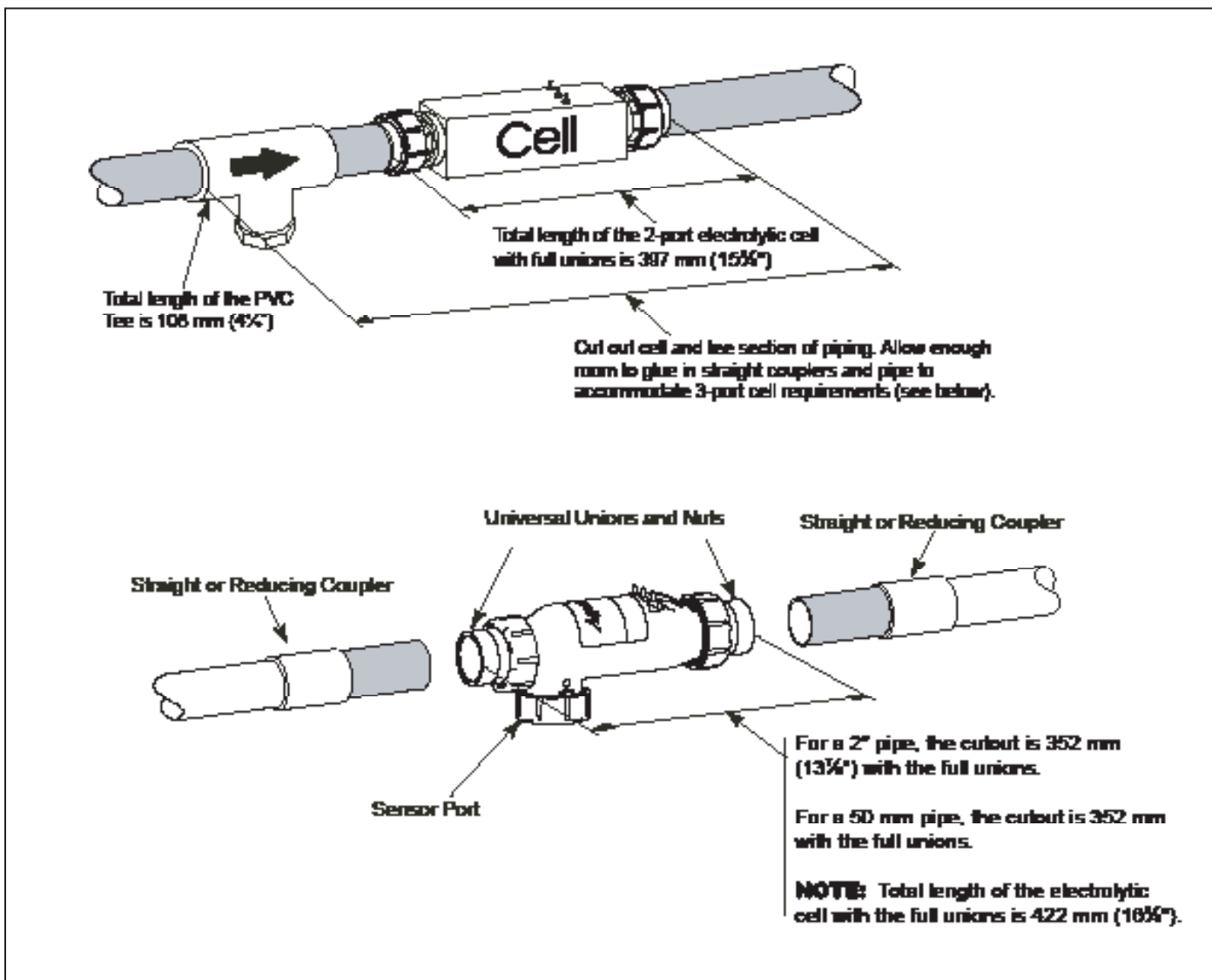


Figure 11. Pipe Cutout (Option 3 - Replace 2-Port Cell and Piping and treat as New Installation)

3.6 Connection of Chlorine Generator Electronics to an AquaLink™ RS Control System

The Jandy AquaLink™ RS is a multi-function pool controller that can fully control the function of the chlorine generator. The chlorine generator user interface will display “JA” when any of its buttons are pressed while the AquaLink RS is in control. Adjustment of the chlorine production rate or Boost mode can be controlled from the main menu of the AquaLink RS controller (All Button, OneTouch™, or PDA). Boost mode can also be activated from the chlorine generator user interface while the AquaLink RS is online. Refer to the *AquaLink RS Operation Manual* (or *AquaLink RS PDA Operation Manual*) for more information. The chlorine generator’s user interface will display temperature, salinity, service codes, and LED indicators as normal.

NOTE The AquaPure® chlorine generator electronics will communicate with AquaLink RS using firmware versions JJ or later.

3.6.1 Wiring AquaPure Control Centre to an AquaLink RS Power Centre

In the AquaLink RS power centre enclosure, wire the AquaPure Control Centre input power *directly* to the LOAD SIDE of the filter pump relay (see Figure 12).

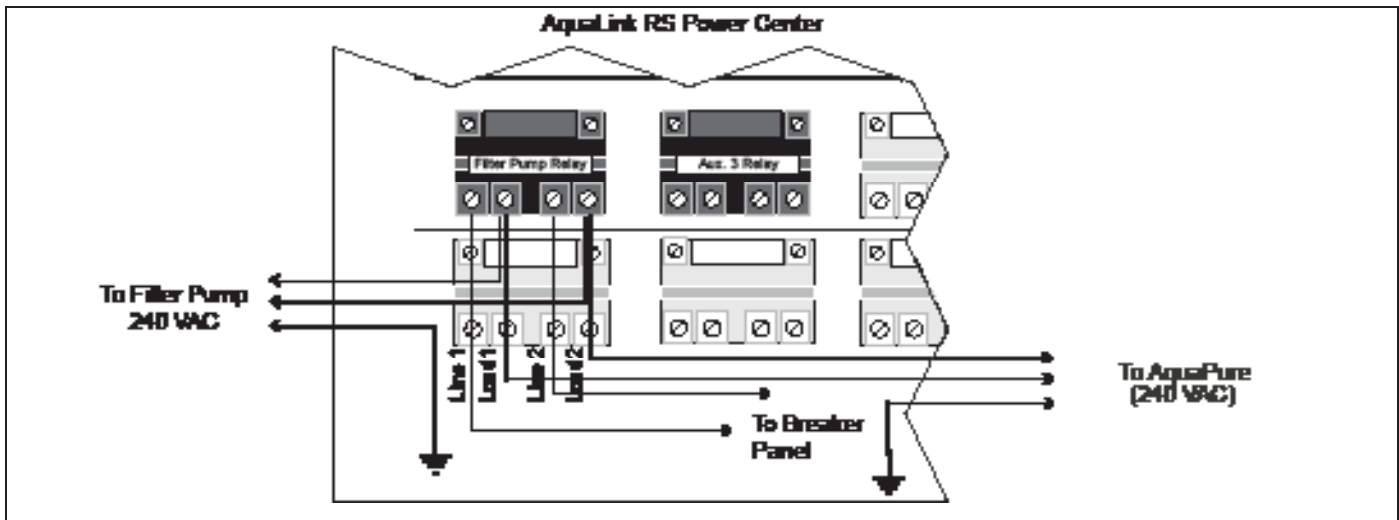


Figure 12. Power Connection between AquaPure Control Centre and AquaLink RS Power Centre

The Jandy AquaLink RS and AquaPure use a four (4) wire connection to communicate and can be wired up to 152 m (500 feet) apart. Any outdoor rated four (4) conductor cable, minimum 22 AWG, can be used. Locate the appropriate screw terminals on the circuit board according to Figure 13. Wire the AquaPure from the red 4-pin terminal bar to the AquaLink RS red 4-pin terminal bar (see Figure 13).

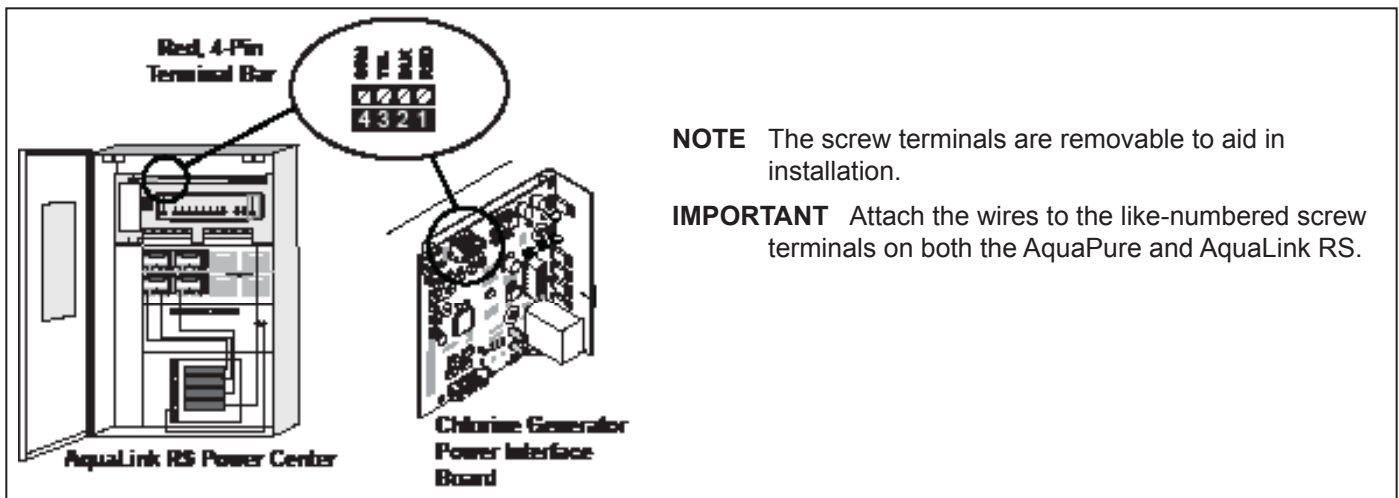


Figure 13. Communication Connection between AquaPure Control Centre and AquaLink RS Control System

3.7 Operation of External Control/ORP Control Board

An external device such as an ORP (Oxidation Reduction Potential) controller supplying 24 Volts AC can be used to control the output of the chlorine generator. The chlorine generator power interface board can be set up in the field to operate in two (2) different modes. The mode of operation is determined by the position of a movable jumper J14. See Figure 14 for location.

POS-1 (Wait at least one (1) minute after applying power. See note 1.)

With J14 jumper set to POS-1 and no voltage applied to the ORP 24 VAC connector J15, the chlorine generator works normally displaying the production rate of 0% to 100% on the display of the user interface.

When 24 Volts AC is applied to the ORP 24 VAC inputs, chlorine production will be disabled. The display of the user interface will then flash “EC” (external control). Once the 24 Volts AC input is removed the chlorine generator will return to normal operation. The “EC” will be replaced with the current production setting of 0% to 100%.

POS-2 (Wait at least one (1) minute after applying power. See note 1.)

Placing the jumper in POS-2 allows the chlorine generator to operate in the opposite way to POS-1. With 24 Volts AC applied to the ORP 24 VAC inputs, chlorine production will be enabled. The display of the user interface will display a production rate of 0% to 100%. When the 24 Volts AC is removed the display will flash “EC” every few seconds and chlorine production is disabled.

SUMMARY

POSITION OF J14	24 VAC	0 VAC
POS-1 (default)	Unit OFF , displays EC	Unit ON , displays 0-100%
POS-2	Unit ON , displays 0-100%	Unit OFF , displays EC

Note 1 The unit samples the external control/ORP settings at the instant power is applied to the chlorine generator and will not respond to any changes during the first minute of operation. The unit may appear to be STUCK IN or STUCK OUT of “EC” mode. Wait several minutes until the unit has warmed up to verify the changes made to external control set-up.

Note 2 Multiple chlorine generators can be linked together to be controlled with one ORP controller without the use of external relays and transformers. Contact the factory for more information.

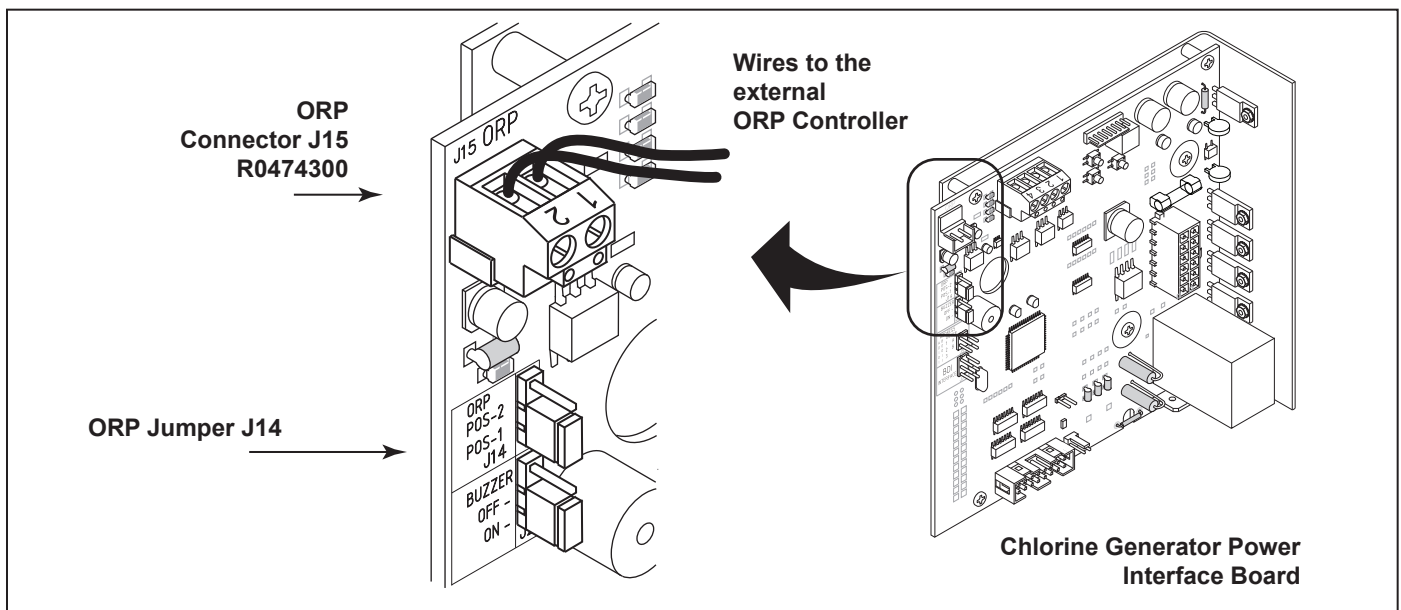


Figure 14. Movable ORP Jumper J14

Section 4. Pool Water Preparation



ATTENTION INSTALLER: Various application notes (including more detailed instructions) are available from the Dealer covering installation, operation, maintenance, and plumbing of the chlorinator system.

4.1 Determining Pool Size (Litres of Water in Your Pool)

- **Rectangular Pools**

Average length (metres) x average width (metres) x average depth (metres) = m³ capacity.

m³ capacity x 1000 = Litres

- **Circular Pools**

Diameter (metres) x diameter (metres) x average depth (metres) x 0.79 = m³ capacity.

m³ capacity x 1000 = Litres

- **Oval Pools**

Long diameter (metres) x short diameter (metres) x average depth (metres) x 0.79 = m³ capacity.

m³ capacity x 1000 = Litres

- **Sloping Sides**

Multiply total m³ by 0.85 = m³ capacity.

m³ capacity x 1000 = Litres

4.2 Determining Pool Size (Gallons of Water in Your Pool)

- **Rectangular Pools**

Average length (feet) x average width (feet) x average depth (feet) x 7.5 = gallon capacity.

- **Circular Pools**

Diameter (feet) x diameter (feet) x average depth (feet) x 5.9 = gallon capacity.

- **Oval Pools**

Long diameter (feet) x short diameter (feet) x average depth (feet) x 5.9 = gallon capacity.

- **Sloping Sides**

Multiply total gallons by 0.85 = gallon capacity.

4.3 Chemistry You Need to Know

1. **Chlorine Stabilizer** (cyanuric acid) is needed to maintain proper levels of chlorine. Most unstable chlorine is destroyed by the UV radiation from the sun within 2 hours. Chlorine stabilizer should be maintained between 30 - 50 ppm. For indoor pools, it is not necessary to add chlorine stabilizer to the swimming pool water.
2. **Nitrates** can cause extremely high chlorine demands and will deplete chlorine from your swimming pool. In some cases nitrates may even lower your chlorine levels to zero. Your local pool professional can test for nitrates. Make sure nitrates are not present in your pool.
3. **Metals** (some metals) can cause loss of chlorine. Also, metals can stain your pool. Have your local pool professional check for metals and recommend methods of removal.
4. **Chloramines** should not be present in pool water. When organic materials combine with free chlorine, chloramines are formed. This ties up the free chlorine in your pool and does not allow the chlorine in your pool to disinfect. Chloramines also cloud pool water and burn the eyes. [Shock to remove chloramines at the initial startup of the pool].
5. **Super Chlorination** burns out the organic material that has combined with chlorine. This frees the chlorine for sanitizing. This is accomplished by raising the chlorine level quickly and dramatically. Super chlorination occurs when the sanitation system is placed in Boost mode.

6. **Shocking** (Superoxidation) is also a means of burning out the organic material that has combined with chlorine. This method involves the manual addition of chemicals to quickly raise the level of chlorine. When the chlorine level is quickly raised to 5 - 15 ppm the pool water is said to have been shocked.

NOTE On initial startup of a pool, it is best to shock using an alternate source, i.e., use a shock treatment available at your local pool supplier.

⚠ CAUTION

Never use dry acid to adjust pH in arid geographic areas with excessive evaporation and minimal dilution of pool water with fresh water. A buildup of by-products can damage the electrolytic cell.

7. The pH condition resulting from the operation of the salt water chlorination system is close to neutral. However, other factors usually cause the pH of the pool water to rise. Therefore, the pH in a pool chlorinated by a salt water system tends to stabilize at approximately 7.6. If the pool pH rises above 7.6 have a pool professional test to see if other factors such as high calcium hardness or total alkalinity are the cause and then balance accordingly.
8. **Total Dissolved Solids (TDS)** adding salt to pool water will raise the TDS level. While this does not adversely affect the pool water chemistry or clarity, the pool water professional testing for TDS must be made aware salt has been added for the sanitizing system. The individual performing the TDS test will then subtract the salinity level to arrive at the correct TDS level.
9. New pool water in a recently filled or newly refinished pool may contain undesirable matter. This undesirable matter could interfere with the salt water chlorinator's ability to sanitize properly. Make sure the water is tested by a pool professional and properly balanced before turning on the chlorinator system.
10. **Sequestering Agents** in some areas the total hardness of your source water may be unusually high. High total hardness can contribute to scale formation in the pool. Sequestering agents will help keep minerals in solution and under some conditions can prevent this from happening. Consult your pool professional about the use of a sequestering agent.

4.4 Optimum Pool Water Conditions

In accordance with Association of Pool and Spa Professionals (APSP) standards, we recommend the following water balance conditions be maintained on an on-going basis to protect the pool finish and equipment and ensure the pleasing appearance of the water. The AquaPure® is warranted to operate properly only if these conditions are met.

Free Chlorine	1.0 - 3.0 ppm. Continuous exposure to levels above 3.0 ppm may cause corrosion of pool metals.
Combined Chlorine (Chloramines)	None (Super Chlorinate to remove all chloramines).
pH	7.2 - 7.8 (USE MURIATIC ACID to lower pH and Soda Ash to raise pH).
Chlorine Stabilizer (Cyanuric Acid)	30 - 50 ppm (for outdoor pools only)
Total Alkalinity	100 - 120 ppm
Calcium Hardness	200 - 300 ppm
Metals (Iron, Manganese)	None
Nitrates	None

4.5 Chlorine Testing

Use a home test kit or ask your pool professional to test your water. It is recommended that chlorine test samples be taken from two (2) places, described below. Compare the two (2) samples. A higher level should be found at the pool return line. The higher level at the pool return line indicates the salt water chlorinator system is producing chlorine.

1. At the pool return line.
2. 18 inches (457 mm) below the surface and well away from the pool return line.

CAUTION

It is important to note that certain materials used in and around swimming pools and spas may not be compatible with chemicals commonly used to purify pool and spa water (e.g. acids, chlorine, salt, stabilizers, etc.).

As such, Zodiac Pool Systems, Inc. does not warrant or guarantee that the chlorinated water generated by the salt water chlorinator will not damage or destroy certain types of plants, decking, coping and other materials in and around your pool and/or spa. Before selecting materials to be used in and around your pool and/or spa, please discuss all options with your contractor to assess the compatibility of such materials and chemicals.

Some helpful considerations may include:

- Choosing plants that can withstand splash out of pool water containing chlorine and/or salt and other water purification chemicals.
- All metal components used in and around a pool should be of a high grade, quality stainless steel.
- Careful selection of masonry products. The porosity and hardness of natural stones varies greatly. Therefore we recommend you consult with your builder or stone contractor on the best choice for stone materials around your pool or spa.
- Sealing all masonry products. Professionals in the stone industry specify that even natural stone, especially when used outdoors, be sealed to prevent weathering, staining, and premature degradation. Consult with your stone or deck contractor for the proper sealer for the masonry products you have selected to use around your pool or spa.
- For the optimal results, sealers should be reapplied on a regular basis. Reapply the protective sealer on a schedule per the manufacturer's instructions.

4.6 Salt (NaCl sodium chloride)

4.6.1 When to Add Salt?

For a new concrete pool or newly resurfaced pool it is recommended to wait 30 days (surface should be completely cured) before adding salt. Follow the pool surface manufacturer's guidelines for your particular pool. For vinyl and fiberglass pools, salt can be added at start up. After start up add salt as necessary to maintain proper levels.

4.6.2 What Type of Salt to Use?

- The purer the salt the better the life and performance of the electrolytic cell. Use a salt that is at least 99.8% pure NaCl. The salt is an evaporated, granulated, food quality, non-iodized salt. Consult your salt supplier.
- Avoid using salt with anti-caking agents (sodium ferrocyanide, also known as YPS or yellow prussiate of soda) that could cause some discoloration of fittings and surface finishes in pool.
- Water conditioning salt pellets are compressed forms of evaporated salt and may be used but will take longer to dissolve.
- **Do Not** use calcium chloride as a source of salt. (Use sodium chloride only).
- **Do Not** use rock salt (insoluble impurities mixed with the rock salt can shorten the life of the unit).

4.6.3 How Much Salt to Use?

Use Table 2 to determine how much salt will be needed. Most pools contain some salt depending on the water source and chemicals used for sanitizing. If the salt water chlorinator has not been wired and turned on yet, a salt test strip or a hand held metre calibrated for NaCl (salt) can be used to determine the existing salt concentration of the water. If the unit is wired (connected), use it to determine the salinity. Water temperature can affect the salinity readout, always test salinity at the equipment locations.

Set Chlorine Production to 00%. Operating the unit above 00% production without salt will damage the electrolytic cell. The **Salinity** button **C** on the sanitizer user interface keypad can be used to determine salinity in the case of a new pool installation, or a complete water change so long as the Chlorine Production is set to 00%. See *Section 5.4.2, step 2*.

- 3.0 to 3.5 gpl of salt is recommended for optimum water conditions.
- Low salt concentration below 2.0 gpl will cause premature cell failure.
- High salt concentration above 4.0 gpl may damage the power centre.
- High salt concentration above 6.0 gpl may cause corrosion damage to pool fixtures.

NOTE Should too much salt be inadvertently added to the pool see *Section 7, Troubleshooting*.

NOTE To convert gpl (grams per litre) of a salt solution to parts per million (ppm) of a salt solution multiply by 1000, i.e., 3.0 gpl salt X 1000 = 3000 ppm salt.

4.6.4 How to Add Salt to the Pool?

1. Turn on pump to circulate pool water.
2. ***IMPORTANT - Turn the chlorine production off by pressing the arrow button A and setting CHLORINE PRODUCTION Rate to 00%.***
3. Determine amount of salt from the following charts.
4. Broadcast or spread the salt into the outer perimeter of the pool, or into the shallow end of the pool for quick and even distribution.
5. ***To avoid clogging the filter or damaging power centre and pump, do not add salt through either the skimmer, main drain, or surge tank.***
6. Brush the pool bottom and allow water to circulate for 24 hours to dissolve completely and mix evenly with the pool water.
7. After 24 hours, verify correct salt reading.
8. Turn on the system and set to desired chlorine production rate (pressing the arrow buttons **A** or **B**).

NOTE For a new concrete pool or newly resurfaced pool it is recommended to wait 30 days (surface should be completely cured) before adding salt. Follow the pool surface manufacturers guidelines for your particular pool. For vinyl and fiberglass pools, salt can be added at start up.

Table 2. Approximate Kilograms (Pounds) of Salt Needed to Obtain 3.0 gpl (3,000 ppm) in Pool

Salt Conc. Before Addition	Pool Size in Litres (US Gallons)															
	38,000 (10,000)	45,000 (12,000)	53,000 (14,000)	60,000 (16,000)	68,000 (18,000)	76,000 (20,000)	83,000 (22,000)	91,000 (24,000)	98,000 (26,000)	106,000 (28,000)	113,000 (30,000)	121,000 (32,000)	129,000 (34,000)	136,000 (36,000)	144,000 (38,000)	151,000 (40,000)
0.00 g/l	113 kgs (250 lbs)	136 kgs (300 lbs)	159 kgs (350 lbs)	181 kgs (400 lbs)	204 kgs (450 lbs)	227 kgs (500 lbs)	249 kgs (550 lbs)	272 kgs (600 lbs)	295 kgs (650 lbs)	318 kgs (700 lbs)	340 kgs (750 lbs)	363 kgs (800 lbs)	386 kgs (850 lbs)	408 kgs (900 lbs)	431 kgs (950 lbs)	454 kgs (1000 lbs)
0.25 g/l	104 kgs (230 lbs)	127 kgs (280 lbs)	145 kgs (320 lbs)	168 kgs (370 lbs)	188 kgs (415 lbs)	209 kgs (460 lbs)	231 kgs (510 lbs)	249 kgs (550 lbs)	272 kgs (600 lbs)	293 kgs (645 lbs)	313 kgs (690 lbs)	334 kgs (736 lbs)	355 kgs (782 lbs)	376 kgs (828 lbs)	396 kgs (874 lbs)	417 kgs (920 lbs)
0.50 g/l	95 kgs (210 lbs)	113 kgs (250 lbs)	134 kgs (295 lbs)	154 kgs (340 lbs)	172 kgs (380 lbs)	191 kgs (420 lbs)	209 kgs (460 lbs)	229 kgs (505 lbs)	247 kgs (545 lbs)	268 kgs (590 lbs)	286 kgs (630 lbs)	305 kgs (672 lbs)	324 kgs (714 lbs)	343 kgs (756 lbs)	362 kgs (796 lbs)	381 kgs (840 lbs)
0.75 g/l	86 kgs (190 lbs)	104 kgs (230 lbs)	122 kgs (270 lbs)	136 kgs (300 lbs)	154 kgs (340 lbs)	172 kgs (380 lbs)	191 kgs (420 lbs)	209 kgs (460 lbs)	225 kgs (495 lbs)	240 kgs (530 lbs)	259 kgs (570 lbs)	276 kgs (608 lbs)	293 kgs (646 lbs)	310 kgs (684 lbs)	327 kgs (722 lbs)	345 kgs (760 lbs)
1.00 g/l	75 kgs (165 lbs)	91 kgs (200 lbs)	104 kgs (230 lbs)	120 kgs (265 lbs)	136 kgs (300 lbs)	150 kgs (330 lbs)	163 kgs (360 lbs)	181 kgs (400 lbs)	195 kgs (430 lbs)	209 kgs (460 lbs)	225 kgs (495 lbs)	240 kgs (528 lbs)	254 kgs (561 lbs)	269 kgs (594 lbs)	284 kgs (627 lbs)	299 kgs (660 lbs)
1.25 g/l	66 kgs (145 lbs)	79 kgs (175 lbs)	91 kgs (200 lbs)	104 kgs (230 lbs)	118 kgs (260 lbs)	132 kgs (290 lbs)	145 kgs (320 lbs)	159 kgs (350 lbs)	172 kgs (380 lbs)	186 kgs (410 lbs)	197 kgs (435 lbs)	210 kgs (464 lbs)	224 kgs (493 lbs)	237 kgs (522 lbs)	250 kgs (551 lbs)	263 kgs (580 lbs)
1.50 g/l	57 kgs (125 lbs)	68 kgs (150 lbs)	79 kgs (175 lbs)	91 kgs (200 lbs)	102 kgs (225 lbs)	113 kgs (250 lbs)	125 kgs (275 lbs)	136 kgs (300 lbs)	147 kgs (325 lbs)	159 kgs (350 lbs)	170 kgs (375 lbs)	181 kgs (400 lbs)	193 kgs (425 lbs)	204 kgs (450 lbs)	215 kgs (475 lbs)	227 kgs (500 lbs)
1.75 g/l	48 kgs (105 lbs)	59 kgs (130 lbs)	68 kgs (150 lbs)	77 kgs (170 lbs)	86 kgs (190 lbs)	95 kgs (210 lbs)	104 kgs (230 lbs)	113 kgs (250 lbs)	125 kgs (275 lbs)	134 kgs (295 lbs)	143 kgs (315 lbs)	152 kgs (336 lbs)	162 kgs (357 lbs)	171 kgs (378 lbs)	181 kgs (399 lbs)	191 kgs (420 lbs)
2.00 g/l	39 kgs (85 lbs)	45 kgs (100 lbs)	54 kgs (120 lbs)	63 kgs (140 lbs)	68 kgs (150 lbs)	77 kgs (170 lbs)	86 kgs (190 lbs)	93 kgs (205 lbs)	101 kgs (222 lbs)	109 kgs (240 lbs)	116 kgs (255 lbs)	123 kgs (272 lbs)	131 kgs (289 lbs)	139 kgs (306 lbs)	147 kgs (323 lbs)	154 kgs (340 lbs)
2.25 g/l	27 kgs (60 lbs)	32 kgs (70 lbs)	39 kgs (85 lbs)	45 kgs (100 lbs)	50 kgs (110 lbs)	54 kgs (120 lbs)	59 kgs (130 lbs)	66 kgs (145 lbs)	73 kgs (160 lbs)	76 kgs (168 lbs)	82 kgs (180 lbs)	87 kgs (192 lbs)	93 kgs (204 lbs)	98 kgs (216 lbs)	103 kgs (228 lbs)	109 kgs (240 lbs)
2.50 g/l	18 kgs (40 lbs)	23 kgs (50 lbs)	27 kgs (60 lbs)	29 kgs (65 lbs)	32 kgs (70 lbs)	36 kgs (80 lbs)	41 kgs (90 lbs)	45 kgs (100 lbs)	48 kgs (105 lbs)	50 kgs (110 lbs)	54 kgs (120 lbs)	58 kgs (128 lbs)	62 kgs (136 lbs)	65 kgs (144 lbs)	69 kgs (152 lbs)	73 kgs (160 lbs)
2.75 g/l	9 kgs (20 lbs)	11 kgs (25 lbs)	14 kgs (30 lbs)	16 kgs (34 lbs)	18 kgs (40 lbs)	19 kgs (43 lbs)	20 kgs (45 lbs)	23 kgs (50 lbs)	25 kgs (55 lbs)	27 kgs (60 lbs)	29 kgs (64 lbs)	31 kgs (68 lbs)	33 kgs (73 lbs)	35 kgs (77 lbs)	37 kgs (81 lbs)	39 kgs (85 lbs)

NOTE Check pool for existing salt level before determining the amount of salt needed. Most pools (especially those which have utilized liquid chlorine for a sanitizer) will contain some salt from the source water or previous sanitizers.

Table 3. Approximate Kilograms and Pounds of Stabilizer Needed to Obtain 50 PPM

Current Cyanuric Acid Level - ppm	Pool/Spa Size Litres (US Gallons)					
	38,000 L (10,000 g)	57,000 L (15,000 g)	76,000 L (20,000 g)	95,000 L (25,000 g)	114,000 L (30,000 g)	132,000 L (35,000 g)
0	1.9 kgs (4.2 lbs)	2.9 kgs (6.3 lbs)	3.8 kgs (8.4 lbs)	4.8 kgs (10.5 lbs)	5.7 kgs (12.6 lbs)	6.7 kgs (14.8 lbs)
10	1.5 kgs (3.4 lbs)	2.3 kgs (5.1 lbs)	3.1 kgs (6.7 lbs)	3.8 kgs (8.4 lbs)	4.6 kgs (10.1 lbs)	5.4 kgs (11.8 lbs)
20	1.1 kgs (2.5 lbs)	1.7 kgs (3.8 lbs)	2.3 kgs (5.1 lbs)	2.9 kgs (6.3 lbs)	3.4 kgs (7.6 lbs)	4.0 kgs (8.9 lbs)
30	0.8 kgs (1.7 lbs)	1.2 kgs (2.5 lbs)	1.5 kgs (3.4 lbs)	1.9 kgs (4.2 lbs)	2.3 kgs (5.1 lbs)	2.7 kgs (5.9 lbs)
40	0.4 kgs (0.8 lbs)	0.6 kgs (1.3 lbs)	0.8 kgs (1.7 lbs)	1.0 kgs (2.1 lbs)	1.2 kgs (2.5 lbs)	1.3 kgs (3.0 lbs)

NOTE The above chart is for general reference only. The recommended stabilizer reading is between 30-50 ppm and will vary dependent on geographic climate. Warm, sunny climates will require a stabilizer reading at the higher end of the given range. Consult your local pool professional for your optimum level. Always add stabilizer according to manufacturer's instructions. For indoor pools, it is not necessary to add chlorine stabilizer to the swimming pool water.

Section 5. Operating Instructions

NOTE The user interface is located inside the control centre. To access the control panel, open the door to the control centre. See Figure 15.

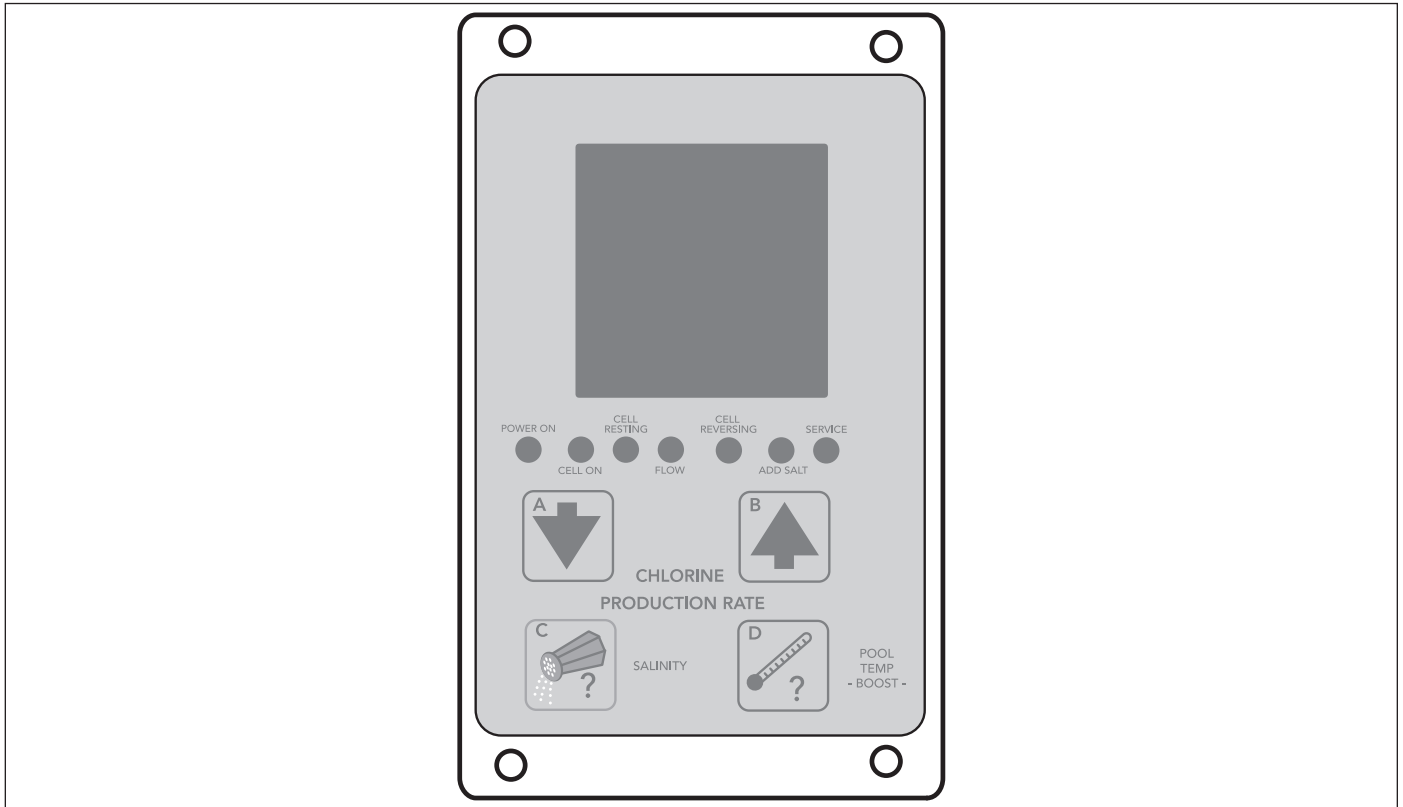


Figure 15. User Interface

5.1 User Interface Controls

- | | |
|--|--|
| Chlorine Production Rate Adjustment | Pressing the down arrow button A or the up arrow button B will change the CHLORINE PRODUCTION RATE in 5% increments. Generally, adjustments to production should be made in 10% increments. |
| Salinity | Press the SALINITY button C to check the salinity of the water in pool. |
| Boost | Press and hold the POOL TEMP -BOOST- button D for 10 seconds to enter the Boost mode (Note 'bo' will flash intermittently). Boost can be used to set chlorine production to maximum (100%) for 24 hours of operation. After 24 hours of chlorinator run time, chlorine production will return to previous setting. To clear the Boost mode, press and hold the POOL TEMP -BOOST- button D again for 10 seconds. |
| | NOTE When a pool pump timer is used to limit chlorinator run time, the 24 hours will only count down when the chlorinator is on. |
| Temperature | Press the POOL TEMP -BOOST- button D to check the pool water temperature. Temperature measurements can be displayed in either Fahrenheit or Celsius. For more information, see <i>Section 8, Temperature Conversion</i> . |

Operating User Interface Controls when AquaLink™ RS Control System is Online

Chlorine Production Rate Adjustment with AquaLink RS Online

The user interface can be used to adjust the output production rate (%) when the salt water chlorinator system is controlled by the AquaLink RS only when the AquaLink RS is placed into service mode. When the down arrow button **A** or the up arrow button **B** is pressed, a **JA** in the display indicates that the AquaLink RS is controlling the entire system, including the output production rates.

The AquaLink RS Control System must be set to Service Mode before you can change the chlorine production rate from the control centre user interface

NOTE The Boost button at the user interface will start Boost cycle whether the AquaLink RS is online or offline.

AquaLink RS Control System

Press the Mode Select button to move the AquaLink RS from Auto Mode into Service Mode. The Service indicator light will turn ON.

Press the Valve Select button to choose either Pool Mode to change pool chlorine production, or Spa Mode to change spa chlorine production.

Press the Filter Pump button to turn on the pump and apply power to the sanitizing system.

Control centre User Interface

Press the down arrow button **A** or the up arrow button **B** to change the chlorine production rate in 5% increments. Generally, adjustments to production should be made in 10% increments.

AquaLink RS Control System

Press the Mode Select button to put the AquaLink RS in the Time Out mode.

Press the Mode Select button again to place it back into Auto mode.

NOTE The AquaLink RS control system must be in pool mode to change the pool chlorine production rate setting; and it must be in spa mode to change the spa chlorine production rate setting. Use the valve select button to switch between the two (2) modes. The system must be cycled through SERVICE, TIME OUT, then back to AUTO to accept the Pool Setting versus the Spa Setting.

5.2 Reading the Display

CELL ON The **CELL ON** indicator shows that the cell has been turned on. Some reasons for the **CELL ON** indicator not being on during normal operation, are: **CHLORINE PRODUCTION RATE** set to 00%, **CHLORINE PRODUCTION RATE** set to less than 100% and **CELL RESTING** appears during cell rest period, **NO FLOW** condition, two minutes before automatic cleaning cycle, low temperature cut off has been activated, or a service related problem such as a salinity level below 2.0 gpl or salinity level too high.

CELL RESTING During the normal chlorine production cycle when the unit is set for less than 100%, the cell will periodically rest; that is, the unit will not make chlorine. The **CELL RESTING** indicator shows that the cell has been turned off by the control power centre.

FLOW or NO FLOW Indication When the control centre determines that water is flowing past the flow/temp/salinity sensor, the **FLOW** indicator is displayed. When no flow is detected, **NO FLOW** is displayed on the LCD and the cell is turned off.

CELL REVERSING The automatic cleaning cycle is in progress. The cleaning cycle is factory set and cannot be adjusted. Cell Reversing does not interrupt the production of chlorine.

SALINITY Salinity is displayed along with the **gpl** (grams per litre indicator, when the **SALINITY** button **(C)** is depressed. If a reading of **HH** appears, the salinity is above 4.5 to 6.5 gpl (depending on pool temperature) and is too high to measure correctly (at normal temperatures). Maintain salinity between 3.0 and 3.5 gpl. See *Section 4*.

ADD SALT The **ADD SALT** indicator comes on when the flow/temp/salinity sensor determines that the salinity level of the pool water is too low. Maintain Salinity between 3.0 and 3.5 gpl.

SERVICE and Service Code The **SERVICE** indicator will turn on whenever the control system detects a problem that requires attention. The **SERVICE** indicator is accompanied by a service code displayed on the front panel, displayed as a 3 digit code. The service code(s) are displayed twice per minute with an audible alarm.

NOTE See *Section 7.2, Service Codes*. Problems can range from insufficient salinity to the DC cord not connected.

Audible Alarm An audible alarm (beep) sounds once per hour, and only for the first service code, when a **SERVICE** condition is detected. The alarm can be cleared by pressing and holding the **SALINITY** button **(C)** for 5 seconds. The audible alarm can be cleared for 24 hours or until the power to the unit is turned off and back on whichever comes first. However, the audible alarm will return if a new problem is detected.

NOTE The audible alarm can be permanently disabled by removing the jumper from J2 on the control centre power interface board.

Audible Alarm Volume Control Audible alarm operation and volume control can be adjusted. To adjust volume control, press and hold the **TEMPERATURE** button **(D)** for 15 seconds. The system will beep once when pressed, once after 10 seconds and once after 15 seconds. Release the key after the third beep. Press the **SALINITY** button **(C)** within 5 seconds to enter the temperature change screen.

NOTE The boost cycle is normally activated after 10 seconds, however, if the key is held down until after the third beep at 15 seconds, the Boost mode will not be changed.

The system will display a '1' followed by 'F' or 'C'. Press the **TEMPERATURE** button **(D)** to move to the second parameter screen. The screen will display a 0, and the alarm volume will be fully reduced. The system will occasionally show a '2' to display the screen number. Press the arrow button B to increase the volume and the arrow button A to reduce the volume. The volume increments from 0 to 100 in 20 steps. After each press of the arrow buttons, the alarm will activate to demonstrate the current volume level. When the alarm volume has been adjusted to the desired setting, press the **SALINITY** button **(C)** to confirm the new alarm volume setting. The change will be stored in permanent memory. If you do not wish to keep the change, wait 5 seconds, and the change screen will 'time out' and return to normal operation without keeping any changes to the system. Any changes made to the alarm volume will NOT be saved if this occurs.

5.3 Operation

CAUTION

Before attempting to operate refer to *Section 4, Pool Water Preparation*. Also, do not adjust Chlorine production above 00% until it is certain that salt has been dissolved in pool. Operating without salt will damage the Electrolytic Cell.

5.3.1 Operation Without the Use of an External Timer

Use of an external pool pump timer is not required with the salt water chlorinator control centre.

The chlorinator is designed to supply a sufficient amount of chlorine to sanitize pool water on a daily basis. If the system is operated for 24 hours a day at a 100% production rate, more chlorine would be generated than would be needed by most pools (1-3 ppm). The chlorinator control system has an internal timer which cycles the electrolytic cell on and off depending on what percent is set for the Chlorine Production Rate. For instance, at 100% the cell is on at all times while the pump is running. When the system is set at 90%, the cell will rest 10% of the time which helps prolong the cell life. In order to fine tune the chlorine production for any size pool just increase or decrease the Chlorine Production Rate from 00% to 100% until the chlorine level in the pool stabilizes between 1-3 ppm while the pump is running (see Section 5.4.2, “Apply Power” steps 1-5).

NOTE The chlorinating system only operates when the pump is running. During hot weather months you may need to increase pump run time to allow sufficient chlorine production.

5.3.2 Operation Using an External Timer

If you are connected to the AquaLink™ RS control system or use a Pool Pump Timer. The Association of Pool & Spa Professionals (APSP) recommends that all water in a residential pool pass through the filtration system at least once every 12 hours (referred to as pool water turnover). However, many factors have an effect on actual pump and filter system run times. Pool size, source of water, direct sun light, indoor/outdoor, screened/unscreened, filtration system, cold or hot weather, swimmer load, rain, organic debris, algae, etc., are all factors which contribute to either more or less pool pump and filter system run times. Because of these differences, it is extremely difficult to set an initial run time (starting point) for the pool pump and chlorinating system.

Try initially setting the pool pump run-time to 12 hours per day. It will take a few days to get just the right pool pump operating time. Adjust accordingly using the steps listed in Section 5.4.2, “Apply Power” steps 1-5. *When the AquaPure® is wired with a pool pump timer the results will vary greatly from one pool installation to the next, so this should be discussed with either the pool builder or the local pool professional.*

The key points are:

- Check Chlorine Level on a regular basis and adjust the chlorine production rate (%) accordingly.
- Operate pool pump at least the minimum time needed for good filtration.
- The Pool Pump Timer reduces energy consumption.

NOTE Chlorine Production can be adjusted in 5% increments at the User Interface or through the AquaLink RS control system.

NOTE Exception - For Cold Weather Operation: If the salt water chlorinator is set to run 24 hours a day through the winter, extremely cold water temperatures can contribute to a reduction in the operating life of the electrolytic cell. Sometimes it will be necessary to run the chlorinator at a very low production rate (10-20%) or to turn the unit off. See *Section 6.5, Winterizing*.

5.4 Startup

5.4.1 Shocking

Shock (superoxidation) (see *Section 4.4, 6. Shocking*) the pool water from an outside source at the time of pool startup to burn off contaminants. During normal operating conditions the chlorinator is capable of generating a sufficient level of chlorine for sanitation within several hours. However, if the pool water has a high chlorine demand due to startup conditions then the chlorinator will not be able to produce enough chlorine to reach break-point chlorination. Shocking involves the manual addition of chemicals to quickly raise the level of chlorine. When the chlorine level is quickly raised to 5 - 15 ppm the pool water is said to have been shocked. Wait until the chlorine level has returned to 1 - 3 ppm before turning on the salt water chlorinating system.

5.4.2 Apply Power

1. Turn on the pool pump. When the chlorinator is first turned on (cold), the unit will beep. Next it will self-calibrate the flow/temp/salinity sensor. After going through an internal test and calibration, the LCD will display the current setting for chlorine production (00% to 100%). During the calibration period “Wait” will appear. “Wait” means the unit is self calibrating and doing internal testing. This process usually takes less than 6 minutes.
2. Check salinity level by pressing the **SALINITY** button (**C**). It should read between 3.0 gpl and 3.5 gpl. If it does not, then press the **SALINITY** button (**C**) two (2) or three (3) more times until the salinity reading stabilizes.

NOTE If still less than 3.0 gpl refer to pages 30 through 31 and adjust salt concentration level. (Maintain the Recommended Salinity Level of 3.0 to 3.5 gpl). If salinity is below 2.0 gpl the system will automatically turn the electrolytic cell off until the salinity is raised above 2.0 gpl. Operating with a low salt concentration will damage the electrolytic cell. Likewise, if salinity is above the range of measurement the system will automatically turn the electrolytic cell off until the salinity is lowered to a measurable level. Operating with high salt will damage the power centre. If salinity is greater than 3.5 gpl, see Section 7, Troubleshooting.

3. Adjust the Chlorine Production to 50% by pressing the arrow buttons (**A**) or (**B**).
4. After 24 hours, use a reliable test kit to measure the pool water for free active chlorine. The ideal range to maintain is 1-3 ppm. If the chlorine content of the pool water is *too low, increase chlorine production by pressing the up arrow button (B)*. If the chlorine content of the water is *too high, decrease chlorine production by pressing the down arrow button (A)*. Adjust in 10% increments initially then in smaller increments (5%) as the correct chlorine level is approached.
5. Due to a varying chlorine demand of pool water, it may take a few days to determine the correct pool pump operating time and chlorine production percentage setting for your pool. Continue adjusting as necessary, allowing 24 hours between adjustments until the chlorine content of the pool water has stabilized at 1-3 ppm.

5.5 Operating in Winter

See *Section 6.5, Winterizing*.

5.6 Recommendations

DO List

- Read and keep your manual in a safe place.
- Increase chlorine production rate before a large number of bathers enter the pool and return to normal afterwards.
- Increase chlorine production rate when temperature goes up.
- Increase chlorine production rate when the number of bathers goes up.
- Use stabilizer (cyanuric acid) to stabilize chlorine in pool. For indoor pools, it is not necessary to add chlorine stabilizer to the swimming pool water.
- Mount power centre in shade or out of the direct sunlight whenever possible.
- Decrease production rate when temperature goes down (for example, in the Fall and Winter seasons).
- Take pool water sample to pool professional once per month.

DON'T List

- Do not get fertilizer in your pool. Fertilizers contain nitrates which cause a high chlorine demand on pool water.
- Never use dry acid to adjust pH in arid geographic areas with excessive evaporation and minimal dilution of pool water with fresh water. A build up of by products can damage the electrolytic cell.
- Do not add chemicals or salt to the pool unless the chlorinator is turned off.
- Do not let chlorine stabilizer (cyanuric acid) drop below 30 ppm. For indoor pools, it is not necessary to add chlorine stabilizer to the swimming pool water.
- Do not add salt without first checking the pool salinity level. Too much salt can disable and possibly damage the chlorinator.

Section 6. User Maintenance Instructions

The following information describes how to care for your sanitizing system.

Important: Always test the chlorine levels of your pool before each use.

6.1 Daily

1. **Chlorine Test.** Test pool water chlorine level with a reliable test kit. Maintain ideal range by adjusting the chlorine production rate using *Section 5.4, Startup*. Recommended free chlorine is 1 - 3 ppm.

NOTE It is recommended that chlorine test samples be taken from two (2) places, one at the pool return line, the other well away from the pool return line. Compare the samples. A higher level should be found at the pool return line. The higher level at the pool return line indicates the system is producing chlorine.

2. **pH Level Test.** Test the pH level of your pool with a test kit. If necessary, adjust to maintain a pH level of 7.2 - 7.8.

CAUTION

Never use dry acid to adjust pH in arid geographic areas with excessive evaporation and minimal dilution of pool water with fresh water. A build up of by products can damage the electrolytic cell.

3. **Total Alkalinity Test.** Test pool water for total alkalinity with a test kit. Take steps necessary to maintain an alkalinity of 100 - 120 ppm.
4. **Calcium Hardness.** Test pool water for calcium hardness level using test kit or by having a water sample tested by a pool professional. Adjust as necessary to maintain a calcium hardness of 200 - 300 ppm.

6.2 Monthly

1. **Salt Level Test.** Test pool water salt level by depressing the **SALINITY** button (**C**) and reading the LCD located on the control centre user interface. Maintain the ideal range of 3.0 - 3.5 gpl for optimum performance. If additional salt is required, follow the procedures and charts described in *Section 4*. If salt level does not rise after 24 hours, see *Section 7, Troubleshooting*.
2. **Pool Water Sample.** Take water sample to local pool store for testing.
3. **Stabilizer (Cyanuric Acid).** Test pool water stabilizer (*cyanuric acid*) level using a test kit or by having a water sample tested by a pool professional. Maintain ideal range of 30 - 50 ppm. Follow your pool professional's recommendations. For indoor pools, it is not necessary to add chlorine stabilizer to the swimming pool water.
4. **Metals Test.** It is recommended that the pool water be tested periodically for the presence of metals such as iron and manganese. These metals should not be present in the pool water. If those metals are present, contact your local pool professional.

6.3 Electrolytic Cell Cleaning - As Needed

1. **Automatic Cleaning.** The chlorinator control system has an automatic cleaning feature (Cell Reversing) that removes scale deposits from the electrolytic cell.

NOTE Automatic Cleaning does not interrupt Chlorine Production.

“Scale” is a white crusty deposit that forms in excessively hard water or from pool water that is out of balance and in a scaling condition. Following the installation of the salt water chlorinator system, check the cell once a month for several months. If the cell is clean, replace and re-check at the end of each swimming season. If the cell shows excessive scaling, go on to Step 2, Acid Wash Cleaning.

⚠ WARNING

Always turn pump off prior to installing or removing any components from the pool's plumbing. Your pump/filter system is operated under pressure and pressure must be released before you begin to avoid system damage or personal injury. Open the air relief valve on your pool filter to release the pressure in the system.

2. **Acid Wash Cleaning.** If the electrolytic cell has a tendency to scale, it is recommended that every two (2) months the cell be removed and inspected for scale formation and/or debris. Some filters allow debris to pass through to the cell which could lodge between the plates in the cell. A small amount of scale formation is normal. If by looking through the cell it is observed that there is excessive scale formation between the plates or debris is present, the cell must be cleaned as follows:
- Use a high pressure jet of water from a garden hose. If the cell cannot be reasonably cleaned in this manner, acid cleaning is necessary.
 - Remove the cell from the plumbing. If necessary, replace the cell with the spool piece (sold separately). Remove the sensor from the port.
 - To acid clean the cell, plug the two (2) adjacent ports. Mix one (1) pint of muriatic acid with two (2) quarts of tap water in a plastic bucket. **Use the appropriate port plugs on the ports. Do not use the sensor as damage can result.**

⚠ WARNING

Inhalation of muriatic acid vapor or contact with skin or eyes can cause serious injury or death. Wear goggles and rubber gloves, and perform cleaning in a well-ventilated area. Add acid to the water, do not add water to the acid as splashing could result.

- Pour the acid/water mixture inside the cell. A foaming action will begin, which is caused by scale (calcium carbonate) being dissolved from the plates. If rigorous foaming action does not begin, the cell does not need to be cleaned (**STOP THE CLEANING PROCESS - go on to next step "e"**). Otherwise, allow the cell to remain in the solution until the foaming has stopped. **However, do not leave in acid for more than 1/2 hour. IMPORTANT NOTE: Excessive acid washing will damage electrolytic cell.**
- Rinse the cell thoroughly with clean tap water and inspect. If deposits are still visible, repeat the cleaning procedure. Additional acid may need to be added to the solution.
- Rinse the cell again with clean tap water and inspect. If clean, replace the cell and resume normal operation.
- If the acid wash procedure is necessary, it is recommended that a sample of pool water be analyzed by an authorized Zodiac service representative for excessive hardness and/or improper water balance.
- If no scale or debris deposits are observed in the cell after two (2) bimonthly inspections, it is not necessary to continue bimonthly inspections. However, due to possible changes in pool water chemistry and filtering effectiveness, it is recommended that the cell be removed for inspection at least twice a year.

6.4 Flow/Temp/Salinity Sensor Cleaning

One time per year or as needed. It is rare but scale formations on the flow/temp/salinity sensor sometimes occur and will affect the accuracy of the salinity test.

1. Remove flow/temp/salinity sensor from the 3-port cell.
2. Brush with a mildly abrasive green fiber household cleaning pad. Contacts should be clean and bright.
3. Thoroughly rinse the flow/temp/salinity sensor with clean tap water. Replace and resume normal operation.
4. **Turn power off and back on in order to recalibrate and reset Flow/Temp/Salinity Sensor. Reset anytime Flow/Temp/Salinity Sensor is unplugged.**

6.5 Winterizing

Very little chlorine is needed in cold water. Below 11°C (51°F), chlorine production is not permitted; operating the chlorinator in cold water might result in over-chlorinated pool water. If more chlorine is needed, **activating the “Boost” mode will override this cold water feature allowing chlorine production for 24 hours of operation.** See Section 5.1, User Interface Controls.

If preventative measures are not taken, freezing water may cause severe damage to the cell and flow/temp/salinity sensor. Prevent freeze damage to the cell and flow/temp/salinity sensor by running pump continuously or winterize pool by draining water from pump, filter, and all intake and return lines. Remove the cell, clean and store it. Disconnect the flow/temp/salinity sensor from the power centre, then remove it from the 3-port cell. Wrap flow/temp/salinity sensor in a plastic bag or protective covering and coil flow/temp/salinity sensor and DC power cord cables around the power centre for storage.

An optional Spool Piece (sold separately) is available to replace the cell during winterizing or cell maintenance. This will enable pool pump to circulate water with the cell out of the line. See Figure 16.

When a FREEZE CONTROLLER is used on pump equipment and the chlorinator is run through the winter, turn the CHLORINE PRODUCTION down to 10 - 20%. Otherwise, chlorine production will exceed the recommended level of 1 - 3 ppm.

NOTE A continuous chlorine level above 3 ppm may cause corrosion of pool metals and possibly cause damage to associated pool equipment.

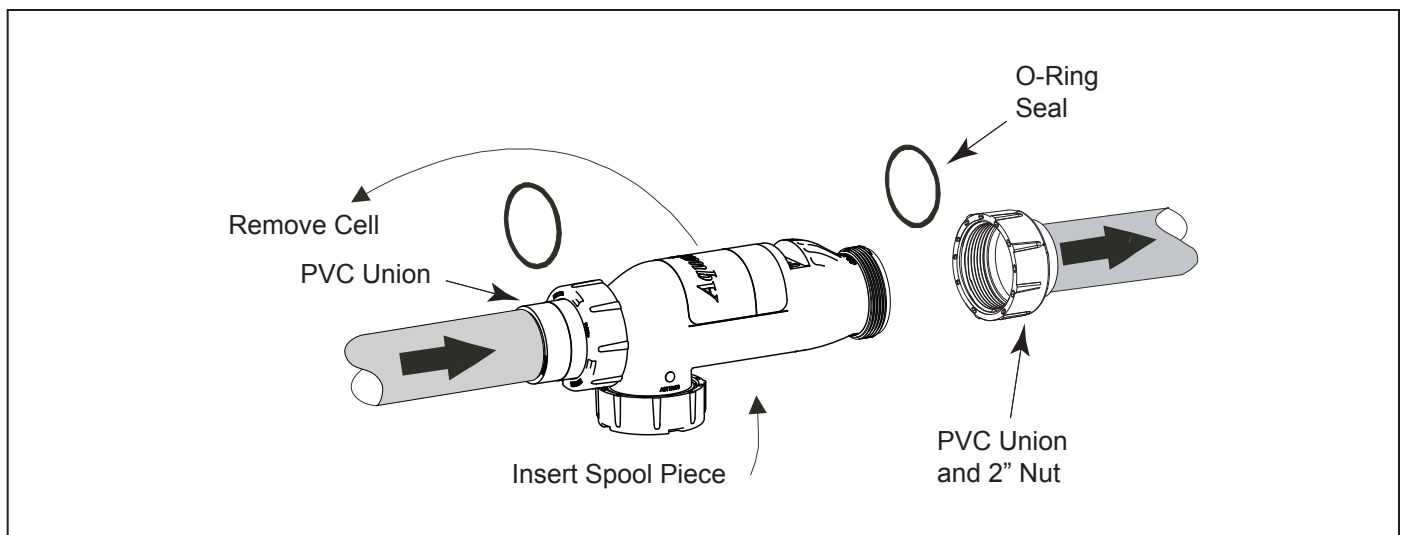


Figure 16. Spool Piece Location

Section 7. Troubleshooting

NOTE: Turn off power to unit prior to attempting service or repair.

7.1 Problems and Corrective Action

Problem	Possible Cause	Corrective Action
Low or no chlorine.	Low <i>stabilizer</i> (cyanuric acid) level in pool water. For outdoor pools only.	Add stabilizer to maintain 30 - 50 ppm per pool professional's recommendations.
	Insufficient operating hours of the unit.	Increase the system operating time per day. See <i>Section 5, Operating Instructions</i> .
	CHLORINE PRODUCTION percentage set too low or off at 00%.	Increase chlorine production by pressing the Chlorine Production Rate Adjustment button (arrow button B). See <i>Section 5, Operating Instructions</i> .
	Recent increases in weather temperature without increasing the chlorine production of your unit.	Increase chlorine production by pressing the Chlorine Production Rate Adjustment button (arrow button B). See <i>Section 5, Operating Instructions</i> .
	Temporary loss of chlorine due to heavy organic load - rain, leaves, fertilizer or heavy bather load. Pets using pool.	Set "Boost" mode and allow to run for 24 hours. Recheck. If still too low, Super Chlorinate with outside source. (Take pool water sample to Pool Professional). See <i>Section 5, Operating Instructions</i> .
	Low (Less than 2.5 gpl) salt level in pool water.	Test salinity by pressing the Test Salinity button. See <i>Section 4, Table 2</i> .
	High nitrate level.	Contact a pool professional.
	Metals present in pool water.	Contact a pool professional.
	New pool water. Not shocked properly upon startup.	Super Chlorinate Pool. See <i>Section 5.4, Startup</i> .
	Clogged or dirty cell.	Remove cell for inspection. Clean if necessary. See <i>Section 6, User Maintenance Instructions</i> .

Problem	Possible Cause	Corrective Action
No display on LCD (<i>Screen is blank</i>).	No Power to Unit.	Check power. Turn on pump. 1. Defective automatic timer or pump switch. 2. Loose connection at automatic timer or pump switch.
	Loose ribbon cable between front and back PC board.	Check that ribbon cable is fully inserted into connector.
	Incorrectly wired. Unit not wired for 240 VAC.	Check that unit is correctly wired for 240 VAC and connected to 240 VAC.
	Loose or bad connection at white connector between transformer and PC board.	Check connector at white plug to insure proper connection. If burnt connector contact authorized service representative.

Problem	Possible Cause	Corrective Action
"Cell On" indicator does not come on.	Chlorine Production set to 00%.	Adjust CHLORINE PRODUCTION to desired percentage.
<i>If No Flow also....</i>	Insufficient water flow. Cell is plugged with debris, pump has lost prime.	Remove obstruction and/or clean cell. See <i>Section 6.3, Electrolytic Cell Cleaning</i> . Prime pump if necessary.
<i>If No Flow also....</i>	Flow/Temp/Salinity Sensor not plugged in.	Plug in flow/temp/salinity sensor. See <i>Section 2, Figures 2</i> .
	Salt level below 2.0 gpl (2000 ppm).	Add salt as described in <i>Section 4.6</i> .

Problem	Possible Cause	Corrective Action
"No Flow" indicator stays on continuously.	Pump fails to provide sufficient water flow.	Check for correct operation of the pump. Ensure there is no loss of pump prime or clogged strainer baskets.
	Closed valves.	Check and correct all valve alignments.
	Dirty filter.	Follow filter cleaning procedures.
	Obstruction in the electrolytic cell.	Remove cell for inspection. Follow cleaning procedures. See <i>Section 6.3, Electrolytic Cell Cleaning</i> .
	Flow/Temp/Salinity Sensor not installed properly.	Ensure that the flow/temp/salinity sensor is installed according to <i>Section 3, Figure 9</i> . If not, contact a pool professional.
	Flow/Temp/Salinity Sensor not plugged in.	Plug flow/temp/salinity sensor into connector on power centre printed circuit board. Turn power to unit off and back on (Cycle Power). See wiring diagram in Figures 2. See also, <i>Section 6.4, Flow/Temp/Salinity Sensor Cleaning, Step 4</i> .
	Flow/Temp/Salinity Sensor elements covered with PVC glue, taped over, or covered with other debris.	Remove and clean flow/temp/salinity sensor and reinstall. See <i>Sections 6.4</i> .
	Defective flow/temp/salinity sensor.	Contact a pool professional.

Problem	Possible Cause	Corrective Action
Salt level too high.	Too much salt has been added to pool.	Backwash or partially drain pool and dilute with fresh water until salinity returns to 3.0 gpl to 3.5 gpl.

Problem	Possible Cause	Corrective Action
Chlorine level too high.	Electrolytic cell is manufacturing too much chlorine.	Decrease the chlorine production rate adjustment button (arrow button A). See <i>Section 5, Operating Instructions</i> . If chlorine output at the lowest setting consistently provides for excessive chlorine levels, decrease daily pump operation time as much as necessary. If chlorine output at lowest setting is still excessive then the salt water chlorinator system is oversized for the pool.

Problem	Possible Cause	Corrective Action
"Service" Indicator On.	Low salt level in pool water.	Test salinity. Add salt as described in <i>Section 4.6</i> .
	Cell requires cleaning.	Refer to Maintenance Procedure for acid wash cleaning. See <i>Section 6.3, Step 2</i> .
	Cell not working properly after cleaning	Contact a pool professional.
	DC power cord not properly connected to the cell.	Check connection. Check for dirt or corrosion around DC cord contacts at cell. Check Cell studs for same.
	Flow/Temp/Salinity Sensor not plugged in.	Plug flow/temp/salinity sensor into connector on power centre printed circuit board. (Cycle Power).
	Water temperature too low	Winterize your pool. See <i>Section 6.5, Winterizing</i> .
	All the above have been checked and indicator light is still on.	Contact a pool professional.

Problem	Possible Cause	Corrective Action
Salt Level Too Low.	Not enough salt added on start up.	Add salt to pool, 3.0 gpl to 3.5 gpl. See <i>Section 4.6</i> .
	Heavy Rainfall.	Add salt to pool, 3.0 gpl to 3.5 gpl. See <i>Section 4.6</i> .
	Leak in pool.	Repair pool.
	Dirty flow/temp/salinity sensor contacts or faulty sensor.	Remove and clean flow/temp/salinity sensor contacts. Check flow/temp/salinity sensor cable for damage. See <i>Section 6.4</i> . Verify salinity with Myron "L" metre calibrated for NaCl, titration test units, or other salt metres. Please be aware that salt test strips have a large variance in readings (400 - 800 ppm).

Problem	Possible Cause	Corrective Action
Chlorine Odour.	Presence of excess chloramines (combined chlorine).	Manually shock the pool following the directions in <i>Section 5.4.1 Shocking</i> .

Problem	Possible Cause	Corrective Action
Cloudy Water, Slimy Walls of Pool.	Combined algae and bacteria growth.	Brush down the affected walls and follow the directions in <i>Section 5.4.1 Shocking</i> .

Problem	Possible Cause	Corrective Action
Eye and/or skin irritation.	Improper water balance.	Balance the water to recommended levels in <i>Section 4.4</i> .

Problem	Possible Cause	Corrective Action
Scale formation on pool equipment. NOTE: To clean the deposit (scale) on the electrolytic cell plates, see <i>Section 6.3</i> .	Incorrect pH causing metals to come out of solution.	Adjust total alkalinity to 100-120 ppm. Then adjust pH to within the range 7.2-7.8. See <i>Section 4.4</i> .
	High total hardness.	Dilute pool with fresh water. Consult your pool professional regarding use of a sequestering agent.

7.2 Service Codes

Code Number	Possible Cause	Corrective Action
120	Low current in forward direction to cell.	1. Clean cell if necessary (see <i>Section 6.3</i>). 2. Check DC cord.
121	Low current in reverse direction to cell.	1. Clean cell if necessary (see <i>Section 6.3</i>). 2. Check DC cord.
123	Extremely Low current to cell.	1. Clean or replace cell if necessary (see <i>Section 6.3</i>). 2. Check DC cord.
124	Higher than normal current to cell.	Contact a pool professional.
125	Cell needs to be cleaned.	Clean cell if necessary (see <i>Section 6.3</i>).
126	Low current in forward direction and VAC input voltage below 100/200 VAC.	Contact a pool professional.
127	Low current in reverse direction and VAC input voltage below 100/200 VAC.	Contact a pool professional.
144	Low salinity (below 2.0 gpl).	Add salt to pool to achieve 3.0 gpl (see <i>Section 4.6</i>).
145	High salinity (above 4.0 gpl).	Backwash filter if a DE filter is installed. Partially drain pool and dilute with fresh water until salinity returns to 3.0 to 3.5 gpl.
170	Possible front board service condition or unit not correctly wired to 120 VAC.	Contact a pool professional.
171	Possible backboard service condition.	Contact a pool professional.
172	Flow sensor service condition or flow sensor is unplugged.	Contact a pool professional.
173	Low VAC input voltage and on board power supply is not regulated or unit not correctly wired.	Unit wired to improper AC voltage. Contact a pool professional.
174	Pool temperature is too high for operation of AquaPure®.	Flow/salinity sensor indicates water temperature at sensor above 108°F (42°C). Reduce water temperature.
175	Flow sensor air lock condition or very low salinity.	Verify proper flow/temp/salinity sensor installation (see <i>Section 3, Figure 9</i>). Check salinity with Myron "L" metre calibrated for NaCl or test strips. Add salt as necessary (see <i>Sections 4.5 through 4.6</i>).

7.3 Level 2 Service Codes

If you encounter a Level 2 Service Code, contact your local pool professional for service.

Code Number	Possible Cause	Corrective Action
180	Heated sensor element not heating. (Generates 172 code)	Contact a pool professional.
181	Flow sensor temperature sensor failure. (Generates 172 code - flow sensor service)	Contact a pool professional.
182	Salinity sensor sees less than 0.2 gpl of salt, no salt in pool or sensor air locked. (Generates 175 code – flow sensor air lock)	Contact a pool professional.
183-186	Flow salinity sensor temperature probe error codes. (They will all generate 172 codes which indicate flow sensor service is required)	Contact a pool professional.

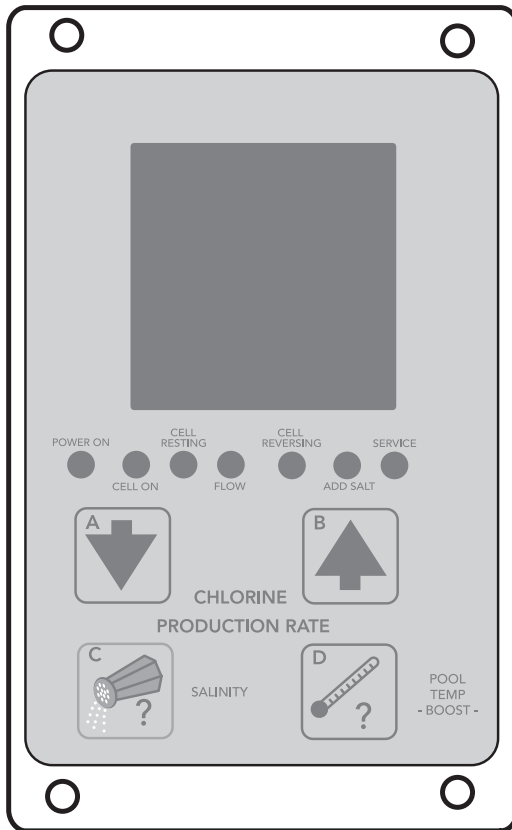
Code Number	Possible Cause	Corrective Action
187	Front board power supply either too low or too high. (Generates 173 – Low input voltage code if Level 2 code 188 is present) (Generates 170 code if 188 is not present)	Contact a pool professional.
188	VAC input voltage is too low. (Generates 173 code if Level II code 187 is present)	Contact a pool professional.
189	Relay not conducting in the forward direction. (Generates 171 code – Backboard service)	Contact a pool professional.
190	Relay not conducting in the reverse direction. (Generates 171 code – Backboard service)	Contact a pool professional.
191	High cell current (at upper limit of A/D converter) and cell voltage below 19V. (Generates 170 code – front board service)	Contact a pool professional.
192	High cell current and cell voltage below 19V. (generates 171 code – Backboard service)	Contact a pool professional.
193	Measured significant cell current when SCRs were turned off. (Generates 170 code – front board service)	Contact a pool professional.
194	Cell current is 85% lower than desired and cell voltage above 19V (Generates 125 code – Cell dirty or needs replacement)	Contact a pool professional.
195	Salinity invalid due to out of range measurements caused by front board error (Generates 170 code – front board service)	Contact a pool professional.

7.4 Additional Letter Codes

Code	Condition	Reason
EC	External Control	ORP unit or external controller has shut off chlorine production.
Lo	Low Temperature Cutoff	Temperature of Pool is < 10°C (50°F). Chlorine production stopped.
bo	Boost	In “Boost” mode unit will operate at 100% production for 24 run time hours.
HH	High-High	Input has exceeded Maximum Range.
JA	AquaLink™ RS Online	AquaLink RS is controlling the AquaPure® and desired output percentages.
Jb	Boost (AquaLink RS Interface)	AquaLink RS is controlling the AquaPure and “Boost” is active.

Section 8. Temperature Conversion

To display Celsius or Fahrenheit on the digital display.



1. Press and hold button **POOL TEMP -BOOST- (D)** for 15 seconds (third beep).
2. Within 5 seconds, momentarily press **SALINITY (C)** to enter the Fahrenheit/Celsius change mode.
3. To toggle between Celsius and Fahrenheit, press **down arrow (A)** or **up arrow (B)**
4. Confirm by momentarily pressing **SALINITY (C)**. The change will be stored in permanent memory.

NOTE: The Boost mode will normally be activated if the **POOL TEMP -BOOST- (D)** button is depressed for 10 seconds. However, if button **(D)** is held down an additional 5 seconds (for the third beep), the state of the Boost mode will not be changed.

Section 9. AquaPure® Exploded View and Replacement Kits

9.1 AquaPure Control Centre Replacement Parts

Dwg.#	Kit #	Description	Qty.	Dwg.#	Kit #	Description	Qty.
1	R0467400	User Interface Board Screws	1 4	5	R0503400	Face Plate, Control Centre, APURE-F Mounting Bracket, User Interface, APURE-F	1 1
2	R0467800	Screws, User Interface, PureLink™ Screws, Power Interface Assy Screws, Bezel Cover Plate Screws, Bezel Support Plate Screw, Battery Cover	4 2 2 2 2 1			Screws, User Interface Mounting Bracket and Face Plate Battery Door, Control Centre, APURE-F Screw, Battery Cove	4 1 1
3	R0447500	Wiring Harness, PureLink Back PCB to DC Cord	1	6	R0503300	Battery Door, Control Centre, APURE-F Screw, Battery Cover	1 1
4	R0467600	Power Interface Board Assembly Screws, Power Interface	1 2				

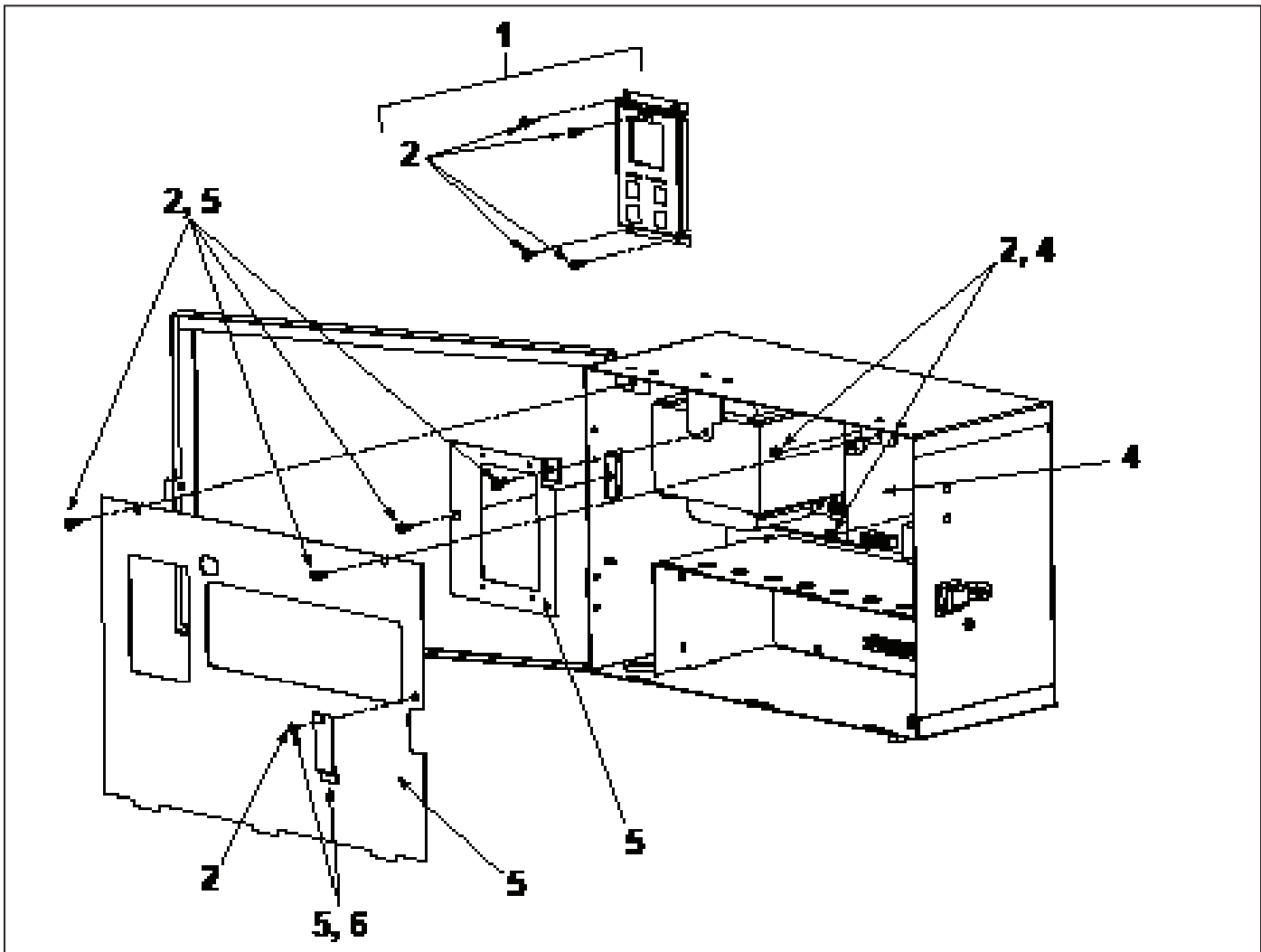


Figure 17. AquaPure® Control Centre

9.2 3-Port Electrolytic Cell and Sensor Replacement Parts with Universal Unions (2"-2½")

Dwg. #	Kit #	Description	Qty.
1	R0452100	Universal Union/Tailpiece/Plug, 3-Port Cell includes: Nut, Union Universal O-Ring, #2-231 Tailpiece, 2" X 2 ½" Plug, Port CG Cell	3 3 2 1
2	R0452200	O-Rings and Terminal Adapter, 3-Port Cell includes: O-Ring, #2-231 O-Ring, #2-106 Terminal Adapter Screw, #6 X 1/2"	3 6 1 2
3	R0452401	14-Blade Cell, 3-Port Cell Includes: Cell Assy, Apure O-Ring, #2-231 DC 16' Power Cord, Black	1 3 1
4	R0452501	Port Sensor 16' w/O-Ring, 3-Port Cell	1
5	R0476400	Port Sensor 25' w/O-Ring, 3-Port Cell	1
6	SP3PC	3-Port Spool Cleaning Kit includes: Spool, GC Cell, 3-Port O-Ring, #2-231 Nut, Union Universal Tailpiece, 2" X 2½" Plug, Port CG Cell	1 4 3 2 2
7	R0402800	16' Cable DC	1
8	R0476300	25' Cable, DC	1

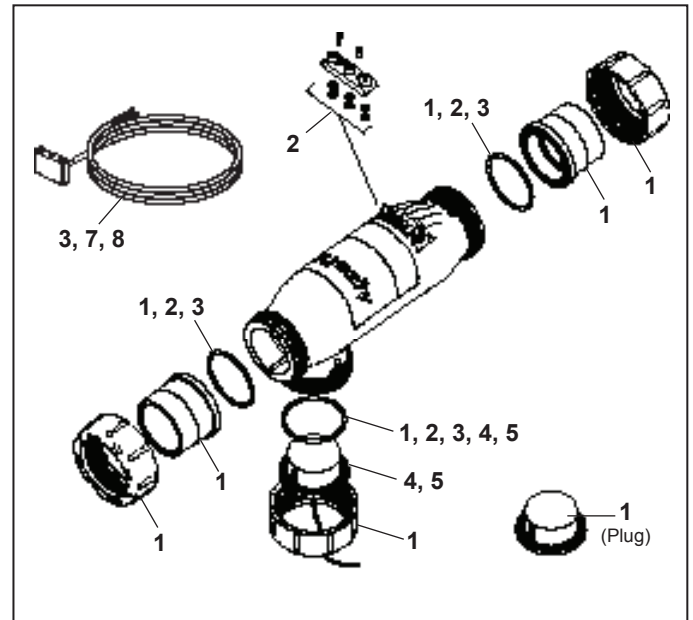


Figure 18. 3-Port Electrolytic Cell and Sensor Exploded View (Universal Unions)

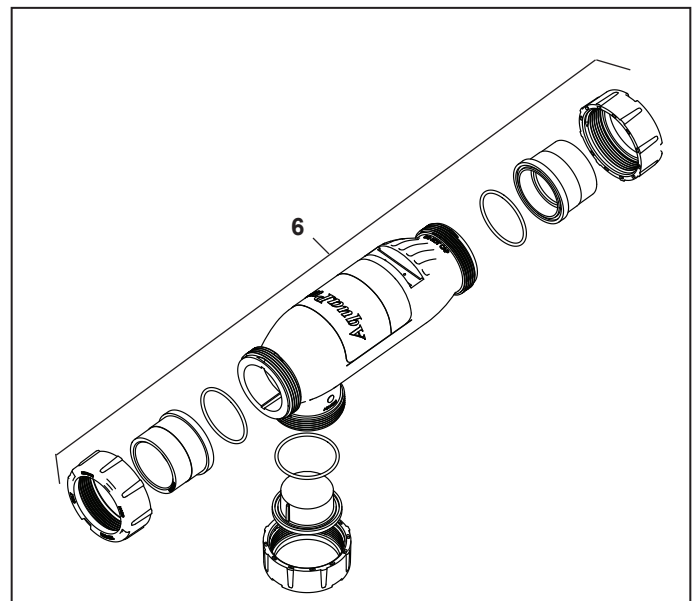


Figure 19. 3-Port Spool Exploded View

H10325900-

Jandy®



ETL LISTED
CONFORMS TO
UL STD 1081
CERTIFIED TO
CAN/CSA C22.2 NO. 218.1

Zodiac Pool Systems, Inc.
6000 Condor Drive, Moorpark, CA 93021 USA • 800.822.7933 FAX 877.327.1403

Litho in U.S.A. © Zodiac Pool Systems, Inc. 0910