

# Aquablue

The Natural Chlorine Generator

JULY 05

## **Dear Customer**

Thank you for purchasing the AquaBlue Natural Chlorine Generator.

Before installing / operating, please read the following instructions carefully and keep them for future reference.

### **WARNING - SAFETY FIRST**

- DO NOT OPEN THE CONTROL BOX – NOT A SERVICABLE UNIT.
- Disconnect all AC power before installation.
- The Control Box must be mounted vertically on a flat surface at a minimum of 1.5 m horizontal distance (or more, if local regulations require) from the pool/spa.
- The power cable must be hardwired to the time clock so that the system cannot operate without the pump.
- The Flow Sensor must be installed between the last piece of apparatus and the Cell.
- Warning! Operating the cell without flow will produce harmful fumes.
- This machine must be operated only with an approved in-line flow sensor.

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## GENERAL

AquaBlue is an automatic Natural Chlorine Generator for pool sanitation.

The system uses a very low concentration of salt, and converts it into chlorine that treats algae and bacteria in your pool. After treating the algae and bacteria, the chlorine reverts back into sodium chloride. This process of purification continues, with no need to add extra sanitizing chemicals, and is safer than adding chemicals.

## WATER BASICS

The AquaBlue Chlorine Generator maintains the pool water at a constant healthy level of free chlorine without drastic fluctuations in the chemical levels and chloramines that cause strong chlorine odors, irritated eyes, itchy skin, and faded swimsuits.

## CHEMICAL BALANCE TABLE

### Understanding the Chemicals

**The following table shows the recommended chemical levels. Maintaining these levels will prevent corrosion and scaling. You should test your water periodically.**

CHEMICAL	IDEAL LEVELS
Salt	4000 ppm
Free Chlorine	1 to 3 ppm
PH	7.2 to 7.6
Total Alkalinity	80 to 120 ppm
Stabilizer (Cyanuric Acid)	40 ppm
Nitrates	0 ppm
Metals	0 ppm
Calcium Hardness	100 ppm

# ADDING SALT

## Adding the salt:

Turn the Control Box OFF. Failure to do so will cause the fuse to blow.

Keep the pump on to circulate the water.

Distribute the determined amount of salt evenly around the pool. It will take 8 hours for the salt to disperse evenly in the water.

Once the salt has fully dissolved, adjust your chlorinator to your normal setting.

## Actual salt Level – in PPM

0	500	1000	1500	2000	2500	3000	3500	4000
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How much salt to add - in kg

10	40	35	30	25	20	15	10	5	0
20	80	70	60	50	40	30	20	10	0
30	120	105	90	75	60	45	30	15	0
40	160	140	120	100	80	60	40	20	0
50	200	175	150	125	100	75	50	25	0
60	240	210	180	150	120	90	60	30	0
70	280	245	210	175	140	105	70	35	0
80	320	280	240	200	160	120	80	40	0
90	360	315	270	225	180	135	90	45	0
100	400	350	300	250	200	150	100	50	0
110	440	385	330	275	220	165	110	55	0
120	480	420	360	300	240	180	120	60	0
130	520	455	390	325	260	195	130	65	0
140	560	490	420	350	280	210	140	70	0
150	600	525	450	375	300	225	150	75	0
160	640	560	480	400	320	240	160	80	0
170	680	595	510	425	340	255	170	85	0
180	720	630	540	450	360	270	180	90	0
190	760	665	570	475	380	285	190	95	0
200	800	700	600	500	400	300	200	100	0

Your pool water volume - in thousands of liters

## OPERATING INSTRUCTIONS CONTROLS

**Control Knob** – The *Control Knob* is used to adjust chlorine production and to turn the unit on or off. To increase chlorine production, turn the *Control Knob* up (clockwise). To decrease chlorine production, turn the *Control Knob* down (counterclockwise). To turn the unit off, turn the *Control Knob* down (counterclockwise) until it clicks.

**Power Meter** – The lights indicate the system's chlorine output (i.e. 10% to 100% production rate). The higher lights indicate higher chlorine production. Turning the control knob clockwise increases chlorine production and should increase the chlorine output reading (i.e. green lights – 10% to 100% production rate).

If **Power Meter lights go up & down quickly**: The salt level is high. Slowly turn the Control Knob down (counterclockwise) until the desired green light illuminates. If the lights continue to go up and down after the Control Knob was turned down, the salt level is exceedingly high, and should be reduced immediately by draining a significant amount of pool water and refilling the pool.

**Salinity Indicator** -- To check the salt level, turn the Control Knob clockwise to full power and check the light reading.

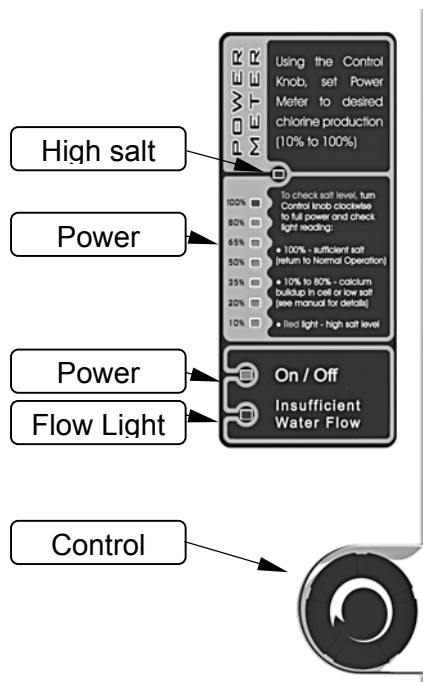
**100%** reading indicates that the salt level is sufficient. Return the Control Knob to the desired chlorine production setting depending on the chlorine level in your pool (10% to 100% production rate).

**Red Light** - above the Power Meter indicates that the salt level in the pool is on the high side. This does not harm the Natural Generator, but is provided as a cautionary notice to the user not to add more salt to the pool. Operation at very high levels (i.e. above 5500ppm) is not recommended. Slowly turn down the Control Knob until the desired green light illuminates (i.e. desired chlorine production level).

Readings between 10% and 80% indicate a low salt level, except when the Cell is worn or calcified. Check the Cell to ensure the blades are in good condition and not coated with calcium buildup. Cleaning the Cell is recommended if it is calcified or if the readout seems questionable. Before adding salt, it is advisable to have the salt level professionally checked.

## Control Knob

- Turn the Knob up (clockwise) to increase chlorine production.
- Turn the Knob down (counterclockwise) to decrease chlorine production, (The power light will change from green to red at zero position).



**Flow Light** – Red light should NOT be illuminated during proper operation; a constant red light signifies insufficient flow. When first turning on the circulation pump, the red light may turn on and off until the air is pushed out of the pump lines and sufficient water flow is achieved. This is normal and ensures that the Control Box automatically shuts off if the pump fails to prime or a blockage occurs.

**Power Light** – When the system is turned on and the pump is operating, the green light should be illuminated indicating that power is reaching the Control Box.

A blinking Power Light indicates that the system is ramping up the charge to the cell (i.e. soft start). This is a normal occurrence and the light should turn solid green within a couple of minutes. A soft start occurs when power is adjusted and when the system reverses polarity. If the knob is set to zero the Power light will illuminate Red.

## **OPERATION**

In rough conditions, the filter and chlorinator should run continuously. The chlorine residual needs to be maintained at 1-3 ppm.

### **Winterizing**

Freezing may damage the system's Cell and Flow Sensor, just as it may damage the pool plumbing. If severe or extended periods of freezing temperatures are possible, drain all water from the pump, filter, supply and return lines before any freezing conditions occur.

# INSTALLATION INSTRUCTIONS

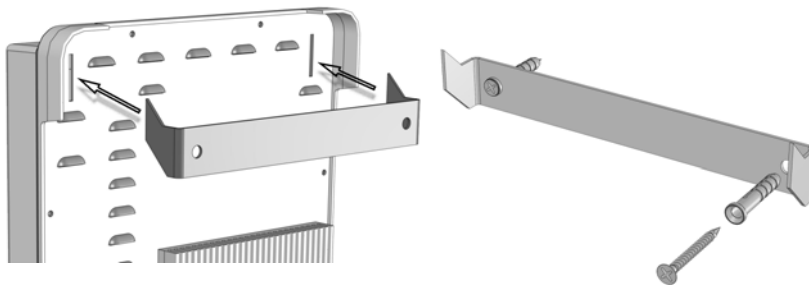
The system comes in three parts, the Control Box, the Cell and the Flow Sensor. Installing them in the most sheltered position will protect them from extreme weather conditions.

## Safety Measures

- Only operate the system with the approved Flow Sensor (supplied).
- Wire the power cable of the Control Box in parallel to the pump (load side).
- See safety measures and warnings on page 2 of this manual.

## Mount the Control Box

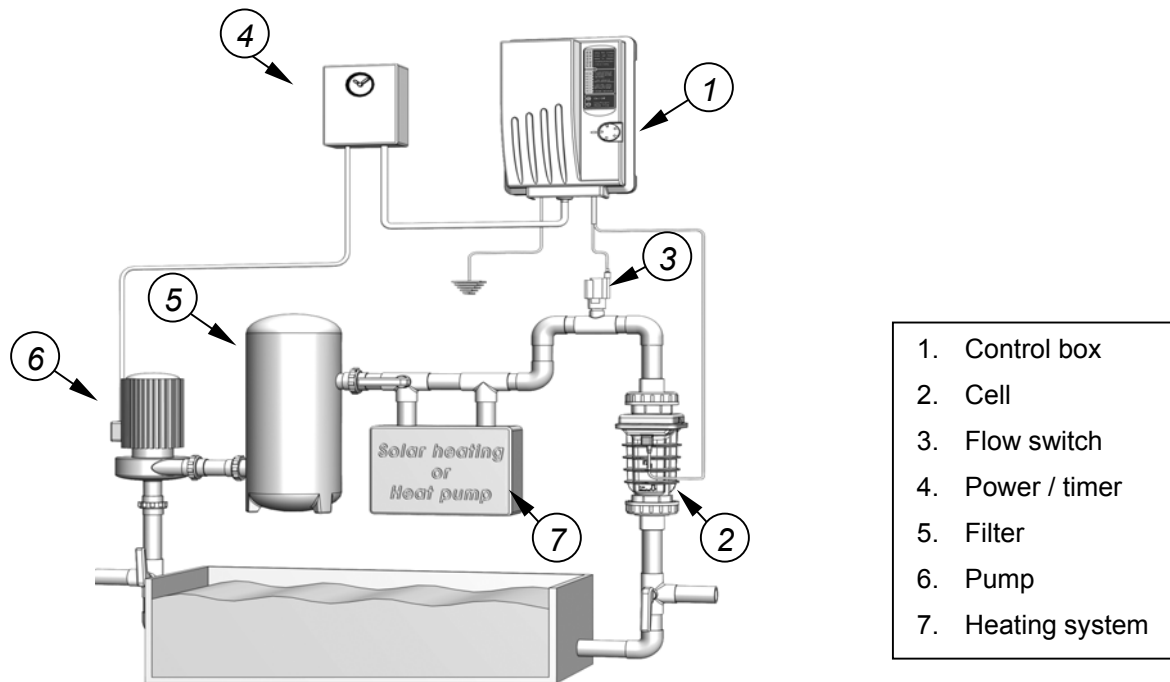
- The Control Box must be mounted vertically on a flat surface and at a minimum of 1.5 m horizontal distance (or more, if local **regulations** require) from the pool.
- Because the box acts as a heat sink, dispersing heat from inside the box, do not block the four sides of the Control Box.
- Do Not mount the system inside a panel or tight enclosed area.



- Secure the hanging rack on the wall using the enclosed screws and anchors. a 8mm drill bit should be used for the anchor holes.
- Hang the Control Box on the mounted hanging rack.

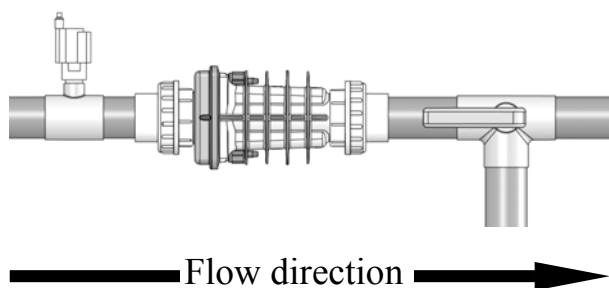
## Install the Cell

- The Cell must be installed after the filter and any heating device but before any “T” in the return line. Install the Cell either horizontally or vertically as needed.
- Be sure the black o-rings are firmly in place.
- Make sure that the Cell is installed with the arrow pointing the direction of the flow.



## Install the Flow Sensor

- Always position the flow sensor before the Cell and If possible, install on a horizontal pipe (if installed after the Cell, damage to the flow sensor may result).
- Be sure the arrow on the top of the Flow Sensor is pointing in the direction of the flow.



## WIRING

### Control Box

Wire the power cable (230 Volt) to the pump's time clock power, so that the Control Box cannot operate without the pump operating (i.e. load side).

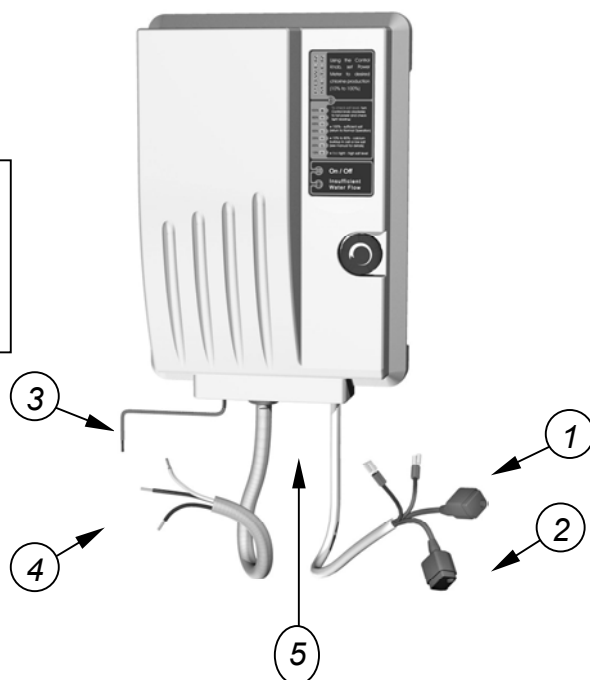
Hardwire the power cable (230 Volt) to the time clock along with the pump's power so that the Control Box cannot operate without the pump operating (i.e. load side).

**Do not alter the power line cable or the cell cable.**

**→MODEL CONFIRMATION:** Confirm you have the correct model for your pool size by checking the model number on the Cell:

- **SCC-25 < 100,000 liters**
- **SCC-40 < 150,000 liters**

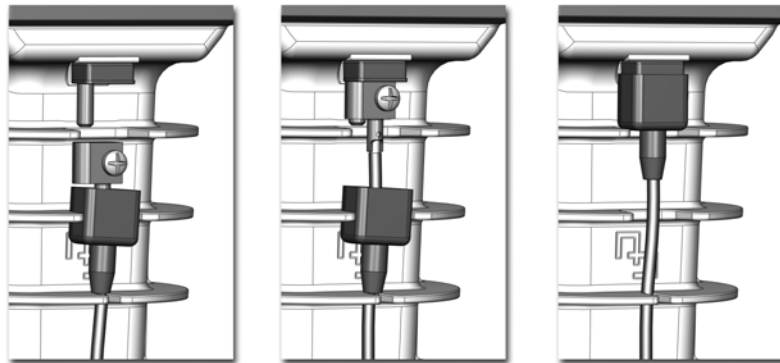
1. To flow switch
2. To Cell
3. Ground
4. Power 220-240Vac
5. Fuse



## Cell

Locate the two metal studs on the sides of the Cell, connect the cable with the two silver connectors to these studs and tighten firmly.

To avoid damage to the screws, DO NOT use a power screwdriver. Note that the wires are interchangeable.



After tightening the screws, push the rubber covers until they seal hermetically with the upper rubber part.

## Flow switch

Connect the remaining cable to the Flow Sensor – see previews page – connectors no. 1.

# MAINTENANCE

## Cell Maintenance

Our Clear Cell allows for easy regular inspections for calcium build up. Check the Cell visually 4 times a year and clean if necessary.

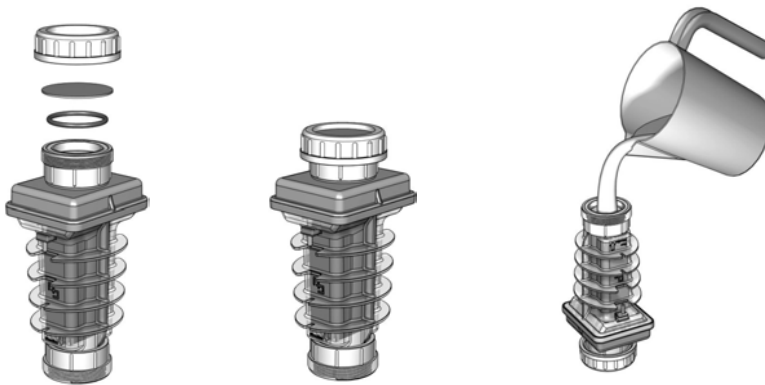
**CAUTION: Always add acid to water, NOT water to acid**

**Diluted muriatic solution acid: 5 parts water to 1 part acid**

**Note:** Follow the instructions of the acid manufacturer.

## Cell Cleaning

1. Turn off the control Box
2. Unplug the electrical connection from the Cell.
3. Disconnect the two - barrel unions and remove the Cell from the line.
4. Attach the Cell Cleaning Cap to one end of the cell.



5. Pour into the cell, either undiluted white distilled vinegar, or a solution of diluted muriatic acid

Wait for foaming action to stop (5 – 10 minutes)

6. Empty the Cell.
7. Re-install the Cell in the line with the o-rings back in place.

Reconnect the electrical connectors; be sure to firmly tighten the screws.

**Optionally**, cleaning without the Cleaning Cap:

1. Unplug the electrical connection from the Cell.
2. Disconnect the two-barrel unions and remove the Cell from the line.
3. Soak the entire cell in a solution of diluted muriatic acid (4 parts water to 1 part acid).
4. Wait for foaming action to stop (5 – 10 minutes)
5. Rinse Cell with hose
6. Re-install the Cell in the line with the o-rings back in place.
7. Reconnect the electrical connectors; be sure to firmly tighten the screws.



### **Control Box Maintenance**

The Control Box requires no regular maintenance other than checking that the wiring between the Control Box and Cell is securely in place. It is recommended to keep the Control Box clean, dry and out of the sun. The Power Meter (Led Bar display) should read between 10% and 100%, as necessary.

## TROUBLESHOOTING

- *Evaluating the possible causes for each problem from top to bottom (first to last) will avoid any extra labor.*

PROBLEM	POSSIBLE CAUSES	WHAT TO DO
<b>1. Chlorine level low or no chlorine.</b>	➤ System is turned off.	➤ Turn knob to the desired setting.
	➤ Control Knob is set too low in relation to chlorination demand (i.e. higher number of bathers, warmer weather, and increased debris in pool).	➤ Turn Control Knob higher (clockwise) and/or increase pump operation time.
	➤ Low Salinity.	➤ Check the salinity level. (See “Salinity Indicator” section).
	➤ Pump operation time too short.	➤ Run pump at least 8 hours per day (1.5 turnovers of all the pool water).
	➤ Low Stabilizer (Cyanuric Acid).	➤ Check water chemistry; stabilizer should be between 40-80 ppm. If low, add stabilizer. (See “Understanding the Chemistry”)
	➤ Chemical imbalance.	➤ Check other chemistry and balance chemicals. (See “Understanding the Chemistry”)
<b>2. Green pool water.</b>	➤ Chlorine level too low. Control Knob set too low.	➤ Turn Control Knob higher (clockwise) and see Troubleshooting section 1 “Chlorine level low”.
	➤ Chemical imbalance.	➤ Check water chemistry. Balance chemicals and pay special attention to pH and Stabilizer levels. (See “Understanding the Chemistry” section)
<b>3. Green Power Light is OFF – No power.</b>	➤ System is turned off.	➤ Turn knob to the desired setting.
	➤ Main fuse blew.	➤ Check main fuse on bottom of Control Box and replace if necessary with a 6.3 Amps 250VAC 6x32mm Slow Blow fuse.
	➤ Breaker jumped.	➤ Check the breaker leading to the pool control.
	➤ Power wires cut, disconnected, or incorrectly wired.	➤ Check for correct wiring.
	➤ Other malfunction in Power Pack.	➤ Call Warranty hotline.
<b>4. RED light at the top of the Power Meter is lit.</b>	➤ Salinity is high.	➤ System will continue to operate properly, but no further salt should be added. Professionally test the salt level. If above 5500 ppm, it is recommended to drain part of the pool water and refill with fresh water.

<b>PROBLEM</b>	<b>POSSIBLE CAUSES</b>	<b>WHAT TO DO</b>
<b>5. Lights go up &amp; down quickly</b>	➤ Salinity is high	➤ Slowly turn down the Control Knob (counterclockwise) until the desired green light illuminates. The red light may stay on. This does not harm the Natural Generator, but simply indicates that the salt level is on the high side for your information.
	➤ Salinity very high	➤ If the lights continue to go up and down after the Control Knob was turned down, the salt level is exceedingly high, and should be reduced immediately by draining a significant amount of pool water and refilling the pool.
<b>6. Power Meter lights do not reach 100% after turning Control Knob to higher setting.</b>	➤ Salinity low.	➤ Refer to Troubleshooting section “Salinity Low”.
	➤ Dirty Cell.	➤ Check Cell for white buildup, if present, refer to maintenance section “Cell Cleaning”
	➤ Loose connection with the Cell’s connection pegs.	➤ Tighten connections with a screw driver.
	➤ Old Cell	➤ If none of the above resolutions worked, the cell may be worn out.
<b>7. Red Flow Light is OFF.</b>	➤ Normal Operation	➤ This is normal.
<b>8. Red Flow Light is flickering.</b>		➤ This is normal at initial start-up or if air bubbles are in pipes. If continuous, see Troubleshooting section “Red Flow Light is On”.
<b>9. Red Flow Light is ON – insufficient or no water flow to Cell.</b>	➤ Insufficient water flow from pump to Flow Sensor and Cell.	➤ Clean Filter and Strainer
	➤	➤ Check for closed valves, faulty pump, etc.
	➤ There is obstruction or scale buildup in Cell	➤ Clean Cell according to instruction manual.
	➤ The Flow Sensor was not installed in the correct direction.	➤ Turn Flow Sensor so arrow faces direction of water flow.
	➤ Flow Sensor is not fully threaded into the “T” connector.	➤ Fully thread the Flow Sensor into the T connector being careful not to damage the wires or sensors.
	➤ Cut wires or insufficient wire connections.	Check the connection to ensure proper wire contact.

<b>PROBLEM</b>	<b>POSSIBLE CAUSES</b>	<b>WHAT TO DO</b>
<b>10.Salinity High</b>	<ul style="list-style-type: none"> <li>➤ Too much salt has been added causing the red light above the power meter to illuminate (solid) or the power meter light to go up quickly, then shut down.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Slowly turn down the Control Knob (counterclockwise) until the desired green light illuminates. The red light may stay on. This does not harm the Natural Generator, but simply indicates that the salt level is on the high side for your information.</li> <li>➤ It is also recommended to periodically test the salt level by a professional. If above 5500 ppm, it is recommended to drain part of the pool water and refill with fresh water.</li> </ul>
	<ul style="list-style-type: none"> <li>➤ If the lights continue to go up and down after the Control Knob was turned down, the salt level is exceedingly high.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Drain a significant amount of pool water and refill the pool with fresh water.</li> </ul>
<b>11.Salinity Low</b>	<ul style="list-style-type: none"> <li>➤ Control Knob set too low.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Turn Control Knob higher (clockwise).</li> <li>➤ If the red light above the Power Meter illuminates or if the lights go up and down, see “Salinity High,” above.</li> </ul>
	<ul style="list-style-type: none"> <li>➤ Dirty or worn Cell.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Check the Cell to ensure the blades are in good condition and not coated with calcium buildup. Cleaning the Cell is recommended if it is calcified or if the readout seems questionable. (See “Cell Cleaning” under the “Maintenance” section)</li> </ul>
	<ul style="list-style-type: none"> <li>➤ Not enough salt due to heavy rain, initial miscalculation, etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Add salt into the pool. See the “Adding The Salt” section for more information.</li> <li>➤ It is also recommended to periodically test the salt level by a professional and adjust according to the “Salinity Demand Table” in this manual.</li> </ul>
<b>12.Scale build-up inside Cell</b>	<ul style="list-style-type: none"> <li>➤ Standard Occurrence that needs to be cleaned approximately twice/year.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Clean Cell as instructed in the “Maintenance” section.</li> </ul>
	<ul style="list-style-type: none"> <li>➤ Chemical imbalance.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Balance chemicals. Focus mostly on the Saturation Index in the section titled “Understanding the Chemistry”).</li> </ul>
<b>13.White flakes in the water</b>	<ul style="list-style-type: none"> <li>➤ Normal occurrence when cell cleans itself.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Keeping the water well balanced reduces this occurrence. (Focus mostly on the “Saturation Index” in the section titled “Understanding the Chemistry”)</li> </ul>

Our contact information is found on the front cover of this manual. For additional information, please visit our website or contact us directly with any questions or comments. For warranty service, please contact us directly. Technicians are available from 9:00 AM to 5:00 PM Eastern Standard Time, Monday through Friday. Please have the following information ready:

1. Model and Serial # of Control Box and Cell
2. Date of purchase
3. Installing company or dealer
4. Current salt level and chemical levels
5. Proof of Purchase (bill of sale, cancelled check, or some other appropriate payment record).