OWNER'S MANUAL

MODELS

AGWAV20	20,000 Gallon System
AGWAV40	40,000 Gallon System

Aqua Guard
Pool Systems

AquaGuard Series Residential Warranty

This limited warranty is applicable to all "AQUAGUARD SYSTEMS" manufactured by SALINE GENERATING SYSTEMS, 'AQUAGUARD' Saltwater Chlorination systems installed for residential use. For purposes hereof, the term "residential use" shall be deemed to mean use of the Unit within any pool installed for personal use at a single family home. USE OF SYSTEMS IN AN APPLICATION DEEMED COMMERCIAL WILL VOID THE WARRANTY.

This limited warranty is subject to the following terms, conditions and exclusions:

1. This limited warranty shall only apply to the owner of the residence within which the Unit has been installed, including any successor owner of such residence (referred to herein as the "Customer"), and is not transferable to any other assignee, transferee or other recipient of the Unit.

2. For any Unit installed for residential use, Saline Generating Systems (hereinafter referred to as "SGS"), warrants all "AQUAGUARD" parts (with the exception of the O-ring, The Control Center plastic cover, labels, cell cap, and cell housing, which are normal replacement items and excluded from this warranty) to be free from manufacturing defects in materials and workmanship for a period of five years from date of purchase from SGS or an authorized SGS "AQUAGUARD" dealer, subject to the Customer's satisfaction of its contribution obligation set forth in Paragraph 3, below (which applies only after the second full year of the five-year warranty period). All warranty claims are subject to the Customer's compliance with all applicable requirements set forth in this limited warranty, including the Customer's obligation to ship the unit (with shipping charges prepaid) to SGS (as described in Paragraph 9, below).

In the first two years of the five-year prorated warranty period, SGS will repair or replace any "AQUAGUARD" parts in the Unit that are confirmed to have been defective at no cost to the Customer. In years three, four and five of the warranty period, SGS will repair or replace any "AQUA GUARD" parts in the Unit that are confirmed to have been defective, provided the Customer shall be required to pay a portion, equal to the Applicable Percentage (as determined below for each applicable year) of the Manufacturer's Suggested Retail Price (MSRP) for the defective part being repaired or replaced, as a condition precedent to SGS' obligation to repair or replace such defective part. The Applicable Percentage shall be determined as follows:

Third Year of Five year Warranty Period:	Sixty Percent (60%) of MSRP
Fourth Year of Five-Year Warranty Period:	Sixty Percent (60%) of MSRP
Fifth Year of Five-Year Warranty Period:	Sixty Percent (60%) of MSRP

3. This limited warranty is solely for the replacement of defective parts as hereafter provided. SGS reserves the right to replace defective parts with new or refurbished parts at its sole discretion. All warranty replacement parts furnished by SGS will carry a warranty against manufacturing defects for the greater of: (i) one year from the date of installation, or (ii) the balance of the original five-year warranty period on the part replaced. Failed parts must be returned to SGS for examination and replacement at purchaser's sole cost and expense, to determine whether failure is due to manufacturer defect or other cause.

4. This limited warranty is applicable only if the unit is installed, operated and maintained in accordance with the procedures outlined in the "AQUAGUARD" Owner's Manual. Failure to do so will void this limited warranty.

5. Pool water must be tested regularly in order to properly maintain its chemical balance, which is critical to proper operation of the unit. Problems or equipment failures resulting from the failure to maintain pool water chemistry in accordance with guidelines set forth in the Owner's Manual will void the warranty. Customer releases SGS and holds SGS harmless from any and all claims attributable in whole or in part to their failure to comply with the foregoing guidelines concerning maintenance of pool chemistry.

6. Without limiting the generality of any of the waivers contained within this limited warranty, this limited warranty applies only to equipment failures due to manufacturing defects and explicitly does not apply to any injury, loss, damage, defect, or malfunction of the unit or failure to function caused by, or attributable to, among other things, any of the following: low salinity, copper chemical damage, improper handling, improper storage, abuse, unauthorized or improper installation, unsuitable application of the unit, lack of reasonable and necessary maintenance, winter freezing, operation not in accordance with the "AQUAGUARD" Owner's Manual, failure to follow all safety instructions or precautions, improper valve locations, excessive pressure, repairs made or attempted by anybody other than SGS or one of its authorized representatives, or Acts of God. The determination of the cause of any failure shall be made solely by SGS.

7. This limited warranty shall be void if Customer modifies the Unit in any respect including, but not limited to the use of parts other than genuine parts.

8. SGS representative will repair or replace, at its option, a Unit or part proved to be defective within the warranty periods and under the conditions of this limited warranty. This limited warranty is void if the Control Center has been tampered with (there are no user serviceable parts inside). The Customer must arrange prepaid shipping for servicing of the warranted items or under SGS' instruction after proper authorization (call 1-866-972-SALT). No packages will be accepted without a SGS / issued Returned Merchandise Authorization (RMA).

9. SGS is not responsible for (i) the removal of the Unit, (ii) damages due to such removal, (iii) any other expenses incurred in transporting the Unit (or parts of the Unit) to or from an authorized SGS service center, nor (iv) the reinstallation of the repaired or replacement Unit or parts at Customer's location. All such costs shall be the sole responsibility of the Customer.

10. In no event shall SGS be liable for incidental or consequential damages of any nature or kind from damages to persons or property, including any damage resulting from the use of the system with a substandard or improperly installed pool circulation system.

11. THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL SUCH OTHER WARRANTIES ARE DISCLAIMED EXCEPT TO THE EXTENT OF ANY IMPLIED WARRANTY IMPOSED BY STATE CONSUMER LAW WHICH MAY NOT BE WIAVED UNDER THE TERMS OF AN EXPRESS LIMITED WARRANTY. TO THE FULLEST EXTENT PERMITTED BY LAW, ANY SUCH IMPLIED WARRANTY IMPOSED BY STATE CONSUMER LAW SHALL BE LIMITED IN DURATION TO ONE (1) YEAR FROM DATE OF PURCHASE.

12. Some states do not allow limitations on how long an implied warranty lasts, prohibit the exclusion or limitation of incidental or consequential damages, or impose limitations on the scope of implied or express warranties (and the waivers therein) that may be inconsistent with the express limitations set forth in this warranty. In such states, the above limitations may not apply to you, or their application to you may be limited. This limited warranty shall be enforceable to the fullest extent permitted by applicable federal, state and local law. This limited warranty is valid only in the United States of America and Canada, and does not apply to SGS systems sold or installed in any other country.

Table of Contents

Safety Instructions & Precautions

Congratulations on your purchase of a Saltwater Chlorinator. You have made a wise decision and will benefit from your chlorinator for many years to come. Please take a moment to read through the entire manual before installing your new unit. Your chlorinator must be installed and operated as specified.

IMPORTANT SAFETY INSTRUCTIONS

1. READ AND FOLLOW ALL INSTRUCTIONS.

2. WARNING – To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

3. WARNING – Risk of Electric Shock. Connect only to a grounding type receptacle protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify the receptacle is protected by a GFCI

4. Do not bury cord. Locate cord to minimize abuse from lawn mowers, hedge trimmers, and other equipment.

5. WARNING – To reduce the risk of electric shock, replace damaged cord immediately.

6. WARNING – To reduce the risk of electric shock, do not use extension cord to connect unit to electric supply; provide a properly located outlet.

7. [For swimming pool pumps with or without a maximum 3-foot (0.91-m) cord] **CAUTION –** This [chlorinator] is for use with permanently installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently-installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage and reassembled to its original integrity.

8. CAUTION- This product can form hazardous gas if not installed or operated correctly.

SAVE THESE INSTRUCTIONS

ELECTRICAL HAZARD

- **All systems are shipped from the factory wired for 220 Volts.**
- To reduce risk of electrical shock make sure all power to pool equipment area is off prior to any installation or removal of System components.
- Immediately replace damaged Control Center cord.
- Do not bury cord. Locate cord to minimize abuse from lawn mowers, hedge trimmers and other equipment.
- Severe shock or injury will likely occur as a result of drill or drill cord coming in contact with water. Never allow electric drill or cord to come in contact with water. Only plug drill into a Class A (5 Millampere Trip) protected Ground Fault Circuit Interrupter (GFCI) in accordance with the National Electrical Code Section 680 (USA ONLY). Please see your drill owner's manual for further safety precautions.
- Install the Control Center at least 10 feet from the inside walls of a pool to prevent any possibility of the unit coming in contact with water.
- The Chlorinator has been designed with an internal electronic flow sensing tab. This device automatically switches the power to the electrolytic cell "OFF" when the water through the cell stops. To prevent cell damage and/or personal injury, do not in any way interfere with this system which has been designed for your protection.

CHEMICAL USE HAZARD

- To avoid personal injury when working with pool chemicals, always wear rubber gloves and eye protection, and work in a well-ventilated area. Use caution when choosing a location to open and use chemicals as they may damage any surface to which they come in contact.
- The addition of certain chemicals can reduce the effectiveness of chlorine. Always make sure that proper residual chlorine levels are maintained to avoid personal injury.
- This product produces chlorine. Individuals with any type of chlorine sensitivity should take the appropriate precautions to avoid injury or illness.

Important Notice: Attention Installer: This manual contains important information about the installation, operation and safe use of this product. Before installing this product, read and follow all warning notices and instructions which are included. This information should be given to the owner and/or operator of this equipment.

WARNING: IMPORTANT SAFETY INSTRUCTIONS PERTAINING TO RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS. READ AND FOLLOW ALL INSTRUCTIONS. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call 1-866-972-7258 or go to www.sgshclorinators.com for additional free copies of these instructions.

System Sizing

AGWV20 Produces up to .78 pounds of Free Chlorine per day to maintain residential pools up to 20,000 gallons*.

AGWV40 Produces up to 1.35 pounds of Free Chlorine per day to maintain residential pools up to 40,000 gallons*.

*** Correct sizing of a chlorine generator is subject to the specifications of each body of water, and should be carefully evaluated for best results. Where heightened chlorine demand exists due to warmer climates, humidity, high bather load, water features and other environmental factors, the maximum pool size should be reduced by at least 30%.**

How the Chlorinator Works

Common salt (sodium chloride) is made up of two elements, sodium and chloride. When the system is installed, a measured quantity of salt is dissolved in the pool water to create a mild saline solution. As part of the daily filtration cycle, the pool water is passed through the electrolytic cell to produce chlorine, which is instantly dissolved into the water. The chlorine generator also produces ozone and hydrogen in the cell as by-products.

In simple, non-technical terms, the chlorine instantly starts to destroy bacteria, viruses and algae, after doing this it reverts back into dissolved salt. This cycle continues as new chlorine is produced from the salt water in the electrolytic cell, sanitizing the pool and changing once more back into dissolved salt. Every day, when the system and the filtration system are switched on, dust and debris are trapped by the filter and the chlorinator sanitizes the water to make it safe and sparkling clean.

Water Preperation & Tips on Water Chemistry

Pool water that is not maintained properly will cause damage to the electrolytic cell and possibly void the warranty of the cell. Properly balancing pool water chemistry is the most important aspect of maintaining a swimming pool. Pool water must be tested regularly in order to properly maintain its chemical balance. In accordance with The Association of Pool and Spas Professionals (APSP) standards, we recommend the following water balance conditions be maintained on an ongoing basis to protect the pool finish and equipment, and ensure a pleasing appearance of the water. The system is warranted to operate properly only if these conditions are met.

Free Chlorine	1.0 - 3.0 PPM	Chlorine levels above 3.0 may cause corrosion of pool metals
pH	7.2 - 7.6	High pH reduces sanitizer efficiency
Total Alkalinity (TA)	80 - 100 PPM	The harder the water, the lower TA should be kept
Cyanuric Acid (CYA) -- Chlorine Stabilizer	20 - 30 PPM	Minimizes destruction of chlorine residual by sunlight
Calcium Hardness	200 - 400 PPM	Excess calcium may require you to drain pool and add water
Metals, Phosphates and Nitrates	None	Depletes chlorine in your pool.
Salt Residual	3000-4000 PPM	

How to adjust pH

A pH range of 7.2 – 7.6 is ideal for maximum comfort and minimum chlorine demand. **Always adjust total alkalinity before adjusting pH.** Low pH (acidic water) leads to stinging eyes and corrosion of open metal fittings. If the pH is below 7.0 ***AND*** the Total Alkalinity is below 80 ppm, use Soda Ash to adjust. First, test for metals. Consult your pool professional regarding which chemical is best for your situation and the proper amount to use. Check the pH after 4 hours of circulation, adjusting as necessary to achieve the proper range.

High pH (alkaline water) leads to clouding of the water and reduces the effectiveness and amount of active chlorine. This means algae and germs can grow. Lower the pH by adding muriatic acid to the pool water. The acid demand indicated by your 4-in-1 test kit will show the amount of acid to use. If your pH remains inconsistent, check your total alkalinity.

Total alkalinity affects pH

Total Alkalinity (TA) is the measure of bicarbonates, carbonates, hydroxides and other alkaline substances found in pool water. Alkalinity is defined as the ability of the water to resist changes in pH; also known as the buffering capacity of the water, Alkalinity keeps the pH from "bouncing" all over the place. TA is often confused with pH, which it affects. If TA is too low, the pH will be difficult to maintain and may cause staining of pool surfaces. Total alkalinity should be in the range of 80 – 100 PPM.

To raise total alkalinity, it is necessary to add pH buffer (sodium bicarbonate) at the rate shown in the manufacturer's instructions to reach the 80 – 100 PPM range. 1.5 lbs. of sodium bicarbonate raises 10,000 gallons of pool water by 10 PPM.

To lower the total alkalinity, use muriatic acid. The acid demand chart in your 4-in-1 test kit will indicate the necessary amount to add. Adjust as needed until the reading (taken at least 24 hours later) is in the 80 – 100 PPM range. When TA is correct, you may need to adjust pH**. Low TA levels (below 80 PPM) will cause pool water to become acidic. Corrosion of the electrolytic cell caused by low TA levels will not be covered under the three year limited warranty.**

Use Chlorine Stabilizer to Protect Chlorine Residual

Chlorine stabilizer, also known as conditioner, acts as a sun-screen for chlorine on outdoor pools and minimizes it from being destroyed too quickly by the Sun's ultra-violet rays; it helps the chlorine last longer and reduces consumption. Chlorine stabilizer should be added according the manufacturer's instructions to achieve a level of 20-30 PPM, depending on the geographical climate. It is crucial to stay within this range, as high conditioner levels can lead to algae growth and other problems. The only way to reduce the concentration of conditioner is to (partially) drain the pool water and then refill the pool to bring the level to the recommended 20-30 PPM.

Salt Requirements

The system is engineered to operate in a broad salt range with a minimum of 3,000 PPM ; a residual of **3,000 to 4,000 PPM** is recommended at all times for peak efficiency and best results. The system can also handle special application salt levels of up to 35,000 PPM without any adverse effects to the unit.
NOTE: HIGH salt level above 8,000 PPM may cause corrosion problems with metallic fixtures, light rings, ladders and handrails.

Salt: When & How to Add It

AT START UP -- Determine the salinity level of the water before adding any salt with a salinity test meter, salt test strips or through a water testing facility. You should be aware that previous use of sodium hypochlorite (liquid chlorine) creates residual salt within the pool. Salt should then be added to the pool (see below for How To Add Salt) to bring the salinity level to the optimal range of 3,000 to 4,000 PPM -- **table 1 on page 11** is a reference chart for the amount of salt needed to get to the recommended level.

SYSTEM MAINTENANCE – Salinity level should be checked monthly. The salt level should never be allowed to fall below 3,000 PPM, **as this will cause damage to the electrolytic cell**. Salinity level is lowered through dilution (adding fresh water or rainfall), water splashed out of the pool and/or backwashing the filter. Salt is not lost through evaporation. If the salinity level drops below the recommended salinity range, use Table 1 on Page 11 to determine the amount of salt that has to be added to obtain the proper salinity level.

NOTE: The chlorinator will automatically go into service mode (light #3 will illuminate, as shown on illustration 5 on page 17) when one of the following conditions exist: cold water (under 60^0), low salt (under 2,000 PPM) and a dirty cell (see illustration 5 on page 17 and Troubleshooting section for instructions on what to do when the system goes into service mode).

We recommend using pool salt, which can be purchased at pool and hardware stores. Avoid using salt with iodine or anti-caking agents like YPS, which can cause some discoloration of fittings and pool surface finishes. **Note: Do not use Rock Salt due to its high levels of impurities.** Add enough salt to obtain the proper concentration, per the reference chart on page 11.

CAUTION: Do not operate the system with newly poured pool plaster. Check with the pool builder or remodeler for specifics on their products before you operate the chlorinator.

IMPORTANT: Other pool equipment may be damaged if the salt level is kept above 8,000 PPM. Refer to the pool equipment manufacturer's operation manual for product specifications and warranty exclusions.

How to Add Salt to the Pool

1. Determine salt level as discussed above. Use Table 1 (on the next page) to calculate the amount of salt needed.
2. Power on the pump to circulate the pool water.
3. Slowly pour in the salt around the outer perimeter of the pool for quick and even distribution. **To avoid clogging the filter or damaging the Control Center and pump, do not add salt through the skimmer or surge tank.**
4. Brush the pool bottom to distribute the salt evenly and allow water to circulate for 24 hours to dissolve completely. After 24 hours, confirm salt level reading.

5. Power on the system and set output percentage to desired Sanitizer Output level (see Basic Operation Section on page 18)

Salt Convertion Table

Table 1 Approximate Pounds of Salt required for 4,000 PPM in Pool

Salt Concentration Before Addition (PPM)	Pool Size (Gallons)																
	8000	10000	12000	14000	16000	18000	20000	22000	24000	26000	28000	30000	32000	34000	36000	38000	40000
0	266	334	400	466	533	600	637	733	800	867	933	1000	1067	1113	1200	1267	1335
200	253	315	380	443	507	570	633	697	760	823	887	950	1013	1076	1140	1203	1267
400	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140	1200
600	227	283	340	397	453	510	567	623	680	737	793	850	907	964	1020	1077	1135
800	213	266	320	374	427	480	533	587	640	693	747	800	853	907	960	1013	1067
1000	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
1200	185	232	280	328	373	420	467	513	560	607	653	700	747	793	840	887	933
1400	171	215	260	305	347	390	433	477	520	563	607	650	693	737	780	823	867
1600	160	198	240	282	320	360	400	440	480	520	560	600	640	680	720	760	800
1800	147	182	220	258	293	330	367	403	440	477	513	550	587	523	660	697	733
2000	133	166	200	234	267	300	333	367	400	433	467	500	533	567	600	633	667
2200	120	150	180	210	240	270	300	330	360	390	420	450	480	510	540	570	600
2400	107	132	160	188	213	240	267	293	320	347	373	400	427	453	480	507	533
2600	93	116	140	164	187	210	233	257	280	303	327	350	373	397	420	443	466
2800	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400
3000	67	84	100	116	133	150	167	183	200	217	233	250	267	283	300	317	333
3200	53	68	80	93	107	120	133	147	160	173	187	200	213	227	240	253	266
3400	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
3600	27	33	40	46	53	60	66	73	80	86	93	100	106	113	120	127	133
3800	13	16	20	23	26	30	33	36	40	43	47	50	53	57	60	63	67
4000	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok

Chlorinator Installation

The Chlorinator must be installed by a qualified pool professional or certified electrician.
If you have any questions or need assistance in finding a qualified installer, please contact our tech support hotline at 1-866-972-SALT (7258) or (480) 385-3052, Monday through Friday, from 7:00 AM to 3:00 PM Arizona time, or via E-Mail at: services@sgschlorinators.com.

Your Chlorinator includes the following:

1 Control Center
1 Cell Housing
1 O-Ring
1 Jumper Wire
1 Electrolytic Cell with cord, and Cap
1 Mounting Bracket
1 Cleaning Stick –**A**cid **R**eplacement **D**evice
1 Owner's Manual
1 Wiring Conversion Literature (LOCATED ON BOX)

The following tools will be required to install the system:

- Screwdriver
- Level
- Hacksaw / or PVC cutter
- Wire Stripping Tool
- Electric Drill
- 8AWG Copper Bonding Wire

INSTALLING THE CONTROL CENTER WARNING! When using electrical products, basic precautions should always be followed: **be sure to read and follow safety instructions on pages 4 though 6.**

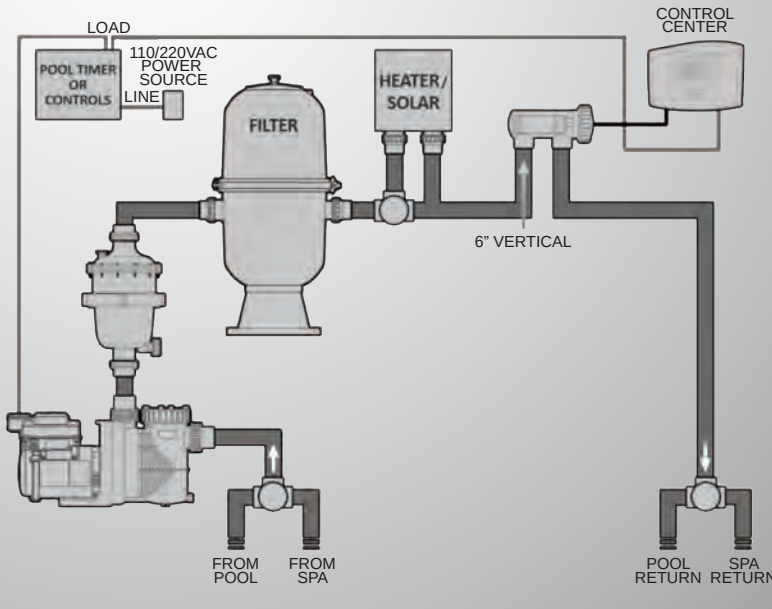
DANGER: Risk of electric shock, which can result in serious injury or death. Before attempting installation or service, make sure that all power to the circuit supplying power to the system is disconnected / turned off at the circuit breaker. Connect only to a circuit protected by a ground fault circuit-interrupter (GFCI).

Installation Preperation

The **system cell MUST** be installed horizontally, with the ports down, as the last piece of pool equipment in line, on the return to the pool, after the heater. (See illustration 1 on next page) The design of the cell forms a natural gas trap. Even though the system has an internal flow sensor, this installation provides a secondary safety feature to prevent gas build-up within the system. **Note:** The inlet is labeled on the cell housing with an arrow pointing up. The cell housing should be located 6 inches above the height of plumbing: in the event there is no heater, the cell should be located above the height of the filter inlet and outlets. Any standard PVC cement may be used. Always use PVC cleaner to prep all glue joints. Allow adequate drying time before turning on the pump. All of the fittings are 2 inch PVC, and if necessary can be reduced to 1½ inch PVC. The cell has a 10 foot power cord, and cannot be modified; use precaution to place the cell housing within reach of the Control Center.

The **Control Center is shipped wired for 220V**. The control center can be converted to 120V in the field by a pool professional or certified electrician; a wiring diagram for making the conversion in included with each system. Questions on this process should be directed to SGS tech support at 1-866-972-7258; operating hours for speaking to a technician at the factory are 7:00 AM to 3:00 PM Arizona time, Monday through Friday.

The system is designed to power on ONLY when the primary pump is operating and should be wired to the load side of the time clock. It must be grounded with an 8AWG bonding wire from the lug (see illustration #2 on page 15) on the bottom of the Control Center to a grounding rod (this is necessary to protect the integrity of the electronic systems). **Note: systems are not recommended to be installed on pools using a stainless steel liner or stainless steel plumbing.**

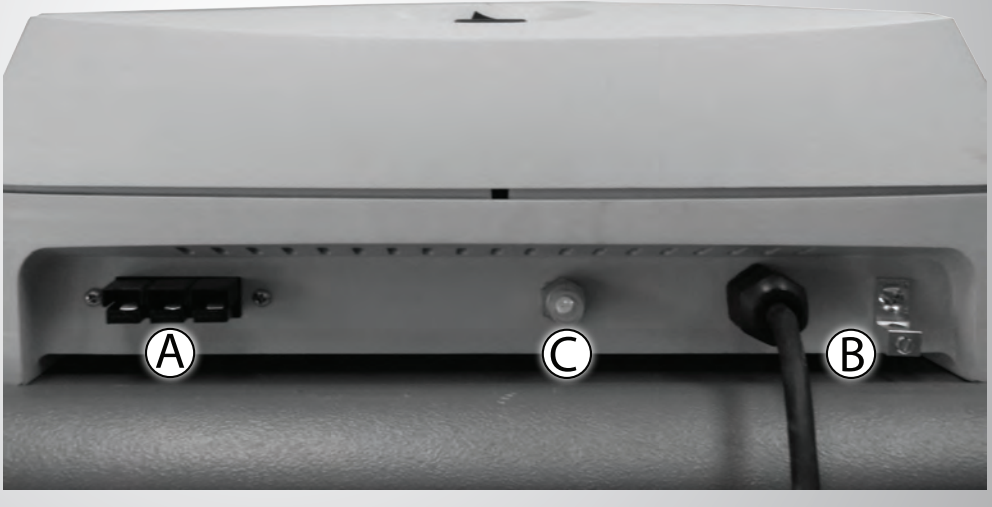


Installation Procedures

Electrolytic Cell

1. Locate pool return line after the heater or filter as shown in illustration # 1 above. This is the preferred location for the cell housing, **but must be located above the highest point of plumbing.**
2. Determine height necessary to bring cell above both the heater and the filter inlets and outlets.
3. Cut and glue the risers from the main plumbing into place. Install the cell housing to the top of the risers, making sure the cell housing is installed level.
4. Install the O-ring into the receiving channel inside the cell housing, and then slide the cell into the cell housing making sure the key way on the black plastic base aligns with the matching key in the cell housing **(with the water sensor tab in the 12:00 position)**.
5. Put the main cap into place and hand tighten only; be sure not to strip the threads.

Control Center -- The Control Center can be mounted on a wall or posts.



1. Using the end of the cell cord as a guide, locate a suitable location for the mounting of the Control Center. The Control Center must be mounted on a noncombustible surface.
2. The wall mounting bracket should be fastened to the wall at a height comfortable for operation. Screws or anchors are not included. Make sure that the bracket is fastened directly onto concrete with the proper anchoring device or into a stud in a noncombustible wall surface. Mount the bracket by installing the one screw, and then leveling the bracket, and installing the other screw, making sure that the mounting bracket is level and **horizontal**.
3. If mounting the Control Center on a post, it must be centered on a flat panel of waterproof and non combustible material at least 10" x 20". Do not enclose the Control Center in any box.
4. The Control Center has two mounting bolts installed at the top back of the unit: simply place the head of the pins in the keyhole slots on the wall bracket, and allow the unit to hang freely. Your Control Center is now mounted.
5. Connect 8AWG bonding wire (**not included**) between the grounding rod and the grounding lug (located to the left of power cord in illustration 2 above) on the bottom of the Control Center**. The warranty will be voided if the bonding is not correctly done.**

Installation Procedures
continued

Connecting the cell cord to the Control Center

Align the three pins of the cell cord plug with the socket on the Control Center bottom (Part A in illustration 2 shown above) and insert the connector until it clicks in place. There are clips located on either side of the plug on the Control Center -- make sure they are locked into the cell half of the plug.

Resettable Circuit breaker

A six amp resettable circuit breaker is located on the bottom right of the control panel (Illustration #2 on page 15). In the event that the circuit breaker trips, push on the rubber cover and you will feel it click as it resets.

Special Situations

Flooded Plumbing Installation -- This exists when the water level of the pool is above the height of the pool equipment. Some pool systems may have valves that will isolate the equipment. If not, one ball valve should be installed on the inlet side of the cell and a one-way check valve should be installed on the outlet side of the cell. This will eliminate the possibility of having a gas build-up (which could cause possible cell damage) and allow the cell to be removed for cleaning when necessary.

Start-up Procedures

1. Balance your water chemistry according to the Water Chemistry Parameters shown on page 8. Add the proper amount of salt and circulate 24 hours before starting the Chlorinator.
2. Start system at the 75% sanitizer output level and operate normally. For the first two weeks, test the water every 2-3 days for proper chlorine residual levels. Raise or lower the sanitizer output by pressing the output control arrows as needed (see operation instructions on next page), according to your test results.
3. If sanitizer output percentage setting is 100%, and chlorine residuals are still below the 1-3 PPM range, increase the output to **BOOST,** the system will run in this mode for 72 hours, and automatically return the system to 100% after the 72 hours has expired. The rule of thumb for daily run time of the system is 1 hour of operation for every 10 degrees of ambient temperature (i.e. 90 degrees would equal 9 hours of run time).
4. Once your Sanitizer output percentage setting has been established, you should only need to adjust the output level because of higher chlorine needs than normal, like increased bather usage or heavy rainfall (that can accelerate consumption of chlorine.

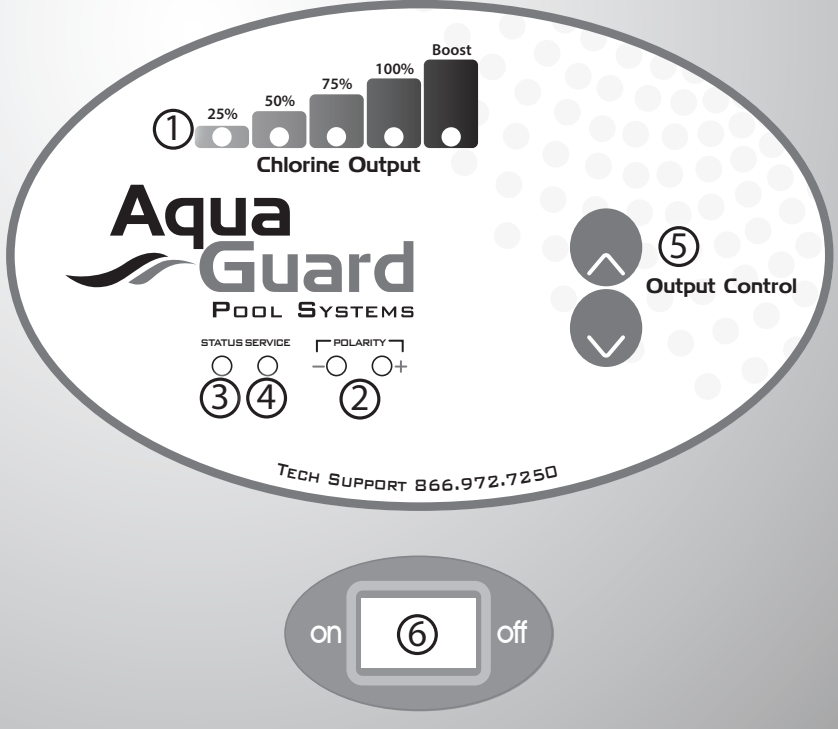
System Operation

The chlorinator is designed to make sanitizing your pool very easy with minimal maintenance. The system will reduce the need to add chlorine and decrease spikes in your chlorine readings, giving you the ability to relax and enjoy crystal clear pool water. The system begins to operate at its full potential immediately. The reversing polarity feature aids in increasing the life of the electrolytic cell and minimizing the maintenance of calcium bridging between the cell blades. The clear cell housing makes the monitoring of chlorine production and scale build up easy and visually accessible.

Control Center Functions

1. **Sanitizer Output Lights** shows level of chlorine output as a percentage of system capacity
2. **Polarity + /-** indicates direction of current; reverses every 6 hrs. of operation automatically
3. **Systems Operations Status** solid light indicates the system is operating correctly
4. **Systems Operations Service** if lit indicates a system warning; see Troubleshooting section
5. **Output Control Up or Down** press once to increase or decrease system output to next or previous level
6. **On / Off Switch** controls main power to system

Illustration 5



Basic Operation

Engage Power switch (#6 on Illustration 5 shown above) by pressing to "On" position. As the system boots up, the lights will flash for about ten seconds. The System Status light (#3) will then remain solid; the Sanitizer Output lights (# 1) will display the selected chlorine output level. One of the Polarity lights (# 2) will also illuminate, indicating the direction of current. Every six hours of system operation the polarity will change automatically, which prolongs the life of the cell and minimizes build up between the cell blades. If the power is interrupted (either by the pump turning off or by putting the Power switch into the off position), the system will automatically reset to the setting when last powered on.

Once the system is in normal operation mode, you can adjust output by pressing button #5 (Up) to increase or #5 (Down) to decrease output one increment. Each adjustment will be accompanied by illumination of the light above the arrow, which indicates activation of the control system; you will then see the associated change in the Sanitizer Output level. **TIP: Check chlorine level on a regular basis and adjust output of the chlorinator accordingly. Make sure that all pool chemicals are within balance.**

Provided the chlorinator is sized properly, the unit will supply a sufficient amount of chlorine to sanitize pool water on a daily basis. If operated 24 hours a day in **BOOST,** more chlorine would be generated than would be needed by most pools (1-3 PPM). The **BOOST MODE** (with the red **BOOST** light illuminated) will automatically operate for 72 hours of run time, and then reduce to the 100% level. The **BOOST MODE** should be used to offset "out of the ordinary" conditions: unusual weather or extremely high bather load. Unlike other chlorinators, the system is able to produce chlorine at all settings on the Sanitizer Output scale for its entire run time. Adjusting the Output control from 75% down to 50% means that your unit is producing 50% of its capacity, for the entire run of the system. This has a positive impact on cell longevity, as well as the amount of chlorine being produced by your system.

CAUTION: Before operating the Chlorinator for the first time, refer to "Safety Instructions & Precautions" (pages 4-6) and "Pool Water Preparation" (page 8-11). Do not run the system until it is certain that salt has been dissolved in the pool. Operating without adequate salt will result in damage to the electrolytic cell and will void your warranty.

The Association of Pool and 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). As discussed in "Startup Procedures" (page 16), the general rule of thumb for the Chlorinator is to operate the system 1 hour for every 10°F ambient air temperature. It may take a few days to achieve the correct amount of pool pump operating time (run time). **Results depend on many variables and can vary from one pool installation to the next, so this should be discussed with either the pool builder or your pool professional.**

The key points are:

- Operate the pool pump at least 1 hour for every 10 degrees of ambient air temperature.
- Be sure to follow the guide line set forth by The Association of Pool and Spas Professionals for water chemistry
- The pool pump timer can reduce energy consumption; make sure to consult your local electrical company for off peak operating times and program your timer within their guide lines

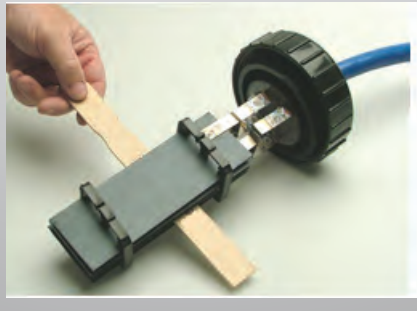
Cell Maintenance -- How and When to Clean Your Cell

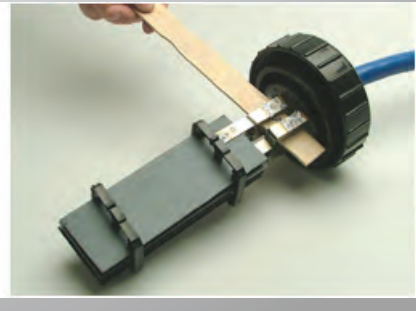
Although the is a low maintenance reversing polarity system, occasional manual cleaning of the low maintenance Electrolytic cell will be required to remove scale and calcium build up. How often this cleaning is needed depends on the chemistry of the pool water, including the hardness of the water and how you balance your pool water chemistry, among other things. Although cleaning once every one to three months is fairly normal, periodic inspections of the Electrolytic cell through the clear housing (while the system is operating) is the best way to determine if the cell needs cleaning.

When to clean the cell is easily determined by a simple visual inspection of the cell while the system is operating. Carefully looking through the cell housing, check for buildup (which is easily seen) on the electrodes and the legs that attach the electrodes to the cell base (illustration 4 on page 20). If there is no buildup, there is no need to clean the cell. If there is buildup, **ALWAYS TURN OFF THE PUMP PRIOR TO CLEANING THE CELL. THE PUMP AND FILTER SYSTEM IS OPERATED UNDER PRESSURE, AND THE PRESSURE MUST BE RELIEVED BEFORE YOU WILL BE ABLE TO REMOVE THE CELL FROM THE CELL HOUSING.**

HOW TO CLEAN THE CELL

1. Remove the cell cap (the large black cap at the end of the clear cell housing) by turning it counter clock-wise.
2. Gently pull the cell electrodes out of the housing, being careful not to damage the O-Ring.
3. Once the cell is removed from the housing, slide the cleaning stick (acid replacement device) between the blades to remove any calcium buildup (see Illustration 3 on page 20). Make sure to clean the legs of the electrodes as well (see illustration 4 on page 20). **NOTE: THERE IS NO NEED TO USE ACID FOR THIS PROCESS AS IT REDUCES THE LIFE OF THE ELECTRODES.**
4. Take the O-Ring out of the cell housing, and remove material or debris from it. Once you have cleaned the O-Ring, use a towel or Q-TIP to wipe out the channel in the cell housing that the O-Ring seats into.
5. Return the O-Ring to its channel in the cell housing **(DO NOT USE LUBRICANT)**.
6. Install the electrodes into the cell housing, making sure not to disturb the O-Ring. Seat the tab on the top of the cell base into the indentation on the cell housing. If this is done correctly, the sensor located at the electrode base will be facing up in the 12:00 position.
7. Return the black cap to the cell housing and hand tighten in the clockwise direction. Be careful not to over tighten.
8. Re-start your pump; any loosened calcium will probably be brushed off with the water flow.





System Maintenance
continued

Weekly Service

Chlorine Test: Test pool water chlorine level with a reliable test kit. Maintain ideal range by adjusting Sanitizer Output level (see Basic Operation on page 18). **Note:** Chlorine residual above 5.0 PPM may cause corrosion of pool metals and possible damage to associated pool equipment. It is recommended that chlorine test samples be taken from two places, one at the pool return line, the other well away from the pool return line. Compare the samples. A higher level of chlorine should be found at the pool return line, which confirms that the system is producing chlorine.

pH Level Test: Test the pH level of your pool with a test kit. If necessary, adjust according to your pool professional's recommendations. A pH level of 7.2 - 7.6 is recommended. **Note:** 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 byproducts can damage the electrolytic cell.

Monthly Service

To ensure that the correct chemical balance is maintained in your pool, it is important to perform the following recommended pool water test every month. **Take a water sample from your pool to a local pool store or your pool professional for testing.**

1. **Salt Level Test:** Make sure salt level is within acceptable range (3,000-4,000 PPM). If salt level is low, see table 1 on page 11 for the amount of salt to add
2. **Total Alkalinity Test**: Adjust according to your pool professional's recommendations. 80-100 PPM APSP Standard
3. **Stabilizer (Cyanuric Acid):** Maintain ideal range of 20-30 PPM. Follow your pool professional's recommendations.
4. **Calcium Hardness:** If necessary, adjust according to your pool professional's recommendations. APSP standard of 200-400 PPM is recommended.
5. **Metals Test:** It is recommended that the pool water be tested periodically for the presence of metals such as copper, iron, and manganese. These metals should not be present in the pool water. If those metals are present, contact your pool professional immediately.

CHLORINE: During peak sanitizer demand (heavy rain, high bather usage, and/or high heat) it may be necessary to increase the sanitizer level by increasing your sanitizer output setting and/or pump runtime. Conversely, with low sanitizer demand, you can decrease the output level to a lower setting. For extremely heavy sanitizer demand or to increase your sanitizer levels, you can run the system at 100% or supplement with a Potassium Monopersulfate based shock. **CAUTION: Excessive chlorine levels can cause premature cell failure and corrosion damage to other metallic pool equipment. Avoid over saturation of chlorine levels.**

pH: When your pH falls below the accepted range, your sanitizer is used up very quickly and can be damaging to your equipment. For pH levels higher than the accepted range, your sanitizer becomes much less effective and will work harder to keep your pool sanitized.

CALCIUM HARDNESS AND TOTAL ALKALINITY: The system provides 100% pure sodium hypochlorite and does not affect the calcium hardness or total alkalinity levels. Maintain and balance only as needed.

Troubleshooting

Situation	Possible Cause	Corrective Action
Low or no chlorine residual In pool	Low stabilizer (Cyanuric acid level in pool water)	Add stabilizer to maintain 20-30 PPM per pool professional's recommendations.
	Insufficient run time	Increase daily run time. Recommend 1 hour of run time per 10 degrees ambient temp.
	Chlorine Output percentage set too low	Increase the Sanitizer Output Level (see page 15)
	Recent increases in weather temperature without increasing the Sanitizer Output of the system	Increase the Sanitizer Output Level (see page 15)
	Temporary loss of chlorine due to heavy rain, leaves, fertilizer or heavy bather load, recent party, or pets using pool. Loss of salt due to rain or added water.	Set Sanitizer Output to **BOOST** (Super Chlorinate) for 72 hours. Recheck--if still too low, super-chlorinate with outside source. (Take pool water sample to pool professional) Add salt.
Low or no chlorine	Low salt level (less than 3,000 PPM). System Status light is flashing/ service light is yellow / solid.	Increase Salt level by adding salt according to chart on Page 10
High Phosphates/Metals	High nitrate level. Metals present in pool water.	Contact Pool Professional.
	Phosphates in pool water	Use phosphate remover as instructed or contact Pool Professional
	New pool water, or not shocked properly upon startup.	Super-chlorinate pool with outside source.
	Clogged or dirty cell	Remove cell from housing to clean (see "Cell Maintenance," page 16)
Status light is flashing and service light is on.	Pool water needs salt.	Test salt level of water. Add salt (page 10) if necessary .
	Cell is clogged or dirty.	Check and clean cell (pp 16-17)
	Water temperature is low	Check water temp (if below 60 degrees, turn system off)
	Insufficient water flow	Make sure pump is running. Check and correct all valve alignments
	Insufficient water flow—dirty filter Sensor tab (top of cell) issues	Follow filter cleaning procedures Clean off any calcium on sensor tab. Make sure there is not an air bubble at point of sensor tab in cell housing – if there is, contact your pool professional or our tech hotline: 1 866 972-SALT

Troubleshooting
continued

Unable to increase Chlorine Production	Cell is plugged with debris, cold water, low salt level	Check cell and clean, check salt level, check water temperature.
	Problem with power to Control Center	Check to make sure On/OFF Switch is on. Make sure pump is on. Check Circuit Breaker (Part C on Illustration 2, page 13) on bottom of Control Center; if tripped, press rubber cover to reset
	No AC power to Control Center	Verify time clock is providing 220 VAC to Control Center when active (TO BE DONE BY CERTIFIED POOL PROFESSIONAL, OR ELECTRICAN)
System Status light solid	System is operating normally	No solution, everything is fine. Enjoy your pool!
Status light is flashing or service light is on while operating on low output percentage.	Low salt level, dirty cell, damaged cell blade coatings.	Set the output to "Boost" and then hold down the upward arrow button until the polarity lights begin to flash back and forth. Check to see if status light has stopped flashing or the service light has turned off.
The system will not turn on.	Incorrect or no voltage coming from the power source.	Have an experienced pool professional or an electrician confirm that the voltage is existent and correct.
	Circuit breaker may be tripped	Check the circuit breaker located on the control center box and reset the breaker is it has been tripped.
	Circuit boards may be damaged.	Call manufacturer to troubleshoot the system with a technician.
The cell housing is leaking from the cap (bottom of cell cap or through the cord hole)	O-ring may be improperly seated.	Confirm that O-ring has not been lubricated. Clean the o-ring slot of any dirt or debris. Fully seat the o-ring in into the slot before inserting the cell back into the housing.
	Cell cap may be cross threaded.	Unscrew cap and confirm that the cap screws onto the housing without resistance.
Water is leaking from the cell plug.	Water is traveling through a crack in the cell base and up the cell cord.	Call manufacturer and troubleshoot the system with a technician.
The titanium "legs" that hold up the cell blades have broken apart from the blades.	The legs have been eaten away due to corrosive water.	Call manufacturer to troubleshoot the system with a technician.
	The weld that held the "legs" and blades together has failed.	Call manufacturer to troubleshoot the system with a technician.

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