

SG SERIES

Commercial Chlorinators

OWNERS MANUAL



MODELS
SG 5000
SGC SERIES
STORM SERIES



SALINE GENERATING SYSTEMS

SG "SERIES" LIMITED COMMERCIAL WARRANTY

This limited warranty is applicable to all SALINE GENERATING SYSTEMS SG "SERIES" Saltwater Chlorination systems installed for commercial use. For purposes hereof, the term "commercial use" shall be deemed to include (i) use of the unit within any non-residential pool, including but not limited to commercial, semi-public and public pools, and (ii) use of the unit as part of a residential installation where the unit is regularly operated for more than 12-hours per day for an extended time period. For a commercial use, Saline Generating Systems (hereinafter referred to as "SGS"), warrants all parts (with the exception of the (i) the O-ring, which is a normal replacement item, and (ii) discoloration or fading of any painted or plastic surfaces, which is also normal and not defective, both of which are excluded from this warranty) to be free from manufacturing defects in materials and workmanship for a period of one year from date of purchase from SGS or an authorized SGS dealer.

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

1. This limited warranty shall only apply to the original purchaser and is not transferable to any subsequent purchaser, assignee, transferee or other recipient of the Unit.
2. This limited warranty is solely for the replacement of defective parts. 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) 90 days from the date of installation, or (ii) the balance of the original one-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.
3. This limited warranty is applicable only if the unit is installed, operated and maintained in accordance with the procedures outlined in the SGS owner's manual. Failure to do so will void this limited warranty.
4. Pool water must be tested regularly in order to properly maintain its chemical balance. 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.
5. 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 Owner's Manual, failure to follow all safety instructions or precautions, improper valve locations, excessive pressure, repairs made or attempted by anybody other than Pool Thing or one of its authorized representatives, or Acts of God. The determination of the cause of any failure shall be made solely by SGS.
6. 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 SGS parts.
7. SGS' authorized 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 the warranty. Warranty is void if the control unit 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).
8. 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 consumer.
9. 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 SG "SERIES" with a substandard or improperly installed pool circulation system.
10. 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 WAIVED 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.
11. 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 units sold or installed in any other country.

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SAFETY INSTRUCTIONS & PRECAUTIONS

Congratulations on your purchase of a Breeze 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 Commercial 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 Breeze 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 Breeze 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.sgshchlorinators.com for additional free copies of these instructions.

 **WARNING:** To reduce the risk of injury, installation and service should be done by a qualified Pool Service Professional, certified electrician or authorized SGS representative.

 **WARNING** – In order to comply with UL1081 Section 53.5 and UL1795 (Hydro-massage bathtubs) Sections 21.1, 59.5 and 63.1 and some local electrical codes; “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 a ground current flowing, indicating the possibility of an electric shock. Do not use the system. Disconnect the unit and contact a qualified service representative before using.

PREVENT CHILD INJURY AND DROWNING To reduce the risk of injury; do not permit children to operate this product. Do not let anyone, especially small children, sit, step, lean, or climb on any equipment installed as part of your pool’s operational system. Unless otherwise stated, ALL components of your pool’s operational system should be located at least 3 feet from the pool so children cannot use the equipment to gain access and be injured or drown.

EQUIPMENT WATER PRESSURE HAZARD Always turn pump off prior to installing or removing the Electrolytic cell. Your pump/filter is operated under pressure and the pressure must be released before you begin work. Please see your pump/filter owner’s manual for further instructions. To avoid cell damage, water pressure in the cell must not exceed 75 PSI. Do not operate electrolytic cell without proper flow or water circulation. A build-up of flammable gases will result in hazardous conditions.

 **CAUTION – FAILURE TO HEED THE FOLLOWING COULD CAUSE DAMAGE TO POOL EQUIPMENT OR PERSONAL INJURY**

- The Breeze Chlorinator must be installed and operated as specified in the owner’s manual.
- Power to the Breeze should be turned off **before** unplugging the Electrolytic cell from the cell housing, or power supply, to prevent cell damage and low voltage sparks. Scratching or bending plates in the cell housing will reduce cell life.
- It is not necessary to use any type of lubricant on the O-ring. It is, however, imperative that the O-ring (and the channel it seats into) be kept clean, in order to make a strong seal.
- High water temperatures above 104 degrees (40 degrees c) or direct sunlight can cause the cell housing exterior plastic to discolor. **This is not a warranty claim.**
- Follow installation instructions on page 13 for location and mounting of the Control Center.
- Visibly inspect the cell frequently to check and prevent the accumulation of pool debris that (for any reason) may have bypassed the pool filter.
- Direct sunlight can cause the control center cover to discolor. **This is not a warranty claim.**

HOW THE COMMERCIAL CHLORINATOR WORKS

Common salt (sodium chloride) is made up of two elements, sodium and chloride. When the Breeze 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 Breeze 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 Breeze system and the filtration system are switched on, dust and debris are trapped by the filter and the Breeze sanitizes the water to make it safe and sparkling clean.

WATER PREPARATION AND 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 Breeze systems are 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	4000-4500 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.

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 to 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 Breeze is engineered to operate in a broad salt range with a minimum of 3,000 PPM; a salt residual of **4,000 to 4,500 PPM** is recommended at all times for peak efficiency and best results. The Breeze 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.

We recommend the use of a pool salt, which can be purchased at pool stores and most hardware outlets. Granular salt, table salt, solar salt or water conditioner pellets can also be used but will have different dissolve rates; the salt you use should contain a minimum purity of 99% Sodium Chloride. Do not use salt that contains 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.**

SALT: WHEN & HOW TO ADD IT

AT START UP -- Determine the salinity level of the source water before adding any salt with a salinity test meter (SGS Instruments SLTD 100 is NSF certified and highly recommended for accuracy), 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 4,000 to 4,500 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 weekly. 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 Commercial 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^o), low salt (under 3,000 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 Breeze with newly poured pool plaster. Check with the pool builder or remodeler for specifics on their products before you operate the Breeze 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 Breeze system and set output percentage to desired Sanitizer Output level (see Basic Operation Section on page 18)

CHLORINATOR INSTALLATION

Breeze Chlorinators must be installed by a licensed 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 Breeze 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 –**Acid Replacement Device**
- 1 Owner's Manual
- 1 Wiring Conversion Literature (STOP SIGN)

The following tools will be required to install the Breeze 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 through 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 Preparation

The **Breeze 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 BREEZE 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 Breeze Control Center.

The **Breeze 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 is included with each BREEZE 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 BREEZE 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: Saline Generating Systems LLC does not recommend installing a salt water chlorinator on pools using a stainless steel liner or stainless steel plumbing.**

(Illustration on next page)

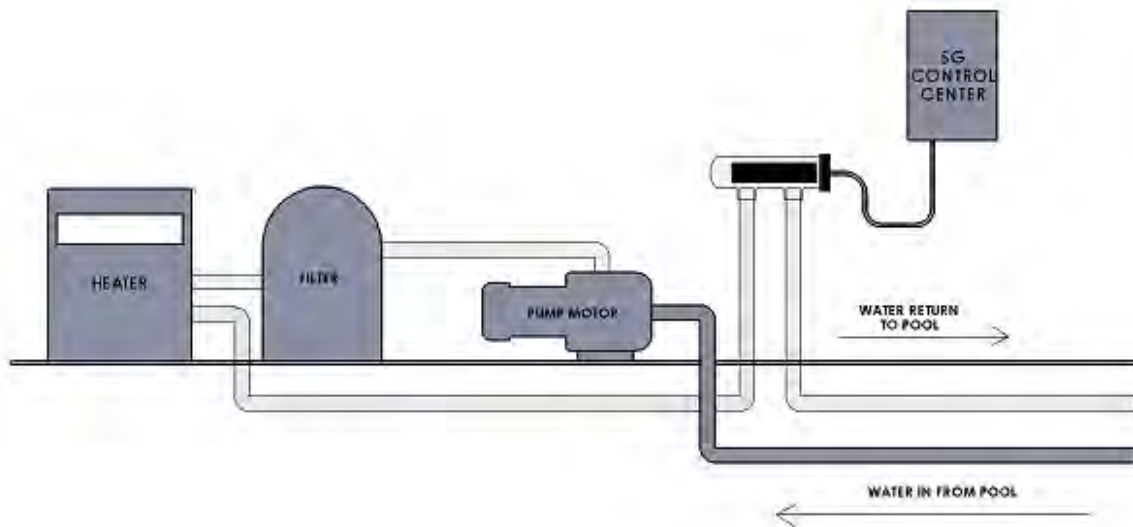


Illustration 1

PROCEDURES FOR INSTALLATION

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.

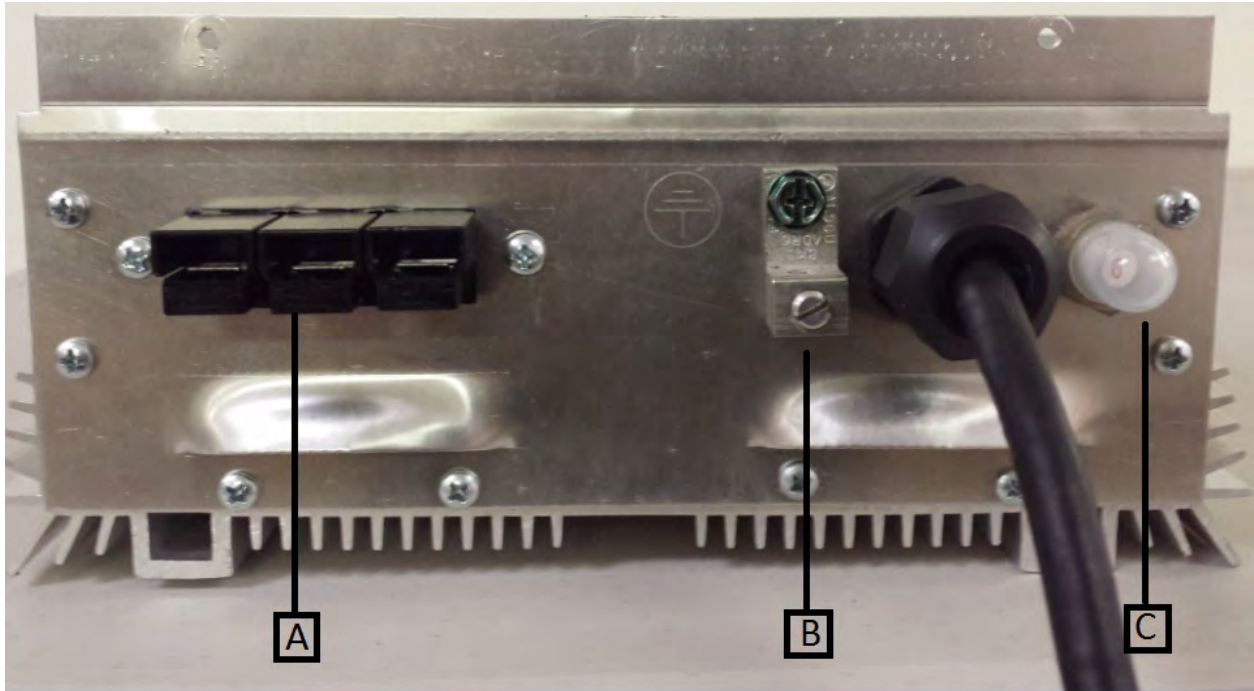


Illustration 2

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 Breeze 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 Breeze 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.**

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 BREEZE Chlorinator.
2. Start system at the 100% sanitizer output level and operate normally. For the first 30 days, test the water every day 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 Breeze 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

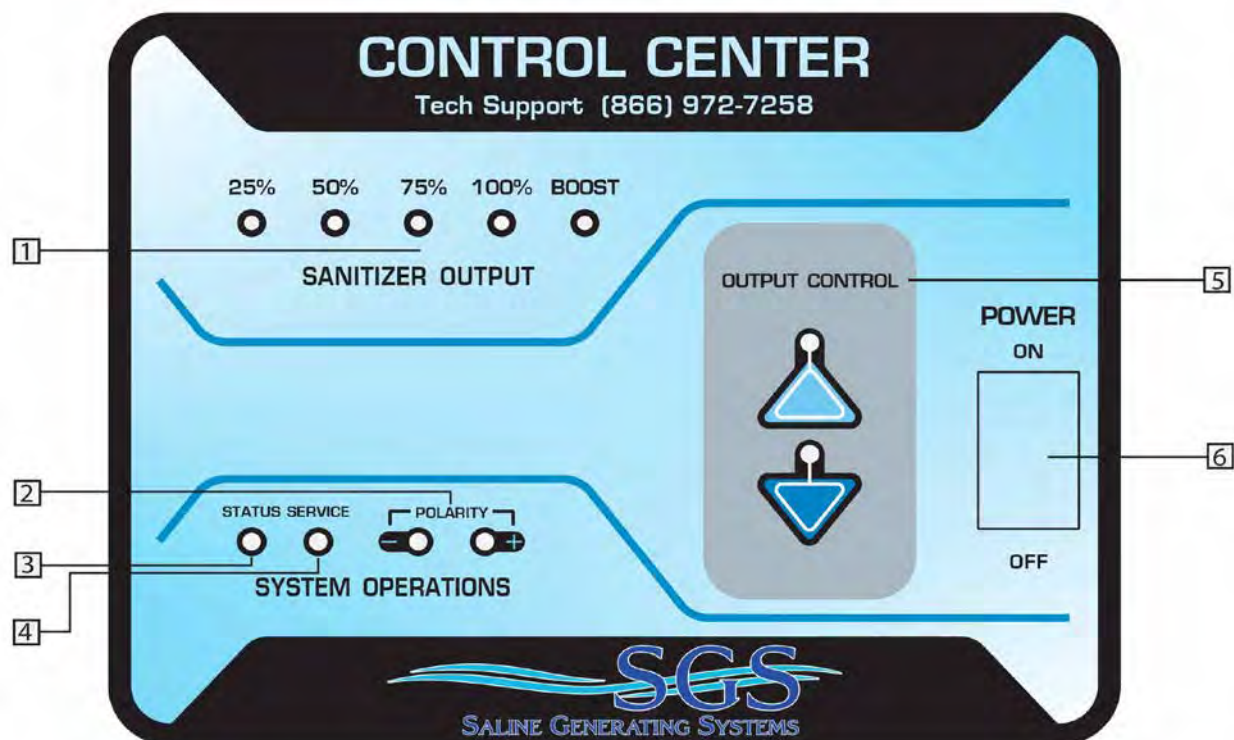
Easy Operation

The Breeze chlorinator is designed to make sanitizing your pool very easy with minimal maintenance. The Breeze 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 SGS 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 Breeze chlorinator accordingly. Make sure that all pool chemicals are within balance.**

Provided the Breeze 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 “Breeze” 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 Breeze 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 “Breeze” 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

Cold weather operation: in cold water conditions (below 60°F), sanitizer demand is reduced significantly. The Breeze chlorinator will reduce its rate of production with water temperatures of 59 degrees Fahrenheit and below depending on the condition of the pool water chemistry. If the water temperature drops too low for the electrolytic cell to produce chlorine, the service light on the control center will light up and the cell will stop producing. This occurrence is due to the water not being conductive enough for the electrolytic process to take place. For colder climate regions with sustained low or freezing temperatures, it is recommended that your pool equipment be properly drained and winterized by a qualified pool professional.

SYSTEM MAINTENANCE

Cell Maintenance -- How and When to Clean Your Cell

Although the Breeze 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 Breeze 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 (the SGS ARD) 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.



Illustration 3

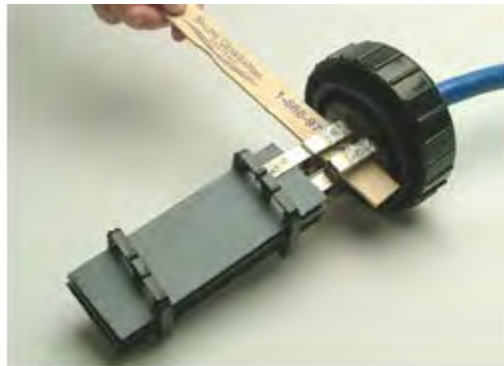


Illustration 4

Maintenance Parameters

Weekly Service

Chlorine Test: Test pool water chlorine level with a reliable test kit. Maintain ideal range by adjusting Breeze 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 “Breeze” 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 (4,000-4,500 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 Breeze provides 100% pure sodium hypochlorite and does not affect the calcium hardness or total alkalinity levels. Maintain and balance only as needed.

CYANURIC ACID (STABILIZER/CONDITIONER): This chemical (CYA or Cyanuric Acid) allows your chlorine residual to last longer by protecting it from the UV degradation of the sun. With low or no CYA it is possible for the chlorine being produced to be used up as fast as it enters the pool. High CYA levels will also negatively impact maintaining the chlorine residual in your pool. Check and maintain your CYA at the same time as your salt level, as these tend to deplete at the same rate (if you have to add CYA, contact your pool professional for correct amount). **NOTE: For indoor pools, it is not necessary to add stabilizer.**

SALT RESIDUAL: The Breeze Series works most efficiently with salt levels between **4,000 – 4,500 PPM**. In a low salt condition, the Status light will begin blinking and the service light will also come on solid (see illustration #5 on page 17). **REFER TO TROUBLESHOOTING BELOW.**

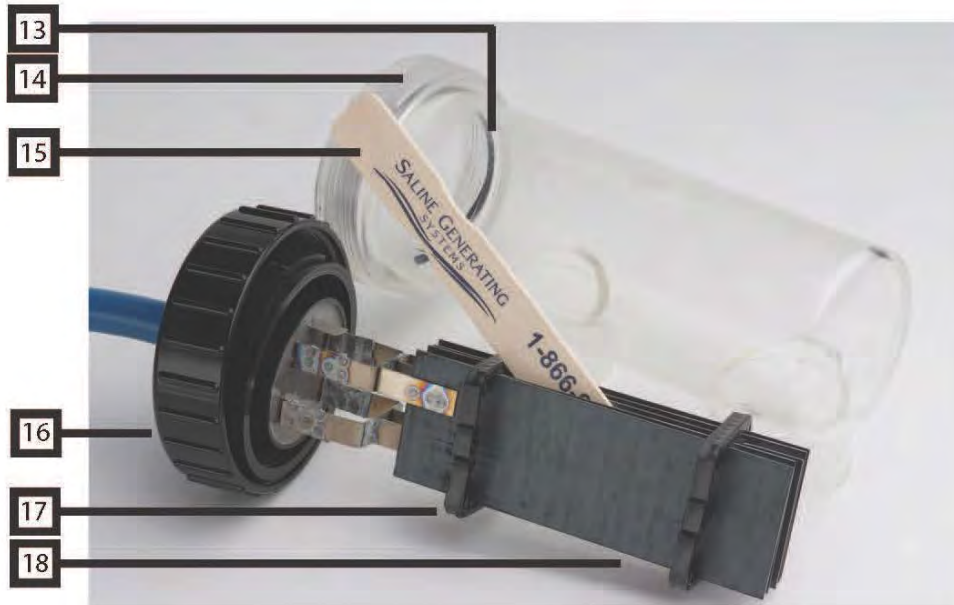
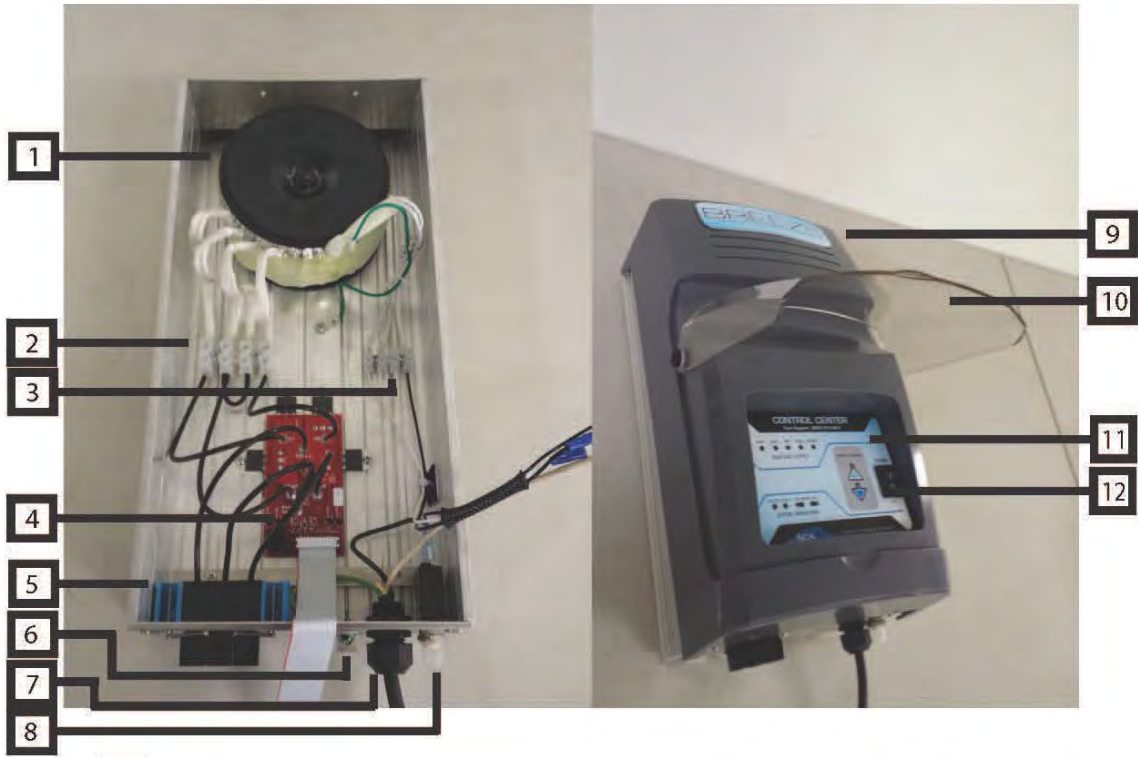
TROUBLESHOOTING

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
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.
System does not have green status light on.	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 ELECTRICIAN)
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 if 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.

Parts List



Parts List

Item Number	SGS Order Number	Description	Quantity
1	PC113-O-Q	Transformer	1
2	PC120-D2-4-7	Secondary Terminal Block	1
3	PC133-D1-10	Primary Terminal Block	1
4	PC112-D1-1-11	PC Board Complete Assembly	1
5	UP101-E2-1-6	Plug Assembly	6
6	PC131-D1-7	Grounding Lug	1
7	PC130-D1-10	Strain Relief	1
8	PC114-D2-10	Circuit Breaker	1
9	PC104-C3-2	Control Center Cover	1
10	PC141-C2-7	Lexan Protective Shield	1
11	PC123-D-2-1	Control Center Label	1
12	PC105-C3-5	On/Off Switch	1
13	CE107-C3-6	O-Ring	1
14	CE112-UVRSP	Cell Housing	1
15	PK6101-D0322/24	Magic Wand	1
16	CE120-UWKSD	Cell Cap	1
17	CEL11-C1-1-11	Cell Clips	4
18	Brz320/Brz540/Brz760/ SG5000	Cell Assembly	1

GENERAL PRODUCT INFORMATION

SG 5000

PURE POOL WATER, EASY AS A BREEZE
BY SALINE GENERATING SYSTEMS

Record the Following Information & Keep for Your Records

Installer:	_____	System Purchased From:	_____
Installation Date:	_____	Serial #:	_____
Model Number:	_____	Pool Size (in Gallons):	_____

Factory Direct Customer Assistance

Tech Support Hotline: 1 866 972-SALT (7258) or 1 480 385-3052

FAX: 1 480 557-0099

Email to: services@sgschlorinators.com

Register your warranty online: <http://sgschlorinators.com/warranty.html>

Visit us on the Internet: www.sgschlorinators.com

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