

SANICLEAR
SANICLEAR Chlorine Generator system
For pools and hot tubs
SANICLEAR20



CONTROLS THE LEVEL OF BACTERIA AND ALGAE
In pools and hot tubs
DOMESTIC
OPERATION AND INSTALLATION MANUAL
REGISTRATION NUMBER 30942 PEST CONTROL PRODUCTS ACT



WARNING: Operating the SANICLEAR Chlorine generator system without any water flow through the cell can cause a build-up of flammable gases which can result in
FIRE OR EXPLOSION
READ THE LABEL AND ATTACHED MANUAL BEFORE USING EQUIPMENT

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IMPORTANT SAFETY INSTRUCTIONS

Make sure to take all precautions before you use electrical equipment:

SAVE THESE INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS.

KEEP OUT OF REACH OF CHILDREN.

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

Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in damage or harm to property or persons.

All electrical power should be shut off during the installation.

- Do not allow children to use, touch or play with this product.
- You will find in the wiring box, against the back panel, a green colored terminal. To avoid any electric shock, this screw must be connected to the ground in the electric panel with a copper wire the same size as the circuit conductors of the existing equipment.
- One ground connection is provided on the external surface. To avoid any shocking hazard, connect the local connecting grid of the swimming pool, the spa, or hot tub to these terminals with a copper conductor of at least 8 AWG for US/6 AWG for Canada (not smaller).
- Any metal components such as rails, drains, ladders, or other hardware located within 10 feet (3 meters) of the pool, spa or hot tub should be connected to the ground with proper copper conductors of at least 8 AWG for US/ 6 AWG for Canada (not smaller).

WARNING: To reduce the risk of injury, service should only be carried by a qualified pool service professional.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

For proper sanitation, Hot tubs must be completely drained periodically. The number of days between COMPLETE SPA DRAINAGE is equal to the volume of spa water in litres, divided by 10 times the maximum number of daily spa users. Refill spa with water and repeat the DIRECTIONS FOR USE of the SANICLEAR Chlorine generator system.

People with a medical condition should consult a physician before entering a pool or spa.

Maximum spa water usage temperature is 40°C. Duration in spa water at 40°C should not exceed 15 minutes.

WARNING for Spa owner: this product is not recommended for acrylic or any other type of plastic spa. The use of this Chlorine Generator with this type of spa may void the Hot tubs manufacturer's warranty. Carvin Pool Equipment will not be held responsible of this warranty if the user uses this product with acrylic or plastic spa. See with your dealer if this product is recommended for your application.

c(ETL)us Listed certified to UL1081 and CSA-C22.2 NO.108 2001 R2010

INSTALLATION

Installation must be performed in accordance with all Local NEC codes.

Preparing the Pool Water:

Check the pool water chemistry and balance **BEFORE** activating the salt chlorinator. It is recommended that you consult a pool professional for the initial water balancing each season.

NOTE: At the beginning of each season, add metal remover and polymer based (non copper) algaecide to the pool, as per the manufacturer's instructions. This operation will ensure a rapid, trouble free transfer to the SANICLEAR chlorine generation system.

The SANICLEAR control panel is suitable for outdoor mounting. It must be installed a minimum of 5 ft. (1,5 meters) of distance (or more depending on local codes requirements) from the pool or spa.

The control of the SANICLEAR control box is designed to be mounted in a vertical position on a flat surface with the pre-punched holes downwardly facing. Because the case also used to disperse the heat, it is very important that the four sides of the control are not blocked to serve as ventilation openings.

Do not mount the case in a closed panel or confined area.

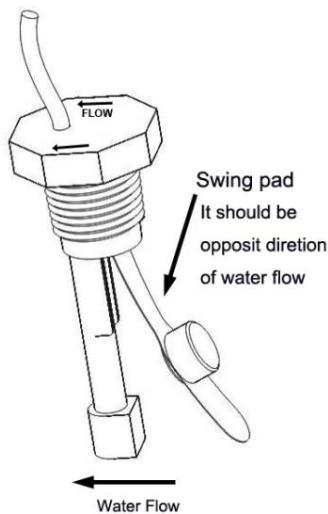
Make sure the salt chlorinator installation does not interfere with the potable water connection. Verify local plumbing codes.

The switches (cell and flow) are connected in the return line to the pool. They are installed after all the other pool equipment like filter, heater, solar, etc. The necessary plumbing components are provided

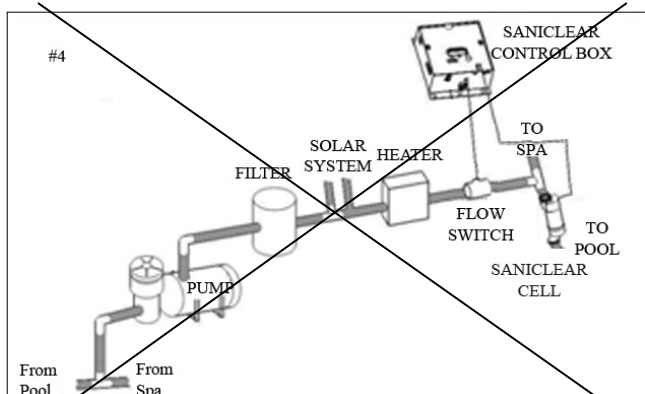
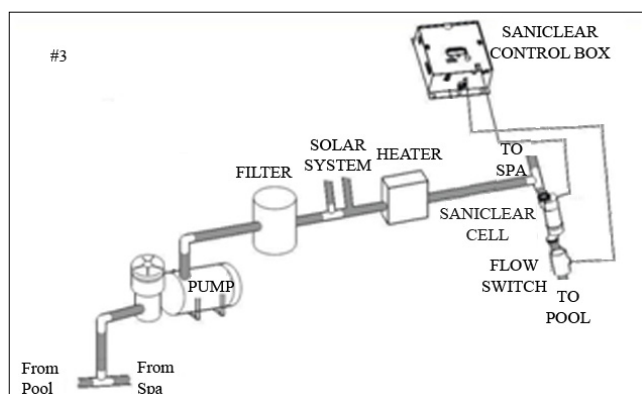
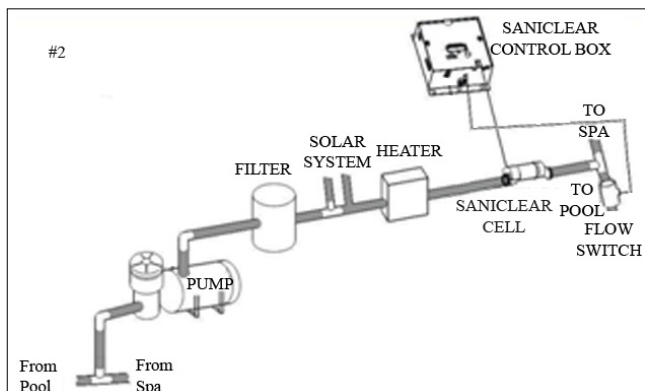
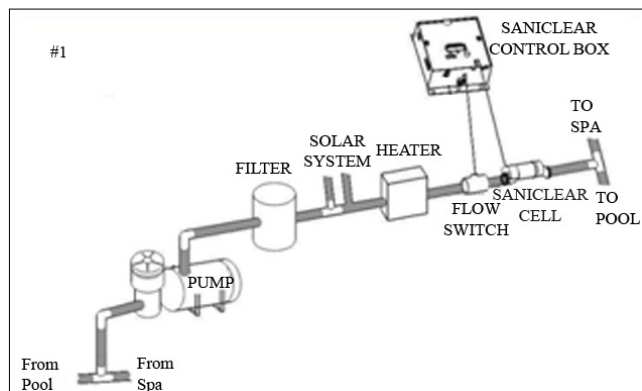
2" (51mm) rigid PVC piping installation for in ground pools

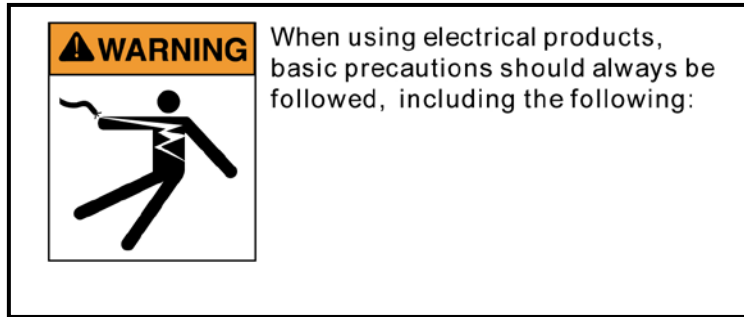
Refer to the diagram on next page for plumbing:

When you install the flow switch insure that the position of the arrow on the flow switch (located on top) is in the same direction of water flow. See below drawing.



Use the unions provided and tighten by hand at both ends of the cell for a perfect watertight seal. For pool or spa with spillover systems, use the fig #2 or #3 below to allow that chlorination is functional for both the pool and spa during spillover but when using the spa only it will prevent over chlorination.





DANGER: RISK OF ELECTRIC SHOCK THAT CAN RESULT IN SERIOUS INJURY OR DEATH.

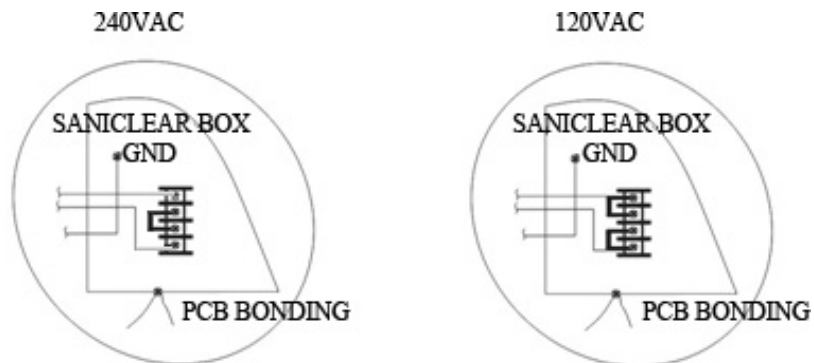
Before proceeding with any wiring, the power at the circuit breaker must be turned off. Make sure to follow all electrical codes (local and NEC). For safe operation, the Salt chlorinator must be installed properly by being grounded and bonded.

Input power for stand-alone use:

VERY IMPORTANT: The SANICLEAR system is to be powered only when the pump is running.

For proper wiring connections, refer to the diagram below and to the wiring label on Salt chlorinator. The salt chlorinator is shipped with the 120V configuration jumpers stuck on the case cover. Until the jumpers are installed for the desired voltage, the unit should NOT be turned on.

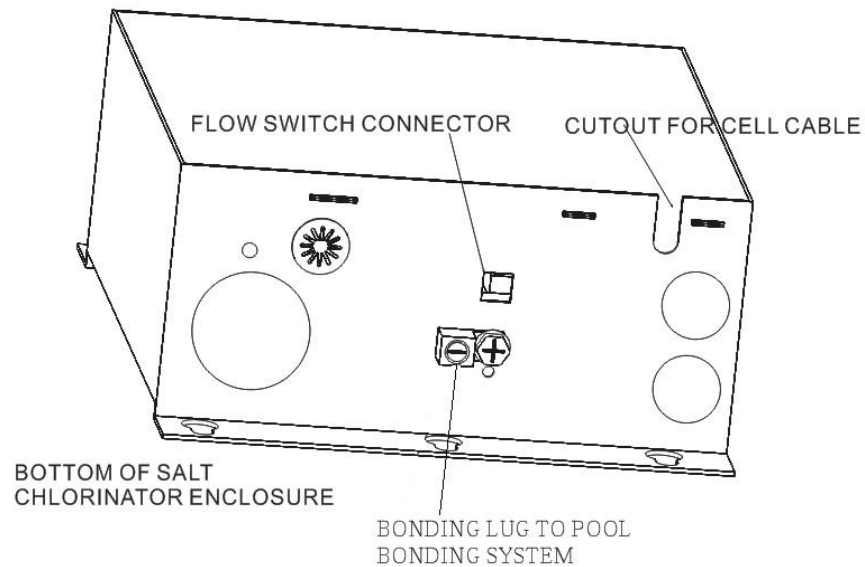
For Canada: Make sure the SANICLEAR chlorine generation system is connected to a circuit protected by a ground fault interrupter class “A”. Make sure you connect the GROUND wire to the green ground screw located on the INSIDE WALL of the enclosure.



At the bottom of the Salt chlorinator there is a connection that should be used to ground the unit to the pool grounding system with a copper wire of 8 AWG (6 AWG for Canada) (as per diagram below)

Installation of the cell and flow switch:

The switches (electrolytic cell and flow switch) cables have connectors at the ends that plug into the salt chlorinator to facilitate installation. Open the door of the control panel to install the cell cable. On the bottom of the enclosure, there is the flow switch with a plug (very similar to a telephone jack) located outside. See figure below for the locations of the switches.



Electrical information:

Connect the Salt chlorinator **DIRECTLY TO 120/240vac POWER** (not to be connected through relay or timer).

WATER PREPARATION

According to the Association of Pool and Spa Professionals (APSP) standards, it is recommended that proper pool water chemistry conditions be maintained on an ongoing basis to help protect pool users, pool equipment and surfaces in and around the pool. It is important to maintain these values to prevent corrosion, liming or other problems. The SANICLEAR chlorine generation system warranty will void if these conditions are not met.

Your authorized SANICLEAR or most pool stores can provide you with the chemicals and procedures to adjust the water chemistry. Be sure to tell the pool store that you are using a SANICLEAR Chlorine Generator System.

IDEAL CHEMICAL LEVELS

Free Chlorine:	1.0 – 3.0 ppm for pools, 3.0 – 5.0 for hot tubs
Combined Chlorine (Chloramines):	None (super chlorinate to remove all chloramines)
PH:	7.2 – 7.8 (USE MURIATIC ACID to lower PH and Soda Ash to raise PH.)
Cyanuric Acid:	30 – 100 ppm (Carvin recommend 80ppm)
Total Alkalinity:	100 – 120 ppm
Calcium Hardness:	200 – 300 ppm for pools, 150 – 200 for hot tubs
TDS (includes salt):	6000 ppm maximum
Salt:	2700 - 3400 ppm (ideal 3000 ppm)
Metals (Copper, Iron, Manganese):	None
Nitrates:	None
Phosphates:	Less than 125 ppb
Saturation Index:	-.2 to .2 (zero (0) best)

RECOMMENDED SALT

The purer the salt, the better the life and performance of the Chlorine Generator. Use salt that is at least 99.8% pure NaCl, sodium chloride. The preferred and recommended salt is an evaporated, granulated, food quality, non-iodized salt with no additives. Consult your salt supplier.

- Avoid using salt with anti-caking agents (sodium ferrocyanide, also known as YPS or yellow prussiate of soda). Filling agents can cause some discoloration of fittings and surface finishes in pool.
- Water conditioning salt pellets are compressed forms of evaporated salt and may be used, but will take longer to dissolve. Such pellets could damage pool plaster and other surfaces in and around the pool.
- Do not use calcium chloride or potassium chloride as a source of salt. (Use sodium chloride only).
- Do not use Rock salt (insoluble impurities mixed with the rock salt can shorten the life of the Cell)

RECOMMENDED LEVEL OF SALT

To determine how much salt will be needed, use the chart. Most pools contain some salt, depending on the water source and chemicals used for sanitizing. Therefore, the pool owner must always test salt levels before adding salt. A hand held meter calibrated for NaCl (salt) can be used to determine the salt levels of the pool water. After the SANICLEAR system has started the LCD will display the salt level.

- 2700 to 3400 ppm of salt is recommended for optimum water conditions.

The factory default water level is 3000ppm.

- Low salt concentration below 2400 ppm will cause the unit to turn off.

- High salt concentration above 5000ppm may cause excessive corrosion or deterioration to pool equipment and surrounding surfaces in and around the pool.

Note: Salt measurements will vary between measuring devices (salt test strips, electronic testers, and titration). The salt sensor reading is within +/- 500 ppm accuracy.

Check expiry of the test kit as it may result in inaccurate reading.

PROCEDURE FOR ADDING SALT:

TURN OFF the salt chlorinator for 24 hours with the pump and filter operating. This will help to evenly distribute the salt. After having it back ON, allow 24 hours before the salt display can react to the change in salt concentration.

- **IN GROUND POOLS:** Turn the filter pump ON. Add the salt directly into the pool water at the shallow end.
- **ABOVE GROUND POOLS WITH MAIN DRAINS:** While the pump is running, add directly in front of the return jet of pool. To allow the salt to evenly distribute in the pool, run the filter pump for 24 hours with suction coming from the main drain.
- **ABOVE GROUND POOLS WITHOUT MAIN DRAINS:** While the pump is running, add the salt directly into the pool water. Stir the salt to speed up dissolving — Do not let the salt sit in a pile at bottom of the pool floor. To allow the salt to evenly distribute in the pool, run the filter pump for 24 hours with suction using the pool vacuum (if there is no main drain).

ON ANY POOL, DO NOT ADD SALT DIRECTLY TO THE SKIMMERS OR DIRECTLY ONTO THE MAIN DRAIN. THIS WILL SHUT DOWN OR SHORTEN THE LIFE OF THE CELL DUE TO HIGH SALT CONCENTRATION AND REDUCED FLOW TO THE PUMP.

PROCEDURE TO REMOVE SALT:

Salt does not evaporate from pool water. To lower the salt concentration you must drain the pool partially and refill with new fresh water.

SALT REQUIREMENTS (POUNDS or Kg) FOR IDEAL CONDITION (3200 PPM)

Current salt level ppm	Gallons (Liters) of your pool water						
	6,000 (22,500)	8,000 (30,000)	10,000 (37,500)	12,000 (45,000)	14,000 (52,500)	16,000 (60,000)	18,000 (67,500)
0	160 lbs (73) kg	213 lbs (97) kg	267lbs (121)kg	320 lbs (145) kg	373 lbs (170)kg	427 lbs (194) kg	480 lbs (218) kg
200	150 (69)	200 (91)	250 (114)	300 (136)	350 (159)	400 (182)	450 (205)
400	140 (64)	187 (85)	233 (106)	280 (127)	327 (148)	373 (170)	420 (191)
600	130 (59)	173 (79)	217 (98)	260 (118)	303 (138)	347 (158)	390 (177)
800	120 (55)	160 (73)	200 (91)	240 (109)	280 (127)	320 (145)	360 (164)
1000	110 (51)	147 (67)	183 (83)	220 (100)	257 (117)	293 (133)	330 (150)
1200	100 (46)	133 (61)	167 (76)	200 (91)	233 (106)	267 (121)	300 (136)
1400	90 (41)	120 (55)	150 (68)	180 (82)	210 (95)	240 (109)	270 (123)
1600	80 (36)	107 (48)	133 (61)	160 (73)	187 (85)	213 (97)	240 (109)
1800	70 (32)	93 (42)	117 (53)	140 (64)	163 (74)	187 (85)	210 (95)
2000	60 (27)	80 (36)	100 (45)	120 (55)	140 (64)	160 (73)	180 (82)
2200	50 (23)	67 (30)	83 (38)	100 (45)	117 (53)	133 (61)	150 (68)
2400	40 (18)	53 (24)	67 (30)	80 (36)	93 (42)	107 (48)	120 (55)
2600	30 (14)	40 (18)	50 (23)	60 (27)	70 (32)	80 (36)	90 (41)
2800	20 (9)	27 (12)	33 (15)	40 (18)	47 (21)	53 (24)	60 (27)
3000	10 (4)	13 (6)	17 (8)	20 (9)	23 (11)	27 (12)	30 (14)
3200	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal
3400	OK	OK	OK	OK	OK	OK	OK
3600+	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute

STABILIZER (CYANURIC ACID)

When testing for salt, also test for stabilizer level (cyanuric acid) this test should be done at least once per month. To know how much stabilizer is required to raise the level to 80 ppm , use the chart below.

**REQUIREMENTS IN POUNDS (kilogram)
OF STABILISER FOR IDEAL CONDITION (80 PPM)**

Gallons (Liters) of your pool water

Current Stabilizer Level(ppm)	6,000 (22500)	8,000 (30000)	10,000 (37500)	12,000 (45000)	14,000 (52500)	16,000 (60000)	18,000 (67500)
0 ppm	4.0 lbs (1.8) kg	5.3 lbs (2.4) kg	6.7 lbs (3.0) kg	8.0 lbs (3.6) kg	9.4 lbs (4.3) kg	10.7 lbs (4.9) kg	12.0 lbs (5.4) kg
10 ppm	3.5 (1.6)	4.7 (2.1)	5.8 (2.6)	7.0 (3.2)	8.2 (3.7)	9.4 (4.3)	10.5 (4.8)
20 ppm	3.0 (1.4)	4.0 (1.8)	5.0 (2.3)	6.0 (2.7)	7.0 (3.2)	8.0 (3.6)	9.0 (2.2)
30 ppm	2.5 (1.1)	3.3 (1.5)	4.2 (1.9)	5.0 (2.3)	5.9 (2.7)	6.7 (3.0)	7.5 (3.4)
40 ppm	2.0 (.9)	2.7 (1.2)	3.3 (1.5)	4.0 (1.8)	4.7 (2.1)	5.4 (2.4)	6.0 (2.7)
50 ppm	1.5 (.7)	2.0 (.9)	2.5 (1.1)	3.0 (1.4)	3.5 (1.6)	4.0 (1.8)	4.5 (2.0)
60 ppm	1.0 (.5)	1.3 (.6)	1.7 (.8)	2.0 (.91)	2.4 (1.1)	2.7 (1.2)	3.0 (1.4)
70 ppm	0.5 (.2)	0.7 (.3)	0.8 (.4)	1.0 (.45)	1.2 (.54)	1.4 (.64)	1.5 (.68)
80 ppm	0.0	0.0	0.0	0.0	0.0	0.0	0.0

POLYMERS:

It is advised to use polymers (commonly sold as poly algaecide) on salt water sanitizing systems. The poly algaecide is sold in 30% and 60% concentrations.

Application rate is 1 quart of Poly30 (or ½ quart of Poly 60) per 15,000 gallons (60,000 liters) of pool water, per month. Apply directly in front of the return jet.

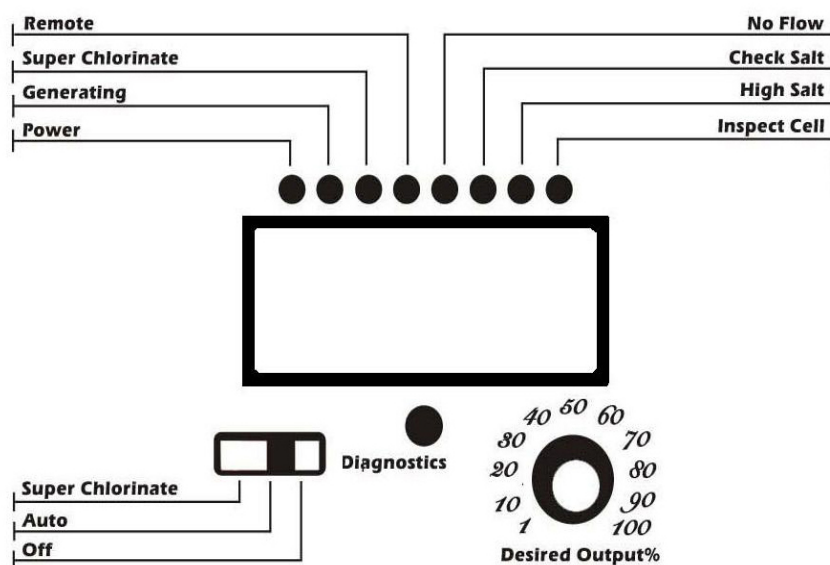
OPERATION

The SANICLEAR chlorine generation system is an automatic machine for pool & spa sanitation. The operation requires a low concentration of salt (sodium chloride) in the pool water at levels low enough that it normally cannot be tasted. It automatically sanitizes your pool by converting the salt into free chlorine, which kills bacteria and algae in the pool through a process called electrolysis.

The SANICLEAR 20 chlorine generator system is designed to handle the average swimming pool up to 28,500 gallons (108,000 liters). The actual amount of chlorination required to properly sanitize a pool varies depending upon bather load, rainfall, air temperature, and water temperature, pool's exposure to sunlight, pool's surface and cleanliness. The maximum output of hypochlorous acid is equivalent to 0.33kg per day. Check with your local code for other restriction.

Note: It is not recommended using the salt chlorinator to generate bromine.

If your pool has natural stone as coping or decking, please check with a stone installation specialist for the maintenance of the stone before installing the salt chlorinator.



DESIRED LEVEL ADJUSTMENT KNOB

This setting is used to control the percentage of time the SANICLEAR system will produce chlorine. Adjust this setting to increase or decrease the chlorine output duration. The reading is from 5 percent output to 100% output chlorine production duration of the SANICLEAR system.

For example; if the adjustment knob is at 60%, the SANICLEAR system will produce chlorine (at its top rate) during 60% of the time, the other 40% of the time, the SANICLEAR system will not produce anything.

LED Status

- **POWER**, The salt chlorinator has input power when light is illuminated
- **GENERATING**: This LED light is on during normal operation cycle. When it is flashing, the pool water is either too hot or too cold for the system to operate.
- **SUPER CHLORINATE**: Light is illuminated during the super chlorination mode.
- **REMOTE CONTROLLED**: The part is controlled by a remote control system.
- **NO FLOW**: When this light is illuminated, the flow switch has spotted no flow and salt chlorinator is NOT generating chlorine. A flashing LED light will indicate that the flow is restored, but there will be a 60 second delay before generation is re-established.
- **CHECK THE SALT**: When this light is flashing, the salt level is low (below 2500ppm) and salt chlorinator is working at low capacity and efficiency. When it illuminates in a steady motion, the salt level is too low and the salt chlorinator has turned OFF.

VERY IMPORTANT: Seek a professional to test your water for salt level before adding large quantities of salt.

- **HIGH SALT**: When this light is illuminated, the salt level is too high (above 5000 ppm for model SANICLEAR 20, above 7000 ppm for model SANICLEAR 40) and salt chlorinator has shut down. The pool water must be diluted with fresh water before operation is restored.
- **INSPECTION OF CELL**: If this light is flashing, it is time to inspect the cell or it shows the cell efficiency is reduced. If either case occurs, inspect the cell and clean if needed. Pressing the “diagnostic” button next to the display for 3 seconds will stop the flashing LED. When illuminated steady, the cell efficiency is greatly reduced and the salt chlorinator has stopped producing chlorine. Inspect, clean or replace if necessary.

MAIN SWITCH

- **SUPER CHLORINATE**: When you need an important water purification, after having many bathers, cloudy water condition or a heavy rainfall, set the main switch in the SUPER CHLORINATE position. It will shock the water for a period of 24 hours. The filter pump must be running during this time. At the end of the super chlorination period, be sure to reset the switch back in the AUTO position.
- **AUTO**: For normal use, leave the main switch in the AUTO position. In AUTO the salt chlorinator will generate the required chlorine to the “Desired Level %” setting for the duration of the entire filter and pump cycle.
- **OFF**: The system is shut off and there is no chlorine generation in this position.

IMPORTANT: When serving the unit, the OFF switch is not sufficient. **THE POWER MUST BE OFF FROM THE CIRCUIT BREAKER.**

DISPLAY SCREEN

The display screen shows the current salt concentration of the pool water. Readings are in ppm (parts per million). If you prefer metric reading for metric units (grams per liter), push the “diagnostic” button next to the display once. The display will now show the pool water temperature in degrees Fahrenheit. With the temperature displayed, move the main switch from AUTO to SUPER CHLORINATE to AUTO. The temperature display will instantly change to degrees Celsius and the salt display will switch to grams/liter. Repeat this process to switch back to USA units (ppm and Fahrenheit).

Sequential pushes of the small “diagnostic” button next to the LCD display will allow the salt chlorinator to display the following information:

1. Pool temperature (Fahrenheit or Celsius)
2. Cell voltage (typically 20.0 to 26.0 volts when chlorine is being generated, otherwise 30V)
3. Cell current (typically 2.00 to 8.00 amps when chlorine is being generated, otherwise 0 amps)
4. Desired Output % (“5P”—“100P” depending on knob position)
5. Instant salinity (ppm or grams/Liter)
6. Product name sent to the display
7. Software revision level

On the 8th push of the button, the display will revert back to the default salt display. Also if the button is not pushed for 30 seconds, the display will revert back to the standard salt display.

PERFORMANCE

By familiarizing yourself with the operation of the SANICLEAR chlorine generation system, you can achieve maximum performance for your pool. When chemical levels are in the recommended range, there are FOUR factors that you can control to achieve the amount of chlorine the SANICLEAR SYSTEM can produce:

- Number of hours of filter time each day
- The quantity of salt in the pool
- The setting of “Desired Level %”
- Stabilizer level in the water.

To find the optimum setting of “Desired Level %”, start at a fairly high setting and work downward. It will take a few days of adjustments to find the ideal setting for your pool. Once determined, proceed with the minor adjustments. The salt chlorinator control will not produce chlorine at temperatures below 50°F (10 C). If your pool water is colder than 50°F (10 C), you must chlorinate manually.

MAINTAINING THE SYSTEM

It is recommended to inspect the cell every 3 month in order to maintain maximum efficiency. The salt chlorinator will automatically flash the “Inspect Cell” LED light after approximately 500 hours for inspection. After inspecting the cell (clean if needed) press the “diagnostic” button for 3 seconds to stop the flashing LED light “Inspect Cell” and start the timer to engage the next 500 hour inspection period.

To enable the cell to work at its optimum efficiency, the salt chlorinator cell has a self-cleaning characteristic integrated into the control. This self-cleaning mechanism will allow the cell to work at optimum capacity. In locality where the water is hard (high calcium and/or mineral content) and in swimming pools where the water chemistry is not balanced, the cell could necessitate cleaning. When the “Inspect Cell” LED light stays ON along with the “check salt” LED light after it has been cleaned, this means the cell may need replacement because it has worn.

SERVICING AND CLEANING THE CELL

- Turn off the power on the salt chlorinator before removing the cell.
- Once it is removed, look for debris inside the cell located on the plates
- Clean the plates thoroughly by using a high-pressure hose or any plastic scraper to scrape all deposits. If the cell is clean, reinstall. **DO NOT USE A METAL SCRAPER AS THIS WILL SCRATCH THE FINISH AND DAMAGE THE PLATES.** If you have high calcium level water, the cell could show debris buildup. Note: You will need to clean the cell more frequently. The best way to avoid this situation is to adjust the pool chemistry to the recommended levels.

MILD ACID WASHING

If the flushing and scraping could not remove the majority of the deposit, use the acid to wash.

Turn off power to salt chlorinator.

- Remove the cell.
- Carefully mix a proportion of 4:1 of water to muriatic acid (1 gallon water to 1 quart of muriatic acid).

ALWAYS POUR ACID INTO WATER - NEVER POUR WATER INTO ACID.

BE SURE TO WEAR PROTECTIVE GLASSES, CLOTHING AND CHEMICAL RESISTANT GLOVES

- The wire harness case **SHOULD NOT BE IMMERSSED** in the solution. Submerge only to the top of the cell.
- Soak the cell for five minutes then rinse thoroughly using a high-pressure hose.
- Repeat the process when any deposits are still left.
- In case acid washing still did not work, replace the cell and check from time to time.

OPENING THE POOL

Begin by balancing the pool water chemistry to the recommended levels before turning **ON** the salt chlorinator.

CLOSING THE POOL

Freezing water can damage the salt chlorinator electrolytic cell and the flow detection switch, similar to other pool components that require proper winterization. In locations of rigorous periods of freezing temperatures, all water must be drained from the pump, from the filter, and return lines before freezing temperatures. The electronic control box is suitable to any freezing weather and does not have to be removed.

TROUBLESHOOTING

Problems and Solutions

The “Power” LED light is OFF

- Verify the 20 amp ATO fuse located in the circuit board above the cell connector.
- Check to make sure the power is connected to the control. Be sure the jumpers are set properly.
- Verify the voltage with a voltmeter and if the input power is functional the problem could be that the fuse is blown.
- Be sure the jumpers are set properly.

IMPORTANT: The pre-set voltage in factory is 115V! If you want to use this machine with 230V, please refer to INSTALLATION - wiring section.

"Generating" LED light flashing

This shows that the temperature of the pool water is below 50°F (10°C) so no chlorine is produced. To generate chlorine production, move the main switch to SUPER CHLORINATE position. This will allow chlorine production at intense power for the next 24 hours.

"No Flow" LED light ON or flashing

The Saniclear chlorine generation system has detected a malfunction in the flow condition and turned off production of chlorine.

- Check if the flow switch is connected into the connector of the control unit
- Check if the wire is damaged.
- You must have at least 12" of straight pipe in front of the flow switch.
- Check if the arrows on the flow switch are oriented in the direction of the water flow. If the light is flashing, the flow is established and the salt chlorinator will turn ON within 1 minute.

When all the above have been checked, it still senses no flow. Please replace the flow switch.

"Check the Salt" & "Inspection of Cell" LED lights illuminated or flashing

In most cases, these two LED will illuminate or flash at the same time.

- When flashing, check the salt level in the pool or spa water. If the salt level is low, add the necessary salt accordingly (see page 10). It is recommended to have a professional test your salt level before you add a large quantity of salt.
- Inspect the cell for deposits. If the cell has deposits, follow the instructions on page 15 (Servicing and Cleaning the cell section) for cell cleaning. Re-calibrate the system by getting the display at the instant salt reading (by pushing the diagnostic button 5 times) then moving the main switch from “AUTO” to ‘SUPER CHLORINATE’ then back to ‘AUTO’ to make the memorized salt reading the same as the instant one.

If the pool has the proper amount of salt and the two LED's are still illuminated, the cell may be depleted and needs to be replaced.

"High Salt" LED light illuminated

- When illuminated, check the salt level in the pool or spa water.
- If the salt level is elevated (above 5000 ppm for SANICLEAR 20, above 7000 ppm for model SANICLEAR 40) , lower the level by draining part of the pool water and replace with some new fresh water. Continue this procedure until the salt level is at recommended range.
- If the salt level is correct, this "High Salt" LED is still illuminated, and then the temperature thermometer in the cell may be dysfunctional. Please replace the cell.

"Inspect Cell" LED light is flashing

If flashing, either the cell efficiency is reduced or it is the time for cell inspection. If necessary you must inspect and clean the cell according to directions (**Maintaining the System section**). When this is done, to stop the "Inspect Cell" LED light flashing, press on the "diagnostic" button for a few seconds.

Possible causes of low chlorine or no chlorine

- Check if the filter pump is ON or the pump operating time is too short
- Check if the Saniclear chlorine generation system is ON.
- The salt level might be too low (below 2500 ppm, Low Salt LED on).
- The salt level might be too high (above 5000 ppm) .
- The desired level % adjustment might be set too low.
- The stabilizer is low (Cyanuric Acid). Chlorine is being produced but the pool water is unable to hold on to the chlorine due to low stabilizer.
- Low pH. Low pH oxidizes chlorine quickly, making it difficult to maintain desired chlorine levels. Adjust pH levels to re-balance water.
- Even if the salt chlorinator adjusts itself to water variations of temperature, the pool water could be too warm which increases the chlorine requirement. In this case, a manual adjustment must be made to increase the desired Level %.
- The pool water could be too cold (below 50F/10C). This can lead the salt chlorinator to stop its production (The Generating LED light flashing).
- Cell may need to be clean
- Pool water has high level of phosphates.
- If you use a treatment for yellow algae please inform your pool professional that you have a salt treatment system on your pool and follow his instructions.

3 characters displayed on display window, and all 4 LED lights are illuminated (Power, generating, super chlorinator & remote) a fault on the circuit board was perceived. Call your local vendor for service.

CARVIN POOL EQUIPMENT INC

LIMITED WARRANTY

Carvin Equipment Inc. ("Carvin") warrants "Carvin" pool products to be free of defects in material and workmanship for a period of 24 months from the date of purchase with the following exceptions:

Light Bulbs: Full Moon Watercolor LED light bulbs are warranted for 12 months from the date of purchase; incandescent bulbs are warranted for 90 days from the date of purchase.

Misc: Filter elements, DE grids, white-goods, strainer baskets, strainer basket "flap" and "priming tube", pressure gauges, square rings, o-rings, gaskets, and all replacement parts are warranted for 12 months from the date of purchase.

Chlorine Generation System: Salt Chlorine generation systems are covered by a limited warranty of 24 months; 100% during the first year, 50% during the second year from the date of purchase.

CONDITION IN ORDER TO EXERCISE THE WARRANTY:

In order to activate this 24 months warranty, "Carvin" products must be registered with "Carvin" by the following method:

Mail-in the Warranty Registration Card.

Online at www.carvinpool.com

All defects must be denounced to "Carvin" or to their representative within 72 hours in order to avoid the spreading to other equipment, failing which; the present warranty will not be honoured. This warranty is non-transferable and extends only to the original retail buyer and only during the time in which the original retail buyer occupies the site where the product was originally installed. "Carvin" warranty obligation with regard to equipment which it does not itself manufacture is limited to the warranty actually extended to "Carvin" by its suppliers (i.e. motors).

This warranty applies to products used in swimming pools, Hot tubs, & aquaculture applications only and does not apply to any product which has been subjected to negligence, alteration, accident, abuse, misuse, improper installation, abrasives, corrosion, improper voltage supply, vandalism, civil disturbances, or acts of God (including but not limited to damage caused by freezing, lightning strikes, and other damage caused by catastrophic events). The only warranties authorized by "Carvin" are those set forth herein. "Carvin" does not authorize other persons to extend any warranties with respect to its products, nor will "Carvin" assume liability for any unauthorized warranties made in connection with the sale of its products. "Carvin" will not be responsible for any statements that are made or published, written or oral, which are misleading or inconsistent with the facts as published in the literature or specifications furnished by "Carvin".

WARRANTY CLAIM PROCEDURE

Warranty claims shall be made by contacting the installer/seller, builder, dealer, or retailer (point of purchase) or the "Carvin" pool products distributor in your area. All equipment must be inspected by a local "Carvin" authorized representative or at the factory before warranty is authorized. All charges or expenses for freight to and from the factory, removal and reinstallation of the products, or installation of a replacement product are the responsibility of the purchaser unless otherwise expressly authorized in writing by "Carvin". "Carvin", at its discretion, may repair or replace free of charge (F.O.B. factory in St-Hyacinthe, Québec, Canada) any product that proves defective within the warranty period, or it may issue credit in the amount of the invoice of the defective equipment in lieu of its repair or replacement. "Carvin" reserves its right to substitute new or improved equipment on any replacements
REV.2

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• When replacing the SANICLEAR Chlorine Generator System cell. Only use replacement cells having a label that clearly states that it is a replacement cell for the SANICLEAR Chlorine Generator System. REGISTRATION NUMBER 30942, PEST CONTROL PRODUCTS ACT.

• The life expectancy of the SANICLEAR Chlorine Generator System cell is 10.000 hours under normal use conditions.

REPLACEMENT PART LIST

Item No.	Part description
23180014R	Motherboard for SANICLEAR 40 system
23180012R	Motherboard for SANICLEAR 20 system
94180125	Cell for SANICLEAR 40 system
94180065	Cell for SANICLEAR 20 system
23180058R	Flow switch for any SANICLEAR system
23180018R	Transformer for 40K
23180016R	Transformer for 20K
31150109R2	2" Union with O-ring (X2)