



**CalSalt Filtration System  
Owners Manual**

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## OPERATION MANUAL

READ THIS MANUAL BEFORE USING SYSTEM

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Due to continuous improvement programs, all models operation, and /or specifications are subject to change without prior notice.

LTR5000.2024 CAL SALT REV. D

1/18/2024

### CONTACT INFORMATION

For customer service, please contact your authorized dealer immediately. If you need additional information and/or assistance, contact:

**Lloyd's Material Supply Company, Inc.**  
**Customer Service Department**  
**1462 East Ninth Street**  
**Pomona, CA 91766.**

# Introduction

## INTRODUCTION

Your new Spa Sanitation System produces a pure form of chlorine by electrolysis of salt (NaCl) in order to sanitize your spa water. After the salt is converted to chlorine and the bacteria are killed, the chlorine converts back to salt in a continuous process. The salt concentration used is very low (less than that in a human tear). Chlorine output can be easily adjusted by the timer on the control panel. The chlorine level in your spa can be checked by using a standard chlorine test kit. One unit can treat up to 2,200L (600 gallons) of spa water (or up to 5700L - 1500 gallons - for Swim Spa water).

## **IMPORTANT SAFETY INSTRUCTIONS**



### **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 that the receptacle is protected by a GFCI.



**WARNING:** To reduce the risk of electric shock do not use extension cords to connect unit to electric supply; if necessary, contact a qualified electrician to provide a properly located outlet.



**WARNING:** Make sure the setting on the control panel is set to zero when cleaning/servicing the cell assembly.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge. Unless given proper supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

### **SPECIFICATIONS:**

#### **Power Supply:**

Size: For Spas or Swim Spas up to 5700L (1500 gallons)

#### **INPUT:**

120VAC, 50/60HZ, 0.33AMP

#### **OUTPUT:**

5.0 VDC, 2.0 Amp (40°C / 104°F)

#### **Cell:**

Normal output equivalent to 32 grams (1.1 oz) of free available chlorine per day.

#### **Reverse Polarity Function:**

The reverse Polarity Function is designed to automatically clean the cell plates, maximizing the cell's ability to manufacture chlorine.

**SAVE THESE INSTRUCTIONS.**



**WARNING:** To reduce risk of injury, do not permit children to operate the device.



**WARNING:** Heavy spa usage and higher temperatures may require higher chlorine output to maintain proper free chlorine residuals.

If additional chlorine is required due to heavy bather loads, use granulated chlorine to maintain an appropriate chlorine residual amount in the water.

**DO NOT add spa chemicals directly to the skimmer. This may damage the cell.**

Maintaining high salt and chlorine levels above recommended range can contribute to corrosion of spa equipment. Check the expiry date of the test kit as test results may be inaccurate if used after that date.

The life expectancy of the electrode is 7,000 hours under normal use conditions. When replacing the electrode, only use replacement electrodes having a label that clearly states that it is a replacement electrode for the chlorine generating device.

For proper sanitation, spas should be completely drained periodically. The number of days between COMPLETE SPA DRAINAGE is equal to the volume of spa water in liters, divided by 10 times the maximum number of daily spa users. Refill spa with water and repeat DIRECTIONS FOR USE of the device.

#### **Health and Hyperthermia warnings for spa devices:**

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

Maximum spa water usage temperature is 40°C / 104°F. Bathing in spa water at 40°C / 104°F should not exceed 15 minutes.

# Installation and Operation

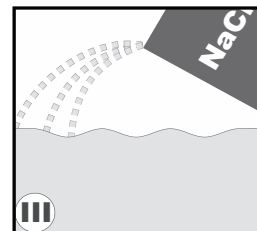
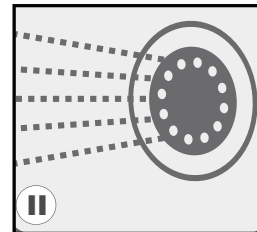
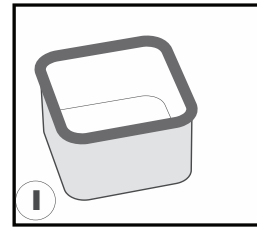
## Operation of the Unit

- I. Turn on the power to the spa equipment.
- II. Turn on main spa pump.
- III. Add required salt type and amount to the spa. Spread over the surface and allow the salt to dissolve for at least 1 hour. (add required chlorine granules before adding salt.)

**NOTE:** The spa chemistry must be balanced before installing the system to the spa (see page 12.)

During initial start up add chlorine and reach 2-4 ppm to have your initial water treated.

Be sure to test the chlorine levels for the next few days and properly adjust the chlorine output by adjusting the "Hours Per Day" on the topside control respective to your spa size.



## **DO NOT EXCEED RECOMMENDED CHLORINE PRODUCTION TIME!**

Confirm your specified salt cell hours and do not exceed the recommended operating time.

If you detect above normal chlorine levels, lower the operating time and allow up to two days for the spa water chemistry to adjust. Retest the water after this period of time.

**NOTE:** The system works based on a natural water flow of water around the cell. Unlike other in-line salt systems, this cell is independent from your spas main control system and circulation pump. Keep the cell submerged at all times, when the cell is operating a while milky cloud will form around the cell as it reacts with the salt to release chlorine. This is normal, chlorine generation will stop once the operation time ends, or when the cell is no longer submerged.



1. Chlorine Cell / Cell Holder (located behind filter housing)
2. Power Supply (Inside spa cabinet)
3. Grommet
4. Lanyard
5. Control Panel

## Control Panel Function

**1. When the spa is turned on:** All three LED lights and the display will turn on for approximately 3 seconds for its self-test.

**2. Normal Operation:**

If your salt level is within proper range of 1500-1700 ppm, the Green LED will show as a solid light with the display showing the operating hours per day. This indicates power is being delivered from the power supply to the cell that is producing sanitizer. The spa is being sanitized by chlorine.

**While sanitizer is being produced, there will be a white cloud coming from the cell.**

**3. Abnormal Conditions:**

The LED lights will flash rapidly and/or the display will also flash to indicate a problem or failure. For further explanation of the abnormal conditions & codes, Refer to the troubleshooting guide at the end of this user guide.

**4. Chlorine Output Control:**

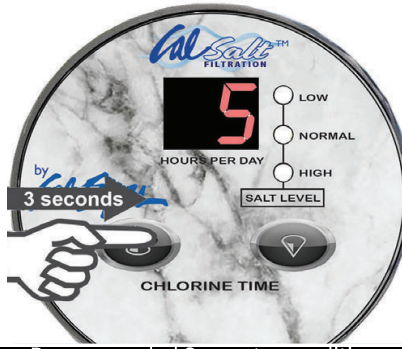
The chlorine output is controlled by the amount of time the cell operates. The timer regulates operation time to maintain 2-4ppm of free chlorine.

**DO NOT INCREASE THE AMOUNT OF TIME ABOVE THE SPAS SPECIFIED TIME.**

Over-chlorination will lead to corrosion and rust on components inside of the spa.



Control Panel



**Recommended Spa water conditions**


**Salt level: 1500-1700 ppm**

Free Chlorine 2.0 - 4.0 ppm (Ideal 3.0 - 4.0 ppm):

pH: 7.2 - 7.8 (Ideal 7.4 - 7.6):

**NOTE:** Any interruption of electrical power will cause the current memory of cycle of the salt system to reset once power is restored.

### CHLORINE ADJUSTMENT

After your spa and salt system are set up, the display will show you a default screen with the current hours of operation per day. You may change this setting anytime by holding down the  button for 3 seconds. The display will flash, indicating it is now ready for time-setting changes. To determine the proper chlorine time settings for your spa, measure the free chlorine level every day. Adjust the time accordingly to achieve 2.0-4.0 PPM of Free Chlorine. It is advised to check the chlorine level daily to make sure the spa is properly sanitized. Weather, bather load, and sunlight have a major influence on the chlorine demand of the spa water.

**NOTE:** If the spa has reached an undesirable amount of chlorine, it is recommended to lower the amount of hours the salt cell operates at to zero. Check levels each day until the levels of 2.0-4.0 ppm are reached. Once reached increase your salt cell operating time to its original factory recommended time.

**NOTE:** Salt water spas operate differently from traditional spas, and require consistent water flow. Refer to your spa owners manual to adjust your filtration cycles. Salt water spas must run at a minimum of 8 hours of total filtration (two 4hr cycles). Some spa control systems require additional filtration adjustment under specific energy modes.

## Salt Specification

The salt used for our salt system is food-grade granulated salt, 99.9% pure salt/solar salt. This salt can be purchased from Cal Spas directly on [www.quickspaparts.com](http://www.quickspaparts.com), under part number **SOD1000000** to get the salt intended for your salt system.

Do not use rock salt, iodized salt, or salt with anti-caking additives. Do not use salt with more than 1% yellow prussiate of soda.

These salt requirements will ensure the Cal Salt system functions as intended for optimal comfort and efficacy of the filtration system. The recommended salt level is 1500-1700 ppm for all of our Cal Salt applications. When adjusting the spa's salinity levels please use the table below as a reference to reach between 1500-1700 ppm.

Keep all documentation (Calspas manual, Cal Salt manual, Salt Quick Start Guide) somewhere secure for future reference. Salt system spas require additional steps in maintaining their water chemistry compared to chemical sanitized spas.

NOTE: the addition of chlorine may raise the salt level of your spa, after adding your chlorine granules we recommend testing your water again. Salt should not be removed from your spa unless the salinity exceeds 3000 ppm. The only way to remove salt from your spa water would be to perform a partial drain, ensure to **pour salt water away from plants or grass and instead into a main drain**.

NOTE: Turn the unit off before adding sodium chloride or other chemicals, and waiting until completely dissolved before turning on the salt cell.

Spa Size in Gallons	Salinity (ppm) measured in Spa			
	0 ppm	500 ppm	1000 ppm	1500 ppm
200 - 300 Gallons 5 ft Spa	Add 3.6 lbs	Add 2.6 lbs	Add 1.6 lbs	Add 0.5 lbs
400 - 450 Gallons 7 ft Spa	Add 6.2 lbs	Add 4.4 lbs	Add 2.7 lbs	Add 0.9 lbs
400 - 450 Gallons 8 ft Spa	Add 7.3 lbs	Add 5.2 lbs	Add 3.1 lbs	Add 1.0 lbs
750 - 850 Gallons 11 ft Spa	Add 10.9 lbs	Add 7.8 lbs	Add 4.7 lbs	Add 1.6 lbs
1550 - 1650 Gallons 13 ft Swim Spa	Add 24.1 lbs	Add 17.2 lbs	Add 10.3 lbs	Add 3.4 lbs

## Salt Cell Operation Times

Spas with a length of 5 feet= 2 Hours

Spas with a length of 7 feet= 3 Hours

Spas with a length of 8 feet= 4 Hours

Spas with a length of 13 feet= 10 hours

## Spa Size Calculation

Use these three formulas to calculate the volume of water in the spa :

**Rectangular:**

Length(M) x Width (M) x Average Depth(M) x 1000 = Total Liters

Length(Ft) x Width(Ft) x 7.5 = Total U.S. Gallons

**Round:**

$3.14 \times \text{Radius(M)} \times \text{Average Depth(M)} \times 1000 = \text{Total Liters}$

$3.14 \times \text{Radius(Ft)} \times \text{Radius(Ft)} \times \text{Average Depth (Ft)} \times 7.5 = \text{Total U.S. Gallons}$

**Free Form:**

Average Length(M) x Average Width(M) x Average Depth(M) x 1000 = Total Liters

Average Length(Ft) x Average Width(Ft) x Average Depth(ft) x 7.5 = Total U.S. Gal.



# Unit Maintenance

**Removing/inspecting the salt cell:** The salt cell should be expected every 2 - 3 months, as calcium scaling will accumulate over time.



Step 1: Adjust the chlorine level to 0 when cleaning or servicing the cell assembly.



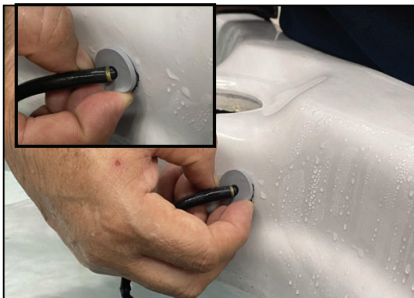
Step 2: Inspect the salt cell for scaling/white deposits.



Step 3: If scaling exists, the cell should be cleaned.

Follow the following steps.

## The Cell is Attached to a Lanyard



Carefully remove the rubber grommet/plug.



The grommet has a slit to allow easy removal.



Gently pull out about a foot of wire until a connector appears.



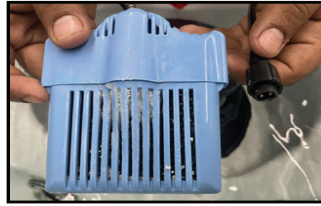
Twist and disconnect the connector to remove the cell. Secure the other end of the connector with a piece of tape.

**(DO NOT LET THE SPA END OF THE CORD SLIP BACK INTO THE SPA'S HOLE!)**

**NOTE:** If the cord does fall, the spas cabinet panel needs to be removed to access it.

### Cleaning the Cell:

Ensure that the reader for the salt cell reads zero before proceeding. Scale build up appears as a white rough texture/residue that forms on the cell and on the housing itself. You will need to place the salt cell inside of a large cup, and submerge the entire cell with white vinegar.



**Step 1.** Fill the cup with white vinegar, enough to submerge the cell.



**Step 2.** Submerge cell into the container.



**Step 3.** Allow the cell to soak in vinegar for one hour.



**Step 4.** After the hour has passed, remove the cell from the container.



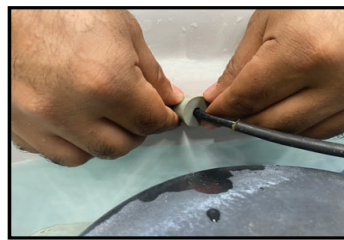
**Step 5.** Rinse the cell with fresh water to remove large particulates.



**Step 6.** Reattach the power connector to the cell, and slip the cord back into the wire hole of the spa.



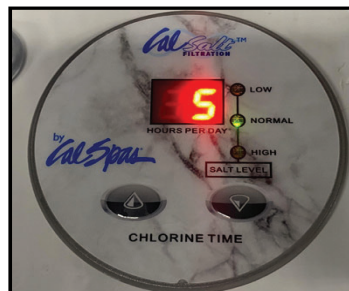
**Step 7.** Reattach grommet and firmly place inside the hole.



**Step 8.** Put the cell back into the holder.



**Step 9.** Adjust the control panel to be set to the desired chlorine level.



# Spa Chemistry Chart

This system is designed to automatically generate the chlorine for your spa. It is important to note that chlorine is just one component of your spa chemistry. Please make sure your spa meets the optimum chemistry levels in the following spa Chemistry Chart.

<b>FACTORS</b>	<b>PREFERRED LEVELS</b>
1 Salt _____	1500 -1700 ppm
2 PH _____	7.2 - 7.8
3 Free Chlorine _____	2.0 -4.0
4 Total Alkalinity _____	100- 120 ppm
5 Calcium hardness _____	150-200 ppm

# Operation Modes and Troubleshooting

## Operation Mode and Trouble Shooting

Symptom on PowerSupply				
Display	LED	Possible Causes	Solution	
1	no display	no lights	1 - power outage 2 - power supply failure	Make sure there is power to the unit. Need to replace the power supply.
2	" -- "	no lights	unit in rest mode	No action is needed: The two dashes means end of the time cycle. For example, If the system is setup to 10 hrs, after 10hrs the display will show the dashes. After 24hrs the unit will come back to work again for 10 hrs. So the display will show two dashes for 14 Hrs. in this example. Please check the below table for your reference.
3	" -- "	no lights	1 - chlorinator cell is outside water 2 - open circuit in chlorinator cell 3 - salt level low	Put it back into the water. Check the wire connections and make sure there are no cut or broken wires. Add more salt to spa and allow time for it to dissolve.
4	"LO" and Hours by default alternating	Yellow light	1 - salt level low 2 - water temperature low 3 - chlorinator cell at its life's end	Add more salt to spa and allow time for it to dissolve. Don't use if the water temperature is under 15 C ° (65 F °). Need a new cell replacement.
5	Hours (05 by default)	Green light	normal operations mode	No action needed
6	"HI" and Hours (05 by default)	Red light	1 - salt level high 2 - water temperature high	No action is needed. Stop adding salt to water if you are doing so. Using unit for water temperature above 45 ° (110 F °) is not recommended
7	"HI"	Red light blinking	1 - salt level too high or high TDS Levels 2 - water temperature too high 3 - short circuit in chlorinator cell	You will have to dilute your spa water with fresh water until the salt level is less than 3000 ppm. Dead Sea Salt can cause HI on the Mini. Also check your TDS Levels. Stop using unit until water cools down. Check to make sure there are no metal objects caught in between electrode plates.
8	"88" blinking	All lights blinking	Power supply failure	Unplug and plug in the power cord to reset the power supply. If problem persists, call customer service.
Symptom in Spa Water				
9	chlorine level is too low	Hours set too low		Adjust the hours setting to higher number (the maximum is 24 hours/day). Make sure cyanuric acid level in your spa is between 50 - 80 PPM.
10	chlorine level is too high	Hours are set too high		Adjust the hours setting to lower number (the minimum is 0 hours/day).

# Appendix

## Replacement Parts

### Control Panel

#### Cal Salt Generator Control Panel

ELE09021180



### Cell

#### Cal Salt Generator Cell

ELE09021181



### Power Supply

#### Cal Salt Generator Power Supply

ELE09021182



### Base Holder

#### Cal Salt Generator Base Holder

ELE09021183



### Grommet

#### Cal Salt Generator Grommet

ELE09021184



# LIMITED WARRANTY

## **Cal salt Filtration System 1-Year limited warranty**

**Please refer to the Limited Warranty provided in your Cal Spa owners manual for further details of your Cal Salt warranty.**

### **One-Year Limited Warranty on Cal Salt Filtration System**

Cal Spas offers a warranty to you, the original purchaser, that the Cal Salt filtration system will be free of defects in materials and workmanship for one year from the date of installation.

### **Extent of Warranty**

This warranty extends only to the original purchaser of the Cal Salt filtration system, delivered with your Cal Spa

### **Warranty Performance**

Cal Spas dealers or an authorized service will repair or replace, any part of the Cal Salt filtration system that proves defective in material and/or workmanship under normal installation, use and service during the warranty period. This warranty does not apply to the Cell used with the Cal Salt filtration system.

The Cell is a consumable item and must be replaced in accordance with the instructions in the Cal Salt filtration system owners manual.

### **Limitations.**

The manufacture disclaims all warranties, expressed or implied, in fact or in law, to the extent allowed by your State's law. All warranty service must be performed by the manufacture or its designated representative using authorized Cal Spas parts. No agent, dealer, distributor, service company, or other party is authorized to change, modify, or extend the terms of this limited warranty in any manner whatsoever. The manufacture will not be responsible for any statements or representations made in any form that go beyond, are broader than, or are inconsistent with any authorized literature or specifications furnished by Cal Spas.

### **Disclaimers**

Lloyd's Material Supply Company, Inc., Manufacture of Cal Spas brand and its representatives shall not be liable for any injury, loss, cost, or other damage whether incidental or consequential, arising out of any defect covered by this limited warranty, including without limitation, loss of use of the spa and cost for removal of defective product, even if the manufacture was advised of the possibility of damage. The liability of the manufacture under this limited warranty, if any shall not exceed the original amount paid for the defective product. Coverage under this limited warranty shall commence as of the original date of delivery and the duration of such coverage shall not extend for any reason whatsoever beyond the states time periods. These disclaimers shall be equally applicable to any service provided by the manufacture and its designated representatives.

### **Legal Rights**

This limited warranty give you specific legal rights. You may also have other rights that vary from state to state. Some states do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you.

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