
Clearwater Swim Spa Manual

NORTH AMERICA



Clearwater Spas

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Spa Manual Clearwater Spas, N. America 2023

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INTRODUCTION

Congratulations on your purchase of a new Clearwater swim spa! Your spa was manufactured with the finest components available and is designed with comfort, low maintenance, and durability in mind.

With proper care and maintenance, you can expect your Clearwater spa to last for years. This manual will give you information on the best way to take care of your spa based on how often it will be used, and the type of environment you live in.

It is important for you to read the entire manual before using your spa. Contained in this manual are important maintenance and start-up procedures as well as safety precautions that must be followed to ensure the life of your spa, and the safety of the people using it. Failure to follow start-up procedures may damage your spa and void your warranty.

Please feel free to call your local Clearwater Spas dealer if you have any further questions after reading this manual. We hope you enjoy many years of enjoyment and relaxation in your new Clearwater swim spa.

ICON Key

The ICON Key to the right defines the type of information boxes that will appear throughout this manual. These icons highlight helpful information that contains important tips or warnings that apply to the use and care of your spa.

SAFETY FIRST! IMPORTANT SAFETY INSTRUCTIONS! READ AND FOLLOW ALL INSTRUCTIONS.

When installing and using electrical equipment it is recommended that a licensed and bonded electrician perform the work. Basic safety precautions should always be followed, including the following:


- A "pressure wire connector" is provided and is located on the outside of the control box. This connector will allow the connection of a no. 8 AWG solid copper bonding wire (no. 6 AWG Canada) between the spa and any metal equipment, metal electrical enclosures, metal water pipe or conduit within 5 feet of the spa as needed to comply with local requirements.
- A green colored terminal wire (or a wire connector marked "G", "GR", "Ground", or "Grounding") is also provided. To reduce the risk of electric shock, connect this terminal to the grounding terminal of your electric service or supply panel with a continuous green insulated copper wire equivalent to the circuit conductor supplying this equipment.
- The electrical supply must include a suitably rated Ground Fault Circuit Interrupter to open all underground supply conductors to comply with section 422-20 of the National Electrical Code. ANSI/NFPA 70-1987. The power supply cut off must be readily accessible to the spa occupant, but installed at least 5 feet from spa water.
- Test the performance of the GFCI according to manufacturers recommendations. If the GFCI does not perform correctly, there may be a ground current present which can increase the risk of electric shock. Disconnect the power until the fault has been identified and corrected.
- **DANGER –RISK OF ELECTRIC SHOCK.** Install at least 5 feet from all metal surfaces.
- **DANGER – RISK OF ELECTRIC SHOCK.** Do not permit any electric appliance such as lights, telephones, radios or televisions within 5 feet of your spa.
- **DANGER –RISK OF CHILD DROWNING.** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use a spa or hot tub unless they are supervised at all times.

NO DIVING

**DANGER: DIVING MAY
RESULT IN SERIOUS
INJURY OR DEATH.**



- **DANGER** – Risk of injury, do not remove suction fittings. The suction fittings in this spa are sized to match the specific water flow created by the pump. Should the need arise to replace the suction fittings or the pump, be sure that the flow rates are compatible. Never operate spa if the suction fittings are broken or missing. Never replace a suction fitting with one rated less than the flow rate, marked on the original suction fitting.
- Installation should include proper drainage of the electrical equipment area to prevent electrical shortage.
- Store all chemicals in a cool dry area and keep out of children's reach.
- **WARNING** - To reduce the risk of injury:
 - A. Spa heat can cause hyperthermia and unconsciousness! Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6°F (37C). The symptoms of hyperthermia include an increase in the internal temperature of the body, dizziness, lethargy, drowsiness, and fainting. The effects of hyperthermia include failure to perceive heat; failure to recognize the need to exit spa or hot tub; unawareness of impending hazard; fetal damage in pregnant women; physical inability to exit the spa or hot tub; and unconsciousness resulting in the danger of drowning.
 - B. **WARNING** - The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia. The water in a spa or hot tub should never exceed 104° F (40° C). Water temperatures between 100° F (38° C) and 104° F (40° C) are considered safe for a healthy adult. Lower water temperatures are recommended for extended use (exceeding 10-15 minutes) and for young children. Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy. Pregnant or possibly pregnant women should limit water temperatures to 100° F (38° C).
 - C. The total dissolved solids shall have a minimum of 500 ppm, and the calcium hardness shall not be a minimum of 200 ppm.

 WARNING	
PREVENT DROWNING <ol style="list-style-type: none"> 1. SUPERVISE CHILDREN AT ALL TIMES. 2. ATTACH SPA COVER AFTER EACH USE. 3. SPA HEAT CAN CAUSE HYPERTHERMIA AND UNCONSCIOUSNESS. 4. SPA HEAT IN CONJUNCTION WITH ALCOHOL, DRUGS, OR MEDICATION CAN CAUSE UNCONSCIOUSNESS. 	PREVENT ELECTROCUTION <ol style="list-style-type: none"> 1. NEVER PLACE ANY ELECTRIC APPLIANCE WITHIN 5 FEET OF SPA.

AUDIO SYSTEM:

CAUTION - Risk of Electric Shock. Do not leave compartment door open.

CAUTION - Risk of Electric Shock. Replace components only with identical components.

CAUTION - Do not operate the audio/video controls while inside in the spa.

WARNING - Prevent Electrocution. Do not connect any auxiliary components (for example cable, additional speakers, headphones, additional audio/video components, etc.) to the system.

These units are not provided with an outdoor antennae; when provided, it should be installed in accordance with Article 810 of the National Electrical Code, ANSI/NFPA 70.

Do not service this product yourself as opening or removing covers may expose you to dangerous voltage or other risk of injury. Refer all servicing to qualified service personnel.

When the power supply connections or power supply cord(s) are damaged; if water is entering the audio/video compartment or any electrical equipment compartment area; if the protective shields or barriers are showing signs of deterioration; or if there are signs of other potential damage to the unit, turn off the unit and refer servicing to a qualified service personnel.

This unit should be subjected to periodic routine maintenance (for example, once every 3 months) to make sure that the unit is operating properly.

**SAVE THESE
INSTRUCTIONS!**

STEPS FOR A SUCCESSFUL INSTALLATION:

1. PREPARING FOR YOUR SWIM SPA



Prior to receiving your new spa, you will want to prepare an area for installation. You will need to arrange to have your spa placed in the desired location and prepare the location for the connection of the electrical circuits. In most cities, permits are required for the installation of electrical circuits.

Make certain to review the path that your swim spa will take through your property along with the size of the spa to ensure you have enough space. If there are stairs or other obstacles that the spa will have to travel over to get to the site, additional clearance may be required.

Here are some key things to consider while installing your spa that will help eliminate some of the unforeseeable situations that could hinder your spa installation.

- Avoid installing too close to any structures.
- Leave enough room around all sides to allow access to the service panels.
- Install on a level, load-bearing surface.
- Install at least 5 feet from ground conductors.
- Use non-conductive conduit for all wiring.
- If installing below the surface of a deck, leave enough room to access and remove service panels.

We recommend a level 6" thick concrete pad if you are installing on land (not on a deck or platform). The dimensions of the pad should at least match the outside dimensions of your spa. You should also accommodate for any steps or obstructions around the spa. Please allow a few days for curing the cement when scheduling your delivery date.

Balconies are not suited to hold a swim spa. Decks are not recommended for spa installations, but if you choose one as your location, keep in mind that a large filled spa with six adults can weigh as much as seven tons. Decks must be specially constructed to current state and local building codes and must support at least 150 pounds per square foot.

If you are building a deck around your spa, be sure that it does not cover up any of the service panels. If you are building stairs for the spa, it is recommended that they be installed in such a way that they can be moved out of the way if access to the service panels is required.

The most important thing to remember is to plan your installation so that it will be easy to move the spa from the delivery truck to the installation site. Swim spas are typically transported on mover's dollies or by crane. Check for adequate gate clearance and remove any fence panels if necessary to allow access to the installation site.

2. SITE SELECTION AND PREPARATION



The location of your spa is entirely up to you. Read these instructions for ideas of the various locations that your new spa may be installed.

By the time you have purchased your spa, you have likely already picked your location. Prior to the spa delivery, please verify the following:

- Always place the spa on a compacted, level surface. The best surface is a level concrete pad. A spa, full of water, can weigh a great deal. Please ensure that the spot can support the weight.
- Make sure that your spa is level before it is filled.
- Locate the equipment panel. The control box, drain valve, and ozone generator are usually located in the same area. Be sure that the connections are tightened during filling. Water inside the control box will cause it to fail, and the breaker to trip.
- The panels, located on all four sides, are removable. Be sure that you have access to all four panels.
- Be sure to have easy access to the circuit breaker in the sub panel (240 volt models).
- Never let water into the sub panel, or into the electrical outlet that your spa is plugged in to. The spa's sub panel is rain tight when installed correctly with the door closed.

3. INSTALLATION - PLACING YOUR SWIM SPA

Outdoor and patio installation

Positioning your spa correctly in your chosen location is very important because of the spa's warranty. The warranty on your spa is voided if the site is not 100% supportive. If you install your spa outdoors, a concrete pad is the best method for a stable and level surface. The concrete pad should be at least six inches thick and properly leveled. Your spa may be installed on a deck, provided the load rating can handle a filled spa with people in it.



Deck installation

When placing the spa on a deck, please ensure the maximum load capacity of the deck. Consult a qualified deck builder or structural engineer before you place the spa on an elevated deck or indoors. To determine the weight of your spa, please refer to the specifications on the website. This weight must not exceed the structural load capacity of the deck.

Indoor installation

When installing a spa indoors, there are extra things to consider. Moisture will accumulate on the floor surrounding the spa, so the flooring material needs to provide grip when wet for safety. The location will also require proper drainage to prevent water build-up. When building a room for your spa, it is best to have a floor drain installed. The humidity of a room with a spa can cause dry-rot, mildew and mold problems if it is not properly ventilated.

Ground preparation

Your spa has been designed to be installed on a variety of surfaces. The insulated spa floor base gives you the ability to find the perfect location. Though a concrete slab is the best for long term, there are other options available as long as the surface is level prior to delivery. The alternatives include *5/8 Minus Crushed Packed Rock*, or a deck that is rated for the load.

When placing a spa on crushed rock, the easiest way to maintain its form is to build a frame and fill it with the crushed rock. Remember, if the spa is placed on grass or dirt, debris will get inside the spa as users enter and exit.

It is incredibly important for proper operation and draining of the spa that the spa is level once it is installed. Failure to have the spa level prior to adding water can affect the warranty.

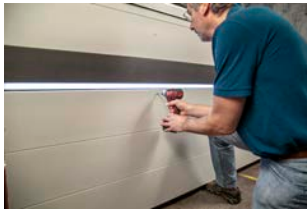
Remember; the warranty on your spa is voided if the site is not 100% supportive.

4. ELECTRICAL HOOK-UP REQUIREMENTS

Accessing the Control Box



1. Unscrew and remove the two vertical corner pieces on the front (control panel) end of your spa.



2. Unscrew and remove the lower cabinet panel.



3. Remove the panel for access to spa components. Reverse these steps to re-attach the spa access panel.

Electrical Systems wired by Licensed Professionals

To ensure you will have an opportunity to use your spa soon after delivery, it is very important that the required electrical service has been installed properly by a professional, licensed electrician before arrival of your spa.

IMPORTANT: Electrical connections must be made by a qualified, licensed professional. Please contact a licensed residential electrician for these services.

NOTE: A separate sub-panel must be used to supply power and protect the spa. All models require a 60 amp single phase 240 volt circuit breaker in the main electrical service panel. Each spa must be wired in accordance with applicable electrical codes. Electrical work should always be performed by a licensed electrician. A licensed electrician needs to install a four-wire electrical service (two line voltages, one neutral, one ground) from the main electrical panel to the sub-panel, and from the sub-panel to the spa per the wiring diagram on the next page (figure 1-1). The electrician should mount the sub-panel in the vicinity of the spa but not closer than 5 feet from the spa's water edge (NEC 680-38 to 41-A-3).

WARNING: Removing or bypassing the GFCI breakers in the sub panel at any time will result in an unsafe spa and will void the warranty.

WIRE SPECIFICATION NOTE: Long electrical runs may require a larger gauge feed wire than stated. We recommend that a maximum voltage drop of 3% be used when calculating the larger wire size.

Refer to the Wiring Diagrams (figure 1-1) for the electrical requirements of the 240 volt models.

Do not turn on power to the spa when the tub is not filled.

ELECTRICAL REQUIREMENTS



Important
Notice!

IMPORTANT: Electrical connections must be made by a qualified, licensed professional. Please contact a licensed residential electrician for these services.

Minimum 6 gauge wire required on all 240 volt applications (except for grounding which is determined by NEC code and/or local requirements).

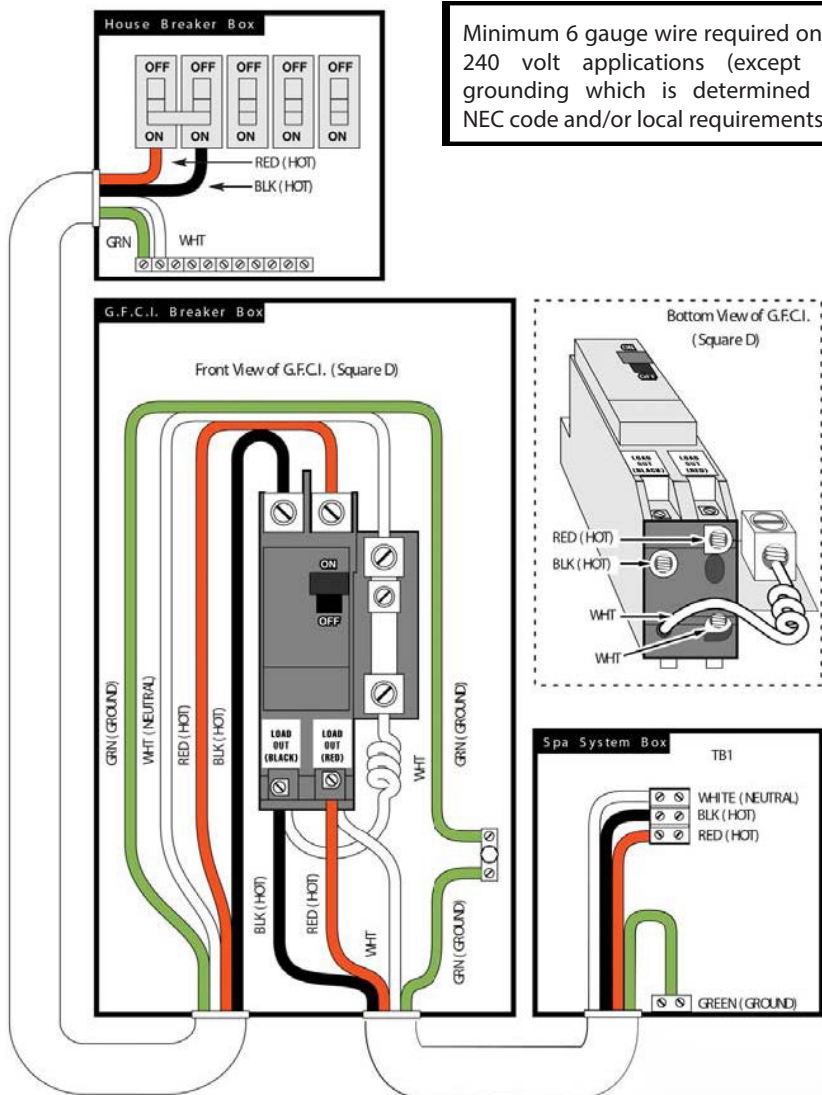


Figure 1-1
240 volt wiring configuration from the house to the spa

Note:
Spa System Box wiring may vary between models. Please refer to the wiring diagram found in the Spa System Box.

FILLING YOUR SPA THROUGH THE FILTER CHAMBER



IMPORTANT!

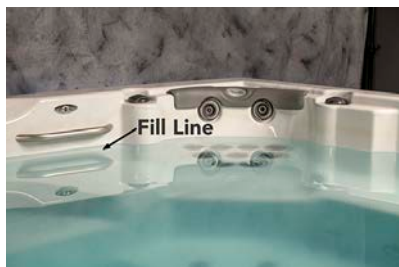
Improperly balanced water may damage your spa and void your warranty! Do not fill our tub with water from your hot water heater!

Before you fill your spa, it is advisable to have your water tested for hardness (calcium and mineral content). Water from wells usually contain harder water than urban water supplies. Mineral and metal imbalances in your water can shorten the life of your spa. Please contact your local dealer for a proper water analysis or to purchase a testing kit.

We strongly recommend a high quality "Water Test Kit" for checking pH and sanitizer levels. Test the water daily until your "user load" is determined.

Make sure there is no dirt or sediment at the bottom of the tub and that there is nothing inside the filter compartment before filling with water. **Filling the spa through the filter housing will help to prevent air locks (trapped air) in pumps on start up.**

Fill the spa to the correct water level. Be sure to open all valves and jets in the plumbing system before filling to allow as much air as possible to escape from the plumbing and the control system during filling. After turning the power on at the main power panel, the top-side panel will display a "splash", or "startup" screen.



1. Place your garden hose into the filter housing. This will ensure that air bubbles are removed from the lines while you fill the spa.

2. Fill your spa so that most of the water enters through the filter chamber.

3. Fill the water to the proper level – Up to or just over the fill line as shown in picture above.

TOPSIDE CONTROLS: K1000 Spatouch2 AX40



Figure 1: K1000 touchscreen control panel



Figure 2: SpaTouch2 touchscreen control panel

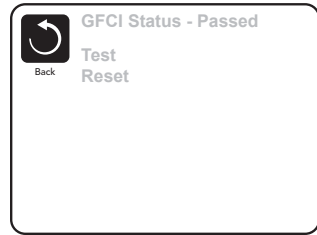


Figure 3: AX40 Auxiliary Control Panel

Look for the operating instructions for the k1000, SpaTouch2, or AX40 with your spa manual or visit the “**Product Resources, Guides & Manuals**” page at www.clearwaterspas.com under the section “Downloads for Controls”.

UTILITIES – GFCI TEST FEATURE

The Ground Fault Circuit Interrupter (GFCI) or Residual Current Detector (RCD) is an important Safety device and is required equipment on a spa installation.



Used for verifying a proper installation

Your spa may be equipped with a GFCI protection feature. GFCI trips will indicate a ground fault or other unsafe condition and the spa must be shut off until a service person can correct the problem.

Forcing a GFCI Trip Test (North America Only)

The installer can cause a GFCI Trip Test to occur by initiating it using the above menu. The GFCI should trip within several seconds and the spa should shut down. If it does not, shut down the power manually and verify that a GFCI breaker is installed and that the circuit and spa are wired correctly. Verify the function of the GFCI with its own test button. Restore power to the spa and repeat the GFCI Trip Test. After a successful test the display will show "Passed" on the GFCI Status screen as shown above.

Warning:

You should familiarize yourself with where the GFCI is and how to properly reset the it. If freezing conditions exist, the GFCI or RCD should be reset immediately or spa damage could result.

WATER PURITY & FILTRATION

Keeping the water clean – chemical sanitizers

One of the main reasons that people require service on their spa is because they haven't followed a proper water sterilization regiment. Water can accumulate impurities that can worsen the performance, or damage the filtration system if chemicals are not properly applied at appropriate intervals. The water can even become unhealthy if chemicals are not used to sanitize the water. Improper pH levels or calcium levels can cause either corrosion of parts or scale build-up.



IMPORTANT!

Always read directions on chemical container thoroughly before using spa chemicals.

We recommend that you begin a routine of sterilization that you are comfortable with, and that you can follow through with. If you get into a scheduled regiment, it will be easier to remember when to apply the chemicals or run your alternative system (like Salt, Ozone or UV).

Your spa comes with an ozonator that will do a very good job at killing bacteria and oxygenating the water, but chlorine or bromine are often used to compliment the work of the ozonator.

The best way to keep the water clean over long periods of time is to change the water four times a year. Connect a hose to the drain valve and open it all the way to allow the spa to drain all the way. Use a shop-vac to remove any standing water and debris at the bottom of the spa. Refer to the maintenance section for instructions on cleaning the spa before refilling it.



The pH scale goes from 0 to 14, with zero being extremely acidic and 14 being extremely base (alkaline). Seven is considered neutral pH.

Spa Chemistry 101

At first, learning to understand spa water chemistry can seem like a daunting task to say the least. We intend on helping you understand spa chemicals so that you can maintain the health of your spa at the best level possible.

There are three basic principals to spa water chemistry.

1. Sanitize/Disinfect (kill viruses, germs, etc.)
2. Oxidize (break down organic compounds like oils and sweat)
3. Maintain slightly base (alkaline) water (pH of 7.4 - 7.6). This controls the corrosiveness of the water, prevents excessive scaling (mineral formation on surfaces exposed to water, and insures that the water is comfortable to the skin.

Once you have a good understanding of the chemicals that are used in your spa, you will be able to maintain proper water balance. Water balance is reached when all elements (pH, total alkalinity, calcium hardness and total dissolved solids) are within their proper ranges.

The following definitions for chemicals will help you understand what the chemical is and what it is used for:

Sanitizers

CHLORINE - Chlorine is widely used as a sanitizer in pool and spa water to kill bacteria, viruses and algae, it also oxidizes ammonia and nitrogen compounds such as swimmer waste. Its formal name is Sodium Dichlor and is referred to as a chlorinated concentrate. Sodium Dichlor is a fast-dissolving, granular, stabilized organic chlorine compound providing either 56% or 63% available chlorine. Cyanuric acid and/or stabilizers are added to prevent U.V. light destruction of the chlorine by the sun. Use of improper Chlorine additives can cause excessive Cyanuric acid which can corrode and destroy spa components.

BROMINE – Bromine is the other commonly used sanitizer or disinfectant in pool and spa water to kill bacteria and algae, and oxidizes ammonia and nitrogen compounds such as swimmer waste. This chemical does not eliminate swimmer waste unless it is combined with an appropriate oxidizer such as a non-chlorine shock. It is susceptible to direct sunlight, and is therefore not efficient in outdoor pools. Bromine is sometimes used as an alternative for people whom are allergic or sensitive to chlorine products.

Bromine products are available as sodium bromide and bromine tablets. The bromide ion has no effective disinfectant or sanitizing capabilities without the use of non-chlorine shock (potassium monopersulfate). Potassium monopersulfate is added to oxidize, or activate, the bromide ion into bromine, which rapidly forms the active sanitizer hypobromous acid in the spa water. Upon reaction with bacteria and other spa contaminants, hypobromous acid is reduced back to bromide ion, ready to be activated again by the next dose of potassium monopersulfate. Potassium monopersulfate begins to produce bromine immediately and continues to do so for several hours, providing time for oxidation of bather waste and other organic contaminants such as ammonia and nitrogen.

NON-CHLORINE SHOCK (Potassium Monopersulfate) – Also known as “Oxy-Shock”, is an important chemical used in the process of disinfecting and sanitizing the spa water. Non-chlorine shock is used to oxidize and eliminate organic contaminants, dead algae and debris, and will also convert the chlorine by-products (chlorides and chloramines) back into free available chlorine.

When used with bromine products, non-chlorine shock is used with sodium bromide in a two-part disinfection system. Potassium monopersulfate (non-chlorine shock) is added to oxidize, or activate, bromide ion into bromine which rapidly forms the active sanitizer - hypobromous acid - in spa water. Upon reaction with bacteria and other spa contaminants, hypobromous acid is reduced back to bromide ion, ready to be activated again by the next dose of potassium monopersulfate. Most non-chlorine shock products have buffers that reduce pH instability, and corrosion inhibitors that help protect the heater and other metal surfaces.

OZONE – Ozone is a powerful gas that is used as a sanitizer and an oxidant to keep spa water clean and disinfected. Although ozone is about 3000 times more powerful than chlorine, it has a tendency to dissipate quickly and does not create any sanitizer residual. By using an ozonator for your spa, you can cut maintenance time and chemical costs by as much as 75%. Ozone is manufactured by an ozonator (ozone generator) and is dispensed during the filtration mode.

pH Controllers

SODIUM BICARBONATE - Commonly used to increase pH and total alkalinity of spa water. Sodium bicarbonate is also known as natural baking soda.

SODIUM CARBONATE – Also known as soda ash, is a substance used to raise pH and total alkalinity.

SODIUM BISULFATE – Also known as dry acid, the chemical used to lower pH and total alkalinity of spa water.

Water Conditioners

FLOCCULENT – A compound which clarifies spa water by gathering oils, dirt, scum, metal deposits and small contaminant particles into larger globules, which then can be filtered more effectively.

CLARIFIER – A compound used to remove dissolved solids, metals, dirt, oils, or other contaminants from spa water.

SCUM BALL™ – A softball sized ball that is kept in the water. The ball is chemically treated so that it attracts contaminants that would normally be trapped in the filter.

SEQUESTERING AGENT – Stain and scale preventing compounds that sequesters dissolved metals to prevent water discoloration.

CALCIUM CHLORIDE – A soluble white compound used to raise the calcium hardness of spa & pool water, to protect equipment from corrosion.

ALGAEICIDE – A chemical used to kill algae and prevent it from growing back.

DEFOAMER – A compound used to reduce or eliminate foaming in spa water.

CHITIN – A naturally occurring polymer (pronounced KY-tin) found in crab and lobster shells. As a spa clarifier, it is the best flocculating agent available. Removes oils, dirt, scum, and metal deposits, allowing the filtering system to work more effectively.

How To Use The Chemicals

Now that you have some knowledge about spa chemicals, you will learn how to use those chemicals to maintain balanced water in your spa. This section will explain how to apply chemicals, how much to use, and when to use them.

Usage Definitions

Before getting into how much and when, it is important to understand some of the terminology that is used to describe how the chemicals are applied:

P.P.M. – Parts Per Million. Expressed as a ratio of number out of 1 million.

SHOCK – Addition of an oxidizer ("Oxy-Shock") or superchlorinator to the water to break-down the organic contaminates on which bacteria feed and to destroy ammonia and nitrogen compounds (oxidize only).

SUPERCHLORINATION – Means the addition of enough chlorine in the water to kill all living things (sanitize) and destroy any organic wastes present in the water (oxidize). Usually this means about double your normal dose of chlorine. Superchlorination can be done once a day for heavy bather loads or as infrequent as once a week for a moderately used spa.

CHLORINATION – To add chlorine to your spa on a regular basis to disinfect and oxidize your spa water.

BREAK POINT CHLORINATION – The process of shocking the water with significant quantities of chlorine to oxidize all contaminants and organic wastes and leave all remaining chlorine as free chlorine.

CALCIUM HARDNESS – A measure of the amount of calcium dissolved in water. Water with low hardness can lead to corrosion of metal parts. Water with high level of hardness can cause scale (calcium crust) build up on spa surfaces which can clog filters, heaters and pumps.

WATER BALANCE – Water balance is reached when all elements (pH, total alkalinity, calcium hardness and total dissolved solids) are within their proper ranges.

ENZYMES – Biodegradable proteins which breakdown oils, films and digest scum in spa water.

FREE CHLORINE – The amount of chlorine available to kill bacteria or algae. Also known as "Available Chlorine".

COMBINED CHLORINE – The portion of the total chlorine in water in chemical combination with ammonia, organics, and nitrogen, most of which are chloramines.

TOTAL ALKALINITY (TA) – The measure in PPM of all the dissolved base/alkaline material in the water. The acid-neutralizing capacity of water which indicates its buffering ability, or resistance to fluctuations in pH.

TOTAL DISSOLVED SOLIDS (TDS) – The total amount of dissolved materials in spa water. The ideal range is 1,500 ppm above the start-up TDS in spas.

Starting A Chemical Maintenance Program

A chemical maintenance program's goal is to maintain water balance. If you apply chemicals and test your water on a regular basis, water balance is easy to maintain and your spa water will stay clear and healthy. Test strips are fairly accurate, test kits are also available that are very accurate and will test everything that you will need to monitor your water chemistry.

Three main parameters should be tracked closely:

1. pH
2. Free chlorine
3. Alkalinity



WATER BALANCE is reached when all elements (free chlorine, pH, total alkalinity, calcium hardness and total dissolved solids) are within their proper ranges.

T.D.S. (Total Dissolved Solids) and calcium hardness should be checked after the first three are in the correct range. Test strips and test kits come with instructions on how to determine whether the chemicals are in the right range. Table 2-1 shows how to dispense chemicals and how often to do it.

Figure 2-1: Spa water care

TEST	PARAMETER	HOW OFTEN	TREATMENT
pH	< 7.2 pH	2x weekly or more for heavy use	Add Spa Up™
pH	> 7.8 pH	2x weekly or more for heavy use	Add Spa Down™
Chlorine/Bromine	3 – 5 ppm	2x weekly or more for heavy use	Add Chlorine or Bromine
Alkalinity	80 – 120 ppm	2x weekly or more for heavy use	Add Alkalinity Increaser
TDS	< 3000 ppm	Check monthly	Drain and refill if > 3000 ppm
Oxy-Shock		Add 2x weekly or more for heavy use	Add Oxy-Shock
Hardness	150 – 400	Check monthly or with new water	Add calcium increaser if < 200 ppm. Drain and refill if > 400 ppm
Ozone		Ozonator runs on FILTER CYCLES	

In the beginning, it is a good idea to test your water daily to learn how the water changes with the addition of chemicals. By keeping a log, you will be able to keep better track of your water condition.

When adding water to your spa for the first time or changing the water, you should superchlorinate the water by doubling (1 tbsp. Per 100 gallons) the regular dose of chlorine. It is a good idea to wait for 8 hours before entering your spa after superchlorinating the water.

Remember that keeping your spa water healthy keeps you, your family, and your guests healthy too. Most service calls for spa repairs are related to problems caused by improperly balanced spa water.

Ozone Generator

Your Clearwater Swim Spa comes standard with a combination Ozonator/UV Generator made to our specifications. Ozonators supply the spa water with ozone, which is an extremely effective oxidant that will kill bacteria and microorganisms. The Ozonator will distribute ozone into your spa automatically during the filter cycles and will keep your spa and water sparkling clean. Even though ozone is effective at keeping your water clean, it cannot replace the use of chlorine or bromine. Refer to the chemical section for more information.

The UV generator kills harmful microorganisms as water is passed over it. Germicidal light rays alter or disrupt the DNA / RNA of microorganisms including algae, bacteria, viruses, mold, spores and protozoa when they pass through the UV chamber (effectively killing them). Chlorine consumption is typically reduced by 90% while still maintaining a low free available chlorine residual.

No maintenance is necessary on the ozonator. The ozonator works during the filter cycles set by the controller only. If your spa did not include an optional ozonator and you would like to have one installed, contact your local Clearwater Spas dealer.

JETS

Types of Jets

Your Clearwater spa comes with two different types of jets. The swim jets are adjustable up and down by 20%. The therapy jets are adjustable and can be turned off and on individually.

The therapy jets are removable for easy cleaning. Refer to the next section for jet cleaning instructions. The jets are easiest to adjust or remove when the pumps are off.



Swim Jet



Therapy Jet

Jet, air and waterfall controls

Diverter Valves

Your swim spa comes with diverter valves. These valves are used to divert the water flow from one area to another. The valve has a 180° range from one side to the other. If turned all the way to one side all the power and flow from the pump will go to that seat or area. If turned partially to one side or the other, the power and flow will be shared between the areas. To operate the diverter valve properly, turn off the pump first then rotate the valve. This will make turning the valve much easier, and ensure the longevity of the valve.

Waterfall Control

Soothing waterfall arches are featured on your swim spa. Handy controls allow for completely adjustable flow to match your every mood.

Air Controls

These valves, which are located on the topside, are used to control the air that flows through the jets. By introducing air into the jets, they effectively double their power.

Therapy Jet Removal

To remove jets simply turn the outside ring of the jet counterclockwise approximately one quarter turn and pull jet out (Figure 3-1). To replace the jet, simply place the jet in the shell and turn the jet until the slots line up, then turn jet one quarter turn clockwise until secured. The jet will easily push into place and “snap” when it is locked.



MAINTENANCE

Pillows

Your spa is equipped with high quality polyurethane foam pillows. These pillows can be removed by simply pulling up on them firmly. To replace them, line the receptacle holes up with the buttons on the spa.

Synthetic DuraTech™ Spa Cabinetry

– *Low maintenance durability*

These cabinet systems offer the beautiful look of tongue and groove wood cabinetry with low maintenance durability. They are designed to withstand heat, cold and rain while retaining the long lasting look of elegance.

If access to the plumbing, motors or the controller is required, remove the screws on the service panels using a screwdriver. Panels can then be easily removed by pulling the panel away from the spa.



WARNING!
Do not sand
spa finish

The Shell

Your spa is constructed with a high quality, impact resistant, thermoplastic shell that requires very little maintenance. Make sure that when you drain and clean your spa you use a mild, nonabrasive cleaner and cleaning pads. We recommend that you use a cleaner made specifically for cleaning spas. They tend to be non-abrasive and easy to rinse off completely. Contact your spa dealer for information on waxes and sealers.

Spa Cover

If you purchased a cover with your spa, you will want to be sure to keep it clean and protected. Spa covers exposed to the outdoors take a beating from the elements. Use a vinyl protectant to discourage deterioration caused by the UV rays from the sun. This will also minimize rain penetration. See your local spa dealer for a vinyl protectant.

Once a month, take the cover off the spa and use a sponge and dish soap to scrub the cover clean. Keeping the cover free of dirt and debris is the most important maintenance task for the cover. Be sure to clean the seams extra well.

Cover Locks

Your cover comes with screws that are used to fasten the receiving end of the strap locks. Simply align the cover on the spa and stretch out the straps until they are tight. Mark the location of the strap receptacles, then fasten them to the spa skirt with the screws supplied.

Winterizing

(Note: Clearwater Spas utilizes manufacturing methods that make winterization less than ideal for handling cold weather as it creates a risk of freeze damage. It is recommended by Clearwater that the spa be run in Rest Mode as opposed to being winterized. Rest Mode and the Low Range heat setting are the best methods to ensure your spa remains functional and undamaged through the winter months.)

Since 'freeze damage' is not covered under the Limited Warranty, we recommend contacting and having a spa professional prepare your spa for winterizing protection. If you live in a climate where winter temperatures are below freezing and power to the spa will be disconnected, follow these procedures for draining:

Winterizing guidelines:

1. Add an algacide to the water and run pumps for half an hour to evenly disperse algacide.
2. Turn off power to the unit at the circuit breaker.
3. Drain the spa by attaching a garden hose to the drain and opening the valve. After the spa is empty, remove the hose and leave the drain valve open.
4. For freeze protection – Access motor area by removing the outer front panels to the right and left of the controller panel and unscrew the plumbing collars from the pumps. Leave union couplings disconnected. Vacuum out lines with a wet/dry shop vacuum.
5. Soak up any excess water that drains from motors and associated plumbing with a towel. Keep water and debris out by covering with a rigid spa cover.
6. Before using the spa again, reattach pump couplings, close drain valve, and review filling/startup instructions.

If the spa is to be used during the winter, save energy by turning the temperature down and keeping the spa covered. If the spa reaches freezing temperatures, the main pumps will automatically turn on to circulate the water.

Draining The Spa

The drain is located on the base at the front of the spa below the control panel. *Cabinet styles may vary.*



Capped
position



Closed
position



Open
position



Drain Location: The drain hose is located inside the front of the cabinet, near the control box.

Remove front panel and locate the drain hose to the right of the control box.



Step 1: Remove the drain cap.

Step 2: Attach a hose and place other end of hose in the area you want the water to drain to.

Step 3: Twist drain counter-clockwise and pull out to open (See images at top of page).



Step 4: When you are finished draining your spa, reverse these steps to close the drain, and screw on the cap.

Step 5: Refill spa as recommended in manual.

ENERGY EFFICIENCY GREEN TECHNOLOGY

Providing a greener spa.

Clearwater Spas is strongly committed to protecting the health of our environment and manufacturing energy efficient hot tubs that help to conserve our natural resources. We strive to provide clean air, and clean water solutions – both in how we build our product and in our product itself.



E-Smart Tech

E-Smart Technology

Your spa is made with 'e-smart technology' built into every hot tub to provide a complete energy efficient system. From the initial engineering design stage through our manufacturing, and product usage, we have set a high standard to keep our hot tubs environmentally sound. This symbol signifies the highest energy efficiency, the smartest engineering detail standards, and global environmentally green components.



Energy Efficient

Energy Efficient

Clearwater Spas RTB (reflective thermal barrier) insulation is 12% more energy efficient than spray foam insulation. Our insulation panels reflect and recycle heat from within the cabinet keeping it warm and dry.



Manufacturing

Healthy Factory Process

We are focused on providing healthy and safe solutions in our factory for our employees and our environment. This includes processes for good air quality, and energy efficient components.



Clean Air

Clean Air Factory

Our Eco-Spray™ process for strengthening every spa shell has 0% styrene, no odor and emits no VOC's (volatile organic compounds) for a clean air environment.



Clean Water

Clean Water Solutions

We provide cutting edge clean water solutions to help provide natural alternatives and help reduce the need for chemicals. Salt water, UV-C light, ozone and re-usable filters provide natural clean water solutions.

APPENDIX A

Troubleshooting

For error message on your topside control, see control reference from the Initial Start-up.

System Trouble

PROBLEM	PROBABLE CAUSE	REMEDY
GFCI trips (on startup)	Improper or defective wiring.	Electrician should inspect for wiring mistakes.
GFCI trips	A) Ozone generator defective.	Unplug from controller and reset breaker to verify problem.
	B) Unknown cause.	Unplug components one at a time until breaker holds.
System inoperative	A) System lockup.	Reset power source or GFCI.
	B) Loss of power.	Reset breakers. Check fuses. Call for service.

Controls

PROBLEM	PROBABLE CAUSE	REMEDY
System overheating, shutdown	A) Restricted filter.	Clean filter overnight with filter degreaser.
	B) Water too low.	Raise water level above filter inlet.
	C) Filtration time too long. (only applies on non-circ. pump set ups)	Reduce filtration time.
System not maintaining temperature.	A) Spa is in REST mode.	Switch mode back to READY.
	B) Spa is set to Low Range for temperature	Reset to High Range.
	C) Restricted filter.	Clean filter overnight with filter degreaser.
	D) Water level is too low.	Raise water level above filter inlet.

Pumps

PROBLEM	PROBABLE CAUSE	REMEDY
Noisy pump or motor	A) Clogged filter or pump inlets.	Clean filter, filter basket and pump inlets
	B) Low water level.	Raise water level above filters.
	C) Slice valves not open.	Remove service panels and open slice valves.
	D) Debris in pump(s).	Call for service.
	E) Damaged or worn motor bearings.	Call for service.
Pump not working	A) Fuse on circuit board blown.	Replace fuse.
	B) Motor overloaded.	Let motor cool for one hour, open all jets. Motor will reset automatically.
	C) Defective Pump button.	Call for service.
	D) Blockage in line.	Call for service.
	E) Broken pump or failed motor.	Call for service.
	F) Slice valves not open.	Remove service panels and open slice valves.

Jets

PROBLEM	PROBABLE CAUSE	REMEDY
Rotating jets won't rotate	Debris in jet housing.	See 'Cleaning the rotating jets' section of the JETS chapter.
	Spinner worn out.	Replace jet insert.

Water

PROBLEM	PROBABLE CAUSE	REMEDY
Water leak	A) Compression fitting (unions) have loosened.	Tighten fitting .
	B) Pump seals leaking.	Call for service.
	C) Heater gaskets leaking.	Replace gaskets or call for service.

FAQ'S - FREQUENTLY ASKED QUESTIONS

Q: Why is my spa not heating?

A: Check which mode you are in: Ready or Rest. See 'Topside Control'. Rest can allow the temperature to drop between cycles.

A: Check the temperature Range. The lower range only goes up to 99 degrees.

Q: Why won't my spa heat above 99 degrees?

A: Any spa built from 2014-Current would have Dual Temperature Ranges. Please reference Dual Temperature Ranges in your Manual (page 15) and your spas corresponding Topside Control Reference (which can all be located on our Product Resources, Guides & Manuals page of our Website.

Q: The system is receiving proper voltage, why doesn't anything function?

A: 1. Check for blown fuses, burn marks or signs of tampering in the box.
2. Power down the spa, and reset the GFCI. If problem persists, contact customer service for tech support.

Q: What does the ozone generator do?

A: An ozonator purifies naturally. It produces an active oxygen that attacks bacteria at microscopic levels reducing the number of chemicals needed for perfect water. Ozone is also useful in coagulation of metals and other contaminants found in some areas.

Q: How do I know if my ozonator is working?

A: During a filter cycle, a green LED light on the ozonator will light and bubbles will move through the clear water line that connects to the ozonator.

Q: How do I fill the spa with water?

A: 1. Place your garden hose into the filter housing. This will ensure that air bubbles are removed from the lines while you fill the spa
2. Turn the water on so that most of the water enters through the filter chamber.
3. Fill the water to the proper level – half way up the filter housing or to the bottom of the pillows.



LIMITED WARRANTY

Thermal Hydra Plastics, LLC, dba Clearwater Spas (“Clearwater”), warrants solely to the original consumer purchaser (“owner”) at the original installation site the following about your new Clearwater Spa manufactured after March 1, 2017 and purchased from an authorized dealer/service provider (“dealer”) for residential use in the United States or Canada.

10 YEARS

Shell Structure & Surface

Clearwater warrants the acrylic shell not to leak due to defects in material or workmanship for 10 years from the original spa purchase date. Clearwater also warrants to repair the spa shell interior surface if it blisters, cracks and delaminates for 10 years from the original spa purchase date.

5 YEARS

Equipment

Clearwater warrants the operating equipment against defects in material and workmanship for five years from the original spa purchase date. This specifically covers control system, pump(s), and heater. Other equipment, but not limited to, such as pump seals & shafts, audio components, LED Lighting, Ozonator, Salt System, UV System, TPS System, and Wi-Fi modules are not included in the Five-Year Equipment Warranty.

Plumbing

Clearwater warrants the plumbing and fittings not to leak for five years from the original spa purchase date. Gaskets and seals are not included in this warranty.

1 YEAR

Duratech Cabinetry

Clearwater warrants the Duratech cabinetry against defects in material and workmanship and shall not crack, splinter, rot or suffer water damage or structural damage from termites or fungal decay for one year from the original spa purchase date.

1 YEAR

Other Equipment and Parts

Clearwater warrants the following against defects in material and workmanship for one year from the original spa purchase date.

- Pump Seal & Shaft
- LED Lighting Controller, power supply, and lights.
- Stereo & Bluetooth Components including controls, power supply, and speakers.
- Ozonator
- UV System (UV bulb is excluded from this warranty and is warranted for 90 days).
- TPS System & Controls
- Control valves including air, water features, and diverter valves.

- Jet Inserts*

*Labor is excluded as these are defined as and deemed an “Easily Removed Component (ERC)” and will be repaired or replaced at an authorized Clearwater Spa/Service Dealer.

Other Warranty

Clearwater warrants the following against defects in material and workmanship through **time of delivery**. No labor claim can be made against these items and is excluded from our warranty.

- Headrests, Cartridge Filters, Fuses, Jet Facings, and motor/pump power cords.
- Filter Covers and Bistro Tables (select models). Replacement of these parts are not guaranteed to have a matching color to the original.
- Filter Baskets & Skimmers
- Gaskets or O-Rings within pump(s), heater unions, and valves.
- The insulated spa cover and other spa accessories attached to the spa AFTER date of manufacture are not covered by this limited warranty. Please refer to your dealer for details regarding those product’s separate warranty coverage.

PERFORMANCE OF WARRANTY

Please register your spa within 7 days of delivery. You can register your new spa at

www.clearwaterspas.com/register. Your spa must be registered before any authorized warranty service work can be performed.

In the event of a covered defect under this Limited Warranty, Clearwater or its’ agent will make repair in accordance with conditions contained in this Limited Warranty. In doing so, Clearwater reserves the right, at its’ option, to either repair or replace the defective spa or component.

The homeowner is required to provide full access to the spa cabinet’s entire service side panels, without obstruction, to service all internal components. There will be no charge for parts or labor to repair the spa, however, you may incur a core-charge and shipping on the parts as well as a reasonable repair-person travel and

mileage charge by the servicing company. Clearwater reserves the right to use either new or reconditioned replacement parts and they will carry the balance of the original part's warranty. If the covered defect cannot be repaired in the field, as determined by Clearwater, we reserve the right to have the spa shipped to the factory for repair or provide a replacement/exchange spa of equal value. In such an event, the spa owner will be solely responsible for the cost associated with the removal and shipping costs to the factory of the defective spa, shipping costs from the factory of the repaired/replacement spa, and the installation of the replacement spa. The replacement spa will carry the balance of the original spa's warranty. The liability of Clearwater under this Limited Warranty, if any, shall not exceed the original amount paid for the defective product. It is the responsibility of the spa owner to notify the factory, in writing, immediately upon discovery of a warranty claim. Neglecting this notification may void your claim.

EXCLUSIONS

The Clearwater Spa limited warranty is void if any of the following occur:

- The spa has been altered, neglected, abused, or misused.
- Damage is caused by the shipping, mishandling, or moving of the spa.
- Any repair is attempted by an unauthorized Clearwater service agent.
- The spa has been used in a commercial setting.
- Damage is caused by an Act of God or another cause outside Clearwater's control.
- Damage is caused by improper installation, operation, or maintenance (including water chemistry) according to the owner's manual or any other printed instructions from Clearwater.
- Damage is caused by the addition of any non-approved chemical substance.
- Damage is caused by subjecting an uncovered, unfilled spa to direct sunlight.
- Damage is caused by the spa's water being outside the temperature range of 32°F-120°F (0°C-49°C).

- Scratches or micro-crazing in the spa shell reported after the day of installation are not covered under the warranty. Micro-crazing is defined as an area of tiny shiny lines visible in area on the surface of some thermoplastic sheets. Additionally, although rare, minor imperfections, mold lines, orange peel on surface are known to occur in many types of plastic vacuum sheet materials. The surfaces of thermoformed acrylic hot tubs are not immune to this possibility and are not covered under the warranty.

LIMITATIONS

All warranties, implied or otherwise, including implied warranties for merchantability and fitness for a particular purpose, are limited to the terms set forth in this warranty. No representative of Clearwater, not its agents, distributors or dealers, has any authority to alter in any manner the terms of this Limited Warranty and Clearwater is not responsible for any undertaking, representation of warranty made by any other person beyond those expressly set forth in this warranty. This Limited Warranty only covers those items manufactured by Clearwater.

DISCLAIMERS

The manufacturer and its' representatives will not be responsible for incidental or consequential damages and 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, cost for removal of defective product and removal of deck or custom surrounding, and water or chemical replacement cost. The liability of the Manufacturer 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 purchase and the duration of such coverage shall not extend for any reason whatsoever beyond the stated time periods. These disclaimers shall be equally applicable to any service provided by the Manufacturer and its designated representatives.

LEGAL REMEDIES

This Limited Warranty gives you specific legal rights. There are no warranties applicable to Clearwater products except as expressly stated herein or as implied by applicable state and federal laws. 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, disclaimer of certain warranties, or the exclusion or limitation of incidental or consequential damages so some of the above limitations may not apply to you.

