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# Patio & Patio Plus



LTR.2025.1036

1/1/2025

*CalSpas*®



Made in USA



Calspas Home Resorts™

Owners Manual



Congratulations! You are now the owner of the finest spa built. Now you will experience true comfort and relaxation as you never had before. We at Cal Spas® focus on quality, design and comfort in order to create a truly luxurious experience like no other.

Welcome to the Cal Spas® family.

It is important that you register your Cal Spas product as soon as possible. By taking just a few quick minutes to register, you can enjoy product alerts, more efficient support, and quicker service. Go to <https://calspas.com/register-your-spa.php>. Fill in your information and click "SEND WARRANTY INFO"

### Locating the product serial number

The serial number of your spa is located on a metal plate attached to the right side of the spa panel. You will need this number to properly register your spa and activate coverage. Write this information in the space provided below.

Spa Model: \_\_\_\_\_

Spa Serial Number: \_\_\_\_\_

Date Purchased: \_\_\_\_\_

Date Installed: \_\_\_\_\_

Dealer's Phone Number: \_\_\_\_\_

Dealer's Address: \_\_\_\_\_

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

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1/1/2025 Rev A

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

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

Toll Free: 1-800-CAL-SPAS  
Fax: 1-909-629-3890

# Table of Contents

<b>Important Safety Instructions.....</b>	<b>5</b>	<b>Water Clarity</b>	
Preparing for Your New Spa.....	6	The Four Steps of Water Clarity.....	38
Planning the Best Location.....	6	Water Quality & Terminology.....	39
Preparing a Good Foundation.....	7	Water Testing/ Adding Chemicals.....	40
Clearance for Service access.....	8	Balancing Water Chemistry Levels.....	41
Front Panel Electrical Access.....	8	Sanitation & Shock.....	42
Removing Shipping Materials.....	11	Filtration & Cleaning the Cartridge.....	44
RCD Wiring Requirements & Diagram (Europe).....	12	General Water Care Schedule & Generic Names.....	45
Filling & Powering up the Spa.....	15	Common Water Chemistry Questions.....	46
Priming the Pumps/ Air Lock Bleeding.....	18	Do's and Don'ts.....	47
<b>Operating Your Spa</b>		Bather Load & Ozone Information.....	48
<b>The TP 500 Controller.....</b>	<b>19</b>	Troubleshooting Water Clarity Tips.....	48
Initial Fill up & Spa Behavior.....	20	<b>Cleaning and Maintenance</b>	
Temperature & Temp Ranges.....	21	Removing/Replacing Pillows & Jets.....	50
Ready and Rest Mode.....	22	Draining the Spa.....	51
Set Time of Day/Flip Display.....	23	Cold Climate Draining (Winterization).....	52
Restrict Operation/Lock.....	24	Filter Cartridge information & Vacation Care.....	52
Hold Feature.....	25	Spa Cover Lock Installation.....	53
Adjust Filtration Cycles.....	26	Cleaning the Spa.....	55
Preferences/Reminders.....	27	Using the Freedom Sound System.....	55
Utilities.....	28	<b>Supplemental Information</b>	
General Messages & Error Codes.....	31	Basic Troubleshooting.....	56
Heater Related Codes/Messages.....	32	Thermal Creep.....	58
Sensor Related Codes/Messages.....	33	Replacement Parts.....	60
Reminder Messages.....	35	Warranty Information.....	66
<b>Spa Features &amp; Operations</b>			
LED Lighting.....	36		
Waterfall, and Water/Air Controls.....	36		
Cool Off Seats & Jets.....	37		

# IMPORTANT SAFETY INSTRUCTIONS

## READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY

When using and installing this spa, basic safety precautions should always be followed, including.

### **Danger: RISK OF SEVERE INJURY OR DROWNING!**

- NO DIVING, diving may result in injury or death.
- Do not allow children to be in or around the spa unless a responsible adult supervises them.
- Keep the spa cover on and locked when not in use
- See instructions enclosed with your cover for locking procedures.

### **Danger: SUCTION ENTRAPMENT HAZARD, RISK OF SEVERE INJURY OR DROWNING!**

Suction in suction fittings when broken, damaged, cracked, or unsecured can cause severe injury and or death due to the following entrapment hazards.

- **Body Entrapment:** A negative pressure applied to a large portion of the body or limbs can result in entrapment.
- **Hair Entrapment:** Hair can be sucked in or caught within the suction fitting.
- **Evisceration/Disembowelment Entrapment Risk:** Negative pressure applied directly to the intestines through a damaged/unprotected suction outlet. This can result in Evisceration/Disembowelment.
- 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 the flow rates are compatible.
- The suction fitting is made with chemical resistant plastic, that will last over a finite period of time. This component will degrade and become brittle after constant exposure to sanitizers. When performing maintenance on the spa, inspect suction fittings for any cracks or damage.
- When the spa is in operation, suction is created within the suction fittings. Persons within the spa should not be leaning on, stepping on, or making contact with suction fittings.

### **Danger: RISK OF SEVERE INJURY FROM ELECTRIC SHOCK OR DEATH FROM ELECTROCUTION.**

- Install the spa at least 5 feet (1.5 meters) from all metal surfaces. As an alternative, a spa may be installed within 5 feet (1.5 meters) of metal surfaces if each metal surface is permanently bonded by a minimum of 8 gauge AWG solid copper conductor to the outside of the spas control box.
- DO NOT permit any external electrical appliances, such as lights, telephones, radios, television, etc, within 5 feet (1.5 meters) of the spa. Never attempt to operate any electrical device from inside the spa.
- Replace any damaged power cord immediately.
- Never bury any power cord, a proper conduit must be used.
- Connect to a proper grounding-type receptacle or to a proper grounding post in the GFCI and breaker.

### **Warning: RISK OF HYPERHERMIA (OVER-HEATING) CAUSING SEVERE INJURY, BURNS, WELTS, OR DEATH**

- Water temperature in excess of 104°F (40°C) may be detrimental for your health.
- The spa water 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 young children, and when the spa use exceeds 10 minutes.
- Before using the spa, the user should measure the water temperature since the tolerance of water temperature regulating devices varies.
- **Do not use the spa if drugs, alcohol, or prescription medications were consumed before or during use. In an altered state of mind, the human body can not react properly to changes in temperature. This increases your risk of hyperthermia, injury, drowning, or death.**

**Warning: REDUCE RISK OF HEAT RELATED INJURY OR DEATH**

- Prolonged exposure to hot air or water can induce hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches a level between 3°F (2°C) to 6°F (4°C) above the normal body temperature of 98.6°F (37°C). While using warm spa water has many health benefits, it's important to make sure that your body's core temperature does not rise above 103°F (39.5°C).
- High water temperatures have a high potential for causing fetal damage during pregnancy. Women who are pregnant, or think they are pregnant should always check with their physician prior to spa usage.
- The use of alcohol, drugs or medication before or during spa use may lead to unconsciousness, with the possibility of drowning.
- Persons suffering from obesity, a medical history of heart disease, low or high blood pressure, circulatory system problems or diabetes should consult a physician before using the spa.
- Persons using medications should consult a physician before using the spa since some medications may induce drowsiness or impair judgment. Other medications or drugs may affect heat rate, blood pressure and circulation.

**HYPERTHERMIA**

- Symptoms of excessive hyperthermia include dizziness, lethargy, drowsiness and fainting. The effects of excessive hyperthermia may include:
  - Failure to perceive heat
  - Failure to recognize the need to exit the spa
  - Unawareness to impending hazards
  - Fetal damage to pregnant woman
  - Physical inability to exit spa
  - Unconsciousness

**Swim Spa Temperatures**

- When using a swim spa for exercise or for leisurely swimming, never set the swim spa water temperature above 80°F. Temperatures above 80°F can hinder the body's ability to cool down and cause unnecessary cardiovascular stress.

**WARNING:** People with infectious diseases or diarrhea should not use a spa or hot tub.**WARNING:** To avoid injury, exercise caution when entering or exiting the spa/swim spa.**WARNING:** Do not use the spa or swim spa immediately following strenuous exercise.**WARNING:** Prolonged immersion in a spa or hot tub may be injurious to your health.**CAUTION:** Maintain water chemistry in accordance with the manufacturer's instructions.**WARNING: NO DIVING, diving may result in injury or death.****READ AND SAVE THESE INSTRUCTIONS**

## Pre-Delivery Checklist

Most cities and countries require permits for exterior construction and electrical circuits. In addition, some communities have codes that require residential barriers, such as fencing and/or self closing gates on property to prevent unsupervised children from entering the property. Your dealer can provide information on which permits may be required and how to obtain them prior to the delivery of the spa.

## Planning the Best Location

### Pre-Delivery Checklist

Do not place your spa within 10 feet (3m) of overhead power lines.

### Consider How You Will Use Your Spa

How you intend to use your spa will help you determine where you should position it. For example, will you use your spa for therapeutic purposes? Recreational use? If your spa is intended for recreational use make sure to leave plenty of room around it for activity. If you intend to use the spa for relaxation and therapy, you will probably want to create a specific mood around it

### Plan for Your Environment

If you live in a region where it snows in the winter or rains frequently, place the spa near a house entry. By doing this you will have a space to change clothes and not be uncomfortable.

### Consider Your Privacy

In cold-weather climate, bare trees wont provide much privacy. Take into consideration year round climate when looking for the best privacy options for your spa. Consider the view of your neighbors as well

### Before Delivery

- Plan your delivery route
- Choose a suitable location for the spa
- Lay a 5-8 cm concrete slab
- Install dedicated electric supply

### After Delivery

- Place spa on Slab
- Connect electrical components

### Provide a View with Your Spa

Think about the direction you will be facing when sitting in your spa. Do you have a special landscaped area in your home you find enjoyable? A area that takes advantage of a good view, or a favorite spot that catches a soothing breeze throughout the day.

### Keep Your Spa Clean

In planning your spa's location, consider a location where the path to and from the house can be kept clean and free of debris. Prevent dirt and contaminants from being tracked into the spa. Place a bath mat next to the spa entrance to allow users to clean their feet before going into the spa. Sunscreen and tanning lotions that don't properly absorb into the skin will contaminate the water, adjust filtration times if needed.

**Note:** some sunscreens require application 15-20 minutes before exposure to water.

### Allow for Service Access

Make sure the spa is positioned with access to all side panels to access internal equipment. It is important that all side panels are not blocked.

Many people choose to install a decorative structure around their spa, if you are installing your spa with any type of structure on the outside, such as a gazebo, remember to allow access for service. We recommend designing surrounds for your spa that can easily be moved or lifted off the ground.

**NOTE: We strongly recommend that a qualified, licensed contractor prepare the foundation for your spa. Damage caused by inadequate or improper foundation support is not covered by the warranty. It is the responsibility of the spa owner to provide a proper foundation for the spa.**

Your spa needs a solid and level foundation. The area that it sits on must be able to support the weight of the spa, with water and occupants who use it. If the foundation is inadequate, it may shift or settle after the spa is in place, causing stress that could DAMAGE YOUR SPA SHELL AND FINISH. Place the spa on an elevated 3 to 4" / 30 cm concrete slab. Pavers, gravel, brick, sand, timbers or dirt foundations are **not** adequate to support the spa. If you are installing the spa indoors, pay close attention to the flooring beneath it. Choose flooring that will not be damaged or stained. If you are installing your spa on an elevated wood deck or other structure, it is highly recommended that you consult a structural engineer or contractor to ensure the structure will support the weight of 150 lbs per square foot (732 Kg/m<sup>2</sup>).



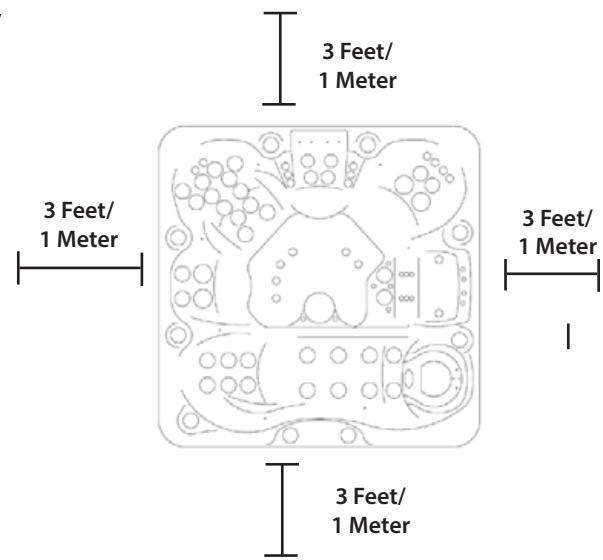
## Clearance for Service Access

While you are planning where to locate your spa, you need to determine how much access you will need for service.

All spa models require a minimum of three feet (one meter), of access to all sides of the spa for potential service. For this reason, the spa should never be placed in a manner where any side is permanently blocked. Examples include placing the spa against a building, structural posts, columns, walls, fences, or raised embankments.

If the spa is surrounded by a deck, ensure that there is easy access for service or repair. Decks should have the ability to be accessed or removed easily, some decks are built in segments for easy removal.

Spas require access in all sides in case they need service or repair. Additional service costs can be applied by the servicing dealer if a crane or additional manpower and equipment is needed to access the internals of the spa.



## Opening the Front Panel For Electrical Access

Cal Spas are designed with innovative snap in panels and corners. In order to access the control box for electrical hook up, plumbing, or pumps inside of your spa, you will need to remove the corner panels and the front panel. The following tutorial is designed to illustrate the process of removing/re-installing any corner panel, and any side panel.



### Caution: Pinch Points.

When snapping panels back into place your spa, be cautious of your hand position. Avoid placing your fingers or hands over the edges of corners or panels, it may result in injury once panels lock into place.

**Before starting, make sure you wear gloves when removing any panel from your spa.**



### Step 1

In order to remove the front panel, the front corners of the spa must be removed prior to removing the front panel.

**Note: Spa corners use support screws as well. Remove the screws from the corners. Do not pull on corners held down by any screw.**



## Step 2

Once the corner is removed, place aside with great care of not bending or stepping on the corner.

Repeat the removal process with the remaining corner(s) based on your service access needs.

## Step 3

Once both corners are removed, place one hand under the front panel and one hand on either corner.

Once prepared, pull both the center and your chosen corner at the same time to release the panel.

Caution: Brace for the weight of the panel once it is removed. Failure to do so can result in injury such as pinched fingers, cuts, or other injuries.



## Step 4

Once the panel is removed, use the wooden support boards to move your panel around if needed.

**Note: Do not move your spa panel using the white clamp in mechanism.**



## Step 5

Once the front panel has been removed, your electrician or contractor may perform the necessary electrical work to power the spa.

Once the required work is completed, retrieve the panel and align the cabinet mounted plastic clamp with the bottom spa mounted plastic retainer.

**Note: In order for the panel to align, the plastic clips must be leveled with each other. If the panel is misaligned, remove and reinstall the panel.**



## Step 6

Once the panel is aligned, apply medium pressure to the bottom center of the panel to secure it into place. Similarly apply pressure to the top center of the panel as well. You may also use the bottom of your fist to tap the panel back into place.

**Note: The panels are secured once you hear and feel a *thump* securing the plastic clamp together with the base.**



## Step 7

Upon securing the front panel, proceed with installing the corners.

Similarly to how the corners were removed, align the corner with the lip of the spa, and ensure the top of the corner is under the black weather stripping of the spa shell. Reinstall the removed screws to secure the corner in place.



## Removing Shipping Materials



Your Cal Spa is wrapped with a white shrink wrap designed to protect the acrylic shell from scratches and damage. Thoroughly inspect the plastic wrapping for any tears and or damage that may have occurred during shipping. It is expected to see some scuffs or small tears at the base and corners of the spa, as the spa is pushed and shifted around in transport.

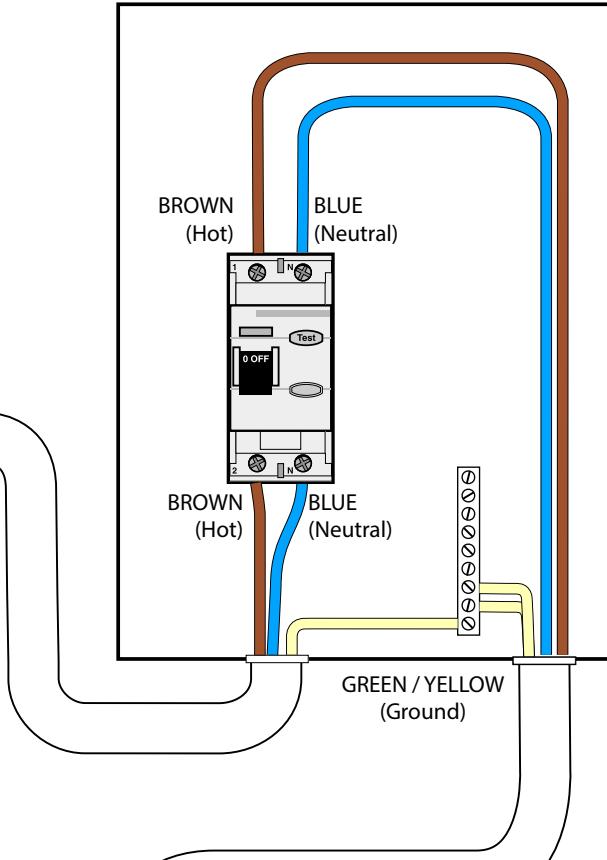
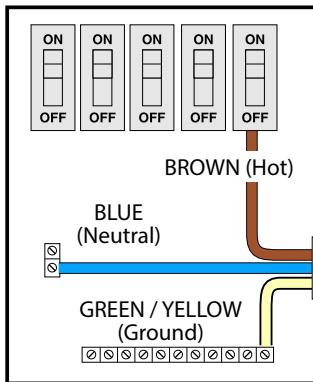
**Use a stainless steel cleaner or a damp microfiber towel to remove any residue or dust from the plastic wrapping if your spa is equipped with corners that have a stainless steel finish. Never spray directly onto the stainless steel trim or decor, spray onto a microfiber towel and wipe clean.**



Depending on the type of spa, a piece of wood is placed on the side panels of the spa to protect it in shipping. The wooden supports are installed with several  $7/16$ " (11mm) bolts, once the spa is in its final resting place, remove these with an 11mm socket.

For spas manufactured for use in Europe the following diagrams will provide insight for electricians installing electrical service for the spa. Equipment packs inside of the spa vary based on selected options, **Electricians installing a new service line must read the diagram inside of the spas control box to properly install the spa. Damage caused by incorrect installation is not covered under warranty.**

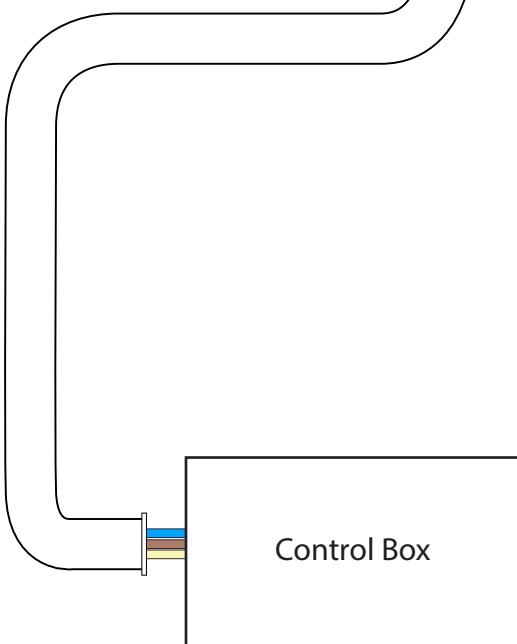
## Spas Built With 1-2 Pumps



One 32A RCD

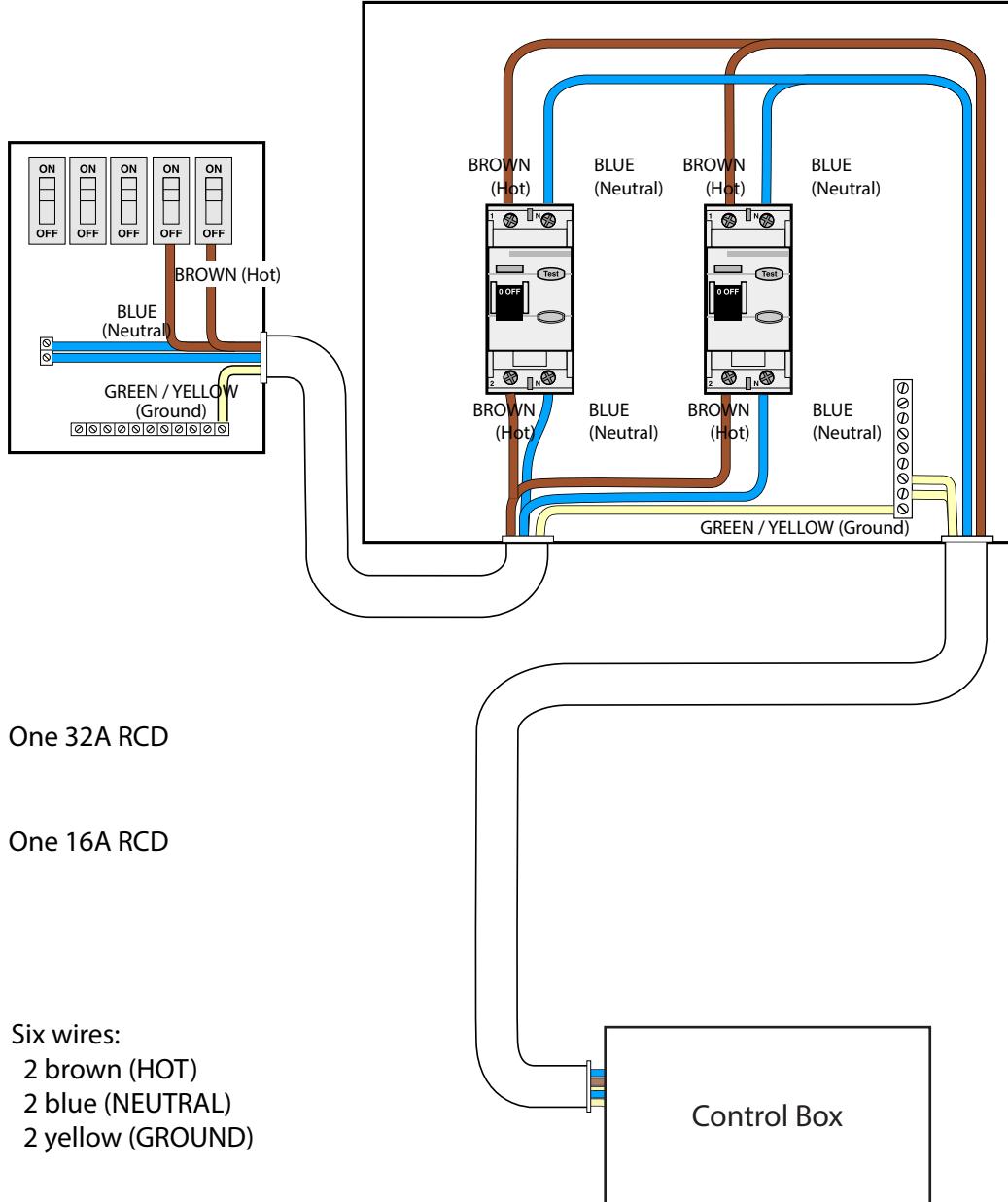
Three wires:

- 1 brown (HOT)
- 1 blue (NEUTRAL)
- 1 yellow (GROUND)



For spas manufactured for use in Europe the following diagrams will provide insight for electricians installing electrical service for the spa. Equipment packs inside of the spa vary based on selected options, **Electricians installing a new service line must read the diagram inside of the spas control box to properly install the spa. Damage caused by incorrect installation is not covered under warranty.**

## Spas Built With 3-4 Pumps



All 240 Volt spas must be professionally installed by a contractor or an electrician. Electrical installation must follow local and municipal regulations/standards for safe and proper operation. Failure to properly follow electrical code may result in poor performance, risk of fire, injury or death.

**6mm<sup>2</sup> (10AWG) copper wire must be used when installing this unit\*.  
 DO NOT USE ALUMINUM WIRES.**

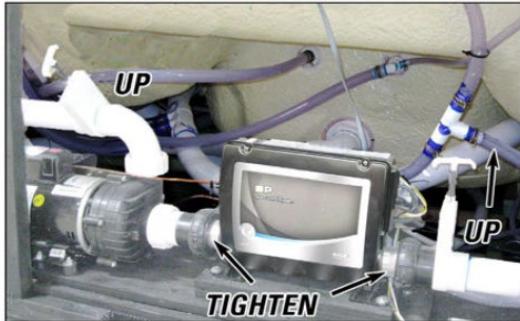
\*When total circuit length is less than 25 meters



## Step 1. Inspect the Spa Equipment.

Inspect all plumbing connections in the equipment area of your spa.

- Make sure unions connected to the equipment pack are tight (do not over-tighten)
- If your spa has gate valves, make sure they are in the upright position.
- Make sure the drain valve is closed and capped.



**Note:** Never run the spa with the gate valve closed or without circulating water for long periods of time.

## Step 2. Remove the Filter Cartridge.

If you have a skimmer like this:



### Teleweir filter skimmer

- 50 square feet filtration
- Spoked cap

Rotate and remove the locking ring (Color may vary). Remove the skimmer cap and barrel, grip the filter by the handle and unscrew it from the canister. Replace and lock the locking ring and slide the skimmer cap and barrel back into the canister. Once the spa is filled you can remove the skimmer cap and barrel again to reinstall the filter.



The skimmer and barrel are locked in place during shipping with a retainer ring. The retainer ring must be unlocked and removed in order to slide the skimmer upward to remove the filter cartridge.



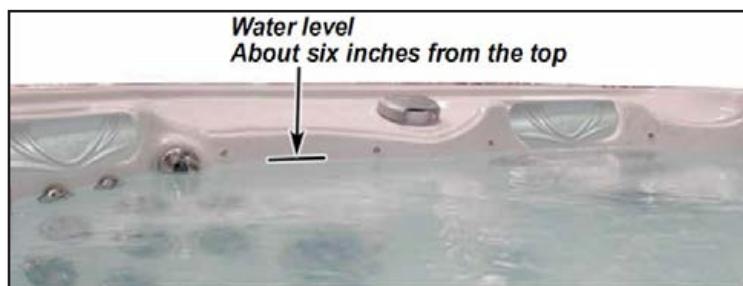
When removing the filter cartridge, you may remove the filter by turning it counter clockwise. The filter must be removed gently to not damage the threaded fitting inside of the filter canister.



After removing the filter, reinstall the retainer ring to the canister, then reinstall the skimmer, this skimmer must be able to move up and down with your water level. In the following step you will fill your spa with water through the filter canister.

### Step 3. Fill the Spa

Place the water hose inside the filter canister. Fill your spa with regular tap water about six inches from the top. If the water level is too low or too high, your spa will not operate correctly.



**NOTE: Never fill with soft water.**

Soft water made through some home filtration systems make it impossible to maintain proper water chemistry, and may cause water foaming. This can damage the finish of the spa and void your warranty.

**You may fill your spa with well water, but only if the following preconditions are followed.**

1. Purchase and use a pre-filter that can attach to the end of a hose. This pre-filter is absolutely necessary in order to remove reactive metals and other dissolved solids that are found in well water.
2. Perform a Total Dissolved Solids (TDS) and metals test, this can be performed by a qualified person after filling up the spa, before initial use. Most Dealers and pool supply stores can perform this test.

### Step 4. Power Your Spa

When the spa is filled to the correct level, turn on the power at the GFCI breaker (ensure that the 120V spas are connected to their dedicated proper electrical outlet.)



### Step 5. Prime the Main Pump

The system will enter priming mode when powered up for the first time. **Priming Mode** will scroll through the display on the control panel. In this mode all devices including pumps and lights are operable, you may press the jet buttons on and off to help prime the pumps. After a few minutes the system will exit priming mode.

## Step 6. Install filter into the filter canister



**Note:** Make sure you have removed and soaked the spa filter cartridge in a bucket of water for at least 30 minutes. This will remove air pockets inside of the filter.

When re installing the filter cartridge, do not over tighten the filter, the threaded bit inside of the filter housing is made of a corrosion resistant ABS plastic. Excessive torque will break the internal threads within the filter housing.

## Step 7. Test and Adjust Water Chemistry

Test and adjust the water chemistry.

## Step 8. Let the Spa Heat Up

After a period of 5-15 minutes the priming mode will finish. The heater will then activate, put the spa cover on and let the spa heat to the desired set temperature.

During the initial power up the spa, it will consume a large amount of energy to raise the water in the tub to your desired hot tub temperature. Cal Spas are designed for high efficiency, once the temperature within the spa is reached, the spa will use lower amounts of energy to maintain the temperature.

***Note:** Cal Spas are designed to retain heat, if it is desired to lower the water temperature the spa does not contain a cooling feature. To lower internal temperature of the spa, lower the set temperature on the control panel and open the tub during the evening or night to help release the heat captured within. You may also drain 1/4 of the water within and refill with new water to lower temperatures rapidly.*

## Priming the Pump

New owners often have difficulty the first time they start their spa and the pumps fail to prime. This can be frustrating but these instructions should help you resolve any issues with air pockets inside of the primary pump or other priming issues.

Sometimes air can become trapped in the primary pump while filling up the spa, although this should be preventable by filling your spa through the filter basket, there is a chance that an air pocket can still form even when following the proper steps. Initially it may seem that the pump is not working, with some sound coming from the pump but no water movement.

**Note: When a pump has an airlock, continuing to operate the pump experiencing an air pocket issue can damage the pump. Do not operate the pump until this airlock issue is fixed.**

### Start Up: Priming Mode

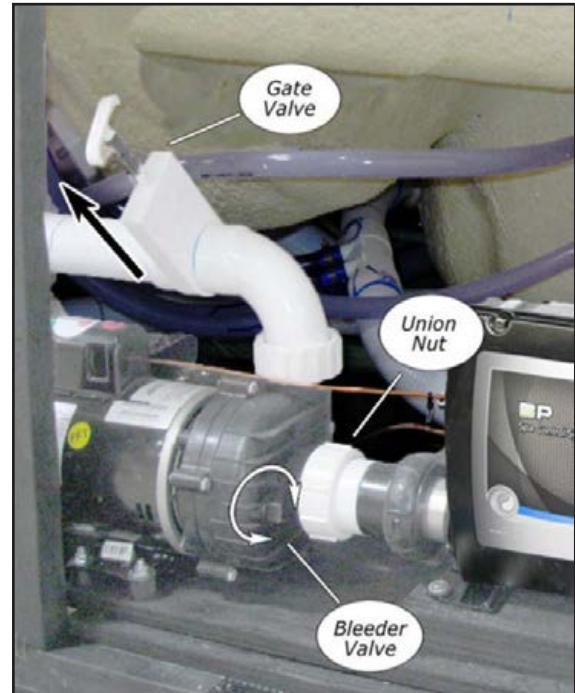
When the spa is powered up for the first time, the spa will enter priming mode. During this mode all devices within the spa are operational. You may wait for 10-15 minutes for the heater to engage, this period of time resets when a secondary pump is activated or if the primary pump is activated for high speed.

The spa will automatically exit priming mode.

### Bleeding Air from the Pump

If you have tried priming the pump by pressing the jet or jet 1 button on and off again with no results, you will need to bleed the pump manually.

1. Shut off power to the spa.
2. Using a philips head screwdriver, remove the front panel from the spa directly underneath the control panel, and locate the main pump.
3. Ensure that the gate valves are open
4. Place rags or towels under the plastic wet end of the pump where the spa plumbing connects into the pump
5. On the plastic wet end there will be a plastic hex headed bleeder valve that can be opened to bleed air trapped inside of the pump
6. Do not fully remove the nut, there are grooves within the nut that allows air to escape. Water will begin to trickle once the air pocket has been removed, tighten down the screw again with light torque.
7. If bleeding the pump is unsuccessful, loosen the pump unions with plumbing channel locks to remove any trapped air between the pump and the heater.
8. Turn the spa power back on and press the Jet button to prime the pump again.



# Main Menus

## Navigation / TP-500

Navigating the entire menu structure is done with 2 or 3 buttons on the control panel.



Some panels have separate WARM (Up) and COOL (Down) buttons, while others have a single Temperature button. In the navigation diagrams Temperature buttons are indicated by a single button icon.

Panels that have two Temperature buttons (Warm and Cool) can use both of them to simplify navigation and programming where a single Temperature icon is shown. The MENU/SELECT Button is used to choose the various menus and navigate each section.

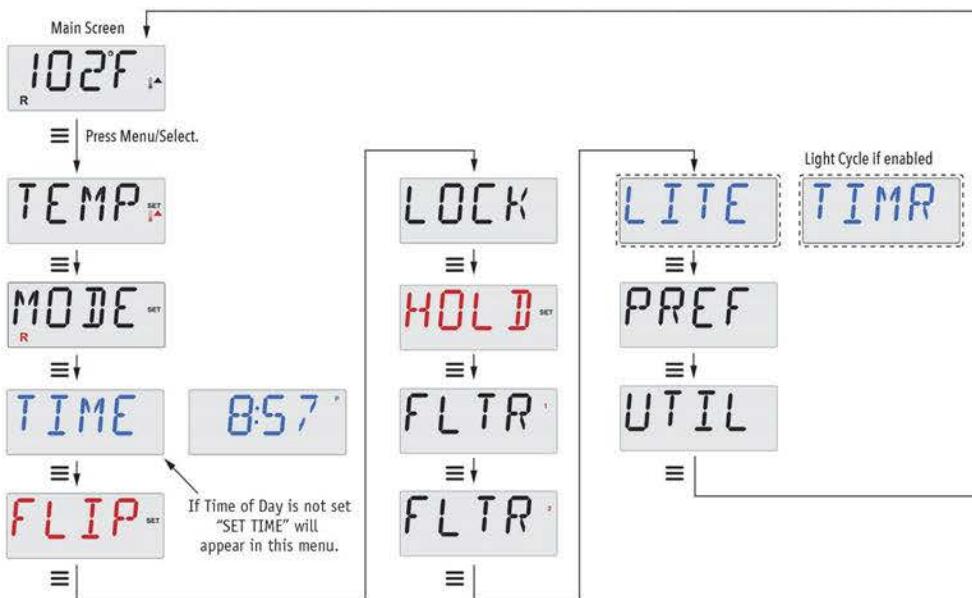
Typical use of the Temperature button(s) allows changing the Set Temperature while the numbers are flashing in the LCD. The menus can be exited with certain button presses. Simply waiting for a few seconds will return the panel operation to normal.

### Key

- Indicates Flashing or Changing Segment
- Indicates Alternating or Progressive Message - every 1/2 second
- ⌚ A temperature button, used for "Action"
- ≡ Menu/Select button
- Waiting time that keeps the last change to a menu item.
- \*\*\*\*\* Waiting time (depends on menu item) that reverts to original setting and ignores any change to that menu item.

### Power-up Screens

Each time the System powers up, a series of numbers is displayed. After the startup sequence of numbers, the system will enter Priming Mode



Indicates a Menu Item that Depends on a Manufacturer Configuration and may or may not appear.



Waiting a few seconds in the Main Menu will allow the display to revert to the Main Screen. Most changes are not saved unless Menu/Select ≡ is pressed. Refer to key above.

# Spa Behavior

## Pumps

Press the "Jets" button once to turn pump 1 on or off, and to shift between low and high speeds if equipped. If left running, the pump will turn off after a time-out period.

On non-circ systems, the low-speed of pump 1 runs when the blower or any other pump is on. If the spa is in Ready Mode (See page 6), Pump 1 low may also activate once in a while for at least 1 minute to detect the spa temperature (polling) and then to heat to the set temperature if needed. When the low-speed turns on automatically, it cannot be deactivated from the panel, however the high speed may be started.

### Circulation Pump Modes

If the system is equipped with a circ pump, it will be configured to work in one of three different ways:

- 1, The circ pump operates continuously (24 hours) with the exception of turning off for 30 minutes at a time when the water temperature reaches 3°F (1.5°C) above the set temperature (most likely to happen in very hot climates).
- 2, The circ pump stays on continuously, regardless of water temperature.
- 3, A programmable circ pump will come on when the system is checking temperature (polling), during filter cycles, during freeze conditions, or when another pump or blower is on.

The specific Circulation Mode that is used has been determined by the Manufacturer and cannot be changed in the field.

## Filtration and Ozone

On non-circ systems, Pump 1 low and the ozone generator will run during filtration. On circ systems, the ozone will run with the circ pump.

The system is factory-programmed with one filter cycle that will run in the evening (assuming the time-of-day is properly set) when energy rates are often lower. The filter time and duration are programmable.

A second filter cycle can be enabled as needed.

At the start of each filter cycle, all water devices (other than the primary pump) will run briefly to purge the plumbing to maintain good water quality. The term "water devices" includes the Blower.

## Freeze Protection

If the temperature sensors within the heater detect a low enough temperature, then the pump(s) and the blower automatically activate to provide freeze protection. The pump(s) and blower will run either continuously or periodically depending on conditions.

In colder climates, an optional freeze sensor may be added to protect against freeze conditions that may not be sensed by the standard sensors. Auxiliary freeze sensor protection acts similarly except with the temperature thresholds determined by the switch. See your dealer for details.

## Clean-up Cycle (optional)

When a pump or blower is turned on by a button press, a clean-up cycle begins 30 minutes after the pump or blower is turned off or times out. The pump and the ozone generator will run for 30 minutes or more, depending on the system. On some systems, you can change this setting.

## Priming Mode - MO19\*

This mode will last for 4-5 minutes or you can manually exit the priming mode after the pump(s) have primed.



Regardless of whether the priming mode ends automatically or you manually exit the priming mode, the system will automatically start normal heating and filtering at the end of the priming mode. During the priming mode, the heater is disabled to allow the priming process to be completed without the possibility of energizing the heater under low-flow or no-flow conditions. Nothing comes on automatically, but the pump(s) can be energized by pushing the "Jets" or "Aux" buttons.

If the spa has a Circ Pump, it can be activated by pressing the "Light" button during Priming Mode.

# Temperature and Temp Range

## Adjusting the Set Temperature

When using a panel with Up and Down buttons (Temperature buttons), pressing Up or Down will cause the temperature to flash. Pressing a temperature button again will adjust the set temperature in the direction indicated on the button. When the LCD stops flashing, the spa will heat to the new set temperature when required.

If the panel has a single temperature button, pressing the button will cause the temperature to flash. Pressing the button again will cause the temperature to change in one direction (e.g. UP). After allowing the display to stop flashing, pressing the Temperature Button will cause the temperature to flash and the next press will change the temperature in the opposite direction (e.g. DOWN).

## Press-and-Hold

If a Temperature button is pressed and held when the temperature is flashing, the temperature will continue to change until the button is released. If only one temperature button is available and the limit of the Temperature Range is reached when the button is being held, the progression will reverse direction.

## Dual Temperature Ranges

This system incorporates two temperature range settings with independent set temperatures. The High Range designated in the display by a thermometer and an "up" arrow, and the Low Range designated in the display by a thermometer and "down" arrow.

These ranges can be used for various reasons, with a common use being a "ready to use" setting vs. a "vacation" setting. The Ranges are chosen using the menu structure below. Each range maintains its own set temperature as programmed by the user. This way, when a range is chosen, the spa will heat to the set temperature associated with that range.

For example:

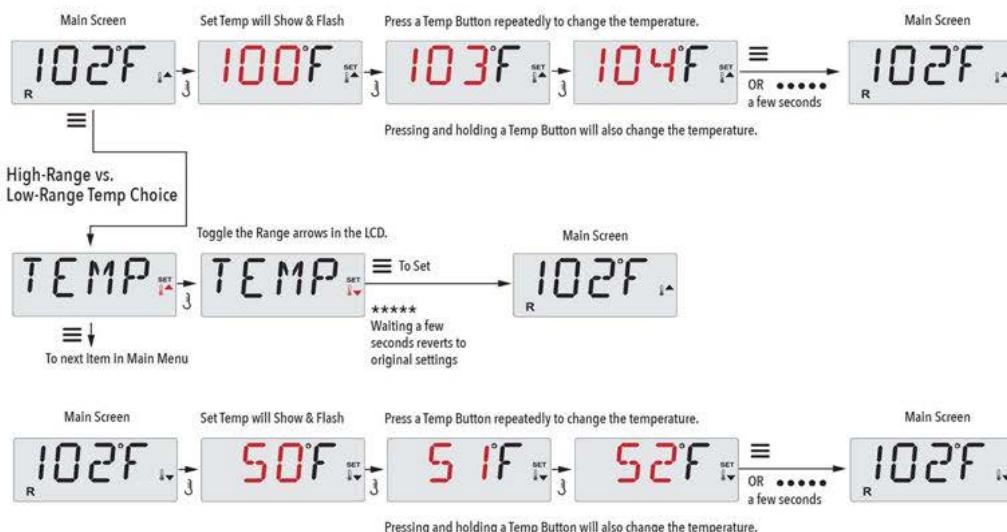
*High Range might be set between 80°F and 104°F.*

*Low Range might be set between 50°F and 99°F.*

*More specific Temp Ranges may be determined by the Manufacturer. Freeze Protection is active in either range.*

### Key

- █ Indicates Flashing or Changing Segment
- █ Indicates Alternating or Progressive Message - every 1/2 second
- █ A temperature button, used for "Action"
- ≡ Menu/Select button
- \*\*\*\*\* Waiting time that keeps the last change to a menu item.
- \*\*\*\*\* Waiting time (depends on menu item) that reverts to original setting and ignores any change to that menu item.



# Mode – Ready and Rest

In order for the spa to heat, a pump needs to circulate water through the heater. The pump that performs this function is known as the "primary pump."

The primary pump can be either a 2-Speed Pump 1 or a circulation pump.

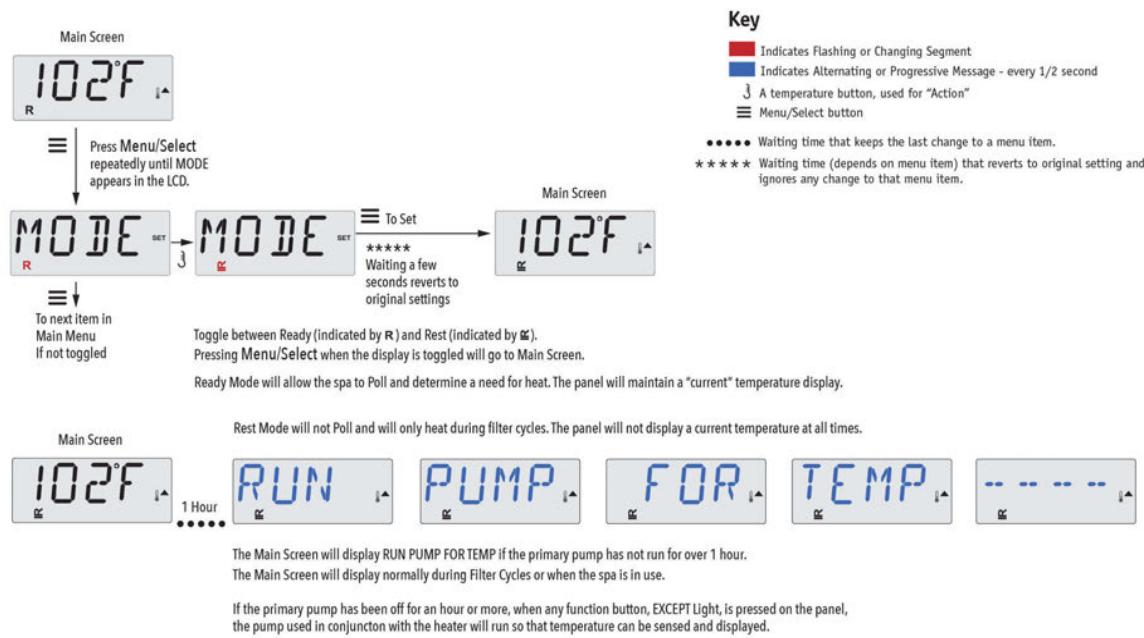
If the primary pump is a 2-Speed Pump 1, Ready Mode (indicated by **R**) will circulate water periodically, using Pump 1 Low, in order to maintain a constant water temperature, heat as needed, and refresh the temperature display. This is known as "polling."

Rest Mode (indicated by **RS**) will only allow heating during programmed filter cycles. Since polling does not occur, the temperature display may not show a current temperature until the primary pump has been running for a minute or two.

Circulation Mode (See Page 4, under Pumps, for other circulation modes)

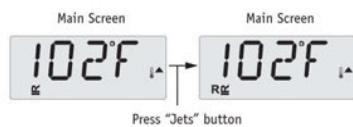
If the spa is configured for 24HR circulation, the primary pump generally runs continuously. Since the primary pump is always running, the spa will maintain set temperature and heat as needed in Ready Mode, without polling.

In Rest Mode, the spa will only heat to set temperature during programmed filter times, even though the water is being filtered constantly when in Circulation Mode.



## Ready-in-Rest Mode

**R RS** appears in the display if the spa is in Rest Mode and "Jets" is pressed. It is assumed that the spa is being used and will heat to set temperature. The primary pump will run until set temperature is reached, or 1 hour has passed. After 1 hour, the System will revert to Rest Mode. This mode can also be reset by entering the Mode Menu and changing the Mode.



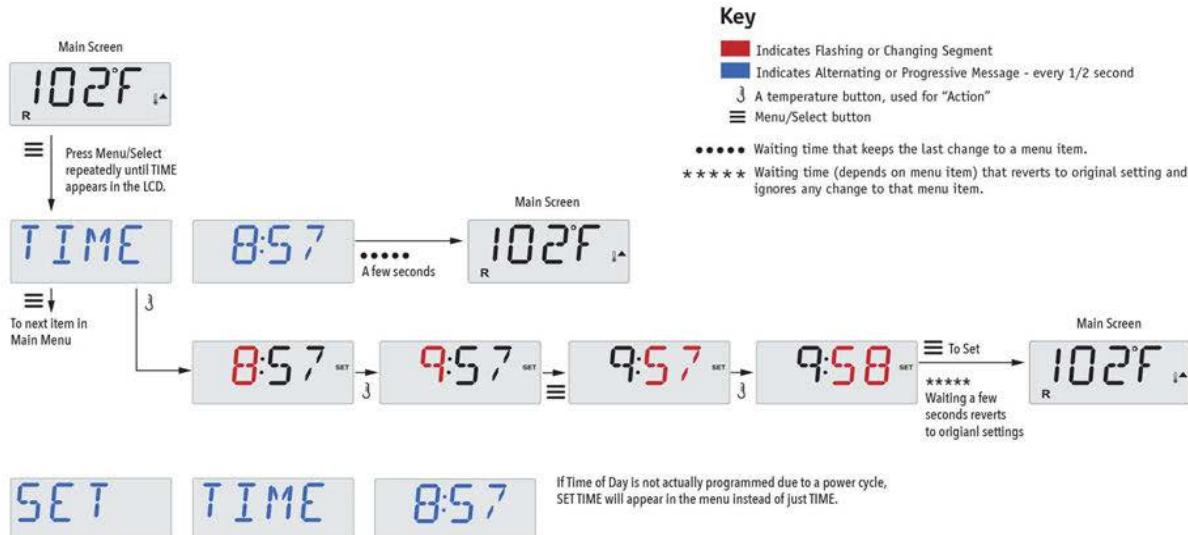
# Show and Set Time-of-Day

Be sure to set the Time-of-Day

Setting the time-of-day can be important for determining filtration times and other background features.

When in the TIME menu, SET TIME will flash on the display if no time-of-day is set in the memory.

24-hour time display can be set under the PREF menu.



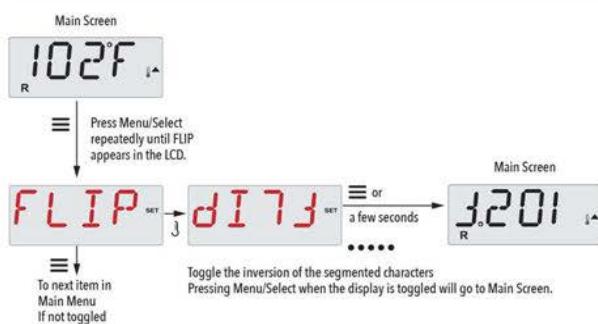
## Note:

This note refers to systems that do not keep track of Time-of-Day when powered down.

If power is interrupted to such a system, Time-of-Day is not stored. The system will still operate and all other user settings will be stored. If filter cycles are required to run at a particular time of day, resetting the clock will return the filter times to the actual programmed periods.

When such a system starts up, it defaults to 12:00 Noon, so another way to get filter times back to normal is to start up the spa at noon on any given day. SET TIME will still flash in the TIME Menu until the time is actually set, but since the spa started at noon, the filter cycles will run as programmed.

# Flip (Invert Display)



# Restricting Operation

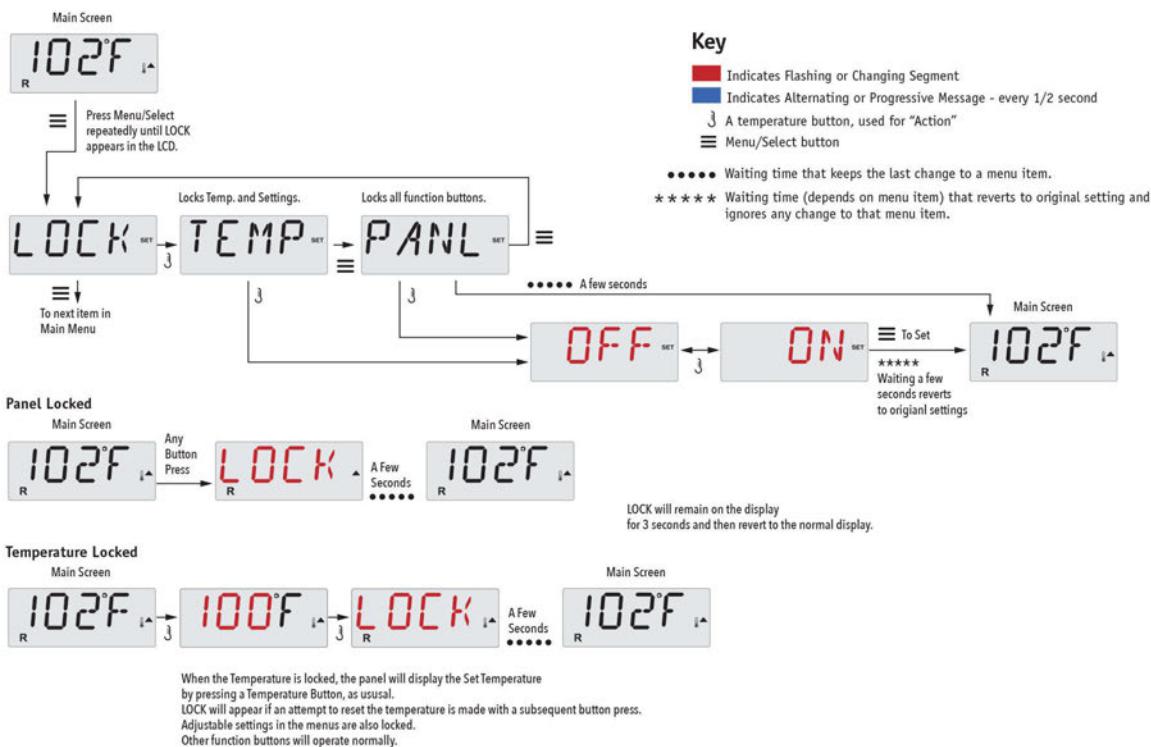
The control can be restricted to prevent unwanted use or temperature adjustments.

Locking the panel prevents the controller from being used, but all automatic functions are still active.

Locking the Temperature allows Jets and other features to be used, but the Set Temperature and other programmed settings cannot be adjusted.

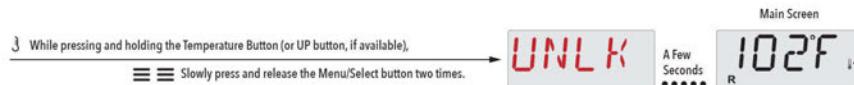
Temperature Lock allows access to a reduced selection of menu items.

These include Set Temperature, FLIP, LOCK, UTIL, INFO and FAULT LOG.



## Unlocking

This Unlock sequence may be used from any screen that may be displayed on a restricted panel.



NOTE: If the panel has both an UP and a Down button, the ONLY button that will work in the Unlock Sequence is the UP button.

The temperature will not Unlock if the Unlock sequence is done while the panel is displaying "LOCK".

# Hold (Standby)

## Hold Mode –MO37\*

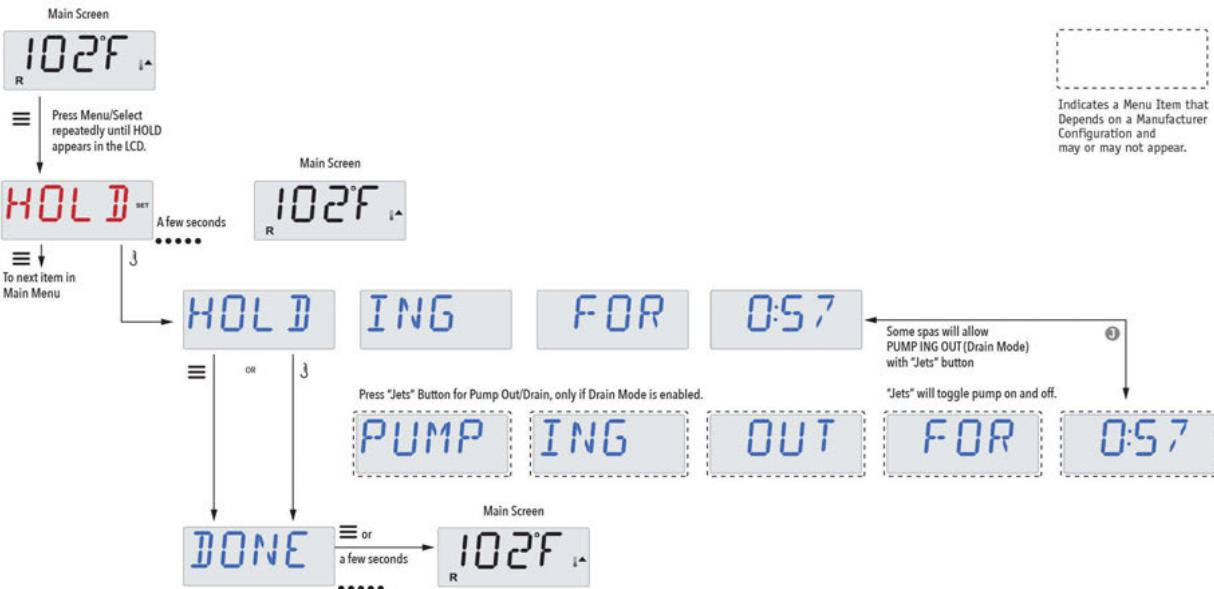
Hold Mode is used to disable the pumps during service functions like cleaning or replacing the filter. Hold Mode will last for 1 hour unless the mode is exited manually.

### Drain Mode

Some spas have a special feature that allows a pump to be employed when draining the water. When available, this feature is a component of Hold Mode. Drain Mode will time out with Hold Mode.

#### Key

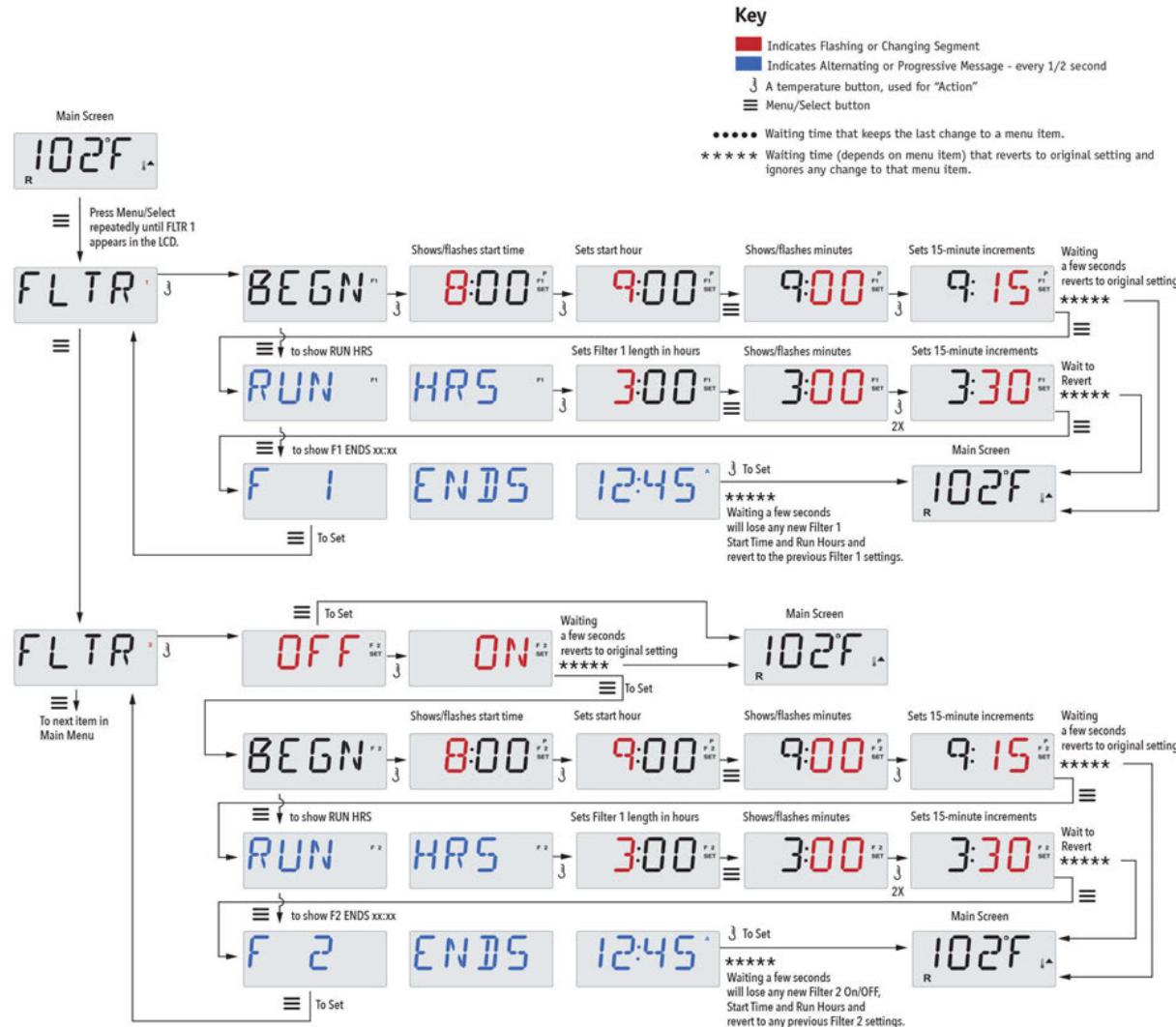
- Indicates Flashing or Changing Segment
- Indicates Alternating or Progressive Message - every 1/2 second
- ⌚ A temperature button, used for "Action"
- ≡ Menu/Select button
- \*\*\*\*\* Waiting time that keeps the last change to a menu item.
- \*\*\*\*\* Waiting time (depends on menu item) that reverts to original setting and ignores any change to that menu item.



# Adjusting Filtration

## Main Filtration

Filter cycles are set using a start time and a duration. Start time is indicated by an "A" or "P" in the bottom right corner of the display. Duration has no "A" or "P" indication. Each setting can be adjusted in 15-minute increments. The panel calculates the end time and displays it automatically.



## Filter Cycle 2 - Optional Filtration

Filter Cycle 2 is OFF by default.

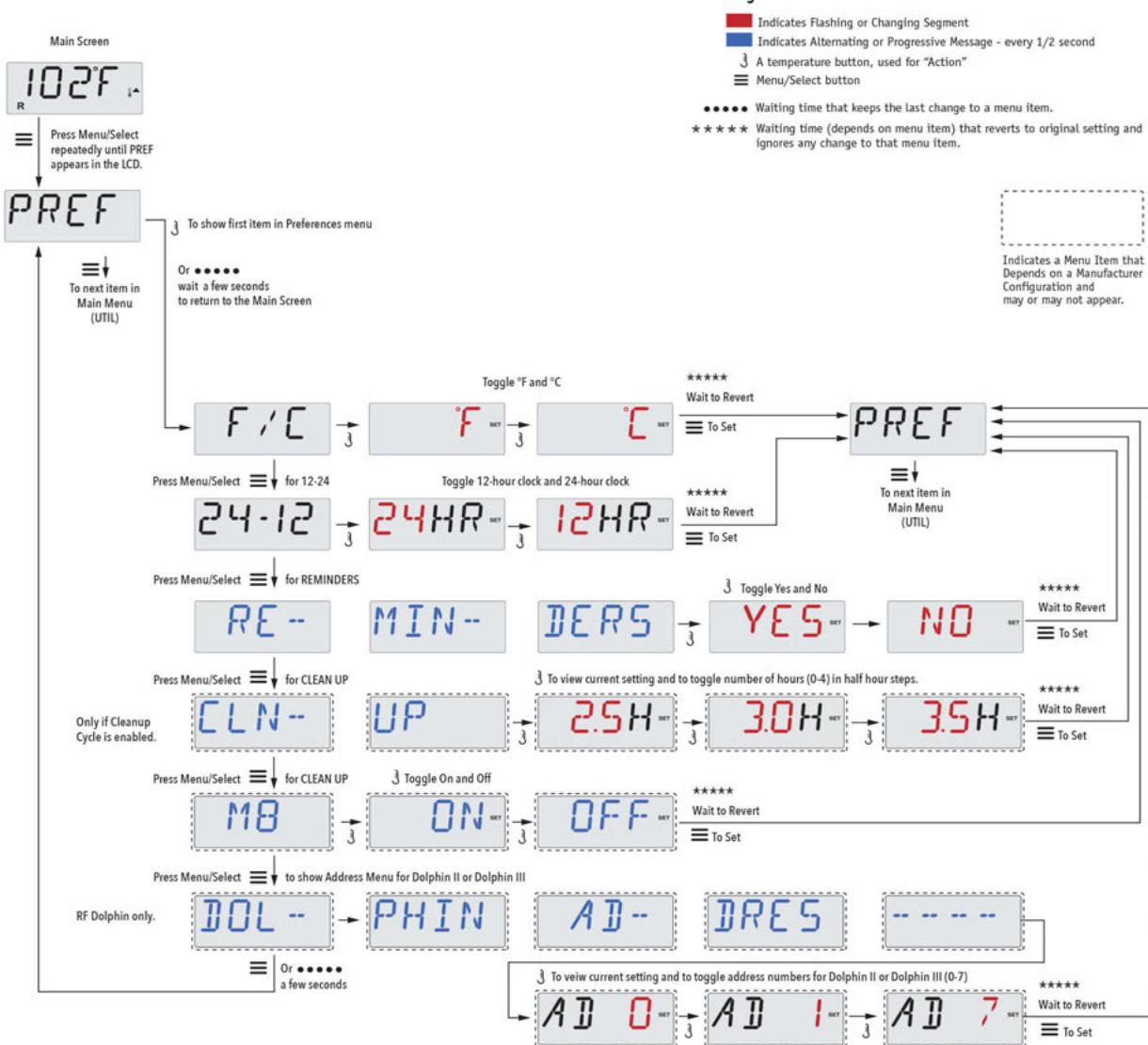
It is possible to overlap Filter Cycle 1 and Filter Cycle 2, which will shorten overall filtration by the overlap amount.

## Purge Cycles

In order to maintain sanitary conditions, secondary Pumps and/or a Blower will purge water from their respective plumbing by running briefly at the beginning of each filter cycle.

If Filter Cycle 1 is set for 24 hours, enabling Filter Cycle 2 will initiate a purge when Filter Cycle 2 is programmed to begin.

# Preferences



## F / C (Temp Display)

Change the temperature between Fahrenheit and Celsius.

## 12 / 24 (Time Display)

Change the clock between 12 hr and 24 hr display.

## RE-MIN-DERS (Reminders)

Turn the display of reminder messages (like "Clean Filter") On or Off.

Note: Reminders continue to run in the background even when not displayed. So turning the display of Reminders On or Off does not reset any Reminder counts.

## CLN-UP (Cleanup)

Cleanup Cycle Duration is not always enabled, so it may not appear. When it is available, set the length of time Pump 1 will run after each use. 0-4 hours are available.

# Additional Utilities

---

## Utilities

In addition to INFO, The Utilities Menu contains the following:

### *A / B* (A/B Sensor Temperatures)

When this is set to On, the temperature display will alternate to display temperature from Sensor A and Sensor B in the heater.

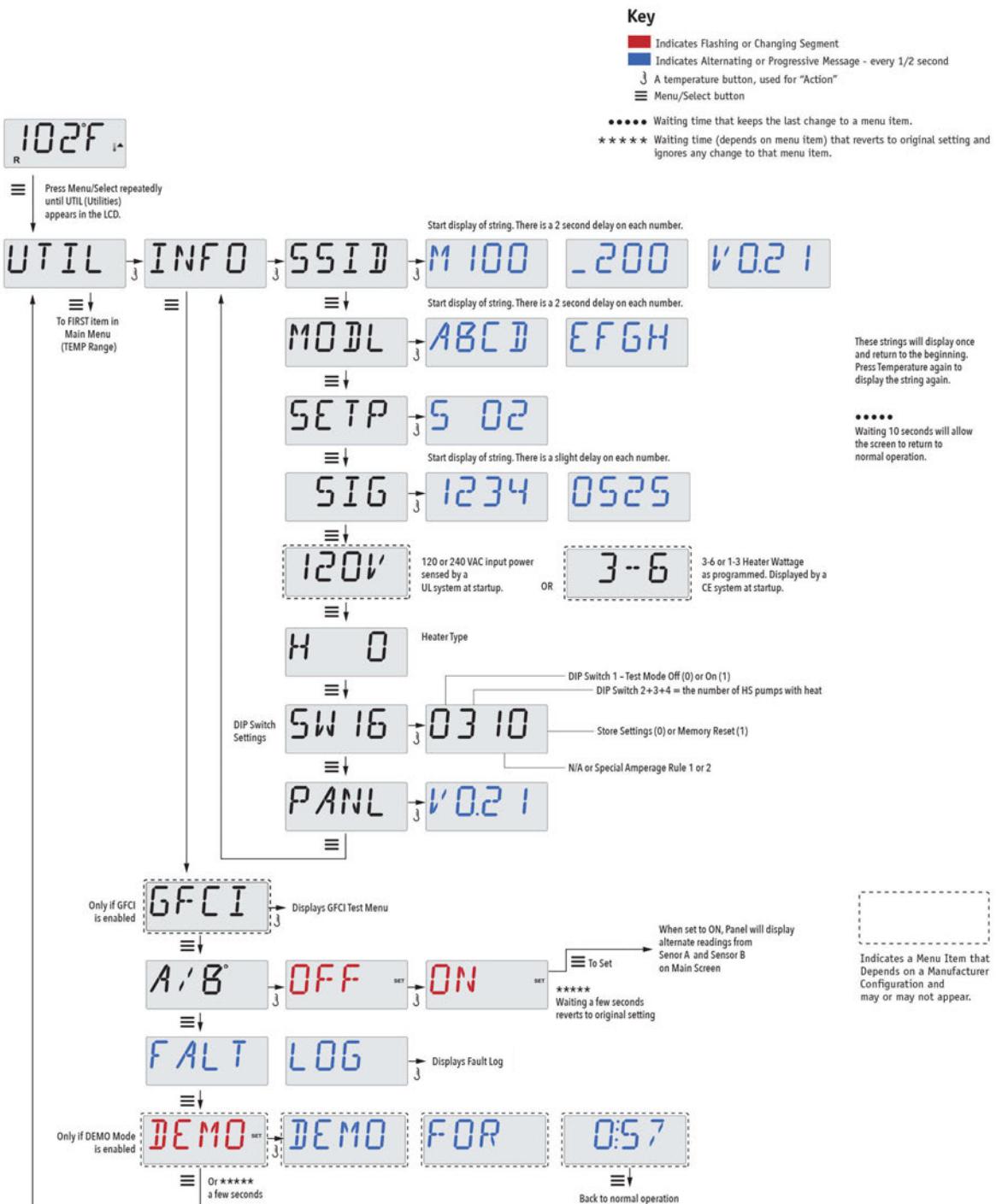
### *FALT LOG* (Fault Log)

The Fault Log is a record of the last 24 faults that can be reviewed by a service tech.

### *DEMO* (Demo Mode)

Demo Mode is not always enabled, so it may not appear. This is designed to operate several devices in a sequence in order to demonstrate the various features of a particular hot tub.

# Utilities

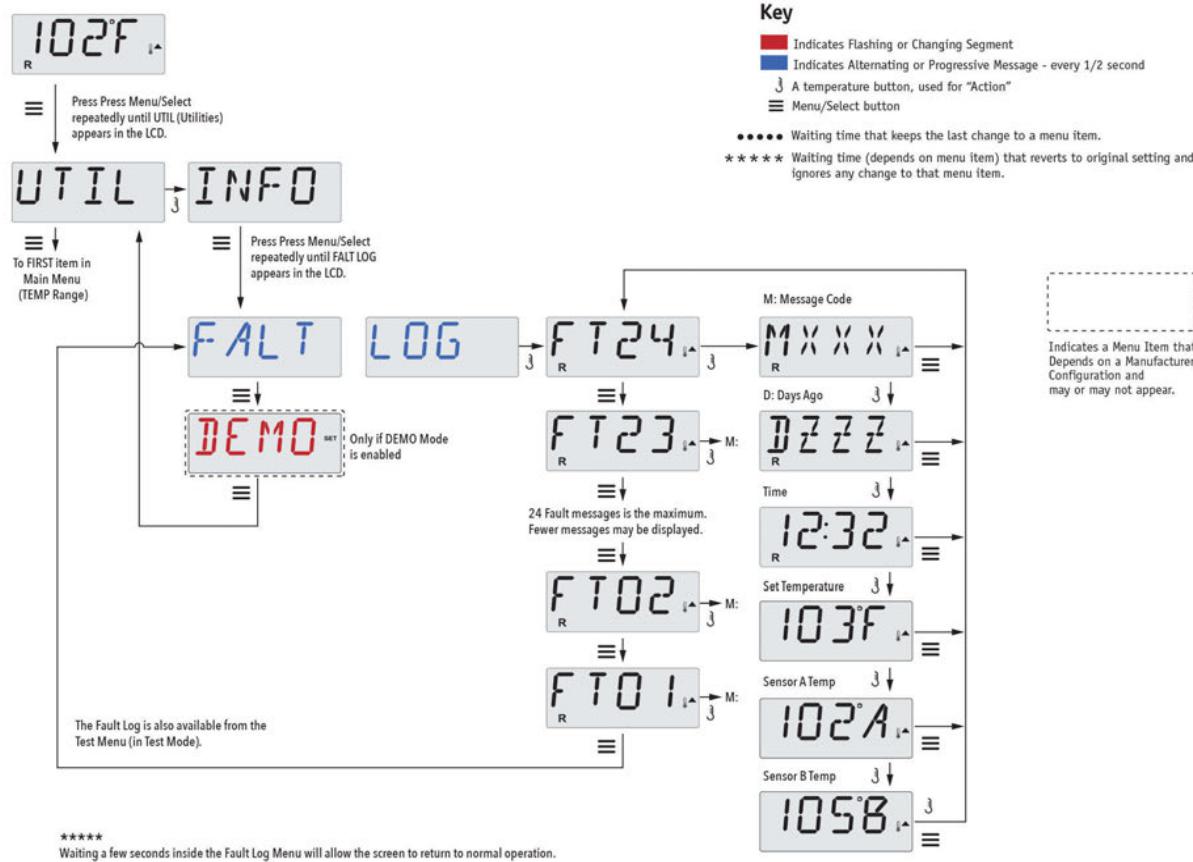


# Utilities – Fault Log

## A Little History can tell a lot

The Fault Log stores up to 24 events in memory and they can be reviewed under the Fault Log Menu.

Each event captures a Fault Message Code, how many days have passed since the fault, Time of the fault, Set Temperature during the fault, and Sensor A and B temperatures during the fault.



# General Messages



## Priming Mode – MO19

Each time the spa is powered up, it will enter Priming Mode. The purpose of Priming Mode is to allow the user to run each pump and manually verify that the pumps are primed (air is purged) and water is flowing. This typically requires observing the output of each pump separately, and is generally not possible in normal operation. Priming Mode lasts 4 minutes, but you can exit it earlier by pressing any Temp button. The heater is not allowed to run during Priming Mode.

NOTE: If your spa has a Circ Pump, it will turn on with "Light" in Priming Mode. The Circ Pump will run by itself when Priming Mode is exited.



## Water Temperature is Unknown

After the pump has been running for 1 minute, the temperature will be displayed.



## Too Cold - Freeze Protection

A potential freeze condition has been detected, or the Aux Freeze Switch has closed, and all pumps and blower are activated, either one at a time, or all at once, depending on how your system was built. All pumps and blower are ON for at least 4 minutes after the potential freeze condition has ended, or when the aux freeze switch opens.

In some cases, pumps may turn on and off and the heater may operate during Freeze Protection.

This is an operational message, not an error indication.



## Water is too Hot (OHS) – MO29

One of the water temp sensors has detected spa water temp 110°F (43.3°C) and spa functions are disabled. System will auto reset when the spa water temp is below 108°F (42.2°C). Check for extended pump operation or high ambient temp.



## J29 Warning – MO44

J29 is typically used as a Heater Disable input. As such, it should not typically be shorted at power-up. This message appears if J29 is shorted at power-up.

## Heater-Related Messages

**HTR**  **FLOW**  **LOSS**  **-- -- --** 

### Heater Flow is Reduced (HFL) – MO16

There may not be enough water flow through the heater to carry the heat away from the heating element. Heater start up will begin again after about 1 min. See "Flow Related Checks" below.

**HTR**  **FLOW**  **FAIL**  **-- -- --** 

### Heater Flow is Reduced (LF)\* – MO17

There is not enough water flow through the heater to carry the heat away from the heating element and the heater has been disabled. See "Flow Related Checks" below. After the problem has been resolved, you must press any button to reset and begin heater start up.

**HTR**  **MAY**  **BE**  **DRY**  **-- -- --**  **WAIT**  **-- -- --** 

### Heater may be Dry (dr)\* – MO28

Possible dry heater, or not enough water in the heater to start it. The spa is shut down for 15 min. Press any button to reset the heater start-up. See "Flow Related Checks" below.

**HTR**  **DRY**  **-- -- --** 

### Heater is Dry\* – MO27

There is not enough water in the heater to start it. The spa is shut down. After the problem has been resolved, you must press any button to reset and restart heater start up. See "Flow Related Checks" below.

**HTR**  **TOO**  **HOT**  **-- -- --** 

### Heater is too Hot (OHH)\* – MO30

One of the water temp sensors has detected 118°F (47.8°C) in the heater and the spa is shut down. You must press any button to reset when water is below 108°F (42.2°C). See "Flow Related Checks" below.

**PRES**  **BTTN**  **TO**  **RSET**  **-- -- --** 

### A Reset Message may Appear with other Messages.

Some errors may require power to be removed and restored.

### Flow-Related Checks

Check for low water level, suction flow restrictions, closed valves, trapped air, too many closed jets and pump prime.

On some systems even when spa is shut down, some equipment may occasionally turn on to continue monitoring temperature or if freeze protection is needed.

\* This message can be reset from the topside panel with any button press.

## Sensor-Related Messages

102F R SNSR R BAL R ANCE R

### Sensor Balance is Poor – MO15

The temperature sensors MAY be out of sync by or 3°F. Call for Service.

SNSR R SYNC R --- R CALL R FOR R SRVC R --- R

### Sensor Balance is Poor\* – MO26

The temperature sensors ARE out of sync. The Sensor Balance is Poor fault has been established for at least 1 hour. Call for Service.

SNSR R A R --- R CALL R FOR R SRVC R --- R

B R

### Sensor Failure – Sensor A: MO31, Sensor B: MO32

A temperature sensor or sensor circuit has failed. Call for Service.

## Miscellaneous Messages

NO R COMM R

### No Communications

The control panel is not receiving communication from the System. Call for Service.

BETA R VERR R SION R --- R

### Pre-Production Software

The Control System is operating with test software. Call for Service.

102T R

### °F or °C is replaced by °T

The Control System is in Test Mode. Call for Service.

# System-Related Messages

**MEM FAIL** **-----**

## Memory Failure - Checksum Error\* – MO22

At Power-Up, the system has failed the Program Checksum Test. This indicates a problem with the firmware (operation program) and requires a service call.

**MEM RSET** **-----**

## Memory Warning - Persistent Memory Reset\* – MO21

Appears after any system setup change. Contact your dealer or service organization if this message appears on more than one power-up, or if it appears after the system has been running normally for a period of time.

**CLOK FAIL** **-----**

## Memory Failure - Clock Error\* – MO20 - Not Applicable on the BP1500

Contact your dealer or service organization.

**CNFG FAIL** **-----** **CALL FOR SRVC** **-----**

## Configuration Error – Spa will not Start Up

Contact your dealer or service organization.

**STUK PUMP** **-----**

## A Pump Appears to be Stuck ON – MO34

Water may be overheated. POWER DOWN THE SPA. DO NOT ENTER THE WATER. Contact your dealer or service organization.

**HOT FAULT** **-----** **CALL FOR SRVC** **-----**

## A Pump Appears to have been Stuck ON when spa was last powered - MO35

POWER DOWN THE SPA. DO NOT ENTER THE WATER.

Contact your dealer or service organization.

**WATR LEVEL**

## The water level is too low

Some systems have a water level detect, and this message appears if it detects that the water level is too low.

\* When you see your spa's panel display a screen with dash marks, (----) this indicates your spa is in rest mode. This is not a malfunction and nothing is wrong. If you press the menu button, the spa's configurations will respond.

# Reminder Messages

## General maintenance helps.

The display of Reminder Messages can be suppressed by using the PREF Menu.

Reminder Messages can be chosen individually by the Manufacturer. They may be disabled entirely, or there may be a limited number of reminders on a specific model.

The frequency of each reminder (e.g. 7 days) can be specified by the Manufacturer.

Press a Temperature button to reset a displayed reminder message.



Alternates with temperature or normal display.

## Appears on a regular schedule, e.g. every 7 days.

Check pH with a test kit and adjust pH with the appropriate chemicals.



Alternates with temperature or normal display.

## Appears on a regular schedule, e.g. every 7 days.

Check sanitizer level and other water chemistry with a test kit and adjust with the appropriate chemicals.



Alternates with temperature or normal display.

## Appears on a regular schedule, e.g. every 30 days.

Clean the filter media as instructed by the manufacturer.



Alternates with temperature or normal display.

## Appears on a regular schedule, e.g. every 30 days.

The Ground Fault Circuit Interrupter (GFCI) or Residual Current Device (RCD) is an important safety device and must be tested on a regular basis to verify its reliability.

Every user should be trained to safely test the GFCI or RCD associated with the hot tub installation.

A GFCI or RCD will have a TEST and RESET button on it that allows a user to verify proper function.

## Warning:

If freezing conditions exist, a GFCI or RCD should be reset immediately or spa damage could result.

The end user should always be trained to test and reset the GFCI or RCD on a regular basis.

## LED Lighting

Press the "Light" button on the topside controller to turn the spa light on. If your spa has optional perimeter LED lights, they will also activate.

1. **Cycle:** When you press the "Light" button on and off repeatedly the LED will cycle between a variety of colors that the RGB light can support.

Each time you press the button it will immediately advance to the next color in sequence and will eventually enter different light pattern modes.

2. **Flashing:** Once you have cycled through all of the colors, another press of the "Light" button will produce a flashing pattern.

3. **Fading cycle:** The next phase of operation when you push the LIGHT button is a slower and/or fast fade random transition from one color to the next.

- If a spa is equipped with more than 100 points of light the slow fading cycle will flicker during a color change.
- Every air valve is equipped with 2 LED points.
- The waterfall takes 4 points of light.

Spas with exterior LEDs work in the same mode as described above. The variations in color and patterns provide you multiple customization options.

## Divertor Knobs

Divertor knobs are 1" and 2" knobs located around the top of your spa. They allow you to divert water through jets from one side of the spa to the other, or in most cases from floor jets to all jets. This is accomplished by rotating the divertor knob to the left (counter-clockwise), decreasing the amount of water flow through a section of jets. To increase the amount of water flow through the other section of jets, rotate the handle to the right (clockwise)

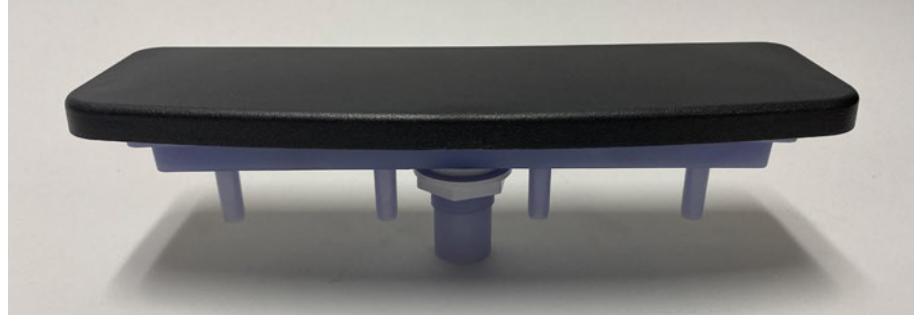


## Air Venturis

Air venturis are the 1" knobs located around the top of your spa. Each one will let you add a mixture of air with the jet pressure. This is accomplished by rotating the air venturi knob to the left (counter clockwise) to increase the amount of air flow. To decrease the amount of airflow through the jets, rotate the handle to the right (clockwise)



## Waterfall (option)



Some Cal Spas are equipped with a waterfall feature, with LED lights inside the housing.

## Cool Off Seat

The cool off seat, is designed in some Cal Spa models. The seat is designed to help cool down spa users that are using their spa in higher therapeutic water temperatures. This helps in avoiding the negative effects of hyperthermia (Overheating of the body).

The seat is positioned higher than all other seats in the spa, with some spas featuring water jets, pointed towards the person sitting in the Cooler Seat. The higher position helps cool down any person using the seat by positioning the core of the body away from the hot water.

Cool off seat location and additional jets may vary based on spa model.



## Jets

Almost all of the jets in your spa are adjustable. Rotating the jet face clockwise will increase water pressure, and counter clockwise to reduce pressure on that specific jet. Neck jets are the opposite, with clockwise movement to decrease force, counter clockwise to increase.



## Water Clarity

This section is intended for new spa owners who are not familiar with adjusting spa water chemistry. Everyone's knowledge with maintaining water quality is different, but there are some general concepts you need to know.

Water maintenance is not difficult, however it is something that requires regular attention. The most important thing to understand about taking care of your spa water, is that preventative action is easier than corrective action when balancing chemistry and maintaining water clarity

Before beginning, we recommend you become familiar with some water quality terms and their definitions within this following section.

### The Four Steps of Water Clarity

#### 1. Chemical Balancing

**Learning how to properly balance your water.**

You will need to test and adjust the chemical balance of your spa water, this is not a difficult task but it must be done regularly. Important areas to focus on with water chemistry is the calcium hardness, total alkalinity, and the pH range.

Spa owners with salt generators will need to perform a total dissolved solids and phosphate test.

#### 2. Sanitation and Shock

**Learning how to properly sanitize and shock your spa.**

Sanitizers kill bacteria and viruses and keeps your water clean. A low sanitizer level will allow microbes to grow quickly in the spa water. We recommend using either granulated chlorine or bromine as your sanitizer.

You also need to add shock to the water to stimulate the chemical sanitizer. How much you use and how often you use sanitizers, depends on how frequently the spa is used.

#### 3. Filtration

**Learn how to properly clean your filter**

Cleaning your filter cartridge is the easiest and most effective thing you can do to keep your spa water clear.

A clogged dirty filter will cause the heater and pump to work harder than they need to, possibly causing them to fail.

The spa's heating system will only function with the proper amount of water flow through the system.

#### 4. Consistency

**Make checking your spa part of your daily routine.**

Clear water requires regular maintenance. Establish a routine based on a regular schedule, testing your water on a daily basis.

Maintaining your water quality helps the enjoyment of your spa and extends the lifetime of spa components by preventing damage from neglect and chemical abuse.

## Water Quality Terms and Definitions

The following chemical terms are used in this section. Understanding their meaning will help you to better understand clear water maintenance. Words in bold type are defined in this table.

<b>Bromine / Bromamines</b>	<u>Bromine</u> is an efficient sanitizer chemical for spas. When used as a <b>sanitizer</b> , bromine forms compounds called bromamines. Bromine can be added to the spa or automatically generated. <u>Bromamines</u> are compounds formed when bromine combines with nitrogen from body oils, perspiration, etc. Unlike chloramines, bromamines have no pungent odor and are effective sanitizers.
<b>Chlorine / Chloramines</b>	<u>Chlorine</u> is an efficient sanitizing chemical for spas. We recommend using sodium dichlor-type granulated chlorine because it is totally soluble and nearly <b>pH</b> neutral. When used as a <b>sanitizer</b> , chlorine forms compounds called chloramines. <u>Chloramines</u> are compounds formed when chlorine combines with nitrogen from body oils, perspiration, etc. Chloramines can cause eye irritation as well as having a strong odor. Unlike <b>bromamines</b> , chloramines are weaker, slower <b>sanitizers</b> . To remove chloramines, see the description of <b>shock</b> below.
<b>Calcium Hardness</b>	Abbreviated as CH. Calcium hardness is a measure of the total amount of dissolved calcium in the water. Calcium helps control the <b>corrosive</b> nature of the spa's water and is why soft water is not recommended. The low CH level can cause <b>corrosion</b> to the equipment and can cause staining of the spa shell.
<b>Corrosion</b>	The gradual wearing away of metal spa parts, usually caused by chemical action. Generally, corrosion is caused by low <b>pH</b> or by water with levels of <b>TA</b> , <b>CH</b> , <b>pH</b> or sanitizer which are outside the recommended ranges.
<b>Dichlor</b>	Also called sodium dichlor. It is a type of chlorine and is frequently used when <b>shocking the water</b> . An effective <b>chlorine</b> -based powdered <b>oxidizer</b> and <b>sanitizer</b> . Dichlor works by oxidizing waste product in the water such as <b>bromamines</b> and <b>chloramines</b> and causing them to burn off.
<b>Monopersulphate or MPS</b>	Frequently used when <b>shocking the water</b> . An effective non-chlorine-based powdered <b>oxidizer</b> that works well with both <b>chlorine</b> and <b>bromine</b> . It works by oxidizing waste product in the water such as <b>bromamines</b> and <b>chloramines</b> and causing them to burn off.
<b>Oxidizer</b>	<b>Shocking the water</b> with an oxidizing chemical prevents the buildup of contaminants, maximizes <b>sanitizer</b> efficiency, minimizes combined <b>chlorine</b> and improves water clarity.
<b>Ozone</b>	Ozone is a powerful oxidizing agent which is produced in nature and artificially. Ozone forms no by-products of <b>chloramines</b> (ozone actually oxidizes chloramines) and will not alter the water's <b>pH</b> .
<b>pH</b>	The pH level is the measure of the balance between acidity and alkalinity. Low pH causes the water to be too acid, which will cause <b>corrosion</b> , whereas high pH causes the water to be too alkaline, which will cause <b>scaling</b> . See page for testing for and balancing pH.
<b>ppm</b>	The abbreviation of "parts per million", the standard measurement of chemical concentration in water. Identical to mg/l (milligrams per liter).
<b>Sanitizer</b>	Sanitizer is a chemical added to the water to kill bacteria and viruses and keep the water clean. The two sanitizers we recommend are <b>chlorine</b> and <b>bromine</b>

<b>Scale</b>	Rough calcium-bearing deposits that can coat spa surfaces, heaters, plumbing lines and clog filters. Generally, scaling is caused by mineral content combined with high <b>pH</b> . Additionally, scale forms more readily at higher water temperatures.
<b>Shock</b>	Also called shocking the water, shock treatment, or superchlorination. Shocking the water is adding significant doses of <b>dichlor</b> or <b>MPS</b> to <b>oxidize</b> non-filterable organic waste and to remove <b>chloramines</b> and <b>bromamines</b> . Shock treatment breaks down organic waste contaminants which cause odor and cloudy water.
<b>Total Alkalinity</b>	Abbreviated as TA. Total alkalinity is the measure of the total levels of carbonates, bicarbonates, hydroxides, and other alkaline substances in the water. TA is important for <b>pH</b> control. If the TA is too low, the <b>pH</b> will fluctuate out of control, and if it is too high, the <b>pH</b> becomes difficult to stabilize.
<b>Trichlor</b>	Used as a pool <b>sanitizer</b> . NEVER use trichlor in a spa. Trichlor is extremely acidic and will lower the <b>pH</b> , causing corrosion to equipment. Using trichlor will void your warranty.

## Water Testing Methods

There are two testing methods to choose from:

Test strips are a convenient testing method commonly used by spa owners.



The reagent test kit is a method which provides a high level of accuracy but is more expensive and more difficult to use.



## Adding Chemicals to the Spa

**IMPORTANT:** All spa water chemicals, including MPS (shock), chlorine, granulated pH increaser or decreaser, granulated total alkalinity increaser, calcium hardness increaser, liquid stain and scale inhibitor, and liquid de-foamer must always be added directly into or in front of the filter compartment while a jet pump is running, and it must run for a minimum of ten minutes.

1. Fold back the cover.
2. Press the Jets or Jets 1 button.
3. Carefully measure the recommended amount of chemical and slowly pour it into the filter area. Use care not to splash chemicals on your hands, in your eyes, on the spa surface, or on the siding.
4. Close the spa cover.

**Warning:** High sanitizer levels can cause discomfort to the user's eyes, lungs and skin. Always allow the sanitizer level to fall to the recommended range before using the spa.

**IMPORTANT NOTE REGARDING SHOCK TREATMENT:** After administering shock to your spa, leave the cover open for a minimum of 20 minutes to allow the oxidizer gas to vent. A high concentration of trapped oxidizer gas which may exist as a result of the shock treatment (not daily sanitation) may eventually cause discoloration or vinyl degradation to the bottom of the cover. This type of damage is considered chemical abuse and is not covered under the terms of the limited warranty.

## Balancing Water Chemistry Levels

Maintaining spa water chemistry can be tricky, especially since there are many methods of keeping your water clear and clean.

**NOTE: We do not recommend any brand of chemical.**

**See a spa dealer for guidance and recommendations on spa chemicals and supplies. Various chemicals often sold under brand names, but a spa dealer can advise you on generic chemicals that are often much less costly than proprietary brands.**

### Balancing the Total Alkalinity (TA) ➤

Total Alkalinity is a measure of the total levels of carbonates, bicarbonates, hydroxides, and other alkaline substances in the water. TA is referred to as the water's "pH buffer". In other words, it's a measure of the ability of the water to resist changes in pH level.

If the TA is too low, the pH level will fluctuate widely from high to low. Fluctuations in pH can cause corrosion or scaling of the spa components. Low TA can be corrected by adding sodium carbonate (pH/Alkalinity Up).

If the Total Alkalinity is too high, the pH level will tend to be high and may be difficult to bring down. It can be lowered by using sodium bi-sulfate(pH/Alkalinity Down).

Once the TA is balanced, it normally remains stable, although the addition of more water with a high or low alkalinity will raise or lower the TA reading of the water.

When the Total Alkalinity is within the recommended range, proceed to the next step.

### Balancing the Calcium Hardness (CH) ➤

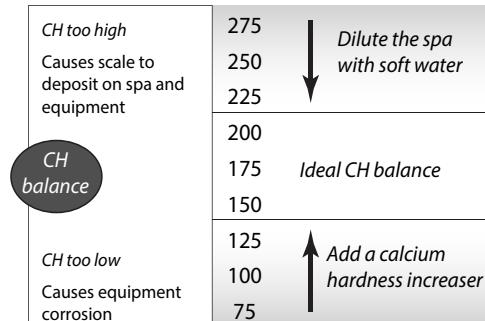
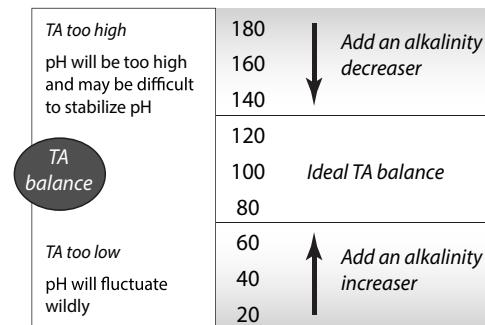
Calcium Hardness is a measure of the total amount of dissolved calcium in the water. Calcium helps control the corrosive nature of the spa's water. That's why calcium-low water (commonly known as "soft" water) is not recommended. It is very corrosive to the equipment, and can cause staining of the spa shell.

If the CH is too high (commonly known as "hard water"), formation of scale on the spa's shell surface and equipment can result. You can use a generic calcium remover to remove hardness from water. CH can also be decreased by dilution – a mixture of 75% hard and 25% soft water will usually yield a reading within the correct range. If soft water is not available or practical for you, a stain and scale inhibitor should be added to the spa water, according to label instructions.

If the CH is too low add CH Increaser.

Once the CH is balanced, it normally remains stable, although the addition of more water with a high or low calcium content will raise or lower the CH reading of the water.

When the CH is within the recommended range, proceed to the next step.



## Balancing the pH

The pH level is the measure of acidity and alkalinity. Values above 7.8 are alkaline; those below 7.2 are acidic. Maintaining the proper pH level is extremely important for optimizing the effectiveness of the sanitizer, maintaining water that is comfortable for the user, and preventing equipment deterioration.

If the spa water's pH level is too low, the following may result:

- The sanitizer will dissipate rapidly.
- The water may become irritating to spa users.
- The spa's equipment may corrode.

If the pH is too low, it can be increased by adding sodium hydrogen carbonate (pH/Alkalinity Up) to the spa water.

If the pH level is too high, the following may result:

- The sanitizer is less effective.
- Scale will form on the spa shell surface and the equipment.
- The water may become cloudy.
- The filter cartridge pores may become obstructed.

If the pH is too high, it can be decreased by adding sodium bi-sulfate (pH/Alkalinity Down) to the spa water.

**NOTE: After adding sodium hydrogen carbonate or sodium bi-sulfate, wait two hours before testing the water for pH. Measurements taken too soon may not be accurate.**

It is important to check the pH on a regular (weekly) basis. The pH will be affected by the bather load, the addition of new water, the addition of various chemicals, and the type of sanitizer used.

When the pH is within the recommended range, proceed to sanitation.

## Sanitation and Shock

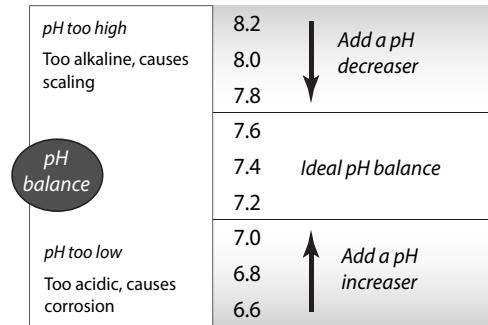
Sanitizers kill bacteria and other organic waste by breaking them down to non-harmful levels which are filtered out. Before you fill your spa, you need to decide which chemical sanitizer you wish to use. Consult your Cal Spas dealer for the right decision with regards to your lifestyle and spa usage.

We recommend either **bromine** or **chlorine** as your sanitizer. Both work well when maintained regularly.

**NOTE: DO NOT use Trichlor. Trichlor is very acidic and the hot temperature of the spa causes it to dissolve too quickly. It will cause damage to your spa and will void your warranty.**

Whichever plan you decide on, follow it completely and don't take shortcuts. It will provide you with clean, safe, clear spa water with a minimum of effort. Spa owners with an ozonator still need to use a chemical sanitizer. See page 38 for a description of how the ozonator works.

Whenever you test your chemical levels, your test strip will likely have a test for chlorine or bromine. Make sure your sanitizer falls within the range shown on the next page.



Testing For:	Ideal Range (ppm)	
	Minimum	Maximum
<b>Chlorine Level</b>		
Without ozonator	3.0	5.0
With ozonator	2.0	4.0
<b>Bromine Level</b>		
Without ozonator	6.7	11.0
With ozonator	5.7	10.0

## Starting and Maintaining Sanitizer levels

Sanitizing your spa with chlorine or bromine is very similar. Each sanitizer has its advantages and disadvantages.

**Bromine:** Whereas chlorine can sometimes cause offensive odors and skin irritation, bromine is less likely to do so. Additionally, unlike chlorine, when bromine combines with bather waste and other contaminants in the water, it remains a very effective sanitizer. Bromine is also far less pH-dependent than chlorine. **Always remember that bromine by itself is not a sanitizer, and it needs to be activated by shock in order to be effective.**

**Chlorine:** The most commonly recognized sanitizer is chlorine. However, the effectiveness of chlorine depends heavily on the pH level of the spa water. In order to get the most effective and economical benefit of chlorine, you must maintain a consistent pH level of between 7.2 to 7.6. A disadvantage of using chlorine is that when chlorine combines with bather waste and other contaminants in the water, not only does it lose its sanitizing ability, it can cause odors and irritate eyes and skin.

After you choose a sanitizer, you will need to establish a baseline and maintain it regularly.

Starting with fresh water:

1. Establish a baseline by adding either granulated chlorine or bromine.
  - Use half an ounce of chlorine for every 500 gallons of water.
  - Use half an ounce of bromine for every 100 gallons of water.
2. Run the jets for 10 minutes.
3. Test the water. Make sure the pH, TA, and CH levels all fall within the ranges shown on the previous page. Make adjustments where they are needed.
4. At this point, if you use bromine, it is not yet activated and it will not sanitize the water. You need to shock-oxidize the spa water. Depending on the size of your spa, add one to two ounces of shock. You can use any kind of shock you want.
5. Test the water again. When the water is balanced, your spa is ready to use.

**Note: If you choose to use bromine or chlorine we do not recommend the use of a floater. You have more control over the sanitizer levels by adding sanitizer as needed. Chemical abuse will void your warranty.**

## Shocking the Water

In addition to using a chemical sanitizer, you will periodically need to shock the water. Shocking the water helps remove burned-out chemicals, bacteria, and other organic material from your spa's water and improves your sanitizer's effectiveness.

Do not use chlorinating shock, which can damage the spas jets and pump seals. Only use Oxidizer shock. It can be used with either bromine or chlorine sanitizers.

Add two ounces of oxidizer shock per 500 gallons once a week, after heavy bather loads, or if the water has a strong odor. The spa must be running with all of the jets on high for 30 minutes with the cover open. If necessary repeat the oxidizer shock in 30 minute intervals.

## Filtration & Cleaning

The filter is the part of your spa that removes big and microscopic debris from the water to maximize your spas water clarity. Regular maintenance must be done to maximize the spas filtering performance and heat efficiency.

**It is extremely important that you never run the spa without a filter, there is a possibility that debris may be sucked into the plumbing, damaging the spa pumps and heater.**

### Cleaning the Filter

In addition to spraying the filter down with a hose to remove surface debris, the filter must be deep cleaned every so often to dissolve scale and particles that are trapped within the pleats of the filter. Even if the filter looks clean, scale and other particles hide deep within the filter fibers restricting water flow. If the filter is not properly cleaned this will cause flow issues within the spa heater creating a heater malfunction. We recommend cleaning your filter at least once a month or every two weeks depending on spa usage.

#### Cleaning the filter

1. Remove the filter by unscrewing the filter counterclockwise from the top of the filter, do not use excessive force when removing or installing the filter.
2. Place the dirty filter into a bucket of water where the filter is completely submerged in water. Add the desired filter cleaner of choice, on average most manufactures recommend 8 ounces of chemical cleaner, verify the amount used on your chemical instructions.

**Note: It is recommended to obtain a spare filter to use in the spa when performing maintenance on the dirty filters. This way you can rotate the filters and extend their lifespan.**

3. Soak the filter for a minimum of 24hrs
4. Spray the filter with a water hose, with careful attention between filter pleats.
5. Reinstall the filter, Do not over-tighten.

## General Water Care Schedule

<b>Prior to each use</b>	Test the spa water. Adjust chemical levels as necessary. Shock the water by adding ½ teaspoon of sodium dichlor per 250 gallons or 1 teaspoon of MPS per 250 gallons.
<b>After each use</b>	Add an ounce of oxidizer after heavy bather loads
<b>Once a week</b>	Check the filter well and inside the filter pipe for leaves and foreign matter. Test the spa water. Adjust chemical levels as necessary. Shock the water by adding ½ teaspoon of sodium per 250 gallons or 3 teaspoons of MPS per 250 gallons. If your water source is high in calcium, add stain and scale preventer.
<b>Every two to four weeks</b>	Deep clean your spa's filter . How often you clean your filter depends on how much you use your spa. There is no harm in frequently cleaning your filter and will only help your spa's efficiency.
<b>Every two to four months</b>	Change the spa water. How often you change the water depends on how much you use the spa. When you change the water, you will need to: <ul style="list-style-type: none"> <li>• Clean and polish the acrylic surface</li> <li>• Clean and treat the spa cover and pillows</li> <li>• Deep clean the filter</li> <li>• Refill your spa</li> </ul>
<b>Each time you refill the spa</b>	Follow the section "Filling and Powering Up Your Portable Spa"

## Generic Names for Chemicals

Water Chemistry		
Common name	Usual chemical name	Common brand names
pH Up	sodium hydroxide	pH Increaser, pH Up, pH Plus, pH Booster
pH Down	sodium bisulfate sodium bicarbonate (baking soda) sodium carbonate	pH Decreaser, pH Down, pH Minus, pH Subtractor, Dry Acid
Alkalinity increaser	sodium carbonate sodium bicarbonate (baking soda)	Alkalinity Increaser, Alkaline Up
Alkalinity decreaser	sodium bisulfate	Alkalinity Decreaser, Alkaline Down
Calcium increaser	calcium chloride	Calcium Increaser, Calcium Up, Calcium Plus, Hardness Increaser
Calcium decreaser	N/A To decrease calcium hardness, drain several gallons of water from the spa and refill using a mixture of 75% hard water and 25% soft water, or use a stain and scale inhibitor.	

**Sanitizers**

Common name	Usual chemical name	Common brand names
Chlorine	sodium dichlor	Both chlorine and bromine are available under numerous brand names
Bromine	sodium bromide	

**Shock**

Common name	Usual chemical name	Common brand names
MPS	monopersulphate	MPS Shock, Oxy-Spa, SeaKlear
Dichlor	sodium dichlor	Dichlor Shock

**Note: Dichlor (chlorine) is both a sanitizer and a shock. Monopersulphate (MPS), when used as a shock, can be purchased alone as non-chlorinated shock or combined with dichlor, which makes it significantly more effective than MPS alone.**

**Other chemical additives**

Common name	Usual chemical name	Common brand names
Stain and scale inhibitor	These are usually proprietary chemical formulations and cannot be purchased as a single generic chemical.	Metal Stain Gone, Scale Inhibitor, Stain and Scale Preventer, Stain and Scale Defense
Foam inhibitor		Foam Gone, Foam Down, Defoamer
Clarifier		Water Brite, Spa Bright, Water Clarifier, Clear Water, Natural Clarifier, Brite & Clear

**Do NOT use these in your spa:**

- Sodium hypochlorite (household bleach)
- Trichlor

## Common Water Chemistry Questions

**Question:** Why is the use a floater not recommended to sanitize my spa water?

**Answer:** We do not recommend the use of a floater for three reasons:

- The floater is unable to control the rate at which the sanitizer is dissolved into the water. When a floater is first placed in a spa, the sanitizer level can be extremely high. High sanitizer levels can chemically burn or discolor the spa's shell or the underside of the cover. Then, after a period of time, the sanitizer level dispensed by the floater will fall to near zero. A low sanitizer level will allow viruses, bacteria or algae to grow.
- Floaters tend to stay in one area of the spa most of the time, causing this area to be exposed to extreme sanitizer levels.
- The floater may allow pieces of the highly concentrated sanitizer to fall out and settle on the floor or seat of the spa shell. These pieces of sanitizer will chemically burn (blister) the spa shell. Although your spa shell is specifically designed to resist the effects of spa chemicals, no spa surface can withstand this type of highly concentrated chemical. Remember, chemical abuse is specifically not covered under the terms of the warranty.

**Question:** When I open my spa, I smell chlorine. How do I get rid of this smell?

**Answer:** There are two types of chlorine in your spa. The first is the Free Available Chlorine, which is the chlorine available to sanitize your spa. This free Available Chlorine does not have an odor. The second is Chloramine, which is residue from chlorine already expended. Chloramines have a strong chlorine odor. The smell from Chloramines can be eliminated by shocking the water. If you smell chlorine in the water, your spa is reminding you to add a shock treatment.

**Question:** Why can't I fill my spa with soft water?

**Answer:** Soft water is essentially the same as regular water, except that most or all of the calcium has been replaced by sodium. Soft water may be corrosive to the heater and other components. Replacement of spa components damaged by soft water is extremely expensive.

**Question:** I am trying to reduce the number of chemicals to which my family is exposed. Do I really need to use so many chemicals and in such large amounts?

**Answer:** While over-exposure to any chemical can be unhealthy, many low levels of chemicals are effective and beneficial. In the case of spa water, the chemicals we recommend are needed to protect the user from water-borne pathogens (disease-causing microbes) and to prevent corrosion of spa components.

**Question:** Why isn't water chemistry damage covered by the warranty?

**Answer:** The chemical levels and water quality of the water in the spa are under your direct control. With proper basic care, the spa will provide many years of hot water relaxation. If you are unsure about any chemical or its usage in the spa, contact your spa dealer.

## Do's and Don't's

- DO add all chemicals slowly into or in front of the filter compartment with the jet pump operating for ten minutes.
- DO use special care if using baking soda to clean either the interior or exterior plastic surfaces.
- DO use only a granular form of bromine sanitizer.
- DON'T use swimming pool (muriatic) acid to lower pH.
- DON'T splash pH increaser additives on the siding.
- DON'T use compressed sanitizers.

The use of bromine sticks or tablets in floaters, which may become trapped in a lounge or cooling seat (or sink to the spa floor), have been shown to cause discoloration of or surface distress to a spa's shell.

- DON'T use a floater type sanitation system as a low or no maintenance solution to your spa maintenance program.

Floating dispensers can become trapped in one area and cause an over-sanitation (or chemical burn) of that particular area.

If the dispenser setting is too high, the high concentration can discolor the spa shell and damage the underside of the cover.

Automatic floating dispensers have a tendency to either over-brominate or under-brominate as the rate of erosion varies greatly. Damage to the spa and cover can occur very quickly.

- DON'T use a sanitizer which is not designed for spas.
- DON'T use household bleach (liquid sodium hypochlorite).
- DON'T broadcast or sprinkle the chemicals onto the water surface. This method may cause chemically-induced spa surface blistering (chemical abuse).

## Bather Load

“Bather Load” is the term used to describe the number of people using a spa, combined with the length of usage, and the frequency of usage. All these factors have a great effect on the spa water. The higher the bather load, the more chemicals need to be added and a longer filtration time will be needed.

Recommendations are designed for spas with average bather load (3 to 4 people, 15 minutes of usage, three times a week at 100 degrees). If your bather load exceeds these guidelines, and you experience water quality problems, increase the amount of filtration first, (go to the next higher filtration number) then if water quality is still not adequate, consult the advice of your Cal Spas dealer for additional chemical or system recommendations. Be sure to give them your bather load information.

## Ozonator

The ozone generator releases ozone into the spa water. You will still need to test for chlorine or bromine and occasionally replenish it to return the sanitizer level to the baseline.

For spas without a circulation pump, pump 1 will run at low speed and the ozonator will run during filtration.

The spa’s control system is factory-programmed with one filter cycle that will run in the evening when energy rates are often lower. The time and duration of the filter cycle can be set according to your needs. In addition, a second filter cycle can be enabled. Filtration time may need to be increased with heavy bather load.

Always make sure water diverter valves are turned all the way to the left or right and never left in the center position during filtration cycles. When the diverter valve is in the center position, there is not enough suction from the pump in order to inject ozone into the spa. The ozonator will generate ozone, but it will not be injected into the water.

## Troubleshooting Water Clarity

Problem	Probable Causes	Possible Solutions
Cloudy Water	<ul style="list-style-type: none"> <li>• Dirty Filter</li> <li>• Excessive oils/ Organic matter</li> <li>• Improper sanitation</li> <li>• Suspended particles/organic matter</li> <li>• Overused or old water</li> </ul>	<ul style="list-style-type: none"> <li>• Clean filter</li> <li>• Shock spa with sanitizer</li> <li>• Add sanitizer</li> <li>• Adjust pH and/or alkalinity to recommended range</li> <li>• Run jet pump and clean filter</li> <li>• Drain and refill spa</li> </ul>
Water Odor	<ul style="list-style-type: none"> <li>• Excessive organics in water</li> <li>• Improper sanitation</li> <li>• Low pH</li> </ul>	<ul style="list-style-type: none"> <li>• Shock spa with sanitizer</li> <li>• Add sanitizer</li> <li>• Adjust pH to recommended range</li> </ul>
Musty Odor	<ul style="list-style-type: none"> <li>• Bacteria or algae growth</li> </ul>	<ul style="list-style-type: none"> <li>• Shock spa with sanitizer</li> <li>• Adjust pH to recommended range</li> </ul>

Problem	Probable Causes	Possible Solutions
Organic Buildup/ Scum Ring Around Spa	<ul style="list-style-type: none"> <li>• Buildup of oils and dirt</li> </ul>	<ul style="list-style-type: none"> <li>• Wipe off scum with clean rag - if severe, drain the spa, use a spa surface and tile cleaner to remove the scum and refill the spa</li> </ul>
Algae Growth	<ul style="list-style-type: none"> <li>• High pH</li> <li>• Low sanitizer level</li> </ul>	<ul style="list-style-type: none"> <li>• Shock spa with sanitizer if problem is visible or persistent, drain, clean and refill the spa</li> </ul>
Eye Irritation	<ul style="list-style-type: none"> <li>• Low pH</li> <li>• Low sanitizer level</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust pH</li> <li>• Shock spa with sanitizer and maintain sanitizer level</li> </ul>
Skin Irritation/ Rash	<ul style="list-style-type: none"> <li>• Unsanitary water</li> <li>• Free chlorine level above 5ppm</li> </ul>	<ul style="list-style-type: none"> <li>• Shock spa with sanitizer and maintain sanitizer level</li> <li>• Allow free chlorine level to drop below 5 ppm before spa use</li> </ul>
Stains	<ul style="list-style-type: none"> <li>• Total alkalinity and/or pH is too low</li> <li>• High iron or copper in source water</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust total alkalinity and/or pH</li> <li>• Use a stain and scale inhibitor</li> </ul>
Scale	<ul style="list-style-type: none"> <li>• High calcium content in water - total alkalinity and pH too high</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust total alkalinity and pH - If scale requires removal, drain the spa, scrub off the scale, refill the spa and balance water</li> <li>• Use a stain and scale inhibitor</li> </ul>

## Spa Cleaning and Maintenance

### Removing and Re-seating the Pillows

You can remove the pillows for cleaning and maintenance quickly and easily. This method works for all types of pillows.

Grab the lower ledge of the pillow with both hands firmly and pull up. As you do this, the pillow inserts will pop out of the holes.

Re-seat the pillows by aligning the pillow hard enough to insert the pegs back into the holes.



### Jet Removal and Replacement

Jets can be easily removed for cleaning.

#### Screw-in jet removal

Grasp outer rim of the jet and turn it counter-clockwise. The jet will unscrew from the fitting until its is free. To replace the jet, place it in the fitting and turn it clockwise until it is snug in place and can be rotated freely about a half turn. Do not over-tighten the jet as both the housing and the jet are made of plastic and metal components.



#### Snap-in SQR jet removal

Grasp the outer rim of the jet and turn it counter-clockwise until it completely stops. You may feel it slightly loosen, and pop out a bit from the housing. Pull the jet out of the housing. The jet will be snug and may require some force to remove, **do not pry or use pry tools on jets**. To replace any jet, place it in the housing and turn it clockwise until it snaps in, and can be rotated freely about half a turn. Do not over-tighten the jet.



## Draining Your Portable Spa

Your spa should be drained every four to six months for cleaning and maintenance and refilled with fresh tap water. Before you begin turn off power to the spa at the breaker and remove all filters.

### Step 1. Locate your drain.

#### **For spas with drain inside the spa**

Using a Phillips screwdriver, remove the screws to the access panel and open it. Locate hose ending with the  $\frac{3}{4}$  inch hose-bib fixture as shown below.



#### **For spas with cabinet-mounted drain/ Optional Feature**

Pull the knob out of the cabinet. The cabinet drain is screwed into the drain pull knob.



### Step 2. Remove the cap.

Make sure the valve is in the closed position, then unscrew and remove the cap. Unscrew the cap.

#### **For spas with drain inside the spa**



#### **For spas with cabinet-mounted drain**

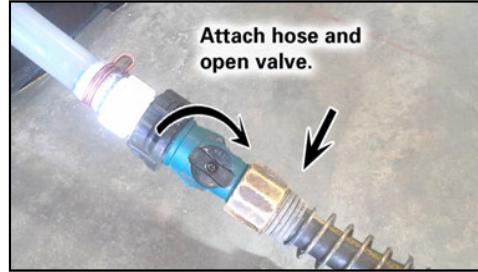


**(Optional Feature)**

### Step 3. Connect valve to a garden hose.

Attach a garden hose to the hose-bib fixture. Place the other end of the garden hose where you would like the water to drain.

#### **For all spas**



### Step 4. Drain the spa.

Turn the valve on the hose-bib fixture to open the drain. When the spa has drained completely, turn the valve on the hose-bib fixture, remove garden hose and replace the cap.

## Winterizing (Cold Climate Draining)

Depending on your region in your country, the temperature could drop below 32°F (0°C). If you are in one of those regions, we recommend that you always have your spa full of water and running at normal spa temperatures (80°F to 100°F, 26.7°C to 37.8°C). This will help reduce the risk of freezing water in your spa and in your spa's equipment.

***WARNING: If you find the need to drain your spa, be aware of the potential of freezing in your spa's equipment and plumbing. Even if the directions below are followed perfectly, there is no guarantee that your spa will not suffer freeze damage. Freeze damage is not covered by your warranty.***

1. Open all filter covers.
2. Remove the filter baskets and filters.
3. Drain your spa completely
4. Vacuum water from the spa's main drain fitting with a wet/dry vacuum.
5. Open the bleeder valves on the pumps.
6. For spas with the UV lamp chamber mounted flat on the equipment floor: Loosen the quartz tube nut to let the water drain from the UV lamp chamber.
7. Disconnect the unions from both sides of the pump.
8. Blow any remaining water out of the jets and equipment area with the wet/dry vacuum.
9. When it has completely finished draining, replace the quartz tube in the UV lamp chamber and re-tighten the nut. Close the bleeder valves and re-connect the unions on the pumps. Replace the filter baskets and filters.
10. Cover your spa with a good spa cover and an all-weather tarp to ensure that neither rain nor snow enters the spa.

## Cleaning and Replacing the Filter

Filtration is one of the most important steps you can take to ensure clean, clear water. It is far less expensive to fix water clarity problems by properly filtering your spa than by using excessive amounts of chemicals, excessive filtration times, or by water replacement.

## Vacation Care

You can leave your spa unattended for up to two weeks if you follow these instructions.

***ALWAYS lock your cover using the cover locks if you plan to be away from home and the spa is filled with water.***

1. Select the Low Range temp choice used for vacation mode.
2. Adjust the pH.
3. Shock the water (add either chlorine or bromine sanitizer).
4. When you return, check and adjust the pH and shock the water.

If you will not be using your spa for longer than 14 days and a spa maintenance service is not available, we strongly recommend you drain or winterize your spa.

**Important! Keep the spa covered when not in use!**

- Covered spas will use less electricity in maintaining your set temperature .
- Covering your spa will protect your spa's finish from the sun's ultraviolet rays.
- You are required to keep the spa covered to maintain warranty coverage.
- Covering your spa helps prevent children from drowning in your spa.

In addition, while the spa cover is rigid, it is not designed to support any weight. Therefore, as a safety precaution and to preserve the life of your cover, you must not sit, stand, or lie on it, nor should you place objects of any kind on top of it.

**Step 1.** Place cover on spa. Make sure it is correctly positioned.



**Step 2.** Position the tie-down hardware (attached to the straps of your cover) on the side of the spa so they are easily reached by the cover tie-down straps.



**Step 3.** With the straps pulled taut (but not overly tight), lightly drill the location for screw placement. Gently drill 3 holes - one for each screw slot in the lock. (If you do not have a low torque drill, use the lowest torque setting on the drill you have.) DO NOT drill all the way in but instead just make a guide for starters.



**Step 4.** Use a screwdriver to finish screwing in the 3 screws. (Repeat this process for the other 3 corners.)



**Step 5.** Keep the cover fastened down at all times when not in use. Locking hardware may be locked with a key (which is provided).



**Step 6.** The provided key will allow you to lock down spa access.



**FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN INJURY OR DROWNING  
NON-SECURED OR IMPROPERLY SECURED COVERS ARE A HAZARD.  
REMOVE COVER COMPLETELY BEFORE ENTRY OF BATHERS.  
ENTRAPMENT POSSIBLE.  
KEEP COVER ON SPA AND LOCKED WHEN NOT IN USE**

### Spa Cover and Pillows

Due to constant punishment your spa cover and pillows receive, you should protect them by applying a vinyl and leather cleaner as part of your monthly maintenance plan. Use a product that is specifically designed to protect spa covers and pillows from chemical and ultraviolet light damage without leaving an oily residue behind that is normally associated with common automotive vinyl protectants.

**Warning DO NOT use automotive vinyl protectants on spa covers or pillows. These products are generally oil-based and will cause severe water clarity issues that are difficult to correct.**

### Spa Shell

Each time you drain the spa, before you refill it you should clean your spa shell with an all purpose cleaner and apply a coat of surface protectant. Use a mild detergent, non-abrasive cleaner specifically formulated to clean the spa without damaging acrylic finish.

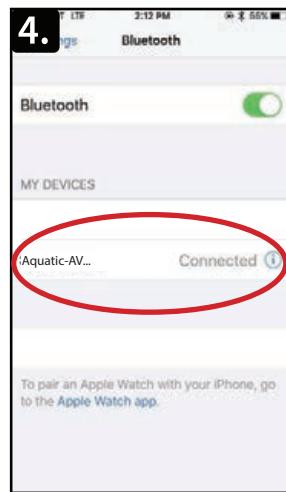
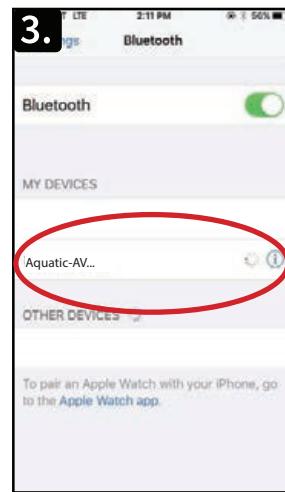
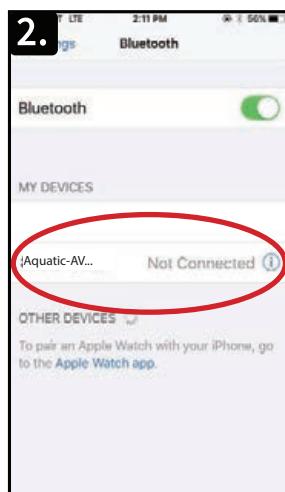
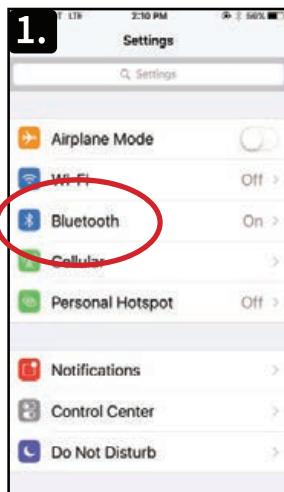
Use a non-oil based surface protectant that is specifically formulated to protect the spa's finish from the chemicals and minerals associated with normal spa use.

## Using the Freedom Sound System

The Freedom Sound System entertainment option contains a Bluetooth-enabled speaker system that is available for certain Cal Spa models. Any Bluetooth-enabled device can be used to play audio though your spa. Before you can use the sound system you need to pair the Bluetooth module to your device. The antenna is located within the spa cabinet. The speaker system takes a direct input from your device, Bass and treble can be adjusted within your device/app settings. Follow the Pairing procedure, the example shown below is from an iPhone device. Your device may appear differently.

1. Select Bluetooth from your device's options list ensure that Bluetooth is turned on.
2. Select "Aquatic AV" from the list of available devices to pair.
3. Your iPhone may ask for a code to pair with the speakers, the code is 0000 (Android devices-no code needed)
4. Allow your device to pair with the spas Bluetooth module.
5. When the devices have been connected, the device Aquatic AV will be highlighted.

**Note: All sounds from your device will be played through the sound system, including system sounds and telephone notifications.**



## Basic Troubleshooting

The troubleshooting guidance provided here is intended to cover the most common problems a spa owner may encounter. For more in-depth troubleshooting, go to [www.calspas.com/troubleshooting](http://www.calspas.com/troubleshooting).

Symptom	Possible Solutions
<b>Problems starting up</b>	
Pump won't prime	See priming instructions
Breaker keeps shutting off	Reset the GFCI breaker. If this continues, contact your dealer or a qualified spa technician.
<b>Power and system problems</b>	
System won't start up or breaker keeps shutting off	Power may be shut off. Turn on GFCI circuit breaker. If this continues, contact your dealer or a qualified spa technician.
Control panel doesn't respond	Turn on or reset the GFCI circuit breaker. If this does not solve the problem, contact your dealer or a qualified spa technician.
Spa does not turn off	If you hear the pump running but the control panel doesn't respond, contact your dealer
	Spa may be trying to heat up. Check if spa is in Ready or Rest mode
	In cold climates, if spa is not equipped with full foam or any kind of insulation, it will try to maintain the set temperature. Set the spa to low temperature range and set the temperature to 80°F.
Message on the control panel	Spa may be in filter cycle. If it is, this is normal and no adjustment is necessary.
	There may be a problem. See Diagnostic Messages
<b>Heat problems</b>	
Spa water does not get hot	Spa may be in low temperature range. Set the spa to high temperature range.
	The filter may be dirty or may need to be replaced. Clean or replace the filter.
	The water level may be too low. Fill the spa with water level at 4 to 6 inches from the top.
	The temperature is not turned up high enough. Raise temperature on topside control.
	Cover the spa. The cover will keep heat in the spa and help keep heat from escaping. Make sure cover is on at all times when spa is not in use.
	The heater element may be old, deteriorated, coated with scale, or defective. Contact your dealer for more assistance.
	The gate valves may be partially or completely closed. NEVER OPERATE YOUR SPA WITH THE GATE VALVES CLOSED!

Symptom	Possible Solutions
Spa overheats - temperature greater than 110°F / 43°C	<p>Overheating can occur during summer months and may not necessarily indicate a malfunction. When it occurs, a message code may also appear on the control panel.</p> <p>Temperature may be set too high. Turn the set temperature down to a lower temperature.</p> <p>Filtration time may be too long. Turn the filtration cycles down during the warm months.</p> <p>The spa may not be properly ventilated. Make sure the front of the spa is not blocked to allow air flow.</p> <p>High speed pumps may have been running too long. Limit pump running time to no more than 15 to 30 minutes.</p>
<b>Water pressure problems</b>	
Low water pressure	<p>Jet valves may be partially or fully closed. Open the jet valves.</p> <p>Filter cartridge may be dirty. Clean or replace the filter.</p> <p>Pump may have airlock. Remove airlock by priming spa</p> <p>The suction fittings may be blocked. Remove any debris that may be blocking them.</p> <p>The filter skimmer may be blocked. Remove the blockage.</p> <p>Gate valves may be closed. Open gate valves. Note: Never operate your spa with the gate valves closed!</p> <p>Spa may be running in filtration mode. Press JETS or JETS 1 button to turn on high speed pump.</p>
No water pressure (no water stream from any jets)	<p>Power may be switched off. Turn the power back on.</p> <p>The pump may be defective. After you have tried all other troubleshooting, contact your dealer for assistance.</p>
Jets surge on and off	Water level may be too low. Add water to normal level.

## Pump problems

Pump runs constantly – will not shut off	There may be a problem with circuit board. Contact your dealer.
Noisy pump	<p>The water level may be too low. Fill the spa with water level at 4 to 6 inches from the top.</p> <p>Filter cartridge may be dirty. Clean or replace the filter.</p> <p>Pump may have airlock. Remove airlock by priming spa</p> <p>The suction fittings may be blocked. Remove any debris that may be blocking the suction fittings.</p> <p>Gate valves may be closed. Open gate valves. Note: Never operate your spa with the gate valves closed!</p> <p>Air may be leaking into the suction line. Contact your dealer for assistance.</p> <p>Debris may be inside the pump. Contact your dealer for assistance.</p> <p>Noise may be a sign of damage. Contact your dealer for service.</p>

Symptom	Possible Solutions
Pump turns off during operation	<p>Automatic timer may have completed its cycle. Press JETS or JETS 1 button to start the cycle again.</p> <p>Pump may have overheated due to the vents on the equipment door being blocked. Make sure the front of the spa is not blocked to allow air flow.</p> <p>The pump motor may be defective. Contact your dealer for assistance.</p>
Pump has a burning smell while running	A burning smell may be a sign of damage. Contact your dealer for service.
Pump does not run	<p>Pump may have over heated. Let it cool for an hour and try operating the spa for a shorter time.</p> <p>Power to the spa may be shut off. Turn on or reset the GFCI circuit breaker. If this does not solve the problem, contact your dealer or a qualified spa technician.</p>

## **“Thermal Creep”**

Cal Spas are designed with energy-efficient components and systems that are meant to sustain heat generated by the equipment, which is then cycled back into the spa water. In hot weather or in situations where the spa is set to extended run times, Thermal Creep may occur. Thermal Creep is a condition where the measured water temperature can be higher than the set temperature. To manage Thermal Creep you may:

**Vent your cover.** This means placing a folded cloth about  $\frac{3}{4}$ " (2cm) thick under all four corners of the cover before you lock the cover down.

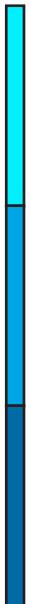
**Open your cover.** Opening the cover at night will also quickly cool the water down if desired.

**Open all air controls.** Set your filtration cycles to run during the cooler times of the day or night.

**Reduce the length of your filter cycles.**

**Visit your local dealer for additional guidance.**

Since Thermal Creep only occurs in well-insulated hot tubs, it is not indicative of something that is wrong with your spa or its equipment.



# Appendix

## Replacement Parts

### Screw-in Jet Inserts

#### ELE 2" Euro No Eyeball

PLUCS2295021S

Used by: Patio, Patio+, Inground Spas



#### ED 2" Euro Directional

PLUCS2295051S

Used by: Patio, Patio+, Inground Spas



#### MED 3" XL Cluster Storm Directional

PLUCS2295031S

Used by: Patio, Patio+, Inground Spas



#### mfd 3" Micro Flow Directional

PLUCS2295061S

Used by: Patio, Patio+, Inground Spas



### Screw-in Jet Inserts

#### MFD 3.5" Maxi Flow Directional

PLUCS2295091S

Used by: Patio, Patio+, Inground Spas



#### PSD 5" Power Storm

PLUCS2295131S

Used by: Patio, Patio+, Inground Spas



#### ET 2" Cluster Storm Twin

PLUCS2295161S

Used by: Patio, Patio+, Inground Spas



#### MMP 3" Mini Multi-Massage

PLUCS2295171S

Used by: Patio, Patio+, Inground Spas



### Screw-in Jet Inserts

**PSTR 5" Power Storm Twin Roto**

PLUCS2295181S

Used by: Patio, Patio+, Inground Spas



**MMP 5" Power Storm Riffed**

PLUCS2295141S

Used by: Patio, Patio+, Inground Spas



5" 5½"

**PST 5" Power Storm Wagon Wheel**

PLUCS2295191S

Used by: Patio, Patio+, Inground Spas



5" 5½"

### Screw-in Jet Inserts

**T 5" Tornado Adjustable**

PLUCS2295201S

Used by: Patio, Patio+, Inground Spas

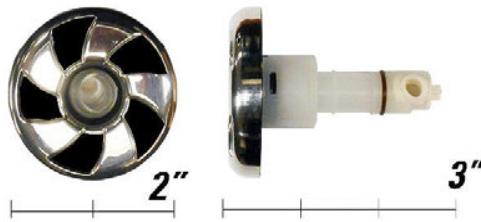


5" 6"

**2" Neck Jet Directional**

PLU29923-014-000

Used by: Patio, Patio+, Inground Spas



2" 3"

## Water Diverter Valves

**Diverter Valve 2" Titanium Black (CS600303T1-TT)**

PLU21300465



**Diverter Valve 1" Titanium Black (CS600426T1-TT)**

PLU21300453



## Air Control Valve

**Air Control with Titanium Black CS660350T1-TT**

PLU21300504



## Drains

**Drain Super Hi Flo Suction 2½" Black (640-**

**3581LGV)**

PLU21400146



**Low Profile Drain ¾" Black (640-0511)**

PLU21400401



## Pillows

**Black "Y" Pillow Carbon Fiber**

**Design S-01-4324**

**ACC01401102**



**Black Cascade Pillow Carbon Fiber**

**Design S-01-4325**

**ACC01401103**



## Filters

**50 sq ft**

**FIL50-5D13H15FCT-3**



## Teleweir Skimmer

**50 square foot teleweir skimmer:**

**Filter attaching cap assembly**

**FIL11700013**



**Filter skimmer inner pipe**

**FIL11700012**



## Waterfalls

ALXWATERFALL CASCADE SUB ASSY (Rectanagle)

GRAY No logo

Part #: PLU21801050



Graphite Gray Cap, SilverHandle, 3/4" DW-17 ST

HPD

Part #: PLU25056-101-000



## LED Lights

1-LED light string

Part #: LIT16100330



2-LED light string

Part #: LIT16100331



4-LED light string

Part #: LIT16100332



## Cover Lock and Keys

Part #: ACC01800026, ACC01800020



## LED Lights

1 to 3 ext. cord

LIT16100335



1 to 1 port ext. cord

LIT16100338



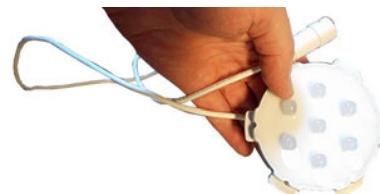
Interior light with logic (7 LED)

LIT16100333



Interior light without logic (7 LED)

LIT16100337



Main light housing, LED lens, fitting nut

LIT630-7048



## Replacement of Cabinet Panels

The complete selection of replacement cabinets for all models is very extensive and too lengthy for this owner's manual. To order replacement panels for your spa, visit [www.quickspaparts.com](http://www.quickspaparts.com)

## Covers

All spa covers are designed with a tapered height, angling downward from the center to the sides to drive off rain and prevent water from pooling. The covers listed below are filled with either 1 lb., 15. lbs., or 2.0 lbs. foam.

Basic	Deluxe												
4" - 2.5"	5" - 3"												
1.5 lbs. foam	2.0 lbs. foam												
<b>64" x 84"</b> Fits spa model: PPZ-537L	<table border="1"> <thead> <tr> <th>Taper Dark Brown Basic</th> <th>Taper Black Basic</th> <th>Taper Gray Basic</th> <th>Taper Dark Brown Standard</th> <th>Taper Black Standard</th> <th>Taper Gray Standard</th> </tr> </thead> <tbody> <tr> <td>COV6484BDB-3</td> <td>COV6484BBK-3</td> <td>COV6484BG-3</td> <td>COV6484SDB-3</td> <td>COV6484SBK-3</td> <td>COV6484SG-3</td> </tr> </tbody> </table>	Taper Dark Brown Basic	Taper Black Basic	Taper Gray Basic	Taper Dark Brown Standard	Taper Black Standard	Taper Gray Standard	COV6484BDB-3	COV6484BBK-3	COV6484BG-3	COV6484SDB-3	COV6484SBK-3	COV6484SG-3
Taper Dark Brown Basic	Taper Black Basic	Taper Gray Basic	Taper Dark Brown Standard	Taper Black Standard	Taper Gray Standard								
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<b>84" x 84" (7 foot spas)</b>	<table border="1"> <thead> <tr> <th>Black Deluxe</th> <th>Taper Black Deluxe</th> <th>Taper Dark Brown Deluxe</th> <th>Taper Gray Deluxe</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td>COV8484SBK-3 (Standard)</td> <td>COV8484SDB-3 (Standard)</td> <td>COV8484SG-3 (Standard)</td> </tr> </tbody> </table>	Black Deluxe	Taper Black Deluxe	Taper Dark Brown Deluxe	Taper Gray Deluxe	N/A	COV8484SBK-3 (Standard)	COV8484SDB-3 (Standard)	COV8484SG-3 (Standard)				
Black Deluxe	Taper Black Deluxe	Taper Dark Brown Deluxe	Taper Gray Deluxe										
N/A	COV8484SBK-3 (Standard)	COV8484SDB-3 (Standard)	COV8484SG-3 (Standard)										

## Additional Parts

<p><b>50 Sq Ft Filter Housing</b> Part#:FIL11700007LC</p> <p><i>(Spas built after 6/2024)</i></p>	<p><b>50 Sq Ft Filter Housing Grey</b> Part#: FIL517-4609-CDHL</p> <p><i>(Spas built after 6/2024)</i></p>
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## LIMITED WARRANTY

This Limited Warranty is extended to the original purchaser of the spa produced by Lloyd's Material Supply company, Inc. Which Manufactures the Cal Spas brand portable spa manufactured after August 8th, 2024 and installed for residential use outside of the United States, for the United Kingdom & European Union. This Warranty begins on the date of delivery of the spa, but in no event later than one year from the date of manufacture.

### Patio & Patio Plus

#### Shell Structural

Warrantied against water loss due to defects in the spa shell.

5 Years

#### Shell Finish

Warrantied against blistering, cracking, or delaminating of the interior spa shell.

3 Years

#### Equipment and Controls

Electrical Equipment components- specifically limited to the pumps, standard titanium heater, and control system, are warranted against malfunction due to defects in workmanship or materials.

3 Years

#### Plumbing

Warrantied against leaks due to defects in workmanship or materials

3 Years

#### Cabinet - synthetic or fiberglass

Warrantied against defects in workmanship or materials. Normal wear and weathering of the finish will occur naturally over time and are not defects.

1 Years

#### Warranties for Other Components

The fuses, headrests, cabinet finish, cal grip, labels, and filters are warrantied to be free of defects in workmanship and material at the time of delivery. The factory installed water purification system & salt system is warranted against malfunction due to defects in workmanship or material for one year from the original date of the spa delivery. All stereo-related components (receiver, speakers, sub-woofer, power supply, Bluetooth antenna, etc) are warranted against malfunction due to defects in workmanship and material for one year from the original date of delivery. All other factory-installed components not mentioned specifically, including, but not limited to the wood frame, jets, diverter valves, LED lighting systems, filter lids, and mechanical components, are warranted against malfunction due to defects in workmanship and material for two years from the original date of delivery.

The insulating spa cover delivered with the spa is warrantied to be free of defects in workmanship and materials for 90 days for Escape & Escape X spas.

#### Genuine Cal Spas Parts & Accessories

This Limited Warranty is void if Lloyd's Material Supply Company, Inc., manufacturer of the Cal Spas brand or its designated representative determines that the spa has been subjected to damage or failure due to installation of aftermarket parts that are not genuine Cal Spas branded parts and accessories. This disclaimer includes, but is not limited to filters, UV bulbs, ozone systems, salt systems, repair parts and other accessories. Genuine Cal Spas brand parts and accessories are built to our highest standards of quality, durability and performance, and they are designed to work with your spa to ensure optimal performance and function.

#### Performance

This warranty begins on the date of delivery of the spa, but in no event later than one year from the date of manufacture. To obtain service in the event of a defect covered by this Limited Warranty, notify your Cal Spas dealer or Cal spas as soon as possible and use all reasonable means to protect the spa from further damage. Upon proof of purchase, a designated service representative will correct the defect subject to the terms and conditions contained in this Limited Warranty. There will be no charge for parts or Labor to repair the defect, although providing access to affect the repair is your responsibility as the spa owner. Freight charges for replacement parts is the responsibility of the spa owner. The servicing dealer may charge the owner a travel/service fee as well as a diagnose fee if the cause of the issue is unknown, these charges are not covered under warranty.

In the event that the spa is removed to a repair facility for repair and reinstalled, the cost of removal and re-installation will be your responsibility as the spa owner. If Lloyd's Material Supply Company Inc., The manufacture of the Cal Spa brand determines that repair of the covered defect is not feasible, it reserves the right to provide a replacement spa of equal or lesser value to the original purchase price. In such an event reasonable costs for removal of the original spa, shipping costs from the factory for the replacement spa and delivery and installation of the replacement spa will be the responsibility of the spa owner. The replacement spa will carry the balance of the original spa's warranty. Spa covers are not included. This warranty ends either by specified time frame, owner-transfer of the spa, relocation, or installation of any component other than by the manufacture.

#### **Warranty Limitations**

This Limited Warranty is void if Cal Spas or its designated representative determines that the spa has been subjected to alteration, neglect, misuse or abuse, or freight damage caused by the common carrier; any repairs have been attempted by anyone other than a designated representative; the failure is caused by accident, acts of God or other causes beyond the control of the Manufacturer including acts of nature (damage caused by animals, rodents, or other pests) are not covered by this warranty, additionally; neglect, misuse and abuse include any installation, operation or maintenance of the spa other than in accordance with the instructions contained in the owner's manual provided with the spa, including but not limited to the failure to maintain proper water chemistry and chemical balance and the use of abrasive or improper cleaners or non-genuine parts and accessories. This Limited Warranty does not provide coverage for any item attached to or installed on the spa after the date of manufacture or for gaining access to any component for repair or replacement. Spa units in commercial use are excluded from any coverage whatsoever. The spa owner accepts liability for repair work performed by anyone other than Lloyd's Material Supply Company Inc, or a designated Cal Spas representative. This Limited Warranty is void if damage occurs to the spa shell because of excessive heat buildup due to failure to cover a spa that is empty of water while exposed to direct sunlight.

#### **Proration of Warranty**

Units determined by the manufacture to be non-repairable will be replaced on a prorated basis with the same or a comparable unit. The owner will be charged 1% of the current retail cost for each full month of ownership from the date of purchase through the date failure is determined to be non-repairable. This charge will be waived during the first 6 months of ownership. [example]: Product failure is determined during seven months of ownership. Owner will be responsible to pay for 7% of the products current cost.

#### **Limitations**

The manufacture disclaims all warranties, expressed or implies, in fact or in law, to the extent allowed by your State's law, including the warranty of merchantability and fitness for use, except as stated specifically herein. 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 produce 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.



#### 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.**

Toll Free: 1-800-CAL-SPAS  
Fax: 1-909-629-3890

**LTR.2025.1036**  
**1/1/2025 Rev A**