

Acrylic Spa Owner's Manual

United States and Canada



MADE IN THE USA

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CONTACT INFORMATION

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

LMS Customer Service Department
1462 East Ninth Street
Pomona, CA 91766.

Toll Free: 1-800-225-7727
Fax: 1-909-629-3890

Important Safety Instructions

READ AND FOLLOW ALL INSTRUCTIONS.

WARNING:

To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

DANGER -- Risk of accidental drowning:

Do not allow children to be in or around a 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 -- Risk of injury:

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.

Never operate the spa if the suction fitting or filter baskets are broken or missing. Never replace a suction fitting with one that is rated less than the flow rate marked on the original suction fitting.

DANGER -- Risk of electric shock:

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 of metal surfaces if each metal surface is permanently bonded by a minimum #8 AWG solid copper conductor to the outside of the spa's control box.

DANGER -- Risk of electric shock:

Do not permit any external electrical appliances, such as lights, telephones, radios, televisions, and etc., within five feet (1.5 meters) of the spa. Never attempt to operate any electrical device from inside the spa.

WARNING -- To reduce the risk of injury:

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 spa use exceeds 10 minutes.

High water temperatures have a high potential for causing fetal damage during pregnancy. Women who are pregnant, or who 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 while others may affect heart rate, blood pressure and circulation.

HYPERTHERMIA DANGER:

Prolonged exposure to hot air or water can induce hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches a level 3°F to 6°F above the normal body temperature of 98.6°F (or 2°C to 4°C above 37°C). While hyperthermia has many health benefits, it is important not to allow your body's core temperature to rise above 103°F (39.5°C).

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 spa or hot tub
- Unawareness of impending hazard
- Fetal damage in pregnant women
- Physical inability to exit the spa
- Unconsciousness

WARNING: The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia.

DANGER -- Risk of electric shock:

- Replace a damaged power cord immediately.
- Do not bury the power cord.
- Connect to a grounded, grounding-type receptacle only.

WARNING: People with infectious diseases should not use a spa or hot tub.

WARNING: To avoid injury, exercise care when entering or exiting the spa or hot tub.

WARNING: Do not use drugs or alcohol before or during the use of a spa or hot tub to avoid unconsciousness and possible drowning.

WARNING: Do not use a spa or hot tub 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 manufacturer's instructions.

SAVE THESE INSTRUCTIONS.

Preparing for Your New Portable Spa

Pre-Delivery Checklist

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

Before Delivery	
	Plan your delivery route
	Choose a suitable location for the spa
	Lay a 5 - 8 cm concrete slab
	Install dedicated electrical supply
After Delivery	
	Place spa on slab
	Connect electrical components

Planning the Best Location

Safety First

Do not place your spa within 10 feet (3 m) 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 recreational or therapeutic purposes? If your spa is mainly used for family recreation, be sure to leave plenty of room around it for activity. If you will use it 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 place to change clothes and not be uncomfortable.

Consider Your Privacy

In a cold-weather climate, bare trees won't provide much privacy. Think of your spa's surroundings during all seasons to determine your best privacy options. Consider the view of your neighbors as well when you plan the location of your spa.

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 yard that you find enjoyable? Perhaps there is an area that catches a soothing breeze during the day or a lovely sunset in the evening.

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 your spa by placing a foot mat at the spa's entrance where the bathers can clean their feet before entering your spa.

Allow for Service Access

Make sure the spa is positioned so that access to the equipment compartment and all side panels will not be 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. It is always best to design special installations so that the spa can still be moved, or lifted off the ground.

Preparing a Good Foundation

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 the 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.

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.

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.

We strongly recommend that a qualified, licensed contractor prepare the foundation for your 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 pounds per square foot (732 kg / m²).

To properly identify the weight of your new spa when full, remember water weighs 8.33 lbs. per gallon, or 1 kg per liter. For example, an average 8' spa holds approximately 500 gallons, or 1892 liters, of water. Using this formula, you will find that the weight of the water alone is 4,165 lbs, or 1892 kg. Combined with the dry weight of the spa you will note that this spa will weigh approximately 5,000 lbs, or 2267 kg, when full of water.



240 Volt Electrical Installation

All 240V spas must be permanently connected (hard wired) to the power supply. See the wiring diagram on page 6.

These instructions describe the only acceptable electrical wiring procedure. Spas wired in any other way will void your warranty and may result in serious injury.

When installed in the United States, the electrical wiring of this spa must meet the requirements of NEC 70 and any applicable local, state, and federal codes.

The electrical circuit must be installed by an electrical contractor and approved by a local building or electrical inspector.

Failure to comply with state and local codes

may result in fire or personal injury and will be the sole responsibility of the spa owner.

The power supplied to the spa must be on a dedicated GFCI protected circuit as required by NEC 70 with no other appliances or lights sharing the power.

Use copper wire with THHN insulation. Do not use aluminum wire.

Use the table below and on the next page to determine your GFCI and wiring requirements.

Wires that run over 100 feet must increase wire gauge to the next lower number. For example: A normal 50 amp GFCI with four #6 AWG copper wires that run over 100 feet would require you to go to four #4 AWG copper wires.

GFCI and Wiring Requirements

One Pump Control System uses a VS300 control box and requires one 40 amp GFCI and four #8 AWG copper wires. Two Pump Control System uses a 5100

control box and requires one 50 amp GFCI and four #8 AWG copper wires.

120 Volt Electrical Installation

Always follow applicable local, state and federal codes and guidelines.

Use only a dedicated electrical line with a 15 amp breaker.

Cord-and-plug connections may not use a cord longer than 15 feet (4.6 m) and must be plugged into a dedicated 15 amp GFCI connection (NEC 680.42(A) (2)). Do not use extension cords!

Always use a weatherproof-covered receptacle.

Receptacle shall be located not less than 5 feet (1.5 m) from and not exceeding 10 feet (3.0 m) from the inside wall of the spa. (NEC 680.43(A))

Do not bury the power cord. If your cord becomes damaged, replace it before next usage.

All 120V spas must have a GFCI. This can be either a 15 amp GFCI receptacle or a 15 amp GFCI cord and

plug kit as shown (CKIT110 - P/N ELE09700087).

Testing the GFCI

Test the GFCI plug prior to first use and periodically when the spa is powered.

1. Plug in the GFCI into the power outlet. The indicator should turn on.
2. Press the TEST button. The GFCI will trip, the indicator will turn off, and the spa will stop operating.
3. Press the RESET button. The GFCI will reset, the indicator will turn on again, and the spa will turn back on.

The spa is now safe to use.

If the GFCI trips while the spa is in use, press the RESET button. If the GFCI does not reset, unplug the spa and call your local Cal Spas dealer for service. **DO NOT USE THE SPA!**

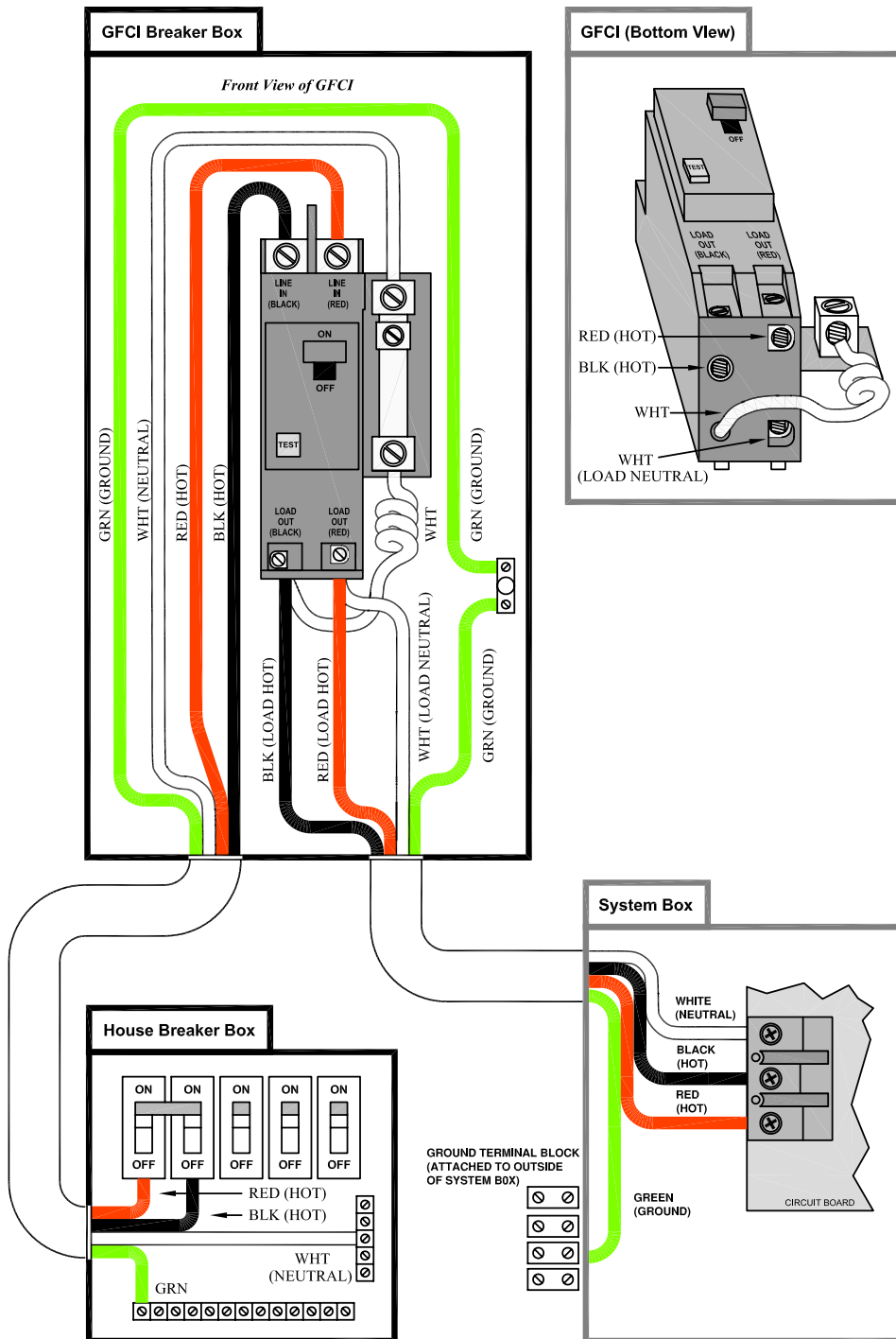
Testing the GFCI Breaker

Test the GFCI breaker prior to first use and periodically when the spa is powered. To test the GFCI breaker follow these instructions (spa should be operating):

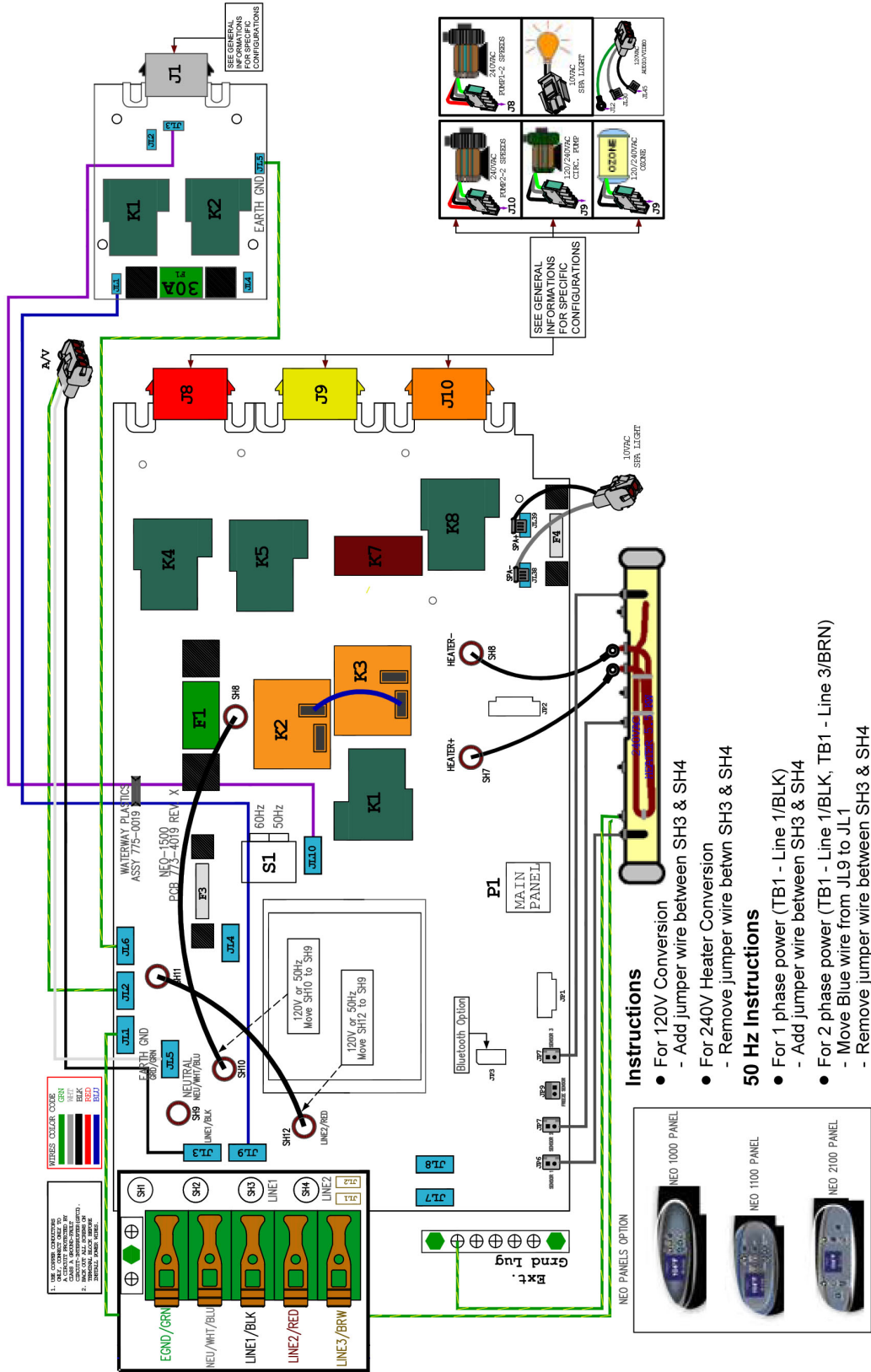
1. Press the TEST button on the GFCI. The GFCI will trip and the spa will shut off.

2. Reset the GFCI breaker by switching the breaker to the full OFF position, wait a moment, then turn the breaker back on. The spa should have power again.

GFCI Wiring Diagram

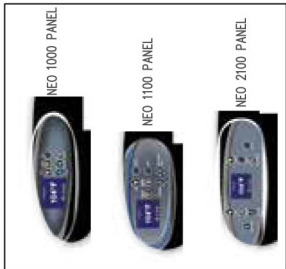


NEO Wiring Diagram



Instructions

- For 120V Conversion
 - Add jumper wire between SH3 & SH4
 - For 240V Heater Conversion
 - Remove jumper wire betwn SH3 & SH4
- 50 Hz Instructions**
- For 1 phase power (TB1 - Line 1/BLK)
 - Add jumper wire between SH3 & SH4
 - For 2 phase power (TB1 - Line 1/BLK, TB1 - Line 3/BRN)
 - Move Blue wire from JL9 to JL1
 - Remove jumper wire between SH3 & SH4



Filling and Powering Up Your Portable Spa

1. Inspect the spa equipment.



After the spa has been placed on an approved surface and has been correctly wired by a licensed electrician, inspect all plumbing connections in the equipment area of your spa. Ensure that these connections are secure and that they did not loosen during shipment.

If your spa has gate valves, make sure they are all in the UP or OPEN position.

Never run the spa with the gate valves closed or without water circulating for long periods of time. Be careful not to over-tighten the plumbing fittings.

2. Remove the cartridge from filter canister.



Unscrew the cartridge and remove it.



After you remove the filter, remove the plastic wrapper and soak it in water for 30 minutes before you replace it. A dry filter can allow air into the filtration system which can cause the pump to fail to prime.

3. Fill the spa.



Place a garden hose in the filter canister and 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 properly.

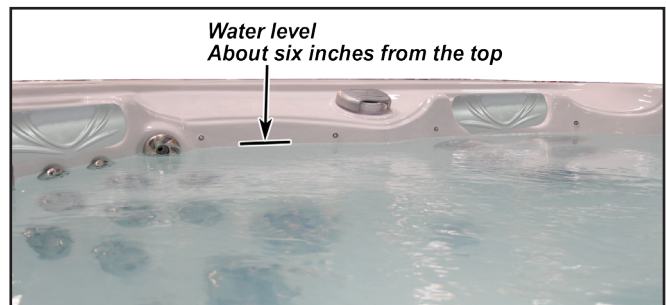


Always fill the spa through the filter canister! Failure to do so may cause air to be trapped in the filtration system and prevent the pumps from operating properly.



Never fill your spa with soft water.

Soft water makes it impossible to maintain the proper water chemistry and may cause the water to foam, which will ultimately harm the finish of the spa and void your warranty.



4. Turn on power to the 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 the proper electrical outlet.)

5. Prime the pump.



Your spa will perform a self-diagnostic check and go into Priming Mode. The control panel will display either **RUN PUMPS PURG AIR ---** or **Priming Mode**, depending on which control panel you have.

Do the following:

1. Press the JETS or JETS 1 button once to start the pump in low speed.
2. Press it again to switch the pump to high speed.
3. If you have other pumps, press JETS 2 or JETS 3 to turn them on also.

Running the pumps helps the pumps prime.

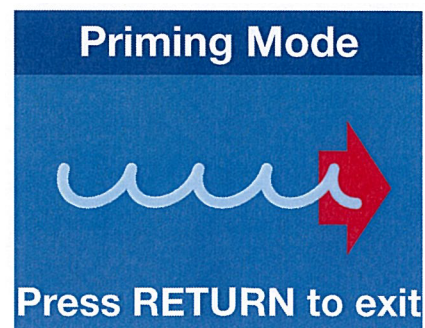
After two minutes, the pump should prime. If it does not, follow the priming instructions on the next page. If it does, continue with the next step.

Starting Up: Priming Mode for Neo-Pack Systems

The system will enter the priming mode. **Priming Mode** will display on the control panel. In Priming Mode, all devices such as jets and lights are operable. Jets can be turned on and off to help prime the pump. The system will exit Priming Mode and go to the Main display when the RETURN button is pressed, or after four minutes of activity.

Exiting Priming Mode for Neo-Pack Systems

You can manually exit Priming Mode by pressing the RETURN button. Note that if you do not manually exit the priming mode, the priming mode will be automatically terminated after 4 to 5 minutes. Be sure that the pumps have been primed by this time.



6. Install the filter into the filter canister.

Make sure the filter has soaked at least 30 minutes before you install it.

7. Adjust water chemistry.

Test and adjust the water chemistry. See the section on page 23 for instructions on water clarity.

8. Let the spa heat up.

When the spa has finished priming, the heater will activate. Put the cover on and let the spa heat to the set temperature.

Priming the Pump

New spa owners often have difficulty the first time they start their spa and the pump fails to prime. This can be frustrating, but these simple instructions can help you.

Sometimes air can become trapped in the pump while filling the spa. You will know this has happened when after you have filled and started the spa, the pump does not seem to function. You will hear the pump operating, but no water will be moving.

There are two methods of priming the pump.

The first method will remove small air bubbles trapped in the pump.

1. Turn the spa on and wait for PR (Priming Mode) to appear on the topside display.
2. Press the JETS 1 button to turn on the pump and let it run for 10 seconds. The pump should be running in low speed.
3. Press the JETS 1 buttons again and let the pump run in high speed for 10 seconds.
4. Press the JETS 1 button again to turn off the pump. The pump should be left in the off position for 10 to 15 seconds.
5. Repeat steps 1 through 4 until water is flowing through all the jets and all air is removed from the plumbing.

The second method will remove a large air lock within the pump.

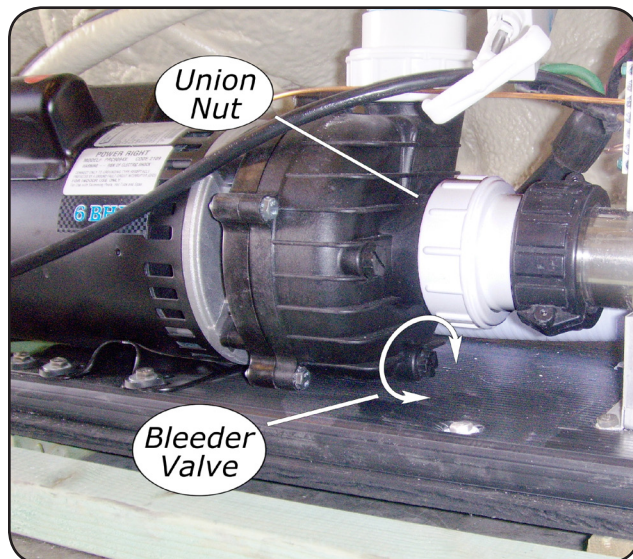
1. Using a Phillips screwdriver, remove the front panel from the spa and locate the pump.
2. While the spa is operating, turn the bleeder valve counter clockwise with a small pair of pliers or a flat head screwdriver until the air has been released from the pump.
3. If this is unsuccessful, loosen the white union nut on side of the pump with channel locks. When air is bled out, tighten the nut and set the pump on high speed.



The pump will not work properly while air is trapped in it. Continuing to operate the pump in this way will cause damage.

Whenever you fill your spa, fill it through the filter canister and make sure all jets are open.

Note: If you press the **Temp** button any time during Priming Mode, it will exit that mode and begin Standard Mode.



Operating Your Spa

Electronic Control Operation

For one pump systems



For two pump systems



Initial Start-up

When first powered up, your hot tub will perform a self-diagnostic check and go into priming mode. When the control panel displays **PR**, IMMEDIATELY do the following:

1. Press the JETS 1 button to turn on the pump and let it run for 10 seconds. The pump should be running in low speed.
2. Press the JETS 1 button again and let the pump run in high speed for 10 seconds.
3. Press the JETS 1 button again to turn off the pump. The pump should be left in the off position for 10 to 15 seconds.
4. Repeat steps 1 through 3 until water is flowing through all the jets and all air is removed from the plumbing.

When the hot tub has finished priming, the heater will be activated and the water temperature will be maintained in standard mode. The hot tub will heat to 100°F (37.5°C) at start up until the set temperature is changed as described below.

Temperature Adjustment

(Range 80°F to 104°F, 26°C to 40°C)

The electronic control panel displays the actual water temperature in degrees Fahrenheit. The displayed temperature will only be current after the pump has been running for at least two minutes.

To display the temperature that the hot tub is set to:

- Press the **Temp** button. The temperature setting will flash.
- While the display is flashing, each time you press **Temp** button, the set temperature will change up or down one degree.
- If the desired temperature is opposite of the direction each press of the button is making, release button, allow display to stop flashing and then press **Temp** button to change temperature the other direction.

Standard, Economy and Sleep Heating Modes

Your new hot tub is equipped with a heating feature that gives you complete control of the heating system. When the hot tub is powered up, it will automatically start in standard heating mode.

- **St** will light briefly on the main display. In this mode, the heating system will automatically maintain the set temperature. In the economy-heating mode, the heating system will only activate during filtration times.
- **Ec** will display solid if temperature is not current and will alternate with water temperature if measured temperature is current.
- Economy mode will heat the water to the set temperature while Sleep mode, indicated by a **SL** on the main display, will also only activate the heater during the filtering cycles but will only heat the water to within 20°F (10°C) of the set temperature. Like Economy mode, **SL** will display solid when temperature is not current and will alternate with actual temperature when it is current.

NOTE: Displayed temperature will only be current after the pump has been running for at least two minutes.

Switching Modes

- Press the **Temp** button followed by the **Light** button.
- Press the same sequence to switch to the next mode.

Activating the Jets

Press the **Jets 1** button:

- Once to activate low speed pump.
- Twice to activate high speed.
- Three times to return to turn pump off.

Jets 2

Press the **Jets 2** button to turn pump 2 on. Press it once again to turn the pump 2 off.

Light

Press the **Light** button to turn on the light. Press it once again to turn the light off.

Automatic Time-outs

These features will automatically turn themselves off during periods of continuous use:

- Low speed pump After 4 hours
- High speed pumps After 15 minutes
- Hot tub light After 15 minutes

Setting Filtration Cycles

Your hot tub is programmed to filter twice a day. The first cycle will begin six minutes after the hot tub is turned on and the second cycle 12 hours later.

The factory has programmed the cycle to last for one hour for single pump systems and two hours for two pump systems, but this can be changed to your preference.

To change the filtration cycle, press the **Temp** button then the **Jets** button. Press **Temp** button again to change the filtering cycle duration. See the table below for filtration settings and duration.

When desired duration is selected press the **Jets** button to exit.

Single pump systems		Two pump systems	
Setting	Duration	Setting	Duration
F1	1 hour	F2	2 hours
F2	2 hours	F4	4 hours
F3	3 hours	F6	6 hours
F4	4 hours	F8	8 hours
F5	5 hours	FC	Continuous
F6	6 hours		
F7	7 hours		
F8	8 hours		

Note: Single pump systems do not have continuous filtration.

To set the time of day you want filtration to begin, turn off the power to the hot tub at the time of day you would like one of the filtration cycles to begin, then turn it back on after 30 seconds. When power has been restored, set the filtration cycle as described above.

During filtration, the water temperature will appear on the main display.

Electrical Power Efficiency

Your new spa comes equipped with an electric heater. Following the directions listed below will ensure the most efficient operation:

NOTE: This method is only for spa usage under two hours a week.

- Keep the spa's operating temperature 5°F below the desired usage temperature when not in use. One or two hours before use, set the temperature to the desired temperature.
- If the spa usage exceeds two hours a week, the set temperature should remain at the desired

usage temperature.

- The air venturis should be used sparingly. When open, water temperature drops quite rapidly and can also dissipate chemicals.

Allowing the water temperature to lower more than 10°F below the desired usage temperature and reheating it prior to usage will cause the heater to operate longer than it normally would maintaining the desired temperature. Doing this will increase your operating cost and makes your heater work more than necessary.

Diagnostic Messages

Message	Meaning	Action Required
No message on display	1) Spa temperature is unknown. 2) Spa is in Economy or Sleep mode. 3) Power has been cut off to the spa.	1) After pump has been running for 2 minutes temperature will be displayed. 2) In Economy or Sleep mode, the pump may be off for hours outside a filter cycle. If you wish to see the current spa temperature, either switch to Standard mode or turn Jets1 on for at least two minutes. 3) The control panel will be disabled until power returns. Spa settings and time of day will be preserved for 30 days with a battery back-up.
BUF	Internal problem detected.	Repair required. Contact your dealer or service organization.
dr	Insufficient water detected in heater. Spa will be shut down for 15 minutes.	Check water level in spa. Refill if necessary. Make sure pumps are primed and filter cartridges are clean. Press any button to reset or wait 15 minutes and spa will automatically reset. If message spa does not reset, call your dealer or service organization.
dry dY	Insufficient water detected in heater. Spa is shut down. (Displays on third occurrence of dr message.)	Follow directions for dr message and press any button to reset spa. Spa will not automatically reset when dry or dY is displayed.
Ec	Indicates heater is in Economy Mode.	None.
--F or --C	Temperature unknown	After the pump has been running for two minutes, the temperature will be displayed.
HL HFL	A difference in readings between temperature sensors has been detected indicating a possible water flow problem.	Make sure spa is filled to proper level and that pumps are primed and filter cartridges are clean. If message does not reset, call your dealer or service organization.
IC ICE	Potential freeze condition detected.	No action required. The pumps and the blower will automatically activate regardless of spa status.

Message	Meaning	Action Required
LF	Persistent low flow problems. Heater is shut down, but other spa functions continue to run normally. Displays on the fifth occurrence of the HL or HFL message within 24 hours.	Follow action required for HL or HFL message. Heating capacity of the spa will not reset automatically. Press any button to reset.
OH OHS	Overheat protection. The spa has shut down. One of the sensors has detected that the spa water is 110°F.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
HH OHH	Overheat protection (spa is shutdown). One sensor has detected 118°F (48°C) at the heater.	DO NOT ENTER THE WATER! Remove the spa cover and allow spa to cool below 107°F (42°C). Press any button on the topside display to reset spa. If spa will not reset after spa has cooled, turn off power for approximately 30 seconds and then turn power back on. If display message is repeated then shut the power off to the spa and call your dealer or service organization.
Pr	When your spa is first actuated, it will go into priming mode.	The priming mode will last for up to four minutes and then the spa will begin to heat and maintain the water temperature in the Standard mode.
SF	Safety Suction. Spa is shut down.	The display will show SF when a vacuum switch closes. All functions will turn off and the system will be disabled until a panel button is pressed.
SL	Indicates heater is in Sleep Mode.	None.
SA Sb SNA Snb	Spa is shut down. The sensor that is plugged into the sensor "A" or "B" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
Sns Sn	Sensors are out of balance. <ul style="list-style-type: none"> If this is alternating with the temperature, it may just be a temporary condition. If the display shows only this message (periodically blinking), the spa is shut down. 	Contact your dealer or service organization.
ST	Indicates heater is in Standard Mode.	None.
Stby	Pressing a button combination on the user panel has activated Standby Mode.	Press any button to leave Standby Mode and return to normal operation.

Spa Operation

NEO one-pump system



NEO two-pump system



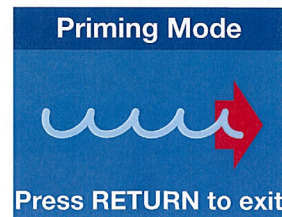
MAIN SCREEN:

The main screen displays current time, water temperature, and status of the system accessories. The screen below from bottom, left to right indicates LIGHT ON, BLOWER ON, JET 1 at low speed.



PRIMING MODE:

When power is ON, the system will enter a priming mode with priming screen display on the panel. In this mode, all devices such as JETS, BLOWERS or LIGHT are operable. JETS can be turned on and off to prime the pump. System will exit priming mode and go to MAIN display when RETURN button is pushed, or after 4 minutes of inactivity.



SPA OPERATION:

Turn system accessories ON and OFF by pushing appropriate button on the right side of panel (LIGHT, JET 1, BLOWER, JET 2...) These accessories have timeout defaults from the manufacturer and will turn OFF automatically after the time has expired. Timeout time for LIGHT default is 60 minutes; BLOWER default is 15 minutes; JET at low speed default is 60 minutes; and JET at high speed is 15 minutes. User can change these default times in "DEVICE TIMEOUT" setting menu.








MENU NAVIGATING:

- MENU button: use to enter setting menu and sub-menu screens. For screens with several settable fields (example: DATE-TIME screen), use MENU button to navigate between different fields within the screen.
- UP and DOWN button: use to navigate between different options or changing values of a field.
- RETURN button: use to confirm the setting and goes back to previous screen.

SETTING TEMPERATURE:

To change water set temperature, use UP and DOWN buttons to set the desired temperature. The screen will display "SET TEMP" with the current set temperature. After 5 seconds without any change to the set temperature, the screen will reverse back to MAIN screen with current water temperature display. Changing set temperature will make heat pump turn on to get accurate water temperature to determine if water needs to be heated up.



SELECTION ICONS: FILTER CYCLE 1 ENERGY SAVING HEAT MODE OZONE ON FILTER CYCLE 2 VACATION HEAT MODE JET ON LOW SPEED FILTER CYCLE 3 CLEANER CYCLE JET ON HIGH SPEED FILTER CYCLE 4 POLLING CYCLE BLOWER ON LIGHT ON TEMPERATURE LOCK SPECIAL TEMP SELECT HEATER ON PANEL LOCK OPTION HEATER START-UP**PANEL TIMEOUT:**

If user is in Setting Menus and no button is pushed within 15 seconds, the screen will timeout, current screen setting will be lost and panel reverts back to MAIN screen.

In MAIN screen, if no buttons is pushed within 60 minutes, all LED and LCD lights will turn off and panel goes to sleep. Any button pushed in this time will wake the panel up, LED and LCD lights will turn back on and panel will poll for water temperature.

ENTER SETTING SCREENS:

Press MENU button to display a list of set up screens.

Use UP and DOWN to navigate between various set up screens.

Press MENU again to enter a particular set up screen or press RETURN to goes back to MAIN screen.

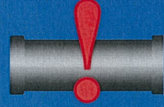

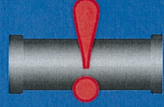

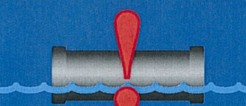







Rotate View
Special Temp
Heat Mode
Filter Cycles
Date-Time

Rotate View
Special Temp
Heat Mode
Filter Cycles
Date-Time

Settings Screens

- **ROTATE VIEW:** rotate the view 180 degrees, the UP and DOWN button also swap when rotated. With ROTATE VIEW highlighted press MENU to enter ROTATE VIEW setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **SPECIAL TEMP:** to temporarily heat spa to 105°F or 106°F once, and return to previous temperature setting. With SPECIAL TEMP highlighted press MENU to enter SPECIAL TEMP setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **HEAT MODE:** select STANDARD heating mode for most users or ENERGY SAVING mode (reduces polling for water temperature) or VACATION mode (set temp set to 50°F). With HEAT mode highlighted press MENU to enter HEAT mode setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **FILTER CYCLES:** set up filter cycle start time, duration and date for filtering the spa. For FILTER CYCLE 1 and 2, if duration is set to zero the system will do a purge cycle at the start time setting. With FILTER CYCLE highlight press MENU to enter FILTER CYCLE 1, 2, 3, or 4 setting. Select a FILTER CYCLE and press MENU again to enter TIME/DURATION setting screen. In this screen, press MENU to move between HOURS, MINUTES and DAYS setting; UP/DOWN to change the values and RETURN to exit and confirm the setting.
- **DATE-TIME:** set up date and time for the spa. With DATE-TIME highlighted press MENU to enter DATE-TIME setting. In this screen, pressing MENU will move and highlight various fields that can change the setting; UP/DOWN to change the values and RETURN to exit and confirm the setting.
- **DEGREE F/C:** displays spa temperature in Celsius or Fahrenheit. This option is only available for 60 Hz countries and automatically displays Celsius for 50 Hz. With DEGREE F/C highlighted press MENU to enter DEGREE F/C setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **TIME DISPLAY:** display spa time in AM/PM or 24 hours time. With TIME DISPLAY highlighted press MENU to enter TIME DISPLAY setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **DEVICES TIMEOUT:** allows changes to timeout setting for various devices. LIGHT can set to a maximum of 4 hours; PUMP in high speed and BLOWER can be set to a maximum of 1 hour; and PUMP in low speed can set to a maximum of 2 hours. With DEVICES TIMEOUT highlighted press MENU to enter and select various devices setting. Use UP/DOWN to select the desired time setting and RETURN to exit and confirm the setting.
- **PANEL LOCK:** locks all panel buttons except MENU button. With PANEL LOCK highlighted press MENU to enter PANEL LOCK setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **TEMP LOCK:** locks TEMPERATURE setting with UP/DOWN buttons. With TEMP LOCK highlighted press MENU to enter TEMP LOCK setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **SERVICE MODE:** *only available for Authorized Dealers and Spa Manufacturer.*
- **DEMO MODE:** to demonstrate all device capabilities of the spa. With DEMO MODE highlighted press MENU to enter MODE setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **GENERAL INFORMATION:** displays general information for the spa. With GENERAL INFORMATION highlighted press MENU to enter GENERAL INFORMATION menu. Use UP/DOWN to view different pages and information and RETURN to exit the page.
- **LANGUAGES:** to select various languages for the spa display. With LANGUAGES highlighted press MENU to enter and select a specific language. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **SERENITY MODE:** to turn off all outputs and provide a quiet time setting. With SERENITY MODE highlighted press MENU to enter and select a specific time. Use UP/DOWN to select the desired time setting. Press MENU again to navigate to EXIT/START. Select the desired option and RETURN to exit and confirm the setting.
- **ENERGY INTERVAL:** *only available for Non-Circ systems.* With ENERGY INTERVAL highlighted press MENU to enter ENERGY INTERVAL setting. Use UP/DOWN to select the desired minutes setting and RETURN to exit and confirm the setting.
- **SILENT TIME:** *only available for Non-Circ systems.* Set up the time for no polling. With SILENT TIME highlighted press MENU to enter SILENT TIME setting. In this screen, pressing MENU will move and highlight various fields that can change the setting; UP/DOWN to change the values and RETURN to exit and confirm the setting.
- **CLEANER CYCLE:** *only available for Non-Circ systems.* To turn on filtration after using the spa for short cleaning period. With CLEANER CYCLE highlight press MENU to enter and select a specific duration. Use UP/DOWN to select the desired time setting. Press Menu again to navigate to Exit/Start. Select the desired option and RETURN to exit and confirm the setting.

Error Screens

<p>Plumbing Error</p>  <p>Press RETURN to clear</p>	<p>◀ Error caused when SENSOR 1 and SENSOR 3 have been plugged in incorrectly. Swap the SENSOR 1 and SENSOR 3 plug in controller to correct this problem.</p> <p>Check SENSOR 1 connection. ▶</p>	<p>Sensor 1 open</p>  <p>Press RETURN to clear</p>
<p>Insufficient Flow</p>  <p>Press RETURN to clear</p>	<p>◀ Error caused by no water flow through heater or no water in heater. Check to be sure there is enough water flow through heater.</p> <p>Check SENSOR 1 connection or replace SENSOR 1. ▶</p>	<p>Sensor 1 short</p>  <p>Press RETURN to clear</p>
<p>Low Flow</p>  <p>Press RETURN to clear</p>	<p>◀ Check to be sure there is enough water flow through heater.</p> <p>Check SENSOR 2 connection. ▶</p>	<p>Sensor 2 open</p>  <p>Press RETURN to clear</p>
<p>Water Overheat</p>  <p>Press RETURN to clear</p>	<p>◀ Wait for water temperature to cool down.</p> <p>Check SENSOR 2 connection or replace SENSOR 2. ▶</p>	<p>Sensor 2 short</p>  <p>Press RETURN to clear</p>
<p>Heater Overheat</p>  <p>Press RETURN to clear</p>	<p>◀ Wait for water temperature to cool down. Check to be sure there is enough water flow through heater.</p> <p>Check SENSOR 3 connection. ▶</p>	<p>Sensor 3 open</p>  <p>Press RETURN to clear</p>
<p>Potential Freeze</p>  <p>Press RETURN to clear</p>	<p>◀ Error caused when SENSOR 1, 2, or 3 detects low temperature. All JETS and BLOWERS will turn on automatically to protect plumbing from freezing. JETS and BLOWERS will shut down when all 3 SENSORS reach a desired temperature.</p> <p>Check SENSOR 3 connection or replace SENSOR 3. ▶</p>	<p>Sensor 3 short</p>  <p>Press RETURN to clear</p>

Jets

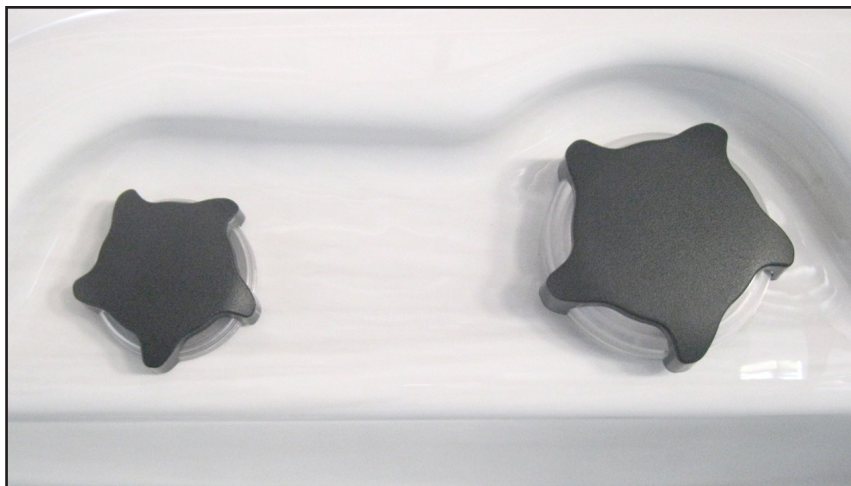
Almost all of the jets in your spa are adjustable. Rotating the face of an adjustable jet to the left (counter-clockwise) will decrease the amount of water flow through the jet. Rotating the face of an adjustable jet to the right (clockwise) will increase the amount of water flow through the jet. (See example shown below.)

Neck jets adjust in the opposite directions (counter-clockwise to increase, clockwise to decrease).



Water Diverters

Water diverter 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 from floor jets to wall jets. This is accomplished by rotating the knob to the left or right to increase or decrease the flow of water through the jets.



Air Control

The air control is the 1" knob located around the top of your spa. The air control will let you add a mixture of air with the jet pressure. This is accomplished by rotating the knob to the left or right to increase or decrease the amount of airflow through the jets.



Waterfall

Some spa series include a waterfall. When the booster pump is on, rotate the dial on top (for the cascade waterfall) or turn the knob (for the hydro streamer -- see below).



Hydro Streamer Waterfall

Your spa may include two to eight streamer waterfalls. When the booster pump is on, turn the 1" diverter knob to adjust the rate of flow to the waterfall jets.

The waterfall jet faces are not adjustable. Do not turn the jet faces because you may accidentally remove them.

Always shut off water to the hydro streamer jets before you place the cover on the spa. Water from the hydro streamer jets sprays in an arc that is higher than the top surface of the spa. When water from the hydro streamer sprays the bottom of the cover, it will collect and run to the edge of the spa and drip over the top.



Cover Latches

When your hot tub is not in use, make sure you place the cover on top and latch it securely. Besides protecting your hot tub from sun damage and keeping out contaminants, it will prevent small children from drowning in the hot tub.

Your cover will have four clips attached to the ends of the four latches, two on each end of the hot tub cover. There will also be a small bag with eight wood screws.

After you place the cover on the hot tub, attach the clips to the side of the hot tub using the wood screws.

Clear Water Plan

This section is intended for new spa owners with no experience with water chemistry. Everyone's experience with maintaining water quality is different, but there are some general concepts you need to know.

Water maintenance is not difficult, although it requires regular attention. The most important thing to understand about taking care of your spa water is that preventive action is much easier than correcting water quality issues.

Contents of this section:

- Testing and Adjusting Spa Water
- Sanitation
- Filtration
- Bather Load
- Starting the Spa with Fresh Water
- Maintenance Schedule
- Troubleshooting Water Clarity Problems

The Key to Clear Water

Excellent water quality is a simple matter of four things:

Regularity

Clear water requires regular maintenance. Establish a routine based on a regular schedule for your spa water maintenance.

Maintaining your water quality helps the enjoyment of your spa and extends your spa's life by preventing damage from neglect and chemical abuse.

See page 27 for the schedule of recommended maintenance.

Filtration

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

A clogged or 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.

See page 26 for filter cleaning instructions.

Sanitation

Sanitizers kill bacteria and viruses and keep the water clean. A low sanitizer level will allow microbes to grow quickly in the spa water.

We recommend using either chlorine or bromine as your sanitizer.

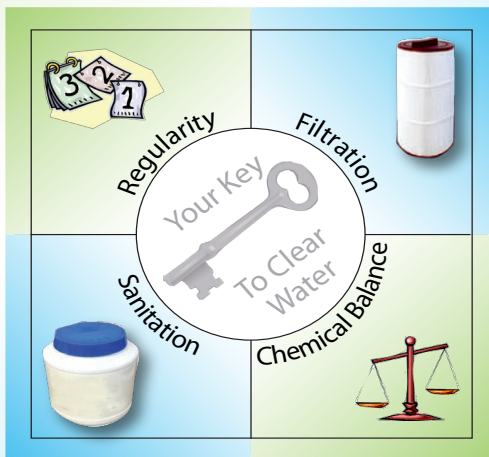
See page 25 to learn how to use sanitizer.

Chemical Balance

You will need to test and adjust the chemical balance of your spa water. Although this is not difficult, it needs to be done regularly.

Depending on your choice of sanitizer, you need to test the level of calcium hardness, total alkalinity, and pH.

See page 24 to learn how to balance your spa water.



Testing and Adjusting Spa Water

You have two types of testing methods to choose from:

- **The reagent test kit** is a method which provides a high level of accuracy. It is available in either liquid or tablet form.
- **Test strips** are a convenient testing method commonly used by spa owners.

Balancing the Total Alkalinity

Total alkalinity (TA) is the measure of the total levels of carbonates, bicarbonates, hydroxides, and other alkaline substances in the water. TA can be considered a “pH buffer”. It is the measure of the ability of the water to resist changes in pH level.

The recommended total alkalinity is 80 - 120 ppm.

If the TA is too low, the pH level will fluctuate widely from high to low. Low TA can be corrected by adding an alkalinity increaser.

If the TA is too high, the pH level will tend to be too high and may be difficult to bring down. High TA can be corrected by adding an alkalinity decreaser.

When the TA is balanced, it normally remains stable, although adding water with high or low alkalinity will raise or lower the TA level.

Balancing the Calcium Hardness

Calcium hardness (CH) is a measure of the total amount of dissolved calcium in the water. Calcium helps control the corrosive nature of the spa’s water and is why soft water is not recommended. The low calcium content of soft water is very corrosive to the equipment and can cause staining of the spa shell.

The recommended calcium hardness is 150 - 200 ppm.

If the CH is too low, add a calcium hardness increaser.

If the CH is too high, dilute the spa water with soft water.

When the CH is balanced, it normally remains stable, although adding soft water or very hard water will raise or lower the CH level.

Balancing the pH

The pH level is the measure of the balance between acidity and alkalinity.

If the pH is too low, it can cause corrosion of metal fixtures and the heating element. Low pH can be corrected by adding a pH increaser.

If the pH is too high, it can cause scaling by allowing metals or minerals to form deposits and stain spa surfaces. High pH can be corrected by adding a pH decreaser.

Ideal Water Chemistry

Testing For:	Ideal Range (ppm)	
	Minimum	Maximum
Total Alkalinity	80	120
Calcium Hardness	150	200
pH	7.2	7.6

Sanitation

Sanitizers kill bacteria and other organic waste by breaking them down to non-harmful levels and 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.

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 26 for a description of how the ozonator works.

Using Chlorine as a Sanitizer

If you choose to use chlorine as a sanitizer, only use granulated chlorine, not liquid chlorine.

Once a week, check the chlorine level using either a test strip or a reagent kit. See the table on the following page for the ideal range.

Add one or two tablespoons granulated chlorine to the spa water weekly. Note that chlorine dissipation rate will be faster at higher water temperatures and slower at lower temperatures.

When you add chlorine, open all of the jets and run the spa at high speed with the cover open for at least 30 minutes.

Follow the maintenance schedule on page 27.

Using Bromine as a Sanitizer

Bromine is a very effective sanitizer that produces low chemical odors. Unlike chlorine, it can break down bacteria and other impurities to a safe level with a low burn-out rate.

Use granulated sodium bromide to establish your bromine base.

When you begin with fresh water, add 2 ounces of granulated bromide. Open all of the jets and run the spa at high speed with the cover open for at least 30 minutes.

Follow the maintenance schedule on page 27.

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 will damage your spa's jets and pump seals. Only use an oxidizer shock. It can be used with either chlorine or bromine sanitizers.

Add one ounce of oxidizer shock once a week, after heavy bather loads, or if water has a strong odor.

Spa must be running with all of the jets on high for 30 minutes with the cover open. If necessary, repeat oxidizer shock in 30 minute intervals.

Testing For:	Ideal Range (ppm)	
	Minimum	Maximum
Chlorine level		
Without ozonator	3.0	5.0
With ozonator	2.0	4.0
Bromine level		
Without ozonator	6.7	11.0
With ozonator	5.7	10.0

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.

Filter Cleaning

The filter is the part of your spa that removes the debris from the water and needs to be cleaned on a regular basis to maximize your spa’s filtering performance and heating efficiency.

In addition to spraying off the filter weekly to remove surface debris, your filter should be deep cleaned periodically to dissolve scale and particles that get lodged deep within the filter fibers and impede the filtration process. Even if the filter looks clean, scale and particles can clog the fibers and prevent water from flowing through the filter resulting in the most common spa problem—no heat, caused by a dirty filter.

We recommend you clean your filter once a month and replace it once a year or as necessary.

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 through the filter well.

Cleaning the filter

1. Remove the filter by unscrewing it and pulling it up and out.
2. Place the dirty filter into a bucket of water deep enough to cover the filter. Add 8 oz of liquid filter cleaner to the bucket of water.

Note: It is a good idea to keep a spare filter to use in the spa while the dirty filter is being deep cleaned. This way, you can rotate the filters and both will last longer.

3. Soak the filter for a minimum of 24 hours.
4. Spray the filter with a water hose. Spray each pleat carefully.
5. Reinstall the filter. Do not overtighten.

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.

For spas with a circulation pump, the ozonator will run with the circulation pump.

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.

See instructions for setting filtration cycles on page 13.

Maintenance Schedule

Each time you refill the spa	Follow the section "Filling and Powering Up Your Portable Spa" on page 8.
Prior to each use	Test the spa water using either test strips a reagent test kit. Adjust chemical levels as necessary.
Once a week	Test the spa water using either test strips a reagent test kit. Adjust chemical levels as necessary. If your water source is high in calcium, add stain and scale preventer.
Once a month	Deep clean your spa's filter. (Follow filter cleaning instruction at beginning of this section)
Every two to four months	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"> • Clean and polish the acrylic surface (see page 32) • Clean and treat the spa cover and pillows (see page 32) • Deep clean the filter (see page 26) • Refill your spa (see page 8)
Once a year	Replace filter cartridges if the pleats appear frayed.

Troubleshooting Water Clarity Problems

Problem	Probable Causes	Possible Solutions
Cloudy Water	<ul style="list-style-type: none"> • Dirty filter • Excessive oils / organic matter • Improper sanitization • Suspended particles / organic matter • Overused or old water 	<ul style="list-style-type: none"> • Clean filter • Shock spa with sanitizer • Add sanitizer • Adjust pH and/or alkalinity to recommended range • Run jet pump and clean filter • Drain and refill the spa
Water Odor	<ul style="list-style-type: none"> • Excessive organics in water • Improper sanitization • Low pH 	<ul style="list-style-type: none"> • Shock spa with sanitizer • Add sanitizer • Adjust pH to recommended range
Chlorine Odor	<ul style="list-style-type: none"> • Chloramine level too high • Low pH 	<ul style="list-style-type: none"> • Shock spa with sanitizer • Adjust pH to recommended range
Musty Odor	<ul style="list-style-type: none"> • Bacteria or algae growth 	<ul style="list-style-type: none"> • Shock spa with sanitizer – if problem is visible or persistent, drain, clean and refill the spa
Organic buildup / scum ring around spa	<ul style="list-style-type: none"> • Buildup of oils and dirt 	<ul style="list-style-type: none"> • 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
Algae Growth	<ul style="list-style-type: none"> • High pH • Low sanitizer level 	<ul style="list-style-type: none"> • Shock spa with sanitizer and adjust pH • Shock spa with sanitizer and maintain sanitizer level
Eye Irritation	<ul style="list-style-type: none"> • Low pH • Low sanitizer level 	<ul style="list-style-type: none"> • Adjust pH • Shock spa with sanitizer and maintain sanitizer level
Skin Irritation / Rash	<ul style="list-style-type: none"> • Unsanitary water • Free chlorine level above 5 ppm 	<ul style="list-style-type: none"> • Shock spa with sanitizer and maintain sanitizer level • Allow free chlorine level to drop below 5 ppm before spa use
Stains	<ul style="list-style-type: none"> • Total alkalinity and/or pH too low • High iron or copper in source water 	<ul style="list-style-type: none"> • Adjust total alkalinity and/or pH • Use a stain and scale inhibitor
Scale	<ul style="list-style-type: none"> • High calcium content in water – total alkalinity and pH too high 	<ul style="list-style-type: none"> • Adjust total alkalinity and pH – if scale requires removal, drain the spa, scrub off the scale, refill the spa and balance the water • Use a stain and scale inhibitor

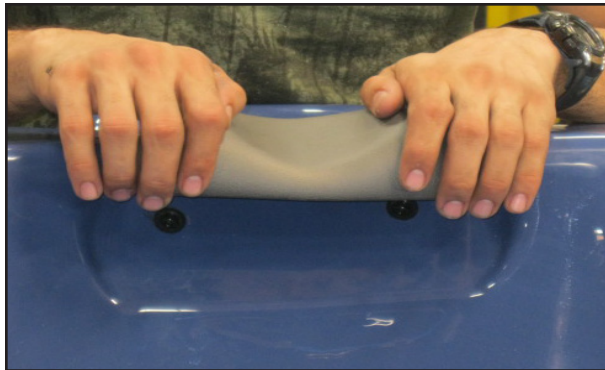
Cleaning and Maintenance

Removing and Reseating 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 edge of the pillow with both hands firmly and pull up. As you do this, the pillow inserts will pop out of the holes.

Reseat the pillows by aligning the pillow inserts with the holes and tapping the pillow hard enough to insert the pegs back into the holes.



Spa Cover

Important! Keep the spa covered when not in use!

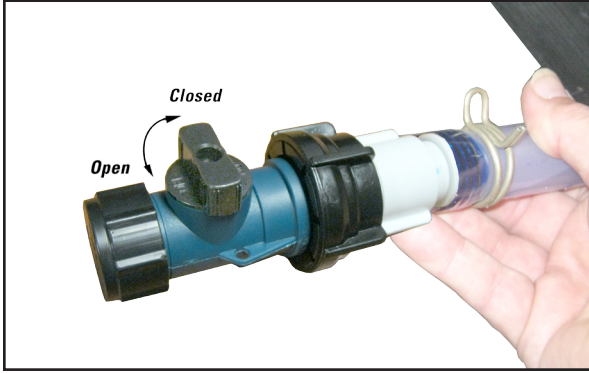
- Covered spas will use less electricity in maintaining your set temperature.
- Covering your spa will protect your spa's finish from the sun's ultraviolet rays.
- You are required to keep the spa covered to maintain warranty coverage.
- Covering your spa helps prevent children from drowning in the spa.

See the manual enclosed with your cover for instructions on mounting the locks and how to lock and unlock the cover.

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.

Draining Your Portable Spa

1. Turn off the power at the breaker.
2. Remove all filters.
3. Using a Phillips screwdriver, remove the screws to the access panel and open it.



4. Locate hose ending with the $\frac{3}{4}$ inch hose-bib fixture.
5. Unscrew the cap.
6. Hook up the female end of a garden hose to the drain fitting.
7. Place the other end of the garden hose where you would like the water to drain to.
8. Turn the valve on the hose-bib fixture to open the drain.
9. Let spa drain completely, then remove garden hose.
10. Turn the valve on the hose-bib fixture to close the drain.
11. Replace the cap.

Winterizing (Cold Climate Draining)

In many areas of the country, the temperature drops below 32°F (0°C). 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 in your spa and your spa's equipment.

Warning: If you find the need to drain your spa, be aware of the potential of freezing in your spas 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 as described in the instructions above.
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 at the top of the UV lamp chamber and pull up the quartz tube 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 retighten 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.

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. Set the spa to VACATION Mode. (See instructions on page 19 for changing modes.)
2. Following the water quality instructions starting on page 23, 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.

Jet Removal and Replacement

Jets can be easily removed for cleaning.

Grasp the outer rim of the jet and turn it counter-clockwise. The jet will unscrew from the fitting until it is free. (Shown below in the sequence from left to right is the process for removing the jet. A quarter turn counter-clockwise will turn off the jet. Another quarter-turn will allow you to pull out the jet from the spa.)

To replace the jet, place it in the fitting and turn it clockwise until it is snug in place. Do not overtighten the jet.



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 filtering your spa than by using excessive amounts of chemicals, excessive filtration times, or by water replacement.

See the section "Clear Water Plan" for more information on cleaning your filter.

Cleaning Your Spa

Spa Cover and Pillows

Due to the 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 your 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 low detergent, non-abrasive cleaner specifically formulated to clean the spa without damaging its 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.



Sound System and Perimeter Lighting

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 through your spa.

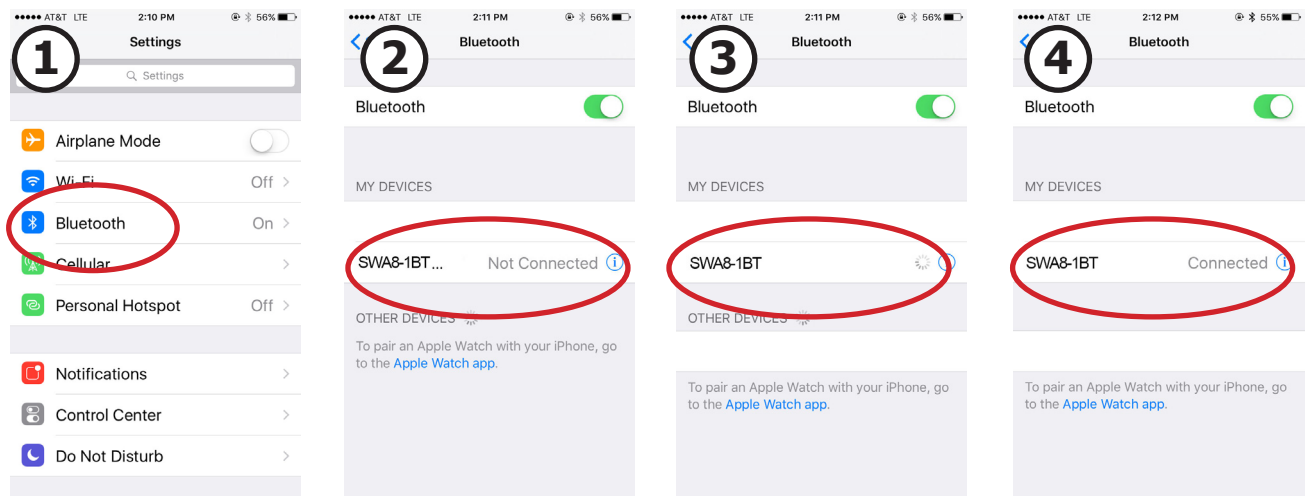


Before you can use the sound system, you need to pair the Bluetooth module with your device. The Bluetooth module is installed within the spa cabinet. Everything can be done with your device. The example shown below is from an iPhone device. Your device may appear differently. Before you begin, make sure Bluetooth is enabled on your device.

1. Select Bluetooth from your device's option list.
2. Select **SWA8-1BT...** from the list of available devices to pair.
3. Allow your device to pair with the spa's Bluetooth module.
4. When the devices have been connected, the device **SWA8-1BT...** will be highlighted.

Only one Bluetooth device can be paired with the Freedom Sound System™ at any time.

Once your device is paired and connected, all sounds from your device will be played through the sound system, including system sounds and telephone.



LED Perimeter Lighting

Press the LIGHT button on the topside control panel to turn the spa light on. If your spa has perimeter LED lights, they will also light up at the same time as the spa light.

The perimeter lights operate in three modes:

1. Cycle: The first time you press the LIGHT button, the lights will cycle through all the colors in this order:

- White
- Cyan
- Magenta
- Blue
- Yellow/green
- Green
- Red

To cycle through the different color choices, press the button repeatedly. Each time you press the button, you advance to the next color.

- 2. Flashing white:** When you have cycled through all the colors, the next time you push the LIGHT button, the LED lights will flash white.
- 3. Fading cycle:** The next time you push the LIGHT button, the lights will gradually fade from one color to the next in the order shown above.

Spas with exterior corner LED lighting work in the same modes as described above but do not light up when the interior perimeter lights are yellow/green, green or red.

Replacement Parts

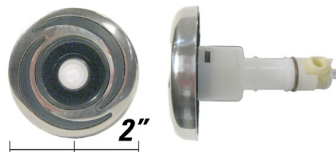
Please visit www.quickspaparts.com to order your replacement parts.

Snap-in SQR Jet Inserts

SQN halo, 2" directional neck jet, 100% shut-off

Halo with gray eyeball

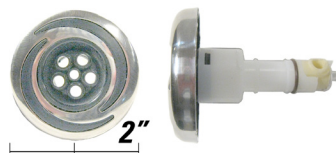
PLU29923-114-000



SQN halo, 2" neck jet, 100% shut-off

Halo w/ graphite gray center

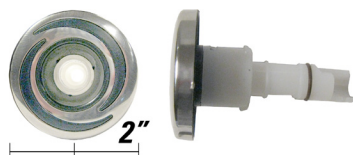
PLU29520-611-500



SQ2D, 2" euro jet directional

Halo w/ graphite gray eyeball

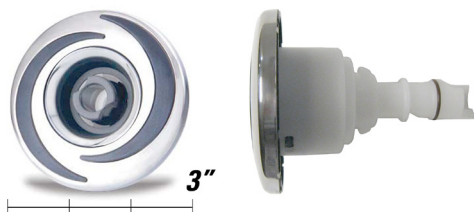
PLU29520-011-500



SQ3D, 3" directional mini jet

Halo w/ graphite eyeball

PLU29530-111-500

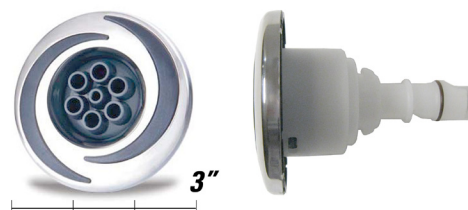


Snap-in SQR Jet Inserts

SQ3M halo, 3" mini massage jet

Halo w/ graphite center

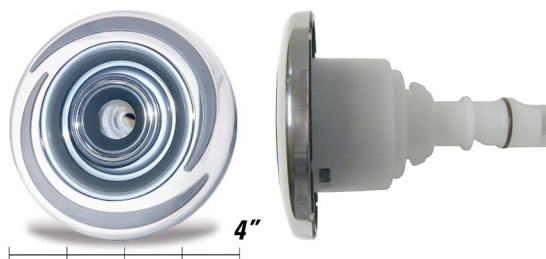
PLU29530-141-500



SQ4D, 4" directional maxi flow jet

Halo w/ graphite gray eyeball

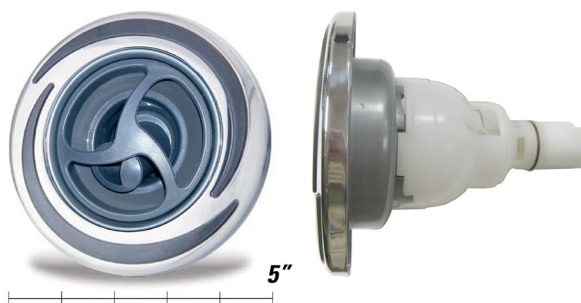
PLU29540-111-500



SQ5R, 5" rotational jet

Halo w/ graphite gray eyeball



PLU29550-081-500




Please visit www.quickspaparts.com to order your replacement parts.

Snap-in SQR Jet Inserts
<p>Hio, Roto, 3" pro-loc</p> <p>PLU29530-121-500</p> 
<p>Hio, Roto, 3.5" pro-loc</p> <p>PLU29530-031-500</p> 

Water Diverter Valves	
<p>Diverter Valve 2" Star Fire, Textured Black</p> <p>PLU21300468</p>	
<p>Diverter Valve 1" Star Fire, Textured Black</p> <p>PLU21300469</p>	
Air Control Valve	
<p>Air Control Valve Star Fire Black</p> <p>PLU21300526</p>	

Waterfalls	
<p>Cascade II Waterfall Curved Black Textured with Valve</p> <p>PLU21800826TEX</p>	
<p>Hydro Stream Waterfall Flush Mount Special Black (#210-9201) '13</p> <p>PLU21800624</p>	

Drain	
<p>Super Hi Flow suction Dark Gray 2 1/2" Slip Wall fitting (VGB2008) (#640-3589LGDSG V)</p> <p>PLU21400137</p>	

Filter	
<p>50 sq ft</p> <p>FIL50-5D13H15FCT</p> <p>PWW50L-M</p>	

Lights		
<p>Jumbo 5" Spa Light Fixture OEM Kit, No Lenses or Back Cap Required (#630-K008LC)</p> <p>LIT16100237</p> <p>This fixture is for Interior Light, part number LIT16100625.</p>		
	<p>Spa light fixture assembly</p> <p>Contains three pieces:</p>	
<p>Light fixture</p>  <p>Top view</p> <p>5"</p>	<p>Nut</p>  <p>5"</p>	<p>Gasket</p>  <p>4.5"</p>
<p>Side view</p>  <p>3.5"</p>		

Please visit www.quickspaparts.com to order your replacement parts.

LED Lights	
2-LED light string (Rostech) LIT16100620	
4-LED light string LIT16100621	
Interior light with logic LIT16100625	
LED light string jumper, 46 inches, daisy chain ELE09902531	
Replacement Cabinet Panels	
<p>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.</p>	

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.

Basic
4" - 2.5"
1.0 Lb. foam

The covers listed below are filled with 1 lb. foam.



Size	Fits spa models	Type	Part numbers
78" round	AM-511RS	Basic	Slate COV78RDB42S-WN-2
72" x 72" triangle	AM-628TS	Basic	Slate COV7272TRB42S-WN-2
74" x 84"	AM-630LS	Basic	Slate COV7484B42R-WW-2
84" x 84"	AM-730LS AM-730BS	Basic	Slate COV8484B42S-WN-2

Spa Cover Lock and Key

ACC01800020

Pillows

Counter Lounge Pillow



ACC01401500NL

Troubleshooting

Symptom	Possible Causes	Possible Solutions
System / Power Problems		
System does not work	Power is turned off	Reset spa
Control pad and spa equipment do not operate	No electrical power to spa	Turn on or reset the GFCI circuit breaker. If this does not solve the problem, have a qualified electrician check the electrical service.
	The 20 or 30A fuse, depending on the system, has blown	Contact your dealer
The spa does not turn off	Spa is trying to heat up	Check the temperature setting is in Standard mode
	Spa is in filter cycle	Normal. No adjustment necessary
	Spa is in Standard mode	Check setting
Control panel displays a message	An error may have occurred	See Diagnostic Messages on page 13 for message code meanings
GFCI breaker trips repeatedly	Improper wiring to spa or GFCI breaker is defective	Consult with a qualified electrician
	There is a defective component on the spa	Contact your dealer
Heat Problems		
Spa does not heat	Heating mode not selected	See control panel instructions on page 11
	Water level is too low	Add water to correct level
	No electrical power to spa	Turn on or reset the GFCI circuit breaker. If this does not solve the problem, have a qualified electrician check the electrical service.
	Heater is defective	Contact your dealer
	Gate valve is partially or fully closed	Open gate valves. Note: Never operate your spa with the gate valves closed!
Spa gets warm but does not get hot	Thermostat has been turned down	Set control panel to a higher temperature
	Insufficient filtration time	Increase filtration time
	Water level is too low	Add water to correct level
	No electrical power to spa	Turn on or reset the GFCI circuit breaker. If this does not solve the problem, have a qualified electrician check the electrical service.
	Dirty filter cartridge	Clean filter cartridge
	Gate valves closed	Open gate valves
	Spa cover improperly positioned	Align spa cover
Spa gets too hot	Filtration time is set too long	Reduce filtration cycles, especially during summer months

Symptom	Possible Causes	Possible Solutions
Water Problems		
Water is not clean	For all water clarity problems, see page 23.	
High water consumption	Very high evaporation or heavy splashing	Use the cover and refill as necessary
Low water stream from the jets	Running in FILTER mode - slow speed	Select high speed jets
	Block wall suction or skimmer	Clean the wall suction/skimmer. Remove blockage
	Dirty filter	Clean filter and replace
	Jets are closed	Open jets
	Valves closed	Open valves
No water stream from the jets	Pump has airlock	Remove airlock by priming spa (page 11)
	Jets are closed	Open jets
	Power switched off, system off	Reset power
	Pump is defective	Contact your dealer
	Pump fluctuations	Low water. Check level on skimmer flap
Water leakage from below the spa	Check the connections and empty the hoses	Close or turn off empty cycle if necessary
Water Pressure Problems		
Jets surge on and off	Water level is too low	Add water to normal level
Jets are weaker than normal or do not work at all	Jet valves are partially or fully closed	Open jet valves
	Filter cartridge is dirty	See Cleaning the Filter
	Air is trapped in the pump	Open the air bleed valve on each pump's housing and allow air to bleed out of the system. Be sure to tighten each air bleed valve as soon as water starts to flow.
	The suction fittings are blocked	Remove any debris that may be blocking the suction fittings
	Gate valve is closed	Open gate valves. Note: Never operate your spa with the gate valves closed!
Air and Jets Problems		
No airstream from the jets	Air control not open	Open the control
	Jet spout opening not fixed properly	Check jet spout openings
	Jet spout opening missing	Check jets and replace as necessary
Light Problems		
Standard spa light does not work	Light bulb has burned out	Replace light bulb
	Lighting system is defective	Contact your dealer

Symptom	Possible Causes	Possible Solutions
Pump Problems		
Pump runs constantly – will not shut off	Problem with circuit board	Contact your dealer
Noisy pump	Water level is too low	Add water to normal level
	Block wall suction or skimmer	Clean the wall suction/skimmer
	Damaged or worn-out motor block	Contact your dealer
	Clogged floor suction or skimmer	Clean floor suction or skimmer
	Leakage of air into suction line	Contact your dealer
	Debris is inside pump	Contact your dealer
	Gate valves are closed	Open gate valves. Note: Never operate your spa with the gate valves closed!
	Damaged or worn motor bearings	Contact your dealer
	Improper or defective wiring	Contact your dealer
Pump turns off during operation	Automatic timer has completed its cycle	Start the cycle again
	Pump has overheated due to the vents on the equipment door being blocked	Clear items away from vents
	The pump motor is defective	Contact your dealer
Pump has a burning smell while running	Damaged or worn motor bearings	Contact your dealer
Pump does not work	Power may be turned off	Reset power
	Pump has over heated	Let cool for one hour
	Incorrect or faulty wiring of electrical supply	Contact your dealer
	Switch is off	Auto reset after the motor has cooled down
	House circuit breaker tripped or in OFF position	Reset circuit breaker Contact your dealer
	Motor overload condition	Motor overload will reset automatically. If problem persists, contact your dealer
	Damaged electrical cord	Contact your dealer
	Pump cord not plugged in	Plug pump cord into red receptacle
	GFCI tripped or in OFF position	Reset GFCI

LIMITED WARRANTY



This limited warranty is extended to the original purchaser of an American Spa™ manufactured after January 1, 2017 and installed for residential use. This limited warranty is only valid on portable spas delivered in the United States and Canada.



5 Years Shell Structural

American Spas are warranted against water loss due to defects in the spa shell.



2 Years Shell Finish

American Spas are warranted against blistering, cracking, or delaminating of the interior surface of the spa shell.



2 Years Equipment and Controls

American Spa electrical equipment components – specifically limited to the pumps and control system – are warranted against malfunctions due to defects in workmanship or materials.



1 Year Plumbing

American spas are warranted against leaks due to defects in workmanship or materials.



1 Year Cabinet - Synthetic, fiberglass, or wicker

American spa cabinets have a lifetime guarantee against defects in workmanship or materials. Normal wear and weathering of the finish will occur naturally over time and are not defects.



1 Year Labor

American Spa warranty covers cost of service and repair while spa is under warranty.

Warranties for Other Components

The fuses, headrests, cabinet finish, and filters are warranted to be free of defects in workmanship and material at the time of delivery. The factory installed water purification system is warranted against malfunction due to defects in workmanship or 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.

Genuine American Spas Parts & Accessories

This Limited Warranty is void if American Spas (the "Manufacturer") 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 American Spas branded parts and accessories. This disclaimer includes, but is not limited to filters, ozone systems, repair parts and other accessories. Genuine American 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 American Spas (the "Manufacturer") 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 labor to repair the defect for one year, 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. You may be assessed reasonable repairman travel mileage charges. In the event that the spa is removed to a repair facility for repair and reinstalled, the cost of removal and reinstallation will be your responsibility as the spa owner. If the Manufacturer determines that repair of the covered defect is not feasible, it reserves the right to provide a replacement spa instead, equal in value to the purchase price of the original spa. 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 will be your responsibility as 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, relocation, or installation of any component other than by manufacturer.

Warranty Limitations

This Limited Warranty is void if: American Spas (the "Manufacturer") 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; or if the failure is caused by accident, acts of God or other causes beyond the control of the Manufacturer. 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 the insulating cover, 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 the Manufacturer or a designated American Spa representative.

Limitations

The Manufacturer disclaims all warranties, expressed or implied, 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 Manufacturer or its designated representative using authorized American Spa 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 Manufacturer 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 American Spas.

Disclaimers

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

Legal Rights

This Limited Warranty gives 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.



Appendix



Locating the Product Serial Number

The serial number of your spa is located on a metal plate attached to the lower right front panel of the spa. 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: _____

Removing the Support Block

There is a 2" x 2" wooden support block attached to the frame of your hot tub. It is necessary during ship to keep the hot tub stable while it is on the pallet. When your hot tub is on the ground and placed on its foundation, the support may be removed. Use a ratchet and socket to remove the four bolts that attach the block to the frame.

