



# 2003 Owner's Manual

USA and Canada

*Pneumatic Series*

*1100 Electronic Series*

*2300 Electronic Series*

*5000 Electronic Series*

*7000 Electronic Series*

*9000 Electronic Series*

Duplication without written consent is strictly prohibited.

This Owner's Manual is for spas manufactured after December 2, 2002

Revised December 3, 2002

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

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# Table of Contents

Safety Instructions .....	2
Basic Spa Information .....	4
Quick Reference Information .....	5
Set-Up and Delivery Instructions .....	7
110 Volt Installation Information .....	8
220 Volt Installation Information .....	9
Starting Up Your Portable Spa .....	11
Starting Up Your Inground or Olympian Spa.....	12
Filter Maintenance Portable Spas .....	13
Filter Maintenance Inground, Champion, and Olympian Spas .....	14
General Operation Instructions.....	15
Pure Water System .....	17
Adjustable Therapy System .....	18
Fitness Series Instructions .....	19
Fitness Exercise Program .....	20
Pneumatic Operation.....	21
1100 Electronic Operation .....	23
2300 Electronic Operation .....	26
5000 Electronic Operation .....	29
7000 & 9000 Electronic Operation.....	33
Champion Spa Operation .....	37
Olympian Spa Operation .....	38
Splash Stereo Information .....	39
Cal Entertainment Center Operation .....	38
Clear Water Chemical Plan.....	44
2003 Warranty Information.....	61
Winterizing and Draining Your Cal Spa.....	63

# IMPORTANT SAFETY INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

## READ AND FOLLOW ALL INSTRUCTIONS

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

All 110 volt spas require a DEDICATED 20 AMP GFCI SERVICE. Do not use extension cords.  
Note: This may require a licensed electrician to upgrade your standard receptacle and/or circuit breaker.

All 220 volt spas require a DEDICATED 50 AMP GFCI SERVICE WITH FOUR # 6 AWG COPPER WIRES.

**DANGER RISK OF ACCIDENTAL DROWNING:** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use the spa unless they are closely supervised at all times (Keep the spa cover on and locked when not in use. See instructions enclosed with your cover).

**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 that the flow rates are compatible.

**DANGER RISK OF INJURY:** Never operate spa if the suction fittings or filter baskets are broken or missing.

**DANGER RISK OF INJURY:** Never replace suction fitting with one rated less than the flow rate marked on the original suction fitting.

**DANGER-RISK OF ELECTRIC SHOCK:** Install spa at least 5 feet (1.5m) 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 No. 8 AWG solid copper conductor to the outside of the spas control box.

**DANGER -RISK OF ELECTRICAL SHOCK:** Do not permit any electrical appliances, such as a lights, telephones, radios, televisions, and etc., within 5 feet (1.5m) of spa. Never attempt to operate any electrical device from inside the spa.

## Important Safety Instructions (Continued)

### WARNING RISK OF INJURY:

- a.) Before entering a spa, the user should measure the water temperature with an accurate thermometer, since the tolerance of water temperature-regulating devices varies.
- b.) 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.
- c.) Since excessive water temperatures have a high potential for causing fetal damage during early months of pregnancy, pregnant or possibly pregnant women should always check with a physician prior to spa usage.
- d.) The use of alcohol, drugs or medication before or during spa use may lead to unconsciousness with the possibility of drowning.
- e.) Persons suffering from obesity or with a medical history of heart disease, low or high blood pressure, circulatory system problems or diabetes should consult a physician prior to spa usage.
- f.) Persons using medications should consult a physician before using a spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure and circulation.

### HYPERTHERMIA:

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above normal body temperature of 98.6°F. (37°C)

#### Symptoms of Hyperthermia Include:

- Dizziness
- Fainting
- Drowsiness
- Lethargy
- Increase in internal body temperature

#### The Effects of Hyperthermia Include:

- Unawareness of impending hazards
- Failure to perceive the need to exit the spa
- Physical inability to exit the spa
- Fetal damage in pregnant women
- Unconsciousness resulting in the possibility of drowning

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

**Save these instructions.**

# Basic Spa Information

Your new Cal Spa has been engineered with a high-powered water pump that pushes water through various therapy jets, which will relax even the tightest of muscles. In addition to the water pressure, you can add air into the spa water with air venturies or the optional turbo feature, to increase the intensity of your massage.

Do not be afraid to push buttons or turn knobs to learn about your new Cal Spa, as it is built with quality materials and excellent craftsmanship.

The following operating and maintenance instructions are very important and must be followed carefully. With the proper care and maintenance, your Cal Spa will provide you with years of satisfaction and performance.

The filtering of your spa is very important, this alone will cut down cleaning time and use of excess chemicals. We recommend that your spa filters no less than four hours twice a day.

It is very important to keep the spa covered when not in use for three reasons. The first is heating efficiency; covered spas use less electricity in maintaining your set temperature. The second is to protect your spas finish from the suns ultraviolet rays. Covering your spa is mandatory to maintain warranty coverage. And again, to prevent children from falling and drowning.

Operating your new Cal Spa equipped with an electric heater correctly will ensure efficient operation. The most efficient operating method is as follows:

1. Operate spa in Economy Mode. (See pages 21 through 36 for your specific models operation) (Except in freezing climates)
2. Set spas filtration mode to a maximum setting of F4 (See pages 21 through 36 for your specific models operation)
3. Set spa to run off peak hours. (i.e. F4 at 7 to 11 AM and 7 to 11PM) (See pages 21 through 36 for your specific models operation)
4. Set spas operating temperature within 10 degrees of desired usage temperature and raise temperature one to two hours prior to usage. (This method is only for spa usage under 2 hours a week)
5. If spa usage exceeds two hours a week, set temperature within 5 degrees of desired usage temperature and raise temperature one hour prior to usage.
6. The optional turbo feature should be used sparingly. When operating the turbo, water temperature drops quite rapidly and can also dissipate chemicals.

Note: Allowing the water temperature to lower more than 10 degrees below desired usage temperature and reheating prior to usage will cause the heater to operate longer than it normally would maintaining the desired temperature.

Your spas optional turbo feature should be used sparingly. When operating the turbo, water temperature drops quite rapidly and can also dissipate chemicals.

The filter needs to be cleaned on a regular basis. This is very simple and only takes a few minutes. The result is increased water clarity and equipment longevity. (See pages 13 and 14 for filter cleaning instructions.)

The spa water level is very important to the operation of your spa. If the water level is too low or too high, your spa won't run or clean properly. (The water level should be to the middle of the "skimmer area" when no one is in the water.)

We recommend that your spa water be changed every 4 to 6 months. You may find the need to change your spa water more often with heavy use. When empty, your spa should be cleaned with a non-abrasive cleaner, such as "Cal Spas All Surface Cleaner," then rinsed thoroughly.

When draining your spa, turn off the power to the spa and attach a garden hose to the hose bib fixture either located on the floor of the equipment area or on the outside of the cabinet.

When filling your spa, always fill through the skimmer filter canister. Only use regular tap water. **DO NOT USE SOFT WATER.**

Spas built in the winter months may be delivered with the bleeder valves removed from the pumps and taped inside the control box. We remove the bleeder valves after water testing at the factory to prevent possible freeze damage during shipping. Prior to filling your spa for the first time, make sure you replace the air bleeder valves and check the equipment area for any unions that might have loosened during shipment.

In addition to your portable spas' redwood skirt, you may have purchased a gazebo, cabana, steps or any other redwood accessory. We recommend that you protect them by applying a high quality redwood protectant, and repeat as specified in the directions. This is mandatory to maintain warranty coverage.

# Quick Reference Information

## Set Up and Delivery:

### Electrical:

1. 110-volt spas will require a 20 amp dedicated receptacle.
2. 220-volt spas will require a 50 amp dedicated GFCI breaker.
3. See Pages 7 through 10 for more information.

## Surface and Pad Requirements for Spas and Gazebos:

1. Your new portable spa and or gazebo must be placed on a uniformly firm, flat and level concrete pad.  
We recommend a 3" thick slab.
2. See Page 7 for more information

## General Start-up Information:

### Portable Spas:

1. Once your spa is placed on an approved surface and is connected to the correct electrical service, inspect all plumbing connections in the equipment area of your spa. These connections may have loosened during shipment.
2. If equipped, open all gate valves or slice valves in the equipment area.  
Note: When operating the spa, these valves must be in the up or open position.
3. To fill spa, place a garden hose into the skimmer / filter canister. Fill spa up to the "Water Level" line or half way up the skimmer / filter area.
4. Open the air relief valve, located in the skimmer area of most system spas. On all other spas, use the air relief valve located on the front of the pump housing in the equipment area.
5. After the air bubbles stop coming out of the air relief valve, tighten valve until closed (Do not over tighten).
6. Once water level is correct, turn on the spa's power at the GFCI breaker (220-Volt Spas). 110-Volt spas must be connected to the proper 20 Amp electrical service.
7. The spa will perform a diagnostic check, and power up in 30 seconds.
8. All electronically controlled spas will default to 100°F and filter for two (2) hours twice a day.
9. Pneumatic spas in Freeze Protection Mode will operate and heat to the manual setting (the temperature where the thermostat is set). (See Pneumatic Operating instructions on page 21 for more information.)
10. Install filter cartridge into filter canister.
11. The spa is now ready for use.

## General Start-up Information:

### Inground and Ported Spas:

1. Once your spa is properly installed either on an approved surface as listed above (Ported Spas) or inground and is connected to the correct electrical service, inspect all plumbing connections at the spa and equipment base.
2. If equipped, open all gate valves or slice valves on the equipment base.  
Note: When operating the spa, these valves must be in the up or open position.
3. To fill spa, place a garden hose into the skimmer / filter canister on the spa shell. Fill spa up to the "Water Level" line or half way up the skimmer / filter area. Once the spa is filled to the proper level, fill the filter canister and the filter baskets located on the equipment pack.
4. Once full of water, replace both the filter canister lid and the filter baskets on the pumps.
5. Turn on the spa's power at the GFCI breaker (All 220-Volt Spas).
6. The spa will perform a diagnostic check and power up in 30 seconds.
7. These electronically controlled spas, will default to 100°F and filter for four (4) hours twice a day.
8. The spa is now ready for use.

**For complete Installation instructions, please see the 2002 Inground and Ported Installation Guide. If you purchased an Inground or Ported spa and Did Not receive a copy with this manual, Please contact your selling dealer or the C.A.I. Customer Service Department at (909) 623-8781.**

## Quick Reference Information (Continued)

### 3. Filtration Settings and Recommendations:

- a. F2= Two hours of filtration every twelve (12) hours. This setting is for occasional spa usage only
- b. F4= Four hours of filtration every twelve (12) hours. This setting is for light spa usage. (Up to four hours of usage a week)
- c. F6= Six hours of filtration every twelve (12) hours. This setting is for normal spa usage. (Up to six hours of usage a week)
- d. F8= Eight hours of filtration every twelve (12) hours. This setting is for heavy spa usage. (Up to eight hours of usage a week)
- e. FC= 24 hour filtration. This setting is for spa usage that exceeds twelve hours a week.

NOTE: F8 and FC filtration settings are only to be used with spas equipped with the "Spa Cal Filtration Pump". These setting can cause conventional two speed pump systems to raise the water temperature well above the set temperature.

### 4. To set the filtration cycles, use the following information:

- a. 1100 Depress the TEMP pad, followed by the JETS. Each additional press of the TEMP pad will increase the filtration time.
- b. 2100 Depress the TEMP pad, followed by the JETS. Each additional press of the TEMP pad will increase the filtration time.
- c. 2200 Depress either Up or Down followed by either the JETS 1 or JETS 2. Each additional press of the Up or Down pad will increase or decrease the filtration time.
- d. 2300 Depress either Up or Down followed by either the JETS 1 or JETS 2. Each additional press of the Up or Down pad will increase or decrease the filtration time.

### General Chemical Maintenance Information: (500-Gallon Spa)

#### Start-up:

- a. Add 3 oz. of "Iron Out" or 16 oz. of "Metal Protector".
- b. Add 2 oz. of "Sodium Bromide".
- c. Add 2 oz. of "Oxidizer Shock".
- d. Add 3 to 4 Bromine tablets to a "mostly" closed floater.

Note: Do not place bromine tablets in skimmer basket.

#### Weekly:

- 1. Test spa water with test strips for the following items twice a week:
  - a. Bromine: Acceptable Range without a Cal Zone Ozonator is between Three (3) to Five (5).
  - b. Bromine: Acceptable Range with a Cal Zone Ozonator is between One (1) to Three (3).
  - c. Chlorine: Acceptable Range without a Cal Zone Ozonator is between Three (3) to Five (5).
  - d. Chlorine: Acceptable Range with a Cal Zone Ozonator is between One (1) to Three (3).
  - e. pH acceptable Range is between 7.2 to 7.8 P.P.M.
  - f. Alkalinity: Acceptable Range is between 80 to 120 P.P.M.
- 2. Add one to two bromine tablets. Usage varies with water temperature and bather loads.
- 3. Add 2 oz. of "Oxidizing Shock". Always follow directions on the container.  
(Do not use chlorinating shock.)
- 4. Add 2 oz. "Stain & Scale Defense" or 3 oz. of "Iron Out" as directed on the container.
- 5. Add "pH Up", if needed. Always follow directions on the container.
- 6. Add "Alkalinity Up", if needed. Always follow directions on the container.
- 7. Add "pH Down", if needed. Always follow directions on the container.

#### BI-Weekly:

- 1. Follow the weekly instructions, and the following.
- 2. Clean the filter cartridge. (See the "Filter Maintenance" section on pages 13 and 14)
- 3. Visually inspect the equipment area for the following:
  - a. Equipment area is clean. (Cabinet vents are unobstructed)
  - b. Ozonator operation. (Ozonator only operates during filtration cycles)
  - c. Pumps, Plumbing, Air Blowers, Unions, Gate valves, and Ozone check valves for leakage.

Note: Component failure as a result of leaks not promptly reported will void the warranty.

### Important Chemical Notice

Before the use of any chemicals, C.A.I. recommends all spa users to consult with their physician for possible allergic reactions to the corresponding chemicals. C.A.I. also recommends consulting with your local Cal Spas Dealer for a chemical program that is best suited for your local water condition, climate and usage habits.

# Set-Up and Delivery Instructions

## Getting Ready for Delivery and Set-up of Your New Cal Spa

### Planning For Delivery of Your Portable Spa:

- a. Your 110-Volt spa will require a 20 amp dedicated receptacle.
- b. Your 220-volt spa will require a 50 amp dedicated GFCI circuit breaker.
- c. If you have any doubts, have your electrical system checked by a qualified, licensed electrician.

### Surface and Pad Requirements for Spas and Gazebos:

- a. Your new portable spa and /or gazebo must be placed on a uniformly firm, flat and level concrete pad. We require a 3" thick cement slab. Gazebos assembled on surfaces either not flat or level will result in windows and doors closing improperly.
- b. If the location of your spa is going to be near a sprinkler system, make sure you adjust the sprinkler heads away from the spa and or Gazebo. As water continually sprayed on the spa cabinet or in the equipment area may cause wood or electrical component damage.

### Requirements for Decking, Gates and Balconies:

- a. All decking must be able to support 150 pounds per square foot.
- b. Surrounding area gates must be self-closing and self-latching (California Requirements).
- c. Balconies must be constructed to current state and local codes. (Spa load requirements are 150 pounds per square foot)

### Planning for Delivery of Your In-ground Spa:

- a. Selecting the right site for the installation of your in-ground spa and equipment is very important. These sites should be city and state approved, also considering the ease of access, landscaping, and architectural styling.

**For complete Installation instructions, please see the 2002 Inground and Ported Installation Guide. If you purchased an Inground or Ported spa and Did Not receive a copy with this manual, please contact your selling dealer or the C.A.I Customer Service Department at (909) 623-8781.**

### The delivery crew will need the following list of information prior to delivery of your spa:

- a. Clearance through gates, around gas meters, fireplace, air conditioners or other obstacles.
- b. Measure the height between ground and lowest point of roof eaves.

#### *External Equipment:*

- c. Measure the distance between the spa and equipment. (Including turns and obstacles)

#### *Inground Spas:*

- d. Finished height of spa lip. (From ground to bottom of lip)

## IMPORTANT

ALWAYS HAVE A LICENSED ELECTRICIAN/CONTRACTOR INSTALL ALL EQUIPMENT.  
ALWAYS WATER TEST YOUR NEW IN-GROUND SPA FOR FIVE DAYS BEFORE COMPLETING ANY DECKING OR FINISH WORK.

DO NOT PLACE EQUIPMENT MORE THAN 20 FEET FROM SPA.  
DO NOT INSTALL EQUIPMENT HIGHER THAN SIX INCHES ABOVE WATER LEVEL, OR LOWER THAN THE BOTTOM OF THE SPA.

LEAVE ALL TRENCHES OPEN FOR FINAL INSPECTION BY YOUR LOCAL INSPECTOR.



# 110 Volt Installation Information

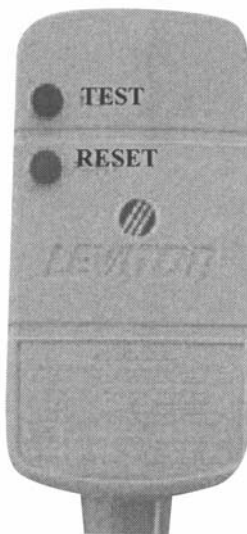
Always Follow Applicable Local, State, Federal Codes and Guidelines.

1. Use only a dedicated electrical line with a 20-amp breaker.
  2. Do not use an extension cord.
  3. Always use a weatherproof/covered receptacle.
  4. Never have your spa with in 10 feet to the receptacle.
  5. Do not bury the power cord.
  6. A damaged cord must be replaced before next usage.
  7. All 110-volt spas must have a GFCI. This can either be a 20 Amp GFCI receptacle or a GFCI cord and plug kit (CKIT110).
  8. GFCI plug should be tested prior to every use. To test the GFCI plug version, please follow these easy instructions:
- Note: Spa should be already plugged in and operational.

1. Press the button marked “Test” on the GFCI. The GFCI will trip and the spa will stop operating
2. Press the button marked “Reset” on the GFCI. The GFCI will reset and the spa will turn back on in about 5 seconds.
3. The spa is now safe to use.

If the GFCI should turn off (trip) while the spa is in use, press the reset button. If the GFCI will not reset, unplug the GFCI and call your local Showroom/Dealership for service. DO NOT USE SPA.

## 110 Volt / 20 Amp GFCI Plug



## 220 Volt Installation Information

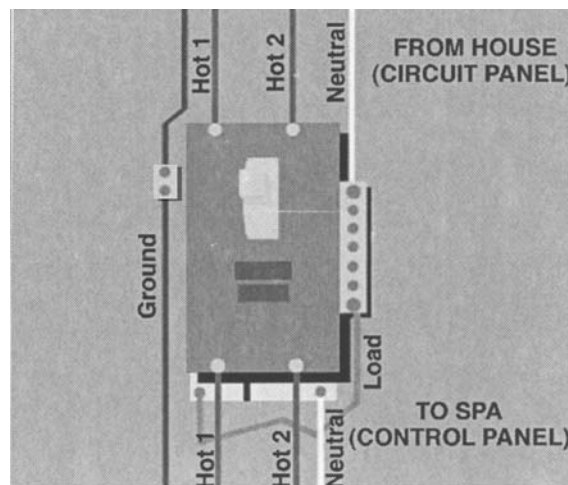
All 220-volt spas are required to have a GFCI breaker and should only be wired by a licensed electrician. To ensure proper wiring of your GFCI, please follow the wiring diagrams on pages 9 and 10.

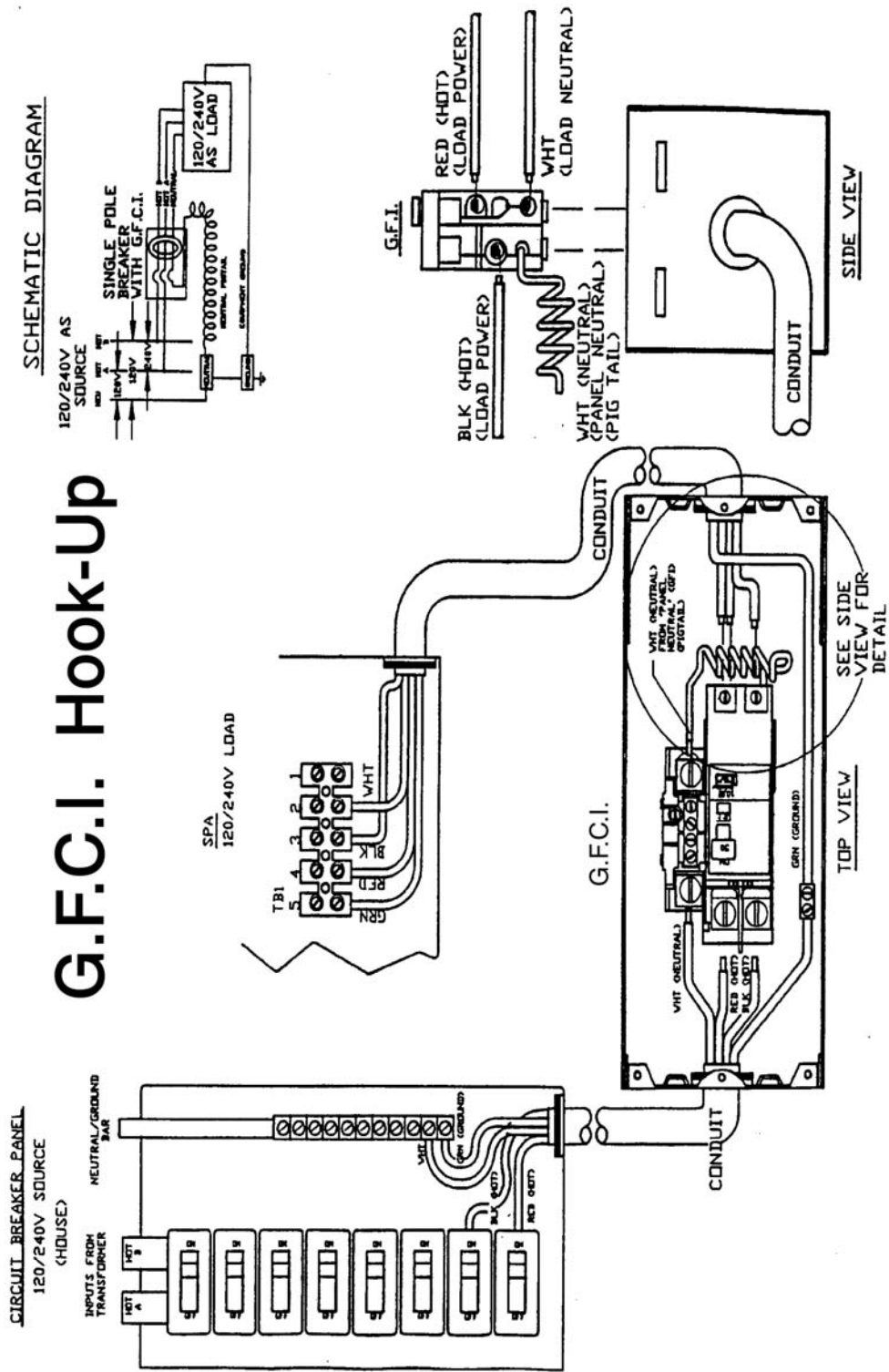
1. Always Follow Applicable Local, State, Federal Codes and Guidelines.
2. Your new 220 volt CAL SPA requires a DEDICATED 50 AMP GFCI SERVICE WITH FOUR # 6 AWG COPPER WIRES. This will include a black and red wire for your incoming power, a white wire used for your neutral and a green wire for your ground.  
**Note:** #6 AWG wire acceptable on wire run up to 85'. Wire run over 85' must increase wire to # 4 AWG.
3. Please note that this is the only acceptable electrical wiring procedure. Spas wired in any other way will void your warranty and may result in serious injury.

Before each use of your spa you should check the GFCI. During this test the spa should be operational.

1. Press the test button on the GFCI. The GFCI will trip and the spa will shut off.
2. Wait 30 seconds and reset the GFCI breaker. This is done by turning the breaker off and then back on. Your spa will be operational in about 5 seconds.
3. Your spa is now safe to use.

## G.F.C.I. Hook-Up





# Starting Up Your Portable Spa

## Filling and Powering-up Your Cal Spa:

1. Once spa is placed on an approved surface and is connected to the correct electrical service, inspect all plumbing connections in the equipment area of your spa. These connections may have loosened in shipment.
2. If equipped, open all gate valves or slice valves in the equipment area.  
Note: Before operating the spa these valves must be in the up or open position.
3. Remove filter basket and cartridge from skimmer / filter canister.
4. Place a garden hose in the skimmer / filter canister and continue filling your spa with **Regular Tap Water** up to the Water Level line or half way up the skimmer area.
5. Open the air relief valve located in the skimmer area of most system spas. On all other spas, use the air relief valve located on the front of the pump housing.
6. After the air bubbles stop coming out of the air relief valve, hand tighten valve until closed (Do not over tighten).
7. Once the water is at the correct level, turn on the power at the GFCI breaker.  
Note: Ensure 110-Volt spas are connected to the proper electrical outlet.
8. The spa will perform a diagnostic check for 30 seconds. Once complete, the spa will automatically operate at filter speed and continue heating until the spa water temperature reaches 100°F. (This is every electronically controlled spas default temperature).  
  
Note: Pneumatic spas will operate and heat to the manual setting (where the thermostat is set). See pneumatic operating instructions on page 21 for more information.
9. Re-install filter and filter basket into skimmer / filter canister.
10. The spa is now ready for use. For operation instructions see the “Controls Operation” sections of this manual on pages 21 through 36.

## Important Notes:

Be careful not to over tighten plumbing fittings.

Never run spa with gate valves closed or without water circulating for long periods of time.

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 and ultimately harm your spas finish and void your warranty.

# Starting Up Your Inground, Champion, or Olympian Spa

## Filling and Powering-up Your Cal Spa:

1. Once your spa is installed inground or placed on an approved surface and connected to the correct electrical service, you can proceed with these instructions.
2. If equipped, open all gate valves or slice valves.  
Note: Before operating the spa, these valves must be in the up or open position.
3. Place a garden hose in the skimmer basket and continue filling spa with **Regular Tap Water** up to the “Water Level” line or half way up the skimmer area.
4. Remove lid(s) from pump basket(s) and filter canister.
5. Fill the pump basket(s) and external filter canister with a garden hose until full and replace the lids snugly.
6. Once the water is at the correct level and the pump baskets and external filter canister is full of water, turn on the spa's power at the GFCI breaker.
7. The spa will perform a diagnostic check for 30 seconds. Once complete, the spa will automatically operate at filter speed and continue heating until the spa water temperature reaches 100°F. (This is every electronically controlled spas default temperature).
8. For information on adjusting the temperature setting, see the applicable “Controls Operation” sections of this manual on pages 21 through 36.
9. The spa is now ready for use.  
For operation instructions see the applicable “Control Operation” sections of this manual on pages 21 through 36.

**For complete Installation instructions, please see the 2002 Inground and Ported Installation Guide. If you purchased an Inground or Ported spa and Did Not receive a copy with this manual, please contact your selling dealer or the C.A.I Customer Service Department at (909) 623-8781.**

## Important Notes:

Be careful not to over tighten plumbing fittings, filters, and pump basket lids.

Never run spa with gate valves closed or without water circulating for long periods of time.

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 and ultimately harm your spas finish and void your warranty.

# Filter Maintenance

## Portable Spas:

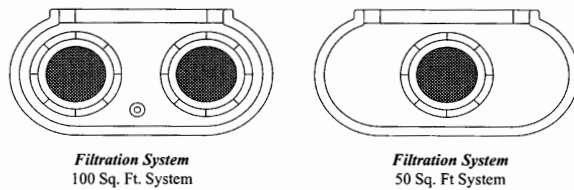
Filtration starts on electronically controlled spas as soon as the pumps are primed and water flow is steady. As the flow of water goes through the filter, dirt and debris is removed and accumulated in the filter cartridge. As the filter cartridge accumulates minerals, dirt and debris, water flow is lessened and jet performance is reduced. This can cause your spa to not to run or heat properly.

Clean Your Filter Regularly and Replace as Needed.

## Filter Cleaning

Your new Cal Spa has been designed for quick and easy filter maintenance. The filter cartridge should be cleaned once a week.

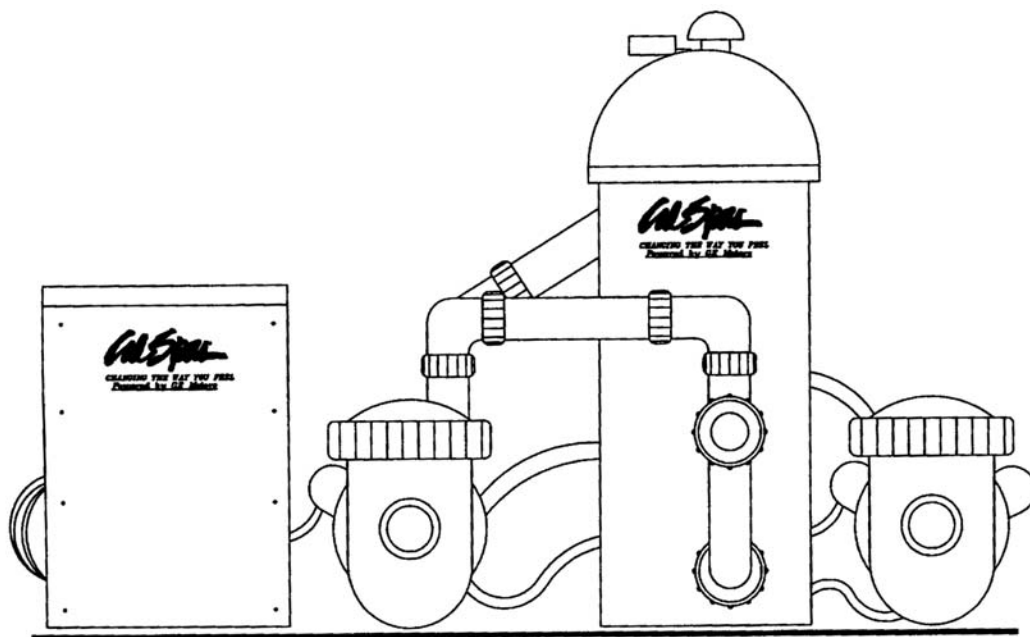
1. Turn the power off at the breaker.
2. Remove the filter(s) cover (If equipped).
3. Remove the filter(s) basket (Align flat areas on filter basket and canister).
4. Remove the filter(s) by Pulling up and Out, clean filter with a garden hose.
  - a. Hold filter vertically.
  - b. Spray the filter cartridges with a pressure nozzle, starting from the top and spraying down each pleat.
  - c. Turn filter cartridge over and repeat step 4.b.
  - d. Reinstall the filter cartridge in reverse order of removal.
5. Deep clean filter cartridge(s) every month. Use only a Cal Spas approved filter-cleaning chemical.



# Filter Maintenance (Continued)

## Inground and Olympian Spas Outdoor Equipment

1. Turn the power off at breaker.
2. If your spa is equipped with a spa side filter canister in addition to the external equipment mounted canister, please follow the portable spa filter maintenance steps on page 13 in addition to the steps listed below.
3. Close all gate valves if equipped (down = closed).
4. Unscrew the lid on the pump basket(s).
5. Remove the lint traps inside and spray clean with a pressure nozzle attached to a garden hose.
6. Remove lock nut from top of filter external canister.
7. Remove filter cartridge. (pull-up and Out)
  - a. Hold filter vertically.
  - b. Spray filter cartridge with a pressure nozzle starting from the top and spraying down each pleat.
  - c. Turn the filter cartridge over and repeat step 7.b.
  - d. Reinstall the filter cartridge in reverse order of removal.
8. Deep clean the filter cartridge every month. Use a Cal Spas approved filter-cleaning chemical only.



# General Operating Instructions

Your new Cal Spa is very versatile, you can direct the flow of water and air through various locations throughout your spa. The following list of features are available on most spas:

## Air Venturies

Air Venturies are the smaller knobs located around the top of your spa. Each one will let you add a mixture of air in with the jet pressure. This is accomplished by simply rotating the air venturi handle to the left (Counter clockwise) to increase the amount of airflow through the jets. To decrease the amount of airflow through the jets, simply rotate the handle to the right (Clockwise).

Note: The Air Venturi system may not be controlled on spas with the optional Turbo System.

Spas equipped with a Cal Zone Quest 2000 Ozonator and Pure Water System will generally make a small amount of suction noise. If this noise is bothersome, simply close the air venturi located to the left of the control panel. However, if you leave this air venturi closed, the Pure Water System will not be able to function properly. Please see page 16 for operation description.

## Air Venturies



## Adjustable 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.

**Note:** Neck jets will be reversed when adjusting pressure.

## Adjustable Jets





# General Operating Instructions (Continued)

## Diverter Knobs

Diverter knobs are the larger 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” Wall Jets”.

This is accomplished by simply rotating the diverter 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, simply rotate the handle to the right (Clockwise).

**Diverter Knob**



## Cal Zone Quest 2000 Ozonator

Your new Cal Zone Quest 2000 Ozonator is a state-of-the-art bacteria killing machine. This unit will assist you in maintaining clean and clear spa water, while saving you time and expense with spa chemicals.

### Operation

Your Cal Zone Quest 2000 Ozonator will automatically operate during the filter cycles. When the spa is in filtration cycle, the Ozone Indicator light on the topside control panel will light up, letting you know that the control box is sending power to the Cal Zone Quest 2000 Ozonator unit.

The Cal Zone Quest 2000 Ozonator unit also has two forms of operating signals. On the topside control panel there is a yellow light labeled “OZONE INDICATOR”. This light indicates that the Ozonator unit is receiving power from the control box. The second operating signal is the most important. Located on the front side towards the bottom, is the ozone-mixing chamber. When operating, the lens will display a purple/black light. This light and energy is creating ozone in front of your eyes.

Note: Due to the nature of the ozone light, it is difficult to see the light in daylight. This lens should be checked at night or in a shaded condition.

### Ozone Servicing

Your new Cal Zone Quest 2000 Ozonator has been engineered to be service friendly. In the event that you need to replace the ozone cartridge, simply follow the instructions listed on the front of the ozone unit.

**Cal Zone Quest 2000 Ozonator**



## General Operating Instructions (Continued)

### Pure Water System (Optional)

The Pure Water System is designed to remove the chemical and ozone vapors from the area between the water level and spa cover. Normally, this area is the harshest environment of the spa causing the deterioration of fixtures, pillows, and the spa cover. With the exclusive Pure Water System, this area is protected by removing these vapors and recycling them through the spa water.

This System will generally make a small amount of suction noise when the pumps are operating. If this noise is bothersome, simply close the Pure Water System fitting by rotating it counter clockwise. Remember to reopen this fitting by rotating the fitting clockwise before exiting the spa. This will ensure that the system performs its normal daily cleaning.

### Maintenance:

Simply remove the Pure Water System cover by rotating it counter clockwise slightly past the its normal stopping point and gently lifting. Once out, you may rinse clean with a garden hose.



**Pure Water System Suction Fitting**  
**Rotate clockwise to close and counter clockwise to open**

# General Operating Instructions (Continued)

## Adjustable Therapy System: (Optional)

Spas equipped with this system, allow you complete control of the therapy seat and/or lounger. This unique system offers covenant operation with its seat side controls, seven different massage modes, a soothing demo mode and all at a touch of a button.

### Operating the System

#### Pump O/I:

This button allows the user to turn on and off the Adjustable Therapy Seats pump. Press this button once to turn the pump on. Once on, the Green LED light on the Adjustable Therapy Seat Control Panel will illuminate signifying that the system is operational. To turn off the pump, simply press the Pump O/I button a second time.

Note: The pump must be on prior to operating any other features of this system

#### Pulse O/I:

This button allows the user to turn on and off the Adjustable Therapy Seat massage control. Press the Pulse button once to turn on the massage control. Once pressed, the Red LED in position number 1 will come on signifying the number one pulse mode. Each press of either the up or down button will move the Red LED up or down to the next pulse mode.

Note: Allow one second between each button press. Pressing buttons quickly may cause improper operation.

To turn the pulse mode off and return to normal pump operation, simply press the Pulse O/I button a second time.

#### Up:

This button allows the user to cycle Up from one though seven massage modes one at a time. Each mode offers a different pulsating massage.

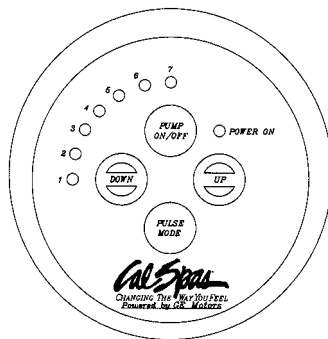
Note: Some modes are faster than others, so just cycle through them to find the massage you like best.

#### Down:

This button allows the user to cycle Down through all seven massage modes, one at a time.

#### Demo Mode:

After turning on the Pump and Pulse modes, press and hold both the UP and Down Buttons together for two seconds then release. In this mode, every twenty (20) seconds this system will automatically switch to the next massage mode. Once the user finds the perfect massage mode, pressing either the UP or DOWN button will stop the demo in that massage mode.



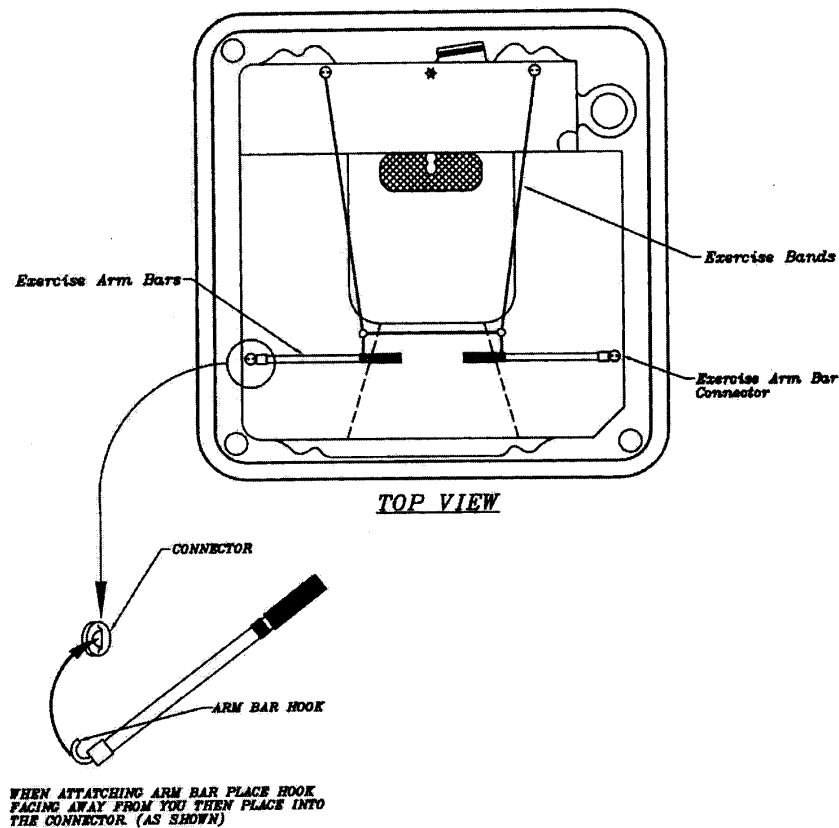
### IMPORTANT OPERATING NOTE:

This system will automatically turn itself off after fifteen (15) minutes of operation. The system can be restarted again by pressing the pump I/O button and the Pulse I/O button. After the second fifteen minute session, the system will run through a cool down cycle for up to two (2) hours. In this cool down mode, the user will only be able to operate the pump (by again pressing the pump I/O button). However, the massage mode will remain off until the cool down mode is completed.

# Fitness Series Instructions

The fitness series spas put the fun back into fitness. This comes with everything you need for a high powered, low impact, result-getting workout in total comfort and privacy. Plus you get a spa loaded with incredible therapeutic seating, variable jet massage and generous control options, and the most gorgeous cabinetry on the planet.

The fitness equipment consists of 2 exercise arm bars, 2 exercise band cords, 2 exercise bands and grips, and an exercise belt. This equipment attaches quickly and easily to the exercise anchors located on the spa walls.



## Important Safety Notice

Always consult your physician before starting any exercise activity or program. The fitness series spas feature rubber exercise bands. When stretched, these bands create a hi-tension condition. Improper use or failure to connect the exercise bands properly may cause injury. Always inspect all of the exercise equipment prior to beginning any exercise. Do not use any damaged equipment.

# Fitness Series Exercise Program

Many people have never performed resistance training and/or may not fully understand the benefits of this extremely important form of exercise for the goal of improving your health, appearance and overall confidence.

Resistance training is necessary when trying to loose body fat, maintain and improve lean muscle structure and increase energy levels while improving flexibility.

Hydrotherapy is a remarkable way of utilizing water and heating to promote health and wellness. The majority of people are turning back to natural methods of healing and health practices to improve their body externally, but most of all internally.

Hydrotherapy provides specific benefits for increased blood circulation, detoxification, reduction of body fat, replenish minerals and nutrients in the body and relieve stress.

## **Fitness Series Exercise Program** (20 to 30 min. session three times a week)

1. Seated Row: An all around exercise that focuses on the muscles of the upper back, shoulders and arms. Using the exercise bars in a seated position with your feet stable, abs tight and lower back stable. Palms down, arms extended with elbows slightly bent. Pull towards your chest squeezing your shoulder blades to the middle back and returning slowly to the starting position.  
\* This exercise can be performed one side at a time
2. Standing Chest Fly: An excellent upper body exercise that focuses on the muscles of the chest, shoulders and arms. Using the exercise grips, place palms sideways facing your body with your elbows slightly bent. Pull forward toward your body bringing hands together, squeezing and flexing chest muscles, then slowly returning to the starting position.
3. Standing Chest Press: Using the exercise grips, place your palms down with your elbows bent at 90 degrees. Press forward bringing your hands together, squeezing and flexing your chest muscles, then slowly return to the start position.
4. Standing Shoulder Press: Using the exercise grips, place your palms facing away from your body with your elbows bent at 90 degrees. Press upward bringing your hands together in front of you, above your head and slowly return to the start position.
5. Arm Curls: Using the exercise grips, place your hands face up with your elbows slightly bent, pull upward towards your chin squeezing and flexing your biceps then slowly return to start position.
6. Hydro Squats: Excellent for defining and firming the buttocks, thighs and legs. From a standing position, slowly sink down into the water until your buttocks is level with your knees (90 degrees). Squeezing your muscles tightly like sitting in a chair with abs tight and your back straight then slowly returning to standing position.
7. Hydro Leg Extensions: Sitting with your feet flat, knees bent (90 degrees) and abs tight. Lift your foot upwards straightening the leg while squeezing and flexing the thigh muscles and slowly lowering the foot to start position.



## **Important Safety Notice**

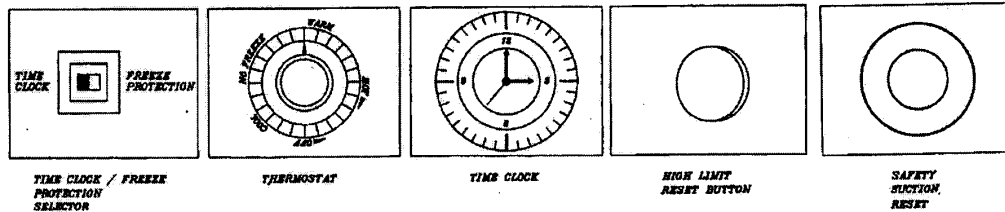
Always consult your physician before starting any exercise activity or program. The fitness series spas feature rubber exercise bands. When stretched, these bands create a hi-tension condition. Improper use or failure to connect the exercise bands properly may result in injury. Always inspect all exercise equipment prior to beginning any exercise. Do not use any damaged equipment.

# Pneumatic Operation

## Pneumatic Topside Control Panel



## Control Box Features



### Start up

When first powered up, flip the selector switch to the Freeze Protection Mode and the spa will run and heat to the temperature the thermostat is positioned on.

### Time Clock / Freeze Protection

#### Freeze Protection Mode:

When in this mode, the thermostat will automatically maintain the water temperature that the thermostat is set to. The filter speed of the pump and heater will operate whenever the spa water drops by more than 2° F. This will ensure that your desired water temperature is always maintained.

#### Time Clock Mode:

When in this mode, the temperature will only be maintained during the time that you have set on the time clock. See the Time Clock Operation section below for setting instructions.

### Temperature Adjustment

Rotate the thermostat knob clockwise, from OFF to HOT to set desired water temperature. Range of water temperature will be from OFF to 104°F in the HOT position.

### Time Clock Operation

Filtration of the spa water is accomplished any time the pump is running. To set filtration time, simply press the white tabs towards the center of the time clock. Each white tab equals (15) fifteen minutes of filtration and heating time. Cal Spas recommends a filter setting of two (2) to four (4) hours twice a day.

# **Pneumatic Operation** (Continued)

## **Hi Limit**

Your spa is equipped with a High Limit Safety Switch that will automatically shut down the spa in the unlikely event of an overheating situation. To reset the Hi-Limit, simply push the Hi-Limit Reset Button in until it stops, and the spa will restart itself.

## **Safety Suction System**

Your spa is equipped with a Safety Suction System that will automatically shut down the spa in the event of blockage to a suction fitting or filter obstruction. To reset the Safety Suction System, simply clear any obstruction or debris from the suction fittings, push the button located on the right side of the control box, and the spa will restart itself.

## **Jet Controls**

Depress the Jet button(s) to activate the high-speed pump(s). Depress the Jet button again to turn off the high-speed pump(s).

## **Light**

Depress the Light button to turn on the spa light. Depress the Light button again to turn off the spa light.

## **Turbo** (Optional)

Depress the Turbo button to turn on the spas Turbo System. Depress the Turbo button again to turn off the turbo system.

## **120 / 240 Volt Toggle Switch** (Optional)

Convertible control boxes include a 120 /240 Volt toggle switch located on the left side of the control box. This switch is used to control the heating element at different voltages.

## **Toggle Switch Position:**

UP = 120-Volt Position

Down = 240-Volt Position

Note: If the toggle switch is in the wrong position the GFCI breaker is subject to trip, and render the spa inoperable.

# 1100 Electronic Operation



## Temperature Adjustment (Range 80°F to 104°F)

The display screen will always display the actual water temperature.

Example: The actual water temperature is 100°F, the topside display will read 100.

To display the set temperature, simply depress the Temp pad and the temperature setting will flash on and off on the display panel. While the display is flashing, each time you depress the Temp pad the set temperature will increase one degree. Allow the display to revert back to the actual water temperature, then depressing the Temp pad again, allows you to decrease the set temperature by one degree with each press of the Temp pad.

## Standard Heating Mode

Your new spa is equipped with a “Standard Heating Mode” feature that gives you complete control of the heating system.

When the spa is powered up, the heating system will automatically activate. Whenever the water temperature drops more than one degree below the set temperature, the heating system will automatically activate and continue to operate until the spa has regained the temperature loss.

## Jet / Light Controls

Depress the Jets pad once to activate the low-speed pump.

Depress the pad a second time to activate the spa light and the low speed pump.

Depress the pad a third time to activate the spa light and the high-speed pump.

Depress the pad a fourth time to run the high-speed pump with the spa light off.

Depress the pad a fifth time to turn off the high-speed pump.

## Automatic Time outs

The low-speed pump will automatically turn itself off after 30 minutes, if it's not turned off manually.

The high-speed pump will automatically turn itself off after 30 minutes, if it's not turned off manually.

The spa light will automatically turn itself off after 4 hours, if it's not turned off manually.



## **1100 Electronic Operation (Continued)**

### **Setting Filtration Cycles**

Your spa will automatically filter itself twice a day. Set to the filtration time, turn off the power to the spa and turn it back on at the time of day you would like the filtration cycles to start at the GFCI Breaker.

Example: If you power-up your spa at 12 Noon, your filtration cycles will start at 12 noon and 12 Midnight.

The first cycle will start after the spa is powered up. The second filtration cycle will begin twelve hours later. The filter cycle duration is preset for 2 hours (F2). To change the duration of the filtration time, depress the Temp pad, then press the Jets pad. Depress the Temp pad again to choose from 2,4,6,8 and 0 filtration cycles (0= Continuous Filtration). After selecting the desired filtration duration, depress the Jets pad to exit the filter program.

Note: The filtration cycle settings of 6, 8 and 0 could cause the water temperature to exceed the set temperature. This condition is called thermal creep. When water is moved through the plumbing, it can generate heat and actually heat the spa water without ever engaging the heating system.

### **120/240 Conversion**

The 1100 series spa is a convertible system. The conversion from 120 Volts to 240 Volts must be performed by a licensed/bonded electrician. See 120 to 240 volt conversion instructions, located on the inside cover of the control box.

### **120 Volt Heater Operation**

When connected as a 120-Volt spa, the heater will only operate when the spa motor is on low speed or filtration speed. Once the high-speed motor is engaged, the heater will automatically disengage.

### **240 Volt Heater Operation**

When connected as a 240-Volt spa, the spa heater will operate on either low-speed or high-speed. The heater will operate until the set temperature is reached.

## Self-Diagnostics

### Display Messages for the 1100 Series Spas

Message	Meaning	Action Required
<b>OH</b>	<b>“Overheat”</b> The spa has shut down. Either the spa has reached a temperature of 112°F or the High-limit sensor has detected overheating in the heater manifold.	<b><u>DO NOT ENTER THE SPA WATER.</u></b> Remove the spa cover and let the water cool. At 110°F, the spa should automatically reset. If the spa does not automatically reset, press any pad on the topside control panel. If the spa still won't reset, turn off the power and call your local authorized service center.
<b>FL</b>	<b>“FL”</b> A pressure switch has detected a loss of water flow.	Check the filter for debris. If it's dirty, clean it. (See page 14 for cleaning instructions) If the problem persists, call your local authorized service center.
<b>Sn</b>	<b>“Sensor”</b> Spa has shut down. The Hi-limit/Temperature sensor has malfunctioned.	Call your local authorized service center.

## ELECTRICAL RATING FOR 1100 SERIES SPAS

### 120/240 Volt Convertible

120 Volts

15 Amps

60 Hertz

2 Wires plus Ground

Min. Supply conductor 20 Amp

Circuit Breaker 20 Amps

For units bearing the UL mark the power supply cord is provided with integral GFCI.

For units bearing the C-UL mark, the power supply cord is not provided. Field wiring leads are provided inside the conduit body with a minimum of 6-inches in length.

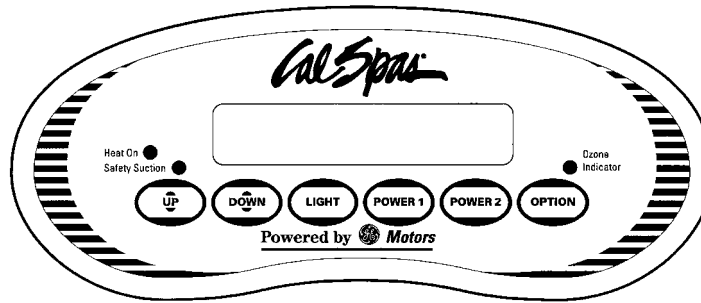
240 Volt

40 Amps (Must use a 40Amp GFCI Circuit Breaker)

60 HTZ

4 Wire Min. 8 AWG Copper

# 2300 Electronic Operation



## Initial Start up

When first powered up, the system will perform a self-diagnostic check, then it will automatically heat and maintain 100°F until you change the set temperature as listed in the Temperature Adjustment section.



## Temperature Adjustment (Range 80°F to 104°F)

The display screen will always display the actual water temperature. To display the temperature that the spa is set to, simply depress either the Up or Down pad. The set temperature will be flashing on the display panel. When the display is flashing, each time you depress either the Up or Down pad, the set temperature will change up or down one degree.



## Standard and Economy Modes

Your new spa is equipped with a Standard and Economy heating feature that gives you complete control of the heating system.

When the spa is powered up, it will automatically start in “Standard Heating Mode”. This is displayed by STANDARD on the left side of the topside control panel. In this mode, the heating system will automatically activate whenever the water temperature drops more than one degree below the set temperature. In the “Economy Heating Mode” the heating system will only activate during filtration times. (Filtration times are set by using the “Setting Filtration Cycles” section on page 28.)

To switch from the “Standard Heating Mode” to the “Economy Heating Mode”, simply depress either the Up or the Down pad followed by the Light pad. Depress the same sequence to switch back to the Standard Heating Mode. Once in the “Economy Heating Mode”, ECONOMY will be displayed on the left side of the topside control panel. This is to inform you of what heating mode you are currently in.

## 2300 Electronic Operation (cont.)



### Jet 1 Controls

#### *One Speed Pumps:*

Depress the Jets 1 pad once to activate the high-speed pump. Depress the Jets 1 pad again to turn off the high-speed pump.

#### *Two Speed Pump Option:*

Depress the Jets1 pad once to activate low speed. Depress the pad again to activate the high-speed. Depress the Jets 1 pad a third time to turn off the high-speed.



### Jet 2 Controls

#### *One Speed Pumps:*

Depress the Jets 2 pad once to activate the high-speed pump. Depress the Jets 2 pad again to turn off the high-speed pump.

#### *Two Speed Pump Option:*

Depress the Jets2 pad once to activate low speed. Depress the pad again to activate the high-speed. Depress the Jets 2 pad a third time to turn off the high-speed.



### Light

Depress the Light pad to turn on the light and again to turn the light off.

#### *Optional Lighting:*

All optional lighting such as the "Control Panel Light" and "Cabinet Perimeter Lighting" is controlled by the Light pad and will turn on and off with the spa light.



### Turbo (Optional)

Depress the Option pad once to activate the Turbo system. Depress the Option pad again to turn off the Turbo system.



### Turbo and Mister (Multi Option)

Depress the Option pad once to activate the Turbo system. Depress the Option pad again to operate the Turbo and Mister system together. Depress the option pad a third time to turn off both the Turbo and mister system.



### Mister (Optional)

Depress the Option pad once to activate the Mister system. Depress the Option pad again to turn off the Mister system.

## 2300 Electronic Operation (cont.)



### Setting the Temperature lock:

This feature allows you to lock-in a temperature into the system. When engaged the set temperature will blink on and off when either the Up or Down pad is depress. However, the user will not be able to change the set temperature. Using the steps listed below you can lock or unlock the set temperature.

Depress the either the Up or Down pad, and then depress the Option pad to lock the set temperature in. Depress the same sequence to unlock.

### Automatic Time outs

The low-speed or (optional) circulation pump will automatically turn itself off after 15 minutes if not turned off manually.

Either high-speed pump will automatically turn itself off after 15 minutes if not turned off manually.

The optional turbo will automatically turn itself off after 15 minutes if not turned off manually.

The light will automatically turn itself off after 15 minutes if not turned off manually.



### Setting Filtration Cycles:

Your spa will automatically filter itself twice a day. To set filtration time, turn off the power to the spa at the time of day you would like to start filtration. The first cycle will start after the spa is powered up. The second filter cycle will begin twelve hours later. Filter cycle duration is preset for 2 hours (F2). To change duration of filtration time, depress either the Up or Down pad, then press either the Jets 1 or Jets 2 pad. Depress the Temp button again to choose from 2,4,6,8, and 12 hours twice a day. ( **F** **C** = Filtration Continuous) After selecting the desired filtering duration, depress the Jets pad to exit the filter program. The circulating pump and ozone generator (optional) will run during filter cycles. Note: The filter cycles settings of F8 and **F** **C** are only intended for use with the optional "Spa Cal Filtration System".



### Safety Suction System

Your new Cal Spa is equipped with a state-of-the-art Safety Suction System. This will automatically shut the spa down in the event of filtration or suction restriction and display **SF** on the topside control panel. If this happens, check all suction fittings and filter cartridge(s) for obstructions. Then reset the system by depressing any topside pad.

# 5000 Electronic Operation



## Initial Start up

When first powered up, the system will perform a self-diagnostic check and then it will automatically heat to, and maintain a temperature of 100°F until you change the set temperature as listed in the “Temperature Adjustment” section.



## Temperature Adjustment (Range 80°F to 104°F)

The display screen will always display the actual water temperature. To display the temperature that the spa is set to, simply depress the Temp pad. The set temperature will be flashing on the display panel. While the display is flashing, each time you depress the Temp pad will change the set temperature either up or down by one degree. Letting the display revert back to the actual water temperature, then depressing the Temp pad again will allow you to change the direction of temperature adjustment.



## Standard and Economy Modes

Your new spa is equipped with a Standard and Economy heating feature that gives you complete control of the heating system. When the spa is powered up, it will automatically start in the Standard Heating Mode. In this mode, the heating system will automatically activate whenever the water temperature drops more than one degree below the set temperature. In the Economy Heating Mode”, the heating system will only activate during filtration times. (See Setting Filtration Cycles page 31.)

To switch from the Standard Heating Mode to the Economy Heating Mode, simply depress the Temp pad followed by the Light pad. Depress the same sequence to switch back to the Standard Heating Mode.

Once in the Economy Heating Mode, **EC** will be displayed in the center of the topside control panel and flash alternately with the water temperature. This is to inform you of what heating mode you are currently in.

Note: There is no topside control panel message displayed while in the “Standard Heating Mode”, only the actual water temperature is displayed.

## 5000 Electronic Operation (cont.)



### Jet Controls

One pump equipment:

Depress the Jets pad once to activate the low speed pump. Depress the jets pad again to activate the high-speed pump. Depress the jets pad a third time to turn off the high-speed.

### One pump equipment with circulation pump

Depress the Jets pad once to activate the circulation pump. Depress the jets pad again to activate the circulation pump and the high-speed pump. Depress the jets pad a third time to turn off both the circulation pump and the high-speed pump.

### Two pump equipment without circulation pump

Depress the Jets pad once to activate the low-speed pump. Depress the jets pad again to activate the high-speed on pump 1. Depress the jets pad a third time to activate the high-speed on pump 1 and high-speed on pump 2. Depress the jets pad a fourth time and only the high-speed on pump 2 will be on. Depress the jets pad a final time to turn the high-speed off on pump 2.

### Two pump equipment with circulation pump

Depress the Jets pad once to activate the circulation pump. Depress the jets pad again to activate the circulation pump and the high-speed pump 1. Depress the jets pad a third time and the circulation pump, high-speed pump 1 and high-speed pump 2 will be on. Depress the Jets pad a fourth time and only the high-speed pump 2 will be activated. Depress the jets pad a final time to turn off the high-speed on pump 2.



### Lights

Depress the Light pad to turn on the spa light and again to turn the light off.

*Optional Lighting:*

All optional lighting such as the "Control Panel Light" and "Cabinet Perimeter Lighting" is also controlled by the Light pad and will turn on and off with the spa light.



### Turbo (Optional)

Depress the Options pad once to activate the Turbo system. Depress the Option pad again to turn off the Turbo system.



### Setting the Temperature lock

This feature allows you to lock a temperature into the system. When engaged the set temperature will blink on and off while the Temp pad is depressed. However, the user will not be able to change the set temperature. The following steps, enables you to lock-in a set temperature. Depress the Temp pad, then depress the Options pad to lock the set temperature. Repeat this step to unlock the set temperature.

### Automatic Time outs

The low-speed or optional circulation pump will automatically turn itself off after 4 hours if it is not turned off manually.

The high-speed pump will automatically turn itself off after 15 minutes if it is not turned off manually.

The optional turbo system will automatically turn itself off after 15 minutes if it is not turned off manually.

The light will automatically turn itself off after 15 minutes if it is not turned off manually.

## 5000 Electronic Operation (cont.)



### Setting Filtration Cycles

Your spa will automatically filter itself twice a day. To set the filtration time, turn off the power to the spa at the GFCI breaker. Turn the GFCI breaker back on at the time of day you would like to start the filtration cycle. The first cycle will start after the spa is powered up. The second filtration cycle will begin twelve hours later. The filtration cycle duration is preset to 2 hours (F2). To change the duration of the filtration time, depress the Temp pad, then press the Jets pad. Depress the Temp button again to choose from 2,4,6,8, and 12 hours twice a day ( **FC** = Filtration Continuous). After selecting the desired filtration cycle duration, depress the Jets pad to exit the filtration program. The circulating pump and ozone generator (optional) will run during filtration cycles.

**Note:** The filtration cycle settings of F8 and **FC** are only intended for use with the optional Spa Cal Filtration System.









### Safety Suction System

Your new Cal Spa is equipped with a state-of-the-art “Safety Suction System.” This will automatically shutdown the spa in the event of a filtration or suction restriction, and display **SF** on the topside control panel. If this happens, check all suction fittings and filter cartridge(s) for obstructions. Then, reset the system by depressing any topside pad.



# Self-Diagnostics

## Display Messages for 5000 Electronic Spas

Message	Meaning	Action Required
 <b>EC</b> (Flashing)	<b>“Economy Heating Mode”</b> When flashing alternately with the water temperature, your spa is in the Economy Heating Mode.	This message does not indicate the need for service. For more information, see the Standard and Economy Modes Section on page 29.
 <b>OH</b>	<b>“Overheat”</b> The spa has shut down. Either the spa has reached a temperature of 112°F or the High-limit sensor has detected overheating in the heater manifold.	<b><u>DO NOT ENTER THE SPA WATER.</u></b> Remove the spa cover and let the water cool. At 110°F the spa should automatically reset. If the spa does not automatically reset, press any pad on the topside control panel. If the spa still won't reset, turn off the power and call your local authorized service center.
 <b>FL</b>	<b>“FL”</b> A pressure switch has detected a loss of water flow.	Check the filter for debris. If it's dirty, clean it. (See page 13 for cleaning instructions) If the problem persists, call your local authorized service center.
 <b>SF</b>	<b>“Safety”</b> Spa has shut down. The safety suction system has activated.	Check the drains and filters for debris or obstructions. To reset the system, press any pad on the topside control panel.
 <b>Sn</b>	<b>“Sensor”</b> Spa has shut down. The Hi-limit/Temperature sensor has malfunctioned.	Call your local authorized service center.
	<b>“LED's”</b> These LED lights are used to inform you that the corresponding feature is operational.	These LED's are not service indicators. No action is required.

These instructions will describe features and options that your particular spa may not be equipped with.

When your spa is first powered up, it will display some configuration codes and then go into **Priming Mode** (Pr will appear on the display panel) This mode will last up to 4 minutes and then the spa will began to heat to its pre-programmed temperature of 100°F. You can exit the Priming mode early by pressing Up or Down arrow.

The start-up temperature is set at 100°F/37.5°C. The last measured temperature is constantly displayed on the LCD. Note that the last measured spa temperature displayed is current only when the pump has been running for at least 2 minutes.

Press the “Warm” or “Cool” (Up or Down) button once to display the set temperature. Each time either button is pressed again, the set temperature will increase or decrease depending on which button is pressed. After three seconds, the LCD will automatically display the last measured spa temperature.

When time hasn't been programmed, the TIME icon flashes. To set the time, press "Time" then "Mode/Prog." Use the "Warm" and "Cool" buttons to adjust time. See the next page for more detailed instructions.

This button is used to switch between standard, economy, and sleep modes. Press “Mode/Prog” to enter mode programming, press “Cool” to cycle through to desired mode (LCD flashes until confirmed), then press “Mode/Prog” to confirm selection.

On non-circ systems, the low speed of pump 1 runs when the blower or any other pump is on. It may also activate for at least 2 minutes every 30 minutes to detect the spa temperature (polling) and then to heat to the set temperature if needed, depending upon mode. When the low speed turns on automatically, it cannot be deactivated from the panel; however, the high speed may be started.

## 7000 and 9000 Electronic Operation (cont.)

### Jets 2: (Optional on 7000)

Press the "Jets 2" button once to turn pump 2 on or off, and to shift between low and high speeds if it is a two-speed pump. If left running, the pump will turn off after 15 minutes.

### Option (optional Blower or Mister)

Press the "Option" button to turn the optional equipment on and off. If left on, the equipment will automatically turn off after 15 minutes.

### Light

*Some systems are equipped with both a spa light and a fiber optic light. Depending upon how your spa is equipped and configured, the "Light" button will operate in one of three ways:*

#### 1)

Press the "Light" button to turn the spa light on and off, and to shift between dim and bright settings if your light is dimmable. On dim, the LCD will show center circle plus one quarter of the light beams. Half of the light beams will show on medium brightness, and all of the light beams will show on bright.

#### 2) (9000 Only)

If a fiber-optic light with wheel is installed, press the "Light" button once to start the light and wheel, press it again to stop the wheel, and then again to turn the light off. The fiber icon stands still when the fiber optic light is on by itself, and rotates when the color wheel is also on. Depending on how your system is configured, the spa light or an additional light may come on with the fiber-optic light when pressing this button.

#### 3) (7000 Only)

If a fiber-optic light without a separate wheel stop is installed, press the "Light" button to turn it on and off.

If any light is left on, it will automatically turn off after 4 hours.

### Invert

Press the "Invert" button to change the numbers in the display to read upside down. Another press returns display to the right-side-up position.

### Locking the Panel

Press "Time" "Jets 1" then "Warm" within 3 seconds. When locked, the panel will display "PANEL LOCK". All buttons are frozen except the "Time" button. To unlock the panel, press "Time" "Jets 1" then "Cool."

### Locking the Set Temperature

Press "Warm" or "Cool" then "Time," "Jets 1," and "Warm" within 3 seconds to activate the lock. The panel will display "TEMP LOCK" when the set temperature is locked. To unlock the set temperature, press "Warm" or "Cool" then "Time," "Jets 1" and "Cool."

### Circ Pump (optional)

If your system is equipped with a circ pump, it may be configured to work in one of two 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 above the set temperature (most likely to happen in very hot climates).

2) The circ pump will come on when the system is checking temperature (polling), during filter cycles, during freeze conditions, or when another pump is on.

### Preset Filter Cycles

There are two filter cycles per day. The start/end times of each cycle are programmable. To program, set time as instructed above, then press "Mode/Prog" to advance to the next setting (or to exit after the last setting). The default filter cycles are as follows:

The first filter cycle is automatically activated at 8:00 AM and operates the pump until 10:00 AM. The filter 1 indicator icon will light when filter 1 is running.

The second filter cycle is automatically activated at 8:00 PM and operates the pump until 10:00 PM. The filter 2 indicator icon will light when filter 2 is running.

The pump and the ozone generator will run during filtration. At the start of each filter cycle, the blower will run on highest speed for 30 seconds to clean out the air channels. The lowest speed of pump 2 and pump 3 will run for 5 minutes.

*Time of day is not preserved on 7000 systems; however, filter cycles are. In the event of power loss or shut down, the time of day will need to be reset for filter cycles to run according to your desired programming.*

### Clean-up Cycle

When the 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 one hour.

### Ozone (optional)

On most systems, the ozone generator (if installed) runs during filter cycles (except when pump 1 is operating at high speed on a non-circ system) and during clean-up cycles. On some systems, the ozone generator operates whenever the pump runs. If your system is configured with the optional ozone disable feature, the ozone generator will turn off for 1 hour any time a function button (Jets 1, Jets 2, Option, etc.) is pressed.

### Freeze Protection

If the temperature sensors detect a drop to 44°F within the heater, then the pump automatically activates to provide freeze protection. The equipment stays on until 4 minutes after the sensors detect that the spa temperature has risen to 45°F or higher. In colder climates, an optional additional freeze sensor may be added to protect against freeze conditions that may not be sensed by the standard sensors. Aux freeze sensor protection acts similarly except with the temperature thresholds determined by the switch and without a 4-minute delay in turnoff.

## 7000 and 9000 Electronic Operation (cont.)

### Diagnostic Messages

#### Message      Meaning

No message on display.  
Power has been cut off to the spa.

**OHH** "Overheat" - The spa has shut down. One of the sensors has detected 118°F at the heater.

**OHS** "Overheat" - The spa has shut down. One of the sensors has detected that the spa water is 110°F.

**ICE** "Ice" - Potential freeze condition detected.

**Snb** Spa is shut down. The sensor that is plugged into the Sensor "B" jack is not working.

**SnA** Spa is shut down. The sensor that is plugged into the Sensor "A" jack is not working.

**Sn** Sensors are out of balance. 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.

**HFL** A substantial difference between the temperature sensors was detected. This could indicate a flow problem.

**LF** Persistent low flow problems. (Displays on the fifth occurrence of the "HFL" message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.

**dr** Inadequate water detected in heater.

**dr4** Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.

**Pr** When your spa is first actuated, it will go into Priming mode.

**---F or C** Temperature unknown.

**---** Temperature not current in Economy or Sleep mode.

**8888** Internal problem detected.

**Stby** Standby Mode has been activated by pressing a button combination on the user panel.

**SF** Safety Suction.

#### Action Required

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; settings only are preserved until the next power-up on 7000 systems.

DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. Once the heater has cooled, reset by pushing any button. If spa does not reset, shut off the power to the spa and call your dealer or service organization.

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.

No action required. The pumps and the blower will automatically activate regardless of spa status.

If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)

If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)

If the problem persists, contact your dealer or service organization.

Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. If problem persists, contact your dealer or service organization.

Follow action required for "HFL" message. Heating capacity of the spa will not reset automatically; you may press any button to reset.

Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. Press any button to reset.

Follow action required for "dr" message. Spa will not automatically reset; you may press any button to reset.

The Priming mode will last for up to 4 minutes and then the spa will begin to heat and maintain the water temperature in the Standard mode.

After the pump has been running for 2 minutes, the temperature will be displayed.

In Economy or Sleep mode, the pump may be off for hours outside a filter. If you wish to see the current spa temperature, either switch to Standard mode or turn Jets1 on for at least two minutes.

Repair required. Contact your dealer or service organization.

Press any button to leave Standby Mode and return to normal operation.

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.

## 7000 and 9000 Electronic Operation (cont.)

Periodic Reminder Messages (Press the “Mode” button to reset a displayed reminder)

Message	Frequency	Action Require
<b>r 5A</b>	Every 7 days	Test and adjust chemical levels per manufacturer’s instructions.
<b>r CL</b>	Every 7 days	Test and adjust chemical levels per manufacturer’s instructions.
<b>r t q</b>	Every 30 days	Remove, clean, and reinstall filter per manufacturer’s instructions.
<b>r dr</b>	Every 30 days	Test & reset GFCI per manufacturer’s instructions. Drain and refill spa per manufacturer’s instructions.
<b>r c o</b>	Every 90 days	Drain and refill spa per manufacturer’s instructions.
<b>r t r</b>	Every 180 days	Clean and condition spa cover
<b>r CH</b>	Every 365 days	Install New Bio-Clean Filter

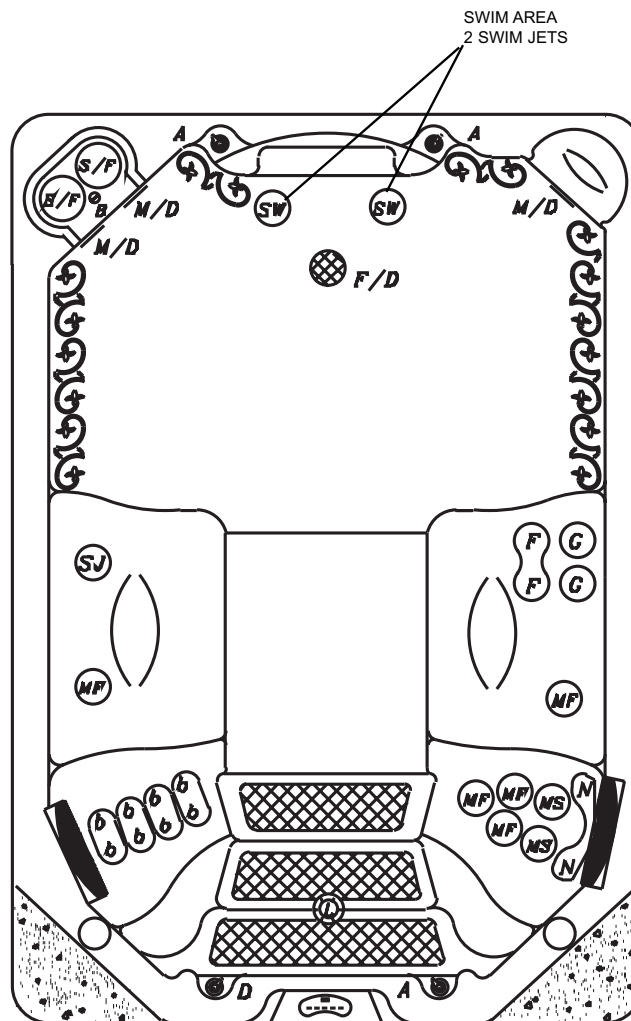
### **Warning! Shock Hazard! No User Serviceable Parts.**

Do not attempt service of this control system. Contact your dealer or service center for assistance.

## Champion Spa Information

The Champion spa allows the operator to swim or relax in one spa. This spa is controlled by the 2300 electronic control system which gives you complete control of this unique spa.

Please see the 2300 operating instructions to properly control the various functions of this spa.

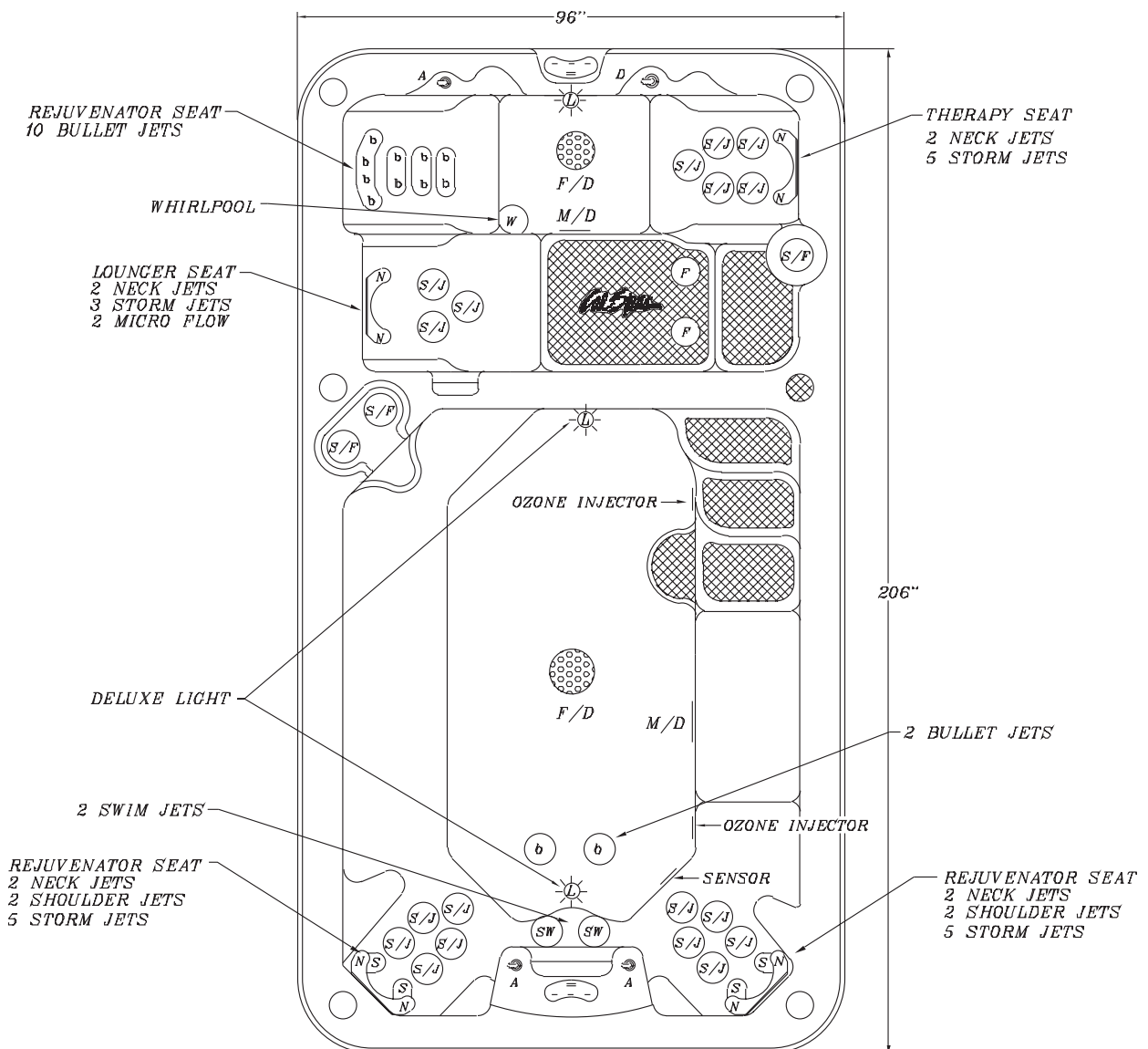


Due to our continuous improvement program, all models and specifications are subject to change without prior notice.

# Olympian Spa Information

The Olympian spa is the best of both worlds. Swimming and exercising in the swim area and relaxing in the spa area. This spa is controlled by two completely separate control systems, which gives you the ability to have cooler temperatures for swimming and warmer temperatures for relaxing in the spa.

The swim area operates through an outdoor version of the 2300 equipment. While the spa is operated with the 5000 equipment. Please see these operating instructions to properly control the various functions of this incredible spa.



Due to our continuous improvement program, all models and specifications are subject to change without prior notice.

# Splash Stereo System



This system can be used to listen to AM or FM Stereo signals, CD's and also audio from the optional DVD and TV Tuner on our Entertainment Spas.

Each spa that is equipped with the Splash Stereo system is delivered with the manufacturers operating instructions. We strongly recommend that you read these instructions prior to operating this unit.

Note: Although this unit is marine grade, you will still need to protect it from water and the elements.

- Do not place wet CD's into this unit at any time.
  - Do not overload or overfill the spa.
  - Always close the CD protection door.
  - Always close the Stereo cabinet door.
- Remember, water damage is not covered by the warranty.

## Entertainment Systems:

Spas equipped with the TV / DVD systems use this Splash stereo to broadcast the TV or DVD audio signals.

Set Up:

1. Program preset station #1 to 88.7FM to receive the audio signal that the TV and DVD systems are transmitting on.
2. Set Base to +2 (As described in the stereos operating manual)
3. Set Treble to +4 (As described in the stereos operating manual)
4. Do Not Use the Z music enhance feature of the Splash Stereo System.
5. Set the volume between 20 and 30.

Note: If the spa should loose power for any reason, it will be necessary to reset these settings.



### **Cal Spas Automatic Pop-up Operation:** (Optional)

#### **Raising and Lowering the System:**

Let's start our entertainment experience by raising the TV monitor and optional pop-up speakers. The large single CEC button located on the top right side of the spa, controls the monitor and speaker raising and lowering.

#### **Operation:**

1. Press the CEC button once to raise the TV monitor and optional pop-up speakers.
2. Press the CEC button again to lower the TV monitor and optional pop-up speakers.



#### **Important:**

Manual and Automatic TV'S are shipped with two large plastic tie straps to prevent shipping damage. These straps must be removed prior to operation.

#### **Strap Removal:**

1. Remove the rear cabinet panel with (Behind TV Monitor)
2. Locate the two white plastic tie straps.
3. Use extreme caution when cutting the the two white plastic tie straps. (Do Not Cut near any wires)
4. Reinstall cabinet panel.

## 15" TV Monitor Operation: (Optional)

### Turning On the TV Monitor:

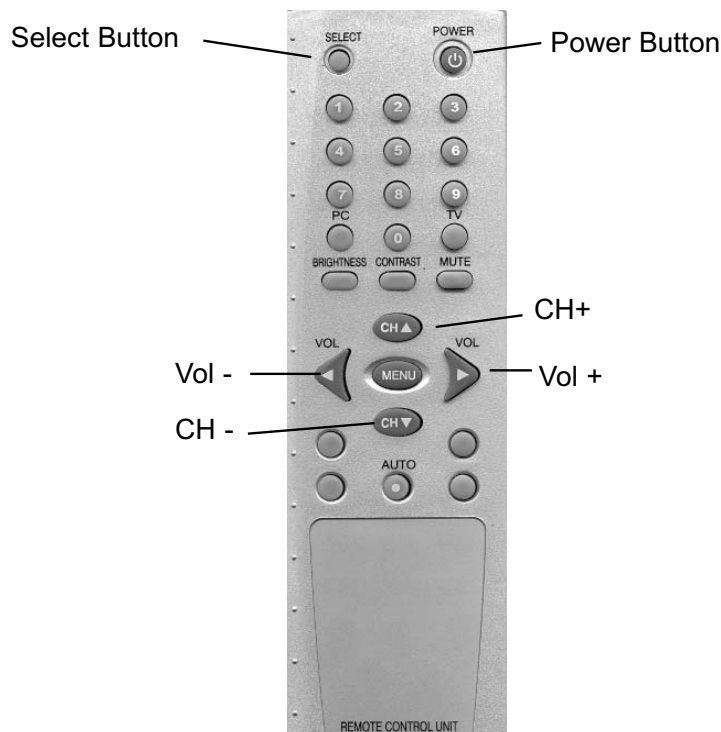
Once the TV has been raised (either by manual or automatic operation) you will be able to operate the TV with the silver TV remote control.

Note: This remote control is not waterproof. Do Not operate with wet hands or from inside the spa.

### Operation:

1. Point the remote control directly at the TV Monitor
2. Press the **Red Power Button** located at the top left side of the remote control.
3. Allow a few seconds for the TV monitor to warm up before pressing any other buttons.
4. Once on, the TV monitor will display a small icon at the lower left side signifying which mode the TV is currently in.
5. Press the "SELECT" button located at the top right side of the TV remote control until the icon "**COMPOSITE VIDEO**" is displayed on the screen of the TV monitor. This will allow the TV Monitor to accept the signal from the DVD player.
6. When an antenna, cable or satellite system is connected to the coaxial cable on the right front side of the spa, you will be able to receive live TV signals by pressing the "SELECT" button until the "**COMPOSITE TV**" icon appears on the TV monitor. Allow a few second for the TV tuner to acquire the new signal prior to switching channels.
7. Press the right "VOL" button to adjust the volume up to "80" as displayed on the screen  
This will allow the Stereo system to receive enough volume to reproduce the audio signal without distortion.

Note: You will not be able to hear audio form the TV Monitor itself. All audio signals for the TV or DVD are only acquired through the stereo when programmed to 88.7FM.



## Cal Spas Entertainment System Operation:

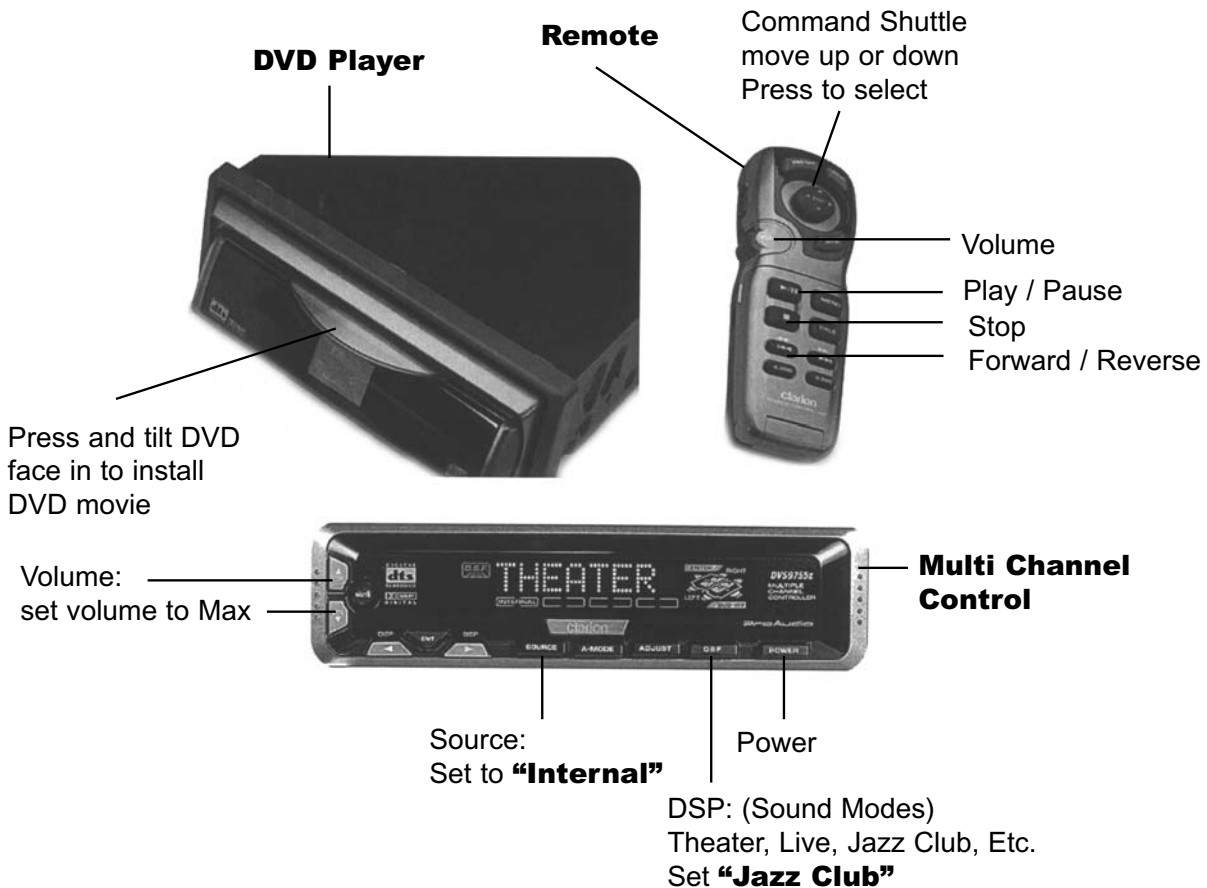
### DVD Player and Surround Sound Processor: (Optional)

This system contains the DVD player and DVD Multi Channel Control. Not unlike your home theater system, the spas theater system allows the user to control theater surround modes like THEATER, LIVE, JAZZ CLUB, and more.

These instructions are to describe basic functions. Please see the DVD manufacturers operating instructions for other features and functions.

#### Operation:

1. Press the **POWER** button on the Multi Channel Control to turn the system on.
2. Press the front face of the DVD player in to open and insert the DVD that you would like to view.
3. Press the front face of the DVD player to close the player.
4. Press the **SOURCE** button on the Multi Channel Control to the **INTERNAL** position.
5. Press the **VOL UP** button on the Multi Channel Control to Max.
6. Press the **DSP** button on the Multi Channel Control to the **JAZZ CLUB** position.
7. Point the remote at either the front of the Multi Channel Control or remote sensor located just below the TV monitor on the spa shell.
8. Use the Command Shuttle on the remote control to select feature (Up or Down) and press to start movie.



**WARNING:** DVD System and remote control are NOT waterproof or water-resistant. Water damage is not covered by the manufacturers warranty. Please make sure that hands and DVD's are dry before coming in contact with this or any electronic option.

### Operating the DVD System In TV Mode:



The DVD system is used to feed the audio signal from the TV Tuner to the stereo. You will need to switch the audio and Video modes with DVD remote to properly receive picture and sound.

Note: The Stereo must be tuned to 88.7FM to receive audio signals from either the DVD or TV Tuner.

#### Instructions:

1. Turn on DVD system as mentioned on the previous pages.
2. Press the **A.SCR** button on the DVD Remote Control to switch Audio from **INTERNAL** to **ANALOG 1**.
3. Press the **V. SCR** button on the DVD Remote Control to switch the Video from **IN** to **OUT**.
4. Press the **POWER** button on the Tuner Remote Control.
5. Press the Channel Up or Down buttons to select TV Channel.

#### Switching Back to DVD Operation:

1. Press the **A.SCR** button on the DVD Remote Control to switch Audio from **ANALOG 1** back to **INTERNAL**.
2. Press the **V. SCR** button on the DVD Remote Control to switch the Video from **OUT** back to **IN**.

**WARNING:** DVD System, Tuner System and their remote control's are NOT waterproof or water-resistant. Water damage is not covered by the manufacturers warranty. Please make sure that hands and DVD's are dry before coming in contact with this or any electronic option.

# Cal Spas Clear Water Plan™

Great spa water is easily achieved when the right chemicals are used and a Clear Water Plan is implemented. The key to clean, clear, safe water is to fully understand how spa water reacts to users, operation and chemicals. This Clear Water Plan will help give you that understanding.

## **IMPORTANT Chemical Safety Notices:**

### **Chemical Directions:**

- All directions in this program are calculated for Cal Spas chemicals only. Other chemicals may have similar names and/or usage descriptions. However, all chemicals are manufactured differently, increasing the likelihood of under or over dosing spa chemicals.
- Failure to follow chemical directions may result in serious injury, sickness and even death.

### **Chemical Usage:**

- Always introduce chemicals to spa water with all pumps operating on high speed.
- Apply chemicals to the center of spa water.
- Always wear protective clothing and eyewear when handling chemicals.
- Spa users that notice skin irritation must immediately suspend spa usage and consult their physician.
- Pregnant women should consult their physician prior to using a spa for both chemical and temperature recommendations

### **Chemical Storage:**

- Chemicals must be stored completely out of the reach of children in an area that is well vented, cool, and dry.
- Failure to provide a proper area for chemical storage may result in serious injury, sickness, fire, explosion and even death.

### **Physical Chemical Hazards:**

- Do not allow chemicals to come in contact with skin, eyes or clothing. As mentioned previously, always wear rubber gloves, protective eyewear and clothing to reduce the risk of chemical contact and irritation.
- Remove and wash clothing that may have been exposed to chemical contact prior to wearing again.
- Inhaling or digesting chemicals will cause serious injury, sickness, and even death.
- Do not mix chemicals. Mixing chemicals together may cause chemical reactions that vary from poor water conditions to fire and explosion.

# Cal Spas Clear Water Plan™

## Safety:

1. This plan and its chemical dosages are intended for Cal Spas Chemicals only. Most chemical manufactures use different chemical formulas and strengths. Cal Spas' chemicals are specially formulated to provide proper chemical balance at lower dosages. Compare labels and dosages and see for yourself. You will get greater protection and performance with Cal Spas Chemicals.
2. Read and follow all printed instructions listed on bottles, packages and owner's manual.
3. Read and follow all printed instructions listed in chemical start-up kits. If Applicable, start-up kit chemicals are often more concentrated than the over the counter full size bottles.
4. Do Not Exceed Chemical Dosages Per Gallon as listed in the owner's manual, chemical bottles, packages, and kits. Most chemical instructions are figured for a 500 gallon spa. However, most spas hold less than 500 gallons. Always use less than the recommended amount of any chemical. It is much easier to add additional chemicals than it is to remove excess chemicals from the spa water.

REMEMBER, LESS IS MORE WHEN DEALING WITH SPA CHEMICALS.

5. Never mix any chemicals together.
6. Never change chemical brands or types without completely draining, flushing and thoroughly cleaning the spa, pillows, and cover first.
7. Be careful not to add certain chemicals on the same day. (Refer to printed instructions on the chemical bottles, packages and Clear Water Plan.)
8. Always protect eyes while introducing chemicals into the spa. A slight breeze may cause powdered chemicals to blow into eyes. Pouring liquids may cause chemicals to splash into eyes. (Protective eyewear should always be worn when handling chemicals)
9. In the event of overdosing a sanitizing chemical (Chlorine, Bromine, etc.), immediately turn off power to the spa and proceed to drain spa water into a safe locally approved area. Carefully rinse pillows, jets, and spa surface with regular tap water. (Avoid spraying water directly into the equipment area.) Refill spa to proper water level, turn power back on, and then set the filtration time to "F6". This will allow water to completely circulate to minimize the risk of chemical damage to your spa. (See setting filtration section of the owner's manual for more information.)

## Why is a Chemical Plan Important

### Time and Expense:

A better understanding of spa chemicals and their usage will help protect you from ugly, unsafe water and the expense associated with clean up. In some cases, it is less expensive to drain the spa and start over than it is to add additional chemicals and filtration time cleaning up bad spa water.

### Chemical Damage:

The most common reason for spa failure is chemical abuse or customer neglect. For example, the pump seal used on a typical spa is the same pump seal used to pump acid solutions for chemical companies. Yet this same pump seal will fail in numerous spas because the owners were not following a chemical plan. Chemical damage is not covered by Cal Spas limited warranty. So, in addition to wasted expenses on excess chemicals, you will find yourself with a huge expense of replacing chemically damaged parts. Even the brand(s) of spa chemicals that claim that they are not as harsh as chlorine or bromine, in fact, are. If you venture off some of these chemicals plans, the damage to your spa can be twice what chlorine or bromine damage would be.

### The Bottom line:

It pays to stick with a simple chemical plan and use a measuring cup rather than the conventional, "Yep, that looks like about 2 ounces".

It sounds funny... but it is a huge issue, that can be easily avoided.

# Stay with the Plan

## **Staying with the Plan:**

Spa owners who enjoy the cleanest water with a minimum time investment, all have one thing in common: they use, and stay with a simple chemical plan. Most chemical manufacturers offer a maintenance plan printed in a small booklet, which contains nothing more than how much to use. The Cal Spas' Clear Water Plan describes not only what and when, but why you need to use a particular chemical.

## **Avoiding Problems:**

Spa water issues cannot be fixed immediately. It is much easier, less expensive, and a lot less time consuming to maintain spa water, than it is to troubleshoot and correct water issues. Ask yourself, which is easier, less expensive, and more convenient? Changing the oil in your car four (4) times a year, or replacing the car every two (2) years.

A chemical maintenance plan for your spa is not much different. Follow the Cal Spas' Clear Water Plan, or replace your spa every two years. We know you don't want to become a chemist. You just to enjoy your new spa. That is why the Cal Spas' Clear Water plan is so effective. Just 15 minutes, three days a week and you are ensuring your spa's future.

## **Clear Water Plan Advantages:**

1. Chemical use is minimal.
2. Chemical odor is almost non-existent.
3. Pillows, Spa Covers, and Filter lids last for years.
4. Spa usage is more enjoyable.
5. Water is always clean, clear and safe.
6. Little time invested.
7. No smock required (Chemist Joke).

# Spa vs. Small Pool?

Most people think of spas as nothing more than a small pool. In fact, nothing could be further from the truth. If anything, spas are more like an overgrown bathtub.

An average pool contains 30,000 gallons of water and operates at approximately 70° F (20° C).

An average spa only contains 350 gallons of water and operates at 100° F (38° C).

Since spas have more than 100 times less water than a swimming pool, they are very easily contaminated by bathers.

## **Example:**

Although spa users don't realize it, they perspire a lot. An average person using a spa for one hour will leave approximately 3 pints of perspiration per 350 gallons. A swimmer exercising in a pool leaves approximately one pint of perspiration per 30,000 gallons.

This and other body waste such as skin, oil, and personal hygiene products are left in a very small amount of hot water. The spa becomes prime environment for bacterial growth. In addition, water evaporates leaving a stronger concentration of T.D.S. (Total Dissolved Solids).

As stated before, spas are nothing like swimming pools. The former needs more attention than you may have first thought.

This information is not meant to scare you. It is to make you aware of why a chemical maintenance plan is so important.

Most chemical programs don't provide this type of information to the average spa user. When in reality, without knowing what the possibilities are, you won't be able to prevent problems from occurring or correct them easily.

Cal Spas believes educated spa owners are more able of recognizing a potential problem and correcting it with little effort. Thus, improving the overall spa experience.

# Filters and Filtration:

## **Exclusive Bio-Clean Filter Cartridge:**

The average filter cartridge is designed to remove dirt, sand, minerals, phosphates, bather waste and other solids from the spa. Unfortunately, some spa owners fail to include filter cleaning as part of their chemical maintenance plan. Filters accumulate debris and become prime areas for bacteria growth.

The Cal Spas Exclusive Bio-Clean filter is the only antibacterial filter cartridge on the market today. What does this mean to you? Having a filter cartridge that prevents bacteria growth is simply added protection for those times you forget to clean the filter. We recommend that you only replace your spas filter cartridge with a Bio-Clean filter cartridge for ensured protection and peace of mind.

## **Why do I need to Clean the Filter Cartridge?**

Even though the Bio-Clean filter can protect itself from bacterial growth, it still needs to be cleaned on a regular basis to maximize your spas performance and ensure that heating and filtration systems are functioning correctly. Most filter canisters are manufactured with a bypass. When a filter becomes full of debris, the bypass will open allowing water to flow around rather than through the filter. When this happens, your daily filtration cycles are no longer effective. Another casualty of a dirty filter cartridge, is the loss of water temperature. The spas heating system will only function with the proper amount of water flow through the system. An overloaded filter, can cause the heating system to become inoperable.

## **Cleaning the Filter Cartridge:**

In addition to spraying the filter with a high pressure nozzle, deep cleaning the filter cartridge is also necessary. Even if the filter cartridge may appear clean, you will still need to deep clean it regularly. Minerals and other contaminants are very difficult to see and can get lodged deep into the filter fibers causing water flow issues.

You will need to have an extra filter cartridge on hand for the deep cleaning process. It is necessary to always have one filter either cleaning or drying, and the other installed in the spa. This process will double the filter cartridges overall life and performance.

## **Filter Cleaning:**

1. Place the dirty filter into a bucket with 8 oz. of Liquid **Filter Cartridge Clean.**
2. Soak for a minimum of 24 hours.
3. Remove filter and spray clean with a water hose, and allow the filter to dry thoroughly. (Drying time should be a minimum of two days prior to reinstalling.)
4. Reinstall as described in the Clear Water plan.

## **Filtration:**

Filtration is one of the most important steps you can take ensuring clean, clear water. Regardless of what some people may think, it is far more inexpensive to fix water clarity problems by filtering your spa than it is to use excessive amounts of chemicals, filtration times, and/or water replacement.

Cal Spas' filtration system simply draws contaminated water through the (Exclusive) Bio-Clean filter removing debris from the water. It then pumps the newly cleaned water back into the spa through various jets.

Spas equipped with the optional, Quest 2000 Ozonator will also receive ozone injection into the filtered water for further protection against contaminants during filtration cycles.

Filtration also ensures that chemicals are mixed thoroughly through the water, increasing performance.

## **Filtration Cycles:**

All electronically controlled spas run two filter cycles every day, one every twelve hours. Either the low speed of a two speed pump or separate filter pump will perform the filtration function. We strongly recommend that you set your spas filtration time to the "F4" setting. (See the "Setting Filtration Cycles" section in the owner's manual.) This will allow the spa to filter for four (4) hours every twelve hours. If it seems like a lot, just remember the pool analogy.



## Cloudy Water:

### **Cloudy Water:**

Everyone experiences cloudy water at one time or another.

The number one cause of cloudy water is the spa user and the things they bring into the spa. As discussed before, the average spa holds only 350 gallons of water. What you bring into the spa will stay in the water for some time. Think of the spa as a thorough body wash. Everything that is in your clothes, skin and hair will be washed off and left in the spa water causing cloudy water.

1. Never wash the clothes that you wear into the spa in laundry detergent or fabric softener. Laundry detergent and fabric softener stays in your clothes no matter how well you rinse them. This causes cloudy and foamy water that is almost impossible to clean up. The only thing you can do is wait for it to filter out. Adding Spa Brite, in this case, will only further delay the spas ability to clear up.
2. Never enter the spa with sunscreen or lotion on your skin. Oil is very difficult to remove from the water, and can cause a reaction with some of the chemicals that you may add to your spa, further causing a cloudy water condition. It is best to rinse off prior to entering the spa.
3. Use caution when adding any chemicals to correct a problem. Most cloudy water problems are made worse by the spa owner adding chemical after chemical to correct a cloudy water problem that normally would have cleared up with a little Oxidizer Shock and filtration time.
4. Remember, swimming pool chemicals are completely different than spa chemicals. Entering a spa with wet clothes from a swimming pool can cause a possible chemical reaction to either the spa user and/or the spa water. Always rinse thoroughly when transferring between a swimming pool and a spa.
5. Clean the spas filter(s) regularly as described in the Cal Spas Clear Water Plan.

## Spa Brite: (Water Clarifier)

### **Spa Brite:**

This chemical is used to help clear up cloudy water.

The problem that most spa owners run into is being able to identify when Spa Brite should be used and when it should not be used.

Spa Brite's only purpose is to draw very light debris together and making them large enough to be caught in the filter.

If your water clarity issue is caused by excessive amounts of oils, soap, or bacteria elements, Spa Brite will only add to the clarity problem; an oily, clumpy mess will form around the entire water level of the spa.

### **How to use Spa Brite:**

1. Make sure that your clarity issue is not of an oily, soapy, or bacterial nature. (See Filter, Enzyme Oil Gone, or Oxidizer Shock sections for these issues.)
2. Add 2 oz. of Spa Brite to a spa running on filter speed. Allow spa to filter until water is clear. We recommend placing your spa in filter mode "FC" (24Hour filtration Mode) during this time. (This may take some time, so be patient. See the Setting Filtration Cycles section in your owner's manual.)
3. Clean filter thoroughly between, and after each application of Spa Brite.

# Enzyme Oil Gone: (Oil Remover)

## **Enzyme Oil Gone:**

This chemical will help break-down excessive amounts of body and other oils in the spa water.

Body oil, perspiration, lotions and tanning oil will quickly accumulate in your spa if your not careful.

The best solution is prevention. Always watch what goes onto your body because it will eventually end up in your spa water.

## **How to Use Enzyme Oil Gone:**

1. Add 1/2 oz. of Enzyme Oil Gone to a spa running on filter speed. Allow spa to filter until the spa water no longer feels or looks oily. We recommend placing your spa in filter mode "FC" (24 Hour Filtration Mode) during this time.

(See the Setting Filtration Cycles section in your owners manual.)

2. You may find the need to add this product to your weekly chemical maintenance plan. If so, simply repeat step one (1) once a week. (Weekly dosages do not generally require additional filtration time.)

# Water Temperature and Its Effects:

## **Water Temperature:**

The actual water temperature will greatly effect how efficient your spas chemistry is.

Here is an example of what hot water can do to your water and chemicals.

## **Hot Spa Water: (100° - 104° F)**

1. Increases water evaporation.
2. Increases chemical dissipation.
3. Increases amount of spa user waste.
4. Accumulation of minerals and salts.
5. Increases Total Dissolved Solids (TDS).

As you can imagine, there is an inverse effect with cooler water temperatures.

Does this mean that you should not operate your spa at higher water temperatures? No. We just want you to be aware that your chemical usage will increase or decrease with the actual water temperature.

# Water pH and its Effects:

## **Water pH: (Potential Hydrogen)**

pH is the measurement of the acidic level of water. The normal range of your spas pH level is between 7.2 to 7.8 and can be tested with simple test strips. What will happen to my spa with pH levels either too high or too low?

## **Low pH:**

The lower your pH, the more acidic your water will become. That's right. Acid! Effects of low pH are, dissolving or pitting heaters, manifolds, pump seals, and in some cases the acrylic finish itself.

## **High pH:**

The effects of high pH are increased scaling, calcium deposits, cloudy water, clogged filters and effectiveness of you sanitizers: Chlorine and Bromine.

## **What Affects the pH:**

Everything that is introduced into the spa water has its own pH level, including you. All of these different pH levels can cause conflict with the spa waters ability to maintain its correct pH levels.

## Water pH and its Effects: (Cont.)

### **Example:**

Spa owners that use their spa three (3) or four (4) times a week will have lower pH than spa owners who use their spa once or twice a week. Even the sanitizers (Bromine, Chlorine, etc.) that you use can effect the water's pH levels. Did you know that Bromine has a pH level of 3.0 while chlorine has a pH level of 7.1. Other types of sanitizers have pH levels so low, it's like adding straight acid to your spa.

Be very careful of what you are putting into your water.

### **Chlorine Users:**

Chlorine is very sensitive to pH levels. Readings higher than 7.8 will cause chlorine users to use twice the amount of chlorine to maintain a proper level. If you are using excessive amounts of chlorine with little effect, check the pH and Total Alkalinity levels.

## Controlling pH:

### **Controlling pH:** (Potential Hydrogen)

1. Always follow printed instructions on the bottle and/or packages.
2. Always adjust Total Alkalinity and Sanitizers first.
3. Chlorine users will generally use more "pH / Alkalinity Down."
4. Bromine users will generally use more "pH / Alkalinity Up."
5. Make sure test strips are not wet or outdated prior to testing.
6. Never test immediately after using oxidizer shock.  
(Allow 30 minutes of circulation with the spa cover half off prior to testing.)
7. Always add chemicals when the pump(s) are on high speed.
8. Always premix "pH Alkalinity Down" chemicals in half a bucket of water prior to introducing them to the spa.
9. Never attempt to adjust pH or Total Alkalinity in large increments. Adjustments are made easier, and will stay set longer if you make them in small increments.

### **Do Not Use Vinegar or Baking Soda to adjust pH and Total Alkalinity:**

#### **Vinegar:**

You would need to use 100 times the amount of vinegar to equal 1/2 oz. of Cal Spas "pH / Alkalinity Down". Vinegar will also add a large amount of organic waste in the spa water requiring the need for more sanitizers.

#### **Baking Soda:**

Although very similar to common baking soda, "pH / Alkalinity Up" is different. The primary difference is pH Alkalinity Up's ability to dissolve quickly. Common baking soda will cause a paste like substance to accumulate on the floor and seats of your spa.

## What is Total Alkalinity?

### **Water Total Alkalinity:**

Total Alkalinity is the basic capacity of the spa water to resist change in the pH.

When the alkalinity is low, the pH and alkalinity will change very easily with bather use or chemical adjustment. The opposite will happen when the alkalinity is high. It will take a lot of bathers or chemicals to change the pH and alkalinity levels.

The optimum Total Alkalinity level is between 80 to 100 parts per million (ppm).

# Controlling The Total Alkalinity:

## Controlling The Total Alkalinity:

1. Always follow printed instructions on the bottle and/or packages.
2. Always adjust Total Alkalinity and Sanitizers first even if it throws the pH further off.
3. Chlorine users will generally use more “pH / Alkalinity Down.”
4. Bromine users will generally use more “pH / Alkalinity Up.”
5. Make sure test strips are not wet or outdated prior to testing.
6. Never test immediately after using oxidizer shock. (Allow 30 minutes of circulation with the spa cover half off prior to testing.)
7. Always add chemicals when the pump(s) are on high speed.
8. Always premix “pH Alkalinity Down” chemicals in half a bucket of water prior to introducing them to the spa.
9. Never attempt to adjust pH or Total Alkalinity in large increments. Adjustments are made easier, and will stay set longer if you make them in small increments.

You will be using the same chemicals to lower the pH and Total Alkalinity. (Cal “Spas pH / Alkalinity Down” and “pH / Alkalinity UP.”)

This does create concern with some people of throwing off one level to correct another.

It is recommended to throw off the pH level in an effort to adjust the alkalinity level properly first. This will make it easier to adjust and maintain the pH.

## Questions and Answers

Q: My pH is low and the Total Alkalinity is high. What do I do?

A: Add small amounts of “pH / Alkalinity Down” to bring down the alkalinity level first. Be sure to allow plenty of circulation and standing time for the waters chemical levels to change. This may take anywhere from one (1) to three (3) hours depending on the size of the adjustment. (Smaller adjustment amounts are always better than larger adjustments.) Then you may start adjusting the pH back up, by using “pH / Alkalinity Up” in small amounts at a time.

Q: My pH is high and the Total Alkalinity is low. What do I do?

A: Add small amounts of “pH / Alkalinity UP” to bring up the alkalinity level first. Be sure to allow plenty of circulation and standing time for the waters chemical levels to change. This may take anywhere from one (1) to three (3) hours depending on the size of the adjustment. (Smaller adjustment amounts are always better than larger adjustments.) Then you may start adjusting the pH back down by using “pH / Alkalinity Down” in small amounts at a time.

# Calcium and Scale:

Calcium is one of the few minerals that does not dissolve in hot water. In fact, hotter water makes calcium more of a solid, gritty, chalky substance that attaches itself to the acrylic finish, heater, and everywhere else in the spa. We refer to these conditions as “Scaling”. High pH can also increase the effects of this condition. If left untreated, scaling causes heater, pump, and jet failures; all, of which, are not covered by the spa warranty.

## Prevention and Treatment:

1. Never allow the spas water temperature to exceed 104°F.
2. Check the pH levels and adjust if necessary at least 3 times a week.
3. Never allow the pH level to exceed 7.8.
4. Use “Metal Protector” every time you fill your spa. (See printed instructions on Bottle.)
5. Use “Stain and Scale Defense” weekly as described in the Clear Water Plan.
6. Applying Cal Spas “Fast Sheen” to the spas acrylic surface when you drain and clean your spa will greatly help your spas finish protect itself from scale build-up.

## Calcium Clean-up:

Unfortunately, there is very little that can help you remove calcium or scale completely in a spa. Prevention is the key.

## Cleaning:

When you drain the spa, clean the surface with Cal Spas “All Purpose Cleaner” and rinse well.

## Calcium Hardness: (Hard and Soft Water)

### Do Not Use Soft Water When Filling Your Spa

This is primarily for two reasons.

1. Soft water tends to be very unstable. This means that locking-in pH and Total Alkalinity levels becomes difficult.
2. Soft water becomes quite foamy with very little turbulence. No amount of “Foam Gone” will stop it from foaming for very long.

### What does this mean?

Your spas water needs to have some hardness to it.. If you live in an area where the water source is soft, you will need to add 1 oz. of “Liquid Hardness Increaser” to raise water hardness level 7 ppm at a time. This will make your water more manageable.

Please follow all printed instructions on the bottle and use in very small increments.

### Well Water (Very Hard Water)

In some areas, the water that you have may be very hard (i.e. well water). If this is so, fill half of the spa with hard water and the other half with soft water from a water softener.

## Metal Protector (Mineral Control at Start-up)

Your Cal Spas’ Clear Water Plan recommends draining and refilling of your spa every three (3) to four (4) months. Upon doing so, you will want to add 3 oz. of Metal Protector to the center of the spa. Make sure all of the jets are on high speed.

Metal Protector will hold the active minerals in the newly added spa water in a state of “Solution”. The term solution means that minerals in the water are being held in a suspended state, keeping them from bonding to anything in the spa and causing damage. Mineral control is a critical part of maintaining spa components’ performance and longevity.

In addition to fill-up protection from minerals, the Clear Water Plan also recommends the weekly maintenance of mineral protection. This is accomplished by adding a weekly dosage of Stain and Scale Defense. (See the following page for more information.)

DO NOT USE SPA BRITE OR LIKE PRODUCTS, ON THE SAME DAY YOU ADD METAL PROTECTOR TO THE WATER. Adding these chemicals on the same day will result in cloudy water.

## Stain and Scale Prevention (Weekly Mineral Control)

As part of your Cal Spas’ Clear Water Plan, weekly protection from minerals are also highly recommended. Add water to your spa weekly, replacing water that has evaporated or spilled over.

Due to water replacement and overall chemical fluctuation, Stain and Scale Defense is an important part of weekly spa maintenance to prevent minerals from damaging spa components and effecting performance.

### Weekly Dosage:

Add 2 oz. of Stain and Scale Defense weekly directly to the center of the spa with all of the jets on high speed.

DO NOT USE SPA BRITE OR LIKE PRODUCTS, ON THE SAME DAY YOU ADD STAIN AND SCALE DEFENSE TO THE WATER. Doing so will result in cloudy water.

## Foam Gone (Foam Prevention and Assistance)

As mentioned on previous pages, foamy spa water can be caused by soft water. However, the most common causes of foamy water are the users themselves and the things they bring into the spa. (i.e. clothes, shampoo, and oils.)

Products such as Foam Gone, only mask the problem of foamy water. There is no single chemical that will remove foam from your spa water. The only thing that removes contaminant's that cause foamy water is plenty of filtration, future prevention, and patience.

### **Foamy Water Prevention:**

1. Never wash the clothes that you wear into the spa in laundry detergent or fabric softener. Laundry detergent and fabric softener stays in your clothes no matter how well you rinse them. This causes cloudy and foamy water that is almost impossible to clean up. The only thing you can do is wait for it to eventually filter out.

Note: Adding water clarifier in this case will only further delay the spas ability to clear-up.

2. Never enter the spa with sunscreen or lotion on your skin. Oil is very difficult to remove from the spa water, and can cause a reaction with some of the chemicals that you may add to your spa. In addition, soap and shampoo residues that are normally left on your body after a shower, only increase foamy and cloudy water. It is best to rinse off prior to entering the spa in these cases.

### **Use of Foam Gone:**

Foam Gone should be used sparingly. This product does not remove foam from your water, it only offers a temporary solution.

The recommended amount requires one gentle squeeze of the Foam Gone bottle to each of the heavy foaming areas.

Be sure to avoid applying Foam Gone near the immediate filter area of your spa; it is only effective in the main area. Once filtered out, the water will start to foam in a short amount of time, causing you to use more Foam Gone.

Tip: Add 3 oz. of Foam Gone and 29 oz. of water into a 32 oz. spray bottle and spray where needed.

## Vinyl & Leather Cleaner (Cover and pillow maintenance)

Due to the constant punishment your spa cover and pillows receive, you should protect them by applying Vinyl & Leather Cleaner as a part of monthly maintenance. Cal Spas' Vinyl & Leather Cleaner is specifically designed to protect spa covers and pillows from chemical and ultraviolet damage. It accomplishes this without leaving an oily residue behind that is normally associated with common automotive vinyl protectants.

### **Use of Vinyl & Leather Cleaner:**

Cal Spas' Vinyl & Leather Cleaner should be used sparingly. Incorrect product usage may cause water clarity issues.

### **Spa Covers:**

1. Remove spa cover from spa.
2. Allow spa cover to dry completely.
3. Spray Vinyl & Leather Cleaner to cover evenly and wipe dry.
4. Allow spa cover to dry completely.
5. Reinstall cover on spa.

### **Pillows:**

1. Wipe pillows dry with a soft cloth.
2. Carefully spray Vinyl & Leather Cleaner directly onto pillow.
3. Wipe pillows dry.
4. Allow pillows to dry completely.

**Important:** 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.

## Multi-Purpose Cleaner (Spa finish cleaning)

Cal Spas' Multi-Purpose Cleaner is an essential part of maintaining your spas finish. Through normal use, the spa's finish can accumulate dirt, oil, and calcium causing a rough feel and unsightly scum lines. Cal Spas' Multi-Purpose Cleaner is a low detergent, non-abrasive cleaner specifically formulated to clean the spa without damaging its acrylic finish. The most effective solution to minimize cleaning time is prevention. When the following steps are followed, the spas finish will actually start to resist most of the elements that cause calcium build-up and make scum line cleanup easier:

### **Prior to Spa Start-up and Refilling:**

1. Spray Cal Spas' Multi-Purpose Cleaner directly to the spas finish.
2. Wipe clean with a clean soft cloth.
3. Repeat on heavily calcified areas.
4. Wipe spa thoroughly with a wet sponge, rinsing often in a bucket of clean water.
5. Allow spa to dry completely.
6. Apply a coat of Cal Spas' Fast Sheen to the spa entire finish with a soft cloth or sponge.
7. Allow Fast Sheen to dry until white and powdery.
8. Buff clean with a soft cloth, rotating frequently.

### **Periodic Maintenance:**

1. Spray Cal Spas' Multi-Purpose Cleaner directly to the spas finish.
2. Wipe clean with a clean soft cloth.
3. Wipe spa thoroughly with a wet sponge, rinsing often in a bucket of clean water.

### **Use of Cal Spas' Multi-Purpose Cleaner:**

Cal Spas' Multi-Purpose Cleaner should not be sprayed directly into the spa water. Incorrect product usage may cause water clarity issues.

## Fast Sheen: (Spa finish protecting wax)

Cal Spas Fast Sheen is an essential part of maintaining your spas finish. Through normal use, the spas finish can accumulate dirt, oil, and calcium causing a rough feel and unsightly scum lines.

Cal Spas Fast Sheen is a non-oil based wax that is specifically formulated to protect the spas finish from the chemicals and minerals associated with normal spa use.

The most effective solution to minimize cleaning time, is prevention. When the following steps are followed, the spas finish will actually start to resist most of the elements that cause calcium build-up and make scum line cleanup easier:

### **Prior to Spa Start-up and Refilling:**

1. Spray Cal Spas' Multi-Purpose Cleaner directly to the spas finish.
2. Wipe clean with a clean soft cloth.
3. Repeat on heavily calcified areas.
4. Wipe spa thoroughly with a wet sponge, rinsing often in a bucket of clean water.
5. Allow spa to dry completely.
6. Apply a coat of Cal Spas' Fast Sheen to the spa's entire finish with a soft cloth or sponge.
7. Allow Fast Sheen to dry until white and powdery.
8. Buff clean with a soft cloth, rotating frequently.

### **Important:**

Cal Spas Fast Sheen should not be used on spas full of water. Only apply to a clean, cool, dry surfaces. Incorrect product usage may cause water clarity issues.

## Sanitizers: (Bromine and Chlorine)

### How Sanitizers Work:

Sanitizers such as Bromine and Chlorine, basically kill bacteria and other organic waste by breaking them down to harmless levels, thus eliminating them from the water.

You will need to know how each sanitizer performs this task to maximize their efficiency.

### Bromine:

Bromine is generally in tablet form, and requires a small plastic floater to dissolve slowly into the spa water.

With a proper understanding of how it works, it is quite an effective sanitizer, with a bonus of low chemical orders.

Unlike chlorine, bromine can breakdown bacteria and other contaminants to a safe level, then move on to other contaminants with a low burnout rate.

The problem that most spa owners have with bromine is that they don't follow a chemical plan, allowing the bromine tablets to completely dissolve out of the floater. This causes bromine level to go up and down like a Yo Yo.

Not what you want from a sanitizer.

As mentioned before, bromine dissolves slowly into the water. The proper way to manage a bromine system is the following:

## Sanitizers: (Bromine and Chlorine)

### Bromine Management: (500 Gallon Spas at 100° F)

#### Start-up:

1. Add 2 oz. of Go Bro into the spa with all of the jets on high speed. This is your base bromine level as the tablets will take awhile to dissolve enough to manage 500 gallons of water.
2. Add 2 oz. of Oxidizer Shock into the spa with all of the jets on high speed and the spa cover at least half off for 30 min. This will remove any organic materials that may have been left in the plumbing lines after its last draining.
3. Start by placing 3 to 4 bromine tablets into 95% closed plastic floater and place into the spa. (Do not place bromine tablets into the filter basket.)

#### Weekly:

1. Test Bromine level with test strips. Note: Bromine Test levels will vary if spa is equipped with Quest 2000 Ozonator.

Test Levels **With** Quest 2000 Ozonator: 1 to 3 Parts Per Million (ppm)

Test Levels **Without** Quest 2000 Ozonator: 3 to 5 Parts Per Million (ppm)

2. Add one or two bromine tablets to the floater weekly.

You want to replenish the same amount of bromine tablets equal to the tablet dissolve rate. (Dissolve rate will be faster at higher water temperatures and slower at lower temperatures.) NEVER LET BROMINE TABLETS RUN COMPLETELY OUT OF THE FLOATER.

3. Add 2 oz. of Oxidizer Shock weekly into the spa with all of the jets on high speed and the spa cover at least half off for 30 minutes. This will remove organic material from the spa water, freeing-up your sanitizer to attack more bacteria, and other waste. This improves your sanitizers performance level, reduces spa odor, and refreshes your spa water.



## Sanitizers: (Bromine and Chlorine)

### Chlorine:

Chlorine is generally in liquid form. However, in spa applications you will only want to use Granular Chlorine. This is primarily due to Chlorine type and strengths. Unlike Bromine, chlorine can only breakdown bacteria and other contaminants to a safe level once, prior to burning out. The problem that most spa owners have with chlorine, is that levels either get too low from neglect, or too high from trying to play chemical catch-up. As with all spa chemicals, LESS IS MORE. Take your time whenever adding chemicals to the spa water.

Allowing proper filtration time and adding chemicals slowly, will greatly improve the length of your spa life and performance. You cannot super chlorinate spas and expect them to last. Be patient and stay with the plan.

### Granular Chlorine:

#### Weekly:

1. Test Chlorine level with test strips. Note: Chlorine Test levels will vary if spa is equipped with Quest 2000 Ozonator.

Test Levels **With** Quest 2000 Ozonator: 0.5 to 1 Parts Per Million (ppm)

Test Levels **Without** Quest 2000 Ozonator: 1 to 3 Parts Per Million (ppm)

2. Add 1 to 2 tablespoons of Cal Spas' Granular Chlorine to the spa water weekly. Chlorine dissipation rate will be faster at higher water temperatures and slower at lower temperatures.
3. Add 2 oz. of Oxidizer Shock weekly into the spa with all of the jets on high speed and the spa cover at least half off for 30 minutes. This will remove organic material from the spa water, freeing-up your sanitizer to attack more bacteria, and other user waste. This act greatly improves your sanitizers performance level and reduces spa odor.

## Oxidizer Shock:

### Shock:

All shock is not created equal. The most common shock you will find in pool and home improvement stores is Chlorinating Shock. This will destroy your spas Jets, Pillows, Pump Seals and worse. The only shock that you should put in your spa is Cal Spas' Oxidizer Shock! Oxidizer shock is the safe, easy way to maintain either Bromine or Chlorine spa chemical plans. By using 1 oz. weekly, you are removing burnt-out chemicals, bacteria, and other organic material from your spa water. This will drastically improve chemical productiveness, spa odor, and minimize chemical irritation.

### Using Oxidizer Shock:

1. 1 oz. of Cal Spas Oxidizer Shock\* Weekly.
2. 1 oz. of Cal Spas Oxidizer Shock\* after heavy bather loads.
3. 1 oz. of Cal Spas Oxidizer Shock\* if water has a strong odor.

\*Spa must be running with all of the jets on high for 30 minutes with the cover half off. If necessary you may repeat Oxidizer Shock treatments in 30 minute intervals.

### Big Water Clarity Issue?

1. Identify the water clarity issue first: Is it Soap, Oil, Bacterial, or Chemical Imbalance.
2. Select the proper treatment.
3. Clean the filter cartridge and increase the amount of filtration until the water clears-up.
4. Add 1 oz. of Oxidizer Shock at a time, in 30 minute intervals, with the spa cover at least half off. Make sure all of the jets are on high.
5. Be patient! With few exceptions, spa water will not clean or clear-up overnight. Cloudy water requires proper identification, the correct treatment, and plenty of filtration.

## Cal Spas Clear Water Plan (Start up)

Prior to filling a spa for the first time or after a routine draining, you will want to follow this start-up plan to extend water life and performance.

If you are following either Bromine or Chlorine Clear Water plans, you will notice that both start up processes are the same with the exception of step 4.

As with all chemical dosages listed in the Clear Water Plan, start up dosages are intended for 500 gallon spas. Please adjust chemical dosages to the gallon capacity of your particular spa.

### **Start up: (500 Gallon Spas)**

1. Clean spa thoroughly with Cal Spas Multi-Purpose Cleaner.
2. Apply a protective coat of Cal Spas Fast Sheen to the Acrylic surface.
3. Fill spa to proper water level with normal tap water. (Do not use soft water.)
4. Bromine Plan: Add 2 oz. of Cal Spas Go Brom to establish a Bromine base level Chlorine Plan: Add two tablespoons of Cal Spas Granular Chlorine to the spa water .
5. Pour in 3 oz. of Cal Spas Metal Protector to the center of the spa.
6. Sprinkle 2 oz. of Cal Spas Oxidizer Shock in the center of the spa and leave spa uncovered and turn on the jets for 30 minutes prior to recovering.
7. Allow 24 hours prior to testing and implementing the Bromine or Chlorine Clear Water Plans.

## Cal Spas Clear Water Plan (Bromine)

### **Bromine users**

This plan and its chemical dosages are intended for Cal Spas' Chemicals only. Most chemical manufactures use different chemical formulas and strengths. Only Cal Spas' chemicals are specially formulated to provide proper chemical balance at lower dosages. Compare labels and dosages and see for yourself. You will get greater protection and performance with Cal Spas' Chemicals.

Always read and follow all printed instruction on chemical bottles and packages.

### **Day One (Monday)**

1. Test spa water using test strips. (Be sure to check the expiration date prior to use.)
2. Add two bromine tablets to floater. (Amount of tablets needed will vary with water temperature.)
3. Adjust Total Alkalinity, then pH if needed. (See pH and Alkalinity sections for more information)
4. Add 2 oz. of **Stain and Scale Defense**.
5. Pull the dirty filter from the spa and place into **Liquid Filter Cleaner** solution.
6. Place your extra, cleaned, fully dried filter cartridge in the spa.
7. Vacuum your spa with the **Cal Spas Vac**.

### **Day Two (Wednesday)**

1. Test spa water using test strips. (Be sure to check the expiration date prior to use.)
2. Adjust Total Alkalinity, then pH if needed. (See pH and Alkalinity sections for more information.)
4. Pull the filter from **Liquid Filter Cleaner** solution, hose it off and allow to dry.

## Cal Spas Clear Water Plan (Bromine cont.)

### Day Three (Friday)

1. Test spa water using test strips. (Be sure to check the expiration date prior to use.)
2. Check bromine floater for sufficient amount of bromine tablets. (Add one if necessary.)
3. Adjust Total Alkalinity, then pH if needed. (See pH and Alkalinity sections for more information.)
4. Add 1 oz. of **Oxidizer Shock**. (See Oxidizer Shock section for more information.)

### Every Month:

1. Inspect equipment area for leaks, rodents, and insects.

### Every 3 to 4 Months:

1. Drain and clean your spa with **Multi Purpose Cleaner**.
2. Polish the acrylic surface with **Fast Sheen**.
3. Clean and treat spa cover, pillows and Ultra Spa Cabinets with Cover Protector.

### Every 6 Months:

1. Clean and treat redwood spa cabinets and gazebos with **Nu-Spa** redwood stain renewer & brightener.

## Cal Spas Clear Water Plan (Chlorine)

This plan and its chemical dosages are intended for Cal Spas' Chemicals only. Most chemical manufacturers use different chemical formulas and strengths. Only Cal Spas' chemicals are specially formulated to provide proper chemical balance at lower dosages. Compare labels and dosages and see for yourself. You will get greater protection and performance with Cal Spas' Chemicals.

Always read and follow all printed instruction on chemical bottles and packages.

### Day One (Monday)

1. Test spa water using test strips. (Be sure to check the expiration date prior to use.)
2. Add two tablespoons **Granular Chlorine**. (Chlorine dissipation will vary with water temperature.)
3. Adjust Total Alkalinity, then pH if needed. (See pH and Alkalinity sections for more information.)
4. Add 2 oz. of **Stain and Scale Defense**.
5. Pull the dirty filter from the spa and place into **Liquid Filter Cleaner** solution.
6. Place your extra, cleaned, fully dried filter cartridge in the spa.
7. Vacuum your spa with the **Cal Spas Vac**.

### Day Two (Wednesday)

1. Test spa water using test strips. (Be sure to check the expiration date prior to use.)
2. Adjust Total Alkalinity, then pH if needed. (See pH and Alkalinity sections for more information.)
4. Pull the filter from Liquid Filter Cleaner solution hose it off and allow to dry.

## Cal Spas Clear Water Plan (Chlorine cont.)

### Day Three (Friday)

1. Test spa water using test strips. (Be sure to check the expiration date prior to use.)
2. Add two tablespoons **Granular Chlorine**. (Chlorine dissipation will vary with water temperature.)
3. Adjust Total Alkalinity, then pH if needed. (See pH and Alkalinity sections for more information.)
4. Add 1 oz. of **Oxidizer Shock** (See Oxidizer Shock section for more information.)

### Every Month:

1. Inspect equipment area for leaks, rodents, and insects.

### Every 3 to 4 Months:

1. Drain and clean your spa with **Multi Purpose Cleaner**.
2. Polish the acrylic surface with **Fast Sheen**.
3. Clean and treat spa cover, pillows and Ultra Spa Cabinets with Cover Protector.

### Every 6 Months:

1. Clean and treat redwood spa cabinets and gazebos with **Nu-Spa** redwood stain, renewer & brightener.

## Frequently Asked Chemical Questions:

**Q: My pH is High and my Alkalinity is low, What do I do?**

A: Adjust your Alkalinity first, even if it throws the pH further off. Use “pH / Alkalinity Up” or “pH / Alkalinity Down” adjust and stabilize your Total Alkalinity level. This will make it easier to adjust your pH levels later and allow them to remain stable longer.

**Q: When is the best time to use Oxidizer Shock?**

A: Every week, as described in Cal Spas’ Clear Water Plan, and after heavy bather loads. You may use Cal Spas’ Oxidizer Shock as often as you like, as long as you allow your spa to run for 30 minutes with the spa cover at least half off.

**Q: How long is the shelf life of Bromine?**

A: As with any chemical you will want to store them in a cool, dry place. When properly stored, bromine will last one year.

**Q: Do I need Metal Protector and Stain and Scale Defense?**

A: Yes. Water sources are becoming more and more mineralized. These chemicals are every bit as important to your spa as Bromine or Chlorine are.

**Q: My skin is becoming irritated after spa use. Why?**

A: You are not using your Cal Spas’ Oxidizer Shock enough and/or your sanitizer level is too high. Because the spa and its chemicals will strip some of your body’s oils away. We recommend that you use a moisturizer after spa use. If you still have skin irritation after these steps, see your doctor.

**Q: How long should I wait to enter the spa after adding chemicals?**

A: With Cal Spas’ Chemicals, the longest you will need to wait is one (1) hour.

**Q: What is the sand like substance in the bottom of my spa?**

A: Oxidized contaminant’s. Spas equipped with the Quest 2000 Ozonator will produce this generally after initial fill up and water additions. The debris is just oxidized solids that were in the water that are now visible. Simply vacuum them out as a part of your weekly plan.

**If you have any questions that were not answered in this guide, please call your local Cal Spas Dealer. They have plenty of experience dealing with your local water chemistry and can offer the most efficient solution for your water issues.**

# Cal Spas Chemicals



**BROMINE/CHLORINE  
STARTER KIT**  
#CHE07000290/#CHE07000295

When use as directed, this product is effective as a spa and hot tub sanitizer and disinfectant. Treats 250 Gallons for up to 3 weeks.



**VINYL & LEATHER  
CLEANER**  
#CHE07000620

Specifically designed to protect spa covers and pillows from chemical and ultraviolet damage.



**FAST SHEEN**  
#CHE07000610

Unique water based, chemically reactive silicone sealant and polish. Seals, shines and protects spa surfaces.



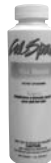
**BROMINATING  
TABLETS**  
#CHE07000760/#CHE07000770

Sanitizer, disinfectant for Spas and Hot Tubs.



**CHLORINATING  
GRANUALS**  
#CHE07000865/#CHE07000880

When use as directed, this product is effective as a spa and hot tub water disinfecting agent.



**GO BROM**  
#CHE07000830  
Establishes a bromide bank in spas and hot tubs.



**FILTER CARTRIDGE  
CLEANER**  
#CHE07000690

Breaks down organic and inorganic material. Removes calcium scale and mineral deposits.



**LIQUID HARDNESS  
INCREASER**  
#CHE07000250

Increases water hardness to reduce corrosion. Helps reduce foaming.



**SPA BRITE**  
#CHE07000580/#CHE07000590

Clears up cloudy water in spas and hot tubs. Effective at all spa and hot tub temperatures.



**FOAM GONE**  
#CHE07000800/#CHE07000810

Breaks up existing foam in spa water. Effective at all spa and hot tub temperatures.



**pH-ALKALINITY  
UP**  
#CHE07000720/#CHE07000730

Helps Maintain pH in Spas and Hot Tubs.



**pH-ALKALINITY  
DOWN**  
#CHE07000750

Lowers pH in Spas and Hot Tubs.



**ENZYME FORMULA**  
#CHE07000600/#CHE07000605

Emulsifies and biodegrades bodily oils, suntan lotion and other contaminants found in spas and hot tubs.



**METAL PROTECTOR**  
#CHE07000630/#CHE07000640

Controls water discoloration caused by minerals. Special Extra Strength formula for spas and hot tubs.



**STAIN AND SCALE  
PREVENTION**  
#CHE07000650/#CHE07000660

Prevents minerals from damaging spa components and effecting performance.



**OXIDIZER  
SHOCK**  
#CHE07000680/#CHE07000710

Destroys organic contaminants and odor causing wastes.

TO ORDER CAL SPAS' CHEMICALS PLEASE CALL  
1-800-CALSPAS



# WARRANTY

## L I M I T E D

This Limited Warranty is effective for spas manufactured after December 2, 2002

T E N  
**10**  
YEARS

### SPA SHELL / STRUCTURAL WARRANTY:

Majestic, Fiesta, Special, Genesis and System Spas: C.A.I. warrants against the loss of water through the spa shell due to defects in materials and workmanship for a period of ten years from the original date of purchase. This warranty excludes models which coverage is specified in the "Designer/Ultimate Series Spas" warranty, i.e.: Champion, Olympian, and Ported.

T E N  
**10**  
YEARS

### INTERIOR SURFACE WARRANTY:

Fiesta, Genesis, and System Spas: C.A.I. warrants the **Altair Plus / Quarite Plus** interior surfaces from cracks, blisters, peeling, discoloration, and delamination for a period of ten years from the original date of purchase. This warranty excludes models which coverage is specified in the "Designer/Ultimate Series Spas" warranty, i.e.: Champion, Olympian, and Ported.

F I V E  
**5**  
YEARS

### 5 YEAR INTERIOR SURFACE WARRANTY:

Genesis and System Spas: C.A.I. warrants the standard Acrylic / standard Quarite interior surfaces from cracks, blisters, peeling, discoloration and lamination for a period of five years from the original date of purchase. 5-Year Interior Warranty excludes Majestic, Fiesta and Special spas, which have a 3-Year Interior Surface Warranty. This warranty excludes models which coverage is specified in the "Designer/Ultimate Series Spas" warranty, i.e.: Champion, Olympian, and Ported.

L I F E T I M E

### COMPONENT WARRANTY:

C.A. I. warrants the XL Heater, and Cal Zone Quest 2000 Ozonator against malfunction due to defects in materials and workmanship. Lifetime warranty excludes replaceable Ozone Cartridge, which has a 1-Year Warranty from original date of spa purchase

### ULTRA WOOD, DURA-MAX AND EXTREME CABINET PANELS:

C.A. I. warrants the Ultra Wood, Dura-Max and Extreme cabinet panels against cracking, and warping for a period of 5 years from the original date of purchase.

F I V E  
**5**  
YEARS

### EQUIPMENT WARRANTY:

Genesis and System Spas: C.A.I. warrants the spas electrical and electronic component-specifically, the control system, pumps, and air blowers against malfunction due to defects in materials and workmanship for a period of five years from the original date of purchase. This warranty excludes the following models: Majestic, Fiesta and Special spas which have a 1-year equipment warranty. This warranty excludes models which coverage is specified in the "Designer/Ultimate Series Spas" warranty, i.e.: Champion, Olympian, and Ported.

F I V E  
**5**  
YEARS

### PLUMBING WARRANTY:

Genesis, and System Spas : C.A.I. warrants the sure-flo jet inserts and all factory installed plumbing and "Eliminator" wet end from loss of water due to defects in materials and workmanship for a period of five years from the original date of purchase. This warranty excludes Majestic, Fiesta and Special spas which have a 1-year equipment warranty. This warranty excludes models which coverage is specified in the "Designer/Ultimate Series Spas" warranty, i.e.: Champion, Olympian, and Ported.

### FIBER OPTIC LIGHT SOURCE:

C.A. I. warrants the fiber optic light source for a period of one year from the original date of purchase. Light bulbs and L.E.D. lights are specifically excluded from this warranty.

### SPA CABINET: REDWOOD, AND T-111:

C.A.I. warrants the spa cabinet to be free from defects in material and workmanship for a period of ninety days from the original date of purchase. Seasonal check and surface cracks are not considered defects in material or workmanship, as they are normal characteristics of all wood. Surface stain is specifically excluded from this warranty.

Please refer to the 2003 Owner's Manual for limitations and common acts invalidating this warranty i.e.: stereos, DVD players, Televisions, power supplies, etc.

### Extent of Warranty

This Limited Warranty is only valid on portable models delivered in the continental United States and extends through the selling dealer to the original purchaser at the original site of installation. This guarantee becomes valid at time of purchase and ends either by specified time-frame listed above, owner transfer, or relocation.

### Warranty Exclusions & Limitations

This guarantee is void if the spa has been subject to negligence, alteration, misuse, abuse, repairs by non- C.A.I. authorized representatives, incorrect electrical installation, acts of God (including but not limited to acts of nature and surrounding environments) and any other cases beyond the control of C.A.I. Please refer to the owner's manuals for examples of exclusions and of common acts invalidating this guarantee.

### Legal Remedies

This Limited Warranty gives you specific legal rights and you may have other rights, which may vary from state to state.

### Warranty Performance

In the event of a malfunction or defect covered under the terms of this guarantee, the factory authorized selling dealer is responsible for performing all necessary repairs. To obtain service, contact the authorized selling dealer. In the event the consumer is unable to obtain satisfactory customer service from the authorized selling dealer, written notification must be given to the C.A.I. Customer Relations Department within (10) ten days of the reported failure. There will be no charge for parts or labor on a covered item. However, the authorized service agent may assess a reasonable travel or mileage charge per service call. If C.A.I. determines that repair of a covered item is not feasible, C.A.I. reserves the right to replace the defective merchandise with merchandise equal in value to the original purchase price. In the event of any guarantee replacement, all removal, replacement, installation and shipping costs are the responsibility of the spa owner.

### Disclaimers

This Limited Warranty provided herein is made with the express understanding that the spa is not an essential device or medical device as defined under State and Federal Law. C.A.I. shall not be liable for loss of use of the spa or other incidental or consequential costs, expense or damages, which may include but are not limited to removal of permanent deck or other custom fixtures or the necessity for crane removal. Any implied guarantee shall have duration equal to the duration of the applicable guarantee stated above. Under no

circumstances shall C.A.I. or any of its representatives be held liable for injury to any person or damage to any property, however arising.

### Customer Service

For customer service, contact the authorized selling dealer immediately. If you need additional information or assistance, please contact the C.A.I. Customer Relations Department at 1462 East Ninth Street, Pomona, CA 91766, or call (800) 225-7727



www.calspas.com  
1462 East Ninth Street • Pomona, CA 91766  
(909) 623-8781

This Limited Warranty is effective for spas manufactured after December 04, 2002



## 2003 Warranty Information:

C.A.I. warrants the 2003 model year Majestic, Fiesta, and promotional spas equipment for one year from the date of purchase. Three years on 2003 Champion and Olympian spas, and five years on 2003 System spas.

See your selling dealer for a copy of the applicable warranty, details, and any questions you may have regarding the warranty coverage on your spa.

**Warranty Limitations:** The 2003 Limited Warranty is void if the spa has been subject to negligence, alteration, misuse, abuse, repairs by non- C.A.I. authorized representatives, incorrect electrical installation, acts of God and any other cases beyond the control of C.A.I. Examples of common acts invalidating this warranty include but are not limited to:

Use of spa in a non-residential application.

Scratches caused by normal use.

Operation of spas water temperature outside of the range of 32°F and 118°F.

Damage caused by incorrect water level (Low, Overflow, Etc.)

Damage caused by extreme weather conditions. (Freeze, Heat, Etc.)

Damage caused by dirt, sand, and calcium.

Damage caused by clogged filter cartridges. See filter cleaning recommendations in this owner's manual.

Damage caused by continued operation of the spa with either known or an unknown problem.

Damaged caused by tri-chlor, acids, chlorine tablets, and any other spa chemicals not authorized by C.A.I.

Damage caused by improper water chemistry. (High levels of chlorine, bromine, calcium, pH and other excessive chemical levels)

Damage caused by direct sun light. Spas should always be covered when not in use.

Damage caused as a result of failure to follow operating instructions as defined in this owner's manual.

Damage caused by Incorrect electrical installation, electrical brown outs, voltage spikes, or operation of spa out of voltage range by more than (+) or (-)10%.

Spas improperly installed inground or placed on non-approved surfaces. See page 5 in this Owner's manual for details.

This Limited Warranty applies only to spas normally used for personal, family, or household purposes.

This Limited Warranty specifically excludes Commercial Spas.

### **Warranty Exclusions:**

Replaceable service items such as filters, pump seals, light bulbs, ozonator cartridge, towel warmers, jet inserts, pillows, stereo systems, televisions, DVD players, VCR players, spa covers, and filter covers are specifically excluded from the 2003 limited warranty.

C.A.I. warrants its standard electrical heater from defects in material and workmanship for a period of one year from the original date of purchase.

Spa covers and stereo systems are delivered with their own manufacture warranty. For more info, Please see their warranties in the owner's information package that was delivered with your spa for more information.

**Customer Service:** For customer service, contact the authorized selling dealer immediately. If you need additional information or assistance, please contact the C.A.I Customer Relations Department at 1462 East Ninth St. Pomona, CA. 91766, or call 909-623-8781

*The 2003 Limited Warranty is effective for spas manufactured after December 2, 2002*

## **Winterizing**

In many areas of the country the temperature drops below 32°F. C.A.I. recommends that you always have your spa full of water and running at normal spa temperatures (80°F to 100°F). This will help reduce the risk of freezing in your spa and your spa's equipment.

## **IMPORTANT WARNING**

If you find the need to drain your spa, please 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 and void warranty coverage.

### **Cold Climate Draining:**

Open all filters and filter baskets.

Remove filter(s)

Drain your spa completely.

Remove drain plugs from the front of pump(s).

Disconnect the unions from both sides of the pump.

Use a wet/dry vacuum to blow any remaining water out of the jets and plumbing lines.

Use a soft towel to remove any remaining water in the spa, filter canister, and equipment area.

Cover your spa with a good spa cover and all-weather tarp, to ensure rain or snow can not enter the spa.

If you have a Gas Heater, you will need to follow the winterizing instructions for your particular heater in the owner's manual. This manual will be delivered inside your gas heater.

### **Draining Your Spa:**

Your spa should be drained every 4 to 6 months, and refilled with fresh tap water. The following is the recommended method for draining your spa.

Portable Spas

Turn off power.

Open all filters and filter baskets.

Remove filter(s).

Hook up the female end of a garden hose to the spas drain fitting and the other end in a convenient place for draining.

\*(Locate white hose in the bottom of the equipment area, remove cap and connect garden hose.)

Let spa drain completely, then remove garden hose and replace the drain cap.