

CalSpas®
A Division of California Acrylic Industries, Inc.
CHANGING THE WAY YOU FEEL

Powered by GE Motors

Installation & Operation Manual

Portable Spas 110v & 220v



CALIFORNIA ACRYLIC INDUSTRIES, INC.
1462 East Ninth Street, Pomona CA 91766

1996 Models

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A Division of California Acrylic Industries, Inc.

CHANGING THE WAY YOU FEEL

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DEDICATED TO 100% CUSTOMER SATISFACTION

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IMPORTANT SAFETY INSTRUCTIONS

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

1. READ AND FOLLOW ALL INSTRUCTIONS.

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

3. A wire connector is provided on 220 volt units to connect a minimum No. 8 AWG (8.4 mm²) solid copper-conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 ft (1.5 m) of the unit.

4. 110 Volt cord connected spas are provided with a GFCI on end of cord (see page 5 system 1000). The GFCI must be tested before each use. With the spa operating push the test button. Spa will shut off, next push the reset button on GFCI. The product should now operate normally. If the product fails to operate in this manner there is a ground current flowing indicating the possibility of an electric shock. Disconnect the power until the fault has been identified and corrected

5. **DANGER** — Risk of Accidental Drowning. Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use a spa unless they are closely supervised at all times. (Keep Spa cover on when not in use).

6. **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. Never operate spa if the suction fittings are broken or missing. Never replace a suction fitting with one rated less than the flow rate marked on the original suction fitting..

7. **DANGER** — Risk of Electric Shock. Install 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 connected by a minimum No. 8 AWG (8.4mm²) solid copper conductor to the wire connector on the terminal box that is provided for this purpose.

8. **DANGER** — Risk of Electric Shock. Do not permit any electric appliance, such as a light, telephone, radio, or television, within 5 ft. (1.5 m) of spa.

9. **WARNING** — To reduce the risk of injury:

A) The water in a spa should never exceed 40 C (104 F). Water temperatures between 38 C (100 F) and 40 C are considered safe for a healthy adult. Lower water temperatures are recommended for young children and when spa use exceeds 10 minutes.

B) Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 38 C (100 F).

C) Before entering a spa, the user should measure the water temperature with an accurate thermometer since the tolerance of water temperature-regulating devices varies.

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 before using a spa.

F) Persons using medication 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.

10. (For Cord-connected units)

A) Replace damaged cord immediately with same specification cord

B) Do not bury cord.

C) Connect to grounded, grounding type receptacle only.

11. The causes, symptoms and effects of hyperthermia may be described as follows: Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal temperature of 98.6°F. The symptoms of hyperthermia include an increase in the internal temperature of the body, dizziness, lethargy, drowsiness and fainting. The effects of hyperthermia include (1) failure to perceive heat, (2) failure to recognize the need to exit spa, (3) unawareness of impending hazard, (4) fetal damage in pregnant women, (5) physical inability to exit the spa or hot tub and (6) unconsciousness resulting in the danger of drowning.

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

12. SAVE THESE INSTRUCTIONS.

Note: For all purposes Whirlpools and Hot Tubs will be referred to as spas in this manual.

Therapeutic Pools (Spas) Safety Rules

Therapeutic pools or "spas" are usually piped and controlled so that very warm water or hot water, often with air injection, is forced at high velocity into a confined area of a swimming pool or into a small separate pool. Both the energy of the water and the heat furnish certain hydro-therapeutic benefits. These pools are excellent for relaxation, body conditioning and for arthritis and rheumatic problems, but can be hazardous to the user.

Each person's body and circulation system has different tolerances and responds differently to warm/hot immersion. The amount of time that safe, therapeutic use of spas will vary. Most people in good health find a water temperature about 102°F to be satisfying and limit time in water at this temperature to 20-30 minutes. Use of alcoholic beverages and certain medications may affect the way your body's system reacts to warm water/hot water immersion. Consult your physician for recommendations.

The Consumer Product Safety Commission has recommended the following "Safety Rules for Spas":

Spa water temperature should never exceed 104°F (40°C). A temperature of 102°F (39°C) is considered safe for a healthy adult. Special caution is suggested for young children.

Drinking of alcoholic beverages before or during spa use can cause drowsiness which could lead to unconsciousness and subsequently result in drowning.

Pregnant women beware! Soaking in water above 102°F (39°C) can cause fetal damage during the first three months of pregnancy (resulting in the birth of a brain damaged or deformed child). Pregnant women should stick to the 100°F (38°C) maximum rule.

Before entering the spa, users should check the water temperature with an accurate thermometer; some spa thermostats may be off in regulation water temperatures by as much as 4°F (2.2°C) .

Persons with medical histories of heart disease or circulatory problems should obtain their physician's advice before using the spa.

Persons taking medications which induce drowsiness such as tranquilizers, antihistamine or anticoagulant, should not use spas.

Never touch or come in contact with any electrical accessory when in your spa or when your body is wet.

Prior to performing any service to the Spa Pack, turn off ALL power to the system at the main power source breaker.

Never turn equipment pack on unless spa is filled with water to the center of the skimmer.

Set-Up and Delivery Guidelines

GETTING READY FOR DELIVERY AND SET-UP OF YOUR NEW SPA

ELECTRICAL REQUIREMENTS – ALL SELF-CONTAINED SPAS – 110 VOLT OR 220 VOLT ELECTRIC HEATERS.

Your 110 volt spa pack requires an isolated (no other appliances or lights on this circuit at any time) 110 volt, 20 amp circuit breaker cords maximum length 15 ft..

Your 220 volt spa will require a 50 amp dedicated circuit breaker.

Extension cords are not to be used in conjunction with operation of the spa. Low voltage damage could result, which is not covered by warranty.

If you have any doubts, have your electrical system checked by a qualified electrician.

SURFACE AND PAD REQUIREMENTS:

Your new portable spa must be placed on a uniformly firm, flat and level concrete pad. (we recommend a 3 1/2" thick slab). Alternate decking methods require approval.

If your spa is close to a lawn sprinkler system, make sure you adjust or cap the sprinkler jets to prevent them from causing water damage to the redwood skirt, shell or equipment.

REQUIREMENTS FOR DECKING, GATES AND BALCONIES:

Decking must be constructed to support 150 pounds per square foot.

Gates must be self-closing and self-latching (California requirements).

Balconies must be constructed to current state and local codes (spa load requirements are 150 pounds per square foot).

Pre-Planning Steps for Inground Installation

Selecting the right site for installing your spa is very important. Ease of access, surroundings, architectural styling, landscaping, and other recreational areas are factors in choosing your location.

In order to determine the amount of supplies and length of pipes needed, carefully lay out the measurements of the spa site on paper. The following are a number of considerations that will be helpful in planning.

Local codes pertaining to fences, gates, electrical, and plumbing, easements etc..

Finished height of spa rim.

Location of pump, filter, and heater.

Good site drainage.

Wind direction and shielding.

Surrounding decking.

DO NOT INSTALL PUMP AND HEATER MORE THAN 20 FEET FROM SPA IF POSSIBLE.

DO NOT INSTALL EQUIPMENT HIGHER THAN SIX INCHES ABOVE WATER LEVEL OF SPA OR LOWER THAN THE BOTTOM LEVEL OF THE SPA

EXCAVATION

Check local codes for trench depths. Dig hole 4 inches deeper than finished spa depth for sand base and 4" to 10" larger all around to allow for plumbing and back fill. See drawing.

PRE-PLUMBING SPA

The spa should be pre-plumbed and "water-tested" before setting it into the hole. Without enough people to help carefully set this spa into the hole, pipes and fittings can be knocked loose. Be sure to have plenty of help at this critical time.

WARNING

Do Not Exceed 104°-

Excessive Temperature May Waive Warranty

Basic Information

INTRODUCTION:

Congratulations on the purchase of your new Cal Spa. Our purpose is to provide you with a warm and relaxing bath which incorporates a soothing water massage. In order to maximize the pleasure of your spa, you will need to understand how it works.

All spas work in the same general fashion. A high-powered pump pushes water through the jets which can be very relaxing to sore muscles. Spas today have controls that allow the spa owner to manipulate the water and air flow. All spas will vary in regard to the amount of controls, the size of the spa and the amount of options purchased with it.

Do not be afraid to push buttons and turn knobs. Your new Cal spa is built with quality materials and craftsmanship. It is very hard to harm anything by experimenting with the controls. In fact, this is the best way to get to know your spa.

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 with a minimum of effort.

The pump and heater should be operated a minimum of four hours per day for cleaning and heating.

The length of time required to heat your spa to the desired temperature will vary depending on the heater size, season, water temperature, wind velocity, etc. Therefore, this is something each owner must adjust to their liking. We highly recommend using a solar blanket and/or vinyl hard cover to minimize heat loss and to protect your spa when not in use. Covers are available from your local Cal Spas dealer.

Operating the air blower should be limited to when the spa is in use. Continuous operation increases heat loss, water evaporation and dissipates the chemicals.

The replaceable filter cartridge is easy to clean and trouble-free. A routine cleaning is the best practice. Make sure the pump is off and all gate valves are closed, then remove the cartridge. Wash it off with a water hose and a pressure nozzle and then reassemble. This should be done on a routine basis, whether you feel it to be necessary or not.

Keep spa filled half (1/2) way up the face of the skimmer plate with water. Never allow water level to drop below the bottom of the skimmer opening. If the water level is too low, the skimmer will allow air into the water lines of the pump, causing it to lose its prime (water flow). Running the pump without water flow will damage the pump seal assembly and could possibly result in further equipment damage.

The power pack system is located under the wood skirt (on portables). The equipment can be serviced by simply opening the doors.

If your spa has a redwood skirt or if you purchased a redwood gazebo, we recommend them to be protected by any wood sealer of your choice, repeat as directions suggest.

You should drain spa water at least every 6 months and clean it. Use a liquid cleaner that contains no abrasive's. Such cleaners would be, for example: 409 or Fantastic. DO NOT use a cleanser or hard brushes. After cleaning, we recommend waxing your spa with Spa Gloss. Fill with regular tap water and chemically treat the water for a clean and healthy spa.

All white lines are air lines. All blue lines are water lines.

WARNING

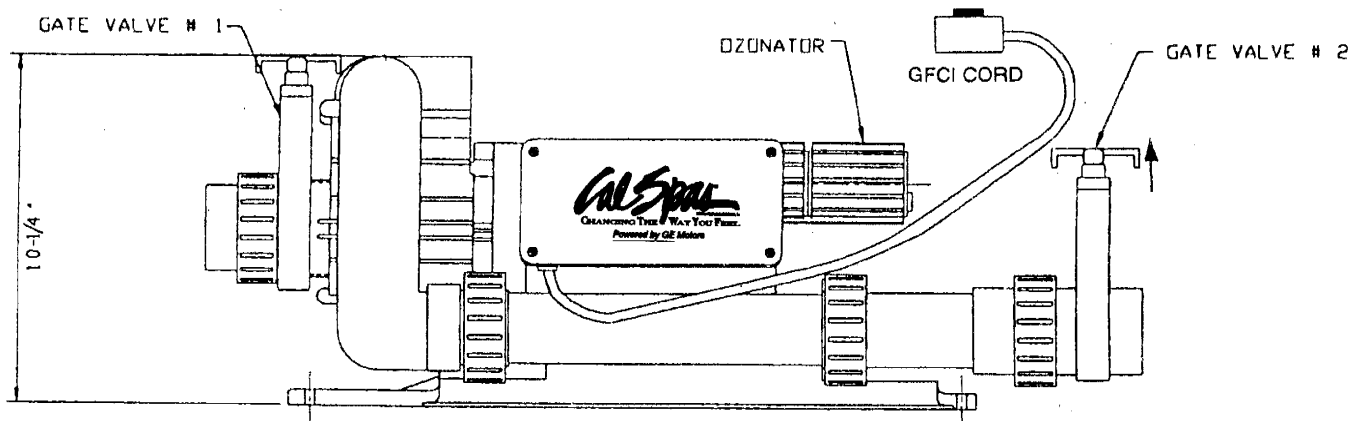
**Do Not Use Soft Water.
It May Harm Your Acrylic.**

General Pre-Operation Instructions

PRIMING PUMP FOR ELECTRIC PACKS

It is important to make sure that all of the air is out of the equipment pack before operating. To do this follow the procedures below.

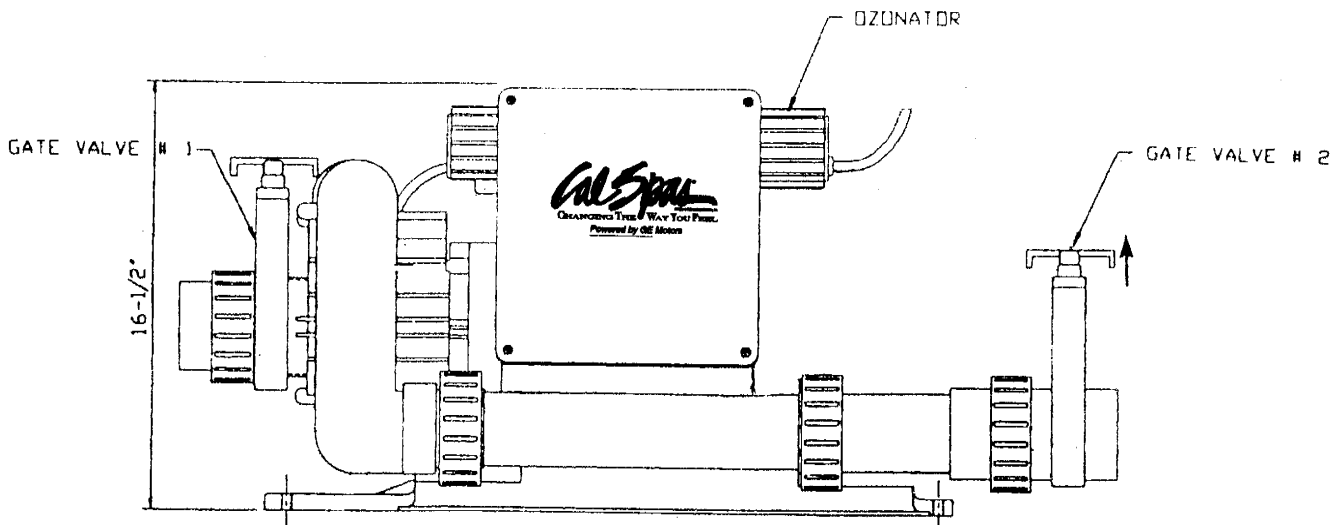
- 1) Turn the power off at the breaker.
- 2) Make sure the gate valves are open.
- 3) Fill up the spa with water through the top load filter.
- 4) After the spa is filled up to the mark on the skimmer, replace the filter lid & tighten the retainer ring.
- 5) Turn the power on at the breaker.
- 6) Start the pump on Hi-Speed and water should start circulating within one to two minutes. (The pump is self priming) if water does not circulate. Turn off and make sure all gate values are open if so equipped.
- 7) Restart the pump again, within one to two minutes it should be primed.



SYSTEM 1000

Set thermostat to desired temperature (located on top-side control panel), and continue heating until desired temperature has been reached. Depending on equipment, this will take 4 to 7 hours.

WARNING - DO NOT RUN SPA WITH GATEVALVES CLOSED OR RUN PUMP WITH NO WATER CIRCULATING IN SPA FOR LONG PERIODS. THIS COULD DAMAGE AND/OR RUIN THE SPA EQUIPMENT.



SYSTEM 2000-3000-4000

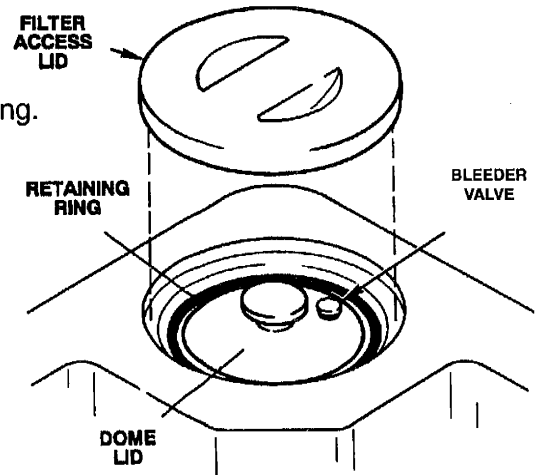
Filter Maintenance

Filtration starts as soon as flow is steady through the filter. As the filter cartridge removes the dirt from the spa water, the accumulated dirt causes flow resistance. A dirty cartridge will decrease flow and may cause spa not to heat properly.

CLEANING AND REPLACING CARTRIDGE

Your Cal Spa filter has been designed for quick & easy maintenance. The filter cartridge should be cleaned at least once every two weeks.

- A.) Turn power off at the breaker.
- B.) Remove filter access lid and unscrew bleeder Valve & retaining ring.
- C.) Remove filter cartridge and clean with a garden hose and a high pressure nozzle or soak in cartridge filter cleaner if necessary or at every other regularly scheduled cleaning. Rinse filter thoroughly before installing.
- D.) Clean o-ring on dome lid and apply a light film of white grease to o-ring.
- E.) Place clean cartridge in filter canister.
- F.) Replace dome lid and re-tighten retaining ring and bleeder valve.

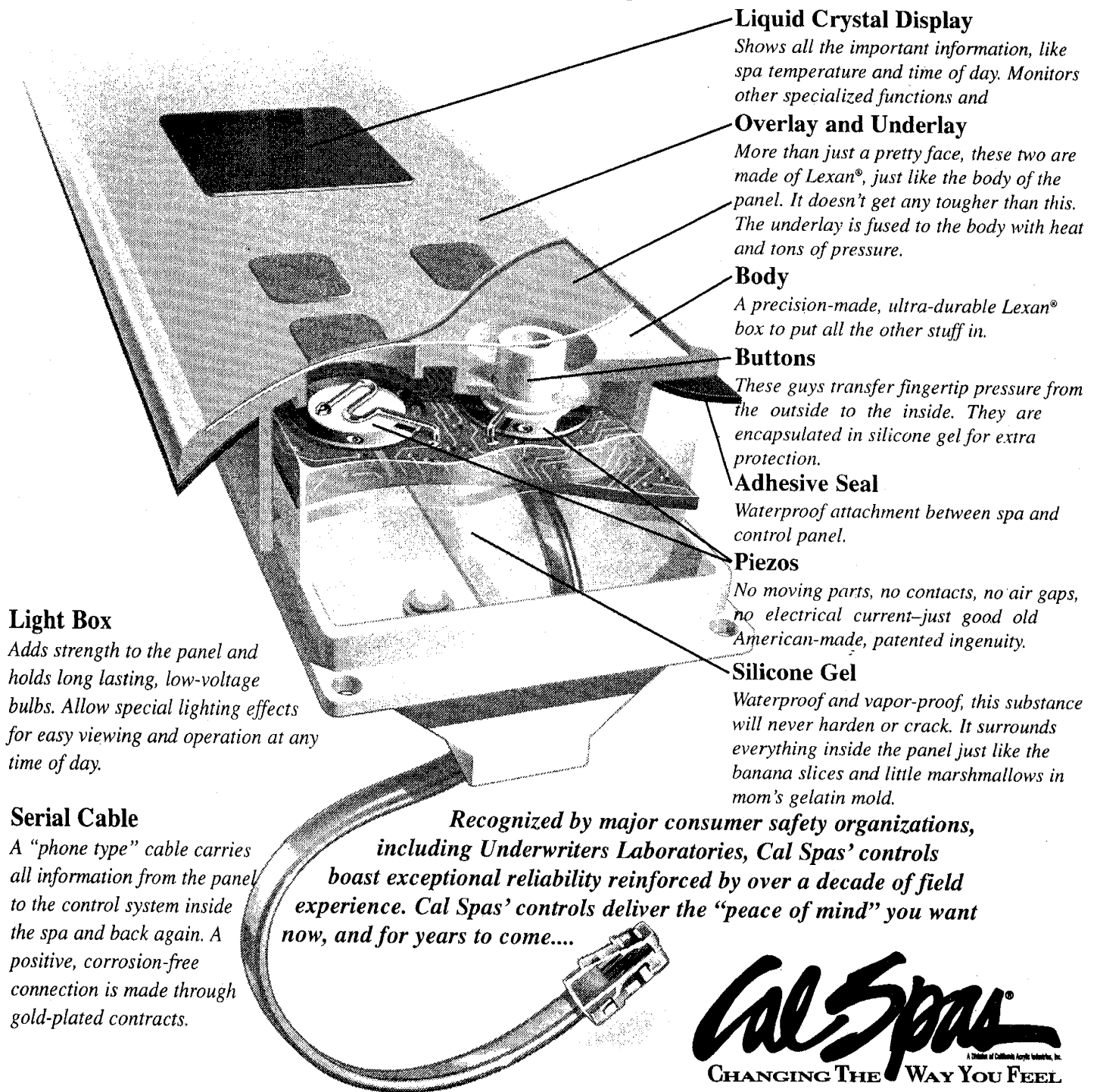


NOTE: Be careful not to over tighten retaining ring or air relief valve. Tighten only by hand until firmly snug.

WARNING
Do Not Exceed 104°-
Excessive Temperature May Waive Warranty

Keep in a Hot, Humid, Chlorinated Place.

Cal Spas' controls are designed and engineered to thrive in what is arguably the most grueling environment on earth - the portable spa.



Liquid Crystal Display

Shows all the important information, like spa temperature and time of day. Monitors other specialized functions and

Overlay and Underlay

More than just a pretty face, these two are made of Lexan®, just like the body of the panel. It doesn't get any tougher than this. The underlay is fused to the body with heat and tons of pressure.

Body

A precision-made, ultra-durable Lexan® box to put all the other stuff in.

Buttons

These guys transfer fingertip pressure from the outside to the inside. They are encapsulated in silicone gel for extra protection.

Adhesive Seal

Waterproof attachment between spa and control panel.

Piezos

No moving parts, no contacts, no air gaps, no electrical current—just good old American-made, patented ingenuity.

Silicone Gel

Waterproof and vapor-proof, this substance will never harden or crack. It surrounds everything inside the panel just like the banana slices and little marshmallows in mom's gelatin mold.

Light Box

Adds strength to the panel and holds long lasting, low-voltage bulbs. Allow special lighting effects for easy viewing and operation at any time of day.

Serial Cable

A "phone type" cable carries all information from the panel to the control system inside the spa and back again. A positive, corrosion-free connection is made through gold-plated contacts.

Recognized by major consumer safety organizations, including Underwriters Laboratories, Cal Spas' controls boast exceptional reliability reinforced by over a decade of field experience. Cal Spas' controls deliver the "peace of mind" you want now, and for years to come....

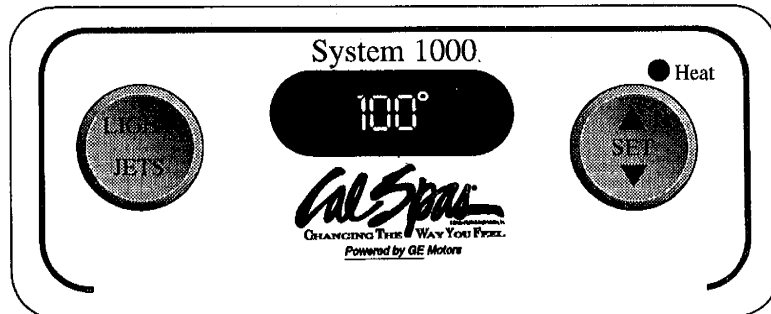
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Cal Spas System 1000 Control

Start up

When first powered up, it will automatically heat and maintain 100° F until you change the set temperature.



Temperature Adjustment

Press the Set pad to display the temperature previously set. Pressing the pad a second time will cause the set temperature to increase or decrease depending on what direction was last chosen. Each successive press will change the set temperature in the same direction.

If the opposite direction is desired, release the pad and let the display revert to the actual water temperature again. Press the pad to display the set temperature, and again to make the temperature change in the desired direction.

Light and Jet Controls

Touch the Light/Jets pad once to turn on the spa light. Touch the pad again and the light and low-speed pump will be on. Press the pad a third time and the light and the high-speed pump will be on. Press the pad again to turn the light and high-speed pump off. The light will automatically turn off after 45 minutes. The pump will turn off after 30 minutes, if not turned off manually.

Preset Filter Cycles

Your spa will automatically filter itself twice a day. To set filtration time turn off power to spa at desired time of day you would like to start filtration. The first filter cycle will start soon after the spa is powered up. The second filter cycle will begin twelve hours later. Filter cycle duration is preset for 3 hours.

Display Messages

Message	Meaning	Action Required
OH	"Overheat" The Spa has shut down. Either the spa water has reached 112°F or the high-limit sensor has detected 118°F at the heater.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 110°F, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service
FL	"Flow" (Not Flashing) A pressure switch has malfunctioned.	Contact your dealer or service organization.
Sn	"Sensor" Spa is shut down. High-limit/Temperature sensor is not working.	Contact your dealer or service organization.

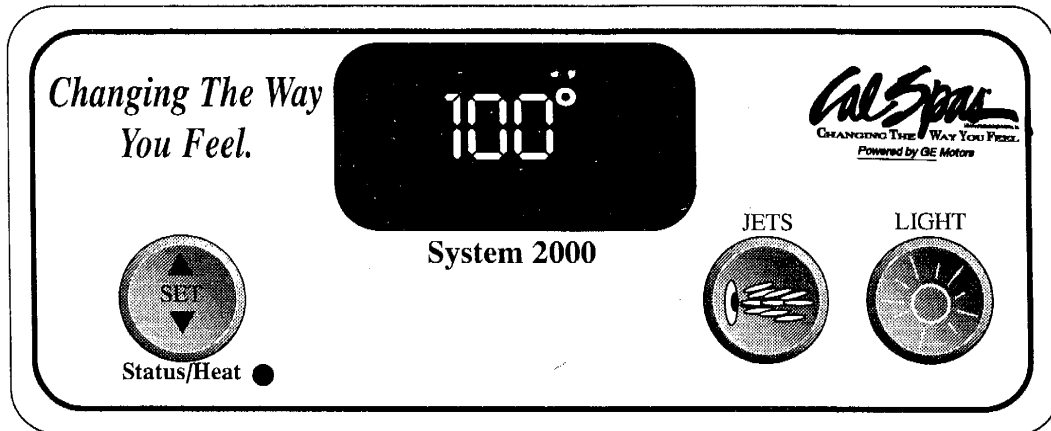
WARNING! SHOCK HAZARD! NO USER SERVICEABLE PARTS.

Do not attempt service of this control. Contact your dealer or service organization for assistance. follow all owner's manual power connection instructions. Installation must be performed by a licensed electrician and all grounding connections must be properly installed.

Cal Spas System 2000 Control

Start up

When first powered up, it will automatically heat and maintain 100° F until you change the set temperature.



Temperature Adjustment

Press the pad to display the temperature previously set. This set temperature is flashed on the display. In a few seconds, the numbers will stop flashing, and the display will show the actual water temperature.

Pressing the pad a second time will cause the set temperature to increase or decrease depending on what direction was last chosen. Each successive press will change the set temperature in the same direction. If the opposite direction is desired, release the pad and let the display revert to the actual water temperature again. Press the pad to display the set temperature, and again to make the temperature change in the desired direction.

Jets

Press the pad to activate the low speed, again for the high speed, and once more to turn off the pump. After 4 hours, the low speed pump will turn off and after 30 minutes the high speed will turn off, if not turned off manually.

Light

Press the pad to turn the spa light on and off. The light will turn off after 4 hours, if not turned off manually.

Preset Filter Cycles

Your spa will automatically filter itself twice a day. To set filtration time turn off power to spa at desired time of day you would like to start filtration. The first filter cycle will start soon after the spa is powered up. The second filter cycle will begin twelve hours later. Filter cycle duration is 1, 2, 3, 4, or 5 hours long, and programmed via the topside panel. Press , then press , then press again to select the duration, then press again to exit the filter program. The low speed pump and ozone generator (optional) will run during filter cycles.

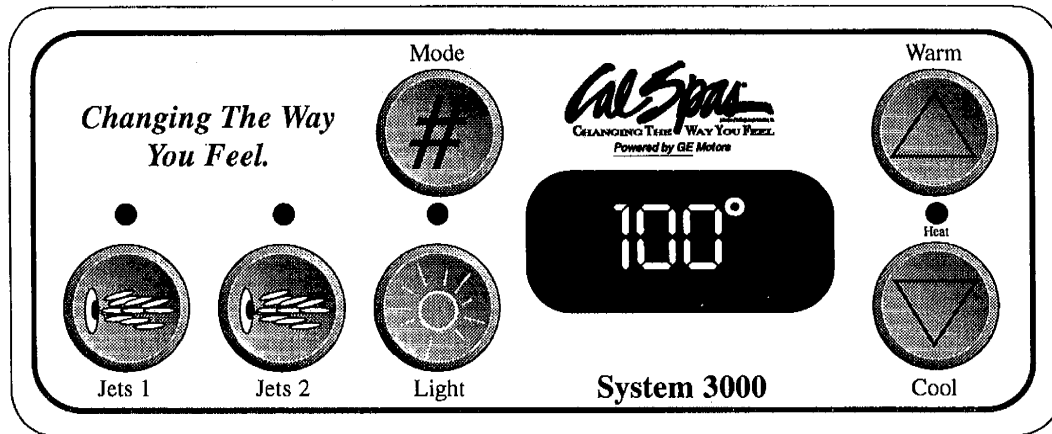
Display Messages

Message	Meaning	Action Required
OH	"Overheat" The Spa has shut down. Either the spa water has reached 112°F or the high-limit sensor has detected 118°F at the heater.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 110°F, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service
FL	"Flow" (Not Flashing) A pressure switch has malfunctioned.	Contact your dealer or service organization.
Sn	"Sensor" Spa is shut down. High-limit/Temperature sensor is not working.	Contact your dealer or service organization.



Cal Spas System 3000 Control

Start up


Your spa control has been specifically designed so that by simply connecting the spa to its properly grounded source, the spa will function properly and safely at 100° F. When your spa is first activated, the LCD will alternately flash **Econ**, the current spa temperature, and **Cool** until the spa water is less than 15° F cooler than the set temperature. During each filter cycle, the spa will heat to the set temperature.




Temperature Adjustment

The current temperature is constantly displayed on the LCD. Press either  or  once to display the set temperature. (The set temperature is designated by a triangle in the upper left corner.) Each time either pad is pressed again, the set temperature will increase or decrease depending upon which pad is pressed. After 3 seconds, the LCD will automatically display the current spa temperature.

Jets 1

Touch the  (jets 1) pad once to activate the low-speed, again for the high speed, and again to turn off the pump. After 4 hours, the low speed will turn off, and the high speed will turn off after 30 minutes, if not turned off manually.


Jets 2

Touch the  (jets 2) pad to turn the second pump on and off. The jets 2 will turn off after 30 minutes, if not turned off manually.







Light

Press the  pad to turn the spa light on and off. The light will turn off after 4 hours, if not turned off manually.

Standard and Economy Mode

Press  to switch between modes. Economy mode only heats water during filter cycles. Standard mode maintains the desired temperature at all times.

Preset Filter Cycles

Your spa will automatically filter itself twice a day. To set filtration time turn off power to spa at desired time of day you would like to start filtration. The first filter cycle will start soon after the spa is powered up. The second filter cycle will begin twelve hours later. Filter cycle duration is 1,2,3,4, or 5 hours long, and programmed via the topside panel. Press  or , then , then  or  again to select duration, then press  again to exit the filter program. The low-speed pump and ozone generator (optional) will run during filter cycles. Turn off power to spa at time desired for spa filtration.

Cal Spas System 3000 continued

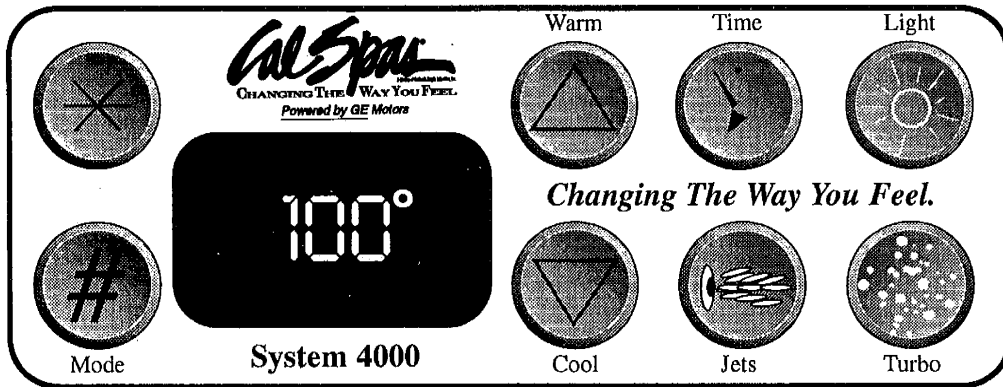
Display Messages

Message	Meaning	Action Required
ECON	"Econ" The spa is in economy mode.	Econ is flashed alternately with the current spa temperature and Cool until the spa water is 15°F cooler than the set temperature.
OH	"Overheat" The Spa has shut down. Either the spa water has reached 112°F or the high-limit sensor has detected 118°F at the heater.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 110°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.
FLO	"Flow" (Flashing) Flow of water is inhibited.	Check all open flow valves. Check for correct water level. Clean filter.
FLO	"Flow" (Not Flashing) A pressure switch has malfunctioned.	Contact dealer or service organization.
COOL	"Cool" Water temperature is 20°F or more below the temperature you last set.	No action required. Spa is functioning properly.
ICE	"Ice" Potential freeze condition is detected.	No action required. Pump(s) will automatically activate regardless of spa status.
Sm 1	"Sensor 1" Spa is shut down. High-limit sensor is not working.	Contact your dealer or service organization.
Sm 3	"Sensor 3" Spa is shut down. Water temperature sensor is not working.	Contact your dealer or service organization.
Oz 3	System is supplying power to ozonator	Periodically check ozonator to assure that lamp is on & is operating.

Cal Spas System 4000 Control

Start up

When your spa is powered up, it begins running in an economy mode, which means that the heater will only operate during the preset filter cycles. This setting is designed for periods of little or no spa use, but continues to filter twice a day and maintain water quality. Pressing the **#** pad switches the spa to standard mode which automatically heats and maintains the water at 100° F or your desired temperature.



Time of Day

You will see the words "set time" flashing on the display. To set the time, press **▶** then **✕** then **▲** or **▼**. After **▲** or **▼** is pressed once, the time will begin changing in one-minute increments. Press either pad to stop the time from changing.

Press **#** to enter your correct time into the system.

Water Temperature

Press either **▲** or **▼** once to display the last temperature that was set. If either pad is pressed within 3 seconds, the temperature setting will go up or down in 1°F increments. Actual water temperature will reappear after changing the temperature setting.

Optional Filter Cycle Programming

While you are not required to set filter cycles, if you want to change them to meet your own needs, press **▶** **✕** **✕** within 3 seconds. "SET START FILTER 1" (AM cycle) will appear on the display.

Press **▲** or **▼** to reset the filter start time.

Press **✕** to see "STOP FILTER 1" and adjust the time with the **▲** or **▼** as done above.

Press **✕** to see "START FILTER 2" (PM cycle) and proceed as above.

Pressing **#** will enter the new filter cycle times into the system and display the current water temperature.

Locking the Panel

Press **✕** **#** **▲** within 3 seconds. When locked, the display will show the temperature you have chosen, along with the "lock" symbol. All pads are frozen except the **✕** pad.

Unlocking the Panel

Press **✕** **#** **▼** within 2 seconds. The lock symbol will disappear and all panel pads will work again.

Jets 1

Touch the **🌊** (jets 1) pad once to activate the low-speed, again for the high speed, and again to turn off the pump. After 4 hours, the low speed will turn off, and the high speed will turn off after 30 minutes.

Jets 2

Touch the **🌊** (jets 2) pad to turn the second pump on and off. The jets 2 will turn off after 30 minutes.

Light

Press the **☀️** pad to turn the spa light on and off. The light will turn off after 4 hours.

Turbo

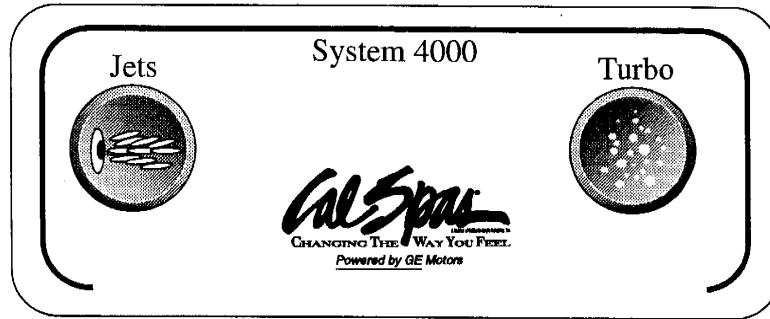
Press the **💨** pad and air will come out of the jets for added pressure.

Air Blower

Will turn off automatically after 15 minutes.

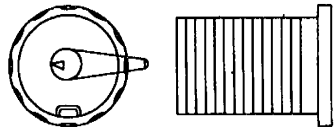
Cal Spas System 4000 continued

Optional Convenience Auxiliary Panel

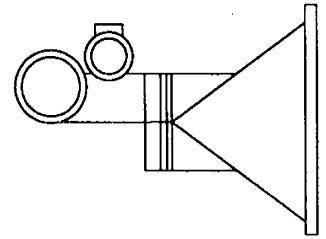
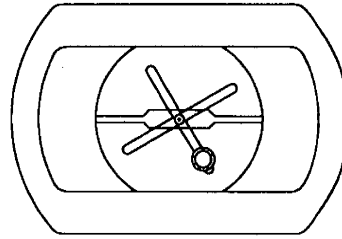


Display Messages

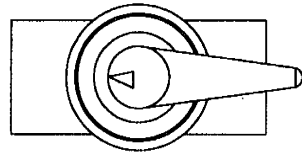
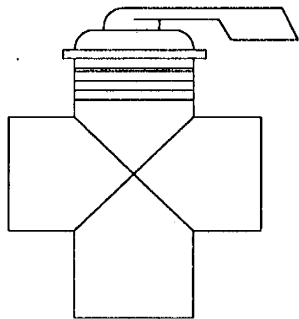
Message	Meaning	Action Required
Pd	"Power down" The spa is using its battery backup to preserve settings.	Restore Power to the spa. Battery will hold all special settings for 20 minutes
OH	"Overheat" The Spa has shut down. Either the spa water has reached 112°F or the high-limit sensor has detected 118°F at the heater.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 110°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.
FLO	"Flow" (Flashing) Flow of water is inhibited.	Check all open flow valves. Check for correct water level. Clean filter.
FLO	"Flow" (Not Flashing) A pressure switch has malfunctioned.	Contact dealer or service organization.
COOL	"Cool" Water temperature is 20°F or more below the temperature you last set.	No action required. Spa is functioning properly.
ICE	"Ice" Potential freeze condition is detected.	No action required. Pump(s) will automatically activate regardless of spa status.
Sn 1	"Sensor 1" Spa is shut down. High-limit sensor is not working.	Contact your dealer or service organization.
Sn 3	"Sensor 3" Spa is shut down. Water temperature sensor is not working.	Contact your dealer or service organization.
Oz 3	System is supplying power to ozonator	Periodically check ozonator to assure that lamp is on & is operating.



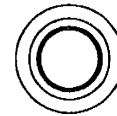
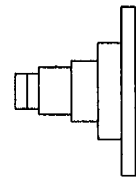
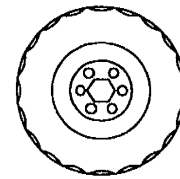
SLIMLINE AIR CONTROL



VERTI'SSAGE



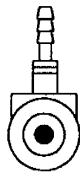
3-WAY VALVE



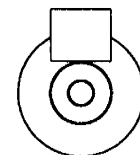
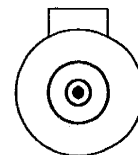
MAGNA FLOW

DUAL PORT SWIRL

MAGNA'SERIES



BULLET JET

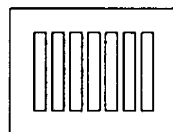


MICRO MAGNA

NECK JET



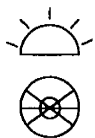
MAIN DRAINS



SKIMMER



CASCADE JET



LIGHTS

CAL SPAS CALIF. ACRYLIC INDUSTRIES, INC.

S-JETS-2

DWG.#S-JET-2

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96-PLANNING/DESIGN

MAINTAINING YOUR CAL SPA

(note: This sheet is designated for 500 gallon spas – dosage may vary with larger or smaller spas.)

- 1) Before filling your spa with water (or when water is changed).
 - A) Wipe acrylic clean with **ALL SURFACE CLEANER**.
 - B) Polish with **FAST SHEEN**.
- 2) **Start up** spa as follows. (every 6 months)
 - A) Fill spa with water, check for leaks and prime the pump.
 - B) Add 16 oz. of **METAL PROTECTOR**.
 - C) Add one packet of **GO BROM**.
 - D) Fill bromine floater with **BROM TABS** and put in spa.
 - E) Add 2 oz. of **OXIDIZER SHOCK** to water.
 - F) Check water chemical levels with the **TEST STRIPS**.
 - G) Adjust total Alkalinity level to 80 - 120 ppm using **TOTAL ALKALINITY UP** or **PH DOWN** as necessary.
 - H) If total Alkalinity was adjusted allow 5-6 hours to stabilize before adjusting PH.
 - I) Adjust PH level to 7.2-7.6 using **PH UP** or **PH DOWN**.

— THIS COMPLETES THE START UP PROCEDURES —

WEEKLY MAINTENANCE

MONDAY—

- 1) Check chemical levels with **TEST STRIPS**. (See steps F to I on startup)
- 2) adjust chemical levels as necessary. (Record chemical levels and dosages on log sheet)
- 3) Clean filter with high pressure water nozzle (use cartridge cleaner if necessary).
- 4) Check **BROMINE FLOATER** (refill if necessary).
- 5) Add 2 oz. of **OXIDIZER SHOCK** to water.
- 6) Add 2 oz. of **STAIN & SCALE DEFENSE** to water.
- 7 Vacuum spa with **CAL SPA VAC**.

WEDNESDAY & FRIDAY

- 1) Check chemical levels with **TEST STRIPS**. (See steps F to I on startup)
- 2) Adjust chemical levels as necessary (Record chemical levels and dosages on log sheet).

PERIODIC MAINTENANCE

ONCE A MONTH Clean cover and pillows then wipe with **COVER TREAT**. (As Needed)

EVERY 6 MONTHS

- 1) Check Ozonator light. (on low speed operator).
- 2) Drain spa water.
- 3) Go to start up procedures. (As needed)

AS NEEDED Deep clean filter cartridge with **CARTRIDGE CLEANER**.

TROUBLE SHOOTING

CLOUDY/ODOR/HEAVY USE/LOW BROMINE READING — add 2 oz. **OXIDIZER SHOCK** (activates bromine) — check floater, insure tablets are dissolving. allow filter to run at least 6 hours.

HIGH BROMINE READING/STRONG CHEMICAL ODOR — Remove bromine floater until level drops & reduce amount of tablets in floater.

If water remains cloudy – wait 24 hrs. then add 2oz **SPA BRITE** (may cause ring around water line)

note: Do not use **SPA BRITE** on the same day as **OXIDIZER SHOCK** or **STAIN & SCALE DEFENSE**.

FOAMY WATER — use **FOAM GONE** – caused by organic contaminant's (dirt, oil, detergents, etc.)

OILY RESIDUE ON SURFACE OF WATER — use **SCUMBALLS**

IF YOU HAVE ANY QUESTIONS OR YOU NEED SERVICE CALL (800) 

Winterizing and Draining Your Spa

WINTERIZING:

In areas of the country where the temperature drops below 32° F, it is important to follow these instructions:

If the spa is not going to be used, drain completely and store in garage.

Do not turn unit off with water in the spa, as frozen water may burst plumbing.

In areas where sub-freezing temperatures can be expected, the filter and equipment should be drained of all water. Remove and clean filter cartridge, store in secure place where it will not freeze.

DRAINING:

Your spa should be drained once every year, and filled with clean tap water. There are two recommended methods of spa draining.

METHOD ONE:

Turn off power at breaker.

Hookup a garden hose to the hose bib located in spa equipment area and open hose bib.

When water begins to drain out of the hose, open air relief valve at the top of the pressure filter and drain water in a convenient place. (***See diagram on Page 6***)

METHOD TWO:

Using a garden hose or 1 1/2" flex, place one end in a convenient place for draining.

Hold other end of hose on the center of a jet, turn jets on. When water starts to flow out of the other end of the hose, submerge hose into the spa and turn off jets, an automatic syphon will begin.

A small amount of water will remain in the bottom of the spa. This can be taken out by hand or with a Wet/Dry vacuum.

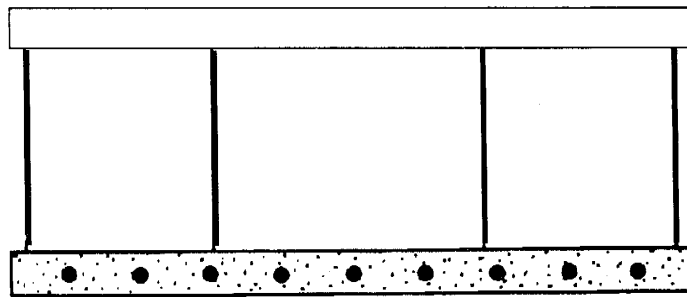
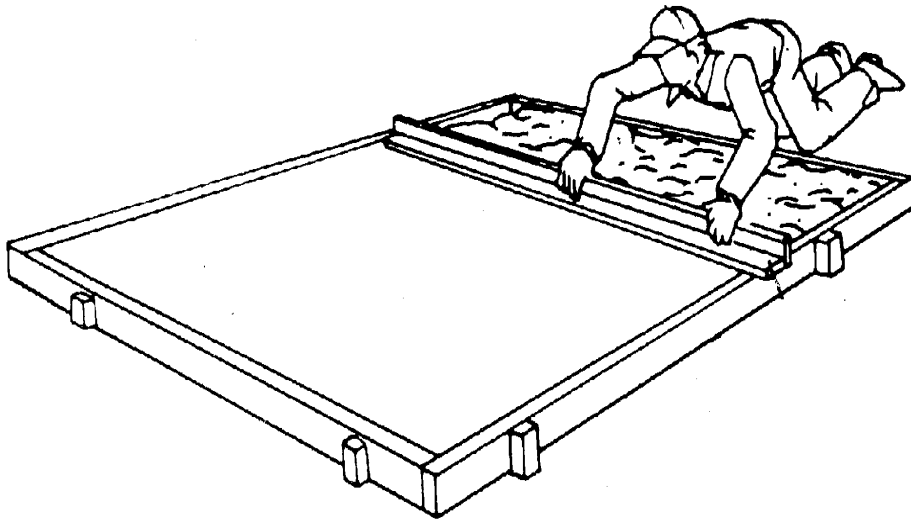
WINTERIZING & DRAINING GAS PACK EQUIPMENT & SPAS

You will receive a manual for your Teledyne Gas Heater, usually located behind the access door of your gas heater. Follow the winterizing instructions in your manual along with the equipment instructions above.

WARNING

**Do Not Exceed 104°-
Excessive Temperature May Waive Warranty**

Installation Techniques



Build concrete form of 2 x 4 and 1 x 2 stakes as shown. Excavate 2 inches below bottom of forms and fill with clean sand.

Lay a 1-foot-square grid of 1/2 inch reinforcing rods over leveled sand bed. Connect rods together with tie wire. Mix concrete and pour it in the form. Spread concrete evenly with a sturdy steel rake.

Level concrete with a screed built from 1 x 4's as shown. Pull the screed toward you with a side-topside zigzag motion. When concrete is leveled, smooth out with a large mason's float. Allow concrete to cure at least one week before setting tub.

Trouble Shooting Guide

NO HEAT OR HEAT TOO LOW

PROBABLE CAUSE #1: Breaker at house off.

RECOMMENDED ACTION: Reset breaker at house. Breaker can appear to be on & one pole can be off.

PROBABLE CAUSE #2: Thermostat not on Max. Temp.

RECOMMENDED ACTION: Turn thermostat all the way up. Thermostat is located at gas heater.

PROBABLE CAUSE #3: Inadequate water flow due to dirty filter.

RECOMMENDED ACTION: Clean filter cartridge(s).

PROBABLE CAUSE #4: High limit "popped out".

RECOMMENDED ACTION: See "**OVERHEAT**" section in the section that corresponds with your system.

PROBABLE CAUSE #5: Pump not primed.

RECOMMENDED ACTION: Refer to pump priming.

PROBABLE CAUSE #6: Improper line voltage.

RECOMMENDED ACTION: Have **Licensed Electrician** check the line voltage.

PROBABLE CAUSE #7: Spa cover left off.

RECOMMENDED ACTION: Heat spa with cover on.

SPA LIGHT WON'T COME ON

PROBABLE CAUSE #1: Light bulb burnt out.

RECOMMENDED ACTION: Replace bulb.

PROBABLE CAUSE #2: Dirty connection.

RECOMMENDED ACTION: Check to see if there is anything covering the connection on the housing that holds the light bulb.

PROBABLE CAUSE #3: Light plug not in all the way.

RECOMMENDED ACTION: Check plug, making sure it's pushed in all the way into receptacle.

JETS WON'T COME ON

PROBABLE CAUSE #1: Pump not primed.

RECOMMENDED ACTION: Refer to pump priming.

PROBABLE CAUSE #2: Gate Valves closed.

RECOMMENDED ACTION: Check to see if both Gate Valves are in the up positions.

Trouble Shooting Guide

LOW WATER FLOW

PROBABLE CAUSE #1: Dirty filter.

RECOMMENDED ACTION: Remove filter cartridge and clean.

PROBABLE CAUSE #2: Closed gate valves or blocked lines.

RECOMMENDED ACTION: Open all gate valves.

PROBABLE CAUSE #3: Low voltage or incorrect voltage.

RECOMMENDED ACTION: Wiring to be corrected by licensed electrician.

SPA IS LEAKING

PROBABLE CAUSE #1: Loose connection.

RECOMMENDED ACTION: Tighten all quick disconnects and fittings. Check gaskets and O-rings.

MOTOR DOES NOT RUN

PROBABLE CAUSE #1: No power to motor.

RECOMMENDED ACTION: Check power switches & circuit breakers. Check motor wiring at terminals.

PROBABLE CAUSE #2: Pump jammed from foreign matter in impeller.

RECOMMENDED ACTION: Call Cal Spas for recommended action.

PROBABLE CAUSE #3: Pump ran dry.

RECOMMENDED ACTION: Call Cal Spas for recommended action.

MOTOR RUNS HOT

PROBABLE CAUSE #1: Poor ventilation.

RECOMMENDED ACTION: Do not tightly cover or enclose pump motor.

PROBABLE CAUSE #2: Restricted suction line.

RECOMMENDED ACTION: Make sure all valves are open.

NOTE: These motors will feel hot to the touch. This is normal. The internal overload protector will turn the motor off if there is an overload or high temperature problem.

PUMP WILL NOT PRIME (refer to page 5)

PROBABLE CAUSE #1: No water in pump.

RECOMMENDED ACTION: Make sure water level in spa is midway in skimmer mouth.

PROBABLE CAUSE #2: Air lock.

RECOMMENDED ACTION: Bleed off air at Air Relief Valve.

PROBABLE CAUSE #3: Closed gate valves or blocked lines.

RECOMMENDED ACTION: Open all gate valves.

Glossary of Terms

AIR BLOWER:	On the system 4000 the Air Blower supplies air to the jets creating a hydro massage action.
AIR LOOP:	A back-up system for the check valve, prevents water from entering Air Blower.
AIR VENTURI:	Mounted generally on the lip of the spa or at the equipment shroud, to induce air to the jets.
BLEEDER VALVE:	Located at the top of the filter and equipment compartment on certain models. Used for releasing air out of filter and in equipment area. <i>See page 5 & 6</i>
CAL ZONE OZONATOR:	Available as an option on most Cal Spas, the Cal Zone ozonator produces natural ozone that is injected into the spa water to aid in killing bacteria and other micro organisms that affect water clarity. Continuous use of an ozonator can dramatically cut chemical use.
CHECK VALVE:	Prevents water back flow to blower.
CONTROL BOX:	Basically, the "brain" of the spa. Power is distributed to all functions of the spa: pumps, blowers, Cal Zone, flow switch, heat element, etc..
CONTROL PANEL:	Mounted generally on the lip of the spa and controls the functions of the spa.
FILTER:	The filter cleans the spa by passing the water through a filtering system where debris and impurities are removed. The top load filter is accessible on the top of the spa, generally by the skimmer.
GATE VALVES:	T-handled valves located at the inlets and outlets of the equipment. The gate valve blocks or opens the water line by the equipment.
HEATER:	The thermostatically controlled heater raises the temperature of the water to the desired degree.
HOSE BIB DRAW:	Used in the draining of the spa, looks like an outdoor faucet and fits a standard garden hose.
JETS:	
A – HYDRO	Our "Cal Magna-Flow Jets" produce a straight flow for a therapeutic massage.
B – SWIRL	"Cal Magna-Swirl Jets" provides a moving, circular therapeutic massage.
C – WHIRLPOOL	Provides an overall swirling therapy similar to what doctors and hospitals recommend for treatment of sore or damaged muscles.
D – VERTISSAGE	The large slotted jet which offers a vertically moving massage up and down your back while you sit & enjoy.
E – NECK BLASTER	Adjustable jets for neck massage.
F – BULLET	Our smallest hydrotherapy jet.
G - CASCADING JETS	2 Bullet Jets behind a pillow produce a cascading massage
MAIN DRAIN	During the operation of the equipment, the main drain works in conjunction with the skimmer to draw water from the surface & bottom of the spa through the filter , keeping the spa sparkling clean.
SKIMMER	This is the rectangular outlet at the water level. The skimmer removes surface debris to the filter. The water level in the spa should be kept at the center of the skimmer for optimum operation.
VALVE KNOB	Used to divert air or water to various functions.

DO NOT USE MURATIC ACID,

Tri-Chlor or Algecide Solutions-They Ruin Acrylic Spas.

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1-800-CAL-SPAS

1462 EAST NINTH ST., POMONA, CALIFORNIA 91766

OWNERS INFORMATION

Dealer

Company _____

Address _____

Phone _____

Installer

Company _____ Lic. # _____

Address _____

Phone _____

Unit Information

Spa # _____

Equipment Pack # _____

Date of Delivery _____

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Revised December 1995 [M-2000]