

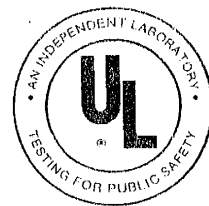
THE WORLD'S LARGEST AND BEST SPA COMPANY

CalSpa[®]

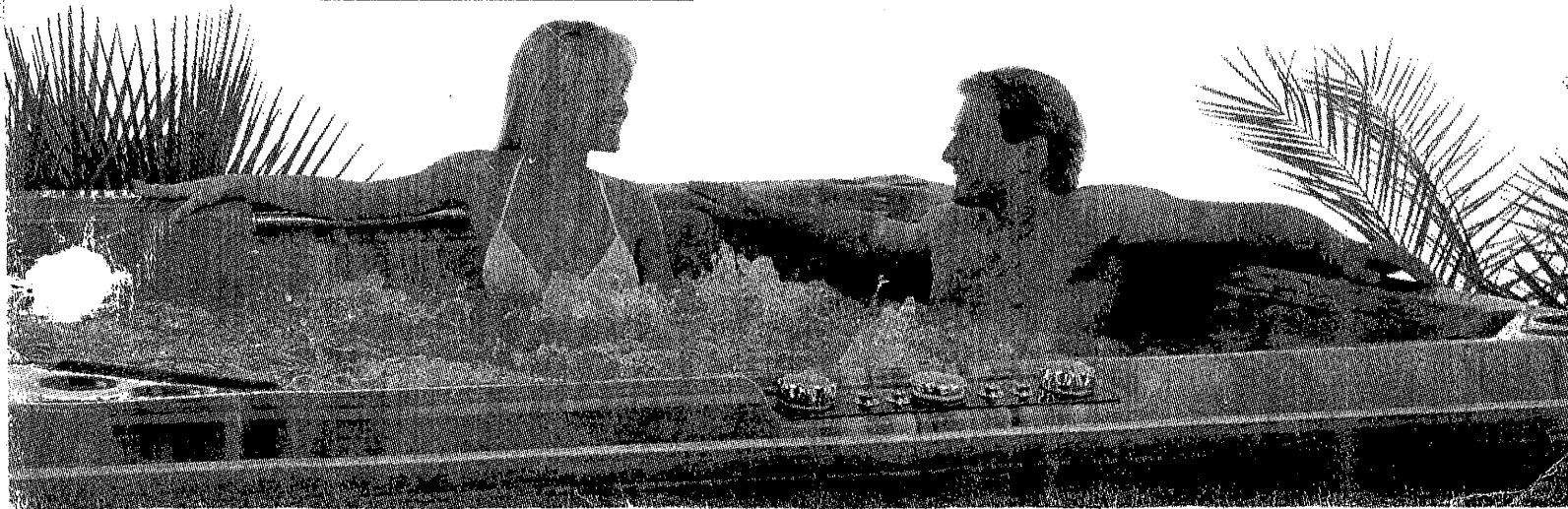
A DIVISION OF CALIFORNIA ACRYLIC INDUSTRIES, INC.

Installation & Operation Manual

Portable Spas 110V & 220V



CALIFORNIA ACRYLIC INDUSTRIES INC.
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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. (For all units) **DANGER** — To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

3. (For all units) **WARNING RISK OF CHILD DROWNING.** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents ensure that children cannot use a spa or hot tub unless they are supervised at all times.

4. (For all units) **DANGER** — To reduce the risk of injury to persons, do not remove suction fittings.

5. (For all units). A pressure wire connector is provided in the control box inside the unit to permit connection of a minimum No. 8 AWG (8.4mm²) solid copper bonding conductor between this point and any metal equipment, metal enclosures of electrical equipment, metal water pipe or conduit within five feet (1.5m) of the unit as needed to comply with local requirements.

6. (For permanently installed units with GFCI). This appliance is provided with a factory installed Ground-Fault Circuit-Interrupter located on the Spa Pak Control Box. Before each use and with the unit operating, push the test button. The unit should stop operating and the reset button should appear. Push the reset button. The unit should now operate normally. If the interrupter 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.

7. (For all units) Install to provide drainage of compartment for electrical components.

8. (For all spas) **DANGER – RISK OF ELECTRICAL SHOCK.** Install at least five feet (1.5m) from all metal surfaces. (A spa may be installed within five feet of metal surfaces IF each metal surface is permanently connected by a minimum No. 8 AWG (8.4mm²) solid copper conductor attached to the wire connector on the terminal box that is provided for this purpose.)

9. (For all spas and hot tubs) **DANGER – RISK OF ELECTRICAL SHOCK.** Do not permit any electrical appliances, such as a light, telephone, radio or television within five feet (1.5m) of a spa or hot tub.

10. (For all units) To reduce the risk of injury:

A. The water in a spa or hot tub should never exceed 40°C (104°F). Water temperatures between 38°C (100°F) and 40°C (104°F) are considered safe for a healthy adult. Lower water temperatures are recommended for extended use (exceeding 10-15 minutes) and for young children.

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 or hot tub water temperatures to 38°C (100°F).

C. Before entering a spa or hot tub, the user should measure the water temperature with an accurate thermometer since the tolerance of water temperature-regulating devices may vary as much as 3°C (5°F).

D. The use of alcohol, drugs or medication before or during spa or hot tub 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 or hot tub.

F. Persons using medication should consult a physician before using a spa or hot tub since some medication may induce drowsiness while other medication may affect heart rate, blood pressure and circulation.

11. (For all permanently connected units) The electrical supply for this product must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with Section 422-20 of the National Electrical Code, ANSI/NFPA 70-1987. The disconnecting means must be readily accessible to tub occupant but installed at least five feet (1.5m) from the tub water.

12. SAVE THESE INSTRUCTIONS

Glossary of Terms

AIR BLOWER	The Air blower supplies air to the Cal Jets in the lower portion of the spa, creating the hydro massage action. The blower works independently off the pump, filter, and heater.
AIR LOOP	A back-up system for the check valve.
AIR VENTURI	Mounted generally on the lip of the spa or at the equipment shroud, it induces outside air to the jets.
BLEEDER VALVE	Located at the top of the filter. Used for releasing air out of filter.
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	To prevent water back flow to blower.
CONTROL BOX	Basically, the "heart" of the spa. Power is distributed to any and/or 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.
DOOR INTERLOCK	Mounted in side equipment doors on skirted spas. Turns power off to equipment, when doors are opened.
FILTER	The filter cleans the spa by passing the water through a filtering system where debris and impurities are removed. Top load filter means the filter is accessible on the top of the spa, generally by skimmer, in-line filters are under the cabinet near the equipment.
GATE VALVES	T-handled valves located at the inlets and outlets of the equipment. Used while cleaning the filter, 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 DRAIN	Used in the draining of the spa, looks like an outdoor faucet and fits a standard garden hose.
JETS:	
A - HYDRO	Our "Cal Maxi-Flow Jets" produce a straight flow for a therapeutic massage.
B - SWIRL	"Cal Maxi-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 - AIR INJECTORS	The multiple, smaller 9 hole "buttons" into the air channel which offer a tingling, bubbling sensation type of therapy.

Glossary of Terms

- E - VERTISSAGE** The large slotted jet which offers a vertically moving massage up and down your back while you sit & enjoy.
- F - NECK BLASTER** Adjustable jets for neck massage.
- G - BULLET** Our smallest hydrotherapy jet.
- H - ADJUSTABLE CAL JET** Jet with adjustable water flow.
- 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.
- NEW WAVE SEAT AIR BUTTON** Located at the top of the spa near the seat – to activate wave motor.
- NO-FREEZE PROTECTION** Used for continuous heating of spa or in colder months to prevent pipes from freezing. Also maintains proper filtration when spa is not being used.
- 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.
- TIMER OPERATION** Allows you to set the filtering and heating time of the spa.
- VALVE KNOB** Use to divert air or water to various functions.

USE NO ACID,
Tri-Chlor or Algecide Solutions-
They Ruin Acrylic Spas.

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.

- 1.** 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.
- 2.** Depending on the model, your 220 volt spa will require a 40, 50 or 60 amp dedicated circuit breaker.
- 3.** 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.
- 4.** If you have any doubts, have your electrical system checked by a qualified electrician.

SURFACE AND PAD REQUIREMENTS:

- 1.** 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.
- 2.** If your spa is to be placed near where sprinklers may hit the redwood skirt, shell or equipment, adjust or cap them to prevent from hitting on the skirt or spa equipment.

REQUIREMENTS FOR DECKING, GATES AND BALCONIES:

- 1.** Decking must be constructed to support 150 pounds per square foot.
- 2.** Gates must be self-closing and self-latching (California requirements).
- 3.** Balconies must be constructed to current state and local codes (spa load requirements are 150 pounds per square foot).

WARNING
Do Not Exceed 104°-
Excessive Temperature Voids 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.

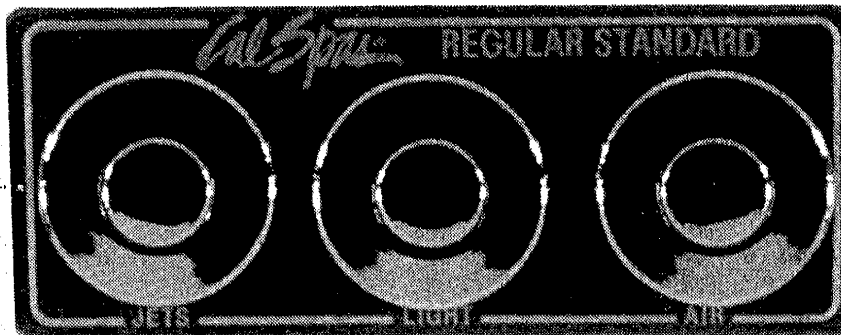
- A.** The pump and heater should be operated a minimum of two hours per day for cleaning and heating.
- B.** The length of time required to heat your spa to the desired temperature will vary depending on the heater size, season, water temperature, wind velocity, etc. Therefore, this is something each 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.
- C.** 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.
- D.** 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 necessary or not.
- E.** 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.
- F.** The power pack system is located under the wood skirt (on portables). The equipment can be serviced by simply opening the doors. Because of the safety power shut-off interlock system, the doors must be closed for the equipment to operate.
- G.** When spa is on "NO FREEZE PROTECTION" the thermostat will turn the low speed pump "ON" and "OFF" to maintain desired temperature.
- H.** 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.
- I.** You should drain spa water at least every 3 months and clean it. Use a liquid cleaner that contains no abrasives. 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.
- J.** All white lines are air lines. All blue lines are water lines. All red lines are ozonator lines.

WARNING
Do Not Use Soft Water.
It Can Ruin Your Acrylic.

General Pre-Operation Instructions

THREE BUTTON PANEL

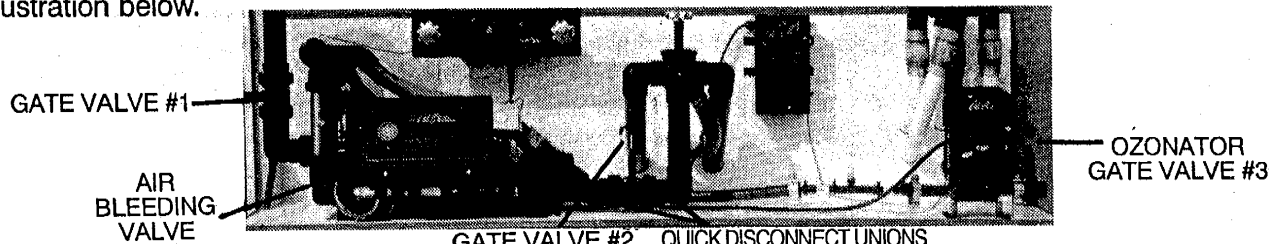
Different models have different control panels. However, the basic panel consists of three buttons: "Jet", "Light", and "Air". The "Jet" button activates the pump pushing water through the jets. The "Light" button operates on two modes "ON" and "Off". Most spas have the option to add air. The "Air" button activates the air blower injecting air through the air channel producing a soft bubbling effect.



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.

- A.** Turn power off at the breaker.
- B.** Open equipment access doors and push down the two gate valves (for spas equipped with an ozonator there will be three gate valves). Open Air Relief on Top Load Filter while spa is filling with water. Refer to illustration below.



- C.** Fill spa with water. The correct level is halfway up the face of the chrome skimmer cover.
- D.** After water is halfway up the skimmer, close Air Relief on Top Load Filter. Refer to illustration on page 10.
- E.** Again, open equipment access doors and pull up on gate valve #1 on the left side of the equipment pack. Then bleed excess air by opening bleeding valve (refer to illustration above).
- F.** When water runs out of bleeding valve, let it continue for 10 seconds. Then tighten bleed valve. Now, pull up on gate valve #2 (and Gate valve #3 if your spa is equipped with an ozonator).
- G.** Make sure all quick disconnect unions are tightened (refer to illustration above).
- H.** Next, set the toggle switch on equipment pack to "freeze protection" and turn thermostat all the way down.
- I.** Turn power on at breaker.
- J.** Close doors and turn jets on and run for one minute. Then turn jets off. If water recirculation is not visible, repeat procedures D through F.
- K.** Set thermostat to desired temperature (located either on top-side control panel or on equipment pack).
- L.** Leave toggle switch on freeze protection and continue heating until desired temperature has been reached. Depending on equipment, this will take 4 to 7 hours. Remember – equipment access doors must be shut for equipment to operate (if equipped with Interlock System).
- M.** After spa water has reached desired temperature, set toggle switch to "timer operation" and set timer. See diagram on page 11.

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

Filter Maintenance

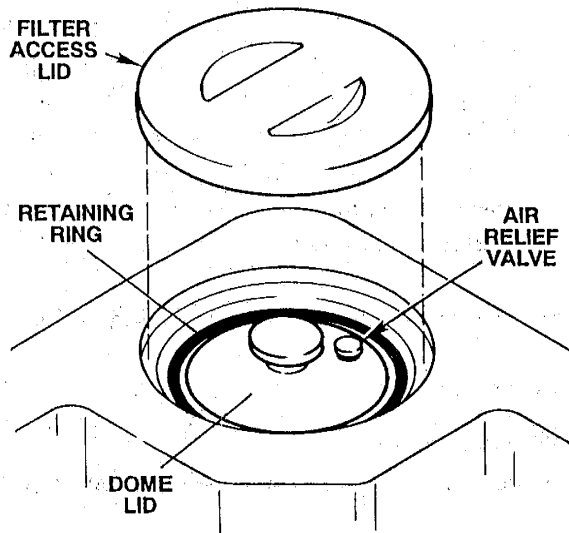
Filtration starts as soon as flow is steady through the filter. As the filter cartridge removes the dirt from the spa water, the accumulated dirt causes flow resistance. A dirty cartridge will decrease flow and may cause spa not to heat properly.

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.

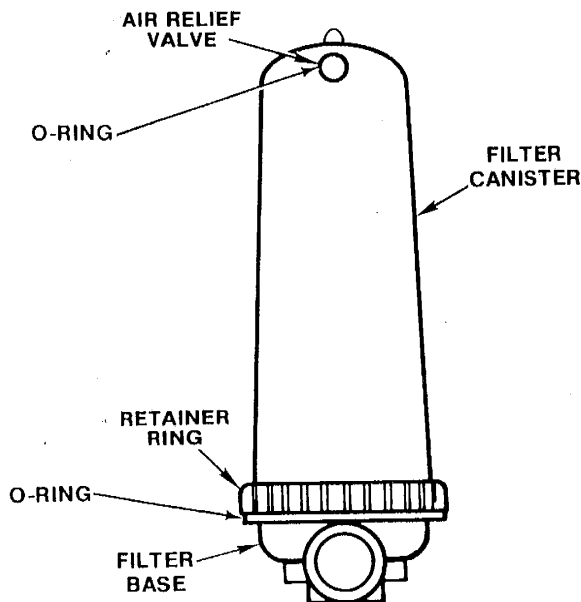
TOP LOAD FILTERS

- A.** Turn power off at the breaker.
- B.** Close gate valves. This will prevent spa from draining.
- C.** Remove filter access lid and unscrew retaining ring.
- D.** 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.
- E.** Clean o-ring on dome lid and apply a light film of white grease to o-ring.
- F.** Place clean cartridge in filter canister.
- G.** Replace dome lid and re-tighten retaining ring.
- H.** Release excess air from filter canister by opening the air relief valve at the top of the filter canister.
- I.** Retighten air relief valve when air stops flowing from valve.
- J.** Open all gate valves. Follow start-up procedures on page 8 or 9 if necessary.



BOTTOM LOAD FILTERS

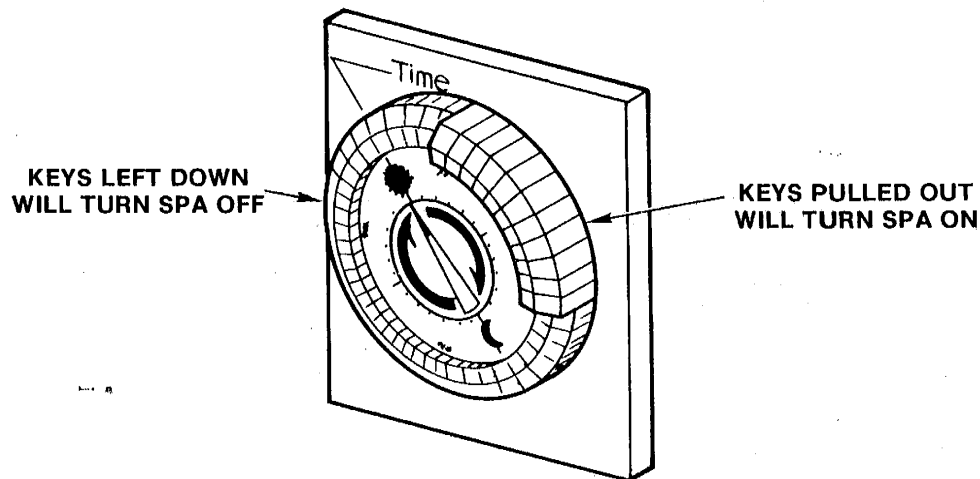
- A.** Turn power off at the breaker.
- B.** Close gate valves. This will prevent spa from draining.
- C.** Unscrew retaining ring and lift off filter canister.
- D.** Remove filter cartridge and clean with a garden hose and high pressure nozzle, soak in cartridge filter cleaner if necessary or at every other regularly scheduled cleaning.
- E.** Clean o-ring on filter canister and apply a light film of white grease to o-ring. Rinse filter cartridge thoroughly before installing.
- F.** Place clean cartridge on filter base.
- G.** Replace dome lid and re-tighten retaining ring.
- H.** Open gate valves.
- I.** Release excess air from filter canister by opening the air relief valve at the top of the filter canister. Do this until water comes out of the valve, then re-tighten.



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

WARNING
Do Not Exceed 104°-
Excessive Temperature Voids Warranty

Timer



TO SET TIMER

- A.** Simply pull out keys to set time desired for the spa to run. (Each key is equivalent to 1/2 hour). We recommend 2 hours a day— one hour in the A.M. and one hour in the P.M.
- B.** Keys left pushed in will turn spa off. (As shown above).
- C.** Turn dial clockwise to set the time of day.
- D.** Your spa will be heated and filtered daily, to the temperature set on the thermostat, for the programmed time.

NOTES

Timer operation — The time clock will turn the low speed pump ON or OFF at times selected by user. This is when the spa water is filtered and heated. (Water will heat to temperature set on thermostat, provided running time is adequate). Unit heats 5° to 7° per hour with cover on (220 V).

For ease of operation, use the no freeze protection during the initial starting and heating of your spa. No freeze protection is the same as automatic, with lower temperature setting.

NOTE: Timeclock will not function properly if only 1 pin is pulled out. It is necessary to have at least 2 pins pulled out to activate the time clock properly.

USE NO ACID,
Tri-Chlor or Algecide Solutions-
They Ruin Acrylic Spas.

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:

- 1.** If the spa is not going to be used, drain completely and store in garage.
- 2.** If you are going to use your spa, set the toggle switch on NO FREEZE PROTECTION. This will allow the spa to stay warm. Do not turn unit off with water in the spa, as frozen water may burst plumbing.
- 3.** 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 if using an Ozonator, or once every 3 months if not using an Ozonator, and filled with clean tap water. There are two recommended methods of spa draining.

METHOD ONE:

- 1.** Turn off power at breaker.
- 2.** Hookup a garden hose to the hose bib located in spa equipment area and open hose bib.
- 3.** 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.

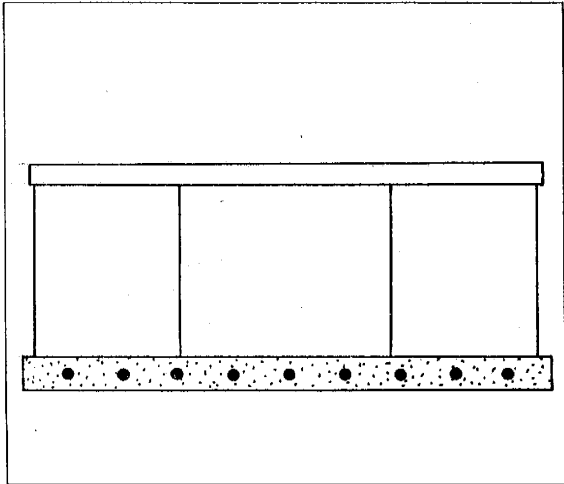
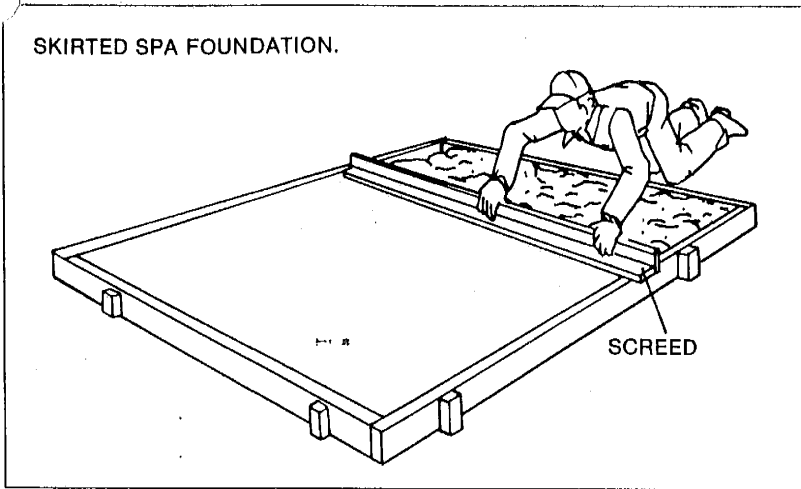
METHOD TWO:

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

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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. Tie rods together with bailing 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 (depending on model) will either be located on the control box or on the control panel. If you have a top mounted thermostat cable, follow the cable from the top, down to the control box, loosen the set screw, turn thermostat knob clockwise until it stops, then reconnect. This will ensure both are set on maximum setting.
- 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: Reset **Red Button** on control box.
- 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.

PUMP WILL NOT PRIME

- PROBABLE CAUSE #1:** No water in pump.
RECOMMENDED ACTION: Make sure water level in spa is midway in skimmer wall fitting.
- 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.

Trouble Shooting Guide

JETS WON'T COME ON

PROBABLE CAUSE #1: Pump not primed.

RECOMMENDED ACTION: Refer to pump priming.

PROBABLE CAUSE #2: Air tubing disconnected.

RECOMMENDED ACTION: Check air line tubing to see if disconnected at either end of the tubes.

PROBABLE CAUSE #3: Gate Valves closed.

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

PROBABLE CAUSE #4: Operation of spa with doors open.

RECOMMENDED ACTION: Doors must be closed all the way because of the door interlock safety system.

NOTE: On models equipped with door interlock safety system.

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: Hand 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.