




Owner's Manual

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) A green colored terminal or a terminal marked G, GR, Ground, Grounding, or the international symbol*  is located inside the supply terminal box or compartment. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors supplying this equipment.

**IEC Publication 417, Symbol 5019.*

(3) At least two lugs marked “BONDING LUGS” are provided on the external surface or on the inside of the supply terminal box or compartment. To reduce the risk of electric shock, connect the local common bonding grid in the area of the hot tub or spa to these terminals with an insulated or bare copper conductor not smaller than No. 6 AWG.

(4) All field-installed metal components such as rails, ladders, drains or similar hardware within 3m of the spa or hot tub shall be bonded to the equipment grounding bus with copper conductors not smaller than No. 6 AWG.

(5) **SAVE THESE INSTRUCTIONS.**

WARNING: Children should not use spas or hot tubs without adult supervision

and

AVERTISSEMENT: Ne pas laisser les enfants utiliser une cuve de relaxation sans surveillance

WARNING: Do not use spas or hot tubs unless all suction guards are installed to prevent body and hair entrapment

and

AVERTISSEMENT: Pour éviter que les cheveux ou une partie du corps puissent être aspirés, ne pas utiliser une cuve de relaxation si les grilles de prise d’aspiration ne sont pas toutes en place

WARNING: People using medications and/or having an adverse medical history should consult a physician before using a spa or hot tub

and

AVERTISSEMENT: Les personnes qui prennent des médicaments ou ont des problèmes de santé devraient consulter un médecin avant d’utiliser une cuve de relaxation

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

and

AVERTISSEMENT: Les personnes atteintes de maladies infectieuses ne devraient pas utiliser une cuve de relaxation

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

and

AVERTISSEMENT: Pour éviter des blessures, user de prudence en entrant dans une cuve de relaxation et en sortant

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

and

AVERTISSEMENT: Pour éviter l’évanouissement et la noyade éventuelle, ne prendre ni drogue ni alcool avant d’utiliser une cuve de relaxation ni quand on s’y trouve

WARNING: Pregnant or possibly pregnant women should consult a physician before using a spa or hot tub

and

AVERTISSEMENT: Les femmes enceintes, que leur grossesse soit confirmée ou non, devraient consulter un médecin avant d’utiliser une cuve de relaxation

Important Safety Instructions

WARNING: Water temperature in excess of 100°F (38° C) may be injurious to your health and

AVERTISSEMENT: Il peut être dangereux pur la santé de se plonger dans de l'eau à plus de 38° C

WARNING: Before entering the spa or hot tub measure the water temperature with an accurate thermometer

and

AVERTISSEMENT: Avant d'utiliser une cuve de relaxation mesurer la température de l'eau à l'aide d'un thermomètre précis

WARNING: Do not use a spa or hot tub immediately following strenuous exercise

and

AVERTISSEMENT: Ne pas utiliser une cuve de relaxation immédiatement après un exercice fatigant

WARNING: Prolonged immersion in a spa or hot tub may be injurious to your health

and

AVERTISSEMENT: L'utilisation prolongée d'une cuve de relaxation peut être dangereuse pour la santé

WARNING: Do not permit electric appliances (such as a light, telephone, radio, or television) within 1.5m of the spa or hot tub

and

AVERTISSEMENT: Ne pas placer d'appareil électrique (luminaire, téléphone, radio, téléviseur, etc) à moins de 1.5, de cette cuve de relaxation

WARNING: Maintain water chemistry in accordance with manufacturer's instruction and

AVERTISSEMENT: La teneur de l'eau en matières dissoutes doit être conforme aux firectives du fabricant.

HYPERTHERMIA

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 body temperature of 37° C. The symptoms of hyperthermia include drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia include

- (a) unawareness of impending hazard;
- (b) failure to perceive heat;
- (c) failure to recognize the need to exit spas;
- (d) physical inability to exit spa;
- (e) fetal damage in pregnant women; and
- (f) unconsciousness and danger of drowning.

WARNING: The use of alcohol or drugs can greatly increase the risk or fatal hyperthermia in hot tubs and spas

and

AVERTISSEMENT: La consommation d'alcool ou de drogue augmente considérablement les risques d'hyperthermie mortelle dans une cuve de relaxation.

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IMPORTANT SAFETY INSTRUCTIONS

**Caution: Risk of electrical shock.
Read and follow all 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 this unit to connect a minimum No. 6 AWG (5.15 mm²) solid copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5 m) of the unit.
4. **Danger:** Risk of Injury.
 - d) Never connect unit to a power supply with a load controller.

IMPORTANT SAFETY INSTRUCTIONS

5. **Danger:** Risk of Accidental Drowning. Extreme caution must be exercised to pre-vent unauthorized access by children. To avoid accidents, ensure that children cannot use this spa unless they are supervised at all times.
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 Electrical Shock. Install at least 5 feet (1.5 m) 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. 6 AWG (5.15 mm²) solid copper conductor attached 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 a spa.

A licensed electrician should make the final electrical connections.

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. This disconnecting means must be readily accessible for operation but installed at least 5 ft. (1.5 m) from the spa as required to comply with local code requirements.

Install to provide drainage of compartment for electrical components.

9. **Warning:** To reduce the risk of injury:
 - a) The water in a spa 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.
 - 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 100°F (38°C).
 - 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.

8. SAVE THESE INSTRUCTIONS.

Do's and Don'ts

Do

- Replace your cover immediately after use.
- Be aware of the dangers of a wet and slippery surface. Use caution when entering and exiting your spa.
- Have a licensed electrician make all final electrical connections.
- Keep your water chemistry correctly balanced. Untreated spa water will cause problems with your spa and equipment as well as being a health risk.
- Clean your filter monthly.
- It is recommended you position the spa in such a way as to leave adequate room to access all sides for maintenance purposes.
- Use a bathing cap with long hair.
- Refer to information on hyperthermia on this page.
- Use only genuine Coleman Spas' Spa Care products for the best performance and to keep your water properly balanced for years of enjoyment. (See p. 23)

Don't:

- Use the spa at 104°F (40°C) for long periods of time. Do refer to information on hyperthermia below.
- Use an extension cord to power your spa.
- Allow anyone to stand on the spa cover. It is not designed to support weight.
- Power the spa unless it is filled with water to the water level mark on the Weir door.
- Operate the pump for extended periods of time

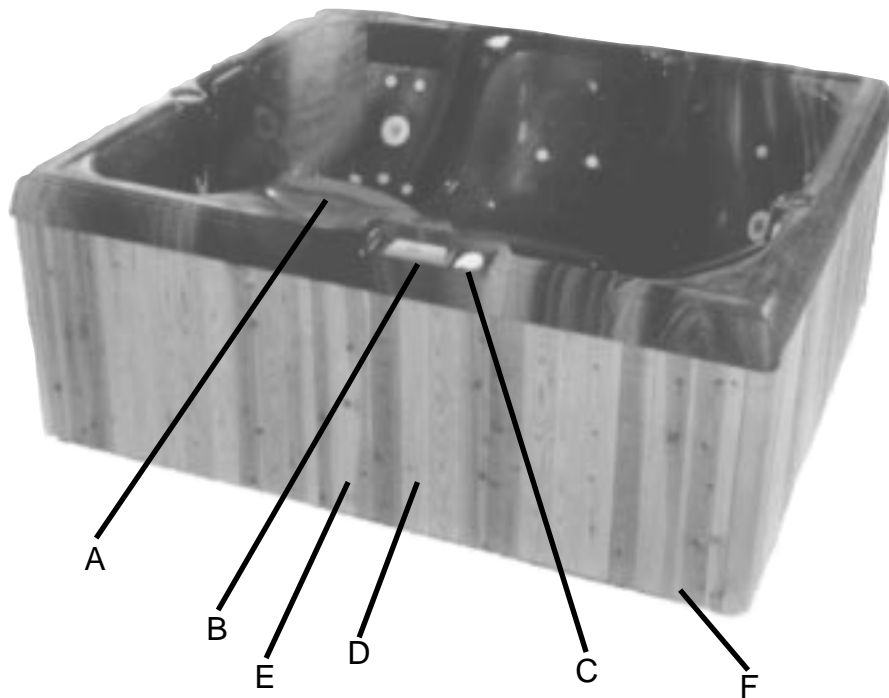
with the cover in place. Extended operation can cause heat build-up and interfere with spa operation.

Hyperthermia

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 body 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 or hot tub, (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.

Spa System Components



Spa System Components

A. Filter Skimmer/Weir Door:

Removes floating debris from the water surface, provides a water return path to equipment, and houses water filter element.

B. Spa Side Control Panel: Used to control temperature setting, pump for jets, and light.

C. Air Controls: Increases or decreases air entering the jets. Close during heating for maximum efficiency.

D. Equipment Pack Service Panel (no user serviceable parts): Spa support system

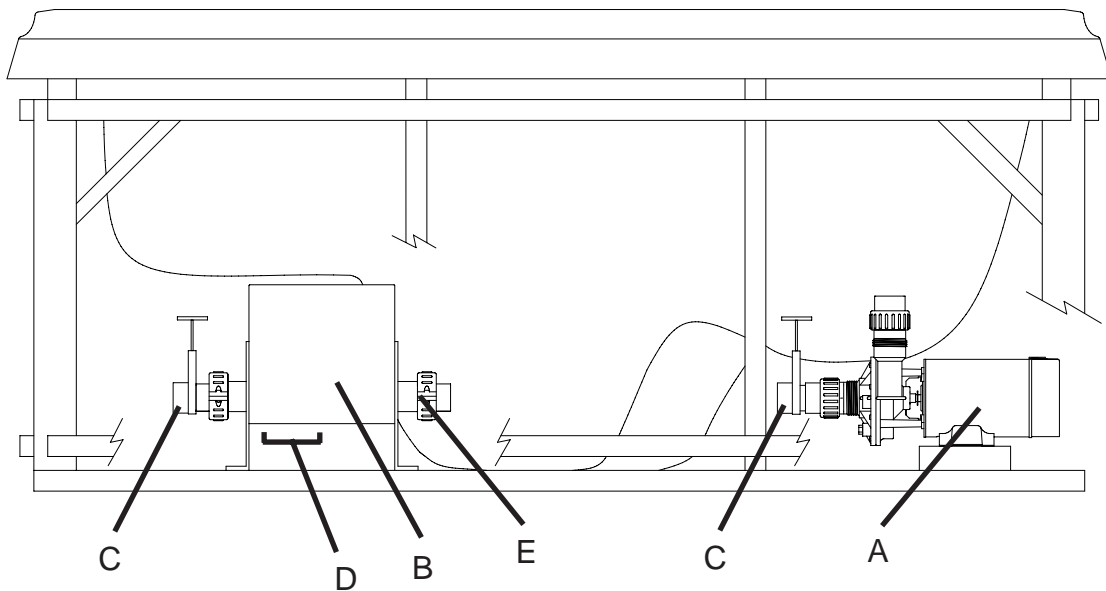
consisting of pump(s), heater, and associated electrical controls (not shown).

E. Drain Access (remove the door panel and adjacent corner posts): Spa drain hoses.

F. Manufacturer's Identification Label: Contains identification information for warranty service.

Spa Components

Reference Only. Equipment is not always as shown.



Note: No consumer serviceable parts.

- A. Pumps:** Low speed for efficient water circulation during filtration and heating; high speed for maximum action of the jets. The pump functions are activated by the topside controls.
- B. Warning and Installation Label:** Contains important safety information and installation instructions.
- C. Slice Valve:** Used to shut off water flow from the spa to the equipment while servicing. It should be open and locked during normal operations.
- D. Electrical Connections:** The electrical components connect here. All existing connections should be intact.
- E. Heater Assembly:** Thermostatically controlled and equipped with an overheat safety shut-off.

Spa Installation

Danger: Risk of electrical shock. Install at least 5 feet from all metal surfaces.

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/NFPA70-1987. The disconnecting means must be readily accessible but installed at least 5 feet (1.5 meters) from the spa water.

Site and Positioning

Locate the spa on solid, level foundation or flooring. Keep in mind the weight of the filled spa (in excess of 4,000 lbs. on some models). If you have any doubts about the load bearing ability of your chosen site, contact an architect, your building department or a building contractor. The entire perimeter of the spa cabinet and the spa bottom must be evenly supported.

If your spa is installed outdoors, we recommend that you provide a concrete pad for the spa to rest on (8'x 8'x 4" level pad). Failure to provide a level surface could structurally damage your spa and will void the warranty.

Installation must provide for drainage for the electrical compartment. The spa must be installed to allow access for service and maintenance; therefore, below grade level installation is not recommended.

Outdoor Installation

Keep the following additional factors in mind when installing your spa outdoors:

1. Local codes pertaining to fencing.
2. Local electrical and plumbing codes.
3. View from your house.
4. Wind direction.
5. Exposure to sunlight.
6. Location in regard to trees(falling leaves and shade).
7. Dressing and bathroom location.

8. Storage area for maintenance equipment and chemicals.
9. Location to facilitate adult supervision.
10. Landscaping and nighttime lighting.
11. Access to equipment cabinet panels.
12. Power supply location and foot traffic.

Indoor Installation

Keep the following additional factors in mind when installing your spa indoors:

1. Indoor spas promote high humidity, so a means of decreasing this humidity must be provided. This can be accomplished by using either ventilation fans or oversized de-humidifiers. Consult your dealer.
2. Floor drains must be provided to drain off water which may cause walking hazards and/or water damage. No carpeting, ceramic tile is preferred.
3. Floor area should be flat and non-skid.
4. Walls, ceilings, woodwork should be of materials capable of withstanding high humidity (redwood, cedar).
5. Be sure floor load bearing capacities are adequate to support the concentrated spa weight.
6. Spas should be double checked for leaks before installing to avoid possible water damage.
7. Indoor sunrooms are capable of maintaining high ambient temperatures which may effect the spa water temperature. It is not recommended that you operate your filter cycles for longer than 6 hours under these conditions.

Caution: Risk of electrical shock. Read and follow all instructions.

Electrical Information

Ground-Fault Circuit-Interrupter

A **qualified electrician** shall connect the spa to a circuit protected by a GFCI. This is a requirement by the National Electric Code (NEC), ANSI/NFPA 70 and is in compliance with Underwriter's Laboratories, INC .

Important Safety Instructions

Prior to performing any service to the spa equipment, turn off all primary electrical power at the main circuit breaker or disconnect panel. All field electrical connections can be made by removing the front panel of the electrical control box. To gain access to the control box you must remove the equipment compartment access panel.

All electrical connections to this spa package must be accomplished by a qualified licensed electrician in accordance with the National Electrical Code and in accordance with local electrical codes in effect at the time of installation.

All connections should be made in accordance with the wiring diagram in the control box.

This equipment is designed to operate on 60Hz alternating current only, at a voltage of 120 or 240 volts as required.

Connections should be made using copper conductors only. The connecting wire and circuit breakers or fuses must all be sized to accommodate the Total Ampere load as specified on the equipment label.

ALL UNIONS MUST BE HAND-TIGHT AND ALL SLICE VALVES MUST BE LOCKED IN THE "OPEN" POSITION BEFORE FILLING OR REFILLING THE SPA!

Installation Options

California Cooperage

The California Cooperage models 103 and 105 are convertible to either 120 volt or 240 volt electrical service. Model 107 can only be connected to a 240 volt electrical service.

120 Volt Installation

Permanently Connected

Model:

- The California Cooperage model 103 and 105.

Electrical Requirements:

- 120 Volts, 60Hz, Single Phase, 30 amp. or *20 amp 3 wire service (including ground).

***20 Amp Option**(see J8 diagram on p10)

The heater can only be activated with the pump on low speed. Only the light can be

operating at the same time without disabling the heater. See your authorized Coleman Spas dealer to select this option.

- California Cooperage spas installed for 120 volt operation require a 3 wire, 30 amp., 120 volt subfeed in non-metallic pipe to the spa equipment compartment (line 1, neutral, and ground). Refer to wiring diagram on page 20. A green colored terminal (or wire connector marked "G", "GR", "Grounding") is provided in the control box. To reduce the risk of electrical shock, connect this terminal or connector to the grounding terminal of your electrical service or supply panel with a continuous green insulated copper wire equivalent to the circuit conductor supplying this equipment, but no smaller than No. 12 AWG. In addition, a second pressure wire connector is provided on the surface of the control box for bonding to local ground points. To reduce the risk of electrical shock, this connector should be bonded with a No. 6 AWG copper wire to any metal ladders, water pipes, or any metal within 5 feet of the spa. Coleman recommends using copper wire for all electrical connections.

240 Volt Installation

Permanently Connected

Model:

- The California Cooperage models 103, 105, and 107.

Electrical Requirements:

- 240 Volts, 60Hz, Single Phase, 50 amp., 4 wire service (including ground).
- ***30 Amp Option**(see J8 diagram on p10)

The heater can only be activated with the pump on low speed. Only the light can be operating at the same time without disabling the heater. See your authorized Coleman Spas dealer to select this option.

Units to be operated at 240 volts must have all electrical connections made by a qualified electrician in accordance with the National Electric Code and in accordance with all local electrical codes in effect at the time of installation.

A hole can be drilled in the pedestal or base of the unit to bring the conduit to the equipment compartment.

Start Up Procedures

- California Cooperage spas installed for 240 volt operation require a 4 wire, 50 amp., 240 volt subfeed in non-metallic pipe to the spa equipment compartment (line 1, line 2, neutral, and ground). Refer to wiring diagram on page 21. A green colored terminal (or wire connector marked “G”, “GR”, “Grounding”) is provided in the control box. To reduce the risk of electrical shock, connect this terminal or connector to the grounding terminal of your electrical service or supply panel with a continuous green insulated copper wire equivalent to the circuit conductor supplying this equipment, but no smaller than No. 12 AWG. In addition, a second pressure wire connector is provided on the surface of the control box for bonding to local ground points. To reduce the risk of electrical shock, this connector should be bonded with a No. 6 AWG copper wire to any metal ladders, water pipes, or any metal within 5 feet of the spa. Coleman recommends using copper wire for all electrical connections.

Jumper J8 Settings			
Input	Jumper Position	Heater & Hi Pump	Heater & Low Pump
120V/20A	20	No	Yes
120V/30A	50	Yes	Yes
240V/30A	20	No	Yes
240V/50A	50	Yes	Yes

Note: Never operate the spa when the water level is below water level mark on weir door. It can damage the pumps and heater and is potentially dangerous.

The UL and the NEC (National Electric Code) both dictate that the amperage rating and the amperage requirements be listed on all electrical appliances. Coleman Spas, Inc. supplies both the rating and the requirements printed on our spas and in our manuals. The rating merely designates a class or range of amperages. For example, an appliance rated at 40 amps may actually draw as little as 36 amps or as much as 44 amps. But it is rated at 40 amps regardless. In contrast, the requirement listed on an appliance states the size of load that the wiring, overcurrent protective device, etc. must be capable of supporting in order to supply current to this appliance. This requirement includes a built-in safety

factor. Home inspectors, licensed electricians, and UL technicians receive training explaining the difference between these two terms.

The NEC states: "The ampacity of the branch-circuit conductors, and the rating or setting of overcurrent protective devices, shall not be less than 125% of the total load of the nameplate rating" see article 680-41h of the NEC and UL section 63.1.

(UL Device Rating) times 125% = (Device Requirements)

(40 Amperes) times 125% = (50 Amperes)

Therefore a spa with a rating of 40 amperes will need an overcurrent protective device and copper wiring capable of handling 50 Amperes.

Start Up Procedures

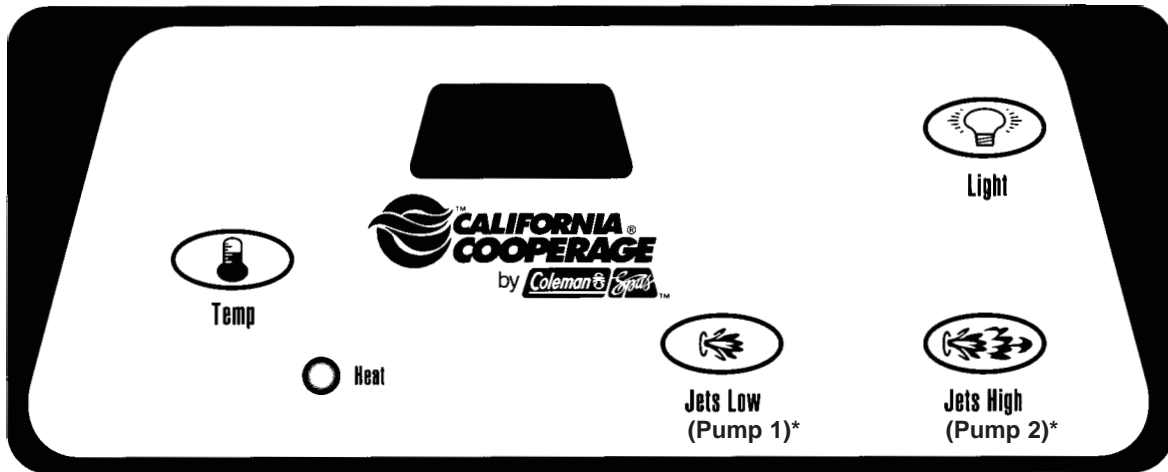
Follow recommendations for site location and electrical connection.

1. Fill the spa through the filter hole to the water line on the weir door with tap water. Never use “softened” water in your spa.
2. Turn power on to unit at circuit breaker or disconnect.
3. Open the air controls and press the Jets button twice. Water should come from the therapy jets. If water flow is not established, turn off jets and see Priming Spa (page 17).
4. Add chemicals. See Chemical treatment and Water Maintenance section (pages 13-15).

Follow Operating Instructions for your particular model and set the spa to heat to the desired temperature. Initially you may find that the spa requires 12 to 14 hours on 240 Volt installations to reach temperature or up to 18 hours on 120 installations. Keep your thermal cover on the unit and close the air controls to help the heating process.

Important: Do not operate the spa without full water flow.

Operating Instructions



*107 Series only.

California Cooperage Series Control System:

The Spa Control System activates the different modes of Spa Operation on the California Cooperage series.



Light

Touch this pad to turn the spa light on. The light will automatically turn off after 60 minutes of operation.



Jets

On models 103 & 105, touch the Jets Low pad once to activate the filtration pump. Touch the Jets High pad to activate filtration pump in high speed.



Touching either pad twice in succession will turn the pump off.

The filtration pump may stay on when you try to deactivate it due to Automatic Spa Control.

Note: Model 107 spas have two pumps, the first touch of the Pump 1 pad will turn on the low speed of the filter pump, the second touch will turn it on high speed and third touch will turn the pump off. The Pump 2 pad controls the single speed therapy pump: one touch turns it on, and the second touch turns it off.

Automatic Spa Control

The filtration pump will start automatically on low speed when the heater is turned on, and when a filter cycle is activated. If automatic activation occurs,

the filtration pump cannot be turned off with the “Jets” or “Pump1” pads; however, the filtration pump may be started in high speed. Whenever the filtration pump is started it will automatically turn off after 30 minutes of operation.

Filtration

There are two filter cycles. The first will turn on after the circuit breaker is turned on. The second filter cycle will turn on twelve hours after the first filter cycle turns on. The filter cycles are factory set at three hours each.

Example: Spa is plugged in at 8 a.m.
 Filter cycle one: 8 a.m. - 11 a.m.
 Filter cycle two: 8 p.m. - 11 p.m.

The filtration time may be adjusted by touching the Temp pad and then the Jets Low (Pump 1) pad to access the filter durations. Touch the Temp pad to adjust the cycles from 3, 4, 5, or 6 hours. Touch the Jets Low (Pump 1) pad to exit.

To change the starting times of your daily filtration cycles, you must turn off your circuit breaker and turn it back on at the desired start time for the first filter cycle.

You can manually start a clean-up cycle following the use of your spa by turning on the low speed pump. The low speed pump will run for 4 hours and then automatically shut off.

Safety Features

Note: Ozone systems will only run during the filter cycles. If a pad is touched, the ozonator will be disabled for 30 minutes from the last time a pad was touched.



Temperature Control

The spa water temperature is controlled by touching the set “Temp” pad. The maximum set temperature is 104°F (40° C) and the minimum set temperature is 80°F (27° C). When the pad is touched, the display will show the set temperature. Touching the pad a second time will cause the set temperature to increase or decrease depending on what direction was last chosen. Each successive touch 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. Touch the pad to display the set temperature, and again to make the temperature change in the desired direction. The set temperature read-out flashes, the actual water temperature read-out does not flash.

Safety Features

Overheat Protection

If the spa should overheat, the display will read “OH” and the spa will shut down. In such a condition, DO NOT ENTER THE WATER. Turn off all power to the spa and contact your dealer or service organization. To reset the spa, touch any panel button.

Flow Switch Detection

The California-Cooperage spas are equipped with a pressure switch to detect pump flow. If a pressure switch malfunctions, i.e. remains closed, the display will constantly read “FL” and the spa will shut down. 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.

If there is reduced water flow, low water level or an obstruction, the heater will be disabled. Check for a low water level, a dirty filter or an obstruction.

Open Sensor (Spa is Deactivated)

If either the high-limit or water temperature sensor malfunction, the display will read “Sn”. Contact your dealer or service organization.

Jets

California Cooperage jets are all individually engineered to provide a unique hydro-massage. The jet system is balanced so that all full size therapy jet nozzles are interchangeable and can be added in any quantity. Depending on the model, your spa will have a combination of the following jets.

Euro Therapeutic Jets (neck jets, lounge and footwell jets) positioned to deliver a concentrated massage on the muscles that need it most!

Euro Ozone Jet (footwell) provides a circular, penetrating massage. This jet is also the entry point for ozone during the automatic filtration cycles. Ozone production is disabled when other functions are activated on the control panel by the spa user.

Euro Turbo Swirl Jets (therapy pulse flow jets located throughout the spa) offer a spinning, pulsating massage action with a v-shaped jet stream.

LS Adjustable Jets (larger jets throughout the spa) create a genuine buoyant, whirlpool effect.

Air Controls

The intensity of the jet action can be controlled by altering the amount of air injected with water through the jets. Your spa has 2 air controls located on the lip of the spa. Each control activates air to specific jets in the spa allowing you to create various combinations and levels of jet action to suit individual taste.

Note: Air controls should be closed during heating cycles for maximum energy efficiency.

Maintenance

Water Chemistry

Water chemistry is critical in a spa system. The combination of high temperature and small volume means that the chemical balance must be watched carefully. Use only genuine Coleman Spas' spa care products for the best performance and to keep your water properly balanced for years of enjoyment. It is recommended that you purchase a Coleman Spas Spa Care Start Up Kit from your dealer. For water usage information, please see the table on page 20.

Sanitizing

Sanitizing your water destroys harmful organisms and keeps your spa healthy and safe. Two commonly used spa sanitizers are bromine and chlorine, with ozone being used as an oxidizer. Chlorine and bromine are chemicals that you will add to the water. Ozone is a gas that is produced by an ozonator and injected into the water. It is important that a residual of sanitizer remain in your water. High water temperature, aeration and use will increase the need for sanitizer. In addition to maintaining a residual, it is important to "shock" your spa water periodically and after heavy use. This addition of substantial amounts of sanitizer super-chlorinates the water and oxidizes non-filterable organic residue. Allow the sanitizer level to drop back to the residual amount before using. Also use your Clean Up Cycle, page 11, after heavy use for additional filtration.

Note: Coleman Spas does not recommend the use of trichlor (swimming pool chlorine) in its spas.

pH Level

pH is a balance of acidity and alkalinity in the water. Maintaining proper pH is important for the effectiveness of your sanitizer, for user comfort and to prevent corrosion of the spa equipment.

Note: Keep a chlorine or bromine residual of 3.0 to 5.0 ppm. Tests should be done daily with your test kit.

Note: Never mix two chemicals together. Never store any chemicals in the equipment compartment.

Note: Do not use muriatic acid to balance pH as it will damage your spa surface and equipment.

Recommended Levels

pH: 7.2–7.6 (Ideal 7.4–7.6)

Sanitizer Residual: 3.0–5.0 ppm

Total Dissolved Solids: 100–200 ppm

Free Available Sanitizer: 3.0–5.0 ppm

Note: Make sure you use fresh test kit reagents. They lose their accuracy with age. (Date the bottle upon purchase). Recommended to use tri-color vs. di-color test kit.

Total Alkalinity: 80–100 ppm ideal for dichlor, and bromine.

Water Maintenance With the Powerworks® Ozonator

Equipping your spa with a Powerworks® Ozonator is a smart decision. The use of ozone in conjunction with the normal spa sanitizing and water balancing chemicals will give you a cleaner, healthier spa environment. Maintenance and chemical usage may be significantly reduced, and you will enjoy cleaner water.

Sanitizing With Ozone

Spas vary in size and the amount that they are used will vary considerably from family to family. For this reason you will need to establish your sanitizing program based upon your own personal use. When using ozone you should start by balancing your water chemistry as you normally would. A spa should run and be ozonated no less than six hours per day. This starting point should not be considered final. If your spa is heavily used, this run time should be increased. Your spa produces ozone during filtration cycles. (See page 11.)

The amount of a residual sanitizer (chlorine or bromine) that you maintain in the water will also vary depending on use. It is recommended that you maintain a residual of 3.0–5.0 ppm. Periodically, and after periods of heavy use, it is necessary to "shock" your spa with additional amounts of sanitizer. Refer to your spa care products for further information.

Maintenance

Specialty Chemicals

Although ozone will reduce the need for specialty chemicals, it is recommended to always have some on hand. There may come a time when you will be required to add some of these due to heavy usage of the spa or when changing the water.

If you are in an area which has metals in the source water, a specialty chemical program should be

followed to avoid staining. Use only genuine Coleman Spas' spa care products for the best performance and to keep your water properly balanced for years of enjoyment.

These guidelines cover the most common procedures when operating a spa with ozone. Should you encounter a situation which you don't completely understand, contact your dealer for assistance.

Hot Water Guide

Problem	Cause	Solution
Cloudy Water	<ul style="list-style-type: none"> Inadequate filtration/dirty filter Excessive oils/organic matter Improper sanitation/bacteria High pH and/or high alkalinity Suspended particles/organic matter High total dissolved solids (TDS) 	<ul style="list-style-type: none"> Check to make sure the filter is running properly/Clean filter with a filter cleaner or degreaser. Shock the spa with a chlorine or bromine sanitizer/shock or other shock treatment product. Increase sanitizer level to balance water and shock if needed. Adjust pH; add appropriate sodium bisulfate product. Use clarifier <p>Note: If using an ozone generator, do not use polymer based clarifiers.</p> <ul style="list-style-type: none"> Depending on the severity-drain the spa to half and refill; or drain the spa completely, clean and refill.
Water Odor	<ul style="list-style-type: none"> Excessive organics/too many chloramines insufficient free available Improper sanitation Inadequate filtration Low pH 	<ul style="list-style-type: none"> Shock the spa with a chlorine or bromine sanitizer/shock or other shock treatment product. Increase sanitizer level to balance water; shock if needed. Check to make sure the filter is running properly/Clean filter with a filter cleaner or degreaser. Raise pH with sodium bicarbonate product. If metals are present, add chelating agent.
Chlorine Odor	<ul style="list-style-type: none"> Too many chloramines-insufficient free available chlorine Low pH 	<ul style="list-style-type: none"> Shock the spa with a chlorine sanitizer/shock or non-chlorine shock treatment. Adjust pH; raise pH with sodium bicarbonate product.
Bromine Odor/ Yellow Water	<ul style="list-style-type: none"> Low pH 	<ul style="list-style-type: none"> Adjust pH; raise pH with sodium bicarbonate product.
Musty Odor	<ul style="list-style-type: none"> Bacterial or algae growth 	<ul style="list-style-type: none"> Shock the spa with a chlorine or bromine sanitizer/shock or equivalent shock treatment product. If problem is visible drain, clean, refill and balance spa.
Foaming/Scum Ring Around the Tub	<ul style="list-style-type: none"> Build up of body oils, lotion and chemicals resulting from soap or detergent 	<ul style="list-style-type: none"> Add defoamer; or drain and refill.
Algae	<ul style="list-style-type: none"> pH Imbalance 	<ul style="list-style-type: none"> Adjust pH

	<ul style="list-style-type: none"> • Low free chlorine or bromine concentration 	<ul style="list-style-type: none"> • Shock with a chlorine or bromine sanitizer/shock or other shock treatment product.
Eye Irritation	<ul style="list-style-type: none"> • Low pH • Insufficient free available chlorine 	<ul style="list-style-type: none"> • Raise pH with sodium bicarbonate product. • Shock with a chlorine sanitizer/shock or other shock treatment product.
Skin Irritation/ Rash	<ul style="list-style-type: none"> • Unsanitary/polluted water • Soaking too long • Water temperature too high 	<ul style="list-style-type: none"> • Maintain recommended sanitizer residual at all times; superchlorinate or use a non-chlorine shock treatment. • Soak for smaller intervals, such as 15 minutes. • Reduce water temperature.
Scale	<ul style="list-style-type: none"> • Too much calcium dissolved in water pH and total alkalinity too high 	<ul style="list-style-type: none"> • Add a scale control product. Adjust total alkalinity and pH levels by adding the appropriate sodium bisulfate product; with concentrated scale deposits-drain the spa, scrub the scale off, refill the spa and balance the water.
Erratic pH Test Results/Unusual pH Test Color	<ul style="list-style-type: none"> • Sanitizer level too high • Old pH indicator dye 	<ul style="list-style-type: none"> • Test the ph, when the sanitizer level is below 5 ppm • Replace the pH indicator dye.
Sanitizer Dissipating Too Rapidly	<ul style="list-style-type: none"> • Excessive organics in water • Temperature too high • Low pH • Low pH Corrosion of Metal Fixtures • Low calcium hardness • Low total alkalinity 	<ul style="list-style-type: none"> • Increase shock dosage; add sanitizer; have bathers shower before entering spa. • Reduce temperature. • Raise pH with sodium bicarbonate product. • Use a chelating agent if metals are present. Keep proper pH level (7.2 to 7.6). • Use a chelating agent if metals are present. Maintain minimum 150-200 ppm calcium hardness. • Use a chelating agent if metals are present. Maintain proper alkalinity for type of sanitizer used.

BioQuest

Your spa may be accessorized with one of Bioquest's bromine generating systems. These sanitizing systems generate bacteria killing bromine gas from salt compounds added to your spa's water. They also reduce the amount of chemicals that need to be periodically added to your spa. Please refer to your BioQuest Operator's Manual for further details.

Use only genuine Coleman Spas' Spa Care products for the best performance and to keep your water properly balanced for years of enjoyment.

Spa Cabinet Care

Your custom spa cabinet is made from quality handcrafted redwood or cedar. It has been treated

with a sealer and stain prior to spa assembly to preserve its appearance and help prevent weathering. Further wood protection requirements depend on spa location (indoors or outdoors, sun, shade, etc.), and local climate conditions. **Re-treat 3 to 4 times per year, with an appropriate product recommended by your authorized dealer.**

Cleaning the spa cabinet: Rinse dirt and dust regularly with clear water. To remove stubborn dirt, grime, and mild discoloration, wash with a mild detergent and warm water.

Spa Surface Care and Cleaning

Your spa shell is made of a reinforced acrylic material. A minimum amount of care and cleaning will keep your spa looking new for years.

Use a spa cleaner for residue and lime buildup at the water level of the spa surface. This can be applied to the acrylic surface with a soft cloth and wiped clean. Use small amounts to avoid polluting spa water. It may be necessary to lower the water level 2 to 3 inches before cleaning if heavily soiled at the waterline.

Use common household, non-abrasive cleaners to clean your spa shell. (For example: Lysol Basin, Tub & Tile Cleaner[®]; Glass Plus[®]; Mr. Clean[®]; and Top Job[®], or a mild dishwashing detergent such as Ivory[®] Liquid.) Rinse well and dry with a clean cloth.

Do not allow your spa's acrylic surface to come into contact with products such as acetone (nail polish remover), nail polish, dry cleaning solution, lacquer thinners, gasoline, pine oil, etc.

Remove dust and dry dirt with a soft, damp cloth.

Clean grease, oil, paint and ink stains with isopropyl (rubbing) alcohol.

Avoid using razor blades or other sharp instruments that might scratch the surface.

Important: Do not operate the spa without full water flow.

Filter Maintenance

The removable filter cartridge is located in the filter canister beneath the strainer basket. The filter should be inspected at least **monthly during normal use**, and more often during heavy use.

Keep the filter clean! A clogged filter decreases both performance and water quality.

To clean the filter, simply follow these steps:

(Note: It is not necessary to drain the spa.)

1. Turn the pump off.
2. Remove skimmer lid.
3. Remove strainer basket.
4. Remove filter cartridge from the filter canister by grasping the top and lifting upwards.
5. Soak, filter in filter cleaner/degreaser and hose out filter cartridge, unless replacing with new

cartridge.

6. Place filter cartridge back into filter canister. When the spa is empty the Weir door will block the filter canister. You must hold it out of the way when reinstalling the cartridge. When the tub is full of water the door will float so you will have easy access for installing the filter cartridge.
7. Replace strainer basket and skimmer lid.
8. Turn the pump ON.

In addition to performing normal filter maintenance, it will be necessary to occasionally remove oils that coat the filter reducing filter flow. To remove these oils, soak the cartridge in a plastic pail containing a commercial filter cleaning solution (available from your Coleman Spas dealer or most pool supply stores). Follow the manufacturer's instructions for use.

We suggest that you replace your filter cartridge yearly to maintain optimum performance. Filter maintenance depends on usage. Coleman recommends the filter be cleaned once every 90 days at a minimum, more often after heavy use or if water becomes cloudy.

Draining Spa

Always turn power off to your spa before draining. Immediately after turning the spa back on, lower the temperature setting so the heater will not come on. Keep the heater disabled until you have full flow coming out your jets for several minutes.

The water level in the spa must be kept at its normal level water line mark. **Note:** Evaporation and splashing will cause the water level to drop.

High concentrations of impurities caused by water evaporation, body oils, perfumes, and other contaminants may accumulate in the spa and cannot be filtered out. Consequently, it is advisable to drain your spa and refill it with fresh water every six to eight weeks or more often, depending on the amount of use.

Drain Access

Drain access is on the Control side of the spa behind the U.L. label. Remove both corner posts & door panel to gain access to the drain hoses.

Attach a garden hose to the spa drain faucets and open the valves. Do not attempt to use the pump to drain the spa.

Priming Spa

Be aware that after draining and refilling your spa you may need to discharge air in the system in order for the pump to operate again. Should you experience an air-lock, you can remove the filter and insert a garden hose into the center hole and flush water through the system.

Winterizing

In cold climates where freezing temperatures occur, special care is required to prevent the possibility of damage to the spa, plumbing and equipment due to freezing.

If you plan on using your spa during cold months, be sure your the spa in proper working order. The spa shell has been insulated to provide efficient operation in cold weather areas.

Special Note: If you do not intend to use your spa during the winter months and there is danger of freezing, the spa must be winterized! You must do the following:

1. Turn off all electrical power to the spa.
2. Drain the spa through all of the drain hoses. The drain hoses will not drain off all of the water. You may use a wet-vac to remove the remaining water from the spa. R.V. antifreeze should be added to any remaining water in the spa through the bottom of the skimmer and through the jets. If antifreeze is used, it must be an inhibitor Propylene Glycol such as Dow Frost available through Dow Chemical Distributors.
3. Be sure to drain **all** drain hoses.
4. The filter should be drained, and the cartridge removed and cleaned.
5. Check to see that there is no water in the heater element chamber and pump.
6. Clean your spa as per previous maintenance instructions.

Warning: Turn off electrical supply before removing cabinet panels.

7. Cover your spa with a waterproof, water-shedding, impenetrable cover. Your spa thermal-hard cover will not prevent all moisture from getting into the spa.
8. For further information on blowing out the plumbing lines and winterizing procedures, contact your local dealer.

Note: If you elect not to drain your spa and the temperature is going to be below freezing for extended periods of time, especially 0° F (-19.4° C) and sub zero, it is best to operate the spa heater at high temperature (95°–104°F) (35°–40° C). If the tub is not going to be used and kept in the 100°F (38° C) range, you may have problems if your power goes out. It is wise during these bad weather periods to set the thermostat higher. This will keep the spa water from freezing quickly if you have a power failure. You should check your spa frequently during this time to insure proper operation.

Light Bulb

The Spa light bulb is serviceable from outside the spa. You must remove the cedar panel and insulation closest to the light. Once the panel is removed, locate the bulb holding bracket, twist and pull bracket towards you to change the bulb.

Problem Solving Guide

Problem	Usual Cause	Solution
1. System not operating.	A. House circuit breaker tripped or if OFF position.	A. Reset circuit breaker on home breaker panel.
2. Heater not functioning.	A. Heater mode not selected. B. No power to heater. C. Thermostat set lower than water temperature. D. Heater not operating.	A. Refer to temperature and heater control instructions on pages 12. B. Check house circuit breaker. C. Set to desired temperature. D. Contact dealer.
3. Water not clean.	A. Clogged or blocked floor suction or skimmer. B. Filter clogged (dirty). C. Poor water chemistry. D. Insufficient filtering time. E. Improper maintenance. F. High content of solids in water.	A. Clean floor suction/skimmer. B. Clean or replace. C. See "Chemical Treatment" section. D. Run filtration mode longer. Contact dealer. E. See maintenance section. F. Use clarifier or drain and refill spa.
4. Abnormal water usage.	A. Excessive evaporation and/or splashing.	A. Use spa cover.
5. Overheating.	A. High ambient temperature	A. See page 8, Indoor Installation.
6. Low water flow from jets.	A. Operating in FILTER mode-low speed. B. Clogged or blocked suction or skimmer. C. Dirty filter.	A. Select hi-speed jets. B. Clean floor suction/skimmer. C. Clean or replace.
7. No water flow from jets.	A. Pump not primed. B. House circuit breaker tripped, no power to system. C. Faulty pump or motor. D. Pump surges.	A. See priming section page 17. B. Reset circuit breaker at home panel. C. Contact dealer. D. Low water. Check level on Weir door.

Problem Solving Guide

Problem	Usual Cause	Solution
8. Noisy pump and motor.	A. Clogged floor suction or skimmer.	A. Clean floor suction/skimmer.
	B. Low water level.	B. Add water to normal water level (6" below lip).
	C. Damaged or worn motor bearings.	C. Contact dealer.
9. Water leakage from under spa.	A. Check unions and drain hoses.	A. Contact dealer.
10. No air flow from jets.	A. Air control not open.	A. Open control.
	B. Jet nozzle not seated properly.	B. Check jet nozzles.
	C. Jet nozzle missing.	C. Inspect jets.
11. Motor will not operate.	A. House circuit breaker tripped or in OFF position.	A. Reset circuit breaker
	B. Improper or defective wiring or electrical supply.	B. Contact dealer.
	C. Thermal Overload Protection switch tripped.	C. Auto reset after motor has cooled. Contact dealer if motor continues to cycle.
14. The spa will not shut off	A. Spa trying to heat	A. Check set temperature in Standard mode
	B. 400 Series overlapping filter cycles.	B. Reset filter times.
	C. Spa is in filter cycle	C. Normal. No need to change.

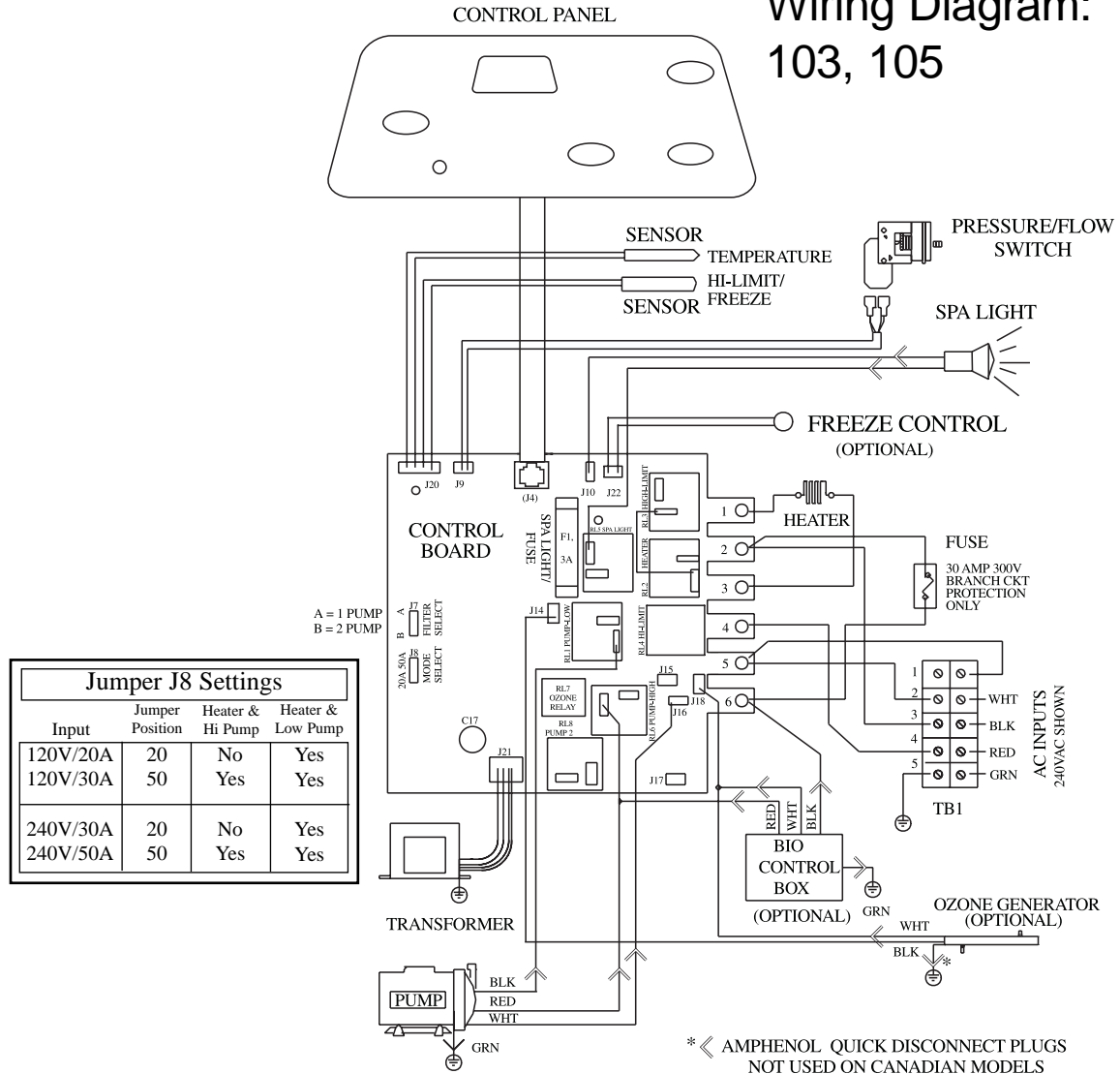
Spa Soaking Guidelines

1. Persons with heart disease, diabetes, high or low blood pressure or any serious illness, and pregnant women should not enter a spa without prior consultation with their doctor.
2. People with skin, ear, genital or other body infections, open sores or wounds should not use the spa because of the possibility of spreading infection.
3. Before entering, look at the water in your spa. If there is cloudiness or foaming, or if a strong chlorine smell is present, the water needs treatment. Soaking in such water greatly increases your chances of getting a skin rash (pseudomonas). Be sure to maintain the water properly. Ask your Authorized Coleman Spas Dealer for guidance.
4. Shower with soap and water before and after using the spa. Showering before use washes away many of the common skin bacteria, and removes lotions, deodorants, creams, etc. Perspiration and lotions will reduce the effectiveness of the sanitizer and lessen the ability of the filter to work efficiently.
5. Enter the spa slowly and cautiously. Be careful of your footing, and allow your body to gradually get used to the water temperature. Leave slowly as well, because your leg muscles may be sufficiently relaxed to make you a bit unsteady, and you may become lightheaded.
6. Soaking for too long makes some people nauseous, dizzy, lightheaded or faint. **Don't soak in 104°F (40°C) water.** If you wish to soak for a longer period of time in high temperatures, leave the spa after 15 minutes, shower, cool down and then return for another brief stay. In lower temperatures (e.g. 98.6°F (37°C)—normal body temperature) most people can comfortably and safely soak for longer periods at one sitting. If you have any questions about what's right for you and your family, consult with your doctor.
7. Be sure you check the water temperature before and while in the spa.
8. Never use the spa while under the influence of alcohol.
9. With any drug or medication, consult with your doctor about potential harmful effects from combined use of the drug and hot water soaking.
10. Never use the spa when you are alone, for safety's sake.
11. Never allow children to use the spa unsupervised.

Technical Specifications

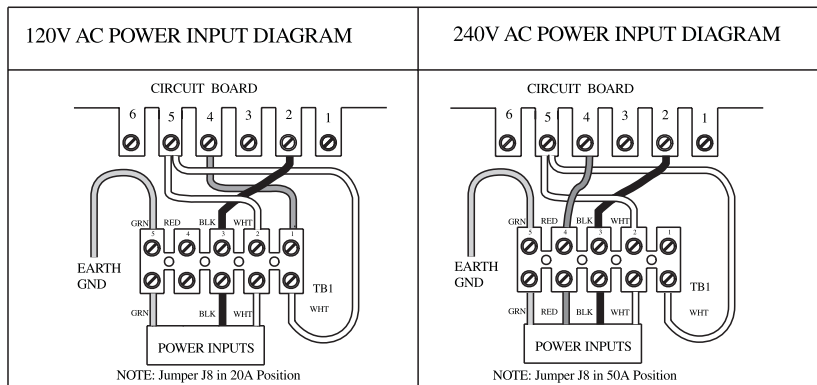
Structural Features	Model 103	Model 105	Model 107
Western Red Select cedar Cabinet	Vertical	Vertical	Vertical
Dimensions (allow 1/4" variance)	73" x 62 1/4" x 29 1/2"	73 5/8" x 83 1/8" x 34"	88 7/8" x 88 7/8" x 34 1/2"
Seating Capacity	3	5	7
Usable Gallons	176	200	325
Weight in lbs(empty/full)	466/1931	600/2268	700/3410
Electrical Requirements	240V, 30A/50A 120V, 20A/30A	240V, 30A/50A 120V, 20A/30A	240V, 30A/50A

Wiring Diagram: 103, 105



Jumper J8 Settings			
Input	Jumper Position	Heater & Hi Pump	Heater & Low Pump
120V/20A	20	No	Yes
120V/30A	50	Yes	Yes
240V/30A	20	No	Yes
240V/50A	50	Yes	Yes

* < AMPHENOL QUICK DISCONNECT PLUGS NOT USED ON CANADIAN MODELS

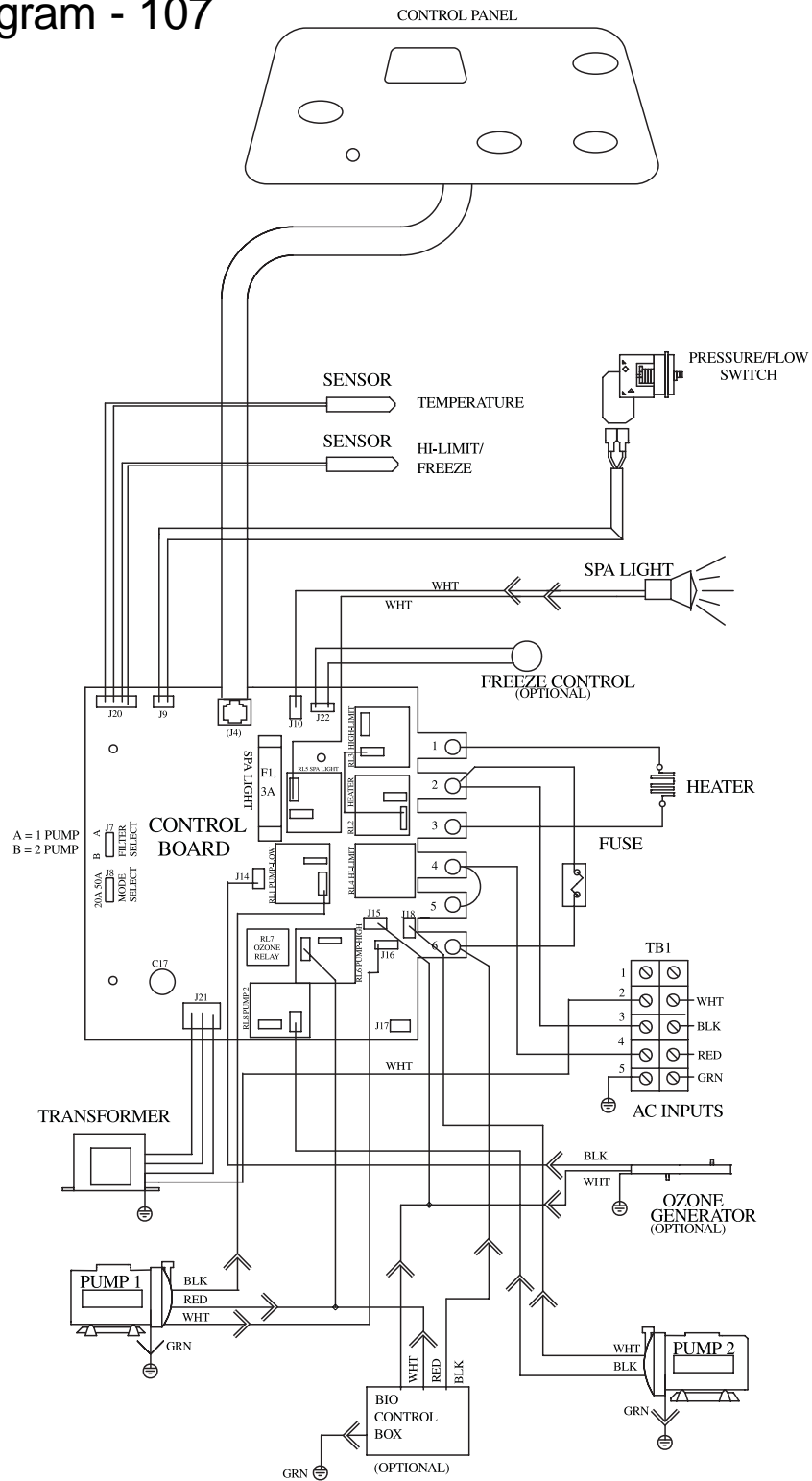


NOTE: Jumper J8 in 20A Position

NOTE: Jumper J8 in 50A Position

CONNECT ONLY TO A CIRCUIT THAT IS PROTECTED BY A GROUND FAULT CIRCUIT INTERRUPTER (G.F.C.I.)

Wiring Diagram - 107



COLEMAN SPAS SPA CARE ACCESSORIES

<u>ITEM/DESCRIPTION</u>	<u>PART NUMBER</u>
Powerworks Ozone System (Series IV)	4401-2355
Powerworks Ozone System (Series II) 120v	4401-2354
Nature2 Purifier	8000-0001
Scum Out (1 pt)	8000-0003
Stain & Scale (1 pt)	8000-0004
Spray & Rinse (1 pt)	8000-0005
Filter Klean (1 lb)	8000-0006
Gardenia Scent (.5 pt)	8000-0007
Jasmine Scent (.5 pt)	8000-0008
Gardenia Pillow	8000-0009
Jasmine Pillow	8000-0010
Liquid pH Up (1 pt)	8000-0011
Liquid pH Down (1 pt)	8000-0012
Go-Brom (1 lb)	8000-0013
Bromine Tabs (1.75 lb)	8000-0014
Bromine Floater (6 oz)	8000-0015
Shock Out (1.25 lb)	8000-0016
Quick Dip Test Strips (Bromine)	8000-0017
Quick Dip Test Strips (Bromine) blister pkg	8000-0020
Metal Protector (1 pt)	8000-0035
Alkalinity Up (1.25 lb)	8000-0036
Quick Dip Test Strips (Chlorine) blister pkg	8000-0018
Quick Dip Test Strips (Chlorine)	8000-0019
Defoamer (pt)	8000-0021
Chlorine (1 lb)	8000-0022
Chlorine (2 lb)	8000-0023
Starter Kit	8000-0024
BioQuest Starter Kit (1)	8000-0049
BioQuest Starter Kit (4)	8000-0029
Bio2 One Shot	8000-0030
Rubber Ducks	8000-0025

Notes

Horizon & Spectrum Series



Owner's Manual

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