



Owner's Manual

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The information in this manual is accurate to the best of Coleman Spas, Inc.'s knowledge. However, Coleman Spas assumes no responsibility for errors or omissions. Nor is any liability assumed for damages resulting from use of the information contained herein.

Congratulations on your purchase of a California Cooperage Spa. Your Owner's Manual provides installation, operation and maintenance instructions. Please review it and keep it for future reference.

Owner's Record Information

Date Purchased _____

Purchased From _____

Installed By _____

Serial Number _____ Model _____

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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. 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 feet (1.5 m) of the unit.
4. (For cord-connected/convertible units)
Danger: Risk of Injury.
 - a) Replace damaged cord immediately.
 - b) Do not bury cord.
 - c) Connect to a grounded, grounding type receptacle only.

IMPORTANT SAFETY INSTRUCTIONS

5. **110 V Cord and plug connected units:
Model 200C**

Connect only to a grounded, grounding type receptacle.
Do not bury the cord.

Warning: To reduce the risk of electric shock, replace damaged cord immediately. Your spa is equipped with a ground fault circuit interrupter (G.F.C.I.) on the end of

the power supply cord. Before each use, with the plug connected to the power supply and the unit operating, push the "Test" button. The unit should stop operating and the "Reset" button should appear. Reset the G.F.C.I. by pushing the "Reset" button. The spa should now operate normally. If the interrupter does not perform in this manner, a ground current is flowing indicating the possibility of electric shock. Disconnect the plug from the receptacle until the fault has been identified and corrected.

6. **Danger:** Risk of Accidental Drowning. Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use this spa unless they are supervised at all times.
7. **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.
8. **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. 8 AWG (8.4 mm²) solid copper conductor attached to the wire connector on the terminal box that is provided for this purpose.
9. **Danger:** Risk of Electric Shock. Do not permit any electric appliance, such as a light, telephone, radio, or television, within 5 feet (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 feet (1.5 meters) from the spa as required to comply with local code requirements.

Install to provide drainage of compartment for electrical components.

10. **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.

- 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.
- Leave access to the equipment area when installing your spa.
- Use a bathing cap with long hair.

Don't:

- Use the spa at 104°F 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.

11. **SAVE THESE INSTRUCTIONS.**

Do's and Don'ts

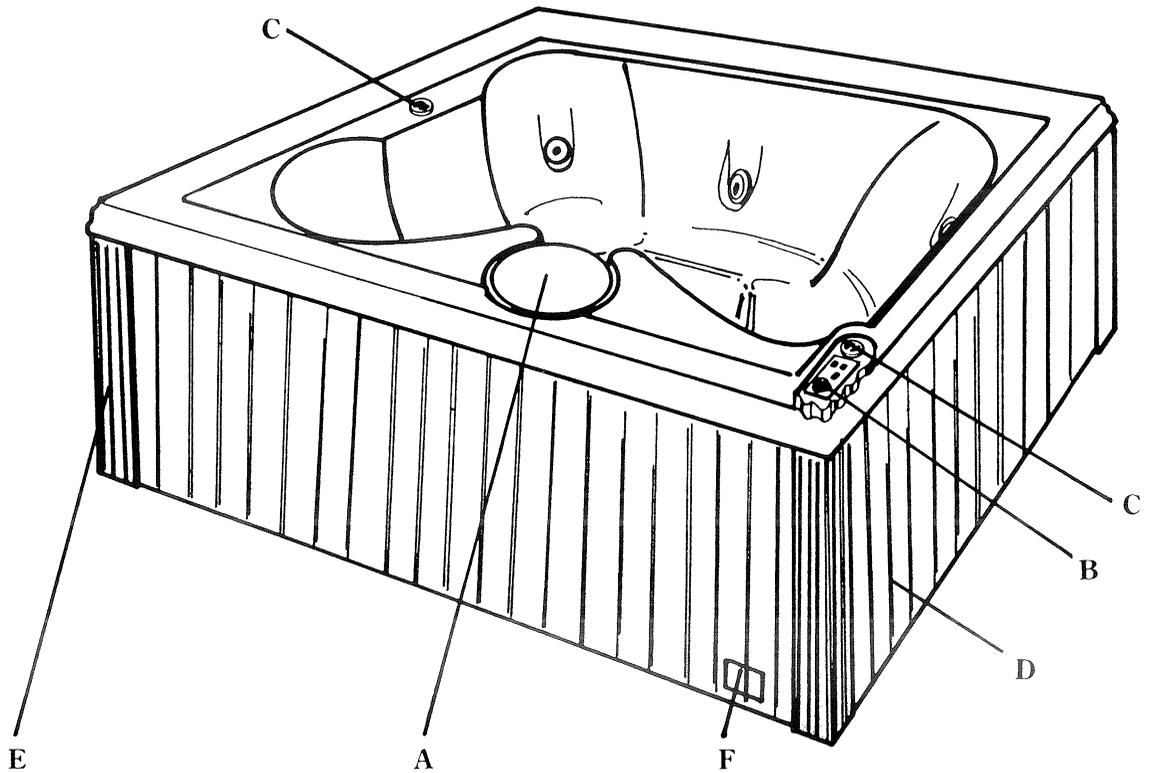
Do

- Replace your cover immediately after use.

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.

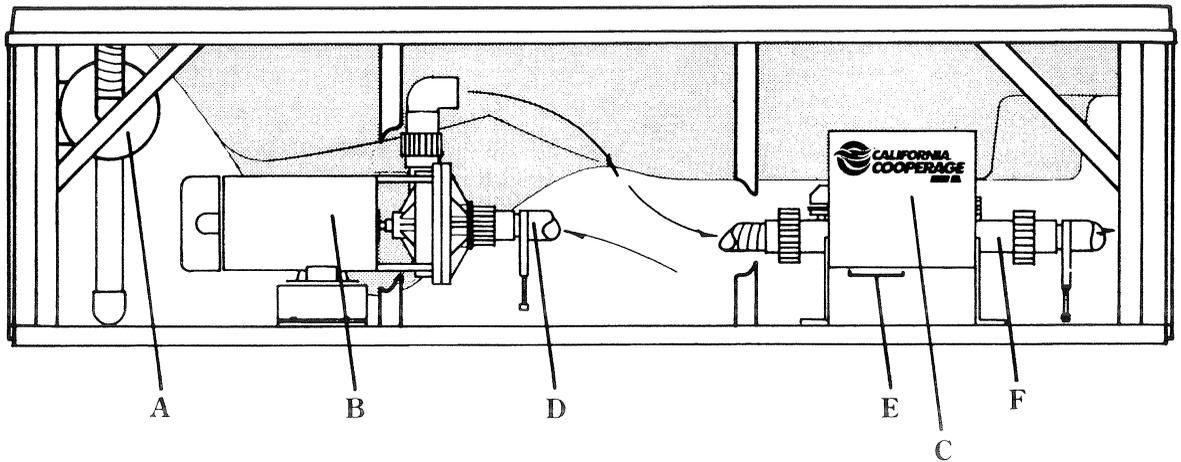


Spa System Components

- 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, bubbler action, 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 2-speed pump, heater, air injectors, and associated electrical controls (not shown).
- E. Drain Access (to left of equipment service panel):** Spa drain faucets.
- 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. Air Injectors:** Provides a large volume of air to the air injectors in the seat of the spa for a vigorous bubble action (located inside compartment).
- B. Pump:** Low speed for efficient water circulation during filtration and heating; high speed for maximum action of the jets. The pump functions are activated by topside controls.
- C. Warning and Installation Label:** Contains important safety information and installation instructions.
- D. Slice Valve:** Used to shut off water flow from the spa to the equipment while servicing. It should be open during normal operations.
- E. Electrical Connections:** The electrical components connect here. All existing connections should be intact.
- F. 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 (8ft.x8ft.x4" 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 and 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 should be provided to drain off water splashed from the spa which may cause walking hazards and /or water damage.
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.

Electrical Information

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

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.

Installation Options

California Cooperage

All California Cooperage models are convertible to either 120 volt or 240 volt electrical service.

120 Volt Installation

Permanently Connected

Models:

- All California Cooperage models.

Electrical Requirements:

- 120 Volts, 60Hz, Single Phase, 20 amp., 3 wire service (including ground).
- California Cooperage spas installed for 120 volt operation require a 3 wire, 20 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. 8 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.

Cord Connected

Models:

- California Cooperage models with a "C" designation only.

Electrical Requirements:

- Factory installed cord with G.F.C.I., 120 Volts, 60 Hz, Single Phase, 20 amp grounded receptacle.

Isolate the power cord from all foot traffic areas to prevent cord damage or tripping accidents. Route the cord through the hole in the side of the cabinet provided for this purpose.

240 Volt Installation

Models:

- All California Cooperage models including "C" designation.

Electrical Requirement:

- 240 Volts, 60Hz, Single Phase, 50 amp., 4 wire service (including ground).

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.

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 20. A green colored terminal (or a wire connector marked

Start Up Procedures

“G”, “GR”, “Ground”, or “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. 8 AWG copper wire to any metal ladders, water pipes, or any metal within 5 feet of the tub.

Start Up Procedures

Follow recommendations for site location and electrical connection.

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.

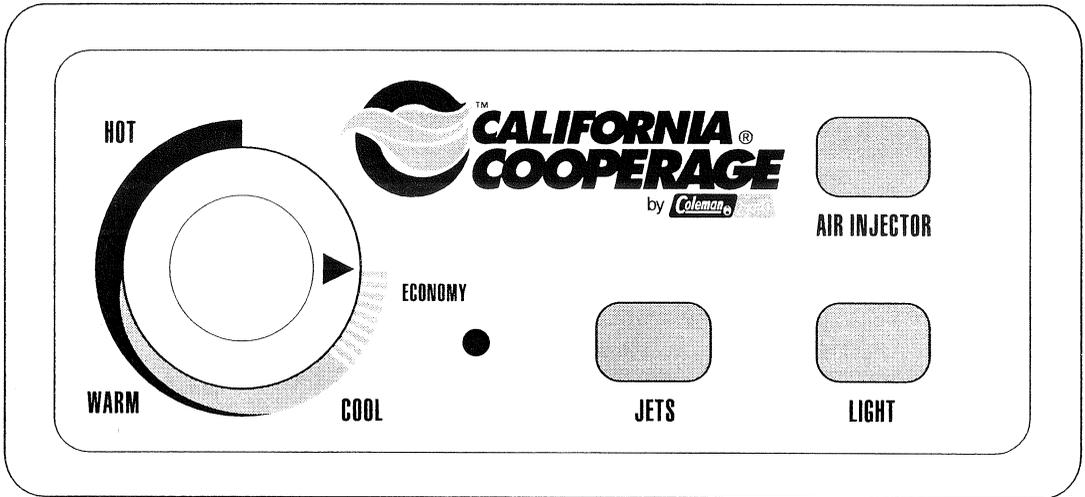
1. Fill the spa through the filter hole to the water line on the weir door with tap water. Never use “softened” water in your spa.
2. Turn power on to unit at circuit breaker or disconnect.
3. Open the air controls and press the Jets button twice. Water should come from the therapy jets. If water flow is not established, turn off jets and see Priming, page 15.

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

4. Add chemicals. See Chemical treatment and Water Maintenance section (page 12).

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.

Operating Instructions



California Cooperage Series Control System:

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

Air Injectors
 Press this pad to start and stop the air injector for aeration from the spa seats. The air injector will automatically stop after 30 minutes of operation. Press the pad again to restart the air injector. The air injector will also automatically run for 20 seconds at the start of the second filter cycle.

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

Jets
 Press this pad once to activate the low speed pump. Press again to activate high speed and again to turn off the pump. The low pump may stay on when you press the button following the high speed pump mode due to Automatic Spa Control.

Automatic Spa Control

The low speed pump will start automatically

when the heater is turned on, and when a filter cycle is activated. If automatic activation occurs, the low speed pump cannot be turned off with the "Jets" pad; however, the high speed pump may be started. Whenever the high speed pump is started it will automatically turn off after 30 minutes of operation.

Energy Control System:

Filtration

There are two filter cycles. The first will turn on after the unit is plugged in or 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 your authorized dealer, it is factory preset for a three hour cycle twice a day. Your dealer can change the filtration cycle time to six hour cycles if additional filtration time is required.

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

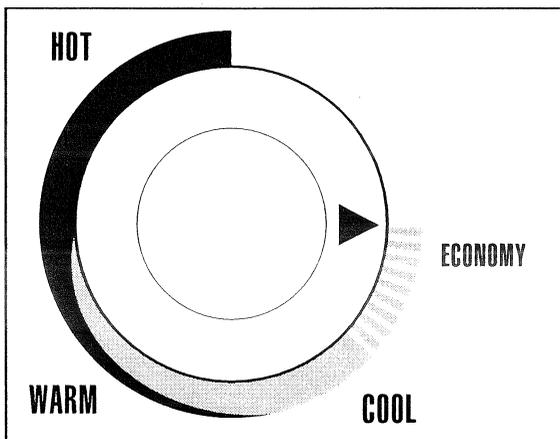
Safety Features

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 2 hours and then automatically shut off.

Note: Ozone systems will only run during standard filter cycles. If interrupted, ozone generation will resume 30 minutes from the last time a pad is pressed.

Temperature Control

The spa water temperature is controlled by the knob on the panel. The coolest setting is approximately 78°F, the maximum temperature is preset to 106.5°F.



As the temperature knob is turned up and the low pump is activated, several seconds after the proper water flow is attained, the heater light will turn on indicating the system is calling for heat.

The economy mode is designed as an energy efficient setting. When set to economy, the spa will reach and maintain 100°F. during filtration cycles and not drop below 80°F. at other times.

Safety Features

Overheat Protection

If the spa should overheat, the Status/Heat LED will flash (one second on, one second off) 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, press any panel button.

Flow Switch Detection

If a pressure switch malfunctions, i.e. remains closed, the Status/Heat LED will indicate the condition by briefly flashing ON, once per second. Contact your dealer or service organization.

Open Sensor (Spa is Deactivated)

If either the high-limit or water temperature sensor malfunctions, the Status/Heat LED will indicate the condition by briefly flashing OFF, once per second. 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.

Jets, Air Controls and Air Injectors

Jets

California Cooperage jets are all individually engineered to provide a unique hydromassage. 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.

Pulse-Flow

Rotating jets deliver a pulsating massage that relax aching muscles.

Comfort-Flow

Patented design generates a high volume/low pressure flow that is fully directional for gentle massage.

Adjusta-Flow

Fully adjustable and directional therapy jets for hydrotherapeutic experience that is tailored to your preference.

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.

Air Injectors

The air injector generates a vigorous air and water massage action throughout the spa via a unique air injector design. The temperature of the air from the injectors is directly related to the ambient air temperature. The following chart outlines the average comfort zone considering ambient air temperature.

	AMBIENT OUTDOOR TEMPERATURE	AIR INJECTOR TEMPERATURE	PERCEIVED SENSATION
	40°	70-80	COOL
AIR INJECTOR	60	90-100	LUKE WARM
COMFORT	70	100-110	WARM
ZONE	80	110-120	WARMER
	90	120-130	VERY WARM
	100	130-140	HOT
COMFORT ZONE—IDEAL AMBIENT AIR TEMPERATURE FOR OPERATING AIR INJECTORS.			
1. Temperatures BELOW this comfort range will cause the water to cool off rapidly. This wastes electricity, as the spa water will have to be reheated.			
2. Temperatures ABOVE this comfort range can cause some discomfort due to your skin sensing the differential between the water and air temperature. Some people are more sensitive than others and will feel discomfort at lower temperatures.			
3. Very warm and hot temperatures may be perceived after about 10 minutes of air injector operation.			

Note: Prior to the second filtration cycle the air injectors are activated for twenty seconds to clear the air injectors and ensure complete filtration.

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. It is recommended that you purchase a chemical start up kit from your dealer.

Sanitizing

Sanitizing your water destroys harmful organisms and keeps your spa healthy and safe. Three commonly used spa sanitizers are bromine, chlorine and ozone. 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 10, after heavy use for additional filtration.

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: 3.5–5.0 ppm

Total Dissolved Solids: 100–200 ppm

Free Available Sanitizer: 3.0–5.0 ppm

Total Alkalinity: 80–100 ppm ideal for dichlor, trichlor, 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 will be significantly reduced, and you will enjoy the cleanest water which won't irritate your skin.

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 10.)

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 large amounts of sanitizer. The clean up cycle, page 110, will provide extra filtration during periods of heavy use.

Specialty Chemicals

Although ozone will greatly 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.

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 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. Add defoamer; or drain and refill.
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 	
Algae	<ul style="list-style-type: none"> pH Imbalance Low free chlorine or bromine concentration 	<ul style="list-style-type: none"> Adjust pH 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.

Maintenance

Problem	Cause	Solution
Skin Irritation/ Rash	<ul style="list-style-type: none">• Unsanitary/polluted water• Soaking too long	<ul style="list-style-type: none">• Keep 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">• Water temperature too high• 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 Sanitizer Dissipating Too Rapidly	<ul style="list-style-type: none">• Sanitizer level too high• Old pH indicator dye• 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">• When the sanitizer level is below 5 ppm, test the pH.• Replace the pH indicator dye.• 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.

Spa Cabinet Care

Your custom spa cabinet is made from quality handcrafted redwood. 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 with an appropriate product recommended by your authorized dealer upon installation and 3-4 times per year.**

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.

Draining Spa

Always turn power off to your spa when draining. Do not turn the spa heater back on 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 behind the corner molding to the left of the equipment service panel. Simply remove the two screws holding the corner molding on and pull the drain hoses out.

Then 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.

After draining, you may want to reset your filter cycles.

Cleaning

Your spa shell is formed by two layers of plastic 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.

Never use abrasive cleaners.

Do not allow your Lucite XL 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.

Filter Maintenance

The removable filter cartridge is located in the filter canister behind the skimmer. The filter should be inspected at least monthly during normal use, and more often when spa use is heavy.

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 on top of spa.
3. Remove strainer basket.
4. Remove filter cartridge from the filter canister by grasping the top and lifting upward.
5. Soak with filter cleaner/degreaser and hose out filter cartridge, unless replacing with new cartridge.
6. Place filter cartridge into filter canister until cartridge slips over male flange at bottom of canister.
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.

Winterizing

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

If you plan on using your spa during cold months, be sure your pump and heater are in good 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 spa of all water. If you cannot draw off all of the water (especially from hoses) R.V. antifreeze should be added to the remaining water. 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 air injector lines.
6. Clean your spa as per previous maintenance instructions.
7. Cover your spa with a waterproof, water-shedding, impenetrable cover.
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° and sub zero, it is best to operate the spa heater at high temperature (90°–100°F). If the tub is not going to be used and kept in the 100°F 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.

Light Bulbs

Warning: Turn off electrical supply before removing cabinet panels.

The Spa light bulb is serviceable from outside the spa. You must remove the redwood panel closest to the light. Once the panel is removed, look for the bulb holding bracket 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. B. Power cord not connected to outlet.	A. Reset circuit breaker on home breaker panel. B. Connect power cord to outlet.
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 9–15. 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 6, 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. Unit not plugged in. C. House circuit breaker tripped, no power to system. D. Faulty pump or motor. E. Pump surges.	A. See priming section page 15. B. Plug unit in. C. Reset circuit breaker at home panel. D. Contact dealer. E. Low water. Check level on Weir door.

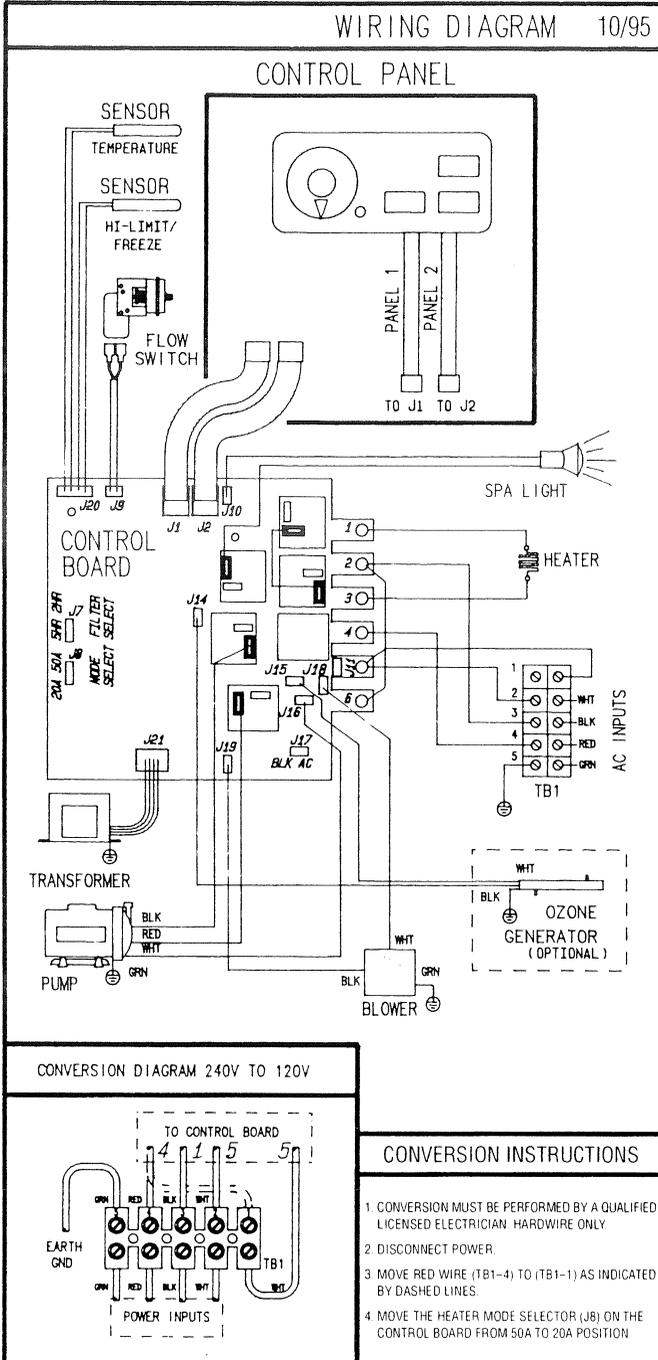
Problem Solving Guide

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. 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.
12. Air injector motor will not operate.	A. OFF mode selected.	A. Check selection.
	B. House circuit breaker tripped or in OFF position.	B. Reset circuit breaker on circuit breaker panel.
	C. Motor or control defective.	C. Contact dealer.
13. Black powder film around water line.	A. Wearing in of air injector brushes.	A. Will disappear after use.
14. The spa will not shut off	A. In a filter cycle	C. Normal. No need for service.

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—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.

Wiring Diagram



Safety Sign

The safety sign enclosed with your Owner's Manual should be permanently installed where visible to the users of the spa.

The sign is adhesive backed and there are also four screws supplied for mounting on rough surfaces.

It is very important that you, as a spa owner, review the important safety instructions before you operate your spa. It is equally important that you instruct all users, even occasional ones, as to the warnings associated with spa use.

You may obtain additional signs or replacement ones by contacting:

COLEMAN SPAS, INC.
Customer Service
25605 South Arizona Avenue
Chandler, Arizona 85248

Limited Warranty Summary

Please see the Warranty Card included with your product for complete warranty information.

Please note that in order to perform prompt warranty service it is extremely important that you return your warranty card complete with model and serial number to Coleman Spas, Inc. immediately upon installation.

Coleman Spas, Inc. Provides a limited warranty to our customers. It applies to the spa structure, surface, most plumbing, the pump, heater, bubbler, and controls.

The warranty has limitations. These include improper maintenance, improper installation, misuse, abuse, accident, fire, normal wear and tear or improper water maintenance. Unauthorized modifications of the spa may void the warranty. Replacement costs associated with transportation, removal, and reinstallation are the sole responsibility of the spa owner.

This manual refers to spa models produced after October 1, 1994. Coleman Spas, Inc. reserves the right to make changes in design or material of its products at any time without incurring liability.

WARNOCK HERSEY



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