2008

MOUNTAIN SERIES

OWNER'S MANUAL

TABLE OF CONTENTS

SPA RECORD KEEPING INFORMATION

Serial Number Location

The serial number is located in the lower right corner of the equipment access panel on the front of the spa.

PLEASE FILL IN THE INFORMATION BELOW

Spa Information:

Model _____ Color _____ Serial # _____

Owner Information:

Name _____ Date of Purchase _____

Address_____

City _____ State_____ Zip Code _____

Dealer Information:

Name _____

Address_____

City _____ State_____ Zip Code _____

Telephone # _____

SAVE THIS INFORMATION FOR FUTURE REFERENCE

TO OFFICIALLY ACTIVATE YOUR WARRANTY, YOU MUST GO TO WWW.LASPAS.COM AND REGISTER YOUR SPA BY CLICKING ON THE REGISTER YOUR SPA LINK UNDER THE CUSTOMER CORNER TAB AND FILL OUT ALL THE INFORMATION

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

SAVE THESE INSTRUCTIONS

READ THE ENTIRE OWNER'S MANUAL & SAFETY INSTRUCTIONS BEFORE OPERATING THE SPA. When installing the spa, basic safety precautions should always be followed, including the following:

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

2. **WARNING:** A grounding wire connector is provided on this unit to connect a minimum 8 AWG ($8.4mm^2$) solid copper conductor between this unit and any metal equipment, metal enclosure of electrical equipment, metal water pipe, or conduit within 5 feet (1.5 m) of the unit.

3. **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 closely supervised by an adult at all times.

4. **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 to replace with same model suction fittings for safety and compatible flow rates. NEVER OPERATE THE 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.

5. **DANGER – RISK OF INJURY:** Do not remove suction grate. Suction through drains and skimmer is powerful when the jets in the spa are in use. Damaged suction grate can be hazardous to children and adults with long hair. Should any part of the body or hair be drawn into these fittings or stuck onto the fittings, turn off the spa immediately. As a precaution, long hair should NOT be allowed to float freely in the spa.

6. **DANGER – RISK OF ELECTRIC SHOCK:** Install the spa at least 5 feet (1.5 m) from all metal surfaces. As an alternative, a spa maybe installed within 5 feet (1.5 m) of metal surfaces if, in accordance with the National Electrical Code, each metal surface is permanently connected by a minimum 8 AWG ($8.4mm^2$) solid copper conductor to the wire connector on the terminal box that is provided for this purpose.

7. **DANGER – RISK OF ELECTRIC SHOCK:** Do not permit any electric appliances such as light, hair dryer, telephone, radio, or television with 5 feet (1.5 m) of the spa. Never operate any electrical appliances from inside the spa or while wet.

8. **DANGER:** To reduce 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 pregnancy, pregnant women should limit spa water temperatures to 100°F (38°C).

c. Before entering a spa, the user should check the water temperature with an accurate thermometer since tolerance of water temperature regulating devices can vary and not reflect the proper temperature.

d. The use of alcohol, drugs, or medication before or during spa use is prohibited and may lead to unconsciousness with the possibility of drowning.

e. Obese persons and persons with a 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 medications may affect heart rate, blood pressure, and circulation.

9. Do not use spa immediately after strenuous exercise.

10. Maintain water chemistry as recommended by your authorized dealer.

-For models equipped with audio/video system-

11. **CAUTION – RISK OF ELECTRIC SHOCK:** Replace components only with identical components.

12. **WARNING – PREVENT ELECTROCUTION:** Do not connect any auxiliary components such as cable or lights to the system.

13. Do not service this product yourself as opening or removing covers may expose you to dangerous voltage or other risk of injury. Refer all servicing to qualified service personnel from your local L.A. Spas authorized dealer.

14. When the power supply connections or power supply cord(s) are damaged; if water is entering the audio/video compartment or any electrical equipment compartment area; if the protective shields or barriers are showing signs of deterioration; or if there are signs of other potential damage to the unit, turn off the unit and refer servicing to a qualified service personnel from your local authorized dealer.

15. The system should be subjected to periodic routine maintenance (for example, once every 3 months) to make sure that the system is operating properly.

16. For more information on Spa safety you can visit www.APSP.org and go to their Safety section to download free brochures.

HYPERTHERMIA INFORMATION

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

The symptoms of hyperthermia include:

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

The effects of hyperthermia include:

- Unawareness of impending hazard
- Failure to perceive heat
- Failure to recognize the need to exit spa
- Physical inability to exit spa
- Fetal damage in pregnant women
- Unconsciousness resulting in a danger of drowning

SAFETY PRECAUTIONS

a. Always enter and exit a spa slowly.
b. Do not use the spa alone.
c. Before entering the spa, always measure the water temperature with an accurate thermometer. Tolerance of water temperature regulating devices can vary as much as ±5°F (3°C). Always check the spa water temperature before entering.
d. Since excessive water temperature has a high potential for causing fetal damage during early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 100°F (38°C). Always consult your doctor prior to using a spa.
e. Children's body temperature can increase more rapidly than adults in the same water with elevated temperatures above 99°F (37°C). Children should spend less time in water above body temperature than adults.
f. The use of alcohol, drugs, and/or medication before or during spa use may lead to unconsciousness, hypothermia, serious injury or the possibility of drowning.
g. Persons suffering from obesity or with a medical history of heart disease, diabetes, high or lower blood pressure, or circulatory system problems should consult with their physician before using the spa.
h. Persons on medication should consult with their physician before entering the spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure, and circulation.
i. People with infections, sores, or skin abrasions should not use the spa. Warm and hot water temperatures may allow the growth of infectious bacteria if not properly disinfected.
j. Test the GFCI (Ground Fault Circuit Interrupter) unit before each use. (Refer to instructions provided by GFCI manufacturer.)
k. Do not service or repair any equipment without making sure the circuit breaker and/or all power to the spa is turned off.
l. Cover must be kept on the spa at all times when not in use and locked, especially if children are present.

SAFETY SIGN

Each spa has been provided with a warning sign that outlines safety precautions. This sign should be permanently placed in a location that is visible to all spa users. This sign has been mounted permanently to the front of the spa. Replacement signs can be obtained from your dealer.

SPA CAUTIONS

1. Persons suffering from heart disease, diabetes, high or low blood pressure, any condition requiring medical treatment, pregnant women, the elderly, or infants should consult with a physician before using a spa.

2. The Consumer Product Safety Commission has stated that the water temperature in a spa or hot tub should not exceed 104°F (40°C). Immersion in water in excess of 104°F (40°C) can be hazardous to your health.

3. Observe a reasonable time limit when using the spa. Long exposures at higher temperatures can cause high body temperature. Symptoms may include dizziness, nausea, fainting, drowsiness, and reduced awareness. These effects could result in possible drowning.

4. Do not use the spa under the influence of alcohol, narcotics, or other drugs. Use of the spa under these conditions may lead to serious consequences.

5. Always test the spa water temperature before entering the spa. Enter and exit the spa slowly. Wet surfaces can be very slippery.

6. Never bring any electrical appliance into or near the spa. Never operate any electrical appliance from inside the spa or when you are wet.

7. Proper chemical maintenance of spa water is necessary to maintain safe water and prevent possible damage to spa components.

8. Use the spa straps and clip tie downs to secure the cover when not in use. This will help to discourage unsupervised children from entering the spa and keep the spa cover secure in high wind conditions. There is no representation that the cover, clip tie downs, or actual locks will prevent access to the spa.

SPA EQUIPPED SAFETY DEVICES

Your spa is equipped with the following safety features:

1. **Overheat Protection** – An electronic high limit switch, located on the heater, which shuts off the heater, pumps, and accessories when the water temperature exceeds 112°F (44°C). This function resets when the spa water temperature drops below 109°F (42°C).

2. **Heater High Limit Protection** – An electronic high limit switch, located on the heater barrel, which turns off the heater and low speed pump if it senses a temperature of 119°F (48°C) or greater. The spa will resume functioning at 109°F.

3. **Heater Dry Run Protection** – An electronic circuit with sensors prevents the heater from turning on until there is sufficient water flow.

4. **Pump Dry Run Protection** – If the pump runs for 3 to 5 minutes and flow is not detected, the pump will turn off.

5. **Freeze Protection Mode** – The freeze protection system will activate at 44°F (6.6°C). It will turn on the high speed pump for four minutes. The spa will resume normal operation upon reaching a temperature of 45°F (7.2°C).

6. **Timeouts** – The pump will turn off automatically after 30 minutes on low or high speed (continuous operation). The light turns off after 4 hours of continuous operation.

IMPORTANT SAFETY INSTRUCTIONS FOR CANADA

CSA SAFETY INFORMATION

READ AND FOLLOW ALL INSTRUCTIONS

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

1. A colored terminal or a terminal marked G, GR, Ground, Grounding, or the grounding symbol is located inside the supply terminal box/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.

2. A strip of lugs marked “BONDING LUGS” are provided on the external surface or on the inside of the supply terminal box/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 6 AWG.

3. All field installed metal components such as rails, ladders, drains, or other similar hardware within 3 meters of the spa or hot tub shall be bonded to the equipment grounding bus with copper conductors not smaller than 6 AWG.

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

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.

AVERTISSEMENT: POUR EVITER QUE LES CHEVEUX OU UNE PARTIE DU CORPS PUISSENT ETRES ASPIRES, 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 adverse medical history should consult a physician before using a spa or hot tub.

AVERTISSEMENT: LES PERSONNES QUI PRENNENT DES MEDICAMENTS OU ONT DES PROBLEMES DE SANTE DEVRAIENT CONSULTER UN MEDECIN AVANT D’UTILISER UNE CUVE DE RELAXATION.

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

AVERTISSEMENT: LES PERSONNES ATTEINTES DE MALADIES INFECTIEUSES NE DEVRAIENT PAS UTILISER UNE CUVE DE RELAXATION.

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

AVERTISSEMENT: POUR EVITER 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.

AVERTISSEMENT: POUR EVITER L'EVANOUISSEMENT ET LA NOYADE EVENTUELLE, 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.

AVERTISSEMENT: LES FEMMES ENCEINTES, QUE LEUR GROSSESSE SOIT CONFIRMEE OU NON, DEVRAIENT CONSULTER UN MEDECIN AVANT D'UTILISER UNE CUVE DE RELAXATION.

WARNING: Water temperature in excess of 100°F (38°C) maybe injurious to your health.

AVERTISSEMENT: IL PEUT ETRE DANGEREUX POUR LA SANTE DE LE PLONGER DANS DE L'EAU A PLUS DE 38°C.

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

AVERTISSEMENT: AVANT D'UTILISER UNE CUVE DE RELAXATION MESURER LA TEMPERATURE DE L'EAU A L'AIDE D'UN THERMOMETRE PRECIS.

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

AVERTISSEMENT: NE PAS UTILISER UNE CUVE DE RELAXATION IMMEDIATEMENT APRES UN EXERCICE FATIGANT.

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

AVERTISSEMENT: L'UTILISATION PROLONGEE D'UNE CUVE DE RELAXATION PEUT ETRE DANGEREUSE POUR LA SANTE.

WARNING: Do not permit electric appliances (light, telephone, radio, television, etc.) within 1.5m of this spa or hot tub.

AVERTISSEMENT: NE PAS PLACER D'APPAREIL ELECTRIQUE (LUMINAIRE, TELEPHONE, RADIO, TELEVISEUR, ETC.) A MOINS DE 1.5M DE CETTE CUVE DE RELAXATION.

CAUTION: Maintain water chemistry in accordance with manufacturer's instructions.

ATTENTION: LA TENEUR DE L'EAU EN MATIERES DISSOUTES DOIT ETRE CONFORME AUX DIRECTIVES DU FABRICANT.

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

AVERTISSEMENT: LA CONSOMMATION D'ALCOOL OU DE DROGUE AUGMENTE CONSIDERABLERMENT LES RISQUES D'HYPERTHERMIE MORTELLE DANS UNE CUVE DE RELAXATION.

INSTALLATION INSTRUCTIONS

SAVE THESE INSTRUCTIONS

Read all instructions in this manual prior to having your spa installed at the selected location, whether indoors or outdoors. IMPROPER INSTALLATION MAY RESULT IN EQUIPMENT DAMAGE AND VOID THE WARRANTY.

SURFACE AND PAD REQUIREMENTS

1. We recommend that your new spa be placed on a 4" (10 cm) thick reinforced concrete pad or level foundation capable of supporting the total filled weight of your specific spa model. The foundation should support the entire base of the spa and must offer structural integrity for the life of the spa. A typical spa, filled with water, could weigh as much as 3 tons, and if the concrete is not fully cured, it could easily crack. AN UNEVEN OR UNSTABLE FOUNDATION OR THE USE OF SHIMS OF ANY KIND MAY CAUSE THE SPA TO BUCKLE, DISTORT, AND/OR CRACK, AND WILL VOID THE WARRANTY ON YOUR SPA.

2. If your spa is located near water sprinklers, adjust or cap them so the water will not hit the wood cabinet of the spa.

3. Balconies and decks must be constructed to current state and local codes to safely support the maximum load of your water filled spa and the number of people using the spa. Check with your construction contractor for these safety specifications.

4. Access gates "fencing/wall" must be self-closing and self-locking. Check your local codes for regulations regarding fences and gates.

5. Ensure that the spa installation and location allows a clear and unobstructed access to the spa. It is the responsibility of the owner to provide clear access on ***all sides*** of the spa for service. Failure to do so may result in additional charges or assessments to service and/or repair the spa.

6. Ensure that water drains away from the spa in order to keep water out of the equipment compartment and away from all electrical components.

7. Assure accessibility is maintained to your spa should the need arise. Your spa is an appliance and may require occasional service requirements. Assure the installation allows access to the equipment area, side panels, and removal of the spa if possible. Construction or reconstruction costs associated with spa removal or reinstallation are not covered by the warranty.

ELECTRICAL INSTALLATION REQUIREMENTS

IMPROPER INSTALLATION MAY RESULT IN EQUIPMENT DAMAGE AND VOID THE WARRANTY.

NOTE: Do not turn on electrical power to your spa until you are told to do so later in the Owner's Manual.

1. We strongly recommend that only a licensed and bonded electrician perform the electrical installation. Improper electrical connections may damage the equipment, cause injury, cause a fire, and void your spa warranty.

2. It is the responsibility of the spa owner to ensure that a qualified electrician performs the electrical installation. This installation must be in accordance with the National Electrical Code; local and state electrical codes; and the manufacturer's instructions.

3. This equipment has been designed to operate on 240V/120V 60Hz alternating current.

4. This spa must be connected to a dedicated branch circuit.

5. The electrical supply for this spa must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with Section 422-20 of the National Electric Code (NEC). A disconnect switch must be located where visible, not less than 5 feet from the spa and not to exceed 50 feet from the spa. This requirement maybe filled with the GFCI circuit breaker and sub-panel.

6. The electrical circuit to the spa must include a Class "A" type Ground Fault Circuit Interrupter (GFCI) as required by the NEC.

7. All supply wires must be copper and rated at a minimum of 167°F (75°C).

8. Input power wiring and circuit breaker selection:

IMPORTANT INFORMATION REGARDING ELECTRICAL INSTALLATION

ELECTRICAL CONNECTION

Equipment Type[3]	Electrical Rating	Branch Circuit	Circuit Breaker[1]	Wire Size[2]
1 pump	240V 32A	3 wires + ground	40A	8 AWG

1. Circuit breaker amperages may vary according to the area of installation. Please check local electrical codes to verify requirements and assure compliance.
2. The minimum wire size does not account for the distance of wire run to the spa from the service input.
3. Only a licensed electrician should size and install the electrical connections to the spa.

ELECTRICAL CONNECTIONS

To install your spa, follow these instructions:

1. Remove the screws holding the equipment access panel to the front of the spa cabinet and set the panel aside.

2. Loosen the 2 screws on the top front of the equipment control enclosure.

3. Use 1" flexible conduit for 6 AWG copper wire. Run the conduit from the power source to the spa, through the hole in the left or right front corner and into the equipment control box.

4. After pulling all four wires through the conduit and into the equipment control box, connect them to the proper terminals as indicated by the wiring diagram on the lid of the equipment control box.
   *Please note that the ground wire returns through a hole in the controller to the outside ground buss.

5. The jumpers should be set to the correct position as indicated by the wiring diagram on the lid of the equipment control box. Make sure the wires are properly tightened.

6. Close the lid on the equipment control box and secure with screws.

7. Electrical hook up is now complete. Do not replace the equipment door yet.

INITIAL START-UP INSTRUCTIONS

DO NOT TURN ON THE POWER TO THE SPA WHEN THE SPA IS EMPTY OR PARTIALLY FILLED.

1. Ensure the circuit breaker to the spa is off.

2. Rotate all the jets in the spa to a counterclockwise position (fully open position).

3. Check the heater unions, pump unions, and pump plugs to assure that they are tight to prevent the possibility of leakage in the equipment bay.

4. Close and cap the hose bib located in the equipment compartment. This is used for draining the spa.

5. Fill the spa with water to a level of approximately 4" (10 cm) above the top of the filter.

6. Turn on the circuit breaker. The control panel will read ‘to indicate priming mode. Press the "jets" button repeatedly (if necessary) to make sure that pump is free of air. Once the jets are flowing smoothly, press the temp button to clear. The water temperature is displayed. Set the desired temperature by pressing the temp button once to show set temperature and then repeatedly until correct temperature is displayed. If the opposite direction is desired, allow the display to revert to the current temperature and then press the temp button to the set temperature. Subsequent presses will change the set temperature up or down.

7. Press the Jets1 key [once] to turn on the low speed pump. Press the jets key again to activate high speed. If there is no water flow through the jets, see item #6. Also check the water level to make sure that it is over the filter.

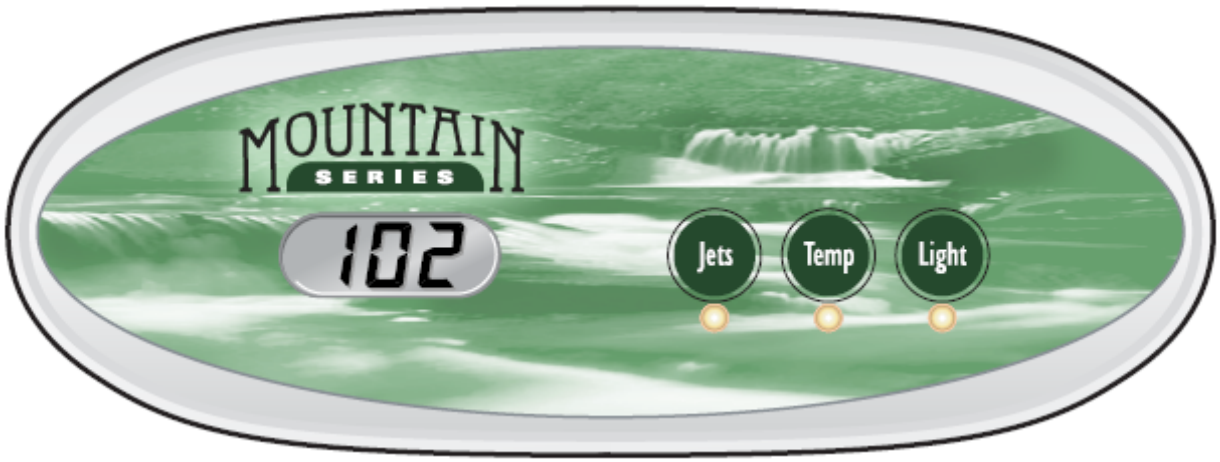
8. Depending upon the size of the spa and the size of the electrical circuit, heating will occur at a rate of approximately 5°F (2°C) per hour.

9. After completing the above steps, it is necessary to ensure proper water chemistry. See the Water Chemistry section in the manual.

10. Place the thermal cover on the spa to conserve energy and to keep it ready for use.

OPERATING INSTRUCTIONS

CONTROL PANEL



This easy to use control has been pre-programmed to be “plug and play”. Turn the power on, adjust the desired temperature and the system is ready to go. If there are situations that require additional filtering time, the filter settings can be customized to any special requirements. Simple to use and easy to read, the Control System makes using the spa effortless.

CONTROL PANEL OPERATION

Please note: The pump (Jet) control has an automatic timeout (shut-off) programmed 30 minutes after the jet pump is activated. The low speed pump (jet) will remain running if there is a call for heat, and will continue to do so until the set temperature is reached. If the low speed is activated by the jet button, the timeout is 30 minutes unless it is turned off.

1. **Jets key:**
   When the **Jets** key is pressed the first time, the low speed of the jet pump is turned on.

   When the **Jets** key is pressed the second time, the high speed of the jet pump is turned on.

   Pressing the **Jets** key the third time will turn the pump off.

2. **Light key:**
   Press the **Light** key once to turn the light on. Press the **Light** key a second time to turn off the light.

3. **Temperature (Temp) key:**
   Press the temp key once to display the set temperature (the default is 100°F/37.8°C). Press the key repeatedly after it displays the set temperature to change the set temperature. If an increase or decrease is required, please allow the panel to default to the display temperature and press temp to show set temperature, and then press [temp] repeatedly.

Please Note: Mode setting

*Modes can be changed by pressing “Temp” and then “Light”

The default setting is in “standard” mode. The display will show « momentarily when changing mode. The controller checks the temperature twice an hour and heats accordingly. It will not allow the spa

temperature to decrease over 20°F/10°C. If a more economical setting is required, then economy mode can be selected. When mode is changed to "economy" the display will momentarily read **a**. In economy mode the spa will heat up to set temperature only during the filter cycles. **a** will display when water temperature reading is not current and will alternate with water temperature when the pump is running. The third mode is sleep mode which will momentarily display © when changing mode. In sleep mode the spa will heat up to 20°F/10°C below set temperature. © will display when water temperature is not current, and will alternate when the pump is running.

FILTRATION

Controllers are programmed to filter two times a day for 60 minutes. In most cases, this is sufficient filtration. However, the length of the cycles can be modified to 1, 2, 3, 4, 5, 6, 7, or 8 hours each. The first cycle begins 6 minutes after the spa is energized and the second cycle is 12 hours later. To program press "Temp," then "Jets". Press "Temp" to adjust and press "Jets" to exit the cycle program.

FEATURE OPERATIONS

AIR CONTROL VALVES

Your spa may be equipped with air controls. The air control is an on/off valve that allows air to be introduced into a specific jet configuration resulting in a more vigorous jet action. Turn the valve handle clockwise to turn the air on, and counterclockwise to turn the air off. Opening the valve increases jet pressure and closing the valve decreases the jet pressure.

WATER BALANCE

WATER CHEMISTRY

Maintaining proper water chemistry is imperative to maintaining safe water and preventing possible damage to your spa and spa components.

START-UP PROCEDURES

1. Fill spa to correct level (approximately 4" above the top of the filter cartridge).
2. With your cartridge filter, you may add stain and scale control, or a similar sequestering agent, such as Metal Gone.
3. Test and adjust total alkalinity – run pump for ½ hour.
4. Test and adjust pH – run pump for ½ hour.
5. If sanitizing with bromine, add sodium bromide with jets running (see Bromine in this section).
   a. Fill and set bromine floater or adjustable bromine feeder and place in the spa water.
   b. Shock water with potassium peroxymonosulfate (such as "Renew") with jets running.
6. If sanitizing with chlorine, use only a granular "Dichlor" compound (see Chlorine in this section).
   a. Fill and set chlorine floater or chlorine feeder and place in the spa water.
   b. Shock water with potassium peroxymonosulfate (such as "Renew") with jets running.
7. Run pump for ½ hour.

WATER QUALITY

Your spa is equipped with a specially designed cartridge filter system. Filtering the water helps maintain water cleanliness and clarity. While the filter traps most solid materials, it is still necessary to add a sanitizer such as bromine or chlorine to the water in order to control bacteria, algae, and to oxidize any organic materials in the water.

We recommend that you purchase your chemicals from your spa dealer. The dealer can also advise you on alternative methods for water sanitation. **Use of the wrong chemicals can be dangerous and may void the warranty on your spa.**

PH CONTROL

All water has a pH value determined by a scale of 0-14, which is a measure of the acid to alkaline relationship. While a pH reading of 7.0 is considered neutral, a lower reading is considered acidic and a higher reading is alkaline. The proper pH for spa water is between 7.2-7.6. High pH (above 7.8) can reduce sanitizer efficiency, cloud the water, promote scale formation on spa surface and equipment and interfere with filter operations.

When pH is too high, add a pH down solution. Low pH (below 7.2) is equally damaging and can cause equipment corrosion, water that is irritating, and rapid sanitizer dissipation. Add pH increaser to adjust the level. Follow the chemical manufacturer's directions and procedures when adding chemicals to spa water.

NOTE: Always add pH adjuster with jets operating and circulate all chemicals for at least 30 minutes. Remember that good pH control and sanitation are absolutely essential for proper spa water treatment.

TOTAL ALKALINITY

Total alkalinity is the amount of carbonate, bicarbonate, and hydroxyl ions in the water. Total alkalinity affects and buffers the pH of the water. With high total alkalinity (above 160), pH resists adjustment. With low total alkalinity (below 130), pH is unstable and difficult to keep in the ideal range. Proper total alkalinity levels allow other spa chemicals to work effectively.

WATER TREATMENT

SANITIZERS

The importance of maintaining adequate levels of sanitizer in your spa cannot be overemphasized. Warm water presents a fertile environment for the growth of bacteria and viruses. This growth is prevented when adequate sanitizer levels are continuously maintained.

WARNING – Sanitizers such as tri-chlor (tablets or sticks), calcium hypochlorite, sodium hypochlorite, and any chemical that dissolves on or remains un-dissolved in contact with the spa surface will damage your spa surface and will void the warranty completely.

BROMINE

Bromine is the most common sanitizer used in spas. Maintain a proper total bromine level of 3.0-5.0 ppm. If the reading is below the minimum, raise the level before using the spa. If the reading is above 5.0 ppm, allow ppm to drop to proper ranger before using the spa. Brominating tablets are a convenient and effective source of bromine for your spa. Do not drop bromine tablets directly into the water as this may damage the spa surface. A chemical “floater” safely and properly dispenses the tablets into the spa water. When used properly, brominating tablets will keep you water clean, clear, and odor-free. To ensure maximum effectiveness, add ½ oz. of sodium bromide per 100 gallons of water every time you fill your spa. This will establish a bromide reserve.

CHLORINE

Chlorine also is a water sanitizer; however it is more sensitive to pH than bromine. To be effective, you must have a pH range of 7.2-7.6. Any reading outside this range will greatly reduce chlorine effectiveness.

Use a chlorine test kit or test strip to maintain a reading of 2.0-3.0 ppm of free chlorine. If the reading is below the minimum, raise the level before using the spa. If the reading is above 5.0 ppm, allow ppm to drop to the proper range before using the spa. Read the instructions on your chlorine container carefully, or consult your spa dealer if you are having difficulty adjusting your chlorine level.

The best chlorine for your spa is a granular “Dichlor” compound. It dissolves quickly in moving water and has a nearly neutral pH. Add chlorine while jets are running and let the jets run for ½ hour. Generally, heavily contaminated water can be disinfected using large chlorine doses, in the range of 8-10 ppm, but a more practical method is to drain the spa and refill it with fresh water.

The effectiveness of chlorine is decreased when the cover is left off the water for two reasons: (1) sunlight decays chlorine rapidly, and (2) organic debris is blown into the spa and taxes the effectiveness of the chlorine. In addition, the higher the water temperature, the faster chlorine will decay.

NOTE: Two or more individuals in a spa may reduce the level of sanitizer rapidly.

SUPER CHLORINATION

Super chlorination quickly oxidizes the spa water to burn out wastes such as perspiration, hairspray, lotions, etc. that cannot be removed by the spa filter. This waste build-up reduces the power of the sanitizer, making the water dull and irritating to the eyes and skin. It may also produce an odor. When this occurs, the free chlorines have become chloramines which are much less effective as a sanitizer. This can be eliminated by super chlorination as needed. An application of 5 times the normal chlorine dosage will act as an adequate treatment.

SHOCK TREATMENTS (POTASSIUM PEROXYMONOSULFATE)

Even with regular sanitization, shock treatment may be necessary on occasion. Shock is recommended over super chlorination because it does not add additional sanitizer to the water. It is also effective in oxidizing wastes and will reduce chloramines or bromamines. Follow the manufacturer's instructions listed on the label.

WATER TESTING

It is recommended that you test your spa water regularly with an accurate test kit or test strip. These are available from your local authorized L.A. Spas dealer. Be sure to follow the chemical manufacturer's instructions for chemical use.

STAIN AND SCALE INHIBITOR

Staining and scaling may be a common problem in spas. Because the water is hot, scale may be deposited more quickly. The circulation of water can cause the erosion of metals from spa equipment, which can stain interior surfaces. A weekly dose of a stain and scale fighter will help control these problems.

A sequestering agent, such as Metal Gone, can be added to the spa water when filling a spa (for the first time or when draining and refilling). This will help eliminate metals in your water and increases the life of your spa equipment.

FOAM INHIBITOR

Soap residue from a user's body, hair, and swimsuit combined with rapid circulation of spa water may cause foaming in your spa. Foam inhibitors will suppress foam, but cannot remove soap from the water. When foaming occurs, a shock treatment can oxidize the soap in your water and help prevent this condition. If foam remains a problem, change the water. Consult the directions on the foam inhibitor container for usage amount. When adding chemicals to your spa water, add to the center of the spa with the pump and air blower (if equipped) operating simultaneously. Never add chemicals directly into the skimmer. Make sure the water is heated. Never add chemicals to cold water, as this will affect the chemical reaction.

Store all chemicals in a cool dry location and in such a manner to prevent contact by children or pets.

You should consult your local authorized L.A. Spas dealer prior to any chemical use.

KEEPING YOUR WATER CLEAN AND SAFE

Monday		Friday	
Test:	Bromine/Chlorine pH Total Alkalinity	Test:	Bromine/Chlorine pH Total Alkalinity
Adjust:	Follow steps 1-4	Adjust:	Follow steps 1-3
Add:	Stain & Scale control		

Step 1: Adjust total alkalinity – ideal range is 130-160. Test water, follow directions on manufacturer's label, and add the required amount of spa chemicals with the jets on. Wait 30 minutes before performing additional tests.

Step 2: Adjust pH – ideal range is between 7.4-7.6. Test water, follow directions on manufacturer's label, and add the required amount of spa chemicals with the jets on.

Step 3: Adjust bromine/chlorine – ideal range is between 2-3 ppm chlorine and 3-5 ppm bromine (4-6 ppm for heavy spa usage). Fill bromine floater or adjustable feeder and shock spa as necessary.

Step 4: Stain and scale control – add the required amount of spa chemicals with jets on weekly.

NOTE: The chemical chart above is a simple schedule for moderate spa use. Depending on the usage, chemical balancing may be required more often.

SPA CARE

FILTER CLEANING

Always make sure the spa **CIRCUIT BREAKER** is off before removing and cleaning the pleated cartridge filter. Cartridges should be removed and hosed off weekly. Using a high pressure hose nozzle between the pleats will easily remove dirt and debris. This will be evident as you rinse. A soaking in filter cartridge cleaner should be performed every 2-4 weeks depending on spa usage.

CARE FOR SPA SURFACE

Mountain Series Spas have a very high quality finish. Stains and dirt will generally not adhere to the surface. After draining the spa, wipe the surface with a soft damp cloth (or sponge) using household soap or liquid detergent. Stubborn dirt and stains maybe removed by using Spic & Span adequately dissolved in water. Be sure to rinse detergent well as this will cause suds when refilling the spa.

SPA COVER

CAUTION – Keep your spa cover installed at all times when not in use.

Do not use any cleaning products containing abrasives or solvents since these could damage the surface and void your warranty.

You may wax the spa surface if you choose. This adds a protective coating on the finish. Use a spa wax only. Follow the instructions on label of wax product. Consult your L.A. Spas dealer.

CARE OF SPA CABINET (THERMOGUARD CABINET)

Your ThermoGuard cabinet requires little or no maintenance of any kind. To clean, simply wipe cabinet with a clean towel and mild detergent soap solution.

CAUTION – Do not use any cleaning products containing abrasives or solvents since these could damage the surface of the ThermoGuard spa skirt and void your warranty.

CARE FOR SPA COVER

The thermal cover for your spa is an extremely durable foam insulated product. See the manufacturer's literature for proper cleaning and care instructions. When the spa is not in use, it is recommended that the cover tie downs always be utilized to discourage unsupervised children from entering the spa and to minimize heat loss. Small locks are available for the cover tie downs. In either case these locking methods are not considered adequate to keep unauthorized people from entering the spa.

DRAINING THE SPA

All Mountain Series Spas are gravity drained. Do not drain water onto your lawn or plants unless all of the bromine or chlorine has dissipated from the spa water. The sanitizer in your spa water can be dissipated very quickly by leaving the spa cover off and exposing the water to direct sunlight. Drain and refill your spa every 4 months. For heavier spa use, you may wish to change the water more frequently.

1. Turn power off to spa.
2. Attach a hose to the hose bib located in the equipment area of your spa. Open the valve and allow the water to drain away from the spa.
3. Clean the spa surface (see care of spa surface in this section).
4. Refill spa, and follow initial start-up procedures to reheat the spa.

SPECIAL COLD WEATHER INSTRUCTIONS (WINTERIZING)

Winter can be one of the most enjoyable times of the year to enjoy your spa. As it is difficult to get water out of the plumbing lines; WE DO NOT RECOMMEND DRAINING YOUR SPA FOR THE WINTER. However, if you decide not to use your spa during the winter, we recommend you winterize as follows:

1. If you drain your spa, turn off the main power to the spa. Drain as completely as possible. You may want to use a wet-vacuum or high-pressure blower to evacuate as much water as possible.
2. When the spa is completely empty, leave the hose bib open and open the pump drain plug located on the bottom side of the front end of the pump. Loosen all pump unions and fittings to allow air and water to expand freely within the system. This should help prevent water from freezing and damaging pipes and fittings. The idea is to try to eliminate water from any sealed areas in the system.

Should you have a heavy snowfall during the winter months, you may want to build a protective cover cap for the spa cover. This may be done with a ½" or ¾" piece of plywood and a few 2" x 4" cross members.

Although your spa is equipped with an automatic freeze protection, a power outage can cause your spa equipment system to freeze quickly. During freezing conditions, check your spa frequently to ensure proper operation. Be sure to check your spa after any power failure to ensure the spa is operational.

For additional information on winterizing your spa, contact your local L.A. Spas dealer.

WARRANTY SERVICE INFORMATION

Your spa warranty gives you specific coverage. Be sure you read your warranty carefully. The warranty does not cover problems resulting from misuse, abuse, or neglect, and it does not cover problems caused by improper installation or perceived problems caused by failure to read the spa owner's manual.

TROUBLESHOOTING

HEATING SYSTEM

Symptom	Problem	Corrective Action
Spa water cold / spa not heating	1. Temperature setting is not at user select. Power reset caused default setting.	1. Increase temperature
	2. Spa in economy mode	2. Reset to standard mode.
	3. Dirty filters	3. Clean filters
	4. Air lock	4. Prime pump (see page 13)
	5. Jets closed obstructing flow	5. Open jets
	6. Equipment malfunction	7. Call for service
Spa water too warm / spa heating above set point	1. Temperature setting too high	1. Decrease temperature
	2. Too much filtration	2. Reduce the number of filter cycles and/or the filter cycle duration
	3. Dirty filters	3. Clean filters
	4. Overheat or high limit occurred	4. Call for service
	5. Equipment malfunction	5. Call for service
Spa temperature erratic	1. Water level low	1. Fill with water to 3”-4” (7-10 cm) above top of the filters
	2. Spa in economy mode	2. Reset to standard mode
	3. Dirty filters	3. Clean filters
	4. Jets closed obstructing flow	4. Open jets
	5. Pump gate valve closed	5. Open gate valve
	6. Equipment malfunction	6. Call for service

WATER SYSTEM

Symptom	Problem	Corrective Action
Pulsating jets	1. Water level low	1. Fill with water to 3”-4” (7-10 cm) above top of the filters
	2. Dirty filters	2. Clean filters
	3. Filter intake / pump intake restricted	3. Remove obstruction
	4. Pump gate valve closed	4. Open gate valve
	5. Equipment malfunction	5. Call for service
No jet action or action is poor	1. Jets are turned off	1. Turn jets on by turning jet face counterclockwise
	2. Water level low	3. Fill with water to 3”-4” (7-10 cm) above top of the filters
	3. Dirty filters	4. Clean filters
	4. Air lock	6. Prime pump (see page 13)

ELECTRICAL SYSTEM

Symptom	Problem	Corrective Action
Spa will not turn on in any mode	1. No power	1. Check circuit breaker and/or GFCI
	2. Control panel unresponsive	2. Turn power off spa then back on
	3. Control panel still not working	3. Call for service
	4. Overheat occurred	4. Call for service
Spa turns on by itself	1. Normal automatic daily filtration cycle	1. No action required
	2. Spa required heat to maintain temperature	2. No action required
	3. Freeze protection engaged	3. No action required
	4. Equipment malfunction	4. Call for service
Light is out	1. Automatic time out has shut off light (4 hours)	1. Press Light key again to start another cycle
	2. Burned out light bulb	2. Replace light bulb
Pump shuts down unexpectedly while in use	1. Automatic timeout has shut pump off (30 minutes)	1. Press Jets keys again to start another cycle
	2. Motor overheated and protective device has shut down pump	2. Allow pump to cool. If the pump does not restart when Jets key is pressed, call for service.
Error codes		
^ ® † ‡	1. Low water level	1. Fill with water to 3”-4” (7-10 cm) above top of the filters
	2. Dirty filters	2. Clean filters
	3. Air lock	3. Prime pump (see page 13)
	4. Jets closed obstructing flow	4. Open jets
	5. Equipment malfunction	5. Call for service
^ ® † ‡	1. High limit condition	1. Turn off power, wait 5 seconds, then turn on power. This a system reset. If problem persists, call for service.

CONTROL PANEL DIAGNOSTIC MESSAGES

MESSAGE	MEANING	ACTION REQUIRED
	No message on display Power has been cut off to spa	The control panel will be disabled until power returns. Spa settings will be preserved until next power up.
- -	Temperature unknown	After the pump has been running for 1 minute, the current water temperature will be displayed.
HH	"Overheat" - The spa has shut down.* One of the sensors has detected that the spa water is 118°F/47.8°C	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. Once the heater has cooled, reset by pushing any button. If the spa does not reset, shut off the power to the spa and call your dealer or service organization.
OH	"Overheat" - The spa has shut down.* One of the sensors has detected that the spa water is 118°F/47.8°C	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/41.7°C, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
SA	Spa is shut down.* The sensor that is plugged into the sensor "A" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat condition.)
Sb	Spa is shut down.* The sensor that is plugged into the sensor "B" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat condition.)
Sn	Sensors are out of balance. If alternating with spa temperature, it may just be a temporary condition. If flashing by itself, spa is shut down.*	If the problem persists, contact your dealer or service organization.
HL	A significant difference between temperature sensors has been detected. This could indicate a flow problem.	If the water level is normal, make sure all pumps have been primed. If problem persists, contact your dealer or service organization.
LF	Persistent low flow problems. (Displays on the fifth occurrence of *HL* message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for *HL* message. Heating capability of the spa will not reset automatically, you may press *any* button to reset.
dr	Possible inadequate water, poor flow, or air bubbles detected in the heater. Spa is shut down for 15 minutes.	If water level is normal, make sure all pumps have been primed. Press any button to reset. This message will reset within 15 minutes. If problem persists, contact your dealer or service organization.
dY	Inadequate water detected in heater. (Displays on third occurrence of *dr* message.) Spa is shut down. *	Follow action required for *dr* message. Spa will not automatically reset. Press any button to reset manually.
IC	"Ice" - Potential freeze condition detected.	No action required. All equipment will activate regardless of spa status. The equipment stays on for 4 minutes after the sensors detect that the spa temperature has risen to 45°F/7.2°C or higher. An optional freeze sensor may be added to protect against extraordinary freeze conditions. Auxiliary freeze sensor protection is available in colder climates. See your dealer for details.

* Even when the spa is shut down, some equipment will turn on if freeze protection is needed.