

ROYAL  
NOTE BOOK



OWNER'S MANUAL

## MASTER SPAS LEGACY OWNER'S MANUAL

### Welcome To Ultimate Relaxation!

Thank you for choosing your new spa built by Master Spas. Please read the entire Owner's Manual before installing and using your spa. The goal of this manual is to provide you with safety and operational information plus some tips that will help you enjoy your spa to its fullest.

At the time of print, this manual is accurate in its information. Master Spas reserves the right to change or improve its product without prior notice.

To check on updates or for other information, please visit [www.masterspas.com](http://www.masterspas.com) and follow the links to the customer service section.

### RECORD OF OWNERSHIP

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Date Purchased \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Model \_\_\_\_\_ Serial # \_\_\_\_\_

Dealer Name \_\_\_\_\_

Phone # (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

Service Tech Rep \_\_\_\_\_

### \*SERIAL NUMBER LOCATION

The serial number for your spa is located in the filter area, on the spa system pack, or on the listing plate on the skirting. It will start with "M" followed by a 6-digit number. *Ex. M704590*



MASTER SPAS®

Master Spa Parts - 1068 American Drive,  
Neenah, WI, 54956, USA  
[www.masterspas.com](http://www.masterspas.com)

# TABLE OF CONTENTS

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**Safety Instructions**.....3-6

**Glossary of Spa Terminology** .....7

**Electrical Installation Requirements** .....8  
     Wiring Schematic .....9  
     Site Preparation / General Guidelines .....10-11  
     Installation Instructions .....12

**Water Chemistry Terms You Should Know** .....13-14

**Water Quality Maintenance Schedule**.....15

**Spa Water Maintenance – Start-Up** .....16-18

**Water Maintenance Trouble-Shooting Guide**.....19

**Why Chemicals are Important in a Spa**.....20

**Maintenance Recommendations** .....21

**Winterizing Your Spa** .....22

**Legacy Spa**  
     Specifications .....23  
     Diagnostic Messages.....24-27

**Legacy Stereo System**.....28

**Spa Trouble-Shooting Guide** .....29-30

**Regular Maintenance Procedures**.....31-32

**Spa Care and Maintenance Record** .....33-36

## SAFETY INSTRUCTIONS

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### SAVE THESE INSTRUCTIONS

Included with your new spa is a safety sign. The sign is for you and your guest's protection and is suitable for outdoor use in wet locations. The sign should be placed in a location visible to all users of the spa.

Please take time to point out the physical location of the safety sign and the importance of the safety precautions displayed on the safety sign to all of your guests. Remember your safety and the safety of anyone who enjoys the use of your spa is our utmost concern.

The sign should be mounted with screws or another type of permanent fastener. Additional or replacement signs can be obtained from your dealer or direct from the factory.

### INTRODUCTION

It's time to relax! You now have your very own portable spa by Master Spas, Inc. By fully understanding the operation of each of the features of your new Master Spa, you will be assured of many years of hassle-free, hot water therapy and fun.

Your safety is of paramount importance to the MasterSpas family. We urge you to read and become thoroughly familiar with all safety aspects addressed in this manual.

Through reading and totally understanding the important information in your owner's manual, you will realize that you now own THE ULTIMATE RELAXATION MACHINE!

## SAFETY INSTRUCTIONS

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### IMPORTANT SAFETY INSTRUCTIONS

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

### READ AND FOLLOW ALL INSTRUCTIONS

1. **WARNING.** To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
2. **DANGER - RISK OF CHILD DROWNING.** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, insure that children cannot use a spa or hot tub unless they are closely supervised at all times.
3. **WARNING.** A pressure wire connector is provided on the surface of the control box inside the spa to permit connection of a minimum No. 10 AWG solid copper bonding wire between this point and any metal equipment, metal enclosures of electrical equipment, metal water pipe or conduit within 5 feet (1.5M) of the unit.
4. **DANGER - RISK OF ELECTRIC SHOCK.** Install spa at least five (5) feet (1.5M) from all metal surfaces. A spa may be installed within five (5) feet (1.5M) of metal surfaces if, in accordance with the National Electrical Code, each metal surface is permanently connected by a No. 10 AWG solid copper conductor attached to the wire connector on the terminal box. A grounding lug is provided for this purpose.
5. **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 fitting or the pump be sure that the flow rates are compatible.  
**\*NOTE:** 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.
6. **DANGER.** To reduce the risk of injury to persons, do not remove suction grate. Suction through drains and skimmers is powerful when the jets in the spa are in use. Damaged covers can be hazardous to small children and adults with long hair. Should any part of the body be drawn into these fittings, turn off the spa immediately. As a precaution, long hair should not be allowed to float in the spa.
7. **WARNING.** Install spa so that water can be easily drained out of the compartment containing electrical components so as not to damage equipment. Also, when installing spa, allow enough room to access for servicing. Contact your local dealer for their requirements.

## SAFETY INSTRUCTIONS

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### 8. WARNING - TO REDUCE THE RISK OF INJURY:

- (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 plus/minus 5° F (3° C).
- (D) Persons suffering from obesity or with a medical history of heart disease, diabetes, high or low blood pressure or circulatory system problems should consult with their physician before using the spa.
- (E) 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).
- (F) Excessive water temperature can be dangerous. The water in the spa should never exceed 104° F (40° C). Water temperatures between 100° and 104° F are considered safe for a healthy adult. Lower water temperatures are recommended for extended use (exceeding 10 minutes) and for young children. Long exposures at higher temperatures can result

### **HYPERTHERMIA**

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:**

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

- (G) Children's body temperature can increase more rapidly than adults in the same water with elevated temperatures (above 99° F). Children should spend less time in water above body temperature than adults.
- (H) The use of a spa while under the influence of alcohol, drugs and/or medication may lead to unconsciousness with the possibility of drowning.

**\*NOTE:** 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.

## SAFETY INSTRUCTIONS

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9. People with infections, sores or the like should not use the spa. Warm and hot water temperatures may allow the growth of infectious bacteria if not properly disinfected.
10. **DANGER - RISK OF ELECTRIC SHOCK.** Do not permit any electric appliance, such as a light, telephone, radio or television, within five (5) feet of the spa. Never operate any electrical appliances from inside the spa or while wet.
11. **WARNING - RISK OF SUFFOCATION.** If this spa is equipped with a gas heater, it is intended for outdoor use only, unless proper ventilation can be provided for an indoor installation.
12. **CAUTION - RISK OF ELECTRIC SHOCK.**  
Do not leave the CD compartment open.”  
**CAUTION - RISK OF ELECTRIC SHOCK.**  
Replace components only with identical components.”  
The CD player /DVD controls are not to be operated while inside the spa.  
**WARNING - PREVENT ELECTROCUTION.** Do not connect any auxiliary components (for example, additional speakers, headphones, additional audio/video components etc.) to the system.”  
These units are not provided with an outdoor antennae.  
Do not service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.  
If the power supply/supply cord(s) are damaged, water is entering the speaker, CD compartment, or any other component in the electrical equipment compartment area, the protective shield is showing signs of deterioration, or there are signs of other potentially hazardous damage to the unit, turn off the circuit breaker from the wall and refer servicing to a qualified service personnel.  
The unit should be subjected to periodic routine maintenance once every quarter to make sure that the unit is operating properly.
13. **SAVE THESE INSTRUCTIONS.**

## GLOSSARY OF SPA TERMINOLOGY

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1. **DRAINING YOUR LEGACY SPA.** The drain is located behind the front panel on the far right side, grasp the hose bib cap and turn it counter clockwise. Attach a garden hose, if desired. Turn the black knob on the side of the valve a quarter turn. Draining times may vary by model using the external hose bib. A sump pump may also be used to drain the spa quickly.

2. **MAIN PUMP.** This produces water flow through the main jets in the spa. The first pump may be operated on two speeds. Low speed will produce efficient water circulation during filtration and gentle jet action. High speed should be used for maximum jet action. The main pump is controlled by the "Jets" or "Jets I" button on the Topside Control Panel.
3. **SECONDARY PUMP.** This produces water flow through the other jet system in the spa (if applicable). The second pump operates similar to the main pump and is controlled by the "Jets II" button on the Topside Control Panel.
4. **PUMP UNION.** These are used by service personnel to easily service the pump(s).
5. **HEATER UNION.** These are used by service personnel to easily service the heater.
6. **OZONATOR.** Your optional ozonator will operate in conjunction with your filtration system. It will deactivate when any other control function is manually activated and will reactivate after one hour of inactivity.



*Ozonator (optional)*



## ELECTRICAL INSTALLATION REQUIREMENTS

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### **HAVE YOUR ELECTRICIAN READ THE FOLLOWING INFORMATION BEFORE INSTALLATION BEGINS**

Electrical connections made improperly, or the use of wire gauge sizes for incurring power which are too small, may continually blow fuses in the electrical equipment box, may damage the internal electrical controls and components, may be unsafe and in any case will void your warranty.

**It is the responsibility of the spa owner to ensure that electrical connections are made by a qualified electrician in accordance with the National Electrical Code and any local and state electrical codes in force at the time of installation.**

These connections must be made in accordance with the wiring diagrams found inside the control box. This equipment has been designed to operate on 60Hz. alternating current only, 240 volts are required. Make sure that power is not applied while performing any electrical installation. A copper bonding lug has been provided on the electrical equipment pack to allow connection to local ground points. The ground wire must be at least 10 AWG copper wire (unless local or state codes require a heavier gauge wire) and must be connected securely to a grounded metal structure such as a cold water pipe. All Master Spas equipment packs are wired for 240 VAC only. The only electrical supply for your spa must include a 50 AMP switch or circuit breaker to open all non-grounded supply conductors to comply with section 422-20 of the National Electrical Code. The disconnect must be readily accessible to the spa occupants, but installed at least five feet from the spa. A Ground-Fault Circuit Interrupter (GFCI) must be used to comply with section 680-42 of the National Electrical Code. A ground fault is a current leak from any one of the supply conductors to ground. A GFCI is designed to automatically shut off power to a piece of equipment when a current fault is detected.

**Power hook-up to the spa must be 240 volt 3 wire plus ground (6 AWG copper).**

Route the cable into the equipment area for final hook-up to terminals inside the control panel. The spa must be hooked up to a "dedicated" 240 volt, 50 amp breaker and GFCI. The term "dedicated" means the electrical circuit for the spa is not being used for any other electrical items (patio lights, appliances, garage circuits, etc.). If the spa is connected to a non-dedicated circuit, overloading will result in "nuisance tripping" which requires resetting of the breaker switch at the house electrical panel.

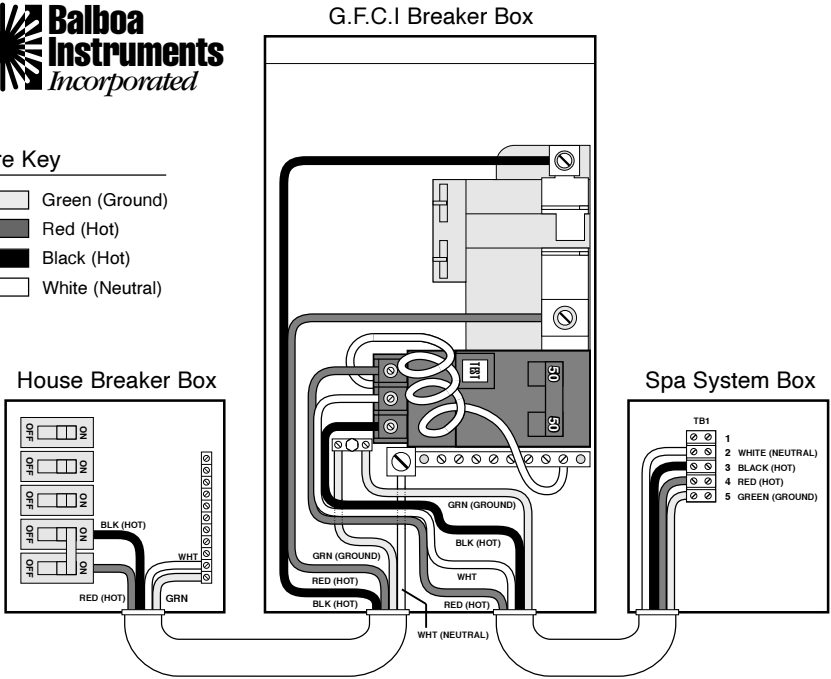
*Rev. 05/01/06*

# WIRING SCHEMATIC - 240 VOLT SPA HOOK-UP



### Wire Key

- Green (Ground)
- Red (Hot)
- Black (Hot)
- White (Neutral)



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*\* Actual wiring of GFCI will vary by manufacturer of GFCI. The GFCI shown is a Square D. Improper wiring of GFCI may result in permanent damage to spa system box. Repair / replacement of spa system box is not covered under warranty when damage results from improper wiring.*

## **SITE PREPARATION / GENERAL GUIDELINES**

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Portable spa installation is simple when properly planned. To that end, it is important that you read the following information carefully and consult with your Master Spas dealer.

- 1) **Access** - The actual dimensions of your new spa will determine the amount of space that is needed in moving the spa from curbside to its final installation area. Be sure to measure side yard dimensions, gates or doors and vertical obstructions such as roof overhangs and overhead cables. Any other space limiting obstacles such as trees or shrubs must be evaluated.
- 2) **If the spa is being installed indoors**, dimension limitations such as stairs, ceilings and walls must be taken into consideration. Please have your Master Spas dealer or delivery service review site or installation plans prior to delivery.

**NOTE: If you are installing your spa indoors, always be aware that if you splash water into the speaker compartments of the spa, water will run down through the speaker drain at the floor level toe kick, which drains below the spa in the corner where the speakers are located. Please be aware of this as any damage is not covered by the warranty. This could cause unwarranted damage.**

- 3) **Surface/Pad Requirements** - When your new spa is filled with water and bathers, it may weigh as much as several tons. It is imperative that the base beneath the spa can support the actual weight. The spa must be on a uniformly firm, continuous, and level surface. The recommended foundation is a concrete pad with a minimum thickness of four (4) inches with steel reinforcement bars crossed throughout the pad.

### **IMPORTANT**

When installing your spa indoors, on a wood deck, or balcony, the same load requirements must be met. Total load may be as much as 90 pounds per square foot. You should speak with a qualified contractor or your local building department to confirm that your surface is adequate for supporting a spa. Be sure to locate your spa so that equipment remains above grade and is not subject to flooding.

The equipment side(s) of the spa must be accessible in the event that future service is needed. Periodical maintenance checks require entry into the equipment bay. When possible, it is wise planning for the future to leave access to all sides of the spa in the event your spas plumbing requires maintenance. Your spa warranty does not cover the cost of providing access for service.

## **SITE PREPARATION / GENERAL GUIDELINES**

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### **GENERAL CONSIDERATIONS FOR OUTDOOR INSTALLATION**

Again, proper planning will increase your total enjoyment factor with your new spa. Listed below are some additional items to consider when planning your installation.

- How spa will complement landscaping and vice versa
- View from inside spa and view of spa from inside of home
- Exposure to sunlight and shading from trees
- Privacy
- Getting to spa from house and return
- Proximity to dressing rooms and bathrooms
- Storage for spa chemicals
- Local building codes (if applicable)
- Power cable

### **GENERAL CONSIDERATIONS FOR INDOOR INSTALLATION**

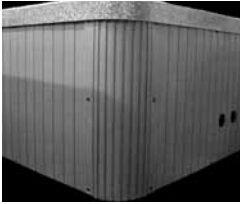
Installing your spa indoors creates an entirely different set of considerations. Here again, with proper planning, no matter what room your spa goes in, it will be your favorite room.

- Work with your Master Spas dealer and contractor to insure all local building, electrical and plumbing codes are met
- Plan for a floor drain to drain off excess water or for draining and cleaning your spa
- A ventilation fan may be necessary due to high humidity created by your spa
- Finished material in your spa room should also be capable of withstanding increased humidity
- If you are installing your spa indoors, always be aware that if you splash water into the speaker compartments of the spa, water will run down through the speaker drain which drains below the spa in the corner where the speakers are located. Please be aware of this as any damage is not covered by the warranty. This could cause unwarranted damage.

## INSTALLATION INSTRUCTIONS

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- 1.) Put spa in final position that allows for access to equipment and spa components.



- 2.) Remove front side panel (This is the side where the main topside control panel is located) so electrical can be hooked up to the spa system pack. Panels are removed by unscrewing the screws in the corner sections and side panels (using #2 square bit). Using a phillips screwdriver may result in stripping of the screw.

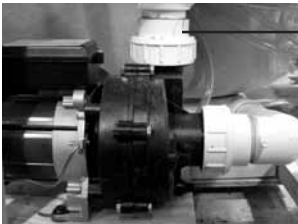
- 3.) Fill spa to the "minimum safe water level" sticker. We recommend filling the spa through the filter area.

- 4.) Turn the power on to the spa. Spa will go through its priming mode. This lasts approximately 5 minutes.

- 5.) It may be necessary to bleed air from the motor(s) on your spa if, after start up, your spa pumps do not operate.

Due to the nature of water flow and hydro-therapy pumps, please be advised that air locking of pumps may occur. Master Spas has taken measures to reduce the possibility of this, but it still may occur, especially after refilling a spa. This is not a service covered under warranty.

To relieve an airlock situation, loosen the union (see picture) on the discharge of the pump (the end of the pump that water is being pushed through). Water should leak out. Tighten the union and test the pump for proper jet flow. If needed repeat process.



Pump Union

Airlock

- 6.) Adjust water chemistry according to the instructions provided in the "Spa Water Maintenance Section" (page 15).
- 7.) Your spa water will heat approximately 5° - 8° per hour, for all 240V spas. This varies depending on the size of the spa. Step into the soothing waters of your new Master Spa!

**RELAX AND ENJOY.**

## WATER CHEMISTRY TERMS YOU SHOULD KNOW

Before jumping into the Spa Water Maintenance, here are some terms to help you.

- 1. Parts per million, or ppm:** This is a form of measurement used in most pool or spa chemical readings. Best described as any one million like items of equal size and make up, next to one unlike item, but of equal size. This would be one part per million.
- 2. Average size spa:** What is it? The national spa and pool institute (NSPI) states; 350 to 400 U.S. gallons is average. As a general rule, chemical dosages are the same for any spa between 100 and 500 U.S. gallons. Spas over 500 U.S. gallons the dosage would be double. Under 100 U.S. gallons would be on a case by case basis.
- 3. Total Alkalinity:** This is a measurement of the ability of the water to resist changes in pH. Put another way, it is the water's ability to maintain proper pH. Total alkalinity is measured in parts per million from 0 to 400 plus, with 80 to 150 ppm being the best range for spas. With low alkalinity, the pH will flip, or change back and forth, and be hard to control. With high alkalinity it becomes extremely difficult to change the pH.
- 4. pH or potential hydrogen:** This is a measurement of the active acidity in the water, or it is the measurement of the concentration of active hydrogen ions in the water. The greater the concentration of active hydrogen ions, the lower the pH. pH is not measured in parts per million, but on a scale from 0 to 14, with 7 being the neutral. In spas when ever possible, a measurement between 7.2 and 7.8 is best. Whenever possible, it should be between 7.4 and 7.6. With low pH, the results can be corroded metals, etched and stained plaster, stained fiberglass or acrylic, eye / skin irritation, rapid chlorine or bromine loss, and total alkalinity destruction. With high pH, the results can be cloudy water, eye / skin irritation, scale formation and poor chlorine or bromine efficiency.
- 5. Shocking:** This is when you add either extra chlorine (superchlorinate) by raising the chlorine level above 8 ppm, or add a non-chlorine shock (potassium monoperoxysulfate or potassium monopersulfate) to burn off the chloramines or bromamines. A non-chlorine shock acts by releasing oxygen in the water, which serves the same function as chlorine. The advantage to using non-chlorine shock, is you can enter the water within 15 minutes after shocking. Using chlorine, you must wait until the total chlorine reading is below 5 ppm. One thing to remember, a non-chlorine shock will not kill bacteria or disinfect.
- 6. Sequestering:** This can be defined as the ability to form a chemical complex which remains in solution, despite the presence of a precipitating agent (i.e. calcium and metals). Common names for sequestering chemicals are; minquest, stain and scale control, metal-x, spa defender, spa metal gone, (etc.).

## WATER CHEMISTRY TERMS YOU SHOULD KNOW

Before jumping into the Spa Water Maintenance, here are some terms to help you.

7. **Filtration:** Filters are necessary to remove particles of dust, dirt, algae, etc. that are continuously entering the water. If the spa is not operated long enough each day for the filter to do a proper job, this puts a burden on the chemicals, causing extra expense. Filtration time will depend on the spa size, pump and filter size, and of course, bather load. A spare cartridge should be kept on hand to make it easy to frequently clean the cartridge without the need for a long shut down. This will also allow the cartridge to dry out between usages, which will increase the cartridge life span as much as twice. Replace the cartridge when the pleats begin to deteriorate. Cartridge cleaning should be done a minimum of once a month. More often with a heavy bather load.
8. **Sanitizers:** This is what kills the germs and bacteria that enter the water from the environment and the human body.
  - A. Chlorine
    1. Only one type is good for spa use
      - a. Sodium dichlor which is a granule, fast dissolving, and pH neutral
    2. Chlorine is an immediate sanitizer.
  - B. Bromine
    1. Two types of tablets.
      - a. Hydrotech
      - b. Lonza
    2. Bromine is a slow dissolve chemical and may take a few days to develop a reserve or reading in the water.
9. **Total dissolved solids (TDS):** Materials that have been dissolved by the water. i.e. Like what happens when you put sugar in coffee or tea.
10. **Useful life of water (in days):** Water should be drained at least once every 180 days. Useful life may vary by usage and bather load.
11. **Defoamer:** Foaming may be caused by body oils, cosmetics, lotions, surface cleaners, high pH or algeacides as well as other organic materials. Low levels of calcium or sanitizer can also cause foaming. Also, double rinse your bathing suits as they will hold residual soap after being washed.
12. **Calcium hardness:** Water that is too hard (over 250 ppm) can promote scale formation in components and on spa surface. Water that is too low (below 180 ppm) may also shorten the life of metal components on the spa.

## **WATER QUALITY MAINTENANCE SCHEDULE**

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- BEFORE EACH USE -** Check spa water with a test strip for proper sanitation levels and adjust accordingly to the proper levels.
- ONCE A WEEK -** Add 3 Tablespoons of a non-chlorine shock or 1 teaspoon of Dichlor to spa per 250 gallons.
- 3 TIMES A WEEK -** Test water using chemical test strips. Adjust sanitizer, pH and Alkalinity accordingly.
- ONCE A MONTH\* -** Soak your filter element overnight in a bucket with spa Filter Cleaner and then rinse with clean water before re-inserting.
- EVERY 180 DAYS -** Drain and refill your spa. Repeat start up procedure.
- AFTER EACH USE -** Add 1 tablespoon of non-chlorine shock or 1/3 teaspoon of Dichlor to spa per 250 gallons.
- AS NEEDED -** If water looks hazy, shock treat with 1 teaspoon of Dichlor per 500 gallons.

\* These are general recommendations for water quality maintenance that may vary by usage and or bather load. Depending on bather load and frequency of use, drain and refill times may vary as well as the frequency of cleaning your filters.

\* Foam Gone may be used when excessive foaming occurs. Be sure to use only a drop or two at a time. Over use of Foam Gone will result in cloudy, milky water.

### **NOTE:**

As an alternative to non chlorine shock, Dichlor may be substituted.

1 tsp. Dichlor = 3 tablespoons of non chlorine shock

### **USE ONLY SPA CHEMICALS**

(some pool chemicals are not suitable for spa use).

\* when cleaning filters, be sure to never have the pump(s) running without the filter in place. Failure to do so may result in debris in the pumps causing unwarranted damage.



## **SPA WATER MAINTENANCE - START-UP**

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1. Read the spa owners manual first.
2. Clean the surface with a spa general purpose cleaner or wipe down with a clean wet towel.
3. Begin filling the spa with fresh water. If possible, do not use softened water.
4. When the spa has 2 to 4 inches of water on the bottom, add the recommended amount of a sequestering chemical for that size spa. See the chemical bottle for correct amounts.
5. When the spa is full, run the pump on high speed for 30 minutes without air controls open. This will give the sequestering chemical time to mix well with the water. Allow sequestering chemical 12-24 hours to properly filter in the water before proceeding with any further steps.
6. Using test strips or a test kit, test for total alkalinity, and adjust if necessary to between 80 to 150 ppm using the pH / alkalinity increaser or decreaser 1oz. at a time. Wait 15 minutes, retest, and adjust if necessary. The pump should be running on high speed during this time without air controls open.
7. Using test strips or a test kit, test for pH, and adjust if necessary to within the 7.2 and 7.8 range using the pH / alkalinity increaser or decreaser 1/2oz. at a time. Wait 15 minutes, retest, and adjust if necessary. The pump should be running on high speed during this time, without air controls open.
8. Add the sanitizer of choice, following label directions. If chlorine is used, broadcast the recommended amount across the surface of the water, with the pump running on high speed. Wait 15 minutes, retest, and adjust if necessary to a total chlorine reading of 1 to 3 ppm. If bromine is used, add bromine tablets to the bromine feeder following label directions. With the pump running on high speed, add 2oz. of sodium bromide, and shock the spa with 2oz. of non chlorine shock. It may take several days adjusting the bromine feeder to obtain a total bromine reading of 3 to 5 ppm. A bromine reading may not be obtained on the first day.
9. If any foam develops, add a defoamer at the base of the problem area. Use only enough defoamer to get rid of the foam. This is usually one or two drops. Do not pour large amounts of defoamer into water.
10. Wait two days, and begin a three day a week maintenance program.

## **SPA WATER MAINTENANCE - START-UP**

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### **DAY ONE**

1. Test and adjust total alkalinity if necessary to between 80 to 150 ppm using the pH / alkalinity increaser or decreaser 1oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
2. Test and adjust pH, if necessary, to within the range of 7.2 to 7.8 using the pH / alkalinity increaser or decreaser, 1/2oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
3. Test and adjust sanitizer level. Add chlorine following label directions to maintain a free chlorine level of 1 to 3 ppm. If using bromine, adjust feeder to maintain a total bromine level of 3 to 5 ppm. Add bromine tablets to the dispenser if necessary, following label directions.
4. Add a water clarifier following label directions. If the spa is equipped with an ozone unit, we recommend adding an enzyme product in place of the clarifier, following the label directions.
5. Use a small amount of defoamer only if necessary.

### **DAY TWO SKIP**

### **DAY THREE**

1. Test and adjust total alkalinity, if necessary, to between 80 and 150 ppm using the pH / alkalinity increaser or decreaser, 1oz at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
2. Test and adjust the pH, if necessary, to within the range of 7.2 to 7.8 using the pH / alkalinity increaser or decreaser, 1/2oz at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
3. Test and adjust sanitizer level. Add chlorine following label directions to maintain a free chlorine level of 1 to 3 ppm. If using bromine, adjust feeder to maintain a total bromine level of 3 to 5 ppm. Add bromine tablets to the dispenser if necessary, following label directions.
4. Add sequestering chemical, following label directions for maintenance.
5. If necessary, clean water line with a spa general purpose cleaner or enzyme product.
6. Use a defoamer only if necessary.

*(cont. next page)*

## **SPA WATER MAINTENANCE - START-UP**

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### **DAY FOUR SKIP**

### **DAY FIVE**

1. Test and adjust total alkalinity, if necessary, to between 80 and 150 ppm using the pH / alkalinity increaser or decreaser, 1oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
2. Test and adjust the pH, if necessary, to within the range of 7.2 to 7.8 using the pH / alkalinity increaser or decreaser, 1/2oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
3. Test and adjust sanitizer level. Add chlorine following label directions to maintain a free chlorine level of 1 to 3 ppm. If using bromine, adjust feeder to maintain a total bromine level of 3 to 5 ppm. Add bromine tablets to the dispenser if necessary, following label directions.
4. Shock with 2oz. of non chlorine shock, or superchlorinate following label directions. A spa should be shocked at least once a week even if it is not used. If using chlorine as the sanitizer, the spa should be shocked whenever a free chlorine reading of 1 to 3 ppm cannot be obtained without raising the total chlorine level above 5 ppm. Always shock a spa after any heavy bather load.
5. Check filter cartridge and clean if necessary. Clean with cartridge filter cleaner, following label directions. It is best to have a spare cartridge on hand, to prevent long spa down times while the cartridge is being cleaned. Never operate your spa without the filters in place.
6. Use a defoamer only if necessary.

### **DAY SIX AND SEVEN SKIP**

With a spa, you are working with a small volume of hot water, which causes chemicals to have a shorter life span, and bacteria, along with other things, to grow faster. A spa is less forgiving than a pool, and requires that whatever is put into it have a pH as close to neutral as possible. That is why only chemicals made for spas should be used.

## SPA WATER MAINTENANCE

### TROUBLE-SHOOTING GUIDE

<b>PROBLEM</b>	<b>POSSIBLE CAUSES</b>	<b>HOW TO FIX IT</b>
Chlorine / Bromine Odor	<ul style="list-style-type: none"> <li>• Excessive Chlorine or bromine levels</li> <li>• Low pH</li> </ul>	<ul style="list-style-type: none"> <li>• Shock water with non-chlorine shock treatment</li> <li>• Adjust pH if necessary</li> </ul>
Water Odor	<ul style="list-style-type: none"> <li>• Low levels of sanitizer</li> <li>• pH out of range</li> <li>• Bacteria or algae growth</li> </ul>	<ul style="list-style-type: none"> <li>• Shock water with non-chlorine shock treatment or adjust sanitizer levels</li> <li>• Adjust pH level if necessary</li> <li>• Adjust sanitizer if necessary</li> </ul>
Cloudy Water	<ul style="list-style-type: none"> <li>• Dirty filters or inadequate filtration</li> <li>• Water chemistry not balanced</li> <li>• Suspended particles or organic materials</li> <li>• Old water</li> </ul>	<ul style="list-style-type: none"> <li>• Clean filters and adjust filtration times</li> <li>• Adjust chemistry levels</li> <li>• Add spa clarifier (see dealer)</li> <li>• Change spa water</li> </ul>
Scum Ring Around Spa	<ul style="list-style-type: none"> <li>• Build up of oils, dirt and organic elements</li> </ul>	<ul style="list-style-type: none"> <li>• Wipe off with a clean towel</li> </ul>
Eye / Skin Irritation	<ul style="list-style-type: none"> <li>• Unsanitary water</li> <li>• Free chlorine level above 5 ppm</li> <li>• Poor sanitizer / pH levels</li> </ul>	<ul style="list-style-type: none"> <li>• Shock spa with non-chlorine shock</li> <li>• Allow level to drop below 5 ppm</li> <li>• Adjust according to spa test strip results</li> </ul>
Foaming	<ul style="list-style-type: none"> <li>• High levels of body oils, lotions, soap, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Add small amount of defoamer</li> </ul>

### RECOMMENDED LEVELS OF CHEMICAL

Chlorine 1.0 - 3.0 ppm

pH 7.2 - 7.8

Total Alkalinity 80 - 150 ppm

Calcium Hardness 180 - 250 ppm

## WHY ARE CHEMICALS IMPORTANT IN A SPA

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1. **Evaporation:** As water evaporates, only pure water evaporates, leaving the salts, minerals, metals, and any unused chemicals behind. Adding water adds more salts, minerals, and metals. In time, the water can become saturated with these dissolved solids and can cause stains or scale to form on the walls of the spa or a scale build up inside the equipment. Colored or cloudy water, and possible corrosion of plumbing and fittings may also occur.
2. **Heat:** Heat causes evaporation to happen faster. Heat also causes certain minerals and metals to precipitate out of solution.
3. **Air:** Dust and airborne dirt particles are introduced into the spa.
4. **Environment:** The environment surrounding the spa is also a consideration. Watch for pollen, grass, sand, dirt, lawn fertilizer, dust storms, insects, dogs, cats, etc.
5. **Consider the human next:** In a heated spa, the average adult sweats 3 pints per hour. This person also brings in the spa surface dirt, soap, body oils, deodorant, hair spray, hand and body lotion, perfume and cologne, make up, lipstick, and suntan lotion. To this you can add spit, urine, bacteria and virus germs from open sores or certain body parts. To this let's add spilled drinks, cigarette ash, and various play things. Now multiply this times 4 or 6 people in an average 375 gallon spa and then try to use the water for a few months!

### REMEMBER:

The maintenance routines set forth in this manual may need to be adjusted depending on how much the spa is being used.

## **MAINTENANCE RECOMMENDATIONS**

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Your spa requires periodic draining and cleaning to ensure a safe, healthy environment. It is recommended that you clean your spa at least every 180 days. Heavy bather load will require cleaning it more often.

### **TO DRAIN YOUR SPA**

- See page 7.

### **TO CLEAN YOUR SPA SURFACE**

- With a soft cloth, wipe down the spa surface with a non-abrasive spa surface cleaner that may be purchased through your local spa dealer. Do not use paper towels. Be sure to rinse residue from spa surface.
- If your spa has developed an oily or chalky residue at the waterline it may require special treatment. Consult your dealer.

### **TO REFILL YOUR SPA**

- Be sure to close the drain valve.
- Fill the spa with water. Be sure water level is above skimmer opening to the minimum safe water level label.
- Refer to your spas corresponding start-up section with any questions.

### **TO CLEAN YOUR FILTER ELEMENT (also reference page 32)**

The filter in your spa is one of the most important components of your spa. It not only is essential for clean water, but also for extending the life of the spa equipment. Your filter element must be cleaned regularly (once a month on average) with normal spa use. With heavy use, they will need to be cleaned more often.

- Turn spa off. Never have the spa running when removing your filter as debris can be pulled through into the equipment causing unwarranted damage.
- Remove filter element.
- With a garden hose, spray the element under pressure. Periodically, the element needs to be soaked in a filter cleaner compound. Check with your dealer for details on cleaning and/or filter replacement recommendations.
- Replace filter element.
- Be sure water level is adequate.
- Turn spa on.

### **CARE OF YOUR SPA PILLOWS**

- Your spa pillows need to be rinsed periodically to remove any chemical residue. This should help to eliminate pillows becoming stiff and discolored.
- If spa is not to be used for a period of time, pillows should be removed. Pillow life will be extended.

## WINTERIZING YOUR SPA

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Many people find they enjoy using their spa more in the winter than any other time. Your spa is designed to be used year round in any type of climate.

\*However, if you decide you don't want to use your spa in the winter, you must drain it and follow the winterizing steps listed below:

- 1.) Drain your spa completely using the drain valve (see "To Drain Your Spa") or use an inexpensive submersible pump that you can buy from your dealer or your local hardware store.
- 2.) Use a shop vac to get all standing water out of your unit.
- 3.) Remove access panels from equipment area.
- 4.) Loosen all pump unions
- 5.) Remove winterizing plug from the face of the pump(s).
- 6.) Using your shop vac in a blowing mode, insert the hose into the nozzle of each jet and blow the trapped water from the lines into the interior of the spa.
- 7.) After this is completed, use the shop vac to remove any standing water in the spa and in the equipment area.
- 8.) Clean the spa with a soft cloth and a non-abrasive spa surface cleaner.
- 9.) Replace access panels.
- 10.) Cover spa to prevent water from entering the spa.

**\* Disclaimer: Master Spas does not recommend winterizing your spa. If you choose to do so, any damage that may result is not covered under the spa warranty.**

## LEGACY SPA - SPECIFICATIONS

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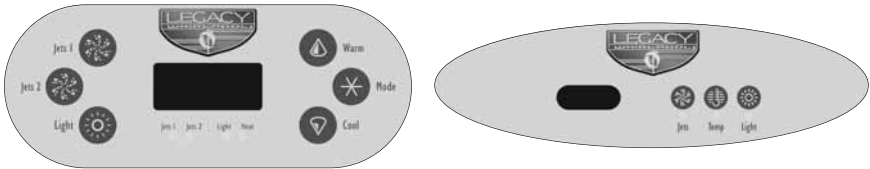
	Spa Dimensions (in.)	Electrical Requirements	Water Capacity (gallons)	Weight Dry/Full (lbs.)	Therapy Pumps	Jet Count
<b>INTREPID</b>	94 x 94 x 36	240V, 50 Amp	485	700 / 7,740	2	40
<b>ENTERPRISE</b>	84 x 84 x 36	240V, 50 Amp	410	655 / 4,070	2	40
<b>INSPIRE</b>	84 x 84 x 36	240V, 50 Amp	425	650 / 4,190	2	40
<b>ENVISION</b>	78 x 84 x 32	240V, 50 Amp	320	580 / 3,245	1	28



## LEGACY SPA - DIAGNOSTIC MESSAGES

### INITIAL START-UP

When your spa is first actuated, it will go into Priming mode, indicated by "P-" The Priming mode will last for less than 5 minutes (press "Temp" to skip Priming Mode) and then the spa will begin to heat the spa and maintain the water temperature in the Standard mode.



### Temp (80°F - 104°F / 26°C - 40°C)

The start-up temperature is set at 100°F/37°C. The last measured temperature is constantly displayed on the LCD.

Note that the last measured spa temperature displayed is current only when the low speed of pump 1 has been running for at least 2 minutes.

To display the set temperature, press the "Temp" pad once.

To change the set temperature, press the pad a second time before the LCD stops flashing. Each press of the "Temp" pad will continue to either raise or lower the set temperature.

If the opposite direction is desired for a 1 pump unit, release the pad and let the display revert to the current water temperature. Press the pad to display the set temperature, and again to make the temperature change in the desired direction. In a 2 pump unit, temperature setting is accomplished by pressing up to increase the temperature or down to decrease the temperature.

After three seconds, the LCD will stop flashing and display the current spa temperature.

### Jets

Touch the "Jets" button once to turn pump 1 on or off, and to shift between low and high speeds. If left running, the low speed of the pump will automatically turn off after 4 hours, and the high speed will automatically turn off after 15 minutes.

### Jets 2 (if applicable)

Touch the second "Jets" button once to turn pump 2 on or off. If left running, pump 2 will automatically turn off after 15 minutes.

### Light

Press the "Light" button to turn the light on and off. If left on, the light automatically turns off after 4 hours.

## LEGACY SPA - DIAGNOSTIC MESSAGES

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### Mode

Mode is changed by pressing the "Temp" button, then pressing the "Light" button on a one pump unit and "mode" then "Temp On" on a two pump unit.

**Standard Mode** is programmed to maintain the desired temperature. Note that the last measured spa temperature displayed is current only when the low speed of pump 1 has been running for at least 2 minutes. "SL" will be displayed momentarily when you switch into Standard Mode.

**Economy Mode** heats the spa to the set temperature only during filter cycles. "EC" will display solid when temperature is not current, and will alternate with temperature when temperature is current.

**Sleep Mode** heats the spa to within 20°F/10°C of the set temperature only during filter cycles. "SL" will display solid when temperature is not current, and will alternate with temperature when temperature is current.

### Preset Filter Cycles

The first filter cycle begins 6 minutes after the spa is energized. The second filter cycle begins 12 hours later. Filter duration is programmable for 2, 4, 6, 8 hours or for continuous filtration (indicated by "FL"). The default filter time is 2 hours.

To program, press "Temp" then "Jets." Press "Temp" to adjust. Press "Jets" to exit programming.

At the beginning of each filter cycle the pump(s) purge for 30 seconds; the pump purges for 5 minutes. The only effect filter duration has is: 1) During the filter, the low-speed of pump 1 never turns off, and 2) In Economy and Sleep Modes, heating only occurs during the filter cycle.

### Freeze Protection

If the temperature sensors detect a drop to below 44°F/6.7°C within the heater, the pump will automatically activate to provide freeze protection. The equipment stays on until 4 minutes after the sensors detect that the spa temperature has risen to 45°F/7.2°C or higher. In colder climates, an optional additional freeze sensor may be added to protect against freeze conditions that may not be sensed by the standard sensors. Aux freeze sensor protection acts similarly except with the temperature thresholds determined by the switch and without a 4-minute delay in turnoff. See your dealer for details.

## LEGACY SPA - DIAGNOSTIC MESSAGES

MESSAGE	MEANING	ACTION REQUIRED
	No message on display. Power has been cut off to the 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 2 minutes, the temperature will be displayed.
HH	"Overheat" - The spa has shut down. One of the sensors has detected 118°F/48°C at the heater.	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 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 110°F/43°C.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/42°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.
IC	"Ice" - Potential freeze condition detected.	No action required. The pump(s) will automatically activate regardless of spa status.
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 situation and disappear when the heater cools.)
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 situation and disappear when the heater cools.)

## LEGACY SPA - DIAGNOSTIC MESSAGES

MESSAGE	MEANING	ACTION REQUIRED
<i>Sn</i>	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.
<i>HL</i>	A significant difference between temperature sensors has been detected. This could indicate a flow problem.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. If problem persists, contact your dealer or service organization.
<i>LF</i>	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.
<i>dr</i>	Possible inadequate water, poor flow, or air bubbles in detected in the heater. Spa is shut down for 15 minutes.	Check water level in spa. Refill if necessary. If water level is okay, make sure the pump(s) have been primed. Press any button to reset, or this message will automatically reset within 15 minutes. If problem persists, contact your dealer or service organization.
<i>dy</i>	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.

**Warning! Shock Hazard! No User Serviceable Parts.** Do not attempt service of this control system. 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.

## LEGACY STEREO SYSTEM

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**Warning:** Never remain in your spa longer than 15 minutes per session when the water temperature is above 98°F. If you wish to spend more time in your spa, whether enjoying music, or just lounging, be sure to keep the spa water at or below body temperature (98.6°F).

*\*Please refer to your stereo Owner's Manual for specific operations.*

Your Spa Stereo System includes a Boss CD/FM stereo with two surface mounted speakers. When adding chemicals, please be sure to leave your spa cover open for at least 15 minutes after adding chemicals to prevent off gas damage to speakers, pillows and plastic parts.

The speaker compartment of your spa has a drain at the bottom of the spa frame to prevent water from accumulating and sitting stagnant. Please note that this drain runs down to the corner of the spa and will leak out should water collect in these compartments. Please also note that should the drain become blocked, water will not drain out, causing your marine grade speaker to become completely submerged in water. Any damage caused by this is not warranted.

**Note:** If you are installing your spa indoors, always be aware that if you splash water into the speaker compartments of the spa, water will run down through the speaker drain which drains below the spa in the corner where the speakers are located. Please be aware of this as any damage is not covered by the warranty. This could cause unwarranted damage.

**Note:** Do not place wet CDs into the stereo at anytime.

**Note:** AM channels will be very limited in reception and in most cases unavailable.

## SPA TROUBLE-SHOOTING GUIDE

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### NOTHING ON THE SPA OPERATES-

- 1.) Check the control panel display for any messages. If there is a message, refer to the diagnostic section. There you will find the meaning of the message and what action is to be taken.
- 2.) If there is no message on your control panel, check and reset the GFCI and house breaker.



*\*The GFCI should be located in a weather proof box close to the spa, but no closer than 5 ft.*

If the spa does not respond, contact your local service company.

### PUMP(S) DO NOT OPERATE -

- 1.) Press the "Jets" button on your control panel.  
If you hear the pumps trying to operate:
  - A. . Pump may need to be primed. See page 12.If you do not hear anything from the pump, contact your local service company.

### POOR JET PERFORMANCE

- 1.) Make sure pump is operating
- 2.) Check that the water level is adequate (up to minimum safe water level side)
- 3.) Make sure the jets are open.
- 4.) Check for dirty filter. Clean if necessary.

## SPA TROUBLE-SHOOTING GUIDE

---

### SPA NOT HEATING

\* If the spas heater has failed, the majority of the time it will trip the GFCI breaker. If the spa is not heating and has not tripped the breaker, please follow these steps:

- 1.) Check the control panel for diagnostic messages. Refer to spa diagnostic message area in previous sections.  
Follow steps to alleviate message.
- 2.) Check water set temperature at control panel.
- 3.) Check for dirty filter. Clean if necessary.
- 4.) Check "heat mode" the spa is set in. Spa should be in standard mode.
- 5.) Check the control panel for heater light indicator. If the light is on, the spa should be heating. Wait a reasonable amount of time (approximately 1 hour) to see if the water temperature is changing.
- 6.) Check to make sure that the pump is primed.
- 7.) Reset power to the spa at GFCI breaker.
- 8.) If spa is still not heating, contact your dealer for service.

### GFCI IS TRIPPING



The Ground Fault Circuit Interrupter (GFCI) is required, by NEC code (National Electrician Code), for your protection. The tripping of the GFCI may be caused by a component on the spa or by an electrical problem. Such electrical problems include, but are not limited to, a faulty GFCI breaker, power fluctuations, or a miswire. It may be necessary to contact an electrician if your local dealer recommends doing so.

## REGULAR MAINTENANCE PROCEDURES

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**Note:** These are areas that will require the spa owner to perform routine maintenance. These are not areas covered under the warranty of the spa.



### CLEANING JETS

The majority of jets in your spa can individually be turned on/off. If any of these jets become hard to turn, it will be necessary to remove the jet to clean it as grit/sand and mineral deposit may be present.

Jets are removed by turning the collar and then pulling out the jet. Some jets may not be removable depending on model.

### TO CLEAN JETS

Place the jet(s) in a bucket, fully immerse in white vinegar. Let the jet(s) soak overnight and then rinse with water. Reinstall the jet(s). It may also be necessary to clean the grit/deposit from the white jet body using an old toothbrush.



### DRAINING YOUR SPA

The drain is located behind the front panel on the far right side, grasp the hose bib cap and turn it counter clockwise. Attach a garden hose, if desired. Turn the black knob on the side of the valve a quarter turn. Draining times may vary by model using the external hose bib. A sump pump may also be used to drain the spa quickly.



## REGULAR MAINTENANCE PROCEDURES

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### CARE OF YOUR SPA COVER

Always cover your spa when not in use. This will greatly reduce energy consumption and will cause spa water to heat more rapidly. Water loss and chemical usage will also be reduced.

- Be sure to lock down all straps on cover after each use to prevent wind damage.
- Do not allow spa to sit uncovered in direct sunlight. This may cause damage to exposed surfaces of spa and possible discoloration of spa fittings.
- Periodically hose off both sides of spa cover for maximum life of cover. Once a month use a vinyl cleaner and conditioner on the vinyl portion of your cover. Rinse residue off.

**NOTE: IF YOUR SPA IS GOING TO BE LEFT EMPTY FOR PROLONGED PERIODS, DO NOT REPLACE COVER DIRECTLY ON SURFACE OF SPA. PLACE 2"-3" BLOCKS BETWEEN COVER AND SPA. THIS ALLOWS FOR ADEQUATE VENTILATION OF COVER AND SPA.**

*NOTE: The cover warranty is provided through the cover manufacturer and not through Master Spas. You will need to mail the cover warranty back to the cover manufacturer.*

### CARE OF YOUR SPA CABINET

Your quality Polymer Skirt simply needs to be hosed off periodically. No other maintenance is required.



#### FILTER CLEANING

NOTE: Never operate the spa without filter in place. If done, damage will result to pumps and other components. We recommend having an extra filter to install when cleaning the filter.

- 1.) Turn power off to the spa.
- 2.) Remove any large or floating debris from the filter area.
- 3.) Remove the filter. Filter should be periodically rinsed and soaked in a cartridge cleaner. Follow cartridge cleaner instructions.

### SPA CARE AND MAINTENANCE RECORD

DATE DATE DATE DATE DATE DATE DATE DATE

Drain & Clean Spa								
Clean Filter Cartridge								
Soak Filter Cartridge in Solution								
Test GFCI								
Clean and Condition Spa Cover and Cabinet								
Miscellaneous Service								
Miscellaneous Service								







Master Spa Parts

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