

● Introduction

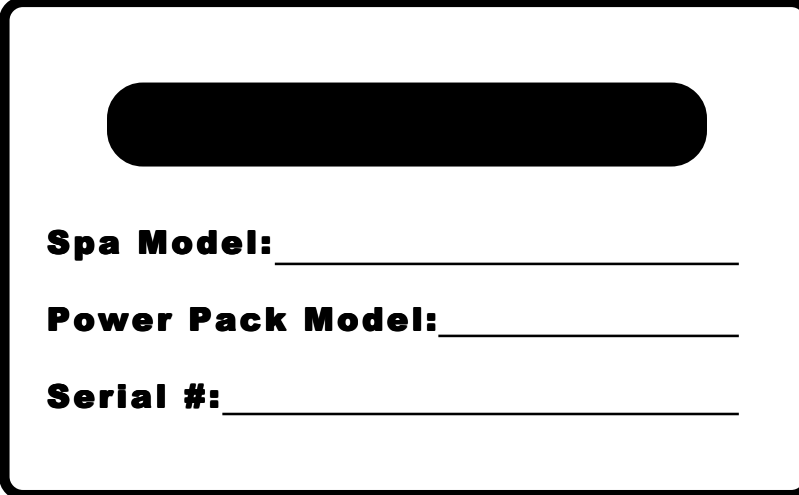
Congratulations on your purchase of the finest spa on the market today. Emerald Spa Corporation welcomes you to the *Emerald Spa* life-style! We are confident that this purchase will fulfill all your comfort, therapy and relaxation needs.

With proper care, your spa will provide many years of comfort and pleasure. Please take the time to read all of the instructions before you install your Emerald or Cygnus Series Spa. This Owner's Manual will help you understand all the features of your spa and ensure that you get the most from your investment.

Remember, your beautiful new spa is a powerful appliance! You owe it to yourself, your family and friends, to make sure that the spa is installed correctly and safely.

This manual explains safety precautions, installation instructions, operating directions, and maintenance procedures. If you have questions after reading this manual, please call your Emerald Spa Service Representative at 1-800-766-7727.

Read and understand all safety, installation, operating instructions and all warnings and cautions before adding water or attaching electrical power.



Spa Model: _____

Power Pack Model: _____

Serial #: _____

- Warnings, Cautions, and Notes

Throughout this manual, various Warnings, Cautions, and Notes will appear in the left margin or at the beginning of the text associated with the Warning, Caution, or Note. These comments range in importance from helpful hints to situations where the possibility of personal injury exists. Please take the time to read and understand them. The pictures and drawings may not reflect product changes that occurred after the printing of this manual.

Warnings, Cautions, and Notes appear as follows:



WARNING:
Indicates a situation in which personal injury may occur.

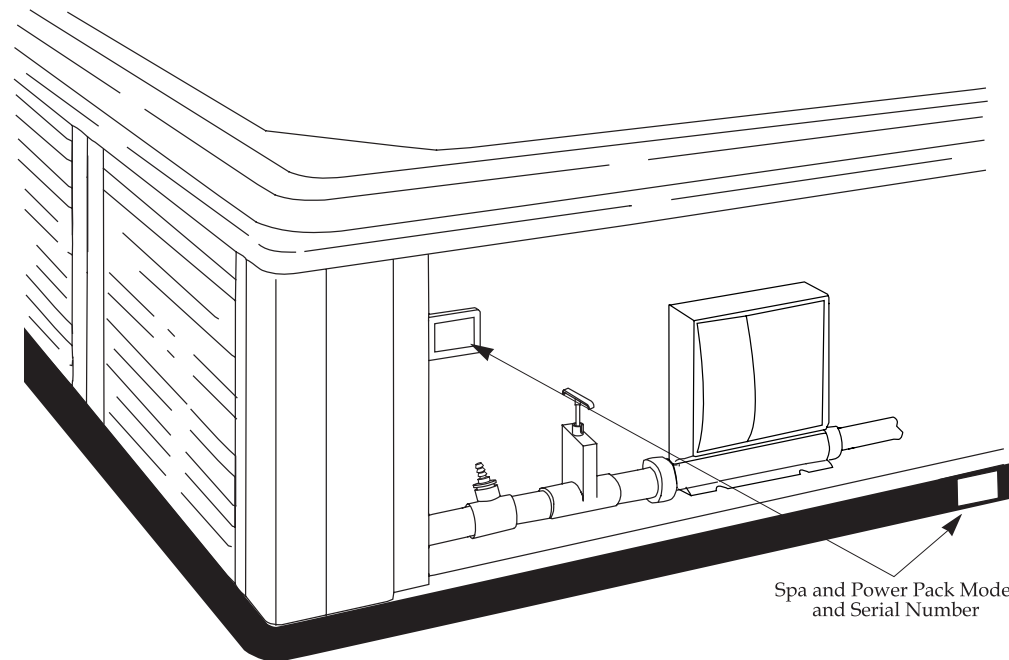


CAUTION:
Indicates a situation in which damage to equipment or material may occur.

NOTE:
Provides helpful information for proper operation of your Emerald spa.

- Model and Serial Number Locations

Refer to the illustration below to locate and record the model number and serial number of both your Spa and Spa Power Pack.



SAVE THESE INSTRUCTIONS

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General

IMPORTANT SAFETY INSTRUCTIONS

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

1. **READ AND FOLLOW ALL INSTRUCTIONS.**
2. **WARNING:** To Reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
3. A wire connector is provided on this unit to connect a minimum No. 8 AWG (8.4mm²) solid copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal siding, metal sliding doors, metal rails, metal water pipe, or conduit within 5 feet (1.5m) of the unit.
4. **DANGER:** Risk of accidental drowning. Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use this spa unless they are supervised at all times.
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 fittings or the pump, be sure that the flow rates are compatible. Never operate your 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:** Risk of electric shock. Install at least 5 feet (1.5m) from all metal surfaces. As an alternative, a spa may be installed within 5 feet of metal surfaces if each metal surface is permanently connected by a minimum No. 8 AWG (8.4mm²) 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 appliance, such as a light, telephone, or television within 5 feet (1.5m) of a spa.

SAVE THESE INSTRUCTIONS

*240V Hard Wired
Connected
Systems*

IMPORTANT SAFETY INSTRUCTIONS

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

1. **READ AND FOLLOW ALL INSTRUCTIONS.**
2. Read and follow all General Safety Instructions provided on pg. 4.
3. A terminal marked "GROUND" is provided within the motor control enclosure. To reduce the risk of electrical shock, connect this terminal to the grounding terminal of the electric supply panel with a continuous green insulated copper wire equivalent in size to the circuit conductors supplying this equipment.
4. This equipment must be provided with a ground fault circuit interrupter located in the power supply panel as installed by an electrician. Before each use of your spa, with the power turned on, push the test button. A red indicator should appear. Push the reset button, and the red indicator should disappear. **IF THE INTERRUPTER FAILS TO OPERATE IN THIS MANNER, THERE IS A GROUND CURRENT FLOWING, INDICATING THE POSSIBILITY OF AN ELECTRIC SHOCK.** Shut off the power to the spa until the source of the breakdown has been identified and corrected.
5. The electrical service panel should be equipped with a 50-amp GFCI overcurrent protective device.
6. The minimum supply conductor capacity is 50 Amp and should be sized as follows:
No. 6 AWG, or No. 8 AWG 75° C.
7. The electrical supply for the spa must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors, to comply with section 422-30 of the National Electrical Code, ANSI/NFPA 70-2002. The disconnecting means must be readily accessible to the spa occupant but must not be within 5 feet of the spa.

SAVE THESE INSTRUCTIONS

To Reduce the Risk of Injury

IMPORTANT USER SAFETY INSTRUCTIONS

When using this spa, basic safety precautions should always be followed.



WARNING:

As a spa owner, you should always review these instructions with first time or occasional users of the spa. Remember, they may not be aware of the possible risks associated with spa water temperature.

1. **READ AND FOLLOW ALL INSTRUCTIONS.**
2. **WARNING: TO REDUCE THE RISK OF INJURY,** do not permit children to use this product unless they are closely supervised at all times.
3. **DANGER: RISK OF ACCIDENTAL DROWNING.** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use the spa unless they are supervised at all times.
4. **WARNING: TO REDUCE THE RISK OF INJURY,** 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 for a 10 to 15 minute time period. Lower water temperatures are recommended for extended use [exceeding 10-15 minutes] and for young children.
5. Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 100° F [38° C].
6. Before entering a spa, the user should measure the water temperature with an accurate thermometer such as a medical thermometer, since the tolerance of temperature regulating devices vary.
7. The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.

SAVE THESE INSTRUCTIONS

IMPORTANT USER SAFETY INSTRUCTIONS (Continued)

8. Persons suffering from obesity or with a medical history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using a spa.
9. Persons using medication should consult a physician before using a spa, since some medications may induce drowsiness while other medications may affect heart rate, blood pressure and circulation.
10. Extended use of your spa in water temperatures between 100° F and 104° F may cause HYPERTHERMIA (elevated body temperature). 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 include dizziness, fainting, drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia include (1) unawareness of impending hazard, (2) failure to perceive heat, (3) failure to recognize the need to exit the spa, (4) physical inability to exit the spa, (5) fetal damage in pregnant women, and (6) unconsciousness, resulting in a danger of drowning.
11. **WARNING:** The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia in spas.
12. During Winter months where the temperature is consistently below freezing, check your spa periodically to assure that it is operating correctly and that the power to the spa has not been interrupted as to assure that the water lines are not in danger of freezing.
13. Do not use your spa alone.
14. Make sure that the following emergency telephone numbers are listed at the nearest telephone: physician, hospital, ambulance, and police.
15. Have at least one person in the family learn CPR (cardio-pulmonary resuscitation). It could save a life!

SAVE THESE INSTRUCTIONS

SPA LOCATION

- **Outdoor Considerations**
- **Indoor Considerations**

There are many things to consider prior to locating your spa. The following lists cover some of the more common factors involved in choosing the ideal location.

• **Outdoor Considerations**

- ✓ Local fencing and enclosure codes.
- ✓ Local electrical and plumbing codes.
- ✓ The view from your house.
- ✓ Your ability to supervise the spa.
- ✓ Wind direction and exposure to sunlight.
- ✓ Location relative to trees (falling leaves and shade).
- ✓ Dressing and bathroom location.
- ✓ Storage area for maintenance equipment and chemicals (storing chemicals inside your spa cabinet will void the warranty).
- ✓ Landscaping and evening lighting.
- ✓ Spa must be placed on a flat, level surface.
- ✓ Water is heavy (approx. 8 lbs per gallon). If a spa is placed on flooring or decking, be sure the structure is strong enough to support the added weight.

• **Indoor Considerations**

-
- ✓ Walls, ceiling, flooring, and woodwork must be able to withstand high humidity.
 - ✓ You may need cross-ventilation fans or oversized dehumidifiers (or both) to remove excess humidity.
 - ✓ Spa chemicals in the air may corrode certain metals in your home.
 - ✓ Floor drains are needed to carry off water splashed from the spa.
 - ✓ Recessed spas must be positioned to permit servicing from above or below floor.
 - ✓ Water is heavy (approx. 8 lbs per gallon). Be sure the flooring or decking is strong enough to support the added weight.
 - ✓ Due to the many precautions that must be taken to avoid damage to the surrounding environment from humidity and water inherent with spa use, it is usually prudent to avoid a second story location that may be above finished living space.

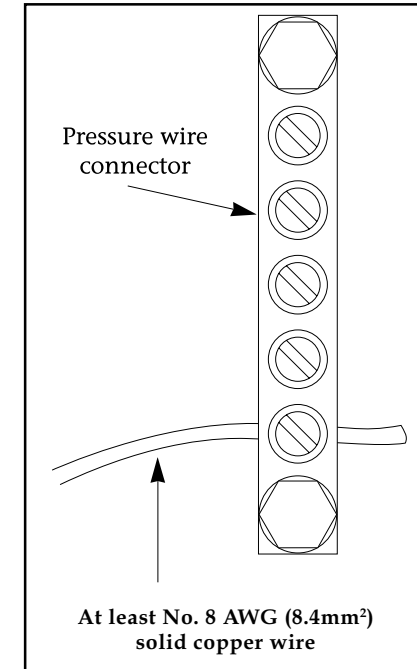
INSTALLATION INSTRUCTIONS

- General Procedures
- 240V Systems

- General Procedures

This section covers the installation of your spa. All electrical steps must be performed by a licensed electrician. The spa must be connected to a proper power supply and meet all National Electrical Code (N.E.C.) and local code requirements. The connection must include the conductors necessary for operation and bonding, as required by N.E.C.

1. Remove the spa from its shipping container and retain all safety, operation, and warranty information.
2. Position the spa on a flat, level surface such as concrete, or a wood deck which provides adequate drainage.
3. Position the spa at least 5 feet from all metal surfaces unless each metal surface is permanently connected to a bonding wire, as indicated in step 4.
4. The spa may be installed within 5 feet of metal surfaces as follows:
 - Installation must be in accordance with Article 680-(40-44) of the National Electrical Code, ANSI/NFPA 70-2002.
 - Each metal surface must be permanently connected to a bonding wire which is attached to a pressure wire connector provided for that purpose.
 - The pressure wire connector is located on the equipment system control enclosure.
 - The bonding wire must be at least No. 8 AWG (8.4 mm²) solid copper wire, in accordance with article 680-43E.
 - The bonding wire must be attached to the pressure wire connector and all metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet of the spa.



Located on the side of the spa pack box for M Class Equipment Systems and on the heater for S Class Equipment Systems

- **240V Systems**
(SC-1 240V,
SC-2, SC-3,
MC-2, MC-4, MC-6)

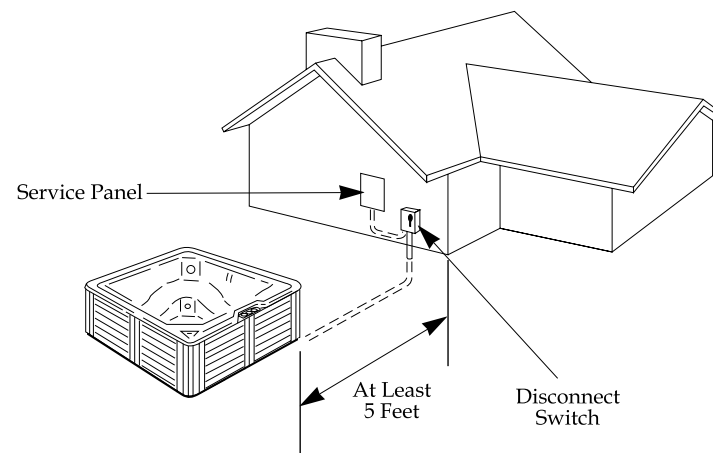
1. Install a 50-amp, GFCI overcurrent protective device in the electrical service panel.
2. The electrical supply for the spa must include a suitable rated switch or circuit breaker to shut off the power supply (to comply with section 422-30 of the National Electrical Code, ANSI/NFPA 70-2002). This disconnecting means must be readily accessible to the spa occupant, **however it must not be within 5 feet of the spa.** (see diagram below)
3. With the spa placed in its final location, power can be routed in two ways:

Under the spa cabinet- See figure 1 on pg. 11

- Determine placement of hole in floor so that conduit may enter between the spa shell and the wooden cabinet.
- Move the spa to allow working room. Cut off the conduit above the floor surface.
- Use an LB on the conduit to permit wire pulling if required.

Through a power entrance opening drilled by an electrician - See figure 2 on pg. 11

- Move the spa to allow working room. Use nonmetallic conduit and fittings. Cut off the conduit above the floor surface to permit the installation of an LB at the power entrance opening height.



240V Systems *[Continued]*

4. Pull 4 copper current carrying conductors (one each: black, red, white, green). Use either No. 6 AWG 60° C, No. 8 AWG 75° C, or No. 8 AWG 90° C wire, if spa is 50 feet or less away from its power supply. Note: the ground must be equal to or larger than the largest power conductor.
5. Reposition the spa at its final location and route the flexible conduit.
6. Using a 1" conduit connector at the end of the flexible conduit, route wires through an entrance hole cut by your electrician in the control enclosure, and attach the conduit connector to the control enclosure.

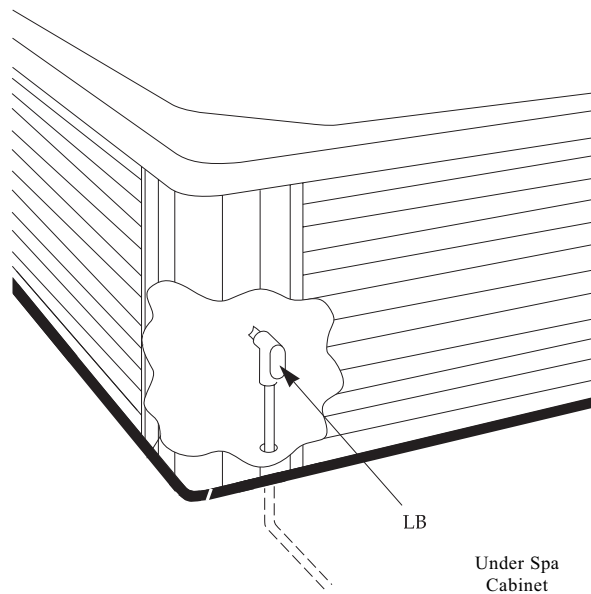


Figure 1

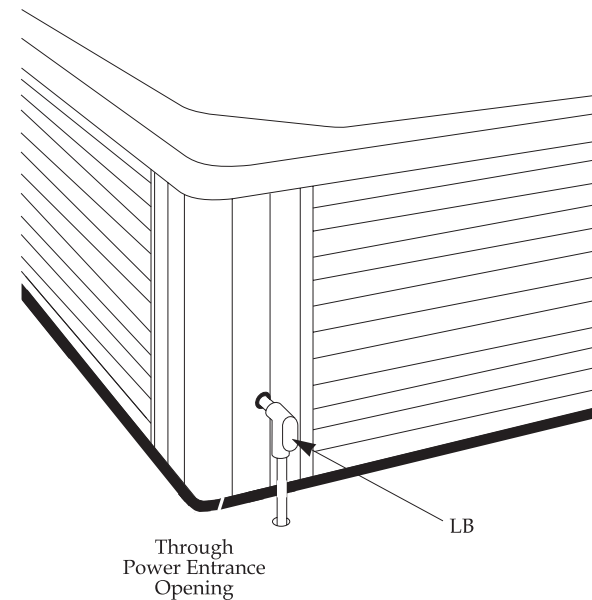


Figure 2

7. Attach power wires to the terminal block. See 240V wiring diagram inside the control enclosure cover. Attach the wires as follows:

SC Systems

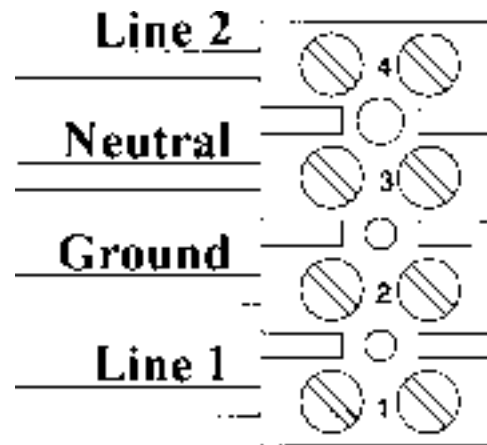
- Line 2 to terminal #4
- Neutral to terminal #3
- Ground to terminal #2
- Line 1 to terminal #1

MC Systems

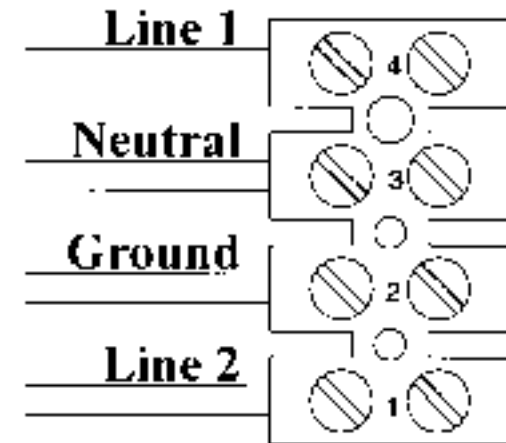
- Line 1 to terminal #4
- Neutral to terminal #3
- Ground to terminal #2
- Line 2 to terminal #1

8. Complete the conductor connections at the power supply panel.

9. Do *not* turn power on until instructed to do so in the "Starting and Using Your Spa" section.



SC-1, SC-2 & SC-3



MC-2, MC-4 & MC-6

240-Volt Power Input

Note:

Consult the Wiring Diagrams on Page 55 for 240 Volt to 120 Volt conversion on the SC-1 System Only.

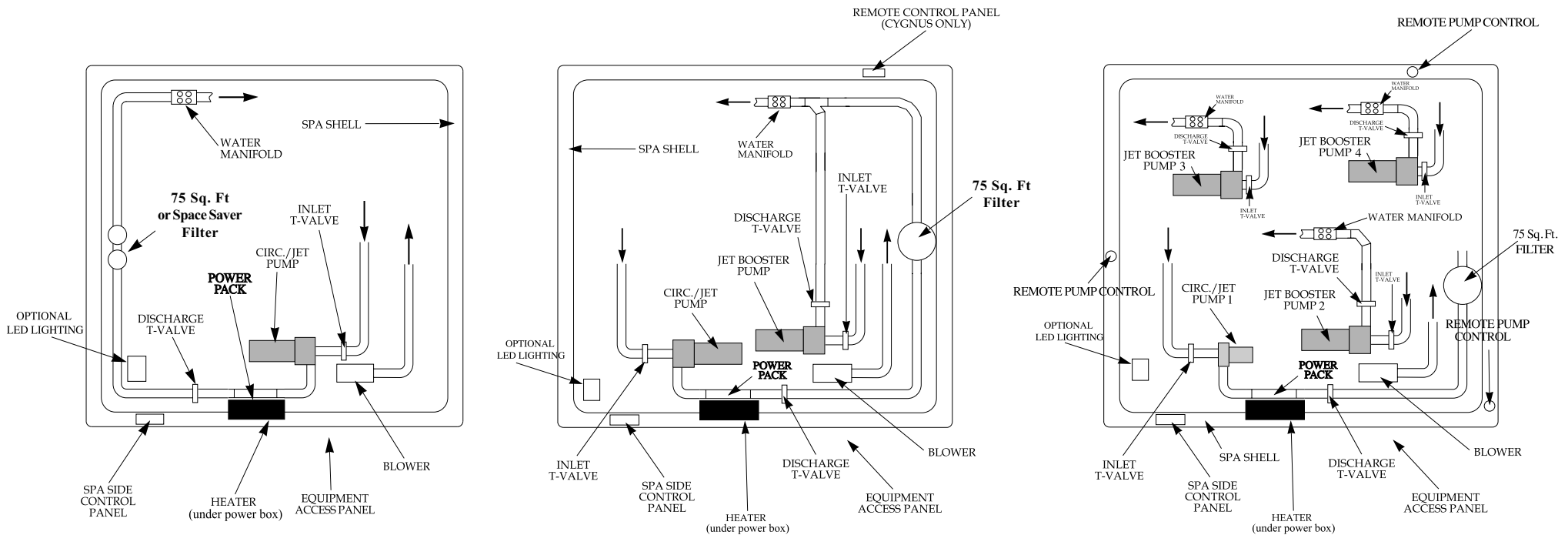
FEATURES AND CONTROLS

• Spa At-A-Glance

- Spa At-A-Glance
- Equipment Compartment
- Power Pack
- Spa Side Control
- In-Spa Features

Your Emerald Spa may be equipped with a variety of user controls and optional features. This section locates and describes each. Please take the time to recognize and understand the functions of these components and controls.

Spa At-A-Glance provides a pictorial overview of key user components.



**1 - Pump System
(Base, Classic, SE)**

**2 - Pump System
(Elite, Cygnus, SE dlx)**

**4 - Pump System
(Vantage)**

(These diagrams represent generic one pump, two pump & 4 pump systems. They are not intended to represent any specific model.)

● **Equipment
Compartment**

The equipment compartment houses the "nerve center" of the spa and includes the following system components.

Pump(s)

Emerald Spas have different pump systems, depending on the spa model. Emerald Base, Classic and Special Edition spas have a two-speed (circulation/jets) pump and provide:

- Filtration, circulation and heat on low speed from electric heater.
- Hydrotherapy jet action on high speed for 120V. For 240V, the spa will also heat from electric heater in high speed.

The Emerald Elite, Cygnus and Special Edition DLX spa have a two pump system which uses an additional booster pump to enhance jet action.

Finally, the Vantage utilizes a four pump system which uses a one-speed circulation pump along with three one speed jet pumps.

Blower

Emerald Classic, Elite, Special Edition, Cygnus and Vantage spas include a blower to provide bubble therapy and an enhanced force of air to the water jets called High Performance Jet Select.



Caution:

T-valves must be open when spa is in use. See Fig. 1.

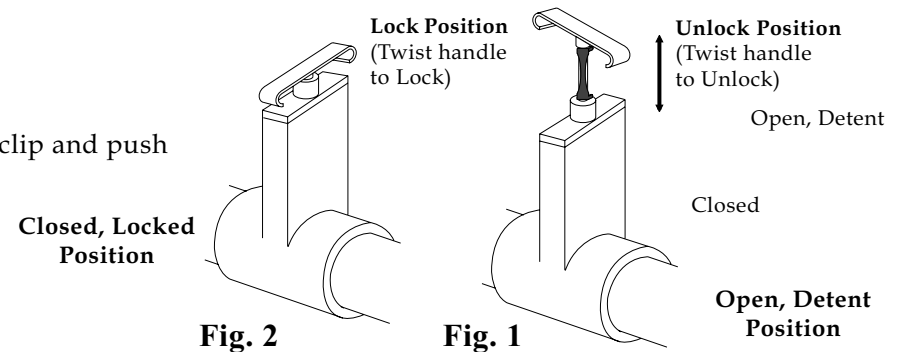
T-valves must be in closed position before any plumbing is disassembled for service. See Fig. 2.

T-valves

All one-pump systems have two T-valves, located in the water circulation lines on either side of the power pack. Some models have two pumps, which include one or two additional T-valves located on either side of the booster pump.

To operate T-Valve:

- To close, temporarily remove security clip and push T-handle down.
- To open, pull T-handle up and secure with security clip.

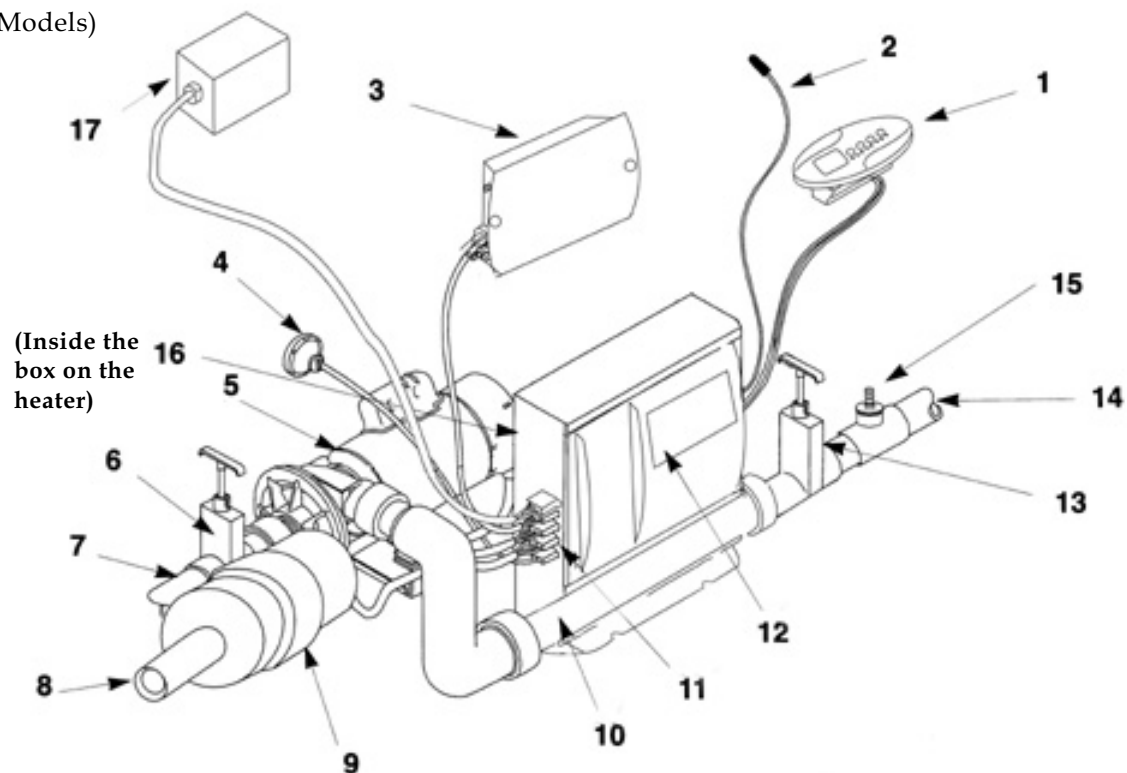


● Power Pack

One-Pump System

Below is a general description for the one pump system of the SC-1, SC-2 & SC-3 spa systems used in your Emerald spa.

- | | |
|--|-----------------------------------|
| 1. control panel | 10. heater |
| 2. temperature sensor | 11. control outputs |
| 3. ozone generator (optional) | 12. power pack |
| 4. light | 13. water outlet T-valve |
| 5. 2-speed circulation/jets pump | 14. water outlet line to spa |
| 6. water inlet T-valve | 15. ozone tee |
| 7. water inlet line from spa | 16. grounding wire |
| 8. air line from blower to spa
(not on Base Models) | 17. LED source (optional on SC-3) |
| 9. air blower
(not on Base Models) | |



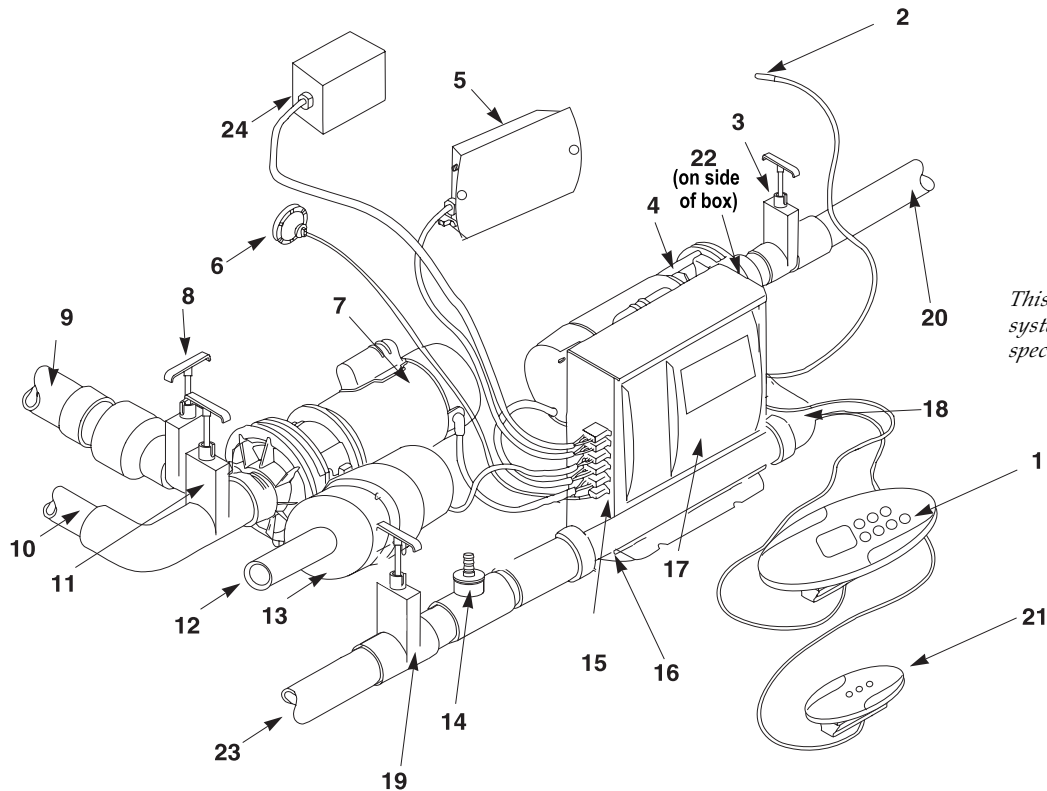
This diagram represents a generic one pump system. It is not intended to represent any specific model.

● Power Pack (continued)

Two-Pump System - Four-Pump System (Vantage Only)

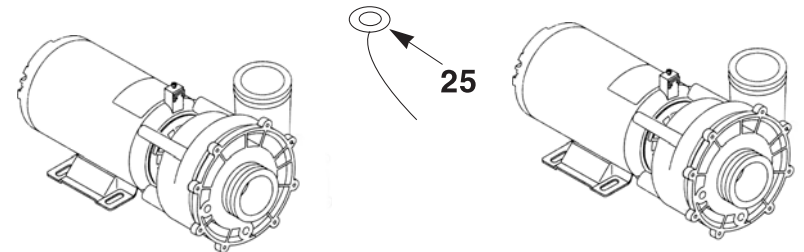
All Emerald Elite, Cygnus and SE dlx models use a two pump system, while the Vantage utilizes a four pump system. The following is a general description of this system.

1. control panel - (MC-4 shown)
2. temperature sensor
3. water inlet T-valve - pump 1
4. 2-speed circulation/jets pump
5. ozone generator (optional)
6. light
7. booster pump - pump 2
8. water outlet T-valve - pump 2 - optional
9. water outlet line to manifold
10. water inlet line from spa-pump 2
11. water inlet T-valve - pump 2
12. air line from blower to spa
13. air blower
14. ozone tee
15. control outputs
16. heater
17. power pack
18. connector plumbing elbow
19. water outlet T-valve - pump 1
20. water inlet line from spa - pump 1
21. auxiliary control panel - (MC-4 only)
22. grounding bar
(on side of box)
23. water outlet line to spa
24. LED source (optional)
25. pump control button (3) - (MC-6 only)



This diagram represents a generic two pump system. It is not intended to represent any specific model.

The two pumps below are added to the Vantage Spa plumbing system and are plumbed to their own water manifold distribution (see diagram on page 13)



The Features of each Power Pack are Summarized in the Following Chart:

	SC-1	SC-2	SC-3	MC-2/MC-4	MC-6
Pump	1.5 hp, 2speed	4.8 hp, 2speed	4.8 hp, 2speed	MC-2: (1) 4.8hp & (1) 2hp MC-4: (1) 4.8hp & (1) 4.8hp	(3) 4.8hp & (1) 1/4hp
Heater	1.0/4.0KW	4.0 KW	4.0 KW	4.0 KW	4.0 KW
Blower	No	No	Yes	Yes	Yes
Light	Yes	Yes	Yes	Yes	Yes
Control Panel	Digital	Digital	Digital	Digital	Digital
Ozonator (optional) 120V	Ready	Ready	Ready	Ready	Ready
Voltage Requirement	240V(120v opt.)	240V	240V	240V	240V
Temperature Adjustment	Keypad	Keypad	Keypad	Keypad	Keypad
Automatic Time Outs	Yes	Yes	Yes	Yes	Yes
Preset Filter Cycles	Yes	Yes	Yes	Yes	Yes
Programmable Filter Cycles	Yes:Topside	Yes:Topside	Yes:Topside	Yes:Topside	Yes:Topside
Sensor Failure Detection	Yes	Yes	Yes	Yes	Yes
Flow Switch Error Detection	Yes	Yes	Yes	Yes	Yes
Smart Winter Mode	Yes	Yes	Yes	Yes	Yes
High Limit Protection with Reset	Yes	Yes	Yes	Yes	Yes
Heater/Status Indicator	Yes	Yes	Yes	Yes	Yes
Night Vision Backlight	Yes	Yes	Yes	Yes	Yes
Continuous Digital H ² O Temperature Display	Yes	Yes	Yes	Yes	Yes
Digital Time Display	No	No	No	Yes	Yes
Icon Representation of Functions	No	No	No	Yes	Yes
Digital Operational Status Display	No	No	No	Yes	Yes
Digital Diagnostic Display	Yes	Yes	Yes	Yes	Yes
Automatic Filtration	Yes	Yes	Yes	Yes	Yes
Automatic Blower Purge	No	No	Yes	Yes	Yes
Automatic Pump Purge (Aux)	No	No	No	Yes	Yes
Temperature Lock (LocP)	No	No	No	Yes	Yes
Panel Lock (LocF)	No	No	No	Yes	Yes
Battery Back-Up Program Saver	No	No	No	Yes	Yes
Remote Control Panel (Option)	No	No	No	Yes	Yes
High Performance Jet Select	No	No	Yes	Yes	Yes
Standby Mode (Pump disable) (OFF)	No	No	No	Yes	Yes
Inverted Display	No	No	No	Yes	Yes
LED Lighting Capable	No	No	Yes	Yes	Yes
Economy Mode	No	No	No	Yes	Yes

- **Spa Side Control
SC-1 & SC-2
for EMERALD BASE**



Start-up for SC-1 & SC-2 Controls

Your spa control has been specifically designed so that by simply connecting the spa to its properly grounded source, the spa will automatically heat to the set temperature. *(note: your spa equipped with the SC-1 is shipped in the 240V configuration. See the SC-1 schematics on page 55 if you plan to convert the SC-1 power system to a 120V configuration.)*

Starting the pump:



Press Pump key to turn pump on. Press a second time to change pump speed. A third time turns pump off. Please note that the pumps have a built-in time-out feature and will turn off automatically after 15 minutes.



The "Pump" indicator lights up when pump is on.

Turning the light on:



Press Light key to turn light on. Press a second time to turn light off. A built-in time-out feature automatically turns light off after 2 hours, unless it has been manually deactivated first.



The "Light" indicator lights up when light is on.

Setting water temperature:



Use Up or Down arrow key to regulate water temperature. Press and hold key to increase (or decrease) current temperature setting. The temperature setting will be displayed for 5 seconds to confirm your new selection.



The "Set Point" indicator displays the desired temperature, NOT the current water temperature! Water temperature can be adjusted by 1° increments from 59 to 104°F (15 to 40°C).

- **Spa Side Control
SC-1 & SC-2
for EMERALD BASE**
[continued]

Automatic water pump & heater start:

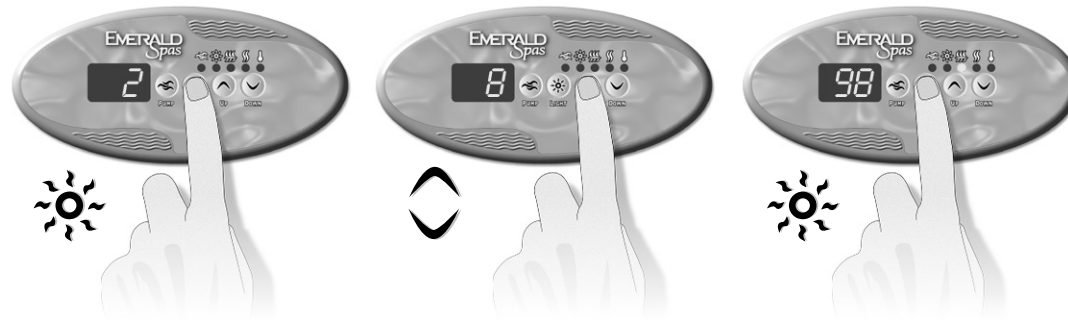
When water temperature is 1°F (0.5°C) lower than the Set Point, the heater & pump will automatically turn on until water temperature reaches Set Point plus 1°F (0.5°C).



The "Heater" indicator lights up when the heater is on.

Programming the filter cycle duration:

The system automatically performs two, 6 hour filter cycles per day, at 12-hour intervals commencing 12 hours after start-up. During a filter cycle, pump is activated for a programmed number of hours. To set the filter cycle duration:



Press and hold Light key for 5 seconds. The display will show a value that represents the filter cycle duration in hours.

Use Up or Down arrow key to change setting.
0 = no filtration
12 = continuous filtration

When the desired setting is displayed, press Light key again. The filter cycle will start. The "Filter" indicator lights up when a filter cycle is on.



Note that after a power failure, the filter cycle duration will return to its default value (6 hours). In this case, the first filter cycle will start 12 hours after power has been restored. Note also that to prevent excessive water temperature caused by too long filter cycles, the system will cancel a filter cycle after 3 hours if water temperature raises more than 2°F (1°C) above Set Point. In this case, the "Filter" indicator will flash.

• **Spa Side Control
SC-1 & SC-2
for EMERALD BASE**
[continued]

Troubleshooting:



The pump has started up for 1 minute on several occasions and "Filter" indicator is flashing.

Not a bug but a feature!

Our Smart Winter Mode protects your spa from the cold by turning the pump on at approximately 60°F for 1 minute several times a day to prevent water from freezing in pipes.

The display is flashing.

A power failure must have occurred. Press any key to stop the flashing and reprogram the filter cycle.



3 flashing dots are displayed.

A problem has been detected.

Do not enter the water! Check and open water valves. Clean filter if necessary. Check water level. Add water if needed.

Shut power off and power your spa up again to reset the system.

Call your dealer or service supplier if problem persists.



Water temperature is flashing.

Water temperature in the spa has reached 112°F (44°C).

Do not enter the water!
Remove spa cover and allow the water to cool down.
The system will reset itself when water reaches 109°F (43°C).

Call your dealer or service supplier if problem persists.


- **Spa Side Control
SC-3
for EMERALD CLASSIC
or EMERALD SE Series**




Start-up for SC-3 Control


Your spa control has been specifically designed so that by simply connecting the spa to its properly grounded source, the spa will automatically heat to the set temperature.


Starting the pump:

 Press Pump key to turn pump on. Press a second time to change pump speed. A third time turns pump off. Please note that the pumps have a built-in time-out feature and will turn off automatically after 15 minutes.


 The "Pump" indicator lights up when pump is on.

Starting blower:


 Press Blower key to turn blower on. Pressing a second time turns blower off. A built-in time-out feature automatically turns blower off after 15 minutes, unless it has been manually deactivated.

 The "blower" indicator lights up when blower is on.

Turning the light(s) on: (depending on your spa configuration)

 *Spa Light Only.* Press **Light** key to turn light on. Press a second time to turn light off. A built-in time-out feature automatically turns light off after 2 hours, unless it has been manually deactivated first.

LED Light Only. Press **Light** key to turn LED light on to cycle through Red, Blue & Green. Subsequent pressing will change to the various solid colors (8 colors). Additional pressing of the light button will then cause an automatic color change to assorted colors. Then an additional press will cause a Blue/Green change. Yet another press will cause a "party mode" with all colors quickly changing. NOTE: When activating each color change another press must occur to turn the selection off before preceeding to the next featured light mode. Lastly, whichever color mode you are in when you exit your spa will be the first mode when you once again use your spa.

 *Spa Light:* The "Light indicator lights up when light is on.
LED Light: The "Light" indicator flashes when LED light is on. It will be solid when only the LED light is on.

● **Spa Side Control
SC-3
for EMERALD CLASSIC
& EMERALD SE Series**
[continued]

Setting water temperature:



Use Up or Down arrow key to regulate water temperature. To increase (decrease) current temperature setting hold keypad until desired setting. When keypad is released and pressed again the setting will decrease (increase) the temperature. The temperature setting will be displayed for 5 seconds to confirm your new selection.



The "Set Point" indicator displays the desired temperature, NOT the current water temperature!
Water temperature can be adjusted by 1° increments from 59 to 104°F (15 to 40°C).

Automatic water pump & heater start:



When water temperature is 1°F (0.5°C) lower than the Set Point, the heater & pump will automatically turn on until water temperature reaches Set Point plus 1°F (0.5°C).

The "Heater" indicator lights up when the heater is on.

Programming the filter cycle duration:

The system automatically performs two, 6 hour filter cycles per day, at 12-hour intervals commencing 12 hours after start-up. During a filter cycle, pump is activated for a programmed number of hours. To set the filter cycle duration:



Press and hold Light key for 5 seconds. The display will show a value that represents the filter cycle duration in hours.

Use Up/ Down arrow key to change setting.
0 = no filtration
12 = continuous filtration

When the desired setting is displayed, press Light key again. The filter cycle will start. The "Filter" indicator lights up when a filter cycle is on.

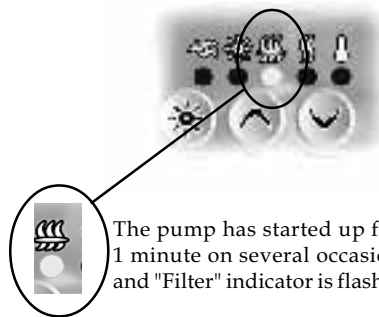


• Spa Side Control
SC-3
EMERALD CLASSIC
& EMERALD SE Series
[continued]

Programming the filter cycle duration (continued):

Note that after a power failure, the filter cycle duration will return to its default value (6 hours). In this case, the first filter cycle will start 12 hours after power has been restored. Note also that to prevent excessive water temperature caused by too long filter cycles, the system will cancel a filter cycle after 3 hours if water temperature raises more than 2°F (1°C) above Set Point. In this case, the "Filter" indicator will flash.

Troubleshooting:



The pump has started up for 1 minute on several occasions and "Filter" indicator is flashing.

Not a bug but a feature!

Our Smart Winter Mode protects your spa from the cold by turning the pump on at approximately 60°F for 1 minute several times a day to prevent water from freezing in pipes.

The display is flashing.

A power failure must have occurred. Press any key to stop the flashing and reprogram the filter cycle.



3 flashing dots are displayed.

A problem has been detected.

Do not enter the water! Check and open water valves. Clean filter if necessary. Check water level. Add water if needed.

Shut power off and power your spa up again to reset the system.

Call your dealer or service supplier if problem persists.



Water temperature is flashing.

Water temperature in the spa has reached 112°F (44°C).

Do not enter the water! Remove spa cover and allow the water to cool down. The system will reset itself when water reaches 109°F (43°C).

Call your dealer or service supplier if problem persists.

- **Spa Side Control
MC-2 & MC-4
for ELITE, SE deluxe
or Cygnus Spas**



Start-up for MC-2 & MC-4 Controls

Your spa control has been specifically designed so that by simply connecting the spa to its properly grounded source, the spa will automatically heat to the set temperature.

Starting the pumps:

Press **Pump(s)** to turn Pump 1 on at low speed. Pressing a second time turns Pump 1 to high speed. A third time turns Pump 1 & Pump 2 to high speed, then a fourth press turns both pumps off. Please note that the pumps have a built-in time-out feature and will turn off automatically after 15 minutes.



The "Pump 1" icon lights up when Pump 1 is on at high speed. It flashes when Pump 1 is on at low speed.



The "Pump 2" icon lights up when Pump 2 is on.

Starting blower:

Press **Blower** once to turn blower on at high speed. Pressing a second time turns blower to low speed. A third time turns blower off. A built-in time-out feature turns blower off after 15 minutes, unless manually deactivated first.



The "Blower" icon lights up when blower is on at high speed. It flashes when blower is on at low speed.

Turning the light on:

Pressing **Light** key turns light on at high intensity. Pressing a second and third time changes its intensity. Press a fourth time to turn light off. A built-in time-out feature turns light off after 2 hours, unless it has been manually deactivated first.




The "Light" icon is displayed when light is on at high intensity. It flashes when light is on at medium and low intensity.

- **Spa Side Control
MC-2 & MC-4
for ELITE, SE deluxe
or Cygnus Spas**

[continued]


Setting water temperature:

Use **Up** or **Down** arrow key to regulate water temperature. The temperature setting will be displayed for 5 seconds to confirm your new selection.

 The "Set Point" symbol indicates the desired temperature, NOT the current water temperature! Water temperature can be adjusted by 1° increments from 59 to 104°F (15 to 40°C).

Automatic water pump & heater start:

When water temperature is 1°F (0.5°C) lower than the Set Point, the heater & pump will automatically turn on until water temperature reaches Set Point plus 1°F (0.5°C).

 The "Heater" icon lights up when the heater is on. It flashes when there is a request for more heat but the heater has not yet started.

Inverted display:

Press and hold **Blower** for 5 seconds to invert the display. Note that the °F or °C icon is not displayed in reverse mode. Follow the same procedure to return to default mode. If a power-up occurs, the display always returns to default mode.

Temperature display unit:

Press and hold **Light** key for 5 seconds to display water temperature in either Fahrenheit (°F) or Celsius (°C).

Turning the LED light on (option):

LED Light Only. Press **Light** key to turn LED light on to cycle through Red, Blue & Green. Subsequent pressing will change to the various solid colors (8 colors). Additional pressing of the light button will then cause an automatic color change to assorted colors. Then an additional press will cause a Blue/Green change. Yet another press will cause a "party mode" with all colors quickly changing. NOTE: When activating each color change another press must occur to turn the selection off before preceeding to the next featured light mode. Lastly, whichever color mode you are in when you exit your spa will be the first mode when you once again use your spa.



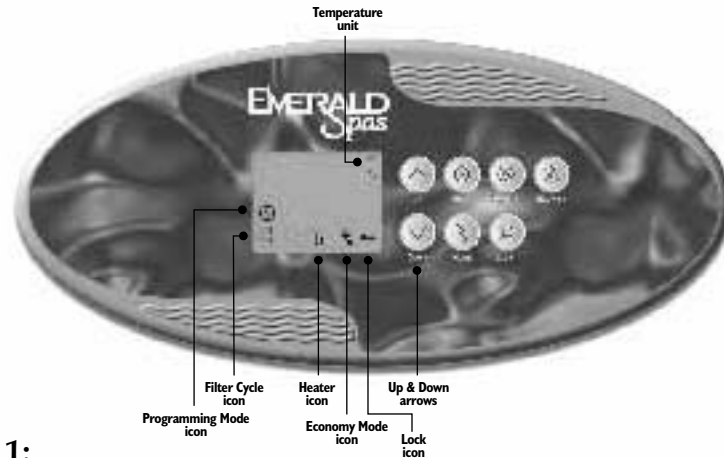
The "Light" icon is displayed when LED light is on. It flashes when LED and spa light are on at the same time.

Time & temperature display:

The display toggles every 5 seconds alternately showing the hourly time and the current water temperature.

- Spa Side Control MC-2 & MC-4 for ELITE, SE deluxe or Cygnus Spas Programming

7 Step Programming Sequence



Setting the time - Step 1:



10:25 am



11:43 pm

- 1- Enter Programming mode by holding **Prog.** key pressed down for 2 seconds.
- 2- The display will show the current setting.
- 3- Use **Up** and **Down** arrows to change setting.

Setting filter cycle start time & duration - Steps 2 & 3:

The system automatically performs two filter cycles per day, at 12-hour intervals. During the filter cycle, Pump 2 and blower will run in high speed for one minute. Pump 1 will then run for a programmed number of hours. The "Filter Cycle" icon lights up when a filter cycle is on.

To program a filter cycle, you must enter: 1) the time you want the cycle to start and 2) the duration of the cycle. If no filtering is required, the duration should be set to "0". For continuous filtering, the filter cycle duration should be set to "12:00".

Setting filter cycle start time:



FS01



FS12

- 1- Press **Prog.** key a second time.
- 2- The display will show **FSxx**, with "xx" representing the starting hour.
- 3- Use **Up** and **Down** arrows to change setting.

Setting filter cycle duration:



Fd00



Fd12

- 1- Press **Prog.** key a third time.
- 2- The display will show **Fdxx**, with "xx" representing the duration in hours.
- 3- Use **Up** and **Down** arrows to change setting.

- Spa Side Control
MC-2 & MC-4
for ELITE, SE deluxe
or Cygnus Spas
Programming**
[continued]

Economy Mode Notes:

- Use economy mode when your spa will have long periods of non-use. In Economy mode, the spa system will maintain the heat at 20°F below the set temperature.
- Depending on the ambient air temperature, your water temperature may not cool to 20% below the set temperature.

Setting filter cycle frequency - Step 4:



FF01

1- Press **Prog.** key a fourth time.

FF04

2- The display will show **FFxx**, with "xx" representing the frequency per day.3- Use **Up** and **Down** arrows to change setting.

Setting economy mode start time & duration - Steps 5 & 6:

Setting economy mode start time:



ES10

1- Press **Prog.** key a fifth time.2- The display will show **ESxx**, with "xx" representing the starting hour.

ES08

3- Use **Up** and **Down** arrows to change setting.

Setting economy mode duration:



Ed01

1- Press **Prog.** key a sixth time.2- The display will show **Edxx**, with "xx" representing the duration in hours.

Ed04

3- Use **Up** and **Down** arrows to change setting.

Storing settings in memory - Step 7

Press Prog. key a seventh time to store settings in the system's non-volatile memory and to return to Normal mode.

Other Programming Features

Digital control pad lockout

This function allows you to prevent unauthorized parameter setting of the unit. This feature is especially helpful when young children have access to the keypad.

There are two modes you can choose from: Full lock or Partial lock. Full lock means that all keypad functions are locked. Partial lock means that the basic functions of the spa will remain accessible (pumps, blower and light), but it will be impossible to change the temperature Set Point, to override the Economy mode or to enter the Programming mode. When control pad is locked, the "Lock" icon will be displayed.

- **Spa Side Control
MC-2 & MC-4
for ELITE, SE deluxe
or Cygnus Spas
Programming**
[continued]

Economy Mode Notes:

- Use economy mode when your spa will have long periods of non-use. In Economy mode, the spa system will maintain the heat at 20°F below the set temperature.

OFF MODE:

- Press and hold **Mode** key for 10 seconds to turn the system down (i.e. to set it to Off mode) for 30 minutes. The "OFF" message is displayed.

All keys are then disabled, unless you press and hold **Mode** key for 10 seconds to reactivate the system before the expiration of the 30-minute delay.

Note: If the system is turned down using **Mode** key while the heater is on, the display will blink "Off" during the heater cooldown period.

Digital control pad lockout *(continued)*

Locking your digital control pad:



LocP

LocF

- 1- Press and hold **Pump 1** key for 5 seconds.
- 2- The display will show **LocP**, with "P" representing Partial lock.
- 3- Release the key and the keypad will be in Partial lock mode. Keep key pressed down for 5 more seconds if you want to be in Full lock mode. The "LocF" message will then be displayed.

When control pad is locked, all automatic functions of the system run as usual. If a key is pressed down, a "LocP" or "LocF" message will be displayed for 1 second. To unlock the keypad, simply press and hold **Pump 1** key again for 5 seconds.

Economy mode

Press **Mode** key to switch from Normal mode to Economy mode. To save energy, the Economy mode Set Point is 20°F (11°C) below the Normal mode Set Point.



The "Economy Mode" icon lights up when Economy mode is on.

There are 2 available Economy operating modes:

noEc: No Economy mode

Mode: Economy mode on during a programmed number of hours (see Steps 5 & 6)

Selecting the desired Economy mode:



- 1- Press and hold **Mode** key for more than 2 seconds.
- 2- The display will show the current mode (noEc or Econ).
- 3- Keep key pressed down until the desired mode is displayed.

After 5 seconds, the new setting will be programmed.

● **Spa Side Control
MC-2 & MC-4
for ELITE, SE deluxe
or Cygnus Spas
Programming**
[continued]

Summary of control panel parameters:

FSxx	Filter cycle start time
Fdxx	Filter cycle duration
FFxx	Filter cycle frequency
ESxx	Economy mode start time
Edxx	Economy mode duration



Troubleshooting:



Pumps have started up for one minute on several occasions and "Filter Cycle" icon is flashing.

Not a bug but a feature!

Our Smart Winter Mode protects your spa from the cold by turning the pumps on at approximately 60°F for 1 minute several times a day to prevent water from freezing in pipes.

The display is flashing.

A power failure has occurred.
Press any key to reset the system.



Water temperature is displayed.

Water temperature in the spa has reached 112°F (44°C).

Do not enter the water! Allow water to cool down. The system will reset automatically when water reaches 109°F (43°C).

Call your dealer or service supplier if problem persists.



3 flashing dots are displayed.

A problem has been detected.

Do not enter the water! Check and open water valves. Clean filters if necessary. Check water level. Add water if needed.

Shut power off and power your spa up again to reset the system.

Call your dealer or service supplier if problem persists.

- Spa Side Control
MC-6
VANTAGE SPA




Start-up for MC-6 Control


Your spa control has been specifically designed so that by simply connecting the spa to its properly grounded source, the spa will automatically heat to the set temperature.

Starting the pumps:


Press **Pump 1** to turn Pump 1 on. Pressing a second time turns Pump 1 off. Please note that the pumps have a built-in time-out feature and will turn off automatically after 15 minutes.

 The "**Pump 1**" icon lights up when Pump 1 is on.

Press **Pump 2** once to turn Pump 2 on. Pressing a second time turns Pump 2 to off. Please note that the pumps have a built-in time-out feature and will turn off automatically after 15 minutes.


 The "**Pump 2**" icon lights up when Pump 2 is on.

Press **Pump 3** to turn Pump 3 on. Pressing a second time turns Pump 3 off. Please note that the pumps have a built-in time-out feature and will turn off automatically after 15 minutes.

 The "**Pump 2**" icon will flash when Pump 3 is on. (note: if pump 2 and pump 3 are on the Pump 2 icon will be on solid)

Starting blower:

Press **Blower** once to turn blower on at high speed. Pressing a second time turns blower to low speed. A third time turns blower off. A built-in time-out feature turns blower off after 15 minutes, unless manually deactivated first.

 The "Blower" icon lights up when blower is on at high speed. It flashes when blower is on at low speed.

- **Spa Side Control**
MC-6
VANTAGE SPA
[continued]

Note:

The filter cycle is suspended if the water temperature raises more than 2°F (1°C) above Set Point. The "Filter" icon will blink (on 0.5 second, off 0.5 second, on 0.5 second, off 1.5 seconds).

**Turning the light on:**

Pressing **Light** key turns light on at high intensity. Pressing a second and third time changes its intensity. Press a fourth time to turn light off. A built-in time-out feature turns light off after 2 hours, unless it has been manually deactivated first.



The "Light" icon is displayed when light is on at high intensity. It flashes when light is on at medium and low intensity.

Setting water temperature:

Use **Up** or **Down** arrow key to regulate water temperature. The temperature setting will be displayed for 5 seconds to confirm your new selection.



The "Set Point" symbol indicates the desired temperature, NOT the current water temperature! Water temperature can be adjusted by 1° increments from 59 to 104°F (15 to 40°C).

Automatic water pump & heater start:

When water temperature is 1°F (0.5°C) lower than the Set Point, the heater & pump will automatically turn on until water temperature reaches Set Point plus 1°F (0.5°C).



The "Heater" icon lights up when the heater is on. It flashes when there is a request for more heat but the heater has not yet started.

Inverted display:

Press and hold **Blower** for 5 seconds to invert the display. Note that the °F or °C icon is not displayed in reverse mode. Follow the same procedure to return to default mode. If a power-up occurs, the display always returns to default mode.

Temperature display unit:

Press and hold **Light** key for 5 seconds to display water temperature in either Fahrenheit (°F) or Celsius (°C).

- **Spa Side Control**
MC-6
VANTAGE SPA
[continued]

Turning the LED light on (option):

LED Light Only: Press **Light** key to turn LED light on to cycle through Red, Blue & Green. Subsequent pressing will change to the various solid colors (8 colors). Additional pressing of the light button will then cause an automatic color change to assorted colors. Then an additional press will cause a Blue/Green change. Yet another press will cause a "party mode" with all colors quickly changing. NOTE: When activating each color change another press must occur to turn the selection off before preceeding to the next featured light mode. Lastly, whichever color mode you are in when you exit your spa will be the first mode when you once again use your spa.



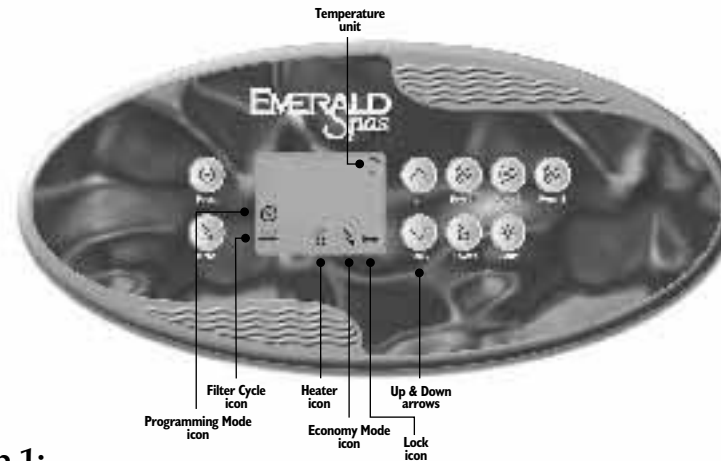
The "Light" icon is displayed when LED light is on. It flashes when LED and spa light are on at the same time.

Time & temperature display:

The display toggles every 5 seconds alternately showing the hourly time and the current water temperature.

- Spa Side Control
MC-6
VANTAGE SPA
Programming

7 Step Programming Sequence



Setting the time - Step 1:



10:25 am



11:43 pm

- 1- Enter Programming mode by holding **Prog.** key pressed down for 2 seconds.
- 2- The display will show the current setting.
- 3- Use **Up** and **Down** arrows to change setting.

Setting filter cycle start time & duration - Steps 2 & 3:

The system automatically performs two filter cycles per day, at 12-hour intervals. During the filter cycle, Pump 2 and blower will run in high speed for one minute. Pump 1 will then run for a programmed number of hours. The "Filter Cycle" icon lights up when a filter cycle is on.

To program a filter cycle, you must enter: 1) the time you want the cycle to start and 2) the duration of the cycle. If no filtering is required, the duration should be set to "0". For continuous filtering, the filter cycle duration should be set to "12:00".

Setting filter cycle start time:



FS01



FS12

- 1- Press **Prog.** key a second time.
- 2- The display will show **FSxx**, with "xx" representing the starting hour.
- 3- Use **Up** and **Down** arrows to change setting.

Setting filter cycle duration:



Fd00



Fd12

- 1- Press **Prog.** key a third time.
- 2- The display will show **Fdxx**, with "xx" representing the duration in hours.
- 3- Use **Up** and **Down** arrows to change setting.

- **Spa Side Control**
MC-6
VANTAGE SPA
Programming
[continued]

Setting filter cycle frequency - Step 4:

FF01

1- Press **Prog.** key a fourth time.2- The display will show **FFxx**, with "xx" representing the frequency per day.3- Use **Up** and **Down** arrows to change setting.

FF04

Setting economy mode start time & duration - Steps 5 & 6:**Setting economy mode start time:**

ES10

1- Press **Prog.** key a fifth time.2- The display will show **ESxx**, with "xx" representing the starting hour.3- Use **Up** and **Down** arrows to change setting.

ES08

Setting economy mode duration:

Ed01

1- Press **Prog.** key a sixth time.2- The display will show **Edxx**, with "xx" representing the duration in hours.3- Use **Up** and **Down** arrows to change setting.

Ed04

Storing settings in memory - Step 7

Press **Prog.** key a seventh time to store settings in the system's non-volatile memory and to return to Normal mode.

Other Programming Features**Digital control pad lockout**

This function allows you to prevent unauthorized parameter setting of the unit. This feature is especially helpful when young children have access to the keypad.

There are two modes you can choose from: Full lock or Partial lock. Full lock means that all keypad functions are locked. Partial lock means that the basic functions of the spa will remain accessible (pumps, blower and light), but it will be impossible to change the temperature Set Point, to override the Economy mode or to enter the Programming mode. When control pad is locked, the "Lock" icon will be displayed.

• Spa Side Control MC-6 VANTAGE SPA Programming *[continued]*

Economy Mode Notes:

- Use economy mode when your spa will have long periods of non-use.

In Economy mode, the spa system will maintain the heat at 20°F below the set temperature.

OFF MODE:

- Press and hold **Mode** key for 10 seconds to turn the system down (i.e. to set it to Off mode) for 30 minutes. The "OFF" message is displayed.

All keys are then disabled, unless you press and hold **Mode** key for 10 seconds to reactivate the system before the expiration of the 30-minute delay.

Note: If the system is turned down using **Mode** key while the heater is on, the display will blink "Off" during the heater cooldown period.

Digital control pad lockout *(continued)*

Locking your digital control pad:



LocP

LocF

- 1- Press and hold **Pump 1** key for 5 seconds.
- 2- The display will show **LocP**, with "P" representing Partial lock.
- 3- Release the key and the keypad will be in Partial lock mode. Keep key pressed down for 5 more seconds if you want to be in Full lock mode. The "LocF" message will then be displayed.

When control pad is locked, all automatic functions of the system run as usual. If a key is pressed down, a "LocP" or "LocF" message will be displayed for 1 second. To unlock the keypad, simply press and hold **Pump 1** key again for 5 seconds.

Economy mode

Press **Mode** key to switch from Normal mode to Economy mode. To save energy, the Economy mode Set Point is 20°F (11°C) below the Normal mode Set Point.



The "Economy Mode" icon lights up when Economy mode is on.

There are 2 available Economy operating modes:

noEc: No Economy mode

Mode: Economy mode on during a programmed number of hours (see Steps 5 & 6)

Selecting the desired Economy mode:



noEc

Econ

- 1- Press and hold **Mode** key for more than 2 seconds.
- 2- The display will show the current mode (noEc or Econ).
- 3- Keep key pressed down until the desired mode is displayed.

After 5 seconds, the new setting will be programmed.

- Spa Side Control
MC-6
VANTAGE SPA
Programming
[continued]

Summary of control panel parameters:

FSxx	Filter cycle start time
Fdxx	Filter cycle duration
FFxx	Filter cycle frequency
ESxx	Economy mode start time
Edxx	Economy mode duration



Troubleshooting:



Pumps have started up for one minute on several occasions and "Filter Cycle" icon is flashing.

Not a bug but a feature!

Our Smart Winter Mode protects your spa from the cold by turning the pumps on at approximately 60°F for 1 minute several times a day to prevent water from freezing in pipes.

The display is flashing.

A power failure has occurred. Press any key to reset the system.



Water temperature is displayed.

Water temperature in the spa has reached 112°F (44°C).

Do not enter the water! Allow water to cool down. The system will reset automatically when water reaches 109°F (43°C).

Call your dealer or service supplier if problem persists.



3 flashing dots are displayed.

A problem has been detected.



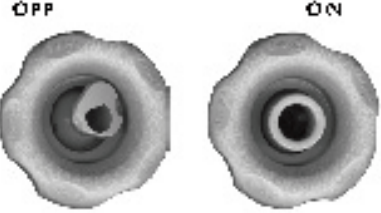
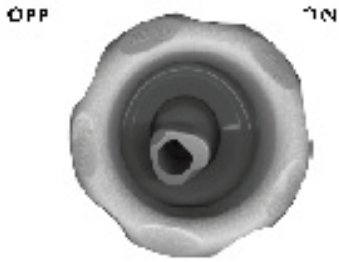
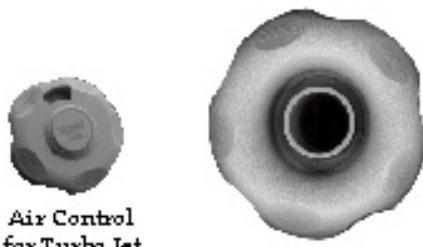
Do not enter the water! Check and open water valves. Clean filters if necessary. Check water level. Add water if needed.

Shut power off and power your spa up again to reset the system.

Call your dealer or service supplier if problem persists.

● **In-Spa Features**


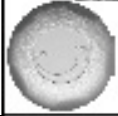


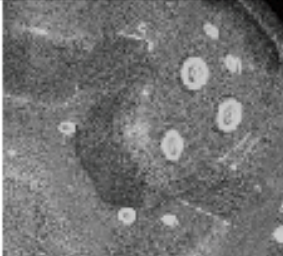


Your spa may be equipped with a variety of therapy jets, controls, and fixtures. Refer to the following charts and identify those features installed on your spa. NOTE: take care not to turn the jet face beyond the natural stopping point. If this does occur it may prevent the jet from functioning properly.



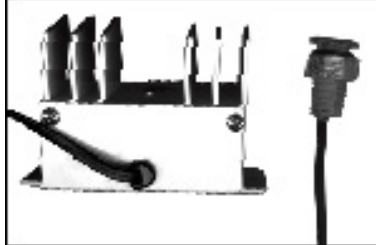
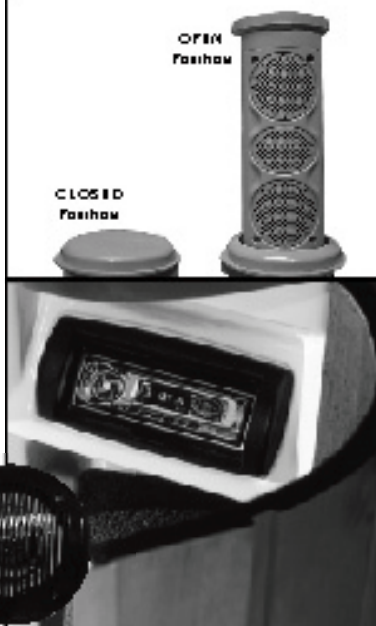
Therapy Jets and Controls		
Euro Jet *	Euro jets are fully adjustable and are widely used in seating locations throughout our entire line.	
Micro Cyclone Jet *	The Micro allows the barrel to be positioned to deliver pinpoint therapy to a location. Turn the outer ring to also moderate the water flowing through the jet.	
Luxury Cyclone Swirl Jet * Luxury Cyclone Directional Jet *	The Cyclone swirl jet rotates 360 degrees at a rapid rate thus massaging a larger area. Turn the outer ring to also moderate the water flowing through the jet. The Cyclone directional allows the barrel to be positioned to deliver a broad therapy to a specific location. Turn the outer ring to also moderate the water flowing through the jet.	
Adjustable Swirl Cyclone Jet *	The Super Cyclone features a controllable velocity of water in either a straight position or in a rotation. Simply take your finger and click the barrel of the jet down to cause the nozzle to move in a rotational pattern.	
3-way Turbo Jet Turbo Air Control (Cygnus & Vantage only) Note: Other jets may not operate when the turbo-jet is on.	The function of this diverting jet is as follows: 1. When both pumps are engaged and the jet is turned all the way to the right (the 3 o'clock position) the Turbo and all other jets except the Tsunami (see next page) are functioning. 2. Whenever pumps are activated and the jet is in the middle (12 o'clock position), water pressure is realized in all the jets except the Turbo and Tsunami. 3. When both pumps are engaged and the jet is all the way to the left (the 9 o'clock position) all the jets in the spa are working.	 Air Control for Turbo Jet

Jet face appearance may be subject to change at any time.



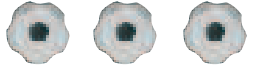
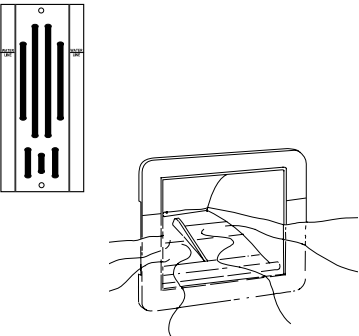



* Stainless steel jet option

Therapy Jets, Control and Drain

<p>Waterfall Jet Cygnus & Vantage Only</p>	<p>A standard feature on all Cygnus & Vantage spas, the waterfall jet is located above the waterline. Utilizing the valve installed on the interior side wall of the spa, you can control the intensity of the water stream. Use for ambiance, relaxation or therapy for the neck and shoulders. (Note: the 1209 se comes equipped with a 6" straight waterfall)</p>	 
<p>Super Cyclone Jet (Tsunami Jet) Cygnus & Vantage Only</p> <p style="text-align: center;">Air Control for Tsunami Jet</p> 	<p>A standard feature on all Cygnus & Vantage spas, the Tsunami jet is located just above the footwell. This jet works in coordination with the 3-way Turbo jet (see previous page). By turning the turbo jet to the 9 o'clock position with both pumps running a large degree of water is forced into the Tsunami allowing a high volume of water to appear. Jet action is further enhanced by the Tsunami's own air control (labeled on top) installed on the top coping of the spa.</p>	
<p>Individual Neck Jet Control Cygnus & Vantage Only</p>	<p>Installed on all Cygnus & Vantage models is a separate valve controlling the intensity of the water pressure for the neck jets. Pressure is controlled by turning the face of the jet and/or by the use of this control valve (location on the side of the arm rest).</p>	 
<p>Drain</p>	<p>This feature is found on all models near the base of the cabinet is for the use of draining your spa. To operate:</p> <ol style="list-style-type: none"> 1. Unscrew the cap and attach a garden hose. 2. Turn the black nozzle (the part just behind where the cap screws on) counter-clockwise and pull out to drain the water from your spa. 3. When finished draining detach the garden hose, screw the cap back on and then push in and turn clockwise (the part just behind where the cap screws on). 	

Cup Holders and Options		
Cup Holders	<p>Located along the top edge of every Emerald and Cygnus spa are two areas to set a cup or soda can. These cup holders are strictly for your convenience when you seek refreshments during use of your spa.</p> <p>DANGER: Alcoholic beverages are strictly prohibited in a spa</p>	
Towel Warmer Option	<p>Optional on Cygnus spas is a special compartment built into a corner of the Cygnus cabinet identifiable with a handle for opening. Simply place your towel or robe in the compartment and the vented heat from the interior of the spa will keep it warm.</p> <p>DANGER: Do NOT use for chemical storage!</p>	
LED Light Option	<p>Optional on Emerald Classic, Elite, Cygnus and Special Edition DLX models is an LED light package. This option allows for an eight-color light selection to emit from the spa light, light nodes installed around the top perimeter of the spa coping and the Emerald logo installed on one side of the cabinet. To operate the LED lights (if installed) see page 25 for Classic/Elite or Cygnus spas or page 32 if you own a Vantage Spa.</p>	
<p>Hydro Vibe Stereo System Option</p> <p>Note: Includes a Towel Warmer Area</p>	<p>The manufacturer's instruction manual for Emerald's Hydro Vibe Sound System is in the warranty bag located next to the power pack inside the spa cabinet. Consult this manual for important user instructions and proper operation of the system.</p> <p>The major components of Emerald's Elite stereo system are the "pop-up" stereo speakers, and the stereo panel installed on the side of the cabinet. Please consult the enclosed stereo owners manual for instructions on how to use your Emerald Elite Stereo. To activate the speakers, simply press gently on the top when the speaker is in the closed position and the speaker will then "pop-up". To close, gently push down until the top engages.</p> <p>The Emerald Hydro Vibe Stereo System includes a mounted stereo in the towel warmer area (below right picture), two flush mounted speakers, and a special remote panel that controls the operations HydroVibe Stereo mounted on the top coping. The HydroVibe uses transducer technology that allows for listening pleasure from inside the spa. The four transducers mounted to the underside of the spa shell create a unique speaker effect. Controlling the sound balance between these transducers and the external cabinet mounted speakers is achieved using the stereo's fade control. Please consult the enclosed stereo owners manual for proper operation.</p>	

Other Controls and Fixtures

<p>Air Control Valves</p>	<p>The air intake valves are located in various locations along the top coping of the spa. Turn to increase or decrease the amount of air mixed with the water flow. More air adds to the massage effect.</p>	
<p>Light</p>	<p>This fixture is controlled by the "Light" button on all controllers. (Optional LED pictured to the right).</p>	
<p>Air Injectors (Not available on Base)</p>	<p>When the blower is on, air bubbles are released from the injectors primarily located on the lounge seat and the footwell. These injectors create a mild vibrating effect that massages the body.</p>	
<p>Strip Skimmer (Emerald Base & Emerald Classic)</p> <p>Weir Skimmer (Emerald Special Edition, Elite, Cygnus Series & Vantage)</p>	<p>This skimmer is found on Emerald Base and Classic models. Its purpose is to skim the water surface. Always keep the water level at least 2/3 high on the skimmer or damage to the system may result.</p> <p>This skimmer is found on Emerald Elite, Special Edition, Cygnus Series and the Vantage Spa. Its purpose is to skim the water surface. Always keep the water level at 2/3 high on the opening of the skimmer or damage to the system may result.</p>	
<p>Aromatherapy Option (NOT an option on the Emerald Base)</p>	<p>To use the aromatherapy feature, unscrew the cap and, as the picture to the right demonstrates, place special aromatherapy pellet bags inside. The scent will be disbursed primarily while the blower is operating.</p>	
<p>Suction Grate</p>  <p>Warning: Never block or remove the suction grate. Do not use spa if suction grate is removed!</p>	<p>The suction grate is the intake opening for the water circulating system. This grate protects you from the powerful suction created by the pump(s) that power your spa.</p>	

Starting And Using Your Spa

● Install Filter Elements

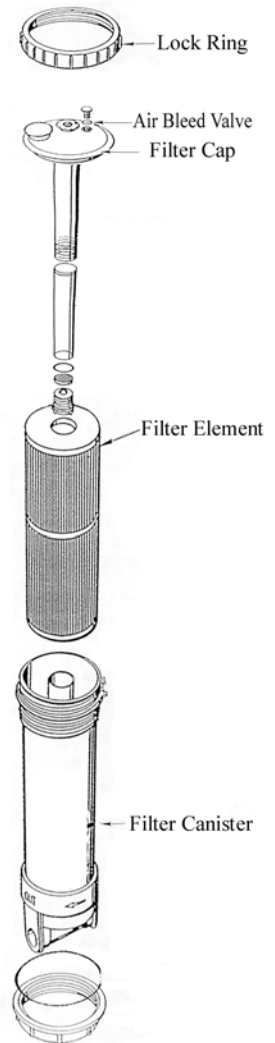
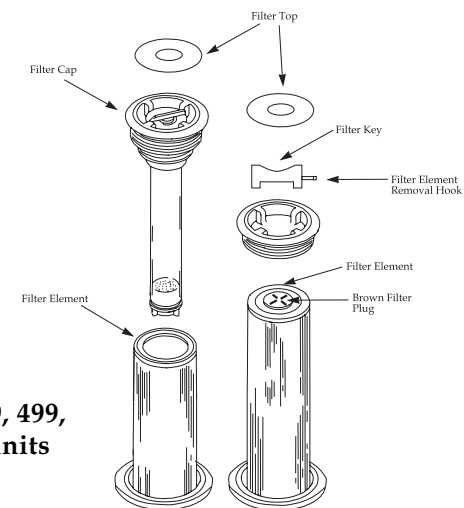
Note:

The Filter Key allows the loosening/tightening of the filter caps for filter/spa maintenance on Dual Filter Systems only. The filter key's two parallel pegs are inserted into the filter cap and turned to the desired open/closed operation. The removal hook aids in lifting the elements from the interior of the filter.

- Install Filter Elements
- Proper Water Level
- Bleeding Air
- Testing the GFCI
- One-Pump Priming
- Two-Pump Priming

Placing elements in the Filter

1. Unpackage the filter element(s) located inside the cabinet to be inserted into the filter.
2. Unscrew the top of the filter canister located on the top of the coping and insert the element with the largest hole into the appropriate filter housing.
3. Insert the element with the smaller hole into the filter housing that accepts it.
4. Insert the Filtering Assist Plug into the middle of the filter element with the smallest hole. (This procedure allows for water to penetrate into the interior pleats of the element allowing for optimal filtration.)



75 Sq. Ft Filter found on Cygnus, Vantage, Emerald 599, 699, 799 & 899 models.

Space Saver II found on 199, 499, 509, 595 & Special Edition units

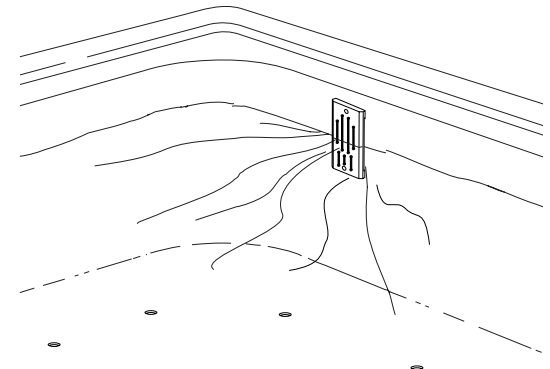
• Proper Water Level



Caution:

Low water level can damage the water circulating system and void your warranty. Read and understand all safety, location, and installation instructions before proceeding.

Add water until level is at appropriate level for your model's skimmer (see page 40) or damage to system may result.



• Bleeding Air



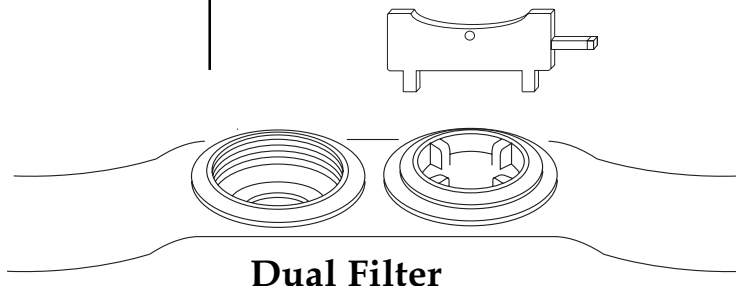
Caution: Air must be bled from the system. Air in the system can damage the spa and void the warranty.

Dual Filter

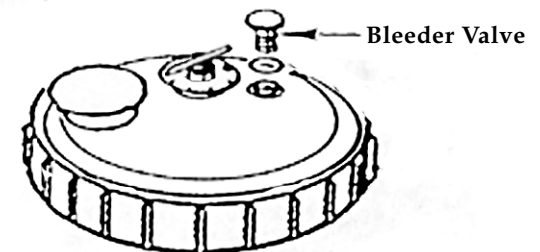
1. While the spa is off use the filter key to unscrew and remove the filter caps. This allows for the large pocket of air naturally formed when the spa was filled with water to escape from the filter cavity.
2. Once the water level inside the filter housing has reached the same level as the water inside the spa you can then replace the filter caps.
3. Tighten the filter cap snugly using the filter key. Be sure not to overtighten. When the spa is running, you should not see or hear any water leaking from the spot where the filter top meets the housing. If you see or hear water escaping turn the spa off and retighten the filter lid.

Single Filter

1. While the spa is operating in low speed, turn the bleeder screw located on the top of the filter lid counter-clockwise one half turn. This will allow air to escape.
2. When water appears turn the screw clockwise to shut the valve until the water no longer is seen coming out. Be sure not to over-tighten as to not crack the valve.



Dual Filter



Single Filter

- **Testing the GFCI**
[for spas equipped
with SC-1 (240V)
SC-2, SC-3, MC-2,
MC-4 & MC-6]

Your spa must be provided with a GFCI-circuit breaker located in the power supply panel as installed by your electrician. Turn on the circuit breaker and test the GFCI by pushing the test button. A red indicator should appear and your spa should stop operating. Push the reset button and the red indicator should disappear. The spa should begin to operate normally.

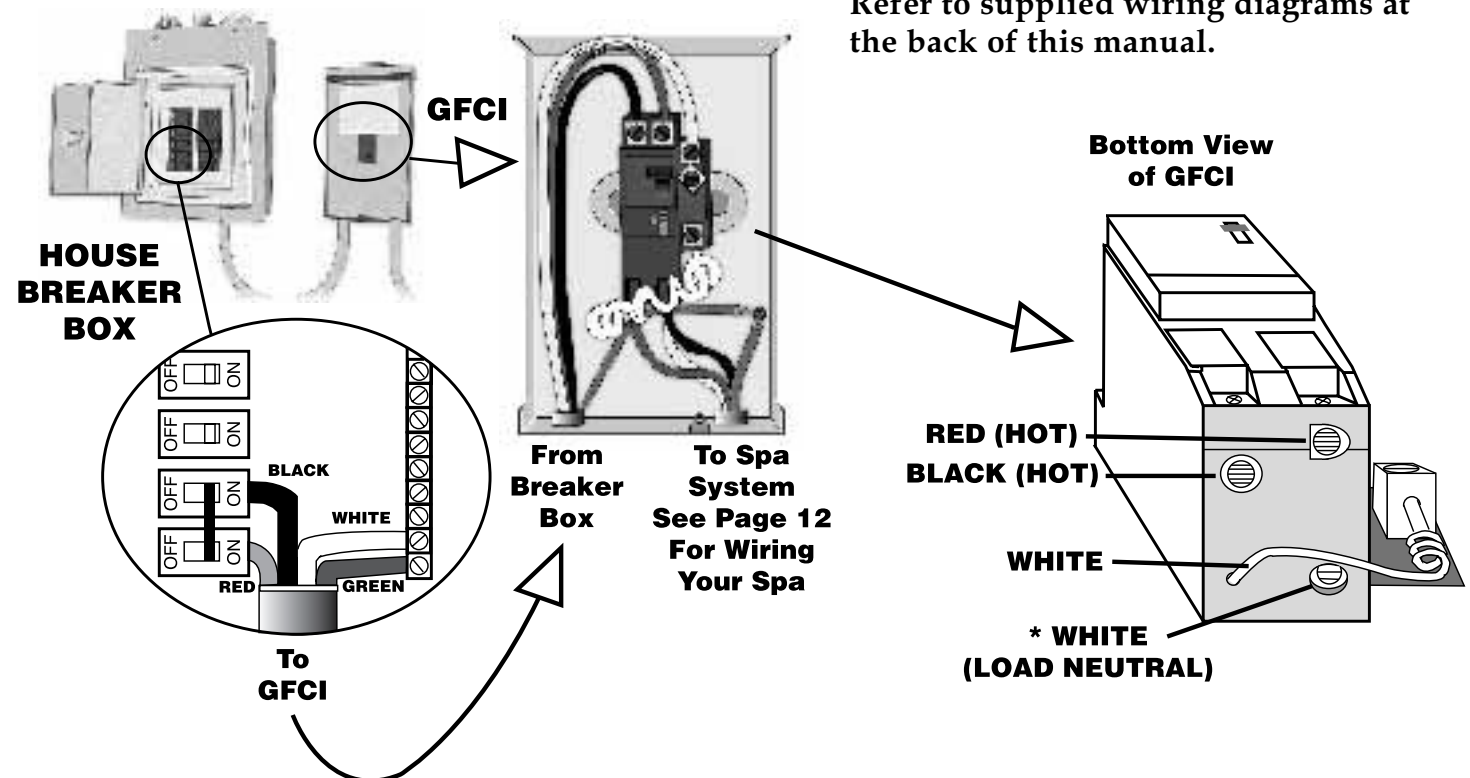


WARNING:

If the GFCI fails to operate in this manner, there is a risk of electric shock! Shut off the main power source. Identify and correct problem before using the spa.

Carry out a visual inspection to check for signs of miswiring.

Refer to supplied wiring diagrams at the back of this manual.



- **One pump Priming**
[for spas equipped
with SC-1, SC-2 & SC-3]

**Caution:**

Never run the system without circulating water. Doing so can damage the pump and void the warranty.

1. Press the "**Pump**" key pad. The pump will begin to operate in the high-speed mode; this will facilitate pump priming.
2. When your jets begin to operate vigorously, the pump is primed.

Note:

If water does not flow within a minute or two, turn off power to the spa and repeat steps for bleeding the air on the page 42.

- **Two-Pump Priming**
*[for spas equipped
with MC-2,
MC-4 & MC-6]*

Note:

If water does not flow within a minute or two, turn off all power to the spa and repeat steps for bleeding air.

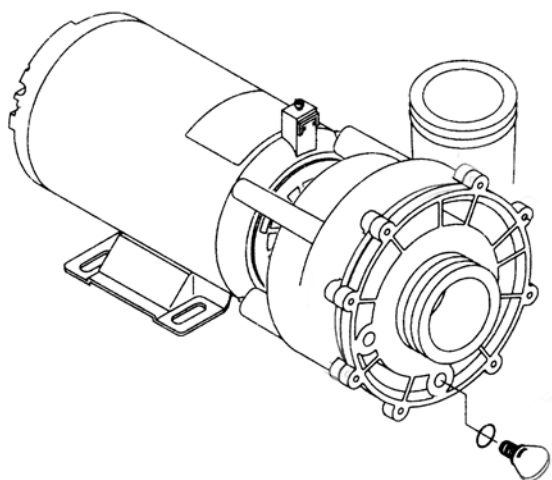


Caution:

Never run the system without circulating water! Doing so can damage pumps and void the warranty.

Each pump must be primed separately. To accomplish this, follow these steps.

1. For MC-2 & MC-4 Press the **Pump(s)** key pad twice (For the Vantage MC-6 press **Pump 1** once). The circulating/jets pump will operate in the low speed mode on the first press and in the high speed mode on the second press (MC-2 & MC-4). The high speed mode will facilitate pump priming. Press the **Pump(s)** key pad a third time will turn the 2nd pump on.
2. When the jets begin to operate moderately, the circulating/jets pump is completely primed.
3. Now press the "**Pump 2**" (Vantage only) key pad. The jets booster pump will now operate. (note: if you own a Vantage Spa be sure to press the "**Pump 3**" key pad to engage the last pump.)
4. When the jets begin to operate more vigorously, the jets booster pump is completely primed. If you do not see any distinguishing difference in jet flow when pressing the "**Pump 2**" (and **Pump 3** if Vantage spa) button then the booster pump(s) may require direct priming.
 - A. Remove the equipment panel and locate the booster pump (see 2-pump system diagram on page 16).
 - B. With the booster pump running turn the pump drain plug counterclockwise until a steady stream of water appears. Once water appears quickly tighten the plug and you should notice a more intense flow of water through the jets.
 - C. If no noticeable difference has occurred repeat step B.



● Chemical Safety Tips

Note:

Check and maintain your water chemistry at least twice a week for proper levels (see page 47).

● Spa Capacity

Note:

Useable: at the level noted on skimmer full level (see page 40)

SPA WATER CHEMISTRY

- Chemical Safety Tips
- Spa Capacity
- pH Control
- Disinfecting Your Spa
- Ozone Generator
- Other Water Chemistry Considerations

- ✓ Never mix different types of chemicals or contaminate them in any way.
- ✓ Do not exceed recommended dosages.
- ✓ After superchlorinating/brominating, wait until the disinfectant level is down to 3-5 parts per million [ppm] before using the spa.
- ✓ Keep chemicals out of reach of children and pets.
- ✓ Keep containers closed when not in use.
- ✓ Do not use contents of unlabeled containers.
- ✓ Never add water to chemicals. If called for by the instructions, add chemicals to water.
- ✓ Dispose of empty containers as instructed on the label.
- ✓ Never handle chemicals with your bare hands.
- ✓ Store chemicals in a cool, dry, clean place [not under spa].

The following table lists the total water system capacity for all Emerald Spas and will help you to determine the dosage of chemicals.

Spa Series	Maximum Capacity [gal.]	Useable gallons	Weight of Water [lbs.]	Dry Weight [lbs.]	Total Useable Weight [lbs.]
199	210g	170g	1,360 lbs	480 lbs	1,840 lbs
499	290g	200g	1,600 lbs	580 lbs	2,180 lbs
509	390g	340g	2,720 lbs	840 lbs	3,560 lbs
595	400g	300g	2,400 lbs	890 lbs	3,290 lbs
599/2009	465g	370g	2,960 lbs	890/940 lbs	3,850/3,900 lbs
699/3009	440g	330g	2,640 lbs	850/900 lbs	3,490/3,540 lbs
799/5009	450g	340g	2,720 lbs	910/950 lbs	3,630/3,670 lbs
899/7009	640g	500g	4,000 lbs	920/960 lbs	4,290/4,960 lbs
1009SE	235g	180g	1,440 lbs	530 lbs	1,970 lbs
1209SE	460g	370g	2,960 lbs	600 lbs	3,560 lbs
1409SE	350g	280g	2,240 lbs	760 lbs	3,000 lbs
Vantage	500g	400g	3,200 lbs	1,035 lbs	4,235 lbs

- pH Control

pH
Level

8.2

above 7.6

7.8

Add
Acid

7.6

7.2

} Ideal

6.8

Below 6.8
Add
Soda Ash**Caution:**

Do not use your spa until the pH level of the water is between 7.2 and 7.6. A pH level below 7.2 or above 7.6 may damage the spa shell and power pack, and void your warranty.

All water is either acidic, alkaline, or neutral. pH is defined as a method of measuring this characteristic. A pH level of 7.0 would be neutral. A pH level above 7.0 would be alkaline while a pH level below 7.0 would be acidic. The pH level of your spa water must be kept between 7.2 and 7.6. Above 7.6 the water will become discolored and cloudy. pH levels below 7.2 will cause corrosion to metals in the circulation system. Both high and low pH levels will cause eye irritation. Improper pH levels also reduce the effectiveness of disinfectants.

Maintain an ideal pH level as follows:

1. Test the pH level of the water regularly with a reliable test kit.
2. Adjust the pH level as required.
 - Increase pH by adding soda ash.
 - Decrease pH by adding sodium bisulfate.
3. Refer to the table below and determine the dosage level per 100 gallons.
4. Add chemicals to at least one gallon of water.
5. Pour the mixture into the spa with circulation system on.
6. Wait at least 3 hours. Recheck the pH level.

High pH - Add Sodium Bisulfate (pH down)**Test Reading****Dosage [per 100 gal.]**

Above 8.4

.24 oz. [1 teaspoon]

8.0 to 8.4

.16 oz. [.7 teaspoon]

7.8 to 8.0

.08 oz. [.4 teaspoon]

7.2 to 7.6

Ideal

Low pH- Add Soda Ash (pH up)**Test Reading****Dosage [per 100 gal.]**

Less than 6.5

.6 oz. [3.6 teaspoons]

6.5 to 6.8

.45 oz. [3 teaspoons]

6.8 to 7.2

.12 oz. [.7 teaspoons]

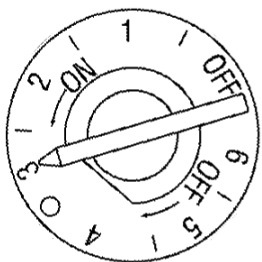
7.2 to 7.6

Ideal

Note:

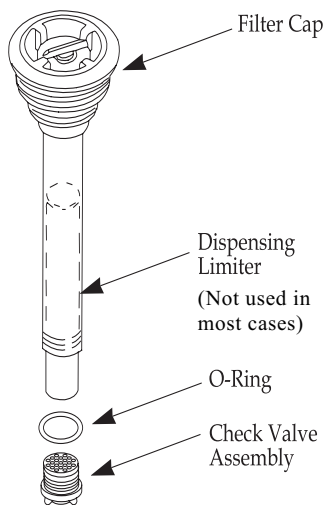
If the instructions that accompany the pH adjusting chemicals differ from those given here, follow the instructions that come with the chemicals.

• Disinfecting Your Spa



Dispenser Adjustment for both dual & single filters

The higher the setting,
the more disinfectant
will be dispensed.



Recharging Your Dispenser



Warning:

Risk of fire and/or explosion. Under no circumstance should you mix trichloro-s-triazinetrione with bromine or other chemicals. Use one chemical only. Never mix. Never switch from one chemical to the other without thoroughly cleaning out the previously used chemicals.

Disinfectants [chlorine or bromine] have strong oxidizing properties that kill bacteria and destroy other materials.

Your spa is equipped with a disinfectant dispenser, enabling you to keep your spa clean and healthful with a minimum of effort. This dispenser is designed to use bromine or trichloro-s-triazinetrione tablets of the slow dissolving type.

Adjust your disinfectant dispenser as follows:

1. Verify proper disinfectant level by checking the spa water with an appropriate test kit. A level between 3-5 ppm should be maintained.
2. Start by adjusting the control valve on the dispenser to position 3.
3. Make small gradual changes in the setting until your test kit verifies the proper setting. [The higher the setting, the more disinfectant will be dispensed].
4. Increase the disinfectant level to 5 - 10 ppm once a week. This is called "superchlorination" or "superbromination". This procedure aids in the formation of active disinfectant.

Recharge your disinfectant dispenser as follows:

1. Turn off power at GFCI or circuit breaker before performing any service. (Note: MC-2, MC-4 & MC-6 you can press **Mode** key holding for 10 seconds. The controller display will read **OFF** to let user know that it is safe to perform steps 2-4).
2. Remove disinfectant dispenser from filter housing.
3. Remove check valve assembly by turning counterclockwise.
4. Fill with trichloro-s-triazinetrione or bromine tablets or sticks which are 1" in diameter.
5. Install check valve assembly. Do not overtighten.
6. Install dispenser on filter.
7. Turn on at GFCI or circuit breaker. (Note: To resume MC-2, MC-4 & MC-6 spa operation once again, press **Mode** key holding for 10 seconds. Spa will automatically resume after 30 minutes if user neglects to resume operation).

- **Ozone Generator**
[optional]

An Ozone generator will supplement disinfectants and provide the following benefits:

- kills bacteria and viruses
- destroys matter which might discolor water
- does not affect the pH level of the water
- safe for bathers and equipment
- has no "chemical" smell
- automatic and requires little or no maintenance
- reduces the need for disinfectants

Refer to your ozone generator owner's manual for information on service and maintenance.

- **Other Water Chemistry Considerations**

Note:

When water evaporates, minerals from the water and the chemicals are left behind. As the level of these minerals increases, water treatment becomes more and more difficult. Therefore, at some point (between 4-12 weeks, depending on use), it is easier and less costly to drain and refill the spa instead of continuing to treat the same water.

Total Alkalinity-

Total Alkalinity is important because it helps to keep the pH in the proper range. Test with an appropriate test kit, and adjust as needed following the instructions supplied with the test kit. If you are using trichloro-s-triazinetrione as a disinfectant, adjust to 60-100 ppm. If you are using bromine as a disinfectant, adjust to 100-150 ppm. Higher levels may cause cloudy water and scale formations, while lower levels may lead to corrosion and uncontrollable pH variations.

Calcium Hardness-

Proper calcium hardness levels will help you to maintain other water quality values such as pH and total alkalinity, and help to avoid cloudy water and/or scaling on the tub surfaces, equipment, and piping. Maintain the calcium hardness of your spa at 200 ppm when using trichloro-s-triazinetrione as a disinfectant. For bromine, maintain the calcium hardness between 150-300 ppm. Test with an appropriate test kit and adjust as needed, following the instructions supplied with the test kit.

Total Dissolved Solids-

Tap water contains 50-300 ppm total dissolved solids [TDS]. When the level goes above 1500 ppm in a spa, the efficiency of sanitizers is reduced and corrosion is accelerated. To reduce TDS levels, replace some or all of the spa water.

MAINTAINING YOUR SPA

- Draining the Water
- Cleaning the Spa Shell
- Cleaning the Filter
- Relamping the Underwater Light
- Winterizing Your Spa
- The Spa Cabinet

- Draining the Water

Note:

Chemically treated water may damage plants. Place the garden hose in a safe discharge area.

Note:

Some water will be left in the bottom of the spa and in your plumbing lines. This small amount of water can be mixed with fresh water without consequence. If 100% draining is required, a small submersible pump or a wet/dry shop vac should be used. If winterizing your spa please turn to page 53 for complete instructions. Always call your dealer for assistance

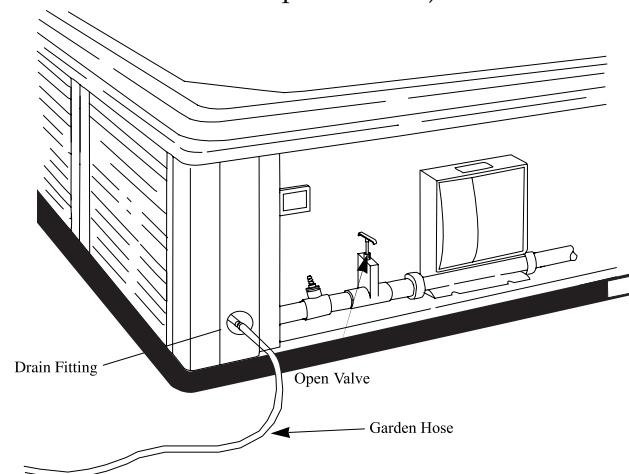


Caution:

Do not allow the pump to run without water. Running the pump without water will cause pump damage and void the warranty.

To drain your spa without taking access panel off:

1. Unscrew the cap and attach a garden hose.
2. Turn the black nozzle (the part just behind where the cap screws on) counter-clockwise and pull out to drain the water from your spa.
3. When finished draining detach the garden hose, screw the cap back on and then push in and turn clockwise (the part just behind where the cap screws on).



● Cleaning the Spa Shell

Note:

Do not use scouring cleansers or solvents; damage to the acrylic finish will result.

Note:

Do not use strong solvents such as gasoline, acetone, or denatured alcohol; damage to the acrylic finish will result.

● Cleaning the Filter

Use a nonabrasive household cleaner to clean all spa shell surfaces and fixtures. Do not use scouring cleansers or solvents; damage to the acrylic finish will result.

Your Emerald Spa is manufactured using LUCITE XL 1000 continuous-cast cross-linked acrylic sheet. This material provides a strong chemical-resistant high gloss surface that is hard, nonporous, and impermeable to water.

Given proper care, the polished, lustrous surface of LUCITE XL 1000 sheet will retain its appearance for many years. To clean your spa be sure to use a soft absorbent cloth with any of the commercially available nonabrasive foam or liquid agents in general cleaning concentrations. Always rinse thoroughly with clean water and a soft chamois or moist cellulose sponge.

Cleaning agents containing strong abrasives such as scouring powders or strong solvents such as gasoline, acetone, or denatured alcohol should not be used to clean the acrylic surface of your spa.

Fine scratches may be minimized by the use of a mild automobile cleaner-polish. The cleaner-polish has a fine abrasive action, and its wax content tends to fill small scratches to make them less visible.

1. Turn off power at GFCI, circuit breaker before performing any service. (Note: MC-2, MC-4 & MC-6 you can press **Mode** key holding for 10 seconds. The controller display will read **OFF** to let user know that it is safe to perform steps 2-4).
2. Using a filter key (for the Space Saver II Filter), open filters and remove elements. For larger filter, hold down lock mechanism and spin the outer ring counter-clockwise.
3. Clean the filter element(s) as required:
 - Spray with a garden hose to remove trapped dirt.
 - Soak in a solution of water and filter cleaner solution to remove body oils and other contaminants or see your dealer for recommended cleaning supplies.
 - Inspect the elements for damage and replace as required.
 - Rinse thoroughly.
4. Place clean filter element(s) in housing and install filter tops.
5. Turn the power on at GFCI, circuit breaker. (Note: To resume MC-2, MC-4 & MC-6 spa operation once again, press **Mode** key holding for 10 seconds. Spa will automatically resume after 30 minutes if user neglects to resume operation).

● Relamping the Underwater Light

● Winterizing Your Spa



Caution:

Do not use automobile type radiator antifreeze.

Note:

It is possible to use the air blower (if equipped) to purge the air lines. Ask your dealer for assistance if you want to use this procedure.

Note:

Try to drain out as much water as possible*, especially from the blower and air injector lines.

Then add an inhibited propylene glycol type antifreeze to any remaining water. Propylene Glycol can be purchased most commonly in a store with a Recreational Vehicle section. Always call your dealer for assistance.

The underwater light should be relamped from the under side of the spa as follows:

1. Disconnect the power from the spa.
2. Locate the light fixture on the back of the spa inside the cabinet.
3. Remove the old bulb and install a new bulb.

The following procedure should be followed if you choose to deactivate your spa for the winter months.

1. Drain all water from spa using drain hose.
2. Unplug the pump power cords from the power system outputs.
3. Press the blower keypad and run blower until all air lines are dry.
4. Open and vacuum the filter canisters and each jet and air injector with a shop vac.
5. Remove any remaining water in the spa with a sponge or cloth.
6. Turn power off at main power supply panel.
7. Disconnect all plumbing from power pack at unions. Open T-valves to allow water to drain, and vacuum out each open union and pump inlet & discharge.
8. Open drain valve and filter tops and vacuum out thoroughly.
9. Connected to the manifold is a hose that allows drainage of the manifold. Connect a hose to the spigot and drain the manifold.
10. Clean spa as instructed in maintenance section.
11. Use a locking spa cover to keep water out and prevent unauthorized use.
12. Please see side notes for adding the proper antifreeze.

- **The Spa Cabinet**

Note:

Do not apply varnish, shellac, or surface sealants to the wood. They tend to react with chemicals in the wood and the UV rays of the sun to cause yellowing, peeling, and flaking.

The red cedar cabinet of your spa is protected with a wood sealer. It is normal for the cabinet to take on a weathered appearance with time and exposure to the elements.

Protect and revive the wood surface with a light sanding and the application of a wood preservative or tongue oil. Since Emerald uses only decay-resistant woods in its spa construction, you may choose to allow your cabinet to age with time and weather.

Durabilt Cabinet

If you have purchased an optional Durabilt cabinet, know that the outer surface of the Durabilt Cabinet is made completely of a synthetic material. To clean, take a dampened rag with mild dish soap and wash the outside panels.

• Troubleshooting



WARNING:

Risk of electrical shock. Electrical troubleshooting should be done by qualified technicians.

WARNING:

Risk of electrical shock. Disconnect power cord from receptacle or turn power off at main service panel before removing fuse.

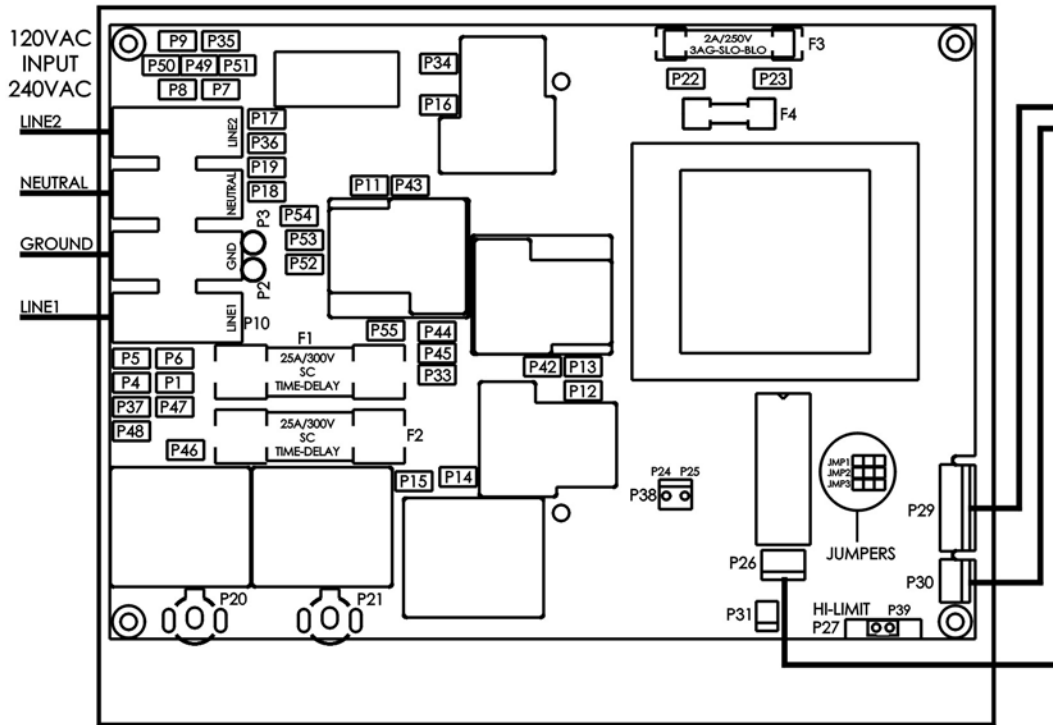
TROUBLESHOOTING

Problems	Things to Check
Power system inoperative (No LED display on the panel).	<ol style="list-style-type: none"> 1. Not plugged in (120v). 2. Circuit breaker tripped or not turned on. 3. Ground fault circuit interrupter tripped. 4. Fuse in power system blown.
Fault indicated by spa control display message.	Please refer to the individual pages in this owner's manual that reference your particular controller.
Pump does not prime.	<ol style="list-style-type: none"> 1. Circulation T-valve closed. 2. Not enough water in the spa. 3. Air locked. Bleed air as described previously in this manual. (pg. 42 (filter) and/or pg. 44-45 (pump))
Hydrotherapy jets do not operate.	<ol style="list-style-type: none"> 1. Filter clogged. 2. Pump not primed. 3. Air intake valve(s) closed. 4. Jet venturi nozzles plugged or missing.
Spa does not heat.	<ol style="list-style-type: none"> 1. Thermostat set too low. 2. Low flow, pump not primed, or water level too low. 3. Pressure switch not sensing enough pressure. 4. Heater element defective.
Spa heats, but not to set temperature.	<ol style="list-style-type: none"> 1. Spa not covered or not covered properly sealing the spa cover to the top edge of the spa. Heat loss is greater for an uncovered spa. High wind, low humidity also increase heat loss.

Electrical Schematics

SC-1, SC-2 & SC-3

MODEL NUMBER:
SC-CF-P122-B2-O1-NE
-LS-H4.0-FB1-AMP-EM1
11646-01A



KEYPAD WITH DISPLAY
TEMPERATURE PROBE
FIBER BOX

JUMPER SETTINGS

JMP1 <input type="checkbox"/> = HC MODE	<input type="checkbox"/> = LC MODE
JMP2 <input type="checkbox"/> = °F UNITS	<input type="checkbox"/> = °C UNITS
JMP3 <input type="checkbox"/> = NO BLOWER	<input type="checkbox"/> = BLOWER

PUMP #1 CONNECTOR

VOLTAGE	120V <input type="checkbox"/>	240V <input checked="" type="checkbox"/>
GREEN / GROUND	P4	P4
WHITE / COM	P7	P18
BLACK / LOW SPEED	P14	P14
RED / HIGH SPEED	P12	P12

BLOWER CONNECTOR

VOLTAGE	120V <input type="checkbox"/>	240V <input checked="" type="checkbox"/>
GREEN / GROUND	P6	P6
WHITE / COM	P9	P17
RED / LINE	P11	P11

OZONE CONNECTOR

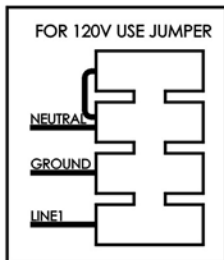
VOLTAGE	120V <input checked="" type="checkbox"/>	240V <input type="checkbox"/>
GREEN / GROUND	P5	P5
WHITE / COM	P8	P19
BLACK / LINE	P16	P16

FIBER BOX CONNECTOR

VOLTAGE	120V
GREEN / GROUND	P1
WHITE / COM	P8
BLACK / LINE	P33

TO CONVERT TO 120 VAC INPUT

- MAKE SURE ALL OUTPUTS ARE 120 V (PUMPS, LIGHT, BLOWER, ...)
- PLACE A JUMPER CABLE BETWEEN NEUTRAL AND LINE 2 AT INPUT TERMINAL BLOCK
- MOVE JMP1 TO THE RIGHT POSITION (LC MODE)



HEATER 240V

BLACK 1	P20
BLACK 2	P21

PRESSURE SWITCH

BLACK	P25
BLACK	P24

LIGHT CONNECTOR 12 W MAX.

	LIGHT
WHITE / 0 VAC	P22
BLACK / 12 VAC	P23

USE COPPER CONDUCTORS ONLY
FOR SUPPLY CONNECTIONS, USE CONDUCTORS SIZED ON THE BASIS OF 60°C AMPACITY BUT RATED MINIMUM 90°C

MC-2 & MC-4 System Wiring Diagram

MODEL NUMBER:
MC-MP-P122-P212-B2-O1-LS-H4.0
-AU1-FB1-IR-SPW-AMP-EM2
11736-01A

JUMPER SETTINGS			
JMP1	<input type="checkbox"/> = HC	<input type="checkbox"/> = LC	
JMP2	<input type="checkbox"/> = 8 KEYS	<input type="checkbox"/> = 10 KEYS	

PUMP #1 CONNECTOR

VOLTAGE	120V <input type="checkbox"/>	240V <input checked="" type="checkbox"/>
GREEN / GROUND	P68	P68
WHITE / COM	P48	P57
BLACK / LOW SPEED	P37	P37
RED / HIGH SPEED	P64	P64

PUMP #2 CONNECTOR

VOLTAGE	120V <input type="checkbox"/>	240V <input checked="" type="checkbox"/>
GREEN / GROUND	P69	P69
WHITE / COM	P45	P58
BLACK / LINE	P35	P35

BLOWER CONNECTOR

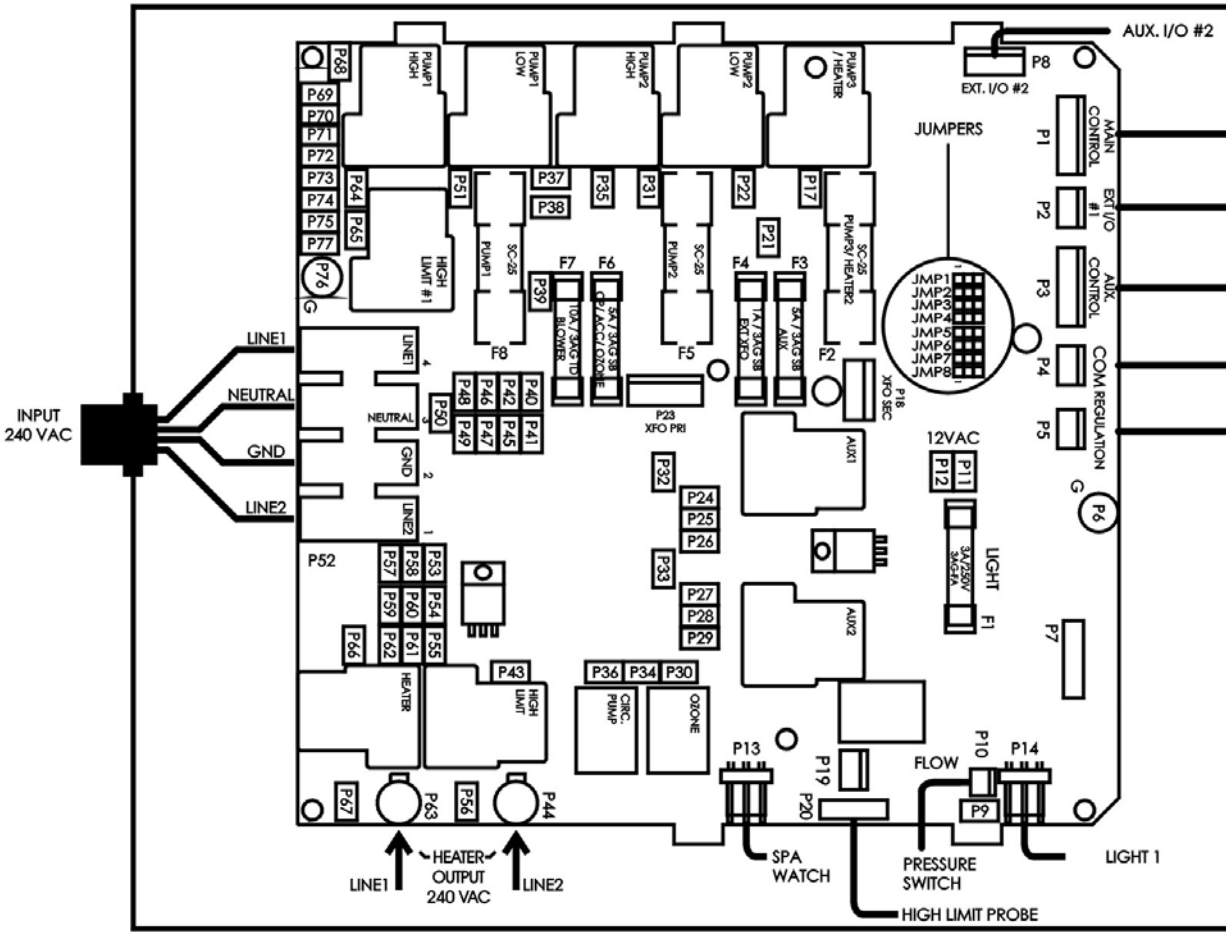
VOLTAGE	120V <input type="checkbox"/>	240V <input checked="" type="checkbox"/>
GREEN / GROUND	P71	P71
WHITE / COM	P49	P59
BLACK / LINE	P43	P43

OZONE CONNECTOR

VOLTAGE	120V <input checked="" type="checkbox"/>	240V <input type="checkbox"/>
GREEN / GROUND	P72	P72
WHITE / COM	P46	P60
BLACK / LINE	P30	P30

FIBER BOX CONNECTOR

VOLTAGE	120V <input checked="" type="checkbox"/>	240V <input type="checkbox"/>
GREEN / GROUND	P77	P77
WHITE / COM	P47	P61
BLACK / LINE	P34	P34



LIGHT CONNECTOR 24 W MAX.

LIGHT 1	P14
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HEATER

BLACK 1	P63
BLACK2	P44
GREEN/GROUND	GROUND

SPA WATCH CONNECTOR

COMM	P4
POWER	P13

AUXILIARY

GREEN/GROUND	P75
WHITE/COM	P50
BLACK/LINE	P62

WARNING:
 BEFORE OBTAINING ACCESS TO TERMINALS,
 ALL SUPPLY CIRCUITS MUST BE DISCONNECTED

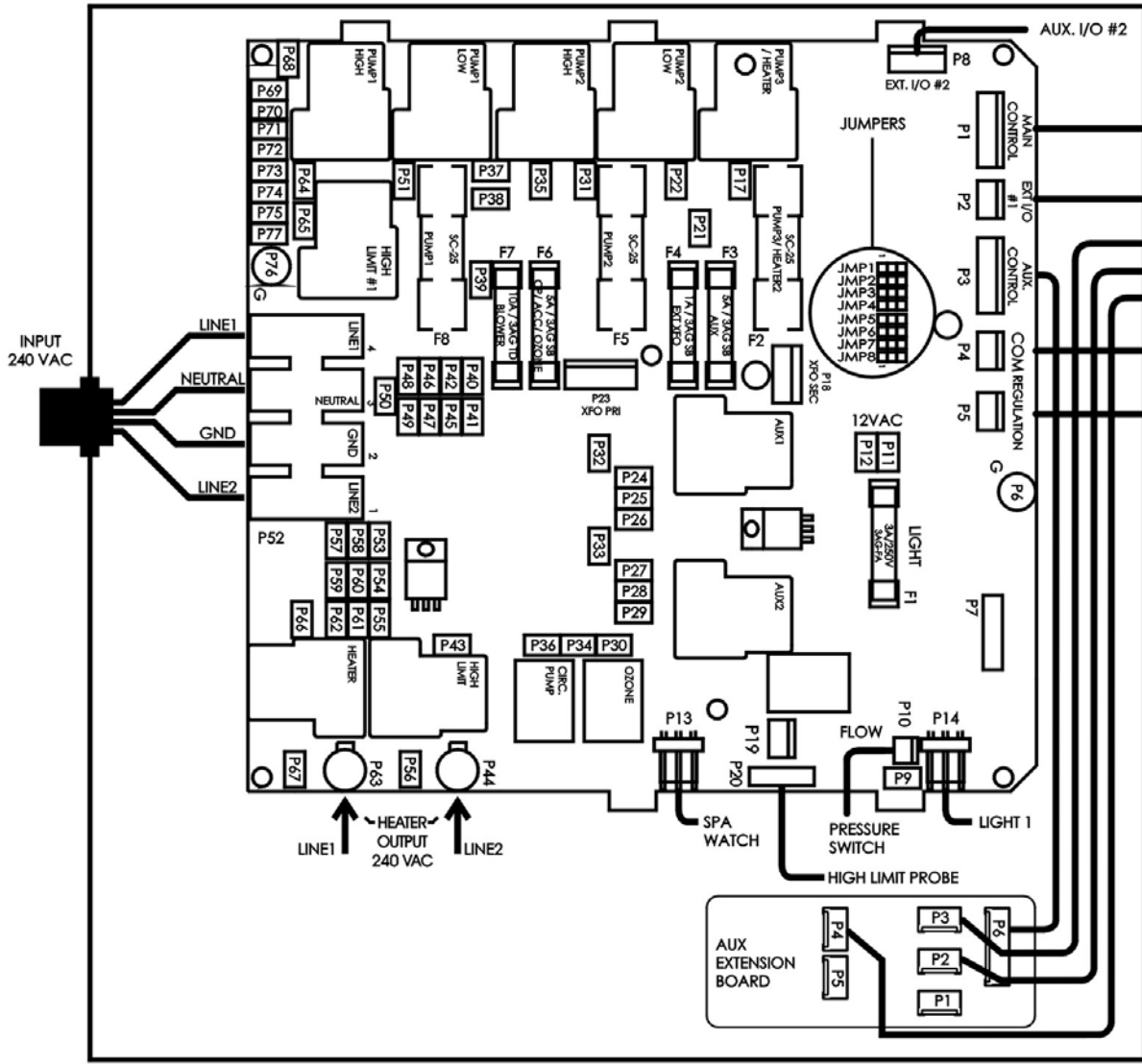


USE COPPER CONDUCTORS ONLY
 FOR SUPPLY CONNECTIONS, USE CONDUCTORS SIZED ON THE BASIS OF 60°C AMPACITY BUT RATED MINIMUM 90°C

Model: MC-MP-P122-P212-B2-O1-LS-H4.0	Options: AU1-FB1-IR-SPW-AMP-EM2
ID Number:	3-74-7031

MC-6 System Wiring Diagram

MODEL NUMBER:
MC-MP-P112-P212-P312-B2-O1-CP1
-LS-H4.0-FB1-IR-SPW-AMP-EM1
11518-01B



JUMPER SETTINGS

JMP1	<input type="checkbox"/> = HC	<input type="checkbox"/> = LC
JMP2	<input type="checkbox"/> = 8 KEYS	<input type="checkbox"/> = 10 KEYS

PUMP #1 CONNECTOR

VOLTAGE	120V <input type="checkbox"/>	240V <input type="checkbox"/>
GREEN / GROUND	P68	P68
WHITE / COM	P48	P57
BLACK / LINE	P64	P64

PUMP #2 CONNECTOR

VOLTAGE	120V <input type="checkbox"/>	240V <input type="checkbox"/>
GREEN / GROUND	P69	P69
WHITE / COM	P45	P58
BLACK / LINE	P35	P35

PUMP #3 CONNECTOR

VOLTAGE	120V <input type="checkbox"/>	240V <input type="checkbox"/>
GREEN / GROUND	P70	P70
WHITE / COM	P40	P53
BLACK / LINE	P21	P21

BLOWER CONNECTOR

VOLTAGE	120V <input type="checkbox"/>	240V <input type="checkbox"/>
GREEN / GROUND	P71	P71
WHITE / COM	P49	P59
BLACK / LINE	P43	P43

FIBER BOX CONNECTOR

VOLTAGE	120V <input type="checkbox"/>	240V <input type="checkbox"/>
GREEN / GROUND	P74	P74
WHITE / COM	P47	P61
BLACK / LINE	P34	P34

OZONE CONNECTOR

VOLTAGE	120V <input type="checkbox"/>	240V <input type="checkbox"/>
GREEN / GROUND	P72	P72
WHITE / COM	P46	P50
BLACK / LINE	P30	P30

LIGHT CONNECTOR 24 W MAX.

LIGHT 1	P14
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SPA WATCH CONNECTOR

COMM	P4
POWER	P13

HEATER

BLACK 1	P63
BLACK 2	P44
GREEN/GROUND	GROUND

CIRC PUMP CONNECTOR

VOLTAGE	120V <input type="checkbox"/>	240V <input type="checkbox"/>
GREEN / GROUND	P73	P73
WHITE / COM	P41	P54
BLACK / LINE	P36	P36

USE COPPER CONDUCTORS ONLY

FOR SUPPLY CONNECTIONS, USE CONDUCTORS SIZED ON THE BASIS OF 60°C AMPACITY BUT RATED MINIMUM 90°C

Notes: