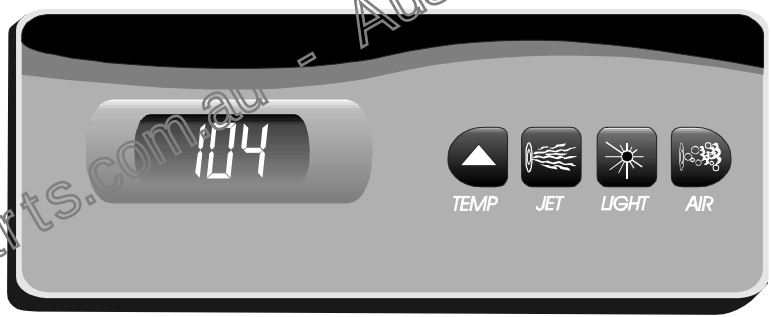
CONTROL MODULE

OWNERS MANUAL

BL-46 ELECTRONIC SPA CONTROL SYSTEM



IMPORTANT SAFETY INSTRUCTIONS

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

READ AND FOLLOW ALL INSTRUCTIONS
INSTALLATION CONSIDERATIONS

1. A bonding lug has been provided on the outside of the Control Module electrical control box. This lug permits the connection of a No. 8 AWG (8.4mm2) solid copper bonding conductor between the Control Module and all other electrical equipment and exposed metal within 5 feet (1.5m) of the Control Module, as required to comply with local regulations.

2. The Control Module must be installed to provide for adequate drainage and to prevent water from entering the electrical equipment are. When installing the spa indoors, the floors and structures beneath the spa must be protected against water run-off.

FOR CORD AND PLUG CONNECTED UNITS 120 VOLT OPERATION

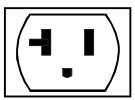
WARNING - RISK OF ELECTRICAL SHOCK Install the Control Module at least 5 feet (1.5m) from the inside wall of spa, using non-metallic plumbing.

3. DANGER - Risk of injury.

Do NOT use an extension cord. The Control Module must be located close enough to the electrical outlet that an extension cord shall not be required. Use of an extension cord will seriously degrade Control Module performance and can create a serious electrical hazard.

NEVER bury the power cord.

To reduce the risk of electric shock, replace a frayed or damaged power cord immediately.



For units with a 20-ampere type plug, connect **ONLY** to a grounded, grounding type receptacle rated at 120 volts, 20 amperes. Never, for any reason, modify the attachment plug to fit other than a grounded, 120 volt, 20 ampere receptacle.

FOR PERMANENTLY CONNECTED UNITS "HARDWIRED" FOR 120 VOLT OR 240 VOLT OPERATION

4. The electrical supply for permanently connected Control Modules ("Hardwired" for 120 or 240 volt operation) must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with Article 422-20 of the National Electrical Code, ANSI/NFPA 70. The disconnecting means must be within sight and readily accessible to the spa user, but installed at least 5 feet (1.5m) away from the spa. The electrical supply for permanently connected Control Modules must also include a suitable rated Ground Fault Circuit Interrupter (GFCI) to comply with Article 680-42 of the National Electrical Code, ANSI/NFPA 70.

OPERATING PRECAUTIONS

5. DANGER - RISK OF ELECTRICAL SHOCK. Do not permit any electrical appliance, such as a light, telephone, radio, or television, within 5 feet (1.5m) of the spa.

6. Be sure that water always flows freely from the hydrotherapy jets within the spa. Any blockage or restriction of this water flow by persons or objects may damage system components, create an electrical shock hazard, and/or cause water damage to the surrounding area. To avoid damage to the pump and heater, the Control Module must never be operated unless the spa is filled with water.

7. DANGER - To reduce the risk of injury to persons within the spa, never remove, or alter in any way, the grates or covers on the suction fittings in the spa. Never operate the Control Module if the grates or covers on the suction fittings are broken or missing.

8. **WARNING - RISK OF CHILD DROWNING** Extreme caution must be exercised to prevent unauthorized access to the spa by children.

   WARNING - To reduce the risk of injury, do not permit children to use the spa unless they are closely supervised at all times.

9. **WARNING** - 120 volt Control Modules may be equipped with a Ground Fault Circuit Interrupter (GFCI), located in the plug or power supply cord. This GFCI protects against electrical shock hazard by sensing electric fault conditions and interrupting the electric power applied to the Control Module.

   Before each use of the spa the GFCI should be tested in the follow**ing manner: Push the TEST** button; the **RESET** button should pop outward indicating the GFCI is functioning properly. Push the **RESET** button **in all the way to restore power to the Control Module.**

   If the **RESET** button does not pop outward when the **TEST** button is pushed, a loss of GFCI protection is indicated. Should this occur, immediately disconnect electrical power from the Control Module and discontinue use of the spa until a qualified technician has identified and corrected the problem.

10. **WARNING** - Prolonged immersion in water hotter than 104°F (40°C) may cause hyperthermia. The causes, symptoms, and effects of hyperthermia may be described as follows: Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6°F (37°C). The symptoms of hyperthermia 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. **WARNING** - The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia.

    Leave the spa immediately if nausea, dizziness, or headache occur. Immediately cool the body by taking a cool shower or by applying cold towels or ice packs. If the symptoms persist, seek medical attention.

11. **WARNING** – To reduce the risk of injury: Before entering the spa the user should measure the water temperature with an accurate thermometer, since the tolerance of water temperature regulating devices may vary as much as ±5°F (3°C).

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

The water in the spa should never exceed 104°F (40°C). Water temperatures between 100°F (38°C) and 104°F (40°C) are considered safe for a healthy adult. Lower water temperatures are recommended for extended use (exceeding 10 minutes) and for young children.

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 temperature to 100°F (38°C).

Obese persons and persons with a medical history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using the spa.

Persons using medication should consult a physician before using the spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure, and circulation.

Occasional users of the spa may not be aware of the potential risk associated with spa usage, they should be made aware of these Important Safety Instructions.

SAVE THESE INSTRUCTIONS

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TABLE OF CONTENTS

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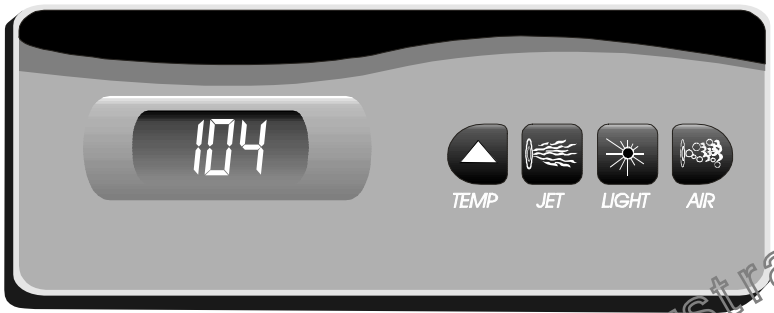
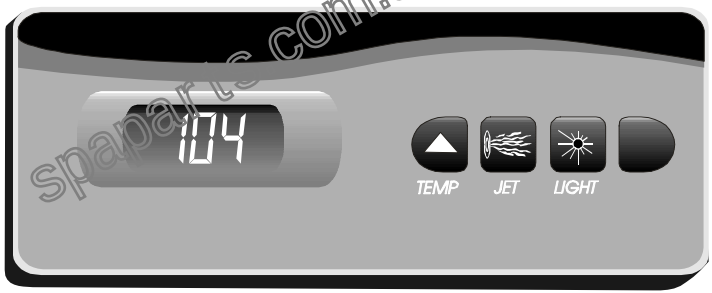
INTRODUCTION

BL-46 SERIES SPA-SIDE CONTROL
With Air system control



BL-46 SERIES SPA-SIDE CONTROL
Less Air system control



The BL-46 Electronic spa control system utilizes proven microcontroller technology to provide the ultimate in reliability and operating convenience.

The BL-46 features a large easy to read Light Emitting Diode (LED) Temperature Display. The display indicates water temperature, "Set" temperature during temperature setting procedures, operating messages and error codes.

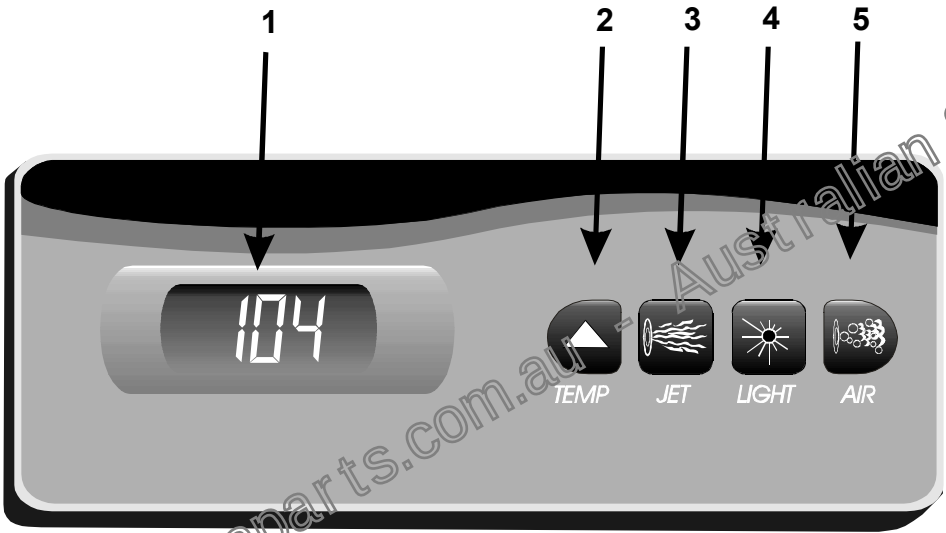
An illuminated keypad with easy to use touch buttons allows you to set spa water temperature, program filtration cycles and provides finger tip control of jets, spa light and air system.

The BL-46 includes automatic freeze protection circuits and self diagnostic systems.

Please take a few moments to read this manual and familiarize yourself with the equipment controls and operation.

PRODUCT FEATURES

BL-46 SERIES SPA-SIDE CONTROL
With Air system control



1. **LIGHT EMITTING DIODE (LED) TEMPERATURE DISPLAY**
   Continually indicates the current spa water temperature and displays "SET" water temperature, operating messages and error codes.

2. **TEMP Touch Button**
   Used to set temperature, program filtration cycles and set filtration cycle start time.

3. **JET Touch Button**
   Operates the jet pump high speed, low speed and OFF.

4. **LIGHT Touch Button**
   Controls the spa light operation. Also used to program filtration cycles and set filtration cycle start time.

5. **AIR System Touch Button**
   Operates the air system. NOTE: Used for second jet system operation on some models (no air).

PRODUCT FEATURES

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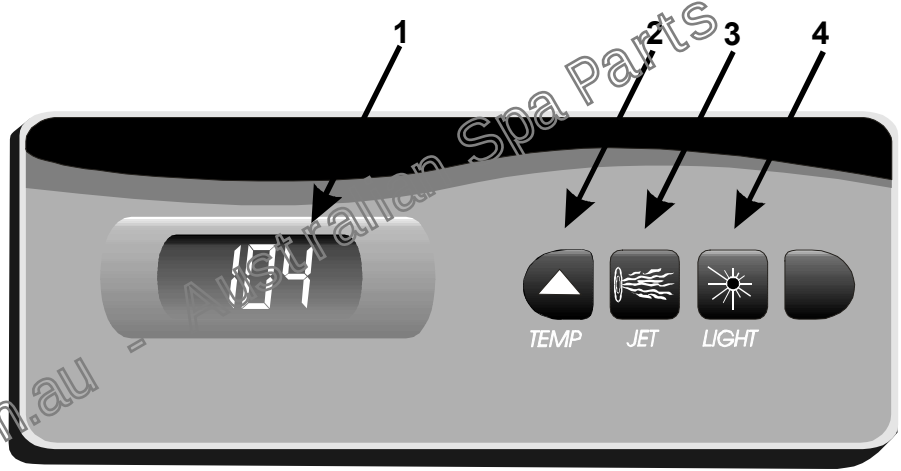
BL-46 SERIES SPA-SIDE CONTROL
Less Air system control



INSTALLATION NOTES

The Control Module must be protected by the portable spa skirting, or other weather-tight enclosure. The Control Module must never be installed in an open unprotected area. All warranties are void if the spa is not installed in accordance with these instructions.

Install the spa to permit safe access for servicing and routine maintenance of the Control Module.

ELECTRICAL - GENERAL

All electrical connections to the Control Module must be established by a qualified electrician in accordance with the National Electrical Code or the Canadian Electric Code and in accordance with any local electrical codes in effect at the time of installation.

All electrical connections must be made in accordance with the wiring information contained in this manual, or on the back of the field wiring access panel of the Control Module.

WARNING: Improper electrical connections or conductor sizing may cause the Control Module to operate improperly, create a potential electrical hazard, and may void the warranty.

The electrical supply for permanently connected Control Modules ("Hardwired" for 120V or 240V operation) must include suitably rated switches or circuit breakers to open all ungrounded supply conductors to comply with Section 422-20 of the National Electrical Code, ANSI/NFPA70.

The means to disconnect must be within sight and readily accessible to the spa user. The electrical supply for permanently connected Control Modules must also include a suitably rated Ground Fault Circuit Interrupter (GFCI) in compliance with Article 680-42 of the National Electrical Code, ANSI/NFPA70.

Use only approved pressure type wire splicing lugs or connectors suitable for the size and type of wiring used.

These installation instructions are provided as guidelines for use and interpretation by knowledgeable installers. Wire size, number of circuits, size of circuit breakers, etc., must be selected for the particular system being installed. Refer to Control Module data label to determine specific electrical requirements.

240 VOLT 4 WIRE INSTALLATION

Applies to units with 5th Catalog Number Suffix of "0" and "A"
(Examples: 28-12**0**2, 28-12**0**4, 28-13**0**2, 28-13**0**4, 28-12**A**4, 28-13**A**4)

The following instructions are to connect a Control Module designed to operate at 240 volts.

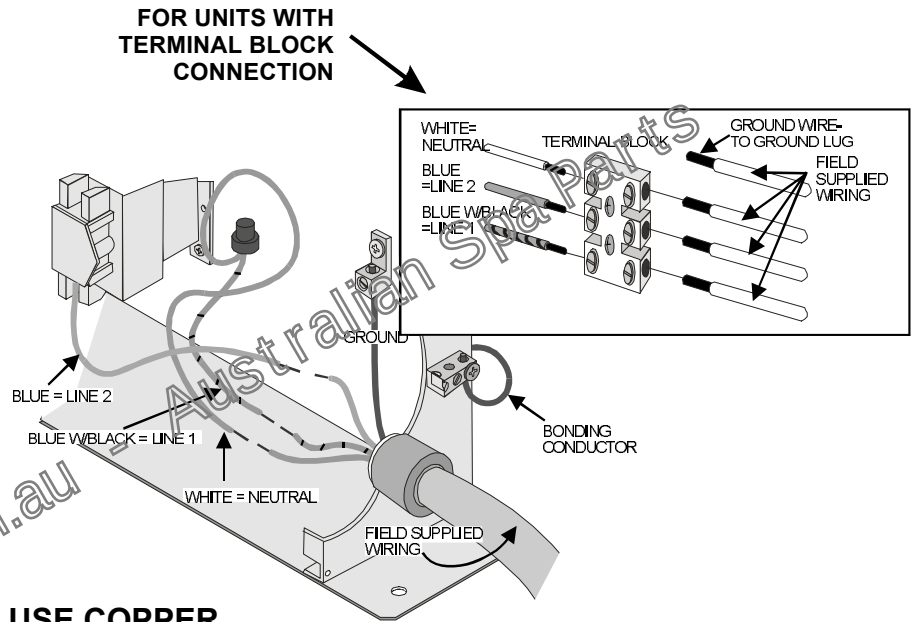
1. Open the Control Module wiring access panel to allow access to the input power wiring.

2. Connect input power wiring as shown in following diagram. The Control Module requires a three wire electrical service, and ground (Line 1, Line 2, Neutral and Ground).

A minimum supply conductor ampacity of 50 amperes and a circuit breaker size of 50 amperes is required.

NOTE: Failure to connect a neutral line will cause the Control Module to malfunction and may void the Control Module warranty.

3. Close wiring access panel.



USE COPPER CONDUCTORS ONLY

240 VOLT WIRING DIAGRAM (3-Wire Systems Plus Ground)

120 VOLT 4 WIRE INSTALLATION

Applies to units with 5th Catalog Number Suffix of "0" and "A"
(Examples: 28-12**0**2, 28-12**0**4, 28-13**0**2, 28-13**0**4, 28-12**A**4, 28-13**A**4)

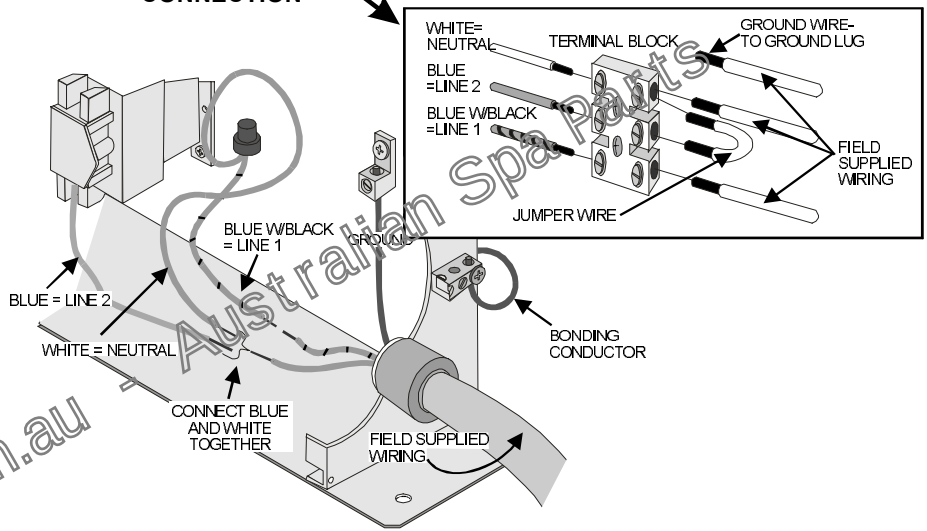
The following instructions are to connect a Control Module designed to operate at 120 volts.

1. Open the Control Module wiring access panel to allow access to the input power wiring.

2. Connect input power wiring as shown right. When connected to 120 volts, the Control Module requires a two wire electrical service, plus ground which must be connected (Line 1, Neutral and Ground) using a minimum supply conductor ampacity of 20 amperes and a circuit breaker size of 20 amperes.

3. Close wiring access panel.

FOR UNITS WITH TERMINAL BLOCK CONNECTION



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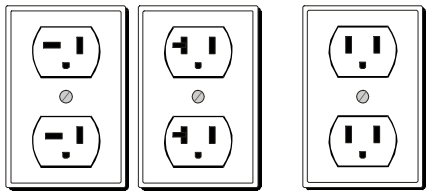
120 VOLT WIRING DIAGRAM

120 VOLT INSTALLATION - CORD AND PLUG CONNECTED UNITS



120 VOLT 20 AMPERE *120 VOLT 15 AMPERE*

The following instructions are for connecting a plug and cord connected Control Module. Determine the type of electrical service required, either 15 ampere or 20 ampere (see diagramabove).

Control Modules provided with a 20 ampere plug are to be plugged into a grounding type, 120 volt, 20 ampere receptacle. Control Modules provided with a 15 ampere plug are to be plugged into a grounding type, 120 volt, 15 ampere receptacle (see diagram above).

No other electrical appliance or fixture should be used on this circuit.

WARNING: The connection of the plug into a 240 volt electrical supply will cause the Control Module to operate incorrectly, create the potential for an electrical hazard and will void the Control Module warranty.

INITIAL START UP

1. Open all valves in the water inlet and/or water outlet to allow water to flow into the pump.

2. Fill the spa with water following the spa manufacturers instructions.

   CAUTION: The Control Module must never be operated without the proper amount of water in the spa or serious damage to the spa heater and/or the pump will occur.

3. Check all plumbing connections for leaks.

SPA WATER TEMPERATURE SETTING

The spa water temperature is controlled by the Spa-side control. To set spa water temperature refer to page 8, SETTING THE TEMPERATURE INSTRUCTIONS.

Do not expect to feel hot water coming from the jets.

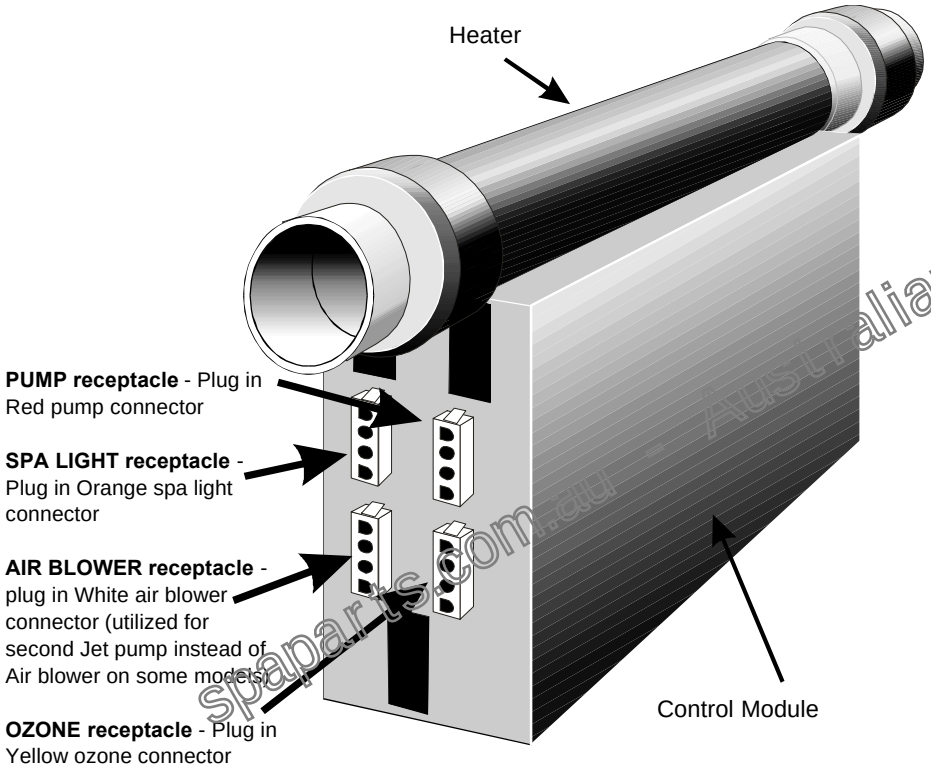
The length of time it takes for the spa water to reach the desired temperature depends on several factors:

- Water temperature at start, ambient air temperature, spa gallonage, relative humidity, type of spa cover and its insulating qualities and consistency of electric power applied.

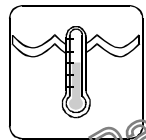
An insulating cover should be kept on the spa at all time when not in use.

Prolonged use of the air system and hydrotherapy jets when using the spa will have significant cooling effect on the spa water.

SETTING THE TEMPERATURE



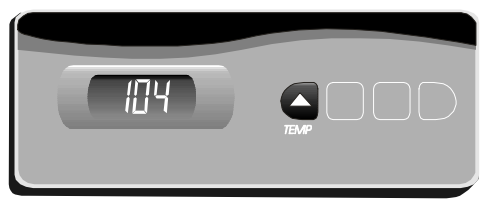
SETTING THE TEMPERATURE



The temperature may be set to maintain the spa water between 40°F (4°C) and 104°F (40°C).

To set the temperature press the ***TEMP*** touch button. The current temperature setting will be displayed for approximately 4 seconds.

To increase the temperature setting, press the ***TEMP*** touch button until the desired temperature is displayed.



To decrease temperature setting, press and hold the ***TEMP*** touch button. The display continues to increase and stops at ***104***. Release ***TEMP*** and press again. The display returns to ***40***. Press ***TEMP*** until the desired temperature is displayed.

Heat Icon

Whenever the heater is operating to maintain preset temperature, the spa water temperature and heat icon will alternately appear on the temperature display.

NOTE: Press and hold the ***TEMP*** touch button to cause the temperature setting to change slowly, then rapidly.

SETTING FILTRATION CYCLES

There are two equal filtration cycles a day. They may be programmed in 2 hour increments to operate from 2 - 12 or 2 - 24 hours a day (depending on factory setting).

To set the filtration cycles, press and hold the ***LIGHT*** touch button (6 seconds). A number between **02** and **12** (or **02** and **24**) will be displayed. This represents the total hours of programmed daily filtration. To change the current setting, press ***TEMP*** to increase the hours. To decrease the hours, press and hold the ***TEMP*** touch button until **12** (or **24**) appears, release ***TEMP*** touch button and press again. The display starts at **00**. Continue pressing ***TEMP*** until the desired setting appears.

To set filtration start times, press and hold the ***LIGHT*** touch button (6 seconds) and the filtration cycle setting will appear. Press ***LIGHT*** again. A number between 02 and 12 (or 02 and 24) will be displayed. This represents the number of hours until the first filtration cycle will start.

To increase the current setting, press ***TEMP*** until the desired setting is displayed. To decrease the setting, press and hold ***TEMP*** until 12 (or 24) appears. Release ***TEMP*** then press again. The display will start again at 00. Press ***TEMP*** until the desired setting is displayed. Press and release the ***LIGHT*** touch button to resume normal operation.

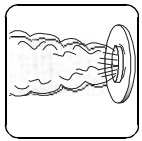
EXAMPLE - **Two filtration cycles per day:**
If the Spa-Side Control has been set for 2 hours, filtration time (02) followed by 1 hour start time (01), the first filter cycle of 1 hour will start 1 hour after programmed. 12 hours later the second 1 hour filter cycle will start.

If the filter cycle ***Fc*** *is ON, pressing the* ***LIGHT*** *touch button displays the remaining time in the filter cycle. If the* ***Fc*** *is OFF, pressing the* ***LIGHT*** *will display the time until the next cycle starts.*

NOTE: Some models utilize “one” filtration cycle per day, instead of two filtration cycles per day. On these models the setting procedures are the same as two cycles per day.

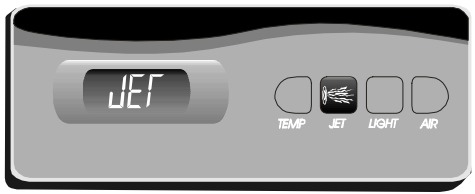
EXAMPLE - One filtration cycle per day:
If the Spa-Side Control has been set for 2 hours, filtration time (02) followed by 1 hour start time (01), the filter cycle will start 1 hour after programmed and will continue to operate for 2 hours.

OPERATING INSTRUCTIONS



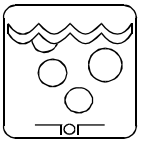
OPERATING THE JETS

To activate the jets, press the ***JET*** touch button once for low speed, press again for high speed (***JET*** will appear momentarily on the Temperature display), press again for OFF (***oFF*** will appear momentarily on the temperature display).



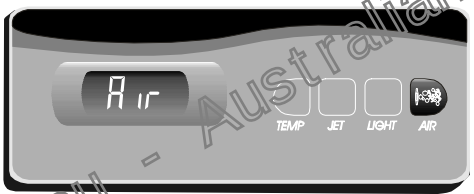
A safety shut-off timer circuit automatically turns off the jets after 30 minutes of operation. Press the ***JET*** touch button to continue using the jets.

NOTE: When operating in a filtration cycle, pressing the ***JET*** touch button will change between low speed and high speed operation only. The pump will ***not*** turn OFF until the end of the filtration cycle.



OPERATING THE AIR SYSTEM

The ***AIR*** touch button controls the air system. Press the ***AIR*** touch button to activate the air system (***Air*** will momentarily appear on the temperature display). Press again for OFF (***oFF*** will appear momentarily on the temperature display).



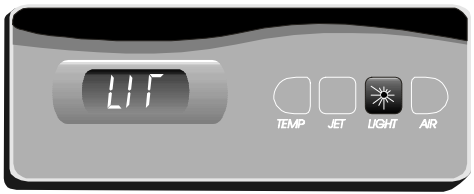
A safety shut-off timer circuit automatically turns off the air system after 30 minutes operation. Press ***AIR*** again to continue using the air system.

Air Channel Purge Feature - The air system will automatically operate for 1 minute every day, assuring that all water is exposed to the sanitizer.

NOTE: Some models utilize the ***AIR*** touch pad to operate a second jet system (no air system). The operating procedures are the same, except JET will momentarily appear on the temperature display instead of Air and there is no air channel purge feature.

OPERATING THE SPA LIGHT

The ***LIGHT*** touch button controls the spa light. Press the ***LIGHT*** touch button to turn the light ON (***LIT*** will momentarily appear on the temperature display). Press again for OFF (***oFF*** will appear momentarily on the temperature display).

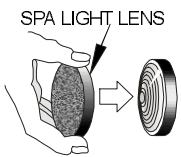


A safety shut-off timer circuit automatically turns the spa light OFF after four hours of operation.

OPTIONAL SPA LIGHT

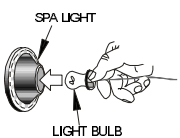
The spa light may be turned ON or OFF by pressing the ***LIGHT*** touch button located on the Spa-Side Control.

SPA LIGHT LENS INSTALLATION



Colored lenses are included with the spa light. To install or remove the lens, simply push on or pull off the light as shown.

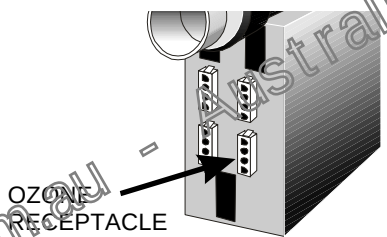
SPA LIGHT BULB REPLACEMENT



To replace the spa light bulb, turn ALL power to the Control Module OFF. Locate the rear of the spa light and remove the bulb socket by pulling on the socket (not the wires), as shown. Pull the bulb from the socket and replace by reversing the above steps.

CAUTION: The replacement bulb must be the same rating as the factory installed bulb (Brett Aqualine replacement P/N 37-0101FK2), package of two or standard automotive type #912).

OZONE GENERATOR ELECTRICAL CONNECTION



All Control Modules include OZONE receptacles mounted on the relay circuit board. The OZONE receptacle is provided for field connection of an ozone generator.

NOTE: Power is available at the OZONE receptacle whenever the pump is operating in LOW speed or during a programmed filtration cycle. Therefore, an ozone generator plugged into this receptacle will operate automatically whenever the pump is operating in LOW speed.

SYSTEM DISABLE FEATURE - MAINTENANCE

The system disable feature allows the system to be shut-off for up to 30 minutes, when performing maintenance procedures. To disable the system, press and hold the ***LIGHT*** touch button and press the ***AIR*** touch button. While the system is disabled, the temperature display will alternate between “diS” (disable) and the disable time remaining.

The system automatically enables again after 30 minutes. Press and hold ***LIGHT*** and ***AIR*** to end disable sooner.

NOTE: The system disable does <u>not</u> shut off the power within the Control Module.

SPA MAINTENANCE

CHEMICAL MAINTENANCE

Contact a qualified spa or swimming pool dealer for advice on maintaining proper chemistry of the spa water. The mineral content of spa water increases from water evaporation and with the addition of algaecidal and sanitizing chemicals. If the mineral concentration of the water becomes too high, the minerals will precipitate and deposit on the spa, in the filter and on the heater. The spa water must be changed when the amount of dissolved solids becomes excessive.

CAUTION: Do NOT store pool or spa chemicals near the Control Module. Their corrosive fumes may cause damage.

Change the spa water frequently, typically every three to four months or when the water clarity and cleanliness can no longer be maintained by chemical treatment.

CAUTION: Failure to maintain the proper chemical levels as stated above may cause excessive damage to components in contact with the spa water.

Damage to components determined to be the result of improper chemical maintenance will NOT be covered under the warranty.

Clean the filter regularly. A dirty filter restricts pump and heater performance.

WINTERIZING INSTRUCTIONS

If the spa is to be left unused for an extended period of time in an area where freezing temperatures do not occur it may be desirable to turn the heater temperature down to a minimum temperature of 40°F (see SETTING THE TEMPERATURE).

To keep the spa water clean and sparkling, program the unit to filter the spa water for a couple of hours each day. When preparing the spa for use, check the water chemistry to assure correct chlorine and pH levels.

The heater will operate as required to prevent the water from freezing if the spa is located in an area where freezing may occur.

However, caution must be used with this approach. In the event of an electrical power interruption, regardless of the cause, the heater and pump will stop operating and freeze protection will be lost, possibly resulting in freeze damage to the spa, spa plumbing and/or Control Module components. Such damage is not covered by the Control Module warranty.

If the spa is to be drained for an extended period of time, and located where freezing temperatures exist, make sure all water has been drained from the spa. When all the water has been drained from the spa turn all power to the spa OFF. Use a wrench to remove the pump drain plug and drain all water from the pump housing. Replace the pump drain plug. Close all shutoff valves, if equipped. Check the spa manufacturer's instructions regarding winterizing the filter assembly and spa plumbing. Covering the spa is highly recommended.

CLEANING THE SPA-SIDE CONTROL

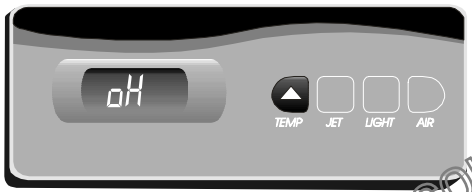
Use only a mild solution of soap and water and a soft cloth to clean the Spa-Side control. Avoid using abrasive cleaners or cleansers which have an adverse chemical effect on the surface.

DISPLAY MESSAGES

SPA-SIDE CONTROL ERROR MESSAGES

The BL-46 Series incorporates a variety of diagnostic and protection features. In the event of a system error an error message will be displayed on the LED temperature display as follows:

The water temperature of the system has exceed 118°F (48°C), causing the heater to automatically shut OFF.



When the water temperature has dropped below 104°F (40°C), press the ***TEMP*** touch button to reset the heater. If this error message continues to occur, discontinue use of the spa and contact a qualified service technician to correct the problem.

The system water temperature has dropped below the minimum set point of 40°F (4°C). An automatic freeze protection will activate the pump(s) and heater - protecting the system from freeze damage. The heater and pump(s) will operate until the water has reached 43°F (6°C).

The flow switch is not measuring adequate water flow to permit heater operation. Check the spa for closed valves, low water level, or a dirty filter cartridge. If this error message continues, discontinue use and contact a qualified service technician to correct the problem.

The water temperature regulating sensor has malfunctioned or is not properly connected. If either “Er0” or “Er1” error message is displayed, discontinue use and contact a qualified service technician to correct the problem.

The water temperature high limit sensor has malfunctioned or is not connected properly. If either “Er2” or “Er3” error message is displayed, discontinue use and contact a qualified service technician to correct the problem.

The heater flow switch has malfunctioned. If this error message is displayed, discontinue use and contact a qualified service technician to correct the problem.

NORMAL OPERATING MESSAGES

Whenever a timed filtration cycle is in operation, the “Fc” message and the current water temperature are alternately displayed on the LED.

Whenever in system disable mode (for maintenance), “diS” and the remaining system disable time are alternately displayed on the LED.

TROUBLESHOOTING

A. CONTROL MODULE WILL NOT OPERATE:

1. Make sure the Spa-Side Control is connected to the Spa-Side Control receptacle, located on the relay circuit board (inside the Control Module).

2. Check the main circuit breaker panel. If the GFCI or circuit breaker has tripped, reset breaker. If the circuit breaker trips repeatedly, contact the dealer from which you purchased your spa.

3. Turn the circuit breaker or switch supplying power to the Control Module OFF then ON.

B. PUMP WILL RUN BUT THERE IS NO WATER FLOW:

1. Make sure all valves are in the open position.

2. Make sure the filter is clean.

3. Make sure the suction lines are free of debris.

4. Make sure the water level of the spa is above the highest jet or skimmer.

5. Make sure there is no air trapped in the pump. With the pump operating in HIGH speed, loosen the pump inlet union (turn counterclockwise) approximately one turn to release any air trapped in the pump. When there is water flow into the spa, tighten the pump inlet union securely.

   NOTE: Water may spray out of the loosened union. A towel may be wrapped around the union during this operation.

6. Check to make sure that all jets are turned open.

C. PUMP RUNS AND THERE IS WATER FLOW, BUT NO HEAT:

1. Refer to SETTING THE TEMPERATURE and increase temperature setting. Do NOT expect to feel hot water coming from the jets.

2. Check if high limit shut off has tripped, if so, press ***TEMP*** to reset.

3. Make sure that all valves are open, to allow a full flow of water through the system. Limited water flow will NOT build up enough pressure to allow the heater to come on.

4. Clean the filter to assure maximum water flow.

5. The system is equipped with a heater delay switch that will prevent heater operation from occurring for approximately 15 seconds after pump starts. Make sure the pump has been operating for at least 20 seconds.

TECHNICAL SUPPORT
702 361-0600

D. WATER WILL NOT ATTAIN PROPER TEMPERATURES:

1. The spa should have a thermal cover. A spa will lose the majority of its heat from the surface of the water.
2. Refer to SETTING THE TEMPERATURE and increase or decrease temperature.
3. Increase the amount of time allowed for filtering and heating.
4. Make sure that the desired temperature is set correctly.

E. PULSATING OR MINIMAL WATER FLOW IN HIGH SPEED MODE:

1. Make sure the spa water level is above the highest jet or skimmer.
2. Make sure that all valves are open.
3. Make sure the filter is full of water.
4. Make sure the filter is clean.
5. Make sure the suction lines are free of debris.

F. WATER DOES NOT CLEAR UP:

1. Make sure that the filter is clean.
2. Check water chemistry for proper balance (see SPA MAINTENANCE).
3. Increase the filtering cycle setting.
4. Drain and refill spa.

G. BLOWER WILL NOT BLOW AIR INTO THE SPA:

1. Check air blower connections for leaks.
2. Make sure the air blower is plugged into the air blower receptacle, located on the side or bottom of the Control Module.

NOTES

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LIMITED WARRANTY

Steamboat International LLC warrants new Aqualine products to be free from defects in workmanship and material under normal use and conditions for a period of two (2) years from the date of original manufacture. Should repair be required by reason of any defect in workmanship or material during the warranty period, Steamboat International LLC will repair, or at their discretion, replace this product without charge, subject to verification of the defect, upon delivery of the product to:

STEAMBOAT INT'L LLC
Attn: Technical Service
7215 Bermuda Rd Las Vegas NV 89119-4304

If the repair is required after the expiration date of the warranty period, Steamboat International LLC will repair this product and bill for any necessary labor, replacement parts, shipping and handling.

This warranty is void if the unit: 1) is not installed in accordance with the instructions; **2)** is connected to improper voltage; **3)** is subjected to improper water chemistry; **4)** is mechanically or electrically altered in any way; **5)** is subjected to water or immersion (excluding electric heating elements); **6)** relay or switch contacts show evidence of short circuiting; **7)** has been visibly damaged by accident, misuse or which has been damaged by wind, rain, lightning, freezing, or other cause or **8)** serial number or manufacture date has been altered, effaced or removed. Pump seals, pump motors, o-rings, gaskets, and air blower brushes are covered only during the first year of the warranty period.

All products returned as defective are subject to evaluation labor charges. There is a charge for replacement parts and labor if defective unit is returned for any of the reasons listed above. Labor will be applied at a rate of $60.00 per hour, 1-hour minimum.

Steamboat International LLC shall not be liable for any inconvenience, loss of time, or incidental expenses incurred. Steamboat International LLC shall not be liable for any labor charges associated with the removal or re-installation of any products returned as defective.

This warranty extends only to normal residential (non-commercial) usage by the original retail purchaser within the continental United States, including Alaska and Hawaii. This is the only warranty expressed or implied by Steamboat International LLC. Warranties implied under state law, including any implied warranty of merchantability or fitness for a particular purpose, shall be limited to one year from the date of manufacture.

Some states do not allow the exclusion or limitation of incidental or consequential damages, therefore the above limitation may not apply to you.

STEAMBOAT INT'L LLC
(Mfg of Brett Aqualine Products)
7215 Bermuda Rd Las Vegas NV 89119 (702) 361-0600 Fax (702) 361-0613