

Quick Reference Guide

Models JXI200, JXI260, JXI330, JXI400



**JXi™ Gas-Fired
Pool and Spa Heaters**



 **WARNING**

If these instructions are not followed exactly, a fire or explosion may result, causing property damage, personal injury, or death.

FOR YOUR SAFETY: This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment by the jurisdiction in which the product will be installed where such state or local requirements exist. In the event no such state or local requirement exists, the installer or maintainer must be a professional with sufficient experience in pool equipment installation and maintenance so that all of the instructions in the manual can be followed exactly. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or death. Improper installation and/or operation can create carbon monoxide gas and flue gases which can cause serious injury, property damage, or death. For indoor installations, as an additional measure of safety, Zodiac Pool Systems, Inc. strongly recommends installation of suitable carbon monoxide detectors in the vicinity of this appliance and in any adjacent occupied spaces. Improper installation and/or operation will void the warranty.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

- **Immediately switch off main gas supply.**
- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Information in this Quick Reference Guide is not intended to replace the instructions found in the complete Heater Installation and Owner's manual. Read the manual in its entirety before attempting any of the procedures found in this Quick Reference Guide.

WATER CHEMISTRY

- Proper chemical balances are necessary for sanitary bathing conditions, as well as ensuring your heater's long life.
- For spas, it is necessary to perform water changes, in addition to chemical treatment. Change the spa water every 60 days for light usage and every 30 days if usage is heavy.
- Zodiac Pool Systems, Inc. does not warrant heat exchangers damaged by corrosive chemical levels or excess dissolved solids in pool or spa water. Refer to the recommended chemical levels, see table right. **CORROSIVE WATER CHEMISTRY VOIDS ALL WARRANTIES.**

Parameter	Min.	Ideal	Max.	Pool Type
Free Chlorine (ppm or mg/L)	1.0	2.0 - 4.0	5.0	Pools, Waterparks
	2.0	3.0 - 5.0	10.0	Spas
Combined Chlorine (ppm or mg/L)	0	0	0.2	Pools, Waterparks
	0	0	0.5	Spas
Total Bromine (ppm or mg/L)	2.0	4.0 - 6.0	10.0	All Types
PHMB (ppm or mg/L)	30	30 - 50	50	All Types
pH	7.2	7.4 - 7.6	7.8	All Types
Total Alkalinity as CaCO ₃	60	80 - 100* 100 - 120**	180	All Types
Total Dissolved Solids (ppm/ mg/L)	NA	NA	1500 over start-up***	All Types
Calcium Hardness as CaCO ₃ (ppm or mg/L)	150	200-400	1000	Pools, Waterparks
	100	150-250	800	Spas
Cyanuric Acid (ppm or mg/L)	0	30-50	****	All Types

*For calcium hypochlorite, lithium hypochlorite, or sodium hypochlorite.

** For sodium dichlor, trichlor, chlorine, gas, BCDMH.

***Start-up includes the TDS contribution of salt found in chlorine generating systems.

****Dictated by state or local codes. Typically 100 ppm (mg/L). Some codes are higher, some are lower.

MODEL & SERIAL NUMBER

Model number and serial number on heater rating plate located on the front of the combustion chamber. (Remove heater front panel.) Model number and serial number on heater rating plate located on the front of the combustion chamber. (Remove heater front panel.)

DESIGNED AND MANUFACTURED BY ZODIAC POOL SYSTEMS, INC. 1620 CONDORCET WAY, HUNTER, CALIFORNIA 92081			
 POOL HEATER 		FOR YOUR SAFETY Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.	
MODEL NO. JX1400N SERIAL NO./TEST		ANSI Z21.540-2004 CSA 4.76-2004	THIS HEATER EQUIPPED TO BURN NATURAL GAS INPUT RATE (MAX) 399,000 BTU/HR
MAX INLET GAS PRESS _____ 10.5 "WC MIN INLET GAS PRESS _____ 5 "WC MANIFOLD PRESSURE _____ -0.2 "WC MAX WORKING PRESSURE _____ 75 PSI ELECTRICAL RATING: VOLTS _____ 120/240 VAC HERTZ _____ 60 HZ AMPS _____ 5.0 A GAS ORIFICE SIZE _____	MINIMUM THERMAL EFFICIENCY 83% MINIMUM CLEARANCE FROM COMBUSTIBLE CONSTRUCTION 6 INCHES BLANK SIDE, 6 INCHES REAR SIDE, 6 INCHES PLUMBING SIDE, 48 INCHES TOP (FOR INDOOR INSTALLATION) 6 INCHES FRONT DO NOT INSTALL THIS HEATER UNDER AN OVERHANG LESS THAN 3" (91.4MM) FROM TOP. THE AREA UNDER THE OVERHANG MUST BE OPEN ON THREE SIDES.* FOR OUTDOOR OPERATION IN AMBIENT TEMPERATURES DOWN TO 40°F (4°C) FOR INDOOR OR OUTDOOR INSTALLATION.		
ALTITUDE (US) _____ 0-10,000 FT (0-3048m) FT. (M) ALTITUDE (CAN) _____ FT. (M)	THIS APPLIANCE MUST BE INSTALLED IN ACCORDANCE WITH THE NATIONAL FUEL GAS CODE, ANSI Z223.1 AND/OR CAN/CSA-B149 INSTALLATION CODES, AND WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.		
COMPONENTS MADE IN CHINA, USA, AND MEXICO 1184962	NATURAL GAS MODELS QUALIFY AS LOW NOx EMISSIONS * SEE INSTALLATION MANUAL		VERTICAL INDOOR COLLAR FACTORY INSTALLED



Make sure you have the MODEL NUMBER and SERIAL NUMBER available before calling Zodiac Technical Support.

For detailed information, refer to the complete installation and owner's manual.

CLEARANCES General



For detailed information, refer to the complete installation and owner's manual.

CLEARANCES

Combustible Surfaces & Service Access

- Installation on a non-combustible surface is recommended.
- Do not install on carpet.
- This unit can be installed on combustible flooring.

Combustible Surfaces*

TOP:	6 inches (15 cm)
EXHAUST SIDE:	6 inches (15 cm) from surface of the exhaust vent
HEADER SIDE:	6 inches (15 cm)
SIDE PANELS:	6 inches (15 cm)

Service Access*

TOP:	36 inches (45 cm)
EXHAUST SIDE:	6 inches (15 cm) from surface of the exhaust vent
HEADER SIDE:	12 inches (30 cm)
SIDE PANELS (at least one):	18 inches (22.5 cm) US 24 inches (60 cm) CAN

* Clearances are manufacturer's tested values. These are given as minimum values. Where local and national codes apply, and if the clearance values specified in the applicable codes are different than those listed in this manual, use the greater value to ensure safest operation.

OUTDOOR CLEARANCES

A

Distance: Heater to Door

USA - at least 4 feet (1.2m)

CAN - at least 10 feet (3.0m)

B

Distance: Top of Heater to Vented Opening (Forced Air Inlet)

If the top of the heater is less than 3 feet (0.9m) above a vented opening, the heater must be installed at least 10 feet (3.0m) away.

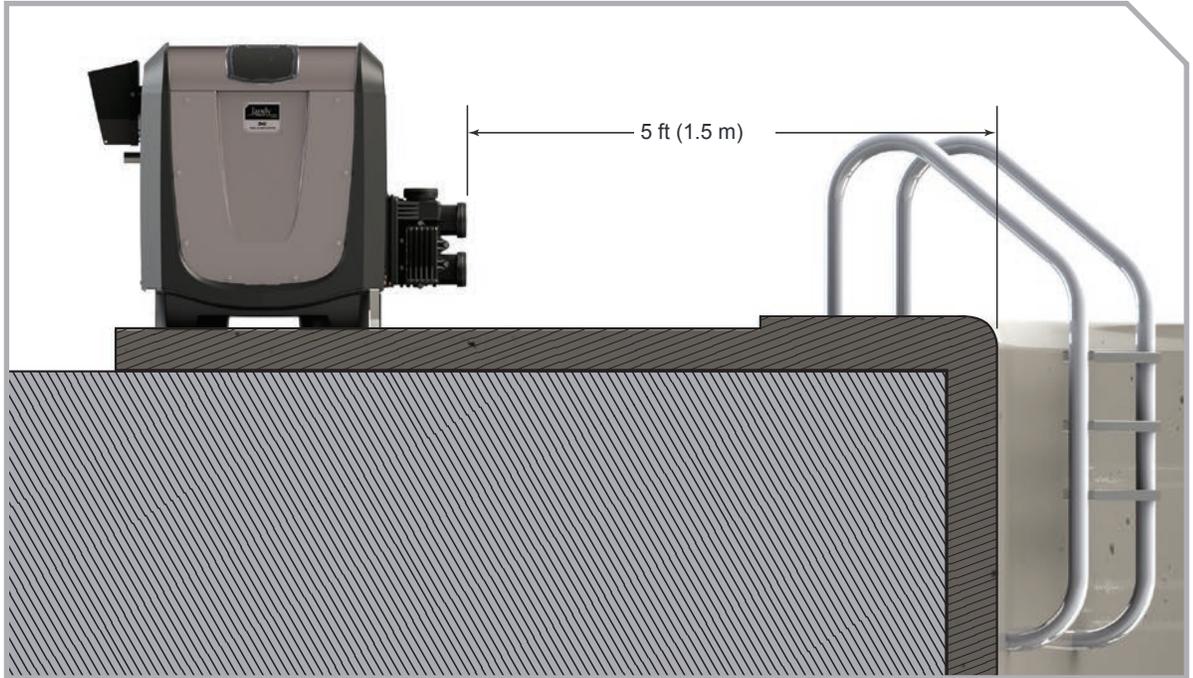
If the top of heater is more than 3 feet (0.9m) above, then any distance is acceptable.



For detailed information, refer to the complete installation and owner's manual.

OUTDOOR INSTALLATIONS

Unless separated by a solid wall, the minimum distance to the inside wall of the pool must be at least 5 feet (1.5 m).



INDOOR INSTALLATIONS

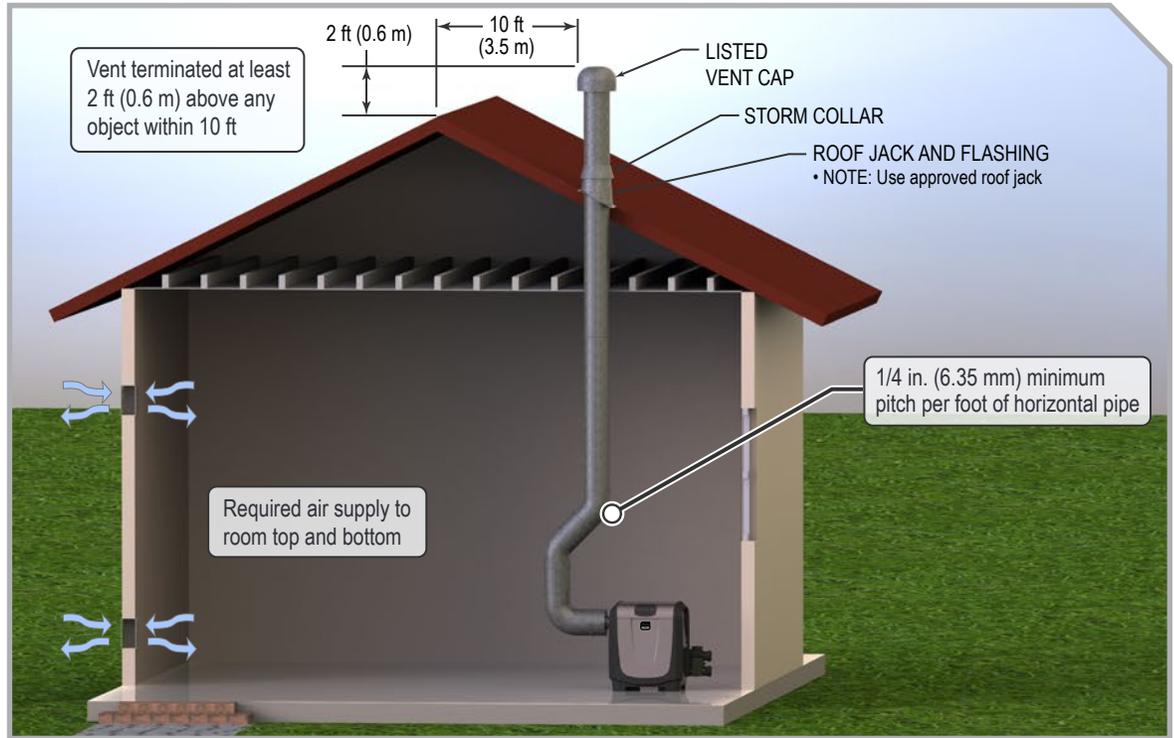
Category I, Category III Venting

- Vent the heater in accordance with the National Fuel Gas Code ANSI® Z223.1 (NFPA® 54).
- **Category I:** Install a 4" double-wall appliance adapter to meet vent size requirements for the heater model.
- **Category III:** Install vent connector or elbow to the flue collar according to specific installation instructions from the vent component manufacturer.

Model	Vent Size (Category I)	Vent Size (Category III)
JXI200	6" (15 cm)	4" (10 cm)
JXI260	7" (18 cm)	4" (10 cm)
JXI330	8" (20 cm)	4" (10 cm)
JXI400	8" (20 cm)	4" (10 cm)

For detailed information, refer to the complete installation and owner's manual.

INDOOR CLEARANCES Venting for Category I (US) or Outdoor Shelter (CAN)

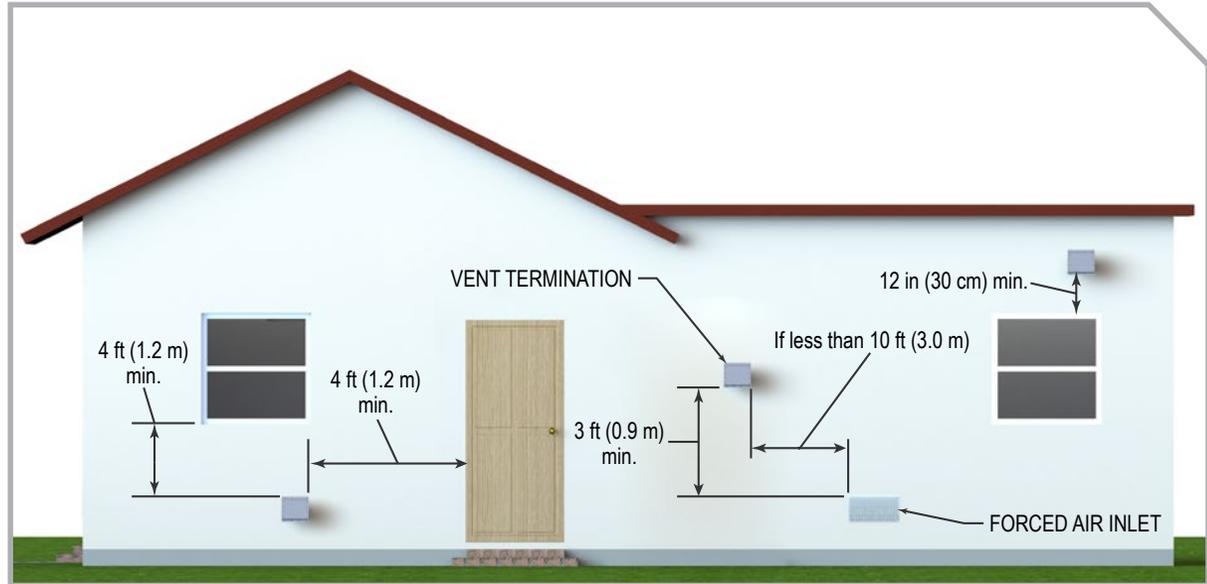


For detailed information, refer to the complete installation and owner's manual.

INDOOR INSTALLATIONS

Side Wall Vent Termination

- Side wall vent terminals for Category III (USA) illustrated.
- For Canadian installations, refer to CSA B149 for specific requirements.
- Suggested Z-vent part # 2SVSRTF.



For detailed information, refer to the complete installation and owner's manual.

INDOOR INSTALLATIONS

Combustion Air Supply

- All indoor installations must have openings to outside air for combustion and ventilation from the inside of the building.
- As outlined in ANSI® standard Z223.1 (NFPA® 54), the room in which the heater is installed should have two permanent air supply openings: (1) within 12 inches (305 mm) of the ceiling, and (2) within 12 inches (305 mm) of the floor.
- All air from outdoors should have a net free area, as shown in the table (right). If using screens or metal louvers, add additional area. Consult the specific louver manufacturer for restriction specifications as different louvers will have varying restrictions.

Minimum Required Area for Air Supply Openings

Model	Direct from Outside*	Duct from Outside*
JXI200	50 in ² (323 cm ²)	100 in ² (645 cm ²)
JXI260	65 in ² (419 cm ²)	130 in ² (839 cm ²)
JXI330	83 in ² (535 cm ²)	165 in ² (1065 cm ²)
JXI400	100 in ² (645 cm ²)	200 in ² (1291 cm ²)

* Area indicated is for one of two openings:
(1) 12" from floor level, and (2) 12" from ceiling level.



GAS LINE SIZING

- Check supply pressure and local code requirements before proceeding with installation.
- Consider pipe fittings when determining gas pipe sizing.
- Larger pipe size can be used if required by local code.
- It is critical that the incoming gas supply pressure at the heater is within the maximum and minimum pressure requirements. If the range of acceptable supply pressure is not provided, the gas supply system to the heater must be modified to meet pressure requirements.
- The gas shut off valve must be installed in an accessible location within six (6) feet of the heater.
- Do not use CSST or any flexible gas piping.

Minimum Required Gas Pipe Sizing

Model (BTU)	0-50 ft (0-15m) from gas meter*	50-100 ft (15-30m) from gas meter*	100-200 ft (30-60m) from gas meter*
JXI200	1 (25 mm)	1-1/4 (32 mm)	1-1/4 (32 mm)
JXI260	1-1/4 (32 mm)	1-1/4 (32 mm)	1-1/4 (32 mm)
JXI330	1-1/4 (32 mm)	1-1/4 (32 mm)	1-1/2 (38 mm)
JXI400	1-1/4 (32 mm)	1-1/2 (38 mm)	1-1/2 (38 mm)

* Numbers are for natural gas (0.65 Sp. Gr.) based on 1/2 inch (3.45 kPa) water column pressure drop. Check supply pressure with a manometer, and local code requirements for variations. For LP gas, reduce pipe diameter by one size, but maintain a minimum 3/4 inch diameter.

For specific requirements:

- (1) Natural gas heaters, refer to NFPA® 54.
- (2) Propane heaters, refer to NFPA 58.

For detailed information, refer to the complete installation and owner's manual.

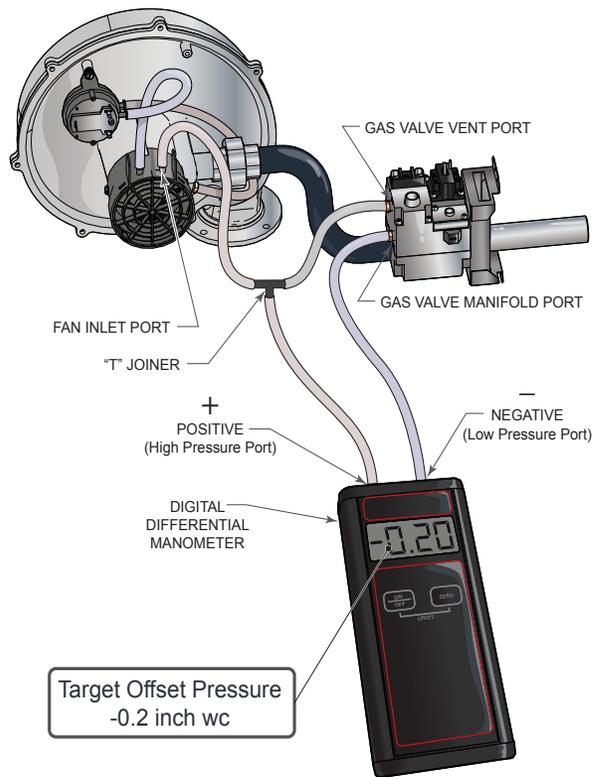


GAS PRESSURE TEST

- Check the gas supply pressure while the heater is operating.
- Any adjustments or readings made while the heater is off will result in poor performance and other problems.
- Connect a differential manometer to the supply pressure port on the gas valve.
- If the gas supply pressure does not meet requirements (see table, right), check for a restrictive fitting, undersized gas meter, or undersized pipe between the meter and the heater.
- Minimum inlet supply pressure must be maintained during heater operation while there is a full demand on the gas delivery system.

Gas Supply Pressure	NATURAL	PROPANE
Max. Inlet	10.5" WC	14" WC
Min. Inlet	4" WC	4" WC
Gas Offset	-0.2" WC	-0.2" WC

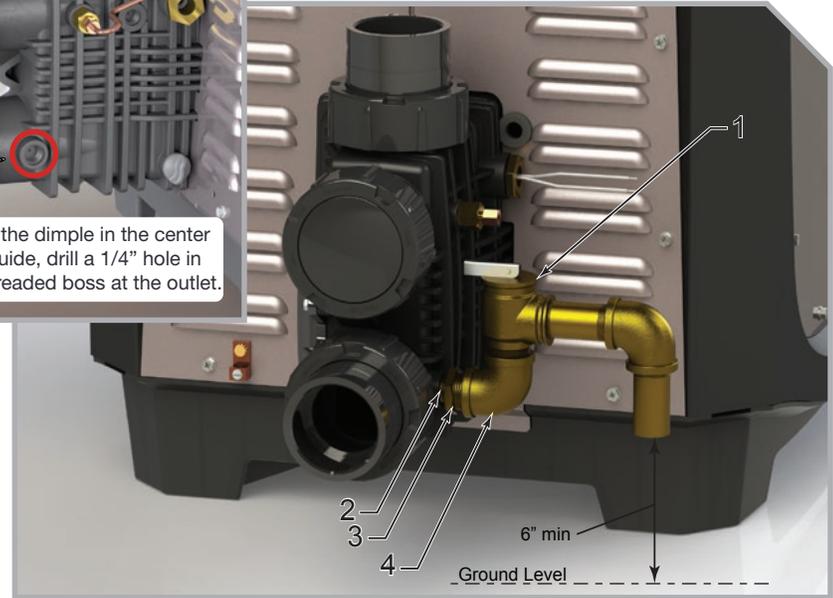
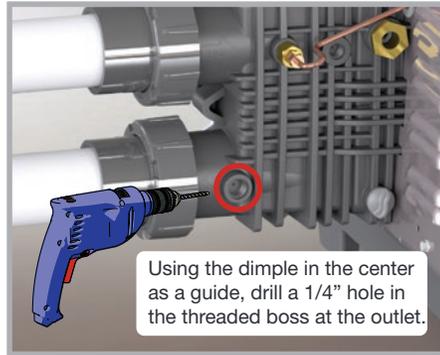
DIGITAL MANOMETER CONNECTION



For detailed information, refer to the complete installation and owner's manual.

PRV SET-UP

- A pressure relief valve (PRV) is recommended in all installations.
- A PRV is required in any installation in which the water flow can be shut off between the heater outlet and the pool/spa. Check any applicable installation codes in your area to determine whether a pressure relief valve is required.
- A pressure relief valve is not supplied with the heater.
- Maximum working pressure of this heater is 50 psi.
- Any PRV installed must comply with provisions of the standard described in ANSI® Z21.22 for the United States or CSA 4.4 in Canada.

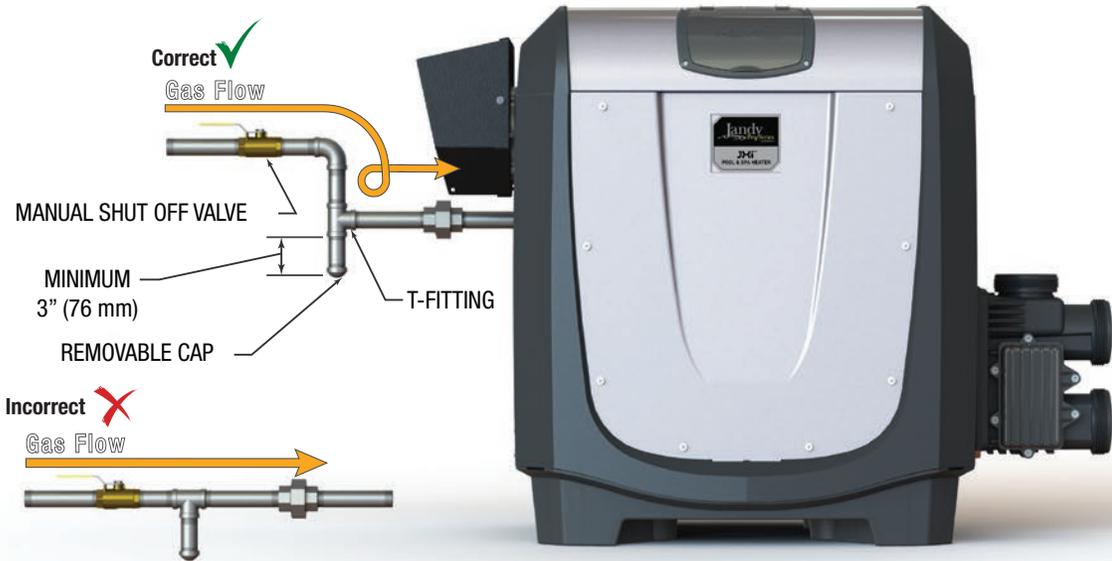


PRV R-KIT - R0336101

1	3/4" NPT Pressure Relief Valve (PRV)
2	3/8" NPT Nipple
3	3/4" to 3/8" NPT Reducing Bushing
4	3/8" NPT Elbow

For detailed information, refer to the complete installation and owner's manual.

GAS LINE SEDIMENT TRAP



- Do not use flexible gas piping, it will restrict the gas flow to the heater.
- Do not use a restrictive gas cock.
- Install a sediment trap and union ahead of the gas controls and outside the heater panels.
- Sediment trap should be installed as close to the inlet as possible.

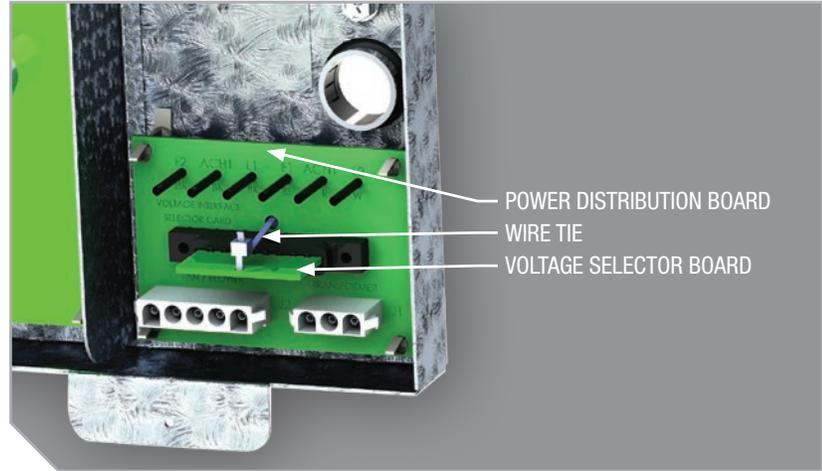
For detailed information, refer to the complete installation and owner's manual.

POWER CONNECTIONS

- The heater comes factory-wired intended for use with 240 Volt, 60 Hz AC field electrical supply.
- Do NOT use with 208 Volt.
- To use 120 Volt, 60 Hz AC, change the position of the voltage selector board on the power distribution board (see procedure below right).
- Electrical wiring must be done in accordance with the latest edition of the National Electrical Code® (NEC®) NFPA® 70. In Canada, the Canadian Electrical Code (CEC), CSA C22.1, must be followed.
- Take care not to abrade or damage any wiring or other components.

NOTE

The voltage selector board is keyed so that it will fit in only one (1) direction for the selected voltage (either side of the board).



1. Cut the plastic wire tie fastening the voltage selector board in place.
2. Unplug the voltage selector board from the receptacle.
3. Rotate the voltage selector board 180 degrees and reinsert it into the receptacle so that the hole in the board is not visible.
4. Verify that the board is securely seated in the receptacle.

For detailed information, refer to the complete installation and owner's manual.

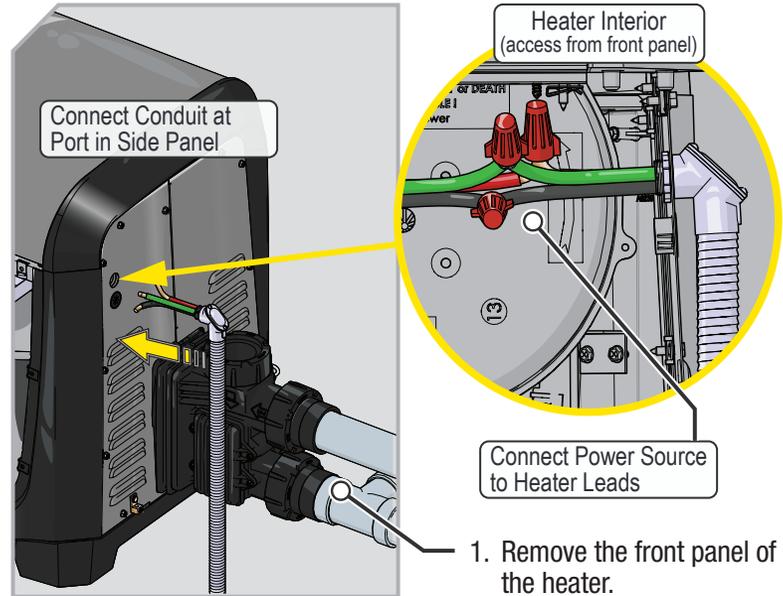
WIRE TO 120V OR 240V/60 HZ

- Electrical wiring must be done in accordance with the latest edition of the National Electrical Code® (NEC®) NFPA® 70. In Canada, the Canadian Electrical Code (CEC), CSA C22.1, must be followed.
- Take care not to abrade or damage any wiring or other components.
- The “hot” wire of the 120V power supply has to be connected to the black wire (ACH1) on the power distribution board and the “neutral” wire of the 120V power supply has to be connected to the red wire (ACN1).

WARNING

RISK OF ELECTRIC SHOCK WHICH CAN RESULT IN SERIOUS INJURY OR DEATH.

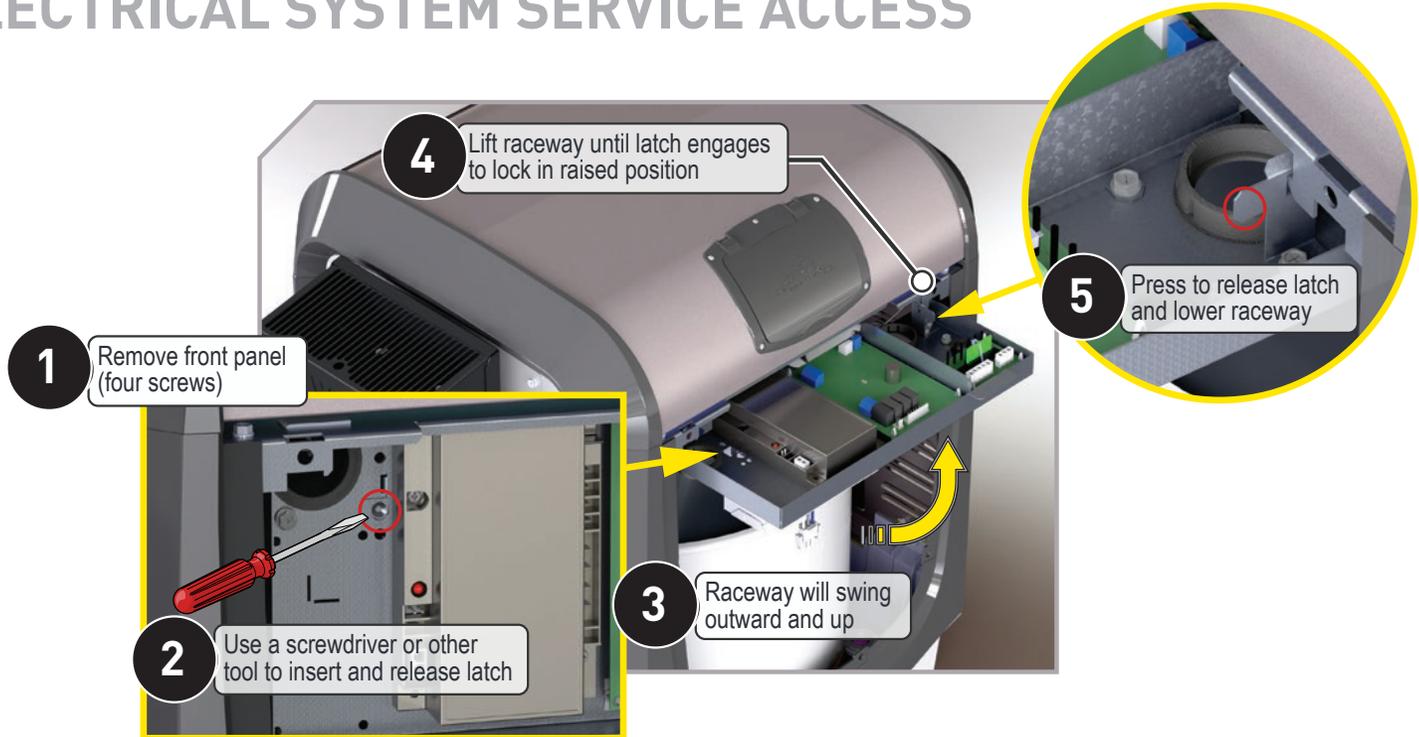
Before attempting installation or service, ensure that all power to the device is disconnected/turned off at the circuit breaker. For detailed information to correctly and safely complete the connection to the power source, refer to the complete installation and owner’s manual.



1. Remove the front panel of the heater.
2. Connect the wires from the power source to the leads on the heater.

For detailed information, refer to the complete installation and owner’s manual.

ELECTRICAL SYSTEM SERVICE ACCESS



SEQUENCE OF OPERATIONS

1. The control system reads the temperature of the water.
2. Start-up process begins if the temperature is below the set point.
3. Blower starts, then adequate airflow is confirmed by the air pressure switch.
4. After airflow is confirmed, the ignition sequence begins.
5. After a 15-second purge, the igniter gets power.
6. After approximately 40 seconds of igniter heat up, power is sent to the gas valve.
7. The gas valve remains open for 5 seconds while the Ignition Control is looking for flame rectification.
8. As long as flame is sensed at the burner, operation continues until the temperature of the water entering the heater reaches the temperature control setting.

WARNING

This heater does not have a pilot light. It is equipped with an ignition device which automatically lights the burner.
DO NOT try to light the burners by hand.

HEATER CONTROL PANEL

Press POOL button to activate the pool thermostat.



Use UP and DOWN buttons to select pool and spa functions.

Press SPA button to activate the spa thermostat.

Press MENU button to access setup functions and programming for pool and spa.

NOTE

The display reverts to OFF after one minute of inactivity.

USER INTERFACE SET UP Display Language

Control must be OFF to begin.



Hold for 5 seconds



OR



SELECT USER
SETUP LANGUAGE



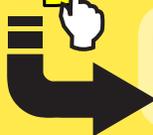
SELECT LANGUAGE
ENGLISH



OR



to Change Language



to Save



OR

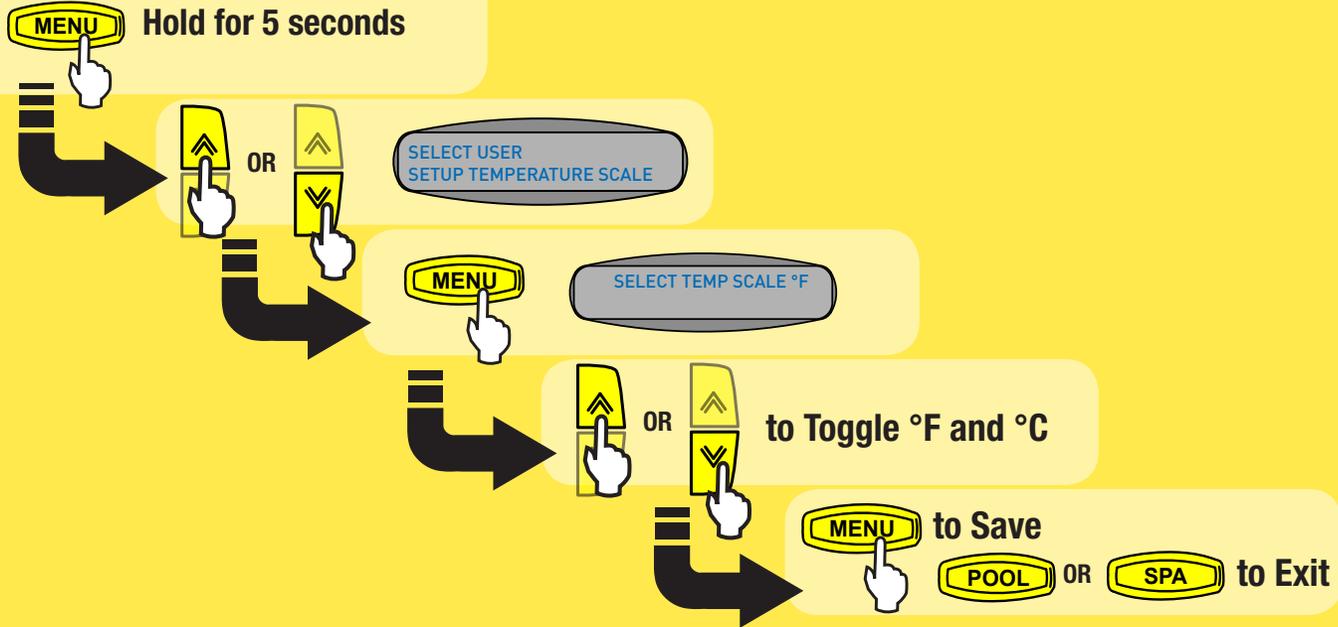


to Exit

For detailed information, refer to the complete installation and owner's manual.

USER INTERFACE SET UP Display Temperature Units

Control must be OFF to begin.



USER INTERFACE SET UP Display Backlight Auto OFF

Control must be OFF to begin.

MENU Hold for 5 seconds

OR
SELECT USER
SETUP DISPLAY LIGHT

MENU
SELECT DISPLAY LIGHT
2 MIN TIMEOUT

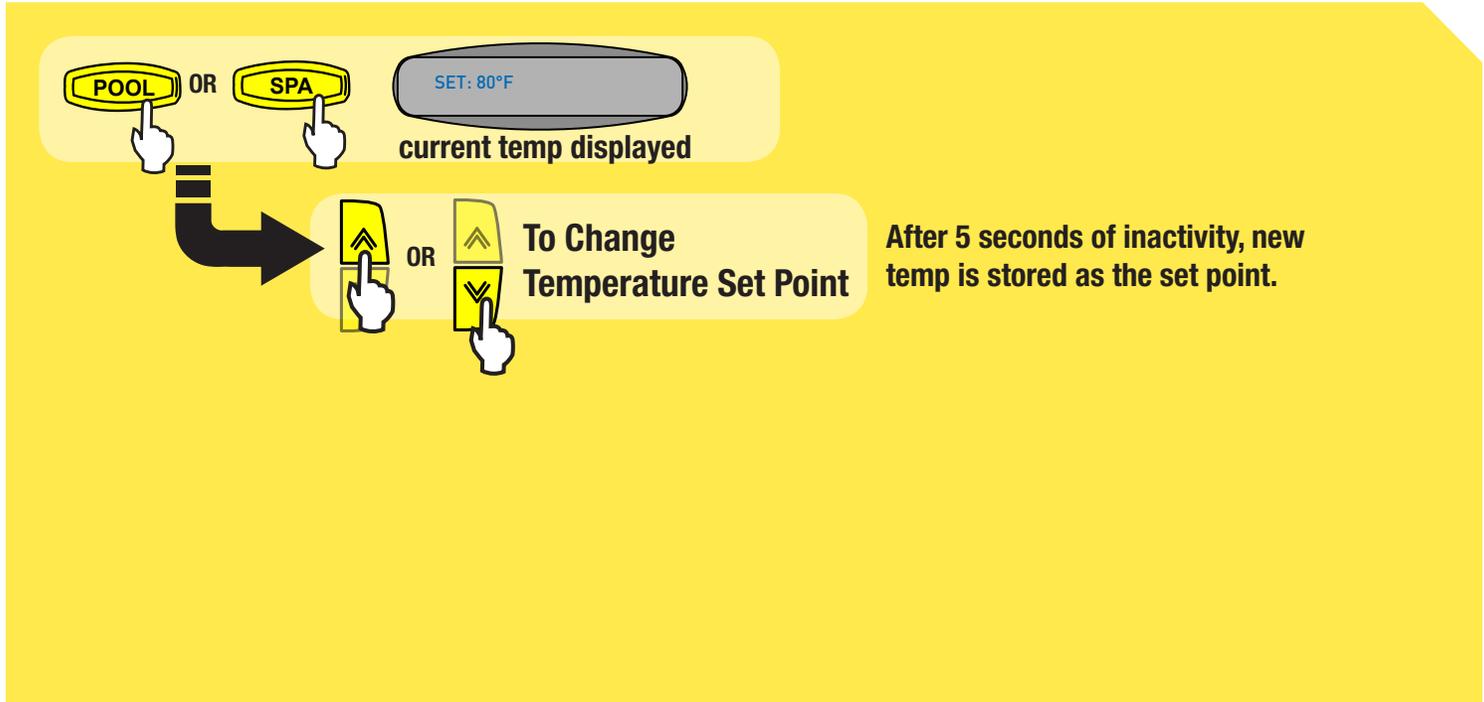
OR
to Toggle: 2 MIN TIMEOUT
LIGHT OFF
LIGHT ON

MENU to Save
POOL OR SPA to Exit

For detailed information, refer to the complete installation and owner's manual.

USER INTERFACE OPERATION

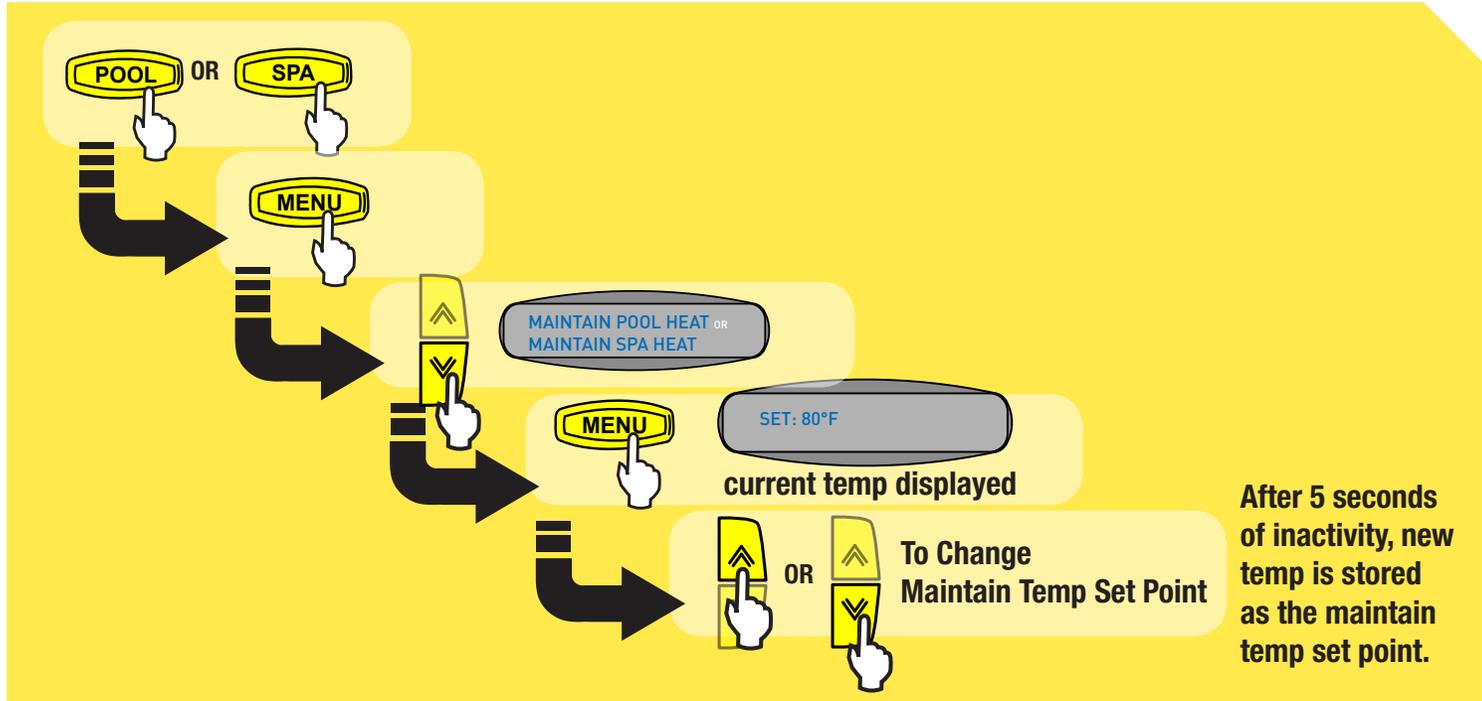
Turn ON Pool/Spa Heat





USER INTERFACE OPERATION

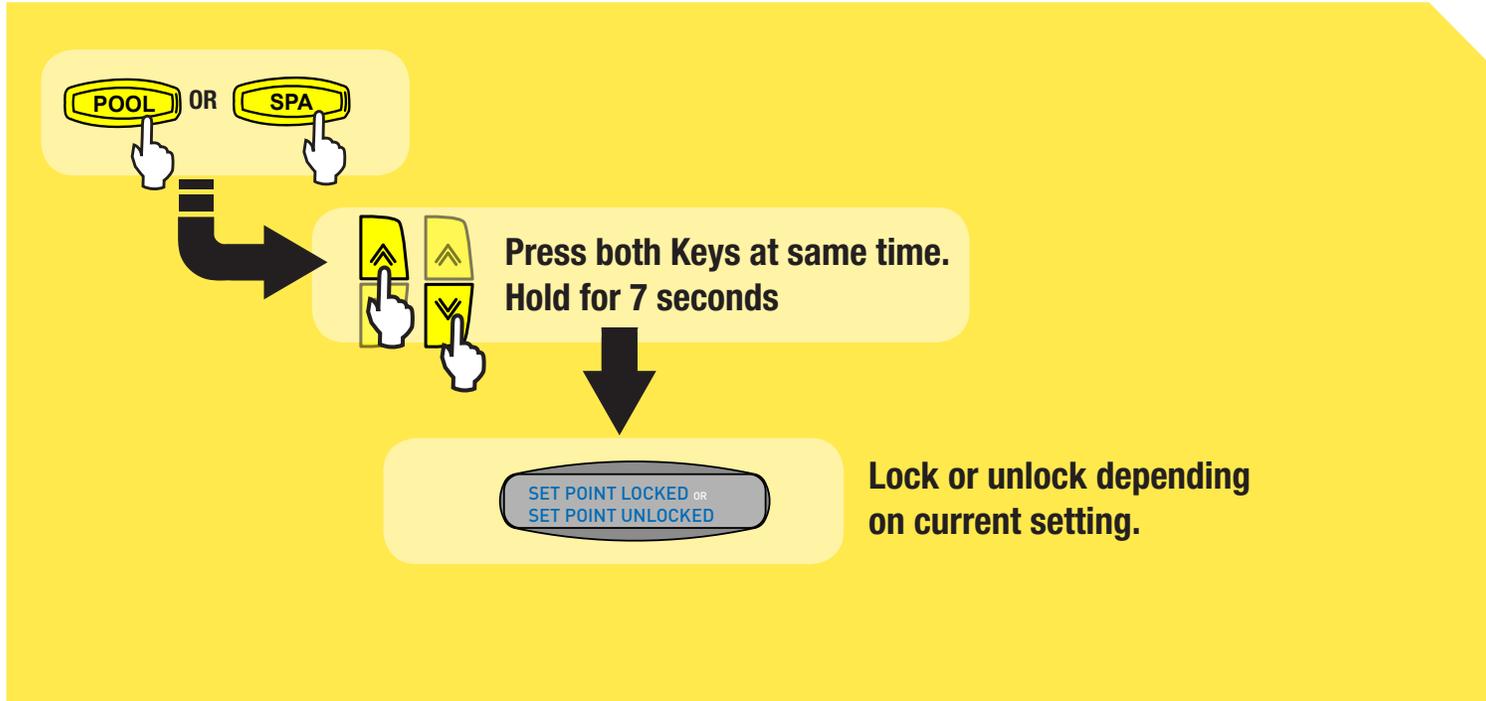
Maintain Pool/Spa Heat



For detailed information, refer to the complete installation and owner's manual.

USER INTERFACE OPERATION

Lock/Unlock Temperature Set Point



REMOTE WIRING

Connections and Setup

⚠ WARNING

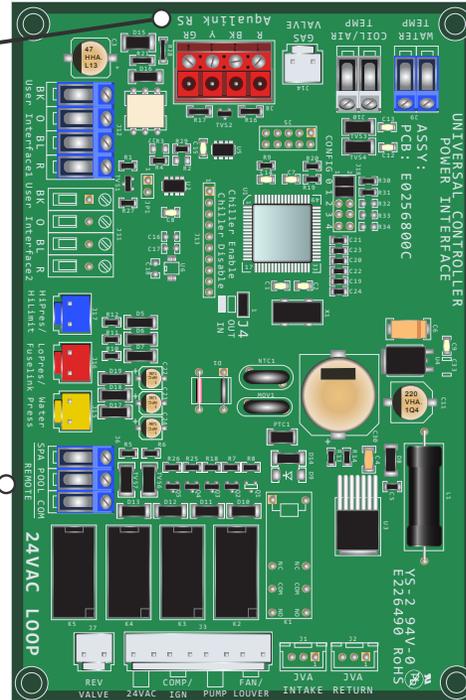
RISK OF ELECTRIC SHOCK WHICH CAN RESULT IN SERIOUS INJURY OR DEATH.

Before attempting installation or service, ensure that all power to the device is disconnected/turned off at the circuit breaker.

Aqualink® RS, Aqualink PDA and Aqualink Z4™ controllers can use “smart” communication by utilizing the RS 485 connector at the J8 Terminal Bar.

For heater remote controls please use 2 or 3 wire connections at the J6 Terminal Bar.

- Electrical wiring must be done in accordance with the latest edition of the National Electrical Code® (NEC®) NFPA® 70. In Canada, the Canadian Electrical Code (CEC), CSA C22.1, must be followed.
- Take care not to abrade or damage any wiring or other components.
- When using a remote TSAT 2-Wire connection, set the heater control to SPA and the thermostat control to maximum.



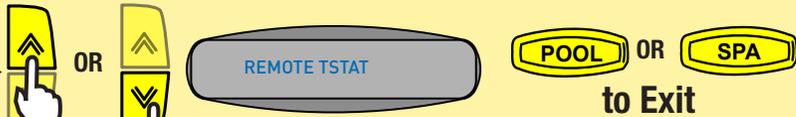
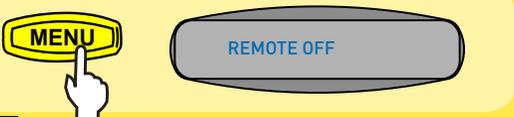
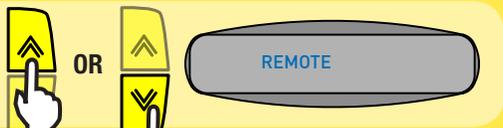
1. Remove the heater front panel and run the wires from the control system through the opening on the lower right or left side of the heater.
2. Connect the wiring from the pool/spa control system to the heater remote control terminal.
3. Connect two wires to Pool and Common terminals of the J6 terminal bar.

For detailed information, refer to the complete installation and owner’s manual.

REMOTE SETUP (2-Wire)



Control must be OFF to begin.



SERVICE ERROR MESSAGES

Control Panel Message	Fault
PUMP	<ul style="list-style-type: none">• Filter pump remains turned OFF when heater programmed for Maintain Temp mode.
NO FLOW	<ul style="list-style-type: none">• Pump is not running.• Low pump pressure.• Pressure switch fault.• Variable speed pump set too low.
HIGH LIMIT	<ul style="list-style-type: none">• Water temperature in heater exceeds the internal limit.• Limit switch fault.• Temperature control thermostat failure.
FUSELINK/FIELD	<ul style="list-style-type: none">• Vent temp limit fault.
CHECK IGNITION STEPS	<ul style="list-style-type: none">• Broken, split, pinched or disconnected air pressure switch.• Fan not operating.• Fan running slow or premature fan failure.• Air flow restricted at intake or discharge.• Broken igniter.• Low gas supply pressure.• No flame at burners.
SHORTED H2O SENSOR OPEN WATER SENSOR	<ul style="list-style-type: none">• Faulty wiring or connection.• Failed water temperature sensor.

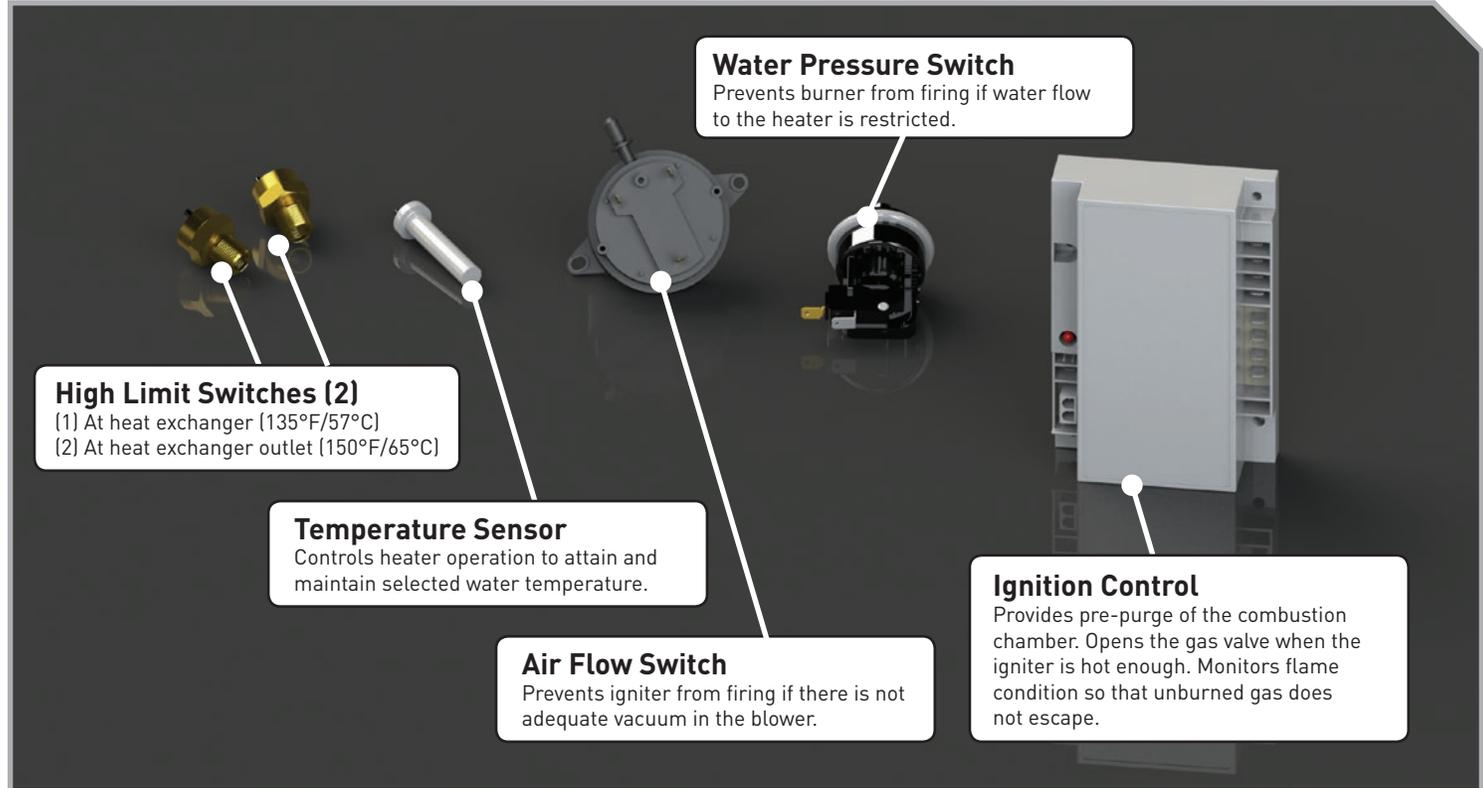
For detailed information, refer to the complete installation and owner's manual.



TEMPERATURE SENSOR RESPONSE

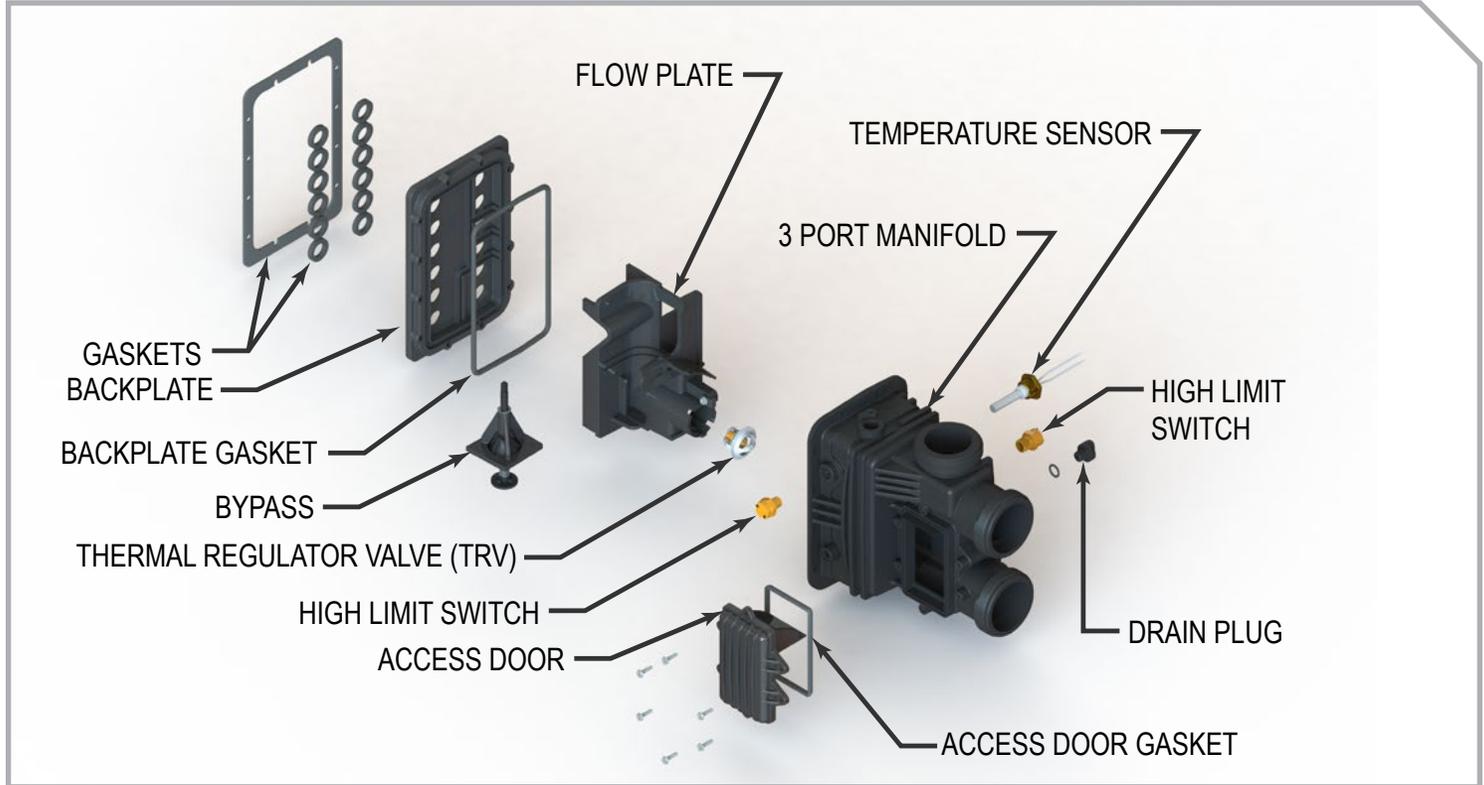
Temperature °F (°C)	Resistance (Ohms)
40°F (5°C)	25,274
50°F (10°C)	19,906
60°F (16°C)	15,314
70°F (21°C)	11,884
80°F (27°C)	9,299
90°F (32°C)	7,333
100°F (38°C)	5,827
110°F (43°C)	4,663
120°F (49°C)	3,758
130°F (54°C)	3,048
140°F (60°C)	2,488

SAFETY CONTROLS

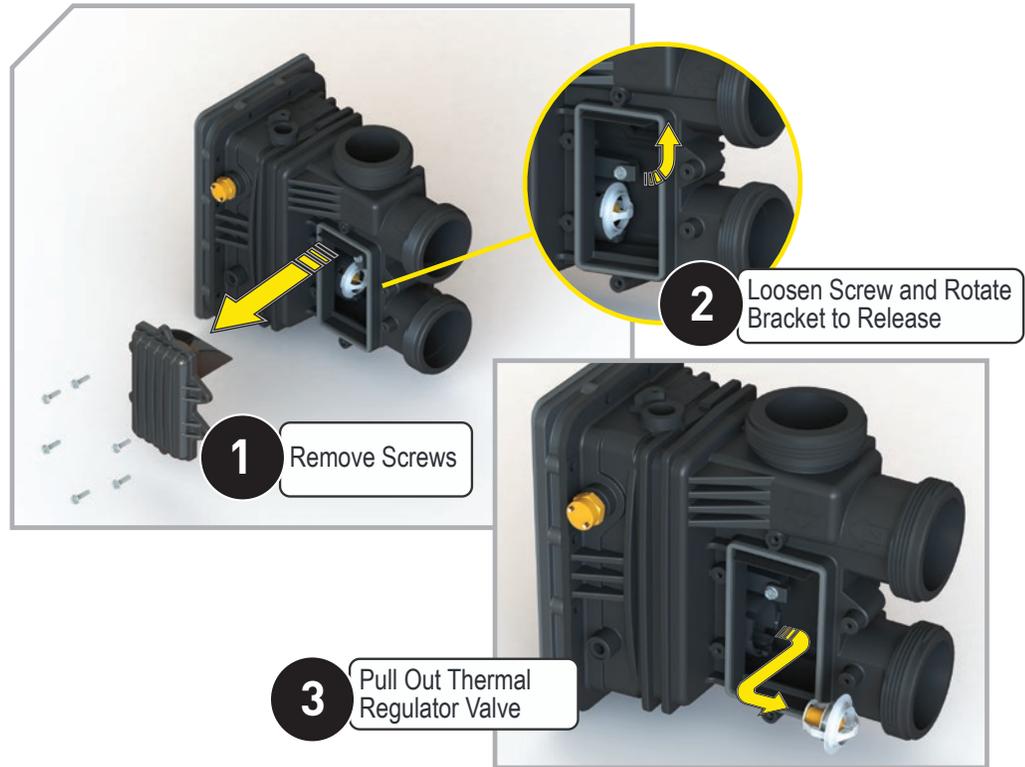


For detailed information, refer to the complete installation and owner's manual.

HEADER ASSEMBLY



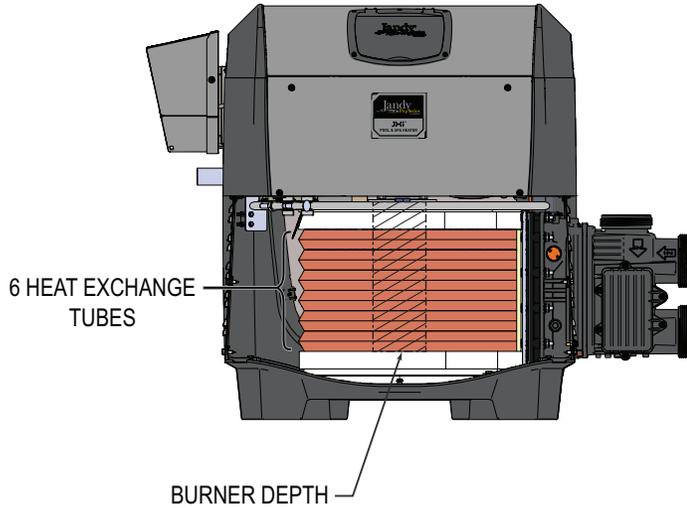
THERMAL REGULATOR VALVE REPLACEMENT



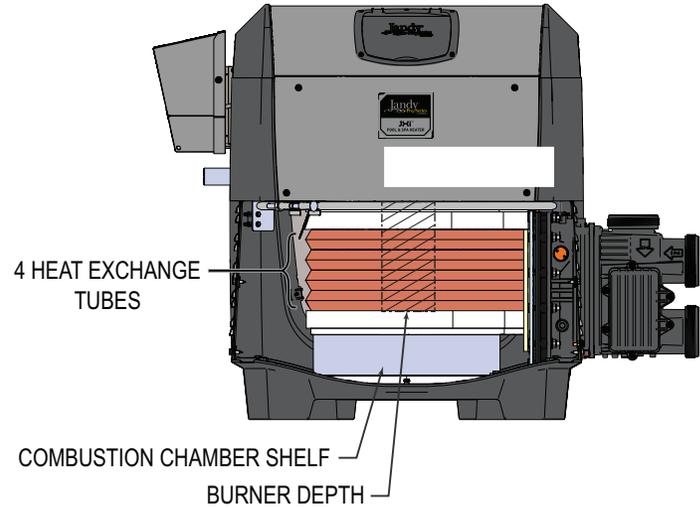
For detailed information, refer to the complete installation and owner's manual.

HEAT EXCHANGER (by Model)

JXI400



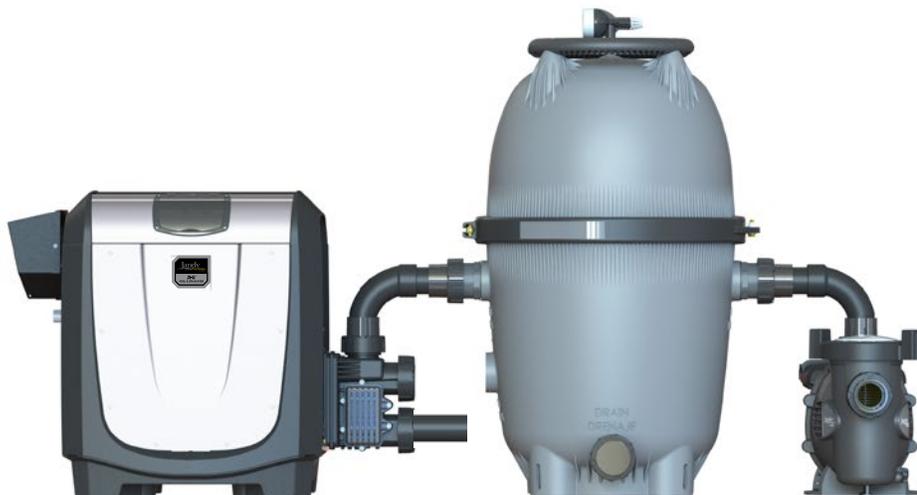
JXI260



OPTIONAL WATER INLET PIPING

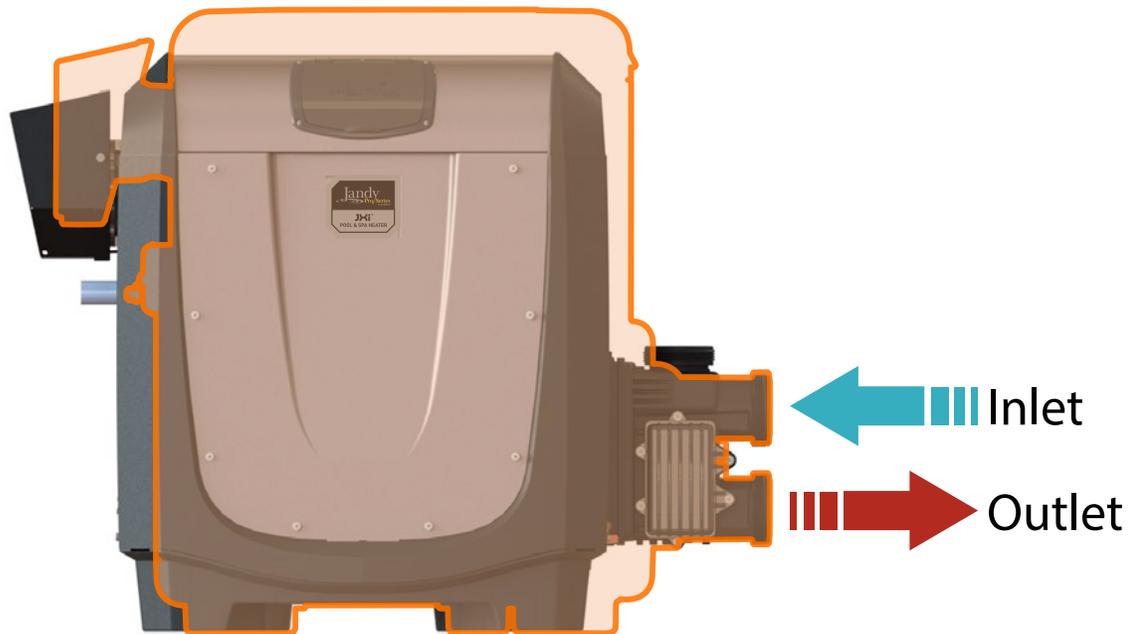
- Heater comes with Zodiac® Sweep Elbow.
- Installation provides increased hydraulic performance.
- Exclusive interface with Zodiac AquaLink® RS temperature sensor.

Versa Plumb® Ready



For detailed information, refer to the complete installation and owner's manual.

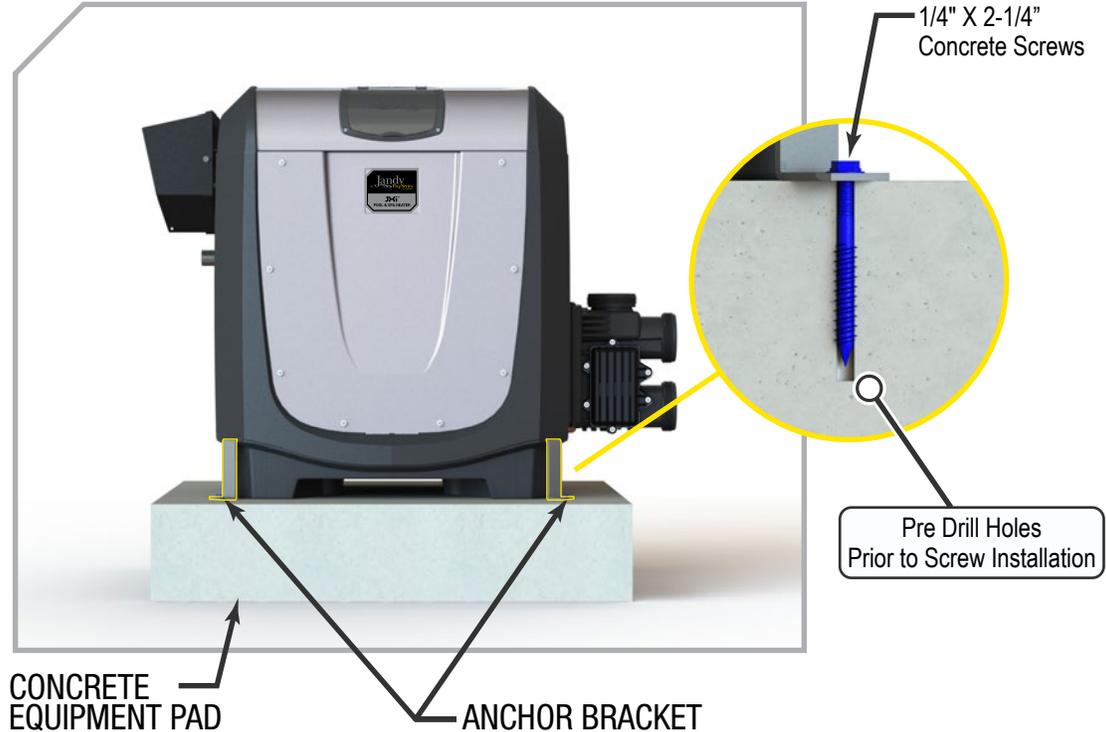
DIRECT DROP-IN REPLACEMENT FOR PENTAIR® MASTERTEMP®



INSTALLATION OF ANCHOR BRACKETS

In areas where there is high risk of extreme weather conditions, such as in Florida (and other states where there is risk as applicable), the heater is required to be securely fastened to the equipment pad to meet applicable local building code requirements.

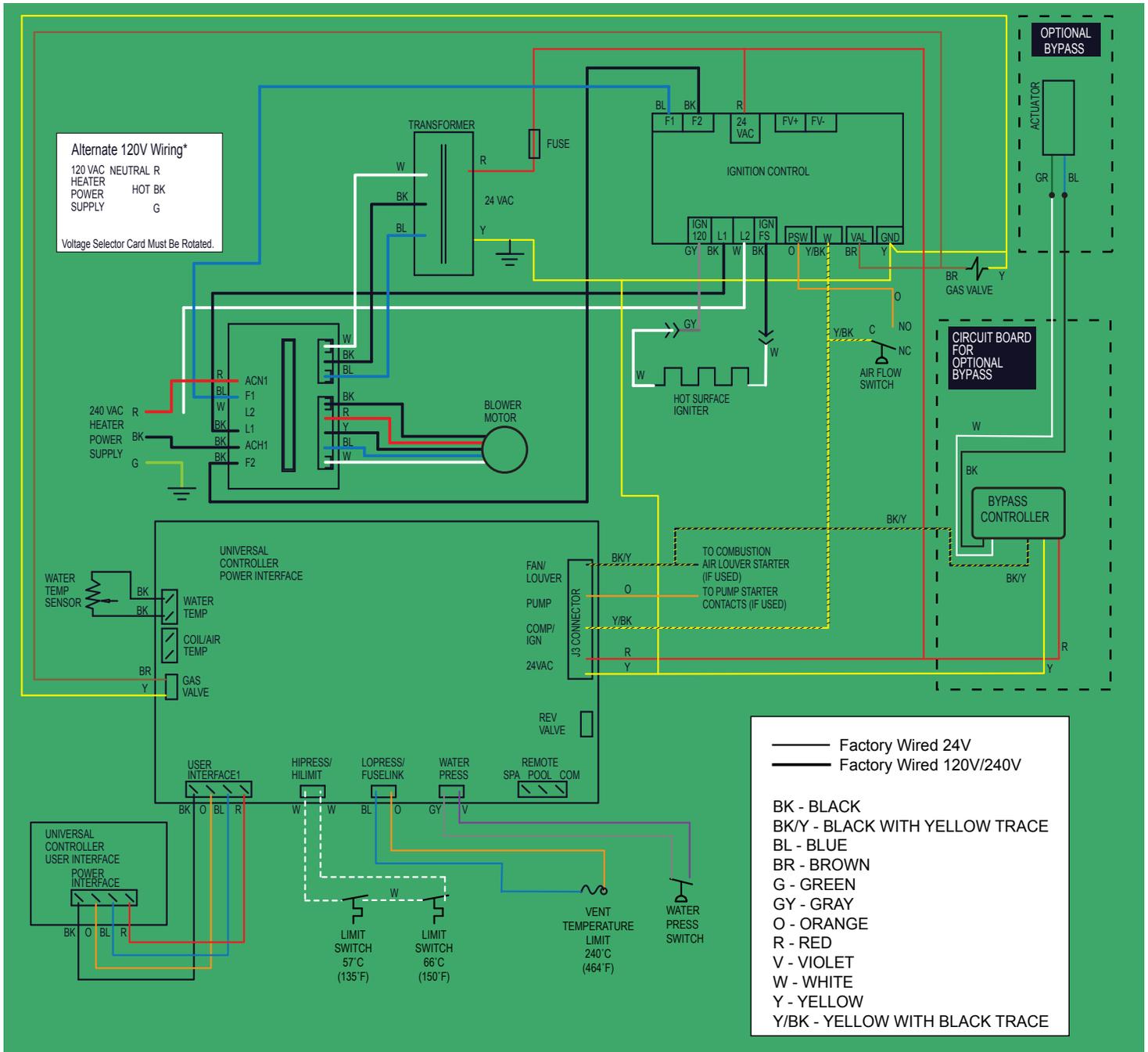
(Order Anchor Brackets Kit: Part Number R0593400).



WIRING DIAGRAM

⚠ WARNING

RISK OF ELECTRIC SHOCK WHICH CAN RESULT IN SERIOUS INJURY OR DEATH.
 To avoid risk of fire or electrocution, which can cause property damage and/or serious injury, including loss of life, if any of the original wire as supplied with the heater must be replaced, appliance wiring material rated for 105°C must be used.
 Where marked thus -----, appliance wiring material rated for 200°C must be used.





NOTES

TECHNICAL SUPPORT

USA 1-800-822-7933, *enter regional extension*

CAN 1-888-647-4004

Zodiac Pool Systems, Inc.

2620 Commerce Way
Vista, CA 92081-8438 USA
1-800-822-7933
www.zodiacpoolsystems.com

Zodiac Pool Systems Canada, Inc.

2115 South Service Road West Unit 3
Oakville ON L6L 5W2 CANADA
1-888-647-4004
www.zodiacpoolsystems.ca