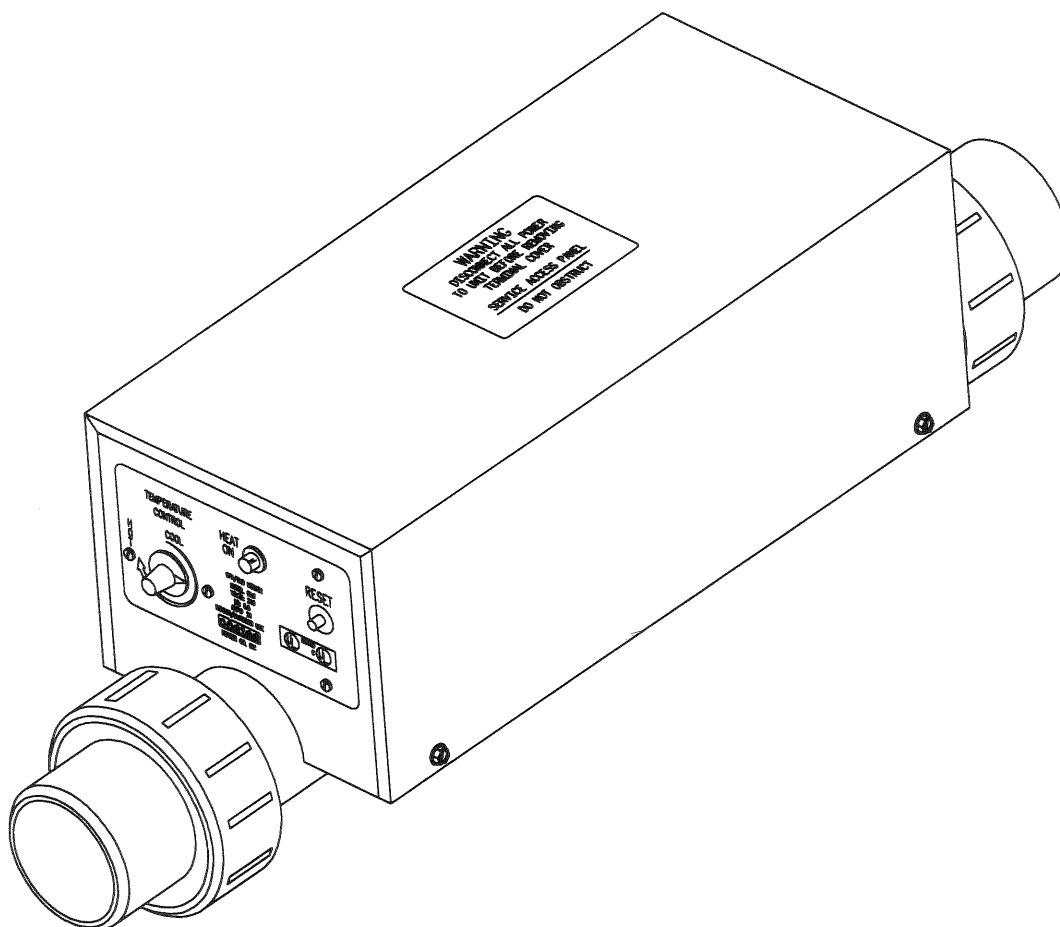




IN-LINE SPA HEATER

MODEL 6ILS - 5.5 KW, 240 volts
installation, operation and maintenance



1.0 DESCRIPTION

Coates Spa Heaters are intended for use on spas or hot tubs having a forced water circulation system.

The water flow through the heater should be at least 15 GPM but should not exceed 70 GPM. Higher flow may damage the heater.

2.0 INSTALLATION

WARNING

Only qualified personnel, as defined by N.E.C. Article 100, should install and maintain this equipment. Unauthorized alteration or improper maintenance of this unit may release the manufacturer from any warranty claims. The installation must be in accordance with the instructions in this manual and applicable local plumbing and electrical codes.

2.1 Physical Placement

The Coates Spa Heater is suitable for indoor or outdoor installation. See Figure 1 for piping connections and Figure 2 for electrical connections. The heater is mounted with adjacent unions for ease of installation and removal. Leave a minimum of 4½ inches clearance above the heater to allow removal of the cover.

2.2 Electrical Installation

CAUTION

The electrical installation must be in accordance with Article 680 of the National Electrical Code, and ANSI/NFPA 70.

The electrical supply must be single phase, 2 wire, 240 VAC. The supply must be protected by a circuit breaker or fused disconnect switch. An insulated ground connector of the same size or larger than the live power supply connectors shall be provided. See Figure 2 for supply wire and circuit sizing.

*Check ELECTRICAL CONNECTIONS TO ALL COMPONENTS within the heater for tightness. These can become loose during shipment and handling.

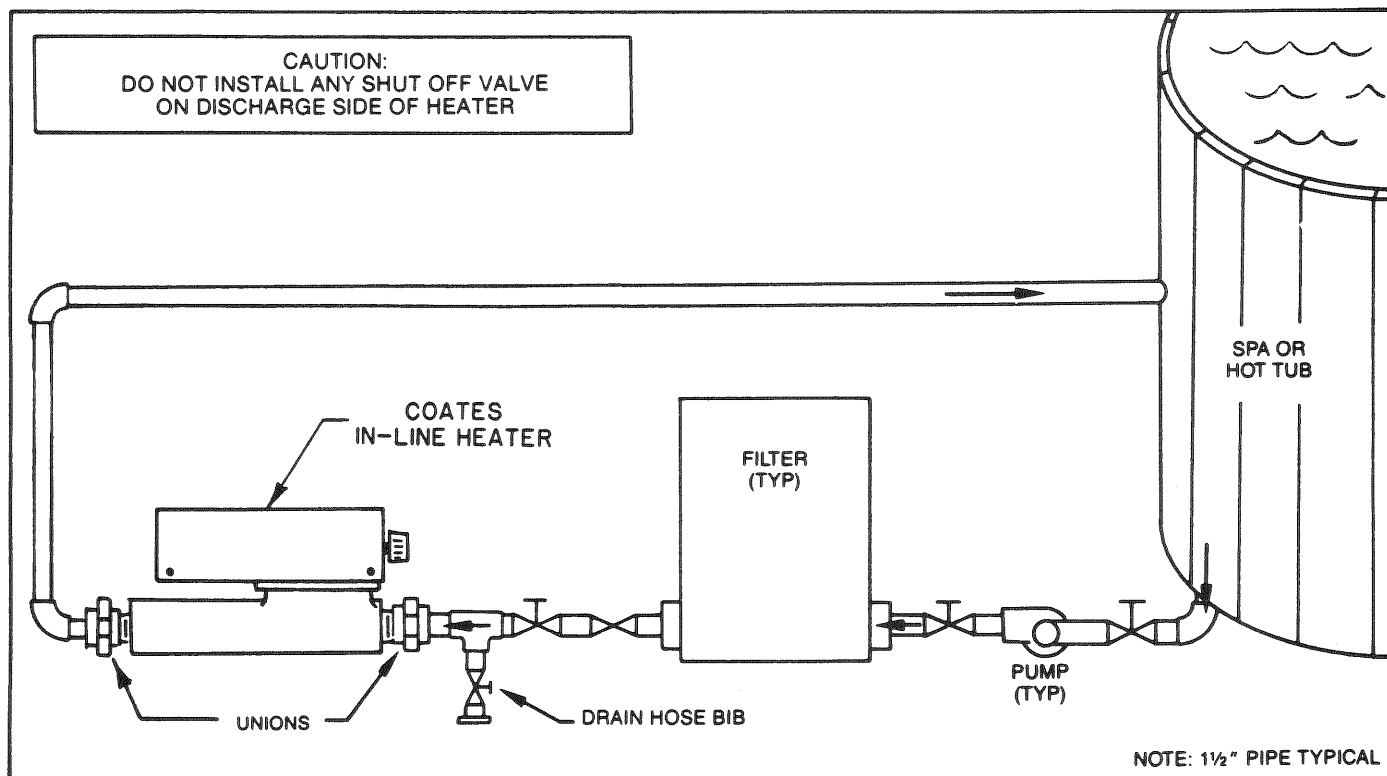


Figure 1. Piping Diagram

WARNING:

Only qualified personnel should attempt maintenance on this equipment. (N.E.C. Article 100)

HEATER TROUBLE SHOOTING GUIDE**CAUTION**

This heater incorporates 240 volt electrical circuits.
Do not open the case unless unit is disconnected from electrical power.
Use only manufacturer's parts, or U.L. listing and warranty may be void.

PROBLEM	POSSIBLE CAUSES	ACTION
No Heating	No Power	Check main circuit breaker. "on"
	Hi Limit Tripped	Push reset button ⑤
	Temp. Control Inoperative	Replace ④
	Heating Element(s) Inoperative	Replace ③
	Low Water Flow	Clean Filter & Check Pump
Insufficient Heating	Temperature Control	Replace ④
High Limit Trips	Temp. Control Failed	Replace ④
	High Limit Faulty	Replace ⑤
	Heater installed in direct sunlight	Shade Heater
	Pressure switch failed or out of adjustment	Replace or Adjust

**PROTECTING YOUR COATES HEATER
WITH PROPER WATER CHEMISTRY**

Proper water balance is important to extending the life of your Coates Heater. While pH control is critical, the control of calcium hardness will protect against scaling and also help prevent corrosion.

DAMAGE TO HEATER	ACID							IDEAL RANGE	ALKALINE							DAMAGE TO HEATER
	CORROSIVE WATER								ALKALINE WATER							
	0	1	2	3	4	5	6		7	8	9	10	11	12	13	

The correct levels of sanitizer, pH, total alkalinity and calcium hardness will vary some depending on the type of pool (plaster, vinyl or fiberglass) and the chemical content of the fill water. Water that is not maintained in balance can void your warranty.

3.0 HEATER CONTROLS

The heater has a temperature controller adjustable from 70°F to 105°F, one manual reset type high temperature limit thermostat set at 120°F, and a pressure switch, which must be set in the field to prevent operation of the heater without water flow. Note: see Section 3.4

3.1 Cautions and Warnings

1. Be sure to check all cautions and warnings in this manual and as displayed on the heater labels before operating or performing any maintenance on these heaters.
2. Do not remove the heater cover while electrical power is applied to the heater. Power must be interrupted at the heater supply circuit breaker or disconnect switch.

3.2 Starting the Heater

CAUTION

Operate the heater when it is filled with water and only when the pump is running.

1. Ensure that heater case is properly grounded and bonded.
2. Fill the system with water and run the circulating pump for ten minutes before turning on the electrical power.
3. Turn on electrical power at the heater supply circuit breaker.
4. Set the temperature control to medium water temperature and increase gradually to desired operating temperature.
DO NOT EXCEED 104°F MAXIMUM.

3.3 Stopping the Heater

1. Turn off electrical power at the heater supply circuit breaker before stopping the circulating pump.

3.4 Pressure Switch Adjustment

In most installations, the pressure will provide the proper operation. Some adjustment may be necessary, however, if the heater is installed well above or below the level of the spa or a long distance from it.

WARNING

All checks and adjustments to the pressure switch must be made with heater power supply off.

To verify the correct operation of the switch, perform the following;

- a. set multispeed pumps at the lowest speed.
 - b. disconnect the line voltage leads to the pressure switch and connect an ohmmeter or other continuity tester across the switch terminals.
 - c. switch the pump on and off.
- The pressure switch should close with pump on and open with the pump off. If it does not, perform one of the following;
- a. Switch closed with pump off— turn the black thumbscrew clockwise (higher pressure) until the switch opens.
 - b. Switch open with pump on— turn the black thumbscrew counter-clockwise (lower pressure) until the switch closes.
 - c. "Chattering" switch action with pump on—turn the black thumbscrew counter-clockwise (lower pressure) until switch stays closed.

4.0 MAINTENANCE

1. Keep the heater clean.
2. If high temperature causes limit thermostat to cut off the electrical power, disconnect power at disconnect switch and determine the cause before resetting thermostat.
3. If leaks develop in the heater or connecting piping, shut down the heater and repair defective connections.
4. Disconnect the power supply of the heater before draining spa.

LIMITED WARRANTY

COATES HEATER CO. extends this limited warranty to the original purchaser of a Coates Electric Spa Heater.

COATES warrants the electrical components* and wiring (excluding enclosure, enclosure parts, knobs and accessories) in this new Spa Heater to be free from defects in materials and workmanship for one (1) year from the provable date of purchase, or eighteen (18) months from date of factory shipment, whichever occurs first. Enclosure, enclosure parts, knobs and accessories have no warranty whatsoever.

*Exception: The heating element is warranted for 90 days after installation or 1 year from the date of factory shipment, whichever occurs first.

COATES further warrants the stainless steel water containment tank to be free from defects in materials and workmanship for two (2) years from the provable date of purchase or thirty (30) months from the date of factory shipment, whichever occurs first.

COATES will repair or replace at its option, defective component parts as explained above, during the warranty period provided such parts are returned to the factory, freight prepaid. Factory authorization **MUST BE OBTAINED** under this warranty before returning defective parts.

Limited Warranty Does Not Cover

1. New products purchased outside the United States of America and Canada.
2. Uncrating, unpacking, set-up, installation, and / or startup of this unit.
3. Adjustments to controls normally operated by consumer / purchaser.
4. This limited warranty does not extend to any defect, malfunction or failure caused by, or resulting from improper service, maintenance or repair, abuse, neglect, accident, **corrosion caused by improper water chemistry**, lack of water, or any other cause beyond the control of COATES or to any product where the nameplate shall have been removed, altered, replaced, defaced or rendered illegible.
5. This limited warranty is void if the Spa Heater is used in a salt water system or under any other extreme or unusual corrosive condition for which copper, brass, bronze, or stainless steel would not be recommended.
6. This limited warranty does not extend to the repair or replacement of defective components except at COATES or a service facility authorized by COATES.

IMPLIED WARRANTIES, WHEN APPLICABLE, SHALL COMMENCE UPON THE SAME DATE AS THE EXPRESS WARRANTY PROVIDED ABOVE, AND SHALL, EXCEPT FOR WARRANTIES OF TITLE, EXTEND ONLY FOR THE DURATION OF EXPRESS WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. THE ONLY REMEDY PROVIDED TO YOU UNDER AN APPLICABLE IMPLIED WARRANTY AND THE EXPRESS WARRANTY SHALL BE THE REMEDY PROVIDED UNDER THE EXPRESS WARRANTY, SUBJECT TO THE TERMS AND CONDITIONS CONTAINED THEREIN.

COATES HEATER CO., INC. SHALL NOT BE LIABLE FOR INCIDENTAL AND CONSEQUENTIAL LOSSES AND DAMAGES UNDER THE EXPRESS WARRANTY, ANY APPLICABLE IMPLIED WARRANTY, OR CLAIMS FOR NEGLIGENCE, EXCEPT TO THE EXTENT THAT THIS LIMITATION IS FOUND TO BE UNENFORCEABLE UNDER APPLICABLE STATE LAW.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.



HEATER COMPANY, INC.

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