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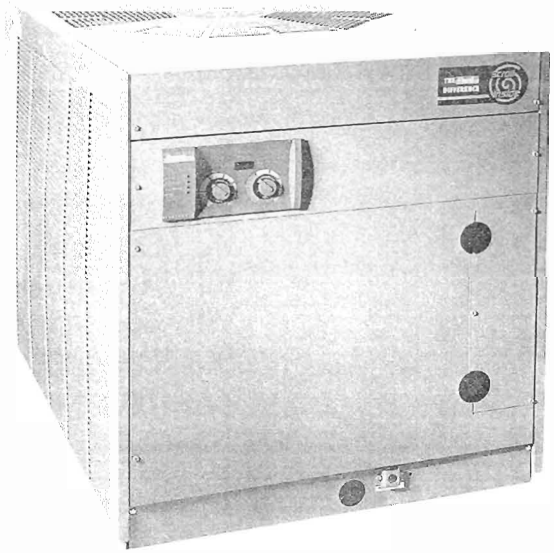
OPERATING AND INSTALLATION INSTRUCTIONS

Models
RHP 072
RHP 104

HEAT PUMP

SWIMMING POOL
and
SPA HEATER



These instructions are for the use of qualified individuals specially trained and experienced in the installation of this type equipment and related system components.
Installation and service personnel are required by some states to be licensed. Persons not qualified shall not attempt to install this equipment nor interpret these instructions.

This manual should be maintained in legible condition and kept adjacent to the heater or kept in a safe place for future reference.

Raypak®

Part No. 240690

HEAT PUMP SWIMMING POOL AND SPA HEATER OWNER'S MANUAL

INTRODUCTION

Your "Raypak Super High Efficiency" swimming pool heat pump is an extremely efficient, economical machine designed specifically for pool heating. It is similar in design and operation to that of a typical residential air conditioning system. It is, in fact, a heat pump employing a hermetic motor-compressor operating in a refrigeration cycle to extract heat from ambient air and deliver it to the circulating pool water.

As with all heat pump pool heaters, compared to other types of pool heaters such as gas or oil fired, this heat pump swimming pool heater has lower heating capacity on a BTU/hr. basis. As a result, it will be required to operate longer to accomplish the desired results. It may, at certain times, be required to operate as much as a 24 hours per day. However, this should not be of concern to the owner, because the heater is designed to operate continuously. Even though it may operate continuously for many hours, it will still heat the pool with greater economy than other types of heaters.

As with all pool heaters, you are advised to use a pool cover on the pool at night and other non-use periods. This will keep evaporation, the greatest heat loss, to a minimum, and so greatly reduce the overall pool heating costs. During warmer weather, the pool cover may be required only at night, leaving it uncovered during daylight hours to absorb solar heat.

I. LOCATING THE UNIT

1. The placement of the pool heater is very important in keeping installation costs to a minimum, while providing for a maximum efficiency of operation, and allowing adequate service and maintenance access.

2. The unit is designed for outdoor installation and should not be installed in a totally enclosed area such as a shed, garage, etc., unless ventilation is provided to ensure adequate air exchange for proper operation. Recirculation of cold discharge air back into evaporator coil will greatly reduce unit heating capacity and efficiency.

3. When installed in a geographical location where freezing climate can be encountered, the water circuit should be drained to prevent possible freeze-up damage. See Section IX, "Freeze Protection".

4. The unit should be located as close as practicable to the existing pool pump and filter to minimize water piping. The use of tight 90° bends and short radius elbows in the water piping should be kept to a minimum.

5. All models feature "up-flow" evaporator air for quiet operation. Air is pulled through the evaporator coil and discharged through the top grille. At least 4 feet clearance should be allowed above the unit for unrestricted air discharge. The unit must not be installed under a porch. Any side of the unit should be located at least 24 inches from a wall or other obstruction for unrestricted air intake and service access. All service is performed by removing the end access panels and/or the top of the unit.

WARNING: Do not install within 3 feet of fossil fuel burning heaters. Air intake along the sides of this Heat Pump may disturb the combustion process of the heater, and cause damage or personal injury.

6. Mount the unit on a level sturdy base, preferably a concrete slab or blocks. If there is any significant slope to the mounting base, face the water connections downslope to permit drainage and minimize freezing damage. The base should be completely isolated from the building foundation or wall to prevent the possibility of sound or vibration transmission into the building. The size of the base should be not less than 36" by 48". If the unit is installed in an area known for water accumulation during periods of heavy rainfall, its supporting base must be high enough to keep it completely out of standing water at all times.

II. ELECTRICAL

1. Electrical power source required is 208 or 230 volt A.C., either 1 phase or 3 phase, plus ground conductor. Refer to unit rating plate for precise power requirement for each unit, and for ampacity and overcurrent protection requirements. Power supply conductors connecting to the unit must be **copper** only. All wiring must be in accordance with the National Electrical Code, NFPA no. 70, latest edition, and all applicable state and local codes.

NOTE: Refer to the National Electrical Code, Article 680, for general requirements for swimming pools and equipment, and to Article 440 for special considerations necessary for circuits supplying hermetic refrigeration motor-compressors.

2. The power supply connections to the unit are located inside the electrical box within the unit. Remove the top front access cover to expose the electrical controls. Line voltage connections are made at the line voltage terminals of the compressor contactor. Refer to the unit wiring diagram herein, or inside the upper access panel on the front of the unit. Conduit entrance to the electrical box is through a hole in the side of the unit cabinet. Make certain all electrical connections to unit terminals are secure.

3. Control circuit is a 24 volt supplied by a class 2 transformer which has tapped primary for either 208 or 230 volts. Unit is shipped from factory with transformer wired to 230 volt tap (orange wire). If available power supply is 208 volts, reconnect transformer primary with 208 volt tap (red wire).

III. WATER PIPING

1. The pool heater should be connected in the return water line between the pool filter and the pool (see figure 1). Connect the filter outlet to the LOWER heater fitting marked "water in:. Connect the UPPER heater fitting to the return piping to the pool. Heater inlet/outlet connection fittings are 2" PVC.

CAUTION: The heater inlet and outlet connections are NOT interchangeable. They must be connected as instructed in the above paragraph.

2. Water piping used to connect the heater to the main return line can be PVC pipe or flexible pipe approved for the purpose and, in either case, should be of size at least equal to the main pool circulation piping.

3. Unions and shut-off valves (ball or gate type) should be installed at the heater inlet and outlet, to facilitate service and cold weather drain-down.

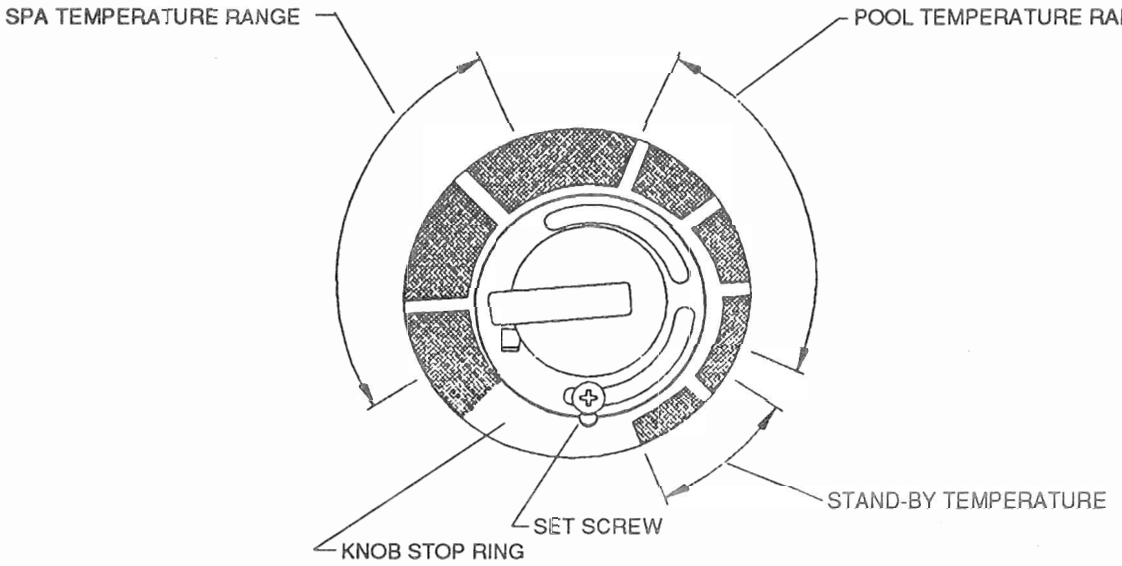
4. When the piping installation is complete, operate the pool pump and check the system for leaks. Then check the filter pressure gauge to see that excessive pump head pressure is not indicated.

IV. CONTROLS AND LIGHTS

Your heat pump incorporates several safety controls and devices to ensure its safe, reliable operation.

1. **Water Flow Switch:** Prevents compressor operation unless water is actually flowing through the condenser (water-to-refrigerant exchanger). Flow switch requires 25 GPM minimum flow.

2. **Water Temperature Control:** The pool or spa water temperature is controlled by the heater thermostat on the control panel of the heater. The control center contains an On/Off switch and two thermostats. Heaters may be set up for one temperature setting when heating a spa and a second temperature setting for heating a swimming pool. The switch functions as a means for turning the heater on or off, and for switching between thermostats for pool or spa.
   Thermostat are fitted with a means of limiting the upper temperature limit below the maximum level. The knob stop adjustment ring illustrated below is adjustable by loosening the set screw, rotating the knobstop ring to the desired location and retightening the set screw.



KNOBSTOP SHOWN ABOVE IS
IN THE SPA TEMPERATURE RANGE

3. **Ambient Air Thermostat:** Prevents heater operation if ambient air temperature falls below a predetermined safe minimum (approximately 40°F).

4. **Anti-short cycle timer:** Prevents compressor short cycling, which could damage or destroy the hermetic motor-compressor. Upon water temperature control satisfaction, or other control circuit interruption, this solid state device will prevent compressor restart for approximately 5 minutes. Upon power failure or interruption, the 5 minute delay will also be initiated.

5. **Refrigerant Low Pressure Control:** Stops compressor in the event refrigerant suction (low side) pressure falls too low as a result of a malfunction or loss of charge.

6. **Refrigerant High Pressure Control:** Stops compressor in the event refrigerant discharge (high side) pressure exceeds safe operating limits for any reason. This control must be manually reset by pressing "RESET" button on lower right front of unit cabinet.

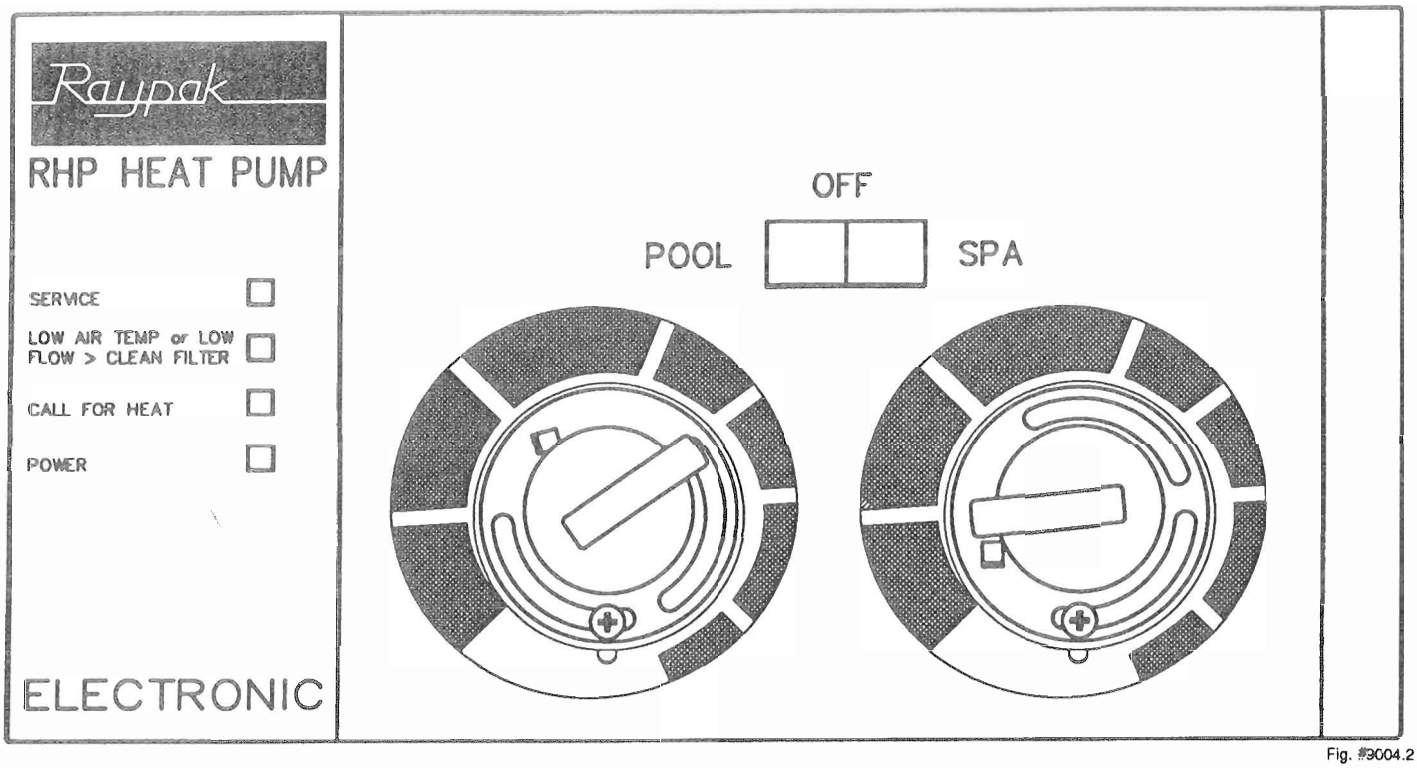


Fig. #9004.2

7. **Indicator Lights:** There are four operational indicator lights located on the RHP Heat Pump Spa/Pool control panel. They are as follows:

   a. The "Power" (green lamp in on when power is applied to the RHP Heat Pump Spa/Pool heater.
   Green ON – Power to Heater Normal

   b. The "Call For Heat" (green) is on when thermostat is functionally calling for heat.
   Green ON – Call for Heater Normal

   c. The "Low Air Temp or Low Flow > Clean Filter" (red) indicates "safety" failure.
   Red ON – Service Required Service Required

   d. The "Service" (red) indicates failure in refrigeration circuit.
   Red ON – Service Required Service Required

   NOTE: *If both red indicator lights are On, check first and make sure that the Filter/Strainer are clean before calling for service.*

V. INITIAL START-UP AND CHECK

1. Make certain the RHP Heat Pump control panel "On-Off-On" switch is in the "Off" position.

2. Turn the control switch to "ON" either "Pool" or "Spa. At this time the green lights should be illuminated. After an approximate 5 minute delay, the fan and compressor should start up and run simultaneously.

3. Allow the heater to operate for a few minutes to stabilize operating pressures and for various component temperatures to normalize. Then verify that the outlet water line is slightly warmer (approximately 2° to 3°) than the inlet line. Also verify that the discharge air temperature is colder (approximately 8° to 14°) than the entering ambient air.

VI. SEASONAL START-UP

1. Remove leaves, pine needles, etc. from the evaporator coil and clean the coil by spraying it with a mild solution of household liquid soap and water. Then flush the coil with a garden hose.

2. Backwash or other wise clean the pool filter. Clean skimmer basket and pump strainer if necessary.

3. Set the water temperature control to the desired temperature range for either pool or spa.

4. Turn control switch to either "Pool" or "Spa". If the pool pump is running and the water is colder than the setting of the temperature control, the heater will start-up and run. It will do so until the water temperature control is satisfied, or the pool pump shuts off.

NOTE: If the pool pump and heater shuts off before the water temperature is raised to the desired level, it will be necessary to lengthen the running time of both. This is done by resetting the top lugs on the time clock dial for the longer running time, or by manually operating the pump with the timer override switch. Since the pool heater capacity and efficiency are both greater at higher ambient air temperatures, run time should be set so as to take advantage of all daylight hours, when the air is generally warmer.

VII. HEATER RUNNING TIME

It is the responsibility of the owner to determine the length of pump and heater operating time necessary for his particular requirements.

Minimum run time should be the required hours to attain proper pool water filtration.

Maximum run time obviously is 24 hours per day, or as required to attain desired pool temperature, and depends on such things as the weather, pool size, pool covering, shading, etc.

If cooler or warmer water is desired, simply adjust the water temperature control and/or the pump and heater operating time accordingly, until desired water temperature is attained.

NOTE: At the beginning of the heating season, or whenever the pool water temperature is to be raised several degrees, the pool pump and heater may need to operate continuously for as long as 2 or 3 days. During summer months only a few hours per day may be necessary, or not at all.

VIII. SUMMER SHUTDOWN

If it is anticipated that the heater will not be used during the summer months, secure and protect it as follows:

1. Turn the control switch to "Off".

2. Turn heater circuit breaker or fused disconnect switch to "Off".

3. Cover the heater with a waterproof cover to protect it from the elements and minimize the possibility of fading or other deterioration.

4. If your system incorporates an external heater bypass line (see figure 1), open the bypass valve which will allow water to bypass the heater, reducing the head pressure on the pump, and ensuring maximum water circulation during summer months.

IMPORTANT: Remember to CLOSE the bypass valve before the next heating season or the heater will not operate.

IX. FREEZE PROTECTION

If the pool heater is installed in a location subject to freezing conditions, it is important to protect the water circuit from freezing, just as should be done for the pump and filter.

1. **System Drain-Down**

   A) Turn heater circuit breaker or disconnect switch to "Off".

   B) Turn control switch to "Off".

   C) With pool pump OFF, open the unions at the pool heater inlet and outlet. This should sufficiently drain the heater to prevent a freeze damage.

   D) Cover the heater with a water proof cover as recommended for summer shutdown.

2. Continuous pump operation:

It is also possible to prevent heater freeze damage by operating the pump continuously during freezing weather. However, this results in significantly higher pump operating cost. Further, if a sustained power failure occurs, the heater would have to be drained anyway, or freeze damage could result.

TROUBLESHOOTING

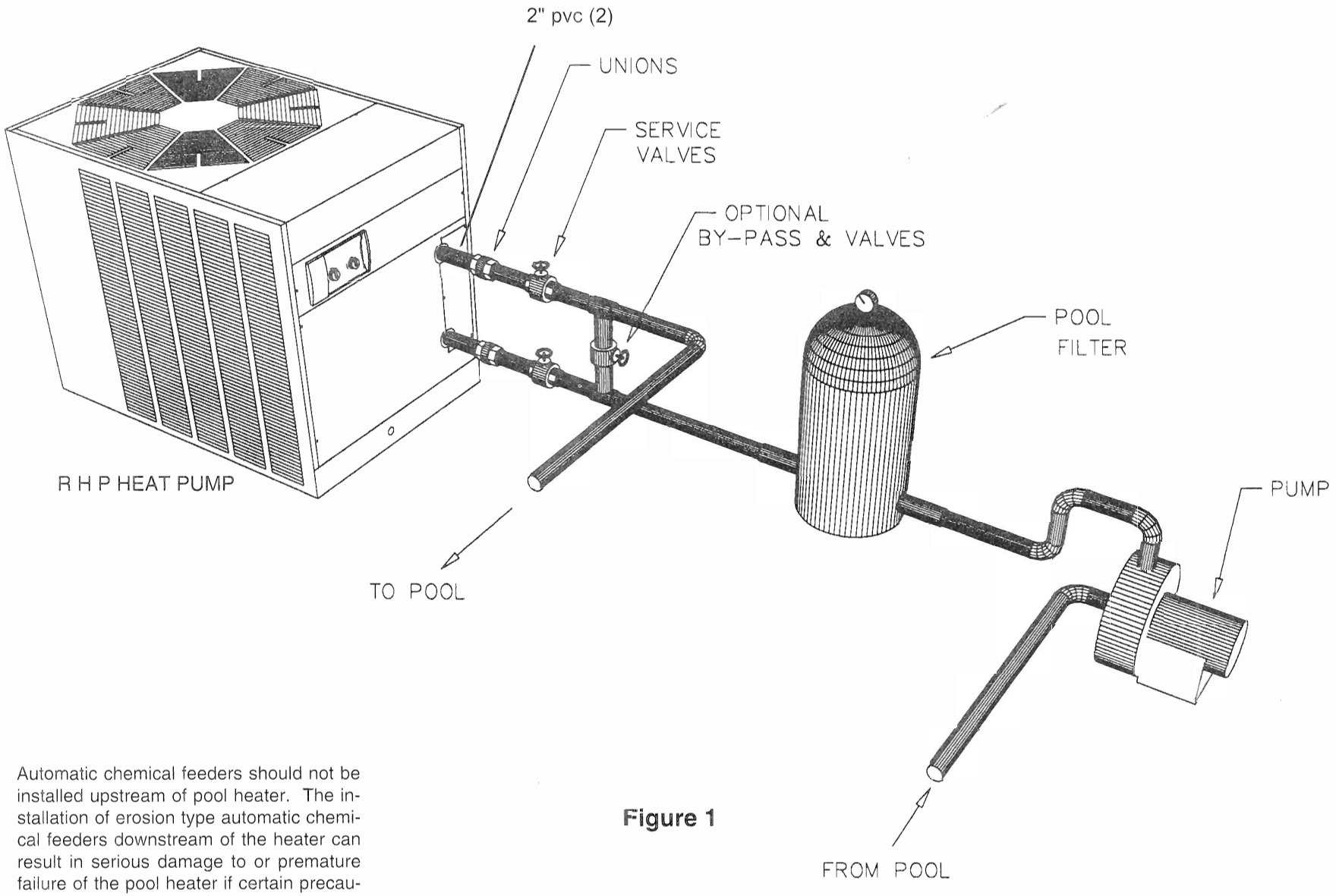
If your pool heater does not operate, or simply does not heat your pool water, the indicator lights on the front control panel can provide valuable clues as to what is wrong, and may even tell precisely what the problem is. Always observe these lights before calling a service representative. By telling him on the telephone which lights are on and off, he may be able to solve the problem without the expense of a service call.

The following troubleshooting guide is provided as an aid in determining and correcting the more common problems your pool heater may experience during its lifetime.

WARNING: This pool heater is an electromechanical machine that incorporates a pressurized refrigerant gas in a sealed system. It is NOT the intent or purpose of this owners manual to imply or suggest that anyone but trained and qualified service personnel attempt to service this equipment.

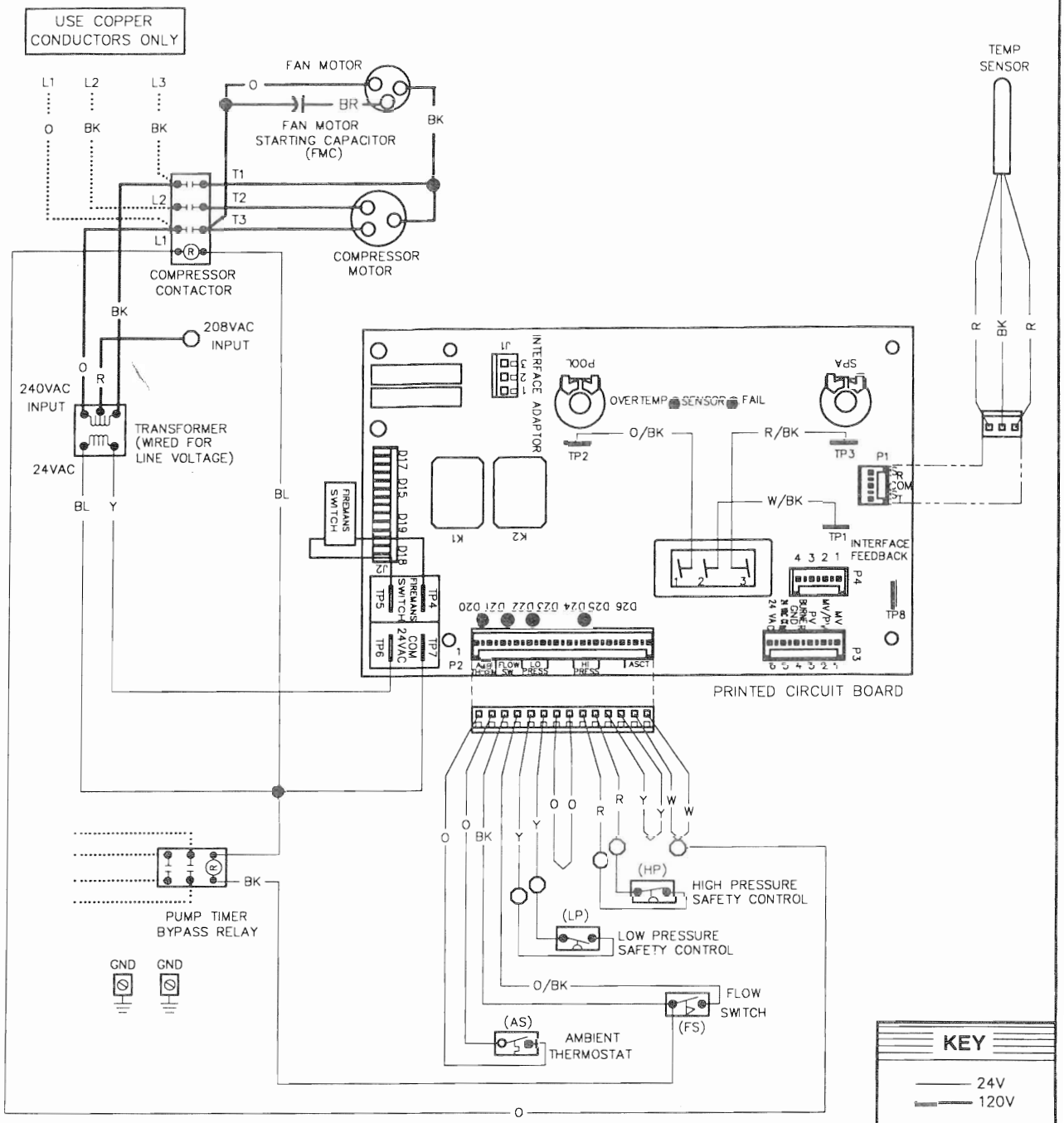
Without proper training and knowledge of such equipment an attempt to service the unit could result in serious injury or even death.

TYPICAL INSTALLATION

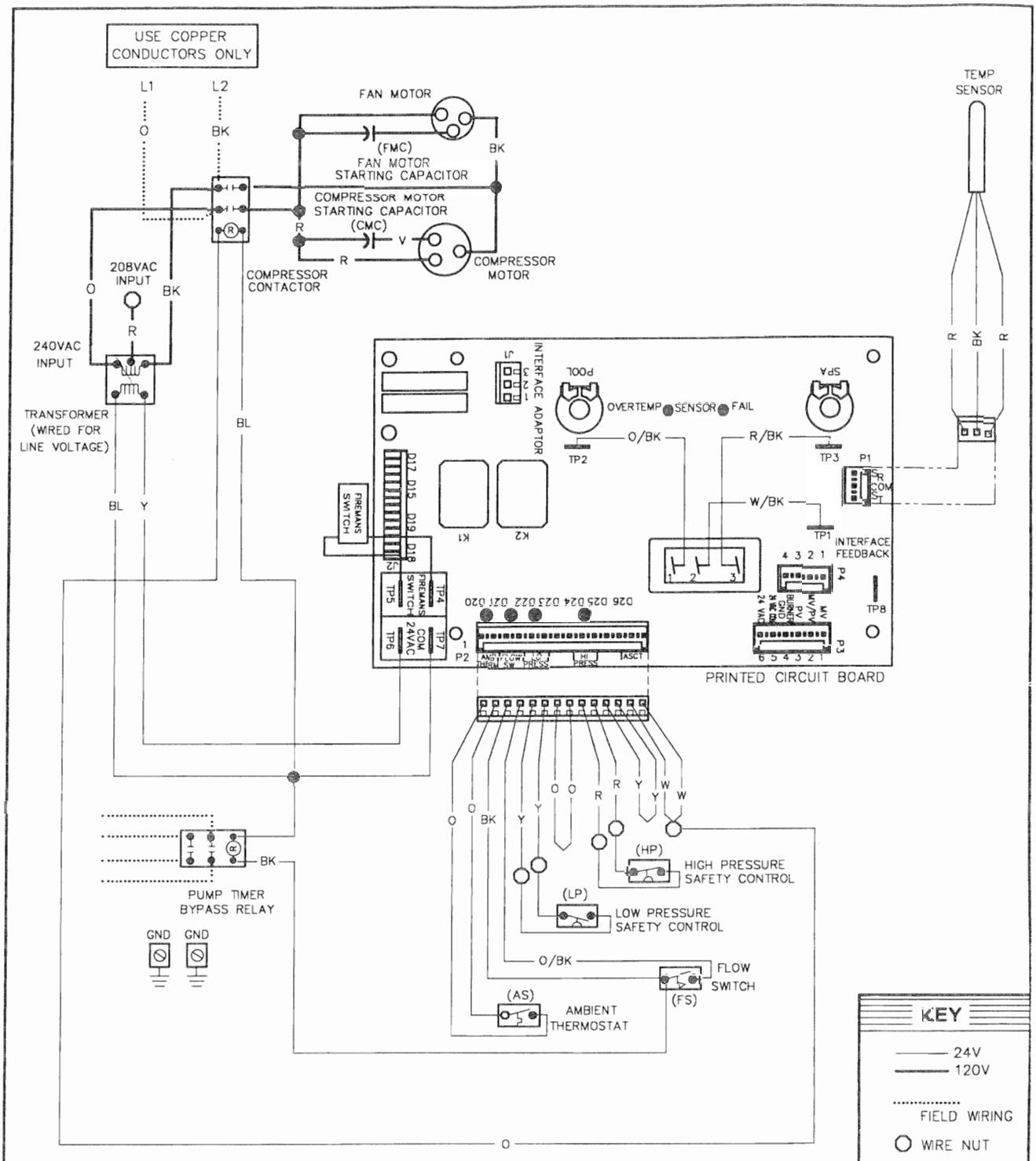


Automatic chemical feeders should not be installed upstream of pool heater. The installation of erosion type automatic chemical feeders downstream of the heater can result in serious damage to or premature failure of the pool heater if certain precautions are not taken. A flow check valve or a Hartford loop will be required.

Figure 1



APPROVED BY:	
ORIG E.O. 2916	NOTES: MOTOR COMPRESSOR THERMALLY PROTECTED AND ALL THREE (3) PHASES ARE PROTECTED UNDER PRIMARY SINGLE PHASE CONDITIONS.
02/28/95	
CHG E.O.	REPLACE WIRING WITH 105°C WIRE ONLY.
Raypak	DIA-WIRE HEAT PUMP 3 PHASE
	152379



APPROVED BY:	
ORIG E.O. 2916	NOTES: MOTOR COMPRESSOR THERMALLY PROTECTED.
02/28/95	
CHG E.O.	REPLACE WIRING WITH 105°C WIRE ONLY.
Raypak	DIA-WIRE HEAT PUMP 1 PHASE
	152380

HEAT PUMP WIRING OPTIONS

The Raypak Heat Pump includes a filter pump contactor. By choosing how it is wired the following operating modes can be selected (the factory wiring is set up for option A):

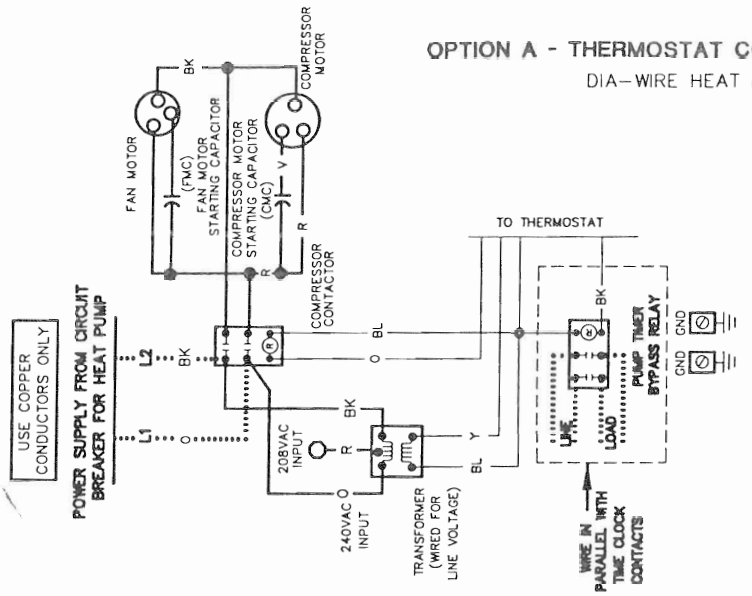
A) Thermostat control including restart. In this mode the filter pump contactor provided in the heat pump will energize the pump when the thermostat calls for heat. If the thermostat is calling for heat at the end of the programmed time clock cycle the pump contactor will keep the pump running until the thermostat is satisfied. If during the filter pump off cycle the water temperature drops and the thermostat calls for heat it will energize the pump and keep it running until the call for heat is satisfied. The time clock continues to run the pump as it has been adjusted to do to filter the pool independent of whether the heater is being utilized or not. For field connections see option A diagram.

B) Thermostat control without restart. In this mode the filter pump contactor provided in the heat pump will keep the pump running at the end of a scheduled filter cycle, until the thermostat is satisfied. Once the filter pump and heater are off the thermostat cannot restart the pump or heater. It will wait until the next time clock on cycle. If the thermostat calls for heat during the pump off cycle the status display lights will indicate a call for heat and will also indicate low flow and service since the pump is off. When the time clock does start the pump the low flow and service lights will go off. For field connections see option B diagram.

C) Time clock control only. In this mode the pump runs only when the time clock turns it on. There may also be a manual lever or switch to override the time clock. Heater operation is only possible when the pump is running. If adequate heating time is not being achieved the time clock should be adjusted to increase the pump running on time. For field connections see connection option C diagram.

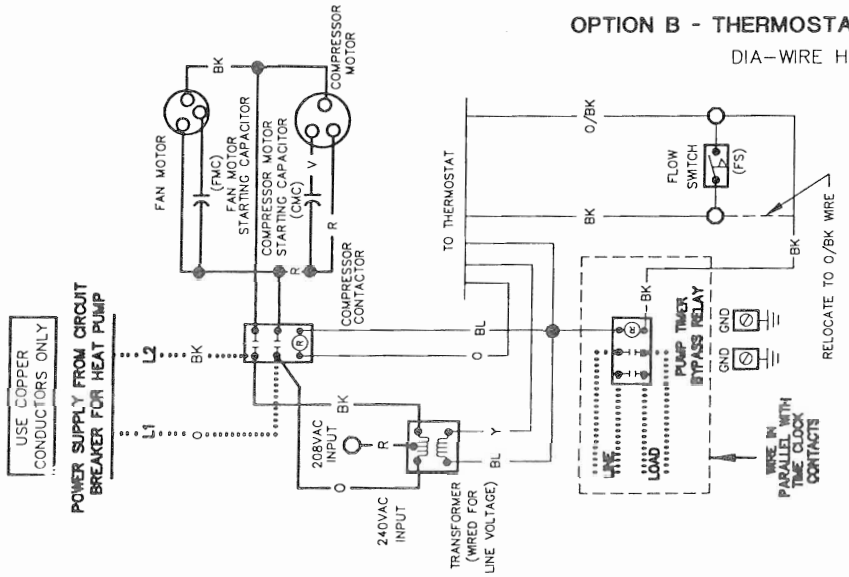
OPTION A - THERMOSTAT CONTROL INCLUDING RESTART

DIA-WIRE HEAT PUMP 1 PHASE



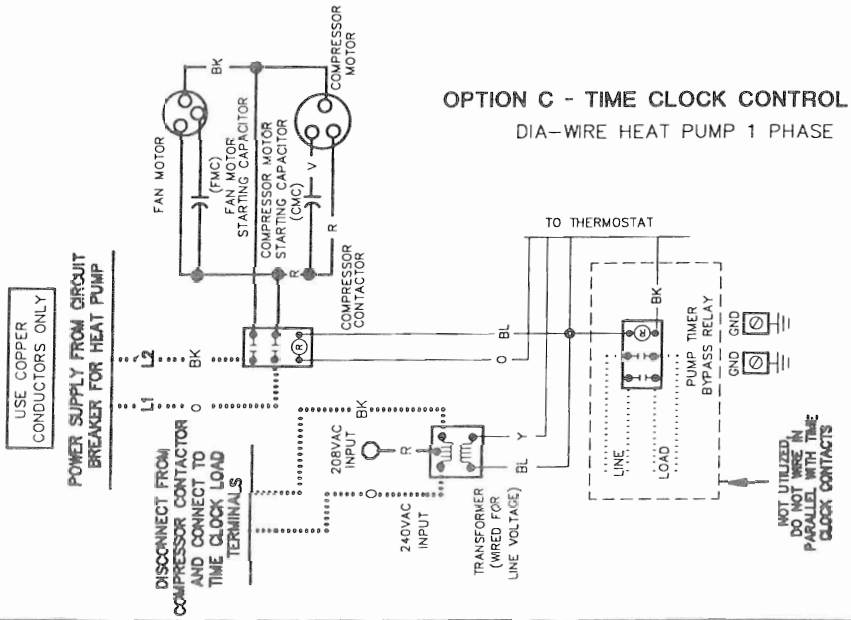
OPTION B - THERMOSTAT CONTROL WITHOUT RESTART

DIA-WIRE HEAT PUMP 1 PHASE



OPTION C - TIME CLOCK CONTROL ONLY

DIA-WIRE HEAT PUMP 1 PHASE



KEY

- 24V
- 120V
- FIELD WIRING
- WIRE NUT

BK	–	BLACK
BR	–	BROWN
R	–	RED
O	–	ORANGE
Y	–	YELLOW
G	–	GREEN
BL	–	BLUE
V	–	VIOLET
W	–	WHITE

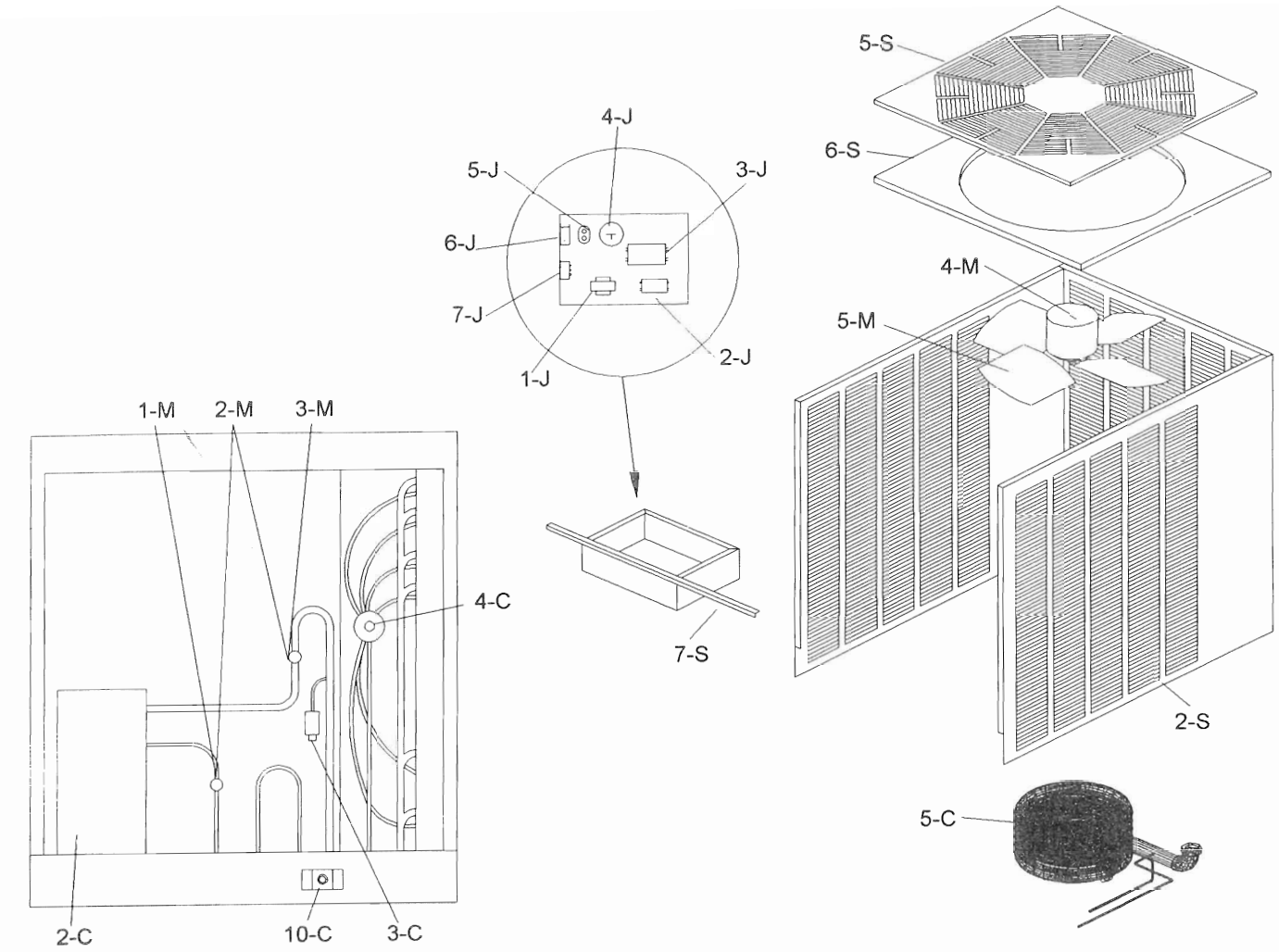
GND

TROUBLE SHOOTING GUIDE

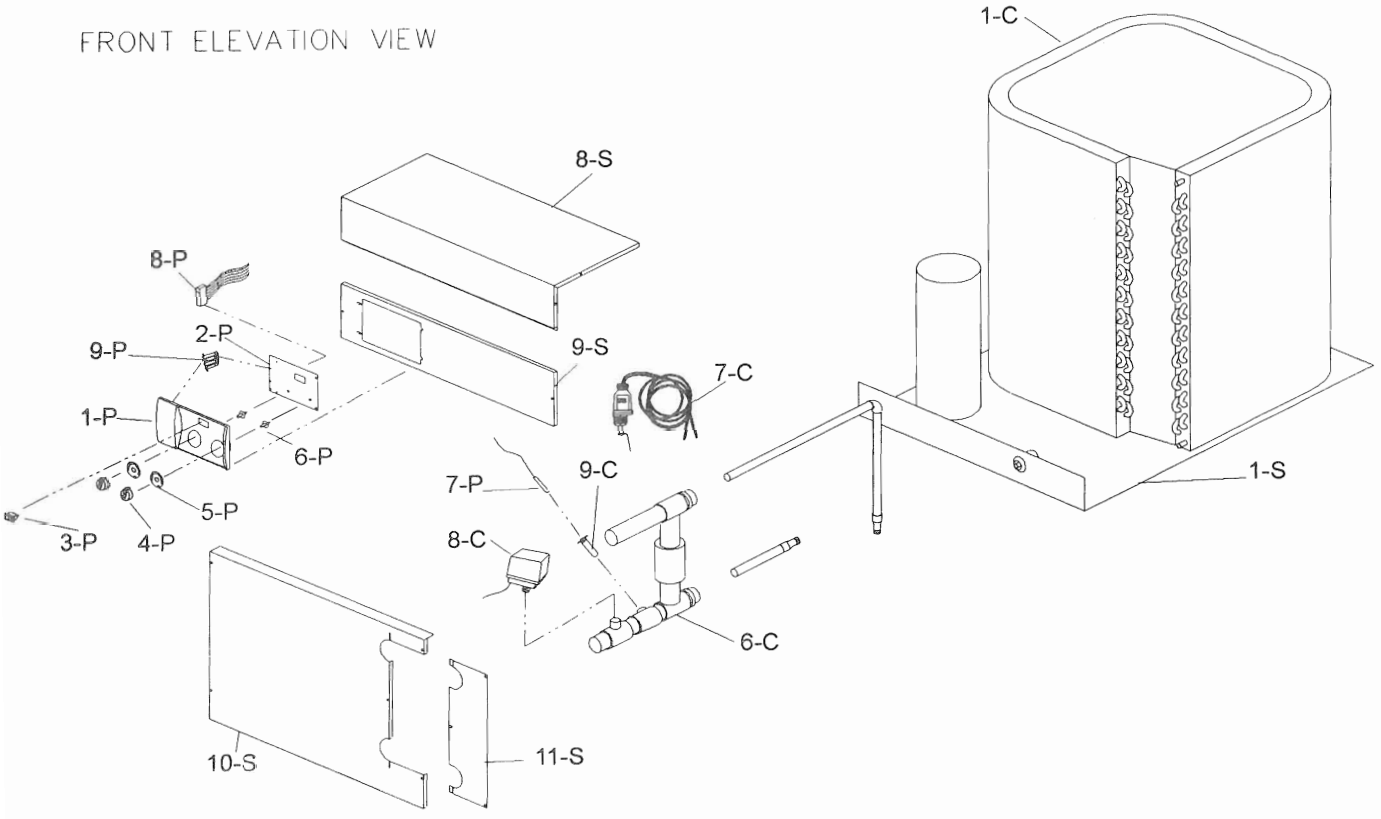
INDICATOR LIGHT STATUS			MALFUNCTION OR COMPLAINT	POSSIBLE CAUSE	POSSIBLE REMEDY
LIGHTS	ON	OFF			
"GREEN" - POWER	-	X	All lights are "OFF".	1. Fuse blown or circuit breaker off or open.	1. Replace fuse or reset circuit breaker.
"GREEN" - CALL FOR HEAT	-	X	Heater will not operate.	2. Faulty transformer.	2. Check transformer output. If no power, replace transformer.
"RED" - LOW AIR/ LOW FLOW	-	X	Fan not running		
"RED" - SERVICE	-	X		3. Time clock is "OFF".	3. Set time clock to "ON".
"GREEN" - POWER	X	-	"Green" power light only "ON".	1. Pool/Spa switch is "OFF".	1. Turn switch to either "Pool" or "Spa" mode.
"GREEN" - CALL FOR HEAT	-	X	Heater will not operate.	2. Faulty Pool/Spa switch or wiring connections.	2. Check wiring to terminal TP1, TP2, and TP3 on back of RHP control board.
"RED" - LOW AIR/ LOW FLOW	-	X	Fan not running		
RED" - SERVICE	-	X		3. Thermostat set below Pool or Spa temperature.	3. Set thermostat knob to maximum (counterclockwise).
"GREEN" - POWER	X	-	"Green" lights are "ON".	1. Ambient air thermostat open due to low outside temperature.	1. Check outside air temperature. Approx. 40°F is minimum for heater to operate.
"GREEN" - CALL FOR HEAT	X	-	Heater will not heat.		
"RED" - LOW AIR/ LOW FLOW	X	-	Fan not running.		
RED" - SERVICE	X	-	"Red" lights are "ON".	2. Faulty ambient air thermostat.	2. Check for "FAIL" of LED lights on back of RHP control board. Identify and verify faulty thermostat. Repalce as necessary.

				3. Low or inadequate water flow rate.	3. Check for "FAIL" of LED lights on back of RHP control board. Identify and verify nature of fault. Backwash or clean filter/strainer as needed.
				4. Faulty water flow switch.	4. Check for "FAIL" of LED lights on back of RHP control board. Identify verify faulty water flow switch. Replace as necessary.
				5. Pool filter pump is "OFF".	5. Turn on pump by resetting time clock or use manual override switch.
"GREEN" - POWER	X	-	"Green" lights are "ON".	1. Problem with refrigerant circuit - compressor off on low pressure.	1. Check for "FAIL" of LED lights on back of RHP control board. Identify and verify nature of fault. Call Raypak dealer.
"GREEN" - CALL FOR HEAT	X	-	Heater will not heat. "Red" service light is "ON"	2. Problem with refrigerant circuit- compressor off on high pressure.	2. Check for "FAIL" of LED lights on back of RHP control board. Identify and verify nature of fault. Push "RESET" button on lower-right front of heater. Call Raypak dealer.
"RED" - LOW AIR/ LOW FLOW	-	X	Fan not running.		
"RED" - SERVICE	X	-		3. Anti-short cycle timer open: less than 5 minutes since last run cycle. Or faulty anti-short cycle timer.	3. Wait and observe that heater comes on within 5 minutes. If not, replace anti-short cycle timer. Call Raypak dealer.
				4. Faulty fan motor, or fan motor relay, causing compressor to go off on low pressure and recycle every 5 minutes.	4. Check for "FAIL" of LED lights on back of RHP control board. Identify and verify nature of fault. Call Raypak dealer.
				5. Faulty thermistor sensor or loose wire connector at Terminal P1.	5. Check for sensor "FAIL" of LED light on back of RHP control board. Call Raypak dealer.
				6. Over temperature condition in the sensor well.	6. Check for overtemp "FAIL" of LED light on back of RHP control board. If above 107°F, heater will not operate until water cools down. Call Raypak dealer.

"GREEN" - POWER	X	-	"Green" lights are "ON". Heater will not heat. Fan is running. Compressor not running.	1. Faulty compressor contactor, or faulty compressor, or loose or broken wire.	1. Call Raypak dealer.
"GREEN" - CALL FOR HEAT	X	-			
"RED" - LOW AIR/ LOW FLOW	-	X			
RED" - SERVICE	-	X			
"GREEN" - POWER	X	-	"Green" lights are "ON". Heater appears to run normally, but does not heat fast as it should, or warm enough to shut off.	1. Heater size not enough or heat loss is too great for heater.	1. Cover pool or spa whenever not in use. If problem persists, call Raypak dealer.
"GREEN" - CALL FOR HEAT	X	-			
"RED" - LOW AIR/ LOW FLOW	-	X			
RED" - SERVICE	-	X			



FRONT ELEVATION VIEW



CALL OUT	DESCRIPTION	PART NO. RHP 072	PART NO. RHP 104
C	**COIL & COMPRESSOR PARTS**		
1-C	Evaporator Coil	005658F	005694F
2-C	Compressor 1 Phase Models	005659F	005660F
	Compressor 3 Phase Models	006044F	005673F
3-C	Low Pressure Control	005661F	005661F
4-C	Expansion Valve Assembly	005662F	005672F
5-C	Water Coil	005663F	005663F
6-C	Check Valve-Bypass/Plumbing Assy.	005664F	005664F
9-C	Well Assy.	006053F	006053F
7-C	Flow Switch (If Provided)	*Use 8-C*	*Use 8-C*
8-C	Pressure Switch (If Provided)	006045F	006045F
10-C	High Pressure Control	006197F	006197F
J	**CONTROL BOX PARTS**		
1-J	Control Transformer	005666F	005666F
2-J	Pump Contactor	005667F	005667F
3-J	Compressor Contactor 1 Phase	005668F	005668F
4-J	Compressor Capacitor 1 Phase	005670F	005671F
5-J	Fan Motor Capacitor 10/370	005695F	005695F
6-J	Thermostat (Ambient Stat)	005674F	005674F
7-J	Timer (Relay)		005675F
M	**MISCELLANEOUS COMPONENTS**		
1-M	Schrader Valve Core & Cap	005676F	005676F
2-M	Schrader Valve	005677F	005677F
3-M	Schrader Valve Cap Only	005678F	005678F
4-M	Fan Motor 1/3 HP 208-230, 1 SPD	005679F	005679F
5-M	Fan Blade	005680F	005680F
6-M	Paint (Rheem Green)	750128	750128
P	**CONTROL PANEL GROUP**		
1-P	Control Panel Bezel	800323	800323
2-P	Control Circuit Board	005681F	005681F
3-P	On-Off-On Switch	650903	650903
4-P	Knob (1)	800303	800303
5-P	Knobstop (1)	006886F	006886F
6-P	Thermostat Shaft (1)	800304	800304
7-P	Temperature Sensor	005299B	005299B
8-P	14 Pin Plug/Harness	005682F	005682F
9-P	Lens Extension	800302	800302
S	**PANEL SHEET METAL PARTS**		
1-S	Jacket Base Panel	005683F	005683F
2-S	Jacket Wrapper	007013F	007013F
5-S	Jacket Top/Grill Panel	005687F	005687F
6-S	Venturi Panel	005688F	005688F
7-S	Control Box Brace	005689F	005689F
8-S	Jacket-Upper Front Panel	005690F	005690F
9-S	Control Mounting Panel Assy.	005691F	005691F
10-S	Jacket-Lower Front Panel	005692F	005692F
11-S	Front Access Panel	005693F	005693F

LIMITED WARRANTY
MODELS RHP 072 & RHP 104
SCOPE OF WARRANTY

Raypak, Inc. (Raypak) warrants to the original owner that its HEAT PUMP when installed with a residential pool or spa by a Properly Licensed Installer will be free from defects in materials and workmanship under normal use and service for a period of FIVE YEARS FROM THE DATE OF ORIGINAL PURCHASE. Under this limited warranty, we will, at our option , repair any defective part of the heater, or furnish a Raypak replacement, or furnish a comparable replacement. The repair or replacement will be warranted for only the unexpired portion of the original Applicable Warranty.

APPLICABLE WARRANTY PERIOD

The Effective Date of Warranty coverage is the date of original installation if properly documented otherwise it is the date of manufactured plus 30 days. The Applicable Warranty Period for the Heat Pump is five (5) years from the Effective Date.

LABOR AND SHIPPING COSTS

Under this Limited Warranty, Raypak will pay normal labor costs for repairs or replacements covered by this Warranty which are performed by a Raypak designated repair center during the Applicable Warranty Period. This Limited Warranty does not cover any other labor costs.

This Limited Warranty does NOT cover any shipping costs to or from Raypak's designated repair center or the installation site.

WARRANTY EXCLUSIONS

This Limited Warranty does not apply;

1. if the product has been moved from its original place of installation, or if the original owner no longer owns the original installation site;
2. if the product is not properly installed with a residential pool or spa by a qualified licensed installer in accordance with applicable local codes and ordinances, good trade practices, and the manufacturer's installation instructions;
3. if the rating plate(s) or serial number(s) are altered or removed;
4. if the product is modified in any way, or non-factory authorized accessories or other components are used in conjunction with the product;
5. to damage or malfunctions resulting from failure to properly install, operate or maintain the product in accordance with the manufacturer's instructions;
6. to damage from abuse, act of nature, accident, fire, flood, freeze and the like;
7. to damage from misuse or neglect, including but not limited to, freeze-ups, operating the heater with the cabinet door off, having flow restrictions or obstructions between the heater outlet and the pool/spa, or operating without a proper chemical balance (PH level must be between 7.4 and 7.8; total alkalinity must be between 100 and 150 PPM; total dissolved solids (TDS) must be no greater than 3000 PPM).
8. to damage or failure from connected system control devices.

HOW TO MAKE A WARRANTY CLAIM

You should immediately notify the dealer from whom the Raypak product was purchased, supplying model number, serial number, date of purchase, and a description of the problem. The dealer should then promptly contact Raypak about the warranty claim, and for the location of Raypak's nearest designated repair center. (If the dealer for any reason is not available, call or write Raypak directly at the address shown below, Attention: Warranty Service). Raypak reserves the right at all times to inspect the claimed defect and verify warranty coverage at its factory.

EXCLUSIVE WARRANTY - LIMITATION OF LIABILITY

This is the only warranty given by Raypak. No one is authorized to make any other warranties on our behalf. ANY IMPLIED WARRANTIES, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE APPLICABLE WARRANTY PERIOD SPECIFIED ABOVE. RAYPAK'S SOLE LIABILITY WITH RESPECT TO ANY DEFECT SHALL BE AS SET FORTH IN THIS LIMITED WARRANTY. IT IS AGREED THAT RAYPAK SHALL HAVE NO LIABILITY WHETHER UNDER THIS WARRANTY OR IN CONTRACT, TORT OR NEGLIGENCE OR OTHERWISE FOR CLAIMS FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING NO LIABILITY FOR DAMAGE FROM WATER LEAKAGE). Some states do not allow limitations on how long an implied warranty lasts, or for the exclusion of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

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

We suggest you immediately complete the information on the reverse side of this document and retain this Limited Warranty Certificate in the event warranty service is needed.

www.raypak.com

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