



***Raypak® RHP Series
Swimming Pool and
Spa Heat Pump***

**OWNER and
INSTALLATION MANUAL**

Model RHP 33



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

For additional information call: **(03) 9757 3333**



The instructions in this manual are for the use of qualified individuals specially trained and experienced in the installation and maintenance of this type of equipment and related system components. Installation and service personnel are required by some states to be licensed.

Persons not qualified must not attempt to install, service, or maintain this equipment.



The Pool and Spa Heating Experts

Effective Date: Dec 2004

Replaces: All Previous Versions

Part No.

PRODUCT SAFETY SIGNS AND LABELS



This manual, as well as the pool/spa heat pump itself, contains product safety signs and labels. Please read these signs and labels, as they convey important safety information about hazards that may be potentially present in and around the heat pump. They are classified according to relative seriousness of the hazard potential, from DANGER at the most serious, to WARNING, or CAUTION at the least serious.

An example of a heat pump safety label follows.



**Excessive chemical content in a swimming pool or spa will damage the heat pump.
DO NOT skimmer feed - Avoid adding chemicals in this manner.**

AUDIENCE

The audience for this manual is twofold:

1. For the installing contractor, to provide information for the proper installation and adjustment of the heat pump;
2. For the owner-operator, to explain the features, operation, safety precautions, and service/maintenance of the heat pump. The manual also includes system drawings and illustrated replacement parts lists.

WARRANTY CLAIMS (See the enclosed Warranty information)

For the Warranty to apply, proper authorisation **MUST** be obtained **PRIOR** to making any repairs. This Warranty is **VOID** if the product is repaired or altered in any way by **ANY** persons or agencies other than those authorised by Raypak or Rheem Service.

The heat pump Warranty will be **VOID** if chemical levels are not maintained within the limits stated in the Warranty Information - Warranty Exclusions section of this manual.

CONTACT INFORMATION

Sales : RAYPAK Australia (a division of Rheem Australia)
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RHP Series Swimming Pool and Spa Heat Pump
OWNER and INSTALLATION MANUAL

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Introduction



This pool/spa heat pump is an electromechanical machine that incorporates a pressurised refrigerant gas in a sealed system. ONLY trained and qualified service personnel should attempt to install or service this equipment. Without proper training and knowledge of such equipment, any attempt to install or service the unit could result in serious injury or even death.

This manual contains important information on the use, maintenance, chemistry requirements and installation of your new heat pump. Proper installation and operation of the unit will increase the benefits you receive from the unit.

This heat pump is an extremely efficient, economical machine designed specifically for pool and spa heating. It is similar in design and operation to a typical residential air conditioning system. The heat pump employs 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 pool/spa heat pumps, compared to other types of pool heat pumps such as gas, this heat pump has lower heating capacity on a KW/hr basis. As a result, it will be required to operate longer to accomplish the desired results. It may, at certain times, operate as much as 24 hours per day. However, this should not be of concern to the owner, because the unit 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 fossil fuel heaters.

You are advised to put a pool cover over the pool at night and other non-use periods. This will keep evaporation, the cause of the greatest heat loss, to a minimum, and so greatly reduce overall pool heating costs. During warmer weather, the pool cover may be required only at night.

I. Installation

- The placement of the pool heat pump is very important to minimize installation costs while providing maximum efficiency of operation, and to allow adequate service access.
- The unit is designed for outdoor installation and must not be installed in a totally enclosed area such as a shed or garage, unless ventilation is provided to ensure adequate air exchange for proper operation. Recirculation of cold discharge air back into the evaporator coil will greatly reduce the unit's heating capacity and efficiency.
- When installed in a geographical location where freezing temperatures can be encountered, the water circuit should be drained to prevent possible freeze-up damage. See Section IX, Freeze Protection.
- The unit should be located as close as possible to the existing pool pump and filter to minimize water piping.
- All models feature an "up-flow" discharge for quiet operation. Air is pulled up through the evaporator coil and discharged through the top grill. Allow at least 2.5m clearance above the unit for unrestricted air discharge. Do NOT install the unit under a porch or deck.

- Each side of the unit must be located at least 300mm from walls, pipes, or other obstructions for unrestricted air intake and service access.



Do not install the unit within 1m of fossil fuel burning heaters. Air intake along the sides of this heat pump could disturb the combustion process of the unit, and could cause damage or personal injury.

- Mount the unit on a level, sturdy base, preferably a concrete slab or blocks. The size of the base should be not less than 1m by 1m.
- Completely isolate the base from the building foundation or wall to prevent sound or vibration transmission into the building. **For this purpose, 4 black rubber sound isolation pads are included with the unit. These pads must be installed under the corners of the unit to reduce vibration and sound transmission to the base.**
- 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 free of standing water at all times.

II. Electrical Connections

The table below lists the typical electrical power requirements for your heat pump.

Table 1: Typical System Electrical Power Requirements

Model	V _{IN} - Phase - Hz	Min. circuit Ampacity (A)	Max. breaker size (A)
RHP 33	240 - 1 - 50	42.2	60

Refer to the unit rating plate below the control panel for precise power requirement for each unit, and for ampacity and over-current protection requirements. All wiring must be in accordance with the AS3000 Wiring Rules Section 7.2 Swimming Pools, latest edition, and all applicable state and local codes.

The power supply connections to the unit are located behind the control panel. Remove the control panel to expose the electrical controls. Line voltage connections are made at the line voltage terminals of the compressor contactor. Refer to the Heat Pump Schematic (page 11) and the Control Panel Assembly Replacement Parts List (page 12).

Conduit entrance to the unit is through a hole below the control panel.

NOTE: Make certain all electrical connections to unit terminals are secure.

III. Water Connections



The heat pump inlet and outlet connections are NOT interchangeable. They must be connected as instructed below.

1. Connect the heat pump in the return water line between the pool filter and the pool. See page 10, Plumbing Diagrams.
2. Connect the filter outlet to the fitting marked **WATER IN** at the bottom front of the unit.
3. Connect the fitting marked **WATER OUT** to the return piping to the pool. Unit inlet/outlet connection fittings are 50mm PVC slip couplers.

Water connections from the heat pump to the main return line can be PVC pipe or flexible pipe approved for the purpose and, in either case, should be at least equal in size to the main pool circulation piping.

4. In cold weather (freeze zone) areas, shutoff valves (ball or gate type) must be installed at the heat pump inlet and outlet to facilitate service and cold weather drain-down.
5. When the water connections are complete, operate the pool pump and check the system for leaks.

Automatic chemical feeders must not be installed upstream of the heat pump. Improper installation of erosion-type automatic chemical feeders can result in serious damage to, or premature failure of, the heat pump. A flow check valve will be required.

IV. Controls and Indicator Lamps

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

Water Pressure Switch: Prevents operation when the pump is OFF. The unit requires 35 Kpa minimum pressure.

Water Temperature Control: Pool/spa water temperature is controlled by the heat pump thermostat on the unit control panel, which contains a switch and 2 thermostats, one for setting a spa temperature and the other for a swimming pool temperature. The switch can operate an optional external control system, or can switch between thermostats for pool or spa.

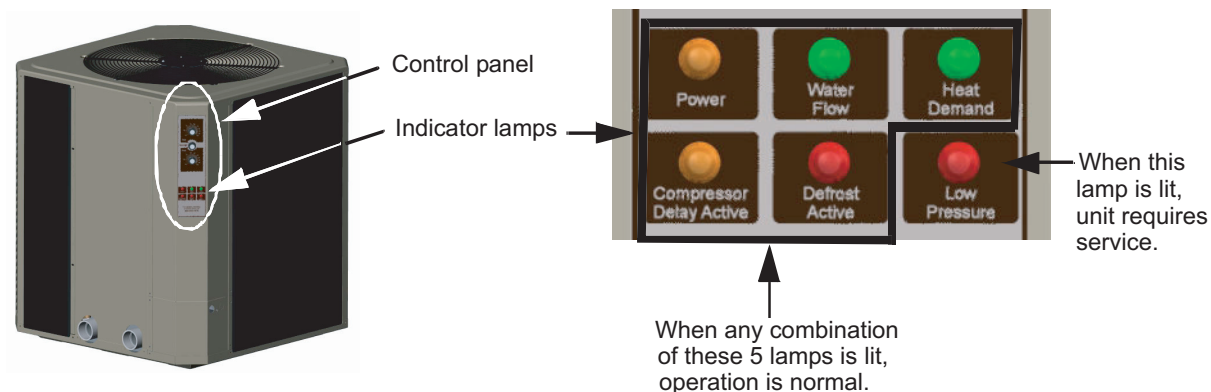
NOTE: The heat pump will not run when the Remote position is selected and there is no remote control system attached.

Defrost Switch: Prevents heat pump operation if ambient air temperature falls below a predetermined safe minimum (approximately 5.5°C).

Delay Timer: Prevents compressor from 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, a 6 to 8 minute delay will also be initiated.

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

Indicator Lamps: There are 6 indicator lamps located on the unit control panel:



- **Power** (amber lamp): When lit, indicates power is applied to the unit.
- **Water Flow** (green lamp): When lit, indicates normal water flow.
- **Heat Demand** (green lamp): When lit, indicates the actual water temperature is below the target water temperature.
- **Compressor Delay Active** (amber lamp): *Under normal operation*, when lit, indicates compressor anti-short cycle timer is active. The fan will run but the compressor will be OFF for 6 to 8 minutes.
- **Defrost Active** (red lamp): When lit, indicates unit is in defrost mode. Defrost mode occurs when ice starts to form on the outside coil. The fan will continue to run but the compressor will stay OFF (not heating) until weather conditions improve.
- **Low Pressure** (red lamp): When lit, indicates failure in the refrigeration circuit. When this lamp is **ON**, service is required. Call the number shown in the **CONTACT INFORMATION** at the front of this manual.

V. Initial Start-Up and Check

1. Verify that the **Power** lamp is ON and that the pool pump is running and circulating properly.
2. Verify that the control panel **Spa-Remote-Pool** switch is in the **Remote** (OFF) position; see the figure.
3. Turn the control switch to either **Pool** or **Spa** to turn the system ON and raise the thermostat setting above the current water temperature. At this time the 2 green lamps should illuminate. The fan and compressor should start up and run simultaneously.



Spa thermostat

Pool/Spa selector switch

Pool thermostat

NOTE: The heat pump will be OFF when the Remote position is selected on the Pool/Spa selector switch.

4. Allow the heat pump to operate for a few minutes to stabilize operating pressures and to allow various component temperatures to normalize.

5. Verify that the discharge air temperature is approximately 4°C - 6°C cooler than the air entering the unit.

VI. Seasonal Start-Up or Annual Check

1. Remove leaves, pine needles, etc. from the evaporator coil. Clean the coil by spraying it with a mild solution of household liquid soap and water.
2. Flush the coil with a garden hose; DO NOT use a high-pressure sprayer.
3. Backwash or otherwise clean the pool filter. If necessary, clean the skimmer basket and pump strainer.
4. Set the valves to assure proper water flow through the unit.
5. Set the water temperature control to the desired temperature range for either pool or spa.
6. Turn the 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 heat pump will start up and run. It will run until the desired water temperature is reached, or until the pool pump shuts OFF.

NOTE: If the pool pump and heat pump shut OFF before the water temperature is raised to the desired level, you must lengthen the running time of both. To do this, reset the time clock dial for the longer running time, or manually operate the pump with the timer override switch. Since the pool heat pump capacity and efficiency are both greater at higher ambient air temperatures, run time should be set to take advantage of all daylight hours, when the air is generally warmer.

VII. Heat Pump Running Time

1. Determine the length of pump and heat pump operating time necessary for your 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 reach desired pool temperature, and depends on such things as weather, pool size, covering, shading, etc.
2. If cooler or warmer water is desired, simply adjust the water temperature control and/or the pump and heat pump operating time accordingly, until the desired water temperature is reached.

NOTE: At the beginning of the heating season, or whenever the pool water temperature is to be raised several degrees, the pool pump and heat pump may need to operate continuously for several days. During summer months, only a few hours per day may be necessary, or none at all.

VIII. Summer Shutdown

If you do not plan to use the pool heat pump during the summer months, secure and protect it as follows:

1. From the control panel, turn the control switch to **Remote** (OFF).
2. Turn the heat pump power switch to OFF.
3. Leave the valves set the way they are unless additional circulation is required. DO NOT stop all flow through the heat pump.
4. **IMPORTANT:** Remember to reset the valves before the next heating season, or the heat pump will not operate properly.

IX. Freeze Protection

If the pool heat pump 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.

System Drain-Down

1. Turn the heat pump circuit breaker or disconnect switch to OFF.
2. From the control panel, turn the control switch to **Remote** (OFF).
3. With the pool pump OFF, close the external shutoff valves and remove the internal drain plug. Use air pressure to remove water from the bypass assembly and heat exchanger.
4. Leave the drains open until the unit is started in the spring.
5. Cover the heat pump with a waterproof cover.

Continuous Pump Operation

It is also possible in some areas to prevent heat pump 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 heat pump would have to be drained anyway, or freeze damage could result.

X. Maintenance

The following maintenance procedures are designed to keep your heat pump operating at a high level of reliability. Maintenance should be performed on a periodic basis to prevent system failures and performance degradation.

A. Air Coil Cleaning - Efficient system operation depends on free circulation of air through the thin and tightly-spaced fins of the evaporator coils. The evaporator should be cleaned whenever it has a buildup of dirt or debris.

1.


 WARNING	Shut OFF electricity to the heat pump.
--	--

2.

 CAUTION	To clean the fins, spray with a garden hose. But avoid high water pressure, which will bend and damage the fins.
--	--

B. Cabinet Care (optional) - The cabinet is designed for outdoor use and requires little care. However, you can clean it if you wish.

1.

 WARNING	Shut OFF electricity to the heat pump.
--	--
2. Wash the cabinet with soap and water.

C. Condensate Drainage - The heat pump extracts humidity from the air as it passes through the coil, similar to the way a cold drink outside “sweats” on a hot day. This condensate drains from the bottom of the unit.

1. Routinely check to be sure the condensate drain holes in the base of the unit are not plugged with dirt or debris.

NOTE: Owners often suspect that the heat pump is leaking when in fact it is condensate that is draining. To check that the liquid is condensate and not leakage from the heat pump, *either*:

- Use the pool chemistry test kit to confirm there is no chlorine in the condensate. *Or*,
- Shut the heat pump OFF and leave the filter pump running to see if the water disappears. If the water disappears, it would confirm the water to be condensate.

XI. Troubleshooting

If your heat pump does not operate, or simply does not heat your pool water, the indicator lamps on the front control panel (see page 4) can provide valuable clues as to what is wrong, and may even indicate precisely what the problem is. Always observe these lamps before calling a service representative. By reporting on the telephone which lamps are ON and OFF, the service rep may be able to solve the problem without the expense of a service call.

A. UNIT IS RUNNING, BUT NOT HEATING

- Is the ejected air from the unit 4° to 6° cooler than incoming air? If so, the unit is extracting heat from the air and transferring it to the pool.
- Are the evaporator and internal copper pipes “sweating”? This is also evidence of heat removal from the air. When the air is cool with low humidity, “sweating” may not be evident.
- How long has the heater been operating? During initial pool heating in cold weather, it may require a week to elevate the pool temperature to a comfortable level. Normally, it takes about 4 days.
- How many hours per day is the unit operating? **Remember that the heat pump only operates while the pool pump is running.** Set the pool system time clock to permit 24 hour per day

operation. After the desired temperature is reached, return the system to normal operation.

- Is airflow through the unit being obstructed? Restrictions such as shrubbery, tall grass, dirty coils, or any other obstruction to airflow will reduce performance.
- Is the pool blanket/cover being used? Unblanketed pools can lose up to 6° per night compared to 2 degrees or less when a blanket is used. Without a blanket, the total heat gained during the day can be lost overnight.
- Are rapid heat losses occurring in some other way, such as high wind, waterfalls, spa spillage, bubblers, rainfall, flow through solar panels at nights, or a high water table?
- Is water flow through the unit adequate? Check the system for obstructions, such as a clogged filter pump strainer or a dirty filter.

B. UNIT IS NOT RUNNING

- Is the control panel **Power** lamp ON? If not, the power switch may be shut OFF or circuit breaker tripped. Reset the power by switching it OFF, then back ON.
Verify that the circuit breaker is set and operating properly before calling for service.
- Is the thermostat setting correct? Verify that the temperature has been properly set on the thermostat, and that it is *higher* than the current water temperature.
- Have you waited 6 minutes for the time delay? After the unit has been running and then shut OFF for any reason, there is a 6-minutes timed cycle before operation can begin again.
- Is the **Water Flow** lamp OFF? This lamp will turn OFF if not enough water is flowing through the heater. Improperly positioned valves or a dirty filter could decrease the flow of water required for efficient operation. When the **Water Flow** lamp is ON, proper flow is present. If this lamp is OFF, but you can feel normal flow at the pool returns, check the water valves or settings.
- Is the **Defrost Active** lamp OFF? If this lamp is ON, the fan will be running but not the compressor. The unit is waiting for the frost to melt or the air temperature to rise before heating is resumed.
- Is the **Heat Demand** lamp ON? If not, then the thermostat setting is not higher than the temperature of the pool water. Raise the thermostat setting.
- Is the **Low Pressure** lamp ON? If this lamp is ON, there is a problem with the unit that will require service. Turn the unit OFF and call the number shown in the CONTACT INFORMATION at the beginning of this manual.

SERVICE CALL REQUESTS

Determine if the problem is:

- Warranty Service (within 5 years of installation)
- Non Warranty Service (beyond 5 years of installation)
- Maintenance-related (power supply, water flow, or pool system time clock adjustment)

NOTE: The MANUFACTURER IS NOT RESPONSIBLE for maintenance adjustments.

POWER SUPPLY

- Verify that all circuit breakers are reset and working properly.
- If the **Power** lamp on the control panel still does not light, contact the installing dealer, since it may be a power problem requiring an electrician.

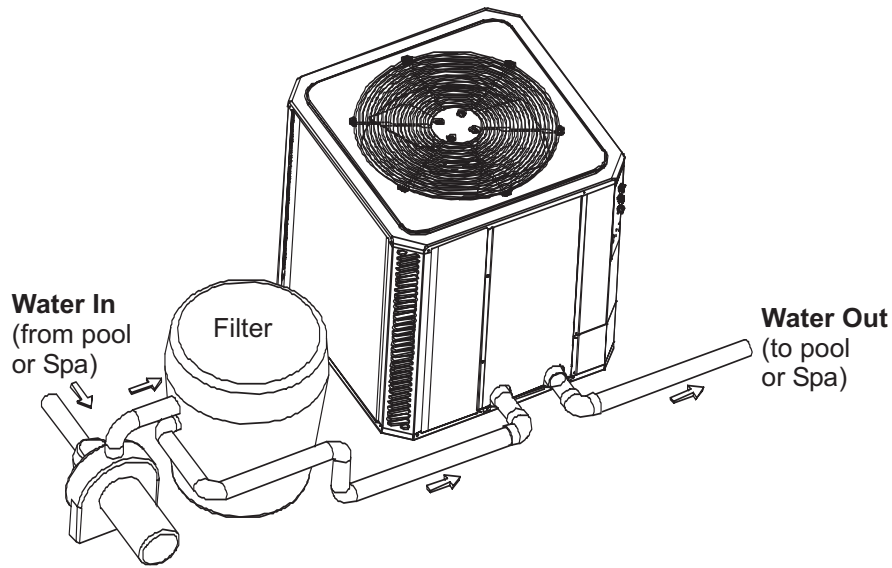
WATER FLOW

- Verify that the filter is clean to provide good flow.
- Verify that the valves are properly positioned.
- If the **Water Flow** lamp on the control panel still does not light, and water is circulating in the pool or spa, contact the installing dealer to adjust the valves.

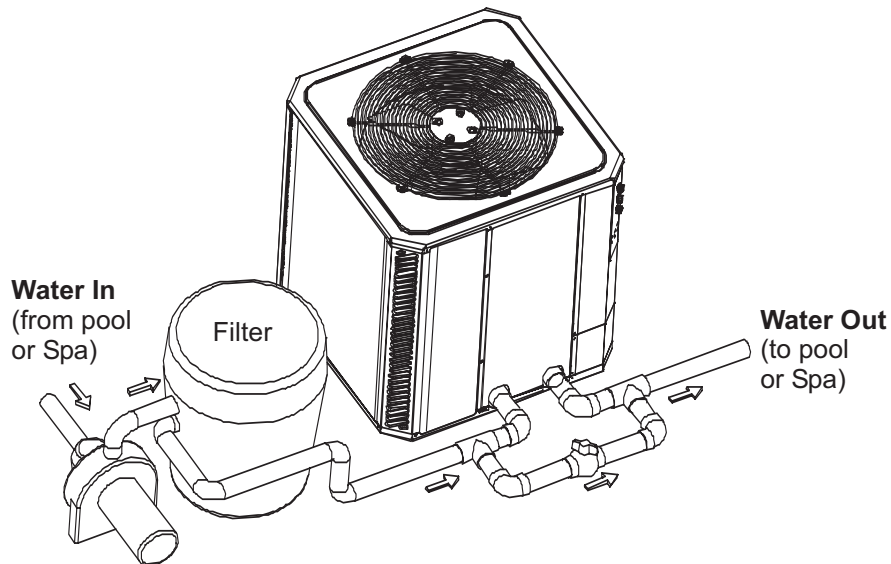
TIME CLOCK ADJUSTMENT

Verify that the time clock is set to permit the heater to run long enough to heat properly.

Plumbing Diagrams



For systems with pumps of less than 2 HP (1.5Kw) (under 300 l/min), no external bypass is required. Connections are 50 mm pipe slip. Plumb the heat pump **after** the filter and **before** any chlorinators.



For systems with pumps of 2 HP (1.5Kw) or greater (over 300 l/min), an external bypass is required. Adjust the bypass valve to divert a minimum of 150 l/min gpm through the heat pump. Connections are 50mm pipe slip. Plumb the heat pump **after** the filter and **before** any chlorinators.

The diagram illustrates the electrical wiring for a heat pump system. It includes a control panel with a terminal block (TB1) and various components such as the compressor motor (M1), fan motor (M2), and various sensors and switches. The wiring is color-coded and labeled with component names and values.

Legend:

- C = Capacitor
- D = Diode LED
- F = Fuse
- K = Relay, Contactor
- M = Motor
- R = Resistor, Pot
- RT = Thermistor
- S = Switch
- T = Transformer
- TB = Terminal Block
- U = Unrepairable Assembly

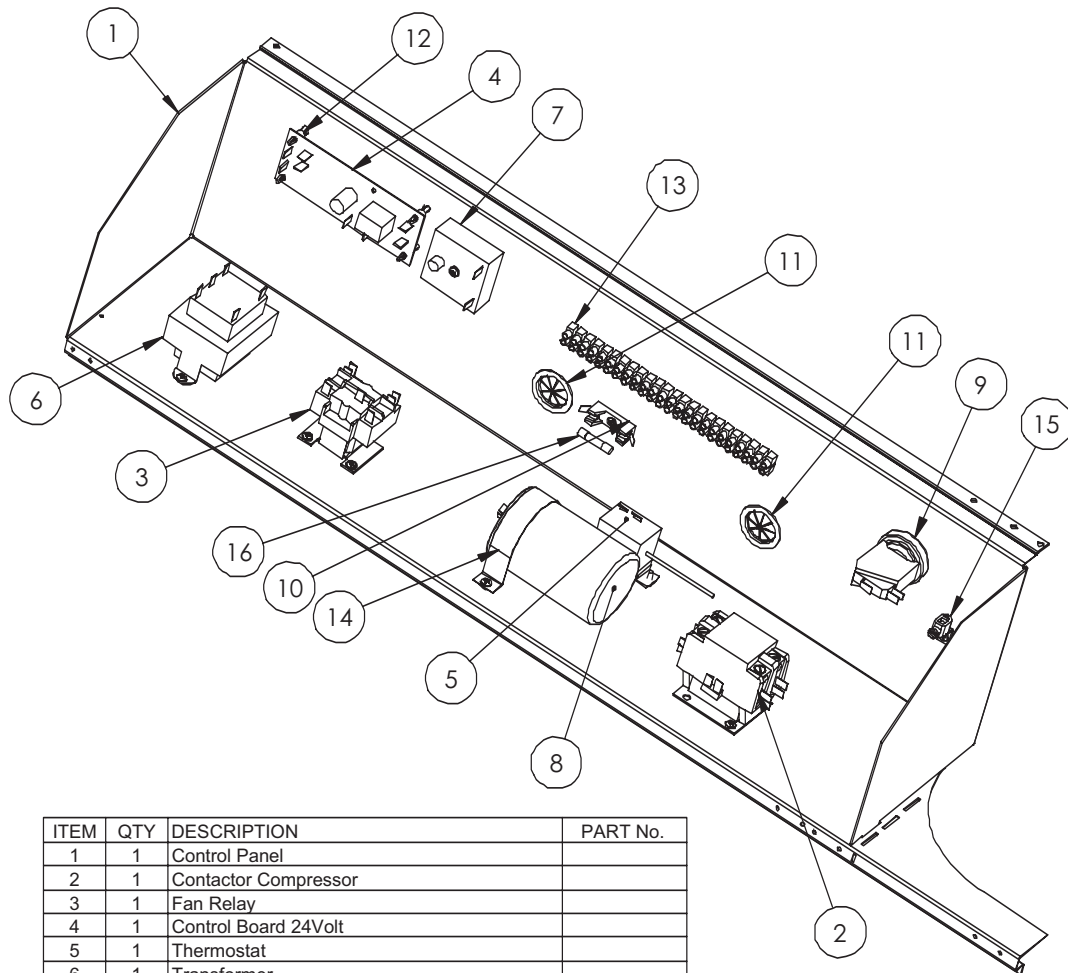
Control Panel Interface (TB1):

- 1: Defrost Lamp
- 2: Compressor Lamp
- 3: Water Flow Lamp
- 4: GND
- 5: Defrost Compressor
- 6: Heat Demand Lamp
- 7: + Low Pressure Lamp
- 8: - Low Pressure Lamp
- 9: Spa Temp
- 10: Pool Temp
- 11: Pool/Spa SW
- 12: Common E2
- 13: Temp Sensor +
- 14: Temp Sensor -
- 15: E1 (C-ECS) Red
- 16: N.C.
- 17: TCO Common
- 18: TCO Pool
- 19: TCO Spa
- 20: Remote Total Black
- 21: Remote Common
- 22: Remote Spa Black
- 23: Remote Pool Black
- 24: Pot

Components and Connections:

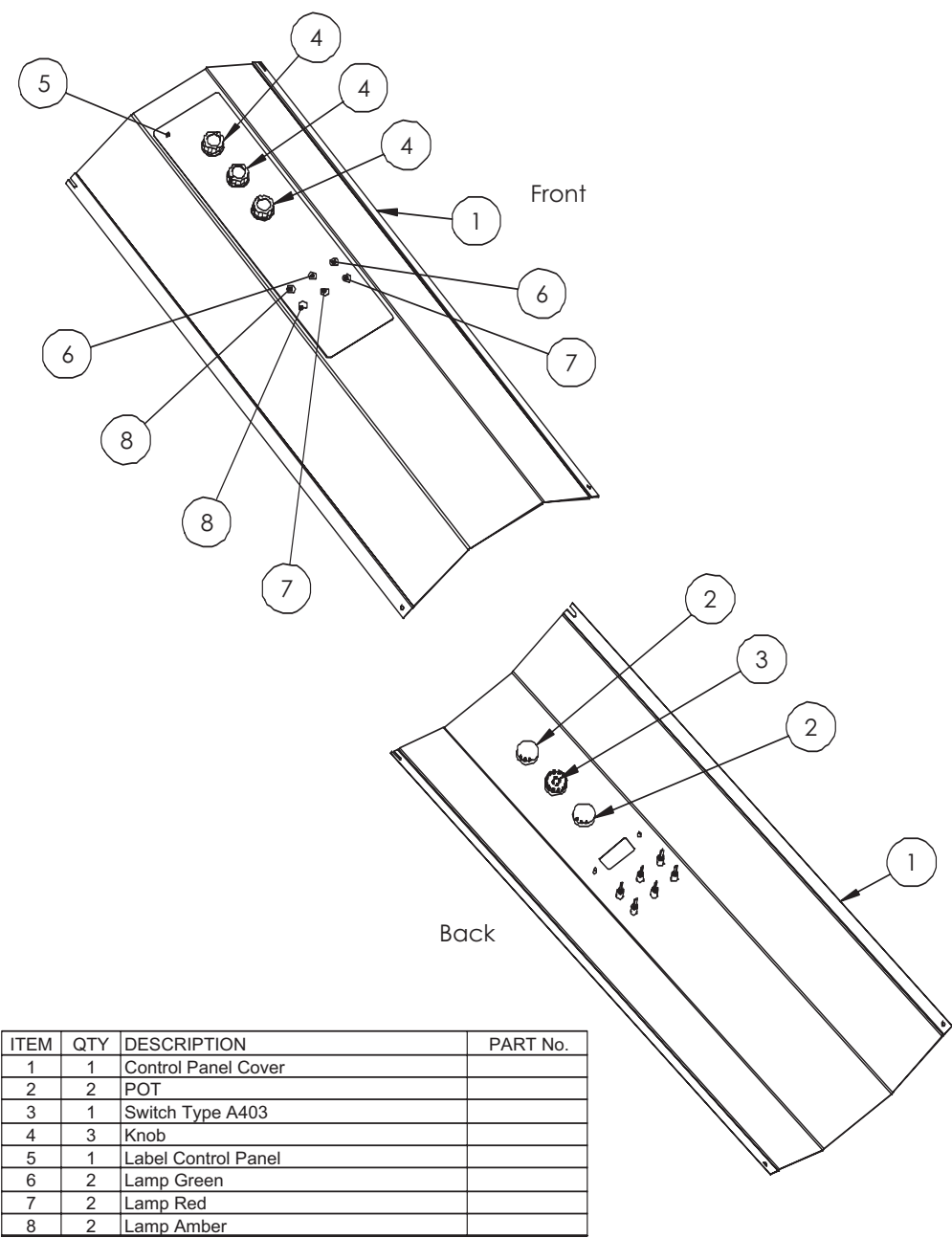
- High Pressure Switch (S1):** Connected to TB1 pin 1 (Black) and TB1 pin 2 (Black).
- Low Pressure Switch (S2):** Connected to TB1 pin 3 (Blue) and TB1 pin 4 (Blue).
- Defrost Switch (S3):** Connected to TB1 pin 5 (Black) and TB1 pin 6 (Tan).
- Compressor Motor (M1):** Connected to TB1 pin 7 (Red), TB1 pin 8 (Blue), and TB1 pin 9 (Yellow).
- Compressor Contactor (K1):** Connected to TB1 pin 10 (White) and TB1 pin 11 (White).
- Fan Motor (M2):** Connected to TB1 pin 12 (Green), TB1 pin 13 (Purple), and TB1 pin 14 (Brown).
- Fan Relay (K2):** Connected to TB1 pin 15 (Pink) and TB1 pin 16 (Black).
- Water Temp Thermostat (U1):** Connected to TB1 pin 17 (Pot) and TB1 pin 18 (E1).
- Water Temp Sensor (RT2):** Connected to TB1 pin 19 (E13) and TB1 pin 20 (E12).
- Optional Water Temp Sensor (RT1):** Connected to TB1 pin 21 (E10) and TB1 pin 22 (E11).
- Water Flow Switch (S4):** Connected to TB1 pin 23 (White) and TB1 pin 24 (White).
- Coil (K1):** Connected to TB1 pin 25 (Blue) and TB1 pin 26 (Blue).
- Coil (K2):** Connected to TB1 pin 27 (Pink) and TB1 pin 28 (Black).
- Capacitor (C1):** Connected to TB1 pin 29 (Yellow) and TB1 pin 30 (Yellow).
- Capacitor (C2):** Connected to TB1 pin 31 (Purple) and TB1 pin 32 (Purple).
- Capacitor (C3):** Connected to TB1 pin 33 (Green) and TB1 pin 34 (Green).
- Capacitor (C4):** Connected to TB1 pin 35 (Brown) and TB1 pin 36 (Brown).
- Capacitor (C5):** Connected to TB1 pin 37 (Black) and TB1 pin 38 (Black).
- Capacitor (C6):** Connected to TB1 pin 39 (White) and TB1 pin 40 (White).
- Capacitor (C7):** Connected to TB1 pin 41 (Blue) and TB1 pin 42 (Blue).
- Capacitor (C8):** Connected to TB1 pin 43 (Yellow) and TB1 pin 44 (Yellow).
- Capacitor (C9):** Connected to TB1 pin 45 (Purple) and TB1 pin 46 (Purple).
- Capacitor (C10):** Connected to TB1 pin 47 (Green) and TB1 pin 48 (Green).
- Capacitor (C11):** Connected to TB1 pin 49 (Brown) and TB1 pin 50 (Brown).
- Capacitor (C12):** Connected to TB1 pin 51 (Black) and TB1 pin 52 (Black).
- Capacitor (C13):** Connected to TB1 pin 53 (White) and TB1 pin 54 (White).
- Capacitor (C14):** Connected to TB1 pin 55 (Blue) and TB1 pin 56 (Blue).
- Capacitor (C15):** Connected to TB1 pin 57 (Yellow) and TB1 pin 58 (Yellow).
- Capacitor (C16):** Connected to TB1 pin 59 (Purple) and TB1 pin 60 (Purple).
- Capacitor (C17):** Connected to TB1 pin 61 (Green) and TB1 pin 62 (Green).
- Capacitor (C18):** Connected to TB1 pin 63 (Brown) and TB1 pin 64 (Brown).
- Capacitor (C19):** Connected to TB1 pin 65 (Black) and TB1 pin 66 (Black).
- Capacitor (C20):** Connected to TB1 pin 67 (White) and TB1 pin 68 (White).
- Capacitor (C21):** Connected to TB1 pin 69 (Blue) and TB1 pin 70 (Blue).
- Capacitor (C22):** Connected to TB1 pin 71 (Yellow) and TB1 pin 72 (Yellow).
- Capacitor (C23):** Connected to TB1 pin 73 (Purple) and TB1 pin 74 (Purple).
- Capacitor (C24):** Connected to TB1 pin 75 (Green) and TB1 pin 76 (Green).
- Capacitor (C25):** Connected to TB1 pin 77 (Brown) and TB1 pin 78 (Brown).
- Capacitor (C26):** Connected to TB1 pin 79 (Black) and TB1 pin 80 (Black).
- Capacitor (C27):** Connected to TB1 pin 81 (White) and TB1 pin 82 (White).
- Capacitor (C28):** Connected to TB1 pin 83 (Blue) and TB1 pin 84 (Blue).
- Capacitor (C29):** Connected to TB1 pin 85 (Yellow) and TB1 pin 86 (Yellow).
- Capacitor (C30):** Connected to TB1 pin 87 (Purple) and TB1 pin 88 (Purple).
- Capacitor (C31):** Connected to TB1 pin 89 (Green) and TB1 pin 90 (Green).
- Capacitor (C32):** Connected to TB1 pin 91 (Brown) and TB1 pin 92 (Brown).
- Capacitor (C33):** Connected to TB1 pin 93 (Black) and TB1 pin 94 (Black).
- Capacitor (C34):** Connected to TB1 pin 95 (White) and TB1 pin 96 (White).
- Capacitor (C35):** Connected to TB1 pin 97 (Blue) and TB1 pin 98 (Blue).
- Capacitor (C36):** Connected to TB1 pin 99 (Yellow) and TB1 pin 100 (Yellow).
- Capacitor (C37):** Connected to TB1 pin 101 (Purple) and TB1 pin 102 (Purple).
- Capacitor (C38):** Connected to TB1 pin 103 (Green) and TB1 pin 104 (Green).
- Capacitor (C39):** Connected to TB1 pin 105 (Brown) and TB1 pin 106 (Brown).
- Capacitor (C40):** Connected to TB1 pin 107 (Black) and TB1 pin 108 (Black).
- Capacitor (C41):** Connected to TB1 pin 109 (White) and TB1 pin 110 (White).
- Capacitor (C42):** Connected to TB1 pin 111 (Blue) and TB1 pin 112 (Blue).
- Capacitor (C43):** Connected to TB1 pin 113 (Yellow) and TB1 pin 114 (Yellow).
- Capacitor (C44):** Connected to TB1 pin 115 (Purple) and TB1 pin 116 (Purple).
- Capacitor (C45):** Connected to TB1 pin 117 (Green) and TB1 pin 118 (Green).
- Capacitor (C46):** Connected to TB1 pin 119 (Brown) and TB1 pin 120 (Brown).
- Capacitor (C47):** Connected to TB1 pin 121 (Black) and TB1 pin 122 (Black).
- Capacitor (C48):** Connected to TB1 pin 123 (White) and TB1 pin 124 (White).
- Capacitor (C49):** Connected to TB1 pin 125 (Blue) and TB1 pin 126 (Blue).
- Capacitor (C50):** Connected to TB1 pin 127 (Yellow) and TB1 pin 128 (Yellow).
- Capacitor (C51):** Connected to TB1 pin 129 (Purple) and TB1 pin 130 (Purple).
- Capacitor (C52):** Connected to TB1 pin 131 (Green) and TB1 pin 132 (Green).
- Capacitor (C53):** Connected to TB1 pin 133 (Brown) and TB1 pin 134 (Brown).
- Capacitor (C54):** Connected to TB1 pin 135 (Black) and TB1 pin 136 (Black).
- Capacitor (C55):** Connected to TB1 pin 137 (White) and TB1 pin 138 (White).
- Capacitor (C56):** Connected to TB1 pin 139 (Blue) and TB1 pin 140 (Blue).
- Capacitor (C57):** Connected to TB1 pin 141 (Yellow) and TB1 pin 142 (Yellow).
- Capacitor (C58):** Connected to TB1 pin 143 (Purple) and TB1 pin 144 (Purple).
- Capacitor (C59):** Connected to TB1 pin 145 (Green) and TB1 pin 146 (Green).
- Capacitor (C60):** Connected to TB1 pin 147 (Brown) and TB1 pin 148 (Brown).
- Capacitor (C61):** Connected to TB1 pin 149 (Black) and TB1 pin 150 (Black).
- Capacitor (C62):** Connected to TB1 pin 151 (White) and TB1 pin 152 (White).
- Capacitor (C63):** Connected to TB1 pin 153 (Blue) and TB1 pin 154 (Blue).
- Capacitor (C64):** Connected to TB1 pin 155 (Yellow) and TB1 pin 156 (Yellow).
- Capacitor (C65):** Connected to TB1 pin 157 (Purple) and TB1 pin 158 (Purple).
- Capacitor (C66):** Connected to TB1 pin 159 (Green) and TB1 pin 160 (Green).
- Capacitor (C67):** Connected to TB1 pin 161 (Brown) and TB1 pin 162 (Brown).
- Capacitor (C68):** Connected to TB1 pin 163 (Black) and TB1 pin 164 (Black).
- Capacitor (C69):** Connected to TB1 pin 165 (White) and TB1 pin 166 (White).
- Capacitor (C70):** Connected to TB1 pin 167 (Blue) and TB1 pin 168 (Blue).
- Capacitor (C71):** Connected to TB1 pin 169 (Yellow) and TB1 pin 170 (Yellow).
- Capacitor (C72):** Connected to TB1 pin 171 (Purple) and TB1 pin 172 (Purple).
- Capacitor (C73):** Connected to TB1 pin 173 (Green) and TB1 pin 174 (Green).
- Capacitor (C74):** Connected to TB1 pin 175 (Brown) and TB1 pin 176 (Brown).
- Capacitor (C75):** Connected to TB1 pin 177 (Black) and TB1 pin 178 (Black).
- Capacitor (C76):** Connected to TB1 pin 179 (White) and TB1 pin 180 (White).

Control Panel Assembly Replacement Parts List



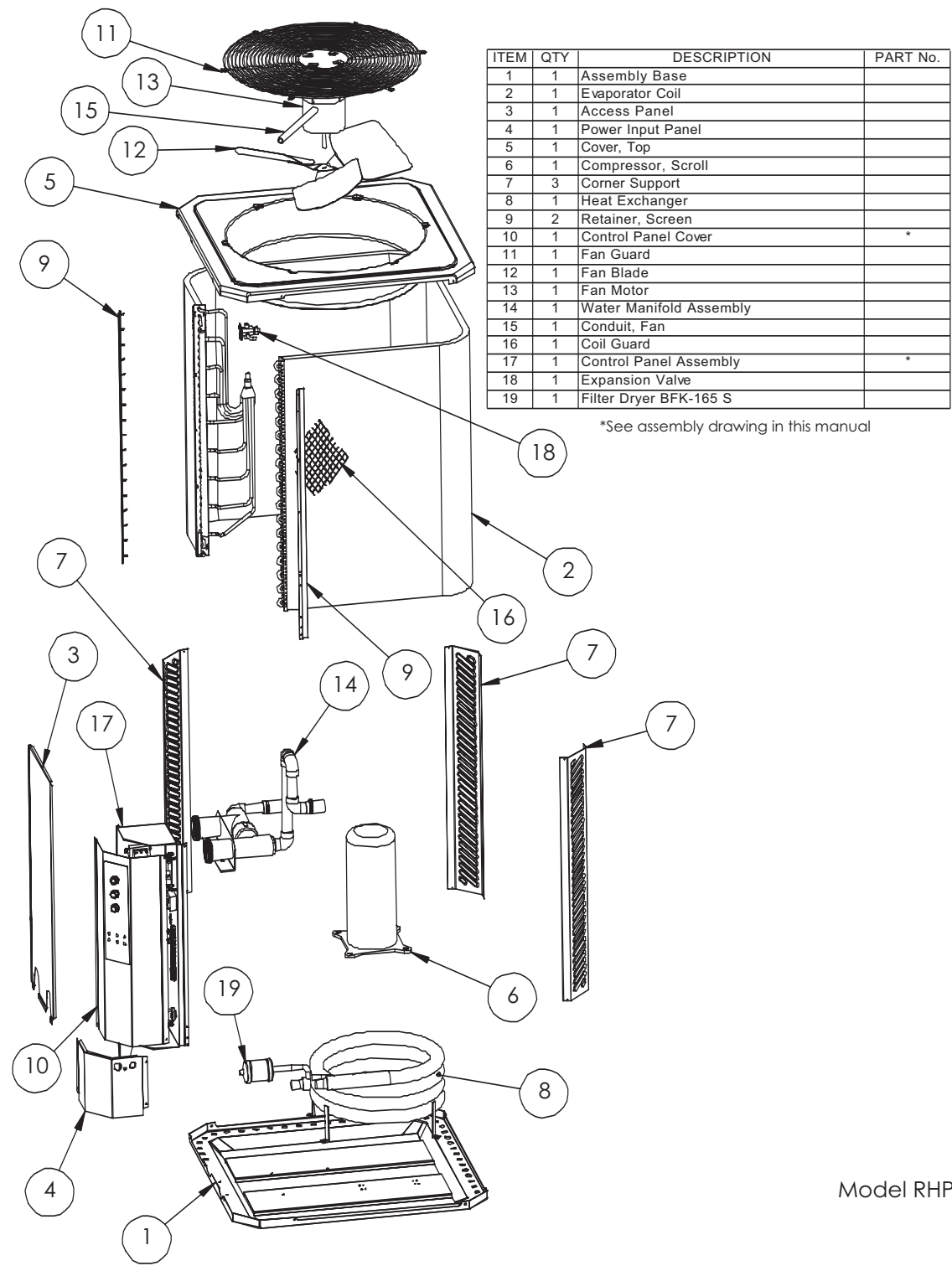
ITEM	QTY	DESCRIPTION	PART No.
1	1	Control Panel	
2	1	Contactor Compressor	
3	1	Fan Relay	
4	1	Control Board 24Volt	
5	1	Thermostat	
6	1	Transformer	
7	1	Timer IMC 203	
8	1	Capacitor	
9	1	Pressure Switch Water	
10	1	Fuse Block	
11	2	Bushing Heyco 2184	
12	4	Stand-off RLCBSR1	
13	2	Terminal Strip	
14	1	Clamp Capacitor 04	
15	1	Ground Lug	
16	1	Fuse 2A Type 3AG	

Control Panel Cover Assembly Replacement Parts List



RHP Control Panel Cover

Heat Pump Assembly Replacement Parts List - RHP 33



ITEM	QTY	DESCRIPTION	PART No.
1	1	Assembly Base	
2	1	Evaporator Coil	
3	1	Access Panel	
4	1	Power Input Panel	
5	1	Cover, Top	
6	1	Compressor, Scroll	
7	3	Corner Support	
8	1	Heat Exchanger	
9	2	Retainer, Screen	
10	1	Control Panel Cover	*
11	1	Fan Guard	
12	1	Fan Blade	
13	1	Fan Motor	
14	1	Water Manifold Assembly	
15	1	Conduit, Fan	
16	1	Coil Guard	
17	1	Control Panel Assembly	*
18	1	Expansion Valve	
19	1	Filter Dryer BFK-165 S	

*See assembly drawing in this manual

Model RHP 33

RAYPAK HEAT PUMP POOL HEATER WARRANTY - AUSTRALIA ONLY

WARRANTY CONDITIONS

1. This warranty is applicable only to heat pump pool heaters manufactured from 1st October 2004.
2. The pool heater must be installed in accordance with the Raypak heat pump pool heater installation instructions, supplied with the pool heater, and in accordance with all relevant statutory and local requirements of the State in which the pool heater is installed.
3. Where a failed component or heat pump pool heater is replaced under warranty, the balance of the original warranty period will remain effective. The replaced part or heat pump pool heater does not carry a new warranty.
4. Where the heat pump pool heater is installed outside the boundaries of a metropolitan area as defined by Rheem or further than 25 km from a regional Rheem branch office, or an Accredited Service Agent, the cost of transport, insurance and travelling costs between the nearest Rheem Accredited Service Agent's premises and the installed site shall be the owner's responsibility.
5. The warranty only applies to the heat pump pool heater and original or genuine (company) component replacement parts and therefore does not cover any plumbing or electrical parts supplied by the installer and not an integral part of the heat pump pool heater, e.g. pressure limiting valve; isolation valves; non-return valves; electrical switches; pumps or fuse.
6. The heat pump pool heater must be sized to suit the pool in accordance with the guidelines in the Raypak heat pump pool heater literature.

WARRANTY EXCLUSIONS

1. REPAIR AND REPLACEMENT WORK WILL BE CARRIED OUT AS SET OUT IN THE RAYPAK HEAT PUMP POOL HEATER WARRANTY, HOWEVER THE FOLLOWING EXCLUSIONS MAY CAUSE THE POOL HEATER WARRANTY TO BECOME VOID AND MAY INCUR A SERVICE CHARGE AND / OR COST OF PARTS.
 - a) Accidental damage to the heat pump pool heater or any component, including: Acts of God; failure due to misuse; incorrect installation; relocation of the heat pump pool heater to another premises; attempts to repair the heat pump pool heater other than by a Rheem Accredited Service Agent or the Rheem Service Department.
 - b) Where it is found there is nothing wrong with the heat pump pool heater; where the complaint is related to excessive discharge from the temperature and / or pressure relief valve due to high water pressure; where there is no flow of hot water due to faulty plumbing; where water leaks are related to plumbing and not the heat pump pool heater or heat pump pool heater components; where there is a failure of gas, electricity or water supplies; where the supply of gas, electricity or water does not comply with relevant codes or acts.
 - c) Where the heat pump pool heater or heat pump pool heater component has failed directly or indirectly as a result of: excessive water pressure; excessive temperature and / or thermal input; corrosive atmosphere; incorrect pool water chemical balance; ice formation in the pipe work to or from the heat pump pool heater; ice formation in the waterways of the heat pump pool heater.
 - d) Where the heat pump pool heater is located in a position that does not comply with the Raypak heat pump pool heater installation instructions or relevant statutory requirements, causing the need for major dismantling or removal of cupboards, doors or walls, or use of special equipment to bring the heat pump pool heater to floor or ground level or to a serviceable position.
 - e) Repairs to the heat pump pool heater due to scale formation in the waterways when the heat pump pool heater has been connected to a harmful water supply as outlined in the Owner's Guide and Installation Instructions booklet.
2. SUBJECT TO ANY STATUTORY PROVISIONS TO THE CONTRARY, THIS WARRANTY EXCLUDES ANY AND ALL CLAIMS FOR DAMAGE TO FURNITURE, CARPETS, WALLS, FOUNDATIONS OR ANY OTHER CONSEQUENTIAL LOSS EITHER DIRECTLY OR INDIRECTLY DUE TO LEAKAGE FROM THE HEAT PUMP POOL HEATER, OR DUE TO LEAKAGE FROM FITTINGS AND / OR PIPE WORK OF METAL, PLASTIC OR OTHER MATERIALS CAUSED BY WATER TEMPERATURE, WORKMANSHIP OR OTHER MODES OF FAILURE.

WARRANTY

Raypak Australia* will:

- Repair or, if necessary replace any Raypak heat pump pool heater; or
- Replace any component (or, if necessary, arrange the installation of a new heat pump pool heater), which falls within the Warranty Periods specified below, in accordance with and subject to the following table, conditions and exclusions.

Installation	Model	Period	Warranty
All Components (excluding compressor) - from date of installation			
Heat pump pool heater installed in a "single-family domestic dwelling.	RHP33	Year 1	New component or heat pump pool heater (at Rheem's sole discretion), free of charge, including labour.**
		Years 2 to 5	New component or heat pump pool heater (at Rheem's sole discretion), with installation and labour costs being the responsibility of the owner.
Heat pump pool heater installed in any other than a "single-family domestic dwelling.		Year 1	New component or heat pump pool heater (at Rheem's sole discretion), with installation and labour costs being the responsibility of the owner.
Compressor - from date of installation			
Heat pump pool heater installed in a "single-family domestic dwelling.	RHP33	Year 1	New compressor or heat pump pool heater (at Rheem's sole discretion), free of charge, including labour.**
		Years 2 & 3	New compressor or heat pump pool heater (at Rheem's sole discretion), with installation and labour costs being the responsibility of the owner.
Heat pump pool heater installed in any other than a "single-family domestic dwelling.		Year 1	New compressor or heat pump pool heater (at Rheem's sole discretion), with installation and labour costs being the responsibility of the owner.

Notes:

* Raypak is a wholly owned subsidiary of Rheem Australia Pty Ltd.

** Refer to item 4 of warranty conditions.

Raypak reserves the right to transfer fully functional components from the defective heat pump pool heater to the replacement heat pump pool heater if required.

In addition to this warranty, the Trade Practices Act 1974 and similar laws in each state and territory provide the owner under certain circumstances with certain minimum statutory rights in relation to your Raypak heat pump pool heater. This warranty must be read subject to that legislation and nothing in this warranty has the effect of excluding, restricting or modifying those rights.

RHEEM AUSTRALIA PTY LTD
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www.rheem.com.au

FOR SERVICE TELEPHONE
131 031 AUSTRALIA
0800 657 335 NEW ZEALAND
or refer local Yellow Pages

DO NOT RETURN THIS DOCUMENT TO RAYPAK. KEEP IT WITH YOUR POOL HEATER OR BUSINESS RECORDS

Name of Owner	Name of Installer
Owners Address	Installers Address
Date of Installation	Telephone Number of Installer
Heat Pump Model Number RHP33	Heat Pump Serial Number

NOTE: Every care has been taken to ensure accuracy in preparation of this publication. No liability can be accepted for any consequences, which may arise as a result of its application.

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