Model Number:
OPAC14434

OceanAire

12 TON OUTDOOR PORTABLE AIR-COOLED SPOT COOLER

ENGINEERING, INSTALLATION AND SERVICE MANUAL

OCEANAIRE, Inc.
1731 Wall Street, Suite 100 Mount Prospect, Il 60056
(847) 583-0311 oceanaire-inc.com

PROUDLY MADE IN THE USA

OA-IN-OPAC144-08.2024

TABLE OF CONTENTS

FORWARD

This manual provides the user with basic details for the installation and operation of the OceanAire OPAC144 Outdoor Portable Air Conditioning unit. It is highly recommended to read and fully understand the instructions outlined within this manual, before operating the OPAC144 unit.

As with all commercial air conditioning equipment, it is recommended to have the OPAC144 sized and installed by a licensed specifying engineer and contractor, in accordance with all local and state codes. The length of service received can be extended by following the installation instructions and adhering to a preventive maintenance program consistent with outdoor equipment of this type.

NOTICE

In our ongoing process of continuous improvement, the items and procedures described in this manual are subject to change without notice. To communicate with us more effectively, please note the model and serial number of the unit before contacting the factory with questions and inquiries.

GENERAL INFORMATION

The Oceanaire OPAC144 is an outdoor approved portable air conditioner designed for temporary cooling applications. With 12 Tons of cooling capacity, the unit can deliver cooling for almost any industrial application. With optional 22KW electric heat, the unit can provide temporary heat as well, allowing for multi-seasonal usage.

The OPAC144 is designed to pass through a standard commercial doorway, allowing access to interior building spaces for critical cooling applications. The heavy-gauge steel cabinet is fabricated with an integral welded frame to maintain the integrity of the cabinet when handled by heavy equipment. The 11-gauge base pan is equipped with two-way fork pockets. Dual handles and 8-inch swivel casters allow for improved mobility and maneuvering in tight spaces. With two casters that have swivel locks and two casters that have brakes, the unit can be maneuvered within a space and secured for installation and transportation.

The cooling system and blower packages are balanced for optimum performance. Dual-speed evaporator blowers allow for open air use as well as ducted applications. The condenser blower package is also designed for varying load and ambient conditions such as ducted use. The blower speed control allows for speed reduction in low ambient condensing conditions. The hot gas bypass valve gives this unit the capability of modulating capacity and prevents the coil from freezing up in low air flow or low temperature operating conditions.

Model Number Example: OPAC14434
- Family Designation: OPAC - Outdoor Portable Air Cooled
- Capacity: 144 - 144,000 BTUH (12 Tons of cooling capacity)
- Phase/Voltage: 34 - 460 Volt, Three Phase Power Requirement
- Suffix: OPTIONS as ordered

Model Number:
OPAC14434

OceanAire
PROVIDING A BETTER CLIMATE ANYWHERE.

AIR COOLED

12-Ton Outdoor Rated Portable Air Conditioner

Product Features:

REFRIGERATION
- 12-Ton Scroll Compressor
- Integrated Compressor Protection
- Low Pressure and High Pressure Cut-out
- TXV Refrigeration Control with Hot Gas Bypass

ELECTRICAL
- CAM-LOK Power Connection
- Phase Monitor Protection
- Control Wiring Circuit Breaker
- Analog Hour Meter

BLOWER/FILTERS
- Two Speed Evaporator Blower Package
- 2-inch Pleated Filters (3 Total, 18 x 20 x 2)
- Reverse Curved Condenser Blower Package
- High Static Capability
- Low Ambient Fan Control

CABINET
- Through the Door Profile
- 2-Way Fork Pockets
- 8-Inch Urethane Swivel Casters with Locks
- Dual Handle Bars for Improved Mobility
- Duct Panels

Evaporator	Condenser
Supply: 2 x 16" dia. Flange	Discharge: 2 x 20” dia. Flange
Return: 2 x 16" dia. Flange	Return: Grille (Perforated Material)

Technical Specifications:

Specifications subject to change without notice

Cooling Capacity:	144,000 BTUH
Voltage:	460V, 60Hz, 3PH
Amps:	17
Total Watts:	13,300
Cooling Ambient:	Operating Range 40° to 115°
Cooling Capacity:	Total BTUH at 80°DB/67°WB Return air 95°F Outdoor at high fan speed
EER:	10.8
Compressor:	Scroll
Compressor HP:	12
Compressor RLA:	18.6
Compressor LRA:	125
Evaporator CFM - High:	4000
Blower Type:	Twin Forward Curved Fans
Evaporator Motor:	Two 1-HP each
Condenser Fan:	Reverse Curved Impeller
COND CFM:	6250
COND Watts:	2400
Condensate Removal:	Pump, 10 FT. LIFT
Condensate Connection:	3/4” Male Garden Hose
Refrigerant Charge:	13 lbs. R410-A
Height:	77.0″
Width:	72.25″
Depth:	30.25″
Net Weight:	1273 lbs.
Optional:	**-B, CAM-LOK Buss Bar**

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OceanAire, Inc.
1731 Wall Street, Suite 100
Mount Prospect, Illinois 60056

OA-TS-OPAC14434-12.01.24

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Model Number:
OPAC14434AH

OceanAire
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AIR COOLED

12-Ton Outdoor Rated Portable Air Conditioner

Product Features:

REFRIGERATION

- 12-Ton Scroll Compressor
- Integrated Compressor Protection
- Low Pressure and High Pressure Cut-out
- TXV Refrigeration Control with Hot Gas Bypass

ELECTRICAL

- CAM-LOK Power Connection
- Heater Overload (Circuit Breakers)
- Phase Monitor Protection
- Control Wiring Circuit Breaker
- Analog Hour Meter

BLOWER/FILTERS

- Two Speed Evaporator Blower Package
- 2-inch Pleated Filters (3 Total, 18 x 20 x 2)
- Air Flow Pressure Switch Protection
- Reverse Curved Condenser Blower Package
- High Static Capability
- Low Ambient Fan Control

CABINET

- Through the Door Profile
- 2-Way Fork Pockets
- 8-Inch Urethane Swivel Casters with Locks
- Dual Handle Bars for Improved Mobility
- Duct Panels

Evaporator	Condenser
Supply: 2 x 16" dia. Flange Return: 2 x 16" dia. Flange	Discharge: 2 x 20" dia. Flange Return: Grille (Perforated Material)

Technical Specifications:

Specifications subject to change without notice

Cooling Capacity:	144,000 BTUH
Voltage:	460V, 60Hz, 3PH
Cooling Amps:	17
Heating Amps:	23
Total Watts:	13,300
Cooling Ambient:	Operating Range 40° to 115°
Cooling Capacity:	Total BTUH at 80°DB/67°WB Return air 95°F Outdoor at high fan speed
EER:	10.8
Compressor:	Scroll
Compressor HP:	12
Compressor RLA:	18.6
Compressor LRA:	125
Evaporator CFM - High:	4000
Blower Type:	Twin Forward Curved Fans
Evaporator Motor:	Two 1-HP each
Condenser Fan:	Reverse Curved Impeller
COND CFM:	6250
COND Watts:	2400
Condensate Removal:	Pump, 10 FT. LIFT
Condensate Connection:	3/4" Male Garden Hose
Refrigerant Charge:	13 lbs. R410-A
Height:	77.0"
Width:	72.25" 66.5" without handles
Depth:	30.25"
Net Weight:	1273 lbs
Optional:	**-B, CAM-LOK Buss Bar**

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GENERAL DESCRIPTION

CONTROL COVER

CONTROL SHOWN WITH COVER OPEN

OPAC144 ELECTRICALS

Main Power Switch

Phase Alarm Indicator

Fan Speed Switch

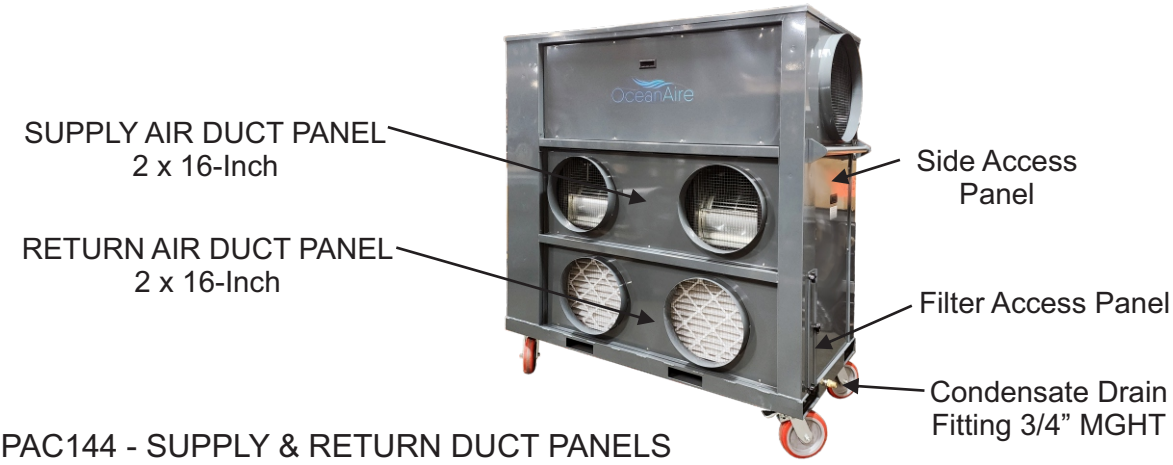
CAM-LOK Power Connections

Optional CAM-LOK Buss Bar (Guard in place)

OPAC144 POWER PANEL

PHASE ALARM LIGHT
(ILLUMINATES WHEN OUT OF PHASE)
AND
SUPPLY BLOWER
FAN SPEED SWITCH

OPAC144 - DUCT PANELS

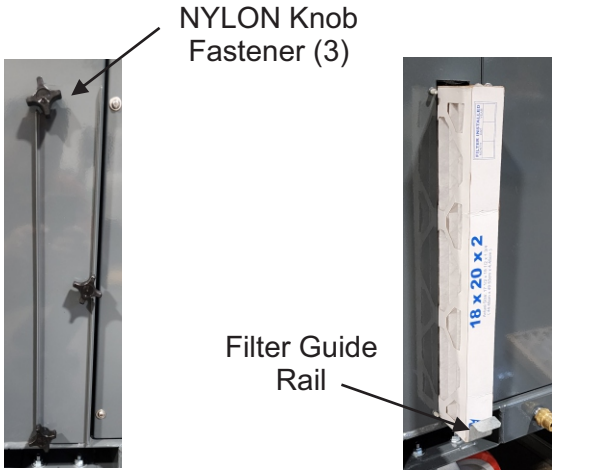


OPAC144 - SUPPLY & RETURN DUCT PANELS

Filter Replacement

The OPAC144 unit is equipped with three disposable 2-Inch pleated filters. To change the filters:
1. Loosen the NYLON knob fasteners on the filter access panel and slide out the filters and dispose of them.
2. Using the Filter Guide, slide new filters back into the slot and scure the filter access panel using the NYLON knob fasteners.

FILTERS: 18 x 20 x 2 (3 Required)

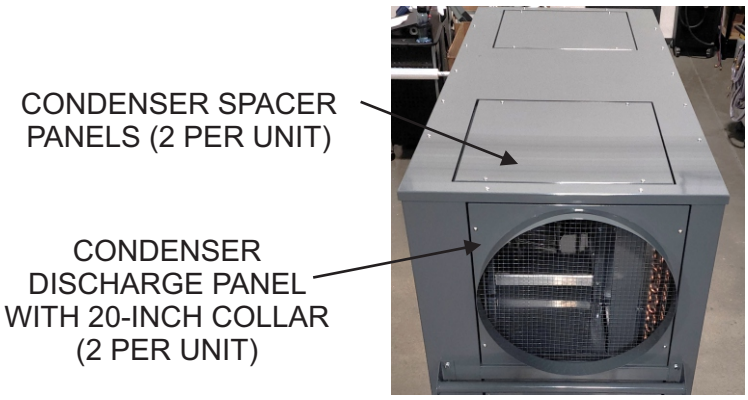


FILTER ACCESS COVER

FILTER AND FILTER GUIDE RAIL

Condenser Duct Panels - 4-Way

The OPAC144 unit is equipped with two condenser duct panels that can be mounted in four different locations, allowing for a variety of options in rejecting the hot condenser air. The unit is also equipped with two spacer panels that are interchangeable with the condenser duct panels. When shipped, there are two spacer panels on the top of the unit, and two condenser duct panels - one on the right side and one on the left side. Depending on the application, the condenser air can be routed and ducted in a variety of ways.

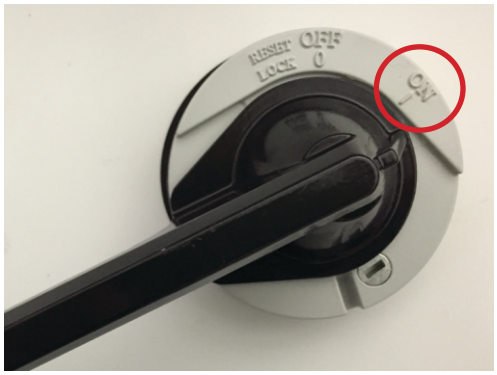


OPAC144 - CONDENSER DUCT PANELS

START-UP GUIDELINES

NOTICE - CONNECT ONLY TO POWER SOURCE AS SPECIFIED ON UNIT NAMEPLATE

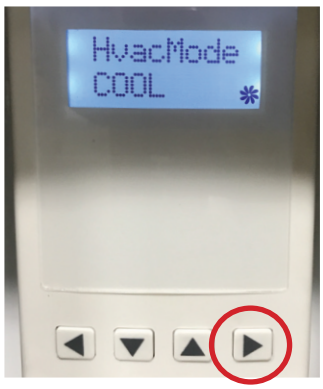
1. Connect Power Cords to Unit using CAM-LOK Receptacles. Connect GROUND first. Check that all power connections are secure and Connect Supply Power
2. Turn MAIN POWER SWITCH to ON position, and observe the PHASE ALARM LIGHT
3. If PHASE ALARM LIGHT is ON, the unit is out of phase and this must be corrected. Disconnect POWER at source and correct the phase by switching the first two power cords. Re-connect POWER, Turn MAIN POWER SWITCH to ON and check the Phase Alarm Light
4. Thermostat display will illuminate - Preset to Cooling at 72
   Push the arrow up button ▲ or the arrow down button ▼ until the Temp Set Point appears
   To adjust the Temperature Set Point, use the arrow up and arrow down buttons
5. To change MODE, press the arrow-right button ▶, until the desired MODE appears.
6. Press the Arrow Up and Arrow Down button to change the HVAC MODE
7. To Power OFF the unit, Turn the Main Power Switch to the OFF position
8. The Thermostat memory will re-start at the last known setting when power is restored.



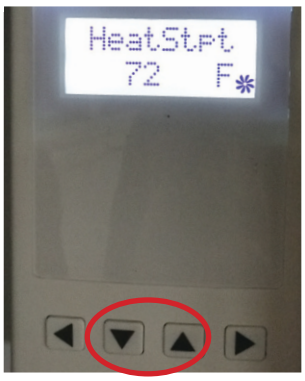
2. MAIN POWER SWITCH in ON Position

3. Phase Monitor ALARM Light (ON = OUT OF PHASE)

4. Thermostat when Powered Up



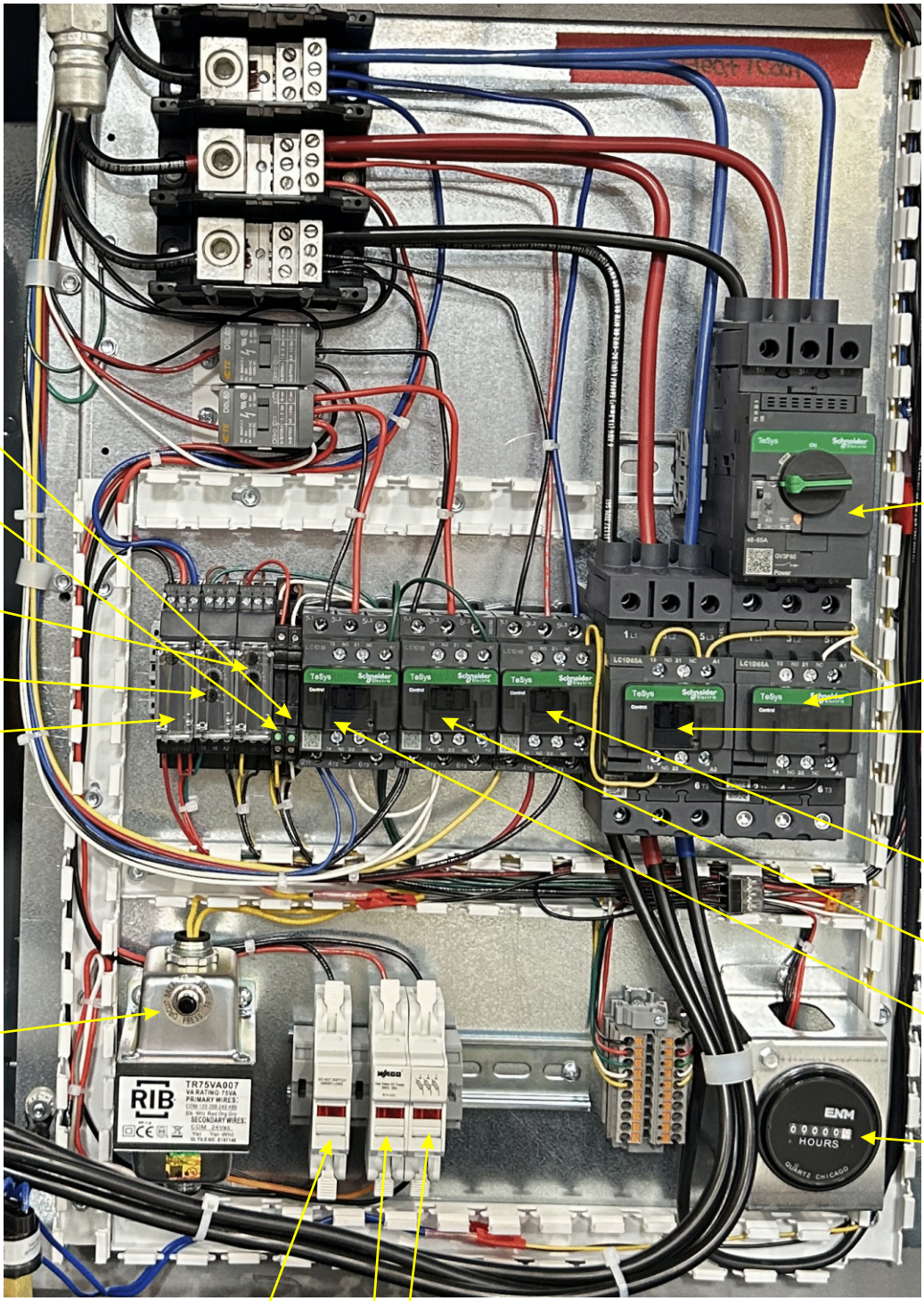
5. MODE Selection - Press Arrow Button



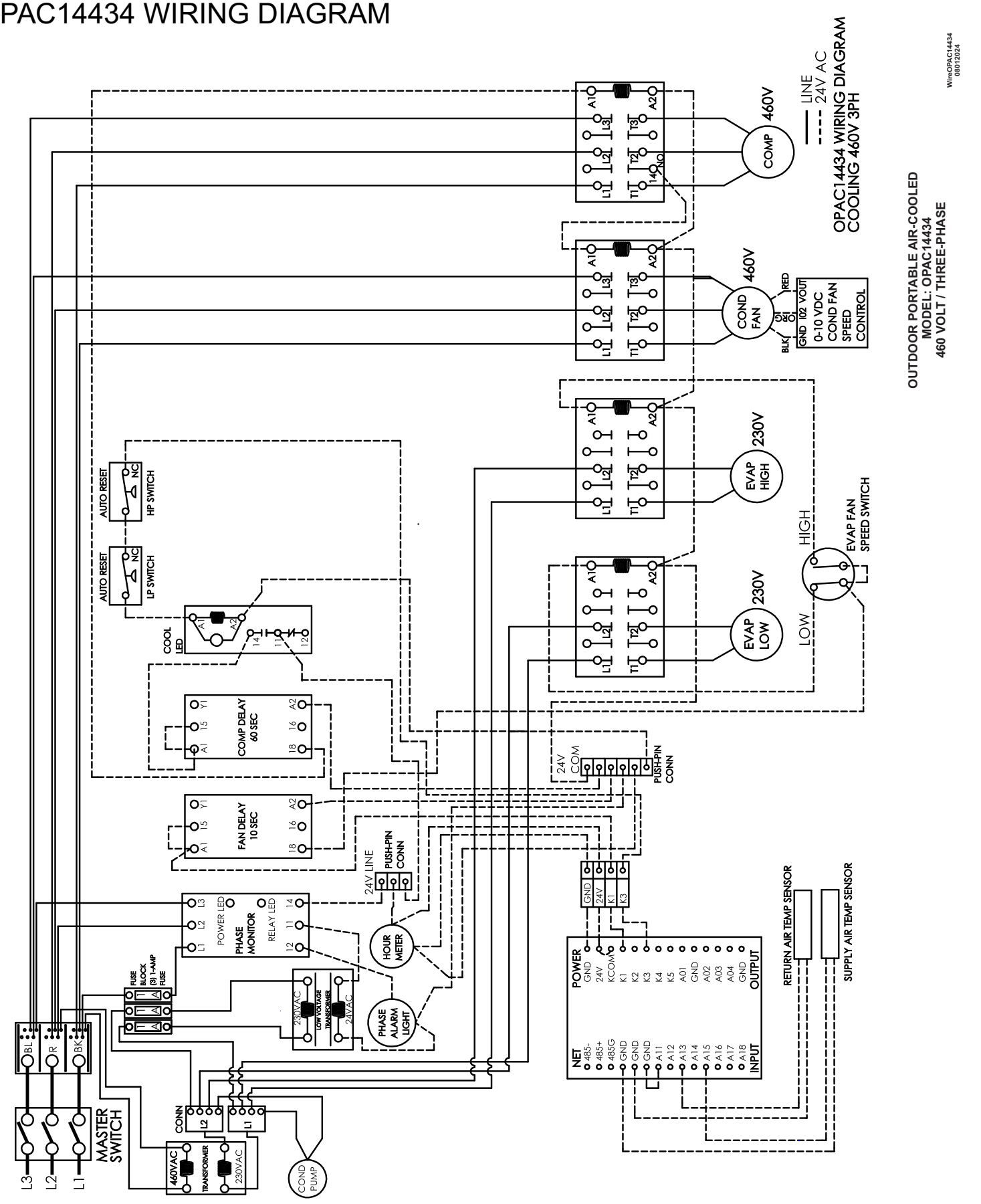
6. Heat MODE Selected - Adjust Temp Set Point

7. Main Power Switch in OFF Position

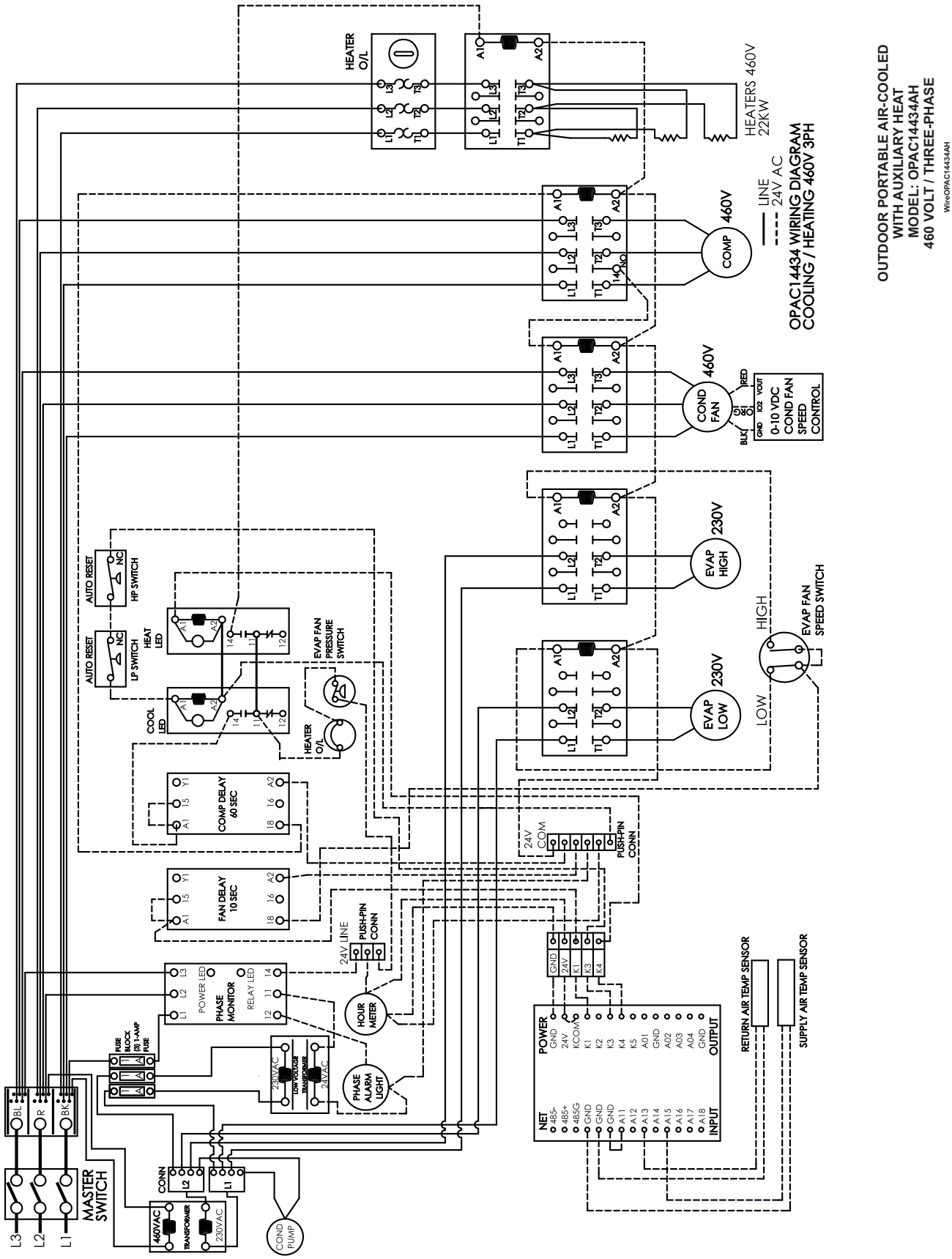
OPAC14434 CONTROLS



OPAC14434 WIRING DIAGRAM



OPAC14434AH WIRING DIAGRAM



OPAC144 Control Sequence

Powering and Starting the Unit - Follow the Instructions on Page 7 of this manual.

1. Make sure that the power connected to the OPAC144 unit matches the power shown on the unit nameplate, and that the correct voltage is going to all three power leads.

NOTICE: CONNECTING THE UNIT TO AN INCORRECT OR FAULTY POWER SOURCE WILL DAMAGE ELECTRICAL COMPONENTS AND VOID THE WARRANTY

2. Engage MAIN POWER Switch and observe the Phase Alarm Light. If the Phase Alarm Light illuminates RED, the unit is OUT OF PHASE, and this condition must be corrected.

Turn OFF the Main Power Switch, and Disconnect Power going to the unit.
Switch any two of the incoming power leads, and Connect power to the unit
Turn ON the Main Power Switch on the unit
If no RED Light –Phase is good, proceed to Start Up the Unit

Hour Meter
The OPAC144 is equipped with an analog hour meter. The hour meter runs when the MAIN POWER Switch has been set to the ON position.

Phase Monitor Relay
The OPAC144 is equipped with a Phase Monitor Relay to protect all three-phase motors and to monitor phase for correct scroll compressor rotation. All three legs of the incoming power are monitored for voltage drift, and correct phase rotation as set at the time of manufacture.

NOTE: Power varies from location to location. Therefore, phase reversal may occur when moving the unit from one location to another location, even within the same facility.

The Phase Monitor has two LED's:
GREEN = Power is at the Monitor
AMBER = Power and Phase are correct, and the control relay is energized

Once the Phase Monitor Relay is energized, 24 VAC Control signal passes to the Evaporator Fan Pressure Switch located at the Evaporator Coil, and the Electric Heater Thermal Overload (if Auxiliary Electric Heat is installed). The 24VAC then energizes the Cooling Circuit Control Relay and the Heating Circuit Control Relay, at Terminal 11. At this point, the power safety circuit is satisfied, and the operation of the unit is now controlled by the thermostat.

Compressor Start Delay
The OPAC144 is equipped with a Compressor Start Delay Timer that prevents compressor short-cycling. The compressor delay timer is factory set at 60 seconds, and to prevent compressor short-cycling. When the thermostat calls for cooling, the Compressor Delay Timer receives the 24 VAC signal from the thermostat. The YELLOW LED on the Cooling Circuit Control Relay illuminates, meanwhile the GREEN LED on Compressor Start Delay blinks for the duration of the delay. When the LED shows solid GREEN, the compressor will start.

OPAC144 Control Sequence - continued

Evaporator Fan Speed Switch
Located at the Power Panel is the Evaporator Fan Speed Switch. The fan speed can be switched from Low to High, as needed.

NOTICE: High Fan Speed is required for ducted SUPPLY AIR, to avoid freeze-ups.

Condenser Fan Speed Control
The Condenser Fan Speed Control Light raises and lowers the condenser fan speed, under varying ambient conditions. In low ambient temperature conditions, the condenser fan speed reduces for optimal performance, while under high ambient temperature conditions, the condenser fan speed increases for higher condenser air flow.

Cooling Mode
When the Thermostat calls for COOLING, the 24VAC signal passes from Thermostat Terminal K3 through the Low Pressure and High Pressure Switches on the refrigeration circuit. If both switches are satisfied, the signal is then passed onto Terminal 11 on the Compressor Protection Module. The Compressor Protection Module contains a relay that will energize once the 24VAC signal, from the Phase Monitor, has passed through the Fan Pressure Switch to Terminal L on the Protection Module. At this point, the Phase Monitor has been satisfied and the Evaporator Blower is operating. The Compressor Protection Module Relay will then be energized, allowing the 24V signal to pass through to Terminal A1 of the Cooling Circuit Control Relay. The LED on the Cooling Circuit Control Relay will illuminate (GREEN) when the relay is energized. At this time, the 24VAC signal passes from Terminal 14 to the Compressor and Condenser Fan Relays.

OPAC144 COOLING CONTROLS

Cooling Mode (from Left to Right)

Phase Monitor
GREEN LED - POWER
YELLOW LED - Relay is ON
Compressor Delay
GREEN (blinking) - DELAY TIMER
GREEN (solid) - Relay is ON
Fan Delay
GREEN (blinking) - DELAY TIMER
GREEN (solid) - Relay is ON
Cooling Mode Control Relay (Blue Leads)
GREEN - Relay is ON
Heating Mode Control Relay - OFF

OPAC144 Control Sequence - HEAT MODE (-AH Models)

OPAC144(-AH) HEATING CONTROLS

Heating Mode (from Left to Right)
Phase Monitor
GREEN LED - POWER
YELLOW LED - Relay is ON
Fan Delay
GREEN (blinking) - DELAY TIMER
GREEN (solid) - Relay is ON
Heating Mode Control Relay (Yellow Leads)
GREEN - Relay is ON
Cooling Mode Control Relay - OFF

Heating Mode - For OPTIONAL Auxiliary Heat (-AH) Models
When the Thermostat calls for HEATING, a 24VAC signal from Thermostat Terminal K2 passes to Terminal A1 of the Heating Circuit Control Relay. Meanwhile, 24VAC signal from the Phase Monitor has passed through the Fan Pressure Switch and the Electric Heater Thermal Overload, to Terminal 11 of the Heating Circuit Control Relay. Once the relay has been energized, the LED on the Heating Circuit Control Relay will illuminate (GREEN) and the 24VAC signal will pass to the Electric Heater Contactor.

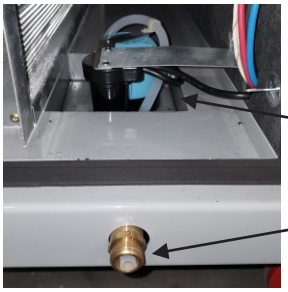
Aux. Heater Overload/Circuit Breaker

Each motor is protected by an independent overload/circuit breaker, which will break the power circuit to the motor in the event that an over-amperage condition is detected in one of the power leads. The overload provides motor protection for both severe duty as well as low voltage conditions. The Reset Switch is the dial on the face of each overload,
ON, RESET and TRIPPED, OFF

Heater Overload
ON (Reset)

Heater Overload
Tripped (OFF)

Condensate Pump
The OPAC144 is equipped with a condensate pump to discharge condensate during the COOLING mode. The pump discharges through a 3/4-inch Male Garden Hose Fitting.



CONDENSATE PUMP/
DRAIN CONNECTION

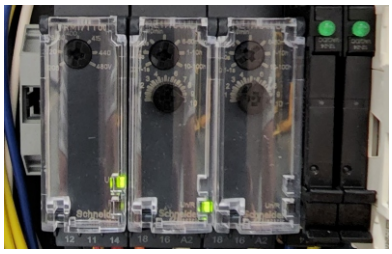
OPAC144 Troubleshooting Guide

Start Up

Thermostat Display OFF and will not Illuminate
Check Incoming Power and Connect.
Check Transformer Circuit Breaker, and reset the breaker if necessary
.

Phase Alarm Light
Disconnect Power
Switch any two incoming power leads
Reconnect Power

PHASE ALARM LIGHT - ON



PHASE MONITOR - DISABLED (ONLY ONE LED ILLUMINATED)

Thermostat works and Phase is Correct, No Cooling
Remove the Electrical Controls Access Panel, and check the COOLING CIRCUIT RELAY

If LED is illuminated, Check Compressor Relay/Overload
Check Compressor Electricals and correct the issue.
Reset the Overload to the ON Position
If no LED, check COMPRESSOR DELAY TIMER

COMPRESSOR DELAY TIMER
Green LED (blinking) = Delay, up to 2 minutes
Green LED (solid) = RELAY is ON
If no LED on COMPRESSOR DELAY TIMER,
Check HP Cut-Out, Check LP Cut-Out for Continuity
Remove the Compressor Control Box Cover, and check continuity at 14/11 on Compressor Protection Module
Check Compressor Protection Module, 24 VAC from L to N?
Check the PHASE MONITOR

PHASE MONITOR
GREEN LED = POWER
YELLOW LED = RELAY is ON
If GREEN and YELLOW LED's are ON, Check Evaporator Fan Pressure Switch
If No LED on PHASE MONITOR, Check incoming power

Thermostat works, Not Heating (-AH Models)

Check HEATING Circuit Relay, is GREEN LED illuminated?

If YES, Check Heater Thermal Overload
If YES, Check Evaporator Fan Operation/Fan Pressure Switch
If NO, Check the PHASE MONITOR
GREEN LED = POWER
YELLOW LED = ON
No LED YELLOW or GREEN, Check incoming power

Phase Monitor - CLEAR
Fan Delay - CLEAR
HEATER Control Relay - ON

Periodically Check Filters

Filters are located in the Return Air Panel. From time to time, it is recommended to check the filters and replace them as needed.
Indications of dirty filters are:
Low Pressure Switch Tripping
Abnormally Low Supply Air Temperatures
Reduced Air Flow from Supply

Filter Size: 18 x 20 x 2 (3 filters are required)

NOTE: Do not use a filter that is rated above MERV 7

LIMITED WARRANTY

The Manufacturer (OceanAire, Inc.) warrants to the original owner that the Product will be free from defects in material or workmanship for a period not to exceed one (1) year from date of installation. If upon examination by the Manufacturer, the Product is shown to have a defect in material or workmanship during the warranty period, the Manufacturer will repair or replace, at its option, that part of the Product which is shown to be defective.

The Manufacturer further warrants that the product's compressor-motor will be free from defects in materials and workmanship for one year from the date of installation.

If upon examination by the Manufacturer the Product is shown to have a defect in materials or workmanship during the warranty period, the Manufacturer will repair or replace, at its option, that Part of the Product which is shown to be defective. Electrical parts such as relays, overloads, capacitors, etc., and the sealed refrigeration system (condenser and evaporator) are included in the one-year limited warranty.

This limited warranty does not apply to:

a) Product that has been subjected to misuse or neglect, has been accidentally or intentionally damaged, has not been installed, maintained or operated in accordance with the furnished written instructions, or has been altered or modified in any way.

b) Product that has been subjected to any abnormal power conditions such as loss of power, power surges, voltage irregularities such as brown-outs or phase loss (on three-phase equipment).

c) any expenses, including labor or material, incurred during removal or reinstallation of the Product.

d) any workmanship of the installer of the Product.

This limited warranty is conditional upon:

a) return to the Manufacturer, of the part of the Product thought to be defective.

   Goods can only be returned with prior written approval from the Manufacturer.
   All returns must be freight prepaid.

b) determination in the reasonable opinion of the Manufacturer, that there exists a defect in material or workmanship.

Repair or replacement of any part under this Limited Warranty shall not extend the duration of the warranty with respect to such repaired or replaced part beyond the stated warranty period.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, AND ALL SUCH OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED AND EXCLUDED FROM THIS LIMITED WARRANTY. IN NO EVENT SHALL THE MANUFACTURER BE LIABLE IN ANY WAY FOR ANY CONSEQUENTIAL, SPECIAL, OR INCIDENTAL DAMAGES OF ANY NATURE WHATSOEVER, OR FOR ANY AMOUNTS IN EXCESS OF THE SELLING PRICE OF THE PRODUCT OR ANY PARTS THEREOF FOUND TO BE DEFECTIVE. THIS LIMITED WARRANTY GIVES THE ORIGINAL OWNER OF THE PRODUCT SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY BY EACH JURISDICTION.

OceanAire

OCEANAIRE, Inc.
1731 Wall Street, Suite 100 Mount Prospect, Il 60056
(847) 583-0311 oceanaire-inc.com