

OCEANAIRE, INC.

Manufacturers of Portable Air Conditioning and Heating Units

Engineering, Installation and Service Manual

ArcticAire 20AC PORTABLE AIR-COOLED AIR CONDITIONER

ConvertibleAire 20ACH PORTABLE AIR - COOLED
AIR CONDITIONER/HEAT PUMP UNIT



20AC6012



20ACH1211



OCEANAIRE, INC. 6228 Oakton Street Morton Grove, IL 60053

Phone: 847-583-0311 FAX: 847-583-0312 WEB: www.oceanaire-inc.com

GENERAL DESCRIPTION

ARCTICAIRE and CONVERTIBLEAIRE SERIES Portable Air-Cooled Air Conditioners and heat pumps are designed to cool or heat an entire area by discharging air through their 12 x 5 grille (Models 2OAC12 and 2OACH12) 14 x 8 1/2 (Models 2OAC/2OACH18, 24), 18 X 10 (Model 2OAC/OACH36) and 18 x 12 (Models 2OAC/2OACH60). These self contained units are also designed to direct air to specific areas or objects through (optional) dual 4 in. diameter nozzles (Model 2OAC/2OACH12) and 6 in. diameter nozzles (Models 2OAC/2OACH18, 24 ,36), and 8 in. diameter nozzles (2OAC/2OACH60). The cord connected Models range from 13,500 to 60,000 BTU/HR cooling and from 11,685 to 53,445 BTU/HR heating. Floor mount configuration can satisfy most space requirements. All models are provided with casters for portability.

These models are thoroughly self-contained with the entire refrigeration system, evaporator and condenser fan motors and electrical components neatly arranged in a gloss grey and blue texture polyester powder coated metal cabinet. Only power, and an opening to dispose of condenser hot air is required. The 24 volt solid state electronic controller provides the desired comfort level. The cord-connected model units are provided with heavy-duty, swivel casters for easy handling and convenient relocation.

GENERAL REQUIREMENTS

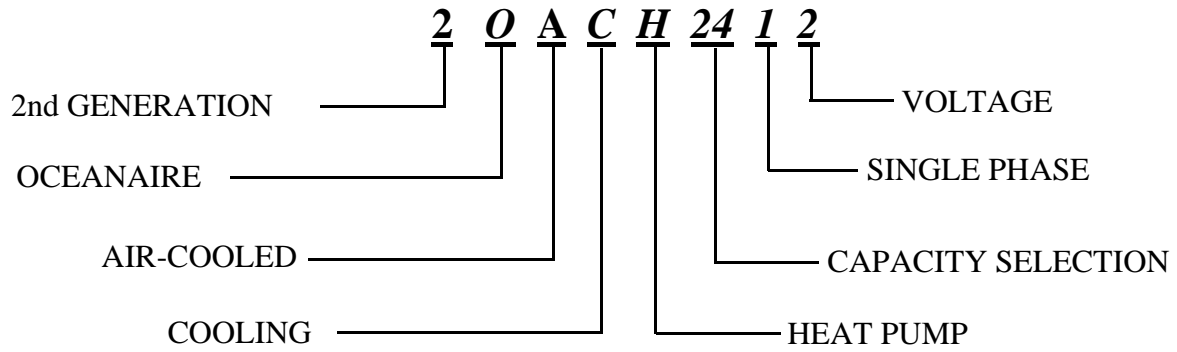
IMPORTANT - ArcticAire and ConvertibleAire Air Conditioners and Heat Pumps are designed and engineered for the comfort of the end user. The length of service received can be extended by following the installation and preventive maintenance instructions. It is important that the warranty card be filled out completely and returned to the factory within fourteen (14) days of installation of the unit in order to receive the benefits of the warranty.

UNIT MODEL CAPACITIES

<u>CAPACITY</u>	<u>MODEL</u>
13500 BTU/HR COOLING	2OAC12
11685 BTU/HR HEATING	2OACH12
16500 BTU/HR COOLING	2OAC18
14850 BTU/HR HEATING	2OACH18
23500 BTU/HR COOLING	2OAC24
21380 BTU/HR HEATING	2OACH24
36000 BTU/HR COOLING	2OAC36
32445 BTU/HR HEATING	2OACH36
60000 BTU/HR COOLING	2OAC60
53445 BTU/HR HEATING	2OACH60



NOMENCLATURE



CAPACITY SELECTION

NUMBER CODE	12.....13500 BTU/HR
	18.....16,500 BTU/HR
	24.....23,500 BTU/HR
	36.....36,000 BTU/HR
	60.....60,000 BTU/HR



ConvertibleAire

Air Cooled Heating and Cooling Heat Pump

Patented

SPECIFICATIONS

MODEL	2OACH1211	2OACH1811	2OACH2412	2OACH3612	2OACH3632	2OACH6012	2OACH6032	2OACH6034
Cooling Capacity ^①	13,500	16,500	23,500	36,000	36,000	60,000	60,000	60,000
Heating Capacity ^②	11,685	14,850	21,380	32,445	32,445	53,445	53,445	53,445
Voltage	115/60/1 or 208/230/1		208/230/1		208/230/3	208/230/1	208/230/3	460/3
Cooling Amps ^③	11.2/5.6	12.5/6.2	12.3	19.5	12.0	40.0	22.0	11.4
Heating Amps ^③	11.3/5.6	12.6/6.2	12.4	20.0	13.6	40.0	25.6	12.5
Cooling Watts ^③	1250	1440	2200	3360	3360	4992	4992	4992
Heating Watts ^③	1255	1460	2240	3360	3360	4992	4992	4992
E.E.R. ^④	12.0	11.5	10.9	10.7	10.7	12.0	12.0	12.0
C.O.P.	3.0	3.3	3.2	3.2	3.2	3.2	3.2	3.2
In Rush Current (AMPS)	92.8	114.2	79	128.8	111.8	198.0	134.2	135.6
Fuse/Breaker ^⑤ (AMPS)	15	15	20	30	20	50	40	30
Plug Type	5-15P	5-15P	6-20P	6-30P	L15-20P	6-50P	L15-30P	L16-30P
Compressor HP	1	1 1/2	2	3	3	5	5	5
Compressor RLA	9.3	11.4	8.3	17.9	11.4	28.0	20.0	8.2
Compressor LRA	58	65	49	88	77.0	169	123.0	59.6
Evaporator CFM	400/340	600/500	810/680	1310/1100	1310/1100	2000/1600	2000/1600	2000/1600
Evap Motor HP	1/17	1/14	1/7	1/3	1/3	1/2	1/2	1/2
Evap Motor Watts	50	59	125	260	260	365	365	365
Condenser CFM	600	930	1100	1800	1800	3000	3000	3000
Condenser Motor HP	1/14	1/8	1/5	1/2	1/2	3/4	3/4	3/4
Condenser Motor Watts	59	106	160	365	365	570	570	570
Condensate Pump Head 20 Feet	Pump Optional on these models					Pump Standard on 5 ton		
Sound Level ^⑥ (Hi/Low)	56/54	61/60	64/62	65/63		66/64		
R-22 Charge Oz.	29	36	40	45		77		
Height with Casters	36 1/2	44 1/2		48 1/2		52 1/2		
Height without Casters	32 1/2	39 1/2		44		48		
Width	20	24		28				
Depth	25	30		35		39		
Net Weight	180	245	230	350	350	470	470	490
Shipping Weight	200	285	260	390	390	520	520	550
Shipping Volume	18	34	34	37	37	40	40	40

①Cooling Capacity Total 95° F at 60% RH outdoor high fan speed.

②Heating Capacity Total @ 70°F DB/60°F W.B. Indoor 47°F DB/43°F W.B. outdoor high fan speed.

③Amps & Watts at 208 volts.

④EER determined with condenser discharge air ducted into another area on high fan speed.

⑤Time delay fuses/circuit breakers are recommended.

⑥Sound pressure, dB at 5 feet, commercial configuration (ducted condenser air) hi/lo evaporator fan speed.

Electrical ratings per U.L. 484 at 95°F DB/75°F WB on high fan speed

Ambient operating range 65° to 105°

May operate to 55° if equipped with optional factory installed hot gas bypass

Specifications subject to change without notice.



ArcticAire

Air Cooled Air Conditioners

COOLING ONLY

SPECIFICATIONS

MODEL	2OAC1211	2OAC1811	2OAC2412	2OAC3612	2OAC3632	2OAC6012	2OAC6032	2OAC6034
Cooling Capacity ^①	13,500	16,500	23,500	36,000	36,000	60,000	60,000	60,000
Voltage	115/60/1 or 208/230/1		208/230/1		208/230/3	208/230/1	208/230/3	460/3
Cooling Amps ^②	11.2/5.6	12.5/6.2	12.3	19.5	12	40.0	22.0	11.4
Cooling Watts ^②	1250	1440	2200	3360	3360	4992	4992	4992
E.E.R. ^⑤	12.0	11.5	10.9	10.7	10.7	12.0	12.0	12.0
In Rush Current (AMPS)	92.8	114.2	79	128.8	111.8	198.0	134.2	135.6
Fuse/Breaker (Amps) ^④	15	15	20	30	20	50	40	30
Plug Type	5-15P	5-15P	6-20P	6-30P	L15-20P	6-50P	L15-30P	L16-30P
Compressor HP	1	1 1/2	2	3	3	5	5	5
Compressor RLA	9.3	11.4	8.3	17.9	11.4	28.0	20.0	8.2
Compressor LRA	58	65	49	88	77	169	123	59.6
Evap CFM ^③ Hi/Low	400/340	600/500	810/680	1310/1100	1310/1100	2000/1600	2000/1600	2000/1600
Evap Motor HP	1/17	1/14	1/7	1/3	1/3	1/2	1/2	1/2
Evap Motor Watts	50	59	125	260	260	365	365	365
Condenser CFM ^③	600	930	1100	1800	1800	3000	3000	3000
Condenser Motor HP	1/14	1/8	1/5	1/2	1/2	3/4	3/4	3/4
Condenser Motor Watts	59	106	160	365	365	570	570	570
Condensate Pump Head 20 Feet	Pump Optional on these units					Pump Standard on 5-Ton		
Sound Level ^⑥ Hi/Low	56/54	61/60	64/62	65/63		66/64		
R-22 Charge Oz.	29	36	40	45		77		
Height with Casters	36 1/2	44 1/2		48 1/2		52 1/2		
Height without Casters	32 1/2	39 1/2		44		48		
Width	20	24		28				
Depth	25	30		35		39		
Net Weight	180	245	230	350	350	470	470	490
Shipping Weight	200	285	260	390	390	520	520	550
Shipping Volume	18	34	34	37	37	40	40	40

①Cooling Capacity Total 95° F at 60% RH
Outdoor high fan speed.

②Amps & Watts at 208 Volts

③CFM with free discharge Hi/Low fan speed

④Time delay fuses/circuit breakers are recommended

⑤EER determined with condenser discharge air ducted into another area on high fan speed

⑥Sound pressure, dB at 5 feet, commercial configuration (ducted condenser air), hi/low evaporator fan speed.

Electrical ratings per U.L 484 at 95°F DB/75°WB on high fan speed

Ambient operating range 65° to 105°

May operate to 55° if equipped with optional factory

Installed hot gas bypass

Specifications subject to change without notice.

STANDARD FEATURES

SERVICEABILITY

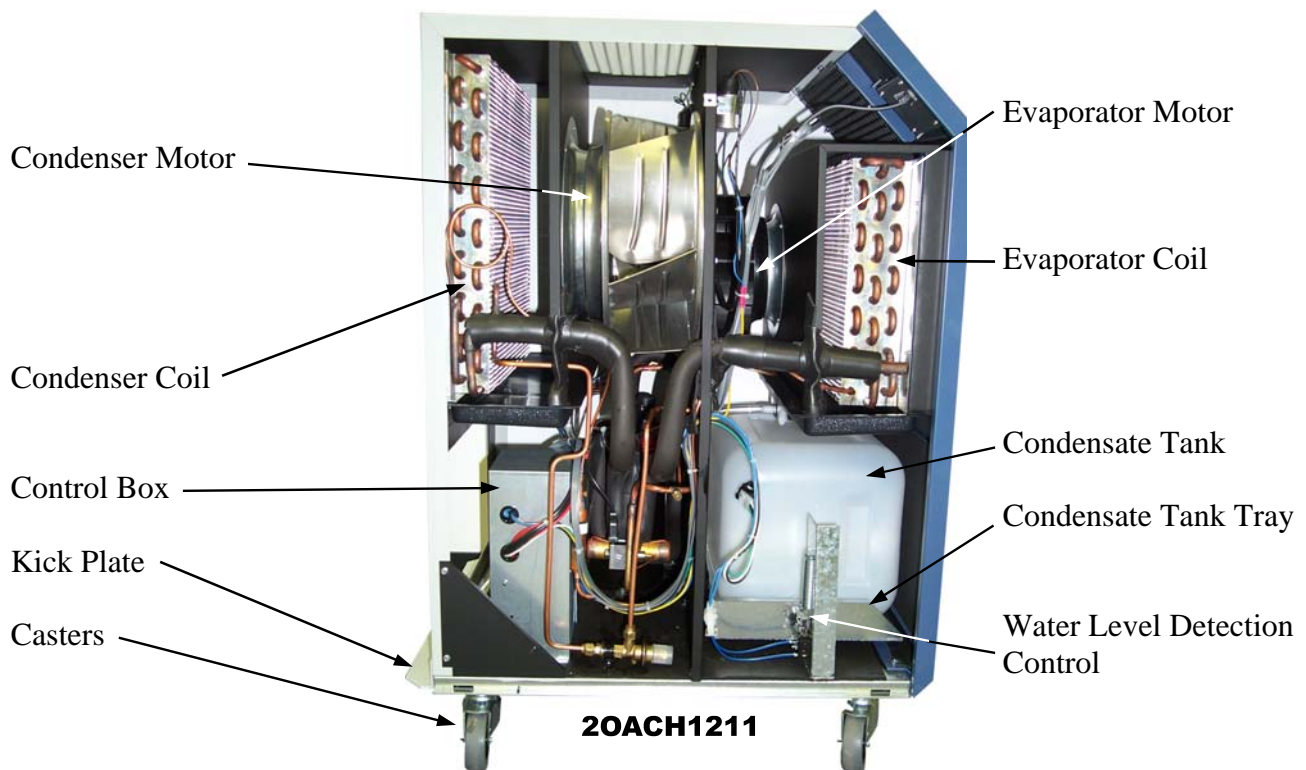
All 2OAC/OACH Series units are designed with quick connect removable side panels to provide full service accessibility. Only one screw needs to be removed for access to the inside of the unit. Turn to page 17 “Part Replacement Procedure” for removal of the correct panel when replacing a part. The interior is divided into two sections, front and rear. The front section contains the evaporator blower, coil, condensate bucket and thermostat. The rear section contains the condenser blower, coil, compressor, electrical control box and cord storage box.

ATTRACTIVE CABINET

The 2OAC/OACH Series cabinet is constructed of 18 gauge cold rolled steel with a gloss grey and blue texture polyester powder coated finish that will compliment any decor. The entire cabinet is insulated with a sound absorbant insulation for cool, quiet comfort.

HIGH PRESSURE SAFETY SWITCH

All units incorporate a manual re-set high pressure switch for maximum protection of the refrigeration system and compressor. The cut-out pressure setting is 375 ± 5 psig or 425 ± 5 psig. If the pressure exceeds this setting, the compressor stops and can be re-started by depressing the “RESET” button located on the back panel of the unit. The high pressure control’s capillary line is attached to a schrader valve. This allows replacement of a defective control without recovering the refrigerant.



NOTE: WAIT TWO MINUTES BEFORE RESTARTING UNIT AFTER TRIPPING BY HIGH PRESSURE SWITCH.

STATE-OF-THE-ART CONTROL SYSTEM

This self diagnostic control system handles more than just temperature. The ConvertibleAire (2OACH) has automatic changeover from heating to cooling and cooling to heating. The ArcticAire (2OAC) does not since it is a cooling only model. The temperature setpoint range is from 55°F to 85°F. A built-in time delay prevents compressor short cycling.

The built-in 6 speed fan controller decreases the fan speed as the temperature approaches the setpoint.

The LED display will read the return and supply air temperature...as well as setpoint.

MOISTURE MODE

When entering the moisture mode with the select button the fan will start within 1 minute at speed level 3. The fan will run for 30 minutes sampling the air temperature and storing it into memory. If the ambient air temperature is above 60°F, the compressor will then start. The compressor will run for a maximum of one (1) hour, or until there is a 2°F drop in ambient temperature. After the compressor shuts off, the evaporator fan will continue to run for four (4) more minutes, then turn off. This cycle will start again in four (4) hours. The right most decimal is lit while the compressor is running. If the unit is properly sized for the conditioned space, this process should maintain the relative humidity between 50-60%.








FILTERS

The condenser coil filter is 1/4 inch thick washable foam located in the filter grille assembly in the back of the unit. The evaporator filter is 1/4 inch thick washable foam located in the filter grille assembly in the front of the unit. To remove filter: (1) lift and pull out the filter grille. (2) pull the filter away from the velcro attaching strip. (3) wash, and re-install in reverse order. The filter may be reinstalled damp since the air flow will dry it quickly.

SERVICE CORD

All ArcticAire (2OAC) and ConvertibleAire (2OACH) Series units are equipped with a standard ten (10) foot long service cord with plug configurations and receptacle requirements as shown in the chart below.

ELECTRICAL SERVICE PLUG CONFIGURATION

UNIT MODEL	PLUG CONFIGURATION	RECEPTACLE
2OAC12 / 2OACH12 2OAC18 / 2OACH18 115 V	 15A-125V NEMA 5-15P	NEMA 5-15R
2OAC24 2OACH24 208/230 V	 20A-250V NEMA 6-20P	NEMA 6-20R
2OAC36 2OACH36 208/230	 30A-250V NEMA 6-30P	NEMA 6-30R
2OAC60 2OACH60 208/230	 50A-250V NEMA 6-50P	NEMA 6-50R
2OAC6032 2OACH6032 208/230/3	 30A-250V NEMA L14-30P	NEMA L14-30R
2OAC/OACH3634 460 3 PHASE	 20A-460 VOLT NEMA L16-20P	NEMA L16-20R
2OAC/OACH6034 460 3 PHASE	 30A-460 VOLT NEMA L-16-30P	NEMA L16-30R

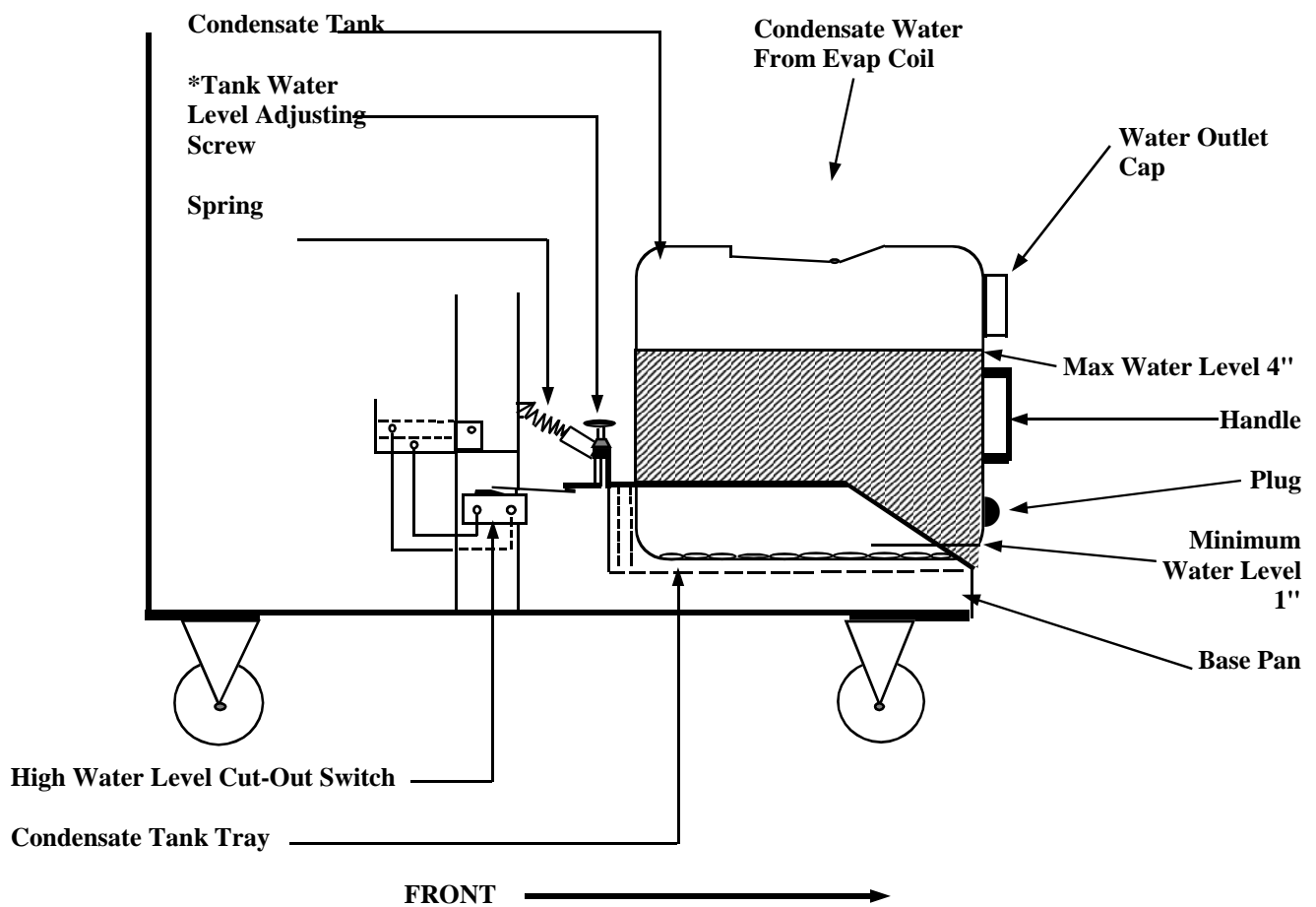
CONDENSATE RESERVOIR TANK

ArcticAire (2OAC) and ConvertibleAire (2OACH) utilize a 5.0 gallon capacity, polyethylene condensate drain tank, located in the lower, front section of the unit behind the tank door. A high water level cut-out switch is used to stop the compressor and condenser fan automatically when the tank's pre-set water level has been reached. The evaporator fan will continue to run, circulating air.

An adjustment screw is provided to vary the cut-off of the tank full switch. If a lighter (less weight) level of water is desired, turn the adjusting screw clockwise. Do not exceed 6 full turns clockwise.

CAUTION, TURN UNIT OFF:

***BEFORE ADJUSTING SET SCREW
BEFORE REMOVING TANK TO EMPTY CONDENSATE***



* Turn screw clockwise to lower water level, which makes tank lighter in weight and easier to handle.

NOTE: Max. and Min. water levels shown are those at which the unit will shutdown and not restart until the condensate tank has been emptied.

OPTIONAL FEATURES

TREATED EVAPORATOR AND CONDENSER COILS

When airborne contaminants are a problem for air conditioning applications, acrylic and heresite coated coils are recommended to guard against pitting and corrosion. Call factory for details.

CONDENSER DUCT

If a longer, 12" or 16" diameter duct is needed on the *condenser* discharge, 10 ft. flexible ducts may be coupled or weaved together to your desired length. The following chart

Model Ceiling Kit	Round Flexible Duct Size Diameter Length	Fits 2OAC12 2OACH12	Fits 2OAC18-24 2OACH18-24	Fits 2OAC36 2OACH36	Fits 2OAC60 2OACH60
CK-12 Size/Fits	12 inch 8 feet	Yes	Yes	Yes	No
CK-16 Size/Fits	16 Inch 8 feet	No	No	No	Yes
Maximum Equivalent Feet (add 6 feet for each 90° bend)		25	40	80	80
(ESP)		(.20)	(.25)	(.50)	(.50)

CEILING PANEL/DUCT KIT ASSEMBLY

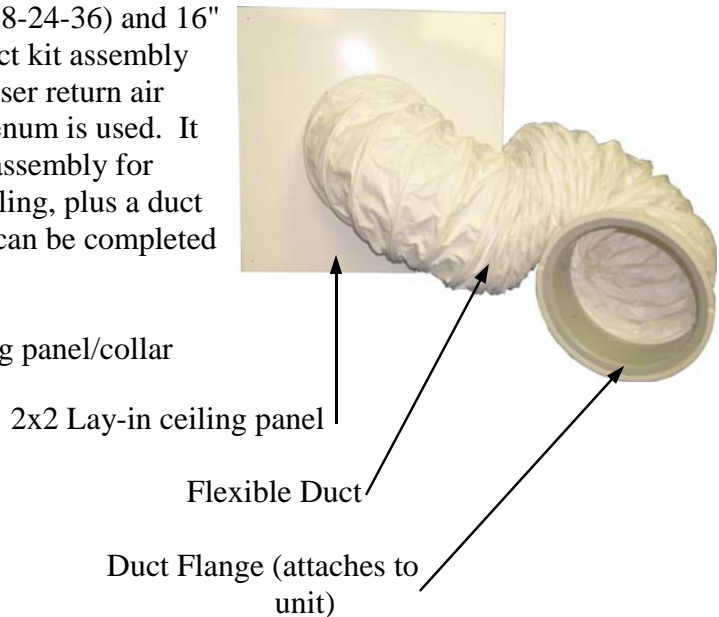
A 12 inch diameter (Model 2OAC/2OACH12-18-24-36) and 16" diameter (Model 2OAC/2OACH60) flexible duct kit assembly extends to vent condenser air or to draw condenser return air from the ceiling when a condenser return air plenum is used. It comes with a 2' X 2' lay in ceiling panel/collar assembly for venting into the plenum area above the false ceiling, plus a duct collar to attach the duct to the unit. Installation can be completed by following these simple steps:

1) Slip one end of the duct over the lay in ceiling panel/collar assembly and the other over the unit duct collar.

2) Clamp or screw duct to lay-in ceiling panel/collar assembly and unit duct collar.

3) Place the 2' X 2' lay-in ceiling panel in the false ceiling directly above the unit.

4) Screw duct collar to unit with three screws provided.



Duct flange provided on 3 and 5 ton units.

DISCHARGE AIR NOZZLE KIT ASSEMBLY

The optional nozzles can be easily attached to the unit without tools to direct cold air (or warm air with heat pump) to a specific spot or area. The chart below illustrates application information for each nozzle kit.



Model Nozzles	Round Duct Number/Diameter Compressed Length	Approximate Extended Length	2OAC12 2OACH12	2OAC18-24 2OACH18-24	2OAC36 2OACH36	2OAC60 2OACH60
2NK-1	2 x 4 inch 15 inches	21 inches	Yes	No	No	No
2NK-2	2 x 6 inch 22 inches	32 inches	No	Yes	Yes	No
2NK-3	2 x 8 inch 20 inches	29 inches	No	No	No	Yes

OPTIONAL CONDENSATE PUMP KIT

A condensate pump kit designed as an automatic condensate removal system for water dripping off of the evaporator coil is available. This pump kit can be used in place of the condensate collection tank, which is standard on every model *except the 5-ton*, where a condensate pump is standard equipment.

It is a convenience for those who do not want to empty the 5.0 gallon condensate tank. It is very convenient on units that are permanently installed.

This pump is capable of pumping against a 20 foot head and is controlled by a float/switch mechanism which turns the pump "on" when approximately 2 1/2 inches of water collects in the tank and automatically switches "off" when the tank drains to a level of approximately 1 1/4 inches. A built-in pump safety switch turns off the air conditioner if the condensate line becomes plugged or pump motor failure should occur. A built-in check valve prevents drain back and short cycling of the pump.



The pump kit includes tubing, mounting bracket, hardware, wiring and insulated mounting base.

Pump kit installs in place of the condensate bucket located behind the door on the front of the unit.



Quick Connect Condensate Pump

ALL 2OAC/OACH AIR COOLED UNITS



Kit

The Quick Connect Condensate Pump may be easily installed for one job, and just as easily reinstall the bucket for the next job. Our quick connect kit consists of our specially prepared and wired condensate pump, 20 feet of 3/8 plastic tubing, 2-10 inch pieces of 3/8 drain hose, 1 hose clamp, and 2 attaching screws.

TOOLS REQUIRED:

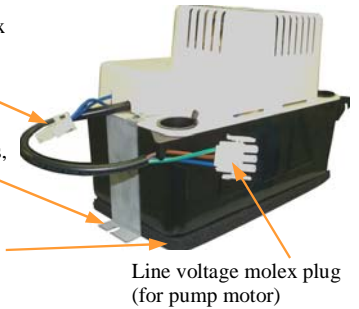
Phillips screwdriver
(for side panel & pump brackets)
Slotted screwdriver (for hose clamp)

Low voltage molex plug (for safety switch)

Mounting brackets, One on each side

Cushion mounting pad

Line voltage molex plug (for pump motor)



1) Unplug unit. Open lower front door to expose condensate bucket. Remove bucket.



First hole

Second hole

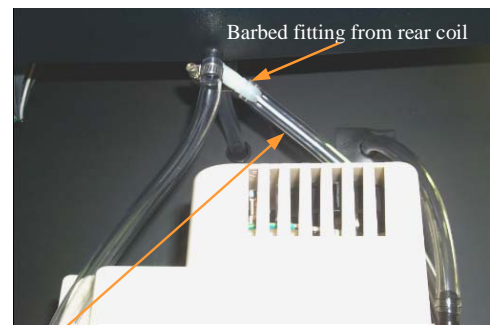
2) Start the first pump bracket mounting screw into the second hole located on the left side of the bucket tray. Just turn the screw enough to catch a few threads. Later you will slide the bracket under it.



3) Attach 10 inch piece of 3/8 drain hose to condensate drain using hose clamp supplied. Route other end of hose into condensate pump tank.

HEAT PUMP ONLY

3a) There is a second drain line from the rear coil on all heat pump models. Use a 10 inch piece of hose (1 of 2 supplied) and push the drain hose over the barbed fitting as shown. No hose clamp is required. Route the other end into the condensate pump tank. If this line is removed in the future, slit the plastic drain hose over the barb to release the pressure fit tension. It will then be easy to remove.



Barbed fitting from rear coil

Pictured 2OACH Heating Cooling

Pictured 2OAC Cooling Only



4) Slide the left side pump mounting bracket under the screw started in step 1. Install the right side pump bracket mounting screw into the predrilled hole on the bucket tray. Tighten both screws firmly, but do not over tighten.

5) Using the Phillips screw driver, remove the right side panel (viewed from the front of the unit) and remove the plastic knock-out plug as pictured.

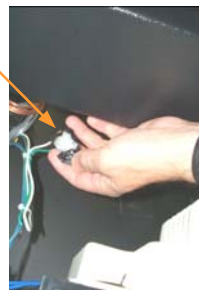


6) From the outside of the unit, route the drain hose into the unit through the hole. Continue through the partition panel bushing, located above the compressor. Remove or cut through the foam tape to reveal the bushing. Pull the drain through the partition and attach it to the pump discharge fitting as shown. Re-attach side panel.

7) Remove electrical tape covering pre-wired line voltage molex plug. This plug is located on the wiring harness above the condensate pump



8) Push large molex plug from the pump, into the pre-wired receptacle.



9) Disconnect molex plug from the low voltage micro switch that was used by the bucket.



10) Push the low voltage molex from the pump into the pre-wired molex receptacle.



Installation complete

CONDENSER INLET AIR PLENUM

2DCP, Condenser Plenums are used to duct condenser air into the unit. The plenum easily attaches with speed screws (supplied) to the back of the unit. The plenum transitions the condenser inlet air opening to 12 inch round on Size 12, 18, 24 and 36. The Size 60 transitions into 2, 12 inch round inlet ducts.

To calculate “equivalent feet”, add the length of the condenser inlet air duct run and the length of the condenser air discharge duct run...allowing for elbows(adding 6 equivalent feet per 90° (elbow). This is total equivalent feet. At any rate, do not exceed the rated E.S.P.(External Static Pressure).

Condenser air plenums can substantially reduce air noise and increase the number of options for solving difficult cooling problems.

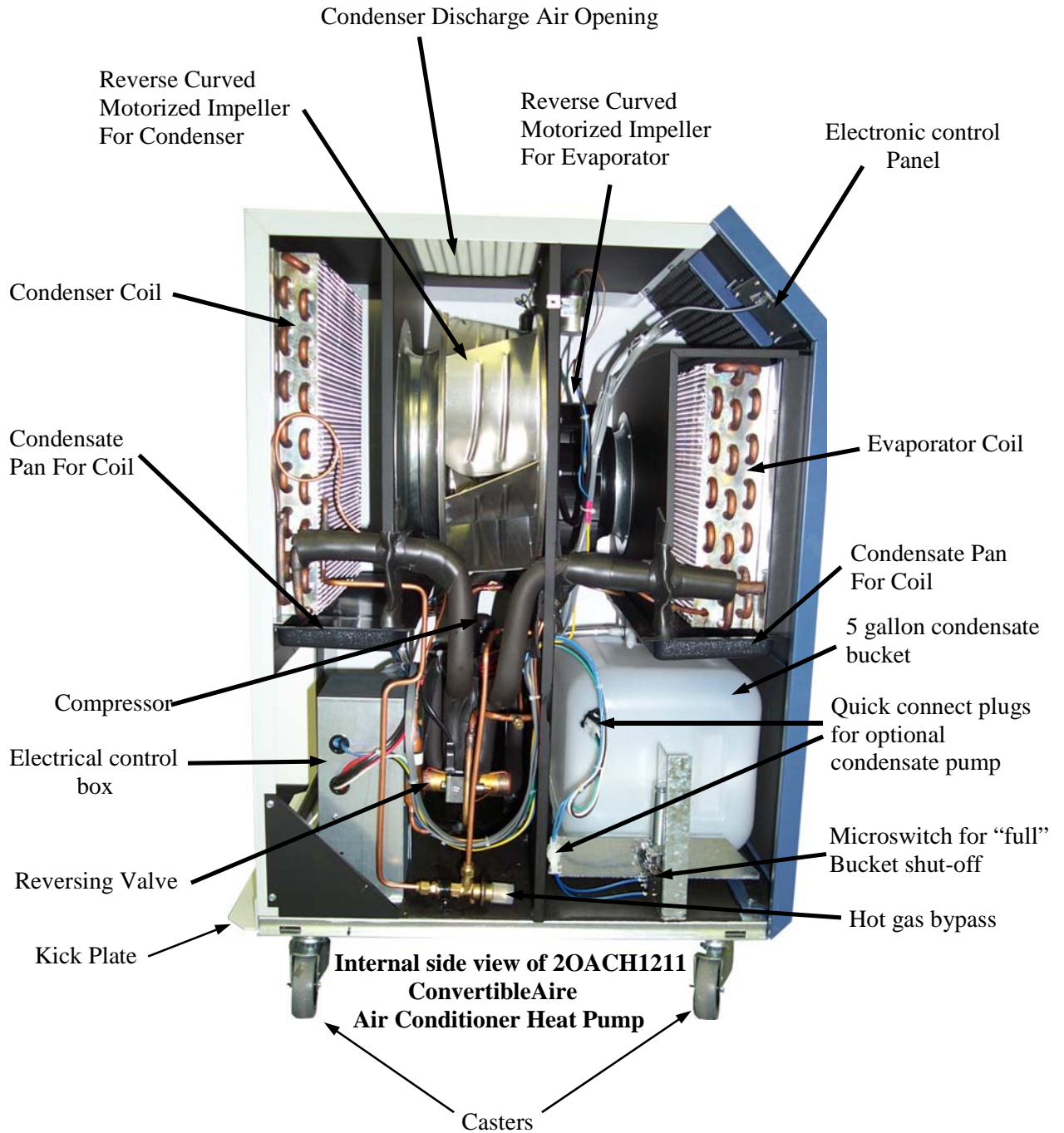
All 2OAC/2OACH units have a dedicated blower for the condenser section and a dedicated blower for the evaporator section. So, the “equivalent feet” may be applied to either or both sections of the unit at the same time.

Model Evaporator Plenum	Round Duct Size	2OAC12 2OACH12	2OAC18-24 2OACH18-24	2OAC36 2OACH36	2OAC60 2OACH60
2DCP-1 Size/Fits	12 inch	Yes	No	No	No
2DCP-2 Size/Fits	12 inch	No	Yes	No	No
2DCP-3 Size/Fits	12 inch	No	No	Yes	No
2DCP-4 Size/Fits	2-12 Inch	No	No	No	Yes
Maximum Equivalent Feet	-	25	40	80	80
(ESP)		(.20)	(.25)	(.50)	(.50)

Plenums may be easily attached to the back of unit. Since it adds no width to the unit, it can be moved through doorways or elevators without removing it.



UNIT CONSTRUCTION



Pictured above are the key internal components that are included with the unit. Note the reverse curved motorized impellers that are used rather than conventional blowers. The result are units that are more energy efficient and much more quiet.

APPLICATIONS

ROOM AIR CONDITIONER/HEAT PUMP

OceanAire ArcticAire and ConvertibleAire units can be used as a room air conditioner to cool the entire enclosed space. In this application, condenser hot exhaust air venting and condenser air intake ducting is required. Use the optional "Flexible Duct" and the "Condenser Inlet Air Plenum" as specified in the optional features section. ConvertibleAire units can be used to heat a space to a desired temperature, but, not warmer than 85° F. If a condenser inlet air plenum is not used, negative pressure created in the space by the condenser blower may cause a net temperature increase in the room. Please consult your Oceanaire distributor or factory for assistance.

SPOT COOLER/HEATER

ArcticAire/ConvertibleAire units can be used in an open environment to cool specific objects or "spots" through the evaporator grille, the optional nozzles or the optional duct adapter. Spot Cooling is a convenient and economical way to provide air conditioning where cooling the entire space is impractical. In this application, ducts for condenser air intake and hot air exhaust are not often not required. If heating cool spots are required, ConvertibleAire units may be used in the "heating" mode.

AREA COOLER/HEATER

When ArcticAire or ConvertibleAire is installed in an area that is not totally enclosed, the (optional) condenser hot air exhaust duct directs condenser air out of the area, allowing the evaporator air to cool the specific space.

INSTALLATION INSTRUCTIONS

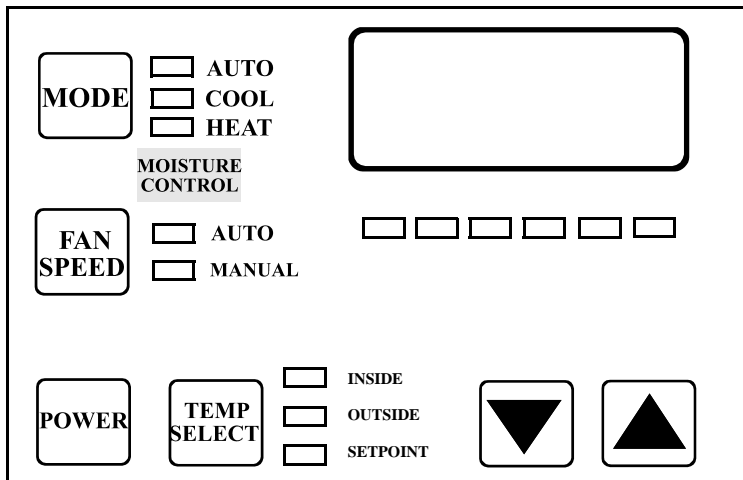
BEFORE INSTALLING: Check the air conditioner/spot cooler for any damage. Air conditioners are thoroughly inspected at the factory and carefully packaged. If any damage is evident, file a claim with the delivering carrier immediately.

ELECTRICAL REQUIREMENTS: Check the data plate on the back of the unit to make certain that the proper power is available. Refer to "Specifications" section for voltage and fuse/circuit breaker requirement. For proper NEMA receptacles, refer to "Electrical service plug configuration". Operating the unit on improper voltage will void the warranty. *Caution: An extension cord can be used provided it is rated at least 20 amps@ 120 volts, or 20 amps@ 250 volts with grounding-type attachment plug and grounding type connector (load fitting). For Models 2OAC/2OACH6012 at least 50 amps@ 250 volts and for Models 2OAC/2OACH6032 at least 30 amps@ 250 volts 3 phase.*

OceanAire ArcticAire/ConvertibleAire portable air conditioner/spot cooler/heater requires minimal installation. Plug unit in proper NEMA receptacle and it immediately begins to cool or heat. The entire system is built into one compact unit which can be moved and installed with ease.

DO NOT INSTALL UNIT AGAINST A WALL. A MINIMUM OF 8 INCHES OF CLEARANCE IS REQUIRED BETWEEN THE WALL AND THE BACK OF THE UNIT.

CHECKOUT OF UNIT OPERATION



POWER BUTTON: Press the *power button* once to toggle the unit to the on mode. Press the power button again to toggle the unit to the off mode.

FAN BUTTON: Press and release the *fan button* to advance from auto to manual fan. Press and release to increase the manual fan speeds, 1 through 6. Press and release again returns to the auto fan mode. The selected fan mode is indicated by the Auto and Manual fan LED's.

UP BUTTON: Momentarily press and the set point will appear in the

temperature display. The set point increases one degree each time the up button is pressed and released.

DOWN BUTTON: Momentarily press and release to display the set point. The set point is decreased one degree each time the button is pressed and released.

MODE BUTTON: The *Mode Button* is used to select one of 2 Operating Modes. Press and release to advance to the next mode. Continue to press and release until the desired Operating Mode is reached. The mode selected is indicated by the Mode LED.

TEMP SELECT BUTTON: Press and release to view inside (return) air temperature, outside (discharge) air temperature or set point. The appropriate LED will be lit indicating which temperature is displayed.

THREE DIGIT DISPLAY: The inside (return) temperature is displayed whenever the control is turned on. The display also provides a readout of the outside (discharge) air temperature which is located in the supply airflow.

COOL MODE LED: The Cool Mode LED is lit when Cooling is selected.

MOISTURE CONTROL LED: The Moisture LED is lit when the Moisture Control is selected.

MANUAL FAN LED: The Manual Fan LED is lit when a manual fan speed is selected.

AUTO FAN LED: The Auto Fan LED is lit when automatic fan speed operation is selected.

FAN SPEED BAR GRAPH: There are six(6) individual fan speed LED's. Each LED represents one (1) fan speed. Low fan (1) is indicated by illuminating the first LED. High fan speed is indicated by illuminating all six (6) LED's.

LED: The system operating status (Compressor On or Off) is indicated by turning On the right most decimal point in the 3 Digit Display.



**Micro-Aire Thermostat,
Heating/Cooling shown**

TO CHECK THE NUMBER OF HOURS ON THE UNIT

- 1) Unplug unit.
- 2) Plug in unit.
- 3) When “888” appears in display, push and release ▼ DOWN button.
- 4) The first set of numbers displayed reads thousands of hours. 02 would be 2000 hours. 04 would be 4000 hours. 00 would be no thousand of hours.
- 5) The second set of numbers read hours directly. 58 would be 58 hours. 742 would be 742 hours.
- 6) Add the 2 number sets together for total hours. 03 and 486 would be 3486 hours. 01 and 59 would be 1059 hours.

HOURS REPRESENT COMPRESSOR “ON” TIME.

TO ACCESS THE CODES IN THE CONTROL SYSTEM FOLLOW THESE STEPS:

- 1) Plug in the power supply cord to power outlet.
- 2) Unit must be in the “OFF” mode.
- 3) Press these buttons on the thermostat in this sequence:
 - S TEMP SELECT
 - U UP ▲
 - D DOWN ▼
 - S TEMP SELECT
- 4) As the TEMP SELECT button is released, the display will begin flashing P1 and a number. To adjust P1 and other numeric settings press the UP ▲ or DOWN ▼ button until the proper value is displayed.
- 5) Use the “MODE” button to scroll through the programmable parameters P2 through P16.
- 6) If no buttons are pushed, the display will then return to the “OFF” position after about 50 seconds.

CODE SETTINGS

These are not default values, they are OceanAire factory values.

<u>MODEL</u>	<u>CODE SETTINGS</u>
2OWC12 2OAC/2OACH12	P1 = 85 P2 = 35
2OWC18 2OAC/2OACH18	P1 = 80 P2 = 50
2OWC24 2OAC/2OACH24	P1 = 70 P2 = 50
2OWC36 2OAC/2OACH36	P1 = 85 P2 = 35
2OWC60 2OAC/2OACH60	P1 = 85 P2 = 45

- 7) To cycle the evaporator fan with the compressor, access code P-13. Press the up or down button to switch to “CYC”, which means cycle the fan with the compressor. The factory default setting is “CON”, which means continuous fan operation.

DISPLAY FAULTS

- LAC..... Low AC line power
- HPF..... High Pressure Fault (does not apply)
- AAA.....Failed Air Sensor (unit will not run)
- CON..... Empty Condensate Bucket or High Pressure Switch needs re-setting

REPLACEMENT PROCEDURE FOR PARTS

A. BLOWER MOTOR ASSEMBLY (REVERSE CURVED BLOWER)

1. Disconnect power from unit
2. Remove cabinet's left-hand (when looking at the front of the unit) side panel for condenser blower and right hand side panel for evaporator blower.
3. Disconnect evaporator blower motor wires from evaporator contactor and motor capacitor.
4. Disconnect condenser motor wires from condenser contactor and motor capacitor.
5. Remove 4 hex head bolts securing motor to motor mounting center panel.
6. Remove blower motor.
6. Install new blower assemblies, reversing the removal procedure.



B. THERMOSTAT

1. Remove left hand side panel. Remove 2 nuts securing to front panel and pull out. Pry thermostat from frame by pulling it out. Disconnect display cable and replace thermostat .
2. Reverse procedure to re-install.

C. CONDENSATE PUMP (3 & 5-Ton Only)

1. Remove cabinet's left front side panel.
2. Remove front bracket securing condensate pump in base pan by removing nut from weld stud.
3. Disconnect pump wire leads from terminal block. Remove retainer clamp and tubing. Replace pump, install by reversing procedure.

D. HIGH PRESSURE CONTROL

1. Remove the right hand side panel (when looking at the unit). Remove the right rear side panel on the 3 and 5 ton unit.
2. Remove the flare nut that secures the capillary to the refrigeration system high pressure side. A built-in Schrader valve permits removal without recovering the refrigerant charge.
3. Remove two the screws that secures the high pressure switch to the unit.
4. Disconnect lead wires.
5. Install new high pressure switch, reversing the procedure.

TROUBLESHOOTING GUIDE

The following steps and procedures are recommended for correcting the problems indicated. Service, other than routine maintenance, should be performed only by a qualified refrigeration serviceman.

PROBLEM: THE ENTIRE UNIT DOES NOT RUN.

1. *CAUSE:* POWER INTERRUPTION

REMEDY: Check external power supply. Look for blown fuses or tripped circuit breakers. Reset or replace if needed.

2. (REASON) THERMOSTAT INOPERABLE.

REMEDY: Setting may be too high or too low; check and reset. Thermostat may be out of calibration or otherwise defective...remove and replace.

3. (CAUSE) POWER MODULE:

(REMEDY) Correct as follows: (a) Replace;

PROBLEM: EVAPORATOR FAN RUNS BUT COMPRESSOR AND CONDENSER FAN DO NOT START

1. (REASON) Low Voltage.

(FIXING) Check power supply for voltage outside the range of 106-126 volts on the 115volt unit and 187-253 volts on the 208/230 volt unit.

2. (CAUSE) Thermostat

(REMEDY) Examine the control unit for loose display cable and tighten.

3. (REASON) High Pressure Control cutting turning unit off

(FIXING) Depress high pressure switch red button, check for loose wire connections, broken or burned contacts. If switch is defective, replace.

4. (CAUSE) Defective Power Module. (CURE) Replace

5. (REASON) Refrigerant leak-no freon. (REMEDY) Locate leak and repair. Evacuate unit and recharge.

6. (CAUSE) Loose or defective wires. (FIXING) Tug on wires to see if they will separate from connections.

7. (REASON) Defective compressor (REMEDY) Check for shorts, opens and grounds. Remove and replace compressor.

- 8. CAUSE) Shorted or open run capacitor (FIXING) Remove and replace.
- 9. (CAUSE) Defective tank full unit cut-out switch. (REMEDY) Check and replace.
- 10 (CAUSE) Condensate tank could be full, but, red con display not appearing in display window. (REMEDY) Check tank and replace red light if defective.

PROBLEM: COMPRESSOR STARTS AND RUNS, BUT, EVAPORATOR FAN DOES NOT RUN.

- 1. (CAUSE) Faulty power module (REMEDY) Replace
- 2. (REASON) Open fan motor coil circuit (FIXING) Replace fan motor.
- 3. (CAUSE) Shorted or open fan motor capacitor (REMEDY) Replace capacitor.
- 4. (REASON) Loose or defective wires (REMEDY) Trace and repair

PROBLEM: INSUFFICIENT COOLING/HEATING

1. (CAUSE) Insufficient air flow through evaporator coil due to:

- A. Dirty air filter in unit
- B. Dirty evaporator coil
- C. Ice on evaporator coil
- D. Obstructed air intake

(REMEDY) Correct as noted:

- A. Clean filter (see "Preventive Maintenance" section of this manual)
- B. Clean coil with a vacuum cleaner & hose.
- C. Defrost; turn on fan only.
- D. Remove obstruction

2. (REASON) IMPROPER SIZING OF UNIT

(FIXING) Check to make sure unit is properly sized for load. Add supplemental unit if required.

Problem: Unit does not switch from heating to cooling or cooling to heating .

- Fixing: a) Check reversing valve.
 b) Check reversing valve coil.

PROBLEM: NOISY OPERATION

1.(CAUSE) Copper tubing vibrating

(REMEDY) Adjust by bending slightly to firm position. Segregate tubes touching cabinet or each other.

2.(REASON) Loose cabinet or internal component

(FIXING) check and tighten loose screws.

3.(CAUSE) Machine vibrating out of level

(CURE) Level unit base.

4.(REASON) Loose blower assembly.

(REMEDY) Tighten bolts on blower assembly to blower mounting panel.

5.(CAUSE) Blower wheel hitting coil partition. (Unit probably received rough handling or was dropped).

(REMEDY) Adjust coil partition to clear motor.

6. (CAUSE) Blower motor bearing defective.

(REMEDY) Replace blower motor.

PROBLEM: WATER LEAKING FROM PAN

1. (CAUSE) Leaky drain pan

(REMEDY) Locate leak and repair pan.

2. (CAUSE) Loose evaporator, drain or condensate pump hose

(REMEDY) Tighten connections.

3. (CAUSE) Defective condensate pump or excessive lift on pump

(REMEDY) Examine to see if elevation exceeds 20 ft. (if it does, a larger pump will be required). Otherwise, change pump if defective. Pump will operate properly against 20 ft. of water total head pressure on pump. If combination of vertical height and horizontal drain line exceeds 20 ft. of water pressure drop, problems will occur.

PROBLEM: THERMOSTAT (LCD) LIQUID CRYSTAL DISPLAY WINDOW DOES NOT ILLUMINATE.

1. (CAUSE) Check discharge air and return air sensors.

(REMEDY) Replace

PREVENTIVE MAINTENANCE

2OAC/OACH Series air conditioners are designed to last a long time and to give maximum performance and reliability with minimum maintenance. To prolong the life of the unit, regular maintenance must be performed as specified below:

1. BLOWER MOTOR ASSEMBLY

The motors for all models are sealed and require no oiling. Dust and dirt may be removed from the motor vanes by washing, blowing with an air hose or with a vacuum.



2. FILTERS

A clogged filter will cause the unit to operate at greatly reduced efficiencies. We recommend that the filter be inspected on a regular bases every six weeks or more often depending on the environment. The Evaporator washable foam filter is located behind the return air grille and can be easily removed by pulling the grille out. The condenser washable foam filter is located in the grille on the back of the unit. Remove the grille by lifting it out. The filter can then be removed for washing. The filters *must* be washed periodically or as needed.

3. CONDENSATE PUMP

When servicing pump follow these steps;

1. Make certain that the unit is disconnected from the power source before attempting to service or remove any component.
2. Be sure the floats move freely. Clean as necessary.
3. Remove the volute and check for obstructions. Clean as needed.
4. Clean the tank with warm water and mild soap when mineral deposits are visible.
5. Check the inlet and outlet piping. Clean as necessary. Be sure there are no kinks in the lines that would inhibit flow.

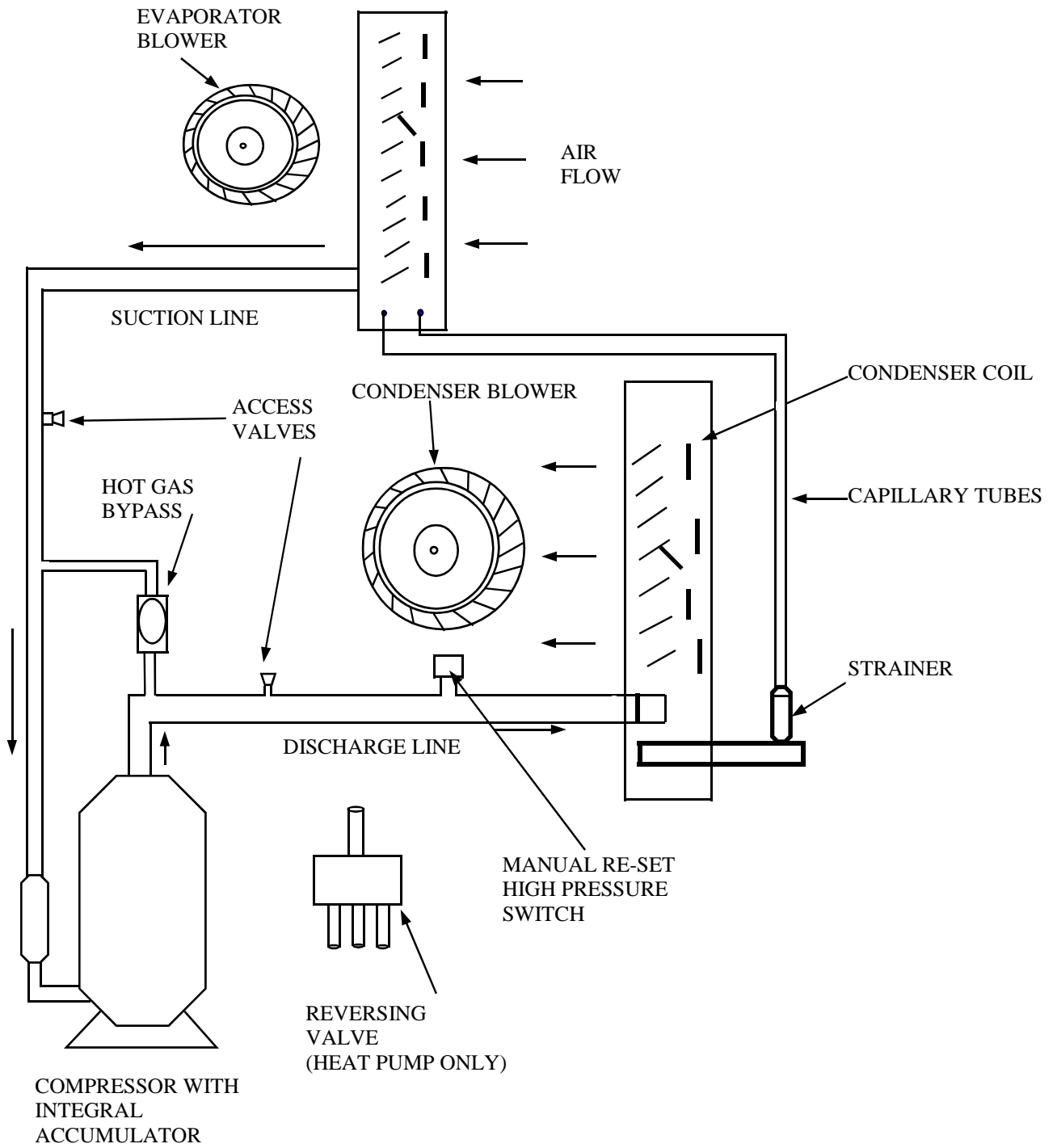
GENERAL

When necessary maintenance steps outlined above are followed, the air conditioner will provide long and reliable service. The refrigeration and electrical circuits of the system should only be serviced by a fully qualified service technician.

MODELS 20AC/OACH12, 18, 24, 36, 60

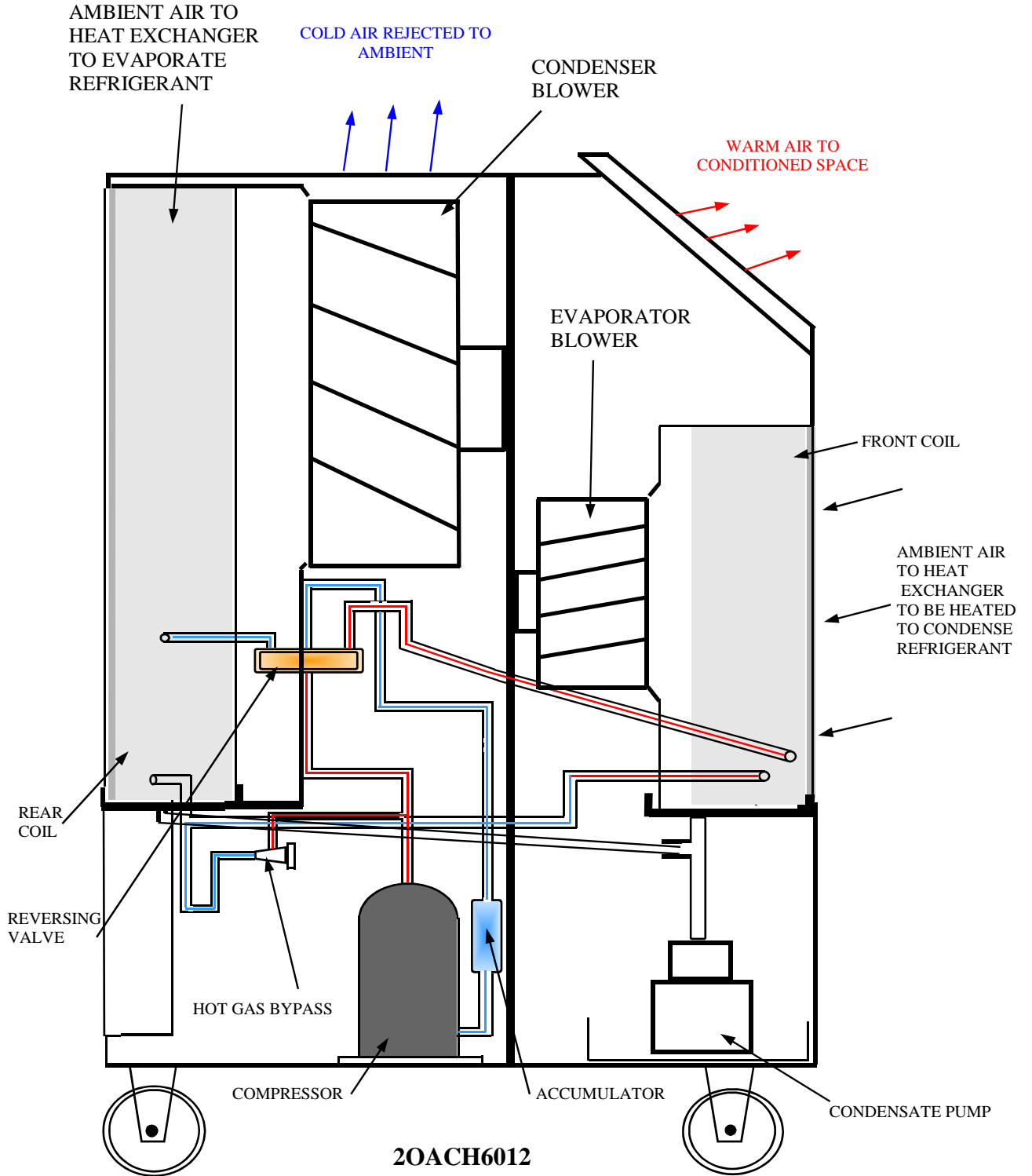
PIPING SCHEMATIC

AIR COOLED-AIR CONDITIONER

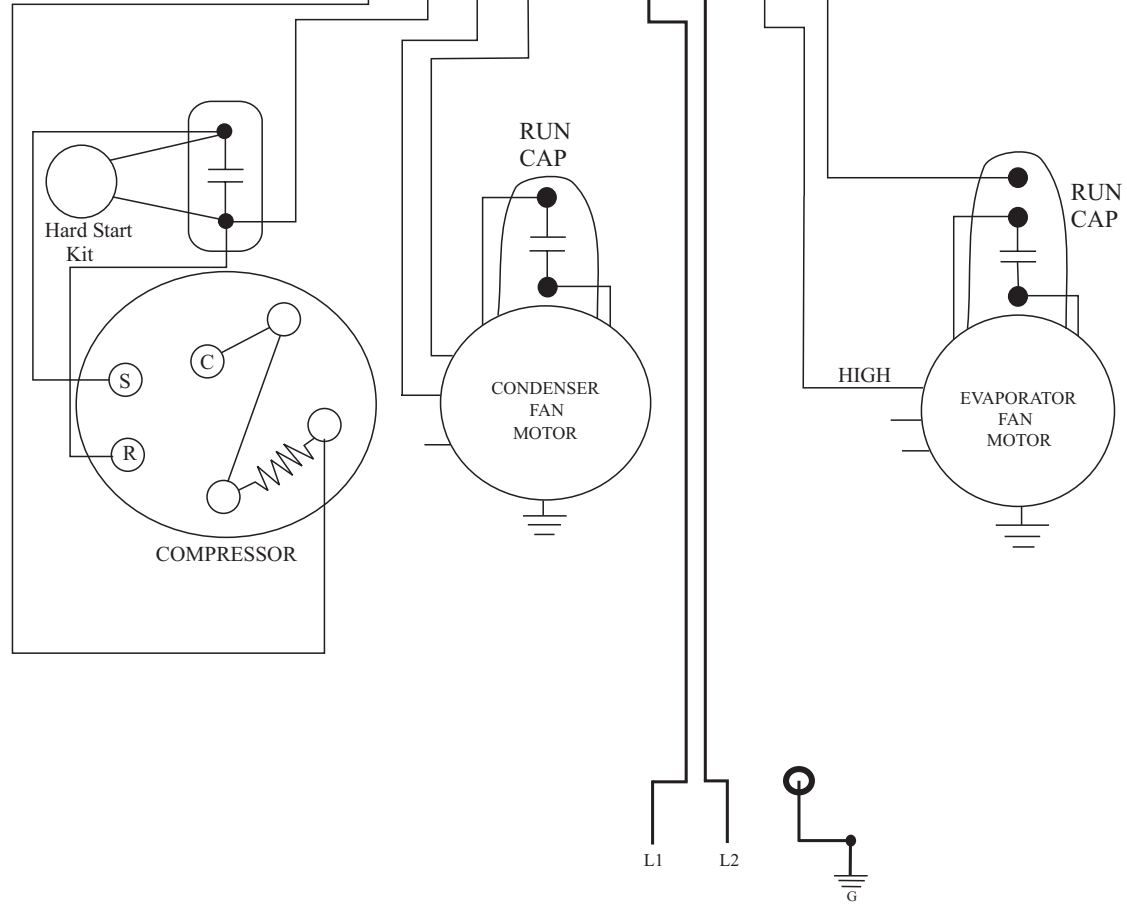
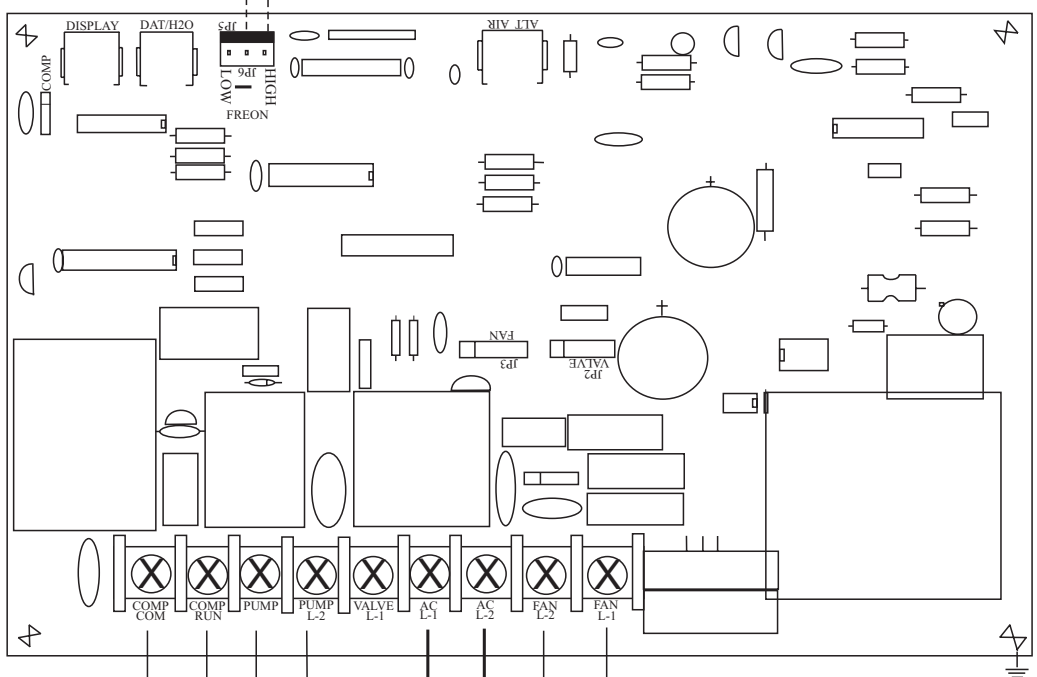


MODELS: 2OACH12, 18, 24, 36, 60

OCEANAIRE EXCLUSIVE PORTABLE AIR -COOLED HEAT PUMP SCHEMATIC FLOW DURING HEATING MODE-COOLER AMBIENT TEMPERATURE



HIGH PRESSURE SWITCH TANK FULL CUT-OUT SWITCH

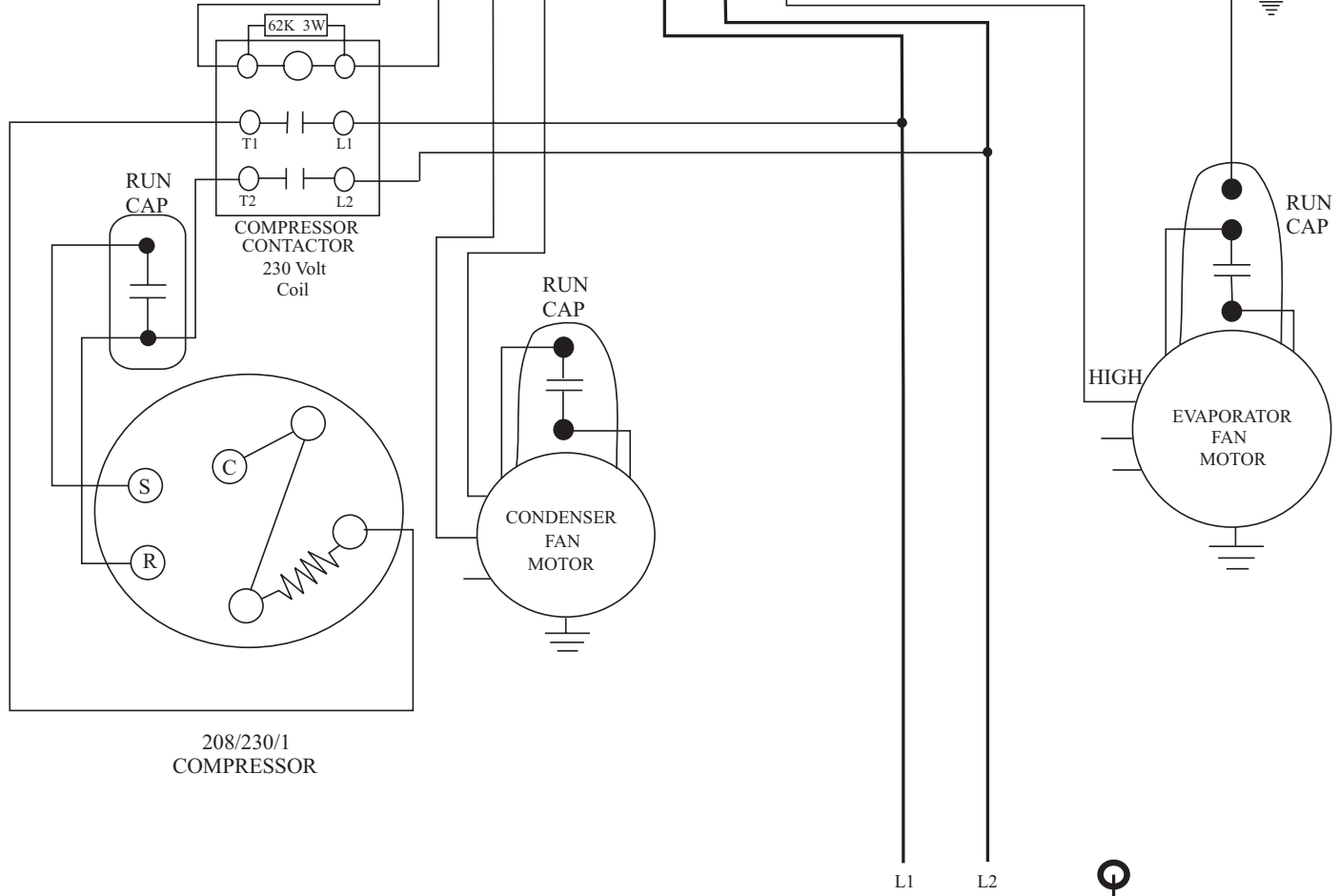
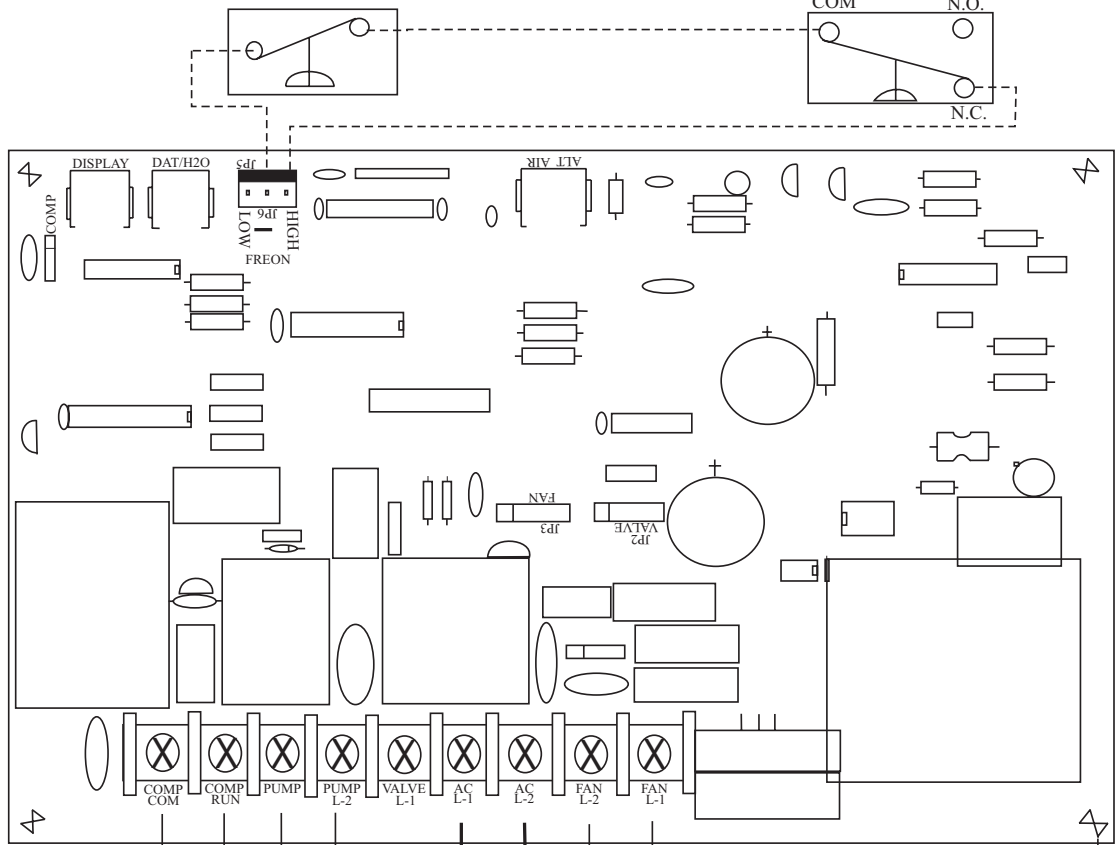


Oceanaire, Inc.
AIR-COOLED COOLING ONLY
MODELS 20AC12, 18, 24
115 and 230 Volt
Hard Start Kit Applies to 20AC1811 Only

ArcticAire

HIGH PRESSURE SWITCH

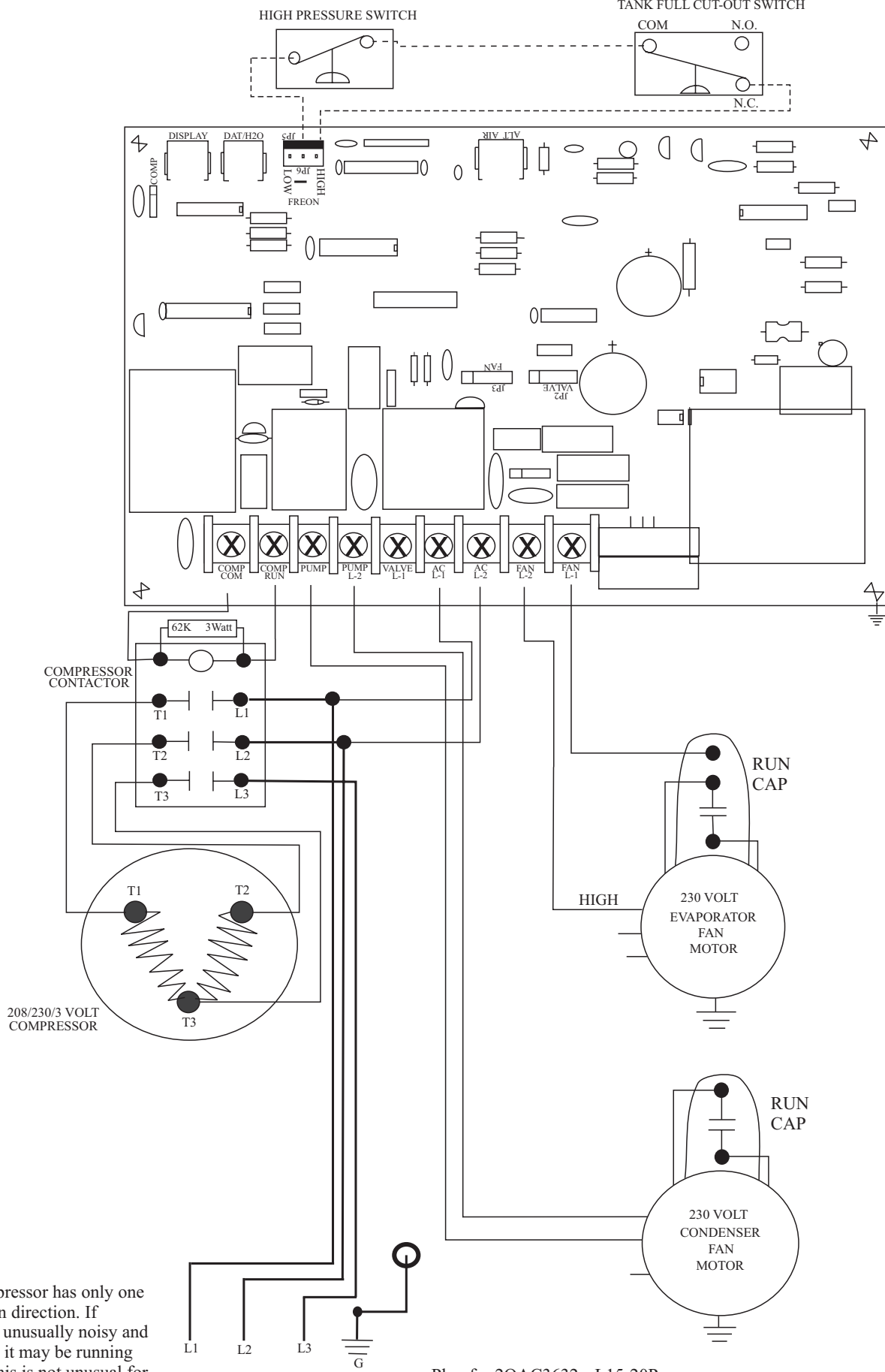
TANK FULL CUT-OUT SWITCH



Oceanaire, Inc.

AIR-COOLED COOLING ONLY
MODEL 2OAC3612
208/230/1 Volt

ArcticAir



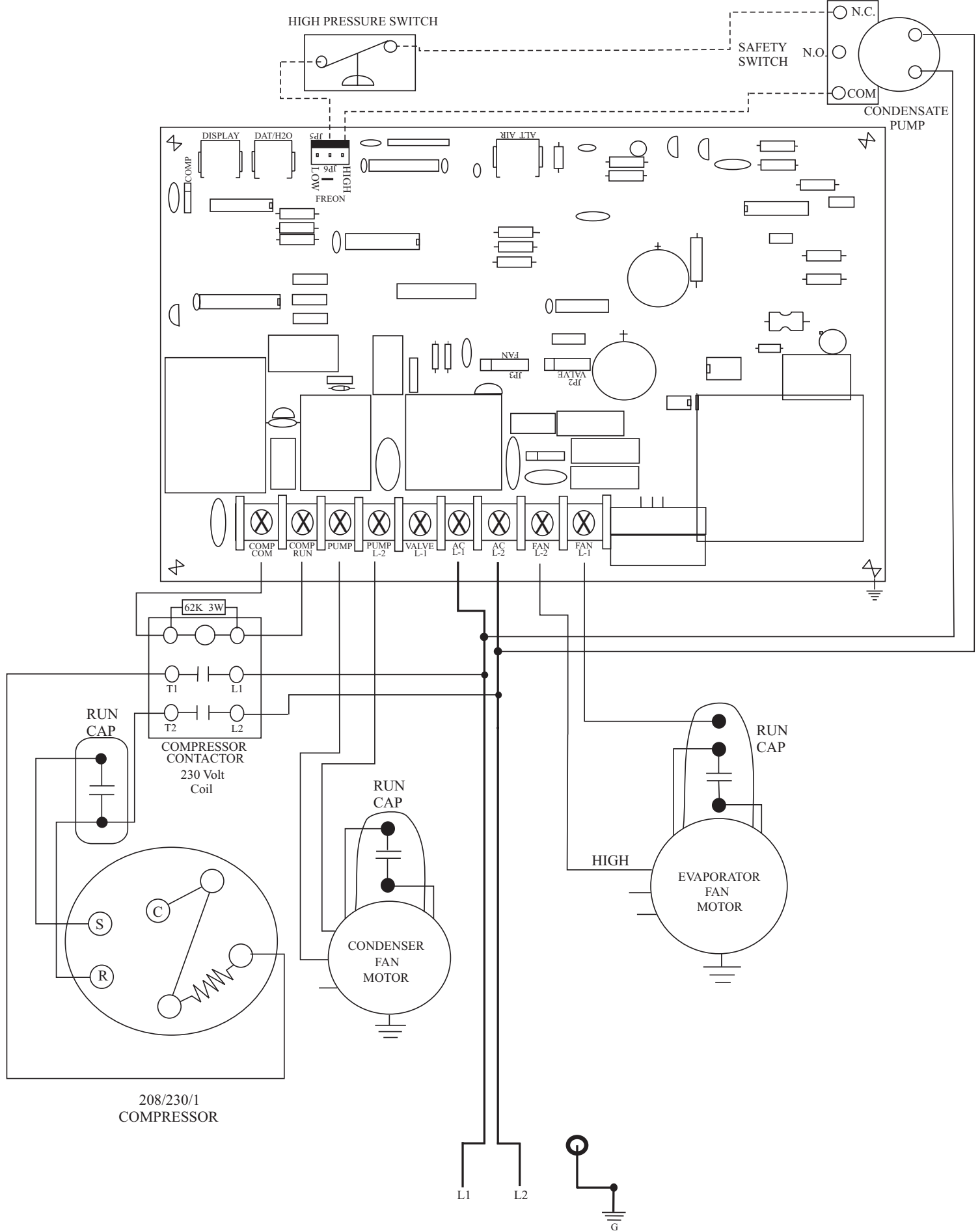
NOTE: Compressor has only one proper rotation direction. If compressor is unusually noisy and does not cool, it may be running backwards. This is not unusual for 3 phase equipment.

TO CORRECT THIS:
 Unplug power cord from outlet, remove side panel at electrical box and reverse any two of the power leads on the compressor contactor. Example, move L1 wire to L2. And move L2 wire to L1. Re-install side panel, plug unit in and re-start.

Plug for 20AC3632 L15-20P

Oceanaire, Inc.
AIR-COOLED COOLING ONLY
MODEL 20AC3632
208/230 VOLT 3 PHASE

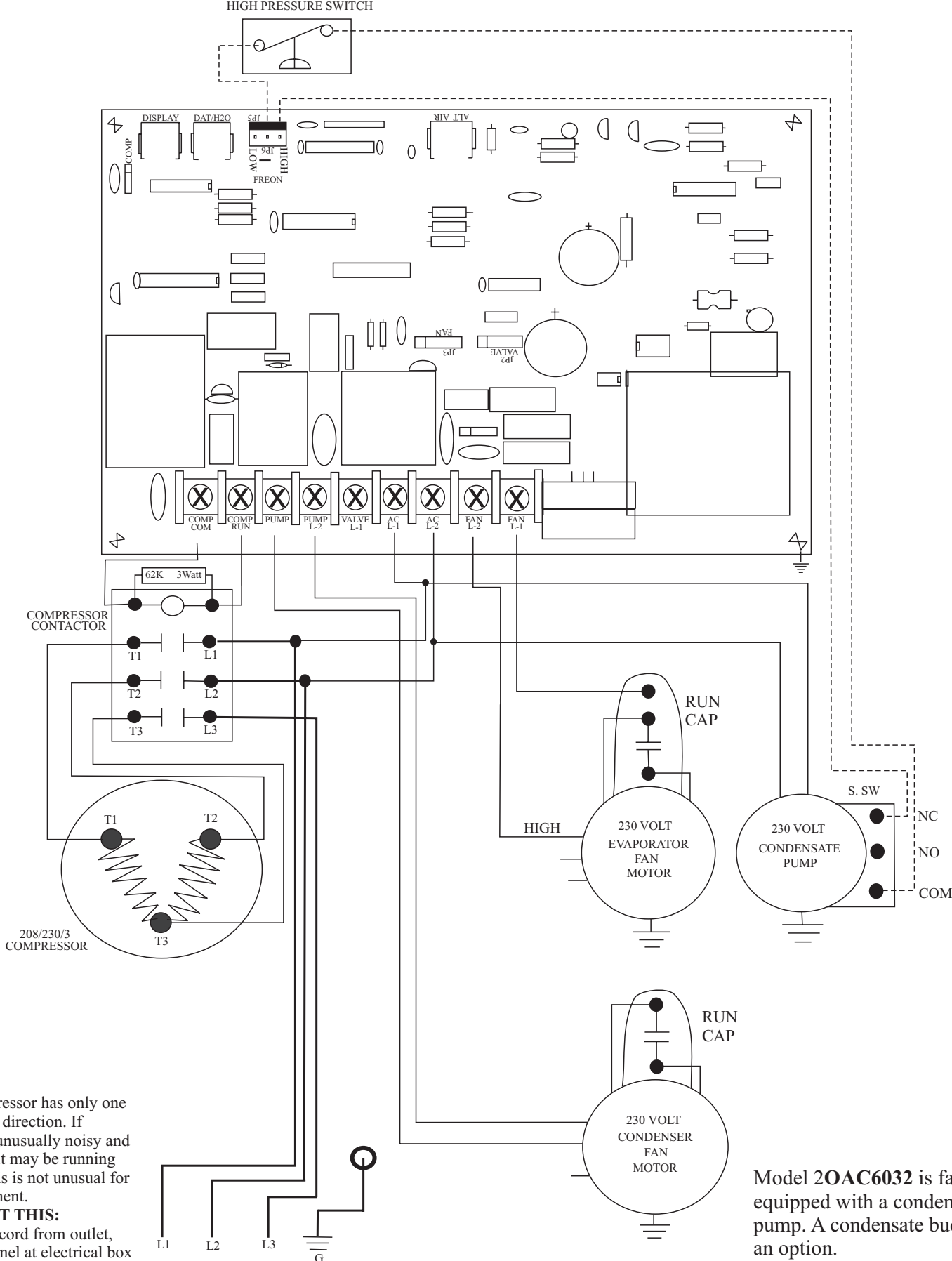
ArcticAire



Oceanaire, Inc.
 AIR-COOLED COOLING ONLY
 MODEL 20AC6012
 208/230/1 Volt

ArcticAire

HIGH PRESSURE SWITCH



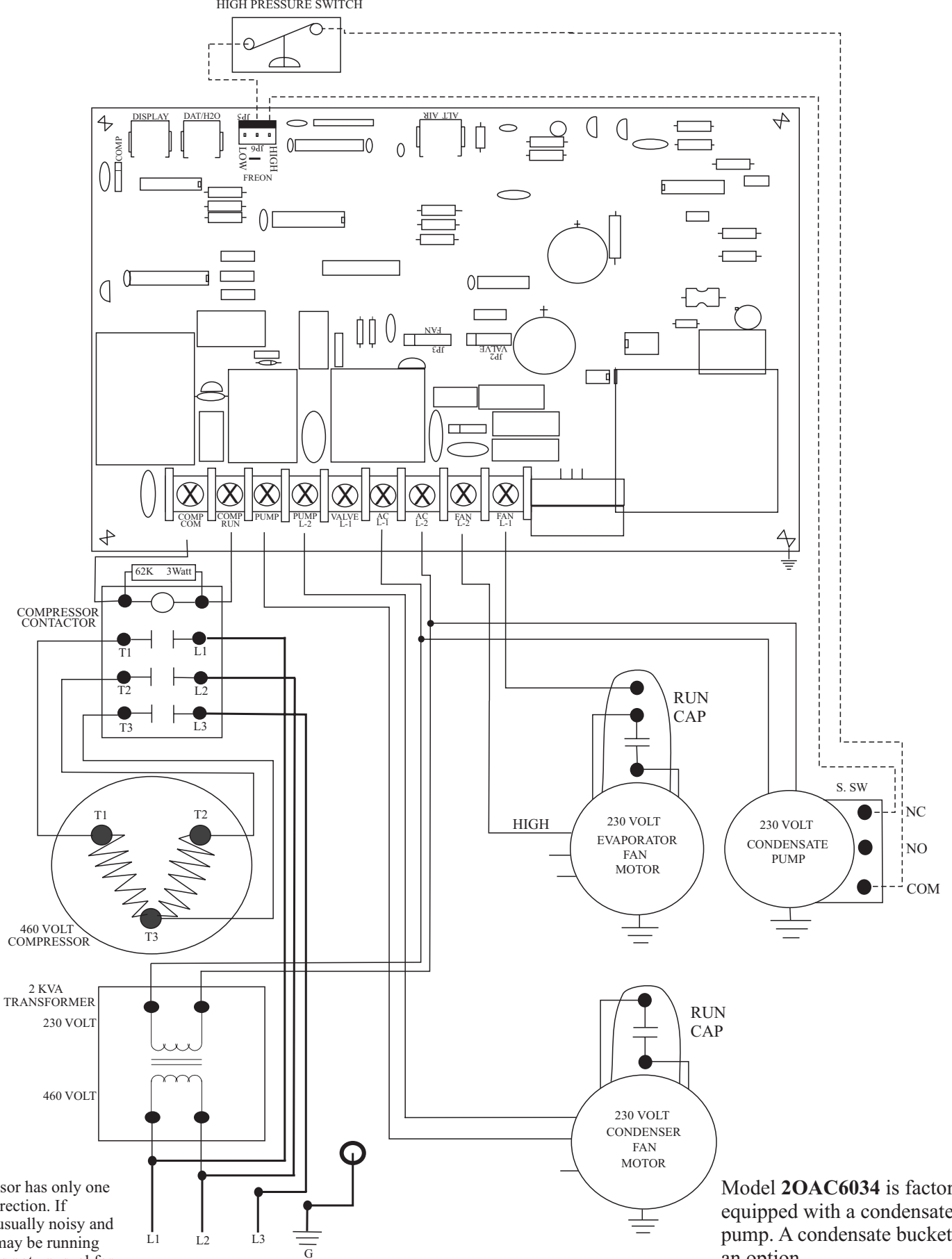
NOTE: Compressor has only one proper rotation direction. If compressor is unusually noisy and does not cool, it may be running backwards. This is not unusual for 3 phase equipment.

TO CORRECT THIS:
 Unplug power cord from outlet, remove side panel at electrical box and reverse any two of the power leads on the compressor contactor. Example, move L1 wire to L2. And move L2 wire to L1. Re-install side panel, plug unit in and re-start.

Model 2OAC6032 is factory equipped with a condensate pump. A condensate bucket is *not* an option.

Oceanaire, Inc.
AIR-COOLED COOLING ONLY
MODEL 2OAC6032
208/230 VOLT 3 PHASE

ArcticAire



NOTE: Compressor has only one proper rotation direction. If compressor is unusually noisy and does not cool, it may be running backwards. This is not unusual for 3 phase equipment.

TO CORRECT THIS:
 Unplug power cord from outlet, remove side panel at electrical box and reverse any two of the power leads on the compressor contactor. Example, move L1 wire to L2. And move L2 wire to L1. Re-install side panel, plug unit in and re-start.

Plug for 2OACH6034 L16-30P

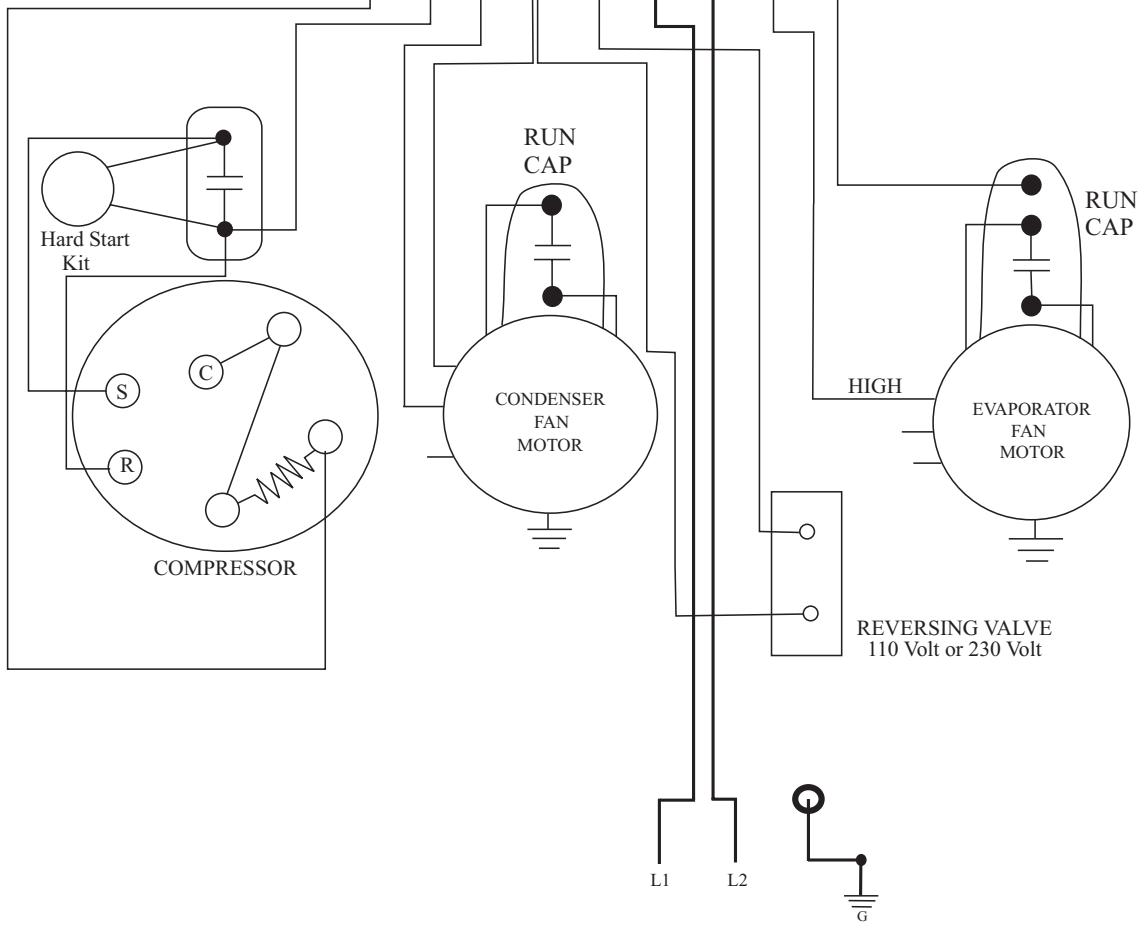
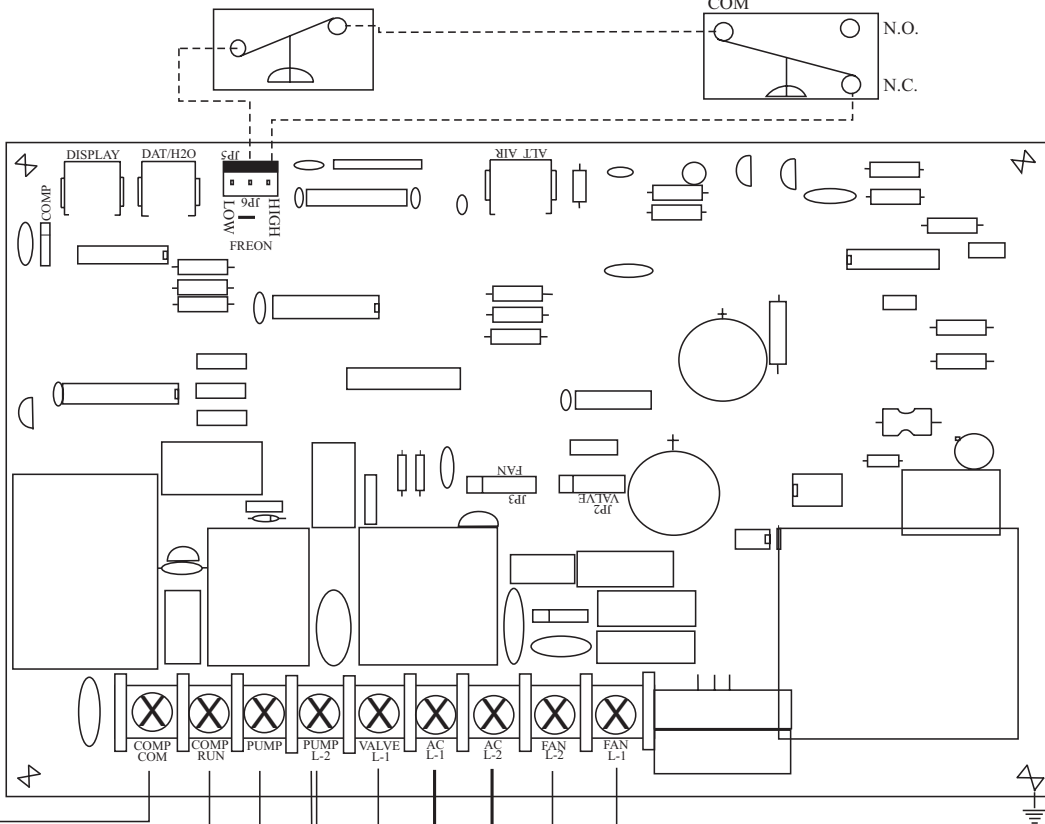
Oceanaire, Inc.

**AIR-COOLED COOLING ONLY
 MODELS 2OAC6034
 460 VOLT 3 PHASE**

ArcticAire

TANK FULL CUT-OUT SWITCH

COM N.O. N.C.



Oceanaire, Inc.

HEAT PUMP **AIR-COOLED HEATING/COOLING** **ConvertibleAire**

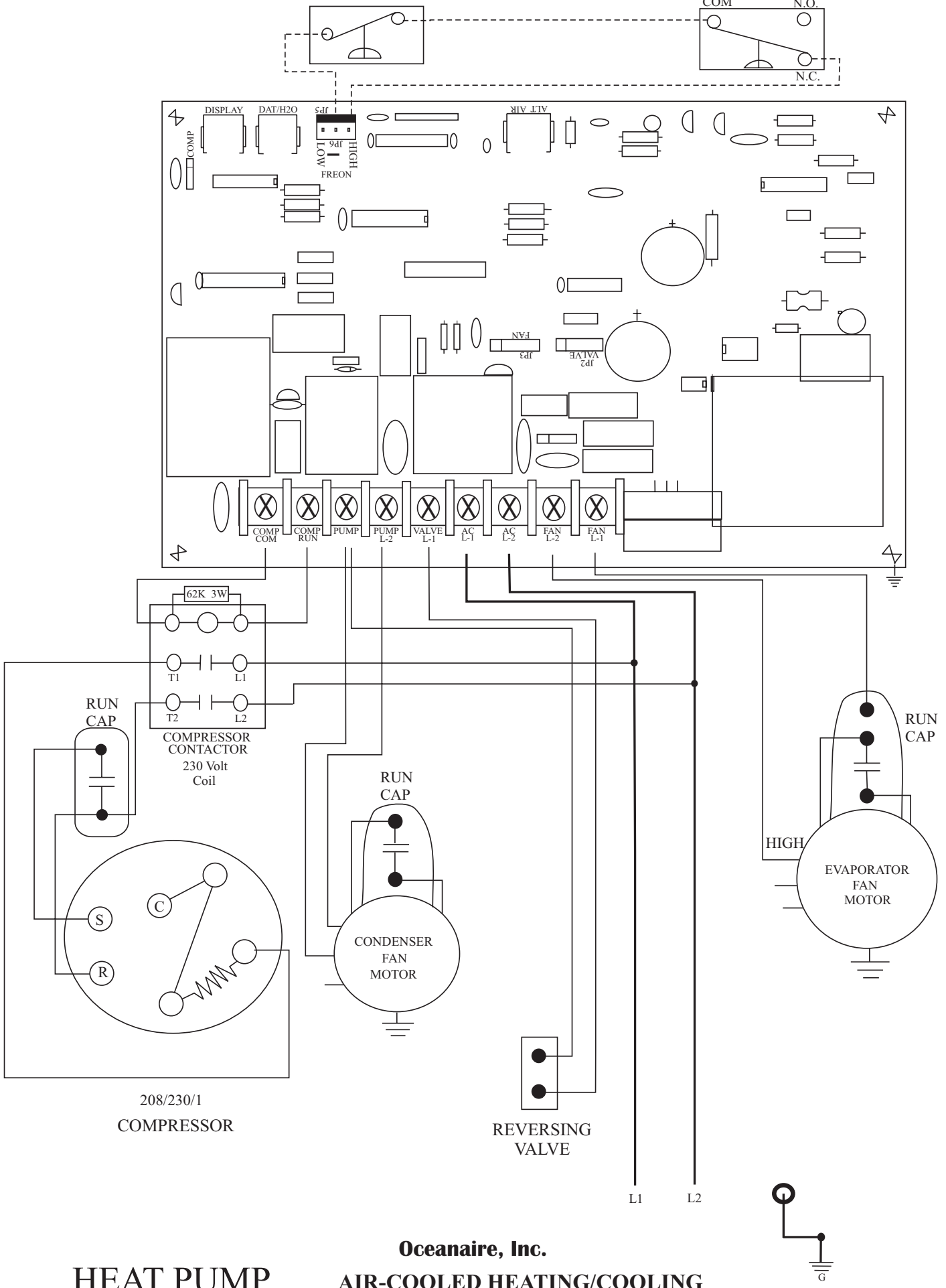
MODELS 20ACH12, 18, 24

115 and 230 Volt

Hard Start Kit Applies to 20ACH1811 Only

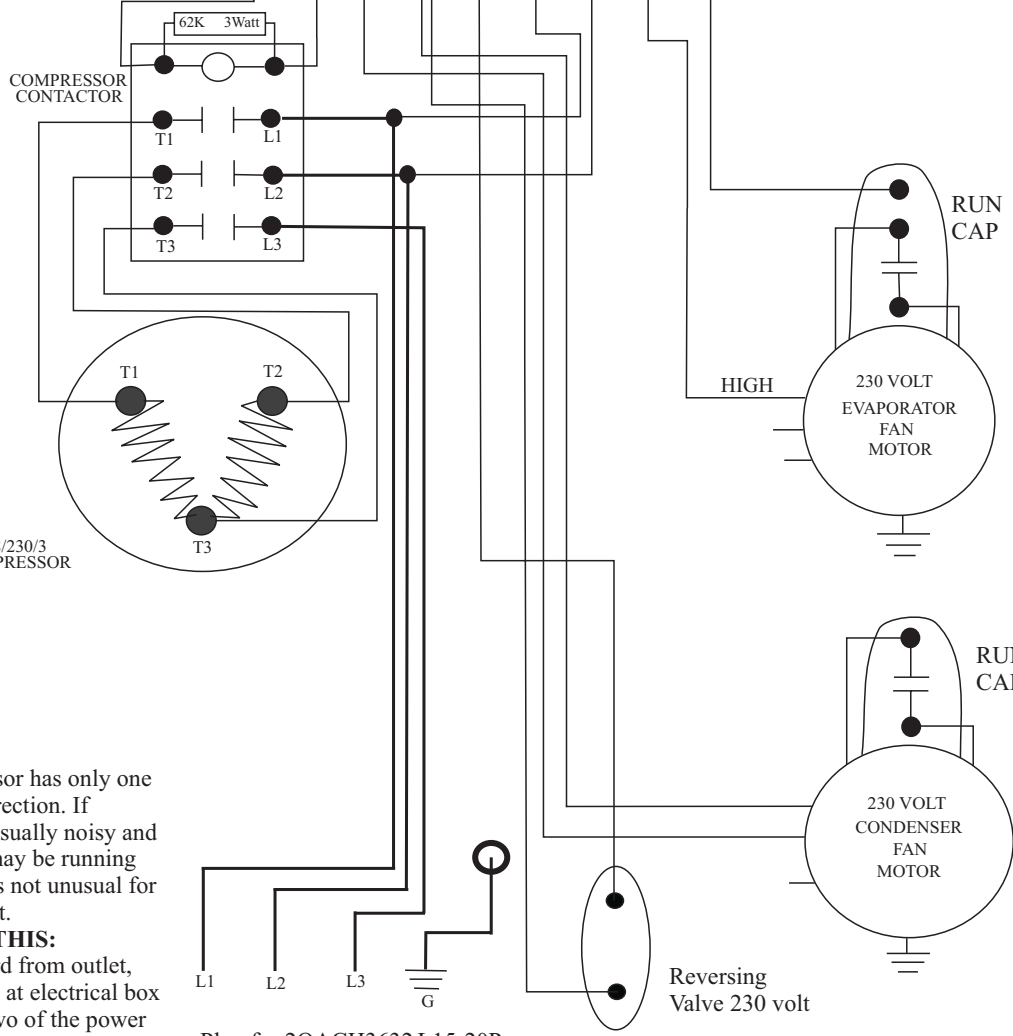
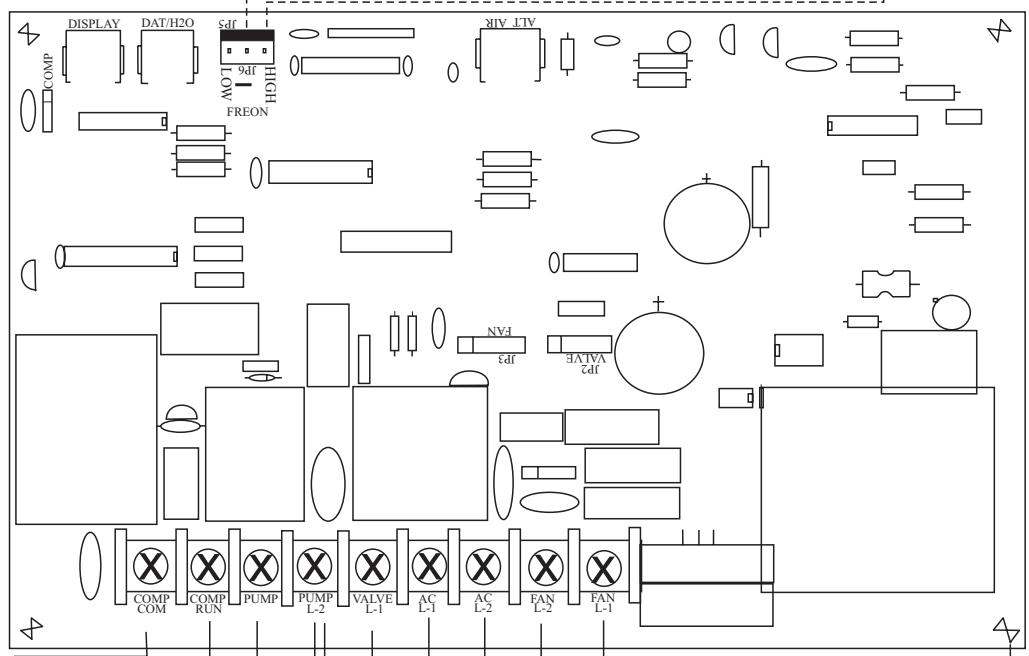
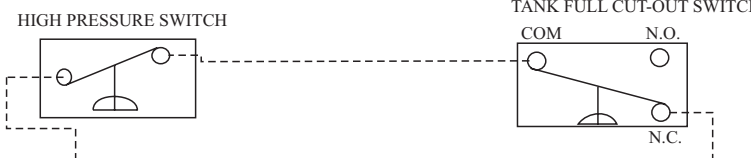
HIGH PRESSURE SWITCH

TANK FULL CUT-OUT SWITCH



HEAT PUMP
ConvertibleAire

Oceanaire, Inc.
AIR-COOLED HEATING/COOLING
MODEL 20ACH3612
208/230/1 Volt



NOTE: Compressor has only one proper rotation direction. If compressor is unusually noisy and does not cool, it may be running backwards. This is not unusual for 3 phase equipment.

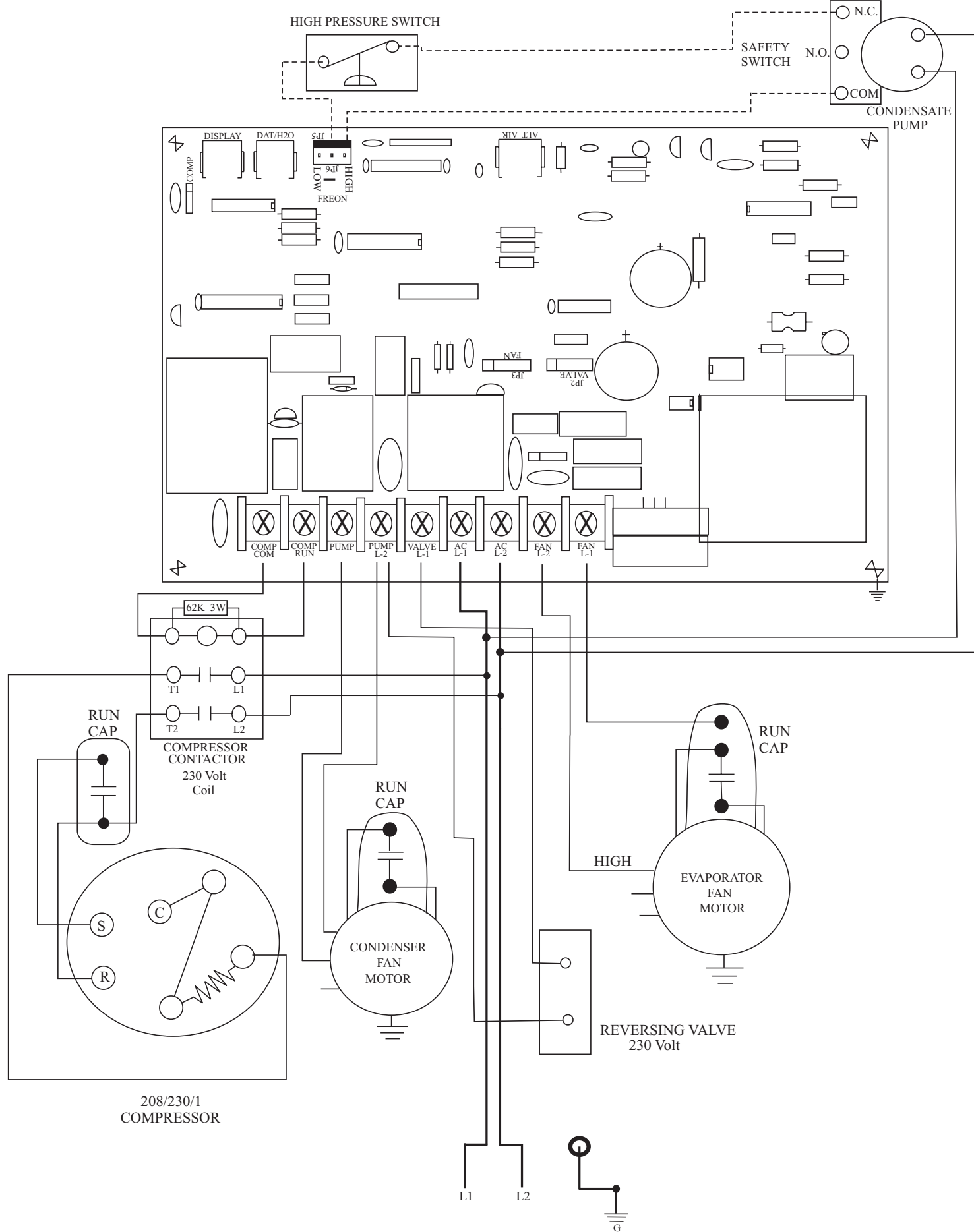
TO CORRECT THIS:
 Unplug power cord from outlet, remove side panel at electrical box and reverse any two of the power leads on the compressor contactor. Example, move L1 wire to L2. And move L2 wire to L1. Re-install side panel, plug unit in and re-start.

Plug for 20ACH3632 L15-20P

Model 20ACH3632 is factory equipped with a condensate bucket. However, a condensate pump may be added as an option.

Oceanaire, Inc.
AIR-COOLED HEATING/COOLING
MODEL 20ACH3632
208/230 VOLT 3 PHASE

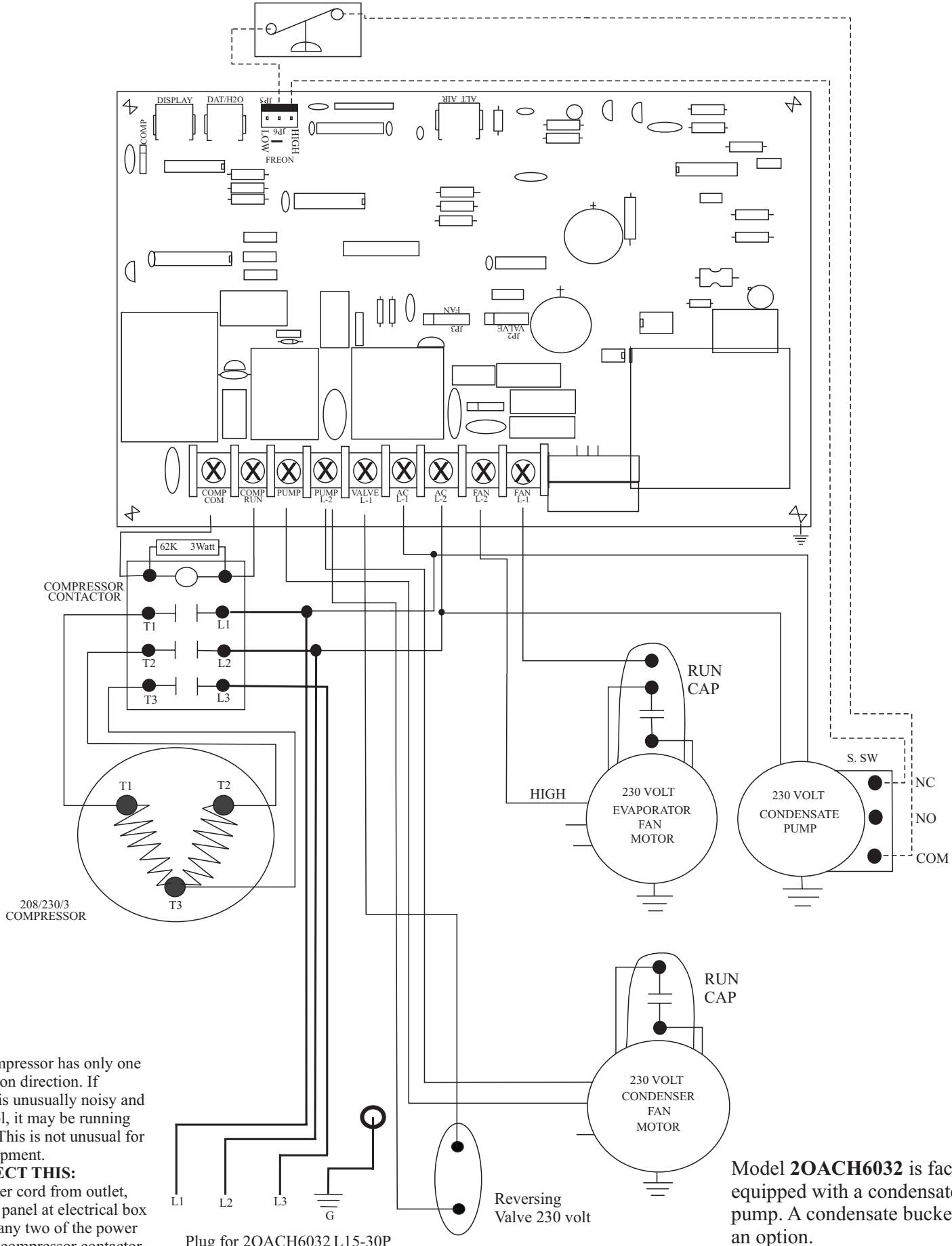
HEAT PUMP
ConvertibleAire



HEAT PUMP
ConvertibleAir

Oceanaire, Inc.
AIR-COOLED HEATING/COOLING
MODEL 2OACH6012
208/230 Volt

HIGH PRESSURE SWITCH



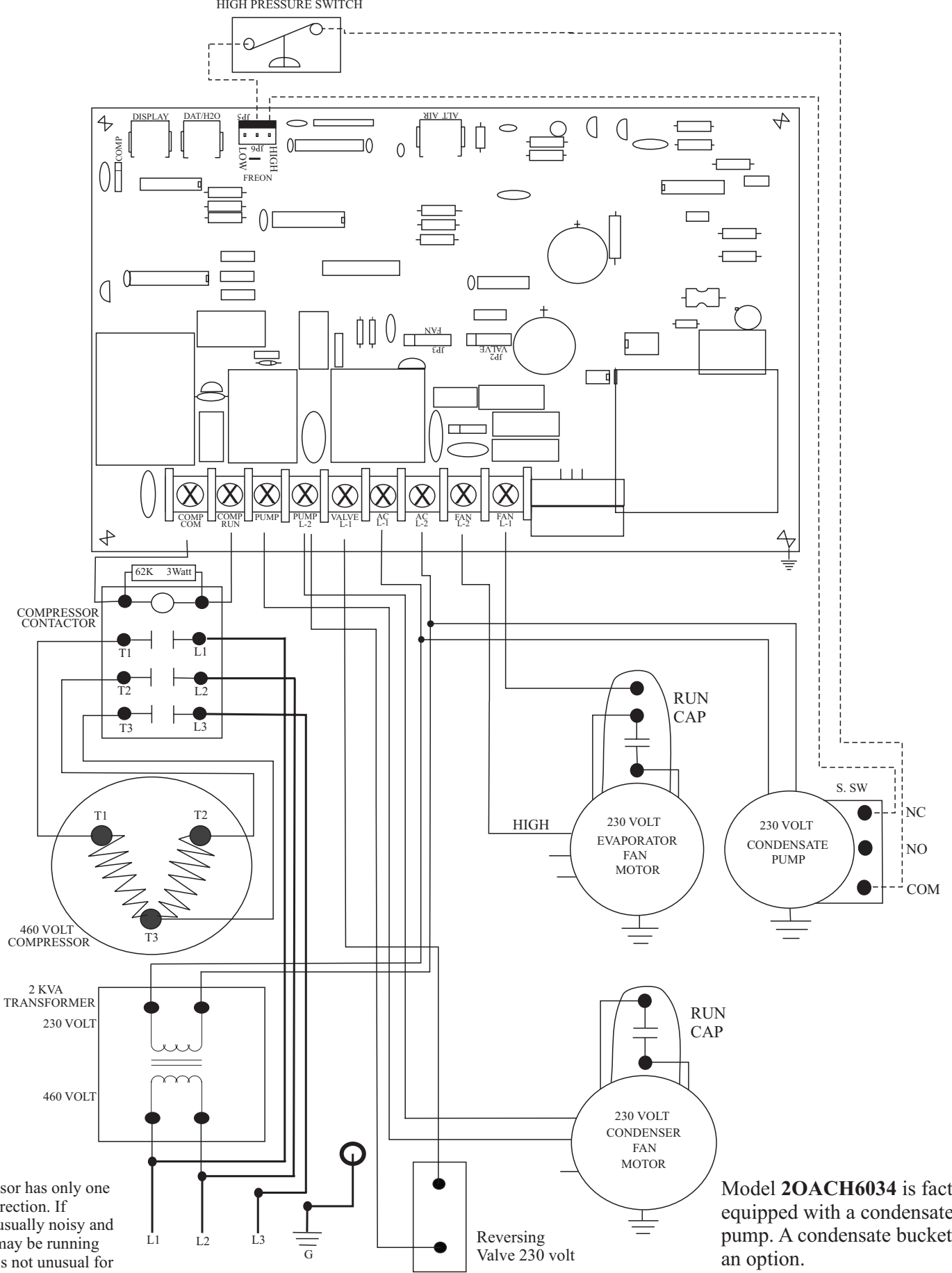
NOTE: Compressor has only one proper rotation direction. If compressor is unusually noisy and does not cool, it may be running backwards. This is not unusual for 3 phase equipment.

TO CORRECT THIS:
 Unplug power cord from outlet, remove side panel at electrical box and reverse any two of the power leads on the compressor contactor. Example, move L1 wire to L2. And move L2 wire to L1. Re-install side panel, plug unit in and re-start.

Model 20ACH6032 is factory equipped with a condensate pump. A condensate bucket is *not* an option.

Oceanaire, Inc.
AIR-COOLED HEATING/COOLING
MODEL 20ACH6032
208/230 VOLT 3 PHASE

HEAT PUMP
ConvertibleAire



NOTE: Compressor has only one proper rotation direction. If compressor is unusually noisy and does not cool, it may be running backwards. This is not unusual for 3 phase equipment.

TO CORRECT THIS:
 Unplug power cord from outlet, remove side panel at electrical box and reverse any two of the power leads on the compressor contactor. Example, move L1 wire to L2. And move L2 wire to L1. Re-install side panel, plug unit in and re-start.

Model 2OACH6034 is factory equipped with a condensate pump. A condensate bucket is not an option.

Plug for 2OACH6034 L16-30P

Unplug power cord from outlet, remove side panel at electrical box and reverse any two of the power leads on the compressor contactor. Example, move L1 wire to L2. And move L2 wire to L1. Re-install side panel, plug unit in and re-start.

Oceanaire, Inc.
AIR-COOLED HEATING/COOLING
MODELS 2OACH6034
460 VOLT 3 PHASE

HEAT PUMP
ConvertibleAire

OCEANAIRE, INC.

Manufacturers of Portable Air Conditioning and Heating Units