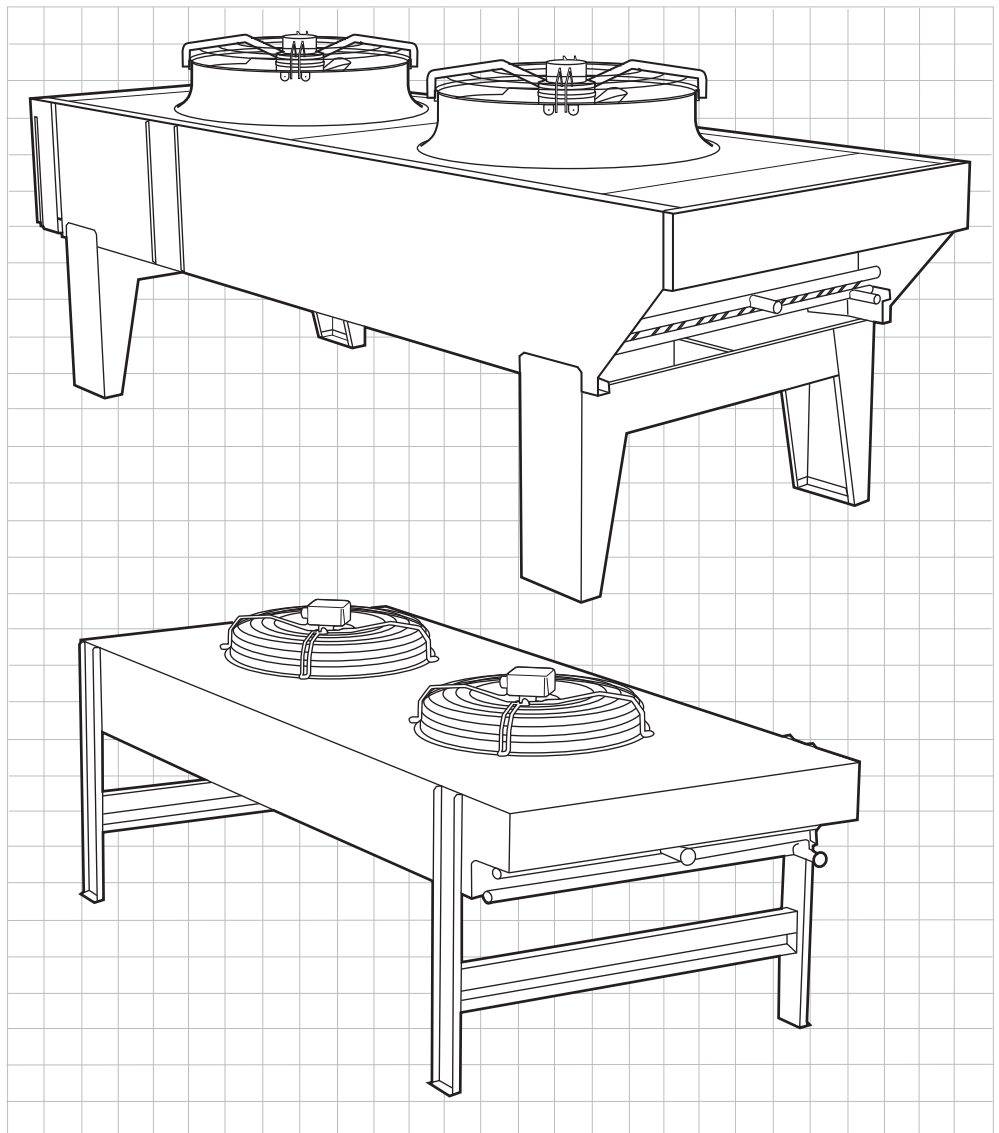




- Pre-painted galvanized steel cabinet provides years of durable finish protection and ascetics.
- Large commercial condensers are available in single and dual-circuit designs to match the needs of the dehumidifier.
- Optional, E-Coat provides a uniform, flexible coating over the entire coil.

Air-Cooled Condensers

Installation and Operation Manual



DANGER

ONLY TRAINED, QUALIFIED PERSONNEL SHOULD INSTALL AND/OR SERVICE DESERT AIRE EQUIPMENT. SERIOUS INJURY, DEATH AND PROPERTY DAMAGE CAN RESULT FROM IMPROPER INSTALLATION/SERVICE OF THIS EQUIPMENT. HIGH VOLTAGE ELECTRICAL COMPONENTS AND REFRIGERANT UNDER PRESSURE ARE PRESENT.

Desert Aire Dehumidification Equipment Standard Limited Warranty

Desert Aire warrants the dehumidifying unit to be free from defects in materials and workmanship subject to the terms, conditions and limitations stated herein.

TERMS

Desert Aire warrants all components (except as noted) for a period of one (1) year from the date of shipment contingent on validation of unit startup by Desert Aire Service. Upon connection of the unit to Desert Aire's AireGuard™ remote access system via onboard Ethernet connection the warranty is extended one additional year for a total warranty period of two (2) years from date of shipment. This requires validation of unit start up by Desert Aire Service. This warranty shall be limited to the supply of new or rebuilt parts for the part which has failed because of defects in workmanship or material, and does not include the cost of labor, transportation or other costs not herein provided for. Replaced parts are warranted only for the remaining portion of the original warranty period.

CONDITIONS

The warranty is subject to the following conditions:

1. The unit must be properly installed and maintained in accordance with the Desert Aire "Installation and Operation Manual" provided with each unit and/or other documentation provided.
2. **The Start-Up Report must be completed and returned to Desert Aire Service for evaluation. If no deficiencies are identified a Warranty Validation Letter will be issued that provides all warranty dates and coverage. If installation or start-up deficiencies are present, these must be corrected and communicated to Desert Aire in order to activate warranty.**
3. This warranty shall not apply to any part that has been tampered with, or has been subject to misuse, negligence or accident. A warranty can be obtained for altered equipment but only with written consent from Desert Aire.
4. The following parts and components are excluded from the warranty: belts, air filters, refrigerant filter driers, fuses and refrigerant.
5. Excluded parts and components includes but is not limited to components that fail due to freezing such as water coils, brazed plate heat exchangers, condensate lines, etc.
6. Refrigerant coils or other components that corrode due to improperly balanced pool chemistry or corrosive air quality will not be warranted.
7. All replacements or repairs will be FOB Germantown, WI.

8. This warranty shall be null and void if defects or damages result from unauthorized opening of the refrigerant circuit, tampering with factory set controls, or operating outside the original design conditions.
9. Desert Aire shall not be liable for labor costs incurred in diagnosing the problem, or the removal or replacement of the part or parts being repaired.
10. Desert Aire must preauthorize all warranty coverage described herein.

Extended Warranty:

Your Desert Aire unit may have extended warranties beyond this Standard Limited Warranty document. Extended warranties are only available at the time of the purchase of the original equipment. These extended warranties are covered under a separate document and their terms and conditions are separate from this document. It is mentioned in this document for informational purposes only. Any Extended Warranties will be identified on the Warranty Validation Letter.

Any and all incidental or consequential damages are expressly excluded from this warranty. Some states do not allow the exclusion of incidental or consequential damages for personal injury, so the above limitations may not apply to you for certain damages. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. No person or representative is authorized to make any warranty or assume any liability not strictly in accordance with the aforementioned.

Inquiries regarding warranty matters should be addressed to:

Desert Aire Corp
c/o Service Manager
N120 W18485 Freistadt Road
Germantown, WI 53022
PH: (262) 946-7400
FAX: (262) 946-7401
E-MAIL: service@desert-aire.com

Additional copies of this manual can be purchased for a nominal fee from Desert Aire. Desert Aire also posts the most current revision of our I/O Manuals on our website. For a digital copy of the I/O Manual for your unit revision, please submit request to the contact information listed above.

Safety Labels are used throughout this manual. They comply with the ANSI Z535.4 Standard. Please be familiar with the following labels and their definitions.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.



Caution used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, could result in property damage.

Product Warning for the State of California:



WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov








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1 ISO Safety Symbols

Read and understand safety precautions prior to installation and operation.

Improper installation and operation due to negligence of instructions may result in significant property damage, severe injury, and / or death. The symbol graphics used within this manual are classified by the following general appearance shown below.

| | |
|---|--|
|  | Mandatory action required where ignoring mandatory action can result in property damage, significant injury, and / or death. |
|  | General Hazard warning where if the corresponding precautions are not taken it could result in significant property damage, severe injury and / or death. |
|  | Prohibited Action. You must never perform the action shown or described. |
|  | Important additional information and advice for user. |
|  | Before installation, start-up, and operation, read these instructions carefully to ensure correct use. Use this manual to work safely with and on the equipment. They contain safety instructions that must be complied with as well as information required for optimal performance of the equipment. Failure to follow instructions can result in significant property damage, severe injury and / or death. |
|  | Before servicing equipment read these instructions carefully. They contain safety instructions and hazard warnings that must be complied with. Failure to follow instructions can result in significant property damage, severe injury and / or death. |
|  | Lock Electrical Disconnect Switch or Circuit Breaker supplying the equipment when opening any access doors or covers. Follow Lock Out - Tag Out protocol when servicing equipment. |

| | |
|---|--|
|  | Disconnect all incoming sources of power before opening any access doors or covers on the equipment. |
|  | Equipment has High Leakage Current. Protective Earth connection essential before connecting mains supply. Minimum ground wire size: 8.4mm ² Cu. |
|  | Equipment operates with refrigerant which can be dangerous when servicing. Eye protection required. |
|  | Wear protective gloves. Equipment can contain contaminated refrigerant and oil which can cause severe burns. |
|  | Lift equipment is mandatory any time unit is moved. |
|  | Never operate the equipment with doors or covers removed. Access to hazardous voltage and moving parts can result in significant property damage, severe injury, and / or death. |
|  | Warning, equipment contains hazardous voltage and live electrical parts. Coming in to contact with these parts can result in severe injury, and / or death. Take necessary precautions to avoid contact with live parts. |
|  | Warning, equipment has potential arc flash hazard. Appropriate PPE and tools required when working on this equipment. Failure to comply may result in severe injury, and / or death. |
|  | Warning, equipment contains hazard due to contact with rotating fan blade. Coming into contact with rotating fan blade can result in significant property damage, severe injury, and / or death. Take necessary precautions. |

| | |
|---|--|
|  | <p>Warning, equipment may contain multiple supply mains connections to Hazardous Live Voltage. Disconnect all supply connections before removal of doors or covers. Failure to comply may result in severe injury, and / or death.</p> |
|  | <p>Warning, equipment selected with CO₂ option have associated CO₂ hazards. Correct installation and selection of alarms, warnings, and safety components required. Failure to comply may result in injury, and / or death.</p> |
|  | <p>Warning, equipment contains refrigerant gas that can be under high pressure. Only qualified, trained, and licensed person(s) should open the refrigeration circuit with authorization from the manufacturer and following these instructions. Failure to do so can result in property damage, serious injury, and / or death.</p> |

1. Introduction

Desert Aire dehumidifiers and remote condensers are designed to provide years of reliable service when installed properly. Read these instructions carefully before you install the remote condenser.

Desert Aire has formed a partnership with Modine North America, one of the premier coil and air-cooled condenser manufacturers in the industry. Modine custom manufactures the Desert Aire Remote Condensers to the highest standards. It should be noted that most condensers have a Desert Aire specific circuit design optimized to work with the design temperatures and pressures of the dehumidifiers and design conditions. The electrical options, configuration, and supply voltage have also been pre-configured. When replacing the condenser, the specific Desert Aire design should be used to ensure proper performance and reliability. The specific Desert Aire order code that includes all options can be obtained by contacting the Desert Aire Service Department.

The remote condenser model number indicated on the rating plate is a Modine model number. It should be noted that these numbers are general configuration numbers that indicate types and relative capacity. Desert Aire model numbers identify unique configurations and more than one Desert Aire model may be identified with the same Modine rating plate number.

The following table may be used for general reference if there are questions regarding the condenser ordered from Desert Aire.

In Figure 1, the “x” in the Modine number is a variable for the fin count. This may be a 0, 2, 4, or 8 for a specific unit. The “xxxxxxx” in the Desert Aire number indicates a variable configuration string that includes voltage, coating, and circuit option codes. Some applications also have a custom condenser with Desert Aire part numbers reflecting special options. Contact the factory if the specific code is required for reorder or if there are questions regarding the specialty system.

Standard remote condensers indicated above have single speed motors in a fan cycling control arrangement. Specialty systems may be equipped with a variable speed fan arrangement. Units with rating plate model number beginning with “LCV” have the variable speed arrangement referenced in this manual.

| Modine Rating Plate Base Model No. | Desert Aire Model No. | Modine Rating Plate Base Model No. | Desert Aire Model No. |
|---|----------------------------------|---|----------------------------------|
| LCS5x11-008 | RC5S008xxxxxxxxx | LCS8x23-052 | RC8D052xxxxxxxxx |
| LCS5x11-013 | RC5S013xxxxxxxxx | LCS8x24-060 | RC8D060xxxxxxxxx |
| LCS5x11-018 | RC5S018xxxxxxxxx | LCS8x24-070 | RC8D070xxxxxxxxx |
| LCS5x11-024 | RC5S024xxxxxxxxx | LCS8x25-081 | RC8D081xxxxxxxxx |
| LCS5x11-032 | RC5S032xxxxxxxxx | LCS8x25-091 | RC8D091xxxxxxxxx |
| LCS5x11-039 | RC5S039xxxxxxxxx | LCS8x26-107 | RC8D107xxxxxxxxx |
| LCS5x12-051 | RC5S051xxxxxxxxx | LCU8x11-005 | RCUS005xxxxxxxxx |
| LCS5x12-063 | RC5S063xxxxxxxxx | LCU8x11-006 | RCUS006xxxxxxxxx |
| LCS5x12-067 | RC5S067xxxxxxxxx | LCU8x12-008 | RCUS008xxxxxxxxx |
| LCS5x12-079 | RC5S079xxxxxxxxx | LCU8x12-010 | RCUS010xxxxxxxxx |
| LCS5x13-099 | RC5S099xxxxxxxxx | LCU8x12-012 | RCUS012xxxxxxxxx |
| LCS5x13-113 | RC5S113xxxxxxxxx | LCU8x13-016 | RCUS016xxxxxxxxx |
| LCS8x11-007 | RC8S007xxxxxxxxx | LCU8x13-018 | RCUS018xxxxxxxxx |
| LCS8x11-009 | RC8S009xxxxxxxxx | LCU8x14-021 | RCUS021xxxxxxxxx |
| LCS8x12-011 | RC8S011xxxxxxxxx | LCU8x14-023 | RCUS023xxxxxxxxx |
| LCS8x12-015 | RC8S015xxxxxxxxx | LCU8x15-027 | RCUS027xxxxxxxxx |
| LCS8x12-018 | RC8S018xxxxxxxxx | LCU8x15-030 | RCUS030xxxxxxxxx |
| LCS8x13-022 | RC8S022xxxxxxxxx | LCU8x16-036 | RCUS036xxxxxxxxx |
| LCS8x13-026 | RC8S026xxxxxxxxx | LCU8x17-042 | RCUS042xxxxxxxxx |
| LCS8x14-030 | RC8S030xxxxxxxxx | LCU8x22-015 | RCUD015xxxxxxxxx |
| LCS8x14-035 | RC8S035xxxxxxxxx | LCU8x22-020 | RCUD020xxxxxxxxx |
| LCS8x15-040 | RC8S040xxxxxxxxx | LCU8x23-031 | RCUD031xxxxxxxxx |
| LCS8x15-046 | RC8S046xxxxxxxxx | LCU8x23-036 | RCUD036xxxxxxxxx |
| LCS8x16-054 | RC8S054xxxxxxxxx | LCU8x24-041 | RCUD041xxxxxxxxx |
| LCS8x17-062 | RC8S062xxxxxxxxx | LCU8x24-048 | RCUD048xxxxxxxxx |
| LCS8x22-022 | RC8D022xxxxxxxxx | LCU8x25-053 | RCUD053xxxxxxxxx |
| LCS8x22-029 | RC8D029xxxxxxxxx | LCU8x25-059 | RCUD059xxxxxxxxx |
| LCS8x22-035 | RC8D035xxxxxxxxx | LCU8x26-069 | RCUD069xxxxxxxxx |
| LCS8x23-044 | RC8D044xxxxxxxxx | LCU8x27-082 | RCUD082xxxxxxxxx |

Figure 1 – Modine and Desert Aire Model Number Reference

Figure 1 (continuation)

| Modine Rating Plate Base Model No. | Desert Aire Model No. | Modine Rating Plate Base Model No. | Desert Aire Model No. |
|---|----------------------------------|---|----------------------------------|
| LCS8x12-018 | RCES018xxxxxxxx | LCU8214-021 | RCFS021xxxxxxxx |
| LCS8x13-022 | RCES022xxxxxxxx | LCU8214-023 | RCFS023xxxxxxxx |
| LCS8x13-026 | RCES026xxxxxxxx | LCU8215-027 | RCFS027xxxxxxxx |
| LCS8x14-030 | RCES030xxxxxxxx | LCU8215-030 | RCFS030xxxxxxxx |
| LCS8x14-035 | RCES035xxxxxxxx | LCU8222-015 | RCFD015xxxxxxxx |
| LCS8x15-040 | RCES040xxxxxxxx | LCU8222-020 | RCFD020xxxxxxxx |
| LCS8x15-046 | RCES046xxxxxxxx | LCU8216-036 | RCFS036xxxxxxxx |
| LCS8x22-022 | RCED022xxxxxxxx | LCU8217-042 | RCFS042xxxxxxxx |
| LCS8x22-029 | RCED029xxxxxxxx | LCU8223-031 | RCFD031xxxxxxxx |
| LCS8x22-035 | RCED035xxxxxxxx | LCU8223-036 | RCFD036xxxxxxxx |
| LCS8x23-044 | RCED044xxxxxxxx | LCU8224-041 | RCFD041xxxxxxxx |
| LCS8x23-052 | RCED052xxxxxxxx | LCU8224-048 | RCFD048xxxxxxxx |
| LCS8x24-060 | RCED060xxxxxxxx | LCU8225-053 | RCFD053xxxxxxxx |
| LCS8x24-070 | RCED070xxxxxxxx | LCU8225-059 | RCFD059xxxxxxxx |
| LCU8213-018 | RCFS018xxxxxxxx | LCU8226-069 | RCFD069xxxxxxxx |
| LCU8213-016 | RCFS016xxxxxxxx | LCU8227-082 | RCFD082xxxxxxxx |

Figure 1 – Modine and Desert Aire Model Number Reference (Continued)

RCE / RCF Selections – Circuiting and Fan Configurations for units with Head Variable Speed Fan

General

- All fan selections will be based on seasonal use (non-flooded operation)
- Circuit A is considered the sensible cooling circuit (typically lower MBH) and Circuit B is the latent dehumidification circuit (typically higher MBH)

Single or Dual Row

- All single row fans will have one (1) EC head fan and the rest will be AC binary type fans. This will be true for all single and dual circuit ROC units when single row fans are selected.
- All double row fans will have two (2) EC head fans and the rest will be AC binary type fans. This will be true for all single and dual circuit ROC units.

Fan Split

- When a non-split single circuit is selected for design heat of rejection the head fan(s) will ramp up and down together and additional fans will cycle on and off.
- An even split on a dual row ROC will be selected on a dual circuit with equal heats of rejection on both circuits. The MBH will be doubled for the circuit with the larger pressure drop. Each head EC will operate independently based on each circuit pressure.

The Desert Aire part number will identify this with the part number designation as follows:

RCEDXXXXXXXXYYZZ or RCFDXXXXXXXXYYZZ, where YY = ZZ or YY > ZZ by 1 or YY < ZZ by 1 (YY represents circuit A feeds and ZZ represents circuit B feeds).

- A non-even split on a dual row ROC will be selected on a dual circuit with unequal circuit heats of rejection. The head EC will operate in parallel based on the circuit with the higher pressure. This will be pre-programmed in the P450 high signal select.

The Desert Aire part number will identify this with the part number designation as follows:

RCEDXXXXXXXXYYZZ or RCFDXXXXXXXXYYZZ, where YY > ZZ by more than 1 or YY < ZZ by more than 1 (YY represents circuit A feeds and ZZ represents circuit B feeds).

1.1 Inspection

Desert Aire inspects each unit before it leaves the factory so that you receive a quality piece of equipment. Unfortunately, equipment may become damaged in transit. Inspect the remote condenser carefully before signing the receiving papers. Check for both visible and concealed damage. Remove crating and inspect the exterior cabinet for damage. Dented panels, broken crating or any fluids leaking from the unit should be documented upon delivery.

1.2 Freight Damage Claims

If the dehumidifier has been damaged, document the extent of the damage. Take pictures if possible. Next, obtain a claim form from the carrier. Promptly fill it out and return the form. Carriers may deny claims that have not been filled out within a week of delivery. Notify Desert Aire of any damage.

1.3 Rigging

The equipment is designed to be lifted only by the lifting lugs installed on the unit. Use all available lifting lugs when rigging the unit. Always use a spreader bar that is at least as long as the distance between the furthest lifting lugs. See Figure 2 for the recommended rigging and lifting procedure.

Under no circumstances should the coil headers, return bends, or electrical box be used to lift or move this equipment.

It is most convenient to install the unit mounting leg assemblies when the unit is in the horizontal position (fans facing upward) and supported by the rigging.

The longer lifting lugs on one side of the unit (top side on shipping pallet) may be used

temporarily to lift the unit off of the shipping pallet and lay horizontally on the ground.

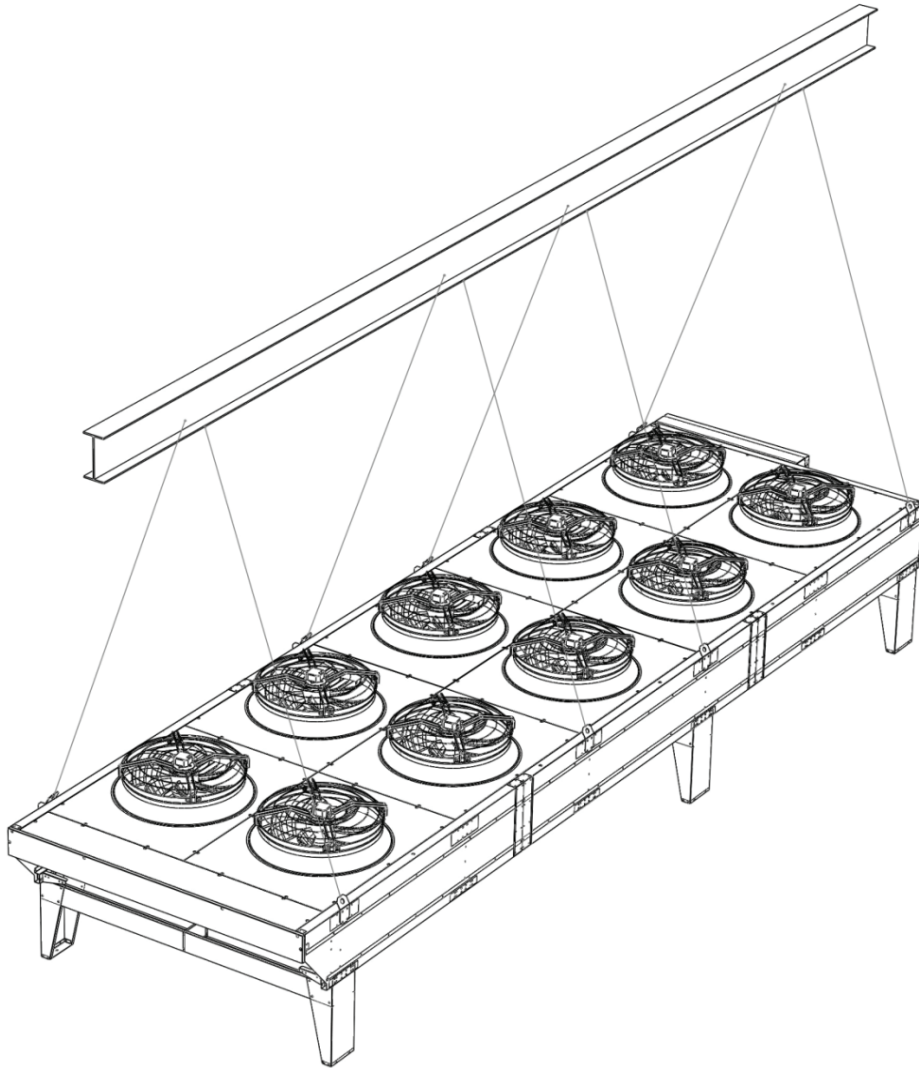


Figure 2 – Rigging Method, use all available lifting lugs. Always use a spreader bar.

2. Installation

Manual applies to standard unit configurations only.

2.1 Location

The equipment is designed for outdoor installation and may be mounted on a roof or concrete slab. The units should be mounted level on roofs, slabs and/or structural supports that are sufficiently strong to support the total equipment operating weight. Consult with a professional engineer to determine safe mounting loads.

Unrestricted airflow must be provided to each fan section of the equipment. The unit should be located far enough away from any wall or other obstruction to provide adequate clearance for ambient air inlet and discharge. Care must also be taken to avoid air recirculation from other nearby equipment. See Figure 3 for recommendations. Do not attach ductwork to the coil inlet or outlet. Locate the unit away from building air intakes and heat sources such as vents and exhaust fans.

A corrosive environment, whether it comes from the jobsite or from another nearby source, will significantly shorten the service life of the coil and may require an appropriate coil coating or copper fins to extend the life of the unit.

Equipment should be located away from occupied spaces to reduce the transmission of objectionable sound and/or vibration. Refrigerant piping should be sufficiently flexible to prevent transmission of noise and vibration into the building. Use isolation hangers to support refrigerant lines.

The unit must be secured in its final location. Holes are provided in the mounting legs for this purpose.

Note: Consideration should be given to allow ample space for maintenance work.

failure to install this valve may cause liquid to expand rapidly and result in line noise, vibration, and in extreme circumstances, tube distortion and refrigerant leaks. Specific instructions are shipped with the valves and unit. Installations with Desert Aire models QS, QV, GA, GS and GV do not require this valve.

Long lines and placement of the condenser significantly below the dehumidifier should be avoided unless this was specified during the design phase. A special condenser with an increased sub-cooling section must be specified if the condenser is to be installed well below the dehumidifier. Follow the original design specified at the time of unit order or contact Desert Aire service for an alternate condenser specification.

Provisions must be made to accommodate thermal expansion and contraction of the lines, especially where the lines have long runs with few elbows or bends. The lines must also be supported at frequent intervals in accordance with good piping practice. This is especially critical at the condenser connections where all piping connected directly to the condenser must be supported as close to the condenser as possible. See Figure 5 for recommendations.

Interconnecting piping of double wide units should be as short and direct as possible to the header connections. The inlet piping should always feed downward to the inlet header and be equipped with a pressure tap (purge) type valve at its highest point. The liquid outlet piping should be directed immediately downward in a minimum 15" drop leg to make a liquid seal. The drop leg must precede any bends or angles connecting it to the remainder of the liquid piping run. See Figure 5 for recommendations.

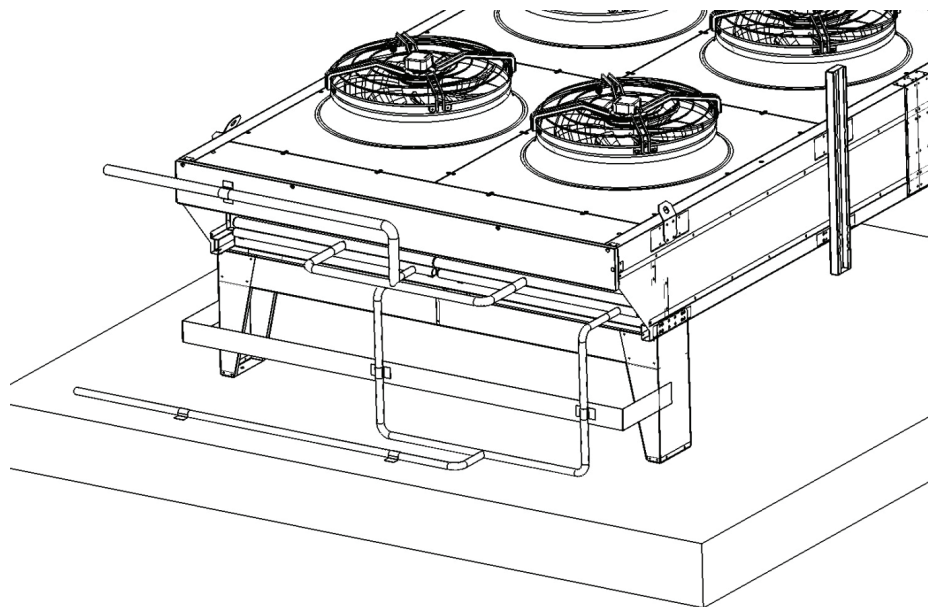


Figure 5 - Unit Mounting and Piping

Only for LC, LV, LW, SA and SP units check valves to be located on the hot gas inlet to the remote condenser. The valves shall be installed as close to the remote condenser as possible. Check valves can be oriented in a horizontal or upward position. They must not be facing downward. **Note, QS, QV, GA, GS and GV units do not require the check valves.** Refrigerant lines should be sloped in the direction of flow 1/8" per foot minimum to aid in the movement of oil and refrigerant throughout the system. Line diameters and refrigeration charges for standard applications are indicated on a label attached to the dehumidifier adjacent to the condenser tube connections. The maximum total line length allowed will vary depending on the dehumidifier model size and remote condenser combination selected. The maximum liquid line riser for a standard dehumidifier and remote condenser is 10'. Do not exceed the maximum line length or liquid line riser on standard configurations. A unit may also have been specially ordered with custom internal components to allow for longer total line lengths or greater liquid line risers. When the unit has been ordered for a specific line configuration, a label attached to the unit will indicate the line diameters and charges to be used.

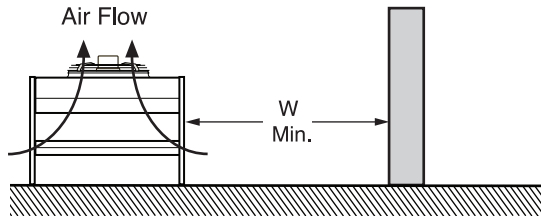
Discharge line traps should be installed at the base of all vertical risers and every 15 feet up the riser. These traps should be formed from short radius ells or preformed traps and kept as short as possible. Illustrations in Figure 7 are examples of proper trap locations on discharge lines. Traps are not required on the liquid return line. Contact Desert Aire Service at 262-946-7400 with any questions about the requirements.

The purpose of the trap is to increase the refrigerant velocity and carry oil up the vertical section of discharge line under lower loads. In doing so, additional oil will collect in the trap during these lower loads and/or staging of compressor capacity. There may be a field oil charge indicated on the unit label that accounts for oil miscible in the liquid refrigerant and some wetting of pipes. In addition to this oil, additional charge may be needed to ensure when these traps are filled that there is sufficient oil in the sump of the compressor. Use the following chart as a guideline for the amount of oil required for this low load operation.

| Discharge Line Tube Diameter | Estimated Additional Oil for Each Trap |
|------------------------------|--|
| 1/2" - 7/8" | 1 oz. |
| 1 1/8" - 1 3/8" | 2 oz. |
| 1 5/8" | 3 oz. |

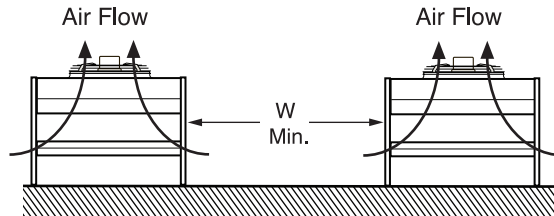
Figure 6 - Discharge Line Tube Diameter and Est. Additional Oil

In all cases where a compressor oil sight glass is available, observation of the oil level shall be the indicator that sufficient oil has been added to the system. Check each sight glass oil level after 24 hours of circuit run time and add oil as required. Approved POE oil specifications are indicated in Section 2.4.



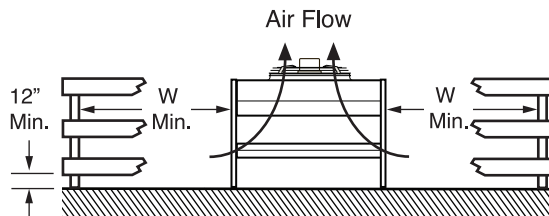
- **Walls or Obstructions**

All sides of the unit should be a minimum of one overall unit width “W” away from any wall or barrier.



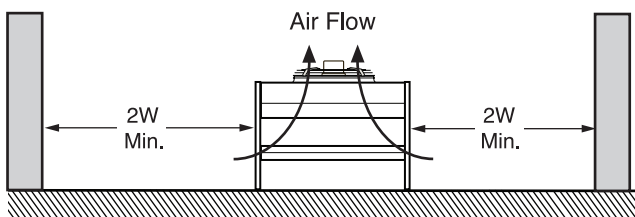
- **Multiple Units**

For units placed side by side, the minimum distance between the units is the overall width of the largest unit. If the units are placed end to end, the minimum distance between.



- **Decorative Fences**

Fences must have 50% free area, with 1 foot of bottom clearance, and must not extend higher than the top of the unit. Units should be a minimum of one overall width “W” away from the fence.



- **Units in Pits**

The top of the unit must be level with, or higher than, the top of the pit. All sides of the unit should be a minimum of two overall unit widths “2W” away from any wall of the pit.

Figure 3 – Space and Location Requirements

2.2 Unit Assembly and Installation

The leg assemblies are shipped with the unit but not installed. All installation hardware is included with the leg assemblies. Install all supplied leg assemblies to the unit as shown in Figure 4. This is best accomplished while the unit is in the horizontal position on the rigging.

Once the unit is set on its permanent base, each leg should be securely fastened to the base. Mounting holes are provided in the bottom of each leg for this purpose (hardware is not included with the unit).

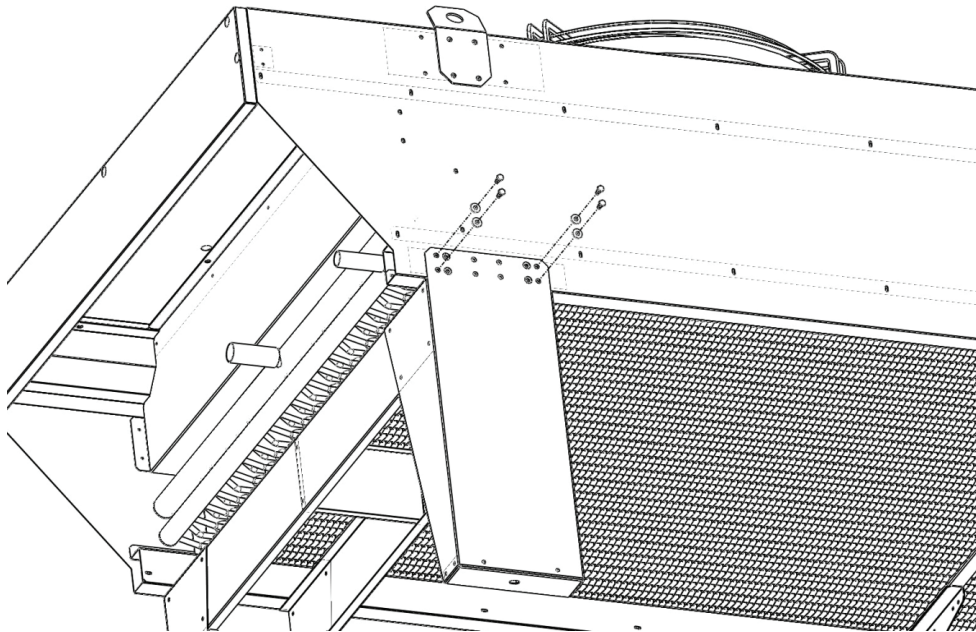


Figure 4 - Mounting Leg Installation

The condenser can be configured for horizontal airflow. Utilizing the brackets and fasteners that were used to secure the condenser during shipment. Install the condenser in the same configuration. Note that fasteners used to secure the brackets to the concrete pad or roof are to be supplied by others according to requirements of the substrate, wind load, seismic restraint, or any other special condition.

Remote Condensers should be securely mounted to prevent unwanted movement. Mounting holes are provided on each leg of the remote condenser. Should mounting dimensions be required please consult the Desert Aire Remote Condenser Brochure.

2.3 Piping Design

Factory supplied check valve(s) are shipped with all Desert Aire model LC, LV, LW, SA and SP dehumidifiers. This valve should be installed on each circuit of remote condensers used with these Desert Aire models. This valve prevents liquid refrigerant from draining or migrating to areas close to the 3-way heat reclaim valve in the dehumidifier. Under certain circumstances,

Support and clamp condenser tubing at regular intervals. Maximum span between clamps should be limited to the following:

| Tube Size | Span Between Clamps |
|-------------|---------------------|
| 1/2" – 7/8" | 5' maximum |
| 1 1/8" | 6' maximum |
| 1 3/8" | 7' maximum |
| 1 5/8" | 8' maximum |

The first clamp after the cabinet penetration should also be located such that the maximum span is maintained.

Provide means of preventing dissimilar metal contact such as copper clamps, plastic coated hangers, or similar. Rubber isolation at connection is recommended for applications where there may be sensitivity to noise or vibration. Follow ANSI/MSS SP-69 clamping guidelines.

Consider the use of U-Loops or Z- Bends for extended lengths of straight tubing subject to wide ranges in temperature conditions. Refer to ASHRAE Handbook HVAC Systems and Equipment for examples.

Ensure tubing is centered within pipe seal grommet at cabinet penetration before fully tightening any field installed clamps and brackets. Forces occurring during mode shifts may move piping slightly. After tightening check to ensure there is a minimum of 1/2" clearance around all field installed tubing to any structure or other obstruction.

2.4 Remote Condenser Piping and Lineset

The installation of the remote condenser is a critical process in the installation of the equipment. To ensure longevity of the refrigeration system components, proper service practice must be followed.

Procedure for Installation of Remote Condensers

CAUTION

Most systems come equipped with copper caps installed at the connections. Relieve any pressure by depressing the Schrader valve during removal of the cap or temporarily removing the Schrader core.

- Desert Aire dehumidifiers and remote condensers come equipped with connection sizes suitable for specific pipe routings. Many installations will require adapting to different field tube diameters depending on the distance between components. Use fittings and adapters as close as possible to the system components.

- Do not open the service valve at the connections until all piping and evacuation is complete.
- Use dehydrated tube where possible.
 - Use Type K per ASTM B 88 or ASTM B 819 or Type ACR per ASTM B 280 copper tubing or for all tubes 1-1/8" and smaller.
 - Tubes 1-3/8" and larger shall use Type K per ASTM B 88 or ASTM B 819.
- All tubes should be kept clean and dry before and during installation.
 - Cap sections of tube that are not actively being installed to prevent infiltration of moisture and contaminants.
- Ensure that copper chips are not introduced into the system during fabrication of tubing.
 - Use tubing cutter rather than saw when cutting tubes to length.
- Use only brazed alloys to join tube.
 - The selection of filler metals is highly dependent on the tube fit, clearance, and operator preference for flow. When flux is to be used, care should be taken to ensure that the flux is not introduced to the inside of the tube. It is recommended that phosphorous bearing alloys be considered for copper to copper connections due to their self-fluxing on copper to copper joints. Refer to alloy manufacturer's guidelines for details on compatibility.
- Flow nitrogen into tubing to prevent the formation of copper oxides.
 - Copper oxides form rapidly when copper is heated to temperatures required by the brazing process and exposed to oxygen in the air. Copper oxides flake easily on the inside of the tubing and dislodge easily when the system is filled with refrigerant and oil. The particulate can move throughout the system and cause contamination on valves and other critical components. System filters may become fouled.
 - Flowing nitrogen into the system and ensuring that the inside of the tube is significantly free from oxygen while brazing ensures that oxides do not form. As the last joints of a system are made, additional thought must be made on the location where the nitrogen can escape. Schrader valves are available on the unit and remote condenser. These valves can be opened to allow for nitrogen to flow without generating pressure behind the braze joint that is being created.

- If remote condenser piping is pressure tested before evacuation, use a maximum of 80 PSI pressure for R-22 or R-407C systems and 150 PSI for R-410A systems to ensure that none of the gas used for testing is forced into the other system sections.
- Carefully inspect pump and related equipment before connecting to system. Ensuring gaskets are in good condition and pump is capable of low vacuum can save time. Connect pump(s) to as many locations as possible ensuring all locations are well sealed. If a field charge will be required, connecting a refrigerant tank to the system with a good valve is recommended. Any hose connections requiring purging of non-condensable can be done at this point.
- Evacuate the line and remote condenser to 400 microns measured at a point on the system furthest away from the pump.
 - Note that a gauge installed on the pump or in close proximity will give a lower reading while the unit is being evacuated.
 - A deep vacuum gauge should be used to evaluate the pressure. Compound manifold gauges do not allow for enough accuracy at the pressures required.
 - The system should be able to hold a vacuum under 500 microns for more than 10 minutes.
 - If pressure continuously rises at a rapid rate there is likely a system leak. Review all piping connections and correct before continuing evacuation.
 - Pressure rising above 500 microns and tending to stabilize at a higher pressure indicates the system has moisture above specifications. Continue evacuation until 500 microns or lower can be held for a minimum of 10 minutes.
- If field charge of refrigerant and oil is required, it can be fed into the evacuated condenser at this time.
 - To account for the length of piping for remote condensers and the oil traps that occur in the piping, additional oil should be added when additional refrigerant is specified for charging in the field. Note that the factory has already added oil charge for the refrigerant charge in the unit.
 - Oil added to the system should be from new, sealed containers. New systems with R-410A or R-407C should use only the following oils:
 - Copeland® Ultra 32-3MAF
 - Lubrizol Emkarate RL 32-3MAF
 - Parker Emkarate RL 32-3MAF

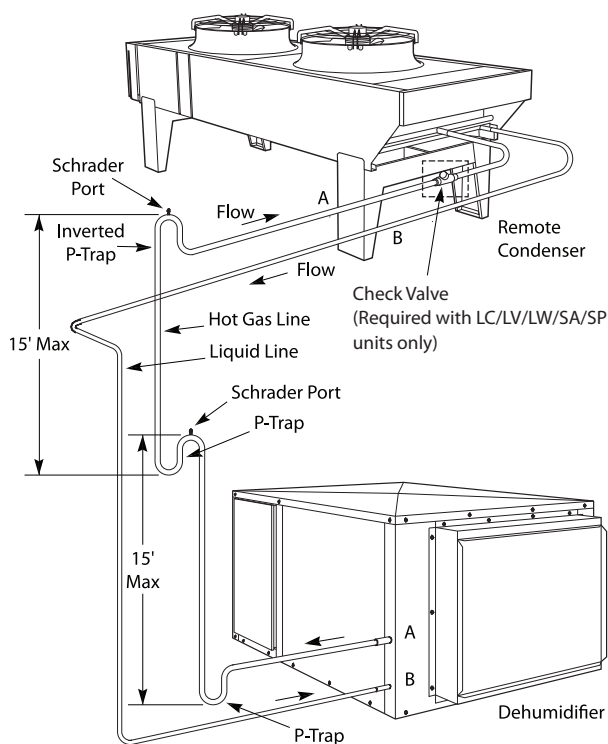
- Nu Calgon 4314-66 (RL 32-3MAF)
 - Hatcol 22 CC
 - Copeland® Ultra 22 CC
 - Mobil Arctic 22 CC
- Oil should not be exposed to atmosphere for more than 5 minutes. Due to the highly hygroscopic nature of POE oils, water is absorbed at high rates and will be removed by the filter dryer in the system. The dryer located inside the unit is sufficient for removal of the moisture introduced during this initial remote condenser connection and oil changing if proper procedures are followed.
 - For ease of installation, it is preferable to install oil while a section of the piping is under vacuum. Charge into the high side of the system. The following equation can be used to determine the initial oil charge to be added.

Specified field refrigerant charge, lbs. x 0.352 = Field oil charge, oz.

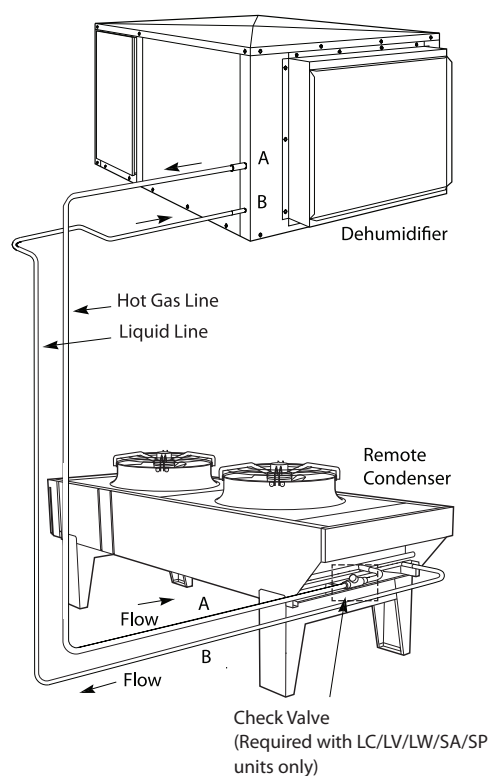
Oil can also be introduced into the compressor sump or slowly into the suction line while the compressor is running.

- Every lineset is different and those with larger traps or improperly sloped piping may require more oil. The compressor oil sight glass must be checked after 24 hours of operation to ensure sufficient oil – this does not apply to units without a compressor oil sight glass.
 - The remote condenser is the preferred location for field charging as it is the furthest from the compressor in these systems and presents the least risk for induction of liquid refrigerant into the compressor sump.
 - Charge should be weighted into the system using a scale. Field charge is located on the label attached to the unit near the remote condenser connections. Many Desert Aire dehumidifiers are custom products with special features and due to continuous improvements the I&O manual may differ from this label. Where there is a conflict between the standard charge indicated in the I&O manual and the label, the label field charge should be used.
 - In cases where the full field charge cannot be added at the condenser, the charge can be added to the low side of the system only when compressors are energized. See last step for details.
- Service valves connecting the remote condenser and the unit can be opened after any field charge is added.

- If the system is being started for the first time the compressors should be temporarily disabled by removing primary fuses or breaking the 24 volt circuit. An easy method is to open the knife switch 1S on the control voltage terminal block or rotate the ON/OFF switch on the exterior of the unit to the OFF position (whichever is applicable) before powering the unit. Ensure the unit is unoccupied to prevent the fan(s) and other components from energizing. This will energize the crankcase heaters to ensure that any refrigerant that may have migrated to the compressor sump is forced out. The crankcase heater should be energized for 24 hours before the refrigeration system is allowed to operate.
- If any remaining field charge needs to be added to the system, the compressors should be energized and the charge should be slowly metered into the suction line as far as possible upstream of the compressor. If the unit is equipped with an accumulator the charge needs to be added to the port upstream of this location. The bulkhead fittings on the side of the unit should not be used for charge addition. Monitor superheat at the compressor suction inlet using the bulkhead fitting and a temperature sensor on the suction line near the compressor. Superheat should not drop below 10 degrees during the process of adding charge.



Traps are required on **every** vertical rise regardless of vertical height. If the vertical rise is greater than 15' additional traps are required.



If the remote condenser is more than 10' below the dehumidifier you must contact Desert Aire before proceeding.

Figure 7 - Piping Example with Condenser Above and Below Dehumidifier

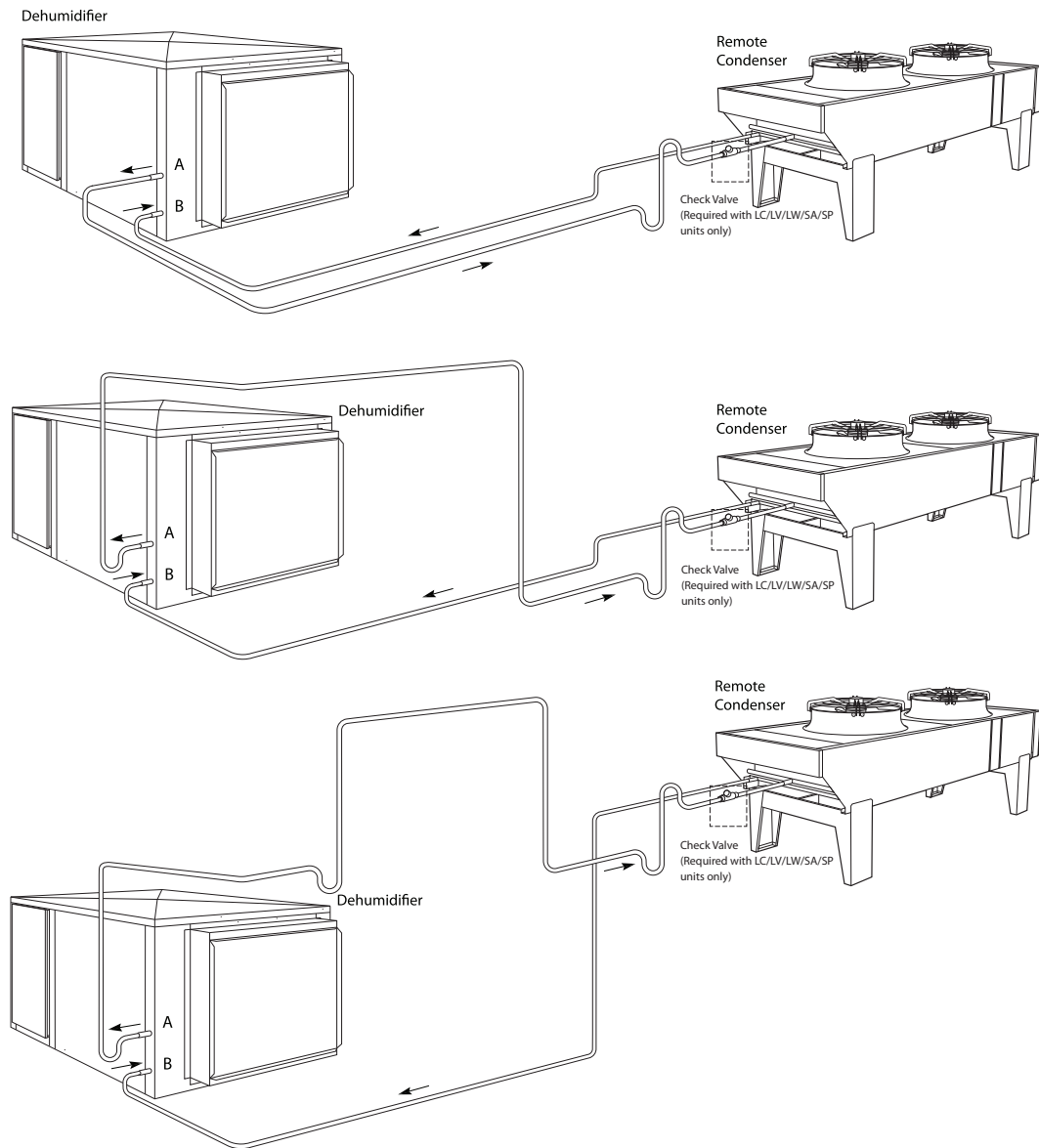


Figure 8 - Piping Examples Between Dehumidifiers and Remote Condensers

2.5 Refrigerant Charge

The field refrigerant charge required after installation of the condenser is located on a label attached to the dehumidifier. Some dehumidifier models come equipped with sufficient charge for short linesets and may not require field charge. The label is specific to the combination of Desert Aire dehumidifier and remote condenser.

Guidance regarding field charges and line diameters may also be available in the specific dehumidifier Installation and Operation Manual. Due to the wide variety of combinations and potential customization, the label attached to the unit should be referenced as the authority for

line diameters and field charges when installing the equipment.

2.6 Electrical Wiring

Verify that the available electrical power supply is consistent with the voltage listed on the equipment nameplate.

- Power supply for 208/230 volt motors must be between 188 and 253 volts.
- Power supply for other motor voltages must be within +/- 10% of nameplate voltage.
- Phase imbalance must not exceed 2%.

The unit electrical power disconnect switch must be turned off before any electrical work is performed on the unit. Electric installation and maintenance should be performed only by a qualified electrician and in accordance with the National Electrical Code, local codes and regulations. Proper overcurrent protection should be provided.



WARNING

There may be more than one source of electrical current to this unit. Do not service before disconnecting all power supplies.

Power supply voltage, phase, and frequency must match specifications shown on the unit nameplate. Always check motors for proper rotation.

Standard 1 and 3 phase motors contain an internal thermal overload protection switch that must be wired to the motor contactor holding coil to properly protect the motor from overheating (see wiring diagram).

Standard 3 phase motors are dual voltage and may be converted in the field by repositioning the jumpers at the motor terminal block (See Figure 9). Fusing may need to be revised. Review the motor rating plates and nameplate to ensure all fuses, wires, and devices are appropriate before making this change.

Electrical leads from each motor terminate at a common terminal block in the electrical panel. Fan cycle controls are furnished and factory installed. The motors and thermal overloads are completely wired to the contactors and control circuits. The motors should be checked for proper voltage and rotation.

When equipped, variable speed Electronically Commutated (EC) motors are single voltage and contain internal overload protection, under voltage protection, and phase imbalance protection. These motors do not require the use of a contactor.

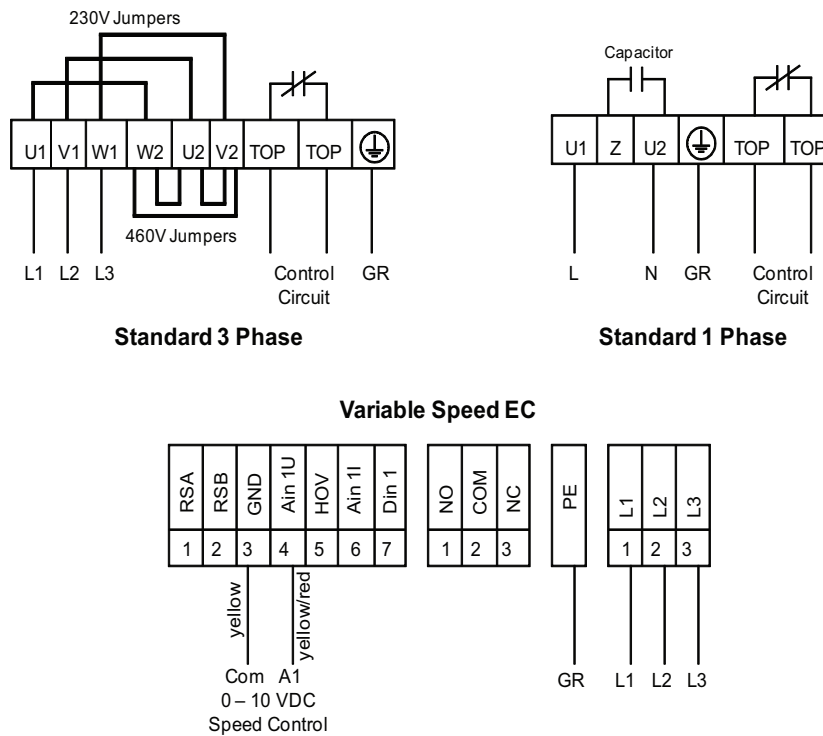
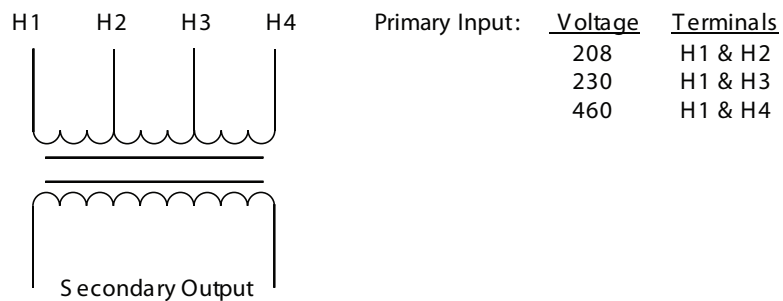


Figure 9 - Standard 3-Phase Motor Terminal Block

To assure a long service life of the fan motors, it is essential that the motor terminal box covers, conduits, and conduit connectors be properly installed. Each of these components is supplied with seals and gaskets that will keep the motor wiring and connections dry when maintained in good condition. If a seal or gasket is damaged, replace it immediately. The use of caulk or other sealants is not an acceptable means of repairing these components!

Factory supplied control circuit transformers for 208/230 volt models are factory wired for 230 volt primary supply voltage. If actual supply voltage is 208 volts, move wire from terminal H3 to terminal H2 on the primary side of the transformer (see Figure 10).



2.7 Fan Cycling

Cycling condenser fans on and off provides an automatic means of maintaining head pressure at lower ambient temperatures. Fan cycling controls activate from a condenser pressure sensor.

The pressure transducer is shipped in the electrical panel and must be field installed prior to system start-up. Pressure transducers are screwed into the Schrader valve located in the liquid header of the coil. Remove the cover from the System 450 Controller to expose the wiring terminals for the transducer. Run harness through the knockouts provided in the electrical box, using appropriate wire protection and strain relief. The pressure transducer harness includes a shield. Connect the drain wire of the shield to the terminal labeled “C”.

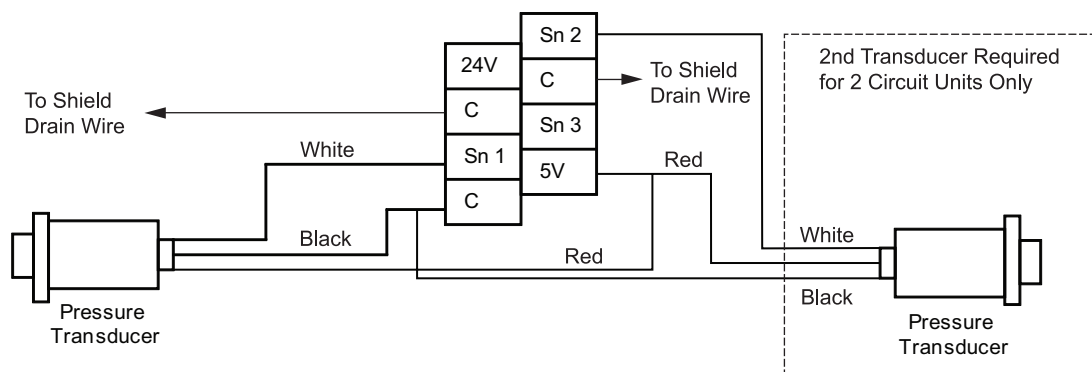


Figure 11 - Sensor Wiring

Condensers equipped with two circuits include two pressure transducers. The controls work with a high signal select and therefore the system will work properly as long as there is one transducer per circuit.

Desert Aire condensers pressure set points are set at factory. With any type of fan cycle control, great care must be taken by the installer in making adjustments to prevent short cycling of the fans. Short cycling is most often caused by setting the differential or set points on the controller too close. All systems and operating conditions vary and the controls may require further refinement of these settings in the field to provide optimum system performance and prevent short cycling. Should replacement of the controller or adjustments be necessary, refer to the controller setup documentation located in the appendix.

2.8 Active/Passive Sensor Jumper Settings

The condensers are shipped from the factory with the controls pre-set for the active pressure transducers. If there are issues with incorrect pressure readings or controls are field replaced, ensure that the pins for Sn-1 and Sn-2 are placed in the storage position on one pin only. Remove the cover from the main System 450 Control Module and confirm the position of the pins as shown in Figure 12.

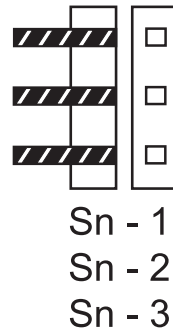


Figure 12 - Active/Passive Sensor Jumper Settings

2.9 Flooded Head Pressure Control

Operating pressure in an air-cooled condenser (head pressure) varies proportionally with ambient temperature. Some dehumidifier models are designed to operate in remote condenser mode during lower load conditions when the ambient temperature is significantly low. These dehumidifiers include flooded head pressure control valves. This head pressure control works in conjunction with the fan cycling to allow for proper operation at low load.

Flooded head pressure controls are pre-set at the factory and are non-adjustable. Proper setup of the fan cycling controls will ensure the system will operate as expected.

Excessive pressure drop in the remote condenser line will cause the dehumidifier flooding valves to operate prematurely. This may result in high head pressure and/or flash gas noted at the liquid line sight-glass. Should excessive pressure drop be suspected in the remote condenser line, check line size and routing for areas with excessive drop. Measure the pressure drop through the full line set and condenser when operating full compressor capacity for the circuit using the ports at the dehumidifier. Pressure drop should be less than 25 PSI.

2.10 Electronically Commutated (EC) Fan Motors

Special systems may include variable speed electronically commutated fans. When equipped, EC fan motors offer the opportunity for ultra-high energy efficiency, extremely quiet operation, and precise head pressure control. These three phase motors operate in the range of 10% to 100% of their full speed rating in response to a 1 to 10 VDC proportional signal supplied by a pressure transducer and speed controller. Head pressure is controlled by speeding up and slowing down the fans causing air flow across the coil to increase and decrease.

| Refrigerant | Header Fans | | Downstream Fans | |
|-------------|---------------------|---------------------|---------------------|---------------------|
| | Set Point (PSIG) | End Point (PSIG) | Set Point (PSIG) | End Point (PSIG) |
| R-407C | 220 | 340 | 240 | 340 |
| R-410A | 300 | 475 | 340 | 475 |

Figure 13 - Speed Control Settings for EC Fans

EC fan motors are controlled under the following specifications:

| | 800mm Fans | 500mm Fans |
|--|------------|------------|
| Motor turns off | < 1.0 VDC | < 0.8 VDC |
| Motor operates at 10% of full speed | 1.0 VDC | 1.0 VDC |
| Motor restarts after falling below minimum voltage | > 1.5 VDC | > 1.1 VDC |
| Motor operates at 100% of full speed | 10.0 VDC | 10.0 VDC |

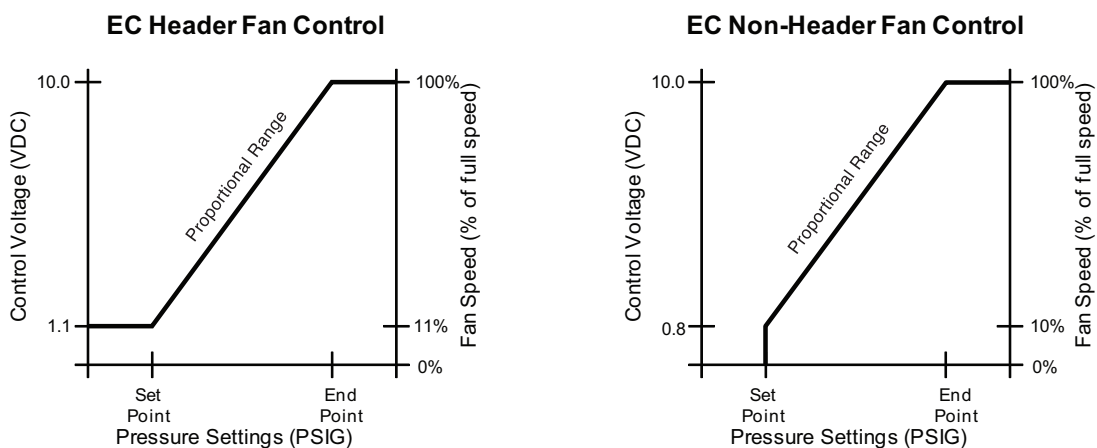


Figure 14 - EC Control

In addition to variable speed operation, EC fan motors include many advanced technology features including inherent overheating protection, phase loss protection, over/under voltage protection, and rotation correction (regardless how they are wired, they always rotate in the correct direction).

WARNING

Variable speed EC fan motors may retain voltage even after the power has been disconnected. Wait 5 minutes after disconnecting power before touching any conductors connected to variable speed EC fan motors.

3. Start-Up

Prior to start-up the following items should be checked:

- Fans rotate freely.
- Motors and mounts are securely fastened.
- Legs are securely attached to the unit and to the mounting structure.
- Remove debris from around the unit that could potentially block airflow through the coil.

Upon start-up the following items should be checked:

- Fans are rotating in the proper direction – airflow should pass through the coil first, then through the fan and away from the unit.
- Fan control settings are correct and operational.

3.1. Maintenance

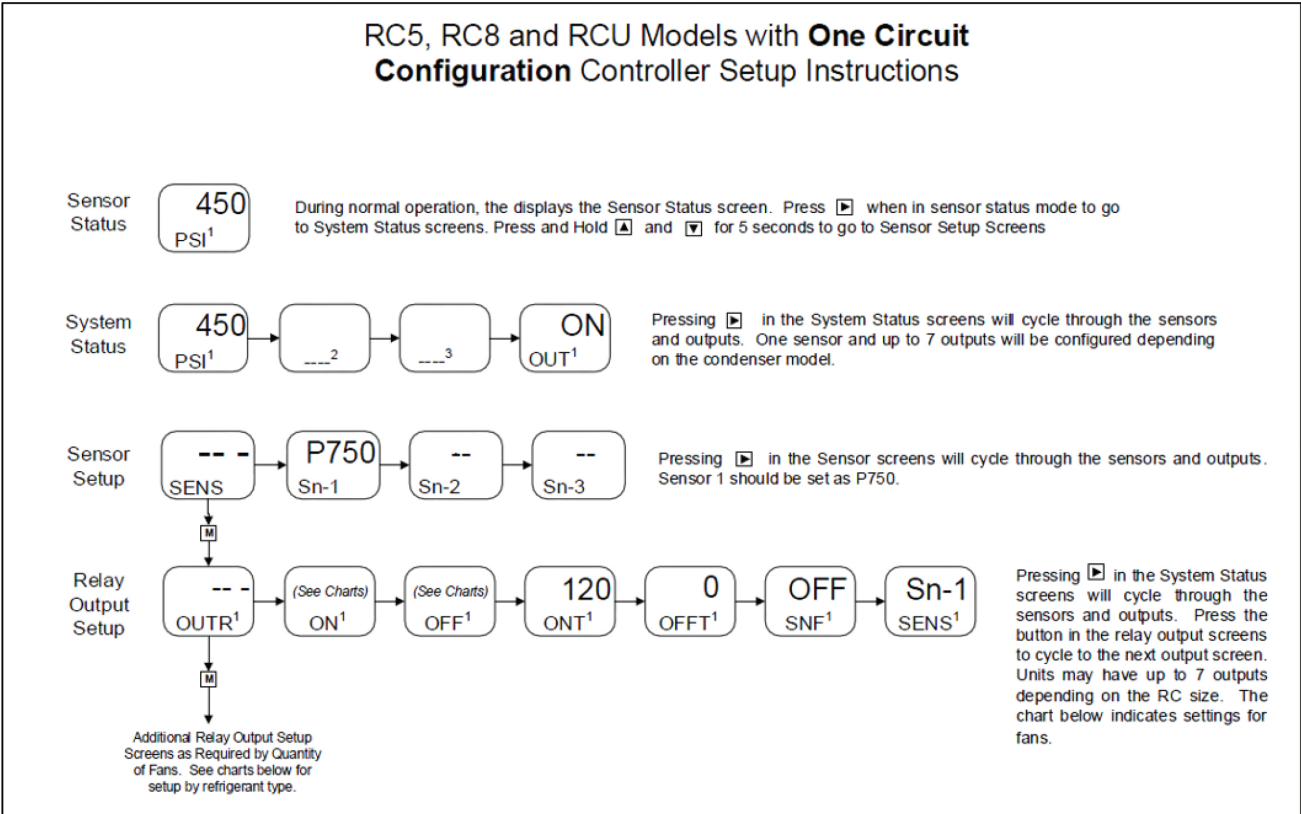
Air-cooled condensers require little maintenance but regular performance of these items are critical for extended service life and peak performance.

WARNING

Disconnect all power sources to the unit before performing any electrical work on the unit or working near the fans.

- Clean the coil fins every 6 months or more frequently in severe conditions. This may be accomplished by brushing and vacuuming or by applying a commercially available coil cleaner specifically developed for cleaning copper and/or aluminum coils. Never use acid-based cleaners. Always follow label directions.
- Remove any debris trapped between the coil and fans.
- Comb bent coil fins.
- Tighten all electrical connections.
- Tighten fasteners connecting the motors to their mounts, motor mounts to the unit, legs to the unit and the mounting structure.

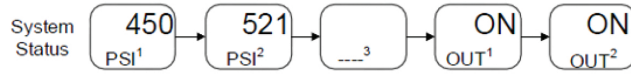
4. Appendix



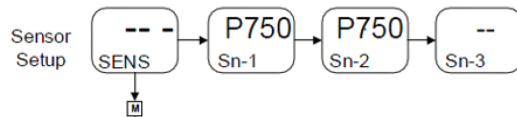
RC5, RC8 and RCU Models with **Two Circuit** Configuration Controller Setup Instructions



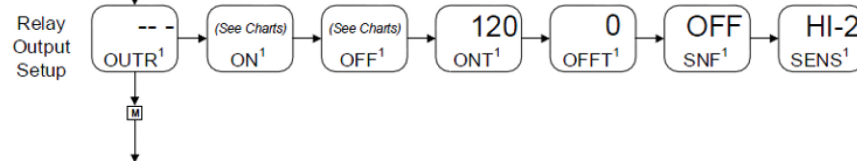
During normal operation, the display automatically scrolls through the Sensor Status screens for all configured sensors. Press when in sensor status mode to go to System Status screens. Press and Hold and for 5 seconds to go to Sensor Setup Screens



Pressing in the System Status screens will cycle through the sensors and outputs. Two sensors and up to 7 outputs will be configured depending on the model.



Pressing in the Sensor screens will cycle through the sensors and outputs. Sensors 1 and 2 should be set as P750.



Pressing in the System Status screens will cycle through the sensors and outputs. Press the button in the relay output screens to cycle to the next output screen. Units may have up to 7 outputs depending on the RC size. The chart below indicates settings for fans.

Additional Relay Output Setup Screens as Required by Quantity of Fans. See charts below for setup by refrigerant type.

GrowAire Application ROC Fan Settings (R-410A)

| # of ROC Fans | 1 Fan | | 2 Fan | | 3 Fan | | 4 Fan | | 5 Fan | | 6 Fan | | 7 Fan | |
|-----------------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF |
| OUTR1 | 460 | 240 | 370 | 240 | 370 | 240 | 370 | 240 | 370 | 240 | 370 | 240 | 370 | 240 |
| OUTR2 (if used) | | | 460 | 310 | 416 | 310 | 400 | 310 | 392 | 310 | 388 | 310 | 386 | 310 |
| OUTR3 (if used) | | | | | 460 | 356 | 430 | 340 | 416 | 332 | 406 | 328 | 400 | 326 |
| OUTR4 (if used) | | | | | | | 460 | 370 | 438 | 356 | 424 | 346 | 416 | 340 |
| OUTR5 (if used) | | | | | | | | | 460 | 378 | 442 | 364 | 430 | 356 |
| OUTR6 (if used) | | | | | | | | | | | 460 | 382 | 446 | 370 |
| OUTR7 (if used) | | | | | | | | | | | | | 460 | 386 |
| OND | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| OFFD | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| ONT | 120 | | 120 | | 120 | | 120 | | 120 | | 120 | | 120 | |
| OFFT | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| SNF | OFF | | OFF | | OFF | | OFF | | OFF | | OFF | | OFF | |
| SENS | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | |

Pool Room and IAQ Application ROC Fan Settings (R-410A)

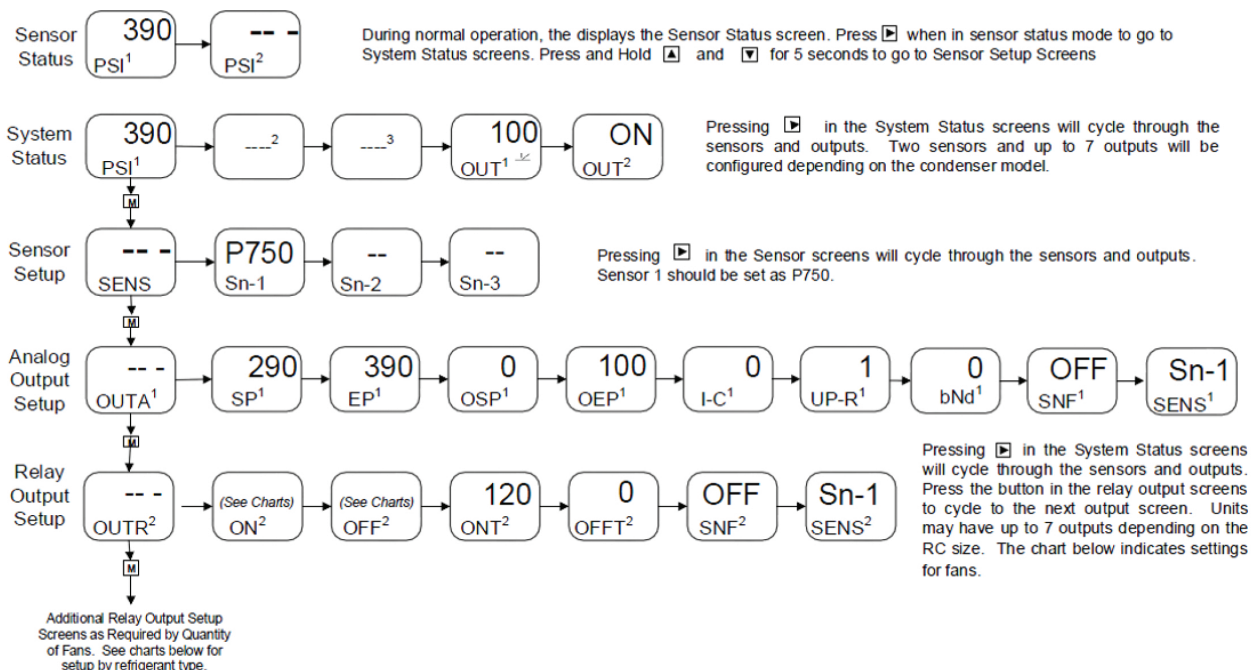
| # of ROC Fans | 1 Fan | | 2 Fan | | 3 Fan | | 4 Fan | | 5 Fan | | 6 Fan | | 7 Fan | |
|-----------------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| Fan Status | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF |
| OUTR1 | 460 | 280 | 370 | 280 | 370 | 280 | 370 | 280 | 370 | 280 | 370 | 280 | 370 | 280 |
| OUTR2 (if used) | | | 460 | 326 | 416 | 326 | 400 | 326 | 392 | 326 | 388 | 326 | 386 | 326 |
| OUTR3 (if used) | | | | | 460 | 370 | 430 | 356 | 416 | 348 | 406 | 344 | 400 | 340 |
| OUTR4 (if used) | | | | | | | 460 | 386 | 438 | 370 | 424 | 362 | 416 | 356 |
| OUTR5 (if used) | | | | | | | | | 460 | 392 | 442 | 380 | 430 | 370 |
| OUTR6 (if used) | | | | | | | | | | | 460 | 398 | 446 | 386 |
| OUTR7 (if used) | | | | | | | | | | | | | 460 | 400 |
| OND | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| OFFD | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| ONT | 120 | | 120 | | 120 | | 120 | | 120 | | 120 | | 120 | |
| OFFT | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| SNF | OFF | | OFF | | OFF | | OFF | | OFF | | OFF | | OFF | |
| SENS | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | |

Low and Medium Temperature Unit (LW Series) ROC Fan Settings (R-410A)

| # of ROC Fans | 1 Fan | | 2 Fan | | 3 Fan | | 4 Fan | | 5 Fan | | 6 Fan | | 7 Fan | |
|-----------------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| Fan Status | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF |
| OUTR1 | 290 | 170 | 230 | 170 | 230 | 170 | 230 | 170 | 230 | 170 | 230 | 170 | 230 | 170 |
| OUTR2 (if used) | | | 290 | 200 | 260 | 200 | 250 | 200 | 246 | 200 | 242 | 200 | 240 | 200 |
| OUTR3 (if used) | | | | | 290 | 230 | 270 | 220 | 260 | 216 | 254 | 212 | 250 | 210 |
| OUTR4 (if used) | | | | | | | 290 | 240 | 276 | 230 | 266 | 224 | 260 | 220 |
| OUTR5 (if used) | | | | | | | | | 290 | 246 | 278 | 236 | 270 | 230 |
| OUTR6 (if used) | | | | | | | | | | | 290 | 248 | 280 | 240 |
| OUTR7 (if used) | | | | | | | | | | | | | 290 | 250 |
| OND | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| OFFD | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| ONT | 120 | | 120 | | 120 | | 120 | | 120 | | 120 | | 120 | |
| OFFT | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| SNF | OFF | | OFF | | OFF | | OFF | | OFF | | OFF | | OFF | |
| SENS | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | |

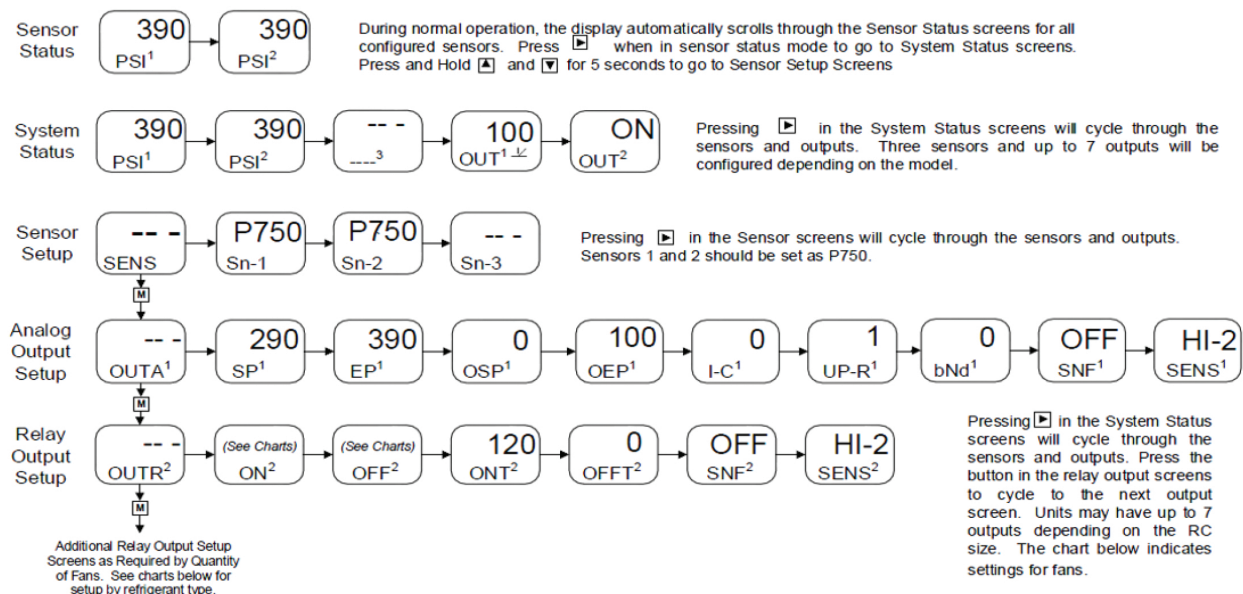
RCE and RCF Models with **One Circuit** Configuration Controller Setup Instructions

This setup instructions document is intended for use with RCE and RCF remote condenser models with either a single circuit configuration or an even - dual circuit configuration such as a SP70 dual circuit. When an even dual circuit configuration is selected, two individual one circuit set-up configurations will be applied (one controller per circuit). In this case do not use the *Two Circuit Configuration Controller Setup Instructions*.



RCE and RCF Models with **Two Circuit** Configuration Controller Setup Instructions

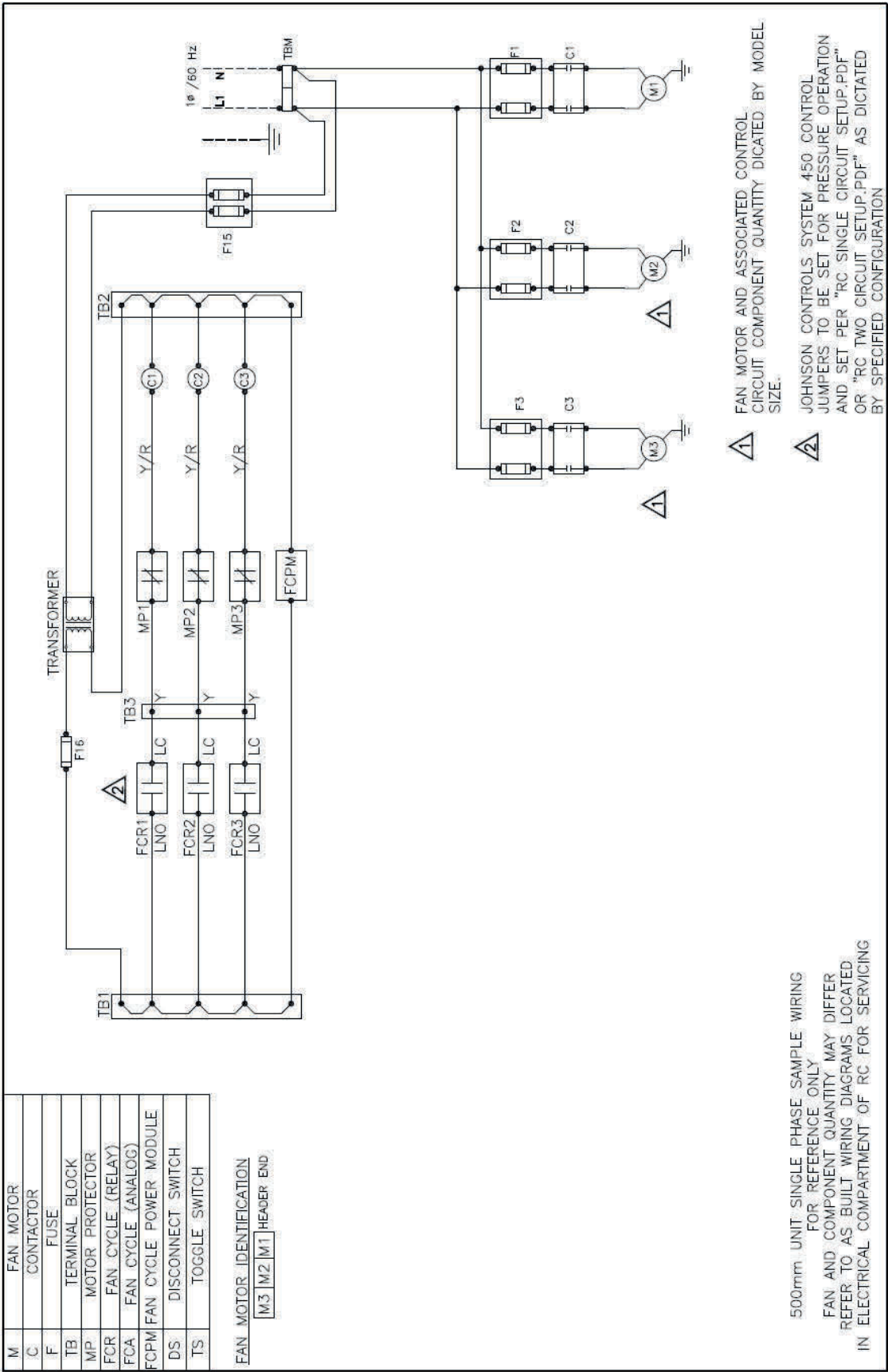
These setup instructions are intended for use with RCE and RCF remote condenser models with a non-even dual circuit configuration. If an even - dual circuit configuration such as a SP70 dual circuit is selected refer to *RCE and RCF with One Circuit Configuration Controller Setup Instructions*.



SP Pool Room ROC Fan Settings (R-410A)

| On Floor Room ROC Fan Settings (R-410A) | | | | | | | | | | | | |
|---|--------------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| # of ROC Fans* | 2 Fan | | 3 Fan | | 4 Fan | | 5 Fan | | 6 Fan | | 7 Fan | |
| Fan Status | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF | ON | OFF |
| OUTA1 | 390 | 290 | 390 | 290 | 390 | 290 | 390 | 290 | 390 | 290 | 390 | 290 |
| OUTR2 | 390 | 310 | 380 | 310 | 370 | 310 | 360 | 310 | 350 | 310 | 340 | 310 |
| OUTR3 (if used) | | | 390 | 336 | 380 | 340 | 370 | 338 | 360 | 334 | 350 | 328 |
| OUTR4 (if used) | | | | | 390 | 350 | 380 | 348 | 370 | 344 | 360 | 338 |
| OUTR5 (if used) | | | | | | | 390 | 358 | 380 | 354 | 370 | 348 |
| OUTR6 (if used) | | | | | | | | | 390 | 364 | 380 | 358 |
| OUTR7 (if used) | | | | | | | | | | | 390 | 368 |
| OUTA1 | Analog Fan | | | | | | | | | | | |
| SP | 290 | | 290 | | 290 | | 290 | | 290 | | 290 | |
| EP | 390 | | 390 | | 390 | | 390 | | 390 | | 390 | |
| OSP | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| OEP | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | |
| I-C | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| UP-R | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| bNd | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| SNF | OFF | | OFF | | OFF | | OFF | | OFF | | OFF | |
| SENS | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | |
| OUTR2-7 | Relay Fan(s) | | | | | | | | | | | |
| OND | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| OFFD | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| ONT | 120 | | 120 | | 120 | | 120 | | 120 | | 120 | |
| OFFT | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| SNF | OFF | | OFF | | OFF | | OFF | | OFF | | OFF | |
| SENS | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | | Sn-1 | |

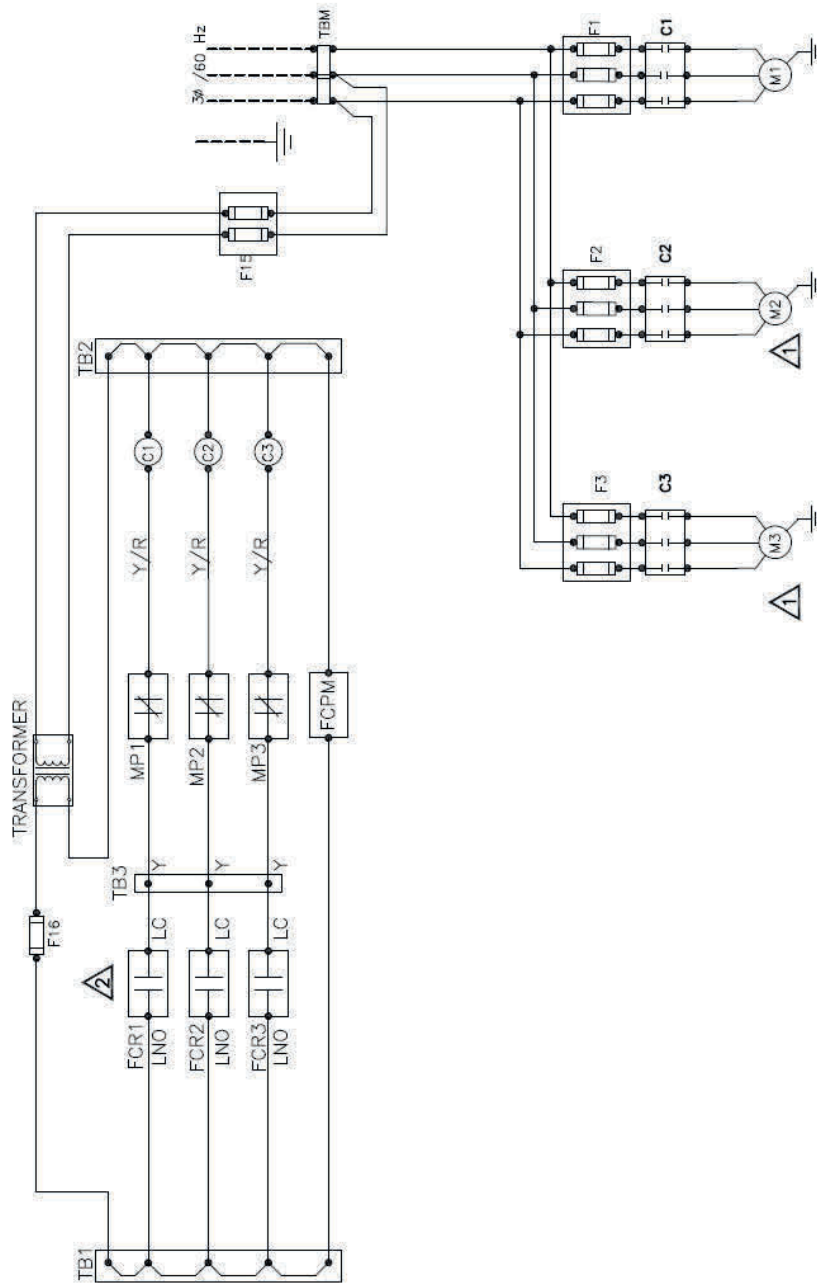
*EC fan is OUTA1



| | |
|------|------------------------|
| M | FAN MOTOR |
| C | CONTACTOR |
| F | FUSE |
| TB | TERMINAL BLOCK |
| MP | MOTOR PROTECTOR |
| FCR | FAN CYCLE (RELAY) |
| FCA | FAN CYCLE (ANALOG) |
| FCPM | FAN CYCLE POWER MODULE |
| DS | DISCONNECT SWITCH |
| TS | TOGGLE SWITCH |

FAN MOTOR IDENTIFICATION

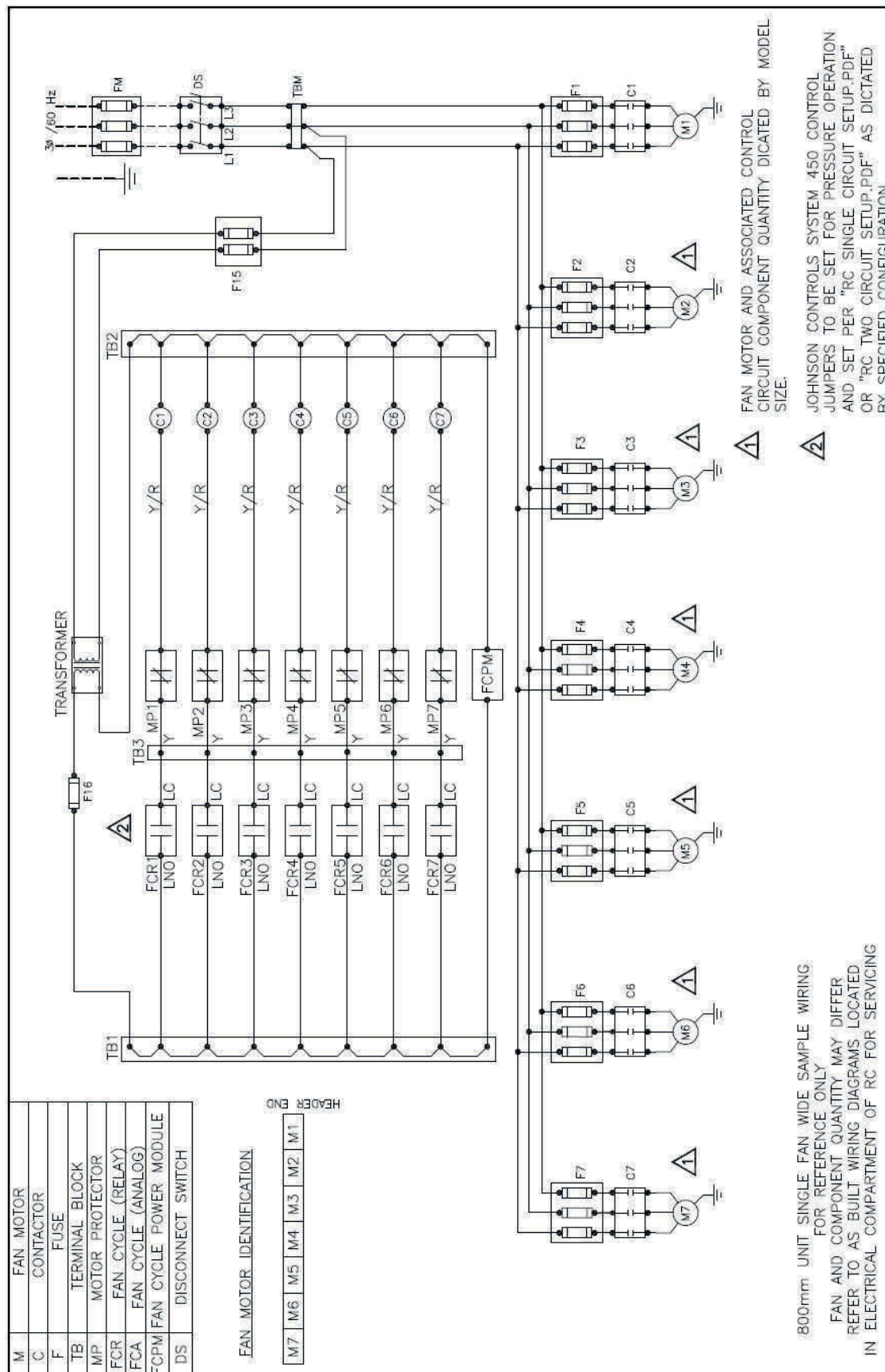
M3 M2 M1 HEADER END

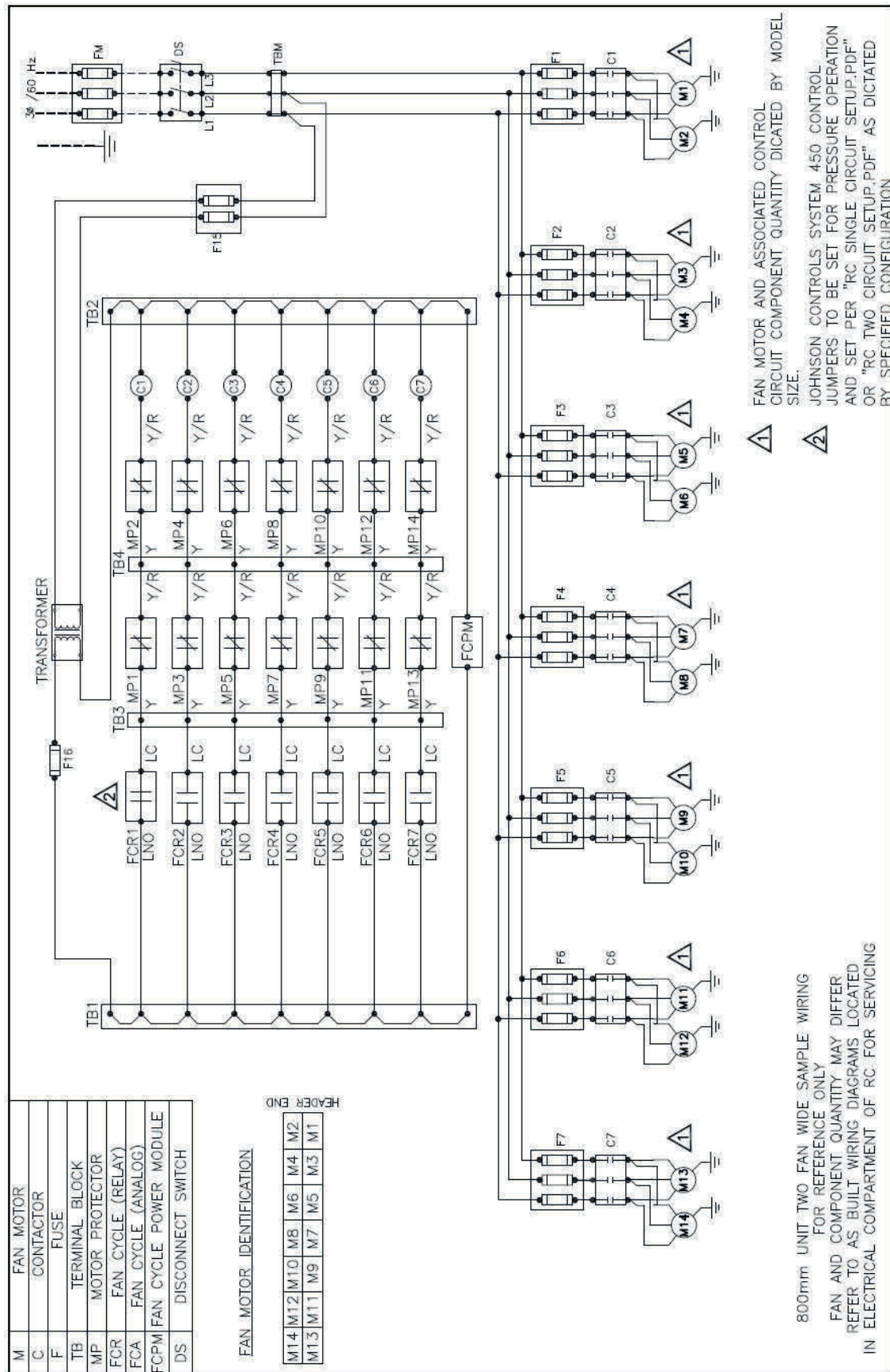


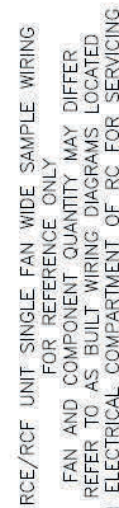
⚠ FAN MOTOR AND ASSOCIATED CONTROL CIRCUIT COMPONENT QUANTITY DICTATED BY MODEL SIZE.

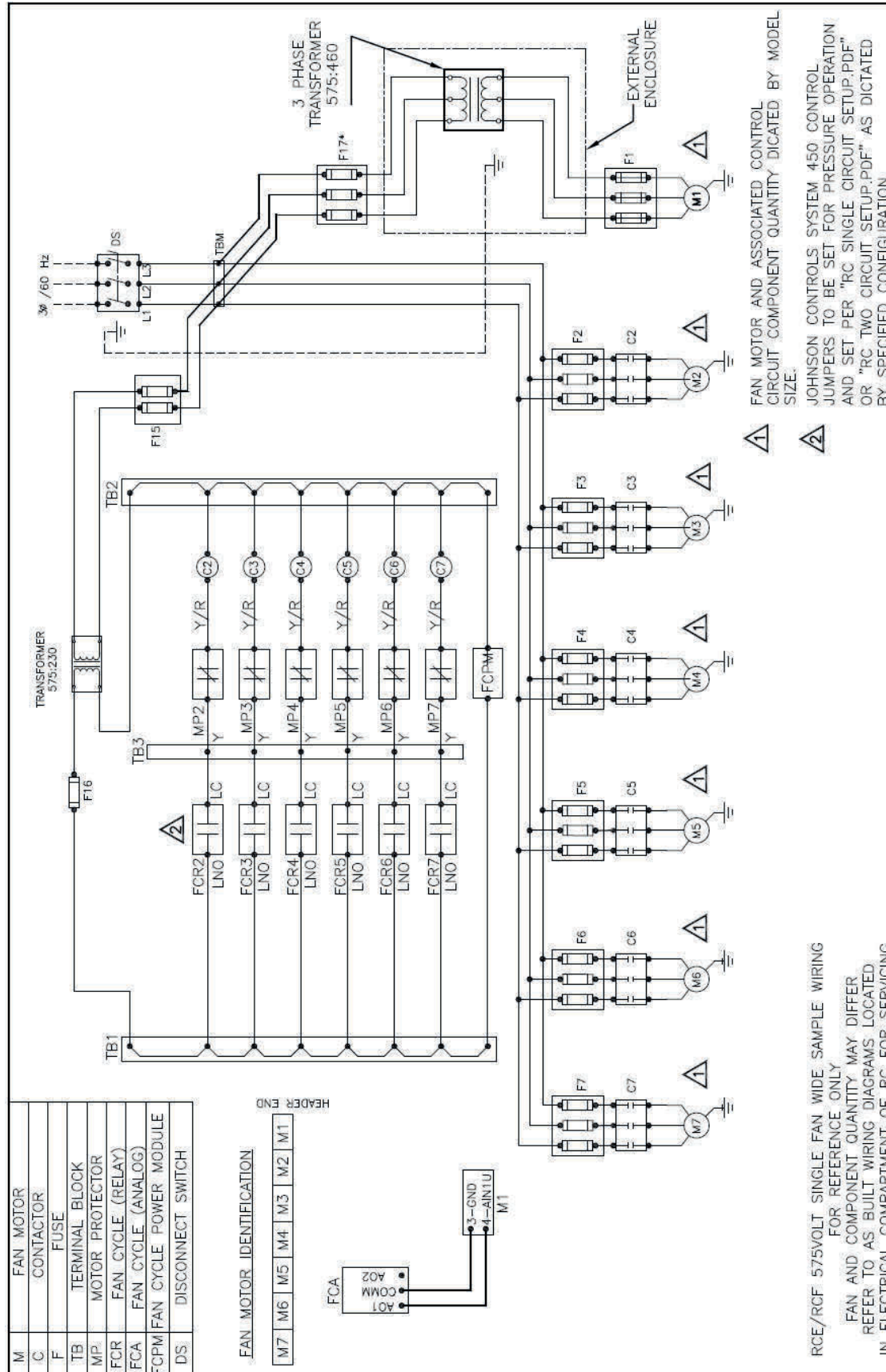
⚠ JOHNSON CONTROLS SYSTEM 450 CONTROL JUMPERS TO BE SET FOR PRESSURE OPERATION AND SET PER "RC SINGLE CIRCUIT SETUP.PDF" OR "RC TWO CIRCUIT SETUP.PDF" AS DICTATED BY SPECIFIED CONFIGURATION

500mm UNIT THREE PHASE SAMPLE WIRING FOR REFERENCE ONLY
FAN AND COMPONENT QUANTITY MAY DIFFER REFER TO AS BUILT WIRING DIAGRAMS LOCATED IN ELECTRICAL COMPARTMENT OF RC FOR SERVICING

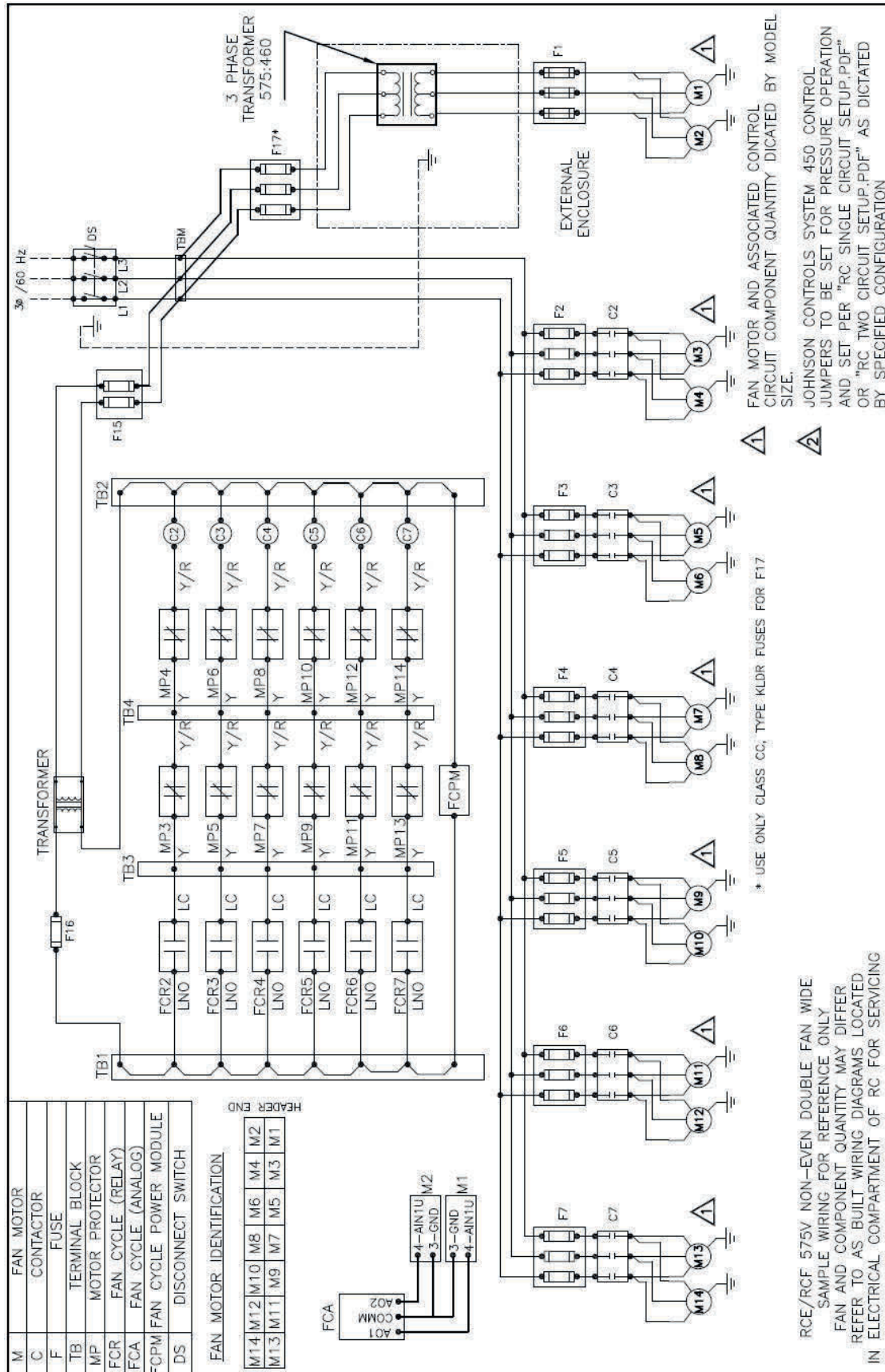


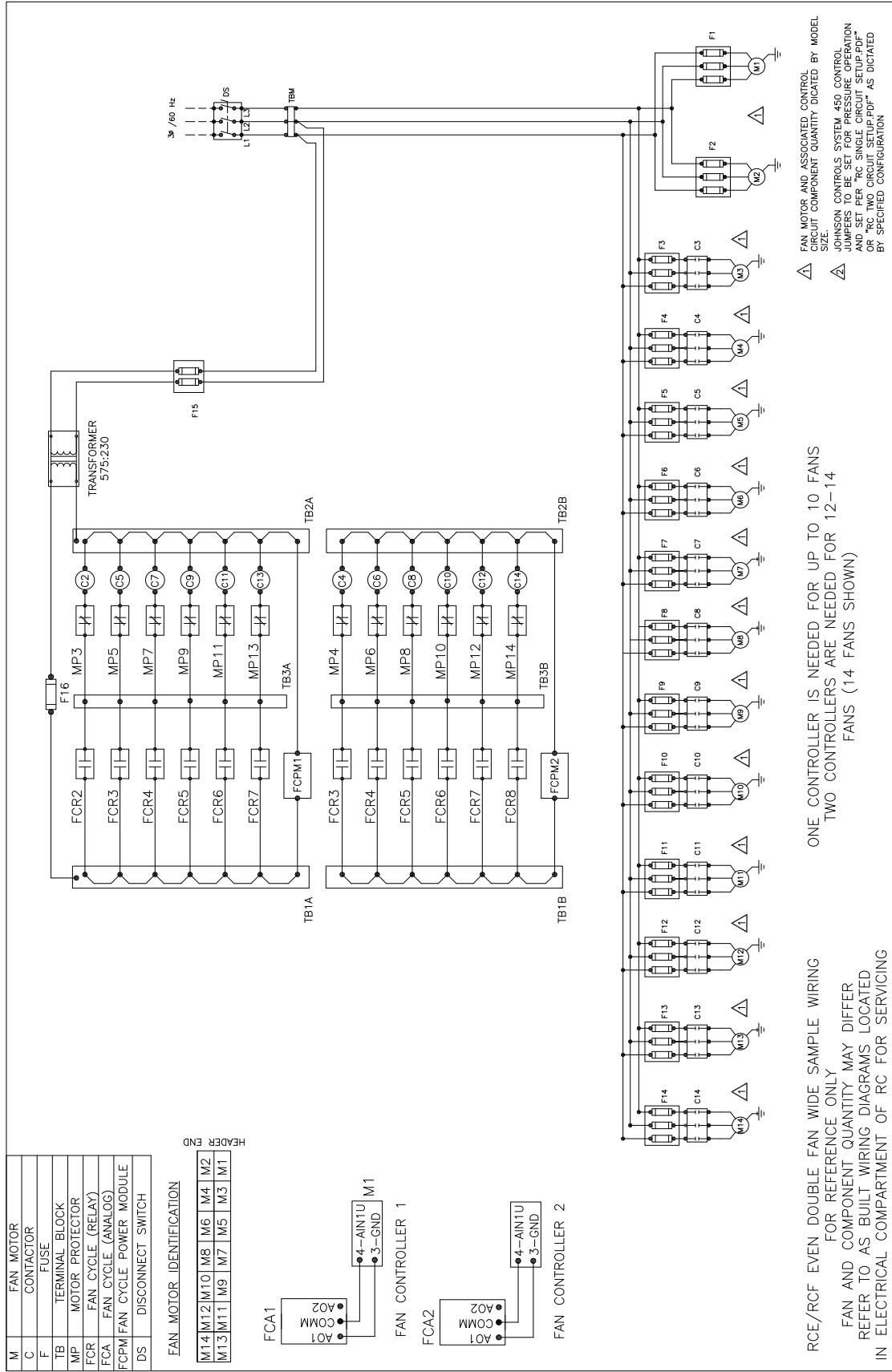


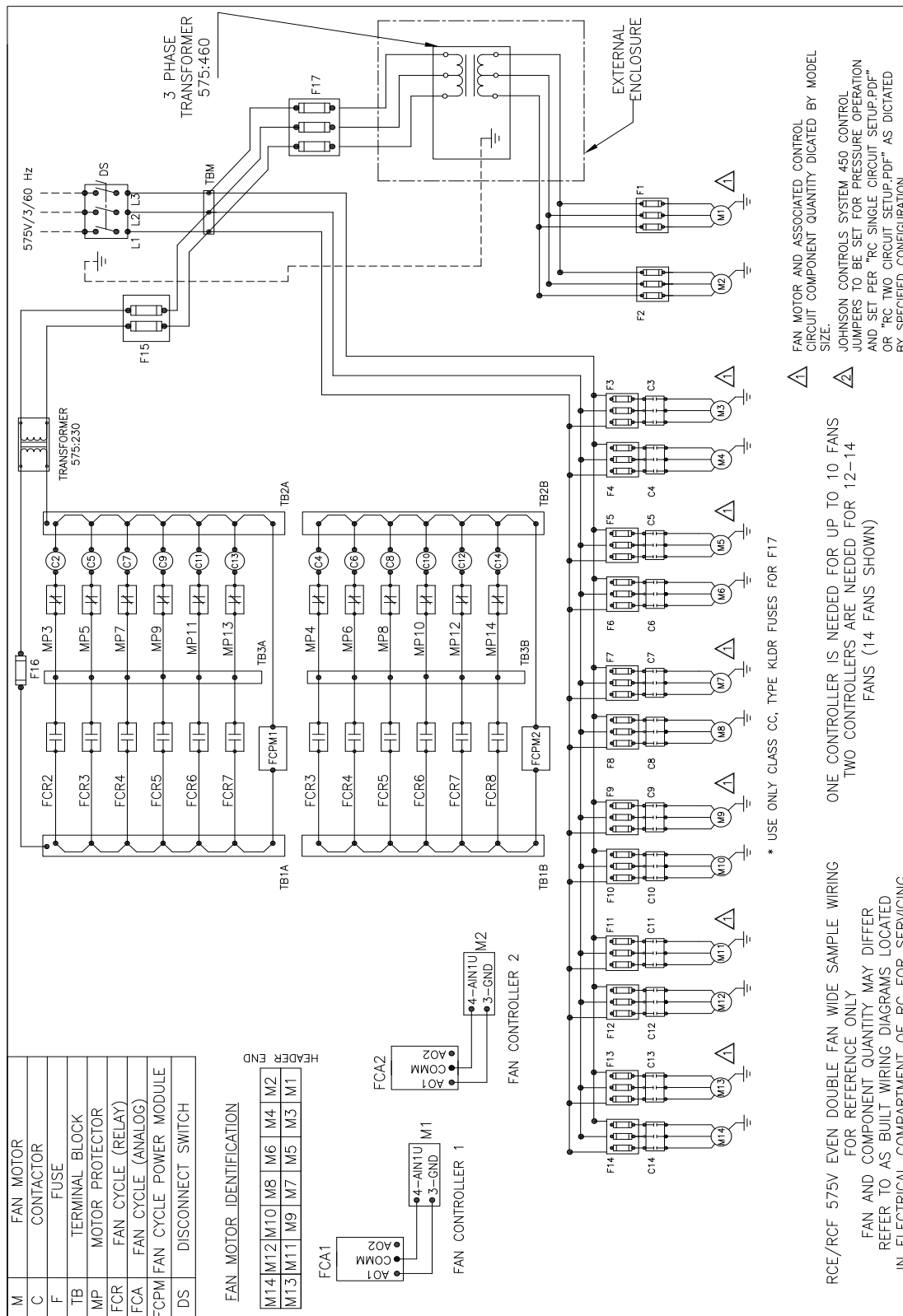














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