

INSTALLATION INSTRUCTIONS

PACKAGED AIR CONDITIONERS

RACAYB (2-5 TONS) WITH R454B REFRIGERANT



DO NOT DESTROY THIS MANUAL

PLEASE READ CAREFULLY AND KEEP IN A SAFE PLACE FOR FUTURE REFERENCE BY A SERVICEMAN



RECOGNIZE THIS SYMBOL AS AN INDICATION OF IMPORTANT SAFETY INFORMATION!

⚠ WARNING

THESE INSTRUCTIONS ARE INTENDED AS AN AID TO QUALIFIED SERVICE PERSONNEL FOR PROPER INSTALLATION, ADJUSTMENT AND OPERATION OF THIS UNIT. READ THESE INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING INSTALLATION OR OPERATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN IMPROPER INSTALLATION, ADJUSTMENT, SERVICE OR MAINTENANCE, POSSIBLY RESULTING IN FIRE, ELECTRICAL SHOCK, CARBON MONOXIDE POISONING, EXPLOSION, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

⚠ WARNING

PROPOSITION 65 WARNING: THIS PRODUCT CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

BA001-02

DO NOT DESTROY THIS MANUAL. PLEASE READ CAREFULLY AND KEEP IN A SAFE PLACE FOR FUTURE REFERENCE BY A SERVICEMAN.



TABLE OF CONTENTS

I. SAFETY INFORMATION.....	4	E. INTERNAL WIRING.....	18
1.A Agency Performance Audit and Efficiency Testing Notice.....	6	F.GROUNDING.....	18
1.B. Importance of a Quality Installation.....	6	G. THERMOSTAT.....	18
1.C. Working Personnel Qualifications.....	6	H. Check Wiring.....	18
1.D. Importance of Air Flow and Setup.....	6	XIII. CRANKCASE HEAT(OPTIONAL).....	18
1.E. Checking Product and Inspection.....	6	XIV. PRE-START CHECK.....	19
II. BREAKDOWN PAGE.....	7	XV. STARTUP.....	19
III. INTRODUCTION.....	8	XVI. REFRIGERANT CHARGE VERIFICATION AND ADJUSTMENT PROCESS.....	19
IV. CHECKING PRODUCT RECEIVED.....	8	XVII. OPERATION.....	20
V. SPECIFICATIONS.....	8	XVIII. AUXILIARY HEAT.....	20
1. Specification of R-454B:.....	8	A. CONTROL SYSTEM OPERATION.....	20
2. Quick Reference Guide For R-454B.....	8	XIX. BLOWER MOTOR SPEEDTAPS.....	20
3. Evaporator Coil / TXV.....	9	XX. Refrigerant Leak Inspection.....	20
4. Tools and Refrigerant.....	9	A. Check for Refrigerant Leaks.....	20
4.1 Tools Required For Installing & Servicing R-454B Models,9		B. Refrigerant Leak Detection System.....	20
VI. UNIT DIMENSIONS.....	10	C. Operation When a Leak is Detected.....	21
VII. INSTALLATION.....	12	D. Removal and Evacuation of Refrigerant.....	21
A. GENERAL.....	12	XXI. GENERAL DATA - RACAYB MODELS.....	22
B. OUTSIDE SLAB INSTALLATION.....	12	XXII. ELECTRICAL DATA.....	26
C. CLEARANCES.....	13	XXIII. AIRFLOW PERFORMANCE.....	28
D. ROOFTOP INSTALLATION.....	13	XXIV. HEATER KITS CHARACTERISTICS.....	32
VIII. DUCTWORK.....	16	XXVI. TROUBLESHOOTING CHART.....	43
IX. FILTERS.....	16	XXVII. A2L REFRIGERANT INSTALLATION SAFETY DATA.....	44
X. CONVERSION PROCEDURE.....	16		
XI. CONDENSATE DRAIN.....	16		
XII. WIRING & ELECTRICALS.....	17		
B. SPECIAL INSTRUCTIONS FOR POWER WIRING WITH ALUMINUM CONDUCTORS.....	17		
C. Potential Ignition Sources.....	18		
D. CONTROL WIRING (Class II).....	18		

IMPORTANT: TO ENSURE PROPER INSTALLATION AND OPERATION OF THIS PRODUCT, COMPLETELY READ ALL INSTRUCTIONS PRIOR TO ATTEMPTING TO ASSEMBLE, INSTALL, OPERATE, MAINTAIN OR REPAIR THIS PRODUCT. UPON UNPACKING OF THE FURNACE, INSPECT ALL PARTS FOR DAMAGE PRIOR TO INSTALLATION AND START-UP.

I. SAFETY INFORMATION

⚠ WARNING

PROPOSITION 65: THIS APPLIANCE CONTAINS FIBERGLASS INSULATION. RESPIRABLE PARTICLES OF FIBERGLASS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

⚠ WARNING

THE MANUFACTURER'S WARRANTY DOES NOT COVER ANY DAMAGE OR DEFECT TO THE AIR CONDITIONER CAUSED BY THE ATTACHMENT OR USE OF ANY COMPONENTS, ACCESSORIES OR DEVICES (OTHER THAN THOSE AUTHORIZED BY THE MANUFACTURER) INTO, ONTO OR IN CONJUNCTION WITH THE AIR CONDITIONER. YOU SHOULD BE AWARE THAT THE USE OF UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES MAY ADVERSELY AFFECT THE OPERATION OF THE AIR CONDITIONER AND MAY ALSO ENDANGER LIFE AND PROPERTY. THE MANUFACTURER DISCLAIMS ANY RESPONSIBILITY FOR SUCH LOSS OR INJURY RESULTING FROM THE USE OF SUCH UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES.

⚠ WARNING

THE UNIT MUST BE PERMANENTLY GROUNDED. A GROUNDING LUG IS PROVIDED IN THE ELECTRIC HEAT KIT FOR A GROUND WIRE. (SEE FIGURES 11 AND 12.) FAILURE TO GROUND THIS UNIT CAN RESULT IN FIRE OR ELECTRICAL SHOCK CAUSING PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.

⚠ WARNING

DISCONNECT ALL POWER TO THE UNIT BEFORE STARTING MAINTENANCE. FAILURE TO DO SO CAN RESULT IN SEVERE ELECTRICAL SHOCK OR DEATH.

⚠ WARNING

ONLY ELECTRIC HEATER KITS SUPPLIED BY THIS MANUFACTURER AS DESCRIBED IN THIS PUBLICATION HAVE BEEN DESIGNED, TESTED, AND EVALUATED BY A NATIONALLY RECOGNIZED SAFETY TESTING AGENCY FOR USE WITH THIS UNIT. USE OF ANY OTHER MANUFACTURED ELECTRIC HEATERS INSTALLED WITHIN THIS UNIT MAY CAUSE HAZARDOUS CONDITIONS RESULTING IN PROPERTY DAMAGE, FIRE, BODILY INJURY OR DEATH.

⚠ WARNING

DISCONNECT MAIN ELECTRICAL POWER TO THE UNIT BEFORE ATTEMPTING TO CHANGE BLOWER SPEEDS. FAILURE TO DO SO MAY RESULT IN ELECTRICAL SHOCK OR SEVERE PERSONAL INJURY OR DEATH.

⚠ CAUTION

DO NOT USE R-410A SERVICE EQUIPMENT OR COMPONENTS ON R-454B EQUIPMENT. REFER TO THE UNIT RATING PLATE.

⚠ WARNING

IMPORTANT: ALL MANUFACTURER PRODUCTS MEET CURRENT FEDERAL OSHA GUIDELINES FOR SAFETY. CALIFORNIA PROPOSITION 65 WARNINGS ARE REQUIRED FOR CERTAIN PRODUCTS, WHICH ARE NOT COVERED BY THE OSHA STANDARDS. CALIFORNIA'S PROPOSITION 65 REQUIRES WARNINGS FOR PRODUCTS SOLD IN CALIFORNIA THAT CONTAIN, OR PRODUCE, ANY OF OVER 600 LISTED CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER OR BIRTH DEFECTS SUCH AS FIBERGLASS INSULATION, LEAD IN BRASS, AND COMBUSTION PRODUCTS FROM NATURAL GAS.

ALL "NEW EQUIPMENT" SHIPPED FOR SALE IN CALIFORNIA WILL HAVE LABELS STATING THAT THE PRODUCT CONTAINS AND/OR PRODUCES PROPOSITION 65 CHEMICALS. ALTHOUGH WE HAVE NOT CHANGED OUR PROCESSES, HAVING THE SAME LABEL ON ALL OUR PRODUCTS FACILITATES MANUFACTURING AND SHIPPING. WE CANNOT ALWAYS KNOW "WHEN, OR IF" PRODUCTS

WILL BE SOLD IN THE CALIFORNIA MARKET. YOU MAY RECEIVE INQUIRIES FROM CUSTOMERS ABOUT CHEMICALS FOUND IN, OR PRODUCED BY, SOME OF OUR HEATING AND AIR-CONDITIONING EQUIPMENT, OR FOUND IN NATURAL GAS USED WITH SOME OF OUR PRODUCTS. LISTED BELOW ARE THOSE CHEMICALS AND SUBSTANCES COMMONLY ASSOCIATED WITH SIMILAR EQUIPMENT IN OUR INDUSTRY AND OTHER MANUFACTURERS.

- GLASS WOOL (FIBERGLASS) INSULATION
- CARBON MONOXIDE (CO)
- FORMALDEHYDE
- BENZENE

MORE DETAILS ARE AVAILABLE AT THE WEBSITES FOR OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION), AT WWW.OSHA.GOV AND THE STATE OF CALIFORNIA'S OEHHA (OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT), AT WWW.OEHHA.ORG. CONSUMER EDUCATION IS IMPORTANT SINCE THE CHEMICALS AND SUBSTANCES ON THE LIST ARE FOUND IN OUR DAILY LIVES. MOST CONSUMERS ARE AWARE THAT PRODUCTS PRESENT SAFETY AND HEALTH RISKS, WHEN IMPROPERLY USED, HANDLED AND MAINTAINED.

⚠ WARNING

THE MANUFACTURER'S WARRANTY DOES NOT COVER ANY DAMAGE OR DEFECT TO THE AIR CONDITIONER CAUSED BY THE ATTACHMENT OR USE OF ANY COMPONENTS, ACCESSORIES OR DEVICES (OTHER THAN THOSE AUTHORIZED BY THE MANUFACTURER) INTO, ONTO OR IN CONJUNCTION WITH THE AIR CONDITIONER. YOU SHOULD BE AWARE THAT THE USE OF UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES MAY ADVERSELY AFFECT THE OPERATION OF THE AIR CONDITIONER AND MAY ALSO ENDANGER LIFE AND PROPERTY. THE MANUFACTURER DISCLAIMS ANY RESPONSIBILITY FOR SUCH LOSS OR INJURY RESULTING FROM THE USE OF SUCH UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES.

⚠ WARNING

IF ANY HOT WORK IS TO BE CONDUCTED ON THE REFRIGERATING EQUIPMENT OR ANY ASSOCIATED PARTS, APPROPRIATE FIRE EXTINGUISHING EQUIPMENT MUST BE ON SITE. A DRY POWDER CO2 FIRE EXTINGUISHER MUST BE NEAR THE CHARGING AREA AT ALL TIMES DURING INSTALLATION, COMMISSIONING, SERVICE, AND DECOMMISSIONING.

⚠ WARNING

THE UNIT MUST BE PERMANENTLY GROUND-ED.

A GROUNDING LUG IS PROVIDED IN THE ELECTRIC HEAT ACCESS AREA FOR A GROUND WIRE. FAILURE TO GROUND THIS UNIT CAN RESULT IN FIRE OR ELECTRICAL SHOCK CAUSING PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.

⚠ DANGER

RISK OF FIRE OR EXPLOSION. FLAMMABLE REFRIGERANT USED. TO BE REPAIRED ONLY BY TRAINED SERVICE PERSONNEL. DO NOT PUNCTURE REFRIGERANT TUBING.

⚠ WARNING

RISK OF FIRE OR EXPLOSION. DISPOSE OF PROPERLY IN ACCORDANCE WITH FEDERAL OR LOCAL REGULATIONS. FLAMMABLE REFRIGERANT USED.

⚠ DANGER

RISK OF FIRE OR EXPLOSION. FLAMMABLE REFRIGERANT USED. CONSULT THE REPAIR MANUAL/OWNER'S GUIDE BEFORE ATTEMPTING TO SERVICE THIS PRODUCT. ALL SAFETY PRECAUTIONS MUST BE FOLLOWED.

⚠ DANGER

RISK OF FIRE OR EXPLOSION DUE TO FLAMMABLE REFRIGERANT USED. FOLLOW HANDLING INSTRUCTIONS CAREFULLY IN COMPLIANCE WITH NATIONAL REGULATIONS.

⚠ WARNING

DO NOT USE MEANS TO ACCELERATE THE DEFROSTING PROCESS OR TO CLEAN, OTHER THAN THOSE RECOMMENDED BY THE MANUFACTURER.

⚠ WARNING

AUXILIARY DEVICES WHICH MAY BE A POTENTIAL IGNITION SOURCE SHALL NOT BE INSTALLED IN THE DUCTWORK.

⚠ WARNING

THE APPLIANCE SHALL BE STORED IN A ROOM WITHOUT CONTINUOUSLY OPERATING IGNITION SOURCES (FOR EXAMPLE: OPEN FLAMES, AN OPERATING GAS APPLIANCE, OR AN OPERATING ELECTRIC HEATER).

⚠ WARNING

DO NOT PIERCE OR BURN.

⚠ WARNING

BE AWARE THAT REFRIGERANTS MAY NOT CONTAIN AN ODOR.

⚠ WARNING

IF THIS UNIT IS CONNECTED VIA AN AIR DUCT SYSTEM TO ONE OR MORE ROOMS WITH AN AREA LESS THAN 400 SQ. FT., THAT ROOM SHALL BE WITHOUT CONTINUOUSLY OPERATING FLAMES OR OTHER POTENTIAL IGNITION SOURCES. SEE SECTION XVII REFRIGERANT INSTALLATION SAFETY DATA.

⚠ WARNING

IF THIS UNIT IS CONNECTED VIA DUCT TO ONE OR MORE ROOMS, ONLY AUXILIARY DEVICES APPROVED BY THE MANUFACTURER THAT ARE DECLARED SUITABLE WITH A2L REFRIGERANTS SHALL BE INSTALLED IN THE CONNECTING DUCTWORK.

⚠ WARNING

APPLIANCE SHALL BE INSTALLED, OPERATED, AND STORED IN A ROOM WITH A FLOOR AREA LARGER THAN 400 SQ. FT. SEE SECTION XVII - A2L REFRIGERANT INSTALLATION SAFETY DATA.

1.A Agency Performance Audit and Efficiency Testing Notice

NOTICE: BREAK-IN PERIOD

Prior to agency testing, run the compressor for 16 hours at 115°F outdoor ambient temperature and 80°F dry bulb / 75°F wet bulb indoor ambient temperature.

NOTICE: EFFICIENCY TESTING NOTICE

For purposes of verifying or testing efficiency ratings, the test procedure in title 10 Appendix M to Subpart B of Part 430 (Uniform Test Method for Measuring the Energy Consumption of Central Air Conditioners and Heat Pumps) and the AHRIifying provisions provided in the standards listed below that were applicable at the date of manufacture should be used for test set up and performance.

SETUP:

- ASHRAE 37 - 2009 (RA 2019)

PERFORMANCE:

- ANSI/ASHRAE 90.1 - 2022
- ANSI/ASHRAE 103 (2022)
- AHRI Operations for Unitary Small AC Equipment 210/240 (2023) for 2-5T
- CSA Z21.47 (2021)

SAFETY:

- UL 60335-2-40 4th Edition
- CSA Z21.47/CSA 2.3 8th Edition
- CSA C22.2 No. 60335-2-40 4th Edition

QUALITY:

- ISO 9001: 2019

1.B. Importance of a Quality Installation

Optimal system performance and longevity depend upon a quality and proper installation. Failure to properly setup and commission this unit could result in undesirable operation and subsequent faults and potential failures. Carefully follow all guidelines listed in the manual and industry best practices. Conform to all local code requirements. Contact your local technical representative with any questions or concerns. If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment must be on site. A dry powder CO2 fire extinguisher must be near the charging area at all times during installation, commissioning, service, and decommissioning.

1.C. Working Personnel Qualifications

Every installation, maintenance, service, and repair working procedure must be conducted by qualified personnel who have been trained in operating and servicing units that employ flammable refrigerants such as R-454B.

Examples of working procedures include but are not limited to:

- Breaking into the refrigeration circuit
- Opening sealed components
- Opening ventilated enclosures

This appliance is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

1.D. Importance of Air Flow and Setup

Optimal system performance is also dependent upon having the ideal airflow across the condensing and evaporating coils, and upon matching the charge weight to the manufacturer's spec for the unit. Improper or restricted air flow, and incorrect charge weight, will hinder the performance of the unit. Please refer to the manufacturer's recommended clearances for setting the unit and the included guide for setting air flow. Refer to the rating plate for the charge weight.

1.E. Checking Product and Inspection

Upon receiving the unit, inspect it for any damage from shipment. Claims for damage, either shipping or concealed, should be filed immediately with the shipping company.

IMPORTANT:

Check the unit model number, heating size, electrical characteristics, and accessories to determine if they are correct.

II. BREAKDOWN PAGE

<u>R</u>	<u>AC</u>	<u>A</u>	<u>Y</u>	<u>B</u>	<u>024</u>	<u>A</u>	<u>J</u>	<u>T</u>	<u>00</u>	<u>0</u>	<u>N</u>	<u>A</u>	
													<u>MINOR SERIES</u> A = FIRST DESIGN
													<u>CONTROL</u> N = NON-COMMUNICATING
													<u>HEATING CONFIGURATION</u> 0 = NO HEAT 1 = SINGLE STAGE
													<u>HEATING CAPACITY</u> 00 = NO RESISTANCE HEAT 05 = 05 KW 08 = 08 KW 10 = 10 KW 15 = 15 KW
													<u>DRIVE PACKAGE</u> T = CONSTANT TORQUE
													<u>ELECTRICAL DESIGNATION</u> J = 208/230 V – 1 PH – 60 HZ. C = 208/230 V – 3 PH – 60 HZ. D = 460 V – 3PH – 60 HZ.
													<u>MAJOR SERIES</u> A = FIRST DESIGN
													<u>COOLING CAPACITY (BTUH)</u> 024 = 24,000 030 = 30,000 036 = 36,000 042 = 42,000 048 = 48,000 060 = 60,000
													<u>TIER</u> B = BASE TIER C = MID TIER
													<u>REFRIGERANT</u> Y = R454B
													<u>CABINET TYPE</u> A = RESIPACK CONVERTIBLE (CFP)
													<u>UNIT TYPE</u> AC = PACKAGE AC
													<u>TRADEBRAND</u> R = RHEEM / RUUD (ALL TRADEBRANDS)

III. INTRODUCTION

This booklet contains the installation and operating instructions for your combination gas heating/electric cooling unit. There are some precautions that should be taken to derive maximum satisfaction from it. Improper installation can result in unsatisfactory operation or dangerous conditions.

Read this booklet and any instructions packaged with separate equipment required to make up the system prior to installation. Give this booklet to the owner and explain its provisions. The owner should retain this booklet for future reference.

The images contained within this document may not be an exact representation of every unit, accessory, installation, etc. We reserve the right to change the content of this document at any time.

IV. CHECKING PRODUCT RECEIVED

Upon receiving the unit, inspect it for any damage from shipment. Claims for damage, either shipping or concealed, should be filed immediately with the shipping company.

IMPORTANT: Check the unit model number, heating size, electrical characteristics, and accessories to determine if they are correct.

V. SPECIFICATIONS

A. GENERAL

Units are convertible from end supply and return to bottom supply and return by relocation of supply and return air access panels. See cover installation detail. The units are weatherized for mounting outside of the building.

⚠ WARNING

UNITS ARE NOT DESIGN CERTIFIED TO BE INSTALLED INSIDE THE STRUCTURE. DOING SO CAN CAUSE INADEQUATE UNIT PERFORMANCE AS WELL AS PROPERTY DAMAGE AND CARBON MONOXIDE POISONING RESULTING IN PERSONAL INJURY OR DEATH.

The information on the rating plate is in compliance with the FTC and DOE rating for single phase units. The following information is for three phase units which are not covered under the DOE certification program.

1. The energy consumption of the ignition system used with this unit is 9 watts.
2. The efficiency rating of this unit is a product thermal efficiency rating determined under continuous operating conditions independent of any installed system.

B. MAJOR COMPONENTS

The unit includes a hermetically-sealed refrigerating system (consisting of a compressor, condenser coil, evaporator coil with thermostatic expansion valve), a circulation air blower, a condenser fan, a heat exchanger assembly, gas burner and control assembly, combustion air motor and fan, and all necessary internal electrical wiring. The cooling system of these units is factory-evacuated, charged with R-454B refrigerant and performance tested. Refrigerant amount is indicated on rating plate.

C. R454B REFRIGERANT

All units are factory charged with R-454B refrigerant.

1. Specification of R-454B:

Application: R-454B is not a drop-in replacement for R-410A. Equipment designs must accommodate the safety group A2L of R-454B.

Physical Properties: R-454B has an atmospheric bubble point of 59.6F [50.9C] and an atmospheric dew point of -58.0F [-50.0C]. Its bubble point saturation pressure at 77F [25C] is 213 psig [1469 kPa] and dew point saturation pressure at 77F [25C] is 205 psig [1415 kPa].

Pressure: The pressure of R-454B is similar to that of R-410A. Recovery and recycling equipment, pumps, hoses, and the like must have design pressure ratings appropriate for R-454B. Manifold sets need to range up to 800 psig [5,516 kPa] high-side and 250 psig [1,724 kPa] low-side with a 550 psig [3,792 kPa] low-side retard. Hoses need to have a service pressure rating of 800 psig [5,516 kPa]. Recovery cylinders need to have a 400 psig [2,758 kPa] service pressure rating, DOT 4BA400 or DOT BW400.

Flammability: R-454B is classified as safety group A2L, where the 2L flammability class indicated flammability.

R-454B and air should never be mixed in cylinders or supply lines or be allowed to accumulate in storage cylinders. Leak checking should never be done with a mixture of R-454B and air.

2. Quick Reference Guide For R-454B

- Ensure that servicing equipment is designed to operate with R-454B.
- R-454B refrigerant cylinders are no longer color-coded. R454B cylinders are light green grey in color with a redband on the shoulder or top of the cylinder to indicate flammability.
- R-454B, as with other HFC's is only compatible with POE oils.
- Vacuum pumps will not remove moisture from POE oil.
- R-454B systems are to be charged with liquid

refrigerants.

- Do not install a suction line filter drier in the liquid line.
- A liquid line filter drier is standard on every unit.
- Desiccant (drying agent) must be compatible for POE oils and R-454B.

3. Evaporator Coil / TXV

The thermostatic expansion valve is specifically designed to operate with R-454B. **The exist-ing evaporator must be replaced with the factory specified TXV evaporator specifically designed for R-454B.**

4. Tools and Refrigerant

A Leak detection system is installed in this unit. The unit must be powered at all times except during service. This unit is equipped with electrically powered safety measures. To be effective, the unit must be electrically powered at all the times after installation, other than when servicing.

4.1 Tools Required For Installing & Servicing R-454B Models

Manifold Sets:

- Up to 800 PSIG High side
- Up to 250 PSIG Low Side
- 550 PSIG Low Side Retard

VI. UNIT DIMENSIONS

FIGURE 1

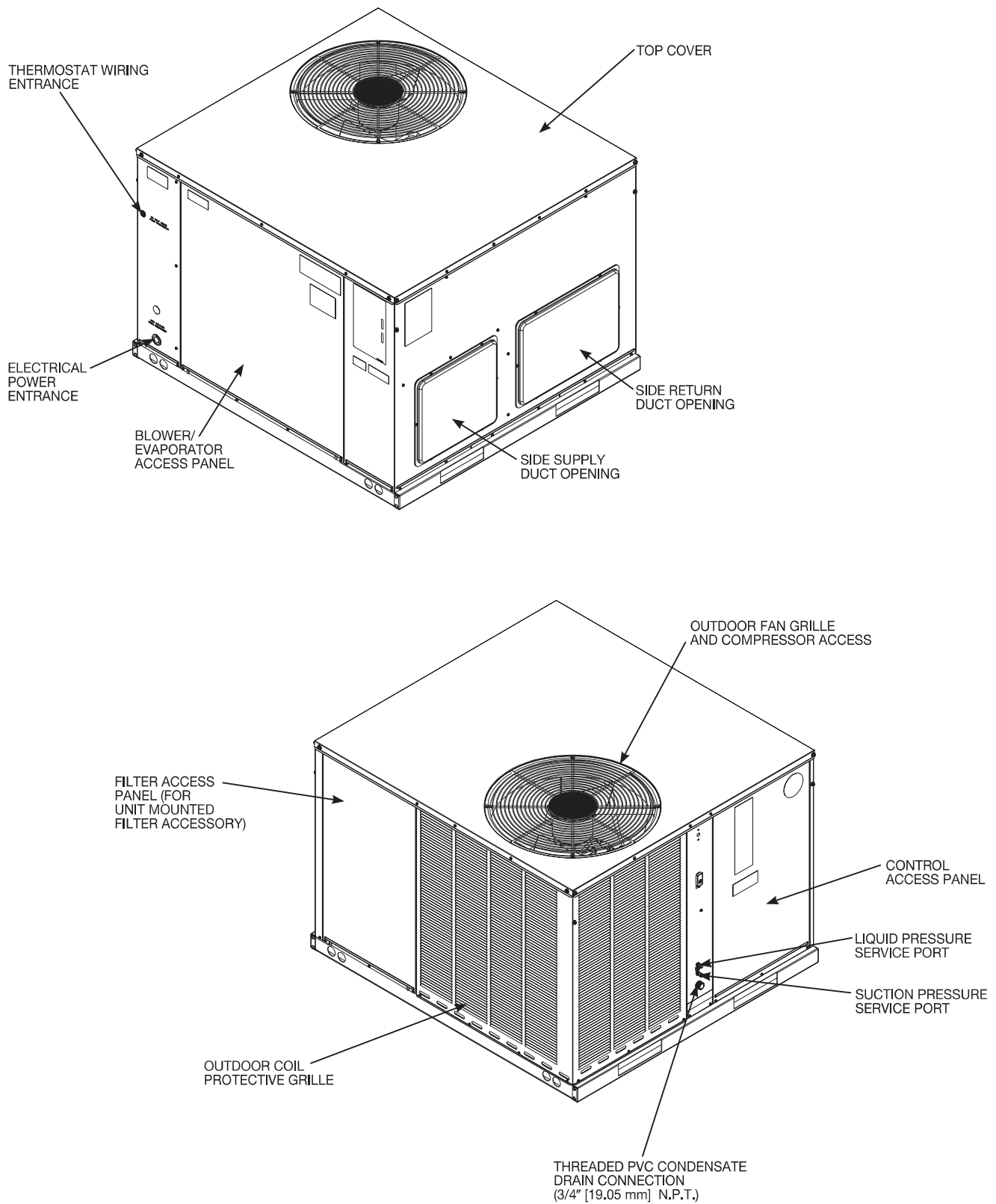
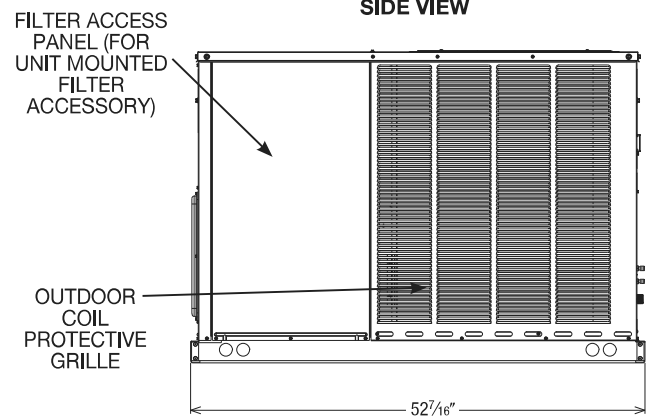
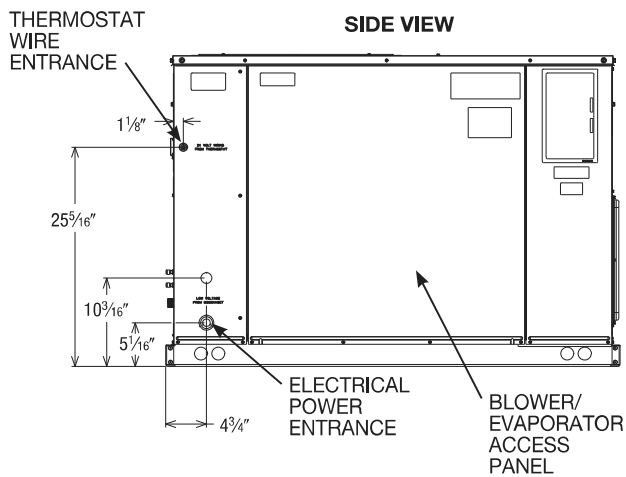
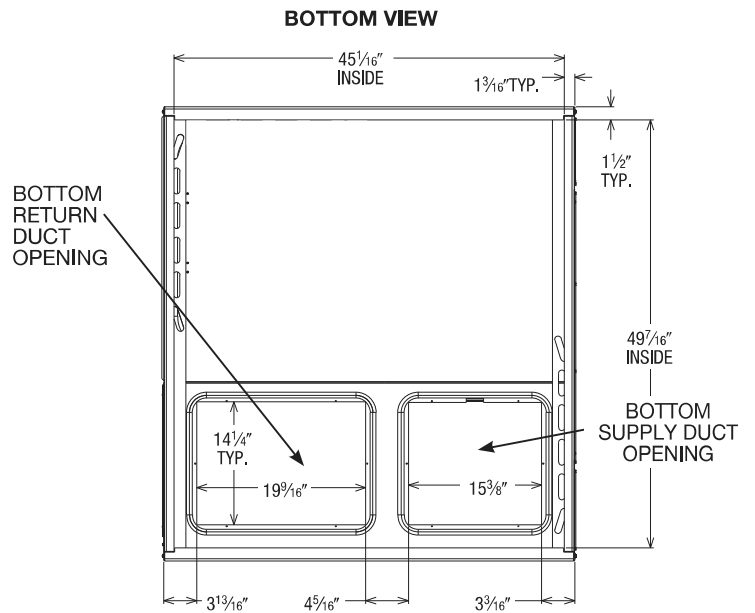
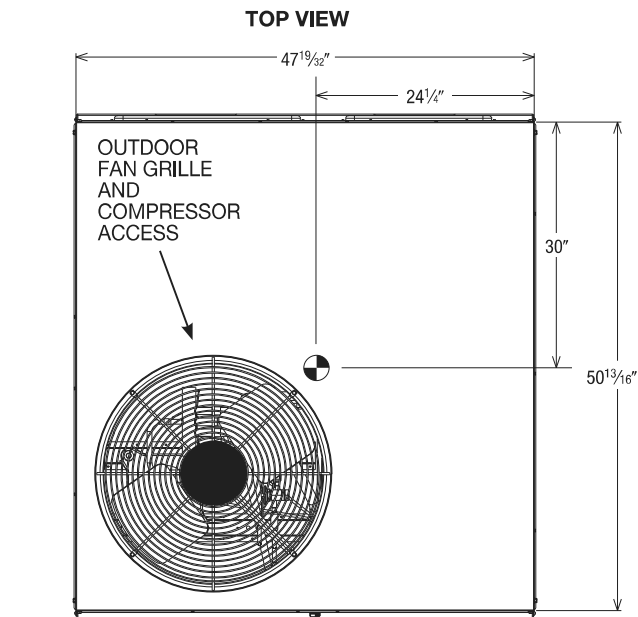
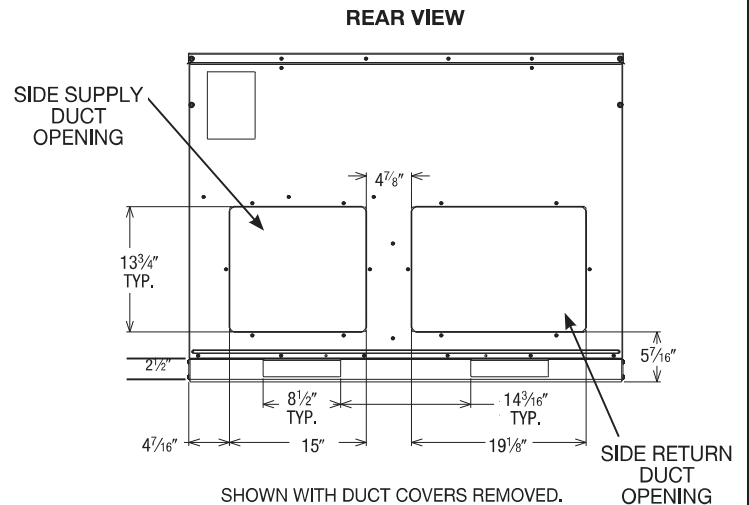
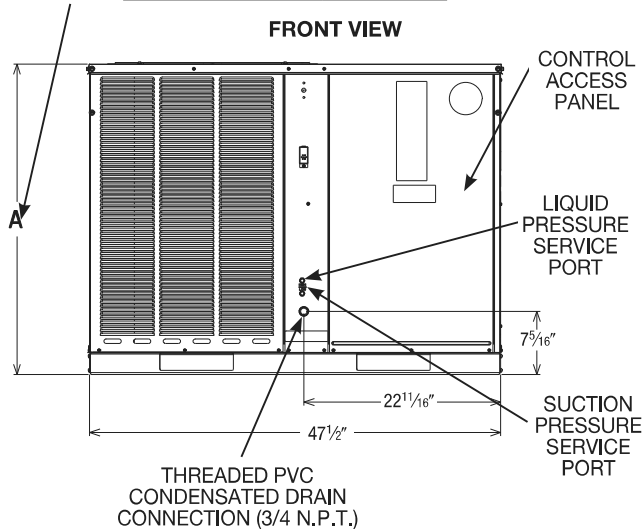


FIGURE 1 (continued)



Models RACAYB	Height "A"
024, 030, 036	35 ¹⁵ / ₁₆ "
042, 048, 060	41"



IMPORTANT: Unit must be level to prevent water migration.

Manifold Hoses:-Service Pressure Rating of 800 PSIG-
Recovery Cylinders:
-400 PSIG Pressure Rating
-Dept. of Transportation 4BA400 or BW400

VII. INSTALLATION

A. GENERAL

1. PRE-INSTALLATION CHECK-POINTS

Before attempting any installation, the following points should be carefully considered:

- a. Structural strength of supporting members. (rooftop installation)
- b. Clearances and provision for servicing.
- c. Power supply and wiring.
- d. Air duct connections.
- e. Drain facilities and connections.
- f. Location for minimum noise.

2. LOCATION CONSIDERATIONS (CORROSIVE ENVIRONMENT)

These units are designed for outdoor installations. They can be mounted on a slab or rooftop. They are not to be installed within any part of a structure such as an attic, crawl space, closet, or any other place where condenser air flow is restricted or other than outdoor ambient conditions prevail. Since the application of the units is of the outdoor type, it is important to consult your local code authorities at the time the first installation is made.

The metal parts of this unit may be subject to rust or deterioration if exposed to a corrosive environment. This oxidation could shorten the equipment's useful life. Corrosive elements include, but are not limited to, salt spray, fog or mist in seacoast areas, sulphur or chlorine from lawn watering systems, and various chemical contaminants from industries such as paper mills and petroleum refineries.

If the unit is to be installed in an area where contaminants are likely to be a problem, special attention should be given to the equipment location and exposure. Regular maintenance will reduce the buildup of contaminants and help to protect the unit's finish.

- a. Avoid having lawn sprinkler heads spray directly on the unit cabinet.
- b. In coastal areas, locate the unit on the side of the building away from the waterfront.
- c. Shielding provided by a fence or shrubs may give some protection.
- d. Frequent washing of the cabinet, fan blade and coil with fresh water will remove most of the salt or other contaminants that build up on the unit.
- e. Regular cleaning and waxing of the cabinet with an automobile polish will provide some protection.
- f. A liquid cleaner may be used several times a year to remove matter that will not wash off

WARNING

DISCONNECT ALL POWER TO THE UNIT BEFORE STARTING MAINTENANCE. FAILURE TO DO SO CAN RESULT IN SEVERE ELECTRICAL SHOCK OR DEATH.

with water.

3. MINIMUM ROOM AREA

Because this unit uses refrigerant R-454B, UL requires a minimum room area for the total conditioned space (TAmin) that is supplied by this equipment. The UL Safety Standard defines an individual room area as the room area enclosed by floors walls, partitions, and doors of the space where the unit is installed, also as the room area into which refrigerant can leak. Each room/conditioned space will need to be considered for the total area requirements. The minimum room area of the total conditioned space for each base model is listed in Section XVII - A2L Refrigerant Installation Safety Data.

4. MINIMUM ROOM AREA

When performing work that involves exposing any pipework, no person working on or near the refrigerating system may use any ignition sources that could lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept far away from the site during installation, repair, removal, or disposal, during which refrigerant can possibly be released into the surrounding space. Before work takes place, the area around the equipment must be surveyed to ensure that there are no flammable hazards or ignition risks. Additionally, "No Smoking" signs must be displayed.

Several different types of protective coatings are offered in some areas. These coatings may provide some benefit, but the effectiveness of such coating materials cannot be verified by the equipment manufacturer.

The best protection is frequent cleaning, maintenance and minimal exposure to contaminants.

B. OUTSIDE SLAB INSTALLATION

(Typical outdoor slab installations are shown in Figures 2 and 3.)

1. Select a location where external water drainage cannot collect around the unit.
2. Provide a level concrete slab extending 3" beyond all four sides of the unit. The slab should be sufficient above grade to prevent ground water from entering the unit. **IMPORTANT:** To prevent transmission of noise or vibration, slab should not be connected to building structure.
3. The location of the unit should be such as to

provide proper access for inspection and servicing.

4. Locate unit where operating sounds will not disturb owner or neighbors.
5. Locate unit so roof runoff water does not pour directly on the unit. Provide gutter or other shielding at roof level. Do not locate unit in an area where excessive snow drifting may occur or accumulate.

C. CLEARANCES

The following minimum clearances must be observed for proper unit performance and serviceability.

1. Provide 36" minimum clearance at the front and right side of the unit for service access. Provide 12" minimum clearance on the left side of the unit for air inlet.
2. Provide 60" minimum clearance between top of unit and maximum 3 foot overhang.
3. Unit is design certified for application on combustible flooring with 0" minimum clearance.
4. See Figure 2 for illustration of minimum installation-service clearances.

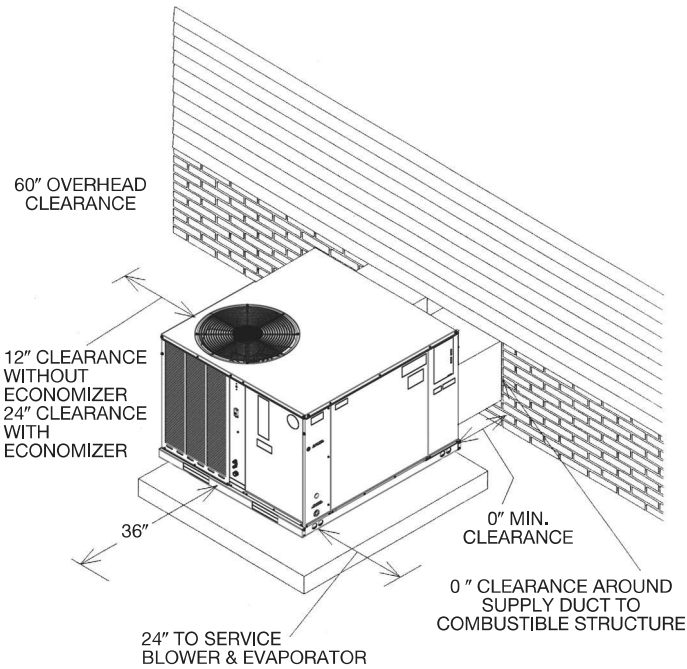
D. ROOFTOP INSTALLATION

(Typical rooftop installations are shown in Figures 4 and 5.)

1. Before locating the unit on the roof, make sure that the strength of the roof and beams is adequate at that point to support the weight involved. (See Electrical and Physical Data Table in this manual for weight of unit.) This is very important and user's responsibility.
2. For rigging and roof curb details, see Figures 6, 7 and 8. Use accessory lift brackets and field-furnished spreaders.
3. For roofcurb assembly, see Roofcurb Installation Instructions.
4. If the roofcurb is not used, provisions for disposing of condensate water runoff must be provided.
5. The unit should be placed on a solid and level roofcurb or platform of adequate strength.
6. The location of the unit on the roof should be such as to provide proper access for inspection

FIGURE 2**PACKAGED AIR CONDITIONER**

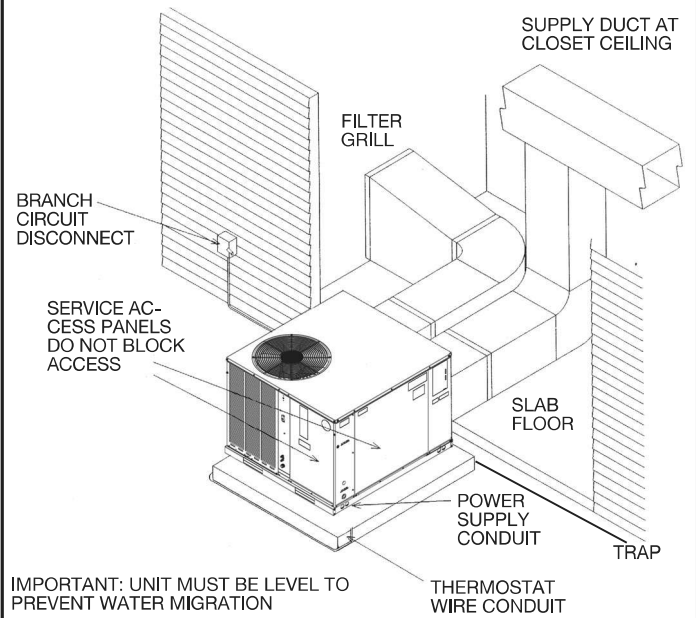
OUTSIDE SLAB INSTALLATION, BASEMENT OR CRAWL SPACE DISTRIBUTION SYSTEM.



I504

FIGURE 3**PACKAGED AIR CONDITIONER**

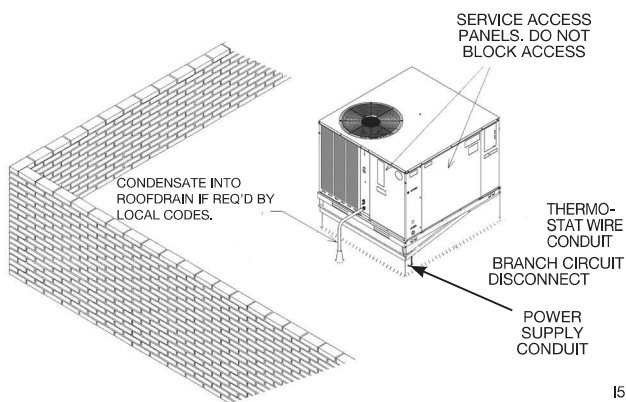
OUTSIDE SLAB INSTALLATION, CLOSET DISTRIBUTION SYSTEM, SLAB FLOOR CONSTRUCTION.



I505

FIGURE 4**PACKAGED AIR CONDITIONER**

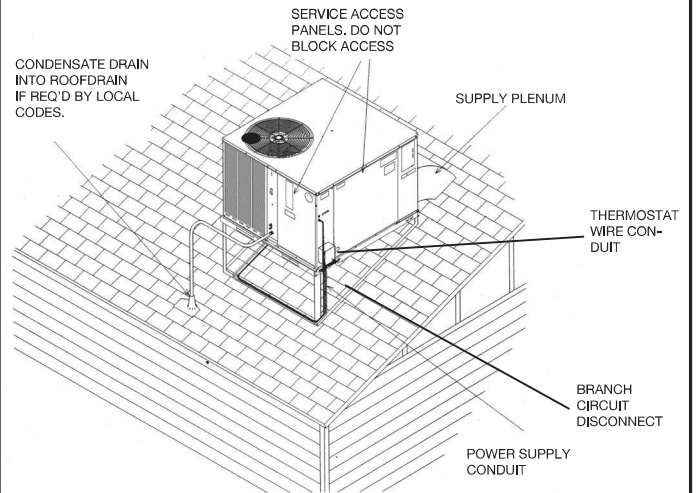
FLAT ROOFTOP INSTALLATION, ATTIC OR DROP CEILING DISTRIBUTION SYSTEM. MOUNTED ON ROOFCURB, CURB MUST BE LEVEL.



I506

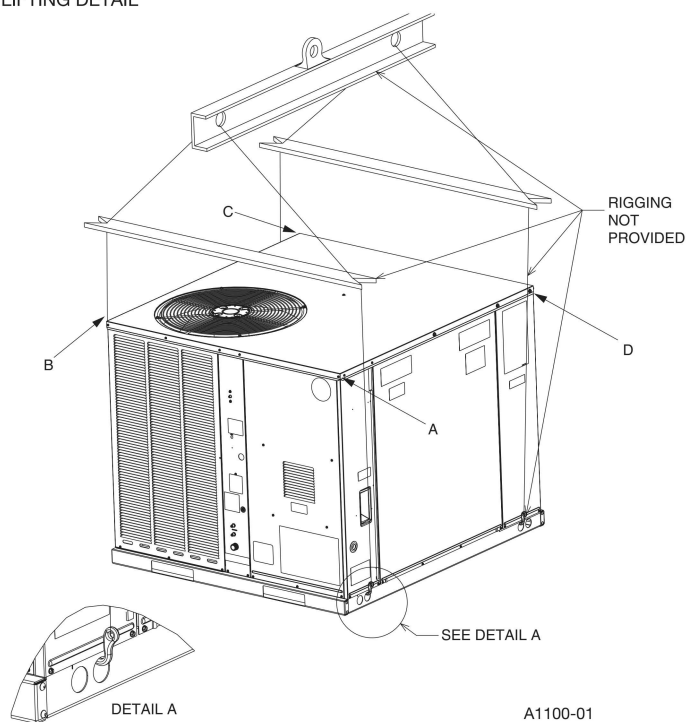
FIGURE 5**PACKAGED AIR CONDITIONER**

PITCHED ROOFTOP INSTALLATION, ATTIC OR DROP CEILING DISTRIBUTION SYSTEM. MOUNTED ON ROOFCURB, CURB MUST BE LEVEL.



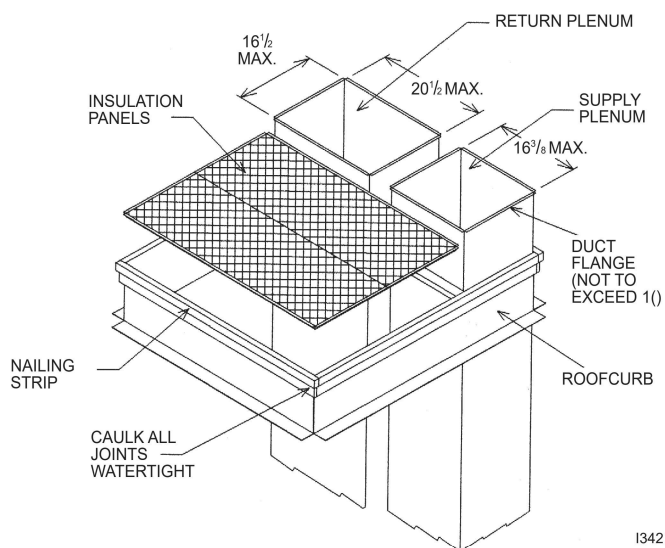
I273

FIGURE 6
PACKAGED AIR CONDITIONER
LIFTING DETAIL



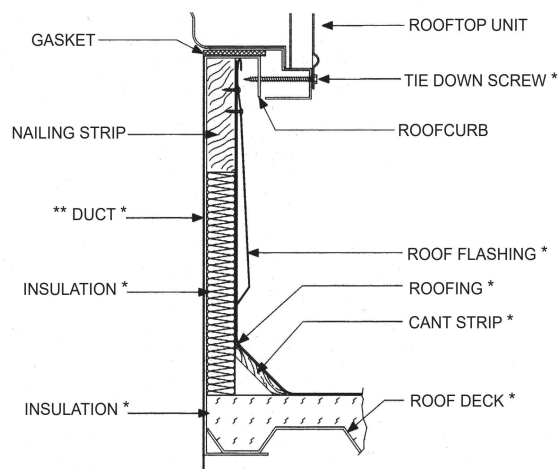
CAPACITY TONS [KW]	CORNER WEIGHTS BY PERCENTAGE (±2%)			
	A	B	C	D
2.0-5.0 [7-15.8]	20%	29%	30%	21%

FIGURE 7
ROOFCURB



1342

FIGURE 8
ROOFCURB



*BY CONTRACTOR
**FOR INSTALLATION OF DUCT AS SHOWN, USE RECOMMENDED
DUCT SIZES FROM ROOFCURB INSTALLATION INSTRUCTIONS. FOR
DUCT FLANGE ATTACHMENT TO UNIT, SEE UNIT INSTALLATION
INSTRUCTIONS (FIGURE 1) FOR SIZE OF DUCT OPENINGS.

1255

and servicing.

IMPORTANT: If unit will not be put into service immediately, cover supply and return openings to prevent excessive condensation.

VIII. DUCTWORK

Ductwork should be fabricated by the installing contractor in accordance with local codes and NFPA90A. Industry manuals may be used as a guide when sizing and designing the duct system - contact Air Conditioning Contractors of America, 1513 16th St. N.W., Washington, D.C. 20036.

Place the unit as close to the space to be conditioned as possible, allowing clearance dimensions as indicated. Run ducts should be run as directly as possible to supply and return outlets. Use of non-flammable waterproof flexible connectors on both supply and return connections at the unit to reduce noise transmission is recommended.

It is preferable to install the unit on the roof of the structure if the registers or diffusers are located on the wall or in the ceiling. A slab installation could be considered when the registers are low on a wall or in the floor.

On ductwork exposed to outside air conditions of temperature and humidity, use a minimum of 2" of insulation and a vapor barrier. Distribution system in attic, furred space or crawl space should be insulated with at least 2" of insulation with vapor barrier. One-half to 1" thickness

WARNING

DO NOT, UNDER ANY CIRCUMSTANCES, CONNECT RETURN DUCTWORK TO ANY OTHER HEAT PRODUCING DEVICE SUCH AS A FIREPLACE INSERT, STOVE, ETC. UNAUTHORIZED USE OF SUCH DEVICES MAY RESULT IN FIRE, CARBON MONOXIDE POISONING, EXPLOSION, PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.

of insulation is usually sufficient for ductwork inside the air conditioned space.

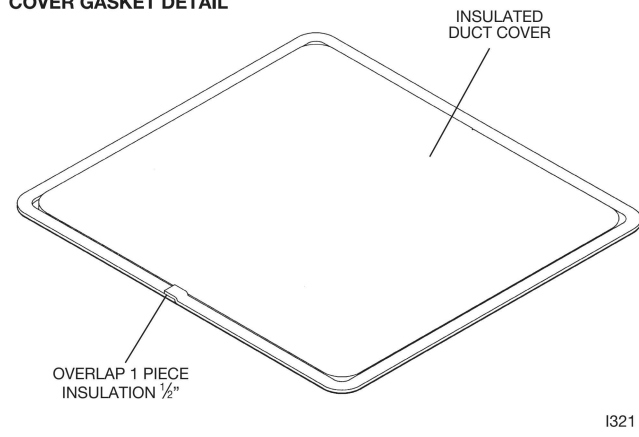
Provide balancing dampers for each branch duct in the supply system. Properly support ductwork from the structure.

IX. FILTERS

Filters are not provided with this unit. They may be supplied and installed in the return air duct by the installer. A field installed filter grille is recommended for easy and convenient access to the filters for periodic inspection and cleaning. Filters must have adequate face area for the rated air quantity of the unit. See Airflow Performance Table - or Electrical and Physical Data Table - for recommended filter size.

However, if an internal filter is required, an optional internal filter kit is available for downflow applications only. For installation, see Filter Kit Installation Instruction.

FIGURE 9
COVER GASKET DETAIL



X. CONVERSION PROCEDURE

1. HORIZONTAL TO DOWNFLOW

- Remove screws and covers from the downflow supply and return sections. Both covers are accessible from the inside of the unit.
- Install gasket (supplied with parts bag) around perimeter of cover on the insulated side. In other words, the gasket is applied to the opposite side of flange than shown in Figure 9.
- Install covers on the outside of the unit over the horizontal supply and return opening using existing screws.

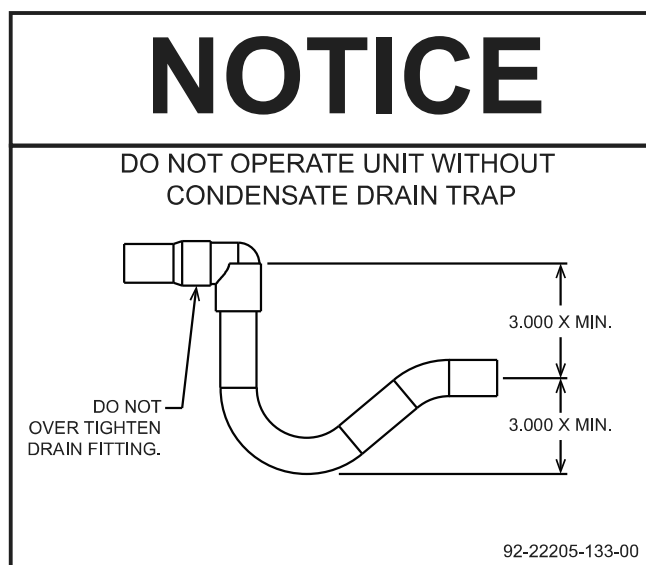
XI. CONDENSATE DRAIN

IMPORTANT: DO NOT OPERATE THE UNIT WITHOUT A CONDENSATE DRAIN TRAP INSTALLED.

- The condensate drain tube has a threaded male 3/4" NPT connection.
- Use a thin layer of Teflon tape or paste on drain pan connections and install only hand tight. It is recommended that PVC cement not be used so that the drain line can be easily cleaned in the future.
- Drain line must be no smaller than the drain tube outlet and adequately sized to accommodate the condensate discharge from the unit.
- Drain line must be routed to an acceptable drain or outdoors in accordance with local codes.
- Do not connect the condensate drain line to a closed sewer pipe. Connection to a vented sewer line is allowed.
- Drain line may need insulation or freeze

protection in certain applications.

7. The drain line includes a 3/16" hole on top of the line near the bulkhead to relieve negative



pressure and allow proper drainage in the event of a dried out trap.

8. If condensate is running out of this hole during cooling operation, check for obstruction in the drain line.

XII. WIRING & ELECTRI-

⚠ WARNING

TURN OFF THE MAIN ELECTRICAL POWER AT THE BRANCH CIRCUIT DISCONNECT CLOSEST TO THE UNIT BEFORE ATTEMPTING ANY WIRING. FAILURE TO DO SO CAN CAUSE ELECTRICAL SHOCK RESULTING IN PERSONAL INJURY OR DEATH.

CALS

Field wiring must comply with the National Electrical Code* and local ordinances that may apply.

*C.E.C. in Canada

A. POWER WIRING

1. It is important that proper electrical power is available at the unit. Voltage should not vary more than 10% from that stamped on the unit rating plate. On three phase units, phases must be balanced within 3%.
2. Install a branch circuit disconnect within sight of the unit in accordance with the N.E.C., C.E.C., or local codes.
3. For branch circuit wiring (main power supply to unit disconnect), the minimum wire size can be determined from Table A using the circuit ampacity found on the unit nameplate.
4. This unit incorporates single point electrical connection for unit and electric heat accessory.

5. Power wiring must be run in grounded rain-tight conduit. Connect the power field wiring as follows:

- a. NO ELECTRIC HEAT - Connect the field wires directly to the contactor in the unit control box. Connect ground wire to ground lug.
- b. WITH ELECTRIC HEAT - Connect the field wires to the terminal block on the electric heater kit. Connect the ground wire to the ground lug on the heater kit.

NOTE: For field installation of the heater kit, follow the instructions provided with the heater kit.

6. The pigtail wires in the electric heat box are factory wired to the contactor in the control box

TABLE A
BRANCH CIRCUIT COPPER WIRE SIZE
(BASED ON 1% VOLTAGE DROP)*

SUPPLY WIRE LENGTH-FEET	200	6	4	4	4	3	3	2	2
	150	8	6	6	4	4	4	3	3
	100	10	8	8	6	6	6	4	4
	50	14	12	10	10	8	8	6	6
		15	20	25	30	35	40	45	50
BRANCH CIRCUIT AMPACITY									

*Taken from National Electric Code

and are protected by internal fuses in the hinged fuse box mounted under the control box. See label on fuse box cover for fuse sizing.

7. DO NOT connect aluminum field wires to electric heat kit power input terminals.

B. SPECIAL INSTRUCTIONS FOR POWER WIRING WITH ALUMINUM CONDUCTORS.

1. Select the equivalent aluminum wire size from Table B:
2. Attach a length (6" or more) of recommended size copper wire to the unit terminals L1 and L3 for single phase, L1, L2, L3 for three phase.
3. Splice copper wire pigtails to aluminum wire with U.L. recognized connectors for copper-aluminum splices (Table B). Follow these instructions very carefully to make a positive and lasting connection;
 - a. Strip insulation from aluminum conductor.
 - b. Coat the stripped end of the aluminum wire with the recommended inhibitor and wire brush aluminum surface through inhibitor. Inhibitors: Brundy, Pentex "A"; Alcoa, No. 2EJC; T&B KPOR Shield.
 - c. Clean and re-coat aluminum conductor

with inhibitor.

- d. Make the splice using the above listed wire nuts or split bolt connectors.
- e. Coat the entire connection with inhibitor and wrap with electrical insulating tape.

WARRANTY MAY NOT APPLY IF CONNECTIONS ARE NOT MADE PER INSTRUCTIONS.

C. Potential Ignition Sources

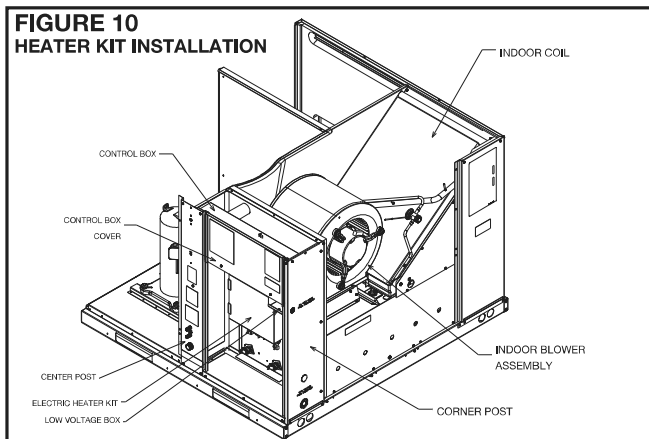
The UL safety standard defines potential ignition sources as hot surfaces, flames, and current carrying devices which can be the source of arcing or sparking.

In case any internal electrical components need to be replaced, those replacement parts must be ordered from the unit manufacturer's website to ensure that the internal

**TABLE B
WIRE SIZES**

AWG Copper Wire Size	AWG Aluminum Wire Size	Connector Type and Size (or equivalent)	
#12	#10	T&B Wire Nut	PT2
#10	#8	T&B Wire Nut	PT3
#8	#6	IlSCO Split Bolt	AK-6
#6	#4	IlSCO Split Bolt	AK-4
#4	#2	IlSCO Split Bolt	AK-2
#3	#1	IlSCO Split Bolt	AK-1/0
#2	#0	IlSCO Split Bolt	AK-1/0
#1	#00	IlSCO Split Bolt	AK-2/0
#0	#000	IlSCO Split Bolt	AK-4/0

**FIGURE 10
HEATER KIT INSTALLATION**



electrical components are not potential ignition sources. Examples of internal electrical components include contactors, relays, and control boards. This is not an exhaustive list. For the safety of customers and technicians, refer to the unit manufacturer's website for proper unit component replacement.

D. CONTROL WIRING (Class II)

1. Low voltage wiring should not be run in conduit with power wiring.
2. Control wiring is routed through the 7/8" hole approximately 11" from the unit top in the corner post adjacent to the control box. See Figure 10. Use a minimum #18 AWG thermostat wire. For wire lengths exceeding 50', use #16 AWG thermostat wire. The low voltage wires are connect-

ed to the unit pigtails which are supplied with the unit in the low voltage connection box located below the unit control box. See Figure 10.

3. Figures 11-14 shows wiring diagram for installation. Read your thermostat installation instructions for any special requirements for your specific thermostat. Two stage units (4 and 5 ton) require use of a thermostat capable of 2 stages of cooling.

NOTE — Units installed in Canada require that an outdoor thermostat (30,000 min. cycles of endurance) be installed and be wired with C.E.C. Class I wiring.

E. INTERNAL WIRING

A diagram of the internal wiring of this unit is located on the electrical control box cover. If any of the original wire as supplied with the appliance must be replaced, the wire gauge and insulation must be the same as original wiring.

⚠ WARNING

THE UNIT MUST BE PERMANENTLY GROUNDED. A GROUNDING LUG IS PROVIDED IN THE ELECTRIC HEAT KIT FOR A GROUND WIRE. (SEE FIGURES 10 AND 12.) FAILURE TO GROUND THIS UNIT CAN RESULT IN FIRE OR ELECTRICAL SHOCK CAUSING PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.

F. GROUNDING

GROUNDING MAY ALSO BE ACCOMPLISHED BY GROUNDING THE POWER LINE CONDUIT TO THE UNIT. MAKE SURE THE CONDUIT NUT LOCKING TEETH HAVE PIERCED THE INSULATING PAINT FILM OF THE SIDE PANEL.

G. THERMOSTAT

The thermostat should be mounted on an inside wall about five feet above the floor in a location where it will not be affected by unconditioned air, sun, or drafts from open doors or other sources. READ installation instructions in thermostat package CAREFULLY because each has some different wiring requirements.

H. Check Wiring

After completing refrigerant removal, evacuation, and charging, check that the internal and field wiring will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental effects, taking into account the effects of aging or continual vibration from sources such as compressors or fans.

XIII. CRANKCASE HEAT(OPTIONAL)

At initial startup or after extended shutdown periods, make sure crankcase heat is energized for at least 12 hours before compressor is started (disconnect switch closed and wall thermostat "OFF" position).

Crankcase heat is not required on scroll type compressors, but may be necessary for difficult starting situa-

tions.

XIV. PRE-START CHECK

1. Is unit properly located and slightly slanted toward condensate drain?
2. Is ductwork insulated, weatherproofed, with proper spacing to combustible materials?
3. Is air free to travel to and from outdoor coil? (See Figure 2.)
4. Is the wiring correct, tight, and according to unit wiring diagram?
5. Is unit grounded?
6. Are field supplied air filters in place and clean?
7. Do the outdoor fan and indoor blower turn freely without rubbing, and are they tight on the motor shafts?
8. Has crankcase heat been on for at least 12 hours?

XV. STARTUP

1. Turn thermostat to "OFF," turn "on" power supply at disconnect switch.
2. Turn temperature setting as high as it will go.
3. Turn fan switch to "ON."
4. Indoor blower should run. Be sure it is running in the right direction.
5. Turn fan switch to "AUTO." Turn system switch to "COOL" and turn temperature setting below room temperature. Unit should run in cooling mode.
6. Is outdoor fan operating correctly in the right direction?
7. Is compressor running correctly?
8. Check the refrigerant charge using the Refrigerant Charge Verification And Adjustment Process Section XVI. Replace service port caps. Service port cores are for system access only and will leak if not tightly capped.
9. Turn thermostat system switch to proper mode "HEAT" or "COOL" and set thermostat to proper temperature setting. Record the following after the unit has run some time.
 - a. Operating Mode _____
 - b. Discharge Pressure (High) _____ PSIG
 - c. Vapor Pressure at Compressor (Low) _____ PSIG
 - d. Vapor Line Temperature at Compressor _____ °F.
 - e. Indoor Dry Bulb _____ °F.
 - f. Indoor Wet Bulb _____ °F.
 - g. Outdoor Dry Bulb _____ °F.
 - h. Outdoor Wet Bulb _____ °F.
 - i. Voltage at Contactor _____ Volts
 - j. Current at Contactor _____ Amps
 - k. Model Number _____
 - l. Serial Number _____
 - m. Location _____
 - n. Owner _____
 - o. Date _____
10. Adjust discharge air grilles and balance system.

11. Check ducts for condensation and air leaks.
12. Check unit for tubing and sheet metal rattles.
13. Instruct the owner on operation and maintenance.
14. Leave "INSTALLATION" and "USE AND CARE" instructions with owner.

XVI. REFRIGERANT CHARGE VERIFICATION AND ADJUSTMENT PROCESS

This unitary packaged system comes fully charged and tested with R-454B refrigerant from the factory. Adjustment of the refrigerant charge is not required unless the unit is suspected of not having the proper refrigerant charge. Any adjustment must not exceed 2% of the total refrigerant weight listed on the rating plate of the unit and should not supersede correctly weighed-in refrigerant.

Note: Factory charge chart and/or design target sub-cooling are for gross charge verification.

Charge verification instructions:

1. Allow the unit to operate for 15 minutes before checking or adjusting the charge.
2. Return air temperature must be within comfort conditions (72°F - 82°F).
3. Remove caps from the high-side and low-side pressure service fittings.
4. Record the following measurements:
 - a. High-side pressure at service fitting
 - b. Low-side pressure at service fitting
 - c. Outdoor ambient (air temperature) near the condenser coil
5. Place an "X" on the chart where the high-side and low-side pressures intersect.
6. If the "X" is above the outdoor ambient line by more than 20 PSI, verify the airflow and check for component issues. If no issues are found, reclaim the refrigerant, evacuate the system, and weigh in the refrigerant quantity listed on the rating plate.
7. If the "X" is above the outdoor ambient line by less than 20 PSI, the system can be considered properly charged and no adjustment is necessary.
8. If the "X" is below the outdoor ambient line by more than 20 PSI, inspect the unit for potential loss of refrigerant. Recover the refrigerant and perform a leak check using nitrogen to pressurize the system. If necessary, make repairs and perform a leak check again. Then, evacuate nitrogen from the system, and weigh in the refrigerant quantity listed on the rating plate.
9. If the "X" is below the outdoor ambient line by less than 20 PSI, the refrigerant charge can be increased. If the unit requires an adjustment

greater than 2% of the refrigerant quantity listed on the rating plate; follow inspection, repair, and recharge procedures in step 8.

XVII. OPERATION

Most single phase units are operated PSC (no start relay or start capacitor). It is important that such systems be off for a minimum of 5 minutes before restarting to allow equalization of pressures. The thermostat should not be moved to cycle unit without waiting five minutes. To do so may cause the compressor to stop on an automatic open overload device or blow a fuse. Poor electrical service can cause nuisance tripping in overloads or blow fuses.

IMPORTANT: The compressor has an internal overload protector. Under some conditions, it can take up to 2 hours for this overload to reset. Make sure overload has had time to reset before condemning the compressor.

Some models may be factory equipped with a start relay and start capacitor.

Some units are equipped with a time delay control (TDC1). The control allows the blower to operate for up to 60 seconds after the thermostat is satisfied.

XVIII. AUXILIARY HEAT

A. CONTROL SYSTEM OPERATION

1. In the cooling mode, the thermostat will, on a call for cooling, energize the compressor contactor and the indoor blower relay. The indoor blower can be operated continuously by setting the thermostat fan switch at the "ON" position.
2. In the heating mode, the thermostat will energize one or more supplementary resistance heaters.

WARNING

ONLY ELECTRIC HEATER KITS SUPPLIED BY THIS MANUFACTURER AS DESCRIBED IN THIS PUBLICATION HAVE BEEN DESIGNED, TESTED, AND EVALUATED BY A NATIONALLY RECOGNIZED SAFETY TESTING AGENCY FOR USE WITH THIS UNIT. USE OF ANY OTHER MANUFACTURED ELECTRIC HEATERS INSTALLED WITHIN THIS UNIT MAY CAUSE HAZARDOUS CONDITIONS RESULTING IN PROPERTY DAMAGE, FIRE, BODILY INJURY OR DEATH.

XIX. BLOWER MOTOR SPEEDTAPS

Note: These instructions to be used in conjunction with airflow tables.

After determining necessary CFM and speed tap, follow

the steps below to change speeds.

Units with Constant Torque Motors

1. Remove blower access panel.
2. Locate wire terminals on the motor. Numbered terminals are 24V blower taps (See airflow tables for corresponding speed). The C terminal is 24V common. L, N, and G terminals are high voltage and must remain unchanged.
3. Cooling speed can be adjusted by moving appropriate wire between taps at the blower (Do not connect wires to unspecified speed taps).
4. Replace blower access panel.

XX. Refrigerant Leak Inspection

A. Check for Refrigerant Leaks

Before beginning any work on the system or conducting any hot work, ensure that the area is in the open or that it is adequately ventilated.

Ventilation must continue while the unit is being worked on. Ventilation is required to safely disperse any released refrigerant into the atmosphere.

Inspect the unit for any damage to the coils and tubing that could cause a leak.

Under no circumstances shall potential sources of ignition be used to search for or detect refrigerant leaks. A halide torch or any other detector using a naked flame must not be used.

Electronic leak detectors may be used to detect refrigerant leaks, but the sensitivity may not be accurate and may need recalibration to accurately detect R-454B. Before use, ensure that the detector is not a potential ignition source and is suitable for R-454B.

Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and must be calibrated to R-454B.

Leak detection fluids are also suitable but do not use detergents containing chlorine.

Examples of leak detection fluids are the bubble method and fluorescent method agents.

If a leak is suspected, all naked flames must be extinguished.

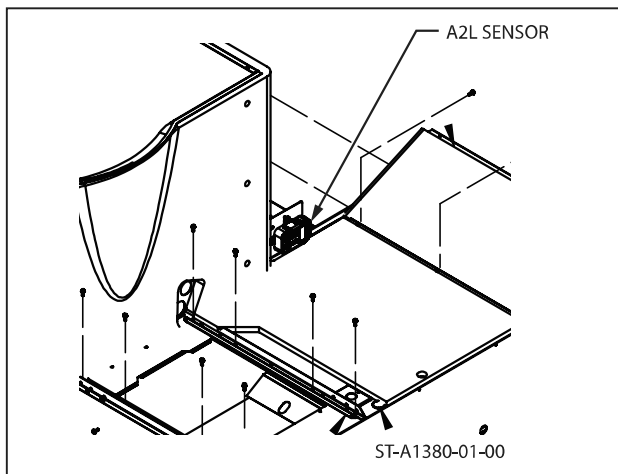
If a refrigerant leak is found that requires brazing, all of the refrigerants must be removed from the system.

B. Refrigerant Leak Detection System

The refrigerant leak detection system will continuously monitor the air for a refrigerant leak. If the leak detection system detects a leak, the system will begin mitigation procedures: the blower will turn on and the compressors will shut down.

Note: Gas or electric heat functions may continue during mitigation.

At the end of 15 years or if the refrigerant leak detection



system becomes inoperable, the leak detection system must be replaced with components specified by the unit's manufacturer. Refer to the manufacturer's website for replacement components. Refer to the alarm code diagnostics section for refrigerant leak detection system error codes.

C. Operation When a Leak is Detected

When the unit receives a signal from the A2L sensor, circulation airflow is activated, and the control board will display an error (for DDC units) or a fault code (for Non-DDC units). The following mitigation actions will also be activated:

1. Energize the fan(s) of the appliance to deliver indoor airflow at or above the minimum airflow. See Section XVII A2L Refrigerant Installation Safety Data.
 - The fans shall be energized following the input signal to turn on the fans(s).
2. The system de-energizes compressor operation.
3. Activate additional mechanical ventilation, if applicable.

The above-mentioned actions shall continue for at least 5 minutes after the leak detection system begins mitigation. If the leak is no longer detected, the leak detection system will reset. If the leak is still present, mitigation actions will continue for another 5 minutes. This cycle will repeat until no leak is detected.

D. Removal and Evacuation of Refrigerant

The refrigerant charge shall be recovered into R-454B recovery cylinders. The unit system must be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants, such as R-454B, again. This process might need to be repeated several times. **DO NOT USE** compressed air or oxygen for purging R-454B refrigerant systems.

Refrigerant purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to the atmosphere, and finally pulling down

to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to the atmospheric pressure to enable work to take place.

The outlet for the vacuum pump must not be close to any potential ignition sources.

Ventilation is required during removal and evacuation.

When breaking into the refrigeration circuit for any reason, this procedure must be followed:

1. Ensure there is no power to the unit.
2. With an accurate scale, ½ oz., set the refrigerant recovery cylinder in the upright position.
3. Connect the recovery cylinder to the unit using the service valves.
4. Evacuate refrigerant from the unit until the vacuum pump reads a minimum of 500 microns.
5. Purge the refrigeration circuit with inert gas until there is no refrigerant within the system.
6. Evacuate the circuit again.
7. Once all inert gas is removed, pull a vacuum on the unit to check for any leaks in the system.
8. If leaks are present, spray a soapy substance over the refrigeration circuit. Bubbles will help locate the leak.
 - a. Patch the leak and pull a vacuum again.
 - b. If leaks are still detected, repeat steps seven and eight.
 - c. Check how sub-steps are formatted in existing I&Os
9. If no leaks are present, charge the system as directed in the next section.
10. Remove the vacuum pump from suction, discharge and liquid shut-off.

XXI. GENERAL DATA - RACAYB MODELS

NOMINAL SIZES 2-5 TONS [7-17.6 kW]

Model RACAYB Series	024AJT	030ACT	030AJT	036ACT
Cooling Performance¹	Continued ->			
Gross Cooling Capacity Btu/h [kW]	23,700 [6.95]	29,400 [8.61]	29,400 [8.61]	35,200 [10.31]
EER2/SEER2 ²	10.6/13.4	10.6/13.4	10.6/13.4	10.6/13.4
Nominal CFM/AHRI Rated CFM [L/s]	800/810 [378/382]	1000/980 [472/462]	1000/980 [472/462]	1200/1180 [566/557]
AHRI Net Cooling Capacity Btu/h [kW]	22,800 [6.68]	28,400 [8.32]	28,400 [8.32]	34,200 [10.02]
Net Sensible Capacity Btu/h [kW]	16,600 [4.86]	21,100 [6.18]	21,100 [6.18]	25,100 [7.35]
Net Latent Capacity Btu/h [kW]	6,200 [1.82]	7,300 [2.14]	7,300 [2.14]	9,100 [2.67]
Net System Power kW	2.01	2.45	2.45	2.80
Compressor				
No./Stg/Type	1/1/Scroll	1/1/Scroll	1/1/Scroll	1/1/Scroll
Outdoor Sound Rating (dB)5	77	79	79	75
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	0.472 [12]	0.709 [18]	0.709 [18]	0.709 [18]
Face Area sq. ft. [sq. m]	7.19 [0.67]	7.06 [0.66]	7.06 [0.66]	9.78 [0.91]
Rows / FPI [FPcm]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Face Area sq. ft. [sq. m]	3.54 [0.33]	3.54 [0.33]	3.54 [0.33]	3.54 [0.33]
Rows / FPI [FPcm]	1 / 20 [8]	1 / 20 [8]	1 / 20 [8]	1 / 20 [8]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	2500 [1180]	2400 [1133]	2400 [1133]	3250 [1534]
No. Motors/HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP
Motor RPM	825	825	825	825
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/10x9 [254x229]	1/10x9 [254x229]	1/10x9 [254x229]	1/12x9 [305x229]
Drive Type	Direct	Direct	Direct	Direct
No. Speeds	Multiple	Multiple	Multiple	Multiple
No. Motors	1	1	1	1
Motor HP	1/3	1/2	1/2	1
Motor RPM	1050	1050	1050	1050
Motor Frame Size	48	48	48	48
Filter - Type	Field Supplied	Field Supplied	Field Supplied	Field Supplied
Furnished	No	No	No	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]
Refrigerant Charge Oz. [g]	38 [1077]	46.4[1315]	46.4[1315]	48 [1361]
Weights				
Net Weight lbs. [kg]	354 [161]	354 [161]	354 [161]	363 [165]
Ship Weight lbs. [kg]	362 [164]	362 [164]	362 [164]	371 [168]

NOTES:

1. Cooling Capacity is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of blower motor heat. AHRI capacity is net and includes the effect of blower motor heat. Units are suitable for operation to ±20% of nominal cfm. Units are certified in accordance with the Unitary Air Conditioner Equipment certification program, which is based on AHRI Standard 210/240.
2. EER2 and/or SEER2 are rated at AHRI conditions and in accordance with DOE test procedures.
3. Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

GENERAL DATA - RACAYB MODELS

NOMINAL SIZES 2-5 TONS [7-17.6 kW]

Model RACAYB Series	036ADT	036AJT	042ACT	042AJT
Cooling Performance¹	Continued ->			
Gross Cooling Capacity Btu/h [kW]	35,200 [10.31]	35,600 [10.43]	42,000 [12.31]	42,000 [12.31]
EER2/SEER2 ²	10.6/13.4	10.6/13.4	10.6/13.4	10.6/13.4
Nominal CFM/AHRI Rated CFM [L/s]	1200/1180 [566/557]	1200/1180 [566/557]	1400/1510 [661/713]	1400/1510 [661/713]
AHRI Net Cooling Capacity Btu/h [kW]	34,200 [10.02]	34,200 [10.02]	40,000 [11.72]	40,000 [11.72]
Net Sensible Capacity Btu/h [kW]	25,100 [7.35]	24,900 [7.3]	30,000 [8.79]	30,000 [8.79]
Net Latent Capacity Btu/h [kW]	9,100 [2.67]	9,300 [2.72]	10,000 [2.93]	10,000 [2.93]
Net System Power kW	2.80	2.80	3.40	3.60
Compressor				
No./Stg/Type	1/1/Scroll	1/1/Scroll	1/1/Scroll	1/1/Scroll
Outdoor Sound Rating (dB)5	75	75	77	77
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	0.709 [18]	0.709 [18]	0.709 [18]	0.709 [18]
Face Area sq. ft. [sq. m]	9.78 [0.91]	9.78 [0.91]	16.18 [1.5]	16.18 [1.5]
Rows / FPI [FPcm]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	1 [25.4]	1 [25.4]	1.26 [32]	1.26 [32]
Face Area sq. ft. [sq. m]	3.54 [0.33]	3.54 [0.33]	3.98 [0.37]	3.98 [0.37]
Rows / FPI [FPcm]	1 / 20 [8]	1 / 20 [8]	1 / 20 [8]	1 / 20 [8]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	3250 [1534]	3250 [1534]	4300 [2029]	4300 [2029]
No. Motors/HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP
Motor RPM	825	825	1050	1050
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/12x9 [305x229]	1/12x9 [305x229]	1/12x9 [305x229]	1/12x9 [305x229]
Drive Type	Direct	Direct	Direct	Direct
No. Speeds	Multiple	Multiple	Multiple	Multiple
No. Motors	1	1	1	1
Motor HP	1	1	3/4	3/4
Motor RPM	1050	1050	1050	1050
Motor Frame Size	48	48	48	48
Filter - Type	Field Supplied	Field Supplied	Field Supplied	Field Supplied
Furnished	No	No	No	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]
Refrigerant Charge Oz. [g]	48 [1361]	48 [1361]	69.3 [1965]	69.3 [1965]
Weights				
Net Weight lbs. [kg]	363 [165]	363 [165]	428 [194]	428 [194]
Ship Weight lbs. [kg]	371 [168]	371 [168]	436 [198]	436 [198]

NOTES:

1. Cooling Capacity is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of blower motor heat. AHRI capacity is net and includes the effect of blower motor heat. Units are suitable for operation to ±20% of nominal cfm. Units are certified in accordance with the Unitary Air Conditioner Equipment certification program, which is based on AHRI Standard 210/240.
2. EER2 and/or SEER2 are rated at AHRI conditions and in accordance with DOE test procedures.
3. Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

GENERAL DATA - RACAYB MODELS

NOMINAL SIZES 2-5 TONS [7-17.6 kW]

Model RACAYB Series	048ACT	048ADT	048AJT	060ACT
Cooling Performance¹				Continued ->
Gross Cooling Capacity Btu/h [kW]	47,900 [14.04]	47,900 [14.04]	47,900 [14.04]	58,600 [17.17]
EER2/SEER2 ²	10.6/13.4	10.6/13.4	10.6/13.4	10.6/13.4
Nominal CFM/AHRI Rated CFM [L/s]	1600/1730 [755/816]	1600/1730 [755/816]	1600/1730 [755/816]	2000/1700 [944/802]
AHRI Net Cooling Capacity Btu/h [kW]	45,500 [13.33]	45,500 [13.33]	45,500 [13.33]	56,000 [16.41]
Net Sensible Capacity Btu/h [kW]	33,500 [9.82]	33,500 [9.82]	33,500 [9.82]	40,000 [11.72]
Net Latent Capacity Btu/h [kW]	12,000 [3.52]	12,000 [3.52]	12,000 [3.52]	16,000 [4.69]
Net System Power kW	4.10	4.10	4.10	5.21
Compressor				
No./Stg/Type	1/2/Scroll	1/2/Scroll	1/2/Scroll	1/2/Scroll
Outdoor Sound Rating (dB)5	76	76	76	77
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Face Area sq. ft. [sq. m]	15.37 [1.43]	15.37 [1.43]	15.37 [1.43]	15.37 [1.43]
Rows / FPI [FPcm]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	1.26 [32]	1.26 [32]	1.26 [32]	1.26 [32]
Face Area sq. ft. [sq. m]	3.98 [0.37]	3.98 [0.37]	3.98 [0.37]	3.96 [0.37]
Rows / FPI [FPcm]	1 / 20 [8]	1 / 20 [8]	1 / 20 [8]	1 / 20 [8]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	4150 [1958]	4150 [1958]	4150 [1958]	4300 [2029]
No. Motors/HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/2 HP
Motor RPM	1050	1050	1050	1050
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/12x9 [305x229]	1/12x9 [305x229]	1/12x9 [305x229]	1/12x9 [305x229]
Drive Type	Direct	Direct	Direct	Direct
No. Speeds	Multiple	Multiple	Multiple	Multiple
No. Motors	1	1	1	1
Motor HP	1	1	1	1
Motor RPM	1300	1050	1300	1050
Motor Frame Size	48	48	48	48
Filter - Type	Field Supplied	Field Supplied	Field Supplied	Field Supplied
Furnished	No	No	No	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]
Refrigerant Charge Oz. [g]	78.4 [2223]	78.4 [2223]	78.4 [2223]	80 [2268]
Weights				
Net Weight lbs. [kg]	447 [203]	447 [203]	447 [203]	450 [204]
Ship Weight lbs. [kg]	455 [206]	455 [206]	455 [206]	458 [208]

NOTES:

- Cooling Capacity is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of blower motor heat. AHRI capacity is net and includes the effect of blower motor heat. Units are suitable for operation to ±20% of nominal cfm. Units are certified in accordance with the Unitary Air Conditioner Equipment certification program, which is based on AHRI Standard 210/240.
- EER2 and/or SEER2 are rated at AHRI conditions and in accordance with DOE test procedures.
- Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

GENERAL DATA - RACAYB MODELS

NOMINAL SIZES 2-5 TONS [7-17.6 kW]

Model RACAYB Series	060ADT	060AJT
Cooling Performance¹		
Gross Cooling Capacity Btu [kW]	58,600 [17.17]	58,600 [17.17]
EER2/SEER2 ²	10.6/13.4	10.6/13.4
Nominal CFM/AHRI Rated CFM [L/s]	2000/1700 [944/802]	2000/1700 [944/802]
AHRI Net Cooling Capacity Btu [kW]	56,000 [16.41]	56,000 [16.41]
Net Sensible Capacity Btu [kW]	40,000 [11.72]	40,000 [11.72]
Net Latent Capacity Btu [kW]	16,000 [4.69]	16,000 [4.69]
Net System Power kW	5.21	5.21
Compressor		
No./Stg/Type	1/2/Scroll	1/2/Scroll
No./Stg/Type		
Outdoor Sound Rating (dB)⁵		
	77	77
Outdoor Coil - Fin Type		
	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	1 [25.4]	1 [25.4]
Face Area sq. ft. [sq. m]	15.37 [1.43]	15.37 [1.43]
Rows / FPI [FPcm]	1 / 23 [9]	1 / 23 [9]
Indoor Coil - Fin Type		
	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	1.26 [32]	1.26 [32]
Face Area sq. ft. [sq. m]	3.96 [0.37]	3.96 [0.37]
Rows / FPI [FPcm]	1 / 20 [8]	1 / 20 [8]
Refrigerant Control	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type		
	Propeller	Propeller
No. Used/Diameter in. [mm]	1/22 [558.8]	1/22 [558.8]
Drive Type/No. Speeds	Direct/1	Direct/1
CFM [L/s]	4300 [2029]	4300 [2029]
No. Motors/HP	1 at 1/2 HP	1 at 1/2 HP
Motor RPM	1050	1050
Indoor Fan - Type		
	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/12x9 [305x229]	1/12x9 [305x229]
Drive Type	Direct	Direct
No. Speeds	Multiple	Multiple
No. Motors	1	1
Motor HP	1	1
Motor RPM	1050	1050
Motor Frame Size	48	48
Filter - Type		
	Field Supplied	Field Supplied
Furnished	No	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]
Refrigerant Charge Oz. [g]		
	80 [2268]	80 [2268]
Weights		
Net Weight lbs. [kg]	450 [204]	450 [204]
Ship Weight lbs. [kg]	458 [208]	458 [208]

NOTES:

- Cooling Capacity is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of blower motor heat. AHRI capacity is net and includes the effect of blower motor heat. Units are suitable for operation to ±20% of nominal cfm. Units are certified in accordance with the Unitary Air Conditioner Equipment certification program, which is based on AHRI Standard 210/240.
- EER2 and/or SEER2 are rated at AHRI conditions and in accordance with DOE test procedures.
- Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

XXII. ELECTRICAL DATA

ELECTRICAL DATA - RACAYB SERIES										
		024AJT	030ACT	030AJT	036ACT	036ADT	036AJT	042ACT	042AJT	048ACT
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	187-253	414-506	187-253	187-253	187-253	187-253
	Volts	208/230	208/230	208/230	208/230	460	208/230	208/230	208/230	208/230
	Phase	1	3	1	3	3	1	3	1	3
	Hz	60	60	60	60	60	60	60	60	60
	Minimum Circuit Ampacity	19	18	22	25	12	30	24	30	27
	Minimum Overcurrent Protection Device Size	25	20	25	30	15	35	30	35	35
	Maximum Overcurrent Protection Device Size	25	25	30	35	15	45	35	45	35
Compressor Motor	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	460	208/230	208/230	208/230	208/230
	Phase	1	3	1	3	3	1	3	1	3
	RPM	3500	3500	3500	3500	3500	3500	3500	3500	3500
	Amps (RLA), Comp. 1	11.4	9.6	12.7	12.2	5.8	16.7	12.8	17.3	12.1
	Amps (LRA), Comp. 1	64.4	70	75.6	97.5	44.3	93.5	102.8	123	123
	HP, Compressor 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Amps (RLA), Comp. 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Amps (LRA), Comp. 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Condenser Motor	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	460	208/230	208/230	208/230	208/230
	Phase	1	1	1	1	1	1	1	1	1
	HP	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3
	Amps (FLA, each)	1.5	1.5	1.5	1.5	0.8	1.5	2	2	2
	Amps (LRA, each)	3	3	3	3	1.6	3	3.9	3.9	3.9
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	460	208/230	208/230	208/230	208/230
	Phase	1	1	1	1	1	1	1	1	1
	HP	1/3	1/2	1/2	1	1	1	3/4	3/4	1
	Amps (FLA, each)	2.8	4.1	4.1	7.6	3.5	7.6	6	6	8.9
	Amps (LRA, each)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

ELECTRICAL DATA - RACAYB SERIES										
		048ADT	048AJT	060ACT	060ADT	060AJT				
Unit Information	Unit Operating Voltage Range	414-506	187-253	187-253	414-506	187-253				
	Volts	460	208/230	208/230	460	208/230				
	Phase	3	1	3	3	1				
	Hz	60	60	60	60	60				
	Minimum Circuit Ampacity	14	37	29	14	43				
	Minimum Overcurrent Protection Device Size	20	45	35	20	50				
	Maximum Overcurrent Protection Device Size	20	50	40	20	60				
Compressor Motor	No.	1	1	1	1	1				
	Volts	460	208/230	208/230	460	208/230				
	Phase	3	1	3	3	1				
	RPM	3500	3500	3500	3500	3500				
	Amps (RLA), Comp. 1	7.1	20.1	13.8	6.9	25.2				
	Amps (LRA), Comp. 1	60	141	150	60	147.3				
	HP, Compressor 2	N/A	N/A	N/A	N/A	N/A				
	Amps (RLA), Comp. 2	N/A	N/A	N/A	N/A	N/A				
	Amps (LRA), Comp. 2	N/A	N/A	N/A	N/A	N/A				
Condenser Motor	No.	1	1	1	1	1				
	Volts	460	208/230	208/230	460	208/230				
	Phase	1	1	1	1	1				
	HP	1/3	1/3	1/2	1/2	1/2				
	Amps (FLA, each)	1	2	2.3	1.2	2.3				
	Amps (LRA, each)	2.2	3.9	5.5	3	5.5				
Evaporator Fan	No.	1	1	1	1	1				
	Volts	460	208/230	208/230	460	208/230				
	Phase	1	1	1	1	1				
	HP	1	1	1	1	1				
	Amps (FLA, each)	3.5	8.9	8.9	3.5	8.9				
	Amps (LRA, each)	N/A	N/A	N/A	N/A	N/A				

XXIII. AIRFLOW PERFORMANCE

INDOOR AIRFLOW PERFORMANCE FOR 2-5 TON PACKAGED AIR CONDITIONER: RACA-DIRECT DRIVE WITH CONSTANT TORQUE MOTOR

Indoor Airflow Performance RACAYB - (208/230V, 1-Phase) Constant Torque Motor

Nominal Cooling Capacity Tons [kW]	Motor Speed from Factory		Recommended Speed Tap for Field Installed Heater Kit	Manufacturer Recommended Cooling Airflow (Min/Max)	Blower Size, Motor HP [W] & # of Speeds	Motor Tap - Usage	External Static Pressure - Inches W.C. [kPa] (Side Discharge-Dry Coil)									
	Cool	Heat					0.1 [.02]	0.2 [.05]	0.3 [.07]	0.4 [.10]	0.5 [.12]	0.6 [.15]	0.7 [.17]	0.8 [.20]	0.9 [.22]	1.0 [.25]
2.0 [7.03]	Tap 3	Tap 2	5 kW - Tap 1 8 kW - Tap 1 10 kW - Tap 2	700 CFM / 900 CFM	10X9 Blower 1/3 HP [249] 3 Speed (Constant Torque)	Tap 1 - FAN	CFM 757	651	570	488	414	335	283	251	201	144
							RPM 591	633	700	767	814	858	899	944	985	1032
							Watts 69	67	73	79	83	87	91	95	99	102
						Tap 2 - Elec. Heat	CFM 855	801	746	683	619	519	473	406	354	329
							RPM 639	691	748	806	855	921	953	994	1034	1061
							Watts 90	96	102	109	115	123	126	131	136	140
						Tap 3 - Low Static Cool	CFM 876	824	774	703	629	558	496	447	392	349
							RPM 660	699	753	816	866	925	964	997	1037	1067
							Watts 96	101	108	114	121	128	133	137	143	146
						Tap 4 - Med Static Cool*	CFM 1020	979	933	883	837	731	714	655	606	542
2.5 [8.8]	Tap 3	Tap 2	5 kW - Tap 1 8 kW - Tap 1 10 kW - Tap 2	700 CFM / 900 CFM	10X9 Blower 1/3 HP [249] 3 Speed (Constant Torque)		RPM 725	771	819	867	911	983	1025	1065	1096	1130
							Watts 136	143	150	159	165	176	184	190	195	200
						Tap 5 - High Static Cool	CFM 1330	1294	1256	1220	1183	1145	1078	958	790	699
							RPM 886	911	952	990	1029	1069	1103	1127	1143	1156
3.0 [10.8]	Tap 3	Tap 2	5 kW - Tap 1 8 kW - Tap 1 10 kW - Tap 2	700 CFM / 900 CFM	10X9 Blower 1/3 HP [249] 3 Speed (Constant Torque)		Watts 270	275	286	294	305	314	311	286	266	242

Down Discharge Pressure Drop (Add to External Static Pressure)						
CFM [L/s]	800 [378]	1000 [472]	1200 [566]	1400 [661]	1600 [755]	2000 [944]
Pressure Drop - Inches W.C. [kPa]	.02 [.005]	.05 [.012]	.07 [.017]	.1 [.025]	.12 [.030]	.17 [.042]

Notes:
 (1) FOR CONSTANT TORQUE MOTORS: USE MOTOR TAPS 3-5 TO ACHIEVE RATED AIRFLOW AT AHRI MINIMUM EXTERNAL STATIC PRESSURE.
 (2) SHADY OUT PORTIONS NOT RECOMMENDED FOR USE IN FIELD.

Indoor Airflow Performance RACAYB - (208/230V, 1 & 3-Phase) Constant Torque Motor

Nominal Cooling Capacity Tons [kW]	Motor Speed from Factory	Recommended Speed Tap for Field Installed Heater Kit	Manufacturer Recommended Cooling Airflow (Min/Max)	Blower Size, Motor HP [W] & # of Speeds	Motor Tap - Usage	External Static Pressure - Inches W.C. [kPa] (Side Discharge-Dry Coil)									
						0.1 [02]	0.2 [05]	0.3 [07]	0.4 [10]	0.5 [12]	0.6 [15]	0.7 [17]	0.8 [20]	0.9 [22]	1.0 [25]
2.5 [8.79]	Tap 3	Tap 2	5 kW - Tap 1 8 kW - Tap 1 10 kW - Tap 2	10X9 Blower 1/2 HP [372] 3 Speed (Constant Torque)	Tap 1 - FAN	CFM 751	650	536	464	391	322	296	259	214	165
						RPM 591	636	696	760	810	858	892	942	982	1019
						Watts 68	69	73	80	85	89	91	96	100	102
					Tap 2 - Elec. Heat	CFM 860	800	742	676	558	493	431	371	330	296
						RPM 630	693	748	809	851	907	949	987	1020	1059
						Watts 88	93	101	108	114	120	125	129	133	137
					Tap 3 - Low Static Cool	CFM 1101	1060	1016	973	929	882	833	777	712	665
						RPM 763	805	848	893	936	981	1029	1079	1123	1144
						Watts 160	167	175	184	191	199	208	217	224	229
					Tap 4 - Med Static Cool*	CFM 1222	1177	1145	1098	1064	1017	980	936	833	701
						RPM 830	874	909	947	981	1028	1070	1112	1153	1165
						Watts 209	219	226	234	242	251	261	270	265	253
3.0 [10.55]	Tap 3	Tap 2	5 kW - Tap 1 8 kW - Tap 1 10 kW - Tap 2 15 kW - Tap 2	12X9T Blower 1 HP [746] 3 Speed (Constant Torque)	Tap 5 - High Static Cool	CFM 1631	1583	1537	1480	1406	1322	1216	1056	905	827
						RPM 1049	1080	1095	1111	1123	1136	1146	1158	1168	1170
						Watts 465	474	466	456	435	412	377	329	286	266
					Tap 1 - FAN	CFM 969	802	692	558	460	396	326	293	252	188
						RPM 589	603	678	717	766	791	818	855	886	911
						Watts 106	93	101	106	112	117	120	125	130	133
					Tap 2 - Elec. Heat	CFM 1105	1050	1005	894	827	762	695	618	554	488
						RPM 644	690	729	804	848	879	908	944	968	990
						Watts 143	151	159	169	180	188	193	200	204	209
					Tap 3 - Low Static Cool	CFM 1321	1277	1237	1189	1152	1039	984	931	871	808
						RPM 738	774	808	846	876	957	990	1022	1047	1073
						Watts 222	231	240	249	257	280	287	295	302	309
3.0 [10.55]	Tap 3	Tap 2	5 kW - Tap 1 8 kW - Tap 1 10 kW - Tap 2 15 kW - Tap 2	1050 CFM / 1350 CFM	Tap 4 - Med Static Cool*	CFM 1476	1439	1406	1378	1331	1295	1186	1134	1086	1037
						RPM 809	843	872	901	937	964	1045	1076	1107	1139
						Watts 298	308	318	330	339	349	374	385	398	406
					Tap 5 - High Static Cool	CFM 1574	1538	1503	1469	1434	1401	1366	1268	1205	1125
						RPM 859	890	921	951	982	1009	1035	1110	1138	1149
						Watts 362	372	384	396	407	417	427	456	460	446

Down Discharge Pressure Drop (Add to External Static Pressure)					
CFM [L/s]	800 [378]	1000 [472]	1200 [566]	1400 [661]	2000 [944]
Pressure Drop - Inches W.C. [kPa]	.02 [.005]	.05 [.012]	.07 [.017]	.1 [.025]	.17 [.042]

Notes:
 (1) For use with constant torque motors.
 (2) Use of constant torque motors is not recommended for use in field.
 (3) GRAYED OUT PORTIONS NOT RECOMMENDED FOR USE IN FIELD.

Indoor Airflow Performance RACAYB - (208/230V, 1 & 3-Phase) Constant Torque Motor

INDOOR AIRFLOW PERFORMANCE FOR 2-5 TON PACKAGED AIR CONDITIONER: RACA-DIRECT DRIVE WITH CONSTANT TORQUE MOTOR

Nominal Cooling Capacity Tons [kW]	Motor Speed from Factory		Recommended Speed Tap for Field Installed Heater Kit	Manufacturer Recommended Cooling Airflow (Min/Max)	Blower Size, Motor HP [W] & # of Speeds	Motor Tap - Usage	External Static Pressure - Inches W.C. [kPa] (Side Discharge-Dry Coil)									
	Cool	Heat					0.1 [.02]	0.2 [.05]	0.3 [.07]	0.4 [.10]	0.5 [.12]	0.6 [.15]	0.7 [.17]	0.8 [.20]	0.9 [.22]	1.0 [.25]
3.5 [12.31]	Tap 3	Tap 2	1225 CFM / 1575 CFM	12x9T Blower 3/4 HP [559] 3 Speed (Constant Torque)	Tap 1 - FAN	CFM	1103	1050	959	872	803	725	654	558	482	415
						RPM	612	651	715	763	795	837	870	908	937	952
					Tap 2 - Elec. Heat	Watts	132	140	152	160	166	174	180	188	193	196
						CFM	1448	1402	1358	1313	1227	1164	1122	1058	1004	936
						RPM	750	780	812	844	906	946	967	1000	1032	1064
					Tap 3 - Low	Watts	256	265	274	283	302	313	320	329	340	351
						CFM	1576	1532	1493	1452	1414	1311	1258	1223	1160	1114
					Static Cool*	RPM	804	832	861	888	918	984	1019	1039	1070	1095
						Watts	321	330	340	348	359	382	393	401	412	421
					Tap 4 - Med	CFM	1734	1693	1644	1619	1582	1540	1463	1390	1312	1200
					Static Cool	RPM	867	896	917	939	967	992	1048	1092	1114	1130
						Watts	411	422	430	437	449	459	483	499	496	480
4.0 [14.07]	Tap 3	Tap 2	1400 CFM / 1800 CFM	12x9R Blower 1 HP [746] 5 Speed (Constant Torque)	Tap 5 - High	CFM	1860	1824	1792	1760	1728	1691	1652	1495	1362	1258
					Static Cool	RPM	929	951	977	997	1023	1049	1071	1121	1134	1140
						Watts	509	519	533	541	554	566	577	560	530	504
					Tap 1 - FAN	CFM	1211	1050	935	837	755	694	622	535	475	426
						RPM	588	591	636	690	728	756	788	829	861	889
					Tap 2 - Elec. Heat	Watts	139	120	122	132	137	143	148	154	160	166
						CFM	1453	1400	1360	1304	1239	1155	1097	1036	987	921
						RPM	670	705	734	770	813	860	892	926	947	975
					Tap 3 - Low	Watts	215	226	233	243	255	268	277	286	292	300
					Stage Cool	CFM	1404	1362	1311	1254	1168	1100	1026	976	914	860
						RPM	656	687	721	760	809	849	887	914	937	961
					Tap 4 - High	Watts	200	209	218	227	241	251	260	268	274	280
5.0 [17.59]	Tap 3	Tap 2	1750 CFM / 2250 CFM	12x9R Blower 1 HP [746] 5 Speed (Constant Torque)	Stage Cool	CFM	1800	1759	1723	1687	1625	1577	1516	1465	1418	1370
					Med Static*	RPM	866	889	916	937	974	1001	1035	1063	1088	1112
					Tap 5 - High	Watts	400	408	419	429	445	456	470	481	492	506
					Stage Cool	CFM	2048	2007	1977	1929	1896	1856	1823	1773	1725	1671
						RPM	966	993	1013	1041	1061	1085	1105	1133	1164	1181
					High Static	Watts	587	603	615	629	640	654	665	680	696	708
					Tap 1 - FAN	CFM	1132	1056	997	903	834	785	701	641	570	519
						RPM	661	696	725	778	802	825	862	888	926	947
					Tap 2 - Elec. Heat	Watts	136	143	148	159	162	168	177	180	189	198
						CFM	1448	1403	1329	1274	1220	1158	1097	1029	973	932
						RPM	781	811	846	871	900	934	963	987	1007	1021
					Tap 3 - Low	Watts	251	258	266	273	282	293	303	309	319	326
5.0 [17.59]	Tap 3	Tap 2	1750 CFM / 2250 CFM	12x9R Blower 1 HP [746] 5 Speed (Constant Torque)	Stage Cool	CFM	1476	1424	1349	1299	1242	1165	1053	1001	962	
						RPM	788	819	861	885	913	947	974	998	1018	1028
					Tap 4 - High	Watts	258	264	280	287	295	305	313	321	331	337
					Stage Cool *	CFM	1985	1954	1916	1865	1831	1784	1744	1704	1663	1626
					Med Static	RPM	997	1021	1044	1078	1099	1122	1143	1166	1186	1207
					Tap 5 - High	Watts	599	612	624	640	652	666	677	689	700	711
					Stage Cool	CFM	2226	2192	2160	2128	2086	2051	2010	1954	1921	1883
						RPM	1074	1101	1120	1138	1166	1187	1209	1240	1256	1274
					High Static	Watts	815	833	845	857	875	891	904	926	936	949

Down Discharge Pressure Drop (Add to External Static Pressure)

CFM [L/s]	800 [378]	1000 [472]	1200 [566]	1400 [661]	1600 [755]	1800 [849]	2000 [944]
Pressure Drop - Inches W.C. [kPa]	.02 [.005]	.05 [.012]	.07 [.017]	.1 [.025]	.12 [.030]	.15 [.037]	.17 [.042]

Notes:
 (1) FOR CONSTANT TORQUE MOTORS: USE MOTOR TAPS 3-5 TO ACHIEVE RATED AIRFLOW AT AHRI MINIMUM EXTERNAL STATIC PRESSURE.
 (2) Use marked tap for AHRI 210/240-2023
 (3) GRATED OUT PORTIONS NOT RECOMMENDED FOR USE IN FIELD.

Indoor Airflow Performance RACAYB - (460V, 3-Phase) Constant Torque Motor

Nominal Cooling Capacity Tons [kW]	Motor Speed from Factory	Recommended Speed Tap for Field Installed Heater Kit	Manufacturer Recommended Cooling Airflow [Min/Max]	Blower Size, Motor HP [W] & # of Speeds	Motor Tap - Usage	External Static Pressure - Inches W.C. [kPa] (Site Discharge-Dry Coil)																	
						0.1 [0.2]	0.2 [0.05]	0.3 [0.07]	0.4 [-.10]	0.5 [-.12]	0.6 [-.15]	0.7 [-.17]	0.8 [-.20]	0.9 [-.22]	1.0 [-.25]								
3.0 [10.55]	Tap 3	5 kW - Tap 1 8 kW - Tap 1 10 kW - Tap 2 15 kW - Tap 2	1050 CFM / 1350 CFM	12x9T Blower 1 HP [746] 3 Speed (Constant Torque)	Tap 1 - FAN	CFM	953	800	711	580	490	419	354	317	298	238							
						RPM	584	613	671	720	764	795	818	844	890	918							
						Watts	107	111	116	122	127	131	134	142	146								
						CFM	1092	1051	999	902	844	768	698	629	567	494							
						RPM	646	684	727	803	842	883	913	949	968	998							
						Watts	148	156	167	183	192	201	218	221	226								
						CFM	1315	1274	1241	1197	1138	1065	1015	952	906	840							
						RPM	737	774	807	845	893	950	983	1015	1046	1073							
						Watts	234	244	254	265	280	297	307	318	326	335							
						CFM	1476	1439	1406	1378	1331	1295	1186	1134	1086	1037							
						RPM	809	843	872	901	937	964	1045	1076	1107	1139							
						Watts	298	308	318	330	339	349	374	385	398	406							
4.0 [14.07]	Low Stage - Tap 3 High Stage - Tap 4	5 kW - Tap 1 8 kW - Tap 1 10 kW - Tap 2 15 kW - Tap 2	1400 CFM / 1800 CFM	12x9R Blower 1 HP [746] 5 Speed (Constant Torque)	Tap 5 - High Static Cool	CFM	1561	1531	1499	1462	1433	1394	1344	1290	1220	1126							
						RPM	852	879	908	943	971	1000	1039	1080	1130	1149							
						Watts	370	381	392	405	418	429	446	462	483	470							
						CFM	1211	1050	935	837	755	694	622	535	475	426							
						RPM	588	591	636	690	728	756	788	829	861	889							
						Watts	139	120	122	132	137	143	148	154	160	166							
						CFM	1453	1400	1360	1304	1239	1155	1097	1036	987	921							
						RPM	670	705	734	770	813	860	892	926	947	975							
						Watts	215	226	233	243	255	268	277	286	292	302							
						CFM	1402	1360	1316	1273	1232	1156	1095	1019	964	916							
						RPM	680	716	751	778	812	862	906	943	967	986							
						Watts	222	233	243	251	263	278	292	302	309	316							
5.0 [17.59]	Low Stage - Tap 3 High Stage - Tap 4	5 kW - Tap 1 8 kW - Tap 1 10 kW - Tap 2 15 kW - Tap 2	1750 CFM / 2250 CFM	12x9R Blower 1 HP [746] 5 Speed (Constant Torque)	Tap 4 - High Stage Cool *	CFM	1747	1712	1678	1640	1595	1559	1535	1504	1451	1371							
						RPM	808	836	862	896	926	951	968	995	1035	1084							
						Watts	389	415	428	442	453	460	471	490	512								
						CFM	2048	2007	1977	1929	1896	1856	1823	1773	1725	1671							
						RPM	966	993	1013	1041	1061	1085	1105	1133	1164	1181							
						Watts	587	603	615	629	640	654	665	680	696	708							
						CFM	1101	1051	983	896	825	763	695	621	558	506							
						RPM	594	628	668	724	759	790	820	854	888	915							
						Watts	130	137	145	157	164	171	177	186	193	197							
						CFM	1454	1401	1363	1322	1265	1195	1140	1088	1039	998							
						RPM	719	757	787	816	854	898	933	963	985	1005							
						Watts	253	264	274	283	296	311	322	332	340	348							
5.0 [17.59]	Low Stage - Tap 3 High Stage - Tap 4	5 kW - Tap 1 8 kW - Tap 1 10 kW - Tap 2 15 kW - Tap 2	1750 CFM / 2250 CFM	12x9R Blower 1 HP [746] 5 Speed (Constant Torque)	Tap 3 - Low Stage Cool	CFM	1476	1424	1349	1299	1242	1165	1106	1053	1001	962	921	878					
						RPM	788	819	861	885	913	947	974	998	1018	1028	1037	1046	1055	1064	1073		
						Watts	258	264	280	287	295	305	313	321	329	337	345	353	361	369	377		
						CFM	1985	1954	1916	1865	1831	1784	1744	1704	1663	1626	1590	1554	1518	1482	1446	1410	
						RPM	997	1021	1044	1078	1099	1122	1143	1166	1186	1207	1227	1247	1267	1287	1307	1327	
						Watts	599	612	624	640	652	666	677	689	700	711	722	733	744	755	766	777	
						CFM	2152	2120	2087	2059	2025	2004	1969	1934	1905	1875	1845	1815	1785	1755	1725	1695	
						RPM	1002	1025	1051	1074	1096	1111	1136	1152	1175	1197	1212	1234	1256	1278	1300	1322	
						Watts	761	776	791	803	816	828	841	852	865	878	890	902	914	926	938	950	962
						CFM	1476	1424	1349	1299	1242	1165	1106	1053	1001	962	921	878	840	802	764	726	688
						RPM	788	819	861	885	913	947	974	998	1018	1028	1037	1046	1055	1064	1073	1082	1091
						Watts	258	264	280	287	295	305	313	321	329	337	345	353	361	369	377	385	393

Down Discharge Pressure Drop (Add to External Static Pressure)								
	CFM [L/s]	800 [378]	1000 [472]	1200 [566]	1400 [661]	1600 [755]	1800 [849]	2000 [944]
Pressure Drop - Inches W.C. [kPa]		.02 [.005]	.05 [.012]	.07 [.017]	.1 [.025]	.12 [.030]	.15 [.037]	.17 [.042]

Notes:
1. FOR CONSTANT TORQUE MOTOR: USE MOTOR TAP 2.5 TO ACHIEVE RATED SPEED AT A MINIMUM EXTERNAL STATIC RESISTANCE

2) GRAYED OUT PORTIONS NOT RECOMMENDED FOR USE IN FIELD.

XXIV. HEATER KITS CHARACTERISTICS

AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION: RACA-

208/240 VOLT, THREE PHASE, 60 Hz, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION									
Single Power Supply for Both Unit and Heater Kit						Separate Power Supply for Both Unit and Heater Kit			
RHEEM Model Number RACAYB	Heater Kit			Air Conditioner		Heater Kit		Air Conditioner	
	RXQJ-Heater Kit Nominal kW	Rated Heater kW @ 208/240 V	Heater Amp. @ 208/240 V	Unit Min. Ckt. Ampacity @ 208/240 V	Over Current Protective Device Size Min./Max	Min. Ckt. Ampacity 208/240V	Max. Fuse Size 208/240V	Min. Circuit Ampacity 208/240V	Over Current Protective Device Size Min./Max
030ACT000NA	NONE	-	-	18/18	25/25	-	-	18/18	25/25
	A05C	3.8/5	10.4/12	19/21	25/25	13/15	15/15	18/18	25/25
	A08C	5.7/7.6	15.9/18.3	25/28	25/30	20/23	20/25	18/18	25/25
	A10C	7.2/9.6	20/23.1	31/34	35/35	25/29	25/30	18/18	25/25
036ACT000NA HEATER KW	NONE	-	-	25/25	35/35	-	-	25/25	35/35
	A05C	3.8/5	10.4/12	25/25	35/35	13/15	15/15	25/25	35/35
	A08C	5.7/7.6	15.9/18.3	30/33	35/35	20/23	20/25	25/25	35/35
	A10C	7.2/9.6	20/23.1	35/39	35/40	25/29	25/30	25/25	35/35
	A15C	10.8/14.4	30.1/34.7	48/53	50/60	38/44	40/45	25/25	35/35
042ACT000NA HEATER KW	NONE	-	-	24/24	35/35	-	-	24/24	35/35
	A05C	3.8/5	10.4/12	24/24	35/35	13/15	15/15	24/24	35/35
	A08C	5.7/7.6	15.9/18.3	28/31	35/35	20/23	20/25	24/24	35/35
	A10C	7.2/9.6	20/23.1	33/37	35/40	25/29	25/30	24/24	35/35
	A15C	10.8/14.4	30.1/34.7	46/51	50/60	38/44	40/45	24/24	35/35
048ACT000NA HEATER KW	NONE	-	-	27/27	35/35	-	-	27/27	35/35
	A05C	3.8/5	10.4/12	27/27	35/35	13/15	15/15	27/27	35/35
	A08C	5.7/7.6	15.9/18.3	31/34	35/35	20/23	20/25	27/27	35/35
	A10C	7.2/9.6	20/23.1	37/40	40/40	25/29	25/30	27/27	35/35
	A15C	10.8/14.4	30.1/34.7	49/55	50/60	38/44	40/45	27/27	35/35
060ACT000NA HEATER KW	NONE	-	-	29/29	40/40	-	-	29/29	40/40
	A05C	3.8/5	10.4/12	29/29	40/40	13/15	15/15	29/29	40/40
	A08C	5.7/7.6	15.9/18.3	31/34	40/40	20/23	20/25	29/29	40/40
	A10C	7.2/9.6	20/23.1	37/40	40/40	25/29	25/30	29/29	40/40
	A15C	10.8/14.4	30.1/34.7	49/55	50/60	38/44	40/45	29/29	40/40

AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION: RACA-

480 VOLT, THREE PHASE, 60 Hz, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION									
Single Power Supply for Both Unit and Heater Kit						Separate Power Supply for Both Unit and Heater Kit			
RHEEM Model Number RACAYB	Heater Kit			Air Conditioner		Heater Kit		Air Conditioner	
	RXQJ-Heater Kit Nominal kW	Rated Heater kW @ 480 V	Heater Amp. @ 480 V	Unit Min. Ckt. Ampacity @ 480 V	Over Current Protective Device Size Min./Max	Min. Ckt. Ampacity 480V	Max. Fuse Size 480V	Min. Circuit Ampacity 480V	Over Current Protective Device Size Min./Max
036ADT000NA HEATER KW	NONE	-	-	13	15	-	-	13	15
	A05D	4.8	5.8	13	15	8	15	13	15
	A08D	7.6	9.1	17	20	12	15	13	15
	A10D	9.6	11.6	20	20	15	15	13	15
	A15D	14.4	17.3	27	30	22	25	13	15
048ADT000NA HEATER KW	NONE	-	-	14	20	-	-	14	20
	A05D	4.8	5.8	13	15	8	15	14	20
	A08D	7.6	9.1	17	20	12	15	14	20
	A10D	9.6	11.6	20	20	15	15	14	20
	A15D	14.4	17.3	27	30	22	25	14	20
060ADT000NA HEATER KW	NONE	-	-	14	20	-	-	14	20
	A05D	4.8	5.8	14	20	8	15	14	20
	A08D	7.6	9.1	17	20	12	15	14	20
	A10D	9.6	11.6	20	20	15	15	14	20
	A15D	14.4	17.3	27	30	22	25	14	20

AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION: RACA-

208/240 VOLT, SINGLE PHASE, 60 Hz, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION									
Single Power Supply for Both Unit and Heater Kit						Separate Power Supply for Both Unit and Heater Kit			
RHEEM Model Number RACAYB	Heater Kit			Air Conditioner		Heater Kit		Air Conditioner	
	RXQJ- Heater Kit Nominal kW	Rated Heater kW @ 208/240 V	Heater Amp. @ 208/240 V	Unit Min. Ckt. Ampacity @ 208/240 V	Over Current Protective Device Size Min./Max	Min. Ckt. Ampacity 208/240V	Max. Fuse Size 208/240V	Min. Circuit Ampacity 208/240V	Over Current Protective Device Size Min./Max
024AJT000NA HEATER KW	NONE	-	-	19/19	25/25	-	-	19/19	25/25
	A05J	3.6/4.8	17.3/20	26/29	30/30	22/25	25/25	19/19	25/25
	A08J	5.7/7.6	27.4/31.6	38/43	40/45	35/40	35/40	19/19	25/25
	A10J	7.2/9.6	34.6/40	47/54	50/60	44/50	45/50	19/19	25/25
030AJT000NA HEATER KW	NONE	-	-	22/22	30/30	-	-	22/22	30/30
	A05J	3.6/4.8	17.3/20	27/31	30/35	22/25	25/25	22/22	30/30
	A08J	5.7/7.6	27.4/31.6	40/45	40/45	35/40	35/40	22/22	30/30
	A10J	7.2/9.6	34.6/40	49/56	50/60	44/50	45/50	22/22	30/30
036AJT000NA HEATER KW	NONE	-	-	30/30	45/45	-	-	30/30	45/45
	A05J	3.6/4.8	17.3/20	32/35	45/45	22/25	25/25	30/30	45/45
	A08J	5.7/7.6	27.4/31.6	44/49	45/50	35/40	35/40	30/30	45/45
	A10J	7.2/9.6	34.6/40	53/60	60/60	44/50	45/50	30/30	45/45
	A15J	10.8/14.4	51.9/60	75/85	80/90	65/75	70/80	30/30	45/45
042AJT000NA HEATER KW	NONE	-	-	30/30	45/45	-	-	30/30	45/45
	A05J	3.6/4.8	17.3/20	30/33	45/45	22/25	25/25	30/30	45/45
	A08J	5.7/7.6	27.4/31.6	42/47	45/50	35/40	35/40	30/30	45/45
	B10J	7.2/9.6	34.6/40	51/58	60/60	44/50	45/50	30/30	45/45
	B15J	10.8/14.4	51.9/60	73/83	80/90	65/75	70/80	30/30	45/45
048AJT000NA HEATER KW	NONE	-	-	37/37	50/50	-	-	37/37	50/50
	A05J	3.6/4.8	17.3/20	37/37	50/50	22/25	25/25	37/37	50/50
	A08J	5.7/7.6	27.4/31.6	46/51	50/60	35/40	35/40	37/37	50/50
	B10J	7.2/9.6	34.6/40	55/62	60/70	44/50	45/50	37/37	50/50
	B15J	10.8/14.4	51.9/60	76/87	80/90	65/75	70/80	37/37	50/50
060AJT000NA HEATER KW	NONE	-	-	43/43	60/60	-	-	43/43	60/60
	A05J	3.6/4.8	17.3/20	43/43	60/60	22/25	25/25	43/43	60/60
	A08J	5.7/7.6	27.4/31.6	46/51	60/60	35/40	35/40	43/43	60/60
	B10J	7.2/9.6	34.6/40	55/62	60/70	44/50	45/50	43/43	60/60
	B15J	10.8/14.4	51.9/60	76/87	80/90	65/75	70/80	43/43	60/60

FIGURE 11 WIRING DIAGRAM



FIGURE 12
WIRING DIAGRAM

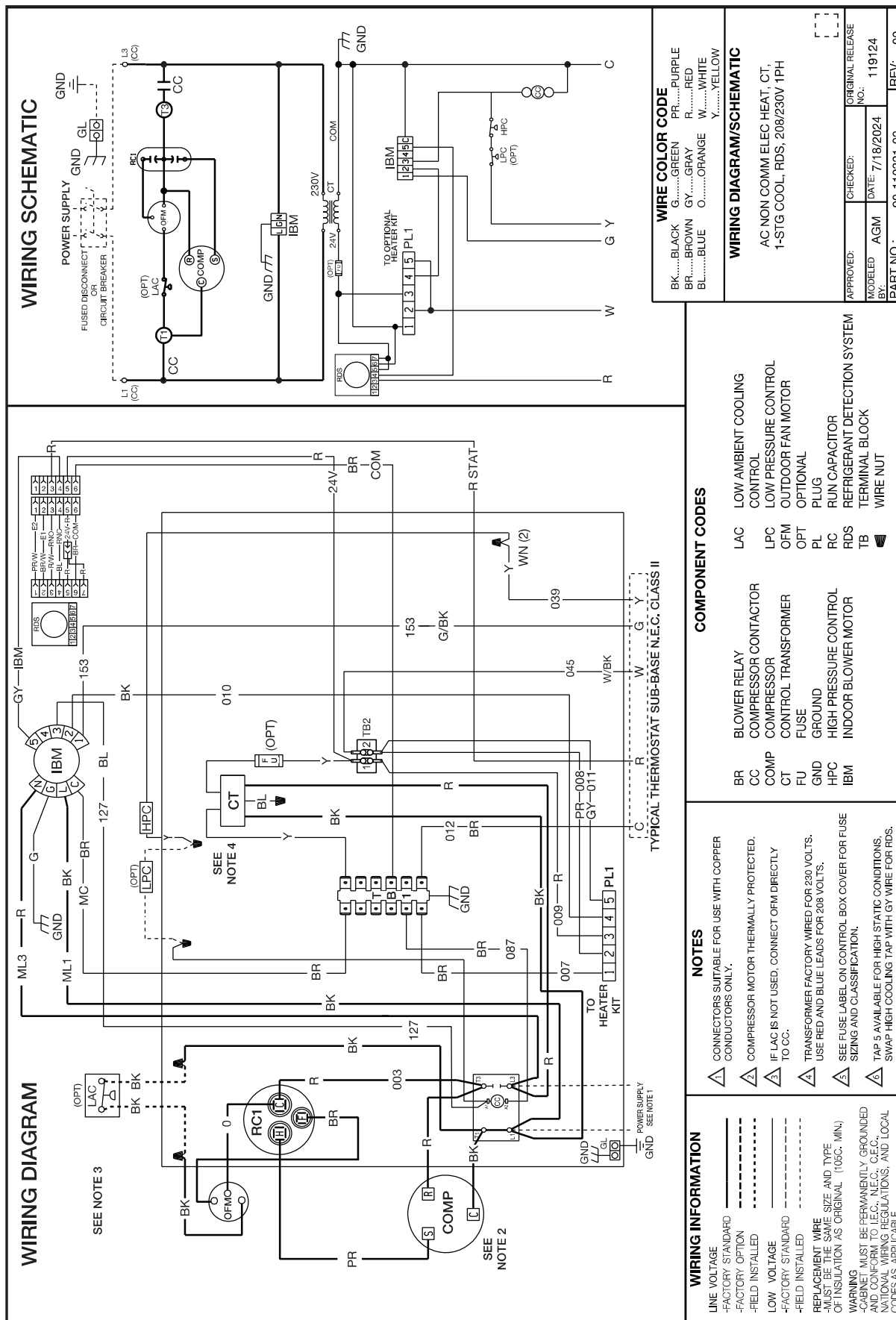
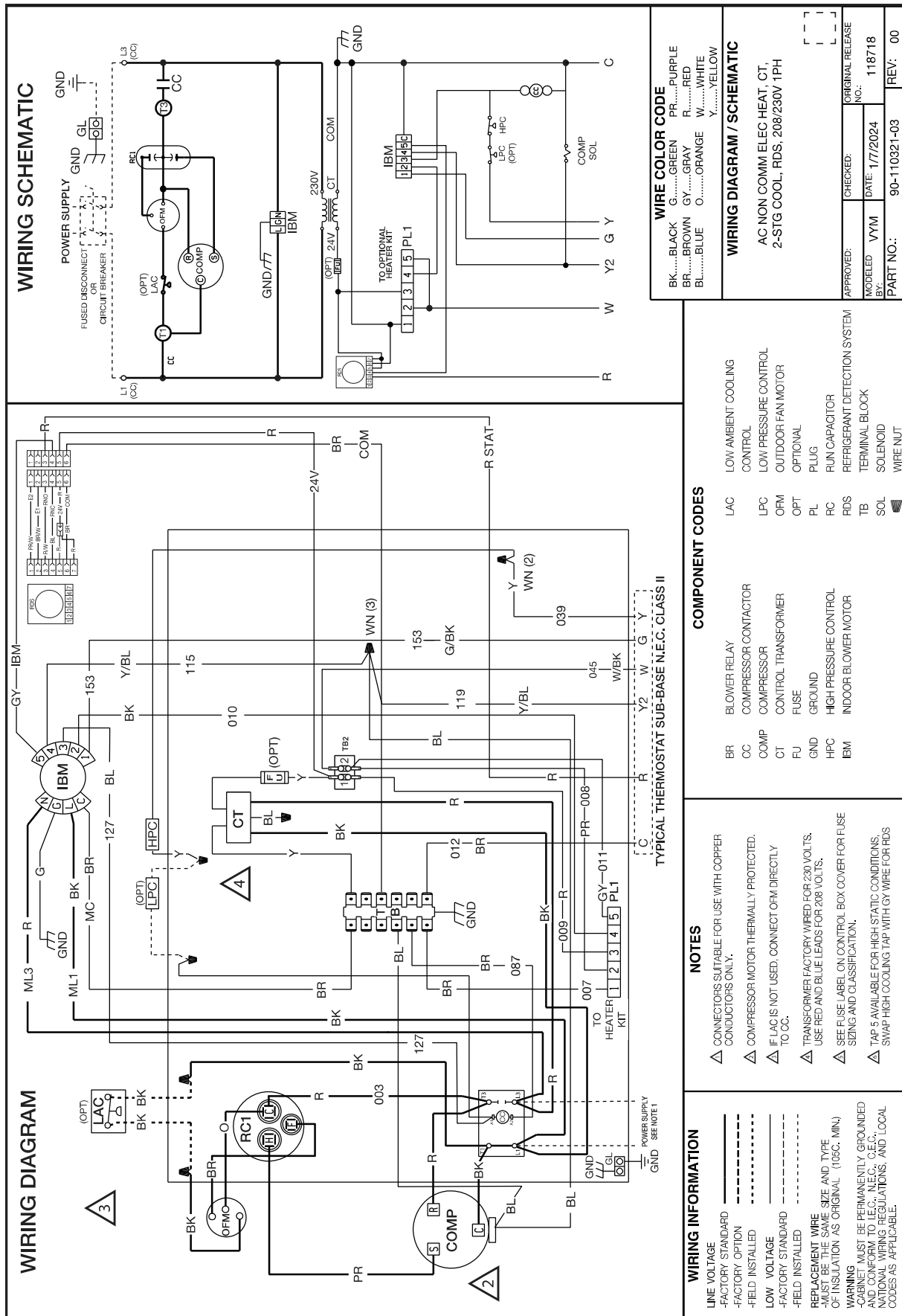


FIGURE 13 WIRING DIAGRAM



38



FIGURE 15 WIRING DIAGRAM

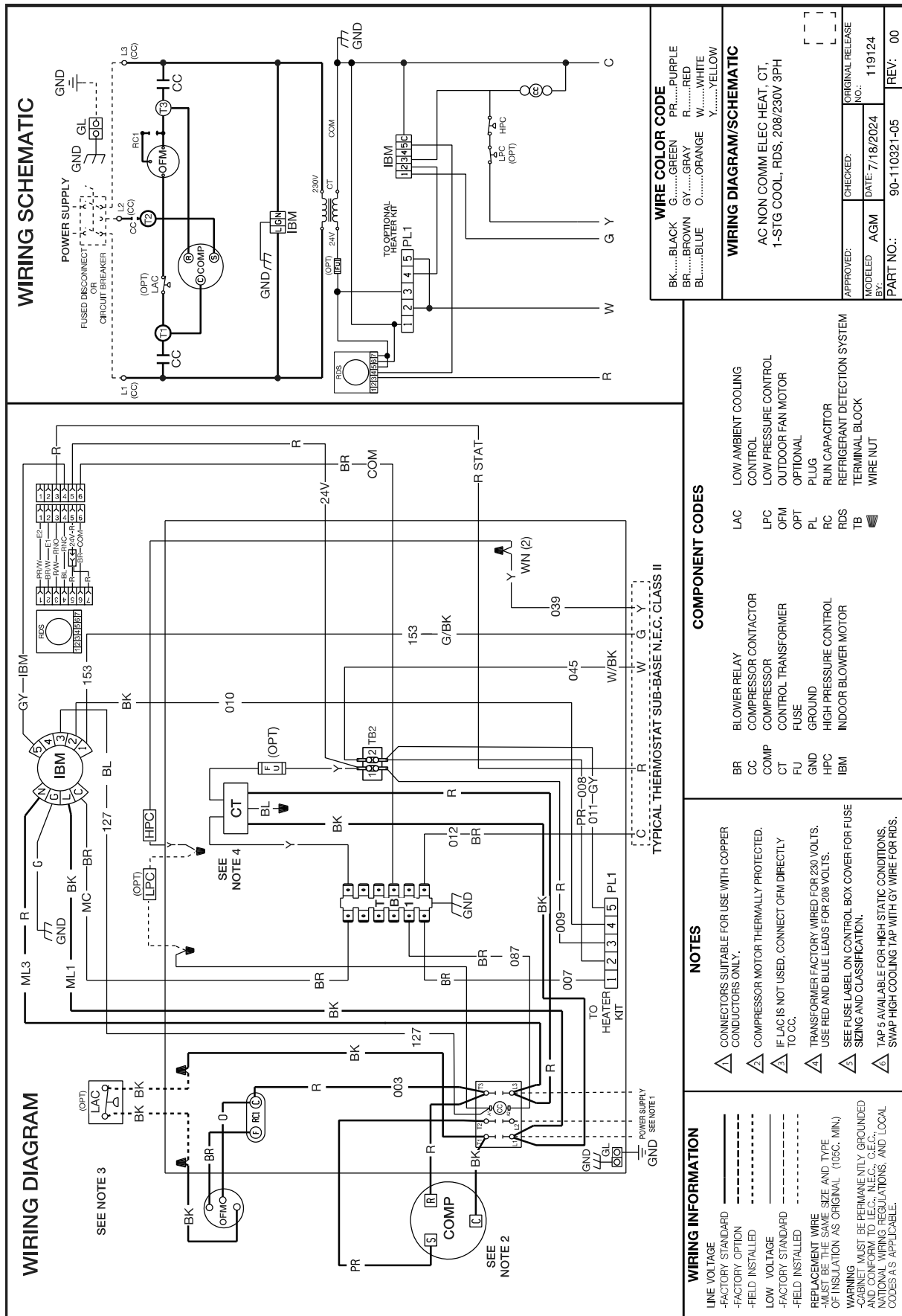


FIGURE 16
WIRING DIAGRAM

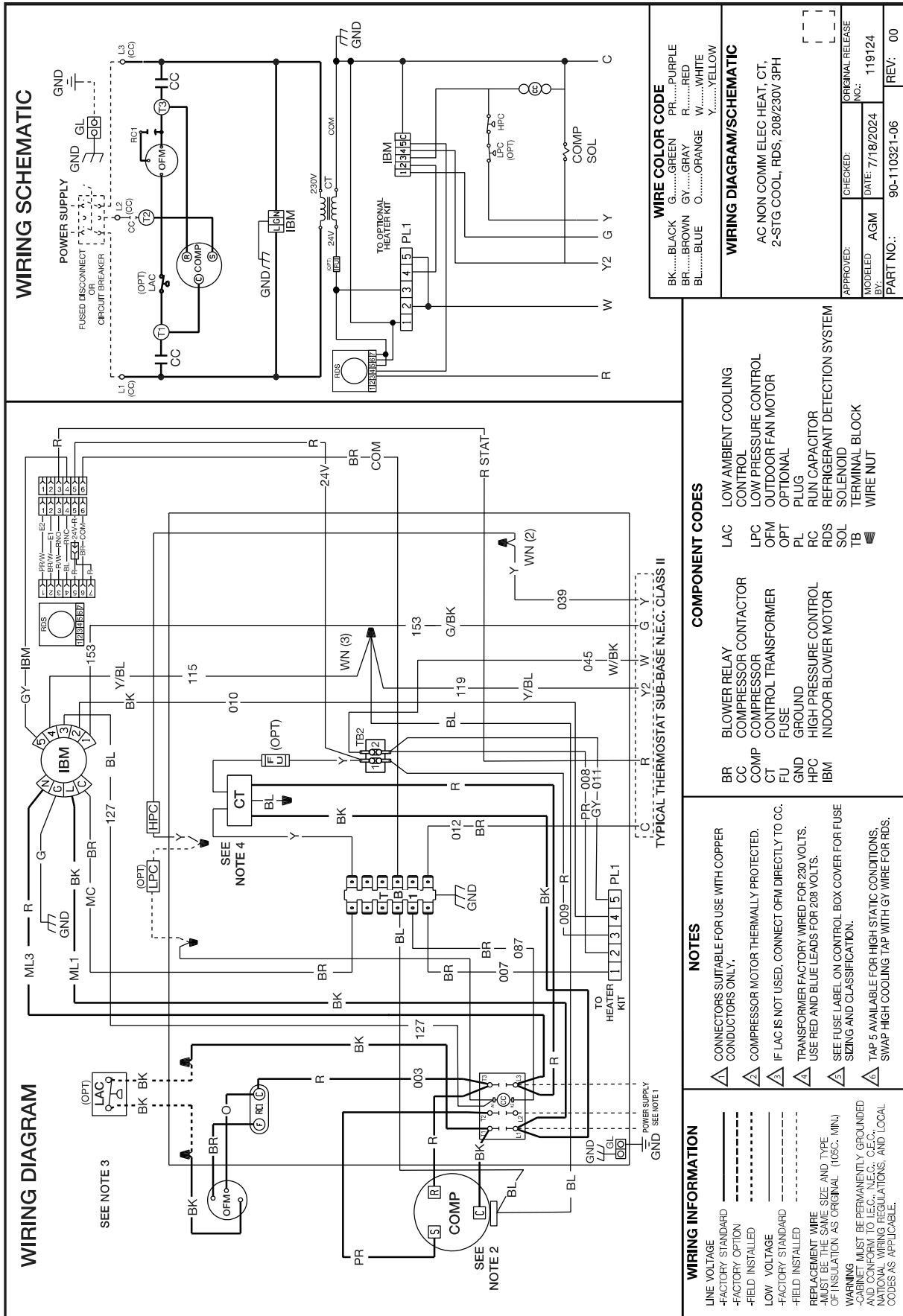


FIGURE 17
WIRING DIAGRAM

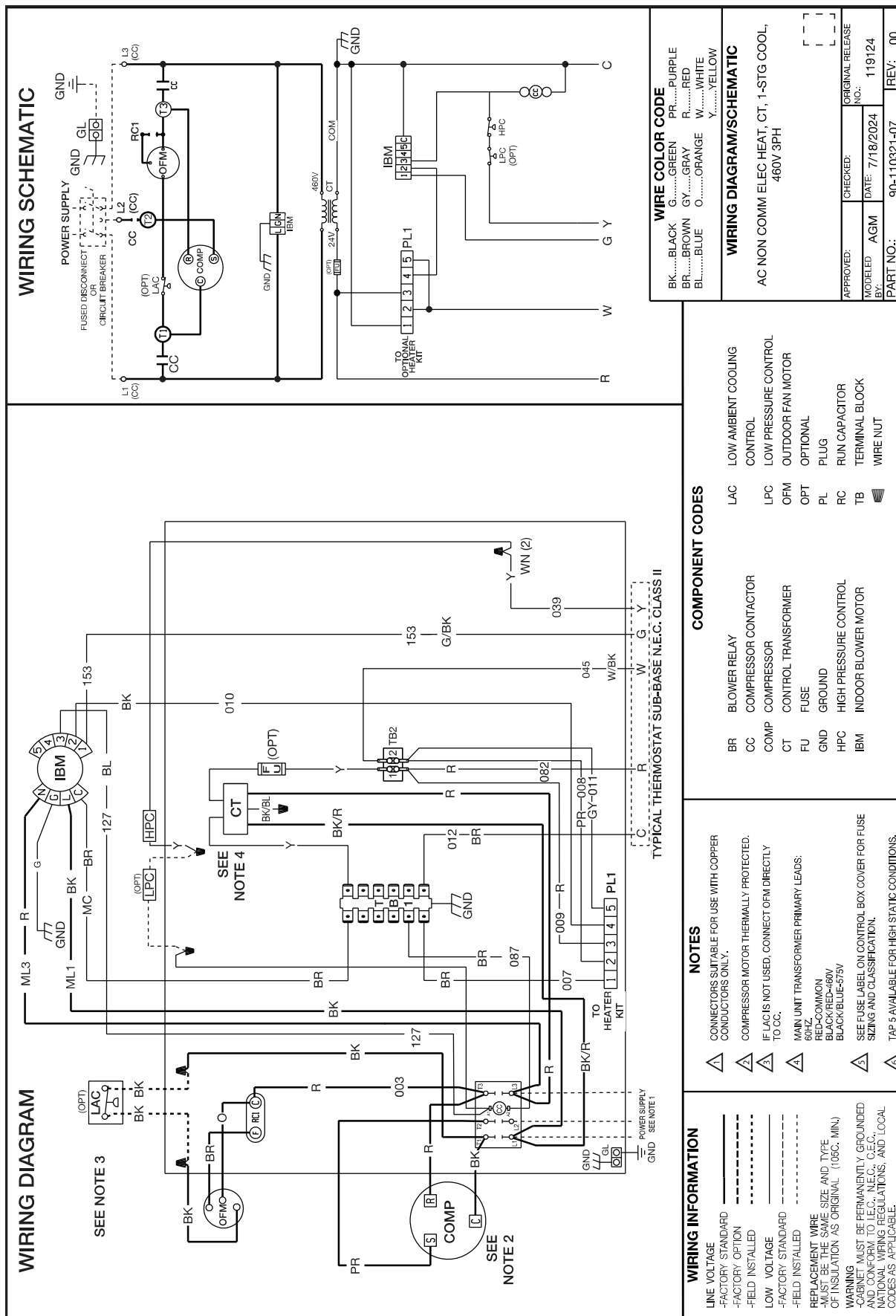
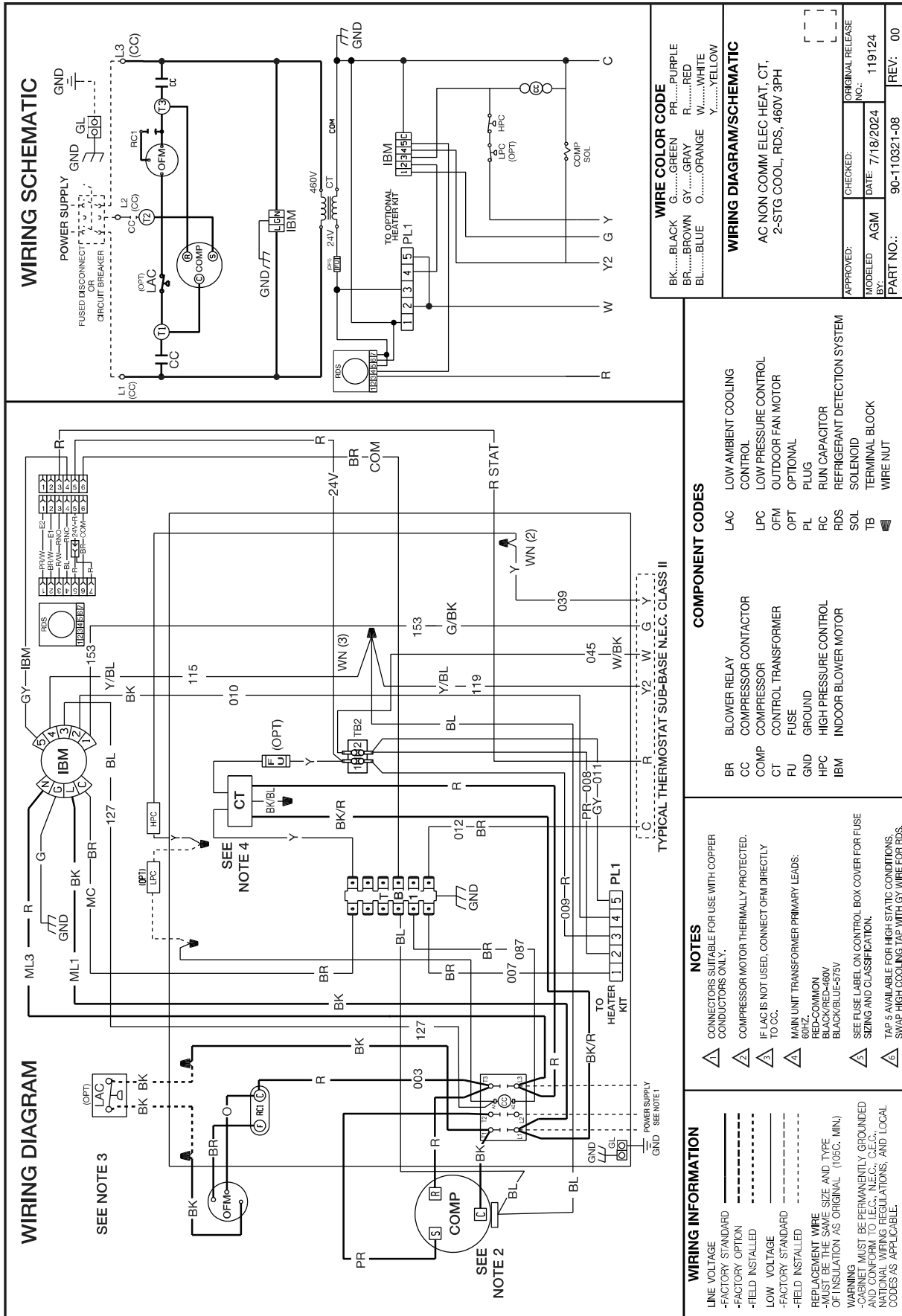


FIGURE 18
WIRING DIAGRAM



XXVI. TROUBLESHOOTING CHART

FIGURE 19

▲ WARNING

DISCONNECT ALL POWER TO UNIT BEFORE SERVICING. CONTACTOR MAY BREAK ONLY ONE SIDE. FAILURE TO SHUT OFF POWER CAN CAUSE ELECTRICAL SHOCK RESULTING IN PERSONAL INJURY OR DEATH.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Unit will not run	- Power off or loose electrical connection - Thermostat out of calibration-set too high - Defective contactor - Blown fuses - Transformer defective - High pressure control open (if provided) - Interconnecting low voltage wiring damaged	- Check for correct voltage at compressor contactor in control box - Reset - Check for 24 volts at contactor coil - replace if contacts are open - Replace fuses - Check wiring-replace transformer - Reset-also see high head pressure remedy-The high pressure control opens at 610 PSIG - Replace thermostat wiring
Condenser fan runs, compressor doesn't	- Run or start capacitor defective (single phase only) - Start relay defective (single phase only) - Loose connection - Compressor stuck, grounded or open motor winding. open internal overload. - Low voltage condition - Low voltage condition	- Replace - Replace - Check for correct voltage at compressor - check & tighten all connections - Wait at least 2 hours for overload to reset. If still open, replace the compressor. - At compressor terminals, voltage must be within 10% of rating plate volts when unit is operating. - Add start kit components.
Insufficient cooling	- Improperly sized unit - Improper airflow - Incorrect refrigerant charge - Air, non-condensibles or moisture in system - Incorrect voltage	- Recalculate load - Check - should be approximately 400 CFM per ton. - Charge per procedure attached to unit service panel - Recover refrigerant, evacuate & recharge, add filter drier - At compressor terminals, voltage must be within 10% of rating plate volts when unit is operating.
Compressor short cycles	- Incorrect voltage - Defective overload protector - Refrigerant undercharge	- At compressor terminals, voltage must be $\pm 10\%$ of nameplate marking when unit is operating. - Replace - check for correct voltage - Add refrigerant
Registers sweat	Low evaporator airflow	Increase speed of blower or reduce restriction - replace air filter
High head-low vapor pressures	- Restriction in liquid line, expansion device or filter drier - Flow check piston size too small - Incorrect capillary tubes - TXV does not open	- Remove or replace defective component - Change to correct size piston - Change coil assembly - Replace TXV
High head-high or normal vapor pressure - Cooling mode	- Dirty condenser coil - Refrigerant overcharge - Condenser fan not running - Air or non-condensibles in system	- Clean coil - Correct system charge - Repair or replace - Recover refrigerant, evacuate & recharge
Low head-high vapor pressures	- Flow check piston size too large - Defective Compressor valves - Incorrect capillary tubes	- Change to correct size piston - Replace compressor - Replace coil assembly
Low vapor - cool compressor - iced evaporator coil	- Low evaporator airflow - Operating below 65°F outdoors - Moisture in system - TXV limiting refrigerant flow	- Increase speed of blower or reduce restriction - replace air filter - Add Low Ambient Kit - Recover refrigerant - evacuate & recharge - add filter drier - Replace TXV
High vapor pressure	- Excessive load - Defective compressor	- Recheck load calculation - Replace
Fluctuating head & vapor pressures	- TXV hunting - Air or non-condensibles in system	- Check TXV bulb clamp - check air distribution on coil - replace TXV - Recover refrigerant, evacuate & recharge
Gurgle or pulsing noise at expansion device or liquid line	Air or non-condensibles in system	Recover refrigerant, evacuate & recharge

XXVII. A2L REFRIGERANT INSTALLATION SAFETY DATA

Model		RACAYB042	RACAYB048	RACAYB060
Refrigerant Charge Weight (Oz)		69.28	78.4	80
Minimum Circulation Airflow, Qmin (Cfm)		230	261	266
Altitude Above Sea Level (Ft)	Altitude Adjustment Factor	Minimum Total Space Area, Tamin (Sq-Ft)		
0	1.000	128	145	147
1000	1.025	131	148	151
2000	1.051	134	152	155
3000	1.078	138	156	159
4000	1.107	141	160	163
5000	1.138	145	164	168
6000	1.170	149	169	173
6500	1.187	152	172	175