

INSTALLATION INSTRUCTIONS

Package Air Conditioners Featuring Industry

Standard R-410A Refrigerant **R-410A** with
Clear Control and Refrigerant Reheat

RLPN-C 14 SEER (3-5 TONS) SERIES



⚠️ RECOGNIZE THIS SYMBOL AS AN INDICATION OF IMPORTANT SAFETY INFORMATION!

⚠️ WARNING

THESE INSTRUCTIONS ARE INTENDED AS AN AID TO QUALIFIED, LICENSED 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, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



ISO 9001:2008
Certificate Number: 30164

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




[] INDICATES METRIC CONVERSION

92-23577-151-00

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 Recognize this symbol as an indication of Important 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

EFFICIENCY TESTING NOTICE FOR PURPOSES OF VERIFYING OR TESTING EFFICIENCY RATINGS, THE TEST PROCEDURE IN TITLE 10 PART 431 APPENDIX A TO SUBPART F (UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF SMALL, LARGE AND VERY LARGE COMMERCIAL PACKAGE AIR CONDITIONING AND HEATING EQUIPMENT), AND THE CLARIFYING PROVISIONS PROVIDED IN THE AHRI OPERATIONS MANUALS FOR UNITARY LARGE EQUIPMENT 340/360, 365 THAT WERE APPLICABLE AT THE DATE OF MANUFACTURE SHOULD BE USED FOR TEST SET UP AND PERFORMANCE.

II. INTRODUCTION

This booklet contains the installation and operating instructions for your package air conditioner with reheat. There are a few 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.

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

IV. SPECIFICATIONS

A. GENERAL

The Packaged Air Conditioner is available without heat or with 6, 10, 12, 15, 20 or 24 kW electric heat. Cooling capacities of 3, 4 and 5 nominal tons of cooling are available. 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.

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 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 scroll compressor, condenser coil, evaporator coil with thermostatic expansion valve and re-heat coil with control solenoids) see Figure 1, 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-410A refrigerant and performance tested. Refrigerant amount and type are indicated on rating plate.

C. R-410A REFRIGERANT

All units are factory charged with R-410A refrigerant.

1. Specification of R-410A:

Application: **R-410A is not a drop-in replacement for R-22;** equipment designs must accommodate its higher pressures. It cannot be retrofitted into R-22 units.

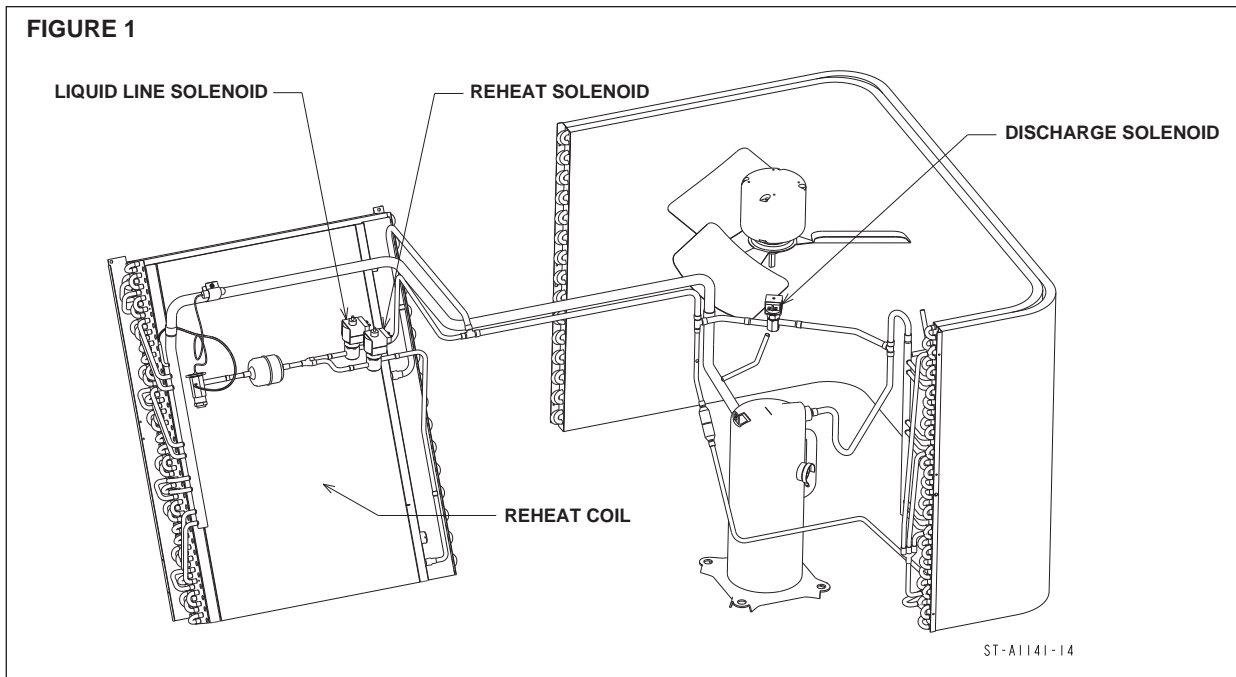
Pressure: **The pressure of R-410A is approximately 60% (1.6 times) greater than R-22.** Recovery and recycle equipment, pumps, hoses and the like need to have design pressure ratings appropriate for R-410A. *Manifold sets need to range up to 800 psig high-side and 250 psig low-side with a 550 psig low-side retard. Hoses need to have a service pressure rating of 800 psig. Recovery cylinders need to have a 400 psig service pressure rating. DOT 4BA400 or DOT BW400.*

Combustibility: At pressures above 1 atmosphere, mixture of R-410A and air can become combustible. **R-410A and air should never be mixed in tanks or supply lines, or be allowed to accumulate in storage tanks. Leak checking should never be done with a mixture of R-410A and air.** Leak checking can be performed safely with nitrogen or a mixture of R-410A and nitrogen.

2. Quick Reference Guide For R-410A

- R-410A refrigerant operates at approximately 60% higher pressure (1.6 times) than R-22. Ensure that servicing equipment is designed to operate with R-410A.
- R-410A refrigerant cylinders are pink.
- R-410A, as with other HFC's is only compatible with POE oils.

FIGURE 1



- Vacuum pumps will not remove moisture from POE oil.
- R-410A systems are to be charged with liquid refrigerants. Prior to March 1999, R-410A refrigerant cylinders had a dip tube. These cylinders should be kept upright for equipment charging. Post March 1999 cylinders do not have a dip tube and should be inverted to ensure liquid charging of the equipment.
- 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-410A.

3. Evaporator Coil / TXV

The thermostatic expansion valve is specifically designed to operate with R-410A. **DO NOT use an R-22 TXV. The existing evaporator must be replaced with the factory specified TXV evaporator specifically designed for R-410A.**

4. Tools Required For Installing & Servicing R-410A Models

Manifold Sets:

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

Manifold Hoses:

- Service Pressure Rating of 800 PSIG

Recovery Cylinders:

- 400 PSIG Pressure Rating
- Dept. of Transportation 4BA400 or BW400

▲ CAUTION

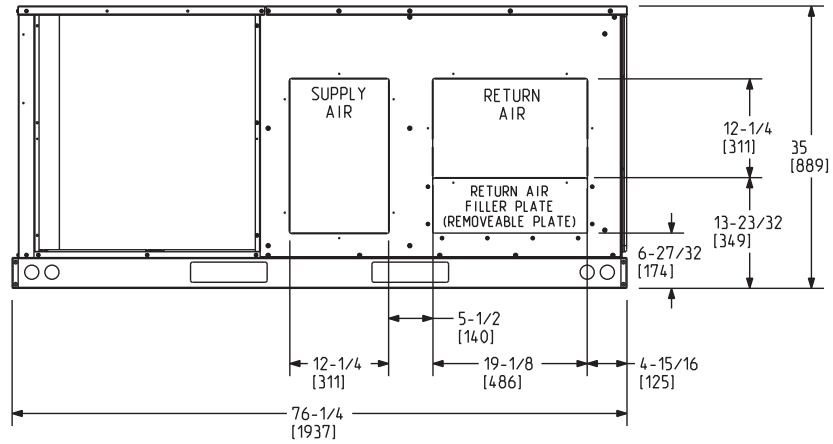
R-410A systems operate at higher pressures than R-22 systems. Do not use R-22 service equipment or components on R-410A equipment.

V. EQUIPMENT PROTECTION FROM THE ENVIRONMENT

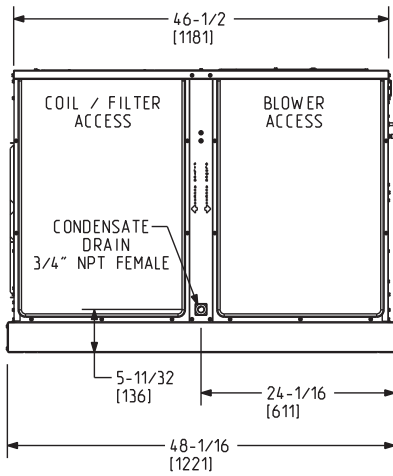
The metal parts of this unit may be subject to rust or deterioration in adverse environmental conditions. This oxidation could shorten the equipment's useful life. Salt spray, fog or mist in seacoast areas, sulphur or chlorine from lawn watering systems, and various chemical contaminants from industries such as paper mills and petroleum refineries are especially corrosive.

FIGURE 2
UNIT DIMENSIONS

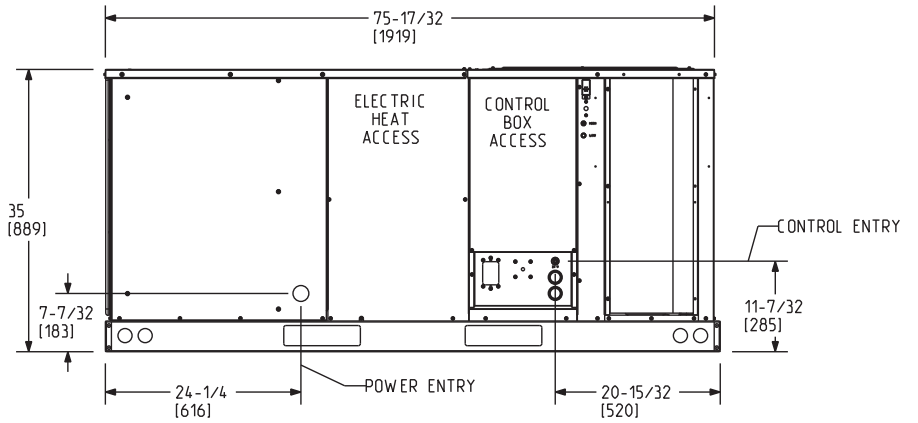
BACK VIEW



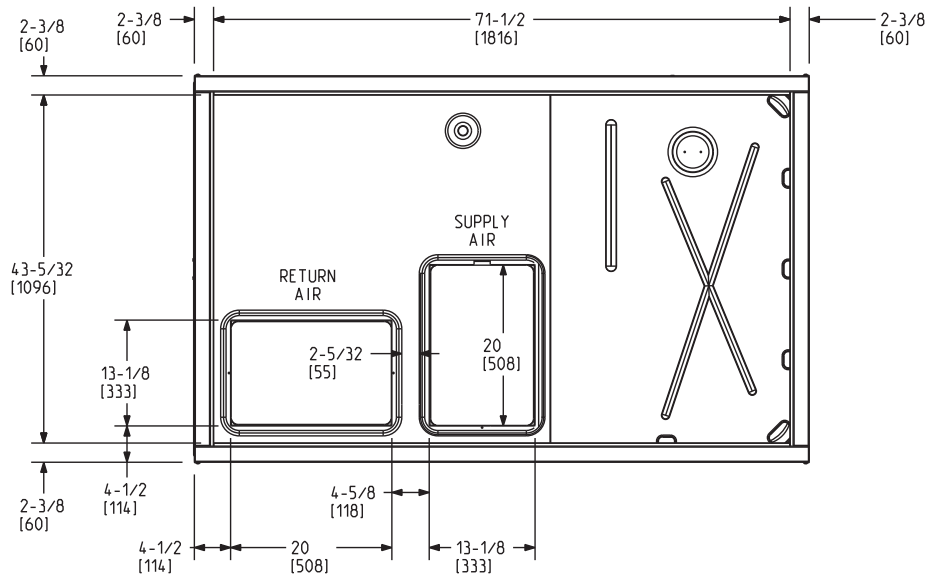
SIDE VIEW



FRONT VIEW

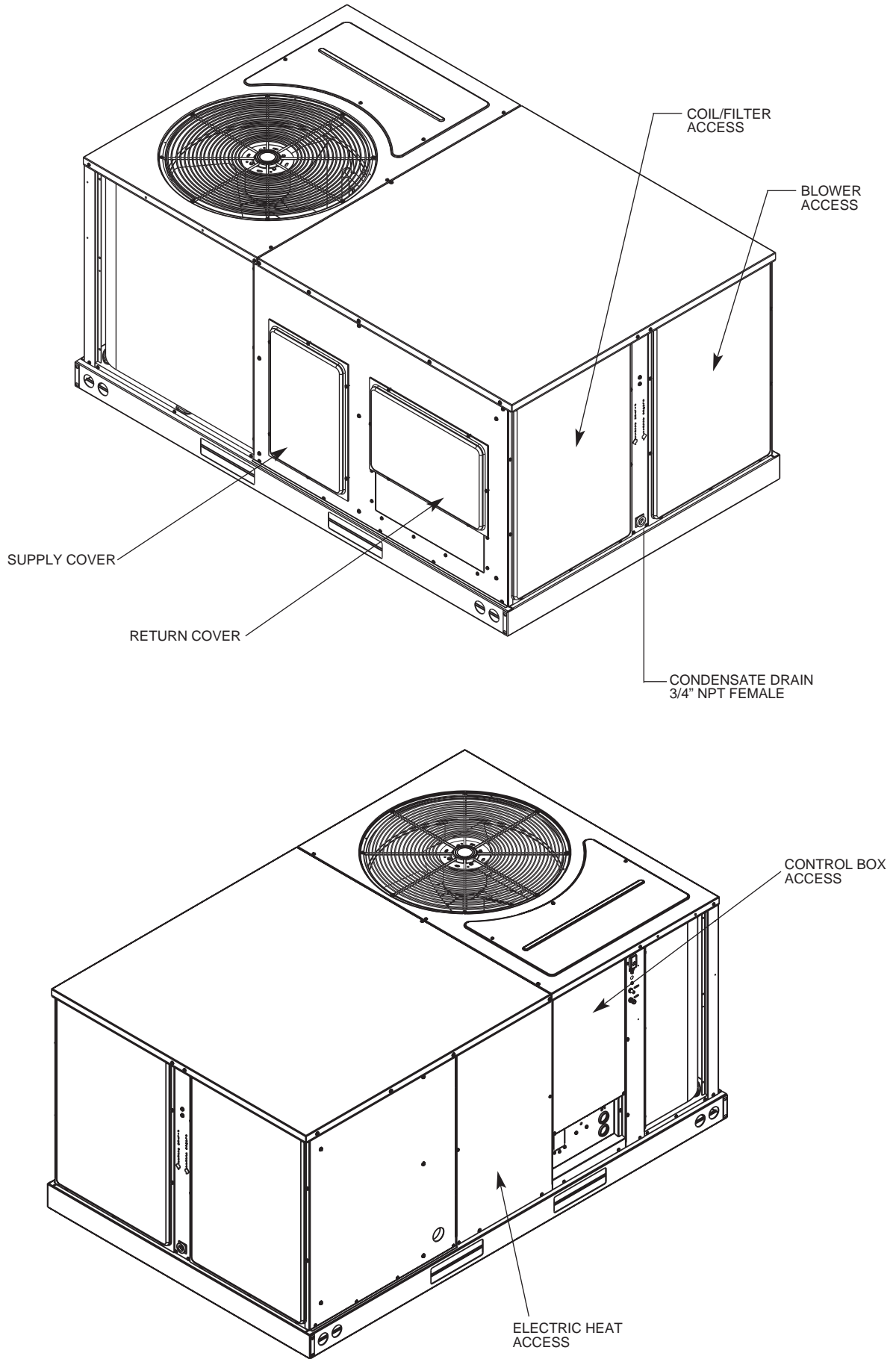


BOTTOM VIEW



[] = millimeter

FIGURE 3
UNIT VIEWS



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.

1. Avoid having lawn sprinkler heads spray direction on the unit cabinet.
2. In coastal areas, locate the unit on the side of the building away from the waterfront.
3. Shielding provided by a fence or shrubs may give some protection.

Regular maintenance will reduce the buildup of contaminants and help to protect the unit's finish.

1. 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.
2. Regular cleaning and waxing of the cabinet with a good automobile polish will provide some protection.
3. A good liquid cleaner may be used several times a year to remove matter that will not wash off with water.

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.

VI. SUPPLY-AIR TEMPERING (REHEAT)

With the factory installed reheat option, in addition to a thermostat or space temperature sensor that is normally present, an indoor relative humidity sensor is installed in the occupied space and connected to the Rooftop Unit Controller (RTU-C) which then controls the capacity of the cooling coil to remove moisture from the supply air and maintain space relative humidity below an adjustable limit visible on the RTU-C display. For more information on operation of RTU-C I/O manual 92-103249-01. Reheat operation is in Section 6.14. The default value is the ASHRAE recommended limit of 60% RH.

With this option, a refrigerant reheat coil is installed downstream from the evaporator coil. When the space humidity is too high and reheat is energized, this coil uses some of the heat that is normally rejected to the outside by the condenser coil to instead reheat the cold air from the evaporator coil just enough to avoid overcooling the space. Providing "neutral air" to the occupied space extends the run-time of the unit to provide better dehumidification than an air conditioner without this option.

Because the demand for dehumidification can be different from the cooling demand, the unit will first satisfy the demand for cooling and then if the space humidity is still too high, reheat mode is energized. When in reheat mode, the supply air leaving the unit will be near the entering air temperature, but at a much lower humidity. The unit will exit the reheat mode when the humidity setpoint is satisfied; or if the load is increased, it will return to normal cooling mode. Reheat is not available during the gas heating mode. For two-stage units with independent refrigerant circuits, reheat is only available on the first stage.

Figure 4 shows the refrigerant path during the normal cooling mode. The liquid refrigerant leaves the TXV with the sudden pressure drop causing the liquid to expand to a vapor and absorbing the heat from the supply air going through the evaporator coil. The refrigerant vapor then travels to the compressor where it is elevated to a higher pressure and temperature. The superheated refrigerant vapor is then rejected and the refrigerant condenses into a subcooled liquid where the process repeats itself.

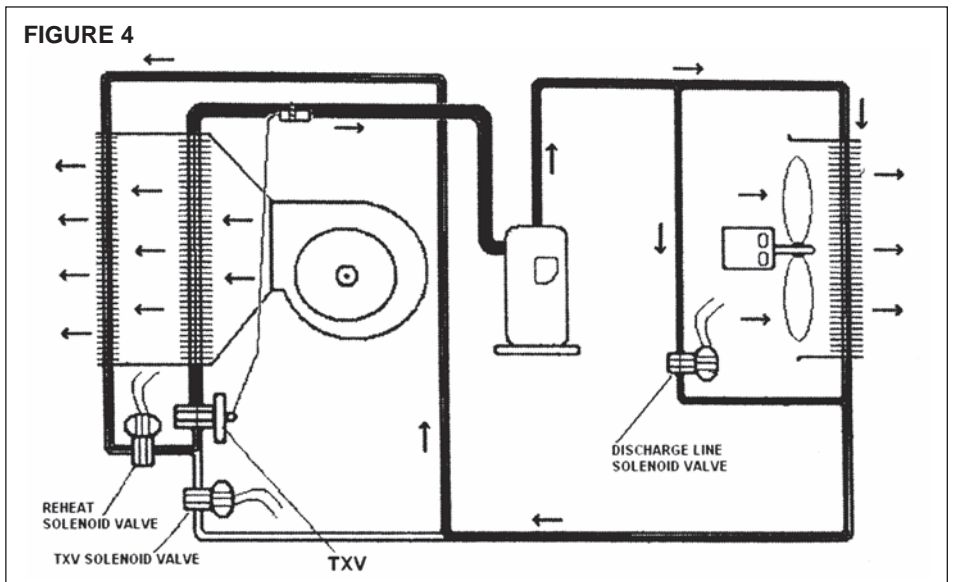


FIGURE 5

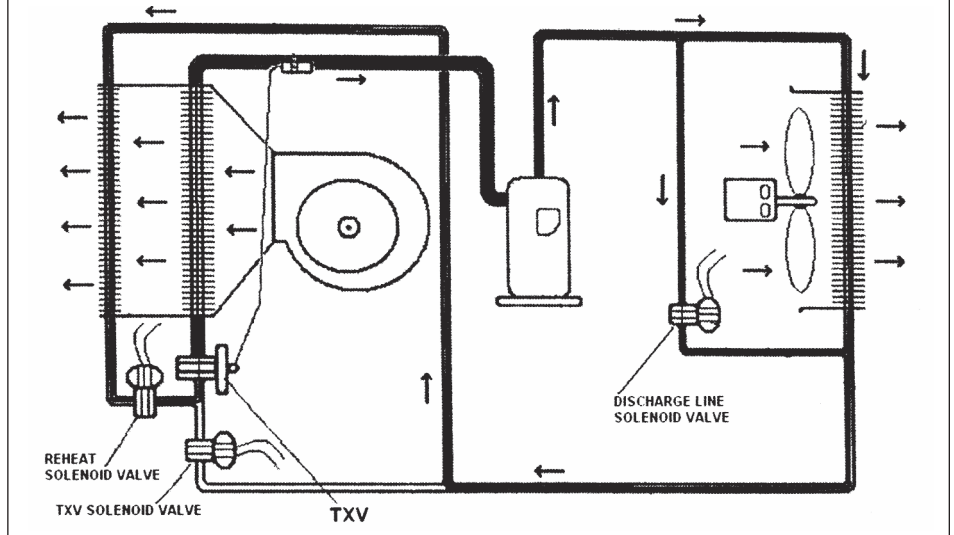


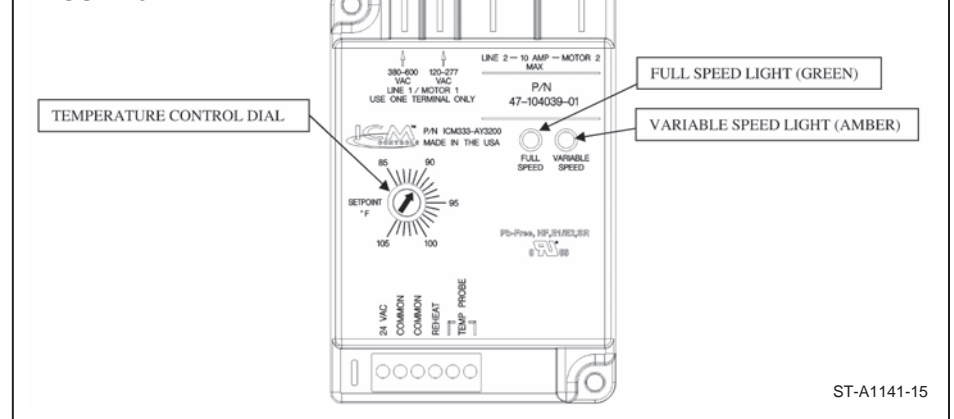
Figure 5 shows the refrigerant path during the reheat mode. When the reheat cycle is energized by the RTU-C, a solenoid valve downstream of the reheat coil opens, a solenoid valve ahead of the TXV closes, and a solenoid valve in the compressor discharge line opens. The liquid refrigerant leaves the TXV with the sudden pressure drop causing the liquid to expand to a vapor and absorbing the heat from the supply air going through the evaporator coil. The refrigerant vapor then travels to the compressor where it is elevated to a higher pressure and temperature. The refrigerant next carries the heat to a parallel path between the outside condenser coil and a bypass circuit. Some of the heat is rejected outdoors. The ratio of heat rejected outdoors versus indoors is controlled by an outdoor fan motor controller (OFMC) on the outdoor fan that monitors the liquid line temperature of the outdoor coil. This 2-phase refrigerant vapor is then sent to the reheat coil. As the refrigerant travels through the reheat coil it condenses into a subcooled liquid where the process repeats itself.

During reheat mode the outdoor fan motor controller (OFMC) slows the outdoor fan(s) to increase the discharge pressure/temperature to maintain an optimized amount of reheat required to provide neutral air to the occupied space. The factory setting for the outdoor fan motor controller is 90°F which will provide neutral air +1 to -5°F from the entering air temperature (example if the entering or return air temperature is 75°F the leaving or supply air temperature will be 76° to 70°F during the reheat mode. If field adjustment is required to raise or lower the leaving air temperature this may be accomplished by turning the temperature control dial on the outdoor fan motor controller (OFMC). Turning the dial to a higher temperature setting will raise the leaving or supply air temperature and turning the dial to a lower setting will reduce the leaving or supply temperature.

⚠ WARNING

NEVER TEST FOR GAS LEAKS WITH AN OPEN FLAME. USE A COMMERCIALLY AVAILABLE SOAP SOLUTION MADE SPECIFICALLY FOR THE DETECTION OF LEAKS TO CHECK ALL CONNECTIONS, AS SPECIFIED IN GAS SUPPLY AND PIPING SECTION OF THESE INSTRUCTIONS.

FIGURE 6



ST-A1141-15

VII. INSTALLATION

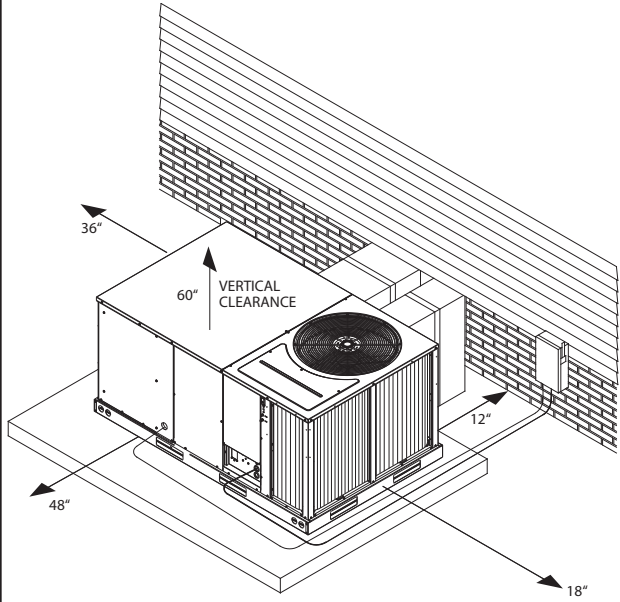
A. GENERAL

1. PRE-INSTALLATION CHECK-POINTS

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

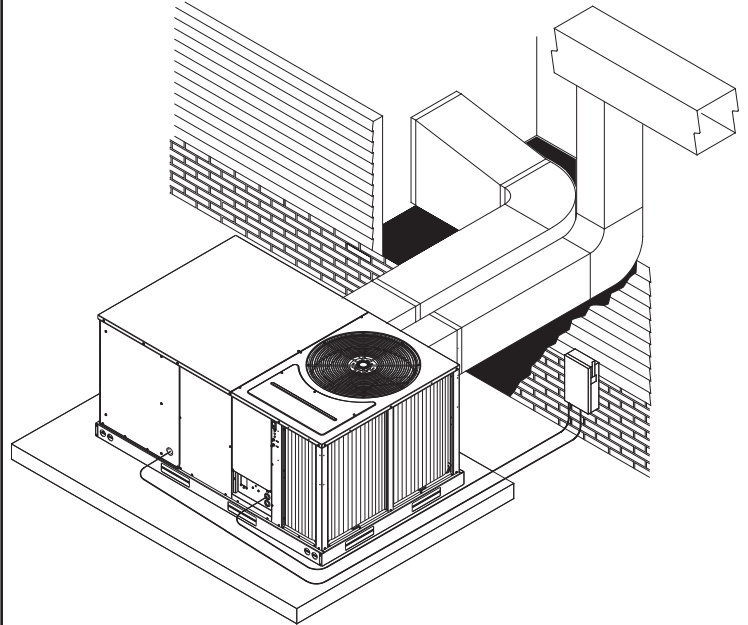
- a. Structural strength of supporting members. (rooftop installation)

FIGURE 7
PACKAGE AIR CONDITIONER – OUTSIDE SLAB INSTALLATION, BASEMENT OR CRAWL SPACE DISTRIBUTION SYSTEM



*Allow 57" for economizer on duct side.

FIGURE 8
PACKAGE AIR CONDITIONER – OUTSIDE SLAB INSTALLATION, CLOSET DISTRIBUTION SYSTEM. SLAB FLOOR CONSTRUCTION



WARNING

ALWAYS INSTALL UNIT TO OPERATE WITHIN THE UNIT'S INTENDED TEMPERATURE-RISE RANGE WITH A DUCT SYSTEM WHICH HAS AN EXTERNAL STATIC PRESSURE WITHIN THE ALLOWABLE RANGE, AS SPECIFIED IN DUCTING SECTION OF THESE INSTRUCTIONS. SEE ALSO UNIT RATING PLATE.

- 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

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.

B. OUTSIDE SLAB INSTALLATION

(Typical outdoor slab installations are shown in Figures 7 and 8.)

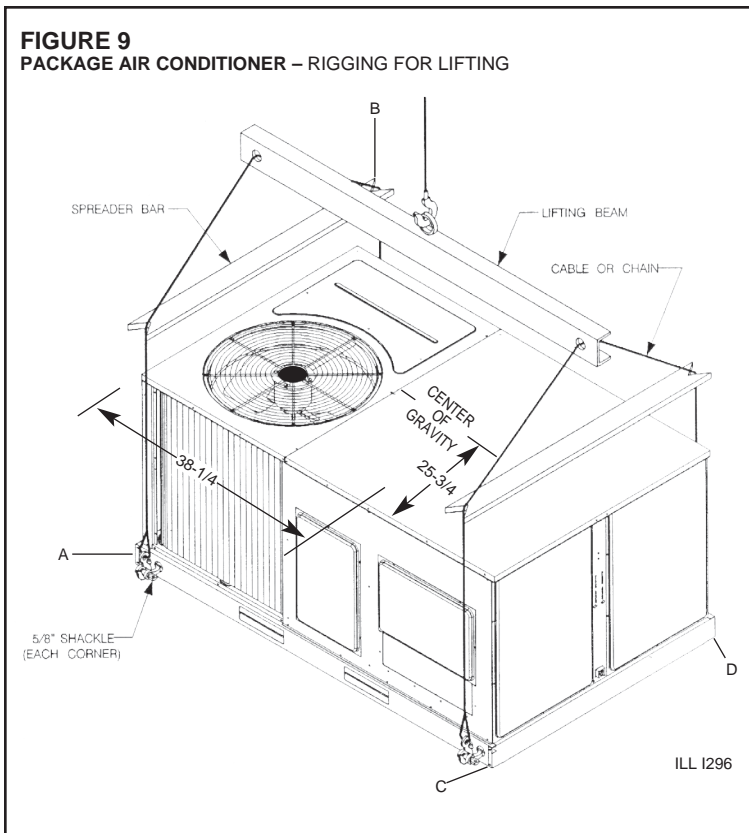
1. Select a location where external water drainage cannot collect around the unit.
2. Provide a level concrete slab extending 3" beyond all four sides of the unit. The slab should be sufficient above grade to prevent ground water from entering the unit. **IMPORTANT:** To prevent transmission of noise 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.
6. Remove compressor shipping supports (if so equipped) after installation.

C. CLEARANCES

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

1. Provide 48" minimum clearance at the front of the unit. Provide 36" minimum clearance at the left and right side of the unit for service access.
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 3 for illustration of minimum installation-service clearances.

FIGURE 9
PACKAGE AIR CONDITIONER – RIGGING FOR LIFTING



CORNER WEIGHTS BY PERCENTAGE			
A	B	C	D
23%	27%	23%	27%

D. ROOFTOP INSTALLATION

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 specification sheet for weight of unit.) This is very important and user's responsibility.
2. For rigging and roofcurb details, see Figures 9 and 10. Use 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. See Figure 11.
6. The location of the unit on the roof should be such as to provide proper access for inspection and servicing.
7. Remove compressor shipping supports (if so equipped) after installation.

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

⚠ 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.

VIII. DUCTWORK

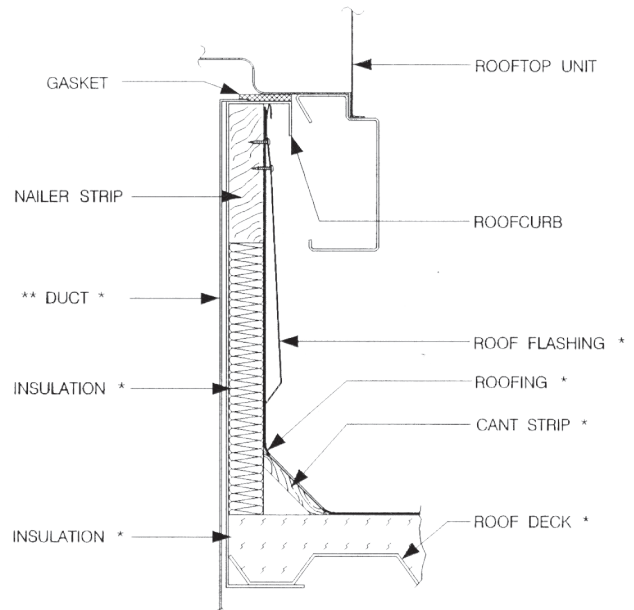
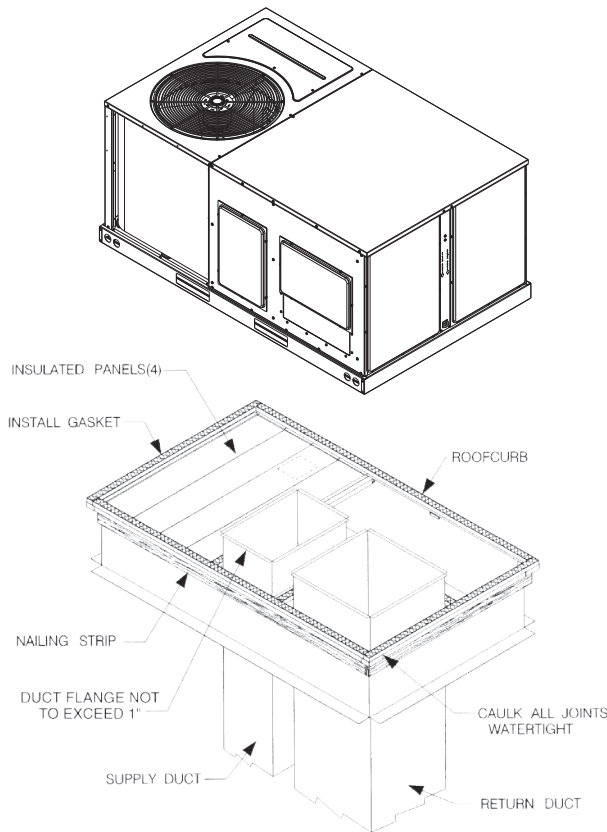
Ductwork should be fabricated by the installing contractor in accordance with local codes and NFPA90A. Industry manuals may be used as a guide when sizing and designing the duct system - contact Air Conditioning Contractors of America, 2800 Shirlington Road, Suite 300, Arlington, VA 22206, <http://www.acca.org>.

The unit should be placed as close to the space to be air conditioned as possible allowing clearance dimensions as indicated. 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 of insulation is usually sufficient for ductwork inside the air conditioned space.

FIGURE 10
PACKAGE AIR CONDITIONER – ROOFCURB INSTALLATION



ILL 1301

* 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 FOR RECOMMENDED DUCT SIZES.

Balancing dampers should be provided for each branch duct in the supply system. Ductwork should be properly supported from the structure.

When installing ductwork, consider the following items:

1. Noncombustible flexible connectors should be used between ductwork and unit to reduce noise and vibration transmission into the ductwork.
2. When auxiliary heaters are installed, use noncombustible flexible connectors and clearance to combustible material of 0" for the first 3 feet of discharge duct. Clearance to unit top and side is 0".

IX. FILTERS

This unit is provided with 2 - 25" x 16" x 1" disposable filters. When replacing filters, ensure they are inserted fully to the back to prevent bypass.

X. CONVERSION PROCEDURE

DOWNFLOW TO HORIZONTAL

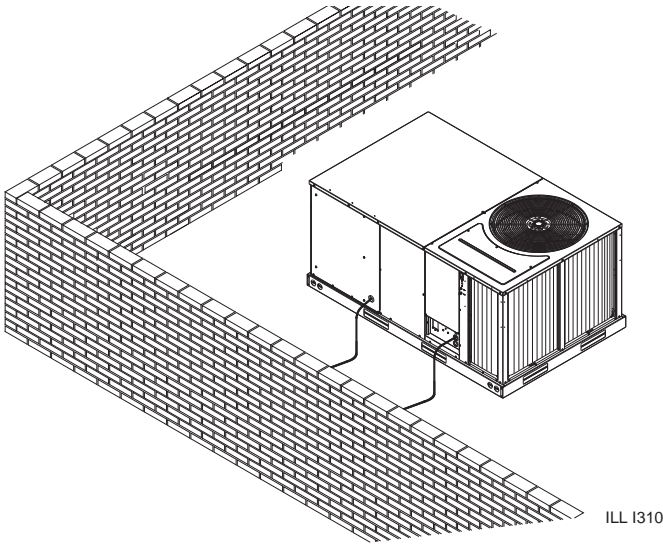
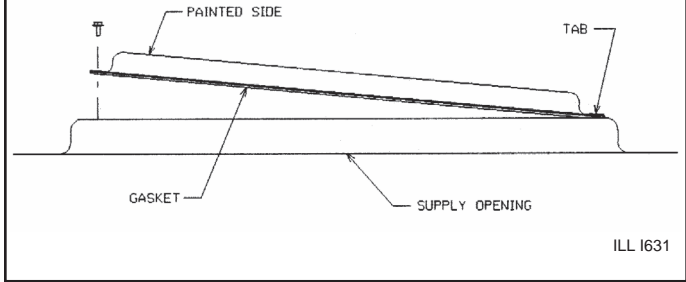
1. Remove the screws and covers from the outside of the supply and return sections.
2. Install the covers in the bottom supply and return openings with the painted side up. See Figure 12. Use the existing gasket to seal the covers.
3. Secure the supply cover to the base of the unit with 1 screw, engaging prepunched tab in unit base.
4. Secure the return cover to the base of the unit with screws, engaging prepunched holes in the unit base.

XI. CONDENSATE DRAIN

The condensate drain connection of the evaporator is 3/4" nominal female pipe thread. **IMPORTANT:** Install a condensate trap to ensure proper condensate drainage. See Figure 13.

FIGURE 11

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

**FIGURE 12**
COVER GASKET DETAIL

XII. ELECTRICAL WIRING

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 and of adequate size to handle the starting current. Reference Figure 14 for proper location.
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.

TABLE A**COPPER WIRE SIZE — AWG (1% VOLTAGE DROP)**

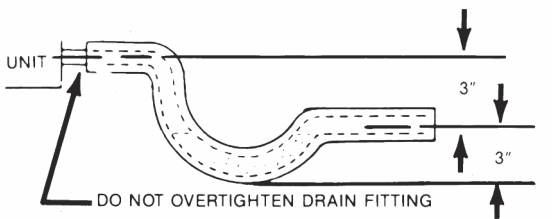
Supply	300	4	3	2	2	1	1/0	1/0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0	250	250	250	250	300	300	300	300	300	350	350	350	350		
Wire	250	4	4	3	3	2	1	1	1/0	1/0	2/0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0	250	250	250	250	250	350	350	350	350			
Length	200	6	4	4	4	3	2	2	1	1	1/0	1/0	1/0	2/0	2/0	3/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0	4/0	300	300	300	300				
Feet	150	8	6	6	4	4	4	3	3	2	2	1	1	1/0	1/0	1/0	2/0	2/0	2/0	2/0	2/0	2/0	3/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0		
	100	10	8	8	6	6	6	4	4	4	3	3	2	2	2	1	1	1	1	1	1/0	1/0	1/0	1/0	1/0	1/0	2/0	2/0	2/0	2/0		
	50	14	12	10	10	8	8	6	6	6	4	4	4	3	3	3	2	2	2	2	2	1	1	1	1	1/0	1/0	1/0	2/0			
		15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155		
	Circuit Ampacity																															

NOTE:

1. Wire size based on 60°C type copper conductors below 100 ampacity.
2. Wire size based on 75°C type copper conductors for 100 ampacity and above.

FIGURE 13
CONDENSATE DRAIN

DO NOT OPERATE UNIT WITHOUT
CONDENSATE DRAIN TRAP



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 pigtail in the electric heat access area. Connect ground wire to ground lug.
 - b. WITH ELECTRIC HEAT - Connect the field wires to the terminal block on the electric heater kit in the electric heat access area. Connect the ground wire to the ground lug on the heater kit.

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

6. The pigtail wires in the electric heat access area are factory wired to the contactor in the control box.
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 the tabulation below:

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

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. 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 recoat 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.

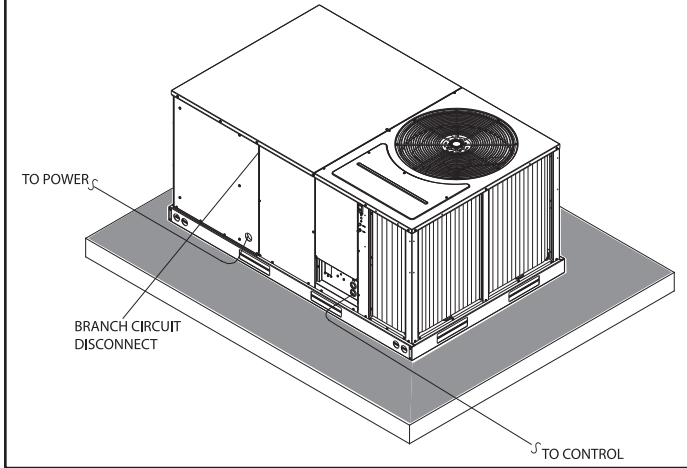
WARRANTY MAY NOT APPLY IF CONNECTIONS ARE NOT MADE PER INSTRUCTIONS

C. 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 adjacent to the compressor access panel. Use a minimum #18 AWG thermostat wire. For wire lengths exceeding 50', use #16 AWG thermostat wire. The low voltage wires are connected to the unit pigtails which are supplied with the unit in the low voltage connection box located below the unit control box.
3. Figure 16 shows representative low voltage connection diagrams. Read your thermostat installation instructions for any special requirements for your specific thermostat.

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.

FIGURE 14
RECOMMENDED LOCATION OF BRANCH CIRCUIT DISCONNECT



D. INTERNAL WIRING

IMPORTANT: Some single phase models are equipped with a single pole contactor. Caution must be exercised when servicing as only one leg of the power supply is broken with the contactor.

Some models are equipped with electronically commutated blower motors which are constantly energized unless the main unit disconnect is in the off position.

1. A diagram of the internal wiring of this unit is located on the inside of the compressor access panel. 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.

E. GROUNDING

⚠ WARNING

THE UNIT MUST BE PERMANENTLY GROUNDED. A GROUNDING LUG IS PROVIDED IN THE ELECTRIC HEAT KIT 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.

FIGURE 15
HEATER KIT INSTALLATION

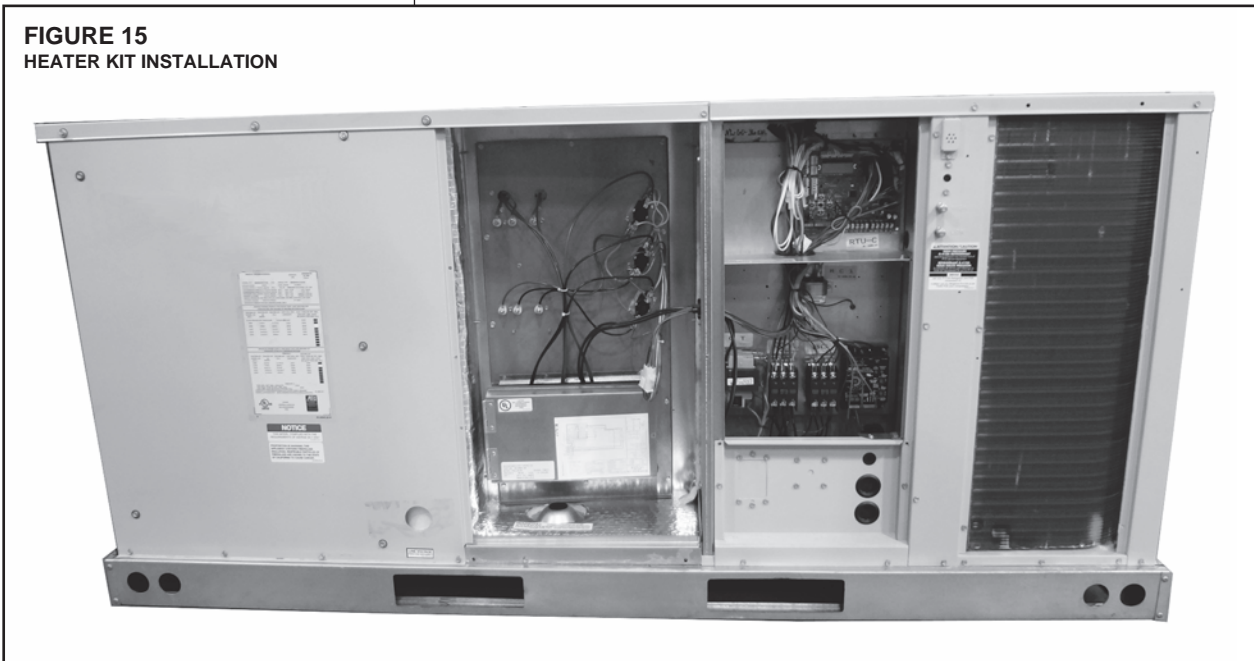
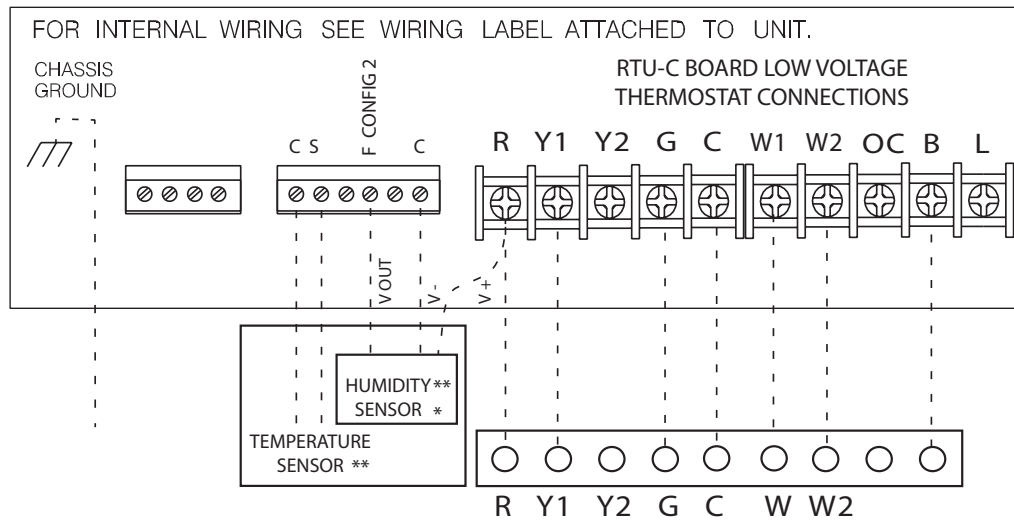


FIGURE 16
LOW VOLTAGE CONNECTIONS DIAGRAMS

STANDARD WIRING



NOTE: Y2 IS ONLY USED ON UNITS WITH TWO STAGES OF COOLING OR SINGLE STAGE WITH ECONOMIZER.

W2 ONLY USED ON UNITS WITH TWO STAGES OF GAS HEAT

* REPRESENTS HUMIDITY SENSOR RHC-ZNS4

** REPRESENTS HUMIDITY AND TEMPERATURE SENSOR RHC-ZNS5

- - - - 24 VOLT CONTROL WIRING.

ST-A1141-16-X1

F. 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.

XIII. INDOOR AIR FLOW DATA

Direct-drive blower models are shipped factory wired for the proper speed at a typical external static. See Blower Performance Data. Belt-drive blower models have motor sheaves set for proper CFM at a typical external static.

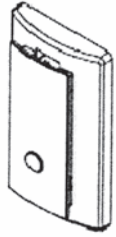
XIV. CRANKCASE HEAT (OPTIONAL)

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

XV. PRE-START CHECK

1. Is unit properly located and slightly slanted toward indoor 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 3.)
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. Are the compressor shipping supports removed (if so equipped)?

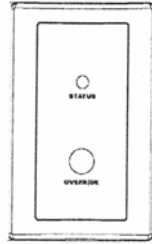
FIGURE 17
FLUSH MOUNT ROOM TEMPERATURE SENSOR FOR NETWORKED DDC APPLICATIONS
(REPLACES THERMOSTAT)



ROOM TEMPERATURE SENSOR WITH TIMED OVERRIDE BUTTON

ZNS-101

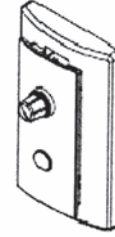
←10kΩ room temperature sensor transmits room temperature to DDC system. Times override buttons allows tenant to change from unoccupied temperature setpoint to occupied temperature setpoint for a preset time.



ROOM TEMPERATURE SENSOR WITH TIMED OVERRIDE BUTTON AND STATUS INDICATOR

ZNS-102

←10kΩ room temperature sensor transmits room temperature to DDC system. Times override button allows tenant to change from unoccupied temperature setpoint to occupied temperature setpoint for a preset time. Status Indicator Light transmits ALARM flash code to occupied space.

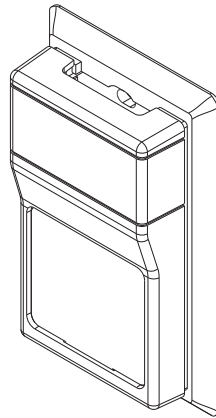


ROOM TEMPERATURE SENSOR WITH SETPOINT ADJUSTMENT AND TIMED OVERRIDE BUTTON

ZNS-103

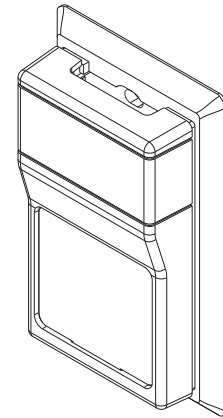
←10kΩ room temperature sensor with setpoint adjustment transmits room temperature to DDC system along with desired occupied room temperature setpoint. Timed override button allows tenant to change from unoccupied temperature setpoint to occupied temperature setpoint for a preset time.

FIGURE 18
HUMIDISTATS



RHC-ZNS4

TRANSMITS ROOM RELATIVE HUMIDITY TO DDC SYSTEM



RHC-ZNS5

TRANSMITS ROOM TEMPERATURE AND RELATIVE HUMIDITY TO DDC SYSTEM

XVI. 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 instructions located on compressor access panel. 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. VaporLine 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.

XVII. OPERATION

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.

XVIII. AUXILIARY HEAT

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.

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.

XIX. GENERAL DATA - RLPN MODELS

NOMINAL SIZES 3-5 TONS [10.6-17.6 kW]

Model RLPN- Series	C036CL*555	C036CM*555	C036DL*555	C036DM*555
Cooling Performance¹				
Gross Cooling Capacity Btu [kW]	36,200 [10.61]	36,200 [10.61]	36,200 [10.61]	36,200 [10.61]
EER/SEER ²	11.5/14	11.5/14	11.5/14	11.5/14
Nominal CFM/AHRI Rated CFM [L/s]	1200/1250 [566/590]	1200/1250 [566/590]	1200/1250 [566/590]	1200/1250 [566/590]
AHRI Net Cooling Capacity Btu [kW]	34,600 [10.14]	34,600 [10.14]	34,600 [10.14]	34,600 [10.14]
Net Sensible Capacity Btu [kW]	25,300 [7.41]	25,300 [7.41]	25,300 [7.41]	25,300 [7.41]
Net Latent Capacity Btu [kW]	9,300 [2.72]	9,300 [2.72]	9,300 [2.72]	9,300 [2.72]
Net System Power kW	2.95	2.95	2.95	2.95
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)³				
	78	78	78	78
Outdoor Coil - Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	0.7 [18]	0.7 [18]	0.7 [18]	0.7 [18]
Rows / FPI [FPcm]	13.9 [1.29]	13.9 [1.29]	13.9 [1.29]	13.9 [1.29]
	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil - Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	1 [25]	1 [25]	1 [25]	1 [25]
Rows / FPI [FPcm]	4.8 [0.45]	4.8 [0.45]	4.8 [0.45]	4.8 [0.45]
	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				
No. Used/Diameter in. [mm]	Propeller	Propeller	Propeller	Propeller
Drive Type/No. Speeds	1/24 [609.6]	1/24 [609.6]	1/24 [609.6]	1/24 [609.6]
CFM [L/s]	Direct/1	Direct/1	Direct/1	Direct/1
No. Motors/HP	3680 [1737]	3680 [1737]	3680 [1737]	3680 [1737]
Motor RPM	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP
	1075	1075	1075	1075
Indoor Fan - Type				
No. Used/Diameter in. [mm]	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
Drive Type	1/10x10 [254x254]	1/10x10 [254x254]	1/10x10 [254x254]	1/10x10 [254x254]
No. Speeds	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)
No. Motors	Single	Single	Single	Single
Motor HP	1	1	1	1
Motor RPM	1/2	1/2	1/2	1/2
Motor Frame Size	1725	1725	1725	1725
	48	56	48	56
Filter - Type				
Furnished	Disposable	Disposable	Disposable	Disposable
(NO.) Size Recommended in. [mm x mm x mm]	Yes	Yes	Yes	Yes
	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]
	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]
Refrigerant Charge Oz. [g]				
	86 [2438]	86 [2438]	86 [2438]	86 [2438]
Weights				
Net Weight lbs. [kg]	503 [228]	503 [228]	503 [228]	503 [228]
Ship Weight lbs. [kg]	510 [231]	510 [231]	510 [231]	510 [231]

NOTES:

- Cooling Performance is rated at 95° F ambient, 80° F entering dry bulb, 67° F entering wet bulb. Gross capacity does not include the effect of fan motor heat. AHRI capacity is net and includes the effect of fan 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 or 360.
- EER and/or SEER 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 - RLPN MODELS

NOMINAL SIZES 3-5 TONS [10.6-17.6 kW]

Model RLPN- Series	C048CL*555	C048CM*555	C048DL*555	C048DM*555
Cooling Performance¹				
Gross Cooling Capacity Btu [kW]	48,000 [14.06]	48,000 [14.06]	48,000 [14.06]	48,000 [14.06]
EER/SEER ²	11.5/14	11.5/14	11.5/14	11.5/14
Nominal CFM/AHRI Rated CFM [L/s]	1600/1500 [755/708]	1600/1500 [755/708]	1600/1500 [755/708]	1600/1500 [755/708]
AHRI Net Cooling Capacity Btu [kW]	46,000 [13.48]	46,000 [13.48]	46,000 [13.48]	46,000 [13.48]
Net Sensible Capacity Btu [kW]	34,000 [9.96]	34,000 [9.96]	34,000 [9.96]	34,000 [9.96]
Net Latent Capacity Btu [kW]	12,000 [3.52]	12,000 [3.52]	12,000 [3.52]	12,000 [3.52]
Net System Power kW	3.93	3.93	3.93	3.93
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)³				
	78	78	78	78
Outdoor Coil - Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	0.7 [18]	0.7 [18]	0.7 [18]	0.7 [18]
Rows / FPI [FPcm]	16.4 [1.52]	16.4 [1.52]	16.4 [1.52]	16.4 [1.52]
	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil - Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	1.3 [32]	1.3 [32]	1.3 [32]	1.3 [32]
Rows / FPI [FPcm]	4.8 [0.45]	4.8 [0.45]	4.8 [0.45]	4.8 [0.45]
	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				
No. Used/Diameter in. [mm]	Propeller	Propeller	Propeller	Propeller
Drive Type/No. Speeds	1/24 [609.6]	1/24 [609.6]	1/24 [609.6]	1/24 [609.6]
CFM [L/s]	Direct/1	Direct/1	Direct/1	Direct/1
No. Motors/HP	3680 [1737]	3680 [1737]	3680 [1737]	3680 [1737]
Motor RPM	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP
	1075	1075	1075	1075
Indoor Fan - Type				
No. Used/Diameter in. [mm]	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
Drive Type	1/10x10 [254x254]	1/10x10 [254x254]	1/10x10 [254x254]	1/10x10 [254x254]
No. Speeds	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)
No. Motors	Single	Single	Single	Single
Motor HP	1	1	1	1
Motor RPM	1/2	3/4	1/2	3/4
Motor Frame Size	1725	1725	1725	1725
	48	56	48	56
Filter - Type				
Furnished	Disposable	Disposable	Disposable	Disposable
(NO.) Size Recommended in. [mm x mm x mm]	Yes	Yes	Yes	Yes
	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]
	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]
Refrigerant Charge Oz. [g]				
	97 [2750]	97 [2750]	97 [2750]	97 [2750]
Weights				
Net Weight lbs. [kg]	527 [239]	528 [239]	527 [239]	528 [239]
Ship Weight lbs. [kg]	534 [242]	535 [243]	534 [242]	535 [243]

NOTES:

- Cooling Performance is rated at 95° F ambient, 80° F entering dry bulb, 67° F entering wet bulb. Gross capacity does not include the effect of fan motor heat. AHRI capacity is net and includes the effect of fan 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 or 360.
- EER and/or SEER are rated at AHRI conditions and in accordance with DOE test procedures.
- Heating Performance limit settings and rating data were established and approved under laboratory test conditions using American National Standard Institute standards. Ratings shown are for elevations up to 2000 feet. For elevations above 2000 feet, ratings should be reduced at the rate of 4% for each 1000 feet above sea level.
- Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

GENERAL DATA - RLPN MODELS

NOMINAL SIZES 3-5 TONS [10.6-17.6 kW]

Model RLPN- Series	C060CL*555	C060CM*555	C060DL*555	C060DM*555
Cooling Performance¹				
Gross Cooling Capacity Btu [kW]	60,000 [17.58]	60,000 [17.58]	60,000 [17.58]	60,000 [17.58]
EER/SEER ²	11.5/14	11.5/14	11.5/14	11.5/14
Nominal CFM/AHRI Rated CFM [L/s]	2000/1800 [944/849]	2000/1800 [944/849]	2000/1800 [944/849]	2000/1800 [944/849]
AHRI Net Cooling Capacity Btu [kW]	58,500 [17.14]	58,500 [17.14]	58,500 [17.14]	58,500 [17.14]
Net Sensible Capacity Btu [kW]	41,700 [12.22]	41,700 [12.22]	41,700 [12.22]	41,700 [12.22]
Net Latent Capacity Btu [kW]	16,800 [4.92]	16,800 [4.92]	16,800 [4.92]	16,800 [4.92]
Net System Power kW	4.95	4.95	4.95	4.95
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)³				
	83	83	83	83
Outdoor Coil - Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	0.7 [18]	0.7 [18]	0.7 [18]	0.7 [18]
Rows / FPI [FPcm]	16.4 [1.52]	16.4 [1.52]	16.4 [1.52]	16.4 [1.52]
	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil - Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	1.3 [32]	1.3 [32]	1.3 [32]	1.3 [32]
Rows / FPI [FPcm]	4.8 [0.45]	4.8 [0.45]	4.8 [0.45]	4.8 [0.45]
Refrigerant Control	1 / 20 [8]	1 / 20 [8]	1 / 20 [8]	1 / 20 [8]
Drain Connection No./Size in. [mm]	TX Valves	TX Valves	TX Valves	TX Valves
	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type				
No. Used/Diameter in. [mm]	Propeller	Propeller	Propeller	Propeller
Drive Type/No. Speeds	1/24 [609.6]	1/24 [609.6]	1/24 [609.6]	1/24 [609.6]
CFM [L/s]	Direct/1	Direct/1	Direct/1	Direct/1
No. Motors/HP	3930 [1855]	3930 [1855]	3930 [1855]	3930 [1855]
Motor RPM	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP
	1075	1075	1075	1075
Indoor Fan - Type				
No. Used/Diameter in. [mm]	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
Drive Type	1/10x10 [254x254]	1/10x10 [254x254]	1/10x10 [254x254]	1/10x10 [254x254]
No. Speeds	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)
No. Motors	Single	Single	Single	Single
Motor HP	1	1	1	1
Motor RPM	3/4	1	3/4	1
Motor Frame Size	1725	1725	1725	1725
	56	56	56	56
Filter - Type				
Furnished	Disposable	Disposable	Disposable	Disposable
(NO.) Size Recommended in. [mm x mm x mm]	Yes	Yes	Yes	Yes
	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]
	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]	(1)1x16x25 [25x406x635]
Refrigerant Charge Oz. [g]				
	97 [2750]	97 [2750]	97 [2750]	97 [2750]
Weights				
Net Weight lbs. [kg]	535 [243]	540 [245]	535 [243]	540 [245]
Ship Weight lbs. [kg]	542 [246]	547 [248]	542 [246]	547 [248]

NOTES:

- Cooling Performance is rated at 95° F ambient, 80° F entering dry bulb, 67° F entering wet bulb. Gross capacity does not include the effect of fan motor heat. AHRI capacity is net and includes the effect of fan 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 or 360.
- EER and/or SEER are rated at AHRI conditions and in accordance with DOE test procedures.
- Heating Performance limit settings and rating data were established and approved under laboratory test conditions using American National Standard Institute standards. Ratings shown are for elevations up to 2000 feet. For elevations above 2000 feet, ratings should be reduced at the rate of 4% for each 1000 feet above sea level.
- Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

XX. MISCELLANEOUS

ELECTRICAL DATA - RLPN- SERIES													
Unit Information		C036CL	C036CM	C036DL	C036DM	C048CL	C048CM	C048DL	C048DM	C060CL	C060CM	C060DL	C060DM
	Unit Operating Voltage Range	187-253	187-253	414-506	414-506	187-253	187-253	414-506	414-506	187-253	187-253	414-506	414-506
	Volts	208/230	208/230	460	460	208/230	208/230	460	460	208/230	208/230	460	460
	Minimum Circuit Ampacity	16/16	16/16	10	10	21/21	22/22	11	11	26/26	27/27	13	13
	Minimum Overcurrent Protection Device Size	20/20	20/20	15	15	25/25	25/25	15	15	30/30	35/35	15	15
	Maximum Overcurrent Protection Device Size	20/20	20/20	15	15	30/30	30/30	15	15	40/40	40/40	20	20
Compressor Motor	No.	1	1	1	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	208/230	208/230	460	460	208/230	208/230	460	460
	Phase	3	3	3	3	3	3	3	3	3	3	3	3
	RPM	3450	3450	3450	3450	3450	3450	3450	3450	3450	3450	3450	3450
	HP, Compressor 1	3	3	3	3	4	4	4	4	5	5	5	5
	Amps (RLA), Comp. 1	9/9	9/9	5.6	5.6	13.1/13.1	13.1/13.1	6.1	6.1	16/16	16/16	7.8	7.8
	Amps (LRA), Comp. 1	71/71	71/71	38	38	83.1/83.1	83.1/83.1	41	41	110/110	110/110	52	52
Condenser Motor	No.	1	1	1	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	208/230	208/230	460	460	208/230	208/230	460	460
	Phase	1	1	1	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	1/3	1/3	1/3
	Amps (FLA, each)	1.5/1.5	1.5/1.5	1	1	1.5/1.5	1.5/1.5	1	1	2.2/2.2	2.2/2.2	1	1
	Amps (LRA, each)	3/3	3/3	1.9	1.9	3/3	3/3	1.9	1.9	4.9/4.9	4.9/4.9	1.9	1.9
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	208/230	208/230	460	460	208/230	208/230	460	460
	Phase	3	3	3	3	3	3	3	3	3	3	3	3
	HP	1/2	1/2	1/2	1/2	1/2	3/4	1/2	3/4	3/4	1	3/4	1
	Amps (FLA, each)	2.8/2.8	2.8/2.8	1.4	1.4	2.8/2.8	3.4/3.4	1.4	1.6	3.4/3.4	4.1/4.1	1.6	2
	Amps (LRA, each)	11.3/11.3	16.8/16.8	6.2	8.4	11.3/11.3	16.8/16.8	6.2	8.4	16.8/16.8	24/24	8.4	12

INDOOR AIRFLOW PERFORMANCE FOR 3 TON SELF-CONTAINED AIR CONDITIONERS BELT DRIVE

AIRFLOW PERFORMANCE-3 TON [10.55 Kw] THREE PHASE BELT DRIVE

Air Flow CFM [L/s]		Capacity 3 Ton [10.55 kW] Voltage 208/230/460/575, 3-Phase																													
		External Static Pressure - Inches of Water [kPa]																													
		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]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]	
RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W
900 [425]	—	—	—	699	223	765	261	827	292	886	318	941	338	993	352	1042	360	1087	362	1129	358	1168	348	1203	332	1235	310	1264	282		
1000 [472]	—	—	662	228	717	258	781	293	842	323	899	346	952	364	1002	376	1049	381	1093	381	1133	374	1170	362	1203	344	1233	320	1260	289	
1100 [519]	—	—	667	275	737	295	798	328	857	355	912	377	964	392	1012	401	1057	404	1099	402	1137	393	1172	378	1204	358	1232	331	1257	298	
1200 [566]	643	278	693	298	756	334	817	365	873	390	927	409	976	422	1023	428	1066	429	1106	424	1143	413	1176	396	1205	373	1232	344	1255	309	
1300 [614]	661	316	716	341	777	376	835	404	890	426	942	443	990	453	1035	458	1076	456	1114	449	1149	435	1180	416	1208	391	1232	359	1254	322	
1400 [661]	669	352	739	387	799	419	855	445	908	465	958	479	1004	487	1047	489	1087	485	1123	475	1156	460	1185	438	1211	410	1234	377	1253	337	
1500 [708]	702	399	763	434	821	464	876	487	927	505	975	517	1019	523	1060	522	1098	516	1132	504	1163	486	1191	462	1215	432	1236	396	1254	354	

NOTE: L-DRIVE LEFT OF BOLD LINE, M-DRIVE RIGHT OF BOLD LINE

Drive Package	L		M		N Drive (Field Supplied)							
Motor H.P. [W]	1/2 [373]		1/2 [373]		1/2 [373]							
Blower Sheave	6.9" Pitch Diameter		6.4" Pitch Diameter		5.7" Pitch Diameter							
Motor Sheave	2.4" - 3.4" Pitch Diameter		3.4" - 4.4" Pitch Diameter		3.4" - 4.4" Pitch Diameter							
Turns Open	0	1	2	3	4	5						
RPM	910	869	818	775	728	682	1176	1145	1108	1060	996	968

COMPONENT AIR RESISTANCE

Component	Standard Indoor Airflow -- CFM [L/s]					
	1000 [472]	1200 [566]	1400 [661]	1600 [755]	1800 [850]	2000 [944]
Wet Coil	0.035	0.040	0.060	0.070	0.085	0.100
Downflow	0.055	0.060	0.066	0.072	0.080	0.086
R.S.I. Economizer	0.05	0.06	0.07	0.08	0.09	0.10
R.A. Damper						

NOTES:

1. Performance shown with dry coil & standard 2" [50.8 mm] filters.
2. Standard CFM @ .075 lbs./cu.ft.
3. Motor efficiency = 80%
4. BHP = Watts X Motor Efficiency/746.
5. Add component resistance to duct static to determine E.S.P. as shown on charts.

[] Designates Metric Conversions

INDOOR AIRFLOW PERFORMANCE FOR 4 TON SELF-CONTAINED AIR CONDITIONERS BELT DRIVE

AIRFLOW PERFORMANCE-4 TON [14.07 Kw] THREE PHASE BELT DRIVE

Air Flow CFM [L/s]		External Static Pressure - Inches of Water [kPa]																															
		0.1 [0.2]		0.2 [0.05]		0.3 [0.07]		0.4 [0.10]		0.5 [0.12]		0.6 [0.15]		0.7 [0.17]		0.8 [0.20]		0.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]			
		RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W				
1200 [566]	—	—	—	—	—	—	817	425	879	440	940	456	999	475	1057	496	1113	519	1168	545	1221	572	1272	602	1322	634	1371	669	1420	704			
1300 [614]	—	—	—	—	—	—	838	437	899	457	958	479	1015	503	1071	529	1126	558	1178	589	1230	622	1279	657	1327	695	1374	734	1421	773			
1400 [661]	—	—	—	—	—	806	418	861	457	919	482	976	510	1032	539	1086	571	1138	605	1189	641	1239	680	1286	720	1333	763	1377	808	1421	853		
1500 [708]	—	—	—	—	—	825	458	883	486	940	517	995	549	1048	584	1101	622	1151	661	1200	703	1248	746	1294	792	1338	841	1382	890	1426	939		
1600 [755]	—	—	—	—	—	798	449	849	490	905	523	960	559	1013	598	1065	638	1115	681	1164	725	1211	772	1257	821	1301	873	1343	926	1385	979	1427	1032
1700 [802]	—	—	—	—	—	817	493	873	530	928	569	981	611	1032	654	1082	700	1130	748	1177	798	1222	851	1266	905	1308	962	1349	1021	1390	1080	1139	
1800 [850]	791	490	844	537	898	579	950	624	1002	670	1051	719	1099	771	1146	824	1190	880	1234	937	1276	997	1316	1059	1355	1124	1394	1189	—	—	—		
1900 [897]	816	543	870	589	923	637	973	687	1023	739	1070	793	1116	850	1161	908	1204	969	1245	1033	1285	1098	1324	1166	1361	1235	1398	1304	—	—	—		
2000 [944]	845	599	897	650	947	703	996	758	1044	816	1089	875	1134	937	1176	1002	1217	1068	1257	1137	1295	1207	1332	1280	1367	1355	—	—	—	—	—		

NOTE: L-DRIVE LEFT OF BOLD LINE, M-DRIVE RIGHT OF BOLD LINE

Drive Package	L	M
Motor H.P. [W]	1/2 [373]	3/4 [559]
Blower Sheave	6.9" Pitch Diameter	6.4" Pitch Diameter
Motor Sheave	2.8" - 3.8" Pitch Diameter	3.4" - 4.4" Pitch Diameter
Turns Open	0 1 2 3 4 5	0 1 2 3 4 5
RPM	1029 984 950 915 855 816 1281 1207 1174 1141 1111 1071	N Drive (Field Supplied) 3/4 [559] 6.4" Pitch Diameter 4.0" - 5.0" Pitch Diameter RPM Range - 1080-1350

COMPONENT AIR RESISTANCE

Component	Standard Indoor Airflow -- CFM [L/s]					
	1000 [472]	1200 [566]	1400 [661]	1600 [755]	1800 [850]	2000 [944]
Wet Coil	0.035	0.040	0.060	0.070	0.085	0.100
Downflow	0.055	0.060	0.066	0.072	0.080	0.086
R.S.I. Economizer	0.05	0.06	0.07	0.08	0.09	0.10

NOTES:

1. Performance shown with dry coil & standard 2" [50.8 mm] filters.
2. Standard CFM @ .075 lbs./cu.ft.
3. Motor efficiency = 80%
4. BHP = Watts X Motor Efficiency/746.
5. Add component resistance to duct static to determine E.S.P as shown on charts

[] Designates Metric Conversions

INDOOR AIRFLOW PERFORMANCE FOR 5 TON SELF-CONTAINED AIR CONDITIONERS BELT DRIVE

AIRFLOW PERFORMANCE-5 TON [17.6 Kw] THREE PHASE BELT DRIVE

Air Flow CFM [L/s]		Capacity 5 Ton [17.6 kW] 14 SEER																	
		Voltage 208/230/460/575, 3-Phase																	
		External Static Pressure - Inches of Water [kPa]																	
		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]	1.1 [.27]	1.2 [.30]	1.3 [.32]	1.4 [.35]	1.5 [.37]			
RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W		
1400 [661]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1500 [708]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1600 [755]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1700 [802]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1800 [850]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1900 [897]	716	491	776	560	823	600	869	645	915	695	959	751	1003	812	1045	879	1086		
2000 [944]	745	562	797	615	843	658	889	707	933	762	976	821	1018	887	1059	958	1099		
2100 [991]	773	637	819	679	864	726	908	779	951	837	993	901	1034	970	1074	1045	1113		
2200 [1038]	797	706	842	751	886	803	929	860	971	922	1011	990	1051	1063	1090	1142	1128		
2300 [1085]	822	783	865	833	908	888	950	949	990	1015	1030	1087	1069	1164	1106	1247	1143		
2400 [1133]	847	870	889	924	931	983	971	1048	1011	1118	1049	1194	1087	1275	1123	1362	1159		
2500 [1179]	873	966	914	1023	954	1087	994	1155	1032	1229	1069	1309	1106	1394	1141	1485	1175		

NOTE: L-DRIVE LEFT OF BOLD LINE, M-DRIVE RIGHT OF BOLD LINE

Drive Package	L			M			N Drive (Field Supplied)					
Motor H.P. [W]	3/4 [559]			1 [746]			1 [746]					
Blower Sheave	6.9" Pitch Diameter			6.9" Pitch Diameter			6.4" Pitch Diameter					
Motor Sheave	2.8" - 3.8" Pitch Diameter			4.0" - 5.0" Pitch Diameter			4.0" - 5.0" Pitch Diameter					
Turns Open	0	1	2	3	4	5	0	1	2	3	4	5
RPM	967	936	900	855	816	769	1248	1203	1163	1123	1078	1042

COMPONENT AIR RESISTANCE

Component	Standard Indoor Airflow -- CFM [L/s]				Resistance -- Inches Water [kPa]			
	1600 [755]	1800 [850]	2000 [944]	2200 [1038]	2400 [1133]	2600 [1227]	2800 [1321]	3000 [1415]
Wet Coil	0.070	0.085	0.100	0.110	0.120	0.125	0.130	0.135
Downflow	0.072	0.080	0.086	0.093	0.100	0.107	0.114	0.121
R.S.I. Economizer	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15

NOTES:

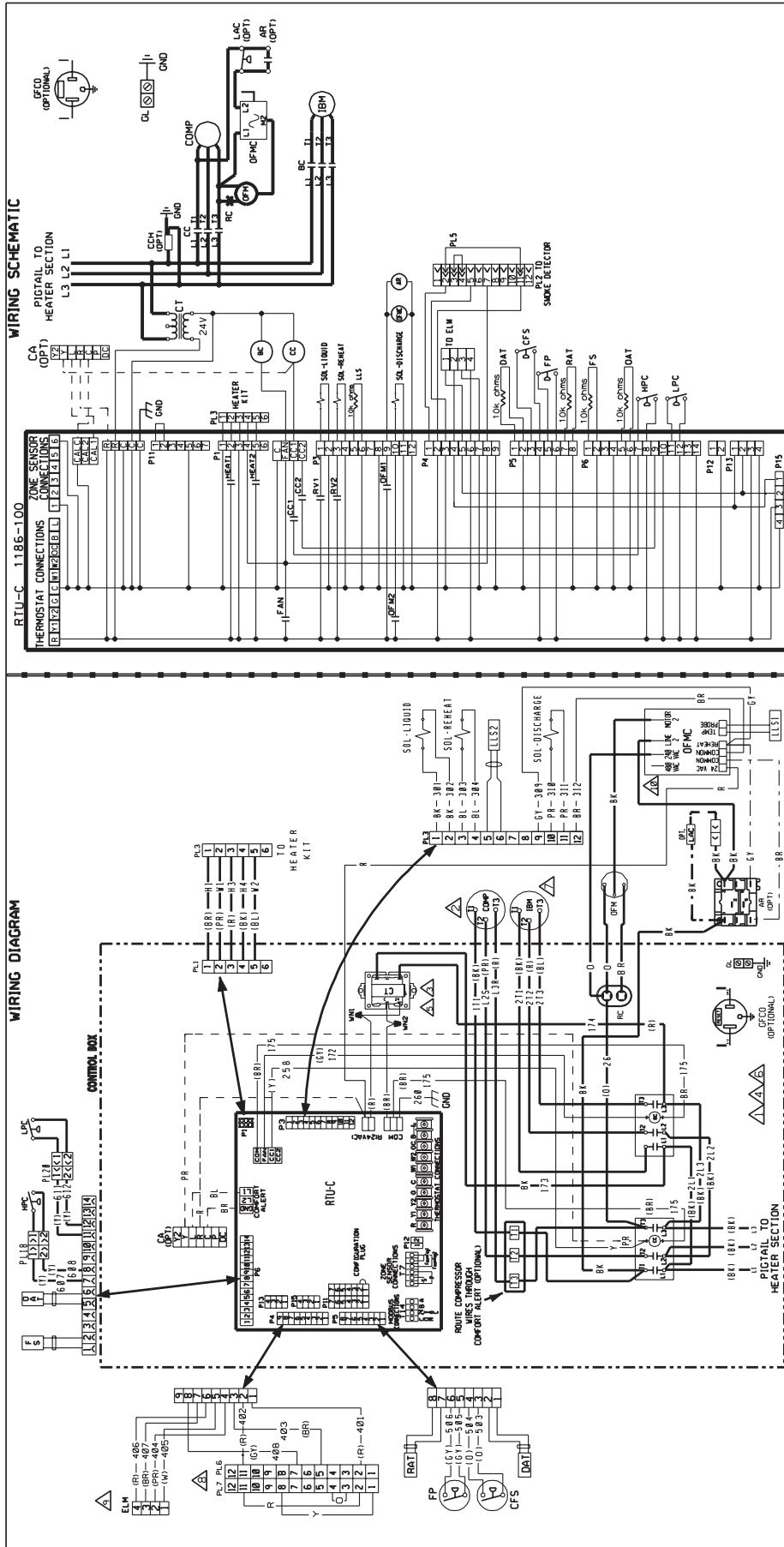
1. Performance shown with dry coil & standard 2" [50.8 mm] filters.
2. Standard CFM @ .075 lbs./cu.ft.
3. Motor efficiency = 80%
4. BHP = Watts X Motor Efficiency/746.
5. Add component resistance to duct static to determine E.S.P as shown on charts

[] Designates Metric Conversions

ELECTRIC HEAT RLPN-C

UNIT MODEL NUMBER RLPN-	RHEEM/RUUD								
	X	Y	Z	AA	BB	CC	DD	EE	FF
	HEATER KIT MODEL NO. RXJJ-	HEATER KW @ 208/240	HEATER KIT FLA	UNIT MIN. CKT. AMPACITY	MAX FUSE OR CKT. BKR. SIZE (CKT. BKR. MUST BE HACR TYPE FOR USA)	HEATER KIT MIN. CKT. AMPACITY	HEATER KIT MAX FUSE OR CKT. BKR. SIZE (CKT. BKR. MUST BE HACR TYPE FOR USA)	AIR COND. MIN. CKT. AMPACITY	AIR COND. MAX. FUSE OR CKT. BKR. SIZE (CKT. BKR. MUST BE HACR TYPE FOR USA)
C036CL	NONE	-	-	16/16	20/20	-	-	16/16	20/20
	A06C	4.2/5.6	11.7/13.5	19/21	20/25	15/17	15/20	16/16	20/20
	A10C	7.2/9.6	20/23.1	29/33	30/35	25/29	25/30	16/16	20/20
	A12C	8.4/11.2	23.4/27	33/38	35/40	30/34	30/35	16/16	20/20
	A15C	10.8/14.4	30.1/34.7	42/47	45/50	38/44	40/45	16/16	20/20
	A20C	14.4/19.2	40/46.3	54/62	60/70	50/58	50/60	16/16	20/20
C036CM	NONE	-	-	16/16	20/20	-	-	16/16	20/20
	A06C	4.2/5.6	11.7/13.5	19/21	20/25	15/17	15/20	16/16	20/20
	A10C	7.2/9.6	20/23.1	29/33	30/35	25/29	25/30	16/16	20/20
	A12C	8.4/11.2	23.4/27	33/38	35/40	30/34	30/35	16/16	20/20
	A15C	10.8/14.4	30.1/34.7	42/47	45/50	38/44	40/45	16/16	20/20
	A20C	14.4/19.2	40/46.3	54/62	60/70	50/58	50/60	16/16	20/20
C048CL	NONE	-	-	21/21	30/30	-	-	21/21	30/30
	A06C	4.2/5.6	11.7/13.5	21/21	30/30	15/17	15/20	21/21	30/30
	A10C	7.2/9.6	20/23.1	29/33	30/35	25/29	25/30	21/21	30/30
	A12C	8.4/11.2	23.4/27	33/38	35/40	30/34	30/35	21/21	30/30
	A15C	10.8/14.4	30.1/34.7	42/47	45/50	38/44	40/45	21/21	30/30
	A20C	14.4/19.2	40/46.3	54/62	60/70	50/58	50/60	21/21	30/30
C048CM	NONE	-	-	22/22	30/30	-	-	22/22	30/30
	A06C	4.2/5.6	11.7/13.5	22/22	30/30	15/17	15/20	22/22	30/30
	A10C	7.2/9.6	20/23.1	30/34	30/35	25/29	25/30	22/22	30/30
	A12C	8.4/11.2	23.4/27	34/39	35/40	30/34	30/35	22/22	30/30
	A15C	10.8/14.4	30.1/34.7	42/48	45/50	38/44	40/45	22/22	30/30
	A20C	14.4/19.2	40/46.3	55/63	60/70	50/58	50/60	22/22	30/30
C060CL	NONE	-	-	26/26	40/40	-	-	26/26	40/40
	A06C	4.2/5.6	11.7/13.5	26/26	40/40	15/17	15/20	26/26	40/40
	A10C	7.2/9.6	20/23.1	30/34	40/40	25/29	25/30	26/26	40/40
	A12C	8.4/11.2	23.4/27	34/39	40/40	30/34	30/35	26/26	40/40
	A15C	10.8/14.4	30.1/34.7	42/48	45/50	38/44	40/45	26/26	40/40
	A20C	14.4/19.2	40/46.3	55/63	60/70	50/58	50/60	26/26	40/40
C060CM	NONE	-	-	27/27	40/40	-	-	27/27	40/40
	A06C	4.2/5.6	11.7/13.5	27/27	40/40	15/17	15/20	27/27	40/40
	A10C	7.2/9.6	20/23.1	31/35	40/40	25/29	25/30	27/27	40/40
	A12C	8.4/11.2	23.4/27	35/39	40/40	30/34	30/35	27/27	40/40
	A15C	10.8/14.4	30.1/34.7	43/49	45/50	38/44	40/45	27/27	40/40
	A20C	14.4/19.2	40/46.3	56/63	60/70	50/58	50/60	27/27	40/40
C060CM	NONE	-	-	27/27	40/40	-	-	27/27	40/40
	A06C	4.2/5.6	11.7/13.5	27/27	40/40	15/17	15/20	27/27	40/40
	A10C	7.2/9.6	20/23.1	31/35	40/40	25/29	25/30	27/27	40/40
	A12C	8.4/11.2	23.4/27	35/39	40/40	30/34	30/35	27/27	40/40
	A15C	10.8/14.4	30.1/34.7	43/49	45/50	38/44	40/45	27/27	40/40
	A24C	18/24	50/57.7	68/78	70/80	63/73	70/80	27/27	40/40

FIGURE 19
WIRING DIAGRAM



WIRING SCHEMATIC

WIRING INFORMATION

LINE VOLTAGE
 -FACTORY STANDARD
 -FACTORY OPTION
 -FIELD INSTALLED
 LOW VOLTAGE
 -FACTORY STANDARD
 -FACTORY OPTION
 -FIELD INSTALLED
 REPLACEMENT WIRE
 -MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105 C.M.I.)
 WARNING
 -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., NATIONAL WIRING REGULATIONS, AND LOCAL CODES AS APPLICABLE.

COMPONENT CODE

IBM INDOOR BLOWER MOTOR BELT DRIVE
 LAC LOW AMBIENT COOLING CONTROL
 LLS LIQUID LINE SENSOR
 LPC LOW PRESSURE CONTROL
 DAT OUTSIDE AIR SENSOR
 OFM OUTDOOR FAN MOTOR
 OFMC OUTDOOR FAN MOTOR CONTROLLER
 PLUG FAN MOTOR
 P1 P1 AIR SENSOR
 P2 P2 AIR SENSOR
 P3 P3 AIR SENSOR
 P4 P4 AIR SENSOR
 P5 P5 AIR SENSOR
 P6 P6 AIR SENSOR
 P7 P7 AIR SENSOR
 P8 P8 AIR SENSOR
 P9 P9 AIR SENSOR
 P10 P10 AIR SENSOR
 P11 P11 AIR SENSOR
 P12 P12 AIR SENSOR
 P13 P13 AIR SENSOR
 P14 P14 AIR SENSOR
 P15 P15 AIR SENSOR
 P16 P16 AIR SENSOR
 RTU-C ROOFTOP UNIT CONTROL
 SOL SOLENOID VALVE
 WIRE NUT

NOTES:

- △ CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
- △ COMPRESSOR MOTOR THERMALLY PROTECTED. ALL 3 PHASE MODELS ARE PROTECTED UNDER PRIMARY SINGLE PHASE CONDITIONS.
- △ TRANSFORMER FACTORY WIRING FOR 240 VOLT OPERATION. REMOVE PLUG FROM 240 VOLT TAP TO 208 VOLT TAP.
- △ CONTRACTOR FACTORY WIRING. CONNECT FIELD WIRE TO FACTORY SUPPLIED PIGTAIL.
- △ LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER, 24V, 50/60 HZ SUPPLIED.
- △ CONNECT FIELD WIRING IN GROUNDED RAIN TIGHT CABINET TO FUSED DISCONNECT.
- △ MOTOR FACTORY WIRING FOR CORRECT VOLTAGE.
- △ REMOVE PL7 FOR SMOKE DETECTOR IN RETURN AIR SECTION.
- △ ECONOMIZER LOGIC MODULE (ELM) FOR 468 VOLT OPERATION, CONNECT TO 468 VOLT TAP.

WIRE COLOR CODE

BK BLACK
 BR BROWN
 BL BLUE
 G GREEN
 GY GRAY
 O ORANGE
 PR PURPLE
 R RED
 W WHITE
 Y YELLOW

ELECTRICAL WIRING DIAGRAM

208-230/460V 3 PH, 60 HZ.
 PACKAGED A/C W/RTU-C + REHEAT
 3 - 5 TON

DR. BY: KDF
 APP. BY: KDF
 DATE: 04-18-11
 DWG. NO.: 90-103089-20
 REV: 05

SYSTEM CHARGE CHART - REFRIGERANT 410A

OUTDOOR DRY BULB	3-TON	4-TON	5-TON
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Pressure Requirements - Gross Charge Check ONLY

Liquid Pressure / Vapor Pressure

115	467 / 152	487 / 153	493 / 147
105	409 / 148	426 / 152	427 / 145
95	356 / 147	370 / 149	370 / 143
85	310 / 145	320 / 147	316 / 140
75	268 / 143	273 / 145	270 / 138
65	235 / 140	238 / 140	233 / 136
55	205 / 134	210 / 134	200 / 132

Sub Cooling Requirements - Final Charge Verification

115	16	18	18
105	16	16	17
95	15	15	14
85	14	13	10
75	13	12	9
65	13	10	8
55	12	10	8

NOTICE:

- It is required to fine tune unit charge. Indoor ambient temperature must be between 72°F and 82°F dry bulb at the indoor coil.
- Measure liquid line temperature at four (4) inches prior to metering device.
- Confirm the indoor supply air flow is correct, reference rated CFM in the unit Specification Sheets
- Allow the system to run long enough for temperatures and pressures to stabilize.
- Sub-cooling tolerance is +/- 1.5°F
- If obtaining rated sub-cooling values causes liquid/vapor pressures that are significantly different (>20 psig) from those listed on the table, there may be a component or air flow issue. Refer to unit Installation trouble shooting section for further support.

92-104690-03-00

TROUBLESHOOTING CHART

▲ 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	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Run capacitor defective (single phase only) • Start relay defective (single phase on;y) • Loose connection • Compressor stuck, grounded or open motor winding, open internal overload. • Low voltage condition • Low voltage condition 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Improperly sized unit • Improper airflow • Incorrect refrigerant charge • Air, non-condensibles or moisture in system • Incorrect voltage 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Incorrect voltage • Defective overload protector • Refrigerant undercharge 	<ul style="list-style-type: none"> • At compressor terminals, voltage must be $\pm 10\%$ of nameplate marking when unit is operating. • Replace - check for correct voltage • Add refrigerant
Registers sweat	<ul style="list-style-type: none"> • Low evaporator airflow 	<ul style="list-style-type: none"> • Increase speed of blower or reduce restriction - replace air filter
High head-low vapor pressures	<ul style="list-style-type: none"> • Restriction in liquid line, expansion device or filter drier • Flow check piston size too small • Incorrect capillary tubes • TXV does not open 	<ul style="list-style-type: none"> • Remove or replace defective component • Change to correct size piston • Change coil assembly • Replace TXV
High head-high or normal vapor pressure - Cooling mode	<ul style="list-style-type: none"> • Dirty condenser coil • Refrigerant overcharge • Condenser fan not running • Air or non-condensibles in system 	<ul style="list-style-type: none"> • Clean coil • Correct system charge • Repair or replace • Recover refrigerant, evacuate & recharge
Low head-high vapor pressures	<ul style="list-style-type: none"> • Flow check piston size too large • Defective Compressor valves • Incorrect capillary tubes 	<ul style="list-style-type: none"> • Change to correct size piston • Replace compressor • Replace coil assembly
Low vapor - cool compressor - iced evaporator coil	<ul style="list-style-type: none"> • Low evaporator airflow • Operating below 65°F outdoors • Moisture in system • TXV limiting refrigerant flow 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Excessive load • Defective compressor 	<ul style="list-style-type: none"> • Recheck load calculation • Replace
Fluctuating head & vapor pressures	<ul style="list-style-type: none"> • TXV hunting • Air or non-condensate in system 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Air or non-condensibles in system 	<ul style="list-style-type: none"> • Recover refrigerant, evacuate & recharge