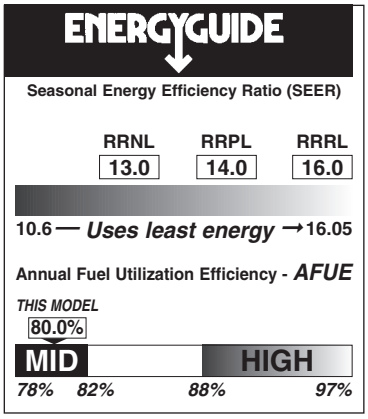
INSTALLATION INSTRUCTIONS

PACKAGE GAS ELECTRIC

FEATURING EARTH-FRIENDLY R-410A REFRIGERANT

RRNL-B/C 13 SEER (2-5 TONS)
RRPL-B 14 SEER (2-5 TONS)
RRRL-C UP TO 16 SEER (2-5 TONS)







member gama

c UL us LISTED

ENERGY STAR (14 SEER & ABOVE)



RECOGNIZE THIS SYMBOL AS AN INDICATION OF IMPORTANT SAFETY INFORMATION!

⚠WARNING

IF THE INFORMATION IN THESE INSTRUCTIONS IS NOT FOLLOWED EXACTLY, A FIRE OR EXPLOSION MAY RESULT, CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

⚠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: THIS FURNACE CONTAINS FIBERGLASS INSULATION. RESPIRABLE PARTICLES OF FIBERGLASS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER. EXHAUST GAS FROM THIS FURNACE CONTAINS CHEMICALS, INCLUDING CARBON MONOXIDE, KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

⚠WARNING

— Do not store or use gasoline or other flammable vapors and liquids, or other combustible materials in the vicinity of this or any other appliance.

— WHAT TO DO IF YOU SMELL GAS
- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.
- Do not return to your home until authorized by the gas supplier or fire department.

— DO NOT RELY ON SMELL ALONE TO DETECT LEAKS. DUE TO VARIOUS FACTORS, YOU MAY NOT BE ABLE TO SMELL FUEL GASES.
- U.L. recognized fuel gas and CO (carbon monoxide) detectors are recommended in all applications, and their installation should be in accordance with the manufacturer's recommendations and/or local laws, rules, regulations, or customs.

— Improper installation, adjustment, alteration, service or maintenance can cause injury, property damage or death. Refer to this manual. Installation and service must be performed by a qualified installer, service agency or the gas supplier. In the commonwealth of Massachusetts, installation must be performed by a licensed plumber or gas fitter for appropriate fuel.

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

92-21916-30-08
SUPERSEDES 92-21916-30-07

TABLE OF CONTENTS

I. Safety Information 3
II. Introduction 6
III. Checking Product Received 6
IV. Specifications 6
A. General 6
B. Major Components 6
C. R-410A Refrigerant 6
D. Comfort Alert System 7
1. Comfort Alert 7
2. High Pressure Control 8
3. Low Pressure Control 8
4. Comfort Alert With Active Protection 8
V. Unit Dimensions 11
VI. Installation 13
A. General 13
1. Pre-Installation Check 13
2. Location Considerations 13
B. Outside Installation 13
C. Attaching Exhaust and Combustion Air Inlet Hoods 14
D. Cover Panel Installation/Conversion Procedure 15
1. Horizontal to Downflow 15
2. Downflow to Horizontal 15
E. Clearances 15
F. Rooftop Installation 17
G. Ductwork 17
H. Return Air 19
I. Filters 20
VII. Gas Supply, Condensate Drain and Piping 22
A. Gas Connection 22
B. LP Conversion Single Stage Gas Heat 23
C. LP Conversion Two Stage Gas Heat 24
D. NOx Models 24
E. Adjusting or Checking Furnace Input 24
F. Condensate Drain 25
VIII. Wiring 25
A. Power Supply 25
B. Hook Up 27
C. Internal Wiring 27
D. Thermostat 27
IX. Furnace Section Controls and Ignition System 28
A. Normal Furnace Operating Sequence Single Stage Gas Heat 28
B. Normal Furnace Operating Sequence Two Stage Gas Heat 28
C. Operating Instructions 30
D. Burners 31
E. Manual Reset Overtemperature Control 31
D. Pressure Switch 31
G. Limit Control 31
X. System Operating Information 31
A. Advise the Customer 31
B. Furnace Section Maintenance 31
C. Lubrication 32
D. Cooling Section Maintenance 32
E. Replacement Parts 33
F. Charging 33
G. Blower Motor Speed Adjustments 33
XI. Units with ECM Blower Motors (RRRL-B Models Only) 36
A. ECM Motor Interface Control and Settings (RRRL Units Only) 36
B. Transformer Protection 37
C. Using the Onboard LED to Determine Blower CFM 37
D. Unit Operation with Two-Stage Cooling 38
E. Cooling Airflow Adjustments 38
F. Heating Airflow Adjustments 41
G. Cooling Delay Profiles 41
H. Cooling Mode Dehumidification 42
I. On Demand Dehumidification Airflow Adjustment 42
XII. General Data 44-66
XIII. Miscellaneous 67-71
XIV. Airflow Performance Data 72-76
XV. Wiring Diagrams 77-87
XVI. Charge Charts 88-103
XVII. Troubleshooting 104-105
XVIII. Comfort Alert Diagnostic Chart 106-107

I. SAFETY INFORMATION

⚠ WARNING

PROPOSITION 65: THIS FURNACE CONTAINS FIBERGLASS INSULATION. RESPIRABLE PARTICLES OF FIBERGLASS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER. EXHAUST GAS FROM THIS FURNACE CONTAINS CHEMICALS, INCLUDING CARBON MONOXIDE, KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

⚠ 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

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.

⚠ WARNING

DISCONNECT ALL POWER TO UNIT BEFORE STARTING MAINTENANCE. FAILURE TO DO SO CAN CAUSE ELECTRICAL SHOCK RESULTING IN PERSONAL INJURY OR DEATH.

⚠ WARNING

THESE UNITS ARE DESIGNED CERTIFIED FOR OUTDOOR INSTALLATION ONLY. INSTALLATION INSIDE ANY PART OF A STRUCTURE CAN RESULT IN INADEQUATE UNIT PERFORMANCE AS WELL AS PROPERTY DAMAGE. INSTALLATION INSIDE CAN ALSO CAUSE RECIRCULATION OF FLUE PRODUCTS INTO THE CONDITIONED SPACE RESULTING IN PERSONAL INJURY OR DEATH.

⚠ WARNING

THIS UNIT MUST NOT BE INSTALLED DIRECTLY ON WOOD FLOORING, CLASS A, CLASS B OR CLASS C ROOF COVERING MATERIALS, OR ANY OTHER COMBUSTIBLE STRUCTURE EXCEPT AS SPECIFIED IN FIGURE 16. FAILURE TO ADHERE TO THIS WARNING CAN CAUSE A FIRE OR EXPLOSION RESULTING IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

⚠ WARNING

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

⚠ WARNING

NEVER ALLOW PRODUCTS OF COMBUSTION OR THE FLUE PRODUCTS TO ENTER THE RETURN AIR DUCTWORK, OR THE CIRCULATING AIR SUPPLY. ALL RETURN DUCTWORK MUST BE ADEQUATELY SEALED AND SECURED TO THE FURNACE WITH SHEET METAL SCREWS, AND JOINTS TAPED. ALL OTHER DUCT JOINTS MUST BE SECURED WITH APPROVED CONNECTIONS AND SEALED AIRTIGHT.

FAILURE TO PREVENT PRODUCTS OF COMBUSTION FROM BEING CIRCULATED INTO THE LIVING SPACE CAN CREATE POTENTIALLY HAZARDOUS CONDITIONS, INCLUDING CAROBON MONOXIDE POISONING THAT COULD RESULT IN PERSONAL INJURY OR DEATH.

⚠ WARNING

DO NOT USE AN OPEN FLAME TO CHECK FOR LEAKS. THE USE OF AN OPEN FLAME CAN RESULT IN FIRE, EXPLOSION, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

⚠ WARNING

THIS UNIT IS EQUIPPED AT THE FACTORY FOR USE ON NATURAL GAS ONLY. CONVERSION TO LP GAS REQUIRES A SPECIAL KIT SUPPLIED BY THE DISTRIBUTOR OR MANUFACTURER. MAILING ADDRESSES ARE LISTED ON THE FURNACE RATING PLATE, PARTS LIST AND WARRANTY. FAILURE TO USE THE PROPER CONVERSION KIT CAN CAUSE FIRE, CARBON MONOXIDE POISONING, EXPLOSION, PERSONAL INJURY, PROPERTY DAMAGE OR DEATH.

⚠ 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.

⚠ WARNING

DO NOT ATTEMPT TO MANUALLY LIGHT THIS FURNACE WITH A MATCH OR ANY OPEN FLAME. ATTEMPTING TO DO SO CAN CAUSE AN EXPLOSION OR FIRE RESULTING IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

⚠ WARNING

IF YOU DO NOT FOLLOW THESE INSTRUCTIONS EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.

⚠ WARNING

THE SPARK IGNITOR AND IGNITION LEAD FROM THE IGNITION CONTROL ARE HIGH VOLTAGE. KEEP HANDS OR TOOLS AWAY TO PREVENT ELECTRICAL SHOCK. SHUT OFF ELECTRICAL POWER BEFORE SERVICING ANY OF THE CONTROLS. FAILURE TO ADHERE TO THIS WARNING CAN RESULT IN PERSONAL INJURY OR DEATH.

⚠ WARNING

SHOULD OVERHEATING OCCUR OR THE GAS SUPPLY FAIL TO SHUT OFF, SHUT OFF THE MANUAL GAS VALVE TO THE APPLIANCE BEFORE SHUTTING OFF THE ELECTRICAL SUPPLY. FAILURE TO DO SO CAN RESULT IN AN EXPLOSION OR FIRE CAUSING PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH!

⚠ WARNING

DO NOT JUMPER THIS DEVICE! DO NOT reset the overtemperature control without taking corrective action to assure that an adequate supply of combustion air is maintained under all conditions of operation. Failure to do so can result in carbon monoxide poisoning or death. Replace this control only with the identical replacement part.

⚠ WARNING

LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION RESULTING IN FIRE, ELECTRICAL SHOCK, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

⚠ WARNING

HOLES IN THE EXHAUST TRANSITION OR HEAT EXCHANGER CAN CAUSE TOXIC FUMES TO ENTER THE HOME. THE EXHAUST TRANSITION OR HEAT EXCHANGER MUST BE REPLACED IF THEY HAVE HOLES OR CRACKS IN THEM. FAILURE TO DO SO CAN CAUSE CARBON MONOXIDE POISONING RESULTING IN PERSONAL NJURY OR DEATH.

⚠ WARNING

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

⚠ WARNING

LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING THE UNIT. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION RESULTING IN FIRE, ELECTRICAL SHOCK, PROPERTY DAMAGE, SEVERE PERSONAL 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.

⚠ 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.

⚠ 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.

⚠ 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.

II. 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.

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

IV. SPECIFICATIONS

A. GENERAL

The Combination Gas Heating/Electric Cooling Rooftop is available in 40,60, 80 and 100 BTU/Hr. heating inputs and cooling capacities of 2, 2½, 3, 3½, 4 and 5 nominal tons of cooling. 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-410A refrigerant and performance tested. Refrigerant amount is indicated on rating plate.

C. R410A 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.
- 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.

D. COMFORT ALERT™ SYSTEM (2-STAGE MODELS ONLY)

1. Comfort Alert™

The Comfort Alert™ diagnostics module is for troubleshooting air conditioning system failures. By monitoring and analyzing data from the compressor and the thermostat demand, the module can accurately detect the cause of electrical and system-related failures without any external sensors. A flashing LED indicator communicates the ALERT code and guides the service technician more quickly and accurately to the root cause of a problem.

FIGURE 1
LED DESCRIPTION



POWER LED (Green): indicates voltage is present at the power connection of the module.

ALERT LED (Yellow): communicates an abnormal system condition through a unique flash code. The ALERT LED will flash a number of times consecutively, pause and then repeat the process. The number of consecutive flashes, defined as the Flash Code, correlates to a particular abnormal condition. Detailed descriptions of specific ALERT Flash Codes are shown in the Comfort Alert Diagnosis Chart in this manual.

TRIP LED (Red): indicates there is a demand signal from the thermostat but no current to the compressor is detected by the module. The TRIP LED typically indicates the compressor internal overload protector is open or may indicate missing high voltage supply power to the compressor.

When an abnormal system condition occurs, the Comfort Alert module displays the appropriate ALERT and/or TRIP LED. The yellow ALERT LED will flash a number

of times consecutively, pause and then repeat the process. To identify a Flash Code number, count the number of consecutive flashes.

IMPORTANT: Every time the module powers up, the last ALERT Flash Code that occurred prior to shut down is displayed for one minute. The module will continue to display the flash code until the condition returns to normal or if 24VAC power is removed from the module.

The control box cover allows access to the Comfort Alert™ status LEDs. An abbreviated Comfort Alert™ diagnostic chart is provided on the control box cover.

2. High Pressure Control (HPC)

The high pressure control (HPC) keeps the compressor from operating in pressure ranges, which can cause damage to the compressor. This is an auto-reset control that opens near 610 PSIG and closes once the system pressure drops below 420 PSIG.

The high pressure control is wired in the 24VAC side of the control circuitry.

3. Low Pressure Control (LPC)

The low pressure control (LPC) keeps the compressor from operating in pressure ranges that can cause damage to the compressor. This is an auto-reset control that opens near 90 PSIG and closes once the system pressure rises above 135 PSIG.

The low pressure control is wired in the common side of the control circuitry.

4. Comfort Alert With Active Protection

A two-stage cooling thermostat is required for proper unit operation.

Manufacturer recommends the use of thermostats that provide active compressor protection via the L terminal when the Comfort-Alert module on the unit is connected to the L terminal on the thermostat.

FIGURE 2
WHITE-RODGERS 90-SERIES THERMOSTAT



FIGURE 3



The Comfort Alert diagnostics module diagnoses system and electrical problems in the air conditioning system. Abnormal conditions are indicated by flashing ALERT codes on the yellow LED on the Comfort Alert module. The flash codes are transmitted to the thermostat when the ***L*** terminal on the Comfort Alert Module is connected to the ***L*** terminal on the thermostat. The White-Rodgers 1F95-CA397 thermostat displays a CHECK SYSTEM icon that flashes at the same rate as the yellow ALERT LED on the Comfort Alert module. Turn this feature ON to achieve protection, enabling the thermostat to identify certain fault codes when compressor damage is possible and react to those codes by turning the compressor off.

NOTE: The Comfort Alert™ module does not provide safety protection! It does not disconnect power from the unit.

Comfort Alert™ Flash Codes
1 – Long Run Time
2 – System Pressure Trip
3 – Short Cycling
4 – Locked Rotor
5 – Open Circuit
6 – Open Start Circuit
7 – Open Run Circuit
8 – Welded Contactor
9 – Low Voltage

See Figures 61 and 62 (Comfort Alert Diagnostic Charts) for more troubleshooting information.

Active protection occurs under the following conditions:

1) Flash Code 2 - *System Pressure Trip*
   Condition: Four consecutive compressor protector trips occur where the average run time until trip is between 1 minute and 15 minutes
   Possible causes:
   Low suction pressure
   - Low pressure switch is open
   - Low system charge

   Blocked condenser coil
   Restricted condenser air flow

   Active Thermostat Reaction:
   The thermostat will cycle the system ON for 5 minutes and OFF for five minutes to verify system fault. If this ON/OFF cycling repeats for 30 ten-minute cycles, the thermostat concludes there is a system problem and implements a hard lockout.

2) Flash Code 3 - *Short Cycling*
   Condition: A pattern of short cycling emerges where the run time for the previous four cycles is less than three minutes each.
   Possible causes:
   High head pressure
   - High pressure switch is open
   - System overcharged
   - Non-condensables in system

   Faulty thermostat
   Intermittent contactor

   Active Thermostat Reaction:
   The thermostat will cycle the system ON for 5 minutes and OFF for five minutes to verify the system fault. If this ON/OFF cycling repeats for 30 ten-minute cycles, the thermostat concludes there is a system problem and implements a hard lockout.

3) Flash Code 4 - *Locked Rotor*

Condition: The compressor internal overload trips where the average run time is less than 15 seconds.

Possible causes:

- Bad run capacitor
- Low line voltage
- Excessive liquid refrigerant in compressor
- Compressor bearings are seized
- Faulty hard start components

Active Thermostat Reaction:

The thermostat implements a hard lockout once this error is sensed.

4) Flash Code 6 - *Open Start Circuit*

Condition: Current is detected in the run circuit but not in the start circuit.

Possible causes:

- Bad run capacitor
- Open circuit in compressor start wiring or connections.
- Compressor start winding is damaged

Active thermostat reaction:

The thermostat implements a hard lockout after 3 hours.

5) Flash Code 7 - *Open Run Circuit*

Condition: Open circuit in compressor run wiring or connections. Compressor run winding is damaged.

Active Thermostat Reaction:

The thermostat implements a hard lockout after 3 hours.

Resetting the White-Rodgers Thermostat After a Hard Lockout

The White-Rodgers thermostat will automatically reset after a hard lockout once the Comfort Alert trouble code has been cleared.

V. UNIT DIMENSIONS
FOR CLEARANCES SEE FIGURE 4.

FIGURE 4

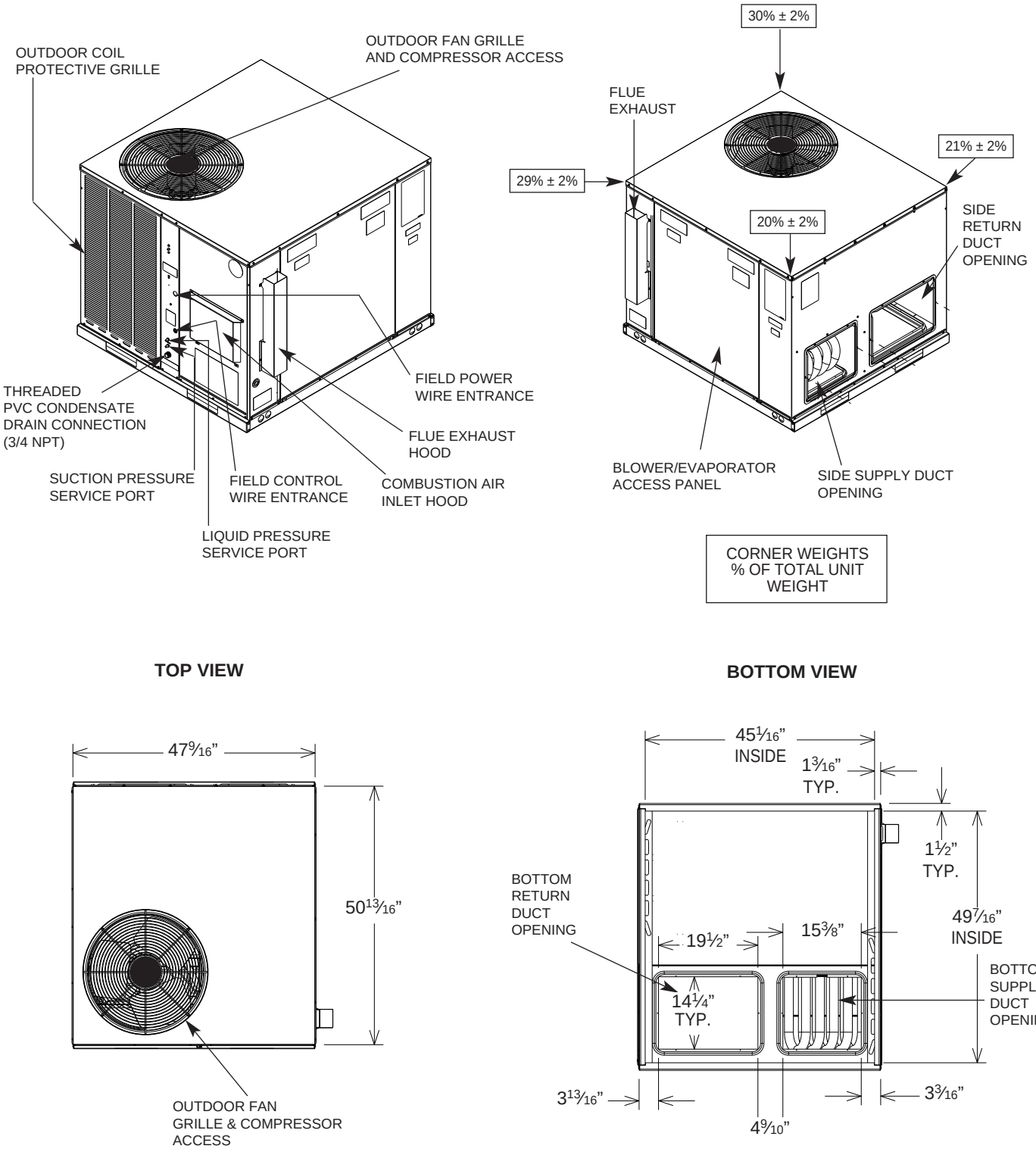
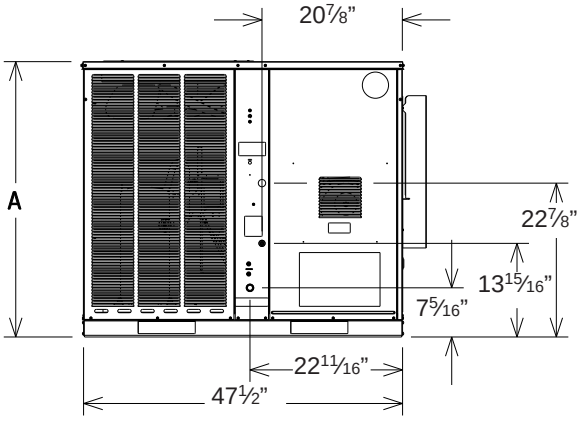
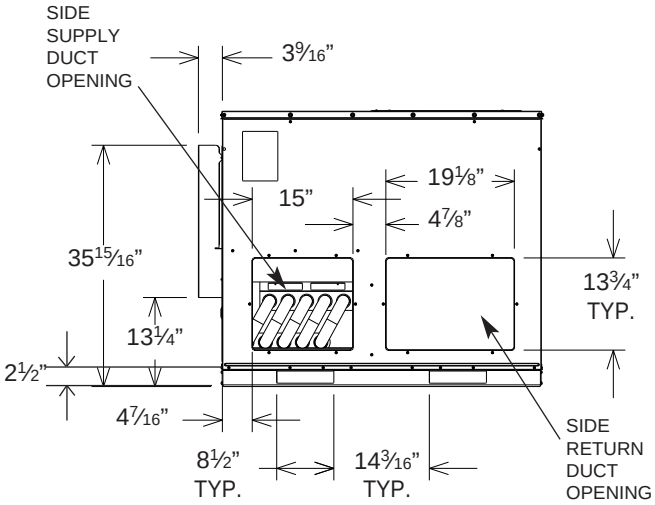


FIGURE 4 (CONTINUED)

FRONT VIEW



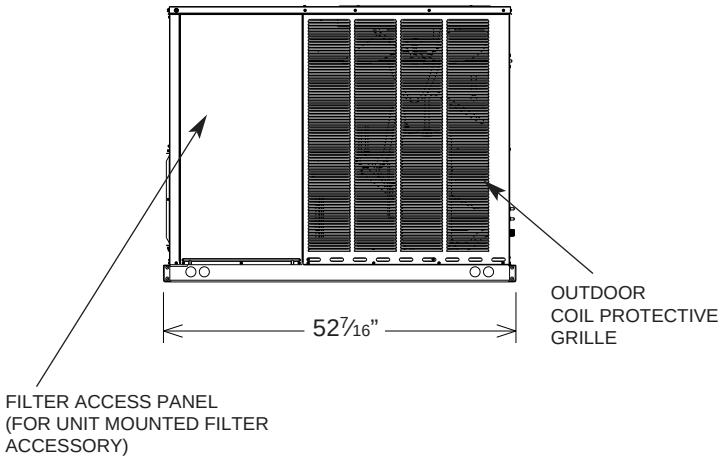
BACK VIEW



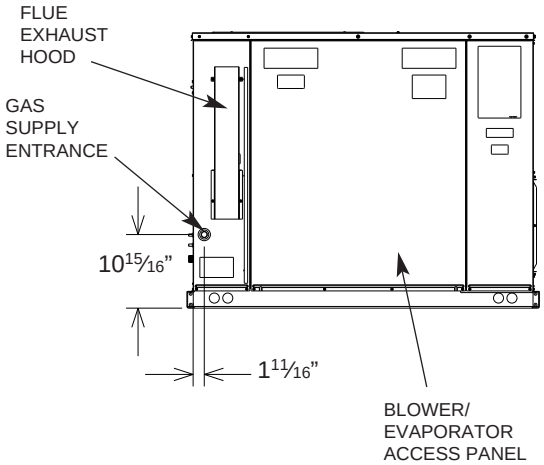
SHOWN WITH DUCT COVERS REMOVED.

MODELS RRNL & RRPL	MODEL RRRL	“A” HEIGHT
B024, B030, B036	B024	35¹⁵⁄₁₆”
B042, B048, B060, C060	B036, B048, B060	41

SIDE VIEW



SIDE VIEW



VI. INSTALLATION

A. GENERAL

1. PRE-INSTALLATION CHECK-POINTS — Before attempting any installation, carefully consider the following points:

   Structural strength of supporting members
   (Rooftop Installation)
   Clearances and provision for servicing
   Power supply and wiring
   Gas supply and piping
   Air duct connections and sizing
   Drain facilities and connections
   Location for minimum noise and vibration

2. LOCATION CONSIDERATIONS (CORROSIVE ENVIRONMENT)

   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, give special attention to the equipment location and exposure.

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

⚠ WARNING

DISCONNECT ALL POWER TO UNIT BEFORE STARTING MAINTENANCE. FAILURE TO DO SO CAN CAUSE ELECTRICAL SHOCK RESULTING IN PERSONAL INJURY OR DEATH.

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. Use a good liquid cleaner 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.

B. OUTSIDE INSTALLATION

⚠ WARNING

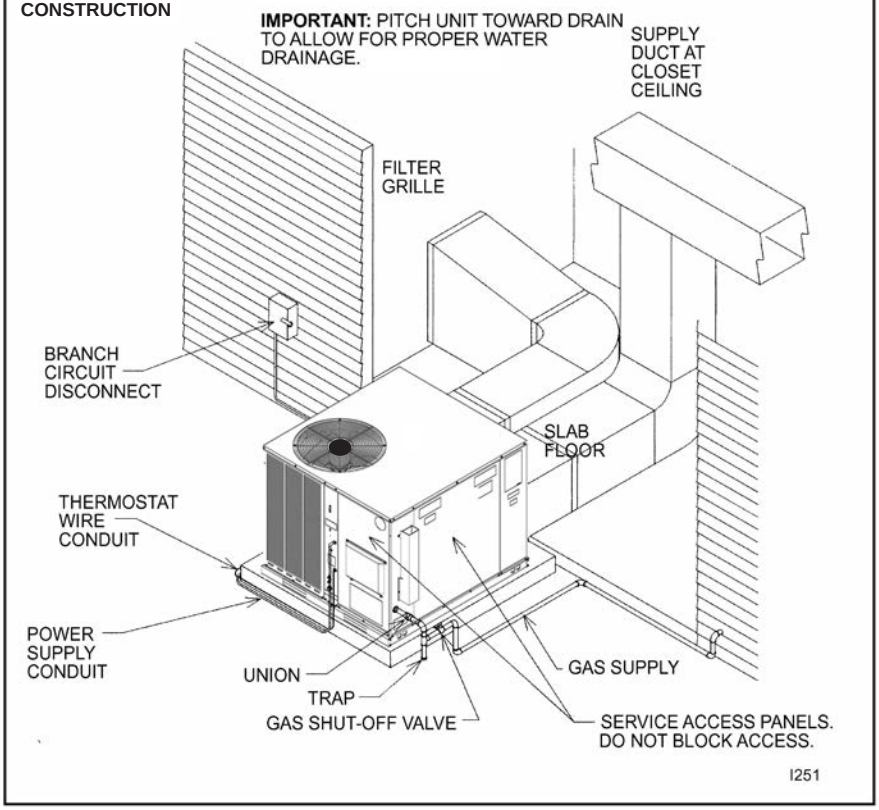
THESE UNITS ARE DESIGNED CERTIFIED FOR OUTDOOR INSTALLATION ONLY. INSTALLATION INSIDE ANY PART OF A STRUCTURE CAN RESULT IN INADEQUATE UNIT PERFORMANCE AS WELL AS PROPERTY DAMAGE. INSTALLATION INSIDE CAN ALSO CAUSE RECIRCULATION OF FLUE PRODUCTS INTO THE CONDITIONED SPACE RESULTING IN PERSONAL INJURY OR DEATH.

(Typical outdoor slab installation is shown in Figure 5.)

1. Select a location where external water drainage cannot collect around unit.

FIGURE 5

OUTSIDE SLAB INSTALLATION. CLOSET DISTRIBUTION SYSTEM. SLAB FLOOR CONSTRUCTION



2. Provide a slab sufficiently high enough above grade to prevent surface water from entering the unit. Where snowfall is anticipated, mount the unit above the anticipated maximum snow depth for your area. Do not locate unit in an area where excessive snow drifting may block combustion air inlet.
3. Pitch the slab approximately ½" so that the unit will be pitched toward the drain. See Figure 6.
4. The location of the unit should be such as to provide proper access for inspection and servicing as shown in Figure 12.
5. Locate unit where operating sounds will not disturb owner or neighbors. The slab should be isolated from the foundation wall.
6. Locate unit so roof runoff water does not pour directly on the unit. Provide gutter or other shielding at roof level.

C. ATTACHING EXHAUST AND COMBUSTION AIR INLET HOODS

IMPORTANT: Do not operate this unit without the exhaust and combustion air inlet hood properly installed. These hoods are shipped in a carton in the return air compartment inside the unit and must be attached when the unit is installed. See Figure 7.

To attach exhaust and combustion air inlet hood:

1. Remove 3 screws securing filter access panel and remove filter access panel. For location of filter access panel, see Figure 4.
2. Remove both exhaust and combustion air inlet hoods from their carton, located inside the return air compartment.
3. Attach filter access panel.
4. Attach the combustion air inlet hood and the exhaust hood each with 4 screws as shown in Figure 7. Screws are in parts bag shipped in the burner compartment.
5. Vent the unit using the flue exhaust hood, as supplied from the factory, without alteration or addition. The only exception is with factory approved additions. Consult your local utility or other authority having jurisdiction for accepted venting techniques.

FIGURE 6
PITCHING UNIT TO INSURE PROPER CONDENSATE DRAINAGE.

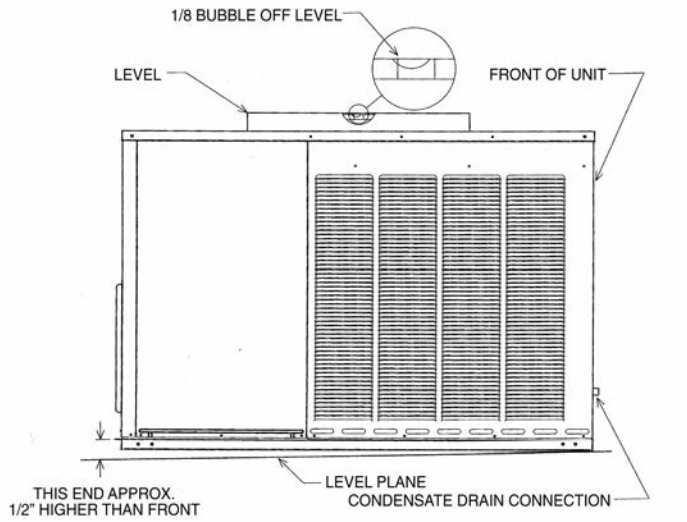
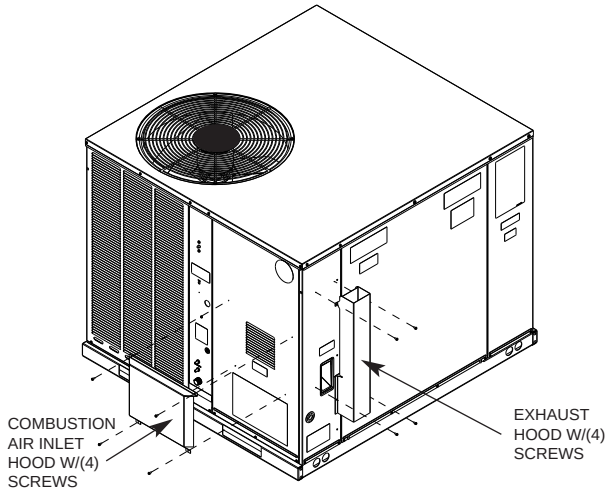


FIGURE 7
COMBUSTION AIR INLET HOOD & EXHAUST HOOD INSTALLATION



D. COVER PANEL INSTALLATION/CONVERSION PROCEDURE

1. HORIZONTAL TO DOWNFLOW
   a. Remove screws and covers from the supply and return bottom sections. NOTE: Rotate the supply cover 90° and remove.
   b. Install gasket (supplied with parts bag) around perimeter of cover on the insulated side. See Figure 9.
   c. Secure covers to the side of the unit using existing screws and those supplied in the parts bag.
2. DOWNFLOW TO HORIZONTAL
   a. Remove screws and covers from the supply and return bottom sections.
   b. Install gasket (supplied with parts bag) around perimeter of cover as illustrated in Figure 8.
   c. Install covers in the unit bottom with the insulated side up. NOTE: Supply cover must be inserted through supply opening with narrow side toward unit. Once cover is through opening, rotate 90° and slip back flange of cover under tab at the back of bottom duct opening. See Figure 11.
   d. Secure supply cover to base of unit with 2 screws, engaging prepunched holes in raised duct opening flange.
   e. Secure return covers to base of unit with screws engaging prepunched holes in raised duct opening flange.

⚠ WARNING

THIS UNIT MUST NOT BE INSTALLED DIRECTLY ON WOOD FLOORING, CLASS A, CLASS B OR CLASS C ROOF COVERING MATERIALS, OR ANY OTHER COMBUSTIBLE STRUCTURE EXCEPT AS SPECIFIED IN FIGURE 16. FAILURE TO ADHERE TO THIS WARNING CAN CAUSE A FIRE OR EXPLOSION RESULTING IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

E. CLEARANCES

The following minimum clearances must be observed for proper unit performance and serviceability. See Figure 12.

1. Provide 48” minimum clearance at front of the unit. Provide 24” minimum clearance on right side of unit. If economizer is used, a 24” minimum clearance is required on

FIGURE 8
COVER GASKET DETAIL FOR UNITS SHIPPED FOR DOWNFLOW APPLICATION BEING CONVERTED TO SIDE DISCHARGE

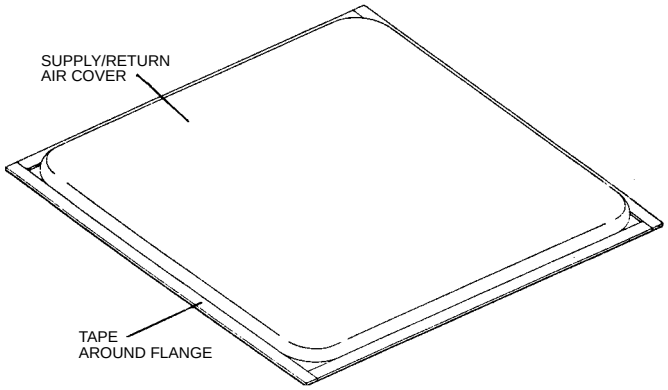
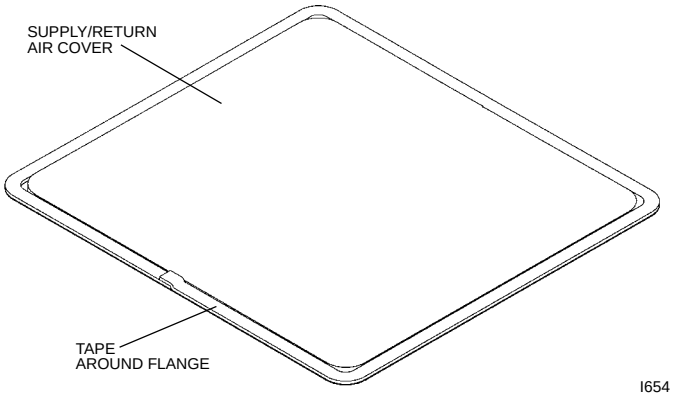
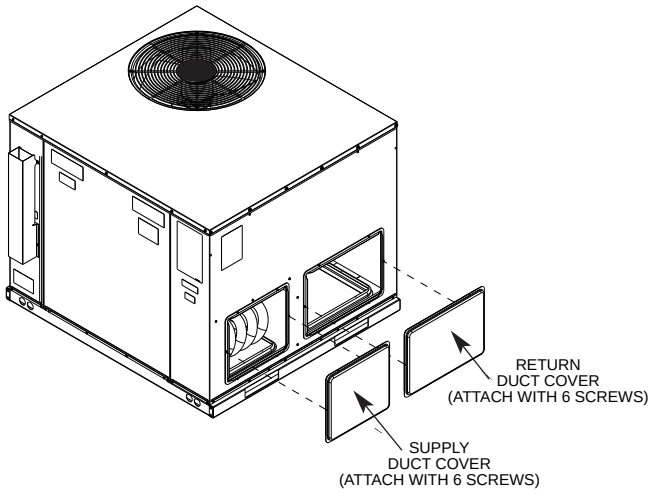


FIGURE 9
COVER GASKET DETAIL FOR UNITS SHIPPED FOR SIDE DISCHARGE APPLICATION BEING CONVERTED TO DOWNFLOW



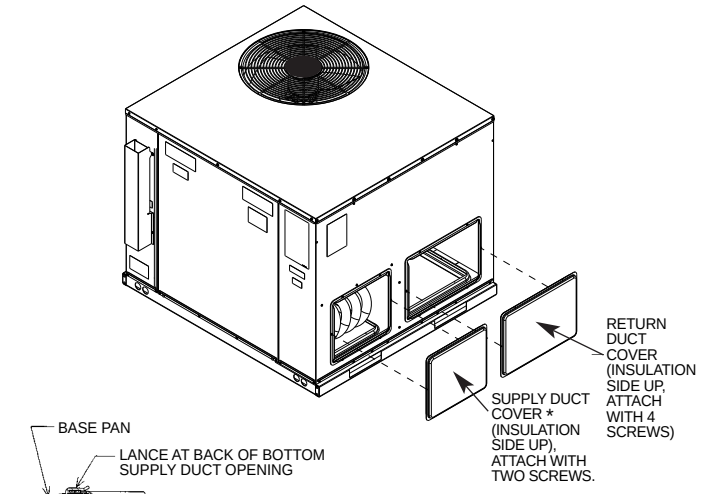
I654

FIGURE 10
DUCT COVER INSTALLATION SIDE MOUNTING



I264

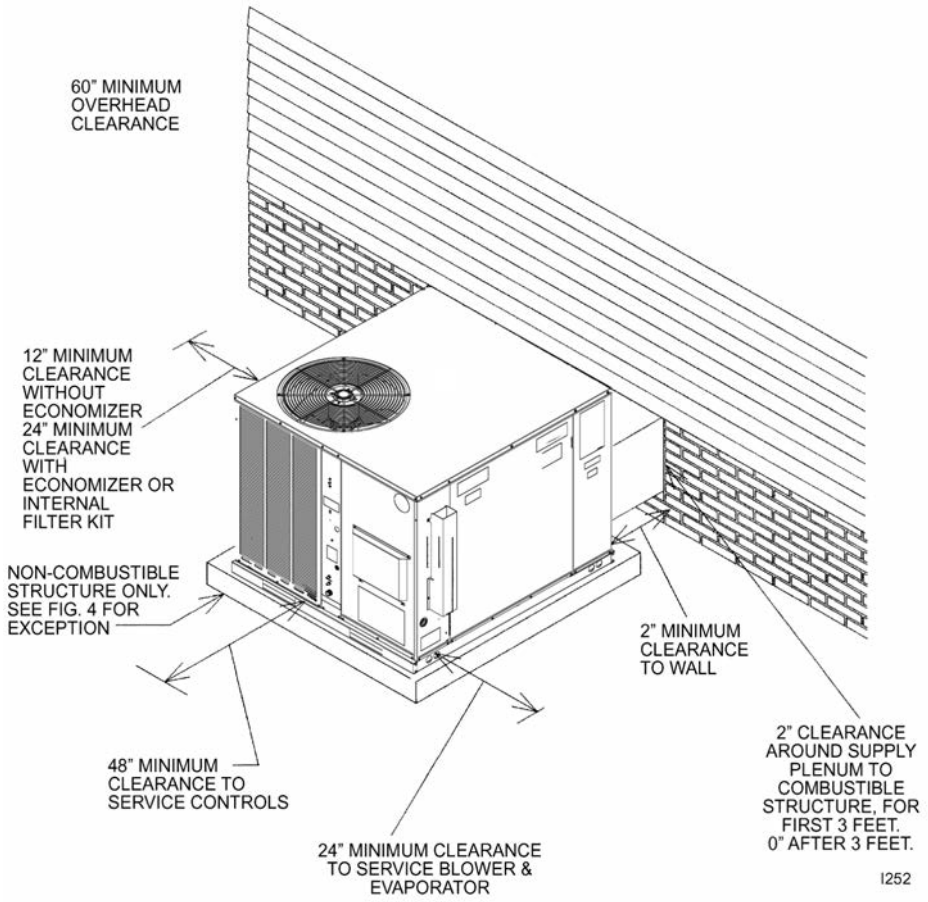
FIGURE 11
DUCT COVER INSTALLATION BASE PAN MOUNTING



*ROTATE SUPPLY COVER 90° AFTER IT IS INSERTED THROUGH OPENING. SLIP FLANGE OF COVER UNDER LANCE AT BACK OF BOTTOM SUPPLY DUCT OPENING. SEE DETAIL AT LEFT. THEN SECURE COVER BY INSTALLING 2 SCREWS USING HOLE NEAREST THE OUTSIDE OF UNIT.

I265

FIGURE 12
CLEARANCES



left side of unit. (See Figure 12.) If no economizer is required, then a 12" clearance is required on left side of unit.

2. Provide 60" minimum clearance between top of unit and maximum 3 foot overhang.
3. Unit is design certified for 2" minimum clearance between supply duct and a combustible structure for the first 3 feet of duct. 0" clearance is allowed after 3 feet.

F. ROOFTOP INSTALLATION

1. Before locating the unit on the roof, make sure that the roof structure is adequate to support the weight involved. (See electrical & physical tables in this book for weight of unit.) **THIS IS VERY IMPORTANT AND THE INSTALLER'S RESPONSIBILITY.**
2. For rigging and roofcurb details, see Figures 17, 18, and 19.
3. The location of the unit on the roof should be such as to provide proper access for inspection and servicing.

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

G. DUCTWORK

The installing contractor should fabricate ductwork in accordance with local codes. Use industry manuals 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.

⚠ WARNING

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

FIGURE 13

EXCEPTION TO NON-COMBUSTIBLE FLOORING REQUIREMENT

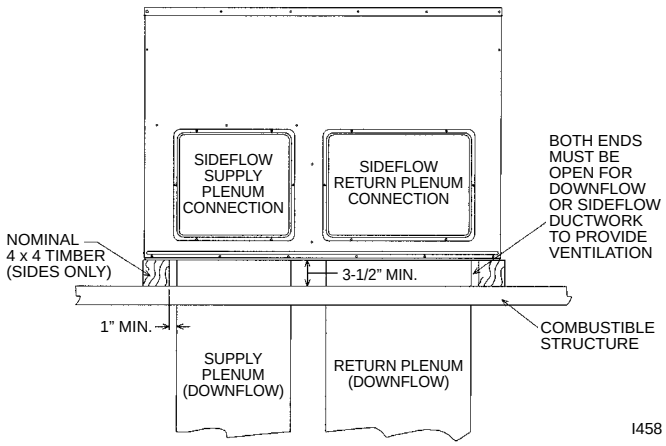


FIGURE 14

FLAT ROOFTOP INSTALLATION, ATTIC OR DROP CEILING DISTRIBUTING SYSTEM. MOUNTED ON ROOFCURB, PITCH UNIT TOWARD DRAIN.

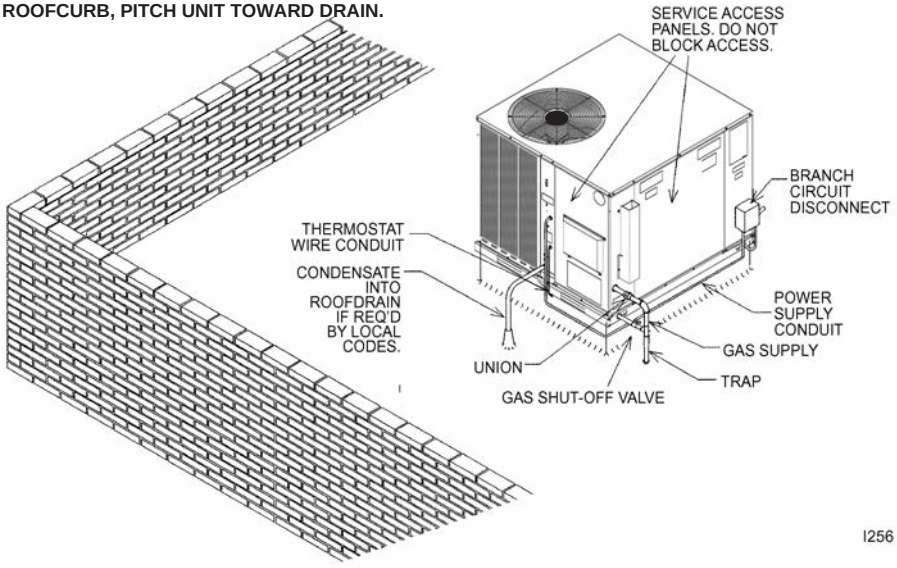


FIGURE 15

PITCHED ROOFTOP INSTALLATION, ON ANGLE-IRON STAND, SIDE FLOW DUCTWORK, ATTIC OR DROP CEILING DISTRIBUTING SYSTEM. PITCH UNIT TOWARD DRAIN.

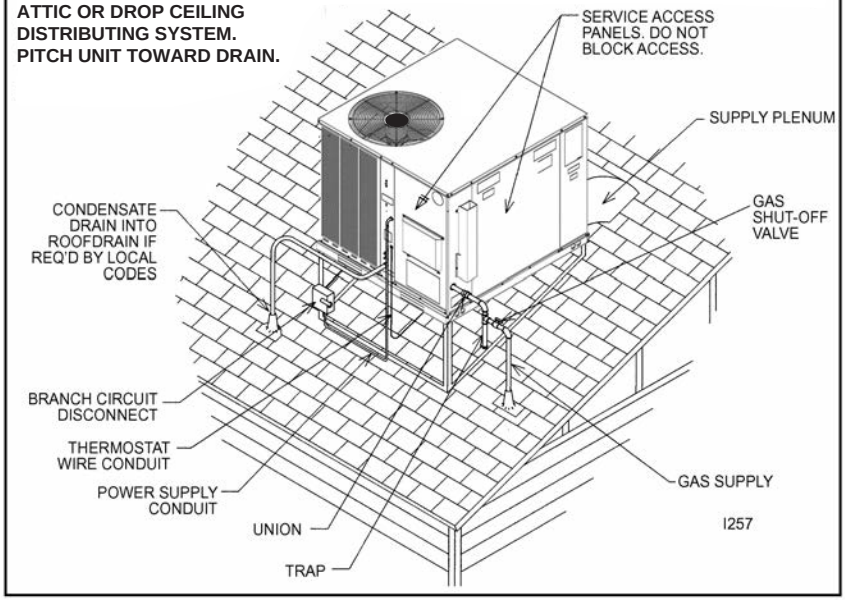
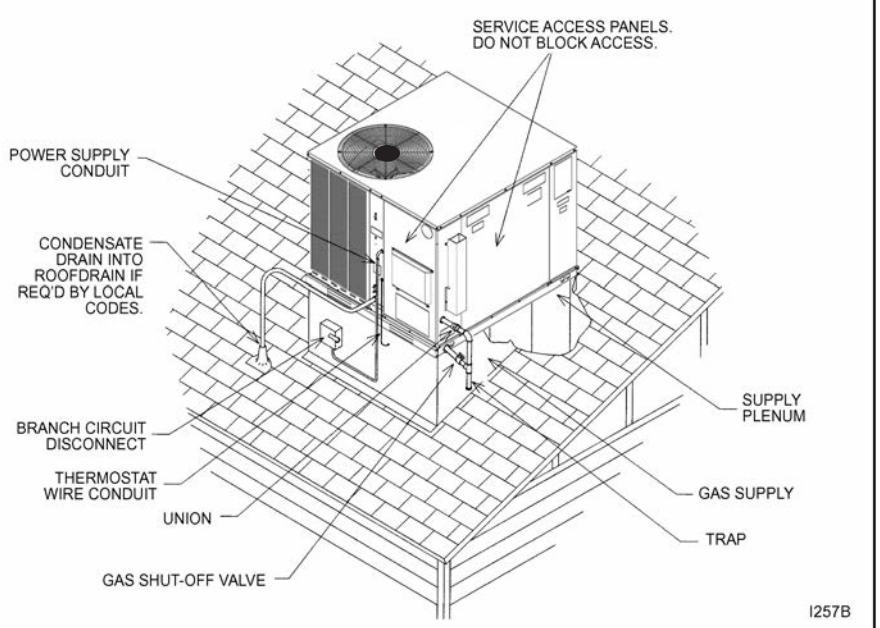


FIGURE 16

PITCHED ROOFTOP INSTALLATION, ON ROOFJACK, DOWNFLOW DUCTWORK, ATTIC OR DROP CEILING DISTRIBUTING SYSTEM. PITCH UNIT TOWARD DRAIN.



Place the unit as close to the conditioned space as possible allowing clearances as indicated. Run ducts as directly as possible to supply and return outlets. Use of non-flammable weatherproof flexible connectors on both supply and return connections at unit to reduce noise transmission is recommended.

On ductwork exposed to outside 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. ½" to 1" thick 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.

IMPORTANT: In the event that the return air ducts must be run through an "unconfined" space containing other fuel burning equipment, it is imperative that the user/homeowner must be informed against future changes in construction which might change this to a "confined space." Also, caution the user/homeowner against any future installation of additional equipment (such as power ventilators, clothes dryers, etc., within the existing unconfined and/or confined space which might create a negative pressure within the vicinity of other solid, liquid, or gas fueled appliances.

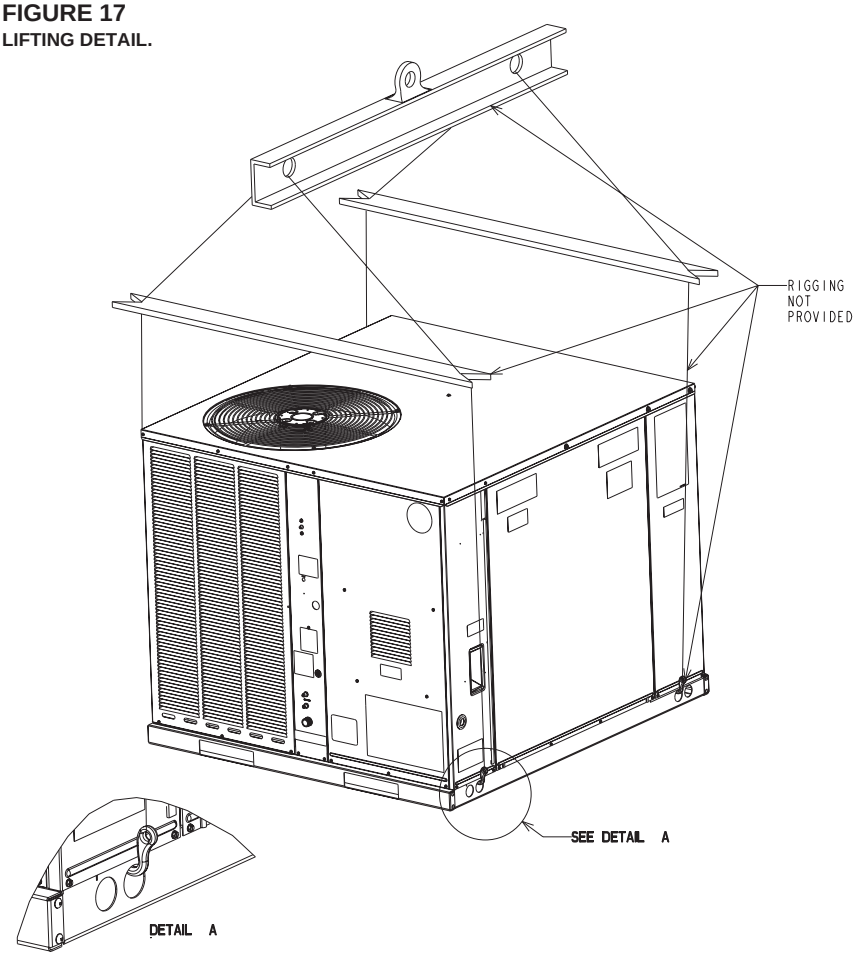
H. RETURN AIR

⚠ WARNING

NEVER ALLOW PRODUCTS OF COMBUSTION OR THE FLUE PRODUCTS TO ENTER THE RETURN AIR DUCTWORK, OR THE CIRCULATING AIR SUPPLY. ALL RETURN DUCTWORK MUST BE ADEQUATELY SEALED AND SECURED TO THE FURNACE WITH SHEET METAL SCREWS, AND JOINTS TAPED. ALL OTHER DUCT JOINTS MUST BE SECURED WITH APPROVED CONNECTIONS AND SEALED AIRTIGHT.

FAILURE TO PREVENT PRODUCTS OF COMBUSTION FROM BEING CIRCULATED INTO THE LIVING SPACE CAN CREATE POTENTIALLY HAZARDOUS CONDITIONS, INCLUDING CAROBON MONOXIDE POISONING THAT COULD RESULT IN PERSONAL INJURY OR DEATH.

FIGURE 17
LIFTING DETAIL.



I. FILTERS

The installer must install field supplied filters in the return air duct. 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 air delivery tables for recommended filter size. A field installed internal filter kit RXRY-B01 is available.

FIGURE 18
ROOFCURB

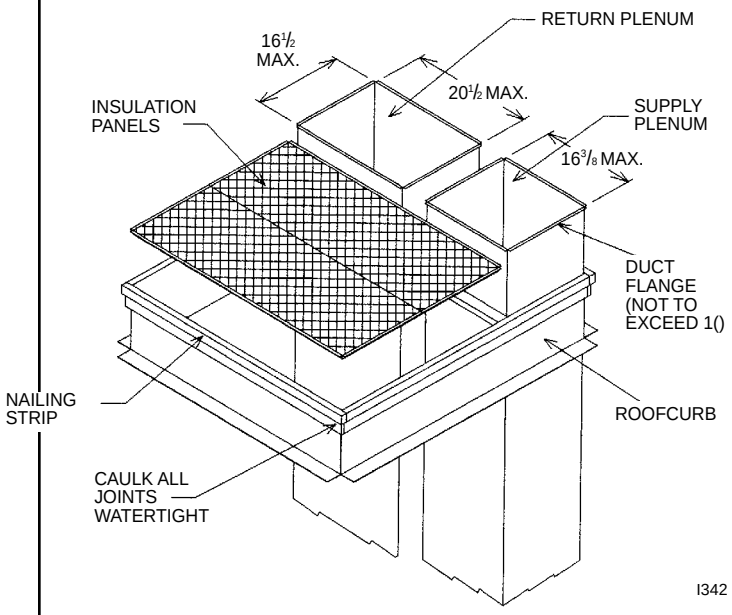
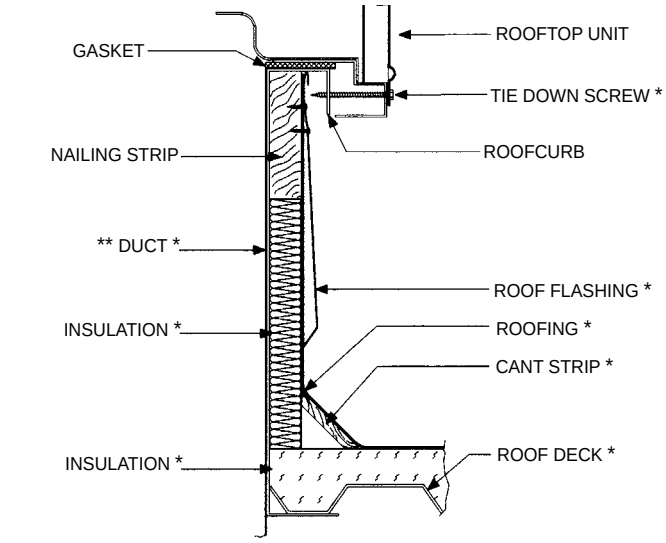


FIGURE 19
ROOFCURB



*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.

I255

FIGURE 20
DUCTWORK COVER INSTALLATION DETAIL

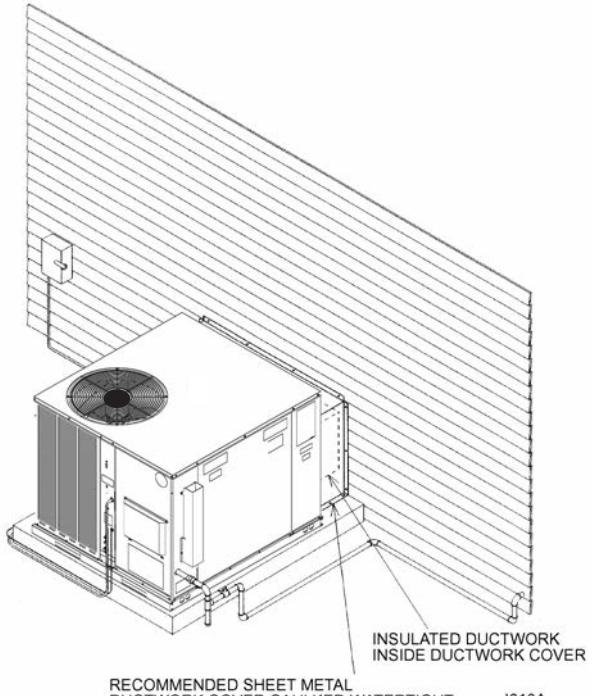
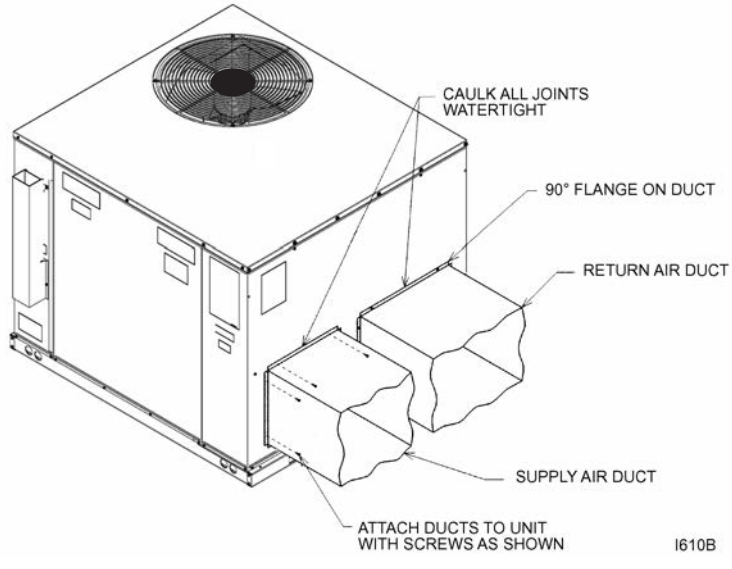


FIGURE 21
RESIDENTIAL ROOFTOP DUCTWORK INSTALLATION DETAIL.



VII. GAS SUPPLY, CONDENSATE DRAIN AND PIPING

A. GAS CONNECTION

IMPORTANT: Connect this unit only to gas supplied by a commercial utility.

1. Install gas piping in accordance with local codes and regulations of the local utility company. In the absence of local codes, the installation must conform to the specifications of the National Fuel Gas Code, ANSI Z223.1 - latest edition.

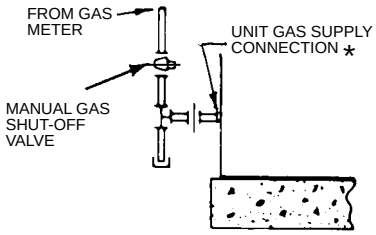
   NOTE: The use of flexible gas connectors is not permitted.

   NOTE: The Commonwealth of Massachusetts requires the gas shut-off valve to be a T-handle gas cock.
2. Connect the gas line to the gas pipe inlet opening provided into the 1/2" inlet valve. See Figure 5 for typical piping.
3. Size the gas line to the furnace adequate enough to prevent undue pressure drop and never less than 1/2".
4. Install a drip leg or sediment trap in the gas supply line as close to the unit as possible.
5. Install an outside ground joint union to connect the gas supply to the control assembly at the burner tray.
6. Gas valves have been factory installed. Install a manual gas valve where local codes specify a shut-off valve outside the unit casing. (See Figure 22.)
7. Make sure piping is tight. **A pipe compound resistant to the action of liquefied petroleum gases must be used at all threaded pipe connections.**
8. IMPORTANT: Any additions, changes or conversions required for the furnace to satisfactorily meet the application should be made by a qualified installer, service agency or the gas supplier, using factory-specified or approved parts. In the commonwealth of Massachusetts, installation must be performed by a licensed plumber or gas fitter for appropriate fuel.

IMPORTANT: *Disconnect the furnace and its individual shutoff valve from the gas supply piping during any pressure testing of that system at test pressures in excess of 1/2 psig or isolate the system from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of this gas supply system at pressures equal to or less than 1/2 PSIG.*

FIGURE 22
SUGGESTED GAS PIPING

ROOF OR GROUND LEVEL INSTALLATION



*Factory supplied grommet must be utilized.

TABLE 1
GAS PIPE CAPACITY TABLE (CU. FT./HR.)

Nominal Iron Pipe Size, Inches	Equivalent Length of Pipe, Feet							
	10	20	30	40	50	60	70	80
1/2	132	92	73	63	56	50	46	43
3/4	278	190	152	130	115	105	96	90
1	520	350	285	245	215	195	180	170
1 1/4	1,050	730	590	500	440	400	370	350
1 1/2	1,600	1,100	890	760	670	610	560	530

⚠ WARNING

DO NOT USE AN OPEN FLAME TO CHECK FOR LEAKS. THE USE OF AN OPEN FLAME CAN RESULT IN FIRE, EXPLOSION, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

TO CHECK FOR GAS LEAKS, USE A SOAP AND WATER SOLUTION OR OTHER APPROVED METHOD. DO NOT USE AN OPEN FLAME.

IMPORTANT: *Check the rating plate to make certain the appliance is equipped to burn the type of gas supplied. Care should be taken after installation of this equipment that the gas control valve not be subjected to high gas supply line pressure.*

In making gas connections, avoid strains as they may cause noise and damage the controls. A backup wrench is required to be used on the valve to avoid damage.

The capacities of gas pipe of different diameters and lengths in cu. ft. per hr. with pressure drop of 0.5 in. and specific gravity of 0.60 (natural gas) are shown in Table 2.

After determining the pipe length, select the pipe size which will provide the minimum cubic feet per hour required for the gas input rating of the furnace. By formula:

$$\text{Cu. Ft. Per Hr. Required} = \frac{\text{Gas Input of Furnace (BTU/HR)}}{\text{Heating Value of Gas (BTU/FT}^3\text{)}}$$

The gas input of the furnace is marked on the furnace rating plate. The heating value of the gas (BTU/FT^3) may be determined by consulting the local natural gas utility or the L.P. gas supplier.

B. LP CONVERSION SINGLE STAGE GAS HEAT

⚠ WARNING

THIS UNIT IS EQUIPPED AT THE FACTORY FOR USE ON NATURAL GAS ONLY. CONVERSION TO LP GAS REQUIRES A SPECIAL KIT SUPPLIED BY THE DISTRIBUTOR OR MANUFACTURER. MAILING ADDRESSES ARE LISTED ON THE FURNACE RATING PLATE, PARTS LIST AND WARRANTY. FAILURE TO USE THE PROPER CONVERSION KIT CAN CAUSE FIRE, CARBON MONOXIDE POISONING, EXPLOSION, PERSONAL INJURY, PROPERTY DAMAGE OR DEATH.

Convert the valve to use liquefied petroleum (LP) gas by replacing the pressure regulator spring with the conversion kit spring. This LP kit spring allows the regulator to maintain the proper manifold pressure for LP gas. The correct burner LP orifices are included in the kit. See Figure 23.

NOTE: Order the correct LP conversion kit from the furnace manufacturer. ***See Conversion Kit Index shipped with unit for proper LP kit number. Furnace conversion to LP gas must be performed by a qualified technician.***

FIGURE 23



C. LP CONVERSION TWO STAGE GAS HEAT

⚠ WARNING

THIS UNIT IS EQUIPPED AT THE FACTORY FOR USE ON NATURAL GAS ONLY. CONVERSION TO LP GAS REQUIRES A SPECIAL KIT SUPPLIED BY THE DISTRIBUTOR OR MANUFACTURER. MAILING ADDRESSES ARE LISTED ON THE FURNACE RATING PLATE, PARTS LIST AND WARRANTY. FAILURE TO USE THE PROPER CONVERSION KIT CAN CAUSE FIRE, CARBON MONOXIDE POISONING, EXPLOSION, PERSONAL INJURY, PROPERTY DAMAGE OR DEATH.

Convert the valve to use liquefied petroleum (LP) gas by replacing with the gas valve supplied in the conversion kit. The LP gas valve maintains the proper manifold pressure for LP gas. The correct burner LP orifices are included in the kit.

IMPORTANT: To remove the natural gas valve, remove the four screws securing the manifold pipe to the burner tray. Remove the manifold pipe with gas valve attached.
NOTE: Order the correct LP conversion kit from the furnace manufacturer. ***See Conversion Kit Index shipped with unit for proper LP kit number. Furnace conversion to LP gas must be performed by a qualified technician.***

D. NOx MODELS

When converting units equipped with NOx inserts to LP gas, the stainless steel mesh inserts in the entrance of the tubular exchangers are not required to meet SCAQMD NOx emission levels. Carefully remove these inserts before firing this furnace on LP gas. This furnace is not designed to operate on LP gas with the NOx inserts in place.

Step by step instructions on removing the NOx inserts and retaining rod are included in the Conversion Kit Installation Instructions.

TABLE 2
LP GAS PIPE CAPACITY TABLE (CU. FT./HR.)

Maximum capacity of pipe in thousands of BTU per hour of undiluted liquefied petroleum gases (at 11 inches water column inlet pressure).
(Based on a Pressure Drop of 0.5 Inch Water Column)

Nominal Iron Pipe Size, Inches	Length of Pipe, Feet											
	10	20	30	40	50	60	70	80	90	100	125	150
1/2	275	189	152	129	114	103	96	89	83	78	69	63
3/4	567	393	315	267	237	217	196	182	173	162	146	132
1	1,071	732	590	504	448	409	378	346	322	307	275	252
1-1/4	2,205	1,496	1,212	1,039	913	834	771	724	677	630	567	511
1-1/2	3,307	2,299	1,858	1,559	1,417	1,275	1,181	1,086	1,023	976	866	787
2	6,221	4,331	3,465	2,992	2,646	2,394	2,205	2,047	1,921	1,811	1,606	1,496

Example (LP): Input BTU requirement of unit, 150,000
Equivalent length of pipe, 60 ft. = 3/4" IPS required.

E. ADJUSTING OR CHECKING FURNACE INPUT

– Natural Gas Line Pressure 5" - 10.5" W.C.
– LP Gas Line Pressure 11" - 13" W.C.

– Natural Gas Manifold Pressure 3.5" W.C
– LP Gas Manifold Pressure - 10" W.C.

Supply and manifold pressure taps are located on the gas valve body 1/8" N.P.T.

Use a properly calibrated manometer gauge for accurate gas pressure readings.

Only small variations in the gas flow should be made by means of the pressure regulator adjustment. Furnaces functioning on LP gas must be set by means of the tank or branch supply regulators. The furnace manifold pressure should be set at 10" W.C. at the gas control valve.

To adjust the pressure regulator, remove the regulator cap and turn the adjustment screw clockwise to increase pressure or counterclockwise to decrease pressure. **Then replace the regulator cap securely.**

Any necessary major changes in the gas flow rate should be made by changing the size of the burner orifices. To change orifice spuds, shut off the manual main gas valve and remove the gas manifold.

For elevations up to 2,000 feet, rating plate input ratings apply. For high altitudes (elevations over 2,000 ft.), see conversion kit index 92-21519-47 for derating and orifice spud sizes.

Check of input is important to prevent over-firing of the furnace beyond its design-rated input. NEVER SET INPUT ABOVE THAT SHOWN ON THE RATING PLATE. Use the following table or formula to determine input rate.

$$\text{Cu. Ft. Per Hr. Required} = \frac{\text{Heating Value of Gas (BTU/Cu. Ft.)} \times 3600}{\text{Time in Seconds (for 1 Cu. Ft.) of Gas}}$$

TABLE 3

METER TIME IN MINUTES AND SECONDS FOR NORMAL INPUT RATING OF FURNACES EQUIPPED FOR NATURAL OR LP GAS											
INPUT BTU/HR	METER SIZE CU. FT.	HEATING VALUE OF GAS BTU PER CU. FT.									
		900		1000		1040		1100		2500	
		MIN.	SEC.	MIN.	SEC.	MIN.	SEC.	MIN.	SEC.	MIN.	SEC.
40,000	ONE	1	21	1	30	1	34	1	39	3	45
	TEN	13	30	15	0	15	36	16	30	37	30
60,000	ONE	0	54	1	0	1	3	1	6	2	30
	TEN	9	0	10	0	10	24	11	0	25	0
80,000	ONE	0	41	0	45	0	47	0	50	1	53
	TEN	6	45	7	30	7	48	8	15	18	45
100,000	ONE	0	33	0	36	0	38	0	40	1	30
	TEN	5	24	6	0	6	15	6	36	15	0

Start the furnace and measure the time required to burn one cubic foot of gas. Prior to checking the furnace input, make certain that all other gas appliances are shut off, with the exception of pilot burners. Time the meter with only the furnace in operation.

IMPORTANT NOTE FOR ALTITUDES ABOVE 2,000 FEET (610 METERS): The main burner orifices in your furnace and in these kits are sized for the nameplate input and intended for installations at elevations up to 2,000 feet in the USA or Canada, or for elevations of 2,000 - 4,500 feet (610 -1,373 meters) in Canada if the unit has been derated at the factory. For elevations above 2,000 feet (610 meters) **IN THE USA ONLY** (see ANSI-Z223.1), the burner orifices must be sized to reduce the input 4% for each 1,000 feet (305 meters) above sea level.

NOTICE: DERATING OF THE HEATING INPUT FOR HIGH ALTITUDE IN THE FIELD IS UNLAWFUL IN CANADA (REFER TO CAN/CGA 2.17). UNITS INSTALLED IN ALTITUDES GREATER THAN 2,000 FEET (610 METERS) MUST BE SHIPPED FROM THE FACTORY OR FROM A FACTORY AUTHORIZED CONVERSION STATION WITH THE HEATING INPUT DERATED BY 10% SO AS TO OPERATE PROPERLY IN ALTITUDES FROM 2,000 - 4,500 FEET (610 - 1,373 METERS).

F. CONDENSATE DRAIN

The evaporator coil condensate drain ends with a threaded 3/4” nominal PVC stub. A trap is built in for proper condensate drainage and to prevent debris from being drawn into the unit. Do not connect the drain to a closed sewer line. Connection to a vented sewer line is allowed. It is recommended that a PVC cement not be used so that the drain line can be easily cleaned in the future.

IMPORTANT: DO NOT INSTALL AN EXTERNAL TRAP. DOING SO CAN CAUSE IMPROPER DRAINAGE OF THE CONDENSATE AND RESULT IN FLOODING WITHIN THE UNIT.

VIII. WIRING

A. POWER SUPPLY

⚠ 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.

1. **All wiring should be made in accordance with the National Electrical Code.** Consult the local power company to determine the availability of sufficient power to operate the unit. Check the voltage at power supply to make sure it corresponds to the unit's RATED VOLTAGE REQUIREMENT. Install a branch circuit disconnect near the rooftop, in accordance with the N.E.C., C.E.C. or local codes.
2. 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 nameplate. On three phase units, phases must be balanced within 3%.
3. For branch circuit wiring (main power supply to unit disconnect), the minimum wire size for the length of run can be determined from Table 4 using the circuit ampacity found on the unit rating plate. Use the smallest wire size allowable in Table 4 from the unit disconnect to unit. The disconnect must be in sight and readily accessible of the unit.

TABLE 4
BRANCH CIRCUIT COPPER WIRE SIZE
(BASED ON 1% VOLTAGE DROP)*

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

***Taken from National Electric Code**

NOTES:

1. Wire size based on 60°C rated wire insulation and 30°C Ambient Temp. (86°F).
2. For more than 3 conductors in a raceway or cable, see the N.E.C. for derating the ampacity of each conductor.

   When installed, the unit must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, **ANSI/NFPA 70,** if an external electrical source is utilized.

IMPORTANT: THIS UNIT IS APPROVED FOR USE WITH COPPER CONDUCTORS <u>ONLY</u> CONNECTED TO UNIT CONTACTOR.

WARRANTY MAY BE JEOPARDIZED IF ALUMINUM WIRE IS CONNECTED TO UNIT CONTACTOR.

Special instructions apply for power wiring with aluminum conductors: Warranty is void if connections are not made per instructions.

Attach a length (6" or more) of recommended size copper wire to the unit contactor terminals L1 and L3 for single phase, L1, L2 and L3 for three phase.

Select the equivalent aluminum wire size from the tabulation below:

Splice copper wire pigtails to aluminum wire with U.L. recognized connectors for copper-aluminum splices. Please exercise the following instructions very carefully to obtain a positive and lasting connection:

1. Strip insulation from aluminum conductor.
2. Coat the stripped end of the aluminum wire with the recommended inhibitor, and wire brush the aluminum surface through inhibitor. INHIBITORS: Brundy-Pentex "A"; Alcoa-No. 2EJC; T & B-KPOR Shield.
3. Clean and recoat aluminum conductor with inhibitor.
4. Make the splice using the above listed wire nuts or split bolt connectors.
5. Coat the entire connection with inhibitor and wrap with electrical insulating tape.

TABLE 5

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	Sherman Split Bolt	TSP6
# 6	# 4	Sherman Split Bolt	TSP4
# 4	# 2	Sherman Split Bolt	TSP2

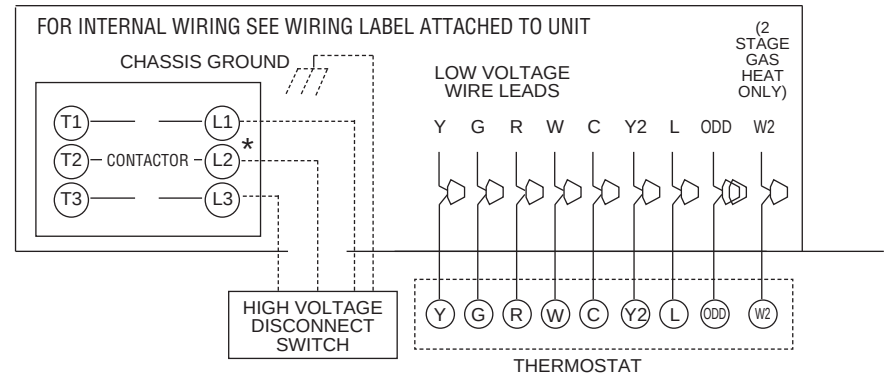
B. HOOK-UP

To wire unit, refer to the following hook-up diagram (see Figure 24).

Refer to Figure 4 for location of wiring entrances.

Wiring to be done in the field between the unit and devices not attached to the unit, or between separate devices which are field installed and located, shall conform with the temperature limitation for Type T wire [63°F rise (35°C)] when installed in accordance with the manufacturer's instructions.

FIGURE 24
WIRE HOOK-UP DIAGRAM



*L2 connection 3Phase only

Y - COOLING (LOW STAGE IN 2 STAGE SYSTEMS)
G - FAN ONLY
R - 24V
W - HEATING (LOW HEAT 2 STAGE GAS HEAT)
C - COMMON
Y2 - HIGH STAGE COOLING (TWO STAGE ONLY)
L - ALERT CODES (OPTIONAL WITH COMFORT ALERT AND COMPATIBLE THERMOSTAT)
ODD - ON-DEMAND DEHUMIDIFICATION
W2 - HEATING (HIGH HEAT 2 STAGE GAS)

C. INTERNAL WIRING

IMPORTANT: Some single phase units 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.

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

Transformer is factory wired for 230 volts on 208/230 volt models and must be changed for 208 volt applications. See unit wiring diagram for 208 volt wiring.

D. THERMOSTAT

The room thermostat must be compatible with the spark ignition control on the unit. Generally, all thermostats that are not of the "current robbing" type are compatible with the integrated furnace control. Two stage units (5 ton) require use of a thermostat capable of 2 stages of cooling. (See Section IV.) See chart below for recommendations. The low voltage wiring should be sized as shown in Table 6.

Install the room thermostat in accordance with the instruction sheet packed in the box with the thermostat. Never install the thermostat on an outside wall or where it will be influenced by drafts, concealed hot or cold water pipes or ducts, lighting fixtures, radiation from fireplace, sun rays, lamps, televisions, radios or air streams from registers. Refer to instructions packed with the thermostat for "heater" selection or adjustment.

Refer to the RRNL-/RRPL-/RRRL- Specification Sheets for a list of recommended thermostats.

TABLE 6

FIELD WIRE SIZE FOR 24 VOLT THERMOSTAT CIRCUITS							
Thermostat Load - Amps		SOLID COPPER WIRE - AWG.					
	3.0	16	14	12	10	10	10
	2.5	16	14	12	12	12	10
	2.0	18	16	14	12	12	10
		50	100	150	200	250	300
		Length of Run – Feet (1)					

(1) The total wire length is the distance from the furnace to the thermostat and back to the furnace.

NOTE: DO NOT USE CONTROL WIRING SMALLER THAN NO. 18 AWG.

IX. FURNACE SECTION CONTROLS AND IGNITION SYSTEM

A. NORMAL FURNACE OPERATING SEQUENCE (SINGLE STAGE GAS HEAT)

This unit is equipped with an integrated direct spark ignition control.

1. The thermostat calls for heat.
2. The control board will run a self check to verify that the limit control and manual reset overtemperature control are closed and that the pressure switch is open. If so, the induced draft blower (inducer) begins a prepurge cycle.
3. The air proving negative pressure switch closes.
4. **15 seconds after the pressure switch closes**, the gas valve opens and the spark is initiated for a 7 second trial for ignition.
5. Burners ignite and flame sensor proves all burners have lit.
6. The circulating air blower is energized after 30 seconds.
7. The control board enters a normal operation loop in which all safety controls are monitored continuously.
8. Thermostat is satisfied and opens.
9. The gas valve is de-energized and closes, shutting down the burner flame.
10. The control board will de-energize the inducer after a five second post purge.
11. The circulating air blower is de-energized after 90 seconds.

- The integrated control board has a three ignition system.
- After a total of three trials for ignition without sensing main burner flame, the system goes into a 100% lockout mode.
- After one hour, the ignition control repeats the prepurge and ignition cycles for 3 tries and then goes into 100% lockout mode again.
- It continues this sequence of cycles and lockout each hour until ignition is successful or power is interrupted.
- During the lockout mode, neither the spark ignition control or gas valve will be energized until the system is reset by turning the thermostat to the “OFF” position or interrupting the electrical power to the unit for 3 seconds or longer.
- The induced draft blower and main burner will shut off when the thermostat is satisfied.
- The circulating air blower will start and run on the heating speed if the thermostat fan switch is in the “ON” position.

The integrated furnace control is equipped with diagnostic LED. The LED is lit continuously when there is power to the control, with or without a call for heat. If the LED is not lit, there is either no power to the control or there is an internal component failure within the control, and the control should be replaced.

If the control detects the following failures, the LED will flash on for approximately 1/4 second, then off for 3/4 second for designated failure detections.

1 Flash: Failed to detect flame within the three tries for ignition.

2 Flash: Pressure switch or induced draft blower problem detected.

3 Flash: High limit or auxiliary limit open.

4 Flash: Flame sensed and gas valve not energized or flame sensed with no “W” signal.

5 Flash: Overtemperature switch open.

B. NORMAL FURNACE OPERATING SEQUENCE (TWO STAGE GAS HEAT FOR RRRL-C)

This unit is equipped with a two stage integrated direct spark ignition control.

NORMAL HEAT MODE

A. Call For First Stage (low fire) Only:

1. Zone thermostat contacts close, a call for first stage (low fire) heat is initiated.
2. Control runs self check.
3. Control checks the high-limit switch for normally closed contacts, each pressure switch for normally open contacts, and all flame rollout switches for continuity.
4. Control energizes high inducer speed.
5. Control checks pressure switches for closure.
6. If pressure switches are closed, the control starts a 30 second prepurge.
7. After prepurge timeout, control initiates spark for 2 seconds minimum, 7 second maximum ignition trial, initiates 30 second, second stage (high fire) warm up timing.
8. Control detects flame, de-energizes spark and initiates 30 second delay on blower timing.
9. After a fixed 30 seconds indoor blower delay on, the control energizes the indoor blower.
10. After the 30 second second stage warmup period control checks thermostat input. If only W1 is called for, W2 is de-energized and the control starts a 5 second off delay on the W2 inducer speed.
11. After fixed 5 seconds the gas valve shifts to low and the W2 inducer speed is de-energized.
12. Control enters normal operating loop where all inputs are continuously checked.

B. Call For Second Stage, After First Stage Established; Starting from A.11:

1. If a call for second stage (high fire) is initiated after a call for first stage heat is established, the control energizes the W2 inducer speed assures the high-fire pressure switch is closed and energizes the second stage of the gas valve.
2. Control enters normal operating loop where all inputs are continuously checked.

C. Second Stage Satisfied; First Stage Still Called For; Starting From B.2:

1. Once the call for second stage is satisfied, the control starts a 30 second off delay on W2 inducer and reduces the gas valve to first stage.
2. Control enters normal operating loop where all inputs are continuously checked.

D. First Stage Satisfied:

1. Zone thermostat is satisfied.
2. Control de-energizes gas valve.
3. Control senses loss of flame.
4. Control initiates 5 second inducer postpurge and 90 second indoor blower delay off.
5. Control de-energizes inducer blower.
6. Control de-energizes indoor blower.
7. Control in the stand by mode with solid red LED.

E. First Stage and Second Stage Removed Simultaneously:

1. Upon a loss of W1 and W2 the gas valve is de-energized.
2. Upon a loss of flame, the inducer will complete a 5 second postpurge and the indoor blower will complete a 90 second delay off.
3. Control in the stand by mode with solid red LED.

The integrated control is a four-ignition system.

After a total of four cycles without sensing main burner flame, the system goes into a 100% lockout mode. After one hour, the ignition control repeats the prepurge and ignition cycles for 4 tries and then go into 100% lockout mode again. It continues this sequence of cycles and lockout each hour until ignition is successful or power is interrupted. During the lockout mode, neither the ignitor or gas valve will be energized until the system is reset by turning the thermostat to the “OFF” position or interrupting the electrical power to the unit for 3 seconds or longer. The induced draft blower and main burner will shut off when the thermostat is satisfied.

The circulating air blower will start and run on the heating speed if the thermostat fan switch is in the “ON” position.

The integrated furnace control is equipped with diagnostic LED. The LED is lit continuously when there is power to the control, with or without a call for heat. If the LED is not lit, there is either no power to the control or there is an internal component failure within the control, and the control should be replaced.

If the control detects the following failures, the LED will flash on for approximately 1/4 second, then off for 3/4 second for designated failure detections.

1 Flash: Failed to detect flame within the four tries for ignition.

2 Flash: Pressure switch or induced draft blower problem detected.

3 Flash: High limit or auxiliary limit open.

4 Flash: Flame sensed and gas valve not energized or flame sensed with no “W” signal.

5 Flash: Overtemperature switch open.

C. OPERATING INSTRUCTIONS

This appliance is equipped with a direct spark intermittent ignition device. This device lights the main burners each time the room thermostat (closes) calls for heat. See operating instructions on the back of the furnace/controls access panel.

⚠ WARNING

DO NOT ATTEMPT TO MANUALLY LIGHT THIS FURNACE WITH A MATCH OR ANY OPEN FLAME. ATTEMPTING TO DO SO CAN CAUSE AN EXPLOSION OR FIRE RESULTING IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

TO START THE FURNACE

1. STOP! Read the safety information on the Operating Instructions Label located on this appliance.

⚠ WARNING

IF YOU DO NOT FOLLOW THESE INSTRUCTIONS EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.

2. Set the thermostat to its lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do NOT try to light the burner by hand.
5. Remove control door/access panel.
6. Move switch to the “OFF” position.
7. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP!
   - Do not try to light any appliance.
   - Do not touch any electric switch; do not use any phone in your building.
   - Immediately call your gas supplier from a neighbor’s phone. Follow the gas supplier’s instructions.
   - If you cannot reach your gas supplier, call the fire department.

   If you don’t smell gas, go to the next step.
8. Move the switch from “OFF” position to “ON” position.
9. Replace the control door.
10. Turn on all electric power to the appliance.
11. Set the thermostat to the desired setting.
12. If the appliance will not operate, follow the instructions below on how to shut down the furnace.

⚠ WARNING

THE SPARK IGNITOR AND IGNITION LEAD FROM THE IGNITION CONTROL ARE HIGH VOLTAGE. KEEP HANDS OR TOOLS AWAY TO PREVENT ELECTRICAL SHOCK. SHUT OFF ELECTRICAL POWER BEFORE SERVICING ANY OF THE CONTROLS. FAILURE TO ADHERE TO THIS WARNING CAN RESULT IN PERSONAL INJURY OR DEATH.

The initial start-up on a new installation may require the control system to be energized for some time until any air has bled through the system and fuel gas is available at the burners.

TO SHUT DOWN FURNACE

1. Set the thermostat to the lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove control door.
4. Move switch to the “OFF” position.
5. Replace control door.

⚠ WARNING

SHOULD OVERHEATING OCCUR OR THE GAS SUPPLY FAIL TO SHUT OFF, SHUT OFF THE MANUAL GAS VALVE TO THE APPLIANCE BEFORE SHUTTING OFF THE ELECTRICAL SUPPLY. FAILURE TO DO SO CAN RESULT IN AN EXPLOSION OR FIRE CAUSING PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH!

D. BURNERS

Burners for these units have been designed so that field adjustment is not required. Burners are tray-mounted and accessible for easy cleaning when required.

E. MANUAL RESET OVERTEMPERATURE CONTROL

A manual reset overtemperature control is located on the burner shield. This device senses blockage in the heat exchanger or insufficient combustion air. This shuts off the main burners if excessive temperatures occur in the burner compartment.

Operation of this control indicates an abnormal condition. Therefore, the unit should be examined by a qualified installer, service agency, or the gas supplier before being placed back into operation.

⚠ WARNING

DO NOT JUMPER THIS DEVICE! DO NOT reset the overtemperature control without taking corrective action to assure that an adequate supply of combustion air is maintained under all conditions of operation. Failure to do so can result in carbon monoxide poisoning or death. Replace this control only with the identical replacement part.

F. PRESSURE SWITCH(S)

This furnace has pressure switches for sensing a blocked exhaust or a failed induced draft blower. They're normally open and close when the induced draft blower starts, indicating air flow through the combustion chamber.

G. LIMIT CONTROL

The supply air high temperature limit cut-off is set at the factory and cannot be adjusted. It is calibrated to prevent the air temperature leaving the furnace from exceeding the maximum outlet air temperature. **WARNING: DO NOT JUMPER THIS DEVICE! Replace this control only with the identical replacement part.**

X. SYSTEM OPERATING INFORMATION

A. ADVISE THE CUSTOMER

1. Keep the air filters clean. The heating system operates better, more efficiently and more economically.
2. Arrange the furniture and drapes so that the supply air registers and the return air grilles are unobstructed.
3. Close doors and windows. This reduces the heating load on the system.
4. Avoid excessive use of exhaust fans.
5. Do not permit the heat generated by television, lamps or radios to influence the thermostat operation.
6. Except for the mounting platform, keep all combustible articles three feet from the unit and exhaust system.
7. ***IMPORTANT:*** *Replace all blower doors and compartment cover after servicing the unit. Do not operate the unit without all panels and doors securely in place.*
8. Do not allow snow or other debris to accumulate in the vicinity of the appliance.

B. FURNACE SECTION MAINTENANCE

The unit's furnace should operate for many years without excessive scale build-up in flue passageways; however, it is recommended that a qualified installer, service agency, or the gas supplier annually inspect the flue passageways, the exhaust system and the burners for continued safe operation, paying particular attention to deterioration from corrosion or other sources.

If during inspection the flue passageways and exhaust system are determined to require cleaning, the following procedures should be followed **(by a qualified installer, service agency, or gas supplier):**

1. **Turn off the electrical power to the unit and set the thermostat to the lowest temperature.**
2. **Shut off the gas supply to the unit either at the meter or at manual valve in the supply piping.**

⚠ WARNING

LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION RESULTING IN FIRE, ELECTRICAL SHOCK, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

3. Remove the furnace controls access panel and the control box cover.
4. Disconnect the gas supply piping from the gas valve.
5. Disconnect the wiring to the induced draft blower motor, gas valve, flame sensor, and flame roll-out control, and ignitor cable. **Mark all wires disconnected for proper reconnection**.
6. Remove the screws (4) connecting the burner tray to the heat exchanger mounting panel.
7. Remove the burner tray and the manifold assembly from the unit.
8. Remove the screws (4) connecting the induced draft blower to the collector box and screws (16) connecting the collector box to the heat exchanger mounting panel. Remove the induced draft blower and the collector box from the unit.
9. Remove the turbulators from inside the heat exchangers by inserting the blade of a screwdriver under the locking tabs. Pop the tabs out of the expanded grooves of the heat exchanger. Slide the turbulators out of the heat exchangers.
10. Direct a water hose into the outlet of the heat exchanger top. Flush the inside of each heat exchanger tube with water. Blow out each tube with air to remove excessive moisture.
11. Reassemble (steps 1 through 10 in reverse order). **Be careful not to strip out the screw holes used to mount the collector box and inducer blower. Replace inducer blower gasket and collector box gasket with factory replacements if damaged.**

⚠ WARNING

HOLES IN THE EXHAUST TRANSITION OR HEAT EXCHANGER CAN CAUSE TOXIC FUMES TO ENTER THE HOME. THE EXHAUST TRANSITION OR HEAT EXCHANGER MUST BE REPLACED IF THEY HAVE HOLES OR CRACKS IN THEM. FAILURE TO DO SO CAN CAUSE CARBON MONOXIDE POISONING RESULTING IN PERSONAL NJURY OR DEATH.

The manufacturer recommends that a qualified installer, service agency or the gas supplier visually inspect the burner flames for the desired flame appearance at the beginning of the heating season and approximately midway in heating season.

The manufacturer also recommends that a qualified installer, service agency or the gas supplier clean the flame sensor with steel wool at the beginning of the heating season.

⚠ WARNING

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

C. LUBRICATION

IMPORTANT: DO NOT attempt to lubricate the bearings on the blower motor or the induced draft blower motor. Addition of lubricants can reduce the motor life and void the warranty.

The blower motor and induced draft blower motor are prelubricated by the manufacturer and do not require further attention.

A qualified installer, service agency or the gas supplier must periodically clean the motors to prevent the possibility of overheating due to an accumulation of dust and dirt on the windings or on the motor exterior. And, as suggested elsewhere in these instructions, the air filters should be kept clean because dirty filters can restrict air flow and the motor depends upon sufficient air flowing across and through it to prevent overheating.

D. COOLING SECTION MAINTENANCE

⚠ WARNING

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

It is recommended that at the beginning of each cooling season a qualified installer or service agency inspect and clean the cooling section of this unit. The following areas should be addressed: evaporator coil, condenser coil, condenser fan motor and venturi area.

To inspect the evaporator coil:

1. Remove the filter access panel and the blower/evaporator coil access panel.

⚠ WARNING

LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING THE UNIT. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION RESULTING IN FIRE, ELECTRICAL SHOCK, PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.

2. Unplug the wires from the circulating air blower and the limit control. Remove the two screws and slide the blower out of the unit sideways.
3. Shine a flashlight on the evaporator coil (both sides) and inspect for accumulation of lint, insulation, etc.
4. If coil requires cleaning, follow the steps shown below.

Cleaning Evaporator Coil

1. Remove screws from condenser fan grille assembly and lay grille over on the unit top panel.
2. Remove the controls access panel and the control box cover.
3. Disconnect the outdoor fan motor wiring from the compressor contactor and capacitor. Remove the strain relief in the bulkhead and pull the fan motor wires through. Set grille assembly to the side.
4. Remove the screws that secure the unit top to the unit. Remove the top and set the unit top to the side.
5. The coil should be cleaned when it is dry. If the coil is coated with dirt or lint, vacuum it with a soft brush attachment. Be careful not to bend the coil fins.
6. If the coil is coated with oil or grease, clean it with a mild detergent-and-water solution. Rinse the coil thoroughly with water. **IMPORTANT: Do not** use excessive water pressure. Excessive water pressure can bend the fins and tubing of the coil and lead to inadequate unit performance. Be careful not to splash water excessively into unit.
7. Go to next section for cleaning the condenser coil.

Cleaning Condenser Coil, Drain Pan, Condensate Drain, Condenser Fan, Circulation Air Blower and Venturi

1. Remove the screws from the condenser coil protective grille and remove the grille from the unit. Ensure the filter access panel is still removed to access all of the screws securing the grille.
2. The coil should be cleaned when it is dry. If the coil is coated with dirt or lint, vacuum it with a soft brush attachment. Be careful not to bend the coil fins.
3. If the coil is coated with oil or grease, clean it with a mild detergent-and-water solution. Rinse the coil thoroughly with water. **IMPORTANT: Do not** use excessive water pressure. Excessive water pressure can bend the fins and tubing of the coil and lead to inadequate unit performance. Be careful not to splash water excessively into unit.
4. Inspect the drain pan and condensate drain at the same time the condenser coil is checked. Clean the drain pan by flushing with water and removing any matters of obstructions which may be present.
5. Flush the drain tube with water. If the drain tube is blocked, it can usually be cleared wth high pressure water.
6. Inspect the circulating air blower wheel and motor for accumulation of lint, dirt or other obstruction and clean if necessary. Inspect the blower motor mounts and the blower housing for loose mounts or other damage. Repair or replace if necessary.

Re-assembly

1. Place the condenser coil protective grille back on unit and replace all screws.
2. Place top panel back on unit and replace all screws.
3. Set condenser fan grille assembly on top of the unit with the fan on top and the motor wires on the venturi side. Run the fan motor wires through the bulkhead and

pull wires through the hole on the bottom of the control box on the left side and into the control box. Reconnect fan motor wires per the wiring diagram attached to the back of the control box cover.

4. Replace wire strain relief in bulkhead after the slack is pulled out of the wires on the fan side. This will assure wires will not be damaged by the fan during unit operation.
5. Turn the condenser fan grille assembly over and into the recess in the unit top. Secure the grille to the unit with the four screws removed earlier.
6. Replace the circulating air blower, making sure that all wires are properly reconnected per the unit wiring diagram.
7. Replace the filter and blower/evaporator coil access panels.
8. Replace the control box cover and controls access panel.
9. Restore electrical power to the unit and check for proper operation, especially the condenser fan motor.

E. REPLACEMENT PARTS

Contact your local distributor for a complete parts list.

F. CHARGING

Refer to the appropriate charge chart included in this manual.

G. RRNL-/RRPL- BLOWER MOTOR SPEED ADJUSTMENTS

⚠ 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.

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

After determining necessary CFM and speed tap, follow the steps below to change speeds.

Units with PSC Blower Motors:

1. Remove the furnace/control access panel.
2. Remove the control box cover. See Figure 25 for location of the furnace control board.
3. Reference Figure 26 for the proper location of the wires on the speed tap block and on the furnace control board to obtain the speed tap you have chosen.

   Note: 460V units have dedicated heating and cooling speeds and should not be adjusted.
4. After adjusting the wires accordingly, attach the control box cover, furnace control access panel and the blower access panel to the unit.

Units with X-13 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 speeds can be adjusted as noted in Figure 26 by moving appropriate wire between taps at the blower (Do not connect wires to unspecified speed taps).

   Note: Heat speed is dedicated and should not be changed. The first stage cooling speed on 5-ton models is dedicated and should not be changed.
4. Replace blower access panel.

FIGURE 25
INTEGRATED FURNACE CONTROL BOARD

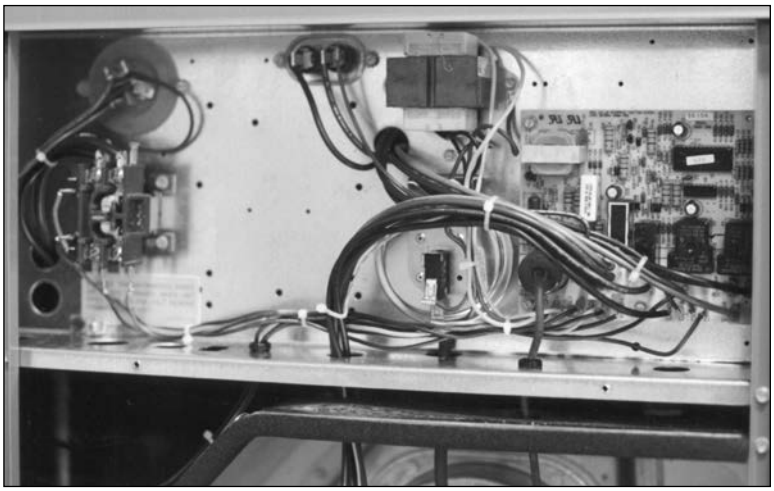
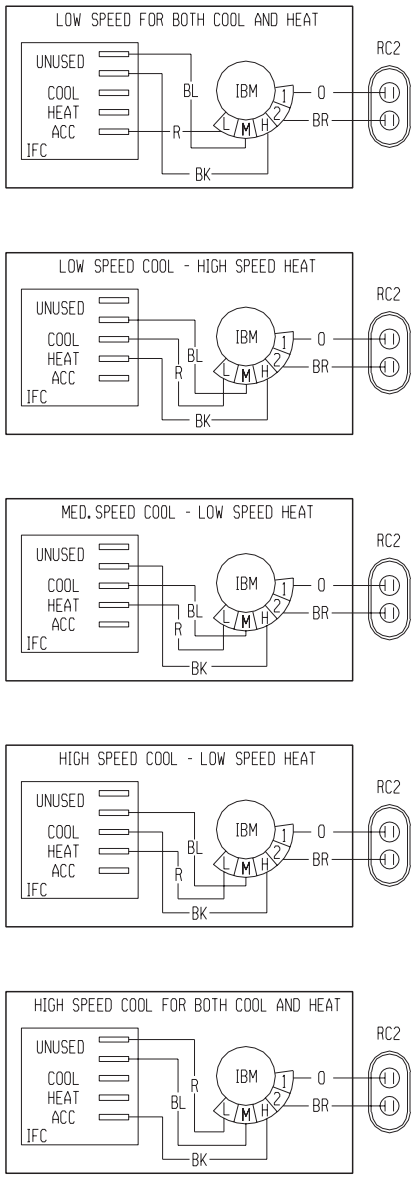


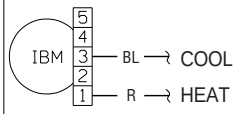
FIGURE 26

208/230 Volt PSC Motor



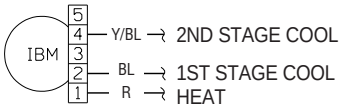
208/230 Volt X-13 Motor

2, 2.5, 3, 3.5, 4 TON MODELS



COOLING SPEED MAY BE ADJUSTED TO LOW COOL BY MOVING BLUE WIRE TO TAP 2. HEAT SPEED IS DEDICATED AND SHOULD NOT BE ADJUSTED.

5 TON MODELS



SECOND STAGE COOLING SPEED MAY BE ADJUSTED TO LOW COOL BY MOVING YELLOW WITH BLUE STRIPE WIRE TO TAP 3. FIRST STAGE COOLING SPEED IS DEDICATED AND SHOULD NOT BE ADJUSTED. HEAT SPEED IS DEDICATED AND SHOULD NOT BE ADJUSTED

NOTE: 460 Volt motors have dedicated speeds and are not adjustable.

FIGURE 27
FACTORY SET BLOWER SPEEDS

MODEL	PSC MOTOR		X-13 MOTOR	
	COOL	HEAT	COOL	HEAT
2.0 TON W/40K HEAT	HIGH	LOW	HIGH (Tap 3)	DEDICATED (Tap 1)
2.0 TON W/60K HEAT	HIGH	HEAT	HIGH (Tap 3)	DEDICATED (Tap 1)
2.0 TON W/80K HEAT	HIGH	HEAT	HIGH (Tap 3)	DEDICATED (Tap 1)
2.5 TON ALL HEAT INPUTS	LOW	LOW	HIGH (Tap 3)	DEDICATED (Tap 1)
3.0 TON ALL HEAT INPUTS	MED	LOW	HIGH (Tap 3)	DEDICATED (Tap 1)
3.5 TON ALL HEAT INPUTS	HIGH	LOW	HIGH (Tap 3)	DEDICATED (Tap 1)
4.0 TON ALL HEAT INPUTS	HIGH	LOW	HIGH (Tap 3)	DEDICATED (Tap 1)
5.0 TON ALL HEAT INPUTS	N/A	N/A	1st Stage - DEDICATED (Tap 2) 2nd Stage - HIGH (Tap 4)	DEDICATED (Tap 1)

*460 volt units: Do not adjust from factory speed.

XI. UNITS WITH ECM BLOWER MOTORS (RRRL-C MODELS ONLY)

The ECM (Brushless permanent magnet) motor used on the blower in this product is programmed to operate over a wide range of external static pressures (0.0” - 1.0” W.C.) with essentially constant air flow (CFM). Motor efficiency on ECM type motors is higher than that of P.S.C. type motors normally used on this type product. See air flow performance data tables.

The ECM motor is programmed to provide a “soft” start and stop. On a call for heat or cool, the motor will gradually ramp up to the field selected CFM speed. This eliminates the sudden rush of air and noise normally associated with a P.S.C. type motor. Once the thermostat and blower delay are satisfied, the motor will gradually ramp down as well.

IMPORTANT: Units equipped with ECM motors cannot be used in by-pass zoning applications.

IMPORTANT: The A.C. power plug to the blower motor has locking tabs. It has been shown that by applying excessive force to the A.C. cable half of the connector it is possible to force the connector in backwards. It will not seat and “click” properly but will make connection. If A.C. power is applied with the connector reversed the motor will be immediately destroyed. Do not force power plug into motor connector backwards.

NOTE: Because of the harmonic content of the A.C. Line current to the ECM motor a conventional ammeter will not read correct motor amps. Only a true RMS meter will give accurate AMP readings.

IMPORTANT: The flexibility of ECM motors and the fact that this flexibility is contained in programmed memory, not hardware, emphasizes the need for exact motor numbers for replacement motors. Because they all look the same, ECM MOTORS FROM DIFFERENT PRODUCTS OR DIFFERENT MODELS OF THE SAME PRODUCT MUST NOT BE INTERCHANGED.

IMPORTANT: If an ECM motor is replaced, it is important that the motor be mounted as the original, as far into the blower wheel as practical for proper motor cooling.

IMPORTANT: The ECM motor is controlled directly from the room thermostat (in all modes except heating). In cooling, the motor is controlled from the thermostat “Y” terminal. When the “Y” or “R” thermostat circuit is opened a 30 second delay will occur before the blower motor will cycle. In the heating mode the furnace control board controls the ECM through the blower relay. When the “W” thermostat circuits are opened, a 90 second delay will occur before the blower will cycle off. When the “G” to “R” thermostat circuit is opened for low speed blower, there is no “off” delay. All thermostat sub-base combinations as recommended and provided through the Parts Department have been tested and are compatible with the ECM motor used in this equipment. Some thermostats may not be compatible with the ECM motor provided in this unit. With thermostat in off state, the voltage on control lines “G”, “Y”, or W with respect to 24 vac common should be less than 3.5 VAC. If the measured voltage is too high, thermostat is incompatible with the ECM motor and will cause the motor to run when it should be off.

A. ECM MOTOR INTERFACE CONTROL AND SETTINGS (RRRL UNITS ONLY)

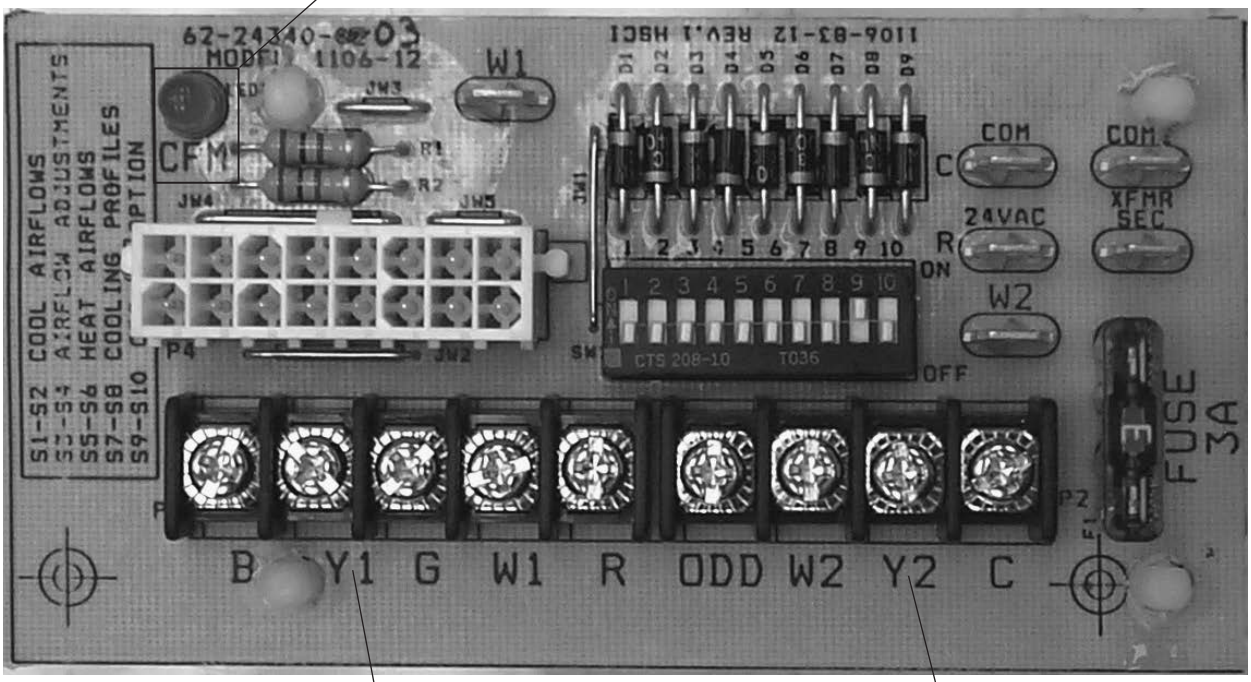
The RRRL series units use ECM blower motors to deliver a constant level of airflow over a wide range of external static pressures (up to 1.0" W.C.). The interface board provides the required communications between the thermostat/IFC and the ECM blower motor. The interface board features:

- An automotive-style ATC blade fuse for transformer protection (3 amp).

FIGURE 28
ECM INTERFACE BOARD

LED

DO NOT WIRE DIRECTLY TO THIS BOARD. THERMOSTAT SHOULD BE WIRED TO PIGTAILS LOCATED BELOW THE CONTROL BOX.

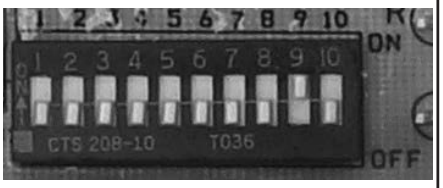


FIRST-STAGE COOLING INPUT

SECOND-STAGE COOLING INPUT

(THIS BOARD IS LOCATED IN THE BLOWER SECTION)

FIGURE 29
ECM MOTOR SETTINGS



(This board is located in the blower section)

- An on-board LED to indicate blower CFM.
- Inputs for two-stages of cooling: Y1 (first stage) and Y2 (second stage)
- Four (4) cooling delay profiles

The DIP switches on the interface board are used to define the operation of the ECM motor (see Table 7).

TABLE 7
SWITCH FUNCTIONS

Switch	Function
1 & 2	Not Used
3 & 4	Cooling Airflow Adjustment
5 & 6	Heating Airflow Settings
7 & 8	Cooling Delay Profiles
9 & 10	On-Demand Dehumidification

Refer to Figure 29 for switch identification and factory default settings.

IMPORTANT: Disconnect power to unit when changing DIP switch positions. Even if blower is not operating, the motor will not recognize changes in DIP switch positions until unit power is removed and then restored.

B. TRANSFORMER PROTECTION

The ECM interface board is equipped with an automotive-style 3 amp ATC blade fuse for transformer protection. (See Figure 28.) If a short circuit occurs on the secondary side of the transformer, the fuse will open.

C. USING THE ON-BOARD LED TO DETERMINE BLOWER CFM

The ECM interface board LED, which is located in the blower section (see Figure 28), indicates blower output by flashing one (1) second for every 100 CFM of airflow. The LED will pause 1/10 second between each flash. After the blower CFM has been displayed, the LED will illuminate dimly for 10 seconds before repeating the sequence. (See Table 8.)

NOTE: If airflow is not a multiple of 100 CFM, the last LED flash is a fraction of a second of 100 CFM.

TABLE 8
LED FLASH CODES

Interface board DIP switch settiings	LED Output
1200 CFM	• Flashes 12 times • Illuminate dimly 10 seconds, repeat sequence
600 CFM	• Flashes 6 times • Illuminate dimly 10 seconds, repeat sequence
950 CFM	• Flashes 9 times, flash once for 1/2 second • Illuminate dimly 10 seconds, repeat sequence

D. UNIT OPERATION WITH TWO-STAGE COOLING

The RRRL unit provides distinct airflows for two-stage cooling. (See Figure 28.) Unit operation is defined as:

- **Y1** – First Stage Cooling
- **Y2** – Second Stage Cooling

A 24VAC signal provides input for the cooling stages.

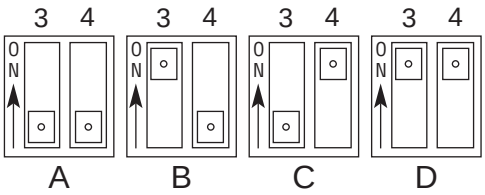
NOTE: A 24VAC input to the Y2 terminal overrides the input to the Y1 terminal. (Both must be energized to enable 2nd stage cooling.)

TABLE 9
TWO-STAGE OPERATION

Y1 INPUT	Y2 INPUT	COOLING OPERATION
NONE	NONE	OFF
24 VAC	NONE	1ST STAGE
24 VAC	24 VAC	2ND STAGE
NONE	24 VAC	OFF

E. COOLING AIRFLOW ADJUSTMENTS

FIGURE 30
COOLING AIRFLOW ADJUSTMENTS



SELECTION	SWITCH 3 POSITION	SWITCH 4 POSITION	COOLING AIRFLOW ADJUSTMENT
A	OFF	OFF	NONE
B	ON	OFF	10%
C	OFF	ON	-10%
D	ON	ON	NONE

Cooling airflow may be adjusted +10% or –10% from nominal airflow using switches 3 & 4.

Refer to Figure 33 for switch positions to achieve the desired adjustments in airflow.

NOTE: Continuous fan speed is NOT affected by switches 3 & 4.

IMPORTANT: The use of On Demand Dehumidification overrides the cooling airflow adjustments when high humidity is detected by a dehumidifying thermostat or humidistat when connected to the ODD terminal as shown in Figure 28. Refer to the Cooling Mode Dehumidification section for more information.

FIGURE 31
COOLING "ON" DELAY PROFILES

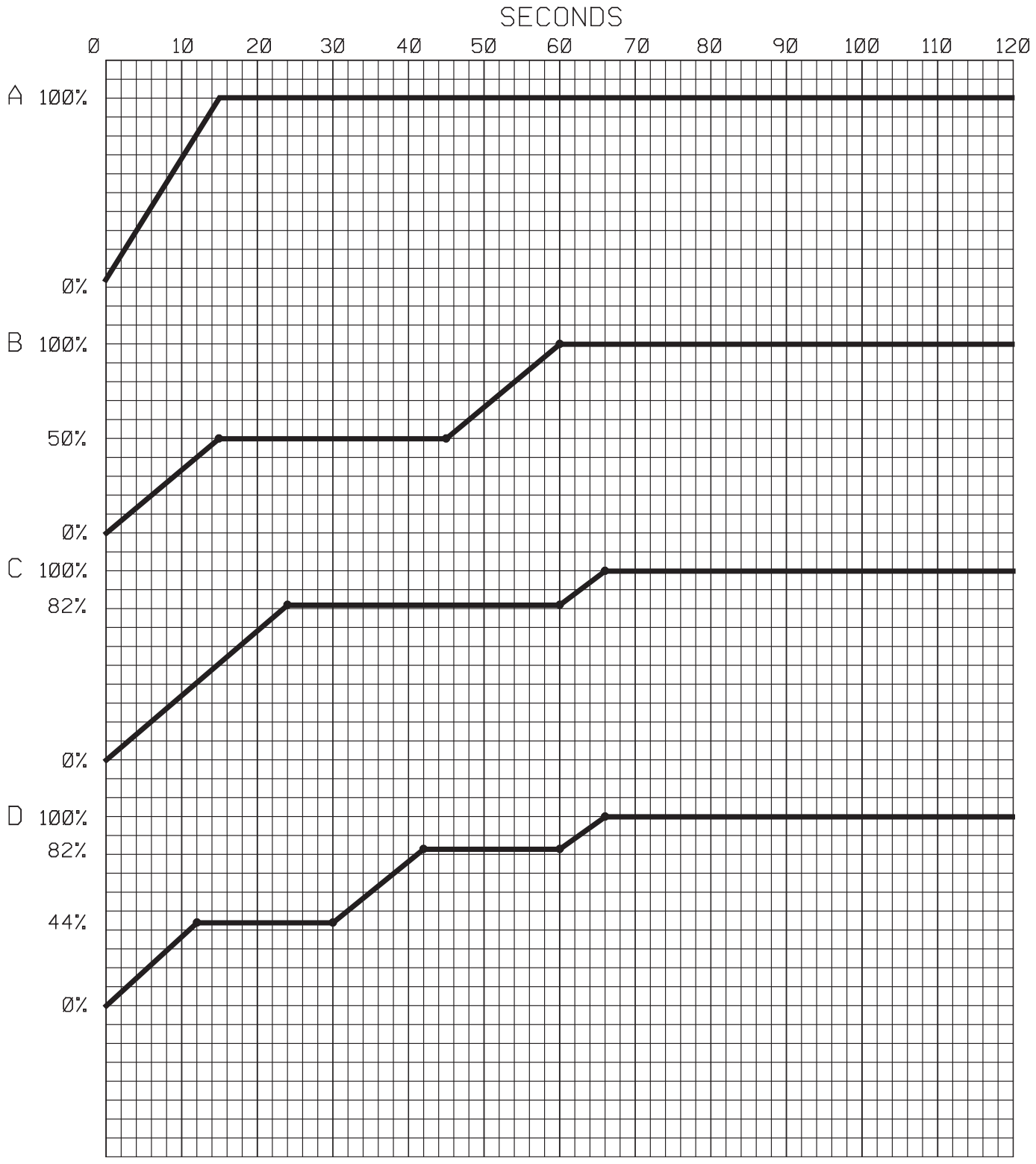
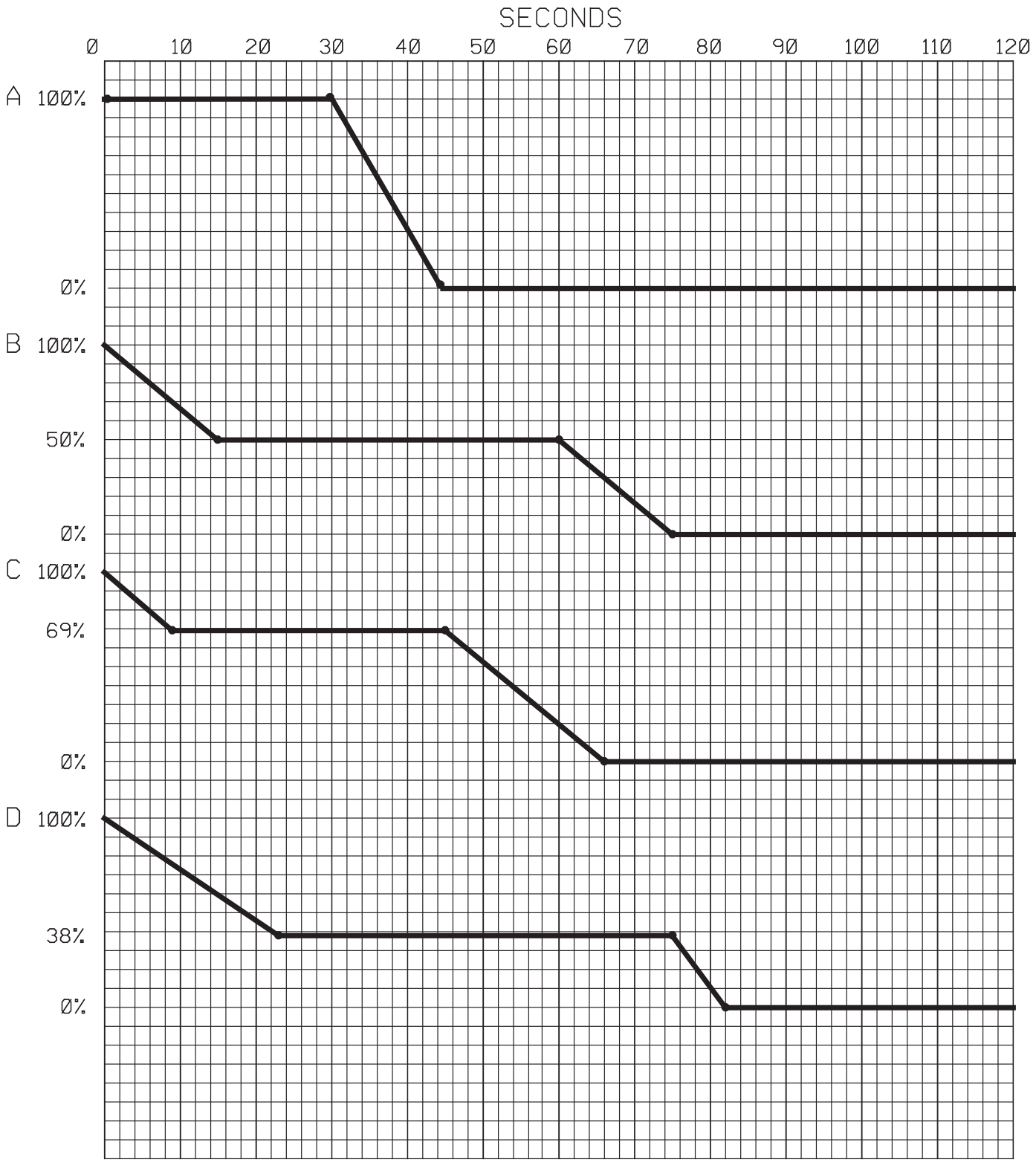
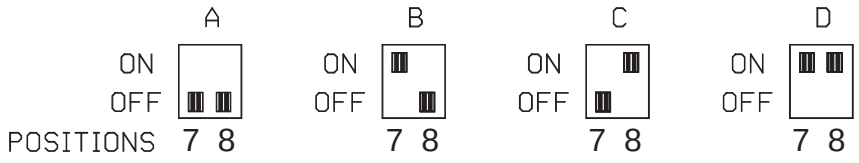


FIGURE 32
BLOWER "OFF" DELAY PROFILES

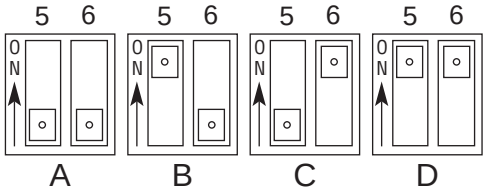




INTERFACE BOARD SWITCH

F. HEATING AIRFLOW ADJUSTMENTS

FIGURE 33
HEATING AIRFLOW ADJUSTMENTS



SELECTION	SWITCH 5 POSITION	SWITCH 6 POSITION	HEATING AIRFLOW ADJUSTMENT
A	OFF	OFF	NONE
B	ON	OFF	10%
C	OFF	ON	-10%
D	ON	ON	NONE

Heating airflow may be adjusted +10% or –10% from nominal airflow using switches 5 & 6.

Refer to Figure 33 for switch positions to achieve the desired adjustments in airflow.

NOTE: Continuous fan speed is NOT affected by switches 5 & 6.

G. COOLING DELAY PROFILES

The unit is shipped with a default ON/OFF delay profile for maximum efficiency. This default may be overridden to maximize comfort by using one of the alternate profiles. ON delay profiles are shown in Figure 31.

OFF delay profiles are shown in Figure 32.

IMPORTANT: Blower ON delay profiles are not used in heating mode.

H. COOLING MODE DEHUMIDIFICATION

An Explanation of On Demand Dehumidification Use

"On-Demand Dehumidification" (ODD) is an optional feature of the ECM interface board. The ODD allows the user to have automatic dehumidification in the cooling mode that is controlled by the user's dehumidifying thermostat or humidistat setting. The humidistat should be wired between the ODD (grey) pigtail and the R (red) pigtail. (Note: no field wiring should be connected directly to the ECM interface board.) When the humidity exceeds the humidistat setting, the airflow is decreased by a preprogrammed amount. This results in higher latent capacity and increases the level of comfort.

Use of the ODD feature is important if maximum latent removal is desired. These systems typically have a latent capacity between 24% to 28% of total system capacity. ODD drops cooling airflow to boost latent capacity without significantly reducing total system capacity.

Refer to the thermostat wiring section of this manual for recommended dehumidifying thermostats.

IMPORTANT: Typical dehumidistats apply a 24V signal when humidity is high. This board requires 24V when humidity is low. (See Table 10.)

I. ON DEMAND DEHUMIDIFICATION AIRFLOW ADJUSTMENT

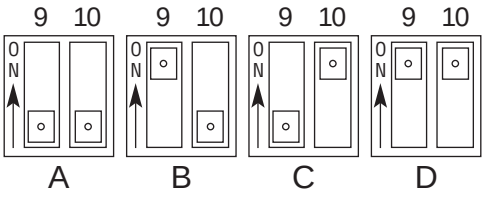
Use switches 9 & 10 to lower cooling airflow as defined in the following table:

IMPORTANT: Selection A turns off the input of the ODD terminal. DO NOT USE SELECTION A WITH A DEHUMIDIFYING THERMOSTAT OR HUMIDISTAT (refer to Figure 34).

TABLE 10
ODD TERMINAL

INDOOR AMBIENT CONDITION	INPUT TO "ODD" TERMINAL (FROM HUMIDISTAT)
HIGH HUMIDITY	Ø VAC
LOW HUMIDITY	24 VAC

FIGURE 34



SELECTION	SWITCH 9 POSITION	SWITCH 10 POSITION	COOLING AIRFLOW ADJUSTMENT
A	OFF	OFF	MAXIMUM LATENT REMOVAL (WITHOUT ODD INPUT)
B	ON	OFF	NONE (FACTORY SETTING)
C	OFF	ON	ON DEMAND DEHUMIDIFICATION (WITH ODD INPUT)
D	ON	ON	NONE

EXPLANATION OF ABOVE SELECTIONS:

Selection A: Maximum Latent Removal

This selection lowers cooling airflow to maximize latent removal anytime there is a call for cooling. This selection can be used in environments where there is always a high latent load as in coastal and southern regions of the USA (see Table 11).

NOTE: Use of selection A in arid environments is not necessary and may cause unnecessary power consumption.

TABLE 11

MODEL	SWITCH 9 POSITION	SWITCH 10 POSITION	Y1 CFM	Y2 CFM
RRRL-C024	OFF	OFF	468	680
RRRL-C036	OFF	OFF	680	1020
RRRL-C049	OFF	OFF	893	1360
RRRL-C060	OFF	OFF	1063	1573

Selection B: Factory Setting

This is the factory setting and provides cooling airflows as defined in the COOLING AIRFLOWS section (no reduction in airflow).

Selection C: On Demand Dehumidification

This selection allows On Demand Dehumidification when using a dehumidifying thermostat or humidistat connected to the ODD and "R" pigtails. Nominal airflow is reduced by a preprogrammed amount to maximize latent removal. When high humidity is detected, the cooling airflow as shown in Table 12.

TABLE 12

RRRL-	SWITCH 9 POSITION	SWITCH 10 POSITION	ODD INPUT	Y1 CFM	Y2 CFM
C024	OFF	ON	NONE	468	680
			24VAC	550	800
C036	OFF	ON	NONE	680	1020
			24VAC	800	1200
C049	OFF	ON	NONE	893	1360
			24VAC	1050	1600
C060	OFF	ON	NONE	1063	1573
			24VAC	1250	1850

IMPORTANT: A humidistat or dehumidifying thermostat MUST be connected to the "ODD" and "R" pigtails when using this setting. Refer to the explanation of On Demand Dehumidification use for more information.

Selection D: No Adjustment

This selection is the same as the factory setting and provides cooling airflows as defined in the NOMINAL AIRFLOW ADJUSTMENT section.

ON DEMAND DEHUMIDIFICATION INTERACTIONS WITH AIRFLOW ADJUSTMENT SETTINGS

On Demand Dehumidification switch settings (9 & 10) override the cooling airflow adjustment switch settings (3 & 4). The +/-10% adjustments are turned OFF when Selection A (switch 9 & 10 are OFF) or Selection C (switch 9 OFF; switch 10 ON and no signal to ODD terminal) is used.

XII. GENERAL DATA - RRNL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRNL- Series	B024JK04(E/X)	B024JK06(E/X)	B024JK08(E/X)	B030JK04(E/X)
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	24,400 [7.15]	24,400 [7.15]	24,400 [7.15]	29,800 [8.73]
EER/SEER[2]	11.1/13	11.1/13	11.1/13	11.1/13
Nominal CFM/AHRI Rated CFM [L/s]	800/800 [378/378]	800/800 [378/378]	800/800 [378/378]	1000/1000 [472/472]
AHRI Net Cooling Capacity Btu [kW]	23,600 [6.91]	23,600 [6.91]	23,600 [6.91]	28,600 [8.38]
Net Sensible Capacity Btu [kW]	17,340 [5.08]	17,340 [5.08]	17,340 [5.08]	20,810 [6.1]
Net Latent Capacity Btu [kW]	6,260 [1.83]	6,260 [1.83]	6,260 [1.83]	7,790 [2.28]
Net System Power kW	2.12	2.12	2.12	2.58
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	40,000 [11.72]	60,000 [17.58]	80,000 [23.44]	40,000 [11.72]
Heating Output Btu [kW]	31,000 [9.08]	47,000 [13.77]	62,000 [18.17]	31,000 [9.08]
Temperature Rise Range ºF [ºC]	30-60 [16.7-33.3]	40-70 [22.2-38.9]	55-85 [30.6-47.2]	20-50 [11.1-27.8]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	2	3	4	2
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	10.56 [0.98]	10.56 [0.98]	10.56 [0.98]	10.56 [0.98]
Rows / FPI [FPcm]	1 / 18 [7]	1 / 18 [7]	1 / 18 [7]	1 / 18 [7]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2500 [1180]	2500 [1180]	2500 [1180]
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	1075	1075	1075	1075
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/9x7 [229x178]	1/9x7 [229x178]	1/9x7 [229x178]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/2	Direct/2	Direct/2	Direct/3
No. Motors	1	1	1	1
Motor HP	1/4	1/4	1/4	1/2
Motor RPM	1075	1075	1075	1075
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)1x20x20 [25x508x508]	(1)1x20x20 [25x508x508]	(1)1x20x20 [25x508x508]	(1)1x24x24 [25x610x610]
Refrigerant Charge Oz. [g]	77.8 [2206]	77.8 [2206]	77.8 [2206]	76.8 [2177]
Weights				
Net Weight lbs. [kg]	381 [173]	385 [175]	390 [177]	399 [181]
Ship Weight lbs. [kg]	421 [191]	425 [193]	430 [195]	439 [199]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRNL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRNL- Series	B030JK06(E/X)	B030JK08(E/X)	B030JK10(E/X)	B036CK04
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	29,800 [8.73]	29,800 [8.73]	29,800 [8.73]	37,000 [10.84]
EER/SEER[2]	11.1/13	11.1/13	11.1/13	11.3/13
Nominal CFM/AHRI Rated CFM [L/s]	1000/1000 [472/472]	1000/1000 [472/472]	1000/1000 [472/472]	1200/1200 [566/566]
AHRI Net Cooling Capacity Btu [kW]	28,600 [8.38]	28,600 [8.38]	28,600 [8.38]	35,600 [10.43]
Net Sensible Capacity Btu [kW]	20,810 [6.1]	20,810 [6.1]	20,810 [6.1]	26,390 [7.73]
Net Latent Capacity Btu [kW]	7,790 [2.28]	7,790 [2.28]	7,790 [2.28]	9,210 [2.7]
Net System Power kW	2.58	2.58	2.58	3.15
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	60,000 [17.58]	80,000 [23.44]	100,000 [29.3]	40,000 [11.72]
Heating Output Btu [kW]	47,000 [13.77]	62,000 [18.17]	77,000 [22.56]	32,400 [9.49]
Temperature Rise Range ºF [ºC]	30-60 [16.7-33.3]	40-70 [22.2-38.9]	45-85 [25-47.2]	20-50 [11.1-27.8]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	3	4	5	2
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	10.56 [0.98]	10.56 [0.98]	10.56 [0.98]	14.8 [1.37]
Rows / FPI [FPcm]	1 / 18 [7]	1 / 18 [7]	1 / 18 [7]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2500 [1180]	2500 [1180]	2700 [1274]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
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]	76.8 [2177]	76.8 [2177]	76.8 [2177]	92.8 [2631]
Weights				
Net Weight lbs. [kg]	404 [183]	409 [186]	414 [188]	412 [187]
Ship Weight lbs. [kg]	444 [201]	449 [204]	454 [206]	452 [205]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRNL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRNL- Series	B036CK06	B036CK08	B036CK10	B036DK06
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	37,000 [10.84]	37,000 [10.84]	37,000 [10.84]	37,000 [10.84]
EER/SEER[2]	11.3/13	11.3/13	11.3/13	11.3/13
Nominal CFM/AHRI Rated CFM [L/s]	1200/1200 [566/566]	1200/1200 [566/566]	1200/1200 [566/566]	1200/1200 [566/566]
AHRI Net Cooling Capacity Btu [kW]	35,600 [10.43]	35,600 [10.43]	35,600 [10.43]	35,600 [10.43]
Net Sensible Capacity Btu [kW]	26,390 [7.73]	26,390 [7.73]	26,390 [7.73]	26,390 [7.73]
Net Latent Capacity Btu [kW]	9,210 [2.7]	9,210 [2.7]	9,210 [2.7]	9,210 [2.7]
Net System Power kW	3.15	3.15	3.15	3.15
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	60,000 [17.58]	80,000 [23.44]	100,000 [29.3]	60,000 [17.58]
Heating Output Btu [kW]	48,600 [14.24]	64,800 [18.99]	81,000 [23.73]	48,600 [14.24]
Temperature Rise Range ºF [ºC]	30-60 [16.7-33.3]	40-70 [22.2-38.9]	45-85 [25-47.2]	30-60 [16.7-33.3]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	3	4	5	3
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	14.8 [1.37]	14.8 [1.37]	14.8 [1.37]	14.8 [1.37]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2700 [1274]	2700 [1274]	2700 [1274]	2700 [1274]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/2
No. Motors	1	1	1	1
Motor HP	1/2	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
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]	92.8 [2631]	92.8 [2631]	92.8 [2631]	92.8 [2631]
Weights				
Net Weight lbs. [kg]	417 [189]	422 [191]	426 [193]	417 [189]
Ship Weight lbs. [kg]	457 [207]	462 [210]	466 [211]	457 [207]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRNL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRNL- Series	B036DK08	B036DK10	B036JK04(E/X)	B036JK06(E/X)
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	37,000 [10.84]	37,000 [10.84]	37,000 [10.84]	37,000 [10.84]
EER/SEER[2]	11.3/13	11.3/13	11.3/13	11.3/13
Nominal CFM/AHRI Rated CFM [L/s]	1200/1200 [566/566]	1200/1200 [566/566]	1200/1200 [566/566]	1200/1200 [566/566]
AHRI Net Cooling Capacity Btu [kW]	35,600 [10.43]	35,600 [10.43]	35,600 [10.43]	35,600 [10.43]
Net Sensible Capacity Btu [kW]	26,390 [7.73]	26,390 [7.73]	26,390 [7.73]	26,390 [7.73]
Net Latent Capacity Btu [kW]	9,210 [2.7]	9,210 [2.7]	9,210 [2.7]	9,210 [2.7]
Net System Power kW	3.15	3.15	3.15	3.15
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	80,000 [23.44]	100,000 [29.3]	40,000 [11.72]	60,000 [17.58]
Heating Output Btu [kW]	64,800 [18.99]	81,000 [23.73]	31,000 [9.08]	47,000 [13.77]
Temperature Rise Range ºF [ºC]	40-70 [22.2-38.9]	45-85 [25-47.2]	20-50 [11.1-27.8]	30-60 [16.7-33.3]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	4	5	2	3
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	14.8 [1.37]	14.8 [1.37]	14.8 [1.37]	14.8 [1.37]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2700 [1274]	2700 [1274]	2700 [1274]	2700 [1274]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/2	Direct/2	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
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]	92.8 [2631]	92.8 [2631]	92.8 [2631]	92.8 [2631]
Weights				
Net Weight lbs. [kg]	422 [191]	426 [193]	412 [187]	417 [189]
Ship Weight lbs. [kg]	462 [210]	466 [211]	452 [205]	457 [207]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRNL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRNL- Series	B036JK08(E/X)	B036JK10(E/X)	B042CK04	B042CK06
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	37,000 [10.84]	37,000 [10.84]	44,000 [12.89]	44,000 [12.89]
EER/SEER[2]	11.3/13	11.3/13	11.2/13	11.2/13
Nominal CFM/AHRI Rated CFM [L/s]	1200/1200 [566/566]	1200/1200 [566/566]	1400/1400 [661/661]	1400/1400 [661/661]
AHRI Net Cooling Capacity Btu [kW]	35,600 [10.43]	35,600 [10.43]	42,000 [12.31]	42,000 [12.31]
Net Sensible Capacity Btu [kW]	26,390 [7.73]	26,390 [7.73]	30,510 [8.94]	30,510 [8.94]
Net Latent Capacity Btu [kW]	9,210 [2.7]	9,210 [2.7]	11,490 [3.37]	11,490 [3.37]
Net System Power kW	3.15	3.15	3.73	3.73
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	80,000 [23.44]	100,000 [29.3]	40,000 [11.72]	60,000 [17.58]
Heating Output Btu [kW]	62,000 [18.17]	77,000 [22.56]	32,400 [9.49]	48,600 [14.24]
Temperature Rise Range ºF [ºC]	40-70 [22.2-38.9]	45-85 [25-47.2]	20-50 [11.1-27.8]	30-60 [16.7-33.3]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	4	5	2	3
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	14.8 [1.37]	14.8 [1.37]	16.65 [1.55]	16.65 [1.55]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2700 [1274]	2700 [1274]	3500 [1652]	3500 [1652]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
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]	92.8 [2631]	92.8 [2631]	112 [3175]	112 [3175]
Weights				
Net Weight lbs. [kg]	422 [191]	426 [193]	422 [191]	427 [194]
Ship Weight lbs. [kg]	462 [210]	466 [211]	462 [210]	467 [212]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRNL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRNL- Series	B042CK08	B042CK10	B042JK04(E/X)	B042JK06(E/X)
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	44,000 [12.89]	44,000 [12.89]	44,000 [12.89]	44,000 [12.89]
EER/SEER[2]	11.2/13	11.2/13	11.2/13	11.2/13
Nominal CFM/AHRI Rated CFM [L/s]	1400/1400 [661/661]	1400/1400 [661/661]	1400/1400 [661/661]	1400/1400 [661/661]
AHRI Net Cooling Capacity Btu [kW]	42,000 [12.31]	42,000 [12.31]	42,000 [12.31]	42,000 [12.31]
Net Sensible Capacity Btu [kW]	30,510 [8.94]	30,510 [8.94]	30,510 [8.94]	30,510 [8.94]
Net Latent Capacity Btu [kW]	11,490 [3.37]	11,490 [3.37]	11,490 [3.37]	11,490 [3.37]
Net System Power kW	3.73	3.73	3.73	3.73
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	80,000 [23.44]	100,000 [29.3]	40,000 [11.72]	60,000 [17.58]
Heating Output Btu [kW]	64,800 [18.99]	81,000 [23.73]	31,000 [9.08]	47,000 [13.77]
Temperature Rise Range ºF [ºC]	40-70 [22.2-38.9]	45-85 [25-47.2]	20-50 [11.1-27.8]	30-60 [16.7-33.3]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	4	5	2	3
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.65 [1.55]	16.65 [1.55]	16.65 [1.55]	16.65 [1.55]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	3500 [1652]	3500 [1652]	3500 [1652]	3500 [1652]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
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]	112 [3175]	112 [3175]	112 [3175]	112 [3175]
Weights				
Net Weight lbs. [kg]	432 [196]	437 [198]	422 [191]	427 [194]
Ship Weight lbs. [kg]	472 [214]	477 [216]	462 [210]	467 [212]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRNL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRNL- Series	B042JK08(E/X)	B042JK10(E/X)	B048CK06	B048CK08
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	44,000 [12.89]	44,000 [12.89]	50,000 [14.65]	50,000 [14.65]
EER/SEER[2]	11.2/13	11.2/13	11.2/13	11.2/13
Nominal CFM/AHRI Rated CFM [L/s]	1400/1400 [661/661]	1400/1400 [661/661]	1600/1600 [755/755]	1600/1600 [755/755]
AHRI Net Cooling Capacity Btu [kW]	42,000 [12.31]	42,000 [12.31]	48,000 [14.06]	48,000 [14.06]
Net Sensible Capacity Btu [kW]	30,510 [8.94]	30,510 [8.94]	33,990 [9.96]	33,990 [9.96]
Net Latent Capacity Btu [kW]	11,490 [3.37]	11,490 [3.37]	14,010 [4.1]	14,010 [4.1]
Net System Power kW	3.73	3.73	4.28	4.28
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	80,000 [23.44]	100,000 [29.3]	60,000 [17.58]	80,000 [23.44]
Heating Output Btu [kW]	62,000 [18.17]	77,000 [22.56]	48,600 [14.24]	64,800 [18.99]
Temperature Rise Range ºF [ºC]	40-70 [22.2-38.9]	45-85 [25-47.2]	30-60 [16.7-33.3]	40-70 [22.2-38.9]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	4	5	3	4
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	78	78
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.65 [1.55]	16.65 [1.55]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	3500 [1652]	3500 [1652]	3300 [1557]	3300 [1557]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	3/4	3/4
Motor RPM	1075	1075	1075	1075
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]	112 [3175]	112 [3175]	161.2 [4570]	161.2 [4570]
Weights				
Net Weight lbs. [kg]	432 [196]	437 [198]	452 [205]	457 [207]
Ship Weight lbs. [kg]	472 [214]	477 [216]	492 [223]	497 [225]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRNL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRNL- Series	B048CK10	B048DK10	B048JK06(E/X)	B048JK08(E/X)
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	50,000 [14.65]	50,000 [14.65]	50,000 [14.65]	50,000 [14.65]
EER/SEER[2]	11.2/13	11.2/13	11.2/13	11.2/13
Nominal CFM/AHRI Rated CFM [L/s]	1600/1600 [755/755]	1600/1600 [755/755]	1600/1600 [755/755]	1600/1600 [755/755]
AHRI Net Cooling Capacity Btu [kW]	48,000 [14.06]	48,000 [14.06]	48,000 [14.06]	48,000 [14.06]
Net Sensible Capacity Btu [kW]	33,990 [9.96]	33,990 [9.96]	33,990 [9.96]	33,990 [9.96]
Net Latent Capacity Btu [kW]	14,010 [4.1]	14,010 [4.1]	14,010 [4.1]	14,010 [4.1]
Net System Power kW	4.28	4.28	4.28	4.28
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	100,000 [29.3]	100,000 [29.3]	60,000 [17.58]	80,000 [23.44]
Heating Output Btu [kW]	81,000 [23.73]	81,000 [23.73]	47,000 [13.77]	62,000 [18.17]
Temperature Rise Range ºF [ºC]	45-85 [25-47.2]	45-85 [25-47.2]	30-60 [16.7-33.3]	40-70 [22.2-38.9]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	5	5	3	4
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	78	78	78	78
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	3300 [1557]	3300 [1557]	3300 [1557]	3300 [1557]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/2	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	3/4	3/4	3/4	3/4
Motor RPM	1075	1075	1075	1075
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]	161.2 [4570]	161.2 [4570]	161.2 [4570]	161.2 [4570]
Weights				
Net Weight lbs. [kg]	462 [210]	462 [210]	461 [209]	466 [211]
Ship Weight lbs. [kg]	502 [228]	502 [228]	501 [227]	506 [230]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRNL-B MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRNL- Series	B048JK10(E/X)	B060CK10	B060JK10(E/X)	C060CK10
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	50,000 [14.65]	59,500 [17.43]	59,500 [17.43]	59,500 [17.43]
EER/SEER[2]	11.2/13	10.5/13	10.5/13	10.5/13
Nominal CFM/AHRI Rated CFM [L/s]	1600/1600 [755/755]	2000/1850 [944/873]	2000/1850 [944/873]	2000/1850 [944/873]
AHRI Net Cooling Capacity Btu [kW]	48,000 [14.06]	57,500 [16.85]	57,500 [16.85]	57,500 [16.85]
Net Sensible Capacity Btu [kW]	33,990 [9.96]	40,460 [11.85]	40,460 [11.85]	40,460 [11.85]
Net Latent Capacity Btu [kW]	14,010 [4.1]	17,040 [4.99]	17,040 [4.99]	17,040 [4.99]
Net System Power kW	4.28	5.48	5.48	5.48
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	100,000 [29.3]	100,000 [29.3]	100,000 [29.3]	100,000 [29.3]
Heating Output Btu [kW]	77,000 [22.56]	81,000 [23.73]	77,000 [22.56]	81,000 [23.73]
Temperature Rise Range ºF [ºC]	45-85 [25-47.2]	45-85 [25-47.2]	45-85 [25-47.2]	45-85 [25-47.2]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	5	5	5	5
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	78	78	78	79
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	3300 [1557]	3300 [1557]	3300 [1557]	3400 [1604]
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	1075	1075	1075	1075
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/10x9 [254x229]	1/12x9 [305x229]	1/12x9 [305x229]	1/12x9 [305x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	3/4	1	1	1
Motor RPM	1075	1075	1075	1075
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)1x24x30 [25x610x762]	(1)1x24x30 [25x610x762]	(1)1x24x30 [25x610x762]
Refrigerant Charge Oz. [g]	161.2 [4570]	172.8 [4899]	172.8 [4899]	172.8 [4899]
Weights				
Net Weight lbs. [kg]	471 [214]	532 [241]	532 [241]	564 [256]
Ship Weight lbs. [kg]	511 [232]	577 [262]	577 [262]	573 [260]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRNL-B MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRNL- Series	C060DK10	C060JK10(E/X)
Cooling Performance[1]		
Gross Cooling Capacity Btu [kW]	59,500 [17.43]	59,500 [17.43]
EER/SEER[2]	10.5/13	10.5/13
Nominal CFM/AHRI Rated CFM [L/s]	2000/1850 [944/873]	2000/1850 [944/873]
AHRI Net Cooling Capacity Btu [kW]	57,500 [16.85]	57,500 [16.85]
Net Sensible Capacity Btu [kW]	40,460 [11.85]	40,460 [11.85]
Net Latent Capacity Btu [kW]	17,040 [4.99]	17,040 [4.99]
Net System Power kW	5.48	5.48
Heating Performance (Gas)[4]		
Heating Input Btu [kW]	100,000 [29.3]	100,000 [29.3]
Heating Output Btu [kW]	81,000 [23.73]	77,000 [22.56]
Temperature Rise Range ºF [ºC]	45-85 [25-47.2]	45-85 [25-47.2]
AFUE %	80	80
Steady State Efficiency (%)	81	81
No. Burners	5	5
No. Stages	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]
Compressor		
No./Type	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	79	79
Outdoor Coil - Fin Type	Louvered	Louvered
Tube Type	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered
Tube Type	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]
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]	3400 [1604]	3400 [1604]
No. Motors/HP	1 at 1/3 HP	1 at 1/3 HP
Motor RPM	1075	1075
Indoor Fan - Type	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/12x9 [305x229]	1/12x9 [305x229]
Drive Type/No. Speeds	Direct/3	Direct/3
No. Motors	1	1
Motor HP	1	1
Motor RPM	1075	1075
Motor Frame Size	48	48
Filter - Type	Field Supplied	Field Supplied
Furnished	No	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x24x30 [25x610x762]	(1)1x24x30 [25x610x762]
Refrigerant Charge Oz. [g]	172.8 [4899]	172.8 [4899]
Weights		
Net Weight lbs. [kg]	564 [256]	564 [256]
Ship Weight lbs. [kg]	573 [260]	573 [260]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRPL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRPL- Series	B024JK04(E/X)	B024JK06(E/X)	B024JK08(E/X)	B030JK04(E/X)
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	24,400 [7.15]	24,400 [7.15]	24,400 [7.15]	29,600 [8.67]
EER/SEER[2]	12/14	12/14	12/14	12/14
Nominal CFM/AHRI Rated CFM [L/s]	800/800 [378/378]	800/800 [378/378]	800/800 [378/378]	1000/1000 [472/472]
AHRI Net Cooling Capacity Btu [kW]	24,000 [7.03]	24,000 [7.03]	24,000 [7.03]	29,200 [8.56]
Net Sensible Capacity Btu [kW]	17,790 [5.21]	17,790 [5.21]	17,790 [5.21]	21,700 [6.36]
Net Latent Capacity Btu [kW]	6,210 [1.82]	6,210 [1.82]	6,210 [1.82]	7,500 [2.2]
Net System Power kW	2.01	2.01	2.01	2.43
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	40,000 [11.72]	60,000 [17.58]	80,000 [23.44]	40,000 [11.72]
Heating Output Btu [kW]	31,000 [9.08]	47,000 [13.77]	62,000 [18.17]	31,000 [9.08]
Temperature Rise Range ºF [ºC]	30-60 [16.7-33.3]	40-70 [22.2-38.9]	55-85 [30.6-47.2]	20-50 [11.1-27.8]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	2	3	4	2
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	10.56 [0.98]	10.56 [0.98]	10.56 [0.98]	10.56 [0.98]
Rows / FPI [FPcm]	1 / 18 [7]	1 / 18 [7]	1 / 18 [7]	1 / 18 [7]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2500 [1180]	2500 [1180]	2500 [1180]
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	1075	1075	1075	1075
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/9x7 [229x178]	1/9x7 [229x178]	1/9x7 [229x178]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/2	Direct/2	Direct/2	Direct/3
No. Motors	1	1	1	1
Motor HP	1/3	1/3	1/3	1/2
Motor RPM	1075	1075	1075	1075
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)1x20x20 [25x508x508]	(1)1x20x20 [25x508x508]	(1)1x20x20 [25x508x508]	(1)1x24x24 [25x610x610]
Refrigerant Charge Oz. [g]	77.8 [2206]	77.8 [2206]	77.8 [2206]	76.8 [2177]
Weights				
Net Weight lbs. [kg]	381 [173]	385 [175]	390 [177]	399 [181]
Ship Weight lbs. [kg]	421 [191]	425 [193]	430 [195]	439 [199]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRPL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRPL- Series	B030JK06(E/X)	B030JK08(E/X)	B030JK10(E/X)	B036CK04
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	29,600 [8.67]	29,600 [8.67]	29,600 [8.67]	36,800 [10.78]
EER/SEER[2]	12/14	12/14	12/14	12/14
Nominal CFM/AHRI Rated CFM [L/s]	1000/1000 [472/472]	1000/1000 [472/472]	1000/1000 [472/472]	1200/1200 [566/566]
AHRI Net Cooling Capacity Btu [kW]	29,200 [8.56]	29,200 [8.56]	29,200 [8.56]	36,000 [10.55]
Net Sensible Capacity Btu [kW]	21,700 [6.36]	21,700 [6.36]	21,700 [6.36]	26,420 [7.74]
Net Latent Capacity Btu [kW]	7,500 [2.2]	7,500 [2.2]	7,500 [2.2]	9,580 [2.81]
Net System Power kW	2.43	2.43	2.43	2.94
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	60,000 [17.58]	80,000 [23.44]	100,000 [29.3]	40,000 [11.72]
Heating Output Btu [kW]	47,000 [13.77]	62,000 [18.17]	77,000 [22.56]	32,400 [9.49]
Temperature Rise Range ºF [ºC]	30-60 [16.7-33.3]	40-70 [22.2-38.9]	45-85 [25-47.2]	20-50 [11.1-27.8]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	3	4	5	2
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	10.56 [0.98]	10.56 [0.98]	10.56 [0.98]	14.8 [1.37]
Rows / FPI [FPcm]	1 / 18 [7]	1 / 18 [7]	1 / 18 [7]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2500 [1180]	2500 [1180]	2700 [1274]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
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]	76.8 [2177]	76.8 [2177]	76.8 [2177]	92.8 [2631]
Weights				
Net Weight lbs. [kg]	404 [183]	409 [186]	414 [188]	412 [187]
Ship Weight lbs. [kg]	444 [201]	449 [204]	454 [206]	452 [205]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRPL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRPL- Series	B036CK06	B036CK08	B036CK10	B036DK06
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	36,800 [10.78]	36,800 [10.78]	36,800 [10.78]	36,800 [10.78]
EER/SEER[2]	12/14	12/14	12/14	12/14
Nominal CFM/AHRI Rated CFM [L/s]	1200/1200 [566/566]	1200/1200 [566/566]	1200/1200 [566/566]	1200/1200 [566/566]
AHRI Net Cooling Capacity Btu [kW]	36,000 [10.55]	36,000 [10.55]	36,000 [10.55]	36,000 [10.55]
Net Sensible Capacity Btu [kW]	26,420 [7.74]	26,420 [7.74]	26,420 [7.74]	26,420 [7.74]
Net Latent Capacity Btu [kW]	9,580 [2.81]	9,580 [2.81]	9,580 [2.81]	9,580 [2.81]
Net System Power kW	2.94	2.94	2.94	2.94
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	60,000 [17.58]	80,000 [23.44]	100,000 [29.3]	60,000 [17.58]
Heating Output Btu [kW]	48,600 [14.24]	64,800 [18.99]	81,000 [23.73]	48,600 [14.24]
Temperature Rise Range ºF [ºC]	30-60 [16.7-33.3]	40-70 [22.2-38.9]	45-85 [25-47.2]	30-60 [16.7-33.3]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	3	4	5	3
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	14.8 [1.37]	14.8 [1.37]	14.8 [1.37]	14.8 [1.37]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2700 [1274]	2700 [1274]	2700 [1274]	2700 [1274]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
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]	92.8 [2631]	92.8 [2631]	92.8 [2631]	92.8 [2631]
Weights				
Net Weight lbs. [kg]	417 [189]	422 [191]	426 [193]	417 [189]
Ship Weight lbs. [kg]	457 [207]	462 [210]	466 [211]	457 [207]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRPL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRPL- Series	B036DK08	B036DK10	B036JK04(E/X)	B036JK06(E/X)
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	36,800 [10.78]	36,800 [10.78]	36,800 [10.78]	36,800 [10.78]
EER/SEER[2]	12/14	12/14	12/14	12/14
Nominal CFM/AHRI Rated CFM [L/s]	1200/1200 [566/566]	1200/1200 [566/566]	1200/1200 [566/566]	1200/1200 [566/566]
AHRI Net Cooling Capacity Btu [kW]	36,000 [10.55]	36,000 [10.55]	36,000 [10.55]	36,000 [10.55]
Net Sensible Capacity Btu [kW]	26,420 [7.74]	26,420 [7.74]	26,420 [7.74]	26,420 [7.74]
Net Latent Capacity Btu [kW]	9,580 [2.81]	9,580 [2.81]	9,580 [2.81]	9,580 [2.81]
Net System Power kW	2.94	2.94	2.98	2.98
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	80,000 [23.44]	100,000 [29.3]	40,000 [11.72]	60,000 [17.58]
Heating Output Btu [kW]	64,800 [18.99]	81,000 [23.73]	31,000 [9.08]	47,000 [13.77]
Temperature Rise Range ºF [ºC]	40-70 [22.2-38.9]	45-85 [25-47.2]	20-50 [11.1-27.8]	30-60 [16.7-33.3]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	4	5	2	3
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	14.8 [1.37]	14.8 [1.37]	14.8 [1.37]	14.8 [1.37]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2700 [1274]	2700 [1274]	2700 [1274]	2700 [1274]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
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]	92.8 [2631]	92.8 [2631]	92.8 [2631]	92.8 [2631]
Weights				
Net Weight lbs. [kg]	422 [191]	426 [193]	412 [187]	417 [189]
Ship Weight lbs. [kg]	462 [210]	466 [211]	452 [205]	457 [207]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRPL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRPL- Series	B036JK08(E/X)	B036JK10(E/X)	B042CK04	B042CK06
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	36,800 [10.78]	36,800 [10.78]	44,000 [12.89]	44,000 [12.89]
EER/SEER[2]	12/14	12/14	12/14	12/14
Nominal CFM/AHRI Rated CFM [L/s]	1200/1200 [566/566]	1200/1200 [566/566]	1400/1400 [661/661]	1400/1400 [661/661]
AHRI Net Cooling Capacity Btu [kW]	36,000 [10.55]	36,000 [10.55]	43,000 [12.6]	43,000 [12.6]
Net Sensible Capacity Btu [kW]	26,420 [7.74]	26,420 [7.74]	31,270 [9.16]	31,270 [9.16]
Net Latent Capacity Btu [kW]	9,580 [2.81]	9,580 [2.81]	11,730 [3.44]	11,730 [3.44]
Net System Power kW	2.98	2.98	3.58	3.58
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	80,000 [23.44]	100,000 [29.3]	40,000 [11.72]	60,000 [17.58]
Heating Output Btu [kW]	62,000 [18.17]	77,000 [22.56]	32,400 [9.49]	48,600 [14.24]
Temperature Rise Range ºF [ºC]	40-70 [22.2-38.9]	45-85 [25-47.2]	20-50 [11.1-27.8]	30-60 [16.7-33.3]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	4	5	2	3
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	14.8 [1.37]	14.8 [1.37]	16.65 [1.55]	16.65 [1.55]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2700 [1274]	2700 [1274]	3500 [1652]	3500 [1652]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
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]	92.8 [2631]	92.8 [2631]	112 [3175]	112 [3175]
Weights				
Net Weight lbs. [kg]	422 [191]	426 [193]	422 [191]	427 [194]
Ship Weight lbs. [kg]	462 [210]	466 [211]	462 [210]	467 [212]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRPL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRPL- Series	B042CK08	B042CK10	B042JK04(E/X)	B042JK06(E/X)
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	44,000 [12.89]	44,000 [12.89]	44,000 [12.89]	44,000 [12.89]
EER/SEER[2]	12/14	12/14	12/14	12/14
Nominal CFM/AHRI Rated CFM [L/s]	1400/1400 [661/661]	1400/1400 [661/661]	1400/1400 [661/661]	1400/1400 [661/661]
AHRI Net Cooling Capacity Btu [kW]	43,000 [12.6]	43,000 [12.6]	43,000 [12.6]	43,000 [12.6]
Net Sensible Capacity Btu [kW]	31,270 [9.16]	31,270 [9.16]	31,270 [9.16]	31,270 [9.16]
Net Latent Capacity Btu [kW]	11,730 [3.44]	11,730 [3.44]	11,730 [3.44]	11,730 [3.44]
Net System Power kW	3.58	3.58	3.58	3.58
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	80,000 [23.44]	100,000 [29.3]	40,000 [11.72]	60,000 [17.58]
Heating Output Btu [kW]	64,800 [18.99]	81,000 [23.73]	31,000 [9.08]	47,000 [13.77]
Temperature Rise Range ºF [ºC]	40-70 [22.2-38.9]	45-85 [25-47.2]	20-50 [11.1-27.8]	30-60 [16.7-33.3]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	4	5	2	3
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.65 [1.55]	16.65 [1.55]	16.65 [1.55]	16.65 [1.55]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	3500 [1652]	3500 [1652]	3500 [1652]	3500 [1652]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
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]	112 [3175]	112 [3175]	112 [3175]	112 [3175]
Weights				
Net Weight lbs. [kg]	432 [196]	437 [198]	422 [191]	427 [194]
Ship Weight lbs. [kg]	472 [214]	477 [216]	462 [210]	467 [212]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRPL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRPL- Series	B042JK08(E/X)	B042JK10(E/X)	B048CK06	B048CK08
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	44,000 [12.89]	44,000 [12.89]	50,500 [14.8]	50,500 [14.8]
EER/SEER[2]	12/14	12/14	12/14	12/14
Nominal CFM/AHRI Rated CFM [L/s]	1400/1400 [661/661]	1400/1400 [661/661]	1600/1600 [755/755]	1600/1600 [755/755]
AHRI Net Cooling Capacity Btu [kW]	43,000 [12.6]	43,000 [12.6]	49,000 [14.36]	49,000 [14.36]
Net Sensible Capacity Btu [kW]	31,270 [9.16]	31,270 [9.16]	34,990 [10.25]	34,990 [10.25]
Net Latent Capacity Btu [kW]	11,730 [3.44]	11,730 [3.44]	14,010 [4.1]	14,010 [4.1]
Net System Power kW	3.58	3.58	4.04	4.04
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	80,000 [23.44]	100,000 [29.3]	60,000 [17.58]	80,000 [23.44]
Heating Output Btu [kW]	62,000 [18.17]	77,000 [22.56]	48,600 [14.24]	64,800 [18.99]
Temperature Rise Range ºF [ºC]	40-70 [22.2-38.9]	45-85 [25-47.2]	30-60 [16.7-33.3]	40-70 [22.2-38.9]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	4	5	3	4
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	78	78
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.65 [1.55]	16.65 [1.55]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	3500 [1652]	3500 [1652]	3300 [1557]	3300 [1557]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	3/4	3/4
Motor RPM	1075	1075	1075	1075
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]	112 [3175]	112 [3175]	161.2 [4570]	161.2 [4570]
Weights				
Net Weight lbs. [kg]	432 [196]	437 [198]	452 [205]	457 [207]
Ship Weight lbs. [kg]	472 [214]	477 [216]	492 [223]	497 [225]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRPL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRPL- Series	B048CK10	B048DK10	B048JK06(E/X)	B048JK08(E/X)
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	50,500 [14.8]	50,500 [14.8]	50,500 [14.8]	50,500 [14.8]
EER/SEER[2]	12/14	12/14	12/14	12/14
Nominal CFM/AHRI Rated CFM [L/s]	1600/1600 [755/755]	1600/1600 [755/755]	1600/1600 [755/755]	1600/1600 [755/755]
AHRI Net Cooling Capacity Btu [kW]	49,000 [14.36]	49,000 [14.36]	49,000 [14.36]	49,000 [14.36]
Net Sensible Capacity Btu [kW]	34,990 [10.25]	34,990 [10.25]	34,990 [10.25]	34,990 [10.25]
Net Latent Capacity Btu [kW]	14,010 [4.1]	14,010 [4.1]	14,010 [4.1]	14,010 [4.1]
Net System Power kW	4.04	4.04	4.04	4.04
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	100,000 [29.3]	100,000 [29.3]	60,000 [17.58]	80,000 [23.44]
Heating Output Btu [kW]	81,000 [23.73]	81,000 [23.73]	47,000 [13.77]	62,000 [18.17]
Temperature Rise Range ºF [ºC]	45-85 [25-47.2]	45-85 [25-47.2]	30-60 [16.7-33.3]	40-70 [22.2-38.9]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	5	5	3	4
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	78	78	78	78
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	3300 [1557]	3300 [1557]	3300 [1557]	3300 [1557]
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	1075	1075	1075	1075
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	3/4	3/4	3/4	3/4
Motor RPM	1075	1075	1075	1075
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]	161.2 [4570]	161.2 [4570]	161.2 [4570]	161.2 [4570]
Weights				
Net Weight lbs. [kg]	462 [210]	462 [210]	461 [209]	466 [211]
Ship Weight lbs. [kg]	502 [228]	502 [228]	501 [227]	506 [230]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRPL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRPL- Series	B048JK10(E/X)	B060CK10	B060DK10	B060JK10(E/X)
Cooling Performance[1]				
Gross Cooling Capacity Btu [kW]	50,500 [14.8]	59,500 [17.43]	59,500 [17.43]	59,500 [17.43]
EER/SEER[2]	12/14	10.8/14	10.8/14	10.8/14
Nominal CFM/AHRI Rated CFM [L/s]	1600/1600 [755/755]	2000/1850 [944/873]	2000/1850 [944/873]	2000/1850 [944/873]
AHRI Net Cooling Capacity Btu [kW]	49,000 [14.36]	57,500 [16.85]	57,500 [16.85]	57,500 [16.85]
Net Sensible Capacity Btu [kW]	34,990 [10.25]	40,460 [11.85]	40,460 [11.85]	40,460 [11.85]
Net Latent Capacity Btu [kW]	14,010 [4.1]	17,040 [4.99]	17,040 [4.99]	17,040 [4.99]
Net System Power kW	4.04	5.32	5.32	5.32
Heating Performance (Gas)[4]				
Heating Input Btu [kW]	100,000 [29.3]	100,000 [29.3]	100,000 [29.3]	100,000 [29.3]
Heating Output Btu [kW]	77,000 [22.56]	81,000 [23.73]	81,000 [23.73]	77,000 [22.56]
Temperature Rise Range ºF [ºC]	45-85 [25-47.2]	45-85 [25-47.2]	45-85 [25-47.2]	45-85 [25-47.2]
AFUE %	80	80	80	80
Steady State Efficiency (%)	81	81	81	81
No. Burners	5	5	5	5
No. Stages	1	1	1	1
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	78	78	78	78
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	3300 [1557]	3300 [1557]	3300 [1557]	3300 [1557]
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	1075	1075	1075	1075
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/10x9 [254x229]	1/12x9 [305x229]	1/12x9 [305x229]	1/12x9 [305x229]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	3/4	1	1	1
Motor RPM	1075	1075	1075	1075
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)1x24x30 [25x610x762]	(1)1x24x30 [25x610x762]	(1)1x24x30 [25x610x762]
Refrigerant Charge Oz. [g]	161.2 [4570]	172.8 [4899]	172.8 [4899]	172.8 [4899]
Weights				
Net Weight lbs. [kg]	471 [214]	532 [241]	532 [241]	532 [241]
Ship Weight lbs. [kg]	511 [232]	577 [262]	577 [262]	577 [262]

NOTES:

1. 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. ARI 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 ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Heating Performance limit ettings 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.
4. AFUE is rated in accordance with DOE test procedures.
5. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

GENERAL DATA - RRRL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRRL- Series	C024JK06(E/X)	C036CK06	C036CK08	C036CK10
Cooling Performance[1]				Continued ->
Gross Cooling Capacity (2nd Stage) Btu [kW]	24,200 [7.09]	36,800 [10.78]	36,800 [10.78]	36,800 [10.78]
SEER[2]	16.1	16.3	16.3	16.3
EER (1st stage / 2nd stage)	13.5/12.4	13.4/12.3	13.4/12.3	13.4/12.3
AHRI Rated CFM (1st / 2nd stage) [L/s]	550/800 [260/378]	800/1200 [378/566]	800/1200 [378/566]	800/1200 [378/566]
AHRI Net Cooling Capacity (1st / 2nd stage) Btu [kW]	18,500/23,800 [5.42/6.97]	25,000/36,000 [7.32/10.55]	25,000/36,000 [7.32/10.55]	25,000/36,000 [7.32/10.55]
Net Sensible Capacity (1st / 2nd stage) Btu [kW]	13,380/17,410 [3.92/5.1]	18,470/27,280 [5.41/7.99]	18,470/27,280 [5.41/7.99]	18,470/27,280 [5.41/7.99]
Net Latent Capacity (1st / 2nd stage) Btu [kW]	5,120/6,390 [1.5/1.87]	6,530/8,720 [1.91/2.55]	6,530/8,720 [1.91/2.55]	6,530/8,720 [1.91/2.55]
Net System Power (1st / 2nd stage) kW	1.37/1.92	1.87/2.94	1.87/2.94	1.87/2.94
Heating Performance (Gas)[4]				
Heating Input Btu [kW] (1st Stage / 2nd Stage)	42,000/60,000 [12.31/17.58]	42,000/60,000 [12.31/17.58]	56,000/80,000 [16.41/23.44]	70,000/100,000 [20.51/29.3]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	33,600/48,000 [9.84/14.06]	34,020/48,600 [9.97/14.24]	45,360/64,800 [13.29/18.99]	56,700/81,000 [16.61/23.73]
Temperature Rise Range ºF [ºC] (1st Stage / 2nd Stage)	25-55 [13.9-30.6] / 40-70 [22.2-38.9]	15-45 [8.3-25] / 30-60 [16.7-33.3]	20-50 [11.1-27.8] / 40-70 [22.2-38.9]	35-65 [19.4-36.1] / 55-85 [30.6-47.2]
AFUE %	80	0	0	0
Steady State Efficiency (%)	81	81	81	81
No. Burners	3	3	4	5
No. Stages	2	2	2	2
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	10.56 [0.98]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	1 / 18 [7]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2700 [1274]	2700 [1274]	2700 [1274]
No. Motors/HP	1 at 1/6 HP	1 at 1/6 HP	1 at 1/6 HP	1 at 1/6 HP
Motor RPM	850	850	850	850
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/9x7 [229x178]	1/10x9 [254x229]	1/10x9 [254x229]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/11	Direct/11	Direct/11	Direct/11
No. Motors	1	1	1	1
Motor HP	1/3	1/2	1/2	1/2
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)1x20x20 [25x508x508]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]
Refrigerant Charge Oz. [g]	97.6 [2767]	155.2 [4400]	155.2 [4400]	155.2 [4400]
Weights				
Net Weight lbs. [kg]	454 [206]	544 [247]	549 [249]	554 [251]
Ship Weight lbs. [kg]	467 [212]	558 [253]	558 [253]	558 [253]

GENERAL DATA - RRRL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRRL- Series	C036JK06(E/X)	C036JK08(E/X)	C036JK10(E/X)	C049CK08
Cooling Performance[1]				Continued ->
Gross Cooling Capacity (2nd Stage) Btu [kW]	36,800 [10.78]	36,800 [10.78]	36,800 [10.78]	48,500 [14.21]
SEER[2]	16.3	16.3	16.3	15
EER (1st stage / 2nd stage)	13.4/12.3	13.4/12.3	13.4/12.3	12.7/11.5
AHRI Rated CFM (1st / 2nd stage) [L/s]	800/1200 [378/566]	800/1200 [378/566]	800/1200 [378/566]	1050/1600 [495/755]
AHRI Net Cooling Capacity (1st / 2nd stage) Btu [kW]	25,000/36,000 [7.32/10.55]	25,000/36,000 [7.32/10.55]	25,000/36,000 [7.32/10.55]	34,800/47,000 [10.2/13.77]
Net Sensible Capacity (1st / 2nd stage) Btu [kW]	18,470/27,280 [5.41/7.99]	18,470/27,280 [5.41/7.99]	18,470/27,280 [5.41/7.99]	24,820/34,480 [7.27/10.1]
Net Latent Capacity (1st / 2nd stage) Btu [kW]	6,530/8,720 [1.91/2.55]	6,530/8,720 [1.91/2.55]	6,530/8,720 [1.91/2.55]	9,980/12,520 [2.92/3.67]
Net System Power (1st / 2nd stage) kW	1.87/2.94	1.87/2.94	1.87/2.94	2.73/4.1
Heating Performance (Gas)[4]				
Heating Input Btu [kW] (1st Stage / 2nd Stage)	42,000/60,000 [12.31/17.58]	56,000/80,000 [16.41/23.44]	70,000/100,000 [20.51/29.3]	56,000/80,000 [16.41/23.44]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	33,600/48,000 [9.84/14.06]	44,800/64,000 [13.13/18.75]	56,000/80,000 [16.41/23.44]	45,360/64,800 [13.29/18.99]
Temperature Rise Range ºF [ºC] (1st Stage / 2nd Stage)	15-45 [8.3-25] / 30-60 [16.7-33.3]	20-50 [11.1-27.8] / 40-70 [22.2-38.9]	35-65 [19.4-36.1] / 55-85 [30.6-47.2]	20-50 [11.1-27.8] / 40-70 [22.2-38.9]
AFUE %	80	80	80	0
Steady State Efficiency (%)	81	81	81	81
No. Burners	3	4	5	4
No. Stages	2	2	2	2
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	78
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	2700 [1274]	2700 [1274]	2700 [1274]	3300 [1557]
No. Motors/HP	1 at 1/6 HP	1 at 1/6 HP	1 at 1/6 HP	1 at 1/3 HP
Motor RPM	850	850	850	850
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]	1/10x9 [254x229]
Drive Type/No. Speeds	Direct/11	Direct/11	Direct/11	Direct/11
No. Motors	1	1	1	1
Motor HP	1/2	1/2	1/2	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]	155.2 [4400]	155.2 [4400]	155.2 [4400]	169.6 [4808]
Weights				
Net Weight lbs. [kg]	552 [250]	557 [253]	557 [253]	549 [249]
Ship Weight lbs. [kg]	558 [253]	558 [253]	558 [253]	562 [255]

GENERAL DATA - RRRL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRRL- Series	C049CK10	C048JK08(E/X)	C048JK10(E/X)	C060CK10
Cooling Performance[1]				Continued ->
Gross Cooling Capacity (2nd Stage) Btu [kW]	48,500 [14.21]	48,500 [14.21]	48,500 [14.21]	60,500 [17.73]
SEER[2]	15	15	15	14.19999981
EER (1st stage / 2nd stage)	12.7/11.5	12.7/11.5	12.7/11.5	12/10.7
AHRI Rated CFM (1st / 2nd stage) [L/s]	1050/1600 [495/755]	1050/1600 [495/755]	1050/1600 [495/755]	1250/1850 [590/873]
AHRI Net Cooling Capacity (1st / 2nd stage) Btu [kW]	34,800/47,000 [10.2/13.77]	34,800/47,000 [10.2/13.77]	34,800/47,000 [10.2/13.77]	41,800/58,000 [12.25/16.99]
Net Sensible Capacity (1st / 2nd stage) Btu [kW]	24,820/34,480 [7.27/10.1]	24,820/34,480 [7.27/10.1]	24,820/34,480 [7.27/10.1]	30,000/42,280 [8.79/12.39]
Net Latent Capacity (1st / 2nd stage) Btu [kW]	9,980/12,520 [2.92/3.67]	9,980/12,520 [2.92/3.67]	9,980/12,520 [2.92/3.67]	11,800/15,720 [3.46/4.61]
Net System Power (1st / 2nd stage) kW	2.73/4.1	2.73/4.1	2.73/4.1	3.48/5.4
Heating Performance (Gas)[4]				
Heating Input Btu [kW] (1st Stage / 2nd Stage)	70,000/100,000 [20.51/29.3]	56,000/80,000 [16.41/23.44]	70,000/100,000 [20.51/29.3]	70,000/100,000 [20.51/29.3]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	56,700/81,000 [16.61/23.73]	44,800/64,000 [13.13/18.75]	56,000/80,000 [16.41/23.44]	56,700/81,000 [16.61/23.73]
Temperature Rise Range ºF [ºC] (1st Stage / 2nd Stage)	35-65 [19.4-36.1] / 55-85 [30.6-47.2]	20-50 [11.1-27.8] / 40-70 [22.2-38.9]	35-65 [19.4-36.1] / 55-85 [30.6-47.2]	30-60 [16.7-33.3] / 45-75 [25-41.7]
AFUE %	0	80	80	0
Steady State Efficiency (%)	81	81	81	81
No. Burners	5	4	5	5
No. Stages	2	2	2	2
Gas Connection Pipe Size in. [mm]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]	0.5 [12.7]
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor Sound Rating (dB)[5]	78	78	78	78
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
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]	3300 [1557]	3300 [1557]	3300 [1557]	3300 [1557]
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	850	850	850	1075
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/No. Speeds	Direct/11	Direct/11	Direct/11	Direct/11
No. Motors	1	1	1	1
Motor HP	3/4	3/4	3/4	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)1x24x30 [25x610x762]
Refrigerant Charge Oz. [g]	169.6 [4808]	169.6 [4808]	169.6 [4808]	165.8 [4700]
Weights				
Net Weight lbs. [kg]	554 [251]	557 [253]	562 [255]	571 [259]
Ship Weight lbs. [kg]	562 [255]	562 [255]	562 [255]	594 [269]

GENERAL DATA - RRRL- MODELS
NOMINAL SIZES 2-5 TONS [7-15.8 kW]

Model RRRL- Series	C060JK10(E/X)
Cooling Performance[1]	
Gross Cooling Capacity (2nd Stage) Btu [kW]	60,500 [17.73]
SEER[2]	14.2
EER (1st stage / 2nd stage)	12.7/10.7
AHRI Rated CFM (1st / 2nd stage) [L/s]	1250/1850 [590/873]
AHRI Net Cooling Capacity (1st / 2nd stage) Btu [kW]	41,800/58,000 [12.25/16.99]
Net Sensible Capacity (1st / 2nd stage) Btu [kW]	30,000/42,280 [8.79/12.39]
Net Latent Capacity (1st / 2nd stage) Btu [kW]	11,800/15,720 [3.46/4.61]
Net System Power (1st / 2nd stage) kW	3.48/5.4
Heating Performance (Gas)[4]	
Heating Input Btu [kW] (1st Stage / 2nd Stage)	70,000/100,000 [20.51/29.3]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	56,000/80,000 [16.41/23.44]
Temperature Rise Range ºF [ºC] (1st Stage / 2nd Stage)	30-60 [16.7-33.3] / 45-75 [25-41.7]
AFUE %	80
Steady State Efficiency (%)	81
No. Burners	5
No. Stages	2
Gas Connection Pipe Size in. [mm]	0.5 [12.7]
Compressor	
No./Type	1/Scroll
Outdoor Sound Rating (dB)[5]	78
Outdoor Coil - Fin Type	Louvered
Tube Type	Rifled
Tube Size in. [mm] OD	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.23 [1.51]
Rows / FPI [FPcm]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered
Tube Type	Rifled
Tube Size in. [mm]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]
Refrigerant Control	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]
Outdoor Fan - Type	Propeller
No. Used/Diameter in. [mm]	1/22 [558.8]
Drive Type/No. Speeds	Direct/1
CFM [L/s]	3300 [1557]
No. Motors/HP	1 at 1/3 HP
Motor RPM	1075
Indoor Fan - Type	FC Centrifugal
No. Used/Diameter in. [mm]	1/12x9 [305x229]
Drive Type/No. Speeds	Direct/11
No. Motors	1
Motor HP	1
Motor RPM	1050
Motor Frame Size	48
Filter - Type	Field Supplied
Furnished	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x24x30 [25x610x762]
Refrigerant Charge Oz. [g]	165.8 [4700]
Weights	
Net Weight lbs. [kg]	583 [264]
Ship Weight lbs. [kg]	594 [269]

XIII. MISCELLANEOUS

ELECTRICAL DATA – RRNL- SERIES										
		B024JK	**B030JK**	**B036CK**	**B036DK**	**B036JK**	**B042CK**	**B042JK**	**B048CK**	**B048DK**
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	187-253	187-253	187-253	187-253	414-506
	Volts	208/230	208/230	208/230	460	208/230	208/230	208/230	208/230	460
	Minimum Circuit Ampacity	19/19	22/22	17/17	9	25/25	22/22	27/27	24/24	12
	Minimum Overcurrent Protection Device Size	20/20	25/25	20/20	15	25/25	25/25	30/30	25/25	15
	Maximum Overcurrent Protection Device Size	30/30	35/35	25/25	20	40/40	30/30	40/40	35/35	20
Compressor Motor	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	208/230	208/230	208/230	208/230	460
	Phase	1	1	3	3	1	3	1	3	3
	RPM	3450	3450	3450	3450	3450	3450	3450	3450	3450
	HP, Compressor 1	2 1/6	2 2/3	3 1/3	3 1/3	3 1/3	3 1/2	3 1/2	4	4
	Amps (RLA), Comp. 1	12.8/12.8	14.1/14.1	10.4/10.4	5.8	16.7/16.7	13.5/13.5	17.9/17.9	13.7/13.7	6.2
	Amps (LRA), Comp. 1	58.3/58.3	73/73	88/88	38	79/79	88/88	112/112	83.1/83.1	41
Condenser Motor	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	208/230	208/230	208/230	208/230	460
	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)	1.3/1.3	1.3/1.3	1.3/1.3	0.6	1.3/1.3	2/2	2/2	2/2	1
	Amps (LRA, each)	2.3/2.3	2.3/2.3	2.3/2.3	1.1	2.3/2.3	3.9/3.9	3.9/3.9	3.9/3.9	2.2
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	160	208/230	208/230	208/230	208/230	460
	Phase	1	1	1	1	1	1	1	1	1
	HP	1/4	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4
	Amps (FLA, each)	1.3/1.3	2.4/2.4	2.4/2.4	1.2	2.4/2.4	2.4/2.4	2.4/2.4	4.4/4.4	2.3
	Amps (LRA, each)	2.3/2.3	5.1/5.1	5.1/5.1	2.2	5.1/5.1	5.1/5.1	5.1/5.1	9.5/9.5	5

1. Horsepower per Compressor
2. Amp Draw Per Motor. Multiply Value by Number of Motors to Determine Total Amps.

ELECTRICAL DATA – RRNL- SERIES							
		B048JK	**B060CK**	**B060JK**	**C060CK**	**C060DK**	**C060JK**
Unit Information	Unit Operating Voltage Range	187-253	197-253	197-253	197/253	414-506	197-253
	Volts	208/230	208/230	208/230	208/230	460	208/230
	Minimum Circuit Ampacity	34/34	32/32	42/42	32/32	15	43/43
	Minimum Overcurrent Protection Device Size	35/35	35/35	45/45	40/40	20	50/50
	Maximum Overcurrent Protection Device Size	50/50	45/45	60/60	45/45	20	60/60
Compressor Motor	No.	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	460	208/230
	Phase	1	3	1	3	3	1
	RPM	3450	3450	3450	3500	3500	3500
	HP, Compressor 1	4	5	5	5	5	5
	Amps (RLA), Comp. 1	21.8/21.8	17.6/17.6	25.6/25.6	17.9/17.9	7.8	26.4/26.4
	Amps (LRA), Comp. 1	117/117	123/123	118/118	110/110	52	134/134
Condenser Motor	No.	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	460	208/230
	Phase	1	1	1	1	1	1
	HP	1/3	1/3	1/3	1/3	1/3	1/3
	Amps (FLA, each)	2/2	2/2	2/2	2/2	1	2/2
	Amps (LRA, each)	3.9/3.9	3.9/3.9	3.9/3.9	3.9/3.9	2.2	3.9/3.9
Evaporator Fan	No.	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	460/460	208/230
	Phase	1	1	1	1	1	1
	HP	3/4	1	1	1	1	1
	Amps (FLA, each)	4.4/4.4	7.6/7.6	7.6/7.6	7.6/7.6	4	7.6/7.6
	Amps (LRA, each)	9.5/9.5	0/0	0/0	0/0	0	0/0

1. Horsepower per Compressor
2. Amp Draw Per Motor. Multiply Value by Number of Motors to Determine Total Amps.

ELECTRICAL DATA – RRPL- SERIES										
		B024JK	**B030JK**	**B036CK**	**B036DK**	**B036JK**	**B042CK**	**B042JK**	**B048CK**	**B048DK**
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	187-253	187-253	187-253	187-253	414-506
	Volts	208/230	208/230	208/230	460	208/230	208/230	208/230	208/230	460
	Minimum Circuit Ampacity	21/21	24/24	19/19	10	27/27	24/24	29/29	26/26	12
	Minimum Overcurrent Protection Device Size	25/25	25/25	20/20	15	30/30	25/25	30/30	30/30	15
	Maximum Overcurrent Protection Device Size	30/30	35/35	25/25	15	40/40	35/35	45/45	35/35	15
Compressor Motor	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	208/230	208/230	208/230	208/230	460
	Phase	1	1	3	3	1	3	1	3	3
	RPM	3450	3450	3450	3450	3450	3450	3450	3450	3450
	HP, Compressor 1	2 1/6	2 2/3	3 1/3	3 1/3	3 1/3	3 1/2	3 1/2	4	4
	Amps (RLA), Comp. 1	12.8/12.8	14.1/14.1	10.4/10.4	5.8	16.7/16.7	13.5/13.5	17.9/17.9	13.7/13.7	6.2
	Amps (LRA), Comp. 1	58.3/58.3	73/73	88/88	38	79/79	88/88	112/112	83.1/83.1	41
Condenser Motor	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	208/230	208/230	208/230	208/230	460
	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)	1.3/1.3	1.3/1.3	1.3/1.3	0.6	1.3/1.3	2/2	2/2	2/2	1
	Amps (LRA, each)	2.3/2.3	2.3/2.3	2.3/2.3	1.6	2.3/2.3	3.9/3.9	3.9/3.9	3.9/3.9	2.2
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460/460	208/230	208/230	208/230	208/230	460/460
	Phase	1	1	1	1	1	1	1	1	1
	HP	1/3	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4
	Amps (FLA, each)	2.8/2.8	4.1/4.1	4.1/4.1	2.1	4.1/4.1	4.1/4.1	4.1/4.1	6/6	3.2
	Amps (LRA, each)	0/0	0/0	0/0	0	0/0	0/0	0/0	0/0	0

1. Horsepower per Compressor
2. Amp Draw Per Motor. Multiply Value by Number of Motors to Determine Total Amps.

ELECTRICAL DATA – RRPL- SERIES					
		B048JK	**B060CK**	**B060DK**	**B060JK**
Unit Information	Unit Operating Voltage Range	187-253	197-253	414-506	197-253
	Volts	208/230	208/230	460	208/230
	Minimum Circuit Ampacity	36/36	32/32	17	44/44
	Minimum Overcurrent Protection Device Size	40/40	35/35	20	45/45
	Maximum Overcurrent Protection Device Size	50/50	45/45	25	60/60
Compressor Motor	No.	1	1	1	1
	Volts	208/230	208/230	460	208/230
	Phase	1	3	3	1
	RPM	3450	3450	3450	3450
	HP, Compressor 1	4	5	5	5
	Amps (RLA), Comp. 1	21.8/21.8	17.6/17.6	9	27.1/27.1
	Amps (LRA), Comp. 1	117/117	135/135	62	152.9/152.9
Condenser Motor	No.	1	1	1	1
	Volts	208/230	208/230	460	208/230
	Phase	1	1	1	1
	HP	1/3	1/3	1/3	1/3
	Amps (FLA, each)	2/2	2/2	1	2/2
	Amps (LRA, each)	3.9/3.9	3.9/3.9	2.2	3.9/3.9
Evaporator Fan	No.	1	1	1	1
	Volts	208/230	208/230	460/460	208/230
	Phase	1	1	1	1
	HP	3/4	1	1	1
	Amps (FLA, each)	6/6	7.6/7.6	4	7.6/7.6
	Amps (LRA, each)	0/0	0/0	0	0/0

1. Horsepower per Compressor
2. Amp Draw Per Motor. Multiply Value by Number of Motors to Determine Total Amps.

ELECTRICAL DATA – RRRL- SERIES								
		C024JK	**C036CK**	**C036JK**	**C049CK**	**C049JK**	**C060CK**	**C060JK**
Unit Information	Unit Operating Voltage Range	197-253	197-253	197-253	197-253	197-253	197-253	197-253
	Volts	208/230	208/230	208/230	208/230	208/230	208/230	208/230
	Minimum Circuit Ampacity	18/18	18/18	24/24	22/22	31/31	28/28	40/40
	Minimum Overcurrent Protection Device Size	20/20	20/20	30/30	25/25	40/40	35/35	45/45
	Maximum Overcurrent Protection Device Size	25/25	25/25	40/40	35/35	50/50	45/45	60/60
Compressor Motor	No.	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	208/230	208/230	208/230
	Phase	1	3	1	3	1	3	1
	RPM	3450	3450	3450	3450	3450	3450	3450
	HP, Compressor 1	2 5/6	4	4	5 1/4	5 1/4	7	6 2/3
	Amps (RLA), Comp. 1	11.7/11.7	11.6/11.6	16.7/16.8	14/14	21.2/21.2	17.6/17.6	27.1/27.1
	Amps (LRA), Comp. 1	58.3/58.3	73/73	83/83	88/88	104/104	135/135	153/153
Condenser Motor	No.	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	208/230	208/230	208/230
	Phase	1	1	1	1	1	1	1
	HP	1/6	1/6	1/6	1/3	1/3	1/3	1/3
	Amps (FLA, each)	0.6/0.6	0.6/0.6	0.6/0.6	1.5/1.5	1.5/1.5	2/2	2/2
	Amps (LRA, each)	1.5/1.5	1.5/1.5	1.5/1.5	3/3	3/3	3.9/3.9	3.9/3.9
Evaporator Fan	No.	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	208/230	208/230	208/230
	Phase	1	1	1	1	1	1	1
	HP	1/3	1/2	1/2	3/4	3/4	1	1
	Amps (FLA, each)	1/1	2/2	2/2	3/3	3/3	4/4	4/4
	Amps (LRA, each)	0/0	0/0	0/0	0/0	0/0	0/0	0/0

1. Horsepower per Compressor
2. Amp Draw Per Motor. Multiply Value by Number of Motors to Determine Total Amps.

INDOOR AIRFLOW PERFORMANCE — 208 VOLTS

Nominal Cooling Capacity Tons [kW]	Motor Speed From Factory		Heating Input BTU/HR [kW]	Blower Size/ Motor HP [W] & # of Speeds	Motor Speed		External Static Pressure — Inches W.C. [kPa] Side Discharge — Wet 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]
2.0 [7.03]	High	Low	40,000 [11.72]	9 x 7 Blower 1/4 HP [186W] 2 Speed (PSC Motor)	Low	CFM[L/s]	675 [319]	657 [310]	634 [299]	602 [284]	560 [264]	505 [238]	435 [205]	
						RPM	695	785	870	905	940	980	1020	
						Watts	221	214	203	191	171	193	149	
	High	High	60,000 [17.58] 80,000 [23.45]		High	CFM[L/s]	898 [424]	861 [406]	822 [388]	777 [367]	721 [340]	651 [307]	562 [265]	
						RPM	940	965	995	1020	1045	1070	1090	
						Watts	292	278	266	253	239	221	199	
2.5 [8.79]	Low	Low	All Inputs 40,000 [11.72] 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 1/2 HP [373W] 3 Speed (PSC Motor)	Low	CFM[L/s]	1076 [508]	1059 [500]	1032 [490]	996 [470]	950 [448]	896 [423]	832 [393]	
						RPM	730	775	820	865	905	940	975	
						Watts	356	349	341	331	320	305	287	
3.0 [10.55]	Med	Low			Med	CFM[L/s]	1222 [577]	1197 [565]	1179 [556]	1162 [548]	1137 [537]	1097 [518]	1033 [488]	
						RPM	765	810	855	890	920	960	995	
						Watts	423	415	407	397	386	370	351	
3.5 [12.31]	High	Low			High	CFM[L/s]	1514 [715]	1461 [670[	1415 [668]	1370 [647]	1322 [624]	1266 [597]	1197 [565]	
						RPM	895	930	965	985	1005	1025	1045	
						Watts	538	514	493	473	454	434	412	
4.0 [14.07]	High (See Note Below)	Low	All Inputs 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 3/4 HP [559W] 3 Speed (PSC Motor)	Low	CFM[L/s]	1204 [568]	1202 [567]	1191 [562]	1171 [553]	1143 [539]	1107 [522]	1065 [503]	
						RPM	734	810	886	923	959	988	1016	
						Watts	476	468	450	427	403	380	363	
					Med	CFM[L/s]	1674 [790]	1620 [765]	1566 [739]	1511 [713]	1451 [685]	1384 [653]	1305 [616]	
						RPM	997	1019	1040	1058	1076	1088	1100	
						Watts	625	596	567	539	512	484	455	
					High	CFM[L/s]	1843[870]	1763[832]	1693 [799]	1627 [768]	1560 [736]	1485 [701]	1398 [660]	
						RPM	1085	1094	1102	1110	1118	1126	1134	
						Watts	699	663	632	604	576	548	517	
5.0 [17.59]	High (See Note Below)	Heat (Tap 1)	100,000 [29.31]	12 x 9 Blower 1 HP [746W] 3 Speed (X13 Motor)	Heat Dedicated (Tap 1)	CFM[L/s]	1418 [669]	1386 [654]	1352 [638]	1307 [617]	1270 [599]	1221 [576]	1180 [557]	1117 [527]
						RPM	774	794	829	860	892	922	955	1015
						Watts	267	273	287	295	308	316	328	343
					Low (Tap 2)	CFM[L/s]	1858 [877]	1821 [859]	1782 [841]	1752 [827]	1714 [809]	1678 [792]	1640 [774]	1607 [758]
						RPM	944	968	994	1019	1041	1072	1089	1111
						Watts	541	555	564	578	586	598	611	617
					High (Tap 3)	CFM[L/s]	2017 [952]	1985 [937]	1949 [920]	1909 [901]	1879 [887]	1843 [870]	1792 [846]	1737 [820]
						RPM	1018	1033	1070	1076	1112	1124	1147	1152
						Watts	690	701	711	723	735	741	742	728

NOTES:
5 ton cooling speed must be changed to low cool for ARI testing.

DOWN DISCHARGE PRESSURE DROP (ADD TO EXTERNAL STATIC PRESSURE)								
CFM [L/s]	600 [283]	800 [378]	1000 [472]	1200 [566]	1440 [661]	1600 [755]	1800 [850]	2000 [944]
Pressure Drop—Inches W.C. [kPa]	.00	.01 [.002]	.02 [.005]	.03 [.007]	.05 [.012]	.07 [.017]	.08 [.019]	.09 [.022]
MINIMUM RECOMMENDED FILTER SIZES								
Nominal Cooling Capacity Tons [kW]	2.0 [7.03]			2.5 [8.79] – 4.0 [14.07]			5.0 [17.59]	
Minimum Filter Size—Inches [mm]	20 x 20 x 1 [508 x 508 x 25]			24 x 24 x 1 [610 x 610 x 25]			24 x 30 x 1 [610 x 762 x 1]	

INDOOR AIRFLOW PERFORMANCE — 230/460 VOLTS

Nominal Cooling Capacity Tons [kW]	Motor Speed From Factory		Heating Input BTU/HR [kW]	Blower Size/ Motor HP [W] & # of Speeds	Motor Speed		External Static Pressure — Inches W.C. [kPa] Side Discharge — Wet 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]
2.0 [7.03]	High	Low	40,000 [11.72]	9 x 7 Blower 1/4 HP [186W] 2 Speed (PSC Motor)	Low	CFM[L/s]	771 [364]	751 [354]	725 [342]	691 [326]	654 [304]	584 [276]	546 [258]	
						RPM	825	870	910	950	985	1010	1030	
						Watts	253	242	230	217	204	189	181	
	High	High	60,000 [17.58] 80,000 [23.45]		High	CFM[L/s]	946 [446]	922 [435]	882 [416]	830 [392]	769 [363]	701 [331]	630 [298]	
						RPM	990	1015	1035	1055	1070	1085	1100	
						Watts	315	303	288	273	257	241	226	
2.5 [8.79]	Low	Low	All Inputs 40,000 [11.72] 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 1/2 HP [373W] 3 Speed (PSC Motor)	Low	CFM[L/s]	1206 [569]	1182 [558]	1157 [546]	1128 [532]	1091 [515]	1044 [493]	983 [464]	
						RPM	760	815	870	910	950	975	1000	
						Watts	419	406	394	381	368	353	334	
3.0 [10.55]	Med	Low			Med	CFM[L/s]	1411 [666]	1368 [646]	1327 [626]	1285 [606]	1238 [584]	1183 [558]	1116 [527]	
						RPM	865	900	935	970	1000	1020	1035	
						Watts	498	481	464	447	430	411	391	
3.5 [12.31]	High	Low			High	CFM[L/s]	1641 [774]	1577 [744]	1515 [715]	1455 [687]	1393 [657]	1329 [627]	1262 [596]	
						RPM	980	1000	1020	1035	1050	1065	1080	
						Watts	589	565	543	523	503	481	456	
4.0 [14.07]	High (See Note Below)	Low	All Inputs 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 3/4 HP [559W] 3 Speed (PSC Motor)	Low	CFM[L/s]	1412 [666]	1395 [658]	1371 [647]	1339 [632]	1296 [612]	1242 [586]	1176 [555]	
						RPM	859	905	951	981	1011	1034	1057	
						Watts	557	530	506	483	461	437	409	
					Med	CFM[L/s]	1793[846]	1731[817]	1665 [786]	1594 [752]	1519 [717]	1440 [680]	1356 [640]	
						RPM	1053	1067	1080	1091	1101	1110	1119	
						Watts	667	637	606	574	543	512	483	
					High	CFM[L/s]	1889[892]	1826[862]	1753[827]	1672 [789]	1586 [749]	1499 [707]	1413 [667]	
						RPM	1110	1117	1124	1129	1133	1139	1144	
						Watts	736	715	683	646	608	574	551	
5.0 [17.59]	High (See Note Below)	Heat (Tap 1)	100,000 [29.31]	12 x 9 Blower 1 HP [746W] 3 Speed (X13 Motor)	Heat Dedicated (Tap 1)	CFM[L/s]	1423 [672]	1390 [656]	1357 [640]	1311 [619]	1377 [603]	1233 [582]	1192 [563]	1137 [537]
						RPM	776	796	830	861	895	927	958	999
						Watts	272	278	292	300	315	326	337	352
					Low (Tap 2)	CFM[L/s]	1872 [883]	1847 [872]	1808 [853]	1772 [836]	1743 [823]	1703 [804]	1670 [788]	1639 [774]
						RPM	956	973	1010	1023	1057	1085	1110	1146
						Watts	562	572	584	598	613	622	636	646
					High (Tap 3)	CFM[L/s]	2046 [966]	2010 [949]	1980 [934]	1942 [917]	1904 [899]	1867 [881]	1822 [860]	1758 [839]
						RPM	1035	1046	1079	1086	1114	1141	1171	1163
						Watts	721	731	743	754	770	777	770	751

NOTES: 5 ton cooling speed must be changed to low cool for ARI testing.

RRPL Indoor Airflow Performance - 208 Volts

Nominal Cooling Capacity Tons [kW]	Motor Speed from Factory		Heating Input BTU/Hr [kW]	Blower Size/ Motor HP [W] & # of Speeds	Motor Speed		External Static Pressure - Inches W.C. [kPa] (Side Discharge-Wet 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]
2.0 [7.03]	High Cool (Tap 3)	Heat (Tap 1)	All Inputs 40,000 [11.72] 60,000 [17.58] 80,000 [23.45]	9 x 7 Blower 1/3 HP [249 W] 3 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	821 [387]	799 [377]	775 [366]	742 [350]	706 [333]	681 [321]	641 [303]	611 [288]
						RPM	878	903	953	996	1032	1075	1119	1176
						Watts	131	134	142	145	147	154	156	161
					Low Cool (Tap 2)	CFM [l/s]	843 [398]	820 [387]	786 [371]	760 [359]	726 [343]	699 [330]	662 [312]	608 [287]
						RPM	896	924	961	1015	1045	1092	1125	1172
						Watts	141	144	147	155	157	163	165	164
					High Cool (Tap 3)	CFM [l/s]	896 [423]	884 [417]	847 [400]	825 [389]	789 [372]	752 [355]	720 [340]	642 [303]
						RPM	935	966	1008	1047	1084	1118	1154	1176
						Watts	165	171	175	182	184	186	189	174
2.5 [8.79]	High Cool (Tap 3)	Heat (Tap 1)	All Inputs 40,000 [11.72] 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	1153 [544]	1126 [531]	1087 [513]	1042 [492]	1002 [473]	966 [456]	903 [426]	856 [404]
						RPM	866	887	930	966	1010	1038	1082	1121
						Watts	207	210	220	226	234	241	246	251
					Low Cool (Tap 2)	CFM [l/s]	1030 [486]	1010 [477]	967 [456]	922 [435]	868 [410]	825 [389]	763 [360]	709 [335]
						RPM	794	829	868	912	956	1002	1040	1093
						Watts	155	164	169	178	183	192	195	203
					High Cool (Tap 3)	CFM [l/s]	1242 [586]	1213 [572]	1173 [554]	1132 [534]	1086 [513]	1044 [493]	1003 [473]	952 [449]
						RPM	912	934	972	1012	1055	1081	1109	1146
						Watts	249	252	262	271	275	282	283	288
3.0 [10.55]	High Cool (Tap 3)	Heat (Tap 1)	All Inputs 40,000 [11.72] 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	1153 [544]	1126 [531]	1087 [513]	1042 [492]	1002 [473]	966 [456]	903 [426]	856 [404]
						RPM	866	887	930	966	1010	1038	1082	1121
						Watts	207	210	220	226	234	241	246	251
					Low Cool (Tap 2)	CFM [l/s]	1242 [586]	1213 [572]	1173 [554]	1132 [534]	1086 [513]	1044 [493]	1003 [473]	952 [449]
						RPM	912	934	972	1012	1055	1081	1109	1146
						Watts	249	252	262	271	275	282	283	288
					High Cool (Tap 3)	CFM [l/s]	1338 [631]	1309 [618]	1278 [603]	1234 [582]	1182 [558]	1135 [536]	1087 [513]	1007 [475]
						RPM	963	983	1016	1049	1096	1121	1142	1159
						Watts	304	307	316	321	328	332	330	315
3.5 [12.31]	High Cool (Tap 3)	Heat (Tap 1)	All Inputs 40,000 [11.72] 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	1228 [580]	1187 [560]	1140 [538]	1105 [522]	1062 [501]	1008 [476]	959 [453]	911 [430]
						RPM	761	808	841	884	920	960	999	1038
						Watts	150	170	180	183	185	190	195	215
					Low Cool (Tap 2)	CFM [l/s]	1454 [686]	1433 [676]	1392 [657]	1354 [639]	1322 [624]	1283 [606]	1238 [584]	1192 [563]
						RPM	923	946	976	1015	1044	1085	1126	1146
						Watts	301	309	316	327	337	348	356	363
					High Cool (Tap 3)	CFM [l/s]	1544 [729]	1531 [723]	1473 [695]	1440 [680]	1398 [660]	1361 [642]	1317 [622]	1263 [596]
						RPM	958	973	1025	1046	1078	1109	1147	1163
						Watts	343	350	364	371	382	391	401	396
4.0 [14.07]	High Cool (Tap 3)	Heat (Tap 1)	All Inputs 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 3/4 HP [559W] 3 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	1454 [686]	1433 [676]	1392 [657]	1354 [639]	1322 [624]	1283 [606]	1238 [584]	1192 [563]
						RPM	923	946	976	1015	1044	1085	1126	1146
						Watts	301	309	316	327	337	348	356	363
					Low Cool (Tap 2)	CFM [l/s]	1642 [775]	1621 [765]	1584 [748]	1542 [728]	1496 [706]	1451 [685]	1396 [659]	1299 [613]
						RPM	1006	1022	1064	1090	1114	1151	1160	1172
						Watts	405	412	422	435	442	449	440	414
					High Cool (Tap 3)	CFM [l/s]	1896 [895]	1863 [879]	1776 [838]	1694 [799]	1603 [757]	1528 [721]	1424 [672]	1316 [621]
						RPM	1146	1147	1159	1171	1173	1180	1188	1195
						Watts	624	614	583	554	522	497	467	432
5.0 [17.59]	1st Stage Cool (Tap 2) -------- 2nd Stage High Cool (Tap 4)	Heat (Tap 1)	100,000 [29.31]	12 x 9 Blower 1 HP [746W] 4 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	1418 [669]	1386 [654]	1352 [638]	1307 [617]	1270 [599]	1221 [576]	1180 [557]	1117 [527]
						RPM	774	794	829	860	892	922	955	1015
						Watts	267	273	287	295	308	316	328	343
					1st Stage Cool Dedicated (Tap 2)	CFM [l/s]	1310 [618]	1288 [608]	1238 [584]	1204 [568]	1149 [542]	1104 [521]	1035 [488]	971 [458]
						RPM	731	757	789	826	857	894	937	993
						Watts	218	229	237	250	258	270	280	294
					2nd Stage Low Cool (Tap 3)	CFM [l/s]	1858 [877]	1821 [859]	1782 [841]	1752 [827]	1714 [809]	1678 [792]	1640 [774]	1607 [758]
						RPM	944	968	994	1019	1041	1072	1089	1111
						Watts	541	555	564	578	586	598	611	617
					2nd Stage High Cool (Tap 4)	CFM [l/s]	2017 [952]	1985 [937]	1949 [920]	1909 [901]	1879 [887]	1843 [870]	1792 [846]	1737 [820]
						RPM	1018	1033	1070	1076	1112	1124	1147	1152
						Watts	690	701	711	723	735	741	742	728

Notes: (1) Do not operate 2 ton models below 700 CFM. (2) Do not operate 2-1/2 or 3 ton models below 875 CFM. (3) Cooling speed must be changed to Low Cool to achieve ARI performance (all models).

Down Discharge Pressure Drop (Add to External Static Pressure)								
CFM [L/s]	600 [283]	800 [378]	1000 [472]	1200 [566]	1400 [661]	1600 [755]	1800 [849]	2000 [944]
Pressure Drop - Inches W.C. [kPa]	0	.02 [.005]	.05 [.012]	.07 [.017]	.1 [.025]	.12 [.030]	.15 [.037]	.17 [.042]

RRPL Indoor Airflow Performance - 230/460 Volts

Nominal Cooling Capacity Tons [kW]	Motor Speed from Factory		Heating Input BTU/Hr [kW]	Blower Size/ Motor HP [W] & # of Speeds	Motor Speed		External Static Pressure - Inches W.C. [kPa] (Side Discharge-Wet 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]
2.0 [7.03]	High Cool (Tap 3)	Heat (Tap 1)	All Inputs 40,000 [11.72] 60,000 [17.58] 80,000 [23.45]	9 x 7 Blower 1/3 HP [249 W] 3 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	829 [391]	808 [381]	789 [372]	756 [357]	737 [348]	697 [329]	668 [315]	615 [290]
						RPM	890	915	961	1000	1046	1089	1121	1173
						Watts	137	139	148	151	160	163	166	167
					Low Cool (Tap 2)	CFM [l/s]	853 [403]	832 [393]	804 [379]	779 [368]	745 [352]	724 [342]	688 [325]	630 [297]
						RPM	901	928	984	1013	1054	1099	1137	1185
						Watts	146	149	159	161	165	173	176	173
					High Cool (Tap 3)	CFM [l/s]	912 [430]	896 [423]	863 [407]	839 [396]	815 [385]	787 [371]	736 [347]	656 [310]
						RPM	940	977	1017	1062	1088	1139	1165	1181
						Watts	171	179	183	192	194	203	199	182
2.5 [8.79]	High Cool (Tap 3)	Heat (Tap 1)	All Inputs 40,000 [11.72] 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	1169 [552]	1140 [538]	1111 [524]	1068 [504]	1030 [486]	995 [470]	949 [448]	895 [422]
						RPM	868	893	932	978	1010	1048	1086	1129
						Watts	213	217	228	239	244	254	258	268
					Low Cool (Tap 2)	CFM [l/s]	1039 [490]	1021 [482]	971 [458]	932 [440]	887 [419]	839 [396]	797 [376]	735 [347]
						RPM	798	833	878	922	955	1011	1061	1093
						Watts	159	168	175	185	189	200	210	213
					High Cool (Tap 3)	CFM [l/s]	1256 [593]	1231 [581]	1201 [567]	1161 [548]	1115 [526]	1076 [508]	1043 [492]	999 [471]
						RPM	921	942	976	1018	1053	1093	1131	1149
						Watts	259	263	272	284	290	299	309	307
3.0 [10.55]	High Cool (Tap 3)	Heat (Tap 1)	All Inputs 40,000 [11.72] 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	1169 [552]	1140 [538]	1111 [524]	1068 [504]	1030 [486]	995 [470]	949 [448]	895 [422]
						RPM	868	893	932	978	1010	1048	1086	1129
						Watts	213	217	228	239	244	254	258	268
					Low Cool (Tap 2)	CFM [l/s]	1256 [593]	1231 [581]	1201 [567]	1161 [548]	1115 [526]	1076 [508]	1043 [492]	999 [471]
						RPM	921	942	976	1018	1053	1093	1131	1149
						Watts	259	263	272	284	290	299	309	307
					High Cool (Tap 3)	CFM [l/s]	1357 [640]	1330 [628]	1292 [610]	1262 [596]	1225 [578]	1178 [556]	1110 [524]	1033 [488]
						RPM	974	1003	1036	1071	1103	1134	1153	1169
						Watts	318	323	333	343	347	356	345	328
3.5 [12.31]	High Cool (Tap 3)	Heat (Tap 1)	All Inputs 40,000 [11.72] 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	1241 [586]	1203 [568]	1155 [545]	1119 [528]	1082 [511]	1032 [487]	994 [469]	950 [448]
						RPM	771	815	848	886	932	965	1004	1044
						Watts	155	162	170	182	193	200	210	220
					Low Cool (Tap 2)	CFM [l/s]	1459 [689]	1438 [679]	1409 [665]	1371 [647]	1337 [631]	1296 [612]	1258 [594]	1223 [577]
						RPM	931	958	993	1031	1058	1097	1133	1158
						Watts	308	319	331	339	349	362	373	381
					High Cool (Tap 3)	CFM [l/s]	1562 [737]	1538 [726]	1500 [708]	1456 [687]	1434 [677]	1383 [653]	1339 [632]	1270 [599]
						RPM	960	991	1017	1055	1089	1121	1154	1169
						Watts	353	364	375	388	398	408	418	405
4.0 [14.07]	High Cool (Tap 3)	Heat (Tap 1)	All Inputs 60,000 [17.58] 80,000 [23.45] 100,000 [29.31]	10 x 9 Blower 3/4 HP [559W] 3 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	1459 [689]	1438 [679]	1409 [665]	1371 [647]	1337 [631]	1296 [612]	1258 [594]	1223 [577]
						RPM	931	958	993	1031	1058	1097	1133	1158
						Watts	308	319	331	339	349	362	373	381
					Low Cool (Tap 2)	CFM [l/s]	1662 [784]	1648 [778]	1607 [758]	1579 [745]	1538 [726]	1477 [697]	1392 [657]	1305 [616]
						RPM	1016	1037	1072	1098	1129	1156	1169	1179
						Watts	421	429	443	453	465	465	446	420
					High Cool (Tap 3)	CFM [l/s]	1910 [901]	1873 [884]	1798 [849]	1715 [809]	1621 [765]	1536 [725]	1422 [671]	1323 [624]
						RPM	1149	1160	1163	1169	1175	1187	1184	1205
						Watts	638	625	601	571	536	506	469	440
5.0 [17.59]	1st Stage Cool (Tap 2) -------- 2nd Stage High Cool (Tap 4)	Heat (Tap 1)	100,000 [29.31]	12 x 9 Blower 1 HP [746W] 4 Speed X13 Motor	Heat Dedicated (Tap 1)	CFM [l/s]	1423 [672]	1390 [656]	1357 [640]	1311 [619]	1277 [603]	1233 [582]	1192 [563]	1137 [537]
						RPM	776	796	830	861	895	927	958	999
						Watts	272	278	292	300	315	326	337	352
					1st Stage Cool Dedicated (Tap 2)	CFM [l/s]	1319 [622]	1289 [608]	1242 [586]	1201 [567]	1148 [542]	1111 [524]	1047 [494]	985 [465]
						RPM	728	760	790	832	859	894	939	992
						Watts	222	234	241	256	263	276	287	304
					2nd Stage Low Cool (Tap 3)	CFM [l/s]	1872 [883]	1847 [872]	1808 [853]	1772 [836]	1743 [823]	1703 [804]	1670 [788]	1639 [774]
						RPM	956	973	1010	1023	1057	1085	1110	1146
						Watts	562	572	584	598	613	622	636	646
					2nd Stage High Cool (Tap 4)	CFM [l/s]	2046 [966]	2010 [949]	1980 [934]	1942 [917]	1904 [899]	1867 [881]	1822 [860]	1758 [830]
						RPM	1035	1046	1079	1086	1114	1141	1171	1163
						Watts	721	731	743	754	770	777	770	751

Notes: (1) Do not operate 2 ton models below 700 CFM. (2) Do not operate 2-1/2 or 3 ton models below 875 CFM. (3) Cooling speed must be changed to Low Cool to achieve ARI performance (all models).

Down Discharge Pressure Drop (Add to External Static Pressure)								
CFM [L/s]	600 [283]	800 [378]	1000 [472]	1200 [566]	1400 [661]	1600 [755]	1800 [849]	2000 [944]
Pressure Drop - Inches W.C. [kPa]	0	.02 [.005]	.05 [.012]	.07 [.017]	.1 [.025]	.12 [.030]	.15 [.037]	.17 [.042]

RRRL Indoor Airflow Performance - 208 & 230 Volts

Nominal Cooling Capacity Tons [kW]	Blower Size/ Motor HP [W] & Motor Type	Motor Speed		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]
2.0 [7.03]	9 x 7 Blower 1/3 HP [249 W] ECM	Heat	CFM [l/s]	832 [393]	836 [395]	848 [400]	852 [402]	860 [406]	857 [404]	860 [406]	857 [404]	856 [404]	809 [382]
			RPM	845	898	975	1035	1086	1129	1187	1240	1287	1308
			Watts	139	154	180	201	220	237	260	282	302	294
		Low Cool (1st Stage)	CFM [l/s]	548 [259]	551 [260]	557 [263]	556 [262]	552 [261]	563 [266]	558 [263]	542 [256]	528 [249]	523 [247]
			RPM	635	714	794	880	940	1023	1100	1167	1220	1263
			Watts	55	66	80	95	107	127	146	163	177	191
		High Cool (2nd Stage)	CFM [l/s]	769 [363]	778 [367]	791 [373]	793 [374]	804 [379]	804 [379]	812 [383]	804 [379]	806 [380]	786 [371]
			RPM	772	854	926	999	1042	1109	1169	1210	1264	1300
			Watts	109	129	151	172	190	212	236	249	272	280
3.0 [10.55]	10 x 9 Blower 1/2 HP [373W] ECM	Heat	CFM [l/s]	1089 [514]	1099 [519]	1098 [518]	1098 [518]	1101 [520]	1105 [522]	1110 [524]	1106 [522]	1106 [522]	1098 [518]
			RPM	755	808	871	924	974	1025	1077	1121	1162	1205
			Watts	163	185	210	234	259	286	316	339	367	392
		Low Cool (1st Stage)	CFM [l/s]	791 [373]	808 [381]	812 [383]	823 [388]	807 [381]	805 [380]	795 [375]	773 [365]	759 [358]	719 [339]
			RPM	584	689	751	829	873	935	998	1050	1097	1136
			Watts	73	98	116	141	153	175	197	217	237	246
		High Cool (2nd Stage)	CFM [l/s]	1192 [563]	1203 [568]	1216 [574]	1225 [578]	1236 [583]	1241 [586]	1246 [588]	1244 [587]	1241 [586]	1235 [583]
			RPM	783	852	924	974	1027	1080	1127	1166	1206	1246
			Watts	193	225	264	293	324	358	393	419	447	475
4.0 [14.07]	10 x 9 Blower 3/4 HP [559W] ECM	Heat	CFM [l/s]	1055 [498]	1075 [507]	1082 [511]	1090 [514]	1093 [516]	1097 [518]	1096 [517]	1089 [514]	1074 [507]	1069 [505]
			RPM	712	784	845	903	964	1009	1055	1100	1150	1188
			Watts	140	169	194	222	250	276	301	326	344	371
		Low Cool (1st Stage)	CFM [l/s]	1032 [487]	1045 [493]	1053 [497]	1058 [499]	1058 [499]	1066 [503]	1068 [504]	1056 [498]	1046 [494]	1037 [489]
			RPM	714	775	837	900	946	1006	1059	1087	1135	1187
			Watts	137	160	186	214	235	267	293	309	335	362
		High Cool (2nd Stage)	CFM [l/s]	1594 [752]	1609 [759]	1609 [759]	1610 [760]	1612 [761]	1611 [760]	1614 [762]	1613 [761]	1583 [747]	1525 [720]
			RPM	980	1044	1083	1130	1167	1202	1247	1281	1317	1326
			Watts	396	445	477	516	549	580	618	652	665	652
5.0 [17.59]	12 x 9 Blower 1 HP [746W] ECM	Heat	CFM [l/s]	1045 [493]	1051 [496]	1070 [505]	1072 [506]	1069 [505]	1066 [503]	1076 [508]	1068 [504]	1060 [500]	1049 [495]
			RPM	596	646	709	756	804	869	915	962	1009	1060
			Watts	128	149	178	201	226	262	292	322	353	389
		Low Cool (1st Stage)	CFM [l/s]	1168 [551]	1204 [568]	1232 [581]	1238 [584]	1237 [584]	1243 [587]	1240 [585]	1237 [584]	1242 [586]	1228 [580]
			RPM	656	704	765	818	859	902	944	985	1043	1073
			Watts	179	203	241	273	298	329	359	390	428	461
		High Cool (2nd Stage)	CFM [l/s]	1838 [867]	1835 [866]	1840 [868]	1847 [872]	1848 [872]	1842 [869]	1842 [869]	1838 [867]	1834 [866]	1827 [862]
			RPM	925	957	987	1028	1058	1096	1122	1160	1199	1216
			Watts	560	595	631	677	717	751	797	840	880	912

Notes: All airflows listed (except the 5 ton high cool) can be adjusted by +/-10% using the dip switches on the ECM interface board located in the blower section. See the ECM Motor Interface Control and Settings Section of the I&O before making adjustments. The +10% setting of the 5 ton high cool is not available to prevent water blow-off.

Down Discharge Pressure Drop (Add to External Static Pressure)								
CFM [L/s]	600 [283]	800 [378]	1000 [472]	1200 [566]	1400 [661]	1600 [755]	1800 [849]	2000 [944]
Pressure Drop - Inches W.C. [kPa]	0	.02 [.005]	.05 [.012]	.07 [.017]	.1 [.025]	.12 [.030]	.15 [.037]	.17 [.042]

XV. WIRING DIAGRAMS

FIGURE 35
WIRING DIAGRAM

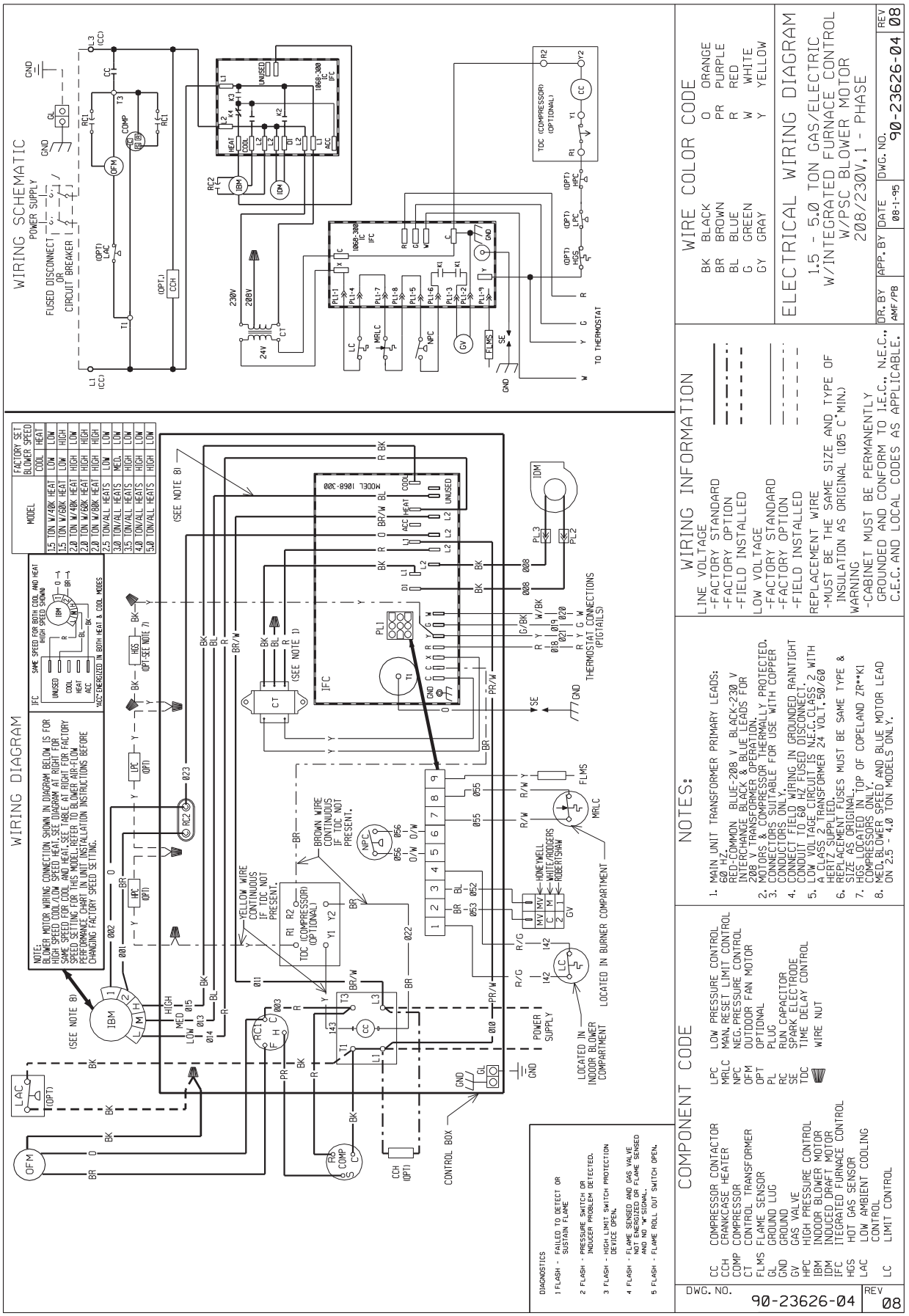


FIGURE 36
WIRING DIAGRAM

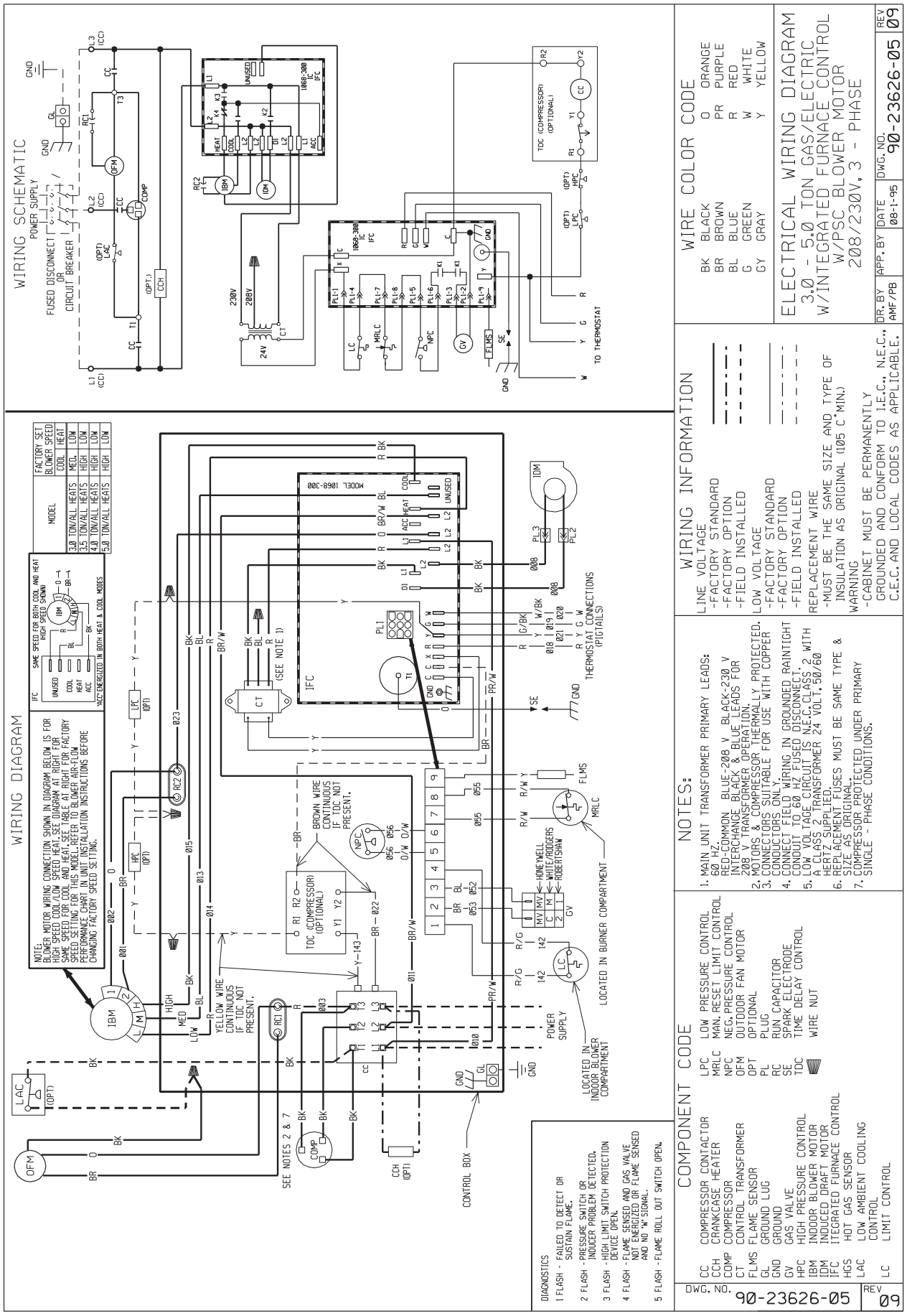


FIGURE 37
WIRING DIAGRAM

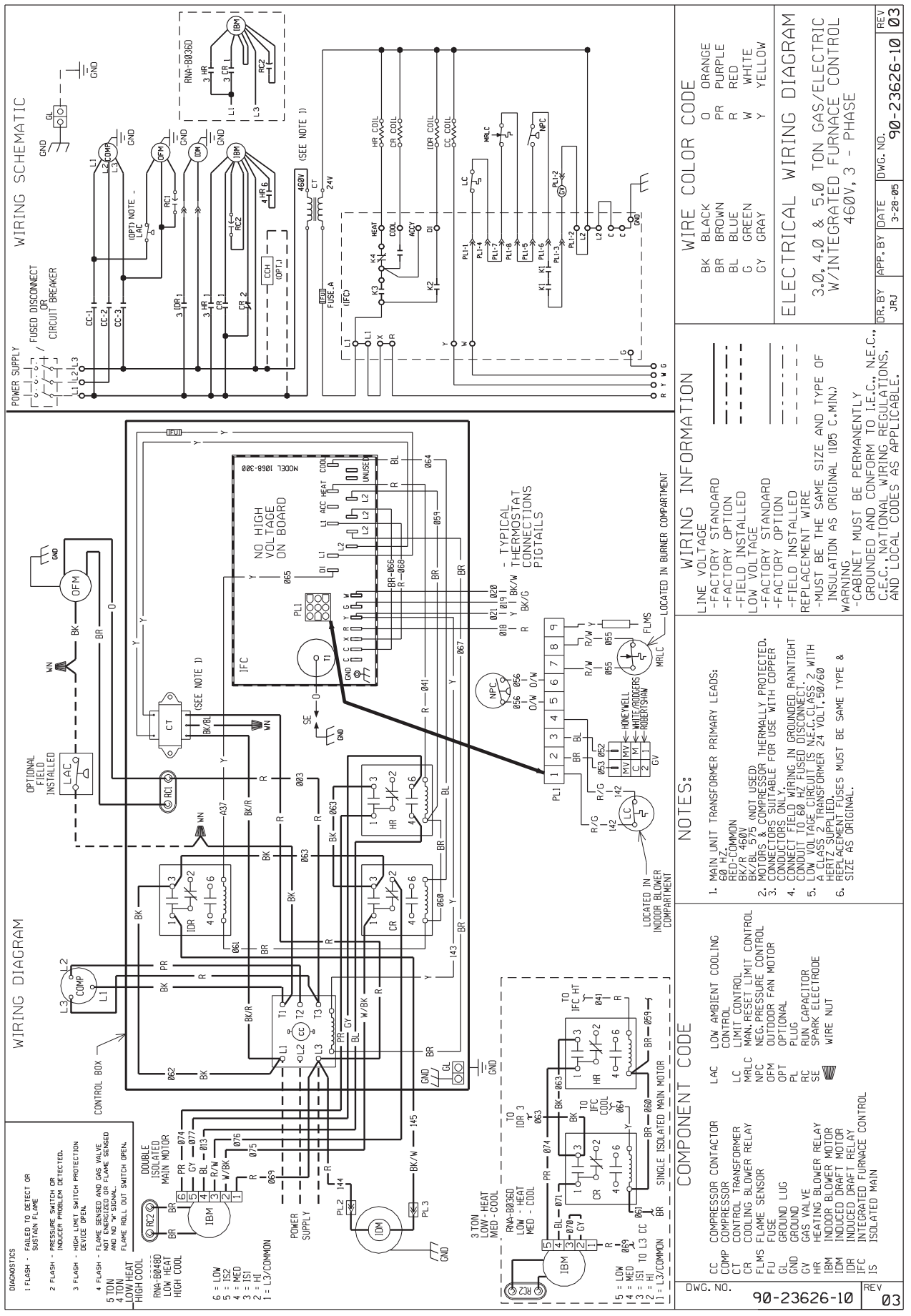
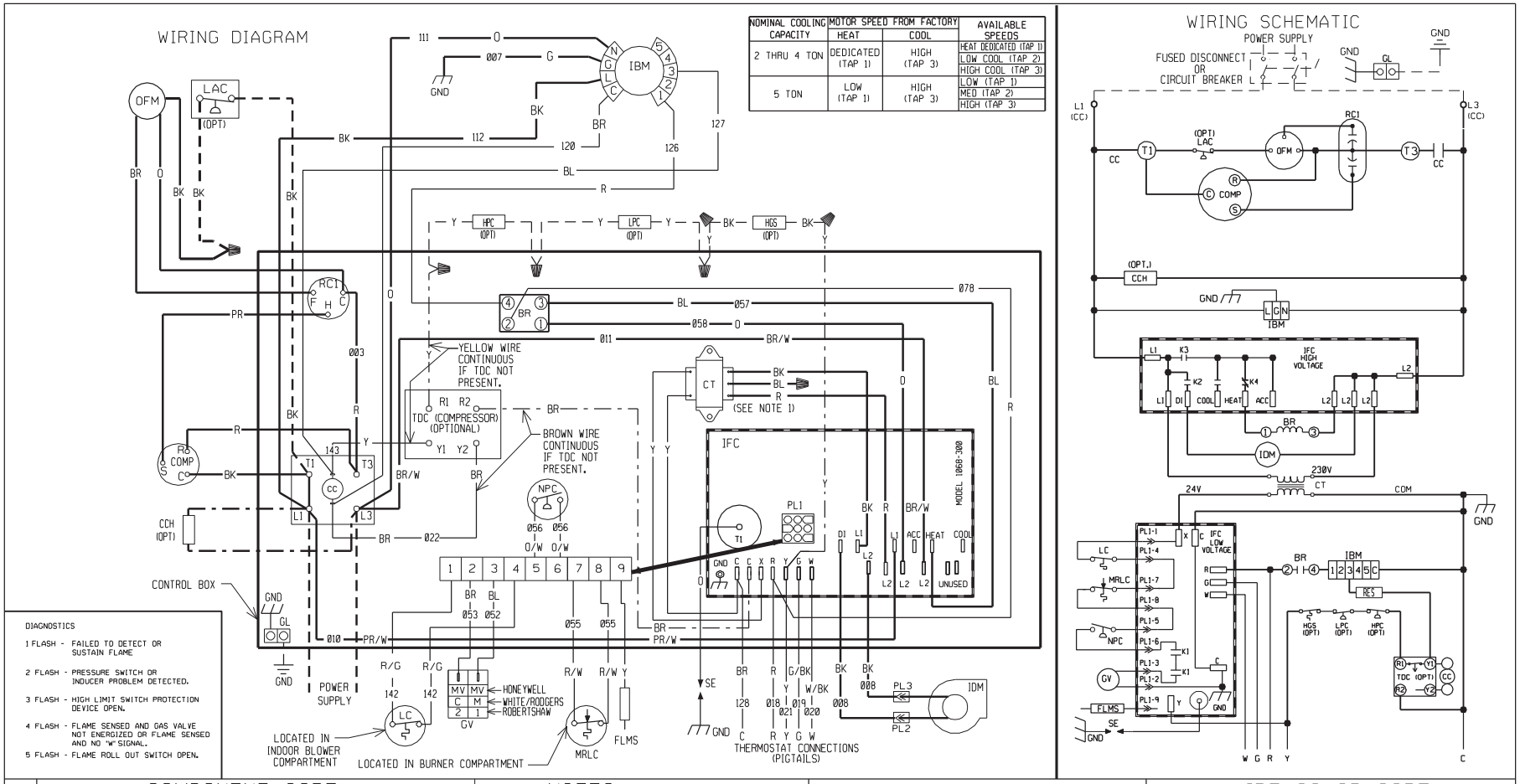


FIGURE 38
WIRING DIAGRAM



NOMINAL COOLING CAPACITY	MOTOR SPEED FROM FACTORY		AVAILABLE SPEEDS
	HEAT	COOL	
2 THRU 4 TON	DEDICATED (TAP 1)	HIGH (TAP 3)	HEAT DEDICATED (TAP 1)
			LOW COOL (TAP 2)
			HIGH COOL (TAP 3)
5 TON	LOW (TAP 1)	HIGH (TAP 3)	LOW (TAP 1)
			MED (TAP 2)
			HIGH (TAP 3)

COMPONENT CODE

BR	BLOWER RELAY	LC	LIMIT CONTROL
CC	COMPRESSOR CONTACTOR	LPC	LOW PRESSURE CONTROL
CCH	CRANKCASE HEATER	MRLC	MAN. RESET LIMIT CONTROL
COMP	COMPRESSOR	NPC	NEG. PRESSURE CONTROL
CT	CONTROL TRANSFORMER	OFM	OUTDOOR FAN MOTOR
FLMS	FLAME SENSOR	OPT	OPTIONAL
GL	GROUND LUG	PL	PLUG
GND	GROUND	RC	RUN CAPACITOR
GV	GAS VALVE		
HPC	HIGH PRESSURE CONTROL	SE	SPARK ELECTRODE
IBM	INDOOR BLOWER MOTOR	TDC	TIME DELAY CONTROL
IDM	INDUCED DRAFT MOTOR		WIRE NUT
IFC	ITEGRATED FURNACE CONTROL		
HGS	HOT GAS SENSOR		
LAC	LOW AMBIENT COOLING CONTROL		

NOTES:

1. MAIN UNIT TRANSFORMER PRIMARY LEADS: 60 HZ. RED-COMMON BLUE-208 V BLACK-230 V INTERCHANGE BLACK & BLUE LEADS FOR 208 V TRANSFORMER OPERATION.
2. MOTORS & COMPRESSOR THERMALLY PROTECTED.
3. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
4. CONNECT FIELD WIRING IN GROUNDED RAINTIGHT CONDUIT TO 60 HZ FUSED DISCONNECT.
5. LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER 24 VOLT, 50/60 HERTZ SUPPLIED.
6. REPLACEMENT FUSES MUST BE SAME TYPE & SIZE AS ORIGINAL.

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°MIN.)

WARNING
-CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C. AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

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

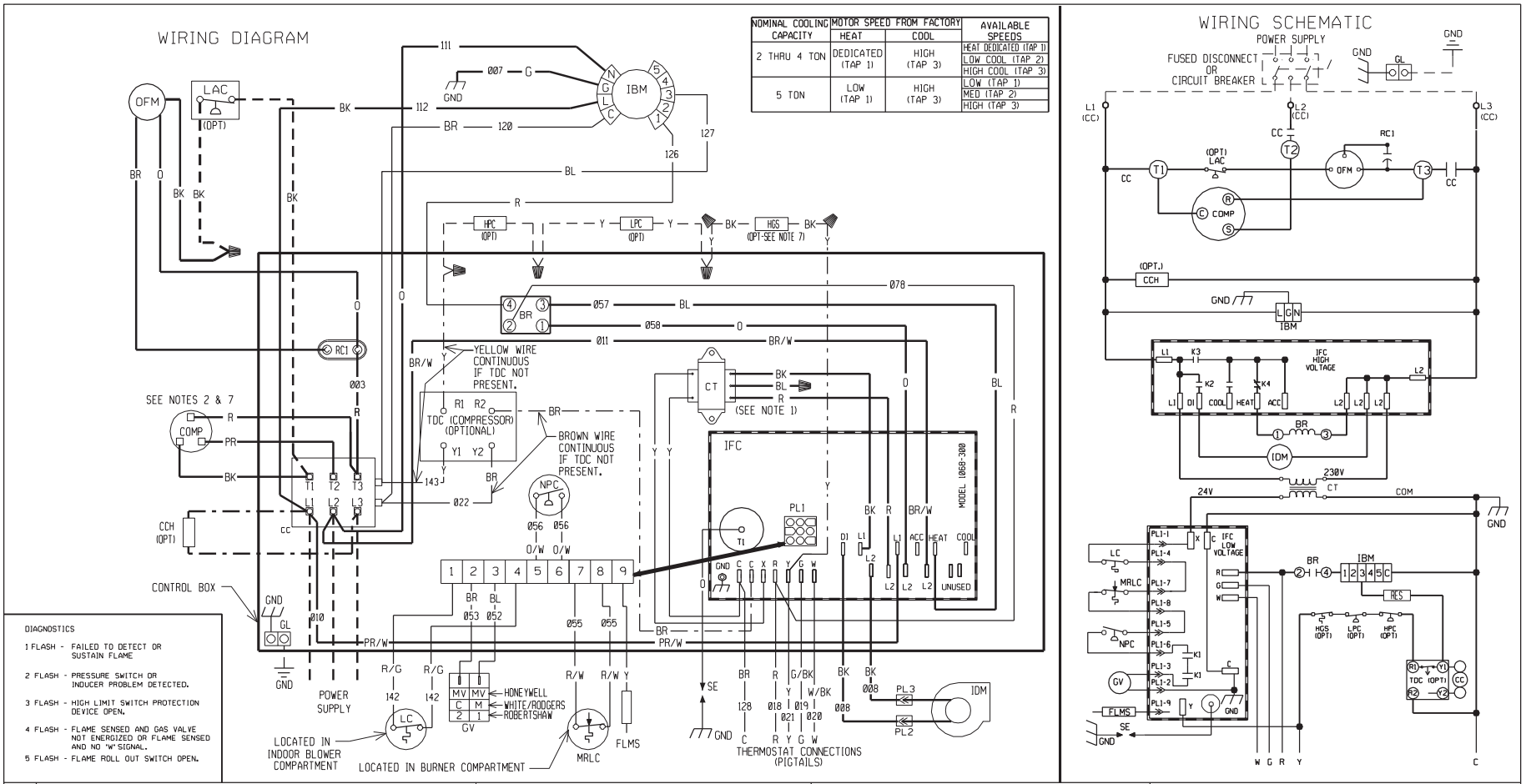
ELECTRICAL WIRING DIAGRAM

2.0-5.0 TON SINGLE STAGE GAS/ELECTRIC W/X-13 BLOWER MOTOR AND INTEGRATED FURNACE CONTROL
208/230V, 1 - PHASE

DR. BY	APP. BY	DATE	DWG. NO.	REV
JRJ		8-16-05	90-23626-11	07

DWG. NO. 90-23626-11 REV 07

FIGURE 39
WIRING DIAGRAM



COMPONENT CODE

BR	BLOWER RELAY	LC	LIMIT CONTROL
CC	COMPRESSOR CONTACTOR	LPC	LOW PRESSURE CONTROL
CCH	CRANKCASE HEATER	MRLC	MAN. RESET LIMIT CONTROL
COMP	COMPRESSOR	NPC	NEG. PRESSURE CONTROL
CT	CONTROL TRANSFORMER	OFM	OUTDOOR FAN MOTOR
FLMS	FLAME SENSOR	OPT	OPTIONAL
GL	GROUND LUG	PL	PLUG
GND	GROUND	RC	RUN CAPACITOR
GV	GAS VALVE	RES	RESISTOR
HPC	HIGH PRESSURE CONTROL	SE	SPARK ELECTRODE
IBM	INDOOR BLOWER MOTOR	TDC	TIME DELAY CONTROL
IDM	INDUCED DRAFT MOTOR		WIRE NUT
IFC	ITEGRATED FURNACE CONTROL		
HGS	HOT GAS SENSOR		
LAC	LOW AMBIENT COOLING CONTROL		

NOTES:

1. MAIN UNIT TRANSFORMER PRIMARY LEADS: 60 HZ. RED-COMMON BLUE-208 V BLACK-230 V INTERCHANGE BLACK & BLUE LEADS FOR 208 V TRANSFORMER OPERATION.
2. MOTORS & COMPRESSOR THERMALLY PROTECTED.
3. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
4. CONNECT FIELD WIRING IN GROUNDED RAINTIGHT CONDUIT TO 60 HZ FUSED DISCONNECT.
5. LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER 24 VOLT, 50/60 HERTZ SUPPLIED.
6. REPLACEMENT FUSES MUST BE SAME TYPE & SIZE AS ORIGINAL.
7. COMPRESSOR PROTECTED UNDER PRIMARY SINGLE PHASE CONDITIONS.

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° MIN.)

WARNING
- CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C. AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

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

ELECTRICAL WIRING DIAGRAM

3.0-5.0 TON SINGLE STAGE GAS/ELECTRIC W/X-13 BLOWER MOTOR AND INTEGRATED FURNACE CONTROL 208/230V, 3 - PHASE

DR. BY	APP. BY	DATE	DWG. NO.	REV
JRJ		9-26-05	90-23626-12	06

DWG. NO. 90-23626-12 REV 06

FIGURE 40
WIRING DIAGRAM

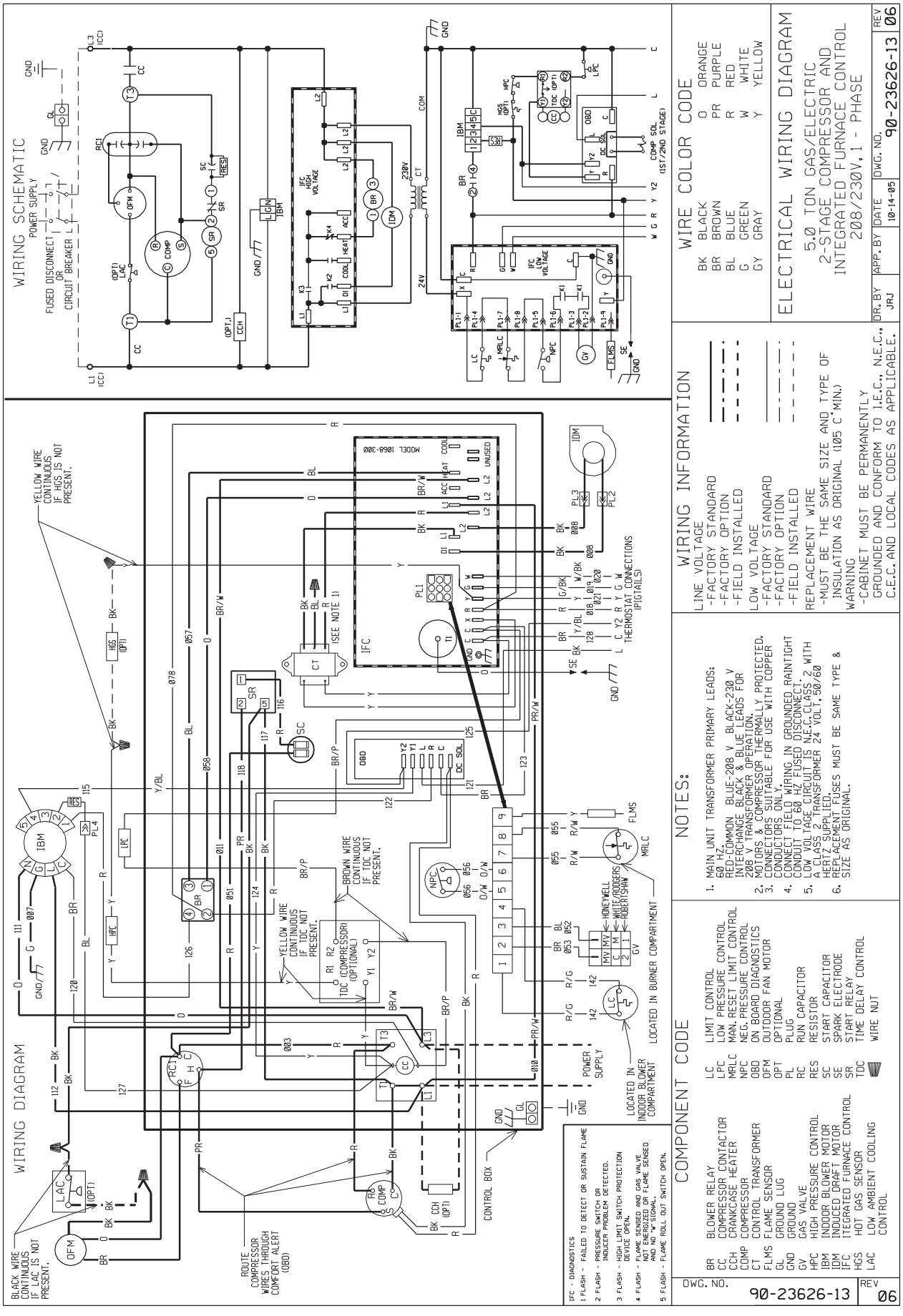
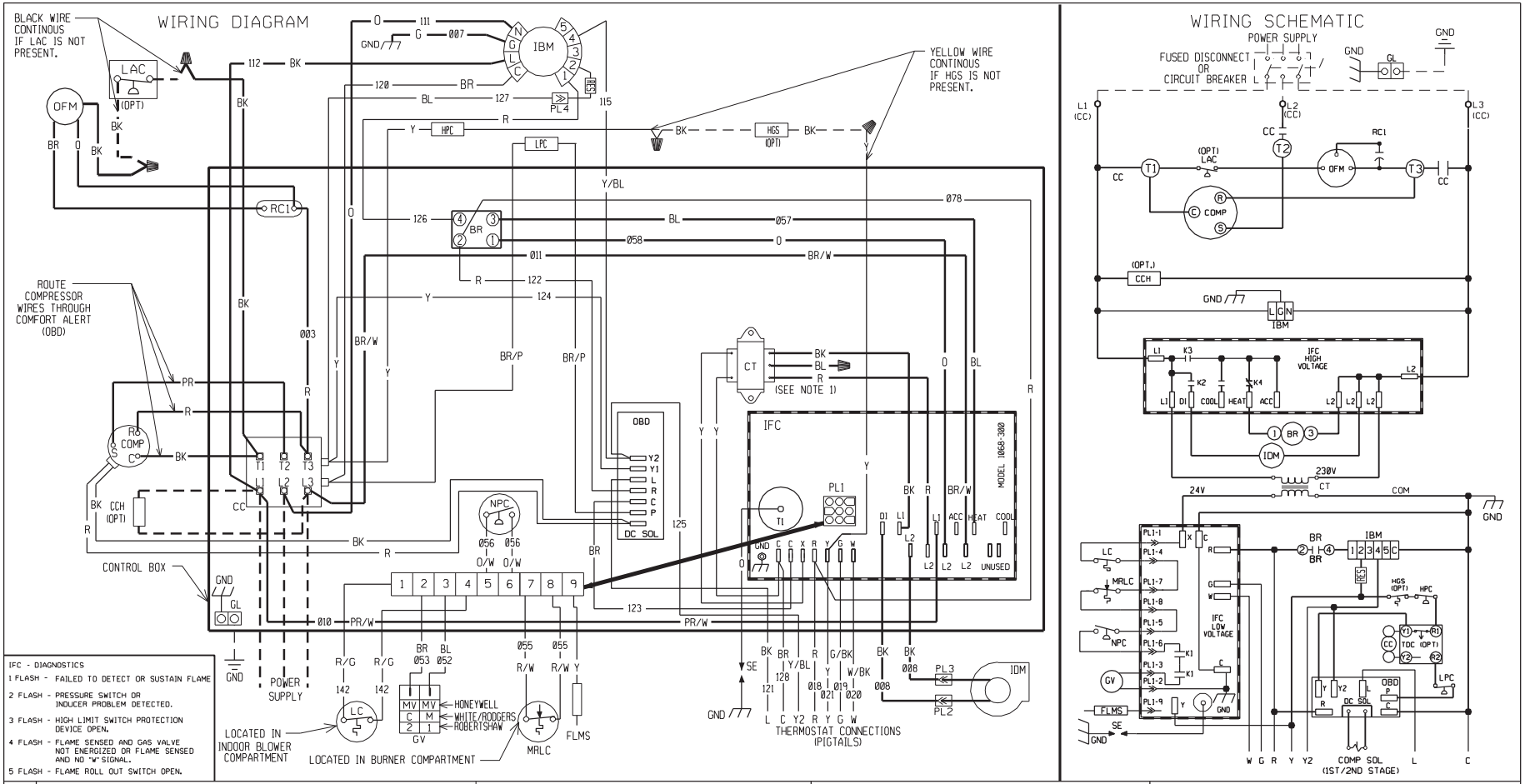


FIGURE 41
WIRING DIAGRAM



COMPONENT CODE

BR	BLOWER RELAY	LC	LIMIT CONTROL
CC	COMPRESSOR CONTACTOR	LPC	LOW PRESSURE CONTROL
CCH	CRANKCASE HEATER	MRLC	MAN. RESET LIMIT CONTROL
COMP	COMPRESSOR	NPC	NEG. PRESSURE CONTROL
CT	CONTROL TRANSFORMER	OBD	ON BOARD DIAGNOSTICS
FLMS	FLAME SENSOR	OFM	OUTDOOR FAN MOTOR
GL	GROUND LUG	OPT	OPTIONAL
GND	GROUND	PL	PLUG
GV	GAS VALVE	RC	RUN CAPACITOR
HPC	HIGH PRESSURE CONTROL	RES	RESISTOR
IBM	INDOOR BLOWER MOTOR	SC	START CAPACITOR
IDM	INDUCED DRAFT MOTOR	SE	SPARK ELECTRODE
IFC	ITEGRATED FURNACE CONTROL	SR	START RELAY
HGS	HOT GAS SENSOR		WIRE NUT
LAC	LOW AMBIENT COOLING CONTROL		

NOTES:

1. MAIN UNIT TRANSFORMER PRIMARY LEADS: 60 HZ. RED-COMMON BLUE-208 V BLACK-230 V INTERCHANGE BLACK & BLUE LEADS FOR 208 V TRANSFORMER OPERATION.
2. MOTORS & COMPRESSOR THERMALLY PROTECTED.
3. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
4. CONNECT FIELD WIRING IN GROUNDED RAINTIGHT CONDUIT TO 60 HZ FUSED DISCONNECT.
5. LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER 24 VOLT, 50/60 HERTZ SUPPLIED.
6. REPLACEMENT FUSES MUST BE SAME TYPE & SIZE AS ORIGINAL.

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°MIN.)

WARNING
- -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C. AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

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

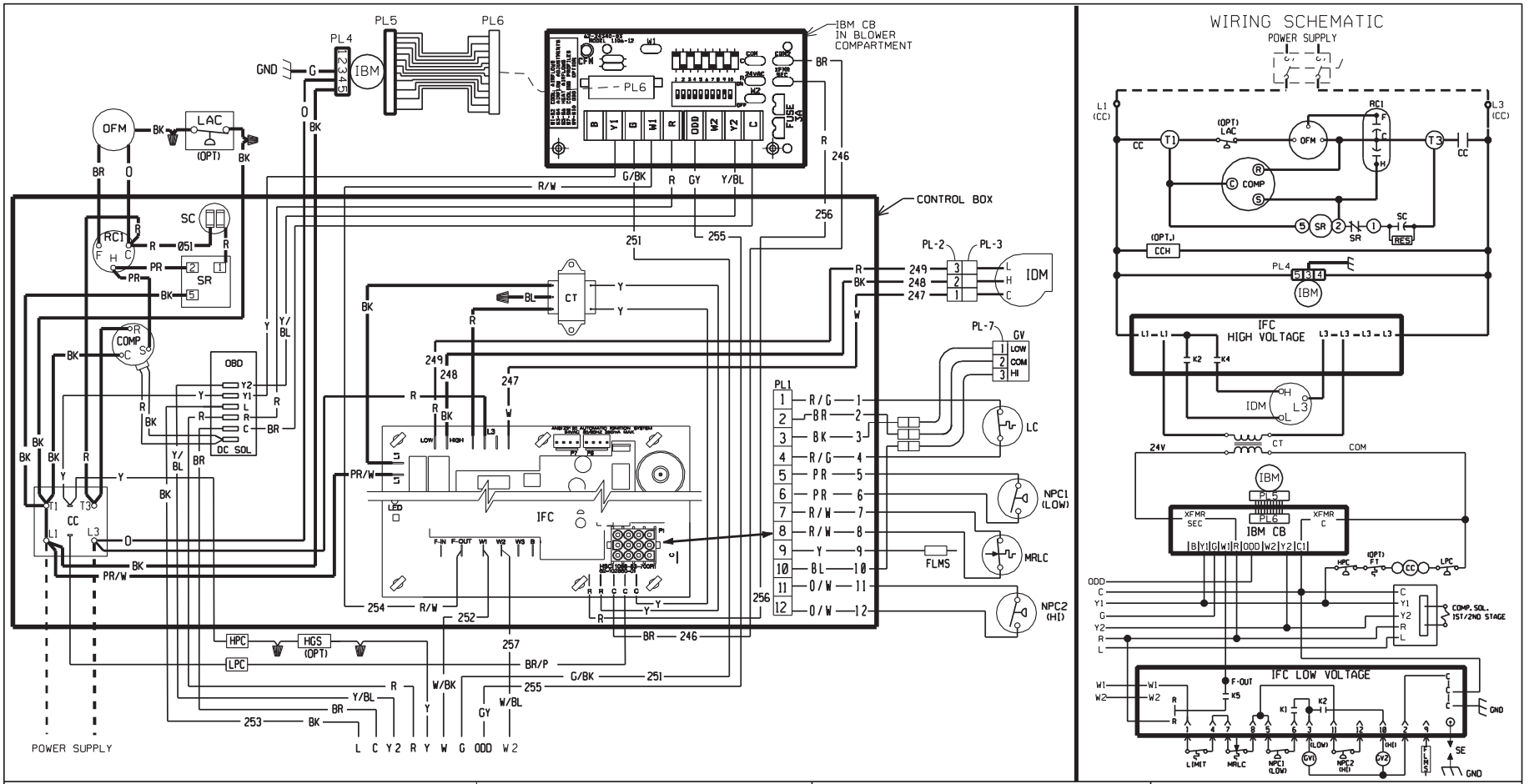
ELECTRICAL WIRING DIAGRAM

5.0 TON GAS/ELECTRIC
2-STAGE COMPRESSOR AND
INTEGRATED FURNACE CONTROL
208/230V, 3 - PHASE

DR. BY	APP. BY	DATE	DWG. NO.	REV
JRJ		11-8-05	90-23626-14	06

DWG. NO. 90-23626-14 REV 06

FIGURE 42
WIRING DIAGRAM



COMPONENT CODE

BR	BLOWER RELAY	LAC	LOW AMBIENT COOLING CONTROL
CC	COMPRESSOR CONTACTOR	LC	LIMIT CONTROL
CCH	CRANKCASE HEATER	LPC	LOW PRESSURE CONTROL
COMP	COMPRESSOR	MRLC	MAN. RESET LIMIT CONTROL
CT	CONTROL TRANSFORMER	NPC	NEG. PRESSURE CONTROL
FLMS	FLAME SENSOR	OBD	ON BOARD DIAGNOSTICS
GL	GROUND LUG	OFM	OUTDOOR FAN MOTOR
GND	GROUND	OPT	OPTIONAL
GV	GAS VALVE	PL	PLUG
HPC	HIGH PRESSURE CONTROL	RC	RUN CAPACITOR
IBM	INDOOR BLOWER MOTOR	RES	RESISTOR
IBM CB	INDOOR BLOWER MOTOR CONTROL BOARD	SC	START CAPACITOR
IDM	INDUCED DRAFT MOTOR	SE	SPARK ELECTRODE
IFC	ITEGRATED FURNACE CONTROL	SR	START RELAY
HGS	HOT GAS SENSOR	TDC	TIME DELAY CONTROL
			WIRE NUT

NOTES:

1. MAIN UNIT TRANSFORMER PRIMARY LEADS: 60 HZ. RED-COMMON BLUE-208 V BLACK-230 V INTERCHANGE BLACK & BLUE LEADS FOR 208 V TRANSFORMER OPERATION.
2. MOTORS & COMPRESSOR THERMALLY PROTECTED.
3. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
4. CONNECT FIELD WIRING IN GROUNDED RAINTIGHT CONDUIT TO 60 HZ FUSED DISCONNECT.
5. LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER 24 VOLT, 50/60 HERTZ SUPPLIED.
6. REPLACEMENT FUSES MUST BE SAME TYPE & SIZE AS ORIGINAL.

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°MIN.)

WARNING
- -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C. AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

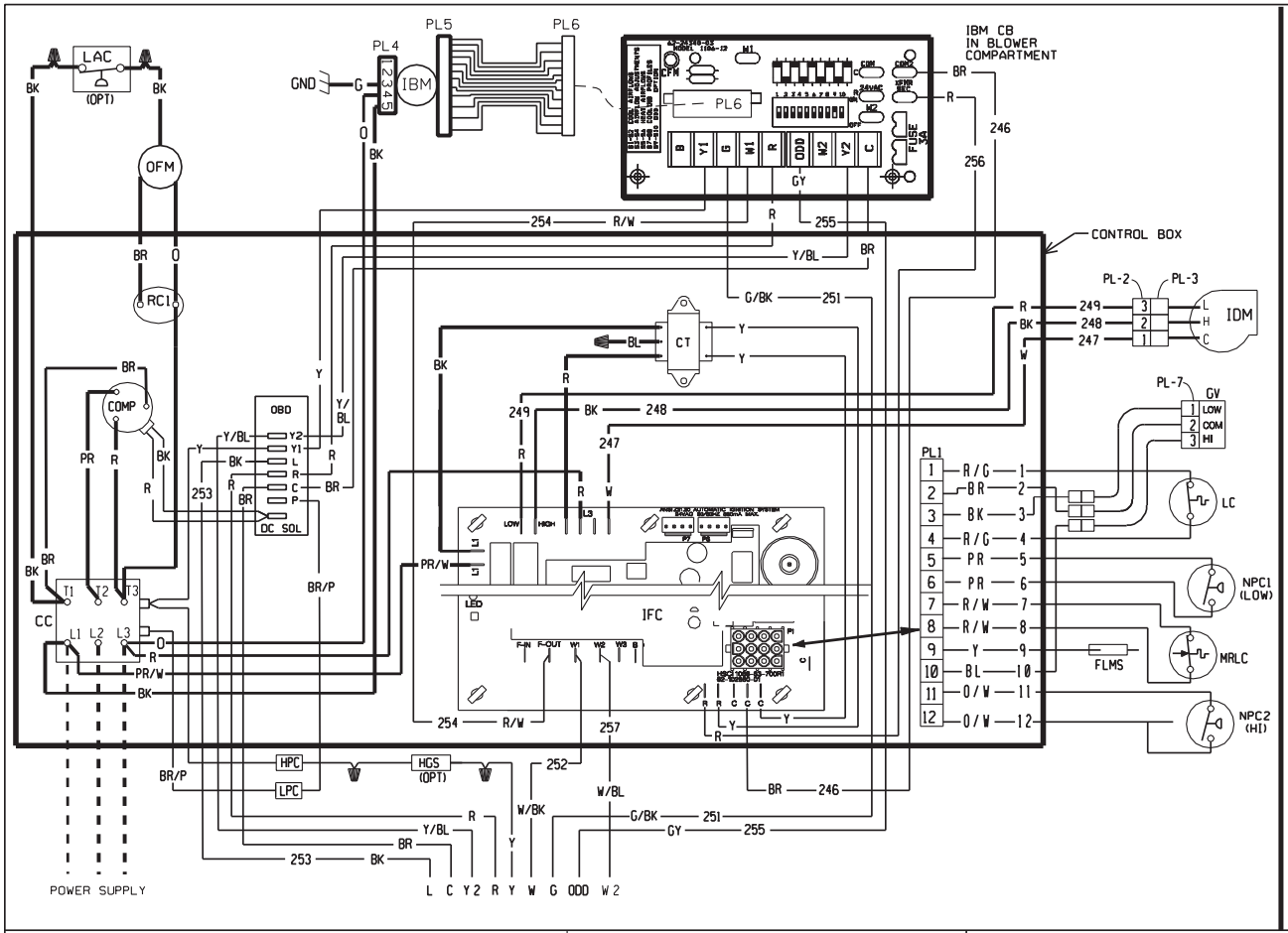
BK	BLACK	GY	GRAY	R	RED
BR	BROWN	O	ORANGE	W	WHITE
BL	BLUE	PK	PINK	Y	YELLOW
G	GREEN	PR	PURPLE		

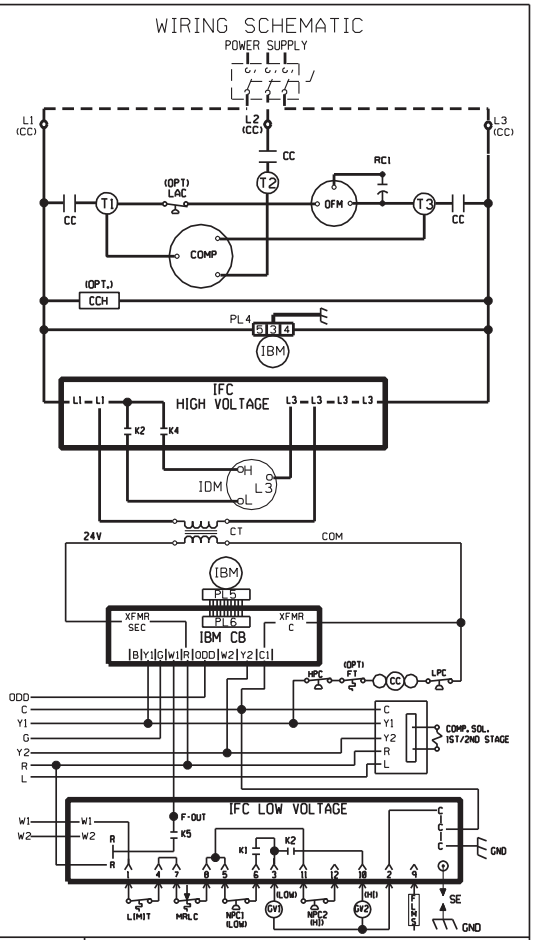
ELECTRICAL WIRING DIAGRAM

2 - 5 TON GAS/ELECTRIC
2-STAGE COMPRESSOR/2-STAGE GAS
208/230V, 1 - PHASE

DR. BY	APP. BY	DATE	DWG. NO.	REV
MGR		1-5-10	90-103487-01	00

FIGURE 43
WIRING DIAGRAM





COMPONENT CODE

BR	BLOWER RELAY
CC	COMPRESSOR CONTACTOR
CCH	CRANKCASE HEATER
COMP	COMPRESSOR
CT	CONTROL TRANSFORMER
FLMS	FLAME SENSOR
GL	GROUND LUG
GND	GROUND
GV	GAS VALVE
HPC	HIGH PRESSURE CONTROL
IBM	INDOOR BLOWER MOTOR
IBM CB	INDOOR BLOWER MOTOR CONTROL BOARD
IDM	INDUCED DRAFT MOTOR
IFC	ITEGRATED FURNACE CONTROL
HGS	HOT GAS SENSOR
LAC	LOW AMBIENT COOLING CONTROL
LC	LIMIT CONTROL
LPC	LOW PRESSURE CONTROL
MRLC	MAN. RESET LIMIT CONTROL
NPC	NEG. PRESSURE CONTROL
OBD	ON BOARD DIAGNOSTICS
OFM	OUTDOOR FAN MOTOR
OPT	OPTIONAL
PL	PLUG
RC	RUN CAPACITOR
RES	RESISTOR
SE	SPARK ELECTRODE
TDC	TIME DELAY CONTROL
	WIRE NUT

NOTES:

1. MAIN UNIT TRANSFORMER PRIMARY LEADS: 60 HZ. RED-COMMON BLUE-208 V BLACK-230 V INTERCHANGE BLACK & BLUE LEADS FOR 208 V TRANSFORMER OPERATION.
2. MOTORS & COMPRESSOR THERMALLY PROTECTED.
3. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
4. CONNECT FIELD WIRING IN GROUNDED RAINTIGHT CONDUIT TO 60 HZ FUSED DISCONNECT.
5. LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER 24 VOLT, 50/60 HERTZ SUPPLIED.
6. REPLACEMENT FUSES MUST BE SAME TYPE & SIZE AS ORIGINAL.

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°MIN.)

WARNING
-CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C. AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

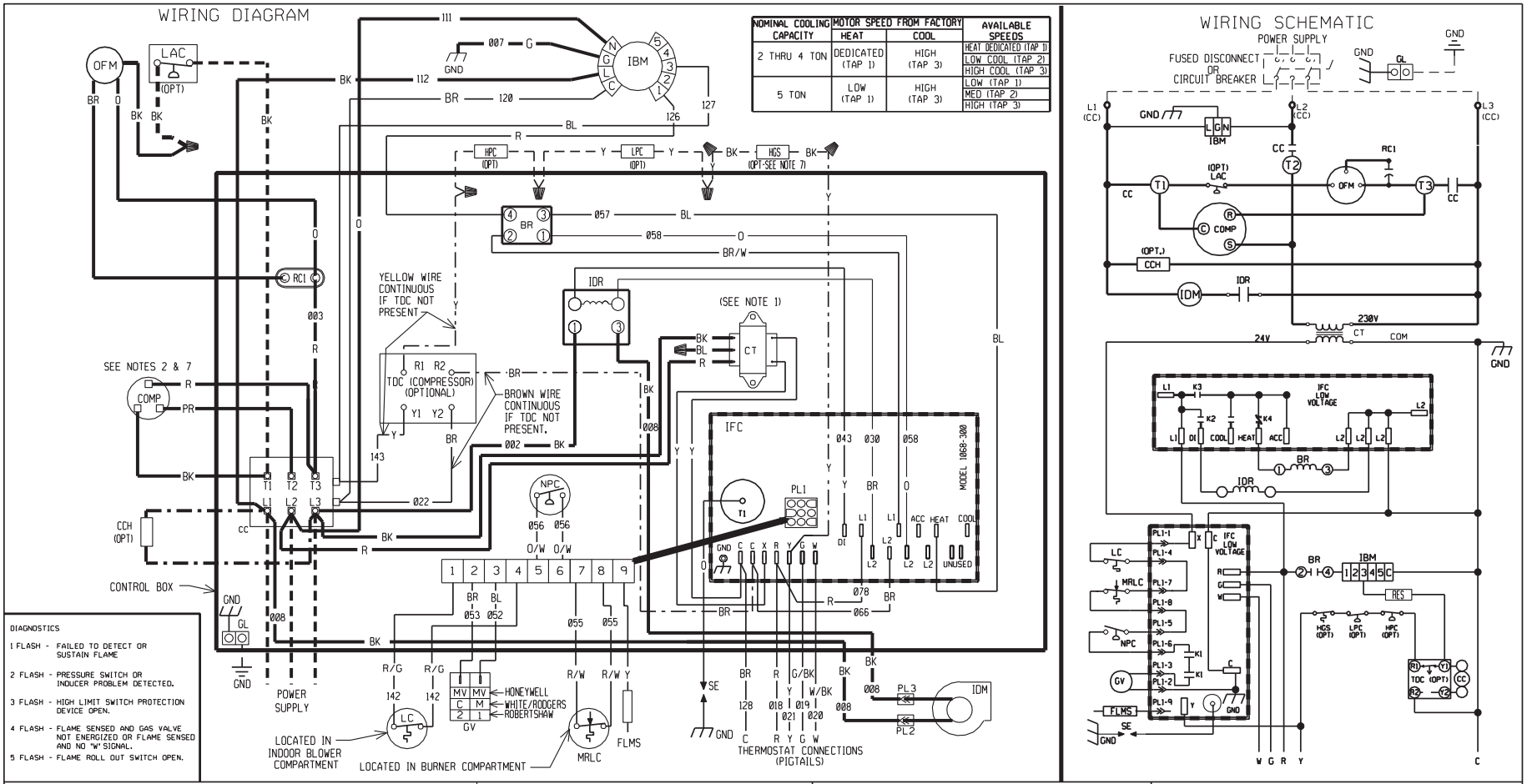
BK	BLACK	GY	GRAY	R	RED
BR	BROWN	O	ORANGE	W	WHITE
BL	BLUE	PK	PINK	Y	YELLOW
G	GREEN	PR	PURPLE		

ELECTRICAL WIRING DIAGRAM

2 - 5 TON GAS/ELECTRIC
2-STAGE COMPRESSOR/2-STAGE GAS
208/230V, 3 - PHASE

DR. BY	APP. BY	DATE	DWG. NO.	REV
MGR		1-5-10	90-103487-02	00

FIGURE 44
WIRING DIAGRAM



COMPONENT CODE

BR	BLOWER RELAY
CC	COMPRESSOR CONTACTOR
CCH	CRANKCASE HEATER
COMP	COMPRESSOR
CT	CONTROL TRANSFORMER
FLMS	FLAME SENSOR
GL	GROUND LUG
GND	GROUND
GV	GAS VALVE
HPC	HIGH PRESSURE CONTROL
IBM	INDOOR BLOWER MOTOR
IDR	INDUCED DRAFT RELAY
IDM	INDUCED DRAFT MOTOR
IFC	ITEGRATED FURNACE CONTROL
HGS	HOT GAS SENSOR
LAC	LOW AMBIENT COOLING CONTROL
LC	LIMIT CONTROL
LPC	LOW PRESSURE CONTROL
MRLC	MAN. RESET LIMIT CONTROL
NPC	NEG. PRESSURE CONTROL
OFM	OUTDOOR FAN MOTOR
OPT	OPTIONAL
PL	PLUG
RC	RUN CAPACITOR
RES	RESISTOR
SE	SPARK ELECTRODE
TDC	TIME DELAY CONTROL
	WIRE NUT

NOTES:

1. CONTROL TRANSFORMER PRIMARY LEADS: BLUE - COMMON BK/RD - 460V 60 HZ. / 380V 50 H., RED - 575V. 60 HZ. / 415V 50 HZ.
2. MOTORS & COMPRESSOR THERMALLY PROTECTED.
3. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
4. CONNECT FIELD WIRING IN GROUNDED RAINTIGHT CONDUIT TO 60 HZ FUSED DISCONNECT.
5. LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER 24 VOLT, 50/60 HERTZ SUPPLIED.
6. REPLACEMENT FUSES MUST BE SAME TYPE & SIZE AS ORIGINAL.
7. COMPRESSOR PROTECTED UNDER PRIMARY SINGLE PHASE CONDITIONS.

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°MIN.)

WARNING
- -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C. AND LOCAL CODES AS APPLICABLE.

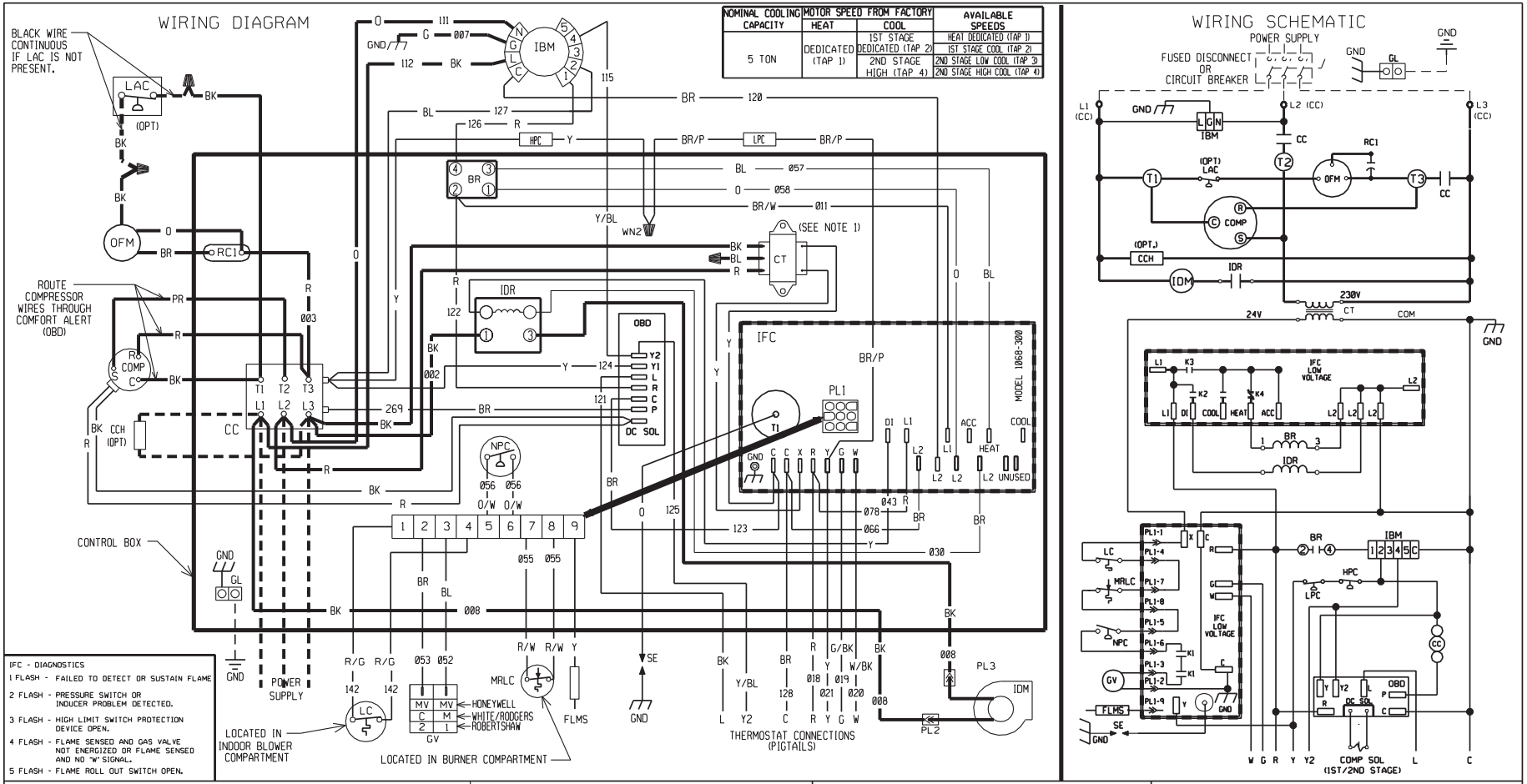
WIRE COLOR CODE

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

ELECTRICAL WIRING DIAGRAM

3.0-5.0 TON SINGLE STAGE GAS/ELECTRIC
W/X-13 BLOWER MOTOR AND
INTEGRATED FURNACE CONTROL
460V, 3 - PHASE

DR. BY	APP. BY	DATE	DWG. NO.	REV
MGR		8-19-10	90-23626-20	00



NOMINAL COOLING CAPACITY	MOTOR SPEED FROM FACTORY		AVAILABLE SPEEDS
	HEAT	COOL	
5 TON	DEDICATED (TAP 1)	1ST STAGE DEDICATED (TAP 2)	HEAT DEDICATED (TAP 1)
			1ST STAGE COOL (TAP 2)
		2ND STAGE HIGH (TAP 4)	2ND STAGE LOW COOL (TAP 3)
			2ND STAGE HIGH COOL (TAP 4)

COMPONENT CODE

BR	BLOWER RELAY
CC	COMPRESSOR CONTACTOR
CCH	CRANKCASE HEATER
COMP	COMPRESSOR
CT	CONTROL TRANSFORMER
FLMS	FLAME SENSOR
GL	GROUND LUG
GND	GROUND
GV	GAS VALVE
HPC	HIGH PRESSURE CONTROL
IBM	INDOOR BLOWER MOTOR
IDM	INDUCED DRAFT MOTOR
IDR	INDUCED DRAFT RELAY
IFC	ITEGRATED FURNACE CONTROL
LAC	LOW AMBIENT COOLING CONTROL
LC	LIMIT CONTROL
LPC	LOW PRESSURE CONTROL
MRLC	MAN. RESET LIMIT CONTROL
NPC	NEG. PRESSURE CONTROL
OBD	ON BOARD DIAGNOSTICS
OFM	OUTDOOR FAN MOTOR
OPT	OPTIONAL
PL	PLUG
RC	RUN CAPACITOR
SC	START CAPACITOR
SE	SPARK ELECTRODE
SR	START RELAY
	WIRE NUT

NOTES:

1. CONTROL TRANSFORMER PRIMARY LEADS: BLUE - COMMON BK/RD - 460V 60 HZ. / 380V 50 H., RED - 575V, 60 HZ. / 415V 50 HZ.
2. COMPRESSOR MOTOR THERMALLY PROTECTED. ALL 3 PHASE MODELS ARE PROTECTED UNDER PRIMARY SINGLE PHASE CONDITIONS.
3. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
4. CONNECT FIELD WIRING IN GROUNDED RAINTIGHT CONDUIT TO 60 HZ FUSED DISCONNECT.
5. LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER 24 VOLT, 50/60 HERTZ SUPPLIED.
6. REPLACEMENT FUSES MUST BE SAME TYPE & SIZE AS ORIGINAL.

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°MIN.)

WARNING
- -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C. AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

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

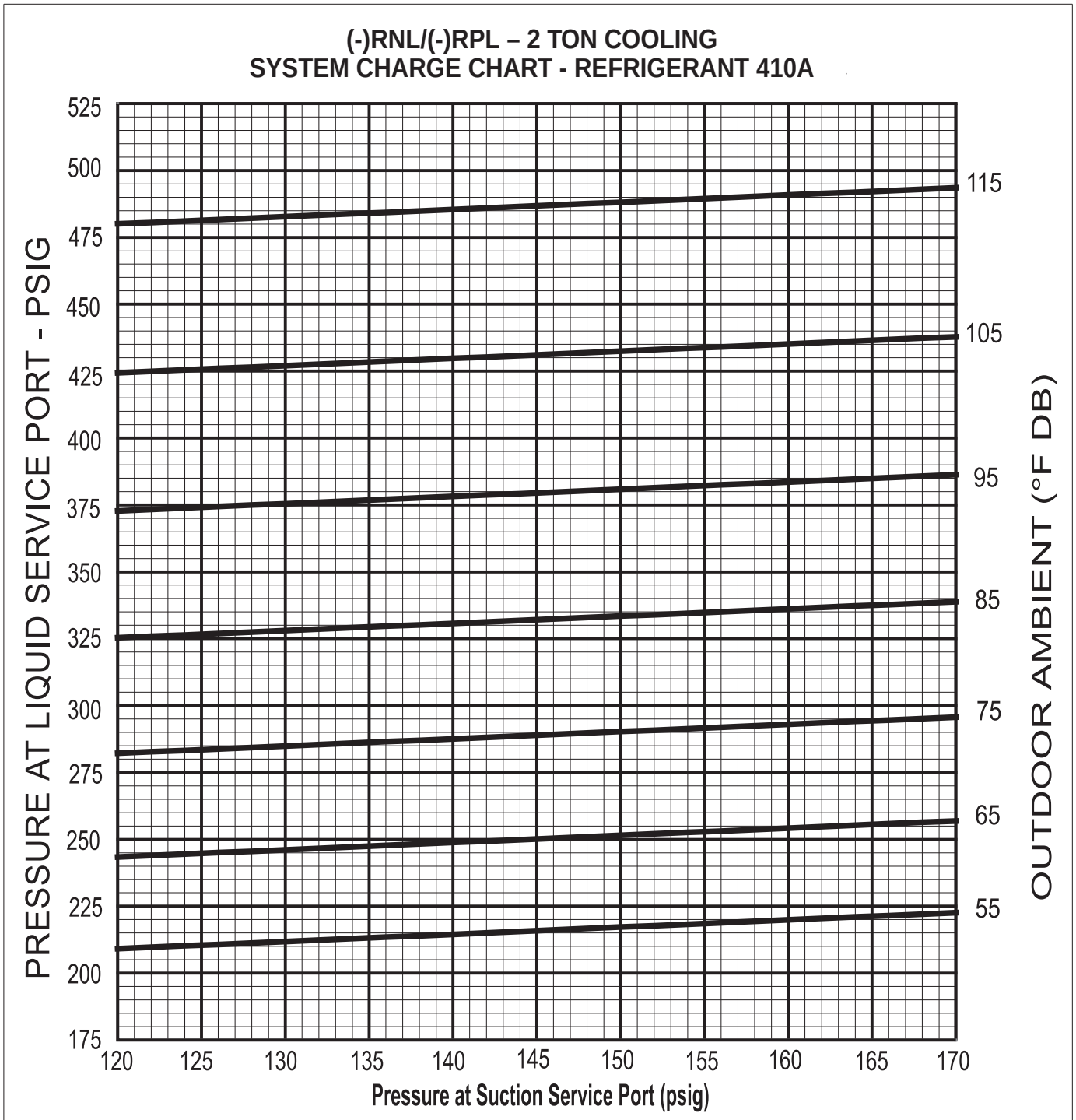
ELECTRICAL WIRING DIAGRAM

5.0 TON GAS/ELECTRIC
2-STAGE COMPRESSOR AND
INTEGRATED FURNACE CONTROL
460V, 3 - PHASE

DR. BY	APP. BY	DATE	DWG. NO.	REV
MGR		8-19-10	90-23626-19	01

XVI. CHARGE CHARTS

FIGURE 46
SYSTEM CHARGE CHARTS



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMFORT CONDITIONS FOR MOST ACCURATE RESULTS.

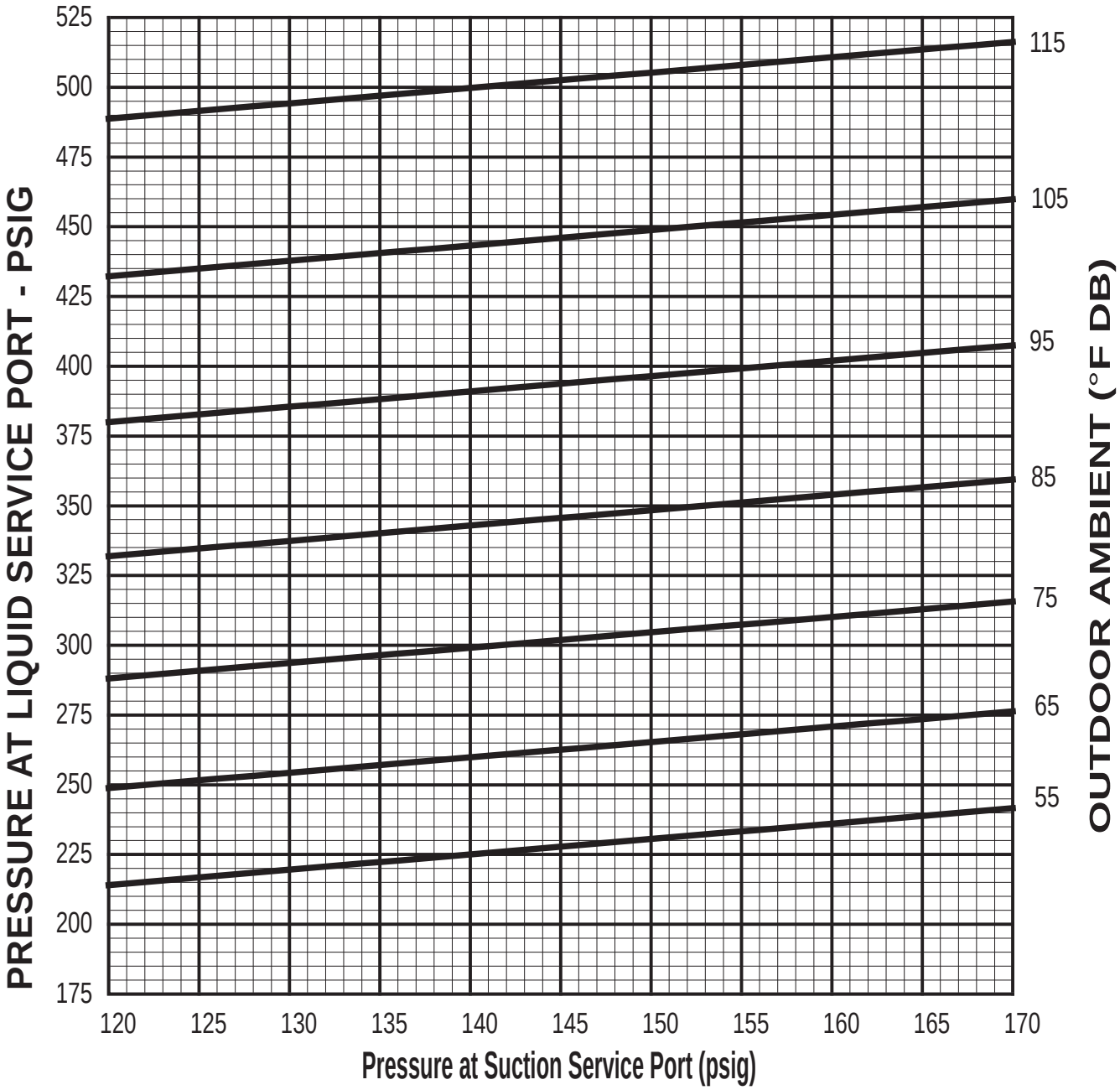
INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT.
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL.
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CROSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3.
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

92 - 22904 - 40 - 02

FIGURE 47
SYSTEM CHARGE CHARTS

(-)RNL/(-)RPL – 2 1/2 TON COOLING
SYSTEM CHARGE CHART - REFRIGERANT 410A



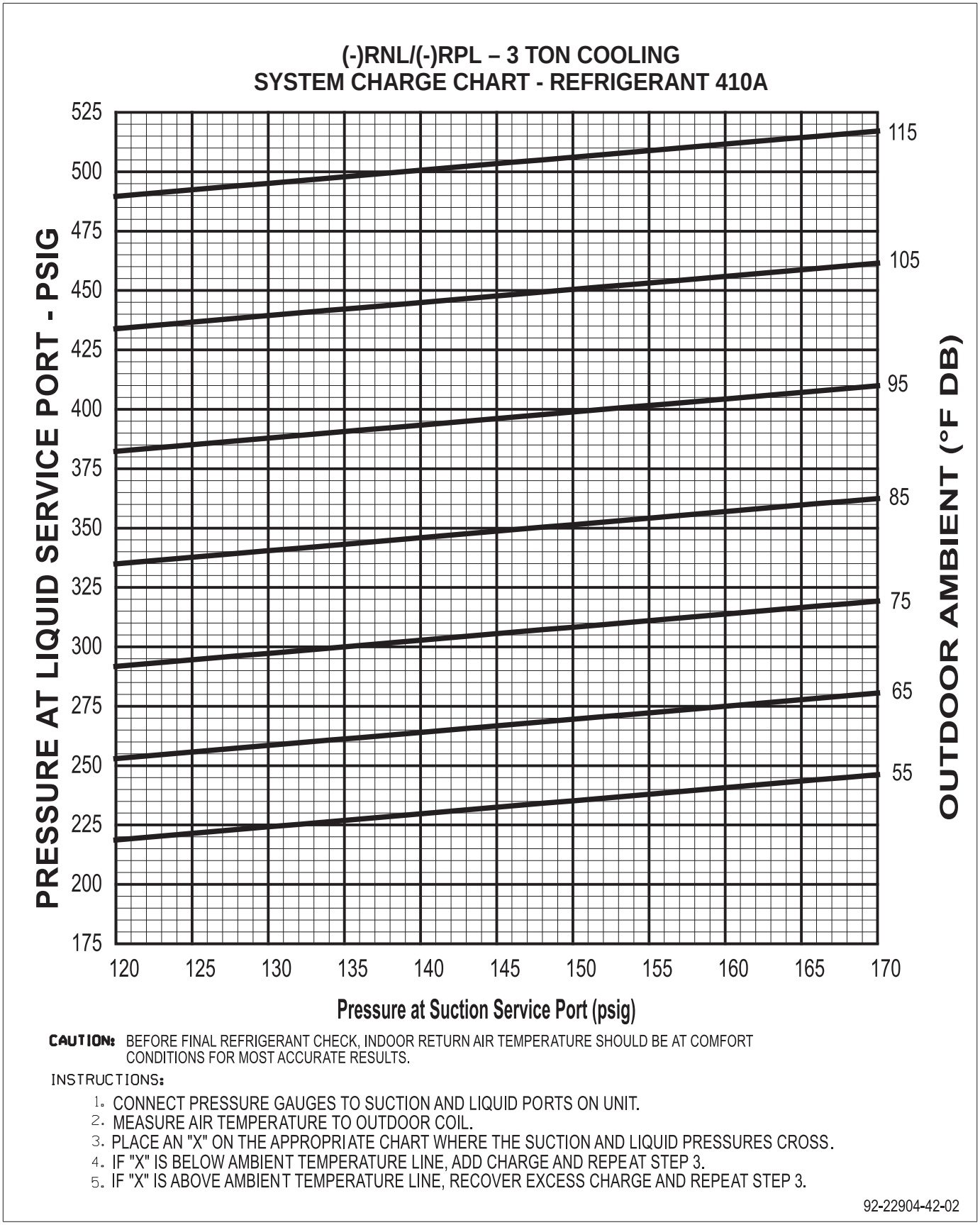
CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMFORT CONDITIONS FOR MOST ACCURATE RESULTS.

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT.
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL.
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CROSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3.
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

92-22904- 41 -02

FIGURE 48
SYSTEM CHARGE CHARTS



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMFORT CONDITIONS FOR MOST ACCURATE RESULTS.

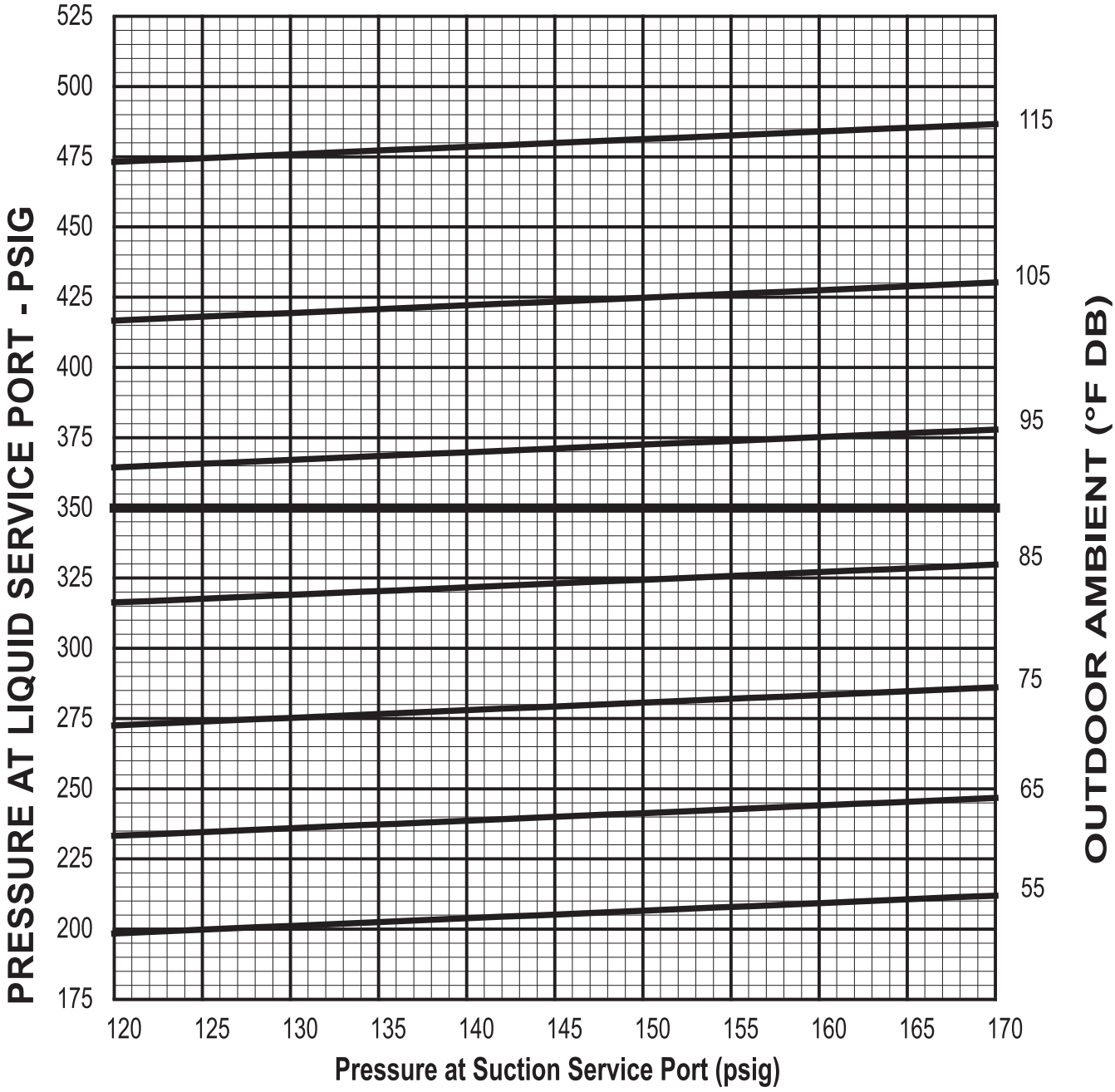
INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT.
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL.
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CROSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3.
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

92-22904-42-02

FIGURE 49
SYSTEM CHARGE CHARTS

(-)RNL/(-)RPL – 3 1/2 TON COOLING
SYSTEM CHARGE CHART - REFRIGERANT 410A



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMFORT CONDITIONS FOR MOST ACCURATE RESULTS.

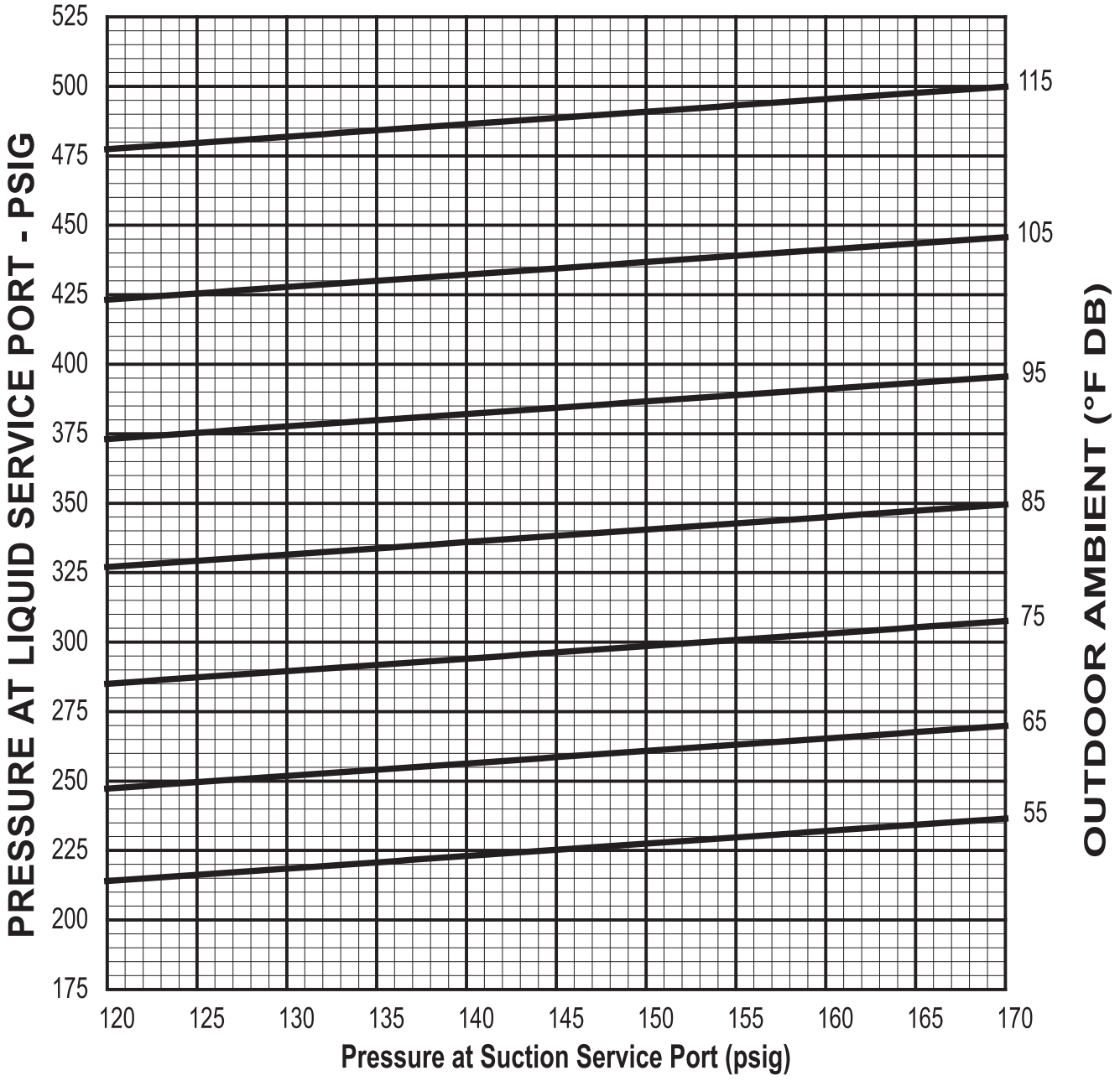
INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT.
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL.
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CROSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3.
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

92-22904- 43 -02

FIGURE 50
SYSTEM CHARGE CHARTS

(-)RNL/(-)RPL – 4 TON COOLING
SYSTEM CHARGE CHART - REFRIGERANT 410A



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMFORT CONDITIONS FOR MOST ACCURATE RESULTS.

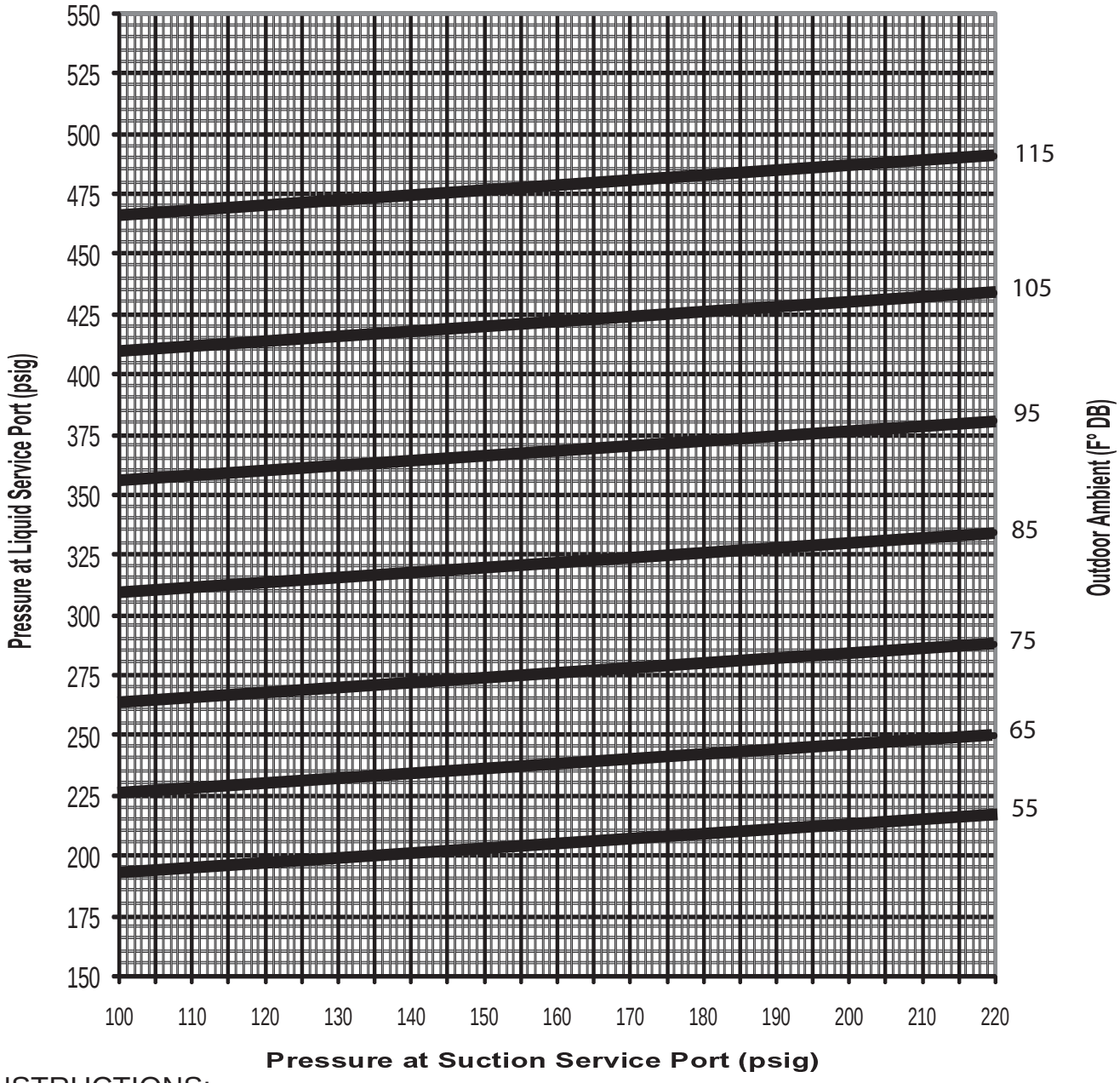
INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT.
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL.
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CROSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3.
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

92-22904- 44 -02

FIGURE 51
SYSTEM CHARGE CHARTS

(-)RNL – 5 TON COOLING
SYSTEM CHARGE CHART
R-410A REFRIGERANT



INSTRUCTIONS:

1. CONNECT PRESSURE GUAGES TO SUCTION AND LIQUID PORTS AT OUTDOOR UNIT.
2. MEASURE AIR TEMPERATURE TO THE UNIT (OUTDOOR DRY BULB AMBIENT).
3. PLACE AN “X” ON THE CHART WHERE THE SUCTION AND LIQUID PRESSURE CROSS.
4. IF “X” IS BELOW OUTDOOR TEMPERATURE LINE, ADD CHARGE AND REPEAT 3.
5. IF “X” IS ABOVE OUTDOOR TEMPERATURE LINE, RECOVER CHARGE AND REPEAT.

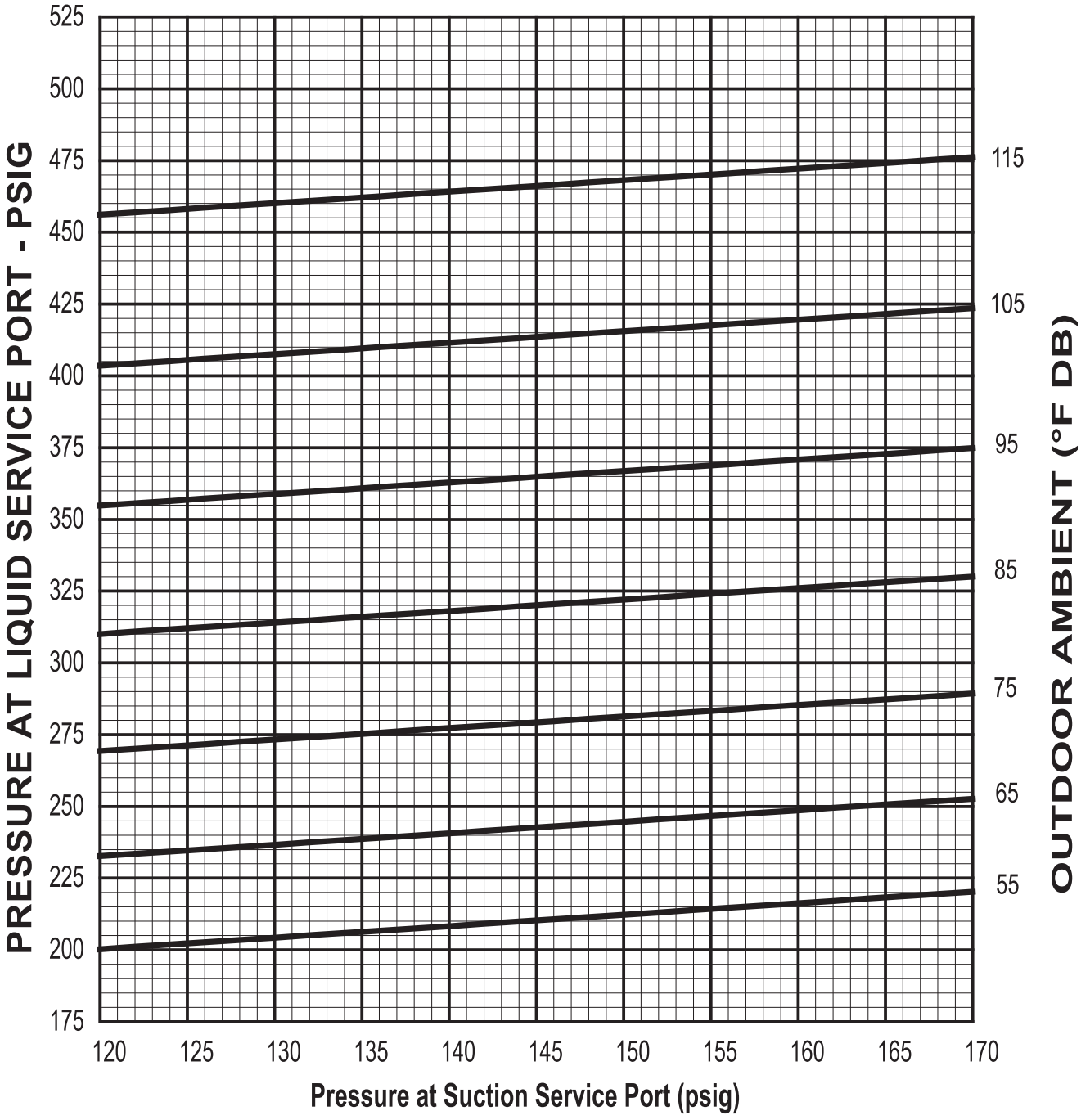
92-22904-57-01

FIGURE 52
SYSTEM CHARGE CHARTS

(-)RPL – 5 TON COOLING
1st (LOW) STAGE CHARGE CHART
R-410A REFRIGERANT

THE CHART BELOW IS FOR REFERENCE ONLY

CHARGE ADJUSTMENT SHOULD BE MADE DURING 2nd (HIGH) STAGE OPERATION ONLY



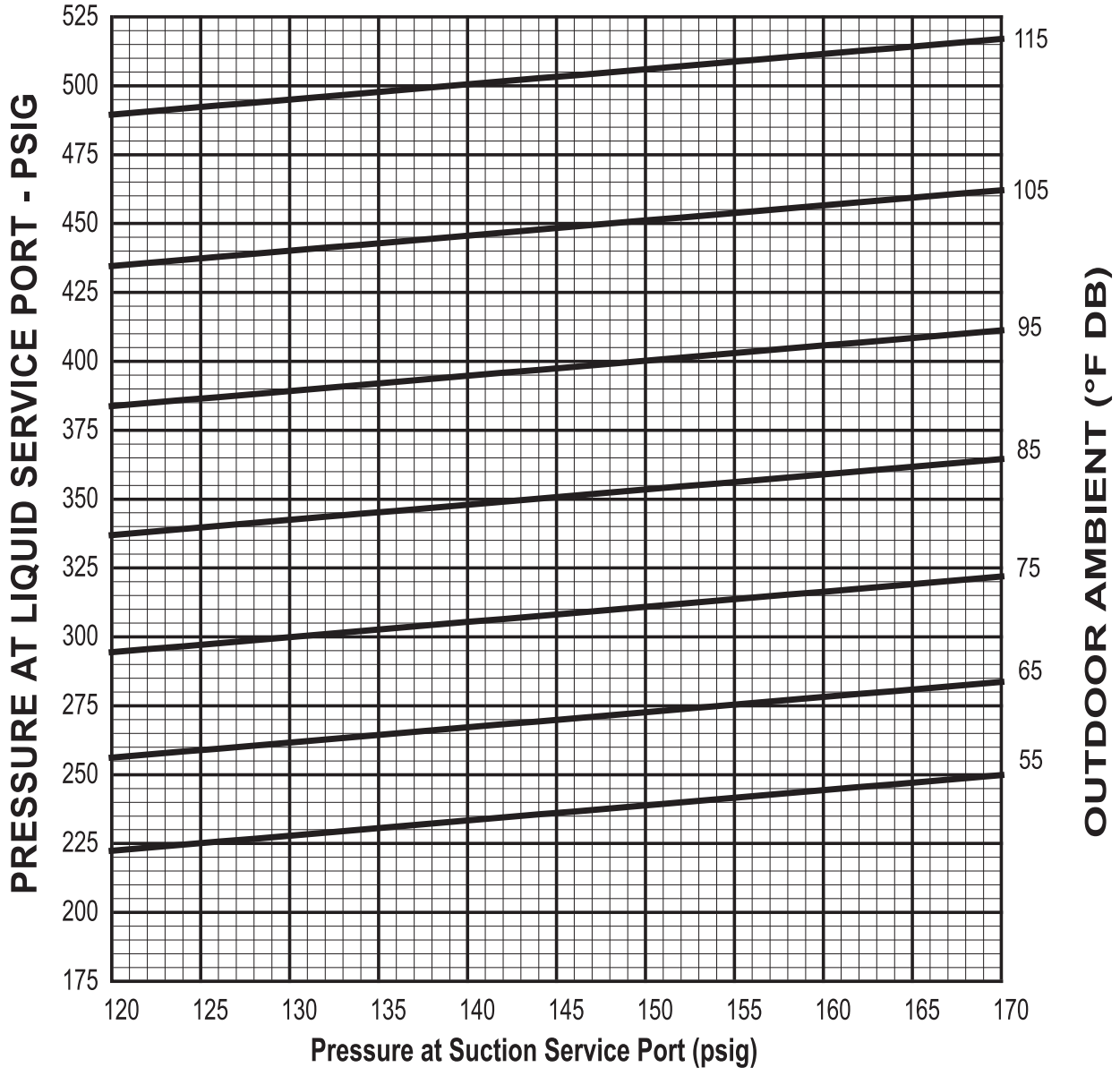
92-22904- 45 -02

FIGURE 53
SYSTEM CHARGE CHARTS

(-)RPL – 5 TON COOLING
2nd (HIGH) STAGE CHARGE CHART
R-410A REFRIGERANT

THE CHART BELOW IS FOR REFERENCE ONLY

CHARGE ADJUSTMENT SHOULD BE MADE DURING 2nd (HIGH) STAGE OPERATION ONLY



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMFORT CONDITIONS FOR MOST ACCURATE RESULTS.

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT.
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL.
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CROSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3.
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

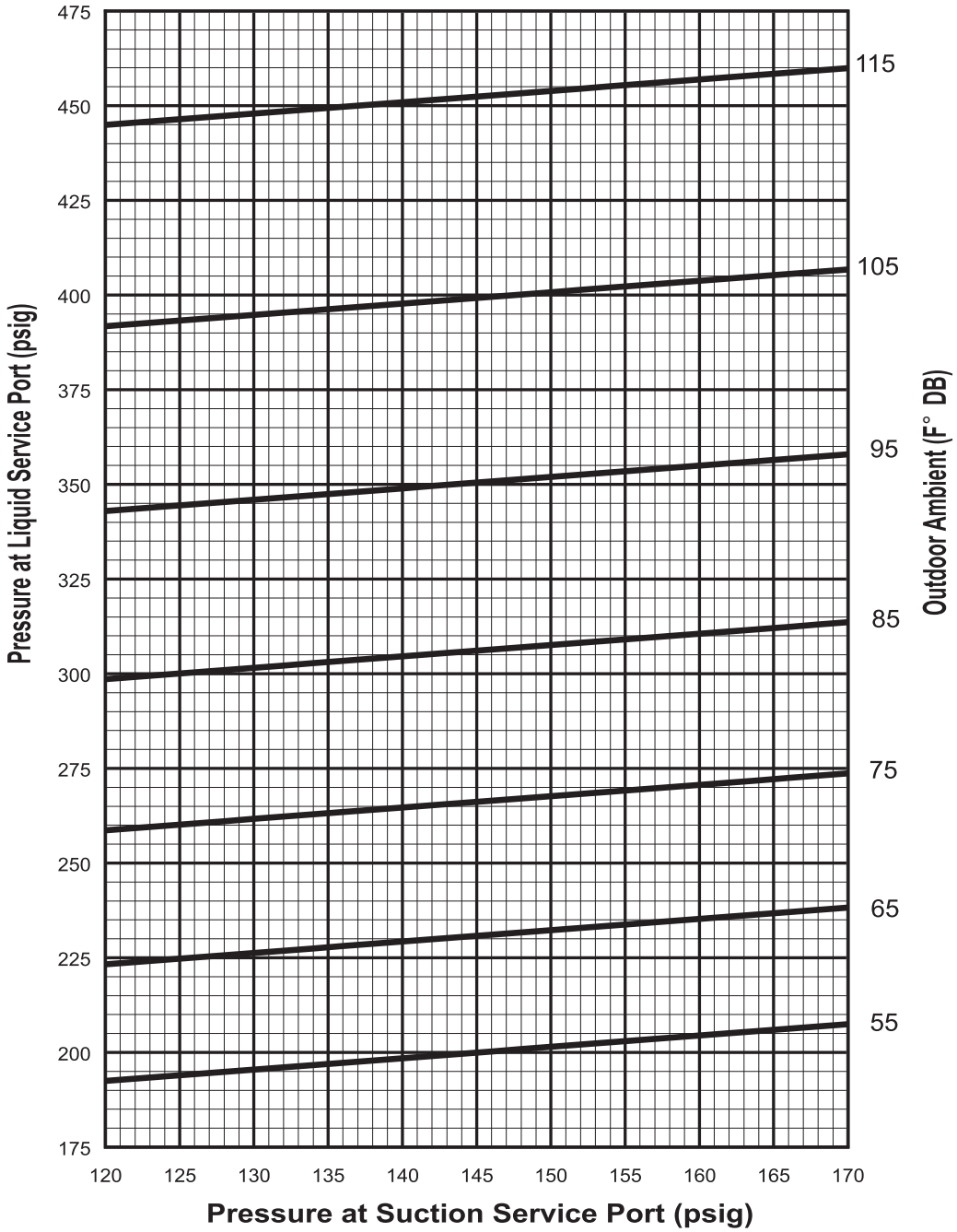
92-22904- 46 -02

FIGURE 54
SYSTEM CHARGE CHARTS

RRRL – 2 TON COOLING
1st (LOW) STAGE CHARGE CHART
R-410A REFRIGERANT

THE CHART BELOW IS FOR REFERENCE ONLY

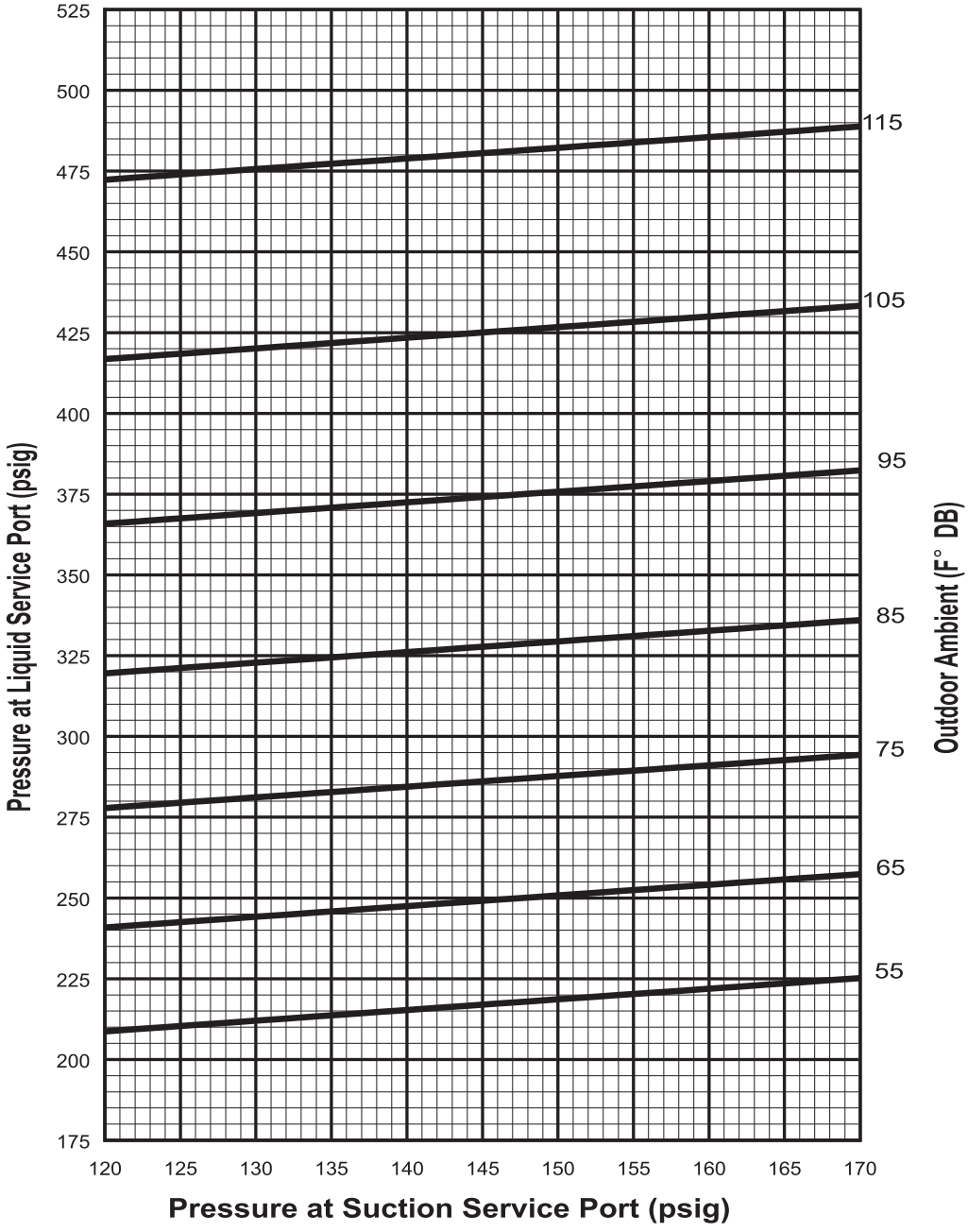
CHARGE ADJUSTMENT SHOULD BE MADE DURING 2nd (HIGH) STAGE OPERATION ONLY



92-22904-48-00

FIGURE 55
SYSTEM CHARGE CHARTS

RRRL – 2 TON COOLING
2nd (HIGH) STAGE CHARGE CHART
R-410A REFRIGERANT



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR AIR TEMPERATURE SHOULD BE AT A COMFORT CONDITIONS FOR MOST ACCURATE RESULTS.

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT.
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL.
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CROSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3.
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

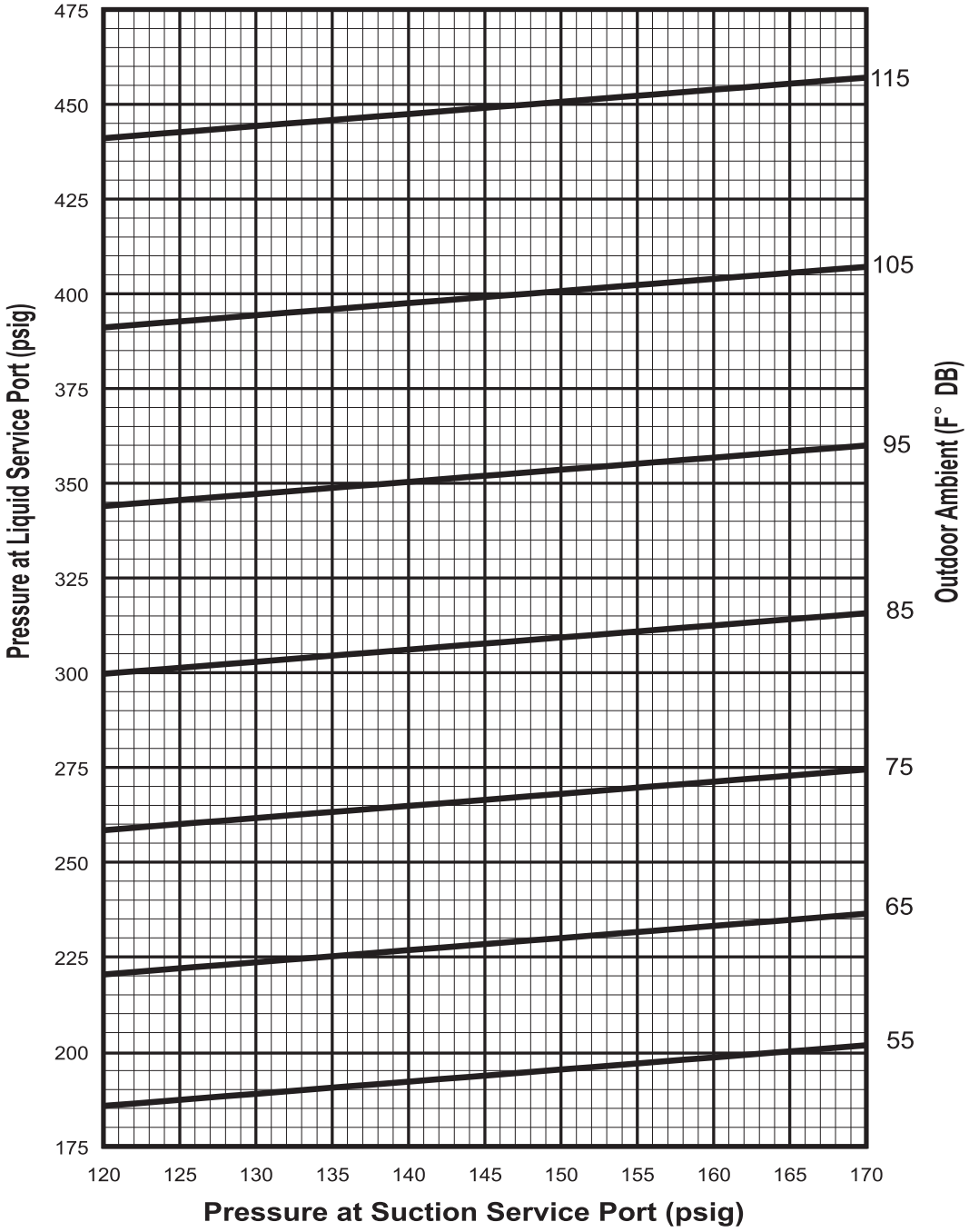
92-22904-49-00

FIGURE 56
SYSTEM CHARGE CHARTS

RRRL – 3 TON COOLING
1st (LOW) STAGE CHARGE CHART
R-410A REFRIGERANT

THE CHART BELOW IS FOR REFERENCE ONLY

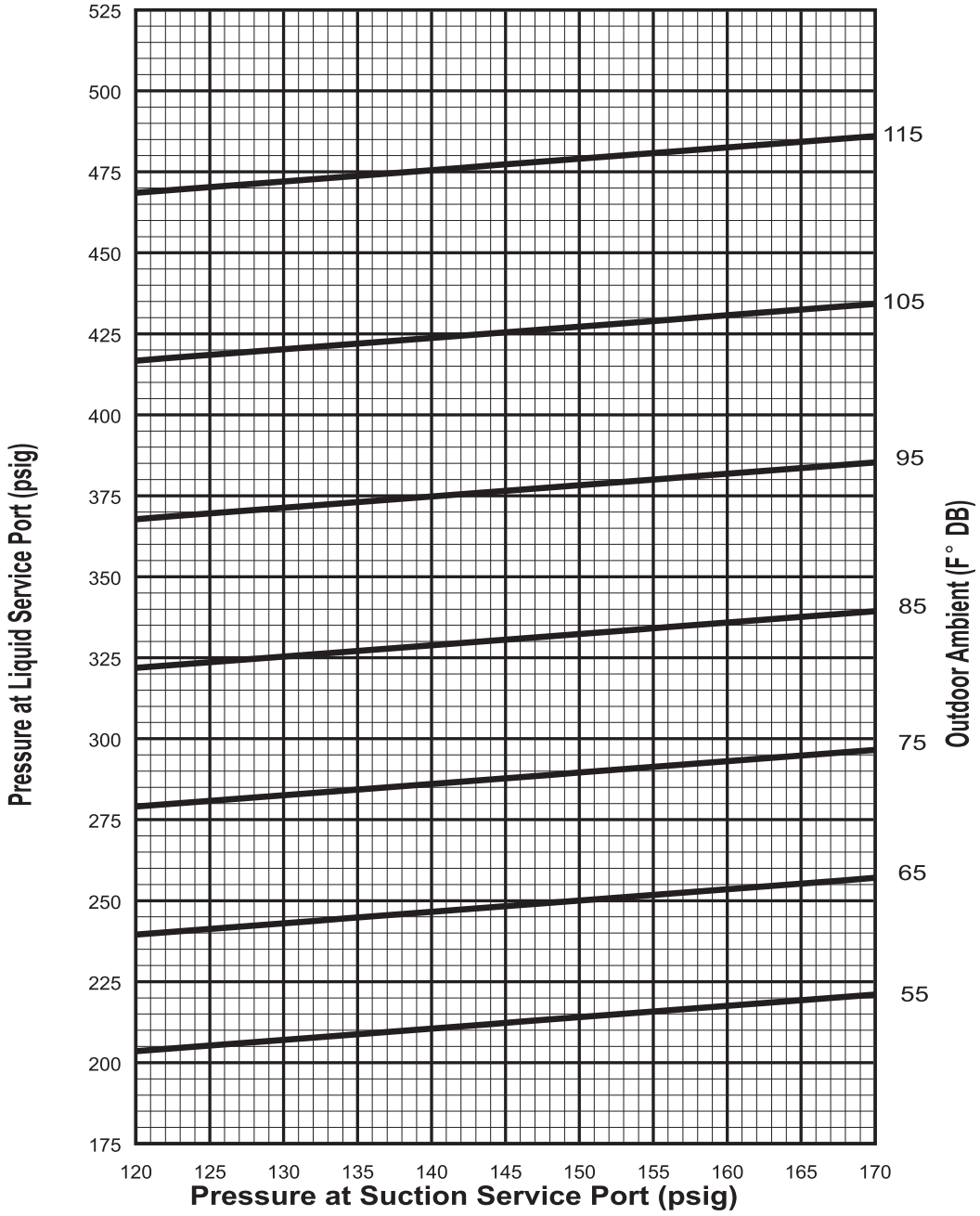
CHARGE ADJUSTMENT SHOULD BE MADE DURING 2nd (HIGH) STAGE OPERATION



92-22904-50-00

FIGURE 57
SYSTEM CHARGE CHARTS

RRRL – 3 TON COOLING
2nd (HIGH) STAGE CHARGE CHART
R-410A REFRIGERANT



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR AIR TEMPERATURE SHOULD BE AT A COMFORT CONDITIONS FOR MOST ACCURATE RESULTS.

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT.
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL.
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CROSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3.
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

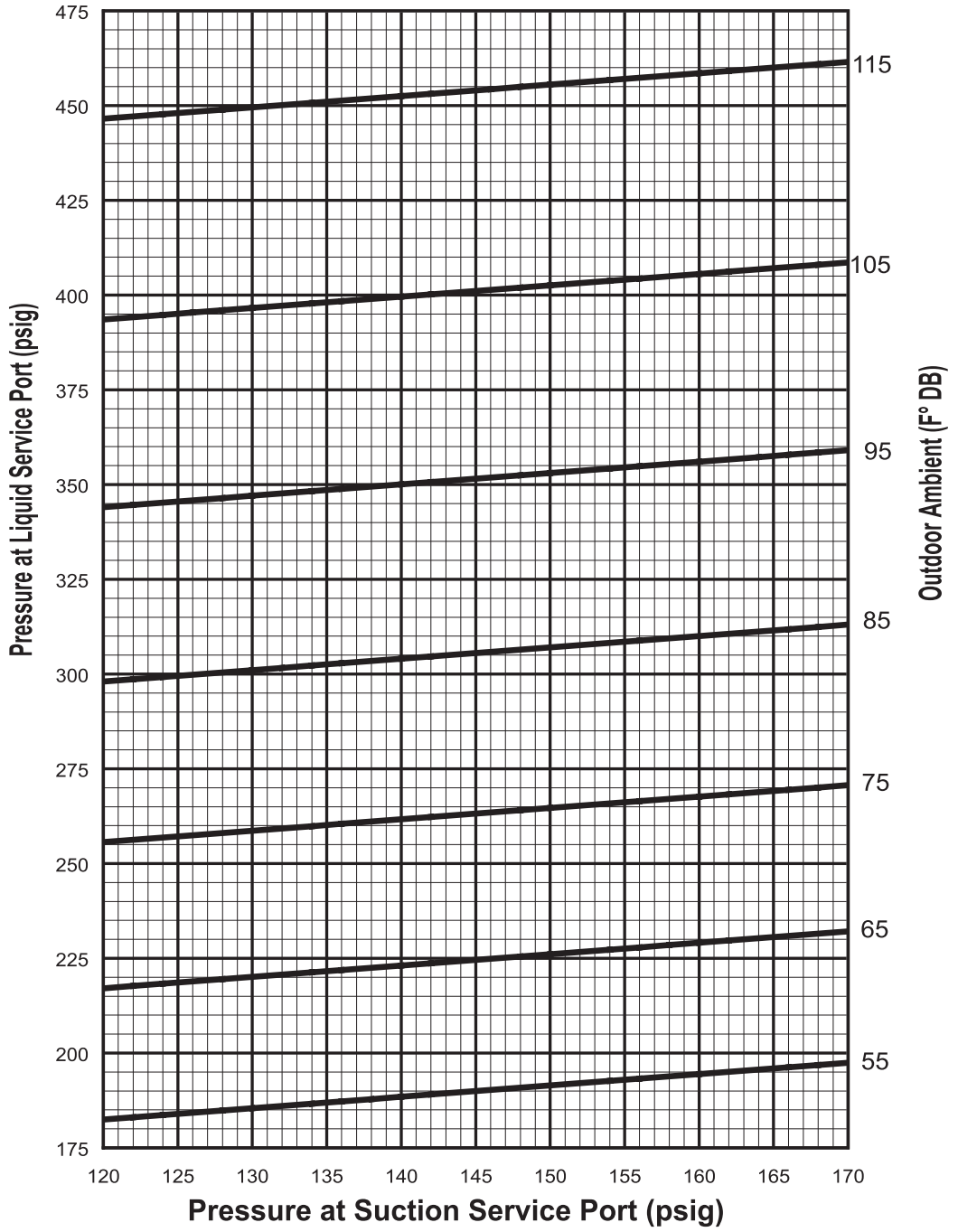
92-22904-51-00

FIGURE 58
SYSTEM CHARGE CHARTS

RRRL – 4 TON COOLING
1st (LOW) STAGE CHARGE CHART
R-410A REFRIGERANT

THE CHART BELOW IS FOR REFERENCE ONLY

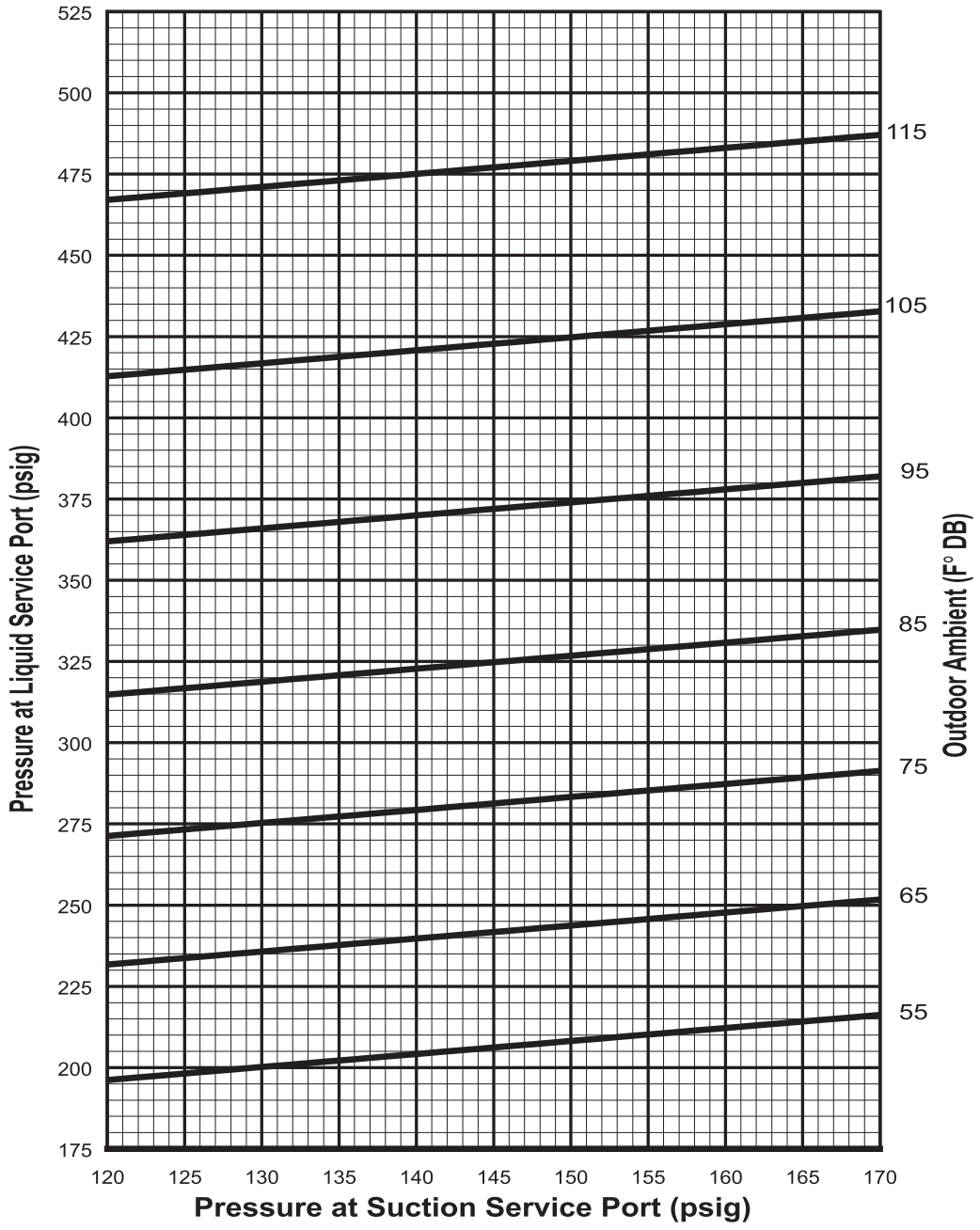
CHARGE ADJUSTMENT SHOULD BE MADE DURING 2nd (HIGH) STAGE OPERATION ONLY



92-22904-52-00

FIGURE 59
SYSTEM CHARGE CHARTS

RRRL – 4 TON COOLING
2nd (HIGH) STAGE CHARGE CHART
R-410A REFRIGERANT



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR AIR TEMPERATURE SHOULD BE AT A COMFORT CONDITIONS FOR MOST ACCURATE RESULTS.

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT.
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL.
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CROSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3.
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

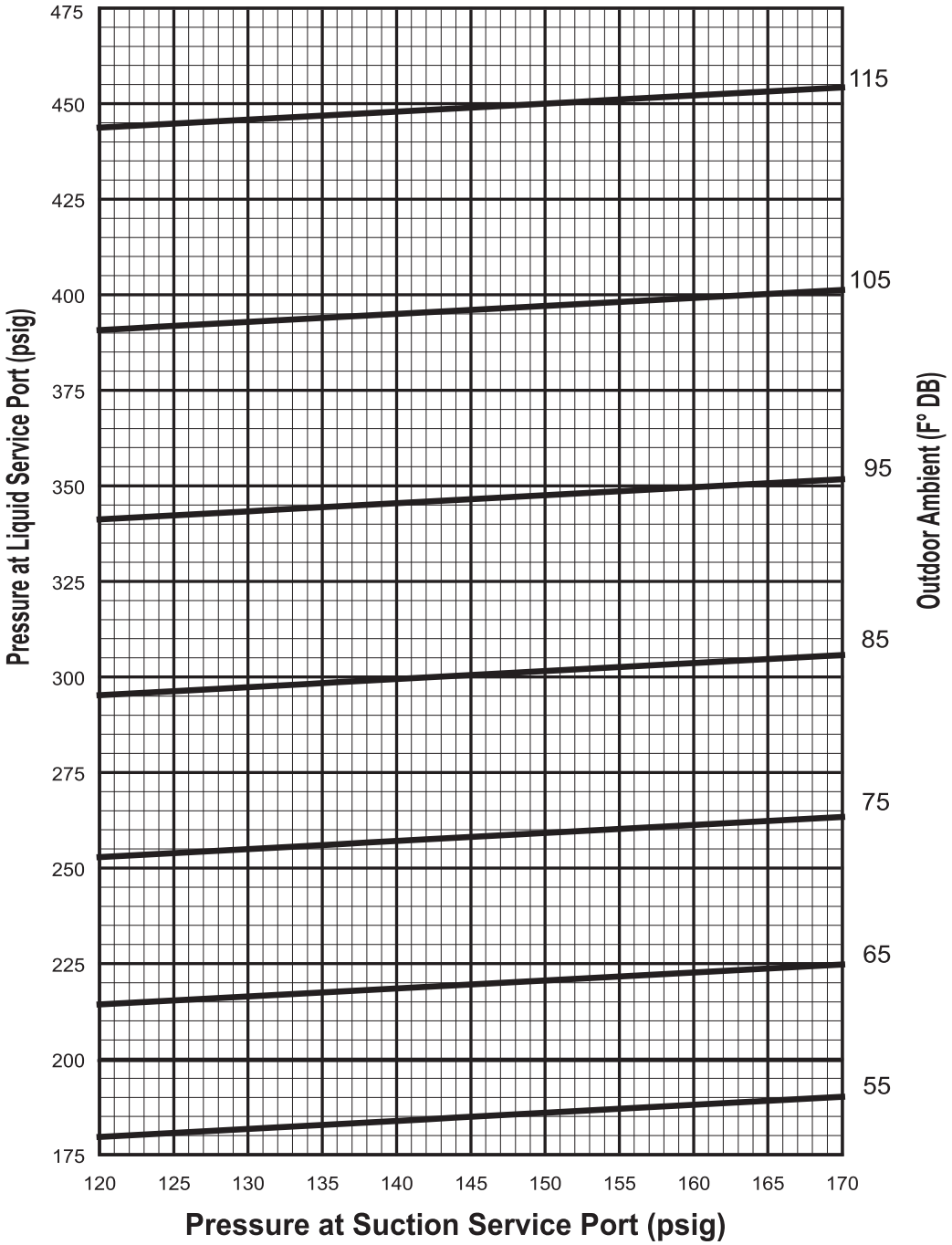
92-22904-53-00

FIGURE 60
SYSTEM CHARGE CHARTS

RRRL – 5 TON COOLING
1st (LOW) STAGE CHARGE CHART
R-410A REFRIGERANT

THE CHART BELOW IS FOR REFERENCE ONLY

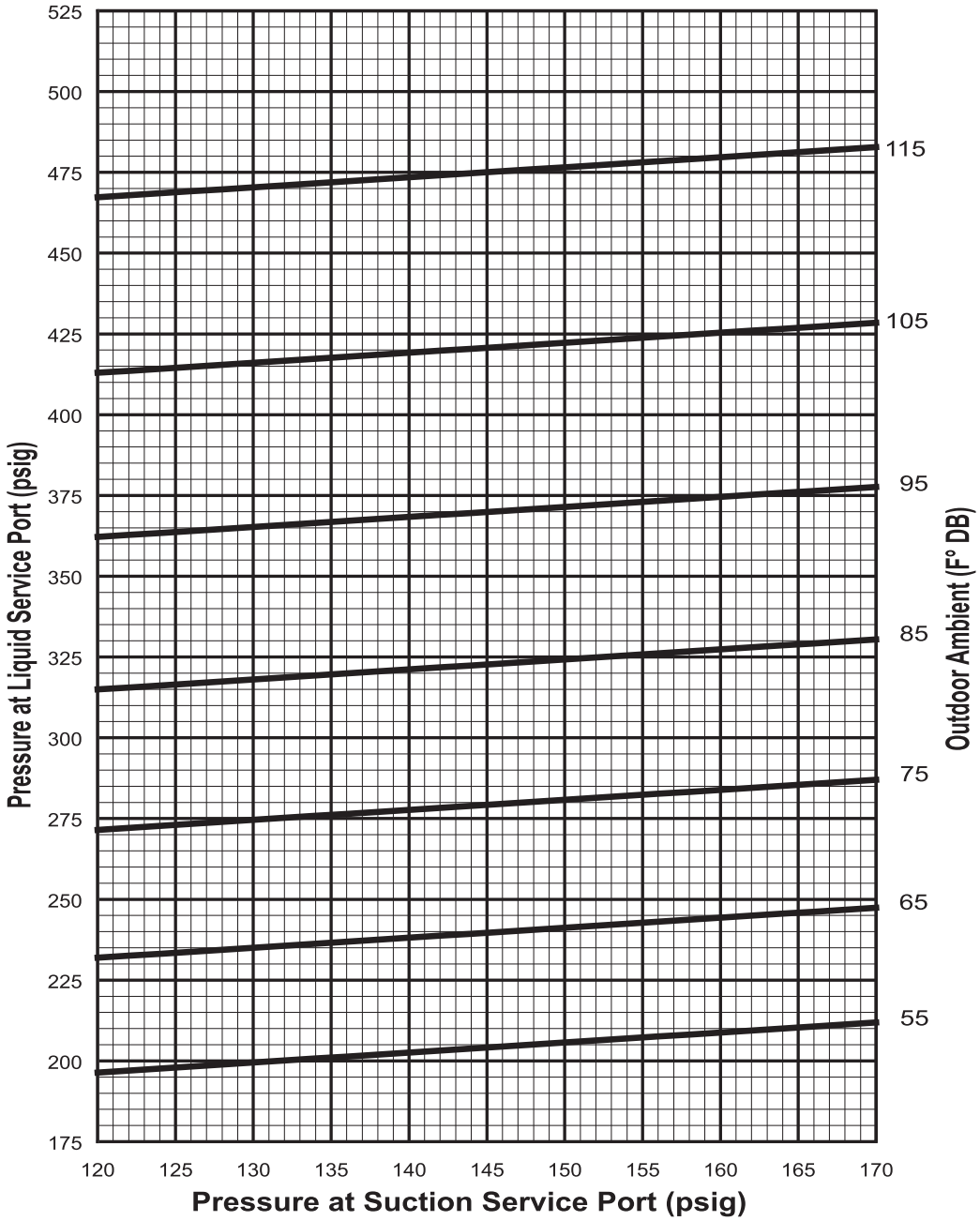
CHARGE ADJUSTMENT SHOULD BE MADE DURING 2nd (HIGH) STAGE OPERATION ONLY



92-22904-54-00

FIGURE 61
SYSTEM CHARGE CHARTS

RRRL – 5 TON COOLING
2nd (HIGH) STAGE CHARGE CHART
R-410A REFRIGERANT



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR AIR TEMPERATURE SHOULD BE AT A COMFORT CONDITIONS FOR MOST ACCURATE RESULTS.

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT.
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL.
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CROSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3.
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

92-22904-55-00

XVII. TROUBLESHOOTING

FIGURE 62

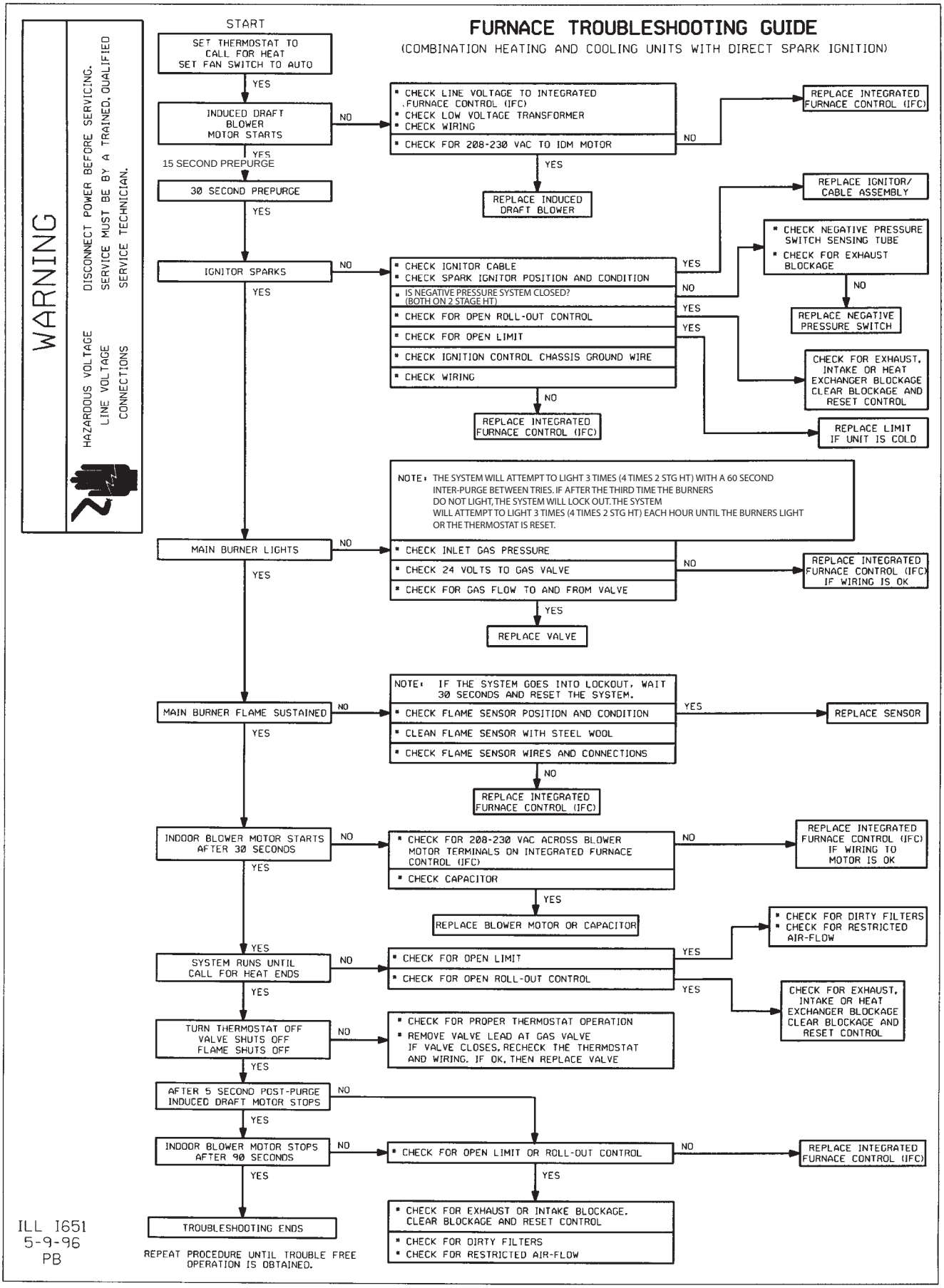
COOLING TROUBLE SHOOTING CHART

⚠ 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	• Power off or loose electrical connection • Thermostat out of calibration-set too high • Failed 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 failed (single phase only) • Start relay defective 9single 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 ± 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	• Defective Compressor valves • Incorrect capillary tubes	• Replace compressor • Replace coil assembly
Low vapor - cool compressor - iced evaporator coil	• Low evaporator airflow • Operating below 65°F outdoors • Moisture in system	• Increase speed of blower or reduce restriction - replace air filter • Add Low Ambient Kit • Recover refrigerant - evacuate & recharge - add filter drier
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
Circulating air blower & inducer run continuously, compressor will not start	• Manual reset overtemperature control • tripped • Wire loose in limit circuit	• Reset or replace • Check wiring

FIGURE 63


WARNING
HAZARDOUS VOLTAGE
LINE VOLTAGE
CONNECTIONS
DISCONNECT POWER BEFORE SERVICING.
SERVICE MUST BE BY A TRAINED, QUALIFIED
SERVICE TECHNICIAN.
START
FURNACE TROUBLESHOOTING GUIDE
(COMBINATION HEATING AND COOLING UNITS WITH DIRECT SPARK IGNITION)
SET THERMOSTAT TO CALL FOR HEAT SET FAN SWITCH TO AUTO
YES
INDUCED DRAFT BLOWER MOTOR STARTS
NO
* CHECK LINE VOLTAGE TO INTEGRATED FURNACE CONTROL (IFC)
* CHECK LOW VOLTAGE TRANSFORMER
* CHECK WIRING
* CHECK FOR 208-230 VAC TO IDM MOTOR
NO
REPLACE INTEGRATED FURNACE CONTROL (IFC)
YES
REPLACE INDUCED DRAFT BLOWER
YES
15 SECOND PREPURGE
30 SECOND PREPURGE
YES
IGNITOR SPARKS
NO
* CHECK IGNITOR CABLE
* CHECK SPARK IGNITOR POSITION AND CONDITION
YES
REPLACE IGNITOR/ CABLE ASSEMBLY
* IS NEGATIVE PRESSURE SYSTEM CLOSED? (BOTH ON 2 STAGE HT)
NO
* CHECK NEGATIVE PRESSURE SWITCH SENSING TUBE
* CHECK FOR EXHAUST BLOCKAGE
NO
REPLACE NEGATIVE PRESSURE SWITCH
* CHECK FOR OPEN ROLL-OUT CONTROL
YES
* CHECK FOR OPEN LIMIT
YES
* CHECK IGNITION CONTROL CHASSIS GROUND WIRE
* CHECK WIRING
CHECK FOR EXHAUST, INTAKE OR HEAT EXCHANGER BLOCKAGE CLEAR BLOCKAGE AND RESET CONTROL
NO
REPLACE INTEGRATED FURNACE CONTROL (IFC)
REPLACE LIMIT IF UNIT IS COLD
YES
NOTE: THE SYSTEM WILL ATTEMPT TO LIGHT 3 TIMES (4 TIMES 2 STG HT) WITH A 60 SECOND INTER-PURGE BETWEEN TRIES. IF AFTER THE THIRD TIME THE BURNERS DO NOT LIGHT, THE SYSTEM WILL LOCK OUT. THE SYSTEM WILL ATTEMPT TO LIGHT 3 TIMES (4 TIMES 2 STG HT) EACH HOUR UNTIL THE BURNERS LIGHT OR THE THERMOSTAT IS RESET.
MAIN BURNER LIGHTS
NO
* CHECK INLET GAS PRESSURE
* CHECK 24 VOLTS TO GAS VALVE
* CHECK FOR GAS FLOW TO AND FROM VALVE
NO
REPLACE INTEGRATED FURNACE CONTROL (IFC) IF WIRING IS OK
YES
REPLACE VALVE
YES
NOTE: IF THE SYSTEM GOES INTO LOCKOUT, WAIT 30 SECONDS AND RESET THE SYSTEM.
MAIN BURNER FLAME SUSTAINED
NO
* CHECK FLAME SENSOR POSITION AND CONDITION
YES
REPLACE SENSOR
* CLEAN FLAME SENSOR WITH STEEL WOOL
* CHECK FLAME SENSOR WIRES AND CONNECTIONS
NO
REPLACE INTEGRATED FURNACE CONTROL (IFC)
YES
INDOOR BLOWER MOTOR STARTS AFTER 30 SECONDS
NO
* CHECK FOR 208-230 VAC ACROSS BLOWER MOTOR TERMINALS ON INTEGRATED FURNACE CONTROL (IFC)
NO
REPLACE INTEGRATED FURNACE CONTROL (IFC) IF WIRING TO MOTOR IS OK
* CHECK CAPACITOR
YES
REPLACE BLOWER MOTOR OR CAPACITOR
YES
SYSTEM RUNS UNTIL CALL FOR HEAT ENDS
NO
* CHECK FOR OPEN LIMIT
YES
* CHECK FOR DIRTY FILTERS
* CHECK FOR RESTRICTED AIR-FLOW
* CHECK FOR OPEN ROLL-OUT CONTROL
YES
CHECK FOR EXHAUST, INTAKE OR HEAT EXCHANGER BLOCKAGE CLEAR BLOCKAGE AND RESET CONTROL
YES
TURN THERMOSTAT OFF VALVE SHUTS OFF FLAME SHUTS OFF
NO
* CHECK FOR PROPER THERMOSTAT OPERATION
* REMOVE VALVE LEAD AT GAS VALVE IF VALVE CLOSES, RECHECK THE THERMOSTAT AND WIRING. IF OK, THEN REPLACE VALVE
YES
AFTER 5 SECOND POST-PURGE INDUCED DRAFT MOTOR STOPS
NO
YES
INDOOR BLOWER MOTOR STOPS AFTER 90 SECONDS
NO
* CHECK FOR OPEN LIMIT OR ROLL-OUT CONTROL
NO
REPLACE INTEGRATED FURNACE CONTROL (IFC)
YES
YES
* CHECK FOR EXHAUST OR INTAKE BLOCKAGE. CLEAR BLOCKAGE AND RESET CONTROL
* CHECK FOR DIRTY FILTERS
* CHECK FOR RESTRICTED AIR-FLOW
TROUBLESHOOTING ENDS
REPEAT PROCEDURE UNTIL TROUBLE FREE OPERATION IS OBTAINED.
ILL 1651
5-9-96
PB

XVIII. COMFORT ALERT DIAGNOSTIC CHART

FIGURE 64

SINGLE PHASE UNIT

Status LED	Status LED Description	Status LED Troubleshooting Information
Green "POWER"	Module has power	Supply voltage is present at module terminals
Red "TRIP"	Thermostat demand signal Y1 is present, but the compressor is not running	1. Compressor internal overload is open 2. Broken wire or connector is not making contact 3. Low pressure switch open, if present 4. Compressor contactor has failed open
Yellow "ALERT" Flash Code 1	Long Run Time Compressor is running extremely long run cycles	1. Low refrigerant charge 2. Evaporator blower is not running 3. Evaporator coil is frozen 4. Faulty TXV 5. Condenser coil is dirty 6. Liquid line restriction (filter drier blocked if present in system) 7. Thermostat is malfunctioning
Yellow "ALERT" Flash Code 2	System Pressure Trip Discharge or suction pressure out of limits or compressor overloaded	1. Condenser coil poor air circulation (dirty, blocked, damaged) 2. Condenser fan is not running 3. Return air duct has substantial leakage 4. If low pressure switch is present, check flash code (1) information
Yellow "ALERT" Flash Code 3	Short Cycling Compressor is running only briefly	1. High head pressure 2. Thermostat demand signal is intermittent 3. Time delay relay defective, if present 4. Hot gas sensor defective, if present
Yellow "ALERT" Flash Code 4	Locked Rotor	1. Run capacitor has failed 2. Low line voltage (contact utility if voltage at disconnect is low) 3. Excessive liquid refrigerant in compressor 4. Compressor bearings are seized
Yellow "ALERT" Flash Code 5	Open Circuit	1. Compressor contactor has failed open 2. High pressure switch is open, If present 3. Open circuit in compressor supply wiring or connections 4. Unusually long compressor protector reset time due to extreme ambient temperature 5. Compressor windings are damaged
Yellow "ALERT" Flash Code 6	Open Start Circuit Current only in run circuit	1. Run capacitor has failed 2. Open circuit in compressor start wiring or connections 3. Compressor start winding is damaged
Yellow "ALERT" Flash Code 7	Open Run Circuit Current only in start circuit	1. Open circuit in compressor run wiring or connections 2. Compressor run winding is damaged
Yellow "ALERT" Flash Code 8	Welded Contactor Compressor always runs	1. Compressor contactor has failed closed 2. Thermostat demand signal not connected to module
Yellow "ALERT" Flash Code 9	Low Voltage Control circuit < 17VAC	1. Control circuit transformer is overloaded 2. Low line voltage (contact utility if voltage at disconnect is low)

- *Flash Code number corresponds to a number of LED flashes, followed by a pause and then repeated.*
  TRIP and ALERT LEDs flashing at same time means control circuit voltage is too low for operation.
  Reset ALERT Flash code by removing 24VAC power from module.
  Last ALERT Flash code is displayed for 1 minute after module is powered on.

92-101534-03-00

FIGURE 65

3 PHASE UNIT

Status LED	Status LED Description	Status LED Troubleshooting Information
Green “POWER”	Module has power	Supply voltage is present at module terminals
Red “TRIP”	Thermostat demand signal Y1 is present, but the compressor is not running	1. Compressor internal overload is open 2. Broken wire or connector is not making contact 3. Low pressure switch open, if present 4. Compressor contactor has failed
Yellow “ALERT” LED on Solid	A short circuit or over-current condition exists on "P" terminal	A. Low refrigerant charge B. Evaportaor blower is not running C. Evaporator coil is frozen D. Faulty TXV E. Condenser coil is dirty F. Liquid line restriction (filter drier blocked, if present in system) G. Thermostat is malfunctioning
Yellow “ALERT” Flash Code 2	System Pressure Trip Discharge or suction pressure out of limits or compressor overloaded "Lockout"	1. Condenser coil poor air circulation (dirty, blocked, damaged) 2. Condenser fan is not running 3. Return air duct has substantial leakage 4. If low pressure switch is present: A. Low refrigerant charge B. Evaportaor blower is not running C. Evaporator coil is frozen D. Faulty TXV E. Condenser coil is dirty F. Liquid line restriction (filter drier blocked, if present in system) G. Thermostat is malfunctioning
Yellow “ALERT” Flash Code 3	Short Cycling Compressor is running only briefly "Lockout"	1. High head pressure 2. Thermostat demand signal is intermittent 3. Time delay relay defective, if present 4. Hot gas sensor defective, if present
Yellow “ALERT” Flash Code 4	Locked Rotor "Lockout"	1. Low line voltage (contact utility if voltage at disconnect is low) 2. Excessive liquid refrigerant in compressor 3. Compressor bearings are seized
Yellow “ALERT” Flash Code 5	Open Circuit	1. Compressor contactor has failed open 2. High pressure switch is open, if present 3. Open circuit in compressor supply wiring or connections 4. Unusually long compressor protector reset time due to extreme ambient temperature 5. Compressor windings are damaged
Yellow “ALERT” Flash Code 6	Missing Phase "Lockout"	1. Broken wire or connector on one phase 2. Compressor motor winding is damaged 3. Utility supply has dropped one phase
Yellow “ALERT” Flash Code 7	Reverse Phase "Lockout"	1. Compressor running backwards due to supply phase reversal
Yellow “ALERT” Flash Code 8	Welded Contactor Compressor always runs	1. Compressor contactor has failed closed 2. Thermostat demand signal not connected to module
Yellow “ALERT” Flash Code 9	Low Voltage Control circuit < 18VAC	1. Control circuit transformer is overloaded 2. Low line voltage (contact utility if voltage at disconnect is low)

- *Flash Code number corresponds to a number of LED flashes, followed by a pause and then repeated.*
- *TRIP and ALERT LEDs flashing at same time means control circuit voltage is too low for operation.*
- *Reset ALERT Flash code by removing 24VAC power from module.*
- *Last ALERT Flash code is displayed for 1 minute after module is powered on.*

92-101534-04-00