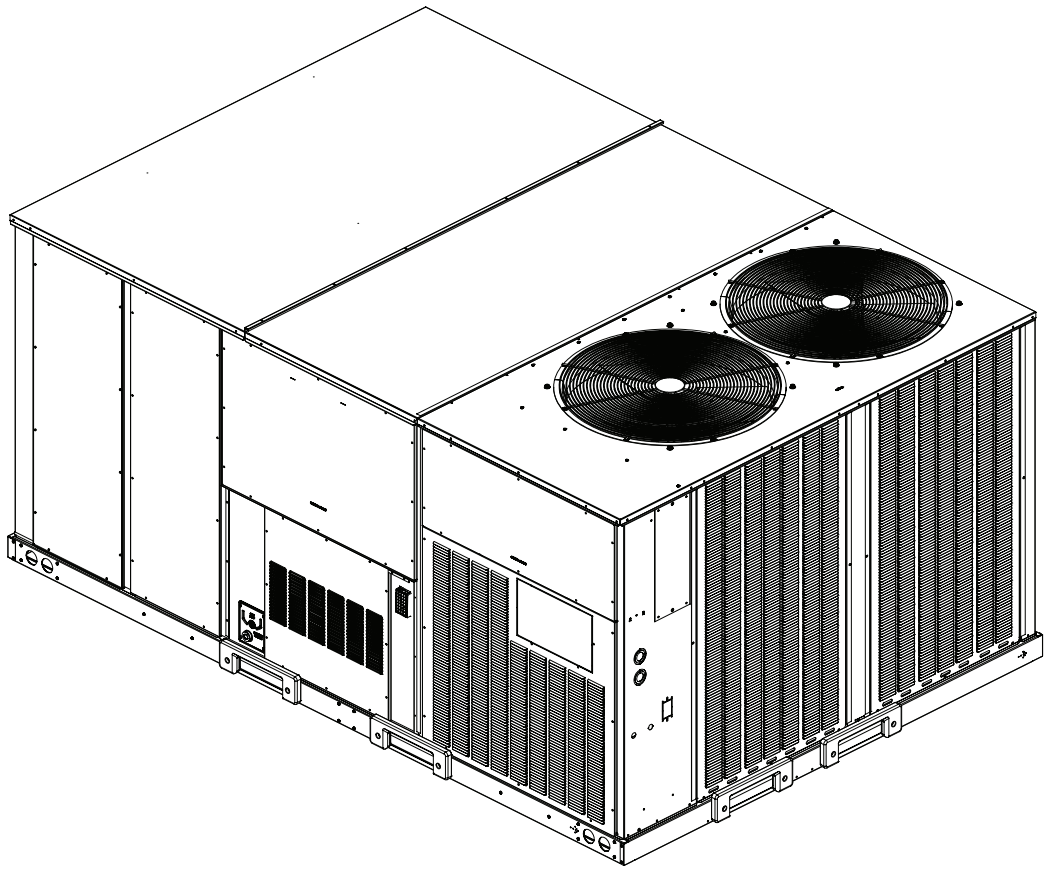
INSTALLATION INSTRUCTIONS

FOR RENAISSANCE™ PACKAGED GAS ELECTRIC UNITS

RGEG SERIES 15.0, 17.5, 20.0 & 25.0 TON [52.8, 61.5, 70.3 & 87.9 KW]
60 HZ MODELS
WITH R-410A REFRIGERANT



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CONTENTS

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

RECOGNIZE THIS SYMBOL AS AN INDICATION OF IMPORTANT SAFETY INFORMATION!

⚠WARNING

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

⚠WARNING

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

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

CONTENTS (DETAILED)

A. IMPORTANT SAFETY AND GENERAL INFORMATION

A.1 Introduction

This booklet contains the installation and operating instructions for your 15 ton, 17.5 ton, 20 ton, or 25 ton combination gas heating/electric cooling unit. There are some precautions that should be taken to ensure proper operation. Improper installation can result in unsatisfactory operation or dangerous conditions.

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

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

⚠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.

A.2 Agency Performance Audit and Efficiency Testing Notice

NOTICE: BREAK-IN PERIOD

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

NOTICE: EFFICIENCY TESTING NOTICE

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

SETUP

- ASHRAE 37 - 2009 (RA 2019)

PERFORMANCE:

- ANSI/ASHRAE 90.1 - 2016
- ANSI/ASHRAE 103 (2017)
- AHRI Operations for Unitary Large AC Equipment 340/360 (2015)

SAFETY

UL 1995 5th Edition

A.3. Importance of a Quality Installation

Optimal system performance and longevity depend upon a quality and proper installation. Failure to properly setup and commission this unit could result in undesirable operation and subsequent faults and potential failures.

Carefully follow all guidelines listed in the manual and industry best practices. Conform to all local code requirements. Contact your local technical representative with any questions or concerns.

A.4. Importance of Air Flow and Setup

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

A.5. Checking Product and Inspection

Upon receiving the unit, inspect it for any damage from shipment. Claims for damage, either shipping or concealed, should be filed immediately with the shipping company. IMPORTANT: Check the unit model number, heating size, electrical characteristics, and accessories to determine if they are correct.

B. GENERAL SPECIFICATIONS

B.1 Safety Warnings

⚠WARNING: Use only with type of gas approved for this unit. Refer to the unit rating plate.

⚠WARNING: Install this unit only in a location and position as specified in the location requirements and considerations section of these instructions. Provide adequate combustion and ventilation air to the unit space as specified in the venting section of these instructions.

⚠WARNING: Provide adequate combustion and ventilation air to the unit space as specified in the combustion and ventilation air section of these instructions.

⚠WARNING: Combustion products must be discharged outdoors. Refer to local building codes for ducting combustion exhaust.

⚠WARNING: Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections, as specified in gas supply and piping section of these instructions.

⚠WARNING: Always install unit to operate within the unit's intended temperature-rise range with a duct system which has an external static pressure within the allowable range, as specified in ducting section of these instructions. See also unit rating plate.

⚠WARNING: When a unit is installed so that supply ducts carry air circulated by the unit to areas outside the space containing the unit, the return air shall also be handled by duct(s) sealed to the unit casing and terminating outside the space containing the unit.

⚠WARNING: This unit may be used to heat the building or structure during construction if the following installation requirements are met. Installation must comply with all installation instructions including:

- Furnace operating under thermostatic control;
- Return air duct sealed to the furnace;
- Air filters in place;
- Set furnace input rate and temperature rise per rating plate marking;
- Return air temperature maintained between 55°f (13°c) and 80°f (27°c);
- Clean furnace, duct work and components upon substantial completion of the construction process, and verify furnace operating conditions including ignition input rate, temperature rise and venting, according to the instructions.

B. GENERAL SPECIFICATIONS

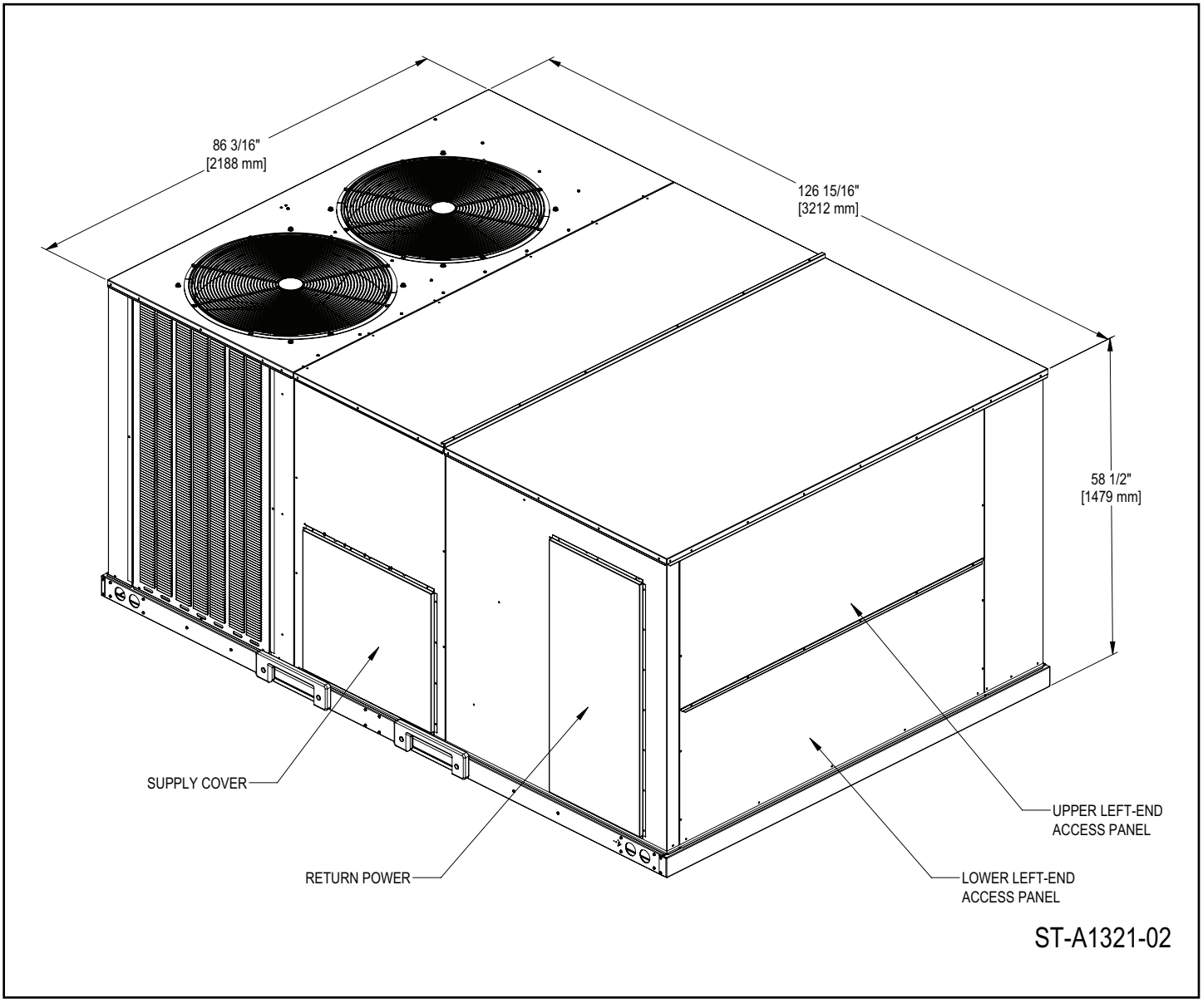
B.2. Major Components

The unit includes a hermetically-sealed refrigerating system consisting of a scroll compressor, condenser coil, evaporator coil with TXV, 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, and performance tested. Refrigerant amount and type are indicated on rating plate.

B.3. Product Data Information

B.3.1. Dimensional Information

IMPORTANT: This unit must be mounted level in both directions to allow water to drain from the condenser section and condensate pan.



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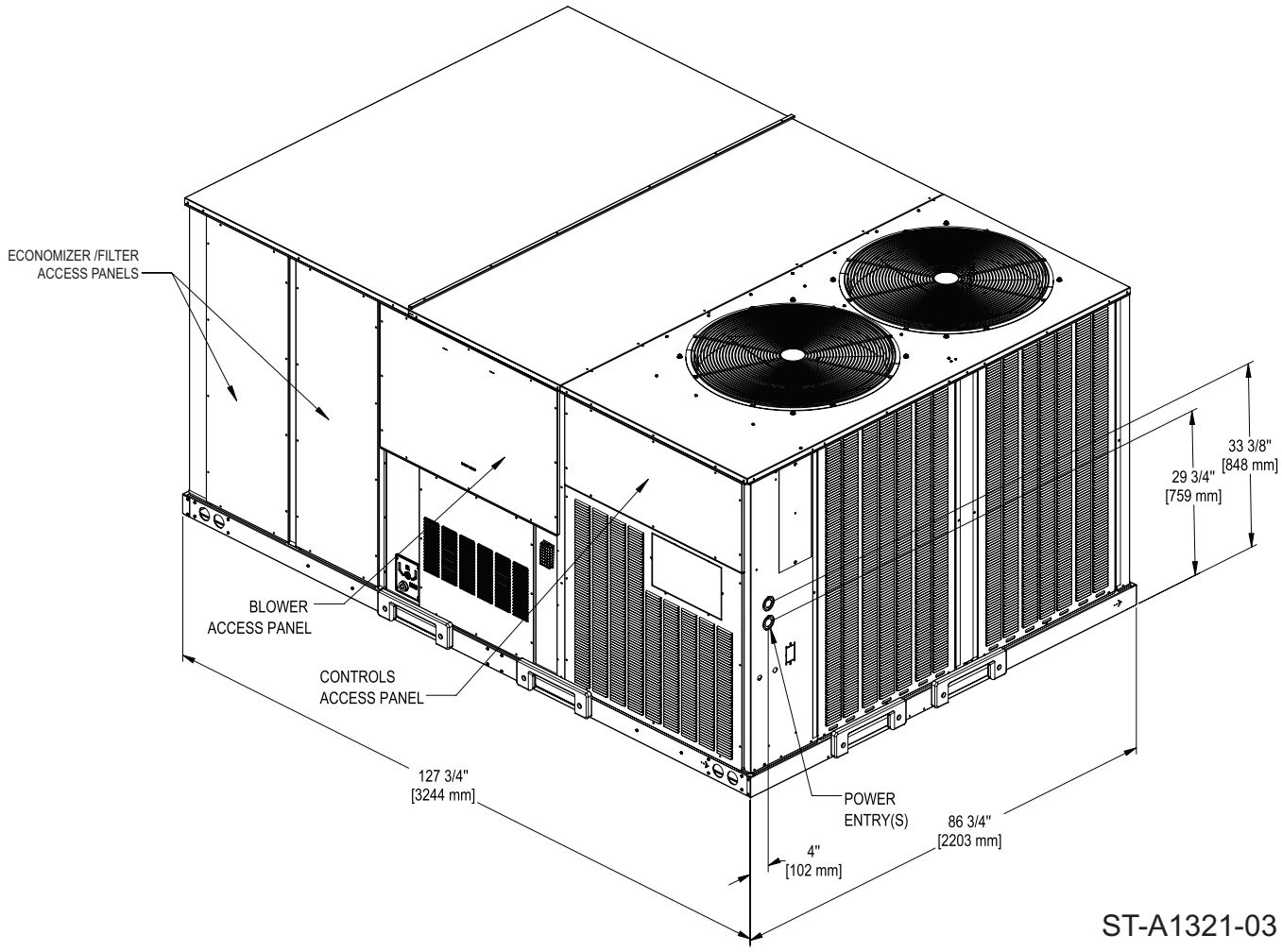
B.3. Product Data Information

B.3.1. Dimensional Information (Cont.)

IMPORTANT: This unit must be mounted level in both directions to allow water to drain from the condenser section and condensate pan.



B.3.2. Product Specifications

The packaged Gas Electric rooftop unit is available with 180k, 210k, 240k, and 300k BTUHs heating input (either factory installed or field installed). Cooling capacity is 15, 17.5, 20, and 25 nominal tons. Units are convertible from horizontal supply/return to bottom supply/return by relocation of supply/return cover panels. See section ***C.3.5. Cover Panel Installation/ Conversion Procedure*** for more details.

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 or death.

B. GENERAL SPECIFICATIONS

B.3. Product Data Information

B.3.3. General Data

*See **Appendix A** towards the end of this manual for General Data.*

B.3.4. Electrical Data Reference

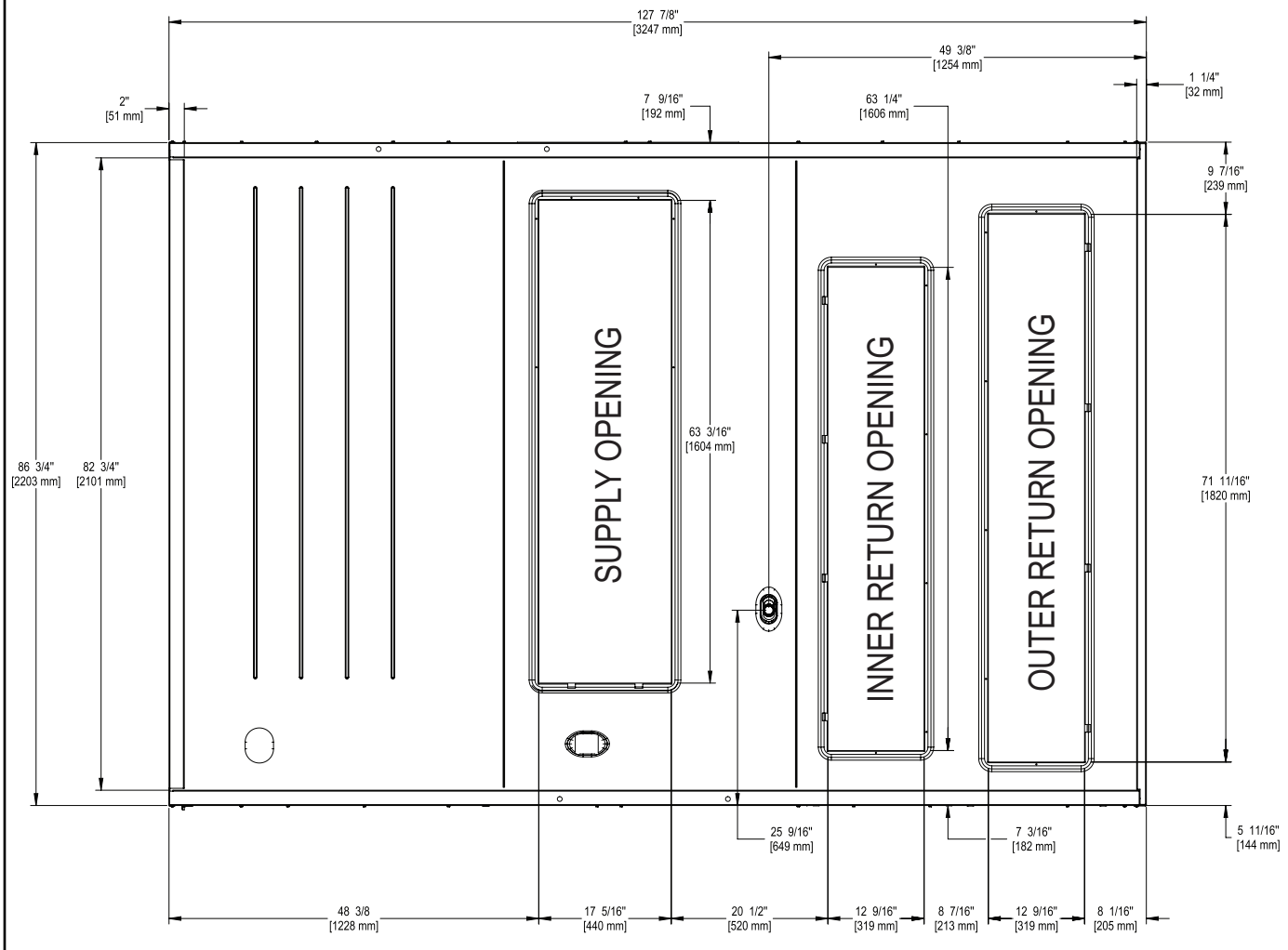
*See **Appendix B** towards the end of this manual for Electrical Data.*

B.3.5. Air Flow Performance Data

*See **Appendix C** towards the end of this manual for Air Flow Performance Data.*

B.3.6. Supply and Return Duct Dimensions

Figure B.3.6. - A: Supply And Return Dimensions For Downflow Applications (Bottom View Looking Up)



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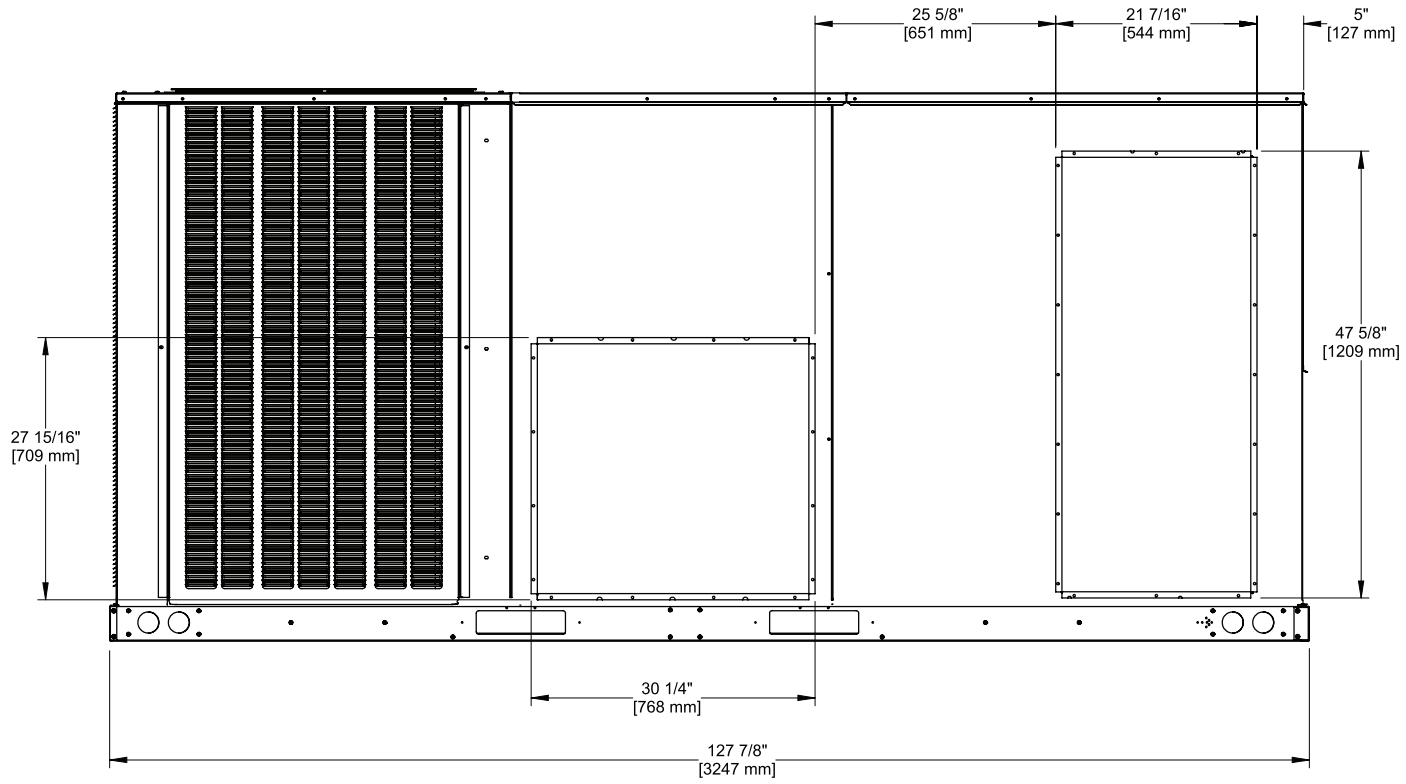
B.3.6. Supply and Return Duct Dimensions

Figure B.3.6. - B: Supply And Return Dimensions For Horizontal Applications



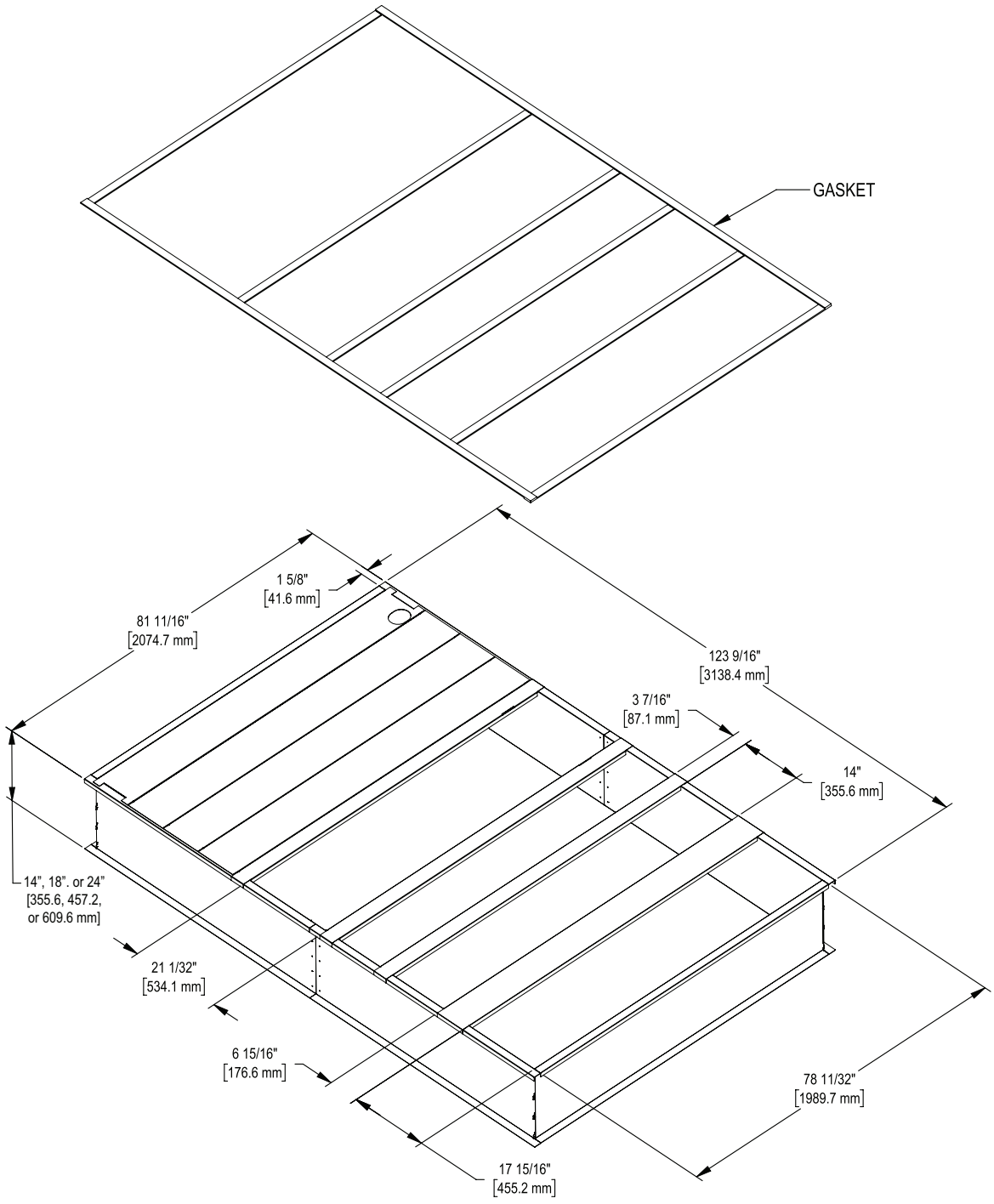
B. GENERAL SPECIFICATIONS

B.3. Product Data Information

B.3.7. Curb Dimensions

NOTE: **See Section C.3.3. Rooftop Installation** for more information for installing the unit on a curb.

Figure B.3.7. – A: Roofcurb Complete Assembly



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C. INSTALLATION OF THE UNIT

C.1. General

C.1.1. Installation

Install this unit in accordance with local and national standards. Any and all work must be done by authorized personnel.

C.1.2. Pre-Installation Checkpoints

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 - away from bedroom windows

C.2. Tool and Refrigerant

C.2.1. Tools Required for Installing and 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
- Zero-loss fittings

Recovery Cylinders:

- 400 PSIG Pressure Rating

Dept. of Transportation

- 4BA400 or BW400

C.2.2. Specifications of R-410A

All units are factory charged with R-410a Refrigerant.

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.

C.2.3. Quick Reference Guide for R-410A

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.
- 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.

C.2.4. Evaporator Coil/TXV

The thermostatic expansion valve is specifically designed to operate with R- 410A. The existing evaporator must be replaced with the factory specified TXV evaporator specifically designed for R-410A.

⚠WARNING: Disconnect all power to unit before starting maintenance. Failure to do so can cause electrical shock resulting in personal injury or death. Regular maintenance will reduce the buildup of contaminants and help to protect the unit's finish.

C. INSTALLATION OF THE UNIT

C.3. Choosing a Location

C.3.1.Unit Location: Allowable Clearances and Operational Issues

The unit location must comply with the allowable clearances listed in ***Figure C.3.1. - A.*** Failure to comply with the recommended clearances may result in operational issues such as decreased capacity, restricted condenser airflow, and condenser motor fatigue.

Figure C.3.1. - A: Allowable Clearances

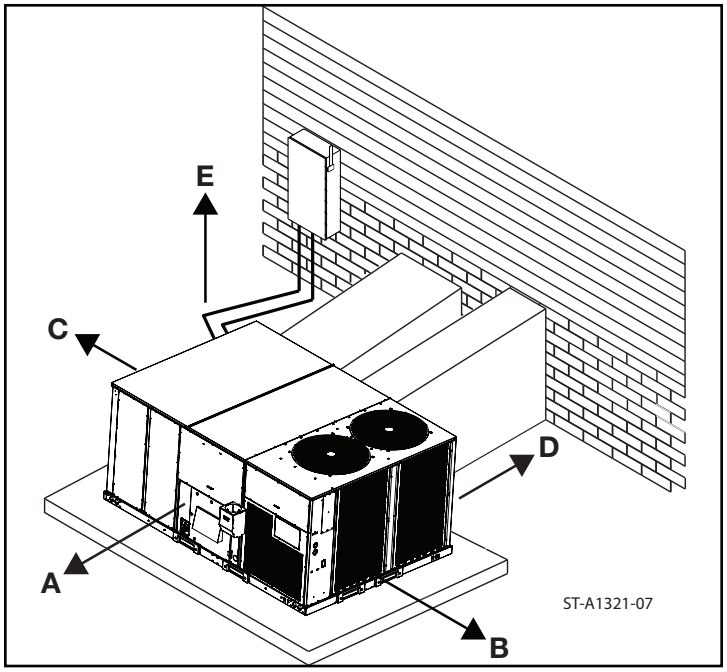
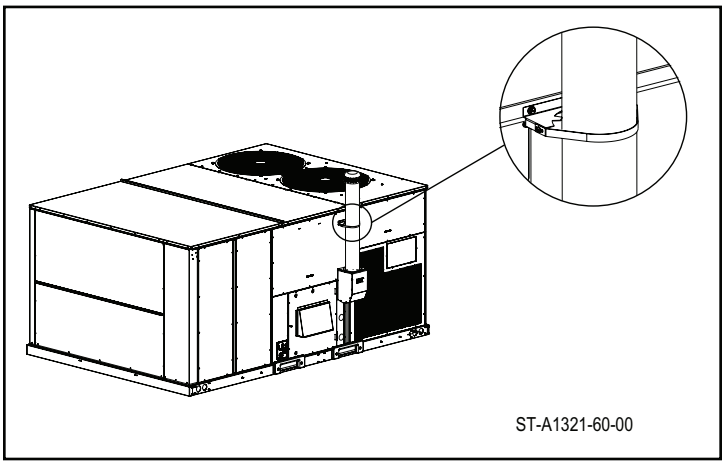


Figure C.3.1. - B: Allowable Clearances



C.3.2. 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.

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

2. Provide a level slab sufficiently high enough above grade to prevent surface water from entering the unit

3. Locate the unit to provide proper access for inspection and servicing as shown in ***Figure C.3.1. - A.***

4. Locate unit where operating sounds will not disturb owner or neighbors.

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

6. Where snowfall is anticipated, the height of the unit above the ground level must be considered. Mount unit high enough to be above anticipated maximum area snowfall and to allow combustion air to enter the combustion air inlet.

7. Select an area which will keep the areas of the vent, air intake, and A/C condenser fins free and clear of obstructions such as weeds, shrubs, vines, snow, etc. Inform the user accordingly.

C.3.3. 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 manual.) **THIS IS VERY IMPORTANT AND IS THE INSTALLER'S RESPONSIBILITY.**

2. For rigging and roofcurb details, see **Section C.4.3.**

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.*

C.3.4. Corrosive Environments

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

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, install the unit on the side of the building away from the waterfront.

3. In some situations, fencing or shrubs may give some protection against contaminants. Be mindful of the allowable clearances.

4. 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.

5. Regular cleaning and waxing of the cabinet with an automobile polish will provide some protection.

6. A good liquid cleaner may be used several times a year to remove matter that will not wash off with water.

Several different types of protective coatings are offered in some areas. These coatings may provide some benefit, but the effectiveness of such coating materials cannot be verified by the equipment manufacturer. The best protection is frequent cleaning, maintenance and minimal exposure to contaminants.

C.3.5. Supply and Return Cover Panel Removal

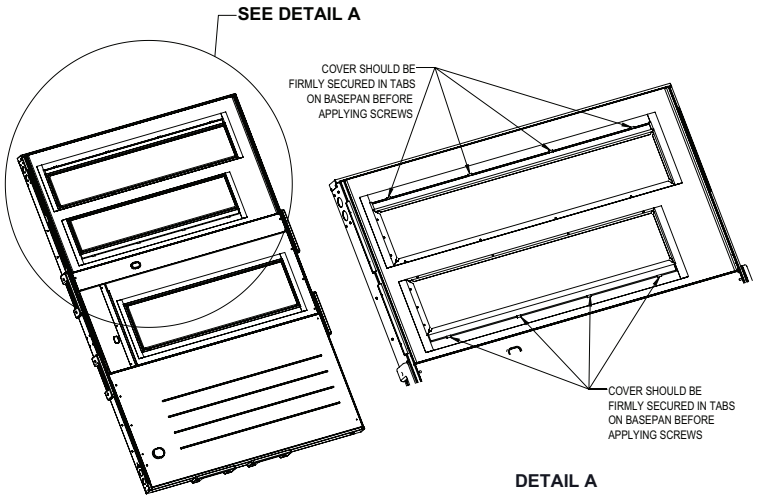
Remove the covers from the supply and return openings on the unit. See Figure B.3.6. - B for reference.

1. For HORIZONTAL ducting, the supply and return openings are on the rear side of the unit.

2. For DOWNFLOW ducting, the supply and return openings are on the base of the unit.

a. There are two return openings to choose from based on the job. Only remove one of the covers needed and leave the other opening covered. See Figure C.3.5. - A for reference.

Figure C.3.5. – A: Downflow to Horizontal Conversion



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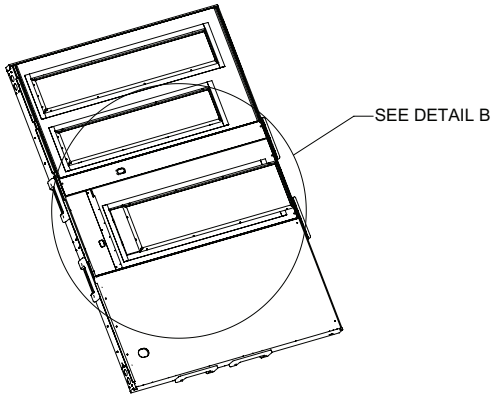

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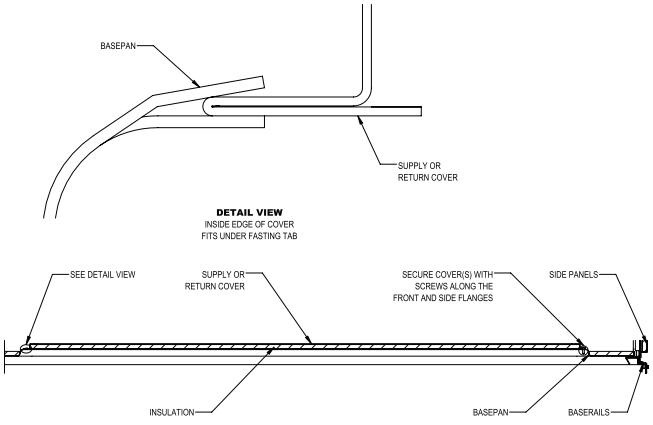

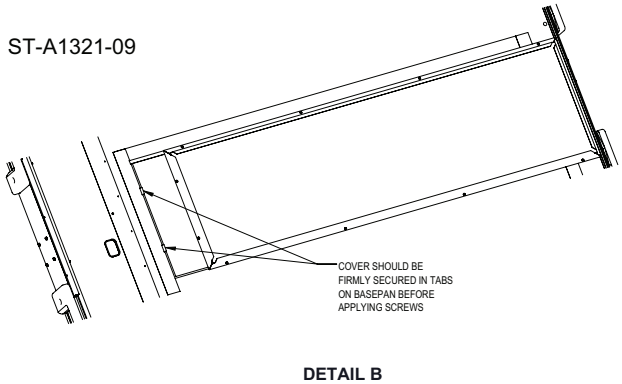

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C. INSTALLATION OF THE UNIT

C.4.Setting the Unit

C.4.1. Removing Shipping material

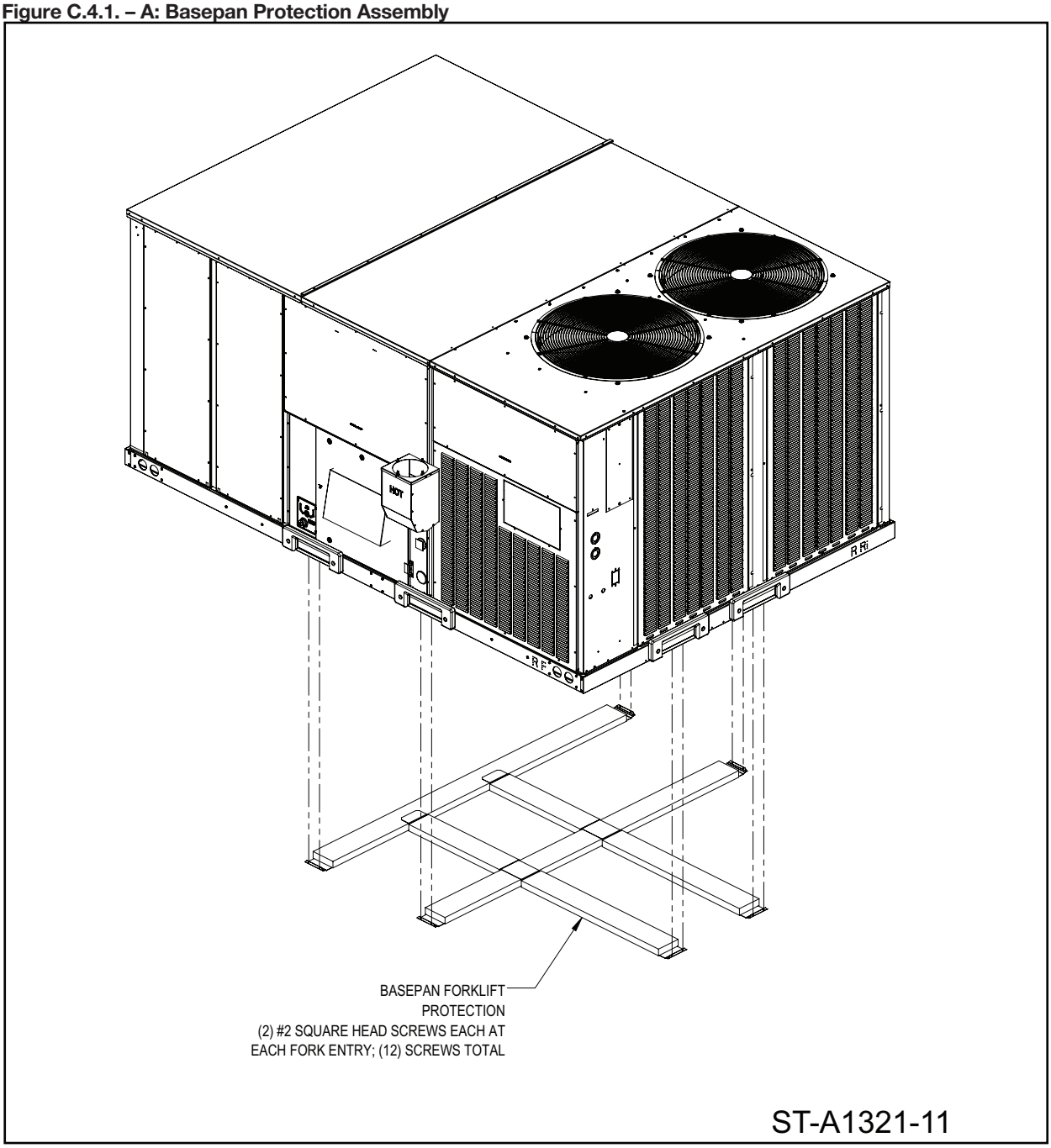
There will be three types of shipping material that will need to be removed: The wood board basepan protection underneath, the wooden skid on the top, and the condenser coil protection (on non-louver panel units).

•**Wood Board Basepan Protection** – Remove the screws that attach the metal brackets for each of the forklift fork-entry points, and remove the brackets. This will release the protection boards from underneath, and it may be removed when the unit is lifted.

• **Bumper Boards** – Remove the six, black, plastic bumper boards by removing the two screws on each.

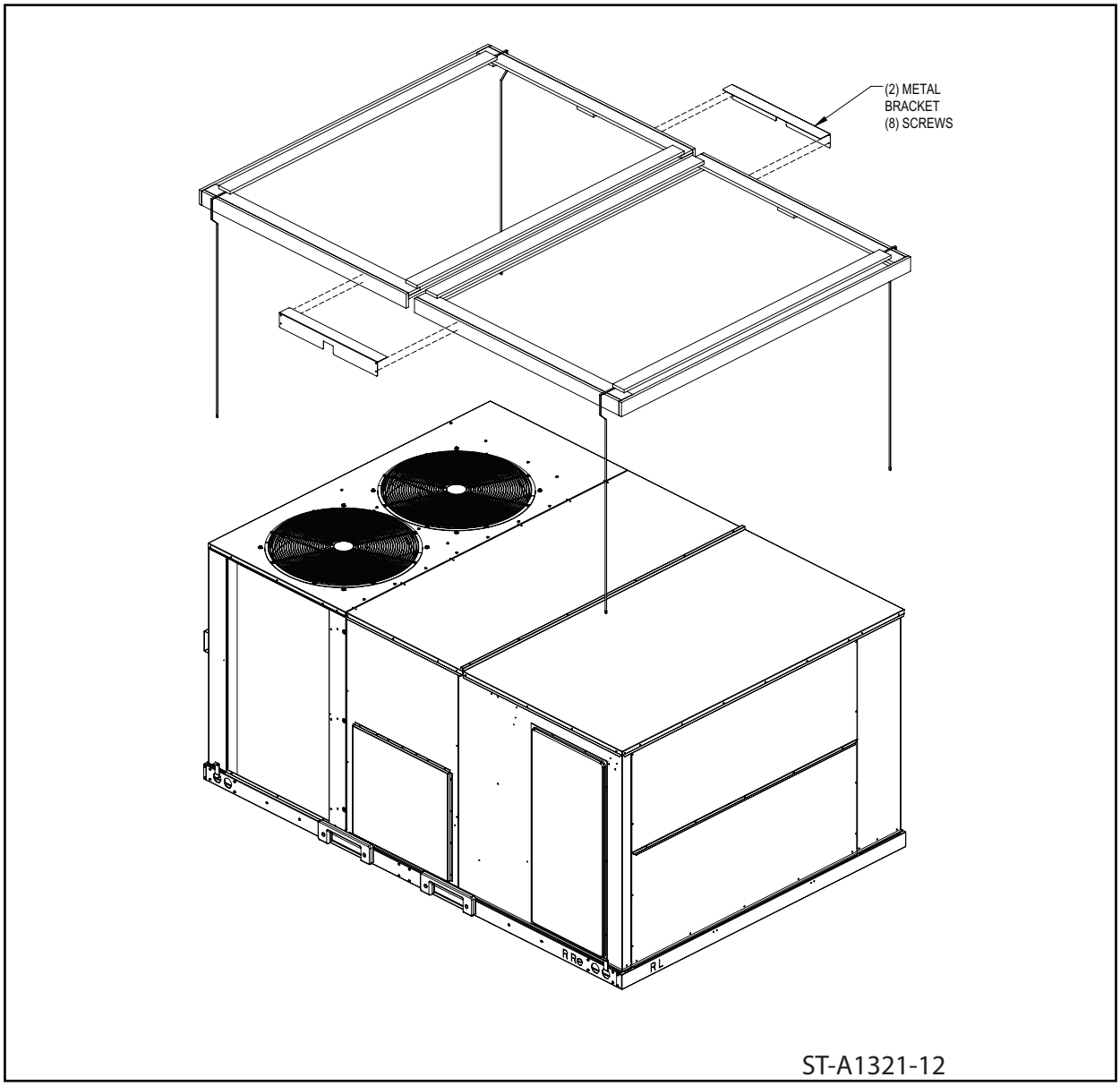
• **Shipping Screws** – Shipping screws are type #2 square head screws.

Figure C.4.1. – A: Basepan Protection Assembly



• **Wooden Skid –** Remove the screws from the metal brackets located in the middle along both long sides of the unit. This will detach the two sections of the wooden skid and allow them to be lifted off. If the unit is to be lifted by a crane, it is recommended to leave the top skid on until after the unit is on the roof to provide extra protection if spreader bars are not used.

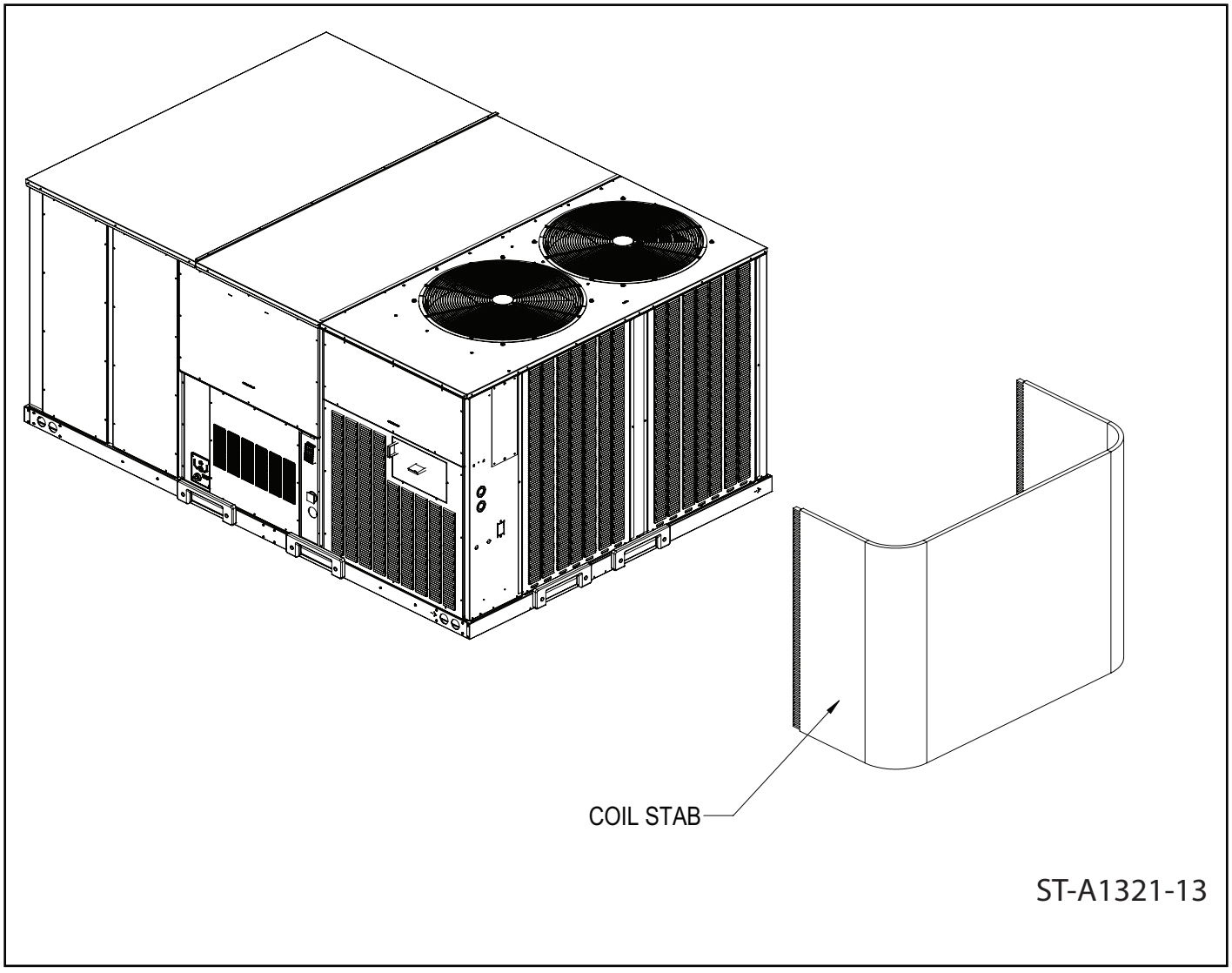
Figure C.4.1. – A: Wooden Skid Assembly



C. INSTALLATION OF THE UNIT

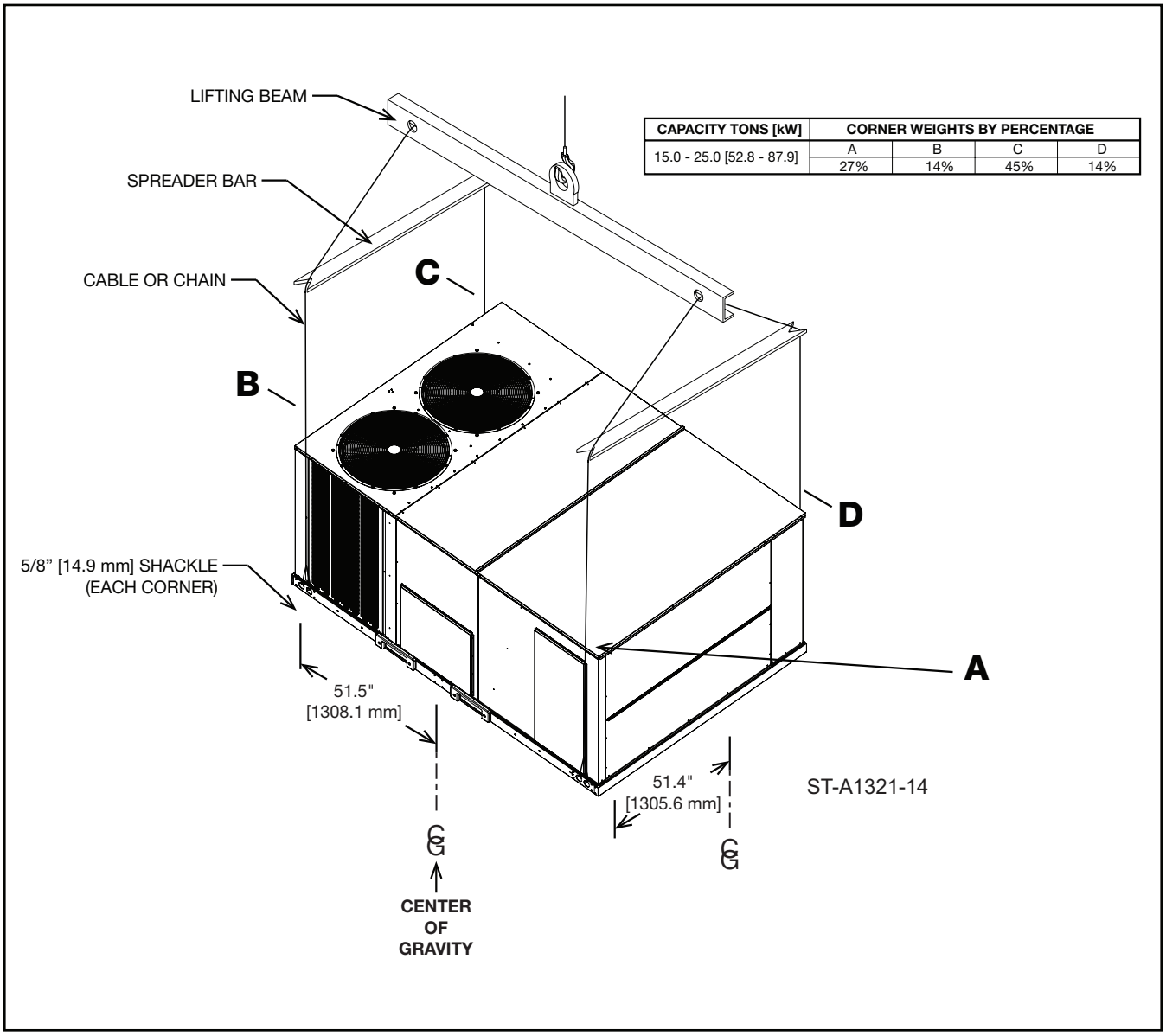
• **Condenser Coil Protection –** Remove the screws along the perimeter of the coil protector. This will allow the protector to be removed. If the unit has louver panels, it will not have the condenser coil protection.

Figure C.4.1. – C: Condenser Coil Protection Assembly



C.4.2. Lifting the Unit

Figure C.4.2. – A : Lifting Detail



CAPACITY TONS [kW]	CORNER WEIGHTS BY PERCENTAGE			
	A	B	C	D
15.0 - 25.0 [52.8 - 87.9]	27%	14%	45%	14%

C. INSTALLATION OF THE UNIT

C.4.3. On a Roof Curb

Refer to ***Figure C.3.1. - A*** in section ***C.3.1. "Unit Location: Allowable Clearances and Operational Issues"*** before installing the unit on a roof curb.

Only use manufacturer-approved roofcurb products for the unit.

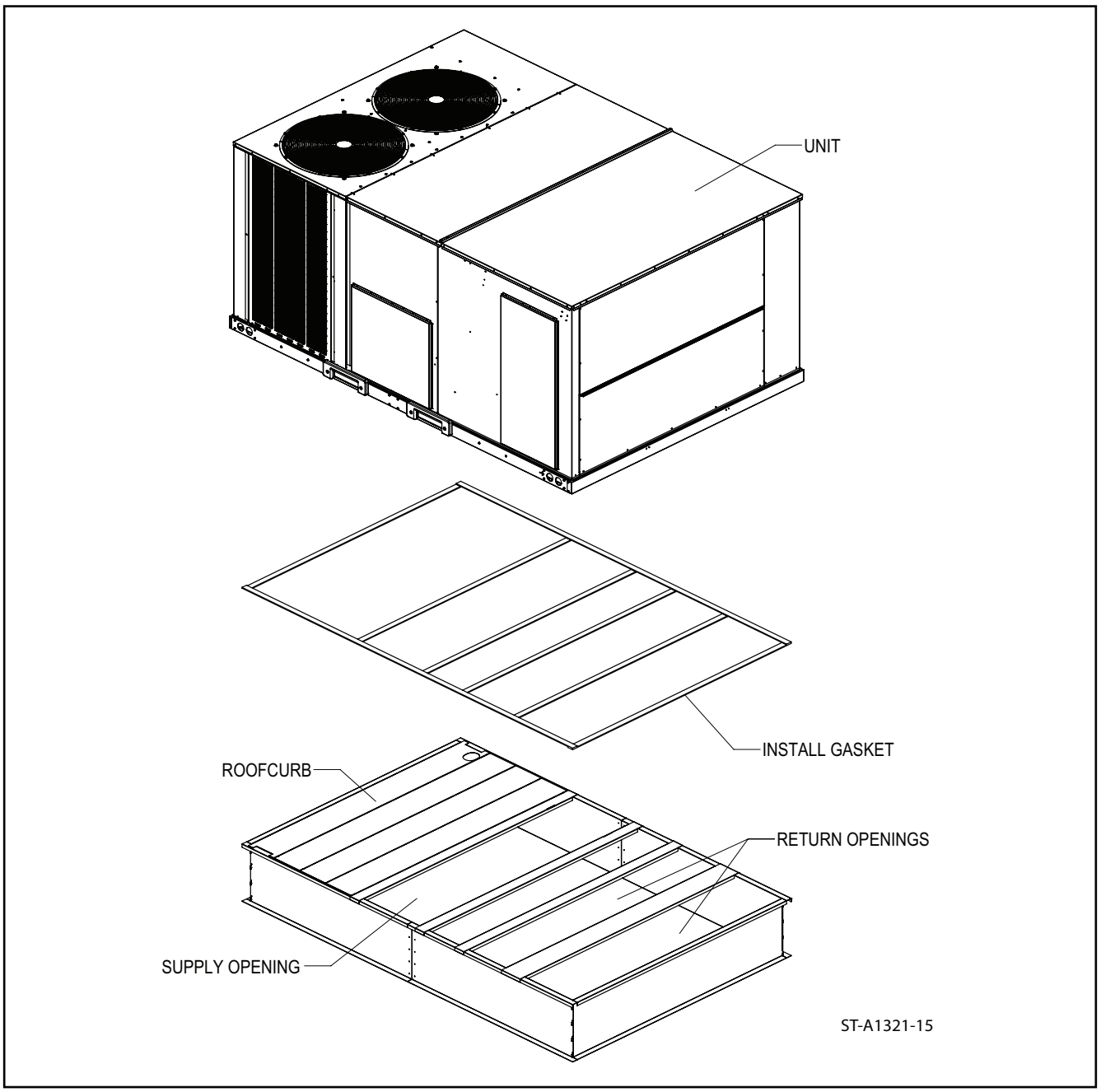
C.4.3.1. Installing the Roof Curb

Refer to the separate Installation Instructions for installing a roof curb. These instructions are listed under these Manufacturer Part numbers:

- 14" and 21" Roofcurb: 92-107192-07
- Roofcurb Adapter: 92-107192-09

C.4.3.2. Setting the Unit

Figure C.4.3.2. - A: Setting the unit on Roofcurb Assembly



C.4.3.3. High Wind and Seismic Tie-Down Methods

The units must be secured in compliance with the latest local Building Codes. Please refer to ***Appendix J: Unit Tie-Down Methods***.

C.4.4. On a slab

C.4.4.1. Setting the Unit

Set the unit on a stable concrete pad with adequate clearances around the sides of the unit, and make sure the unit is level before securing.

Before setting/securing the unit, use this opportunity to convert the unit from a downflow configuration to a sideflow configuration if necessary. Refer to section ***C.3.5. Cover Panel Installation/Conversion Procedure***.

C.4.4.2. High Wind and Seismic Tie-Down Methods

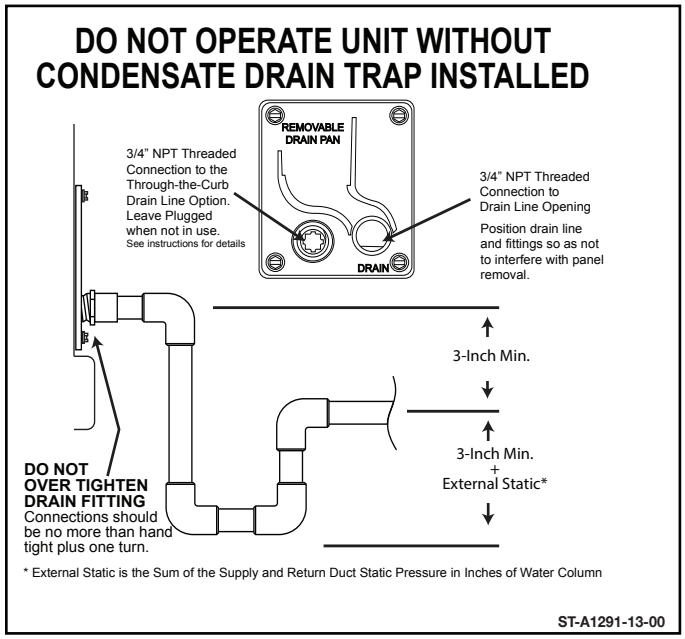
Slab-installed units must also be secured in compliance with the latest local Building Codes. Please refer to ***Appendix J: Unit Tie-Down Methods***.

C.5. Installing Condensate Drain

IMPORTANT: Install a condensate trap to ensure proper condensate drainage. See ***Figure C.5.1 - A*** for reference.

The condensate drain pan has a threaded female 1 inch NPT (11.5 TPI) connection. Drain line must be no smaller than drain pan outlet and adequately sized to accommodate the condensate discharge from the unit.

Figure C.5.1 – A: Condensate Drain Tap



Drain line must be routed to an acceptable drain or outdoors in accordance with local codes. Consult local codes or ordinances for specific requirements of condensate drain piping and disposal.

DO NOT connect condensate drain line to a closed sewer pipe.

C.5.1. Determine Drain Trap Height Requirement

The drain line should be a minimum of 3 inches deep, plus 1 inch for every inch of external static pressure from the blower and duct system. For Example, if the external duct static is 1 inch of water column, the drain trap from the bottom of the trap to the bottom of the drain outlet should be 4 inches, the drain outlet should be 3 inches below the drain connection on the condensate pan. Ensure the outlet of the trap is routed to a suitable drain location as required by local code. See ***Figure C.5.1 - A*** for reference.

C.5.2. Keeping the condensate drain pan serviceable

To use the removable drain pan feature of this unit, some of the condensate line joints should assembled for easy removal and cleaning. Drain line **MUST NOT** block service access panels.

C.5.3. Connecting the Drain trap

- Use a thin layer of Teflon tape or paste on drain pan connections and install only hand tight.
- Do not over tighten drain pan connections as damage to the drain pan may occur.
- Drain line must be routed to an acceptable drain or outdoors in accordance with local codes.
- Drain line should slope away from unit a minimum of 1/8" per foot to ensure proper drainage.

C.5.4. Connecting the Drain to the through the curb option

The through the curb drain option is available for installations in freezing conditions or that do not want water draining on the roof. Use adapters and elbows to turn out of the drain opening on the right and into the curb drain opening on the left. Under the unit connect a 1" male treaded fitting, use thread sealant, into the opening between the supply and return duct openings under the unit. Install a properly sized drain trap in the conditioned space of the building and route to a suitable drain location as code requires.

C. INSTALLATION OF THE UNIT

C.5.5. Freezing Condition considerations

- Drain line may need insulation or freeze protection in certain applications.
- Drain line should slope away from unit a minimum of 1/8" per foot to ensure proper drainage.

C.6. Final Installation Inspection

C.6.1. Remove Shipping Material

Before the unit is secured to the slab/roofcurb, check that all shipping material has been removed. See **Section C.4.1.** for how to remove shipping material.

NOTE: Failure to remove the condenser coil protector on non-louver panel units will negatively impact performance and be harmful to system components. Failure to remove the cardboard basepan protector will block all indoor airflow for downflow configurations.

Open all compartments to ensure there are no tools or other misc parts remaining in the unit from setup. This is most important on the blower section to avoid damage to the blower assembly.

C.6.2. Checking Level and Slope

This unit must be mounted level in both directions to allow water to properly drain from the condenser section and condensate pan.

C.6.3. Condensation and Sweating

In certain regions or climates, portions of the exterior of the unit may condensate or sweat during cooling operation. This is normal and expected.

C.6.4. Install Flue Hood for Gas Heat

These gas heat package units are shipped with the flue hood fastened onto the condenser basepan in the compressor access section.

Remove the flue hood from the basepan, and install it over the flue opening on the outside of the unit before operating.

D. DUCT AND VENTING

D.1. Air Flow and Static Pressure

See ***Appendix C*** towards the end of this manual for Air Flow Performance Data. For Air Flow adjustment and set up, see section ***J.3. "Checking and Adjusting Air Flow".***

D.2. Duct Requirements and Best Practices

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 at www.acca.org/home.

⚠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, property damage or death.

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. Half-inch 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.

D.2.1. Supply Duct Systems

A properly designed supply duct system, meeting all local codes and best practices, must be installed to ensure proper air flow and minimize the static pressure on the blower.

The supply duct opening for roof curb installations is 63 3/16" x 17 5/16", the supply duct opening for horizontal ducted installations is 30 1/4" x 27 15/16". ***See Figure B.3.6. – A and B*** for reference.

D.2.2. Return Duct Systems

A properly designed return duct system, meeting all local codes and best practices, must be installed to ensure proper air flow and minimize the static pressure on the blower.

The inner return duct opening for roof curb installations is 63 1/4" x 12 9/16", the outer return duct opening for roofcurb installations is 71 11/16" x 12 9/16", the return duct opening for horizontal ducted installations is 47 5/8" x 21 7/16". ***See Figure B.3.6. – A and – B***

for reference

D.2.3. Isolation for Noise abatement

Noise from operational vibration can occur with this equipment, the use of flexible duct adapters and vibration damping curb adapters maybe required depending upon the building type and use. Consult with a local mechanical engineer on the duct and building design to determine if any noise abatement solutions need to be considered before installation.

D. DUCT AND VENTING

D.3. Filters

This product will accept both 2” filters. A new unit ships with eight 2” x 20” x 24” filters. For units with an economizer, only use 2” filters due to fitment clearances. To replace filters, follow these steps:

1. Remove “Filter Access” panel.

2. Pull metal tab at the base of each filter row to access the filters.

3. Remove and discard current filters.

4. Install new filters with airflow arrow pointing towards evaporator coil.

5Slide the filters for each row of filters back in to the unit.

6. Install “Filter Access” panel.

D.4. Economizers and Fresh Air Dampers

D.4.1. Economizer Information

ECONOMIZERS - Mechanical devices used to make the Heating Ventilation and Air Conditioning (HVAC) unit more efficient by regulating the return air and outside air. Economizers for this product come in several configurations.

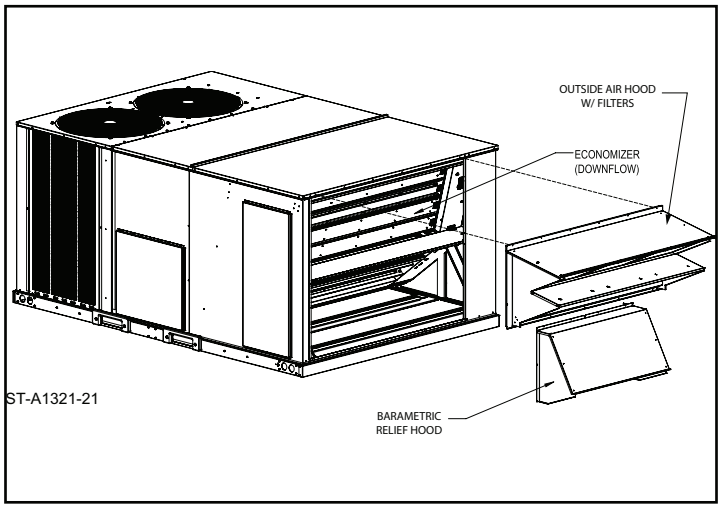
The Downflow Economizer is designed specifically for units setup in a downflow configuration. The downflow economizer fits inside the package unit and sits over the return-air opening along the bottom of the unit. All economizers are equipped with horizontal gear driven blades and a gravity relief damper (Barometric Relief).

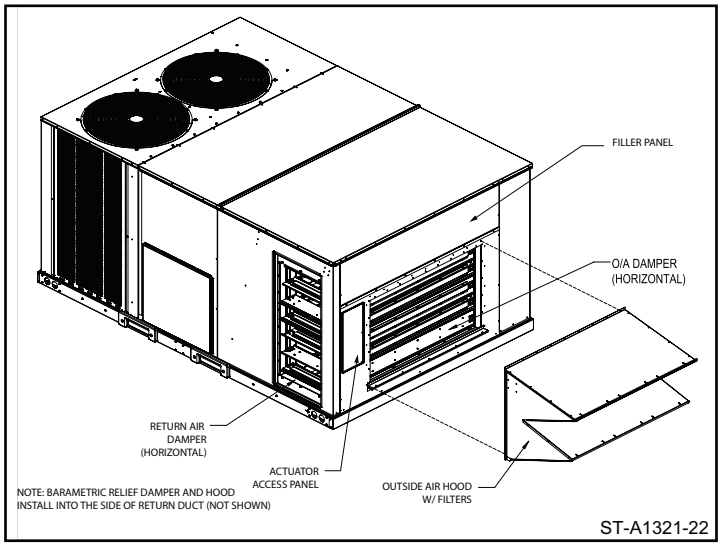
The Horizontal Economizer is designed specifically for units setup in a horizontal flow configuration. The horizontal economizer utilizes independently actuated return-air and fresh air dampers to enable the most efficient handling of air achievable with this platform. The horizontal economizer also includes an externally-mounted (to the duct work) gravity relief damper.

All units with economizers come shipped from the factory with a parts bag and a separate document for Economizer Installation & Operation instructions. Refer to that document for information on how to install the economizer, connect the controls, and adjust the airflow and damper positions. Accessory economizers purchased separately will also come with the parts bag and instructional document. Refer to appendix for the corresponding drops at each airflow for these economizers.

For reference, the Installation Instructions for economizers may be found in the parts bag of the unit for factory installed economizers, in the box with the field installed economizer, or on the manufacturer’s website for the product.

Figure D.4.1. – A: Downflow Economizer with Hood





Note: Louver protections are optional.

D.4.2. Fresh Air Dampers

MANUAL DAMPER HOODS – Manual damper hoods are often installed as a low cost substitute for an economizer.

The idea is to manually set the blade located inside the hood to restrict the opening by introducing Static Pressure, thereby balancing the outside air with the return air entering the RTU.

The drawback to a manual damper is that it is open 24 hours a day, 365 days a year. Therefore they introduce outside air during occupied and unoccupied modes increasing the load on the rooftop unit.

MOTORIZED DAMPER HOODS – A motorized damper is economical, and provides more comfort than a manually adjusted hood damper.

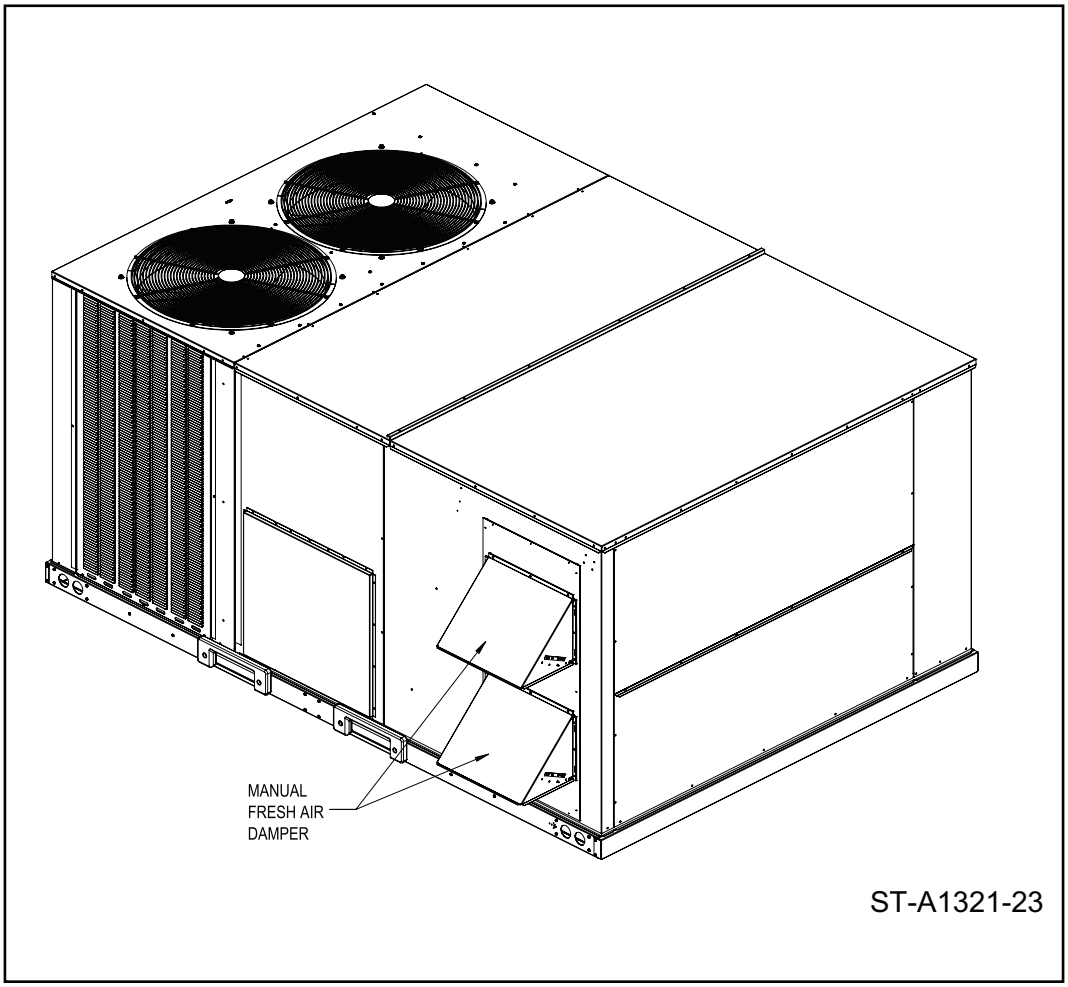
The motorized damper is coupled to an actuator, and designed to open when the RTU fan is running, and close when the fan is off. The advantage of the motorized damper is that the outside air is no longer a factor once the RTU fan is cycled off.

By connecting a Timer, CO2 Sensor or Smoke Detector in series between the RTU fan ("G" on the Thermostat) and actuator, the damper can be controlled during "Unoccupied" hours, or allow the damper to only introduce outside air during "On-Demand Occupancy."

Fresh Air Dampers come shipped with a separate document for Installation & Operation instructions. Refer to that document for information on how to install and adjust the dampers.

For reference, the Installation Instructions for Fresh Air Dampers may be found in the parts bag for the factory installed dampers, in the box for field installed dampers, or on the manufacturer's website for the product.

Figure D.4.2. – A: Fresh Air Damper

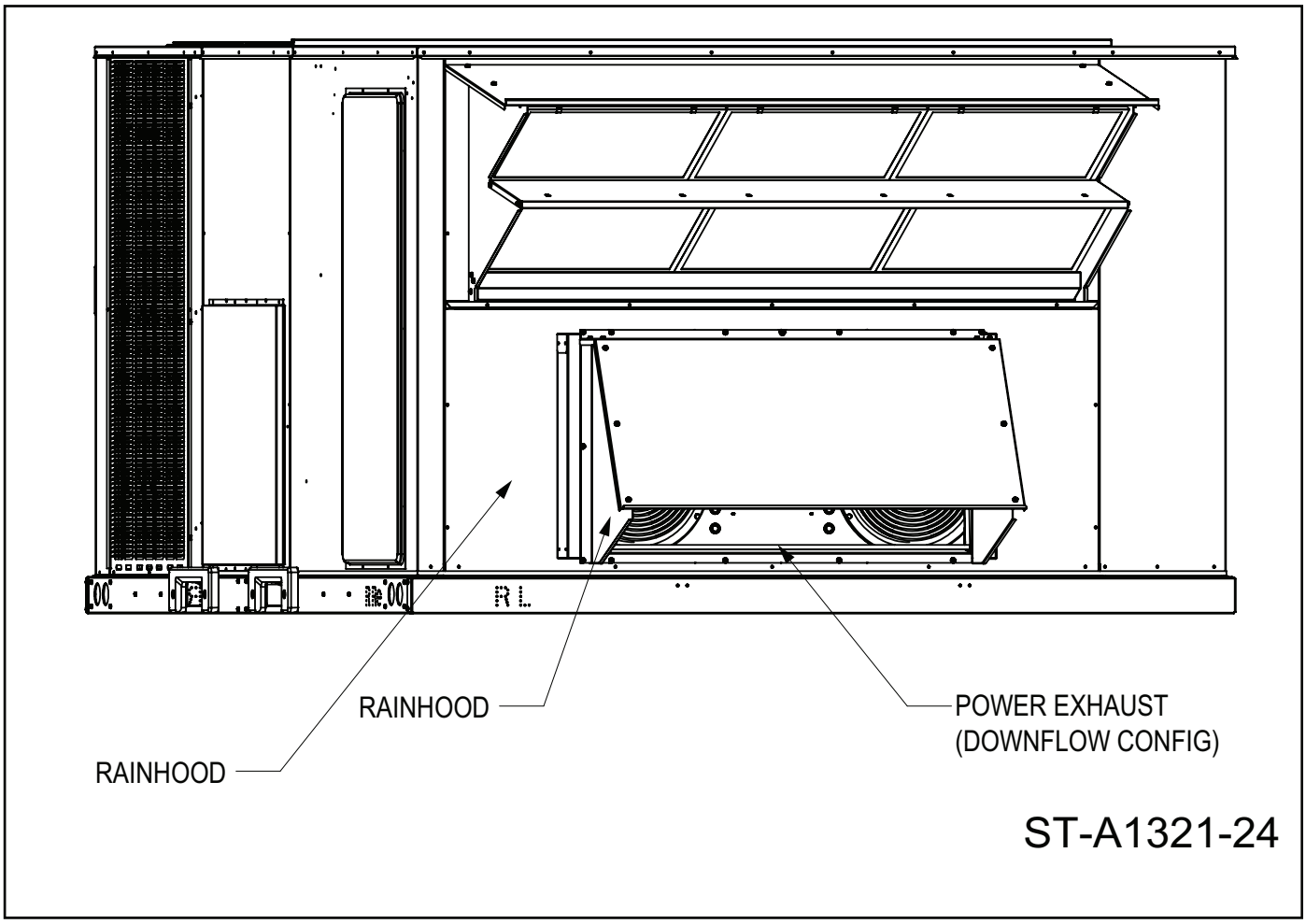


D. DUCT AND VENTING

D.4.3. Powered Exhaust

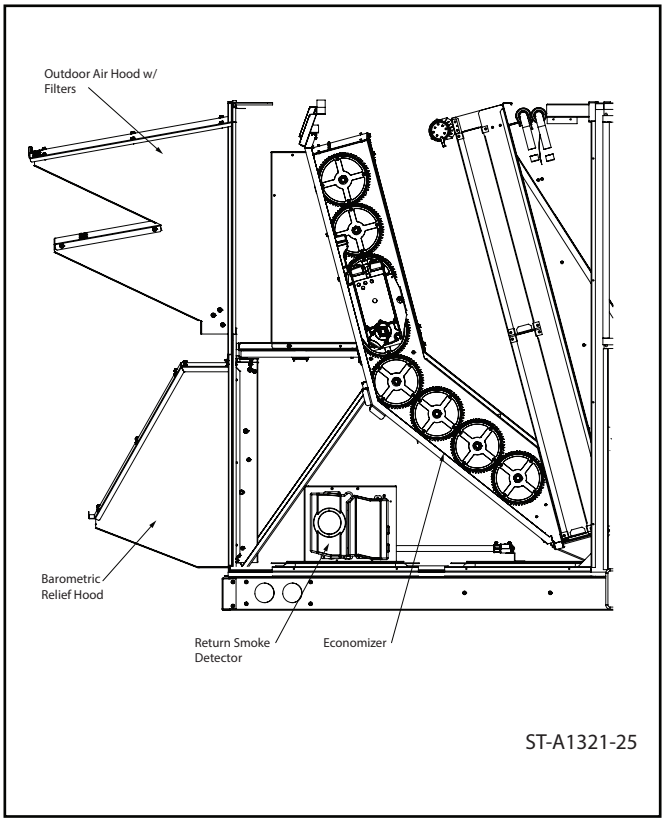
POWER EXHAUST - This accessory is a motorized fan designed to remove air from the conditioned space efficiently. While this is useful for removing a high positive pressurization, caution must be taken in the setup of the system to avoid creating a negative pressure within the conditioned space. If negative pressure occurs, leaky windows, doors, and electrical fixtures will allow the outside air to creep in causing drafts or hot sports within a room.

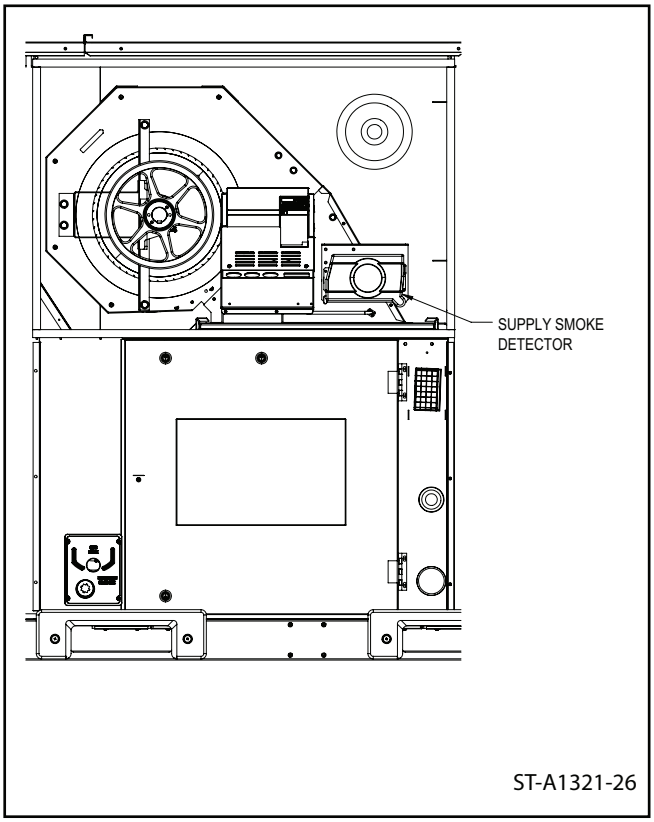
Figure D.4.3. – A: Powered Exhaust



D.5. Smoke Detectors

Figure D.5. – A: Smoke Detector Assembly





D.5.1. Supply Duct Smoke Detectors

D.5.1.1. Field Installed – Installation, Wiring and setup

Field install Supply and Return Duct Smoke Detectors come shipped with a separate document for Installation & Operation instructions. Refer to the separate Installation Instructions for installing, wiring, and setup of a supply and return smoke detector.

D.5.1.2. Factory Installed – Inspection and setup

Inspect the smoke detector assembly for any damage during shipping. Use ***Figure D.5. – A*** for reference. Confirm that all wiring connections are still secure. Refer to the separate Installation Instructions,for smoke detector for wiring diagrams and additional assembly instructions.

D.5.1.3. Field Installed 3rd Party Smoke Detectors or Fire Control Panels

See ***Section F.1.2.*** for the proper connection points for a remote smoke detector. DO NOT break 24vac to the Thermostat: shutdown will not occur. DO NOT break 24vac from the transformer: it can overload the smoke detector controls.

E. ELECTRICAL

E.1. Electrical Safety Information

E.1.1. Information on 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 the **N.E.C.** using the circuit ampacity found on the unit rating plate. Use the smallest wire size allowable in ***Figure F. – A*** from the unit disconnect to unit.

4. For through the base wiring entry reference ***Figure F.2. – A: Power and Control Routing***. All fittings and conduit are field supplied for this application. Reference the chart with ***Figure F.2. – B: Hole Sizing for Conduit*** for proper hole and conduit size.

NOTES:

1. For branch circuit wiring (main power supply to unit disconnect), the minimum wire size for the length of run can be determined from ***Appendix B "Electrical Data"*** or the unit rating plate for circuit ampacity and the National Electrical Code to determine proper wire sizing. From the unit disconnect to unit, the smallest wire size allowable in ***Figure F. – A*** for the circuit ampacity may be used, as the disconnect must be in sight of the unit.

2. Wire size based on 75°C rated wire insulation for 1% voltage drop.

3. For more than 3 conductors in a raceway or cable, see the National Electrical Code (or C.E.C. in Canada) for derating the ampacity of each conductor.

IMPORTANT: This unit is approved for use with copper conductors only 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, 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.

NOTE: 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.

E.1.2. 208/240 Volt Operation and Required Adjustments

E.1.2.1.Low Voltage Control Transformer Tap Adjustment for 208Volt

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. No adjustments necessary for 460 and 575 volt models.

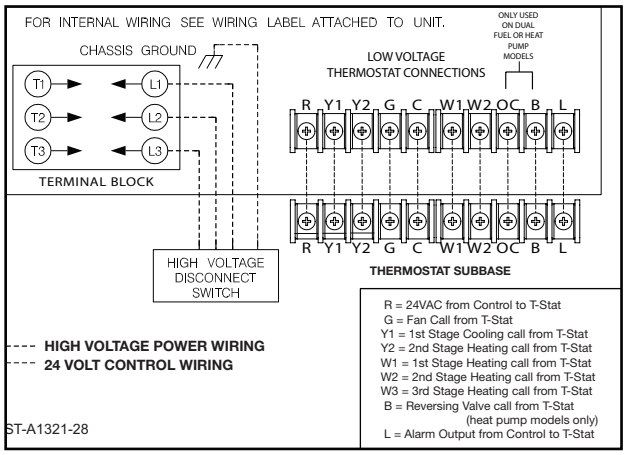
E. ELECTRICAL

E.2. Electrical Data

See ***Appendix B*** towards the end of this manual for Electric Data.

E.3. Electrical Connections

Figure E.3. – A: Typical Thermostat Wiring



Use to ***Appendix B*** "Electrical Data" and National Electrical Code for circuit ampacity to determine proper wire sizing.

Refer to ***Figure F.2. – A: Electrical and Piping Routing*** for location of wiring entrances, and ***Figure F.2. – B: Hole Sizing for Conduit.***

E.3.1. Field Supplied Disconnect

The field supplied service disconnect will come with a separate Installation Instruction document. Please refer to that document for additional information

E.3.1.1. Mounting Disconnect on Cabinet

Attach the disconnect to the top of the left hand side of the control box, above the knockouts and refrigerant test ports. Do not use screws above or below the label specifying "TO PREVENT COIL DAMAGE – DO NOT ADD SCREWS HERE, ABOVE, OR BELOW LABEL" as hidden coil and tubing could be damaged. An example of this label is shown below.

Figure E.3.1.1. – A: Standard Location for Mounting Disconnect

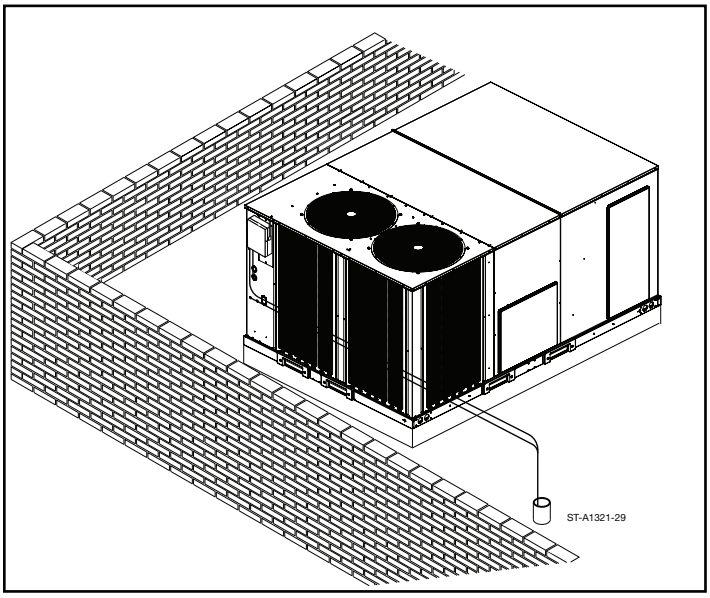


Figure E.3.1.1. – B: Label Showing Where to NOT Use Screws

E.3.1.2. Routing Wires into Cabinet

See ***Figure F.2. – A: Electrical and Piping Routing*** for conduit entry points and routing locations for wiring into the control box.

See ***Figure E.3. – A: Typical Thermostat Wiring*** for wiring to the contactor and thermostat in the control box.

E.3.1.3. Routing Wires through Curb (Option)

Use liquid tight connectors and tubing to connect the electrical and low voltage control cables between the base of the cabinet at the raised section (See ***Figure B.3.6. - A: Supply And Return Dimensions For Downflow Applications*** for location of raised section) and bottom of the control panel. Conduit and fittings must meet all applicable codes.

Use Silicon and gaskets to seal the connection at the base pan

E.3.1.4. Connecting to Contactor terminal blocks

The recommended torque for securing wiring to the contactor is **40 in-lb**.

See ***Figure E.3. – A: Typical Thermostat Wiring*** for wiring to the contactor.

E.3.2. Factory Installed Disconnect

Refer to ***Appendix G*** for the unit wiring diagrams, and to ***Figure F.2. – A*** for locations to route wires into the cabinet or through the curb/ basepan of the unit.

E.3.2.1. Routing Wires into Cabinet

Refer to **Section E.3.1.1.** and/or **Section F.2.** for routing wires into the cabinet with a factory installed disconnect.

E.3.2.2. Routing wires through Curb (Option)

Refer to **Section E.3.1.3.** for routing wires through the curb with a factory installed disconnect.

E.3.3. Connecting the Convenience Outlet

E.3.3.1. Non-powered

The non-powered convenience outlet, if purchased as an option for the unit, will come shipped in a box within the blower compartment of the unit. It will need to be removed and installed into its proper configuration.

For connecting the non-powered convenience outlet and all other information, refer to the installation instructions for the accessory.

E.3.3.1. Non-powered

The powered convenience outlet, if purchased as an option for the unit, will come shipped pre-installed into the unit. No additional hook-up will be needed, but ensure the connections remained secure from shipping before powering the unit.

For connecting the powered convenience outlet and all other information, refer to the installation instructions for the accessory.

E.3.4. Checking Phase and Motor Rotation

When using 3 phase power the only device that is rotation dependent is the compressor. The outdoor fan and indoor blower do not require any adjustment and will turn backwards if the phase is incorrect. Verify the direction of rotation for the indoor blower motor before starting up the compressors.

E.3.4.1. Checking Phase with VFD Drive

On any models with an ECM Direct Drive Blower Motor or belt drive units with a Variable Frequency Drive, VFD, the motor will always rotate in the correct direction.

Correction phase must be checked by the operation of the compressor.

E.3.5. Grounding Requirements

Refer to local codes as required. Must be grounded to a common earth ground.

National Electric Code (NEC) / International Building Code / Canadian Electrical Code

A diagram of the internal wiring of this unit is located on the inside of control access panel and in this manual. If any of original wire as supplied with the appliance must be replaced, the wire gauge and insulation must be same as original wiring.

The low voltage wiring should be sized as shown in ***Figure F. – A: Field Wire Size for 24v Thermostat Circuits***.

F. CONTROL / THERMOSTAT WIRING

Figure F. - A

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	16	16	14	12	12	10
		50	100	150	200	250	300
		LENGTH OD RUN - FEET (1)					

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(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.

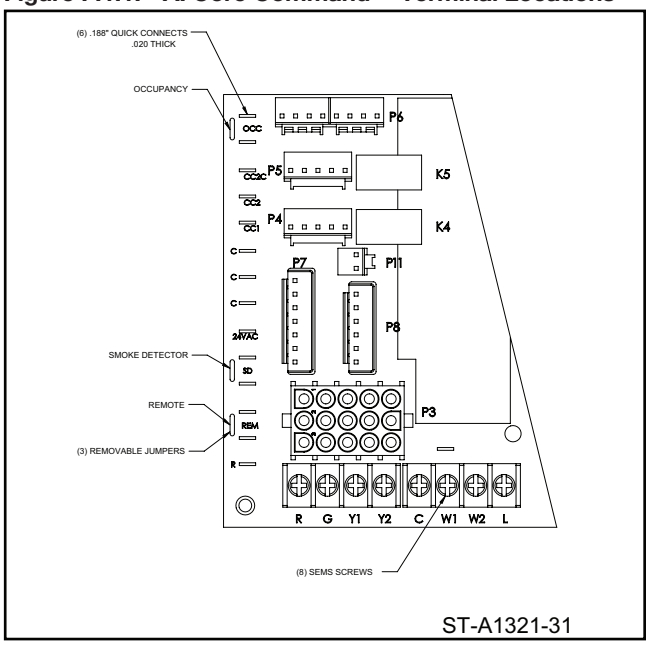
Install the room thermostat in accordance with the instruction sheet packed in the box with the thermostat. Run the thermostat lead wires through the control entry opening ***(Figure F.2. – A: Electrical and Piping Routing)*** and connect to the low voltage thermostat connections (see ***Appendix G*** for wiring diagrams and ***Section F.1.*** for T-Stat field connections). 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.

F.1. T-Stat field connections

F.1.1. Misc. Connections

Refer to ***Appendix G*** for the unit wiring diagrams and to ***Figure E.3. – A: Typical Thermostat Wiring.***

Figure F.1.1. - A: Core Command™ Terminal Locations



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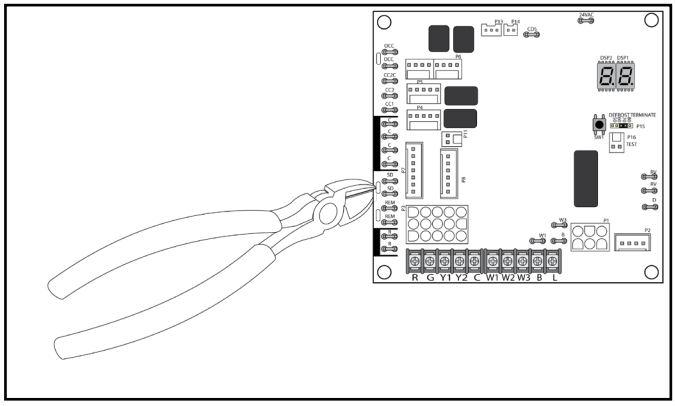
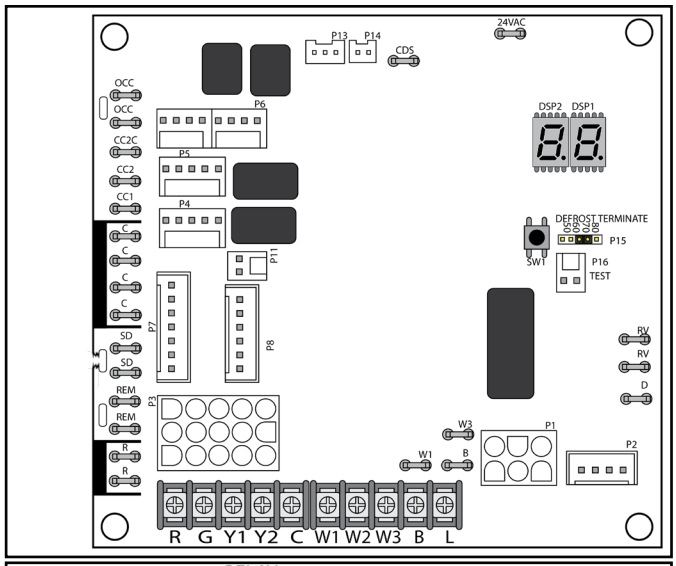
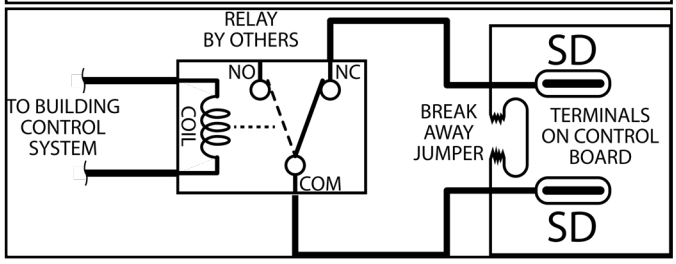
F.1.2. Occupancy connections / Remote connections / Etc

Figure F.1.2. – A: Occupancy and Remote Connections







NOTE: This is an example of breaking the jumper for Smoke Detector connections, apply the same process for the Occupancy and/or Remote connections.

These features are only available on the Non-DDC Furnace, Heat pump, or cooling only control boards.

OCC – Occupancy Control. This feature shuts down the dampers on the economizer or motorized damper option when outdoor/fresh air is not required for the building. Locate the terminals at the left side of the board mark "OCC". See ***Figure F.1.2. – A: Occupancy and Remote Connections*** for reference.

F.1.2. Occupancy connections / Remote connections / Etc (Cont.)

For connecting Remote Smoke Detectors or Fire Control Panels to this control DO NOT break the 24VAC to the thermostat or from the power supply transformer. Either could cause an undesirable operating condition that would not shut the unit down in the event of an emergency situation. See the instructions for the type of control board this unit is equipped with.

Using cutters or a small screw driver, break the edge of the board between the to terminals marked with “OCC”. Use 3/16” blade connector, and a minimum of 18AWG wire to connect to a Normally Closed Dry Contact Relay or Switch. Do not connect multiple control boards to the same dry contact relay or switch.

REM – Remote Shutdown Control. This feature allows the unit to be turned off remotely ignoring the thermostat calls for cooling or heat. Locate the terminals at the left side of the board mark “REM”. See Figure ***F.1.2. – A: Occupancy and Remote Connections*** for reference.

Using cutters or a small screw driver, break the edge of the board between the to terminals marked with “REM”. Use 3/16” blade connector, and a minimum of 18AWG wire to connect to a Normally Closed Dry Contact Relay or Switch. Do not connect multiple control boards to the same dry contact relay or switch.

F.1.3. Connecting a Smoke Detector

F.1.3.1. Core Command™ Connection

SD – Remote Smoke Detection. This feature allows for the proper shutdown of the controls in the event of an emergency situation. Locate the terminals at the left side of the board mark “SD”. See ***Figure F.1.2. – A: Occupancy and Remote Connections*** for reference.

Using cutters or a small screw driver, break the edge of the board between the to terminals marked with “SD”. Use 3/16” blade connector, and a minimum of 18AWG wire to connect to a Normally Closed Dry Contact Relay, or in common Fire Control Panels and Smoke Detectors, the Auxiliary Connections for C and NC. See the instructions for the remote devices. Do not connect multiple control boards to the same dry contact relay.

F.1.3.2. DDC Control Connection

In the air-filter section or on the side economizer, locate the 12-pin Molex jumper plug with the long Red, short Yellow and Orange wire loops. Cut the Red wire loop and connect these to a minimum of 18AWG wire that will be connected to a Normally Closed Dry Contact Relay, or in common Fire Control Panels and Smoke Detectors, the Auxiliary Connections for C and NC. See the instructions for the remote devices. Do not connect multiple control boards to the same dry contact relay.

F.1.4. Building Management / Control Connections using DDC –

In an application where a third party building management / controls are in use or will be incorporated, units with the integral Rooftop Unit Controller (RTU-C) are communication compatible with the system that supports the BACnet Application Specific Controller device profile, LonMark Space Comfort Controller functional profile, or LonMark Discharge Air Controller functional profile. This is accomplished with a field installed BACnet or LonMark communication module. Refer to the Clear Control™/DDC manual for more details.

F. CONTROL / THERMOSTAT WIRING

F.2. Routing Control wiring

Figure F.2. – A: Electrical and Piping Routing

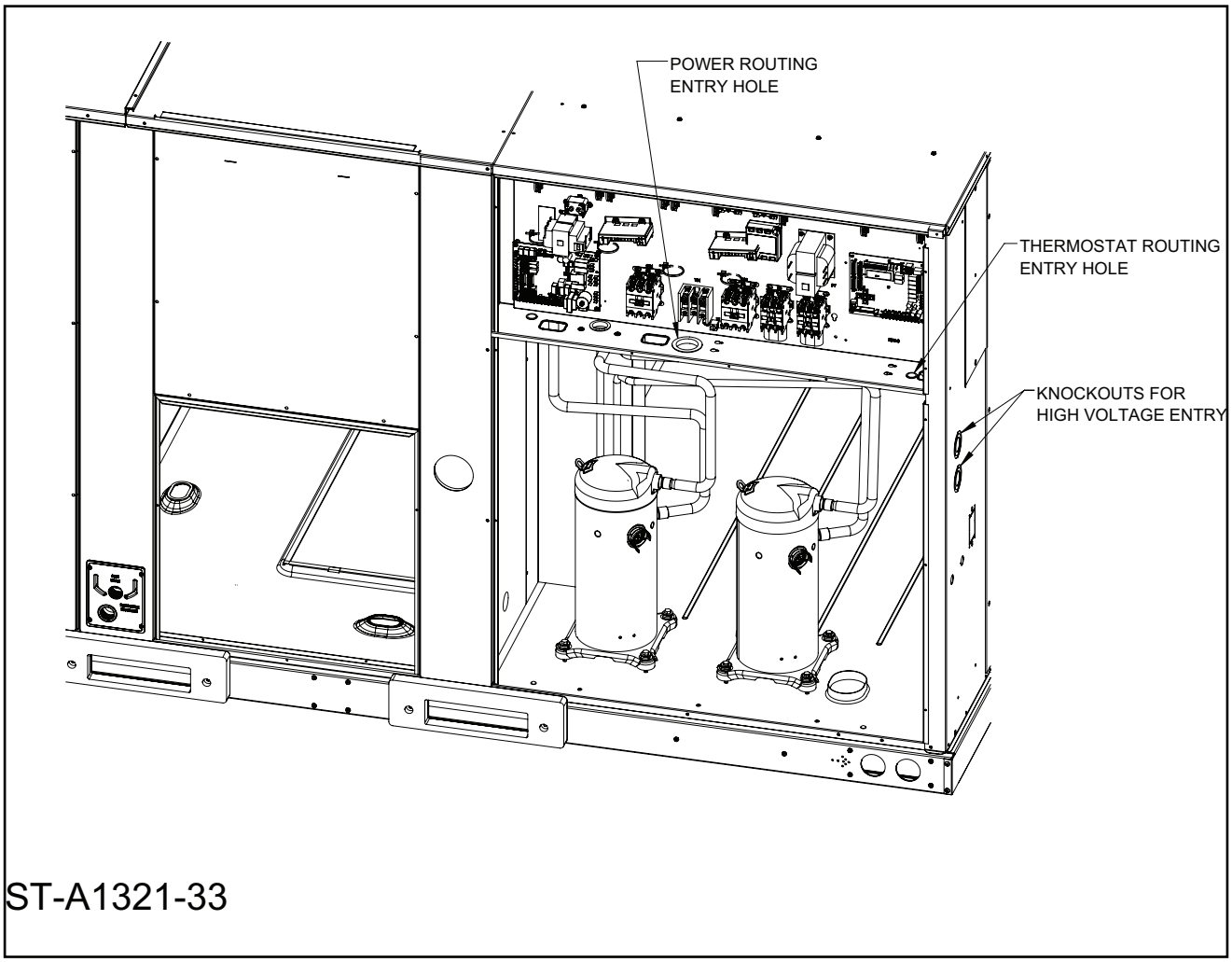


Figure F.2. – B: Hole Sizing for Conduit

	WIRE SIZE, AWG											
	14	12	10	8	6	4	3	2	1	0	00	000
CONDUIT SIZE	1/2”	1/2”	1/2”	3/4”	1”	1”	1-1/4”	1-1/4”	1-1/2”	1-1/2”	2”	2”
HOLE SIZE	7/8”	7/8”	7/8”	1-31/32”	1-23/64”	1-23/64”	1-23/32”	1-23/32”	1-31/32”	1-31/32”	2-15/32”	2-15/32”

NOTES: 1. DETERMINE REQUIRED WIRE SIZE FROM MINIMUM CIRCUIT AMPACITY SHOWN IN INSTALLATION & OPERATING INSTRUCTION.
2. BOTTOM POWER ENTRY WILL NOT ACCOMMODATE WIRE LARGER THAN #2 AWG (SHADED AREA).

F.3. Measuring Control Voltage Loads

Use a voltmeter to measure the low voltage and low voltage amp draws during operation. Accessories such as remote smoke detectors and excessive wire length can increase the amp draw on the low voltage wiring. Verify that the total amp draw on the 24Vac side is less than 0.3A in full operation.

G.1. Gas Piping Requirements

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.

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

G.1.1. Pipe Material Requirements

Ridged black iron pipe and fittings are recommended for the gas lines, or other materials as local codes allow or considered best practice. The use of flexible connectors is not recommended. Install a Union joint near the unit, after the cut off valve, for service.

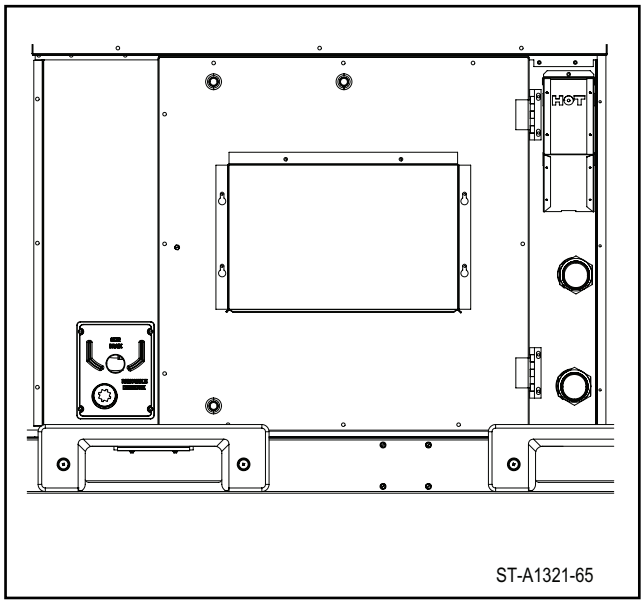
G.1.2. Tools Required

Pipe wrenches, Pliers, gas rated thread sealant, and leak detection fluid or soap and water is required.

G.1.3. Code Requirements

Local codes should be followed for the installation and marking of the gas piping. In the absence of local codes follow the National Fuel Gas Code NFPA 54 ANSI Z223.1 (Latest Revision), International Fuel Gas Code IFGC 408.4(Latest Revision), or the Canadian CANCGA B149.1HB (Latest Revision), must be followed.

Figure G.1.5. Flue Diverter and Flue Hood



G.1.4. Gas pressures and regulation

IMPORTANT: ENSURE that the furnace gas valve is not to be subjected to high gas line supply pressures.

DISCONNECT the furnace and its individual manual gas stop from the gas supply piping during any pressure testing that exceeds 1/2 PSIG (3.48 kPa). Natural gas supply pressure must be 5” to 10.5” w.c. LP gas supply pressure must be 11” to 13” w.c. This pressure must be maintained with all other gas-fired appliances in operation. The minimum gas supply pressure to the gas valve for proper furnace input adjustments is 5” w.c. for natural gas, however 6” to 7” is recommended. The minimum gas supply pressure is 11” w.c. for LP gas.

See sections ***J.5.1.1. “Measuring and Adjusting Supply Gas Pressures” and J.5.1.2. “Measuring and Adjusting Manifold Gas Pressures”*** for more details.

G.1.5. Flue Diverter Installation

Flue diverter and inlet air diverter are pictured at the bottom of this page. See ***Figure G.1.5.***

G.1.5.1. Flue Diverter Installation

Using integrated hooks, insert into the appropriate slots on post to the right of the furnace access door. The opening should be facing up toward the top of the unit. Once slots and hooks are mated, secure with one (1) screw (included) in topmost flange, and installation is complete.

The door hood is secured on to the furnace access door with six (6) screws (included). There are four (4) key holes cut into the air hood for easy mounting. Insert screws into the door at the left and right edges leaving enough space to put on the hood. Then place door hood onto door and finish by securing the screws tightly. Secure final two (2) screws at the top of the hood to complete the installation.

⚠WARNING

ELEVATIONS ABOVE 2000 FT. REQUIRE THAT THE FURNACE INPUT RATING BE ADJUSTED AND THAT THE SIZE OF THE BURNER ORIFICES BE RECALCULATED BASED ON ELEVATION AND GAS HEATING VALUE. THE BURNER ORIFICES MAY (OR MAY NOT) NEED TO BE CHANGED. SEE THE SECTION TITLED “HIGH ALTITUDE INSTALLATIONS” OF THIS BOOK FOR INSTRUCTIONS.

G. GAS

⚠WARNING

NEVER PURGE A GAS LINE INTO THE COMBUSTION CHAMBER. NEVER USE MATCHES, FLAME OR ANY IGNITION SOURCE FOR CHECKING LEAKAGE. FAILURE TO ADHERE TO THIS WARNING CAN CAUSE A FIRE OR EXPLOSION RESULTING IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH. TO CHECK FOR GAS LEAKAGE, USE AN APPROVED CHLORIDE-FREE SOAP AND WATER SOLUTION, OR OTHER APPROVED METHOD.

GAS VALVE

This furnace has a 24-volt gas valve. The valve has taps for measuring inlet and manifold gas pressure. To confirm inlet and manifold pressure are correct, remove the plug using a 3/16" allen head wrench. Then thread the 1/8" barbed fitting into the tap. The valve body contains a pressure regulator to maintain proper manifold gas pressure. A rotating knob is set in the **"ON"** or **"OFF"** position. The gas valve is a slow-opening valve. When energized, the valve takes 2 to 3 seconds to fully open. See ***J.1.5.2. Measuring and Adjusting Manifold Gas Pressures***. Also, see Figure ***G.1.4. – A.***

Figure G.1.4. – A White-Rodgers Two-Stage Gas Valve

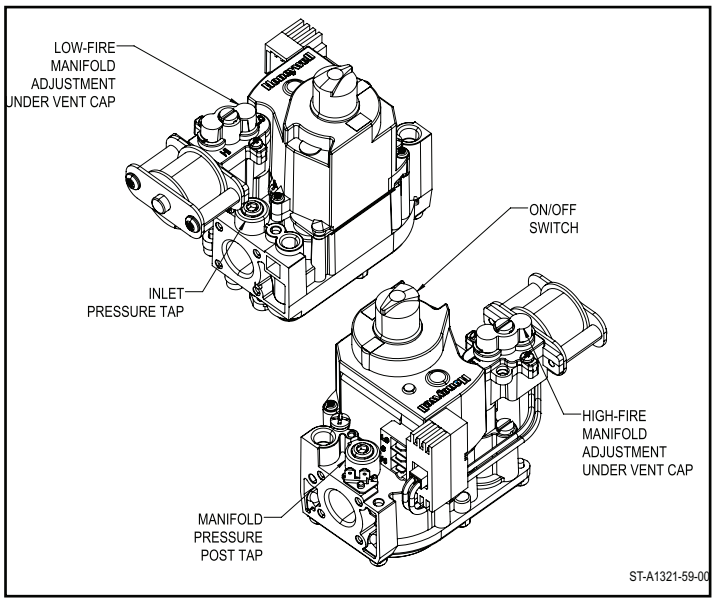


Figure G.1.4. - B: Burner Assembly Front View

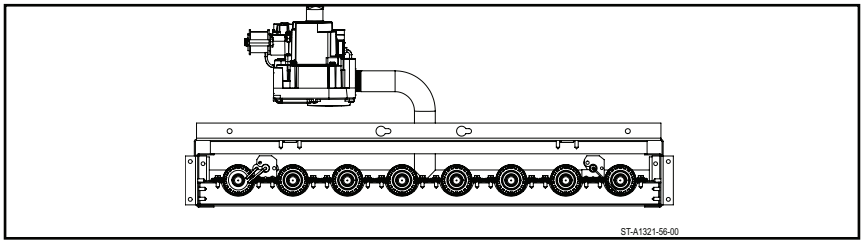
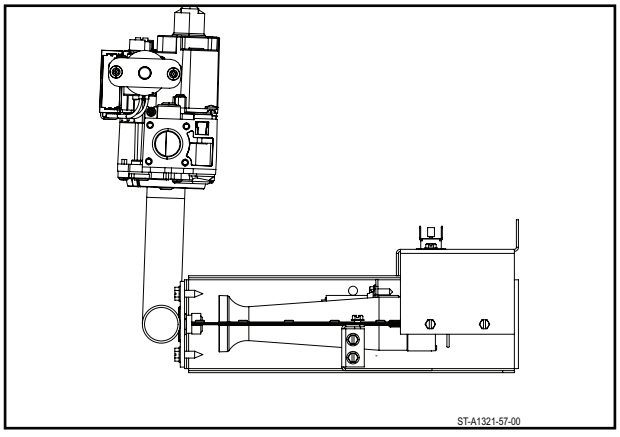
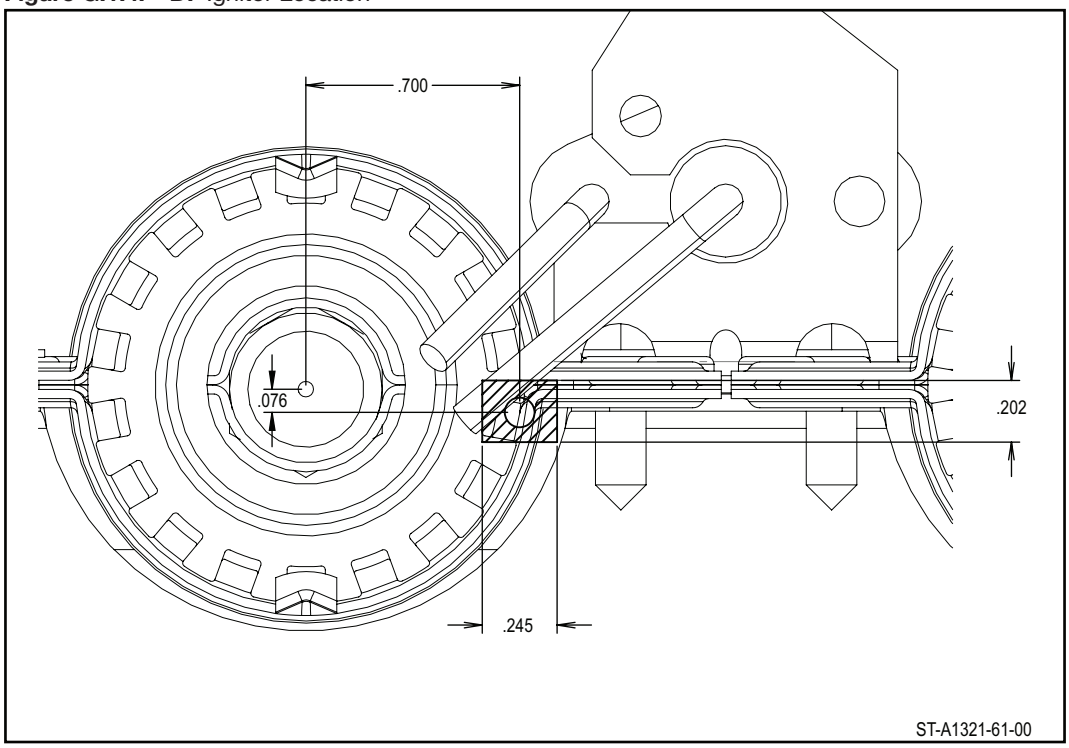


Figure G.1.4. - C: Burner Assembly Side View



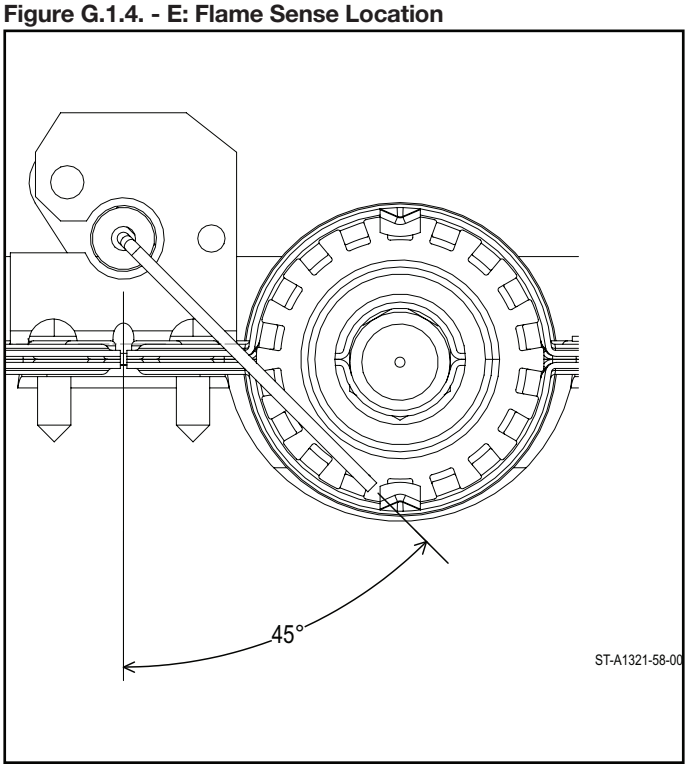
Ignitor location is critical for insuring a consistent carryover of the burner flame during ignition. The top of the electrode at dimension (0,0) must remain inside the hatched area

Figure G.1.4. – D: Ignitor Location



Correct location of the flame sensor will help to eliminate weak or no flame sense issues.

Figure G.1.4. - E: Flame Sense Location



G. GAS

G.1.5. Sealing Threaded Connections – Best Practice

Use a gas rated and approved liquid, paste, or tape thread sealant on all threaded connections. Apply sealant to the male threads and tighten the fitting using wrenches to hold both the fitting and the pipe. DO NOT OVERTIGHTEN THE PIPE GOING INTO THE GAS VALVE, DAMAGE MAY OCCUR. Test all threaded connections with leak test fluid or soap and water.

G.1.6. Gas Pipe Sizing and Capacity

Size the gas line to the furnace adequate enough to prevent undue pressure drop and never less than 1" pipe.

See ***Table G.1.1. - A*** for Gas Pipe Capacity. The capacities of gas pipe of different diameters and lengths in Cubic Ft/hr with pressure drop of 0.3 in. and specific gravity of 0.60 (natural gas) are shown in ***Table G.1.1. - A.*** After determining the pipe length, select the pipe size which will provide the minimum cubic foot/hour required for the gas input rating of the furnace.

By formula:

$$\frac{ft^3}{hr} \text{ required} = \frac{\text{Gas Input of Furnace } \frac{BTU}{hr}}{\text{Heating Value of Gas } \frac{BTU}{hr}}$$

The gas input of the furnace is marked on the furnace rating plate. The heating value of the gas (BTU/FT3) may be determined by consulting the local natural gas utility or the L.P. gas supplier.

Table G.1.1 - A

NATURAL GAS PIPE CAPACITY TABLE (CU FT/HR)
Maximum capacity of pipe in thousands of BTU/hr of natural gas
Inlet pressure: less than 2 psi
Pressure Drop: 0.3 in. W.C.
Specific Gravity: 0.60

Nominal Iron Pipe* Size, Inches	Length of Pipe, Feet									
	10	20	30	40	50	60	70	80	90	100
1/2	131	90	72	62	55	50	46	42	40	38
3/4	273	188	151	129	114	104	95	89	83	79
1.0	514	353	284	243	215	195	179	167	157	148
1-1/4	1,060	726	583	499	442	400	368	343	322	304
1-1/2	1,580	1,090	873	747	662	600	552	514	484	455

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

$$\text{Cubic feet per hour required} = \frac{\text{Gas Input of Furnace (BTU/HR)}}{\text{Heating Value of Gas (BTU/FT}^3\text{)}}$$

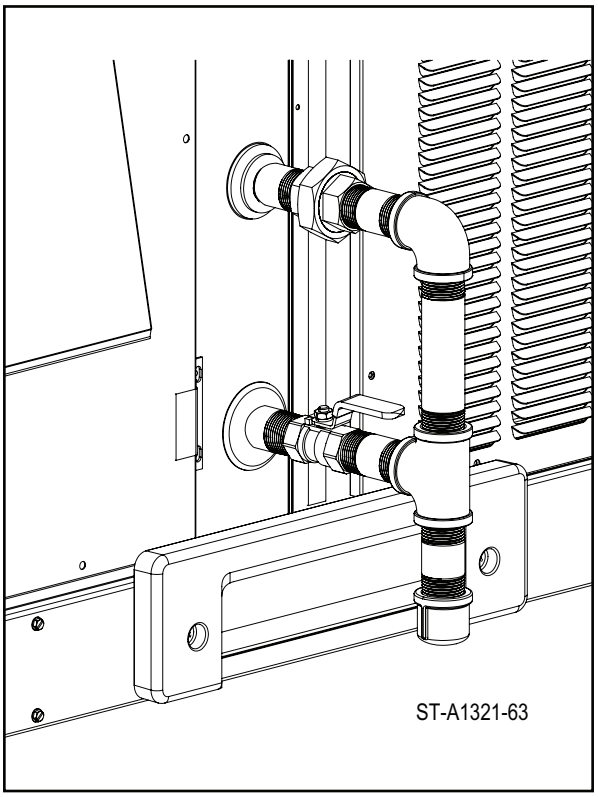
The gas input of the furnace is marked on the furnace rating plate. Call your local natural gas utility for the heating value of the gas (BTU/FT^3).

*Schedule 40 metallic pipe.

Reference the **National Fuel Gas Code NFPA 54, ANSI Z223.1- Pipe Sizing** for more information.

G.2. Procedure: Connecting Gas Lines to Gas Valve

Figure G.2. – A: Backup Wrench Location



1. Connect the gas line to the gas valve supplied with unit. Routing can be through the gas pipe opening shown in ***Figure G.2.1.*** for through the base as shown in ***Figure F.2. – A: Electrical and Piping Routing***.

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.

2. Size the gas line to the furnace adequate enough to prevent undue pressure drop and never less than 1" pipe. See ***Section G.1.1.-A*** on Gas Pipe Sizing and Capacity.

3. Install a drip leg or sediment trap in the gas supply line as close to the unit as possible. See ***Section G.2.1*** on Drip Leg Requirements.

4. Install an outside ground joint union to connect the gas supply to the control assembly at the burner tray.

5. 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 G.2.1.)***

6. Make sure piping is tight. **A pipe compound resistant to the action of liquefied petroleum gases must be used at all threaded pipe connections.**

7. **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.

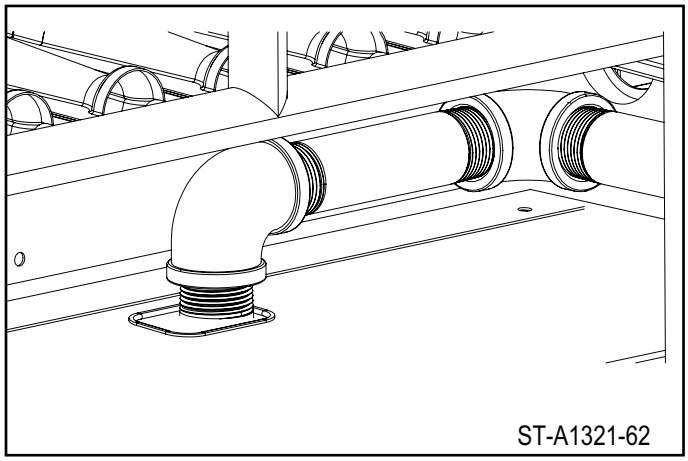
IMPORTANT: *Disconnect the furnace and its individual shutoff valve from the gas supply piping during any pressure testing of that system at test pressures in excess of 1/2 pound per square inch gauge or isolate the system from the gas supply piping system by closing its individual manual shutoff valve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

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.*

G.2.1. Drip Leg Requirement

When connecting the supply gas to the gas valve, install a drip leg/sediment trap in compliance with the International Residential Code G2419.4.

Figure G.2.1 – B: Secondary Gas Opening



G. GAS

G.2.2. Purging Gas Lines

It may be necessary to purge any air from the gas lines prior to operation. This can be done through the gas pressure tap on the gas valve or at a union in the gas line. Follow best practices to purge the gas line. Ensure all fittings are sealed and tight after purging.

G.2.3. Leak Testing

To check for gas leaks, use a soap and water solution or other approved method. **DO NOT USE AN OPEN FLAME.**

⚠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.

G.3. LP Conversion

⚠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.

NOTE: The valve can be converted to use liquefied petroleum (LP) gas by replacing the pressure regulator springs with the conversion kit springs. The LP kit spring allow the regulator to maintain the proper manifold pressure at both high and low fire for LP gas.

NOTE: Order the correct LP conversion kit from the furnace manufacturer.

See Conversion Kit Index shipped with unit and table below for proper LP kit number.

A qualified technician must perform furnace conversion to LP gas.

ORIFICE INSTALLATION

LP Gas is a manufactured gas that has consistent heating value across most regions. The Sea Level input should still be reduced by 4% per thousand ft. above 2,000 feet and the orifice size must be selected based on the reduced input selection chart in High Alt. Instruction Section.

To change orifice spuds for conversion to LP:

1. Shut off the gas supply and remove gas connection to the gas valve.
2. Remove the gas manifold.
3. Replace the natural gas orifices with LP orifices.
4. Reassemble in reverse order.
5. Refer to section ***J.5.1.1. Measuring and Adjusting Supply Gas Pressures*** for confirming inlet pressure and adjusting manifold pressure.

⚠WARNING: LP tanks from local LP supplier must not be used to store anything (such as fertilizer) except LP gas. This includes all delivery vessels (LP trucks). If material other than LP gas is used in the same vessels/tank as the LP gas, the LP gas can become contaminated and damage the furnace. This will void the manufacturer's warranty. Contact the supplier to make sure fertilizer is not used in the same tanks used to store and deliver LP gas.

G.3.1. Using Conversion Kit Table

1. Find the control system code: 3J HoneyWell VR8305Q-4857 (60-106075-02), UTEC Integrated Furnace Control 1218-130 (62-102860-02).
2. Find the model number and BTU input listed in the left hand column.
3. From your model number and BTU input, go across to associated Gas Code, and finally LP Conversion Kit part number.

CONVERSION KITS - NATURAL GAS TO PROPANE

Model Number	Number of Burners	BTU/HR Per Burner	Valve Brand	Gas Code	Kit Number U.S./Canadian	Reference Tables Below
(-)GEG 320K	8	40,000	HONEYWELL	3J	FP42[4]	Table 7
(-)GEG 400K	8	50,000	HONEYWELL	3J	FP43[5]	Table 8

Table G.3 - A

LP GAS PIPE CAPACITY TABLE (CU FT/HR)
Maximum capacity of pipe in thousands of BTU/hr of undiluted liquified petroleum gases (at 11.0" W.C. inlet pressure)

(Based on a Pressure Drop of 0.5" W. C.)

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
1.0	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
2.0	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, 120,000
Equivalent length of pipe, 60 ft. = 3/4" Inside Diameter required
*Schedule 40 metallic pipe.
Reference the **National Fuel Gas Code NFPA 54, ANSI Z223.1- Pipe Sizing** for more information.

G.4. Operation and Testing

G.4.1. Warnings

⚠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: 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, turn off the manual gas control valve to the furnace. Failure to do so can result in an explosion or fire causing severe personal injury or death!

G.4.2. First time operation

G.4.2.1. 230V, 460V, 575V - Normal Furnace Sequence Of Operation

1. Zone thermostat contacts close, a call for first stage (low fire) heat is initiated.

2. Control runs self-diagnostic. .

3. Control checks the limit switch for normally closed contacts, the pressure switch for normally closed contacts, and all flame rollouts switches for continuity.

4. Control energizes the inducer.

5. Control checks the pressure switch for closure.

6. If the pressure switch is closed, the control starts a 30 second prepurge.

7. Following 30 second prepurge, the control energizes the Spark Electrode (SE) up to 7 seconds or until the Remote Flame Sensor proves burner flame. Control de-energizes the SE and begins the 20-second blower ON delay.

8. After the 20 second high stage warm-up period, the control will check the thermostat input. If only W1 is called for, W2 is de-energized.

9. Control enters normal operating loop.

Sequences- system doesn't light or doesn't sense flame:

• NPC Remains Open After the IDM is Energized:

1. The IDM will run for 60 seconds in an attempt to close the NPC. IDM is de-energized then energized and the ignition attempt is repeated.

2. After four attempts to close the NPC, the system will enter a 1-hour lockout period.

• Failed Ignition or Core Command Doesn't Sense Flame:

1. Following the 30-second prepurge period, the SE and gas valve are energized up to 8 seconds.

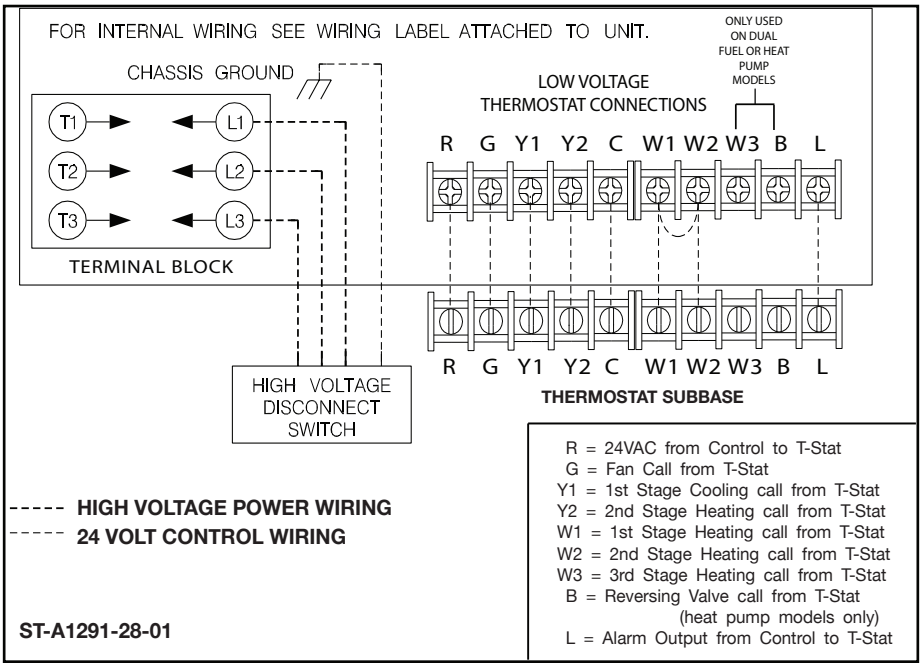
2. If flame is not sensed during the 8-second period after the gas valve is energized, the gas valve and SE are de-energized.

3. IDM is de-energized and the Core Command verifies that the NPC is open. Once the NPC is confirmed open, the Core Command will begin a second ignition attempt.

4. The system will attempt three tries at ignition. Following a third failed attempt the system will enter a 1-hour lockout period.

G.4.2.3. Single-Stage Thermostat and Auto-Staging: 208-230V, 575V & 460V

Application where a single-stage thermostat is used with this two-stage furnace. Furnace will run at low-fire input for a 15 minute period. If thermostat demand is not satisfied, Core Command will automatically stage to highfire until thermostat demand is met. To accommodate auto-staging, simply secure a jumper wire between W1 and W2 on the Core Command. See ***Figure G.4.2.3. - A*** for details.



G.4.2.4. Gas Pressure Testing And Adjustment

Refer to ***Section J.5.1.1***. for detailed instructions on testing and adjusting gas pressure.

G.4.2.5. Flame inspection

Inspect burner flame after the indoor blower motor is energized. Burner flame should be directed down the center of primary heat exchanger tube with little or no lifting. Carry-over flame should not impinge on center panel. Any flame turbulence could be an indication of an air leak between the burner and heat exchanger compartment or a partially blocked burner orifice.

Natural Gas Flame: almost completely blue with some yellow in the center of the flame.

LP Gas Flame: predominantly a blue flame with some yellow tipping.

G.4.2.6. Orifice Selection and High Altitude Adjustments

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).

NATURAL GAS AT HIGH ALTITUDES

Furnaces installed above 2,000 feet require the furnace to be de-rated 4% per thousand feet above sea level.

IMPORTANT: Factory installed orifices are calculated and sized based on a sea level Natural Gas heating value of 1050 BTU per cubic ft.

NOTE: Orifices are available through your local distributor. Reference the following tables for approximate orifice sizing.

The following are examples of orifice sizing using the “Flow of Gas Through Fixed Orifices” section in the National Fuel Gas Code.

For a simplified estimation of orifice size based on gas heating value and elevation, the following tables may be used. However, calculations are the best method.

Example: 900 BTU/ft3 Regional Natural Gas Heating Value

I/H = Q

40000 / 900 = 44.44 ft^3

I = Sea Level input (per burner): 40000

H = Sea Level Heating Value: 900

Q = 44.44 ft^3 Natural Gas per hour.

From Table E1.1a of National Fuel Gas Code, 2015 (3.5” w.c.).

Orifice required at Sea Level: #31

from the National Fuel Gas Code. Orifice required at 5000 ft. elevation (4% de-rate per thousand ft): #34

Orifice required at 8000 ft. elevation (4% de-rate per thousand ft.): #38

Example: 1050 BTU/ft3 Regional Natural Gas Heating Value

I / H = Q

50000 / 1050 = 47.62 ft^3

I = Sea Level input (per burner): 50000

H = Sea Level Heating Value: 1050

Q = 47.62 ft^3 Natural Gas per hour.

From the National Fuel Gas Code, (3.5" w.c.).

Orifice required at Sea Level: #30

Orifice required at 5000 ft. elevation (4% de-rate per thousand ft.): #33

Orifice required at 8000 ft elevation (4% de-rate per thousand ft): #36

The limit will need to be changed in accordance with the following tables ***G.4.1.-A***. The limit is located in the blower compartment on the left-hand side of the heat exchanger housing. It is connected by two wires to the control board and is secured by two screws. When replacing the limit, follow the steps below:

1. Remove limit wires.
2. Remove screws.
3. Replace limit with correct selection.
4. Replace screws.
5. Check to make sure there is no continuity between one of the spade terminals and the ground.
6. Replace wires.

In addition to changing the orifices according to the national fuel gas code, the main limit MUST BE CHANGED. For more information, please see the ***High Altitude Limit Change Out Installation and Operation Manual 92-215-19-72***.

ORIFICE ORDERING INFORMATION

Orifice sizes are selected by adding the 2-digit drill size required in the orifice part number. Drill sizes available are 22 through 64; metric sizes available 1.10mm (-90) and 1.15mm (-91):

Orifice Part Number 62-22175-(drill size)

Example 1:

60 drill size orifice required

Part # 62-22175-60

Example 2:

1.15mm drill size orifice required

Part # 62-22175-91

NATURAL GAS ORIFICE SELECTION BASED ON HEATING VALUE & ELEVATION*

HIGH ALTITUDE

Notes:

1. Furnaces are factory equipped with orifices sized for 1050 sea level heating value gas.

2. Installer must be aware of the local heating value (sea level standard) to use the chart below.

3. This chart is based on the National Fuel Gas Code (NFGC) and based on natural gas with a specific gravity of 0.60

4. The recommended orifices below allow the furnace to operate within 10% of design rate. However, NFGC calculations are the best method.

5. Furnace operation is optimized when operating at design rate. Installer is responsible to verify rate.

Limit Selection for 400,000 BTU/h		
ELEVATION	Limit Setting	Limit Part Number
Sea Level to 7,000 ft.	No limit change needed.	NA
7,001 ft. to 10,000 ft.	130	47-25349-14

Limit Selection for 320,000 BTU/h		
ELEVATION	Limit Setting	Limit Part Number
Sea Level to 5,000 ft.	No limit change needed.	NA
5,001 ft. to 7,000 ft.	130	47-25349-14
7,001 ft. to 9,000 ft.	125	47-25349-18
9,001 ft. to 10,000 ft.	120	47-25349-10

G. GAS

NATURAL GAS ORIFICE SELECTION BASED ON HEATING VALUE & ELEVATION*

50,000 BTU/Burner

		ELEVATION								
Grey Cells Indicate Factory Orifice Size		Sea Level to 2,000 ft.	2,001 ft. to 3,000 ft.	3,001 ft. to 4,000 ft.	4,001 ft. to 5,000 ft.	5,001 ft. to 6,000 ft.	6,001 ft. to 7,000 ft.	7,001 ft. to 8,000 ft.	8,001 ft. to 9,000 ft.	9,001 ft. to 10,000 ft.
Gas Heating Value (BTU's/ft^3) @ Sea Level**	1,100	31	32	32	32	33	34	**35**	**36**	**37**
	1,050	30	30	31	31	3.20mm	3.20mm	3.00mm	3.00mm	33
	1,000	30	30	31	31	31	31	32	32	33
	950	29	29	30	**30**	30	**30**	31	31	**31**
	900	29	29	30	**30**	30	**30**	31	31	**31**
	850	28	29	29	29	30	30	30	30	31
	800	26	27	28	28	28	29	29	30	30
	750	24	25	26	27	27	28	28	29	29
	700	22	23	24	25	26	27	27	28	29

40,000 BTU/Burner

		ELEVATION								
Grey Cells Indicate Factory Orifice Size		Sea Level to 2,000 ft.	2,001 ft. to 3,000 ft.	3,001 ft. to 4,000 ft.	4,001 ft. to 5,000 ft.	5,001 ft. to 6,000 ft.	6,001 ft. to 7,000 ft.	7,001 ft. to 8,000 ft.	8,001 ft. to 9,000 ft.	9,001 ft. to 10,000 ft.
Gas Heating Value (BTU's/ft^3) @ Sea Level**	1,100	33	35	35	36	36	37	38	38	40
	1,050	33	35	**35**	35	35	2.60mm	2.60mm	38	39
	1,000	32	33	34	35	35	36	36	37	38
	950	31	32	32	**32**	33	**34**	35	36	**37**
	900	31	32	32	**32**	33	**34**	35	36	**37**
	850	30	30	31	31	31	31	32	32	33
	800	30	30	31	31	31	31	32	32	33
	750	29	29	30	30	30	30	31	31	31
	700	28	29	29	29	30	30	30	30	31

* Tables are derived from the National Fuel Gas Code. To determine the correct orifice for your installation consult the National Fuel Gas Code

** Be sure to use sea level heating value. Heating value may be obtained from a local utility, heating value must be converted to sea level equivalent sea level equivalent in order to use this table.

LP GAS AT HIGH ALTITUDES

NOTICE: The conversion shall be carried out by a manufacturer's authorized representative, in accordance with the requirements of the manufacturer, provincial, or territorial authorities having jurisdiction and in accordance with the requirements of the CSA b149.1 Or CSA b149.2 Installation codes.

NOTE: Keep any parts removed during LP conversion procedure stored with the product literature for future use.

LP Gas is a manufactured gas that has consistent heating value across most regions.

The NFGC guidelines are used with the following exception:

The recommended LP Gas high altitude orifice selections differ slightly in that the NFGC LP orifice chart, as they are not accurate for these products. The National Fuel Gas Code LP orifices are based on an 11" of water column pressure at the orifice, which differs from products that use 10" of water column at the orifice. This difference requires a deviation from the NFGC orifice size recommendations. The Sea Level input should still be reduced by 4% per thousand ft. and the orifice size must be selected based on the reduced input in the following tables.

LP Gas BTU/hr per Burner based on Orifice Size & Elevation
Orifice Pressure: 10" W.C.

	ELEVATION								
LP Gas BTU/hr per burner	Sea Level to 2,000 ft.	2,001 ft. to 3,000 ft.	3,001 ft. to 4,000 ft.	4,001 ft. to 5,000 ft.	5,001 ft. to 6,000 ft.	6,001 ft. to 7,000 ft.	7,001 ft. to 8,000 ft.	8,001 ft. to 9,000 ft.	9,001 ft. to 10,000 ft.
40,000 BTU/hr	49	50	51	51	51	52	1.65mm	53	1.55mm
50,000 BTU/hr	45	47	1.95mm	1.90mm	49	50	50	1.75mm	52

LP Gas BTU/hr per Burner based on Orifice Size & Elevation
Orifice Pressure: 10" W.C.

	ELEVATION	
LP Gas BTU/hr per burner	Sea Level to 2,000 ft.	2,001 ft. to 4,500 ft.
40,000 BTU/hr	49	51
50,000 BTU/hr	45	47

*Canada Only

J. STARTUP AND OPERATION

J.1. Final Inspection

J.1.1. Check for Refrigerant Leaks

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

J.1.2. Check Level of Unit

Refer to ***Section C.6.2.*** for setting/checking the level of the unit.

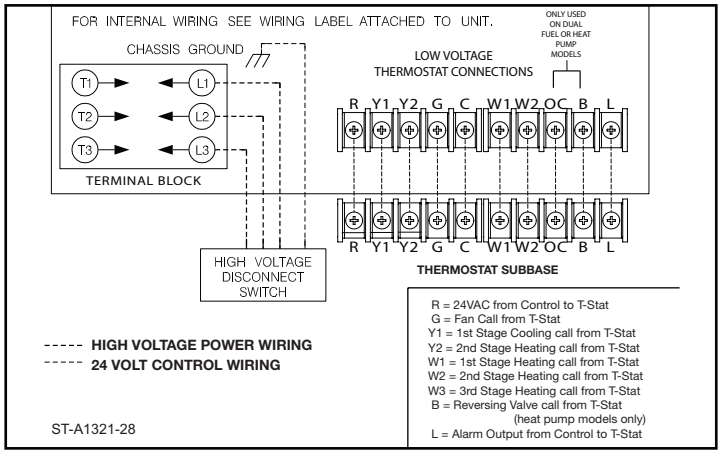
J.1.3. Check Electrical Connections For Proper Torque

Use an Inch Pound rated torque wrench to ensure proper torque. DO NOT CONFUSE THIS WITH A FOOT POUND RATED WRENCH, Damage will occur.

Recommended torques for securing wiring:

- To the contactor: 40 in-lb.
- From the T-stat to the control board: 8.0 in-lb.

Figure J.1.3. – A: Where to Wire for Thermostat



J.1.4. Check Control Cables For Proper Connection

Verify all cables are seated and connected in the unit as some might come loose during shipping and transport.

J.1.5. Check For Gas Leaks

Double Check for any gas leaks on the installed piping. Refer to ***Section G.2.3.*** for more information.

J.1.6. Check Filter Installation

Verify that filters are seated and oriented correctly in the unit as some might come displaced during shipping and transport. Refer to ***Section D.3.*** for more information on filters and filter installation.

J.1.7. Check Condensate Drain installation

Verify the Condensate Drain Trap is a minimum of 3 inches deep, plus the Blower Fan Static Pressure. Verify the Outlet of the drain trap is a minimum of 3 inches below the outlet of the drain pan. Ensure the outlet of the trap is routed to a suitable drain location as required by local code. Refer to ***Section C.5*** and ***Figure C.5.1*** – A for more information.

J.1.8. Check Blower Compartment for Accessories

Open all compartments to ensure there are no tools or other misc parts remaining in the unit from setup. This is most important on the blower section to avoid damage to the blower assembly.

J.2. Turning on Power for the First time

J.2.1. Checking for Proper 3-Phase Voltage

Verify that proper power has been supplied to the unit. This is critical for correct operation of the compressor.

J.2.2. Check For Proper Phase

Verify that the compressor is running correctly.

J.2.2.1. Standard Blower Rotation

As a reminder, all units with a belt drive motor may run backwards if the unit is wired incorrectly. See ***Section E.3.4. Checking Phase and Motor Rotation*** for more information.

J.2.2.2. VFD Blower Rotation

As a reminder, all units with VFD driven blower motor will have the correct rotation even if the phase to the unit is wired incorrectly. See ***Section E.3.4.1. Checking Phase with VFD Drive*** for more information.

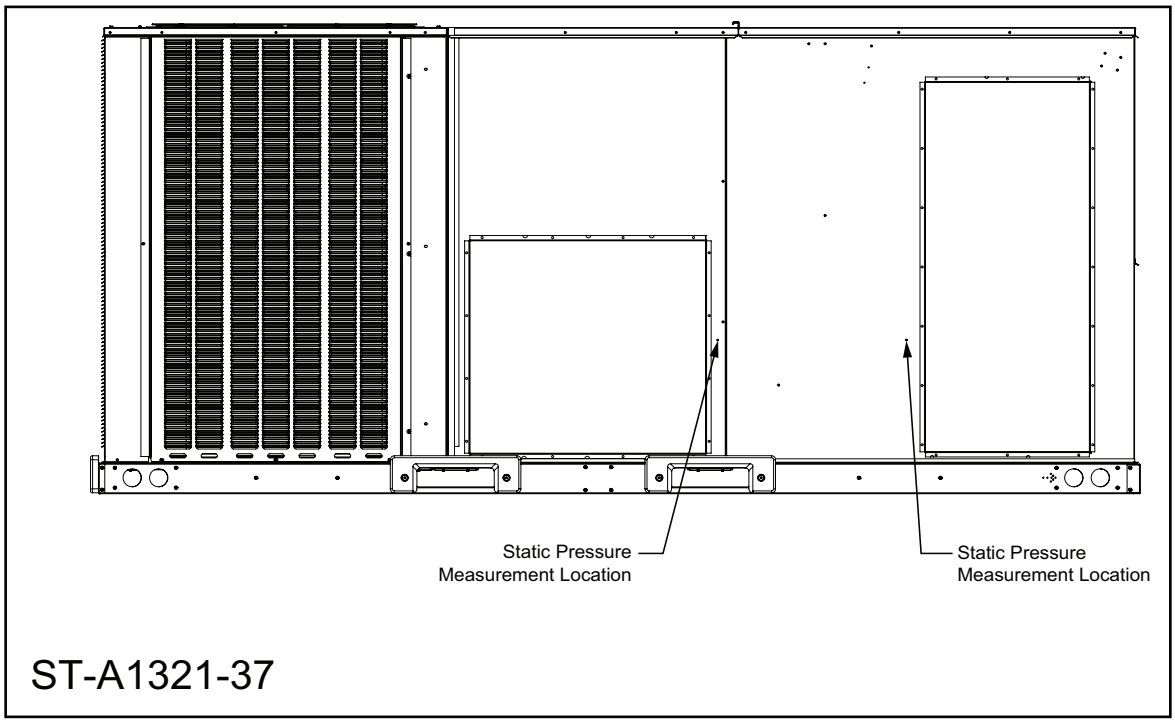
J.2.3. Checking Low (Control) Voltage

Use a voltmeter to measure the low voltage and low voltage amp draws during operation. Accessories such as remote smoke detectors and excessive wire length can increase the amp draw on the low voltage wiring. Verify that the total amp draw on the 24Vac side is less than 0.3A in full operation. Refer to ***Figure F. – A*** for proper low voltage wire lengths.

J.3. Checking and Adjusting Air Flow

For Economizer and Diffuser Pressure Drop Data, please refer to the end of ***Appendix C: Airflow Performance Data.***

Figure J.3. – A: Static Pressure and Air Temp Measurement Location



J.3.1. Static Pressures and Measurements

- To measure the static pressure of the system, locate the locating dimples near the supply/return duct openings, and drill a hole to the size necessary for the test probe. The location of these dimples are shown in ***Figure J.3. - A.***
- NOTE: After taking airflow measurements, seal these openings per best practice to prevent airflow leakage and water entry into the unit.
- NOTE: Drilling test tap locations in other panels or doors could put the test probe in a turbulent zone providing false readings.

J.3.1.1. Using Tools

Use a calibrated manometer to measure the static pressure of the blower. Insert the meter probe into the tap location. Make sure any economizer or outside air dampers are closed and run the fan at the maximum, full speed setting. Record the reading for the return air and supply air separately.

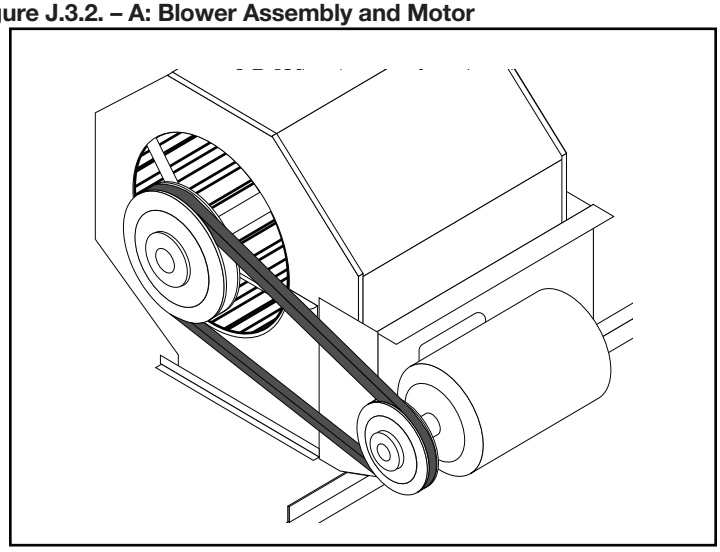
J. STARTUP AND OPERATION

J.3.2. Air Flow Measurements and Adjustments

- Measure the supply/ return static to get the unit static pressure by drilling out the simple locations shown in ***Figure J.3.2 - A.***
- Take the measured static pressure and match to the static listed on the airflow table to find your CFM.

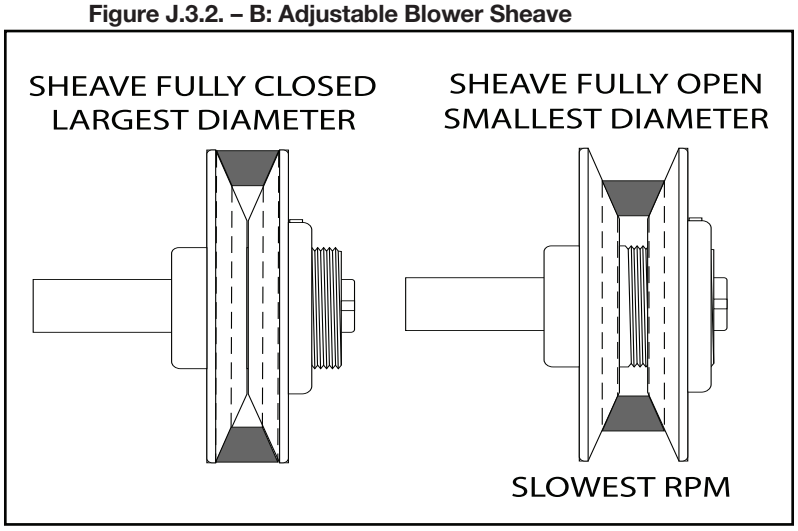
Use the charts and guide provided in the Installation and Operation instructions provided with the unit to calculate the air flow, against the measured static pressures and number of turns on the adjustable blower sheave. Verify the measured air flow against the charts.

Figure J.3.2. – A: Blower Assembly and Motor



If adjustment is needed, turn off the power to the entire system, and adjust the adjustable blower sheave. To do this, loosen the belt tension and remove the belt. Using an Allen wrench to loosen the set screw on the end of the adjustable blower sheave, turn the blower sheave in until it is fully closed.

Figure J.3.2. – B: Adjustable Blower Sheave



Using the charts determine the total number of turns needed on the sheave. Make those turns in half turn increments, once set, align the set screw with the Flat section on the sheave threads. Tighten the set screw to secure the sheave.

Reinstall the belt and tension properly and power on the system. Allow the thermostat to call for a fan, make sure the VFD ramps the blower to 100% or 60hz.

Once the fan is at speed, measure the air flow and static pressure, compare against the charts. If additional adjustment is needed repeat the adjustment procedure.

J.3.2.1. Adjusting Fresh Air Flow with Economizer

See the above sections for measuring airflow, and refer to the I&O included with the Economizers for more information on adjusting airflow.

These I&Os can also be found on the manufacturer's website.

J.3.2.2. Adjusting Fresh Air Flow with Damper

All dampers are field install accessories. See the above sections for measuring airflow, and refer to the I&O included with the fresh air dampers for more information on adjusting airflow.
Refer to local building codes for any fresh air requirements.

These I&Os can also be found on the manufacturer's website.

J.4. Checking Cooling Operation

Note: In the below section, first and second stage cooling applies to ONLY the 6 ton units. For 3-5T units, only first stage applies.

COOLING SEQUENCE OF OPERATION

A. Call for cooling

1. The zone thermostat contacts close, and a call for cooling is initiated.

2. Inputs 'Y1' and 'G' to the control are energized.

3. The control senses input to 'Y1' and 'G'. After a 1sec delay, the control energizes both the indoor blower and first stage compressor.

4. The control enters normal operating loop were all inputs are continuously checked.

5. Zone thermostat is satisfied.

6. The blower will continue to run for a preset period of time after the zone thermostat is satisfied.

7. The control goes into standby mode displaying a "O".

B. Call for second stage cooling. After first stage cooling established; starting from A6.

1. If a call for second stage cooling is initiated after a call for first stage cooling is established, the control energizes 'Y2' and energizes the second stage compressor.

2. Then the control enters the normal operating loop where all inputs are continuously checked.

C. Second stage satisfied and first stage still called for; starting from B2.

1. 'Y2' is de-energized and the second compressor stage is de-energized.

D. First stage and second stage called simultaneously.

1. The zone thermostat contacts close, and a call for first and second stage cooling is initiated.

2. Inputs 'Y1', 'Y2' and 'G' to the control are energized.

3. The control senses 'Y1', 'Y2' and 'G'. After a 1sec delay, the control energizes the indoor blower, and the first and second compressor stages.

E. First stage and second stage removed simultaneously.

1. Upon a loss of 'Y1' and 'Y2', the compressor is de-energized. The control de-energizes the indoor blower relay, and cuts off the blower after an indoor blower delay.

2. The control goes into standby mode displaying a "O".

CONTINUOUS FAN MODE

A 'G' input only indicates a zone thermostat call for continuous indoor blower operation.

TIME DELAY BYPASS for non-DDC units

The Time Delay Bypass resets the ICC (Integrated Compressor Control) from any lockout mode or bypasses compressor anti-short cycle delay timer. To bypass the time delay, press the SW1 button with an insulated probe for 1sec and then release.

FAULT RECALL OPERATION for non-DDC units

To enter FAULT RECALL mode, press the SW1 button with an insulated probe for 2sec and release. Upon entering and exiting the FAULT RECALL mode, the top bottom segments of the 7-segment display will be activated. The ICC will automatically scroll through the stored faults on the 7-segment display. Each fault is displayed one time with the top segment of the 7-segment display activated between faults. Each fault is displayed with the most recent fault displayed first. An "O" will be displayed when no faults are stored. The ICC will automatically exit the FAULT RECALL mode after displaying stored faults.

An example of one LPC fault and one HPC fault scrolled on the display is shown as: -21-23

CLEAR FAULT HISTORY for non-DDC units.

To clear FAULT HISTORY, press the SW1 button with an insulated probe for 5sec and release. T

J. STARTUP AND OPERATION

The top and bottom segments of the 7-segment display will be activated and flash to indicate the history has been cleared.

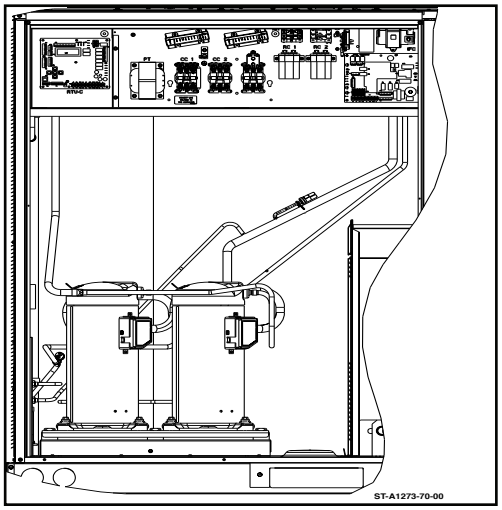
Example: ======

TEST MODE for DDC Units

For units with DDC, there is a “Run Test” mode that will aid in diagnostics during installation.

Please refer to the CLEAR CONTROL MANUAL for more info; Manufacturer Part Number: 92-103249-01

Figure: Clear Control under Test mode for DDC

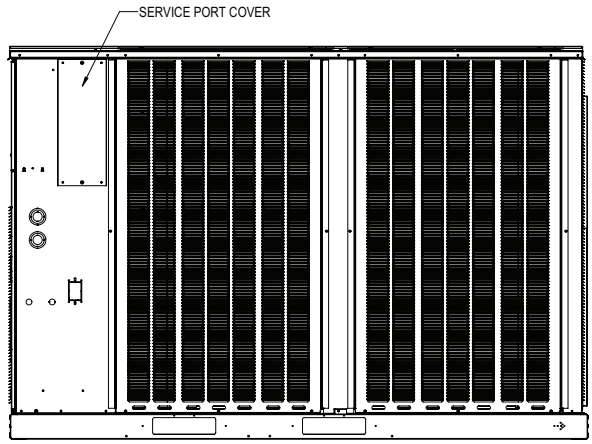


J.4.1. Checking Refrigerant Pressures

To check refrigerant pressures, attach R410a manifold gauges to the high/lo service ports. found behind the service port access cover The upper port is the high pressure port, and the lower is the low pressure port. **BE SURE TO USE ZERO LOSS FITTINGS WHILE MEASURING PRESSURE; ANY LOSS OF CHARGE MAY IMPACT PERFORMANCE.**

See section ***C.2.1.Tools Required for Installing and Servicing R-410A Models.***

Figure J.4.1. –A: Service Port Location



ST-A1321-40

J.4.1.1. Refrigerant Pressure Charts

See ***Appendix F*** towards the end of this manual for Refrigerant Pressure Charts.

J.4.2. Checking Sub Cooling for Adjusting Charge Weight

See ***Appendix F*** towards the end of this manual for Refrigerant Charging Charts.

NOTE: This procedure is very important for optimizing this product’s performance.

How to check the unit’s subcooling to fine-tune refrigerant charge:

1. The Indoor ambient temperature must be between 72 °F and 82 °F dry bulb at the indoor coil.

2. Confirm the indoor air supply is at the rated CFM listed in ***Appendix A***.

3. Allow the system to run long enough for temperatures and pressures to stabilize; at least fifteen minutes.

4. Measure liquid pressure and line temperature at the liquid line service port just before the TXV (refer to ***Section J.4.2.1.*** below for the liquid line temperature measurement location). USE ZERO LOSS FITTINGS WHILE MEASURING PRESSURE; ANY LOSS OF CHARGE MAY IMPACT PERFORMANCE.

5. To find the saturation temperature at the measured pressure, subtract the measured liquid line temperature from the saturation pressure to get the sub-cooling.

6. Check if the Sub-Cooling is within +/- 1.5 °F tolerance.

7. If the sub-cooling values are significantly different (> 20 psig) from those listed on the table in Appendix F, there may be an airflow or component issue. Refer to section M. Diagnostics for more information.

J.4.2.1. Measuring Air Temperature and Liquid Line Temperature

Measuring Air temperature:

1. Insert a thermometer in the supply air duct as close to the unit as possible.

2. Insert a thermometer in the return air duct as close to the filters as possible.

3. If preferred, use the locations shown in ***Figure J.4.2.1. - A: Line Temperature Measurement Location*** instead of the supply/ return ductwork.

4. Operate the unit for a minimum of 15 minutes in cooling mode.

5. When the thermometer in the supply air duct stops changing (approximately five minutes), subtract the return air temperature from the supply air temperature. This is the cooling mode temperature difference.

If the measured temperature difference is not reducing, or if the return air is not reaching the thermostat set point, the air flow is too low. Airflow must be increased by either removing the restrictions in the duct system, or by changing the air flow. See ***Section J.3.2. Air Flow Measurements and Adjustments*** for changing air flow.

IMPORTANT: Some high-efficiency filters have a greater than normal resistance to airflow. This can negatively affect airflow. BE SURE TO CHECK THE AIRFLOW if using any filter other than the factory-provided filter.

Measuring line temperature:

1. Attach a thermometer or thermocouple to the liquid refrigerant line right before the TXV in the blower compartment.

2. Operate the unit for a minimum of 15 minutes in cooling mode.

3. When the measurement of the temperature stops changing (approximately five minutes), record the temperature.

J.4.3. Measuring Compressor Electrical Loads

See ***Appendix B*** towards the end of this manual for Compressor Electrical Data.

J.5. Checking Heating Operation

J.5.1. Gas Furnace

J.5.1.1. Measuring and Adjusting Inlet Gas Pressures

The maximum gas inlet pressure to the furnace should be 10.5" WC for natural gas and 13.0" WC for LP gas. The minimum gas inlet pressure for purposes of input adjustments to the furnace should be 5.0" WC for natural gas and 11.0" WC for LP gas.

The inlet pressure tap is on the input side of the gas valve. A calibrated manometer is required to measure gas pressure readings accurately.

1. Ensure the gas is shut off to the furnace at the manual gas valve installed outside the unit.

2. Remove inlet pressure plug using a 3/16" allen head wrench. Thread a 1/8" barbed fitting into the plug.

3. Connect a manometer to the barbed fitting using a 1/4" I.D. hose.

4. Turn on the gas supply and operate the furnace and all other gas-fire units on the same gas line as the furnace.

5. Turn on the gas supply and operate the furnace and all other gas-fire units on the same gas line as the furnace.

6. Note or adjust the inlet gas pressure to give:
   A: 5" - 10.5" W.C. for natural gas
   B: 11" - 13" W.C. for LP gas

6. If the inlet gas inlet pressure is above the specified ranges, install an in-line gas regulator to the furnace for the natural gas units. For LP gas furnace, have the LP supplier reduce the inlet pressure at the regulator.

If the inlet gas inlet pressure is below the specified ranges, either remove the restrictions in the gas supply piping or enlarge the gas pipe for a natural gas furnace; see ***Table G.1.6. - A.*** For LP gas furnaces have the LP supplier adjust the inlet pressure at the regulator; see ***Table G.3. - A***.

7. Shut off the gas at the manual gas-valve a remove the manometer and hose.

8. Replace plug in the inlet tap and tighten with 3/16" allen head wrench.

9. Turn ON the gas supply and check for gas leaks using an approved leak detector. Do NOT use a flame of any kind to check for leaks. Repair any leaks and repeat.

J. STARTUP AND OPERATION

J.5.1.2. Measuring and Adjusting Manifold Gas Pressures

Only small variations in the gas flow should be made by means of the pressure regulator adjustment. In no case should the final manifold pressure vary more than ± 0.3" WC for natural gas and ± 0.5" WC for LP gas from the above specified pressures.

1. Ensure the gas is shut off to the furnace at the manual gas valve installed outside the unit.

2. Remove the manifold pressure tap plug using a 3/16" allen wrench, then thread a 1/8" barbed fitting into a plug. See ***Figure G.1.4. – A.***

3.Connect a manometer to the barbed fitting using a 1/4" I.D. hose.

4. Turn on the gas supply and operate the furnace by applying a heat call.

5. Note or adjust the manifold gas pressure to give:

C. 3.5" (± 0.3") W.C. high fire, 1.7" (± 0.3") W.C low fire for natural gas

D. 10.0" (± 0.5")W.C. high fire and 4.9" (± 0.5) W.C. low fire for LP gas

6. Remove the vent cap to access the high and low fire pressure regulators.

7. A 3/32" allen head wrench is necessary to make adjustments to manifold pressure.

8. Turn the adjustment screw clockwise to increase pressure, or counterclockwise to decrease the manifold pressure.

9. Replace the vent cap.

10. Replace manifold pressure plug using a 3/16" allen head wrench.

11. Turn ON the gas supply and apply a heat call to the furnace. Then check for gas leaks using an approved leak detector. Do NOT use a flame of any kind to check for leaks.

Repair any leaks and repeat.

METER TIME IN MINUTES AND SECONDS FOR NORMAL INPUT RATING OF FURNACE QUIPPED FOR NATURAL GAS									
INPUT (BTU/HR)	METER SIZE (FT3/REV)	HEATING VALUE OF GAS (BTU/FT3)							
		900		1000		1050		1100	
		MIN	SEC	MIN	SEC	MIN	SEC	MIN	SEC
400,000	ONE	0	8	0	9	0	9	0	10
	TEN	1	21	1	30	1	35	1	39
320,000	ONE	0	10	0	11	0	12	0	12
	TEN	1	41	1	53	1	58	2	4

J.5.1.3. Verifying BTU Performance and Capacity

Checking furnace input is important to prevent over-firing beyond its design rated input.

NEVER SET INPUT ABOVE THAT SHOWN ON THE RATING PLATE FOR ELEVATIONS UP TO 2,000 FT. Use the following table or formula to determine input rate. Start the furnace and measure the time required to burn on 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.

The factory installed orifice o n a f furnace a re sized for natural gas having a heating value of 1050 BTU/cu.ft and a specific gravity of 0.60. Since heating values vary geographically, the manifold pressure and/or gas orifice s size may need to be changed to adjust the furnace to its nameplate input. Consult the local gas utility to obtain the yearly average heating value. Refer to section ***G.4.2.6. Orifice Selection and High Altitude Adjustments*** for more info.

NOTE: Refer to the High Altitude Section of this manual and the National Fuel Gas Code for high altitude rate adjustment above 2,000 ft.

To change the orifice spuds, s hut t he manual gas-valve and remove the gas manifold. Replace all the orifice with correct sizes based on the Orifice Selection Charts, and carefully replace the manifold in its position.

J.5.1.4. 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 control switch/knob on the gas valve 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!

J.5.1.5. Checking Air Temperatures

The importance of proper air flow over the heat exchanger cannot be over emphasized. One of the most commom causes of heat exchanger failure is over-heating due to low air flow.

To determine whether the heating air flow is correct, follow the steps to check the temperature rise.

1. Insert a thermometer in the supply air duct as close to the furnace as possible yet out of a direct line from the heat exchanger. (See ***Figure J.3. – A: Static Pressure and Air Temp Measurement Location***)

2. Insert a thermometer in the return air duct as close to the filters as possible.

3. Operate the furnace for a minimum of 15 minutes in the gas heat mode.

4. When the thermometer in the supply air duct stops rising (approximately five minutes), subtract the return air temperature from the supply air temperature. The difference is the temperature rise.

5. Compare the measured temperature rise to the approved temperature rise range listed on the furnace name plate or in ***Appendix E: Heating Performance***.

If the measured temperature rise is above the approved range, the air flow is too low. Airflow must be increased by removing the restrictions in the duct system, or by changing the air flow. If the measured temperature rise is below the approved range, the air flow is too much. Check the duct sizing or see Section ***J.3.2. Air Flow Measurements and Adjustments***.

IMPORTANT: Some high-efficiency filters have a greater than normal resistance to airflow. This can adversely affect furnace operation. **BE SURE TO CHECK THE AIRFLOW** if using any filter other than the factory-provided filter.

K. TEST AND BALANCE

K.1. Air Flow Charts and Information

See ***Appendix C*** towards the end of this manual for Air Flow Performance Data.

K.2. Air Flow Adjustments for Belt Drive Models

K.2.1. Blower Speed for 15.0-25.0 Ton Units

See ***Section J.3.2. Air Flow Measurements and Adjustments*** on how to increase the blower speed and increase airflow for the 15-25T units.

K.2.2. Economizer Adjustments

Do not Fix a minimum position on an economizer, set the minimum position through the control board only. See the instructions provided with the economizer for more info. The part numbers for these instructions are listed in section ***D.4.1. Economizer Information.***

N.1. Diagnostics Chart

N.1.1.Cooling Diagnostics 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 • Defective contactor • Blown fuses • Transformer defective • High pressure control open (if provided) • Interconnecting low voltage wiring damaged	• Check for correct voltage at compressor contactor in control box • Reset • Check for 24 volts at contactor coil - replace if contacts are open • Replace fuses • Check wiring-replace transformer • Reset-also see high head pressure remedy- the high pressure control opens at 650 PSIG • Replace thermostat wiring"
Condenser fan runs, compressor doesn't	• Run capacitor defective (single phase only) • Loose connection • Compressor stuck, grounded or open motor winding open internal overload. • Low voltage condition	• 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."
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 [188.78 L/s] 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 • Room thermostat set too low	• Increase speed of blower or reduce restriction - replace air filter • Raise thermostat set point
High head-low vapor pressures	• Restriction in liquid line, expansion device or filter drier • Flow check piston size too small • Incorrect capillary tubes	• Remove or replace defective component • Change to correct size piston • Change coil assembly
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
High head-high or normal vapor pressure - Heating mode	• Low air flow - condenser coil • Refrigerant overcharge • Air or non-condensibles in system • Dirty condenser coil	• Check filters - correct to speed • Correct system charge • Recover refrigerant, evacuate & recharge • Check filter - clean coil
Low head-high vapor pressures	• Defective Compressor valves	• Replace compressor
Low vapor - cool compressor - iced evaporator coil	• Low evaporator airflow • Operating below 65°F outdoors • Moisture in system • Liquid line limiting refrigerant flow	• Increase speed of blower or reduce restriction - replace air filter • Add Low Ambient Kit • Recover refrigerant - evacuate & recharge - add filter drier • Replace drier
High vapor pressure	• Excessive load • Defective compressor	• Recheck load calculation • Replace
Fluctuating head & vapor pressures	• Severe overcharge • Air or non-condensibles in system	• Adjust refrigerant charge • Recover refrigerant, evacuate & recharge
Gurgle or pulsing noise at expansion device or liquid line	• Air or non-condensibles in system	• Recover refrigerant, evacuate & recharge

N. DIAGNOSTICS

N.1. Diagnostics Chart

N.1.1. Heating Diagnostics 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
Induced draft blower motor (IDM) does not start	•No 208/230 Vac to IDM •Faulty low voltage transformer •Wired incorrectly •No line voltage to integrate furnace control (IFC) •Faulty IDM	•Check the wiring from the board to the motor - check for power at the motor - replace the IFC •Replace transformer •Check wiring per the diagram in the I&O •Check unit power connect - check power at L1 and L2 - Replace the IFC •If IDM is receiving power and will not start, replace the IDM
Ignitor will not spark	• Bad wire or corroded ignitor •Negative pressure switch not closing •Open rollout limit •Open limit control •Ignitor is not grounded •Ignitor wired incorrectly •Faulty IFC	•Check wire for damage - check the connection to the high voltage spark tower - replace corroded ignitor •Check for blocked hose – check for exhaust blockage - check that the negative pressure on the IDM is enough to close pressure switch - replace pressure switch •Check for blockage in the intake, heat exchanger, and exhaust - clear blockage and reset limit •Check temperature rise (see general data in I&O) - check for proper airflow – check for proper gas pressure - replace the limit • Check that ignitor is firmly secured to burner assembly • Check wiring per the diagram in the I&O • Replace IFC
No ignition/burner will not light	•No inlet pressure •Gas valve is not receiving 24 V •Gas valve is not opening •Orifice is blocked	•Check for gas pressure •Check wiring from IFC to gas valve - check for power at the gas valve - replace IFC •Replace valve •Remove orifice and clean - replace orifice if it is damaged
Flame not sustained	•Flame sense wired incorrectly •Flame sense damage or not in correct position •Flame sense dirty or corroded •Microamps are low or not present •Unit is not properly grounded •Faulty IFC	•Check wiring per the diagram in the I&O •Check flame sense position - replace flame sense •Clean flame sense with steel wool •Check for 4 microamps - replace flame sensor •Check unit grounding - correct bad grounding •Replace IFC
Indoor blower motor (IBM) does not start after 30 seconds	•No 208/230 Vac across IBM motor terminals on the IFC •Dead capacitor •Faulty IBM	• Check the wiring per the diagram in the I&O - replace IFC •Replace capacitor •Replace IBM
Heating does not stop after call for heat has been satisfied	•Thermostat wired incorrectly/faulty thermostat •Faulty valve	•Check thermostat wiring is correct - check that thermostat is operating correctly - replace thermostat •Remove gas valve lead and check if valve closes - replace valve
After 5 second post-purge, IDM stops, or IBM does not stop running after off delay (specified in furnace section of I&O)	•Open limit control •Open rollout limit	•Check temperature rise (see general data in I&O) - check for proper airflow – check for proper gas pressure - replace the limit •Check for blockage in the intake, heat exchanger, and exhaust - clear blockage and reset limit

N.2. Alarm Codes – Full List

Alarm Codes		
CODE	**Description**	**FAULT LEVEL**
0	STAND BY	None
c	COMPRESSOR ON - Low (Flashing if in time delay)	None
C	COMPRESSOR ON - High (Flashing if in time delay)	None
E	Economizer Cooling - No Compressor	None
F	CONTINUOUS FAN	None
h	GAS HEAT ON - LOW-FIRE	None
H	GAS HEAT ON -HIGH-FIRE	None
4	Comfort Alert Code 4 for Compressor Circuit 1	Shutdown
5	Comfort Alert Code 5 for Compressor Circuit 1	Shutdown
6	Comfort Alert Code 6 for Compressor Circuit 1	Shutdown
7	Comfort Alert Code 7 for Compressor Circuit 1	Shutdown
8	Comfort Alert Code 8 for Compressor Circuit 1	Shutdown
9	Comfort Alert Code 9 for Compressor Circuit 1	Shutdown
11	FAILED IGNITION	Problem
12	LO FLAME SENSE	Warning
13	FLAME LOST	Problem
14	UNEXPECTED FLAME	Shutdown
15	2ND STAGE GAS VALVE IMPROPER VOLTAGE	Problem
20	REFRIGERANT LOW PRESSURE SWITCH OPEN - CIRCUIT 1	Problem
21	REFRIGERANT LOW PRESSURE SWITCH OPEN - CIRCUIT 2	Problem
22	MAIN LIMIT OPEN	Problem
29	REFRIGERANT HIGH PRESSURE SWITCH OPEN - CIRCUIT 1	Problem
30	REFRIGERANT HIGH PRESSURE SWITCH OPEN - CIRCUIT 2	Problem
33	MRLC (Rollout Limit) OPEN	Problem
34	Comfort Alert Code 4 for Compressor Circuit 2	Shutdown
35	Comfort Alert Code 5 for Compressor Circuit 2	Shutdown
36	Comfort Alert Code 6 for Compressor Circuit 2	Shutdown
37	Comfort Alert Code 7 for Compressor Circuit 2	Shutdown
38	Comfort Alert Code 8 for Compressor Circuit 2	Shutdown
39	Comfort Alert Code 9 for Compressor Circuit 2	Shutdown
42	Invalid Thermostat Selection	Warning
44	1ST. STAGE COMBUSTION PRESS SWITCH CLOSED	Problem
46	1ST. STAGE COMBUSTION PRESS SWITCH OPEN	Problem
49	FREEZE SWITCH OPEN - CIRCUIT 1	Problem
50	FREEZE SWITCH OPEN - CIRCUIT 2	Problem
55	2nd stage COMBUSTION PRESSURE SWITCH CLOSED	Problem
57	2ND STAGE COMBUSTION PRESSURE SWITCH OPEN	Problem, shutdown
59	Condensate Drain Plugged	Shutdown
61	BLOWER FAULT - NO RUN	Shutdown
83	Condenser Coil Temp Sensor Fail-OAT	Problem
84	Outdoor Air Temperature Sensor Fail-OAT	Problem
88	Emergency Stop Fault	Shutdown
93	CONTROL Fault	Shutdown
97	Smoke Detection	Shutdown

N. DIAGNOSTICS

N.2.1. Cooling Alarm Codes and Diagnostics

All Core Command come standard with a 7-segment diagnostic display. During standby mode with no fault codes present, the display will read “0” (zero). During normal thermostat heating, cooling or continuous fan operation, a letter will be displayed to describe the mode of operation as follows:

C = Cooling

F = Continuous Fan Operation

H = Gas Heating Operation

When the control senses a fault present, it will display a code to help in diagnoses. A list of normal operating codes and potential fault codes follows:

Alarm Codes - Cooling Only		
CODE	**DESCRIPTION**	**FAULT LEVEL**
0	Standby	None
c	Compressor On – Low (Flashing If In Time Delay)	None
C	Compressor On – High (Flashing If In Time Delay)	None
E	Economizer Cooling – No Compressor	None
F	Continuous Fan	None
4	Comfort Alert Code 4 For Compressor Circuit 1	Shutdown
5	Comfort Alert Code 5 For Compressor Circuit 1	Shutdown
6	Comfort Alert Code 6 For Compressor Circuit 1	Shutdown
7	Comfort Alert Code 7 For Compressor Circuit 1	Shutdown
8	Comfort Alert Code 8 For Compressor Circuit 1	Shutdown
9	Comfort Alert Code 9 For Compressor Circuit 1	Shutdown
20	Refrigerant Low Pressure Switch Open – Circuit 1	Problem
29	Refrigerant High Pressure Switch Open – Circuit 1	Problem
30	Refrigerant High Pressure Switch Open - Circuit 2	Problem
34	Comfort Alert Code 4 for Compressor Circuit 2	Shutdown
35	Comfort Alert Code 5 for Compressor Circuit 2	Shutdown
36	Comfort Alert Code 6 for Compressor Circuit 2	Shutdown
37	Comfort Alert Code 7 for Compressor Circuit 2	Shutdown
38	Comfort Alert Code 8 for Compressor Circuit 2	Shutdown
39	Comfort Alert Code 9 for Compressor Circuit 2	Shutdown
42	Invalid Thermostat Selection	Warning
49	Freeze Switch Open – Circuit 1	Problem
50	Freeze Switch Open - Circuit 2	Problem
59	Condensate Drain Plugged	Shutdown
83	Condenser Coil Temp Sensor Fail-Oct	Problem
84	Outdoor Air Temperature Sensor Fail-Oat	Problem
88	Emergency Stop Fault	Shutdown
93	Control Fault	Shutdown
97	Smoke Detection	Shutdown

Normal Operation Mode:

0	Displayed anytime there is no fault present and no thermostat call present
c	COMPRESSOR ON - Low (Flashing if in time delay)
C	COMPRESSOR ON - High (Flashing if in time delay)
E	When the system uses Economizer Cooling with No Compressor
F	Displayed anytime thermostat calls for continuous fan

The method for displaying a two-digit fault is to display the first digit for one second immediately followed by the second digit – which is also displayed for a duration of one second. A ½ second pause is then displayed. Cycle repeats until the fault is cleared. Each fault is flashed (displayed) a minimum of two times even if the fault condition has cleared before the fault can be displayed twice.

Fault Codes with Descriptions and Solutions:

Alarm Codes - Cooling Only		
CODE	**DESCRIPTION**	**FAULT LEVEL**
0	STANDBY	None
c	COMPRESSOR ON – Low (Flashing if in time delay)	None
C	COMPRESSOR ON – High (Flashing if in time delay)	None
E	Economizer Cooling – No Compressor	None
F	CONTINUOUS FAN	None
4	**Comfort Alert Code 4 for Compressor Circuit 1**	Shutdown
	ALARM Designation: Locked Rotor Circuit 1	
	DESCRIPTION:	
	1. Circuit 1 shutdown and retry after Anti-Short Cycle Delay (ASCD) Maximum is 3 attempts.	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Low line voltage	
	2. Excessive Refrigerant in compressor	
	3. Seized bearings in compressor	
5	**Comfort Alert Code 5 for Compressor Circuit 1**	Shutdown
	ALARM Designation: Open Circuit 1	
	DESCRIPTION:	
	1. Circuit 1 shutdown and retry after ASCD. Note: This alarm is sent by the Comfort Alert Module only after the fault has been sensed for a minimum of 4 hours.	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Condensing unit power disconnect is open	
	2. Compressor circuit breaker or fuses are open	
	3. Compressor contactor has failed open High pressure switch is open and requires manual reset	
	4. Broken supply wires or connector is not making contact	
	5. Unusually long compressor protector reset time due to extreme ambient temperature	
	6. Compressor windings are damaged	
6	**Comfort Alert Code 6 for Compressor Circuit 1**	Shutdown
	ALARM Designation: Missing Phase Circuit 1	
	DESCRIPTION:	
	1. Circuit 1 shutdown	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Compressor fuse is open on one phase	
	2. Broken wire or connector on one phase	
	3. Compressor motor winding is damaged	
	4. Utility supply has dropped one phase	

N. DIAGNOSTICS

Fault Codes with Descriptions and Solutions:

Alarm Codes - Cooling Only		
CODE	**DESCRIPTION**	**FAULT LEVEL**
7	**Comfort Alert Code 7 for Compressor Circuit 1**	Shutdown
	ALARM Designation: Reverse Phase Circuit 1	
	DESCRIPTION:	
	1. Run outdoor and indoor fans continuously for circuit 1 and change mode of operation to Unoccupied Auto. This procedure prevents the Space Temperature from reaching extreme values.	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Compressor running backward due to supply phase reversal	
8	**Comfort Alert Code 8 for Compressor Circuit 1**	Shutdown
	ALARM Designation: Welded Contactor Circuit 1	
	DESCRIPTION:	
	1. Circuit 1 shutdown	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Compressor contactor has failed closed	
	2. Thermostat demand signal not connected to module	
9	**Comfort Alert Code 9 for Compressor Circuit 1**	Shutdown
	ALARM Designation: Low Voltage Circuit 1	
	DESCRIPTION:	
	1. Circuit 1 Shutdown and wait for voltage to return to operational levels.	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Control circuit transformer is overloaded	
	2. Low line voltage to compressor	
20	**DESCRIPTION:** REFRIGERANT LOW PRESSURE SWITCH OPEN – CIRCUIT 1	Problem
	CAUSE:	
	1. Low evaporator airflow	
	2. Refrigerant undercharge	
	3. Restriction in liquid line, expansion device or filter drier	
	4. Operating below 65°F outdoors	
	5. Moisture in system	
	SOLUTION: The solution will depend on the cause.	
	1. Increase speed of blower or reduce restriction - replace air filter	
	2. Check for leaks - add refrigerant	
	3. Remove or replace defective component	
	4. Add Low Ambient Kit	
	5. Recover refrigerant - evacuate & recharge - add or replace filter drier	

Fault Codes with Descriptions and Solutions:

Alarm Codes - Cooling Only		
CODE	**DESCRIPTION**	**FAULT LEVEL**
29	**DESCRIPTION:** REFRIGERANT HIGH PRESSURE SWITCH OPEN – CIRCUIT 1	Problem
	CAUSE:	
	1. Restriction in liquid line, expansion device or filter drier	
	2. Refrigerant overcharge	
	3. Condenser fan not running	
	4. Air or non-condensibles in system	
	SOLUTION: The solution will depend on the cause.	
	1. Recover refrigerant - evacuate & recharge remove or replace defective component	
	2. Remove refrigerant	
	3. Check voltage, Run Capacitor & Outdoor Motor Repair or replace	
	4. Recover refrigerant, evacuate & recharge	
49	**FREEZE SWITCH OPEN – CIRCUIT 1**	Problem
	DESCRIPTION:	
	1. Occurs when sensors are either open or shorted.	
	SOLUTION: The solution will depend on the cause.	
	1. Replace the sensor	
	2. Check sensor Is installed correctly on control	
59	**Condensate Drain Plugged**	Shutdown
	DESCRIPTION:	
	1. Condensate line is blocked water inside of unit	
	SOLUTION: The solution will depend on the cause.	
	1. Remove blockage	
	2. Remove condensate pan and clean	
83	**Condenser Coil Temp Sensor Fail-OCT**	Problem
	DESCRIPTION:	
	1. No defrost operation, but unit continues to operate in either heating or cooling.	
	SOLUTION: The solution will depend on the cause.	
	1. Extreme temperatures	
	2. Replace the sensor	
	3. Check that sensor is installed correctly on control	

N. DIAGNOSTICS

Fault Codes with Descriptions and Solutions:

Alarm Codes - Cooling Only		
CODE	**DESCRIPTION**	**FAULT LEVEL**
84	**Outdoor Air Temperature Sensor Fail-OAT**	Problem
	DESCRIPTION:	
	1. No defrost operation, but unit continues to operate in either heating or cooling.	
	2. The heat source continues to be heat pump, independently of the outdoor air temperature	
	SOLUTION: The solution will depend on the cause.	
	1. Extreme temperatures	
	2. Replace the sensor	
	3. Check that sensor is installed correctly on control	
88	**Emergency Stop Fault**	Shutdown
	DESCRIPTION:	
	1. Complete shutdown	
	SOLUTION: The solution will depend on the cause.	
	1. Cannot be cleared by the 'Clear All Alarms" command. Must be cleared by changing the Emergency Stop Fault network value.	
93	**CONTROL Fault**	Shutdown
	DESCRIPTION:	
	1. Internal Control fault.	
	SOLUTION: The solution will depend on the cause.	
	1. Replace Control	
97	**Smoke Detection**	Shutdown
	DESCRIPTION:	
	1. RTU-C reads the smoke detection input as open -- complete shutdown.	
	SOLUTION: The solution will depend on the cause.	
	1. If not due to a fire, Replace the sensor, Check sensor is in stalled correctly on control	
	2. Check Smoke Detection Circuit, if no Smoke Detector is installed, ensure Economizer Smoke Bypass plug is installed	

N.2.2. Heating Alarm Codes and Diagnostics

All Core Command come standard with a 7-segment diagnostic display. During standby mode with no fault codes present, the display will read “0” (zero). During normal thermostat heating, cooling or continuous fan operation, a letter will be displayed to describe the mode of operation as follows:

C = Cooling

F = Continuous Fan Operation

H = Gas Heating Operation

When the control senses a fault present, it will display a code to help in diagnoses. A list of normal operating codes and potential fault codes follows:

Alarm Codes - Heating Only		
CODE	**DESCRIPTION**	**FAULT LEVEL -0, 1, 2, 3***
0	STANDBY	None
F	CONTINUOUS FAN	None
h	GAS HEAT ON - LOW-FIRE	None
H	GAS HEAT ON - HIGH-FIRE	None
11	FAILED IGNITION	Problem
12	LO FLAME SENSE	Warning
13	FLAME LOST	Problem
14	UNEXPECTED FLAME	Shutdown
15	HIGH-FIRE GAS VALVE IMPROPER VOLTAGE	Problem
22	MAIN LIMIT OPEN	Problem
33	MRLC (Rollout Limit) OPEN	Problem
42	INVALID THERMOSTAT SELECTION	Warning
44	LOW-FIRE NEGATIVE PRESSURE CONTROL CLOSED	Problem
46	LOW-FIRE NEGATIVE PRESSURE CONTROL OPEN	Problem
55	High-Fire NEGATIVE PRESSURE CONTROL CLOSED	Problem
57	HIGH-FIRE NEGATIVE PRESSURE CONTROL OPEN	Problem, Shutdown
61	BLOWER FAULT - NO RUN	Shutdown

The method for displaying a two-digit fault is to display the first digit for one second immediately followed by the second digit – which is also displayed for a duration of one second. A ½ second pause is then displayed. Cycle repeats until the fault is cleared. Each fault is flashed (displayed) a minimum of two times even if the fault condition has cleared before the fault can be displayed twice.

Normal Operation Mode:

0	Displayed anytime there is no fault present and no thermostat call present
F	Displayed anytime thermostat calls for continuous fan
h	Lower-case “h” displayed anytime thermostat calls for low-fire heat
H	Upper-case “H” displayed anytime thermostat calls for high-fire heat

N.2.3. Phase Monitoring

DDC Units:

- The Phase Monitor is activated by a menu item in the General Information menu on the DDC board.
- When a phase monitoring fault occurs, the control will go into a shutdown. When the error is corrected, the unit will try and operate after the ASCD.

N. DIAGNOSTICS

Fault Codes with Descriptions and Solutions:

Alarm Codes - Heating Only	
CODE	**FAILED IGNITION**
11	**DESCRIPTION:** This fault is displayed when a failed ignition has occurred three times in a row. The Core Command will enter a one-hour lockout following the third ignition attempt.
	CAUSE:
	1. Flame sense rod is unable to sense flame
	2. Gas valve is turned OFF.
	3. The ignitor is not working properly.
	4. The Core Command is not working properly
	5. Burner flame is not carrying over from first burner to the last.
	SOLUTION: the solution will depend on the cause.
	1. Clean or replace flame sense rod. Confirm flame sense is in burner flame. Check wire and all connections between flame sense and Core Command. Make sure furnace is properly grounded.
	2. Turn gas valve ON.
	3. Replace or reposition the ignitor. Refer to section G.1.4 for proper ignitor location. Check wire and all connections between ignitor and Core Command.
	4. Replace furnace Core Command.
	5. Check manifold pressure during ignition (see Measuring and Adjusting Manifold Gas Pressures section). Watch the burner during ignition if the first burner lights but the second, third and so on do not light (incomplete carry-over), the burner may need to be replaced.
12	**LOW FLAME SENSE**
	DESCRIPTION: Furnace operation will continue in low and high-fire modes. This problem may be elevated to the level of fault code “13” or “11” if flame cannot be sensed at all.
	CAUSE:
	1. Most common cause is that the flame sense rod may need cleaning.
	2. Flame sense rod may not be properly connected.
	3. Wiring between the rod and furnace control may be shorted or opened.
	SOLUTION:
	1. Clean or replace flame sense rod.
	2. Check wire and all connections between the flame sense and Core Command.
	3. Make sure the furnace is properly grounded.

Fault Codes with Descriptions and Solutions:

Alarm Codes - Heating Only	
CODE	**FLAME LOST**
13	**DESCRIPTION:** if flame is lost after it is established, subsequent ignition attempts will follow and normal operation should resume.
	CAUSE:
	1. Most common cause is that the flame sense rod may need cleaning.
	2. My not be properly connected.
	3. Wiring between flame sense and Core Command may be shorted or opened.
	4. Improperly mounted
	5. Improperly grounded.
	6. Burner flame pattern may be unstable.
	SOLUTION:
	1. Clean or replace the flame sense rod.
	2. Check wire and all connections between the flame sense and Core Command.
	3. Confirm flame sense rod is in the flame. See section G.1.4 for proper flame sense location.
	4. Confirm furnace is properly grounded.
	5. Check that all burner assembly components are properly installed. Confirm that burner flame is steady and directed down the center of tube. If turbulence is noted, check for air leaks between the burner and blower compartment.
14	**UNEXPECTED FLAME**
	DESCRIPTION: this fault should rarely if ever be seen in the field. Furnace will not operate with this fault present.
	CAUSE:
	1. Field mis-wiring of 24VAC to the gas valve main solenoid.
	2. Faulty gas valve stuck in the “OPEN” position.
	3. Faulty furnace Core Command (signal improperly sensed when it should not be sensed at all).
	SOLUTION:
	1. Correct wiring
	2. Replace the gas valve.
	3. Replace the Core Command.
15	**HIGH-FIRE GAS VALVE IMPROPER VOLTAGE**
	DESCRIPTION: High-fire coil energized during call for low-fire heat. This fault should rarely if ever be seen in the field.
	CAUSE: Gas valve relay contacts on Core Command welded shut. Hi and low-fire miswired.
	SOLUTION:
	1. Replace Core Command if gas valve wiring is correct
	2. Turn off power to unit. Use a pin remover to reverse locations for BLUE and WHITE/BLACK wires in 3-pin connector.

N. DIAGNOSTICS

Fault Codes with Descriptions and Solutions:

Alarm Codes - Heating Only	
CODE	**MAIN LIMIT OPEN**
22	**DESCRIPTION:** The furnace will not operate in gas heat mode.
	CAUSE:
	1. No airflow or dead blower
	2. Insufficient airflow
	3. Faulty limit control
	4. Loose or faulty wiring.
	5. Incorrect blower tap
	6. Furnace input is too high.
	SOLUTION:
	1. Check for proper blower operation. If a blower motor fault has occurred fault code “61” should also be present. Check the wiring to the motor then the motor.
	2. Check filters and ductwork. Determine static pressure and confirm it is not above published values found in the Checking and Adjusting Airflow section.
	3. Replace the limit control
	4. Check wiring and connections.
	5. Confirm proper blower speed taps for high and low-fire.
	6. Insure properly sized burner orifices are installed. Check manifold pressure at high and low-fire and compare to values found in Measuring and Adjusting Manifold Gas Pressures section. Check rate and compare to nameplate input, high and low-fire. Adjust as necessary.
33	**MRLC (Manual Reset Limit Control) OPEN**
	DESCRIPTION: The MRLC is also known as the rollout limit. There are two rollout limits on (-)GEC gas units. When one or more of these limits open, they must be manually reset to the closed position. This fault can occur when burner flames are not directed down the center of the burner tube and roll out into the burner assembly. This fault indicates a serious problem that must be repaired before furnace operation can continue.
	CAUSE:
	1. Faulty limit.
	2. Loose or faulty wiring.
	3. Damaged heat exchanger
	4. Insufficient combustion air or blocked flue pipe.
	5. Overfired condition.
	6. Air leak between burner and blower compartment.
	SOLUTION:
	1. Replace limit if limit will not reset. Observe flame pattern for normal operation after limit has been replaced.
	2. Check wiring and connections. Replace and/or repair as necessary

Fault Codes with Descriptions and Solutions:

33	3. Confirm that burner flame is steady and directed down center of burner tube. If flame turbulance is evident, note if turbulence began when indoor blower motor was energized. This could be an indication of a damaged heat exchanger, i.e. breached primary tube.or loose swedge joint.
	4. Confirm louvered panels are unobstructed. Confirm flue pipe is unobstructed.
	5. Insure properly sized burner orifices are installed. Check manifold pressure at high and low-fire and compare to values found in Measuring and Adjusting Manifold Gas Pressures section. Check rate and compare to nameplate input, high and low-fire. Adjust as necessary.
	6. Check that all burner assembly components are properly installed. Confirm that burner flame is steady and directed down the center of tube. If turbulence is noted, check for air leaks between the burner and blower compartment.
44	**LOW FIRE NEGATIVE PRESSURE CONTROL (NPC) CLOSED (230V & 575V ONLY)**
	DESCRIPTION: The low-fire NPC should be open when the inducer is not operating. Before any heat cycle can begin, the NPC is tested to confirm the contacts are open. An ignition sequence will not occur if the low-fire NPC remains closed.
	CAUSE:
	1. NPC contacts are welded shut/faulty switch.
	2. loose or faulty wiring
	SOLUTION:
	1. Replace low fire NPC.
	2. Check wiring or connections, replace or repair as necessary

N. DIAGNOSTICS

Fault Codes with Descriptions and Solutions:

46	**LOW FIRE NEGATIVE PRESSURE CONTROL (NPC) OPEN (230V & 575V ONLY)**
	DESCRIPTION: Core command will energize the inducer for 30 seconds (pre-purge) in an attempt to close the low fire NPC. The Core Command will make four attempts to close the low-fire NPC before declaring a fault and entering a one hour lockout.
	CAUSE:
	1. Faulty inducer.
	2. Faulty Core Command
	3. Loose or faulty wiring.
	4. Disconnected, blocked, split or cut pressure switch hose.
	5. Severe wind gusts (sporadic)
	6. Faulty low fire pressure switch
	SOLUTION:
	1. Repair or replace inducer. Check inducer pressure to confirm negative pressure is adequate to close pressure switch.
	2. Replace Core Command after confirming that NPC contacts are closed while inducer is running.
46	3. Check NPC wiring and connections to Core Command.
	4. Confirm pressure switch hose is attached to pressure port on IDM and port on pressure switch. Confirm there is no split or cut in hose.
	5. Consider using the flue "snorkel" accessory.
	6. Replace pressure switch.
55	HIGH-FIRE NEGATIVE PRESSURE CONTROL (NPC) CLOSED
	DESCRIPTION: The high-fire NPC should be open when the inducer is not operating. Before any heat cycle can begin, the NPC is tested to confirm the contacts are open. An ignition sequence will not occur if the high-fire NPC remains closed.
	CAUSE:
	1. NPC contacts are welded shut/faulty switch.
	2. Loose or faulty wiring
	SOLUTION:
	1. Replace high-fire NPC.
	2. Check wiring or connections, replace or repair as necessary

57	**High-Fire NEGATIVE PRESSURE CONTROL (NPC) OPEN (230V & 575V ONLY)**
	DESCRIPTION: Furnace will ignite and operate in low-fire mode. Fault display established when thermostat calls for high-fire mode. Inducer high speed is energized and will remain on high speed for 60 seconds in an attempt to close high fire pressure switch. If pressure switch does not close after 60 seconds the inducer will drop to low speed and furnace will continue operation at low fire until high fire pressure switch closes or thermostat demand is satisfied.
	CAUSE:
	1. Faulty inducer or tap pressure inadequate to close high-fire NPC
	2. Faulty Core Command
	3. Loose or faulty wiring.
	4. Disconnected, blocked, split or cut pressure switch hose.
	5. Severe wind gusts (sporadic)
	6. Faulty high fire pressure switch
	SOLUTION:
	1. Repair or replace inducer. Check inducer pressure to confirm negative pressure is adequate to close pressure switch.
	2. Replace Core Command after confirming that NPC contacts are closed while inducer is running.
	3. Check NPC wiring and connections to Core Command.
	4. Confirm pressure switch hose is attached to pressure port on IDM and port on pressure switch. Confirm there is no split or cut in hose.
	5. Consider using the flue hood accessory.
	6. Replace pressure switch.

N. DIAGNOSTICS

Fault Codes with Descriptions and Solutions:

61	BLOWER FAULT - MOTOR CANNOT RUN
	DESCRIPTION: This is a critical blower fault- such as an internal thermal overload that prevents the motor from running. Furnace will shut down if this fault occurs during heating operation. No other operations, including thermostat calls, will occur until this fault is cleared. This fault will occur during heating operation after the main limit control has been open for more than 150 seconds (2 min:30 sec.). If this happens, the Core Command determines that the motor is not functional and enters a hard lockout condition requiring repair of the motor and manual reset of power to the furnace.
	CAUSE:
	1. The motor has tripped on thermal overload because of a restriction or bearing failure.
	2. Wiring to the motor has become compromised.
	3. The blower wheel has become damaged or is not properly attached to the motor shaft.
	4. The motor has failed catastrophically.
	SOLUTION:
	1. Remove restriction or replace motor
	2. Inspect and replace or repair wiring and/or connections to the motor
	3. Replace blower wheel and/or attach wheel to motor shaft properly.
	4. Replace motor.

Fault Codes with Descriptions and Solutions:

460V NEGATIVE PRESSURE CONTROL FAULTS	
55 & 44	**NEGATIVE PRESSURE CONTROL (NPC) CLOSED**
	460V furnace uses a single-speed inducer and one pressure switch for low and high-fire operation. The NPC should be open when the inducer is not operating.
	DESCRIPTION: Before any heat cycle can begin, the NPC is tested to confirm the contacts are open. An ignition sequence will not occur if the NPC remains closed. Core Command will flash a “55” & “44” fault code (230V & 460V units use same Core Command, “44” is normal under this scenario).
	See **CAUSE** and **SOLUTION** for fault code “55” above.
57 & 46	**NEGATIVE PRESSURE CONTROL (NPC) OPEN**
	DESCRIPTION: The inducer will run for 20 seconds in an attempt to close the pressure switch. At that time the Core Command will flash a “57” & “46” fault code (230V & 460V units use same Core Command, “46” is normal under this scenario). Inducer will continue to run an additional 40 seconds before being de-energized. After a five minute period the Core Command will make another attempt to close the pressure switch. This cycle will repeat until the pressure switch closes or call for heat is removed.
	See **CAUSE** and **SOLUTION** for fault code “57” above.

N.2.3. Phase Monitoring (Cont.)

Non-DDC Units:

• The Phase Monitor is connected to the contactor.

• When a phase monitoring fault occurs, the system will go into a shutdown.

• For phase monitoring, diagnostics, consider checking the following:

1. Compressor fuse is open to one phase.
2. Broken wire or connector on one phase.
3. Compressor motor winding is damaged.
4. Utility supply has dropped one phase.

N. DIAGNOSTICS

N.2.5.1. Yaskawa VFD Codes

Some units come equipped with a Yaskawa V1000 Variable Frequency Drive attached to the blower assembly in the blower motor compartment.

When the drive detects a fault, the ALM indicator LED remains lit without flashing. If the LED flashes, the drive has detected a minor fault or alarm. Conditions such as overvoltage or external faults can trip both faults and minor faults, therefore it is important to note whether the LED remains lit or if the LED flashes.

When the control senses a fault present, it will display a code to help in diagnoses. A list of normal operating codes and potential fault codes follows:

Digital Operator Display	Name
bUS	Option Communication Error
CE	MEMOBUS/Mobus Communication Error
CF	Control Fault
CPF02	A/D Conversion Error
CPF07	Terminal Board Communication Fault
CPF08	EEPROM Serial Communications Fault
CPF011	RAM Fault
CPF012	FLASH Memory Fault
CPF013	Watchdog Circuit Exception
CPF014	Control Circuit Fault
CPF016	Clock Fault
CPF017	Timing Fault
CPF018	Control Circuit Fault
CPF019	Control Circuit Fault
CPF020 or CPF21	RAM Fault
	FLASH Memory Fault
	Watchdog Circuit Exception
	Clock Fault
EF0	Option External Fault
EF1 to EF7	External Fault (input terminal S1 to S7)
Err	EEPROM Write Error
GF	Ground Fault
LF	Output Phase Loss
LF2	Current Imbalance
oC	Overcurrent
oH	Heat Sink Overheat
oH1	Heat Sink Overheat
oL1	Motor Overload
oL2	Drive Overload
oL3	Overtorque Detection 1
oL4	Overtorque Detection 2
oL5	Mechanical Weakening Detection 1
oL6	Overvoltage
oL7	Input Phase Loss
oL8	IGBT Short Circuit
oL9	Undervoltage
oL10	Control Power Supply Undervoltage
oL11	Soft Charge Circuit Fault

N.2.5.1. Yaskawa VFD Codes (Cont.)

Digital Operator Display	Name	Minor Fault Output (H2 - □□ = 10)
CE	MEMOBUS/Modbus Communication Error	YES
CrST	Can Not Reset	YES
dnE	Drive Disabled	YES
EF1 to EF7	External Fault (input terminal S1 to S7)	YES
HCA	Current Alarm	YES
LT-1	Cooling Fan Maintenance Alarm	No Output <*1*>
LT-2	Capacitor Maintenance Alarm	No Output <*1*>
LT-3	Soft Charge Bypass Relay Maintenance Time	No Output <*1*>
LT-4	IGBT Maintenance Time (50%)	No Output <*1*>
oH	Heatsink Overheat	YES
oH2	Drive Overheat	YES
oH3	Motor Overheat	YES
oL3	Overtorque 1	YES
oL4	Overtorque 2	YES
oL5	Mechanical Weakening Direction 1	YES
oS	Overspeed (for Simple V/f with PG	YES
oV	Overvoltage	YES
Pgo	PG Disconnect (for Simple V/f with PG)	YES

N.3. Common Mistakes

- These are a list of common mistakes made during installation.
- Drain Pan Connections, drain trap connected to the wrong outlet side, not connected at all, or insufficient trap depth.
- Connecting a W2 call only to try and get full heat all the time, Connect both W1 and W2 together if the job requirement or thermostat is setup for single stage heating.
- Connecting a Y2 call only to try and get full cooling all the time, Connect both Y1 and Y2 together if the job requirement or thermostat is setup for single stage cooling.
- Economizer connections, not installing the 3-wire jumper plug into the economizer wiring harness, if a factory option smoke detector is not used, this will cause a Smoke Detection Fault.

N.2.5.2. Mitsubishi VFD Codes

Some units come equipped with a Mitsubishi FR-E800 Variable Frequency Drive attached to the blower assembly in the blower motor compartment.

When the drive detects a fault, an “E” with a Three Character Fault Code will be displayed on the LED display (Example: E.LUP). The drive may not stop the drive from running unless it is not corrected. The drive will store the last 10 fault codes, a condensed list of fault codes and operating codes can be found below.

More fault codes can be found on the manufacturer’s website. In the blower compartment, on the right side VFD assembly there is a label that gives the model number of the VFD. Use that model number to find the VFD Installation Manual on the manufacturer’s website.

Operation Panel Indication	Code	Name
E.OC1	16 (H10)	Overcurrent trip during acceleration
E.OC2	17 (H11)	Overcurrent trip during constant speed
E.OC3	18 (H12)	Overcurrent trip during deceleration or stop
E.OV1	32 (H20)	Regenerative overvoltage trip during acceleration
E.OV2	33 (H21)	Regenerative overvoltage trip during constant speed
E.OV3	34 (H22)	Regenerative overvoltage trip during deceleration or stop
E.THT	48 (H30)	Inverter overload trip (electronic thermal relay function)
E.THM	49 (H31)	Motor overload trip (electronic thermal relay function)
E.FIN	64 (H40)	Heat sink overheat
E.UVT	81 (H51)	Undervoltage
E.ILF	82 (H52)	Input phase loss
E.OLT	96 (H60)	Stall prevention stop
E.SOT	97 (H61)	Loss of synchronism detection
E.LUP	98 (H62)	Upper limit fault detection
E.LDN	99 (H63)	Lower limit fault detection
E.BE	112 (H70)	Brake transistor alarm detection
E.GF	128 (H80)	Output side earth (ground) fault overcurrent
E.LF	129 (H81)	Output phase loss
E.OHT	144 (H91)	External thermal relay operation
E.PTC	145 (H91)	PTC thermistor operation
E.OPT	160 (HA0)	Option Fault

N.3. Common Mistakes

• These are a list of common mistakes made during installation.

• Drain Pan Connections, drain trap connected to the wrong outlet side, not connected at all, or insufficient trap depth.

• Connecting a W2 call only to try and get full heat all the time, Connect both W1 and W2 together if the job requirement or thermostat is setup for single stage heating.

• Connecting a Y2 call only to try and get full cooling all the time, Connect both Y1 and Y2 together if the job requirement or thermostat is setup for single stage cooling.

• Economizer connections, not installing the 3-wire jumper plug into the economizer wiring harness, if a factory option smoke detector is not used, this will cause a Smoke Detection Fault.

P. APPENDICES

Appendix A – General Product Data

Model RGEG2T Series	180	210	240	300
Cooling Performance[A]				
Gross Cooling Capacity Btu [kW]	178,000 [52.15]	208,000 [60.94]	236,000 [69.15]	296,000 [86.73]
EER	10.8	10.8	10.8	9.8
IEER[B]	14	14	14	13
Nominal CFM/AHRI Rated CFM [L/s]	6000/6100 [2831/2879]	7000/6900 [3303/3256]	8000/7300 [3775/3445]	10000/8400 [4719/3964]
AHRI Net Cooling Capacity Btu [kW]	172,000 [50.4]	200,000 [58.6]	228,000 [66.8]	285,000 [85.53]
Net Sensible Capacity Btu [kW]	115,570 [33.86]	133,970 [39.25]	152,760 [44.76]	189,950 [55.65]
Net Latent Capacity Btu [kW]	56,430 [16.53]	66,030 [19.35]	75,240 [22.05]	95,050 [27.86]
Net System Power kW	16.4	19.2	22	30.4
Heating Performance (Gas)[C]				
Heating Input Btu [kW] (2nd Stage)	320,000 [/93.76]	320,000 [93.76]	400,000 [117.2]	400,000 [117.2]
Heating Output Btu [kW] (2nd Stage)	259,200 [75.94]	259,200 [75.94]	323,000 [94.64]	323,000 [94.64]
Temperature Rise Range °F [°C] (2nd Stage)	25-55 [13.9-30.6]	25-55 [13.9-30.6]	25-55 [13.9-30.6]	25-55 [13.9-30.6]
Steady State Efficiency (%)	81	81	81	81
No. Burners	8	8	8	8
No. Stages	2	2	2	2
Gas Connection Pipe Size in. [mm]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Compressor				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Face Area sq. ft. [sq. m]	36.3 [3.37]	46.2 [4.29]	46.2 [4.29]	46.2 [4.29]
Rows / FPI [FPcm]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	1 [25.4]	1 [25.4]	1.25 [31.8]	1.25 [31.8]
Face Area sq. ft. [sq. m]	23.8 [2.21]	23.8 [2.21]	23.8 [2.21]	23.8 [2.21]
Rows / FPI [FPcm]	1 / 18 [7]	1 / 18 [7]	1 / 18 [7]	1 / 18 [7]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
Outdoor Fan - Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	2/24 [609.6]	2/30 [762]	2/30 [762]	2/30 [762]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	12000 [5663]	14000 [6607]	16800 [7928]	19000 [8966]
No. Motors/HP	2 at 3/4 HP	2 at 1 1/2 HP	2 at 1 1/2 HP	2 at 1 1/2 HP
Motor RPM	1130	1140	1140	1140
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	2/15x15 [381x381]	2/15x15 [381x381]	2/15x15 [381x381]	2/15x15 [381x381]
Drive Type	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)
No. Speeds	Single	Single	Single	Single
No. Motors	1	1	1	1
Motor HP[D]	Varies	Varies	Varies	Varies
Filter - Type	Disposable	Disposable	Disposable	Disposable
Furnished	Yes	Yes	Yes	Yes
(NO.) Size Recommended in. [mm x mm x mm]	(8)2x24x20 [51x610x508]	(8)2x24x20 [51x610x508]	(8)2x24x20 [51x610x508]	(8)2x24x20 [51x610x508]
Refrigerant Charge Oz. [g] Circuit 1/Circuit 2	192/192 [5443/5443]	205/205 [5812/5812]	205/205 [5812/5812]	224/224 [6350/6350]
Weights				
Net Weight lbs. [kg]	2030 [921]	2100 [952]	2120 [962]	2190 [993]
Ship Weight lbs. [kg]	2130 [966]	2180 [989]	2220 [1007]	2290 [1039]
Max. Ship Weight lbs. [kg]	2800 [1270]	2870 [1301]	2890 [1310]	2960 [1342]
Max Installed Weight lbs. [kg]	2700 [1224]	2770 [1256]	2790 [1265]	2860 [1297]

Note: Please look at the rating plates pasted on the side of the unit to understand the model number of your unit.

Appendix A – General Product Data

A. Cooling Performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of fan motor heat. AHRI capacity is net and includes the effect of fan motor heat. Units are suitable for operation to • 20% of nominal CFM. Units are certified in accordance with the Unitary Air Conditioner Equipment certification program, which is based on AHRI Standard 210/240.

B. EER and Integrated Energy Efficiency Ration (IEER) is rated in accordance with AHRI Standard 340/360.

C. Heating Performance limit settings and rating data were established and approved under laboratory test conditions using American National Institute Standards. Ratings shown are for elevation 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. See the Gas Heat Performance tables for more unit information.

D. Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

E. See Airflow Performance tables for motor horsepower and more Indoor Fan information.

P. APPENDICES

Appendix B – Electrical Data

ELECTRICAL DATA - RGEG2T SERIES WITHOUT POWERED EXHAUST										
		180ACF	**180ACG**	**180ACH**	**180ADF**	**180ADG**	**180ADH**	**180AYF**	**180AYG**	**180AYH**
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	414-506	517-633	517-633	517-633
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	Hz	60	60	60	60	60	60	60	60	60
	Minimum Circuit Ampacity	74/74	79/79	80/80	38	40	40	28	30	30
	Minimum Overcurrent Protection Device Size	90/90	90/90	90/90	45	45	45	30	35	35
	Maximum Overcurrent Protection Device Size	90/90	100/100	100/100	50	50	50	35	35	35
Compressor Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	200/230	200/230	200/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	RPM	3500	3500	3500	3500	3500	3500	3500	3500	3500
	HP, Compressor 1	6	6	6	6	6	6	6	6	6
	Amps (RLA), Comp. 1	25	25	25	12.8	12.8	12.8	9.6	9.6	9.6
	Amps (LRA), Comp. 1	164	164	164	100	100	100	78	78	78
	HP, Compressor 2	6	6	6	6	6	6	6	6	6
	Amps (RLA), Comp. 2	25	25	25	12.8	12.8	12.8	9.6	9.6	9.6
	Amps (LRA), Comp. 2	164	164	164	100	100	100	78	78	78
Condenser Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	1	1	1	1	1	1	1	1	1
	HP	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
	Amps (FLA, each)	4.2	4.2	4.2	2.3	2.3	2.3	1.2	1.2	1.2
	Amps (LRA, each)	10.1	10.1	10.1	4.9	4.9	4.9	3.4	3.4	3.4
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	3	5	5	3	5	5	3	5	5
	Amps (FLA, each)	9.2	13.6	13.6	4.6	6.3	6.3	3.5	5.1	5.1
	Amps (LRA, each)	74.5	95.0	95.0	38.1	47.5	47.5	30.0	38.0	38.0

Appendix B – Electrical Data (Cont.)

ELECTRICAL DATA - RGEG2T SERIES WITH POWERED EXHAUST										
		180ACF	**180ACG**	**180ACH**	**180ADF**	**180ADG**	**180ADH**	**180AYF**	**180AYG**	**180AYH**
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	414-506	517-633	517-633	517-633
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	Hz	60	60	60	60	60	60	60	60	60
	Minimum Circuit Ampacity	79/79	83/83	85/85	40	42	42	30	31	31
	Minimum Overcurrent Protection Device Size	90/90	90/90	100/100	45	45	45	35	35	35
	Maximum Overcurrent Protection Device Size	100/100	100/100	100/100	50	50	50	35	40	40
Compressor Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	200/230	200/230	200/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	RPM	3500	3500	3500	3500	3500	3500	3500	3500	3500
	HP, Compressor 1	6	6	6	6	6	6	6	6	6
	Amps (RLA), Comp. 1	25	25	25	12.8	12.8	12.8	9.6	9.6	9.6
	Amps (LRA), Comp. 1	164	164	164	100	100	100	78	78	78
	HP, Compressor 2	6	6	6	6	6	6	6	6	6
	Amps (RLA), Comp. 2	25	25	25	12.8	12.8	12.8	9.6	9.6	9.6
	Amps (LRA), Comp. 2	164	164	164	100	100	100	78	78	78
Condenser Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	1	1	1	1	1	1	1	1	1
	HP	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
	Amps (FLA, each)	4.2	4.2	4.2	2.3	2.3	2.3	1.2	1.2	1.2
	Amps (LRA, each)	10.1	10.1	10.1	4.9	4.9	4.9	3.4	3.4	3.4
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	3	5	5	3	5	5	3	5	5
	Amps (FLA, each)	9.2	13.6	13.6	4.6	6.3	6.3	3.5	5.1	5.1
	Amps (LRA, each)	74.5	95.0	95.0	38.1	47.5	47.5	30.0	38.0	38.0

P. APPENDICES

Appendix B – Electrical Data (Cont.)

ELECTRICAL DATA - RGEG2T SERIES WITHOUT POWERED EXHAUST										
		210ACF	**210ACG**	**210ACH**	**210ADF**	**210ADG**	**210ADH**	**210AYF**	**210AYG**	**210AYH**
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	414-506	517-633	517-633	517-633
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	Hz	60	60	60	60	60	s	60	60	60
	Minimum Circuit Ampacity	83/83	87/87	95/95	39	41	44	30	32	34
	Minimum Overcurrent Protection Device Size	90/90	100/100	110/110	45	45	50	35	35	40
	Maximum Overcurrent Protection Device Size	100/100	110/110	110/110	50	50	50	35	40	40
Compressor Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	200/230	200/230	200/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	RPM	3500	3500	3500	3500	3500	3500	3500	3500	3500
	HP, Compressor 1	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2
	Amps (RLA), Comp. 1	27.6	27.6	27.6	12.8	12.8	12.8	9.6	9.6	9.6
	Amps (LRA), Comp. 1	191	191	191	100	100	100	78	78	78
	HP, Compressor 2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2
	Amps (RLA), Comp. 2	27.6	27.6	27.6	12.8	12.8	12.8	9.6	9.6	9.6
	Amps (LRA), Comp. 2	191	191	191	100	100	100	78	78	78
Condenser Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
	Amps (FLA, each)	5.5	5.5	5.5	2.7	2.7	2.7	2.2	2.2	2.2
	Amps (LRA, each)	28.6	28.6	28.6	14.3	14.3	14.3	11	11	11
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	3	5	7.5	3	5	7.5	3	5	7.5
	Amps (FLA, each)	9.2	13.6	21	4.6	6.3	9.6	3.5	5.1	7.7
	Amps (LRA, each)	74.5	95	127	38.1	47.5	63.5	30.0	38.0	50.8

Appendix B – Electrical Data (Cont.)

ELECTRICAL DATA - RGEG2T SERIES WITH POWERED EXHAUST										
		210ACF	**210ACG**	**210ACH**	**210ADF**	**210ADG**	**210ADH**	**210AYF**	**210AYG**	**210AYH**
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	414-506	517-633	517-633	517-633
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	Hz	60	60	60	60	60	60	60	60	60
	Minimum Circuit Ampacity	87/87	92/92	99/99	41	43	46	32	33	36
	Minimum Overcurrent Protection Device Size	100/100	100/100	110/110	45	50	50	35	40	40
	Maximum Overcurrent Protection Device Size	110/110	110/110	125/125	50	50	50	40	40	45
Compressor Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	200/230	200/230	200/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	RPM	3500	3500	3500	3500	3500	3500	3500	3500	3500
	HP, Compressor 1	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2
	Amps (RLA), Comp. 1	27.6	27.6	27.6	12.8	12.8	12.8	9.6	9.6	9.6
	Amps (LRA), Comp. 1	191	191	191	100	100	100	78	78	78
	HP, Compressor 2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2
	Amps (RLA), Comp. 2	27.6	27.6	27.6	12.8	12.8	12.8	9.6	9.6	9.6
	Amps (LRA), Comp. 2	191	191	191	100	100	100	78	78	78
Condenser Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
	Amps (FLA, each)	5.5	5.5	5.5	2.7	2.7	2.7	2.2	2.2	2.2
	Amps (LRA, each)	28.6	28.6	28.6	14.3	14.3	14.3	11	11	11
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	3	5	7.5	3	5	7.5	3	5	7.5
	Amps (FLA, each)	9.2	13.6	21	4.6	6.3	9.6	3.5	5.1	7.7
	Amps (LRA, each)	74.5	95	127	38.1	47.5	63.5	30.0	38.0	50.8

P. APPENDICES

Appendix B – Electrical Data (Cont.)

ELECTRICAL DATA - RGEG2T SERIES WITHOUT POWERED EXHAUST										
		240ACF	**240ACG**	**240ACH**	**240ADF**	**240ADG**	**240ADH**	**240AYF**	**240AYG**	**240AYH**
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	414-506	517-633	517-633	517-633
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	Hz	60	60	60	60	60	60	60	60	60
	Minimum Circuit Ampacity	89/89	89/89	96/96	45	45	49	35	35	38
	Minimum Overcurrent Protection Device Size	100/100	100/100	110/110	50	50	60	40	40	45
	Maximum Overcurrent Protection Device Size	110/110	110/110	110/110	60	60	60	45	45	50
Compressor Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	200/230	200/230	200/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	RPM	3500	3500	3500	3500	3500	3500	3500	3500	3500
	HP, Compressor 1	10	10	10	10	10	10	10	10	10
	Amps (RLA), Comp. 1	28.2	28.2	28.2	14.7	14.7	14.7	11.3	11.3	11.3
	Amps (LRA), Comp. 1	240	240	240	130	130	130	93.7	93.7	93.7
	HP, Compressor 2	10	10	10	10	10	10	10	10	10
	Amps (RLA), Comp. 2	28.2	28.2	28.2	14.7	14.7	14.7	11.3	11.3	11.3
	Amps (LRA), Comp. 2	240	240	240	130	130	130	93.7	93.7	93.7
Condenser Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
	Amps (FLA, each)	5.5	5.5	5.5	2.7	2.7	2.7	2.2	2.2	2.2
	Amps (LRA, each)	28.6	28.6	28.6	14.3	14.3	14.3	11	11	11
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	5	5	7.5	5	5	7.5	5	5	7.5
	Amps (FLA, each)	13.6	13.6	21	6.3	6.3	9.6	5.1	5.1	7.7
	Amps (LRA, each)	95	95	127	47.5	47.5	63.5	38.0	38.0	50.8

Appendix B – Electrical Data (Cont.)

ELECTRICAL DATA - RGEG2T SERIES WITH POWERED EXHAUST										
		240ACF	**240ACG**	**240ACH**	**240ADF**	**240ADG**	**240ADH**	**240AYF**	**240AYG**	**240AYH**
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	414-506	517-633	517-633	517-633
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	Hz	60	60	60	60	60	60	60	60	60
	Minimum Circuit Ampacity	93/93	93/93	101/101	47	47	50	37	37	40
	Minimum Overcurrent Protection Device Size	100/100	100/100	110/110	50	50	60	40	40	45
	Maximum Overcurrent Protection Device Size	110/110	110/110	125/125	60	60	60	45	45	50
Compressor Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	200/230	200/230	200/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	RPM	3500	3500	3500	3500	3500	3500	3500	3500	3500
	HP, Compressor 1	10	10	10	10	10	10	10	10	10
	Amps (RLA), Comp. 1	28.2	28.2	28.2	14.7	14.7	14.7	11.3	11.3	11.3
	Amps (LRA), Comp. 1	240	240	240	130	130	130	93.7	93.7	93.7
	HP, Compressor 2	10	10	10	10	10	10	10	10	10
	Amps (RLA), Comp. 2	28.2	28.2	28.2	14.7	14.7	14.7	11.3	11.3	11.3
	Amps (LRA), Comp. 2	240	240	240	130	130	130	93.7	93.7	93.7
Condenser Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
	Amps (FLA, each)	5.5	5.5	5.5	2.7	2.7	2.7	2.2	2.2	2.2
	Amps (LRA, each)	28.6	28.6	28.6	14.3	14.3	14.3	11	11	11
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	5	5	7.5	5	5	7.5	5	5	7.5
	Amps (FLA, each)	13.6	13.6	21	6.3	6.3	9.6	5.1	5.1	7.7
	Amps (LRA, each)	95	95	127	47.5	47.5	63.5	38.0	38.0	50.8

P. APPENDICES

Appendix B – Electrical Data (Cont.)

ELECTRICAL DATA - RGEG2T SERIES WITHOUT POWERED EXHAUST										
		300ACF	**300ACG**	**300ACH**	**300ADF**	**300ADG**	**300ADH**	**300AYF**	**300AYG**	**300AYH**
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	414-506	517-633	517-633	517-633
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	Hz	60	60	60	60	60	60	60	60	60
	Minimum Circuit Ampacity	141/141	147/147	147/147	57	60	60	46	48	48
	Minimum Overcurrent Protection Device Size	175/175	175/175	175/175	70	70	70	60	60	60
	Maximum Overcurrent Protection Device Size	175/175	175/175	175/175	70	70	70	60	60	60
Compressor Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	200/230	200/230	200/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	RPM	3500	3500	3500	3500	3500	3500	3500	3500	3500
	HP, Compressor 1	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2
	Amps (RLA), Comp. 1	48.1	48.1	48.1	18.6	18.6	18.6	14.7	14.7	14.7
	Amps (LRA), Comp. 1	245	245	245	125	125	125	100	100	100
	HP, Compressor 2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2
	Amps (RLA), Comp. 2	48.1	48.1	48.1	18.6	18.6	18.6	14.7	14.7	14.7
	Amps (LRA), Comp. 2	245	245	245	125	125	125	100	100	100
Condenser Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
	Amps (FLA, each)	5.5	5.5	5.5	2.7	2.7	2.7	2.2	2.2	2.2
	Amps (LRA, each)	28.6	28.6	28.6	14.3	14.3	14.3	11	11	11
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	7.5	10	10	7.5	10	10	7.5	10	10
	Amps (FLA, each)	21	27	27	9.6	12.5	12.5	7.7	10	10
	Amps (LRA, each)	127	152	152	63.5	76	76	50.8	60.8	60.8

Appendix B – Electrical Data (Cont.)

ELECTRICAL DATA - RGEG2T SERIES WITH POWERED EXHAUST										
		300ACF	**300ACG**	**300ACH**	**300ADF**	**300ADG**	**300ADH**	**300AYF**	**300AYG**	**300AYH**
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	414-506	517-633	517-633	517-633
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	Hz	60	60	60	60	60	60	60	60	60
	Minimum Circuit Ampacity	145/145	151/151	152/152	59	62	62	48	50	50
	Minimum Overcurrent Protection Device Size	175/175	175/175	175/175	70	70	70	60	60	60
	Maximum Overcurrent Protection Device Size	175/175	175/175	175/175	70	70	70	60	60	60
Compressor Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	200/230	200/230	200/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	RPM	3500	3500	3500	3500	3500	3500	3500	3500	3500
	HP, Compressor 1	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2
	Amps (RLA), Comp. 1	48.1	48.1	48.1	18.6	18.6	18.6	14.7	14.7	14.7
	Amps (LRA), Comp. 1	245	245	245	125	125	125	100	100	100
	HP, Compressor 2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2
	Amps (RLA), Comp. 2	48.1	48.1	48.1	18.6	18.6	18.6	14.7	14.7	14.7
	Amps (LRA), Comp. 2	245	245	245	125	125	125	100	100	100
Condenser Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
	Amps (FLA, each)	5.5	5.5	5.5	2.7	2.7	2.7	2.2	2.2	2.2
	Amps (LRA, each)	28.6	28.6	28.6	14.3	14.3	14.3	11	11	11
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	7.5	10	10	7.5	10	10	7.5	10	10
	Amps (FLA, each)	21	27	27	9.6	12.5	12.5	7.7	10	10
	Amps (LRA, each)	127	152	152	63.5	76	76	50.8	60.8	60.8

AIRFLOW PERFORMANCE - 15 TON [52.7 kW] - 60 Hz - SIDEFLOW

Air Flow	Model RGEG2T180A - Sideflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																																			
	External Static Pressure - Inches of Water [kPa]																																			
CFM [L/s]	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4800 [2265]	–	–	–	–	–	–	–	–	667	1.55	705	1.70	741	1.86	775	2.04	806	2.24	833	2.49	860	2.73	886	2.93	912	3.11	937	3.25	962	3.36	986	3.44	1009	3.49	1031	3.50	1053	3.48	1074	3.43
4900 [2312]	–	–	–	–	–	–	–	–	672	1.58	710	1.74	745	1.91	778	2.09	809	2.30	837	2.57	864	2.81	890	3.02	916	3.19	941	3.33	966	3.44	990	3.52	1013	3.57	1035	3.58	1057	3.56	1078	3.51
5000 [2359]	–	–	–	–	–	–	–	–	677	1.62	714	1.78	749	1.96	782	2.15	812	2.36	841	2.66	868	2.90	895	3.10	920	3.28	945	3.42	970	3.52	994	3.60	1017	3.65	1039	3.66	1061	3.64	1082	3.59
5100 [2407]	–	–	–	–	–	–	643	1.50	682	1.66	718	1.83	753	2.01	785	2.21	815	2.43	845	2.75	872	2.99	899	3.19	924	3.36	950	3.50	974	3.61	998	3.68	1021	3.73	1043	3.74	1065	3.72	1086	3.67
5200 [2454]	–	–	–	–	–	–	648	1.54	687	1.70	723	1.88	757	2.07	789	2.28	819	2.50	850	2.84	877	3.07	903	3.28	929	3.45	954	3.58	978	3.69	1002	3.77	1025	3.81	1047	3.82	1069	3.80	1090	3.74
5300 [2501]	–	–	–	–	–	–	653	1.58	692	1.75	727	1.94	761	2.14	792	2.35	822	2.58	854	2.93	881	3.16	907	3.36	933	3.53	958	3.67	982	3.78	1006	3.85	1029	3.89	1052	3.90	1073	3.88	1094	3.82
5400 [2548]	–	–	–	–	–	–	659	1.63	697	1.81	732	2.00	765	2.20	796	2.42	825	2.66	858	3.02	885	3.25	911	3.45	937	3.62	962	3.76	987	3.86	1010	3.93	1033	3.97	1056	3.98	1077	3.96	1099	3.90
5500 [2595]	–	–	–	–	–	–	664	1.68	702	1.86	737	2.06	769	2.27	800	2.50	828	2.75	863	3.11	890	3.34	916	3.54	941	3.71	966	3.84	991	3.95	1015	4.02	1038	4.06	1060	4.06	1082	4.04	–	–
5600 [2643]	–	–	–	–	–	–	670	1.73	707	1.92	741	2.13	773	2.35	803	2.58	831	2.84	867	3.20	894	3.43	920	3.63	946	3.79	971	3.93	995	4.03	1019	4.10	1042	4.14	1064	4.15	1086	4.12	–	–
5700 [2690]	–	–	–	–	–	–	676	1.79	712	1.99	746	2.20	778	2.43	807	2.67	844	3.03	872	3.29	898	3.52	925	3.72	950	3.88	975	4.02	1000	4.12	1023	4.19	1046	4.23	1069	4.23	1090	4.20	–	–
5800 [2737]	–	–	–	–	643	1.67	681	1.85	717	2.06	750	2.28	782	2.51	811	2.76	849	3.12	876	3.38	903	3.61	929	3.81	955	3.97	980	4.10	1004	4.21	1028	4.27	1051	4.31	1073	4.31	1095	4.29	–	–
5900 [2784]	–	–	–	–	649	1.73	687	1.92	722	2.13	755	2.36	786	2.60	815	2.86	853	3.22	881	3.48	908	3.70	934	3.90	959	4.06	984	4.19	1009	4.29	1032	4.36	1055	4.40	1078	4.40	1099	4.37	–	–
6000 [2831]	–	–	–	–	655	1.79	692	1.99	727	2.21	760	2.44	790	2.69	818	2.95	858	3.31	885	3.57	912	3.80	938	3.99	964	4.15	989	4.28	1013	4.38	1037	4.45	1060	4.48	1082	4.49	–	–	–	–
6100 [2878]	–	–	–	–	661	1.86	698	2.07	732	2.29	765	2.53	794	2.79	822	3.06	863	3.41	890	3.66	917	3.89	943	4.08	969	4.24	994	4.37	1018	4.47	1041	4.54	1064	4.57	1087	4.57	–	–	–	–
6200 [2926]	–	–	–	–	668	1.93	704	2.14	738	2.38	769	2.62	799	2.88	826	3.16	867	3.50	895	3.76	922	3.98	948	4.18	973	4.34	998	4.46	1022	4.56	1046	4.63	1069	4.66	1091	4.66	–	–	–	–
6300 [2973]	–	–	–	–	674	2.00	709	2.23	743	2.47	774	2.72	803	2.99	830	3.27	872	3.60	900	3.85	926	4.08	953	4.27	978	4.43	1003	4.56	1027	4.65	1051	4.71	1074	4.75	1096	4.75	–	–	–	–
6400 [3020]	–	–	643	1.87	680	2.08	715	2.31	748	2.56	779	2.82	807	3.10	834	3.39	877	3.70	905	3.95	931	4.17	957	4.36	983	4.52	1008	4.65	1032	4.74	1056	4.80	1078	4.84	–	–	–	–	–	–
6500 [3067]	–	–	649	1.95	686	2.17	721	2.40	753	2.66	784	2.92	812	3.21	854	3.51	882	3.79	909	4.05	936	4.27	962	4.46	988	4.61	1013	4.74	1037	4.83	1060	4.90	1083	4.93	–	–	–	–	–	–
6600 [3114]	–	–	656	2.03	692	2.25	727	2.50	759	2.76	789	3.03	816	3.32	859	3.61	887	3.89	914	4.14	941	4.36	967	4.55	993	4.71	1018	4.83	1042	4.93	1065	4.99	1088	5.02	–	–	–	–	–	–
6700 [3162]	–	–	663	2.11	699	2.35	733	2.60	764	2.86	794	3.15	821	3.44	864	3.71	892	3.99	919	4.24	946	4.46	972	4.65	998	4.80	1022	4.93	1047	5.02	1070	5.08	1093	5.11	–	–	–	–	–	–
6800 [3209]	–	–	670	2.20	705	2.44	738	2.70	770	2.97	798	3.26	825	3.57	869	3.81	897	4.09	925	4.34	951	4.56	977	4.75	1003	4.90	1028	5.02	1052	5.11	1075	5.17	1098	5.20	–	–	–	–	–	–
6900 [3256]	639	2.06	676	2.29	711	2.54	744	2.81	775	3.09	803	3.38	830	3.70	874	3.91	902	4.19	930	4.44	956	4.66	982	4.84	1008	5.00	1033	5.12	1057	5.21	1080	5.26	–	–	–	–	–	–	–	–
7000 [3303]	646	2.15	683	2.39	718	2.65	750	2.92	780	3.21	808	3.51	851	3.70	879	4.01	907	4.29	935	4.54	962	4.76	988	4.94	1013	5.09	1038	5.21	1062	5.30	1085	5.36	–	–	–	–	–	–	–	–
7100 [3350]	654	2.24	690	2.49	724	2.75	756	3.03	786	3.33	813	3.64	856	3.80	885	4.11	913	4.39	940	4.64	967	4.86	993	5.04	1018	5.19	1043	5.31	1067	5.40	1090	5.45	–	–	–	–	–	–	–	–
7200 [3398]	661	2.34	697	2.60	731	2.87	762	3.15	791	3.45	818	3.77	861	3.91	890	4.22	918	4.49	945	4.74	972	4.96	998	5.14	1023	5.29	1048	5.41	1072	5.49	1096	5.55	–	–	–	–	–	–	–	–

NOTE: F-Drive left of bold line, G-Drive right of bold line.

Drive Package	F							G							H						
Motor H.P. [W]	3 [2237.1]							5 [3728.5]							5 [3728.5]						
Motor RPM	1725							1755							1755						
Blower Sheave	BK90H							BK95H							BK90H						
Motor Frame Size	56							184							184						
Motor Sheave	1VL44							1VP56							1VP56						
Turns Open	0	1	2	**3**	4	5	6	0	1	2	3	**4**	5	6	0	1	2	3	**4**	5	6
RPM	|	813	777	**745**	712	681	645	|	1012	985	949	**912**	881	844	|	1052	1016	983	**952**	916	878

NOTES: 1. Factory sheave settings are shown in bold type.

2. Do not set motor sheave below minimum or maximum turns open shown.

3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure

4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.

5. An RPM meter must be used to receive an accurate airflow reading.

AIRFLOW PERFORMANCE - 15 TON [52.7 kW] - 6Hz - DOWNFLOW

Air Flow	Model RGEG2T180A - Donwflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																																			
	External Static Pressure - Inches of Water [kPa]																																			
CFM [L/s]	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4800 [2265]	–	–	–	–	–	–	–	–	650	1.54	688	1.66	726	1.83	762	2.04	797	2.30	827	2.48	858	2.63	886	2.78	913	2.93	939	3.08	963	3.22	985	3.37	1005	3.52	1024	3.67	1045	3.75	1066	3.90
4900 [2312]	–	–	–	–	–	–	–	–	655	1.56	693	1.70	729	1.88	765	2.10	800	2.37	831	2.54	862	2.69	890	2.85	917	3.00	942	3.16	966	3.31	988	3.46	1008	3.61	1027	3.77	1049	3.87	1070	4.03
5000 [2359]	–	–	–	–	–	–	–	–	659	1.59	697	1.73	733	1.92	769	2.16	804	2.44	835	2.60	865	2.76	894	2.92	920	3.08	945	3.24	969	3.40	990	3.55	1011	3.71	1029	3.87	1052	3.99	1073	4.16
5100 [2407]	–	–	–	–	–	–	625	1.51	664	1.62	701	1.78	737	1.98	773	2.22	808	2.50	840	2.67	869	2.83	897	3.00	924	3.16	949	3.32	972	3.49	993	3.65	1013	3.81	1035	3.95	1056	4.12	1077	4.30
5200 [2454]	–	–	–	–	–	–	630	1.53	668	1.66	705	1.82	741	2.03	777	2.29	813	2.56	844	2.73	873	2.90	901	3.07	927	3.24	952	3.41	975	3.58	996	3.75	1016	3.91	1038	4.07	1060	4.25	1081	4.44
5300 [2501]	–	–	–	–	–	–	635	1.56	673	1.70	710	1.88	745	2.10	780	2.36	817	2.63	848	2.80	877	2.98	905	3.15	931	3.33	955	3.50	978	3.67	999	3.84	1018	4.01	1042	4.19	1064	4.38	1084	4.58
5400 [2548]	–	–	–	–	–	–	640	1.60	677	1.74	714	1.93	750	2.16	784	2.44	821	2.69	852	2.87	881	3.05	908	3.23	934	3.41	958	3.59	981	3.77	1002	3.94	1021	4.12	1046	4.32	1067	4.52	1088	4.72
5500 [2595]	–	–	–	–	–	–	645	1.64	682	1.79	718	1.99	754	2.24	788	2.52	826	2.76	856	2.95	885	3.13	912	3.32	938	3.50	962	3.68	984	3.86	1005	4.05	1024	4.23	1050	4.45	1071	4.65	1092	4.87
5600 [2643]	–	–	–	–	–	–	650	1.68	687	1.85	723	2.06	758	2.31	792	2.61	830	2.83	860	3.02	889	3.21	916	3.40	941	3.59	965	3.78	987	3.96	1008	4.15	1026	4.34	1054	4.58	1075	4.79	1096	5.02
5700 [2690]	–	–	–	–	–	–	655	1.73	692	1.91	727	2.13	762	2.39	796	2.70	834	2.91	864	3.10	893	3.29	920	3.49	945	3.68	968	3.87	990	4.07	1010	4.26	1029	4.45	1057	4.71	1079	4.94	1100	5.17
5800 [2737]	–	–	–	–	623	1.65	660	1.79	696	1.97	732	2.20	767	2.48	800	2.79	839	2.98	868	3.18	897	3.38	923	3.58	948	3.77	972	3.97	993	4.17	1013	4.36	1039	4.62	1061	4.85	1083	5.09	–	–
5900 [2784]	–	–	–	–	628	1.69	665	1.85	701	2.04	737	2.28	771	2.57	812	2.85	843	3.06	873	3.26	901	3.46	927	3.67	952	3.87	975	4.07	996	4.27	1016	4.47	1043	4.75	1065	4.99	1087	5.24	–	–
6000 [2831]	–	–	–	–	633	1.75	670	1.91	706	2.12	741	2.37	775	2.66	816	2.92	847	3.13	877	3.34	905	3.55	931	3.76	955	3.97	978	4.17	999	4.38	1019	4.59	1047	4.89	1069	5.13	1090	5.39	–	–
6100 [2878]	–	–	–	–	639	1.81	676	1.98	711	2.20	746	2.46	780	2.76	821	3.00	852	3.21	881	3.43	909	3.64	934	3.86	959	4.07	982	4.28	1003	4.49	1022	4.70	1051	5.03	1073	5.28	1094	5.54	–	–
6200 [2926]	–	–	–	–	644	1.87	681	2.05	716	2.28	751	2.55	784	2.87	825	3.08	856	3.30	885	3.52	912	3.73	938	3.95	962	4.17	985	4.39	1006	4.60	1025	4.82	1055	5.17	1077	5.43	1098	5.70	–	–
6300 [2973]	–	–	–	–	650	1.93	686	2.13	721	2.37	756	2.65	789	2.97	830	3.16	860	3.38	889	3.60	916	3.83	942	4.05	966	4.27	988	4.49	1009	4.71	1028	4.93	1059	5.31	1081	5.58	–	–	–	–
6400 [3020]	–	–	–	–	656	2.01	692	2.21	727	2.46	761	2.75	794	3.09	835	3.24	865	3.47	893	3.70	920	3.92	946	4.15	969	4.38	992	4.60	1012	4.83	1040	5.18	1063	5.46	1085	5.74	–	–	–	–
6500 [3067]	–	–	625	1.91	661	2.08	697	2.30	732	2.56	765	2.86	798	3.20	839	3.32	869	3.56	898	3.79	924	4.02	950	4.25	973	4.49	995	4.72	1015	4.95	1044	5.32	1067	5.61	1089	5.90	–	–	–	–
6600 [3114]	–	–	631	1.98	667	2.16	702	2.39	737	2.66	770	2.97	812	3.17	844	3.41	874	3.65	902	3.88	928	4.12	953	4.36	977	4.60	998	4.83	1018	5.07	1048	5.47	1071	5.76	1093	6.06	–	–	–	–
6700 [3162]	–	–	637	2.06	673	2.25	708	2.48	742	2.76	775	3.09	817	3.25	848	3.49	878	3.74	906	3.98	932	4.22	957	4.47	980	4.71	1002	4.95	1021	5.19	1052	5.61	1075	5.91	1097	6.22	–	–	–	–
6800 [3209]	606	1.98	643	2.14	679	2.34	714	2.58	748	2.87	781	3.21	822	3.33	853	3.58	882	3.83	910	4.08	936	4.33	961	4.57	984	4.82	1005	5.07	1025	5.31	1056	5.76	1079	6.07	–	–	–	–	–	–
6900 [3256]	612	2.05	649	2.22	685	2.43	719	2.69	753	2.99	786	3.33	827	3.42	858	3.67	887	3.93	914	4.18	940	4.43	965	4.68	987	4.94	1008	5.19	1028	5.43	1060	5.91	1083	6.23	–	–	–	–	–	–
7000 [3303]	619	2.13	655	2.31	691	2.53	725	2.80	758	3.11	791	3.46	832	3.51	862	3.77	891	4.03	919	4.28	944	4.54	968	4.80	991	5.05	1012	5.31	1041	5.75	1064	6.07	1087	6.40	–	–	–	–	–	–
7100 [3350]	625	2.21	661	2.40	697	2.64	731	2.91	764	3.23	796	3.60	837	3.60	867	3.86	896	4.13	923	4.39	948	4.65	972	4.91	995	5.17	1015	5.43	1045	5.90	1068	6.23	1091	6.56	–	–	–	–	–	–
7200 [3398]	632	2.30	668	2.50	703	2.74	736	3.03	769	3.36	801	3.74	841	3.69	872	3.96	900	4.23	927	4.50	952	4.76	976	5.03	998	5.29	1019	5.56	1049	6.05	1073	6.39	1095	6.74	–	–	–	–	–	–

NOTE: F-Drive left of bold line, G-Drive right of bold line.

Drive Package	F							G							H						
Motor H.P. [W]	3 [2237.1]							5 [3728.5]							5 [3728.5]						
Motor RPM	1725							1755							1755						
Blower Sheave	BK90H							BK95H							BK90H						
Motor Frame Size	56							184							184						
Motor Sheave	1VL44							1VP56							1VP56						
Turns Open	0	1	2	**3**	4	5	6	0	1	2	3	**4**	5	6	0	1	2	3	**4**	5	6
RPM	|	797	779	**747**	708	670	632	|	1018	980	950	**915**	883	845	|	1047	1023	990	**958**	925	889

NOTES: 1. Factory sheave settings are shown in bold type.

2. Do not set motor sheave below minimum or maximum turns open shown.

3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure

4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.

5. An RPM meter must be used to receive an accurate airflow reading.

P. APPENDICES

Appendix C – Air Flow Performance Data (Cont.)

COMPONENT AIRFLOW RESISTANCE - 15 TON [52.7kW]

CFM [L/s]	4800 [2265]	5000 [2359]	5200 [2454]	5400 [2548]	5600 [2643]	5800 [2737]	6000 [2831]	6200 [2926]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]
	Resistance - Inches of Water [kPa]												
Wet Coil	0.01 [.00]	0.02 [.00]	0.02 [.00]	0.03 [.01]	0.03 [.01]	0.04 [.01]	0.04 [.01]	0.04 [.01]	0.05 [.01]	0.05 [.01]	0.06 [.01]	0.06 [.01]	0.06 [.01]
Downflow Economizer RA Damper Open	0.17 [0.08]	0.18 [0.08]	0.19 [0.08]	0.20 [0.09]	0.21 [0.09]	0.22 [0.10]	0.23 [0.10]	0.24 [0.11]	0.25 [0.11]	0.26 [0.12]	0.26 [0.12]	0.27 [0.12]	0.28 [0.13]
Horizontal Economizer RA Damper Open	0.70 [0.33]	0.70 [0.33]	0.80 [0.37]	0.80 [0.37]	0.80 [0.37]	0.80 [0.37]	0.80 [0.37]	0.80 [0.37]	0.90 [0.42]	0.90 [0.42]	0.90 [0.42]	0.90 [0.42]	0.90 [0.42]
MERV 8 Filter	0.075 [0.03]	0.079 [0.03]	0.083 [0.03]	0.087 [0.04]	0.091 [0.04]	0.095 [0.04]	0.099 [0.04]	0.103 [0.04]	0.107 [0.05]	0.111 [0.05]	0.116 [0.05]	0.120 [0.05]	0.124 [0.05]
MERV 13 Filter	0.019 [0.00]	0.026 [0.01]	0.032 [0.01]	0.038 [0.01]	0.044 [0.02]	0.051 [0.02]	0.057 [0.02]	0.063 [0.02]	0.070 [0.03]	0.076 [0.03]	0.082 [0.03]	0.089 [0.04]	0.095 [0.04]
Concentric Grill RXRN-AD80 or RXRN-AD81 & Transition RXMC-CJ07	0.21 [.05]	0.25 [.06]	0.28 [.07]	0.32 [.08]	0.35 [.09]	0.39 [.10]	0.43 [.11]	0.46 [.11]	0.50 [.12]	0.54 [.13]	0.57 [.14]	0.61 [.15]	0.64 [.16]

AIRFLOW CORRECTION FACTORS - 15 TON [52.7kW]

CFM [L/s]	4800 [2265]	5000 [2359]	5200 [2454]	5400 [2548]	5600 [2643]	5800 [2737]	6000 [2831]	6200 [2926]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]
Total MBH	0.97	0.98	0.98	0.99	0.99	1.00	1.00	1.01	1.02	1.02	1.03	1.03	1.04
Sensible MBH	0.89	0.91	0.93	0.95	0.97	0.99	1.01	1.03	1.05	1.07	1.09	1.11	1.13
Power Kw	0.98	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01	1.02	1.02	1.02

NOTE: Multiply correction factor times gross performance data - resulting sensible capacity cannot exceed total capacity.

AIRFLOW PERFORMANCE - 17.5 TON [61.5 kW] - 60 Hz - SIDEFLOW

Air Flow	Model RGEG2T210A - Sideflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																																			
	External Static Pressure - Inches of Water [kPa]																																			
CFM [L/s]	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5600 [2643]	–	–	–	–	–	–	670	1.73	707	1.92	741	2.13	773	2.35	803	2.58	831	2.84	867	3.20	894	3.43	920	3.63	946	3.79	971	3.93	995	4.03	1019	4.10	1041	4.00	1063	4.16	1086	4.32	1108	4.48
5700 [2690]	–	–	–	–	637	1.61	676	1.79	712	1.99	746	2.20	778	2.43	807	2.67	834	2.93	872	3.29	898	3.52	925	3.72	950	3.88	975	4.02	1000	4.12	1023	4.19	1045	4.11	1068	4.28	1090	4.44	1112	4.61
5800 [2737]	–	–	–	–	643	1.67	681	1.85	717	2.06	750	2.28	782	2.51	811	2.76	849	3.12	876	3.38	903	3.61	929	3.81	955	3.97	980	4.10	1004	4.21	1026	4.05	1049	4.22	1072	4.40	1095	4.57	1117	4.75
5900 [2784]	–	–	–	–	649	1.73	687	1.92	722	2.13	755	2.36	786	2.60	815	2.86	853	3.22	881	3.48	908	3.70	934	3.90	959	4.06	984	4.19	1009	4.29	1031	4.16	1054	4.34	1077	4.52	1099	4.71	1122	4.89
6000 [2831]	–	–	–	–	655	1.79	692	1.99	727	2.21	760	2.44	790	2.69	818	2.95	858	3.31	885	3.57	912	3.80	938	3.99	964	4.15	989	4.28	1013	4.38	1035	4.28	1058	4.47	1081	4.65	1104	4.84	1126	5.04
6100 [2878]	–	–	–	–	661	1.86	698	2.07	732	2.29	765	2.53	794	2.79	822	3.06	863	3.41	890	3.66	917	3.89	943	4.08	969	4.24	994	4.37	1018	4.47	1040	4.40	1063	4.59	1086	4.79	1109	4.99	1131	5.19
6200 [2926]	–	–	–	–	668	1.93	704	2.14	738	2.38	769	2.62	799	2.88	826	3.16	867	3.50	895	3.76	922	3.98	948	4.18	973	4.34	998	4.46	1022	4.56	1044	4.52	1068	4.72	1091	4.93	1114	5.13	1136	5.34
6300 [2973]	–	–	636	1.80	674	2.00	709	2.23	743	2.47	774	2.72	803	2.99	830	3.27	872	3.60	900	3.85	926	4.08	953	4.27	978	4.43	1003	4.56	1025	4.44	1049	4.65	1073	4.86	1096	5.07	1118	5.28	1141	5.49
6400 [3020]	–	–	643	1.87	680	2.08	715	2.31	748	2.56	779	2.82	807	3.10	834	3.39	877	3.70	905	3.95	931	4.17	957	4.36	983	4.52	1008	4.65	1030	4.56	1054	4.78	1077	4.99	1101	5.21	1123	5.43	1146	5.66
6500 [3067]	–	–	649	1.95	686	2.17	721	2.40	753	2.66	784	2.92	812	3.21	854	3.51	882	3.79	909	4.05	936	4.27	962	4.46	988	4.61	1013	4.74	1035	4.69	1059	4.91	1082	5.14	1106	5.36	1128	5.59	–	–
6600 [3114]	–	–	656	2.03	692	2.25	727	2.50	759	2.76	789	3.03	816	3.32	859	3.61	887	3.89	914	4.14	941	4.36	967	4.55	993	4.71	1018	4.83	1040	4.82	1064	5.05	1087	5.28	1111	5.52	1134	5.75	–	–
6700 [3162]	–	–	663	2.11	699	2.35	733	2.60	764	2.86	794	3.15	821	3.44	864	3.71	892	3.99	919	4.24	946	4.46	972	4.65	998	4.80	1022	4.93	1045	4.95	1069	5.19	1093	5.43	1116	5.67	1139	5.92	–	–
6800 [3209]	–	–	670	2.20	705	2.44	738	2.70	770	2.97	798	3.26	825	3.57	869	3.81	897	4.09	925	4.34	951	4.56	977	4.75	1003	4.90	1026	4.84	1050	5.09	1074	5.34	1098	5.58	1121	5.83	1144	6.08	–	–
6900 [3256]	639	2.06	676	2.29	711	2.54	744	2.81	775	3.09	803	3.38	830	3.70	874	3.91	902	4.19	930	4.44	956	4.66	982	4.84	1008	5.00	1031	4.98	1055	5.23	1079	5.49	1103	5.74	1126	6.00	1149	6.26	–	–
7000 [3303]	646	2.15	683	2.39	718	2.65	750	2.92	780	3.21	808	3.51	834	3.83	879	4.01	907	4.29	935	4.54	962	4.76	988	4.94	1013	5.09	1036	5.12	1061	5.38	1085	5.64	1108	5.90	1132	6.17	–	–	–	–
7100 [3350]	654	2.24	690	2.49	724	2.75	756	3.03	786	3.33	813	3.64	856	3.80	885	4.11	913	4.39	940	4.64	967	4.86	993	5.04	1018	5.19	1042	5.26	1066	5.53	1090	5.80	1114	6.07	1137	6.34	–	–	–	–
7200 [3398]	661	2.34	697	2.60	731	2.87	762	3.15	791	3.45	818	3.77	861	3.91	890	4.22	918	4.49	945	4.74	972	4.96	998	5.14	1023	5.29	1047	5.40	1071	5.68	1096	5.96	1119	6.23	1143	6.51	–	–	–	–
7300 [3445]	668	2.44	704	2.71	737	2.98	768	3.28	797	3.59	824	3.91	867	4.01	895	4.32	923	4.60	951	4.84	977	5.06	1003	5.24	1028	5.27	1053	5.55	1077	5.84	1101	6.12	1125	6.41	1148	6.69	–	–	–	–
7400 [3492]	676	2.55	711	2.82	744	3.10	774	3.40	803	3.72	829	4.05	872	4.12	901	4.42	929	4.70	956	4.95	983	5.16	1009	5.34	1033	5.42	1058	5.71	1083	6.00	1107	6.29	1131	6.58	–	–	–	–	–	–
7500 [3539]	683	2.66	718	2.94	750	3.23	780	3.54	808	3.86	834	4.20	878	4.22	906	4.53	934	4.81	962	5.05	988	5.26	1014	5.44	1039	5.57	1064	5.86	1088	6.16	1112	6.46	1136	6.76	–	–	–	–	–	–
7600 [3586]	691	2.77	725	3.06	757	3.36	786	3.67	814	4.00	854	3.99	883	4.33	912	4.64	940	4.91	967	5.15	994	5.36	1020	5.54	1045	5.72	1069	6.03	1094	6.33	1118	6.64	1142	6.95	–	–	–	–	–	–
7700 [3633]	698	2.89	732	3.18	763	3.49	792	3.81	819	4.15	860	4.10	889	4.44	917	4.74	945	5.02	973	5.26	999	5.47	1025	5.57	1050	5.88	1075	6.19	1100	6.50	1124	6.82	1148	7.14	–	–	–	–	–	–
7800 [3681]	706	3.02	739	3.31	770	3.63	799	3.95	825	4.30	865	4.21	895	4.54	923	4.85	951	5.12	978	5.36	1005	5.57	1031	5.72	1056	6.04	1081	6.36	1106	6.68	1130	7.00	–	–	–	–	–	–	–	–
7900 [3728]	713	3.14	746	3.45	777	3.77	805	4.10	831	4.45	871	4.32	900	4.65	929	4.96	957	5.23	984	5.47	1010	5.67	1037	5.88	1062	6.21	1087	6.53	1112	6.86	1136	7.19	–	–	–	–	–	–	–	–
8000 [3775]	721	3.27	753	3.58	783	3.91	811	4.25	847	4.06	877	4.43	906	4.76	935	5.06	962	5.33	990	5.57	1016	5.78	1043	6.04	1068	6.37	1093	6.71	1118	7.05	1142	7.38	–	–	–	–	–	–	–	–
8100 [3822]	729	3.41	760	3.73	790	4.06	817	4.41	853	4.17	883	4.54	912	4.87	940	5.17	968	5.44	995	5.68	1022	5.89	1049	6.21	1074	6.55	1099	6.89	1124	7.23	1148	7.58	–	–	–	–	–	–	–	–
8200 [3869]	736	3.55	768	3.87	797	4.21	823	4.57	859	4.29	889	4.65	918	4.98	946	5.28	974	5.55	1001	5.79	1029	6.03	1055	6.38	1080	6.72	1105	7.07	1130	7.43	–	–	–	–	–	–	–	–	–	–
8300 [3917]	744	3.69	775	4.02	803	4.37	830	4.73	865	4.40	895	4.76	924	5.09	952	5.39	980	5.66	1007	5.90	1035	6.19	1061	6.55	1086	6.91	1112	7.26	1137	7.62	–	–	–	–	–	–	–	–	–	–
8400 [3964]	752	3.84	782	4.18	810	4.53	841	4.12	871	4.51	901	4.87	930	5.21	958	5.50	986	5.77	1013	6.00	1041	6.36	1067	6.73	1093	7.09	1118	7.45	1143	7.82	–	–	–	–	–	–	–	–	–	–

NOTE: F-Drive left of bold line, G-Drive right of bold line.

Drive Package	F							G							H						
Motor H.P. [W]	3 [2237.1]							5 [3728.5]							7.5 [5592.7]						
Motor RPM	1725							1755							1760						
Blower Sheave	BK90H							BK95H							BK100H						
Motor Frame Size	56							184							213						
Motor Sheave	1VL44							1VP56							1VP65						
Turns Open	0	1	2	**3**	4	5	6	0	1	2	3	**4**	5	6	0	1	2	3	**4**	5	6
RPM	|	813	777	**745**	712	681	645	|	1012	985	949	**912**	881	844	|	1108	1072	1038	**1003**	968	932

Notes:

1. Factory sheave settings are shown in bold type.
2. Do not set sheave below minimum or maximum turns open shown.
3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.
5. An RPM meter must be used to receive an accurate airflow reading.

AIRFLOW PERFORMANCE - 17.5 TON [61.5 kW] - 60 Hz - DOWNFLOW

Air Flow	Model RGEG2T210A - Downflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																																			
	External Static Pressure - Inches of Water [kPa]																																			
CFM [L/s]	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5600 [2643]	–	–	–	–	614	1.68	654	1.87	692	2.06	729	2.26	764	2.45	798	2.64	830	2.83	860	3.02	889	3.21	916	3.40	941	3.59	965	3.78	987	3.96	1008	4.15	1026	4.34	1083	4.42	1105	4.62	1126	4.82
5700 [2690]	–	–	–	–	619	1.72	659	1.92	698	2.12	734	2.32	769	2.51	803	2.71	834	2.91	864	3.10	893	3.29	920	3.49	945	3.68	968	3.87	990	4.07	1010	4.26	1029	4.45	1087	4.52	1108	4.73	1129	4.93
5800 [2737]	–	–	–	–	625	1.76	665	1.97	703	2.17	739	2.38	774	2.58	807	2.78	839	2.98	868	3.18	897	3.38	923	3.58	948	3.77	972	3.97	993	4.17	1013	4.36	1068	4.42	1090	4.63	1112	4.84	1132	5.05
5900 [2784]	–	–	–	–	631	1.81	670	2.02	708	2.23	744	2.44	779	2.64	812	2.85	843	3.06	873	3.26	901	3.46	927	3.67	952	3.87	975	4.07	996	4.27	1016	4.47	1071	4.53	1094	4.75	1115	4.96	1135	5.17
6000 [2831]	–	–	–	–	636	1.86	676	2.08	713	2.29	749	2.50	784	2.71	816	2.92	847	3.13	877	3.34	905	3.55	931	3.76	955	3.97	978	4.17	999	4.38	1019	4.59	1075	4.65	1097	4.86	1118	5.08	1139	5.29
6100 [2878]	–	–	–	–	642	1.91	681	2.13	718	2.35	754	2.57	788	2.78	821	3.00	852	3.21	881	3.43	909	3.64	934	3.86	959	4.07	982	4.28	1003	4.49	1022	4.70	1079	4.76	1101	4.98	1122	5.20	1142	5.42
6200 [2926]	–	–	607	1.74	648	1.97	686	2.19	724	2.41	759	2.63	793	2.86	825	3.08	856	3.30	885	3.52	912	3.73	938	3.95	962	4.17	985	4.39	1006	4.60	1025	4.82	1083	4.88	1104	5.10	1125	5.33	1145	5.55
6300 [2973]	–	–	613	1.79	653	2.02	692	2.25	729	2.48	764	2.70	798	2.93	830	3.16	860	3.38	889	3.60	916	3.83	942	4.05	966	4.27	988	4.49	1009	4.71	1028	4.93	1086	5.00	1108	5.23	1129	5.46	1149	5.68
6400 [3020]	–	–	619	1.85	659	2.08	697	2.31	734	2.54	769	2.78	803	3.01	835	3.24	865	3.47	893	3.70	920	3.92	946	4.15	969	4.38	992	4.60	1012	4.83	1068	4.90	1090	5.13	1112	5.36	1133	5.59	–	–
6500 [3067]	–	–	625	1.90	665	2.14	703	2.38	739	2.61	774	2.85	808	3.09	839	3.32	869	3.56	898	3.79	924	4.02	950	4.25	973	4.49	995	4.72	1015	4.95	1072	5.02	1094	5.26	1116	5.49	1136	5.72	–	–
6600 [3114]	–	–	631	1.96	670	2.20	708	2.44	745	2.68	779	2.93	812	3.17	844	3.41	874	3.65	902	3.88	928	4.12	953	4.36	977	4.60	998	4.83	1018	5.07	1076	5.15	1098	5.39	1120	5.62	1140	5.86	–	–
6700 [3162]	–	–	636	2.01	676	2.26	714	2.51	750	2.76	784	3.00	817	3.25	848	3.49	878	3.74	906	3.98	932	4.22	957	4.47	980	4.71	1002	4.95	1021	5.19	1080	5.28	1102	5.52	1124	5.76	1144	6.00	–	–
6800 [3209]	–	–	642	2.08	682	2.33	719	2.58	755	2.83	789	3.08	822	3.33	853	3.58	882	3.83	910	4.08	936	4.33	961	4.57	984	4.82	1005	5.07	1025	5.31	1085	5.41	1107	5.66	1128	5.90	1148	6.15	–	–
6900 [3256]	608	1.88	648	2.14	687	2.40	725	2.65	760	2.91	794	3.16	827	3.42	858	3.67	887	3.93	914	4.18	940	4.43	965	4.68	987	4.94	1008	5.19	1028	5.43	1089	5.55	1111	5.80	1132	6.05	–	–	–	–
7000 [3303]	614	1.94	654	2.20	693	2.46	730	2.73	766	2.99	799	3.25	832	3.51	862	3.77	891	4.03	919	4.28	944	4.54	968	4.80	991	5.05	1012	5.31	1071	5.43	1093	5.69	1115	5.94	1136	6.19	–	–	–	–
7100 [3350]	620	2.00	660	2.27	699	2.54	736	2.80	771	3.07	805	3.33	837	3.60	867	3.86	896	4.13	923	4.39	948	4.65	972	4.91	995	5.17	1015	5.43	1075	5.57	1098	5.83	1119	6.09	1140	6.34	–	–	–	–
7200 [3398]	626	2.06	666	2.34	704	2.61	741	2.88	776	3.15	810	3.42	841	3.69	872	3.96	900	4.23	927	4.50	952	4.76	976	5.03	998	5.29	1019	5.56	1080	5.72	1102	5.98	1124	6.24	1144	6.49	–	–	–	–
7300 [3445]	632	2.13	672	2.41	710	2.68	747	2.96	781	3.24	815	3.51	846	3.79	876	4.06	905	4.33	931	4.60	956	4.88	980	5.15	1002	5.42	1022	5.69	1085	5.86	1107	6.13	1128	6.39	1149	6.65	–	–	–	–
7400 [3492]	638	2.20	678	2.48	716	2.76	752	3.04	787	3.32	820	3.60	851	3.88	881	4.16	909	4.44	936	4.72	961	4.99	984	5.27	1005	5.54	1025	5.82	1089	6.01	1112	6.28	1133	6.54	–	–	–	–	–	–
7500 [3539]	644	2.27	684	2.55	721	2.84	758	3.13	792	3.41	825	3.70	856	3.98	886	4.26	914	4.55	940	4.83	965	5.11	988	5.39	1009	5.67	1029	5.95	1094	6.16	1116	6.43	1137	6.70	–	–	–	–	–	–
7600 [3586]	651	2.34	690	2.63	727	2.92	763	3.21	797	3.50	830	3.79	861	4.08	890	4.37	918	4.66	944	4.94	969	5.23	991	5.51	1013	5.80	1076	6.04	1099	6.31	1121	6.59	1142	6.86	–	–	–	–	–	–
7700 [3633]	657	2.41	696	2.71	733	3.00	769	3.30	803	3.60	835	3.89	866	4.18	895	4.48	923	4.77	948	5.06	973	5.35	995	5.64	1016	5.93	1081	6.19	1104	6.47	1126	6.75	1147	7.03	–	–	–	–	–	–
7800 [3681]	663	2.49	702	2.79	739	3.09	774	3.39	808	3.69	840	3.99	871	4.29	900	4.59	927	4.88	953	5.18	977	5.47	999	5.77	1020	6.06	1087	6.35	1109	6.63	1131	6.91	–	–	–	–	–	–	–	–
7900 [3728]	669	2.56	708	2.87	744	3.18	780	3.48	813	3.79	845	4.09	876	4.39	904	4.70	932	5.00	957	5.30	981	5.60	1003	5.90	1024	6.20	1092	6.51	1114	6.80	1136	7.08	–	–	–	–	–	–	–	–
8000 [3775]	675	2.64	714	2.95	750	3.27	785	3.58	819	3.89	850	4.19	881	4.50	909	4.81	936	5.12	961	5.42	985	5.73	1007	6.03	1027	6.34	1097	6.67	1119	6.96	1141	7.25	–	–	–	–	–	–	–	–
8100 [3822]	681	2.72	720	3.04	756	3.36	791	3.67	824	3.99	856	4.30	886	4.61	914	4.92	941	5.24	966	5.55	989	5.86	1011	6.17	1079	6.54	1102	6.84	1124	7.13	1146	7.42	–	–	–	–	–	–	–	–
8200 [3869]	688	2.81	726	3.13	762	3.45	796	3.77	829	4.09	861	4.41	890	4.72	919	5.04	945	5.36	970	5.67	993	5.99	1015	6.30	1085	6.71	1108	7.01	1130	7.30	–	–	–	–	–	–	–	–	–	–
8300 [3917]	694	2.89	731	3.22	768	3.54	802	3.87	835	4.19	866	4.52	895	4.84	923	5.16	950	5.48	974	5.80	997	6.12	1019	6.44	1090	6.88	1113	7.18	1135	7.48	–	–	–	–	–	–	–	–	–	–
8400 [3964]	700	2.98	737	3.31	773	3.64	808	3.97	840	4.30	871	4.63	900	4.96	928	5.28	954	5.61	979	5.93	1001	6.26	1022	6.58	1096	7.05	1119	7.35	1140	7.66	–	–	–	–	–	–	–	–	–	–

NOTE: F-Drive left of bold line, G-Drive right of bold line.

Drive Package	F							G							H						
Motor H.P. [W]	3 [2237.1]							5 [3728.5]							7.5 [5592.7]						
Motor RPM	1725							1755							1760						
Blower Sheave	BK90H							BK95H							BK100H						
Motor Frame Size	56							184							213						
Motor Sheave	1VL44							1VP56							1VP65						
Turns Open	0	1	2	**3**	4	5	6	0	1	2	3	**4**	5	6	0	1	2	3	**4**	5	6
RPM	|	797	779	**747**	708	670	632	|	1018	980	950	**915**	883	845	|	1107	1069	1037	**1001**	968	932

Notes:
1. Factory sheave settings are shown in bold type.
2. Do not set sheave below minimum or maximum turns open shown.
3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.
5. An RPM meter must be used to receive an accurate airflow reading.

Appendix C – Air Flow Performance Data (Cont.)

COMPONENT AIRFLOW RESISTANCE - 17.5 TON [61.5kW]

CFM [L/s]	5600 [2643]	5800 [2737]	6000 [2831]	6200 [2926]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]	7400 [3492]	7600 [3586]	7800 [3681]	8000 [3775]	8200 [3869]	8400 [3964]
	Resistance - Inches of Water [kPa]														
Wet Coil	0.03 [.01]	0.04 [.01]	0.04 [.01]	0.04 [.01]	0.05 [.01]	0.05 [.01]	0.06 [.01]	0.06 [.01]	0.06 [.01]	0.07 [.02]	0.07 [.02]	0.08 [.02]	0.08 [.02]	0.08 [.02]	0.09 [.02]
Downflow Economizer RA Damper Open	0.21 [0.09]	0.22 [0.01]	0.23 [0.01]	0.24 [0.01]	0.25 [0.01]	0.26 [0.01]	0.26 [0.01]	0.27 [0.01]	0.28 [0.01]	0.29 [0.01]	0.30 [0.01]	0.31 [0.01]	0.32 [0.01]	0.33 [0.01]	0.33 [0.01]
Horizontal Economizer RA Damper Open	0.08 [0.03]	0.08 [0.03]	0.08 [0.03]	0.08 [0.03]	0.09 [0.04]	0.09 [0.04]	0.09 [0.04]	0.09 [0.04]	0.09 [0.04]	0.09 [0.04]	0.10 [0.04]	0.10 [0.04]	0.10 [0.04]	0.10 [0.04]	0.10 [0.04]
MERV 8 Filter	0.091 [0.04]	0.095 [0.04]	0.099 [0.04]	0.103 [0.04]	0.107 [0.05]	0.111 [0.05]	0.116 [0.05]	0.120 [0.05]	0.124 [0.05]	0.128 [0.06]	0.132 [0.06]	0.136 [0.06]	0.140 [0.06]	0.144 [0.06]	0.148 [0.06]
MERV 13 Filter	0.044 [0.02]	0.051 [0.02]	0.057 [0.02]	0.063 [0.02]	0.070 [0.03]	0.076 [0.03]	0.082 [0.03]	0.089 [0.04]	0.095 [0.04]	0.101 [0.04]	0.107 [0.05]	0.114 [0.05]	0.120 [0.05]	0.126 [0.05]	0.133 [0.06]
Concentric Grill RXRN-AD80 or RXRN-AD81 & Transition RXMC-CJ07	0.35 [.09]	0.39 [.10]	0.43 [.11]	0.46 [.11]	0.50 [.12]	0.54 [.13]	0.57 [.14]	0.61 [.15]	0.64 [.16]	0.68 [.17]	0.72 [.18]	0.75 [.19]	0.79 [.20]	0.83 [.21]	0.86 [.21]

AIRFLOW CORRECTION FACTORS - 17.5 TON [61.5kW]

CFM [L/s]	5600 [2643]	5800 [2737]	6000 [2831]	6200 [2926]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]	7400 [3492]	7600 [3586]	7800 [3681]	8000 [3775]	8200 [3869]	8400 [3964]
Total MBH	0.97	0.97	0.98	0.98	0.99	0.99	1.00	1.00	1.01	1.01	1.02	1.02	1.03	1.03	1.04
Sensible MBH	0.87	0.89	0.91	0.93	0.95	0.97	0.99	1.01	1.03	1.05	1.07	1.09	1.11	1.13	1.15
Power Kw	0.98	0.99	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.02	1.02

NOTE: Multiply correction factor times gross performance data - resulting sensible capacity cannot exceed total capacity.

AIRFLOW PERFORMANCE - 20 TON [70.3 kW] - 60 Hz - SIDEFLOW

Air Flow	Model RGEG2T240A - Sideflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																																			
	External Static Pressure - Inches of Water [kPa]																																			
CFM [L/s]	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6400 [3020]	–	–	–	–	–	–	–	–	759	2.58	793	2.79	826	3.02	857	3.24	888	3.48	917	3.72	956	4.32	980	4.53	1003	4.74	1026	4.95	1049	5.16	1073	5.14	1094	5.39	1115	5.65	1136	5.92	–	–
6500 [3067]	–	–	–	–	–	–	–	–	765	2.64	798	2.86	831	3.08	862	3.32	892	3.55	921	3.80	959	4.39	983	4.60	1007	4.82	1030	5.04	1052	5.26	1077	5.26	1098	5.51	1119	5.78	1139	6.06	–	–
6600 [3114]	–	–	–	–	–	–	736	2.48	770	2.70	803	2.93	836	3.16	867	3.39	896	3.64	925	3.88	963	4.46	986	4.68	1010	4.91	1033	5.13	1055	5.35	1081	5.38	1102	5.63	1123	5.91	1143	6.20	–	–
6700 [3162]	–	–	–	–	–	–	742	2.54	776	2.77	809	3.00	841	3.23	871	3.48	901	3.72	929	3.98	966	4.54	990	4.77	1013	5.00	1036	5.23	1059	5.46	1084	5.50	1106	5.76	1126	6.04	1146	6.34	–	–
6800 [3209]	–	–	–	–	–	–	748	2.61	781	2.84	814	3.08	846	3.32	876	3.56	905	3.81	945	4.40	970	4.63	993	4.86	1017	5.10	1040	5.33	1062	5.56	1088	5.62	1110	5.90	1130	6.18	1150	6.48	–	–
6900 [3256]	–	–	–	–	–	–	754	2.69	787	2.92	819	3.16	850	3.40	880	3.65	909	3.91	949	4.48	973	4.72	997	4.96	1020	5.20	1043	5.44	1065	5.68	1092	5.75	1113	6.03	1134	6.32	1153	6.63	–	–
7000 [3303]	–	–	–	–	–	–	760	2.76	793	3.00	825	3.25	856	3.50	885	3.75	913	4.01	953	4.57	977	4.82	1001	5.06	1024	5.30	1047	5.55	1069	5.79	1096	5.88	1117	6.17	1137	6.47	–	–	–	–
7100 [3350]	–	–	–	–	732	2.61	766	2.85	799	3.09	830	3.34	861	3.59	890	3.85	918	4.12	957	4.67	981	4.92	1005	5.17	1028	5.42	1050	5.67	1079	5.74	1100	6.02	1121	6.31	1141	6.62	–	–	–	–
7200 [3398]	–	–	–	–	738	2.69	772	2.93	804	3.18	836	3.44	866	3.69	895	3.96	922	4.23	961	4.77	985	5.03	1008	5.28	1032	5.53	1054	5.79	1083	5.88	1105	6.16	1125	6.46	1145	6.77	–	–	–	–
7300 [3445]	–	–	–	–	745	2.78	778	3.03	810	3.28	841	3.54	871	3.80	899	4.07	927	4.34	965	4.88	989	5.14	1012	5.40	1036	5.66	1058	5.92	1087	6.01	1109	6.30	1129	6.61	1149	6.93	–	–	–	–
7400 [3492]	–	–	–	–	751	2.87	784	3.12	816	3.38	847	3.64	876	3.91	904	4.18	944	4.73	969	4.99	993	5.25	1016	5.52	1040	5.78	1062	6.05	1092	6.15	1113	6.45	1133	6.76	1153	7.09	–	–	–	–
7500 [3539]	–	–	–	–	758	2.97	790	3.22	822	3.49	852	3.75	881	4.03	909	4.30	949	4.84	973	5.11	997	5.37	1021	5.64	1044	5.91	1066	6.18	1096	6.30	1117	6.60	1137	6.92	–	–	–	–	–	–
7600 [3586]	–	–	731	2.82	764	3.07	797	3.33	828	3.60	858	3.87	886	4.15	914	4.43	953	4.95	977	5.23	1001	5.50	1025	5.78	1048	6.05	1079	6.15	1100	6.45	1121	6.76	1141	7.08	–	–	–	–	–	–
7700 [3633]	–	–	738	2.92	771	3.18	803	3.44	834	3.71	863	3.99	892	4.27	919	4.56	957	5.07	982	5.35	1006	5.63	1029	5.91	1052	6.19	1083	6.30	1105	6.60	1125	6.92	1145	7.25	–	–	–	–	–	–
7800 [3681]	–	–	745	3.02	778	3.29	809	3.56	840	3.83	869	4.11	897	4.40	924	4.69	962	5.20	986	5.48	1010	5.77	1034	6.05	1057	6.34	1088	6.45	1109	6.75	1129	7.08	1149	7.42	–	–	–	–	–	–
7900 [3728]	–	–	752	3.13	784	3.40	816	3.68	846	3.96	874	4.24	902	4.53	929	4.83	966	5.33	991	5.62	1015	5.91	1038	6.20	1061	6.49	1092	6.60	1113	6.91	1134	7.24	1153	7.59	–	–	–	–	–	–
8000 [3775]	–	–	759	3.25	791	3.52	822	3.80	852	4.09	880	4.38	907	4.67	946	5.17	971	5.47	996	5.76	1019	6.06	1043	6.35	1066	6.65	1097	6.75	1118	7.08	1138	7.41	–	–	–	–	–	–	–	–
8100 [3822]	733	3.10	766	3.37	798	3.65	828	3.93	858	4.22	886	4.52	913	4.82	951	5.31	976	5.61	1000	5.91	1024	6.21	1047	6.51	1080	6.60	1101	6.91	1122	7.24	1142	7.59	–	–	–	–	–	–	–	–
8200 [3869]	740	3.22	773	3.50	804	3.78	835	4.07	864	4.36	892	4.66	918	4.96	956	5.45	981	5.75	1005	6.06	1029	6.37	1052	6.67	1085	6.76	1106	7.08	1127	7.41	1147	7.76	–	–	–	–	–	–	–	–
8300 [3917]	748	3.34	780	3.63	811	3.91	841	4.20	870	4.50	897	4.81	924	5.12	961	5.60	986	5.91	1010	6.22	1034	6.53	1057	6.84	1089	6.92	1111	7.24	1131	7.59	1151	7.94	–	–	–	–	–	–	–	–
8400 [3964]	756	3.47	787	3.76	818	4.05	848	4.35	876	4.65	903	4.96	929	5.27	966	5.75	991	6.06	1015	6.38	1039	6.70	1062	7.01	1094	7.08	1115	7.41	1136	7.76	–	–	–	–	–	–	–	–	–	–
8500 [4011]	763	3.61	795	3.90	825	4.19	854	4.50	882	4.80	909	5.12	946	5.58	972	5.90	996	6.22	1020	6.55	1044	6.87	1067	7.19	1099	7.25	1120	7.59	1140	7.94	–	–	–	–	–	–	–	–	–	–
8600 [4058]	771	3.75	802	4.04	832	4.34	861	4.65	888	4.96	915	5.28	952	5.74	977	6.06	1001	6.39	1026	6.72	1049	7.04	1082	7.09	1104	7.42	1125	7.77	1145	8.13	–	–	–	–	–	–	–	–	–	–
8700 [4105]	778	3.89	809	4.19	839	4.50	867	4.81	895	5.12	921	5.45	957	5.90	982	6.23	1007	6.56	1031	6.89	1054	7.23	1087	7.25	1109	7.59	1129	7.95	1149	8.32	–	–	–	–	–	–	–	–	–	–
8800 [4153]	786	4.04	816	4.34	846	4.65	874	4.97	901	5.29	927	5.62	963	6.07	988	6.40	1012	6.74	1036	7.08	1060	7.41	1092	7.43	1113	7.77	1134	8.13	1154	8.51	–	–	–	–	–	–	–	–	–	–
8900 [4200]	794	4.19	824	4.50	853	4.82	881	5.14	907	5.46	943	5.90	968	6.24	993	6.58	1018	6.92	1042	7.26	1065	7.61	1097	7.60	1118	7.95	1139	8.32	–	–	–	–	–	–	–	–	–	–	–	–
9000 [4247]	801	4.35	831	4.66	860	4.98	887	5.31	914	5.64	949	6.07	974	6.41	999	6.76	1023	7.11	1047	7.45	1081	7.44	1102	7.78	1123	8.14	1144	8.51	–	–	–	–	–	–	–	–	–	–	–	–
9100 [4294]	809	4.51	839	4.83	867	5.15	894	5.48	920	5.82	954	6.24	980	6.59	1005	6.95	1029	7.30	1053	7.65	1086	7.61	1107	7.96	1128	8.33	1148	8.71	–	–	–	–	–	–	–	–	–	–	–	–
9200 [4341]	817	4.68	846	5.00	874	5.33	901	5.66	926	6.00	960	6.42	986	6.78	1010	7.14	1035	7.50	1059	7.85	1091	7.79	1112	8.15	1133	8.52	1153	8.91	–	–	–	–	–	–	–	–	–	–	–	–
9300 [4388]	825	4.85	853	5.18	881	5.51	908	5.85	941	6.25	966	6.61	992	6.97	1016	7.33	1041	7.70	1065	8.06	1096	7.98	1118	8.34	1138	8.72	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9400 [4436]	832	5.03	861	5.36	888	5.70	914	6.04	947	6.43	972	6.80	998	7.17	1022	7.54	1047	7.90	1080	7.81	1102	8.16	1123	8.54	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9500 [4483]	840	5.21	868	5.55	895	5.89	921	6.24	953	6.62	979	7.00	1004	7.37	1029	7.74	1053	8.12	1085	7.99	1107	8.36	1128	8.73	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9600 [4530]	848	5.40	876	5.74	903	6.08	928	6.44	959	6.82	985	7.20	1010	7.58	1035	7.95	1059	8.33	1091	8.18	1112	8.55	1133	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: F-Drive left of bold line, G-Drive right of bold line.

Drive Package	F							G							H						
Motor H.P. [W]	5 [3728.5]							5 [3728.5]							7.5 [5592.7]						
Motor RPM	1755							1755							1760						
Blower Sheave	BK105							BK90							BK105						
Motor Frame Size	184							184							213						
Motor Sheave	1VP-56							1VP-56							1VP71						
Turns Open	0	1	2	**3**	4	5	6	0	1	2	3	**4**	5	6	0	1	2	3	**4**	5	6
RPM		919	885	**857**	827	797	764		1047	1002	975	**938**	901	871		1140	1110	1073	**1048**	1017	984

Notes:

1. Factory sheave settings are shown in bold type.
2. Do not set sheave below minimum or maximum turns open shown.
3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.
5. An RPM meter must be used to receive an accurate airflow reading.

AIRFLOW PERFORMANCE - 20 TON [70.3 kW] - 60 Hz - DOWNFLOW

Air Flow CFM [L/s]	Model RGEG2T240A - Downflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																																			
	External Static Pressure - Inches of Water [kPa]																																			
	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6400 [3020]	–	–	–	–	–	–	–	–	749	2.50	787	2.74	823	2.99	857	3.25	888	3.52	918	3.79	947	4.06	977	4.30	1006	4.56	1034	4.83	1047	4.82	1071	5.07	1094	5.32	1115	5.56	1135	5.80	1154	6.04
6500 [3067]	–	–	–	–	–	–	–	–	756	2.58	793	2.82	828	3.08	861	3.34	892	3.60	921	3.88	951	4.16	981	4.40	1010	4.67	1038	4.95	1051	4.93	1075	5.18	1097	5.43	1118	5.68	1138	5.92	–	–
6600 [3114]	–	–	–	–	–	–	–	–	762	2.66	799	2.91	833	3.16	866	3.43	896	3.69	925	3.97	956	4.25	985	4.51	1014	4.79	1041	5.08	1055	5.04	1079	5.30	1101	5.55	1121	5.80	1141	6.05	–	–
6700 [3162]	–	–	–	–	–	–	730	2.50	768	2.75	805	3.00	839	3.25	870	3.52	900	3.79	928	4.06	960	4.36	989	4.62	1017	4.90	1045	5.21	1059	5.16	1082	5.42	1104	5.67	1124	5.92	1143	6.17	–	–
6800 [3209]	–	–	–	–	–	–	737	2.59	775	2.83	810	3.09	844	3.35	875	3.61	904	3.88	934	4.20	964	4.46	993	4.74	1021	5.03	1048	5.34	1063	5.28	1086	5.54	1107	5.80	1127	6.05	1146	6.30	–	–
6900 [3256]	–	–	–	–	–	–	744	2.68	781	2.93	816	3.18	849	3.44	879	3.71	908	3.98	939	4.31	969	4.57	997	4.86	1025	5.16	1052	5.48	1067	5.40	1090	5.66	1111	5.92	1130	6.17	1148	6.42	–	–
7000 [3303]	–	–	–	–	–	–	751	2.77	787	3.02	822	3.28	854	3.54	884	3.81	912	4.08	944	4.41	973	4.69	1001	4.98	1029	5.29	1047	5.26	1071	5.52	1093	5.79	1114	6.05	1133	6.30	1151	6.55	–	–
7100 [3350]	–	–	–	–	–	–	758	2.87	794	3.12	827	3.37	859	3.64	888	3.91	916	4.18	948	4.53	977	4.81	1006	5.11	1033	5.43	1052	5.38	1075	5.65	1097	5.91	1117	6.18	1136	6.43	1153	6.69	–	–
7200 [3398]	–	–	–	–	–	–	765	2.96	800	3.22	833	3.48	864	3.74	893	4.01	920	4.29	953	4.64	982	4.93	1010	5.24	1037	5.57	1056	5.50	1079	5.78	1100	6.04	1120	6.31	1139	6.57	–	–	–	–
7300 [3445]	–	–	–	–	735	2.81	772	3.06	806	3.32	839	3.58	869	3.85	897	4.12	923	4.40	958	4.76	986	5.06	1014	5.38	1040	5.72	1060	5.63	1082	5.91	1104	6.17	1123	6.44	1141	6.70	–	–	–	–
7400 [3492]	–	–	–	–	743	2.92	779	3.17	813	3.42	844	3.69	874	3.96	902	4.23	927	4.51	962	4.89	991	5.20	1018	5.52	1044	5.87	1064	5.76	1086	6.04	1107	6.31	1126	6.57	1144	6.84	–	–	–	–
7500 [3539]	–	–	–	–	750	3.02	785	3.27	819	3.53	850	3.80	879	4.07	906	4.34	938	4.72	967	5.02	995	5.33	1022	5.67	1048	6.02	1068	5.89	1090	6.17	1110	6.44	1129	6.71	1147	6.98	–	–	–	–
7600 [3586]	–	–	–	–	757	3.13	792	3.38	825	3.64	856	3.91	884	4.18	910	4.46	943	4.84	972	5.15	999	5.48	1026	5.82	1052	6.18	1072	6.03	1094	6.31	1114	6.58	1132	6.85	1149	7.12	–	–	–	–
7700 [3633]	–	–	–	–	765	3.24	799	3.49	831	3.75	861	4.02	889	4.30	915	4.58	948	4.97	976	5.29	1004	5.62	1031	5.98	1053	5.88	1076	6.16	1097	6.44	1117	6.72	1135	6.99	1152	7.26	–	–	–	–
7800 [3681]	–	–	737	3.10	772	3.35	806	3.61	837	3.87	867	4.14	894	4.42	919	4.70	953	5.10	981	5.43	1008	5.77	1035	6.14	1058	6.01	1080	6.30	1101	6.58	1120	6.86	1138	7.13	1155	7.40	–	–	–	–
7900 [3728]	–	–	745	3.21	780	3.46	813	3.72	844	3.99	872	4.26	899	4.54	924	4.82	958	5.24	986	5.58	1013	5.93	1039	6.30	1062	6.15	1084	6.44	1104	6.72	1123	7.00	1141	7.28	–	–	–	–	–	–
8000 [3775]	–	–	753	3.33	787	3.58	819	3.84	850	4.11	878	4.38	904	4.66	928	4.95	963	5.39	991	5.73	1018	6.09	1043	6.47	1066	6.29	1088	6.58	1108	6.87	1127	7.15	1144	7.43	–	–	–	–	–	–
8100 [3822]	–	–	761	3.44	794	3.70	826	3.96	856	4.23	883	4.51	909	4.79	939	5.20	968	5.53	996	5.89	1022	6.26	1048	6.64	1070	6.43	1092	6.72	1111	7.01	1130	7.30	1147	7.57	–	–	–	–	–	–
8200 [3869]	733	3.31	768	3.57	802	3.82	833	4.09	862	4.36	889	4.64	914	4.92	945	5.34	973	5.68	1000	6.05	1027	6.42	1052	6.82	1074	6.58	1095	6.87	1115	7.16	1133	7.44	1149	7.73	–	–	–	–	–	–
8300 [3917]	742	3.44	776	3.69	809	3.95	840	4.22	868	4.49	894	4.77	919	5.05	950	5.49	978	5.84	1005	6.21	1031	6.60	1056	6.42	1078	6.72	1099	7.02	1118	7.31	1136	7.60	1152	7.88	–	–	–	–	–	–
8400 [3964]	750	3.56	784	3.82	816	4.08	846	4.35	874	4.62	900	4.90	923	5.19	956	5.64	983	6.00	1010	6.38	1036	6.78	1061	6.57	1082	6.87	1103	7.17	1122	7.46	1139	7.75	1155	8.03	–	–	–	–	–	–
8500 [4011]	759	3.69	792	3.95	824	4.21	853	4.48	880	4.76	905	5.04	928	5.33	961	5.80	988	6.17	1015	6.55	1040	6.96	1065	6.72	1087	7.02	1106	7.32	1125	7.61	1142	7.90	–	–	–	–	–	–	–	–
8600 [4058]	767	3.82	800	4.08	831	4.34	860	4.62	886	4.89	911	5.18	938	5.60	966	5.96	994	6.34	1020	6.73	1045	7.15	1069	6.87	1090	7.17	1110	7.47	1128	7.77	1145	8.06	–	–	–	–	–	–	–	–
8700 [4105]	776	3.95	808	4.21	838	4.48	866	4.75	892	5.03	916	5.32	944	5.76	972	6.12	999	6.51	1025	6.92	1050	7.34	1074	7.02	1094	7.33	1114	7.63	1132	7.93	1148	8.22	–	–	–	–	–	–	–	–
8800 [4153]	784	4.09	816	4.35	846	4.62	873	4.89	898	5.18	922	5.46	950	5.92	977	6.29	1004	6.69	1030	7.10	1054	7.53	1078	7.17	1098	7.48	1117	7.79	1135	8.09	1151	8.38	–	–	–	–	–	–	–	–
8900 [4200]	793	4.23	824	4.49	853	4.76	880	5.04	904	5.32	927	5.61	955	6.08	983	6.47	1009	6.87	1035	7.30	1061	7.01	1082	7.33	1102	7.64	1121	7.95	1138	8.25	1154	8.55	–	–	–	–	–	–	–	–
9000 [4247]	801	4.37	832	4.63	860	4.91	886	5.19	910	5.47	933	5.87	961	6.25	988	6.65	1014	7.06	1040	7.49	1065	7.17	1086	7.49	1106	7.80	1124	8.11	1141	8.41	–	–	–	–	–	–	–	–	–	–
9100 [4294]	809	4.51	839	4.78	867	5.05	893	5.33	916	5.62	939	6.04	967	6.43	994	6.83	1020	7.25	1045	7.69	1070	7.33	1091	7.65	1110	7.96	1128	8.27	1144	8.58	–	–	–	–	–	–	–	–	–	–
9200 [4341]	818	4.66	847	4.93	874	5.20	899	5.49	922	5.78	945	6.21	973	6.61	999	7.02	1025	7.45	1050	7.90	1074	7.49	1095	7.81	1114	8.13	1131	8.44	1147	8.75	–	–	–	–	–	–	–	–	–	–
9300 [4388]	826	4.81	855	5.08	881	5.36	906	5.64	928	5.93	951	6.39	979	6.79	1005	7.21	1030	7.65	1055	8.11	1079	7.65	1099	7.98	1117	8.29	1135	8.61	1150	8.92	–	–	–	–	–	–	–	–	–	–
9400 [4436]	835	4.96	863	5.23	889	5.51	912	5.80	929	6.17	957	6.57	984	6.98	1011	7.41	1036	7.86	1062	7.49	1083	7.82	1103	8.14	1121	8.46	1138	8.78	1153	9.09	–	–	–	–	–	–	–	–	–	–
9500 [4483]	843	5.11	870	5.39	896	5.67	919	5.96	936	6.35	963	6.75	990	7.17	1016	7.61	1041	8.07	1066	7.65	1087	7.99	1107	8.31	1125	8.63	1141	8.95	–	–	–	–	–	–	–	–	–	–	–	–
9600 [4530]	851	5.27	878	5.55	903	5.83	925	6.12	942	6.53	970	6.94	996	7.37	1022	7.82	1046	8.28	1071	7.82	1092	8.15	1111	8.48	1128	8.81	1145	9.12	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: F-Drive left of bold line, G-Drive right of bold line.

Drive Package	F							G							H						
Motor H.P. [W]	5 [3728.5]							5 [3728.5]							7.5 [5592.7]						
Motor RPM	1755							1755							1760						
Blower Sheave	BK105							BK90							BK105						
Motor Frame Size	184							184							213						
Motor Sheave	1VP-56							1VP-56							1VP71						
Turns Open	0	1	2	**3**	4	5	6	0	1	2	3	**4**	5	6	0	1	2	3	**4**	5	6
RPM	|	917	884	**854**	822	792	761	|	1032	1013	976	**943**	909	875	|	1146	1110	1081	**1045**	1018	978

Notes:

1. Factory sheave settings are shown in bold type.
2. Do not set sheave below minimum or maximum turns open shown.
3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.
5. An RPM meter must be used to receive an accurate airflow reading.

P. APPENDICES

Appendix C – Air Flow Performance Data (Cont.)

COMPONENT AIRFLOW RESISTANCE - 20 TON [70.3kW]

CFM [L/s]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]	7400 [3492]	7600 [3586]	7800 [3681]	8000 [3775]	8200 [3869]	8400 [3964]	8600 [4058]	8800 [4153]	9000 [4247]	9200 [4341]	9400 [4436]	9600 [4530]
	Resistance - Inches of Water [kPa]																
Wet Coil	0.08 [.02]	0.09 [.02]	0.09 [.02]	0.09 [.02]	0.09 [.02]	0.10 [.02]	0.10 [.02]	0.10 [.02]	0.10 [.02]	0.11 [.03]	0.11 [.03]	0.11 [.03]	0.11 [.03]	0.12 [.03]	0.12 [.03]	0.12 [.03]	0.12 [.03]
Downflow Economizer RA Damper Open	0.25 [0.11]	0.26 [0.12]	0.26 [0.12]	0.27 [0.12]	0.28 [0.13]	0.29 [0.13]	0.30 [0.14]	0.31 [0.14]	0.32 [0.15]	0.33 [0.15]	0.33 [0.15]	0.34 [0.16]	0.35 [0.16]	0.36 [0.16]	0.37 [0.17]	0.38 [0.17]	0.39 [0.18]
Horizontal Economizer RA Damper Open	0.09 [0.04]	0.09 [0.04]	0.09 [0.04]	0.09 [0.04]	0.09 [0.04]	0.09 [0.04]	0.10 [0.04]	0.10 [0.04]	0.10 [0.04]	0.10 [0.04]	0.10 [0.04]	0.10 [0.04]	0.10 [0.04]	0.11 [0.05]	0.11 [0.05]	0.11 [0.05]	0.11 [0.05]
MERV 8 Filter	0.107 [0.05]	0.111 [0.05]	0.116 [0.05]	0.120 [0.05]	0.124 [0.05]	0.128 [0.06]	0.132 [0.06]	0.136 [0.06]	0.140 [0.06]	0.144 [0.06]	0.148 [0.06]	0.152 [0.07]	0.156 [0.07]	0.160 [0.07]	0.164 [0.07]	0.169 [0.07]	0.173 [0.08]
MERV 13 Filter	0.070 [0.03]	0.076 [0.03]	0.082 [0.03]	0.089 [0.04]	0.095 [0.04]	0.101 [0.04]	0.107 [0.05]	0.114 [0.05]	0.120 [0.05]	0.126 [0.05]	0.133 [0.06]	0.139 [0.06]	0.145 [0.06]	0.151 [0.07]	0.158 [0.07]	0.164 [0.07]	0.170 [0.08]
Concentric Grill RXRN-AD86 & Transition RXMC-CK08	0.26 [.06]	0.29 [.07]	0.32 [.08]	0.35 [.09]	0.38 [.09]	0.41 [.10]	0.44 [.11]	0.47 [.12]	0.50 [.12]	0.53 [.13]	0.56 [.14]	0.60 [.15]	0.63 [.16]	0.66 [.16]	0.69 [.17]	0.72 [.18]	0.75 [.19]

AIRFLOW CORRECTION FACTORS - 20 TON [70.3kW]

CFM [L/s]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]	7400 [3492]	7600 [3586]	7800 [3681]	8000 [3775]	8200 [3869]	8400 [3964]	8600 [4058]	8800 [4153]	9000 [4247]	9200 [4341]	9400 [4436]	9600 [4530]
Total MBH	0.98	0.98	0.99	0.99	1	1	0.96	0.97	0.97	0.98	0.98	0.98	0.99	0.99	0.99	1	1
Sensible MBH	0.91	0.93	0.95	0.97	0.99	1.01	1.03	1.05	1.07	1.09	1.11	1.13	1.15	1.17	1.19	1.21	1.23
Power Kw	0.99	0.99	0.99	1	1	1	1	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.03	1.03

NOTE: Multiply correction factor times gross performance data - resulting sensible capacity cannot exceed total capacity.

AIRFLOW PERFORMANCE - 25 TON [87.9 kW] - 60 Hz - SIDEFLOW

Air Flow	Model RGEG2T300A - Sideflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																																			
	External Static Pressure - Inches of Water [kPa]																																			
CFM [L/s]	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8000 [3775]	–	–	–	–	–	–	–	–	851	3.99	881	4.25	910	4.51	939	4.79	967	5.08	994	5.38	1029	5.80	1053	6.09	1076	6.40	1099	6.72	1120	7.06	1161	7.88	1187	8.26	1211	8.64	1235	9.01	1258	9.37
8100 [3822]	–	–	–	–	–	–	–	–	857	4.12	887	4.37	916	4.64	944	4.92	972	5.21	999	5.51	1034	5.94	1058	6.24	1081	6.55	1103	6.88	1124	7.21	1166	8.00	1191	8.39	1215	8.76	1239	9.13	1261	9.50
8200 [3869]	–	–	–	–	–	–	–	–	864	4.24	893	4.50	922	4.77	950	5.05	977	5.34	1015	5.79	1039	6.08	1063	6.39	1086	6.70	1108	7.03	1129	7.37	1170	8.13	1195	8.52	1219	8.89	1242	9.26	1265	9.63
8300 [3917]	–	–	–	–	–	–	842	4.12	871	4.37	900	4.63	928	4.90	955	5.18	982	5.47	1020	5.93	1044	6.23	1068	6.54	1090	6.86	1112	7.19	1133	7.54	1175	8.27	1199	8.65	1223	9.03	1246	9.40	1268	9.76
8400 [3964]	–	–	–	–	–	–	849	4.25	878	4.50	906	4.76	934	5.03	961	5.31	987	5.61	1025	6.08	1049	6.38	1072	6.69	1095	7.02	1116	7.35	1137	7.70	1179	8.41	1203	8.79	1227	9.17	1249	9.53	–	–
8500 [4011]	–	–	–	–	–	–	856	4.38	885	4.63	912	4.89	940	5.17	966	5.45	992	5.75	1031	6.23	1054	6.53	1077	6.85	1099	7.18	1121	7.52	1159	8.16	1184	8.55	1208	8.93	1231	9.31	1253	9.68	–	–
8600 [4058]	–	–	–	–	–	–	863	4.51	891	4.76	919	5.03	946	5.31	972	5.59	997	5.89	1036	6.38	1059	6.68	1082	7.01	1104	7.34	1125	7.68	1164	8.31	1188	8.70	1212	9.08	1234	9.46	1256	9.82	–	–
8700 [4105]	–	–	–	–	842	4.40	870	4.65	898	4.90	925	5.17	951	5.45	977	5.74	1002	6.04	1041	6.53	1065	6.84	1087	7.17	1109	7.50	1130	7.85	1169	8.46	1193	8.85	1216	9.23	1238	9.61	1260	9.97	–	–
8800 [4153]	–	–	–	–	849	4.54	877	4.79	904	5.04	931	5.31	957	5.59	983	5.88	1023	6.38	1046	6.68	1070	7.00	1092	7.33	1113	7.67	1134	8.03	1173	8.62	1197	9.01	1220	9.39	1242	9.76	1263	10.13	–	–
8900 [4200]	–	–	–	–	856	4.68	884	4.93	911	5.19	937	5.46	963	5.74	988	6.03	1028	6.53	1052	6.84	1075	7.16	1097	7.50	1118	7.84	1139	8.20	1178	8.78	1202	9.17	1224	9.55	1246	9.92	1267	10.29	–	–
9000 [4247]	–	–	–	–	864	4.82	891	5.07	918	5.33	943	5.60	969	5.89	993	6.18	1034	6.69	1057	7.00	1080	7.33	1102	7.67	1123	8.02	1159	8.55	1183	8.95	1206	9.33	1228	9.71	1250	10.08	–	–	–	–
9100 [4294]	–	–	843	4.73	871	4.97	898	5.22	924	5.48	949	5.75	974	6.04	998	6.34	1039	6.85	1063	7.17	1085	7.50	1107	7.84	1128	8.19	1164	8.72	1188	9.12	1210	9.50	1232	9.88	1253	10.25	–	–	–	–
9200 [4341]	–	–	851	4.87	878	5.11	905	5.37	930	5.63	956	5.91	980	6.19	1021	6.71	1045	7.01	1068	7.34	1090	7.67	1112	8.02	1132	8.37	1169	8.90	1192	9.29	1215	9.68	1236	10.05	1257	10.43	–	–	–	–
9300 [4388]	–	–	859	5.02	885	5.26	911	5.52	937	5.78	962	6.06	986	6.35	1027	6.87	1050	7.18	1073	7.51	1095	7.84	1117	8.19	1137	8.56	1174	9.08	1197	9.47	1219	9.85	1240	10.23	1261	10.60	–	–	–	–
9400 [4436]	–	–	866	5.17	893	5.42	918	5.67	943	5.94	967	6.22	991	6.51	1033	7.03	1056	7.35	1079	7.68	1101	8.02	1122	8.37	1156	8.86	1179	9.26	1202	9.65	1224	10.03	1245	10.41	1265	10.78	–	–	–	–
9500 [4483]	847	5.09	874	5.32	900	5.57	925	5.83	949	6.10	973	6.38	997	6.68	1038	7.20	1062	7.52	1084	7.85	1106	8.20	1127	8.56	1161	9.05	1184	9.45	1206	9.84	1228	10.22	1249	10.60	–	–	–	–	–	–
9600 [4530]	855	5.24	881	5.48	907	5.73	932	5.99	956	6.26	979	6.55	1002	6.84	1044	7.37	1067	7.69	1090	8.03	1111	8.38	1132	8.74	1166	9.24	1189	9.64	1211	10.03	1232	10.41	1253	10.79	–	–	–	–	–	–
9700 [4577]	863	5.40	889	5.64	914	5.89	938	6.15	962	6.43	985	6.71	1026	7.22	1050	7.54	1073	7.87	1095	8.21	1116	8.57	1137	8.93	1172	9.44	1194	9.83	1216	10.22	1237	10.61	1257	10.98	–	–	–	–	–	–
9800 [4624]	871	5.56	896	5.80	921	6.05	945	6.32	968	6.59	991	6.88	1033	7.39	1056	7.71	1079	8.05	1101	8.39	1121	8.75	1154	9.24	1177	9.64	1199	10.03	1221	10.42	1241	10.80	1261	11.18	–	–	–	–	–	–
9900 [4672]	879	5.72	904	5.96	928	6.22	951	6.48	974	6.76	997	7.05	1039	7.57	1062	7.89	1084	8.23	1106	8.58	1127	8.94	1160	9.44	1182	9.84	1204	10.24	1225	10.63	1245	11.01	1265	11.38	–	–	–	–	–	–
10000 [4719]	886	5.89	911	6.13	935	6.39	958	6.66	980	6.94	1002	7.23	1045	7.74	1068	8.07	1090	8.41	1111	8.77	1132	9.14	1165	9.65	1188	10.05	1209	10.45	1230	10.83	1250	11.21	–	–	–	–	–	–	–	–
10100 [4766]	894	6.05	918	6.30	942	6.56	964	6.83	987	7.11	1027	7.60	1051	7.92	1074	8.26	1096	8.60	1117	8.96	1137	9.33	1171	9.86	1193	10.26	1214	10.66	1235	11.05	1254	11.43	–	–	–	–	–	–	–	–
10200 [4813]	902	6.22	925	6.47	949	6.73	971	7.00	993	7.29	1034	7.78	1057	8.10	1080	8.44	1102	8.79	1122	9.16	1154	9.68	1177	10.08	1198	10.48	1219	10.88	1239	11.26	1258	11.64	–	–	–	–	–	–	–	–
10300 [4860]	909	6.39	933	6.65	955	6.91	977	7.18	999	7.47	1040	7.96	1063	8.29	1086	8.63	1107	8.99	1128	9.35	1160	9.90	1182	10.30	1204	10.70	1224	11.10	1244	11.48	1263	11.86	–	–	–	–	–	–	–	–
10400 [4908]	917	6.57	940	6.82	962	7.09	984	7.36	1023	7.82	1047	8.14	1070	8.48	1092	8.82	1113	9.18	1134	9.55	1166	10.12	1188	10.53	1209	10.93	1229	11.32	1249	11.71	1267	12.09	–	–	–	–	–	–	–	–
10500 [4955]	925	6.75	947	7.00	969	7.27	990	7.55	1029	8.00	1053	8.33	1076	8.67	1098	9.02	1119	9.38	1139	9.76	1172	10.36	1193	10.76	1214	11.16	1234	11.55	1253	11.94	–	–	–	–	–	–	–	–	–	–
10600 [5002]	932	6.93	954	7.19	976	7.45	996	7.73	1036	8.19	1059	8.52	1082	8.86	1104	9.21	1125	9.58	1156	10.18	1178	10.59	1199	11.00	1219	11.39	1239	11.79	1258	12.17	–	–	–	–	–	–	–	–	–	–
10700 [5049]	940	7.11	961	7.37	982	7.64	1003	7.92	1043	8.37	1066	8.71	1088	9.05	1110	9.41	1130	9.79	1162	10.42	1184	10.83	1205	11.23	1225	11.63	1244	12.02	1262	12.41	–	–	–	–	–	–	–	–	–	–
10800 [5096]	947	7.30	968	7.56	989	7.83	1026	8.24	1049	8.56	1072	8.90	1095	9.25	1116	9.62	1136	9.99	1168	10.66	1190	11.07	1210	11.48	1230	11.88	1249	12.27	1267	12.65	–	–	–	–	–	–	–	–	–	–
10900 [5143]	954	7.49	975	7.75	995	8.02	1033	8.42	1056	8.76	1079	9.10	1101	9.45	1122	9.82	1152	10.50	1174	10.91	1195	11.32	1216	11.73	1235	12.12	1254	12.51	–	–	–	–	–	–	–	–	–	–	–	–
11000 [5191]	962	7.68	982	7.94	1002	8.22	1039	8.62	1063	8.95	1085	9.30	1107	9.66	1128	10.03	1159	10.75	1180	11.16	1201	11.57	1221	11.98	1240	12.37	1259	12.76	–	–	–	–	–	–	–	–	–	–	–	–
11100 [5238]	969	7.87	989	8.14	1022	8.48	1046	8.81	1070	9.15	1092	9.50	1113	9.86	1134	10.24	1165	11.01	1187	11.42	1207	11.83	1227	12.23	1246	12.63	1264	13.02	–	–	–	–	–	–	–	–	–	–	–	–
11200 [5285]	976	8.07	996	8.34	1030	8.68	1053	9.01	1076	9.35	1098	9.71	1120	10.07	1140	10.45	1172	11.27	1193	11.68	1213	12.09	1232	12.49	1251	12.89	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11300 [5332]	983	8.27	1003	8.54	1037	8.87	1060	9.21	1083	9.55	1105	9.91	1126	10.29	1157	11.11	1178	11.53	1199	11.95	1219	12.36	1238	12.76	1256	13.15	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11400 [5379]	991	8.47	1020	8.74	1044	9.07	1067	9.41	1090	9.76	1112	10.12	1132	10.50	1164	11.38	1185	11.80	1205	12.22	1225	12.63	1243	13.03	1261	13.42	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11500 [5427]	998	8.68	1027	8.94	1051	9.27	1074	9.61	1097	9.97	1118	10.34	1139	10.72	1170	11.66	1191	12.08	1211	12.49	1231	12.90	1249	13.30	1266	13.69	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11600 [5474]	1010	8.82	1035	9.14	1058	9.47	1081	9.82	1103	10.18	1125	10.55	1156	11.51	1177	11.94	1198	12.36	1218	12.77	1236	13.18	1254	13.58	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11700 [5521]	1018	9.02	1042	9.34	1066	9.68	1088	10.03	1110	10.40	1131	10.77	1163	11.79	1184	12.22	1204	12.64	1224	13.05	1242	13.46	1260	13.86	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11800 [5568]	1026	9.22	1050	9.55	1073	9.89	1095	10.25	1117	10.61	1138	10.99	1170	12.08	1191	12.51	1211	12.93	1230	13.34	1248	13.75	1265	14.14	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11900 [5615]	1033	9.42	1057	9.75	1080	10.10	1103	10.46	1124	10.83	1156	11.94	1177	12.38	1198	12.80	1217	13.22	1236	13.63	1254	14.04	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
12000 [5663]	1041	9.63	1065	9.96	1088	10.32	1110	10.68	1131	11.06	1163	12.24	1184	12.67	1204	13.10	1224	13.52	1242	13.93	1260	14.33	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: F-Drive left of bold line, G-Drive right of bold line.

AIRFLOW PERFORMANCE - 25 TON [87.9 kW] - 60 Hz - DOWNFLOW

Air Flow	Model RGEG2T300A - Downflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																																			
	External Static Pressure - Inches of Water [kPa]																																			
CFM [L/s]	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8000 [3775]	–	–	–	–	–	–	–	–	–	–	855	4.22	884	4.47	913	4.71	943	4.95	974	5.17	1019	5.67	1043	5.96	1066	6.24	1088	6.52	1108	6.80	1127	7.07	1144	7.33	1165	7.52	1188	7.82	1211	8.13
8100 [3822]	–	–	–	–	–	–	–	–	–	–	861	4.32	890	4.57	919	4.82	949	5.06	980	5.29	1023	5.80	1048	6.09	1071	6.38	1092	6.66	1112	6.94	1130	7.21	1147	7.47	1169	7.67	1192	7.97	1215	8.29
8200 [3869]	–	–	–	–	–	–	–	–	–	–	867	4.43	896	4.68	925	4.93	956	5.17	987	5.40	1028	5.94	1052	6.23	1075	6.52	1096	6.80	1115	7.08	1133	7.35	1149	7.62	1173	7.81	1196	8.12	1219	8.45
8300 [3917]	–	–	–	–	–	–	–	–	845	4.27	873	4.53	902	4.79	931	5.04	962	5.29	993	5.52	1033	6.08	1057	6.37	1079	6.66	1099	6.94	1118	7.22	1136	7.49	1152	7.76	1178	7.97	1201	8.28	1223	8.62
8400 [3964]	–	–	–	–	–	–	–	–	851	4.37	879	4.64	908	4.90	938	5.16	968	5.40	1000	5.64	1038	6.22	1061	6.51	1083	6.80	1103	7.09	1122	7.37	1139	7.64	1159	7.82	1182	8.12	1205	8.45	1228	8.79
8500 [4011]	–	–	–	–	–	–	–	–	857	4.48	885	4.75	914	5.02	944	5.28	974	5.53	1018	6.06	1043	6.36	1065	6.65	1087	6.94	1107	7.23	1125	7.51	1142	7.79	1163	7.97	1186	8.28	1209	8.61	1232	8.96
8600 [4058]	–	–	–	–	–	–	–	–	863	4.59	891	4.87	920	5.14	950	5.40	981	5.65	1023	6.20	1047	6.50	1070	6.80	1091	7.09	1110	7.38	1128	7.66	1145	7.94	1168	8.13	1190	8.44	1213	8.78	1236	9.14
8700 [4105]	–	–	–	–	–	–	842	4.42	869	4.71	897	4.98	927	5.26	956	5.52	987	5.78	1028	6.34	1052	6.65	1074	6.94	1095	7.24	1114	7.53	1132	7.81	1148	8.09	1172	8.28	1195	8.61	1217	8.96	1240	9.32
8800 [4153]	–	–	–	–	–	–	848	4.53	875	4.82	904	5.10	933	5.38	963	5.65	994	5.91	1033	6.49	1057	6.79	1078	7.09	1099	7.39	1117	7.68	1135	7.96	1151	8.24	1176	8.45	1199	8.78	1222	9.13	1244	9.51
8900 [4200]	–	–	–	–	–	–	854	4.65	881	4.94	910	5.23	939	5.50	969	5.78	1000	6.04	1038	6.63	1061	6.94	1083	7.24	1103	7.54	1121	7.83	1138	8.12	1158	8.29	1181	8.61	1203	8.95	1226	9.31	1248	9.70
9000 [4247]	–	–	–	–	–	–	860	4.77	888	5.06	916	5.35	946	5.63	976	5.91	1019	6.47	1043	6.78	1066	7.09	1087	7.39	1106	7.69	1124	7.98	1141	8.27	1163	8.45	1185	8.78	1208	9.13	1230	9.50	1252	9.89
9100 [4294]	–	–	–	–	–	–	866	4.89	894	5.19	922	5.48	952	5.76	982	6.04	1024	6.62	1048	6.93	1070	7.24	1091	7.55	1110	7.84	1128	8.14	1144	8.43	1167	8.62	1190	8.96	1212	9.31	1234	9.69	1256	10.08
9200 [4341]	–	–	–	–	845	4.70	872	5.01	900	5.31	929	5.61	958	5.90	989	6.18	1029	6.77	1053	7.08	1075	7.39	1095	7.70	1114	8.00	1131	8.30	1147	8.59	1172	8.79	1194	9.13	1216	9.49	1238	9.88	1260	10.28
9300 [4388]	–	–	–	–	851	4.83	878	5.14	906	5.44	935	5.74	965	6.03	995	6.32	1034	6.92	1057	7.24	1079	7.55	1099	7.86	1118	8.16	1135	8.46	1150	8.75	1176	8.96	1198	9.31	1221	9.68	1243	10.07	–	–
9400 [4436]	–	–	–	–	857	4.95	885	5.27	913	5.58	942	5.88	971	6.17	1002	6.46	1039	7.08	1062	7.39	1083	7.71	1103	8.02	1121	8.32	1138	8.62	1158	8.80	1181	9.14	1203	9.50	1225	9.87	1247	10.27	–	–
9500 [4483]	–	–	–	–	864	5.08	891	5.40	919	5.71	948	6.02	978	6.31	1021	6.91	1044	7.23	1067	7.55	1088	7.87	1107	8.18	1125	8.48	1141	8.78	1163	8.97	1185	9.32	1207	9.68	1229	10.07	1251	10.47	–	–
9600 [4530]	–	–	843	4.88	870	5.21	897	5.53	926	5.85	955	6.16	985	6.46	1026	7.06	1049	7.39	1071	7.71	1092	8.03	1111	8.34	1128	8.64	1144	8.94	1167	9.15	1190	9.50	1212	9.87	1234	10.27	1255	10.68	–	–
9700 [4577]	–	–	849	5.01	876	5.35	904	5.67	932	5.99	961	6.30	991	6.61	1031	7.22	1054	7.55	1076	7.87	1096	8.19	1115	8.50	1132	8.81	1148	9.11	1172	9.33	1194	9.69	1216	10.07	1238	10.47	1260	10.89	–	–
9800 [4624]	–	–	856	5.15	882	5.48	910	5.81	939	6.13	968	6.45	998	6.76	1037	7.38	1059	7.71	1081	8.03	1100	8.35	1119	8.67	1135	8.97	1151	9.28	1177	9.51	1199	9.88	1221	10.27	1242	10.67	–	–	–	–
9900 [4672]	–	–	862	5.28	889	5.62	917	5.95	945	6.28	975	6.60	1018	7.21	1042	7.54	1064	7.87	1085	8.20	1104	8.52	1122	8.83	1139	9.14	1159	9.35	1181	9.70	1203	10.07	1225	10.47	1247	10.88	–	–	–	–
10000 [4719]	842	5.07	868	5.42	895	5.76	923	6.10	952	6.43	981	6.75	1023	7.37	1047	7.71	1069	8.04	1090	8.36	1109	8.69	1126	9.00	1142	9.31	1164	9.53	1186	9.89	1208	10.27	1229	10.67	1251	11.09	–	–	–	–
10100 [4766]	848	5.21	875	5.56	902	5.91	930	6.25	959	6.58	988	6.90	1029	7.54	1052	7.87	1074	8.21	1094	8.53	1113	8.85	1130	9.17	1146	9.48	1169	9.72	1191	10.09	1212	10.47	1234	10.88	1255	11.31	–	–	–	–
10200 [4813]	855	5.35	881	5.71	908	6.06	936	6.40	965	6.73	995	7.06	1034	7.70	1057	8.04	1078	8.37	1098	8.70	1117	9.03	1134	9.34	1149	9.66	1173	9.91	1195	10.28	1217	10.68	1238	11.09	1260	11.53	–	–	–	–
10300 [4860]	861	5.49	888	5.85	915	6.21	943	6.55	972	6.89	1002	7.22	1040	7.87	1062	8.21	1083	8.54	1103	8.87	1121	9.20	1137	9.52	1152	9.83	1178	10.10	1200	10.48	1221	10.89	1243	11.31	–	–	–	–	–	–
10400 [4908]	868	5.64	894	6.00	922	6.36	950	6.71	979	7.05	1021	7.69	1045	8.04	1067	8.38	1088	8.72	1107	9.05	1125	9.37	1141	9.69	1161	9.93	1183	10.30	1205	10.69	1226	11.10	1247	11.53	–	–	–	–	–	–
10500 [4955]	874	5.79	901	6.16	928	6.51	957	6.87	986	7.21	1027	7.86	1050	8.21	1072	8.55	1092	8.89	1111	9.22	1129	9.55	1144	9.87	1166	10.12	1188	10.50	1209	10.90	1231	11.31	1252	11.75	–	–	–	–	–	–
10600 [5002]	881	5.94	907	6.31	935	6.67	963	7.03	993	7.38	1033	8.03	1056	8.38	1077	8.73	1097	9.06	1115	9.40	1132	9.73	1148	10.05	1171	10.32	1192	10.70	1214	11.11	1235	11.53	1256	11.98	–	–	–	–	–	–
10700 [5049]	887	6.09	914	6.47	942	6.83	970	7.19	1000	7.55	1038	8.21	1061	8.56	1082	8.90	1101	9.24	1120	9.58	1136	9.91	1151	10.23	1176	10.52	1197	10.91	1219	11.32	1240	11.76	1261	12.21	–	–	–	–	–	–
10800 [5096]	894	6.25	921	6.63	948	7.00	977	7.36	1020	8.02	1044	8.38	1066	8.73	1087	9.08	1106	9.42	1124	9.76	1140	10.09	1159	10.35	1181	10.73	1202	11.12	1223	11.54	1244	11.98	–	–	–	–	–	–	–	–
10900 [5143]	900	6.41	927	6.79	955	7.16	984	7.53	1026	8.20	1049	8.56	1071	8.91	1092	9.26	1110	9.60	1128	9.94	1144	10.27	1164	10.55	1185	10.93	1207	11.34	1228	11.77	1249	12.21	–	–	–	–	–	–	–	–
11000 [5191]	907	6.57	934	6.96	962	7.33	991	7.70	1032	8.38	1055	8.74	1076	9.09	1096	9.44	1115	9.78	1132	10.12	1147	10.46	1169	10.75	1190	11.14	1212	11.56	1233	11.99	1254	12.45	–	–	–	–	–	–	–	–
11100 [5238]	914	6.74	941	7.13	969	7.50	998	7.88	1037	8.55	1060	8.92	1081	9.27	1101	9.62	1119	9.97	1136	10.31	1151	10.64	1174	10.96	1195	11.36	1216	11.78	1237	12.22	1258	12.68	–	–	–	–	–	–	–	–
11200 [5285]	921	6.91	948	7.30	976	7.68	1019	8.37	1043	8.73	1066	9.10	1086	9.45	1106	9.81	1124	10.15	1140	10.50	1158	10.78	1179	11.17	1200	11.58	1221	12.01	1242	12.45	–	–	–	–	–	–	–	–	–	–
11300 [5332]	927	7.08	955	7.47	983	7.86	1025	8.55	1049	8.92	1071	9.28	1091	9.64	1110	9.99	1128	10.34	1144	10.68	1163	10.99	1184	11.38	1205	11.80	1226	12.24	1247	12.69	–	–	–	–	–	–	–	–	–	–
11400 [5379]	934	7.25	962	7.65	990	8.04	1031	8.73	1055	9.10	1076	9.47	1096	9.83	1115	10.18	1132	10.53	1148	10.88	1168	11.20	1189	11.60	1210	12.03	1231	12.47	1252	12.93	–	–	–	–	–	–	–	–	–	–
11500 [5427]	941	7.43	969	7.83	997	8.22	1037	8.92	1060	9.29	1081	9.65	1101	10.01	1119	10.37	1136	10.72	1152	11.07	1173	11.41	1194	11.82	1215	12.25	1236	12.71	1256	13.18	–	–	–	–	–	–	–	–	–	–
11600 [5474]	948	7.61	976	8.01	1019	8.72	1043	9.10	1066	9.47	1087	9.84	1106	10.20	1124	10.56	1140	10.91	1157	11.24	1178	11.63	1199	12.05	1220	12.49	1240	12.95	1261	13.42	–	–	–	–	–	–	–	–	–	–
11700 [5521]	955	7.79	983	8.19	1026	8.91	1049	9.29	1071	9.66	1092	10.03	1111	10.40	1128	10.76	1145	11.11	1162	11.45	1183	11.85	1204	12.28	1225	12.72	1245	13.19	–	–	–	–	–	–	–	–	–	–	–	–
11800 [5568]	962	7.97	990	8.38	1032	9.10	1055	9.48	1077	9.86	1097	10.23	1116	10.59	1133	10.95	1149	11.31	1167	11.67	1188	12.08	1209	12.51	1230	12.96	1250	13.44	–	–	–	–	–	–	–	–	–	–	–	–
11900 [5615]	969	8.16	998	8.57	1038	9.29	1061	9.67	1082	10.05	1102	10.42	1120	10.79	1137	11.15	1153	11.50	1173	11.89	1193	12.31	1214	12.75	1235	13.21	1255	13.69	–	–	–	–	–	–	–	–	–	–	–	–
12000 [5663]	977	8.35	1020	9.09	1044	9.48	1067	9.86	1088	10.24	1107	10.62	1125	10.98	1142	11.35	1157	11.71	1178	12.11	1199	12.54	1219	12.99	1240	13.45	1260	13.94	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: F-Drive left of bold line, G-Drive right of bold line.

Appendix C – Air Flow Performance Data (Cont.)

Drive Package for 25 ton - Sideflow

Drive Package	F							G							H						
Motor H.P. [W]	7.5 [5592.7]							10 [7457.0]							10 [7457.0]						
Motor RPM	1760							1760							1760						
Blower Sheave	BK110							BK105							BK95						
Motor Frame Size	213							215							215						
Motor Sheave	1VP-65							1VP-71							1VP71						
Turns Open	0	1	2	**3**	4	5	6	0	1	2	3	**4**	5	6	0	1	2	3	**4**	5	6
RPM	|	996	962	**933**	902	872	841	|	1134	1108	1068	**1046**	1016	984	|	1255	1215	1179	**1148**	1114	1078

Drive Package for 25 ton - Downflow

Drive Package	F							G							H						
Motor H.P. [W]	7.5 [5592.7]							10 [7457.0]							10 [7457.0]						
Motor RPM	1760							1760							1760						
Blower Sheave	BK110							BK105							BK95						
Motor Frame Size	213							215							215						
Motor Sheave	1VP-65							1VP-71							1VP71						
Turns Open	0	1	2	**3**	4	5	6	0	1	2	3	**4**	5	6	0	1	2	3	**4**	5	6
RPM	|	998	967	**935**	903	873	842	|	1146	1110	1081	**1045**	1018	978	|	1258	1204	1172	**1144**	1098	1073

Notes:

1. Factory sheave settings are shown in bold type.
2. Do not set sheave below minimum or maximum turns open shown.
3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.
5. An RPM meter must be used to receive an accurate airflow reading.

P. APPENDICES

Appendix C – Air Flow Performance Data (Cont.)

COMPONENT AIRFLOW RESISTANCE — 15 TON [52.7kW]

CFM [L/s]	8000 [3775]	8400 [3964]	8800 [4153]	9200 [4341]	9600 [4530]	10000 [4719]	10400 [4908]	10800 [5096]	11200 [5285]	11600 [5474]	12000 [5663]
	Resistance — Inches of Water [kPa]										
Wet Coil	0.10 [.03]	0.11 [.03]	0.11 [.03]	0.12 [.03]	0.12 [.03]	0.13 [.03]	0.14 [.03]	0.14 [.03]	0.15 [.04]	0.15 [.04]	0.16 [.04]
Downflow Economizer RA Damper Open	0.32 [0.15]	0.33 [0.15]	0.35 [0.16]	0.37 [0.17]	0.39 [0.18]	0.40 [0.18]	0.42 [0.19]	0.44 [0.20]	0.46 [0.21]	0.47 [0.22]	0.49 [0.23]
Horizontal Economizer RA Damper Open	0.10 [0.04]	0.10 [0.05]	0.10 [0.05]	0.11 [0.05]	0.11 [0.05]	0.11 [0.05]	0.12 [0.05]	0.12 [0.05]	0.12 [0.05]	0.13 [0.06]	0.13 [0.06]
MERV 8 Filter	0.140 [0.06]	0.148 [0.06]	0.156 [0.07]	0.164 [0.07]	0.173 [0.08]	0.181 [0.08]	0.189 [0.08]	0.197 [0.09]	0.205 [0.09]	0.213 [0.10]	0.221 [0.10]
MERV 13 Filter	0.120 [0.05]	0.133 [0.06]	0.145 [0.06]	0.158 [0.07]	0.170 [0.08]	0.183 [0.08]	0.196 [0.09]	0.208 [0.09]	0.221 [0.10]	0.233 [0.10]	0.246 [0.11]
Concentric Grill RXRN-AD80 or RXRN-AD81 & Transition RXMC-CJ09	0.17 [.04]	0.23 [.06]	0.30 [.07]	0.36 [.09]	0.43 [.11]	0.50 [.12]	0.56 [.14]	0.63 [.16]	0.69 [.17]	0.76 [.19]	0.82 [.20]

AIRFLOW CORRECTION FACTORS — 15 TON [52.7kW]

CFM [L/s]	8000 [3775]	8400 [3964]	8800 [4153]	9200 [4341]	9600 [4530]	10000 [4719]	10400 [4908]	10800 [5096]	11200 [5285]	11600 [5474]	12000 [5663]
Total MBH	0.99	1.00	1.01	1.02	1.03	1.04	1.05	1.06	1.07	1.08	1.09
Sensible MBH	0.97	1.00	1.03	1.06	1.09	1.12	1.15	1.18	1.21	1.24	1.27
Power kW	1.00	1.00	1.00	1.01	1.01	1.01	1.02	1.02	1.02	1.03	1.03

NOTE: Multiply correction factor times gross performance data — resulting sensible capacity cannot exceed total capacity.

Appendix D – Cooling Data for (-)GEG 15 Ton

COOLING PERFORMANCE DATA - RGEG2T180A

		Entering Indoor Air @ 80°F [26.7°C] dbE ⓘ															
	wbE	71°F [21.7°C]			67°F [19.4°C]			63°F [17.2°C]			61°F [16.1°C]			59°F [15.0°C]		
	CFM [L/s]	7200 [3398]	5900 [2784]	4800 [2265]	7200 [3398]	5900 [2784]	4800 [2265]	7200 [3398]	5900 [2784]	4800 [2265]	7200 [3398]	5900 [2784]	4800 [2265]	7200 [3398]	5900 [2784]	4800 [2265]
	DR ⓘ	0.3	0.27	0.25	0.3	0.27	0.25	0.3	0.27	0.25	0.3	0.27	0.25	0.3	0.27	0.25
Outdoor Dry Bulb Temperature	75°F [23.9°C] Total BTUH [kW]	207.4 [60.8]	199.4 [58.4]	192.7 [56.5]	196 [57.4]	188.4 [55.2]	182 [53.3]	186.4 [54.6]	179.3 [52.5]	173.2 [50.7]	182.4 [53.4]	175.4 [51.4]	169.4 [49.6]	178.8 [52.4]	171.9 [50.4]	166.1 [48.7]
	Sens BTUH [kW]	102.6 [30.1]	93 [27.3]	84.9 [24.9]	135.8 [39.8]	123.1 [36.1]	112.4 [32.9]	159 [46.6]	144.2 [42.3]	131.7 [38.6]	165 [48.4]	149.7 [43.9]	136.6 [40]	166 [48.6]	150.5 [44.1]	137.4 [40.3]
	Power	12.2	11.9	11.7	12	11.8	11.6	11.9	11.7	11.5	11.9	11.6	11.4	11.8	11.6	11.4
	80°F [26.7°C] Total BTUH [kW]	205.3 [60.2]	197.4 [57.9]	190.7 [55.9]	193.9 [56.8]	186.4 [54.6]	180.1 [52.8]	184.3 [54]	177.2 [51.9]	171.2 [50.2]	180.3 [52.8]	173.4 [50.8]	167.5 [49.1]	176.7 [51.8]	169.9 [49.8]	164.2 [48.1]
	Sens BTUH [kW]	103.2 [30.3]	93.6 [27.4]	85.5 [25]	136.4 [40]	123.7 [36.3]	113 [33.1]	159.7 [46.8]	144.8 [42.4]	132.2 [38.7]	165.7 [48.6]	150.2 [44]	137.2 [40.2]	166.6 [48.8]	151.1 [44.3]	138 [40.4]
	Power	12.8	12.5	12.3	12.7	12.4	12.2	12.5	12.3	12.1	12.5	12.2	12	12.4	12.2	12
	85°F [29.4°C] Total BTUH [kW]	202.9 [59.5]	195.1 [57.2]	188.5 [55.2]	191.5 [56.1]	184.1 [54]	177.9 [52.1]	182 [53.3]	175 [51.3]	169 [49.5]	177.9 [52.1]	171.1 [50.1]	165.3 [48.4]	174.3 [51.1]	167.6 [49.1]	161.9 [47.5]
	Sens BTUH [kW]	103.3 [30.3]	93.7 [27.4]	85.5 [25.1]	136.5 [40]	123.8 [36.3]	113 [33.1]	159.7 [46.8]	144.8 [42.4]	132.2 [38.7]	165.7 [48.6]	150.3 [44]	137.2 [40.2]	166.7 [48.8]	151.1 [44.3]	138 [40.4]
	Power	13.4	13.2	13	13.3	13.1	12.8	13.2	12.9	12.7	13.1	12.9	12.7	13.1	12.8	12.6
	90°F [32.2°C] Total BTUH [kW]	200.3 [58.7]	192.5 [56.4]	186 [54.5]	188.8 [55.3]	181.5 [53.2]	175.4 [51.4]	179.3 [52.5]	172.4 [50.5]	166.5 [48.8]	175.2 [51.3]	168.5 [49.4]	162.8 [47.7]	171.6 [50.3]	165 [48.4]	159.4 [46.7]
	Sens BTUH [kW]	102.7 [30.1]	93.2 [27.3]	85 [24.9]	135.9 [39.8]	123.3 [36.1]	112.5 [33]	159.2 [46.6]	144.3 [42.3]	131.8 [38.6]	165.2 [48.4]	149.8 [43.9]	136.7 [40.1]	166.1 [48.7]	150.6 [44.1]	137.5 [40.3]
	Power	14.1	13.9	13.6	14	13.7	13.5	13.9	13.6	13.4	13.8	13.5	13.3	13.8	13.5	13.3
	95°F [35.0°C] Total BTUH [kW]	197.3 [57.8]	189.7 [55.6]	183.2 [53.7]	185.8 [54.5]	178.7 [52.4]	172.6 [50.6]	176.3 [51.7]	169.5 [49.7]	163.7 [48]	172.2 [50.5]	165.6 [48.5]	160 [46.9]	168.7 [49.4]	162.2 [47.5]	156.7 [45.9]
	Sens BTUH [kW]	101.6 [29.8]	92.1 [27]	84.1 [24.6]	134.8 [39.5]	122.2 [35.8]	111.6 [32.7]	158 [46.3]	143.3 [42]	130.8 [38.3]	164 [48.1]	148.7 [43.6]	135.8 [39.8]	165 [48.3]	149.6 [43.8]	136.6 [40]
	Power	14.9	14.6	14.3	14.7	14.4	14.2	14.6	14.3	14.1	14.5	14.3	14	14.5	14.2	14
	100°F [37.8°C] Total BTUH [kW]	194 [56.8]	186.5 [54.7]	180.2 [52.8]	182.5 [53.5]	175.5 [51.4]	169.5 [49.7]	173 [50.7]	166.3 [48.7]	160.7 [47.1]	168.9 [49.5]	162.4 [47.6]	156.9 [46]	165.4 [48.5]	159 [46.6]	153.6 [45]
	Sens BTUH [kW]	99.8 [29.3]	90.5 [26.5]	82.7 [24.2]	133 [39]	120.6 [35.4]	110.1 [32.3]	156.3 [45.8]	141.7 [41.5]	129.4 [37.9]	162.3 [47.6]	147.2 [43.1]	134.4 [39.4]	163.2 [47.8]	148 [43.4]	135.1 [39.6]
	Power	15.6	15.3	15.1	15.5	15.2	15	15.4	15.1	14.8	15.3	15	14.8	15.3	15	14.7
	105°F [40.6°C] Total BTUH [kW]	190.4 [55.8]	183 [53.6]	176.8 [51.8]	178.9 [52.4]	172 [50.4]	166.2 [48.7]	169.4 [49.6]	162.9 [47.7]	157.3 [46.1]	165.3 [48.5]	159 [46.6]	153.6 [45]	161.8 [47.4]	155.5 [45.6]	150.3 [44]
	Sens BTUH [kW]	97.5 [28.6]	88.4 [25.9]	80.7 [23.7]	130.7 [38.3]	118.5 [34.7]	108.2 [31.7]	153.9 [45.1]	139.6 [40.9]	127.4 [37.3]	159.9 [46.9]	145 [42.5]	132.4 [38.8]	160.9 [47.1]	145.9 [42.8]	133.2 [39]
	Power	16.4	16.1	15.9	16.3	16	15.7	16.2	15.9	15.6	16.1	15.8	15.6	16.1	15.8	15.5
	110°F [43.3°C] Total BTUH [kW]	186.5 [54.6]	179.3 [52.5]	173.2 [50.8]	175 [51.3]	168.3 [49.3]	162.6 [47.6]	165.5 [48.5]	159.1 [46.6]	153.7 [45]	161.4 [47.3]	155.2 [45.5]	150 [43.9]	157.9 [46.3]	151.8 [44.5]	146.7 [43]
	Sens BTUH [kW]	94.6 [27.7]	85.7 [25.1]	78.3 [22.9]	127.8 [37.4]	115.8 [33.9]	105.8 [31]	151 [44.2]	136.9 [40.1]	125 [36.6]	157 [46]	142.4 [41.7]	130 [38.1]	157.9 [46.3]	143.2 [42]	130.8 [38.3]
	Power	17.3	17	16.7	17.2	16.8	16.6	17	16.7	16.4	17	16.7	16.4	16.9	16.6	16.3
	115°F [46.1°C] Total BTUH [kW]	182.3 [53.4]	175.3 [51.4]	169.3 [49.6]	170.8 [50.1]	164.3 [48.1]	158.7 [46.5]	161.3 [47.3]	155.1 [45.4]	149.8 [43.9]	157.3 [46.1]	151.2 [44.3]	146.1 [42.8]	153.7 [45]	147.8 [43.3]	142.8 [41.8]
	Sens BTUH [kW]	91 [26.7]	82.5 [24.2]	75.3 [22.1]	124.2 [36.4]	112.6 [33]	102.8 [30.1]	147.5 [43.2]	133.7 [39.2]	122.1 [35.8]	153.5 [45]	139.2 [40.8]	127 [37.2]	153.7 [45]	140 [41]	127.8 [37.5]
	Power	18.2	17.8	17.5	18.1	17.7	17.4	17.9	17.6	17.3	17.9	17.5	17.2	17.8	17.5	17.2
	120°F [48.9°C] Total BTUH [kW]	177.8 [52.1]	171 [50.1]	165.2 [48.4]	166.3 [48.7]	159.9 [46.9]	154.5 [45.3]	156.8 [46]	150.8 [44.2]	145.7 [42.7]	152.8 [44.8]	146.9 [43]	141.9 [41.6]	149.2 [43.7]	143.4 [42]	138.6 [40.6]
	Sens BTUH [kW]	86.9 [25.5]	78.8 [23.1]	71.9 [21.1]	120.1 [35.2]	108.9 [31.9]	99.4 [29.1]	143.3 [42]	130 [38.1]	118.6 [34.8]	149.3 [43.8]	135.4 [39.7]	123.6 [36.2]	149.2 [43.7]	136.3 [39.9]	124.4 [36.5]
	Power	19.1	18.7	18.4	19	18.6	18.3	18.9	18.5	18.2	18.8	18.4	18.1	18.7	18.4	18.1
	125°F [51.7°C] Total BTUH [kW]	173 [50.7]	166.3 [48.7]	160.7 [47.1]	161.6 [47.3]	155.3 [45.5]	150.1 [44]	152 [44.5]	146.2 [42.8]	141.2 [41.4]	148 [43.4]	142.3 [41.7]	137.4 [40.3]	144.4 [42.3]	138.8 [40.7]	134.1 [39.3]
	Sens BTUH [kW]	82.1 [24.1]	74.5 [21.8]	68 [19.9]	115.4 [33.8]	104.6 [30.7]	95.5 [28]	138.6 [40.6]	125.7 [36.8]	114.7 [33.6]	144.6 [42.4]	131.1 [38.4]	119.7 [35.1]	144.4 [42.3]	132 [38.7]	120.5 [35.3]
	Power	20.1	19.7	19.4	19.9	19.6	19.2	19.8	19.4	19.1	19.8	19.4	19.1	19.7	19.3	19

DR —Depression ratio Total —Total capacity x 1000 BTUH NOTES:

dbE —Entering air dry bulb Sens —Sensible capacity x 1000 BTUH ⓘ When the entering air dry bulb is other than 80°F [27°C], adjust the sensible

wbE—Entering air wet bulb Power—KW input capacity from the table by adding [1.10 x CFM x (1 – DR) x (dbE – 80)].

Appendix D – Cooling Data for (-)GEG 17.5 Ton

COOLING PERFORMANCE DATA - RGEG2T210A

Entering Indoor Air @ 80°F [26.7°C] dbE ⓘ																		
wbE			71°F [21.7°C]			67°F [19.4°C]			63°F [17.2°C]			61°F [16.1°C]			59°F [15.0°C]		
CFM [L/s]			8400 [3964]	6900 [3256]	5600 [2643]	8400 [3964]	6900 [3256]	5600 [2643]	8400 [3964]	6900 [3256]	5600 [2643]	8400 [3964]	6900 [3256]	5600 [2643]	8400 [3964]	6900 [3256]	5600 [2643]
DR ⓘ			0.3	0.27	0.25	0.3	0.27	0.25	0.3	0.27	0.25	0.3	0.27	0.25	0.3	0.27	0.25
Outdoor Dry Bulb Temperature	75°F [23.9°C]	Total BTUH [kW]	238.6 [69.9]	229.5 [67.2]	221.6 [64.9]	227.1 [66.6]	218.5 [64]	211 [61.8]	217.6 [63.8]	209.3 [61.3]	202.1 [59.2]	213.5 [62.6]	205.4 [60.2]	198.4 [58.1]	210 [61.5]	202 [59.2]	195.1 [57.2]
		Sens BTUH [kW]	125 [36.6]	113.5 [33.3]	103.5 [30.3]	158.2 [46.3]	143.6 [42.1]	131 [38.4]	181.4 [53.1]	164.7 [48.3]	150.2 [44]	187.4 [54.9]	170.1 [49.8]	155.1 [45.5]	188.3 [55.2]	171 [50.1]	155.9 [45.7]
		Power	14.4	14.1	13.9	14.3	14	13.8	14.2	13.9	13.7	14.1	13.8	13.6	14	13.8	13.5
	80°F [26.7°C]	Total BTUH [kW]	236.5 [69.3]	227.5 [66.7]	219.7 [64.4]	225 [65.9]	216.5 [63.4]	209.1 [61.3]	215.5 [63.1]	207.3 [60.7]	200.2 [58.7]	211.4 [62]	203.4 [59.6]	196.4 [57.6]	207.9 [60.9]	200 [58.6]	193.1 [56.6]
		Sens BTUH [kW]	125.6 [36.8]	114.1 [33.4]	104 [30.5]	158.8 [46.5]	144.2 [42.2]	131.5 [38.5]	182 [53.3]	165.2 [48.4]	150.7 [44.2]	188 [55.1]	170.7 [50]	155.7 [45.6]	189 [55.4]	171.5 [50.3]	156.5 [45.8]
		Power	15	14.7	14.5	14.9	14.6	14.4	14.8	14.5	14.3	14.7	14.4	14.2	14.6	14.4	14.1
	85°F [29.4°C]	Total BTUH [kW]	234.1 [68.6]	225.2 [66]	217.5 [63.7]	222.6 [65.2]	214.2 [62.8]	206.8 [60.6]	213.1 [62.4]	205 [60.1]	198 [58]	209.1 [61.3]	201.1 [58.9]	194.2 [56.9]	205.5 [60.2]	197.7 [57.9]	190.9 [55.9]
		Sens BTUH [kW]	125.7 [36.8]	114.1 [33.4]	104.1 [30.5]	158.8 [46.5]	144.2 [42.3]	131.5 [38.5]	182 [53.3]	165.3 [48.4]	150.7 [44.2]	188.1 [55.1]	170.7 [50]	155.7 [45.6]	189 [55.4]	171.6 [50.3]	156.5 [45.9]
		Power	15.7	15.4	15.1	15.5	15.3	15	15.4	15.1	14.9	15.4	15.1	14.8	15.3	15	14.8
	90°F [32.2°C]	Total BTUH [kW]	231.4 [67.8]	222.6 [65.2]	215 [63]	219.9 [64.5]	211.6 [62]	204.3 [59.9]	210.4 [61.7]	202.4 [59.3]	195.5 [57.3]	206.4 [60.5]	198.5 [58.2]	191.7 [56.2]	202.8 [59.4]	195.1 [57.2]	188.4 [55.2]
		Sens BTUH [kW]	125.1 [36.7]	113.6 [33.3]	103.6 [30.4]	158.3 [46.4]	143.7 [42.1]	131.1 [38.4]	181.5 [53.2]	164.8 [48.3]	150.3 [44]	187.5 [54.9]	170.2 [49.9]	155.3 [45.5]	188.4 [55.2]	171.1 [50.1]	156 [45.7]
		Power	16.4	16.1	15.8	16.2	15.9	15.7	16.1	15.8	15.5	16.1	15.7	15.5	16	15.7	15.4
	95°F [35.0°C]	Total BTUH [kW]	228.4 [66.9]	219.7 [64.4]	212.2 [62.2]	217 [63.6]	208.7 [61.2]	201.6 [59.1]	207.4 [60.8]	199.5 [58.5]	192.7 [56.5]	203.4 [59.6]	195.6 [57.3]	188.9 [55.4]	199.8 [58.6]	192.2 [56.3]	185.6 [54.4]
		Sens BTUH [kW]	124 [36.3]	112.6 [33]	102.7 [30.1]	157.1 [46.1]	142.7 [41.8]	130.1 [38.1]	180.4 [52.8]	163.7 [48]	149.3 [43.8]	186.4 [54.6]	169.2 [49.6]	154.3 [45.2]	187.3 [54.9]	170 [49.8]	155.1 [45.4]
		Power	17.1	16.8	16.5	17	16.6	16.4	16.8	16.5	16.3	16.8	16.5	16.2	16.7	16.4	16.1
	100°F [37.8°C]	Total BTUH [kW]	225.1 [66]	216.5 [63.5]	209.1 [61.3]	213.7 [62.6]	205.5 [60.2]	198.5 [58.2]	204.1 [59.8]	196.4 [57.5]	189.6 [55.6]	200.1 [58.6]	192.5 [56.4]	185.9 [54.5]	196.5 [57.6]	189 [55.4]	182.6 [53.5]
		Sens BTUH [kW]	122.2 [35.8]	111 [32.5]	101.2 [29.7]	155.4 [45.5]	141.1 [41.3]	128.7 [37.7]	178.6 [52.3]	162.2 [47.5]	147.9 [43.3]	184.6 [54.1]	167.6 [49.1]	152.9 [44.8]	185.6 [54.4]	168.5 [49.4]	153.7 [45]
		Power	17.9	17.5	17.2	17.7	17.4	17.1	17.6	17.3	17	17.6	17.2	16.9	17.5	17.2	16.9
	105°F [40.6°C]	Total BTUH [kW]	221.5 [64.9]	213.1 [62.4]	205.8 [60.3]	210.1 [61.6]	202.1 [59.2]	195.2 [57.2]	200.5 [58.8]	192.9 [56.5]	186.3 [54.6]	196.5 [57.6]	189 [55.4]	182.5 [53.5]	192.9 [56.5]	185.6 [54.4]	179.2 [52.5]
		Sens BTUH [kW]	119.9 [35.1]	108.9 [31.9]	99.3 [29.1]	153.1 [44.9]	139 [40.7]	126.7 [37.1]	176.3 [51.7]	160 [46.9]	146 [42.8]	182.3 [53.4]	165.5 [48.5]	150.9 [44.2]	183.2 [53.7]	166.3 [48.7]	151.7 [44.5]
		Power	18.7	18.3	18	18.5	18.2	17.9	18.4	18.1	17.8	18.4	18	17.7	18.3	18	17.7
	110°F [43.3°C]	Total BTUH [kW]	217.6 [63.8]	209.4 [61.3]	202.2 [59.2]	206.2 [60.4]	198.3 [58.1]	191.5 [56.1]	196.6 [57.6]	189.2 [55.4]	182.7 [53.5]	192.6 [56.4]	185.3 [54.3]	178.9 [52.4]	189 [55.4]	181.8 [53.3]	175.6 [51.5]
		Sens BTUH [kW]	117 [34.3]	106.2 [31.1]	96.8 [28.4]	150.1 [44]	136.3 [39.9]	124.3 [36.4]	173.3 [50.8]	157.4 [46.1]	143.5 [42.1]	179.3 [52.6]	162.8 [47.7]	148.5 [43.5]	180.3 [52.8]	163.7 [48]	149.3 [43.7]
		Power	19.5	19.2	18.8	19.4	19	18.7	19.3	18.9	18.6	19.2	18.9	18.5	19.2	18.8	18.5
	115°F [46.1°C]	Total BTUH [kW]	213.4 [62.5]	205.3 [60.2]	198.3 [58.1]	202 [59.2]	194.3 [56.9]	187.7 [55]	192.5 [56.4]	185.1 [54.3]	178.8 [52.4]	188.4 [55.2]	181.2 [53.1]	175 [51.3]	184.8 [54.2]	177.8 [52.1]	171.7 [50.3]
		Sens BTUH [kW]	113.4 [33.2]	103 [30.2]	93.9 [27.5]	146.6 [43]	133.1 [39]	121.4 [35.6]	169.8 [49.8]	154.2 [45.2]	140.6 [41.2]	175.8 [51.5]	159.6 [46.8]	145.6 [42.7]	176.7 [51.8]	160.5 [47]	146.4 [42.9]
		Power	20.4	20	19.7	20.3	19.9	19.6	20.2	19.8	19.5	20.1	19.7	19.4	20	19.7	19.3
	120°F [48.9°C]	Total BTUH [kW]	208.9 [61.2]	201 [58.9]	194.1 [56.9]	197.5 [57.9]	190 [55.7]	183.5 [53.8]	188 [55.1]	180.8 [53]	174.6 [51.2]	183.9 [53.9]	176.9 [51.8]	170.9 [50.1]	180.4 [52.8]	173.5 [50.8]	167.6 [49.1]
		Sens BTUH [kW]	109.3 [32]	99.2 [29.1]	90.5 [26.5]	142.5 [41.7]	129.3 [37.9]	118 [34.6]	165.7 [48.5]	150.4 [44.1]	137.2 [40.2]	171.7 [50.3]	155.9 [45.7]	142.1 [41.7]	172.6 [50.6]	156.7 [45.9]	142.9 [41.9]
		Power	21.3	20.9	20.6	21.2	20.8	20.5	21.1	20.7	20.4	21	20.6	20.3	21	20.6	20.2
	125°F [51.7°C]	Total BTUH [kW]	204.2 [59.8]	196.4 [57.6]	189.7 [55.6]	192.7 [56.5]	185.4 [54.3]	179 [52.5]	183.2 [53.7]	176.2 [51.6]	170.2 [49.9]	179.1 [52.5]	172.3 [50.5]	166.4 [48.8]	175.6 [51.4]	168.9 [49.5]	163.1 [47.8]
		Sens BTUH [kW]	104.6 [30.6]	94.9 [27.8]	86.6 [25.4]	137.7 [40.4]	125 [36.6]	114 [33.4]	160.9 [47.2]	146.1 [42.8]	133.3 [39.1]	166.9 [48.9]	151.6 [44.4]	138.2 [40.5]	167.9 [49.2]	152.4 [44.7]	139 [40.7]
		Power	22.3	21.9	21.5	22.2	21.8	21.4	22.1	21.6	21.3	22	21.6	21.2	21.9	21.5	21.2

DR —Depression ratio Total —Total capacity x 1000 BTUH NOTES:

dbE —Entering air dry bulb Sens —Sensible capacity x 1000 BTUH ⓘ When the entering air dry bulb is other than 80°F [27°C], adjust the sensible

wbE—Entering air wet bulb Power—KW input capacity from the table by adding [1.10 x CFM x (1 – DR) x (dbE – 80)].

Appendix D – Cooling Data for (-)GEG 20 Ton

COOLING PERFORMANCE DATA - RGEG2T240A

		Entering Indoor Air @ 80°F [26.7°C] dbE ①															
	wbE	71°F [21.7°C]			67°F [19.4°C]			63°F [17.2°C]			61°F [16.1°C]			59°F [15.0°C]		
	CFM [L/s]	9600 [4531]	7300 [3445]	6400 [3020]	9600 [4531]	7300 [3445]	6400 [3020]	9600 [4531]	7300 [3445]	6400 [3020]	9600 [4531]	7300 [3445]	6400 [3020]	9600 [4531]	7300 [3445]	6400 [3020]
	DR ①	0.26	0.23	0.21	0.26	0.23	0.21	0.26	0.23	0.21	0.26	0.23	0.21	0.26	0.23	0.21
Outdoor Dry Bulb Temperature	75°F [23.9°C] Total BTUH [kW]	272.2 [79.8]	257.5 [75.5]	251.7 [73.8]	260.6 [76.4]	246.5 [72.2]	241 [70.6]	250.9 [73.5]	237.3 [69.5]	232 [68]	246.8 [72.3]	233.4 [68.4]	228.2 [66.9]	243.2 [71.3]	230 [67.4]	224.8 [65.9]
	75°F [23.9°C] Sens BTUH [kW]	151.7 [44.5]	132.3 [38.8]	124.7 [36.5]	186.3 [54.6]	162.4 [47.6]	153 [44.8]	210.4 [61.7]	183.4 [53.8]	172.9 [50.7]	216.7 [63.5]	188.9 [55.4]	178 [52.2]	217.7 [63.8]	189.8 [55.6]	178.8 [52.4]
	75°F [23.9°C] Power	17.4	16.9	16.8	17.3	16.8	16.6	17.2	16.7	16.5	17.1	16.6	16.5	17	16.6	16.4
	80°F [26.7°C] Total BTUH [kW]	270.1 [79.2]	255.5 [74.9]	249.8 [73.2]	258.5 [75.7]	244.5 [71.6]	239 [70]	248.8 [72.9]	235.3 [69]	230 [67.4]	244.7 [71.7]	231.4 [67.8]	226.2 [66.3]	241 [70.6]	228 [66.8]	222.9 [65.3]
	80°F [26.7°C] Sens BTUH [kW]	152.4 [44.7]	132.9 [38.9]	125.2 [36.7]	186.9 [54.8]	163 [47.8]	153.6 [45]	211.1 [61.9]	184 [53.9]	173.4 [50.8]	217.3 [63.7]	189.5 [55.5]	178.6 [52.3]	218.3 [64]	190.3 [55.8]	179.4 [52.6]
	80°F [26.7°C] Power	18	17.5	17.3	17.9	17.4	17.2	17.8	17.3	17.1	17.7	17.2	17	17.6	17.2	17
	85°F [29.4°C] Total BTUH [kW]	267.7 [78.4]	253.2 [74.2]	247.5 [72.5]	256 [75]	242.2 [71]	236.7 [69.4]	246.3 [72.2]	233 [68.3]	227.8 [66.7]	242.2 [71]	229.1 [67.1]	224 [65.6]	238.6 [69.9]	225.7 [66.1]	220.6 [64.6]
	85°F [29.4°C] Sens BTUH [kW]	152.4 [44.7]	132.9 [38.9]	125.2 [36.7]	187 [54.8]	163 [47.8]	153.6 [45]	211.1 [61.9]	184.1 [53.9]	173.5 [50.8]	217.4 [63.7]	189.5 [55.5]	178.6 [52.3]	218.4 [64]	190.4 [55.8]	179.4 [52.6]
	85°F [29.4°C] Power	18.7	18.2	18	18.6	18.1	17.9	18.4	17.9	17.7	18.4	17.9	17.7	18.3	17.8	17.6
	90°F [32.2°C] Total BTUH [kW]	264.9 [77.6]	250.6 [73.4]	245 [71.8]	253.3 [74.2]	239.6 [70.2]	234.2 [68.6]	243.6 [71.4]	230.4 [67.5]	225.2 [66]	239.5 [70.2]	226.5 [66.4]	221.4 [64.9]	235.9 [69.1]	223.1 [65.4]	218.1 [63.9]
	90°F [32.2°C] Sens BTUH [kW]	151.9 [44.5]	132.4 [38.8]	124.8 [36.6]	186.4 [54.6]	162.5 [47.6]	153.2 [44.9]	210.6 [61.7]	183.6 [53.8]	173 [50.7]	216.8 [63.5]	189 [55.4]	178.1 [52.2]	217.8 [63.8]	189.9 [55.6]	179 [52.4]
	90°F [32.2°C] Power	19.4	18.9	18.6	19.3	18.7	18.5	19.1	18.6	18.4	19.1	18.5	18.3	19	18.5	18.3
	95°F [35.0°C] Total BTUH [kW]	261.9 [76.7]	247.7 [72.6]	242.2 [71]	250.3 [73.3]	236.7 [69.4]	231.4 [67.8]	240.6 [70.5]	227.5 [66.7]	222.4 [65.2]	236.5 [69.3]	223.6 [65.5]	218.6 [64.1]	232.8 [68.2]	220.2 [64.5]	215.3 [63.1]
	95°F [35.0°C] Sens BTUH [kW]	150.7 [44.2]	131.4 [38.5]	123.8 [36.3]	185.2 [54.3]	161.5 [47.3]	152.2 [44.6]	209.4 [61.4]	182.5 [53.5]	172 [50.4]	215.6 [63.2]	188 [55.1]	177.2 [51.9]	216.6 [63.5]	188.8 [55.3]	178 [52.2]
	95°F [35.0°C] Power	20.1	19.6	19.4	20	19.4	19.2	19.9	19.3	19.1	19.8	19.3	19.1	19.7	19.2	19
	100°F [37.8°C] Total BTUH [kW]	258.6 [75.8]	244.5 [71.7]	239.1 [70.1]	246.9 [72.4]	233.5 [68.4]	228.3 [66.9]	237.2 [69.5]	224.4 [65.7]	219.3 [64.3]	233.1 [68.3]	220.5 [64.6]	215.5 [63.2]	229.5 [67.2]	217 [63.6]	212.2 [62.2]
	100°F [37.8°C] Sens BTUH [kW]	148.8 [43.6]	129.8 [38]	122.3 [35.8]	183.4 [53.7]	159.9 [46.9]	150.7 [44.2]	207.6 [60.8]	180.9 [53]	170.5 [50]	213.8 [62.7]	186.4 [54.6]	175.7 [51.5]	214.8 [62.9]	187.3 [54.9]	176.5 [51.7]
	100°F [37.8°C] Power	20.9	20.3	20.1	20.8	20.2	20	20.6	20.1	19.9	20.6	20	19.8	20.5	20	19.7
	105°F [40.6°C] Total BTUH [kW]	254.9 [74.7]	241.1 [70.7]	235.7 [69.1]	243.3 [71.3]	230.1 [67.4]	224.9 [65.9]	233.6 [68.4]	220.9 [64.7]	216 [63.3]	229.5 [67.2]	217 [63.6]	212.2 [62.2]	225.8 [66.2]	213.6 [62.6]	208.8 [61.2]
	105°F [40.6°C] Sens BTUH [kW]	146.4 [42.9]	127.6 [37.4]	120.3 [35.3]	180.9 [53]	157.8 [46.2]	148.7 [43.6]	205.1 [60.1]	178.8 [52.4]	168.5 [49.4]	211.4 [61.9]	184.3 [54]	173.7 [50.9]	212.3 [62.2]	185.1 [54.2]	174.5 [51.1]
	105°F [40.6°C] Power	21.7	21.1	20.9	21.6	21	20.8	21.5	20.9	20.7	21.4	20.8	20.6	21.3	20.8	20.5
	110°F [43.3°C] Total BTUH [kW]	250.9 [73.5]	237.4 [69.6]	232 [68]	239.3 [70.1]	226.3 [66.3]	221.3 [64.8]	229.6 [67.3]	217.2 [63.6]	212.3 [62.2]	225.5 [66.1]	213.3 [62.5]	208.5 [61.1]	221.9 [65]	209.8 [61.5]	205.1 [60.1]
	110°F [43.3°C] Sens BTUH [kW]	143.4 [42]	125 [36.6]	117.8 [34.5]	177.9 [52.1]	155.1 [45.4]	146.2 [42.8]	202.1 [59.2]	176.2 [51.6]	166 [48.6]	208.3 [61]	181.6 [53.2]	171.2 [50.2]	209.3 [61.3]	182.5 [53.5]	172 [50.4]
	110°F [43.3°C] Power	22.6	22	21.7	22.4	21.8	21.6	22.3	21.7	21.5	22.3	21.7	21.4	22.2	21.6	21.4
	115°F [46.1°C] Total BTUH [kW]	246.7 [72.3]	233.3 [68.4]	228.1 [66.8]	235 [68.9]	222.3 [65.1]	217.3 [63.7]	225.3 [66]	213.1 [62.5]	208.4 [61.1]	221.2 [64.8]	209.2 [61.3]	204.6 [59.9]	217.6 [63.8]	205.8 [60.3]	201.2 [59]
	115°F [46.1°C] Sens BTUH [kW]	139.7 [40.9]	121.8 [35.7]	114.8 [33.6]	174.2 [51.1]	151.9 [44.5]	143.1 [41.9]	198.4 [58.1]	172.9 [50.7]	163 [47.8]	204.6 [60]	178.4 [52.3]	168.1 [49.3]	205.6 [60.3]	179.3 [52.5]	168.9 [49.5]
	115°F [46.1°C] Power	23.5	22.8	22.6	23.3	22.7	22.5	23.2	22.6	22.3	23.1	22.5	22.3	23.1	22.5	22.2
	120°F [48.9°C] Total BTUH [kW]	242.1 [70.9]	229 [67.1]	223.9 [65.6]	230.5 [67.5]	218 [63.9]	213.1 [62.4]	220.8 [64.7]	208.8 [61.2]	204.1 [59.8]	216.7 [63.5]	204.9 [60.1]	200.3 [58.7]	213 [62.4]	201.5 [59]	197 [57.7]
	120°F [48.9°C] Sens BTUH [kW]	135.4 [39.7]	118 [34.6]	111.2 [32.6]	169.9 [49.8]	148.1 [43.4]	139.6 [40.9]	194.1 [56.9]	169.2 [49.6]	159.5 [46.7]	200.3 [58.7]	174.6 [51.2]	164.6 [48.2]	201.3 [59]	175.5 [51.4]	165.4 [48.5]
	120°F [48.9°C] Power	24.4	23.7	23.5	24.3	23.6	23.4	24.1	23.5	23.2	24.1	23.4	23.2	24	23.4	23.1
	125°F [51.7°C] Total BTUH [kW]	237.2 [69.5]	224.4 [65.8]	219.4 [64.3]	225.6 [66.1]	213.4 [62.5]	208.6 [61.1]	215.9 [63.3]	204.2 [59.8]	199.6 [58.5]	211.8 [62.1]	200.3 [58.7]	195.8 [57.4]	208.2 [61]	196.9 [57.7]	192.5 [56.4]
	125°F [51.7°C] Sens BTUH [kW]	130.4 [38.2]	113.7 [33.3]	107.2 [31.4]	165 [48.3]	143.8 [42.1]	135.6 [39.7]	189.1 [55.4]	164.9 [48.3]	155.4 [45.5]	195.4 [57.3]	170.3 [49.9]	160.5 [47]	196.4 [57.5]	171.2 [50.2]	161.4 [47.3]
	125°F [51.7°C] Power	25.4	24.7	24.4	25.2	24.6	24.3	25.1	24.4	24.2	25.1	24.4	24.1	25	24.3	24.1

DR —Depression ratio Total —Total capacity x 1000 BTUH NOTES:

dbE —Entering air dry bulb Sens —Sensible capacity x 1000 BTUH ① When the entering air dry bulb is other than 80°F [27°C], adjust the sensible

wbE—Entering air wet bulb Power—KW input capacity from the table by adding [1.10 x CFM x (1 – DR) x (dbE – 80)].

Appendix D – Cooling Data for (-)GEG 25 Ton

COOLING PERFORMANCE DATA - RGEG2T300A

			Entering Indoor Air @ 80ºF [26.7ºC] dbE ⓘ															
	wbE		71ºF [21.7ºC]			67ºF [19.4ºC]			63ºF [17.2ºC]			61ºF [16.1ºC]			59ºF [15.0ºC]		
	CFM [L/s]		12000 [5663]	8400 [3964]	8000 [3776]	12000 [5663]	8400 [3964]	8000 [3776]	12000 [5663]	8400 [3964]	8000 [3776]	12000 [5663]	8400 [3964]	8000 [3776]	12000 [5663]	8400 [3964]	8000 [3776]
	DR ⓘ		0.2	0.16	0.15	0.2	0.16	0.15	0.2	0.16	0.15	0.2	0.16	0.15	0.2	0.16	0.15
Outdoor Dry Bulb Temperature	75ºF [23.9ºC]	Total BTUH [kW]	339.6 [99.5]	315 [92.3]	312.3 [91.5]	332.9 [97.6]	308.8 [90.5]	306.2 [89.7]	327.1 [95.9]	303.5 [88.9]	300.8 [88.2]	324.7 [95.2]	301.2 [88.3]	298.6 [87.5]	322.7 [94.6]	299.4 [87.7]	296.8 [87]
		Sens BTUH [kW]	242.1 [70.9]	201.7 [59.1]	197.3 [57.8]	255.6 [74.9]	213 [62.4]	208.3 [61]	265.9 [77.9]	221.6 [64.9]	216.7 [63.5]	269.4 [78.9]	224.5 [65.8]	219.5 [64.3]	271.3 [79.5]	226.1 [66.2]	221.1 [64.8]
		Power	26.4	25.4	25.3	26.3	25.4	25.3	26.3	25.3	25.2	26.2	25.3	25.2	26.2	25.2	25.1
	80ºF [26.7ºC]	Total BTUH [kW]	336.4 [98.6]	312.1 [91.5]	309.4 [90.7]	329.8 [96.6]	306 [89.7]	303.3 [88.9]	324 [94.9]	300.6 [88.1]	298 [87.3]	321.6 [94.2]	298.3 [87.4]	295.8 [86.7]	319.6 [93.7]	296.5 [86.9]	293.9 [86.1]
		Sens BTUH [kW]	239.2 [70.1]	199.3 [58.4]	194.9 [57.1]	252.7 [74]	210.6 [61.7]	205.9 [60.3]	263 [77.1]	219.2 [64.2]	214.3 [62.8]	266.4 [78.1]	222 [65.1]	217.1 [63.6]	268.4 [78.6]	223.6 [65.5]	218.7 [64.1]
		Power	26.7	25.7	25.6	26.6	25.6	25.5	26.5	25.6	25.5	26.5	25.5	25.4	26.5	25.5	25.4
	85ºF [29.4ºC]	Total BTUH [kW]	333.3 [97.7]	309.2 [90.6]	306.5 [89.8]	326.6 [95.7]	303 [88.8]	300.4 [88]	320.8 [94]	297.6 [87.2]	295.1 [86.5]	318.4 [93.3]	295.4 [86.6]	292.8 [85.8]	316.4 [92.7]	293.6 [86]	291 [85.3]
		Sens BTUH [kW]	236.4 [69.3]	197 [57.7]	192.6 [56.4]	249.9 [73.2]	208.2 [61]	203.6 [59.7]	260.2 [76.2]	216.8 [63.5]	212 [62.1]	263.6 [77.3]	219.7 [64.4]	214.8 [62.9]	265.6 [77.8]	221.3 [64.9]	216.4 [63.4]
		Power	27	26	25.9	26.9	25.9	25.8	26.9	25.9	25.8	26.8	25.8	25.7	26.8	25.8	25.7
	90ºF [32.2ºC]	Total BTUH [kW]	330 [96.7]	306.2 [89.7]	303.5 [88.9]	323.4 [94.8]	300 [87.9]	297.4 [87.2]	317.6 [93.1]	294.6 [86.3]	292.1 [85.6]	315.2 [92.4]	292.4 [85.7]	289.9 [84.9]	313.2 [91.8]	290.6 [85.1]	288.1 [84.4]
		Sens BTUH [kW]	233.7 [68.5]	194.8 [57.1]	190.4 [55.8]	247.2 [72.4]	206 [60.4]	201.4 [59]	257.5 [75.5]	214.6 [62.9]	209.8 [61.5]	261 [76.5]	217.5 [63.7]	212.6 [62.3]	262.9 [77]	219.1 [64.2]	214.2 [62.8]
		Power	27.3	26.3	26.2	27.3	26.3	26.1	27.2	26.2	26.1	27.2	26.2	26.1	27.1	26.1	26
	95ºF [35.0ºC]	Total BTUH [kW]	326.8 [95.8]	303.1 [88.8]	300.5 [88.1]	320.1 [93.8]	297 [87]	294.4 [86.3]	314.3 [92.1]	291.6 [85.4]	289.1 [84.7]	311.9 [91.4]	289.4 [84.8]	286.8 [84.1]	309.9 [90.8]	287.5 [84.3]	285 [83.5]
		Sens BTUH [kW]	231.2 [67.7]	192.6 [56.5]	188.4 [55.2]	244.7 [71.7]	203.9 [59.8]	199.4 [58.4]	255 [74.7]	212.5 [62.3]	207.8 [60.9]	258.5 [75.7]	215.4 [63.1]	210.6 [61.7]	260.4 [76.3]	217 [63.6]	212.2 [62.2]
		Power	27.7	26.7	26.6	27.6	26.6	26.5	27.5	26.5	26.4	27.5	26.5	26.4	27.5	26.5	26.4
	100ºF [37.8ºC]	Total BTUH [kW]	323.4 [94.8]	300 [87.9]	297.4 [87.2]	316.8 [92.8]	293.9 [86.1]	291.3 [85.4]	311 [91.1]	288.5 [84.5]	286 [83.8]	308.6 [90.4]	286.3 [83.9]	283.8 [83.2]	306.6 [89.8]	284.4 [83.3]	282 [82.6]
		Sens BTUH [kW]	228.8 [67]	190.7 [55.9]	186.4 [54.6]	242.3 [71]	201.9 [59.2]	197.4 [57.9]	252.6 [74]	210.5 [61.7]	205.8 [60.3]	256.1 [75]	213.4 [62.5]	208.6 [61.1]	258 [75.6]	215 [63]	210.2 [61.6]
		Power	28.1	27	26.9	28	27	26.9	27.9	26.9	26.8	27.9	26.9	26.8	27.9	26.8	26.7
	105ºF [40.6ºC]	Total BTUH [kW]	320 [93.8]	296.9 [87]	294.3 [86.2]	313.4 [91.8]	290.7 [85.2]	288.2 [84.5]	307.6 [90.1]	285.3 [83.6]	282.9 [82.9]	305.2 [89.4]	283.1 [83]	280.7 [82.2]	303.2 [88.8]	281.3 [82.4]	278.8 [81.7]
		Sens BTUH [kW]	226.5 [66.4]	188.8 [55.3]	184.6 [54.1]	240.1 [70.3]	200 [58.6]	195.6 [57.3]	250.4 [73.4]	208.6 [61.1]	204 [59.8]	253.8 [74.4]	211.5 [62]	206.8 [60.6]	255.7 [74.9]	213.1 [62.5]	208.4 [61.1]
		Power	28.5	27.4	27.3	28.4	27.4	27.2	28.3	27.3	27.2	28.3	27.3	27.1	28.3	27.2	27.1
	110ºF [43.3ºC]	Total BTUH [kW]	316.6 [92.8]	293.7 [86.1]	291.2 [85.3]	309.9 [90.8]	287.5 [84.3]	285 [83.5]	304.1 [89.1]	282.1 [82.7]	279.7 [82]	301.7 [88.4]	279.9 [82]	277.5 [81.3]	299.7 [87.8]	278.1 [81.5]	275.7 [80.8]
		Sens BTUH [kW]	224.4 [65.8]	187 [54.8]	182.9 [53.6]	237.9 [69.7]	198.3 [58.1]	193.9 [56.8]	248.3 [72.7]	206.9 [60.6]	202.3 [59.3]	251.7 [73.8]	209.7 [61.5]	205.1 [60.1]	253.6 [74.3]	211.4 [61.9]	206.7 [60.6]
		Power	28.9	27.8	27.7	28.8	27.8	27.7	28.8	27.7	27.6	28.7	27.7	27.6	28.7	27.6	27.5
	115ºF [46.1ºC]	Total BTUH [kW]	313.1 [91.7]	290.5 [85.1]	287.9 [84.4]	306.4 [89.8]	284.3 [83.3]	281.8 [82.6]	300.6 [88.1]	278.9 [81.7]	276.5 [81]	298.2 [87.4]	276.7 [81.1]	274.3 [80.4]	296.2 [86.8]	274.8 [80.5]	272.4 [79.8]
		Sens BTUH [kW]	222.4 [65.2]	185.4 [54.3]	181.2 [53.1]	236 [69.1]	196.6 [57.6]	192.3 [56.3]	246.3 [72.2]	205.2 [60.1]	200.7 [58.8]	249.7 [73.2]	208.1 [61]	203.5 [59.6]	251.6 [73.7]	209.7 [61.5]	205 [60.1]
		Power	29.3	28.3	28.2	29.3	28.2	28.1	29.2	28.1	28	29.2	28.1	28	29.1	28.1	28
	120ºF [48.9ºC]	Total BTUH [kW]	309.5 [90.7]	287.1 [84.1]	284.7 [83.4]	302.9 [88.8]	281 [82.3]	278.5 [81.6]	297.1 [87.1]	275.6 [80.8]	273.2 [80.1]	294.7 [86.3]	273.4 [80.1]	271 [79.4]	292.7 [85.8]	271.5 [79.6]	269.2 [78.9]
		Sens BTUH [kW]	220.6 [64.6]	183.8 [53.9]	179.7 [52.7]	234.1 [68.6]	195.1 [57.2]	190.8 [55.9]	244.4 [71.6]	203.7 [59.7]	199.2 [58.4]	247.9 [72.6]	206.6 [60.5]	202 [59.2]	249.8 [73.2]	208.2 [61]	203.5 [59.6]
		Power	29.8	28.7	28.6	29.8	28.7	28.5	29.7	28.6	28.5	29.7	28.6	28.5	29.6	28.5	28.4
	125ºF [51.7ºC]	Total BTUH [kW]	305.9 [89.6]	283.8 [83.2]	281.3 [82.4]	299.3 [87.7]	277.6 [81.4]	275.2 [80.7]	293.5 [86]	272.2 [79.8]	269.9 [79.1]	291 [85.3]	270 [79.1]	267.7 [78.4]	289.1 [84.7]	268.2 [78.6]	265.9 [77.9]
		Sens BTUH [kW]	218.9 [64.1]	182.4 [53.4]	178.3 [52.3]	232.4 [68.1]	193.7 [56.8]	189.4 [55.5]	242.7 [71.1]	202.3 [59.3]	197.8 [58]	246.2 [72.1]	205.1 [60.1]	200.6 [58.8]	248.1 [72.7]	206.7 [60.6]	202.1 [59.2]
		Power	30.3	29.2	29.1	30.3	29.2	29	30.2	29.1	29	30.2	29.1	28.9	30.1	29	28.9

DR —Depression ratio Total —Total capacity x 1000 BTUH NOTES:

dbE —Entering air dry bulb Sens —Sensible capacity x 1000 BTUH ⓘ When the entering air dry bulb is other than 80°F [27°C], adjust the sensible

wbE—Entering air wet bulb Power—KW input capacity from the table by adding [1.10 x CFM x (1 – DR) x (dbE – 80)].

Appendix E – Heating Performance

Models: (-)GEG Gas Heat Performance Specifications

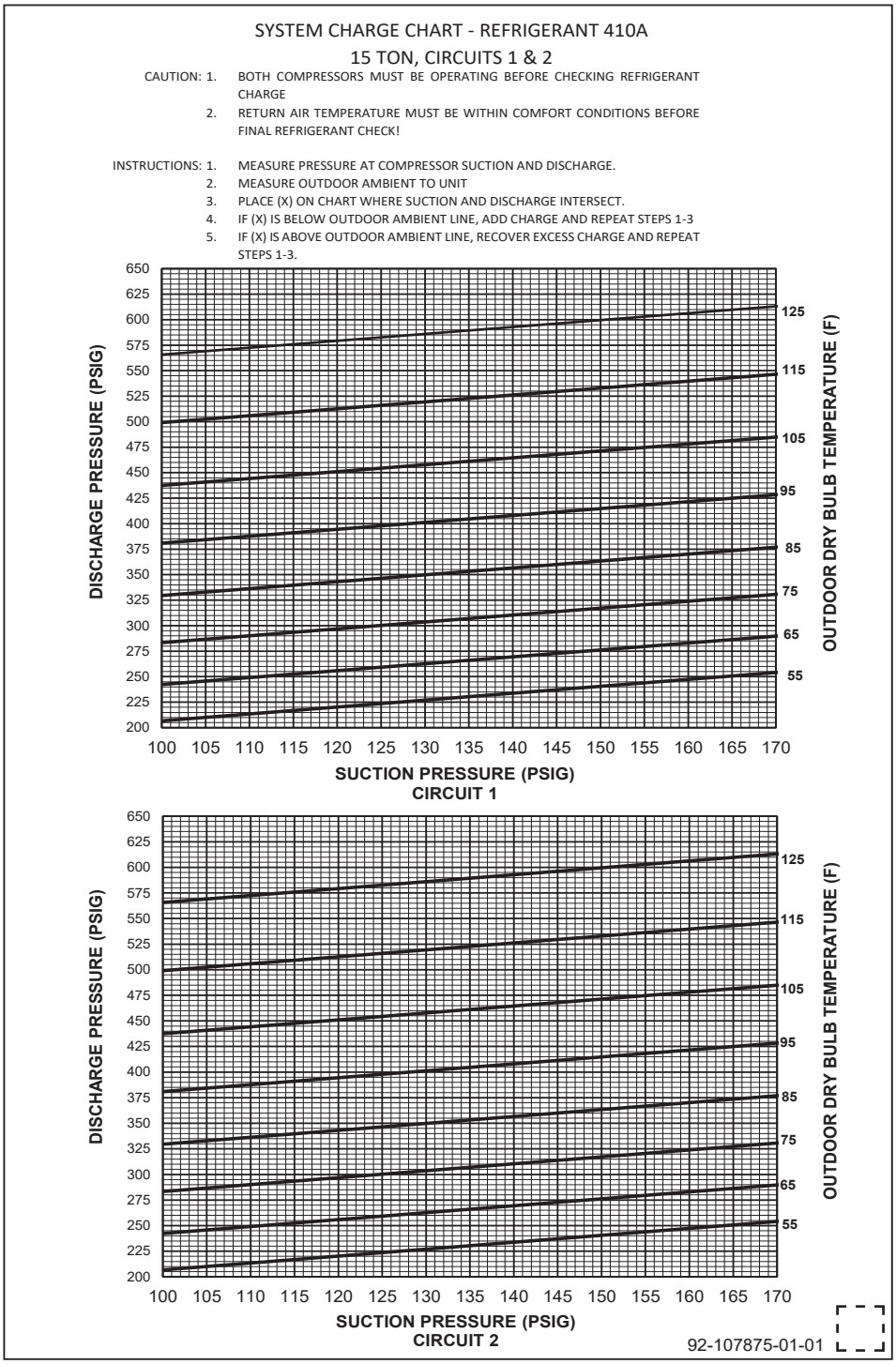
208-230V & 575V				
Tonnage	15T-Ton	17.5-Ton	20-Ton	25-Ton
Heating input BTU[KW] (High-Fire/Low-Fire)	320,000/224,000	320,000/224,000	400,000/280,000	400,000/280,000
	[93.79/65.65]	[93.79/65.65]	[117.24/82.07]	[117.24/82.07]
Heating output BTU[KW] (High-Fire/Low-Fire)	259,200/181,400	259,200/181,400	324,000/226,800	324,000/226,800
	[75.97/53.17]	[75.97/53.17]	[94.96/66.48]	[94.96/66.48]
High-Fire Rise Range ºF [ºC]	25-55	25-55	25-55	25-55
	[14-31]	[14-31]	[14-31]	[14-31]
Low-Fire Rise Range ºF [ºC]	25-55	25-55	25-55	25-55
	[14-31]	[14-31]	[14-31]	[14-31]
Main Limit Temp ºF	135	135	140	140
Rollout Temp ºF	300	300	350	350
Rating ESP In. W.C	0.33	0.33	0.33	0.33
Maximum ESP In. W.C	1	1.3	1	0.8
Max Outlet Air Temp ºF [ºC]	200[93.33]	200[93.33]	200[93.33]	200[93.33]
% AFUE	-	-	-	-
% Steady State Efficiency	81%	81%	81%	81%

Appendix E – Heating Performance

Models: (-)GEG **Gas Heat Performance Specifications**

Meter Time in minutes and Seconds for Normal Input Rating of Furnaces Equipped with Natural or LP Gas											
Input BTU/HR	Meter Size Cu. Ft.	Natural Gas (Cu. Ft.)								LP (Cu.Ft.)	
		900		1000		1050		1100		2500	
		Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.
400,000	ONE	0	8.1	0	9.000	0	9.450	0	9.900	0	22.500
	TEN	1	21.001	1	30.001	1	34.501	1	39.001	3	45.002
320,000	ONE	0	10.126	0	11.251	0	11.814	0	12.376	0	28.128
	TEN	1	41.260	1	52.511	1	58.137	2	3.762	4	41.278

Appendix F – Refrigerant Charging Charts



Circuit 1 - Cooling: z = 44.55 + 0.6852*x + 0.0460*y^1.9048

Circuit 2 - Cooling: z = 43.7 + 0.6769*x + 0.0466*y^1.9023

NOTES:

1. COLOR: CLEAR BACKGROUND WITH BLACK TEXT.
2. SIZE: 11.125” X 7”.
3. MATERIAL: ADS-4574-02 FOR MATERIAL AND ADHESIVE SPECIFICATIONS.
4. OUTER LINE REPRESENTS THE CUT LINE OR EDGE OF LABEL.
5. VENDOR: CALVERT MC BRIDE OR EQUIVALENT
6. THE DOTTED BOX NEAR THE DRAWING NUMBER REPRESENTS A .25” X .25” 2D DATA MATRIX. SEE ADS-104669-01 FOR DATA MATRIX SPECS

P. APPENDICES

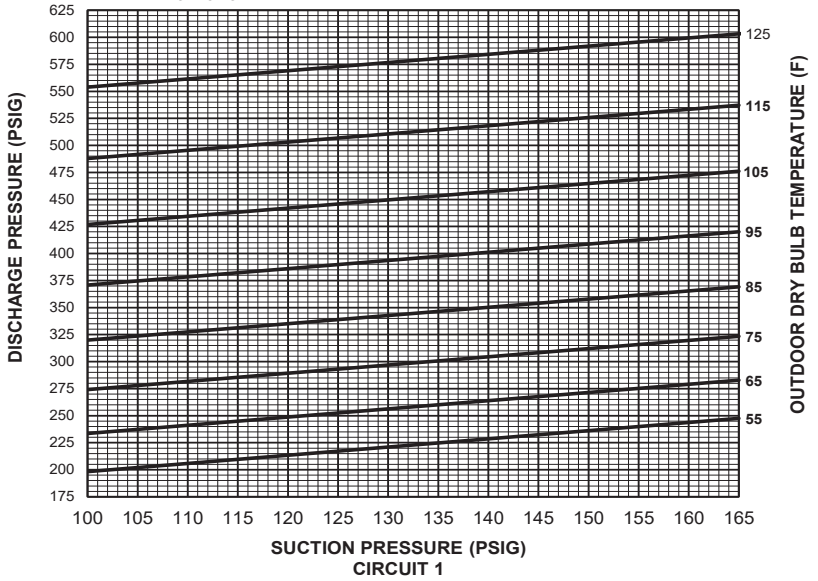
Appendix F – Refrigerant Charging Charts

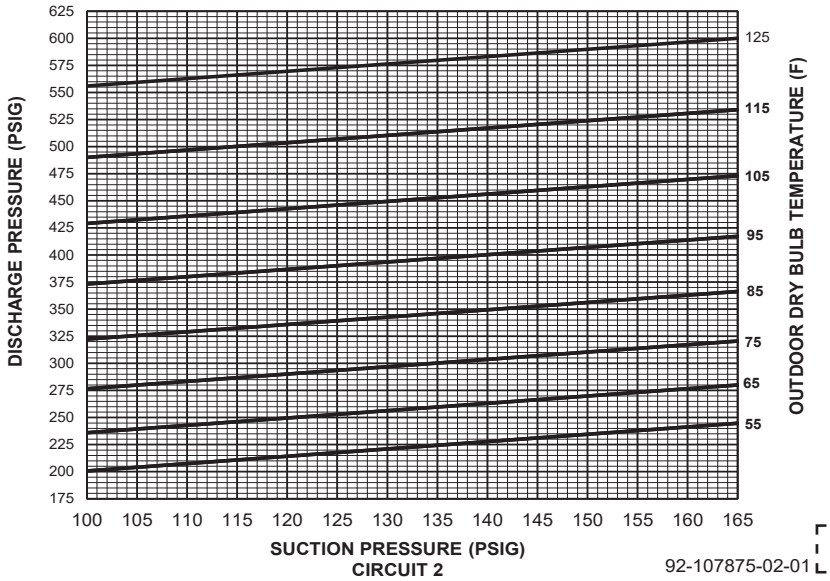
SYSTEM CHARGE CHART - REFRIGERANT 410A

17.5 TON, CIRCUITS 1 & 2

CAUTION: 1. BOTH COMPRESSORS MUST BE OPERATING BEFORE CHECKING REFRIGERANT CHARGE
2. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT CONDITIONS BEFORE FINAL REFRIGERANT CHECK!

INSTRUCTIONS: 1. MEASURE PRESSURE AT COMPRESSOR SUCTION AND DISCHARGE.
2. MEASURE OUTDOOR AMBIENT TO UNIT
3. PLACE (X) ON CHART WHERE SUCTION AND DISCHARGE INTERSECT.
4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3
5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS CHARGE AND REPEAT STEPS 1-3.





92-107875-02-01

Circuit 1 - Cooling: z = 28.1 + 0.7582*x + 0.0460*y^1.9030

Circuit 2 - Cooling: z = 38.5 + 0.6769*x + 0.0466*y^1.9002

NOTES:

1. COLOR: CLEAR BACKGROUND WITH BLACK TEXT.
2. SIZE: 11.125" X 7".
3. MATERIAL: ADS-4574-02 FOR MATERIAL AND ADHESIVE SPECIFICATIONS.
4. OUTER LINE REPRESENTS THE CUT LINE OR EDGE OF LABEL.
5. VENDOR: CALVERT MC BRIDE OR EQUIVALENT
6. THE DOTTED BOX NEAR THE DRAWING NUMBER REPRESENTS A .25" X .25" 2D DATA MATRIX. SEE ADS-104669-01 FOR DATA MATRIX SPECS

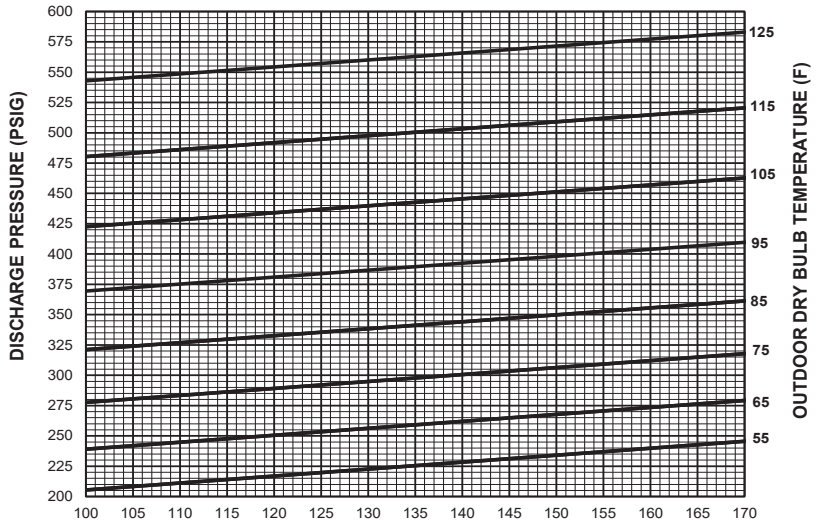
Appendix F – Refrigerant Charging Charts

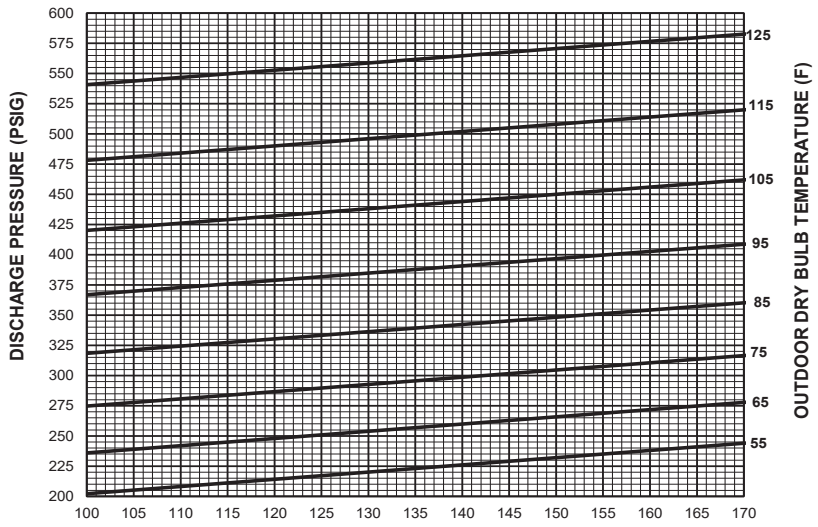
SYSTEM CHARGE CHART - REFRIGERANT 410A

20 TON, CIRCUITS 1 & 2

CAUTION: 1. BOTH COMPRESSORS MUST BE OPERATING BEFORE CHECKING REFRIGERANT CHARGE
2. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT CONDITIONS BEFORE FINAL REFRIGERANT CHECK!

INSTRUCTIONS: 1. MEASURE PRESSURE AT COMPRESSOR SUCTION AND DISCHARGE.
2. MEASURE OUTDOOR AMBIENT TO UNIT
3. PLACE (X) ON CHART WHERE SUCTION AND DISCHARGE INTERSECT.
4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3
5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS CHARGE AND REPEAT STEPS 1-3.





92-107875-03-01

Circuit 1 - Cooling: z = 57.55 + 0.5737*x + 0.0460*y^1.8926

Circuit 2 - Cooling: z = 51.5 + 0.5971*x + 0.0466*y^1.8907

NOTES:

1. COLOR: CLEAR BACKGROUND WITH BLACK TEXT.
2. SIZE: 11.125” X 7”.
3. MATERIAL: ADS-4574-02 FOR MATERIAL AND ADHESIVE SPECIFICATIONS.
4. OUTER LINE REPRESENTS THE CUT LINE OR EDGE OF LABEL.
5. VENDOR: CALVERT MC BRIDE OR EQUIVALENT
6. THE DOTTED BOX NEAR THE DRAWING NUMBER REPRESENTS A .25” X .25” 2D DATA MATRIX. SEE ADS-104669-01 FOR DATA MATRIX SPECS

P. APPENDICES

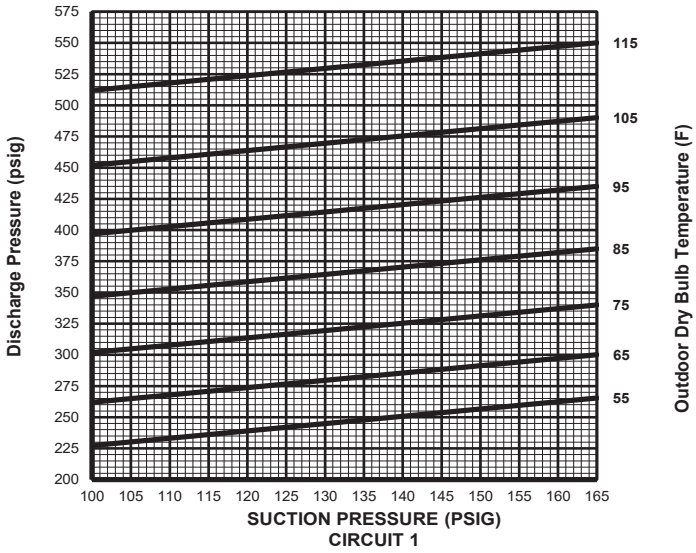
Appendix F – Refrigerant Charging Charts (Cont.)

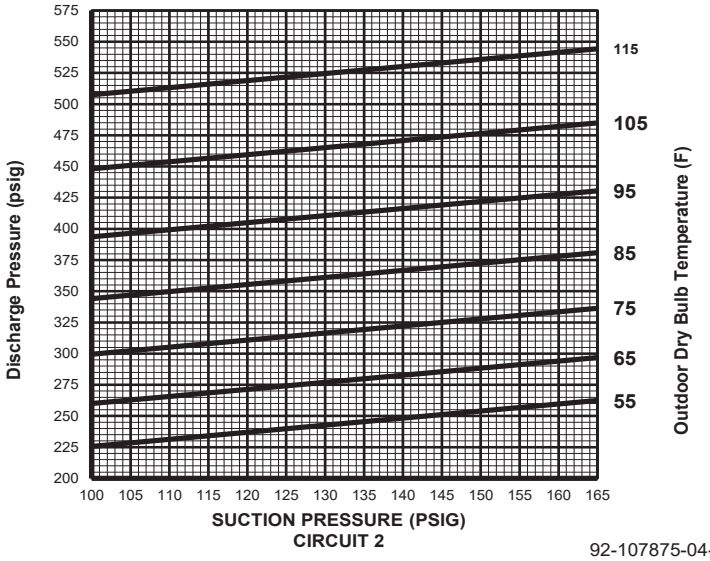
SYSTEM CHARGE CHART - REFRIGERANT 410A

25 TON, CIRCUITS 1 & 2

CAUTION: 1. BOTH COMPRESSORS MUST BE OPERATING BEFORE CHECKING REFRIGERANT CHARGE
2. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT CONDITIONS BEFORE FINAL REFRIGERANT CHECK!

INSTRUCTIONS: 1. MEASURE PRESSURE AT COMPRESSOR SUCTION AND DISCHARGE.
2. MEASURE OUTDOOR AMBIENT TO UNIT
3. PLACE (X) ON CHART WHERE SUCTION AND DISCHARGE INTERSECT.
4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3
5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS CHARGE AND REPEAT STEPS 1-3.





92-107875-04-00

Circuit 1 - Cooling: z = 76 + 0.5863303*x + 0.0450000*y^1.904
Circuit 2 - Cooling: z = 77 + 0.566887*x + 0.0450000*y^1.902

NOTES:

1. COLOR: CLEAR BACKGROUND WITH BLACK TEXT.
2. SIZE: 11.125” X 7”.
3. MATERIAL: ADS-4574-02 FOR MATERIAL AND ADHESIVE SPECIFICATIONS.
4. OUTER LINE REPRESENTS THE CUT LINE OR EDGE OF LABEL.
5. VENDOR: CALVERT MC BRIDE OR EQUIVALENT
6. THE DOTTED BOX NEAR THE DRAWING NUMBER REPRESENTS A .25” X .25” 2D DATA MATRIX. SEE ADS-104669-01 FOR DATA MATRIX SPECS

Appendix F – Refrigerant Charging Charts (Cont.)

SYSTEM CHARGE CHART – REFRIGERANT 410 A

PRESSURE REQUIREMENTS – GROSS CHARGE CHECK (REFER CHARGE CHART)

OUTDOOR DRY BULB (°F)	15 -TON	17.5 -TON	20 -TON	25 -TON
	DISCHARGE/SUCTION PRESSURE (PSIG)			
115	534/150	522/145	507/147	534/137
105	471/147	459/143	448/145	472/134
95	413/144	401/140	394/142	415/130
85	360/143	349/138	344/140	363/128
75	131/141	302/136	299/137	316/126
65	271/140	260/135	258/133	274/122
55	235/139	223/133	223/131	238/120

SUB COOLING REQUIREMENTS – FINAL CHARGE VERIFICATION

LIQUID TEMPERATURE (°F)	15 -TON	17.5 -TON	20 -TON	25 -TON
	DISCHARGE PRESSURE (PSIG)			
50	196	203	199	214
55	212	220	215	230
60	230	238	232	248
65	249	257	250	267
70	269	278	270	288
75	291	300	290	311
80	313	323	312	334
85	338	348	335	360
90	363	373	359	387
95	390	400	384	416
100	418	428	410	446
105	448	458	438	477
110	479	489	466	511
115	511	521	496	546
120	545	554	527	582
125	579	589	559	620

Appendix F – Refrigerant Charging Charts (Cont.)

1. This is required to fine-tune unit charge.

2. The Indoor ambient temperature must be between 72 °F and 82 °F dry bulb at the indoor coil.

3. Confirm the indoor air supply is at the rated CFM listed in ***Appendix A***.

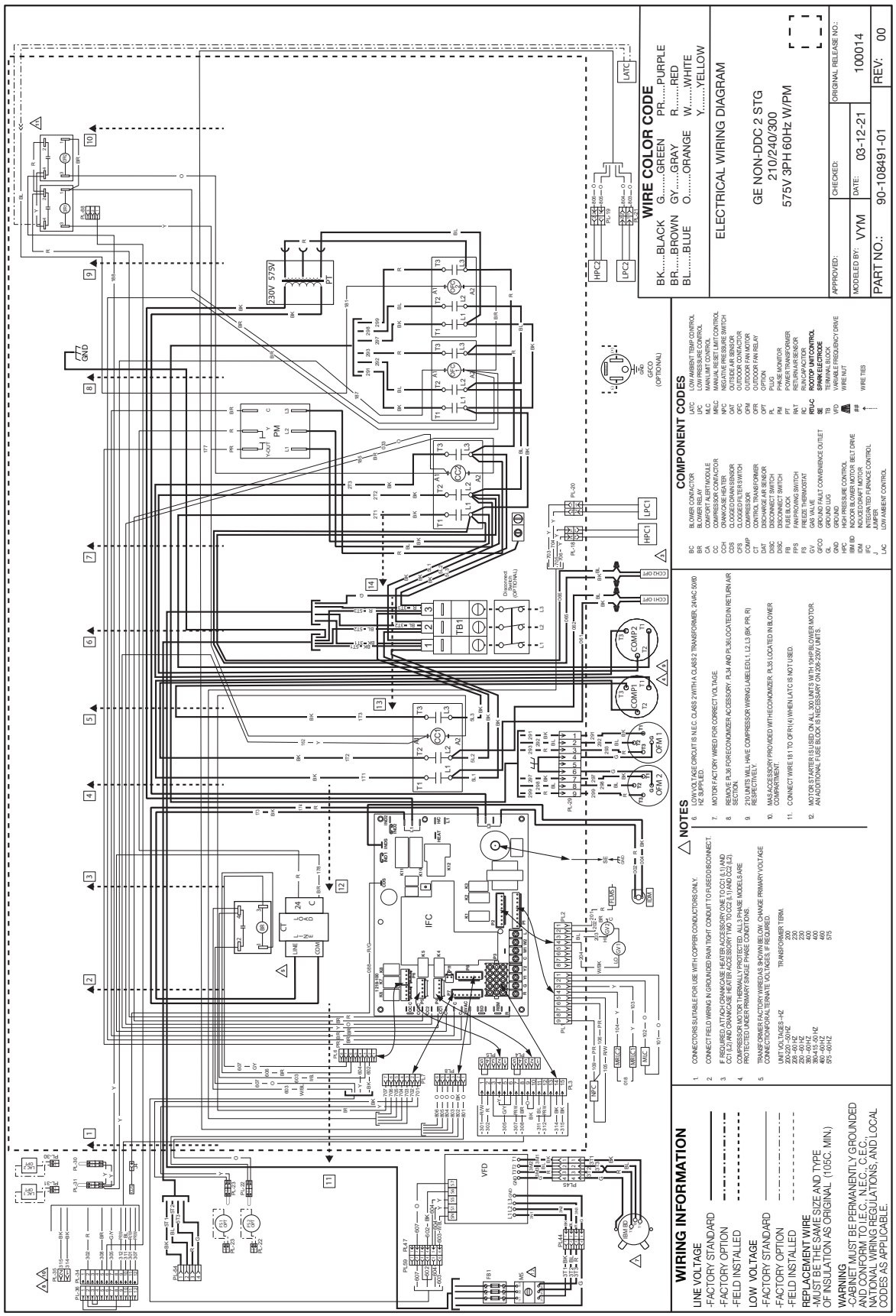
4. Allow both circuits in the system to run long enough for temperatures and pressures to stabilize; at least fifteen minutes.

5. Measure liquid pressure and line temperature at the liquid line service port (refer to ***Section J.4.2.1.*** for the liquid line temperature measurement location). BE SURE TO USE ZERO LOSS FITTINGS WHILE MEASURING 82

6. Check if the Sub-Cooling is within +/- 2.0 °F tolerance.

7.If the sub-cooling values are significantly different (> 20 psig) from those listed on the table in ***Appendix F***, there may be an airflow or component issue. Refer to section M. Diagnostics for more information.

Appendix G. Wiring Diagrams & Schematics



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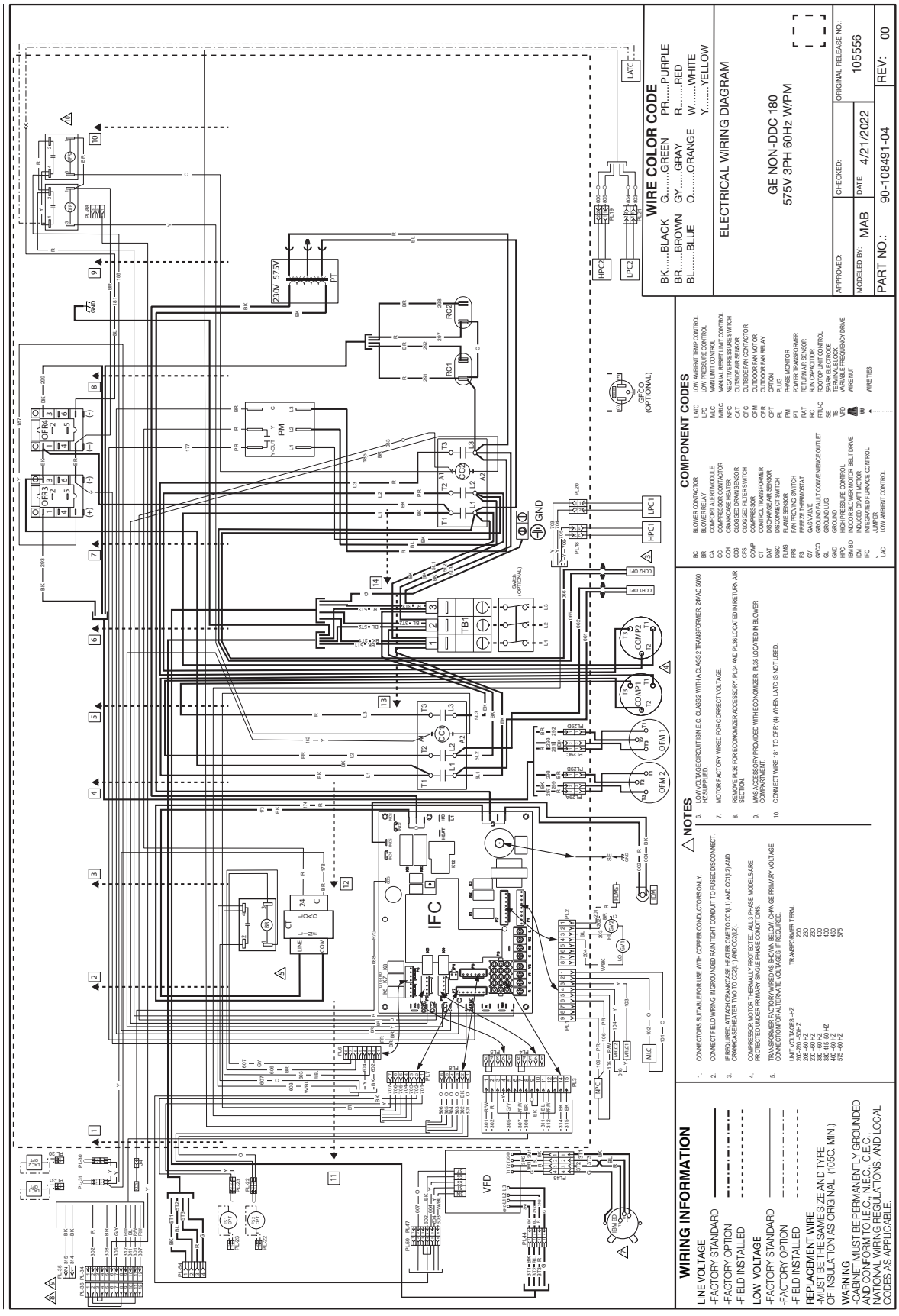
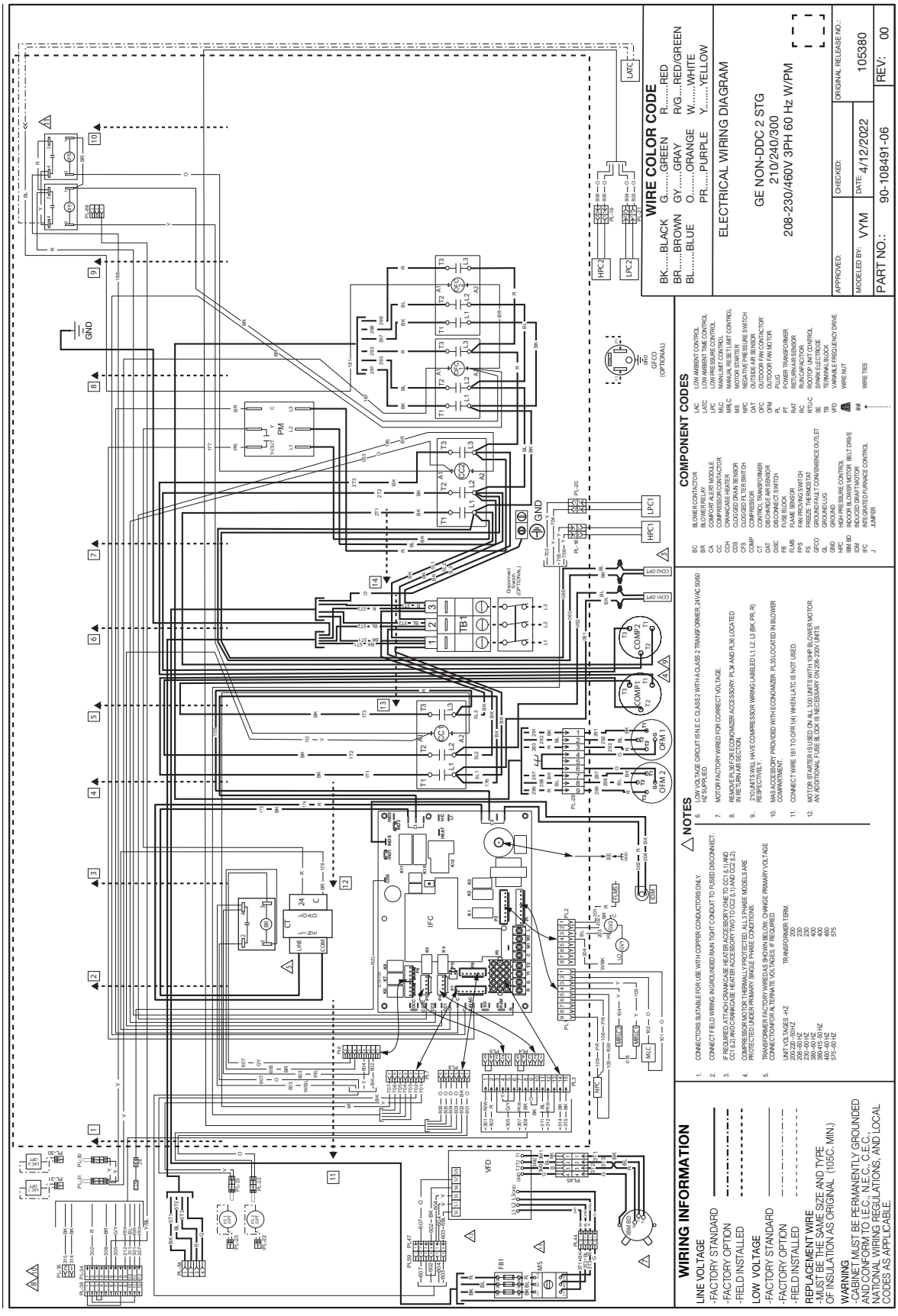
Appendix G. Wiring Diagrams & Schematics (Cont.)



Appendix G. Wiring Diagrams & Schematics (Cont.)



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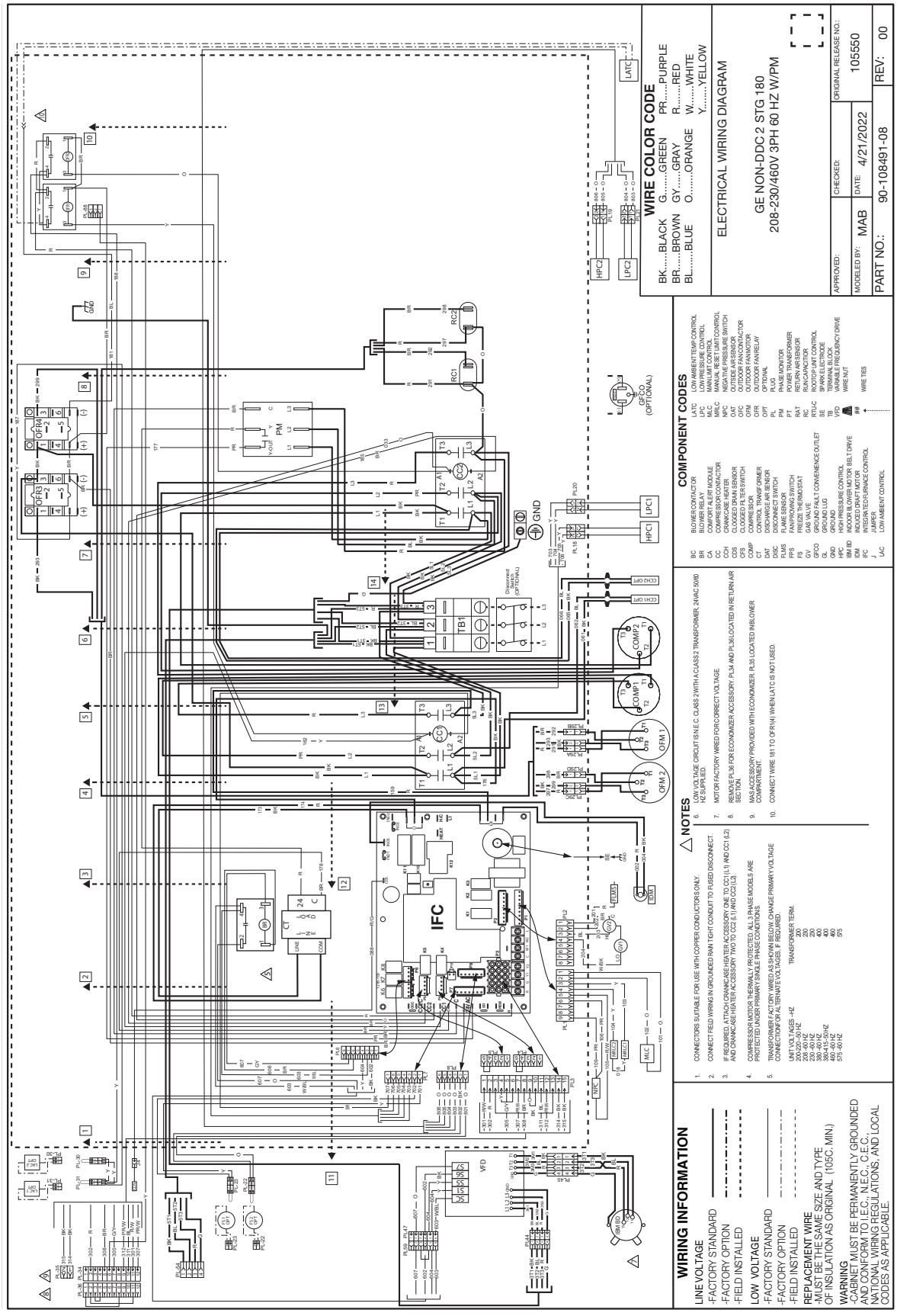
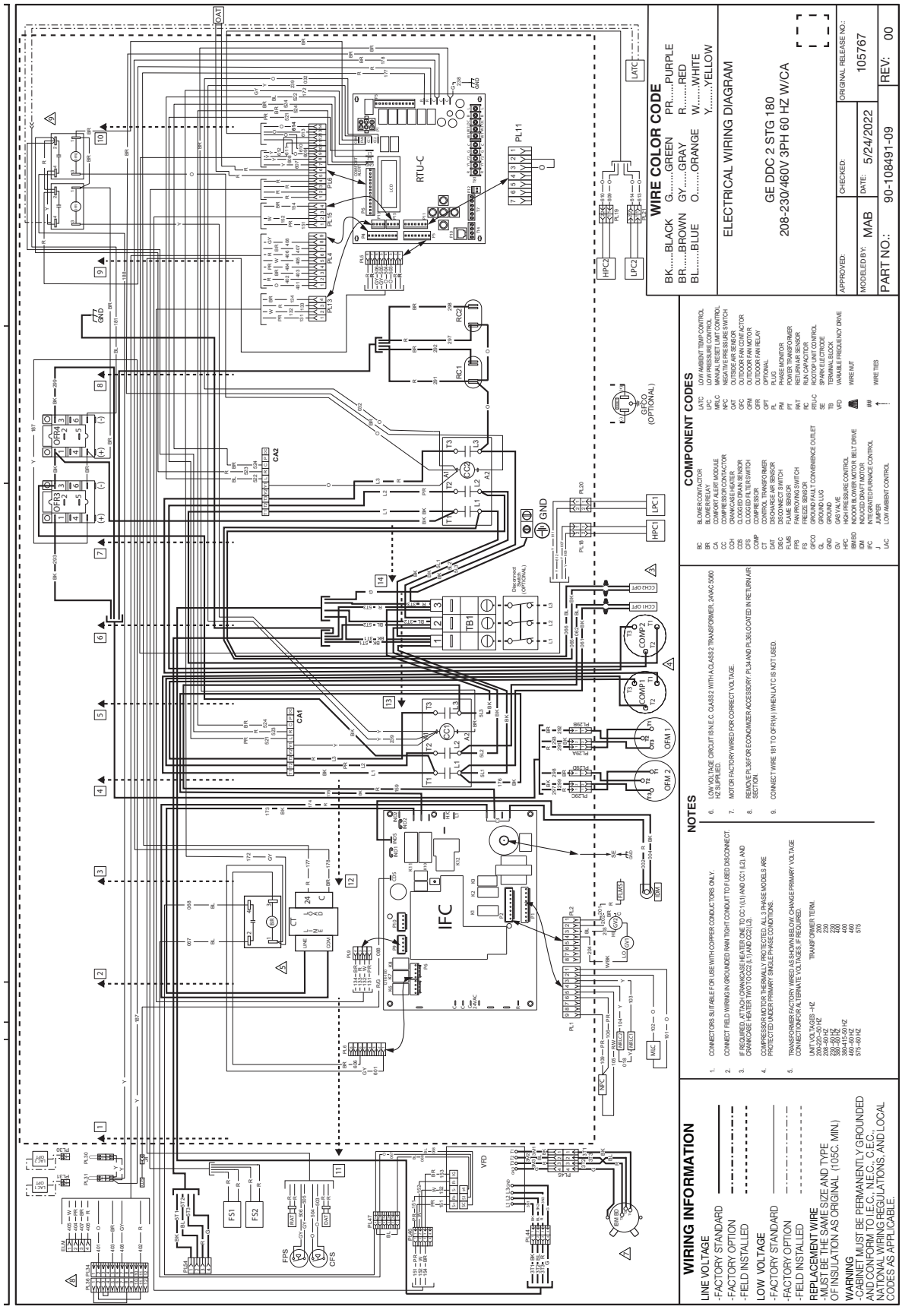
Appendix G. Wiring Diagrams & Schematics (Cont.)



Appendix G. Wiring Diagrams & Schematics (Cont.)



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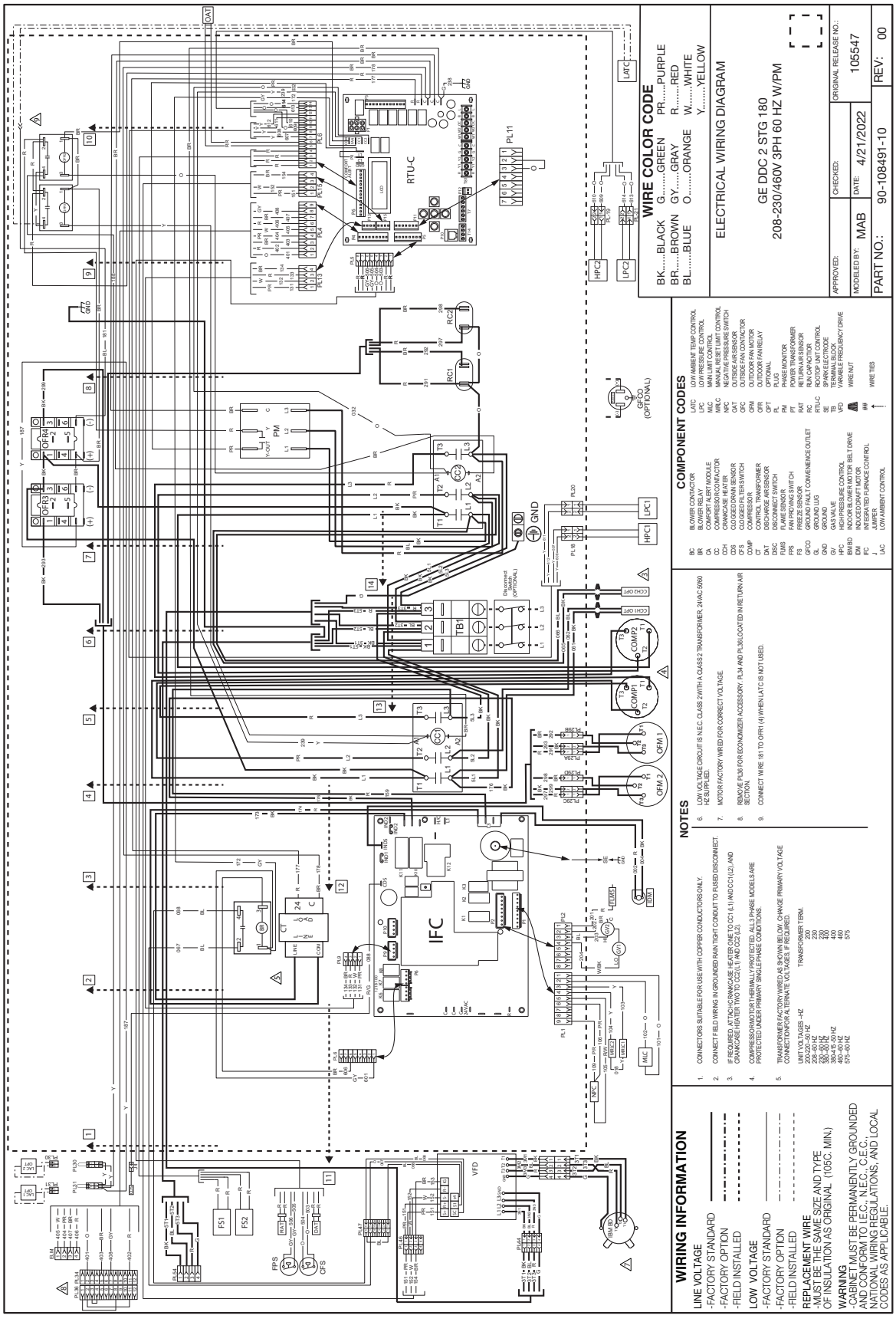
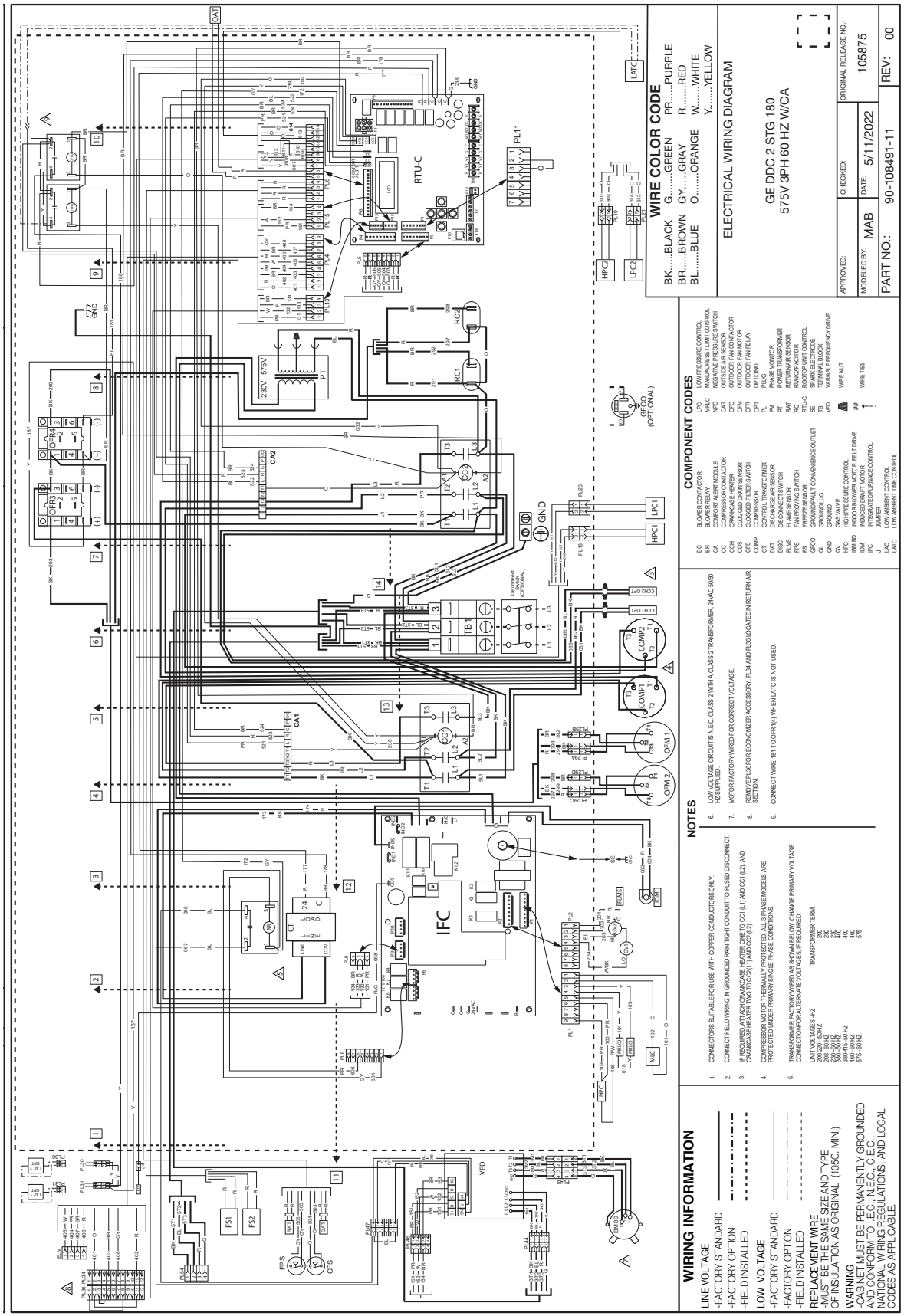
Appendix G. Wiring Diagrams & Schematics (Cont.)

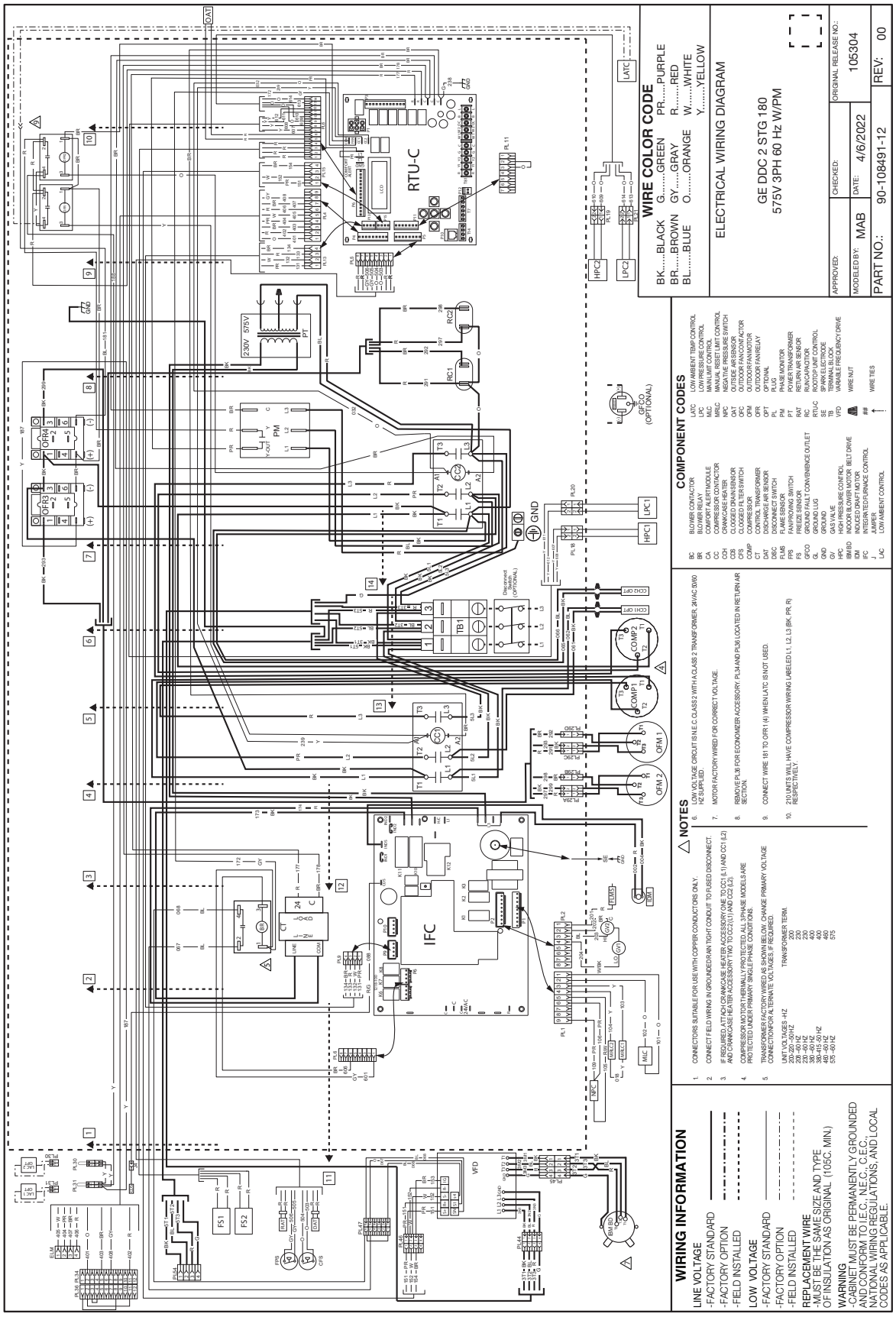


Appendix G. Wiring Diagrams & Schematics (Cont.)

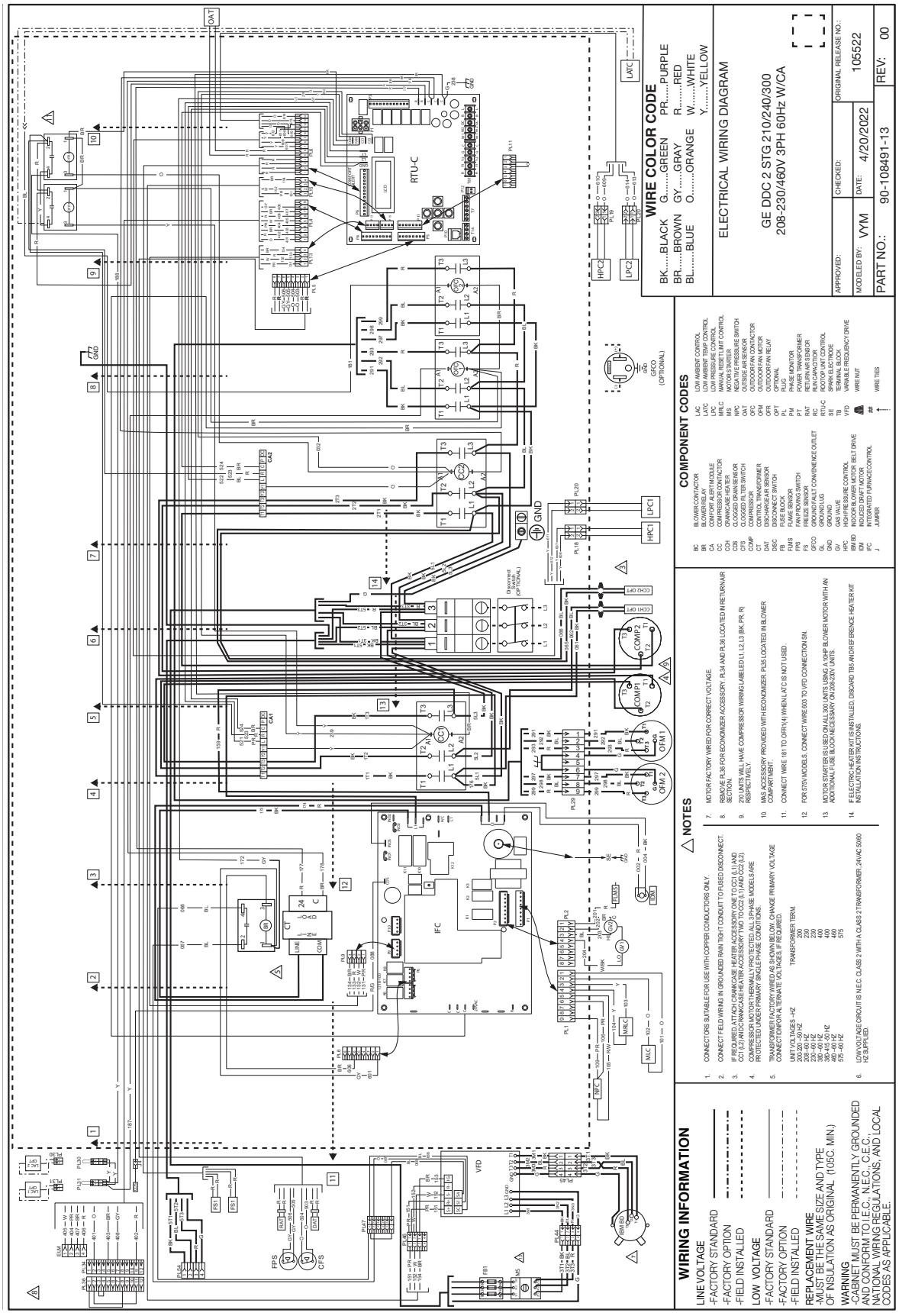


P. APPENDICES

Appendix G. Wiring Diagrams & Schematics (Cont.)



Appendix G. Wiring Diagrams & Schematics (Cont.)



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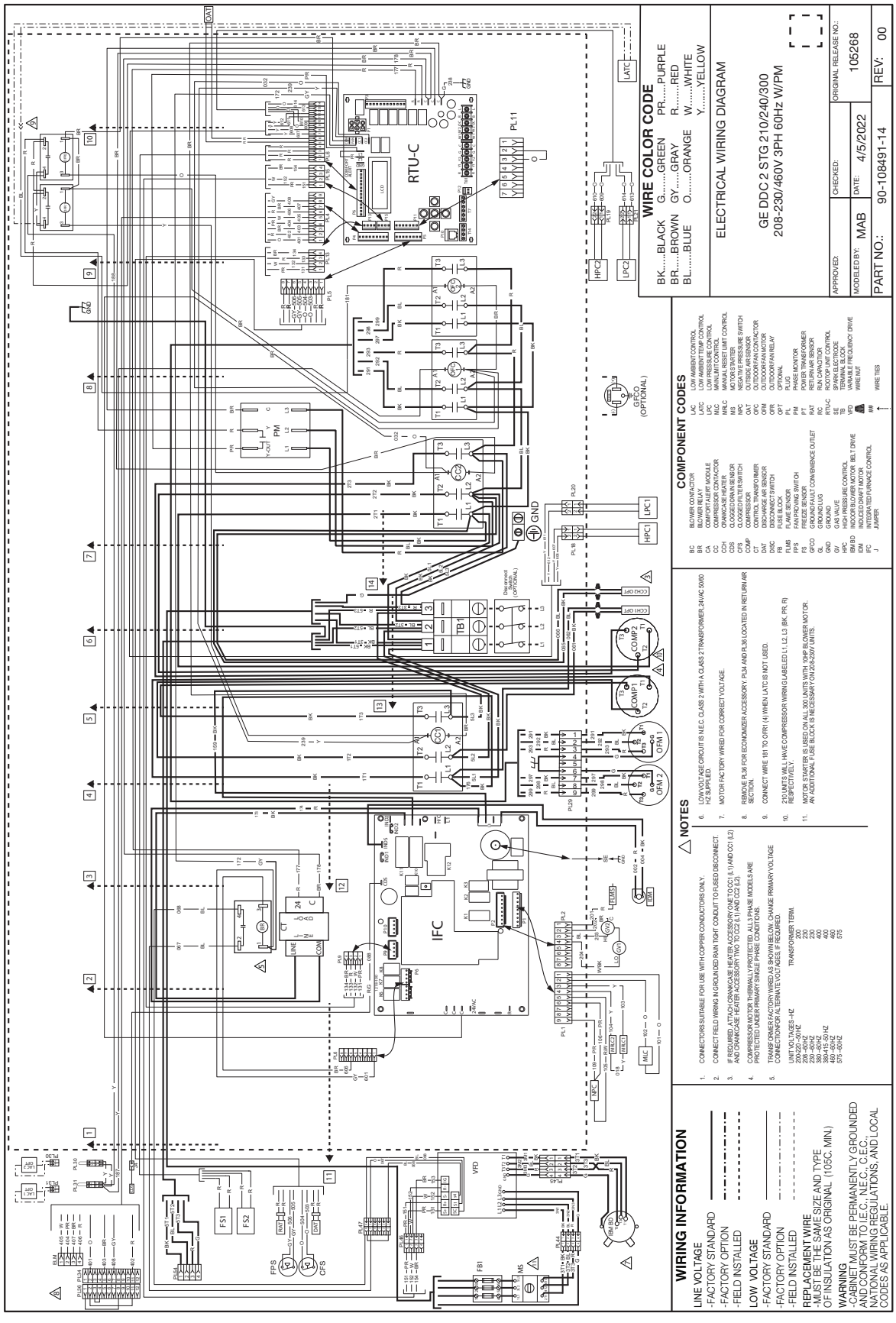
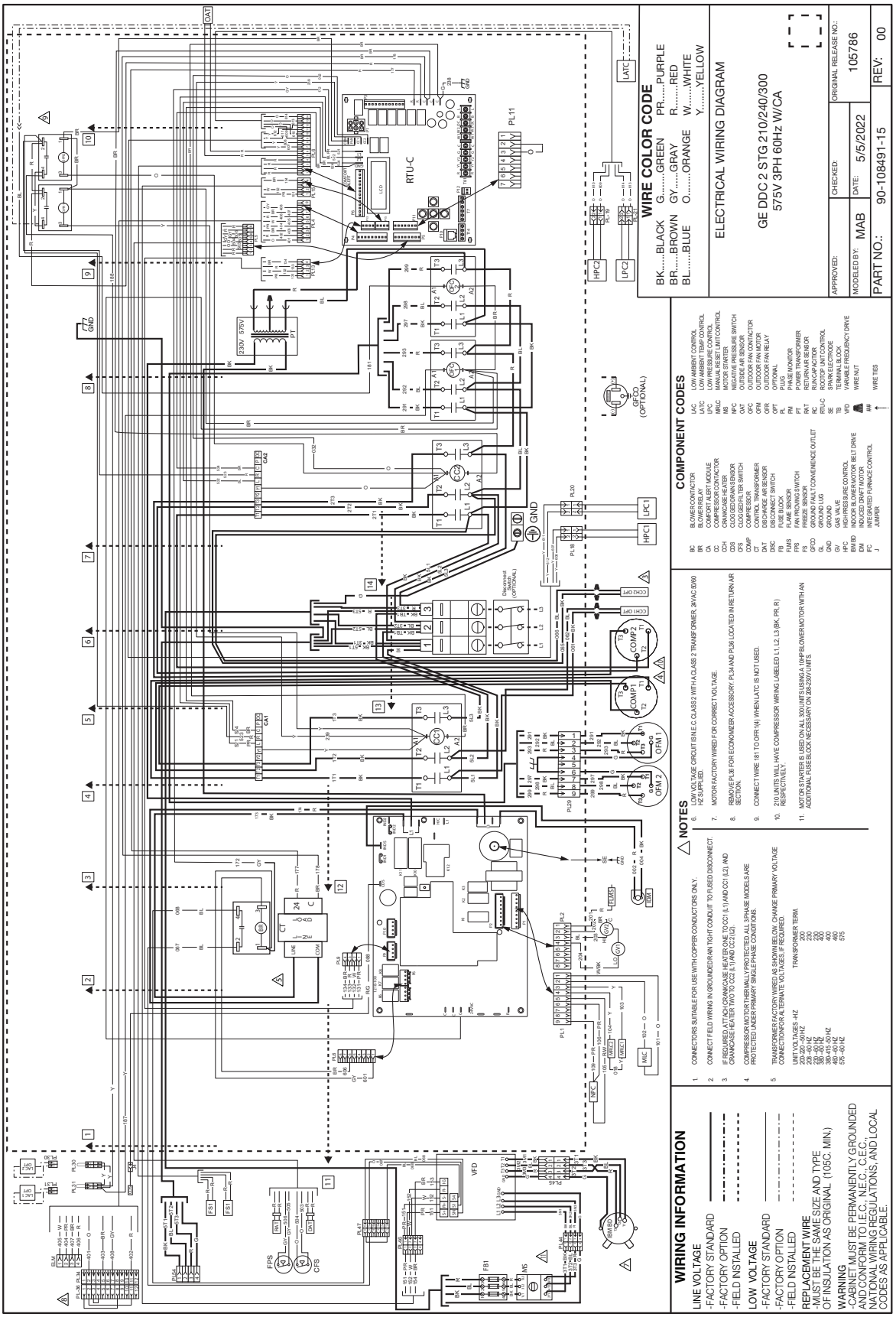
Appendix G. Wiring Diagrams & Schematics (Cont.)

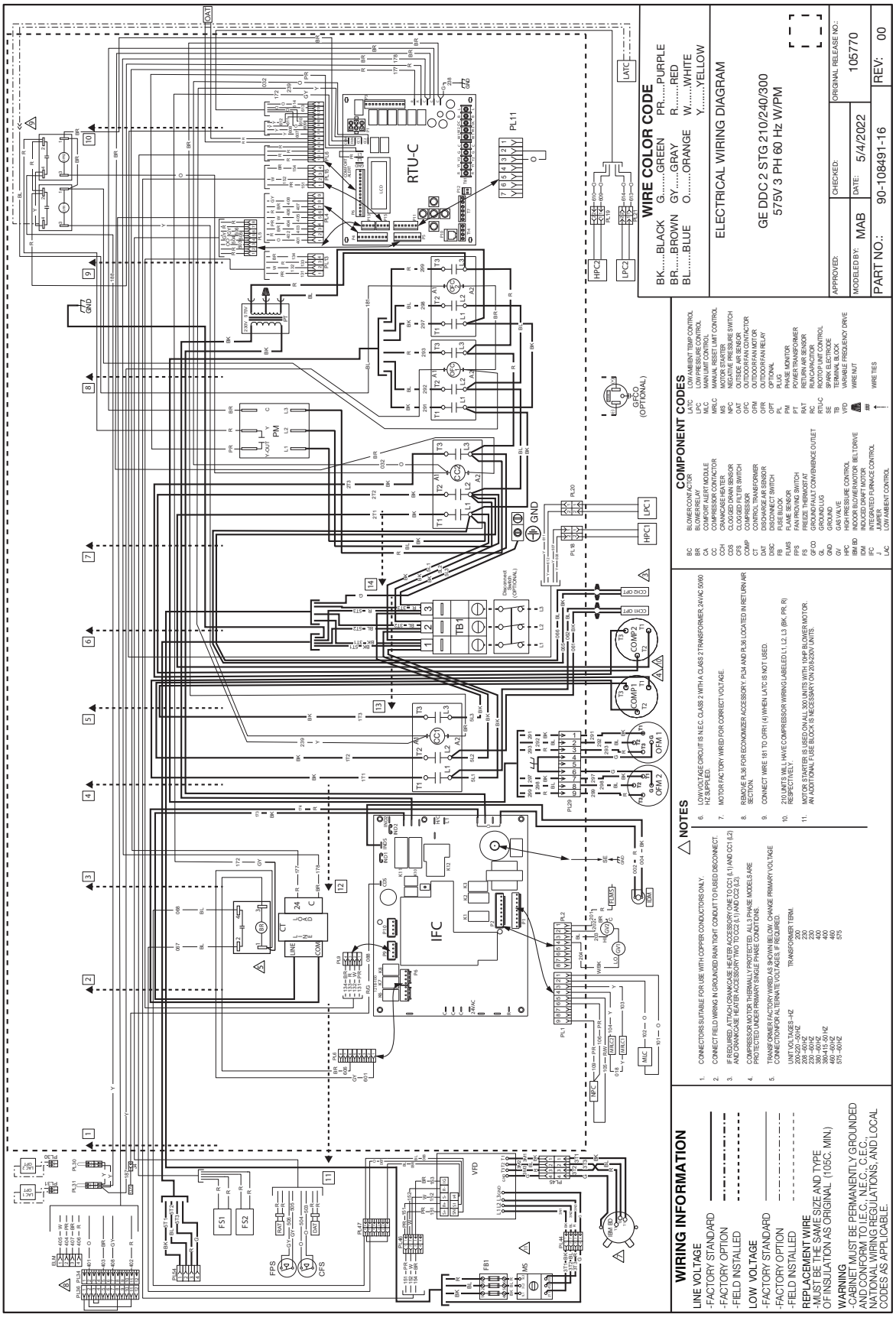


Appendix G. Wiring Diagrams & Schematics (Cont.)



P. APPENDICES

Appendix G. Wiring Diagrams & Schematics (Cont.)



J. Unit Tie-Down

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Technical Evaluation Report

DIVISION: 23 08 00–COMMISSIONING OF HVAC

FL 26981.1
THIS DOCUMENT CONTAINS (4) PAGES

EVALUATION SUBJECT: **RHEEM PACKAGED UNITS** **TER-20-28788**

REPORT HOLDER:
RHEEM MANUFACTURING COMPANY, INC.
1100 ABERNATHY ROAD SUITE 1400
ATLANTA, GA, USA
770-351-3000 | RHEEM.COM

SCOPE OF EVALUATION (compliance with the following codes):

THIS IS A STRUCTURAL (WIND) PERFORMANCE EVALUATION ONLY. NO ELECTRICAL OR COOLING PERFORMANCE RATINGS OR CERTIFICATIONS ARE OFFERED OR IMPLIED HEREIN.

This Product Evaluation Report is being issued in accordance with the requirements of the 7th Edition Florida Building Code (2020) per FBC Section 104.11, FMC 301.15, FBC Building Ch. 16, ASCE-7-16, FBC Building 1522.2, FBC Residential M1202.1, M1301.1, & FS 471.025. The product noted on this report has been tested and evaluated as summarized herein.

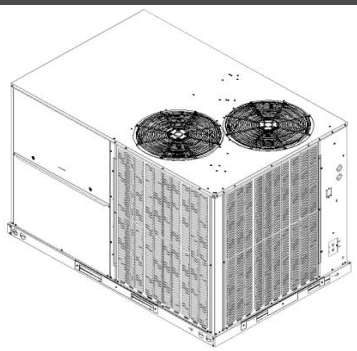
SUBSTANTIATING DATA:
• Product Evaluation Documents Test Reports
Substantiating documentation has been submitted to provide this TER and is summarized in the sections below.
Test Report: 0320.01-18 (American Test Lab of South FL)

• Structural Engineering Calculations
Structural engineering calculations have been prepared which evaluate the product based on comparative and/or rational analysis to qualify the following design criteria:
- Maximum allowable uplift, sliding, & overturning moment for ground and roof applications
- Maximum unit anchorage to steel curb

NOTE: No 33% increase in allowable stress has been used in the design of this product.

INSTALLATION:
The product(s) listed above shall be installed in strict compliance with this product evaluation & manufacturer-provided model specifications.
The product components shall be of the material specified in the manufacturer-provided product specifications. All screws must be installed in accordance with the applicable provisions & anchor manufacturer's published installation instructions.

LIMITATIONS & CONDITIONS OF USE:
Use of this product shall be in strict accordance with this product evaluation as noted herein. The supporting host structure shall be designed to resist all superimposed loads as determined by others on a site-specific basis as may be required by the Authority Having Jurisdiction. Host structure conditions which are not accounted for in this product's respective anchor schedule shall be designed for on a site-specific basis by a registered professional engineer. No evaluation is offered for the host supporting structure by use of this document; Adjustment factors noted herein and the applicable codes must be considered, where applicable.
All supporting components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times.
Fasteners must penetrate the supporting members such that the full length of the threaded portion is embedded within the main member.
This evaluation does not offer any evaluation to meet large missile impact debris requirements which typically are not required for this type of product.



NOTE: GRAPHICAL DEPICTIONS IN THIS REPORT ARE FOR ILLUSTRATIVE PURPOSES ONLY AND MAY DIFFER IN APPEARANCE

UNIT CASING MATERIAL:
20ga galv. sheet steel ASTM A653 Type B.
Removable Top & side covers secured with #10 Sheet metal Hex Head Screws
Knockouts provided for utility & control connections.

FINISH:
Baked Enamel

INSTALLATION:
Shall follow manufacturer specifications as well as information provided herein

OPTIONS:
This evaluation is valid for models shown in the last page

STRUCTURAL PERFORMANCE:
Models referenced herein are subject to the following design limitations:

Maximum Rated Wind Pressure:

200psf Lateral 133psf Uplift

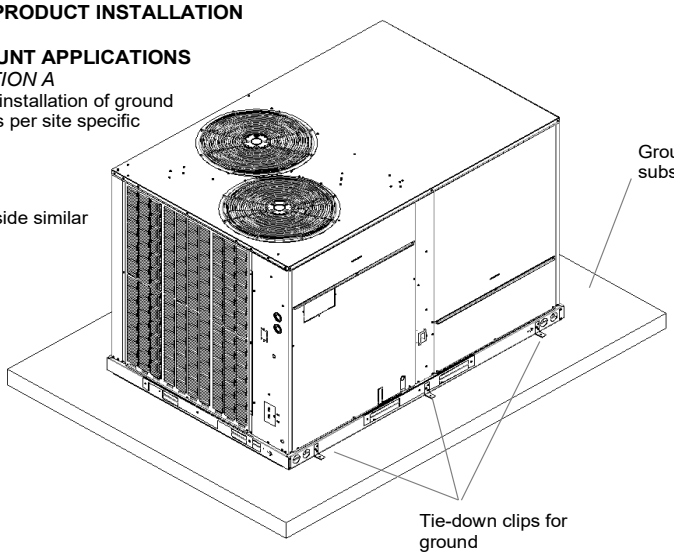
VISIT ECALC.IO/28788
FOR SITE SPECIFIC DEVIATIONS
& MORE INFORMATION ABOUT THIS DOCUMENT
OR SCAN THIS QR CODE
VISIT ENGINEERINGEXPRESS.COM/STORE **FOR ADDITIONAL PLANS, REPORTS & RESOURCES**

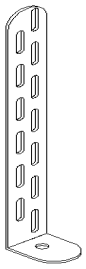
ENGINEER SIGNATURE AND SEAL :

Frank Bennardo, P.E.
ENGINEERING EXPRESS®
FL PE #0046549 FLCA #9885

SECTION 2 PRODUCT INSTALLATION

GROUND MOUNT APPLICATIONS
CONFIGURATION A
Note: Design & installation of ground host is by others per site specific conditions





TIE-DOWN CLIP
(GROUND APPLICATION)

Miami Tech CUTD 1" wide ASTM A653 galvanized steel 0.07" thick of varying length (FL19731.2) or *equivalent* for all cabinets tied down to a ground structure; fasten clip to structure using anchor from Anchor Schedule A to Host Structure Table and (3) #12 SAE Gr 2 self-drilling screw to fasten clip to unit base rail. Install in unit with quantities shown ((3) per side). Locate clips at 8.5" min away from the appropriate corner using three clips per side and three clips opposite side in the same configuration.

ANCHOR SCHEDULE TO HOST STRUCTURE

Pressure Lateral (Uplift) (psf)	Concrete	Steel Curb With Clip	Steel Curb Screw
Ground	A	-	-
Up to 81 (64)	-	-	C
Up to 200 (133)	-	B	-

A. – 5/16" DEWALT ULTRACON Anchor embedded 2" in 3,515 psi concrete. 3 1/8" from edge minimum & 5" spacing minimum. NOA No. 17-1227.22

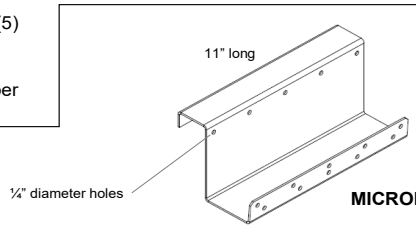
B. – #12 TEK Screws, (14) screws per clip, (5) top front side, (4) top back side and (5) bottom front side.

C. – 3/8" SAE Grade 5 Self-Drilling Screw at 6" O.C, (15) per long side and (10) per short side.

STEEL CURB
(ROOF APPLICATION)

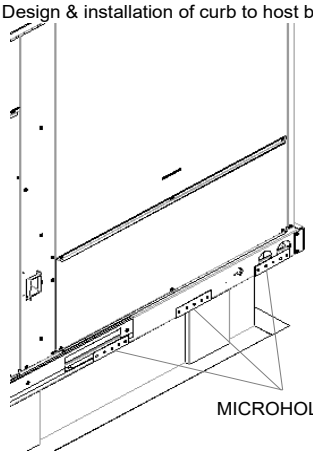
Steel curb to be a minimum of 16ga ASTM A653 steel

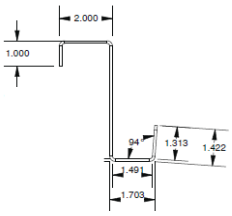
Curb Clip to be 14ga ASTM A653 steel min (Microhold)



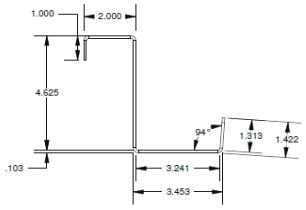
MICROHOLDS

CURB MOUNT APPLICATIONS
CONFIGURATION B
Note: Design & installation of curb to host by others per site specific conditions

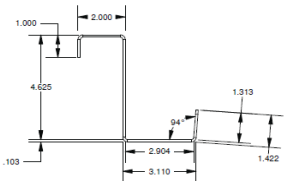




Curb Clip A



Curb Clip C



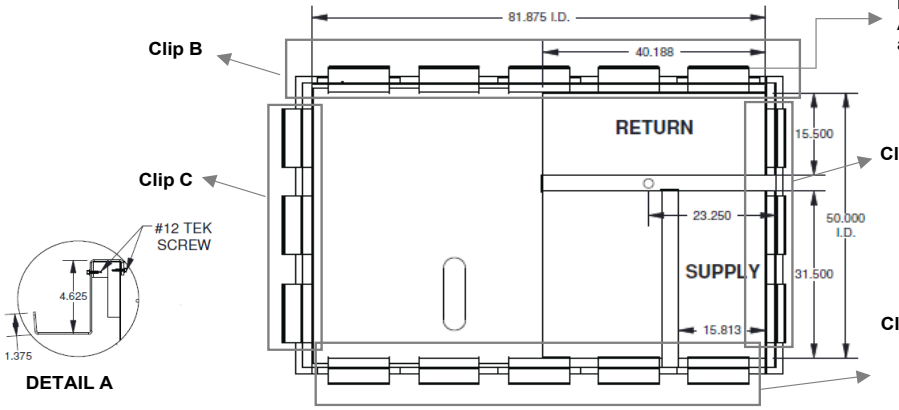
Curb Clip B

IN ALL CONDITIONS IT IS THE RESPONSIBILITY OF THE PERMIT HOLDER TO ENSURE THE HOST STRUCTURE IS CAPABLE OF WITHSTANDING FORCES BY SITE-SPECIFIC DESIGN. NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, IS OFFERED BY RHEEM MANUFACTURING COMPANY, OR ENGINEERING EXPRESS AS TO THE INTEGRITY OF THE HOST STRUCTURE TO CARRY LOADS INCURRED BY THIS UNIT.

J. Unit Tie-Down

RHEEM PACKAGED UNITS

CURB CLIP LOCATION



DETAIL A:
Applies for all clips and anchors type B

RGEDZR – 150 Clip Configuration:
(5) clips to each long side, 3" away from corners, spaced at 5.22".

(3) clips to each short side, 3" away from corners. Spaced at 5.50"

See note (3) page (4)

Table 1: Clip Curb Schedule

Unit Model			Number of Clips (Pcs)
(-)GEC - 036	(-)ACC - 036	(-)HPC - 036	4 LS - 2 SS
(-)GEC - 048	(-)ACC - 048	(-)HPC - 048	4 LS - 2 SS
(-)GEC - 060	(-)ACC - 060	(-)HPC - 060	4 LS - 2 SS
(-)GEC - 072	(-)ACC - 072	(-)HPC - 072	4 LS - 2 SS
(-)GED - 090	(-)ACD - 090	(-)HPD - 090	5 LS - 3 SS
(-)GED - 102	(-)ACD - 102	(-)HPD - 102	5 LS - 3 SS
(-)GED - 120	(-)ACD - 120	(-)HPD - 120	5 LS - 3 SS
(-)GED - 150	(-)ACD - 150		5 LS - 3 SS

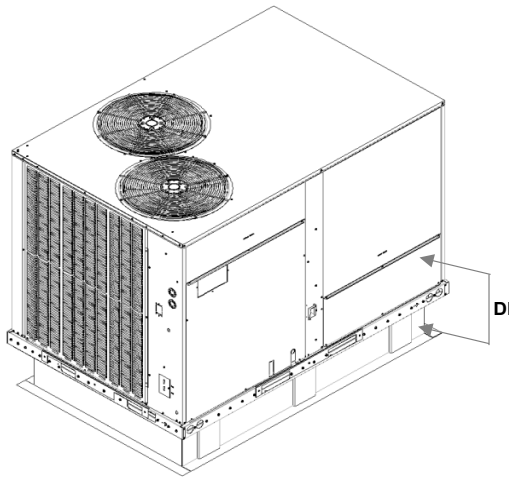
#Clip Designation (5 LS= 5 clips each Long Side; 3 SS= 3 clips each Short Side) equally spaced

Unit Model Note: '(-)' designates equivalent trade brands with similar cabinetry and may vary depending on brand

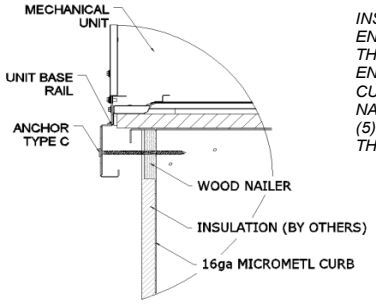
See pressures on page (2) for alternative anchor limitations

ALTERNATIVE ANCHORAGE TO CURB

STEEL CURB WITH SCREW
CONFIGURATION C



DETAIL B



INSTALLER TO ENSURE THAT THREADED PORTION ENGAGES STEEL CURB BEYOND WOOD NAILER WITH MINIMUM (5) PITCHES PAST THE THREAD PLANE

DETAIL B

Mechanical Unit Curb Mounted

SECTION 3 MODELS SUMMARY, DIMENSION & NOTES

TABLE 2: Qualified Tested Unit Construction Metal Cabinetry				
Unit Model	Operating Dimensions w/ screw heads			Operating Weight (lbs)
	Width (in)	Length (in)	Height (in)	
RGEDZR - 150	59 1/2	90 1/10	59 7/10	1070

TESTED UNIT LIMITATIONS

1. The unit model listed above was tested and designed as worst-case configurations of model units listed in *Evaluation Model Series Matrix,* remaining unit models are certified by this approval as long as they have identical construction as those listed above and are of equal or lesser dimensions (length, width, height).
2. Dimensions shown are measured from outermost points of unit, including screw heads.
3. Curb clips shall be as close as possible from the shown locations; installers shall verify any interference between clip attachment and internal components of the unit and move clip within the tolerance allowed.

REQUIRED WIND PRESSURES

Design pressures calculated for use with these units shall be determined by others on a job-specific basis in accordance with the governing code. Site specific load requirements for wind load shall be determined in accordance with ASCE 7 and the codes referenced herein by separate engineering certification and shall be less or equal to design pressures capacity values listed herein for any assembly as shown.

TEST REPORTS UTILIZED

Design and certification of the unit cabinetry is approved through *American Test Lab of South Florida*
Report #: 0320.01-18
Tested according ASTM E330-05 and TAS 202-94.

TABLE 3: Evaluation Model Sereis Matrix (Unit Construction Metal Cabinetry)				
Unit Model	Operating Dimensions w/ screw heads			Operating Weight (lbs)
	Width (in)	Length (in)	Height (in)	
(-)ACC - 036	46 3/4	78 3/8	41 3/8	453
(-)ACC - 048	46 3/4	78 3/8	41 3/8	477
(-)ACC - 060	46 3/4	78 3/8	41 3/8	482
(-)ACC - 072	46 3/4	78 3/8	41 3/8	689
(-)ACD - 090	59 15/32	89 5/16	49 1/4	722
(-)ACD - 102	59 15/32	89 5/16	49 1/4	748
(-)ACD - 120	59 15/32	89 5/16	49 1/4	777
(-)ACD - 150	59 1/2	90 1/10	59 7/10	946

TABLE 3.1: Evaluation Model Sereis Matrix (Unit Construction Metal Cabinetry)				
Unit Model	Operating Dimensions w/ screw heads			Operating Weight (lbs)
	Width (in)	Length (in)	Height (in)	
(-)GEC - 036	46 3/4	78 3/8	41 3/8	453
(-)GEC - 048	46 3/4	78 3/8	41 3/8	477
(-)GEC - 060	46 3/4	78 3/8	41 3/8	482
(-)GEC - 072	46 3/4	78 3/8	41 3/8	689
(-)GED - 090	59 15/32	89 5/16	49 1/4	846
(-)GED - 102	59 15/32	89 5/16	49 1/4	872
(-)GED - 120	59 15/32	89 5/16	49 1/4	901

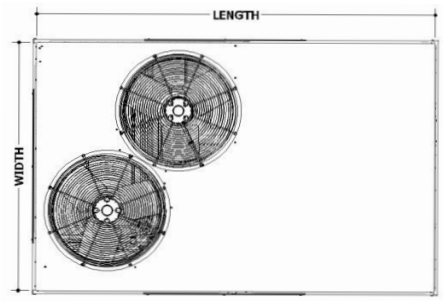
TABLE 3.2: Evaluation Model Series Matrix (Unit Construction Metal Cabinetry)				
Unit Model	Operating Dimensions w/ screw heads			Operating Weight (lbs)
	Width (in)	Length (in)	Height (in)	
(-)HPC - 036	78 3/8	46 3/4	41 3/8	528
(-)HPC - 048	78 3/8	46 3/4	41 3/8	551
(-)HPC - 060	78 3/8	46 3/4	41 3/8	553
(-)HPC - 072	78 3/8	46 3/4	41 3/8	553
(-)HPD - 090	89 5/16	59 1/2	49 1/4	786
(-)HPD - 102	89 5/16	59 1/2	49 1/4	822
(-)HPD - 120	89 5/16	59 1/2	59 7/10	874

Unit Model Note: '(-)' designates equivalent trade brands with similar cabinetry and may vary depending on brand

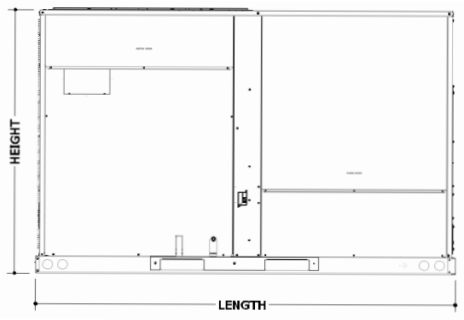
J. Unit Tie-Down

RHEEM PACKAGED UNITS

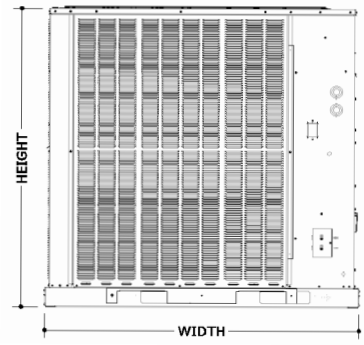
UNIT VIEWS & ELEVATIONS



TOP VIEW



ELEVATION VIEW



SIDE VIEW

Note: RGEDZR-150 illustration selected for dimensional purposes

R. INFORMATION FOR THE OWNER

R.1. Information for the Owner: Maintenance and service

For routine maintenance, general diagnostics for cooling and heating, and other generalized information regarding filter changing, cleaning the condensate pan, cleaning the coils, and general inspections, refer to the included User's Information Manual for the owner.

R.2. Product Model and Serial Number

The product model and serial number are both located on the rating plate found on the supply/ return panel of the unit.

S. INSTALLATION CHECK LIST AND JOB SITE SHEET

Commercial Job Site Information

Site Information and Application Details:

Business Name : _____

Address : _____

City : _____ State : _____ Zip : _____

Site Contact : _____

Phone : _____ Mobile : _____

Email : _____

Model Number : _____
(Please include all letters and digits of the model number)

Serial Number : _____
(Please include all letters and digits of the serial number)

Date of Install : _____
(When was the unit installed, month, day, and year)

Business Name : _____

Address : _____

City : _____ State : _____ Zip : _____

Site Contact : _____

Phone : _____ Mobile : _____

Email : _____

Technician Name : _____

Visit Date: _____

Technician Name : _____

Visit Date: _____

Technician Name : _____

Visit Date: _____

Distributor and Support Details:

Distributor Name : _____

City : _____ State : _____

Rep Name : _____

Visit Date: _____

Unit Setup and Operational Information

Voltage and Amperage Information :

Line Voltage Measurements :

Base Voltage : 208 240 460 (Circle one) Phase : 1 3 (Circle one)

Measured Line Voltage :

Phase A to B : _____ Phase A to Ground : _____

Phase B to C : _____ Phase B to Ground : _____

Phase C to A : _____ Phase C to Ground : _____

Breaker Size : _____ Conductor Size: _____

24VAC Low Voltage Measurements :

Transformer Tap : 208 240 460 (Circle one)

24VAC Measured Voltage : R to C : _____

24VAC Measured Amp Load :

Transformer Load: _____

T-stat Load: _____

Amperage and Power Measurements :

	Full Running Load	Blower	Compressor 1	Compressor 2	Outdoor Fans
Phase A :					
Phase B :					
Phase C :					

Circuit 1 :

Suction Line	Liquid Line
Pressure (PSI) :	Pressure (PSI) :
Temperature (°F) :	Temperature (°F) :
Superheat (°F) :	Sub-cooling (°F) :

Circuit 2 :

Suction Line	Liquid Line
Pressure (PSI) :	Pressure (PSI) :
Temperature (°F) :	Temperature (°F) :
Sub-cooling (°F) :	Sub-cooling (°F) :

Outdoor Air Temperature (°F) : _____ Return Air Temperature (°F) : _____ Supply Air Temperature (°F) : _____

Outdoor Air Wet Bulb (°F) : _____ Return Air Wet Bulb (°F) : _____ Supply Air Wet Bulb (°F) : _____

S. INSTALLATION CHECK LIST AND JOB SITE SHEET

Commercial Job Site Information

Air Flow CFM :

Building Design CFM : _____

Operating System CFM : _____

Blower Speed :

Motor RPM : _____

Blower RPM : _____

Blower Sheave Turns : _____

(Turns are measured from a fully closed position)

Static Pressure :

Return Static Pressure : _____

Supply Static Pressure : _____

Total Static Pressure : _____

Variable Frequency Drive (VFD) : (low fan speed settings are located in DDC Control)

Factory Equiped: Yes No (Circle one)

Active VFD Display (Hz) : _____

LOC/REM Light On?: Yes No (Circle one)

Power Setting (uLu) : _____

Runs to 45hz on Start?: Yes No (Circle one)

Runs to 60hz 2nd Stage?: Yes No (Circle one)

Low Fan Speed % : _____

1stg Cooling Speed % : _____

Low Economizer % : _____

Economizer Setup and Information :

Outdoor Air:

Design CFM : _____

Design % : _____

Measured CFM : _____

Measured % : _____

Blade Position and Settings:

Minimum Position - Low : _____

Minimum Position - High : _____

Min Position Shaft Angle : _____

Measured % : _____

Program Settings:

Enthalpy Zone Setting : A B C D E (Circle one)

Mixed Air Temperature : _____

Min Position Shaft Angle : _____

Measured % : _____

Heat or Furnace Information :

Gas Heat :

Fuel Type : Natural LP (Circle one)

Input BTU : _____

Measured BTU : _____

Line Gas Pressure : _____

Manifold Pressure - Low : _____

Manifold Pressure - High : _____

Number of Orifices : _____

Orifice Size : _____

Flame Signal - microamp (s) : _____

	Voltage: Line 1	Voltage: Line 2	Amperage: Line 1	Amperage: Line 2	RPM	Pressure Switches (measured in inches w.c.) Low	High	Close	Open
Inducer 1:									
Inducer 2:									
Inducer 3:									
Inducer 4:									

Main Limit Closed: Yes No (Circle one)

Over Temp Limit Closed: Yes No (Circle one)

Spark Visible at Igniter : Yes No (Circle one)

Burner Flames Blue : Yes No (Circle one)

Electric Heat :

System Voltage : 208 240 460 (Circle one)

Total Kw input Rating : _____

	Stage 1 Amps:	Stage 2 Amps:	Stage 1 Watts:	Stage 2 Watts:
Phase A :				
Phase B :				
Phase C :				

Notes and Comments :

_____

_____

_____

_____