

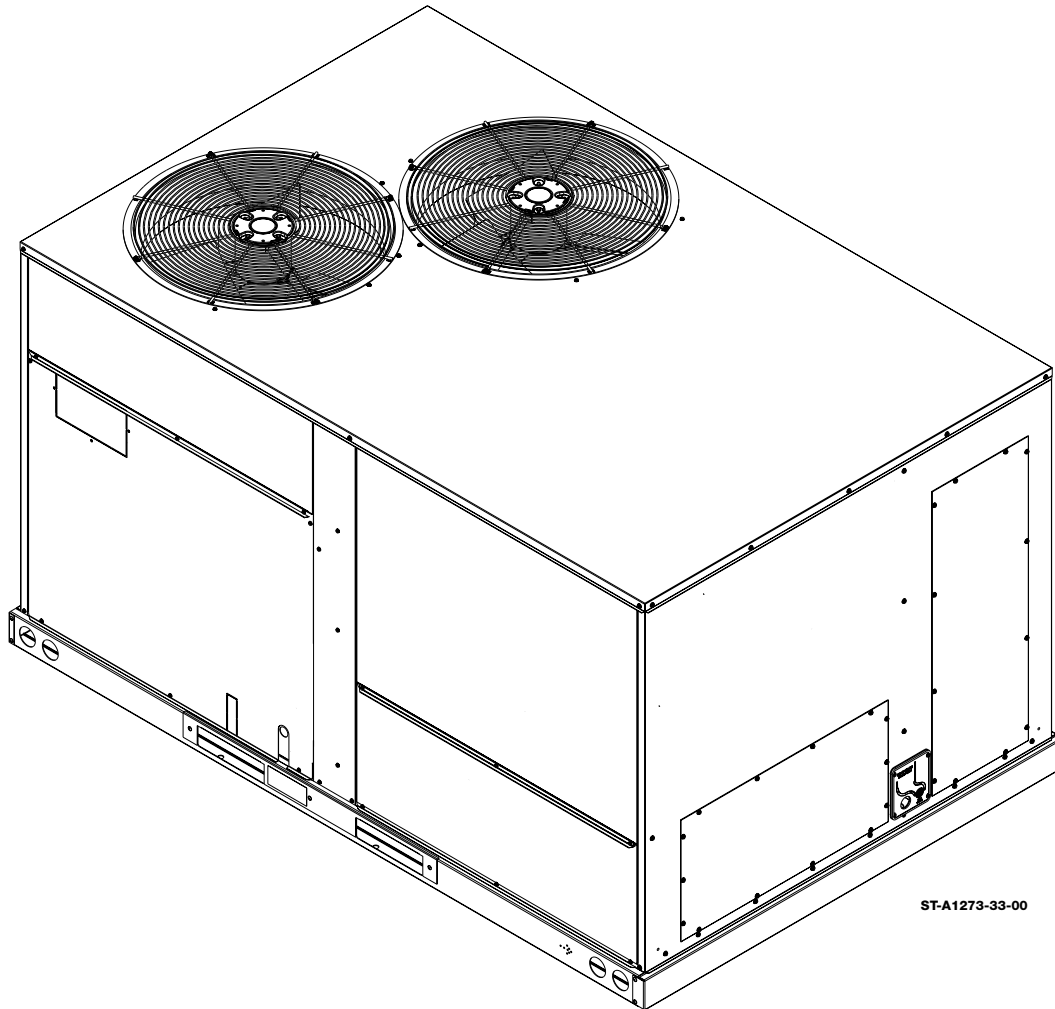
INSTALLATION INSTRUCTIONS

FOR PACKAGED AIR CONDITIONING UNITS

(-)ACD SERIES 7.5, 8.5, 10.0 & 12.5 TON [26.4, 29.9, 35.2 AND 44.0 kW]

60 HZ MODELS

WITH R-454B REFRIGERANT



ST-A1273-33-00

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**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.

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

B400102

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A. IMPORTANT SAFETY AND GENERAL INFORMATION

A.1 Introduction

This booklet contains the installation and operating instructions for your 7.5 ton, 8.5 ton, 10 ton, or 12.5 ton packaged 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. 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 20 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 - 2022
- AHRI Operations for Unitary Large AC Equipment 340/360 (2022)

SAFETY

UL 60335-2-40 4th Edition

QUALITY

ISO 9001: 2015

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.

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment must be on site. A dry powder CO2 fire extinguisher must be near the charging area at all times during installation, commissioning, service, and decommissioning.

A. IMPORTANT SAFETY AND GENERAL INFORMATION

A.3.1. Working Personnel Qualifications

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

Examples of working procedures include but are not limited to:

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

This appliance is not intended for use by persons (including children) when reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

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: The manufacturer's warranty does not cover any damage or defect to the air conditioner caused by the attachment or use of any components, accessories or devices (other than those authorized by the manufacturer) into, onto or in conjunction with the air conditioner. You should be aware that the use of unauthorized components, accessories or devices may adversely affect the operation of the air conditioner and may also endanger life and property. The manufacturer disclaims any responsibility for such loss or injury resulting from the use of such unauthorized components, accessories or devices.

⚠️WARNING: Disconnect all power to the unit before starting maintenance. Failure to do so can result in severe electrical shock or death

⚠️WARNING: Do not, under any circumstances, connect return ductwork to any other heat producing device such as a fireplace insert, stove, etc. Unauthorized use of such devices may result in fire, carbon monoxide poisoning, explosion, property damage, severe personal injury or death.

⚠️WARNING: The unit must be permanently grounded. A grounding lug is provided in the electric heat access area for a ground wire. Failure to ground this unit can result in fire or electrical shock causing property damage, severe personal injury or death.

⚠️WARNING: Only electric heater kits supplied by this manufacturer as described in this publication have been designed, tested, and evaluated for use with this unit. Use of any other manufactured electric heaters installed within this unit may cause hazardous conditions resulting in property damage, fire, bodily injury or death.

⚠️DANGER: Risk of fire or explosion. Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.

⚠️WARNING: Risk of fire or explosion. Dispose of properly in accordance with Federal Or Local Regulations. Flammable refrigerant used.

⚠️DANGER: Risk of fire or explosion. Flammable refrigerant used. Consult the repair manual/owner's guide before attempting to service this product. All safety precautions must be followed.

⚠️DANGER: Risk of fire or explosion due to flammable refrigerant used. Follow handling instructions carefully in compliance with National Regulations.

⚠️WARNING: Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

⚠️WARNING: The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance, or an operating electric heater).

⚠️WARNING: Do not pierce or burn.

⚠️WARNING: Be aware that refrigerants may not contain an odor.

⚠️WARNING: If this unit is connected via an air duct system to one or more rooms with an area less than the specified minimum area, that room shall be without continuously operating flames or other potential ignition sources. See **Appendix F - A2L Refrigerant Installation Safety Data.**

⚠️WARNING: Auxiliary devices which may be a potential ignition source shall not be installed in the ductwork.

⚠️WARNING: If this unit is connected via duct to one or more rooms, only auxiliary devices approved by the manufacturer that are declared suitable with A2L refrigerants shall be installed in the connecting ductwork.

⚠️WARNING: Appliance shall be installed, operated, and stored in a room with a floor area larger than 'X'm². See **Appendix F - A2L Refrigerant Installation Safety Data.**

B. GENERAL SPECIFICATIONS

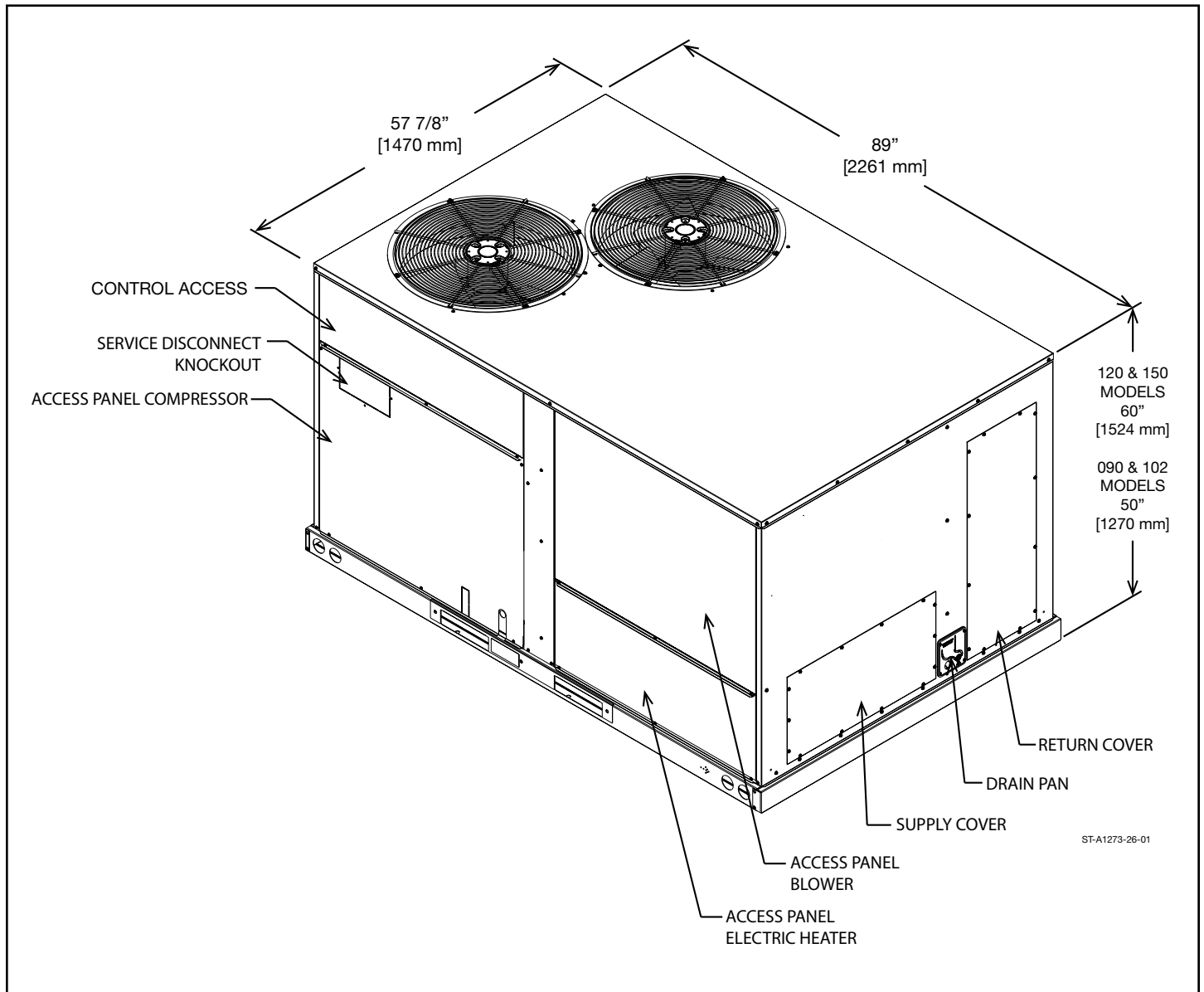
B.2. Major Components

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, 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.

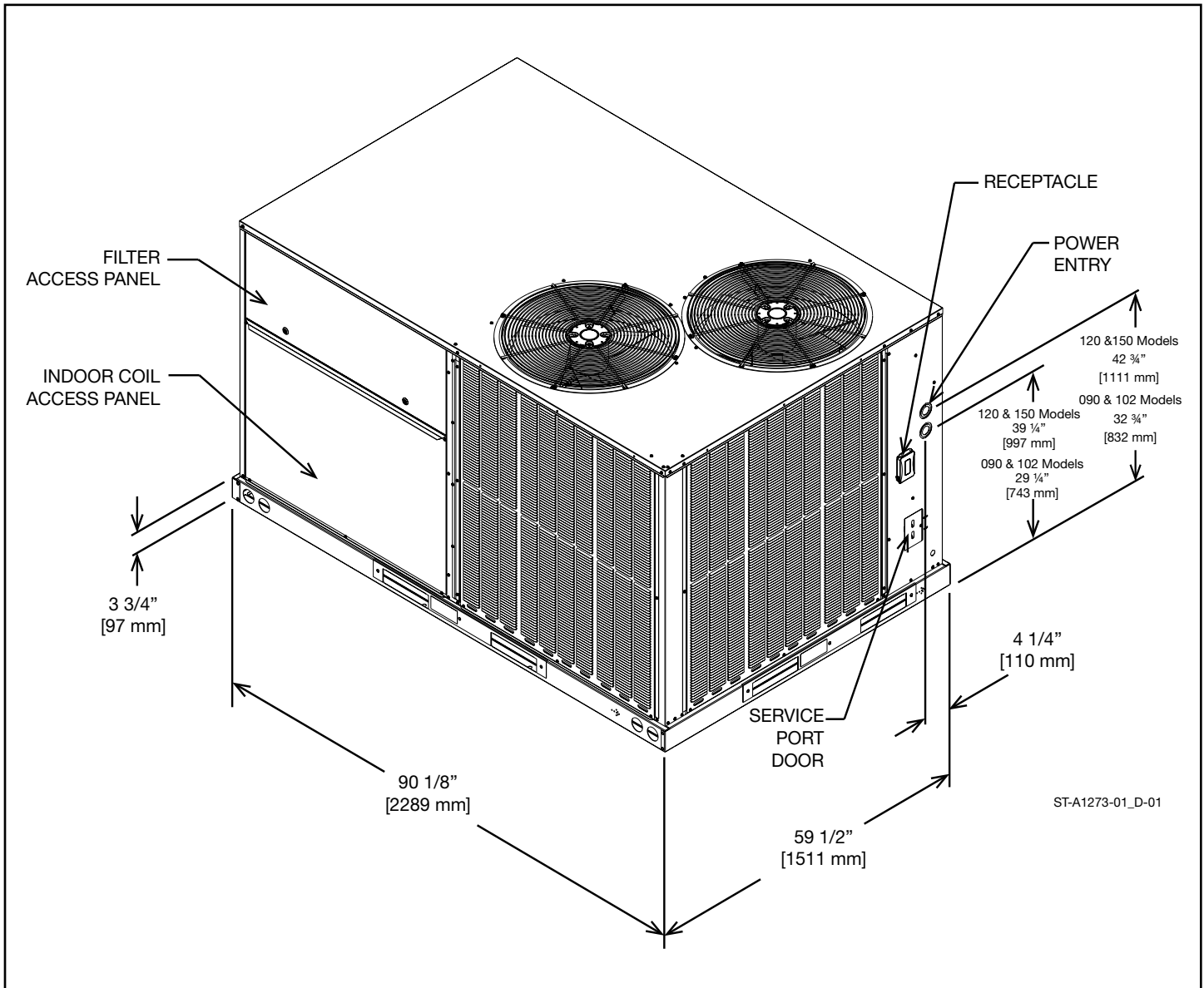


B. GENERAL SPECIFICATIONS

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 Air Conditioning rooftop unit is available with 10, 15, 20, 30 or 40 KW electric heat input (either factory installed or field installed). Cooling capacity is 7.5, 8.5, 10, and 12.5 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

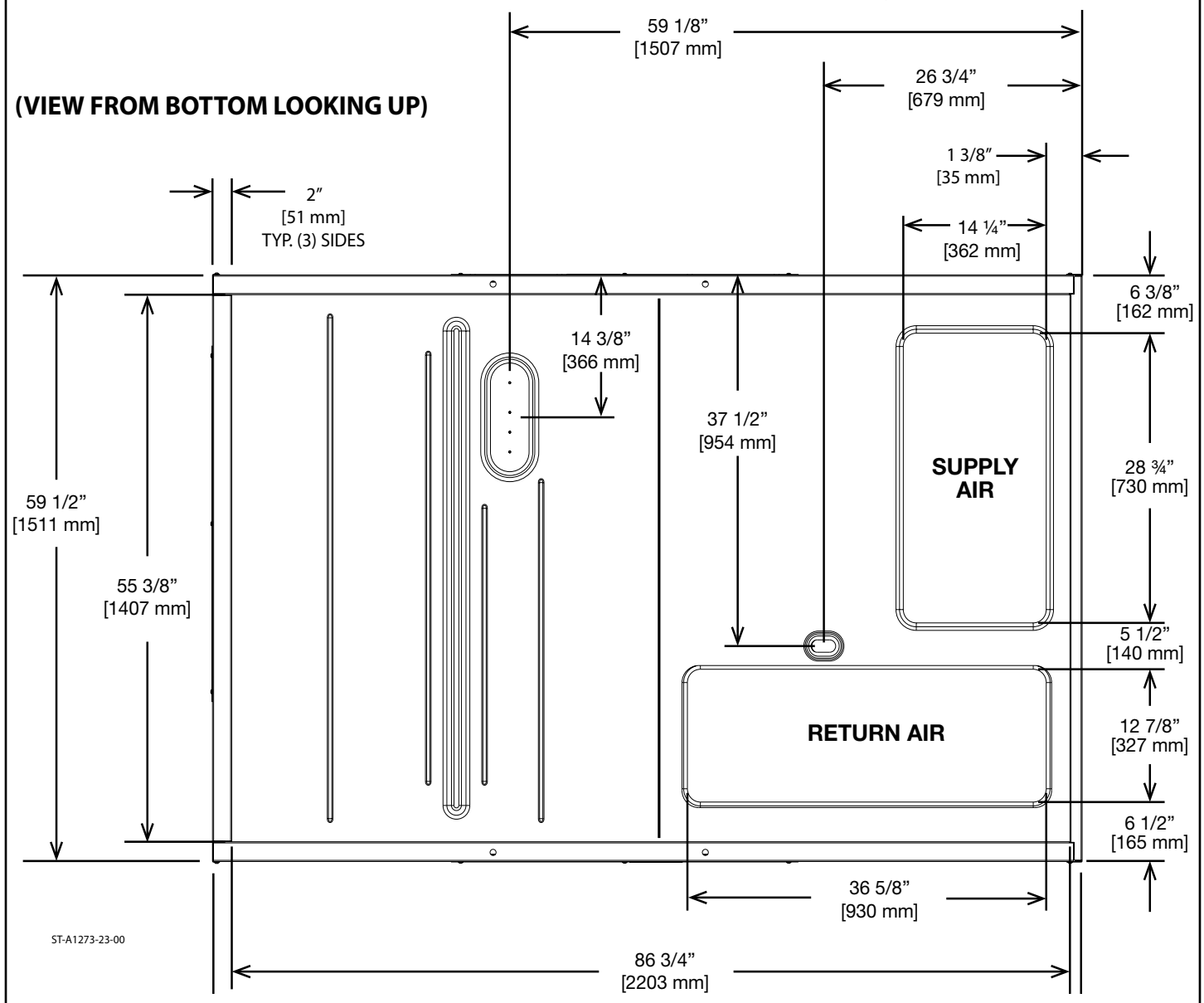
See [Appendix B](#) towards the end of this manual for Electrical Data.

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

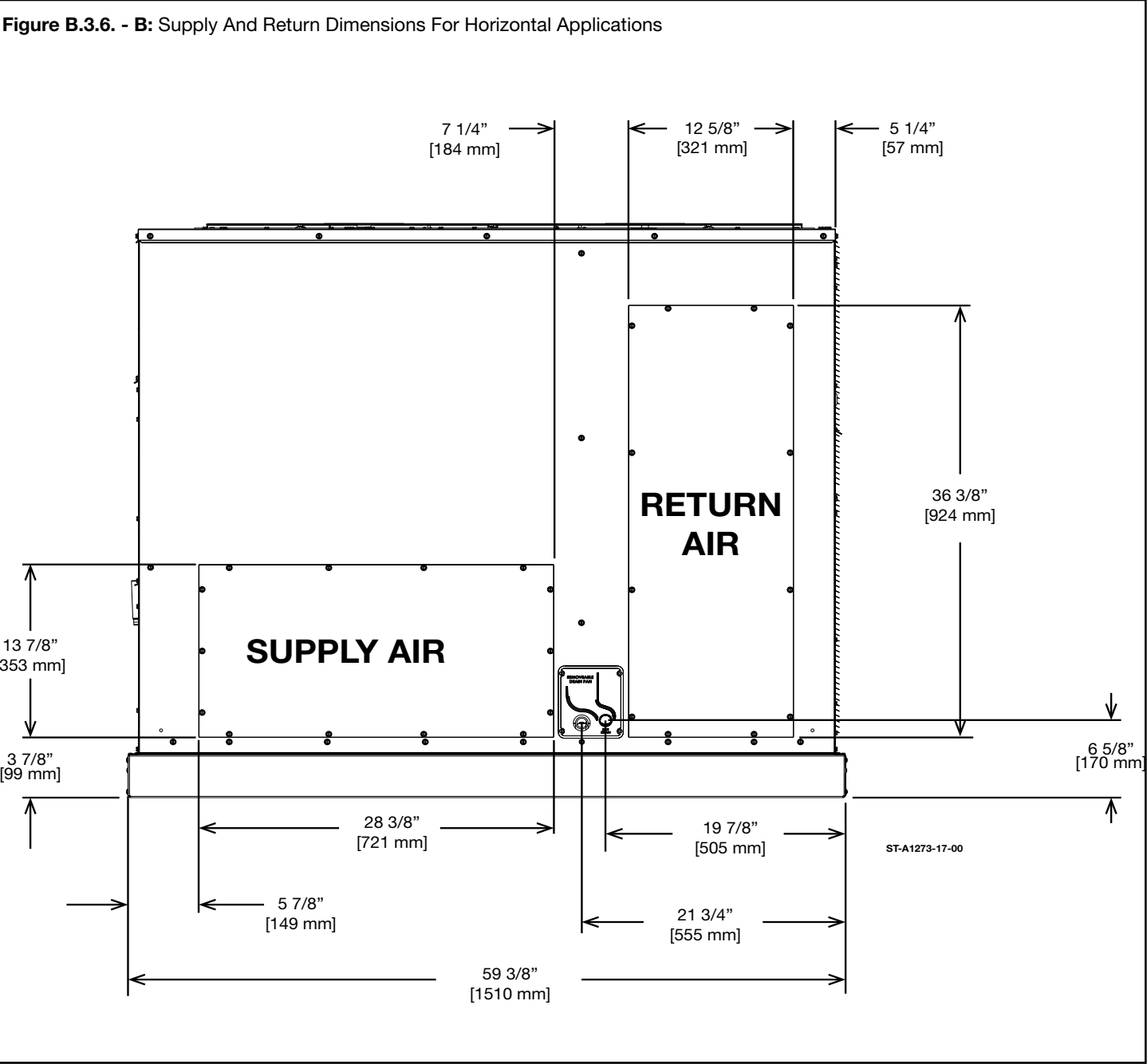
Figure B.3.6. - A: Supply And Return Dimensions For Downflow Applications (Bottom View Looking Up)



B. GENERAL SPECIFICATIONS

B.3.6. Supply and Return Duct Dimensions

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



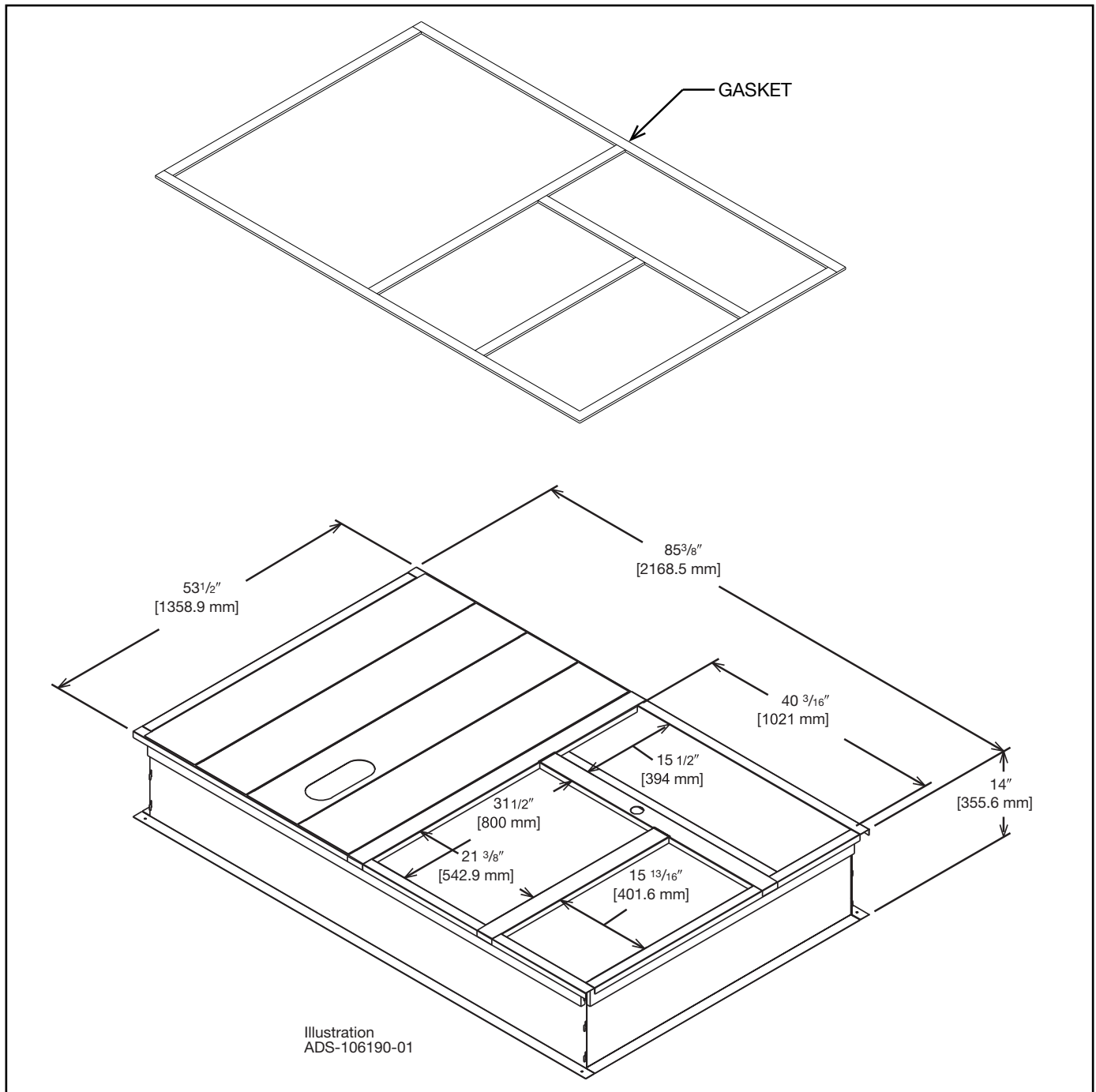
B. GENERAL SPECIFICATIONS

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



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
- Air duct connections and sizing
- Drain facilities and connections
- Location for minimum noise and vibration

C.2. Tool and Refrigerant

A leak detection system is installed in this unit. The unit must be powered at all times except during service.

This unit is equipped with electrically powered safety measures. To be effective, the unit must be electrically powered at all times after installation, other than when servicing.

C.2.1. Tools Required for Installing and Servicing R-454B 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-454B

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

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

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

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

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

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

C.2.3. Quick Reference Guide for R-454B

Ensure that servicing equipment is designed to operate with R-454B.

- R-454B refrigerant operates at pressures similar to R-410A. However, it is classified in safety group A2L. Ensure that servicing equipment is compatible with R-454B.
- Refrigerant cylinders are no longer color-coded. R-454B refrigerant cylinders are light green grey in color with a red band on the shoulder or top of the cylinder to indicate flammability.
- R-454B, as with other HFCs is only compatible with POE oils.
- Vacuum pumps will not remove moisture from POE oil.
- R-454B systems are to be charged with liquid refrigerants.
- Do not install a suction line filter drier in the liquid line.
- A liquid line filter drier is standard on every unit.
- Desiccant (drying agent) must be compatible for POE oils and R-454B.

C. INSTALLATION OF THE UNIT

C.2.4. Evaporator Coil/TXV

The thermostatic expansion valve is specifically designed to operate with R-454B. If required, the existing TXV and/or evaporator coil must be replaced with the factory specified components specifically designed for R-454B.

⚠ 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.2.5. Minimum Room Area

Because this unit uses R-454B refrigerant, UL requires a minimum room area for the total conditioned space (TAmin) that is supplied by this equipment.

The UL Safety Standard defines an individual room area as the room area enclosed by floors, walls, partitions, and doors of the space where the unit is installed, also as the room area into which refrigerant can leak. Each room/conditioned space will need to be considered for the total area requirements.

The minimum room area of the total conditioned space for each base model is listed in [Appendix H – A2L Refrigerant Installation Safety Data](#).

C.2.6. No Ignition Sources

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

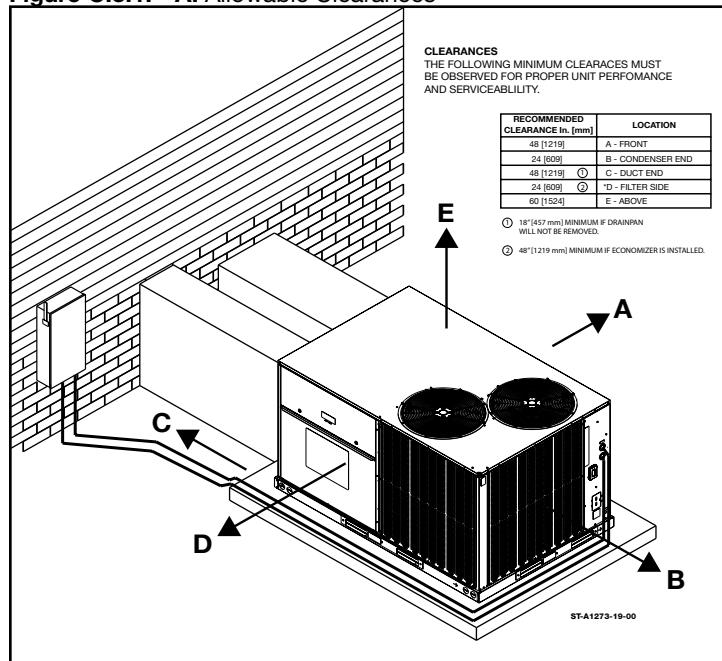
C. INSTALLATION OF THE UNIT

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



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.

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.

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 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 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 coating are offered in some areas. There 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. INSTALLATION OF THE UNIT

C.3.5. Cover Panel Installation / Conversion procedure

Figure C.3.5. – A: Cover Gasket Detail

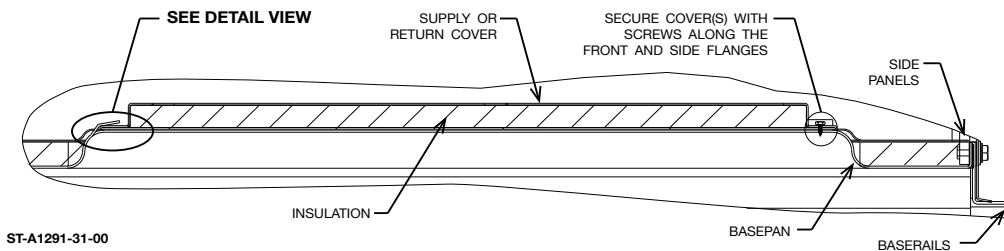
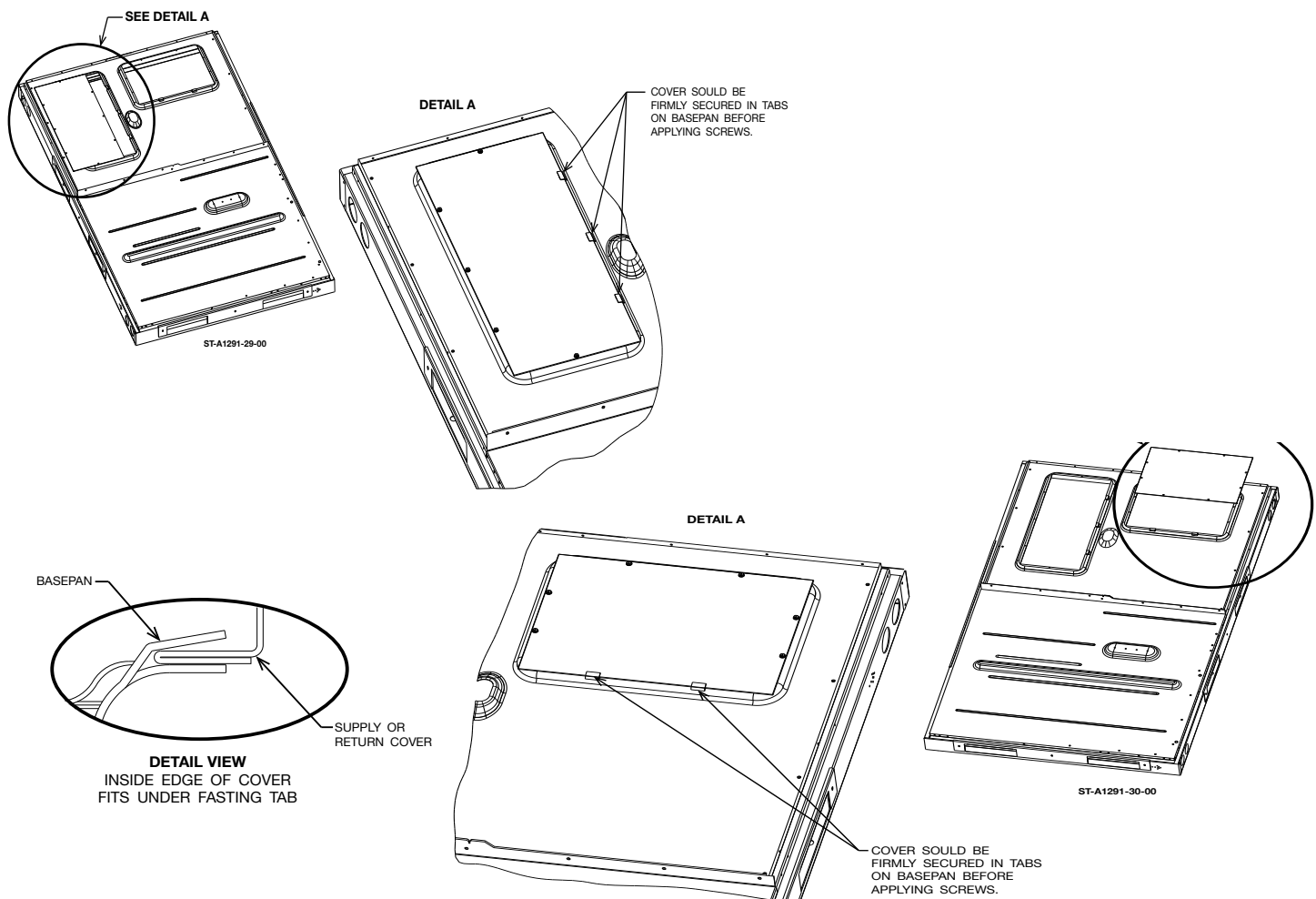


Figure C.3.5. – B: Downflow to Horizontal Conversion



From Downflow to Horizontal

1. Remove the covers from the supply and return openings on the unit. See **Figure B.3.6. – A** for reference.
2. Install the covers over the supply and return openings in the basepan, painted side up, inserting the leading flange under the bracket provided. Place the back flange to top of the front bracket provided. See **Figure C.3.5. –B** for reference.
3. Secure the return and supply cover to front bracket with screws.

C. INSTALLATION OF THE UNIT

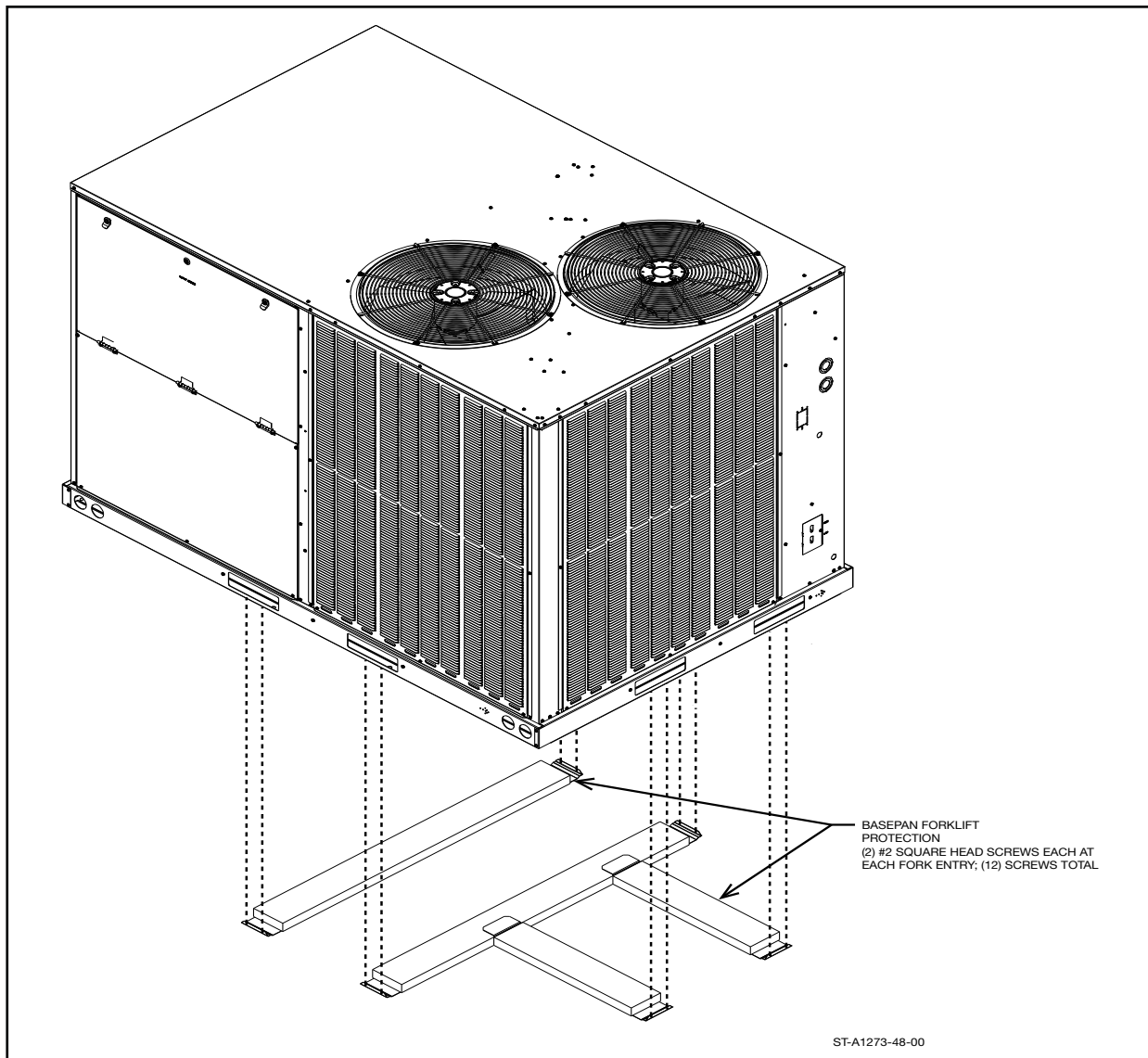
C.4. Setting the Unit

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

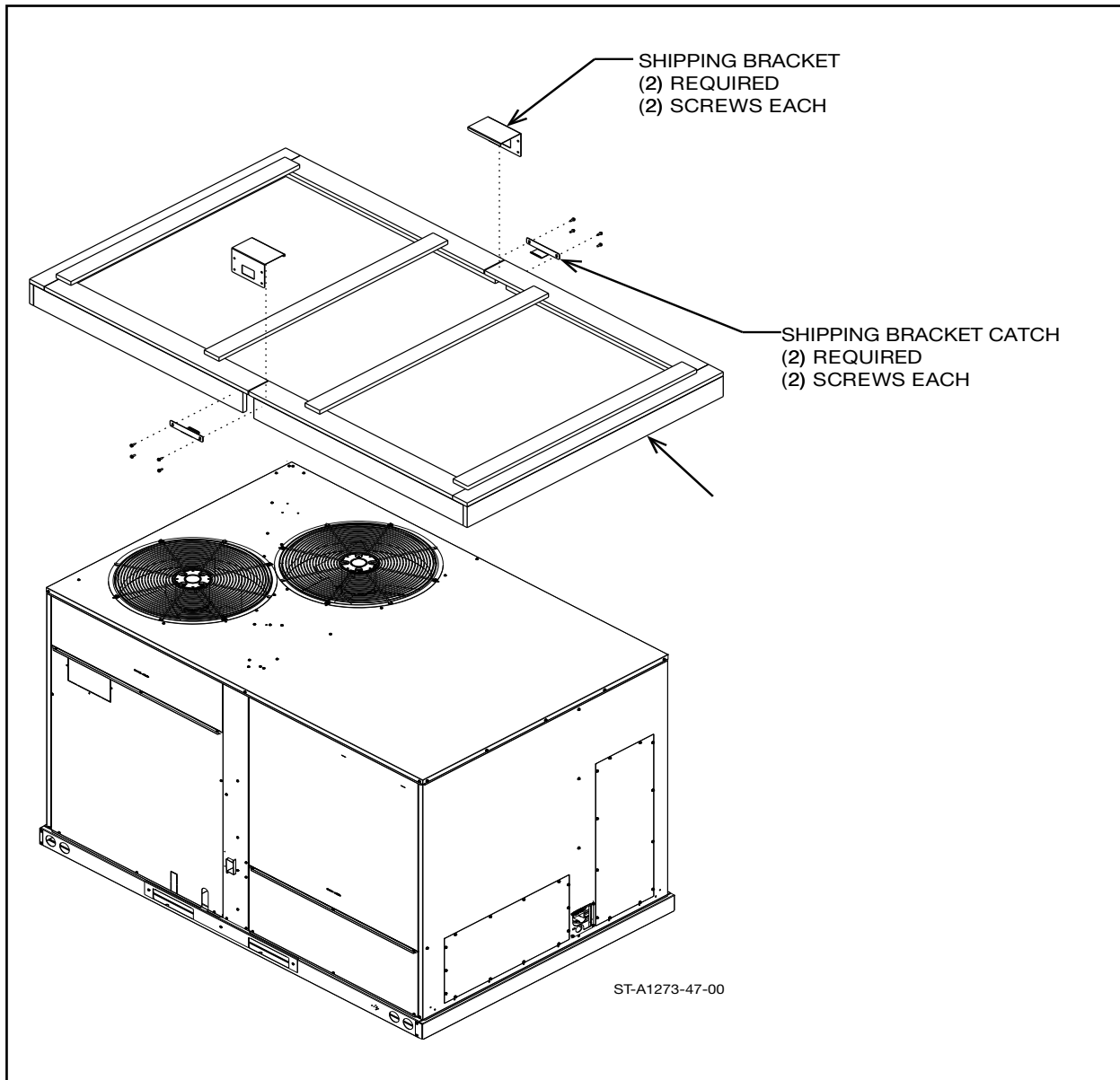
Figure C.4.1. – A: Basepan Protection Assembly



C. INSTALLATION OF THE UNIT

- **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.

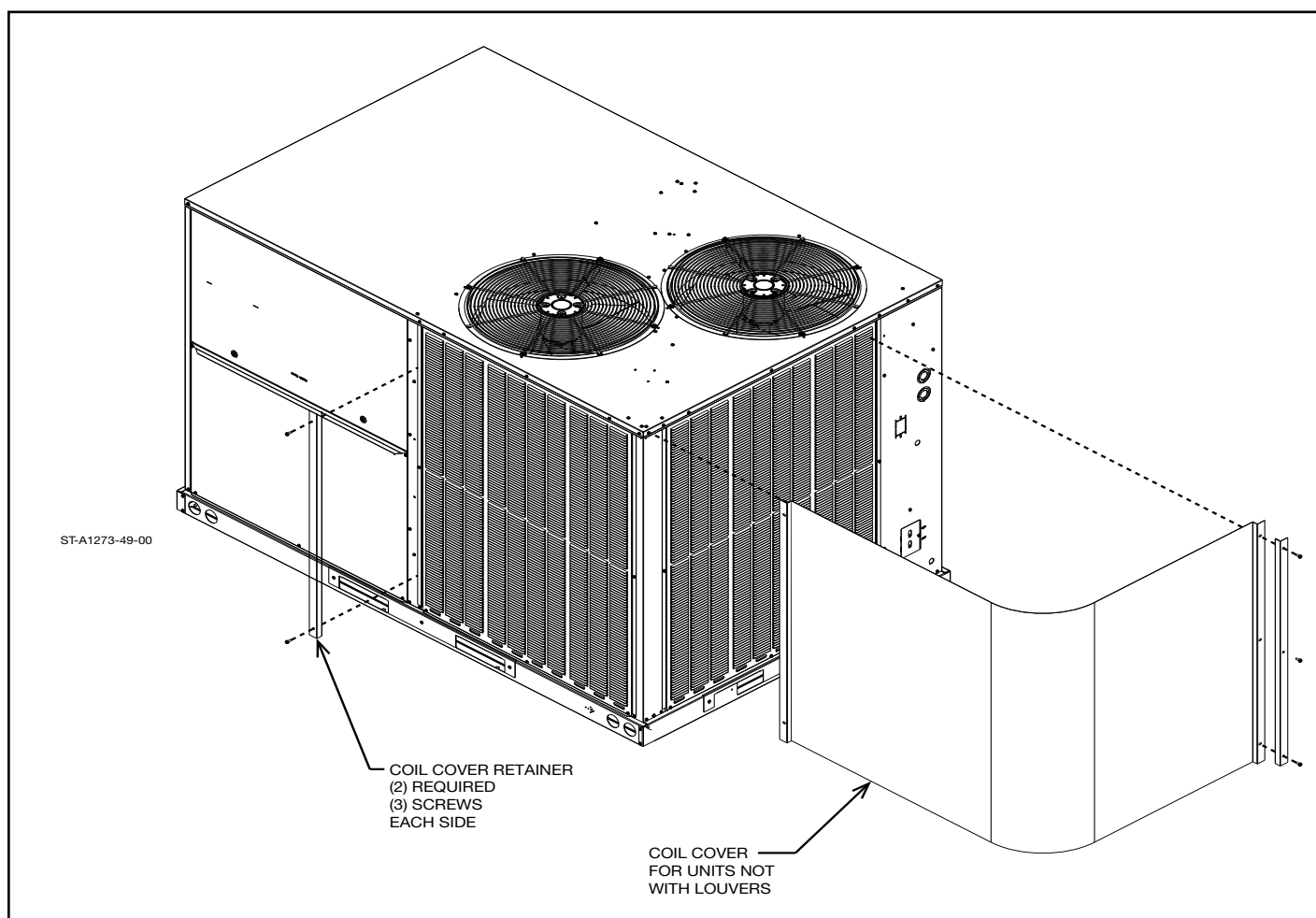
Figure C.4.1. – A: Wooden Skid Assembly



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.

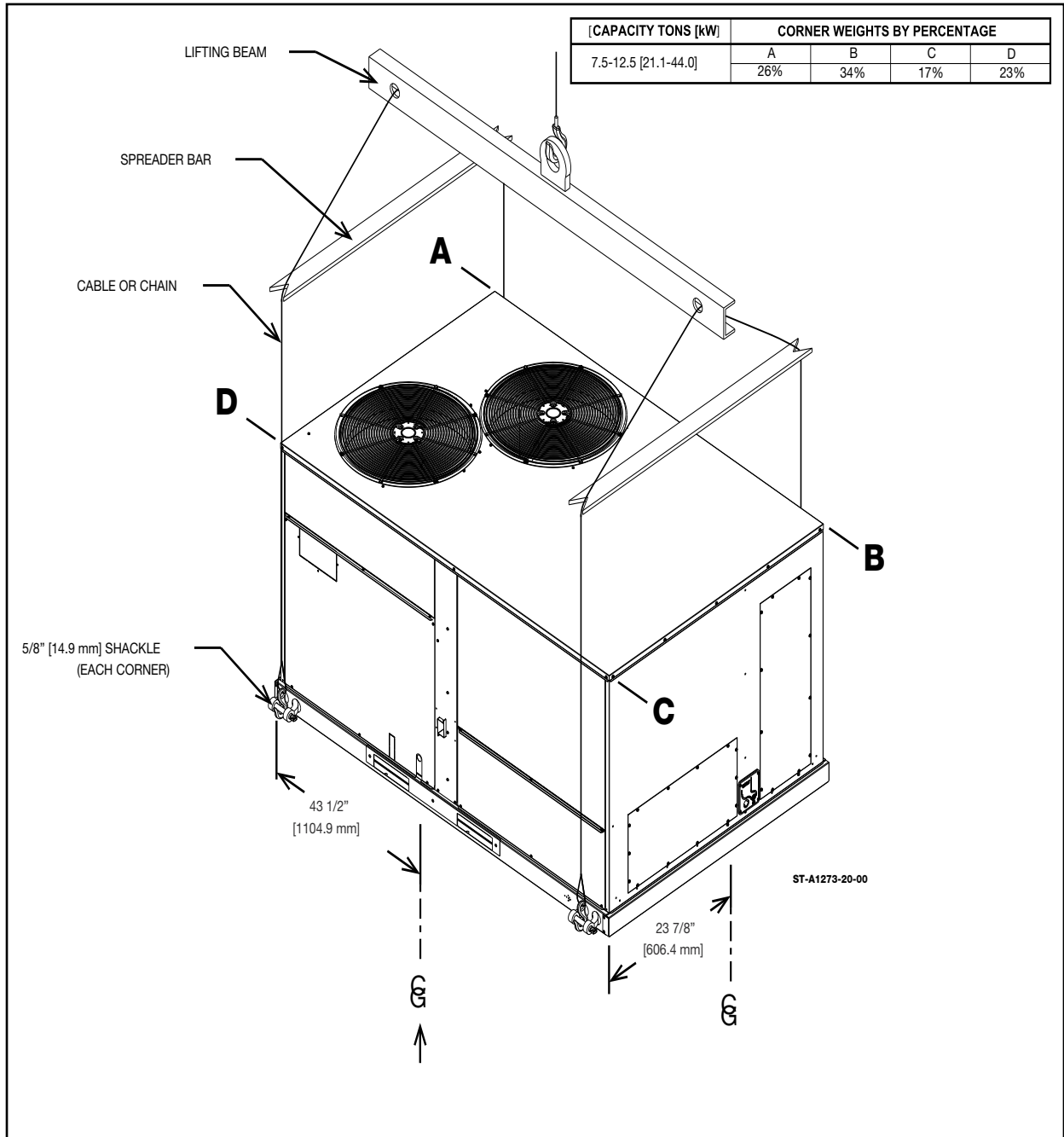
Figure C.4.1. – C: Condenser Coil Protection Assembly



C. INSTALLATION OF THE UNIT

C.4.2. Lifting the Unit

Figure C.4.2. – A : Lifting Detail



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.

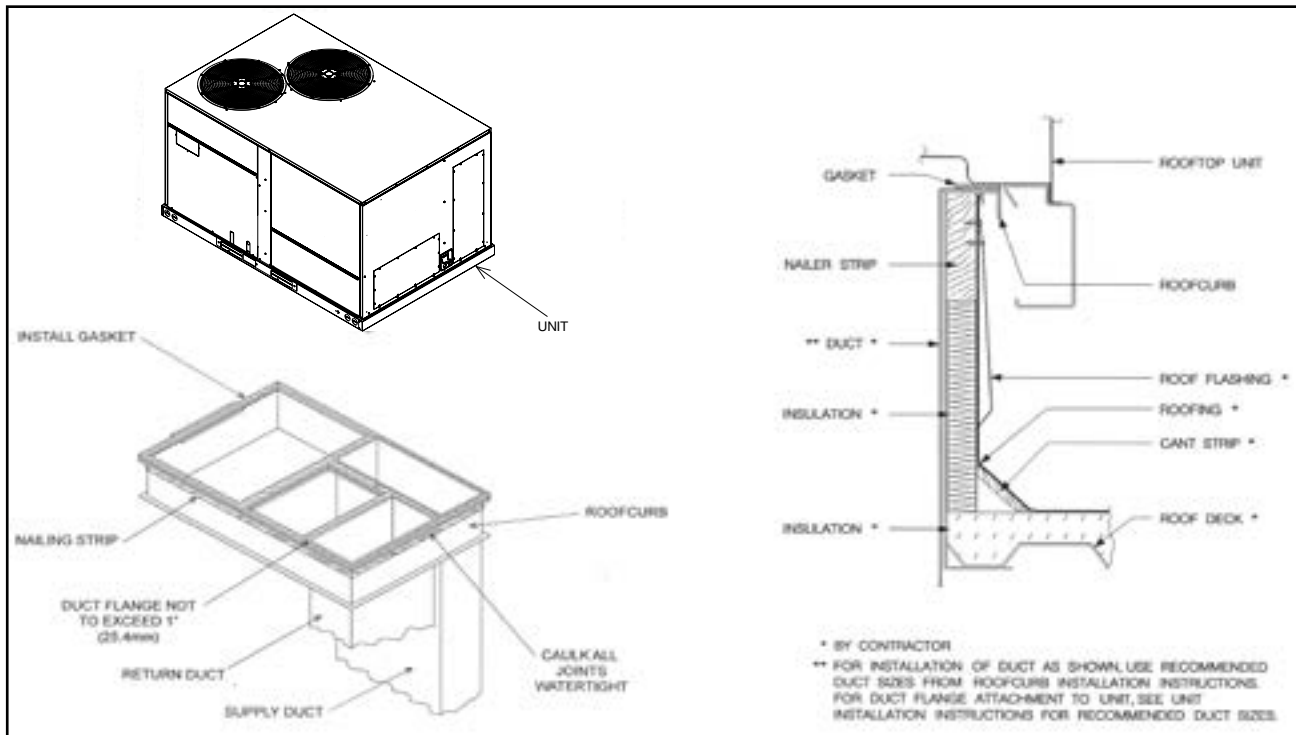
C.4.3.1. Installing the Roof Curb

Refer to the separate Installation Instructions for installing a roof curb.

- 14" and 21" Roofcurb
- Roofcurb Adapter

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 ASCE 7-10 and the Florida Building Code 5th Edition. 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 ASCE 7-10 and the Florida Building Code 5th Edition. 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 3/4 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. 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.

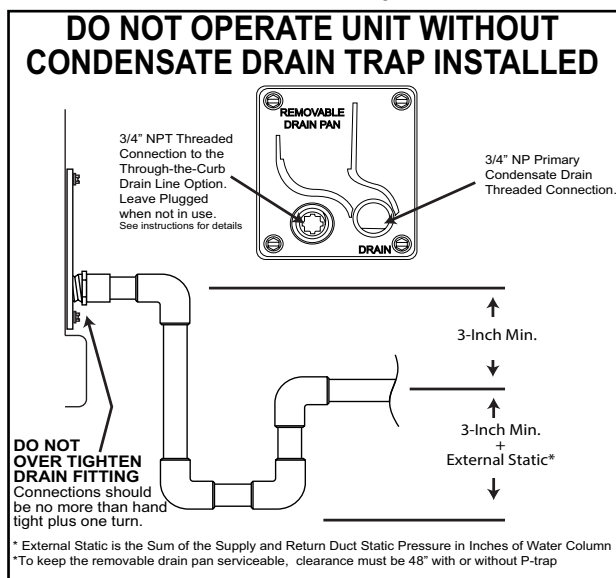
DO NOT connect condensate drain line to a closed sewer pipe.

C. INSTALLATION OF THE UNIT

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.

Figure C.5.1 – A: Condensate Drain Tap



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 be assembled for easy removal and cleaning. Drain line **MUST NOT** block service access panels.

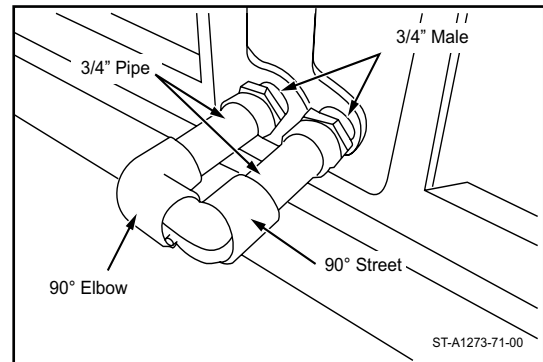
C.5.3. Connecting the Drain trap

- 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 3/4" male threaded 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.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.

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 installation 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, www.acca.org

⚠ 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/business owner must be informed against future changes in construction which might change this to a "confined space." Also, caution the user/business owner 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. DUCT AND VENTING

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 28 3/4" x 14 1/4", the supply duct opening for horizontal ducted installations is 28 3/8" x 13 7/8". See **Figure B.3.6. – A and – B** for reference.

The installer is responsible for verifying all dimensions before unit installation.

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 return duct opening for roof curb installations is 36 5/8" x 12 7/8", the return duct opening for horizontal ducted installations is 36 3/8" x 12 5/8". See **Figure B.3.6. – A and – B** for reference.

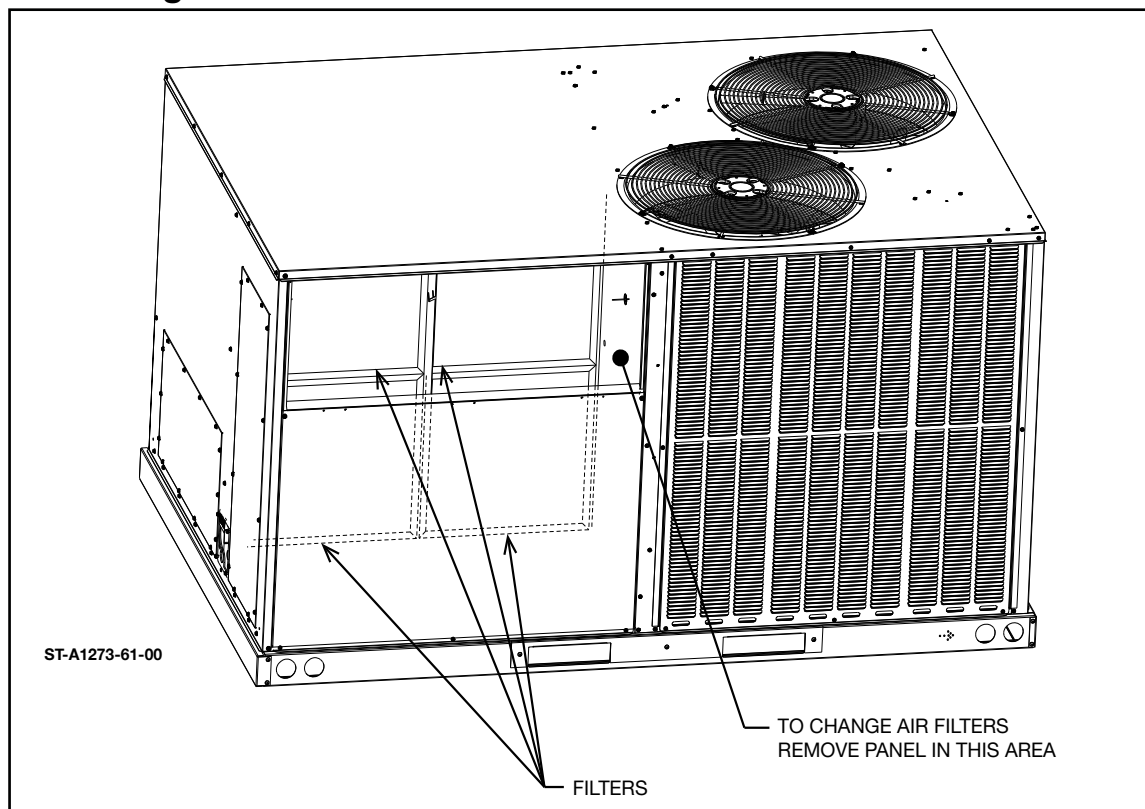
The installer is responsible for verifying all dimensions before unit installation.

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.3. Filters

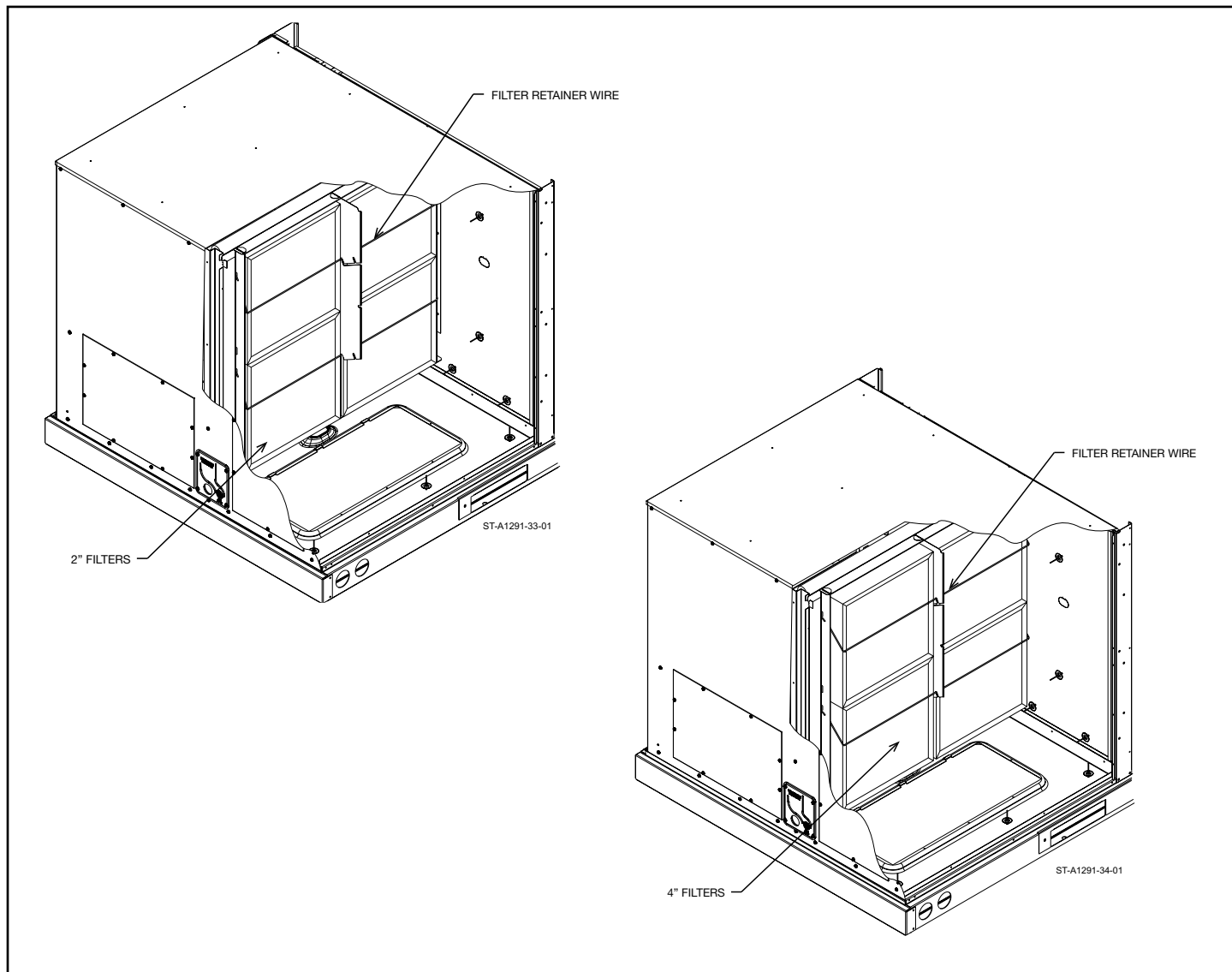
D.3.1. Installing Filters



D. DUCT AND VENTING

D.3. Filters

D.3.1. Installing Filters (Cont.)



This product will accept both 2" and 4" filters. A new unit ships with four 2" x 20" x 20" 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 downwards on retainer wire and rotate upwards to unlock filters.
3. Secure retainer wire in notch.
4. Remove and discard current filters.
5. Install new filters with airflow arrow pointing towards evaporator coil.
6. Rotate retainer wire downward to original position and secure in notch.
7. Install "Filter Access" panel.

D. DUCT AND VENTING

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.

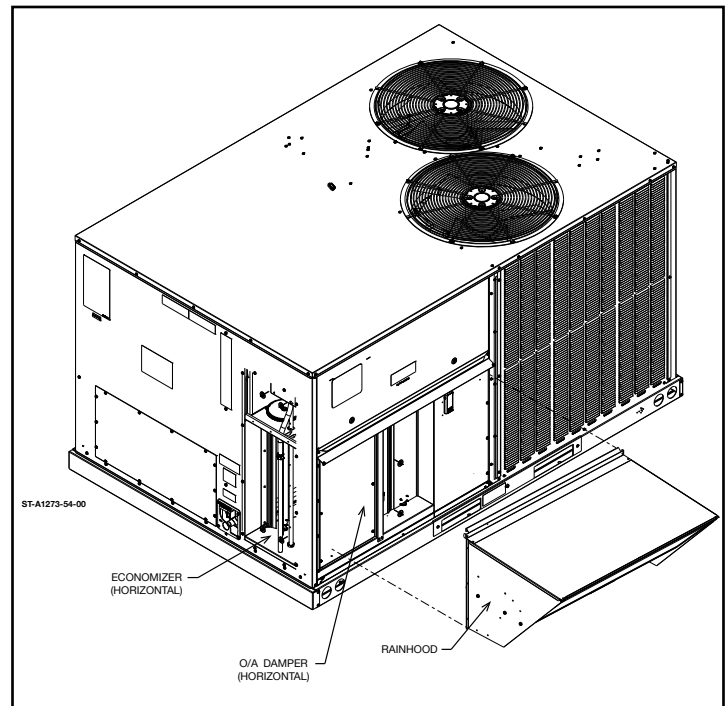
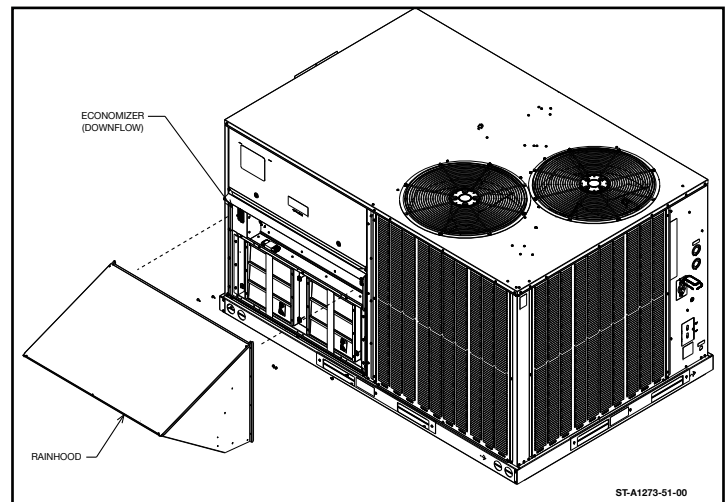
The Downflow Economizer is designed specifically for units setup in a downflow configuration. The downflow economizer fits inside the package unit and sits over the return-air opening along the bottom of the unit. All economizers are equipped with horizontal gear driven blades and a gravity relief damper (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. Accessory economizers purchased separately will also come with the parts bag and instructional document.

Refer to **Section J.1.1.1. Refrigerant Leak Detection System** for instructions on how to relocate the factory-installed A2L sensor when a field-installed economizer is installed in this unit.

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



Note: Louver protections are optional

D. DUCT AND VENTING

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

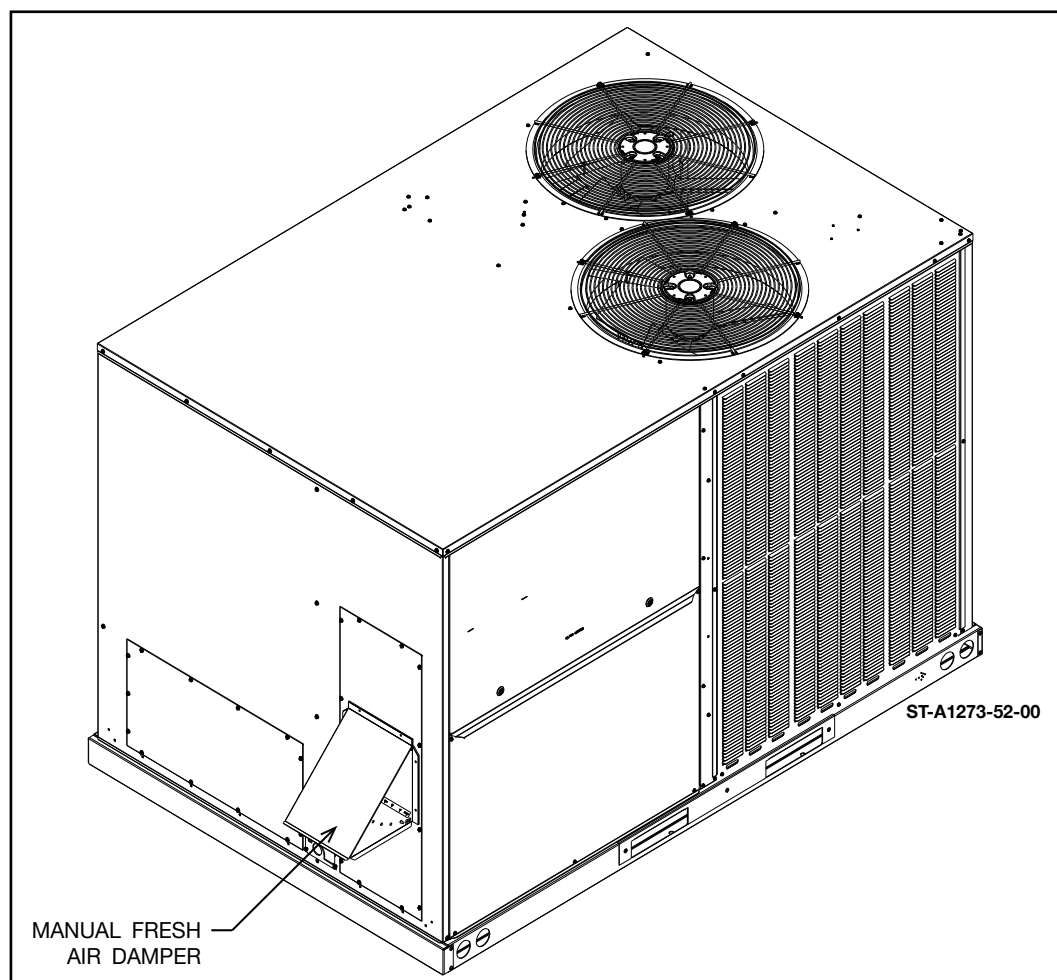
motorized damper is that the outside air is no longer a factor once the RTU fan is cycled off.

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

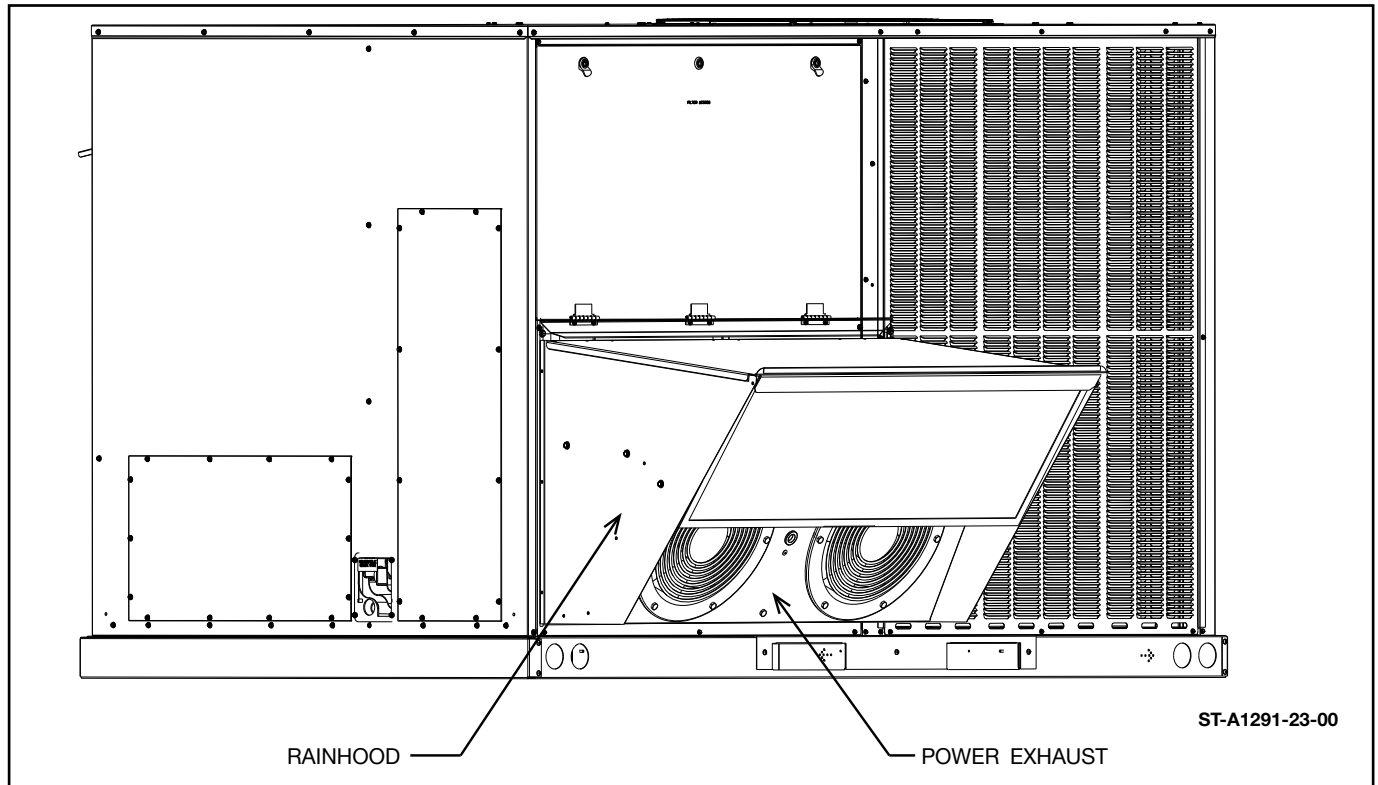


D. DUCT AND VENTING

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 spots within a room.

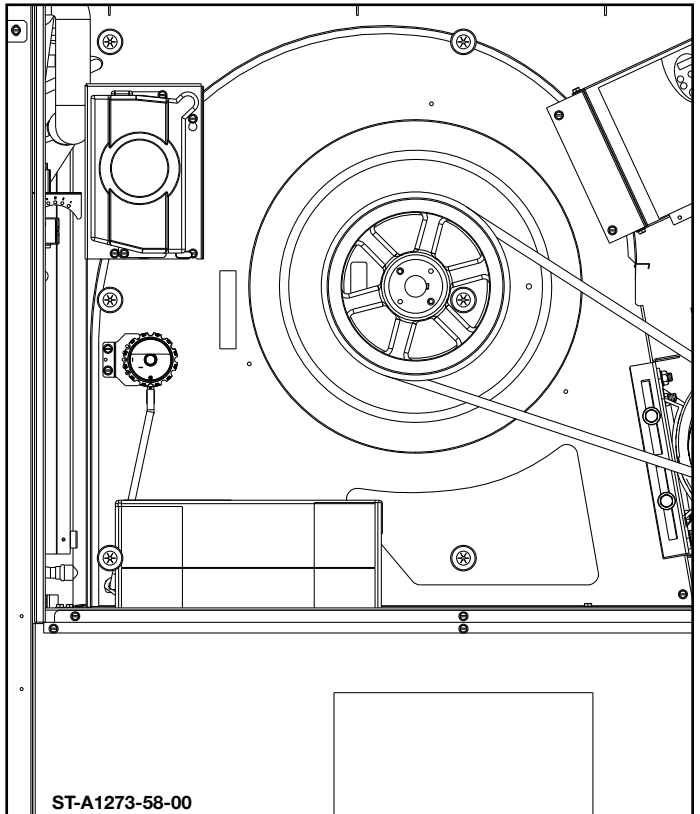
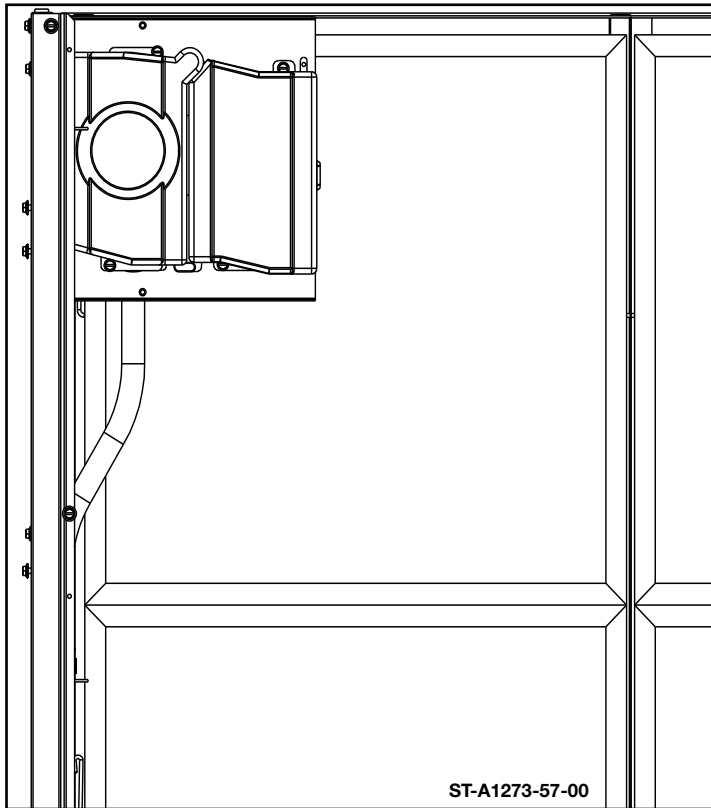
Figure D.4.3. – A: Powered Exhaust



D. DUCT AND VENTING

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.

D.5.2. Remote Smoke Detection Reference

Refer to **Section F.1.2. Occupancy and Remote Smoke Detector Connections** for Non-DDC connections.

Refer to **Section F.2.5.1. Remote Smoke Detector/Fire Control Connection** for DDC connections.

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.3. – A: Power and Control Routing**. All fittings and conduit are field supplied for this application. Reference the chart with **Figure F.3. – 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.

Refer to the National Electric Code (NEC) for sizing wire to elec heat / single point. See Appendix E - Heater Kit Characteristics for additional info.

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. ELECTRICAL

E.1.2. 208/230 Volt Operation and Required Adjustments

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

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.

E.1.3. 460 Volt Operation

460V units will not require any additional setup.

E.1.4. 575 Volt Operation

Setup for 575V units will not require any additional setup. There will be an additional transformer in the unit that is stored in a metal box and mounted next to the compressor. It will be pre-wired from the factory and no setup will be needed.

E.1.5. Potential Ignition Sources

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

In case any internal electrical components need to be replaced, those replacement parts must be ordered from the unit manufacturer's website to ensure that the internal electrical components are not potential ignition sources.

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

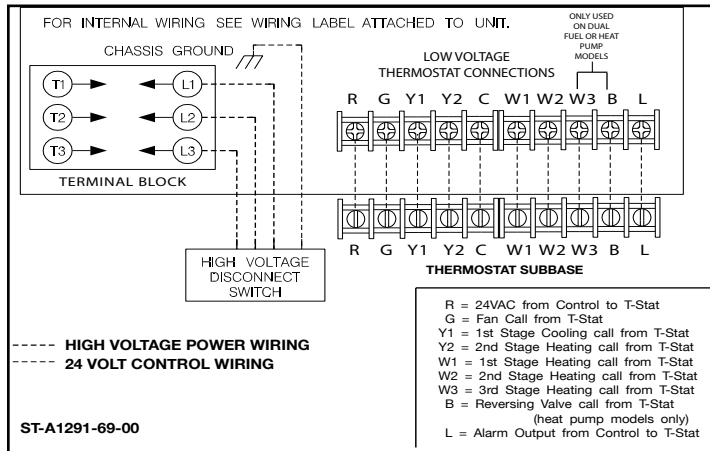
E. ELECTRICAL

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



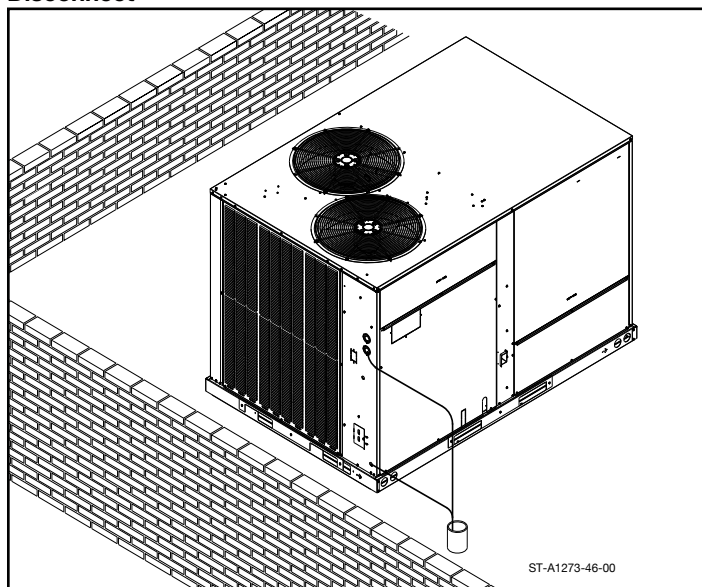
Use to **Appendix B. Electrical Data** and National Electrical Code for circuit ampacity to determine proper wire sizing.

Refer to **Figure F.3. – A: Power and Control Routing** for location of wiring entrances, and **Figure F.3. – 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 more information.

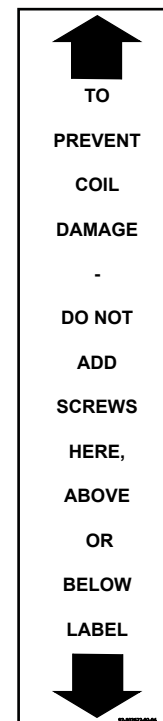
Figure E.3.1.1. – A: Standard Location for Mounting Disconnect



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. – B: Label Showing Where to NOT Use Screws



E.3.1.2. Routing Wires into Cabinet

See **Figure F.3. – 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 terminal block and thermostat in the control box.

E. ELECTRICAL

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 H** for the unit wiring diagrams, and to **Figure F.3. - 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.3.** 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.3.4. 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 belt-drive units with a Variable Frequency Drive (VFD), the motor will always rotate in the correct direction. Correct 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

F.1. T-Stat field connections

Figure F. - A

FIELD WIRE SIZE FOR 24 VOLT THERMOSTAT CIRCUITS						
THERMOSTAT LOAD - AMPS	SOLID COPPER WIRE - AWG.					
	16	14	12	10	10	10
3.0	16	14	12	12	12	10
2.5	16	16	14	12	12	10
2.0	50	100	150	200	250	300
LENGTH OD RUN - FEET (1)						

ST-A1291-14-00

(1) THE TOTAL WIRE LENGTH IS THE DISTANCE FROM THE FURNACE TO THE THERMOSTAT AND BACK TO THE FURNACE.

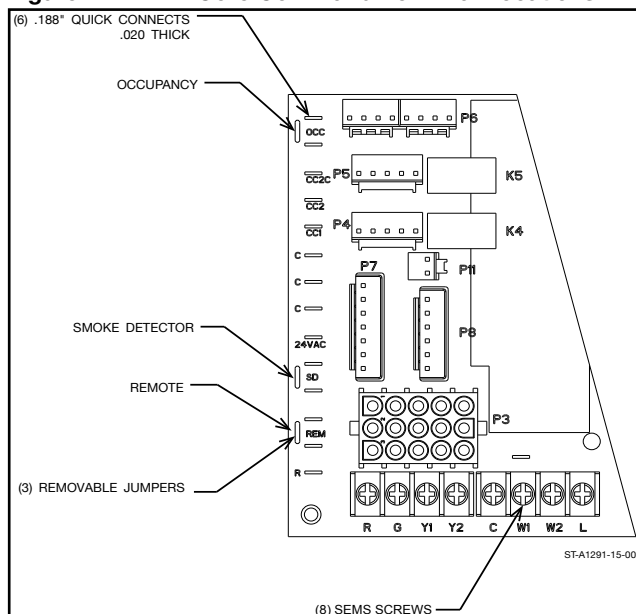
NOTE: DO NOT USE CONTROL WIRING SMALLER THAN NO. 18 AWG.

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 H** 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.1.1. Misc. Connections

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

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



F.1.2. Occupancy connections / Remote connections / Etc

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

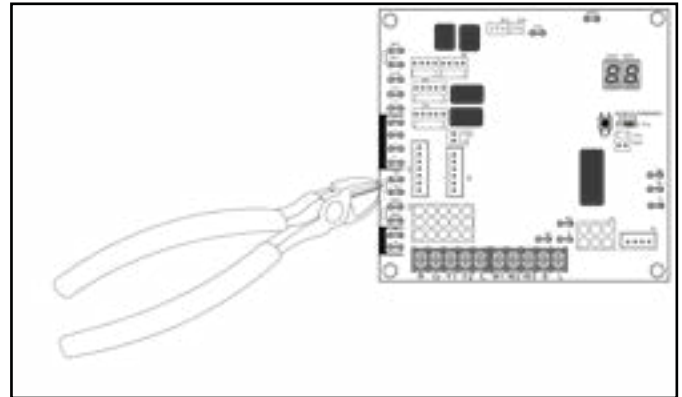


Figure F.1.2. - B: Non-DDC Board

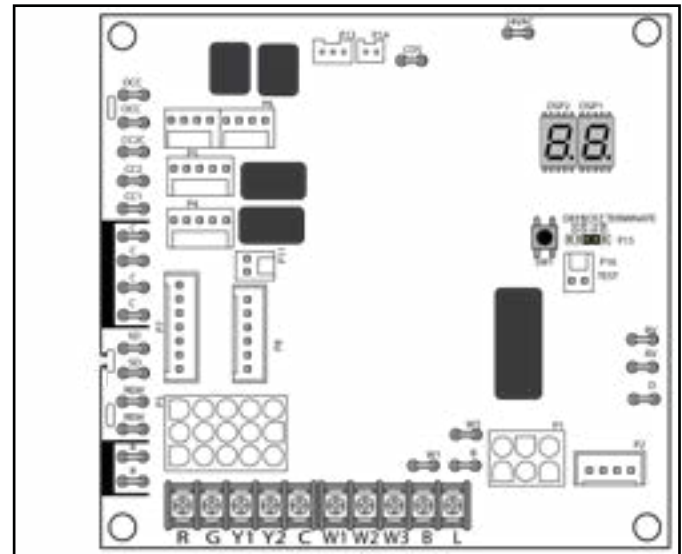
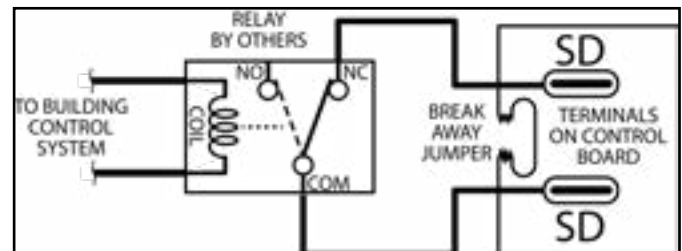


Figure F.1.2. - C: Using a Dry-Contact Relay



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.

F. CONTROL / THERMOSTAT WIRING

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.

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 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 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 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; see **Figure F.2.5.2. – A** for reference. 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.

Figure F.2.1. – A 24VAC Thermostat Circuits

FIELD WIRE SIZE FOR 24 VOLT THERMOSTAT CIRCUITS						
THERMOSTAT LOAD - AMPS	SOLID COPPER WIRE - AWG.					
	16	14	12	10	10	10
	16	14	12	12	12	10
	16	16	14	12	12	10
	50	100	150	200	250	300
LENGTH OF RUN - FEET (1)						

STA1291-14-00

(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.

ST-A1291-14-00

(1) THE TOTAL WIRE LENGTH IS THE DISTANCE FROM THE FURNACE TO THE THERMOSTAT AND BACK TO THE FURNACE.

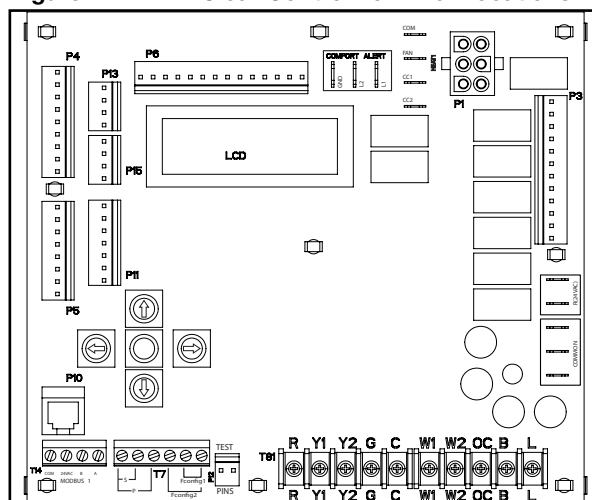
NOTE: DO NOT USE CONTROL WIRING SMALLER THAN NO. 18 AWG.

F.2. DDC Control Inputs

F.2.1. 24VAC Thermostat Control/Operation

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.3. – A: Electrical and Piping Routing**) and connect to the low voltage thermostat connections (see **Appendix H** for wiring diagrams). 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.

Figure F.2.1. – B: Clear Control Terminal Locations



F. CONTROL / THERMOSTAT WIRING

F.2.2. DDC Automated Stand-Alone Operation.

F.2.2.1. Setting the Unit Up: Mode Settings

The unit will need to be configured as follows.

1. The Mode must be set to Auto. This will allow the unit to automatically switch between heating and cooling operation based on the return air temperature or space temperature sensor, if installed (See Section **F.2.3. External Sensor Connections**).

The following Automatic Modes can be selected:

AUTO - run both heating and cooling.

Cool Only - run only cooling.

Heat Only - run only heating.

Fan Only - will only run the fan with no heating or cooling.

2. To select the Mode, use the right arrow key to navigate to "MODE," press the middle button and use the up and down arrow keys to select the desired operating mode for the unit, and then press the middle button to confirm. Control by Thermostat (Ctrl by Tstat) is not an automatic operation mode.
3. Next the Occupancy Control must be set up. While in the Mode Menu, use the down arrow key to navigate to the Occupancy Menu option. Press the middle button to change the setting and use the up and down arrows to select the option required by the application. Then, press the middle button to confirm the setting.
 - If the system is going to run in stand-alone mode with no external inputs for Occupancy control (refer to section **F.2.2. DDC Automated Stand-Alone Operation**), set the occupancy to "occupied." In this setting, the system will run in a continuous occupied state and the operation of the fan will be based on the indoor fan mode. Refer to section **F.2.2.2. Indoor Fan Mode**.
 - If "unoccupied" is selected, the unit will run in a continuous state of unoccupied, and only turning on the fan when heating or cooling for the unoccupied setpoint is needed. In this mode, if a zone sensor with an override button is installed (refer to section **F.2.3.2. Zone Sensor Occupancy Override**), then the unit can be triggered to run in an occupied mode based on the tenant override timer. The zone sensor occupancy button will also trigger an occupied state for all occupancy control modes.
 - If "local switch" is selected, then the unit will look for an external 24VAC input on the OC

terminal of the T8 terminal strip. This 24VAC source can be from an external time clock or building occupancy controller. When 24VAC is applied to the OC terminal, the unit will enter an occupied state of operation.

- If "network" is selected, the unit will look for an occupancy command coming from a Building Management System through the Modbus interface of the control board. Optional BACnet or LonTalk translator cards will carry this function as well.

For information on setting up the system for stand-alone operation, including preparing the unit for Building Management Control, refer to section **F.2.2. DDC Automated Stand-Alone Operation** and **F.2.4. Building Management/Control Connections Using DDC**.

F.2.2.2. Indoor Fan Mode

If the unit is running in an occupied state, the system does not have to continuously run the fan. In the Mode Menu, use the down arrow to navigate to "Indoor Fan Mode." There are two selectable options: continuous and auto-mode. Continuous will run the fan continually in the occupied more, while auto-mode will only run the fan when there is a call for heating or cooling.

F.2.2.3. Occupancy Control External Input 24VAC

Occupancy can be triggered externally to the unit via a 24VAC input on the OC terminal of the T8 thermostat terminal strip. To connect, run the wire from the "R" 24VAC terminal and the "OC" terminal to an occupancy controller in the building. The control needs to have a dry contact relay. When the relay is closed, 24VAC will be passed to the OC terminal and trigger the unit into an occupied operating mode. When the relay is open, the 24VAC to the OC terminal will be lost and the unit will run in an unoccupied state.

F.2.2.4. Temperature Setpoints

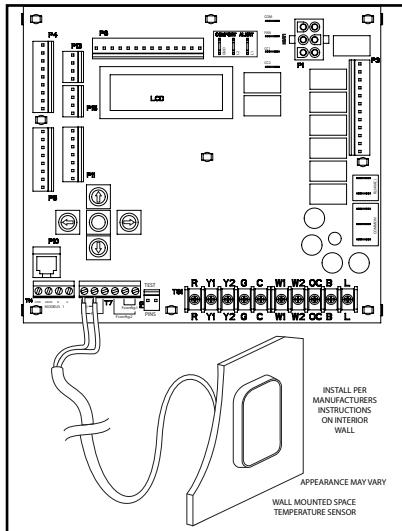
There are two temperature setpoints for occupied and unoccupied modes, heating and cooling. Using the control board's navigation buttons, proceed to the Setpoints Menu and use the down arrow key to select "occupied or unoccupied cool and heat setpoints." Press the middle button to select the first setpoint and use the up and down arrow to adjust the setpoint as required for the application. Then, press the middle button to confirm the setting and advance to the second setpoint. Again, use the up and down arrow keys to adjust the setting, and press the middle button to confirm this setpoint and the settings for the occupancy mode.

There is an automatic temperature differential between heating and cooling. This is adjusted and set in the "Cool Diff" and "Heat Diff" menu items.

F. CONTROL / THERMOSTAT WIRING

F.2.3. External Sensor Connections

Figure F.2.3.1. - A: Space Temperature Sensor



F.2.3.1. Space Temperature Sensor

1. When using a DDC unit with Clear Control in conjunction with a Building Management System or an Automated Operational Mode, the use of a Space Temperature Sensor can greatly improve the accuracy and operation of the unit in maintaining the comfort in the space in both cooling and heating.
2. The space temperature sensor requirements is a 10k type II sensor.
3. Install the sensor on an interior wall in the space served by the packaged unit and connect the wires according to the manufacturer's instructions of the sensor type and style selected.
4. Run these wires from the sensor to the control panel of the unit.
5. After routing the sensor wires through the control panel and to the control board, strip 1/4" of insulation off the ends of the wires.
6. At the control board, locate the T7 green terminal strip. Loosen the two screw terminals marked with "S" (the two left most terminals), insert one of each of the two wires into the terminal opening on the bottom of the strip, and tighten the screw terminal. The connections are not polarity specific, either wire can be connected to either terminal, unless a setpoint adjustment option is used, they will use a shared common, the left most terminal. See the sensor manufacturer's instructions for details.

7. Verify the sensor is reading properly, power up the unit, use the left arrow key to navigate to the Temperatures Menu. Use the down arrow key to go to the space temp option, it should be showing a temperature reading. Use a test instrument to verify the air temperature at the sensor is within 1 to 3 degrees of the reading on the control board. An incorrect type sensor, excessive wire length, or bad connections will cause a significant discrepancy in the readings.
8. For more accurate operation, use the Space Temp Offset menu option to adjust the sensor reading on the Clear Control by +/-3 degrees to match the reading on the test instrument.
9. If the Clear Control is in the control by Thermostat Mode, the Space Temperature sensor will not be used for the operation of the unit.

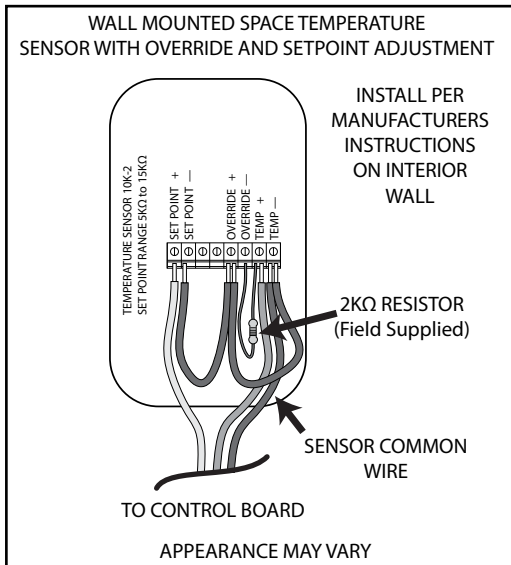
F.2.3.2. Zone Sensor Occupancy Override

If the wall sensor has an override button for triggering occupancy, the override button needs to be set up as follows. The override trigger is looking for a 1.2 to 1.6 Ohm resistance across the space temperature sensor input.

1. Depending on the design of the sensor, some provide separate connections for the override output. If this is the case, use a short piece of wire to connect one side of the override output to one side of the temperature sensor output, and then use a 2k Ohm resistor (field-supplied) as the jumper from the other leg of the override output and the other temperature output wire.
2. Prerequisites: Occupancy Control must be set to Unoccupied, Network when controlled through a BMS or Local Switch and there is a 24VAC Input on the OCC terminal, such as using a time based controller. Units set to "Occupied" in the Occupancy Menu, the override button will have no effect, since the button triggers occupancy.
3. To adjust how long the override lasts, navigate to the Time Delays Menu and use the down arrow to select the Tenant Override Timer (Ten Ovr. Time), press the middle button to adjust the time between the required range of 2 to 6 hours.

F. CONTROL / THERMOSTAT WIRING

Figure F.2.3.2. - A: Common Sensor Back Plane - Setpoint and 2k Override.



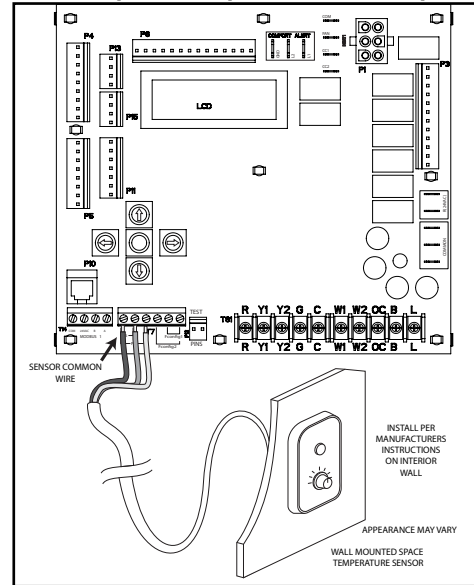
F.2.3.3. Set-Point Adjustment

In an Automatic Operation Mode or controlled by a BMS, a zone sensor with a setpoint adjustment is can be used to vary or adjust the setpoint temperature for the space that the unit is serving. This does require some specific setup to configure the operation and limitations for the adjustment range.

The zone sensor must have a setpoint adjustment range of 5k or 15k Ohms of resistance to provide the 55°F to 90°F set point adjustment range. Zone control devices with other resistance ranges are not compatible and will not function properly with the Clear Control and can cause operational errors or shutdown.

At the control board, locate the T7 green terminal strip. Loosen the two screw terminals marked with "P" (the left most and third from the left terminals), insert one of each of the two wires into the terminal opening on the bottom of the strip and tighten the screw terminal. The connections are polarity specific, and commonly connected with a temperature sensor. The setpoint adjustment and temperature sensor will use a shared common, the left most terminal. Refer to the sensor manufacturer's instructions for details for connections at the sensor.

Figure F.2.3.3. - A: Space Temperature with Setpoint



Once the sensor is connected and installed, power up the unit. The following menu items need to be setup and adjusted according to the requirements for the application.

Prerequisites, the unit must be set up in Automatic Mode or configured to operate with a Building Management System. The setpoint adjustment will not function if the unit is set to "Control by Thermostat."

1. Power on the unit and proceed to the Setpoints Menu. Use the down arrow key to navigate to the Setpoint Adjust Enable (Stpnt Adj Enable) menu item, press the middle button, and use the up or down arrow key to select "Enable," press the middle button again to confirm.
2. At the remote sensor, adjust the setting to the middle position and notate the temperature value. Commonly, it is 76°F, but this reading may vary by manufacturer. See their instructions on determining the middle temperature value.
3. At the Clear Control, navigate to the Setpoint Adjust menu item, press the middle button, and use the up and down arrows to select the temperature that the remote sensor is set to. Then, press the middle button to confirm the setting. This set is important to ensure that adjustment and control setpoint temperature align, especially with remote sensors that have a display or marked temperature value.

F. CONTROL / THERMOSTAT WIRING

4. Navigate to the Set Cool Limit menu item. This setting allows the installer to limit the lowest cooling setpoint allowed. Press the middle button and use the up and down arrows to adjust as required by the application, press the middle button to confirm the setting. The range is 55°F to 89°F.
5. Navigate to the Set Heat Limit menu item, this setting allows the installer to limit the highest heating setpoint allowed. Press the middle button and use the up and down arrows to adjust as required by the application. Then, press the middle button to confirm the setting. The range is 56°F to 90°F.

F.2.3.4. Humidity Sensor

Field Configurable Input #2 can be used to connect an indoor relative humidity sensor that has a 0-10 Vdc output for a 0-100% indoor relative humidity input. Models with the reheat option require this indoor relative humidity sensor to determine humidity control demand. Because this is a “powered” sensor, an additional wire to the 24 Vac power supply from the unit is required. The “R” thermostat input can be used for this purpose. The indoor relative humidity sensor can be used along with thermostat control or a zone sensor in combination with a building management system (BAS) that will be controlled from a central location. Some models of the Indoor Relative Humidity Sensor also have a space temperature sensor included eliminating the need for a separate zone sensor.

F.2.4. Building Management/ Control Connections Using DDC

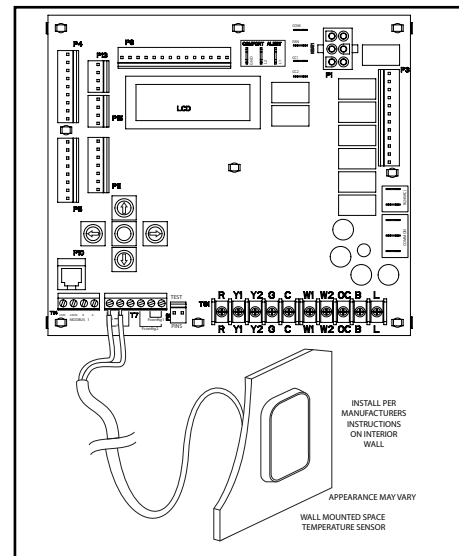
In an application where a third party building management/controls are in use or will be incorporated, units with the integral Rooftop Unit Controller (RTU-C) are communication compatible with the system that supports the BACnet Application Specific Controller device profile, LonMark Space Comfort Controller 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 detail.

F.2.5. Smoke Detection Shutdown

The DDC system is designed with an option to trigger and shutdown the unit during a Smoke Fault Condition, as triggered by a factory smoke detector. See the following two sections for more information.

The operation of the smoke fault system can be changed dependent on what is required by the application. Navigate to the Economizer Menu and use the down arrow key to select the Smoke Detection option. The passcode, 5555, is required. Enter the password, press the middle button, use the up arrow to set the first digit to 5, then press the middle button to confirm and move to the next character. Repeat until all 4 characters are entered. If successful, “Access Granted” will display. Then press the down arrow to select Smoke Options. These options will change the operation as follows:

Figure F.2.3.5. - A: Remote Duct Sensor



F. CONTROL / THERMOSTAT WIRING

Shutdown - Stops all operations and turns off the indoor fan.

Pressurize - Ramps the VFD to full speed, opens the economizer up 100%, stops all heating and cooling functions.

Purge - Ramps the VFD to full speed, opens the economizer up 100%, turns on the power exhaust, stops all heating and cooling functions.

Purge with Heat - Ramps the VFD to full speed, opens the economizer up 100%, turns the heating system on full capacity.

Exhaust - Stops all operations, cooling, heating, and indoor fan, opens the economizer up 100% and turns on the power exhaust system.

F.2.5.1. Factory Smoke Detector Kit

If a field or factory installed factory smoke detector kit is used, the kit contains a wiring harness that connects to the 12-Molex plug in the economizer section in place of the 3-wire jumper plug. Retain the jumper plug for future service or maintenance. Use a zip tie to secure the jumper plug to the main wiring harness. Remote fire control panels or other options for the smoke detector will connect directly to the smoke detector controls. Refer to the instructions with those accessories for more information.

F.2.5.2. Remote Smoke Detector/Fire 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; see **Figure F.2.5.2. - B** for reference. 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.

Figure F.2.5.2. – A: Wiring Harness location in Air-Filter Section

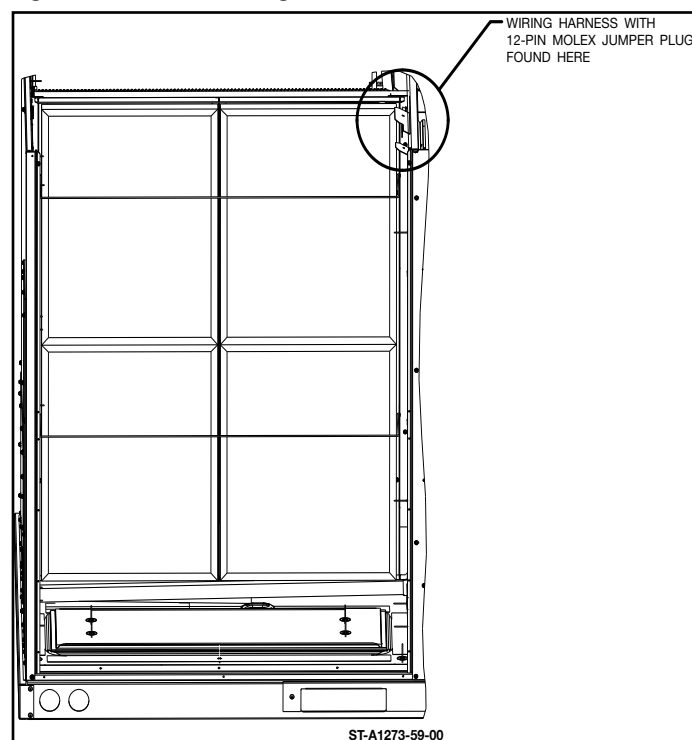
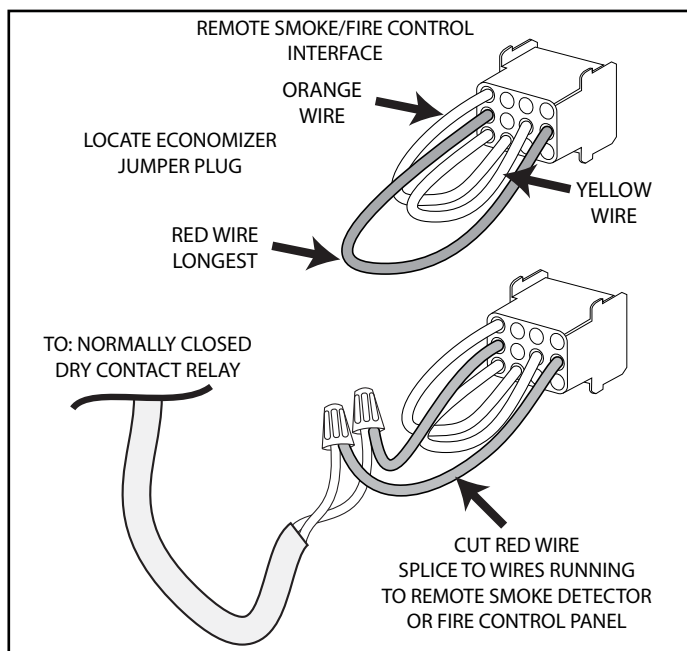


Figure F.2.5.2. – B: Smoke Detector Connection (DDC)



F. CONTROL / THERMOSTAT WIRING

F.3. Routing Control Wiring

Figure F.3. – A: Electrical and Piping Routing

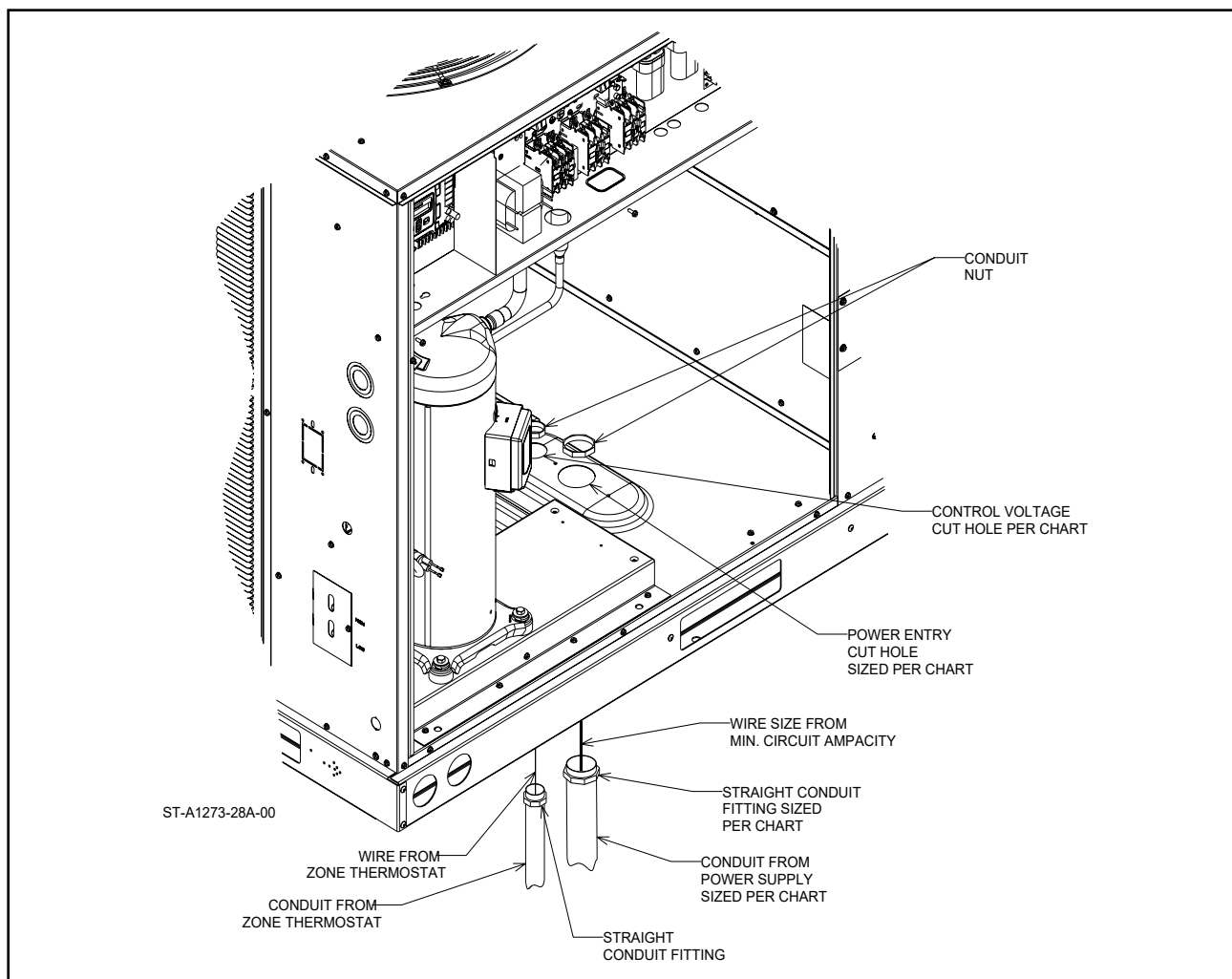


Figure F.3. – B: Hole Sizing for Conduit

	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"

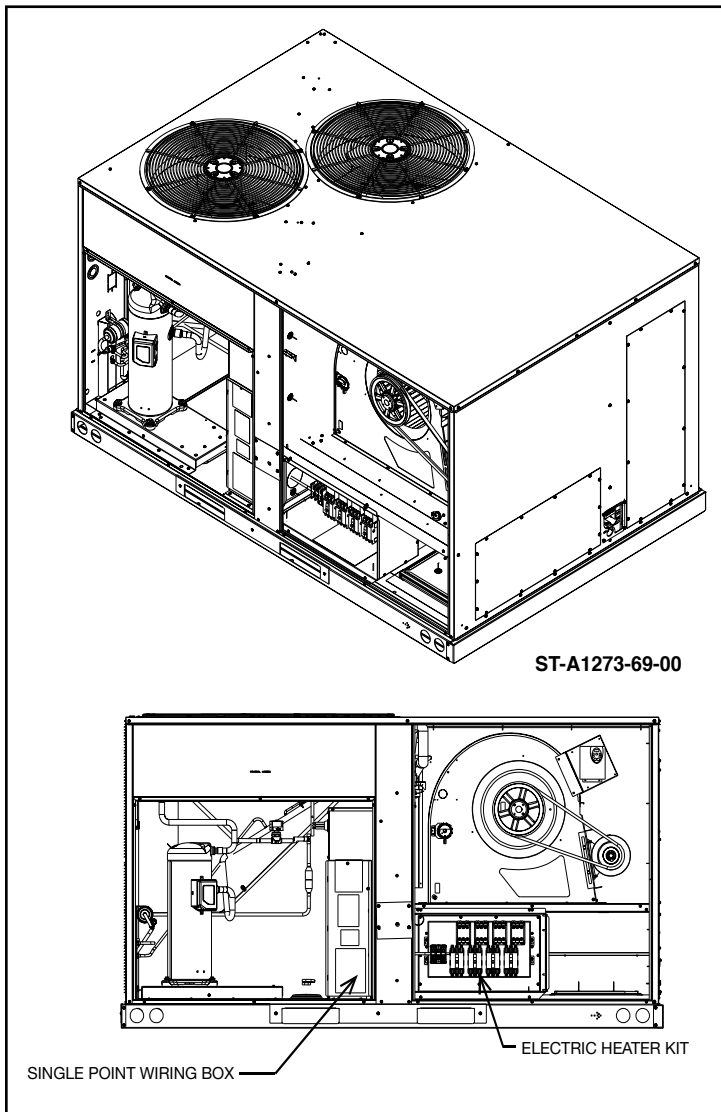
NOTES: 1. DETERMINE REQUIRED WIRE SIZE FROM MINIMUM CIRCUIT AMPACITY SHOWN IN INSTALLATION & OPERATING INSTRUCTION.
 2. BOTTOM POWER ENTRY WILL NOT ACCOMMODATE WIRE LARGER THAN #2 AWG (SHADED AREA).

F.4. 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.

H. ELECTRIC HEAT

Figure H. - A: Electric Heat with Single Point Wiring



H.1. Factory Installed Electric Heat

Units shipped with factory installed electric heat will come with a separate document (included in the parts bag) with details regarding the electric heater kits. Refer to this document for diagrams and additional info. Refer to **Appendix E** for heater kit characteristics such as Minimum Circuit Ampacity and Max Fuse sizes.

H.2. Field Installed Electric Heat

Electric heater kits will be shipped with their own installation document in the box. Use the instructions supplied with the kit for best practice. Install all electric heat kits in accordance with the National Electric Code. Refer to **Appendix E** for manufacturer-approved heater kit characteristics such as Minimum Circuit Ampacity and Max Fuse sizes.

A single point kit may be required depending on application.

J. STARTUP AND OPERATION

J.1. Final Inspection

J.1.1. Check for Refrigerant Leaks

Before beginning any work on the system or conducting any hot work, ensure that the area is in the open or that it is adequately ventilated. Ventilation must continue while the unit is being worked on. Ventilation is required to safely disperse any released refrigerant into the atmosphere.

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

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

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

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

Leak detection fluids are also suitable but do not use detergents containing chlorine. Examples of leak detection fluids are the bubble method and fluorescent method agents.

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

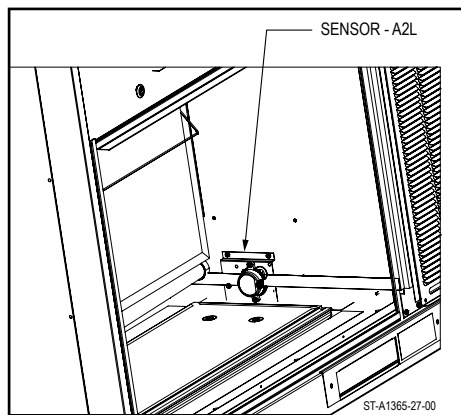
If a refrigerant leak is found that requires brazing, all of the refrigerants must be removed from the system.

J.1.1.1. Refrigerant Leak Detection System

The refrigerant leak detection system will continuously monitor the air for a refrigerant leak. If the leak detection system detects a leak, the system will begin mitigation procedures: the blower will turn on and the compressors will shut down. Note: Gas or electric heat functions may continue during mitigation.

At the end of 15 years or if the refrigerant leak detection system becomes inoperable, the leak detection system must be replaced with components specified by the unit's manufacturer. Refer to the manufacturer's website for replacement components. Refer to the alarm code diagnostics section for refrigerant leak detection system error codes.

Figure J.1.1.1. – A: Refrigerant Detection System Location



If a field-installed economizer will also be installed during the unit installation, the A2L leak detection sensor must be relocated by completing the following steps:

1. Remove the indoor coil access panel assembly and the filter access panel assembly.
2. Disconnect the wire harness attached to the A2L refrigerant detection sensor.
3. Uninstall the A2L refrigerant detection sensor from the bracket by removing the screws securing the sensor to the bracket.
4. Using the same screws, mount the A2L refrigerant detection sensor to the economizer as shown in **Figure J.1.1.1. – B: Alternate Refrigerant Leak Detection System Location**.

NOTE: **Figure J.1.1.1.-B** does not depict every economizer/A2L refrigerant detection sensor available for use in this unit, and only shows one potential unit configuration.

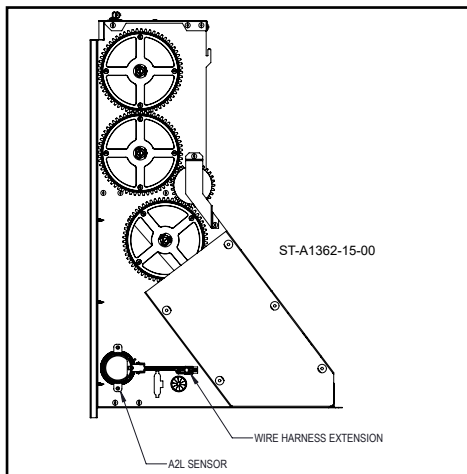
5. Connect the extension harness provided with the field-installed economizer to the wire harness that was disconnected in Step 2. The wire harness will still be connected to the bracket.
6. Route the wire harness along the bulkhead to the unit exterior for visibility.
7. Install the economizer partway, with approximately 4 inches extended outside the unit, leaving access to the A2L refrigerant leak detection sensor. Then, connect the wire harness.

CAUTION: Do not pull the wire harness as this may cause damage to the harness and break the wire ties that hold the wire harness in place.

8. Complete the field-installed economizer's installation according to the economizer Installation and Operation Manual shipped with the accessory.

J. STARTUP AND OPERATION

Figure J.1.1.1. – B: Alternate Refrigerant Detection System Location



J.1.1.2. Operation When a Leak is Detected

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

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

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

For DCC units, user-selectable Fan Off Delay will remain in effect after the A2L RDS triggers the mitigation procedure.

J.1.1.3. Removal and Evacuation of Refrigerant

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

Refrigerant purging is achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to the atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to the atmospheric pressure to enable work to take place.

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

Ventilation is required during removal and evacuation.

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

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

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

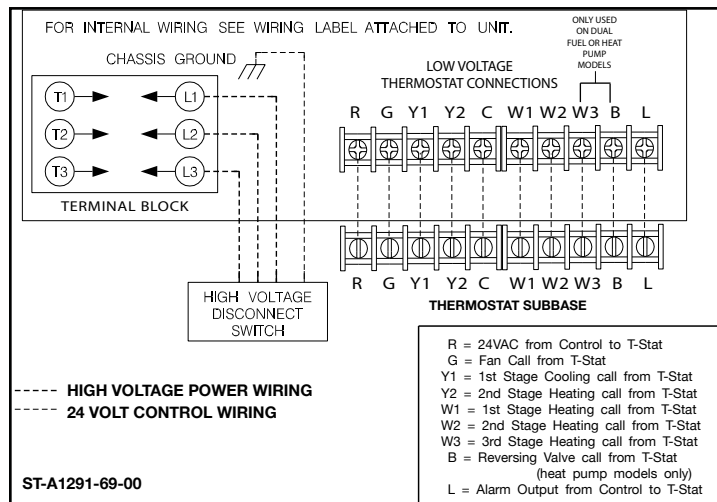
Use an Inch Pound rated torque wrench to ensure proper torque. DO NOT CONFUSE THIS WITH A FOOT POUND RATED WRENCH, Damage will occur.

J. STARTUP AND OPERATION

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 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.1.6. 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.1.7. 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.1.8. Check Wiring

After completing refrigerant removal, evacuation, and charging, check that the

internal and field wiring will not be effected, taking into account the effects of aging or continual vibration from sources such as compressors or fans, subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental

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.2.4. Units with a Blower VFD

No adjustments required for installation or operation of this unit.

J.2.4.1. VFD Model

The following VFD brands and models could be installed in the unit.

- Control Tech C200
- Schneider ATV320U or ATV320U
- Delta MS23, MS43, or MS53
- Mitsubishi FR-E860, FR-E840, or FR-E860
- Yaskawa CIMR-VU2A, CIMR-VU4A, or CIMR-ZU5A

J. STARTUP AND OPERATION

J.2.4.2. Replacement

The VFD is horsepower and voltage specific; therefore, replacement must be the same model as the existing. A preprogrammed VFD is recommended and available from ProStock.

J.2.4.3. General Information

The purpose of the VFD is to allow low airflow in Fan Only (G) and First Stage Cooling (Y1) operation of a two stage unit. Unit air balancing should be performed at 100% airflow (60 Hz at VFD) during a W1, W2, or Y2 call by adjusting the blower motor sheave. First Stage Cool and Fan Only speeds are independently adjustable at the RTU-C. The VFD display will indicate an equivalent value in Hz (i.e. Low Cool adjusted to 60% at RTU-C will display as 36Hz at the VFD). A 20 second (adjustable at the VFD) ramp-up or ramp-down is used whenever the blower speed is increased or decreased. Low speed blower operation first ramps to 75%, to close fan proving switch, before ramping to the desired speed. Since the VFD operates on 24VDC control voltage, a blower relay (with 24VAC across the coil) is used to turn the VFD on. Blower speeds are changed via Modbus communication from the RTU-C.

For more information see the **VFD I/O Manual** shipped with the unit.

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.**

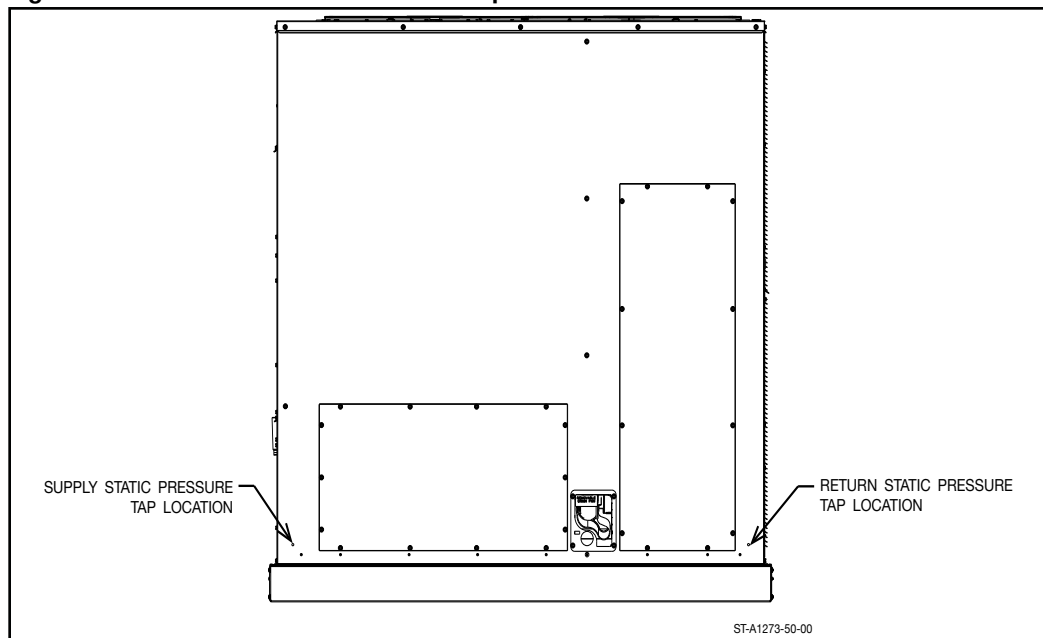
J.3.1. Static Pressures and Measurements

- 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.

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

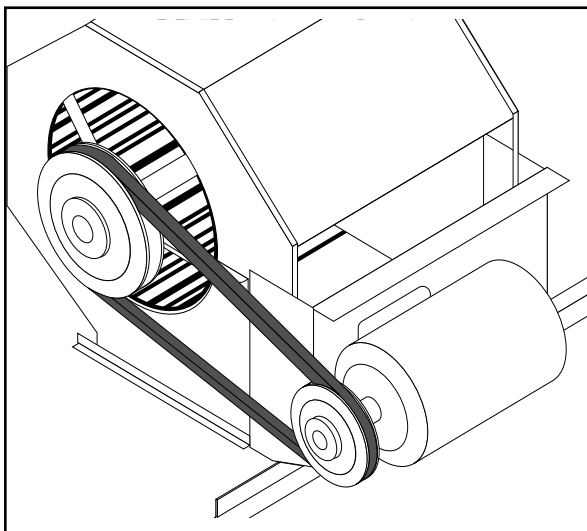


J. STARTUP AND OPERATION

J.3.2. Air Flow Measurements and Adjustments

- Measure the supply/return static to get the unit static pressure by drilling out the dimple 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



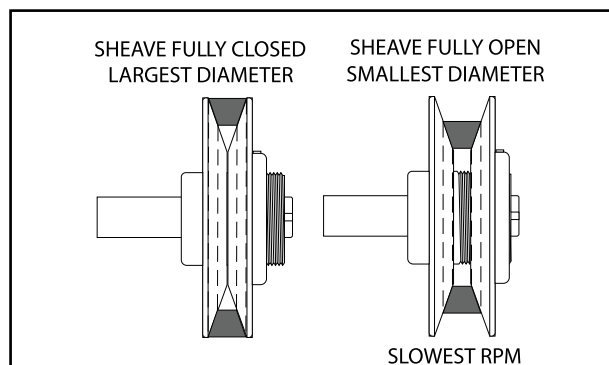
- For DDC units, the unit ships with the orange wire for the indoor fan connected to the CC2 terminal on the board.

o If more airflow is needed, remove the wire from CC2 and connect to the CC1 terminal. Refer to **Figure J.3.2. – B**.

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.

Figure J.3.2. – B: Adjustable Blower Sheave



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. STARTUP AND OPERATION

J.4. Checking Cooling Operation

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 where 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. 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 information.

J. STARTUP AND OPERATION

J.4.1. Checking Refrigerant Pressures

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

See **section C.2.1. Tools Required for Installing and Servicing R-454B Models.**

J.4.1.1. Refrigerant Pressure Charts

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

J.4.2. Checking Sub Cooling for Adjusting Charge Weight

When breaking into the refrigeration circuit for any reason the procedure included in section **J.1.1.3. Removal and Evacuation of Refrigerant** must be followed.

Prior to recharging the system, complete a leak check and purge the system with inert gas as detailed in **J.1.1.3. Removal and Evacuation of Refrigerant.**

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

Note: Factory charge chart and/or design target subcooling are for gross charge verification.

Charge verification instructions:

1. Allow the unit to operate for 15 minutes before checking or adjusting the charge.
2. Ensure that the contamination of different refrigerants does not occur when using charging equipment. Hoses or lines must be as short as possible to minimize the amount of refrigerant contained in them.
3. Ensure that the unit is properly grounded.
4. Return air temperature must be within comfort conditions (72°F - 82°F).
5. Remove caps from the high-side and low-side pressure service fittings.
6. Cylinders must be kept in an upright position for the entirety of the testing and charging procedure.
7. Record the following measurements:
 - a. High-side pressure at service fitting
 - b. Liquid line temperature
8. Using R-454B refrigerant saturation T-P tables, find the corresponding refrigerant saturation temperature relative to the

measured high-side pressure.

9. To determine subcooling, subtract the liquid line temperature measured in Step 7 from the saturation temperature found in Step 8.
10. Compare the subcooling result from Step 9 to the subcooling table located on the unit or in the I&O manual.
11. If the subcooling value from Step 9 is more than 1°F above the value listed in the subcooling table, remove charge to match the value listed in the table, $\pm 0.5^\circ\text{F}$.
 - a. Take extreme care not to overfill the refrigerating system.
12. If the subcooling value from Step 9 is more than 1°F below the value listed in the subcooling table, add charge to match the value listed in the table, $\pm 0.5^\circ\text{F}$.
 - a. Take extreme care not to overfill the refrigerating system.

After charging is complete, a leak test must be done. Before leaving the site an additional leak test must also be done at the end of the installation. Refer to J.1.1.3. Removal and Evacuation of Refrigerant

J.4.2.1. Measuring Air Temperature and Liquid Line Temperature

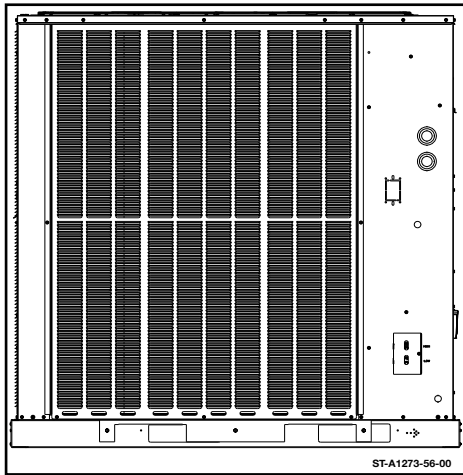
Measuring air temperature:

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.3. – A: Static Pressure and Air Temp 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.

J. STARTUP AND OPERATION

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.

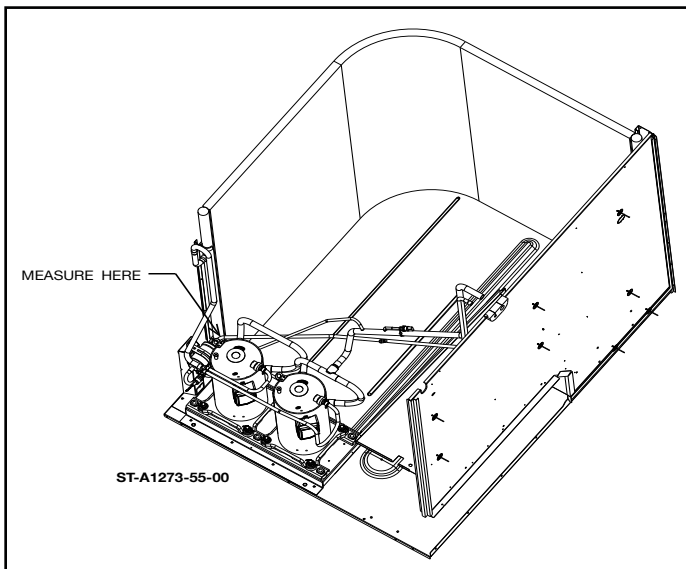
Figure J.4.1. –A: Service Port Location



Measuring line temperature:

1. Attach a thermometer or thermocouple to the liquid refrigerant line right after the filter-dryer. See **Figure J.4.2.1. – A.**
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.

Figure J.4.2.1. – A: Line Temperature Measurement Location



J.4.3. Measuring Compressor Electrical Loads

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

J.5. Checking Electric Heat Operation

Electric heater kits will have their own separate instructional document. For factory installed heater kits the document will be found in the parts bag, and for field installed heater kits the document will be found in the box. Refer to these documents for any info regarding checking electric heat operation.

J.6. Safety Checks

At all times the manufacturer's maintenance and service guidelines must be followed. If in doubt, contact the manufacturer's technical support for assistance.

Before leaving the installation site the following safety checks must be completed:

- Ensure all electrical components in this system are approved by the manufacturer.
- Confirm the actual refrigerant charge complies with the minimum room size requirements outlined in Appendix H. A2L Refrigerant Installation Safety Data
- Ensure that the ventilation machinery and outlets are operating correctly and are not obstructed.
- If an indirect refrigerant circuit is being used, the secondary circuit must be checked for the presence of refrigerant.
- Ensure that all the equipment labels and markings are visible and legible. Markings, labels, and signs that are illegible must be corrected.
- Confirm that any refrigerating pipe or components are installed in a position where they are unlikely to be exposed to corrosion, unless the refrigerant-containing components are constructed of corrosion-resistant materials or are protected from corrosion.

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

K.2.1. Blower Speed for 7.5-12.5 Ton Units

See **Section J.3.2. Air Flow Measurements and Adjustments** on how to increase the blower speed and increase airflow.

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.**

M. HUMIDITY CONTROL

M.1 Dehumidification System Information

With the factory installed dehumidification option, in addition to a thermostat or space temperature sensor that is normally present, an indoor relative humidity sensor is installed in the occupied space and connected to the Rooftop Unit Controller (RTU-C) which then controls the capacity of the cooling coil to remove moisture from the supply air and maintain space relative humidity below an adjustable limit visible on the RTU-C display.

The default value is the ASHRAE recommended limit of 60% RH. With this option, a refrigerant reheat coil is installed downstream from the evaporator coil. When the space humidity is too high and reheat is energized, this coil uses some of the heat that is normally rejected to the outside by the condenser coil to instead reheat the cold air from the evaporator coil just enough to avoid overcooling the space, providing "neutral air" to the occupied space. On a two-stage system, it is possible for both a thermostat and humidistat to register readings above set point. Under this condition, the system runs in the high stage dehumidification cycle, and the motor operates on high speed. This provides dry conditioned air.

Because the demand for dehumidification can be different from the cooling demand, the unit will first satisfy the demand for cooling and then if the space humidity is still too high, dehumidification mode is energized. When in dehumidification mode, the supply air leaving the unit will be near the entering air temperature, but at a much lower humidity. The unit will exit the dehumidification mode when the humidity set point is satisfied; or if the load is increased, it will return to normal cooling mode.

Reheat is not available during the gas-heating mode.

Figure M.1. - A

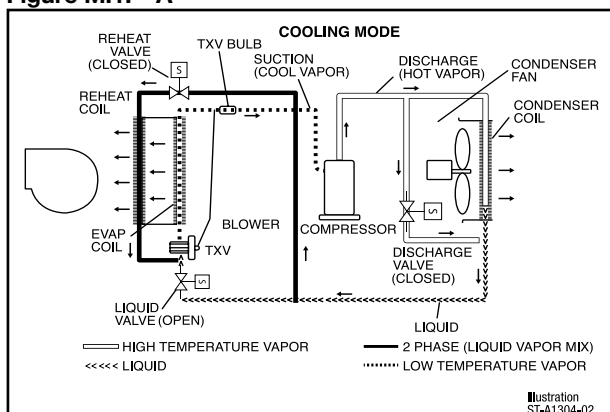


Figure M.1. - A shows the refrigerant path during the normal cooling mode. The liquid refrigerant leaves the TXV with the sudden pressure drop causing the liquid to expand to a vapor and absorbing the heat from the supply air going through the evaporator coil. The refrigerant vapor then travels to the compressor where it is elevated to a higher pressure and temperature.

The superheated refrigerant vapor next carries the heat to the outside coil where the heat is then rejected and the refrigerant condenses into a subcooled liquid where the process repeats itself.

Figure M.1. - B

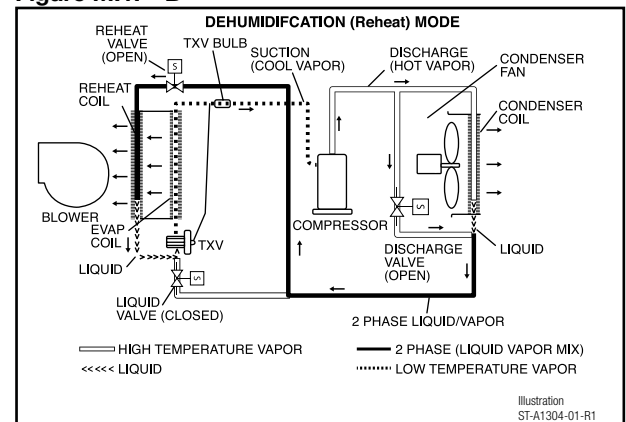


Figure M.1. - B shows the refrigerant path during the reheat mode. When the reheat cycle is energized by the RTU-C, the reheat solenoid valve, upstream of the reheat coil opens. The liquid solenoid valve ahead of the TXV, closes. The discharge solenoid valve, in the compressor discharge line, opens. The liquid refrigerant leaves the TXV with the sudden pressure drop causing the liquid to expand to a vapor and absorbing the heat from the supply air going through the evaporator coil. The refrigerant vapor then travels to the compressor where it is elevated to a higher pressure and temperature. The refrigerant next carries the heat to a parallel path between the outside condenser coil and a bypass circuit. Some of the heat is rejected outdoors. The ratio of heat rejected outdoors versus indoors is controlled by an outdoor fan motor controller (OFMC) that monitors the two phase temperature and varies the fan speed. This 2-phase refrigerant vapor is then sent to the reheat coil. As the refrigerant travels through the reheat coil it condenses into a subcooled liquid where the process repeats itself.

M. HUMIDITY CONTROL

M.2 Humidity Sensor Installation

The Humidity control unit requires the use of a zone mounted humidity sensor. The sensor should be located in the conditioned space, approximately 5ft from the floor, on an interior wall. Take care to locate it away from direct sunlight and away from air flow from vents or drafts from doors. The humidity sensors output is a 0-10VDC signal and will be connected to the DDC Control.

The ZNS-5 meets the requirement and includes an optional space temperature sensor. The control wiring should be a minimum of 18AWG Solid Copper wire with 5 Conductors and is connected from the DDC Control to the sensor as follows:

RED = R to V+ (+24VAC)

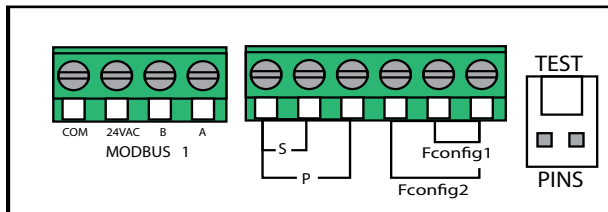
GREEN = Field Config 1 & 2 (Right most terminal) to GROUND

BLUE = Field Config 2 (3rd terminal from right) to VOut

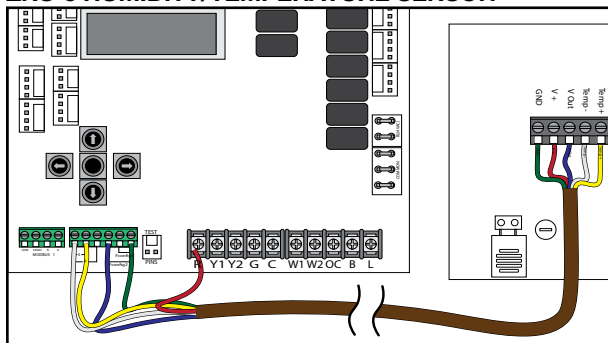
WHITE = S & P (Left most terminal) to Temp -

YELLOW = S (2nd terminal from left) to Temp+

See the installation instructions for additional details.



ZNS-5 HUMIDITY/TEMPERATURE SENSOR



HONEYWELL DUCT MOUNTED HUMIDITY SENSOR

This optional wires the same except the temperature sensor connects directly to a Honeywell Thermostat.

RED = R to V+ (+24VAC)

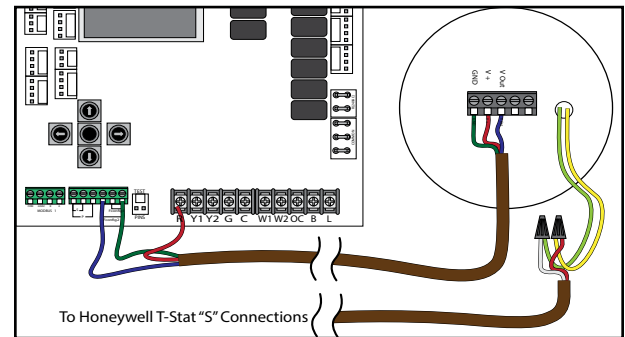
GREEN = Field Config 1 & 2 (Right most terminal) to GROUND

BLUE = Field Config 2 (3rd terminal from right) to VOut

Other = Honeywell S- Terminal to Yellow Wire

Other = Honeywell S+ Terminal to Green Wire

See the installation instructions for additional details.



M. HUMIDITY CONTROL

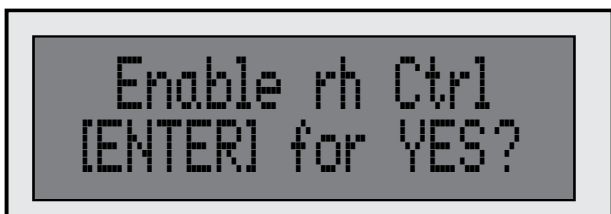
M.3 Humidity Control Settings and Configuration

The Clear Control is designed to operate in conjunction with the zone sensor discussed earlier in the guide. These are the steps to verify the zone sensor and adjust the humidity set-point and operating modes. The system can be programmed to a humidity level as low as 35%, and can be set to run dehumidification as part of the cooling cycle or as a stand alone system regardless of the cooling or fan call status from the thermostat, recommended.

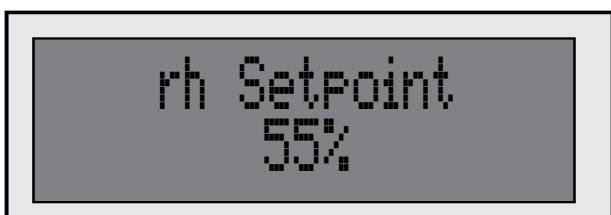


NOTICE: The system will not operate the humidity control when the outdoor ambient temperature is below 60°F, this is because the humidity control uses hot refrigerant bypassed from the outdoor coil,. When the ambient temperature is too low, insufficient heat will be retained in the refrigerant to properly operate the Reheat system for proper dehumidification. The Reheat system in this packaged unit is not designed for industrial or process applications, it is intended for human comfort zones.

Navigate through the Clear Control menu to "Humidity Control" it should say Enabled. If it says "Disabled" press the Enter button twice to Enable rh Control.



Next set the desired Relative Humidity Set-point. This set-point will be where the control will run the associated dehumidification cycles to bring the humidity in the zone down to this percentage.

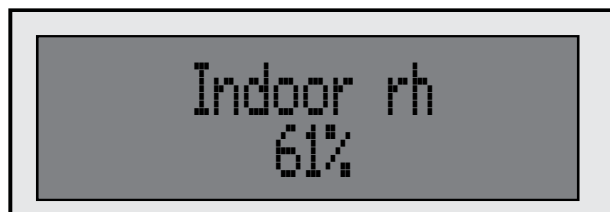


Now set the Reheat Mode, there are three functions to choose from, Reheat in Occupied, will only run dehumidification when there is a Fan or Cooling Call. Reheat in Unoccupied, will on run dehumidification when there is no fan or cooling call; Reheat ALL, (recommended) will run reheat based on the humidity reading regardless of the thermostat operation.



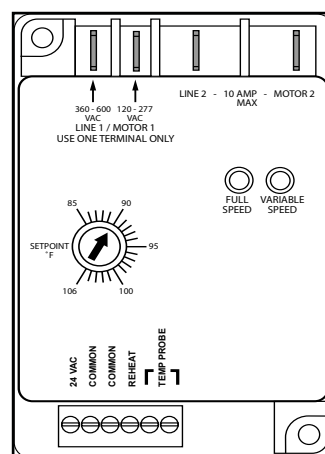
Checking the Humidity Sensor reading, Navigate to Humidity Control then down to Indoor rh, this will display the reading from the humidity zone sensor. If this shows "4%" then it means that the zone sensor is not connected properly or malfunctioning.

Verify a 0-10VDC signal across the Field Cnfg 2 terminals on the control board. 10VDC = 100%, 5VDC = 50%.



The humidity control system is also equipped with an Outdoor Fan Motor Controller, OFMC, this controller changes the speed of the outdoor fans to allow for more or less heat in the bypassed refrigerant used to operate the reheat system. Adjustments to the OFMC are not needed unless undesirable operation occurs.

Consult the Installation instructions provided with the system for details on the OFMC operation and adjustments.



N. DIAGNOSTICS

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 - Failed contactor - Blown fuses - Transformer defective - High pressure control open (if provided) - Interconnecting low voltage wiring damaged	- Check for correct voltage at compressor contactor in control box - Reset - Check for 24 volts at contactor coil - replace if contacts are open - Replace fuses - Check wiring-replace transformer - Reset-also see high head pressure remedy-The high pressure control opens at 450 PSIG - Replace thermostat wiring
Condenser fan runs, compressor doesn't	- Loose connection - Compressor stuck, grounded or open motor winding open internal overload. - Low voltage condition - Low voltage condition	- Check for correct voltage at compressor - check & tighten all connections - Wait at least 2 hours for overload to reset. If still open, replace the compressor. - At compressor terminals, voltage must be within 10% of rating plate volts when unit is operating. - Add start kit components
Insufficient cooling	- Improperly sized unit - Improper airflow - Incorrect refrigerant charge - Air, non-condensibles or moisture in system - Incorrect voltage	- Recalculate load - Check - should be approximately 400 CFM per ton. - Charge per procedure attached to unit service panel. - Recover refrigerant, evacuate & recharge, add filter drier - At compressor terminals, voltage must be within 10% of rating plate volts when unit is operating.
Compressor short cycles	- Incorrect voltage - Defective overload protector - Refrigerant undercharge	- At compressor terminals, voltage must be $\pm 10\%$ of nameplate marking when unit is operating. - Replace - check for correct voltage - Add refrigerant
Registers sweat	Low evaporator airflow	Increase speed of blower or reduce restriction - replace air filter
High head-low vapor pressures	- Restriction in liquid line, expansion device or filter drier - Flow check piston size too small - Incorrect capillary tubes - TXV does not open	- Remove or replace defective component - Change to correct size piston - Change coil assembly - Replace TXV
High head-high or normal vapor pressure - Cooling mode	- Dirty condenser coil - Refrigerant overcharge - Condenser fan not running - Air or non-condensibles in system	- Clean coil - Correct system charge - Repair or replace - Recover refrigerant, evacuate & recharge
Low head-high vapor pressures	- Defective Compressor valves - Incorrect capillary tubes	- Replace compressor - Replace coil assembly
Low vapor - cool compressor - iced evaporator coil	- Low evaporator airflow - Operating below 65°F outdoors - Moisture in system	- Increase speed of blower or reduce restriction - replace air filter - Add Low Ambient Kit - Recover refrigerant - evacuate & recharge - add filter drier
High vapor pressure	- Excessive load - Defective compressor	- Recheck load calculation - Replace
Fluctuating head & vapor pressures	- TXV hunting - Air or non-condensibles in system	- Check TXV bulb clamp - check air distribution on coil - replace TXV - Recover refrigerant, evacuate & recharge
Gurgle or pulsing noise at expansion device or liquid line	Air or non-condensibles in system	Recover refrigerant, evacuate & recharge

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	HIGH-FIRE 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
40	Refrigerant Leak Detection System	Shutdown
42	Invalid Thermostat Selection	Warning
44	LOW-FIRE NEGATIVE PRESSURE CONTROL CLOSED	Problem
46	LOW-FIRE NEGATIVE PRESSURE CONTROL 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	HIGH-FIRE NEGATIVE PRESSURE CONTROL CLOSED	Problem
59	Condensate Drain Plugged	Shutdown
61	HIGH-FIRE NEGATIVE PRESSURE CONTROL OPEN	Problem, 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

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
49	Freeze Switch Open – Circuit 1	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

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
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

N. DIAGNOSTICS

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	
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	

N. DIAGNOSTICS

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	
40	REFRIGERANT LEAK DETECTION SYSTEM	Shutdown
	DESCRIPTION:	
	1. The refrigerant leak detection system detects an event and mitigation procedure occurs.	
	2. The mitigation procedure is triggered when no event occurs.	
	SOLUTION: The solution will depend on the cause.	
	1. Check for refrigerant leaks	
	2a. Organic compounds could be falsely triggering mitigation procedure. Check the installation location for potential contaminants.	
	2b. The sensor is faulty; replace the sensor	
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	

N. DIAGNOSTICS

Fault Codes with Descriptions and Solutions:

Alarm Codes - Cooling Only		
CODE	DESCRIPTION	FAULT LEVEL
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	
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	
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.	
91	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 installed correctly on control	
	2. Check Smoke Detection Circuit, if no Smoke Detector is installed, ensure Economizer Smoke Bypass plug is installed	

N. DIAGNOSTICS

N.2.2. Non-Applicable Fault Codes

The controls used in this product are common with a few other product families. Because of this, there are several fault codes that are programmed into the controls but DO NOT APPLY to this product. If one of these fault codes appear, clear the fault and continue

diagnostics. If the code persists, power down the unit and reapply power before continuing diagnostics.

These non-applicable fault codes are listed below:

Alarm Codes - NON-APPLICABLE FAULT CODES		
CODE	Description	FAULT LEVEL
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
21	REFRIGERANT LOW PRESSURE SWITCH OPEN - CIRCUIT 2	Problem
22	MAIN LIMIT OPEN	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	LOW-FIRE NEGATIVE PRESSURE CONTROL CLOSED	Problem
46	LOW-FIRE NEGATIVE PRESSURE CONTROL OPEN	Problem
50	FREEZE SWITCH OPEN - CIRCUIT 2	Problem
55	2nd stage COMBUSTION PRESSURE SWITCH CLOSED	Problem
57	HIGH-FIRE NEGATIVE PRESSURE CONTROL CLOSED	Problem
61	HIGH-FIRE NEGATIVE PRESSURE CONTROL OPEN	Problem, Shutdown

N. DIAGNOSTICS

N.2.5. VFD Codes

This VFD Section may not be applicable to all unit configurations. See **Appendix H** towards the end of this manual for Low Voltage Connections for VFDs.

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 can be found below and on the following page.

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.

V1000 Drive: <https://www.yaskawa.com/products/drives/industrial-ac-drives/microdrives/v1000-drive>

Z1000 Drive: <https://www.yaskawa.com/products/drives/hvac-drives/fan-pump-drives/z1000-drive>

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.2.5.1. Yaskawa VFD Codes (Cont.)

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. DIAGNOSTICS

N.2.5. VFD Codes (Cont.)

This VFD Section may not be applicable to all unit configurations. See **Appendix H** towards the end of this manual for Low Voltage Connections for VFDs.

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.2.5.3. Other Suppliers

Some units may be equipped with VFDs from other suppliers. In the blower compartment, on the right side of the VFD assembly, there is a label with the model number of the VFD. For more information about those VFDs, visit the appropriate website listed below

Delta MS300: https://downloadcenter.deltaww.com/en-US/DownloadCenter?v=1&CID=06&itemID=060101&downloadID=MS300&dataType=2&sort_expr=cdate&sort_dir=DESC.

Control Tech C200: <https://acim.nidec.com/en-us/drives/control-techniques/products/ac-drives/commander-c-general-purpose-drives>.

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 (-)ACDYB Series	090	102	120	150
Cooling Performance^A				
Gross Cooling Capacity Btu [kW]	88,000 [25.78]	99,000 [29.01]	118,000 [34.57]	148,000 [43.36]
EER	11.2	11.2	11.2	11.0
IEER ^B	14.8	14.8	14.8	14.2
Nominal CFM/AHRI Rated CFM [L/s]	3000/3400 [1416/1605]	3400/3300 [1604/1557]	4000/4000 [1888/1888]	5000/4025 [2360/1899]
AHRI Net Cooling Capacity Btu [kW]	85,000 [24.9]	96,000 [28.13]	114,000 [33.4]	142,000 [41.61]
Net Sensible Capacity Btu [kW]	63,750 [18.68]	72,000 [21.10]	85,500 [25.06]	106,500 [31.21]
Net Latent Capacity Btu [kW]	21,250 [6.23]	24,000 [7.03]	28,500 [8.35]	35,500 [10.40]
Net System Power kW	7.73	8.73	10.36	13.15
Compressor				
No./Type	1/Scroll	1/Scroll	1/Scroll	2/Tandem Scroll
No. Stages	2	2	2	2
Outdoor Sound Rating (dB)^C	83	81	88	87
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	0.71 [18]	0.81 [20.6]	1 [25.4]	1 [25.4]
Face Area sq. ft. [sq. m]	25.4 [2.36]	25.6 [2.38]	31.5 [2.93]	31.5 [2.93]
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]	1.26 [32]	1 [25.4]	1 [25.4]
Face Area sq. ft. [sq. m]	11 [1.02]	10.9 [1.01]	13.8 [1.28]	13.8 [1.28]
Rows / FPI [FPcm]	1 / 20 [8]	1 / 20 [8]	2 / 18 [7]	2 / 18 [7]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	8000 [3775]	8000 [3775]	8500 [4011]	9000 [4247]
No. Motors/HP	2 at 1/5 HP	2 at 1/5 HP	2 at 1/3 HP	2 at 3/4 HP
Motor RPM	820	820	1075	1100
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/15x15 [381x381]	1/15x15 [381x381]	1/15x15 [381x381]	1/15x15 [381x381]
Drive Type	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)
No. Speeds	2	2	2	2
No. Motors	1	1	1	1
Motor RPM	1725	1725	1725	1725
Motor Frame Size	56	56	56	184
Filter - Type	Disposable	Disposable	Disposable	Disposable
Furnished	Yes	Yes	Yes	Yes
(NO.) Size Recommended in. [mm x mm x mm]	(4)2x20x20 [51x508x508]	(4)2x20x20 [51x508x508]	(4)2x20x20 [51x508x508]	(4)2x20x25 [51x508x635]
Refrigerant Charge Oz. [g]	88 [2495]	114 [3232]	171 [4848]	168 [4763]
Weights				
Net Weight lbs. [kg]	767 [348]	803 [365]	897 [407]	987 [448]
Ship Weight lbs. [kg]	806 [366]	842 [382]	936 [425]	1026 [466]

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

Notes:

- 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 340/360.
- B. EER and Integrated Energy Efficiency Ratio (IEER) are rated in accordance with AHRI Standard 340/360 and with DOE test procedures.
- C. Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

WEIGHTED SOUND POWER LEVEL								
Model	Std. Rating (dBA)	Frequency (Hz)						
		100	250	500	1000	2000	4000	8000
(-)ACDYB090	82.8	88	75	75	72	68	68	64
(-)ACDYB102	80.7	62	67	71	70	67	63	58
(-)ACDYB120	88.2	78	73	76	78	75	72	63
(-)ACDYB150	86.8	85	73	78	77	73	69	63

P. APPENDICES

Appendix B – Electrical Data (Cont.)

See Appendix E for Electrical Data and Fuse Sizing specific to the Manufacturer's approved Electric Heater Kits.

ELECTRICAL DATA – (-)ACDYB SERIES							
		090ACF	090ACG 090ACH	090ADF	090ADG 090ADH	090AYF	090AYG 090AYH
Unit Information	Unit Operating Voltage Range	187-253	187-253	414-506	414-506	518-633	518-633
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Hz	60	60	60	60	60	60
	Minimum Circuit Ampacity	41/41	44/44	18	20	15	16
	Minimum Circuit Ampacity with Powered Exhaust	46/46	49/49	21	23	17	18
	Minimum Overcurrent Protection Device Size	50/50	50/50	25	25	20	20
	Minimum Overcurrent Protection Device Size with Powered Exhaust	60/60	60/60	25	25	20	20
	Maximum Overcurrent Protection Device Size	60/60	60/60	25	30	20	20
	Maximum Overcurrent Protection Device Size with Powered Exhaust	70/70	70/70	30	30	25	25
Compressor Motor	No.	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Amps (RLA), Comp. 1	25.2	25.2	10.6	10.6	8.6	8.6
	Amps (LRA), Comp. 1	178.5	178.5	79.1	79.1	65.0	65.0
Condenser Motor	No.	2	2	2	2	2	2
	Volts	208/230	208/230	460	460	575	575
	Phase	1	1	1	1	1	1
	HP	1/5	1/5	1/5	1/5	1/5	1/5
	Amps (FLA, each)	1.2	1.2	0.8	0.8	0.6	0.6
	Amps (LRA, each)	2.3	2.3	1.4	1.4	1.1	1.1
Evaporator Fan	No.	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	HP	2	3	2	3	2	3
	Amps (FLA, each)	6.2	9.2	3.0	4.6	2.4	3.5
	Amps (LRA, each)	47.0	74.5	24.0	38.1	19.0	30.0

Appendix B – Electrical Data (Cont.)

See Appendix E for Electrical Data and Fuse Sizing specific to the Manufacturer's approved Electric Heater Kits.

ELECTRICAL DATA – (-)ACDYB SERIES							
		102ACF	102ACG 102ACH	102ADF	102ADG 102ADH	102AYF	102AYG 102AYH
Unit Information	Unit Operating Voltage Range	187-253	187-253	414-506	414-506	518-633	518-633
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Hz	60	60	60	60	60	60
	Minimum Circuit Ampacity	43/43	46/46	21	22	16	17
	Minimum Circuit Ampacity with Powered Exhaust	48/48	51/51	23	25	18	19
	Minimum Overcurrent Protection Device Size	50/50	60/60	25	25	20	20
	Minimum Overcurrent Protection Device Size with Powered Exhaust	60/60	60/60	30	30	20	25
	Maximum Overcurrent Protection Device Size	60/60	70/70	30	30	20	25
	Maximum Overcurrent Protection Device Size with Powered Exhaust	70/70	70/70	35	35	25	25
Compressor Motor	No.	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Amps (RLA), Comp. 1	26.8	26.8	12.5	12.5	9.4	9.4
	Amps (LRA), Comp. 1	190.7	190.7	100.2	100.2	65.0	65.0
Condenser Motor	No.	2	2	2	2	2	2
	Volts	208/230	208/230	460	460	575	575
	Phase	1	1	1	1	1	1
	HP	1/5	1/5	1/5	1/5	1/5	1/5
	Amps (FLA, each)	1.2	1.2	0.8	0.8	0.6	0.6
	Amps (LRA, each)	2.3	2.3	1.4	1.4	1.1	1.1
Evaporator Fan	No.	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	HP	2	3	2	3	2	3
	Amps (FLA, each)	6.2	9.2	3.0	4.6	2.4	3.5
	Amps (LRA, each)	47.0	74.5	24.0	38.1	19.0	30.0

P. APPENDICES

Appendix B – Electrical Data (Cont.)

See Appendix E for Electrical Data and Fuse Sizing specific to the Manufacturer's approved Electric Heater Kits.

ELECTRICAL DATA – (-)ACDYB SERIES							
		120ACF	120ACG 120ACH	120ADF	120ADG 120ADH	120AYF	120AYG 120AYH
Unit Information	Unit Operating Voltage Range	187-253	187-253	414-506	414-506	518-633	518-633
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Hz	60	60	60	60	60	60
	Minimum Circuit Ampacity	45/45	48/48	24	25	19	20
	Minimum Circuit Ampacity with Powered Exhaust	50/50	53/53	26	28	21	22
	Minimum Overcurrent Protection Device Size	60/60	60/60	30	30	25	25
	Minimum Overcurrent Protection Device Size with Powered Exhaust	60/60	60/60	30	35	25	25
	Maximum Overcurrent Protection Device Size	70/70	70/70	35	35	30	30
	Maximum Overcurrent Protection Device Size with Powered Exhaust	70/70	70/70	35	40	30	30
Compressor Motor	No.	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Amps (RLA), Comp. 1	26.5	26.5	14.0	14.0	11.5	11.5
	Amps (LRA), Comp. 1	255.0	255.0	123.0	123.0	93.7	93.7
Condenser Motor	No.	2	2	2	2	2	2
	Volts	208/230	208/230	460	460	575	575
	Phase	1	1	1	1	1	1
	HP	1/3	1/3	1/3	1/3	1/3	1/3
	Amps (FLA, each)	2.4	2.4	1.4	1.4	1.0	1.0
	Amps (LRA, each)	4.7	4.7	2.4	2.4	4.7	4.7
Evaporator Fan	No.	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	HP	2	3	2	3	2	3
	Amps (FLA, each)	6.2	9.2	3.0	4.6	2.4	3.5
	Amps (LRA, each)	47.0	74.5	24.0	38.1	19.0	30.0

Appendix B – Electrical Data (Cont.)

See Appendix E for Electrical Data and Fuse Sizing specific to the Manufacturer's approved Electric Heater Kits.

ELECTRICAL DATA – (-)ACDYB SERIES							
		150ACF	150ACG	150ADF	150ADG	150AYF	150AYG
Unit Information	Unit Operating Voltage Range	187-253	187-253	414-506	414-506	518-633	518-633
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Hz	60	60	60	60	60	60
	Minimum Circuit Ampacity	68/68	75/75	29	31	23	24
	Minimum Circuit Ampacity with Powered Exhaust	74/74	80/80	32	34	25	26
	Minimum Overcurrent Protection Device Size	80/80	90/90	35	35	25	30
	Minimum Overcurrent Protection Device Size with Powered Exhaust	80/80	90/90	35	40	30	30
	Maximum Overcurrent Protection Device Size	90/90	90/90	35	35	25	30
	Maximum Overcurrent Protection Device Size with Powered Exhaust	90/90	100/100	40	40	30	30
Compressor Motor	No.	2	2	2	2	2	2
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Amps (RLA), Comp. 1	22.4	22.4	8.8	8.8	7.2	7.2
	Amps (LRA), Comp. 1	166.2	166.2	74.6	74.6	54.0	54.0
	Amps (RLA), Comp. 2	22.4	22.4	8.8	8.8	7.2	7.2
	Amps (LRA), Comp. 2	166.2	166.2	74.6	74.6	54.0	54.0
Condenser Motor	No.	2	2	2	2	2	2
	Volts	208/230	208/230	460	460	575	575
	Phase	1	1	1	1	1	1
	HP	3/4	3/4	3/4	3/4	3/4	3/4
	Amps (FLA, each)	4.2	4.2	2.3	2.3	1.2	1.2
	Amps (LRA, each)	11.5	11.5	5.9	5.9	4.2	4.2
Evaporator Fan	No.	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	HP	3	5	3	5	3	5
	Amps (FLA, each)	9.2	15.7	4.6	6.3	3.5	5.1
	Amps (LRA, each)	74.5	95.0	38.1	47.5	30.0	38.0

Appendix C – Air Flow Performance Data

NOTE: F-Drive left of the first bold line, G-Drive between the bold lines, H-Drive right of both bold line.

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 n
4. Add component resistance (below) to duct resistance to determine

*Multiply correction factor times gross performance data resulting sensible capacity cannot exceed total capacity.

Appendix C – Air Flow Performance Data (Cont.)

Model (-) JACDYB090 - Sideflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																																									
Air Flow		External Static Pressure - Inches of Water [kPa]																																							
CFM [L/s]	RPM	0.1 [0.02]	0.2 [0.05]	0.3 [0.07]	0.4 [0.10]	0.5 [0.12]	0.6 [0.15]	0.7 [0.17]	0.8 [0.20]	0.9 [0.22]	1.0 [0.25]	1.1 [0.27]	1.2 [0.30]	1.3 [0.32]	1.4 [0.35]	1.5 [0.37]	1.6 [0.40]	1.7 [0.42]	1.8 [0.45]	1.9 [0.47]	2.0 [0.50]																				
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP																			
2400 [1133]	—	—	—	—	—	—	558	804	594	845	630	890	665	936	700	985	734	1035	767	1089	799	1144	831	1202	861	1202	892	1325	921	1389	950	1456	978	1526	1005	1597	1032	1671	1057	1747	
2500 [1180]	—	—	—	—	—	—	565	834	601	877	637	922	671	970	705	1019	739	1071	771	1126	803	1182	834	1241	864	1302	894	1366	923	1432	951	1500	978	1570	1005	1643	1031	1718	1057	1795	
2600 [1227]	—	—	—	—	—	—	573	867	609	911	644	957	678	1006	711	1056	744	1109	776	1165	807	1222	838	1282	867	1345	896	1409	925	1476	953	1545	979	1617	1006	1690	1031	1766	1056	1845	
2700 [1274]	—	—	—	546	859	581	902	616	947	651	994	684	1044	717	1095	749	1149	781	1206	812	1265	842	1326	871	1389	899	1455	927	1522	954	1593	981	1665	1007	1740	1032	1817	1056	1896		
2800 [1321]	—	—	—	555	895	590	939	624	965	658	1033	691	1084	724	1136	755	1192	786	1249	816	1309	846	1371	875	1435	903	1502	930	1571	957	1642	983	1716	1008	1792	1032	1870	1056	1950		
2900 [1368]	—	—	—	564	933	599	978	633	1025	666	1074	699	1126	730	1180	762	1236	792	1294	822	1355	851	1418	879	1484	906	1552	933	1622	959	1694	985	1769	1009	1845	1033	1925	1056	2006		
3000 [1416]	—	—	—	574	973	608	1019	641	1067	674	1117	706	1170	738	1225	768	1282	798	1342	827	1404	856	1468	883	1534	910	1603	937	1674	982	1748	987	1823	1011	1901	1035	1982	1057	2064		
3100 [1463]	—	—	—	550	970	584	1015	618	1062	651	1111	683	1163	714	1216	745	1272	775	1331	804	1391	833	1454	861	1520	888	1587	915	1657	940	1729	965	1804	990	1880	1013	1959	1036	2041	1058	2124
3200 [1510]	—	—	—	561	1013	594	1059	628	1107	660	1157	692	1210	723	1265	753	1322	782	1381	811	1443	839	1507	867	1573	893	1642	919	1713	945	1786	969	1862	993	1939	1016	2020	1038	2102	1060	2187
3300 [1557]	—	—	—	572	1059	605	1105	638	1154	670	1206	701	1259	731	1315	761	1373	790	1434	818	1497	846	1582	873	1629	899	1699	924	1771	949	1845	973	1922	996	2001	1019	2082	1041	2165	1062	2251
3400 [1604]	550	1060	584	1106	616	1154	648	1204	680	1256	710	1311	1340	740	1388	770	1427	798	1489	826	1552	853	1619	879	1687	905	1758	930	1831	954	1906	977	1984	1000	2064	1022	2146	1043	2231	1064	2317
3500 [1652]	563	1109	596	1155	628	1204	659	1255	690	1309	720	1364	1394	750	1423	776	1483	806	1545	834	1610	860	1678	886	1747	911	1819	935	1893	959	1969	982	2048	1004	2129	1026	2212	1046	2298	1066	2386
3600 [1699]	575	1159	608	1207	640	1257	671	1309	701	1363	731	1420	1450	759	1479	786	1541	815	1604	842	1670	868	1739	883	1809	918	1882	941	1957	965	2035	987	2114	1005	2196	1030	2281	1050	2367	1069	2456

NOTE: F-Drive left of the first bold line, G-Drive between the bold lines, H-Drive right of both bold lines.

Drive Package	F				G				H			
Motor H.P. [W]	2 [1491.4]				3 [2237.1]				3 [2237.1]			
Blower Sheave	AK84H				AK84H				AK84H			
Motor Sheave	1VL40				1VP50				1VP56			
Belt	A49				A50				A51			
Turns Open	0	1	2	3	4	5	0	1	2	3	4	5
RPM	766	720	676	632	587	545	989	947	904	863	821	778

Notes:

1. Factory shave settings are shown in bold type.
2. Do not set shaves below minimum or maximum turns open shown.
3. Re-adjustment of shaves required to achieve rated airflow at AHP minimum External Static Pressure.
4. Add component resistance (below) to duct resistance to determine total External Static Pressure.

Airflow	AIRFLOW CORRECTION FACTORS *				COMPONENT AIRFLOW RESISTANCE					
	Total MBH	Sensible MBH	Power kW	Wet Coil	Horizontal Economizer RA Damper Open	Concentric Diffuser RXRN-AEF2000 & Concentric Adapter RXMC-DD01 (Flush)	Concentric Diffuser RXRN-AED2000 & Concentric Adapter RXMC-DD01 (Drop)	Pressure Drop MERV 8	Pressure Drop MERV 13	
CFM [L/s]										
2400 [1133]	0.96	0.89	0.98	0.04 [0.01]	0.21 [0.05]	0.66 [0.16]	0.53 [0.13]	0.093 [0.02]	0.047 [0.01]	
2500 [1180]	0.96	0.90	0.99	0.05 [0.01]	0.25 [0.06]	0.71 [0.18]	0.57 [0.14]	0.098 [0.02]	0.055 [0.01]	
2600 [1227]	0.97	0.92	0.99	0.05 [0.01]	0.28 [0.07]	0.75 [0.19]	0.60 [0.15]	0.103 [0.02]	0.062 [0.01]	
2700 [1274]	0.97	0.93	0.99	0.05 [0.01]	0.32 [0.08]	0.80 [0.20]	0.65 [0.16]	0.108 [0.03]	0.070 [0.02]	
2800 [1321]	0.98	0.95	0.99	0.06 [0.01]	0.36 [0.09]	0.85 [0.17]	0.69 [0.17]	0.113 [0.03]	0.078 [0.02]	
2900 [1368]	0.98	0.96	1.00	0.06 [0.02]	0.39 [0.10]	0.91 [0.23]	0.74 [0.18]	0.117 [0.03]	0.085 [0.02]	
3000 [1416]	0.99	0.97	1.00	0.07 [0.02]	0.43 [0.11]	0.96 [0.24]	0.79 [0.20]	0.122 [0.03]	0.093 [0.02]	
3100 [1463]	1.00	0.99	1.00	0.07 [0.02]	0.47 [0.12]	1.02 [0.25]	0.86 [0.21]	0.127 [0.03]	0.100 [0.02]	
3200 [1510]	1.00	1.00	1.01	0.07 [0.02]	0.51 [0.13]	1.08 [0.27]	0.92 [0.23]	0.132 [0.03]	0.108 [0.03]	
3300 [1557]	1.01	1.02	1.01	0.08 [0.02]	0.54 [0.14]	1.15 [0.29]	0.99 [0.25]	0.137 [0.03]	0.115 [0.03]	
3400 [1604]	1.01	1.03	1.01	0.08 [0.02]	0.58 [0.14]	1.21 [0.30]	1.05 [0.26]	0.142 [0.03]	0.123 [0.03]	
3500 [1652]	1.02	1.05	1.01	0.09 [0.02]	0.62 [0.15]	1.29 [0.32]	1.09 [0.27]	0.147 [0.04]	0.131 [0.03]	
3600 [1699]	1.02	1.06	1.02	0.09 [0.02]	0.66 [0.16]	1.36 [0.34]	1.13 [0.28]	0.152 [0.04]	0.138 [0.03]	

*Multiply correction factor times gross performance data resulting sensible capacity cannot exceed total capacity.

P. APPENDICES

Appendix C – Air Flow Performance Data (Cont.)

Air Flow	Model (-) JACDYB102 - Downflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																							
	External Static Pressure - Inches of Water [Pa]																							
	0.1 [0.2]	0.2 [0.5]	0.3 [0.7]	0.4 [1.0]	0.5 [1.2]	0.6 [1.5]	0.7 [1.7]	0.8 [2.0]	0.9 [2.2]	1.0 [2.5]	1.1 [2.7]	1.2 [3.0]	1.3 [3.2]	1.4 [3.5]	1.5 [3.7]	1.6 [4.0]	1.7 [4.2]	1.8 [4.5]	1.9 [4.7]	2.0 [5.0]				
CFM [L/s]	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2700 [1274]	—	—	—	—	612	955	646	998	680	1044	713	1092	745	1143	777	1196	809	1251	840	1309	871	1369	901	1432
2800 [1321]	—	—	—	—	588	944	622	966	655	1031	688	1078	721	1128	753	1180	784	1234	815	1291	845	1350	875	1411
2900 [1368]	—	—	—	—	599	977	632	1021	665	1067	697	1116	729	1167	760	1220	791	1276	821	1334	851	1394	880	1457
3000 [1416]	—	—	—	—	610	1014	642	1060	674	1107	706	1157	737	1209	767	1264	798	1321	827	1380	856	1442	885	1506
3100 [1463]	—	—	—	—	588	1011	620	1055	652	1101	684	1150	715	1201	745	1255	775	1311	804	1369	833	1430	862	1493
3200 [1510]	—	—	—	—	600	1053	631	1098	663	1146	693	1196	724	1249	753	1304	783	1361	811	1421	840	1483	867	1547
3300 [1557]	—	580	1054	611	1089	642	1145	673	1195	703	1246	733	1300	762	1356	790	1415	818	1476	846	1539	873	1595	900
3400 [1604]	—	582	1102	623	1148	653	1196	683	1246	713	1299	742	1354	770	1412	798	1472	825	1534	852	1599	879	1666	905
3500 [1652]	—	605	1153	635	1200	665	1250	694	1301	723	1356	751	1412	779	1471	806	1532	833	1596	859	1662	885	1730	910
3600 [1699]	587	1161	617	1208	647	1266	676	1307	704	1360	732	1415	760	1473	797	1534	814	1595	840	1661	866	1729	891	1798
3700 [1746]	600	1218	630	1265	659	1315	687	1367	715	1422	742	1478	769	1538	796	1599	822	1653	847	1730	872	1798	897	1869
3800 [1793]	614	1278	642	1326	671	1378	698	1431	726	1487	752	1545	779	1606	805	1668	830	1734	855	1801	879	1871	903	1944
3900 [1840]	627	1341	655	1391	683	1443	710	1498	736	1555	763	1615	788	1677	813	1741	838	1808	862	1877	896	1948	909	2022
4000 [1888]	641	1407	668	1459	695	1512	721	1569	747	1627	773	1688	798	1751	822	1817	846	1885	870	1935	893	2028	915	2103
4100 [1935]	654	1477	681	1530	707	1585	733	1642	758	1702	783	1764	807	1829	831	1896	854	1965	877	2037	899	2111	921	2187

NOTE: F-Drive left of the first bold line, G-Drive between the bold lines, H-Drive right of the bold line.

Drive Package	F					G					H							
	2 [1491.4]	3 [2237.1]				3 [2237.1]	AK79H				3 [2237.1]	AK79H						
Motor H.P. [W]	AK79H	AK79H				AK79H	AK79H				AK79H	AK79H						
Blower Sheave	1VL40	1VP50				1VP50	1VP56				1VP56	1VP56						
Motor Sheave	A49	A50				A50	A51				A51	A51						
Belt	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
Turns Open	816	771	726	678	632	580	1046	1003	959	917	872	826	1153	1114	1082	1040	998	956
RPM	816	771	726	678	632	580	1046	1003	959	917	872	826	1153	1114	1082	1040	998	956

- 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. Add component resistances (below) to duct resistance to determine GSE External Static Pressure.

Airflow	AIRFLOW CORRECTION FACTORS *				Wet Coil	COMPONENT AIRFLOW RESISTANCE					Pressure Drop MERV 8	Pressure Drop MERV 13
	CFM [L/s]	AIRFLOW CORRECTION FACTORS *				Vertical Economizer RA Damper Open	Concentric Diffuser RXRN-AEF2000 & Concentric Adapter RXMC-DD01 (Flush)	Concentric Diffuser RXHN-AED2000 & RXMC-DD01 (Drop)				
		Total MBH	Sensible MBH	Power kW								
2700 [1274]	0.97	0.93	0.99	0.99	0.07 [0.2]	0.03 [0.1]	0.80 [2.0]	0.65 [1.6]	0.108 [0.3]	0.070 [0.2]		
2800 [1321]	0.98	0.94	0.99	0.99	0.07 [0.2]	0.03 [0.1]	0.85 [2.1]	0.69 [1.7]	0.113 [0.3]	0.078 [0.2]		
2900 [1368]	0.98	0.96	0.99	0.99	0.08 [0.2]	0.04 [0.1]	0.91 [2.3]	0.74 [1.8]	0.117 [0.3]	0.085 [0.2]		
3000 [1416]	0.99	0.97	1.00	1.00	0.08 [0.2]	0.05 [0.1]	0.96 [2.4]	0.79 [2.0]	0.122 [0.3]	0.093 [0.2]		
3100 [1463]	0.99	0.99	1.00	1.00	0.09 [0.2]	0.06 [0.1]	1.02 [2.5]	0.86 [2.1]	0.127 [0.3]	0.100 [0.2]		
3200 [1510]	1.00	1.00	1.00	1.00	0.10 [0.2]	0.07 [0.2]	1.08 [2.7]	0.92 [2.3]	0.132 [0.3]	0.108 [0.3]		
3300 [1557]	1.01	1.01	1.00	1.00	0.10 [0.3]	0.08 [0.2]	1.15 [2.9]	0.99 [2.5]	0.137 [0.3]	0.115 [0.3]		
3400 [1604]	1.01	1.03	1.01	1.01	0.11 [0.3]	0.09 [0.2]	1.21 [3.0]	1.05 [2.6]	0.142 [0.3]	0.123 [0.3]		
3500 [1652]	1.02	1.04	1.01	1.01	0.11 [0.3]	0.10 [0.2]	1.29 [3.2]	1.09 [2.7]	0.147 [0.4]	0.131 [0.3]		
3600 [1699]	1.02	1.06	1.01	1.01	0.12 [0.3]	0.11 [0.3]	1.36 [3.4]	1.13 [2.8]	0.152 [0.4]	0.138 [0.3]		
3700 [1746]	1.03	1.07	1.02	1.02	0.13 [0.3]	0.12 [0.3]	1.43 [3.6]	1.18 [2.9]	0.157 [0.4]	0.146 [0.4]		
3800 [1793]	1.03	1.09	1.02	1.02	0.13 [0.3]	0.13 [0.3]	1.50 [3.7]	1.23 [3.1]	0.162 [0.4]	0.153 [0.4]		
3900 [1840]	1.04	1.10	1.02	1.02	0.14 [0.4]	0.15 [0.4]	1.59 [4.0]	1.15 [3.3]	0.167 [0.4]	0.161 [0.4]		
4000 [1888]	1.05	1.12	1.02	1.02	0.14 [0.4]	0.16 [0.4]	1.68 [4.2]	1.38 [3.4]	0.171 [0.4]	0.169 [0.4]		
4100 [1935]	1.05	1.13	1.03	1.03	0.15 [0.4]	0.17 [0.4]	1.74 [4.3]	1.44 [3.6]	0.176 [0.4]	0.176 [0.4]		

*Multiply correction factor times gross performance data resulting sensible capacity cannot exceed total capacity.

Appendix C – Air Flow Performance Data (Cont.)

NOTE: F-Drive left of the first bold line, G-Drive between the bold lines, H-Drive right of both bold line.

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. Add component resistance below) to duct resistance to determine total External Static Pressure.

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

P. APPENDICES

Appendix C – Air Flow Performance Data (Cont.)

Air Flow	Model (-)ACDYB120 - Downflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																																							
	External Static Pressure - Inches of Water [Pa]																																							
	0.1 [0.02]	0.2 [0.05]	0.3 [0.07]	0.4 [0.10]	0.5 [0.12]	0.6 [0.15]	0.7 [0.17]	0.8 [0.20]	0.9 [0.22]	1.0 [0.25]	1.1 [0.27]	1.2 [0.30]	1.3 [0.32]	1.4 [0.35]	1.5 [0.37]	1.6 [0.40]	1.7 [0.42]	1.8 [0.45]	1.9 [0.47]	2.0 [0.50]																				
CFM [L/s]	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		
3200 [1510]	561	781	589	838	615	897	642	959	669	1023	695	1090	722	1159	748	1230	774	1304	800	1380	825	1459	851	1540	876	1623	902	1709	927	1797	952	1888	977	1981	1001	2077	1026	2175	1050	2275
3300 [1557]	572	836	599	895	625	966	651	1020	678	1096	704	1154	750	1295	755	1298	781	1374	807	1452	832	1533	857	1616	882	1701	907	1789	932	1879	966	1972	981	2067	1005	2164	1029	2264	1053	2366
3400 [1604]	582	884	609	955	635	1083	687	1151	712	1222	738	1255	763	1378	783	1416	796	1452	814	1528	838	1610	863	1695	888	1782	912	1872	937	1964	961	2059	985	2155	1009	2255	1032	2357	1056	2461
3500 [1652]	593	935	619	1018	645	1083	670	1151	696	1221	721	1293	746	1396	771	1445	796	1524	821	1606	845	1691	870	1778	894	1867	919	1958	942	2052	966	2149	989	2248	1013	2349	1036	2453	1059	2559
3600 [1699]	604	1020	630	1095	655	1152	680	1221	705	1293	730	1367	755	1444	779	1523	804	1605	828	1688	852	1775	876	1863	900	1965	924	2048	947	2144	971	2242	994	2343	1017	2446	1040	2552	1063	2660
3700 [1746]	615	1088	640	1155	665	1224	690	1295	715	1369	739	1445	764	1524	788	1605	812	1688	836	1774	860	1862	883	1955	907	2046	930	2141	953	2239	976	2339	999	2442	1022	2547	1044	2655	1067	2765
3800 [1793]	627	1160	651	1228	676	1299	700	1372	725	1448	749	1526	773	1607	797	1690	820	1775	844	1863	867	1953	890	2045	913	2140	936	2238	959	2338	982	2440	1004	2544	1026	2652	1048	2761	1070	2873
3900 [1840]	638	1235	663	1305	687	1378	711	1453	735	1531	758	1611	782	1693	805	1778	829	1865	852	1955	875	2047	898	2141	920	2238	943	2338	965	2439	987	2544	1009	2650	1031	2759	1053	2870	1075	2984
4000 [1888]	650	1313	674	1385	699	1460	722	1537	745	1617	768	1699	791	1783	814	1870	837	1959	880	2050	893	2144	905	2241	927	2340	949	2441	971	2545	993	2651	1015	2759	1036	2870	1058	2983	1079	3099
4100 [1935]	662	1395	686	1469	709	1545	732	1625	755	1708	778	1790	801	1875	824	1965	846	2056	869	2149	881	2245	913	2344	935	2444	956	2548	978	2653	999	2761	1021	2872	1042	2984	1063	3100	1083	3217
4200 [1982]	675	1460	698	1556	721	1634	743	1715	766	1799	789	1894	811	1973	833	2063	855	2156	877	2252	899	2349	921	2450	942	2552	963	2658	985	2765	1006	2875	1027	2987	1047	3102	1068	3219	1088	3339
4300 [2028]	687	1538	710	1646	732	1725	755	1809	777	1895	799	1992	821	2072	843	2165	865	2260	886	2357	908	2457	929	2559	950	2664	971	2771	992	2880	1012	2992	1033	3106	1053	3223	1073	3342	1093	3464
4400 [2076]	700	1650	722	1740	744	1822	766	1907	788	1994	810	2084	832	2176	853	2270	874	2367	895	2466	916	2568	937	2672	958	2779	978	2888	999	2999	1019	3113	1038	3228	1059	3347	1079	3468	1098	3592
4500 [2123]	713	1755	735	1837	756	1921	778	2008	800	2097	821	2188	842	2282	863	2379	884	2477	905	2579	925	2682	946	2788	966	2887	986	3008	1006	3121	1026	3237	1046	3355	1065	3475	1085	3598	—	—
4600 [2171]	726	1853	747	1937	769	2023	790	2112	811	2203	832	2296	853	2392	873	2490	894	2591	914	2694	934	2800	955	2906	974	3018	994	3131	1014	3246	1033	3364	1052	3484	1072	3606	1091	3731	—	—
4700 [2218]	739	1955	760	2041	781	2129	802	2219	823	2312	843	2408	864	2505	884	2606	904	2708	924	2813	944	2921	964	3031	983	3143	1002	3258	1022	3375	1041	3494	1059	3616	1078	3741	1097	3867	—	—
4800 [2265]	753	2060	773	2148	794	2238	814	2330	835	2425	855	2522	875	2622	895	2724	915	2829	934	2936	953	3045	973	3157	992	3271	1011	3388	1030	3507	1048	3628	1067	3752	1085	3878	—	—	—	—

NOTE: F=Drive left of the first bold line, G=Drive between the bold lines, H=Drive right of both bold lines.

Drive Package	F			G			H									
Motor H.P. [W]	2 [1491.4]			3 [2237.1]			3 [2237.1]									
Blower Sheave	AK79H			AK79H			AK79H									
Motor Sheave	1VL40			1VP50			1VP56									
Belt	A49			A50			A51									
Turns Open	0	1	2	3	4	5	1	2	3	4	5	6				
RPM	797	757	715	675	634	588	1029	991	950	908	866	824	1027	991	951	909

- Notes:
1. Factory shave settings are shown in bold type.
 2. Do not set shave below minimum or maximum turns open shown.
 3. Re-adjustment of shave required to achieve rated airflow at AHRH minimum External Static Pressure.
 4. Add component resistance below to duct resistance to determine total External Static Pressure.

Airflow	AIRFLOW CORRECTION FACTORS *					COMPONENT AIRFLOW RESISTANCE							Pressure Drop MERV 8	Pressure Drop MERV 13
						Wet Coil	Vertical Economizer RA Dampener Open	Concentric Diffuser RXRN-AEF2000 & Concentric Adapter RXMC-DD01 (Flush)	Concentric Diffuser RXRN-AED2000 & Concentric Adapter RXMC-DD01 (Drop)					
	CFM [L/s]	Total MBH	Sensible MBH	Power kW										
3200 [1510]	0.97	0.93	0.99	0.10 [0.02]	0.07 [0.02]	0.74 [18]			0.56 [14]		0.132 [0.03]	0.108 [0.03]		
3300 [1557]	0.98	0.94	0.99	0.10 [0.03]	0.08 [0.02]	0.79 [20]			0.59 [15]		0.137 [0.03]	0.115 [0.03]		
3400 [1604]	0.98	0.96	0.99	0.11 [0.03]	0.09 [0.02]	0.84 [21]			0.62 [15]		0.142 [0.03]	0.123 [0.03]		
3500 [1652]	0.99	0.97	1.00	0.11 [0.03]	0.10 [0.02]	0.90 [22]			0.66 [16]		0.147 [0.04]	0.131 [0.03]		
3600 [1699]	0.99	0.98	1.00	0.12 [0.03]	0.11 [0.03]	0.95 [24]			0.69 [17]		0.152 [0.04]	0.138 [0.03]		
3700 [1746]	1.00	0.99	1.00	0.13 [0.03]	0.12 [0.03]	1.00 [25]			0.73 [18]		0.157 [0.04]	0.146 [0.04]		
3800 [1793]	1.00	1.01	1.00	0.13 [0.03]	0.13 [0.03]	1.04 [26]			0.76 [19]		0.162 [0.04]	0.153 [0.04]		
3900 [1840]	1.01	1.02	1.00	0.14 [0.04]	0.15 [0.04]	1.09 [27]			0.80 [20]		0.167 [0.04]	0.161 [0.04]		
4000 [1888]	1.01	1.03	1.01	0.15 [0.04]	0.16 [0.04]	1.13 [28]			0.84 [21]		0.171 [0.04]	0.169 [0.04]		
4100 [1935]	1.02	1.04	1.01	0.15 [0.04]	0.17 [0.04]	1.19 [30]			0.88 [22]		0.176 [0.04]	0.176 [0.04]		
4200 [1982]	1.02	1.06	1.01	0.16 [0.04]	0.19 [0.05]	1.24 [31]			0.92 [23]		0.181 [0.04]	0.184 [0.05]		
4300 [2029]	1.03	1.07	1.01	0.17 [0.04]	0.20 [0.05]	1.31 [33]			0.97 [24]		0.186 [0.05]	0.191 [0.05]		
4400 [2076]	1.03	1.08	1.01	0.18 [0.04]	0.21 [0.05]	1.37 [34]			1.02 [25]		0.191 [0.05]	0.199 [0.05]		
4500 [2123]	1.04	1.09	1.02	0.19 [0.05]	0.23 [0.06]	1.43 [35]			1.07 [27]		0.196 [0.05]	0.207 [0.05]		
4600 [2171]	1.04	1.11	1.02	0.19 [0.05]	0.24 [0.06]	1.48 [37]			1.11 [28]		0.201 [0.05]	0.214 [0.05]		
4700 [2218]	1.05	1.12	1.02	0.20 [0.05]	0.26 [0.06]	1.54 [38]			1.15 [29]		0.206 [0.05]	0.222 [0.05]		
4800 [2265]	1.05	1.13	1.02	0.21 [0.05]	0.28 [0.07]	1.59 [40]			1.19 [30]		0.211 [0.05]	0.229 [0.06]		

NOTE: F-Drive left of the first bold line, G-Drive between the bold lines, H-Drive right of both bold line.

1. Factory shave settings are shown in bold type.
2. Do not set shave below minimum or maximum turns open shown.
3. Re-adjustment of shave required to achieve rated airflow at AHRI minimum External Static Pressure.
4. Add component resistance (below) to duct resistance to determine total External Static Pressure.

*Multiply correction factor times gross performance data resulting sensible capacity cannot exceed total capacity.

P. APPENDICES

Appendix C – Air Flow Performance Data (Cont.)

Model (-) JACDYB150 - Downflow		Voltage 208/230, 460, 575 — 3 phase 60 Hz																							
Air Flow																									
CFM [L/s]		External Static Pressure - Inches of Water [Pa]																							
0.1 [0.02]	0.2 [0.05]	0.3 [0.07]	0.4 [1.0]	0.5 [1.2]	0.6 [1.6]	0.7 [1.7]	0.8 [2.0]	0.9 [2.2]	1.0 [2.5]	1.1 [2.7]	1.2 [3.0]	1.3 [3.2]	1.4 [3.5]	1.5 [3.7]	1.6 [4.0]	1.7 [4.2]	1.8 [4.5]	1.9 [4.7]	2.0 [5.0]						
RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP						
4000 [1888]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						
4100 [1935]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						
4200 [1982]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						
4300 [2029]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						
4400 [2076]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						
4500 [2123]	769	1655	791	1928	813	2002	835	2070	856	2149	878	2224	899	2292	930	2346	962	2426	982						
4600 [2171]	783	1947	805	2022	826	2098	848	2174	869	2250	890	2327	911	2404	932	2481	962	2559	975						
4700 [2218]	797	2044	818	2122	840	2198	861	2277	882	2355	903	2434	923	2513	944	2593	964	2673	984						
4800 [2265]	811	2146	832	2226	854	2305	874	2385	895	2466	916	2547	936	2628	956	2710	976	2792	995						
4900 [2312]	826	2253	847	2335	867	2418	888	2499	908	2581	928	2664	948	2748	968	2831	987	2916	1007						
5000 [2359]	840	2365	861	2448	881	2532	901	2617	921	2701	941	2787	961	2857	980	2958	999	3044	1018						
5100 [2407]	855	2482	875	2567	895	2653	915	2747	935	2837	954	2914	973	3002	992	3090	1011	3178	1030						
5200 [2454]	870	2603	890	2691	909	2779	929	2868	948	2967	967	3046	986	3136	1005	3228	1023	3317	1042						
5300 [2501]	885	2730	904	2820	924	2910	943	3007	962	3092	981	3183	999	3275	1017	3368	1046	3460	1053						
5400 [2548]	900	2891	919	2993	938	3046	957	3139	976	3232	994	3325	1012	3419	1030	3514	1048	3609	1066						
5500 [2595]	915	2998	934	3092	953	3187	971	3282	989	3377	1007	3473	1025	3569	1043	3665	1060	3762	1078						
5600 [2643]	930	3139	949	3236	967	3332	985	3429	1003	3527	1021	3625	1039	3723	1056	3822	1072	3921	1090						
5700 [2690]	946	3296	964	3394	982	3483	1000	3582	1017	3682	1035	3782	1052	3882	1069	3983	1086	4084	1102						
5800 [2737]	961	3437	979	3537	997	3638	1014	3740	1032	3841	1049	3943	1066	4046	1082	4140	1099	4252	1115						
5900 [2784]	977	3583	994	3686	1012	3789	1028	3892	1046	4006	1063	4110	1079	4215	1096	4320	1112	4425	1143						
6000 [2831]	993	3754	1010	3859	1027	3964	1044	4070	1060	4176	1077	4282	1093	4389	1109	4496	1125	4604	1140						

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

Drive Package		F		G			
Motor H.P. [W]		3 [118.5]		5 [2237.1]			
Blower Sheave		AK71H		AK79H			
Motor Sheave		1VL44		1VP60			
Belt		A48		A52			
Turns Open		0	1	2	3	4	5
RPM		998	953	906	860	813	765
		1210	1168	1125	1081	1037	993

Notes:

1. Factory shave settings are shown in bold type.
2. Do not set shave below minimum or maximum turns open shown.
3. Add component resistance (below) to duct resistance to determine total External Static Pressure.
4. Add component resistance (below) to duct resistance to determine total External Static Pressure.

Airflow	AIRFLOW CORRECTION FACTORS *						COMPONENT AIRFLOW RESISTANCE							
	Total MBH			Sensible MBH			Wet Coil	Vertical Economizer PA Damper Open	Concentric Diffuser R/RNA-AEF5818 & Concentric Adapter R/MC-DDG (Push)		Concentric Diffuser R/RNA-AEF5818 & Concentric Adapter R/MC-DDG (Pull)		Pressure Drop MERV 8	Pressure Drop MERV 13
	CFM [L/s]								Resistance -	Inches of Water [Pa]	Resistance -	Inches of Water [Pa]		
4000 [1888]	1.01	1.01	1.03	1.04	1.01	0.15 [0.04]	0.15 [0.04]	0.76 [19]	0.68 [17]			0.132 [0.03]	0.108 [0.03]	
4100 [1935]	1.02	1.04	1.04	1.06	1.01	0.16 [0.04]	0.17 [0.04]	0.79 [20]	0.72 [19]			0.136 [0.03]	0.114 [0.03]	
4200 [1982]	1.02	1.06	1.06	1.07	1.01	0.17 [0.04]	0.19 [0.05]	0.82 [20]	0.75 [19]			0.140 [0.03]	0.120 [0.03]	
4300 [2029]	1.03	1.07	1.07	1.09	1.01	0.17 [0.04]	0.20 [0.05]	0.86 [21]	0.78 [20]			0.144 [0.03]	0.126 [0.03]	
4400 [2076]	1.03	1.08	1.08	1.10	1.01	0.18 [0.05]	0.21 [0.05]	0.90 [22]	0.83 [21]			0.148 [0.04]	0.132 [0.03]	
4500 [2123]	1.04	1.09	1.09	1.11	1.02	0.19 [0.05]	0.22 [0.06]	0.94 [23]	0.86 [21]			0.152 [0.04]	0.138 [0.03]	
4600 [2171]	1.04	1.11	1.11	1.12	1.02	0.20 [0.05]	0.24 [0.06]	0.98 [24]	0.88 [22]			0.156 [0.04]	0.145 [0.04]	
4700 [2218]	1.05	1.12	1.12	1.13	1.02	0.21 [0.05]	0.26 [0.06]	1.02 [25]	0.94 [23]			0.160 [0.04]	0.151 [0.04]	
4800 [2265]	1.05	1.13	1.13	1.14	1.02	0.21 [0.06]	0.28 [0.07]	1.06 [26]	0.98 [24]			0.164 [0.04]	0.157 [0.04]	
4900 [2312]	1.06	1.14	1.14	1.16	1.03	0.22 [0.06]	0.29 [0.07]	1.10 [27]	1.01 [25]			0.168 [0.04]	0.163 [0.04]	
5000 [2359]	1.06	1.16	1.16	1.17	1.03	0.23 [0.06]	0.31 [0.08]	1.14 [28]	1.04 [26]			0.172 [0.04]	0.169 [0.04]	
5100 [2407]	1.07	1.17	1.17	1.18	1.03	0.24 [0.06]	0.33 [0.08]	1.18 [29]	1.07 [27]			0.176 [0.04]	0.175 [0.04]	
5200 [2454]	1.07	1.18	1.18	1.19	1.03	0.25 [0.06]	0.35 [0.09]	1.22 [30]	1.10 [27]			0.180 [0.04]	0.182 [0.04]	
5300 [2501]	1.08	1.19	1.19	1.21	1.03	0.26 [0.06]	0.36 [0.09]	1.27 [32]	1.15 [28]			0.184 [0.05]	0.188 [0.05]	
5400 [2548]	1.08	1.21	1.21	1.22	1.03	0.27 [0.07]	0.38 [0.09]	1.33 [33]	1.20 [30]			0.188 [0.05]	0.194 [0.05]	
5500 [2595]	1.09	1.22	1.22	1.24	1.04	0.28 [0.07]	0.40 [0.10]	1.37 [34]	1.25 [31]			0.192 [0.05]	0.200 [0.05]	
5600 [2643]	1.09	1.23	1.23	1.24	1.04	0.29 [0.07]	0.42 [0.10]	1.42 [35]	1.30 [32]			0.196 [0.05]	0.206 [0.05]	
5700 [2690]	1.10	1.24	1.24	1.26	1.04	0.30 [0.07]	0.44 [0.11]	1.47 [37]	1.34 [33]			0.200 [0.05]	0.212 [0.05]	
5800 [2737]	1.10	1.26	1.26	1.27	1.04	0.31 [0.08]	0.46 [0.11]	1.52 [38]	1.38 [34]			0.204 [0.05]	0.219 [0.05]	
5900 [2784]	1.10	1.27	1.27	1.28	1.05	0.32 [0.08]	0.48 [0.12]	1.56 [39]	1.42 [35]			0.208 [0.05]	0.225 [0.05]	
6000 [2831]	1.11	1.28	1.28	1.29	1.05	0.33 [0.08]	0.51 [0.13]	1.60 [40]	1.45 [36]			0.212 [0.05]	0.231 [0.06]	

*Multiply correction factor times gross performance data resulting sensible capacity cannot exceed total capacity.

Appendix C – Air Flow Performance Data (Cont.)

Model (-) JACDYB150 – Sidedflow		Voltage 208/230, 460, 575 – 3 phase 60 Hz																			
Air Flow		External Static Pressure - Inches of Water [Pa]																			
CFM [L/s]	RPM	0.1 [0.02]	0.2 [0.05]	0.3 [0.07]	0.4 [0.10]	0.5 [0.12]	0.6 [0.15]	0.7 [0.17]	0.8 [0.20]	0.9 [0.22]	1.0 [0.25]	1.1 [0.27]	1.2 [0.30]	1.3 [0.32]	1.4 [0.35]	1.5 [0.37]	1.6 [0.40]	1.7 [0.42]	1.8 [0.45]	1.9 [0.47]	2.0 [0.50]
		BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
4000 [188]	—	—	—	—	764 [159]	788 [166]	812 [173]	836 [180]	860 [187]	883 [194]	906 [201]	928 [208]	951 [214]	973 [220]	995 [227]	1016 [234]	1037 [240]	1058 [247]	1079 [254]	1100 [260]	1120 [266]
4100 [193]	—	—	—	—	778 [163]	802 [171]	826 [181]	849 [190]	872 [197]	895 [204]	918 [210]	940 [217]	962 [224]	984 [232]	1005 [239]	1026 [245]	1047 [252]	1068 [259]	1088 [267]	1109 [274]	1128 [280]
4200 [198]	—	—	—	—	788 [170]	812 [178]	836 [185]	859 [193]	882 [200]	905 [207]	928 [214]	950 [221]	973 [228]	994 [236]	1016 [243]	1037 [250]	1057 [257]	1077 [264]	1097 [271]	1117 [278]	1137 [285]
4300 [203]	—	—	—	—	798 [177]	822 [185]	846 [192]	870 [199]	893 [206]	916 [213]	939 [220]	962 [227]	984 [234]	1005 [241]	1026 [248]	1047 [255]	1067 [262]	1087 [269]	1106 [276]	1126 [283]	1145 [290]
4400 [208]	—	—	—	—	808 [184]	832 [192]	856 [200]	880 [207]	903 [214]	926 [221]	949 [228]	972 [235]	995 [242]	1016 [249]	1037 [256]	1057 [263]	1076 [270]	1095 [277]	1114 [284]	1133 [291]	1152 [298]
4500 [213]	—	—	—	—	818 [191]	842 [199]	866 [207]	890 [214]	913 [221]	936 [228]	959 [235]	982 [242]	1005 [249]	1028 [256]	1051 [263]	1073 [270]	1092 [277]	1111 [284]	1130 [291]	1149 [298]	1167 [305]
4600 [217]	—	—	—	—	828 [198]	852 [206]	876 [214]	900 [221]	923 [228]	946 [235]	969 [242]	992 [249]	1015 [256]	1038 [263]	1061 [270]	1083 [277]	1105 [284]	1127 [291]	1148 [298]	1169 [305]	1189 [312]
4700 [221]	—	—	—	—	838 [205]	862 [213]	886 [221]	910 [228]	933 [235]	956 [242]	979 [249]	1002 [256]	1025 [263]	1048 [270]	1071 [277]	1093 [284]	1115 [291]	1136 [298]	1157 [305]	1177 [312]	1197 [319]
4800 [226]	—	—	—	—	848 [212]	872 [220]	896 [228]	920 [235]	943 [242]	966 [249]	989 [256]	1012 [263]	1035 [270]	1058 [277]	1081 [284]	1103 [291]	1125 [298]	1146 [305]	1167 [312]	1188 [319]	1208 [326]
4900 [231]	—	—	—	—	858 [219]	882 [227]	906 [235]	930 [242]	953 [249]	976 [256]	999 [263]	1022 [270]	1045 [277]	1068 [284]	1091 [291]	1113 [298]	1135 [305]	1156 [312]	1177 [319]	1198 [326]	1218 [333]
5000 [236]	—	—	—	—	868 [226]	892 [234]	916 [242]	940 [249]	963 [256]	986 [263]	1009 [270]	1032 [277]	1055 [284]	1078 [291]	1101 [298]	1123 [305]	1145 [312]	1166 [319]	1187 [326]	1208 [333]	1228 [340]
5100 [241]	—	—	—	—	878 [233]	902 [241]	926 [249]	950 [256]	973 [263]	996 [270]	1019 [277]	1042 [284]	1065 [291]	1088 [298]	1111 [305]	1133 [312]	1154 [319]	1175 [326]	1196 [333]	1217 [340]	1237 [347]
5200 [246]	—	—	—	—	888 [240]	912 [248]	936 [256]	960 [263]	983 [270]	1006 [277]	1029 [284]	1052 [291]	1075 [298]	1098 [305]	1121 [312]	1143 [319]	1164 [326]	1185 [333]	1206 [340]	1227 [347]	1247 [354]
5300 [251]	—	—	—	—	898 [247]	922 [255]	946 [263]	970 [270]	993 [277]	1016 [284]	1039 [291]	1062 [298]	1085 [305]	1108 [312]	1131 [319]	1153 [326]	1174 [333]	1195 [340]	1216 [347]	1237 [354]	1257 [361]
5400 [256]	—	—	—	—	908 [254]	932 [262]	956 [270]	980 [277]	1003 [284]	1026 [291]	1049 [298]	1072 [305]	1095 [312]	1118 [319]	1141 [326]	1163 [333]	1184 [340]	1205 [347]	1226 [354]	1247 [361]	1267 [368]
5500 [261]	—	—	—	—	918 [261]	942 [269]	966 [277]	990 [284]	1013 [291]	1036 [298]	1059 [305]	1082 [312]	1105 [319]	1128 [326]	1151 [333]	1173 [340]	1194 [347]	1215 [354]	1236 [361]	1257 [368]	1277 [375]
5600 [266]	—	—	—	—	928 [268]	952 [276]	976 [284]	1000 [291]	1023 [298]	1046 [305]	1069 [312]	1092 [319]	1115 [326]	1138 [333]	1161 [340]	1183 [347]	1204 [354]	1225 [361]	1246 [368]	1267 [375]	1287 [382]
5700 [271]	—	—	—	—	938 [275]	962 [283]	986 [291]	1010 [298]	1033 [305]	1056 [312]	1079 [319]	1102 [326]	1125 [333]	1148 [340]	1171 [347]	1193 [354]	1214 [361]	1235 [368]	1256 [375]	1277 [382]	1297 [389]
5800 [276]	—	—	—	—	948 [282]	972 [290]	996 [298]	1020 [305]	1043 [312]	1066 [319]	1089 [326]	1112 [333]	1135 [340]	1158 [347]	1181 [354]	1203 [361]	1224 [368]	1245 [375]	1266 [382]	1287 [389]	1307 [396]
5900 [281]	—	—	—	—	958 [289]	982 [297]	1006 [305]	1030 [312]	1053 [319]	1076 [326]	1099 [333]	1122 [340]	1145 [347]	1168 [354]	1191 [361]	1213 [368]	1234 [375]	1255 [382]	1276 [389]	1297 [396]	1317 [403]
6000 [286]	—	—	—	—	968 [296]	992 [304]	1016 [312]	1040 [319]	1063 [326]	1086 [333]	1109 [340]	1132 [347]	1155 [354]	1178 [361]	1201 [368]	1223 [375]	1244 [382]	1265 [389]	1286 [396]	1307 [403]	1327 [410]

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

Driver Package

Motor H.P. [kW]

Blower Sheave

Motor Sheave

Belt

F

3 [118.5]

AK71H

1VP60

A52

G

5 [237.1]

AK79H

1VP60

A52

Turns Open

0

1

2

3

4

5

RPM

994

952

905

856

811

765

720

675

630

585

540

495

450

405

360

315

270

225

180

135

90

45

993

1037

1082

1126

1168

1209

1250

1291

1332

1373

1414

1455

1496

1537

1578

1619

1660

1701

1742

1783

1824

1865

1906

Notes:

1. Factory shave settings are shown in bold type.
2. Do not set shave below minimum or maximum turns open shown.
3. Re-adjustment of shave required to achieve rated airflow at AHRI minimum External Static Pressure.
4. Add component resistance (below) to duct resistance to determine total External Static Pressure

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

Drive Package		F										G									
Motor H.P. [W]		3 [1118.5]										5 [2237.1]									
Blower Shave		AK7H										AK79H									
Motor Shave		1VL44										1VP60									
Belt		A-48										A-52									
Turns Open		0	1	2	3	4	5	0	1	2	3	4	5								
RPM		994	952	905	858	811	765	1209	1168	1126	1082	1037	993								

Airflow	AIRFLOW CORRECTION FACTORS *					COMPONENT AIRFLOW RESISTANCE				
	CFM [L/s]	Ton MBH	Sensible MBH	Power kW	Wet Coil	Horizontal Economizer RA Damper Open	Concentric Diffuser RXNR-AE3618 & Concentric Adapter RMC-D03 (Push)	Concentric Diffuser RXNR-AED3618 & Concentric Adapter RMC-D03 (Drop)	Pressure Drop MERV 8	Pressure Drop MERV 13
							Resistance — Inches of Water [Pa]			
			</							

P. APPENDICES

Appendix D – Cooling Data for (-)ACDYB 7.5 Ton

COOLING PERFORMANCE DATA - (-)ACDYB090										
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]		
CFM [L/s]		3550 [1675]	3400 [1605]	2375 [1121]	3550 [1675]	3400 [1605]	2375 [1121]	3550 [1675]	3400 [1605]	2375 [1121]
DR		.05	.09	.12	.05	.09	.12	.05	.09	.12
Outdoor Dry Bulb Temperature	75°F [23.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	105 [30.8] 60 [17.6] 6.4	104.1 [30.5] 58.8 [17.2] 6.4	98.4 [28.8] 50.5 [14.8] 6.2	99.4 [29.1] 70.9 [20.8] 6.4	98.6 [28.9] 69.4 [20.3] 6.4	93.2 [27.3] 59.7 [17.5] 6.2	93.8 [27.5] 81.7 [23.9] 6.4	93 [27.3] 80.1 [23.5] 6.3
	80°F [26.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	102.5 [30] 59 [17.3] 6.7	101.7 [29.8] 57.8 [16.9] 6.7	96.1 [28.2] 49.7 [14.6] 6.5	96.9 [28.4] 69.9 [20.5] 6.7	96.1 [28.2] 68.5 [20.1] 6.6	90.9 [26.6] 58.8 [17.2] 6.5	91.3 [26.8] 80.7 [23.7] 6.6	90.6 [26.6] 79.1 [23.2] 6.6
	85°F [29.4°C]	Total BTUH [kW] Sens BTUH [kW] Power	100 [29.3] 58 [17] 7.0	99.2 [29.1] 56.8 [16.6] 7.0	93.8 [27.5] 48.8 [14.3] 6.8	94.4 [27.7] 68.9 [20.2] 7.0	93.7 [27.5] 67.5 [19.8] 6.9	88.6 [26] 58 [17] 6.7	88.8 [26] 79.8 [23.4] 6.9	88.1 [25.8] 78.1 [22.9] 6.9
	90°F [32.2°C]	Total BTUH [kW] Sens BTUH [kW] Power	97.6 [28.6] 57 [16.7] 7.3	96.8 [28.4] 55.9 [16.4] 7.3	91.5 [26.8] 48 [14.1] 7.1	92 [27] 67.9 [19.9] 7.3	91.3 [26.8] 66.5 [19.5] 7.2	86.2 [25.3] 57.2 [16.8] 7.1	86.4 [25.3] 78.8 [23.1] 7.2	85.7 [25.1] 77.2 [22.6] 7.2
	95°F [35.0°C]	Total BTUH [kW] Sens BTUH [kW] Power	95.1 [27.9] 56 [16.4] 7.6	94.4 [27.7] 54.9 [16.1] 7.6	89.2 [26.1] 47.2 [13.8] 7.4	89.5 [26.2] 66.9 [19.6] 7.6	88.8 [26] 65.6 [19.2] 7.6	83.9 [24.6] 56.3 [16.5] 7.4	83.9 [24.6] 77.8 [22.8] 7.6	83.3 [24.4] 76.2 [22.3] 7.5
	100°F [37.8°C]	Total BTUH [kW] Sens BTUH [kW] Power	92.7 [27.2] 55.1 [16.1] 8.0	91.9 [26.9] 54 [15.8] 8.0	86.9 [25.5] 46.4 [13.6] 7.8	87.1 [25.5] 65.9 [19.3] 8.0	86.4 [25.3] 64.5 [18.9] 7.9	81.6 [23.9] 55.5 [16.3] 7.7	81.5 [23.9] 76.8 [22.5] 7.9	80.8 [23.7] 75.3 [22.1] 7.9
	105°F [40.6°C]	Total BTUH [kW] Sens BTUH [kW] Power	90.2 [26.4] 54.1 [15.9] 8.4	89.5 [26.2] 53 [15.5] 8.4	84.6 [24.8] 45.5 [13.3] 8.1	84.6 [24.8] 65 [19.1] 8.3	83.9 [24.6] 63.6 [18.6] 8.3	79.3 [23.2] 54.7 [16] 8.1	79 [23.2] 75.8 [22.2] 8.3	78.4 [23] 74.3 [21.8] 8.3
	110°F [43.3°C]	Total BTUH [kW] Sens BTUH [kW] Power	87.8 [25.7] 53.1 [15.6] 8.8	87.1 [25.5] 52 [15.2] 8.8	82.3 [24.1] 44.7 [13.1] 8.5	82.2 [24.1] 64 [18.8] 8.7	81.5 [23.9] 62.7 [18.4] 8.7	77 [22.6] 53.9 [15.8] 8.5	76.6 [22.5] 74.8 [21.9] 8.7	75.9 [22.2] 73.3 [21.5] 8.7
	115°F [46.1°C]	Total BTUH [kW] Sens BTUH [kW] Power	85.3 [25] 52.1 [15.3] 9.2	84.6 [24.8] 51.1 [15] 9.2	80 [23.4] 43.9 [12.9] 8.9	79.7 [23.4] 63 [18.5] 9.2	79.1 [23.2] 61.7 [18.1] 9.1	74.7 [21.9] 53 [15.5] 8.9	74.1 [21.7] 73.9 [21.7] 9.1	73.5 [21.5] 72.4 [21.2] 9.1
	120°F [48.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	82.8 [24.3] 51.1 [15] 9.7	82.2 [24.1] 50.1 [14.7] 9.6	77.7 [22.8] 43.1 [12.6] 9.4	77.2 [22.6] 62 [18.2] 9.6	76.6 [22.5] 60.8 [17.8] 9.6	72.4 [21.2] 52.2 [15.3] 9.3	71.6 [21] 71.6 [21] 9.6	71.1 [20.8] 71.1 [20.8] 9.5
	125°F [51.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	80.4 [23.6] 50.1 [14.7] 10.1	79.7 [23.4] 49.1 [14.4] 10.1	75.4 [22.1] 42.2 [12.4] 9.8	74.8 [21.9] 61 [17.9] 10.1	74.2 [21.7] 59.8 [17.5] 10	70.1 [20.5] 51.4 [15.1] 9.8	69.2 [20.3] 69.2 [20.3] 10.0	68.6 [20.1] 68.6 [20.1] 10.0

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 (-)ACDYB 8.5 Ton

COOLING PERFORMANCE DATA - (-)ACDYB102										
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]		
CFM [L/s]		3900 [1841]	3300 [1557]	2600 [1227]	3900 [1841]	3300 [1557]	2600 [1227]	3900 [1841]	3300 [1557]	2600 [1227]
DR		.05	.09	.12	.05	.09	.12	.05	.09	.12
Outdoor Dry Bulb Temperature	75°F [23.9°C]	Total BTUH [kW] Sens BTUH [kW] Power 119.4 [35] 69.7 [20.4] 7.3	115.6 [33.9] 64.3 [18.8] 7.2	111.1 [32.6] 57.9 [17] 7.1	112.3 [32.9] 83 [24.3] 7.3	108.7 [31.9] 76.5 [22.4] 7.2	104.6 [30.7] 68.9 [20.2] 7.1	106 [31.1] 95.9 [28.1] 7.2	102.6 [30.1] 88.4 [25.9] 7.1	98.6 [28.9] 79.7 [23.4] 6.9
	80°F [26.7°C]	Total BTUH [kW] Sens BTUH [kW] Power 116.8 [34.2] 68.4 [20] 7.7	113 [33.1] 63 [18.5] 7.6	108.7 [31.9] 56.8 [16.6] 7.5	109.7 [32.2] 81.6 [23.9] 7.7	106.2 [31.1] 75.3 [22.1] 7.6	102.1 [29.9] 67.8 [19.9] 7.4	103.3 [30.3] 94.6 [27.7] 7.5	100 [29.3] 87.2 [25.6] 7.4	96.2 [28.2] 78.5 [23] 7.3
	85°F [29.4°C]	Total BTUH [kW] Sens BTUH [kW] Power 114 [33.4] 66.9 [19.6] 8.1	110.3 [32.3] 61.7 [18.1] 8.0	106.1 [31.1] 55.6 [16.3] 7.8	106.9 [31.3] 80.2 [23.5] 8.1	103.5 [30.3] 73.9 [21.7] 7.9	99.5 [29.2] 66.6 [19.5] 7.8	100.5 [29.5] 93.1 [27.3] 7.9	97.3 [28.5] 85.8 [25.1] 7.8	93.6 [27.4] 77.3 [22.7] 7.7
	90°F [32.2°C]	Total BTUH [kW] Sens BTUH [kW] Power 111 [32.5] 65.4 [19.2] 8.5	107.5 [31.5] 60.3 [17.7] 8.3	103.3 [30.3] 54.3 [15.9] 8.2	103.9 [30.5] 78.6 [23] 8.4	100.6 [29.5] 72.5 [21.2] 8.3	96.7 [28.3] 65.3 [19.1] 8.1	97.6 [28.6] 91.6 [26.8] 8.3	94.5 [27.7] 84.4 [24.7] 8.2	90.8 [26.6] 76.1 [22.3] 8
	95°F [35.0°C]	Total BTUH [kW] Sens BTUH [kW] Power 107.9 [31.6] 63.7 [18.7] 8.9	104.5 [30.6] 58.7 [17.2] 8.7	100.4 [29.4] 52.9 [15.5] 8.6	100.8 [29.5] 77 [22.6] 8.8	97.6 [28.6] 71 [20.8] 8.7	93.8 [27.5] 63.9 [18.7] 8.5	94.5 [27.7] 89.9 [26.3] 8.7	91.4 [26.8] 82.9 [24.3] 8.5	87.9 [25.8] 74.7 [21.9] 8.4
	100°F [37.8°C]	Total BTUH [kW] Sens BTUH [kW] Power 104.6 [30.7] 62 [18.2] 9.2	101.3 [29.7] 57.1 [16.7] 9.1	97.4 [28.5] 51.5 [15.1] 8.9	97.6 [28.6] 75.2 [22] 9.2	94.4 [27.7] 69.4 [20.3] 9.0	90.8 [26.6] 62.5 [18.3] 8.9	91.2 [26.7] 88.2 [25.8] 9.1	88.3 [25.9] 81.3 [23.8] 8.9	84.9 [24.9] 73.2 [21.5] 8.7
	105°F [40.6°C]	Total BTUH [kW] Sens BTUH [kW] Power 101.2 [29.7] 60.1 [17.6] 9.6	98 [28.7] 55.4 [16.2] 9.5	94.2 [27.6] 49.9 [14.6] 9.3	94.1 [27.6] 73.4 [21.5] 9.6	91.1 [26.7] 67.6 [19.8] 9.4	87.6 [25.7] 60.9 [17.8] 9.2	87.8 [25.7] 86.3 [25.3] 9.4	85 [24.9] 79.5 [23.3] 9.3	81.7 [23.9] 71.7 [21] 9.1
	110°F [43.3°C]	Total BTUH [kW] Sens BTUH [kW] Power 97.6 [28.6] 58.1 [17] 10.0	94.5 [27.7] 53.6 [15.7] 9.8	90.9 [26.6] 48.3 [14.2] 9.6	90.6 [26.6] 71.4 [20.9] 9.9	87.7 [25.7] 65.8 [19.3] 9.8	84.3 [24.7] 59.3 [17.4] 9.6	84.2 [24.7] 84.2 [24.7] 9.8	81.5 [23.9] 77.7 [22.8] 9.7	78.4 [23] 70 [20.5] 9.5
	115°F [46.1°C]	Total BTUH [kW] Sens BTUH [kW] Power 93.9 [27.5] 56.1 [16.4] 10.4	90.9 [26.6] 51.7 [15.2] 10.2	87.4 [25.6] 46.6 [13.7] 10.0	86.8 [25.4] 69.3 [20.3] 10.3	84.1 [24.6] 63.9 [18.7] 10.2	80.8 [23.7] 57.6 [16.9] 10.0	80.5 [23.6] 80.5 [23.6] 10.2	77.9 [22.8] 75.8 [22.2] 10	74.9 [22] 68.3 [20] 9.8
	120°F [48.9°C]	Total BTUH [kW] Sens BTUH [kW] Power 90 [26.4] 53.9 [15.8] 10.7	87.2 [25.6] 49.7 [14.6] 10.6	83.8 [24.6] 44.8 [13.1] 10.4	83 [24.3] 67.2 [19.7] 10.7	80.3 [23.5] 61.9 [18.1] 10.5	77.2 [22.6] 55.8 [16.4] 10.3	76.6 [22.5] 76.6 [22.5] 10.6	74.1 [21.7] 73.8 [21.6] 10.4	71.3 [20.9] 66.5 [19.5] 10.2
	125°F [51.7°C]	Total BTUH [kW] Sens BTUH [kW] Power 86 [25.2] 51.6 [15.1] 11.1	83.2 [24.4] 47.6 [14] 10.9	80 [23.4] 42.9 [12.6] 10.7	78.9 [23.1] 64.9 [19] 11.1	76.4 [22.4] 59.8 [17.5] 10.9	73.4 [21.5] 53.9 [15.8] 10.7	72.6 [21.3] 72.6 [21.3] 10.9	70.2 [20.6] 70.2 [20.6] 10.8	67.5 [19.8] 64.6 [18.9] 10.6

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)].

P. APPENDICES

Appendix D – Cooling Data for (-)ACDYB 10 Ton

COOLING PERFORMANCE DATA - (-)ACDYB120											
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]		
CFM [L/s]			4925 [2324]	4000 [1888]	3275 [1546]	4925 [2324]	4000 [1888]	3275 [1546]	4925 [2324]	4000 [1888]	3275 [1546]
DR			.05	.09	.12	.05	.09	.12	.05	.09	.12
Outdoor Dry Bulb Temperature	75°F [23.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	151 [44.3] 89.7 [26.3] 9.3	144.9 [42.5] 80.9 [23.7] 9.1	140.1 [41.1] 74.1 [21.7] 9	141.7 [41.5] 109.5 [32.1] 9.2	136 [39.9] 98.8 [29] 9.0	131.5 [38.5] 90.4 [26.5] 8.9	134 [39.3] 130.8 [38.3] 9.1	128.5 [37.7] 118.1 [34.6] 8.9	124.3 [36.4] 108.1 [31.7] 8.7
	80°F [26.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	147.9 [43.3] 88.4 [25.9] 9.7	141.9 [41.6] 79.8 [23.4] 9.5	137.3 [40.2] 73 [21.4] 9.3	138.6 [40.6] 108.2 [31.7] 9.6	133 [39] 97.6 [28.6] 9.4	128.6 [37.7] 89.4 [26.2] 9.2	130.9 [38.4] 129.5 [38] 9.5	125.6 [36.8] 116.9 [34.3] 9.3	121.4 [35.6] 107 [31.4] 9.1
	85°F [29.4°C]	Total BTUH [kW] Sens BTUH [kW] Power	144.6 [42.4] 86.9 [25.5] 10.1	138.8 [40.7] 78.5 [23] 9.9	134.2 [39.3] 71.8 [21] 9.7	135.3 [39.7] 106.7 [31.3] 10.0	129.8 [38] 96.3 [28.2] 9.8	125.6 [36.8] 88.2 [25.8] 9.6	127.6 [37.4] 127.6 [37.4] 9.8	122.4 [35.9] 115.6 [33.9] 9.6	118.4 [34.7] 105.8 [31] 9.5
	90°F [32.2°C]	Total BTUH [kW] Sens BTUH [kW] Power	141.1 [41.4] 85.4 [25] 10.4	135.4 [39.7] 77 [22.6] 10.2	130.9 [38.4] 70.5 [20.7] 10.1	131.8 [38.6] 105.1 [30.8] 10.4	126.5 [37.1] 94.9 [27.8] 10.1	122.3 [35.8] 86.9 [25.5] 10.0	124.1 [36.4] 124.1 [36.4] 10.2	119.1 [34.9] 114.2 [33.5] 10.0	115.1 [33.7] 104.5 [30.6] 9.8
	95°F [35.0°C]	Total BTUH [kW] Sens BTUH [kW] Power	137.4 [40.3] 83.6 [24.5] 10.8	131.8 [38.6] 75.5 [22.1] 10.6	127.5 [37.4] 69.1 [20.3] 10.4	128.1 [37.5] 103.4 [30.3] 10.7	122.9 [36] 93.3 [27.3] 10.5	118.8 [34.8] 85.4 [25] 10.3	120.3 [35.3] 120.3 [35.3] 10.6	115.5 [33.9] 112.6 [33] 10.4	111.7 [32.7] 103.1 [30.2] 10.2
	100°F [37.8°C]	Total BTUH [kW] Sens BTUH [kW] Power	133.4 [39.1] 81.7 [23.9] 11.2	128.1 [37.5] 73.8 [21.6] 11.0	123.8 [36.3] 67.5 [19.8] 10.8	124.1 [36.4] 101.5 [29.7] 11.1	119.1 [34.9] 91.6 [26.8] 10.9	115.2 [33.8] 83.9 [24.6] 10.7	116.4 [34.1] 116.4 [34.1] 11.0	111.7 [32.7] 110.9 [32.5] 10.8	108 [31.7] 101.5 [29.7] 10.6
	105°F [40.6°C]	Total BTUH [kW] Sens BTUH [kW] Power	129.3 [37.9] 79.7 [23.4] 11.6	124.1 [36.4] 72 [21.1] 11.3	120 [35.2] 65.9 [19.3] 11.2	120 [35.2] 99.5 [29.2] 11.5	115.1 [33.7] 89.8 [26.3] 11.3	111.3 [32.6] 82.2 [24.1] 11.1	112.3 [32.9] 112.3 [32.9] 11.3	107.7 [31.6] 107.7 [31.6] 11.1	104.2 [30.5] 99.8 [29.2] 10.9
	110°F [43.3°C]	Total BTUH [kW] Sens BTUH [kW] Power	124.9 [36.6] 77.6 [22.7] 12.0	119.9 [35.1] 70 [20.5] 11.7	115.9 [34] 64.1 [18.8] 11.5	115.6 [33.9] 97.3 [28.5] 11.9	111 [32.5] 87.9 [25.8] 11.6	107.3 [31.4] 80.4 [23.6] 11.4	107.9 [31.6] 107.9 [31.6] 11.7	103.5 [30.3] 103.5 [30.3] 11.5	100.1 [29.3] 98.1 [28.8] 11.3
	115°F [46.1°C]	Total BTUH [kW] Sens BTUH [kW] Power	120.4 [35.3] 75.2 [22] 12.3	115.5 [33.9] 67.9 [19.9] 12.1	111.7 [32.7] 62.2 [18.2] 11.9	111.1 [32.6] 95 [27.8] 12.2	106.6 [31.2] 85.8 [25.1] 12.0	103.1 [30.2] 78.5 [23] 11.8	103.3 [30.3] 103.3 [30.3] 12.1	99.2 [29.1] 99.2 [29.1] 11.9	95.9 [28.1] 95.9 [28.1] 11.7
	120°F [48.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	115.6 [33.9] 72.8 [21.3] 12.7	110.9 [32.5] 65.7 [19.3] 12.5	107.3 [31.4] 60.1 [17.6] 12.3	106.3 [31.2] 92.6 [27.1] 12.6	102 [29.9] 83.5 [24.5] 12.4	98.6 [28.9] 76.5 [22.4] 12.2	98.5 [28.9] 98.5 [28.9] 12.5	94.6 [27.7] 94.6 [27.7] 12.2	91.5 [26.8] 91.5 [26.8] 12.0
	125°F [51.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	110.6 [32.4] 70.2 [20.6] 13.1	106.1 [31.1] 63.3 [18.6] 12.8	102.6 [30.1] 58 [17] 12.6	101.3 [29.7] 90 [26.4] 13.0	97.2 [28.5] 81.2 [23.8] 12.7	94 [27.5] 74.3 [21.8] 12.5	93.5 [27.4] 93.5 [27.4] 12.9	89.8 [26.3] 89.8 [26.3] 12.6	86.8 [25.4] 86.8 [25.4] 12.4

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 (-)ACDYB 12.5 Ton

COOLING PERFORMANCE DATA - (-)ACDYB150										
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]		
CFM [L/s]		6000 [2832]	4025 [1900]	4000 [1888]	6000 [2832]	4025 [1900]	4000 [1888]	6000 [2832]	4025 [1900]	4000 [1888]
DR		.05	.09	.12	.05	.09	.12	.05	.09	.12
Outdoor Dry Bulb Temperature	75°F [23.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	193.6 [56.7] 116.5 [34.1] 7.5	177.8 [52.1] 94.8 [27.8] 7.2	177.6 [52.1] 94.5 [27.7] 7.2	181.3 [53.1] 136.8 [40.1] 7.8	166.5 [48.8] 111.3 [32.6] 7.5	166.3 [48.7] 111 [32.5] 7.5	170.3 [49.9] 155.5 [45.6] 7.3	156.3 [45.8] 126.6 [37.1] 7.0
	80°F [26.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	189.3 [55.5] 114.1 [33.4] 7.9	173.8 [50.9] 92.9 [27.2] 7.6	173.6 [50.9] 92.6 [27.1] 7.6	177 [51.9] 134.4 [39.4] 8.3	162.5 [47.6] 109.4 [32.1] 7.9	162.3 [47.6] 109 [31.9] 7.9	165.9 [48.6] 153.2 [44.9] 7.7	152.3 [44.6] 124.6 [36.5] 7.4
	85°F [29.4°C]	Total BTUH [kW] Sens BTUH [kW] Power	184.9 [54.2] 111.6 [32.7] 8.4	169.8 [49.8] 90.8 [26.6] 8.0	169.6 [49.7] 90.6 [26.6] 8.0	172.6 [50.6] 131.9 [38.7] 8.7	158.5 [46.5] 107.3 [31.4] 8.3	158.3 [46.4] 107 [31.4] 8.3	161.5 [47.3] 150.7 [44.2] 8.2	148.3 [43.5] 122.6 [35.9] 7.8
	90°F [32.2°C]	Total BTUH [kW] Sens BTUH [kW] Power	180.5 [52.9] 109.1 [32] 8.8	165.7 [48.6] 88.7 [26] 8.4	165.5 [48.5] 88.5 [25.9] 8.4	168.1 [49.3] 129.3 [37.9] 9.1	154.4 [45.3] 105.2 [30.8] 8.8	154.2 [45.2] 104.9 [30.7] 8.8	157.1 [46] 148.1 [43.4] 8.6	144.2 [42.3] 120.5 [35.3] 8.2
	95°F [35.0°C]	Total BTUH [kW] Sens BTUH [kW] Power	175.9 [51.6] 106.4 [31.2] 9.2	161.5 [47.3] 86.6 [25.4] 8.8	161.4 [47.3] 86.3 [25.3] 8.8	163.6 [47.9] 126.6 [37.1] 9.6	150.2 [44] 103 [30.2] 9.2	150 [44] 102.8 [30.1] 9.2	152.6 [44.7] 145.4 [42.6] 9.0	140.1 [41.1] 118.3 [34.7] 8.7
	100°F [37.8°C]	Total BTUH [kW] Sens BTUH [kW] Power	171.3 [50.2] 103.6 [30.4] 9.7	157.3 [46.1] 84.3 [24.7] 9.3	157.1 [46] 84 [24.6] 9.3	159 [46.6] 123.8 [36.3] 10.0	146 [42.8] 100.8 [29.5] 9.6	145.8 [42.7] 100.5 [29.5] 9.6	148 [43.4] 142.6 [41.8] 9.5	135.8 [39.8] 116 [34] 9.1
	105°F [40.6°C]	Total BTUH [kW] Sens BTUH [kW] Power	166.7 [48.9] 100.7 [29.5] 10.1	153 [44.8] 81.9 [24] 9.7	152.9 [44.8] 81.7 [23.9] 9.7	154.4 [45.3] 120.9 [35.4] 10.4	141.7 [41.5] 98.4 [28.8] 10.0	141.6 [41.5] 98.1 [28.8] 10.0	143.3 [42] 139.7 [40.9] 9.9	131.6 [38.6] 113.7 [33.3] 9.5
	110°F [43.3°C]	Total BTUH [kW] Sens BTUH [kW] Power	161.9 [47.5] 97.6 [28.6] 10.5	148.7 [43.6] 79.4 [23.3] 10.1	148.5 [43.5] 79.2 [23.2] 10.1	149.6 [43.8] 117.9 [34.6] 10.9	137.4 [40.3] 95.9 [28.1] 10.4	137.2 [40.2] 95.7 [28] 10.4	138.6 [40.6] 136.7 [40.1] 10.3	127.2 [37.3] 111.2 [32.6] 9.9
	115°F [46.1°C]	Total BTUH [kW] Sens BTUH [kW] Power	157.1 [46] 94.5 [27.7] 11	144.3 [42.3] 76.9 [22.5] 10.5	144.1 [42.2] 76.7 [22.5] 10.5	144.8 [42.4] 114.8 [33.6] 11.3	132.9 [39] 93.4 [27.4] 10.8	132.8 [38.9] 93.1 [27.3] 10.8	133.8 [39.2] 133.5 [39.1] 10.8	122.8 [36] 108.7 [31.9] 10.3
	120°F [48.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	152.3 [44.6] 91.2 [26.7] 11.4	139.8 [41] 74.2 [21.7] 10.9	139.6 [40.9] 74 [21.7] 10.9	139.9 [41] 111.5 [32.7] 11.7	128.5 [37.7] 90.7 [26.6] 11.3	128.3 [37.6] 90.5 [26.5] 11.2	128.9 [37.8] 128.9 [37.8] 11.2	118.3 [34.7] 106 [31.1] 10.7
	125°F [51.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	147.3 [43.2] 87.9 [25.8] 11.8	135.2 [39.6] 71.5 [21] 11.3	135.1 [39.6] 71.3 [20.9] 11.3	135 [39.6] 108.2 [31.7] 12.2	123.9 [36.3] 88 [25.8] 11.7	123.8 [36.3] 87.7 [25.7] 11.7	123.9 [36.3] 123.9 [36.3] 11.6	113.8 [33.4] 103.3 [30.3] 11.2

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 $[1.10 \times \text{CFM} \times (1 - \text{DR}) \times (\text{dbE} - 80)]$.

P. APPENDICES

Appendix D - Reheat Data for (-)ACDYB 7.5 Ton

GROSS SYSTEMS PERFORMANCE DATA (LOW REHEAT MODE) - (-)ACDYB090												
Entering Indoor Air @ 75°F [23.9°C] dbE												
wbE			65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]			
CFM [L/s]			2190 [1034]	1825 [861]	1460 [689]	2190 [1034]	1825 [861]	1460 [689]	2190 [1034]	1825 [861]	1460 [689]	
Outdoor Dry Bulb Temperature	60°F [15.6°C]	Total BTUH [kW]	28.8 [8.4]	27.8 [8.1]	26.8 [7.8]	25.4 [7.4]	24.5 [7.2]	23.6 [6.9]	24.6 [7.2]	23.8 [7]	22.9 [6.7]	
		Sens BTUH [kW]	3.2 [0.9]	2.9 [0.8]	2.6 [0.8]	3.8 [1.1]	3.5 [1]	3.1 [0.9]	7.3 [2.1]	6.7 [2]	6.1 [1.8]	
		Power	4.5	4.4	4.4	4.5	4.4	4.4	4.5	4.4	4.4	
	65°F [18.3°C]	Total BTUH [kW]	28.6 [8.4]	27.6 [8.1]	26.6 [7.8]	25.2 [7.4]	24.3 [7.1]	23.4 [6.9]	24.4 [7.2]	23.6 [6.9]	22.7 [6.7]	
		Sens BTUH [kW]	3.1 [0.9]	2.9 [0.8]	2.6 [0.8]	3.8 [1.1]	3.4 [1]	3.1 [0.9]	7.3 [2.1]	6.7 [2]	6.1 [1.8]	
		Power	4.5	4.4	4.4	4.5	4.5	4.4	4.5	4.4	4.4	
	70°F [21.1°C]	Total BTUH [kW]	28.3 [8.3]	27.3 [8]	26.3 [7.7]	24.8 [7.3]	24 [7]	23.1 [6.8]	24.1 [7.1]	23.3 [6.8]	22.4 [6.6]	
		Sens BTUH [kW]	3 [0.9]	2.7 [0.8]	2.5 [0.7]	3.6 [1.1]	3.3 [1]	3 [0.9]	7.1 [2.1]	6.5 [1.9]	5.9 [1.7]	
		Power	4.5	4.5	4.4	4.6	4.5	4.4	4.5	4.5	4.4	
Outdoor Dry Bulb Temperature	75°F [23.9°C]	Total BTUH [kW]	27.8 [8.2]	26.8 [7.9]	25.9 [7.6]	24.4 [7.1]	23.5 [6.9]	22.7 [6.6]	23.6 [6.9]	22.8 [6.7]	22 [6.4]	
		Sens BTUH [kW]	2.7 [0.8]	2.4 [0.7]	2.2 [0.6]	3.3 [1]	3 [0.9]	2.7 [0.8]	6.9 [2]	6.3 [1.8]	5.7 [1.7]	
		Power	4.6	4.5	4.4	4.6	4.5	4.4	4.6	4.5	4.4	
	80°F [26.7°C]	Total BTUH [kW]	27.2 [8]	26.3 [7.7]	25.3 [7.4]	23.8 [7]	23 [6.7]	22.1 [6.5]	23.1 [6.8]	22.3 [6.5]	21.4 [6.3]	
		Sens BTUH [kW]	2.3 [0.7]	2.1 [0.6]	1.9 [0.5]	2.9 [0.8]	2.6 [0.8]	2.4 [0.7]	6.4 [1.9]	5.9 [1.7]	5.3 [1.6]	
		Power	4.6	4.5	4.4	4.6	4.5	4.5	4.6	4.5	4.4	
	85°F [29.4°C]	Total BTUH [kW]	26.5 [7.8]	25.6 [7.5]	24.6 [7.2]	23.1 [6.8]	22.3 [6.5]	21.5 [6.3]	22.3 [6.5]	21.6 [6.3]	20.8 [6.1]	
		Sens BTUH [kW]	1.7 [0.5]	1.6 [0.5]	1.4 [0.4]	2.3 [0.7]	2.1 [0.6]	1.9 [0.6]	5.9 [1.7]	5.4 [1.6]	4.9 [1.4]	
		Power	4.6	4.6	4.5	4.7	4.6	4.5	4.6	4.6	4.5	
Outdoor Dry Bulb Temperature	90°F [32.2°C]	Total BTUH [kW]	25.7 [7.5]	24.8 [7.3]	23.9 [7]	22.2 [6.5]	21.5 [6.3]	20.7 [6.1]	21.5 [6.3]	20.7 [6.1]	20 [5.9]	
		Sens BTUH [kW]	1 [0.3]	0.9 [0.3]	0.8 [0.2]	1.6 [0.5]	1.5 [0.4]	1.4 [0.4]	5.2 [1.5]	4.8 [1.4]	4.3 [1.3]	
		Power	4.7	4.6	4.5	4.7	4.6	4.5	4.7	4.6	4.5	

GROSS SYSTEMS PERFORMANCE DATA (HIGH REHEAT MODE) - (-)ACDYB090												
Entering Indoor Air @ 75°F [23.9°C] dbE												
wbE			65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]			
CFM [L/s]			3600 [1699]	3150 [1487]	2400 [1133]	3600 [1699]	3150 [1487]	2400 [1133]	3600 [1699]	3150 [1487]	2400 [1133]	
Outdoor Dry Bulb Temperature	60°F [15.6°C]	Total BTUH [kW]	48.5 [14.2]	47.3 [13.9]	45.3 [13.3]	32 [9.4]	31.2 [9.1]	29.9 [8.8]	31.1 [9.1]	30.3 [8.9]	29 [8.5]	
		Sens BTUH [kW]	4.1 [1.2]	3.8 [1.1]	3.4 [1]	1.9 [0.5]	1.8 [0.5]	1.6 [0.5]	7.6 [2.2]	7.2 [2.1]	6.4 [1.9]	
		Power	7	6.9	6.7	6.9	6.8	6.7	7	6.9	6.7	
	70°F [21.1°C]	Total BTUH [kW]	50.8 [14.9]	49.6 [14.5]	47.4 [13.9]	34.3 [10.1]	33.5 [9.8]	32 [9.4]	33.4 [9.8]	32.5 [9.5]	31.1 [9.1]	
		Sens BTUH [kW]	6.9 [2]	6.5 [1.9]	5.7 [1.7]	4.6 [1.4]	4.4 [1.3]	3.9 [1.1]	10.4 [3.1]	9.8 [2.9]	8.7 [2.5]	
		Power	6.9	6.8	6.6	6.8	6.7	6.6	6.9	6.8	6.6	
	80°F [26.7°C]	Total BTUH [kW]	51.6 [15.1]	50.3 [14.7]	48.1 [14.1]	35.1 [10.3]	34.2 [10]	32.7 [9.6]	34.1 [10]	33.3 [9.8]	31.8 [9.3]	
		Sens BTUH [kW]	8 [2.4]	7.5 [2.2]	6.7 [2]	5.8 [1.7]	5.4 [1.6]	4.8 [1.4]	11.6 [3.4]	10.9 [3.2]	9.7 [2.8]	
		Power	6.9	6.8	6.7	6.8	6.8	6.6	6.9	6.8	6.7	
Outdoor Dry Bulb Temperature	90°F [32.2°C]	Total BTUH [kW]	50.8 [14.9]	49.6 [14.5]	47.4 [13.9]	34.3 [10.1]	33.5 [9.8]	32 [9.4]	33.4 [9.8]	32.5 [9.5]	31.1 [9.1]	
		Sens BTUH [kW]	7.6 [2.2]	7.1 [2.1]	6.3 [1.8]	5.3 [1.6]	5 [1.5]	4.4 [1.3]	11.1 [3.3]	10.4 [3.1]	9.3 [2.7]	
		Power	7	6.9	6.8	7	6.9	6.7	7	6.9	6.8	
	100°F [37.8°C]	Total BTUH [kW]	48.5 [14.2]	47.3 [13.9]	45.3 [13.3]	32 [9.4]	31.2 [9.1]	29.9 [8.7]	31.1 [9.1]	30.3 [8.9]	29 [8.5]	
		Sens BTUH [kW]	5.5 [1.6]	5.1 [1.5]	4.6 [1.3]	3.2 [0.9]	3 [0.9]	2.7 [0.8]	9 [2.6]	8.5 [2.5]	7.5 [2.2]	
		Power	7.2	7.1	7	7.2	7.1	6.9	7.2	7.1	7	
	110°F [43.3°C]	Total BTUH [kW]	44.7 [13.1]	43.6 [12.8]	41.7 [12.2]	28.2 [8.3]	27.5 [8]	26.3 [7.7]	27.2 [8]	26.5 [7.8]	25.4 [7.4]	
		Sens BTUH [kW]	1.8 [0.5]	1.6 [0.5]	1.5 [0.4]	-0.5 [-0.1]	-0.5 [-0.1]	-0.4 [-0.1]	5.3 [1.6]	5 [1.5]	4.4 [1.3]	
		Power	7.5	7.4	7.3	7.5	7.4	7.2	7.5	7.4	7.3	
Outdoor Dry Bulb Temperature	120°F [48.9°C]	Total BTUH [kW]	39.3 [11.5]	38.3 [11.2]	36.6 [10.7]	22.8 [6.7]	22.2 [6.5]	21.2 [6.2]	21.8 [6.4]	21.3 [6.2]	20.3 [6]	
		Sens BTUH [kW]	-3.6 [-1.1]	-3.4 [-1]	-3 [-0.9]	-5.8 [-1.7]	-5.5 [-1.6]	-4.9 [-1.4]	0 [0]	0 [0]	0 [0]	
		Power	7.9	7.8	7.7	7.9	7.8	7.6	7.9	7.8	7.7	

Appendix D - Reheat Data for (-)ACDYB 8.5 Ton

GROSS SYSTEMS PERFORMANCE DATA (LOW REHEAT MODE) - (-)ACDYB102											
Entering Indoor Air @ 75°F [23.9°C] dbE											
wbE		65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]			
CFM [L/s]		2420 [1142]	2015 [951]	1610 [760]	2420 [1142]	2015 [951]	1610 [760]	2420 [1142]	2015 [951]	1610 [760]	
Outdoor Dry Bulb Temperature	60°F [15.6°C]	Total BTUH [kW] Sens BTUH [kW] Power	38.5 [11.3] 5.2 [1.5] 5.3	37.1 [10.9] 4.7 [1.4] 5.2	35.8 [10.5] 4.3 [1.3] 5.1	32.6 [9.5] 5.1 [1.5] 5.1	31.4 [9.2] 4.6 [1.4] 5.1	30.3 [8.9] 4.2 [1.2] 5	28.3 [8.3] 6.9 [2] 5	27.3 [8] 6.3 [1.8] 4.9	26.3 [7.7] 5.7 [1.7] 4.8
	65°F [18.3°C]	Total BTUH [kW] Sens BTUH [kW] Power	37.9 [11.1] 4.2 [1.2] 5.4	36.5 [10.7] 3.8 [1.1] 5.3	35.2 [10.3] 3.5 [1] 5.2	31.9 [9.3] 4.1 [1.2] 5.2	30.8 [9] 3.7 [1.1] 5.1	29.7 [8.7] 3.4 [1] 5	27.6 [8.1] 5.9 [1.7] 5	26.7 [7.8] 5.4 [1.6] 5	25.7 [7.5] 4.9 [1.4] 4.9
	70°F [21.1°C]	Total BTUH [kW] Sens BTUH [kW] Power	37.2 [10.9] 3.4 [1] 5.5	35.8 [10.5] 3.1 [0.9] 5.4	34.5 [10.1] 2.8 [0.8] 5.3	31.2 [9.1] 3.3 [1] 5.3	30.1 [8.8] 3 [0.9] 5.2	29 [8.5] 2.7 [0.8] 5.1	26.9 [7.9] 5.1 [1.5] 5.1	26 [7.6] 4.7 [1.4] 5	25 [7.3] 4.2 [1.2] 4.9
	75°F [23.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	36.4 [10.7] 2.9 [0.8] 5.5	35.1 [10.3] 2.6 [0.8] 5.4	33.8 [9.9] 2.4 [0.7] 5.3	30.5 [8.9] 2.7 [0.8] 5.3	29.4 [8.6] 2.5 [0.7] 5.3	28.3 [8.3] 2.3 [0.7] 5.2	26.2 [7.7] 4.5 [1.3] 5.2	25.3 [7.4] 4.2 [1.2] 5.1	24.4 [7.1] 3.8 [1.1] 5
	80°F [26.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	35.6 [10.4] 2.5 [0.7] 5.5	34.4 [10.1] 2.3 [0.7] 5.4	33.1 [9.7] 2.1 [0.6] 5.4	29.7 [8.7] 2.4 [0.7] 5.4	28.6 [8.4] 2.2 [0.6] 5.3	27.6 [8.1] 2 [0.6] 5.2	25.4 [7.4] 4.2 [1.2] 5.2	24.5 [7.2] 3.8 [1.1] 5.1	23.6 [6.9] 3.5 [1] 5
	85°F [29.4°C]	Total BTUH [kW] Sens BTUH [kW] Power	34.8 [10.2] 2.3 [0.7] 5.6	33.5 [9.8] 2.1 [0.6] 5.5	32.3 [9.5] 1.9 [0.6] 5.4	28.8 [8.4] 2.2 [0.6] 5.4	27.8 [8.1] 2 [0.6] 5.3	26.8 [7.9] 1.8 [0.5] 5.2	24.6 [7.2] 4 [1.2] 5.2	23.7 [6.9] 3.7 [1.1] 5.1	22.8 [6.7] 3.3 [1] 5
	90°F [32.2°C]	Total BTUH [kW] Sens BTUH [kW] Power	33.9 [9.9] 2.3 [0.7] 5.6	32.7 [9.6] 2.1 [0.6] 5.5	31.5 [9.2] 1.9 [0.6] 5.4	27.9 [8.2] 2.2 [0.6] 5.4	27 [7.9] 2 [0.6] 5.3	26 [7.6] 1.8 [0.5] 5.2	23.7 [6.9] 4 [1.2] 5.2	22.8 [6.7] 3.7 [1.1] 5.1	22 [6.4] 3.3 [1] 5.1

GROSS SYSTEMS PERFORMANCE DATA (HIGH REHEAT MODE) - (-)ACDYB102											
Entering Indoor Air @ 75°F [23.9°C] dbE											
wbE		65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]			
CFM [L/s]		4080 [1926]	3375 [1593]	2720 [1284]	4080 [1926]	3375 [1593]	2720 [1284]	4080 [1926]	3375 [1593]	2720 [1284]	
Outdoor Dry Bulb Temperature	60°F [15.6°C]	Total BTUH [kW] Sens BTUH [kW] Power	69.8 [20.5] 17.7 [5.2] 7.1	67.3 [19.7] 16.1 [4.7] 6.9	64.9 [19] 14.7 [4.3] 6.8	50.2 [14.7] 14.6 [4.3] 7	48.3 [14.2] 13.3 [3.9] 6.9	46.6 [13.7] 12.1 [3.5] 6.8	50.1 [14.7] 22.7 [6.6] 7.1	48.2 [14.1] 20.6 [6] 6.9	46.5 [13.6] 18.8 [5.5] 6.8
	70°F [21.1°C]	Total BTUH [kW] Sens BTUH [kW] Power	64.5 [18.9] 12.5 [3.7] 7.1	62.1 [18.2] 11.4 [3.3] 7	60 [17.6] 10.3 [3] 6.9	44.9 [13.1] 9.4 [2.8] 7.1	43.2 [12.7] 8.6 [2.5] 6.9	41.7 [12.2] 7.8 [2.3] 6.8	44.8 [13.1] 17.4 [5.1] 7.1	43.1 [12.6] 15.9 [4.7] 7	41.6 [12.2] 14.5 [4.2] 6.9
	80°F [26.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	60.8 [17.8] 9 [2.6] 7.3	58.5 [17.2] 8.2 [2.4] 7.1	56.5 [16.5] 7.4 [2.2] 7	41.1 [12.1] 5.9 [1.7] 7.2	39.6 [11.6] 5.3 [1.6] 7.1	38.2 [11.2] 4.9 [1.4] 7	41 [12] 13.9 [4.1] 7.3	39.5 [11.6] 12.7 [3.7] 7.2	38.1 [11.2] 11.5 [3.4] 7
	90°F [32.2°C]	Total BTUH [kW] Sens BTUH [kW] Power	58.6 [17.2] 7.1 [2.1] 7.5	56.4 [16.5] 6.5 [1.9] 7.4	54.5 [16] 5.9 [1.7] 7.3	39 [11.4] 4 [1.2] 7.5	37.5 [11] 3.7 [1.1] 7.4	36.2 [10.6] 3.3 [1] 7.2	38.9 [11.4] 12.1 [3.5] 7.6	37.4 [11] 11 [3.2] 7.4	36.1 [10.6] 10 [2.9] 7.3
	100°F [37.8°C]	Total BTUH [kW] Sens BTUH [kW] Power	58 [17] 7 [2.1] 7.9	55.9 [16.4] 6.4 [1.9] 7.8	53.9 [15.8] 5.8 [1.7] 7.6	38.4 [11.2] 3.9 [1.1] 7.9	37 [10.8] 3.6 [1] 7.7	35.7 [10.4] 3.2 [0.9] 7.6	38.3 [11.2] 12 [3.5] 7.9	36.9 [10.8] 10.9 [3.2] 7.8	35.6 [10.4] 9.9 [2.9] 7.6
	110°F [43.3°C]	Total BTUH [kW] Sens BTUH [kW] Power	59 [17.3] 8.6 [2.5] 8.4	56.8 [16.6] 7.8 [2.3] 8.2	54.8 [16.1] 7.1 [2.1] 8.1	39.3 [11.5] 5.5 [1.6] 8.3	37.9 [11.1] 5 [1.5] 8.2	36.6 [10.7] 4.5 [1.3] 8	39.2 [11.5] 13.5 [4] 8.4	37.8 [11.1] 12.3 [3.6] 8.2	36.5 [10.7] 11.2 [3.3] 8.1
	120°F [48.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	61.5 [18] 11.8 [3.5] 8.9	59.2 [17.4] 10.8 [3.2] 8.8	57.2 [16.7] 9.8 [2.9] 8.6	41.9 [12.3] 8.7 [2.6] 8.9	40.3 [11.8] 7.9 [2.3] 8.7	38.9 [11.4] 7.2 [2.1] 8.6	41.8 [12.2] 16.8 [4.9] 8.9	40.2 [11.8] 15.3 [4.5] 8.8	38.8 [11.4] 13.9 [4.1] 8.6

P. APPENDICES

Appendix D - Reheat Data for (-)ACDYB 10 Ton

GROSS SYSTEMS PERFORMANCE DATA (LOW REHEAT MODE) - (-)ACDYB120											
Entering Indoor Air @ 75°F [23.9°C] dbE											
wbE			65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]		
CFM [L/s]			2880 [1359]	2400 [1133]	1920 [906]	2880 [1359]	2400 [1133]	1920 [906]	2880 [1359]	2400 [1133]	1920 [906]
Outdoor Dry Bulb Temperature	60°F [15.6°C]	Total BTUH [kW] Sens BTUH [kW] Power	39.3 [11.5] 3.9 [1.1] 4.8	37.9 [11.1] 3.6 [1] 4.7	36.6 [10.7] 3.2 [0.9] 4.7	34 [10] 3.7 [1.1] 4.8	32.8 [9.6] 3.4 [1] 4.8	31.6 [9.3] 3 [0.9] 4.7	29.6 [8.7] 4.9 [1.4] 4.9	28.5 [8.4] 4.5 [1.3] 4.8	27.5 [8.1] 4.1 [1.2] 4.8
	65°F [18.3°C]	Total BTUH [kW] Sens BTUH [kW] Power	38.2 [11.2] 2.5 [0.7] 4.9	36.9 [10.8] 2.3 [0.7] 4.8	35.5 [10.4] 2.1 [0.6] 4.7	32.9 [9.6] 2.3 [0.7] 4.9	31.8 [9.3] 2.1 [0.6] 4.8	30.6 [9] 1.9 [0.6] 4.7	28.4 [8.3] 3.5 [1] 5	27.4 [8] 3.2 [0.9] 4.9	26.4 [7.7] 2.9 [0.8] 4.8
	70°F [21.1°C]	Total BTUH [kW] Sens BTUH [kW] Power	37.5 [11] 1.7 [0.5] 4.9	36.2 [10.6] 1.6 [0.5] 4.8	34.8 [10.2] 1.4 [0.4] 4.8	32.2 [9.4] 1.5 [0.4] 4.9	31.1 [9.1] 1.3 [0.4] 4.9	29.9 [8.8] 1.2 [0.4] 4.8	27.7 [8.1] 2.7 [0.8] 5	26.7 [7.8] 2.5 [0.7] 4.9	25.8 [7.6] 2.2 [0.7] 4.9
	75°F [23.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	37.2 [10.9] 1.5 [0.4] 5	35.8 [10.5] 1.4 [0.4] 4.9	34.5 [10.1] 1.3 [0.4] 4.8	31.9 [9.3] 1.3 [0.4] 5	30.8 [9] 1.2 [0.3] 4.9	29.6 [8.7] 1.1 [0.3] 4.9	27.4 [8] 2.5 [0.7] 5.1	26.4 [7.7] 2.3 [0.7] 5	25.5 [7.5] 2.1 [0.6] 4.9
	80°F [26.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	37.2 [10.9] 2 [0.6] 5.1	35.9 [10.5] 1.8 [0.5] 5	34.6 [10.1] 1.6 [0.5] 4.9	31.9 [9.4] 1.8 [0.5] 5.1	30.8 [9] 1.6 [0.5] 5	29.7 [8.7] 1.5 [0.4] 4.9	27.5 [8] 3 [0.9] 5.2	26.5 [7.8] 2.7 [0.8] 5.1	25.5 [7.5] 2.5 [0.7] 5
	85°F [29.4°C]	Total BTUH [kW] Sens BTUH [kW] Power	37.7 [11] 3 [0.9] 5.2	36.4 [10.7] 2.8 [0.8] 5.1	35 [10.3] 2.5 [0.7] 5	32.4 [9.5] 2.8 [0.8] 5.2	31.3 [9.2] 2.6 [0.8] 5.2	30.1 [8.8] 2.3 [0.7] 5.1	27.9 [8.2] 4 [1.2] 5.3	26.9 [7.9] 3.7 [1.1] 5.2	26 [7.6] 3.4 [1] 5.1
	90°F [32.2°C]	Total BTUH [kW] Sens BTUH [kW] Power	38.6 [11.3] 4.7 [1.4] 5.4	37.2 [10.9] 4.3 [1.3] 5.3	35.8 [10.5] 3.9 [1.2] 5.2	33.3 [9.7] 4.5 [1.3] 5.4	32.1 [9.4] 4.1 [1.2] 5.3	30.9 [9.1] 3.7 [1.1] 5.2	28.8 [8.4] 5.7 [1.7] 5.5	27.8 [8.1] 5.2 [1.5] 5.4	26.8 [7.8] 4.8 [1.4] 5.3

GROSS SYSTEMS PERFORMANCE DATA (HIGH REHEAT MODE) - (-)ACDYB120											
Entering Indoor Air @ 75°F [23.9°C] dbE											
wbE			65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]		
CFM [L/s]			4800 [2265]	3940 [1859]	3200 [1510]	4800 [2265]	3940 [1859]	3200 [1510]	4800 [2265]	3940 [1859]	3200 [1510]
Outdoor Dry Bulb Temperature	60°F [15.6°C]	Total BTUH [kW] Sens BTUH [kW] Power	91.7 [26.9] 21.7 [6.4] 7.7	88.2 [25.8] 19.7 [5.8] 7.6	85.2 [25] 18 [5.3] 7.5	63.4 [18.6] 15.5 [4.5] 7.6	61 [17.9] 14 [4.1] 7.5	58.9 [17.3] 12.8 [3.8] 7.3	72.9 [21.4] 26.5 [7.8] 7.7	70.1 [20.5] 24 [7] 7.6	67.7 [19.8] 21.9 [6.4] 7.4
	70°F [21.1°C]	Total BTUH [kW] Sens BTUH [kW] Power	77.4 [22.7] 15.2 [4.5] 7.7	74.4 [21.8] 13.8 [4] 7.6	71.9 [21.1] 12.6 [3.7] 7.5	49.1 [14.4] 8.9 [2.6] 7.6	47.2 [13.8] 8.1 [2.4] 7.4	45.6 [13.4] 7.4 [2.2] 7.3	58.6 [17.2] 19.9 [5.8] 7.7	56.3 [16.5] 18.1 [5.3] 7.5	54.4 [15.9] 16.5 [4.8] 7.4
	80°F [26.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	68 [19.9] 11.2 [3.3] 7.9	65.4 [19.2] 10.2 [3] 7.8	63.1 [18.5] 9.3 [2.7] 7.6	39.6 [11.6] 5 [1.5] 7.8	38.1 [11.2] 4.5 [1.3] 7.6	36.8 [10.8] 4.1 [1.2] 7.5	49.1 [14.4] 16 [4.7] 7.9	47.3 [13.9] 14.5 [4.2] 7.7	45.7 [13.4] 13.2 [3.9] 7.6
	90°F [32.2°C]	Total BTUH [kW] Sens BTUH [kW] Power	63.4 [18.6] 9.8 [2.9] 8.3	61 [17.9] 8.9 [2.6] 8.1	58.9 [17.3] 8.1 [2.4] 8	35.1 [10.3] 3.6 [1] 8.1	33.7 [9.9] 3.2 [0.9] 8	32.6 [9.5] 2.9 [0.9] 7.9	44.6 [13.1] 14.5 [4.3] 8.2	42.9 [12.6] 13.2 [3.9] 8.1	41.4 [12.1] 12 [3.5] 8
	100°F [43.3°C]	Total BTUH [kW] Sens BTUH [kW] Power	63.7 [18.7] 11 [3.2] 8.9	61.3 [17.9] 9.9 [2.9] 8.7	59.2 [17.3] 9.1 [2.7] 8.6	35.4 [10.4] 4.7 [1.4] 8.7	34 [10] 4.3 [1.2] 8.6	32.8 [9.6] 3.9 [1.1] 8.4	44.9 [13.1] 15.7 [4.6] 8.8	43.1 [12.6] 14.2 [4.2] 8.7	41.7 [12.2] 13 [3.8] 8.5
	110°F [43.3°C]	Total BTUH [kW] Sens BTUH [kW] Power	68.8 [20.2] 14.7 [4.3] 9.6	66.2 [19.4] 13.3 [3.9] 9.5	63.9 [18.7] 12.1 [3.6] 9.3	40.5 [11.9] 8.4 [2.5] 9.5	39 [11.4] 7.6 [2.2] 9.3	37.6 [11] 7 [2] 9.2	50 [14.7] 19.4 [5.7] 9.6	48.1 [14.1] 17.6 [5.2] 9.4	46.4 [13.6] 16.1 [4.7] 9.3
	120°F [48.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	78.8 [23.1] 20.9 [6.1] 10.6	75.8 [22.2] 19 [5.6] 10.4	73.2 [21.5] 17.3 [5.1] 10.2	50.5 [14.8] 14.7 [4.3] 10.5	48.6 [14.2] 13.3 [3.9] 10.3	46.9 [13.7] 12.1 [3.6] 10.1	60 [17.6] 25.6 [7.5] 10.6	57.7 [16.9] 23.3 [6.8] 10.4	55.7 [16.3] 21.2 [6.2] 10.2

Appendix D - Reheat Data for (-)ACDYB 12.5 Ton

GROSS SYSTEMS PERFORMANCE DATA (LOW REHEAT MODE) - (-)ACDYB150											
Entering Indoor Air @ 75°F [23.9°C] dbE											
wbE		65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]			
CFM [L/s]		3020 [1425]	2515 [1187]	2010 [949]	3020 [1425]	2515 [1187]	2010 [949]	3020 [1425]	2515 [1187]	2010 [949]	
Outdoor Dry Bulb Temperature	60°F [15.6°C]	Total BTUH [kW] Sens BTUH [kW] Power	43.9 [12.9] 16 [4.7] 4.6	42.4 [12.4] 14.7 [4.3] 4.5	40.8 [12] 13.3 [3.9] 4.4	42.2 [12.4] 20.3 [5.9] 4.5	40.8 [11.9] 18.5 [5.4] 4.4	39.3 [11.5] 16.8 [4.9] 4.4	33.9 [9.9] 13.2 [3.9] 4.5	32.7 [9.6] 12 [3.5] 4.4	31.5 [9.2] 10.9 [3.2] 4.4
	65°F [18.3°C]	Total BTUH [kW] Sens BTUH [kW] Power	38.7 [11.3] 6 [1.8] 4.4	37.3 [10.9] 5.5 [1.6] 4.3	35.9 [10.5] 5 [1.5] 4.3	37 [10.8] 10.3 [3] 4.4	35.7 [10.5] 9.4 [2.8] 4.3	34.4 [10.1] 8.5 [2.5] 4.2	28.7 [8.4] 3.2 [0.9] 4.4	27.7 [8.1] 2.9 [0.8] 4.3	26.6 [7.8] 2.6 [0.8] 4.2
	70°F [21.1°C]	Total BTUH [kW] Sens BTUH [kW] Power	34.8 [10.2] -1.1 [-0.3] 4.4	33.6 [9.8] -1 [-0.3] 4.3	32.4 [9.5] -0.9 [-0.3] 4.2	33.1 [9.7] 3.2 [0.9] 4.3	32 [9.4] 2.9 [0.8] 4.2	30.8 [9] 2.6 [0.8] 4.1	24.8 [7.3] -3.9 [-1.2] 4.3	24 [7] -3.6 [-1.1] 4.2	23.1 [6.8] -3.3 [-1] 4.2
	75°F [23.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	32.4 [9.5] -5.3 [-1.5] 4.4	31.3 [9.2] -4.8 [-1.4] 4.3	30.2 [8.8] -4.4 [-1.3] 4.2	30.8 [9] -1 [-0.3] 4.3	29.7 [8.7] -1 [-0.3] 4.2	28.6 [8.4] -0.9 [-0.3] 4.2	22.4 [6.6] -8.2 [-2.4] 4.3	21.6 [6.3] -7.5 [-2.2] 4.3	20.9 [6.1] -6.8 [-2] 4.2
	80°F [26.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	31.5 [9.2] -6.6 [-1.9] 4.5	30.4 [8.9] -6 [-1.8] 4.4	29.3 [8.6] -5.5 [-1.6] 4.3	29.8 [8.7] -2.4 [-0.7] 4.4	28.8 [8.4] -2.2 [-0.6] 4.3	27.7 [8.1] -2 [-0.6] 4.3	21.5 [6.3] -9.5 [-2.8] 4.4	20.7 [6.1] -8.7 [-2.5] 4.3	20 [5.9] -7.9 [-2.3] 4.3
	85°F [29.4°C]	Total BTUH [kW] Sens BTUH [kW] Power	32 [9.4] -5 [-1.5] 4.7	30.9 [9] -4.6 [-1.3] 4.6	29.7 [8.7] -4.2 [-1.2] 4.5	30.3 [8.9] -0.8 [-0.2] 4.6	29.2 [8.6] -0.7 [-0.2] 4.5	28.2 [8.3] -0.7 [-0.2] 4.4	22 [6.4] -7.9 [-2.3] 4.6	21.2 [6.2] -7.2 [-2.1] 4.5	20.4 [6] -6.5 [-1.9] 4.4
	90°F [32.2°C]	Total BTUH [kW] Sens BTUH [kW] Power	33.9 [9.9] -0.6 [-0.2] 4.9	32.7 [9.6] -0.5 [-0.2] 4.8	31.5 [9.2] -0.5 [-0.1] 4.7	32.2 [9.4] 3.7 [1.1] 4.9	31.1 [9.1] 3.4 [1] 4.8	29.9 [8.8] 3 [0.9] 4.7	23.9 [7] -3.4 [-1] 4.9	23.1 [6.8] -3.1 [-0.9] 4.8	22.2 [6.5] -2.9 [-0.8] 4.7

GROSS SYSTEMS PERFORMANCE DATA (HIGH REHEAT MODE) - (-)ACDYB150											
Entering Indoor Air @ 75°F [23.9°C] dbE											
wbE		65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]			
CFM [L/s]		6000 [2832]	4300 [2029]	4000 [1888]	6000 [2832]	4300 [2029]	4000 [1888]	6000 [2832]	4300 [2029]	4000 [1888]	
Outdoor Dry Bulb Temperature	60°F [15.6°C]	Total BTUH [kW] Sens BTUH [kW] Power	86.7 [25.4] 22.2 [6.5] 9.4	80.9 [23.7] 18.8 [5.5] 9.1	79.9 [23.4] 18.2 [5.3] 9.1	85 [24.9] 30.1 [8.8] 9.2	79.3 [23.2] 25.4 [7.4] 8.9	78.3 [22.9] 24.6 [7.2] 8.8	76.8 [22.5] 39.8 [11.7] 9.3	71.7 [21] 33.6 [9.9] 9	70.8 [20.7] 32.5 [9.5] 9
	70°F [21.1°C]	Total BTUH [kW] Sens BTUH [kW] Power	82 [24] 11.2 [3.3] 9.7	76.5 [22.4] 9.4 [2.8] 9.4	75.6 [22.1] 9.1 [2.7] 9.4	80.3 [23.5] 19 [5.6] 9.5	75 [22] 16.1 [4.7] 9.2	74 [21.7] 15.6 [4.6] 9.1	72.2 [21.1] 28.8 [8.4] 9.7	67.3 [19.7] 24.3 [7.1] 9.3	66.5 [19.5] 23.5 [6.9] 9.3
	80°F [26.7°C]	Total BTUH [kW] Sens BTUH [kW] Power	77.2 [22.6] 2.1 [0.6] 10.3	72.1 [21.1] 1.7 [0.5] 9.9	71.1 [20.8] 1.7 [0.5] 9.8	75.5 [22.1] 9.9 [2.9] 10	70.5 [20.7] 8.4 [2.5] 9.7	69.6 [20.4] 8.1 [2.4] 9.6	67.4 [19.7] 19.7 [5.8] 10.2	62.8 [18.4] 16.6 [4.9] 9.8	62.1 [18.2] 16.1 [4.7] 9.8
	90°F [32.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	72.3 [21.2] -5.1 [-1.5] 11	67.4 [19.8] -4.3 [-1.3] 10.6	66.6 [19.5] -4.2 [-1.2] 10.5	70.6 [20.7] 2.8 [0.8] 10.7	65.9 [19.3] 2.4 [0.7] 10.4	65 [19.1] 2.3 [0.7] 10.3	62.4 [18.3] 12.5 [3.7] 10.9	58.2 [17.1] 10.6 [3.1] 10.6	57.5 [16.8] 10.2 [3] 10.4
	100°F [37.8°C]	Total BTUH [kW] Sens BTUH [kW] Power	67.2 [19.7] -10.3 [-3] 11.9	62.7 [18.4] -8.7 [-2.5] 11.5	61.9 [18.1] -8.4 [-2.5] 11.4	65.5 [19.2] -2.4 [-0.7] 11.7	61.1 [17.9] -2 [-0.6] 11.3	60.3 [17.7] -1.9 [-0.6] 11.2	57.3 [16.8] 7.3 [2.2] 11.8	53.5 [15.7] 6.2 [1.8] 11.4	52.8 [15.5] 6 [1.8] 11.3
	110°F [43.3°C]	Total BTUH [kW] Sens BTUH [kW] Power	62 [18.2] -13.5 [-4] 13	57.8 [16.9] -11.4 [-3.3] 12.6	57.1 [16.7] -11 [-3.2] 12.5	60.3 [17.7] -5.6 [-1.6] 12.8	56.2 [16.5] -4.7 [-1.4] 12.3	55.5 [16.3] -4.6 [-1.3] 12.3	52.1 [15.3] 4.1 [1.2] 12.9	48.6 [14.2] 3.5 [1] 12.5	48 [14.1] 3.4 [1] 12.4
	120°F [48.9°C]	Total BTUH [kW] Sens BTUH [kW] Power	56.6 [16.6] -14.7 [-4.3] 14.3	52.8 [15.5] -12.4 [-3.6] 13.8	52.1 [15.3] -12 [-3.5] 13.8	54.9 [16.1] -6.9 [-2] 14.1	51.2 [15] -5.8 [-1.7] 13.6	50.6 [14.8] -5.6 [-1.6] 13.5	46.7 [13.7] 2.9 [0.8] 14.2	43.6 [12.8] 2.4 [0.7] 13.8	43 [12.6] 2.3 [0.7] 13.7

P. APPENDICES

Appendix E – Heater Kit Characteristics

208/230V, THREE PHASE, 60 Hz, AUXILIARY ELECTRIC HEATER KIT CHARACTERISTICS AND APPLICATION													
Single Power Supply for Both Unit and Heater Kit				Separate Power Supply for Both Unit and Heater Kit									
UNIT MODEL NUMBER (-)ADYB	Heater Kit			Air Conditioner				Heater Kit					
	MODEL NO. RXJ-	Rated Heater KW @ 208/230	FLA	UNIT MIN. CKT. AMPACITY	UNIT MIN. CKT. AMPACITY WITH OPTIONAL POWERED EXHAUST	MAX FUSE OR CKT. BKR. SIZE	MAX FUSE OR CKT. BKR. SIZE WITH OPTIONAL POWERED EXHAUST	HEATER KIT MIN. CKT. AMPACITY	HEATER KIT MAX FUSE OR CKT. BKR. SIZE	AIR COND. MIN. CKT. AMPACITY	AIR COND. MAX. FUSE OR CKT. BKR. SIZE	AIR COND. MAX. FUSE OR CKT. BKR. SIZE WITH OPTIONAL POWERED EXHAUST	
090ACF	NONE	-/-	-/-	41/41	46/46	60/60	70/70	-	-	41/41	60/60	70/70	
	DD10CP	7.4/9.9	20.6/23.8	41/41	46/46	60/60	70/70	26/30	30/30	41/41	60/60	70/70	
	DD15CP	10.8/14.4	30.0/34.6	46/51	52/58	60/60	70/70	38/44	40/45	41/41	60/60	70/70	
	DD20CP	14.8/19.8	41.2/47.6	60/68	66/74	60/70	70/80	52/60	60/60	41/41	60/60	70/70	
	DD30CP	21.6/28.8	60.0/69.3	83/95	90/102	90/100	90/110	75/87	80/90	41/41	60/60	70/70	
090ACG	DD40CP	29.7/39.6	82.4/95.2	111/127	118/134	125/150	125/150	103/119	110/125	41/41	60/60	70/70	
	NONE	-/-	-/-	44/44	49/49	60/60	70/70	-	-	44/44	60/60	70/70	
	DD10CP	7.4/9.9	20.6/23.8	44/44	49/49	60/60	70/70	26/30	30/30	44/44	60/60	70/70	
	DD15CP	10.8/14.4	30.0/34.6	49/55	56/62	60/60	70/70	38/44	40/45	44/44	60/60	70/70	
	DD20CP	14.8/19.8	41.2/47.6	63/71	70/78	70/80	70/80	52/60	60/60	44/44	60/60	70/70	
090ACH	DD30CP	21.6/28.8	60.0/69.3	87/99	94/105	90/100	100/110	75/87	80/90	44/44	60/60	70/70	
	DD40CP	29.7/39.6	82.4/95.2	115/131	122/138	125/150	125/150	103/119	110/125	44/44	60/60	70/70	
	NONE	-/-	-/-	44/44	49/49	60/60	70/70	-	-	44/44	60/60	70/70	
	DD10CP	7.4/9.9	20.6/23.8	44/44	49/49	60/60	70/70	26/30	30/30	44/44	60/60	70/70	
	DD15CP	10.8/14.4	30.0/34.6	49/55	56/62	60/60	70/70	38/44	40/45	44/44	60/60	70/70	
102ACF	DD20CP	14.8/19.8	41.2/47.6	63/71	70/78	70/80	70/80	52/60	60/60	44/44	60/60	70/70	
	DD30CP	21.6/28.8	60.0/69.3	87/99	94/105	90/100	100/110	75/87	80/90	44/44	60/60	70/70	
	DD40CP	29.7/39.6	82.4/95.2	115/131	122/138	125/150	125/150	103/119	110/125	44/44	60/60	70/70	
	NONE	-/-	-/-	43/43	48/48	60/60	70/70	-	-	43/43	60/60	70/70	
	DD10CP	7.4/9.9	20.6/23.8	43/43	48/48	60/60	70/70	26/30	30/30	43/43	60/60	70/70	
102ACG	DD15CP	10.8/14.4	30.0/34.6	46/51	52/58	60/60	70/70	38/44	40/45	43/43	60/60	70/70	
	DD20CP	14.8/19.8	41.2/47.6	60/68	66/74	60/70	70/80	52/60	60/60	43/43	60/60	70/70	
	DD30CP	21.6/28.8	60.0/69.3	83/95	90/102	90/100	90/110	75/87	80/90	43/43	60/60	70/70	
	DD40CP	29.7/39.6	82.4/95.2	111/127	118/134	125/150	125/150	103/119	110/125	43/43	60/60	70/70	
	NONE	-/-	-/-	46/46	51/51	70/70	70/70	-	-	46/46	70/70	70/70	
102ACH	DD10CP	7.4/9.9	20.6/23.8	46/46	51/51	70/70	70/70	26/30	30/30	46/46	70/70	70/70	
	DD15CP	10.8/14.4	30.0/34.6	49/55	56/62	70/70	70/70	38/44	40/45	46/46	70/70	70/70	
	DD20CP	14.8/19.8	41.2/47.6	63/71	70/78	70/80	70/80	52/60	60/60	46/46	70/70	70/70	
	DD30CP	21.6/28.8	60.0/69.3	87/99	94/105	90/100	100/110	75/87	80/90	46/46	70/70	70/70	
	DD40CP	29.7/39.6	82.4/95.2	115/131	122/138	125/150	125/150	103/119	110/125	46/46	70/70	70/70	
102ACH	NONE	-/-	-/-	46/46	51/51	70/70	70/70	-	-	46/46	70/70	70/70	
	DD10CP	7.4/9.9	20.6/23.8	46/46	51/51	70/70	70/70	26/30	30/30	46/46	70/70	70/70	
	DD15CP	10.8/14.4	30.0/34.6	49/55	56/62	70/70	70/70	38/44	40/45	46/46	70/70	70/70	
	DD20CP	14.8/19.8	41.2/47.6	63/71	70/78	70/80	70/80	52/60	60/60	46/46	70/70	70/70	
	DD30CP	21.6/28.8	60.0/69.3	87/99	94/105	90/100	100/110	75/87	80/90	46/46	70/70	70/70	
102ACH	DD40CP	29.7/39.6	82.4/95.2	115/131	122/138	125/150	125/150	103/119	110/125	46/46	70/70	70/70	
	NONE	-/-	-/-	46/46	51/51	70/70	70/70	-	-	46/46	70/70	70/70	
	DD10CP	7.4/9.9	20.6/23.8	46/46	51/51	70/70	70/70	26/30	30/30	46/46	70/70	70/70	
	DD15CP	10.8/14.4	30.0/34.6	49/55	56/62	70/70	70/70	38/44	40/45	46/46	70/70	70/70	
	DD20CP	14.8/19.8	41.2/47.6	63/71	70/78	70/80	70/80	52/60	60/60	46/46	70/70	70/70	
102ACH	DD30CP	21.6/28.8	60.0/69.3	87/99	94/105	90/100	100/110	75/87	80/90	46/46	70/70	70/70	
	DD40CP	29.7/39.6	82.4/95.2	115/131	122/138	125/150	125/150	103/119	110/125	46/46	70/70	70/70	
	NONE	-/-	-/-	46/46	51/51	70/70	70/70	-	-	46/46	70/70	70/70	
	DD10CP	7.4/9.9	20.6/23.8	46/46	51/51	70/70	70/70	26/30	30/30	46/46	70/70	70/70	
	DD15CP	10.8/14.4	30.0/34.6	49/55	56/62	70/70	70/70	38/44	40/45	46/46	70/70	70/70	
102ACH	DD20CP	14.8/19.8	41.2/47.6	63/71	70/78	70/80	70/80	52/60	60/60	46/46	70/70	70/70	
	DD30CP	21.6/28.8	60.0/69.3	87/99	94/105	90/100	100/110	75/87	80/90	46/46	70/70	70/70	
	DD40CP	29.7/39.6	82.4/95.2	115/131	122/138	125/150	125/150	103/119	110/125	46/46	70/70	70/70	
	NONE	-/-	-/-	46/46	51/51	70/70	70/70	-	-	46/46	70/70	70/70	
	DD10CP	7.4/9.9	20.6/23.8	46/46	51/51	70/70	70/70	26/30	30/30	46/46	70/70	70/70	

Appendix E – Heater Kit Characteristics (Cont.)

208/230V, THREE PHASE, 60 Hz, AUXILIARY ELECTRIC HEATER KIT CHARACTERISTICS AND APPLICATION													
Single Power Supply for Both Unit and Heater Kit							Separate Power Supply for Both Unit and Heater Kit						
UNIT MODEL NUMBER (-)ACDYB	Heater Kit			Air Conditioner			Heater Kit		Air Conditioner				
	MODEL NO. RXLJ-	Rated Heater KW @ 208/230	FLA	UNIT MIN. CKT. AMPACITY	UNIT MIN. CKT. AMPACITY WITH OPTIONAL POWERED EXHAUST	MAX FUSE OR CKT. BKR. SIZE	MAX FUSE OR CKT. BKR. SIZE WITH OPTIONAL POWERED EXHAUST	HEATER KIT MIN. CKT. AMPACITY	HEATER KIT MAX FUSE OR CKT. BKR. SIZE	AIR COND. MIN. CKT. AMPACITY WITH OPTIONAL POWERED EXHAUST	AIR COND. MAX. FUSE OR CKT. BKR. SIZE	AIR COND. MAX. FUSE OR CKT. BKR. SIZE WITH OPTIONAL POWERED EXHAUST	
120ACF	NONE	-/-	-/-	45/45	50/50	70/70	70/70	-	-	45/45	70/70	70/70	
	DD10CP	7.4/9.9	20.6/23.8	45/45	50/50	70/70	70/70	26/30	30/30	45/45	70/70	70/70	
	DD15CP	10.8/14.4	30.0/34.6	46/51	52/58	70/70	70/70	38/44	40/45	45/45	70/70	70/70	
	DD20CP	14.8/19.8	41.2/47.6	60/68	66/74	70/70	70/80	52/60	60/60	45/45	70/70	70/70	
	DD30CP	21.6/28.8	60.0/69.3	83/95	90/102	90/100	90/110	75/87	80/90	45/45	70/70	70/70	
120ACG	DD40CP	29.7/39.6	82.4/95.2	111/127	118/134	125/150	125/150	103/119	110/125	45/45	70/70	70/70	
	NONE	-/-	-/-	48/48	53/53	70/70	70/70	-	-	48/48	70/70	70/70	
	DD10CP	7.4/9.9	20.6/23.8	48/48	53/53	70/70	70/70	26/30	30/30	48/48	70/70	70/70	
	DD15CP	10.8/14.4	30.0/34.6	49/55	56/62	70/70	70/80	38/44	40/45	48/48	70/70	70/70	
	DD20CP	14.8/19.8	41.2/47.6	63/71	70/78	70/80	70/80	52/60	60/60	48/48	70/70	70/70	
120ACH	DD30CP	21.6/28.8	60.0/69.3	87/99	94/105	90/100	100/110	75/87	80/90	48/48	70/70	70/70	
	DD40CP	29.7/39.6	82.4/95.2	115/131	122/138	125/150	125/150	103/119	110/125	48/48	70/70	70/70	
	NONE	-/-	-/-	48/48	53/53	70/70	70/70	-	-	48/48	70/70	70/70	
	DD10CP	7.4/9.9	20.6/23.8	48/48	53/53	70/70	70/70	26/30	30/30	48/48	70/70	70/70	
	DD15CP	10.8/14.4	30.0/34.6	49/55	56/62	70/70	70/80	38/44	40/45	48/48	70/70	70/70	
150ACF	DD20CP	14.8/19.8	41.2/47.6	63/71	70/78	70/80	70/80	52/60	60/60	48/48	70/70	70/70	
	DD30CP	21.6/28.8	60.0/69.3	87/99	94/105	90/100	100/110	75/87	80/90	48/48	70/70	70/70	
	DD40CP	29.7/39.6	82.4/95.2	115/131	122/138	125/150	125/150	103/119	110/125	48/48	70/70	70/70	
	NONE	-/-	-/-	68/68	74/74	90/90	90/90	-	-	68/68	90/90	90/90	
	DD10CP	7.4/9.9	20.6/23.8	68/68	74/74	90/90	90/90	26/30	30/30	68/68	90/90	90/90	
150ACG	DD15CP	10.8/14.4	30.0/34.6	68/68	74/74	90/90	90/90	38/44	40/45	68/68	90/90	90/90	
	DD20CP	14.8/19.8	41.2/47.6	68/71	74/78	90/90	90/90	52/60	60/60	68/68	90/90	90/90	
	DD30CP	21.6/28.8	60.0/69.3	87/99	94/105	90/100	100/110	75/87	80/90	68/68	90/90	90/90	
	DD40CP	29.7/39.6	82.4/95.2	115/131	122/138	125/150	125/150	103/119	110/125	68/68	90/90	90/90	
	NONE	-/-	-/-	75/75	80/80	90/90	90/90	-	-	75/75	90/90	100/100	
150ACH	DD10CP	7.4/9.9	20.6/23.8	75/75	80/80	90/90	90/90	26/30	30/30	75/75	90/90	100/100	
	DD15CP	10.8/14.4	30.0/34.6	75/75	80/80	90/90	90/90	38/44	40/45	75/75	90/90	100/100	
	DD20CP	14.8/19.8	41.2/47.6	75/80	80/86	90/90	90/90	52/60	60/60	75/75	90/90	100/100	
	DD30CP	21.6/28.8	60.0/69.3	95/107	102/113	100/110	110/125	75/87	80/90	75/75	90/90	100/100	
	DD40CP	29.7/39.6	82.4/95.2	123/139	130/146	125/150	150/150	103/119	110/125	75/75	90/90	100/100	

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Appendix E – Heater Kit Characteristics (Cont.)

460V, THREE PHASE, 60 Hz, AUXILIARY ELECTRIC HEATER KIT CHARACTERISTICS AND APPLICATION													
Single Power Supply for Both Unit and Heater Kit							Separate Power Supply for Both Unit and Heater Kit						
UNIT MODEL NUMBER (-JACDYB)	Heater Kit			Air Conditioner				Heater Kit		Air Conditioner			
	MODEL NO. RXJ-	Rated Heater KW @ 460	FLA	UNIT MIN. CKT. AMPACITY	UNIT MIN. CKT. AMPACITY WITH OPTIONAL POWERED EXHAUST	MAX FUSE OR CKT. BKR. SIZE	MAX FUSE OR CKT. BKR. SIZE WITH OPTIONAL POWERED EXHAUST	HEATER KIT MIN. CKT. AMPACITY	HEATER KIT MAX FUSE OR CKT. BKR. SIZE	AIR COND. MIN. CKT. AMPACITY WITH OPTIONAL POWERED EXHAUST	AIR COND. MAX. FUSE OR CKT. BKR. SIZE	AIR COND. MAX. FUSE OR CKT. BKR. SIZE WITH OPTIONAL POWERED EXHAUST	
090ADF	NONE	-	-	18	21	25	30	-	-	18	25	30	
	DD10DNV	9.9	11.9	19	22	25	30	15	15	18	25	30	
	DD15DNV	14.4	17.3	26	29	30	30	22	25	18	25	30	
	DD20DNV	19.8	23.8	34	37	35	40	30	30	18	25	30	
	DD30DNV	28.8	34.6	47	51	50	60	44	45	18	25	30	
090ADG	DD40DNV	39.6	47.6	64	67	70	70	60	60	18	25	30	
	NONE	-	-	20	23	30	30	-	-	20	30	30	
	DD10DNV	9.9	11.9	21	24	30	30	15	15	20	30	30	
	DD15DNV	14.4	17.3	28	31	30	35	22	25	20	30	30	
	DD20DNV	19.8	23.8	36	39	40	40	30	30	20	30	30	
090ADH	DD30DNV	28.8	34.6	49	53	50	60	44	45	20	30	30	
	DD40DNV	39.6	47.6	66	69	70	70	60	60	20	30	30	
	NONE	-	-	20	23	30	30	-	-	20	30	30	
	DD10DNV	9.9	11.9	21	24	30	30	15	15	20	30	30	
	DD15DNV	14.4	17.3	28	31	30	35	22	25	20	30	30	
102ADF	DD20DNV	19.8	23.8	36	39	40	40	30	30	20	30	30	
	DD30DNV	28.8	34.6	49	53	50	60	44	45	20	30	30	
	DD40DNV	39.6	47.6	66	69	70	70	60	60	20	30	30	
	NONE	-	-	21	23	30	35	-	-	21	30	35	
	DD10DNV	9.9	11.9	21	23	30	35	15	15	21	30	35	
102ADG	DD15DNV	14.4	17.3	26	29	30	35	22	25	21	30	35	
	DD20DNV	19.8	23.8	34	37	35	40	30	30	21	30	35	
	DD30DNV	28.8	34.6	47	51	50	60	44	45	21	30	35	
	DD40DNV	39.6	47.6	64	67	70	70	60	60	21	30	35	
	NONE	-	-	22	25	30	35	-	-	22	30	35	
102ADH	DD10DNV	9.9	11.9	22	25	30	35	15	15	22	30	35	
	DD15DNV	14.4	17.3	28	31	30	35	22	25	22	30	35	
	DD20DNV	19.8	23.8	36	39	40	40	30	30	22	30	35	
	DD30DNV	28.8	34.6	49	53	50	60	44	45	22	30	35	
	DD40DNV	39.6	47.6	66	69	70	70	60	60	22	30	35	
102ADH	NONE	-	-	22	25	30	35	-	-	22	30	35	
	DD10DNV	9.9	11.9	22	25	30	35	15	15	22	30	35	
	DD15DNV	14.4	17.3	28	31	30	35	22	25	22	30	35	
	DD20DNV	19.8	23.8	36	39	40	40	30	30	22	30	35	
	DD30DNV	28.8	34.6	49	53	50	60	44	45	22	30	35	
102ADH	DD40DNV	39.6	47.6	66	69	70	70	60	60	22	30	35	
	NONE	-	-	22	25	30	35	-	-	22	30	35	
	DD10DNV	9.9	11.9	22	25	30	35	15	15	22	30	35	
	DD15DNV	14.4	17.3	28	31	30	35	22	25	22	30	35	
	DD20DNV	19.8	23.8	36	39	40	40	30	30	22	30	35	
102ADH	DD30DNV	28.8	34.6	49	53	50	60	44	45	22	30	35	
	DD40DNV	39.6	47.6	66	69	70	70	60	60	22	30	35	
	NONE	-	-	22	25	30	35	-	-	22	30	35	
	DD10DNV	9.9	11.9	22	25	30	35	15	15	22	30	35	
	DD15DNV	14.4	17.3	28	31	30	35	22	25	22	30	35	
102ADH	DD20DNV	19.8	23.8	36	39	40	40	30	30	22	30	35	
	DD30DNV	28.8	34.6	49	53	50	60	44	45	22	30	35	
	DD40DNV	39.6	47.6	66	69	70	70	60	60	22	30	35	
	NONE	-	-	22	25	30	35	-	-	22	30	35	
	DD10DNV	9.9	11.9	22	25	30	35	15	15	22	30	35	

Appendix E – Heater Kit Characteristics (Cont.)

460V, THREE PHASE, 60 Hz, AUXILIARY ELECTRIC HEATER KIT CHARACTERISTICS AND APPLICATION													
Single Power Supply for Both Unit and Heater Kit							Separate Power Supply for Both Unit and Heater Kit						
UNIT MODEL NUMBER (-JACDYB)	Heater Kit			Air Conditioner				Heater Kit		Air Conditioner			
	MODEL NO. RXLJ-	Rated Heater KW @ 460	FLA	UNIT MIN. CKT. AMPACITY	UNIT MIN. CKT. AMPACITY WITH OPTIONAL POWERED EXHAUST	MAX FUSE OR CKT. BKR. SIZE	MAX FUSE OR CKT. BKR. SIZE WITH OPTIONAL POWERED EXHAUST	HEATER KIT MIN. CKT. AMPACITY	HEATER KIT MAX FUSE OR CKT. BKR. SIZE	AIR COND. MIN. CKT. AMPACITY WITH OPTIONAL POWERED EXHAUST	AIR COND. MAX. FUSE OR CKT. BKR. SIZE	AIR COND. MAX. FUSE OR CKT. BKR. SIZE WITH OPTIONAL POWERED EXHAUST	
120ADF	NONE	-	-	24	26	35	35	-	-	24	26	35	35
	DD10DNV	9.9	11.9	24	26	35	35	15	15	24	26	35	35
	DD15DNV	14.4	17.3	26	29	35	35	22	25	24	26	35	35
	DD20DNV	19.8	23.8	34	37	40	40	30	30	24	26	35	35
	DD30DNV	28.8	34.6	47	51	50	60	44	45	24	26	35	35
120ADG	DD40DNV	39.6	47.6	64	67	70	70	60	60	24	26	35	35
	NONE	-	-	25	28	35	40	-	-	25	28	35	40
	DD10DNV	9.9	11.9	25	28	35	40	15	15	25	28	35	40
	DD15DNV	14.4	17.3	28	31	35	40	22	25	25	28	35	40
	DD20DNV	19.8	23.8	36	39	40	40	30	30	25	28	35	40
120ADH	DD30DNV	28.8	34.6	49	53	50	60	44	45	25	28	35	40
	DD40DNV	39.6	47.6	66	69	70	70	60	60	25	28	35	40
	NONE	-	-	25	28	35	40	-	-	25	28	35	40
	DD10DNV	9.9	11.9	25	28	35	40	15	15	25	28	35	40
	DD15DNV	14.4	17.3	28	31	35	40	22	25	25	28	35	40
150ADF	DD20DNV	19.8	23.8	36	39	40	40	30	30	25	28	35	40
	DD30DNV	28.8	34.6	49	53	50	60	44	45	25	28	35	40
	DD40DNV	39.6	47.6	66	69	70	70	60	60	25	28	35	40
	NONE	-	-	29	32	35	40	-	-	29	32	35	40
	DD10DNV	9.9	11.9	29	32	35	40	15	15	29	32	35	40
150ADG	DD15DNV	14.4	17.3	29	32	35	40	22	25	29	32	35	40
	DD20DNV	19.8	23.8	36	39	40	40	30	30	29	32	35	40
	DD30DNV	28.8	34.6	49	53	50	60	44	45	29	32	35	40
	DD40DNV	39.6	47.6	66	69	70	70	60	60	29	32	35	40
	NONE	-	-	31	34	35	40	-	-	31	34	35	40
150ADH	DD10DNV	9.9	11.9	31	34	35	40	15	15	31	34	35	40
	DD15DNV	14.4	17.3	31	34	35	40	22	25	31	34	35	40
	DD20DNV	19.8	23.8	38	41	40	45	30	30	31	34	35	40
	DD30DNV	28.8	34.6	52	55	60	60	44	45	31	34	35	40
	DD40DNV	39.6	47.6	68	71	70	80	60	60	31	34	35	40

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Appendix E – Heater Kit Characteristics (Cont.)

575V, THREE PHASE, 60 Hz, AUXILIARY ELECTRIC HEATER KIT CHARACTERISTICS AND APPLICATION													
Single Power Supply for Both Unit and Heater Kit				Separate Power Supply for Both Unit and Heater Kit									
UNIT MODEL NUMBER (-ACDYB)	Heater Kit			Air Conditioner				Heater Kit		Air Conditioner			
	MODEL NO. RXJL-	Rated Heater KW @ 575	FLA	UNIT MIN. CKT. AMPACITY	UNIT MIN. CKT. AMPACITY WITH POWERED EXHAUST	MAX FUSE OR CKT. BKR. SIZE	MAX FUSE OR CKT. BKR. SIZE WITH OPTIONAL POWERED EXHAUST	HEATER KIT MIN. CKT. AMPACITY	HEATER KIT MAX FUSE OR CKT. BKR. SIZE	AIR COND. MIN. CKT. AMPACITY WITH OPTIONAL POWERED EXHAUST	AIR COND. MAX. FUSE OR CKT. BKR. SIZE	AIR COND. MAX. FUSE OR CKT. BKR. SIZE WITH OPTIONAL POWERED EXHAUST	
090AYF	NONE	-	-	15	17	20	25	-	-	15	20	25	
	DD10Y	10.0	9.6	16	18	20	25	13	15	15	20	25	
	DD15Y	15.0	14.4	22	24	25	30	19	20	15	20	25	
	DD20Y	20.0	19.3	28	30	30	35	25	25	15	20	25	
	DD30Y	30.0	28.9	40	42	40	45	37	40	15	20	25	
090AYG	DD40Y	40.0	38.5	52	54	60	60	49	50	15	20	25	
	NONE	-	-	16	18	20	25	-	-	16	20	25	
	DD10Y	10.0	9.6	17	20	20	25	13	15	16	20	25	
	DD15Y	15.0	14.4	23	26	25	30	19	20	16	20	25	
	DD20Y	20.0	19.3	29	32	30	35	25	25	16	20	25	
090AYH	DD30Y	30.0	28.9	41	44	45	45	37	40	16	20	25	
	DD40Y	40.0	38.5	53	56	60	60	49	50	16	20	25	
	NONE	-	-	16	18	20	25	-	-	16	20	25	
	DD10Y	10.0	9.6	17	20	20	25	13	15	16	20	25	
	DD15Y	15.0	14.4	23	26	25	30	19	20	16	20	25	
102AYF	DD20Y	20.0	19.3	29	32	30	35	25	25	16	20	25	
	DD30Y	30.0	28.9	41	44	45	45	37	40	16	20	25	
	DD40Y	40.0	38.5	53	56	60	60	49	50	16	20	25	
	NONE	-	-	16	18	20	25	-	-	16	20	25	
	DD10Y	10.0	9.6	16	18	20	25	13	15	16	20	25	
102AYG	DD15Y	15.0	14.4	22	24	25	30	19	20	16	20	25	
	DD20Y	20.0	19.3	28	30	30	35	25	25	16	20	25	
	DD30Y	30.0	28.9	40	42	40	45	37	40	16	20	25	
	DD40Y	40.0	38.5	52	54	60	60	49	50	16	20	25	
	NONE	-	-	17	19	25	25	-	-	17	25	25	
102AYH	DD10Y	10.0	9.6	17	20	25	25	13	15	17	25	25	
	DD15Y	15.0	14.4	23	26	25	30	19	20	17	25	25	
	DD20Y	20.0	19.3	29	32	30	35	25	25	17	25	25	
	DD30Y	30.0	28.9	41	44	45	45	37	40	17	25	25	
	DD40Y	40.0	38.5	53	56	60	60	49	50	17	25	25	
102AYI	NONE	-	-	17	19	25	25	-	-	17	25	25	
	DD10Y	10.0	9.6	17	20	25	25	13	15	17	25	25	
	DD15Y	15.0	14.4	23	26	25	30	19	20	17	25	25	
	DD20Y	20.0	19.3	29	32	30	35	25	25	17	25	25	
	DD30Y	30.0	28.9	41	44	45	45	37	40	17	25	25	
102AYJ	DD40Y	40.0	38.5	53	56	60	60	49	50	17	25	25	
	NONE	-	-	17	19	25	25	-	-	17	25	25	
	DD10Y	10.0	9.6	17	20	25	25	13	15	17	25	25	
	DD15Y	15.0	14.4	23	26	25	30	19	20	17	25	25	
	DD20Y	20.0	19.3	29	32	30	35	25	25	17	25	25	
102AYK	DD30Y	30.0	28.9	41	44	45	45	37	40	17	25	25	
	DD40Y	40.0	38.5	53	56	60	60	49	50	17	25	25	
	NONE	-	-	17	19	25	25	-	-	17	25	25	
	DD10Y	10.0	9.6	17	20	25	25	13	15	17	25	25	
	DD15Y	15.0	14.4	23	26	25	30	19	20	17	25	25	
102AYL	DD20Y	20.0	19.3	29	32	30	35	25	25	17	25	25	
	DD30Y	30.0	28.9	41	44	45	45	37	40	17	25	25	
	DD40Y	40.0	38.5	53	56	60	60	49	50	17	25	25	
	NONE	-	-	17	19	25	25	-	-	17	25	25	
	DD10Y	10.0	9.6	17	20	25	25	13	15	17	25	25	
102AYM	DD15Y	15.0	14.4	23	26	25	30	19	20	17	25	25	
	DD20Y	20.0	19.3	29	32	30	35	25	25	17	25	25	
	DD30Y	30.0	28.9	41	44	45	45	37	40	17	25	25	
	DD40Y	40.0	38.5	53	56	60	60	49	50	17	25	25	
	NONE	-	-	17	19	25	25	-	-	17	25	25	

Appendix E – Heater Kit Characteristics (Cont.)

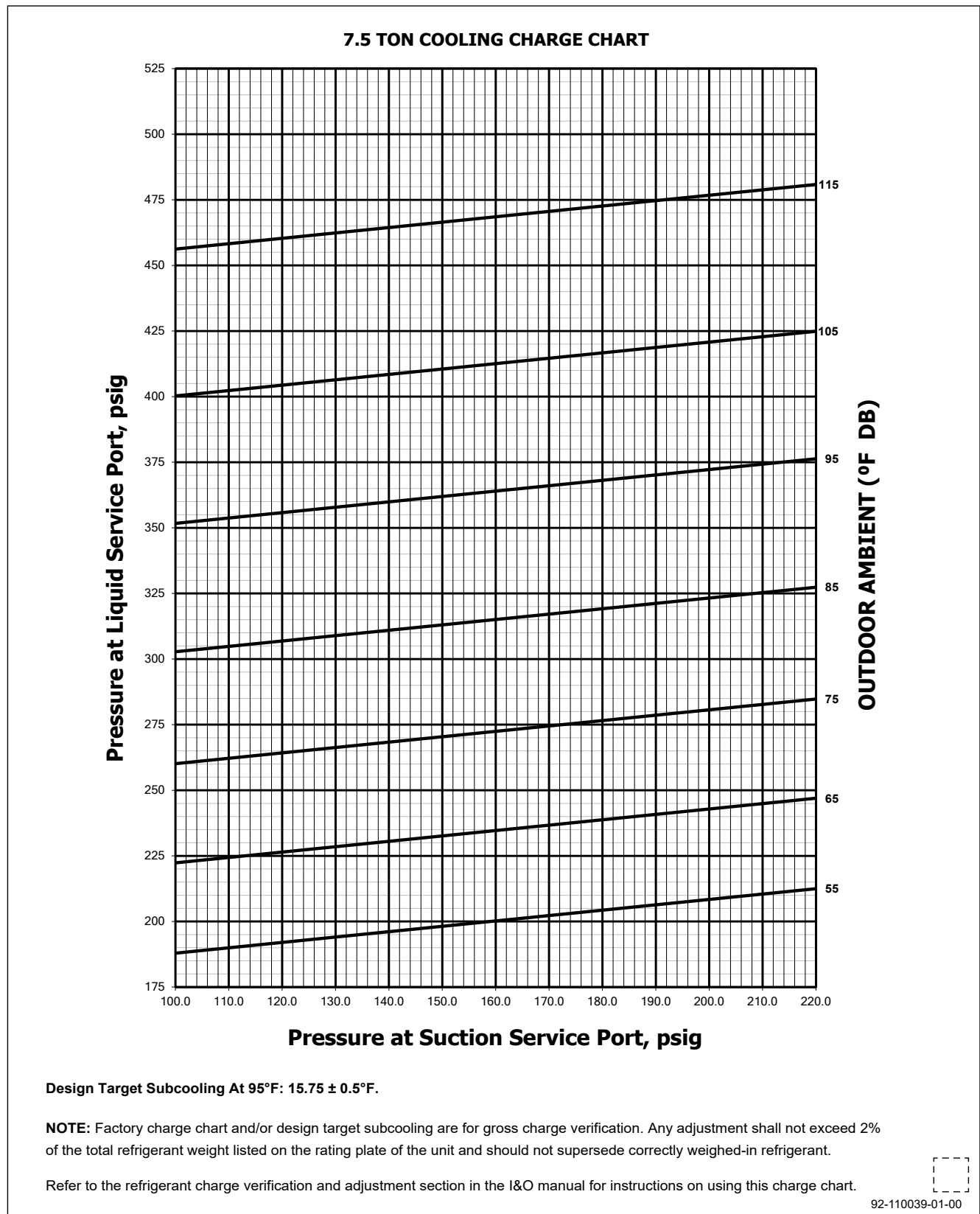
575V, THREE PHASE, 60 Hz, AUXILIARY ELECTRIC HEATER KIT CHARACTERISTICS AND APPLICATION														
Single Power Supply for Both Unit and Heater Kit														
UNIT MODEL NUMBER (-)ACYTB	Heater Kit			Air Conditioner				Heater Kit		Air Conditioner				
	MODEL NO. RXJJ-	Rated Heater KW @ 575	FLA	UNIT MIN. CKT. AMPACITY	UNIT MIN. CKT. AMPACITY WITH OPTIONAL POWERED EXHAUST	MAX FUSE OR CKT BKR. SIZE	MAX FUSE OR CKT BKR. SIZE WITH OPTIONAL POWERED EXHAUST	HEATER KIT MIN. CKT. AMPACITY	HEATER KIT MAX FUSE OR CKT. BKR. SIZE	AIR COND. MIN. CKT. AMPACITY	AIR COND. MIN. CKT. AMPACITY WITH OPTIONAL POWERED EXHAUST	AIR COND. MAX. FUSE OR CKT. BKR. SIZE	AIR COND. MAX. FUSE OR CKT. BKR. SIZE WITH OPTIONAL POWERED EXHAUST	
120AYF	NONE	-	-	19	21	30	30	-	-	19	21	30	30	
	D010Y	10.0	9.6	19	21	30	30	13	15	19	21	30	30	
	D015Y	15.0	14.4	22	24	30	30	19	20	19	21	30	30	
	D020Y	20.0	19.3	28	30	30	30	25	25	19	21	30	30	
	D030Y	30.0	28.9	40	42	40	45	37	40	19	21	30	30	
D040Y	40.0	38.5	52	54	60	60	49	50	19	21	30	30		
120AYG	NONE	-	-	20	22	30	30	-	-	20	22	30	30	
	D010Y	10.0	9.6	20	22	30	30	13	15	20	22	30	30	
	D015Y	15.0	14.4	23	26	30	30	19	20	20	22	30	30	
	D020Y	20.0	19.3	29	32	30	35	25	25	20	22	30	30	
	D030Y	30.0	28.9	41	44	45	45	37	40	20	22	30	30	
D040Y	40.0	38.5	53	56	60	60	49	50	20	22	30	30		
120AYH	NONE	-	-	20	22	30	30	-	-	20	22	30	30	
	D010Y	10.0	9.6	20	22	30	30	13	15	20	22	30	30	
	D015Y	15.0	14.4	23	26	30	30	19	20	20	22	30	30	
	D020Y	20.0	19.3	29	32	30	35	25	25	20	22	30	30	
	D030Y	30.0	28.9	41	44	45	45	37	40	20	22	30	30	
D040Y	40.0	38.5	53	56	60	60	49	50	20	22	30	30		
150AYF	NONE	-	-	23	25	25	30	-	-	23	25	25	30	
	D010Y	10.0	9.6	23	25	25	30	13	15	23	25	25	30	
	D015Y	15.0	14.4	23	26	25	30	19	20	23	25	25	30	
	D020Y	20.0	19.3	29	32	20	35	25	25	23	25	25	30	
	D030Y	30.0	28.9	41	44	45	45	37	40	23	25	25	30	
D040Y	40.0	38.5	53	56	60	60	49	50	23	25	25	30		
150AYG	NONE	-	-	24	26	30	30	-	-	24	26	30	30	
	D010Y	10.0	9.6	24	26	30	30	13	15	24	26	30	30	
	D015Y	15.0	14.4	25	28	30	30	19	20	24	26	30	30	
	D020Y	20.0	19.3	31	34	35	35	25	25	24	26	30	30	
	D030Y	30.0	28.9	43	46	45	50	37	40	24	26	30	30	
D040Y	40.0	38.5	55	58	60	60	49	50	24	26	30	30		

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Appendix F. A2L Refrigerant Installation Safety Data

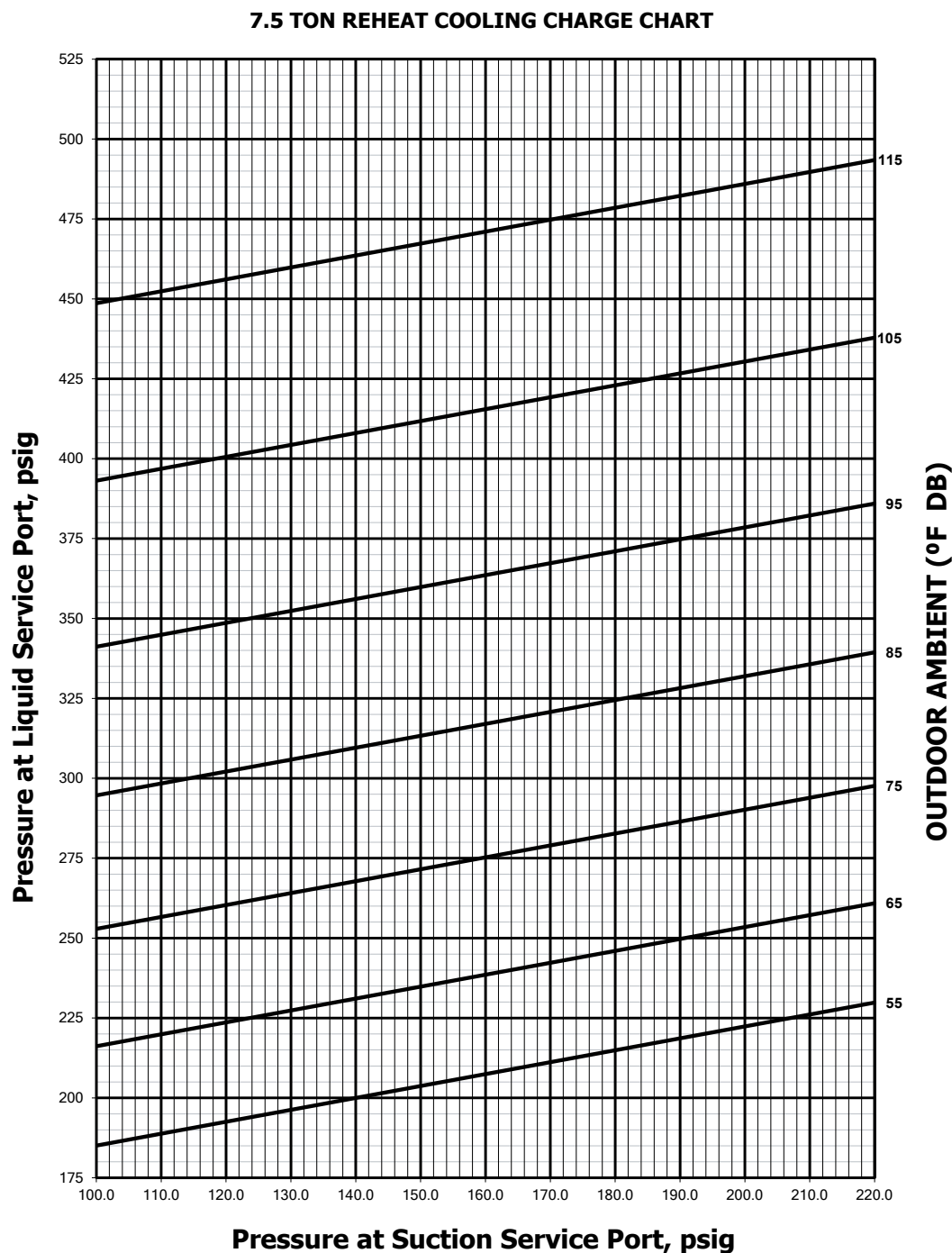
		(-)ACDYB090	(-)ACDYB102	(-)ACDYB120	(-)ACDYB150	(-)ACDYB090 w/ Reheat	(-)ACDYB102 w/ Reheat	(-)ACDYB120 w/ Reheat	(-)ACDYB150 w/ Reheat
Refrigerant Charge Weight (oz)		88	113.6	171.2	168	120	152	210.4	214.4
Minimum Circulation Airflow, Qmin (cfm)		149	192	290	284	203	257	356	363
Installed Altitude (ft above sea level)	Altitude Adjustment Factor	Minimum Total Conditioned Room Area, T _{Amin} (sq ft)							
0	1.000	82	106	160	157	112	142	197	201
1000	1.025	85	109	164	161	115	146	202	206
2000	1.051	87	112	169	165	118	150	207	211
3000	1.078	89	115	173	170	121	154	213	217
4000	1.107	91	118	178	174	124	158	218	222
5000	1.138	94	121	183	179	128	162	224	229
6000	1.170	96	125	188	184	132	167	231	235
6500	1.187	98	126	190	187	133	169	234	239

Appendix G – Refrigerant Charging Charts



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Appendix G – Refrigerant Charging Charts (Cont.)



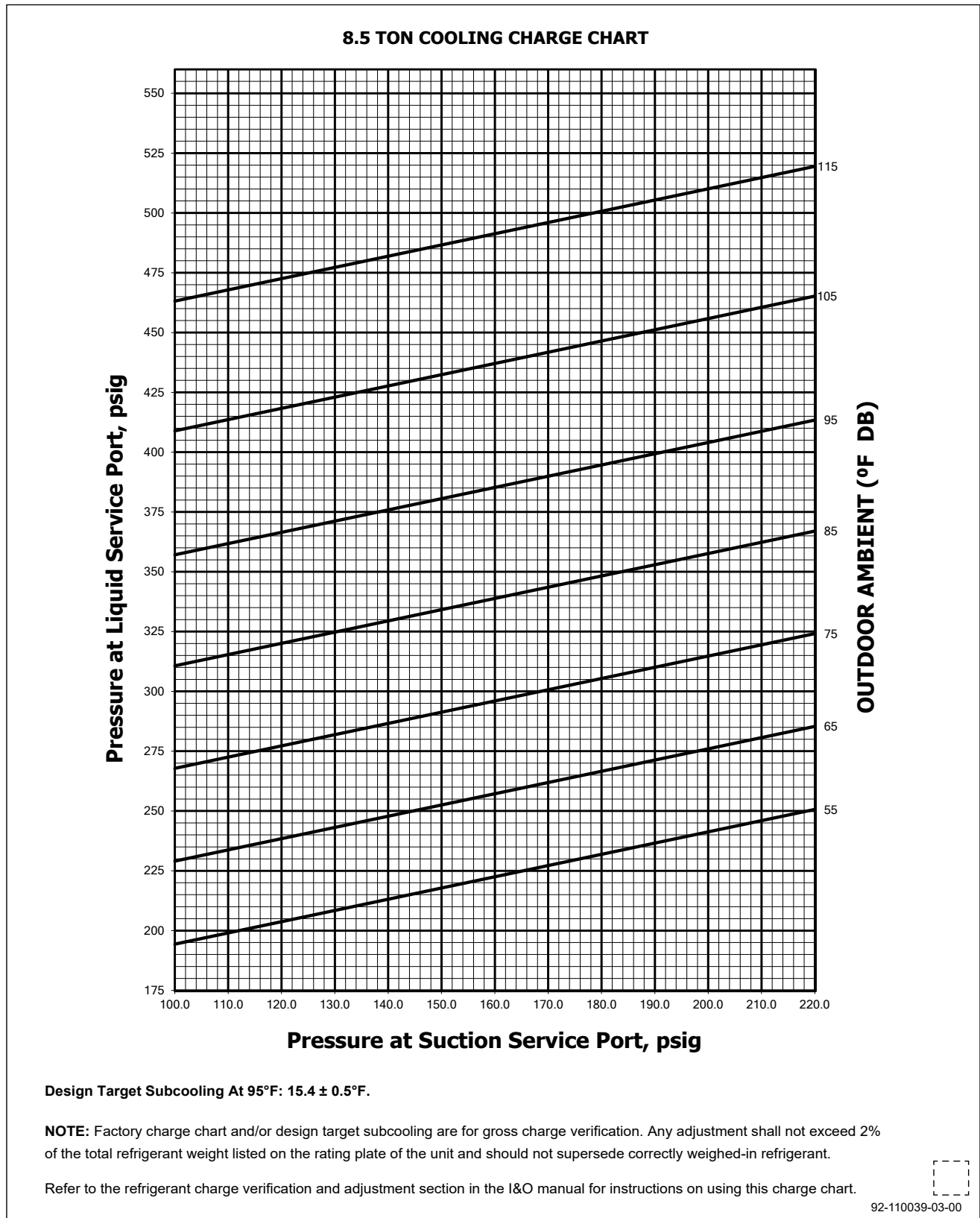
Design Target Subcooling At 95°F: $14.0 \pm 0.5^\circ\text{F}$.

NOTE: Factory charge chart and/or design target subcooling are for gross charge verification. Any adjustment shall not exceed 2% of the total refrigerant weight listed on the rating plate of the unit and should not supersede correctly weighed-in refrigerant.

Refer to the refrigerant charge verification and adjustment section in the I&O manual for instructions on using this charge chart.

92-110039-02-00

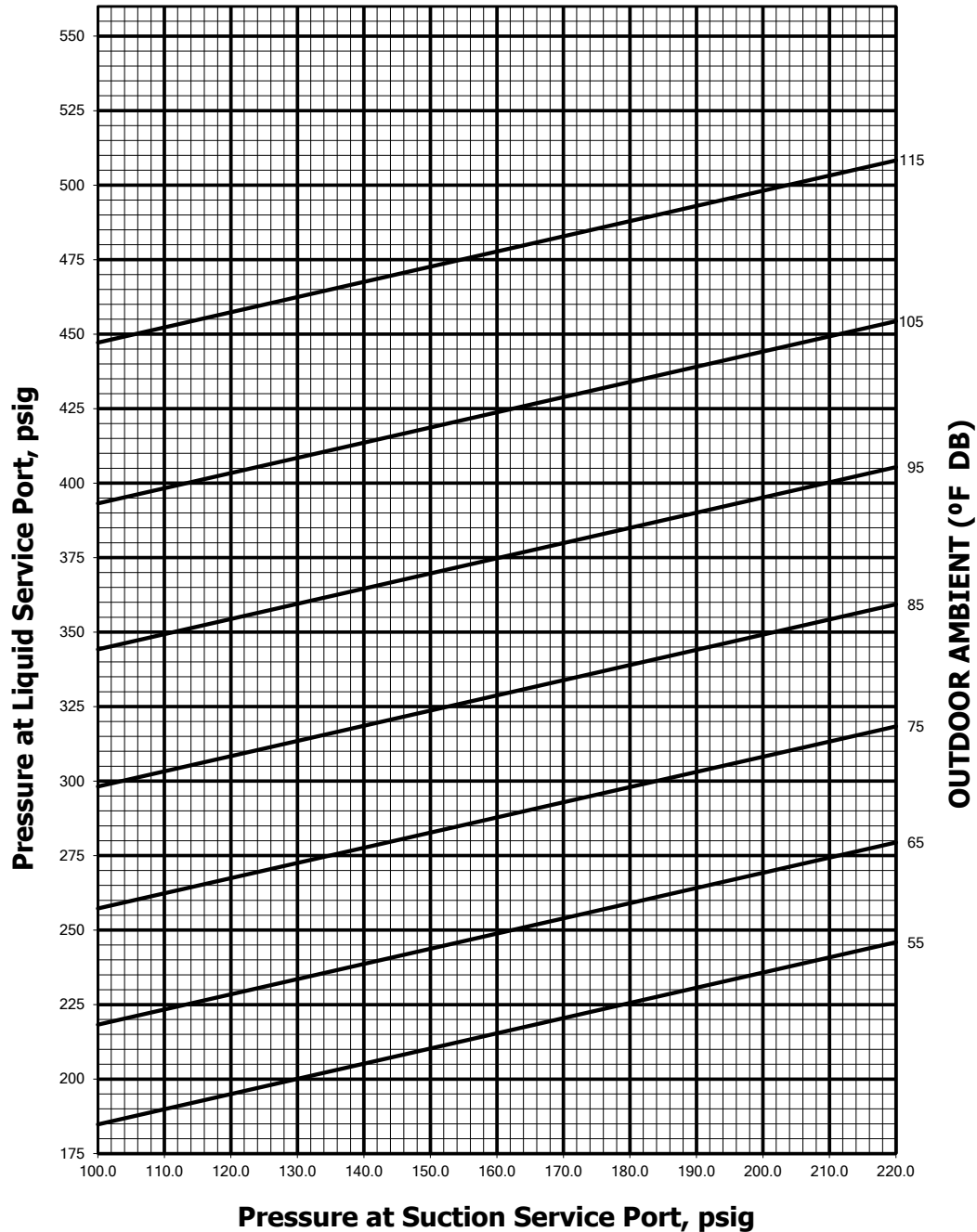
Appendix G – Refrigerant Charging Charts (Cont.)



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Appendix G – Refrigerant Charging Charts (Cont.)

8.5 TON REHEAT COOLING CHARGE CHART



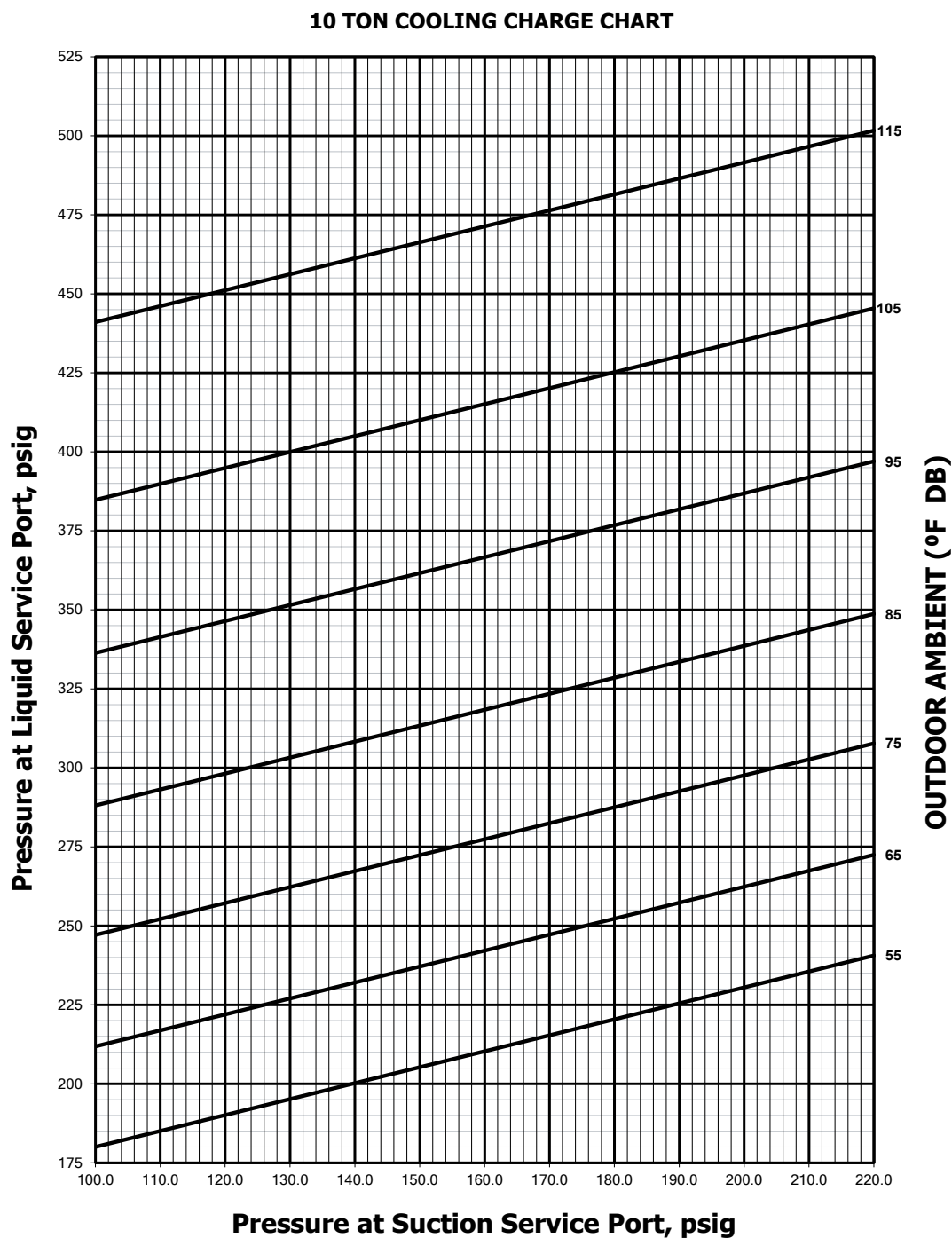
Design Target Subcooling At 95°F: $14.75 \pm 0.5^\circ\text{F}$.

NOTE: Factory charge chart and/or design target subcooling are for gross charge verification. Any adjustment shall not exceed 2% of the total refrigerant weight listed on the rating plate of the unit and should not supersede correctly weighed-in refrigerant.

Refer to the refrigerant charge verification and adjustment section in the I&O manual for instructions on using this charge chart.

92-110039-04-00

Appendix G – Refrigerant Charging Charts (Cont.)



Design Target Subcooling At 95°F: $16.5 \pm 0.5^\circ\text{F}$.

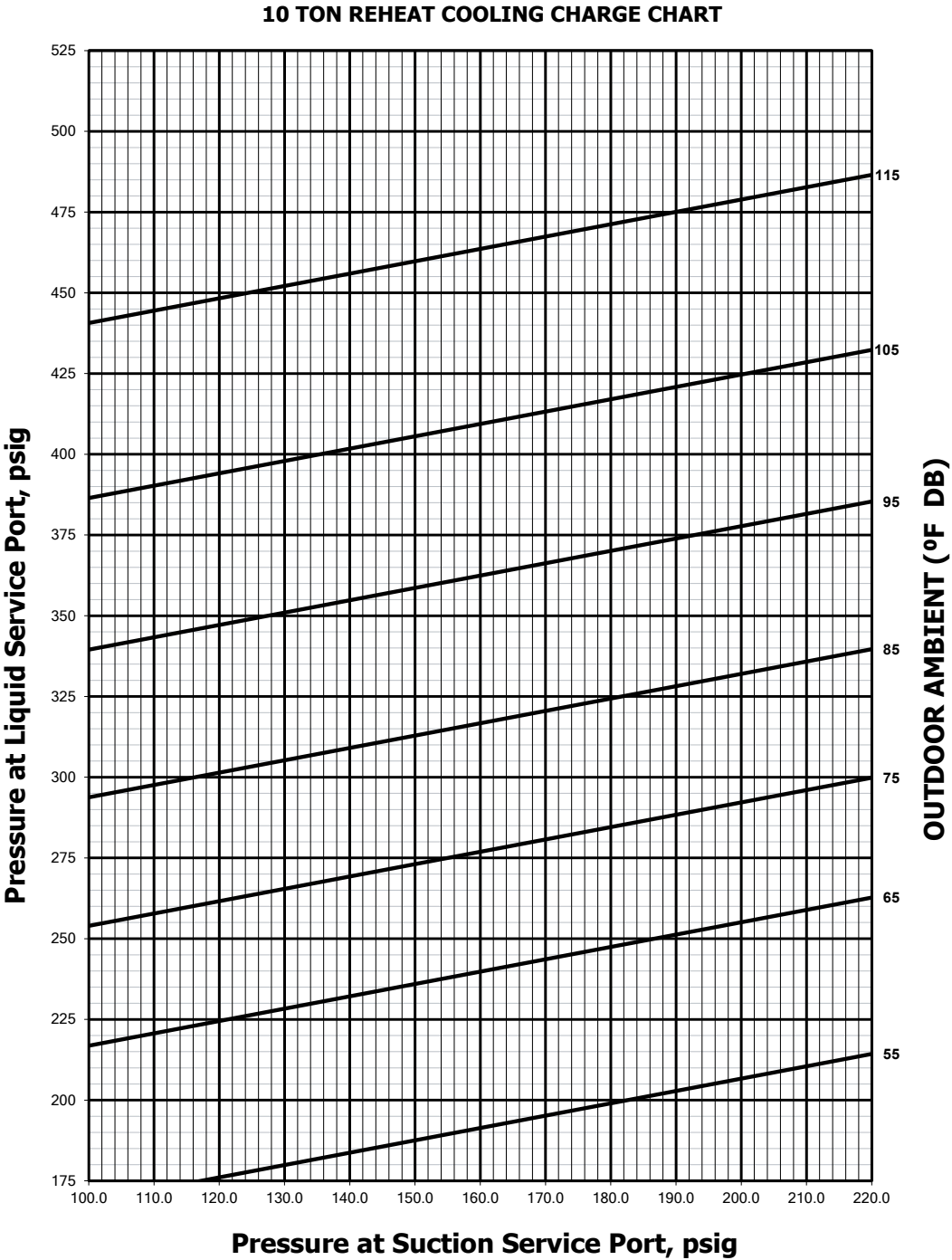
NOTE: Factory charge chart and/or design target subcooling are for gross charge verification. Any adjustment shall not exceed 2% of the total refrigerant weight listed on the rating plate of the unit and should not supersede correctly weighed-in refrigerant.

Refer to the refrigerant charge verification and adjustment section in the I&O manual for instructions on using this charge chart.

92-110039-05-00

P. APPENDICES

Appendix G – Refrigerant Charging Charts (Cont.)



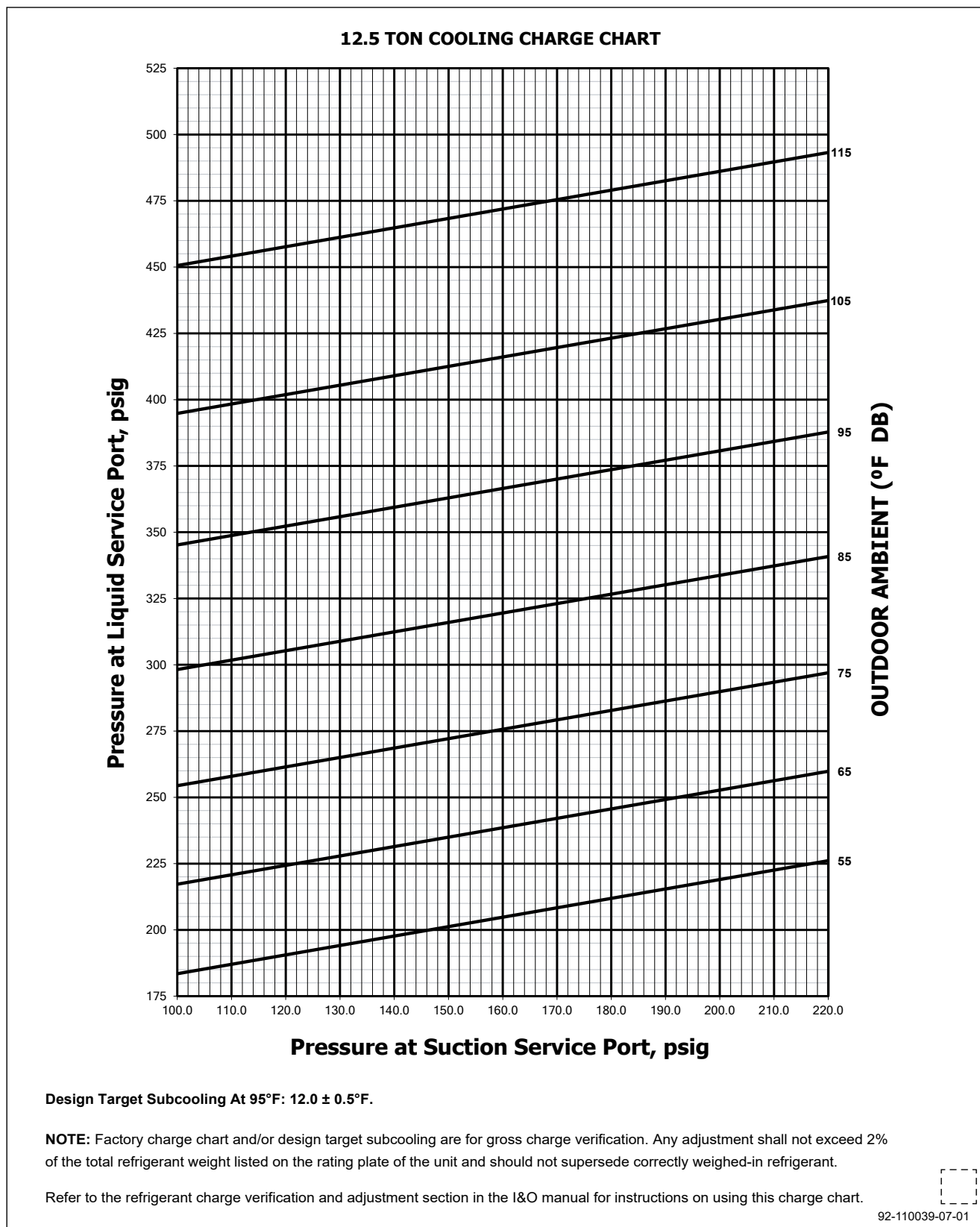
Design Target Subcooling At 95°F: 17.25 ± 0.5°F.

NOTE: Factory charge chart and/or design target subcooling are for gross charge verification. Any adjustment shall not exceed 2% of the total refrigerant weight listed on the rating plate of the unit and should not supersede correctly weighed-in refrigerant.

Refer to the refrigerant charge verification and adjustment section in the I&O manual for instructions on using this charge chart.

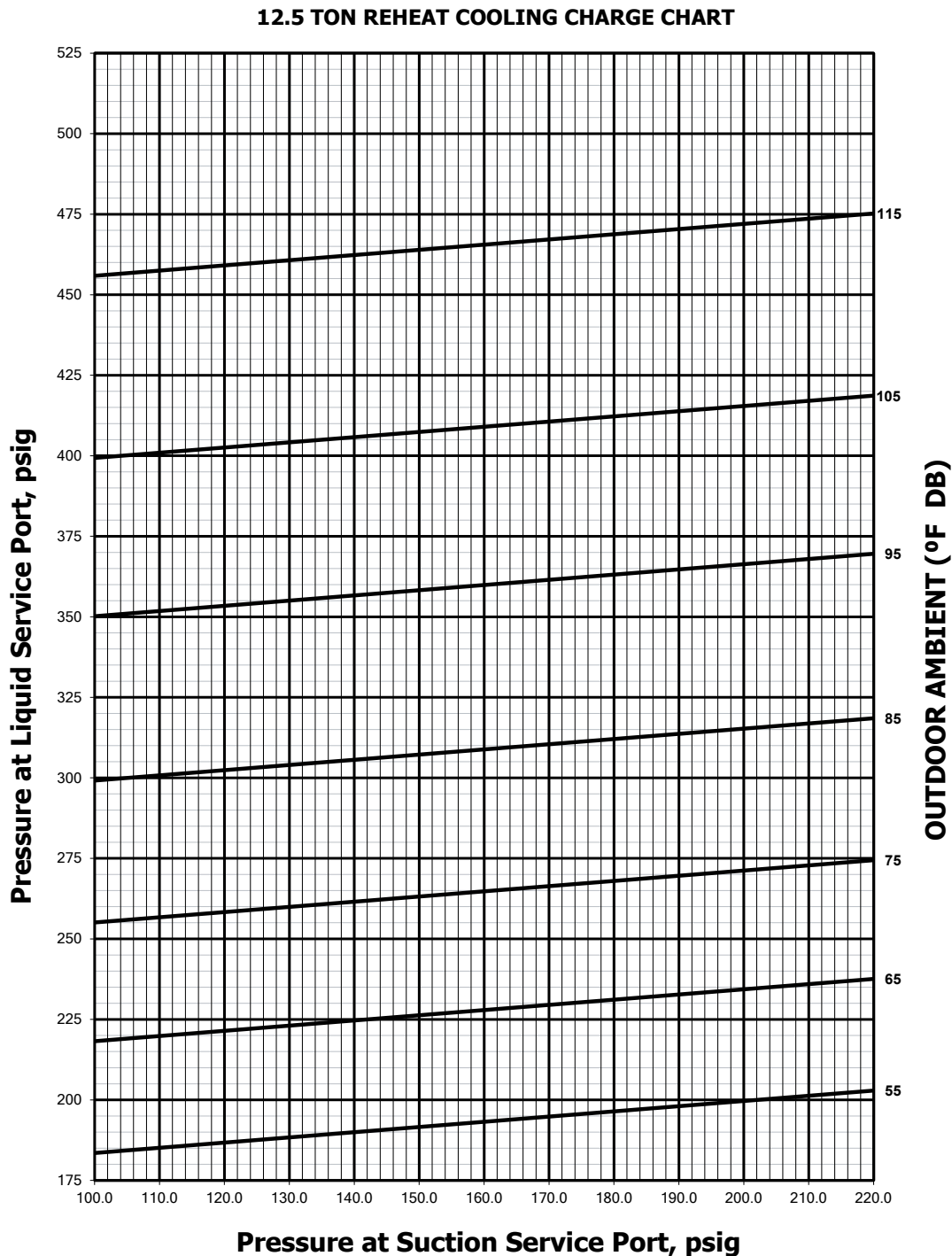
92-110039-06-00

Appendix G – Refrigerant Charging Charts (Cont.)



P. APPENDICES

Appendix G – Refrigerant Charging Charts (Cont.)



Design Target Subcooling At 95°F: $13.0 \pm 0.5^\circ\text{F}$.

NOTE: Factory charge chart and/or design target subcooling are for gross charge verification. Any adjustment shall not exceed 2% of the total refrigerant weight listed on the rating plate of the unit and should not supersede correctly weighed-in refrigerant.

Refer to the refrigerant charge verification and adjustment section in the I&O manual for instructions on using this charge chart.

92-110039-08-00

Appendix G – Refrigerant Charging Charts (Cont.)

PRESSURE REQUIREMENTS – GROSS CHARGE CHECK (REFER CHARGE CHART)

OUTDOOR DRY BULB (°F)	7.5 -TON	7.5 - TON with reheat	8.5 -TON	8.5 - TON with reheat	10 -TON	10 - TON with reheat	12.5 -TON	12.5 - TON with reheat
	LIQUID /VAPOR PRESSURE (PSIG)							
115	464/139	462/135	479/135	465/135	452/140	455/138	461/128	461/129
105	408/136	406/133	424/132	410/133	400/138	400/135	404/125	404/127
95	359/133	353/132	371/130	360/131	349/136	352/133	354/124	355/127
85	309/130	306/130	324/129	313/129	303/134	306/131	307/122	303/124
75	266/126	263/127	280/127	271/127	263/132	265/128	292/123	359/123
65	227/123	225/124	240/124	231/125	227/130	227/126	225/120	223/121
55	192/119	193/120	204/120	196/122	193/124	183/137	190/118	187/119

SUB COOLING REQUIREMENTS – FINAL CHARGE VERIFICATION

OUTDOOR DRY BULB (°F)	7.5 -TON	7.5 - TON with reheat	8.5 -TON	8.5 - TON with reheat	10 -TON	10 - TON with reheat	12.5 -TON	12.5 - TON with reheat
	SUBCOOLING (°F)							
115	16.9	16.1	16.3	15.8	12.7	16.6	13.0	14.4
105	16.4	15.4	16.3	14.8	12.3	16.1	12.4	13.4
95	15.8	14.7	15.4	13.5	12.2	16.4	11.6	12.9
85	15.3	13.8	14.2	12.3	12.1	15.5	9.6	9.8
75	14.6	13.2	13.0	11.2	13.2	15.2	8.7	7.7
65	13.3	12.7	11.8	10.5	13.5	14.6	4.3	6.5
55	12.7	12.9	11.2	10.4	14.2	10.5	4.3	7.5

Charge verification instructions:

1. Allow the unit to operate for 15 minutes before checking or adjusting the charge.
2. Ensure that the contamination of different refrigerants does not occur when using charging equipment. Hoses of lines shall be as short as possible to minimize the amount of refrigerant contained in them.
3. Ensure that the unit is properly grounded.
4. Return air temperature must be within comfort conditions (72°F - 82°F).
5. Remove caps from the high-side and low-side pressure service fittings.
6. Cylinders shall be kept in an upright position for the entirety of the testing and charging procedure.
7. Record the following measurements:
 - a. High-side pressure at service fitting
 - b. Liquid line temperature
8. Using R-454B refrigerant saturation T-P tables, find the corresponding refrigerant saturation temperature relative to the measured high-side pressure.

9. To determine subcooling, subtract the liquid line temperature measured in Step 7 from the saturation temperature found in Step 8.

10. Compare the subcooling result from Step 9 to the subcooling table located on the unit or in the I&O manual.

11. If the subcooling value from Step 9 is more than 1°F above the value listed in the subcooling table, remove charge to match the value listed in the table, $\pm 0.5^\circ\text{F}$.

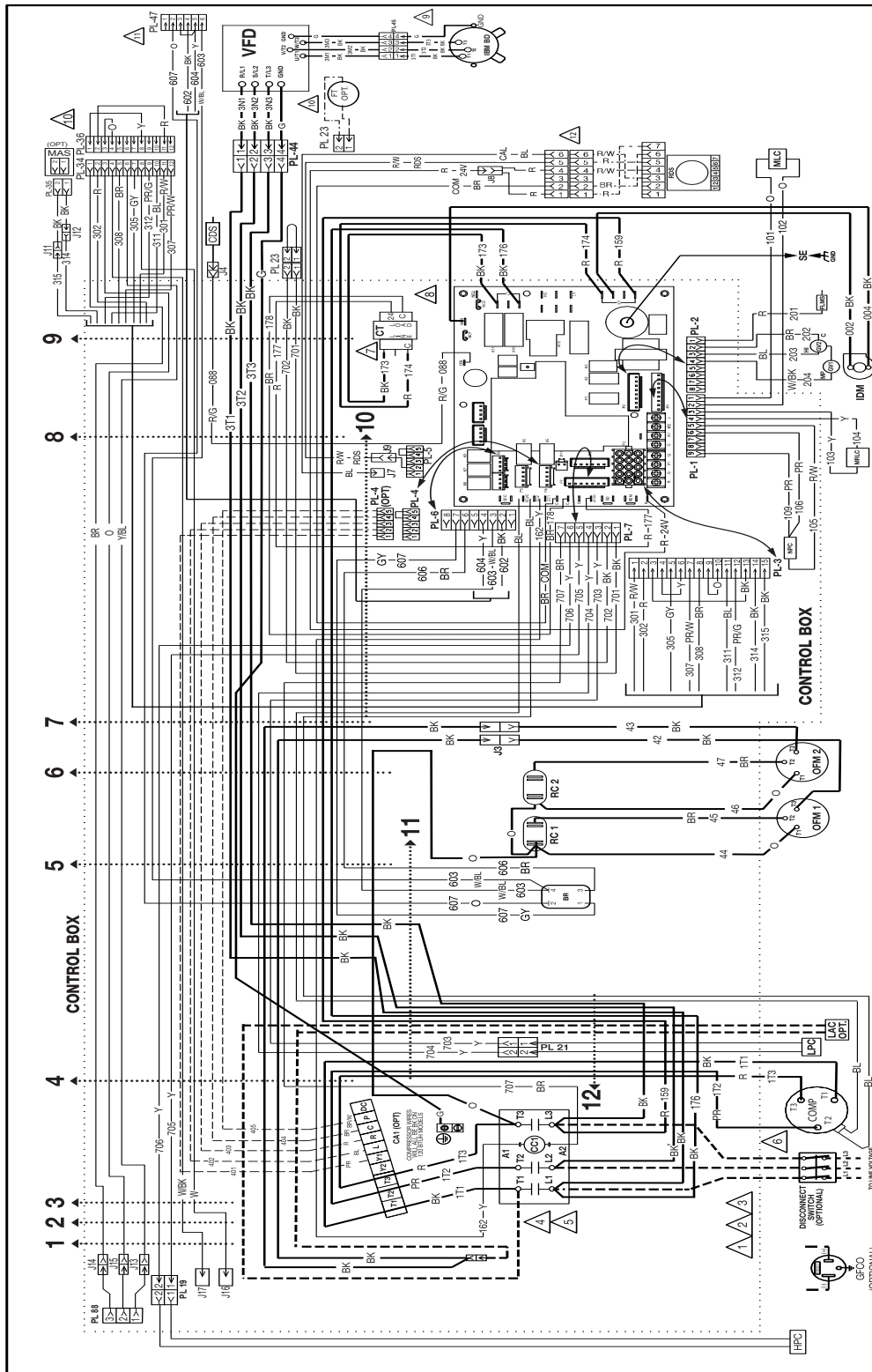
a. Take extreme care not to overfill the refrigerating system.

12. If the subcooling value from Step 9 is more than 1°F below the value listed in the subcooling table, add charge to match the value listed in the table, $\pm 0.5^\circ\text{F}$.

a. Take extreme care not to overfill the refrigerating system.

After charging is complete, a leak test must be done. Before leaving the site an additional leak test must also be done at the end of the installation. Refer to **J.1.1.3. Removal and Evacuation of Refrigerant.**

Appendix H. Wiring Diagrams & Schematics



LINE VOLTAGE

-FACTORY STANDARD

-FACTORY OPTION

-FIELD INSTALLED

LOW VOLTAGE

-FACTORY STANDARD

-FACTORY OPTION

-FIELD INSTALLED

REPLACEMENT WIRE

-FACTORY STANDARD

-FACTORY OPTION

-FIELD INSTALLED

WIRING INFORMATION

WIRING DIAGRAM - ELECTRICAL

NOTES

COMPONENT CODES

WIRE COLOR CODE

WIRING DIAGRAM - ELECTRICAL

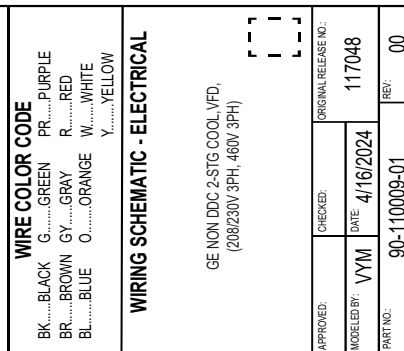
GE NON DDC 2-STG COOL, VFD,
(208/230V 3PH, 480V 3PH)

APPROVED: _____ CHECKED: _____ ORIGINAL RELEASE NO: _____

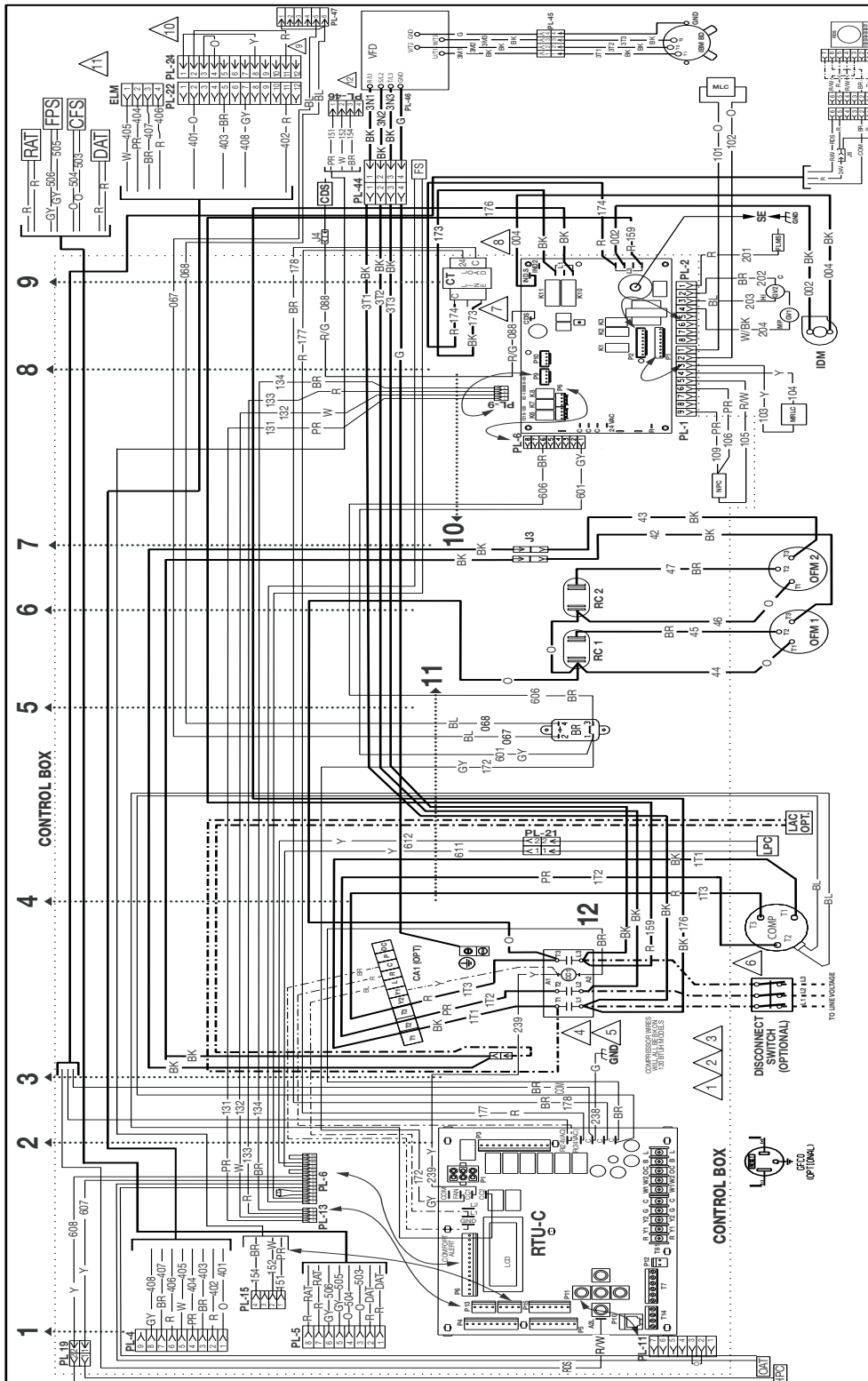
MODELED BY: VYM DATE: 4/16/2024 117048

PART NO: 90-110008-01 REV: 00

Appendix H. Wiring Diagrams & Schematics (Cont.)

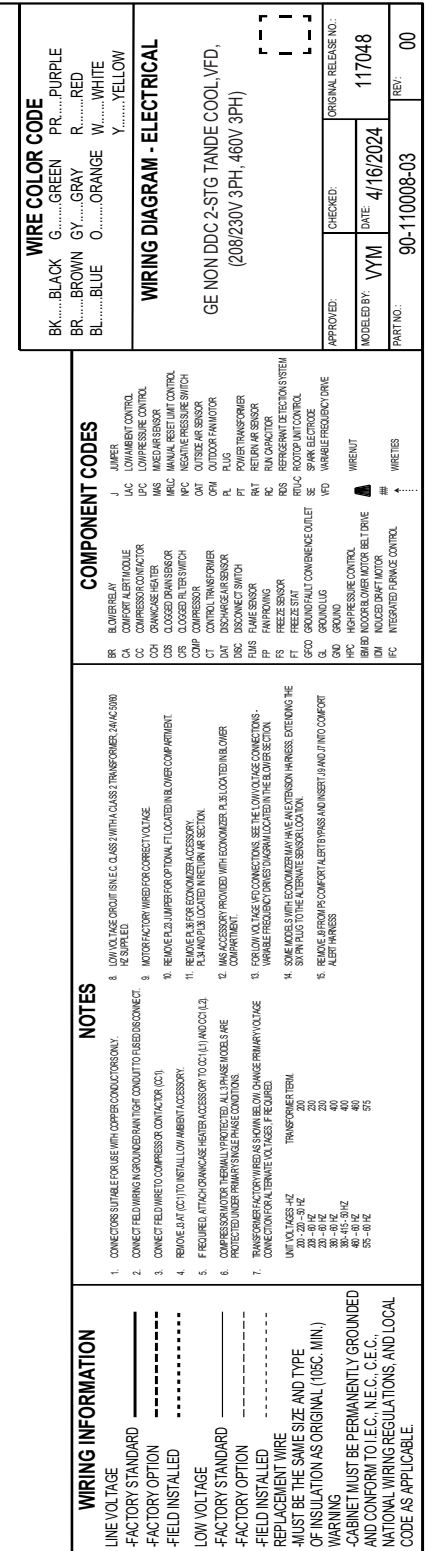
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Appendix H. Wiring Diagrams & Schematics (Cont.)

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Appendix H. Wiring Diagrams & Schematics (Cont.)



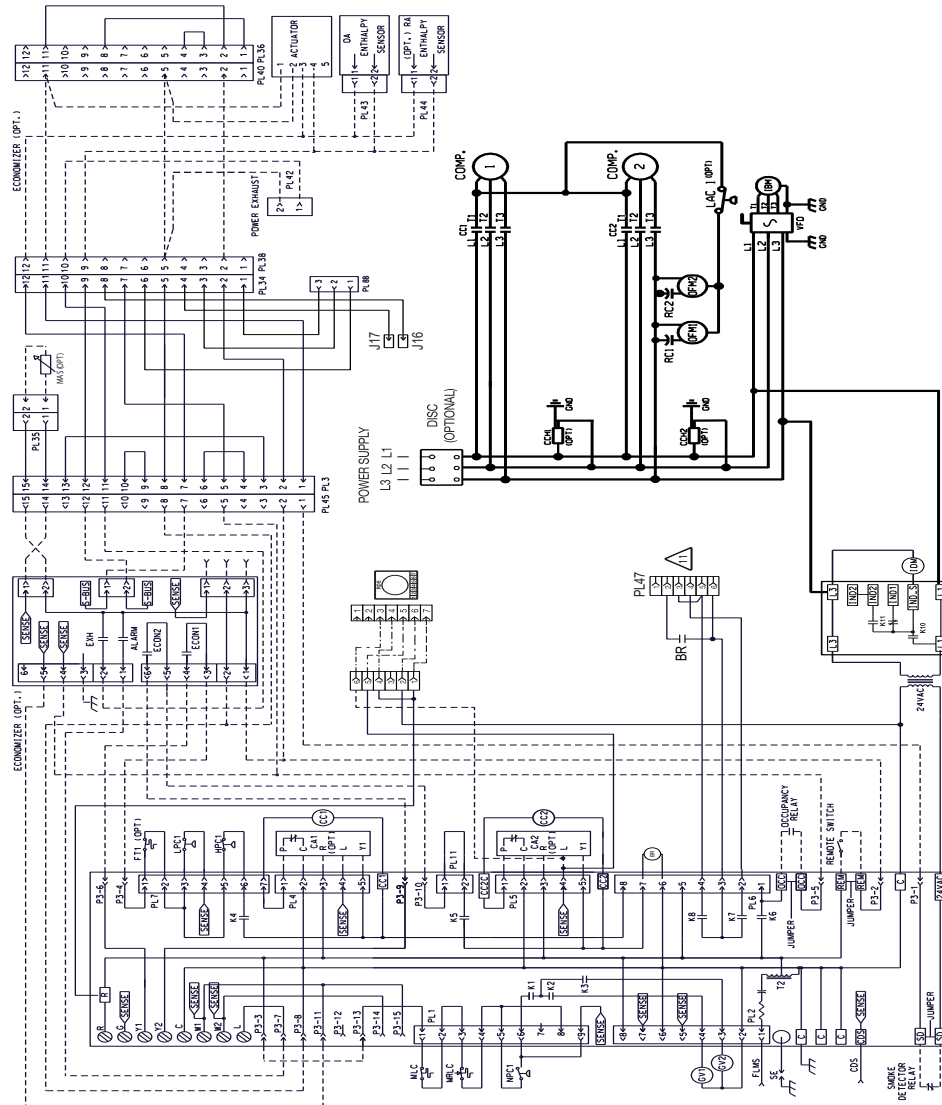
Appendix H. Wiring Diagrams & Schematics (Cont.)

ALARM CODES		
CODE	Description	FAULT/RE-INIT
0	STANDBY	0
1	COMPRESSOR ON - Low Pressure (in time delay)	0
2	COMPRESSOR ON - High Pressure (in time delay)	0
3	Economizer Cooling - No Compressor	0
4	CONTINUOUS FAN	0
5	HEATON - Low Stage	0
6	HEATON - High Stage	0
7	Combiner Air Code For Compressor Circuit 1	3
8	Combiner Air Code For Compressor Circuit 2	3
9	Combiner Air Code For Compressor Circuit 3	3
10	Combiner Air Code For Compressor Circuit 4	3
11	Combiner Air Code For Compressor Circuit 5	3
12	Combiner Air Code For Compressor Circuit 6	3
13	Combiner Air Code For Compressor Circuit 7	3
14	Combiner Air Code For Compressor Circuit 8	3
15	Combiner Air Code For Compressor Circuit 9	3
16	Combiner Air Code For Compressor Circuit 10	3
17	Combiner Air Code For Compressor Circuit 11	3
18	Combiner Air Code For Compressor Circuit 12	3
19	Combiner Air Code For Compressor Circuit 13	3
20	Combiner Air Code For Compressor Circuit 14	3
21	Combiner Air Code For Compressor Circuit 15	3
22	Combiner Air Code For Compressor Circuit 16	3
23	Combiner Air Code For Compressor Circuit 17	3
24	Combiner Air Code For Compressor Circuit 18	3
25	Combiner Air Code For Compressor Circuit 19	3
26	Combiner Air Code For Compressor Circuit 20	3
27	Combiner Air Code For Compressor Circuit 21	3
28	Combiner Air Code For Compressor Circuit 22	3
29	Combiner Air Code For Compressor Circuit 23	3
30	Combiner Air Code For Compressor Circuit 24	3
31	Combiner Air Code For Compressor Circuit 25	3
32	Combiner Air Code For Compressor Circuit 26	3
33	Combiner Air Code For Compressor Circuit 27	3
34	Combiner Air Code For Compressor Circuit 28	3
35	Combiner Air Code For Compressor Circuit 29	3
36	Combiner Air Code For Compressor Circuit 30	3
37	Combiner Air Code For Compressor Circuit 31	3
38	Combiner Air Code For Compressor Circuit 32	3
39	Combiner Air Code For Compressor Circuit 33	3
40	Combiner Air Code For Compressor Circuit 34	3
41	Combiner Air Code For Compressor Circuit 35	3
42	Combiner Air Code For Compressor Circuit 36	3
43	Combiner Air Code For Compressor Circuit 37	3
44	Combiner Air Code For Compressor Circuit 38	3
45	Combiner Air Code For Compressor Circuit 39	3
46	Combiner Air Code For Compressor Circuit 40	3
47	Combiner Air Code For Compressor Circuit 41	3
48	Combiner Air Code For Compressor Circuit 42	3
49	Combiner Air Code For Compressor Circuit 43	3
50	Combiner Air Code For Compressor Circuit 44	3
51	Combiner Air Code For Compressor Circuit 45	3
52	Combiner Air Code For Compressor Circuit 46	3
53	Combiner Air Code For Compressor Circuit 47	3
54	Combiner Air Code For Compressor Circuit 48	3
55	Combiner Air Code For Compressor Circuit 49	3
56	Combiner Air Code For Compressor Circuit 50	3
57	Combiner Air Code For Compressor Circuit 51	3
58	Combiner Air Code For Compressor Circuit 52	3
59	Combiner Air Code For Compressor Circuit 53	3
60	Combiner Air Code For Compressor Circuit 54	3
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62	Combiner Air Code For Compressor Circuit 56	3
63	Combiner Air Code For Compressor Circuit 57	3
64	Combiner Air Code For Compressor Circuit 58	3
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71	Combiner Air Code For Compressor Circuit 65	3
72	Combiner Air Code For Compressor Circuit 66	3
73	Combiner Air Code For Compressor Circuit 67	3
74	Combiner Air Code For Compressor Circuit 68	3
75	Combiner Air Code For Compressor Circuit 69	3
76	Combiner Air Code For Compressor Circuit 70	3
77	Combiner Air Code For Compressor Circuit 71	3
78	Combiner Air Code For Compressor Circuit 72	3
79	Combiner Air Code For Compressor Circuit 73	3
80	Combiner Air Code For Compressor Circuit 74	3
81	Combiner Air Code For Compressor Circuit 75	3
82	Combiner Air Code For Compressor Circuit 76	3
83	Combiner Air Code For Compressor Circuit 77	3
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85	Combiner Air Code For Compressor Circuit 79	3
86	Combiner Air Code For Compressor Circuit 80	3
87	Combiner Air Code For Compressor Circuit 81	3
88	Combiner Air Code For Compressor Circuit 82	3
89	Combiner Air Code For Compressor Circuit 83	3
90	Combiner Air Code For Compressor Circuit 84	3
91	Combiner Air Code For Compressor Circuit 85	3
92	Combiner Air Code For Compressor Circuit 86	3
93	Combiner Air Code For Compressor Circuit 87	3
94	Combiner Air Code For Compressor Circuit 88	3
95	Combiner Air Code For Compressor Circuit 89	3
96	Combiner Air Code For Compressor Circuit 90	3
97	Combiner Air Code For Compressor Circuit 91	3
98	Combiner Air Code For Compressor Circuit 92	3
99	Combiner Air Code For Compressor Circuit 93	3
100	Combiner Air Code For Compressor Circuit 94	3

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

WIRING SCHEMATIC - ELECTRICAL
 GE NON DDC 2 STG TANDEM COOL VFD,
 (208/230V 3PH, 480V 3PH)

APPROVED:	CHECKED:	ORIGINAL RELEASE NO.
MODELED BY:	DATE:	117048
PART NO.	90-110009-03	REV: 03



COMPONENT CODES

BR	BLOWER RELAY	LPC	LOW PRESSURE CONTROL
CA	COMPACT ALERT MODULE	MAS	MIXED AIR SENSOR
CC	COMPRESSOR CONTACTOR	MLC	MAIN LIMIT CONTROL
CD	CRANKCASE HEATER	MRC	MANUAL RESET LIMIT CONTROL
CH	CLOGGED HEATER	NPC	NEGATIVE PRESSURE SWITCH
CL	CLOGGED FILTER SWITCH	OPM	OUTDOOR FAN MOTOR
CM	COMPRESSOR MOTOR	PL	PLUG
CT	CONTROL TRANSFORMER	PT	POWER TRANSFORMER
DAT	DISCHARGE AIR SENSOR	RA	RETURN AIR SENSOR
FLM	FLAME SENSOR	RC	ROOM AIR SENSOR
FAN	FAN PROXIMITY	RS	REMOTE SWITCH
ES	EXHAUST FAN	SE	SPARK ELECTRODE
FE	FREEZE STAT	US	UNLOADER DRIVE
GF	GROUNDING FAULT	VFD	VARIABLE FREQUENCY DRIVE
GL	GROUND LUG		
GR	GROUND		
HPC	HIGH PRESSURE CONTROL		
IM	INDUCED DRAFT MOTOR		
BM	BLOWER MOTOR		
INT	INTEGRATED FURNACE CONTROL		
LAC	LOW AMBIENT CONTROL		

NOTES

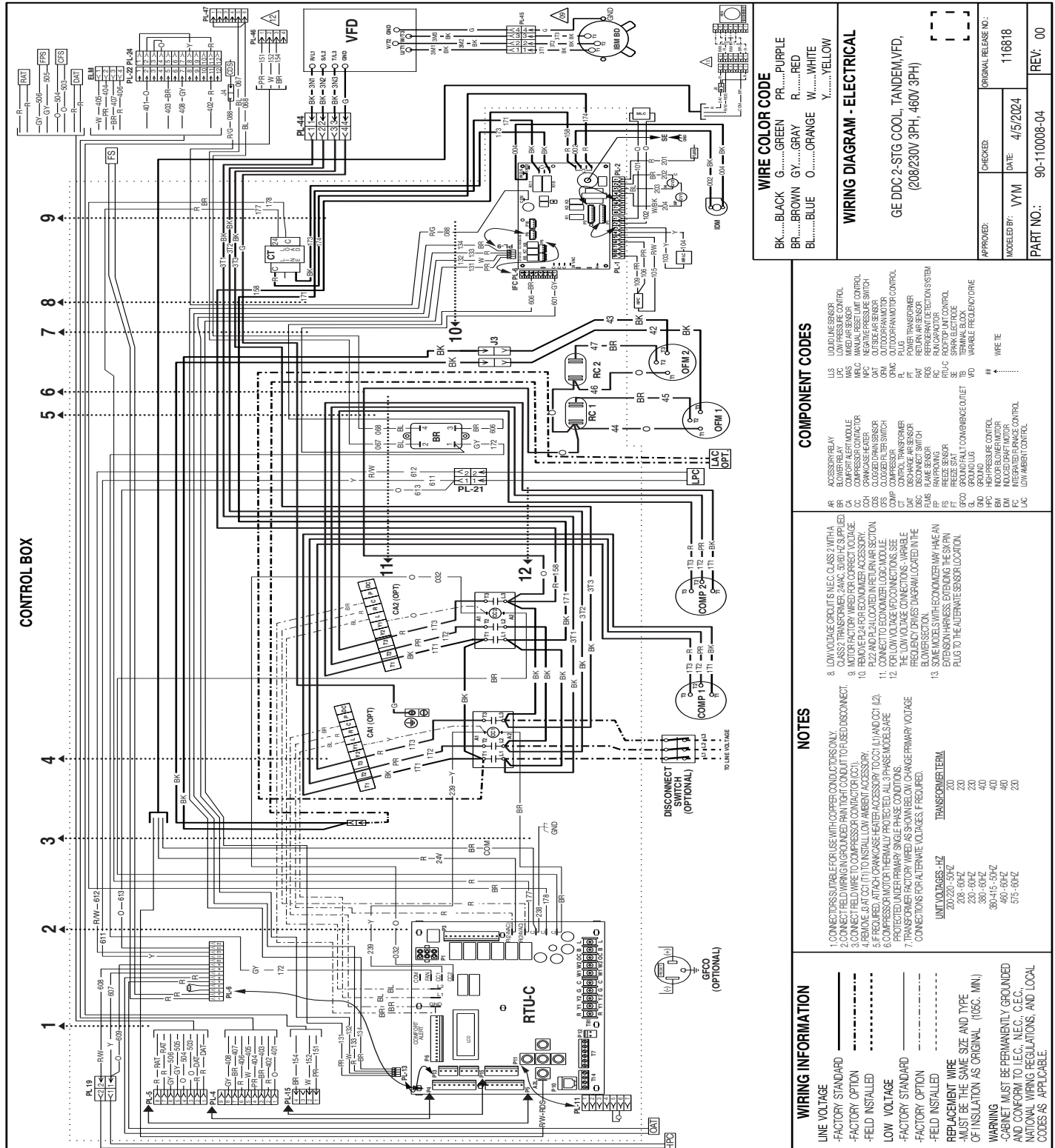
- CONNECTORS SHALL BE RATED FOR THE CORRESPONDING VOLTAGE.
 - CONNECT FIELD WIRE TO GROUND (RIGHT CONDUIT) TO ISOLATE DISCONNECT.
 - COMPRESSOR FIELD WIRE TO COMPRESSOR CONTACTOR (CC).
 - REMOVE IS AT (CC) TO INSTALL LOW AMBIENT ACCESSORY.
 - IF REQUIRED, ATTACH CRANKCASE HEATER ACCESSORY TO CC (L1 AND CC (L2)).
 - FOR LOW VOLTAGE VFD CONNECTIONS, SEE THE "LOW VOLTAGE VFD CONNECTIONS" VARIABLE FREQUENCY DRIVE (VFD) MANUAL.
 - TRANSFORMER FACTORY WIRING IS SHOWN BELOW. CHANGE PRIMARY VOLTAGE CONNECTIONS TO MATCH VOLTAGE. IF REQUIRED.
- | UNIT VOLTAGE (V) | TRANSFORMER TAP |
|------------------|-----------------|
| 208-230V-3PH | 200 |
| 230-240V-3PH | 200 |
| 230-240V-3PH | 200 |
| 380-415V-3PH | 400 |
| 460-480V-3PH | 400 |
| 575-600V-3PH | 200 |

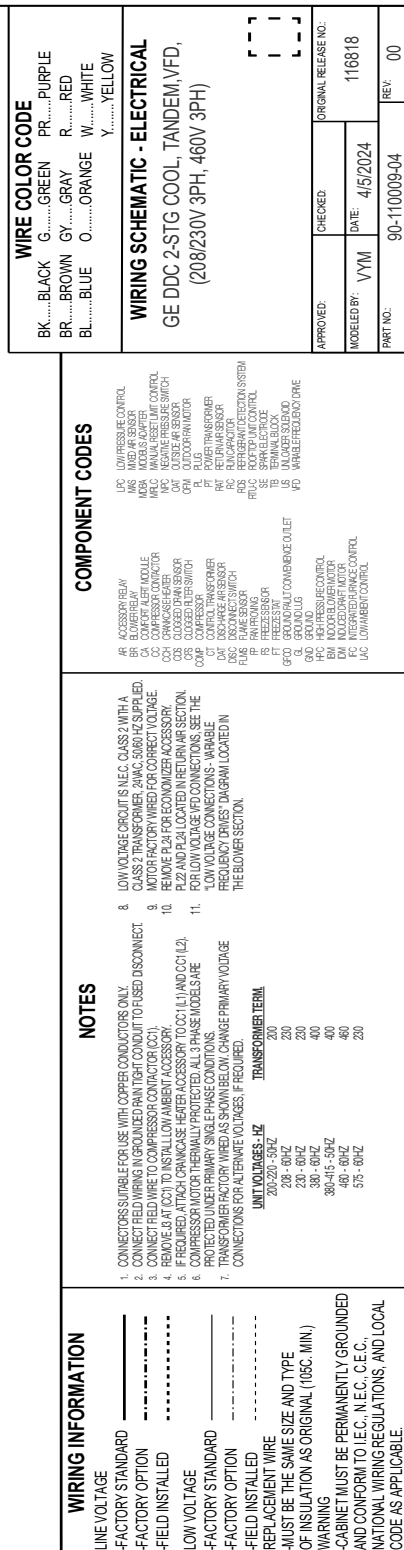
WIRING INFORMATION

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

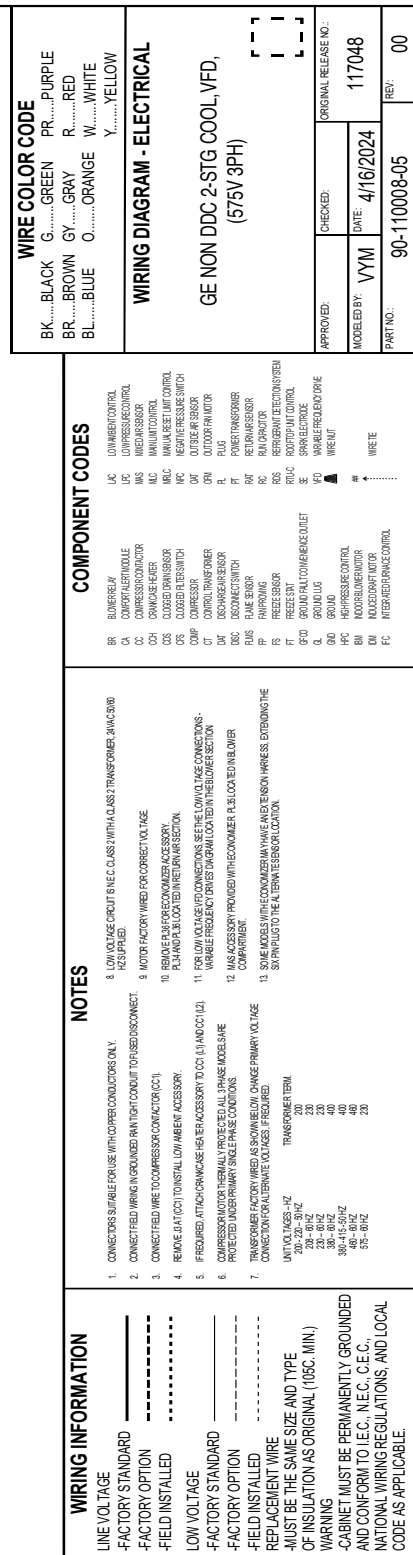
P. APPENDICES

Appendix H. Wiring Diagrams & Schematics (Cont.)





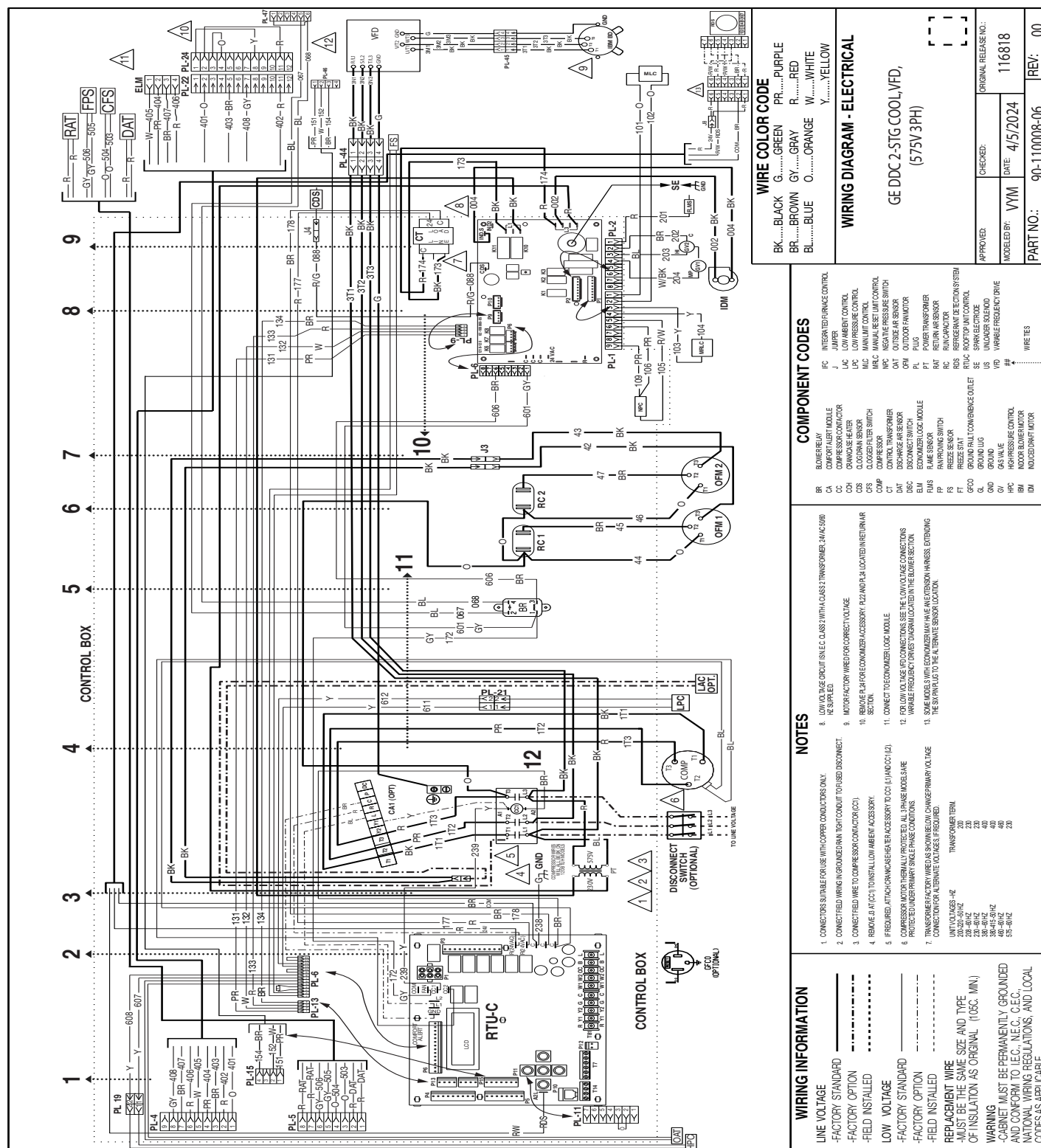
Appendix H. Wiring Diagrams & Schematics (Cont.)

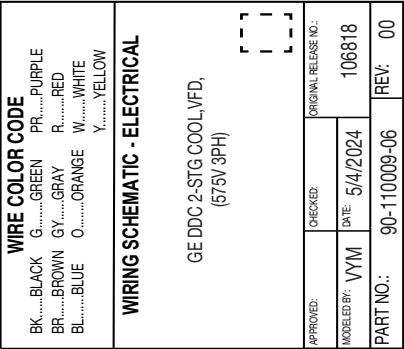




P. APPENDICES

Appendix H. Wiring Diagrams & Schematics (Cont.)



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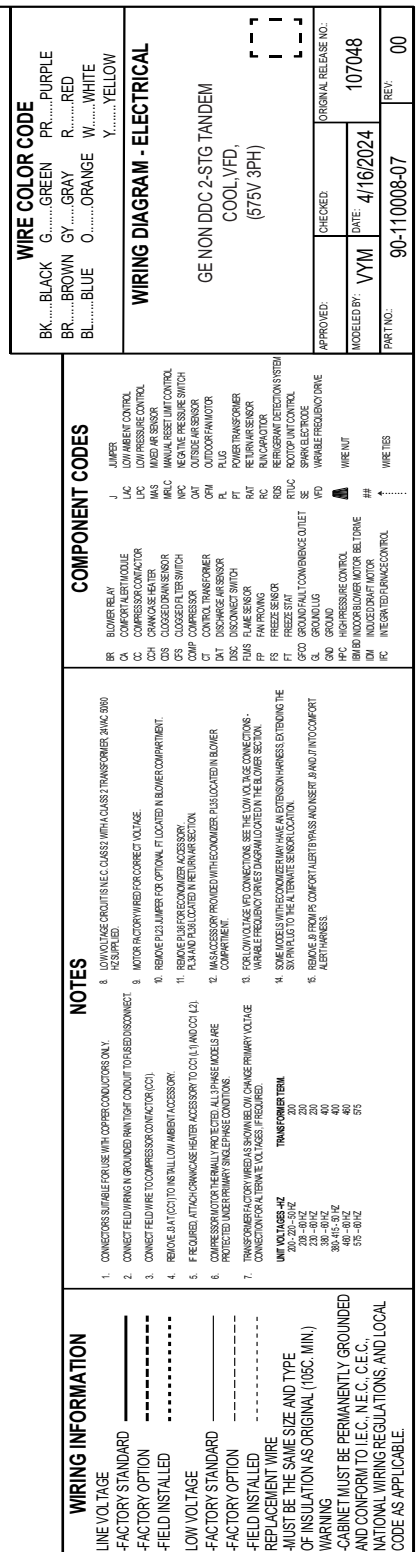
8. LOW VOLTAGE CIRCUIT IS IN EC CLASS 2 WITH A CLASS 2 TRANSFORMER 2WVA, 50/60 HZ SUPPLY
9. MOTOR FACTORY WIND FOR CORRECT VOLTAGE
10. REMOVED PL 36 FOR ECONOMIZER ACCESSORY
11. PL 34 AND PL 38 LOCATED IN RETURN AIR SECTION FOR LOW VOLTAGE WPD CONNECTIONS. SEE THE "LOW VOLTAGE CONNECTIONS" VARIABLE FREQUENCY DRIVES DIAGRAM LOCATED IN THE BLOWER SECTION.

NOTES

- | UNIT VOLTAGES-Hz | TRANSFORMER THERM. |
|------------------|--------------------|
| 200-250-50/Hz | 200 |
| 230-60/Hz | 230 |
| 230-60/Hz | 230 |
| 380-60/Hz | 400 |
| 380-15-50/Hz | 400 |
| 460-60/Hz | 460 |
| 575-60/Hz | 230 |

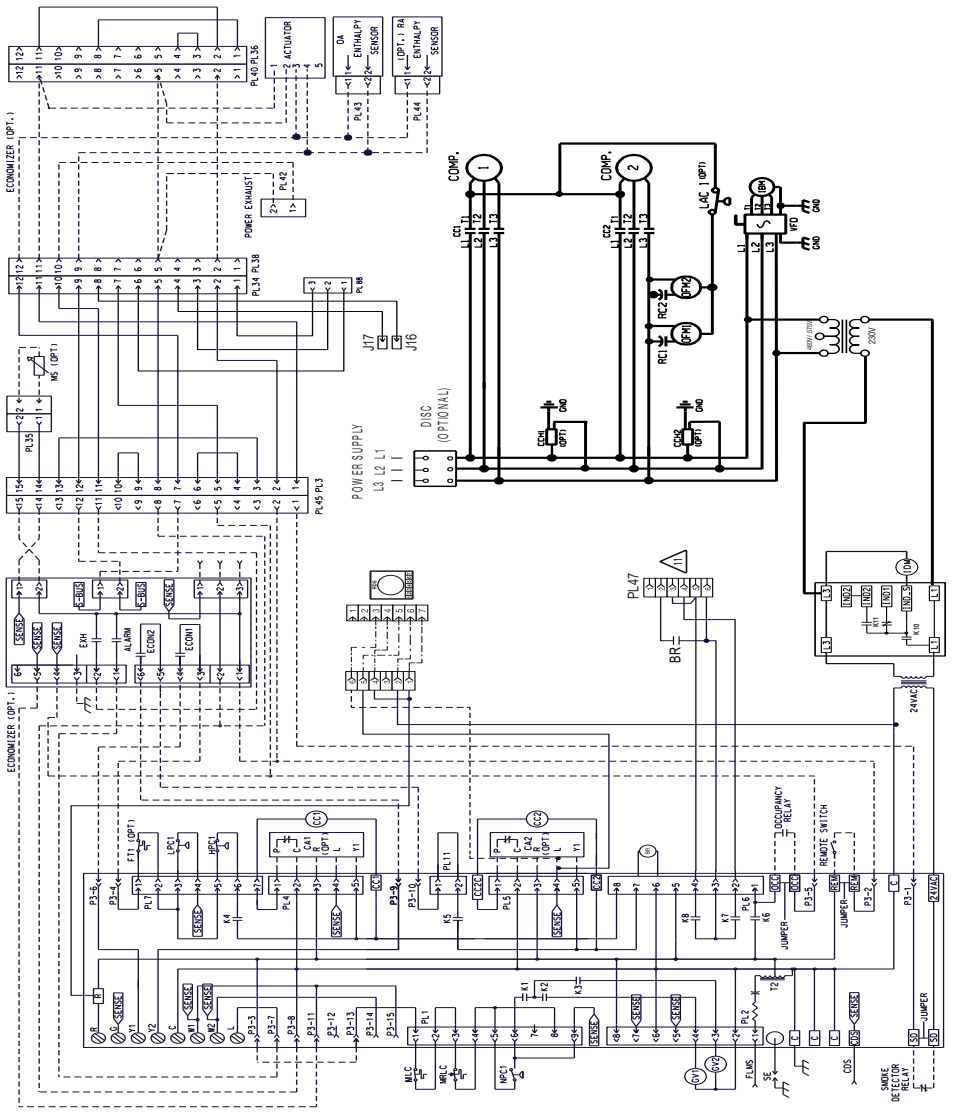
WIRING INFORMATION	
1. LINE VOLTAGE	—
2. -FACTORY STANDARD	—
3. -FACTORY OPTION	---
4. -FIELD INSTALLED	----
5. —	----
6. LOW VOLTAGE	—
7. -FACTORY STANDARD	—
-FACTORY OPTION	---
-FIELD INSTALLED	----
REPLACEMENT WIRE	—
MUST BE THE SAME SIZE AND TYPE	—
OF INSULATION AS ORIGINAL (105C, MIN.)	—
WARNING -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., O.E.C., NATIONAL WIRING REGULATIONS, AND LOCAL CODES AS APPLICABLE	

Appendix H. Wiring Diagrams & Schematics (Cont.)



Appendix H. Wiring Diagrams & Schematics (Cont.)

ALARM CODES		
CODE	Description	Alarm Release
0	SHUTTER	0
C	COMPRESSOR ON - Low (in time delay)	0
C	COMPRESSOR ON - High (in time delay)	0
E	Exhaust Cooling - No Compressor	0
F	CONTINUOUS RUN	0
H	HEATON - Low Stage	0
H	HEATON - High Stage	0
4	Combin. Air-Cool. For Compressor Circuit 1	3
5	Combin. Air-Cool. For Compressor Circuit 2	3
7	Combin. Air-Cool. For Compressor Circuit 1	3
8	Combin. Air-Cool. For Compressor Circuit 2	3
9	Combin. Air-Cool. For Compressor Circuit 1	3
10	Combin. Air-Cool. For Compressor Circuit 2	3
11	FLAME FAILURE	2
12	FLAME FAILURE	2
13	FLAME FAILURE	2
14	UNEXPECTED FLAME	3
15	2" Stage Gas Valve Improper Voltage	2
20	REPEREASE LOW PRESSURE SWITCH OPEN - CIRCUIT 1	2
21	REPEREASE LOW PRESSURE SWITCH OPEN - CIRCUIT 2	2
22	REPEREASE LOW PRESSURE SWITCH OPEN - CIRCUIT 1	2
23	REPEREASE LOW PRESSURE SWITCH OPEN - CIRCUIT 2	2
30	REPEREASE LOW PRESSURE SWITCH OPEN - CIRCUIT 1	2
31	REPEREASE LOW PRESSURE SWITCH OPEN - CIRCUIT 2	2
32	REPEREASE LOW PRESSURE SWITCH OPEN - CIRCUIT 1	2
33	REPEREASE LOW PRESSURE SWITCH OPEN - CIRCUIT 2	2
34	Combin. Air-Cool. For Compressor Circuit 1	3
35	Combin. Air-Cool. For Compressor Circuit 2	3
36	Combin. Air-Cool. For Compressor Circuit 1	3
37	Combin. Air-Cool. For Compressor Circuit 2	3
38	Combin. Air-Cool. For Compressor Circuit 1	3
39	Combin. Air-Cool. For Compressor Circuit 2	3
40	Combin. Air-Cool. For Compressor Circuit 1	3
41	Combin. Air-Cool. For Compressor Circuit 2	3
42	Combin. Air-Cool. For Compressor Circuit 1	3
43	Combin. Air-Cool. For Compressor Circuit 2	3
44	Combin. Air-Cool. For Compressor Circuit 1	3
45	Combin. Air-Cool. For Compressor Circuit 2	3
46	Combin. Air-Cool. For Compressor Circuit 1	3
47	Combin. Air-Cool. For Compressor Circuit 2	3
48	Combin. Air-Cool. For Compressor Circuit 1	3
49	Combin. Air-Cool. For Compressor Circuit 2	3
50	Combin. Air-Cool. For Compressor Circuit 1	3
51	Combin. Air-Cool. For Compressor Circuit 2	3
52	Combin. Air-Cool. For Compressor Circuit 1	3
53	Combin. Air-Cool. For Compressor Circuit 2	3
54	Combin. Air-Cool. For Compressor Circuit 1	3
55	Combin. Air-Cool. For Compressor Circuit 2	3
56	Combin. Air-Cool. For Compressor Circuit 1	3
57	Combin. Air-Cool. For Compressor Circuit 2	3
58	Combin. Air-Cool. For Compressor Circuit 1	3
59	Combin. Air-Cool. For Compressor Circuit 2	3
60	Combin. Air-Cool. For Compressor Circuit 1	3
61	Combin. Air-Cool. For Compressor Circuit 2	3
62	Combin. Air-Cool. For Compressor Circuit 1	3
63	Combin. Air-Cool. For Compressor Circuit 2	3
64	Combin. Air-Cool. For Compressor Circuit 1	3
65	Combin. Air-Cool. For Compressor Circuit 2	3
66	Combin. Air-Cool. For Compressor Circuit 1	3
67	Combin. Air-Cool. For Compressor Circuit 2	3
68	Combin. Air-Cool. For Compressor Circuit 1	3
69	Combin. Air-Cool. For Compressor Circuit 2	3
70	Combin. Air-Cool. For Compressor Circuit 1	3
71	Combin. Air-Cool. For Compressor Circuit 2	3
72	Combin. Air-Cool. For Compressor Circuit 1	3
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77	Combin. Air-Cool. For Compressor Circuit 2	3
78	Combin. Air-Cool. For Compressor Circuit 1	3
79	Combin. Air-Cool. For Compressor Circuit 2	3
80	Combin. Air-Cool. For Compressor Circuit 1	3
81	Combin. Air-Cool. For Compressor Circuit 2	3
82	Combin. Air-Cool. For Compressor Circuit 1	3
83	Combin. Air-Cool. For Compressor Circuit 2	3
84	Combin. Air-Cool. For Compressor Circuit 1	3
85	Combin. Air-Cool. For Compressor Circuit 2	3
86	Combin. Air-Cool. For Compressor Circuit 1	3
87	Combin. Air-Cool. For Compressor Circuit 2	3
88	Combin. Air-Cool. For Compressor Circuit 1	3
89	Combin. Air-Cool. For Compressor Circuit 2	3
90	Combin. Air-Cool. For Compressor Circuit 1	3
91	Combin. Air-Cool. For Compressor Circuit 2	3
92	Combin. Air-Cool. For Compressor Circuit 1	3
93	Combin. Air-Cool. For Compressor Circuit 2	3
94	Combin. Air-Cool. For Compressor Circuit 1	3
95	Combin. Air-Cool. For Compressor Circuit 2	3
96	Combin. Air-Cool. For Compressor Circuit 1	3
97	Combin. Air-Cool. For Compressor Circuit 2	3



WIRE COLOR CODE	
BK.....BLACK	G.....GREEN
BR.....BROWN	GY.....GRAY
BL.....BLUE	O.....ORANGE
	W.....WHITE
	Y.....YELLOW

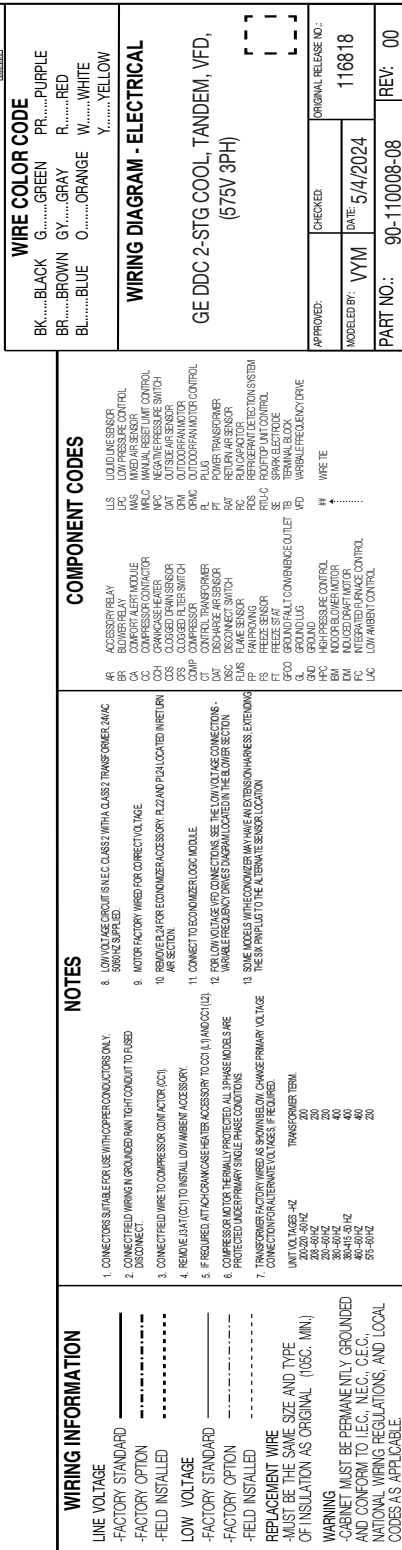
WIRING SCHEMATIC - ELECTRICAL	
GE NON DDC 2-STG TANDDEM COOL VFD, (575V 3PH)	
APPROVED:	CHECKED:
MODELED BY: VYM	DATE: 4/16/2024
PART NO.: 90-110009-07	REV: 00

COMPONENT CODES	
BR	BLOWER RELAY
CA	COMFORT ALERT MODULE
CC	COMPRESSOR CONTACTOR
CCH	CRANKCASE HEATER
CDS	CLOGGED DRAIN SENSOR
CFS	CLOGGED FILTER SWITCH
COMP	COMPRESSOR
CT	CONTROL TRANSFORMER
DISC	DISCONNECT SWITCH
FLMS	FLAME SENSOR
FP	FAN PROVING
FS	FREEZE SENSOR
FT	FREEZE STAT
GFCO	GROUND FAULT CONVENIENCE OUTLET
GN	GROUND LUG
HPC	HIGH PRESSURE CONTROL
BM	INDOOR BLOWER MOTOR
DM	INDUCED DRAFT MOTOR
FC	INTEGRATED FURNACE CONTROL
LAC	LOW AMBIENT CONTROL
LPC	LOW PRESSURE CONTROL
MAS	MASS AIR SENSOR
MLC	MANUAL LIMIT CONTROL
MRLC	MANUAL RESET LIMIT CONTROL
NPC	NEGATIVE PRESSURE SWITCH
OUT	OUTSIDE AIR SENSOR
OPM	OUTDOOR FAN MOTOR
PL	PLUG
PT	POWER TRANSFORMER
RAT	RETURN AIR SENSOR
RC	RUN CAPACITOR
RCS	REFRIGERANT DETECTION SYSTEM
RTUC	ROOFTOP UNIT CONTROL
SE	SPARK ELECTRODE
US	UNLOADER SOLENOID
VFD	VARIABLE FREQUENCY DRIVE

NOTES	
1.	CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY
2.	CONNECT FELD WIRING IN GROUNDING RAIN TIGHT CONDUIT TO FUSED DISCONNECT
3.	REMOVE JUMP (CCT) TO INSTALL LOW AMBIENT ACCESSORY
4.	REMOVE JUMP (CCT) TO INSTALL LOW AMBIENT ACCESSORY
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100.	REMOVE JUMP (CCT) TO INSTALL LOW AMBIENT ACCESSORY

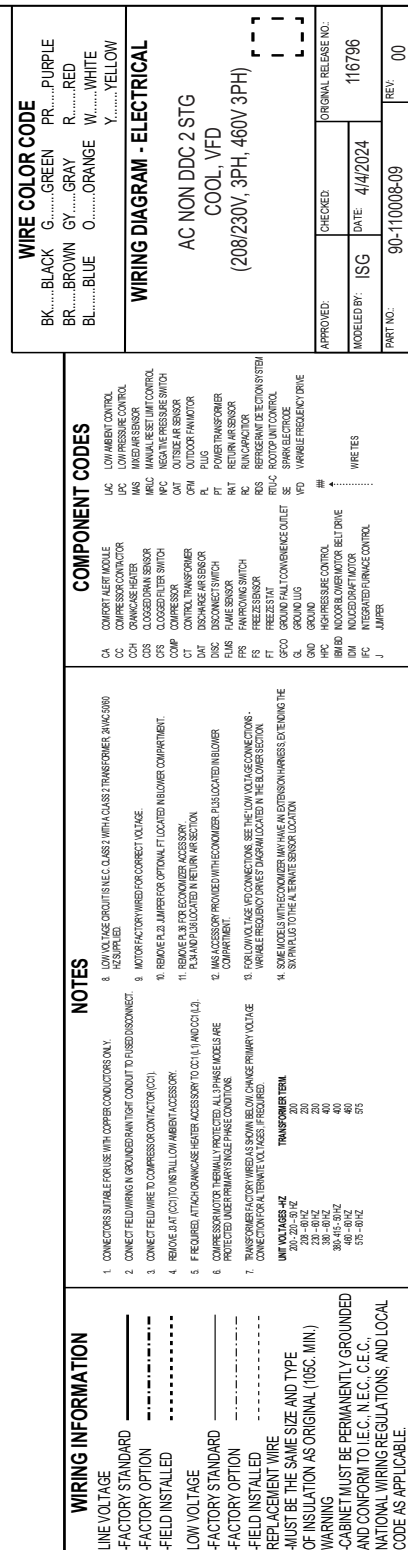
WIRING INFORMATION	
LINE VOLTAGE	
-FACTORY STANDARD	
-FACTORY OPTION	
-FIELD INSTALLED	
LOW VOLTAGE	
-FACTORY STANDARD	
-FACTORY OPTION	
-FIELD INSTALLED	
REPLACEMENT WIRE	
-MUST BE THE SAME SIZE AND TYPE	
-OF INSULATION AS ORIGINAL (105C. MIN.)	
WARNING	
-CABINET MUST BE PERMANENTLY GROUNDED	
-AND CONFORM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

Appendix H. Wiring Diagrams & Schematics (Cont.)





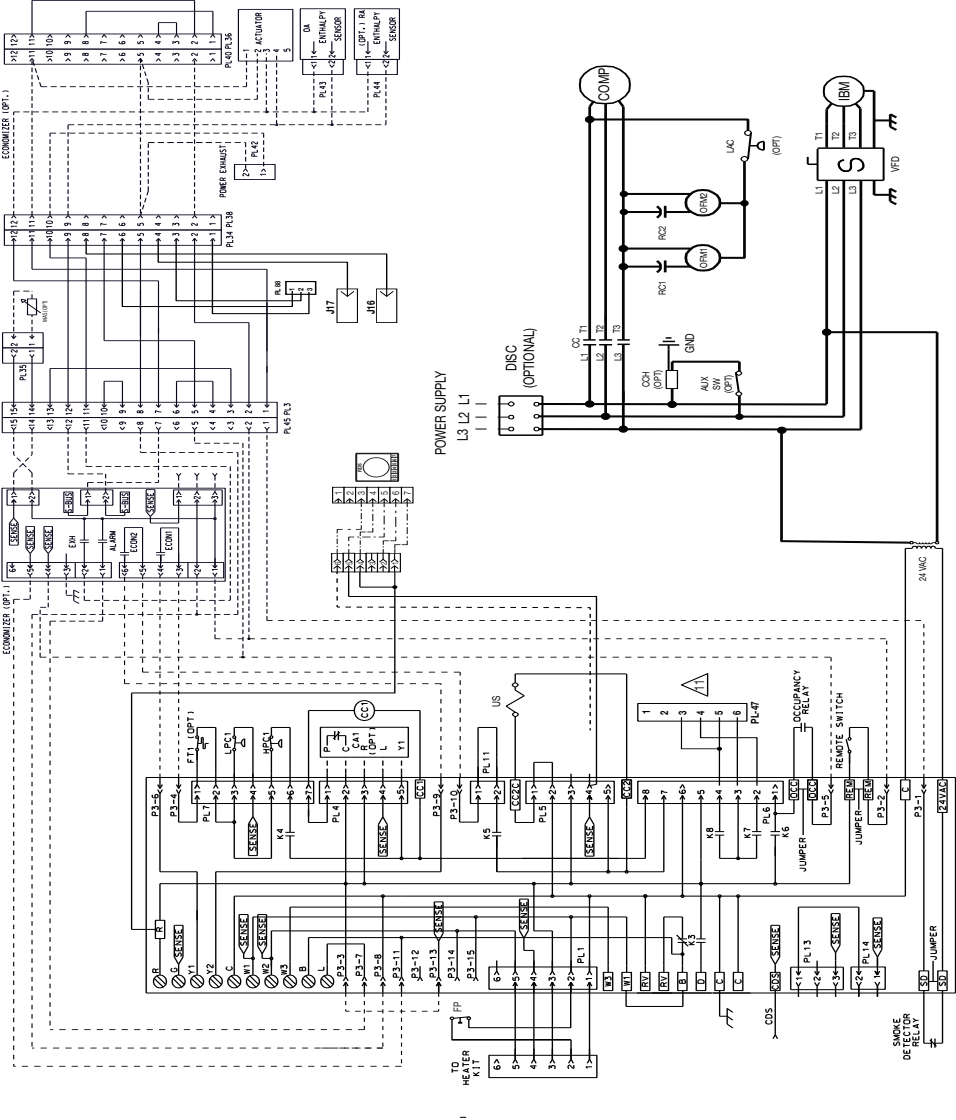
Appendix H. Wiring Diagrams & Schematics (Cont.)



Appendix H. Wiring Diagrams & Schematics (Cont.)

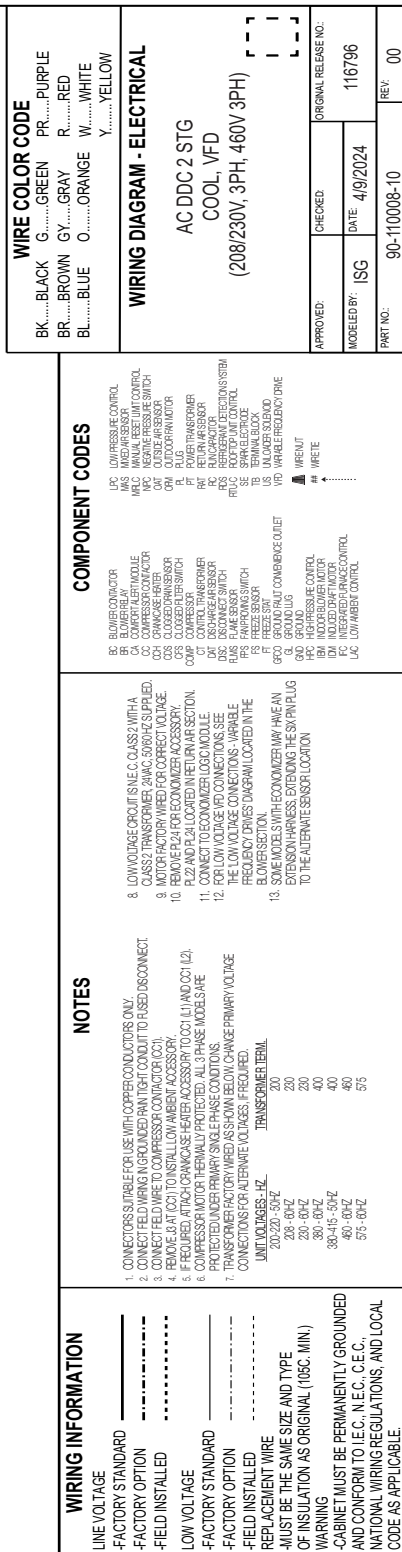
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WIRE COLOR CODE BK.....BLACK G.....GREEN PR.....PURPLE BR.....BROWN GR.....GRAY R.....RED BL.....BLUE O.....ORANGE W.....WHITE Y.....YELLOW		WIRING SCHEMATIC - ELECTRICAL AC NON DDC 2 STG COOL. VFD (208/230V, 3PH, 460V 3PH)		ORIGINAL RELEASE NO.: 116796	
APPROVED:	CHECKED:	DATE: 4/4/2024	MODELED BY: ISG		
PART NO: 90-110009-09		REV: 00			

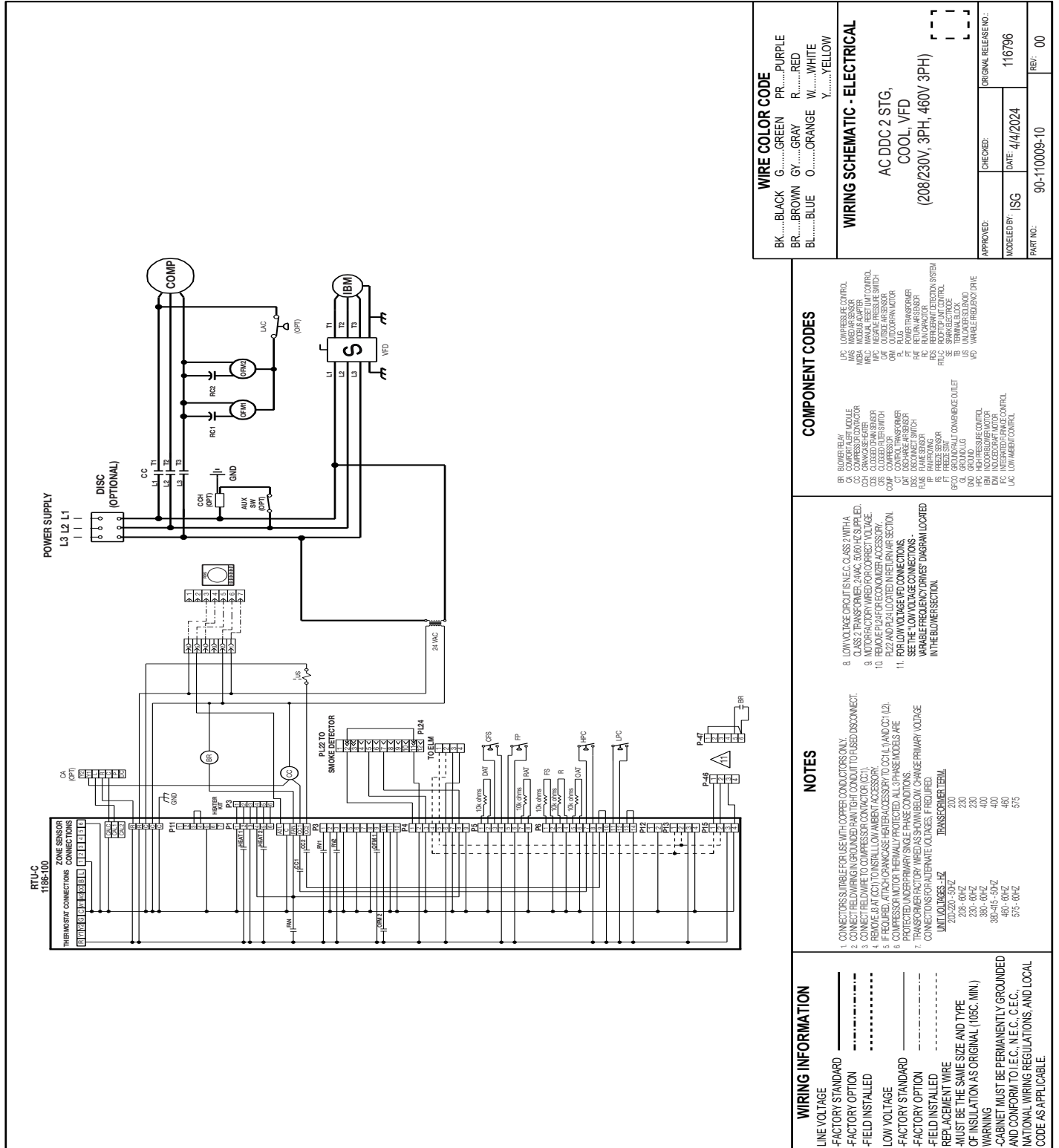


WIRING INFORMATION		NOTES	COMPONENT CODES
LINE VOLTAGE		1. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.	CA COMPRESSOR ALERT VOLTAGE
— FACTORY STANDARD		2. CONNECT FIELD WIRING IN GROUND RAIN TIGHT CONDUIT TO PREVENT DISCONNECT.	LC LOW AMBIENT CONTROL
— FACTORY OPTION		3. CONNECT FIELD WIRE TO COMPRESSOR CONTACTOR (CCT).	LP LOW PRESSURE CONTROL
— FIELD INSTALLED		4. REMOVE J.B. AT C101 TO INSTALL LOW AMBIENT ACCESSORY.	MC MANUAL REEST LIMIT CONTROL
— LOW VOLTAGE		5. REMOVE J.B. AT C101 TO INSTALL LOW VOLTAGE ACCESSORY.	MRLC MANUAL REEST LIMIT CONTROL
— FACTORY STANDARD		6. COMPRESSOR MOTOR THERMALLY PROTECTED. ALL PHASE MODELS ARE PROTECTED UNDER PRIMARY SINGLE PHASE CONDITIONS.	NC NEUTRAL PRESSURE SWITCH
— FACTORY OPTION		7. TRANSFORMER FACTORY WIRED AS SHOWN BELOW. CHANGE PRIMARY VOLTAGE CONNECTIONS FOR ALTERNATE VOLTAGES. IF REQUIRED.	OF OUTDOOR FAN MOTOR
— FIELD INSTALLED		UNIT VOLTAGES — JAZ	OFM OUTDOOR FAN MOTOR
— REPLACEMENT WIRE		208 208-0194	PL PLUG
— MUST BE THE SAME SIZE AND TYPE		230 230-0194	PT POWER TRANSFORMER
OF INSULATION AS ORIGINAL (105C. MIN.)		240 240-0194	PS PRESSURE SENSOR
		250 250-0194	PSA PRESSURE SWITCH ASSEMBLY
		260 260-0194	RAC RUN CAPACITOR
		270 270-0194	RDS REFRIGERANT DETECTION SYSTEM
		280 280-0194	RTUC ROOF TOP UNIT CONTROL
		290 290-0194	SAS SAFETY SWITCH
		300 300-0194	TS TERMINAL BLOCK
		310 310-0194	ULS UNILAYER SOLIDUM
		320 320-0194	VFV VARIABLE FREQUENCY DRIVE

Appendix H. Wiring Diagrams & Schematics (Cont.)



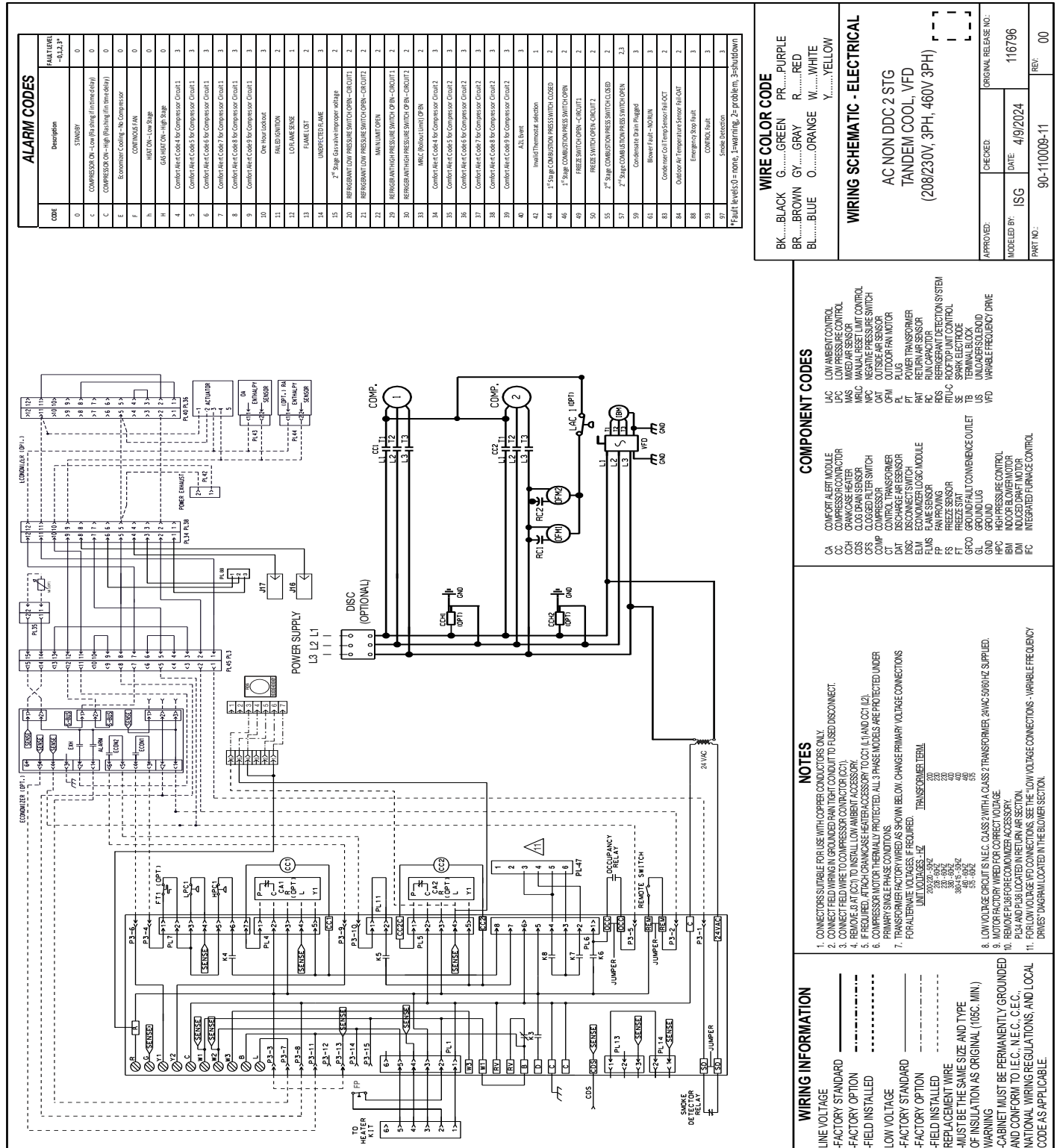
Appendix H. Wiring Diagrams & Schematics (Cont.)



Appendix H. Wiring Diagrams & Schematics (Cont.)

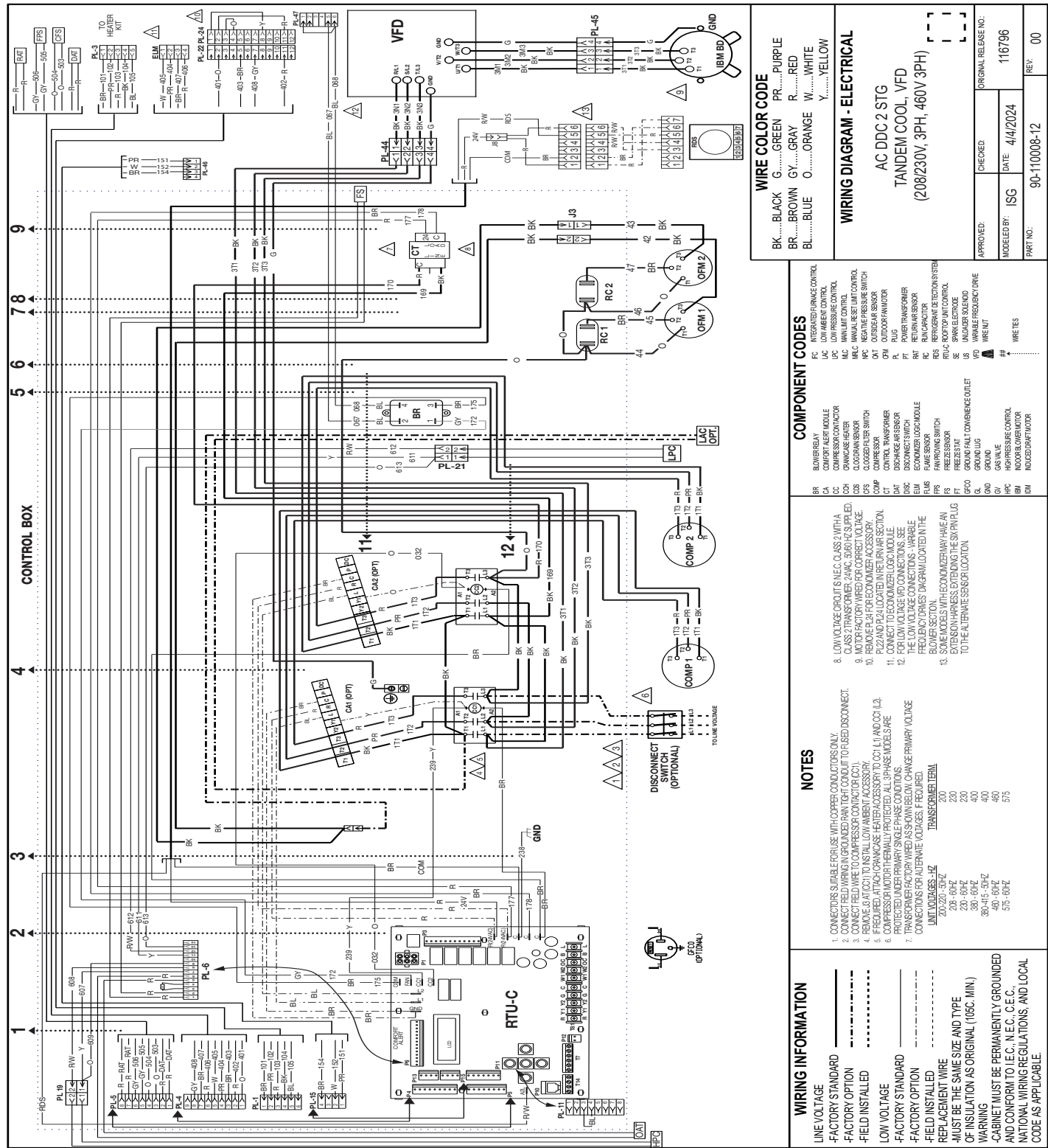


Appendix H. Wiring Diagrams & Schematics (Cont.)



P. APPENDICES

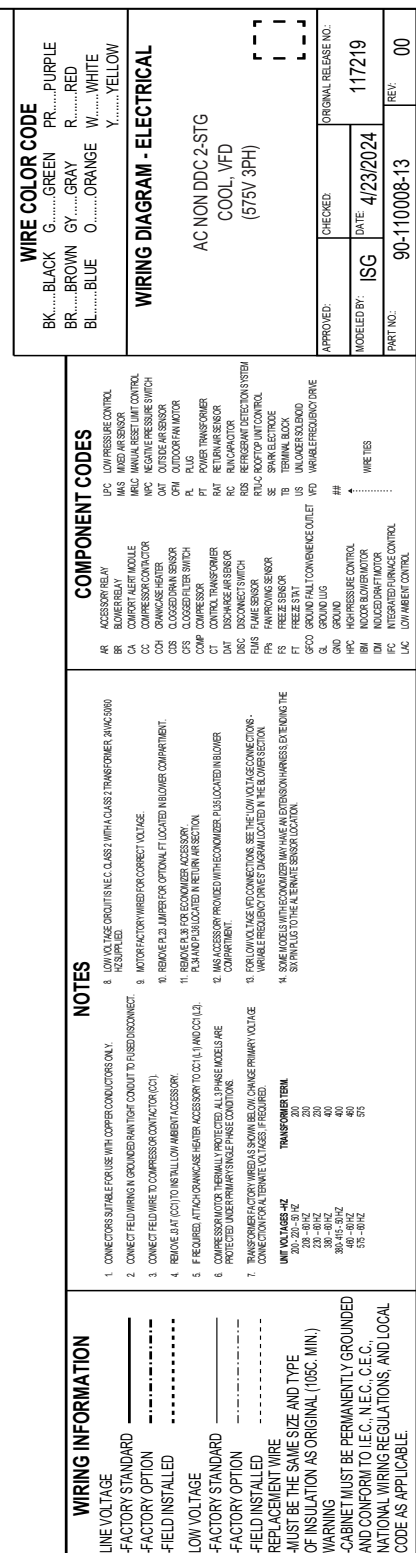
Appendix H. Wiring Diagrams & Schematics (Cont.)



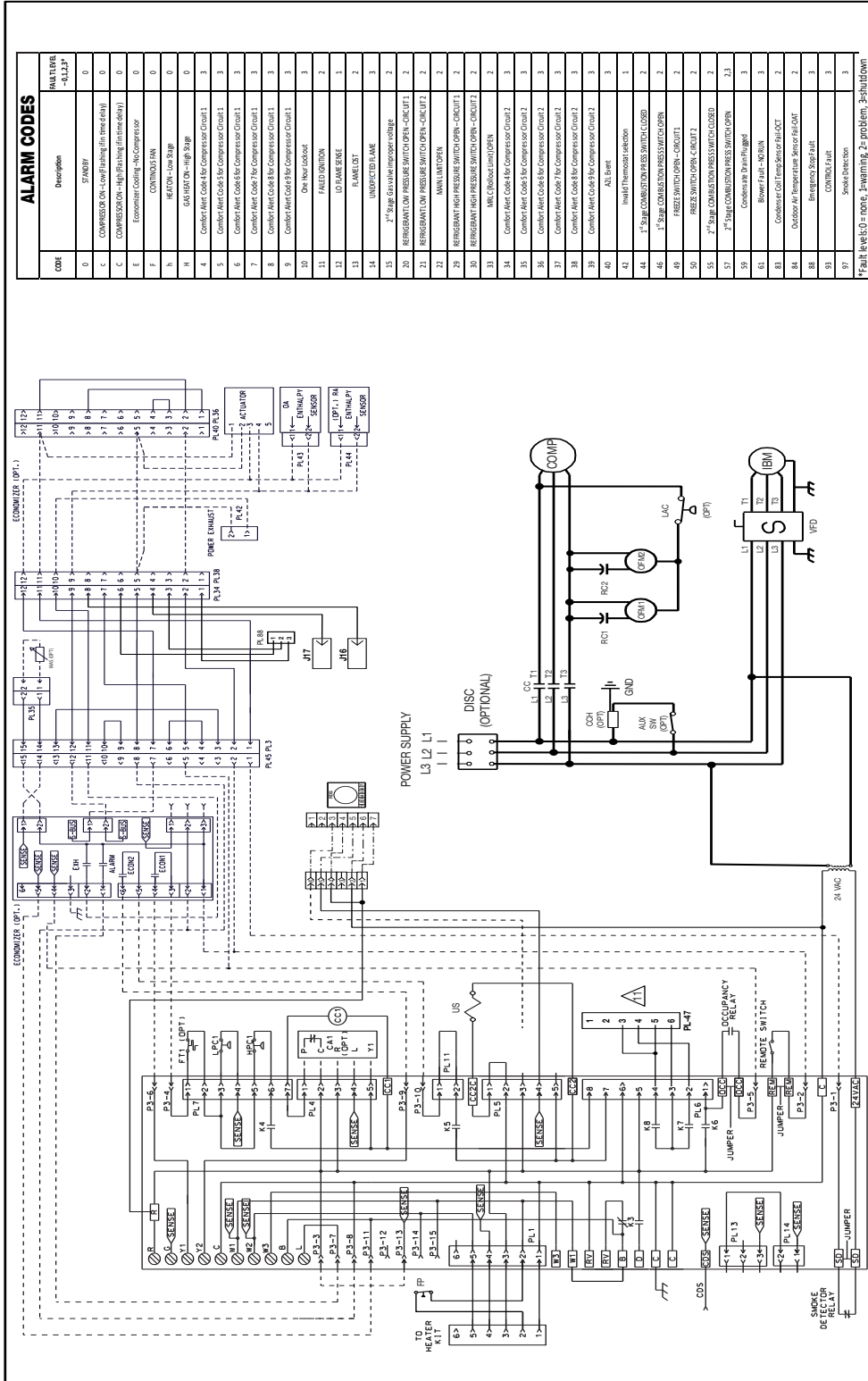
Appendix H. Wiring Diagrams & Schematics (Cont.)



Appendix H. Wiring Diagrams & Schematics (Cont.)



Appendix H. Wiring Diagrams & Schematics (Cont.)



WIRE COLOR CODE

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

WIRING SCHEMATIC - ELECTRICAL

AC NON DDC 2-STG VFD (575V, 3PH)

APPROVED:	CHECKED:	ORIGINAL RELEASE NO.:
MODELED BY: ISG	DATE: 4/23/2024	117219
PART NO.:	90-110009-13	REV. 00

COMPONENT CODES

C1: COMPRESSOR UNIT 1
 C2: COMPRESSOR UNIT 2
 C3: COMPRESSOR UNIT 3
 C4: COMPRESSOR UNIT 4
 C5: COMPRESSOR UNIT 5
 C6: COMPRESSOR UNIT 6
 C7: COMPRESSOR UNIT 7
 C8: COMPRESSOR UNIT 8
 C9: COMPRESSOR UNIT 9
 C10: COMPRESSOR UNIT 10
 C11: COMPRESSOR UNIT 11
 C12: COMPRESSOR UNIT 12
 C13: COMPRESSOR UNIT 13
 C14: COMPRESSOR UNIT 14
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 C93: COMPRESSOR UNIT 93
 C94: COMPRESSOR UNIT 94
 C95: COMPRESSOR UNIT 95
 C96: COMPRESSOR UNIT 96
 C97: COMPRESSOR UNIT 97
 C98: COMPRESSOR UNIT 98
 C99: COMPRESSOR UNIT 99
 C100: COMPRESSOR UNIT 100

NOTES

1. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
 2. CONNECT FELD WIRING IN GROUNDED RAIN TIGHT CONDUIT TO FUSED DISCONNECT.
 3. CONNECT FELD WIRE TO COMPRESSOR CONTACTOR (CC1).
 4. REMOVE J3 AT CC1 TO INSTALL LOW AMBIENT ACCESSORY.
 5. F REQUIRED, AT EACH COMPRESSOR HEATER ACCESSORY TO CC1 (L1 AND CC1 L2).
 6. COMPRESSOR MOTOR HEATER ACCESSORY TO CC1 (L1 AND CC1 L2).
 7. TRANSFORMER FACTORY WIRING AS SHOWN BELOW CHANGE PRIMARY VOLTAGE CONNECTIONS FOR ALTERNATE VOLTAGES, IF REQUIRED.
 8. LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER. 24VAC 50/60 HZ SUPPLIED.
 9. MOTOR FACTORY WIRING FOR CORRECT VOLTAGE.
 10. REMOVE P.38 FOR ECONOMIZER ACCESSORY.
 11. P.38 AND P.38 LOCATED IN RETURN AIR SECTION.
 12. FOR LOW VOLTAGE VFD CONNECTIONS, SEE THE FREQUENCY DRIVES DIAGRAM LOCATED IN THE BLOWER SECTION.

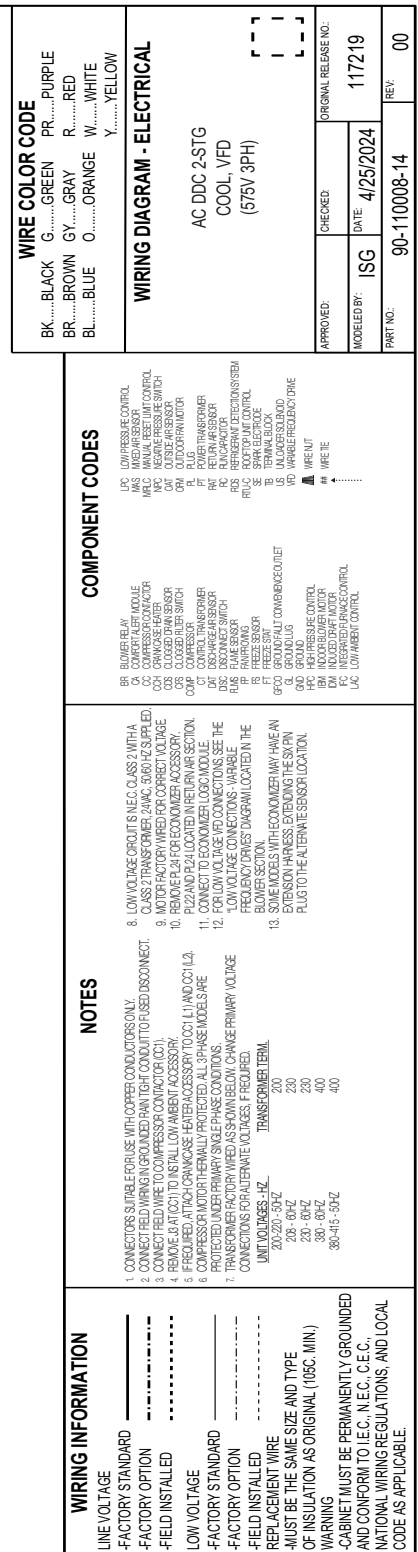
WIRING INFORMATION

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

UNIT VOLTAGES - HZ TRANSFORMER TERM.

200-230	50/60	200
230-240	50/60	230
240-250	50/60	240
250-260	50/60	250
260-270	50/60	260
270-280	50/60	270
280-290	50/60	280
290-300	50/60	290
300-310	50/60	300
310-320	50/60	310
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400-410	50/60	400
410-420	50/60	410
420-430	50/60	420
430-440	50/60	430
440-450	50/60	440
450-460	50/60	450
460-470	50/60	460
470-480	50/60	470
480-490	50/60	480
490-500	50/60	490
500-510	50/60	500
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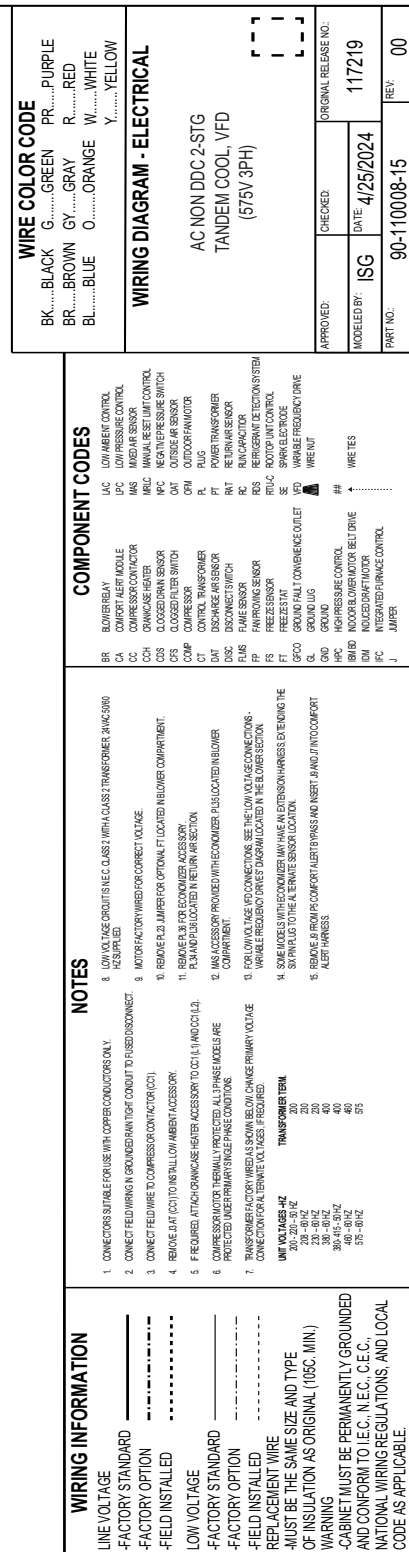
Appendix H. Wiring Diagrams & Schematics (Cont.)



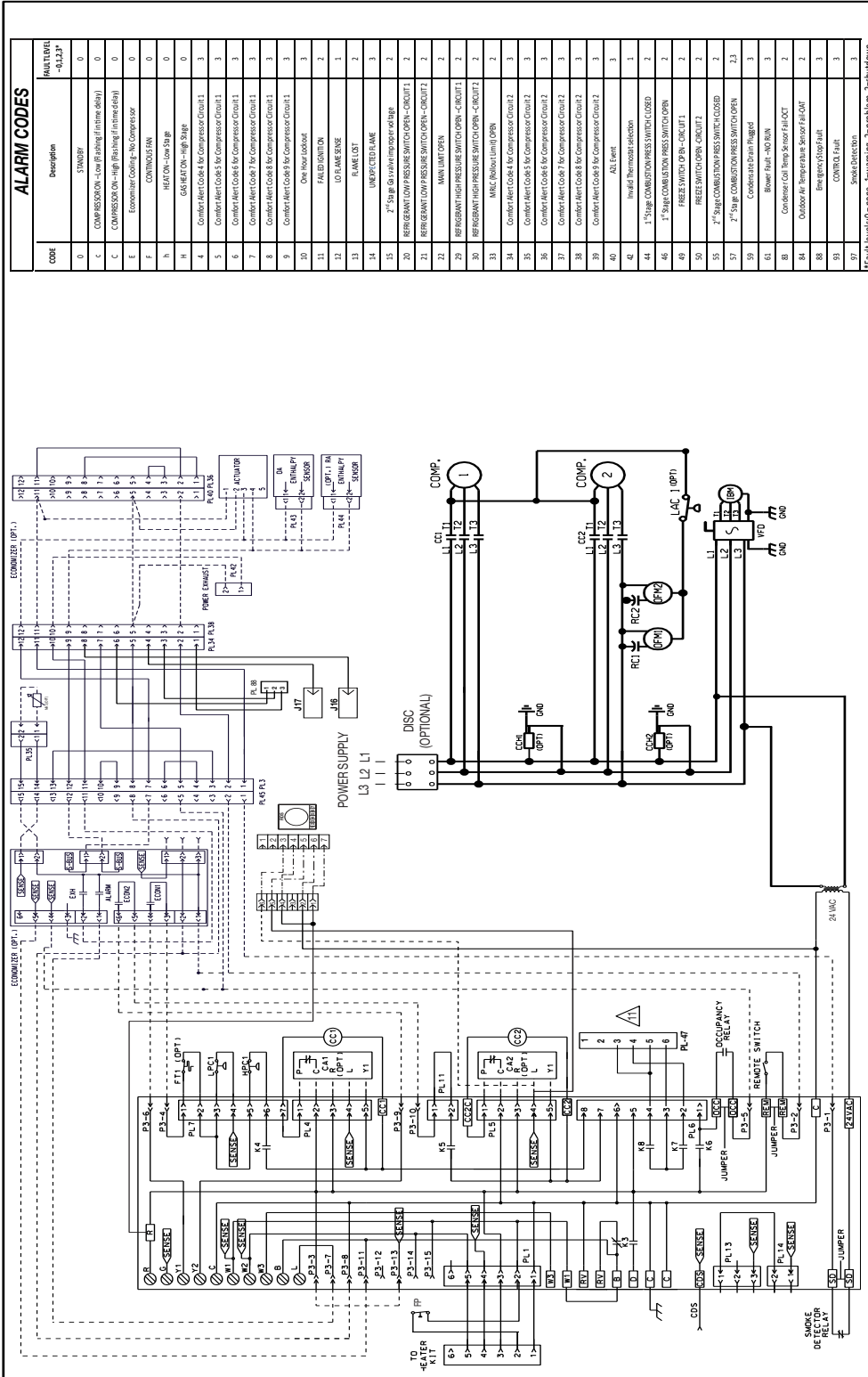
Appendix H. Wiring Diagrams & Schematics (Cont.)



Appendix H. Wiring Diagrams & Schematics (Cont.)



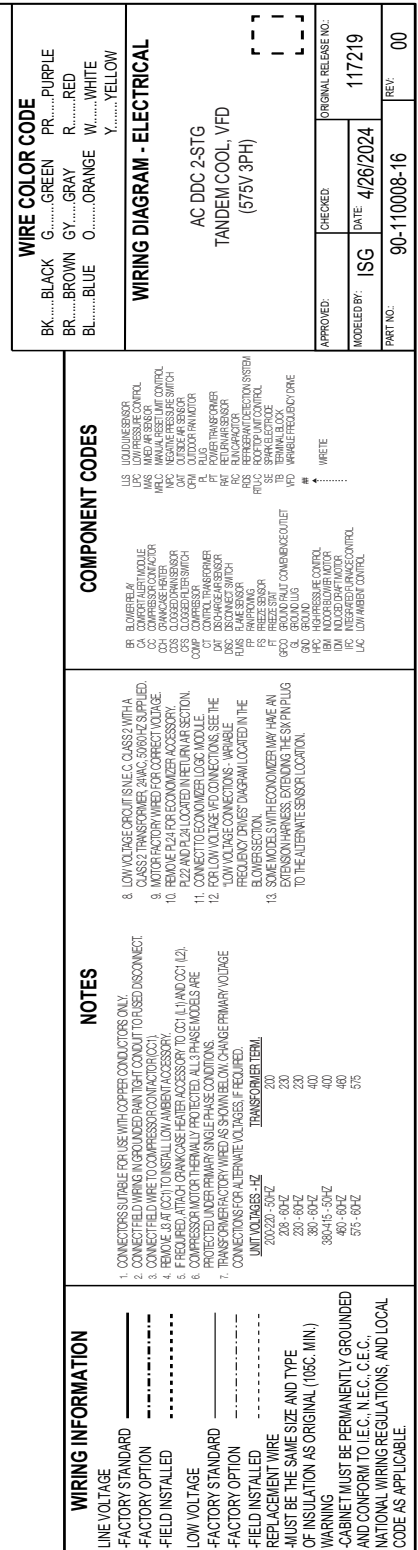
Appendix H. Wiring Diagrams & Schematics (Cont.)



WIRE COLOR CODE BK.....BLACK G.....GREEN PR.....PURPLE BR.....BROWN GR.....GRAY R.....RED BL.....BLUE O.....ORANGE W.....WHITE Y.....YELLOW		WIRING SCHEMATIC ELECTRICAL AC NON DDC 2-STG TANDEM COOL,VFD (575V, 3PH)			
APPROVED	CHECKED	ORIGINAL RELEASE NO.		117219	
MODELED BY: ISG	DATE: 4/23/2024				
PART NO:	90-110009-15		REV: 00		

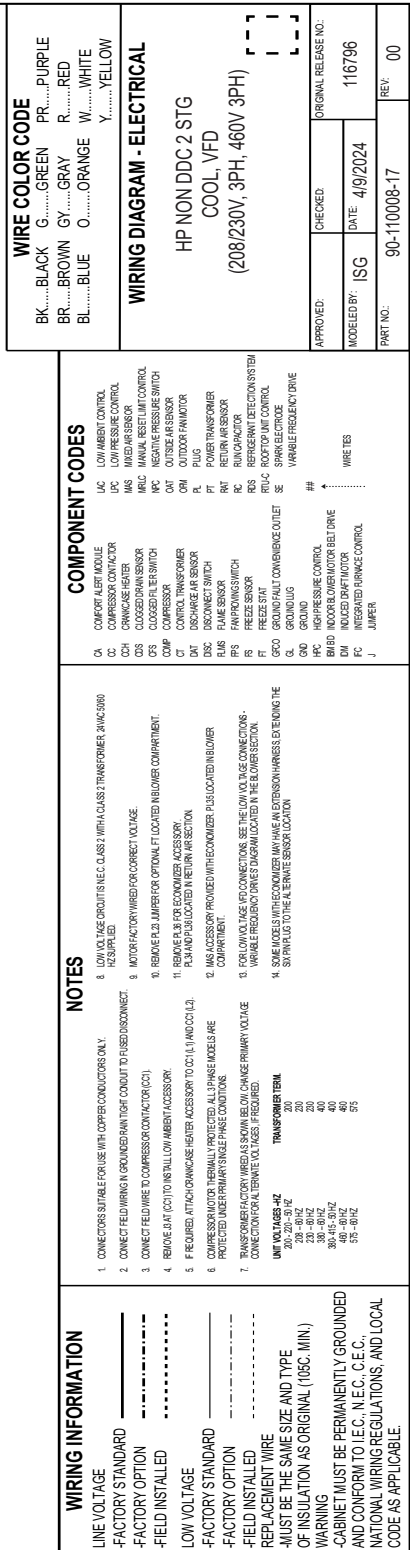
WIRING INFORMATION		NOTES		COMPONENT CODES	
LINE VOLTAGE	_____	1. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.	8. LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER. 24VAC 50/60 HZ IS APPLIED.	BC BLOWER/COMPACTOR	UC LOW AMBIENT CONTROL
FACTORY STANDARD	_____	2. CONNECT FIELD WIRING IN GROUNDED RAIL TIGHT CONNECTION.	9. MOTOR FIELD WIRE FOR COMPRESSOR ACCESSORY.	CA COMPRESSOR ALERT MODULE	LPC LOW PRESSURE CONTROL
FACTORY OPTION	_____	3. CONNECT FIELD WIRE TO COMPRESSOR CONTACTOR (CCL).	10. REMOVE P.L.3 TO INSTALL LOW AMBIENT ACCESSORY.	MAS MISTED AIR SENSOR	MCS MISTED AIR CONTROL
FIELD INSTALLED	-----	4. REMOVE J.3 AT CCL TO INSTALL LOW AMBIENT ACCESSORY.	P.L.3 AND P.L.3.6 LOCATED IN RETURN AIR SECTION.	NAC NEGATIVE PRESSURE SWITCH	NCS NEGATIVE PRESSURE CONTROL
LOW VOLTAGE	-----	5. IF REQUIRED, ATTACH CRANKCASE HEATER ACCESSORY TO CCL (L.1 AND CCL L.1).	P.L.3 AND P.L.3.6 LOCATED IN RETURN AIR SECTION.	OCAT OUTSIDE AIR SENSOR	OCAC OUTSIDE AIR CONTROL
FACTORY STANDARD	_____	6. COMPRESSOR MOTOR THERMALLY PROTECTED. ALL 3 PHASE MOTORS ARE THERMALLY PROTECTED.	11. FOR LOW VOLTAGE WVD CONNECTIONS, SEE THE FREQUENCY DRIVE CONNECTIONS DIAGRAM LOCATED IN THE BLOWER SECTION.	OCAT OUTSIDE AIR SENSOR	OCAC OUTSIDE AIR CONTROL
FACTORY OPTION	_____	7. TRANSFORMER FACTORY WIRING IS SHOWN BELOW. CHANGE PRIMARY VOLTAGE CONNECTIONS FOR ALTERNATE VOLTAGES, IF REQUIRED.		PC CONTROL TRANSFORMER	R. FLG
FIELD INSTALLED	-----			PT POWER TRANSFORMER	RT POWER TRANSFORMER
REPLACEMENT WIRE	-----			RM ROOM AIR MONITOR	RMS REFRIGERANT DETECTION SYSTEM
MUST BE THE SAME SIZE AND TYPE	-----			SC SMOKE DETECTOR	SE SMOKE EXTRACT
OF INSULATION AS ORIGINAL (105C. MIN.)	-----			TB TERMINAL BLOCK	TS TEMPERATURE SENSOR
WARNING	-----			UC LOW AMBIENT CONTROL	US WASHLET/TOILET/URINE
CABINET MUST BE PERMANENTLY GROUNDED	-----			VALVEX VALVE EXHAUST OUTLET	
AND CONFORM TO I.E.C., N.E.C., C.E.C.,	-----				
NATIONAL WIRING REGULATIONS, AND LOCAL	-----				
CODE AS APPLICABLE.	-----				

Appendix H. Wiring Diagrams & Schematics (Cont.)

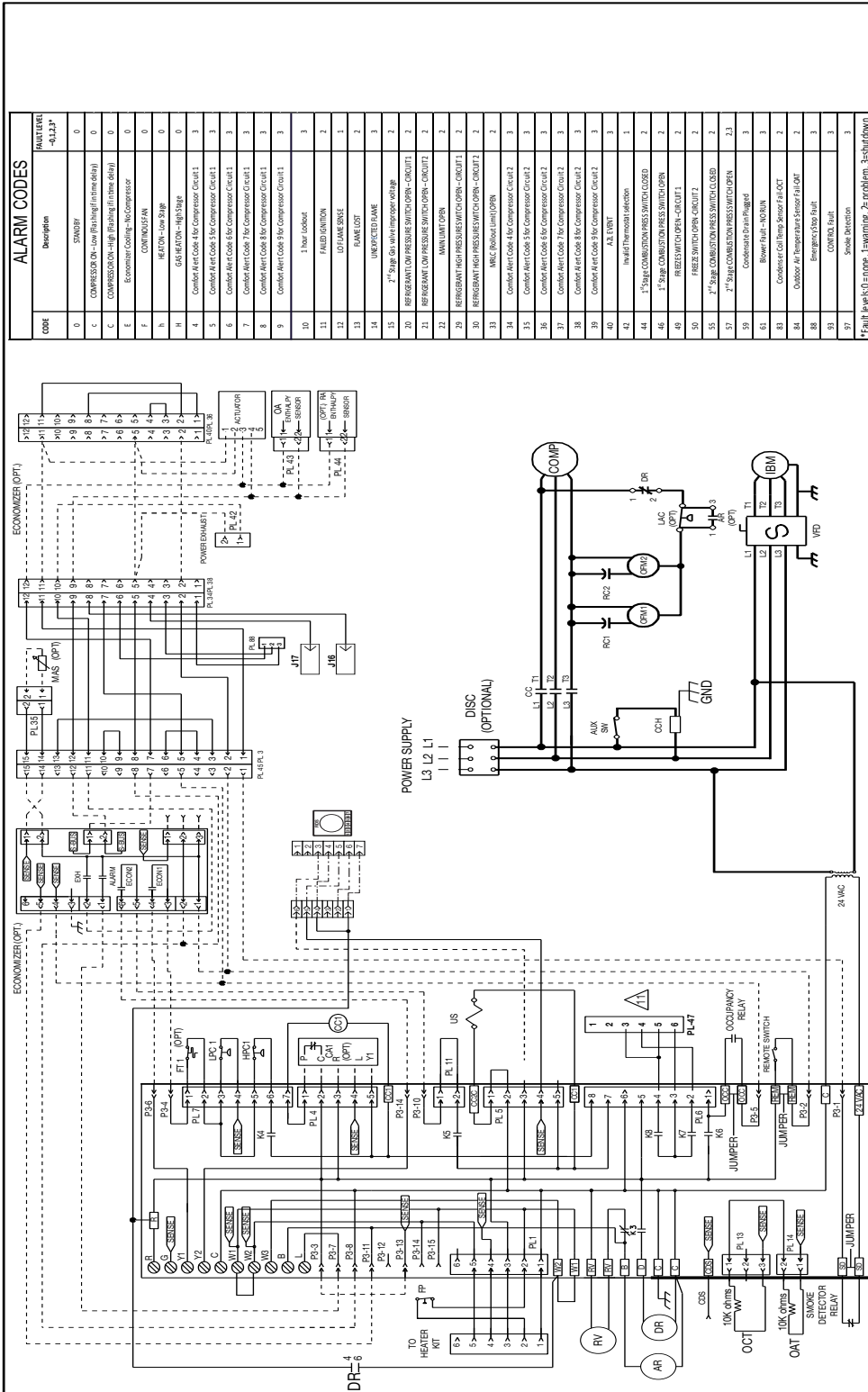




Appendix H. Wiring Diagrams & Schematics (Cont.)

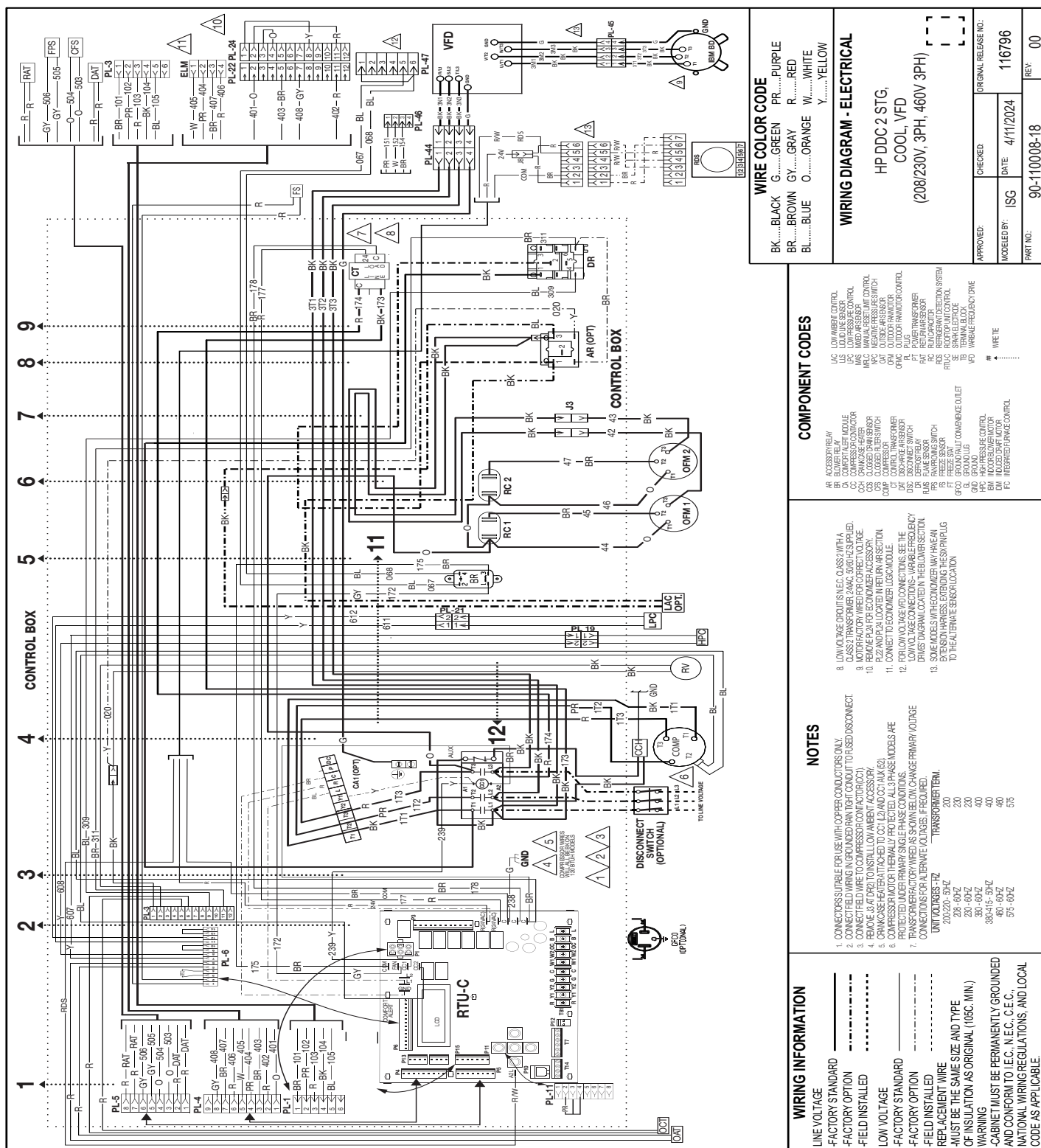


Appendix H. Wiring Diagrams & Schematics (Cont.)

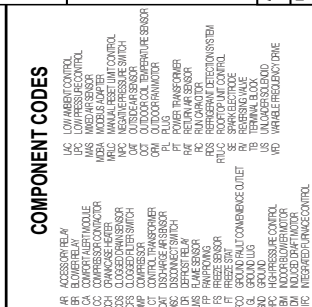


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Appendix H. Wiring Diagrams & Schematics (Cont.)



Appendix H. Wiring Diagrams & Schematics (Cont.)



WIRE COLOR CODE BK.....BLACK G.....GREEN PR.....PURPLE BR.....BROWN GR.....GRAY W.....WHITE BL.....BLUE O.....ORANGE Y.....YELLOW		WIRING SCHEMATIC - ELECTRICAL HP NON DDC 2 STG COOL, VFD (208/230V, 3PH, 460V 3PH)		ORIGINAL RELEASE NO.: 116796	
APPROVED:		CHECKED:		DATE: 4/4/2024	
MODELED BY:		ISG		90-110009-18	
PART NO.:				REV: 00	

8. LOW VOLTAGE CIRCUITS (NEC CLASS 2 WITH A CLASS 2 TRANSFORMER, 24VAC, 500VA) IS APPLIED.
9. MOTOR FACTORY WIRED FOR CORRECT VOLTAGE.
10. REMOTE PL2 AND PL3 FOR CONSUMER ACCESSORY, PL2 AND PL3 LOCATED IN RETURN SECTION.
11. SEE LOW VOLTAGE WPD CONNECTIONS.
SEE THE LOW VOLTAGE CONNECTIONS -
VARIABLE FREQUENCY DRIVES DIAGRAM LOCATED
IN THE BLOWER SECTION.

NOTES

CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
CONNECT FELD WIRING TO COMPRESSOR FAN THRU CONDUIT FOR ESD DISCONNECT.
CONNECT FIELD WIRING TO COMPRESSOR CONTACTOR (C21).
RENAME C1 & D2 TO INSTALL LOW AMBIENT ACCESSORY.
C1 & D2 ARE REQUIRED ATTACH-CRANKCASE HEATER ACCESSORY TO C01 (I AND C01 L&A).
COMPRESSOR MOTOR THERMALLY PROTECTED. ALL 3 PHASE MODELS ARE
PROTECTED UNDER MATHUR SINGLE PHASE CONDITIONS.
TRANSFER MOTOR PROTECTOR WED IS SPON BELOW.
CONNECTOR FOR 4 TERMINAL COUPLER IS REQUIRED.
CONNECTOR FOR 4 TERMINAL COUPLER IS REQUIRED.

UNIT DROUGHS -HZ	TRANSFER CURRENT-AMPERA
20,000 - 30,000	200
30,000 - 35,000	225
35,000 - 40,000	250
40,000 - 45,000	300
45,000 - 50,000	400
50,000 - 55,000	400
55,000 - 60,000	460
60,000 - 65,000	460
65,000 - 70,000	575

WIRING INFORMATION

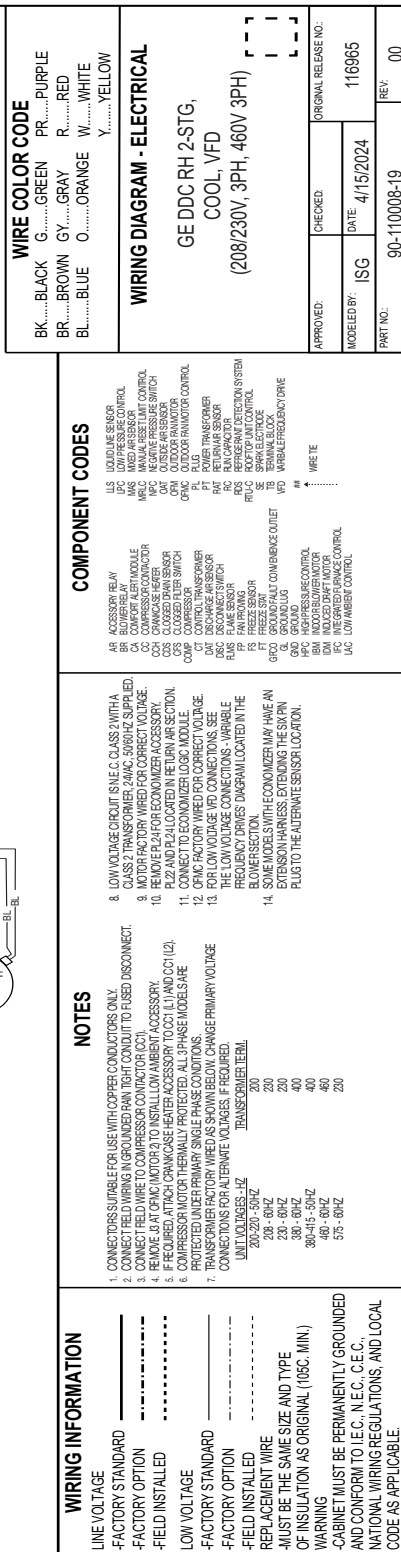
LINE VOLTAGE _____
 -FACTORY STANDARD _____
 -FACTORY OPTION _____
 -FIELD INSTALLED _____
 -FIELD INSTALLED _____

LOW VOLTAGE _____
 -FACTORY STANDARD _____
 -FACTORY OPTION _____
 -FIELD INSTALLED _____
 -FIELD INSTALLED _____

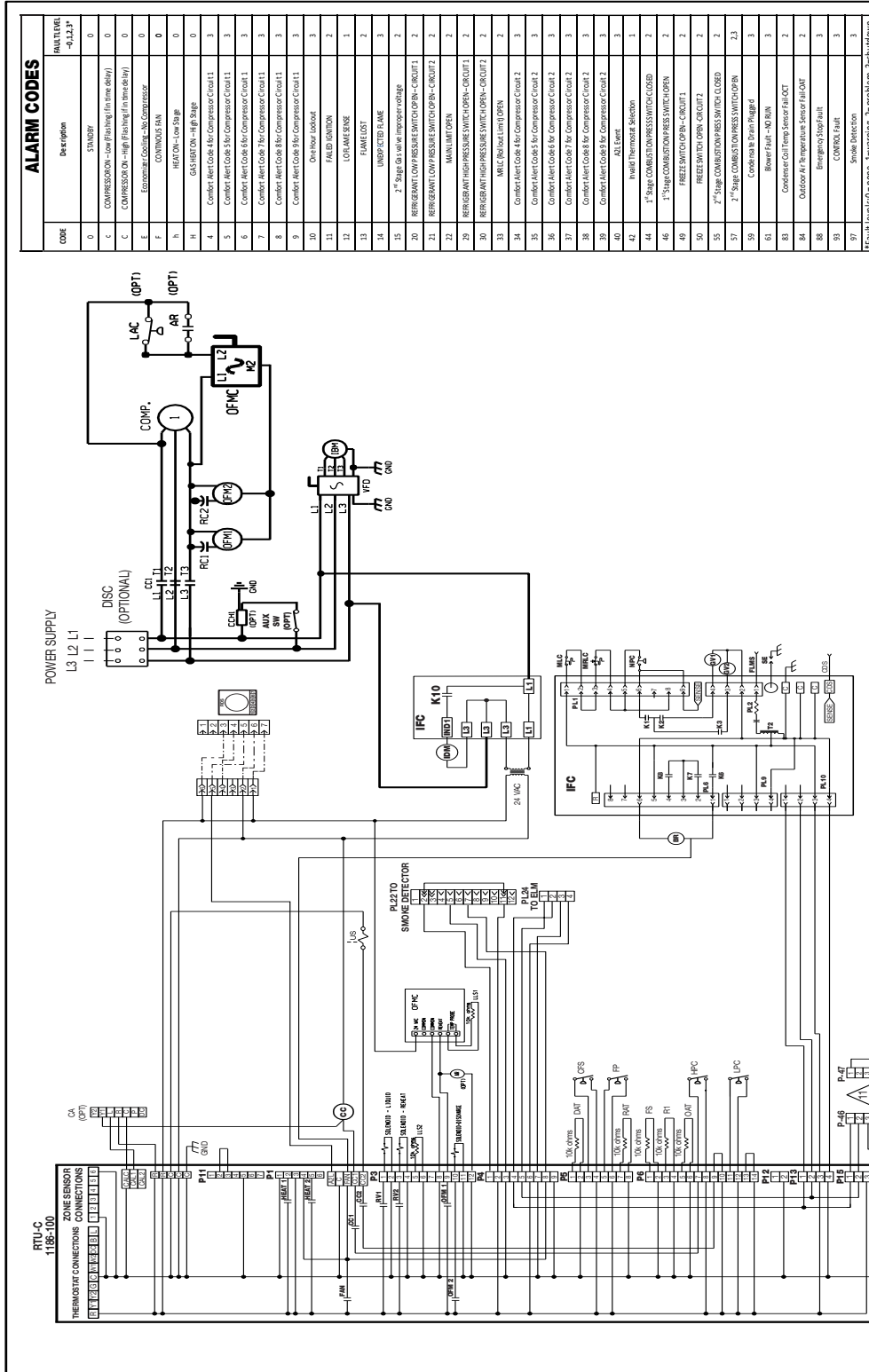
REPLACEMENT WIRE _____
 MUST BE THE SAME SIZE AND TYPE
 OF INSULATION AS ORIGINAL (105C, MIN.)

WARNING
 -CABINET MUST BE PERMANENTLY GROUNDED
 AND CONFORM TO I.E.C. N.E.C. O.E.C.

Appendix H. Wiring Diagrams & Schematics (Cont.)

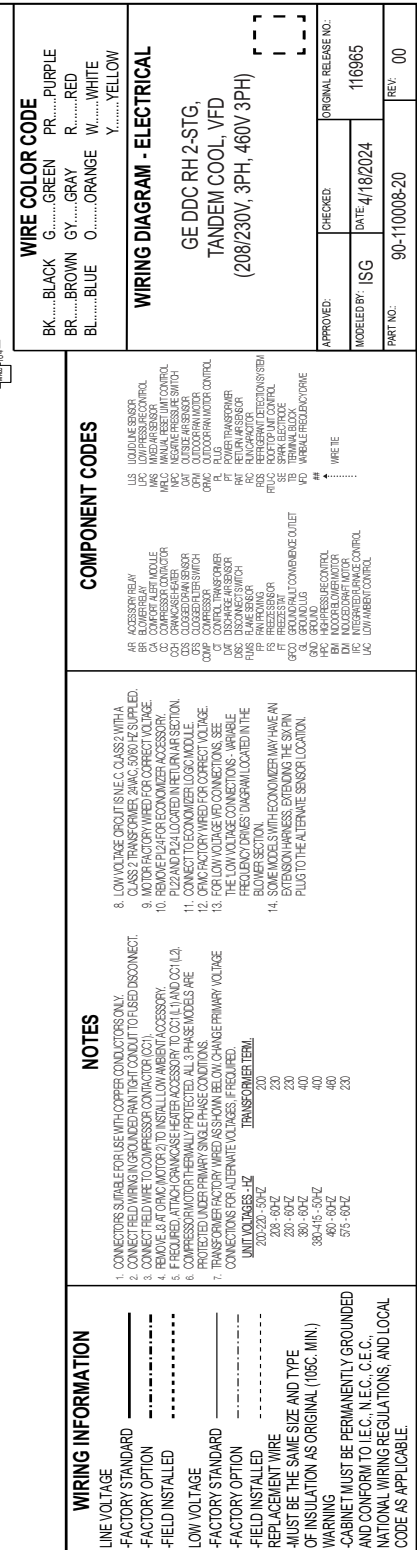


Appendix H. Wiring Diagrams & Schematics (Cont.)

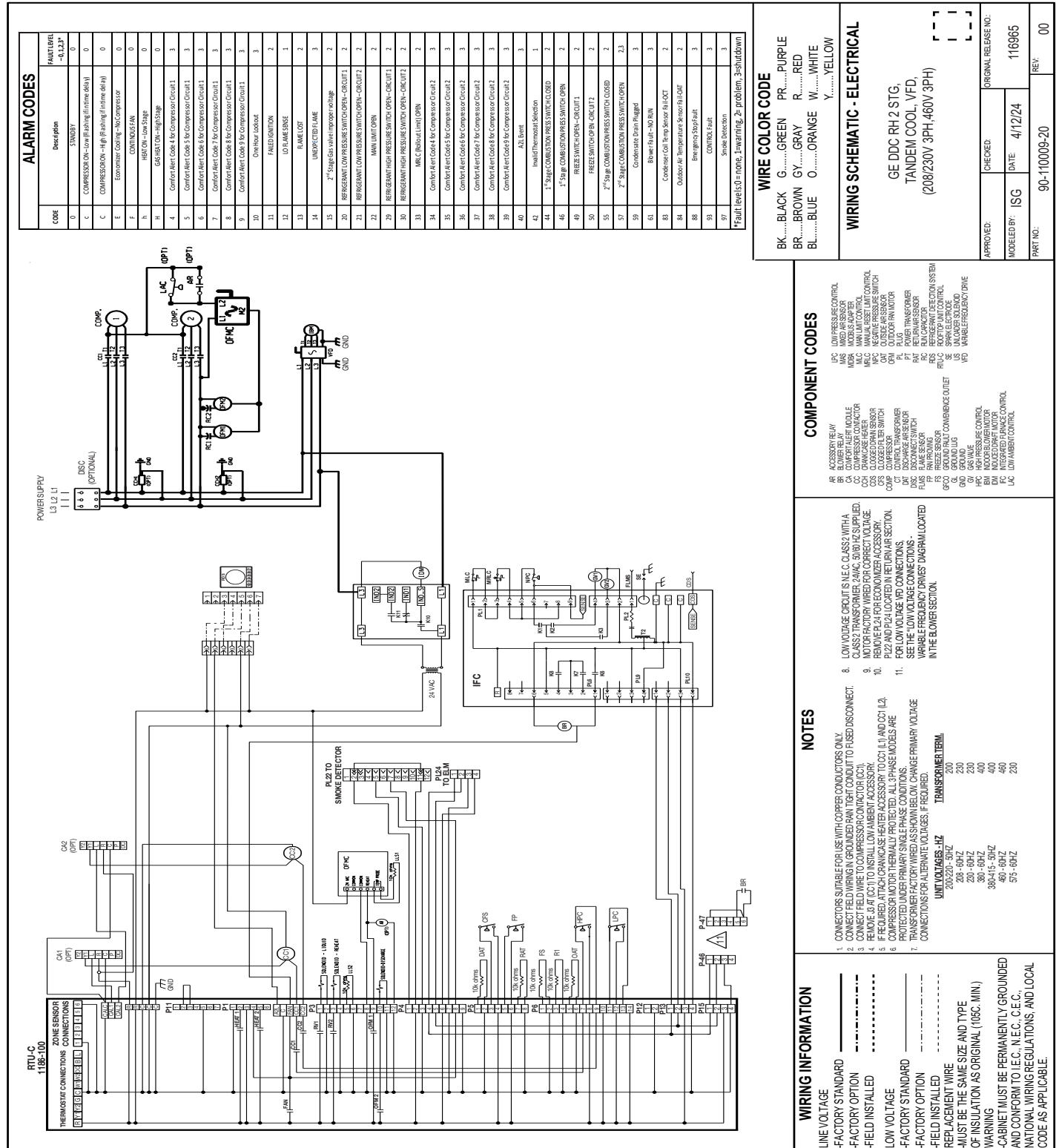


WIRE COLOR CODE BK.....BLACK G.....GREEN PR.....PURPLE BR.....BROWN GR.....GRAY R.....RED BL.....BLUE O.....ORANGE W.....WHITE Y.....YELLOW	WIRING SCHEMATIC - ELECTRICAL GE DDC RH 2-STG., COOL, VFD, (230/208V 3 PH, 460V 3PH)	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; border-right: 1px solid black; padding: 5px;"> APPROVED: MODELED BY: ISG DATE: 4/12/24 </td> <td style="width: 33%; border-right: 1px solid black; padding: 5px;"> CHECKED: </td> <td style="width: 33%; padding: 5px;"> ORIGINAL RELEASE NO: 116965 REV: 00 </td> </tr> </table>	APPROVED: MODELED BY: ISG DATE: 4/12/24	CHECKED:	ORIGINAL RELEASE NO: 116965 REV: 00
APPROVED: MODELED BY: ISG DATE: 4/12/24	CHECKED:	ORIGINAL RELEASE NO: 116965 REV: 00			
COMPONENT CODES	NOTES	WIRING INFORMATION			
COMPONENT CODES	NOTES	WIRING INFORMATION			

Appendix H. Wiring Diagrams & Schematics (Cont.)

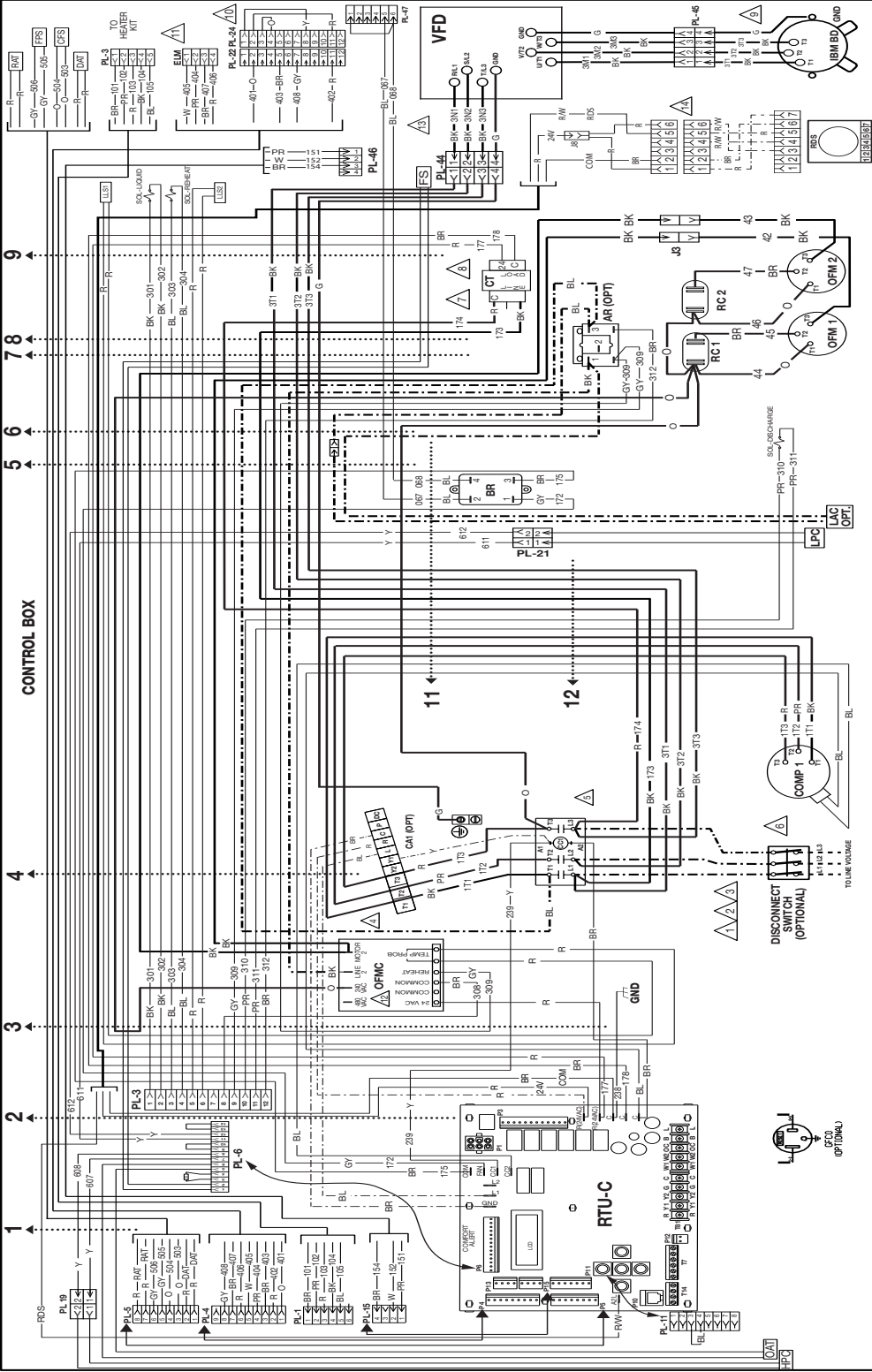


Appendix H. Wiring Diagrams & Schematics (Cont.)



P. APPENDICES

Appendix H. Wiring Diagrams & Schematics (Cont.)



WIRE COLOR CODE	
BK.....BLACK	G.....GREEN
BR.....BROWN	GY.....GRAY
BL.....BLUE	O.....ORANGE
	W.....WHITE
	Y.....YELLOW

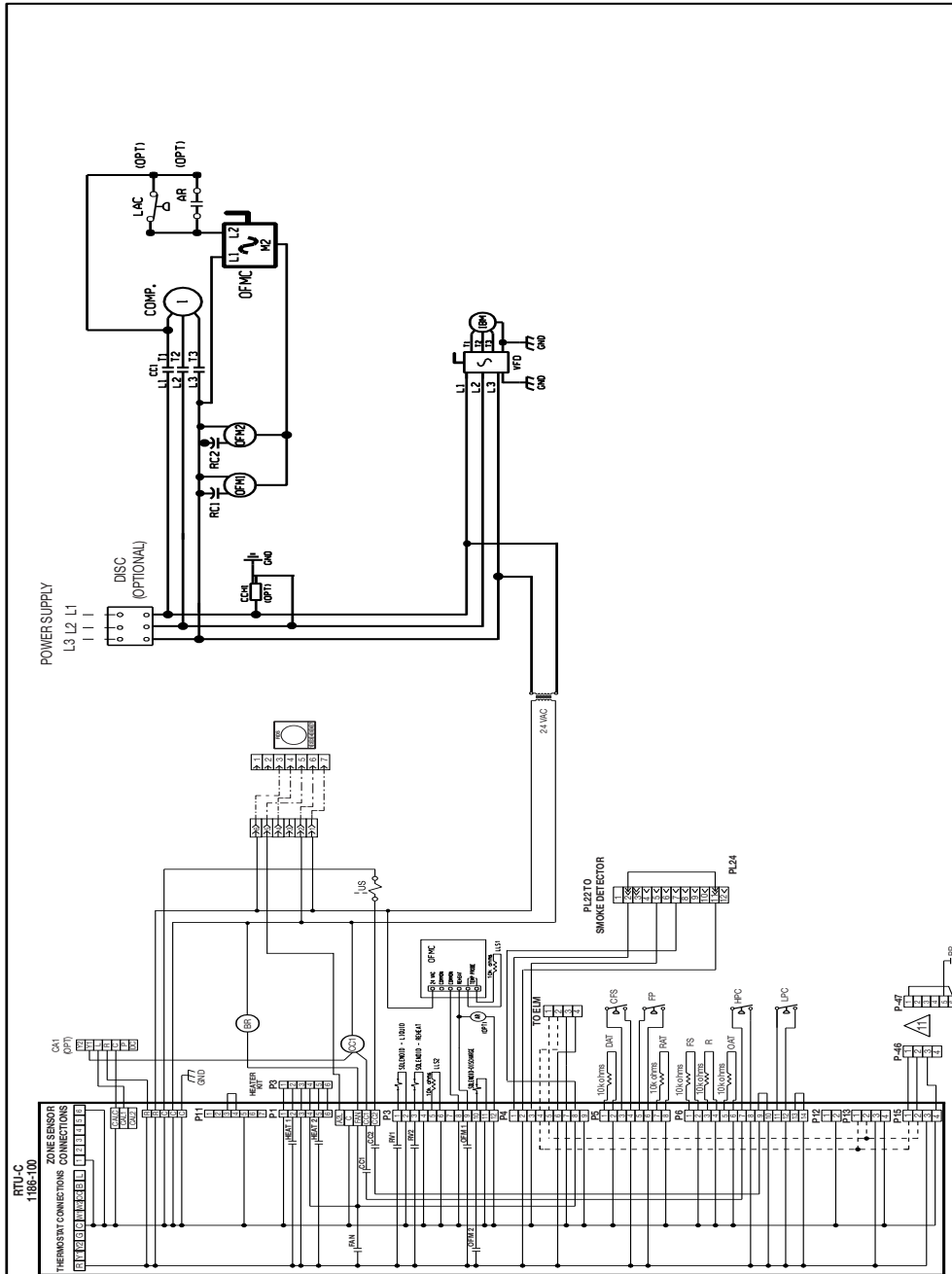
WIRING DIAGRAM - ELECTRICAL	
AC DDC RH 2-STG, COOL, VFD (208/230V 3PH, 460V 3PH)	
APPROVED:	CHECKED:
MODELED BY: ISG	DATE: 4/19/2024
PART NO.: 90-110008-21	REV: 00

COMPONENT CODES	
AR	ACCESSORY RELAY
BR	BLOWER RELAY
CA	COMPRESSOR RELAY
CC	COMPRESSOR CONTACTOR
CH	CHILLER RELAY
CM	COMPRESSOR MOTOR
CO	COOLING RELAY
CP	COMPRESSOR
CT	CONTROL TRANSFORMER
CU	CURTAIN RELAY
FL	FAN RELAY
FR	FREESTART
FS	FAN SPEED
GR	GROUND
LD	LOAD
MD	MOTOR
ND	NO
OC	OVERCURRENT
PL	PLUG
PR	PRESSURE
PS	PRESSURE SWITCH
PT	POWER TRANSFORMER
RA	RELAY
RD	RED
RE	RELAY
RF	RELAY
RG	RELAY
RL	RELAY
RM	RELAY
RS	RELAY
RT	RELAY
RU	RELAY
RV	RELAY
RY	RELAY
SA	SWITCH
SB	SWITCH
SC	SWITCH
SD	SWITCH
SE	SWITCH
SF	SWITCH
SG	SWITCH
SH	SWITCH
SI	SWITCH
SJ	SWITCH
SK	SWITCH
SL	SWITCH
SM	SWITCH
SN	SWITCH
SO	SWITCH
SP	SWITCH
SR	SWITCH
SS	SWITCH
ST	SWITCH
SV	SWITCH
SW	SWITCH
SY	SWITCH
SZ	SWITCH
TA	TEMPERATURE
TB	TEMPERATURE
TC	TEMPERATURE
TD	TEMPERATURE
TE	TEMPERATURE
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TI	TEMPERATURE
TJ	TEMPERATURE
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TV	TEMPERATURE
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TY	TEMPERATURE
TZ	TEMPERATURE
UA	UNIT
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UW	UNIT
UX	UNIT
UY	UNIT
UZ	UNIT
VA	VARIABLE
VB	VARIABLE
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VD	VARIABLE
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VU	VARIABLE
VV	VARIABLE
UV	VARIABLE
VW	VARIABLE
VX	VARIABLE
VY	VARIABLE
VZ	VARIABLE
WA	WATER
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WU	WATER
WV	WATER
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WX	WATER
WY	WATER
WZ	WATER
XA	EXHAUST
XB	EXHAUST
XC	EXHAUST
XD	EXHAUST
XE	EXHAUST
XF	EXHAUST
YG	EXHAUST
YH	EXHAUST
YI	EXHAUST
YJ	EXHAUST
YK	EXHAUST
YL	EXHAUST
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YP	EXHAUST
YQ	EXHAUST
YR	EXHAUST
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YT	EXHAUST
YU	EXHAUST
YV	EXHAUST
YW	EXHAUST
YX	EXHAUST
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YZ	EXHAUST
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ZW	ZONE
ZX	ZONE
ZY	ZONE
ZZ	ZONE

NOTES	
1.	CONNECT FELD WIRING IN GROUNDING RANT TO GROUND TO FUSED DISCONNECT.
2.	CONNECT FELD WIRE TO COMPRESSOR CONTACTOR (CCT).
3.	FIELD WIRE (CCT) TO INSTALL LOW VOLTAGE ACCESSORY.
4.	FIELD WIRE (CCT) TO INSTALL LOW VOLTAGE ACCESSORY.
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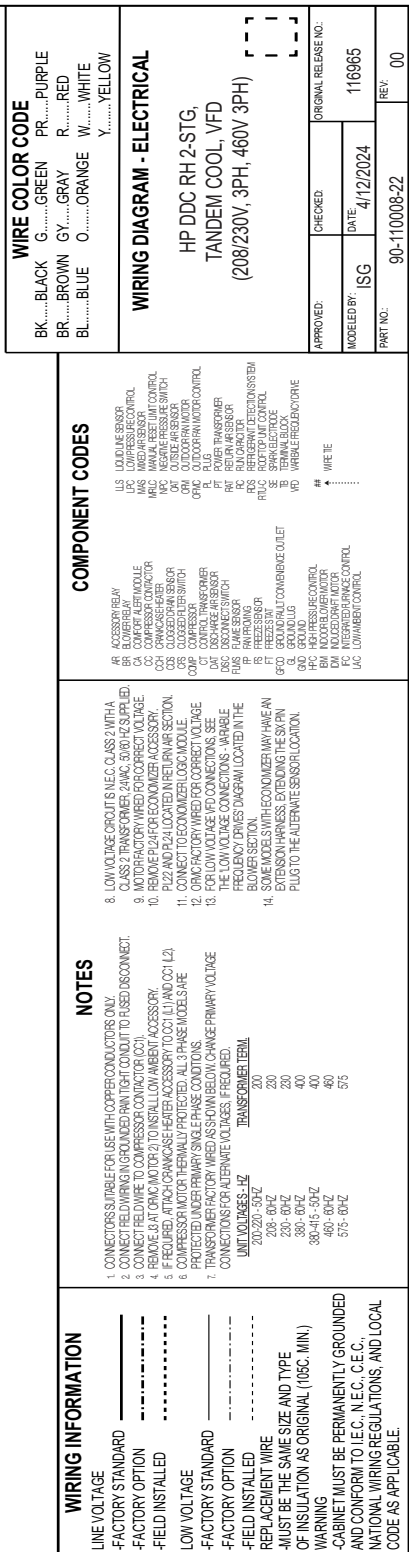
WIRING INFORMATION	
LINE VOLTAGE	208-230V
-FACTORY STANDARD	208-230V
-FACTORY OPTION	208-230V
-FIELD INSTALLED	208-230V
LOW VOLTAGE	208-230V
-FACTORY STANDARD	208-230V
-FACTORY OPTION	208-230V
-FIELD INSTALLED	208-230V
REPLACEMENT WIRE	208-230V
-FACTORY STANDARD	208-230V
-FACTORY OPTION	208-230V
-FIELD INSTALLED	208-230V
WARNING	208-230V
-CABINET MUST BE PERMANENTLY GROUNDED	208-230V
-AND CONFORM TO I.E.C., N.E.C., C.E.C.,	208-230V
NATIONAL WIRING REGULATIONS, AND LOCAL	208-230V
CODE AS APPLICABLE.	208-230V

Appendix H. Wiring Diagrams & Schematics (Cont.)

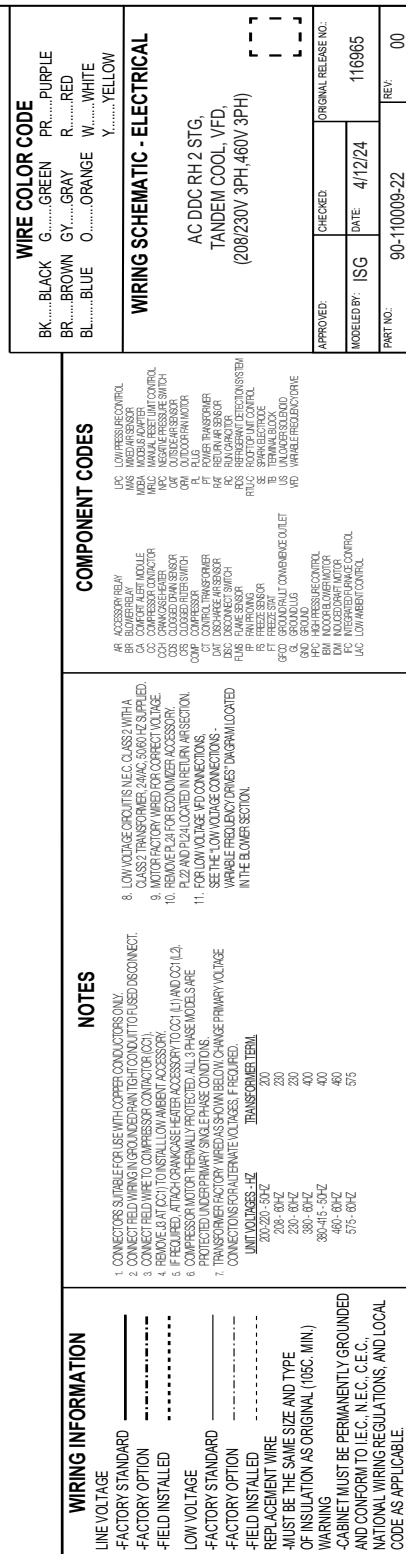


WIRING INFORMATION LINE VOLTAGE _____ -FACTORY STANDARD _____ -FACTORY OPTION _____ -FIELD INSTALLED - - - - - -FIELD INSTALLED - - - - - LOW VOLTAGE _____ -FACTORY STANDARD _____ -FACTORY OPTION _____ -FIELD INSTALLED - - - - - REPLACEMENT WIRE _____ -MUST BE THE SAME SIZE AND TYPE _____ -OF INSULATION AS ORIGINAL (105C. MIN.) _____ WARNING _____ -CABINET MUST BE PERMANENTLY GROUNDED _____ -AND CONFORM TO I.E.C., N.E.C., C.E.C., _____ NATIONAL WIRING REGULATIONS, AND LOCAL _____ CODE AS APPLICABLE.		NOTES 1. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY. 2. CONDUCTORS MUST BE OF THE RIGHT COLOR TO BE USED. 3. CONNECT FIDELITY WIRE TO PRESSURE CONTROL DISCONNECT. 4. REMOVAL OF FIDELITY WIRE WILL ALLOW AMBIENT ACCESSORY. 5. IF REQUIRED, ATTACH CRANKCASE HEATER ACCESSORY TO T1, U1 AND C11 & L2. 6. COMPRESSOR MOTOR THERMALLY PROTECTED. ALL 3 PHASE MOTORS ARE P2 AND P3 LOCATED IN RETURN AIR SECTION. 7. PROTECTED UNDER PRIMARY WIRE SINGLE PHASE CONNECTIONS. 8. LOW VOLTAGE CIRCUIT IN E.C. CLASS 5 WITH A CLASS 2 TRANSFORMER 200V. 5000HZ SUPPLIED. 9. MOTOR FACTORY WIRE FOR CORRECT VOLTAGE. 10. P2 AND P3 LOCATED IN RETURN AIR SECTION. 11. SEE THE LOW VOLTAGE CONNECTIONS. 12. WIRABLE FREQUENCY DRIVES: DIAGRAM LOCATED IN THE BLOWER SECTION. CONNECTIONS FOR ALTERNATE VOLTAGES: F. FREQUED. LINE VOLTAGES - HZ TRANSFORMER THERM. 200-220-250VZ 200 208-208VZ 200 230-230VZ 200 230-230VZ 200 240-240VZ 400 280-415-500VZ 400 480-500VZ 480 575-600VZ 575		COMPONENT CODES BR BLOWER MOTOR MODULE CR COMPRESSOR MOTOR C24 CRANKCASE HEATER C25 CRANKCASE HEATER C26 CRANKCASE HEATER C27 CRANKCASE HEATER C28 CRANKCASE HEATER C29 CRANKCASE HEATER C30 CRANKCASE HEATER C31 CRANKCASE HEATER C32 CRANKCASE HEATER C33 CRANKCASE HEATER C34 CRANKCASE HEATER C35 CRANKCASE HEATER C36 CRANKCASE HEATER C37 CRANKCASE HEATER C38 CRANKCASE HEATER C39 CRANKCASE HEATER C40 CRANKCASE HEATER C41 CRANKCASE HEATER C42 CRANKCASE HEATER C43 CRANKCASE HEATER C44 CRANKCASE HEATER C45 CRANKCASE HEATER C46 CRANKCASE HEATER C47 CRANKCASE HEATER C48 CRANKCASE HEATER C49 CRANKCASE HEATER C50 CRANKCASE HEATER C51 CRANKCASE HEATER C52 CRANKCASE HEATER C53 CRANKCASE HEATER C54 CRANKCASE HEATER C55 CRANKCASE HEATER C56 CRANKCASE HEATER C57 CRANKCASE HEATER C58 CRANKCASE HEATER C59 CRANKCASE HEATER C60 CRANKCASE HEATER C61 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Appendix H. Wiring Diagrams & Schematics (Cont.)



Appendix H. Wiring Diagrams & Schematics (Cont.)



P. APPENDICES

Appendix H. Wiring Diagrams & Schematics (Cont.)

MITSUBISHI E800-HVC

YASKAWA V1000

WIRE COLOR CODE

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

COMPONENT CODES

PL PLUG
VFD VARIABLE FREQUENCY DRIVE
MDBA MODBUS ADAPTER
GND GROUND

NOTES

- CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
- THIS DIAGRAM IS TO BE USED IN CONJUNCTION WITH THE PRIMARY WIRING DIAGRAM FOUND IN THE CONTROL ACCESS PANEL.
- THE FACTORY INSTALLED OPTIONAL WIRING IS NOT USED ON ALL MITSUBISHI VFDS.

DELTA MS300

CONTROL TECHNIQUES C200

WIRING INFORMATION

LINE VOLTAGE

-FACTORY STANDARD _____

-FACTORY OPTION - - - - -

-FIELD INSTALLED - - - - -

LOW VOLTAGE

-FACTORY STANDARD _____

-FACTORY OPTION - - - - -

-FIELD INSTALLED - - - - -

REPLACEMENT WIRE

-MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105C. MIN.)

WARNING

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

ORIGINAL RELEASE NO.: 116859

APPROVED: _____

CHECKED: _____

ELECTRICAL WIRING DIAGRAM

VARIABLE FREQUENCY DRIVES (DDC)

MODELED BY: J. VELA

DATE: 4/8/2024

PART NO.: 90-109493-02

REV: 00

148

Appendix H. Wiring Diagrams & Schematics (Cont.)

MITSUBISHI E800-HVC PL46 1> 151 — PR 2> 152 — W 3> 153 — BR 4> PL47 1> 068 — BL 2> 607 — O 3> 604 — Y 4> 602 — BK 5> 067 — Y 6> 603 — W/BL VFD 1213141516171819202122 1 2 3 4 5 6 7 8 9 10 11 GND GND R/L1 S/L2 T/L3 U/T1 V/T2 W/T3 GND O O O O O O O O		YASKAWA V1000 PL47 1> 2> 607 — O 3> 4> 602 — BK 5> 604 — Y 6> 604 — Y 603 — W/BL VFD S1S2S3S4S5S6S7SC* GND R/L1 S/L2 T/L3 U/T1 V/T2 W/T3 GND O O O O O O O O	WIRE COLOR CODE BK.....BLACK O.....ORANGE BR.....BROWN PR.....PURPLE BL.....BLUE R.....RED G.....GREEN W.....WHITE GY.....GRAY Y.....YELLOW COMPONENT CODES PL PLUG VFD VARIABLE FREQUENCY DRIVE MDBA MODBUS ADAPTER GND GROUND	
*575V MODELS CONNECT TO “SN” INSTEAD OF “SC”				
DELTA MS300 PL47 1> 2> 607 — O 3> 4> 602 — BK 5> 604 — Y 6> 604 — Y 603 — W/BL VFD MI1MI2MI3MI4MI5MI6DCM GND R/L1 S/L2 T/L3 U/T1 V/T2 W/T3 GND O O O O O O O O		CONTROL TECHNIQUES C200 PL47 1> 2> 607 — O 3> 4> 602 — BK 5> 604 — Y 6> 604 — Y 603 — W/BL VFD 12457910111213144142 GND R/L1 S/L2 T/L3 U/T1 V/T2 W/T3 GND O O O O O O O O	NOTES 1. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY. 2. PL46 IS NOT USED ON NON-DDC MODELS WITH A MITSUBISHI VFD. 3. THIS DIAGRAM IS TO BE USED IN CONJUNCTION WITH THE PRIMARY WIRING DIAGRAM FOUND IN THE CONTROL ACCESS PANEL. 4. THE FACTORY INSTALLED OPTIONAL WIRING IS NOT USED ON ALL MITSUBISHI VFDS	
SCHNEIDER ATV320 PL47 1> 2> 607 — O 3> 4> 602 — BK 5> 604 — Y 6> 604 — Y 603 — W/BL VFD +24DI1DI2DI3DI4DI5DI6 GND R/L1 S/L2 T/L3 GND V/T2 W/T3 U/T1 O O O O O O O O		WIRING INFORMATION LINE VOLTAGE -FACTORY STANDARD -FACTORY OPTION -FIELD INSTALLED LOW VOLTAGE -FACTORY STANDARD -FACTORY OPTION -FIELD INSTALLED REPLACEMENT WIRE -MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105C. MIN.) WARNING -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., NATIONAL WIRING REGULATIONS, AND LOCAL CODES AS APPLICABLE.		
ORIGINAL RELEASE NO.: 116859 APPROVED: CHECKED:		ELECTRICAL WIRING DIAGRAM VARIABLE FREQUENCY DRIVES (NON-DDC)		MODELED BY: J. VELA DATE: 4/8/2024 PART NO.: 90-109493-03 REV: 00

P. APPENDICES

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POSTAL ADDRESS:
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BOCA RATON, FL 33431

Performance Evaluation

FL 26981.1
THIS DOCUMENT CONTAINS (8) PAGES.

EVALUATION SUBJECT: RHEEM PACKAGED UNITS

23-61432

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 TEMPERATURE PERFORMANCE RATINGS OR CERTIFICATIONS ARE OFFERED OR IMPLIED HEREIN. UNDER NO CIRCUMSTANCE DOES THIS PERFORMANCE EVALUATION GUARANTEE, IMPLY, OR STATE PERFORMANCE OF THE UNIT IS MAINTAINED DURING OR AFTER A DESIGN EVENT.

This Performance Evaluation is being issued in accordance with the requirements of the **Florida Building Code Eighth Edition (2023)** per ASCE 7, FBC Building Ch. 16, FBC Building Sections 104.11 & 1522.2, FBC Existing Building Sections 707.1 & 707.2, FBC Mechanical 301.15, FBC Residential M1202.1 & M1301.1, and FS 471.025. The product noted in this performance evaluation has been tested and/or 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:

- Max. allowable lateral & uplift wind pressures certified herein
- Max. allowable sliding forces, uplift forces, & overturning moments (see Unit Reactions from Wind Guide on last page)
- Tie-down configuration and anchor capacity for concrete and steel host substrates (host by others).

Calculation summary is included in this product evaluation and appears herein.

LIMITATIONS & CONDITIONS OF USE:

Use of the product(s) listed herein shall be in strict accordance with this product evaluation as noted herein and manufacturer-provided model specifications. Installation shall conform to the minimum standards stated in the referenced building code(s) in addition to the specifications and limitations stated herein. See herein for complete limitations & conditions of use.

OPTIONS:

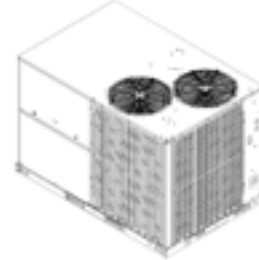
This evaluation is valid for the models described herein. The critical unit designs have been determined and used in this evaluation. Any structural changes outside of the design as described herein would void this certification.

UNIT CASING MATERIALS:

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.
Contact Report Holder for further unit construction information.

TERMINOLOGY:

See herein for definitions of terms and abbreviations used in this evaluation.



NOTE: THE GRAPHICAL DEPICTIONS IN THIS EVALUATION ARE FOR ILLUSTRATIVE PURPOSES ONLY AND MAY DIFFER IN APPEARANCE.

STRUCTURAL PERFORMANCE:

Models referenced herein are subject to the following design limitations:

Maximum Rated Wind Pressures*:
± 140 psf Lateral, 111 psf Uplift

- Required design wind pressures shall be determined according to the guide provided in the Appendix (see last page of this document) or on a site-specific basis in accordance with ASCE 7 and applicable sections of the building code(s) being referenced in accordance with ASD methodology.
- Required design pressures shall be less than or equal to the maximum pressures listed herein.
- *Maximum Rated Wind Pressures indicate the maximum pressures that all units listed herein are approved for. Valid for at-grade and rooftop applications. See limitations herein.
- Valid for use inside and outside the High-Velocity Hurricane Zone (HVHZ).
- Site-specific wind analysis may produce alternate limitations provided maximum rated wind pressures stated herein are not exceeded.

VISIT [ECALC.IO/RHEEM](https://ecalculator.com/rheem)

FOR MORE INFORMATION AND
DEVIATIONS TO THIS EVALUATION OR
SCAN THE QR CODE TO THE RIGHT >



Engineer Signature & Seal:



Digitally signed
by Frank

Bennardo

Date: 2024.02.23
12:24:02 -05'00'

February 23, 2024

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

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MODELS SUMMARY, DIMENSION & NOTES

TABLE 1: 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 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)	
(-)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 2.1: Evaluation Model Series 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 2.2: 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

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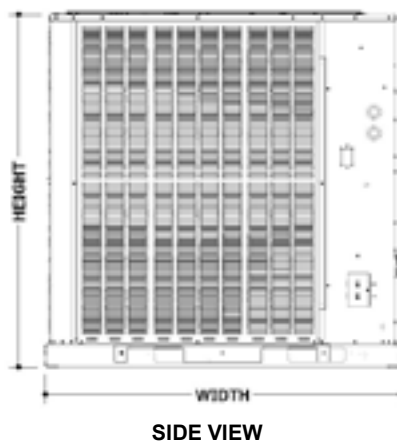
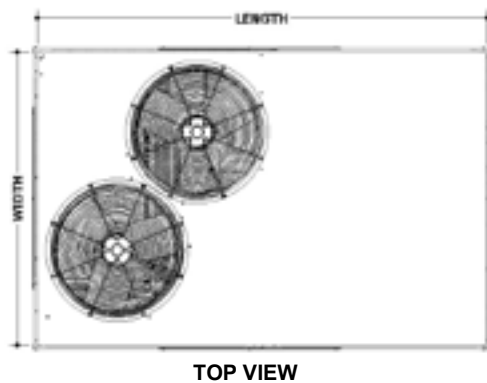
P. APPENDICES

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UNIT VIEWS & ELEVATIONS



Note: RGEDZR-150 illustration selected for dimensional purposes

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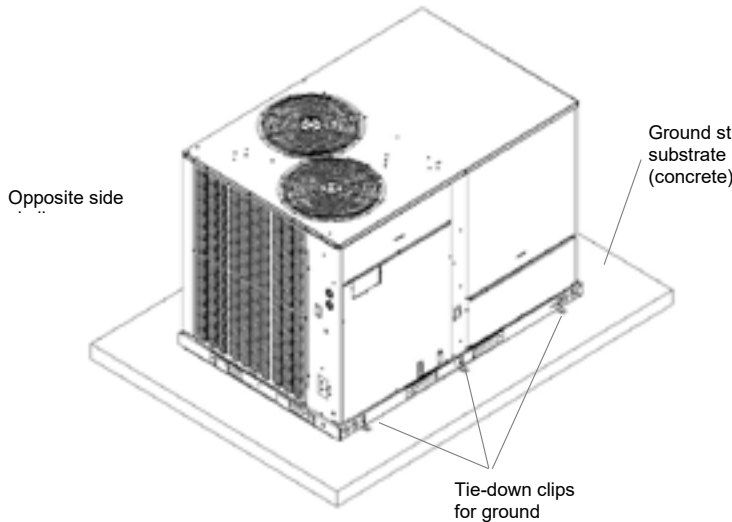
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PRODUCT INSTALLATION

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

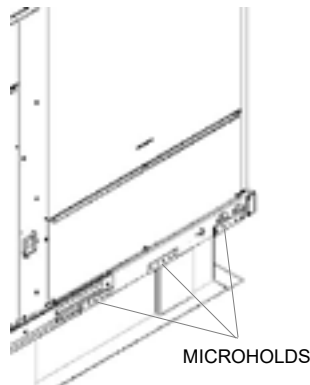
B. – #12 TEK Screws, (14) screws per clip, (5) top front side, (4) top back side and (5) bottom front side.

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

CURB MOUNT APPLICATIONS

CONFIGURATION B

Note: Design & installation of curb to host by others per site specific conditions

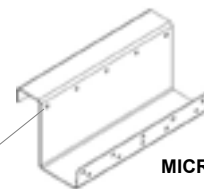


STEEL CURB

(ROOF APPLICATION)

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

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



1/4" diameter holes

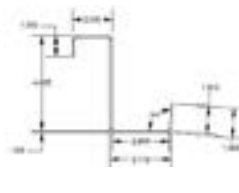
MICROHOLDS



Curb Clip A



Curb Clip C



Curb Clip B

P. APPENDICES

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CURB CLIP LOCATION

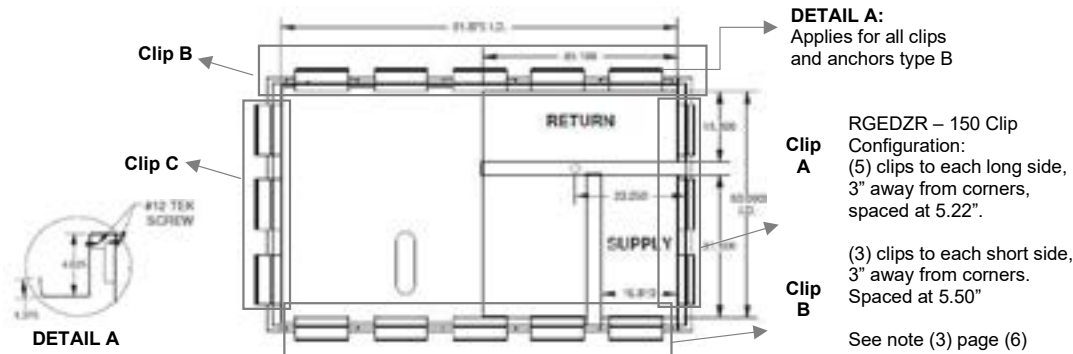


Table 3: Clip Curb Schedule			
Unit Model			Number of Clips (Pcs)
(-)GEC - 036	(-)ACC - 036	(-)HPC - 036	4 LS - 2 SS
(-)GEC - 048	(-)ACC - 048	(-)HPC - 048	4 LS - 2 SS
(-)GEC - 060	(-)ACC - 060	(-)HPC - 060	4 LS - 2 SS
(-)GEC - 072	(-)ACC - 072	(-)HPC - 072	4 LS - 2 SS
(-)GED - 090	(-)ACD - 090	(-)HPD - 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

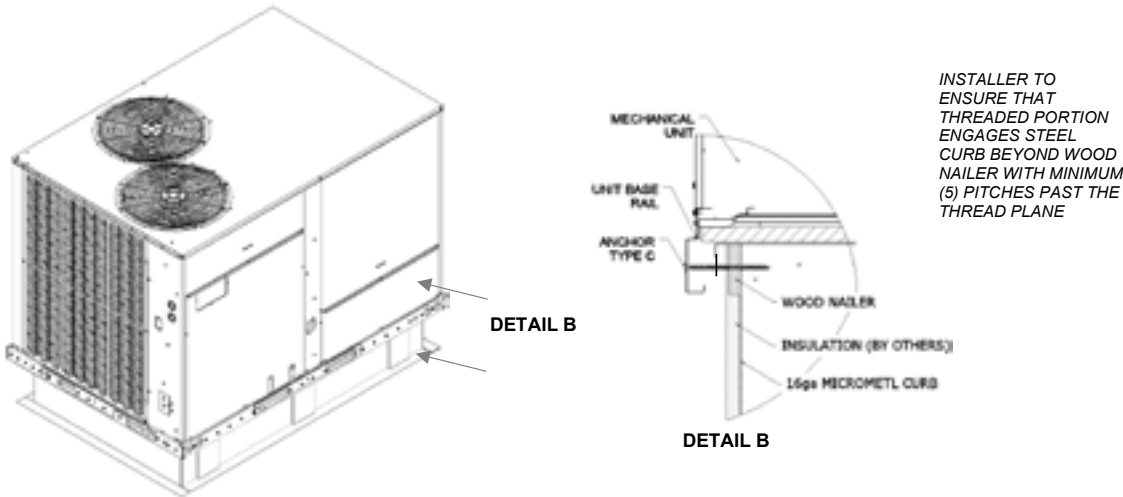
#Clip Designation (5 LS= 5 clips each Long Side; 3 SS= 3 clips each Short Side) equally spaced

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

See pressures on page (4) for alternative anchor limitations

ALTERNATIVE ANCHORAGE TO CURB

STEEL CURB WITH SCREW CONFIGURATION C

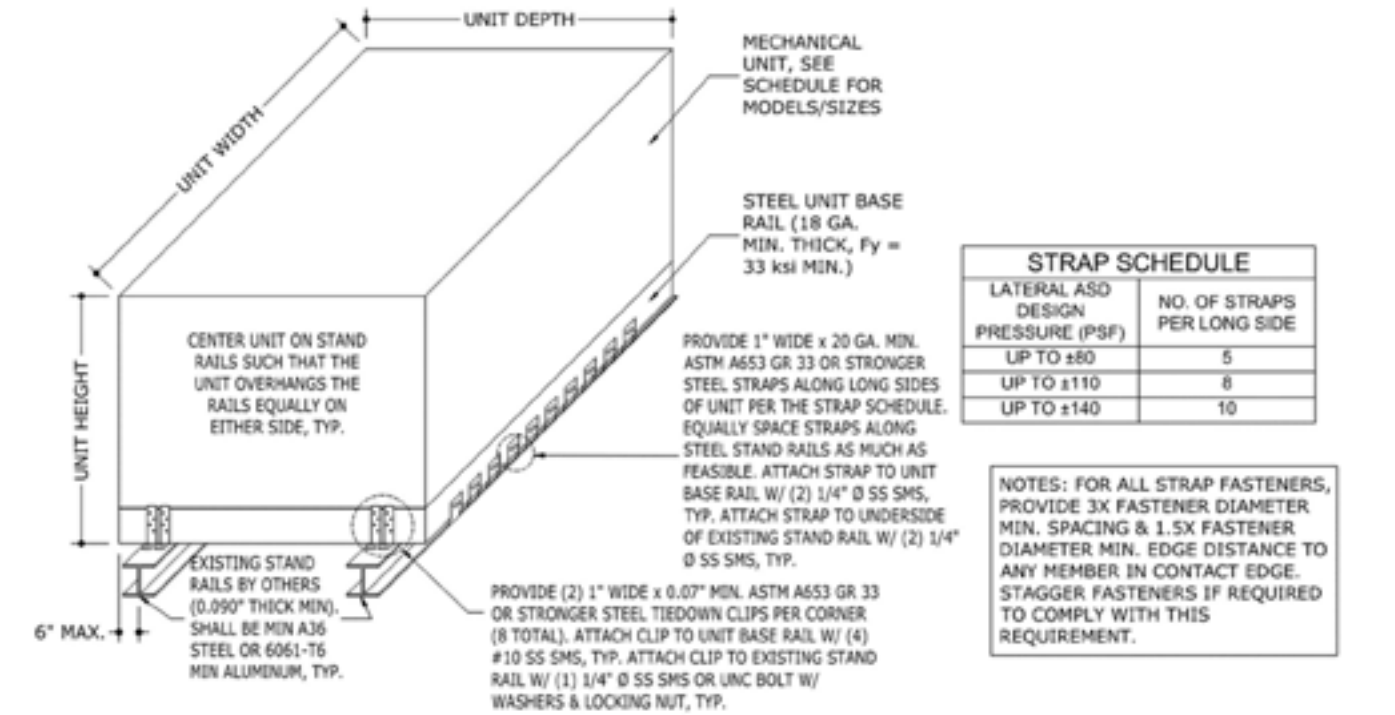


Mechanical Unit Curb Mounted

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STAND MOUNT TIEDOWN OPTION

If stand mount option is required, unit-to-stand attachment shall be per detail below. This detail is applicable for both at-grade and rooftop applications. Stand Integrity by others.



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P. APPENDICES

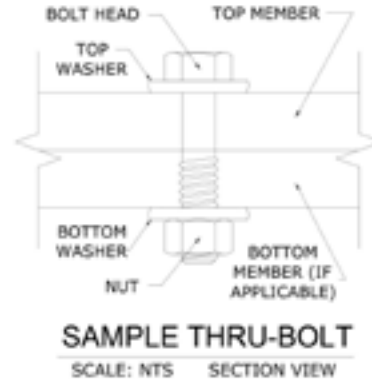
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TERMINOLOGY, CONTINUED

The following abbreviations may appear in this report: "Addtl." for "additional", "AHJ" for "Authority Having Jurisdiction", "alum" for "aluminum", "ASCE" for "American Society of Civil Engineers", "ASD" for "Allowable Stress Design", "ASTM" for "American Society for Testing and Materials", "EA." for "each", "E.D." for "edge distance", "EDDS" for "extra deep drawing steel", "e.g." for "*exempli gratia*" or "for example", "equiv." for "equivalent", "FBC" for "Florida Building Code", "FEA" for "Finite Element Analysis", "FLCA" for "Florida Certificate of Authorization", "FS" for "Florida Statutes", "Fu" for "ultimate tensile strength" or "ultimate tensile stress", "Fy" for "yield strength" or "yield stress", "GA" for "gauge", "GR." or "Gr." for "grade", "HVAC" for "heating, ventilation, and air conditioning", "HVHZ" for "High-Velocity Hurricane Zone", "i.e." for "*id est*" or "in other words", "in" for "inch", "lb" for "pound (force)", "max." for "maximum", "min." for "minimum", "mm" for "millimeter", "NTS" for "not to scale", "O.C." for "on center", "OD" for "outer diameter", "pcf" for "pounds (force) per cubic foot", "PE" for "Professional Engineer", "qty" for "quantity", "SAE" for "Society of Automotive Engineering", "SMS" for "sheet metal screws", "SS" for "stainless steel", "TER" for "Technical Evaluation Report", "typ." for "typical", "ult" for "ultimate loads", "U.N.O." for "unless noted otherwise", "UTS" for "ultimate tensile strength" or "ultimate tensile stress", "WLL" for "working load limit", "w/o" for "without", "YS" for "yield strength" or "yield stress", "#" for "number", "&" for "and", and "Ø" for "diameter". For additional abbreviation/terminology clarifications, please contact this office.



Note: The term "Thru-Bolt" or through bolt, if used herein, refers to a bolt passing through the member(s) in contact and is fastened by a nut at the end opposite the screw head. Nut shall be equivalent to or exceed the strength of the bolt U.N.O. Nut shall be sized to accommodate the same nominal diameter as the bolt U.N.O. See diagram above-right for a sample thru-bolt configuration.

Note: For instances herein which list material specifications as "[material type] or stronger": U.N.O. herein, the term "stronger" refers to a material with a UTS value equal to or greater than the UTS value of the stated material type. Consult appropriate literature for established material UTS values.

Note: Equivalent steel gauge thicknesses as used in this evaluation, U.N.O., are as follows: 22 GA (.030"), 20 GA (.036"), 18 GA (.048"), 16 GA (.060"), 14 GA (.075"), 12 GA (.098").

LIMITATIONS & CONDITIONS OF USE, CONTINUED

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 building codes must be considered, where applicable. Product components shall be of the material(s) specified in the manufacturer-provided product specifications. All supporting components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times. All fasteners and anchors shall be installed in accordance with the applicable provisions specified herein in addition to the anchor/fastener manufacturers' published installation instructions. 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 under any circumstances.

All of the wind-resisting exterior panels (with accompanying retrofits) individually meet or exceed their capacity to resist the design wind loads as stated in the calculations as required by the codes and standards stated herein. Due to the indeterminate nature of these units, distortion, deflection, and material deformation cannot be accurately evaluated, but with the diaphragm action of external components and internal stiffeners, the base unit (with accompanying retrofits stated herein as applicable) has the capacity to withstand the design wind loads without detaching from the unit and becoming flying debris.

Survivability: This performance evaluation is valid for a newly installed unit and do not include certification of the product beyond a design event or if impacted by any debris. Inspections shall be implemented annually by the end user and after every named storm. All fasteners and cabinet components are to be verified, and all damaged, loose, corroded and/or broken fasteners and cabinet components shall be replaced to ensure structural integrity against hurricane wind forces. Contact this office for any reevaluation needs or as designated by the Authority Having Jurisdiction.

Durability: Components or component assemblies shall not deteriorate, crack, fail, or lose functionality due to galvanic corrosion or weathering. All supporting components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times. Each component or component assembly shall be supported and oriented in its intended installation position. All exposed plastic components shall be certified to resist sunlight exposure as specified by ASTM B117, or ASTM G155 in Broward or Miami Dade counties.

Extent of Certification: Certification pertains to the overall structural integrity of the unit components listed within the evaluation as required by code, subject to the limitations and criteria stated herein. Operability during or after a design event is not included in this certification. Water infiltration is outside the bounds of this certification. No other certifications are intended other than as described herein. This evaluation alone does not offer any evaluation for large missile impact debris or cyclic wind requirements unless specifically stated herein.

Proj. #	Remarks	By	Checked	Date	Proj. #	Remarks	By	Checked	Date
20-28788	Prev. Submittal				23-61432	Stand Mount Option Added	MRT	RWN	02/23/24
23-61432	2020 FBC Update	MRT	RWN	09/25/2023					

J. Unit Tie-Down

RHEEM PACKAGED UNITS

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APPENDIX A: DESIGN WIND PRESSURE GUIDE

Max. Ult. Wind Speed (V _{ult})	Max. MRH (Roof Height)	Exposure Category	Required Design Wind Pressures (ASD)	
			Lateral Pressure	Uplift Pressure
140 mph	At-Grade (0 ft)	C	± 26 psf	0* psf
		D	± 31 psf	0* psf
	100 ft	C	± 63 psf	50 psf
		D	± 71 psf	56 psf
	200 ft	C	± 72 psf	57 psf
		D	± 80 psf	63 psf
175 mph	At-Grade (0 ft)	C	± 40 psf	0* psf
		D	± 49 psf	0* psf
	100 ft	C	± 98 psf	77 psf
		D	± 111 psf	87 psf
	200 ft	C	± 113 psf	89 psf
		D	± 124 psf	98 psf
186 mph	At-Grade (0 ft)	C	± 46 psf	0* psf
		D	± 54 psf	0* psf
	100 ft	C	± 111 psf	87 psf
		D	± 125 psf	99 psf
	200 ft	C	± 127 psf	100 psf
		D	± 140 psf	111 psf

100 psf

Note: Any table values with the format shown left, if present, indicate design wind pressures and site conditions that are **not approved for use** by this evaluation. Seek additional engineering or contact this firm for design solutions.

DIRECTIVE: This design pressure guide is for reference only and shall be approved for use by the Authority Having Jurisdiction (AHJ). If the design pressures listed in this guide are not used, required design pressures shall be calculated separately. For site-specific scenarios classified as Exposure Category B, the required design pressures stated for Exposure Category C in the above guide shall be used or design pressures shall be calculated separately. For heights and parameters beyond the parameters listed in this guide, visit our Online Calculator via the website link (<https://ecalcalc.io/forces>) or QR Code below, or obtain calculations separately by others.

The required ASD design pressures listed in this guide were calculated per the table's listed corresponding site conditions. The project design professional or permitting contractor shall verify that the site-specific conditions are equal to or less than the approved design parameters listed in the guide. Per the note below table: any values shown as "XX-psf", indicate wind pressures and corresponding site conditions that are **not valid for use** with this evaluation (exceeds the max. rated pressures).

*Note: Per the codes and standards referenced herein, uplift is not required for mechanical equipment at-grade. If uplift at-grade is required by the AHJ, contact this firm for a site-specific evaluation.

At-Grade (0 ft MRH) Required Design Pressures:

- ASCE 7 "Design Wind Loads: Other Structures"
- Structure Shape = Square, flat terrain
- Height of structure (unit + stand or curb, if used) = 6 ft max.
- Width of unit = 1 ft min., Depth of unit = 11 in min.

Rooftop (>15 ft MRH) Required Design Pressures:

- ASCE 7 "Design Wind Loads: Other Structures: Rooftop Structures and Equipment for Buildings"
- Structure Shape = Square, flat terrain
- z = up to 7 ft, where z = height of stand or curb + ½ unit height
- Lateral GC_f = 1.90; Uplift GC_f = 1.50

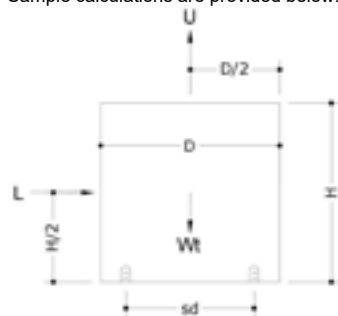
VISIT [ECALC.IO/FORCES](https://ecalcalc.io/forces)

FOR DESIGN AID CALCULATORS AND RESOURCES RELATED TO THIS EVALUATION & GUIDES HEREIN, OR SCAN THE QR CODE RIGHT >



UNIT REACTIONS FROM WIND GUIDE

DIRECTIVE: This guide is intended for use by a design professional. Design parameters shall abide all specifications and limitations stated in this evaluation. Design professional shall consider all forces, including seismic and snow loads, per the governing building code. Unit reactions obtained from this guide shall be verified by a registered Professional Engineer. Reactions are applicable for unit-to-host connections only. Sample calculations are provided below.



Design Parameters:

- Lateral Wind Pressure, P_{lat}
- Unit Height, H
- Unit Width, W
- Support Spacing across Depth, sd
- Uplift Wind Pressure, P_{up}
- Unit Depth, D
- Unit Weight, Wt
- Support Spacing across Width, sw

Unit Reaction Equations:

Long Side (Width x Height):

- Sliding Force, L = P_{lat} x W x H
- Uplift Force, U = P_{up} x W x D
- Total Tension per Long Side = (L x H/2 + U x sd/2 - Wt x 0.6 x sd/2) / sd

Short Side (Depth x Height):

- Sliding Force, L = P_{lat} x D x H
- Uplift Force, U = P_{up} x W x D
- Total Tension per Short Side = (L x H/2 + U x sw/2 - Wt x 0.6 x sw/2) / sw

Example: A (48" W x 36" D x 42" H), 250 lb net weight unit at wind pressures of 120 psf lateral and 95 psf uplift, on a 24" wide roof stand, shall have the following unit reactions:

Long Side (Width x Height):

- Sliding Force, L = P_{lat} x W x H
= (120 psf) x (48 in) x (42 in) x (1 in² / 144 ft²) = **1680 lb**
- Uplift Force, U = P_{up} x W x D
= (95 psf) x (48 in) x (36 in) x (1 in² / 144 ft²) = **1140 lb**
- Total Tension per Long Side =
= (L x H/2 + U x sd/2 - Wt x 0.6 x sd/2) / sd
= ((1680 lb x 42/2 in) + (1140 lb x 24/2 in) - (250 lb x 0.6 x 24/2 in)) / 24 in = **1965 lb**

Short Side (Depth x Height):

- Sliding Force, L = P_{lat} x D x H
= (120 psf) x (36 in) x (42 in) x (1 in² / 144 ft²) = **1260 lb**
- Uplift Force, U = P_{up} x W x D
= (95 psf) x (48 in) x (36 in) x (1 in² / 144 ft²) = **1140 lb**
- Total Tension per Short Side =
= (L x H/2 + U x sw/2 - Wt x 0.6 x sw/2) / sw
= ((1260 lb x 42/2 in) + (1140 lb x 48/2 in) - (250 lb x 0.6 x 48/2 in)) / 48 in = **1046 lb**

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

Q. DECOMMISSIONING

Q.1. Before Beginning Decommissioning

Before carrying out decommissioning, the technician performing decommissioning must be familiar with the equipment and its safety procedures, and ensure electrical power is available to the unit. See **Section A.3.1. Working Personnel Qualifications** for more information.

Before recovering the refrigerant, an oil and refrigerant sample must be taken if the technician intends to reuse the recovered refrigerant to have a record.

Before beginning any work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. See **C.2.6. No Ignition Sources**.

Before beginning any work on the system or conducting any hot work, ensure that the area is in the open or that it is adequately ventilated. Ventilation must continue while the unit is being worked on. Ventilation is required to safely disperse any released refrigerant into the atmosphere.

Work shall be undertaken under a controlled procedure so as to minimize the risk of flammable gas or vapor being present while work is being performed. See **A.3. Importance of a Quality Installation**.

All maintenance staff and others working in the local area shall be instructed on the nature of the work being performed. Work in confined spaces shall be avoided.

The area shall be checked with an appropriate refrigerant detector before and during work to ensure the technician is aware of potentially toxic or flammable atmospheres.

Q.2. Decommissioning Procedure

Follow the decommissioning procedure outlined below:

READ ALL STEPS BEFORE BEGINNING.

1. Become familiar with the equipment, its operation, and its safety procedures.
2. Isolate the system electrically.
3. Ensure that mechanical handling equipment for the refrigerant cylinders is at hand, if required.
4. Ensure personal, protective equipment is being used correctly.
5. A competent supervisor must be present during the refrigerant recovery process. Ensure such a person is available on site.

6. Confirm that the recovery equipment and cylinders are correct for the equipment and its refrigerant.
7. Follow the steps outlines in **Section J.1.1. Check for Refrigerant Leaks** and **Section J.1.1.3. Removal and Evacuation of Refrigerant**.
8. If possible, pump down the refrigerant system.
9. If a vacuum is not possible, make a manifold so that the refrigerant can be removed from various parts of the system.
10. Make sure that the recovery cylinder is situated on the scale before recovery begins.
11. Start the recovery machine and operate it in accordance with its instructions.
12. Do not overflow the cylinders. No more than 80% volume liquid charge is allowed.
13. Do not exceed the maximum working pressure of the cylinder, even temporarily.
14. When the cylinders have been filled correctly and the process is complete, make sure that the cylinders and the recovery equipment are removed from the site promptly.
15. Verify all isolation valves on the unit are closed (off).
16. Recovered refrigerant shall not be charged into another unit unless a sample was taken prior to recovering the refrigerant and its been cleaned and checked.

Q.3. Labeling

When performing any maintenance or troubleshooting on the refrigerating equipment or associated parts, a dry powder or CO2 fire extinguisher shall be nearby for emergency use.

Equipment must be labeled stating that is has been decommissioned and emptied of refrigerant. The label must be dated and signed. Ensure that there are label(s) on the unit stating that this equipment contains **flammable refrigerant**.

R. INFORMATION FOR THE OWNER

R.1. 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.

R.2. 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 User's Information Manual which can be found on the manufacturer's website.

At least once a year, scheduled service checks must be made to verify the safety systems in this unit are working as intended.

R.2.1. Filter Changing

WARNING: DISCONNECT THE MAIN POWER TO THE OUTDOOR UNIT BEFORE ATTEMPTING ANY MAINTENANCE OPERATION. FAILURE TO DO SO CAN RESULT IN SEVERE ELECTRICAL SHOCK OR DEATH.

1. Keep air filters clean. There are several types of material used in air filters and there are many possible locations for air filters. Consult with your contractor as to the locations of the filters and type of material in use.

2. How To Clean:

Glass Fiber (Throwaway) — This is a disposable type of filter. Inspect monthly and replace when necessary. A new building will normally require more frequent attention to the filters.

Aluminum Mesh — Wash with detergent and water. Air dry thoroughly and renew the coating in compliance with the manufacturer's instructions.

Pleated or MERV Filters (Throwaway) — There are various types and levels of filtration available. These may require more frequent inspection or replacement. Consult with the filter manufacturer.

IMPORTANT: Do not operate your system for extended periods without filters, as the dust contained in the air may pack into the fin area of the evaporator coil creating a condition which could require extensive repairs.

WARNING: A PORTION OF THE DUST CONTAINED IN THE AIR MAY TEMPORARILY LODGE IN THE AIR DUCT RUNS AND AT THE SUPPLY REGISTERS. ANY RECIRCULATED DUST PARTICLES WILL BE HEATED AND CHARRED BY CONTACT WITH THE ELECTRIC HEATING ELEMENTS. THIS RESIDUE WILL SOIL CEILINGS, WALLS, FLOORING, AND OTHER BUILDING ARTICLES.

R.2.2. Cleaning Condensate Pan

Check annually and, if necessary, clean drain pan and drain line. In winter, keep drain and trap dry or protect against freezeup. If this unit is installed with proper clearances, then the drain pan on most units is removable (check unit Specification Sheet to determine whether or not your unit is equipped with a slide-out drain pan). Refer to the unit Installation and Operation Manual for specific instruction on clearances and how to clean the drain pan.

R.2.3. Cleaning Coils

NOTE: Clean the Microchannel using only water. Due to the aluminum construction, do not use cleaners or detergents because they may cause corrosion to the Microchannel, leading to refrigerant leaks.

Directions to clean the Microchannel coils are as follows:

1. Disconnect power to the unit.
2. Wear proper personal protection equipment such as a face shield, gloves, and waterproof clothing.
3. Remove panels from the unit to gain safe access to the microchannel coils.
NOTE: Clean the coil from the inside out, in the opposite direction of normal airflow, allowing the debris to be pushed out rather than further in.
4. Use a soft brush or vacuum to remove base debris or surface-loaded fibers from both sides of the coil.

R. INFORMATION FOR THE OWNER

R.2.3. Cleaning Coils (Cont.)

5. Using a sprayer and water ONLY, clean the coil following the guidelines below:

- a. Use a 90° sprayer nozzle attachment to aid in cleaning the closely spaced coils. Sprayer nozzle pressure should not exceed 600 psi. Use a flat fan spray nozzle with an angle of at least 15 degrees.
- b. Spray perpendicular to the face of the coil. The maximum source angle should not exceed 25 degrees to the face of the coil.
- c. Spray approximately 1"-3" from the coil surface.

6. Do not allow the sprayer to come in contact with the tube and fin as it may damage the coil.

R.2.4. Checking Electrical Components

Repair and maintenance of electrical components must include safety checks and component inspections.

If a fault exists that could compromise safety, then no electrical supply can be connected to the unit until the error causing the fault is repaired. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution must be used. The temporary solution must be communicated to the owner.

Initial safety checks include:

- Confirming that the capacitors are discharged. This must be done safely to avoid the possibility of sparking.
- Ensure that no live electrical components or wiring are exposed while charging, recovering, or purging the system.
- Confirm that the unit grounding is constant and secure.

R.3. Refrigerant Recovery

When removing refrigerant from a unit, either for service or decommissioning, the following practices are required to safely remove the refrigerant.

When transferring the refrigerant into cylinders, ensure that only the appropriate recovery cylinders are employed.

- Ensure that the correct number of recovery cylinders are available to hold the total system charge.
- All cylinders used must be designed for recovering R-454B refrigerant.
- Cylinders shall be complete with a pressure-relief valve and shut-off valves, all in working order.

- Empty recovery cylinders must be evacuated and cooled before refrigerant recovery occurs.

The following equipment is required to be on site and in good working condition prior to and during refrigerant recovery:

- The technician's recovery equipment
- The recovery equipment's instructions that details the proper recovery of flammable refrigerant.
- A set of calibrated weighing scales
- Hoses, which must be complete with leak-free disconnect couplings.

If in doubt, contact the manufacturer about recovering flammable refrigerant.

The recovered refrigerant must be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. **DO NOT MIX REFRIGERANTS IN RECOVERY UNITS OR RECOVERY CYLINDERS.**

If compressors or compressor oils are to be removed, ensure that they have been evacuated to make certain that the flammable refrigerant, R-454B, does not remain within the lubricant. The compressor body must not be heated by an open flame or other ignition sourced to accelerate this process. When oil is drained from a system, it shall be carried out safely.

R.4. Warranty Information

For more information on this unit's factory warranty, see the warranty card shipped with the unit. The warranty card is also provided on the manufacturer's website.

S. INSTALLATION CHECK LIST AND JOB SITE SHEET

Commercial Job Site Information

Site Information and Application Details:

Business Name :	_____	Model Number :	_____
Address :	_____	(Please include all letters and digits of the model number)	
City :	_____	State :	_____
Zip :	_____	Serial Number :	_____
Site Contact :	_____	(Please include all letters and digits of the serial number)	
Phone :	_____	Mobile :	_____
Email :	_____	Date of Install :	_____
		(When was the unit installed, month, day, and year)	

Business Name :	_____	Technician Name :	_____
Address :	_____	Visit Date:	_____
City :	_____	State :	_____
Zip :	_____	Technician Name :	_____
Site Contact :	_____	Visit Date:	_____
Phone :	_____	Mobile :	_____
Email :	_____	Technician Name :	_____
		Visit Date:	_____

Distributor and Support Details:

Distributor Name :	_____	Rep Name :	_____
City :	_____	State :	_____
		Visit Date:	_____

Unit Setup and Operational Information

Voltage and Amperage Information :

Line Voltage Measurements :

Base Voltage :	208	240	460	Phase :	1	3
	(Circle one)				(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) :	_____
Outdoor Air Temperature (°F) :	_____	Return Air Temperature (°F) :	_____
Outdoor Air Wet Bulb (°F) :	_____	Return Air Wet Bulb (°F) :	_____

Circuit 2 :

Suction Line

Liquid Line

Pressure (PSI) :	_____	Pressure (PSI) :	_____
Temperature (°F) :	_____	Temperature (°F) :	_____
Sub-cooling (°F) :	_____	Sub-cooling (°F) :	_____
Supply Air Temperature (°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)

Power Setting (uLu) : _____

Low Fan Speed % : _____

Active VFD Display (Hz) : _____

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

1stg Cooling Speed % : _____

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

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

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: Amperage:

Line 1 Line 2 Line 1 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 :





