

INSTALLATION INSTRUCTIONS

FOR CASED/UNCASED COILS FOR GAS FURNACES:

(-)CFY: Featuring Industry-Standard R-454B Refrigerant



RECOGNIZE THIS SYMBOL AS AN INDICATION OF IMPORTANT SAFETY INFORMATION!

WARNING

These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance possibly resulting in fire, electrical shock, property damage, personal injury or death.



ISO 9001:2015

DO NOT DESTROY THIS MANUAL

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

R-454B BEST PRACTICES

- R-410A systems **SHOULD NOT** be retrofitted with R-454B. Reference Section 1.0 for more information.
- Only use indoor coils approved for use on R-454B systems. An R-410A or R-22 coil has not been evaluated for use with R-454B and may lack a refrigerant detection system necessary for safe operation of the system. Reference Section 1.0 for more information.
- R-454B is classified as safety group A2L, where the 2L flammability class indicates lower flammability. R-454B and air should never be mixed in tanks or supply lines or be allowed to accumulate in storage tanks due to its flammability. Reference Section 4.1.2 for more information.
- When using a torch during brazing, nitrogen must be flowed while brazing. Reference Section 4.4.1 for more information.
- Existing R-410A or R-22 unit's line sets be purged and flushed with nitrogen if being used as a replacement for a R-454B system. Reference Section 4.4.1 for more information.
- R-454B system refrigerants must be charged in liquid form. Reference Section 5.4 for more information.
- Lines must be cut when replacing R-410A or R-22 systems with a R-454B system.

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1.0 SAFETY INFORMATION

⚠️ WARNINGS:

- Do not use oxygen to purge lines or pressurize system for leak test. Oxygen reacts violently with oil and possibly with R-454B, which can cause an explosion resulting in severe personal injury or death.
- R-410A systems should not be retrofitted with R-454B. Such a retrofit violates the product listing and may result in severe personal injury or property damage.
- These instructions are intended as an aid to qualified, licensed service personnel for proper installation, adjustment, and operation of this unit. Read these instructions thoroughly before attempting installation or operation. **Failure to follow these instructions may result in improper installation, adjustment, service, or maintenance possibly resulting in fire, electrical shock, property damage, personal injury, or death.**
- The unit must be permanently grounded. Failure to do so can cause electrical shock resulting in severe personal injury or death.
- Turn off electric power at the fuse box or service panel before making any electrical connections.
- Complete the ground connection before making line voltage connections. Failure to do so can result in electrical shock, severe personal injury, or death.
- Disconnect all power to unit before starting maintenance. Failure to do so can cause electrical shock resulting in severe personal injury or death.
- Never assume the unit is properly wired and/or grounded. Always test the unit cabinet with a noncontact voltage detector available at most electrical supply houses or home centers before removing access panels or coming into contact with the unit cabinet.
- This unit is a PARTIAL UNIT AIR CONDITIONER, complying with PARTIAL UNIT requirements of this Standard, and must only be connected to other units that have been confirmed as complying to corresponding PARTIAL UNIT requirements of this Standard, UL 60335-2-40/CSA C22.2 No. 60335-2-40, or UL 1995/CSA C22.2 No. 236.
- Because of possible damage to equipment or personal injury, installation, service, and maintenance should be performed by a trained, qualified service personnel. Consumer service is recommended only for filter cleaning/replacement. Never operate the unit with access panels removed.
- The manufacturer's warranty does not cover any damage or defect to the unit 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 heat pump. **You should be aware that the use of unauthorized components, accessories, or devices may adversely affect the operation of the coil 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.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning 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.
- Duct leaks can create an unbalanced system and draw pollutants such as dirt, dust, fumes and odors into the home causing property damage. Fumes and odors from toxic, volatile or flammable chemicals, as well as automobile exhaust and carbon monoxide (CO), can be drawn into the living space through leaking ducts and unbalanced duct systems causing personal injury or death (see Figure 1).
 - If air-moving equipment or ductwork is located in garages or off-garage storage areas - all joints, seams, and openings in the equipment and duct must be sealed to limit the migration of toxic fumes and odors including carbon monoxide from migrating into the living space.
 - If air-moving equipment or ductwork is located in spaces containing fuel burning appliances such as water heaters or boilers - all joints, seams, and openings in the equipment and duct must also be sealed to prevent depressurization of the space and possible migration of combustion by products including carbon monoxide into the living space.
 - Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
 - 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).
 - Do not pierce or burn
 - Be aware that refrigerants may not contain an odor.
- **Proposition 65:** This appliance contains fiberglass insulation. Respirable particles of fiberglass are known to the State of California to cause cancer. All manufacturer products meet current Federal OSHA Guidelines for safety. California Proposition 65 warnings are required for certain products, which are not covered by the OSHA standards. California's Proposition 65 requires warnings for products sold in California that contain or produce any of over 600 listed chemicals known to the State of California to cause cancer or birth defects such as fiberglass insulation, lead in brass, and combustion products from natural gas. All "new equipment" shipped for sale in California will have labels stating that the product contains and/or produces Proposition 65 chemicals. Although we have not changed our processes, having the same label on all our products facilitates manufacturing and shipping. We cannot always know "when, or if" products will be sold in the California market. You may receive inquiries from customers about chemicals found in, or produced by, some of our heating and air-conditioning equipment, or found in natural gas used with some of our products. Listed below are those chemicals and substances commonly associated with similar equipment in

1.0 SAFETY INFORMATION

our industry and other manufacturers.

- Glass Wool (Fiberglass) Insulation
- Carbon Monoxide (CO).
- Formaldehyde
- Benzene

More details are available at the websites for osha (Occupational Safety and Health Administration), at www.osha.gov and the State of California's OEHHA (Office of Environmental Health Hazard Assessment), at www.oehha.org. Consumer education is important since the chemicals and substances on the list are found in our daily lives. Most consumers are aware that products present safety and health risks, when improperly used, handled and maintained.

- Single-pole contactors are used on all standard single-phase units through 5 tons. Caution must be exercised when servicing as only one leg of the power supply is broken by the contactor.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- 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).
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.

Markings Reference

	(Symbol ISO 7000-1655 (2004-01))	Service station: read technical manual
	AOL flammable	Warning: low burning velocity material
	(Symbol ISO 7000-1101 (2004-01))	Pressure
	(Symbol IEC 60417-6049 (2010-08))	Ultraviolet radiation: instructional enclosed
	(Symbol ISO 7000-1041 (2004-01))	Operator's manual: operating instructions
	(UN GHS (090886): Harmonized System of Classification and Labeling of Chemicals)	Refrigerant Safety Group A2L: warning: flammable materials

CAUTIONS:

- Only use indoor coils approved for use on R-454B systems. An R-410A or R-22 coil has not been evaluated for use with R-454B and may lack a refrigerant detection system necessary for safe operation of the system. The R-410A or R-22 coil could also contain PVE or POE oil which is

incompatible with the POE oil used in R-454B systems and could result in reliability issues with the compressor and TXVs.

- Refrigerant R-454B operates at pressures similar to R-410A. However, it is classified in safety group A2L. Ensure that servicing equipment is compatible with group A2L refrigerants and in particular with R-454B. Use appropriate care when using this refrigerant. Failure to exercise care may result in equipment damage or personal injury.
- Only match this indoor coil with a matched outdoor unit approved for use with this coil per the unit manufacturer's specification sheet. The use of unmatched coils or air handler will likely result in a charge imbalance between the cooling and heating modes which can cause unsatisfactory operation including a high-pressure switch lockout condition.
- When coil is installed over a finished ceiling and/or living area, it is required that a secondary sheet metal condensate pan be constructed and installed under the entire unit. Failure to do so can result in property damage.
- The compressor has an internal overload protector. Under some conditions, it can take up to 2 hours for this overload to reset. Make sure overload has had time to reset before condemning the compressor.
- Unit must be reconfigured for vertical down or horizontal right supply air discharge applications. The coil must be repositioned so the vertical drainpan is on the bottom for vertical down discharge applications or the horizontal drip pan is below coil for horizontal right discharge applications. Failure to reconfigure the unit for these applications can result in property damage and poor system performance.
- This unit is a PARTIAL UNIT AIR CONDITIONER, complying with PARTIAL UNIT requirements of this Standard, and must only be connected to other units that have been confirmed as complying to corresponding PARTIAL UNIT requirements of this Standard, UL 60335-2-40/CSA C22.2 No. 60335-2-40, or UL 1995/CSA C22.2 No 236.
- The indoor coil must be equipped with an electronically powered leak detection system. To be effective, the unit must be electrically powered at all times after installation, other than when servicing.
- In compliance with recognized codes, an auxiliary drain pan must be installed under all equipment containing evaporator coils that are located in any area of a structure where damage to the building or building contents may occur as a result of an overflow of the coil drain pan or a stoppage in the primary condensate drain piping. See Section 6.3 of this manual for auxiliary horizontal overflow pan accessory information (model RXBM).

NOTICE:

- When used in cooling applications, excessive sweating may occur when unit is installed in an unconditioned space. This can result in property damage.

2.0. GENERAL INFORMATION

⚠ WARNING:

Improper installation, or installation not made in accordance with these instructions, can result in unsatisfactory operation and/or dangerous conditions and can cause the related warranty not to apply.

2.1 INTRODUCTION

The information contained in this manual has been prepared to assist in the proper installation, operation, and maintenance of the air conditioning system. Read this manual and any instructions packaged with separate equipment required to make up the system prior to installation. Homeowner should retain this manual for future reference.

2.2 IMPORTANCE OF QUALITY INSTALLATION

A quality installation is critical to assure safety, reliability, comfort, and customer satisfaction. Strict adherence to applicable codes, the information in this installation manual, the outdoor unit installation manual, and the thermostat installation manual are key to a quality installation. Read the entire instruction manuals before starting the installation.

IMPORTANT: This product has been designed and manufactured to meet certified AHRI capacity and efficiency ratings with the appropriate outdoor units. However, proper refrigerant charge, proper airflow, and refrigerant line sizing are critical to achieve optimum capacity and efficiency and to assure reliable operation. Installation of this product should follow the manufacturer's refrigerant charging and airflow instructions located in this installation manual and the charging chart label affixed to the outdoor unit. Failure to confirm proper charge and airflow may reduce energy efficiency and shorten equipment life.

The equipment has been evaluated in accordance with the Code of Federal Regulations, Chapter XX, Part 3280.

Install the unit in accordance with applicable national, state, and local codes. Latest editions are available from: "National Fire Protection Association, Inc., Batterymarch Park, Quincy, MA 02269." These publications are:

- ANSI/NFPA No. 70-(Latest Edition) National Electrical Code.
- NFPA 90A Installation of Air Conditioning and Ventilating Systems.
- NFPA 90B Installation of Warm Air Heating and Air Conditioning Systems.

Install the indoor unit in such a way as to allow necessary access to the coil/filter rack and blower/control compartment.

2.3 SYSTEM SIZING AND SELECTION

Before specifying any heat pump equipment, a survey of the structure and a heat loss and heat gain calculation must be made. A heat loss calculation involves identifying all surfaces and openings that lose heat to the surrounding air and quantifying that heat loss. A cooling heat gain calculation makes similar measurements and determines the amount of heat needed to be removed. A heat gain calculation also calculates the extra heat load caused by sunlight and by humidity removal. These factors must be considered before selecting a heat pump system to provide year-round comfort. The Air Conditioning Contractors of America (ACCA) Manual J method of load calculation is one recognized procedure for determining the heating and cooling load.

After the proper equipment combination has been selected, satisfying both sensible and latent requirements, the system must be properly installed. Only then can the system provide the comfort it was designed to provide.

There are several factors that installers must consider.

- Outdoor unit location
- Indoor unit blower speed and airflow
- Proper equipment evacuation
- Supply and return air duct design and sizing
- Refrigerant charge
- System air balancing
- Diffuser and return air grille location and sizing

IMPORTANT: Excessive use of elbows in the refrigerant line set can produce excessive pressure drop. Follow industry best practices for installation. Installation and commissioning of this equipment is to be performed by trained and qualified HVAC professionals. For technical assistance, contact your Distributor Service Coordinator.

2.4 CHECKING PRODUCT RECEIVED

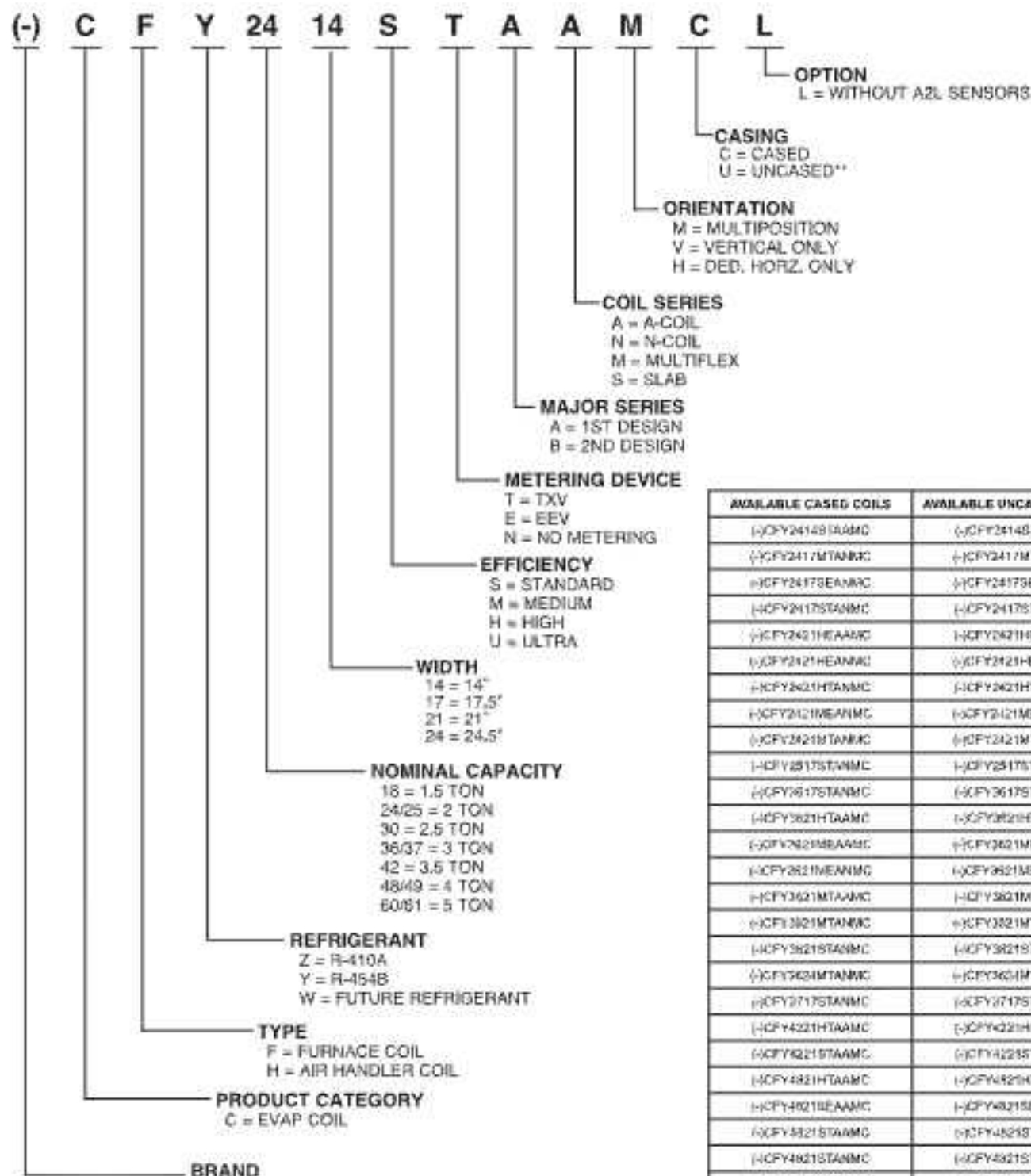
Upon receiving unit, inspect it for any shipping damage. Claims for damage, either apparent or concealed, should be filed immediately with the shipping company. Check model number, electrical characteristics, and accessories to determine if they are correct. Check system components (indoor coil, outdoor unit, air handler/furnace, etc.) to make sure they are properly matched.

2.5 EFFICIENCY TESTING NOTICE

For purposes of verifying or testing efficiency ratings, the test procedure in Title 10 APPENDIX M1 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 AHRI Operations Manual 210/240 that were applicable at the date of manufacture should be used for test set up and performance.

2.6 MODEL NUMBER EXPLANATION

FIGURE 1
MODEL NUMBER EXPLANATION



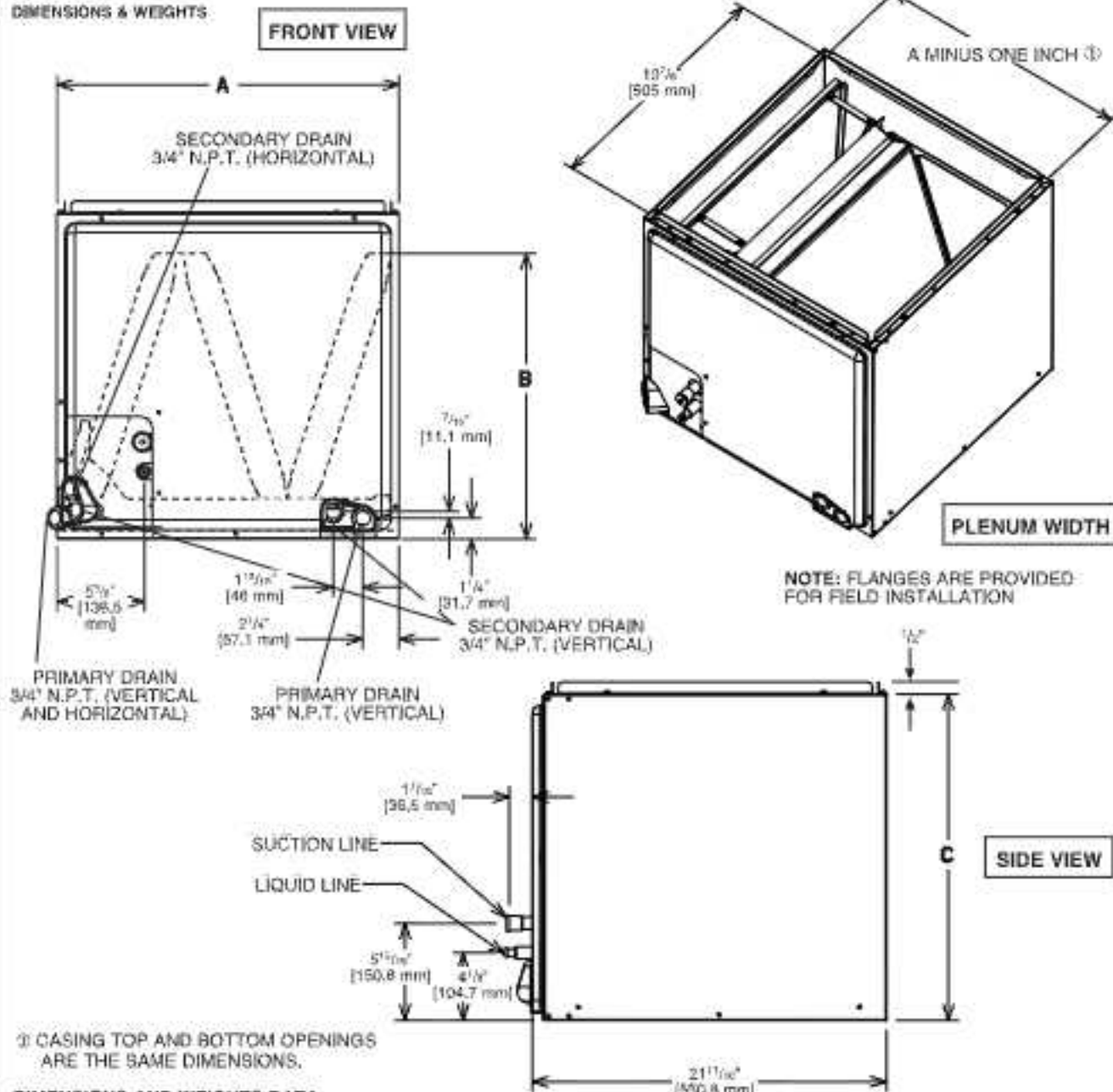
AVAILABLE CASED COILS	AVAILABLE UNCASSED COILS
(-)CFY24148TAAMC	(-)CFY24148TAAVU
(-)CFY2417MTANMC	(-)CFY2417MTANVU
(-)CFY2417SEANMC	(-)CFY2417SEANVU
(-)CFY2417STANMC	(-)CFY2417STANVU
(-)CFY2421HEANMC	(-)CFY2421HEANVU
(-)CFY2421HTANMC	(-)CFY2421HTANVU
(-)CFY2421MEANMC	(-)CFY2421MEANVU
(-)CFY2421MTANMC	(-)CFY2421MTANVU
(-)CFY2517STANMC	(-)CFY2517STANVU
(-)CFY2617STANMC	(-)CFY2617STANVU
(-)CFY2621HTAAMC	(-)CFY2621HTAAVU
(-)CFY2621MEANMC	(-)CFY2621MEANVU
(-)CFY2621MEANMC	(-)CFY2621MEANVU
(-)CFY2621MTAAMC	(-)CFY2621MTAAVU
(-)CFY2621MTANMC	(-)CFY2621MTANVU
(-)CFY2621STANMC	(-)CFY2621STANVU
(-)CFY2621MTANMC	(-)CFY2621MTANVU
(-)CFY2717STANMC	(-)CFY2717STANVU
(-)CFY4221HTAAMC	(-)CFY4221HTAAVU
(-)CFY4221STANMC	(-)CFY4221STANVU
(-)CFY4821HTAAMC	(-)CFY4821HTAAVU
(-)CFY4821SEANMC	(-)CFY4821SEANVU
(-)CFY4821STANMC	(-)CFY4821STANVU
(-)CFY4821STANMC	(-)CFY4821STANVU
(-)CFY4824MTANMC	(-)CFY4824MTANVU
(-)CFY4824STANMC	(-)CFY4824STANVU
(-)CFY4921STANMC	(-)CFY4921STANVU
(-)CFY5021SEANMC	(-)CFY5021SEANVU
(-)CFY5021STANMC	(-)CFY5021STANVU
(-)CFY5024HTANMC	(-)CFY5024HTANVU
(-)CFY5024SEANMC	(-)CFY5024SEANVU
(-)CFY5024STANMC	(-)CFY5024STANVU
(-)CFY5124STANMC	(-)CFY5124STANVU

**CONVERTIBLE TO HORIZONTAL USING PARTS FROM ORIGINAL COIL OR USING RXHH KIT.

2.7 COIL SPECIFICATIONS

2.7A COIL SPECIFICATIONS: DIMENSIONS & WEIGHTS (SEE FIGURE 2)

FIGURE 2
DIMENSIONS & WEIGHTS



DIMENSIONS AND WEIGHTS DATA

Coil Model (CYFY)	Connections I.D.		Cased Coil Dimensions (in.) [mm]			Weight	
	Sweet (in.) [mm]		A	B	C	Coil Weight (lbs.) [kg]	Shipping Weight (lbs.) [kg]
	Liquid	Suction					
2414S	3/8 [9.5]	3/4 [19.0]	14 [356]	25 1/4 [525]	23 1/4 [584]	45 [20]	42 [20]
2417S	3/8 [9.5]	3/4 [19.0]	17 1/2 [445]	14 1/2 [368]	20 [508]	43 [19]	44 [21]
2417S / 3617S	3/8 [9.5]	3/4 [19.0]	17 1/2 [445]	17 1/4 [454]	26 [505]	43 [20]	54 [24]
2421M / 3621S	3/8 [9.5]	3/4 [19.0]	21 [533]	17 1/4 [445]	20 [508]	51 [23]	57 [26]
2421H / 3621M / 4821S / 2421H	3/8 [9.5]	7/8 [22.2]	21 [533]	25 1/4 [525]	26 [711]	71 [32]	75 [35]
3624M / 4824S	3/8 [9.5]	3/4 [19.0]	24 1/2 [522]	25 1/4 [525]	32 [813]	83 [38]	83 [42]
4824M / 6024S / 6024H	3/8 [9.5]	7/8 [22.2]	24 1/2 [522]	30 1/4 [768]	32 [813]	100 [45]	110 [50]
2421H / 3621M / 4221H / 4821H / 4821S / 6021S / 3621H / 4821S	3/8 [9.5]	7/8 [22.2]	21 [533]	35 [890]	34 1/2 [876]	76 [34]	66 [31]

1" = 25.4 mm

2.7B COIL SPECIFICATIONS: AIRFLOW PRESSURE DROP

TABLE 1
AIRFLOW PRESSURE DROP[illegible]

1. Originals Filed: Concurrently

IMPORTANT NOTE: Gas furnace melting (FB) can strain the Pyrex casting DTM. Therefore and if a collection must recommend the style of the casting or gas melting DTM to a good furnace that typically, extremely, more, and still faster, etc.

3.0 INSTALLATION

3.1 APPLICATIONS

(-)CFY cased coils can be applied in upflow, downflow, horizontal right and horizontal left applications without modifications. (-)CFY uncased coils can only be applied in upflow and downflow applications as received (see Table 2 and Figure 3 and 4). For horizontal applications of uncased replacement coils, installation of a horizontal drip shield and water management parts from old coil is required or an RXHH Horizontal Adapter Kit may be used. (See Section 5.2: Horizontal Adapter Kit.)

For coils that are **two** sizes larger than the furnace, for example, a 21" wide coil on a 14" furnace, a tapered adaptor with a minimum height of 6" is required to evenly distribute airflow. See Figure 6. For coils that are **one** size larger than the furnace: for example a 21" wide coil on a 17 1/2" furnace, seal the gap between the two units with sheet metal, or use the specified adaptor kit (RXBA-AC). See Figure 7.

3.1.1 IMPORTANCE OF QUALITY INSTALLATION

A quality installation is critical to assure safety, reliability, comfort, and customer satisfaction. Strict adherence to applicable codes, the information in this installation manual, the outdoor unit installation manual, and the thermostat installation manual are key to a quality installation. Read the entire instruction manuals before starting the installation.

IMPORTANT: This product has been designed and manufactured to meet certified AHRI capacity and efficiency ratings with the appropriate outdoor units. However, proper refrigerant charge, proper air-flow, and refrigerant line sizing are critical to achieve optimum capacity and efficiency and to assure reliable operation. Installation of this product should follow the manufacturer's refrigerant charging and air-flow instructions located in the outdoor unit installation instructions and the charging chart label affixed to the outdoor unit. Failure to confirm proper charge and air-flow may reduce energy efficiency and shorten equipment life.

The equipment has been evaluated in accordance with the Code of Federal Regulations, Title 24, Chapter XX, Part 3280.

Install the unit in accordance with applicable national, state, and local codes. Latest editions are available from: "National Fire Protection Association, Inc., Batterymarch Park, Quincy, MA 02269." These publications are:

- ANSI/NFPA No. 70-(Latest Edition) National Electrical Code.
- NFPA 90A Installation of Air Conditioning and Ventilating Systems.
- NFPA 90B Installation of Warm Air Heating and Air-Conditioning Systems.

Install the unit in such a way as to allow necessary access to the coil/filter rack.

CAUTION

For horizontal applications, the horizontal drain pan must be located under the indoor coil. Failure to place the pan under the coil can result in property damage.

TABLE 2
COIL APPLICATION

Coil Model (-)CFY	Furnace Width (In.) (mm)	
	Oil*	Gas
2414S / 2417S / 2417M / 3617S / 3717S	—	14 [356]
2417S / 2417M / 2517S / 3617S	17 [431]	17 1/2 [444]
		14 [356]
2421M / 2421H / 3621S / 3621M / 4821S / 6021S / 2421H / 3621H / 4221S / 4221H / 4821H	21 [533]	21 [533]
		17 1/2 [444]
3624M / 4824S / 4824M / 6024S / 6024H / 6024H	24 1/2 [622]	24 1/2 [622]
		21 [533]

*Due to the proximity of the drain pan to the high temperature oil furnace drum, horizontal left application is **NOT** permitted on all oil furnaces.

FIGURE 3
COIL INSTALLATION OPTIONS

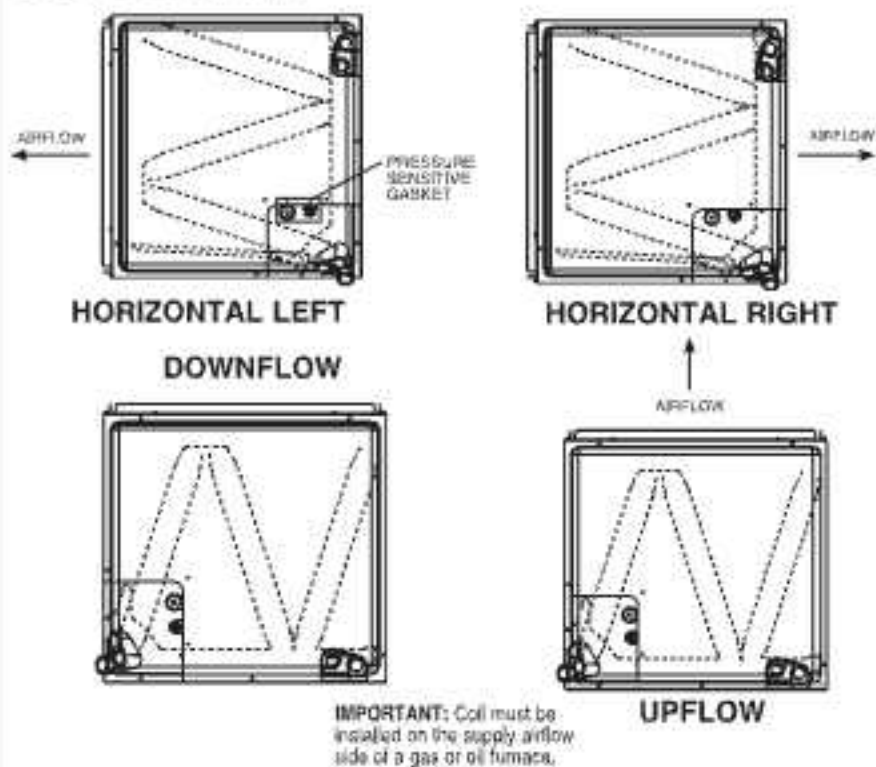
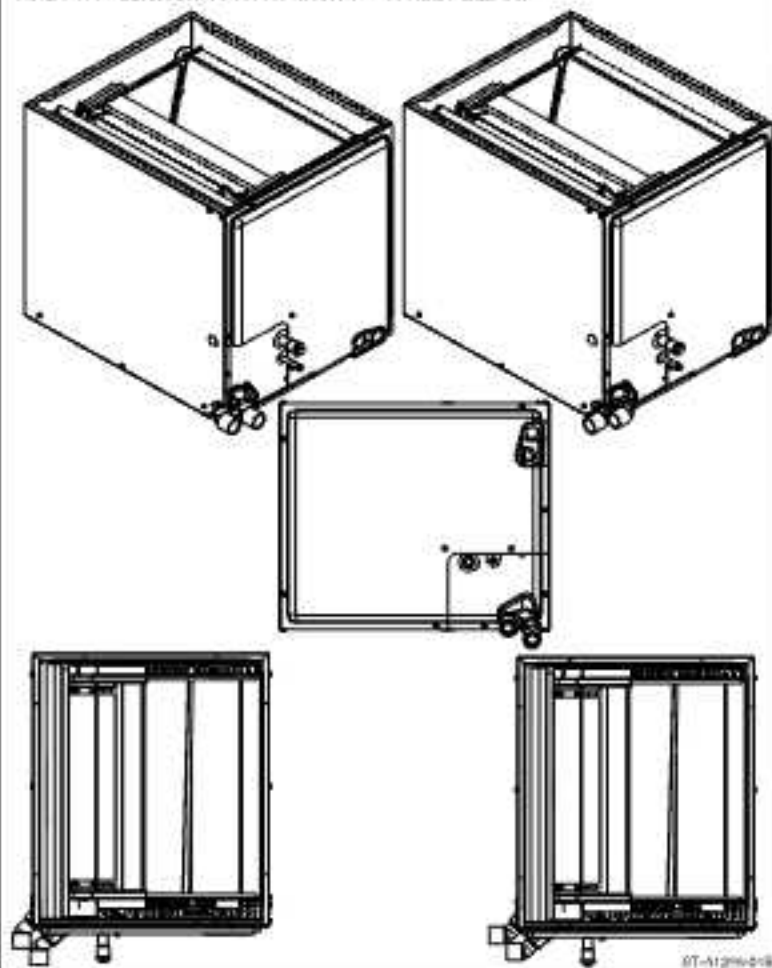


FIGURE 3B
COIL INSTALLATION OPTIONS WITH 45° STREET ELBOW



DT-11296-08

FIGURE 4
COIL INSTALLATION OPTIONS

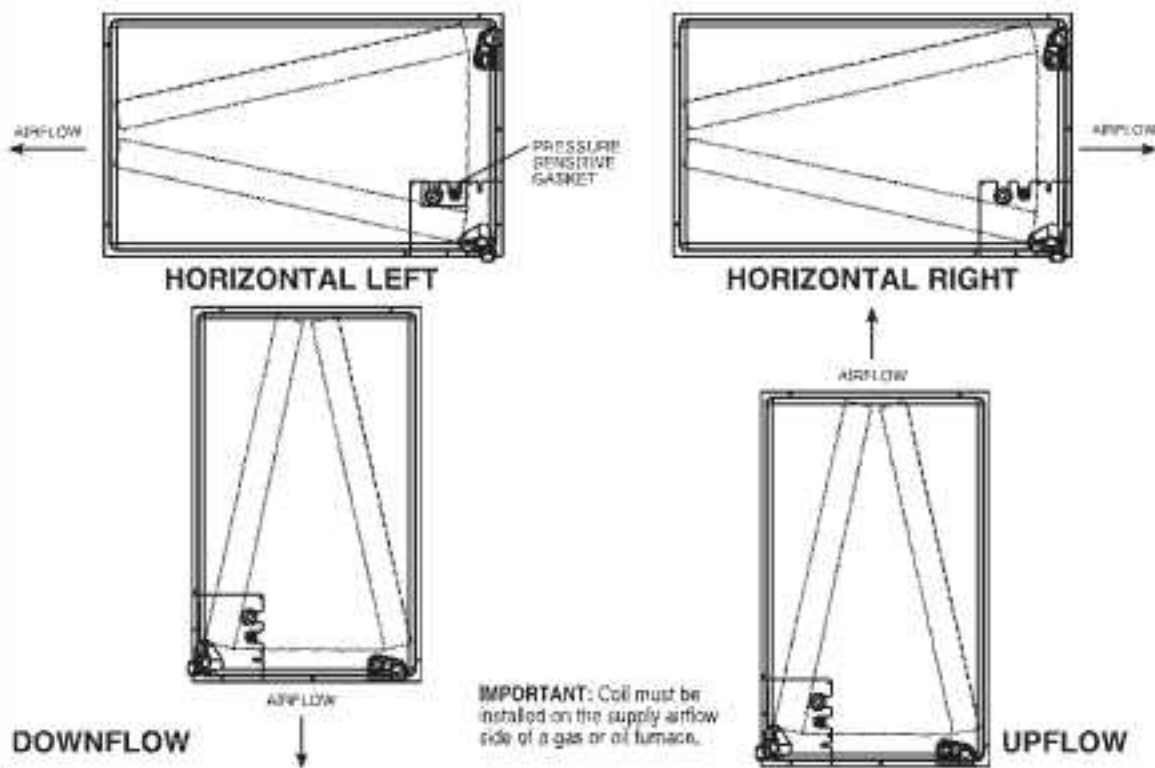


FIGURE 5

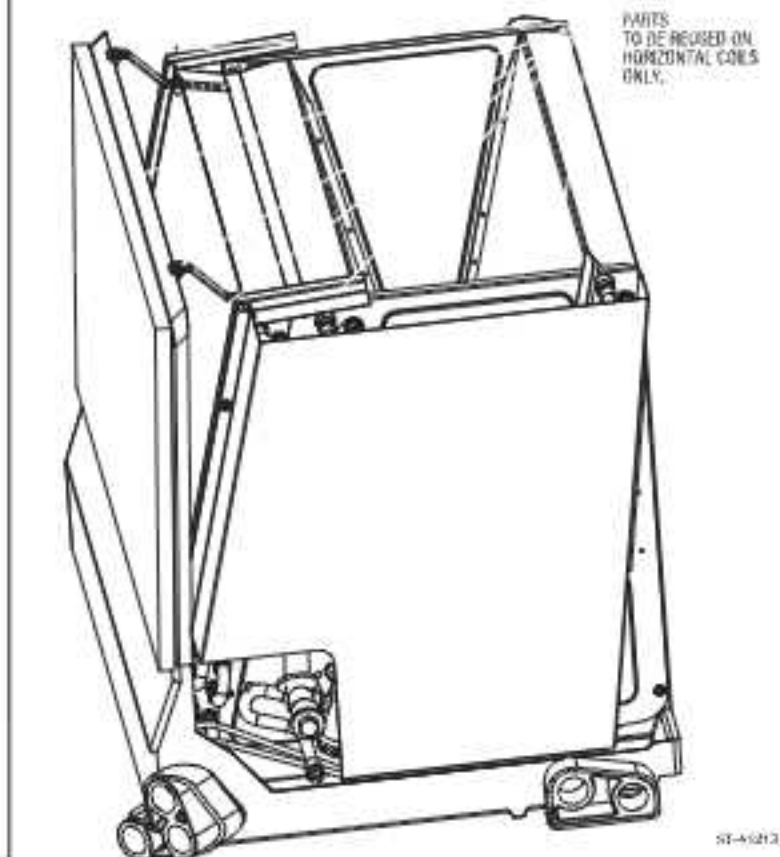


FIGURE 6A
INSTALLATION OF COIL MATCHED WITH A FURNACE TWO SIZES SMALLER

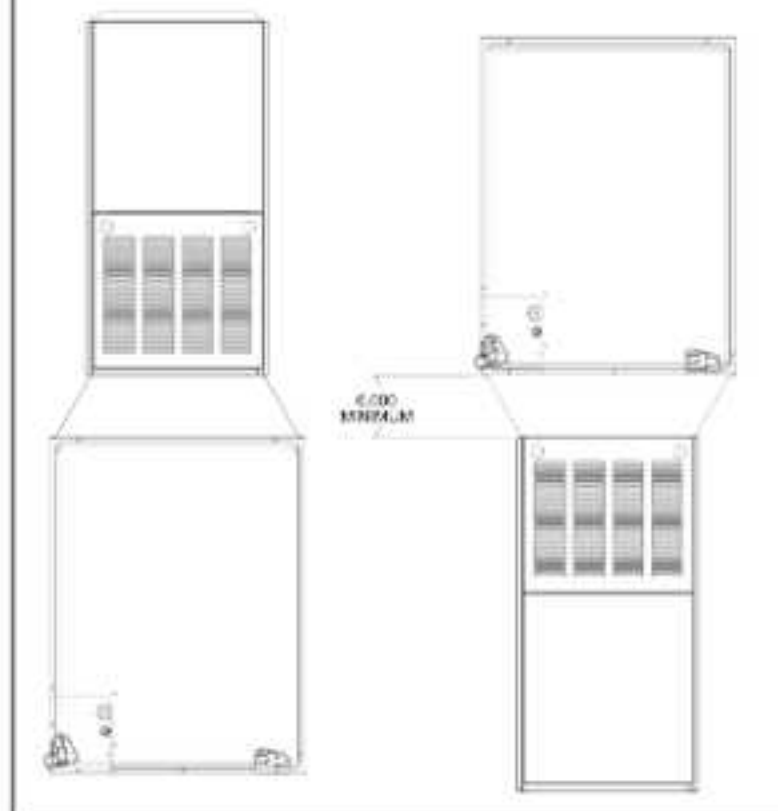


FIGURE 6B
INSTALLATION OF COIL MATCH WITH A FURNACE ONE SIZE SMALLER

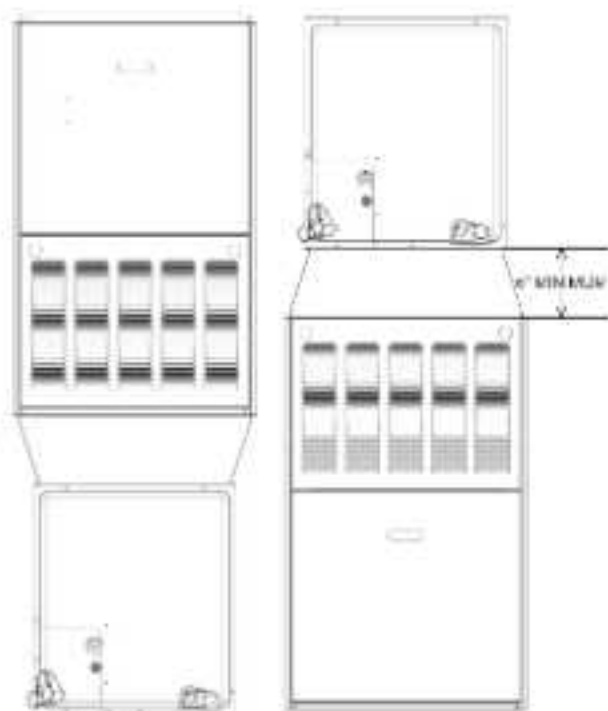


FIGURE 7
INSTALLATION OF COIL MATCHED WITH
A FURNACE OF SMALLER SIZE

**DOWNFLOW OR
HORIZONTAL
RIGHT APPLICATION**



RXBA-AC
PLENUM
ADAPTER

**UPFLOW OR HORIZONTAL
LEFT APPLICATION**

When a cooling coil is matched with a gas furnace of one smaller size, always center coil over the furnace.
IMPORTANT: Seal the gap between the two units with appropriate sheet metal parts, or use the adapter kit RXBA-AC (Upflow/Horizontal).

3.2 REFRIGERANT CONNECTIONS

Keep the coil connections sealed until refrigerant connections are to be made. See the Installation Instructions for the outdoor unit for details on line sizing, tubing installation, and charging information.

Coil is shipped with a low pressure (5 - 10 PSIG) charge of dry nitrogen. Evacuate the system before charging with refrigerant.

Install refrigerant tubing so that it does not block service access to the front of the unit. Nitrogen should flow through the refrigerant lines while brazing.

Use a brazing shield to protect the cabinet's paint from being damaged by torch flames.

After the refrigerant connections are made, seal the gap around the connections with pressure sensitive gasket. If necessary, cut the gasket into two pieces for a better seal (See Figure 3.)

3.2.1 TOOLS REQUIRED FOR INSTALLING AND SERVICING R-454B MODELS

Manifold Sets:

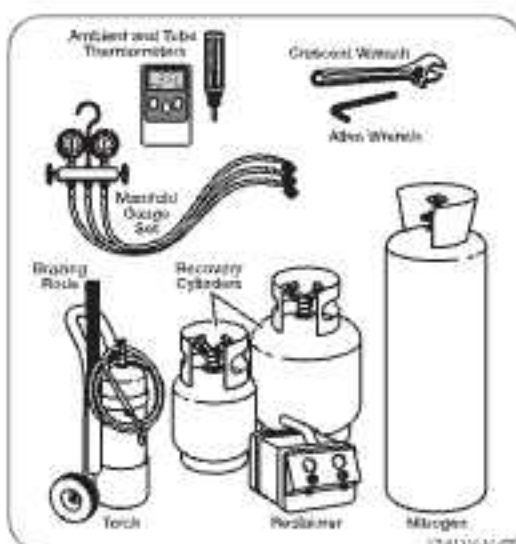
- Up to 800 PSIG [5,516 kPa] High-Side
- Up to 250 PSIG [1,724 kPa] Low-Side
- 550 PSIG [3,792 kPa] Low-Side Retard

Manifold Hoses:

- Service Pressure Rating of 800 PSIG [5,516 kPa]

Recovery Cylinders:

- 400 PSIG [2,758 kPa] Pressure Rating
- Dept. of Transportation 4BA400 or BW400



CAUTION: R-454B is classified as safety group A2L per ASHRAE Standard 34. Verify that service equipment and instruments are certified for use with group A2L refrigerants, and in particular with R-454B.

3.2.2 SPECIFICATIONS OF R-454B

Application: R-454B is not a drop-in replacement for R-410A and R-22. Equipment design must accommodate the safety group A2L of R-454B. It cannot be retrofitted into R-410A and R-22 heat pumps.

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

Composition: R-454B is a non-azeotropic mixture of 68.9% by weight difluoromethane (HFC-32) and 31.1% by weight 2,3,3,3-tetrafluoro-1-propene.

Pressure: The pressure of R-454B is similar to that of R-410A. Recovery and recycle 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 4BW400.

Flammability: R-454B is classified as safety group A2L, where the 2L flammability class indicates lower flammability. **R-454B and air should never be mixed in tanks or supply lines or be allowed to accumulate in storage tanks. Leak checking should never be done with a mixture of R-454B and air.**

3.2.3 QUICK-REFERENCE GUIDE FOR R-454B

- Refrigerant R-454B 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 cylinders are light green gray in color with a red band on the shoulder or top of the cylinder to indicate flammability.
- R-454B is only compatible with POE oils.
- Vacuum pumps will not remove moisture from POE oil used in R-454B systems.
- R-454B systems should be charged with liquid refrigerants in liquid phase. R-454B cylinders should be inverted to ensure liquid charging of the equipment.
- Do not install a suction line filter drier in the liquid line.
- A factory-approved bi-flow liquid line filter drier is shipped with every unit and must be installed in the liquid line at the time of installation. Only manufacturer-approved liquid line filter driers should be used. Filter driers must have a working pressure rating of at least 600 psig [4,137 kPa]. The filter drier will only have adequate moisture-holding capacity if the system is properly evacuated.
- Desiccant (drying agent) must be compatible for POE oils and R-454B refrigerant.
- R-454B cylinders containing less than 50 lbs of refrigerant require a CGA 164 fitting. R-454B cylinders containing more than 50 lbs of refrigerant require a CGA 670 fitting.

Pipe-work including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed.

After completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements:

- The minimum test pressure for the low side of the system shall be the low side design pressure and the minimum test pressure for the high side of the system shall be the high side design pressure, unless the high side of the system cannot be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure.
- Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0.25 times the maximum allowable pressure.
- No leak shall be detected; where addition of charge is required to complete installation, refer to the Outdoor I/O System start-up and refrigerant charging details for instructions on how to determine the additional REFRIGERANT CHARGE and how to complete the REFRIGERANT CHARGE on the label provided by the manufacturer. Interconnecting refrigerant piping length and diameter shall be taken into consideration as listed in the Line Set Selection.

3.3 REFRIGERANT DETECTION SYSTEM (RDS) INSTALLATION INSTRUCTIONS

The RDS is used to mitigate any leaked refrigerant that may occur in the indoor portion of the system.

When a refrigerant leak is detected, the compressor shuts off and blower is energized to perform mitigation for a minimum of 5 minutes after RDS has reset.

RDS resets after it no longer detects refrigerant.

Life expectancy of the RDS is 15 years and should be replaced at the end of life.

Contact Rheem Parts Department for RDS replacement.

⚠️ WARNINGS:

Failure to install the refrigerant detection system properly may result in leak detection failure and risk potential fire hazards.

IMPORTANT: The installation process for the RDS varies depending on the flow configuration of the unit. It is crucial to adhere to the following instructions. The RDS is initially configured for upflow and downflow installation during manufacturing and can be adjusted for horizontal flow configurations.

The RDS must be installed at the location respective to the flow configuration that the unit is installed. Installation locations are defined for each flow configuration in the below illustration.

Instructions for installation of the critical-to-safety wiring connection of the leak detection sensor or leak detection system to the furnace assembly. Typical wire connections for the sensor installation on a gas furnace O/BK to E2, O to E1, BK to HI heat (Blower tap), Y/BL- YID to (Y to Indoor), Y-YTS (Y to stat), BR to 24VAC Common, R/BK to 24VAC.. All wires must be 18 AWG with a Min. insulation thickness of 1.58 mm or protected from damage. Critical-to-safety wiring is any field installed wiring necessary to fulfil the requirements of Annex GG in the event of detection of a leak.

It shall not be installed on furnaces with an inductive electrical greater than 4.77kva as calculated in Clause 22.116 and detection of a leak shall turn on the indoor fan at the highest speed or turn it on to not less than Qmin determined in Annex GG

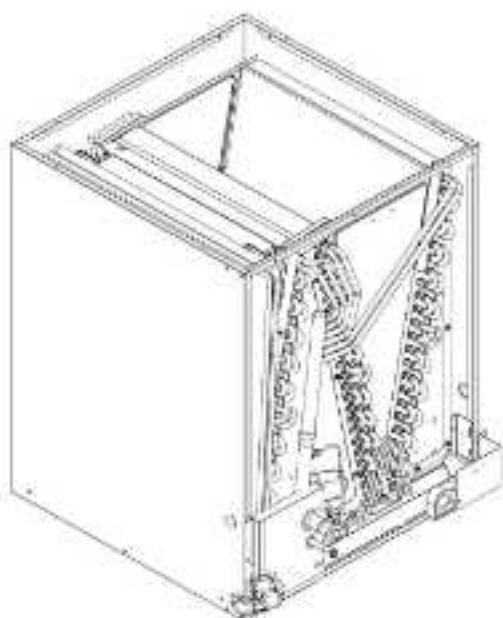
Total System Charge (ml)	Minimum Indoor Airflow (CFM)	<u>Without Refrigerant Leak Detection Sensor</u> Room Area Of Smallest Condensed Space Including Space Where Indoor Unit Is Installed (sqft)			<u>Without Refrigerant Leak Detection Sensor</u> Minimum Required Total Conditioned Room Area (sqft) Any Configuration
		Distance From Floor To Bottom Edge Of Lowest Inlet Or Outlet Vent Opening			
		2 FT	6 FT	8 FT	
50	35	105	58	38	47
100	153	781	113	75	94
150	254	1756	156	113	143
200	308	3126	317	154	187
250	423	4884	643	241	234
310	507	7012	741	347	281
350	592	8872	1094	473	328
400	676	12502	1315	617	375
450	761	15623	1758	781	423
500	846	19024	2179	965	469
550	931	not permitted - sensor required			515
600	1015				562

PART LIST:

Item	Part Number	Quantity
Primary Bracket	AE-109597 01	1
Flange	AE-109596 01	2
Screw	63-22153 05	5
Cup Point Screw	63-24368 01	3
Standoff (14" and 17" upflow only)	AE-110038-01	1

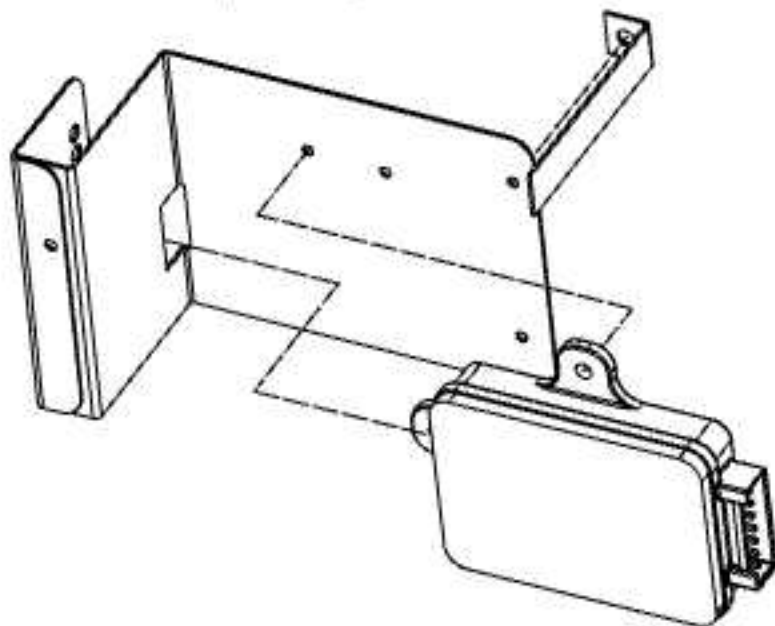
Step 1: Primary Bracket Removal

- Unscrew and remove the primary bracket from the flange. Ensure the RDS wiring harness is not under tension throughout this process.



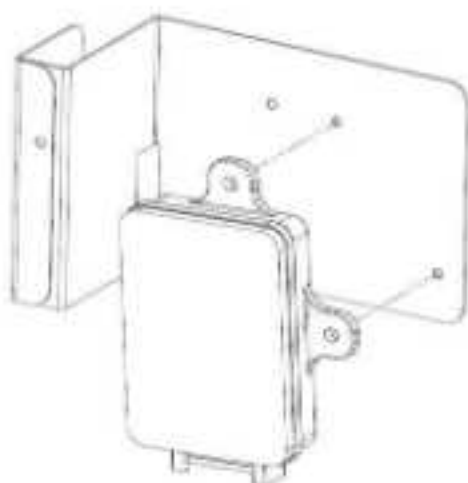
Step 2: RDS Orientation and Relocation

- i. Remove the RDS from the upflow or downflow mounting orientation on the primary bracket by removing the single screw (Part Number: 63 24368 01) and sliding the RDS out of the slot.

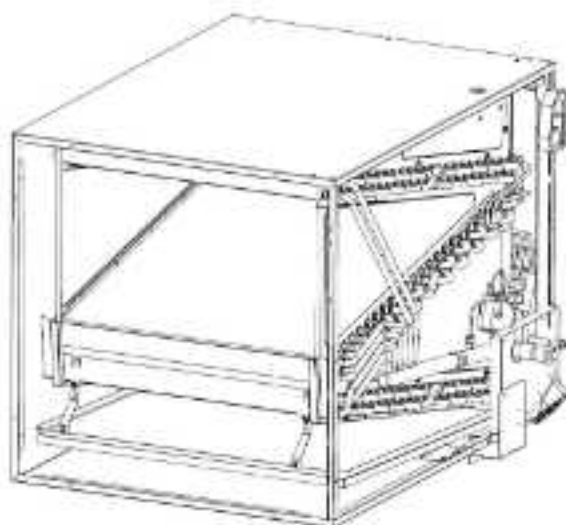


Note: Standoff is use only on 14" and 17" units in the upflow position.

- II. Secure the RDS to the primary bracket using the screw provided in the parts bag (Part Number: 63 24368 01) and the screw removed in the previous step, following the hole positions shown in the below illustration.



- III. Fasten the primary bracket to the flange using the screw removed in Step 1, as shown in the below illustration. Ensure the wiring harness has a drip loop toward the horizontal flow drain pan.



NOTE: For unit models without an RDS installed in manufacturing, consult applicable tables in outdoor unit installation instructions to determine if your unit requires RDS installation. Additional instructions will be provided in the RDS installation kit.

3.3.1 Installation in an Unventilated Area

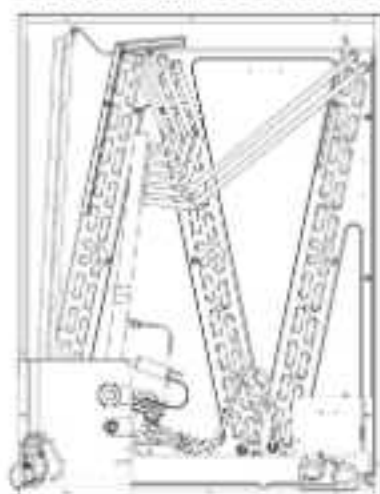
If the installation room areas are not compliant with the outdoor room area values, Appliance shall not be installed in an area where there are potential ignition sources or a continuous open flame unless there is a flame arrest installed on flame-producing appliance.

Auxiliary devices which may be a potential ignition source shall not be installed in the duct work. Examples of such potential ignition sources are hot surfaces with a temperature exceeding 700°C and electric switching devices.

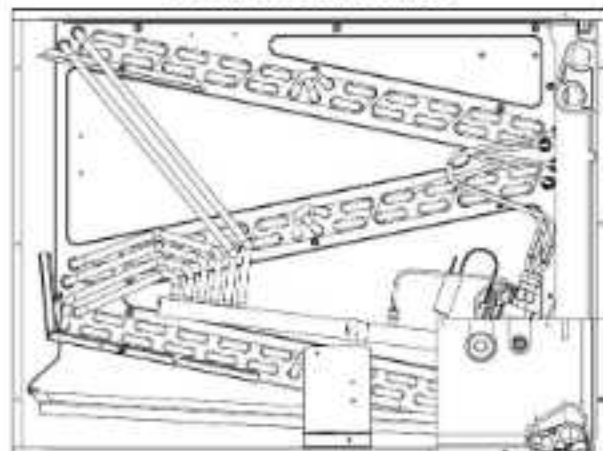
Only auxiliary devices that are approved by the manufacturer or declared suitable with the refrigerant can be installed in the connecting ductwork.

For appliances using A2L refrigerants, connected via an air duct system to one or more rooms, the supply and return air shall be directly ducted to the space. Open areas such as false ceilings shall not be used as a return air duct.

UPFLOW AND DOWNFLOW



HORIZONTAL LEFT AND HORIZONTAL RIGHT



3.4 TXV SENSING BULB (TXV COILS ONLY)

IMPORTANT: DO NOT perform any soldering with the TXV bulb attached to any line.

After soldering operations have been completed, clamp the TXV bulb securely on the suction line at the 10 to 2 o'clock position with the strap provided in the parts bag. (See Figures 7 & 8)

Insulate the TXV sensing bulb and suction line with the provided pressure sensitive insulation (size 4" x 7") and secure with provided wire ties.

IMPORTANT: TXV sensing bulb should be located on a horizontal section of copper suction line, just outside of coil box and past the braze joint. The copper sensing bulb must never be placed on any aluminum tube as this will result in galvanic corrosion and eventual failure of the aluminum tube.

FIGURE 8
BULB LOCATION

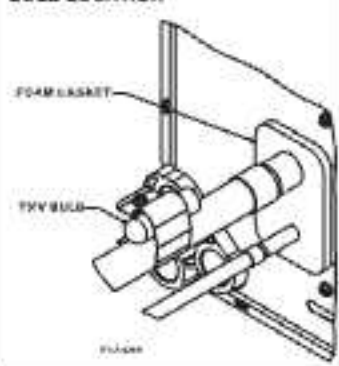
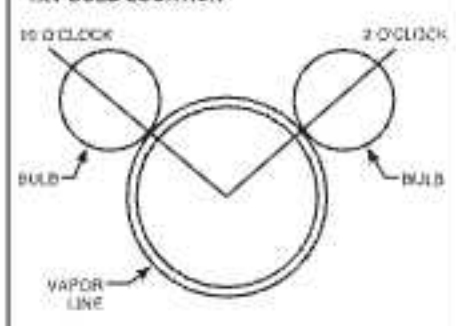


FIGURE 9
TXV BULB LOCATION



3.5 ELECTRONIC EXPANSION VALVE (EXV)

EXV equipped coils have a noncommunicating, stand-alone EXV control. One of the biggest advantages of an EXV is the control can intelligently regulate the refrigerant flow based on system demands other than just vapor line temperature and pressure. By the measurement of the suction pressure via the vapor line pressure transducer (factory installed) and the vapor line thermistor (field connected to the vapor line, but factory provided) the EXV control calculates the suction superheat at the indoor coil. This calculation permits the EXV control to open or close the electronic expansion valve to maintain a predetermined suction superheat. The electronic valve is equipped with a 4-pole removable external stator, and inlet and outlet Chatleff fittings for optimal serviceability. The EXV also has an internal check valve to provide heat pump compatibility. When operating in heating mode, the air handler control will open the electronic valve completely to permit the check valve to open and maximize reverse refrigerant flow.

When using an EXV coil with a communicating furnace other than modulating furnace plug the Vapor line Thermistor, EXV, and Pressure Transducer into the corresponding plug on the furnace control board.

3.6 EXV VAPOR LINE THERMISTOR (EXV COILS ONLY)

Important: DO NOT perform any brazing with the vapor line thermistor attached to any line. After brazing operations have been completed, clamp the vapor line thermistor securely on the vapor line at the 10 to 2 o'clock position (See Figures 10 & 11) with the clip provided on the thermistor. Insulate the vapor line thermistor and vapor line with the provided pressure sensitive insulation (size 4" x 7") and secure with provided wire ties or simply slide the vapor line insulation over the thermistor until it contacts the coil cabinet and secure insulation with a wire tie to keep it in place.

Make sure to protect the EXV pressure transducer, vapor thermistor, copper to aluminum joint, and service valves from overheating by use of wet rag or some type of shielding. Double tip torches are not recommended.

IMPORTANT: Vapor line thermistor should be located on a horizontal section of vapor line, just outside of coil box and past the braze joint. The copper thermistor must never be placed on any aluminum tube as this will result in galvanic corrosion and eventual failure of the aluminum tube.

IMPORTANT: Never place the thermistor on the heat effected zone near the braze connection, but it should be located within 6" of the indoor unit.

FIGURE 10
VAPOR LINE THERMISTOR LOCATION

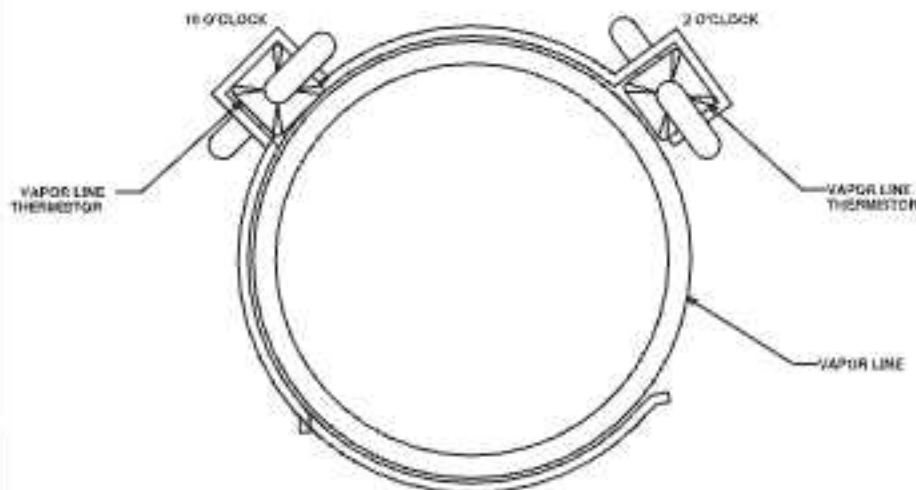
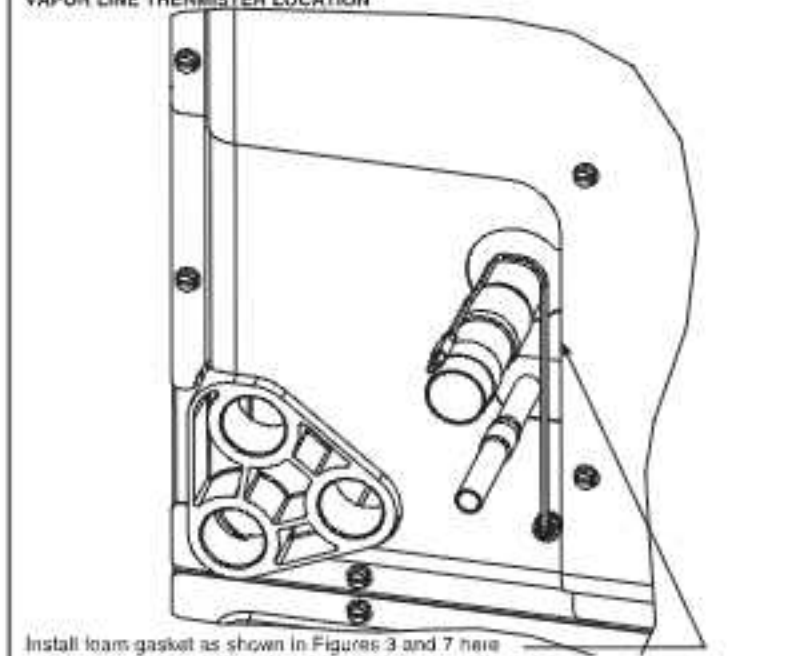


FIGURE 11
VAPOR LINE THERMISTER LOCATION



3.7 FACTORY PROGRAMMED SUPERHEAT (EXV COILS ONLY USING RXCF-AM1 REQUIRED ON MODULATING FURNACES ONLY)

The stand alone EXV control is set at the factory for 10°F superheat. The following DIP switch settings must be set at the time of coil installation, using DIP switches 2 & 3 on the EXV control.

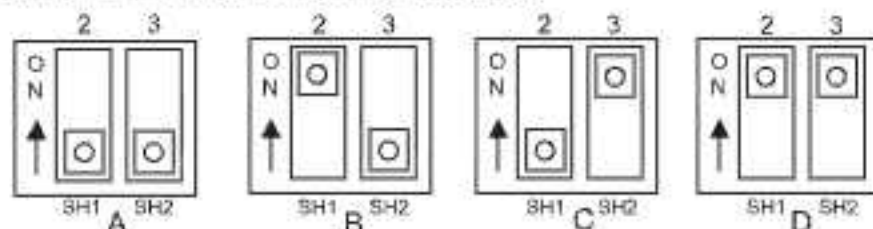
Coil	Outdoor Unit			Superheat (°F)	DIP Switch Settings	
					2	3
(-)CFY2417SEAN	(-)A18AZ24A			6	ON	OFF
(-)CFY2421MEAN	(-)A18AZ24A			6	ON	OFF
(-)CFY2421HEAN	(-)A18AZ24A			6	ON	OFF
(-)CFY2421HEAA	(-)P18AZ24A			6	ON	OFF
(-)CFY3621MEAA	(-)A18AZ36A			6	ON	OFF
(-)CFY3621MEAN	(-)A18AZ36A			8	OFF	ON
(-)CFY4821SEAA	(-)A18AZ48A			6	ON	OFF
(-)CFY6021SEAA	(-)A18AZ36A	(-)A18AZ48A	(-)A18AZ60A	6	ON	OFF
	(-)P18AZ36A	(-)P18AZ48A	(-)P18AZ60A	6	ON	OFF
(-)CFY6024SEAN	(-)A18AZ36A	(-)A18AZ48A	(-)A18AZ60A	6	ON	OFF

3.8 SUPERHEAT OFFSET DIP SWITCH SETTINGS (EXV COILS ONLY USING RXCF-AM1)

Although the above superheat set point is considered to be the most efficient set point for each coil, installation conditions can drastically effect the measurement of superheat by the EXV control. For this reason the following DIP switch settings have been provided to enable flexibility for various installation conditions.

Superheat Offset Selection Profile	Superheat Setting (°F)
A	10
B	6
C	8
D	12

SUPER HEAT OFFSET DIP SWITCH PROFILES



3.9 EXV STEP DIP SWITCH (EXV COILS ONLY USING RXCF-AM1)

DIP switch 1 (SS) on the EXV control is factory set for a 500 step EXV (OFF position), but can be switched to the ON position for a 1600 step EXV. This DIP switch must be in the 500 step position only. The DIP switch makes the EXV control forward compatible with a 1600 step EXV for possible future use.

3.10 EXV DIAGNOSTICS (EXV COILS ONLY)

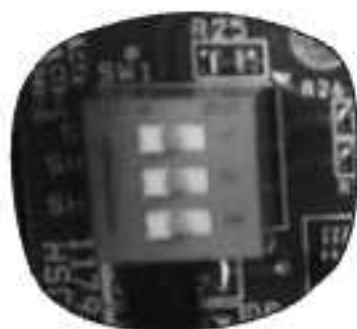
There are 2 LEDs (green/yellow) on the EXV control which indicate valve movement. When the green LED is illuminated, the control is moving the valve in the open direction. When the yellow LED is illuminated, the control is moving the valve in the closed direction. When neither LED is illuminated, the valve is not being moved by the control. In addition to the diagnostic lights on the control, it is possible to feel the coil on the EXV pulse when the control is attempting to change the EXV position.

Status LED	Board Fault
1	Only suction temperature valid – suction pressure nor coil temperature are valid
2	No Valid Suction Temperature
3	Valve near open position
4	Suction pressure out of range

3.11 EXV CONTROL (EXV COILS ONLY USING RXCF-AM1)

FIGURE 12

EXV CONTROL COMPONENT LOCATIONS



NOTE: Switches are in "OFF" position from the factory.



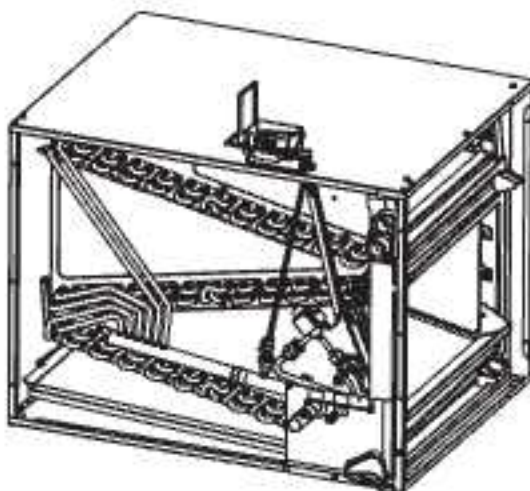
1. Thermostat Connection
2. Yellow LED (close)
3. Green LED (open)
4. Red LED (status)
5. Dip Switch (EXV steps, 2 & 3 SH adjustment dip switch)

6. Electronic Expansion Valve Connection
7. Suction and Coil Thermistor Connection
8. Suction Pressure Transducer Connection

3.12 EXV CONTROL MOUNTING LOCATIONS

The EXV control and housing can be mounted on either side of the coil casing. The wires will need to be routed through the hole on the appropriate side and then the assembly mounted externally to the side of the coil case.

FIGURE 13
CONTROL INSTALLATION LOCATION



ST-A1248-01 SP

3.13 EXV WIRING (EXV COILS ONLY)

For proper operation the EXV control requires 24VAC power and staged operation thermostat signals. The following diagram should be used to connect the leads provided with the cased coil to the thermostat wiring. When employed with the EcoNet™ Communicating System attach the leads provided with the coil to the conventional 24VAC thermostat terminals on the EcoNet™ furnace control board.

[illegible]

3.14 CONDENSATE DRAIN TUBING

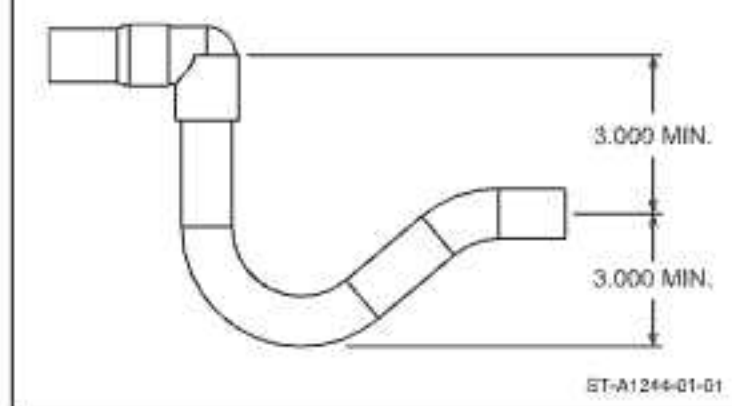
Consult local codes or ordinances for specific requirements.

IMPORTANT: When making drain fitting connections to the drain pan, use a thin layer of Teflon paste, silicone or Teflon tape and install hand tight.

IMPORTANT: When making drain fitting connections to drain pan, do not overtighten. Overtightening fittings can split pipe connections on the drain pan.

- Install drain lines so they do not block service access to front of the unit. Minimum clearance of 24 inches is required for filter, coil or blower removal and service access.
- Make sure unit is level or pitched slightly toward primary drain connection so that water will drain completely from the pan. (See Figure 16.)
- Do not reduce drain line size less than connection size provided on condensate drain pan.
- All drain lines must be pitched downward away from the unit a minimum of 1/8" per foot of line to ensure proper drainage.
- Do not connect condensate drain line to a closed or open sewer pipe. Run condensate to an open drain or outdoors.
- The drain line should be insulated where necessary to prevent sweating and damage due to condensate forming on the outside surface of the line.
- Make provisions for disconnecting and cleaning of the primary drain line should it become necessary. Install a 3 in. trap in the primary drain line as close to the unit as possible. Make sure that the top of the trap is below connection to the drain pan to allow complete drainage of pan (See Figure 15).
- Auxiliary drain line should be run to a place where it will be noticeable if it becomes operational. Occupant should be warned that a problem exists if water should begin running from the auxiliary drain line.
- Plug the unused drain connection with the plugs provided in the parts bag, using a thin layer of teflon paste, silicone or teflon tape to form a water tight seal.
- Test condensate drain pan and drain line after installation is complete. Pour water into drain pan, enough to fill drain trap and line. Check to make sure drain pan is draining completely, no leaks are found in drain line fittings, and water is draining from the termination of the primary drain line.

FIGURE 16
CONDENSATE DRAIN TRAP



CAUTION

It is recommended that an auxiliary/secondary drain pan be installed under units containing evaporator coils that are located in any area of a structure where damage to the building or building contents may occur as a result of an overflow of the coil drain pan or a stoppage in the primary condensate drain piping.

3.15 DUCT FLANGES

Field-installed duct flanges (4 pieces) are shipped with units. Install duct flanges as needed on top or bottom of the coil casing. (See Figure 25.)

3.16 COIL END SHIELDS

All uncased replacement coils will need RXCE**** sheet metal shields at the front and rear of the coil. If installed where a copper coil once was, The purpose of these shields is to isolate the aluminum tubing from copper residue left on the foil insulation by the original copper tube coil.

Copper residue or copper oxide in contact with the aluminum tubing in the presence of moisture will result in galvanic corrosion and leaks in the aluminum tube at the contact point. The shields must be in place on the coil when replacing a copper tube coil to prevent the galvanic corrosion.

COIL	RXCE-
(-)CFY2414S	AN01
(-)CFY2417S	AN02
(-)CFY2417M(-)CFY3617S	AN03
(-)CFY2421H(-)CFY2421M(-)CFY3621S	AN04
(-)CFY3621M(-)CFY4821S	AN05
(-)CFY3624M(-)CFY4824S	AN06
(-)CFY3624M(-)CFY4824S	AN07

3.17 THERMOSTAT COMPATIBILITY

COILS CONTAINING AN A2L REFRIGERANT:

CONTROL CENTERS

Communicating furnaces that use a control center must have thermostat software version AC-RHUI-03-03-00 or higher. Otherwise, you must use the legacy wiring option. You can verify the software version through the menus on the thermostat.

Service>Equipment> Thermostat SW Version AC-RHUI-03-03-00



⚠ WARNING

An A2L Coil cannot be installed in the same closet of an appliance with a standing pilot unless it is equipped with a flame arrestor. This furnace does not have a standing pilot. OEM wiring instructions for matching OEM Evaporator coils and A2L Sensors are provided below for convenience. If a coil containing an A2L Refrigerant is installed with this furnace, follow the instructions provided by the coil manufacturer. Detailed instructions including safety wiring, warnings, and operation can be found in the literature that comes with the evaporator coil

IBM call wire is a 24V output to energize the indoor blower motor and dilute refrigerant concentrations in the event of a leak. Depending on the application and type of system this wire may go to various locations to accomplish blower activation. Please refer to the wiring diagram specific to your application to determine where routing.

3.18 SYSTEM WIRING

FIGURE 17
WIRING DIAGRAM FOR A LEGACY SINGLE-STAGE THERMOSTAT WITH
NON COMMUNICATING OUTDOOR UNIT

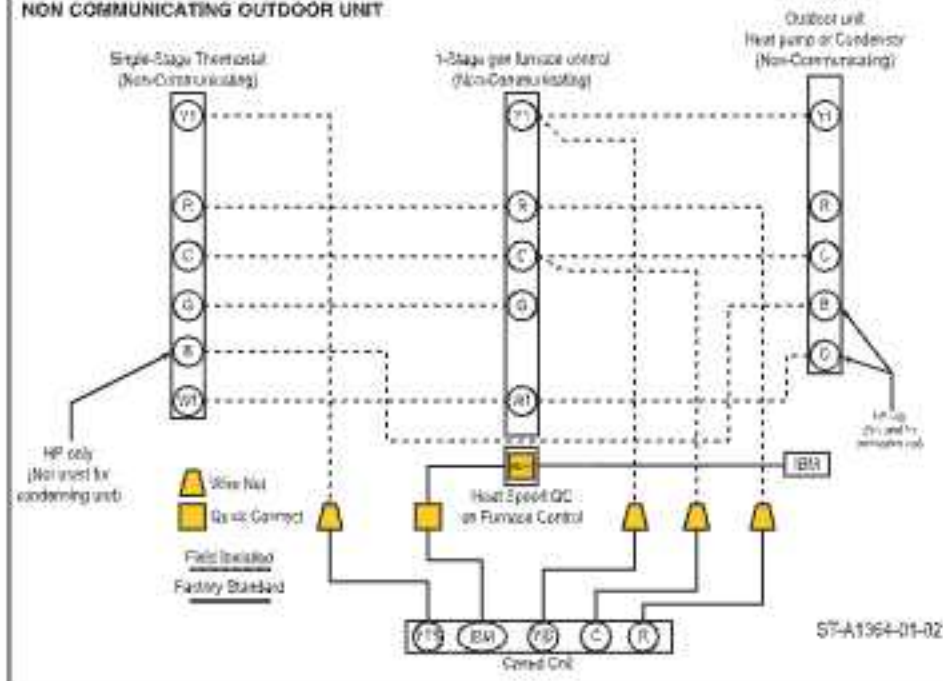


FIGURE 18
WIRING DIAGRAM FOR A LEGACY 2-STAGE THERMOSTAT WITH NON-
COMMUNICATING OUTDOOR UNIT.

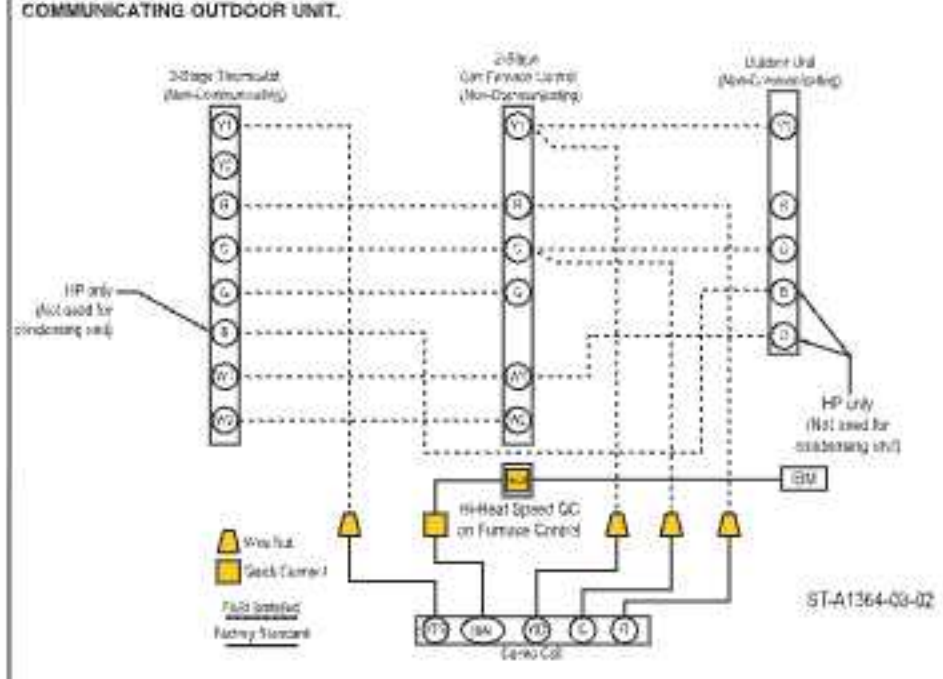


FIGURE 19
WIRING DIAGRAM FOR A LEGACY THERMOSTAT WITH
COMMUNICATING OUTDOOR UNIT.

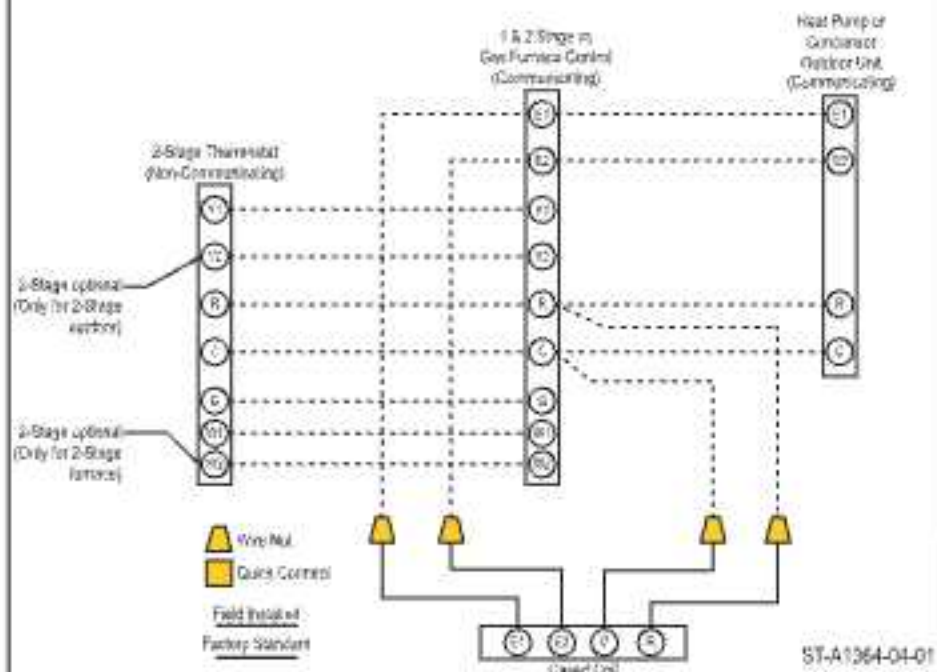


FIGURE 20
WIRING DIAGRAM FOR FULLY COMMUNICATING SYSTEMS

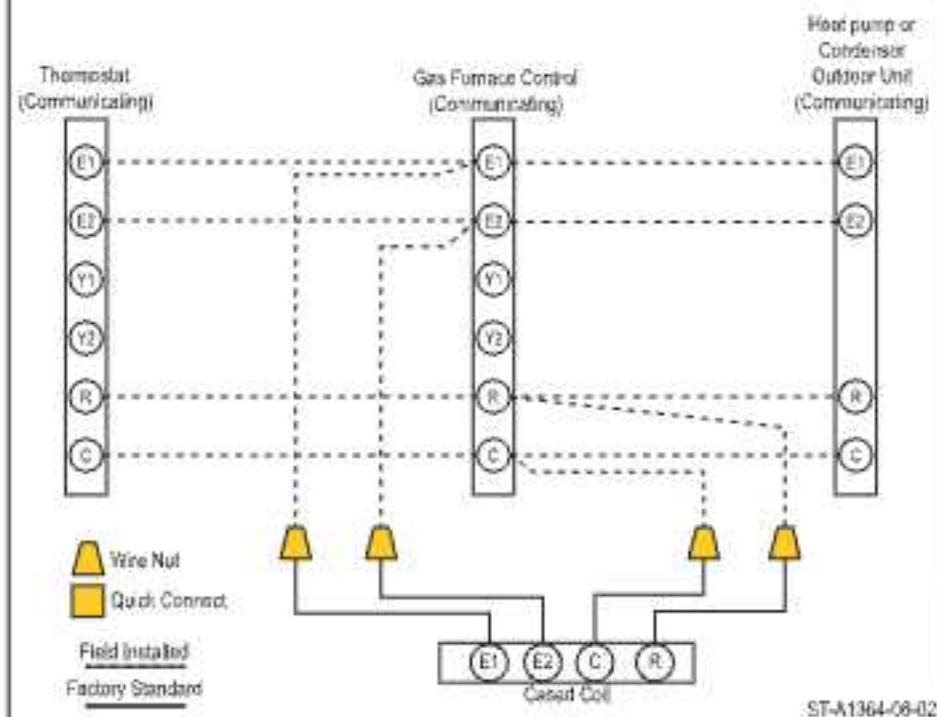


FIGURE 21
WIRING DIAGRAM FOR COMMUNICATING THERMOSTAT
AND LEGACY OUTDOOR UNIT

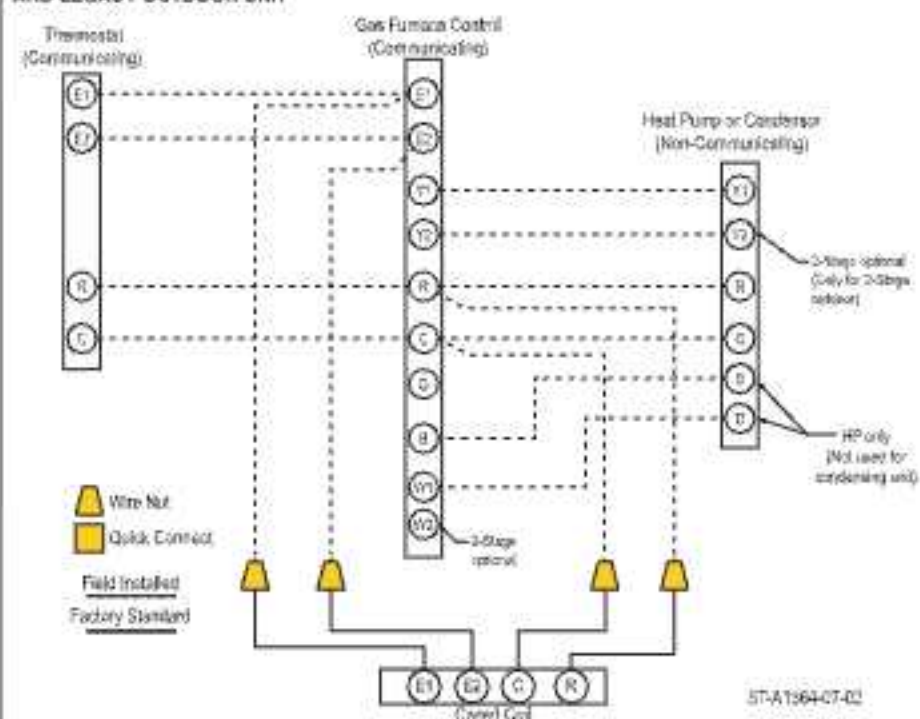


FIGURE 22
WIRING DIAGRAM FOR A LEGACY THERMOSTAT AND LEGACY
OUTDOOR UNIT

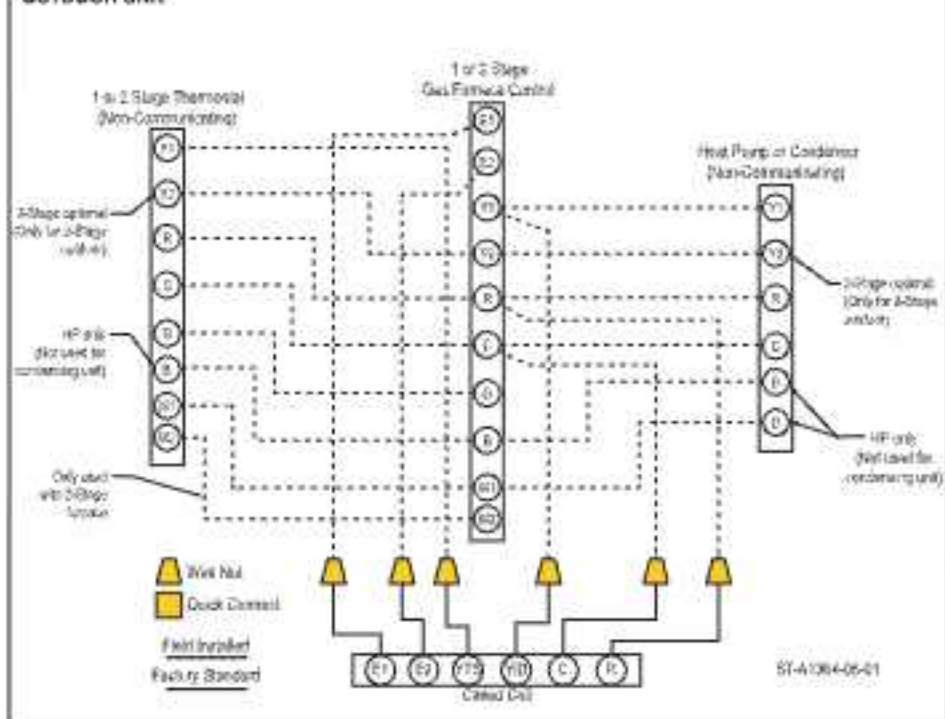


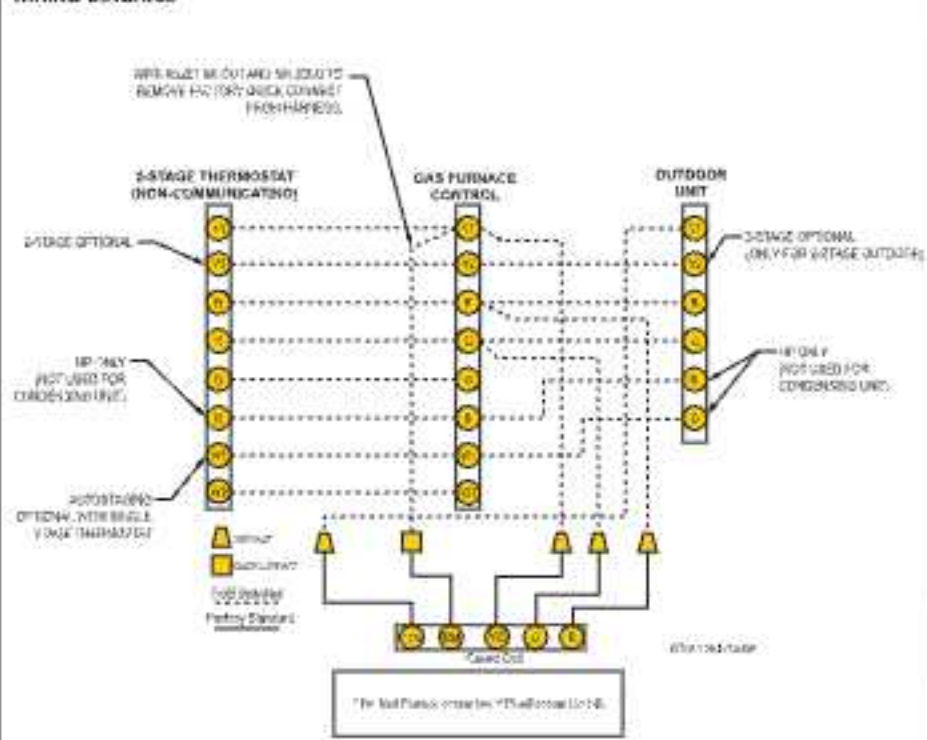
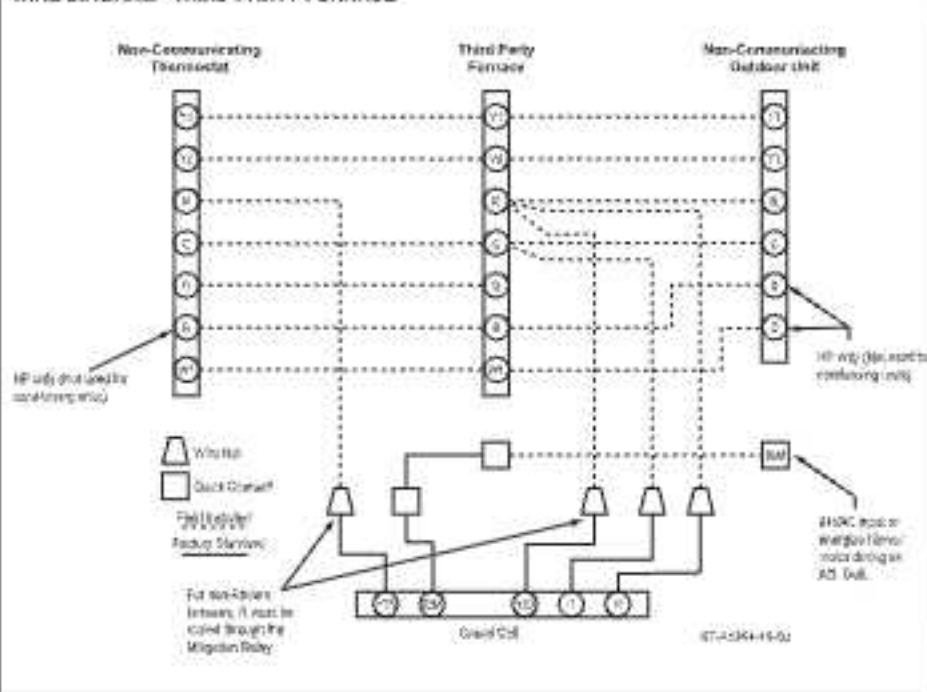
FIGURE 23
WIRING DIAGRAM

FIGURE 24
WIRE DIAGRAM - THIRD PARTY FURNACE



⚠ WARNING

These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance possibly resulting in fire, electrical shock, property damage, personal injury or death.

4.0 INDOOR SERVICE/MAINTENANCE

For continuing high performance and to minimize possible equipment failure, it is essential that annual maintenance be performed on this equipment. Consult your local dealer as to the availability of a maintenance contract.

Servicing shall be performed only as recommended by the manufacturer and by qualified personnel who are trained by a training organization or manufacturer accredited to teach national competency standards that maybe be set in legislation for servicing equipment with flammable refrigerant. The achieved competence should be documents by a certificate.

4.1 AIR FILTER

Check the system filter every ninety days or as often as found to be necessary and if obstructed, clean or replace at once.

IMPORTANT: Do not operate the system without a filter in place.

4.2 INDOOR COIL - DRAIN PAN - DRAIN LINE

Inspect the indoor coil, drain pan, and drain line once each year for cleanliness and clean as necessary. Be sure to check the finned surface on the return side of the coil. It may be necessary to remove the air-filter and use a mirror and flashlight to view the return side of the coil.

Note: A proper filter is the best defense against a dirty coil. Regardless of the filter choice, proper air flow and velocity also play a crucial role in how effective a filter will be. Most filters will lose their effectiveness when face velocities exceed 300 - 400 feet per minute. Excessive air velocity can allow particles to pass right through the media. Additionally, loaded or restrictive filters may lose their shape in higher air velocity applications and allow unfiltered air to bypass the filter altogether around the sides.

IMPORTANT: Coil and Drainpan Cleaning Method

Clean the finned surface of the indoor coil by rinsing the coil from both sides with clean warm water and/or with a vacuum with a soft brush attachment to remove accumulated contaminants and lint. It is important not to allow the tool to damage or bend the fins. Many chemical cleaners will attack the aluminum tubes which can cause refrigerant leaks. Therefore, use only clean warm water for cleaning aluminum tube evaporator coils. Do not use caustic household drain cleaners or bleach in the condensate pan or near the indoor coil as they will damage the aluminum fins and tubes.

4.3 GENERAL GUIDELINES

Prior to beginning work on systems containing A2L REFRIGERANTS, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the REFRIGERATING SYSTEM, the following procedures shall be completed prior to conducting work on the system:

- Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
- All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
- If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.
- No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.
- Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation

shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

4.4 CHECKS TO THE REFRIGERANT EQUIPMENT

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.

The following checks shall be applied to installations using A2L REFRIGERANTS:

- The actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed.
- The ventilation machinery and outlets are operating adequately and are not obstructed.
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected.
- Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

4.5 CHECKS TO ELECTRICAL DEVICES

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised. Initial safety checks shall include:

- That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking.
- That no live electrical components and wiring are exposed while charging, recovering or purging the system.
- That there is continuity of earth bonding.

4.6 REPAIRS TO SEALED COMPONENTS

During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

- Ensure that the apparatus is mounted securely.
- Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres.
- Replacement parts shall be in accordance with the manufacturer's specifications. Sealed electrical components shall be replaced.

4.7 REPAIR TO INTRINSICALLY SAFE COMPONENTS

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.

Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating. Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

NOTE: The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components must be replaced and do not have to be isolated prior to working on them.

4.8 CABLING

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

4.9 DETECTION OF FLAMMABLE REFRIGERANTS

Under NO circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall NOT be used.

The following leak detection methods are deemed acceptable for all refrigerant systems:

- Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.
- Leak detection fluids (such as bubble method or fluorescent method agents) are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to the next section (7.8 Removal and Evacuation).

4.10 REMOVAL AND EVACUATION

When breaking into the refrigerant circuit to make repairs or for any other purpose, it is important that best practice is followed for A2L refrigerants. The following procedure shall be adhered to safely remove refrigerant following local and national regulations:

- Evacuate
- Purge the circuit with inert gas (optional for A2L)
- Evacuate (optional for A2L)
- Continuously flush or purge with inert gas when using flame to open circuit
- Open the circuit

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing A2L refrigerants, The system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants.

This process might need to be repeated several times. Compressed air or oxygen shall NOT be used for purging refrigerant systems. The outlet for the vacuum pump shall NOT be close to any potential ignition sources, and ventilation shall be available.

For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. The outlet for

the vacuum pump shall NOT be close to any potential ignition sources, and ventilation shall be available.

4.11 CHARGING PROCEDURES

- Ensure that contamination of different refrigerants does not occur when using charging equipment.

Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.

- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the REFRIGERATING SYSTEM is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system

shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

For more in-depth charging procedures, refer to Refrigerant Charging section of the Outdoor Installation Instructions.

4.12 RECOVERY

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the A2L refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant shall 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 and especially not in cylinders.

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

4.13 DECOMMISSIONING AND LABELING

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

- a) Become familiar with the equipment and its operation.
- b) Isolate system electrically.
- c) Before attempting the procedure, ensure that:

Mechanical handling equipment is available, if required, for handling refrigerant cylinders;

All personal protective equipment is available and being used correctly;

The recovery process is supervised at all times by a competent person;

Recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.

e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

f) Make sure that cylinder is situated on the scales before recovery takes place.

g) Start the recovery machine and operate in accordance with instructions.

h) Do not overfill cylinders (no more than 80 % volume liquid charge).

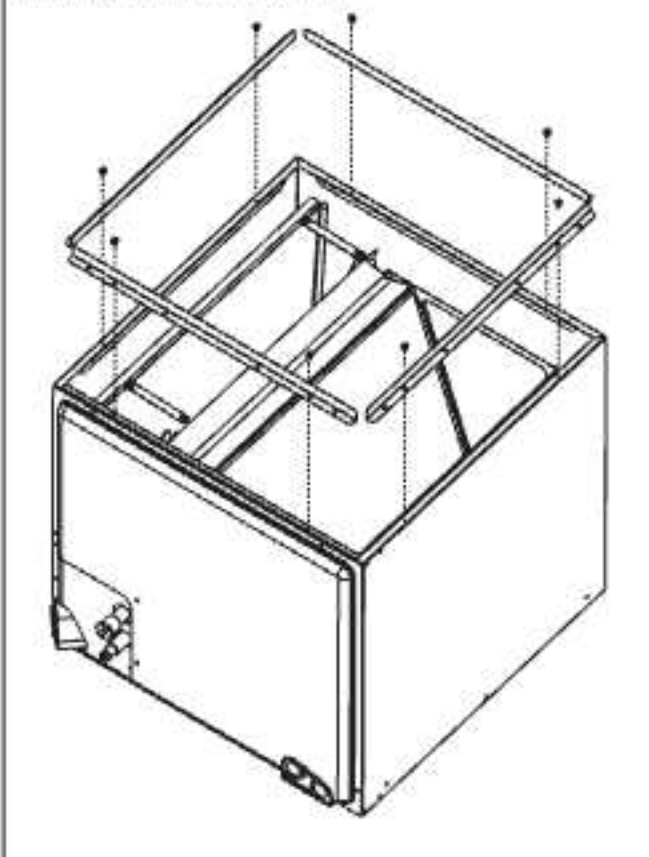
i) Do not exceed the maximum working pressure of the cylinder, even temporarily.

j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

k) Recovered refrigerant shall not be charged into another REFRIGERATING SYSTEM unless it has been cleaned and checked.

Equipment shall be labeled stating that it has been decommissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

FIGURE 25
FIELD-INSTALLED DUCT FLANGES



5.0 ACCESSORIES

5.1 PLENUM ADAPTER ACCESSORY

RXBA-AE

This plenum adapter accessory is for use with the 24-1/2" wide cased indoor cooling and heat pump coils. This allows a 24-1/2 wide cased coil to be installed on a 28" wide oil furnace. This is a field-installed accessory only.

RXBA-AC

This plenum adapter accessory is for installation on cased indoor cooling and heat pump coils. This allows a nominal size cased coil to be installed on the next smaller size gas or oil furnace. **NOTE:** This accessory is for installation on coil casings to fit gas or oil furnaces only - this accessory must not be used on electric furnaces or heat pump air handlers. Consult the installation instructions packaged with the accessory for proper installation.

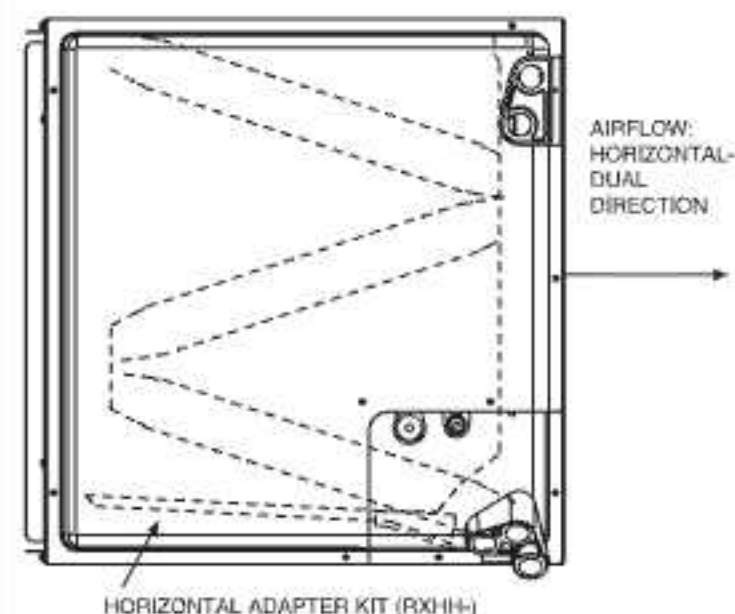
TABLE 3
HORIZONTAL ADAPTER KIT

Uncased Coil Model	Horizontal Adapter Kit Model No.
6CF30115TAANU	RXHH-A01
6CF30117MTANU	RXHH-A03
6CF30117SEANU	RXHH-A02
6CF30118TANU	RXHH-A02
6CFY3021HEANU	RXHH-A06
6CFY3021HEANU	RXHH-A03
6CFY3021H-KANU	RXHH-A04
6CFY3021MEANU	RXHH-A01
6CF3021MTANU	RXHH-A03
6CFY30175TANU	RXHH-A03
6CFY3021HTAANU	RXHH-A06
6CFY3021MEANU	RXHH-A06
6CFY3021MEANU	RXHH-A04
6CFY3021MTANU	RXHH-A06
6CFY3021MTANU	RXHH-A04
6CFY3021STANU	RXHH-A03
6CFY3024MTANU	RXHH-A04
6CFY4021HTANU	RXHH-A06
6CFW3021STANU	RXHH-A06
6CFY3021HTANU	RXHH-A06
6CFW3021SEANU	RXHH-A06
6CFW3021STANU	RXHH-A06
6CTY4021STANU	RXHH-A04
6D-Y4024MIANA	RXHH-A05
6CFW3024STANU	RXHH-A04
6CFW3021SEANU	RXHH-A06
6CFY3021STANU	RXHH-A06
6CFW3034TANU	RXHH-A05
6CFY3024SEANU	RXHH-A05
6CFY3024STANU	RXHH-A05

5.2 HORIZONTAL ADAPTER KIT RXHH- (See Figure 26 & Table 3)

This horizontal adapter kit is used to convert an upflow or downflow coil for a horizontal application. See Table 3 to order the proper horizontal adapter kit.

FIGURE 26
HORIZONTAL ADAPTER KIT ILLUSTRATION



5.3 EMPTY INDOOR COIL CASING RXBC - (See Figure 27 & Table 4)

FIGURE 27
MODEL NUMBER EXPLANATION

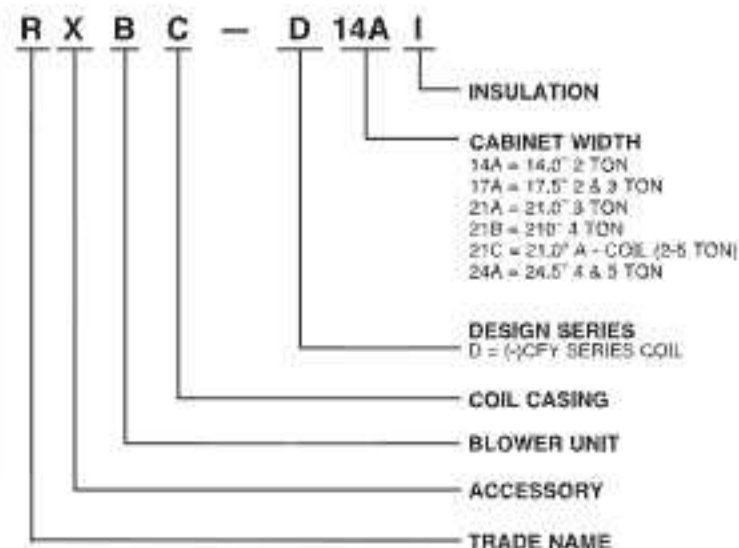


TABLE 4

UNIT DIMENSIONS & WEIGHTS — RXBC- INDOOR COIL CASINGS

Model Number	Width (in) [mm]	Height (in) [mm]	Depth (in) [mm]	Unit Weight		Supply Air / Return Air Openings	
				Weight (lbs) [kg]	Ship Wt (lbs) [kg]	Width (in) [mm]	Depth (in) [mm]
RXBC-D17AI	(17 1/2) [445]	(20) [508]	(21 5/8) [549]	(18) [9]	(23) [10]	(16 1/2) [mm]	(18 31/32) [507]
RXBC-D21AI	(21) [533]	(20) [508]		(20) [9]	(26) [12]	(20) [508]	
RXBC-D21BI	(21) [533]	(28) [711]		(28) [13]	(34) [15]		
RXBC-D21CI	(21) [533]	(34 1/2) [876]		(33) [14]	(39) [17]		
RXBC-D24AI	(24 1/2) [622]	(32 1/2) [826]		(34) [15]	(44) [20]	(23 1/2) [597]	

5.4 UNCASSED COIL ADAPTER KIT**RXBA- (See Figures 28 & 29)**

This kit is used to adapt an uncased coil to a furnace or ductwork. See Table 5 for model numbers. Each kit contains a quantity of 20 adapters.

FIGURE 28
UNCASSED COIL ADAPTER KIT ILLUSTRATION

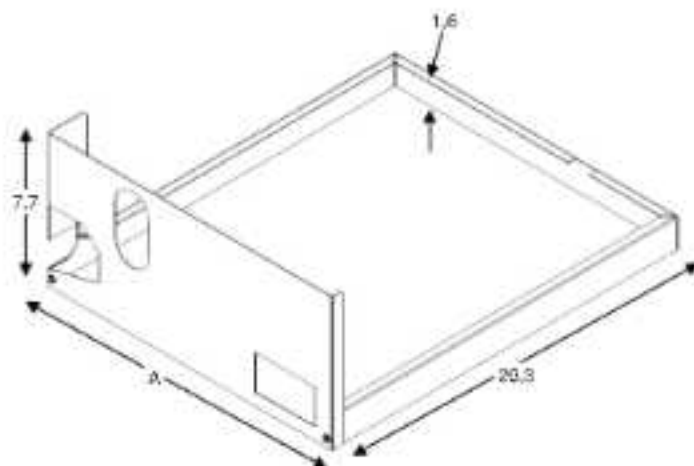
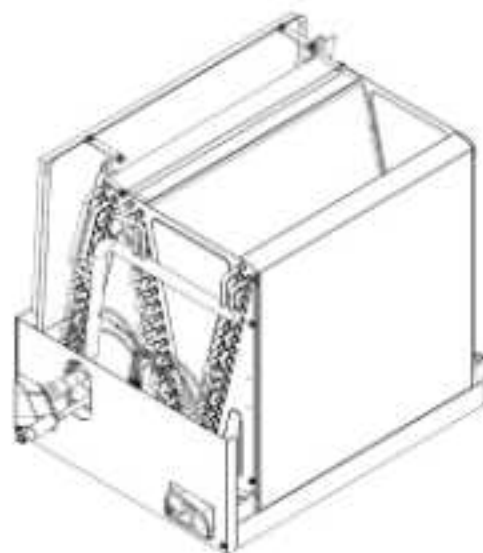


TABLE 5**UNCASED COIL ADAPTER KIT**

Uncased Coil Adapter Model Number RXBA	A Width In.	Uncased Coil Model (-)CFY
B14x20	13.1	**14
B17x20	16.6	**17
B21x20	20.1	**21
B24x20	23.6	**24

FIGURE 29
UNCASED COIL ADAPTER KIT ASSEMBLED

NOTE: Sliding the coil into the coil rail before attaching coil rack front.

5.5 RXCF-AM1 EEV STAND ALONE CONTROL FOR USE WITH MODULATING FURNACE

5.6 WIRING DIAGRAM - RDS EQUIPPED CASED COIL

