⚠ WARNING

Improper installation, adjustment, alteration, ser vice or maintenance can cause property damage, personal injury or loss of life. Installation and ser vice must be performed by a licensed professional HVAC installer or equivalent, service agency, or the gas supplier

Table of Contents

INSTALLATION INSTRUCTIONS

LGT/LCT036 (3 TON)
LGT/LCT048 (4 TON)
LGT/LCT060 (5 TON)
LGT/LCT072 (6 TON)

GAS AND COOLING PACKAGED UNITS

508400-01
6/2024
Supersedes 9/2023

⚠ WARNING

To prevent serious injury or death:

1- Lock-out/tag-out before performing maintenance.

2- If system power is required (e.g., smoke detector maintenance), disable power to blower, remove fan belt where applicable, and ensure all controllers and thermostats are set to the “OFF” position before performing maintenance.

3- Always keep hands, hair, clothing, jewelry, tools, etc., away from moving parts.

RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

Attention!

Use this QR code to download the mobile service app. Follow the prompts to pair the app with the Unit Controller. Refer to the “Mobile Service App” section in this manual. The QR code is also available in the unit control area.

The app can be downloaded from the appropriate iOS or Android store. Look for the following icon.

⚠ CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal in jury. Take care while handling this equipment and wear gloves and protective clothing.

⚠ WARNING

Only manufacturer approved auxiliary devices are permitted to be installed in this unit.

⚠ WARNING

If this appliance is conditioning a space with an area smaller than TA_{min} or stored in a space with an area smaller than A_{min} as defined by this instruction, then that space must be without continuously operating open flames (e.g. an operating gas appliance) or other potential ignition sources (e.g. an operating electric heater or similar hot surface). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest system.

⚠ WARNING

•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.

⚠ CAUTION

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.

⚠ CAUTION

Any personnel installing, decommissioning, or performaing maintenance on the unit must be properly trained with A2L refrigerants.

⚠ CAUTION

Leak Detection System installed. Unit must be powered except for service.

⚠ CAUTION

Servicing shall be performed only as recommended by the manufacturer.

⚠ WARNING

•This appliance must be installed in accordance with local and national wiring regulations.
•If the appliance is not fitted with an option for full disconnection from power, a means of disconnection must be incorporated in the fixed wiring in accordance with national and local wiring regulations.

⚠ CAUTION

The appliance is not to be used 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

⚠ CAUTION

Children should be supervised not to play with the appliance.

⚠ IMPORTANT

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.

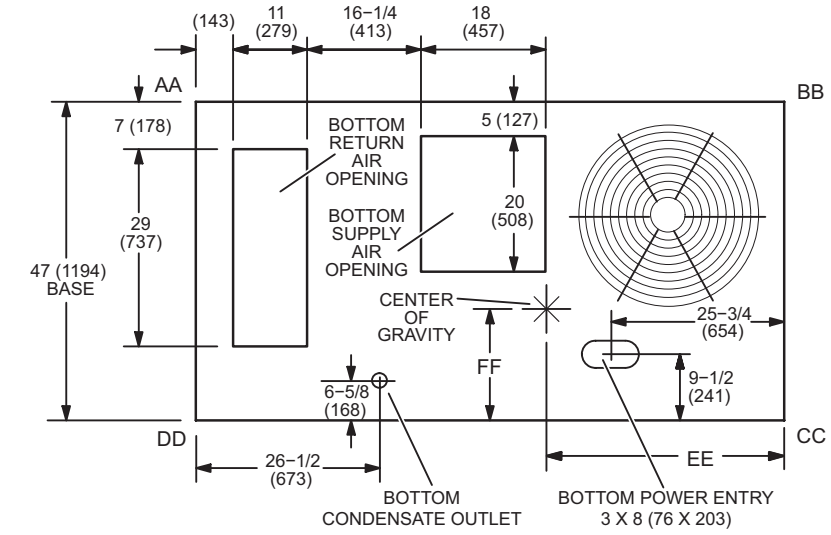
⚠ IMPORTANT

Refrigerant sensors for refrigerant detection systems shall only be replaced with sensors specified by the appliance manufacture.

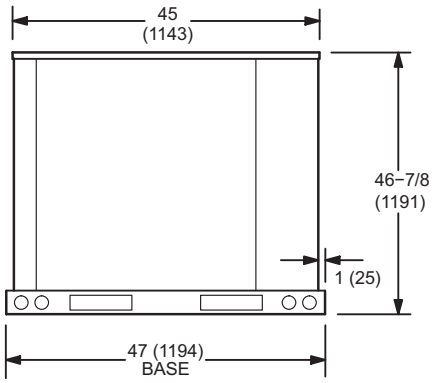
⚠ CAUTION

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.

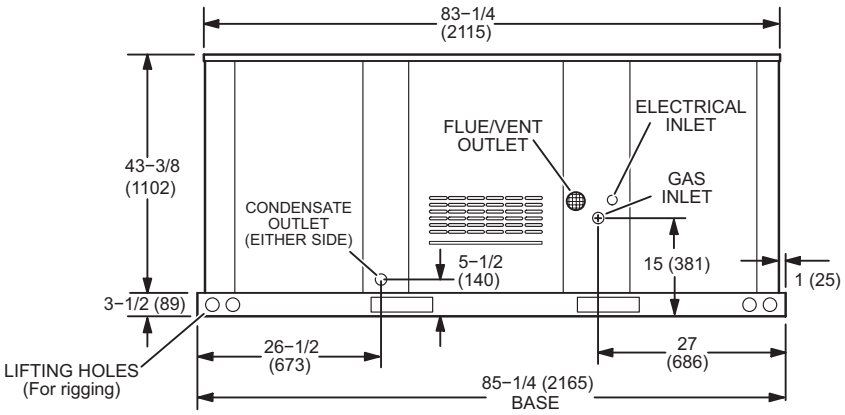
LGT/LCT036, 048, 060, 072 DIMENSIONS in. - Gas heat section shown



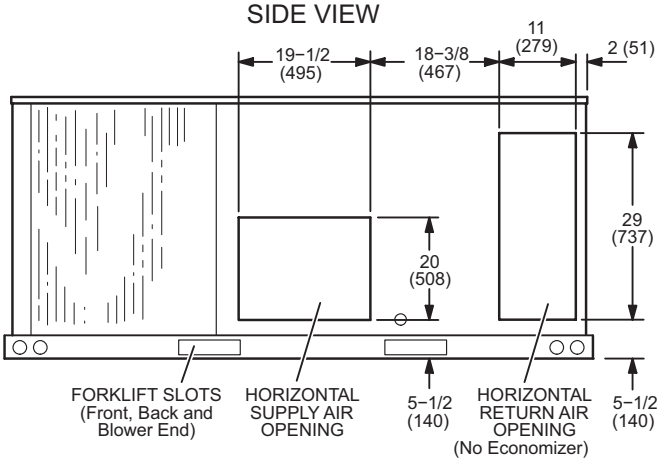
TOP VIEW (Base)



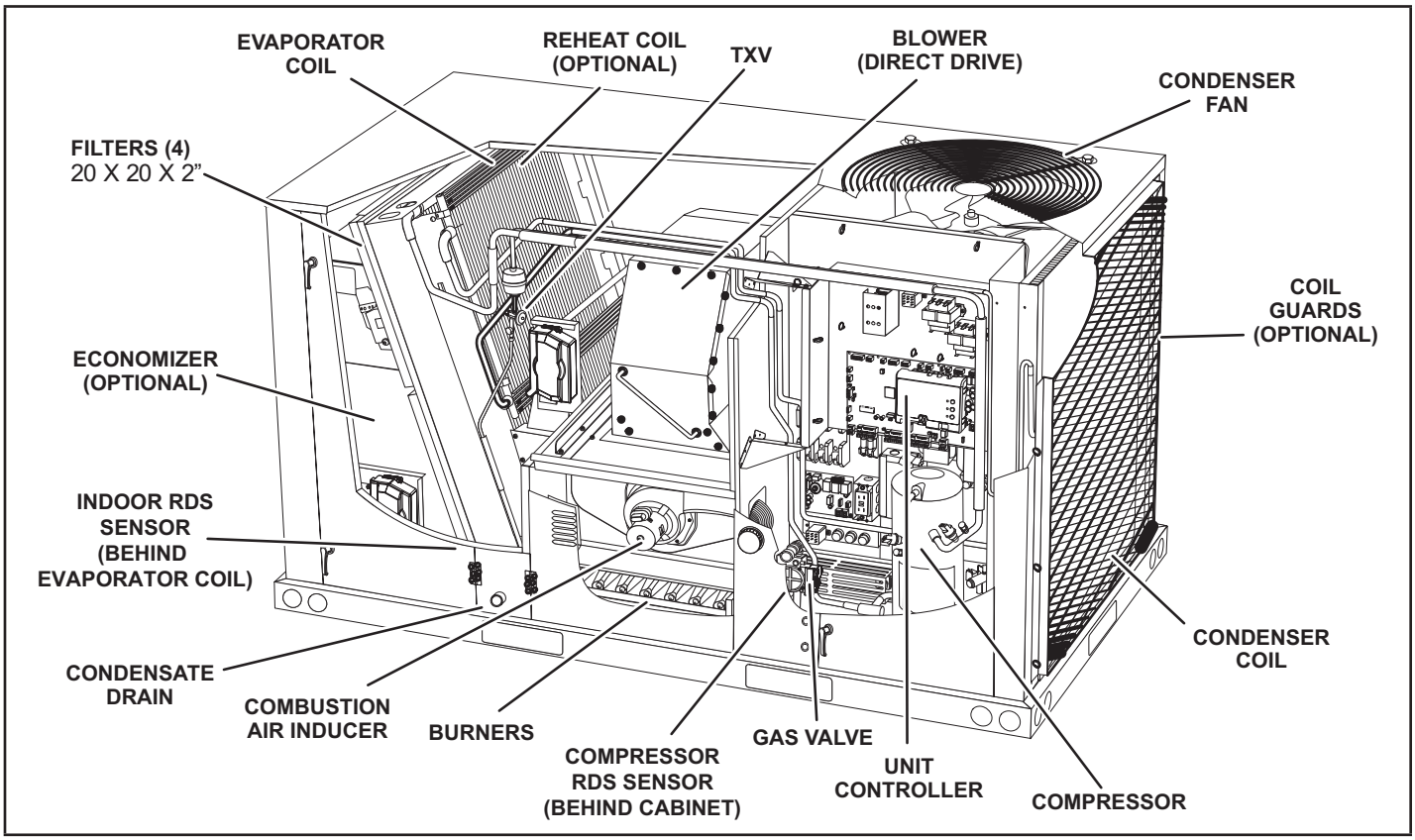
END VIEW



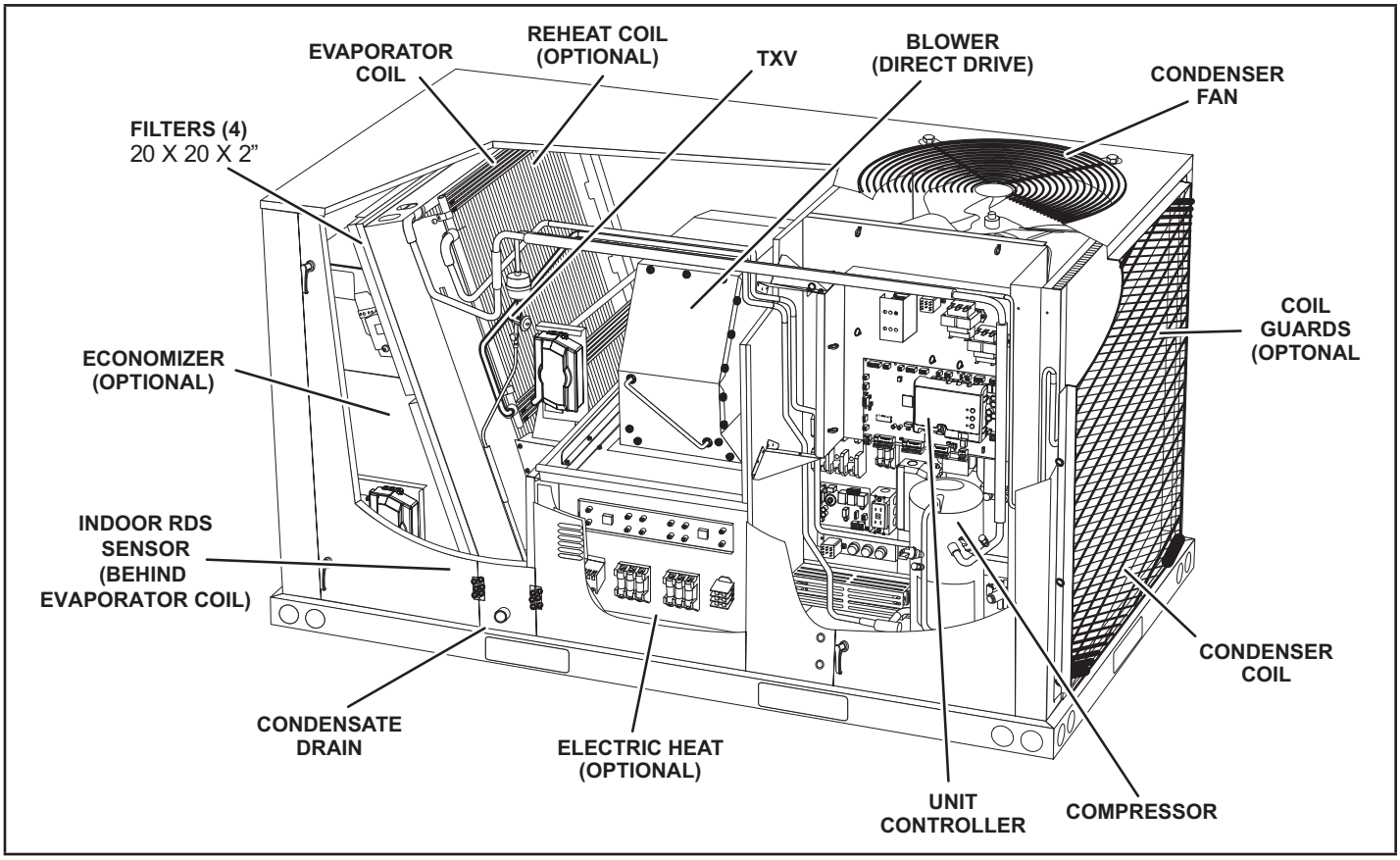
SIDE VIEW



LGT036, 048, 060, 072 PARTS ARRANGEMENT



LCT036, 048, 060, 072 PARTS ARRANGEMENT



Shipping and Packing List

Package 1 of 1 contains:

1 - Assembled unit

Check unit for shipping damage. Receiving party should contact last carrier immediately if shipping damage is found.

General

These instructions are intended as a general guide and do not supersede local codes in any way. Authorities having jurisdiction should be consulted before installation.

The LGT units are available in several heating inputs. The LCT cooling packaged rooftop unit is the same basic design as the LGT unit except for the heating section. Optional electric heat is available for LCT units. LGT and LCT units have identical refrigerant circuits with respective 3, 4, 5, and 6 ton cooling capacities.

Units are equipped with all-aluminum condenser coils. Units are equipped with two-speed compressors.

In addition to standard heating and cooling, hot gas reheat units provide a dehumidifying mode of operation. Refer to Reheat Operation section.

Availability of units and options varies by brand.

•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.

•False ceilings or drop ceiling may be used as a return air plenum only if the unit being installed has a Refrigerant Detection System installed.

Requirements

See FIGURE 1 for unit clearances.

⚠ IMPORTANT

The Clean Air Act of 1990 bans the intentional vent ing of refrigerant (CFC's and HCFC's) as of July 1, 1992. Approved methods of recovery, recycling or reclaiming must be followed. Fines and/or incar ceration may be levied for non-compliance.

⚠ WARNING

Electric shock hazard and danger of explosion. Can cause injury, death or product or property damage. Turn off gas and electrical power to unit before performing any maintenance or servicing operations on the unit. Follow lighting instructions attached to unit when putting unit back into operation and after service or maintenance.

⚠ NOTICE

Roof Damage!

This system contains both refrigerant and oil. Some rubber roofing material may absorb oil, causing the rubber to swell. Bubbles in the rubber roofing material can cause leaks. Protect the roof surface to avoid exposure to refrigerant and oil during service and installation. Failure to follow this notice could result in damage to roof surface.

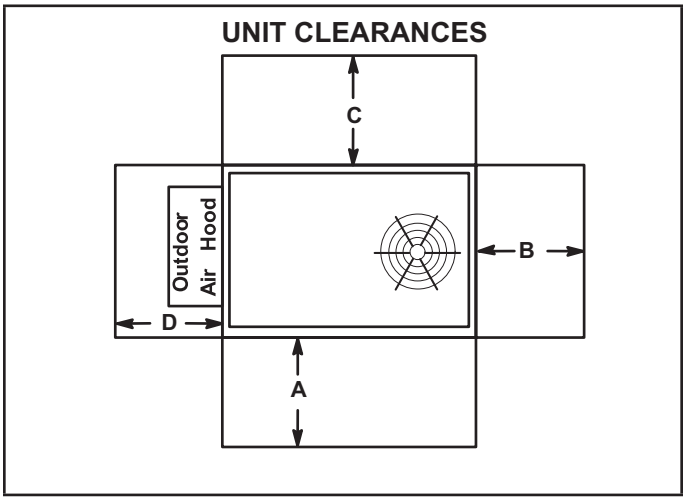


FIGURE 1

[1] Unit Clearance	A in.(mm)	B in.(mm)	C in.(mm)	D in.(mm)	Top Clearance
Service Clearance	48 (1219)	36 (914)	36 (914)	36 (914)	Unob-structed
Clearance to Combustibles	36 (914)	1 (25)	1 (25)	1 (25)	Unob-structed
Minimum Oper-ation Clearance	36 (914)	36 (914)	36 (914)	36 (914)	Unob-structed

NOTE - *Entire perimeter of unit base requires support when elevated above mounting surface.*

[1] **Service Clearance** - Required for removal of serviceable parts.
Clearance to Combustibles - Required clearance to combustible material (gas units). On LCT units, see clearance to combustible materials as outlined on heater rating plate.
Minimum Operation Clearance - Required clearance for proper unit operation.

Minimum R454B Space and CFM Requirements

Minimum Airflow[1]		
Unit	Q_{min}(CFM)	Q_{min}(m^3h)
LCT/LGT036	84	143
LCT/LGT048	136	231
LCT/LGT060	128	218
LCT/LGT072	127	216
LCT/LGT036 W/ Humidtrol	142	241
LCT/LGT048 W/ Humidtrol	137	234
LCT/LGT060 W/ Humidtrol	126	215
LCT/LGT072 W/ Humidtrol	119	203

Refrigerant Charge R-454B		
Unit	M_c(lbs)	M_c(kg)
LCT/LGT036	3.19	1.45
LCT/LGT048	5.15	2.34
LCT/LGT060	4.86	2.20
LCT/LGT072	4.8	2.18
LCT/LGT036 W/ Humidtrol	5.36	2.43
LCT/LGT048 W/ Humidtrol	5.2	2.36
LCT/LGT060 W/ Humidtrol	4.78	2.17
LCT/LGT072 W/ Humidtrol	4.51	2.05

[1] ***NOTE -*** *The minimum airflow is the lowest CFM allowed during venting operation (leak mitigation).*

Minimum Room Area of Conditioned Space[2]		
Unit	TA_{min}(ft^2)	TA_{min}(m^2)
LCT/LGT036	46.73	4.34
LCT/LGT048	75.44	7.01
LCT/LGT060	71.19	6.61
LCT/LGT072	70.31	6.53
LCT/LGT036 W/ Humidtrol	78.52	7.29
LCT/LGT048 W/ Humidtrol	76.17	7.08
LCT/LGT060 W/ Humidtrol	70.02	6.51
LCT/LGT072 W/ Humidtrol	66.07	6.14

[2] ***NOTE -*** *The minimum room area of conditioned space is the smallest area the unit can service.*

Altitude Adjustment Factor[3]									
Halt	0	200	400	600	800	1000	1200	1400	1600
AF	1	1	1	1	1.02	1.05	1.07	1.1	1.12
Halt	1600	1800	2000	2200	2400	2600	2800	3000	3200
AF	1.12	1.15	1.18	1.21	1.25	1.28	1.32	1.36	1.4

[3] ***NOTE -*** *Use the Altitude Adjustment Factor to adjust the values in the tables above to different altitudes. Find the relevant altitude above sea level in the two "Halt" rows and then multiply the value needed from the tables above by the altitude factor number. Example: For the minimum airflow in CFM for an LCT/LGT036 at 1000 ft. above see level, multiply 84 by 1.05 to get 88.2 CFM as the new Q_{min}.*

Use of this unit as a construction heater or air conditioner is not recommended during any phase of construction. Very low return air temperatures, harmful vapors and operation of the unit with clogged or misplaced filters will damage the unit.

If this unit has been used for heating or cooling of buildings or structures under construction, the following conditions must be met or the warranty will be void:

- A room thermostat must control the unit. The use of fixed jumpers that will provide continuous heating or cooling is not allowed.
- A pre-filter must be installed at the entry to the return air duct.
- The return air duct must be provided and sealed to the unit.
- Return air temperature range between 55°F (13°C) and 80°F (27°C) must be maintained.
- Air filters must be replaced and pre-filters must be removed upon construction completion.
- The input rate and temperature rise must be set per the unit rating plate.
- The heat exchanger, components, duct system, air filters and evaporator coil must be thoroughly cleaned following final construction clean-up.
- The unit operating conditions (including airflow, cooling operation, ignition, input rate, temperature rise and venting) must be verified according to these installation instructions.

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.

Unit Support

In downflow discharge installations, install the unit on a non-combustible surface only. Unit may be installed on combustible surfaces when used in horizontal discharge applications or in downflow discharge applications when installed on an T1CURB / C1CURB / E1CURB roof mounting frame.

NOTE - *Securely fasten roof frame to roof per local codes.*

⚠ CAUTION

To reduce the likelihood of supply / return air by pass and promote a proper seal with the RTU, duct work / duct drops / diffuser assemblies must be supported independently to the building structure.

A-Downflow Discharge Application

Roof Mounting with T1CURB / C1CURB / E1CURB

1 - The roof mounting frame must be installed, flashed and sealed in accordance with the instructions provided with the frame.

2 - The roof mounting frame should be square and level to 1/16” per linear foot (5mm per linear meter) in any direction.

3 - Duct must be attached to the roof mounting frame and not to the unit; supply and return plenums must be installed before setting the unit.

Installer’s Roof Mounting Frame

Many types of roof frames can be used to install the unit depending upon different roof structures. Items to keep in mind when using the building frame or supports are:

1 - The base is fully enclosed and insulated, so an enclosed frame is not required.

2 - The frames or supports must be constructed with non-combustible materials and should be square and level to 1/16” per linear foot (5mm per linear meter) in any direction.

3 - Frame or supports must be high enough to prevent any form of moisture from entering unit. Recommended minimum frame height is 14” (356mm).

4 - Duct must be attached to the roof mounting frame and not to the unit. Supply and return plenums must be installed before setting the unit.

5 - Units require support along all four sides of unit base. Supports must be constructed of steel or suitably treated wood materials.

NOTE - *When installing a unit on a combustible surface for downflow discharge applications, a T1CURB / C1CURB / E1CURB roof mounting frame is required.*

B-Horizontal Discharge Applications

1 - Units which are equipped with an optional economizer and installed in horizontal airflow applications must use a horizontal conversion kit.

2 - Specified installation clearances must be maintained when installing units. Refer to FIGURE 1.

3 - Top of support slab should be approximately 4” (102mm) above the finished grade and located so no run-off water from higher ground can collect around the unit.

4 - Units require support along all four sides of unit base. Supports must be constructed of steel or suitably treated wood materials.

Duct Connection

All exterior ducts, joints and openings in roof or building walls must be insulated and weather-proofed with flashing and sealing compounds in accordance with applicable codes. Any duct passing through an unconditioned space must be insulated.

⚠ CAUTION

In downflow applications, do not drill or punch holes in base of unit. Leaking in roof may occur if unit base is punctured.

Rigging Unit for Lifting

Rig unit for lifting by attaching four cables to holes in unit base rail. See FIGURE 2.

1 - Detach wooden base protection before rigging.
2 - Remove all six base protection brackets before setting unit.
3 - Connect rigging to the unit base using both holes in each corner.
4 - All panels must be in place for rigging.
5 - Place field-provided H-style pick in place just above top edge of unit. Frame must be of adequate strength and length. (H-style pick prevents damage to unit.)

Unit	*Weight	
	Lbs.	Kg.
LG	891	404
LC	871	395

*Maximum weight with all available factory-installed accessories.

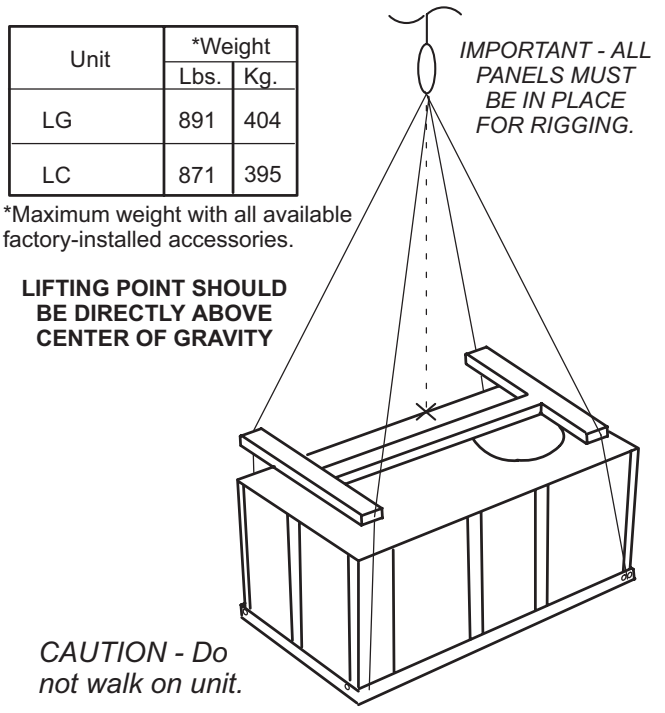


FIGURE 2

Horizontal Air Discharge

Unit is shipped with panels covering the horizontal supply and return air openings. Remove horizontal covers and place over downflow openings for horizontal air discharge. See FIGURE 3. Secure in place with sheet metal screws.

Units Equipped With An Optional Economizer

1 - Remove the horizontal supply air cover and position over the downflow supply air opening. Secure with sheet metal screws.
2 - Leave the horizontal return air cover in place.
3 - Locate the separately ordered horizontal air discharge kit. Place the kit panel over the downflow return air opening.
4 - Remove and retain the barometric relief dampers and lower hood.

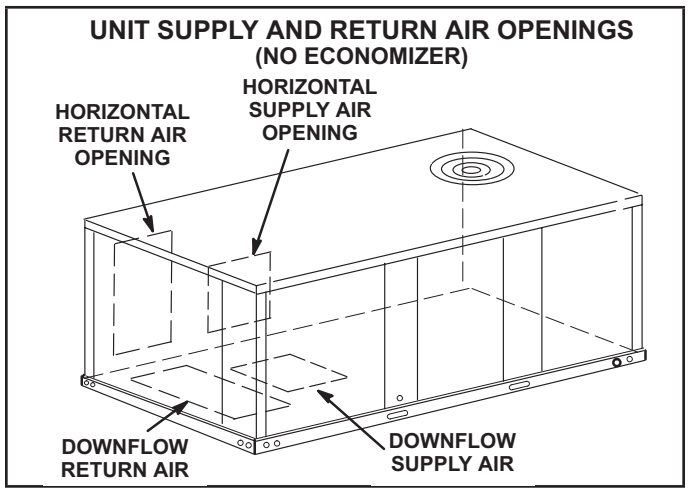


FIGURE 3

5 - Install return air duct beneath outdoor air intake. See FIGURE 4. Install barometric relief damper in lower hood and install in ductwork as shown in FIGURE 4.

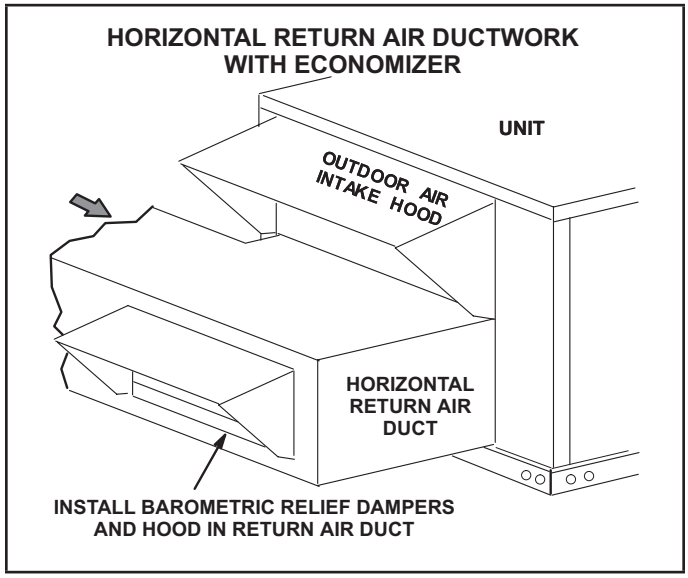


FIGURE 4

Condensate Drains

Make drain connection to the drain coupling provided on unit. Older model units have a 3/4” N.P.T. coupling and newer model units have a 1” N.P.T. coupling.

NOTE - *The drain pan is made with a glass reinforced engineered plastic capable of withstanding typical joint torque but can be damaged with excessive force. Tighten pipe nipple hand tight and turn an additional quarter turn.*

A trap must be installed between drain connection and an open vent for proper condensate removal. See FIGURE 5 or FIGURE 6. It is sometimes acceptable to drain condensate onto the roof or grade; however, a tee should be fitted to the trap to direct condensate downward. The condensate line must be vented. Check local codes concerning condensate disposal. Refer to page 3 and page 4 for condensate drain location.

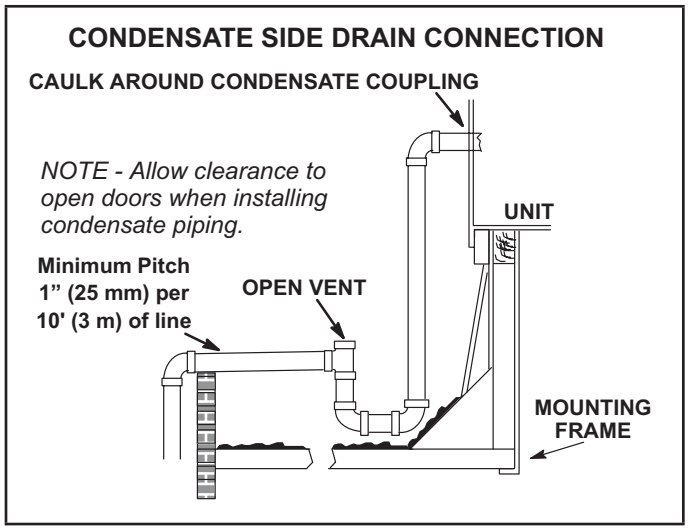


FIGURE 5

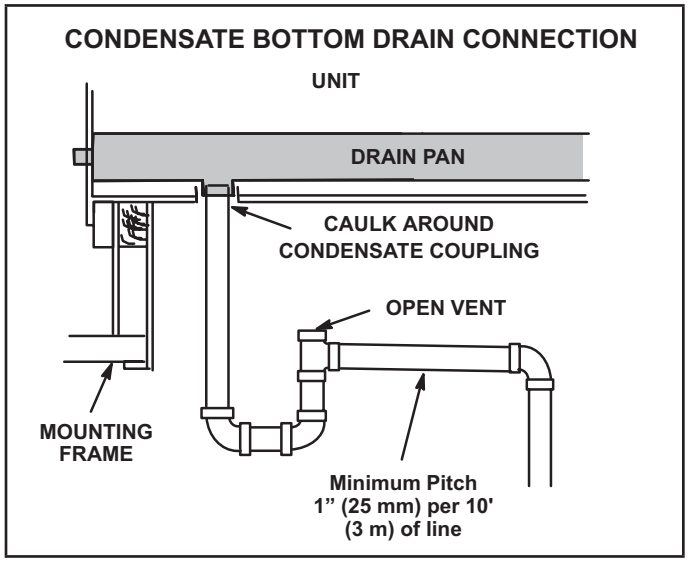


FIGURE 6

Units are shipped with the drain coupling facing the front of the unit. Condensate can be drained from the back or bottom of the unit with the following modifications. The unit can be installed in either downflow or horizontal air discharge regardless of condensate drain location.

Rear Drain Connection

1 - Remove the condensate drain mullion. See FIGURE 7. Remove the two panels on each side of the mullion.

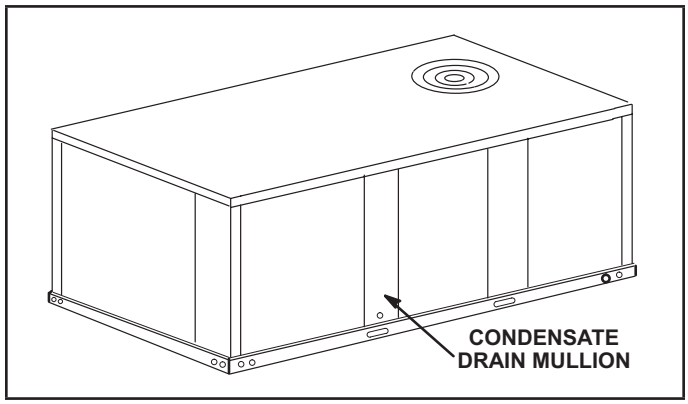


FIGURE 7

Two hinge screws must be removed in addition to the mullion screws. See FIGURE 8.

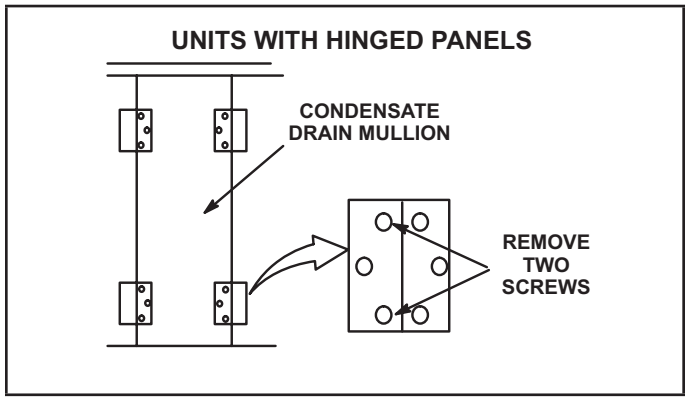


FIGURE 8

2 - Lift the front edge of the drain pan and slide pan out of unit. See FIGURE 9.

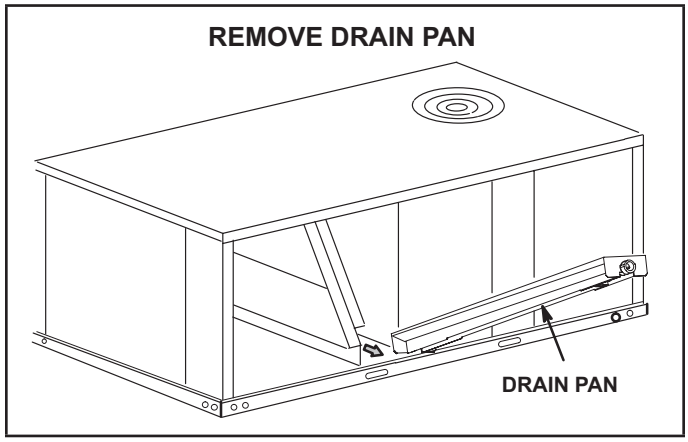


FIGURE 9

3 - Make sure the cap over the unit bottom drain hole is secure.

4 - Rotate the drain pan until the downward slope is toward the back of the unit. Slide the drain pan back into the unit. Be careful not to dislodge the cap over the bottom drain hole.

5 - From the back side of the unit, pull the drain pan coupling through the rear condensate opening.

6 - Replace the condensate drain mullion.

Bottom Drain Connection

1 - Remove the condensate drain mullion. See FIGURE 7.

2 - Lift the front edge of the drain pan and slide pan out of unit. See FIGURE 9.

3 - Turn the drain pan upside down and drill a pilot hole through the bottom of the drain pan in the center of the coupling. See FIGURE 10.

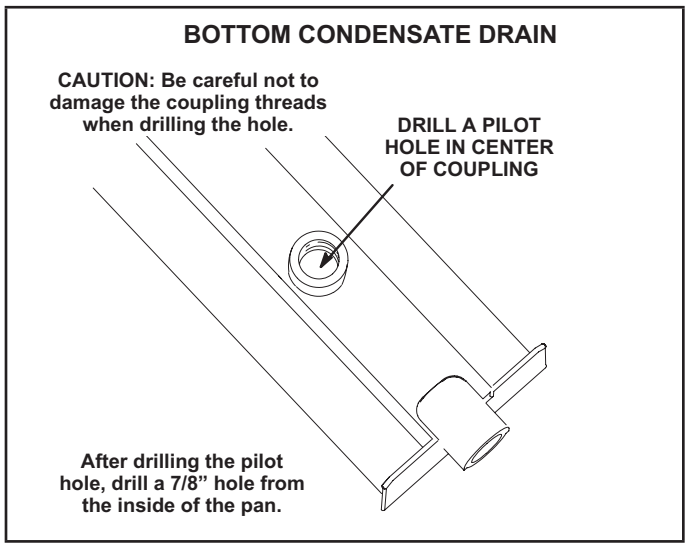


FIGURE 10

4 - From the inside of the pan, use a Vari-Bit® bit to enlarge the hole to 7/8". Do not damage coupling threads.

5 - Remove the cap over the unit bottom drain hole.

6 - Slide the drain pan back into the unit.

7 - From the back side of the unit, pull the drain pan coupling through the rear condensate opening.

8 - From the front side of the unit, move the drain pan until the bottom coupling settles into the unit bottom drain opening. Once in place, check to make sure the coupling is still positioned through the rear condensate drain hole.

9 - Use a field-provided 3/4" plug to seal side drain connection.

10 - Replace the condensate drain mullion.

Connect Gas Piping (Gas Units)

Before connecting field-provided piping, check with gas company or authorities having jurisdiction for local code requirements. When installing gas supply piping, length of run from gas meter must be considered in determining pipe size for 0.5" w.c. (.12kPa) maximum pressure drop. Do not use supply pipe smaller than unit gas connection. Operating pressures at the unit gas connection must be as shown in TABLE 1.

TABLE 1
OPERATING PRESSURE AT GAS CONNECTON
"w.c.

	Natural Gas		LP/Propane Gas	
	Min.	Max.	Min.	Max.
036-072	4.5	10.5	11	13

When making piping connections a drip leg should be installed on vertical pipe runs to serve as a trap for sediment or condensate. A 1/8" N.P.T. plugged tap is located on gas valve for test gauge connection. Refer to Heating Start-Up section for tap location. Install a ground joint union between the gas control manifold and the main manual shut-off valve. See FIGURE 11 for gas supply piping entering outside the unit. FIGURE 12 shows complete bottom gas entry piping.

Compounds used on threaded joints of gas piping shall be resistant to the action of liquefied petroleum gases.

Do not use Teflon® tape to seal gas piping. Use a moderate amount of pipe compound on the gas pipe only. Make sure the two end threads are bare.

⚠ CAUTION

If a flexible gas connector is required or allowed by the authority that has jurisdiction, black iron pipe shall be installed at the gas valve and extend out side the furnace cabinet.

⚠ WARNING

Do not exceed 600 in-lbs (50 ft.-lbs) torque when attaching the gas piping to the gas valve.

⚠ IMPORTANT

Compounds used on threaded joints of gas piping must be resistant to the actions of liquefied petroleum gases.

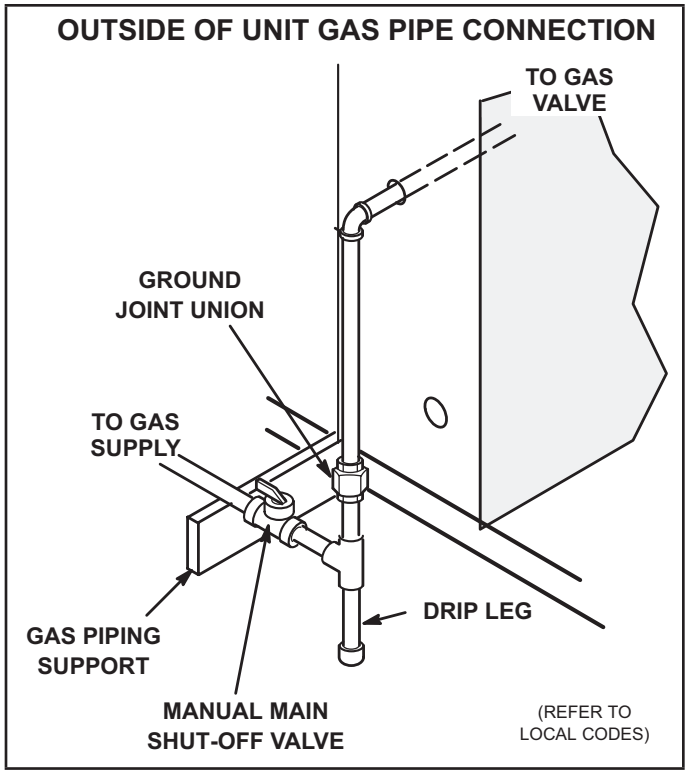


FIGURE 11

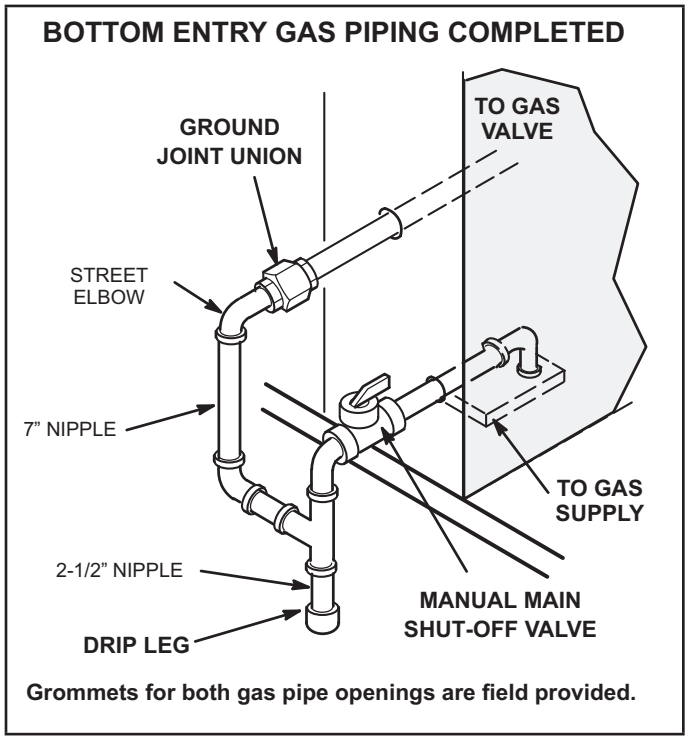


FIGURE 12

Pressure Test Gas Piping (Gas Units)

When pressure testing gas lines, the gas valve must be disconnected and isolated. Gas valves can be damaged if subjected to more than 0.5 psig (3.48kPa). See FIGURE 13.

NOTE - *Codes may require that manual main shut-off valve and union (furnished by installer) be installed in gas line external to unit. Union must be of the ground joint type.*

After all connections have been made, check all piping connections for gas leaks. Also check existing unit gas connections up to the gas valve; loosening may occur during installation. Use a leak detection solution or other preferred means. Do not use matches candles or other sources of ignition to check for gas leaks.

⚠ CAUTION

Some soaps used for leak detection are corrosive to certain metals. Carefully rinse piping thoroughly after leak test has been completed. Do not use matches, candles, flame or othe sources of ignition to check for gas leaks.

⚠ WARNING

Danger of explosion. Can cause injury or product or property damage. Do not use matches, candles, flame or other sources of ignition to check for leaks.

NOTE - *In case emergency shut down is required, turn off the main manual shut-off valve and disconnect main power to unit. These devices should be properly labeled by the installer.*

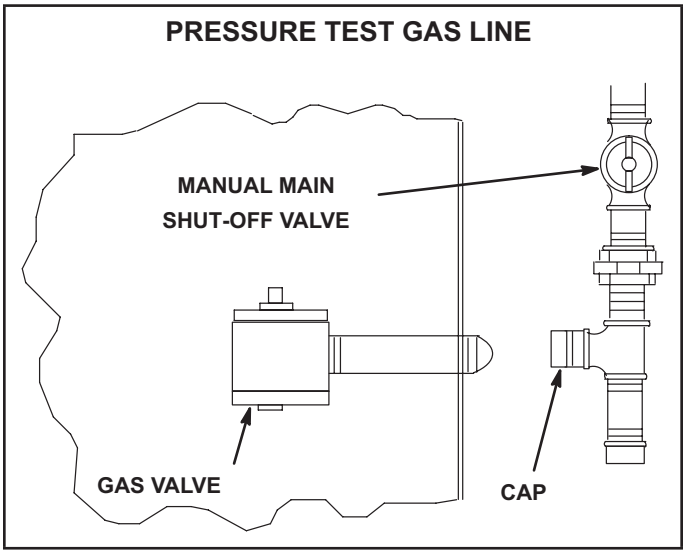


FIGURE 13

High Altitude Derate

Locate the high altitude conversion sticker in the unit literature bag. Fill out the conversion sticker and affix next to the unit nameplate. High altitude kits are available for field-installation.

Refer to TABLE 2 for high altitude adjustments.

TABLE 2
HIGH ALTITUDE DERATE

Altitude Ft.*	Gas manifold Pressure
2000-4500	See Unit Nameplate
4500 and Above	Derate 2% / 1000 Ft. above Sea Level

*Units installed at 0-2000 feet do not need to be modified.

NOTE - *This is the only permissible derate for these units.*

High Altitude Derate - ULNOx Units

The Ultra-Low NOx units are approved for installations from 0 -4500 ft. No modifications are required. Above 2000 ft, the furnace will naturally de-rate approximately 10%.

Electrical Connections - Power Supply

Do not apply power or close disconnect switch until installation is complete. Refer to start-up directions. Refer closely to unit wiring diagram.

Refer to unit nameplate for minimum circuit ampacity and maximum fuse size.

1 - Units are factory-wired for 230 / 460 / 575 volt supply. **For 208V supply**, remove the insulated terminal cover from the 208V terminal on the control transformer. Move the wire from the transformer 240V terminal to the 208V terminal. Place the insulated terminal cover on the unused 240V terminal.

2 - Route power through the bottom power entry area and connect to L1, L2, and L3 on the top of K1 in control area above compressor. Secure power wiring with factory-installed wire ties provided in control box. Route power to TB2 on units equipped with electric heat. Route power to S48 or CB10 If unit is equipped with the optional disconnect switch or circuit breaker. See unit wiring diagram.

Electrical Connections - Control Warning

Connect either a thermostat, room/zone sensor, or direct digital controller; one of the three are required for unit function. Refer to the literature provided with each device and the following information.

NOTE - *Optional wireless sensors are available for use with this unit.*

⚠ CAUTION

Electrostatic discharge can affect electronic com ponents. Take precautions during unit installation and service to protect the electronic controls. Pre cautions will help to avoid control exposure to elec trostatic discharge by putting the unit, the control and the technician at the same electrostatic poten tial. Neutralize electrostatic charge by touching hands and all tools on an unpainted unit surface, such as the gas valve or blower deck, before per forming any service procedure.

A-Thermostat Location

Room thermostat mounts vertically on a standard 2” X 4” handy box or on any non-conductive flat surface.

Locate thermostat approximately 5 feet (1524mm) above the floor in an area with good air circulation at average temperature. Avoid locating the room thermostat where it might be affected by:

- drafts or dead spots behind doors and in corners
- hot or cold air from ducts
- radiant heat from sun or appliances
- concealed pipes and chimneys

B-Control Wiring

The Unit Controller will operate the unit from a thermostat or zone sensor based on the System Mode. The default System Mode is the thermostat mode. Refer to the Unit Controller Setup Guide to change the System Mode. Use the mobile service app menu and select Settings > Install.

Thermostat Mode

1 - Route thermostat cable or wires from subbase to control area above compressor (refer to unit dimensions to locate bottom and side power entry).

IMPORTANT - Unless field thermostat wires are rated for maximum unit voltage, they must be routed away from line voltage wiring. Use wire ties located near the lower left corner of the controls mounting panel to secure thermostat cable.

Use18 AWG wire for all applications using remotely installed electro-mechanical and electronic thermostats.

2 - Install thermostat assembly in accordance with instructions provided with thermostat.

3 - Connect thermostat wiring to Unit Controller on the lower side of the controls hat section.

4 - Wire as shown in FIGURE 14 for electro-mechanical and electronic thermostats. If using other temperature control devices or energy management systems see instructions and wiring diagram provided by manufacturer.

IMPORTANT - Terminal connections at the wall plate or subbase must be made securely. Loose control wire connections may allow unit to operate but not with proper response to room demand.

Zone Sensor Mode

The Unit Controller will operate heating and cooling based on the Unit Controller internal setpoints and the temperature from the A2 zone sensor. An optional Network Control Panel (NCP) can also be used to provide setpoints. A thermostat or return air sensor can be used as a back-up mode. Make zone sensor wiring connections as shown in FIGURE 15.

C-Hot Gas Reheat

1 - Install humidity sensor in accordance with instructions provided with sensor. A DDC input may be used to initiate dehumidification instead of a sensor.

2 - Make wiring connections as shown in FIGURE 14 for Thermostat Mode or FIGURE 15 for Zone Sensor Mode. In addition, connect either a humidity sensor or a dehumidification input. See FIGURE 16 or FIGURE 18 for humidity sensor wiring or FIGURE 17 for dehumidification input wiring.

Humidity Sensor Cable Applications

Wire runs of 50 feet (mm) or less

Use two separate shielded cables containing 20AWG minimum, twisted pair conductors with overall shield. Belden type 8762 or 88760 (plenum) or equivalent. Connect both cable shield drain wires to the Unit Controller as shown in FIGURE 16.

Wire runs of 150 feet (mm) or less

Use two separate shielded cables containing 18AWG minimum, twisted pair conductors with overall shield. Belden type 8760 or 88760 (plenum) or equivalent. Connect both cable shield drain wires to the Unit Controller as shown in FIGURE 16.

Wire runs over 150 feet (mm)

Use a local, isolated 24VAC transformer such as Lennox cat #18M13 (20VA minimum) to supply power to RH sensor as shown in FIGURE 18. Use two shielded cables containing 20AWG minimum, twisted pair conductors with overall shield. Belden type 8762 or 88760 (plenum) or equivalent.

FIELD WIRING WITH ELECTRONIC AND ELECTRO-MECHANICAL THERMOSTATS (Thermostat Mode)

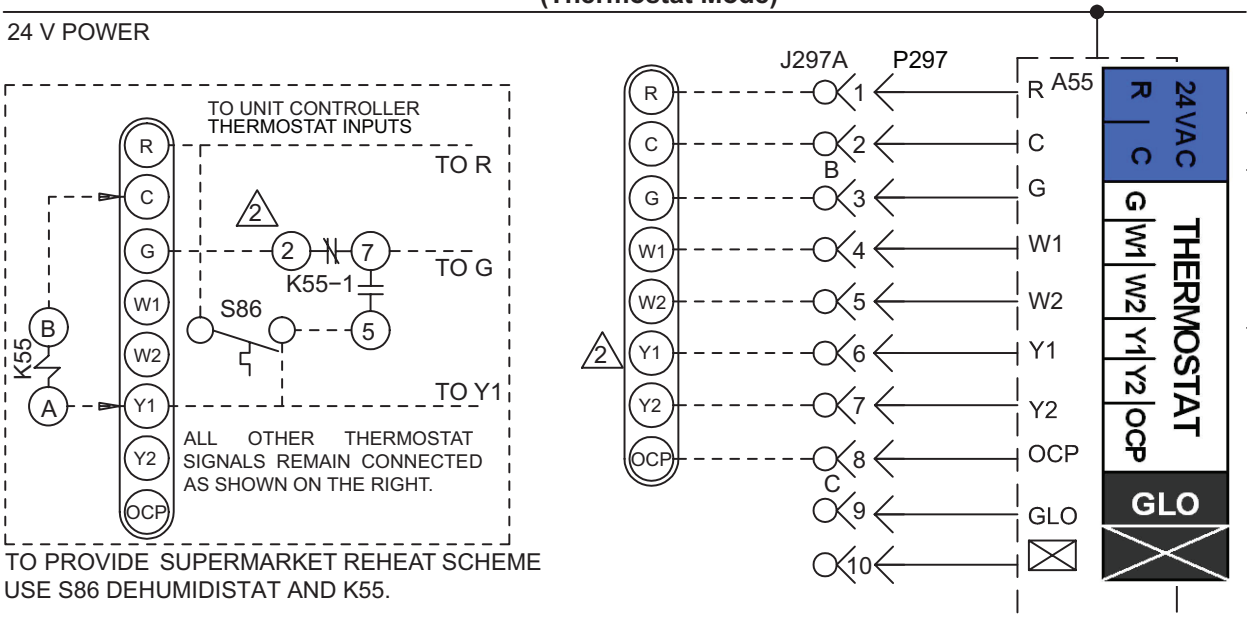


FIGURE 14

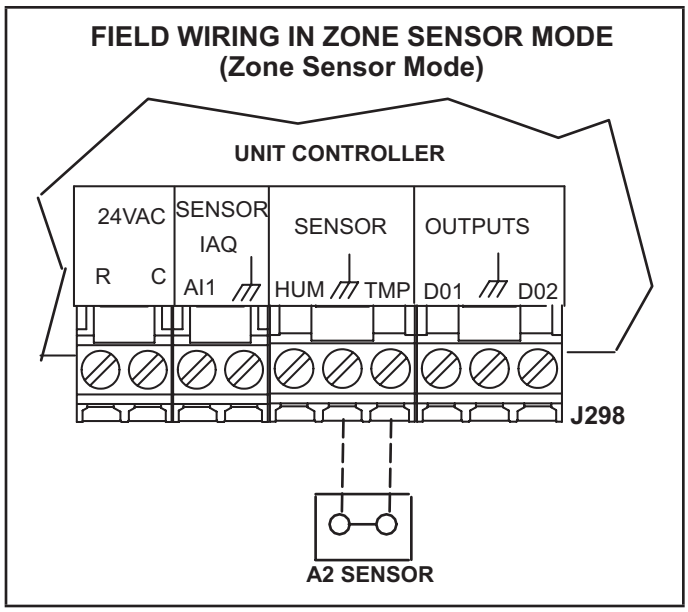


FIGURE 15

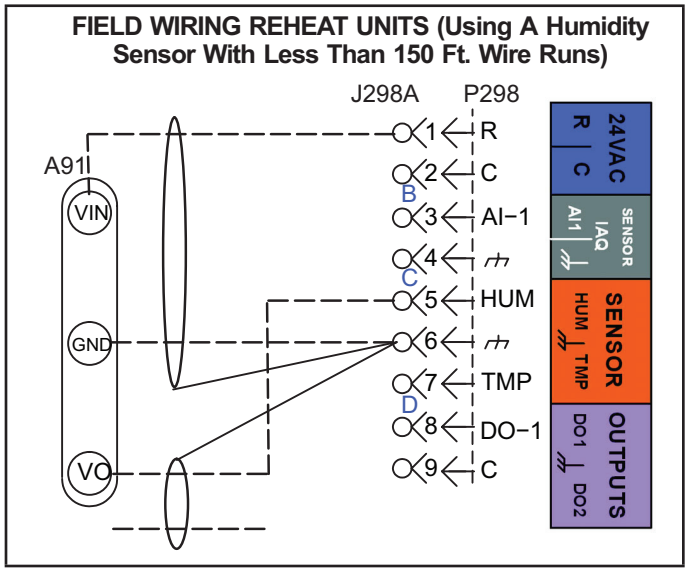


FIGURE 16

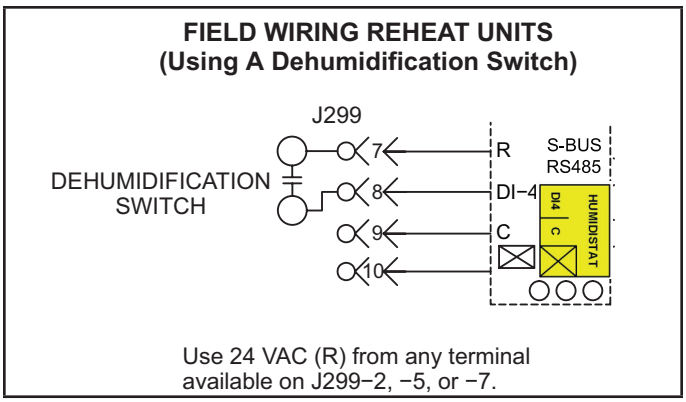


FIGURE 17

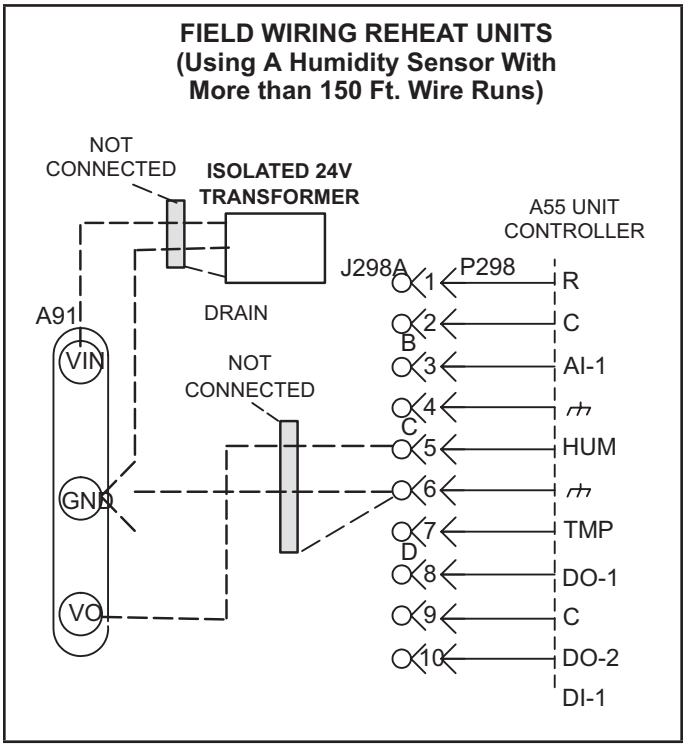


FIGURE 18

Mobile Service App

Setup and configure each rooftop unit using the mobile service app (Android or iOS devices supported).

A-Mobile Device Requirements

- Bluetooth connection.
- Android hardware requires 2GB RAM and a 2Ghz core processor. Tablets are supported.
- The app is available for both iOS 11.0 or higher (App Store) and Android 9.0 or higher (Google Play).

B-Download the App

Use your mobile device to scan the QR code from the cover page and download the mobile service app to your mobile device.

C-Pair the App to the Unit Controller

1 - Apply power to the unit and wait until the Unit Controller has booted-up (approximately two minutes).

2 - Press and hold the pair button for five seconds. See figure 20.

3 - The unit (or list of units) will appear; select the appropriate unit. When the app code matches the four-character code on the Unit Controller display, the unit is paired (within 10 seconds). Note the following:

- The app will list the units by signal strength; the RTU name will be displayed.
- Once paired, the RTU name, model number, serial number and firmware version will be displayed.

Please refer to the manufacturer's website for additional technical information and self-help support.

D-App Menus

See figure 19 for the menu overview. Follow the app prompts in the Install, Network Integration, and Test and Balance menus. Verify the app is setup properly for the unit application (including the date and time). Refer to figure 21, 22, and 23.

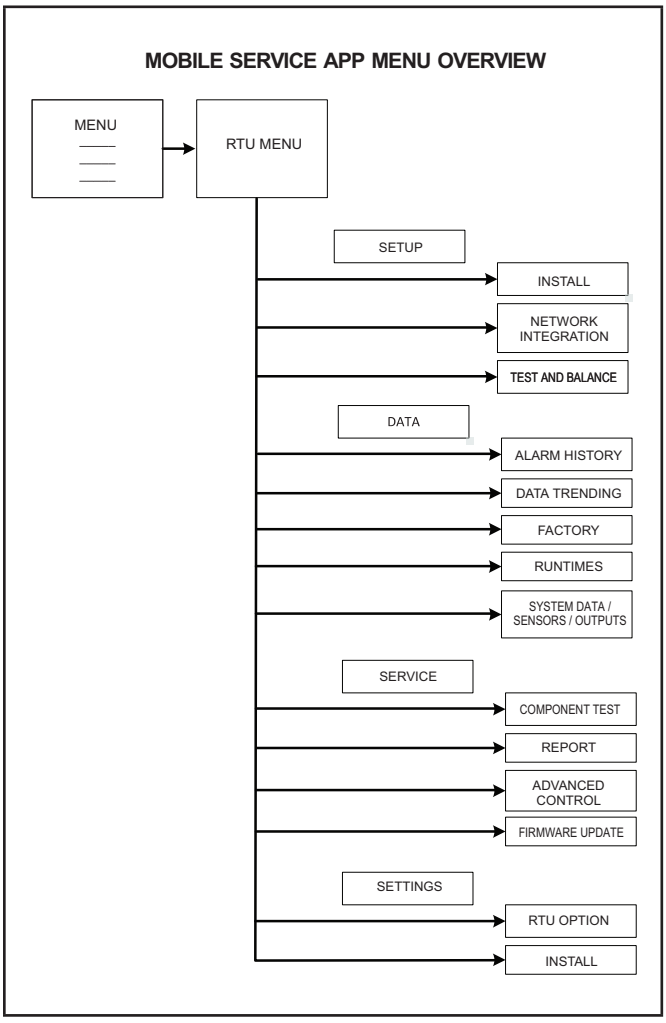


FIGURE 19

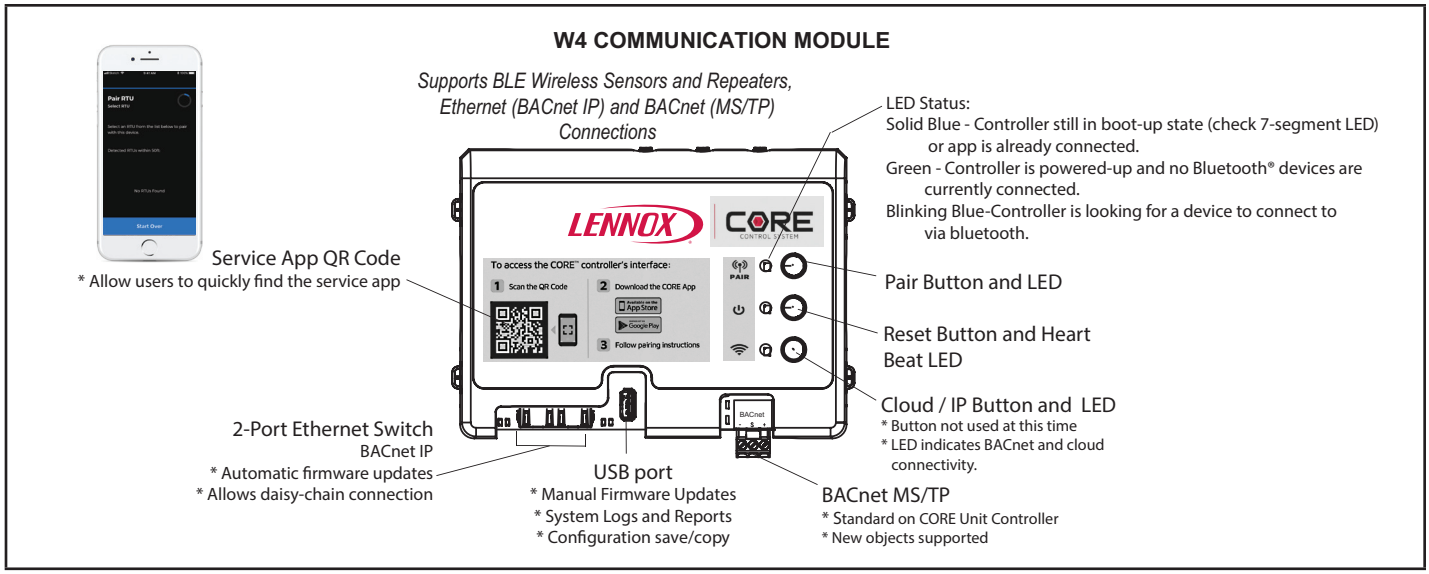


FIGURE 20

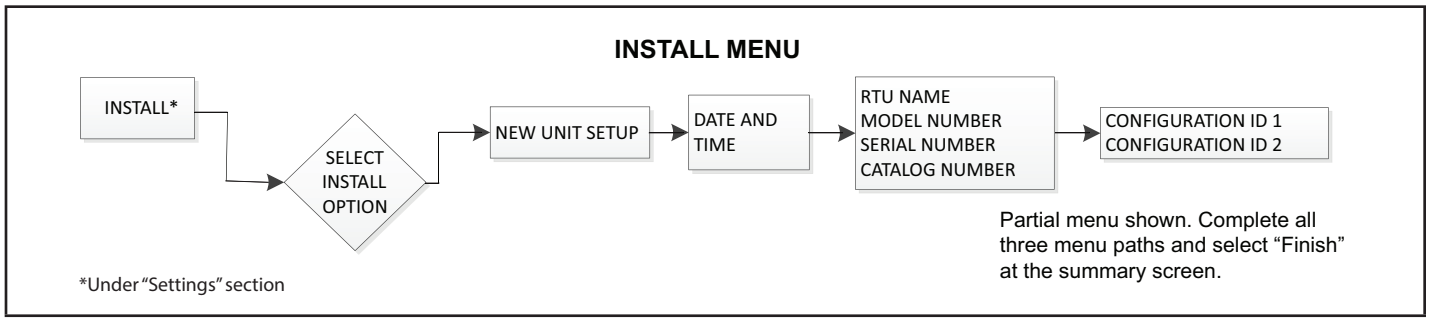


FIGURE 21

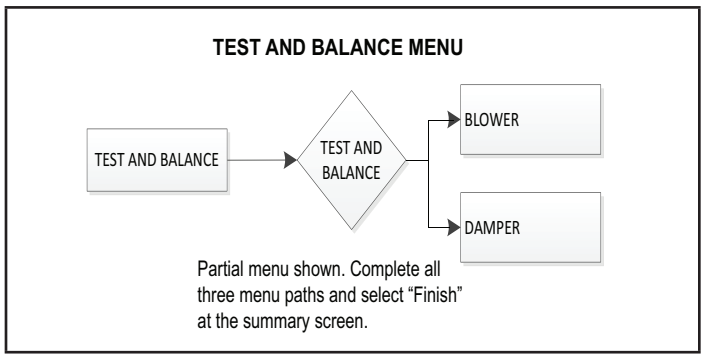


FIGURE 22

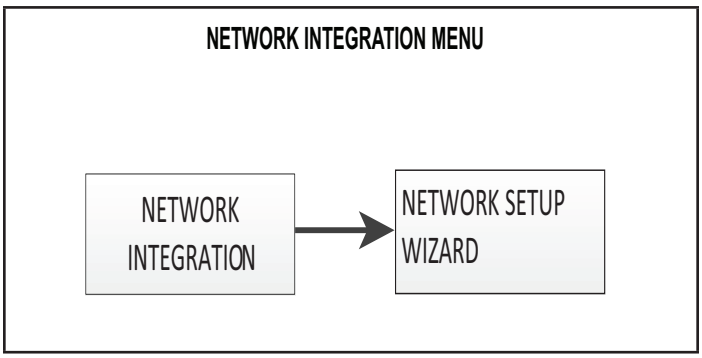


FIGURE 23

E-Unit Controller Components

See figure 24 for Unit Controller components. See figure 25 and table 3 for pushbutton and LED functions.

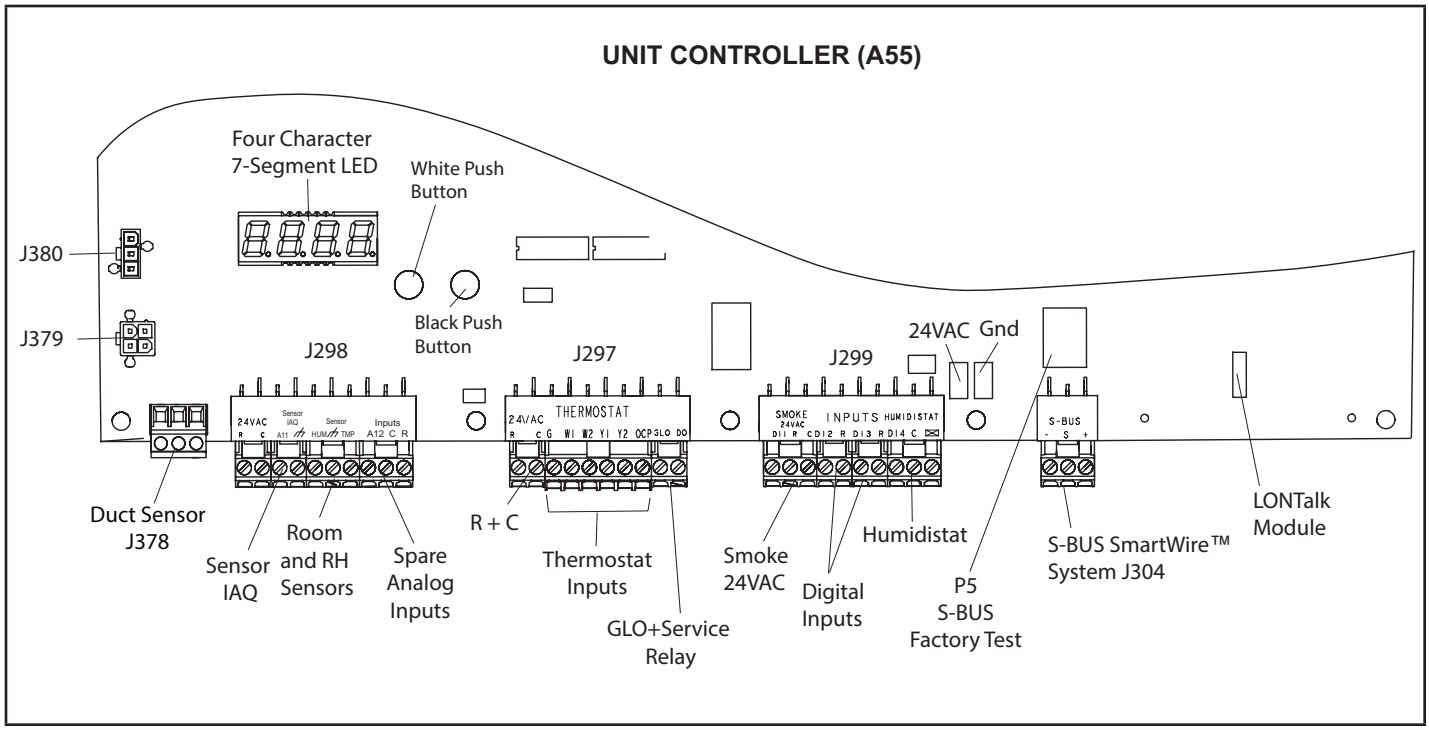


FIGURE 24

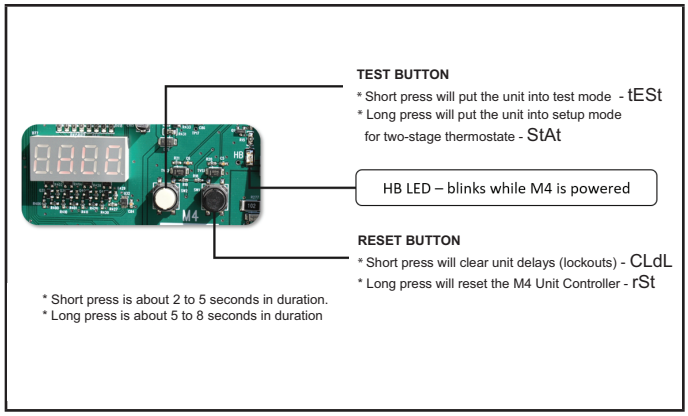


FIGURE 25

TABLE 3
UNIT CONTROLLER PUSHBUTTON CODES

Code	Cause	Action
CLdL	Black Button: Short Press	Clear Delays
rSt	Black Button: Long Press	Reset
tESt	White Button: Short Press	TSTAT Test
StAt	White Button: Long Press (In Pre-Install state)	TSTAT Override
tESt	White Button: Long Press (NOT in Pre-Install state)	TSTAT Test
Short Press : 2 to 5 seconds. Long Press : 5 to 8 seconds.		

Blower Operation and Adjustments

⚠ IMPORTANT

Three phase scroll compressors must be phased sequentially for correct compressor and blower rotation. Follow "COOLING START-UP" section of installation instructions to ensure proper compressor and blower operation.

A-Blower Operation

Refer to the Unit Controller Setup Guide to energize blower. Use the mobile service app menu; see:

RTU MENU > COMPONENT TEST > BLOWER > START TEST.

Direct-drive motor may not immediately stop when power is interrupted to the Unit Controller. Disconnect unit power before opening the blower compartment. The Controller's digital inputs must be used to shut down the blower. See Unit Controller manual for operation sequences.

⚠ WARNING

1- Make sure that unit is installed in accordance with the installation instructions and applicable codes.

2- Inspect all electrical wiring, both field and factory-installed, for loose connections. Tighten as required.

3- Check to ensure that refrigerant lines do not rub against the cabinet or against other refrigerant lines.

4- Check voltage at disconnect switch. Voltage must be within range listed on nameplate. If not, consult power company and have voltage condition corrected before starting unit.

5- Make sure filters are new and in place before start-up.

B--Determining Unit CFM

1 - The following measurements must be made with air filters in place.

2 - With all access panels in place, measure static pressure external to unit (from supply to return). Blower performance data is based on static pressure readings taken in locations shown in FIGURE 26.

NOTE - *Static pressure readings can vary if not taken where shown.*

3 - Measure the indoor blower wheel RPM.

4 - Referring to the Blower Data tables, use static pressure and RPM readings to determine unit CFM. Use the Accessory Air Resistance tables when installing units with any of the options or accessories listed. Refer to TABLE 4 for minimum airflow when electric heat is installed.

TABLE 4
ELECTRIC HEAT MINIMUM AIRFLOW

Unit	kW	CFM	
		Direct Drive	Direct Drive (Impeller-Style)
036, 048, 060	7.5	600	1200
	15	1100	1350
	22.5	1600	1800
072	30	NA	2000

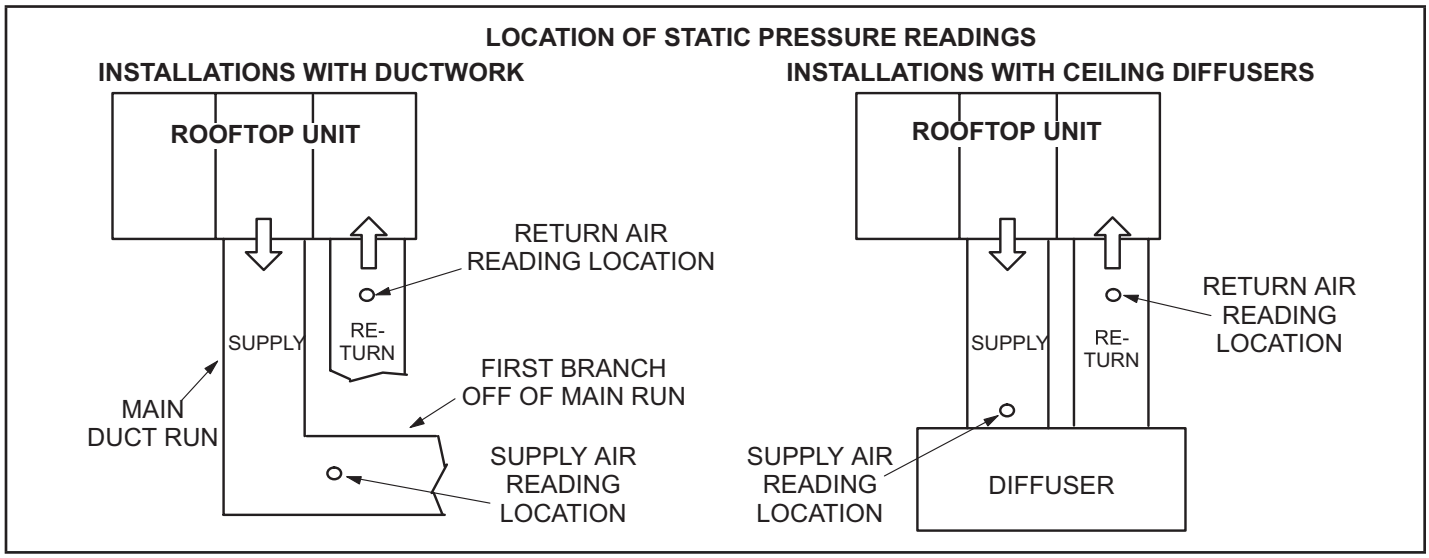


FIGURE 26

C-Adjusting Unit CFM

The supply CFM can be adjusted by changing Unit Controller settings. Refer to TABLE 5 for menu paths and default settings. Record any CFM changes on the parameter settings label located on the inside of the compressor access panel.

IMPORTANT - The default value for Cooling Low CFM is lower than a traditional single or two-speed blower. If operating the unit with a 2 or 3-stage controller (2 or 3-stage thermostat, DDC controller, etc.), it is recommended to increase the Cooling Low CFM default value to a suitable level for part load cooling (typically 60% of full load CFM)

TABLE 5
BLOWER PERFORMANCE SETTINGS - 581102-01

Parameter	Field Setting	Description
NOTE - *Any changes to Smoke CFM setting must be adjusted before the other CFM settings. Use SETTINGS > RTU OP TIONS > EDIT PARAMETERS = 12 for EBM, 6 for ECM*		
BLOWER SMOKE CFM	%	Percentage of torque for blower smoke speed.
SETUP > TEST & BALANCE > BLOWER		
BLOWER HEATING HIGH CFM	%	Percentage of torque for blower heating high speed.
BLOWER HEATING LOW CFM	%	Percentage of torque for blower heating low speed (P volt gas heat only).
BLOWER COOLING HIGH CFM	%	Percentage of torque for blower cooling high speed.
BLOWER COOLING LOW CFM	%	Percentage of torque for blower cooling low speed and vent speed for standard static blowers.
BLOWR VENTILATION CFM	%	Percentage of torque for high static blower ventilation speed.
SETUP > TEST & BALANCE > DAMPER		
BLOWER HIGH CFM DAMPER POS %	%	Minimum damper position for high speed blower operation. Default 0%.
BLOWER LOW CFM DAMPER POS %	%	Minimum damper position for low speed blower operation. Default 0%.
POWER EXHAUST DAMPER POS %	%	Minimum damper position for low power exhaust operation. Default 50%.
SETTINGS > RTU OPTIONS > EDIT PARAMETERS = 216		
POWER EXHAUST DEADBAND %	%	Deadband % for power exhaust operation. Default 10%.
SETTINGS > RTU OPTIONS > EDIT PARAMETERS = 10 (Applies to Thermostat Mode ONLY)		
FREE COOLING STAGE-UP DELAY	sec	Number of seconds to hold blower at low speed before switching to blower at high speed. Default 300 seconds.

Installer - Record any parameter changes under “Field Setting” column. Settings need to be recorded by installer for use when Unit Controller is replaced or reprogrammed.

BLOWER DATA 0.5 HP

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1- Any factory installed options air resistance (heat section, economizer, etc).
2- Any field installed accessories air resistance (duct resistance, diffuser, etc).

Minimum Air Volume Required for Different Gas Heat Sizes:
Standard Heat - 1075 cfm; Medium Heat - 1150 cfm; High Heat - 1500 cfm

See ppage 24 for wet coil and options/accessory air resistance data.

DOWNFLOW

External Static Pressure in. w.g.	Percentage of Total Motor Torque																										
	20%			30%			405			50%			60%			70%			80%			90%			100%		
	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM
0	811	50	415	994	82	473	1177	114	531	1319	154	579	1461	194	626	1564	236	663	1667	278	700	1804	349	753	1878	396	783
0.1	716	47	494	906	81	547	1095	115	599	1243	158	642	1391	200	685	1500	243	718	1608	286	751	1753	361	798	1833	409	824
0.2	631	49	570	827	85	618	1023	121	665	1176	165	704	1329	209	742	1442	254	772	1555	299	802	1708	375	843	1794	425	865
0.3	556	54	644	758	92	687	960	130	729	1118	176	764	1275	222	799	1392	268	825	1509	314	851	1668	392	888	1759	443	907
0.4	489	62	715	696	102	753	903	142	791	1065	189	822	1227	236	853	1347	284	877	1467	331	900	1632	410	932	1726	462	949
0.5	---	---	---	---	---	---	851	155	851	1017	204	879	1183	253	906	1306	301	927	1429	349	948	1597	430	976	1693	481	991
0.6	---	---	---	---	---	---	804	170	909	973	220	933	1141	269	957	1267	318	976	1392	367	994	1562	449	1019	1660	501	1032
0.7	---	---	---	---	---	---	759	184	964	930	235	985	1101	286	1006	1228	336	1023	1355	385	1039	1527	467	1062	1624	519	1074
0.8	---	---	---	---	---	---	716	199	1017	889	251	1036	1061	302	1054	1189	352	1069	1317	402	1083	1489	484	1103	1585	535	1115
0.9	---	---	---	---	---	---	671	211	1067	845	264	1083	1019	316	1099	1148	366	1112	1276	416	1125	1447	499	1144	1540	549	1156
1.0	---	---	---	---	---	---	625	222	1114	800	275	1128	974	327	1142	1102	378	1154	1230	428	1165	1400	510	1183	1489	559	1196
1.1	---	---	---	---	---	---	576	230	1158	751	283	1170	925	336	1182	1052	387	1193	1179	437	1203	1345	518	1221	1430	566	1235
1.2	---	---	---	---	---	---	521	234	1199	695	288	1210	869	341	1220	995	391	1230	1121	441	1240	1283	521	1258	1361	567	1273
1.3	---	---	---	---	---	---	---	---	---	---	---	---	806	340	1255	930	390	1265	1054	440	1274	1210	519	1293	1281	562	1311
1.4	---	---	---	---	---	---	---	---	---	---	---	---	734	335	1288	856	384	1297	977	433	1306	1126	510	1326	1188	552	1347

HORIZONTAL

External Static Pressure in. w.g.	Percentage of Total Motor Torque																										
	20%			30%			405			50%			60%			70%			80%			90%			100%		
	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM
0	794	45	388	970	76	454	1146	107	519	1281	149	575	1416	191	630	1522	110	678	1627	293	726	1715	351	768	1802	408	810
0.1	709	44	460	895	78	519	1080	111	577	1223	155	627	1366	199	677	1477	251	721	1588	303	764	1681	362	804	1773	420	843
0.2	630	46	531	855	82	583	1019	117	634	1169	163	679	1318	208	723	1435	262	763	1552	315	803	1648	375	841	1743	434	878
0.3	556	51	602	759	88	646	961	125	690	1117	172	730	1273	219	769	1395	274	805	1516	328	841	1615	388	877	1714	448	912
0.4	486	58	671	696	97	709	906	135	746	1068	184	781	1230	232	815	1356	288	848	1481	343	880	1582	403	914	1683	463	948
0.5	420	66	740	637	107	771	854	147	802	1021	196	831	1188	245	860	1317	301	890	1446	357	919	1549	418	951	1652	478	983
0.6	---	---	---	---	---	---	804	159	856	946	209	881	1147	259	905	1279	316	932	1410	372	958	1514	432	989	1618	492	1019
0.7	---	---	---	---	---	---	756	172	910	932	223	930	1107	273	949	1241	330	973	1374	386	996	1478	446	1026	1582	506	1055
0.8	---	---	---	---	---	---	709	185	962	888	236	978	1066	287	993	1201	344	1014	1336	400	1034	1440	460	1063	1544	519	1091
0.9	---	---	---	---	---	---	663	197	1013	844	249	1025	1025	300	1036	1161	357	1054	1296	413	1072	1399	472	1100	1502	530	1127
1.0	---	---	---	---	---	---	---	---	---	---	---	---	982	313	1078	1118	369	1094	1254	424	1109	1355	482	1136	1456	540	1163
1.1	---	---	---	---	---	---	---	---	---	---	---	---	938	323	1119	1073	379	1133	1208	434	1146	1307	491	1172	1406	548	1198
1.2	---	---	---	---	---	---	---	---	---	---	---	---	892	332	1158	1026	387	1170	1159	441	1182	1255	497	1208	1351	553	1233
1.3	---	---	---	---	---	---	---	---	---	---	---	---	843	340	1197	975	393	1207	1106	446	1216	1198	501	1242	1290	555	1268
1.4	---	---	---	---	---	---	---	---	---	---	---	---	790	344	1234	920	396	1242	1049	448	1250	1137	501	1276	1224	553	1302

BLOWER DATA 1.0 HP

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1- Any factory installed options air resistance (heat section, economizer, etc).
2- Any field installed accessories air resistance (duct resistance, diffuser, etc).

Minimum Air Volume Required for Different Gas Heat Sizes:
Standard Heat - 1075 cfm; Medium Heat - 1150 cfm; High Heat - 1500 cfm

See page 24 for wet coil and options/accessory air resistance data.

DOWNFLOW

External Static Pressure in. w.g.	Percentage of Total Motor Torque																										
	20%			30%			405			50%			60%			70%			80%			90%			100%		
	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM
0	1067	112	488	1325	196	573	1583	279	657	1759	381	726	1934	482	794	2046	579	845	2157	676	896	2285	816	956	2358	925	989
0.1	984	97	537	1249	184	616	1513	270	695	1697	376	760	1881	481	825	2002	584	873	2123	686	921	2273	838	978	2352	947	1008
0.2	912	91	587	1183	180	661	1453	268	735	1644	377	796	1835	486	856	1964	593	902	2093	700	947	2264	863	1001	2349	973	1030
0.3	851	92	636	1126	183	706	1400	273	775	1597	385	832	1794	497	889	1931	607	932	2067	717	974	2256	891	1026	2348	1001	1053
0.4	797	100	687	1075	192	751	1353	283	815	1555	397	869	1757	511	922	1901	625	962	2044	738	1002	2248	919	1051	2347	1031	1077
0.5	752	114	737	1032	206	796	1312	298	855	1518	413	905	1724	528	955	1873	644	993	2021	760	1030	2239	948	1078	2345	1061	1102
0.6	712	132	787	994	224	842	1275	316	896	1484	432	942	1692	548	988	1845	666	1024	1998	783	1059	2228	977	1104	- - -	- - -	- - -
0.7	678	155	836	960	246	886	1242	336	936	1452	452	979	1662	568	1021	1818	687	1055	1974	806	1088	2214	1004	1131	- - -	- - -	- - -
0.8	648	180	885	929	269	931	1210	358	976	1421	474	1016	1632	589	1055	1790	709	1086	1948	828	1117	2195	1028	1158	- - -	- - -	- - -
0.9	621	207	933	900	294	974	1179	381	1015	1390	495	1051	1600	609	1087	1760	728	1117	1919	847	1146	2170	1049	1185	- - -	- - -	- - -
1.0	596	235	981	872	319	1017	1148	403	1053	1357	516	1086	1566	628	1119	1725	746	1147	1884	864	1174	2139	1066	1212	- - -	- - -	- - -
1.1	- - -	- - -	- - -	- - -	- - -	- - -	1115	424	1090	1322	534	1120	1528	643	1150	1686	760	1176	1844	876	1201	2100	1078	1238	- - -	- - -	- - -
1.2	- - -	- - -	- - -	- - -	- - -	- - -	1080	443	1126	1283	549	1153	1485	655	1180	1641	770	1204	1797	884	1228	2052	1083	1264	- - -	- - -	- - -
1.3	- - -	- - -	- - -	- - -	- - -	- - -	1040	458	1161	1238	561	1185	1436	663	1209	1589	775	1231	1742	886	1253	1993	1081	1288	- - -	- - -	- - -
1.4	- - -	- - -	- - -	- - -	- - -	- - -	996	469	1194	1189	567	1215	1381	665	1236	1530	773	1257	1678	881	1277	1923	1071	1311	- - -	- - -	- - -

HORIZONTAL

External Static Pressure in. w.g.	Percentage of Total Motor Torque																										
	20%			30%			405			50%			60%			70%			80%			90%			100%		
	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM
0	1087	111	493	1304	184	579	1520	257	665	1689	368	738	1857	478	810	1972	588	864	2087	698	918	2196	844	975	2283	925	1000
0.1	1021	104	537	1246	180	618	1470	255	699	1646	368	768	1821	480	837	1941	592	888	2061	704	938	2179	852	992	2255	926	1017
0.2	961	102	582	1193	181	658	1425	259	734	1607	373	799	1789	487	864	1914	601	912	2039	714	960	2163	864	1012	2231	932	1034
0.3	906	106	628	1145	186	699	1384	266	769	1572	382	831	1759	498	892	1889	613	938	2018	728	984	2149	879	1033	2209	941	1053
0.4	855	113	674	1101	196	740	1347	278	806	1540	396	864	1732	513	921	1866	629	965	1999	744	1008	2134	896	1054	- - -	- - -	- - -
0.5	808	125	720	1060	209	781	1312	293	842	1509	412	896	1706	530	950	1843	646	992	1980	762	1033	2119	915	1077	- - -	- - -	- - -
0.6	764	139	766	1022	225	823	1279	310	879	1481	430	930	1682	549	980	1821	666	1019	1960	782	1058	2102	935	1101	- - -	- - -	- - -
0.7	722	155	812	985	242	864	1247	328	916	1452	449	964	1657	569	1011	1799	686	1048	1940	803	1084	2084	955	1125	- - -	- - -	- - -
0.8	682	172	858	949	260	906	1216	348	953	1424	469	997	1632	589	1041	1776	706	1076	1919	823	1111	2063	974	1150	- - -	- - -	- - -
0.9	643	191	903	914	279	946	1185	367	989	1396	489	1030	1606	610	1071	1751	727	1104	1895	843	1137	2039	992	1175	- - -	- - -	- - -
1.0	- - -	- - -	- - -	- - -	- - -	- - -	1153	386	1024	1366	508	1062	1579	629	1100	1724	745	1132	1869	861	1163	2011	1008	1201	- - -	- - -	- - -
1.1	- - -	- - -	- - -	- - -	- - -	- - -	1120	404	1059	1334	525	1095	1548	646	1130	1694	761	1160	1839	876	1189	1979	1021	1226	- - -	- - -	- - -
1.2	- - -	- - -	- - -	- - -	- - -	- - -	1085	420	1093	1300	541	1126	1515	661	1158	1660	775	1186	1805	889	1214	1941	1031	1250	- - -	- - -	- - -
1.3	- - -	- - -	- - -	- - -	- - -	- - -	1047	433	1126	1263	553	1156	1478	672	1186	1622	785	1213	1766	898	1239	1897	1037	1275	- - -	- - -	- - -
1.4	- - -	- - -	- - -	- - -	- - -	- - -	1005	442	1158	1221	561	1185	1436	680	1212	1579	792	1238	1721	903	1263	1847	1037	1298	- - -	- - -	- - -

BLOWER DATA

1.5 HP

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1- Any factory installed options air resistance (heat section, economizer, etc).
2- Any field installed accessories air resistance (duct resistance, diffuser, etc).

Minimum Air Volume Required for Different Gas Heat Sizes:
Standard Heat - 1075 cfm; Medium Heat - 1150 cfm; High Heat - 15w00 cfm

See page 24 for wet coil and options/accessory air resistance data.

DOWNFLOW

Total Air cfm	Total Static Pressure - in. w.c.																									
	0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		1.0		1.1		1.2		1.3	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
400	- - -	- - -	734	19	823	40	910	60	985	78	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
600	766	28	856	51	944	73	1029	93	1108	111	1180	127	1248	139	1315	149	1383	158	1451	169	- - -	- - -	- - -	- - -	- - -	- - -
800	899	57	989	81	1079	104	1163	125	1242	145	1317	161	1386	174	1454	185	1519	198	1582	214	1643	234	1701	255	1755	281
1000	1084	95	1163	117	1244	139	1323	160	1398	180	1470	196	1538	211	1603	227	1663	245	1721	267	1776	292	1828	320	1876	350
1200	1319	113	1385	138	1451	162	1517	186	1581	209	1644	231	1703	254	1759	278	1812	306	1863	337	1912	367	1960	397	2003	427
1400	1542	146	1596	177	1649	208	1703	239	1757	269	1809	300	1860	331	1909	362	1956	393	2003	425	2050	456	2095	483	2139	508
1600	1721	225	1772	258	1823	291	1873	324	1923	356	1972	388	2019	419	2065	450	2110	480	2156	510	2200	539	2244	565	2287	590
1800	1909	309	1957	341	2006	373	2054	404	2101	435	2146	465	2190	495	2234	526	2277	557	2320	588	2362	620	2404	651	2444	685
2000	2103	385	2148	417	2193	450	2239	483	2283	516	2325	550	2367	584	2408	620	2449	658	2490	696	2529	735	2568	777	2605	822
2200	2299	478	2342	514	2384	552	2426	590	2467	630	2507	671	2547	714	2586	757	2625	800	2663	844	2700	889	2735	935	2770	982
2400	2500	606	2540	647	2580	690	2618	734	2656	779	2694	824	2731	870	2768	915	2804	961	2839	1006	2874	1051	2907	1096	2941	1141
2600	2704	768	2741	810	2778	855	2813	901	2849	947	2884	993	2918	1039	2952	1085	2986	1129	3019	1173	3051	1217	3083	1259	3115	1300
2800	2908	941	2943	985	2976	1030	3010	1076	3042	1121	3075	1166	3107	1210	3139	1253	3170	1296	3200	1338	3231	1379	3261	1419	3290	1456
3000	3110	1111	3142	1156	3173	1201	3205	1245	3236	1289	3267	1332	3296	1373	3325	1414	3354	1455	3382	1496	3412	1536	3439	1573	3465	1609

Total Air cfm	Total Static Pressure - in. w.g.													
	1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
800	1805	309	1850	337	1895	366	1940	392	- - -	- - -	- - -	- - -	- - -	- - -
1000	1920	380	1962	410	2005	439	2050	466	2094	492	2138	517	2181	541
1200	2045	456	2087	484	2130	510	2174	537	2217	563	2260	589	2302	615
1400	2182	531	2225	555	2268	581	2310	610	2352	640	2393	671	2433	703
1600	2330	616	2371	645	2412	678	2452	713	2491	750	2530	787	2568	824
1800	2484	723	2523	765	2561	808	2598	849	2636	890	2672	931	2708	971
2000	2641	868	2677	915	2713	961	2749	1003	2784	1044	2819	1084	2853	1124
2200	2804	1028	2839	1072	2873	1114	2907	1155	2940	1194	2973	1234	3006	1272
2400	2974	1184	3006	1225	3039	1266	3071	1305	3103	1344	3134	1382	3166	1420
2600	3146	1340	3177	1379	3207	1417	3238	1456	3269	1494	3299	1532	3329	1569
2800	3319	1493	3347	1530	3376	1567	3406	1605	3435	1643	3465	1681	3495	1718
3000	3491	1644	3517	1680	3543	1716	3572	1754	3602	1792	3631	1830	3661	1867

BLOWER DATA — 1.5 HP

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1- Any factory installed options air resistance (heat section, economizer, etc).
2- Any field installed accessories air resistance (duct resistance, diffuser, etc).

Minimum Air Volume Required for Different Gas Heat Sizes:
Standard Heat - 1075 cfm; Medium Heat - 1150 cfm; High Heat - 1500 cfm

See page 24 for wet coil and options/accessory air resistance data.

HORIZONTAL

Total Air cfm	Total Static Pressure - in. w.c.																									
	0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		1.0		1.1		1.2		1.3	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
400	708	16	793	37	872	53	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
600	835	46	918	65	1000	82	1077	95	1149	107	1221	109	---	---	---	---	---	---	---	---	---	---	---	---	---	---
800	981	75	1064	92	1144	109	1221	124	1294	139	1365	148	1434	154	1497	163	1555	179	1607	200	1656	226	1704	254	---	---
1000	1166	105	1241	124	1315	141	1387	159	1454	176	1520	191	1582	207	1638	227	1689	252	1737	279	1783	308	1829	335	1873	362
1200	1374	142	1440	162	1506	182	1569	203	1630	224	1687	246	1739	271	1787	299	1832	330	1876	361	1920	391	1964	419	2007	444
1400	1591	183	1647	209	1701	235	1755	263	1806	291	1854	320	1899	351	1942	382	1984	412	2026	442	2068	469	2110	496	2153	520
1600	1778	258	1827	290	1876	323	1923	355	1970	386	2015	416	2059	444	2102	470	2144	494	2185	519	2227	545	2268	572	2309	600
1800	1973	352	2018	383	2063	415	2107	445	2151	476	2194	504	2237	531	2279	557	2319	584	2359	613	2397	645	2435	679	2471	713
2000	2182	437	2224	468	2265	499	2306	531	2346	563	2385	596	2424	630	2461	666	2496	705	2530	745	2564	786	2598	826	2631	866
2200	2388	540	2426	576	2464	613	2500	651	2536	691	2571	731	2605	774	2637	819	2668	863	2700	907	2732	949	2764	990	2795	1029
2400	2589	679	2624	719	2658	761	2691	803	2724	846	2756	890	2786	935	2816	980	2846	1025	2876	1068	2907	1109	2937	1149	2967	1188
2600	2787	845	2819	887	2850	930	2881	973	2911	1017	2941	1060	2970	1104	2999	1147	3028	1189	3057	1230	3087	1270	---	---	---	---
2800	2983	1021	3013	1063	3042	1106	3070	1149	3099	1191	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Total Air cfm	Total Static Pressure - in. w.g.													
	1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
800	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1000	1916	386	1957	408	1998	428	2037	447	2077	465	---	---	---	---
1200	2049	468	2089	490	2128	510	2168	529	2207	549	2246	569	2285	591
1400	2194	543	2235	565	2274	588	2313	611	2350	637	2387	664	2423	694
1600	2349	627	2387	657	2423	688	2457	722	2490	757	2522	793	2554	830
1800	2506	749	2539	787	2571	825	2602	864	2632	903	2662	942	2692	981
2000	2663	906	2694	945	2725	985	2755	1024	2785	1063	2815	1101	2845	1138
2200	2826	1068	2857	1107	2887	1146	2916	1184	2946	1221	2975	1259	3005	1296
2400	2997	1227	3027	1266	3056	1304	3085	1342	---	---	---	---	---	---
2600	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2800	---	---	---	---	---	---	---	---	---	---	---	---	---	---

BLOWER DATA

FACTORY INSTALLED OPTIONS/FIELD INSTALLED ACCESSORY AIR RESISTANCE - in. w.g.

Air Volume cfm	Wet Indoor Coil		Reheat Coil	Gas Heating			Economizer	Electric Heat	Filters		
	036, 048	060, 072		Standard Heat	Medium Heat	High Heat			MERV 8	MERV 13	MERV 16
800	0.01	- - -	- - -	0.02	0.02	0.02	0.04	0.01	0.04	0.05	0.04
1000	0.02	0.02	0.00	0.02	0.02	0.02	0.04	0.03	0.04	0.07	0.05
1200	0.03	0.04	0.00	0.02	0.02	0.02	0.04	0.06	0.04	0.07	0.05
1400	0.04	0.05	0.01	0.02	0.02	0.03	0.04	0.09	0.04	0.07	0.06
1600	0.05	0.07	0.02	0.02	0.03	0.04	0.04	0.12	0.04	0.07	0.08
1800	0.06	0.08	0.02	0.03	0.04	0.05	0.05	0.15	0.04	0.07	0.09
2000	0.08	0.10	0.02	0.03	0.04	0.06	0.05	0.18	0.05	0.08	0.10
2200	- - -	0.11	0.04	0.04	0.04	0.07	0.05	0.18	0.05	0.08	0.11
2400	- - -	0.13	0.04	0.04	0.05	0.08	0.05	0.20	0.05	0.08	0.12

POWER EXHAUST FAN PERFORMANCE

Return Air System Static Pressure in. w.g.	Air Volume Exhausted cfm
0.00	2000
0.05	1990
0.10	1924
0.15	1810
0.20	1664
0.25	1507
0.30	1350
0.35	1210

CEILING DIFFUSERS AIR RESISTANCE (in. w.g.)

Air Volume - cfm	RTD11-95S Step-Down Diffuser			FD11-95S Flush Diffuser
	2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open	
1800	0.13	0.11	0.09	0.09
2000	0.15	0.13	0.11	0.10
2200	0.18	0.15	0.12	0.12
2400	0.21	0.18	0.15	0.14
2600	0.24	0.21	0.18	0.17
2800	0.27	0.24	0.21	0.20
3000	0.32	0.29	0.25	0.25

CEILING DIFFUSER AIR THROW DATA

Air Volume - cfm	1 Effective Throw - ft.	
	RTD11-95S	FD11-95S
2600	24 - 29	19 - 24
2800	25 - 30	20 - 28
3000	27 - 33	21 - 29

1 Effective throw based on terminal velocities of 75 ft. per minute.

Refrigerant Leak Detection System

A-System Test

1 - Initiate Refrigerant Leak Detection System Test by using the following mobile service app menu path:

RTU MENU > COMPONENT TEST > LEAK DETECTION > START TEST

2 - Ensure that indoor blower, outdoor fan, and combustion air blower (LGT only) are energized.

Cooling Start-Up

B-Operation

1 - Initiate full load cooling operation using the following mobile service app menu path:

RTU MENU > COMPONENT TEST > COOLING > COOLING STAGE 2

NOTE - Refer to Cooling Operation section for high efficiency unit operation in zone sensor mode.

2 - Units contain one refrigerant circuit or stage.

3 - Unit is charged with R-454B refrigerant. See unit rating plate for correct amount of charge.

4 - Refer to Cooling Operation and Adjustment section for proper method to check refrigerant charge.

B-Refrigerant Charge and Check - All-Aluminum Coil

WARNING - Do not exceed nameplate charge under any condition.

This unit is factory charged and should require no further adjustment. If the system requires additional refrigerant, *reclaim the charge, evacuate the system, and add required nameplate charge.*

Refrigerant Charge R-454B		
Unit	M_c(lbs)	M_c(kg)
LCT/LGT036	3.19	1.45
LCT/LGT048	5.15	2.34
LCT/LGT060	4.86	2.20
LCT/LGT072	4.8	2.18
LCT/LGT036 W/ Humidtrol	5.36	2.43
LCT/LGT048 W/ Humidtrol	5.2	2.36
LCT/LGT060 W/ Humidtrol	4.78	2.17
LCT/LGT072 W/ Humidtrol	4.51	2.05

In addition to conventional charging procedures, the following requirements shall be followed.

- 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 unit is earth grounded 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 unit.

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.

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 labelled 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 all appropriate refrigerants including, when applicable, flammable refrigerants. 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. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.
- The recovered refrigerant shall be returned to the refrigerant supplier 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 flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

NOTE - *System charging is not recommended below 60°F (15°C). In temperatures below 60°F (15°C), the charge must be weighed into the system.*

If weighing facilities are not available, or to check the charge, use the following procedure:

1 - Make sure outdoor coil is clean. Attach gauge manifolds and operate unit at full CFM in cooling mode with economizer disabled until system stabilizes (approximately five minutes). Make sure all outdoor air dampers are closed.

2 - Compare the normal operating pressures to the pressures obtained from the gauges. Check unit components if there are significant differences.

3 - Measure the outdoor ambient temperature and the suction pressure. Refer to the charging curve to determine a target liquid temperature.

NOTE - *Pressures are listed for sea level applications.*

4 - Use the same thermometer to accurately measure the liquid temperature (in the outdoor section).

- If measured liquid temperature is higher than the target liquid temperature, add refrigerant to the system.
- If measured liquid temperature is lower than the target liquid temperature, recover some refrigerant from the system..

5 - Add or remove charge in increments. Allow the system to stabilize each time refrigerant is added or removed.

6 - Continue the process until measured liquid temperature agrees with the target liquid temperature. Do not go below the target liquid temperature when adjusting charge. Note that suction pressure can change as charge is adjusted.

7 - Example: At 95°F outdoor ambient and a measured suction pressure of 130psig, the target liquid temperature is 97°F. For a measured liquid temperature of 106°F, add charge in increments until measured liquid temperature agrees with the target liquid temperature.

TABLE 6
036 NORMAL OPERATING PRESSURES - NO REHEAT - ALL-ALUMINUM COIL - 581061-02

Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
112	214	114	251	115	290	116	331	118	374	119	419
121	217	123	254	124	293	126	334	127	377	129	422
139	222	141	259	143	299	145	340	147	384	149	429
159	228	162	265	164	305	166	346	169	390	171	436

036 CHARGING CURVE - NO REHEAT - ALL-ALUMINUM COIL - 581061-02

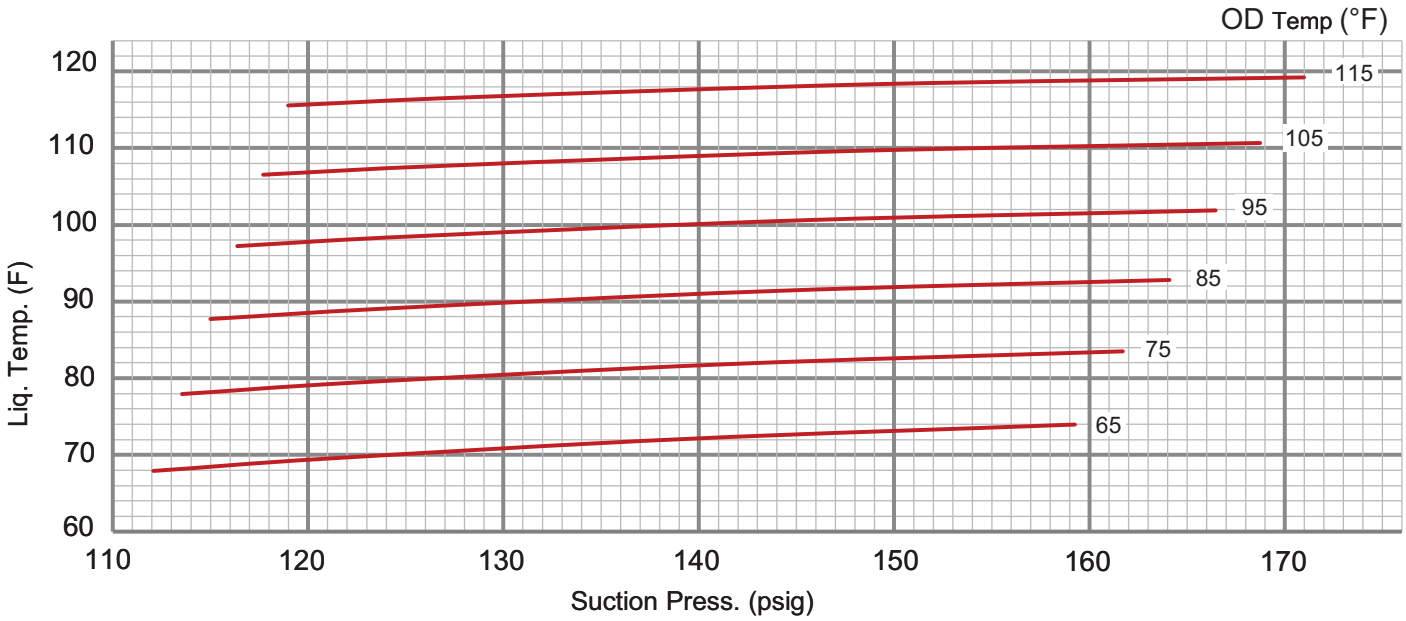


TABLE 7
048 NORMAL OPERATING PRESSURES - NO REHEAT - ALL-ALUMINUM COIL - 581062-02

Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
111	222	113	258	115	298	116	342	117	391	117	445
119	225	121	260	124	301	125	345	127	395	128	449
134	230	138	267	141	307	144	352	146	402	148	457
149	237	154	274	159	315	163	360	166	411	169	466

048 CHARGING CURVE - NO REHEAT - ALL-ALUMINUM COIL - 581062-02

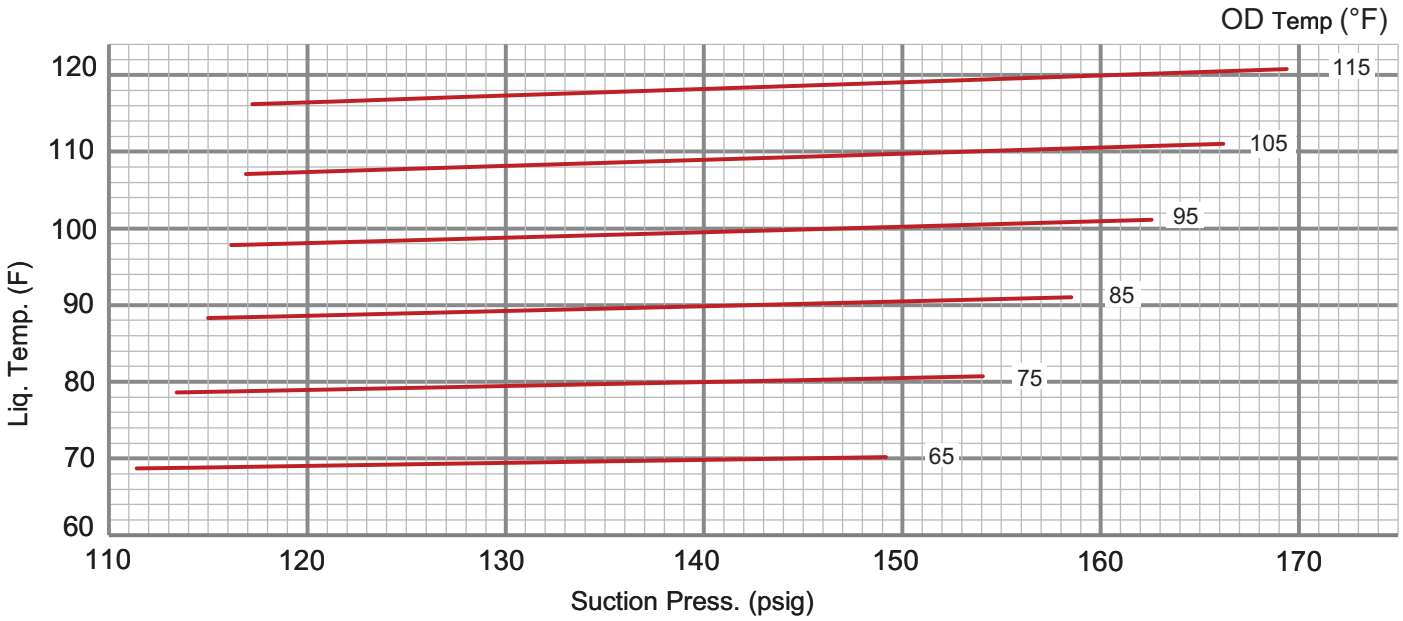


TABLE 8
060 NORMAL OPERATING PRESSURES - NO REHEAT - ALL-ALUMINUM COIL - 581063-02

Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
107	233	108	270	109	311	110	358	112	409	113	464
115	236	116	273	118	315	119	362	121	413	123	468
133	244	135	281	137	323	138	370	140	421	142	477
153	253	155	291	157	333	159	380	162	432	164	488

060 CHARGING CURVE - NO REHEAT - ALL-ALUMINUM COIL - 581063-02

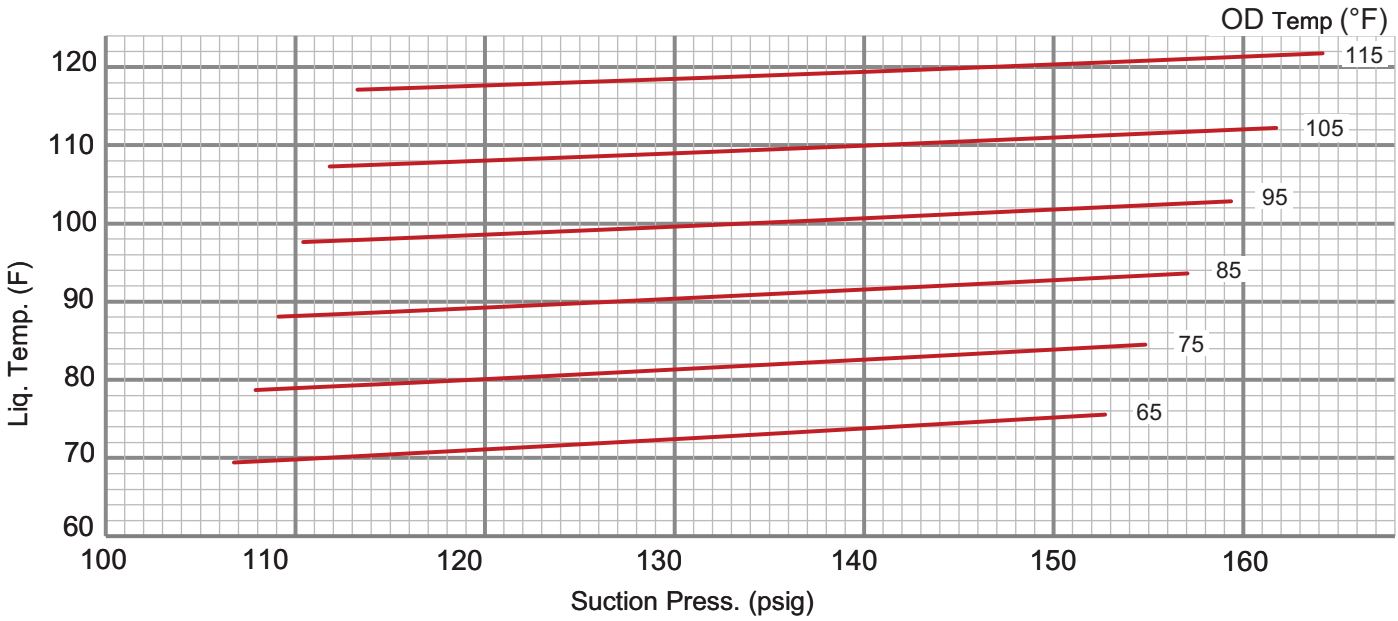


TABLE 9
072 NORMAL OPERATING PRESSURES - NO REHEAT - ALL-ALUMINUM COIL - 581064-02

Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
107	242	109	279	111	320	112	365	112	414	112	467
114	245	117	283	119	325	121	371	122	420	122	474
128	253	133	292	136	335	139	382	142	433	144	488
143	262	148	302	153	346	158	394	162	446	165	502

072 CHARGING CURVE - NO REHEAT - ALL-ALUMINUM COIL - 581064-02

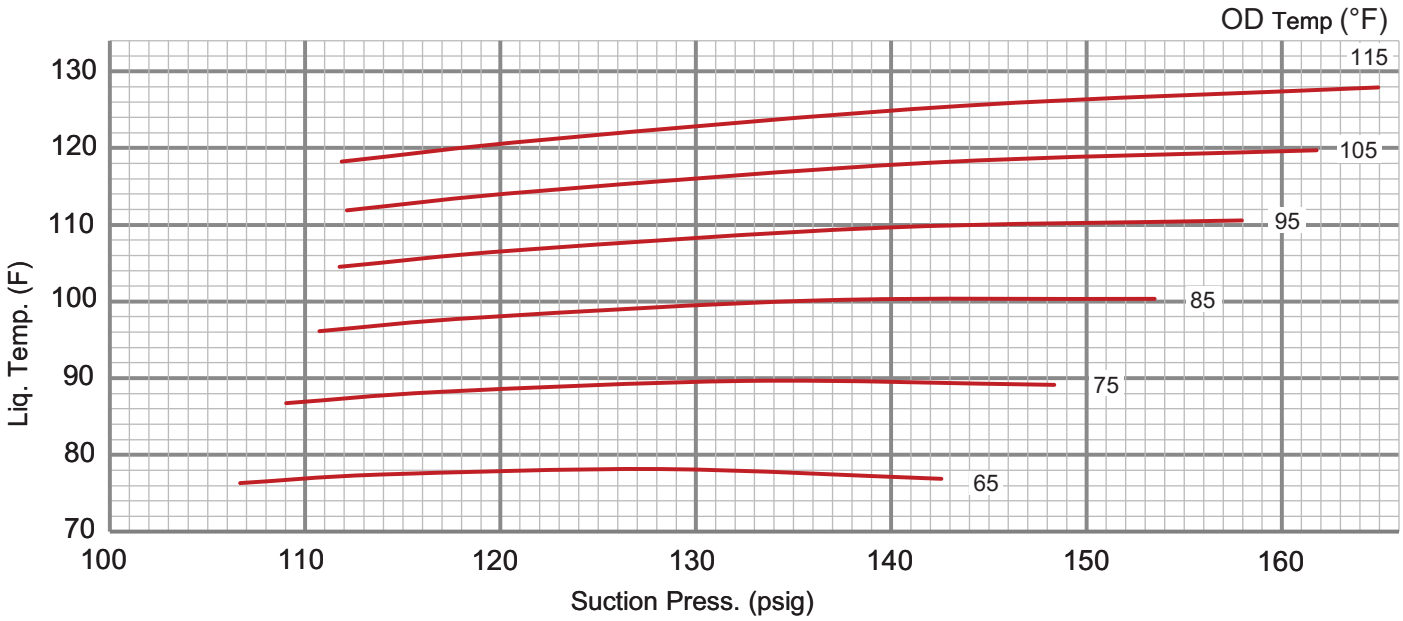


TABLE 10
036 NORMAL OPERATING PRESSURES - REHEAT - ALL-ALUMINUM COIL - 581108-02

Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
111	225	113	262	114	303	116	346	117	392	119	441
120	229	121	266	123	307	124	350	126	396	128	445
138	237	140	274	142	314	144	356	146	402	148	451
160	245	162	281	164	321	166	363	168	408	170	456

036 CHARGING CURVE - REHEAT - ALL-ALUMINUM COIL - 581108-02

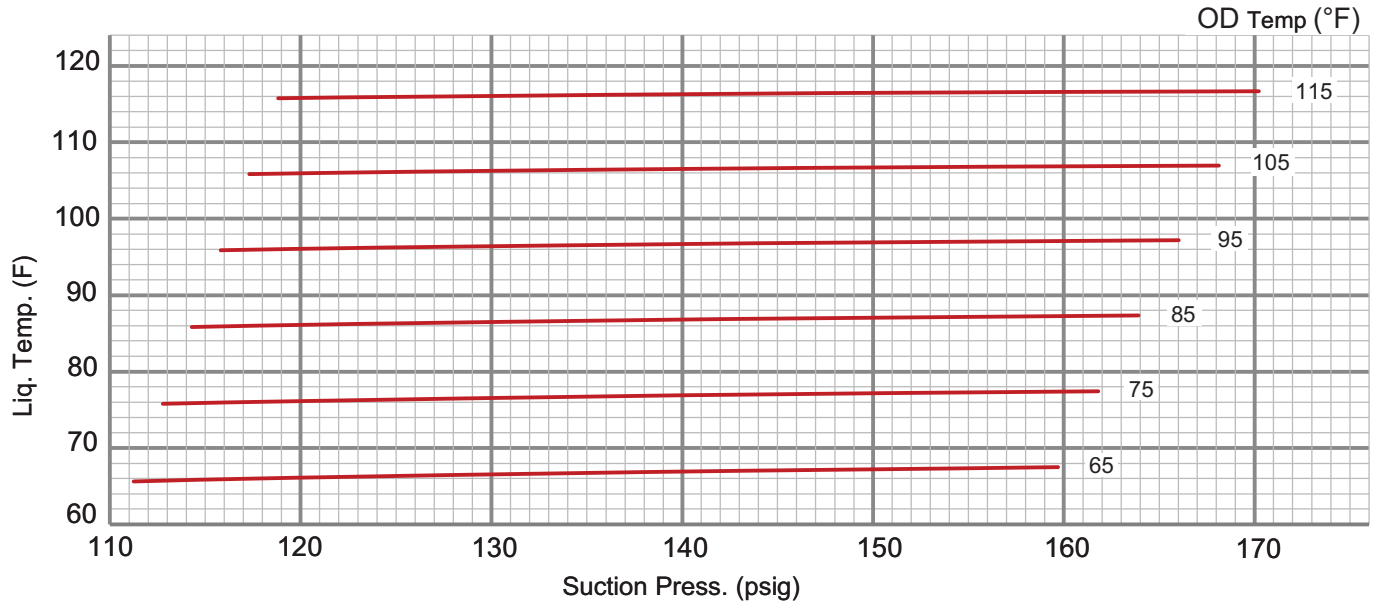


TABLE 11
048 NORMAL OPERATING PRESSURES - REHEAT - ALL-ALUMINUM COIL - 581109-02

Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
111	226	113	261	115	301	116	345	117	393	118	446
118	228	121	264	123	304	125	348	127	396	128	449
134	235	138	271	141	311	144	356	146	404	149	457
151	245	155	281	159	321	163	366	167	415	170	468

048 CHARGING CURVE - REHEAT - ALL-ALUMINUM COIL - 581109-02

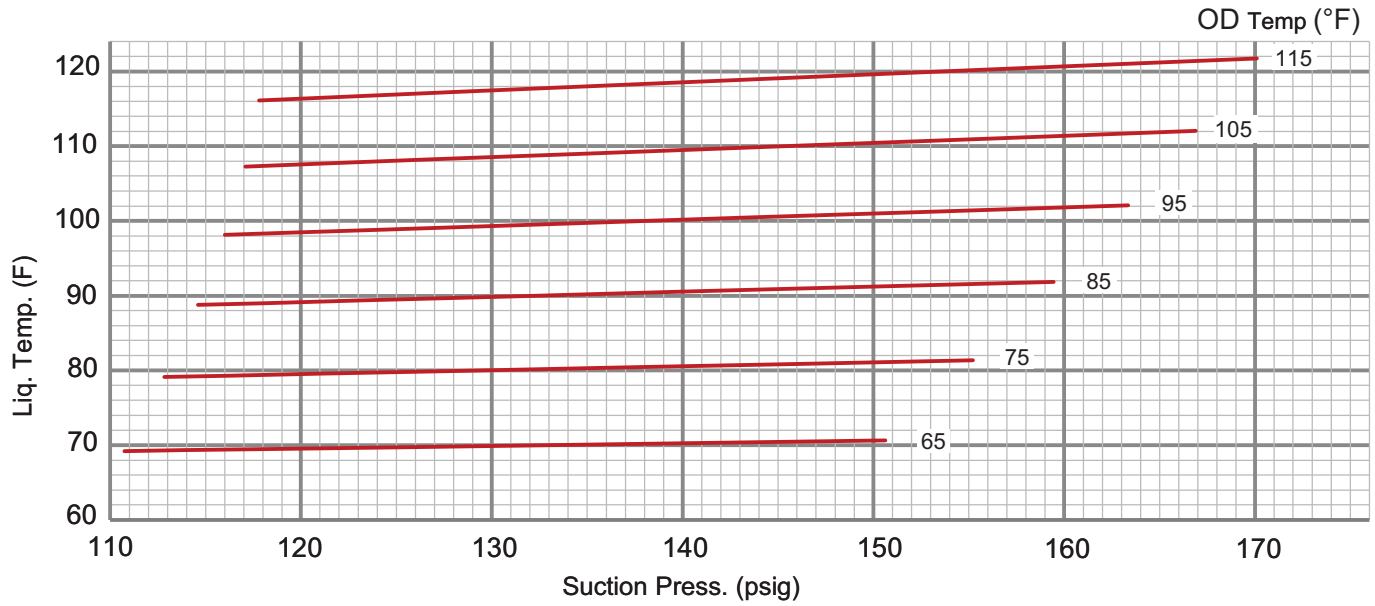


TABLE 12
060 NORMAL OPERATING PRESSURES - REHEAT - ALL-ALUMINUM COIL - 581110-02

Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
106	242	107	278	109	318	110	363	112	413	113	467
114	246	116	282	118	323	119	368	121	418	122	472
133	258	135	294	137	335	139	380	141	430	143	484
153	272	155	308	158	349	160	394	162	444	165	499

060 CHARGING CURVE - REHEAT - ALL-ALUMINUM COIL - 581110-02

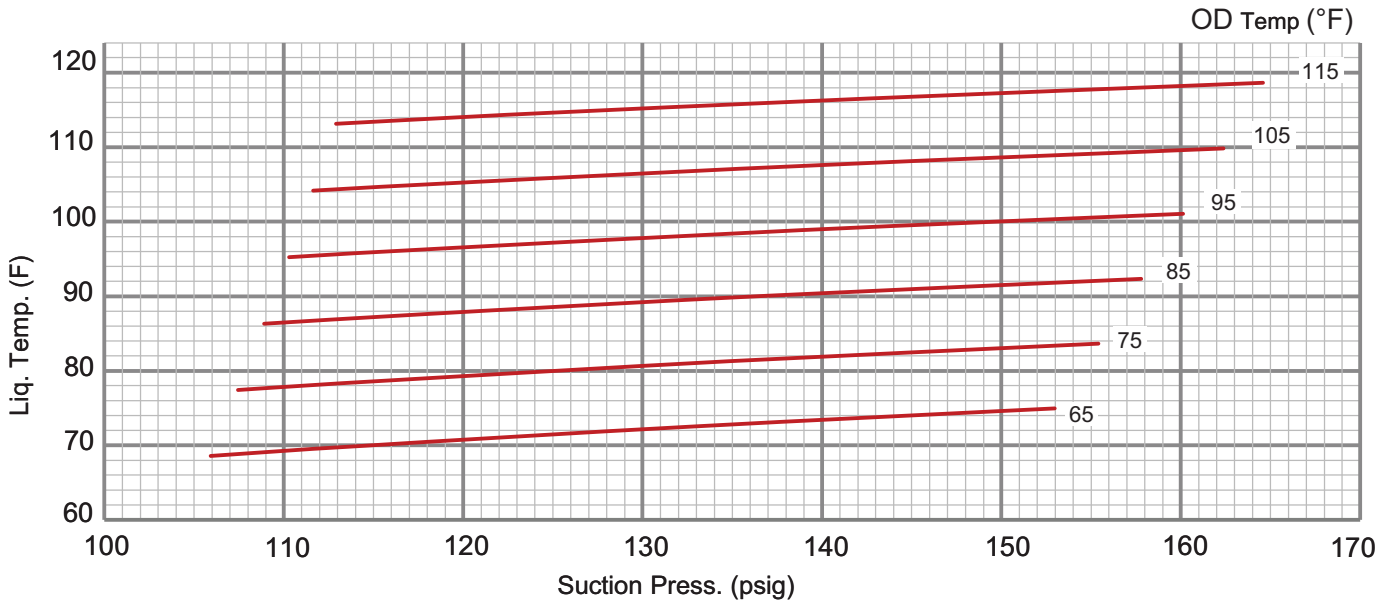
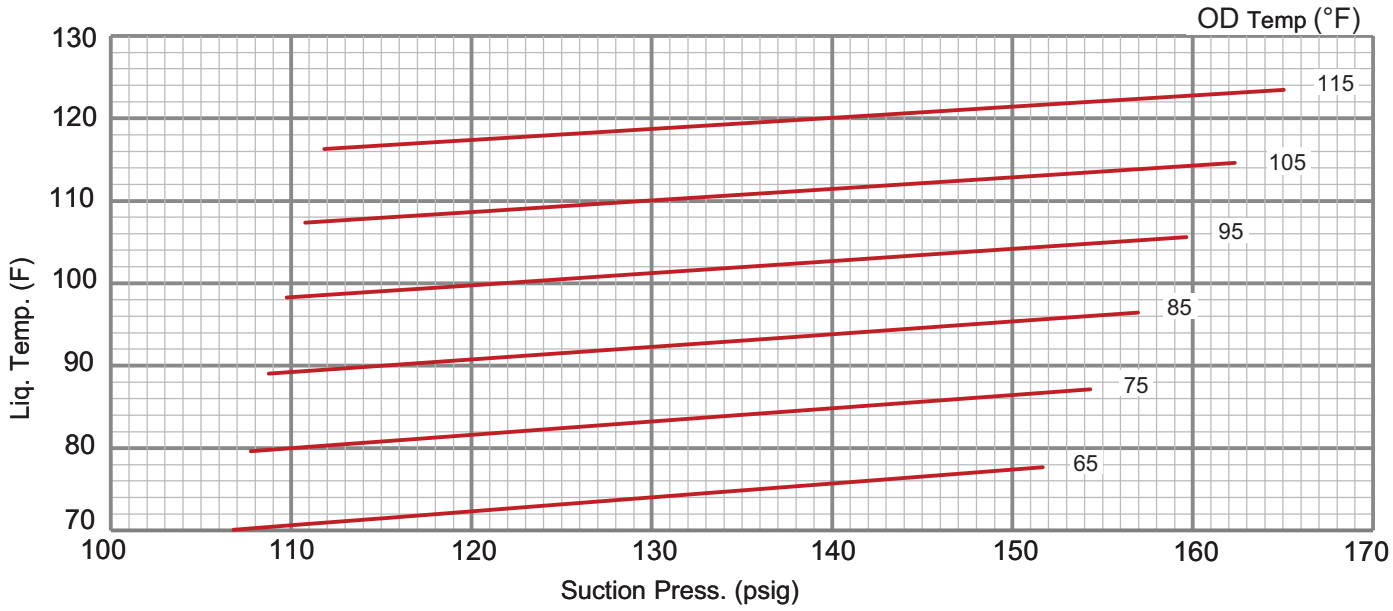


TABLE 13
072 NORMAL OPERATING PRESSURES - REHEAT - ALL-ALUMINUM COIL - 581111-02

Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
107	257	108	294	109	336	110	384	111	436	112	494
115	263	117	300	118	343	119	390	121	443	122	501
133	274	135	312	137	355	139	403	141	456	143	514
152	284	154	323	157	366	160	415	162	468	165	527

072 CHARGING CURVE - REHEAT - ALL-ALUMINUM COIL - 581111-02



C-Compressor Controls

See unit wiring diagram to determine which controls are used on each unit. Optional controls are identified on wiring diagrams by arrows at junction points.

1 - High Pressure Switch (S4)

The compressor circuit is protected by a high pressure switch which opens at 640 psig + 10 psig (4413 kPa ± 70 kPa) and automatically resets at 475 psig ± 20 psig (3275kPa ± 138 kPa).

2 - Low Pressure Switch (S87)

The compressor circuit is protected by a loss of charge switch. Switch opens at 40 psig ± 5 psig (276 ± 34 kPa) and automatically resets at 90 psig ± 5 psig (621 kPa ± 34 kPa).

3 - Diagnostics Sensors (RT46, RT48)

Two thermistors are located on specific points in the refrigeration circuit. The thermistors provide constant temperature feedback to the Unit Controller to protect the compressor. Thermistors take the place of the freezestat and low ambient pressure switch.

4 - Compressor Crankcase Heater (HR1)

Crankcase heater must be energized at all times to prevent compressor damage due to refrigerant migration. Energize crankcase heater 24 hours before unit start-up by setting thermostat so that there is no cooling demand (to prevent compressor from cycling) and apply power to unit.

Diagnostic Sensors

Units are equipped with two factory-installed thermistors (RT46 and RT48) located on different points on the refrigerant circuit.

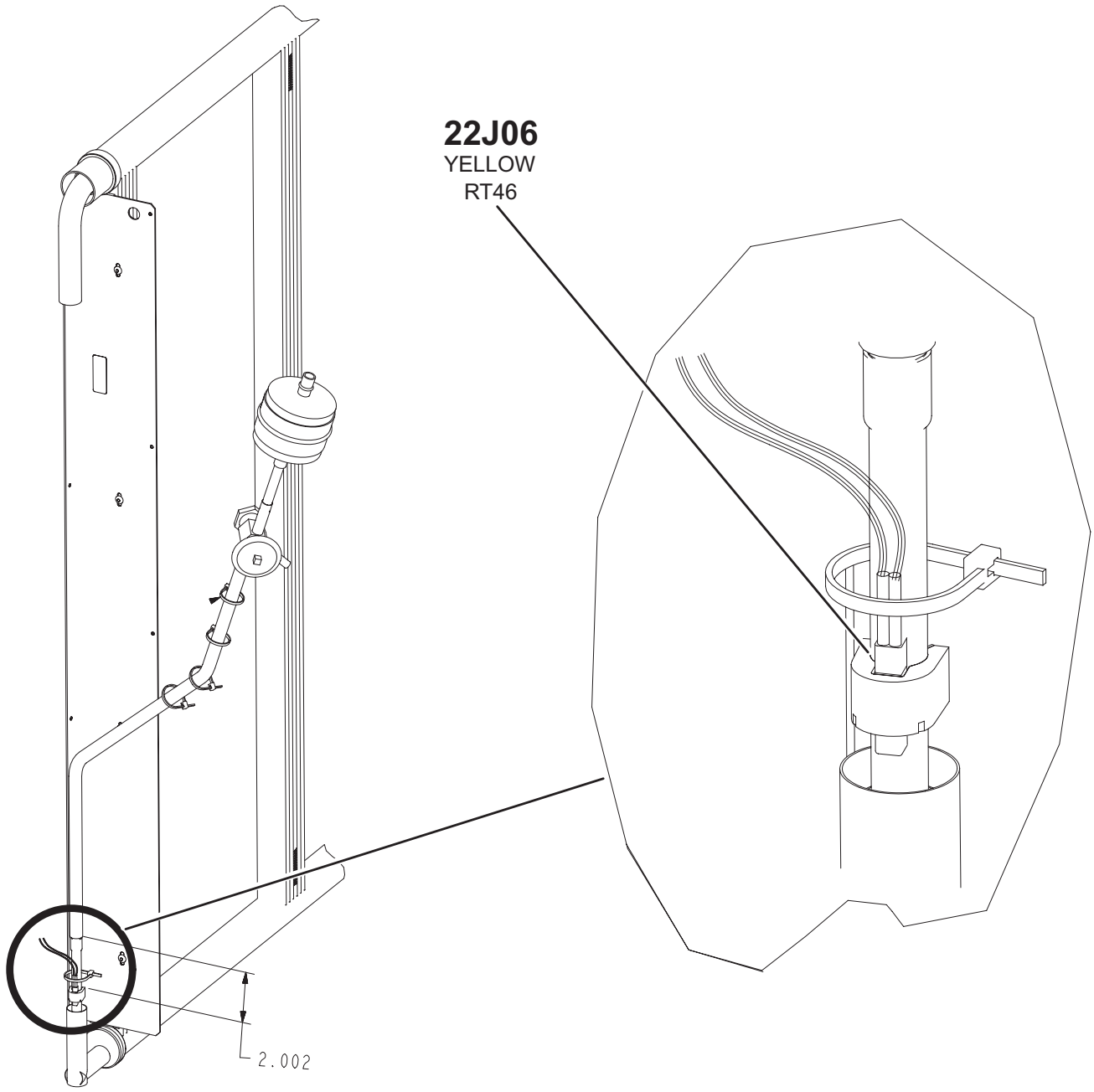
The thermistors provide the Unit Controller with constant temperature readings of two specific locations on the refrigeration circuit. These temperatures are used as feedback in certain modes of unit operation. In addition, the Unit Controller uses these temperatures to initiate alarms such as loss of condenser or evaporator airflow and loss of charge.

Each thermistor must be specifically placed for proper unit operation and to initiate valid alarms. See TABLE 14 for proper locations.

TABLE 14
THERMISTOR LOCATION

Unit	Sensor Yellow	Figure
LGT/LCT036, 048, 060, 072	RT46	FIGURE 27
LGT/LCT036, 048, 060, 072	RT48	FIGURE 28

LGT/LCT 036, 048, 060, 072
EVAPORATOR COIL
RT46



CLAMP THERMISTOR
TO BARE COPPER.

DETAILS NOT TO SCALE

FIGURE 27

LGT/LCT036, 048, 060, 072
CONDENSER COIL
RT48

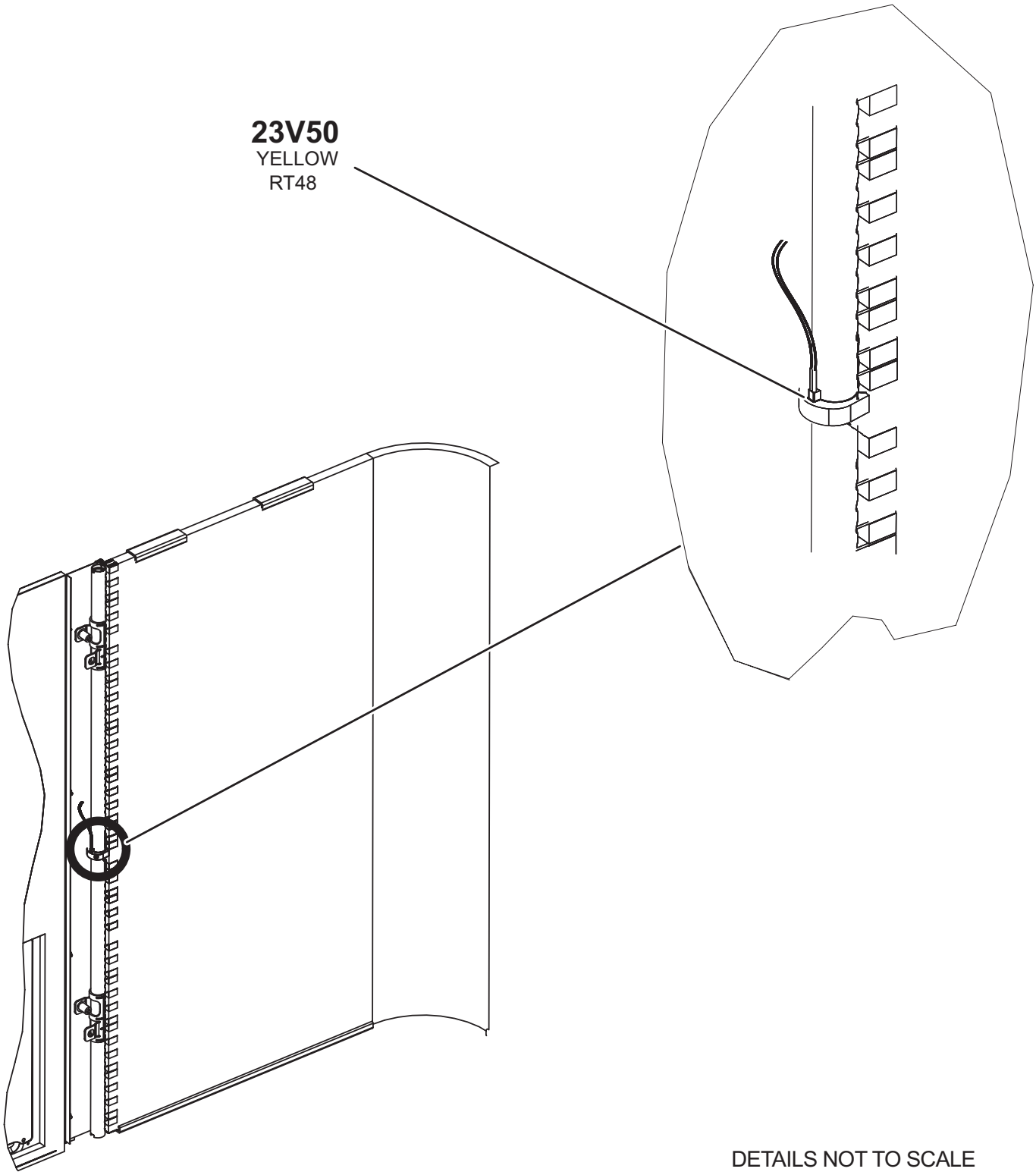


FIGURE 28

RDS Sensors

Units are equipped with factory-installed RDS Sensors located on different points on the unit. The RDS sensors provide the Unit Controller with continuous readings for leaked refrigerant concentration levels and sensor health status (Good or Fault). These readings are used to modify unit operation to disperse the leaked refrigerant and to remove possible ignition sources. In addition, the Unit Controller uses these readings to initiate alarms to alert the operator of a refrigerant leak or faulty sensor(s).

Each sensor must be specifically placed for proper unit operation and to initiate valid alarms. To identify sensor locations see TABLE 15.

TABLE 15

RDS Sensor Figures

Model	Qty.	Type	Figure
LGT036-072	2 sensors	ID SENSOR	FIGURE 29
		COMPRESSOR SENSOR	FIGURE 30
LCT036-072	1 sensor	ID SENSOR	FIGURE 29

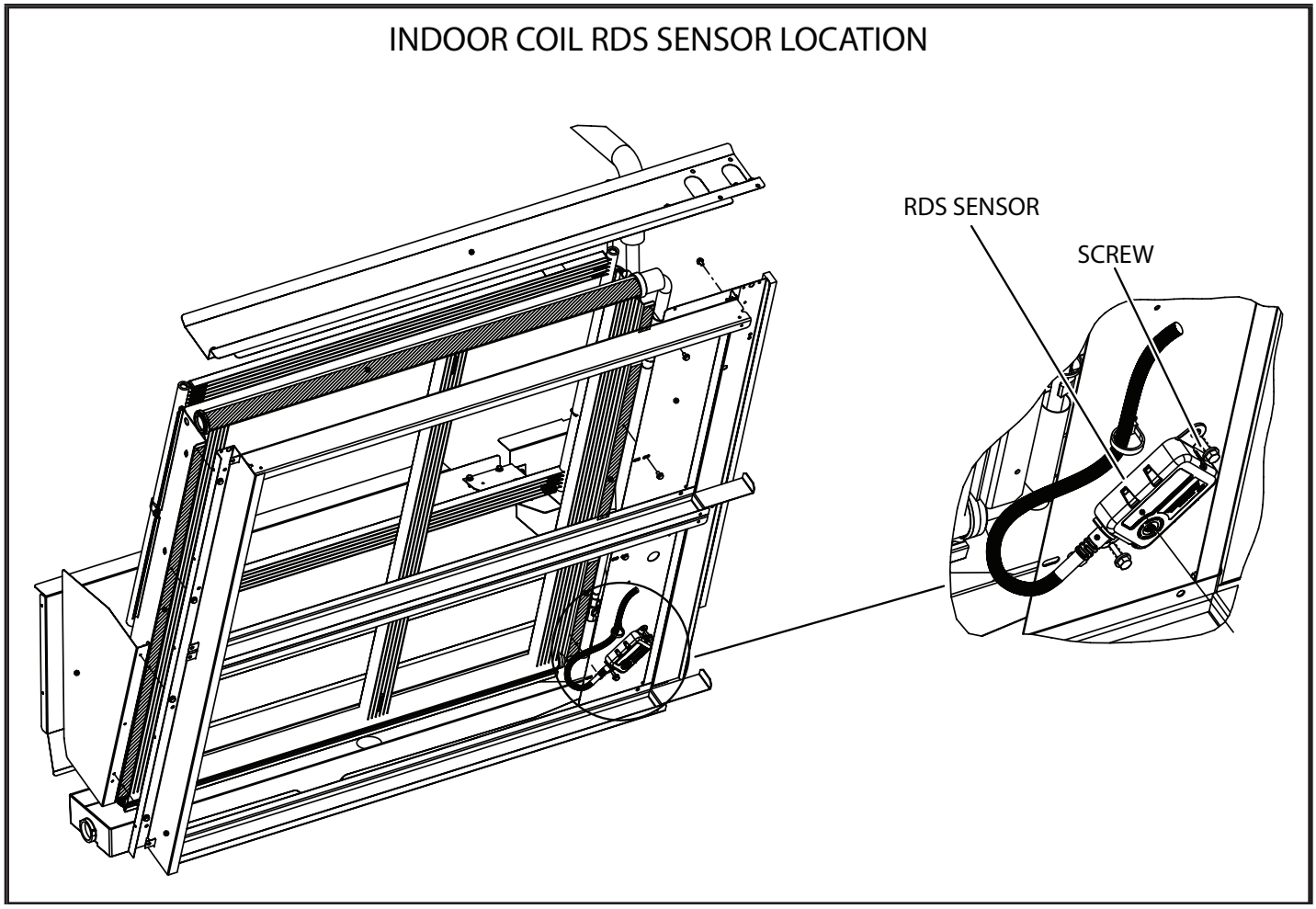


FIGURE 29

COMPRESSOR RDS SENSOR LOCATION

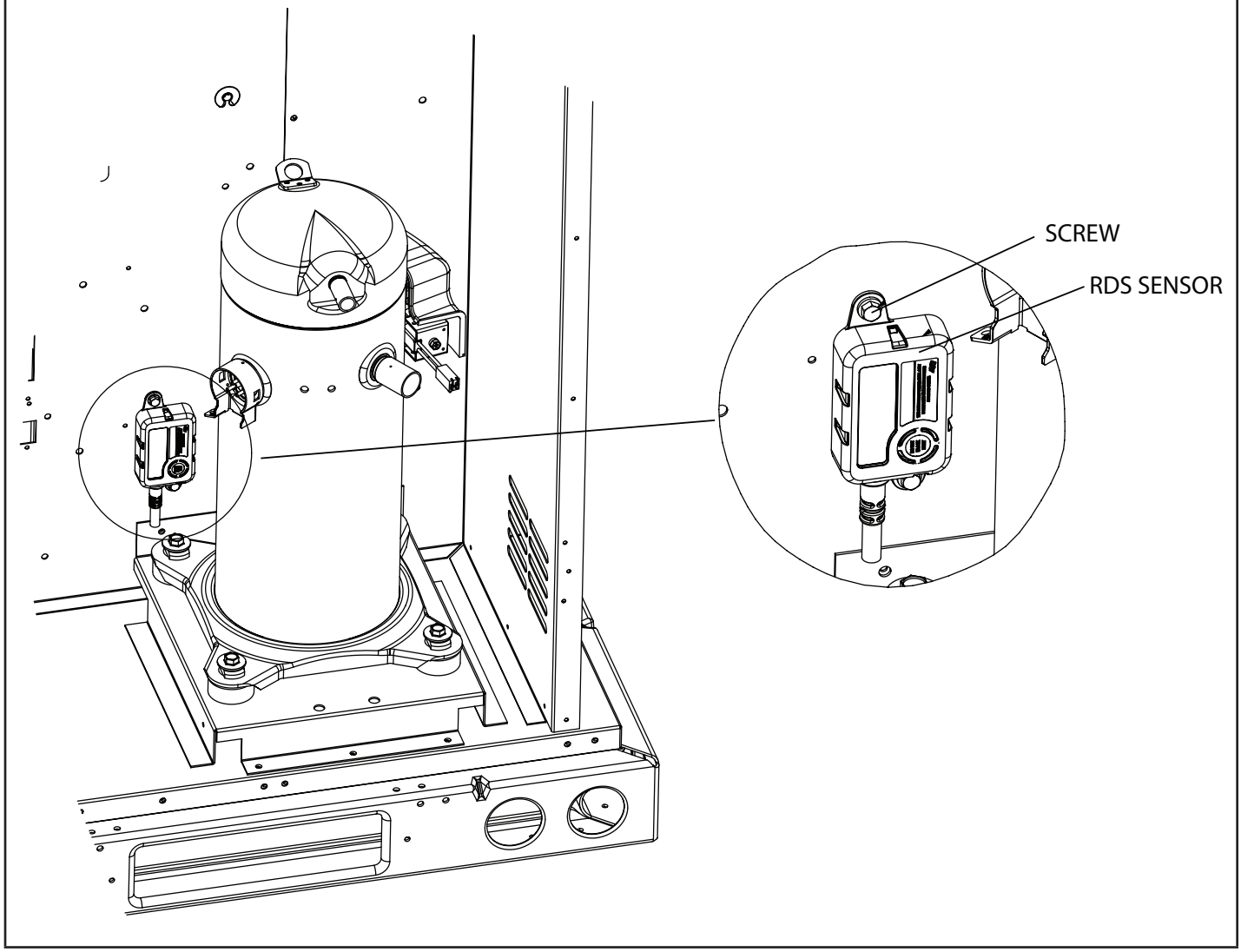


FIGURE 30

Cooling Operation

A-Two-Stage Thermostat

1 - Economizer With Outdoor Air Suitable

Y1 Demand -

Compressor Off

Blower Low

Dampers Modulate

Y2 Demand -

Compressor Low

Blower High

Dampers Full Open

NOTE - *Compressor is energized after damper has been at full open for three minutes.*

2 - No Economizer or Outdoor Air Not Suitable

Y1 Demand -

Compressor Low

Blower Low

Dampers Minimum Position

Y2 Demand -

Compressor High

Blower High

Dampers Minimum Position

B-Three-Stage Thermostat OR Room Sensor

1 - Economizer With Outdoor Air Suitable

Y1 Demand -

Compressors Off

Blower Low

Dampers Modulate

Y2 Demand -

Compressor Low

Blower High

Dampers Full Open

NOTE - *Compressor is energized after damper has been at full open for three minutes.*

Y3 Demand -

Compressor High

Blower High

Dampers Full Open

2 - No Economizer or Outdoor Air Not Suitable

Y1 Demand -

Compressor Low

Blower Low

Dampers Minimum Position

Y2 Demand -

Compressor High

Blower High

Dampers Minimum Position

Y3 Demand -

Compressor High

Blower High

Dampers Minimum Position

High Speed Compressor Cooling Operation:

RTU MENU > COMPONENT TEST > COOLING > COOLING STAGE 2

Low Speed Compressor Operation

RTU MENU > COMPONENT TEST > COOLING > COOLING STAGE 1

Gas Heat Start-Up (Gas Units)

FOR YOUR SAFETY READ BEFORE LIGHTING

⚠ WARNING

Electric shock hazard. Can cause injury or death. Do not use this unit if any part has been under water. Immediately call a qualified service technician to inspect the unit and to replace any part of the control system and any gas control which has been under water.

⚠ WARNING

Danger of explosion. Can cause injury or product or property damage. If over heating occurs or if gas supply fails to shut off, shut off the manual gas valve to the appliance before shutting off electrical supply.

⚠ WARNING

Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

⚠ WARNING

SMOKE POTENTIAL

The heat exchanger in this unit could be a source of smoke on initial firing. Take precautions with respect to building occupants and property. Vent initial supply air outside when possible.

BEFORE LIGHTING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

The gas valve may be equipped with either a gas control lever or gas control knob. Use only your hand to push the lever or turn the gas control knob. Never use tools. If the the lever will not move or the knob will not push in or turn by hand, do not try to repair it. Call a qualified service technician. Force or attempted repair may result in a fire or explosion.

⚠ WARNING

Danger of explosion. Can cause injury or death. Do not attempt to light manually. Unit has a direct spark ignition system.

This unit is equipped with an automatic spark ignition system. There is no pilot. In case of a safety shutdown, move thermostat switch to OFF and return the thermostat switch to HEAT to reset ignition control.

A-Placing Unit In Operation

⚠ WARNING

Danger of explosion and fire. Can cause injury or product or property damage. You must follow these instructions exactly.

Gas Valve Operation (FIGURE 31)

1 - Set thermostat to lowest setting.

2 - Turn off all electrical power to appliance.

3 - This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

4 - Open or remove the control access panel.

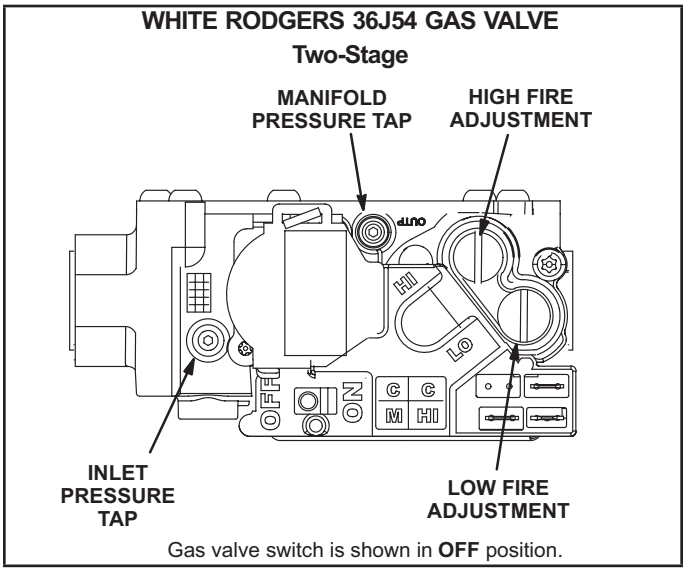


FIGURE 31

5 - Move gas valve switch to **OFF.** See FIGURE 31.

6 - Wait five (5) minutes to clear out any gas. If you then smell gas, **STOP!** Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions. If you do not smell gas, go to the next step.

7 - Move gas valve switch to **ON**. See FIGURE 31.

8 - Close or replace the control access panel.

9 - Turn on all electrical power to appliance.

10 - Set thermostat to desired setting.

NOTE - *When unit is initially started, steps 1 through 9 may need to be repeated to purge air from gas line.*

11 - The ignition sequence will start.

12 - If the furnace does not light the first time (gas line not fully purged), it will attempt up to two more ignitions before locking out.

13 - If lockout occurs, repeat steps 1 through 10.

14 - If the appliance will not operate, follow the instructions “Turning Off Gas to Appliance” and call your service technician or gas supplier.

Turning Off Gas to Unit

1 - If using an electromechanical thermostat, set to the lowest setting.

2 - Before performing any service, turn off all electrical power to the appliance.

3 - Open or remove the control access panel.

4 - Move gas valve switch to **OFF**.

5 - Close or replace the control access panel.

⚠ WARNING

Danger of explosion. Can cause injury or death. Do not attempt to light manually. Unit has a direct spark ignition system.

Heating Operation and Adjustments

(Gas Units)

A-Heating Sequence of Operation

Two-Stage

1 - On a heating demand the combustion air inducer starts immediately.

2 - Combustion air pressure switch proves inducer operation. After a 30-second pre-purge, power is allowed to ignition control. Switch is factory set and requires no adjustment.

3 - Spark ignitor energizes and gas valve solenoid opens.

4 - Spark ignites gas, ignition sensor proves the flame and combustion continues.

5 - If flame is not detected after 8 seconds, the ignition control will repeat steps 3 and 4 two more times. The ignition control will wait 5 minutes before the ignition attempt recycles.

B-Ignition Control Diagnostic LEDs

TABLE 16
IGNITION CONTROL HEARTBEAT LED STATUS

LED Flashes	Indicates
Steady Off	No power or control hardware fault.
Steady Off	Power applied. Control OK.
3 Flashes	Ignition lockout from too many trials.
4 Flashes	Ignition lockout from too many flame losses within single call for heat.
5 Flashes	Control hardware fault detected.

C-Limit Controls

Limit controls are factory-set and are not adjustable. The primary limit is located to the right of the combustion air inducer. See FIGURE 38.

D-Heating Adjustment

Main burners are factory-set and do not require adjustment.

The following manifold pressures are listed on the gas valve.

Natural Gas Units - Low Fire - 2.0” w.c.

Natural Gas Units - High Fire - 3.5” w.c.

LP Gas Units - Low Fire - 5.9” w.c.

LP Gas Units - High Fire - 10.5” w.c.

Electric Heat Start-Up (LCT Units)

Optional electric heat will stage on and cycle with thermostat demand. See electric heat wiring diagram on unit for sequence of operation.

SCR Electric Heat Controller (LCT Units)

Optional factory-installed SCR (A38) will provide small amounts of power to the electric heat elements to efficiently maintain warm duct air temperatures when there is no heating demand. The SCR maintains duct air temperature based on input from a field-provided and installed thermostat (A104) and duct sensor (RT20). SCR is located in the compressor section on the left wall. Use only with a thermostat or specified DDC control system.

Use the instructions provided with the thermostat to set DIP switches as follows: S1 On, S2 Off, S3 Off. Use the instructions provided with the duct sensor to install sensor away from electric element radiant heat and in a location where discharge air is a mixed average temperature.

Once power is supplied to unit, zero SCR as follows:

1 - Adjust thermostat (A104) to minimum position.

2 - Use a small screwdriver to slowly turn the ZERO potentiometer on the SCR until the LED turns solid red.

3 - Very slowly adjust the potentiometer the opposite direction until the LED turns off.

Hot Gas Reheat Start-Up and Operation

General

Hot gas reheat units provide a dehumidifying mode of operation. These units contain a reheat coil adjacent to and downstream of the evaporator coil. Reheat coil solenoid valve, L14, routes hot discharge gas from the compressor to the reheat coil. Return air pulled across the evaporator coil is cooled and dehumidified; the reheat coil adds heat to supply air. See FIGURE 32 for reheat refrigerant routing and FIGURE 33 for standard cooling refrigerant routing.

L14 Reheat Coil Solenoid Valve

When Unit Controller input (Unit Controller J298-5 or J299-8) indicates room conditions require dehumidification, L14 reheat valve is energized (Unit Controller P269-3) and refrigerant is routed to the reheat coil.

Reheat Setpoint

Reheat is factory-set to energize when indoor relative humidity rises above 60% (default). The reheat setpoint can be adjusted by changing mobile service app Settings

- *Control* menu. A setting of 100% will operate reheat from an energy management system digital output. The reheat setpoint can also be adjusted using an optional Network Control Panel (NCP).

Reheat will terminate when the indoor relative humidity falls 3% (57% default) or the digital output de-energizes. The reheat deadband can be adjusted at Settings - Control menu.

Check-Out

Test reheat operation using the following procedure.

1 - Make sure reheat is wired as shown in wiring section.

2 - Make sure unit is in local thermostat mode.

3 - Use mobile service app menu path to select:

RTU MENU > COMPONENT TEST > DEHUMIDIFICATION

The blower, compressor, and reheat valve should be energized. Pressure can be checked on the reheat line pressure tap. Pressure on the reheat line should match discharge pressure closely in reheat mode.

Default Reheat Operation

During reheat mode free cooling is locked out.

No Y1 demand but a call for dehumidification:

Compressor is operating, blower is on, and the reheat valve is energized.

Y1 demand:

Compressor is operating, blower is on, and the reheat valve is de-energized.

Y2 demand:

Compressor is operating, blower is on, and the reheat valve is de-energized.

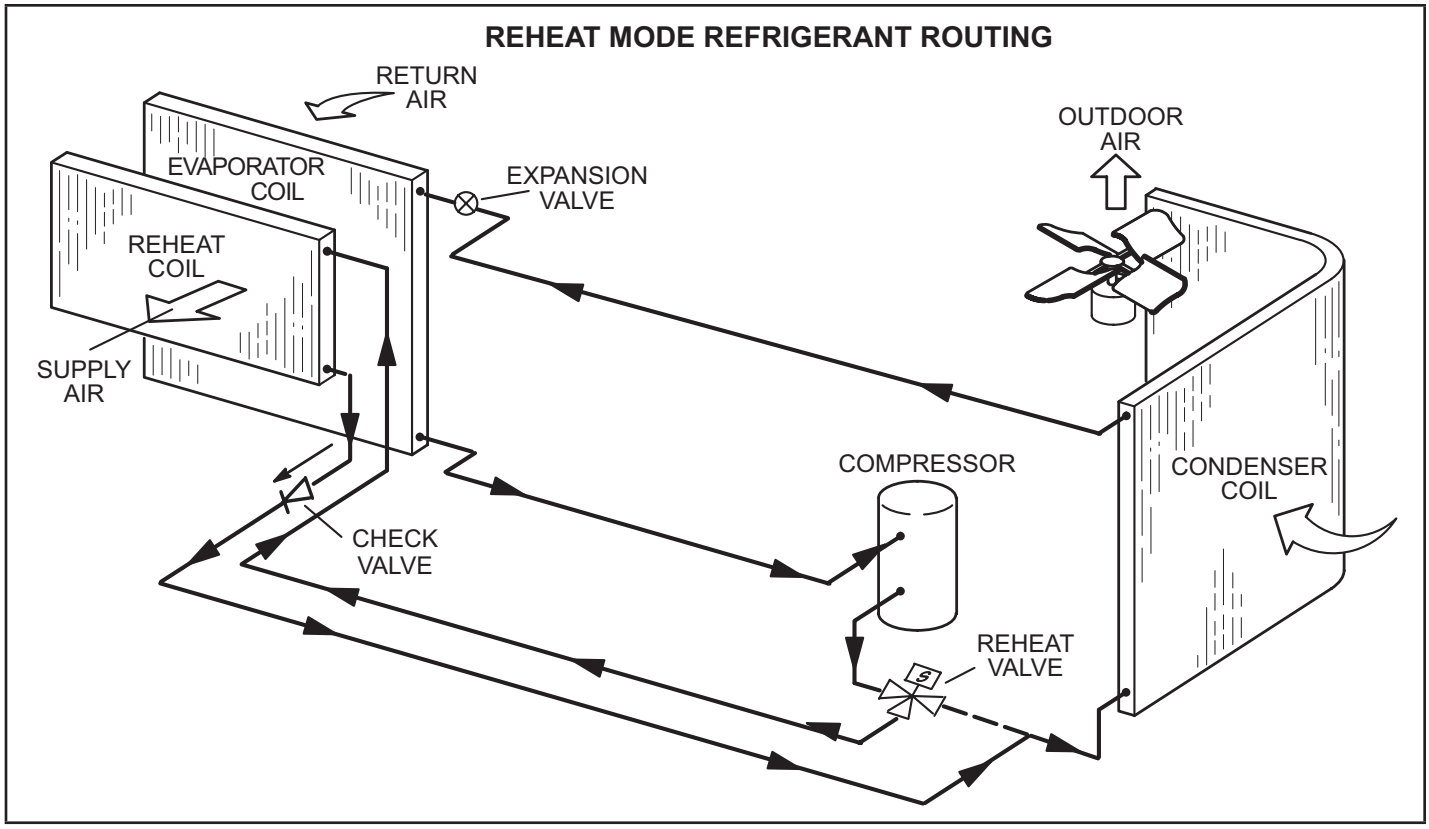


FIGURE 32

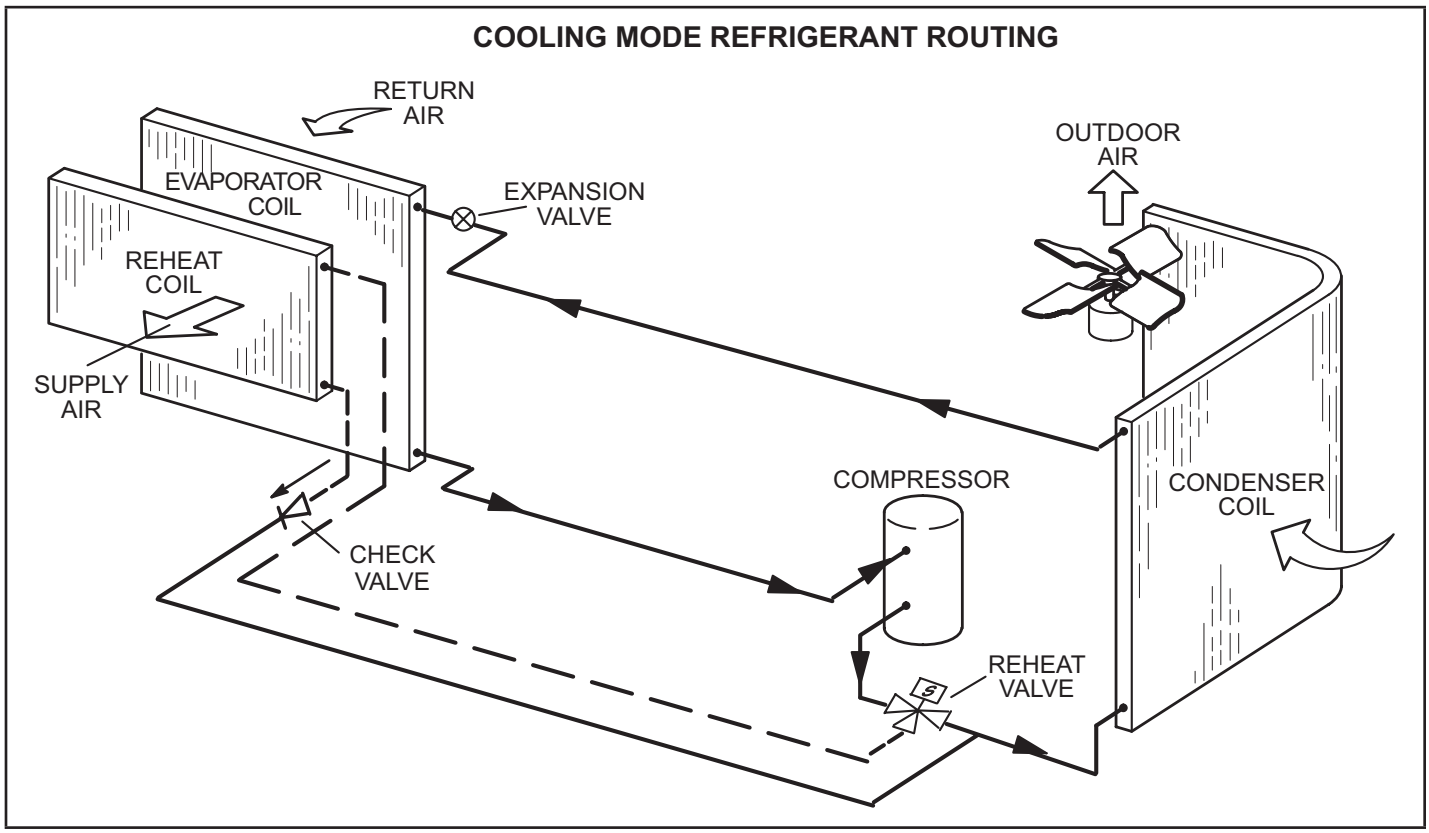


FIGURE 33

Preventative Maintenance / Repair

IMPORTANT MAINTENANCE / REPAIR SAFETY INSTRUCTIONS

Prior to beginning work on systems containing FLAMMABLE REFRIGERANTS, safety checks are necessary to ensure that the risk of ignition is minimized.

Work shall be undertaken under a controlled procedure 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.

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.

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

The following checks shall be applied to installations using FLAMMABLE 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.

During repairs to sealed electrical components, the components shall be replaced. Replacement parts shall be in accordance with the manufacturer’s specifications.

During repairs to intrinsically safe components, the components must be replaced. Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

The unit should be inspected once a year by a qualified service technician.

⚠ WARNING

Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

⚠ CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

A-Filters

Units are equipped with temporary filters which must be replaced prior to building occupation. Use four 20 X 20 X 2” (508 X 508 X 51mm) filters. Refer to local codes or appropriate jurisdiction for approved filters.

⚠ WARNING

Units are shipped from the factory with temporary filters. Replace filters before building is occupied. Damage to unit could result if filters are not re placed with approved filters. Refer to appropriate codes.

Approved filters should be checked monthly and replaced when necessary. Take note of air flow direction marking on filter frame when reinstalling filters. See FIGURE 34.

NOTE - *Filters must be U.L.C. certified or equivalent for use in Canada.*

B-Lubrication

All motors are lubricated at the factory. No further lubrication is required.

C-Burners

Periodically examine burner flames for proper appearance during the heating season. Before each heating season examine the burners for any deposits or blockage which may have occurred.

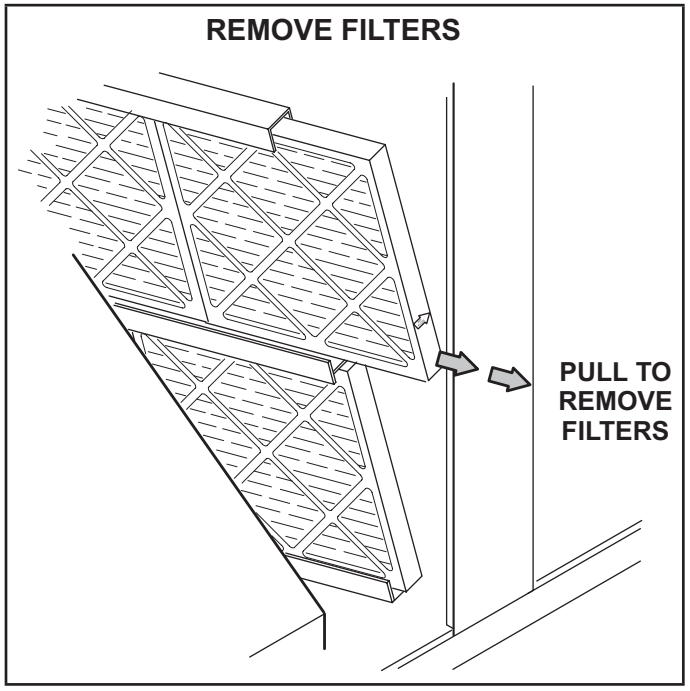


FIGURE 34

Clean burners as follows:

1 - Turn off both electrical power and gas supply to unit.

2 - Remove blower access panel.

3 - Remove top burner box panel.

4 - Remove screws securing burners to burner support and lift the individual burners or the entire burner assembly from the orifices. See FIGURE 35. Clean as necessary.

5 - Locate the ignitor under the right burner. Check ignitor spark gap with appropriately sized twist drills or feeler gauges. See FIGURE 36.

6 - Replace burners and screws securing burner. See FIGURE 37.

⚠ WARNING

Danger of explosion. Can cause injury or death. Do not overtighten main burner mounting screws. Snug tighten only.

7 - Replace access panel.

8 - Restore electrical power and gas supply. Follow lighting instructions attached to unit and use inspection port in access panel to check flame.

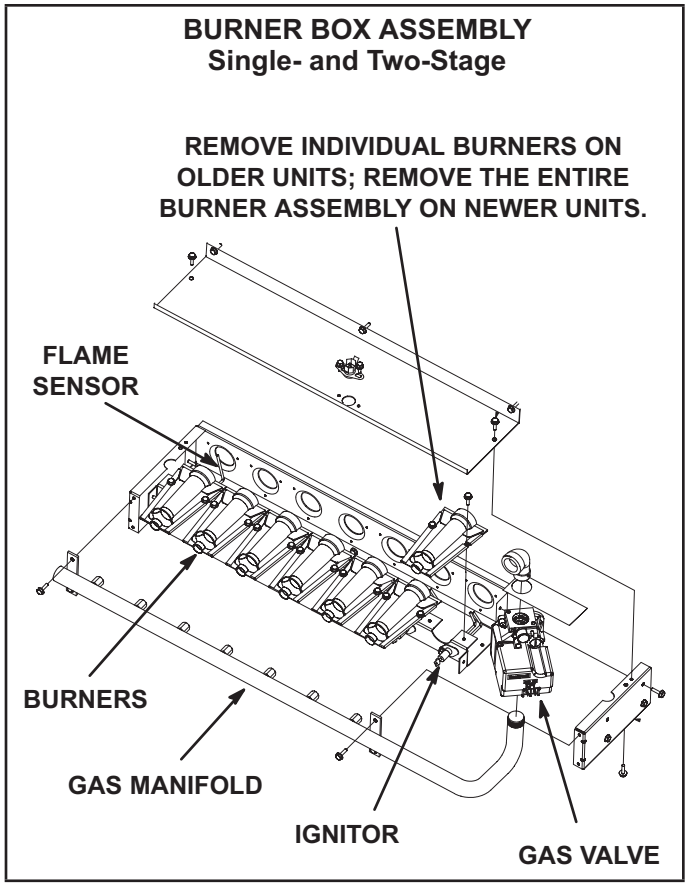


FIGURE 35

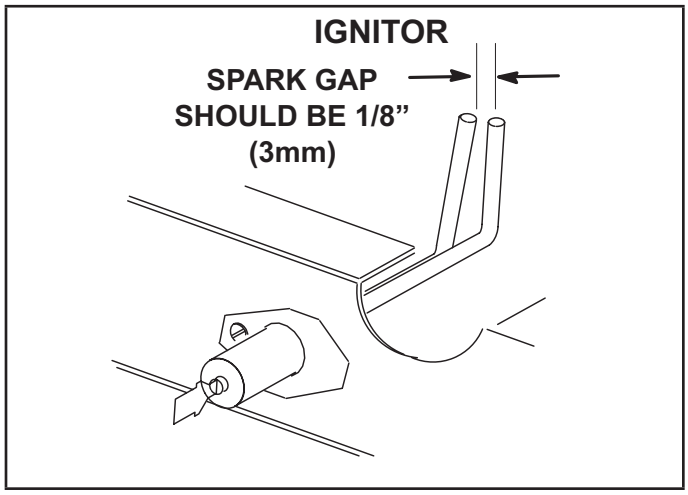


FIGURE 36

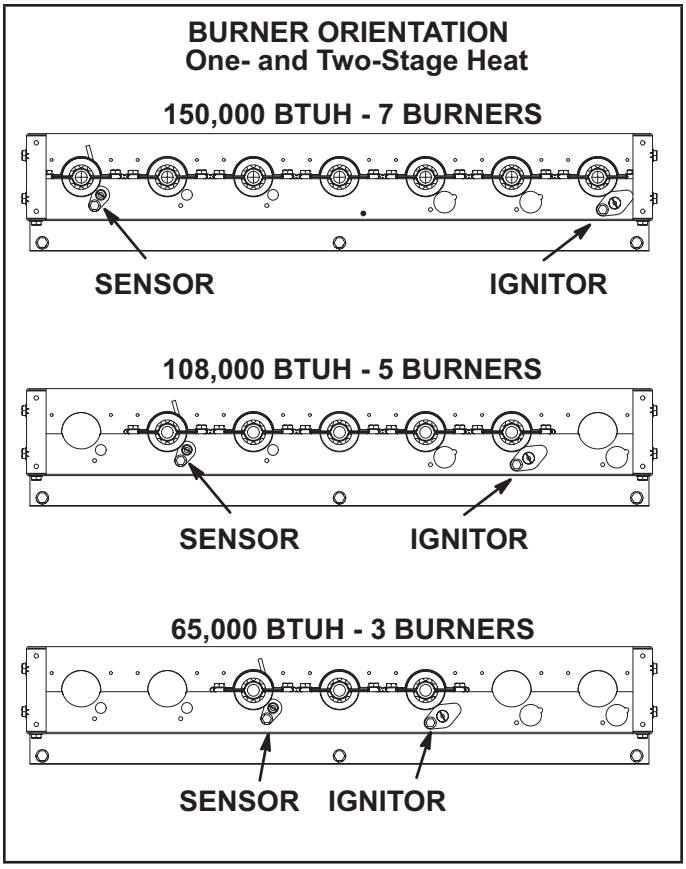


FIGURE 37

D-Combustion Air Inducer (Gas Units)

A combustion air proving switch checks combustion air inducer operation before allowing power to the gas controller. Gas controller will not operate if inducer is obstructed.

Under normal operating conditions, the combustion air inducer wheel should be checked and cleaned prior to the heating season. However, it should be examined periodically during the heating season to establish an ideal cleaning schedule.

Clean combustion air inducer as follows:

1 - Shut off power supply and gas to unit.

2 - Remove the mullion on the right side of the heat section.

3 - Disconnect pressure switch air tubing from combustion air inducer port.

4 - Remove and retain screws securing combustion air inducer to flue box. Remove vent connector. See FIGURE 38.

5 - Clean inducer wheel blades with a small brush and wipe off any dust from housing. Take care not to damage exposed fan blades. Clean accumulated dust from front of flue box cover.

6 - Return combustion air inducer motor and vent connector to original location and secure with retained screws. It is recommended that gaskets be replaced during reassembly.

7 - Replace mullion.

8 - Clean combustion air inlet louvers on blower access panel using a small brush.

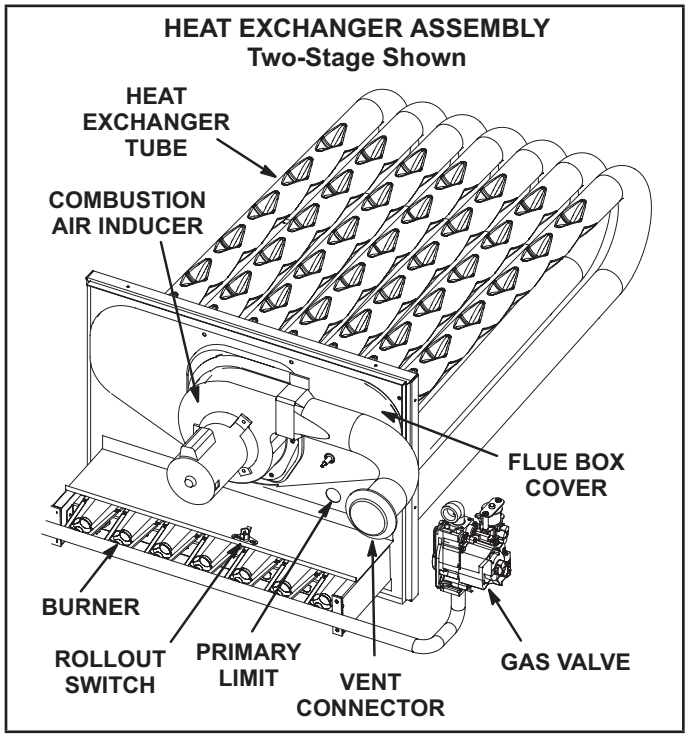


FIGURE 38

E-Flue Box (Gas Units)

Remove flue box cover only when necessary for equipment repair. Clean inside of flue box cover and heat exchanger tubes with a wire brush when flue box cover has to be removed. Install a new flue box cover gasket and replace cover. Make sure edges around flue box cover are tightly sealed.

F-Evaporator Coil

Inspect and clean coil at beginning of each cooling season. Clean the all-aluminum coil by spraying the coil steadily and uniformly from top to bottom. Do not exceed 900 psi or a 45° angle; nozzle must be at least 12 inches from the coil face. Take care not to fracture the braze between fins and refrigerant tubes. Reduce pressure and work cautiously to prevent damage. Flush condensate drain with water, taking care not to get insulation, filters, and return air ducts wet through entire cleaning process.

G-Condenser Coil

Clean condenser coil annually with water and inspect monthly during the cooling season.

Clean the all-aluminum coil by spraying the coil steadily and uniformly from top to bottom. Do not exceed 900 psi or a 45° angle; nozzle must be at least 12 inches from the coil face. Take care not to fracture the braze between the fins and refrigerant tubes. Reduce pressure and work cautiously to prevent damage.

H-Supply Air Blower Wheel

Annually inspect supply air blower wheel for accumulated dirt or dust. Turn off power before attempting to remove access panel or to clean blower wheel.

J-Needlepoint Bipolar Ionizer (Optional)

The optional, brush-type ionizer produces positive and negative ions to clean air and reduce airborne contaminants. The ionizer was designed to be low maintenance. The device should be checked semi-annually to confirm the brushes are clean for maximum output. The ionizer is located behind on the blower deck to the left of the blower. See FIGURE 40.

1 - On the back side of the unit, remove the screw securing the back of the ionizer bracket. See FIGURE 39. Retain the screw to secure the back side of the ionizer bracket.

2 - Remove two screws securing the front side of the ionizer bracket and pull out of unit and clean brushes.

3 - Replace ionizer in the reverse order it was removed.

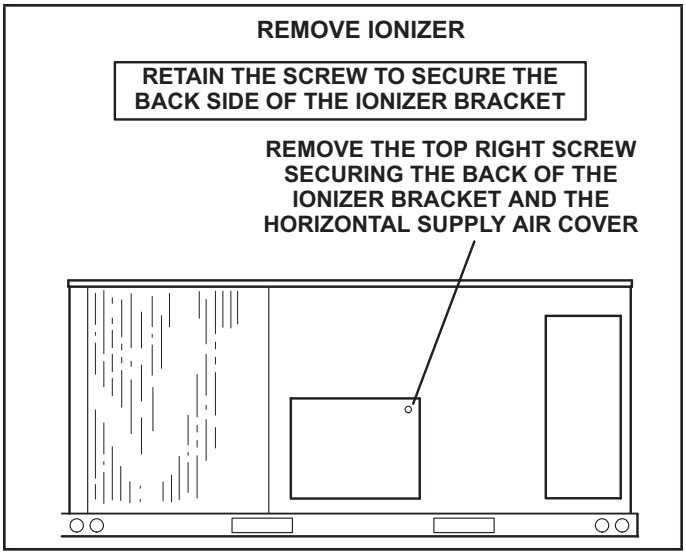


FIGURE 39

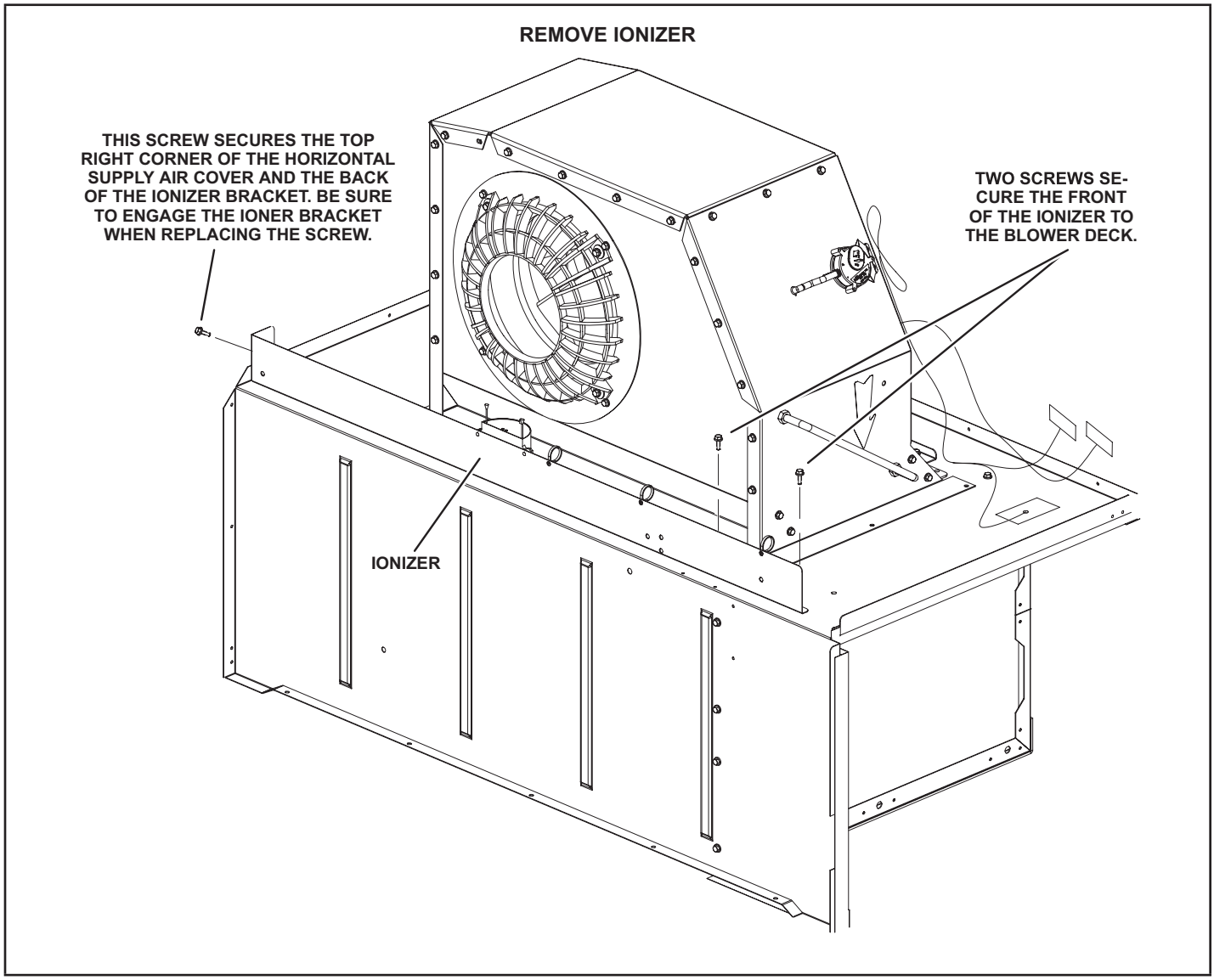


FIGURE 40

K-UVC Light (Optional)

When field-installed, use only UVC Light Kit assembly 106881-01 (21A92) with this appliance.

Factory-Installed UVC Light

When the UVC light is factory installed, the lamp is shipped attached to the filter rack. Remove the lamp and install into the UVC light assembly as shown in steps 2 through 11.

1 - Cut wire ties and remove the UVC lamp attached to the filter rack. See FIGURE 41.

FACTORY-INSTALLED UVC LAMP LOCATION

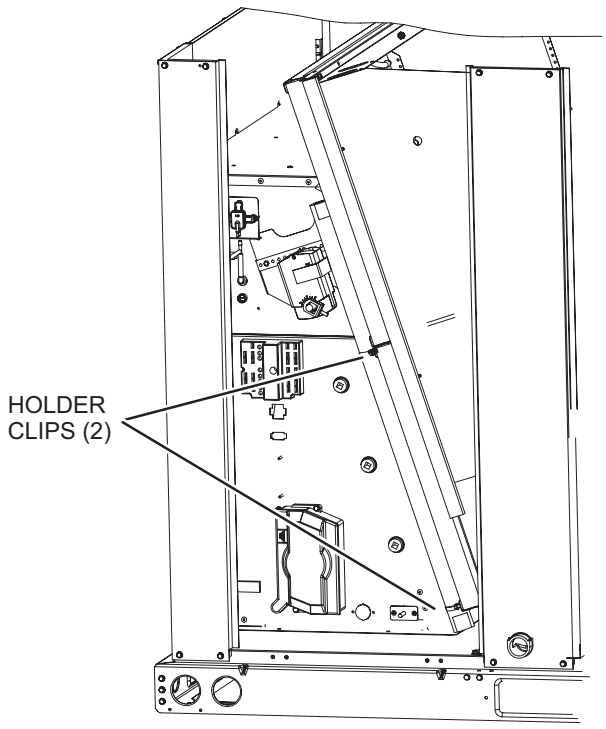


FIGURE 41

Annual Lamp Replacement

⚠ WARNING

Personal Burn Hazard.

Personal injury may result from hot lamps. During replacement, allow lamp to cool for 10 minutes be fore removing lamp from fixture.

The lamp should be replaced every 12 months, as UVC energy production diminishes over time.

1 - Obtain replacement lamp 102337-01 for your germicidal light model.

2 - Disconnect power to the rooftop unit before servicing the UVC kit.

3 - Open the blower access door.

4 - Remove the screw in wire tie from the UVC assembly and disconnect the 4-pin connector from the lamp end.

5 - Remove the (2) mounting screws of the UVC assembly. Carefully slide the complete UVC assembly out through the blower access door.

6 - Allow 10 minutes before touching the lamps. Then, carefully remove the old lamp from the lamp holder clips.

7 - Wear cotton gloves or use a cotton cloth when handling the new lamp. Place the new lamp in the holder clips of the UVC assembly. Verify that the lamp flange at the connector end is sandwiched between the lamp holder clip and the sheet-metal end stop (see FIGURE 42).

8 - Carefully place the UVC assembly on the blower deck. Line up the mounting holes on the UVC assembly with the mounting holes on the blower deck. See FIGURE 43. Use the #10 screws provided to attach the UVC assembly in place.

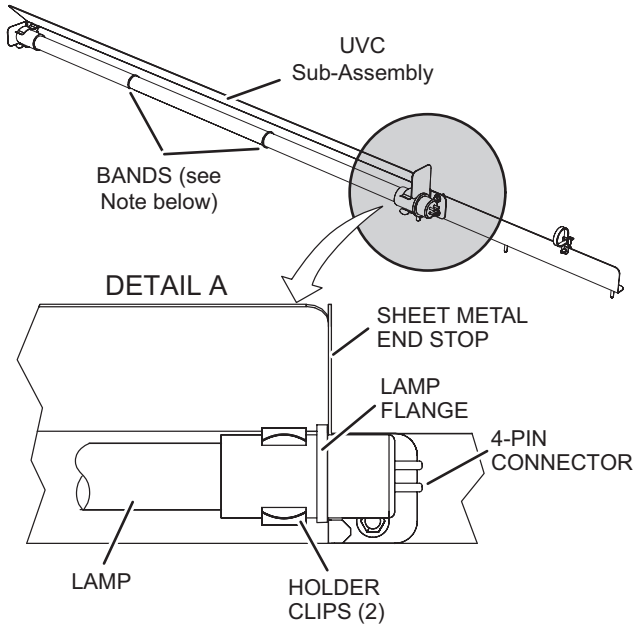
9 - Make sure to reapply the black convoluted tubing used to shield electrical wiring in the rooftop unit. Convoluted tubing is provided when the ionizer is factory- or field-installed. However, if there is any concern, aluminum foil tape (not provided) can also be used to cover any exposed component.

10 - Close the blower access door.

11 - Reconnect power to the rooftop unit.

12 - Open the filter access door and look through the view port in the triangular sheet-metal panel to verify that the UVC light is on.

INSTALL LAMP IN HOLDER CLIPS



*NOTE - The bands around the lamp should be evenly spaced as shown in **the diagram**.*

FIGURE 42

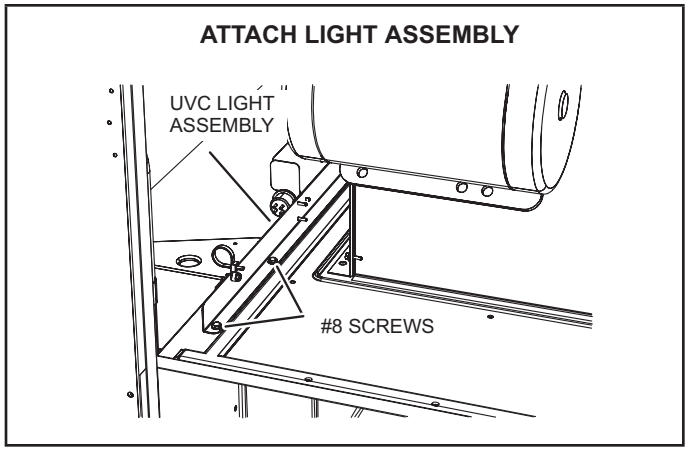


FIGURE 43

Lamp Disposal

Hg-LAMP Contains Mercury - Manage in accordance with local, state and federal disposal laws. Refer to www.lamprecycle.org or call 800-953-6669.

Proper Clean-up Technique in Case of Lamp Breakage

Wear protective gloves, eye wear and mask.

Sweep the broken glass and debris into a plastic bag, seal the bag, and dispose of properly. Contact your local waste management office for proper disposal.

Do not use a vacuum cleaner. Do not incinerate.

Maintenance

- For all maintenance, contact a qualified HVAC technician.
- Read the maintenance instructions before opening unit panels.
- Unintended use of the unit or damage to the unit housing may result in the escape of dangerous UVC radiation. UVC radiation may, even in small doses, cause harm to the eyes and skin.
- Do not operate units that are obviously damaged.
- Do not discard the triangular UVC light shield or any barriers with an ultraviolet radiation symbol.
- Do not override the door interlock switch that interrupts power to the UVC light.
- Do not operate the UVC light outside of the unit.

L-A2L Refrigerant Considerations

⚠ CAUTION

Leak Detection System installed. Unit must be powered except for service.

⚠ WARNING

•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.

⚠ NOTICE

Leak Detection System installed. Unit must be powered except for service.

⚠ WARNING

Ducts connected to an appliance shall not contain a potential ignition source.

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.

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

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

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.

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practices be followed since flammability is a consideration. The following procedure shall be adhered to:

-Safely remove refrigerant following local and national regulations.

-Evacuate the circuit.

-Purge the circuit with inert gas.

-Evacuate.

-Purge the circuit with inert gas.

-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 flammable 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. 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. This process shall be vented down to atmospheric pressure to enable work to take place. Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

⚠ CAUTION

Any personnel installing, decommissioning, or performingmaintenance on the unit must be properly trained with A2L refrigerants.

M-Replacement Fuses

See the following tables for the proper replacement fuse sizes.

ELECTRIC HEAT REPLACEMENT FUSES

	Electric Heat	Qty.	Rating	
			Amp	Volt
1	E1EH0050N-1P	2	30	250
2	T1/E1EH0075AN1Y	3	25	250
3	E1EH0100N-1P	4	30	250
4	T1/E1EH0150AN1Y	3	50	250
5	T1/E1EH0225AN1Y	6	45	250
6	T1/E1EH0300N-1Y	6	60	250
7	E2EH0300N-1Y	6	60	250
8	K1EH0050A-1P	2	30	250
9	T1/E1EH0075AN1P	2	40	250
10	T1EH0100A-1P	4	30	250
11	T1/E1EH0150AN1P	4	40	250
12	T1/E1EH0225AN1P	6	40	250
13	T1/E1EH0075AN1J	3	15	600
14	T1/E1EH0150AN1J	3	20	600
15	T1/E1EH0225AN1J	3	30	600
16	T1/E1EH0300N-1J	3	40	600
17	T1/E1EH0075AN1G	3	15	600
18	T1/E1EH0150AN1G	3	25	600
19	T1/E1EH0225AN1G	3	35	600
20	T1/E1EH0300N-1G	3	50	600
21	K1/E1EH0057AN1M	3	15	600
22	K1/E1EH0115AN1M	3	20	600
23	K1EH0172AN1M	3	30	600
24	E1EH0172N-1M	3	30	600
25	K1/E1EH0230N-1M	3	40	600

UNIT REPLACEMENT FUSES

LGT036H5E										
Unit Voltage			208/230V - 1 Ph		208/230V - 3 Ph		460V - 3Ph		575V - 3Ph	
Power Exhaust Option			W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.
Diagram Key	Class	Blower HP	Amps							
F10[2]	CC	All	8	8	8	8	8	8	8	8
F27	CC	0.5	-	-	-	-	-	-	7.5	7.5
F30	CC	All	10	10	10	10	5	5	-	-
F31	CC	All	-	15	-	15	-	15	-	-
F57	CC	0.5	-	-	-	-	3.5	3.5	5	5
F57	CC	1.5	-	-	-	-	10	10	7.5	7.5
F61[2]	J	0.5	40	35	25	25	15	15	15	15
F61[2]	J	1.5	-	-	30	25	15	15	15	15
CB10[3]	-	0.5	40	35	25	25	15	15	15	15
CB10[3]	-	1.5	-	-	30	25	15	15	15	15

[2] Fuses F10 and F61 are only used on units with SCCR installed.
[3] Units using Circuit Breakers will use CB10 option.

LGT048H5E										
Unit Voltage			208/230V - 1 Ph		208/230V - 3 Ph		460V - 3Ph		575V - 3Ph	
Power Exhaust Option			W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.
Diagram Key	Class	Blower HP	Amps							
F10[2]	CC	All	8	8	8	8	8	8	8	8
F27	CC	1.0	-	-	-	-	-	-	7.5	7.5
F30	CC	All	10	10	10	10	5	5	-	-
F31	CC	All	-	15	-	15	-	15	-	-
F57	CC	1.0	-	-	-	-	3.5	3.5	5	5
F57	CC	1.5	-	-	-	-	10	10	7.5	7.5
F61[2]	J	1.0	50	45	35	30	20	15	15	15
F61[2]	J	1.5	-	-	30	30	15	15	15	15
CB10[3]	-	1.0	50	45	35	30	20	15	15	15
CB10[3]	-	1.5	-	-	30	30	15	15	15	15

[2] Fuses F10 and F61 are only used on units with SCCR installed.
[3] Units using Circuit Breakers will use CB10 option.

LGT060H5E										
Unit Voltage			208/230V - 1 Ph		208/230V - 3 Ph		460V - 3Ph		575V - 3Ph	
Power Exhaust Option			W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.
Diagram Key	Class	Blower HP	Amps							
F10[2]	CC	All	8	8	8	8	8	8	8	8
F27	CC	1.0	-	-	-	-	-	-	7.5	7.5
F30	CC	All	10	10	10	10	5	5	-	-
F31	CC	All	-	15	-	15	-	15	-	-
F57	CC	1.0	-	-	-	-	3.5	3.5	5	5
F57	CC	1.5	-	-	-	-	10	10	7.5	7.5
F61[2]	J	1.0	60	60	40	35	20	15	15	15
F61[2]	J	1.5	-	-	35	35	15	15	15	15
CB10[3]	-	1.0	60	60	40	35	20	15	15	15
CB10[3]	-	1.5	-	-	35	35	15	15	15	15

[2] Fuses F10 and F61 are only used on units with SCCR installed.
[3] Units using Circuit Breakers will use CB10 option.

LGT072H5E								
Unit Voltage			208/230V - 3 Ph		460V - 3Ph		575V - 3Ph	
Power Exhaust Option			W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.
Diagram Key	Class	Blower HP	Amps					
F10[2]	CC	1.5	8	8	8	8	8	8
F27	CC	1.5	-	-	-	-	7.5	7.5
F30	CC	1.5	10	10	5	5	-	-
F31	CC	1.5	-	15	-	15	-	-
F57	CC	1.5	-	-	10	10	7.5	7.5
F61[2]	J	1.5	50	50	25	20	15	15
CB10[3]	J	1.5	50	50	25	20	15	15

[2] Fuses F10 and F61 are only used on units with SCCR installed.

[3] Units using Circuit Breakers will use CB10 option.

LCT036H5E																		
Electric Heat Size			7.5 KW								15 KW							
Unit Voltage			208/230V - 1 Ph		208/230V - 3 Ph		460V - 3Ph		575V - 3Ph		208/230V - 1 Ph		208/230V - 3 Ph		460V - 3Ph		575V - 3Ph	
Power Exhaust Option			W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.
Diagram Key	Class	Blower HP																
F4	RK or K[1]	0.5	40	35	25	25	15	15	15	15	40	35	25	25	15	15	15	15
F4	RK or K[1]	1.5	-	-	30	25	15	15	15	15	-	-	30	25	15	15	15	15
F10[2]	CC	All	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
F27	CC	1.5	-	-	-	-	-	-	7.5	7.5	-	-	-	-	-	-	7.5	7.5
F30	CC	All	10	10	10	10	5	5	-	-	10	10	10	10	5	5	-	-
F31	CC	All	-	15	-	15	-	15	-	-	-	15	-	15	-	15	-	-
F57	CC	0.5	-	-	-	-	3.5	3.5	5	5	-	-	-	-	3.5	3.5	5	5
F57	CC	1.5	-	-	-	-	10	10	7.5	7.5	-	-	-	-	10	10	7.5	7.5
F61[2]	J	0.5	50	45	35	30	20	15	15	15	90	90	60	60	30	30	25	25
F61[2]	J	1.5	-	-	35	30	20	15	15	15	-	-	60	60	30	30	25	25
CB10[3]	-	0.5	50	45	35	30	20	15	15	15	90	90	60	60	30	30	25	25
CB10[3]	-	1.5	-	-	35	30	20	15	15	15	-	-	60	60	30	30	25	25

[1] When SCCR is installed, F4 fuse is Class J.

[2] Fuses F10 and F61 are only used on units with SCCR installed.

[3] Units using Circuit Breakers will use CB10 option.

LCT048																			
Electric Heat Size			7.5 KW								15 KW								
Unit Voltage			208/230V - 1 Ph		208/230V - 3 Ph		460V - 3Ph		575V - 3Ph		208/230V - 1 Ph		208/230V - 3 Ph		460V - 3Ph		575V - 3Ph	
Power Exhaust Option			W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.
Diagram Key	Class	Blower HP																	
F4	RK or K[1]	1.0	50	45	35	30	20	15	15	15	50	45	35	30	20	15	15	15
F4	RK or K[1]	1.5	-	-	30	30	15	15	15	15	-	-	30	30	15	15	15	15
F10[2]	CC	All	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
F27	CC	1.5	-	-	-	-	-	-	7.5	7.5	-	-	-	-	-	-	7.5	7.5
F30	CC	All	10	10	10	10	5	5	-	-	10	10	10	10	5	5	-	-
F31	CC	All	-	15	-	15	-	15	-	-	-	15	-	15	-	15	-	-
F57	CC	1.0	-	-	-	-	3.5	3.5	5	5	-	-	-	-	3.5	3.5	5	5
F57	CC	1.5	-	-	-	-	10	10	7.5	7.5	-	-	-	-	10	10	7.5	7.5
F61[2]	J	1.0	60	50	35	35	20	20	15	15	100	90	60	60	30	30	25	25
F61[2]	J	1.5	-	-	35	30	20	15	15	15	-	-	60	60	30	30	25	25
CB10[3]	-	1.0	60	50	35	35	20	20	15	15	100	90	60	60	30	30	25	25
CB10[3]	-	1.5	-	-	35	30	20	15	15	15	-	-	60	60	30	30	25	25

[1] When SCCR is installed, F4 fuse is Class J.

[2] Fuses F10 and F61 are only used on units with SCCR installed.

[3] Units using Circuit Breakers will use CB10 option.

LCT060H5E																		
Electric Heat Size			7.5 KW								15 KW							
Unit Voltage			208/230V - 1 Ph		208/230V - 3 Ph		460V - 3Ph		575V - 3Ph		208/230V - 1 Ph		208/230V - 3 Ph		460V - 3Ph		575V - 3Ph	
Power Exhaust Option			W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.
Diagram Key	Class	Blower HP																
F4	RK or K[1]	1.0	60	60	40	35	20	15	15	15	60	60	40	35	20	15	15	15
F4	RK or K[1]	1.5	-	-	35	35	15	15	15	15	-	-	35	35	15	15	15	15
F10[2]	CC	All	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
F27	CC	1.5	-	-	-	-	-	-	7.5	7.5	-	-	-	-	-	-	7.5	7.5
F30	CC	All	10	10	10	10	5	5	-	-	10	10	10	10	5	5	-	-
F31	CC	All	-	15	-	15	-	15	-	-	-	15	-	15	-	15	-	-
F57	CC	1.0	-	-	-	-	3.5	3.5	5	5	-	-	-	-	3.5	3.5	5	5
F57	CC	1.5	-	-	-	-	10	10	7.5	7.5	-	-	-	-	10	10	7.5	7.5
F61[2]	J	1.0	60	60	40	35	20	20	15	15	100	90	60	60	30	30	25	25
F61[2]	J	1.5	-	-	35	35	20	15	15	15	-	-	60	60	30	30	25	25
CB10[3]	-	1.0	60	60	40	35	20	20	15	15	100	90	60	60	30	30	25	25
CB10[3]	-	1.5	-	-	35	35	20	15	15	15	-	-	60	60	30	30	25	25

[1] When SCCR is installed, F4 fuse is Class J.

[2] Fuses F10 and F61 are only used on units with SCCR installed.

[3] Units using Circuit Breakers will use CB10 option.

LCT060H5E (continued)										
Electric Heat Size			22.5 KW							
Unit Voltage			P Volt		Y Volt		G Volt		J Volt	
Power Exhaust Option			W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.
Diagram Key	Class	Blower HP								
F4	RK or K[1]	1.0	60	60	40	35	20	15	15	15
F4	RK or K[1]	1.5	-	-	35	35	15	15	15	15
F10[2]	CC	All	8	8	8	8	8	8	8	8
F27	CC	1.5	-	-	-	-	-	-	7.5	7.5
F30	CC	All	10	10	10	10	5	5	-	-
F31	CC	All	-	15	-	15	-	15	-	-
F57	CC	1.0	-	-	-	-	3.5	3.5	5	5
F57	CC	1.5	-	-	-	-	10	10	7.5	7.5
F61[2]	J	1.0	150	150	80	80	45	40	35	35
F61[2]	J	1.5	-	-	80	80	40	40	35	30
CB10[3]	-	1.0	150	150	80	80	45	40	35	35
CB10[3]	-	1.5	-	-	80	80	40	40	35	30

[1] When SCCR is installed, F4 fuse is Class J.

[2] Fuses F10 and F61 are only used on units with SCCR installed.

[3] Units using Circuit Breakers will use CB10 option.

LCT072H5E														
Electric Heat Size			7.5 KW						15 KW					
Unit Voltage			208/230V - 3 Ph		460V - 3Ph		575V - 3Ph		208/230V - 3 Ph		460V - 3Ph		575V - 3Ph	
Power Exhaust Option			W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.
Diagram Key	Class	Blower HP												
F4	RK or K[1]	1.5	50	50	25	20	15	15	50	50	25	20	15	15
F10[2]	CC	1.5	8	8	8	8	8	8	8	8	8	8	8	8
F27	CC	1.5	-	-	-	-	7.5	7.5	-	-	-	-	7.5	7.5
F30	CC	1.5	10	10	5	5	-	-	10	10	5	5	-	-
F31	CC	1.5	-	15	-	15	-	-	-	15	-	15	-	-
F57	CC	1.5	-	-	10	10	7.5	7.5	-	-	10	10	7.5	7.5
F61[2]	J	1.5	50	50	25	20	15	15	60	60	30	30	25	25
CB10[3]	-	1.5	50	50	25	20	15	15	60	60	30	30	25	25

[1] When SCCR is installed, F4 fuse is Class J.

[2] Fuses F10 and F61 are only used on units with SCCR installed.

[3] Units using Circuit Breakers will use CB10 option.

LCT072H5E (continued)														
Electric Heat Size			22.5 KW						30 KW					
Unit Voltage			Y Volt		G Volt		J Volt		Y Volt		G Volt		J Volt	
Power Exhaust Option			W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.	W / P.E.	W / O P.E.
Diagram Key	Class	Blower HP												
F4	RK or K[1]	1.5	50	50	25	20	15	15	50	50	25	20	15	15
F10[2]	CC	1.5	8	8	8	8	8	8	8	8	8	8	8	8
F27	CC	1.5	-	-	-	-	7.5	7.5	-	-	-	-	7.5	7.5
F30	CC	1.5	10	10	5	5	-	-	10	10	5	5	-	-
F31	CC	1.5	-	15	-	15	-	-	-	15	-	15	-	-
F57	CC	1.5	-	-	10	10	7.5	7.5	-	-	10	10	7.5	7.5
F61[2]	J	1.5	80	80	40	40	35	30A	100	100	50	50	45	40
CB10[3]	-	1.5	80	80	40	40	35	30A	100	100	50	50	45	40

[1] When SCCR is installed, F4 fuse is Class J.

[2] Fuses F10 and F61 are only used on units with SCCR installed.

[3] Units using Circuit Breakers will use CB10 option.

Factory Unit Controller Settings

Use the mobile service app to adjust parameters; menu paths are shown in each table. Refer to the Unit Controller manual provided with each unit.

TABLE 17 through TABLE 19 show factory settings (in degrees, % of fan CFM, etc.). Record adjusted settings on the label located inside the compressor access panel.

When field installing optional kits and accessories, the Unit Controller must be configured to identify the option before it will function. Refer to FIGURE 44 and FIGURE 45 to determine whether the Unit Controller configuration I.D. must change. To configure the option, use MAIN MENU > SETUP > INSTALL menu path. Press SAVE until CONFIGURATION ID 1 or 2 appears depending on the option installed. Change the appropriate character in the configuration I.D. For example, when an economizer is installed using a single enthalpy sensor, change configuration I.D. 1, the second character, to “S”.

TABLE 17
581038

Units With BACnet Settings
RTU Menu > Network Integration > Network Setup Wizard > BACnet MS/TP > See BACnet MAC Address
BACNET MAC ADDRESS:
Units With Room Sensor, CPC/LSE Gateway Settings
RTU Menu > Network Integration > Network Setup Wizard > SBUS > Set SBUS Address
LCONN ADDRESS:

TABLE 18
581037-01

Units With LonTalk Settings
Use menu RTU Menu > Network Integration > Network Setup Wizard > Set “LONTALK”

TABLE 19
581101

Units With Hot Gas Reheat			
Use SETTINGS > RTU OPTIONS > EDIT PARAMETERS			
Parameter	**Factory Setting**	**Field Setting**	**Description**
105	6		Hot Gas Reheat Option 6: Reheat is only possible if blower is energized during occupied periods. Controlled by RH sensor (A91) connected to input A55_P298_5 and set point set at parameter 106 (default 60%).
414	10 sec (All-Aluminum Coils Only)		**HI CL REHEAT TMOUT:** Number of seconds Reheat Valve remains energized upon thermostat call for high stage cooling (default 0 sec onds).

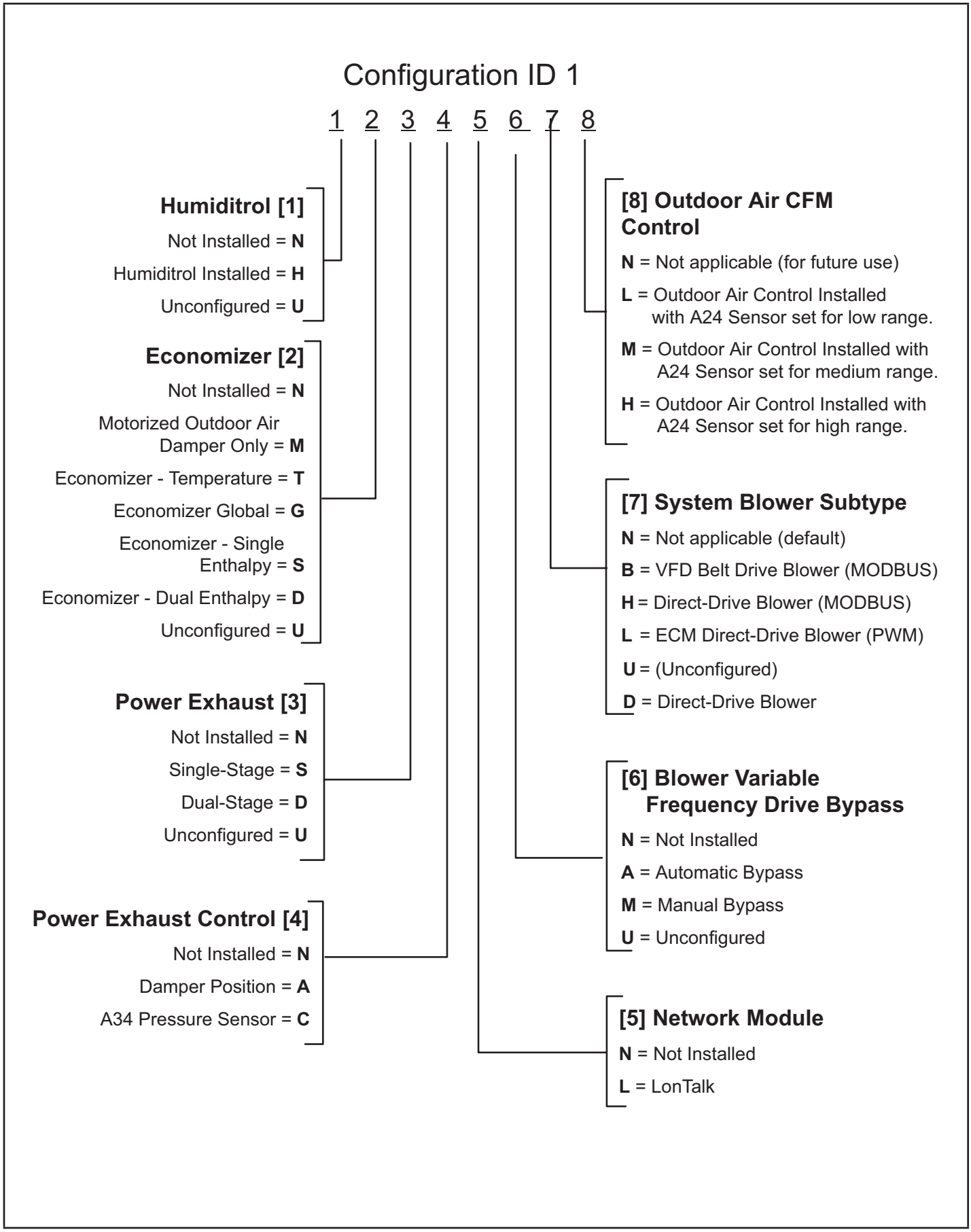

Configuration ID 1
1 2 3 4 5 6 7 8
Humiditrol [1]
Not Installed = N
Humiditrol Installed = H
Unconfigured = U
Economizer [2]
Not Installed = N
Motorized Outdoor Air Damper Only = M
Economizer - Temperature = T
Economizer Global = G
Economizer - Single Enthalpy = S
Economizer - Dual Enthalpy = D
Unconfigured = U
Power Exhaust [3]
Not Installed = N
Single-Stage = S
Dual-Stage = D
Unconfigured = U
Power Exhaust Control [4]
Not Installed = N
Damper Position = A
A34 Pressure Sensor = C
[8] Outdoor Air CFM Control
N = Not applicable (for future use)
L = Outdoor Air Control Installed with A24 Sensor set for low range.
M = Outdoor Air Control Installed with A24 Sensor set for medium range.
H = Outdoor Air Control Installed with A24 Sensor set for high range.
[7] System Blower Subtype
N = Not applicable (default)
B = VFD Belt Drive Blower (MODBUS)
H = Direct-Drive Blower (MODBUS)
L = ECM Direct-Drive Blower (PWM)
U = (Unconfigured)
D = Direct-Drive Blower
[6] Blower Variable Frequency Drive Bypass
N = Not Installed
A = Automatic Bypass
M = Manual Bypass
U = Unconfigured
[5] Network Module
N = Not Installed
L = LonTalk

FIGURE 44

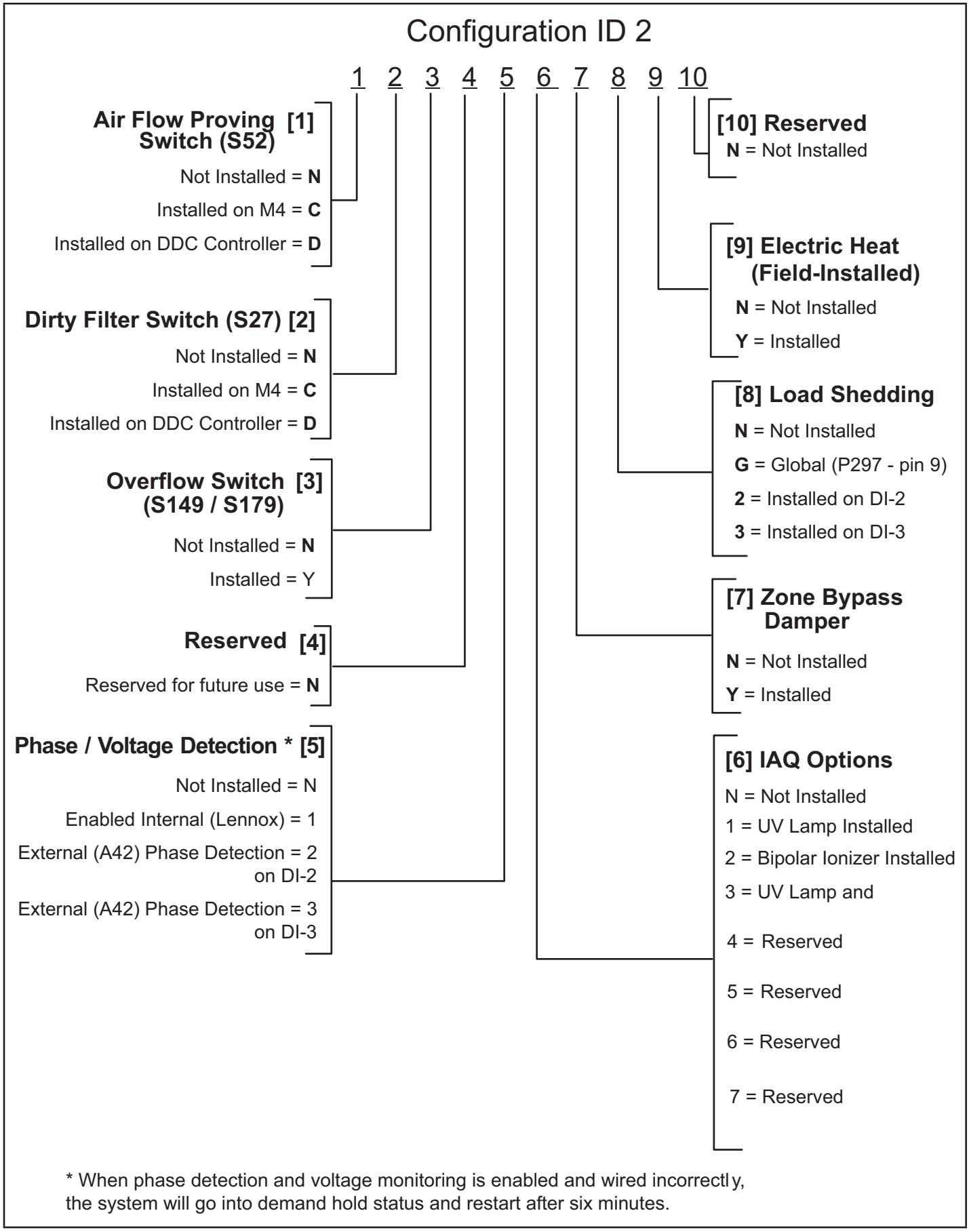

Configuration ID 2
1 2 3 4 5 6 7 8 9 10
Air Flow Proving [1] Switch (S52)
Not Installed = N
Installed on M4 = C
Installed on DDC Controller = D
Dirty Filter Switch (S27) [2]
Not Installed = N
Installed on M4 = C
Installed on DDC Controller = D
Overflow Switch [3] (S149 / S179)
Not Installed = N
Installed = Y
Reserved [4]
Reserved for future use = N
Phase / Voltage Detection * [5]
Not Installed = N
Enabled Internal (Lennox) = 1
External (A42) Phase Detection = 2 on DI-2
External (A42) Phase Detection = 3 on DI-3
[10] Reserved
N = Not Installed
[9] Electric Heat (Field-Installed)
N = Not Installed
Y = Installed
[8] Load Shedding
N = Not Installed
G = Global (P297 - pin 9)
2 = Installed on DI-2
3 = Installed on DI-3
[7] Zone Bypass Damper
N = Not Installed
Y = Installed
[6] IAQ Options
N = Not Installed
1 = UV Lamp Installed
2 = Bipolar Ionizer Installed
3 = UV Lamp and
4 = Reserved
5 = Reserved
6 = Reserved
7 = Reserved
* When phase detection and voltage monitoring is enabled and wired incorrectly, the system will go into demand hold status and restart after six minutes.

FIGURE 45

Decommissioning

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 starting decommissioning.

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.

⚠ IMPORTANT

Equipment shall be labelled stating that it has been decommissioned and emptied of refrigerant. The label shall be signed and dated. Ensure that there are labels on the equipment that state the flammability of the refrigerant used.

START-UP REPORT

Job Name:_____

Store No._____Start-Up Date:_____

Address:_____

City:_____State:_____

Start-Up Contractor:_____

Technician:_____

Model No.:_____

Serial No.:_____

RTU No.:_____ Catalog No.:_____

Inspections and Checks

Damage? Yes No R454B ☐

If yes, reported to:_____

_____

Verify factory and field-installed accessories.

Check electrical connections. Tighten if necessary.

Supply voltage: L1-L2_____L1-L3_____L2-L3_____

If unit contains a 208-230/240 volt transformer:
Check primary transformer tap ☐
Transformer secondary voltage: _____

Cooling Checks

Compressor Rotation ☐ Ambient Temp._____Return Air Temp._____ Supply Air Temp._____

	Compressor Amps			Compressor Volts			Pressures		Condenser Fan Amps			CC Heater Amps
	L1	L2	L3	L1-L2	L1-L3	L2-L3	Disch.	Suct.	L1	L2	L3	L1
1												
2												
3												
4												

Blower Checks

Pulley/Belt Alignment ☐ Blower Rotation ☐
Set Screws Tight ☐ Belt Tension ☐

Nameplate Amps:_____ Volts:_____

Motor	Amps	Volts
	L1_____	L1-L2_____
	L2_____	L1-L3_____
	L3_____	L2-L3_____

Heating Checks - Gas

Fuel type: Nat. ☐ LP ☐ Inlet Pressure:_____in. w.c.

Return Air Temp.:_____ Supply Air Temp.:_____

Altitude:_____ Primary Limits Operate: ☐

CO_2%:

Gas Valve	Manifold Pressure	
	Low Fire	High Fire
GV1		
GV2		

Control Type

Heating Checks - Electric

Return Air Temp.:_____ Supply Air Temp.:_____
Limits Operate: ☐

	Amps						
	L1	L2	L3		L1	L2	L3
1				10			
2				11			
3				12			
4				13			
5				14			
6				15			
7				16			
8				17			
9				18			

Accessory Checks

Power Exhaust Amps

1 _____ 2 _____ None ☐

Economizer Operation

Min. Pos. ☐ Motor travel full open/close ☐