

⚠ WARNING

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

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INSTALLATION INSTRUCTIONS

LGX/LCX092	(7.5 TON)
LGX/LCX102	(8.5 TON)
LGX/LCX120	(10 TON)
LGX/LCX150	(12.5 TON)

GAS AND COOLING PACKAGED UNITS
508513-01
8/2024

R-454B

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⚠ 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 REFERENCES

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 injury. 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 T_{Amin} 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.

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

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.

CAUTION

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

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

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

WARNING

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

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.

A2L Refrigerant Considerations

Ensure that the work area 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.

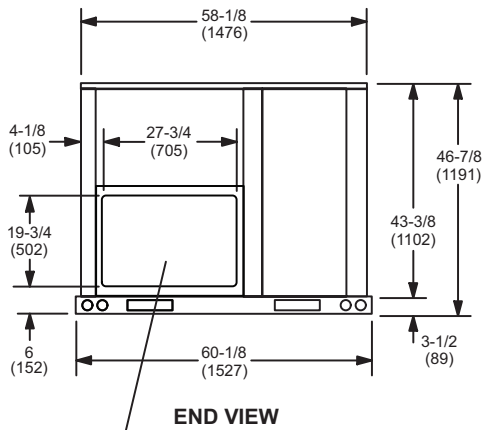
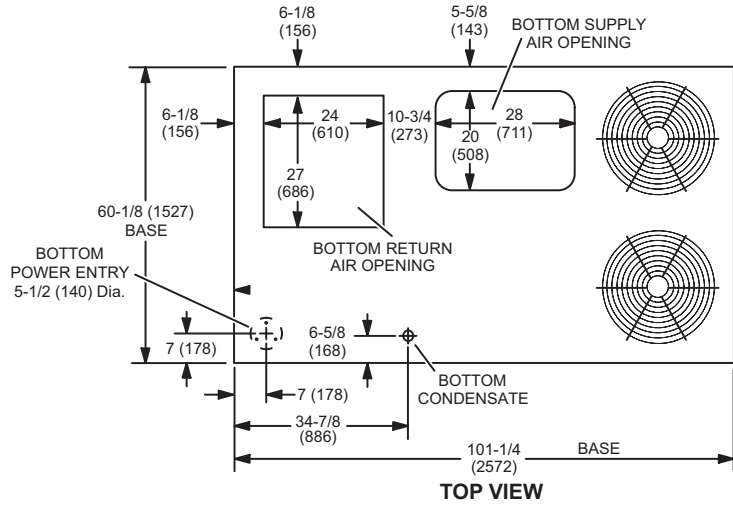
Under no circumstances shall potential sources of ignition be used when searching for or detecting refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used. Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, 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:

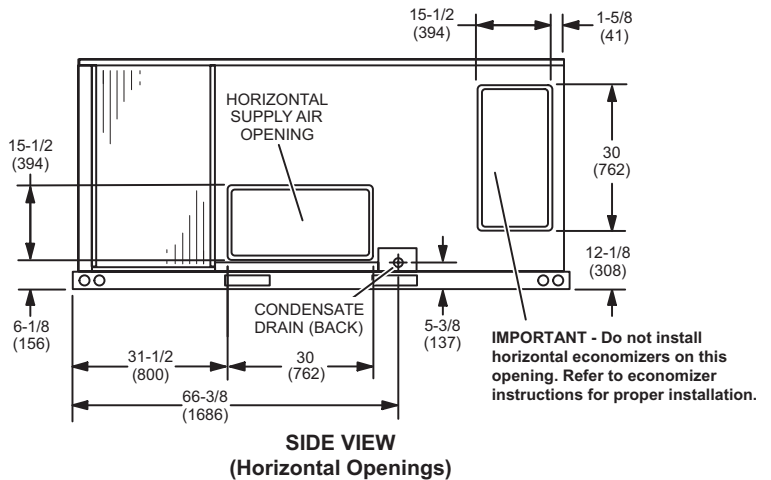
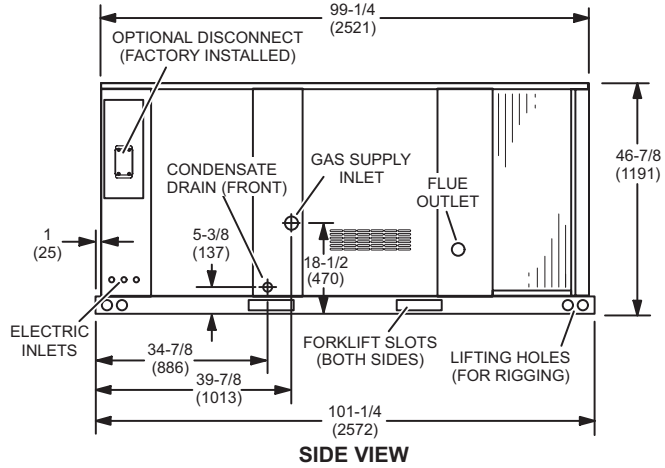
- Safely remove refrigerant following local and national regulations.
- Evacuate the circuit.
- Purge the circuit with inert gas.
- Evacuate.
- Purge the circuit with inert gas.
- Open the circuit

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.

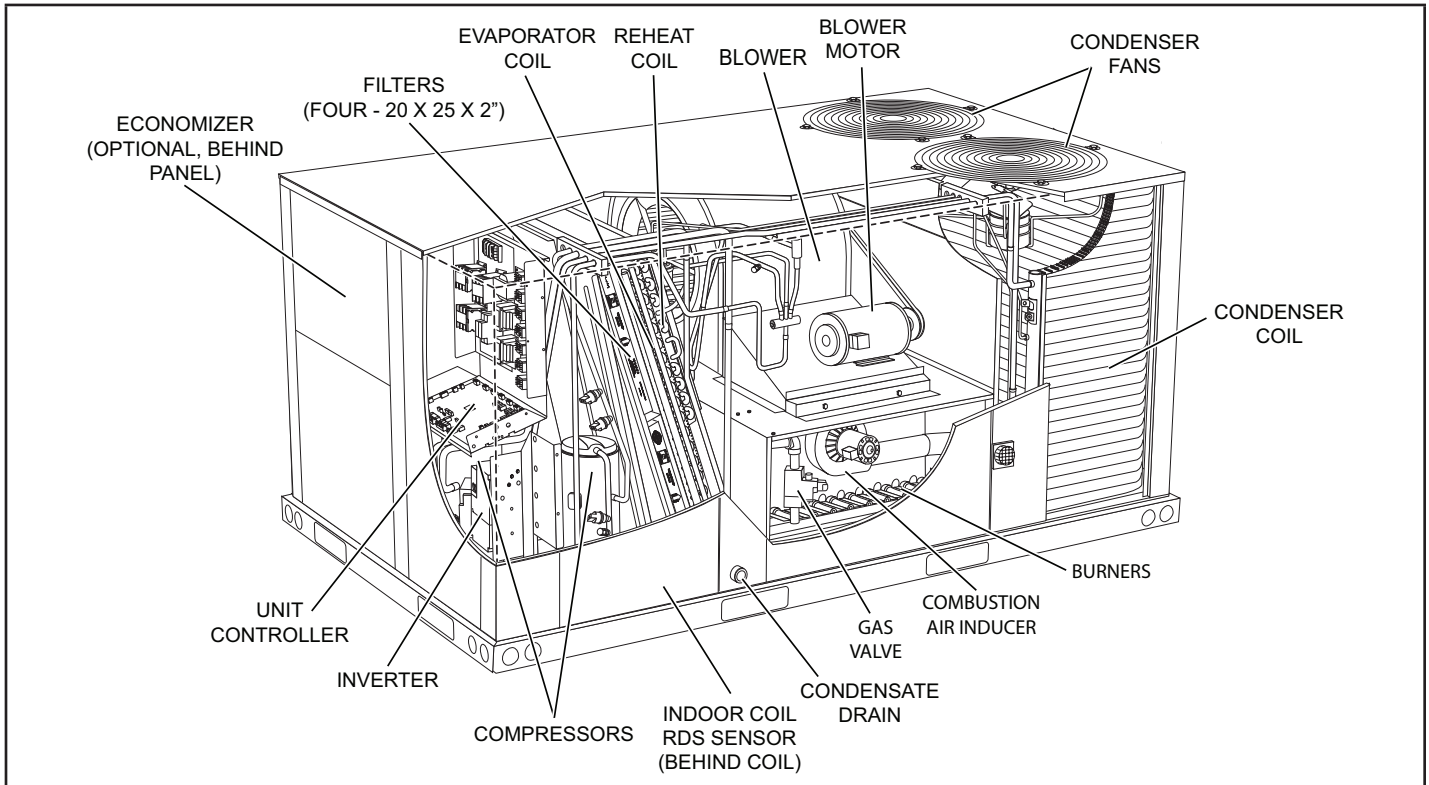
LGX/LCX 092, 102, 120, & 150 DIMENSIONS in. - Gas heat section shown



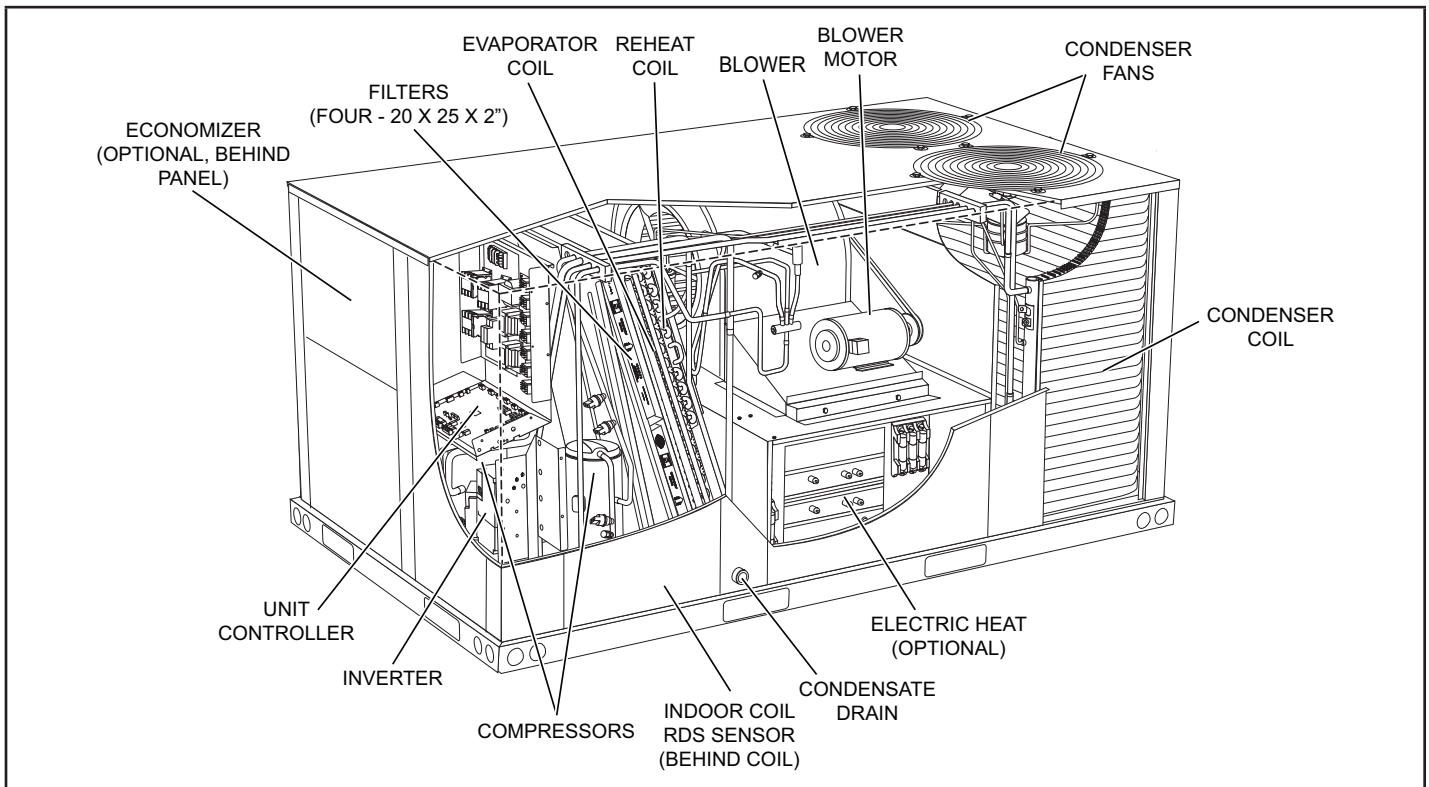
OPTIONAL RETURN AIR OPENING WITH ECONOMIZER AND HORIZONTAL DISCHARGE KIT (required) (Field Installed)



LGX 092, 102, 120, & 150 PARTS ARRANGEMENT



LCX 092, 102, 120, & 150 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 LGX units are available in three heating inputs. The LCX cooling packaged rooftop unit is the same basic design as the LGX unit except for the heating section. Optional electric heat is available for LCX units. LGX and LCX units have identical refrigerant circuits with respective 7-1/2, 8-1/2, 10, and 12-1/2 ton cooling capacities.

Units are equipped with a two-speed compressor on stage 1 and a fixed-speed compressor on stage 2, allowing for 3 stages of cooling.

Units are equipped with a supply air inverter (variable frequency drive or VFD). The blower will operate at lower speeds when demand is low and increase to higher speeds when demand is high.

Units come default with a lightweight, all-aluminum condenser coil.

Units are equipped with all-aluminum condenser coils. Units are available with an optional hot gas reheat coil which provides dehumidifying mode of operation.

Availability of units and options varies by brand.

Requirements

See FIGURE 1 for unit clearances.

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.

IMPORTANT

The Clean Air Act of 1990 bans the intentional venting 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 incarceration 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.

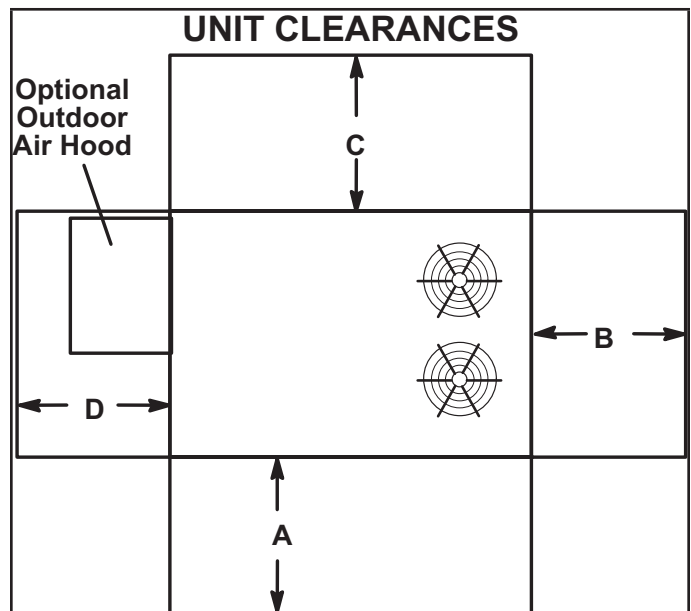


FIGURE 1

¹ Unit Clearance	A in.(mm)	B in.(mm)	C in.(mm)	D in.(mm)	Top Clearance
Service Clearance	60 (1524)	36 (914)	36 (914)	60 (1524)	Unob- structed
Clearance to Combustibles	36 (914)	1 (25)	1 (25)	1 (25)	Unob- structed
Minimum Operation 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 LCXC 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		
Unit	Q_{min} (CFM)	Q_{min} (m ³ h)
LGX/LCX092	94	160
LGX/LCX102	114	194
LGX/LCX120	114	194
LGX/LCX150	157	267
LGX/LCX092 w/ Humiditrol	119	202
LGX/LCX102 w/ Humiditrol	117	199
LGX/LCX120 w/ Humiditrol	142	241
LGX/LCX150 w/ Humiditrol	154	261

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

Minimum Room Area of Conditioned Space		
Unit	TA_{min} (ft ²)	TA_{min} (m ²)
LGX/LCX092	53	4.8
LGX/LCX102	64	5.9
LGX/LCX120	64	5.9
LGX/LCX150	87	8.1
LGX/LCX092 w/ Humiditrol	66	6.1
LGX/LCX102 w/ Humiditrol	66	6.0
LGX/LCX120 w/ Humiditrol	79	7.3
LGX/LCX150 w/ Humiditrol	86	7.9

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

Refrigerant Charge R-454B		
Unit	M_c (lbs)	M_c (kg)
LGX/LCX092 STG 1	3.56	1.62
LGX/LCX092 STG 2	3.06	1.39
LGX/LCX102 STG 1	4.31	1.96
LGX/LCX102 STG 2	3.00	1.36
LGX/LCX120 STG 1	3.75	1.70
LGX/LCX120 STG 2	4.31	1.96
LGX/LCX150 STG 1	5.13	2.32
LGX/LCX150 STG 2	5.94	2.69
LGX/LCX092 w/ Humiditrol STG 1	4.50	2.04
LGX/LCX092 w/ Humiditrol STG 2	2.88	1.30
LGX/LCX102 w/ Humiditrol STG 1	4.44	2.01
LGX/LCX102 w/ Humiditrol STG 2	3.06	1.39
LGX/LCX120 w/ Humiditrol STG 1	5.38	2.44
LGX/LCX120 w/ Humiditrol STG 2	4.88	2.21
LGX/LCX150 w/ Humiditrol STG 1	5.19	2.35
LGX/LCX150 w/ Humiditrol STG 2	5.81	2.64

Altitude Adjustment Factor									
Halt	0	200	400	600	800	1000	1200	1400	1600
AF	1	1	1	1	1.02	1.05	1.04	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 LGX/LCX092 at 1000 ft. above sea level, multiply 94 by 1.05 to get 98.7 CFM as the new Q_{min} .

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 C1CURB roof mounting frame.

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

CAUTION

To reduce the likelihood of supply / return air bypass 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 C1CURB

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

- 1 - The C1CURB roof mounting frame must be installed, flashed and sealed in accordance with the instructions provided with the frame.
- 2 - The C1CURB 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, an C1CURB roof mounting frame is required.

B-Horizontal Discharge Applications

- 1 - Units installed in horizontal airflow applications must use a horizontal conversion kit (K1HECK00).
- 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 - Connect rigging to the unit base using both holes in each corner.
- 3 - All panels must be in place for rigging.
- 4 - 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.)

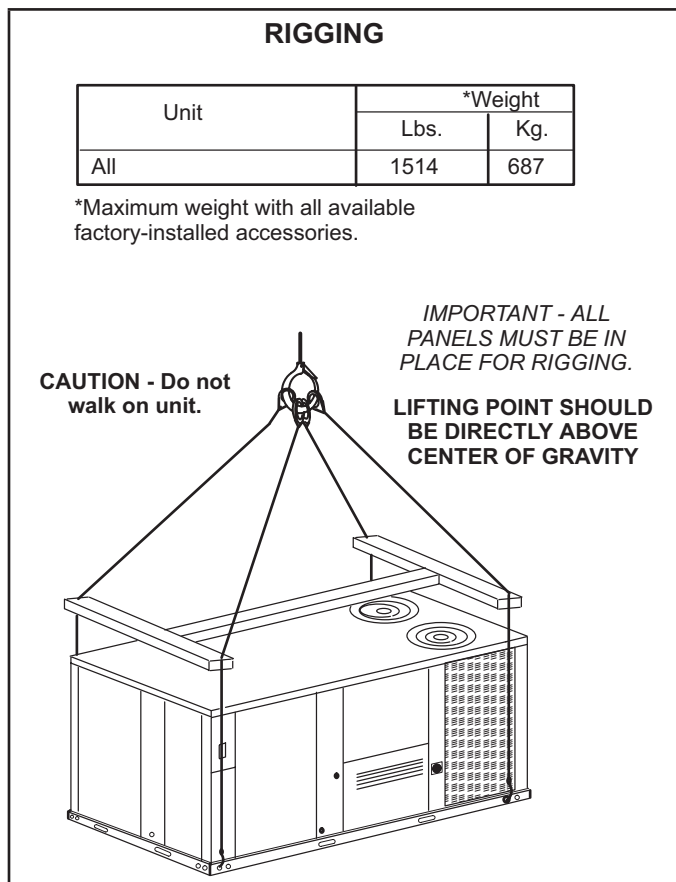


FIGURE 2

Condensate Drains

Make drain connection to the 1" N.P.T. drain coupling provided on unit.

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 3 or FIGURE 4. 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 4 and page 5 for condensate drain location.

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 heat access door. See FIGURE 5.
- 2 - Remove filter access door.
- 3 - Remove eight screws holding condensate drain mullion and remove mullion.
- 4 - Lift front edge of the drain pan (to clear bottom drain plug) and slide drain pan out of unit. See FIGURE 6.
- 5 - Make sure the cap over the unit bottom drain hole is secure.
- 6 - 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.

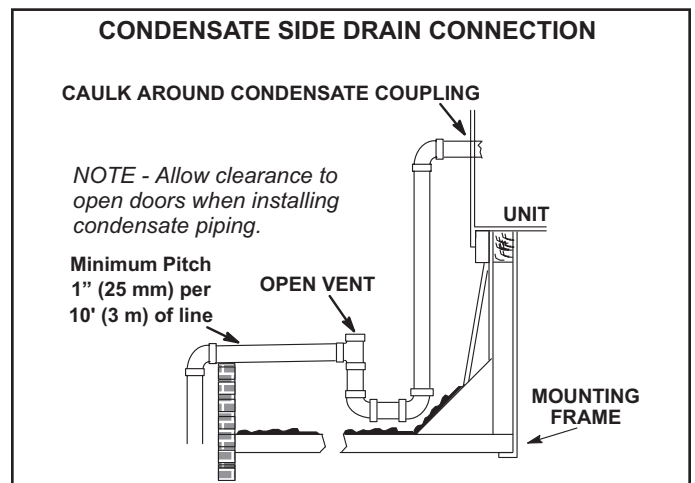


FIGURE 3

- 7 - From the back side of the unit, pull the drain pan coupling through the rear condensate opening.
- 8 - Replace the condensate drain mullion and reinstall eight screws.
- 9 - Reinstall access doors.

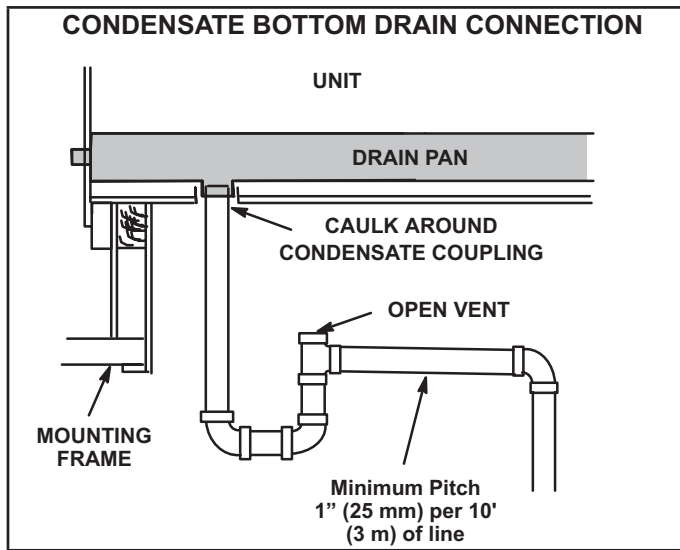


FIGURE 4

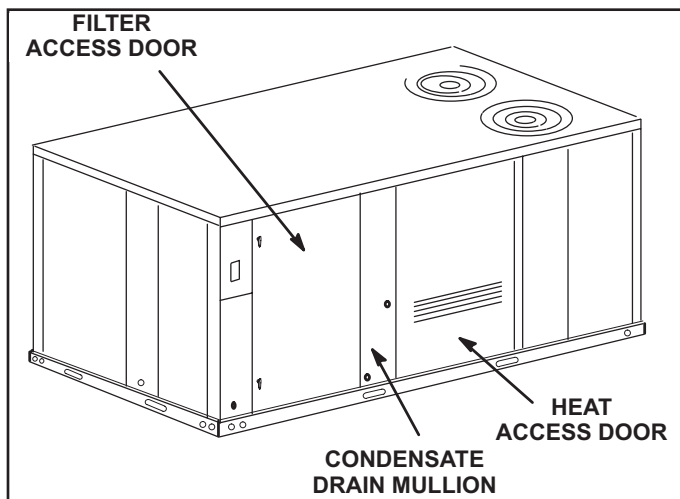


FIGURE 5

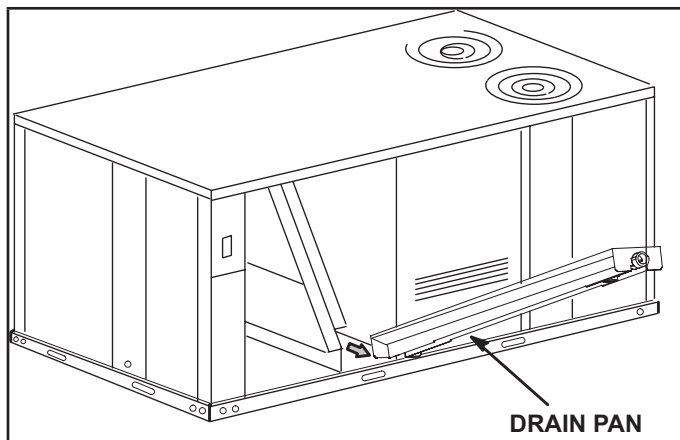


FIGURE 6

Bottom Drain Connection

- 1 - Remove heat access door. See FIGURE 5.
- 2 - Remove filter access door.
- 3 - Remove eight screws holding condensate drain mullion and remove mullion.
- 4 - Lift front edge of the drain pan (to clear bottom drain plug) and slide drain pan out of unit. See FIGURE 6.
- 5 - 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 7.
- 6 - From the inside of the pan, use a Vari-Bit® bit to enlarge the hole to 7/8". Do not damage coupling threads.
- 7 - Remove the cap over the unit bottom drain hole.
- 8 - Slide the drain pan back into the unit.
- 9 - From the back side of the unit, pull the drain pan coupling through the rear condensate opening.
- 10 - 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.
- 11 - Use a field-provided 1" plug to seal side drain connection.
- 12 - Replace the condensate drain mullion and reinstall eight screws.
- 13 - Reinstall access doors.

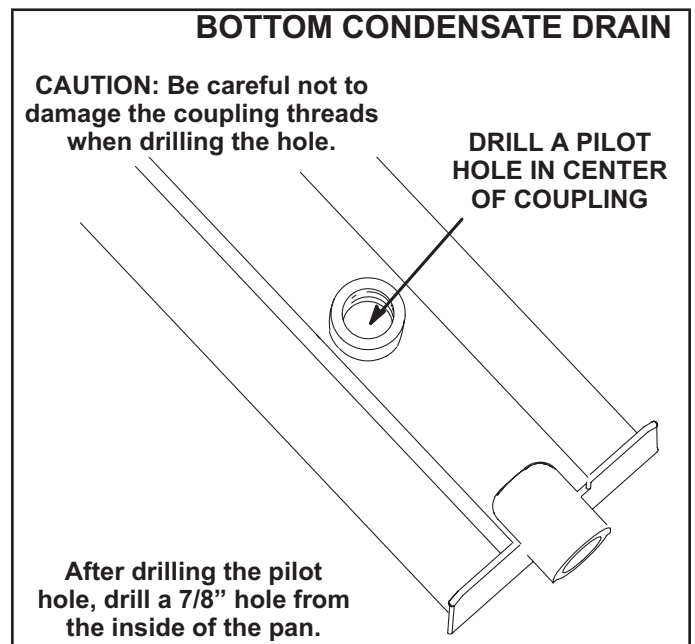


FIGURE 7

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. For natural gas units, operating pressure at the unit gas connection must be a minimum of 4.7" w.c. (1.19kPa) and a maximum of 10.5" (2.60kPa) w.c. For LP/propane gas units, operating pressure at the unit gas connection must be a minimum of 11" w.c. (2.74kPa) and a maximum of 13.0" w.c. (3.23kPa).

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 8 for gas supply piping entering outside the unit. FIGURE 9 shows bottom gas entry piping through the curb. FIGURE 10 shows bottom gas entry piping through the unit.

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

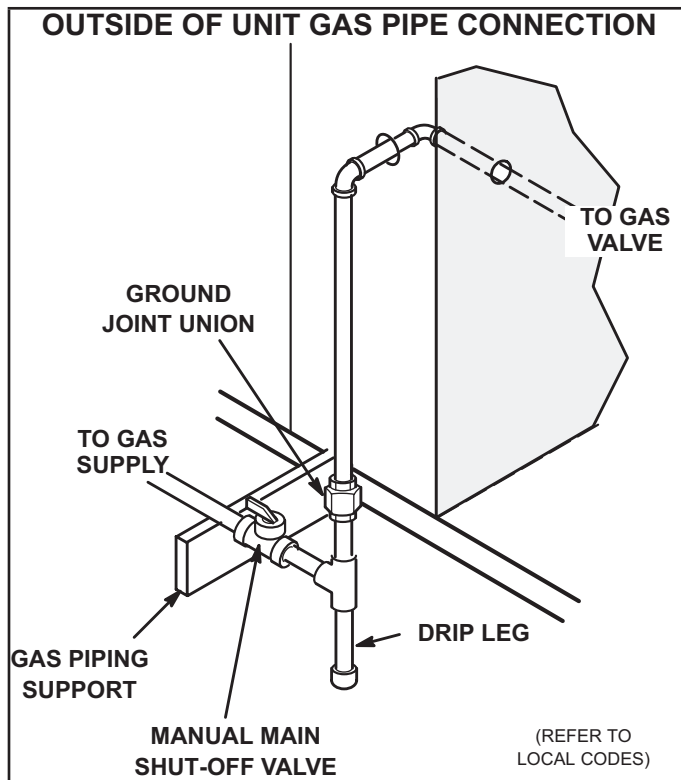


FIGURE 8

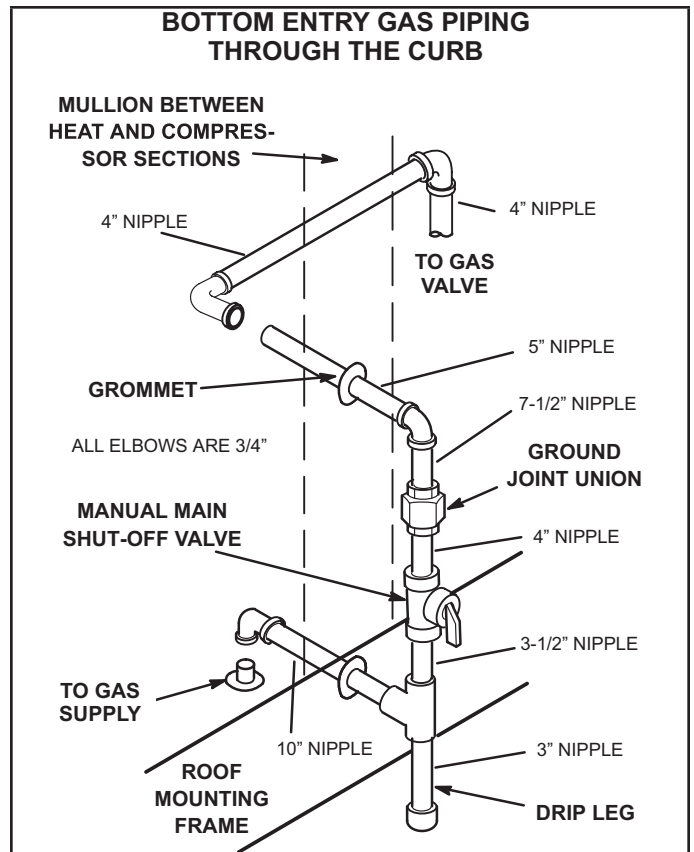


FIGURE 9

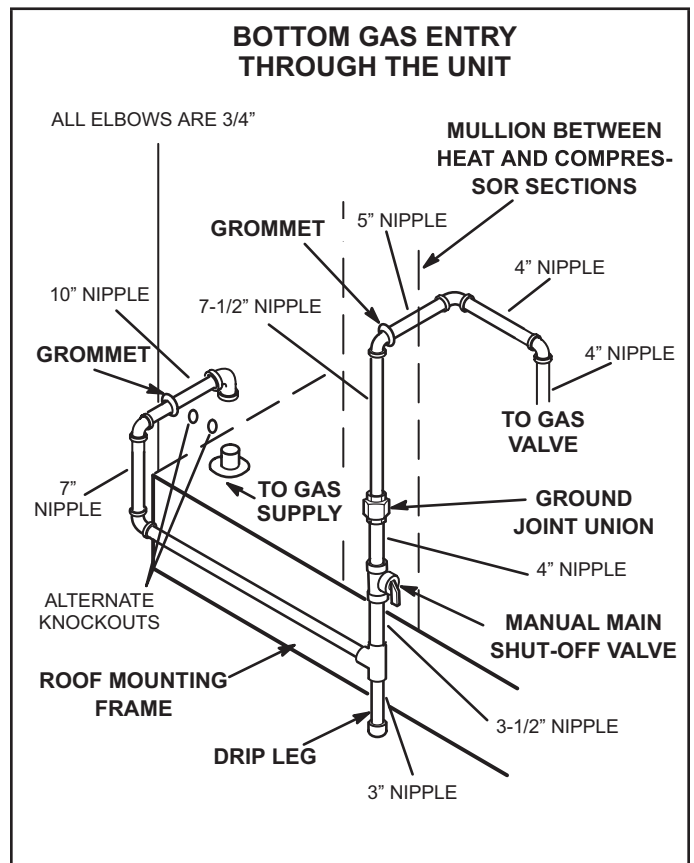


FIGURE 10

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 11.

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 other 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.

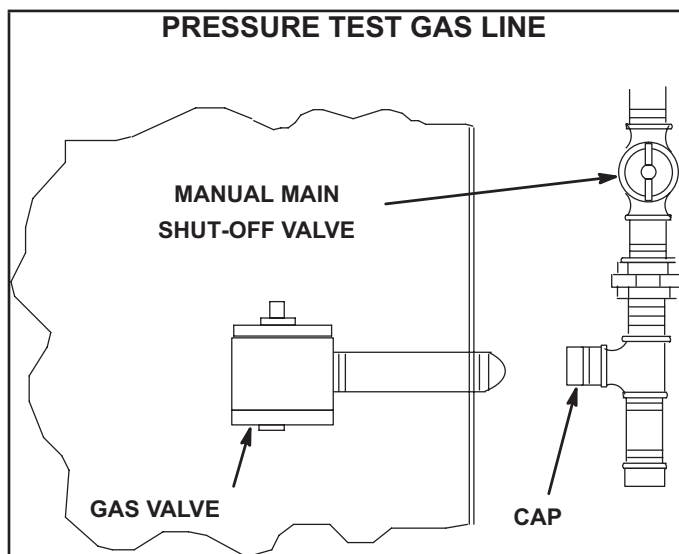


FIGURE 11

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 1 for high altitude adjustments.

TABLE 1
HIGH ALTITUDE DERATE

Altitude Ft.*	Gas manifold Pressure
2000-4500	See Unit Nameplate
4500 and Above 65K-180K Btuh	Derate 2% / 1000 Ft. above Sea Level
4500 and Above 240K-480K Btuh	Derate 4% / 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.

Electrical Connections

POWER SUPPLY

A-Wiring

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 - 230/460/575 volt units are factory wired. For **208V supply**, disconnect the pink wire (230V) at all control power transformer(s). Reconnect the pink wire (208V). Tape the exposed end of the 230V pink wire.
- 2 - Route power through the bottom power entry area and connect to L1, L2, and L3 on the bottom of TB2 in control box for gas units or units equipped with electric heat. Route power to F4 on cooling only units (no electric heat). Route power to S48 disconnect switch when the option is factory-installed. See unit wiring diagram.
- 3 - Route field wiring in field-provided conduit as shown in FIGURE 12.
- 4 - Connect separate 120v wiring to optional GFCI outlet pigtails.

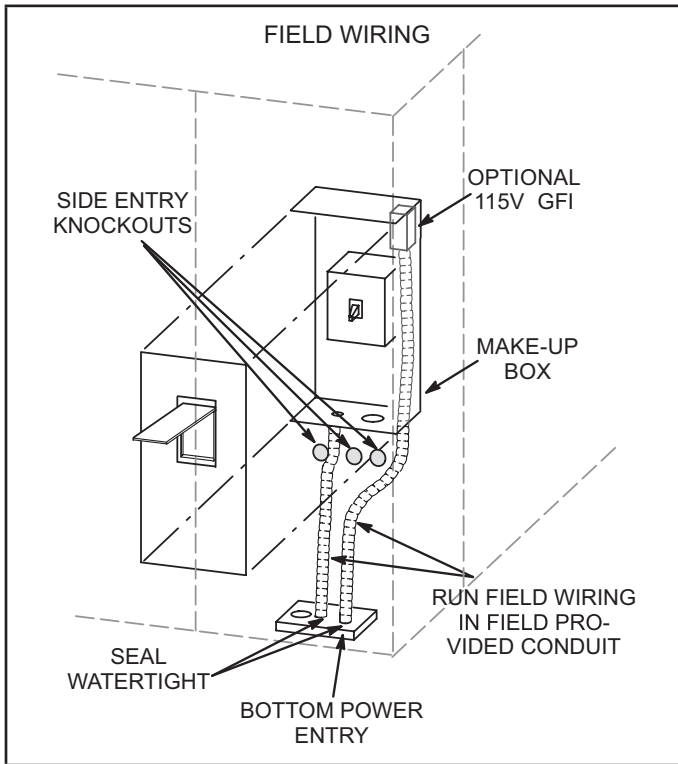
B-Unbalanced Three-Phase Voltage - VFD

Units are designed to operate on balanced, three-phase power. Operating units on unbalanced three-phase power will reduce the reliability of all electrical components in the unit. Unbalanced power is a result of the power delivery system supplied by the local utility company.

Factory-installed inverters are sized to drive blower motors with an equivalent current rating using balanced three-phase power. When unbalanced three-phase power is supplied; the installer must replace the existing factory-installed inverter with an inverter that has a higher current rating to allow for the imbalance. Use TABLE 2 to determine the appropriate replacement inverter.

**TABLE 2
INVERTER UP-SIZING**

Factory-Installed Inverter HP	Replacement Inverter HP
2	5
3	7-1/2
5	10



**FIGURE 12
CONTROL WIRING**

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.*

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.*

Use 18 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 13 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 Unit Controller 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 room 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 room sensor wiring connections as shown in FIGURE 14.

C-Hot Gas Reheat Units Only

- 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 13 for Thermostat Mode or FIGURE 14 for Zone Sensor Mode. In addition, connect either a humidity sensor or a dehumidification input. See FIGURE 16 or FIGURE 17 for humidity sensor wiring or FIGURE 15 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 17. Use two shielded cables containing 20AWG minimum, twisted pair conductors with overall shield. Belden type 8762 or 88760 (plenum) or equivalent.

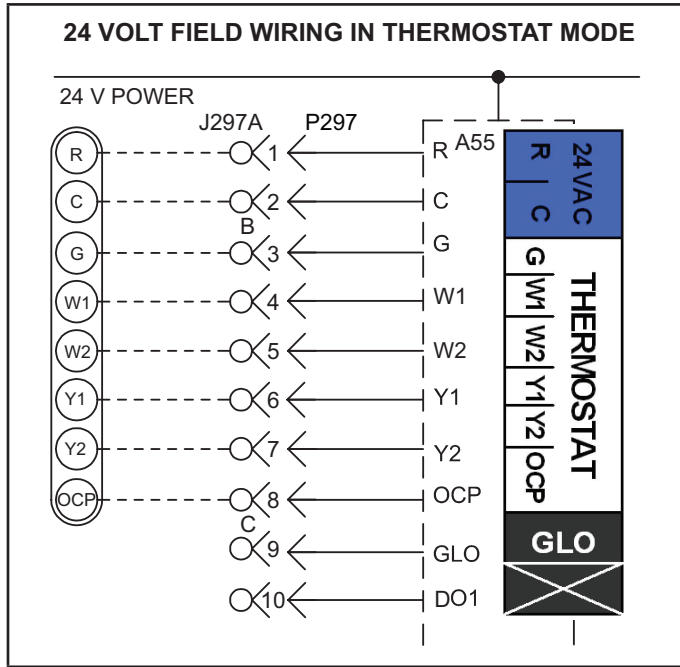


FIGURE 13

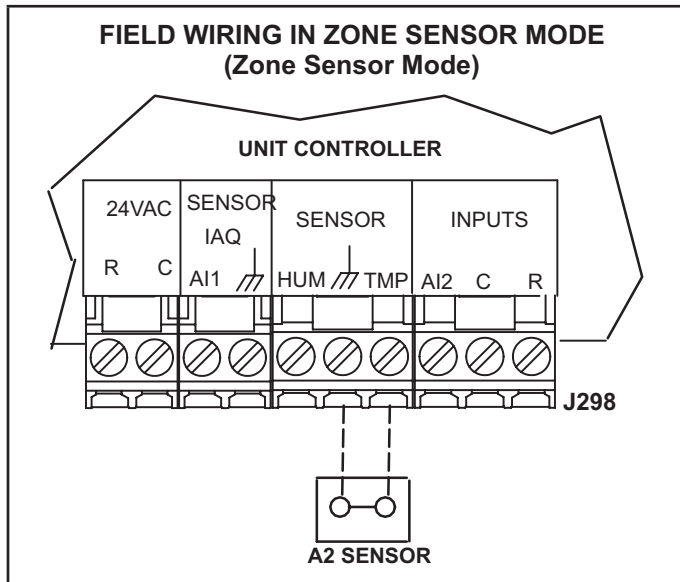
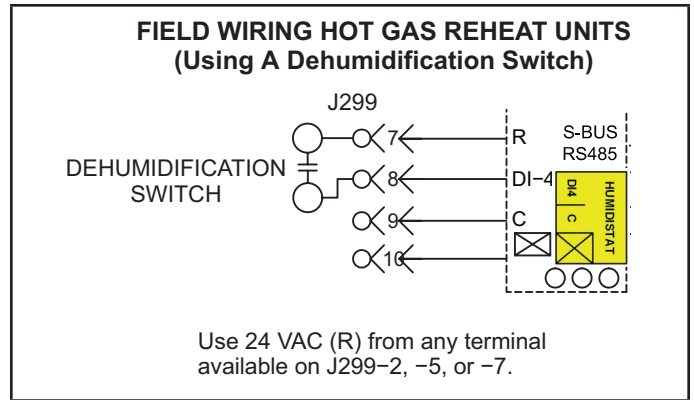


FIGURE 14



Use 24 VAC (R) from any terminal available on J299-2, -5, or -7.

FIGURE 15

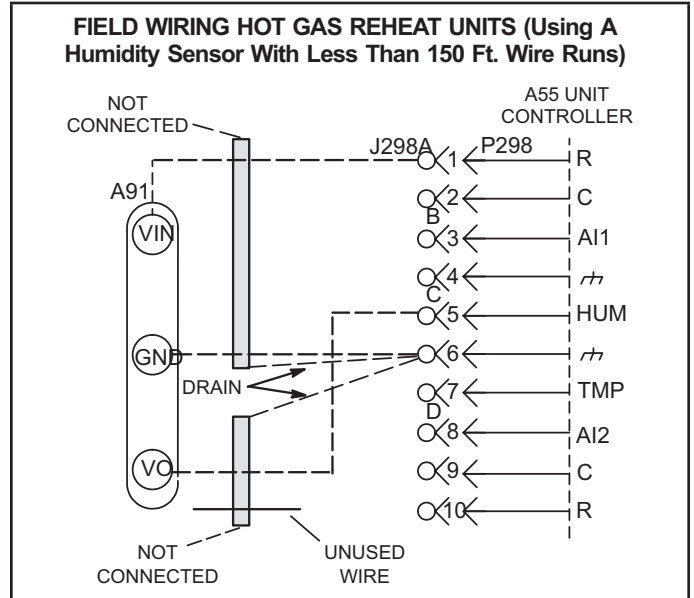


FIGURE 16

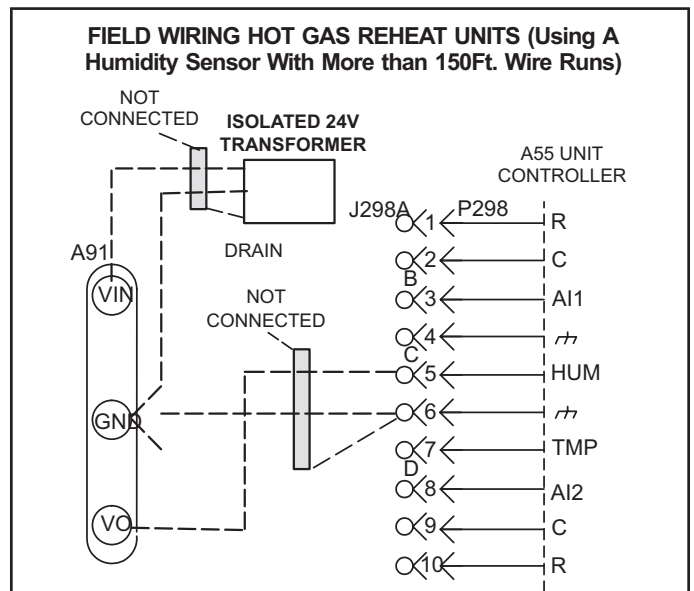


FIGURE 17

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.
- 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 18 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 19, FIGURE 20, and FIGURE 21.

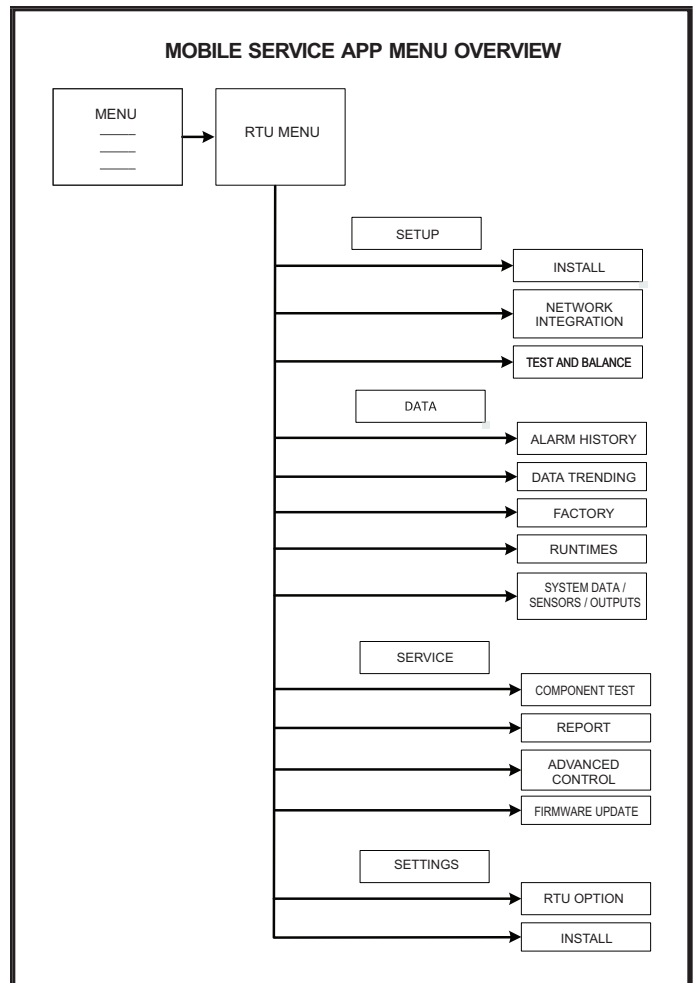


FIGURE 18

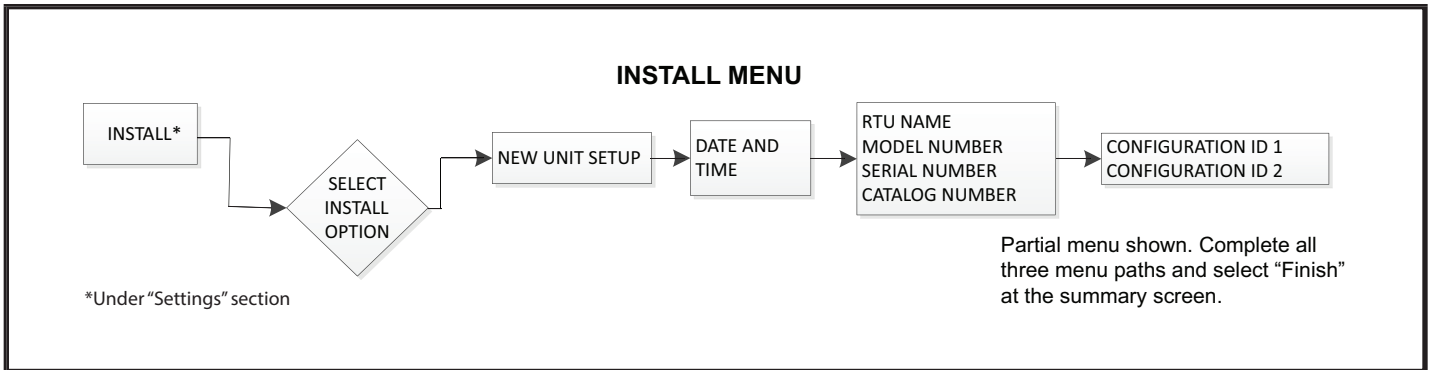


FIGURE 19

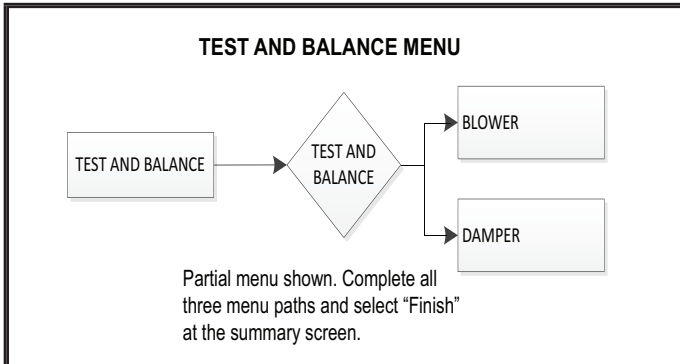


FIGURE 20

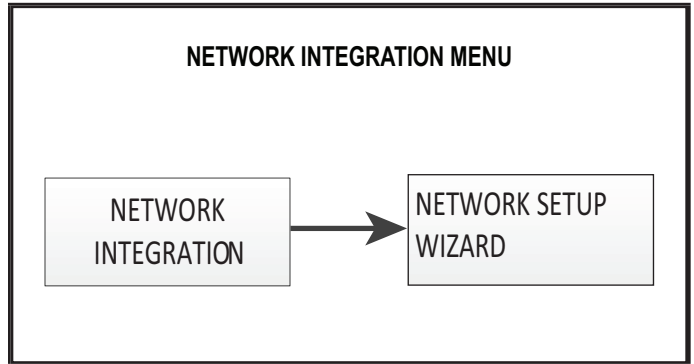


FIGURE 21

E-Unit Controller Components

See FIGURE 22 for Unit Controller components. See FIGURE 23 and TABLE 3 for pushbutton and LED functions.

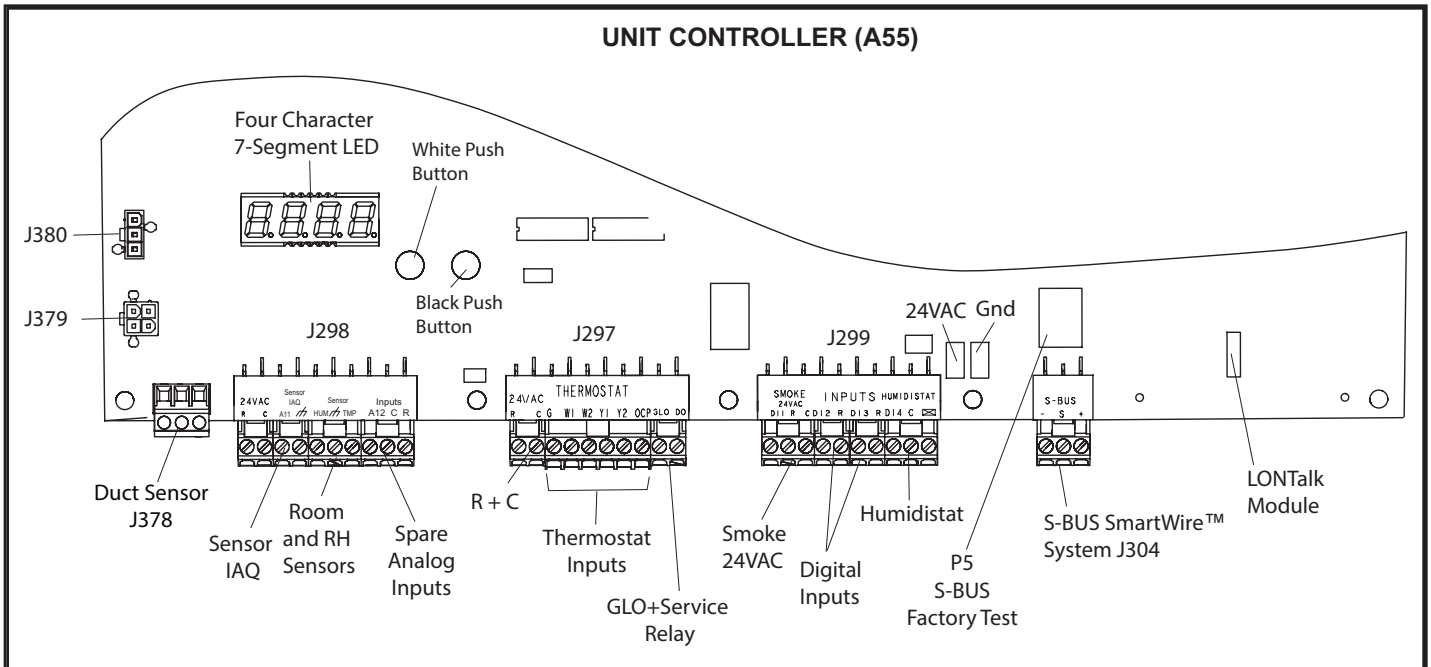


FIGURE 22

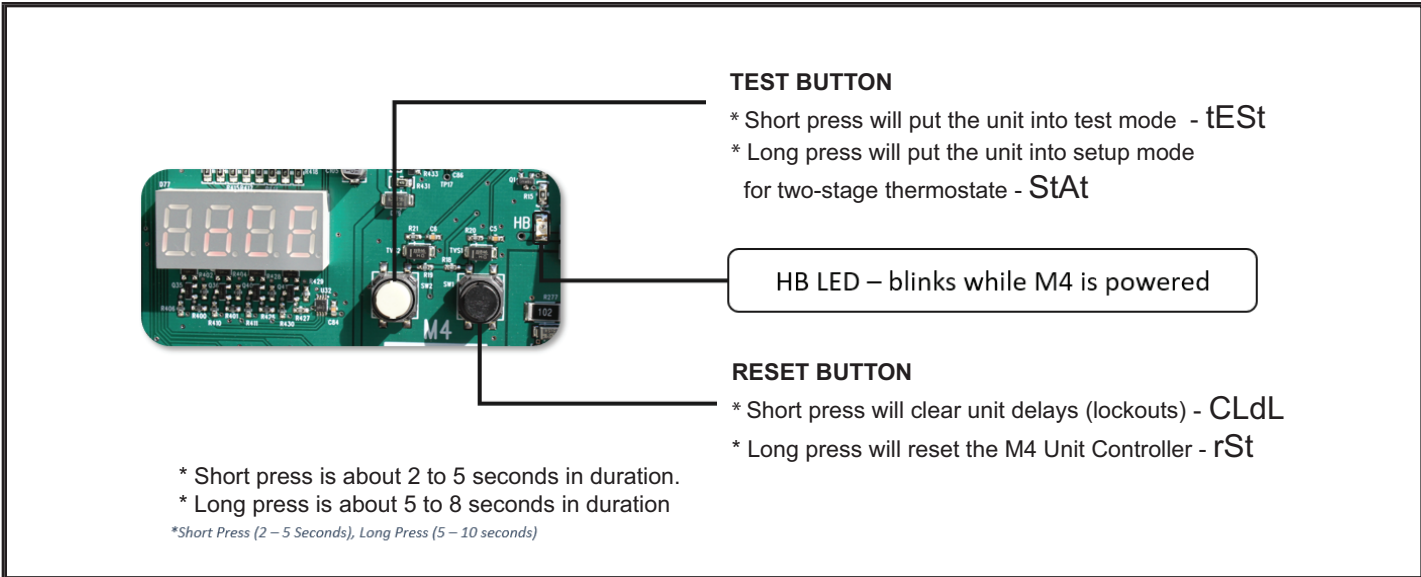


FIGURE 23

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.

Multi-Stage Air Volume Start-Up

The blower rotation will always be correct on units equipped with an inverter. Checking blower rotation is not a valid method of determining voltage phasing for incoming power.

Units Equipped With Optional Voltage or Phase Detection - The Unit Controller checks the incoming power during start-up. If the voltage or phase is incorrect, the Unit Controller will display an alarm and the unit will not start.

A-Design Specifications

Use TABLE 4 to fill in field-provided, design specified blower CFM for appropriate unit.

B-Set Maximum CFM

Use TABLE 4 to determine highest blower CFM for appropriate unit. Adjust the blower pulley to deliver that amount of CFM with only the blower operating. See Determining Unit CFM in the Blower Operation and Adjustment section.

C-Set Blower Speeds

- 1 - Use the following mobile service app menu to enter the blower design specified CFM into the Unit Controller. Make sure blower CFM is within limitations shown in TABLE 5 or TABLE 6.

RTU MENU > RTU OPTIONS > BLOWER > SPEED

- 2 - Enter the following design specifications as shown in TABLE 4.
 - Blower / Heat CFM
 - Cooling High CFM
 - Cooling Low CFM
 - Vent CFM

D-CFM Verification / Adjustment

The design CFM entered into the app for each blower speed should be verified, except for highest blower CFM. All adjustments will be made using ONLY the app.

- 1 - Run the each design CFM (blower speed) using the app.
- 2 - Measure Blower RPM and Static Pressure, then calculate the actual CFM per process in Section "Blower Operation and Adjustments".
- 3 - Adjust app entered design CFM (higher/lower) for this blower speed.
- 4 - Repeat steps 1-3 until actual CFM aligns with design CFM from TABLE 4.

E-Set Damper Minimum Position

To maintain required minimum ventilation air volumes when the unit is in the occupied mode, two minimum damper positions must be set.

The Unit Controller will open the damper to "Min OCP Blwr High" when blower CFM is at or ABOVE the "midpoint" CFM.

The Unit Controller will open the dampers to "Min OCP Blwr Low" when blower CFM is BELOW a "midpoint" CFM.

The Unit Controller will calculate the "midpoint" CFM.

TABLE 4
Blower CFM Design Specifications

Unit	T'Stat or Zone Control Stages	Blower Speed	Design Specified CFM
092	3	Htg.	
		Clg. High	
		Clg. Low	
		Ventilation	
102	3	Htg.	
		Clg. High	
		Clg. Low	
		Ventilation	
120	3	Htg.	
		Clg. High	
		Clg. Low	
		Ventilation	
150	3	Htg.	
		Clg. High	
		Clg. Low	
		Ventilation	

*Available blower speed vary by unit and thermostat stages.

Set Minimum Position 1

Use the following mobile service app menu to set "Min OCP Blwr High" for the blower CFM above the "midpoint" CFM. When navigating into this menu, the Unit Controller will run damper calibration and allow damper position adjustment.

RTU MENU > SETTINGS > RTU OPTIONS > DAMPER

Tap "Next" to skip tabs and complete damper position calibration until "Damper Calibration Blower Speed High" tab appears.

Measure the intake air CFM. If the CFM is lower than the design specified CFM for ventilation air, use the Unit Controller to increase the damper percent open. If the CFM is higher than specified, decrease the damper percent open.

NOTE - Intake air CFM can also be determined using the outdoor air temperature, return air temperature and mixed air temperature. Refer to the economizer or outdoor air damper installation instructions.

TABLE 5

HEATING, VENTILATION, & SMOKE MINIMUM AND MAXIMUM CFM

Model	Tonnage	Unit		Heating CFM			Smoke CFM			Vent CFM		
		Speed	Heat Code	De- fault	Min.	Max.	De- fault	Min.	Max.	De- fault	Min.	Max.
LGX092S5M	7.5	Std, Med	S, M	3000	2225	3600	3000	1125	3600	3000	1125	3600
		High	H		2550							
LCX092S5M		All	N, C, E, G, J, K		2800							
LGX102S5M	8.5	Std, Med	S, M	3400	2225	4075	3400	1275	4075	3400	1275	4075
		High	H		2550							
LCX102S5M		All	N, C, E, G, J, K		2800							
LGX120S5M	10	Std, Med	S, M	4000	2225	4800	4000	1500	4800	4000	1500	4800
		High	H		2550							
LCX120S5M		15 - 45	E, G, J, K		2800							
		0, 60	N, L		4000							
LGX150S5M	12.5	Std, Med	S, M	5000	2225	6000	5000	1875	6000	5000	1875	6000
		High	H		2550							
LCX150S5M		15 - 45	E, G, J, K		2800							
		0, 60	N, L		4000							

*Use highest value between Heating and Cooling High CFM Max.

TABLE 6

COOLING MINIMUM AND MAXIMUM CFM

LGX/ LCX Unit	Cooling Low CFM			Cooling High CFM		
	Default	Min.	Max.	Default	Min.	Max.
092	1800	1650	3600	3000	1650	3600
102	2050	1875	4075	3400	1875	4075
120	2400	2200	4800	4000	2200	4800
150	3000	2750	6000	5000	2750	6000

*Use Cooling High CFM Max

Set Minimum Position 2

Use the following mobile service app menu in the Unit Controller to set “Min OCP Blwr Low” for the blower CFM below the “midpoint” CFM. When navigating into this menu, the Unit Controller will run damper calibration and allow damper position adjustment.

RTU MENU > SETTINGS > RTU OPTIONS > DAMPER

Tap “Next” to skip tabs and complete damper position calibration until “Damper Calibration Blower Speed High” tab appears.

Measure the intake air CFM. If the CFM is lower than the design specified CFM for ventilation air, use the Unit Controller to increase the damper percent open. If the CFM is higher than specified, decrease the damper percent open.

NOTE - Intake air CFM can also be determined using the outdoor air temperature, return air temperature and mixed air temperature. Refer to the economizer or outdoor air damper installation instructions.

Blower Operation and Adjustments

Supply Air Staged Units - The blower rotation will always be correct on units equipped with an inverter. Checking blower rotation is not a valid method of determining voltage phasing for incoming power.

Supply Air Staged Units and Units Equipped With Optional Voltage or Phase Detection - The Unit Controller checks the incoming power during start-up. If the voltage or phase is incorrect, the Unit Controller will display an alarm and the unit will not start.

A-Blower Operation

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

SERVICE > TEST > BLOWER

Instructions provided with the thermostat may also be used to initiate blower only (G) demand. Unit will cycle on thermostat demand. The following steps apply to applications using a typical electro-mechanical thermostat.

- 1 - Blower operation is manually set at the thermostat subbase fan switch. With fan switch in **ON** position, blowers will operate continuously.
- 2 - With fan switch in **AUTO** position, the blowers will cycle with demand. Blowers and entire unit will be off when system switch is in **OFF** position.

⚠ IMPORTANT

Three Phase Scroll Compressor Voltage Phasing

Three phase scroll compressors must be phased sequentially to ensure correct compressor and blower* rotation and operation. Compressor and blower are wired in phase at the factory. Power wires are color-coded as follows: line 1-red, line 2-yellow, line 3-blue.

- 1- Observe suction and discharge pressures and blower* rotation on unit start-up.
- 2- Suction pressure must drop, discharge pressure must rise, and blower* rotation must match rotation marking.

If pressure differential is not observed or blower* rotation is not correct:

- 3- Disconnect all remote electrical power supplies.
- 4- Reverse any two field-installed wires connected to the line side of S48 disconnect or TB13 terminal strip. Do not reverse wires at blower contactor.
- 5- Make sure the connections are tight.

Discharge and suction pressures should operate at their normal start-up ranges.

*Supply air VFD motors should rotate in the correct direction; verify scroll compressor rotation separately. Contact technical support if the VFD blower is rotating incorrectly.

⚠ 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-Blower Access

- 1 - Disconnect jack/plug connector to blower motor. Also disconnect jack/plug connector heating limit switches on gas units.
- 2 - Remove screws on either side of blower assembly sliding base. See FIGURE 24.
- 3 - Pull base toward outside of unit.

C-Determining Unit CFM

The blower assembly is secured to a sliding frame which allows the blower motor to be pulled out of the unit. See FIGURE 24.

- 1 - Loosen the reusable wire tie which secures the blower wiring to the blower motor mounting plate.
- 2 - Remove and retain screws on either side of sliding frame. Pull frame toward outside of unit.
- 3 - Slide frame back into original position when finished servicing. Reattach the blower wiring in the previous location on the blower motor base using the wire tie.
- 4 - Replace retained screws on either side of the sliding frame.

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

- 5 - Referring to page 23 and page 24, use static pressure and RPM readings to determine unit CFM. Use page 25 when installing units with any of the optional accessories listed.
- 6 - The blower RPM can be adjusted at the motor pulley. Loosen Allen screw and turn adjustable pulley clockwise to increase CFM. Turn counterclockwise to decrease CFM. See FIGURE 24. Do not exceed minimum and maximum number of pulley turns as shown in TABLE 7.

TABLE 7

MINIMUM AND MAXIMUM PULLEY ADJUSTMENT

Belt	Min. Turns Open	Max. Turns Open
A Section	No minimum	5
B Section	1*	6

*No minimum number of turns open when B belt is used on pulleys 6" O.D. or larger.

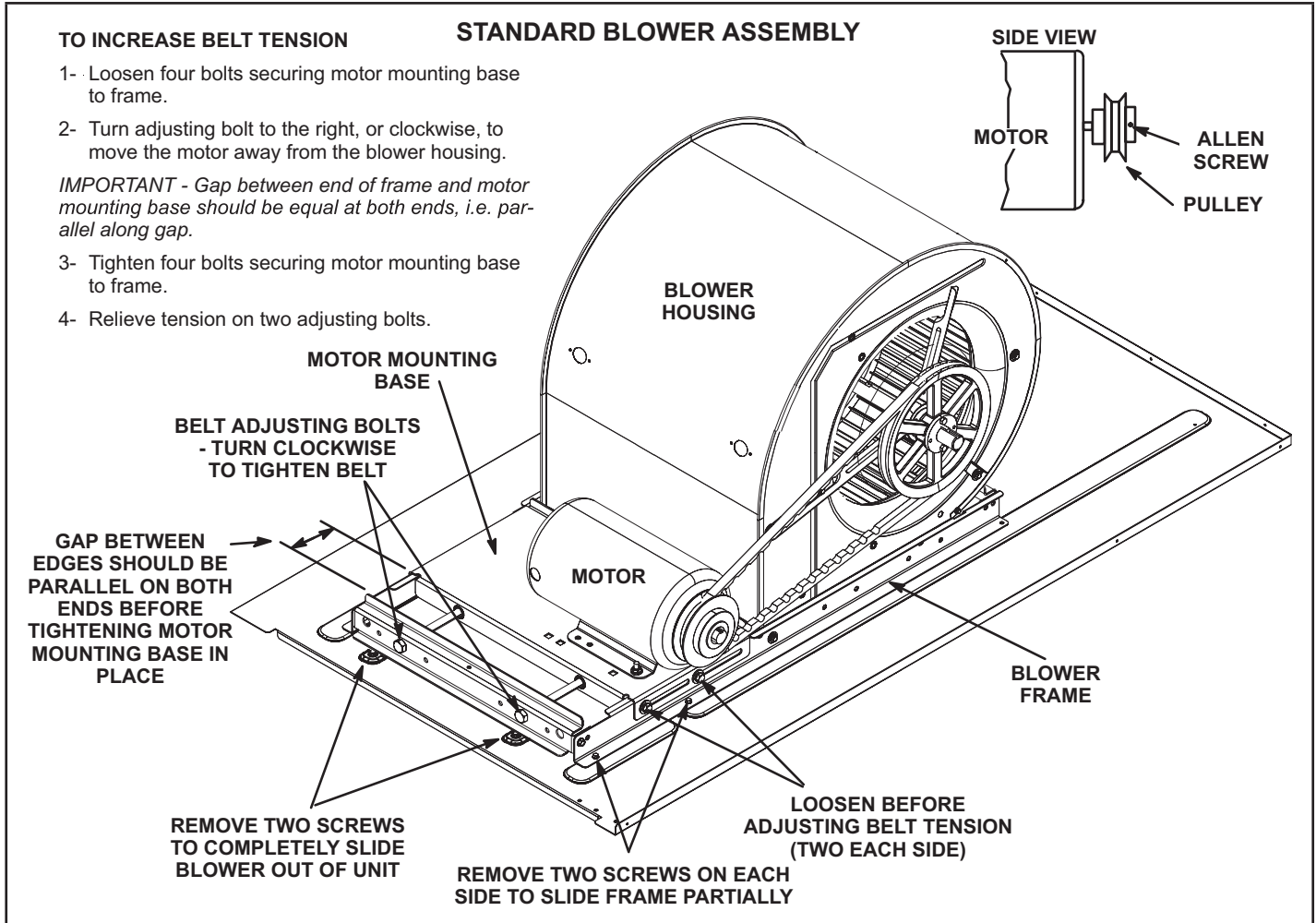


FIGURE 24

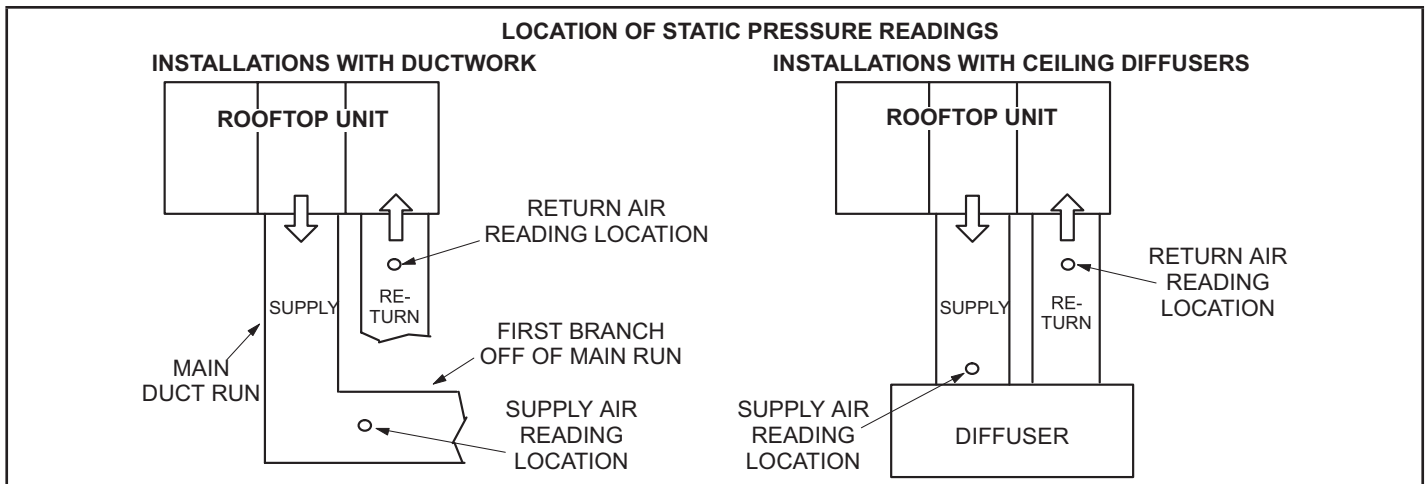


FIGURE 25

D-Blower Belt Adjustment

Maximum life and wear can be obtained from belts only if proper pulley alignment and belt tension are maintained. Tension new belts after a 24-48 hour period of operation. This will allow belt to stretch and seat in the pulley grooves. Make sure blower and motor pulleys are aligned as shown in FIGURE 26.

- 1 - Loosen four bolts securing motor base to mounting frame. See FIGURE 24.
- 2 - To increase belt tension -
Turn both adjusting bolts to the right, or clockwise, to move the motor outward and tighten the belt. This increases the distance between the blower motor and the blower housing.
To loosen belt tension -
Turn the adjusting bolts to the left, or counterclockwise to loosen belt tension.

IMPORTANT - Align top edges of blower motor base and mounting frame base parallel before tightening two bolts on the other side of base. Motor shaft and blower shaft must be parallel.

- 3 - Tighten two bolts on each side of the motor mounting base. This secures the mounting base to the frame.

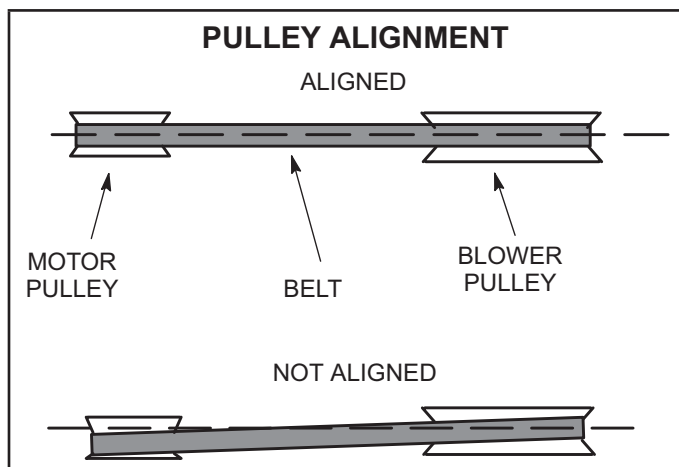


FIGURE 26

E-Check Belt Tension

Overtensioning belts shortens belt and bearing life. Check belt tension as follows:

- 1 - Measure span length X. See FIGURE 27.
- 2 - Apply perpendicular force to center of span (X) with enough pressure to deflect belt 1/64" for every inch of span length or 1.5mm per 100mm of span length.
Example: Deflection distance of a 40" span would be 40/64" or 5/8".
Example: Deflection distance of a 400mm span would be 6mm.
- 3 - Measure belt deflection force. For a new 2 and 3hp belt, the deflection force should be 5.0-7.0 lbs. (35-48kPa). For a new 5hp belt, the deflection force should be 7-10lbs. (48-69kPa).

A force below these values indicates an undertensioned belt. A force above these values indicates an overtensioned belt.

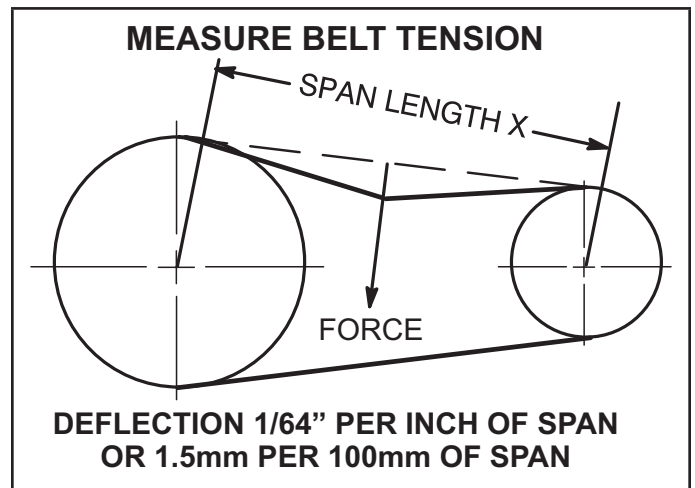


FIGURE 27

F-Field-Furnished Blower Drives

For field-furnished blower drives, use page 23 through page 25 to determine BHP and RPM required. Reference TABLE 9 for drive component manufacturer's numbers.

TABLE 8

G-Minimum Airflow For Electric Heat (Field Installed Option)

Electric Heat kW	Minimum CFM
7.5	2800
15	2800
22.5	2800
30	2800
45	2800
60	4000

BLOWER DATA

092S & 102S STANDARD EFFICIENCY BELT DRIVE BLOWER – BASE UNIT

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY (NO HEAT SECTION) WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE. FOR ALL UNITS ADD:

- 1 - Wet indoor coil air resistance of selected unit.
- 2 - Any factory installed options air resistance (heat section, economizer, etc.)
- 3 - Any field installed accessories air resistance (duct resistance, diffuser, etc.)

Then determine from blower table blower motor output required.

See page 25 for blower motors and drives.

See page 25 for wet coil and option/accessory air resistance data.

MAXIMUM STATIC PRESSURE WITH GAS HEAT - 2.0 in. w.g.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT (Maximum Static Pressure - 2.0 in. w.g.)

15 kW, 22.5 kW, 30 kW and 45 kW - 2800 cfm

60 kW - 4000 cfm

Total Air Volume ofm	Total Static Pressure - in. w.g.																											
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2000	593	0.11	636	0.07	682	0.10	731	0.22	784	0.60	840	0.96	898	1.26	948	1.38	996	1.47	1045	1.57	1092	1.71	1140	1.92	1188	2.32		
2250	604	0.15	645	0.11	690	0.15	739	0.39	790	0.74	846	1.08	901	1.34	953	1.48	1002	1.57	1052	1.70	1100	1.86	1149	2.09	1197	2.42		
2500	615	0.19	655	0.15	699	0.20	747	0.55	797	0.89	851	1.20	906	1.44	959	1.58	1009	1.68	1059	1.83	1108	2.01	1158	2.26	1206	2.52		
2750	626	0.23	666	0.19	709	0.37	755	0.71	805	1.03	858	1.32	912	1.55	966	1.70	1017	1.81	1067	1.97	1117	2.17	1166	2.44	1215	2.71		
3000	637	0.27	677	0.24	719	0.55	764	0.87	813	1.18	866	1.45	920	1.67	975	1.82	1026	1.96	1076	2.13	1126	2.35	1176	2.63	1225	2.92		
3250	650	0.31	688	0.43	730	0.73	775	1.04	823	1.34	875	1.60	930	1.81	985	1.97	1036	2.12	1086	2.31	1136	2.54	1186	2.83	1235	3.13		
3500	663	0.35	700	0.63	741	0.92	786	1.22	834	1.50	886	1.76	942	1.96	997	2.14	1048	2.31	1097	2.51	1147	2.75	1196	3.04	1245	3.35		
3750	676	0.57	714	0.84	754	1.12	798	1.41	846	1.68	899	1.93	956	2.14	1010	2.32	1060	2.51	1109	2.72	1158	2.98	1207	3.27	1255	3.58		
4000	691	0.79	728	1.05	768	1.33	812	1.61	860	1.88	914	2.12	971	2.34	1023	2.53	1072	2.73	1121	2.95	1169	3.22	1218	3.51	1266	3.83		
4250	706	1.03	743	1.28	783	1.55	827	1.82	876	2.09	931	2.33	987	2.55	1037	2.76	1085	2.97	1133	3.20	1181	3.47	1229	3.76	1277	4.08		
4500	722	1.27	759	1.52	799	1.78	844	2.05	894	2.31	949	2.56	1003	2.79	1052	3.00	1098	3.22	1145	3.46	1193	3.73	1241	4.03	1289	4.34		
4750	739	1.53	776	1.77	817	2.03	862	2.30	913	2.56	968	2.81	1020	3.04	1066	3.27	1112	3.49	1158	3.74	1205	4.01	1253	4.30	1301	4.61		
5000	757	1.79	794	2.04	835	2.30	882	2.56	934	2.83	988	3.08	1036	3.32	1081	3.55	1125	3.78	1171	4.02	1218	4.29	1265	4.59	1312	4.89		

BLOWER DATA

120S & 150S STANDARD EFFICIENCY – BASE UNIT

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY (NO HEAT SECTION) WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE. FOR ALL UNITS ADD:

- 1 - Wet indoor coil air resistance of selected unit.
- 2 - Any factory installed options air resistance (heat section, economizer, etc.)
- 3 - Any field installed accessories air resistance (duct resistance, diffuser, etc.)

Then determine from blower table blower motor output required.

See page 25 for blower motors and drives.

See page 25 for wet coil and option/accessory air resistance data.

MAXIMUM STATIC PRESSURE WITH GAS HEAT - 2.0 in. w.g.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT (Maximum Static Pressure - 2.0 in. w.g.)

15 kW, 22.5 kW, 30 kW and 45 kW - 2800 cfm

60 kW - 4000 cfm

Total Air Volume ofm	Total Static Pressure - in. w.g.																											
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2000	497	0.25	558	0.44	624	0.6	694	0.74	764	0.85	830	0.99	889	1.16	943	1.34	994	1.52	1045	1.71	1096	1.89	1146	2.08	1197	2.27		
2250	511	0.34	573	0.52	638	0.68	708	0.82	776	0.94	839	1.09	896	1.26	948	1.45	998	1.64	1048	1.83	1098	2.01	1149	2.2	1200	2.4		
2500	527	0.44	589	0.62	654	0.78	723	0.91	789	1.05	850	1.21	904	1.39	955	1.58	1003	1.77	1052	1.96	1101	2.14	1152	2.33	1203	2.53		
2750	545	0.55	606	0.72	672	0.88	740	1.03	804	1.17	861	1.34	914	1.53	962	1.72	1010	1.92	1057	2.10	1105	2.29	1154	2.47	1206	2.68		
3000	564	0.66	626	0.84	692	1.01	759	1.16	819	1.32	874	1.49	924	1.68	971	1.88	1017	2.08	1063	2.26	1110	2.44	1158	2.63	1208	2.83		
3250	585	0.79	648	0.98	714	1.14	778	1.31	836	1.48	887	1.66	935	1.86	981	2.06	1026	2.26	1071	2.45	1117	2.63	1163	2.80	1213	3.00		
3500	607	0.93	672	1.13	737	1.31	798	1.48	852	1.66	901	1.85	948	2.05	993	2.26	1037	2.46	1081	2.65	1125	2.83	1171	3.01	1221	3.21		
3750	632	1.10	698	1.31	762	1.50	819	1.67	869	1.86	915	2.05	961	2.25	1005	2.47	1049	2.68	1092	2.88	1136	3.05	1181	3.24	1231	3.45		
4000	660	1.30	726	1.52	787	1.70	838	1.87	885	2.06	930	2.26	974	2.48	1018	2.71	1062	2.93	1105	3.12	1149	3.30	1194	3.49	1245	3.72		
4250	691	1.53	755	1.75	810	1.91	857	2.07	901	2.27	945	2.50	990	2.74	1034	2.98	1077	3.20	1120	3.39	1163	3.58	1210	3.79	1262	4.03		
4500	724	1.78	783	1.98	831	2.12	874	2.28	917	2.50	962	2.75	1006	3.02	1051	3.27	1094	3.49	1137	3.70	1181	3.89	1228	4.11	1281	4.38		
4750	757	2.05	809	2.20	851	2.33	891	2.51	935	2.76	980	3.05	1025	3.33	1070	3.59	1113	3.82	1156	4.03	1201	4.24	1249	4.47	1303	4.75		
5000	787	2.31	831	2.43	870	2.57	910	2.78	954	3.06	1000	3.38	1046	3.68	1091	3.95	1135	4.19	1178	4.40	1224	4.62	1272	4.86	1325	5.13		
5250	814	2.55	852	2.66	889	2.83	930	3.09	975	3.41	1023	3.76	1070	4.08	1115	4.35	1159	4.59	1203	4.81	1248	5.03	1297	5.27	1350	5.53		
5500	835	2.78	871	2.91	909	3.13	952	3.44	999	3.81	1049	4.18	1096	4.51	1142	4.79	1186	5.03	1229	5.24	1275	5.46	1324	5.69	---	---		
5750	854	3.01	890	3.19	930	3.48	977	3.86	1027	4.27	1078	4.66	1126	4.99	1171	5.26	1214	5.49	1258	5.70	---	---	---	---	---	---		
6000	871	3.26	910	3.53	955	3.90	1006	4.34	1060	4.80	1111	5.19	1158	5.51	---	---	---	---	---	---	---	---	---	---	---	---		
6250	890	3.57	934	3.94	985	4.41	1041	4.91	1096	5.38	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		

BLOWER DATA

FACTORY INSTALLED BELT DRIVE KIT SPECIFICATIONS

Nominal hp	Maximum hp	Drive Kit Number	RPM Range
2	2.3	1	590 - 890
2	2.3	2	800 - 1105
2	2.3	3	795 - 1195
3	3.45	4	730 - 970
3	3.45	5	940 - 1200
3	3.45	6	1015 - 1300
5	5.75	10	900 - 1135
5	5.75	11	1050 - 1335

NOTE - Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

NOTE - Units equipped with option are limited to a motor service factor of 1.0.

POWER EXHAUST FAN PERFORMANCE (FIELD INSTALLED OPTION)

Return Air System Static Pressure	Air Volume Exhausted
in. w.g.	cfm
0	3175
0.05	2955
0.10	2685
0.15	2410
0.20	2165
0.25	1920
0.30	1420
0.35	1200

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

Air Volume cfm	Wet Indoor Coil		Condenser Reheat Coil	Gas Heat Exchanger			Econo-mizer	Filters		Return Air Adapter Plate
	092, 102	120, 150		Standard Heat	Medium Heat	High Heat		MERV 8	MERV 13	
1750	.04	.04	.02	.06	.02	.02	.05	.01	.03	.00
2000	.05	.05	.02	.07	.05	.06	.06	.01	.03	.00
2250	.06	.06	.02	.07	.07	.08	.08	.01	.04	.00
2500	.07	.07	.03	.09	.10	.11	.11	.01	.05	.00
2750	.08	.08	.03	.09	.11	.12	.12	.02	.05	.00
3000	.10	.09	.03	.11	.12	.13	.13	.02	.06	.02
3250	.11	.10	.04	.12	.15	.16	.15	.02	.06	.02
3500	.12	.11	.04	.12	.16	.17	.15	.03	.07	.04
3750	.14	.13	.05	.14	.19	.20	.15	.03	.08	.07
4000	.15	.14	.05	.14	.21	.22	.19	.04	.08	.09
4250	.17	.15	.06	.14	.24	.28	.19	.04	.09	.11
4500	.19	.17	.07	.15	.26	.32	.22	.04	.09	.12
4750	.20	.18	.07	.16	.29	.37	.25	.05	.10	.16
5000	.22	.20	.08	.16	.34	.43	.29	.06	.10	.18
5250	.24	.22	.08	.16	.37	.47	.32	.06	.11	.19
5500	.25	.23	.09	.18	.44	.54	.34	.07	.12	.22
5750	.27	.25	.10	.19	.49	.59	.45	.07	.12	.25
6000	.29	.27	.10	.20	.54	.64	.52	.08	.13	.27

**TABLE 9
MANUFACTURER'S NUMBERS**

DRIVE NO.	DRIVE COMPONENTS					
	ADJUSTABLE SHEAVE		FIXED SHEAVE		BELT	
	BROWNING NO.	OEM PART NO.	BROWNING NO.	OEM PART NO.	BROWNING NO.	OEM PART NO.
1	1VP34x7/8	31K6901	AK61x1	100244-20	AX54	100245-25
2	1VP40x7/8	79J0301	AK59x1	31K6801	AX55	100245-26
3	1VP34x7/8	31K6901	AK46x1	100244-17	AX52	100245-33
4	1VP44x7/8	53J9601	AK74x1	100244-21	AX58	100245-34
5	1VP50x7/8	98J0001	AK69x1	37L4701	AX58	100245-34
6	1VP50x7/8	98J0001	AK64x1	12L2501	AX57	100245-28
10	1VP50x1-1/8	P-8-1977	BK77x1	49K4001	BX59	59A5001
11	1VP60x1-1/8	41C1301	BK77x1	49K4001	BX61	93J9801

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 (LGX only) are energized.

Cooling Start-Up

⚠ IMPORTANT

If unit is equipped with a crankcase heater, make sure heater is energized 24 hours before unit start-up to prevent compressor damage as a result of slugging.

A-Start-Up

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

**RTU MENU > SERVICE > COMPONENT TEST >
COOLING > COOLING STAGE**

- 1 - Refer to Cooling Operation section for cooling start-up.
- 2 - Units have two refrigerant circuits. See FIGURE 28.
- 3 - Each refrigerant circuit is charged with R454B refrigerant. See unit rating plate for correct amount of charge.
- 4 - Refer to Refrigerant Check and Charge section for proper method to check refrigerant charge.

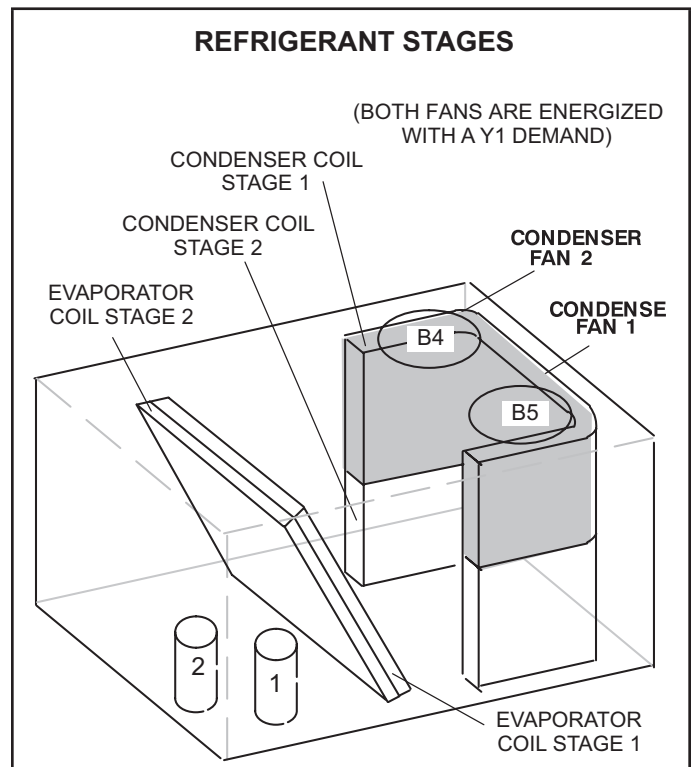


FIGURE 28

B-R454B Refrigerant

Units charged with R454B refrigerant operate at lower pressures than R410A. The expansion valve and liquid line dryer provided with the unit are approved for use with R454B.

R454B refrigerant is stored in a gray cylinder.

CAUTION

Mineral oils are not compatible with R454B. If oil must be added, it must be a polyolester oil.

Manifold gauge sets used with systems charged with R454B refrigerant must be capable of handling various system operating pressures. The gauges should be rated for use with pressures of 0-800 on the high side and a low side of 30" vacuum to 250 psi with dampened speed to 500 psi. Gauge hoses must be rated for use at up to 800 psi of pressure with a 4000 psi burst rating.

Refrigerant Charge R-454B		
Unit	M _c (lbs)	M _c (kg)
LCX/LGX092 STG 1	3.56	1.62
LCX/LGX092 STG 2	3.06	1.39
LCX/LGX102 STG 1	4.31	1.96
LCX/LGX102 STG 2	3.00	1.36
LCX/LGX120 STG 1	3.75	1.70
LCX/LGX120 STG 2	4.31	1.96
LCX/LGX150 STG 1	5.13	2.32
LCX/LGX150 STG 2	5.94	2.69
LCX/LGX092 W/ Humidrol STG 1	4.50	2.04
LCX/LGX092 W/ Humidrol STG 2	2.88	1.30
LCX/LGX102 W/ Humidrol STG 1	4.44	2.01
LCX/LGX102 W/ Humidrol STG 2	3.06	1.39
LCX/LGX120 W/ Humidrol STG 1	5.38	2.44
LCX/LGX120 W/ Humidrol STG 2	4.88	2.21
LCX/LGX150 W/ Humidrol STG 1	5.19	2.35
LCX/LGX150 W/ Humidrol STG 2	5.81	2.64

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.
- 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, that it 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.

C-Refrigerant Charge and Check - All-Aluminum Coil

LGX/LCX 092, 102, 120, 150

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.

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:

IMPORTANT - Charge unit in standard cooling mode.

- 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.

Mobile service app:

RTU MENU > COMPONENT TEST > COOLING > COOLING STAGE 3"

- 2 - Check each system separately with all stages operating. Compare the normal operating pressures (see TABLE 10 - TABLE 17) 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 appropriate circuit 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 LGX/LCX 092S No Reheat Circuit 1: At 95°F outdoor ambient and a measured suction pressure of 130psig, the target liquid temperature is 106°F. For a measured liquid temperature of 112°F, add charge in increments until measured liquid temperature agrees with the target liquid temperature.

IMPORTANT

Mineral oils are not compatible with R454B. If oil must be added, it must be a polyol ester oil.

D-Compressor Controls

See unit wiring diagram to determine which controls are used on each unit.

- 1 - High Pressure Switch (S4, S7)

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, S88)

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 - Crankcase Heater (HR1, HR2)

Compressors have belly band compressor oil heaters which must be on 24 hours before running compressors. Energize by setting thermostat so that there is no cooling demand, to prevent compressor from cycling, and apply power to unit.

- 4 - Diagnostic Sensors (RT46-RT47)

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.

TABLE 10 581309-01

LGX/LCX 092S No Reheat Normal Operating Pressures - All-Aluminum Coil

	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)
Circuit 1	93	225	96	261	99	301	101	346	103	396	105	450
	100	227	103	263	106	304	108	349	111	398	113	453
	113	233	117	270	120	311	124	356	127	406	130	460
	127	242	131	279	136	320	140	366	144	416	148	471
Circuit 2	110	226	114	261	117	300	121	343	123	390	126	440
	116	229	120	265	124	304	128	347	131	394	135	444
	126	236	132	272	137	312	142	355	146	403	151	453
	136	245	143	281	149	321	155	365	161	412	166	463

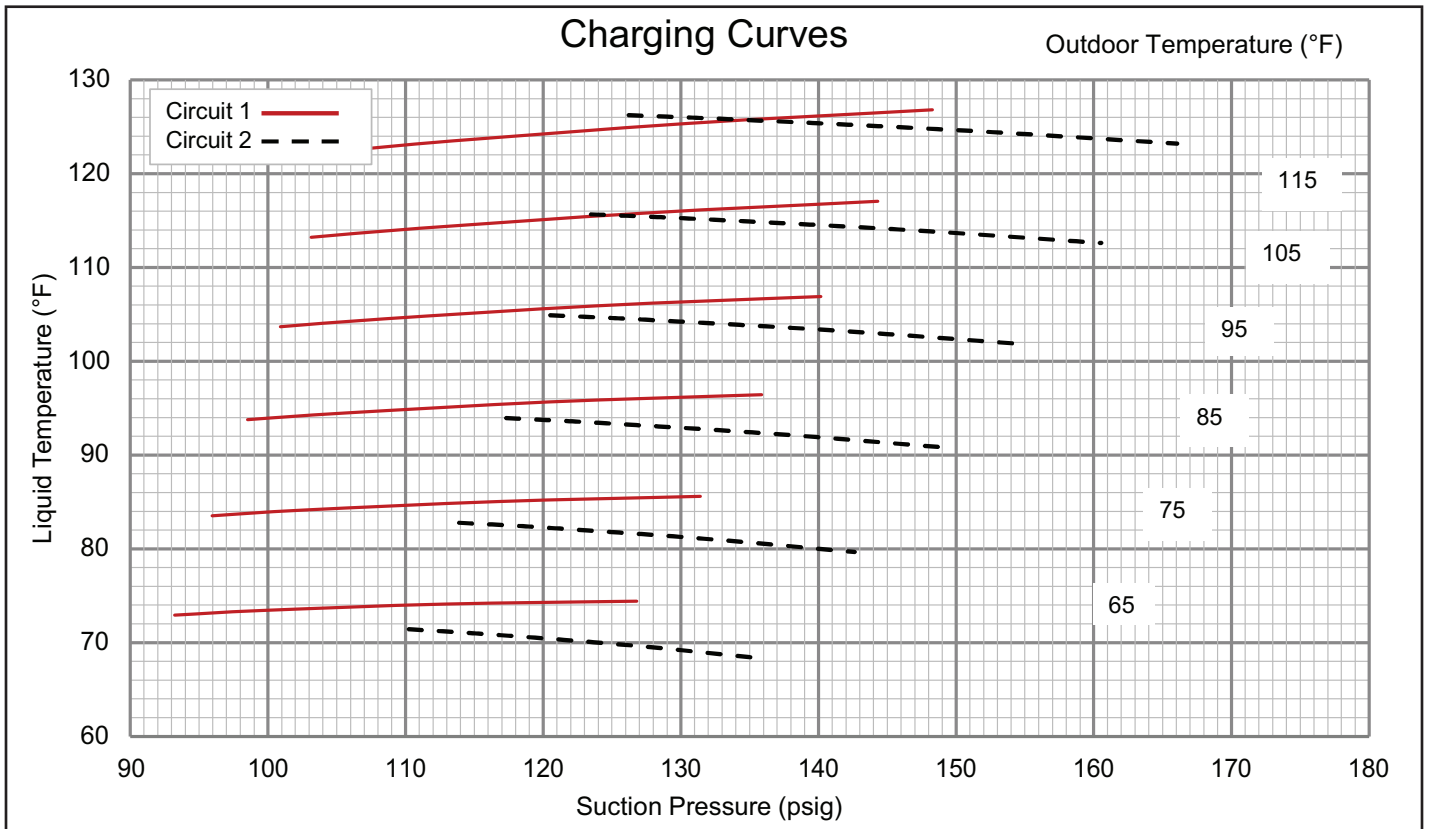


TABLE 11 581348-01

LGX/LCX 092S Reheat Normal Operating Pressures - All-Aluminum Coil												
	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)
Circuit 1	94	233	96	270	98	313	100	364	101	422	103	488
	101	235	103	271	105	313	107	363	110	420	111	484
	115	245	118	277	121	317	124	365	127	420	130	482
	131	260	135	290	139	328	143	373	146	425	149	485
Circuit 2	111	226	114	261	117	301	120	344	123	391	125	443
	116	230	120	265	124	305	127	348	131	396	134	447
	127	239	132	274	137	314	141	358	146	406	150	458
	137	249	144	285	150	326	155	370	161	418	166	470

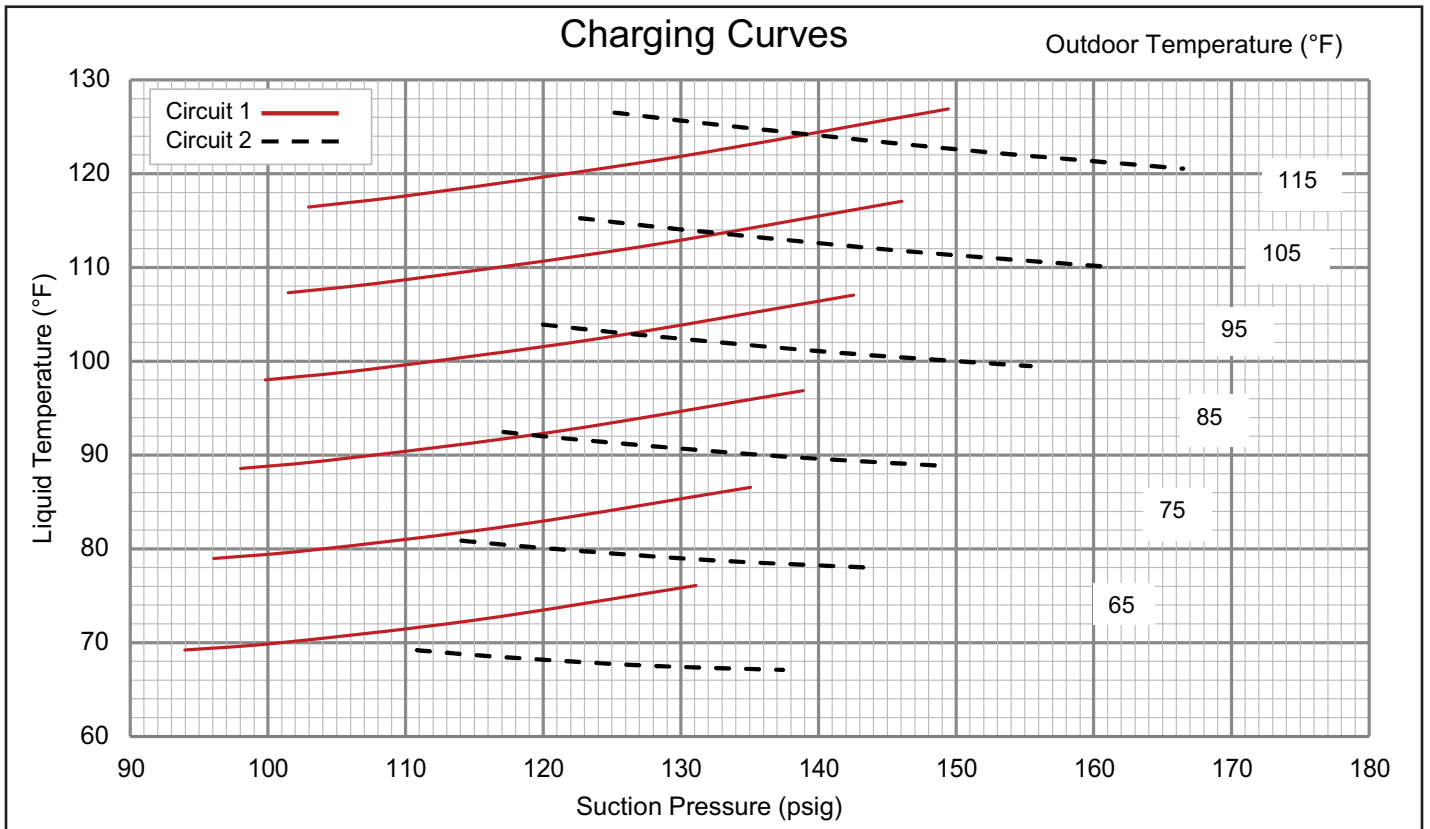


TABLE 12 581310-01

LGX/LCX 102S No Reheat Normal Operating Pressures - All-Aluminum Coil												
	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)
Circuit 1	100	219	101	260	103	308	104	361	106	421	108	487
	106	225	107	265	109	311	111	363	114	422	116	487
	119	238	121	275	124	318	127	367	130	423	133	485
	133	251	137	285	140	325	144	372	148	424	152	483
Circuit 2	107	244	110	282	113	324	116	370	119	419	121	472
	112	248	116	286	120	328	123	374	126	423	129	476
	123	255	128	293	133	336	137	382	141	431	145	485
	135	262	141	301	146	343	152	390	157	440	162	493

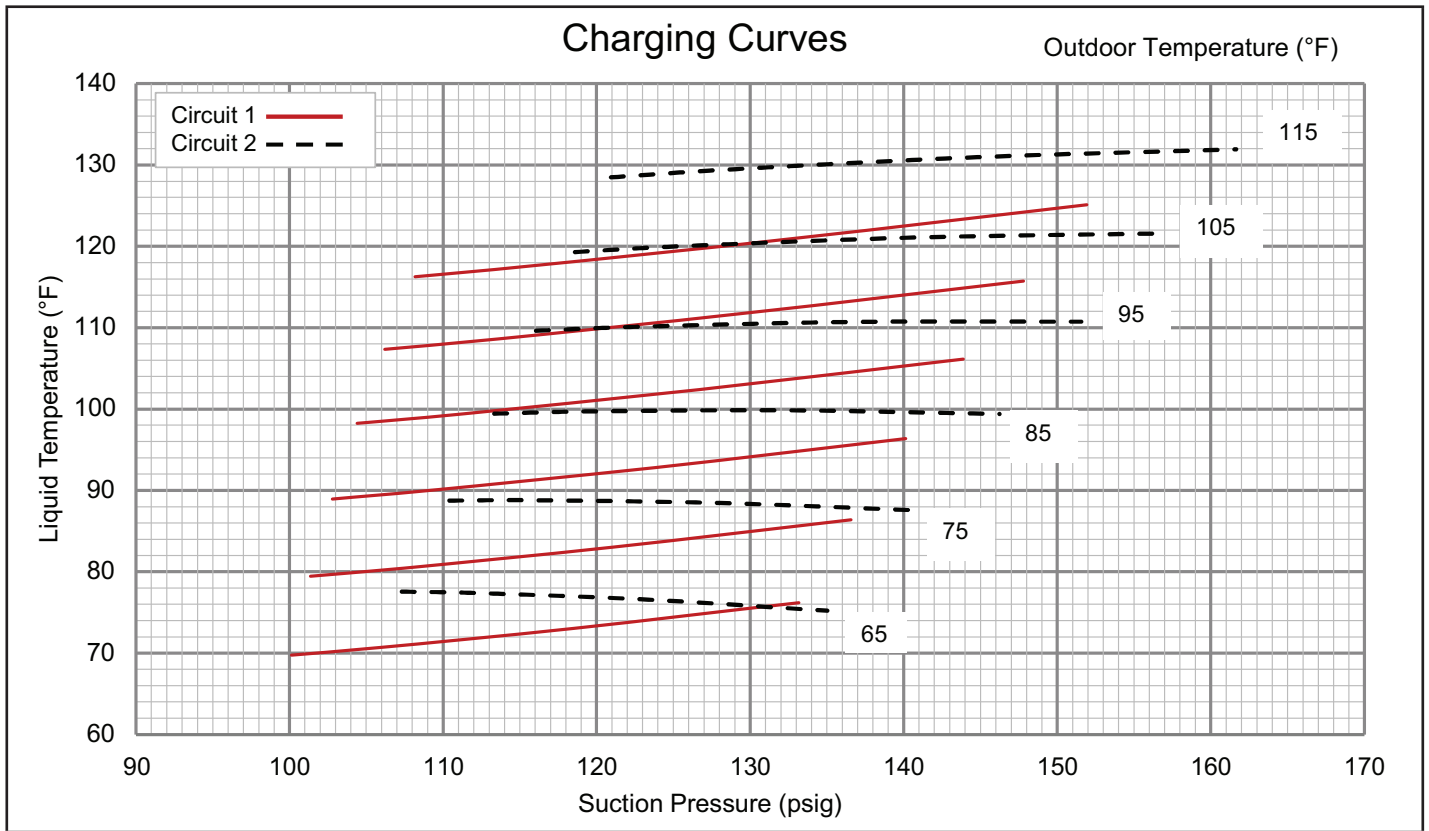


TABLE 13 581349-01

LGX/LCX 102S Reheat Normal Operating Pressures - All-Aluminum Coil												
	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)
Circuit 1	96	234	99	271	100	317	102	372	103	436	104	509
	103	236	106	270	108	314	110	367	111	430	112	501
	118	246	121	277	124	317	127	366	129	424	131	491
	135	266	139	293	143	329	146	374	150	428	152	492
Circuit 2	109	250	112	288	114	330	116	375	119	425	121	479
	115	254	118	292	121	334	124	380	127	430	130	485
	128	262	132	301	136	344	140	391	144	442	148	497
	141	270	146	310	151	354	156	402	161	454	167	510

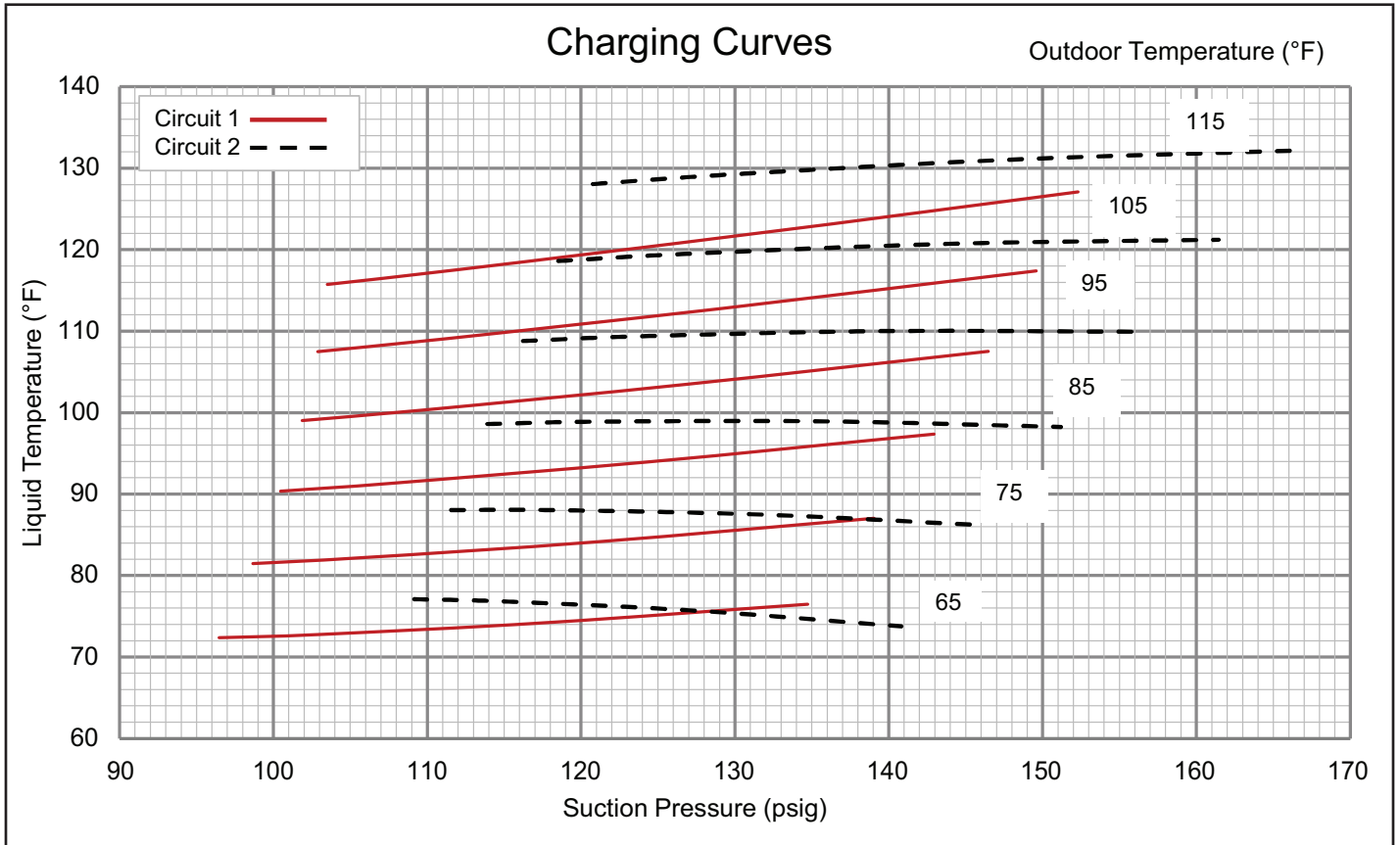


TABLE 14 581311-01

LGX/LCX 120S No Reheat Normal Operating Pressures - All-Aluminum Coil

	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)
Circuit 1	94	226	95	263	97	306	99	356	102	413	104	476
	101	227	103	263	105	306	108	355	110	411	113	473
	117	235	119	270	122	311	125	358	128	412	131	472
	134	250	137	283	140	322	143	368	147	420	150	479
Circuit 2	109	242	112	279	115	320	118	366	121	417	123	472
	116	251	119	286	122	327	126	372	129	422	132	477
	129	272	133	306	138	345	142	389	146	437	149	490
	143	299	149	331	154	369	158	411	163	458	168	509

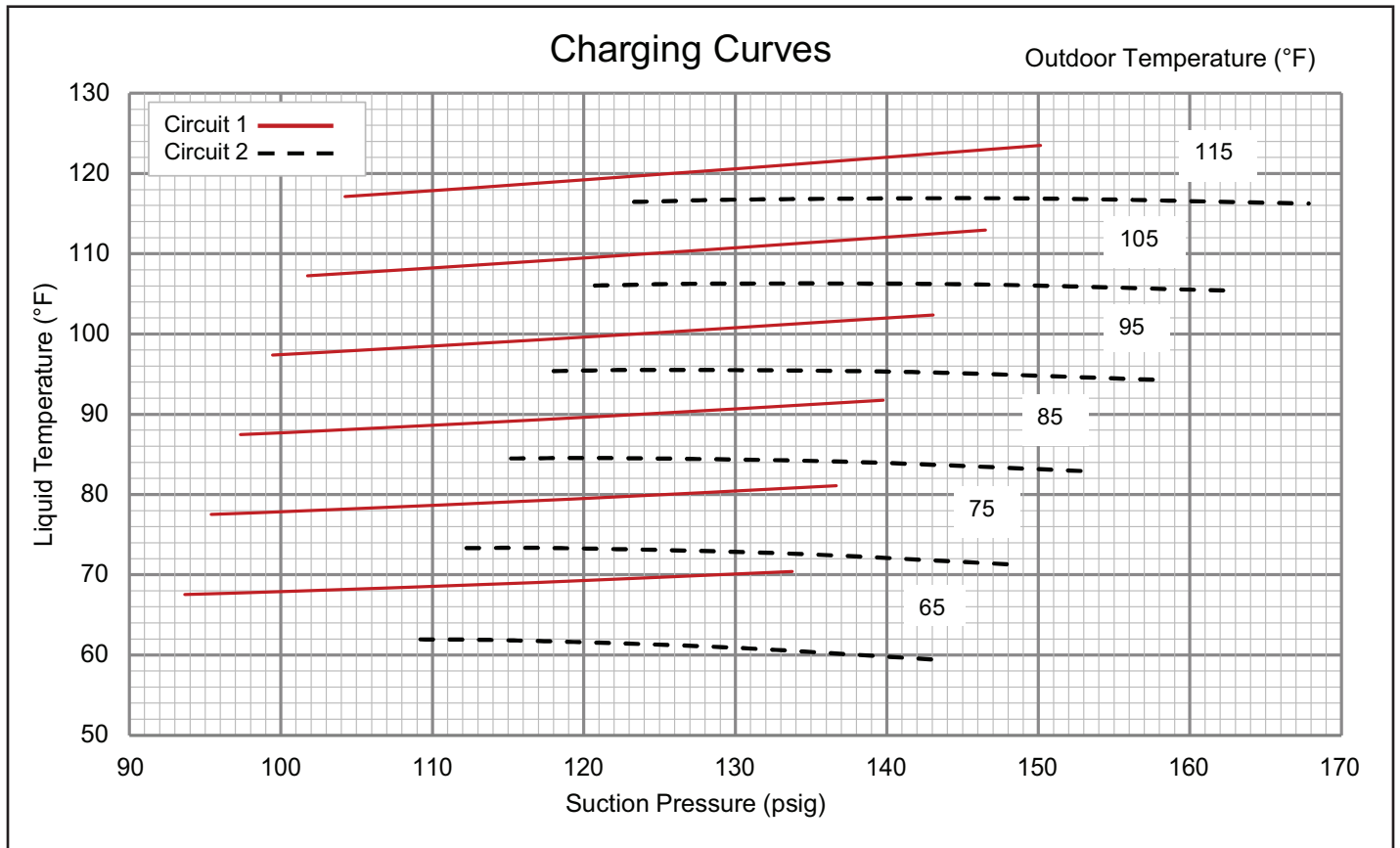


TABLE 15 581350-01

LGX/LCX 120S Reheat Normal Operating Pressures - All-Aluminum Coil												
	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)
Circuit 1	93	236	96	276	98	321	100	374	102	432	104	497
	101	237	103	275	106	319	108	369	110	426	113	489
	117	246	120	280	122	321	125	368	128	421	131	481
	133	263	136	294	139	332	143	375	146	425	149	482
Circuit 2	110	247	113	283	116	324	118	369	121	418	123	472
	116	255	120	291	123	331	126	375	129	423	132	476
	131	277	135	311	139	349	142	392	146	438	149	489
	145	306	150	338	154	375	159	416	163	461	167	510

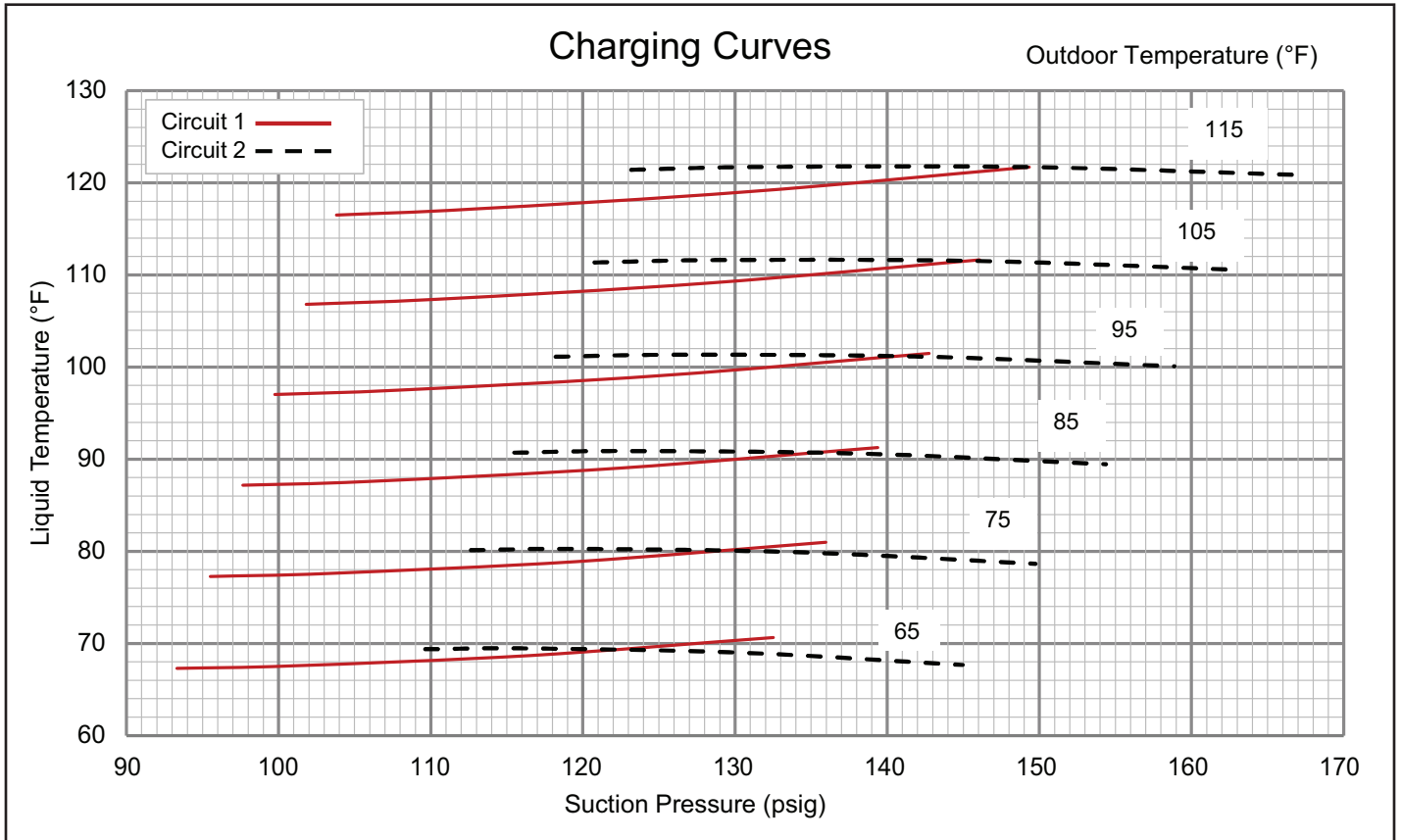


TABLE 16 581312-01

LGX/LCX 150S No Reheat Normal Operating Pressures - All-Aluminum Coil

	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)
Circuit 1	93	227	95	267	98	310	100	358	102	410	103	466
	100	230	102	269	105	313	107	360	109	412	111	467
	115	237	118	276	121	319	124	366	127	417	129	472
	133	247	136	285	140	327	143	373	146	424	149	478
Circuit 2	109	252	111	292	113	336	115	383	116	435	118	491
	115	257	118	296	121	340	123	387	125	439	127	494
	129	268	133	307	137	350	140	397	143	448	146	503
	143	281	148	320	153	363	157	409	161	460	165	515

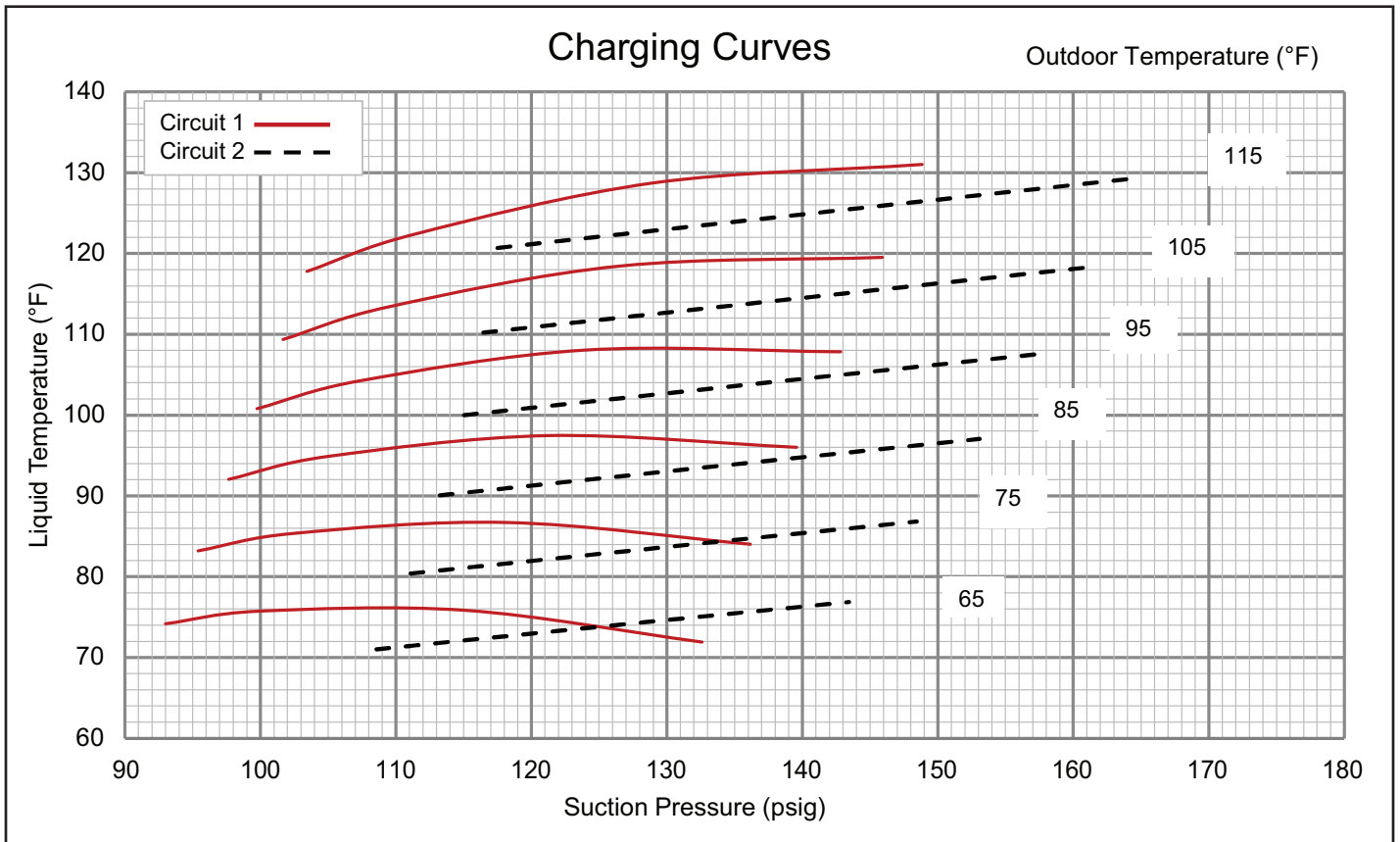
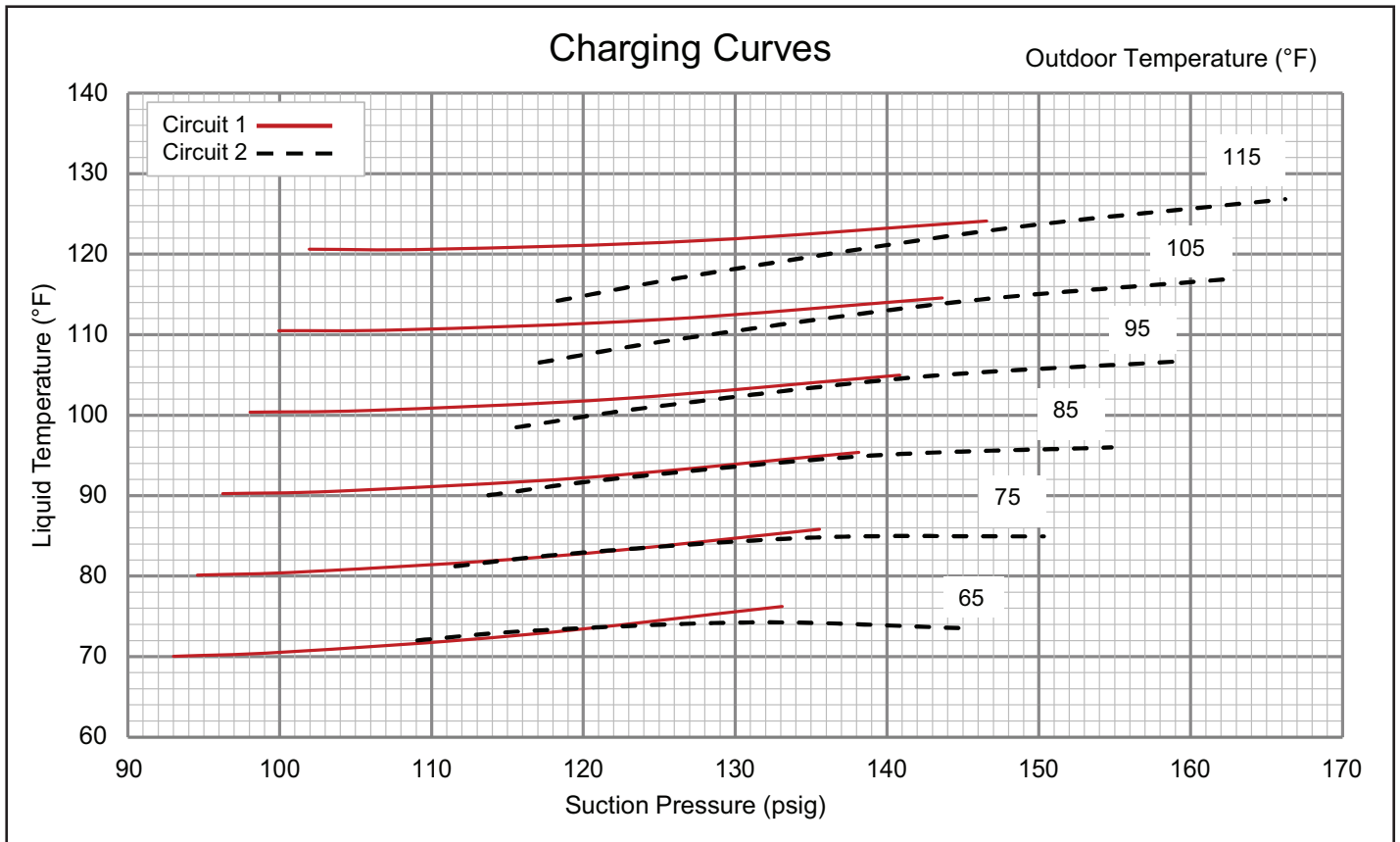


TABLE 17 581351-01

LGX/LCX 150S Reheat Normal Operating Pressures - All-Aluminum Coil												
	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)
Circuit 1	93	238	95	275	96	316	98	363	100	415	102	473
	100	243	102	280	104	321	106	368	108	420	110	477
	116	253	118	289	120	330	123	377	125	429	128	486
	133	263	136	299	138	340	141	386	144	438	147	495
Circuit 2	109	254	112	292	114	335	116	382	117	432	118	487
	117	258	120	297	122	339	125	386	127	436	128	491
	131	269	135	308	139	350	142	397	145	447	148	502
	146	284	150	322	155	365	159	411	163	461	166	516



Diagnostic Sensors

Units are equipped with two factory-installed thermistors (RT46 and RT47) 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 18 for proper locations.

TABLE 18

THERMISTOR LOCATION		
Unit	Sensor	Figure
LGX/LCX 092-120 Indoor Coil	RT46, 47	FIGURE 29
LGX/LCX 150 Indoor Coil	RT46, 47	FIGURE 30

**LGX/LCX 092, 102, 120
EVAPORATOR COIL
RT46, RT47**

NOTES:

1. RT46 SENSOR, STAGE 1 DISTRIBUTOR TUBE, ANY TUBE BEFORE THE BLACK DISTRIBUTOR SLEEVE.
2. RT47 SENSOR, STAGE 2 DISTRIBUTOR TUBE, ANY TUBE BEFORE THE BLACK DISTRIBUTOR SLEEVE
3. USE WIRE TIE (ITEM 25) TO SECURE WIRE TO COPPER TUBE FOR STRAIN RELIEF.
4. ATTACH SENSORS SO WIRES ARE ORIENTED IN DOWNWARDS DIRECTION AS SHOWN.

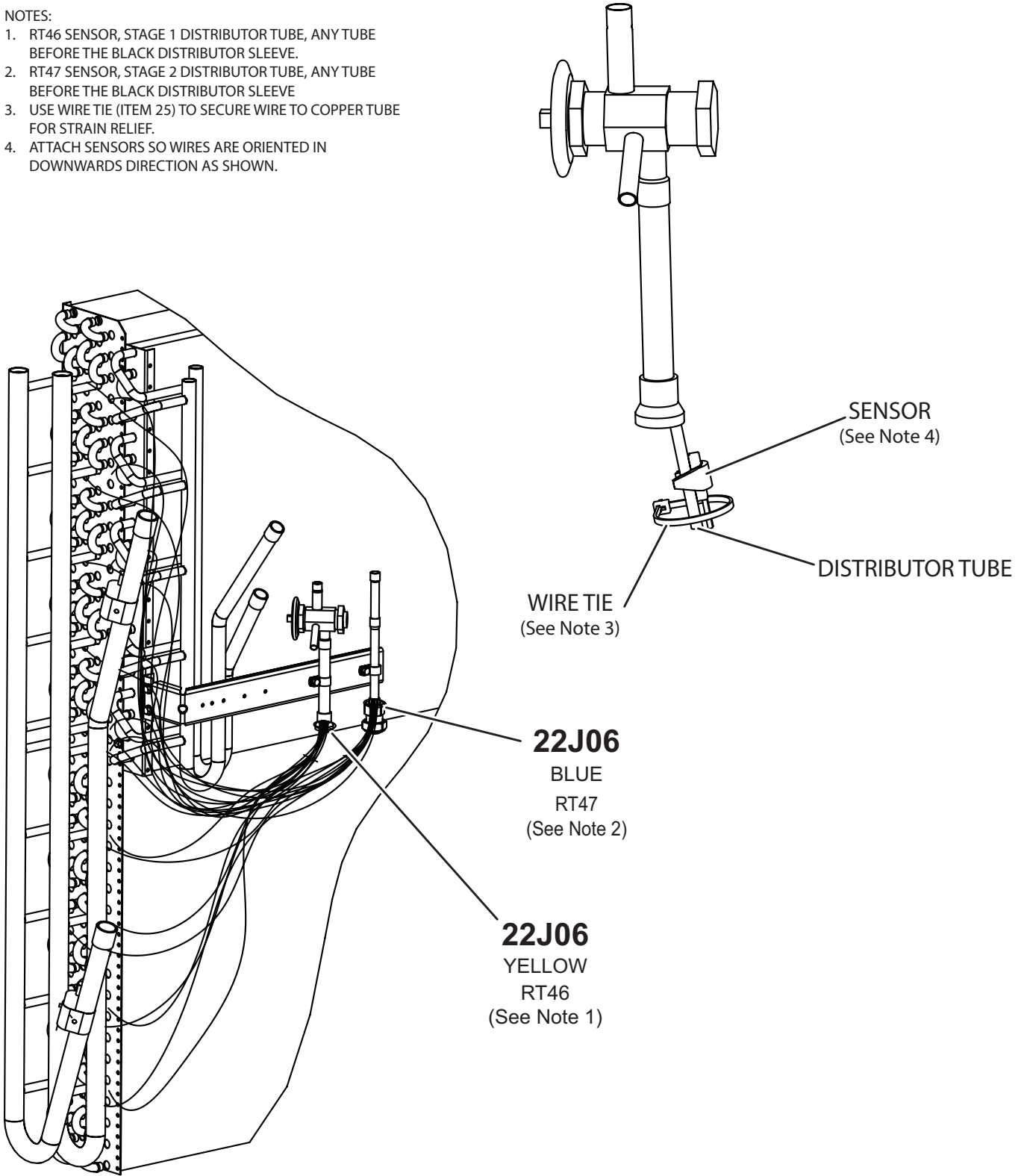
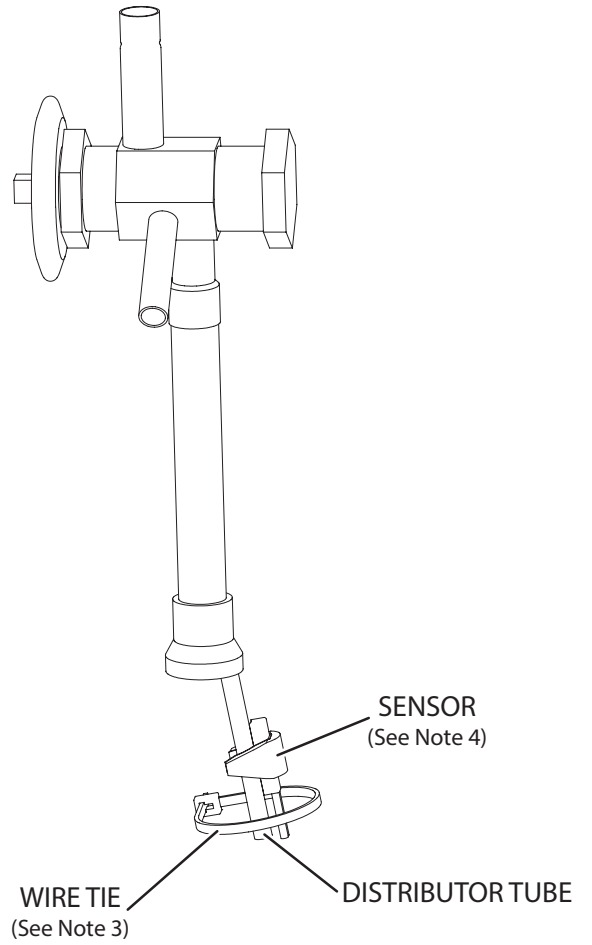
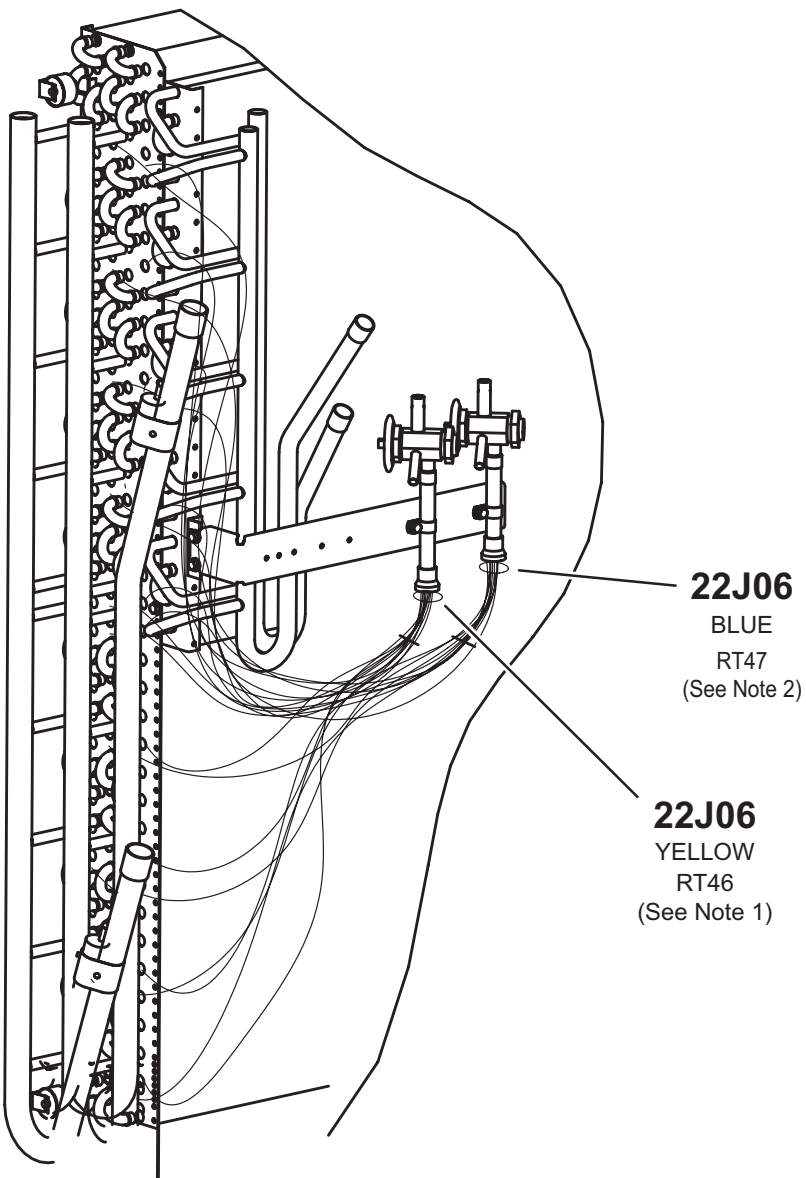


FIGURE 29

**LGX/LCX 150
EVAPORATOR COIL
RT46, RT47**

NOTES:

1. RT46 SENSOR, STAGE 1 DISTRIBUTOR TUBE, ANY TUBE BEFORE THE BLACK DISTRIBUTOR SLEEVE.
2. RT47 SENSOR, STAGE 2 DISTRIBUTOR TUBE, ANY TUBE BEFORE THE BLACK DISTRIBUTOR SLEEVE
3. USE WIRE TIE (ITEM 20) TO SECURE WIRE TO COPPER TUBE FOR STRAIN RELIEF.
4. ATTACH SENSORS SO WIRES ARE ORIENTED IN DOWNWARDS DIRECTION AS SHOWN.



DETAILS NOT TO SCALE

FIGURE 30

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 19 and FIGURE 31.

TABLE 19
RDS Sensor Figures

Model	Qty.	Type	Figure
LGX/LCX 092-150	1 sensor	INDOOR SENSOR	FIGURE 31

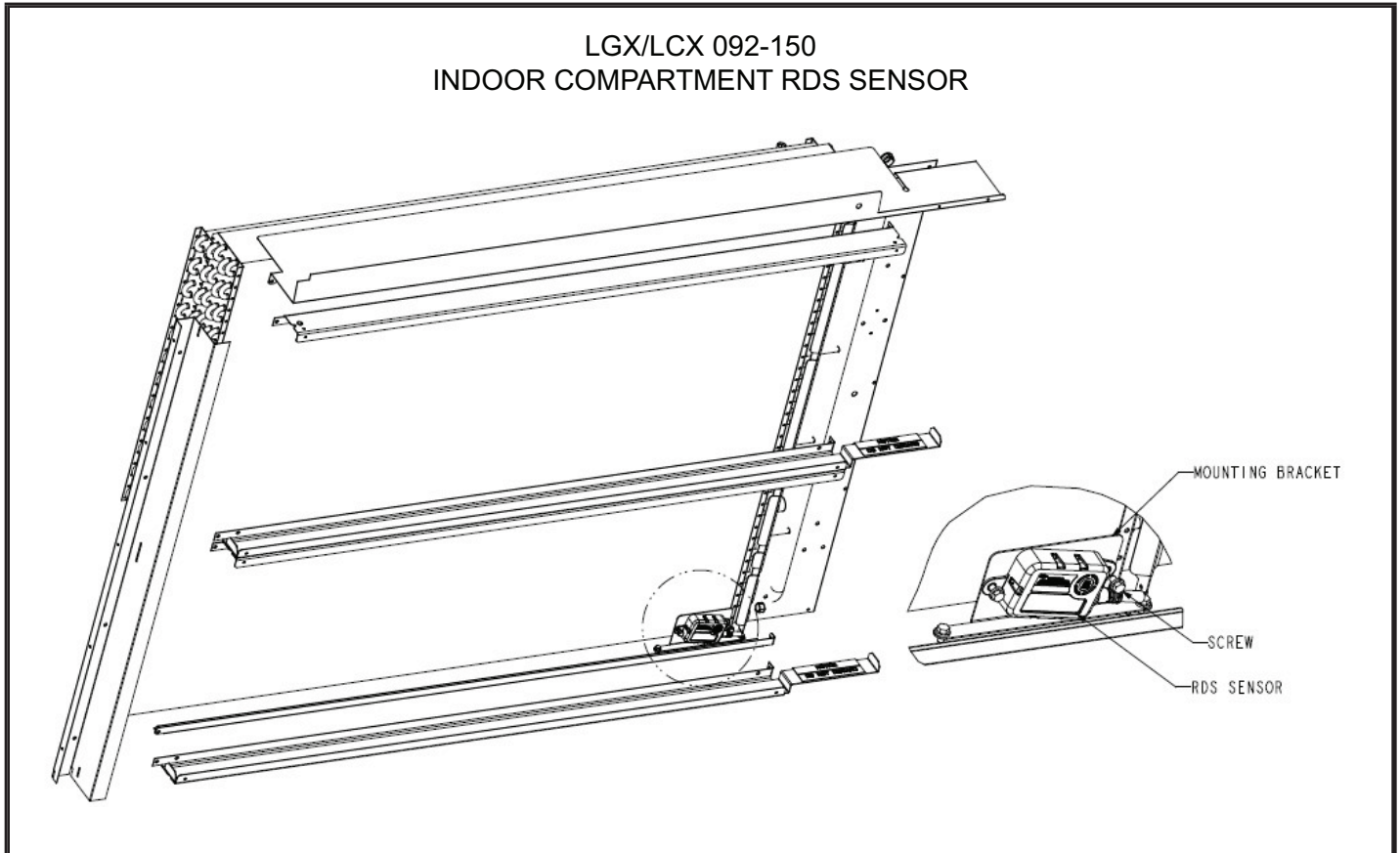


FIGURE 31

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.

Use only your hand to push in or turn the gas control knob. Never use tools. If 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 for Honeywell VR8205Q/VR8305Q and White Rodgers 36H54 (FIGURE 32 and FIGURE 33)

- 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 heat section access panel.

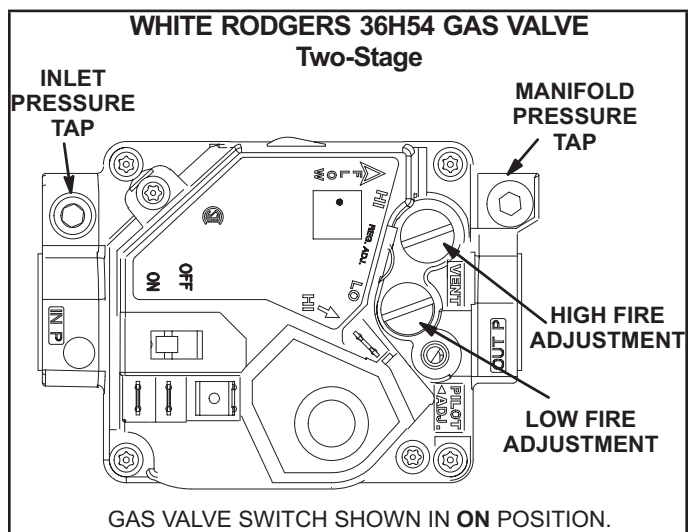


FIGURE 32

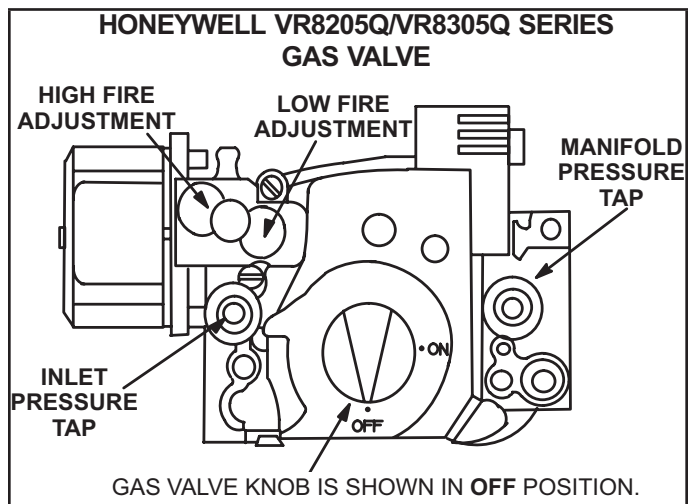


FIGURE 33

- 5 - Turn gas valve switch to **OFF**. See FIGURE 32. On Honeywell VR8305Q gas valves, turn the knob on the gas valve clockwise to **OFF**. Do not force. See FIGURE 33.
- 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 - Turn gas valve switch to **ON**. See FIGURE 32. On Honeywell VR8305Q gas valves, turn the knob on the gas valve counterclockwise to **ON**. Do not force. See FIGURE 33.
- 8 - Close or replace the heat section access panel.
- 9 - Turn on all electrical power to appliance.
- 10 - Set thermostat to desired setting.
- 11 - The ignition sequence will start.
- 12 - If the appliance 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 heat section access panel.
- 4 - Turn gas valve switch to **OFF**. On Honeywell VR8305Q gas valves, turn the knob on the gas valve clockwise to **OFF**. Do not force.
- 5 - Close or replace the heat section access panel

WARNING



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

Heating Operation and Adjustments

(Gas Units)

A-Heating Sequence of Operation

- 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 first ignition trial, ignition control will repeat steps 3 and 4 two more times before locking out the gas valve.
- 6 - For troubleshooting purposes, an ignition attempt after lock out may be re-established manually. Move thermostat to **OFF** and return thermostat switch to **HEAT** position.

B-Limit Controls

Limit controls are factory-set and are not adjustable. The primary limit is located on the blower deck to the right of blower assembly.

C-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 - 1.6" w.c. (not adjustable)

Natural Gas Units - High Fire - 3.7" w.c.

LP Gas Units - Low Fire - 5.5" w.c. (not adjustable)

LP Gas Units - High Fire - 10.5" w.c.

Electric Heat Start-Up (LCX Units)

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

Cooling Operation

This is a summary of cooling operation. Refer to the sequence of operation provided in the Engineering Handbook or Service Manual for more detail.

NOTE - Free cooling is locked-out during reheat operation. Refer to hot gas reheat start-up and operation section for details.

A-Two-Stage Thermostat

1 - Economizer With Outdoor Air Suitable

Y1 Demand -

Compressors Off
Blower Cooling Low
Dampers modulate

Y2 Demand -

Compressors Off
Blower Cooling High
Dampers Modulate

NOTE - If dampers are at maximum open for three minutes, compressor 1 is energized and runs at full load, blower stays on cooling high.

2 - No Economizer or Outdoor Air Not Suitable

Y1 Demand -

Compressor 1 on Full Load
Blower Cooling Low
Dampers Minimum Position

Y2 Demand -

Compressors On
Blower Cooling High
Dampers Minimum Position

B-Room Sensor

1 - Economizer With Outdoor Air Suitable

Compressors Off
Blower Modulates
Dampers modulate

NOTE - If dampers are at maximum open for five minutes, compressors are energized and the blower modulates.

2 - No Economizer or Outdoor Air Not Suitable

Compressors Modulate
Blower Modulates
Dampers Minimum Position

C-Three-Stage Thermostat

1 - Economizer With Outdoor Air Suitable

Y1 Demand -

Compressors Off
Blower Cooling Low*
Dampers Modulate

Y2 Demand -

Compressors Off
Blower Cooling High*
Dampers Modulate

NOTE - If dampers are at maximum open for three minutes, compressor 1 is energized and runs at full load, blower stays on cooling high.

Y3 Demand -

Compressors On
Blower Cooling High*
Dampers Maximum
Open Compressors On

*In discharge air control (DAC) mode, blower operates to maintain duct static pressure.

2 - Economizer With Outdoor Air Not Suitable

Y1 Demand -

Compressor 1 On Part Load, Compressor 2 On (in DAC mode, Compressor 2 Off)
Blower Cooling Low*

Y2 Demand -

Compressor 1 On Part Load, Compressor 2 On
Blower Cooling Medium*
Dampers Minimum Position

Y3 Demand -

Compressors On
(in DAC mode, Compressor 1 on Full Load, Compressor 2 On)
Blower Cooling High*
Dampers Minimum Position
Compressors On

*In discharge air control (DAC) mode, blower operates to maintain duct static pressure

Modulating 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 34 for reheat refrigerant routing and FIGURE 35 for standard 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 J394-1) 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 hot gas 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 - Select:

**RTU MENU > SERVICE > COMPONENT TEST >
DEHUMIDIFICATION**

The blower and compressor 1 (reheat) should be operating. DEHUMIDIFIER 1 ON will appear.

- 4 - Press **STOP** to discontinue the testing mode.

Compressor 1 (reheat) and blower should de-energize.

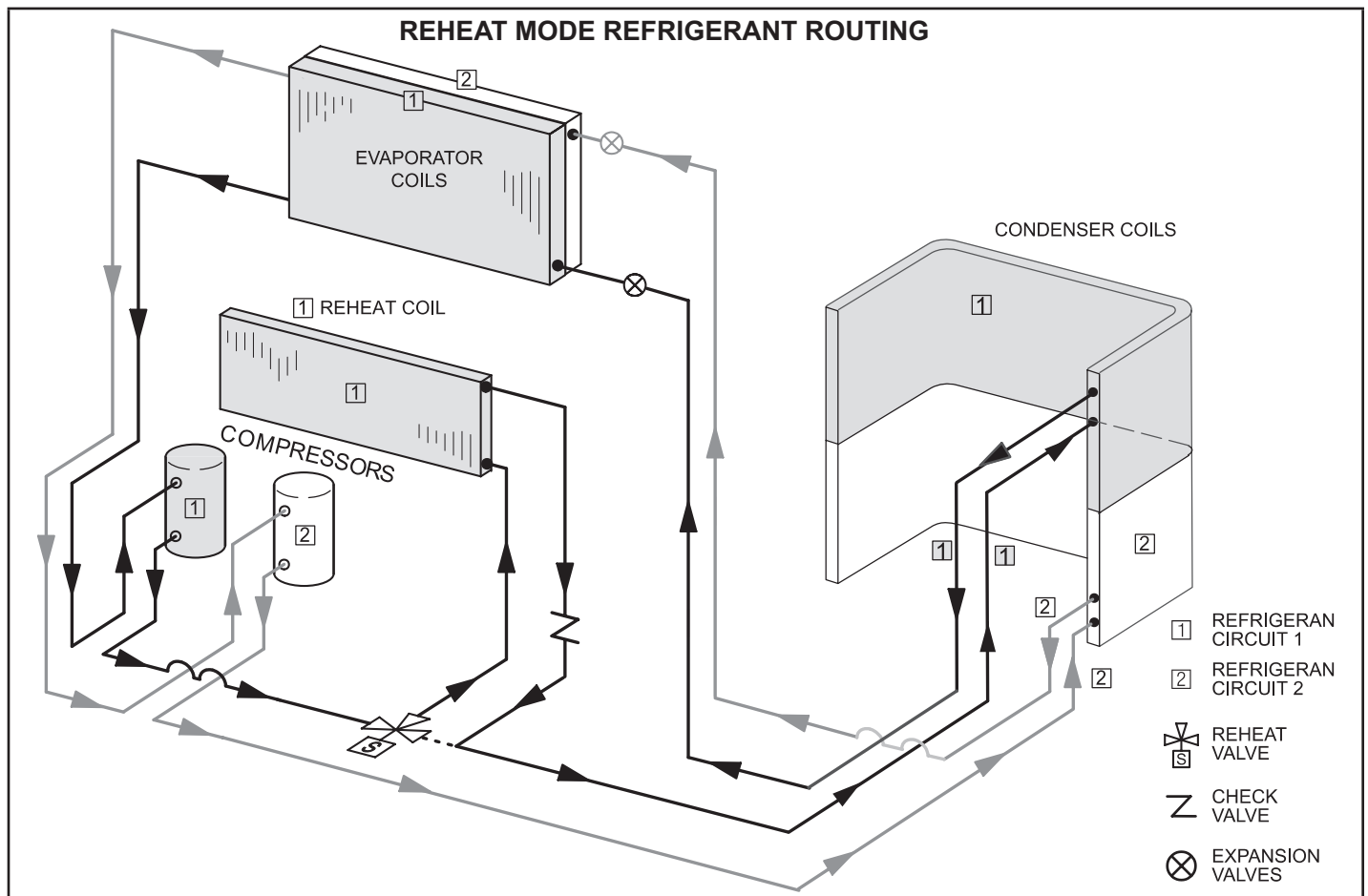


FIGURE 34

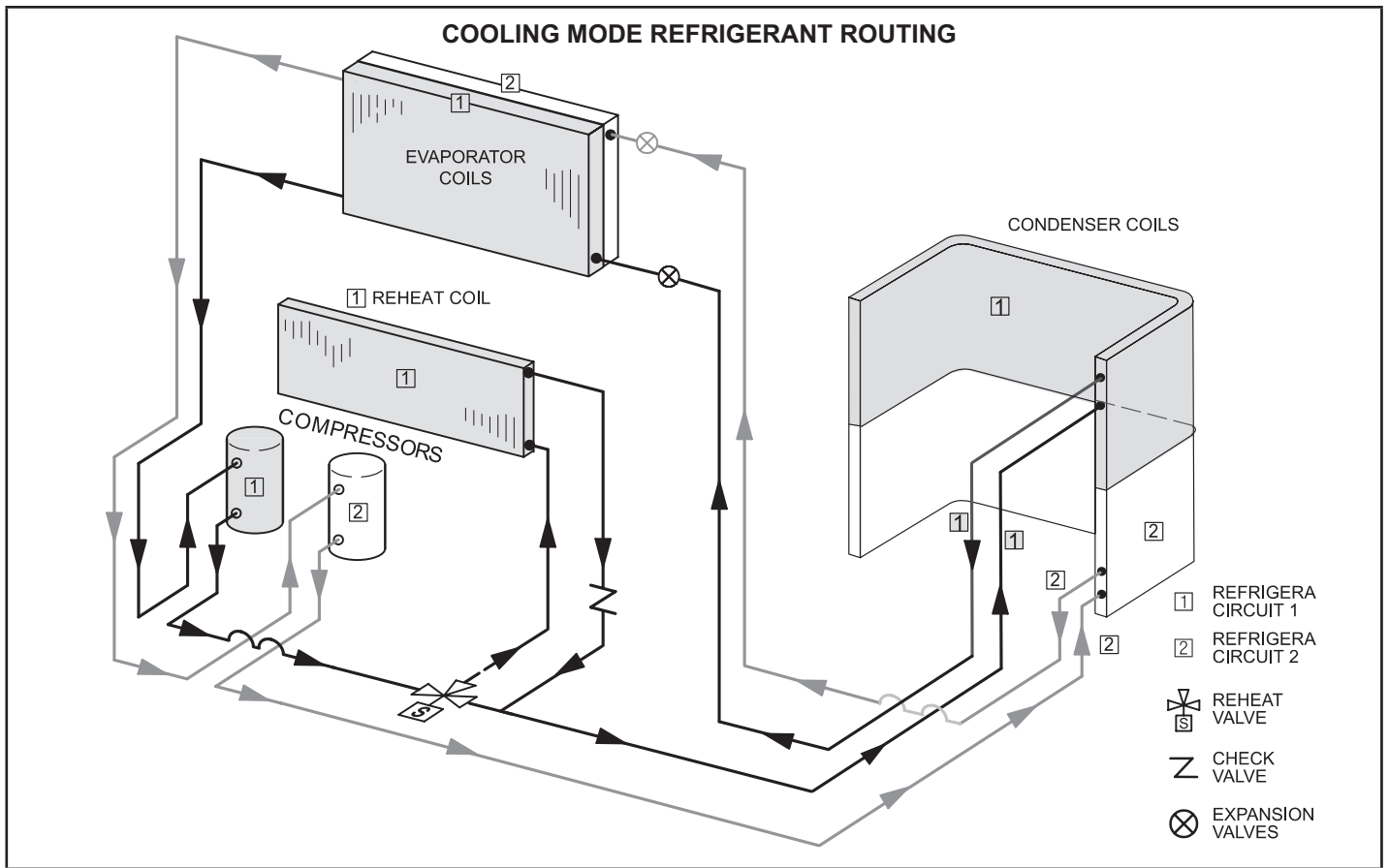


FIGURE 35

Default Reheat Operation

TABLE 20

Reheat Operation - Two Cooling Stages - Default

T'stat & Humidity Demands	Operation
Reheat Only	Compressor 1 Full Load Reheat ON Blower Low
Reheat & Y1	Compressor 1 & 2 Full Load Reheat ON Blower High
Reheat & Y1 & Y2	Compressor 1 & 2 Full Load Reheat OFF Blower High

*If there is no reheat demand and outdoor air is suitable, free cooling will operate.

**If there is no reheat demand and outdoor air is suitable, free cooling and compressor 1 will operate.

TABLE 21

Reheat Operation - Three Cooling Stages - Default

T'stat & Humidity Demands	Operation
Reheat Only	Compressor 1 Full Load Reheat ON Blower Low
Reheat & Y1	Compressor 1 & 2 Full Load Reheat ON Blower Medium
Reheat & Y1, Y2	Compressor 1 & 2 Full Load Reheat ON Blower High
Reheat & Y1, Y2, Y3	Compressor 1 & 2 Full Load No Reheat OFF Blower High

*If there is no reheat demand and outdoor air is suitable, free cooling will operate.

**If there is no reheat demand and outdoor air is suitable, free cooling and compressor 1 will operate.

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.

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 four 20 X 25 X 2" filters. Filters should be checked monthly and replaced when necessary with filters of like kind and size. Take note of air flow direction marking on filter frame when reinstalling filters. See FIGURE 36.

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.

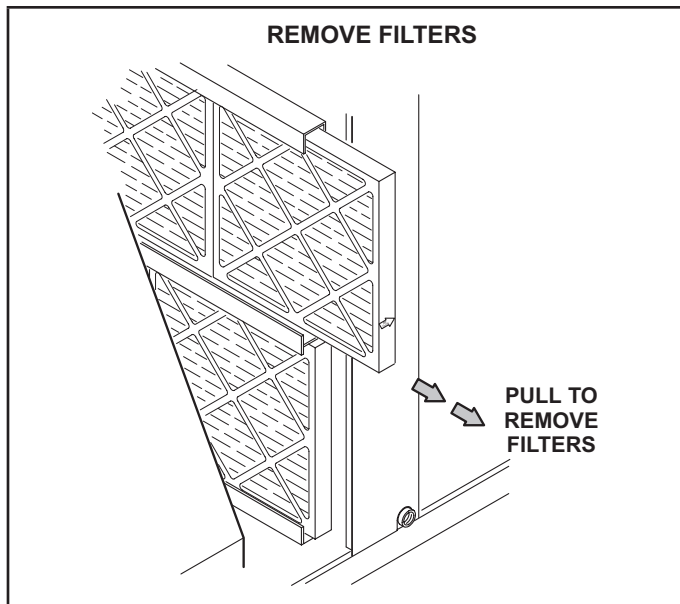


FIGURE 36

C-Burners (Gas Units)

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.

Clean burners as follows:

- 1 - Turn off both electrical power and gas supply to unit.
- 2 - Remove burner compartment access panel.
- 3 - Remove screws securing burners to burner support and lift the individual burners or the entire burner assembly from the orifices. See FIGURE 37. Clean as necessary.
- 4 - Locate the ignitor under the left burners. Check ignitor spark gap with appropriately sized twist drills or feeler gauges. See FIGURE 38.

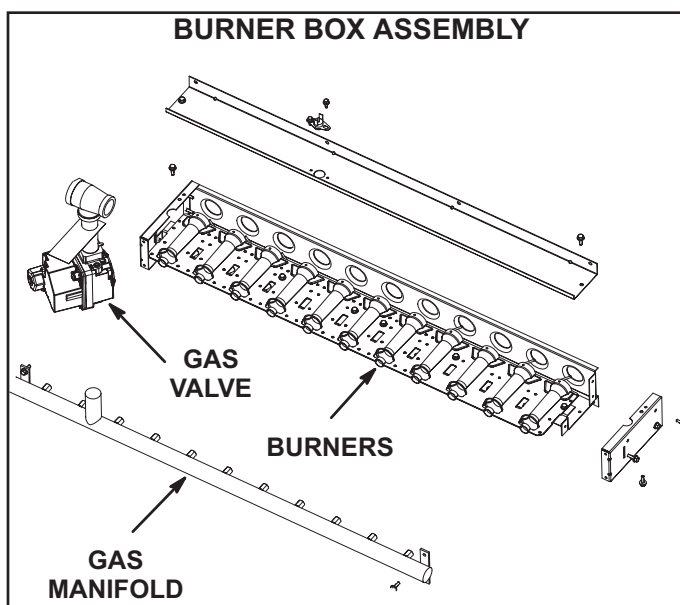


FIGURE 37

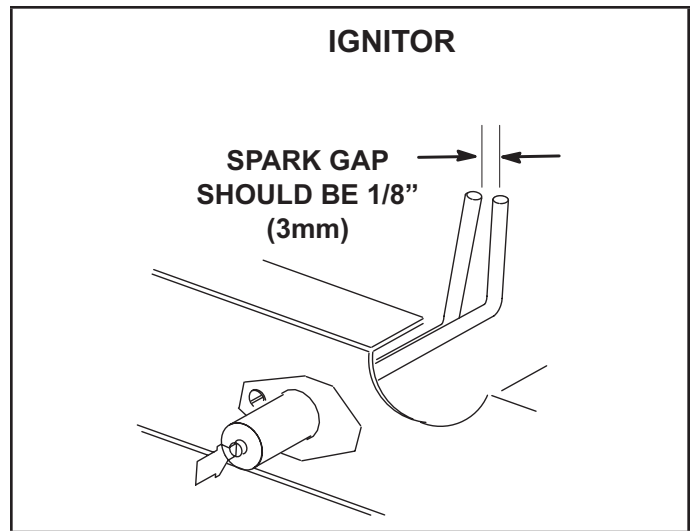


FIGURE 38

Check the alignment of the ignitor and the sensor as shown in FIGURE 39 and TABLE 22.

- 5 - Replace burners and screws securing burner.

⚠ WARNING

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

TABLE 22

Dimension	Unit Btuh Input	Length - in. (mm)	
		Ignitor	Sensor
A	130K	7-3/4 (197)	11 (279)
B	180K	5 (127)	5-1/2 (140)
C	240K	2-1/4 (57)	2-3/4 (70)

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

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. With power supply disconnected, the condition of the inducer wheel can be determined by looking through the vent opening.

Clean combustion air inducer as follows:

- 1 - Shut off power supply and gas to unit.
- 2 - Disconnect pressure switch air tubing from combustion air inducer port.
- 3 - Remove and retain screws securing combustion air inducer to flue box. Remove vent connector. See FIGURE 40.

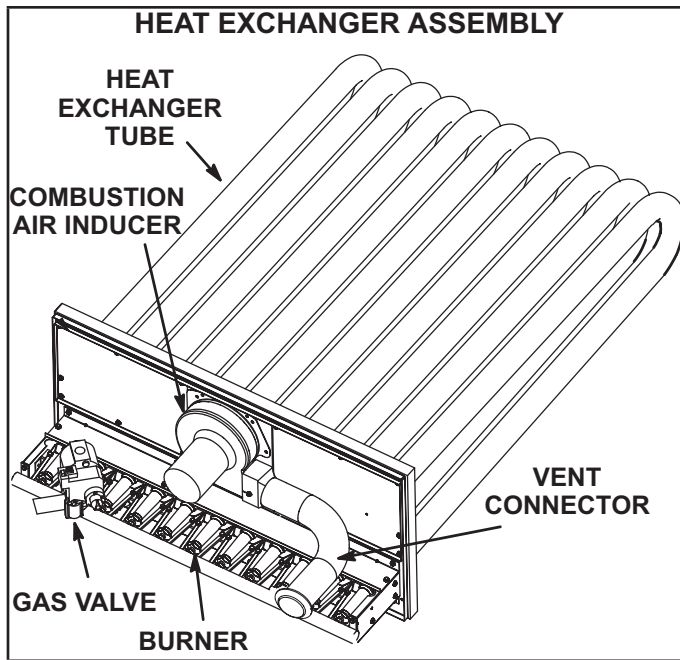


FIGURE 40

- 4 - Clean inducer wheel blades with a small brush and wipe off any dust from housing. Clean accumulated dust from front of flue box cover.
- 5 - Return combustion air inducer motor and vent connector to original location and secure with retained screws. It is recommended that the combustion air inducer gasket be replaced during reassembly.
- 6 - Clean combustion air inlet louvers on heat access panel using a small brush.

E-Flue Passageway and Flue Box (Gas Units)

- 1 - Remove combustion air inducer assembly as described in section D.
- 2 - Remove flue box cover. Clean with a wire brush as required.
- 3 - Clean tubes with a wire brush.
- 4 - Reassemble the unit. The flue box cover gasket and combustion air inducer gasket should also be replaced during reassembly.

F-Evaporator Coil

Inspect and clean coil at beginning of each cooling season. Clean using mild detergent or commercial coil cleaner. Flush coil and condensate drain with water taking care not to get insulation, filters and return air ducts wet.

G-Condenser Coil

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

Clean the 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.

I-Replacement Fuses

See the following tables for the proper replacement fuse sizes.

ELECTRIC HEAT REPLACEMENT FUSES				
	Electric Heat	Qty.	Rating	
			Amp	Volt
1	EH0075-1Y	3	25	250
2	EHO150-1Y	3	50	250
3	EHO225-1Y	3 EA.	25 & 50	250
4	EHO300-1Y	6	50	250
5	EHO450-1Y	3/6	50 & 60	250
6	EH0600-1Y	12	60	250
7	EH0075-1G	3	15	600
8	EH0150-1G	3	25	600
9	EHO225-1G	3 EA.	15 & 25	600
10	EHO300-1G	6	25	600
11	EHO450-1G	3 EA.	25 & 50	600
12	EH0600-1G	6	50	600
13	EH0075-1J	3	10	600
14	EH0150-1J	3	20	600
15	EHO225-1J	3 EA.	10 & 20	600
16	EHO300-1J	6	20	600
17	EHO450-1J	3 EA.	20 & 40	600
18	EH0600-1J	6	40	600

TABLE 23

LGX 092								
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	CC	All	12	12	12	12	12	12

TABLE 24

LGX 102								
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	CC	All	12	12	12	12	12	12

TABLE 25

LGX 120								
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	CC	All	12	12	12	12	12	12

TABLE 26

LGX 150								
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	CC	All	12	12	12	12	12	12

TABLE 27

LCX 092														
Electric Heat Size			7.5 KW						15 KW					
Unit Voltage			208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph		208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
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	Amps						Amps					
F4	RK or K	2HP	50	50	25	25	20	20	50	50	25	25	20	20
F4	RK or K	3HP	50	50	25	25	20	20	50	50	25	25	20	20
F4	RK or K	5HP	60	60	30	30	25	25	60	60	30	30	25	25
F10	CC	All	12	12	12	12	12	12	12	12	12	12	12	12

TABLE 28

LCX 092 continued														
Electric Heat Size			22.5 KW						30 KW					
Unit Voltage			208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph		208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
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	Amps						Amps					
F4	RK or K	2HP	50	50	25	25	20	20	50	50	25	25	20	20
F4	RK or K	3HP	50	50	25	25	20	20	50	50	25	25	20	20
F4	RK or K	5HP	60	60	30	30	25	25	60	60	30	30	25	25
F10	CC	All	12	12	12	12	12	12	12	12	12	12	12	12

TABLE 29

LCX 092 continued								
Electric Heat Size			45 KW					
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					
F4	RK or K	2HP	50	50	25	25	20	20
F4	RK or K	3HP	50	50	25	25	20	20
F4	RK or K	5HP	60	60	30	30	25	25
F10	CC	All	12	12	12	12	12	12

TABLE 30

LCX 102														
Electric Heat Size			7.5 KW						15 KW					
Unit Voltage			208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph		208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
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	Amps						Amps					
F4	RK or K	2HP	50	50	25	25	20	20	50	50	25	25	20	20
F4	RK or K	3HP	50	50	25	25	20	20	50	50	25	25	20	20
F4	RK or K	5HP	60	60	30	30	25	25	60	60	30	30	25	25
F10	CC	All	12	12	12	12	12	12	12	12	12	12	12	12

TABLE 31

LCX 102 continued														
Electric Heat Size			22.5 KW						30 KW					
Unit Voltage			208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph		208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
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	Amps						Amps					
F4	RK or K	2HP	50	50	25	25	20	20	50	50	25	25	20	20
F4	RK or K	3HP	50	50	25	25	20	20	50	50	25	25	20	20
F4	RK or K	5HP	60	60	30	30	25	25	60	60	30	30	25	25
F10	CC	All	12	12	12	12	12	12	12	12	12	12	12	12

TABLE 32

LCX 102 continued								
Electric Heat Size			45 KW					
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					
F4	RK or K	2HP	50	50	25	25	20	20
F4	RK or K	3HP	50	50	25	25	20	20
F4	RK or K	5HP	60	60	30	30	25	25
F10	CC	All	12	12	12	12	12	12

TABLE 33

LCX 120								
Electric Heat Size			15 KW					
Unit Voltage			208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
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					
F4	RK or K	2HP	60	60	30	25	25	20
F4	RK or K	3HP	60	60	30	30	25	25
F4	RK or K	5HP	70	70	30	30	25	25
F10	CC	All	12	12	12	12	12	12

TABLE 34

LCX 120 continued														
Electric Heat Size			22.5 KW						30 KW					
Unit Voltage			208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph		208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
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	Amps						Amps					
F4	RK or K	2HP	60	60	30	25	25	20	60	60	30	25	25	20
F4	RK or K	3HP	60	60	30	30	25	25	60	60	30	30	25	25
F4	RK or K	5HP	70	70	30	30	25	25	70	70	30	30	25	25
F10	CC	All	12	12	12	12	12	12	12	12	12	12	12	12

TABLE 35

LCX 120 continued														
Electric Heat Size			45 KW						60 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	Amps											
F4	RK or K	2HP	60	60	30	25	25	20	60	60	30	25	25	20
F4	RK or K	3HP	60	60	30	30	25	25	60	60	30	30	25	25
F4	RK or K	5HP	70	70	30	30	25	25	70	70	30	30	25	25
F10	CC	All	12	12	12	12	12	12	12	12	12	12	12	12

TABLE 36

LCX 150								
Electric Heat Size			15 KW					
Unit Voltage			208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
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					
F4	RK or K	2HP	80	80	35	35	25	25
F4	RK or K	3HP	80	80	35	35	25	25
F4	RK or K	5HP	90	90	40	40	30	30
F10	CC	All	12	12	12	12	12	12

TABLE 37

LCX 150 continued														
Electric Heat Size			22.5 KW						30 KW					
Unit Voltage			208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph		208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
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	Amps						Amps					
F4	RK or K	2HP	80	80	35	35	25	25	80	80	35	35	25	25
F4	RK or K	3HP	80	80	35	35	25	25	80	80	35	35	25	25
F4	RK or K	5HP	90	90	40	40	30	30	90	90	40	40	30	30
F10	CC	All	12	12	12	12	12	12	12	12	12	12	12	12

TABLE 38

LCX 150 continued														
Electric Heat Size			45 KW						60 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	Amps											
F4	RK or K	2HP	80	80	35	35	25	25	80	80	35	35	25	25
F4	RK or K	3HP	80	80	35	35	25	25	80	80	35	35	25	25
F4	RK or K	5HP	90	90	40	40	30	30	90	90	40	40	30	30
F10	CC	All	12	12	12	12	12	12	12	12	12	12	12	12

Factory Unit Controller Settings

When field installing optional kits and accessories, the Unit Controller must be configured to identify the option before it will function. Refer to FIGURE 41 and FIGURE 42 to determine whether the Unit Controller configuration I.D. must change. To configure the option, use RTU MENU > SETUP > INSTALL menu path. Press NEXT 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".

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 Velocity 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 Sub-type

N = Not Applicable.
L = ECM Direct Drive Blower with PWM control.
H = EBM Direct Drive Blower with Modbus control.
5 = EBM Direct Drive 500mm blower with Modbus control.
B = Mitsubishi Belt Drive blower with Modbus control.
D = Delta Belt Drive blower with Modbus control.

[6] Blower Variable Frequency Drive Bypass

N = Not Installed
A = Automatic Bypass
M = Manual Bypass
U = Electronic Bypass Field Unconfigured

[5] Network Module

N = Not Installed
L = LonTalk (Lennox)

FIGURE 41

Configuration ID 2

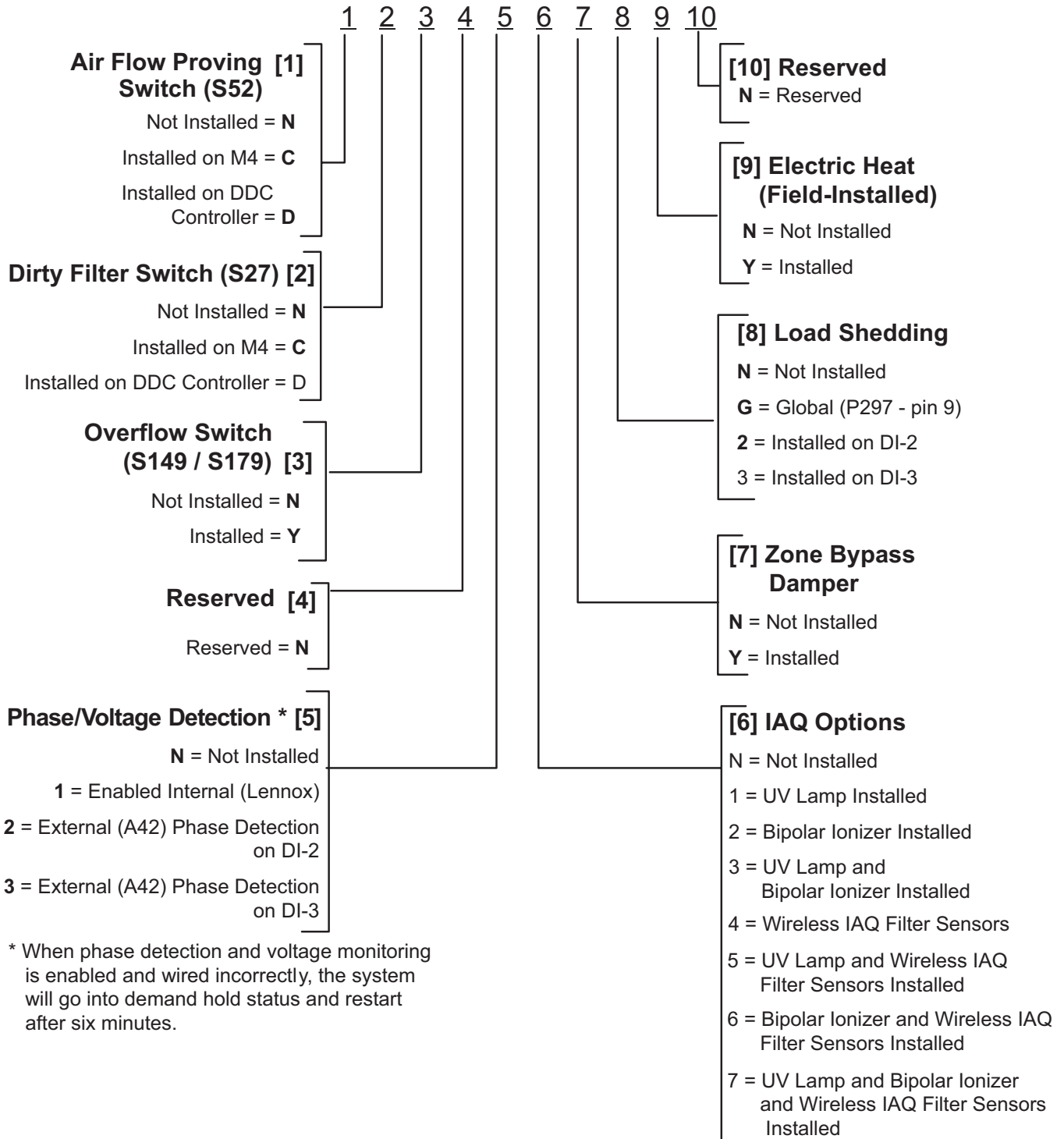


FIGURE 42

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 <input type="checkbox"/>
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 <input type="checkbox"/>			
Transformer secondary voltage: _____			

Cooling Checks												
Compressor Rotation <input type="checkbox"/> 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 <input type="checkbox"/>	Blower Rotation <input type="checkbox"/>		
Set Screws Tight <input type="checkbox"/>	Belt Tension <input type="checkbox"/>		
Nameplate Amps: _____		Volts: _____	
Motor	Amps	Volts	
	L1 _____	L1-L2 _____	
	L2 _____	L1-L3 _____	
	L3 _____	L2-L3 _____	

Heating Checks - Electric							
Return Air Temp.: _____ Supply Air Temp.: _____							
Limits Operate: <input type="checkbox"/>							
	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			

Heating Checks - Gas		
Fuel type: Nat. <input type="checkbox"/> LP <input type="checkbox"/> Inlet Pressure: _____ in. w.c.		
Return Air Temp.: _____ Supply Air Temp.: _____		
Altitude: _____ Primary Limits Operate: <input type="checkbox"/>		
CO ₂ %: _____		
Gas Valve	Manifold Pressure	
	Low Fire	High Fire
GV1		
GV2		

Accessory Checks	
Power Exhaust Amps	
1 _____	2 _____ None <input type="checkbox"/>
Economizer Operation	
Min. Pos. <input type="checkbox"/>	Motor travel full open/close <input type="checkbox"/>

Control Type