INSTALLATION INSTRUCTIONS

LGM/LCM036, 048, 060, 074

3, 4, 5 and 6 Ton

GAS AND COOLING PACKAGED UNITS
508108-01
1/2021

⚠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

Table Of Contents

⚠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.

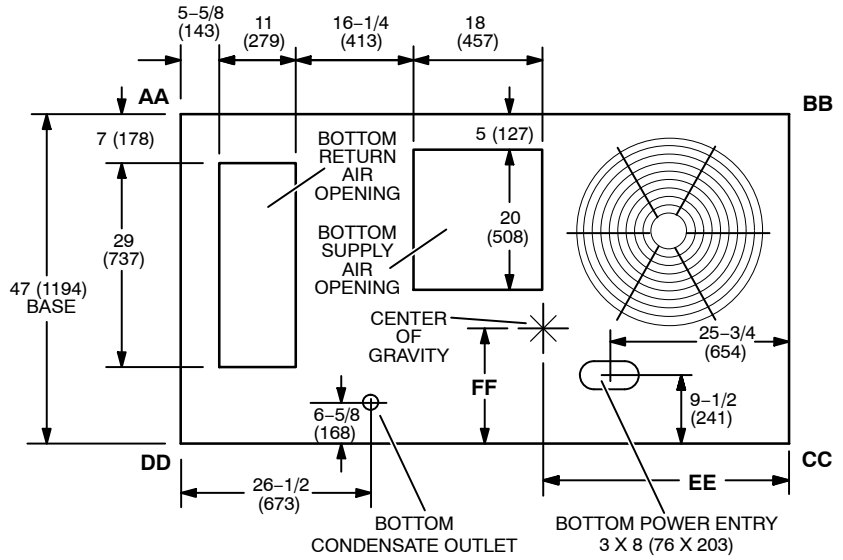
RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

Attention!

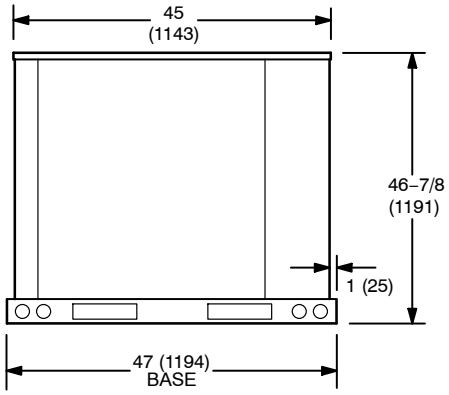
Use this QR code to download the mobile service app. Follow the prompts to pair the app with the unit control system and configure the unit. Refer to the “Download Mobile App” section in this manual and the Setup Guide provided with this unit. The QR code is also available in the unit control area.

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

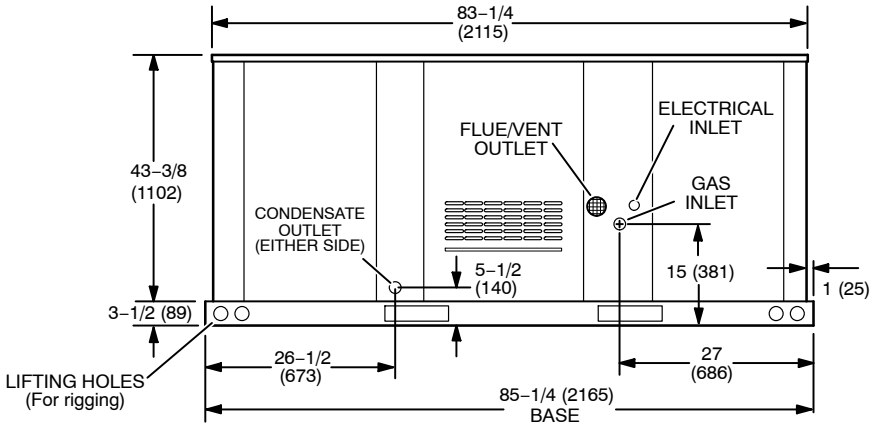
LGM/LCM036, 048, 060, 074 DIMENSIONS in. - Gas heat section shown



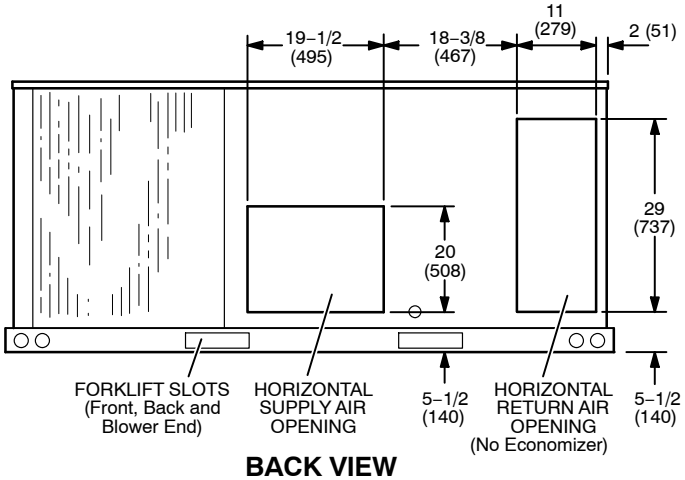
TOP VIEW (Base)



END VIEW

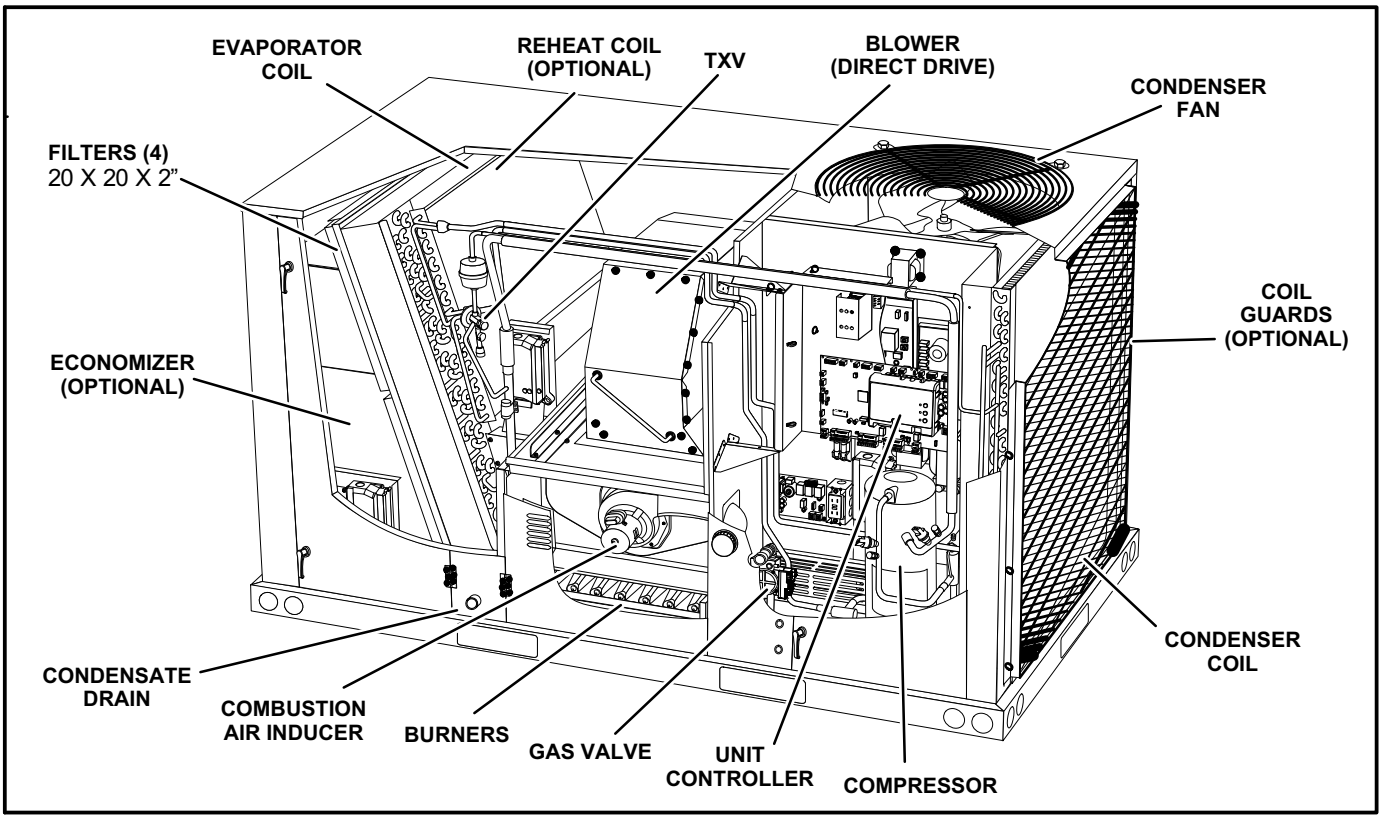


SIDE VIEW

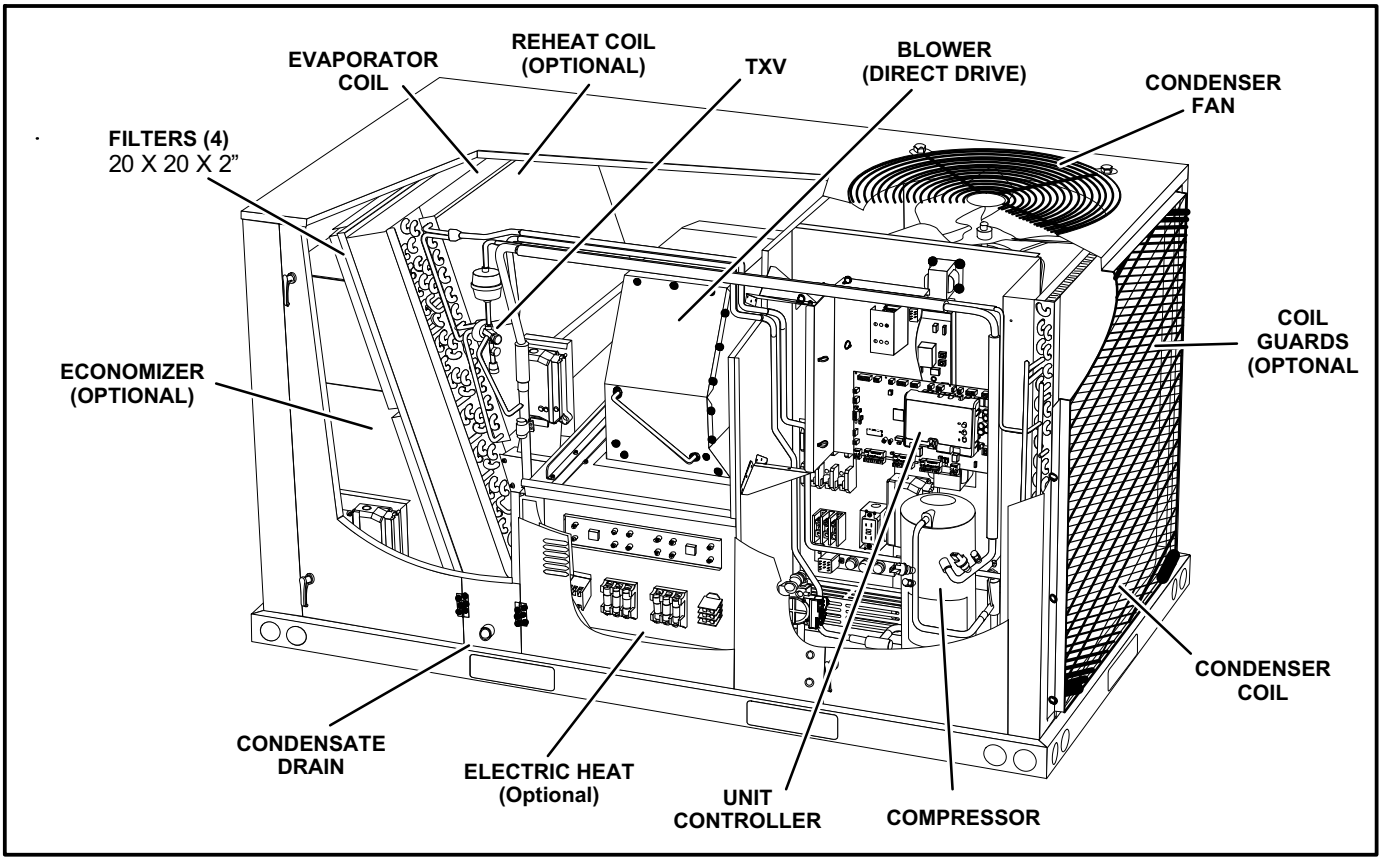


BACK VIEW

LGM036, 048, 060, & 074 PARTS ARRANGEMENT



LCM036, 048, 060, & 074 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 LGM units are available in several heating inputs. The LCM cooling packaged rooftop unit is the same basic design as the LGM unit except for the heating section. Optional electric heat is available for LCM units. LGM and LCM units have identical refrigerant circuits with respective 3, 4, 5, and 6 ton cooling capacities.

Units are equipped with fin/tube condenser coils.

Units are equipped with variable speed compressors.

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

Availability of units and options varies by brand.

Requirements

See figure 1 for unit clearances.

⚠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.

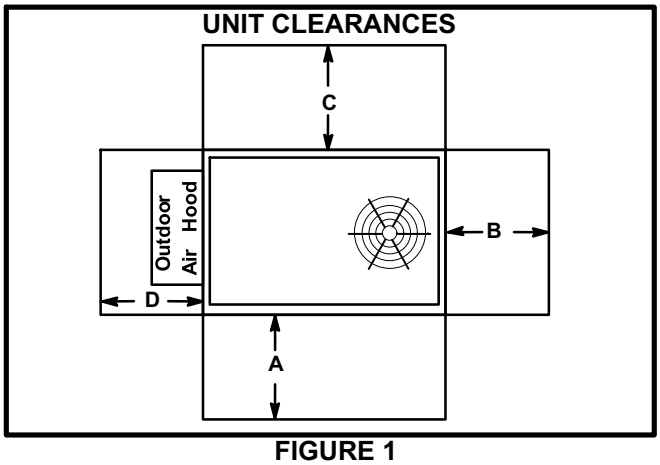


FIGURE 1

[1]Unit Clearance	A in.(mm)	B in.(mm)	C in.(mm)	D in.(mm)	Top Clearance
Service Clearance	48 (1219)	36 (914)	36 (914)	36 (914)	Unobstructed
Clearance to Combustibles	36 (914)	1 (25)	1 (25)	1 (25)	Unobstructed
Minimum Operation Clearance	36 (914)	36 (914)	36 (914)	36 (914)	Unobstructed

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).
Minimum Operation Clearance - Required clearance for proper unit operation.

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

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

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

Unit Support

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

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

⚠CAUTION

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

A-Downflow Discharge Application

Roof Mounting with T1CURB / C1CURB / E1CURB

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

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

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

Installer's Roof Mounting Frame

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

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

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

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

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

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

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

B-Horizontal Discharge Applications

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

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

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

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

Duct Connection

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

⚠CAUTION

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

Rigging Unit For Lifting

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

1- Detach wooden base protection before rigging.

2- Remove all six base protection brackets before setting unit.

3- Connect rigging to the unit base using both holes in each corner.

4- All panels must be in place for rigging.

5- Place field-provided H-style pick in place just above top edge of unit. Frame must be of adequate strength and length. (H-style pick prevents damage to unit.)

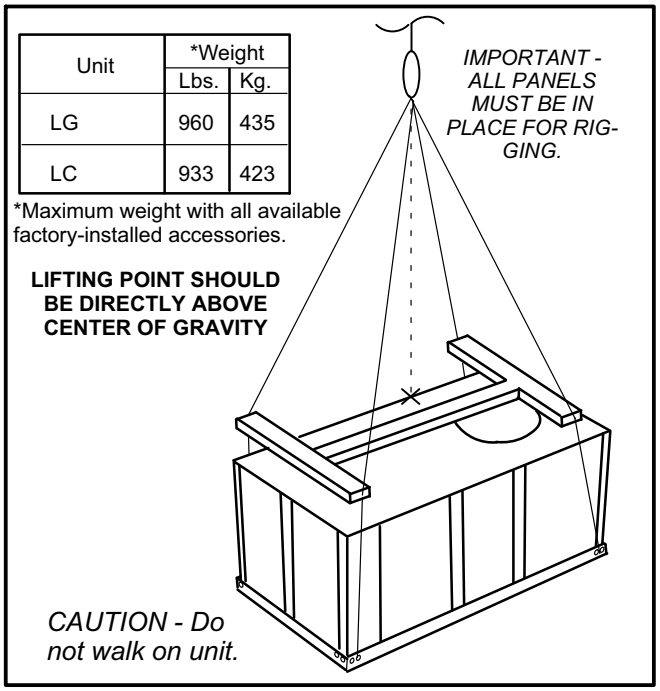


FIGURE 2

Horizontal Air Discharge

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

Units Equipped With An Optional Economizer

1- Remove the horizontal supply air cover and position over the downflow supply air opening. Secure with sheet metal screws.

2- Leave the horizontal return air cover in place.

3- Locate the separately ordered horizontal air discharge kit. Place the kit panel over the downflow return air opening.

4- Remove and retain the barometric relief dampers and lower hood.

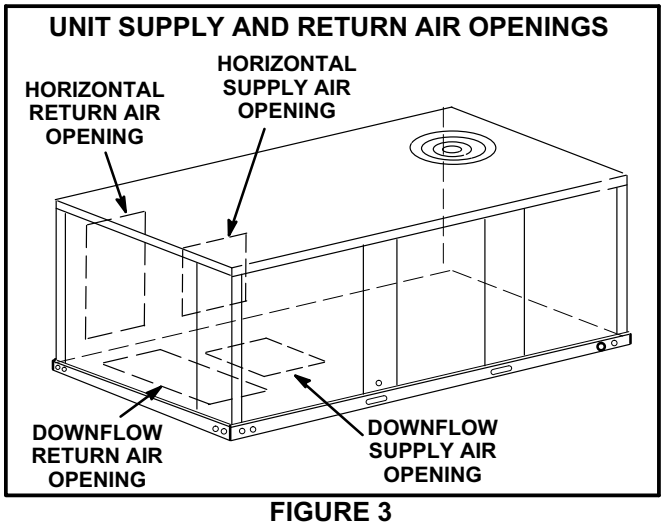


FIGURE 3

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

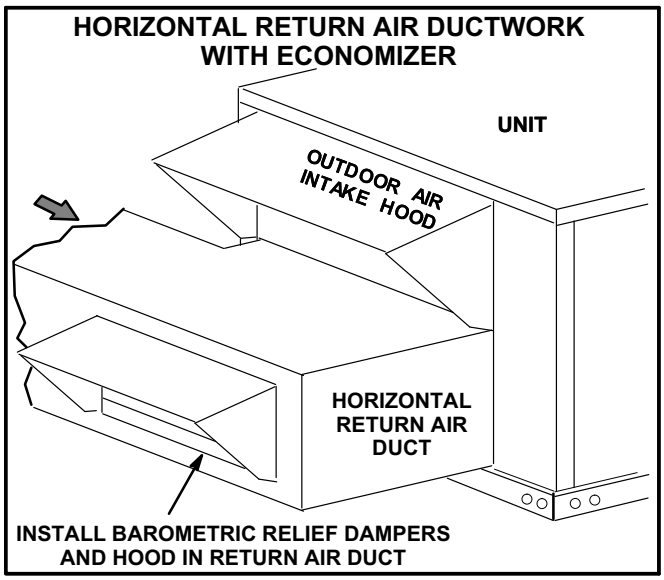


FIGURE 4

Condensate Drains

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

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

A trap must be installed between drain connection and an open vent for proper condensate removal. See figure 5 or 6. It is sometimes acceptable to drain condensate onto the roof or grade; however, a tee should be fitted to the trap to direct condensate downward. The condensate line must be vented. Check local codes concerning condensate disposal. Refer to pages 1 and 2 for condensate drain location.

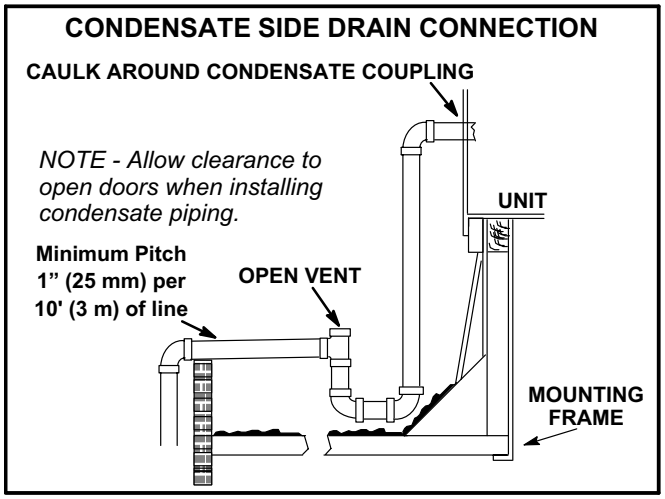


FIGURE 5

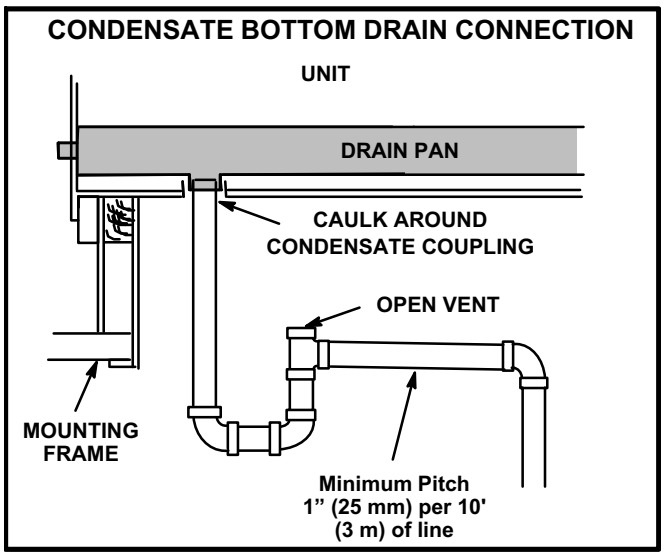


FIGURE 6

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

Rear Drain Connection

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

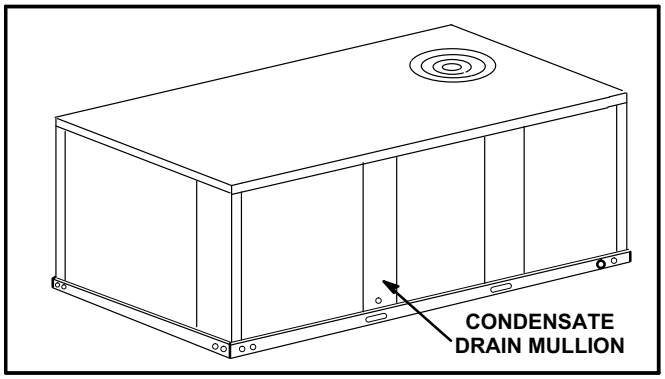


FIGURE 7

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

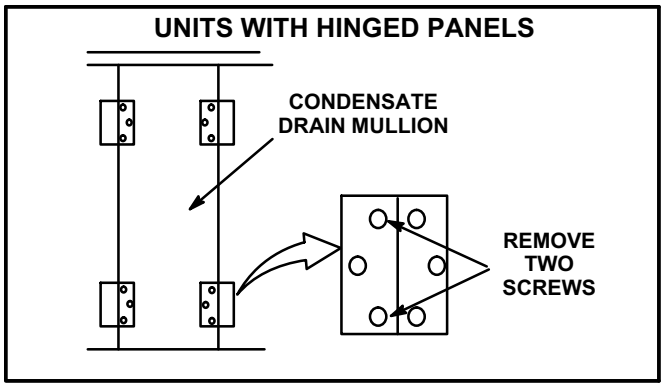


FIGURE 8

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

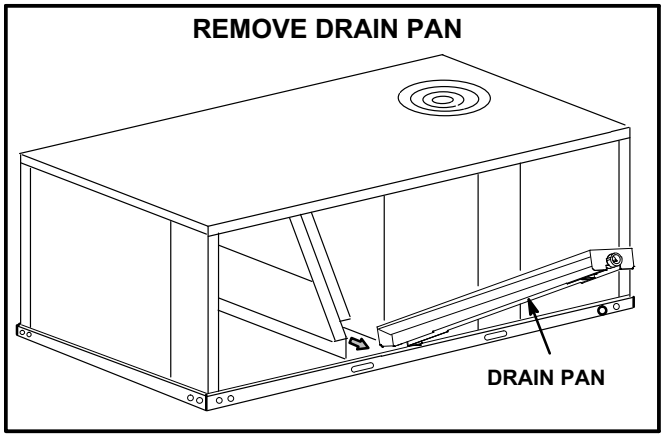


FIGURE 9

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

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

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

6- Replace the condensate drain mullion.

Bottom Drain Connection

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

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

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

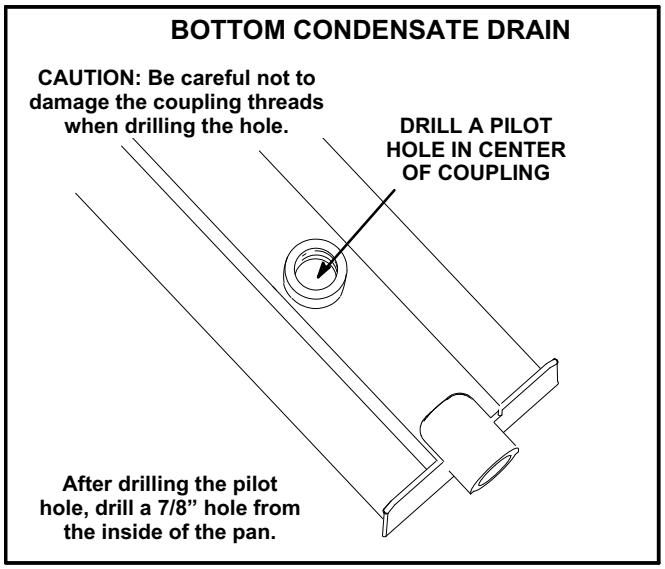


FIGURE 10

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

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

6- Slide the drain pan back into the unit.

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

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

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

10- Replace the condensate drain mullion.

Connect Gas Piping (Gas Units)

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

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

	Natural Gas		LP / Propane Gas	
	Min.	Max.	Min.	Max.
036-074	4.5	10.5	11	13

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

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

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

⚠CAUTION

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

⚠WARNING

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

⚠IMPORTANT

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

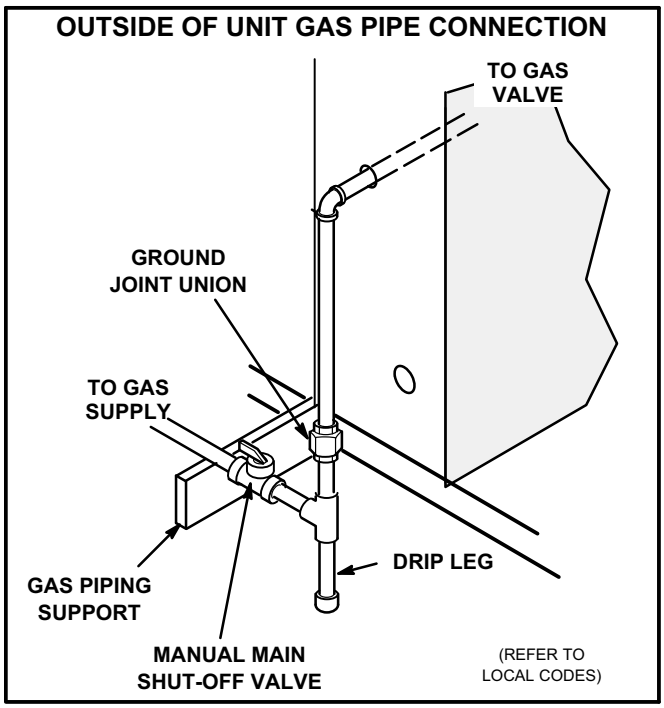


FIGURE 11

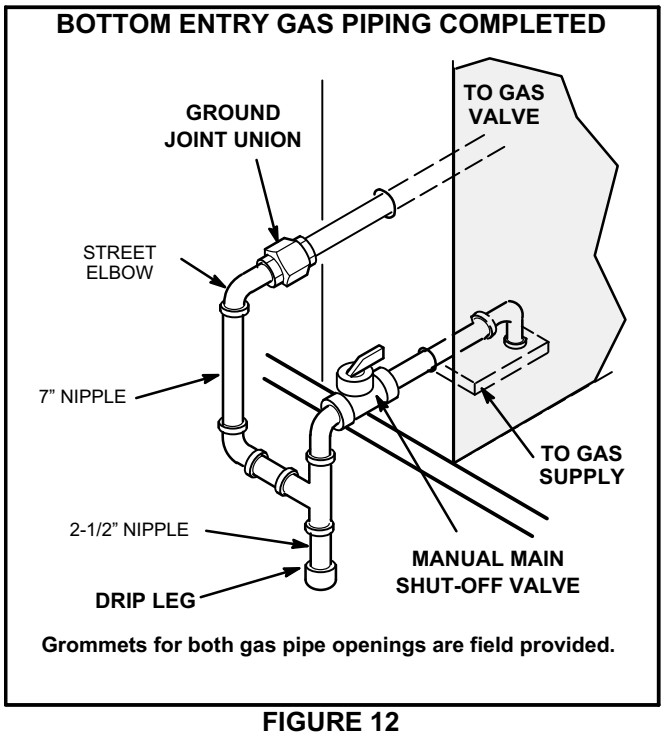


FIGURE 12

Pressure Test Gas Piping (Gas Units)

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

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

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

⚠CAUTION

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

⚠WARNING

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

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

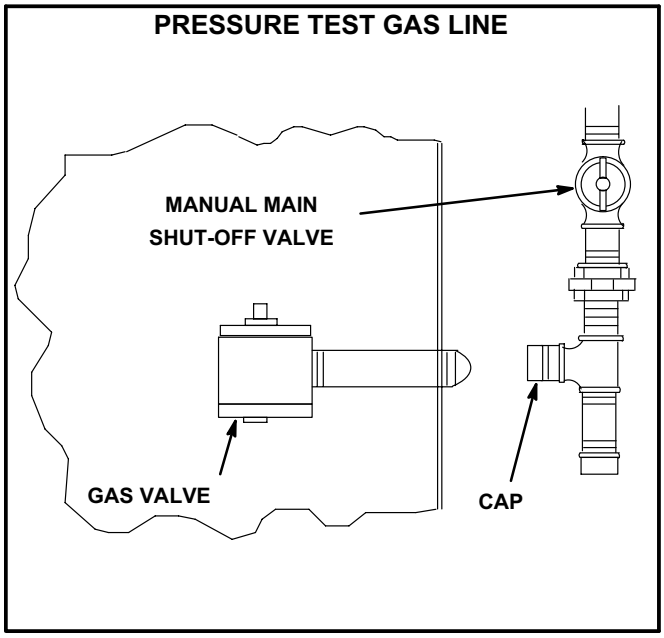


FIGURE 13

High Altitude Derate

Locate the high altitude conversion sticker in the unit literature bag. Fill out the conversion sticker and affix next to the unit nameplate.

Refer to table 2 for high altitude adjustments.

TABLE 2
HIGH ALTITUDE DERATE

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

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

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

Download Mobile Service App

A-Mobile Device Requirements

- Android hardware requires 2GB RAM and a 2Ghz core processor. Tablets are supported.
- Minimum Android 6.0 (Marshmallow) or higher. Recommend Android 10 and Apple products require iOS version 11 or higher.

B-New Installations

Once the app is downloaded, refer to the Setup Guide provided with this unit to pair the app to the unit control system. Follow the setup wizard prompts to configure the unit. See figure 14 for the app menu overview. **If a mobile device is unavailable or not pairing, refer to the Unit Controller Setup Guide for start-up instructions.**

MOBILE SERVICE APP MENU OVERVIEW

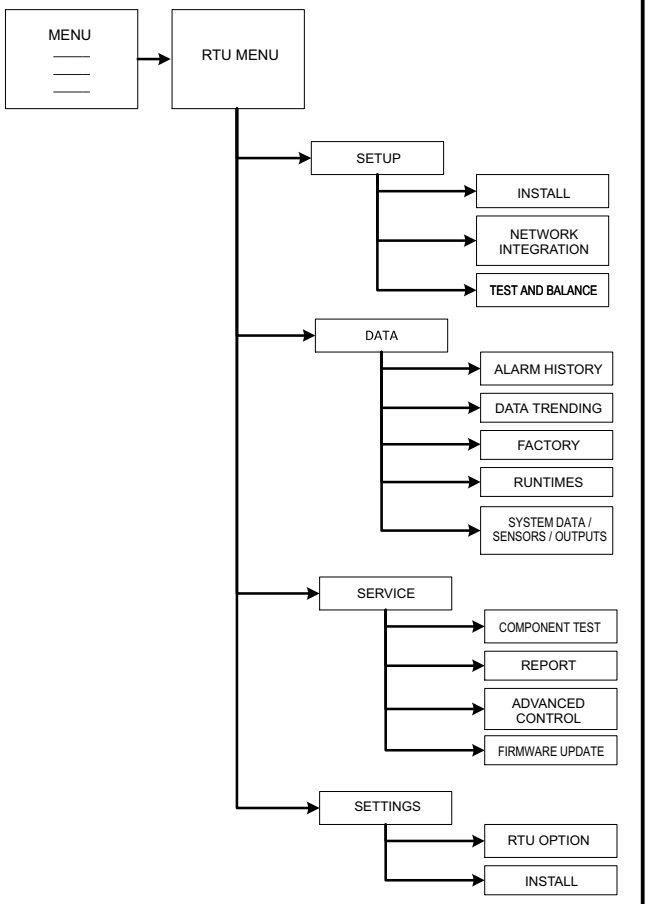


FIGURE 14

Electrical Connections - Power Supply

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

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

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

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

Electrical Connections - Control Wiring

NOTE - Optional wireless sensors are available for use with this unit. Refer to the instructions provided with each sensor.

⚠CAUTION

Electrostatic discharge can affect electronic components. Take precautions during unit installation and service to protect the electronic controls. Precautions will help to avoid control exposure to electrostatic discharge by putting the unit, the control and the technician at the same electrostatic potential. Neutralize electrostatic charge by touching hands and all tools on an unpainted unit surface, such as the gas valve or blower deck, before performing any service procedure.

A-Thermostat Location

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

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

-drafts or dead spots behind doors and in corners

-hot or cold air from ducts

-radiant heat from sun or appliances

-concealed pipes and chimneys

B-Control Wiring

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

Thermostat Mode

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

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

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

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

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

4- Wire as shown in figure 16 for electro-mechanical and electronic thermostats. If using other temperature control devices or energy management systems see instructions and wiring diagram provided by manufacturer.

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

Zone Sensor Mode

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

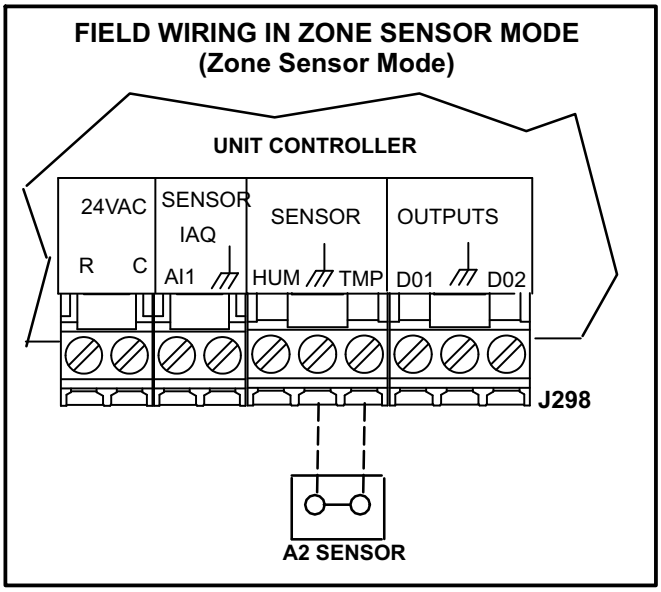


FIGURE 15

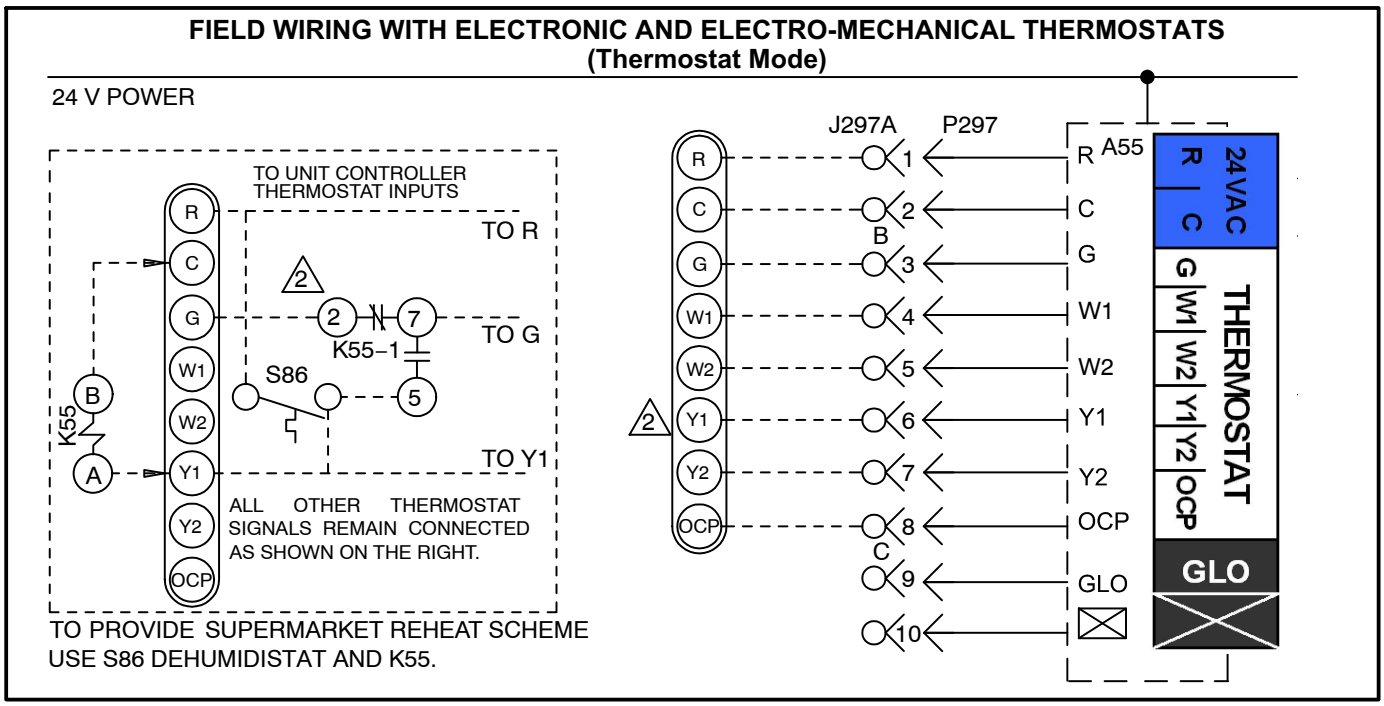


FIGURE 16

C-Hot Gas Reheat

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

2- Make wiring connections as shown in figure 16 for Thermostat Mode or figure 15 for Zone Sensor Mode. In addition, connect either a humidity sensor or a dehumidification input. See figure 17 or 18 for humidity sensor wiring or figure 19 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 17.

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 17.

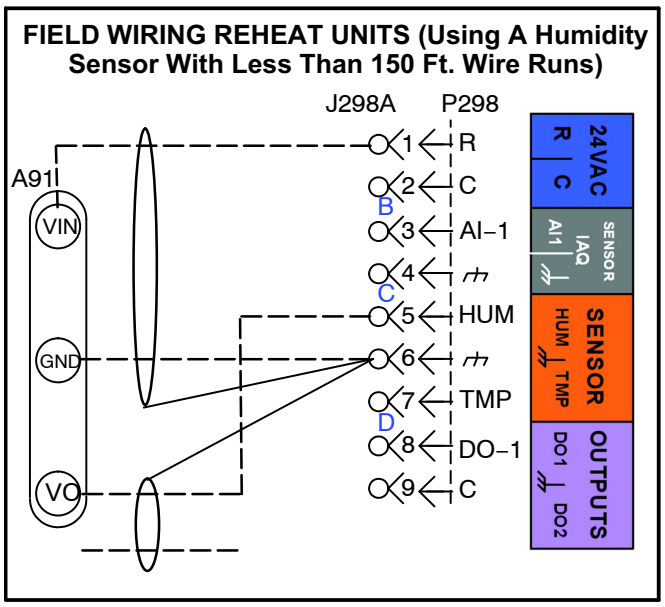


FIGURE 17

Wire runs over 150 feet (mm):

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

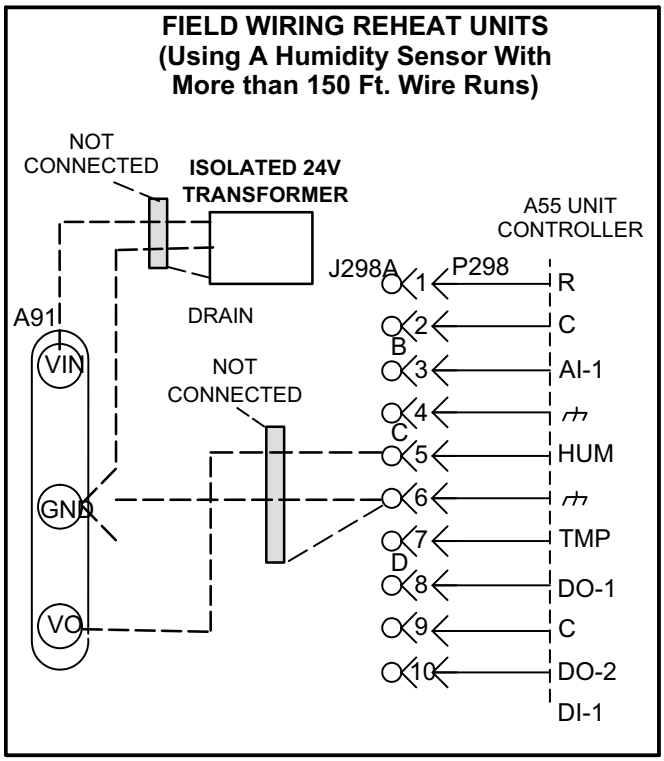


FIGURE 18

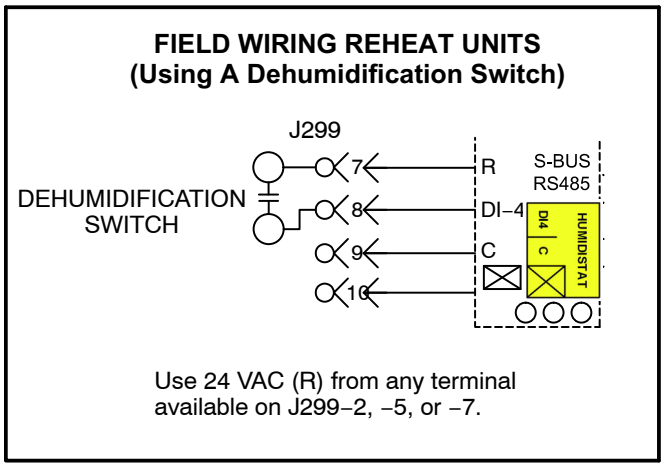


FIGURE 19

Blower Operation and Adjustments

Units are equipped with variable speed, direct drive blowers. The installer is able to enter the design-specified supply air CFM into the Unit Controller for optimal efficiency. The Unit Controller calibrates the supply air volume which eliminates the need to manually take duct static measurements. Refer to *C-Adjusting Unit CFM - Ultra High Efficiency Direct Drive Blowers.*

⚠IMPORTANT

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

A-Blower Operation

Refer to the Unit Controller Setup Guide to energize blower. Use the mobile service app menu; see *SERVICE > TEST.*

⚠WARNING

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

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

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

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

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

B-Determining Unit CFM

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

2- With all access panels in place, measure static pressure external to unit (from supply to return). Blower performance data is based on static pressure readings taken in locations shown in figure 20.

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

3- Measure the indoor blower wheel RPM.

4- Referring to the Blower Data tables, use static pressure and RPM readings to determine unit CFM. Use the Accessory Air Resistance tables when installing units with any of the options or accessories listed. Refer to table 3 for minimum airflow when electric heat is installed.

TABLE 3
MINIMUM AIRFLOW-LCM UNITS WITH ELECTRIC HEAT (DIRECT DRIVE)

kW	CFM
	Downflow & Horizontal Airflow
LCM036U	1350
LCM048U	1350
LCM060U LCM074U	1800

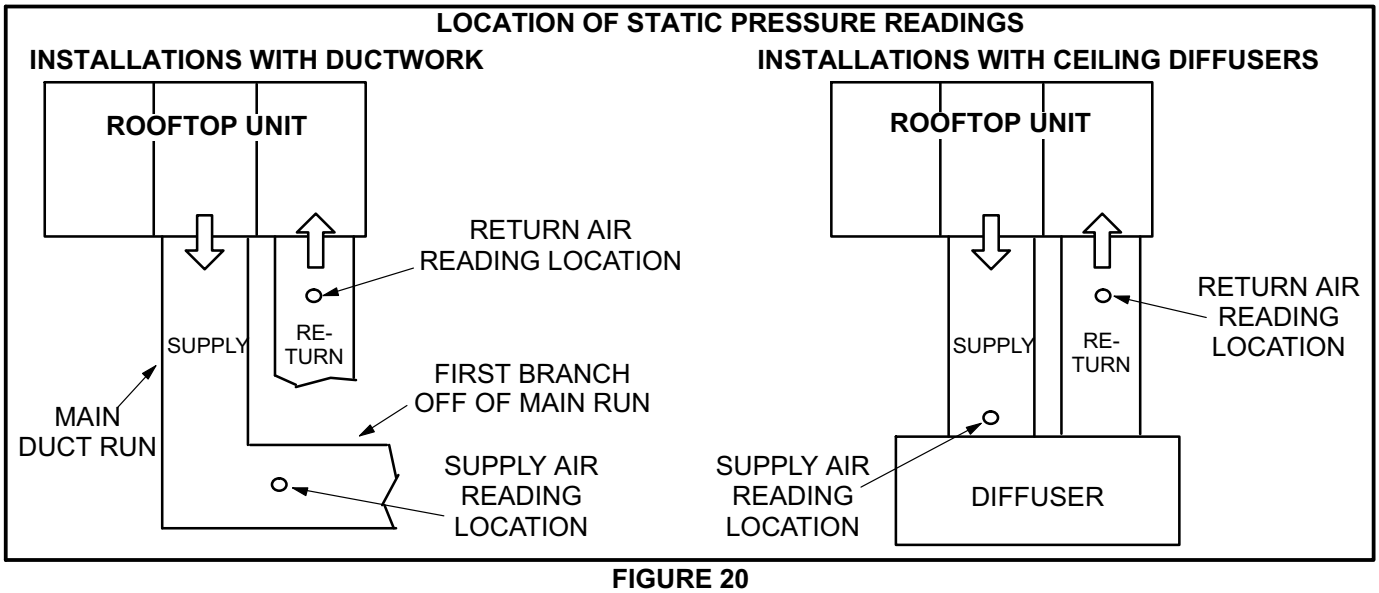


FIGURE 20

C-Adjusting Unit CFM

The supply CFM can be adjusted by changing Unit Controller settings. Refer to table 4 for menu paths and default settings. Record any CFM changes on the parameter settings label located on the inside of the compressor access panel.

⚠CAUTION

The BLOWER CALIBRATION process starts the indoor blower at operational speeds and moves the economizer damper blades. Before starting this process, replace any access panels and close all unit doors except compressor compartment door.

Blower calibration is required only on units that are newly installed or if there is a change in the duct work or air filters after installation. Use the mobile service app to navigate to the SETUP>TEST & BALANCE>BLOWER menu. After the new CFM values are entered, select START CALIBRATION. The blower calibration status is displayed as a % complete. Upon successful completion, the mobile service app will display CALIBRATION SUCCESS and go back to the blower calibration screen.

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

TABLE 4
DIRECT DRIVE PARAMETER SETTINGS

Parameter	Factory Setting				Field Setting	Description
	036	048	060	074		
Note: Any changes to Smoke CFM setting must be adjusted before the other CFM settings. Use SETTINGS > RTU OPTIONS > EDIT PARAMETERS = 12						
BLOWER SMOKE CFM	1200	1600	2000	2400	CFM	Smoke blower speed
SETUP > TEST & BALANCE > BLOWER						
BLOWER HEATING HIGH CFM	1350	1600	2000	2000	CFM	High heat blower speed
BLOWER COOLING HIGH CFM	1100	1450	1825	2200	CFM	High cooling blower speed
BLOWER COOLING LOW CFM	575	750	950	950	CFM	Low cooling blower speed
BLOWER VENTILATION CFM	575	750	950	1150	CFM	Ventilation blower speed
SETUP > TEST & BALANCE > DAMPER						
BLOWER HIGH CFM DAMPER POS %	0%	0%	0%	0%	%	Minimum damper position for high speed blower operation.
BLOWER LOW CFM DAMPER POS %	0%	0%	0%	0%	%	Minimum damper position for low speed blower operation.
POWER EXHAUST DAMPER POS %	50%	50%	50%	50%	%	Minimum damper position for power exhaust operation.
SETTINGS > RTU OPTIONS > EDIT PARAMETERS = 216						
POWER EXHAUST DEAD-BAND %	10%	10%	10%	10%	%	Deadband % for power exhaust operation.
SETTINGS > RTU OPTIONS > EDIT PARAMETER = 10 (Applies to Thermostat Mode ONLY)						
FREE COOLING STAGE-UP DELAY	300 sec.	300 sec.	300 sec.	300 sec.	sec	Number of seconds to hold indoor blower at low speed before switching to indoor blower at high speed.

Installer: Circle applicable unit model number and record any parameter changes under “Field Setting” column. Settings need to be recorded by installer for use when Unit Controller is replaced or reprogrammed.

BLOWER DATA

3 & 4 TON

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

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See Page 19 for blower motors and drives and wet coil and options/accessory air resistance data.

DOWNFLOW

Total Air Volume cfm	Total Static Pressure - in. w.g.																							
	0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		1.0		1.1		1.2		1.3	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
400	686	18	789	39	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
500	761	33	860	52	957	68	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
600	840	46	937	64	1031	80	1112	91	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
700	926	60	1020	77	1110	92	1190	105	1258	117	1319	131	---	---	---	---	---	---	---	---	---	---	---	---	---	---
800	1022	73	1110	90	1195	105	1272	119	1338	133	1399	148	1460	166	1523	184	---	---	---	---	---	---	---	---	---	---
900	1126	88	1207	104	1286	119	1358	135	1421	150	1480	168	1539	187	1599	207	1660	227	1719	250	---	---	---	---	---	---
1000	1237	103	1310	120	1381	136	1447	153	1507	171	1564	190	1619	211	1676	232	1733	255	1788	280	1836	306	1879	332	---	---
1100	1352	120	1417	138	1481	156	1541	174	1597	194	1650	216	1703	238	1757	262	1810	287	1860	312	1905	339	1946	365	1986	391
1200	1468	141	1527	159	1583	179	1637	200	1688	222	1739	246	1789	271	1839	296	1888	321	1935	348	1977	375	2016	401	2055	426
1300	1584	164	1636	185	1687	206	1736	230	1783	255	1829	281	1877	306	1924	332	1969	359	2011	386	2051	412	2088	438	2126	462
1400	1697	191	1744	215	1790	240	1834	266	1877	293	1920	320	1964	346	2007	371	2048	398	2088	424	2126	449	2163	474	2201	498
1500	1802	227	1846	253	1888	280	1930	308	1970	336	2010	361	2049	386	2089	410	2128	436	2166	461	2204	486	2241	511	2279	536
1600	1903	271	1944	298	1984	326	2024	354	2062	380	2100	403	2137	426	2174	448	2211	474	2248	499	2285	525	2322	553	2359	582
1700	2007	319	2045	346	2083	373	2120	399	2157	423	2193	445	2229	466	2264	489	2300	516	2336	544	2372	573	2407	604	2442	637
1800	2115	363	2151	390	2186	416	2221	442	2256	466	2291	488	2325	512	2359	538	2393	567	2428	599	2462	631	2496	666	2530	701
1900	2234	394	2265	422	2296	450	2328	478	2359	505	2391	533	2423	563	2455	595	2487	629	2520	664	2553	699	2587	735	2621	771
2000	2345	434	2371	466	2399	498	2426	530	2455	562	2484	595	2515	630	2545	667	2577	703	2609	739	2643	775	2678	810	2713	845
2100	2435	502	2459	537	2484	572	2511	606	2539	641	2569	676	2599	712	2631	748	2664	783	2697	818	2732	853	2768	887	2804	920
2200	2511	587	2535	623	2561	658	2588	694	2618	728	2650	762	2683	796	2716	830	2750	863	2785	897	2821	930	2857	963	2894	995
2300	2586	672	2612	707	2640	741	2669	776	2700	809	2734	842	2768	875	2802	908	2837	941	2873	974	2909	1007	2945	1039	2981	1071

Total Air Volume cfm	Total Static Pressure - in. w.g.													
	1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
1100	2028	415	2072	438	---	---	---	---	---	---	---	---	---	---
1200	2095	449	2138	473	2183	497	2229	522	2274	550	---	---	---	---
1300	2165	486	2206	510	2249	535	2293	562	2337	591	2381	620	2425	651
1400	2239	523	2279	549	2320	576	2361	605	2402	636	2443	668	2485	701
1500	2317	563	2355	592	2393	623	2432	656	2471	689	2509	723	2548	758
1600	2396	612	2432	645	2468	679	2505	714	2542	748	2579	783	2615	818
1700	2477	672	2512	707	2547	742	2583	777	2619	812	2655	846	2691	881
1800	2565	737	2599	772	2634	808	2670	842	2705	877	2741	911	2777	946
1900	2656	806	2691	841	2727	876	2762	911	2798	945	2833	979	2868	1013
2000	2749	879	2785	913	2820	947	2855	981	2890	1015	2925	1049	2959	1082
2100	2840	953	2876	987	2911	1020	2946	1053	2981	1087	3015	1121	3049	1154
2200	2930	1028	2965	1061	3000	1094	3035	1128	3069	1161	---	---	---	---
2300	3017	1104	3052	1137	3087	1170	---	---	---	---	---	---	---	---

BLOWER DATA

3 & 4 TON

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

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See Page 19 for blower motors and drives and wet coil and options/accessory air resistance data.

HORIZONTAL

Total Air Volume cfm	Total Static Pressure - in. w.g.																									
	0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		1.0		1.1		1.2		1.3	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
400	673	18	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
500	754	33	861	53	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
600	838	48	942	66	1037	80	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
700	928	61	1027	78	1118	92	1192	104	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
800	1023	75	1117	91	1204	106	1276	119	1339	134	1401	150	---	---	---	---	---	---	---	---	---	---	---	---	---	---
900	1125	89	1212	105	1293	121	1362	136	1424	152	1485	171	1547	190	---	---	---	---	---	---	---	---	---	---	---	---
1000	1232	104	1311	121	1386	138	1452	155	1512	174	1571	195	1631	216	1689	239	1744	264	---	---	---	---	---	---	---	---
1100	1341	121	1413	139	1481	158	1544	178	1602	200	1660	223	1717	246	1772	271	1823	298	1868	326	1910	352	---	---	---	---
1200	1452	141	1518	161	1580	182	1638	205	1694	230	1750	255	1804	281	1856	308	1903	335	1946	363	1988	389	2029	412	2072	434
1300	1564	164	1623	187	1680	211	1735	237	1788	265	1841	292	1893	319	1941	347	1985	375	2026	403	2067	428	2108	451	2150	474
1400	1673	192	1728	219	1781	247	1832	276	1882	305	1931	334	1979	362	2024	391	2066	418	2107	445	2147	469	2188	493	2230	516
1500	1778	229	1829	259	1879	289	1928	320	1974	350	2020	379	2064	408	2107	436	2149	463	2190	488	2231	512	2272	537	2312	563
1600	1881	274	1930	304	1978	336	2024	367	2067	396	2109	425	2151	453	2193	481	2235	507	2277	532	2318	558	2358	585	2397	614
1700	1987	321	2033	352	2078	382	2122	412	2163	441	2204	469	2244	498	2286	525	2327	551	2368	578	2408	606	2446	638	2484	673
1800	2096	367	2139	397	2182	426	2224	456	2264	484	2303	512	2344	540	2384	568	2424	596	2463	626	2501	660	2537	698	2571	738
1900	2208	396	2248	429	2288	461	2328	493	2367	524	2406	556	2445	587	2484	618	2522	650	2558	686	2593	726	2626	770	2657	814
2000	2318	437	2356	474	2394	511	2431	549	2469	585	2505	622	2542	659	2579	695	2614	733	2648	773	2681	814	2712	857	2743	900
2100	2424	505	2461	546	2497	587	2533	628	2568	668	2603	708	2637	748	2672	788	2706	828	2738	867	2770	906	2802	945	2833	983
2200	2530	582	2566	623	2602	664	2636	705	2670	745	2703	786	2737	826	2770	866	2803	905	2835	944	2866	983	2897	1021	2929	1060
2300	2638	659	2672	700	2707	741	2740	781	2773	822	2805	862	2838	902	2870	942	2902	982	2934	1021	2965	1059	2996	1098	3027	1136

Total Air Volume cfm	Total Static Pressure - in. w.g.													
	1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
1100	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1200	2192	497	2234	522	2275	549	---	---	---	---	---	---	---	---
1300	2271	542	2312	569	2353	597	2393	626	2431	658	---	---	---	---
1400	2353	591	2392	621	2431	652	2470	683	2507	717	2543	752	2577	788
1500	2436	646	2474	679	2512	712	2549	746	2585	781	2620	816	2653	852
1600	2520	709	2557	744	2593	779	2628	815	2663	851	2696	887	2730	923
1700	2605	778	2640	815	2675	852	2709	889	2742	926	2775	963	2807	999
1800	2690	857	2723	895	2757	933	2790	970	2822	1008	2854	1044	2886	1081
1900	2775	941	2808	979	2841	1016	2873	1053	2905	1090	2937	1126	2969	1162
2000	2865	1021	2898	1058	2930	1096	2963	1132	2995	1168	3027	1204	3059	1240
2100	2961	1097	2993	1135	3025	1172	3057	1208	3089	1245	---	---	---	---
2200	3059	1173	3091	1211	3122	1248	3154	1284	---	---	---	---	---	---
2300	---	---	---	---	---	---	---	---	---	---	---	---	---	---

BLOWER DATA

5 & 6 TON

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

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See Page 19 for blower motors and drives and wet coil and options/accessory air resistance data.

DOWNFLOW

Total Air Volume cfm	Total Static Pressure - in. w.g.																									
	0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		1.0		1.1		1.2		1.3	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
400	655	12	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
500	727	26	822	46	918	63	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
600	802	40	896	58	990	74	1072	86	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
700	883	53	975	70	1065	85	1148	99	1218	111	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
800	970	66	1059	82	1146	97	1226	111	1296	125	1359	139	1420	156	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
900	1065	79	1150	95	1233	110	1309	125	1377	140	1438	156	1499	174	1560	193	1621	213	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1000	1167	93	1246	109	1323	125	1395	141	1460	157	1521	175	1579	195	1638	215	1696	237	1752	260	1801	285	1844	311	- - -	- - -
1100	1274	108	1347	125	1418	142	1485	159	1547	177	1605	197	1662	219	1718	242	1773	265	1825	290	1872	316	1914	343	1953	368
1200	1383	126	1450	144	1516	162	1577	181	1635	201	1691	223	1746	247	1800	272	1852	297	1900	323	1944	350	1985	377	2022	402
1300	1493	146	1555	164	1615	184	1672	205	1726	229	1779	254	1831	280	1882	306	1931	332	1977	359	2019	386	2057	413	2094	438
1400	1602	167	1659	188	1714	211	1766	235	1816	261	1866	289	1915	316	1964	343	2010	370	2053	397	2093	424	2132	449	2169	474
1500	1707	194	1758	219	1808	244	1857	271	1904	300	1950	328	1996	355	2041	381	2085	408	2127	434	2168	459	2207	484	2245	509
1600	1803	231	1851	258	1898	286	1945	314	1990	342	2034	369	2077	395	2120	419	2162	445	2204	471	2245	496	2285	522	2324	549
1700	1898	275	1944	303	1989	331	2034	359	2078	386	2120	410	2162	434	2204	458	2245	484	2286	511	2327	538	2366	567	2403	598
1800	1998	318	2041	347	2085	375	2128	402	2171	427	2213	451	2254	475	2294	500	2334	528	2374	557	2412	588	2449	621	2484	655
1900	2102	341	2143	371	2185	401	2226	431	2267	459	2308	487	2348	515	2387	546	2425	578	2463	611	2499	646	2534	682	2567	719
2000	2206	361	2245	396	2285	431	2325	465	2365	499	2404	534	2442	568	2479	604	2515	641	2551	677	2586	715	2619	752	2652	790
2100	2308	407	2347	446	2386	485	2424	524	2462	562	2499	600	2535	638	2570	676	2605	714	2640	752	2674	789	2707	826	2738	863
2200	2410	477	2449	517	2487	557	2524	597	2561	636	2596	674	2630	712	2664	750	2698	787	2732	825	2765	862	2797	898	2828	934
2300	2514	552	2552	591	2589	631	2625	670	2660	709	2694	747	2727	784	2760	822	2793	859	2826	896	2858	933	2889	969	2920	1004
2400	2621	627	2657	666	2693	706	2728	744	2762	782	2794	820	2826	857	2858	894	2890	931	2922	968	2953	1004	2984	1040	3014	1076
2500	2729	703	2764	742	2798	781	2831	819	2864	856	2895	893	2927	930	2958	967	2989	1004	3020	1040	3050	1076	3080	1112	3111	1147

Total Air Volume cfm	Total Static Pressure - in. w.g.													
	1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
1100	1990	392	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1200	2060	426	2098	449	2136	470	2176	493	- - -	- - -	- - -	- - -	- - -	- - -
1300	2131	462	2169	485	2208	507	2247	531	2286	555	2325	582	2363	609
1400	2206	498	2244	522	2282	546	2320	572	2358	599	2396	627	2433	657
1500	2283	534	2321	560	2359	588	2395	617	2432	648	2467	680	2503	713
1600	2362	577	2398	608	2434	640	2469	673	2503	707	2537	741	2571	775
1700	2439	631	2474	665	2507	700	2540	736	2573	772	2606	807	2639	842
1800	2518	691	2551	728	2583	765	2615	802	2647	838	2680	873	2713	908
1900	2600	757	2631	794	2663	832	2694	868	2726	904	2759	940	2791	975
2000	2683	827	2715	864	2746	901	2777	937	2809	972	2841	1008	2873	1043
2100	2770	899	2800	935	2831	971	2863	1006	2894	1041	2926	1077	2958	1112
2200	2859	970	2889	1005	2920	1040	2951	1076	2983	1111	3014	1146	3046	1181
2300	2950	1040	2981	1076	3012	1111	3043	1146	3074	1182	- - -	- - -	- - -	- - -
2400	3045	1111	3075	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
2500	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

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

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See Page 19 for blower motors and drives and wet coil and options/accessory air resistance data.

HORIZONTAL

Total Air Volume cfm	Total Static Pressure - in. w.g.																									
	0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		1.0		1.1		1.2		1.3	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
400	685	20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
500	776	37	880	57	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
600	867	53	968	71	1054	83	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
700	959	67	1058	85	1143	97	1209	107	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
800	1056	81	1151	98	1233	112	1299	123	1358	137	1416	153	---	---	---	---	---	---	---	---	---	---	---	---	---	---
900	1159	95	1248	113	1326	128	1390	142	1448	158	1506	176	1564	194	---	---	---	---	---	---	---	---	---	---	---	---
1000	1266	111	1348	129	1421	146	1483	163	1541	182	1598	202	1653	223	1706	244	1756	268	---	---	---	---	---	---	---	---
1100	1377	129	1451	149	1518	168	1578	188	1635	210	1690	232	1744	256	1794	280	1840	306	1882	333	1922	358	---	---	---	---
1200	1489	151	1556	172	1618	194	1676	218	1731	243	1784	268	1835	293	1883	320	1926	347	1967	374	2006	398	2046	420	2086	441
1300	1602	175	1663	200	1720	226	1774	253	1827	281	1878	308	1927	335	1972	363	2013	391	2052	417	2091	441	2131	463	2170	484
1400	1712	207	1768	235	1822	265	1873	296	1923	325	1971	354	2017	382	2059	410	2100	437	2139	462	2177	485	2217	508	2256	531
1500	1817	248	1871	279	1922	311	1971	343	2017	373	2062	402	2106	431	2148	459	2188	484	2227	508	2267	532	2306	556	2344	581
1600	1922	295	1973	328	2023	360	2069	392	2113	422	2155	451	2198	479	2239	506	2280	531	2320	556	2359	581	2397	609	2434	638
1700	2030	345	2078	377	2126	409	2170	439	2212	469	2253	498	2294	526	2336	553	2376	579	2415	606	2453	635	2490	668	2525	703
1800	2141	391	2187	423	2231	454	2274	484	2315	514	2356	543	2396	571	2436	598	2475	627	2513	659	2549	695	2583	734	2616	774
1900	2255	423	2297	458	2339	492	2380	526	2420	559	2460	591	2499	623	2537	655	2574	689	2609	727	2642	769	2674	813	2704	856
2000	2365	470	2405	511	2445	550	2484	589	2522	628	2560	666	2597	703	2634	740	2668	779	2701	819	2732	861	2763	903	2793	944
2100	2472	545	2511	588	2550	631	2587	674	2624	716	2659	757	2695	798	2730	838	2763	877	2795	915	2826	953	2857	991	2888	1028
2200	2580	624	2618	668	2656	711	2692	754	2727	795	2762	837	2796	877	2830	917	2863	957	2894	995	2925	1033	2956	1071	2987	1108
2300	2689	704	2726	748	2762	791	2798	833	2832	875	2866	916	2899	957	2932	997	2964	1036	2996	1074	3027	1112	3057	1150	3088	1187
2400	2798	784	2834	827	2870	870	2904	913	2937	954	2970	995	3003	1036	3035	1076	3067	1115	3098	1153	---	---	---	---	---	---
2500	2908	864	2943	907	2977	950	3011	992	3043	1034	3076	1075	3108	1115	---	---	---	---	---	---	---	---	---	---	---	---

Total Air Volume cfm	Total Static Pressure - in. w.g.													
	1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
1100	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1200	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1300	2210	507	2248	531	---	---	---	---	---	---	---	---	---	---
1400	2295	555	2332	581	2369	607	2405	634	2439	661	---	---	---	---
1500	2382	609	2418	637	2454	666	2489	695	2522	726	2554	758	2585	792
1600	2470	669	2506	700	2540	731	2573	763	2606	796	2637	829	2667	863
1700	2559	737	2593	770	2626	804	2658	838	2689	872	2719	906	2748	940
1800	2649	811	2681	847	2713	882	2744	917	2774	952	2803	987	2832	1021
1900	2736	895	2767	932	2798	968	2828	1003	2858	1039	2886	1073	2914	1108
2000	2825	982	2856	1019	2886	1054	2916	1090	2945	1125	2974	1159	3003	1193
2100	2919	1065	2950	1101	2980	1137	3010	1172	3039	1206	3069	1240	3098	1274
2200	3018	1144	3048	1180	3078	1216	3108	---	---	---	---	---	---	---
2300	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2400	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2500	---	---	---	---	---	---	---	---	---	---	---	---	---	---

BLOWER DATA

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

Air Volume cfm	Wet Indoor Coil		Condenser Reheat Coil	Electric Heat	Economizer	Filters		
	036, 048	060, 074				MERV 8	MERV 13	MERV 16
800	0.01	- -	- - -	0.01	0.04	0.04	0.05	0.04
1000	0.02	0.02	0.00	0.03	0.04	0.04	0.07	0.05
1200	0.03	0.04	0.00	0.06	0.04	0.04	0.07	0.05
1400	0.04	0.05	0.01	0.09	0.04	0.04	0.07	0.06
1600	0.05	0.07	0.02	0.12	0.04	0.04	0.07	0.08
1800	0.06	0.08	0.02	0.15	0.05	0.04	0.07	0.09
2000	0.08	0.10	0.02	0.18	0.05	0.05	0.08	0.10
2200	- -	0.11	0.04	0.18	0.05	0.05	0.08	0.11
2400	- -	0.13	0.04	0.20	0.05	0.05	0.08	0.12

POWER EXHAUST FAN PERFORMANCE

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

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

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

CEILING DIFFUSER AIR THROW DATA

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

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

Cooling Start-Up

A-Operation

1- Initiate full load cooling operation using the following mobile service app menu path:
SERVICE > TEST > COOL > COOL 3
(COOL 4 on 074U units)

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

2- Units contain one refrigerant circuit or stage.

3- Unit is charged with R-410A refrigerant. See unit rating plate for correct amount of charge.

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

B-Refrigerant Charge and Check - Fin/Tube Coil

WARNING-Do not exceed nameplate charge under any condition.

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

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

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

1- Attach gauge manifolds and operate unit in cooling mode on **HIGH SPEED** with economizer disabled until system stabilizes (approximately five minutes). Make sure outdoor air dampers are closed.

Note - Use mobile service app menu path SERVICE > TEST > COOL > COOL 3 for 036, 048 and 060U units. Use COOL 4 for 074U units.

2- Use a thermometer to accurately measure the outdoor ambient temperature.

3- Apply the outdoor temperature to tables 5 through 8 to determine normal operating pressures. Pressures are listed for sea level applications at 80°F dry bulb and 67°F wet bulb return air.

4- Compare the normal operating pressures to the pressures obtained from the gauges. Minor variations in these pressures may be expected due to differences in installations. Significant differences could mean that the system is not properly charged or that a problem exists with some component in the system. **Correct any system problems before proceeding.**

5- If discharge pressure is high, remove refrigerant from the system. If discharge pressure is low, add refrigerant to the system.

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

6- Use one of the following charge verification methods along with the normal operating pressures to confirm readings.

Subcooling Method - Ultra High Efficiency Units

1- Attach gauge manifold to the liquid line. With the economizer disabled, operate the unit in **cooling mode at high speed** using the following mobile service app menu path:

SERVICE > TEST > COOL > COOL 3
(COOL 4 on 074U units)

2- Use the liquid line pressure and a PT chart to determine the saturated liquid temperature.

3- Measure the liquid line temperature at the condenser outlet.

Subcooling Temperature = Liquid Saturated Temperature Minus Liquid Temperature.

4- The subcooling temperature should be as shown in figure 9. A subcooling temperature greater than this value indicates an overcharge. A subcooling temperature less than this value indicates an undercharge.

TABLE 5 581009-01
LG/LC 036SU NORMAL OPERATING PRESSURES

Outdoor Coil Entering Air Temp	Discharge ±10 psig	Suction ± 5 psig
65° F	232	146
75° F	267	149
85° F	307	150
95° F	351	151
105° F	400	151
115° F	454	154

TABLE 6 581010-01
LG/LC 048U NORMAL OPERATING PRESSURES

Outdoor Coil Entering Air Temp	Discharge ±10 psig	Suction ± 5 psig
65° F	252	142
75° F	289	145
85° F	332	147
95° F	379	149
105° F	428	151
115° F	484	153

TABLE 7 581011-01
LG/LC 060U NORMAL OPERATING PRESSURES

Outdoor Coil Entering Air Temp	Discharge ±10 psig	Suction ± 5 psig
65° F	261	135
75° F	299	138
85° F	341	140
95° F	388	142
105° F	441	144
115° F	499	146

TABLE 8 581012-01
LG/LC 074U NORMAL OPERATING PRESSURES

Outdoor Coil Entering Air Temp	Discharge ±10 psig	Suction ± 5 psig
65° F	268	128
75° F	307	134
85° F	351	137
95° F	399	140
105° F	450	142
115° F	505	144

TABLE 9
SUBCOOLING TEMPERATURE

Unit	Liquid Saturated Temp. Minus Liquid Temperature
036U	11°F ± 1 (6.0°C ± 0.5)
048U	11.5°F ± 1 (6.4°C ± 0.5)
060U	13.5°F ± 1 (7.5°C ± 0.5)
074U	15°F ± 1 (8.3°C ± 0.5)

C-Compressor Controls

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

1- High Pressure Switch (S4)
The compressor circuit is protected by a high pressure switch which opens at 640 psig ± 10 psig (4413 kPa ± 70 kPa) and automatically resets at 475 psig ± 20 psig (3275kPa ± 138 kPa).

2- Low Pressure Switch (S87)
The compressor circuit is protected by a loss of charge switch. Switch opens at 40 psig ± 5 psig (276 ± 34 kPa) and automatically resets at 90 psig ± 5 psig (621 kPa ± 34 kPa).

3- Prognostics and Diagnostics Sensors (RT42, RT44, RT46, RT48)
Four thermistors are located on specific points in the refrigeration circuit. The thermistors provide constant temperature feedback to the Unit Controller to protect the compressor. Thermistors take the place of the freezestat and low ambient pressure switch.

4- Compressor Crankcase Heater (HR1)
Crankcase heater must be energized at all times to prevent compressor damage due to refrigerant migration. Energize crankcase heater 24 hours before unit start-up by setting thermostat so that there is no cooling demand (to prevent compressor from cycling) and apply power to unit.

Prognostic & Diagnostic Sensors

Units are equipped with four factory-installed thermistors (RT42, RT44, RT46, and RT48) located on different points on the refrigerant circuit.

The thermistors provide the Unit Controller with constant temperature readings of four 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 10 for proper locations.

TABLE 10
THERMISTOR LOCATION

Unit	RT42 & RT46	RT44 & RT48
036U, 048U	Figure 21	Figure 23
060U, 074U	Figure 22	

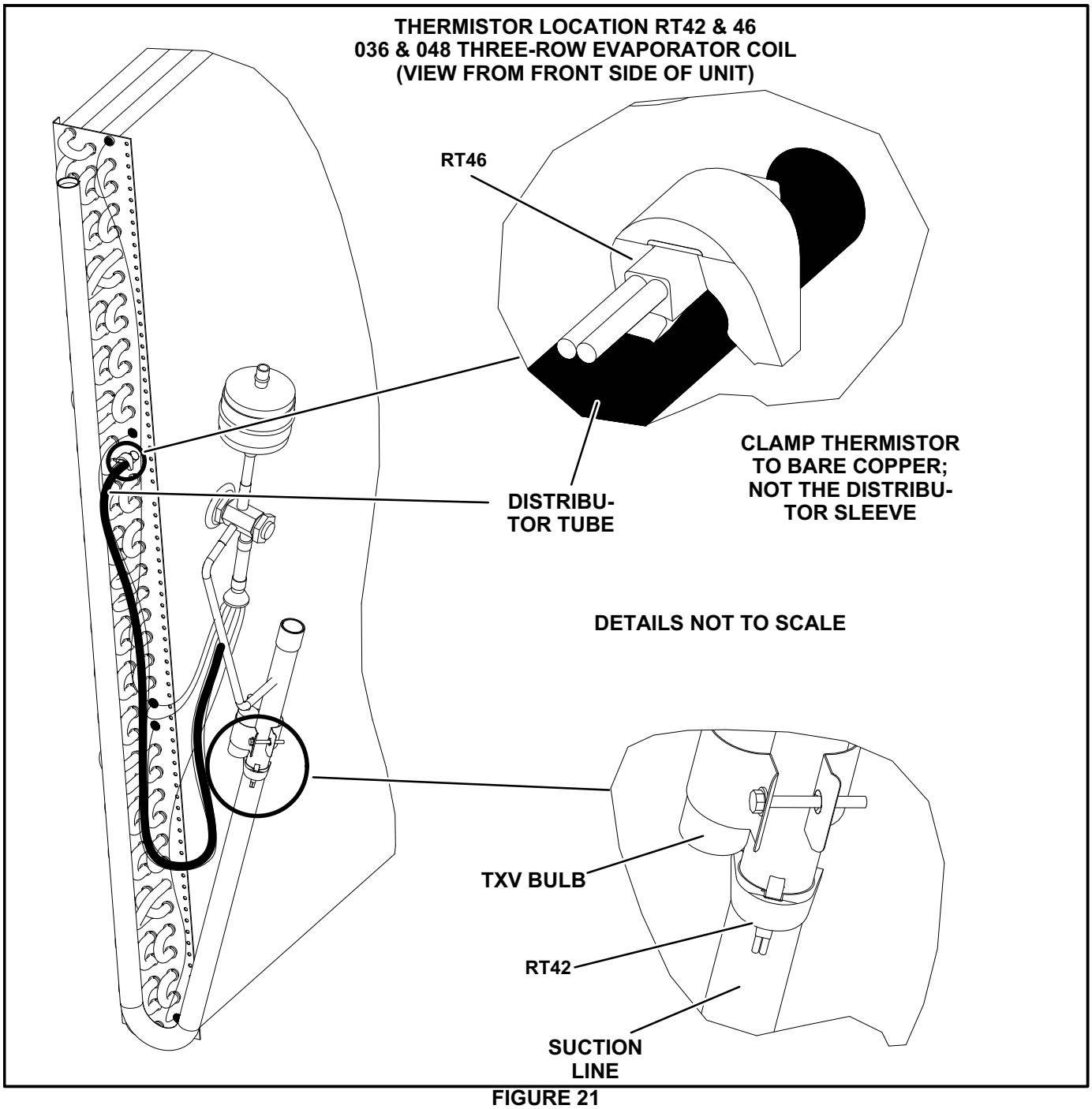


FIGURE 21

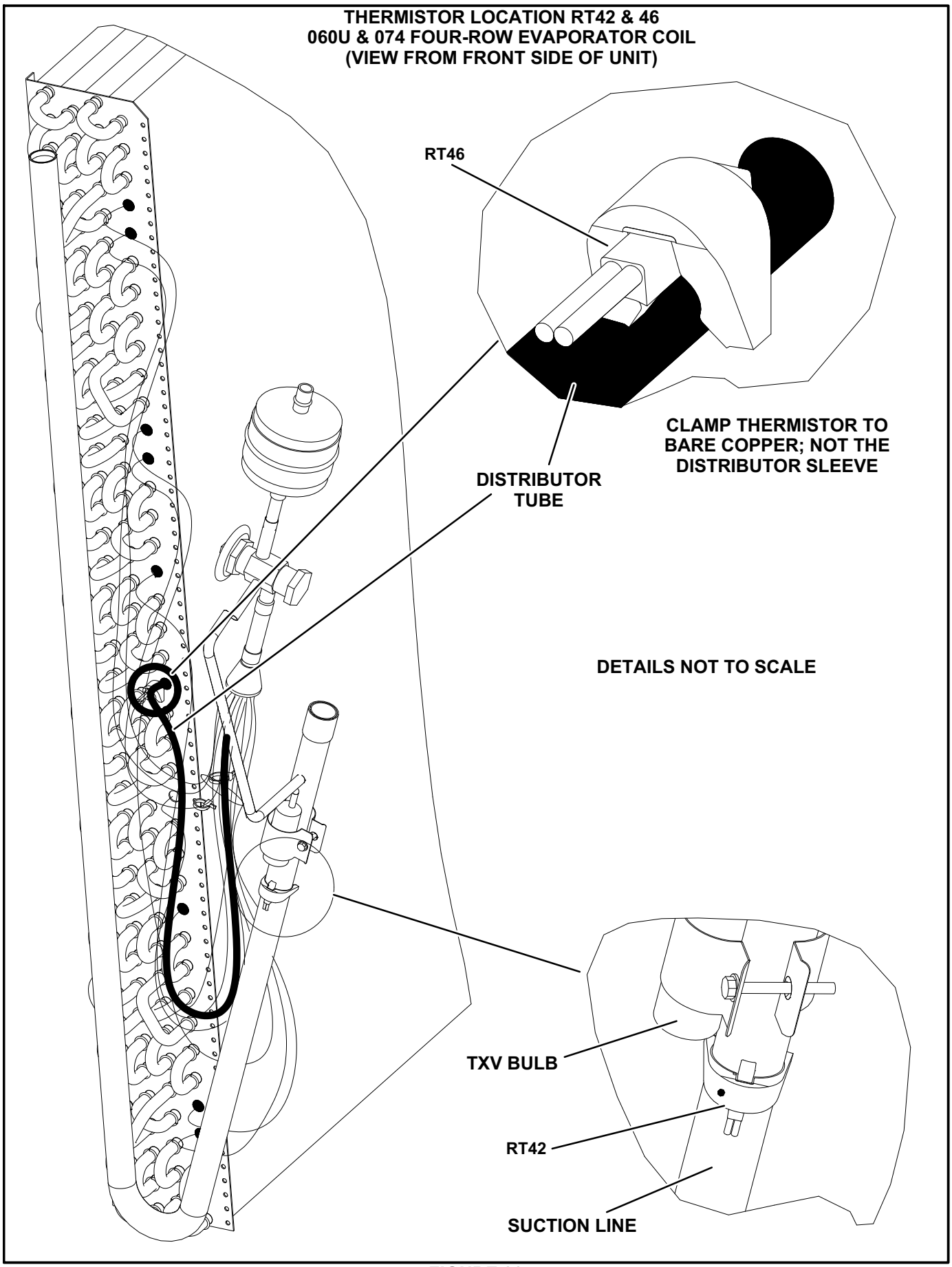

THERMISTOR LOCATION RT42 & 46
060U & 074 FOUR-ROW EVAPORATOR COIL
(VIEW FROM FRONT SIDE OF UNIT)
RT46
CLAMP THERMISTOR TO BARE COPPER; NOT THE DISTRIBUTOR SLEEVE
DISTRIBUTOR TUBE
DETAILS NOT TO SCALE
TXV BULB
RT42
SUCTION LINE

FIGURE 22

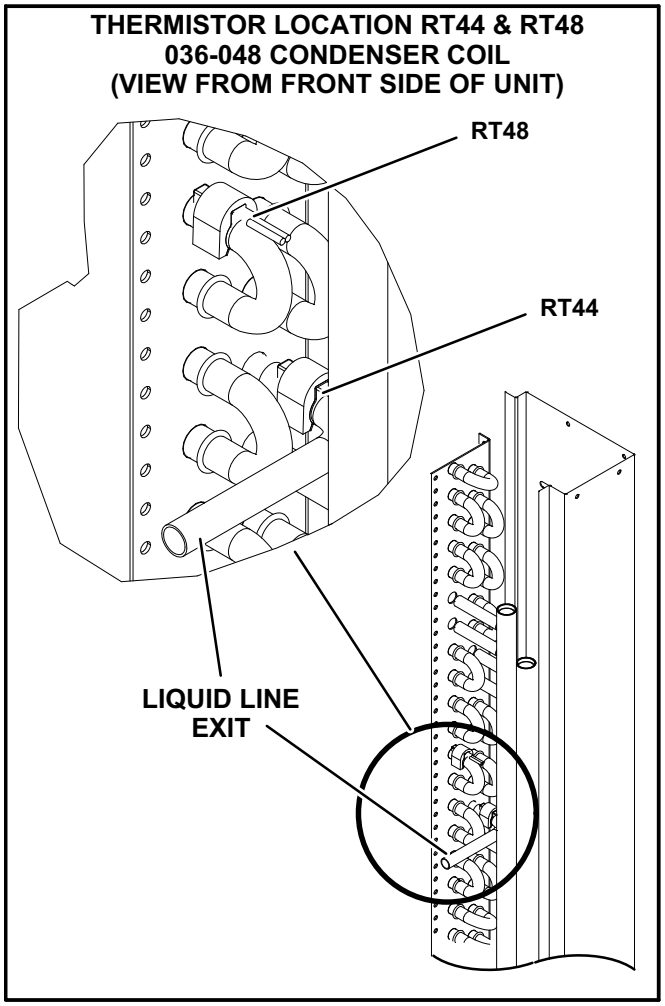

THERMISTOR LOCATION RT44 & RT48
036-048 CONDENSER COIL
(VIEW FROM FRONT SIDE OF UNIT)
RT48
RT44
LIQUID LINE
EXIT

FIGURE 23

Cooling Operation

A-Two-Stage Thermostat

1-Economizer With Outdoor Air Suitable

Y1 Demand -
Compressor Off
Blower Low
Dampers Modulate

Y2 Demand -
Compressor Modulates
Blower Low
Dampers Full Open

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

2-No Economizer or Outdoor Air Not Suitable

Y1 Demand -
Compressor Modulates
Blower Low
Dampers Minimum Position

Y2 Demand -
Compressor Modulates
Blower High
Dampers Minimum Position

B-Three-Stage Thermostat OR Room Sensor

1-Economizer With Outdoor Air Suitable

Y1 Demand -
Compressors Off
Blower Low
Dampers Modulate

Y2 Demand -
Compressor Modulates
Blower Low
Dampers Full Open

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

Y3 Demand -
Compressor Modulates
Blower High
Dampers Full Open

2-No Economizer or Outdoor Air Not Suitable

Y1 Demand -
Compressor Modulates
Blower Low
Dampers Minimum Position

Y2 Demand -
Compressor Modulates
Blower Mid
Dampers Minimum Position

Y3 Demand -
Compressor Modulates
Blower High
Dampers Minimum Position

C-Zone Sensor

1-Economizer With Outdoor Air Suitable

Low Cooling Demand -
Compressor Off
Blower Variable
Dampers Modulate

High Cooling Demand -
Compressor Variable
Blower Variable
Dampers Full Open

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

Note - Free cooling is locked out when a dehumidification demand is received. The unit operates in dehumidification mode as if the outdoor air is not suitable.

2-No Economizer or Outdoor Air Not Suitable

Any Demand -
Compressor Variable
Blower Variable
Damper Minimum Position

D-Verify Proper Operation In Zone Sensor Mode

The Unit Controller (A55) communicates the appropriate frequency (speed) to the compressor inverter (A192) to match the cooling load. Because the cooling load varies, the Unit Controller provides a test mode to initiate a predictable compressor speed. Use the following mobile service app menu paths to change the compressor speed and verify discharge and suction pressures are changing appropriately. When the compressor speed **increases**, the discharge pressure will **increase** proportionately and the suction pressure will **decrease** proportionately. When the compressor speed **decreases**, the discharge pressure will **decrease** proportionately and the suction pressure will **increase** proportionately.

036, 048, 060U

High speed compressor operation:
SERVICE > TEST > COOL > COOL 3

Intermediate speed compressor operation:
SERVICE > TEST > COOL > COOL 2

Low speed compressor operation
SERVICE > TEST > COOL > COOL 1

074U Only

High speed compressor operation:
SERVICE > TEST > COOL > COOL 4

First intermediate speed compressor operation:
SERVICE > TEST > COOL > COOL 3

Second intermediate speed compressor operation:
SERVICE > TEST > COOL > COOL 2

Low speed compressor operation
SERVICE > TEST > COOL > COOL 1

Gas Heat Start-Up (Gas Units)

FOR YOUR SAFETY READ BEFORE LIGHTING

⚠WARNING

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

⚠WARNING

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

⚠WARNING

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

⚠WARNING

SMOKE POTENTIAL

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

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

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

⚠WARNING

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

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

A-Placing Unit In Operation

⚠WARNING

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

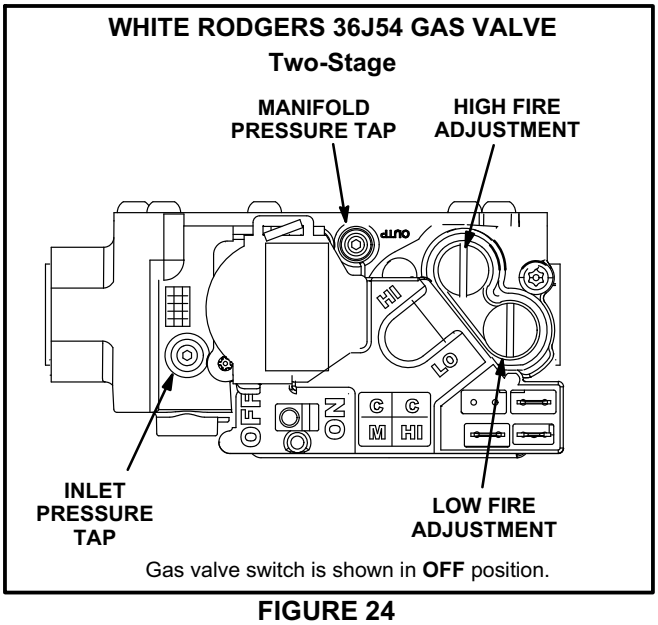
Gas Valve Operation (figure 24)

1- Set thermostat to lowest setting.

2- Turn off all electrical power to appliance.

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

4- Open or remove the control access panel.



Gas valve switch is shown in **OFF** position.

FIGURE 24

5- Move gas valve switch to **OFF**. See figure 24.

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

7- Move gas valve switch to **ON**. See figure 24.

8- Close or replace the control access panel.

9- Turn on all electrical power to appliance.

10- Set thermostat to desired setting.

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

11- The ignition sequence will start.

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

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

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

Turning Off Gas to Unit

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

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

3- Open or remove the control access panel.

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

5- Close or replace the control access panel.

⚠WARNING

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

Heating Operation and Adjustments

(Gas Units)

A-Heating Sequence of Operation

Two-Stage

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

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

3- Spark ignitor energizes and gas valve solenoid opens.

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

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

B-Ignition Control Diagnostic LEDs

TABLE 11
IGNITION CONTROL HEARTBEAT LED STATUS

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

C-Limit Controls

Limit controls are factory-set and are not adjustable. The primary limit is located to the right of the combustion air inducer. See figure 32.

D-Heating Adjustment

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

The following manifold pressures are listed on the gas valve.

Natural Gas Units - Low Fire - 2.0” w.c.
Natural Gas Units - High Fire - 3.5” w.c.
LP Gas Units - Low Fire - 5.9” w.c.
LP Gas Units - High Fire - 10.5” w.c.

Electric Heat Start-Up (LCM Units)

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

SCR Electric Heat Controller (LCM Units)

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

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

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

1- Adjust thermostat (A104) to minimum position.

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

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

Hot Gas Reheat Start-Up And Operation

General

Hot gas reheat units provide a dehumidifying mode of operation. These units contain a reheat coil adjacent to and downstream of the evaporator coil. Reheat coil solenoid valve, L14, routes hot discharge gas from the compressor to the reheat coil. Return air pulled across the evaporator coil is cooled and dehumidified; the reheat coil adds heat to supply air. See figure 25 for reheat refrigerant routing and figure 26 for standard cooling refrigerant routing.

L14 Reheat Coil Solenoid Valve

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

Reheat Setpoint

Reheat is factory-set to energize when indoor relative humidity rises above 60% (default). The reheat setpoint can be adjusted by changing mobile service app *Settings - Control* menu. A setting of 100% will operate reheat from an energy management system digital output. The reheat setpoint can also be adjusted using an optional Network Control Panel (NCP).

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

Check-Out

Test reheat operation using the following procedure.

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

2- Make sure unit is in local thermostat mode.

3- Use mobile service app menu path to select SERVICE > TEST > DEHUMIDIFIER.

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

Default Reheat Operation

During reheat mode free cooling is locked out.

A-Thermostat Mode With 24V Humidistat

No Y1 demand but a call for dehumidification:

Compressor operates at 100%, blower and outdoor fan modulate to maintain indoor coil and discharge air temperatures, reheat valve is energized.

Y1 demand:

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

Y2 demand:

Compressor is modulating, blower is on high, reheat valve is de-energized.

B-Thermostat Mode With Zone RH Sensor

No Y1 demand but a call for dehumidification:

Compressor modulates based on zone relative humidity, blower and outdoor fan modulate to maintain indoor coil and discharge air temperatures, reheat valve is energized.

Y1 and dehumidification demand:

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

Y2 and dehumidification demand:

Compressor is modulating, blower is on high, reheat valve is de-energized.

C-Zone Sensor Mode With Humidistat

No cooling demand but a call for dehumidification:

Compressor operates at 100%, blower and outdoor fan modulate to maintain indoor coil and discharge air temperatures, reheat valve is energized.

Cooling and dehumidification demand:

Compressor is modulating, blower is modulating, reheat valve is de-energized.

D-Zone Sensor Mode With Zone RH Sensor

No cooling demand but a call for dehumidification:

Compressor modulates based on zone relative humidity, blower and outdoor fan modulate to maintain indoor coil and discharge air temperatures, reheat valve is energized.

Cooling and dehumidification demand:

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

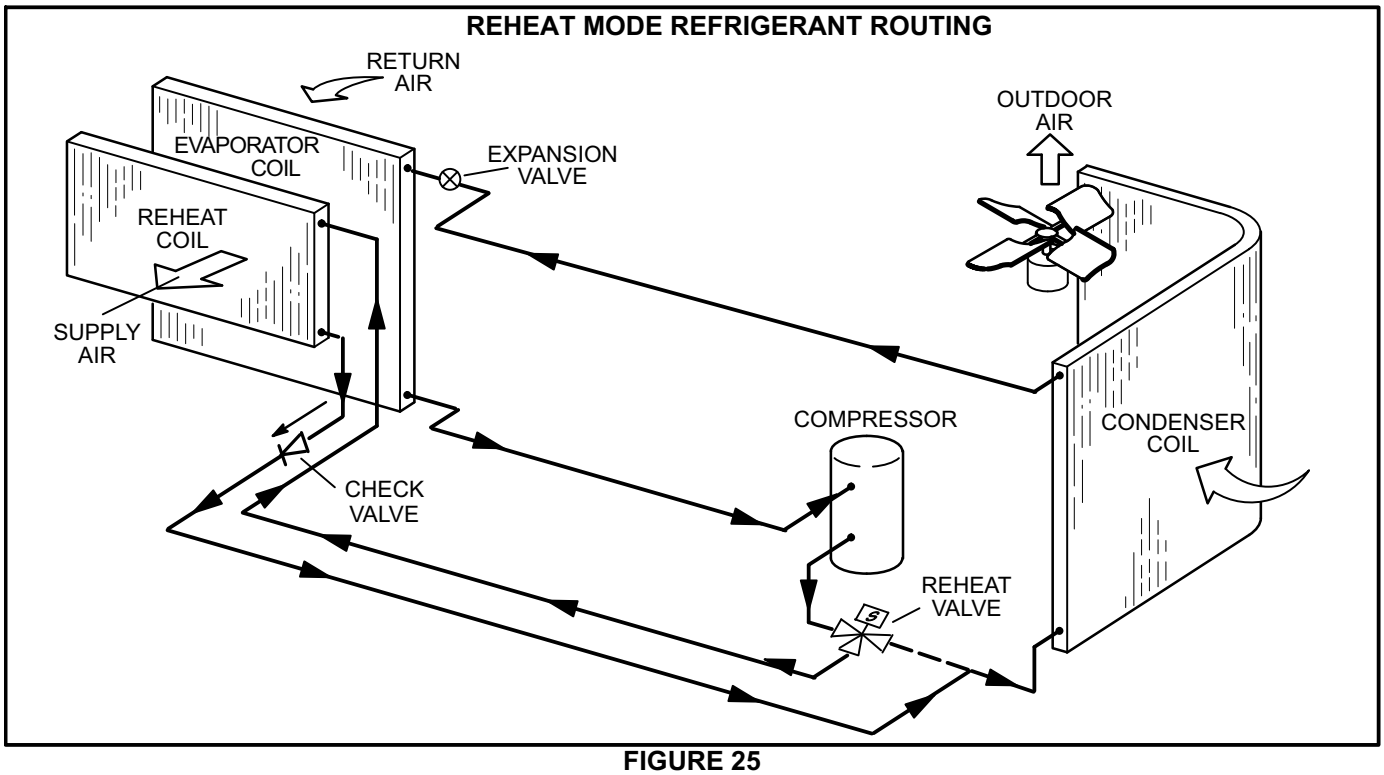


FIGURE 25

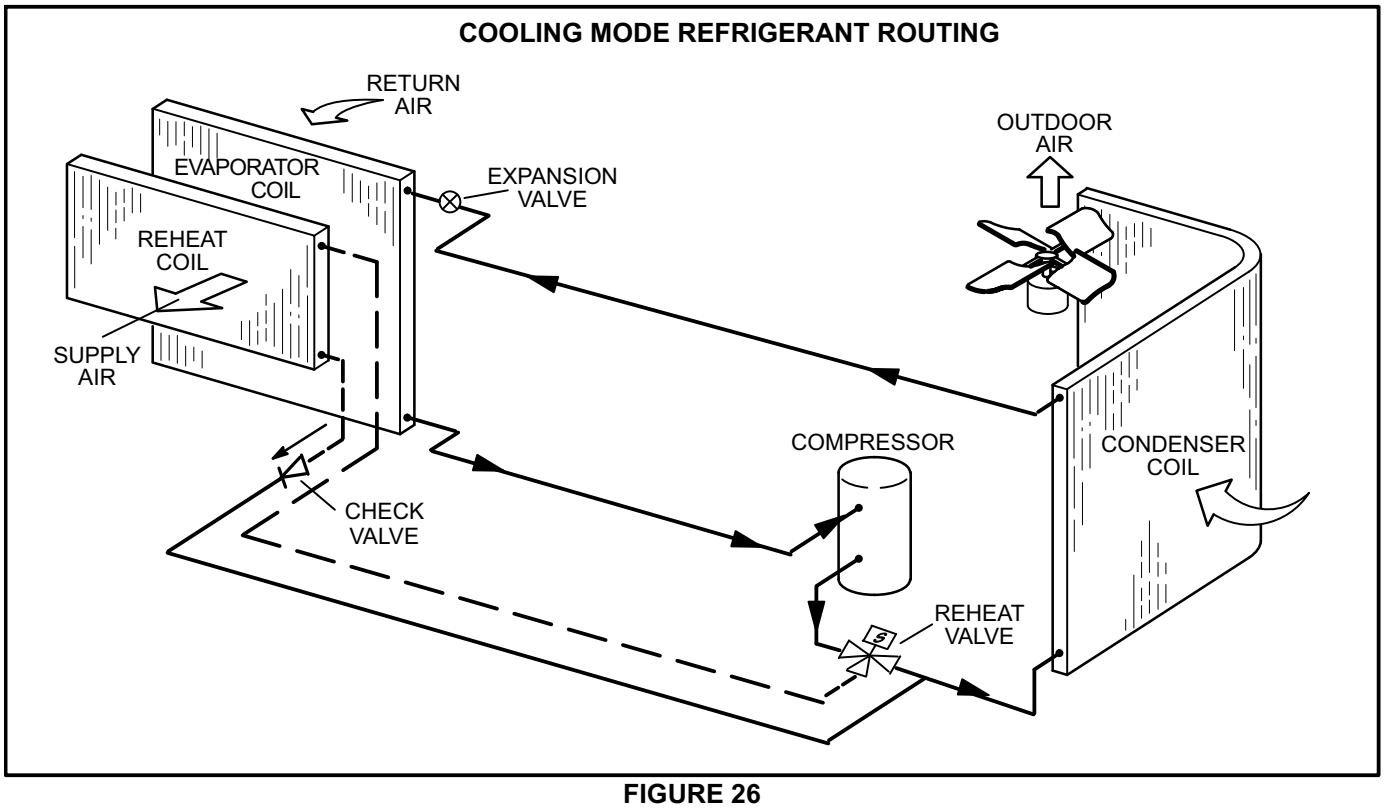


FIGURE 26

Service

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

⚠WARNING

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

⚠CAUTION

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

A-Filters

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

⚠WARNING

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

Approved filters should be checked monthly and replaced when necessary. Take note of air flow direction marking on filter frame when reinstalling filters. See figure 27.

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

B-Lubrication

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

C-Burners

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

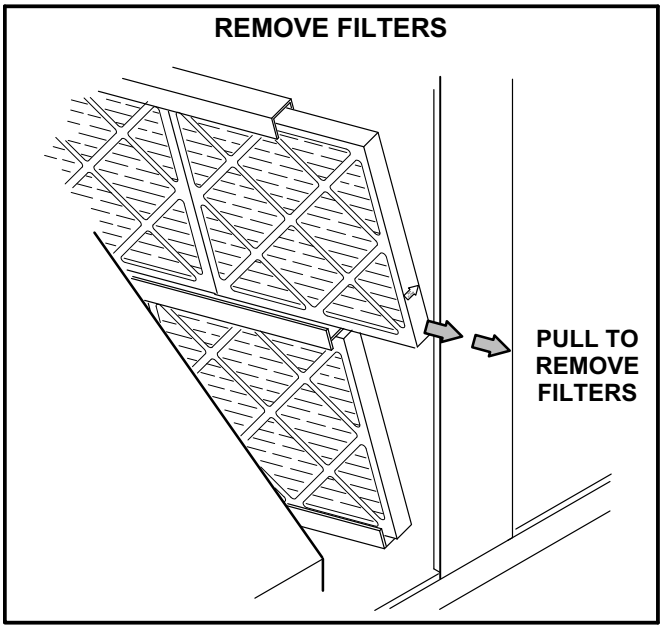


FIGURE 27

Clean burners as follows:

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

2- Remove blower access panel.

3- Remove top burner box panel.

4- Remove screws securing burners to burner support and lift the individual burners or the entire burner assembly from the orifices. See figure 28 or 29. Clean as necessary.

5- Locate the ignitor under the right burner. Check ignitor spark gap with appropriately sized twist drills or feeler gauges. See figure 30.

6- Replace burners and screws securing burner. See figure 31.

⚠WARNING

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

7- Replace access panel.

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

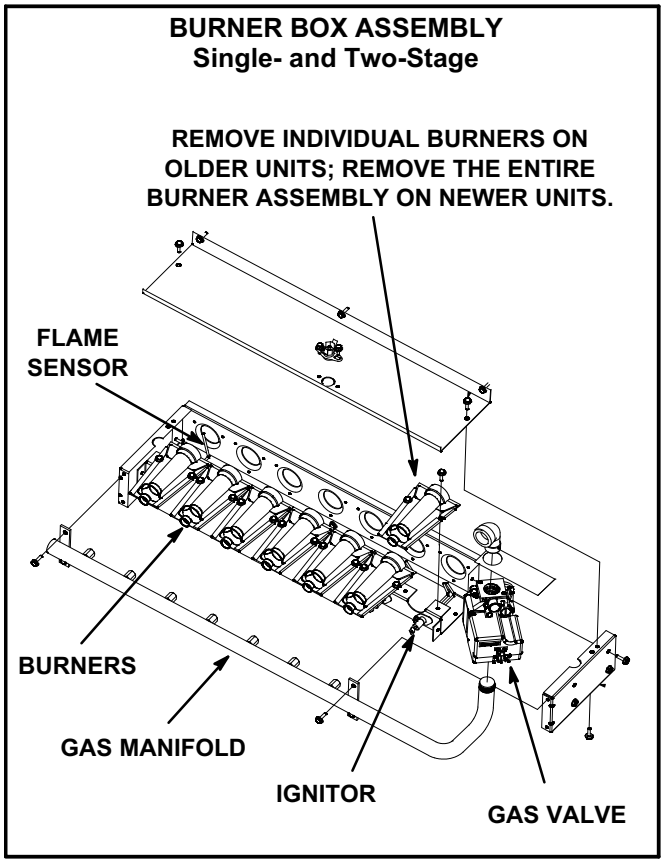


FIGURE 28

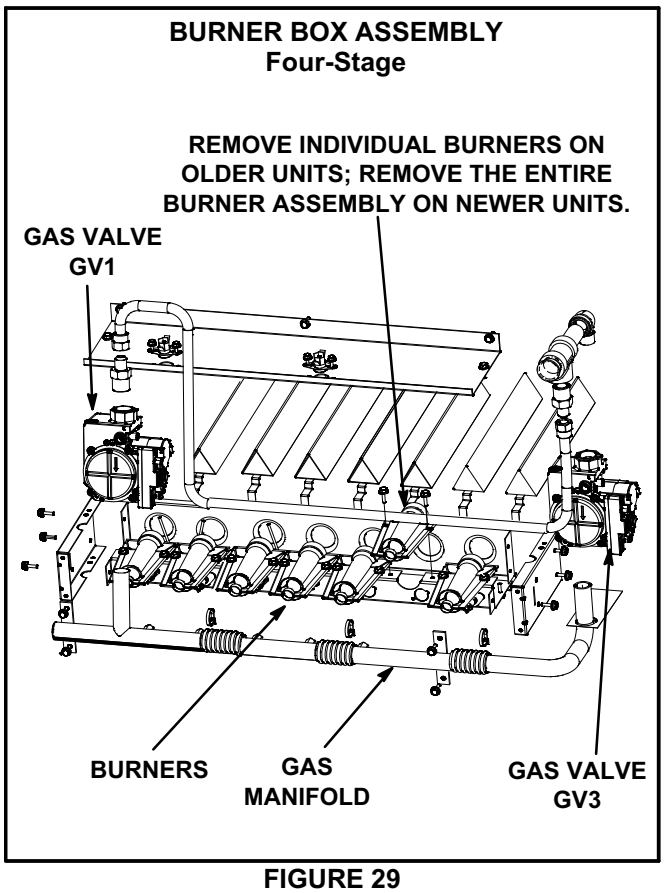


FIGURE 29

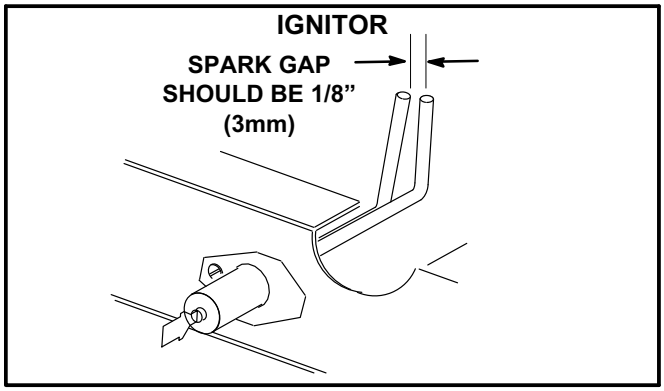


FIGURE 30

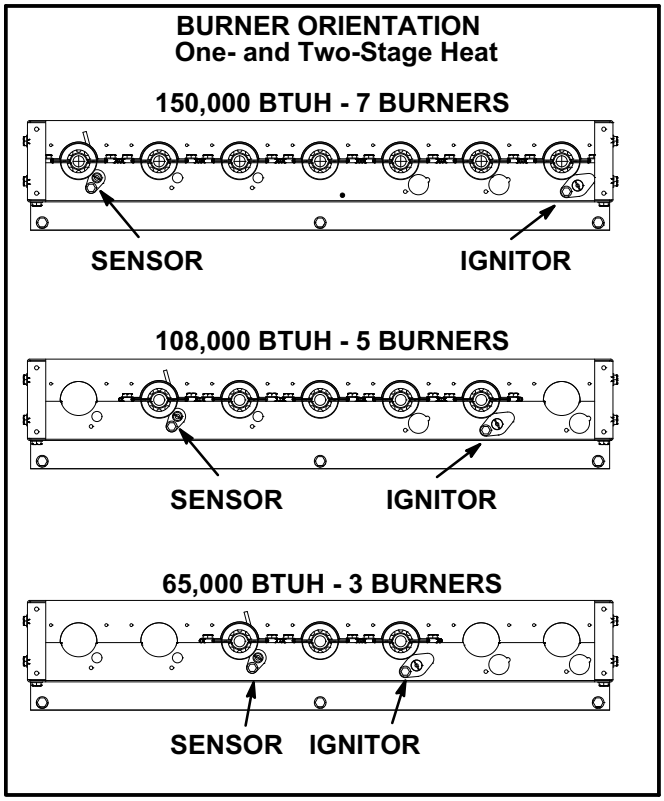


FIGURE 31

D-Combustion Air Inducer (Gas Units)

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

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

Clean combustion air inducer as follows:

1- Shut off power supply and gas to unit.

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

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

4- Remove and retain screws securing combustion air inducer to flue box. Remove vent connector. See figure 32.

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

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

7- Replace mullion.

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

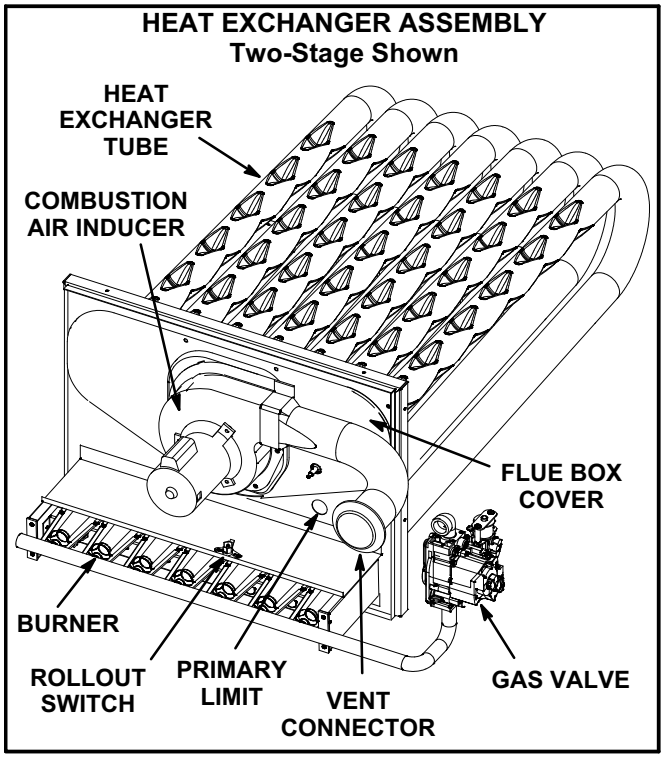


FIGURE 32

E-Flue Box (Gas Units)

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

F-Evaporator Coil

Inspect and clean coil at beginning of each cooling season. Clean 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

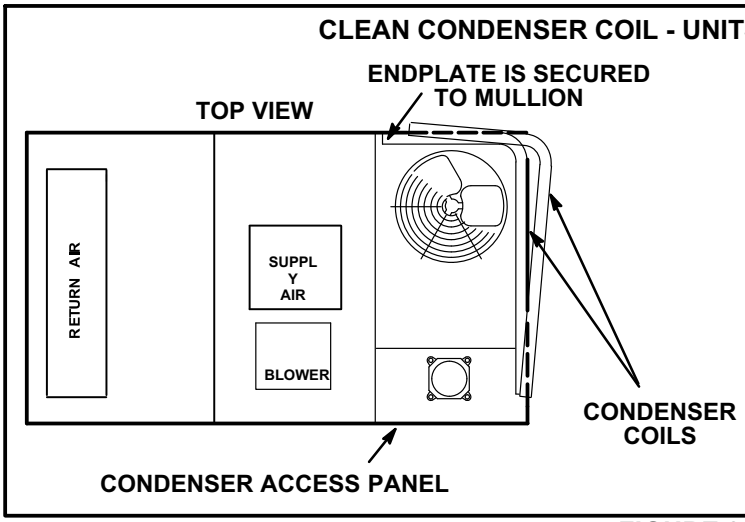
Clean condenser coil annually with detergent or commercial coil cleaner and inspect monthly during the cooling season.

Condenser coils are made of single and two formed slabs. On units with two slabs, dirt and debris may become trapped between the slabs. To clean between slabs, carefully separate coil slabs and wash them thoroughly. See figure 33. Flush coils with water following cleaning.

Note - Remove all screws and gaskets prior to cleaning procedure and replace upon completion.

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.



1- Remove unit top panel and condenser section access panel.

2- Remove screws securing coil end plate to mullion.

3- Remove wire ties connecting coils slabs and separate slabs 3-4” (76-102mm).

4- Clean coils with detergent or commercial coil cleaner.

5- Rinse thoroughly with water and reassemble. Use field-provided wire ties to connect coil slabs.

FIGURE 33

J-Needlepoint Bipolar Ionizer (Optional)

The optional, brush-type ionizer produces positive and negative ions to clean air and reduce airborne contaminants. The ionizer was designed to be low maintenance. The device should be checked semi-annually to confirm the brushes are clean for maximum output. The ionizer is located behind on the blower deck to the left of the blower. See figure 35.

1- On the back side of the unit, remove the screw securing the back of the ionizer bracket. See figure 34. Retain the screw to secure the back side of the ionizer bracket.

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

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

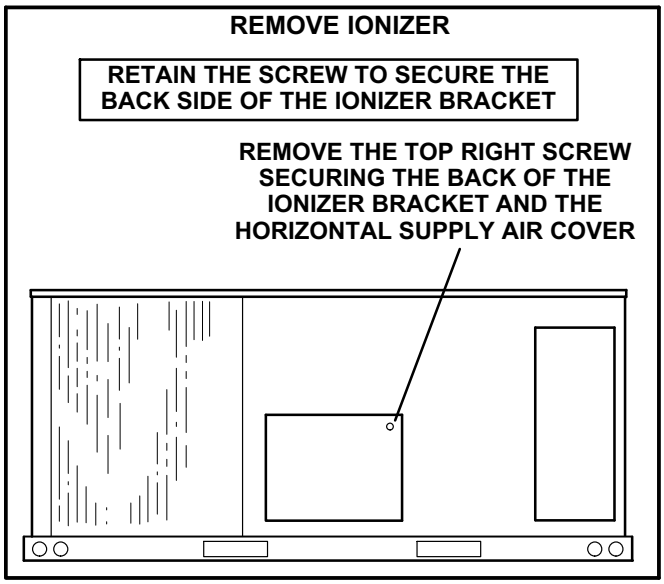


FIGURE 34

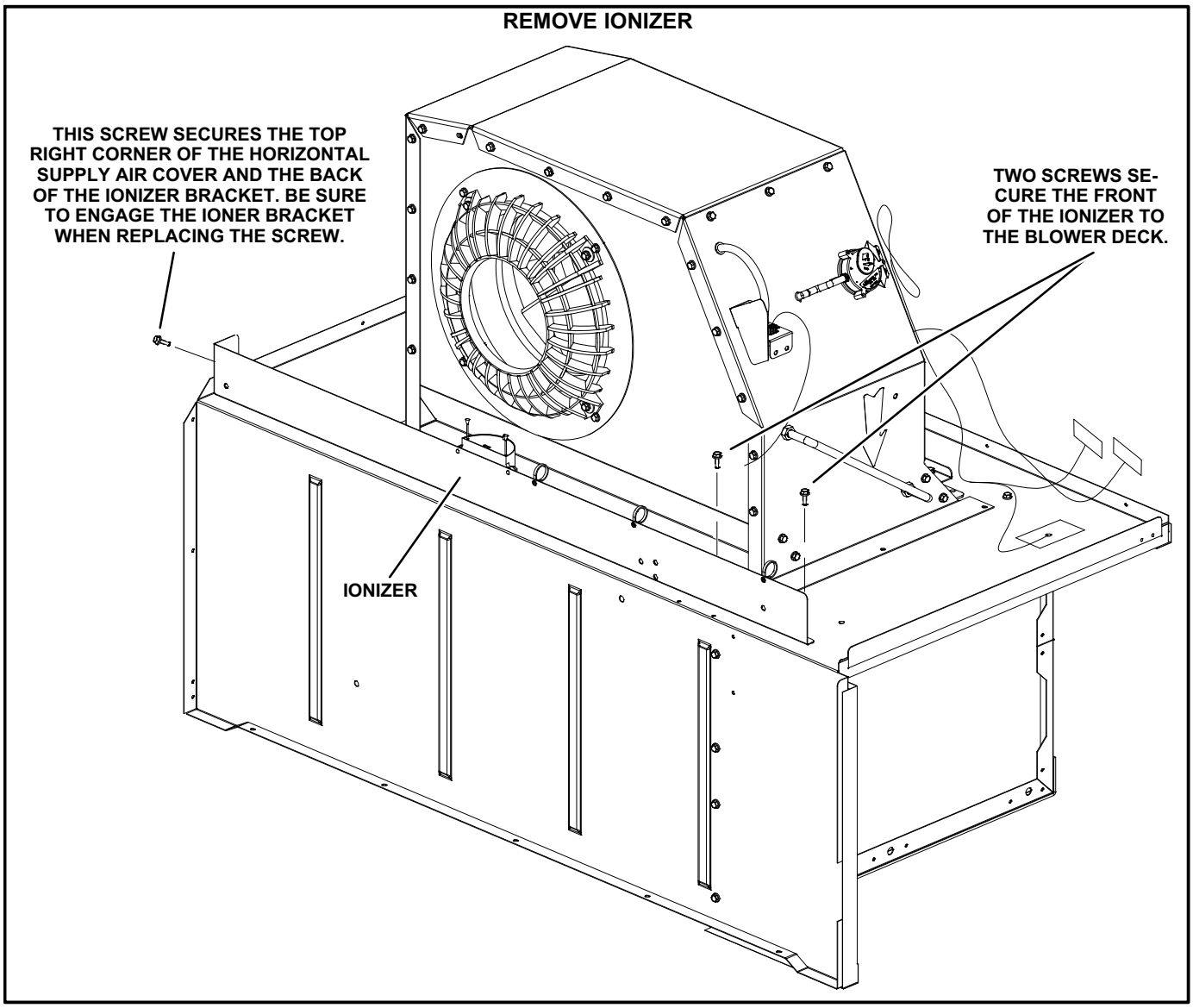


FIGURE 35

K-UVC Light (Optional)

Factory-Installed UVC Light

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

1- Cut wire ties and remove the UVC lamp attached to the filter rack. See figure 36.

FACTORY-INSTALLED UVC LAMP LOCATION

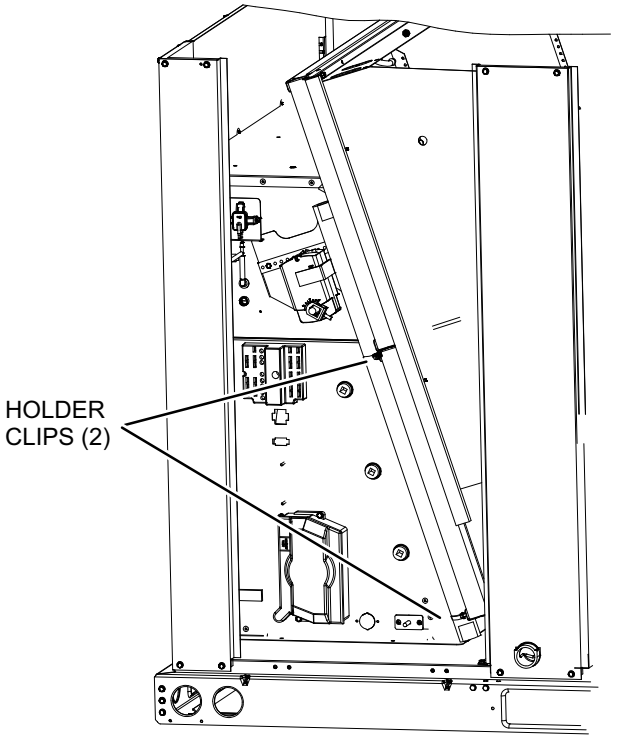


FIGURE 36

Annual Lamp Replacement

⚠WARNING

Personal Burn Hazard.

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

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

1- Obtain the correct replacement lamp for your germicidal light model.

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

3- Open the blower access door.

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

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

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

7- Wear cotton gloves or use a cotton cloth when handling the new lamp. Place the new lamp in the holder clips of the UVC assembly. Verify that the lamp flange at the connector end is sandwiched between the lamp holder clip and the sheet-metal end stop (see figure 37).

8- Carefully place the UVC assembly on the blower deck. Line up the mounting holes on the UVC assembly with the mounting holes on the blower deck See figure 38. Use the #10 screws provided to attach the UVC assembly in place.

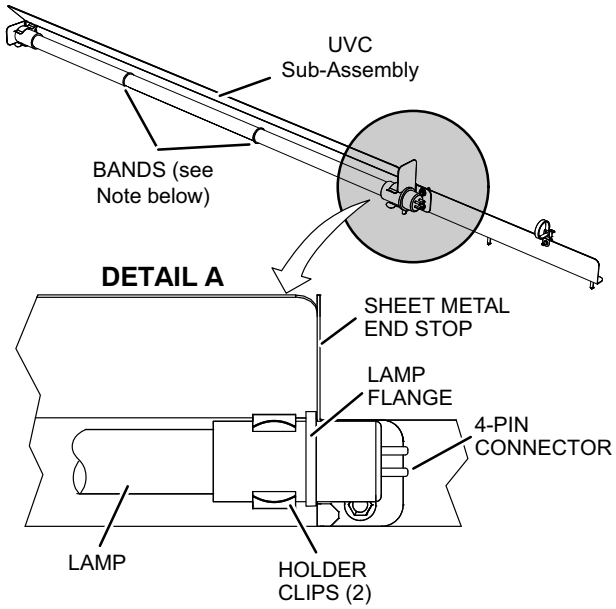
9- Close the blower access door.

10- Reconnect power to the rooftop unit.

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

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

INSTALL LAMP IN HOLDER CLIPS



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

FIGURE 37

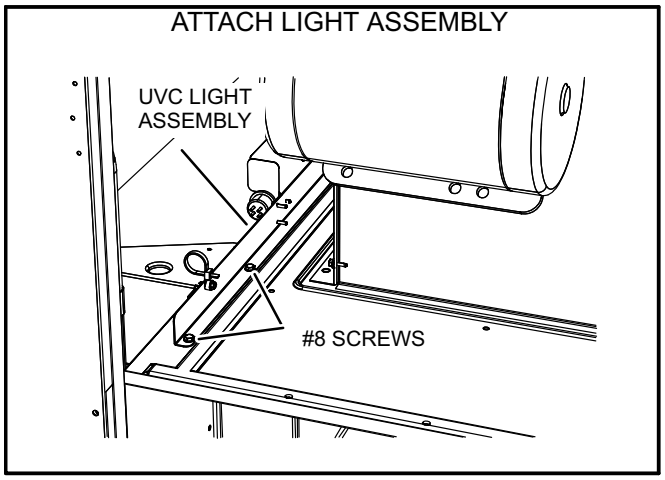


FIGURE 38

Lamp Disposal

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

Proper Clean-up Technique in Case of Lamp Breakage

Wear protective gloves, eye wear and mask.

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

Do not use a vacuum cleaner. Do not incinerate.

Factory Unit Controller Settings

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

Tables 12 through 14 show factory settings (in degrees, % of fan CFM, etc.). Record adjusted settings on the label located inside the compressor access panel.

When field installing optional kits and accessories, the Unit Controller must be configured to identify the option before it will function. Refer to figures 39 and 40 to determine whether the Unit Controller configuration I.D. must change. To configure the option, use MAIN MENU > SETUP > INSTALL menu path. Press SAVE until CONFIGURATION ID 1 or 2 appears depending on the option installed. Change the appropriate character in the configuration I.D. For example, when an economizer is installed using a single enthalpy sensor, change configuration I.D. 1, the second character, to “S”.

TABLE 12
581038

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

TABLE 13
581024

Units With Hot Gas Reheat			
RTU Menu > Settings “RTU Options” > Dehumidifier			
Parameter	**Factory Setting**	**Field Setting**	**Description**
105	7		Factory Setting 7: Reheat mode enabled without prerequisite conditions. Controlled by RH sensor (A91) connected to input A55_P298_5 and set point set at parameter 106 (default 60%).

TABLE 14
581037-01

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

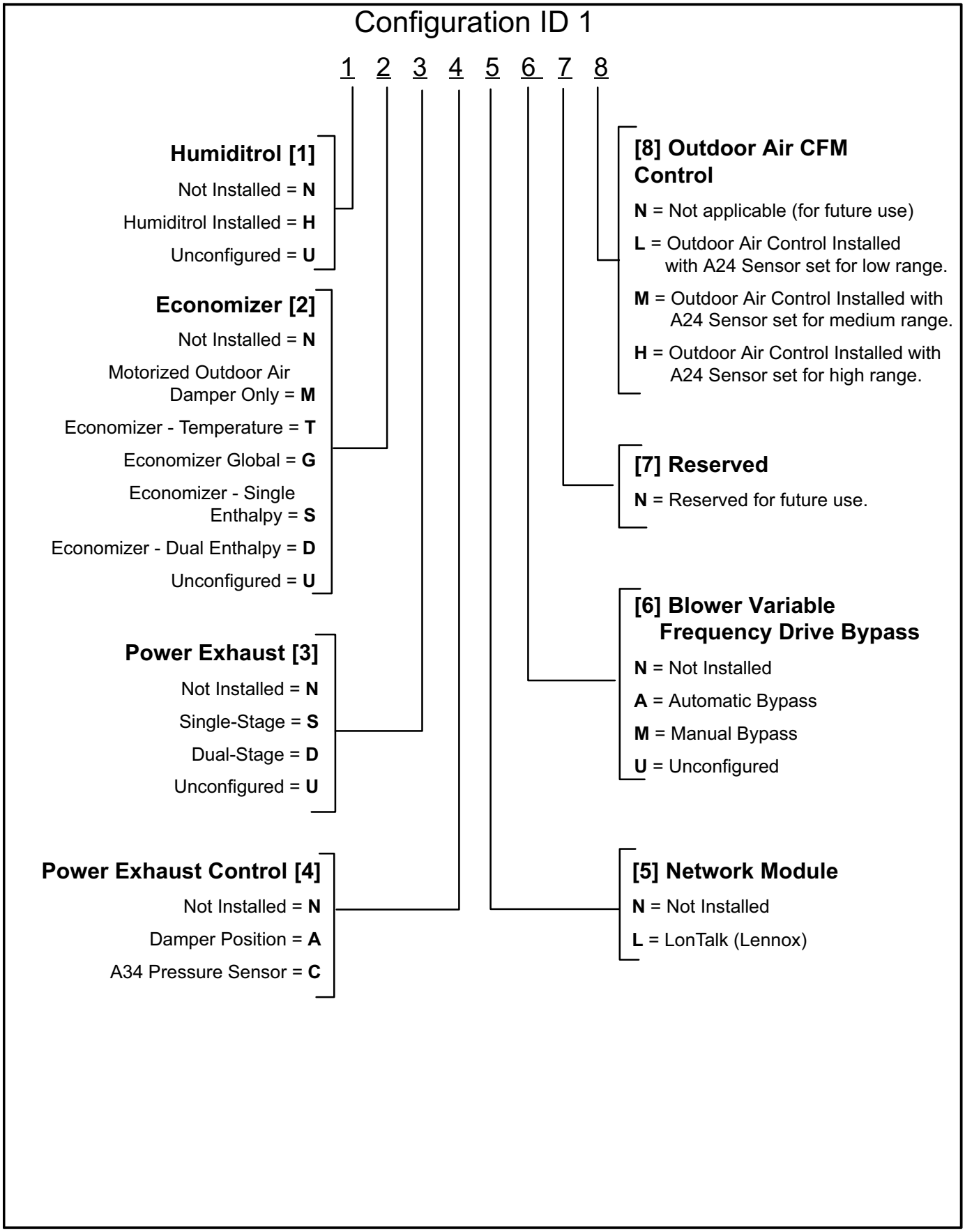

Configuration ID 1
1 2 3 4 5 6 7 8
Humiditrol [1]
Not Installed = N
Humiditrol Installed = H
Unconfigured = U
Economizer [2]
Not Installed = N
Motorized Outdoor Air Damper Only = M
Economizer - Temperature = T
Economizer Global = G
Economizer - Single Enthalpy = S
Economizer - Dual Enthalpy = D
Unconfigured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

FIGURE 39

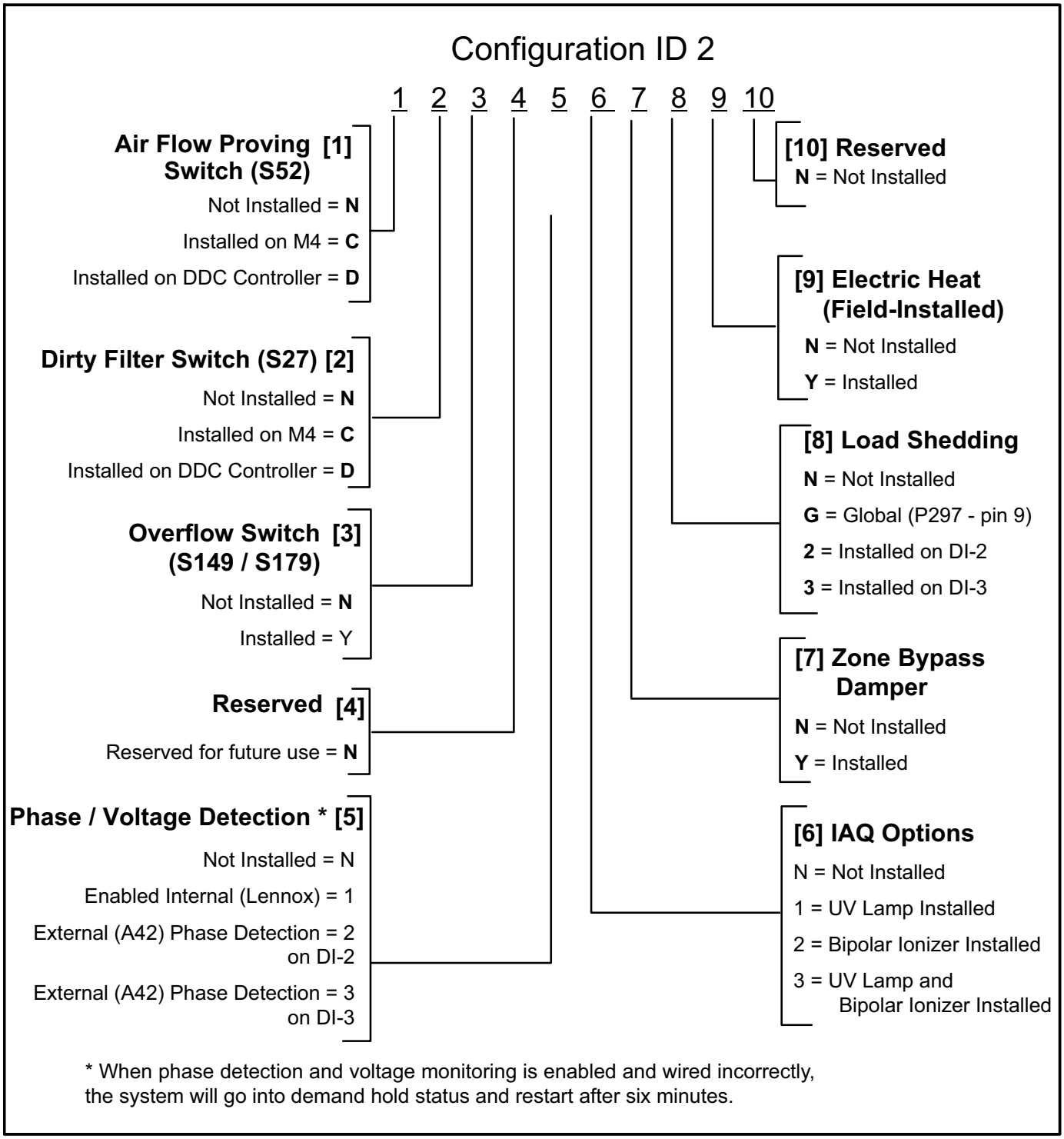

Configuration ID 2
1 2 3 4 5 6 7 8 9 10
Air Flow Proving [1] Switch (S52)
Not Installed = N
Installed on M4 = C
Installed on DDC Controller = D
Dirty Filter Switch (S27) [2]
Not Installed = N
Installed on M4 = C
Installed on DDC Controller = D
Overflow Switch [3] (S149 / S179)
Not Installed = N
Installed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

FIGURE 40

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 R22 ☐ R410A ☐

If yes, reported to:_____

_____

Verify factory and field-installed accessories.

Check electrical connections. Tighten if necessary.

Supply voltage: L1-L2_____L1-L3_____L2-L3_____

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

Cooling Checks

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

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

Blower Checks

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

Nameplate Amps:_____ Volts:_____

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

Heating Checks - Gas

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

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

Altitude:_____ Primary Limits Operate: ☐

CO_2 %:

Gas Valve	Manifold Pressure	
	Low Fire	High Fire
GV1		
GV2		

Control Type

Heating Checks - Electric

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

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

Accessory Checks

Power Exhaust Amps

1 _____ 2 _____ None ☐

Economizer Operation

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