RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

⚠ 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 qualified installer or service agency.

⚠ IMPORTANT

This unit must be matched with an indoor coil as specified in Lennox' Engineering Handbook. Coils previously charged with R-22 must be flushed.

XC15 Outdoor Unit

XC15 outdoor units use R-410A refrigerant. This unit must be installed with a matching indoor coil and line set as outlined in the Lennox Engineering Handbook. XC15 outdoor units are designed for use in expansion valve (TXV) systems only. Refer to the Lennox Engineering Handbook for expansion valve kits which must be ordered separately.

⚠ CAUTION

Physical contact with metal edges and corners while applying excessive force or rapid motion can result in personal injury. Be aware of, and use caution when working near these areas during installation or while servicing this equipment.

Shipping and Packing List

1 - Assembled XC15 outdoor unit
1 - Bushing (for low voltage wiring)
2 - Grommets (for liquid and vapor lines)

Check equipment for shipping damage. If you find any damage, immediately contact the last carrier.

INSTALLATION INSTRUCTIONS

XC15 Series Units

CONDENSING UNITS
505,095M
01/06

Technical Publications
Litho U.S.A.

Table of Contents

General Information

When servicing or repairing HVAC components, ensure the fasteners are appropriately tightened. Table 1 shows torque values for fasteners, and for port and valve caps.

Table 1

Torque Requirements		
Part	**Recommended Torque**	
Service valve cap	8 ft.- lb.	11 NM
Sheet metal screws	16 in.- lb.	2 NM
Machine screws #8	16 in.- lb.	2 NM
Compressor bolts	90 in.- lb.	10 NM
Gauge port seal cap	8 ft.- lb.	11 NM

These instructions are intended as a general guide and do not supersede national or local codes in any way. Consult authorities having jurisdiction before installation.

Unit Dimensions - inches (mm) and Parts Arrangement

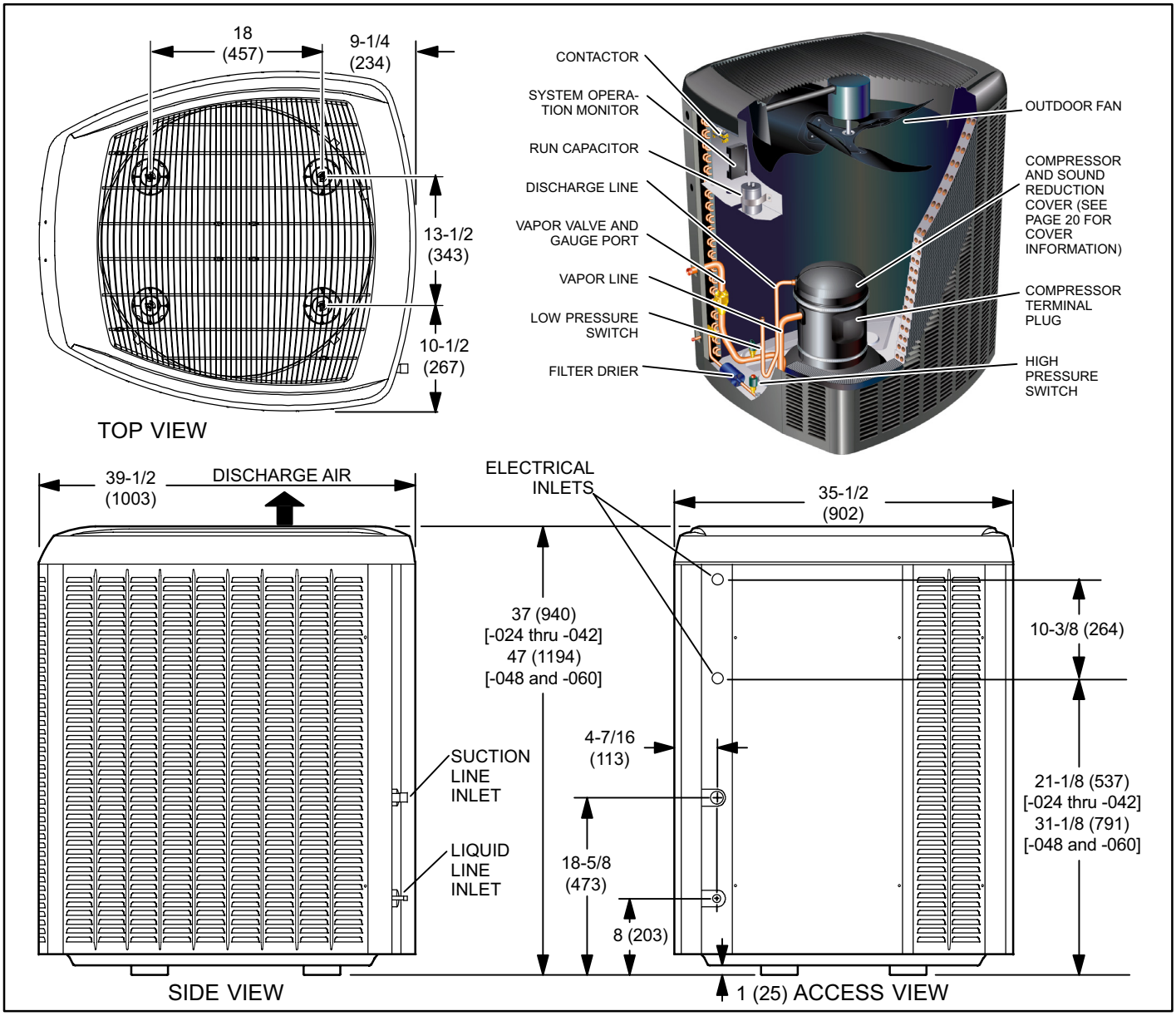


Figure 1

Setting the Unit

⚠ CAUTION

In order to avoid injury, take proper precaution when lifting heavy objects.

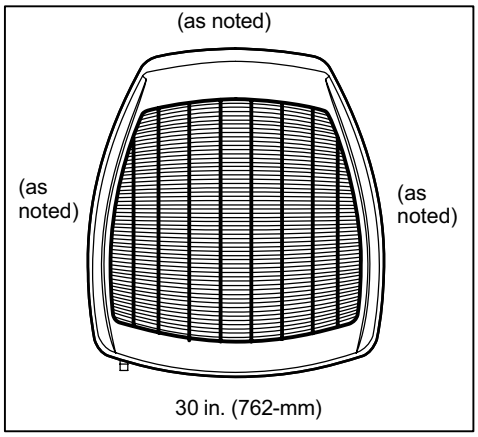
Refer to unit dimensions for sizing mounting slab, platforms or supports. Refer to figure 2 for installation clearances.

Service Panel Clearance

A service clearance of 30” (762 mm) must be maintained on the access panel side of the unit (see figure 2).

505095M 1/3/06

Installation Clearances



**A service clearance of 30" (762 mm) must be maintained on the access panel side of the unit. Clearance to one of the other three sides must be 36" (914 mm). Clearance to one of the remaining two sides may be 12" (304 mm) and the final side may be 6" (152 mm).*

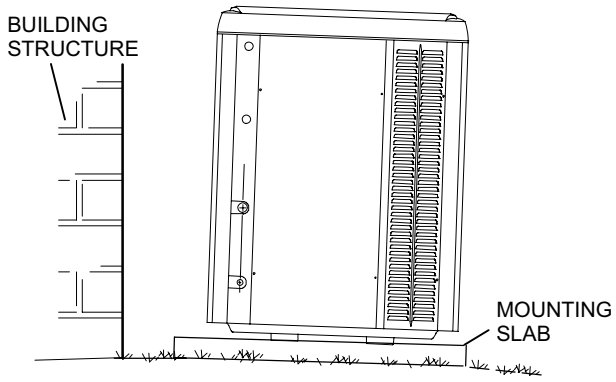
A clearance of 24" (610 mm) must be maintained between two units. 48" (1219 mm) clearance required on top of unit. Maximum soffit overhang is 36" (914 mm).

Figure 2

Slab Mounting

When installing a unit at grade level, the top of the slab should be high enough above the grade so that water from higher ground would not collect around the unit. See figure 3. Slab may be level or have a slope tolerance away from the building of not more than 2 degrees or 2 inches per 5 feet (51 mm per 1524 mm).

Slab Mounting At Ground Level



INSTALL UNIT LEVEL OR, IF ON A SLOPE, MAINTAIN SLOPE TOLERANCE OF 2 DEGREES (OR 2 INCHES PER 5 FEET [51 MM PER 1.5 M]) AWAY FROM BUILDING STRUCTURE.

Figure 3

Roof Mounting

Install unit at a minimum of 4 inches above the surface of the roof. Care must be taken to ensure weight of unit is properly distributed over roof joists and rafters. Either redwood or steel supports are recommended.

Removing Panels

⚠ WARNING

This product and/or the indoor unit it is matched with may contain fiberglass wool.

Disturbing the insulation during installation, maintenance, or repair will expose you to fiberglass wool dust. Breathing this may cause lung cancer. (Fiberglass wool is known to the State of California to cause cancer.)

Fiberglass wool may also cause respiratory, skin, and eye irritation.

To reduce exposure to this substance or for further information, consult material safety data sheets available from address shown below, or contact your supervisor.

Lennox Industries Inc.
P.O. Box 799900
Dallas, TX 75379-9900

⚠ CAUTION

To prevent personal injury, or damage to panels, unit or structure, be sure to observe the following:

While installing or servicing this unit, carefully stow all removed panels out of the way, so that the panels will not cause injury to personnel, nor cause damage to objects or structures nearby, nor will the panels be subjected to damage (e.g., being bent or scratched).

While handling or stowing the panels, consider any weather conditions, especially windy conditions, that may cause panels to be blown around and battered.

Access Panel

⚠ WARNING

Unit must be grounded in accordance with national and local codes. Electric Shock Hazard. Can cause injury or death.

Line voltage is present at all components when unit is not in operation on units with single-pole contactors. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power supplies.

Remove and reinstall the access panel as described in figure 4.

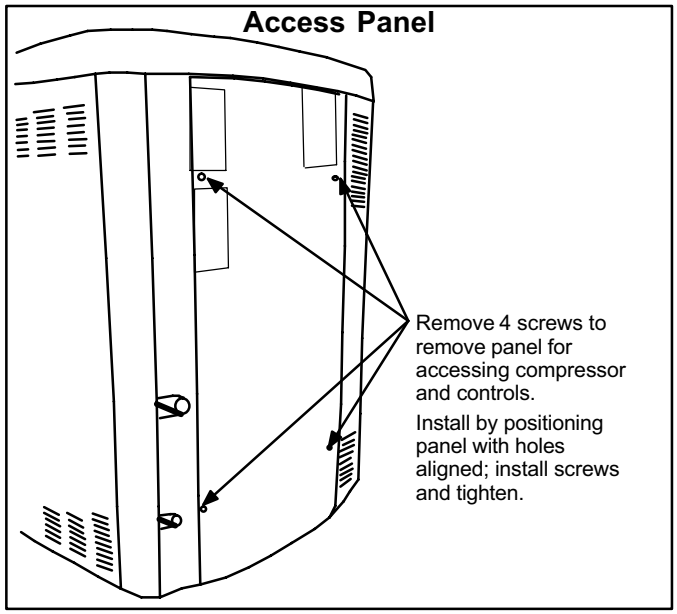


Figure 4

Louvered Panels

⚠ CAUTION

Physical contact with metal edges and corners can result in personal injury. Be aware of, and use caution when working with panels.

Remove the louvered panels as follows:

1. Remove 2 screws, allowing the panel to swing open slightly.
2. **Hold the panel firmly throughout this procedure.** Rotate bottom corner of panel away from hinge corner post until lower 3 tabs clear the slots (see figure 5, Detail B).
3. Move panel down until lip of upper tab clears the top slot in corner post (see figure 5, Detail A).

Position and Install Panel—Position the panel almost parallel with the unit (figure 5, Detail D) with the "screw side" as close to the unit as possible. Then, in a continuous motion:

- Slightly rotate and guide the LIP of top tab inward (figure 5, Details A and C); then upward into the top slot of the hinge corner post.
- Rotate panel to vertical to fully engage all tabs.
- Holding the panel's hinged side firmly in place, close the right-hand side of the panel, aligning the screw holes.

When panel is correctly positioned and aligned, insert the screws and tighten.

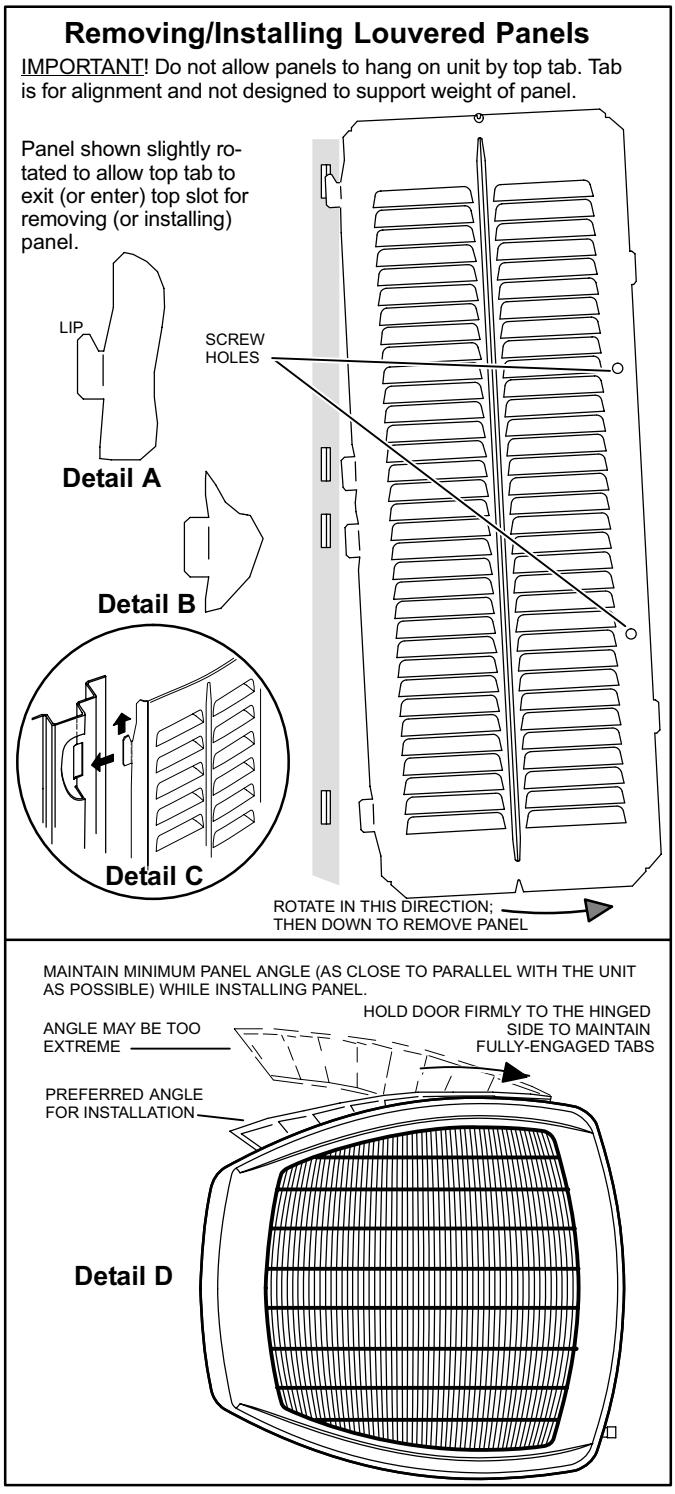


Figure 5

Electrical

In the U.S.A., wiring must conform with current local codes and the current National Electric Code (NEC). In Canada, wiring must conform with current local codes and the current Canadian Electrical Code (CEC).

505095M 1/3/06

Refer to the furnace or blower coil installation instructions for additional wiring application diagrams and refer to unit nameplate for minimum circuit ampacity and maximum overcurrent protection size.

1. Install line voltage power supply to unit from a properly sized disconnect switch. See figure 6.

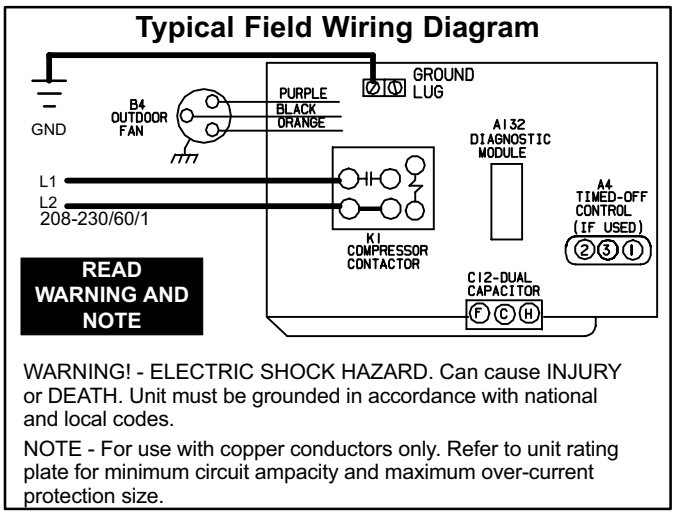


Figure 6

2. Ground unit at unit disconnect switch or to earth ground.
3. Connect conduit to the unit via the bottom hole using a proper conduit fitting.

NOTE - Units are approved for use only with copper conductors. 24V, Class II circuit connections are made in the low voltage junction box. Refer to figure 7 for field wiring diagram. A complete unit wiring diagram is located on the back side of the access panel.

NOTE - For proper voltages, select thermostat wire gauge per the following chart:

Wire run length	AWG #	Insulation type
less than 100' (30m)	18	color-coded, temperature rating 35°C minimum
more than 100' (30m)	16	

4. Install room thermostat (ordered separately) on an inside wall approximately in the center of the conditioned area and 5 feet (1.5 m) from the floor. It should not be installed on an outside wall or where it can be affected by sunlight, drafts or vibrations.
5. Install low voltage wiring from outdoor to indoor unit and from thermostat to indoor unit. See figure 7.
6. **LSOM L Terminal Wiring**—Connect L terminal of the room thermostat to the L (Brown) field wire connection.
7. **LSOM Installation Verification—**Verification procedures are described in System Operation under System Operation Monitor (see Page 16).

NOTE - Wiring the module incorrectly will cause false LED codes. Table 8 (see page 17) describes LED operation when the module is incorrectly wired and the action required to correct the problem.

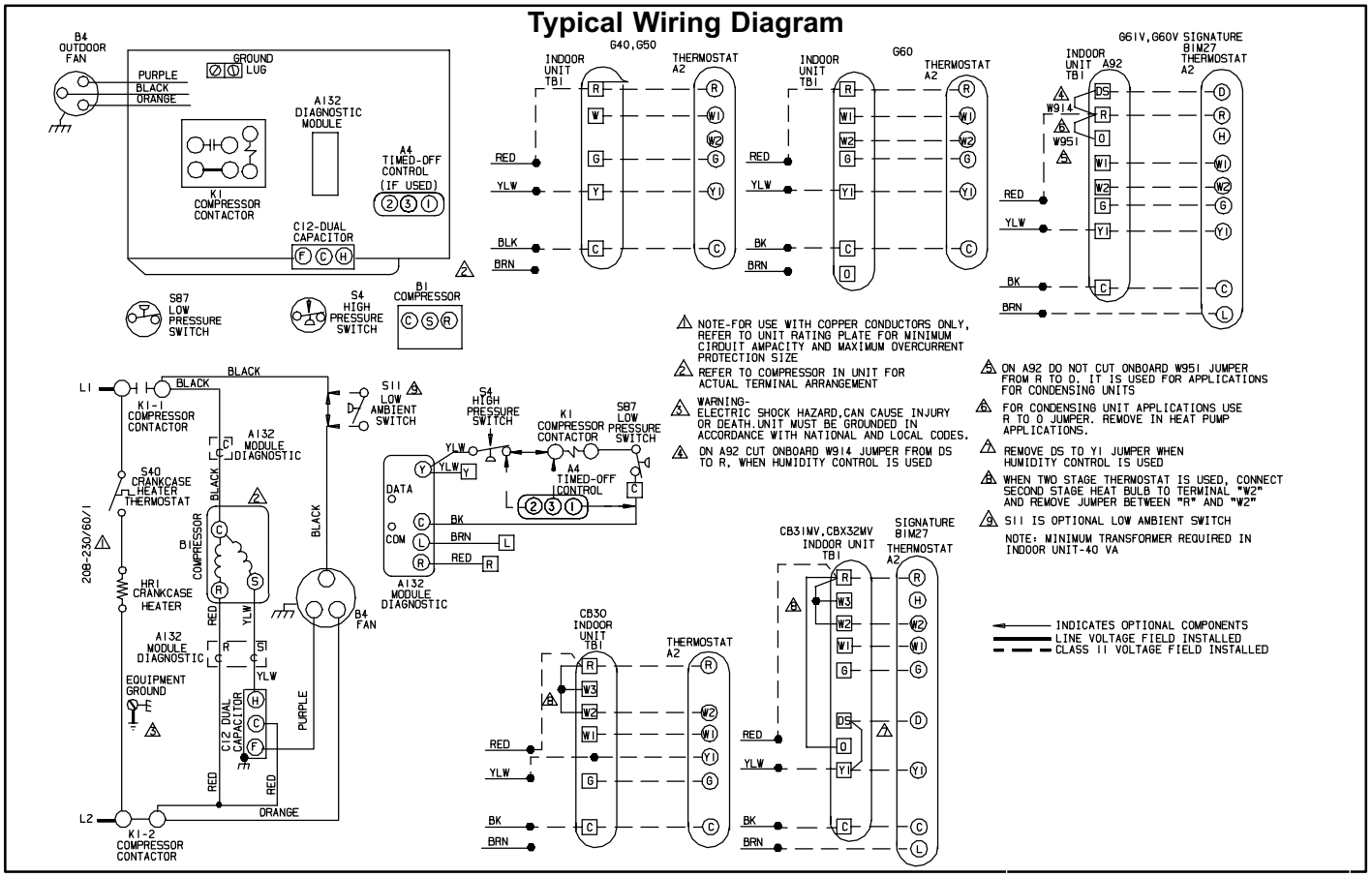


Figure 7

Refrigerant Piping

If the XC15 unit is being installed with an indoor coil and line set, make the refrigerant connections as outlined in this section. f an existing line set and/or indoor coil is going to be used to complete the XC15 system, refer to this section, as well as the flushing section which follows.

Field refrigerant piping consists of liquid and vapor lines from the outdoor unit (sweat connections) to the indoor coil (flare or sweat connections). Use Lennox L15 (sweat, non-flare) series line sets as shown in table 2 or use field-fabricated refrigerant lines. Valve sizes are also listed in table 2.

Table 2

Refrigerant Line Sets					
	Valve Sizes		Recommended Line Set		
Model	Liquid Line	Vapor Line	Liquid Line	Vapor Line	L15 Line Sets
-024 -030 -036	3/8 in. (10 mm)	3/4 in. (19 mm)	3/8 in (10 mm)	3/4 in. (19 mm)	L15-41 15 - 50 ft. (5 - 15 m)
-042 -048	3/8 in. (10 mm)	7/8 in (22 mm)	3/8 in. (10 mm)	7/8in (22 mm)	L15-65 15 - 50 ft. (5 - 15m)
-060	3/8 in. (10 mm)	1-1/8 in. (29 mm)	3/8 in. (10 mm)	1-1/8 in. (29 mm)	Field Fabricated

NOTE - When installing refrigerant lines longer than 50 feet, contact Lennox Technical Support Product Applications for assistance. To obtain the correct information from Lennox, be sure to communicate the following points:

- *Line set diameters for the unit being installed (from table 2)*
- *Model (XC15) and size of unit (e.g. -060).*

⚠ IMPORTANT

Matching XC15 with new Indoor Coil and Line Set—If an existing indoor coil equipped with an RFCl metering device is being replaced, also install a new liquid line prior to installing the XC15 unit.

Installing Refrigerant Line

If refrigerant lines are routed through a wall, seal and isolate the opening so vibration is not transmitted to the building. Pay close attention to line set isolation during installation of any HVAC system. When properly isolated from building structures (walls, ceilings. floors), the refrigerant lines will not create unnecessary vibration and subsequent noises. Also, consider the following when placing and installing a high-efficiency outdoor unit:

1. **Placement**—Some localities are adopting sound ordinances based on the unit's noise level registered from the adjacent property, not from the installation property. Install the unit as far as possible from the property line. When possible, do not install the unit directly outside a window. Glass has a very high level of sound transmission (see figure 8).

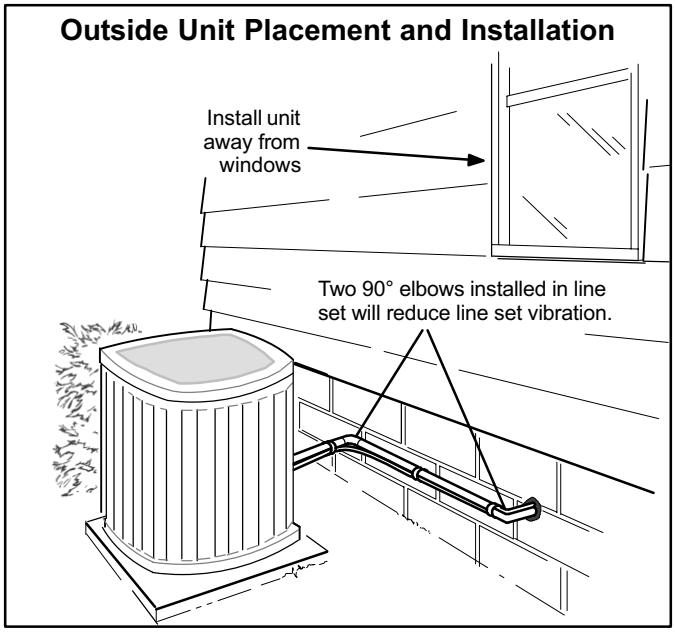


Figure 8

2. **Line Set Isolation**—The following illustrations demonstrate procedures which ensure proper refrigerant line set isolation. Figure 10 shows how to install line sets on horizontal runs. Figure 11 shows how to make a transition from horizontal to vertical. Figure 12 shows how to install line sets on vertical runs.

Installing Isolation Grommets

Locate the isolation grommets (provided). Slide grommets onto vapor and liquid lines. Insert grommets into mullion to isolate refrigerant lines from sheet metal edges.

⚠ WARNING

Polyol ester (POE) oils used with R-410A refrigerant absorb moisture very quickly. It is very important that the refrigerant system be kept closed as much as possible. DO NOT remove line set caps or service valve stub caps until you are ready to make connections.

Brazing Connection Procedure

Before brazing, remove the access panel (see figure 4); then remove the narrow piping panel to prevent burning off the paint (see figure 9).

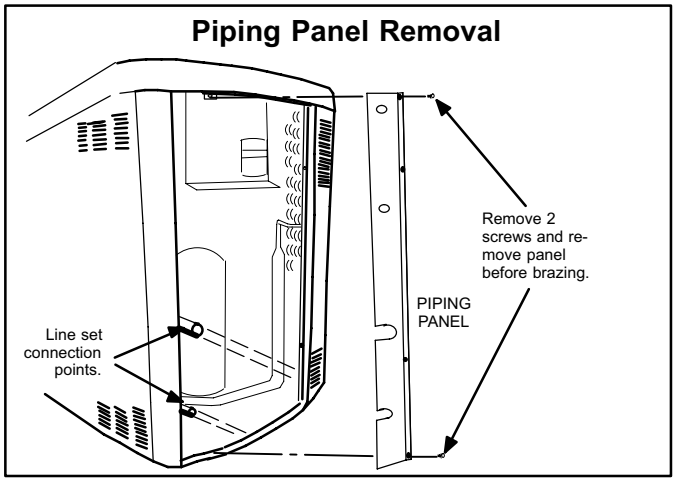


Figure 9

1. Cut ends of the refrigerant lines square (free from nicks or dents). Debur the ends. The pipe must remain round, do not pinch end of the line.
2. When making line set connections, use 1 to 2 psig dry nitrogen to purge the refrigerant piping. This will help to prevent oxidation and the introduction of moisture into the system.
3. Use silver alloy brazing rods (5 or 6 percent minimum silver alloy for copper-to-copper brazing or 45 percent silver alloy for copper-to-brass or copper-to-steel brazing) which are rated for use with R-410A refrigerant. While brazing-in the line set connections, wrap a wet cloth around the valve body and the copper tube stubs.
4. Quench the joints with a wet cloth to prevent possible heat damage to the valve core and opening port.

   NOTE - The tube end must stay bottomed in the fitting during final assembly to ensure proper seating, sealing and rigidity.
5. Install the thermal expansion valve in the liquid line at the indoor coil.

   NOTE - Expansion valve (not provided; obtain separately) must be approved for use with R-410A refrigerant.

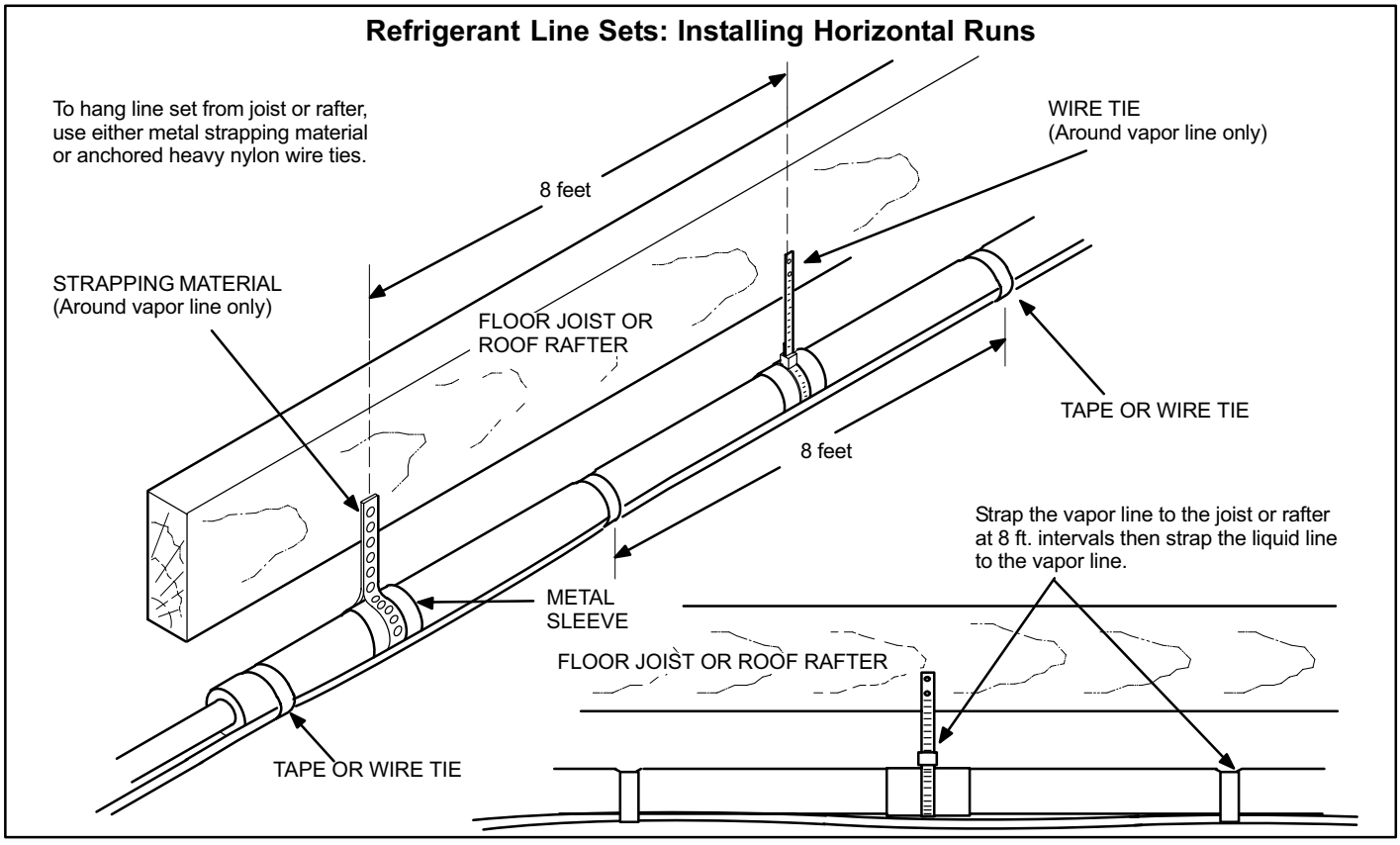


Figure 10

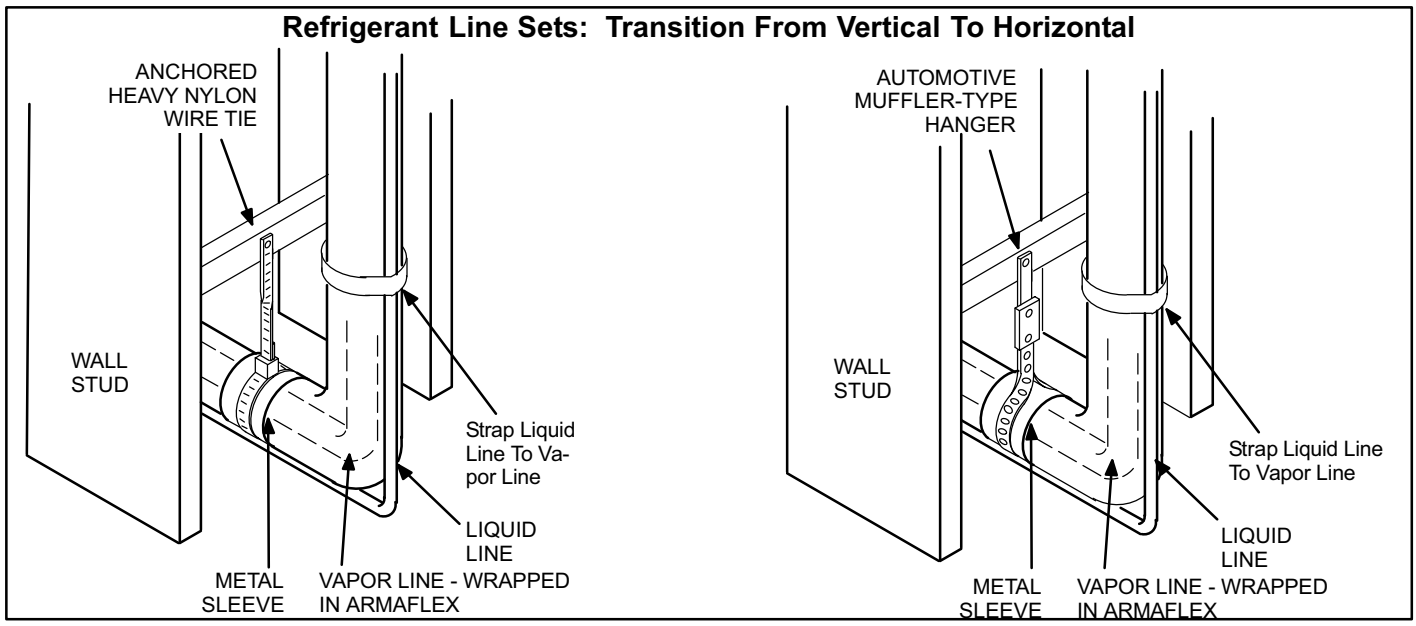


Figure 11

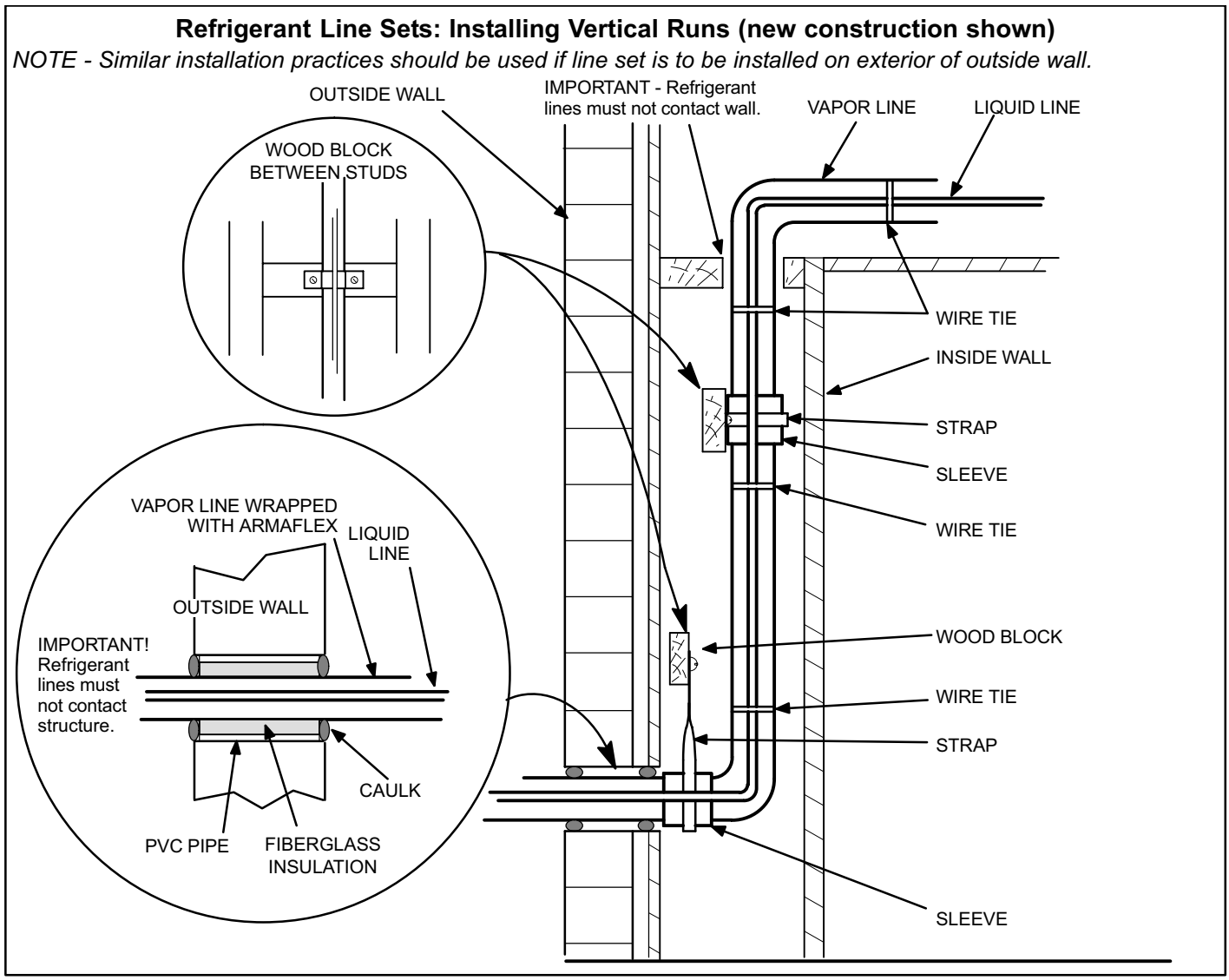


Figure 12

Flushing Existing Line Set & Indoor Coil

⚠ WARNING

Danger of fire. Bleeding the refrigerant charge from only the high side may result in the low side shell and suction tubing being pressurized. Application of a brazing torch while pressurized may result in ignition of the refrigerant and oil mixture - check the high and low pressures before unbrazing.

⚠ CAUTION

This procedure should not be performed on systems which contain contaminants (Example: compressor burn out).

⚠ IMPORTANT

If this unit is being matched with an approved line set or indoor coil which was previously charged with mineral oil, or if it is being matched with a coil which was manufactured before January of 1999, the coil and line set must be flushed prior to installation. Take care to empty all existing traps. Polyol ester (POE) oils are used in Lennox units charged with R-410A refrigerant. Residual mineral oil can act as an insulator, preventing proper heat transfer. It can also clog the expansion device, and reduce the system performance and capacity.
Failure to properly flush the system per the instructions below will void the warranty.

Required Equipment

Equipment required to flush the existing line set and indoor coil:

- two clean R-22 recovery bottles,
- oil-less recovery machine with pump-down feature,
- 2 gauge sets (one for R-22; one for R-410A).

Flushing Procedure

⚠ IMPORTANT

The Environmental Protection Agency (EPA) prohibits the intentional venting of HFC refrigerants during maintenance, service, repair and disposal of appliance. Approved methods of recovery, recycling or reclaiming must be followed.

1. Remove existing R-22 refrigerant using the following, appropriate procedure (see figure 13):

   If the existing outdoor unit is not equipped with shut-off valves, or if the unit is not operational AND you plan to use the existing R-22 refrigerant to flush the system -

   - Disconnect all power to the existing outdoor unit.
   - Connect to the existing unit, a **clean** recovery cylinder and the recovery machine according to the instructions provided with the recovery machine.
   - Remove all R-22 refrigerant from the existing system. Check gauges after shutdown to confirm that the entire system is completely void of refrigerant.
   - Disconnect the liquid and vapor lines from the existing outdoor unit.

   If the existing outdoor unit is equipped with manual shut-off valves AND you plan to use NEW R-22 refrigerant to flush the system -

   - Start the existing R-22 system in the cooling mode and close the liquid line valve.
   - Pump all of the existing R-22 refrigerant back into the outdoor unit. (It may be necessary to bypass the low pressure switches to ensure complete refrigerant evacuation.)
   - When the low side system pressures reach 0 psig, close the vapor line valve.
   - Disconnect all power to the existing outdoor unit. Check gauges after shutdown to confirm that the valves are not allowing refrigerant to flow back into the low side of the system.
   - Disconnect the liquid and vapor lines from the existing outdoor unit.

2. Remove the existing outdoor unit. Set the new R-410A unit and follow the brazing connection procedure (see page 7) to make line set connections.

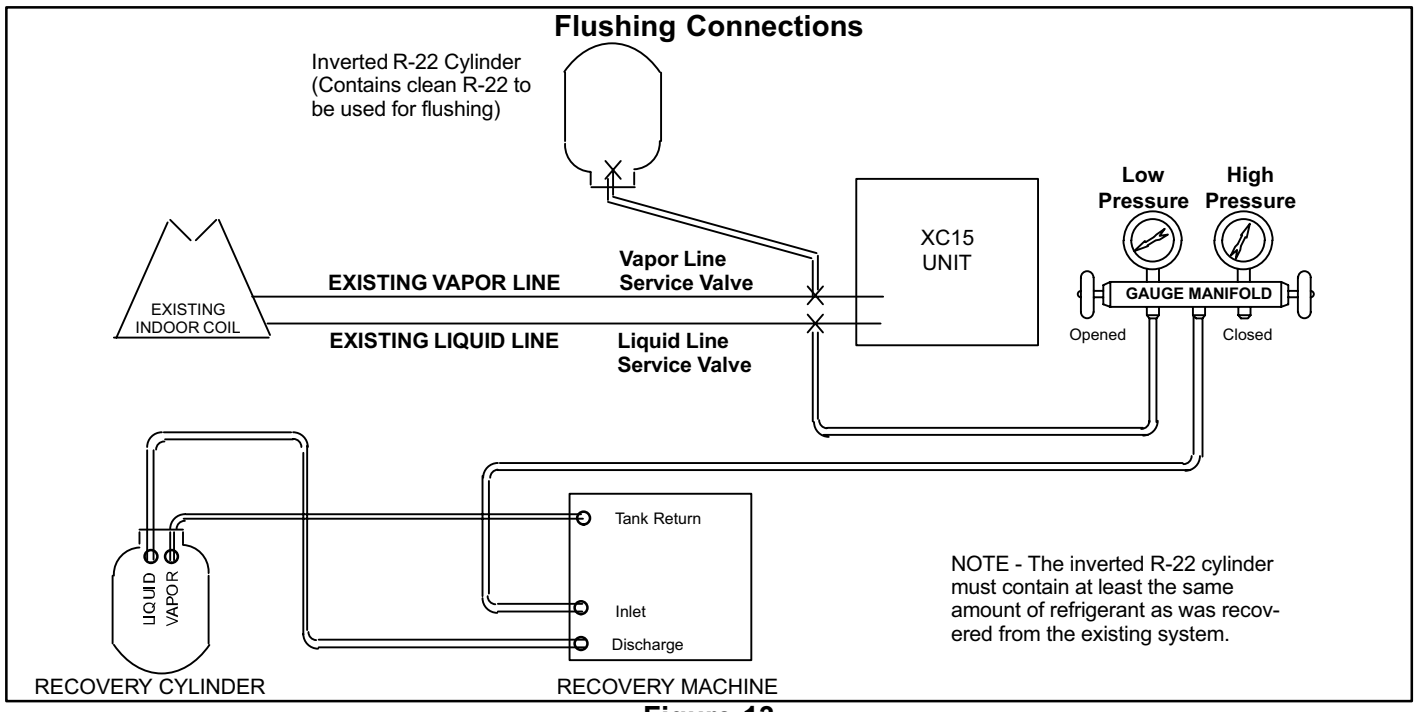


Figure 13

3. Make low voltage and line voltage connections to the new outdoor unit. **Do NOT turn on power to unit or open the outdoor unit service valves at this time.**
4. Remove the existing refrigerant flow control orifice or thermal expansion valve before continuing with flushing procedures. Existing devices are not approved for use with R-410A refrigerant and may prevent proper flushing. Use a field-provided fitting to reconnect lines.

⚠ IMPORTANT

The line set and indoor coil must be flushed with at least the same amount of clean refrigerant that previously charged the system. Check the charge in the flushing cylinder before proceeding.

5. Remove the pressure tap valve cores from the XC15 unit's service valves. Connect an R-22 cylinder with clean refrigerant to the vapor service valve. Connect the R-22 gauge set to the liquid line valve. Connect a recovery machine with an empty recovery tank to the gauge set.
6. Set the recovery machine for liquid recovery and start the recovery machine. Open the gauge set valves to allow the recovery machine to pull a vacuum on the existing system line set and indoor coil.
7. Invert the cylinder of clean R-22 and open its valve to allow liquid refrigerant to flow into the system through the vapor line valve. Allow the refrigerant to pass from the cylinder and through the line set and the indoor coil before it enters the recovery machine.
8. After all of the liquid refrigerant has been recovered, switch the recovery machine to vapor recovery so that all of the R-22 vapor is recovered. Allow the recovery machine to pull a vacuum on the system.

   NOTE - A single system flush should remove all of the mineral oil from the existing refrigerant lines and indoor coil. A second flushing may be done (using clean refrigerant) if insufficient amounts of mineral oil were removed during the first flush. ***Each time the system is flushed, you must allow the recovery machine to pull a vacuum on the system at the end of the procedure.***
9. Close the valve on the inverted R-22 drum and the gauge set valves. Pump the remaining refrigerant out of the recovery machine and turn the machine off.
10. Use dry nitrogen to break the vacuum on the refrigerant lines and indoor coil before removing the recovery machine, gauges and R-22 refrigerant drum. Reinstall pressure tap valve cores into XC15 service valves.
11. Install the expansion valve in the liquid line at the indoor coil.

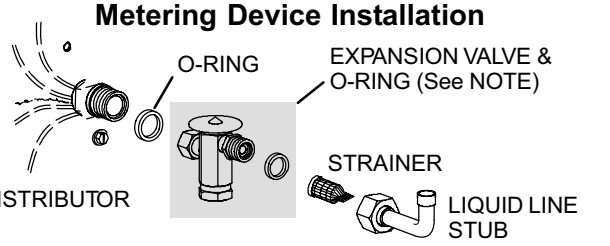
Refrigerant Metering Device

XC15 units may be used in thermal expansion valve (TXV) systems only. See the indoor coil installation instructions and the Lennox Engineering Handbook for approved TXV match-ups and application information. Table 2 (on Page 6) lists liquid and vapor line sizes and corresponding line sets.

Expansion valves equipped with Chatleff type fittings are available from Lennox. Refer to the Engineering Handbook for expansion valves for use with specific match-ups.

If you install an expansion valve with an indoor coil that includes a fixed orifice, remove the orifice before the expansion valve is installed (see figure 14).

Metering Device Installation



NOTE - If necessary, remove R-22 flow control device (fixed orifice/thermal expansion valve) from existing line set before installing R-410A approved expansion valve and o-ring.

Figure 14

⚠ IMPORTANT

Failure to remove a fixed orifice when installing an expansion valve to the indoor coil will result in improper operation and damage to the system.

Manifold Gauge Set

Manifold gauge sets used with systems charged with R-410A refrigerant must be capable of handling the higher 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.

Service Valves

The liquid line and vapor line service valves (figures 15 and 16) and gauge ports are used for leak testing, evacuating, charging and checking charge. See table 1 (on page 1) for torque requirements.

Each valve is equipped with a service port which has a factory-installed Schrader valve. A service port cap protects the Schrader valve from contamination and serves as the primary leak seal.

To Access Schrader Port:

1. Remove service port cap with an adjustable wrench.
2. Connect gauge to the service port.
3. When testing is completed, replace service port cap. Tighten finger tight, then tighten an additional 1/6 turn.

To Open Front-Seated Service Valves:

1. Remove stem cap with an adjustable wrench.
2. Use a service wrench with a hex-head extension (3/16" for liquid-line valve sizes; 5/16" for vapor-line valve sizes) to back the stem out counterclockwise as far as it will go.
3. Replace the stem cap. Tighten finger tight, then tighten according to torque specifications table (page 1).

To Close Front-Seated Service Valves:

1. Remove the stem cap with an adjustable wrench.
2. Use a service wrench with a hex-head extension (3/16" for liquid-line valve sizes; 5/16" for vapor-line valve sizes) to turn the stem clockwise to seat the valve. Tighten it firmly.
3. Replace the stem cap. Tighten finger tight, then tighten according to torque specifications table (page 1).

Front-Seated Liquid Line Service Valve

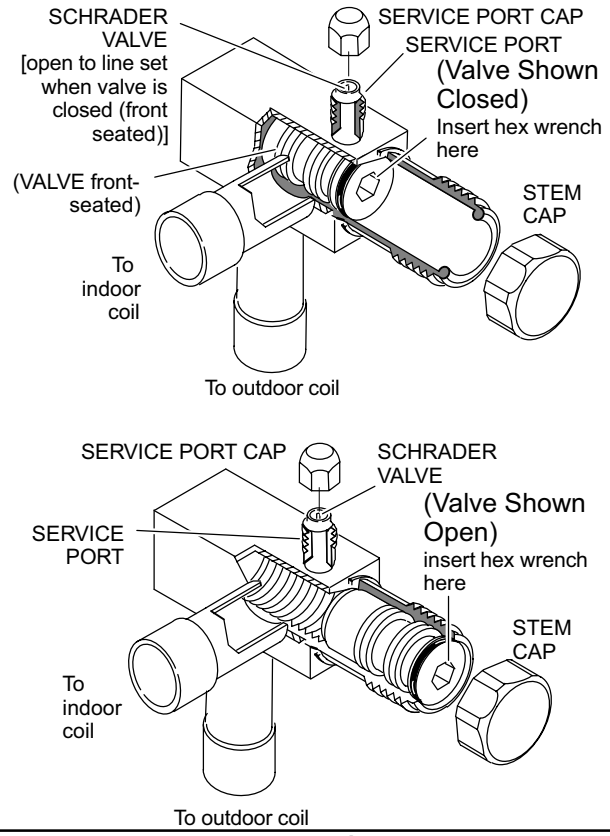


Figure 15

Vapor Line (Ball Type) Service Valve

Vapor line service valves function the same way as the other valves; the difference is in the construction. These valves are not rebuildable. If a valve fails, replace it. The ball valve (shown in figure 16) is equipped with a service port with a factory-installed Schrader valve. A service port cap protects the Schrader valve from contamination and assures a leak-free seal.

Ball-Type Vapor Line Valve (Valve Closed)

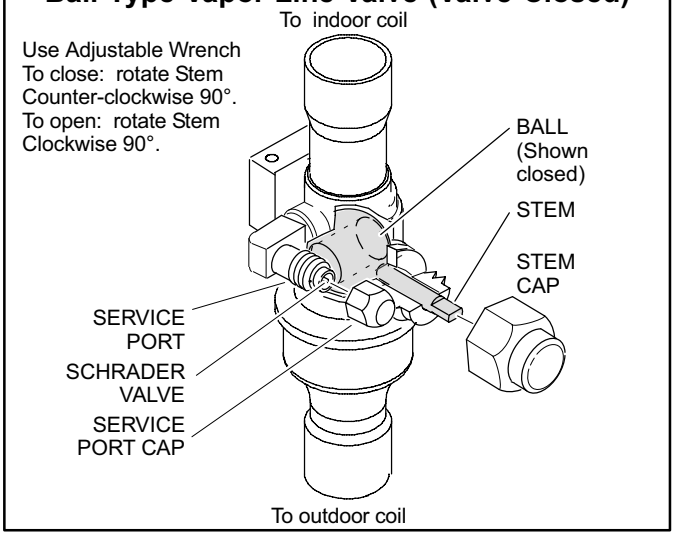


Figure 16

Leak Testing

After the line set has been connected to the indoor and outdoor units, check the line set connections and indoor unit for leaks.

⚠ WARNING

Refrigerant can be harmful if it is inhaled. Refrigerant must be used and recovered responsibly.

Failure to follow this warning may result in personal injury or death.

⚠ WARNING

Danger of explosion: Can cause injury or death, or equipment damage.

Never use oxygen to pressurize a refrigeration or air conditioning system. Oxygen will explode on contact with oil and could cause personal injury.

When using a high pressure gas such as dry nitrogen to pressurize a refrigeration or air conditioning system, use a regulator that can control the pressure down to 1 or 2 psig (6.9 to 13.8 kPa).

Leak Test with Electronic Leak Detector

1. Connect an R-410A manifold gauge set high pressure hose to the vapor valve service port. *(Normally, the high pressure hose is connected to the liquid line port; however, connecting it to the vapor port better protects the manifold gauge set from high pressure damage.)*
2. With both manifold valves closed, connect the cylinder of R-410A refrigerant to the center port of the manifold gauge set. Open the valve on the R-410A cylinder (vapor only).
3. Open the high pressure side of the manifold to allow R-410A into the line set and indoor unit. Weigh in a trace amount of R-410A. *[A trace amount is a maximum of 2 ounces (57 g) refrigerant or 3 pounds (31 kPa) pressure].* Close the valve on the R-410A cylinder and the valve on the high pressure side of the manifold gauge set. Disconnect the R-410A cylinder.
4. Connect a cylinder of dry nitrogen with a pressure regulating valve to the center port of the manifold gauge set.
5. Adjust dry nitrogen pressure to 150 psig (1034 kPa). Open the valve on the high side of the manifold gauge set in order to pressurize the line set and the indoor unit.
6. After a few minutes, open a refrigerant port to ensure the refrigerant you added is adequate to be detected. (Amounts of refrigerant will vary with line lengths.) Check all joints for leaks. Purge dry nitrogen and R-410A mixture. Correct any leaks and recheck.

⚠ IMPORTANT

Leak detector must be capable of sensing HFC refrigerant.

Evacuation

Evacuating the system of noncondensables is critical for proper operation of the unit. Noncondensables are defined as any gas that will not condense under temperatures and pressures present during operation of an air conditioning system. Noncondensables and water vapor combine with refrigerant to produce substances that corrode copper piping and compressor parts.

⚠ IMPORTANT

Use a thermocouple or thermistor electronic vacuum gauge that is calibrated in microns. Use an instrument that reads from 50 microns to at least 23,000 microns.

1. Connect manifold gauge set to the service valve ports as follows:
   - low pressure gauge to *vapor* line service valve
   - high pressure gauge to *liquid* line service valve
2. Connect micron gauge.
3. Connect the vacuum pump (with vacuum gauge) to the center port of the manifold gauge set.
4. Open both manifold valves and start the vacuum pump.
5. Evacuate the line set and indoor unit to an **absolute pressure** of 23,000 microns (29.01 inches of mercu-

ry). During the early stages of evacuation, it is desirable to close the manifold gauge valve at least once to determine if there is a rapid rise in **absolute pressure**. A rapid rise in pressure indicates a relatively large leak. If this occurs, repeat the leak testing procedure.

*NOTE - The term **absolute pressure** means the total actual pressure within a given volume or system, above the absolute zero of pressure. Absolute pressure in a vacuum is equal to atmospheric pressure minus vacuum pressure.*

6. When the absolute pressure reaches 23,000 microns (29.01 inches of mercury), close the manifold gauge valves, turn off the vacuum pump and disconnect the manifold gauge center port hose from vacuum pump. Attach the manifold center port hose to a dry nitrogen cylinder with pressure regulator set to 150 psig (1034 kPa) and purge the hose. Open the manifold gauge valves to break the vacuum in the line set and indoor unit. Close the manifold gauge valves.

⚠ WARNING

Danger of Equipment Damage. Avoid deep vacuum operation. Do not use compressors to evacuate a system. Extremely low vacuums can cause internal arcing and compressor failure. Damage caused by deep vacuum operation will void warranty.

7. Shut off the dry nitrogen cylinder and remove the manifold gauge hose from the cylinder. Open the manifold gauge valves to release the dry nitrogen from the line set and indoor unit.
8. Reconnect the manifold gauge to the vacuum pump, turn the pump on, and continue to evacuate the line set and indoor unit until the absolute pressure does not rise above 500 microns (29.9 inches of mercury) within a 20-minute period after shutting off the vacuum pump and closing the manifold gauge valves.
9. When the absolute pressure requirement above has been met, disconnect the manifold hose from the vacuum pump and connect it to an upright cylinder of R-410A refrigerant. Open the manifold gauge valves to break the vacuum from 1 to 2 psig positive pressure in the line set and indoor unit. Close manifold gauge valves and shut off the R-410A cylinder and remove the manifold gauge set.

Start-Up

⚠ IMPORTANT

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

1. Rotate fan to check for frozen bearings or binding.
2. Inspect all factory- and field-installed wiring for loose connections.
3. After evacuation is complete, open the liquid line and vapor line service valves to release the refrigerant charge (contained in outdoor unit) into the system.
4. Replace the stem caps and secure finger tight, then tighten an additional one-sixth (1/6) of a turn.
5. Check voltage supply at the disconnect switch. The voltage must be within the range listed on the unit's nameplate. If not, do not start the equipment until you have consulted the power company and the voltage condition has been corrected.
6. Set the thermostat for a cooling demand. Turn on power to the indoor blower and close the outdoor unit disconnect switch to start the unit.
7. Recheck voltage while the unit is running. Power must be within range shown on the nameplate.

Refrigerant Charging

This system is charged with R-410A refrigerant which operates at much higher pressures than R-22. The provided liquid line filter drier is approved for use with R-410A. Do not replace it with components designed for use with R-22. This unit is NOT approved for use with coils which use capillary tubes as a refrigerant metering device.

Factory Charge

Units are factory charged with the amount of R-410A refrigerant indicated on the unit rating plate. This charge is based on a matching indoor coil and outdoor coil with 15 ft. (4.6 m) line set. For varying lengths of line set, refer to table 3 for refrigerant charge adjustment.

Table 3

Refrigerant Charge per Line Set Lengths	
Liquid Line Set Diameter	**Ounces per 5 feet (grams per 1.52 meter) adjust from 15 ft. (4.57m) line set***
3/8 in. (9.5mm)	3 ounces per 5 feet (85 grams per 1.52 meter)
*Add the amount shown if line length is greater than 15' (4.57m), subtract the amount shown if less than 15'.	

⚠ IMPORTANT

Mineral oils are not compatible with R-410A. If oil must be added, it must be a polyol ester oil.

The compressor is charged with sufficient polyol ester oil for approved line set lengths.

Units Delivered Void of Charge

If the system is void of refrigerant, clean the system using the procedure described below.

1. Use dry nitrogen to pressurize the system and check for leaks. Repair leaks, if possible.
2. Evacuate the system to remove as much of the moisture as possible.
3. Use dry nitrogen to break the vacuum and install a new filter drier in the liquid line.
4. Evacuate the system again. Then, weigh the appropriate amount of R-410A refrigerant (listed on unit nameplate) into the system.

⚠ IMPORTANT

Charge adjustments may be required to allow for longer line sets and coil volumes. Check for proper charge using charging information in this manual.

5. Monitor the system to determine the amount of moisture remaining in the oil. Use test kit 10N46 to verify that the moisture content is within the kit's dry color range. It may be necessary to replace the filter drier several times to achieve the required dryness level. **If system dryness is not verified, the compressor will fail in the future.**

Checking Charge

The outdoor unit should be charged during warm weather. However, applications arise in which charging must occur in the colder months. The method of charging is determined by the outdoor ambient temperature.

Measure the liquid line temperature and the outdoor ambient temperature as outlined below:

1. Connect the manifold gauge set to the service valves:
   - low pressure gauge to *vapor* valve service port
   - high pressure gauge to *liquid* valve service port

   Close manifold gauge set valves. Connect the center manifold hose to an upright cylinder of R-410A .
2. Set the room thermostat to call for heat. This will create the necessary load for properly charging the system in the cooling cycle.
3. Record outdoor ambient temperature using a digital thermometer.
4. When the heating demand has been satisfied, switch the thermostat to cooling mode with a set point of 68ºF (20ºC). When pressures have stabilized, use a digital thermometer to record the liquid line temperature.
5. The outdoor temperature will determine which charging method to use. Proceed with the appropriate charging procedure.

Charge Using Weigh-in Method—*Outdoor Temperature < 65ºF (18ºC)*

If the system is void of refrigerant, or if the outdoor ambient temperature is cool, first, locate and repair any leaks and then weigh in the refrigerant charge into the unit.

1. Recover the refrigerant from the unit.
2. Conduct leak check; evacuate as previously outlined.
3. Weigh in the unit nameplate charge. If weighing facilities are not available or if charging the unit during warm weather, use one of the following procedures.

Charge Using the Approach Method—*Outdoor Temp. ≥65ºF (18ºC)*

The following procedure is intended as a general guide and is for use on expansion valve systems only. For best results, outdoor temperature should be 70°F (21°C) to 80°F (26°C). Monitor system pressures while charging.

1. Record outdoor ambient temperature using a digital thermometer.
2. Attach high pressure gauge set and operate unit for several minutes to allow system pressures to stabilize.
3. Compare stabilized pressures with those provided in table 5, "Normal Operating Pressures." 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. Pressures higher than those listed indicate that the system is overcharged. Pressures lower than those listed indicate that the system is undercharged. Continue to check adjusted charge using approach values.
4. Use the same digital thermometer you used to check the outdoor ambient temperature to check the liquid line temperature.
5. The difference between the ambient and liquid temperatures should match values given in table 4. If the values do not agree with the those in table 4, add refrigerant to lower the approach temperature, or recover refrigerant from the system to increase the approach temperature.

Table 4

XC15 Approach Values

___° Liquid Line Temperature
— ___° Outdoor Temperature
= ___° Approach Temperature

Model	-024	-030	-036	-042	-048	-060
°F (°C)*	10 (5.6)	12 (6.7)	11 (6.1)	13 (7.2)	6 (3.3)	10 (5.6)

NOTE - For best results, use the same electronic thermometer to check both outdoor-ambient and liquid-line temperatures.

*F: +/-1.0°; C: +/-0.5°

NOTES -

- R-410A refrigerant cylinders are rose-colored. Refrigerant should be added through the vapor valve in the liquid state.
- Certain R-410A cylinders are identified as being equipped with a dip tube. These allow liquid refrigerant to be drawn from the bottom of the cylinder without inverting the cylinder. DO NOT turn this type cylinder upside-down to draw refrigerant.

Table 5

XC15 Normal Operating Pressures In psig (liquid +/- 10 and vapor+/- 5 PSIG)*												
Model	**-024**		**-030**		**-036**		**-042**		**-048**		**-060**	
°F (°C)**	**Liquid**	**Suction**	**Liquid**	**Suction**	**Liquid**	**Suction**	**Liquid**	**Suction**	**Liquid**	**Suction**	**Liquid**	**Suction**
65 (18.3)	239	135	246	135	245	132	260	132	224	129	242	131
70 (21.1)	255	136	266	136	264	133	282	133	241	130	262	132
75 (23.9)	274	137	285	138	285	135	302	134	259	131	282	134
80 (26.7)	293	138	306	139	306	137	325	135	279	133	303	135
85 (29.4)	317	139	328	140	328	137	347	136	301	134	326	136
90 (32.2)	339	140	350	141	352	139	370	137	323	135	349	137
95 (35.0)	362	141	374	142	375	140	395	138	347	137	372	138
100 (37.8)	387	142	399	143	400	141	421	139	372	138	397	140
105 (40.6)	415	144	423	144	425	141	446	141	397	140	422	141
110 (43.3)	440	145	450	145	452	143	475	142	422	141	448	143
115 (46.1)	469	146	477	146	476	144	504	144	449	143	475	146

* *These are typical pressures only. Indoor match up, indoor air quality, and indoor load will cause the pressures to vary.*

** *Temperature of air entering outdoor coil.*

Charge Using Subcooling Method—*Outdoor Temperature ≥ 65ºF (18ºC)*

Use the following method to obtain accurate subcooling values. Compare the measured subcooling value to the values given in table 6.

Table 6

XC15 Subcooling Values						
(psig____) ____° Saturation Temperature **— ____° Liquid Line Temperature** **= ____° Subcooling Value**						
Model	**-024**	**-030**	**-036**	**-042**	**-048**	**-060**
°F (°C)*	4 (2.2)	4 (2.2)	6 (3.3)	7 (3.9)	6 (3.3)	7 (3.9)
NOTE - For best results, use the same electronic thermometer to check both outdoor-ambient and liquid-line temperatures. *F: +/-1.0°; C: +/-0.5°						

1. With the manifold gauge hose still on the liquid service port and the unit operating stably, use a digital thermometer to record the **liquid line temperature** in the space provided in table 6, and at the same time, record the **liquid line pressure** reading in the "(psig___)" space in the table.
2. Use a temperature/pressure chart for R-410A (table 7) to determine the **saturation temperature** for the liquid line pressure reading and record that in the space provided in table 6.
3. Subtract the liquid line temperature from the saturation temperature (according to the chart) to determine the **subcooling value**.
4. Compare subcooling value with those in table 6. If subcooling is greater than shown, recover some refrigerant; if less than shown, add some refrigerant.

Charge using Subcooling Method—*Outdoor Temperature < 65ºF (18ºC)*

When the outdoor ambient temperature is below 65°F (18°C), use the subcooling method to charge the unit. It may be necessary to restrict the air flow through the outdoor coil to achieve pressures in the 325-375 psig (2240-2585 kPa) range. These higher pressures are necessary for checking the charge. Block equal sections of air intake panels and move obstructions sideways until the liquid pressure is in the 325-375 psig (2240-2585 kPa) range. See figure 17.

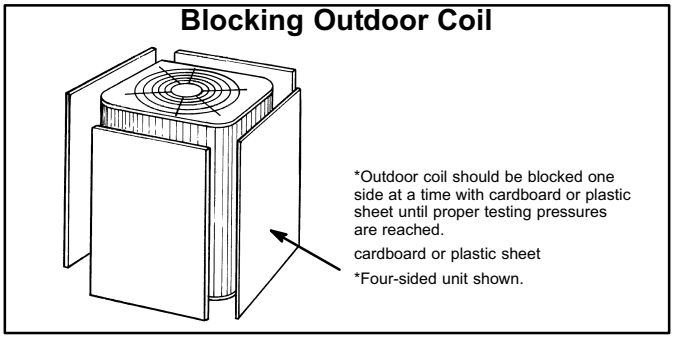


Figure 17

Table 7

R-410A Temperature (°F) - Pressure (Psig)							
°F	Psig	°F	Psig	°F	Psig	°F	Psig
32	100.8	63	178.5	94	290.8	125	445.9
33	102.9	64	181.6	95	295.1	126	451.8
34	105.0	65	184.3	96	299.4	127	457.6
35	107.1	66	187.7	97	303.8	128	463.5
36	109.2	67	190.9	98	308.2	129	469.5
37	111.4	68	194.1	99	312.7	130	475.6
38	113.6	69	197.3	100	317.2	131	481.6
39	115.8	70	200.6	101	321.8	132	487.8
40	118.0	71	203.9	102	326.4	133	494.0
41	120.3	72	207.2	103	331.0	134	500.2
42	122.6	73	210.6	104	335.7	135	506.5
43	125.0	74	214.0	105	340.5	136	512.9
44	127.3	75	217.4	106	345.3	137	519.3
45	129.7	76	220.9	107	350.1	138	525.8
46	132.2	77	224.4	108	355.0	139	532.4
47	134.6	78	228.0	109	360.0	140	539.0
48	137.1	79	231.6	110	365.0	141	545.6
49	139.6	80	235.3	111	370.0	142	552.3
50	142.2	81	239.0	112	375.1	143	559.1
51	144.8	82	242.7	113	380.2	144	565.9
52	147.4	83	246.5	114	385.4	145	572.8
53	150.1	84	250.3	115	390.7	146	579.8
54	152.8	85	254.1	116	396.0	147	586.8
55	155.5	86	258.0	117	401.3	148	593.8
56	158.2	87	262.0	118	406.7	149	601.0
57	161.0	88	266.0	119	412.2	150	608.1
58	163.9	89	270.0	120	417.7	151	615.4
59	166.7	90	274.1	121	423.2	152	622.7
60	169.6	91	278.2	122	428.8	153	630.1
61	172.6	92	282.3	123	434.5	154	637.5
62	175.4	93	286.5	124	440.2	155	645.0

System Operation

The outdoor unit and indoor blower cycle on demand from the room thermostat. When the thermostat blower switch is in the **ON** position, the indoor blower operates continuously.

High Pressure Switch

XC15 units are equipped with a high pressure switch that is located in the liquid line to the compressor. The switch is a SPST, manual-reset switch that is normal closed. The switch opens at 590 psi.

Low Pressure Switch

XC15 units are equipped with a low pressure switch that is located in the vapor line to the compressor. The switch is a SPST, auto-reset switch that is normal closed. The switch opens at 40 psi and closes at 90 psi.

Filter Drier

A drier is factory-installed in each XC15 unit. A replacement drier is available from Lennox. Refer to Lennox Repair Part Program.

System Operation Monitor (LSOM)

The diagnostic indicator detects the most common fault conditions in the air conditioning system. When an abnormal condition is detected, the module communicates the specific condition through its ALERT and TRIP lights. The module is capable of detecting both mechanical and electrical system problems. See figure 18 for the system operation monitor.

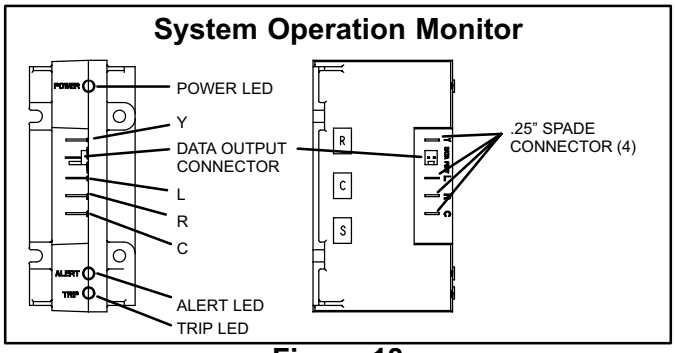


Figure 18

⚠ IMPORTANT

This monitor does not provide safety protection. The monitor is a monitoring device only and cannot control or shut down other devices.

LSOM—LED Functions

Power LED (green)—indicates voltage within the range of 19-28VAC is present at the system monitor power connection.

Alert LED (yellow)—communicates an abnormal system condition through a unique Flash Code— the alert LED flashes a number of times consecutively; then pauses; then repeats the process. This consecutive flashing correlates to a particular abnormal condition.

Trip LED (red)—indicates there is a demand signal from the thermostat but no current to the compressor is detected by the module.

Refer to table 8 for the complete explanation of troubleshooting codes.

Resetting alert codes—Alert codes can be reset manually or automatically:

- Manual reset: Cycle the 24VAC power to LSOM off and on. After power up, existing code will display for 1 minute and then clear.
- Automatic reset: After an alert is detected, the LSOM continues to monitor the compressor and system. When/if conditions return to normal, the alert code is turned off automatically.

LSOM—L terminal connection

The L connection is used to communicate alert codes to the room thermostat. On selected Lennox SignatureStat™ thermostats, a blinking “check” LED will display on the room thermostat and on select White-Rodgers room thermostats, an icon on the display will flash. Either will flash at the same rate as the LSOM yellow alert LED.

NOTE - ROOM THERMOSTATS WITH SERVICE OR CHECK LIGHT FEATURE—The room thermostat may blink the "Check" or "Service" LED or it may come on solid. Confirm fault by observing and interpreting the code from the LSOM yellow alert LED at the unit.

LSOM—Installation verification

To verify correct LSOM installation, two functional tests can be performed. Disconnect power from the compressor and force a thermostat call for cooling. The red trip LED should turn on indicating a compressor trip as long as 24VAC is measured at the Y terminal. If the red LED does not function as described, refer to table 8 to verify the wiring. Disconnect power from the compressor and 24VAC power from LSOM. Remove the wire from the Y terminal of LSOM and reapply power to the compressor, allowing the compressor to run. The yellow alert LED will begin flashing a code 8 indicating a welded contactor. Disconnect power from the compressor and 24VAC power from the LSOM. While the LSOM is off, reattach the wire to the Y terminal. Reapply power to the compressor and 24VAC power to the LSOM; the yellow alert LED will flash the previous code 8 for one minute and then turn off. If the yellow LED does not function as described, refer to table 8 to verify the wiring.

Table 8

System Operation Monitor LED Troubleshooting Codes		
Status LED Condition	**Status LED Description**	**Status LED Troubleshooting Information**
Green "Power" LED ON	Module has power	24VAC control power is present at the module terminal.
Green "Power" LED OFF	Module not powering up	Determine/verify that both R and C module terminals are connected and voltage is present at both terminals.
Red "Trip" LED ON	System and compressor check out OK	1 Verify Y terminal is connected to 24VAC at contactor coil. 2 Verify voltage at contactor coil falls below 0.5VAC when off. 3 Verify 24VAC is present across Y and C when thermostat demand signal is present; if not present, R and C wires are reversed.
	Thermostat demand signal Y1 is present, but compressor not running	1 Compressor protector is open. 2 Outdoor unit power disconnect is open. 3 Compressor circuit breaker or fuse(s) is open. 4 Broken wire or connector is not making contact. 5 Low pressure switch open if present in the system. 6 Compressor contactor has failed to close.
Red "Trip" & Yellow "Alert" LEDs Flashing	Simultaneous flashing.	Indicates that the control circuit voltage is too low for operation.
Yellow "Alert" Flash Code 1*	**Long Run Time** - Compressor is running extremely long run cycles	1 Low refrigerant charge. 2 Evaporator blower is not running. 3 Evaporator coil is frozen. 4 Faulty metering device. 5 Condenser coil is dirty. 6 Liquid line restriction (filter drier blocked if present). 7 Thermostat is malfunctioning.
Yellow "Alert" Flash Code 2*	**System Pressure Trip** - Discharge or suction pressure out of limits or compressor overloaded	1 High head pressure. 2 Condenser coil poor air circulation (dirty, blocked, damaged). 3 Condenser fan is not running. 4 Return air duct has substantial leakage. 5 If low pressure switch is present, see Flash Code 1 information.
Yellow "Alert" Flash Code 3*	**Short Cycling** - Compressor is running only briefly	1 Thermostat demand signal is intermittent. 2 Time delay relay or control board is defective. 3 If high pressure switch is present, see Flash Code 2 information. 4 If low pressure switch is present, see Flash Code 1 information.
Yellow "Alert" Flash Code 4*	**Locked Rotor**	1 Run capacitor has failed. 2 Low line voltage (contact utility if voltage at disconnect is low). 3 Excessive liquid refrigerant in the compressor. 4 Compressor bearings are seized.
Yellow "Alert" Flash Code 5*	**Open Circuit**	1 Outdoor unit power disconnect is open. 2 Unit circuit breaker or fuse(s) is open. 3 Unit contactor has failed to close. 4 High pressure switch is open and requires manual reset. 5 Open circuit in compressor supply wiring or connections. 6 Unusually long compressor protector reset time due to extreme ambient temperature. 7 Compressor windings are damaged.

table continued on next page

System Operation Monitor LED Troubleshooting Codes		
Status LED Condition	**Status LED Description**	**Status LED Troubleshooting Information**
Yellow "Alert" Flash Code 6*	**Open Start Circuit** - Current only in run circuit	1 Run capacitor has failed. 2 Open circuit in compressor start wiring or connections. 3 Compressor start winding is damaged.
Yellow "Alert" Flash Code 7*	**Open Run Circuit** - Current only in start circuit	1 Open circuit in compressor start wiring or connections. 2 Compressor start winding is damaged.
Yellow "Alert" Flash Code 8*	**Welded Contactor** - Compressor always runs	1 Compressor contactor failed to open. 2 Thermostat demand signal not connected to module.
Yellow "Alert" Flash Code 9*	**Low Voltage** - Control circuit <17VAC	1 Control circuit transformer is overloaded. 2 Low line voltage (contact utility if voltage at disconnect is low).
**Flash code number corresponds to a number of LED flashes, followed by a pause, and then repeated. Reset ALERT flash code by removing 24VAC power from monitor; last code will display for 1 minute after monitor is powered on.* *Last code will display for 1 minute when power is cycled to module. Power must be on to module for a minimum of 1 minute for code to clear.*		

Maintenance

⚠ 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.

Maintenance and service must be performed by a qualified installer or service agency. At the beginning of each cooling season, check the system as follows:

NOTE - Outdoor fan motor is prelubricated and sealed. No further lubrication is needed.

1. Clean and inspect the outdoor coil. The coil may be flushed with a water hose. Ensure the power is turned off before you clean the coil.
2. Check connecting lines and coils for signs of oil leaks.
3. Check wiring for loose connections.
4. Check for correct voltage at unit (unit operating).
5. Check amp-draw outdoor fan motor.
   Unit nameplate _____ Actual _____ .

   NOTE - If owner reports insufficient cooling, the unit should be gauged and refrigerant charge checked. Refer to section on refrigerant charging section (Page 13).

Indoor Coil

1. Clean coil, if necessary.
2. Check connecting lines and coils for signs of oil leaks.
3. Check condensate line and clean, if necessary.

Indoor Unit

1. Clean or change filters.
2. Adjust blower speed for cooling. Measure the pressure drop over the coil to determine the correct blower CFM. Refer to the unit information service manual for pressure drop tables and procedure.
3. Check blower for accumulation of dirt or debris.
4. Check all wiring for loose connections
5. Check for correct voltage at unit (blower operating).
6. Check amp-draw on blower motor
   Unit nameplate_____ Actual _____.

Optional Accessories

Optional accessories for the XC15 include the following (also, see Engineering Handbook for more details):

- Timed-off control
- Low ambient kit

XC15 Start-Up & Performance Check List

Customer _____ Address _____

Indoor Unit Model _____ Serial _____

Outdoor Unit Model _____ Serial _____

Notes: _____

START UP CHECKS

Refrigerant Type: _____

Rated Load Amps _____ Actual Amps _____ Rated Volts ____ Actual Volts _____

Condenser Fan Full Load Amps ___ Actual Amps: _____

COOLING MODE

Suction Pressure: _____ **Liquid Pressure:** _____

Supply Air Temperature: _____ Ambient **Temperature:** _____ Return Air: **Temperature:** _____

System Refrigerant Charge (Refer to manufacturer's information on unit or installation instructions for required sub-cooling and approach temperatures.)

Subcooling: Saturated Condensing Temperature (A) *minus* Liquid Line Temperature (B)	A	—	B	=	SUBCOOLING
Approach: Liquid Line Temperature (A) *minus* Outdoor Air Temperature (B)	A	—	B	=	APPROACH
Indoor Coil Temperature Drop (18 to 22°F) Return Air Temperature (A) *minus* Supply Air Temperature (B)	A	—	B	=	COIL TEMP DROP

Homeowner Information - Maintenance

In order to ensure peak performance, your system must be properly maintained. Clogged filters and blocked airflow prevent your unit from operating at its most efficient level.

1. **Air Filter—**Ask your Lennox dealer to show you where your indoor unit's filter is located. It will be either at the indoor unit (installed internal or external to the cabinet) or behind a return air grille in the wall or ceiling. Check the filter monthly and clean or replace it as needed.
2. **Disposable Filter—**Disposable filters should be replaced with a filter of the same type and size.

   NOTE - If you are unsure about the filter required for your system, call your Lennox dealer for assistance.

⚠ IMPORTANT

Turn off electrical power to the unit at the disconnect switch before performing any maintenance. The unit may have multiple power supplies.

3. **Reusable Filter—**Many indoor units are equipped with reusable foam filters. Clean foam filters with a mild soap and water solution; rinse thoroughly; allow filter to dry completely before returning it to the unit or grille.

   NOTE - The filter and all access panels must be in place any time the unit is in operation.
4. **Electronic Air Cleaner—**Some systems are equipped with an electronic air cleaner, designed to remove airborne particles from the air passing through the cleaner. If your system is so equipped, ask your dealer for maintenance instructions.
5. **Indoor Unit—**The indoor unit's evaporator coil is equipped with a drain pan to collect condensate formed as your system removes humidity from the inside air. Have your dealer show you the location of the drain line and how to check for obstructions. (This would also apply to an auxiliary drain, if installed.)

⚠ IMPORTANT

Sprinklers and soaker hoses should not be installed where they could cause prolonged exposure to the outdoor unit by treated water. Prolonged exposure of the unit to treated water (i.e., sprinkler systems, soakers, waste water, etc.) will corrode the surface of steel and aluminum parts and diminish performance and longevity of the unit.

6. **Outdoor Unit—**Make sure no obstructions restrict airflow to the outdoor unit. Leaves, trash or shrubs crowding the unit cause the outdoor unit to work harder and use more energy. Keep shrubbery trimmed away from the unit and periodically check for debris which collects around the unit.

When removing debris from around the unit, be aware of metal edges on parts and screws. Although special care has been taken to keep exposed edges to a minimum, physical contact with metal edges and corners while applying excessive force or rapid motion can result in personal injury.

Cleaning of the outdoor unit's coil should be performed by a trained service technician. Contact your dealer and set up a schedule (preferably twice a year, but at least once a year) to inspect and service your air conditioning or heat pump system.

Thermostat Operation

Thermostat operations vary from one thermostat to another. The following provides general operation procedures. Refer to the user's information manual provided with your thermostat for specific operation details.

Temperature Setting Levers

Set the lever or dial to the desired temperature setpoints for both heating and cooling. Avoid frequent temperature adjustment; turning the unit off—then back on—before pressures can equalize will put unusual stress on the unit's compressor.

Fan Switch

In AUTO or INT (intermittent) mode, the blower operates only when the thermostat calls for heating or cooling. This mode is generally preferred when humidity control is a priority. The ON or CONT mode provides continuous indoor blower operation, regardless of whether the compressor or furnace is operating. This mode is required when constant air circulation or filtering is desired.

System Switch

Set the system switch for heating, cooling or auto operation. The auto mode allows the system to automatically switch from heating mode to cooling mode to maintain predetermined comfort settings.

Temperature Indicator

The temperature indicator displays the actual room temperature.

Programmable Thermostats

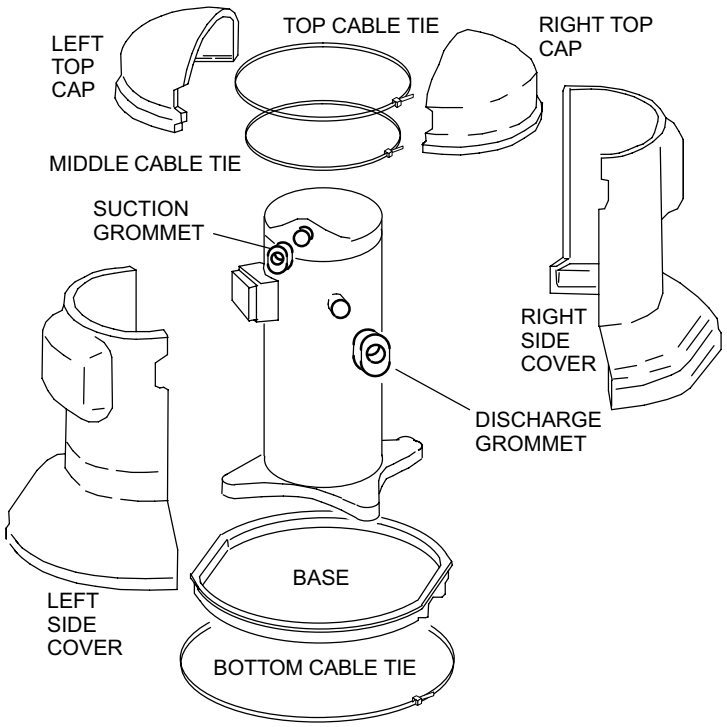
Your Lennox system may be controlled by a programmable thermostat. These thermostats provide the added feature of programmable time-of-day setpoints for both heating and cooling. Refer to the user's information manual provided with your thermostat for detailed programming and operation details.

Preservice Check

If your system fails to operate, check the following before calling for service:

- Check to see that all electrical disconnect switches are ON.
- Make sure the room thermostat Temperature Selector and System Switch (Heat, Cool, Auto) are properly set.
- Check for any blown fuses or tripped circuit breakers.
- Make sure unit access panels are in place.
- Make sure air filter is clean.
- If service is needed, locate and write down the unit model number and have it handy before calling.

Sound Reduction Cover (SR1) Components and Assembly Procedure



This diagram identifies the sound reduction components and shows the correct procedure for assembling the sound reduction cover:

1. Put SR1 base on unit base pan.
2. Install compressor on base.
3. Cover SR1 base with wet rags to protect against any brazing material.
4. Braze suction tube.
5. Braze discharge tube.
6. Cool connections to ambient temperature.
7. Perform leak check.
8. Install suction grommet.
9. Install SR1 left and right side covers.
10. Fasten 60" bottom cable tie.
11. Install discharge grommet.
12. Install top caps.
13. Fasten 36" top cable tie.
14. Fasten 36" middle cable tie.

Figure 19