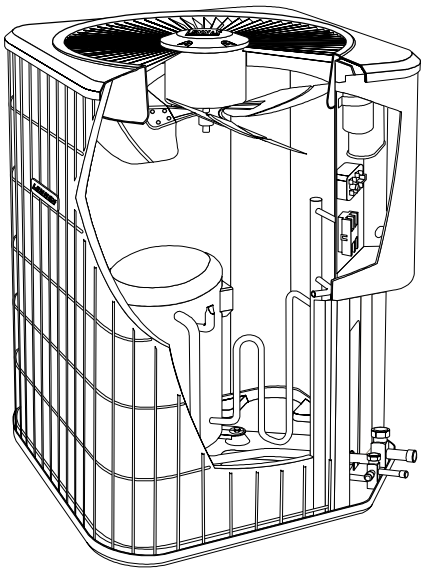
LENNOX®

INSTALLATION INSTRUCTIONS

Merit® Series
10ACC Units

CONDENSING UNITS
504,787M
04/04
Supersedes 02/04

Technical Publications
Litho U.S.A.



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RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

10ACC Outdoor Units

Lennox Merit® 10ACC outdoor units are designed for use in either fixed orifice or expansion valve (TXV) systems. The TXV may require a field-installed hard start kit. Refer to the Lennox Engineering Handbook for expansion valve kits which must be ordered separately.

Shipping & Packing List

1 - Assembled outdoor unit

1 - Fixed orifice refrigerant metering device

1 - Coupling, 5/16 x 3/8” (018)

Check the unit for shipping damage. Consult last carrier immediately if damage is found.

⚠ WARNING

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

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 noncompliance.

General Information

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

⚠ 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.)

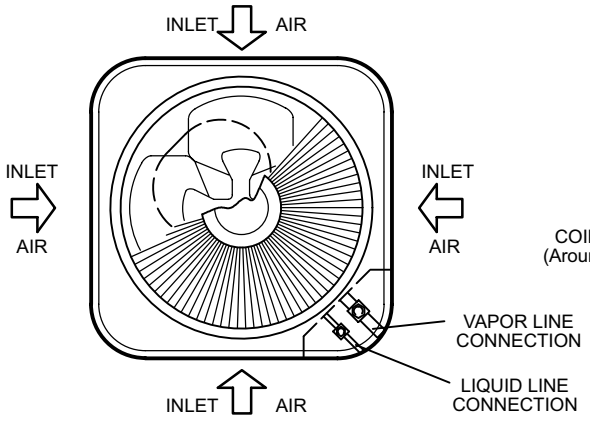
Fiberglass wool may also cause respiratory, skin, and eye irritation.

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

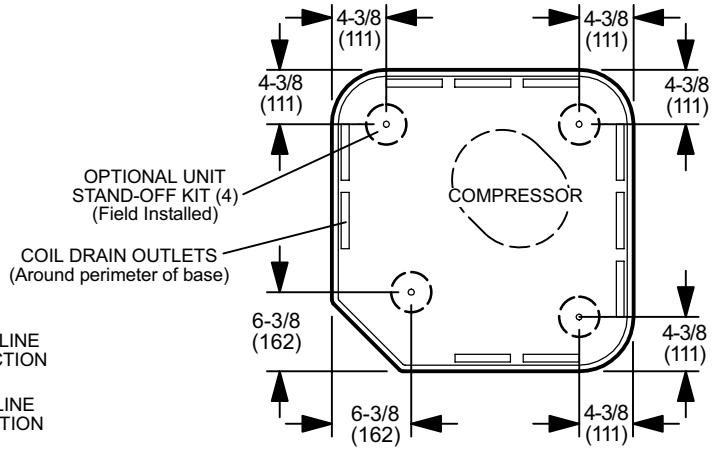
Lennox Industries Inc.

P.O. Box 799900
Dallas, TX 75379-9900

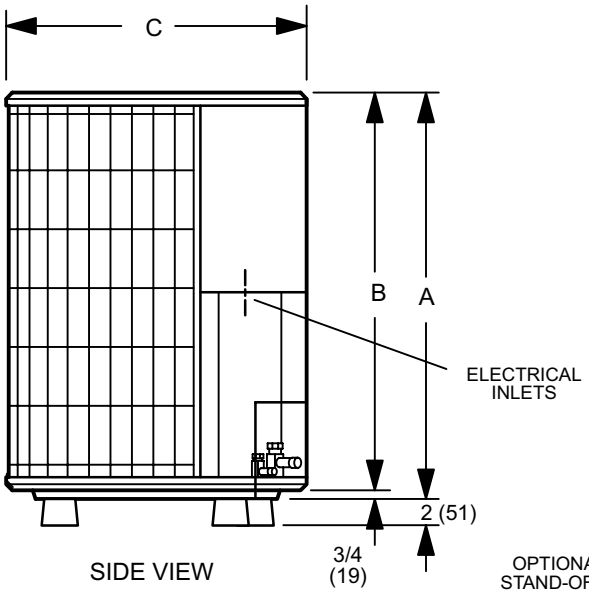
Unit Dimensions - inches (mm)



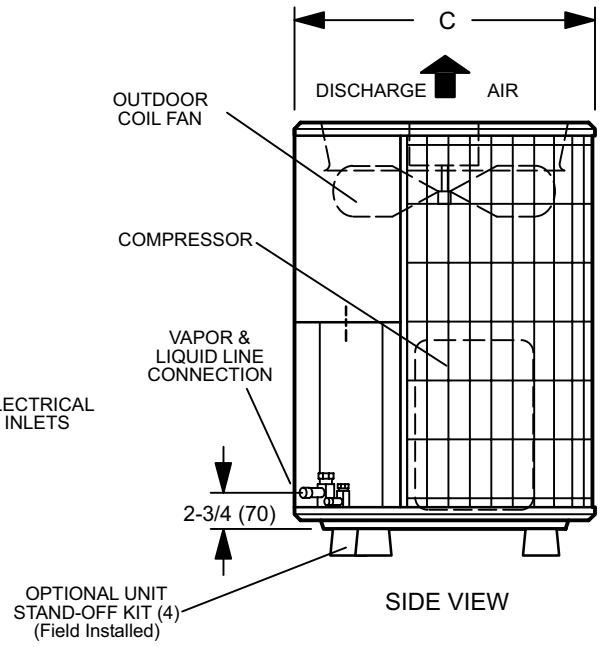
TOP VIEW



TOP VIEW BASE SECTION



SIDE VIEW



SIDE VIEW

Model No.		A	B	C
10ACC-018, 10ACC-024, 030	in.	25	24-1/4	22-1/4
	mm	635	616	565
10ACC-036	in.	25	24-1/4	24-1/4
	mm	635	616	616
10ACC-036 (Canada only) 10ACC-042	in.	29	28-1/4	24-1/4
	mm	737	718	616
10ACC-048	in.	33	32-1/4	24-1/4
	mm	838	819	616
10ACC-060	in.	37	36-1/4	28-1/4
	mm	940	921	718

Setting the Unit

⚠CAUTION

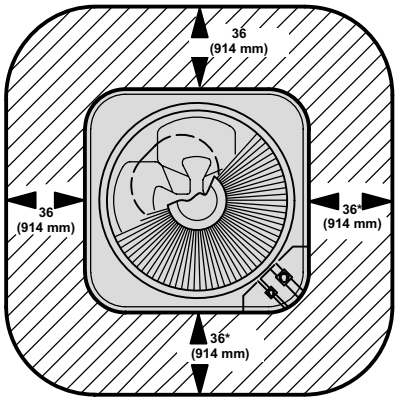
In order to avoid injury, take proper precaution when lifting heavy objects.

⚠CAUTION

Sharp sheet metal edges can cause injury. When installing the unit, avoid accidental contact with sharp edges.

Refer to unit dimensions for sizing mounting slab, platforms or supports. Refer to figure 1 for installation clearances.

Installation Clearances



**NOTE - A service clearance of 30" (762 mm) must be maintained on one of the sides adjacent to the control box. 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).*

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

Figure 1

Slab Mounting

When installing unit at grade level, install on a level slab high enough above grade to allow adequate drainage of water. Top of slab should be located so run-off water from higher ground will not collect around unit.

Roof Mounting

Install the unit at a minimum of 4 inches (102 mm) above the surface of the roof. Ensure the weight of the unit is properly distributed over roof joists and rafters. Redwood or steel supports are recommended.

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).

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.

⚠ WARNING

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

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

2 Ground unit at unit disconnect switch or to an earth ground.

NOTE - To facilitate conduit, a hole is in the bottom of the control box. Connect conduit to the control box us ing 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 2 for field wiring diagram.

NOTE - A complete unit wiring diagram is located inside the unit control box cover.

3 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 effected by sunlight, drafts or vibrations.

4 Install low voltage wiring from outdoor to indoor unit and from thermostat to indoor unit. See figure 3.

Typical Wiring Field Wiring Diagram

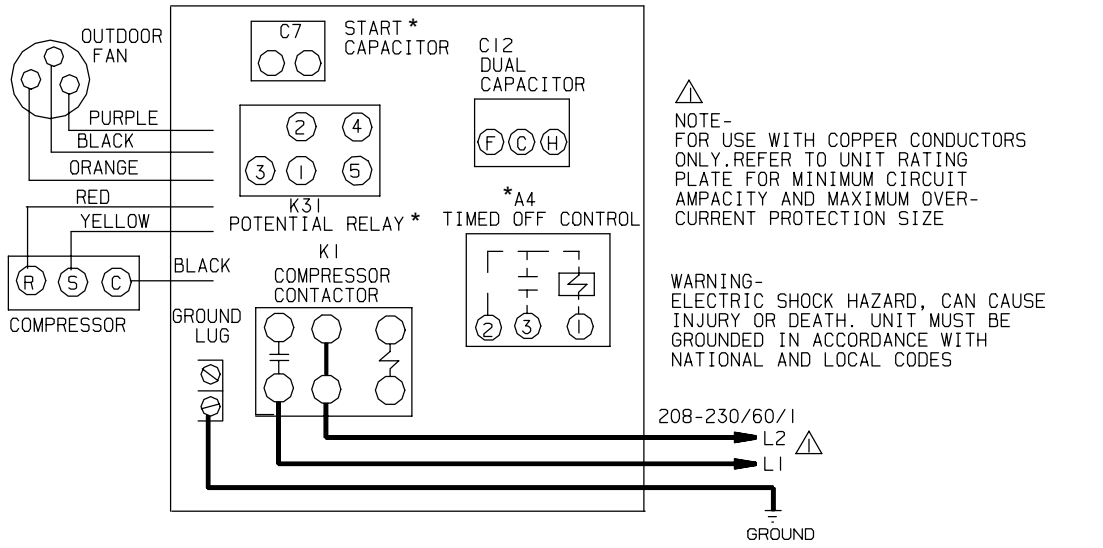
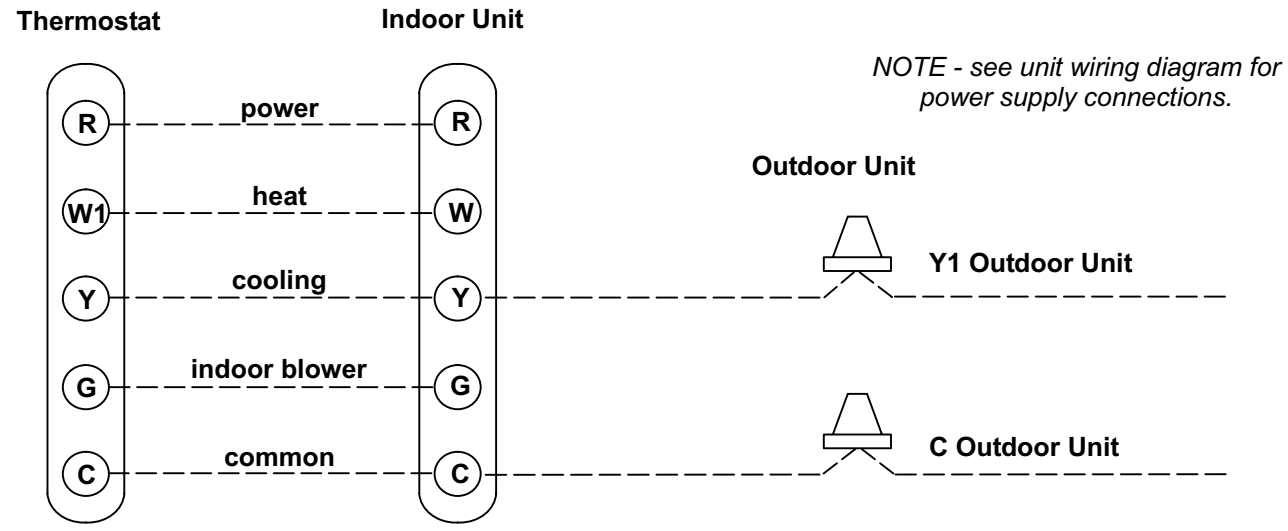


Figure 2

Thermostat Designations



NOTE - If the indoor unit is not equipped with blower relay. It must be field-provided and installed (P-8-3251 or equivalent).

Figure 3

Refrigerant Piping

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 1 or use field-fabricated refrigerant lines. Refer to Refrigerant Piping Guide (Corp. 9351-L9) for proper size, type, and application of field-fabricated lines. Valve sizes are also listed in table 1.

Table 1
Refrigerant Line Kits

Model Name	Valve Field Size Connections		Recommended Line Set		
	Liquid Line	Vapor Line	Liquid Line	Vapor Line	L15 Line Sets
-018	3/8 in (10 mm)	5/8 in (16 mm)	5/16 in* (8 mm)	5/8 in (16 mm)	L15-21 15 ft.- 50 ft. (4.6m - 15m)
-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 ft.- 50 ft. (4.6 m - 15m)
-042 -048	3/8 in (10 mm)	7/8 in. (22 mm)	3/8 in (10 mm)	7/8 in. (22 mm)	L15-65 15 ft.- 50 ft. (4.6 m - 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 - Units are designed for line sets of up to 50 feet (15 m). For applications longer than 50 feet, consult the Lennox Refrigerant Piping Guide (Corp. 9351-L9). Select line set diameters from table 1 to ensure that oil returns to the compressor.

**Use reducer from bag assembly.*

Installing Refrigerant Line

During the installation of any heat pump or a/c system, it is important to properly isolate the refrigerant lines to prevent unnecessary vibration. Line set contact with the structure (wall, ceiling or floor) causes some objectionable noise when vibration is translated into sound. As a result, more energy or vibration can be expected. Closer attention to line set isolation must be observed.

Following are some points to consider when placing and installing a high-efficiency outdoor unit:

1- **Placement -** Be aware some localities are adopting sound ordinances based on how noisy the unit is from the adjacent property not at the original installation. 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.

2- **Line Set Isolation -** The following illustrations demonstrate procedures which ensure proper refrigerant line set isolation. Figure 4 shows how to install line sets on vertical runs. Figure 5 shows how to install line sets on horizontal runs. Figure 6 shows how to make a transition from horizontal to vertical. Finally, figure 7 shows how to place the outdoor unit and line set.

Refrigerant Line Sets
How To Install Vertical Runs
(new construction shown)

NOTE - Similar installation practices should be used if line set is to be installed on exterior of outside wall.

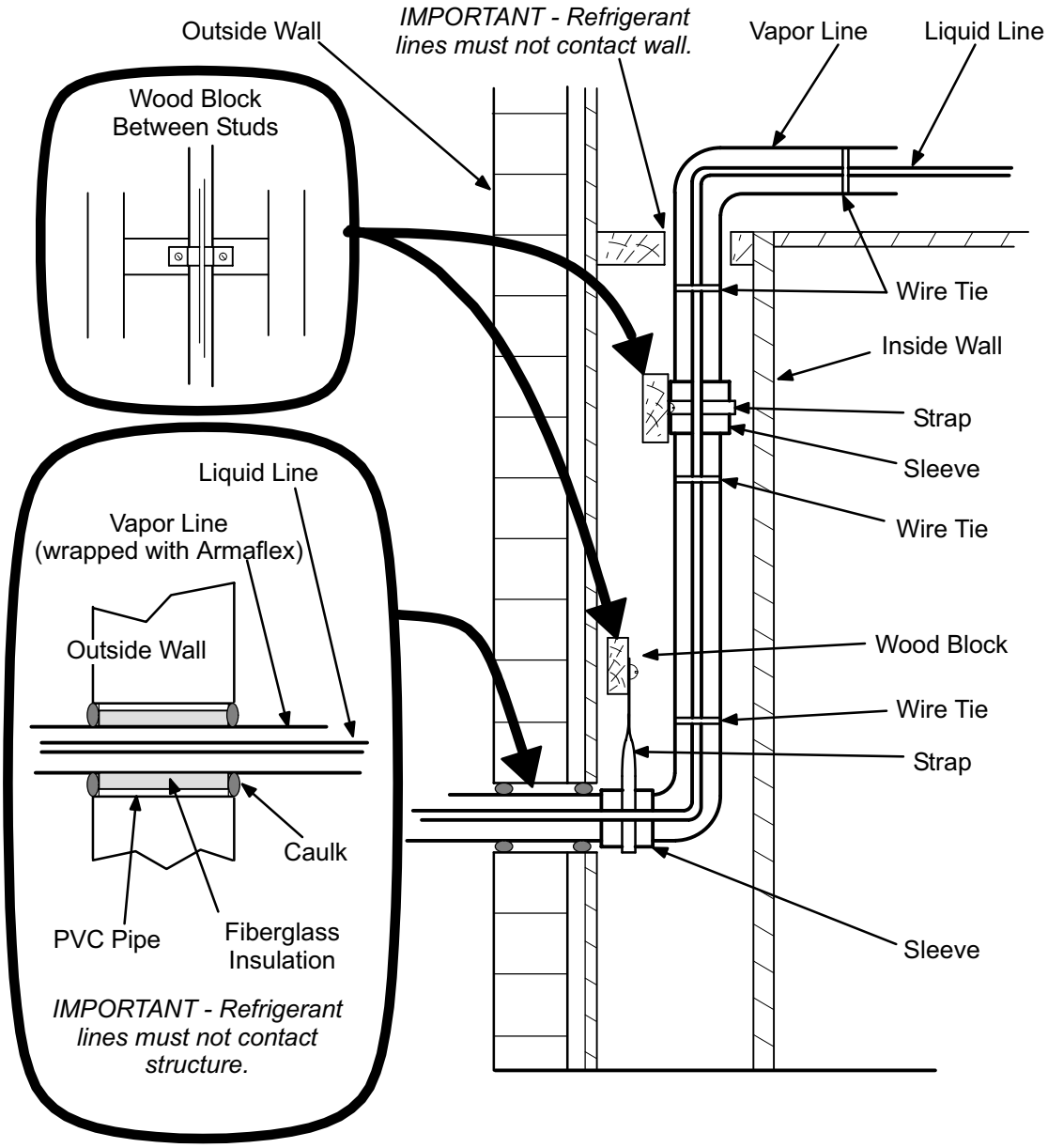


Figure 4

Refrigerant Line Sets:
Installing Horizontal Runs

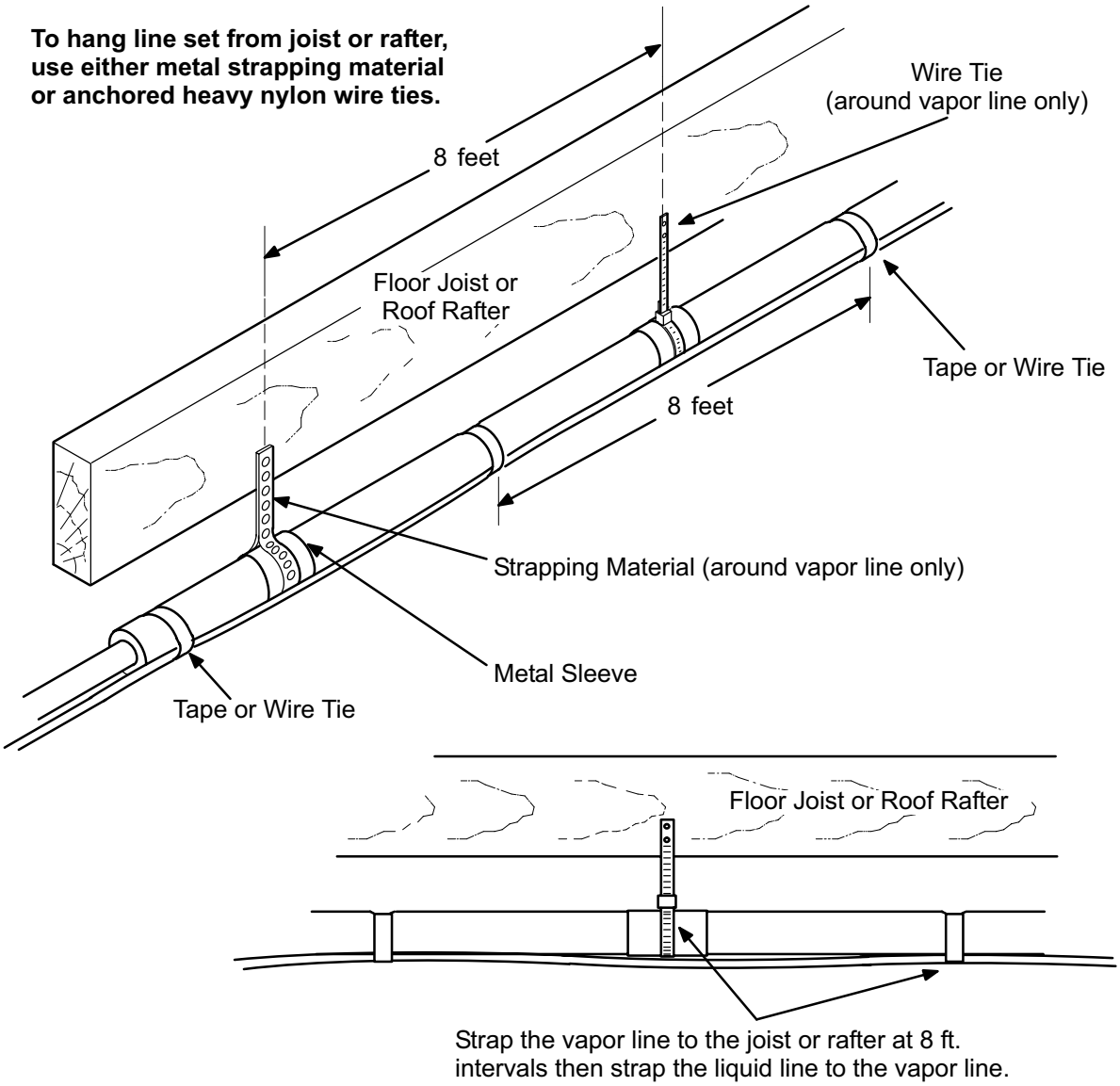


Figure 5

Refrigerant Line Sets:
Transition From Vertical To Horizontal

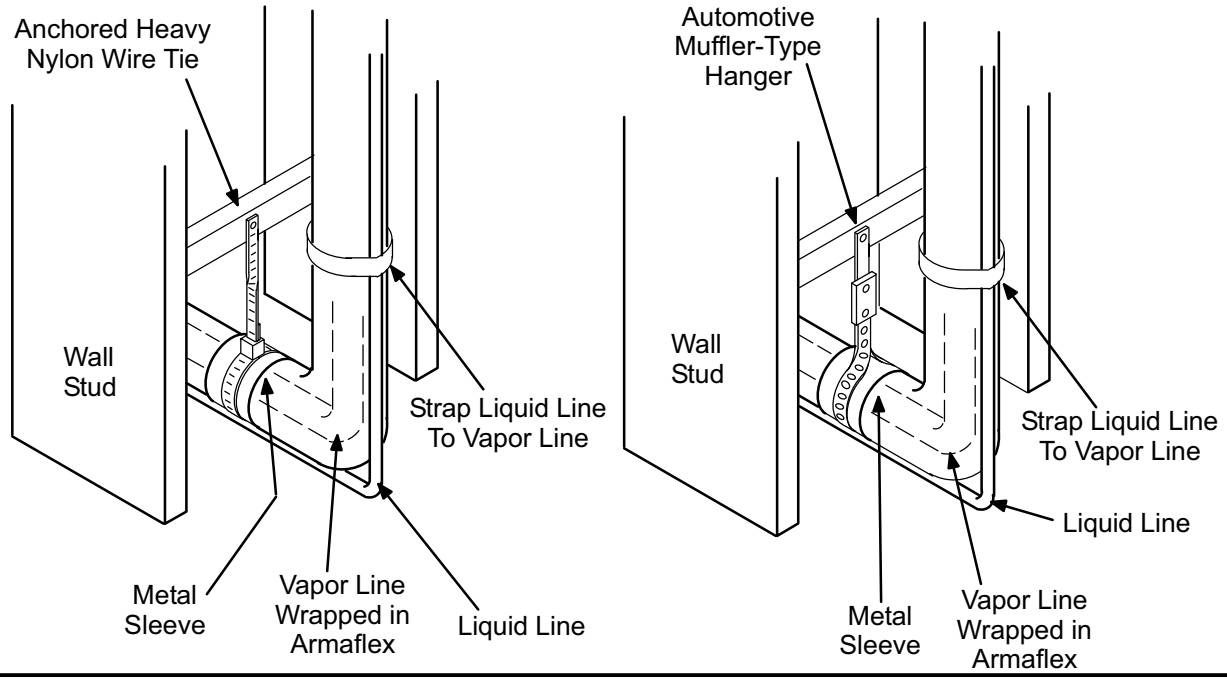


Figure 6

Outside Unit Placement and Installation

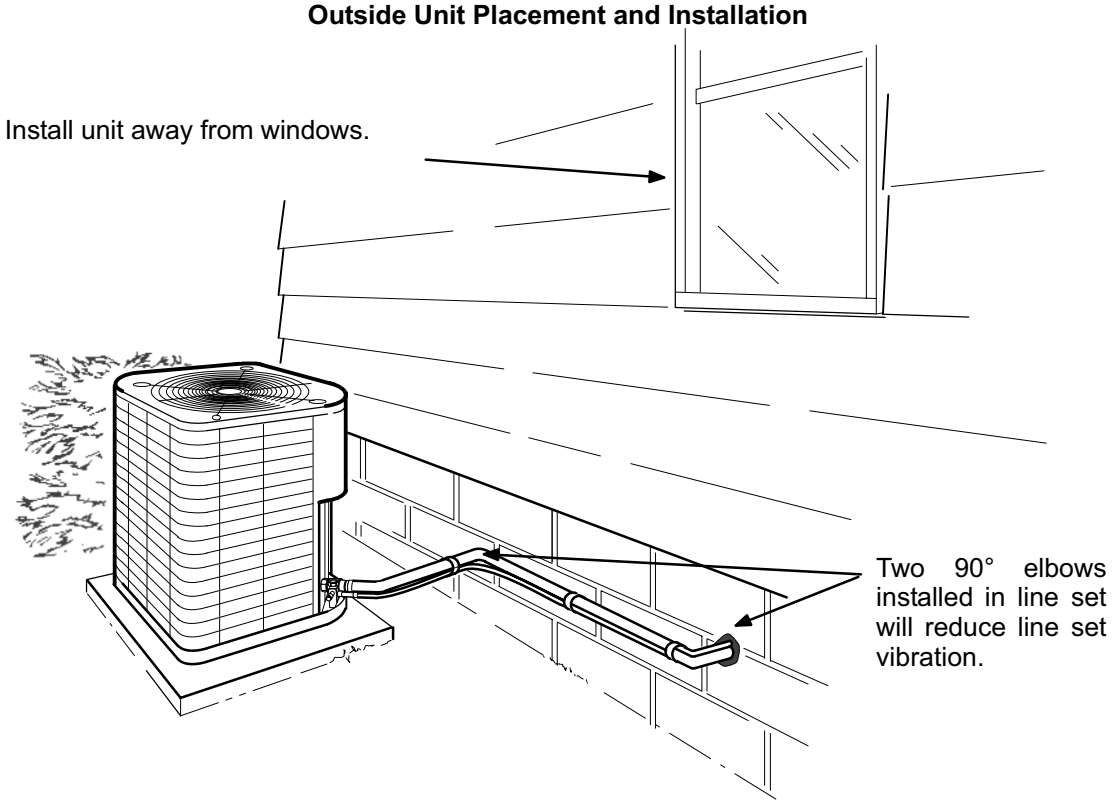


Figure 7

Brazing Connection Procedure

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 - Before making line set connections, use 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 HCFC2 refrigerant. Wrap a wet cloth around the valve body and the copper tube stub. Braze the line set to the service valve.

4 - Wrap a wet cloth around the valve body and copper tube stub to protect it from heat damage during brazing. Wrap another wet cloth underneath the valve body to protect the base paint.

NOTE - The tube end must stay bottomed in the fitting during final assembly to ensure proper seating, sealing and rigidity.

5 - Install a field-provided thermal expansion valve (approved for use with HCFC2 refrigerant) in the liquid line at the indoor coil.

Refrigerant Metering Devices

Use 10ACC units in either TXV systems or fixed orifice systems. See the Lennox Engineering Handbook for approved TXV and fixed orifice match-ups and application information. Table 1 lists the unit liquid and vapor line sizes and corresponding line sets.

Fixed Orifice Systems

10ACC units are shipped with a fixed orifice refrigerant metering device. Replace the existing indoor unit fixed orifice with the orifice supplied with the outdoor unit. Place the supplied fixed orifice sticker on the indoor cabinet after installation. See table 2 for the fixed orifice size for each unit. In nonstandard applications, the provided fixed orifice may not be appropriately sized. Refer to the Engineering Handbook for specific orifice information.

Table 2
Fixed Orifice Drill Sizes

Unit	Fixed Orifice Catalog #	Fixed Orifice Drill Size
10ACC-018	42J38	.053
10ACC-024	60M29	.061
10ACC-030	42J44	.065
10ACC-036	42J50	.077
10ACC-042	42J52	.080
10ACC-048	42J55	.086
10ACC-060	42J61	.098

Install the fixed orifice as shown in figure 8. Do not twist the cap tubes when loosening the seal nut from the orifice housing.

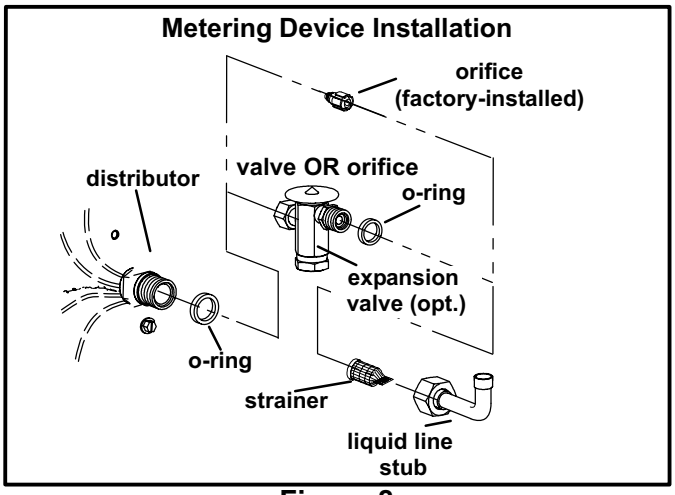


Figure 8

Expansion Valve Systems

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

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

⚠ IMPORTANT

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

Manifold Gauge Set

When checking the unit charge, use a manifold gauge set that is equipped with “low loss” hoses. Do not use a manifold gauge set with anything other than a “low loss” hose.

Service Valves

The liquid line and vapor line service valves (figures 9 and 10) and gauge ports are used for leak testing, evacuating, charging and checking charge. See table 3 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.

Table 3
Torque Requirements

Part	Recommended Torque	
Service valve cap	8 ft.- lb.	11 NM
Sheet metal screws	16 in.- lb.	2 NM
Machine screws #10	28 in.- lb.	3 NM
Compressor bolts	90 in.- lb.	10 NM
Gauge port seal cap	8 ft.- lb.	11 NM

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 an additional 1/6 turn.

To Open Service Valve:

1 - Remove the stem cap with an adjustable wrench.

2 - Use a service wrench with a hex-head extension to back the stem out counterclockwise as far as it will go.

NOTE - Use a 3/16" hex head extension for liquid line sizes or a 5/16" extension for vapor line sizes.

3 - Replace the stem cap. Tighten finger tight, then tighten an additional 1/6 turn.

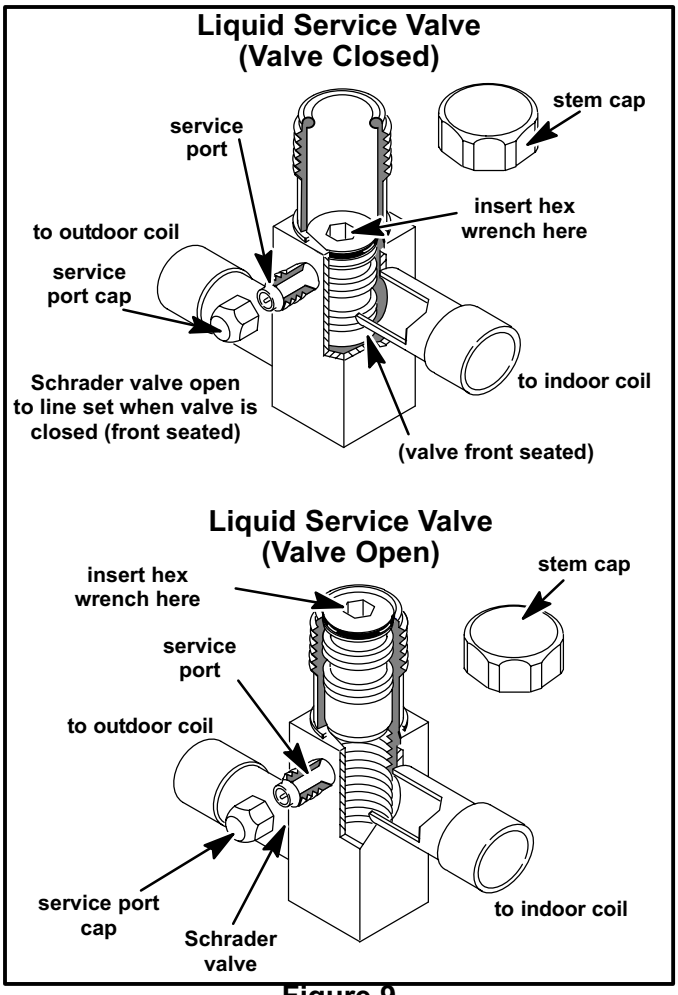


Figure 9

To Close Service Valve:

1 - Remove the stem cap with an adjustable wrench.

2 - Use a service wrench with a hex-head extension to turn the stem clockwise to seat the valve. Tighten the stem firmly.

NOTE - Use a 3/16" hex head extension for liquid line sizes or a 5/16" extension for vapor line sizes.

3 - Replace the stem cap. Tighten finger tight, then tighten an additional 1/6 turn.

Vapor Line Ball 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 has failed, you must replace it. A ball valve is illustrated in figure 10.

The ball valve 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.

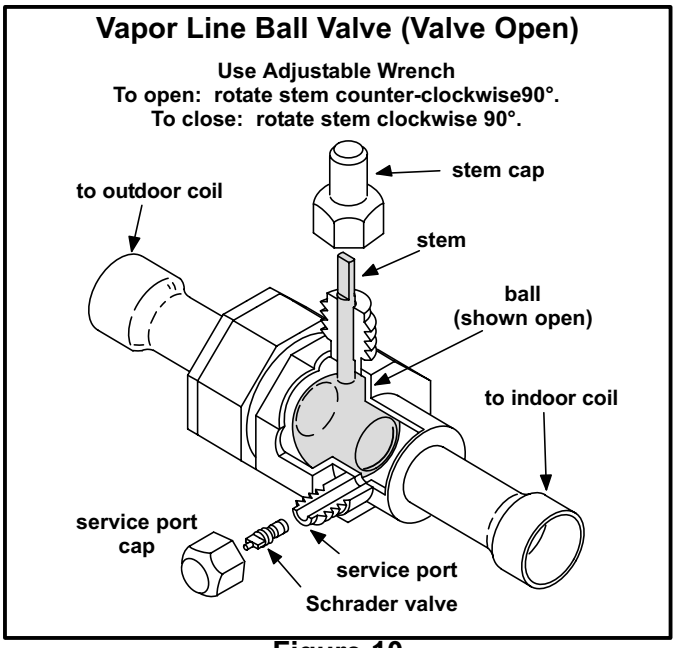


Figure 10

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

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.

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

⚠ WARNING

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

Using an Electronic Leak Detector or Halide

1 - Connect a cylinder of HCFC-22 to the center port of the manifold gauge set.

2 - With both manifold valves closed, open the valve on the HCFC-22 cylinder (vapor only).

3 - Open the high pressure side of the manifold to allow the HCFC-22 into the line set and indoor unit. Weigh in a trace amount of HCFC-22. [A trace amount is a maximum of 2 ounces (57 g) or 3 pounds (31 kPa) pressure.] Close the valve on the HCFC-22 cylinder and the valve on the high pressure side of the manifold gauge set. Disconnect the HCFC-22 cylinder.

4 - Connect a cylinder of nitrogen with a pressure regulating valve to the center port of the manifold gauge set.

5 - Connect the 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.)*

6 - Adjust the nitrogen pressure to 150 psig (1034 kPa). Open the valve on the high side of the manifold gauge set which will pressurize line set and indoor unit.

7 - 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 nitrogen and HCFC-22 mixture. Correct any leaks and recheck.

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 10,000 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 mercury). 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 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.

⚠ CAUTION

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 nitrogen cylinder and remove the manifold gauge hose from the cylinder. Open the manifold gauge valves to release the 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 HCFC-22 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 HCFC-22 cylinder and remove the manifold gauge set.

Start-Up

⚠ IMPORTANT

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

1 - Rotate the 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 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.

Charging

Units are factory charged with the amount of HCFC-22 refrigerant indicated on the unit nameplate. This charge is based on a matching indoor coil and outdoor coil with a 15 ft. (4.6 m) line set. For varying lengths of line set, refer to table 4 for refrigerant charge adjustment check.

Table 4

Liquid Line Set Diameter	Oz. per 5 ft. (g per 1.5 m) adjust from 15 ft. (4.6 m) line set*
5/16 in. (8 mm)	2 ounce per 5 ft. (57g per 1.5 m)
3/8 in. (10 mm)	3 ounce per 5 ft. (85g per 1.5 m)

**If line length is greater than 15 ft. (4.6 m), add this amount. If line length is less than 15 ft. (4.6 m), subtract this amount.*

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 unit's* ***refrigerant metering device*** *and the* ***outdoor ambient temperature****.*

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

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

Connect the center manifold hose to an upright cylinder of HCFC-22.

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 - Use a digital thermometer to record the outdoor ambient temperature.

4 - When the heating demand has been satisfied, switch the thermostat to cooling mode with a set point of 68°F (20°C). 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.

Weighing in the Charge Fixed Orifice or TXV Systems – Outdoor Temp. < 65°F (18°C)

If the system is void of refrigerant, or if the outdoor ambient temperature is cool, the refrigerant charge should be weighed into the unit. Do this after any leaks have been repaired.

1 - Recover the refrigerant from the unit.

2 - Conduct a leak check, then evacuate as previously outlined.

3 - Weigh in the unit nameplate charge.

If weighing facilities are not available or if you are charging the unit during warm weather, follow one of the other procedures outlined below.

Charging Using the Subcooling Method Fixed Orifice Systems – Outdoor Temp. ≥ 65°F (18°C)

If you charge a fixed orifice system when the outdoor ambient is 65°F (18°C) or above, use the subcooling method to charge the unit.

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.

2 - At the same time, record the liquid line pressure reading.

3 - Use a temperature/pressure chart for HCFC-22 to determine the saturation temperature for the liquid line pressure reading.

4 - Subtract the liquid line temperature from the saturation temperature (according to the chart) to determine subcooling. **(Saturation temperature - Liquid line temperature = Subcooling)**

5 - Compare the subcooling value with those in table 5. If subcooling is greater than shown, recover some refrigerant. If subcooling is less than shown, add some refrigerant.

Table 5
10ACC Subcooling Values
(Fixed Orifice Systems Only)

OUTDOOR TEMP. °F (°C)	LIQUID SUBCOOLING [± 1°F (.6°C)]						
	18	24	30	36	42	48	60
65 (18)	14 (8)	10 (5.6)	16 (9)	17 (9.5)	17 (9.5)	15 (8.3)	14 (8)
70 (21)	13 (7)	9 (5)	15 (8.3)	17 (9.5)	17 (9.5)	14 (8)	15 (8.3)
75 (24)	14 (8)	8 (4.5)	15 (8.3)	16 (9)	16 (9)	13 (7)	15 (8.3)
80 (27)	13 (7)	7 (3.9)	15 (8.3)	15 (8.3)	15 (8.3)	13 (7)	14 (8)
85 (29)	13 (7)	6 (3.3)	14 (8)	14 (8)	14 (8)	12 (6.7)	14 (8)
90 (32)	12 (6.7)	5 (2.8)	14 (8)	14 (8)	14 (8)	12 (6.7)	13 (7)
95 (35)	11 (6)	4 (2.2)	13 (7)	12 (6.7)	14 (8)	12 (6.7)	13 (7)
100 (38)	11 (6)	4 (2.2)	13 (7)	11 (6)	13 (7)	11 (6)	12 (6.7)
105 (41)	10 (5.6)	3 (1.7)	12 (6.7)	10 (5.6)	12 (6.7)	10 (5.6)	12 (6.7)
110 (43)	9 (5)	3 (1.7)	11 (6)	9 (5)	11 (6)	9 (5)	11 (6)
115 (45)	8 (4.5)	2 (1.1)	11 (6)	8 (4.5)	11 (6)	8 (4.5)	10 (5.6)

Charging Using Normal Operating Pressures and the Approach Method

TXV Systems – Outdoor Temp. ≥ 65°F (18°C)

The following procedure is intended as a general guide and is for use on expansion valve systems only. For best results, indoor 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 7, “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. Verify adjusted charge using the approach method.

4 - Use the same digital thermometer you used to check the outdoor ambient temperature to check the liquid line temperature. The difference between the ambient and liquid temperatures should match values given in table 6. Loss of charge results in low capacity and efficiency.

5 - If the values don’t agree with the those in table 6, add refrigerant to lower the approach temperature, or recover refrigerant from the system to increase the approach temperature.

Table 6
Approach Method

Model No.	Approach Temperature Liquid Line - Outdoor Ambient °F (°C)
10ACC-018	9 (5)
10ACC-024	18 (10)
10ACC-030	22 (12)
10ACC-036	11 (6)
10ACC-042	13 (7)
10ACC-048	8 (4.5)
10ACC-060	13 (7)

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

⚠ IMPORTANT

Use table 7 to perform maintenance checks. Table 7 is not a procedure for charging the system. Minor variations in these pressures may be due to differences in installations. Significant deviations could mean that the system is not properly charged or that a problem exists with some component in the system. See table 7.

Table 7
Normal Operating Pressures In psig (liquid and vapor +/- 2 psig)*

Unit / Metering Device	Out. Coil Entering Air Temp. °F (°C)	-018		-024		-030		-036		-042		-048		-060	
		LIQ.	SUC.	LIQ.	SUC.	LIQ.	SUC.	LIQ.	SUC.	LIQ.	SUC.	LIQ.	SUC.	LIQ.	SUC.
10ACC / TXV	65 (18.3)	153	71	163	70	175	76	162	70	173	73	159	71	170	74
	75 (23.9)	180	72	193	71	206	77	187	74	201	74	188	72	201	76
	85 (29.4)	209	73	225	72	241	78	219	75	234	74	220	73	234	77
	95 (35.0)	240	77	260	73	277	80	253	77	269	75	251	76	270	79
	105 (40.6)	274	79	298	74	316	81	291	79	307	76	290	77	309	79
	110 (43)	292	80	318	75	336	82	310	80	326	77	309	78	331	80
	115 (45)	311	81	338	75	357	83	329	81	346	78	328	79	351	81
10ACC / fixed orifice	65 (18.3)	155	62	165	63	181	69	168	67	178	67	163	68	189	72
	75 (23.9)	182	68	194	67	211	73	195	71	202	70	190	71	203	74
	85 (29.4)	211	72	224	70	242	76	224	75	235	71	220	74	233	77
	95 (35.0)	242	77	257	73	276	79	255	78	270	74	251	77	265	79
	105 (40.6)	274	80	293	76	313	81	289	82	308	78	288	79	301	82
	110 (43)	291	81	313	78	332	82	305	83	326	79	307	80	319	83
	115 (45)	308	83	332	79	353	84	324	84	347	80	325	82	339	84

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

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.

Maintenance

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

⚠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.

1 - Clean and inspect the outdoor coil. The coil may be flushed with a water hose. Make sure power is off before cleaning.

2 - Condenser fan motor is prelubricated and sealed. No further lubrication is needed.

3 - Visually inspect connecting lines and coils for evidence of oil leaks.

4 - Check wiring for loose connections.

5 - Check for correct voltage at unit (unit operating).

6 - Check amp-draw condenser fan motor.
Unit nameplate _____ Actual _____ .

NOTE - If the owner complains of insufficient cooling, the unit should be gauged and the refrigerant charge should be checked. Refer to the charging section in this instruction.

Indoor Coil

1 - Clean coil, if necessary.

2 - Check connecting lines and coils for evidence of oil leaks.

3 - Check the condensate pan line and clean it 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 - *Belt Drive Blowers* - Check belt for wear and proper tension.

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

Refer to the Engineering Handbook for optional accessories that may apply to this unit. The following may or may not apply:

- Loss of Charge Kit
- High Pressure Switc Kit
- Compressor Monitor
- Compressor Crankcase Heater
- Hail Guards
- Mounting Bases
- Timed Off Control
- Stand-off Kit
- Sound Cover
- Low Ambient Kit

Start-Up & Performance Check List

Start-up and Performance Check List

Job Name _____ Job No. _____ Date _____

Job Location _____ City _____ State _____

Installer _____ City _____ State _____

Unit Model No. _____ Serial No. _____ Service Technician _____

Nameplate Voltage _____

Rated Load Ampacity _____ Compressor _____ Outdoor Fan _____

Maximum Fuse or Circuit Breaker _____

Electrical Connections Tight? ☐ Indoor Filter Clean? ☐ Supply Voltage (Unit Off) _____

Indoor Blower RPM _____ S.P. Drop Over Indoor (Dry) _____ Outdoor Coil Entering Air Temp. _____

Discharge Pressure _____ Vapor Pressure _____ Refrigerant Charge Checked? ☐

Refrigerant Lines: Leak Checked? ☐ Properly Insulated? ☐ Outdoor Fan Checked? ☐

Service Valves Fully Opened? ☐ Service Valve Caps Tight? ☐

Thermostat

Voltage With Compressor Operating _____ Calibrated? ☐ Properly Set? ☐ Level? ☐