RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause personal injury, loss of life, or damage to property.

Installation and service must be performed by a licensed professional installer (or equivalent) or a service agency.

⚠ 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.

⚠ IMPORTANT

The Clean Air Act of 1990 bans the intentional venting of refrigerant (CFCs, HCFCs and HFCs) as of July 1, 1992. Approved methods of recovery, recycling or reclaiming must be followed. Fines and/or incarceration may be levied for noncompliance.

⚠ IMPORTANT

This unit must be matched with an indoor coil as specified in *Lennox AC13 Engineering Handbook*.

INSTALLATION INSTRUCTIONS

Elite® Series AC13 Units

AIR CONDITIONER
506109-01
10/08
Supersedes 07/08

Technical Publications
Litho U.S.A.

Table of Contents

Shipping and Packing List

Check the unit for shipping damage and listed times below are intact. If damaged, or if parts are missing, immediately contact the last shipping carrier.

1 — Assembled outdoor unit

1 — Refrigerant flow control kit (Fixed Orifice)

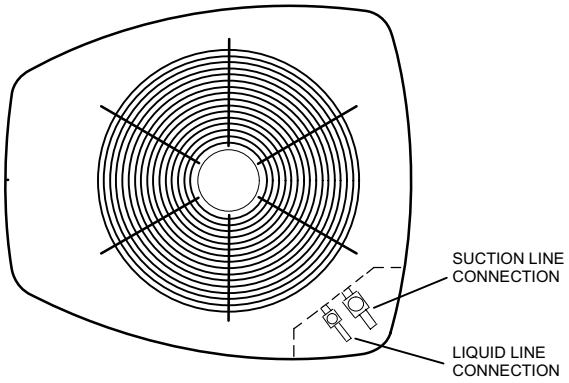
AC13 Air Conditioner Units

The AC13 Air Conditioners, which will also be referred to in this instruction as the outdoor unit, uses HCFC-22 refrigerant. This outdoor unit must be installed with a matching indoor unit and line set as outlined in the *Lennox AC13 Engineering Handbook*.

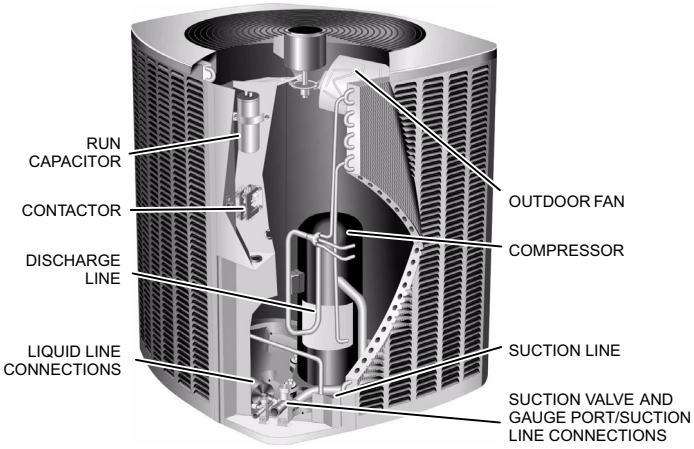
This outdoor unit is designed for use in systems that use one of the following refrigerant metering devices:

- Thermal expansion valve (TXV)
- Fixed orifice

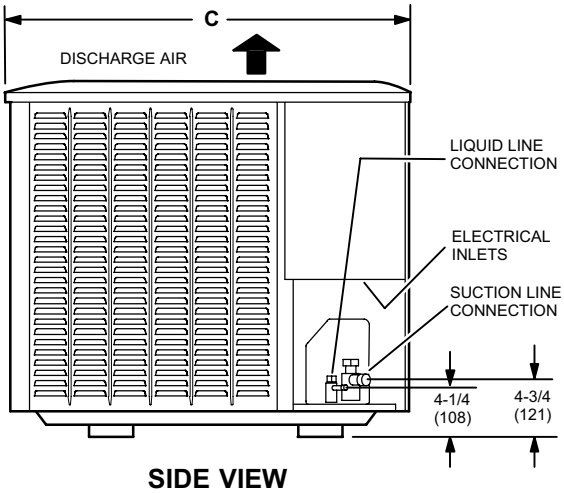
Unit Dimensions - Inches (mm)



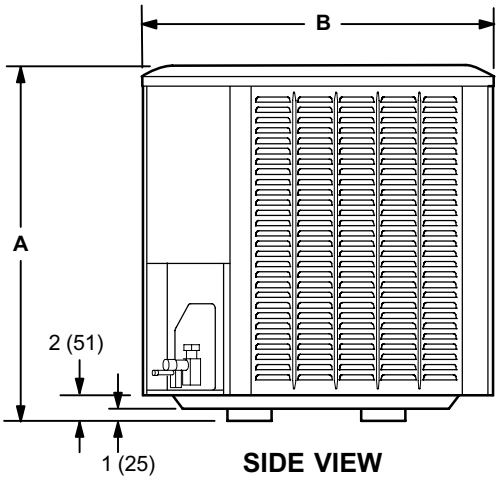
TOP VIEW



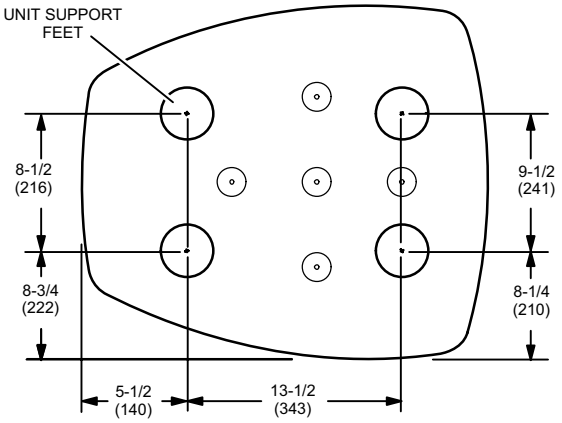
PARTS ARRANGEMENT



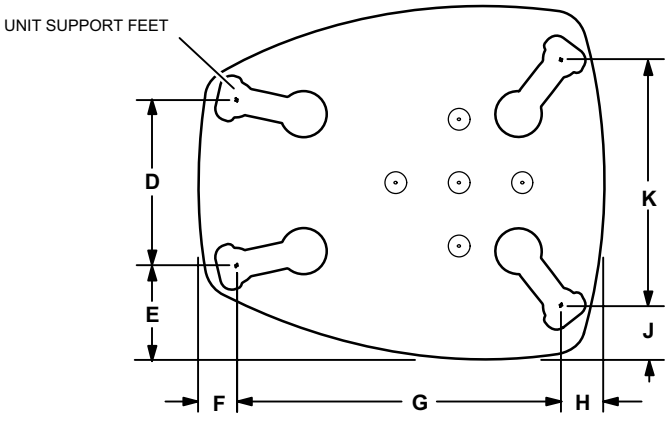
SIDE VIEW



SIDE VIEW



AC13-018, -024, -030 AND -036 BASE SECTIONS



AC13 BASE WITH ELONGATED LEGS

AC13	A	B	C	D	E	F	G	H	J	K
-018	27(686)	27 (686)	28 (711)	-	-	-	-	-	-	-
-024	27(686)	27 (686)	28 (711)							
-030	31 (787)	27 (686)	28 (711)							
-036	31 (787)	27 (686)	28 (711)							
-042	35 (889)	27 (686)	28 (711)	13-7/8 (352)	7-3/4 (197)	3-1/4 (83)	27-1/8 (689)	3-5/8 (92)	4-1/2 (114)	20-5/8 (524)
-048	35 (889)	30-1/2 (775)	35 (889)	13-7/8 (352)	7-3/4 (197)	3-1/4 (83)	27-1/8 (689)	3-5/8 (92)	4-1/2 (114)	20-5/8 (524)
-060	45 (1143)	30-1/2 (775)	35 (889)	13-7/8 (352)	7-3/4 (197)	3-1/4 (83)	27-1/8 (689)	3-5/8 (92	4-1/2 (114)	20-5/8 (524)

506109-01 10/08

⚠ 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

General Information

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

When servicing or repairing HVAC components, ensure caps and fasteners are appropriately tightened. Table 1 lists torque values for typical service and repair items.

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 #10	28 in.- lb.	3 NM
Compressor bolts	90 in.- lb.	10 NM
Gauge port seal cap	8 ft.- lb.	11 NM

USING MANIFOLD GAUGE SETS

When checking the system charge, only use a manifold gauge set that features low loss anti-blow back fittings. See figure 3 for a typical manifold gauge connection setup.

OPERATING SERVICE VALVES

⚠ IMPORTANT

Only use Allen wrenches of sufficient hardness (50Rc - Rockwell Harness Scale minimum). Fully insert the wrench into the valve stem recess.

Service valve stems are factory-torqued (from 9 ft-lbs for small valves, to 25 ft-lbs for large valves) to prevent refrigerant loss during shipping and handling. Using an Allen wrench rated at less than 50Rc risks rounding or breaking off the wrench, or stripping the valve stem recess.

The liquid and suction line service valves are used for removing refrigerant, flushing, leak testing, evacuating, checking charge and charging.

Each valve is equipped with a service port which has a factory-installed valve stem.

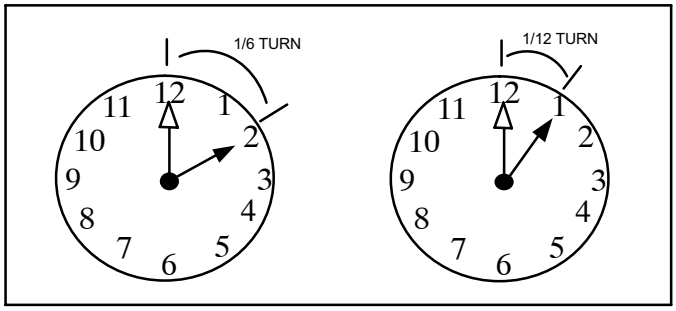


Figure 1. Cap Tightening Distances

NOTE - A label with specific torque requirements may be affixed to the stem cap. If the label is present, use the specified torque listed.

⚠ IMPORTANT

To prevent stripping of the various caps used, the appropriately sized wrench should be used and fitted snugly over the cap before tightening.

Operating Angle-Type Service Valve

To Access Angle-Type Service Port:

A service port cap protects the service port core from contamination and serves as the primary leak seal.

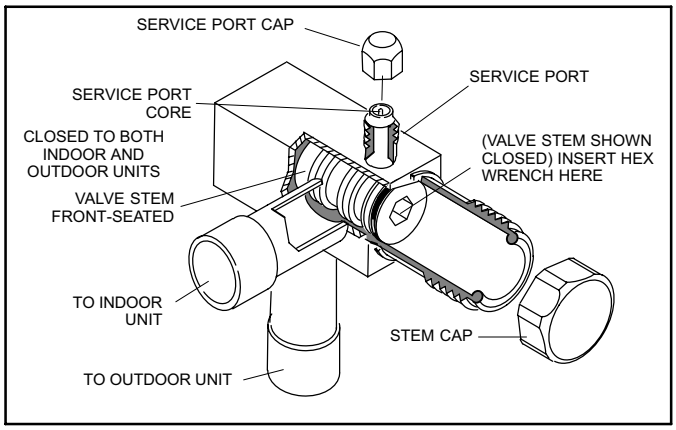


Figure 2. Angle-Type Service Valve (Font-Seated Closed)

1. Remove service port cap with an appropriately sized wrench.
2. Connect gauge to the service port.
3. When testing is completed, replace service port cap and tighten as follows:
   - *With Torque Wrench*: Tighten finger tight and then tighten per table 1.

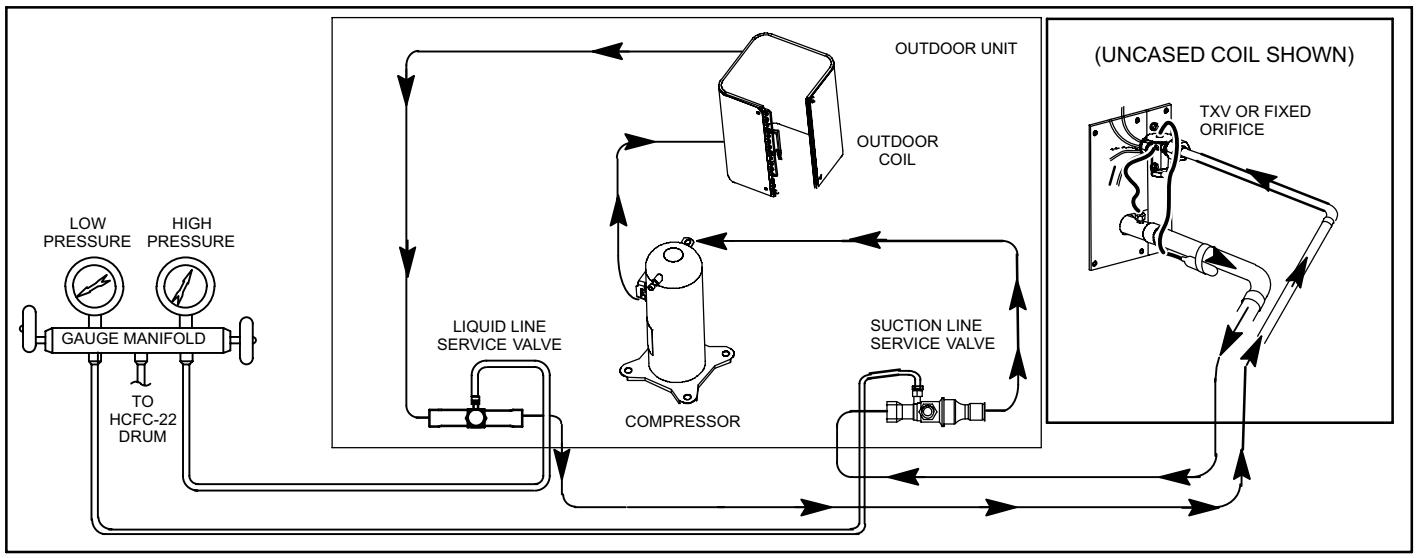


Figure 3. Typical Gauge Manifold Connections

- *Without Torque Wrench*: Finger tighten and use an appropriately sized wrench to turn an additional 1/6 turn clockwise as illustrated in figure 1.

To Open and Close Angle-Type Service Valve:

A valve stem cap protects the valve stem from contamination and assures a leak-free seal.

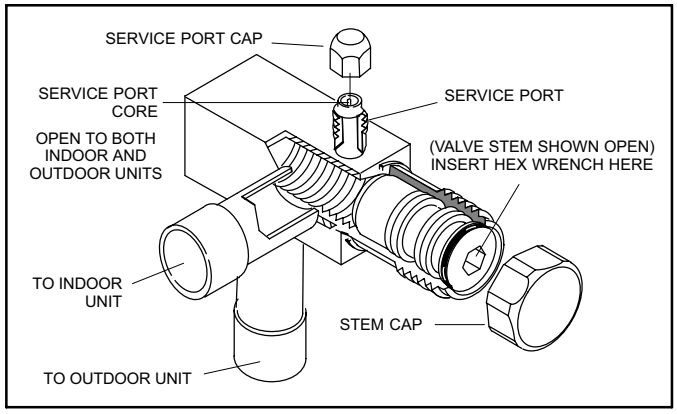


Figure 4. Angle-Type Service Valve (Back-Seated Opened)

1. Remove stem cap with a wrench.
2. Use a service wrench with a hex-head extension (3/16" for liquid-line valve sizes and 5/16" for suction-line valve sizes) to back the stem out counterclockwise as far as it will go.
3. Replace the stem cap and tighten as follows:
   - *With Torque Wrench*: Tighten finger tight and then tighten per table 1.
   - *Without Torque Wrench*: Finger tighten and i\use an appropriately sized wrench to turn an additional 1/12 turn clockwise as illustrated in figure 1.

Operating Ball-Type Service Valve

To Access Ball-Type Service Port:

A service port cap protects the service port core from contamination and serves as the primary leak seal.

1. Remove service port cap with an appropriately sized wrench.
2. Connect gauge to the service port.
3. When testing is completed, replace service port cap and tighten as follows:
   - *With Torque Wrench*: Tighten finger tight and then tighten per table 1.
   - *Without Torque Wrench*: Finger tighten and use an appropriately sized wrench to turn an additional 1/6 turn clockwise as illustrated in figure 1.

To Open and Close Ball-Type Service Valve:

A valve stem cap protects the valve stem from contamination and assures a leak-free seal.

1. Remove stem cap with a wrench.
2. Use an appropriately sized wrench to open. To open valve, rotate stem counterclockwise 90°. To close rotate stem clockwise 90°.
3. Replace the stem cap and tighten as follows:
   - *With Torque Wrench*: Tighten finger tight and then tighten per table 1.
   - *Without Torque Wrench*: Finger tighten and use an appropriately sized wrench to turn an additional 1/12 turn clockwise as illustrated in figure 1.

NOTE - A label with specific torque requirements may be affixed to the stem cap. If the label is present, use the specified valve listed.

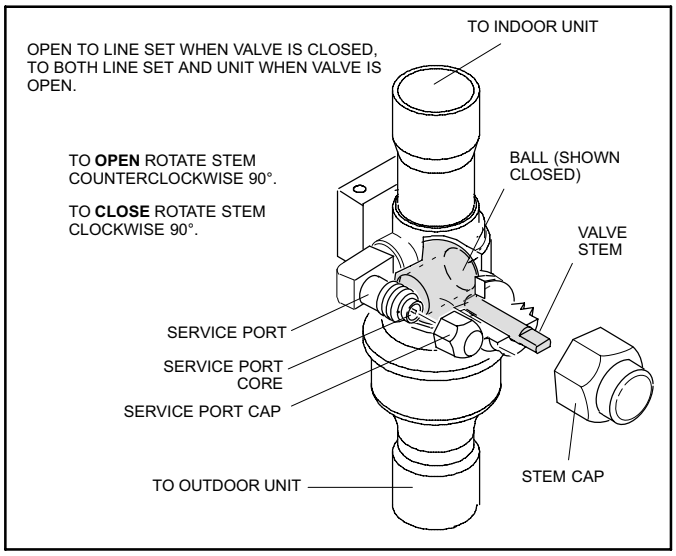


Figure 5. Ball-Type Service Valve

Recovering Refrigerant from Existing HCFC-22 System

Remove existing HCFC-22 refrigerant using one of the following methods:

METHOD 1:

Use this method if the existing outdoor unit is not equipped with manual shut-off valves, and plan on using existing HCFC-22 refrigerant to flush the system.

NOTE - Use recovery machine instructions for specific setup requirements.

Perform the following task:

1. Disconnect all power to the existing outdoor unit.
2. Connect to the existing unit a gauge set, clean recovery cylinder and a recovery machine. Use the instructions provided with the recover machine on how to setup the connections.
3. Remove all HCFC-22 refrigerant from the existing system. Check gauges after shutdown to confirm that the entire system is completely void of refrigerant.

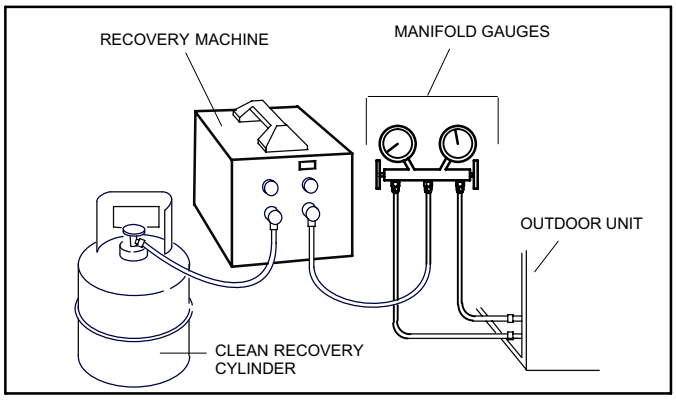


Figure 6. Typical Refrigerant Recovery (Method 1)

METHOD 2:

Use this method if the existing outdoor unit is equipped with manual shut-off valves, and plan on using new HCFC-22 refrigerant to flush the system.

IMPORTANT: Some system configurations may contain higher than normal refrigerant charge due to either large internal coil volumes, and/or long line sets. The following conditions may cause the compressor to stop functioning:

The following devices could prevent full system charge recovery into the outdoor unit:

- Outdoor unit's high or low-pressure switches (if applicable) when tripped can cycled the compressor **OFF**.
- Compressor can stop pumping due to tripped internal pressure relief valve.
- Compressor has internal vacuum protection that is designed to unload the scrolls (compressor stops pumping) when the pressure ratio meets a certain value or when the suction pressure is as high as 20 psig. (Compressor suction pressures should never be allowed to go into a vacuum. Prolonged operation at low suction pressures will result in overheating of the scrolls and permanent damage to the scroll tips, drive bearings and internal seals).

Once the compressor can not pump down to a lower pressure due to one of the above system conditions, shut off the suction valve. Turn OFF the main power to unit and use a recovery machine to recover any refrigerant left in the indoor coil and line set.

Perform the following task:

1. Start the existing HCFC-22 system in the cooling mode and close the liquid line valve.
2. Pump as much of the existing HCFC-22 refrigerant with the compressor back into the outdoor unit until you have reached the limitations of the outdoor system. Turn the outdoor unit main power **OFF** and use a recovery machine to remove the remaining refrigerant in the system.

NOTE - It may be necessary to bypass the low pressure switches if equipped to ensure complete refrigerant evacuation.

3. When the low side system pressures reach 0 psig, close the suction line valve.
4. Check gauges after shutdown to confirm that the valves are not allowing refrigerant to flow back into the low side of the system.

Removing Existing Outdoor Unit

Perform the following task at the existing outdoor unit:

- Disconnect line set at the service valves.
- Disconnect electrical service at the disconnect switch.
- Remove old outdoor unit.

Positioning New Outdoor Unit

⚠ CAUTION

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

See *Unit Dimensions* on page 2 for sizing mounting slab, platforms or supports. Refer to figure 7 for mandatory installation clearance requirements.

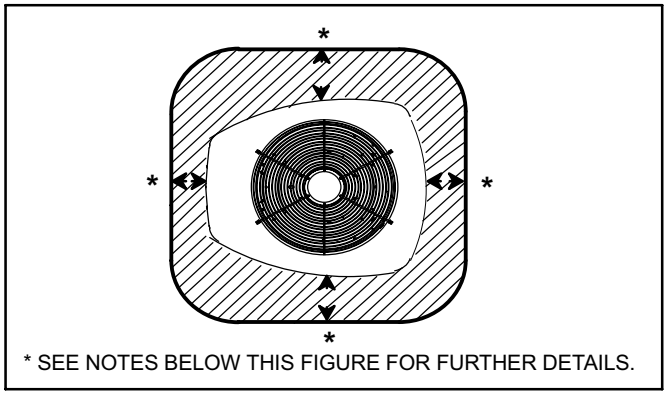


Figure 7. Installation Clearances

NOTES:

- Service clearance of 30 in. (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 in. (914 mm)
- Clearance to one of the remaining two sides may be 12 in. (305 mm) and the final side may be 6 in. (152 mm)
- 48 in. (1219 mm) clearance required on top of unit.
- A clearance of 24 in. (610 mm) must be maintained between two units

POSITIONING CONSIDERATIONS

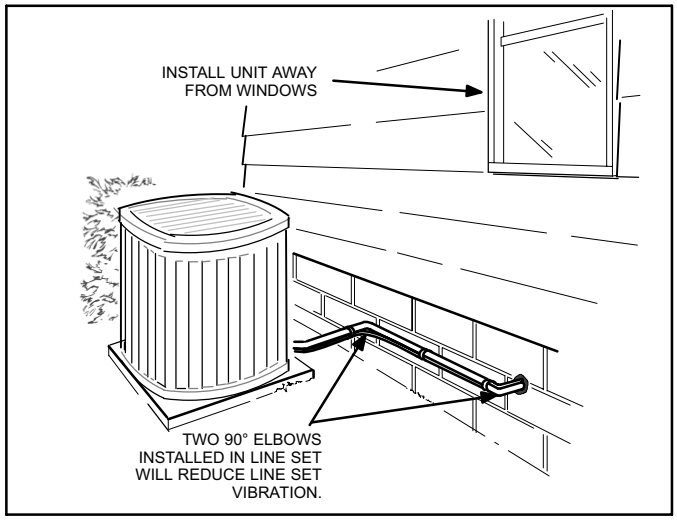


Figure 8. Outside Unit Placement

Some localities are adopting sound ordinances based on the unit's sound 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. For proper placement of unit in relation to a window see the provided illustration in figure 8.

PLACING UNIT ON SLAB

When installing unit at grade level, the top of the slab should be high enough above grade so that water from higher ground will not collect around the unit. The slab should have a slope tolerance as described in figure 9.

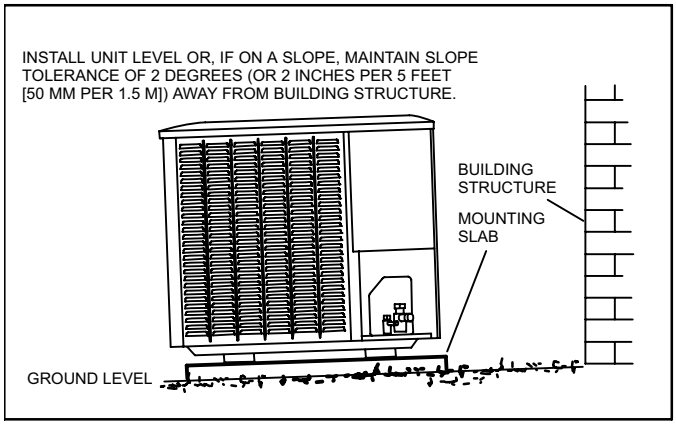


Figure 9. Slab Mounting at Ground Level

NOTE - If necessary for stability, anchor unit to slab as described in Stabilizing Unit on Uneven Surfaces on page.

ELEVATING THE UNIT (SMALL-BASE UNITS)

If additional elevation is necessary, raise the unit by extending the length of the unit support feet. This may be done by cutting four equal true-cut lengths of Schedule (SCH) 40, 4" (101.6mm) piping to the height required as illustrated in figure 10.

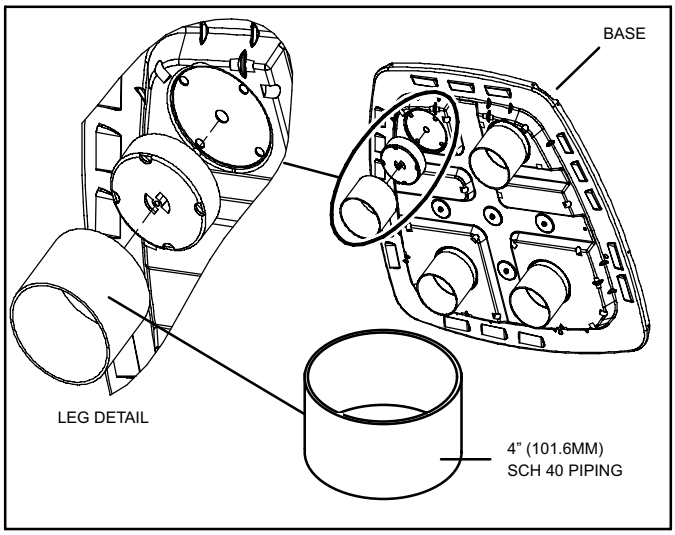


Figure 10. Elevated Slab Mounting using Feet Extenders (Small Base Units)

NOTE - Keep the height of extenders short enough to ensure a sturdy installation. If it is necessary to extend further, consider a different type of field-fabricated framework that is sturdy enough for greater heights.

The inside diameter of the 4" (101.6mm) piping is approximately 0.25" (6.35mm) greater than the pre-installed feet on the unit. Devise a shim that will take up the space and hold the extenders onto the feet during this procedure. Small strips of 0.125" (3.175mm) thick adhesive foam may be used. One or two small 1" (25.4mm) square strips should be adequate to hold the extender in place.

ELEVATING THE UNIT (LARGER-BASE UNITS)

Unlike the small-base units which use round support feet, the larger-base units are outfitted with elongated support feet as illustrated in figure 11 which uses a similar method for elevating the unit.

If additional elevation is necessary, raise the unit by extending the length of the unit support feet. This may be achieved by using a 2" SCH 40 female threaded adapter. The specified coupling will fit snuggly into the recessed portion of the feet. Use additional 2" SCH 40 male threaded adaptors which can be threaded to the female threaded adaptors to make additional adjustments to the level of the unit.

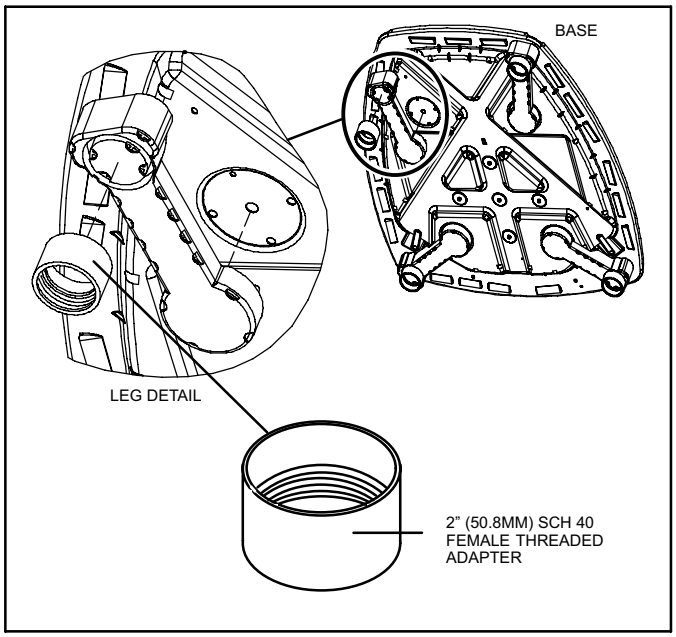


Figure 11. Elevated Slab Mounting using Feet Extenders (Larger Base Units)

ROOF MOUNTING

Install unit at a minimum of four 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 and Installing Panels

⚠ 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.

REMOVING PANELS

Remove the louvered panels as follows:

1. Remove two screws, allowing the panel to swing open slightly as illustrated in figure 12.

NOTE - Hold the panel firmly throughout this procedure

2. Rotate bottom corner of panel away from hinge corner post until lower three tabs clear the slots as illustrated in figure 12, detail B.
3. Move panel down until lip of upper tab clears the top slot in corner post as illustrated in figure 12, detail A.

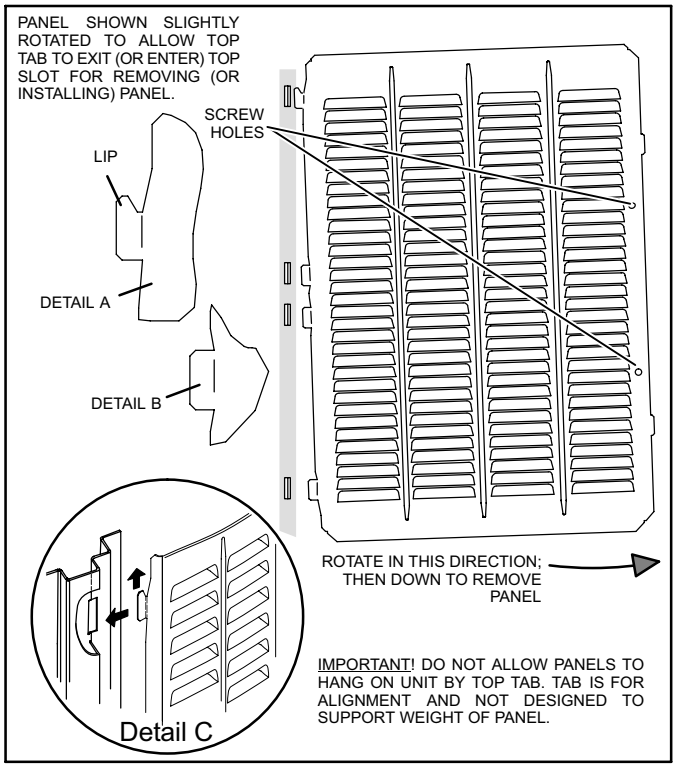


Figure 12. Removing/Installing Louvered Panels (Details A, B and C)

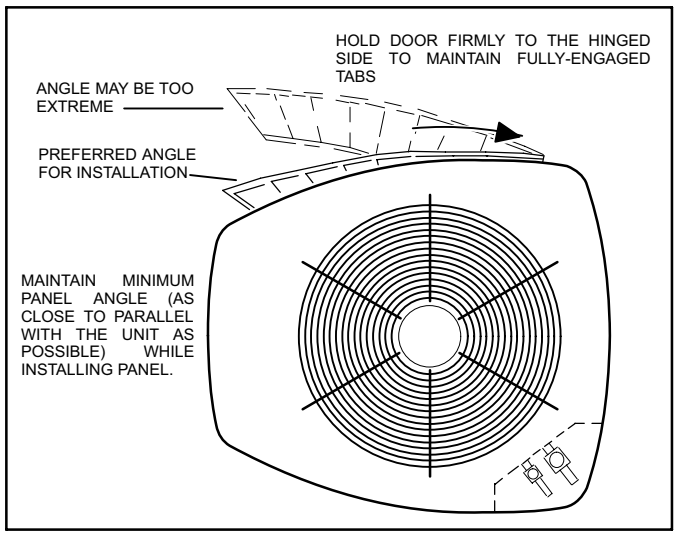


Figure 13. Removing/Installing Louvered Panels (Detail D)

INSTALLING PANEL

Install the louvered panels as follows:

1. Position the panel almost parallel with the unit as illustrated in figure 13, detail D with the screw side as close to the unit as possible.
2. With a continuous motion slightly rotate and guide the lip of top tab inward as illustrated in figure 12, details A and C; then upward into the top slot of the hinge corner post.
3. Rotate panel to vertical to fully engage all tabs.
4. Holding the panel's hinged side firmly in place, close the right-hand side of the panel, aligning the screw holes.
5. When panel is correctly positioned and aligned, insert the screws and tighten.

STABILIZING UNIT ON UNEVEN SURFACES

To help stabilize an outdoor unit, some installations may require strapping the unit to the pad using brackets and anchors commonly available in the marketplace.

With unit positioned at installation site, remove two side louvered panels to expose the unit base pan. Install the brackets as illustrated in figure 14 using conventional practices; replace the panels after installation is complete.

⚠ IMPORTANT

Unit Stabilizer Bracket Use (field-provided):

Always use stabilizers when unit is raised above the factory height. (Elevated units could become unstable in gusty wind conditions).

Stabilizers may be used on factory height units when mounted on unstable an uneven surface.

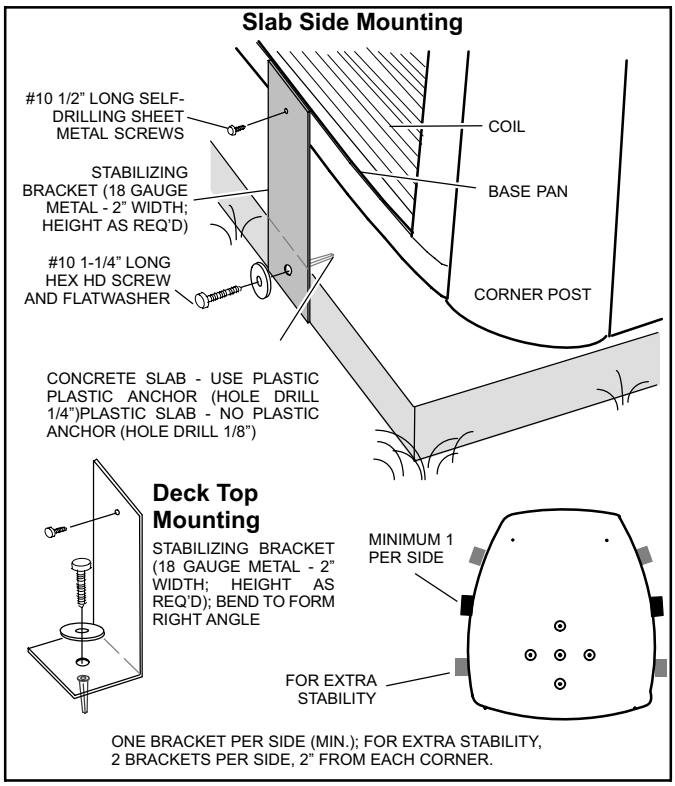


Figure 14. Installing Stabilizer Brackets

New or Replacement Line Set

This section provides information on installation or replacement of existing line set. If line set is not being installed then proceed to *Brazing Connections* on page 10.

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 sounds. Also, consider the following when placing and installing a high-efficiency air conditioner.

REFRIGERANT LINE SET

Field refrigerant piping consists of liquid and suction lines from the outdoor unit (braze connections) to the indoor unit coil (flare or sweat connections). Use Lennox L15 (sweat, non-flare) series line set, or use field-fabricated refrigerant lines as listed in table 2.

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

- *Model (AC13) and size (e.g. -060) of unit.*
- *Line set diameters for the unit being installed (from table 2 and total length of installation.*
- Number of elbows and if there is a rise or drop of the piping.

Table 2. Refrigerant Line Set

AC13	Valve Field Connections		Recommended Line Set		
	Liquid Line	Suction Line	Liquid Line	Suction Line	L15 Line Set
-018 -024 -030	3/8" (10 mm)	3/4" (19 mm)	3/8" (10 mm)	3/4" (19 mm)	L15-41 15 ft. - 50 ft. (4.6 m - 15 m)
-036 -042 -048	3/8" (10 mm)	7/8" (22 mm)	3/8" (10 mm)	7/8" (22 mm)	L15-65 15 ft. - 50 ft. 4.6 m - 15 m)
-060	3/8" (10 mm)	1-1/8" (29 mm)	3/8" (10 mm)	1-1/8" (29 mm)	Field Fabri-cated

MATCHING WITH NEW OR EXISTING INDOOR COIL AND LINE SET

The RFC1-metering line consisted of a small bore copper line that ran from condenser to evaporator coil. Refrigerant was metered into the evaporator by utilizing temperature/pressure evaporation effects on refrigerant in the small RFC line. The length and bore of the RFC line corresponded to the size of cooling unit.

If the AC13 is being used with either a new or existing indoor coil which is equipped with a liquid line which served as a metering device (RFCI), the liquid line must be replaced prior to the installation of the AC13 unit. Typically a liquid line used to meter flow is 1/4" in diameter and copper.

INSTALLING LINE SET

Line Set Isolation—This reference illustrates procedures, which ensure proper refrigerant line set isolation:

- Installation of **line set on horizontal runs** is illustrated in figure 15.
- Installation of **line set on vertical runs** is illustrated in figure 16.
- Installation of a **transition from horizontal to vertical** is illustrated in figure 17.

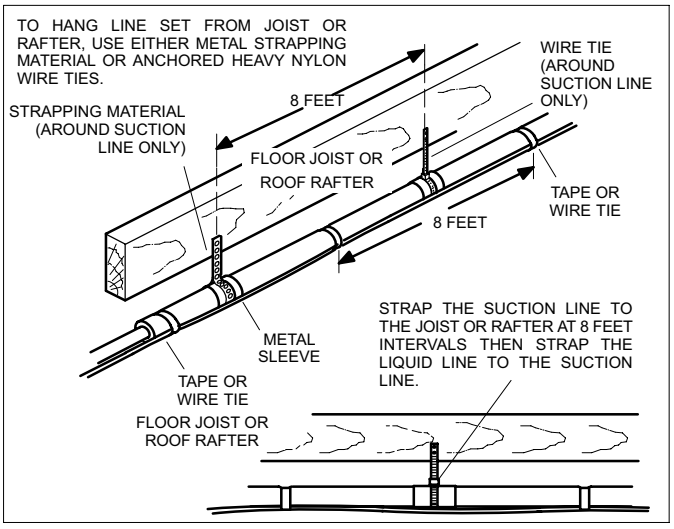


Figure 15. Refrigerant Line Set: Installing Horizontal Runs

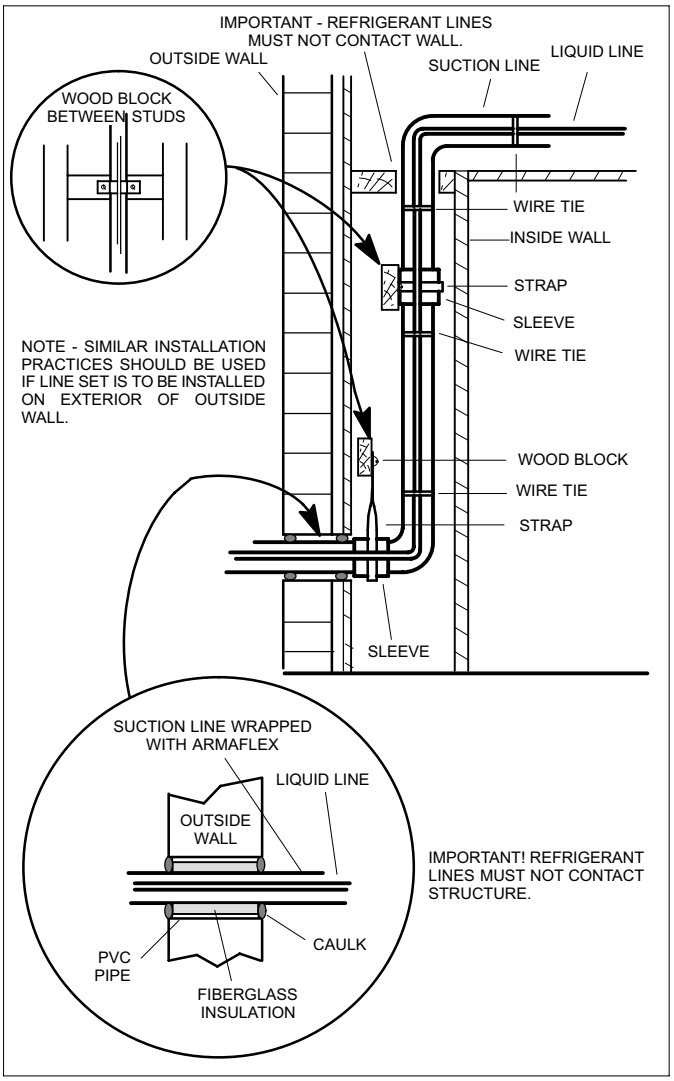


Figure 16. Refrigerant Line Set: Installing Vertical Runs (New Construction Shown)

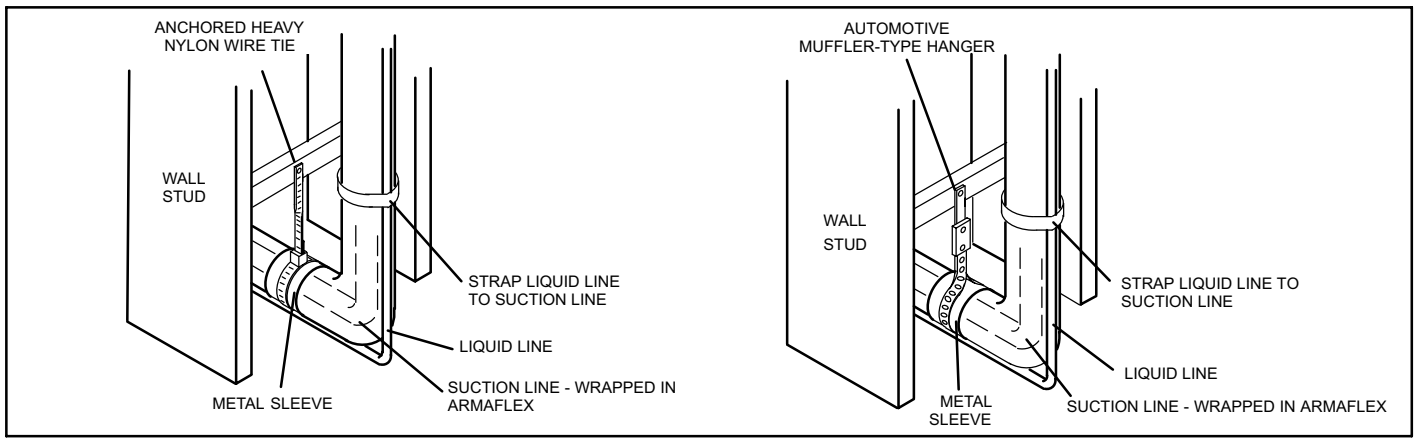


Figure 17. Refrigerant Line Set: Transition from Vertical to Horizontal

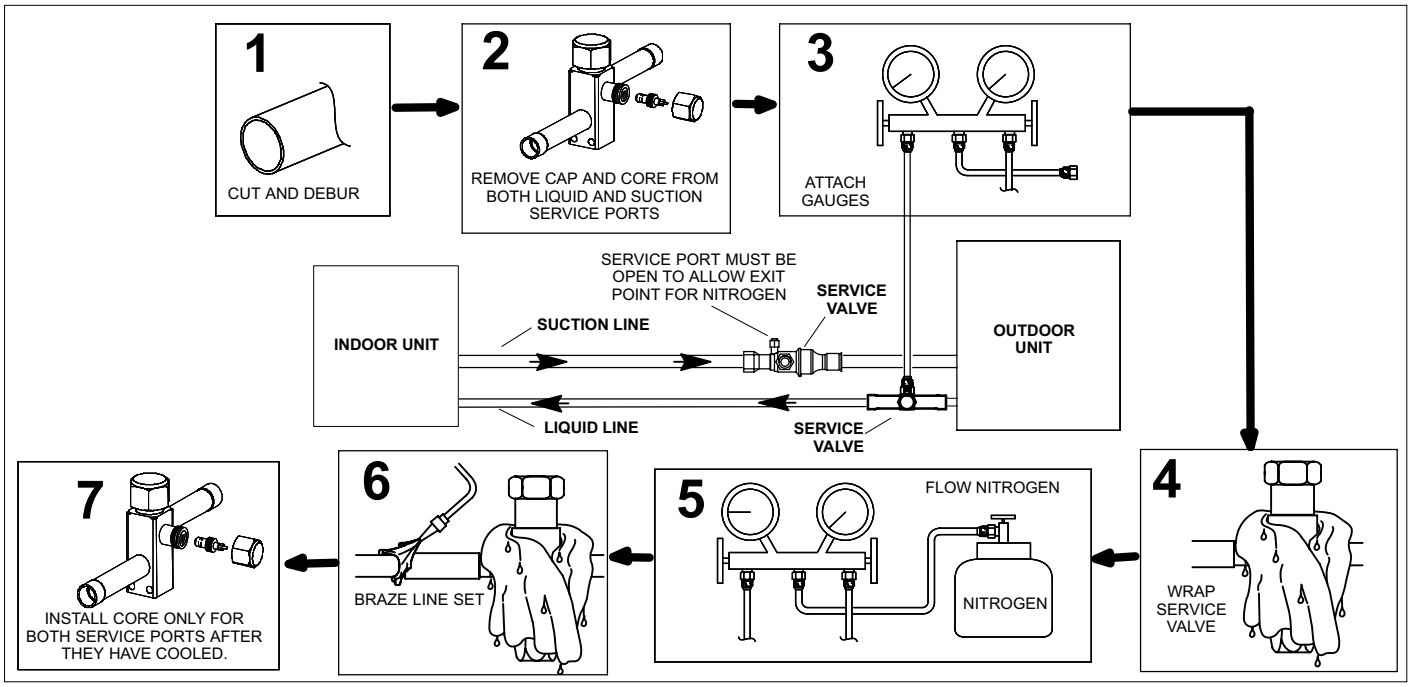


Figure 18. Brazing Connections

Brazing Connections

Use the following procedure to braze the line set to the new air conditioner unit. Figure 18 is provided as a general guide for preparing to braze the line set to the air conditioner unit.

⚠ CAUTION

Brazing alloys and flux contain materials which are hazardous to your health.

Avoid breathing vapors or fumes from brazing operations. Perform operations only in well ventilated areas.

Wear gloves and protective goggles or face shield to protect against burns.

Wash hands with soap and water after handling brazing alloys and flux.

⚠ 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 un-brazing.

⚠ WARNING

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).

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. Remove service cap and core from both the suction and liquid line service ports.
3. Connect gauge low pressure side to liquid line service valve.
4. To protect components during brazing, wrap a wet cloth around the liquid line service valve body and copper tube stub and use another wet cloth underneath the valve body to protect the base paint.
5. Flow regulated nitrogen (at 1 to 2 psig) through the refrigeration gauge set into the valve stem port connection on the liquid line service valve and out of the valve stem port connection on the suction service valve. The TXV metering device at the indoor unit coil will allow low pressure nitrogen to flow through the system.)

NOTE - The fixed orifice or TXV metering device at the indoor unit will allow low pressure nitrogen to flow through the system.)

NOTE - Use silver alloy brazing rods with five or six percent minimum silver alloy for copper-to-copper brazing or 45 percent silver alloy for copper-to-brass or copper-to-steel brazing.

6. Braze the liquid line to the liquid line service valve. Turn off nitrogen flow.

⚠ IMPORTANT

Repeat procedure starting at paragraph 4 for brazing the suction line to service port valve.

7. After all connections have been brazed, disconnect manifold gauge set the from service ports and remove wrapping. Reinstall the service port core for both of the outdoor unit's service valves.

Removing Indoor Unit Metering Device

Remove the existing HCFC-22 refrigerant flow control orifice or thermal expansion valve from the indoor coil.

REPLACEMENT PARTS

If replacement parts are necessary for the indoor unit, order kit 69J46 (LB-95325A). The kit includes the following:

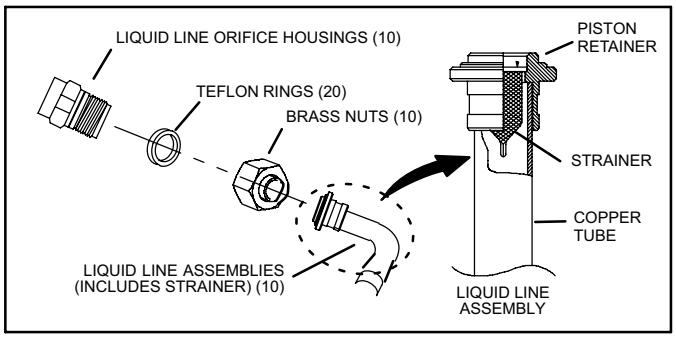


Figure 19. 69J46 Kit Components

TYPICAL FIXED ORIFICE REMOVAL PROCEDURE

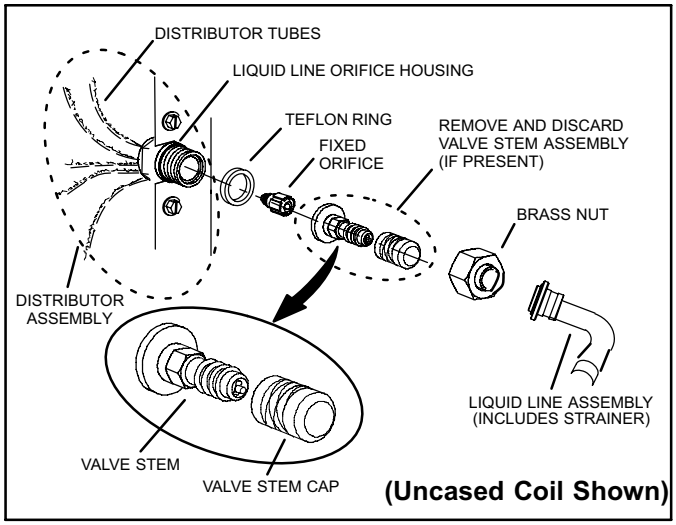


Figure 20. Typical Fixed Orifice Removal

1. On fully cased coils, remove the coil access and plumbing panels.
2. Remove any shipping clamps holding the liquid line and distributor assembly.
3. Using two wrenches, disconnect liquid line from liquid line orifice housing. Take care not to twist or damage distributor tubes during this process.
4. Remove and discard fixed orifice, valve stem assembly if present and Teflon ring as illustrated in figure 20.
5. Use a field-provided fitting to temporary reconnect the liquid line to the indoor unit's liquid line orifice housing.

TYPICAL TXV REMOVAL PROCEDURE

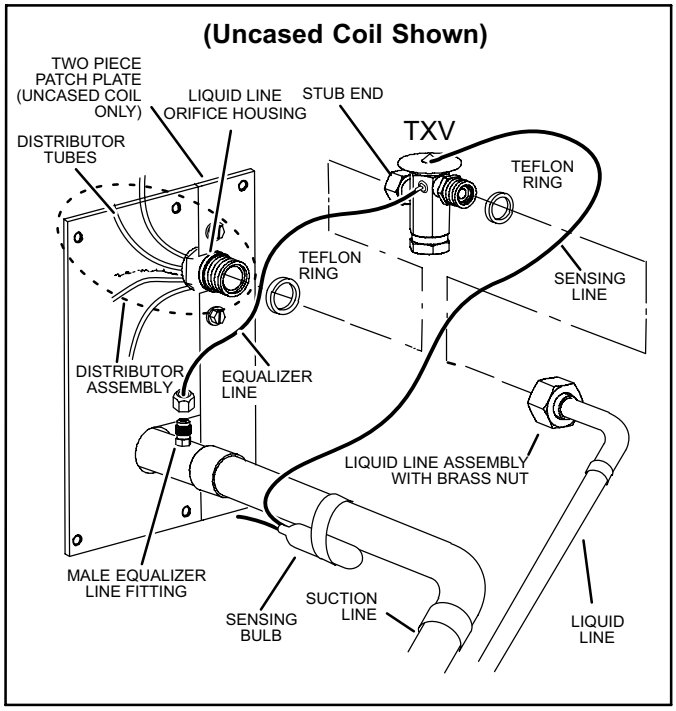


Figure 21. Typical TXV Removal

1. On fully cased coils, remove the coil access and plumbing panels.

2. Remove any shipping clamps holding the liquid line and distributor assembly.

3. Disconnect the equalizer line from the TXV equalizer line fitting on the suction line.

4. Remove the suction line sensing bulb as illustrated in figure 21.

5. Remove the liquid line from the TXV at the liquid line assembly.

6. Disconnect the TXV from the liquid line orifice housing. Take care not to twist or damage distributor tubes during this process.

7. Remove and discard TXV and the two Teflon rings as illustrated in figure 21.

8. Use a field-provided fitting to temporary reconnect the liquid line to the indoor unit's distributor assembly.

Installing New Indoor Metering Device

AC13 units can be configured for use in with HCFC-22 fixed orifice or TXV metering devices. This section provides instructions on installing either a fixed orifice, or TXV refrigerant metering device.

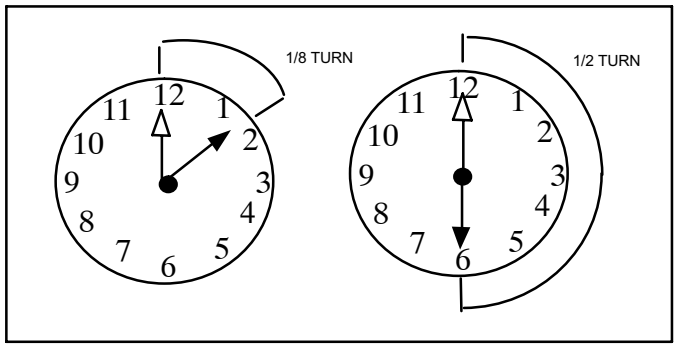


Figure 22. Tightening Distance

AC13 ENGINEERING HANDBOOK

See the AC13 *Engineering Handbook* for approved indoor/outdoor match-ups, applicable fixed orifice and TXV kits, and application information.

Figures 23 and 24 illustrates the typical RFC and TXV kit parts and quantities.

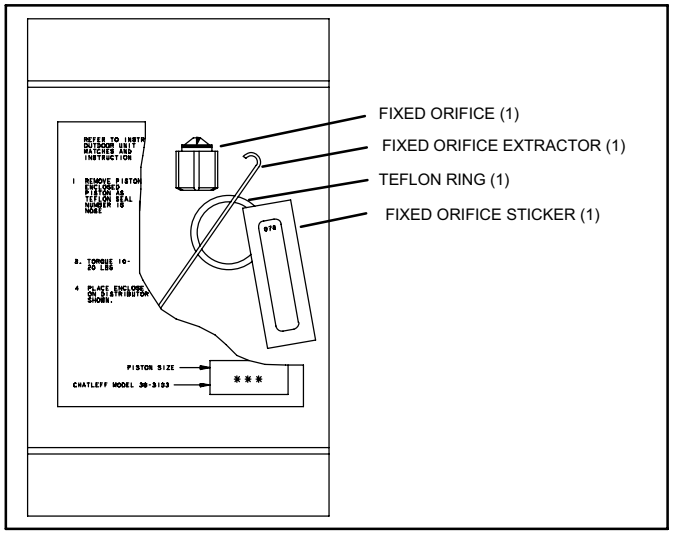


Figure 23. Fixed Orifice Kit Components

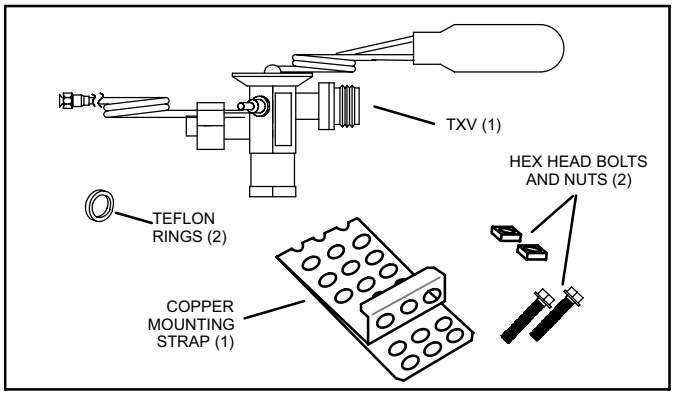


Figure 24. TXV Kit Components

TYPICAL FIXED ORIFICE INSTALLATION PROCEDURE

Use figure 25 to assist in the installation procedure.

1. Remove the field-provided fitting that temporary reconnected the liquid line to the indoor unit's liquid line orifice housing.
2. Ensure that the fixed orifice supplied with the outdoor unit is installed with the nylon seat pointing toward the liquid line orifice housing.
3. Apply a small amount of refrigerant oil on the Teflon washer and insert the Teflon ring securely into the orifice housing.
4. Attached the liquid line assembly to the liquid line orifice housing. Finger tighten and use an appropriately sized wrench to turn an additional 1/2 turn clockwise as illustrated in figure 22, or 20 ft-lb.
5. Place the supplied fixed orifice sticker on the indoor cabinet after installation.

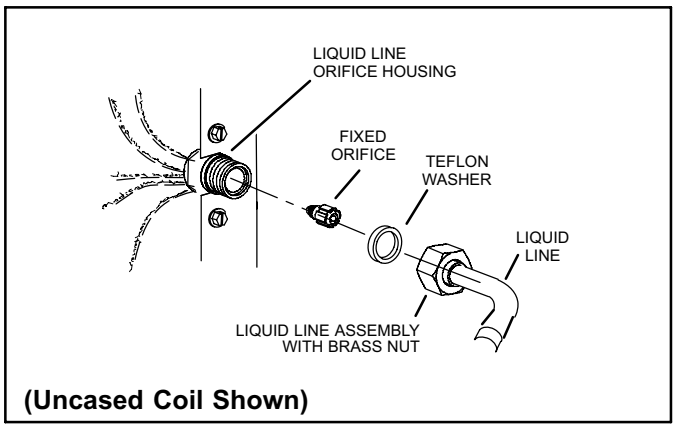


Figure 25. Typical Fixed Orifice Installation

TYPICAL TXV INSTALLATION PROCEDURE

The TXV unit can be installed internal or external to the indoor coil. In applications where an uncased coil is being installed in a field-provided plenum, install the TXV in a manner that will provide access for field servicing of the TXV. Refer to Figure 26 for reference during installation of TXV unit.

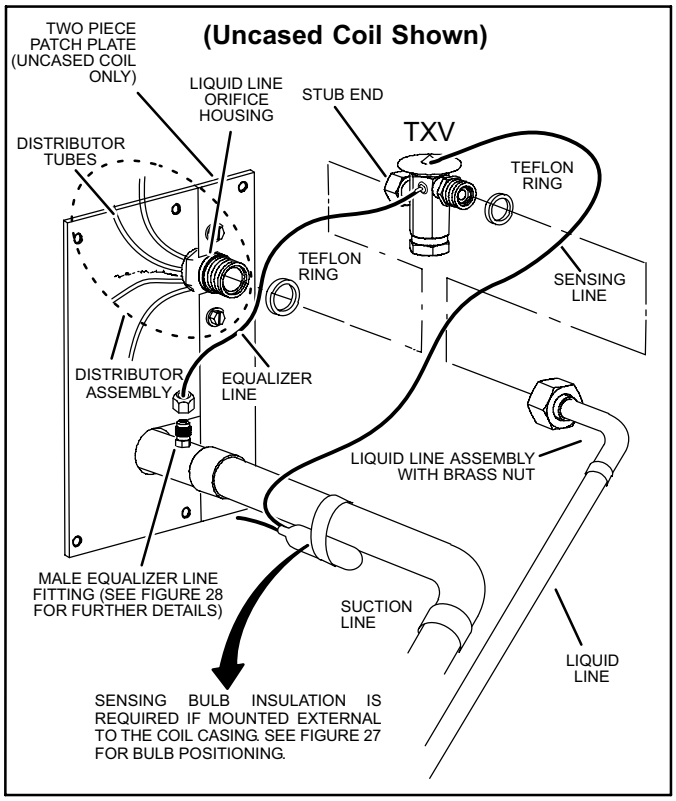


Figure 26. Typical TXV Installation

To prevent any possibility of water damage, properly insulate all parts of the TXV assembly that may sweat due to temperature differences between the valve and its surrounding ambient temperatures.

1. Remove the field-provided fitting that temporary reconnected the liquid line to the indoor unit's distributor assembly.
2. Install one of the provided Teflon rings around the stubbed end of the TXV and lightly lubricate the connector threads and expose surface of the Teflon ring with refrigerant oil.
3. Attach the stubbed end of the kit valve to the liquid line assembly. Finger tighten and use an appropriately sized wrench to turn an additional 1/2 turn clockwise as illustrated in figure 22, or 20 ft-lb.
4. Place the remaining Teflon ring around the other end of the TXV. Lightly lubricate connector threads and expose surface of the Teflon ring with refrigerant oil.
5. Attach the liquid line to the TXV. Finger tighten and use an appropriately sized wrench to turn an additional 1/2 turn clockwise as illustrated in figure 22, or 20 ft-lb.
6. Attach the suction line sensing bulb in the proper orientation as illustrated in figure 27 using the clamp and screws provided.

NOTE - Insulating the sensing bulb once installed may be required when the bulb location is external to the coil casing.

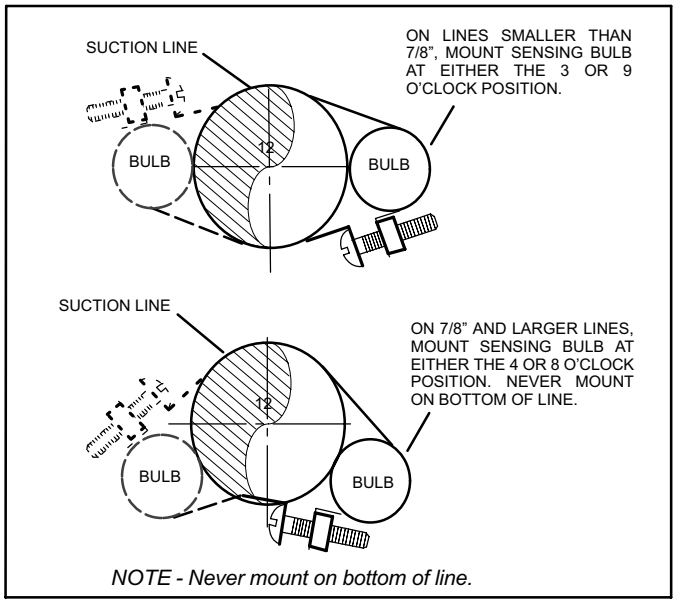


Figure 27. TXV Sensing Bulb Installation

7. Remove and discard either the flare seal cap or flare nut with copper flare seal bonnet from the equalizer line port on the suction line as illustrated in figure 28.

⚠ IMPORTANT

When removing the flare nut, ensure that the copper flare seal bonnet is removed.

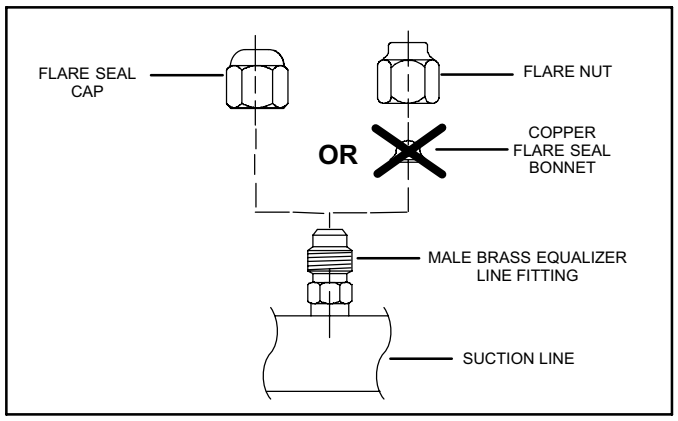


Figure 28. Copper Flare Seal Bonnet Removal

8. Connect the equalizer line from the TXV to the equalizer suction port on the suction line. Finger tighten the flare nut plus 1/8 turn (7 ft-lbs) as illustrated in figure 22.

Testing for Leaks

After the line set has been connected to the indoor unit and air conditioner, check the line set connections and indoor unit for leaks. Use the following procedure to test for leaks:

⚠ IMPORTANT

Leak detector must be capable of sensing HFC refrigerant.

⚠ 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

Fire, Explosion and Personal Safety Hazard.

Failure to follow this warning could result in damage, personal injury or death.

Never use oxygen to pressurize or purge refrigeration lines. Oxygen, when exposed to a spark or open flame, can cause damage by fire and/or an explosion, that could result in personal injury or death.

1. Connect an HCFC-22 manifold gauge set high pressure hose to the suction valve service port. *(Normally, the high pressure hose is connected to the liquid line port; however, connecting it to the suction port better protects the manifold gauge set from high pressure damage.)*

NOTE - Normally, the high pressure hose is connected to the liquid line port; however, connecting it to the suction port better protects the manifold gauge set from high pressure damage.

2. With both manifold valves closed, connect the cylinder of HCFC-22 refrigerant to the center port of the manifold gauge set. Open the valve on the HCFC-22 cylinder (suction only).
3. Open the high pressure side of the manifold to allow HCFC-22 into the line set and indoor unit. Weigh in a trace amount of HCFC-22. *[A trace amount is a maximum of two ounces (57 g) refrigerant or three 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 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 one of the service valve ports and verify that the refrigerant added to the system earlier is measurable with a leak detector.

NOTE - Amounts of refrigerant will vary with line lengths.

7. Check all joints for leaks.
8. Purge dry nitrogen and HCFC-22 mixture.
9. Correct any leaks and recheck.
10. After leak testing disconnect gauges from service ports.

Evacuating the System

⚠ 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.

⚠ IMPORTANT

Use a thermocouple or thermistor electronic vacuum gauge that is calibrated in microns. Use an instrument capable of accurately measuring down to 50 microns.

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

1. Connect manifold gauge set to the service valve ports as follows:
   - low pressure gauge to *suction* 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).

NOTE - 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 sure 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.
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 HCFC-22 refrigerant. Open the manifold gauge valve 1 to 2 psig in order to release the vacuum in the line set and indoor unit.
10. Close manifold gauge valves and shut off the HCFC-22 cylinder and remove the manifold gauge set.

Servicing Unit Delivered Void of Charge

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

1. Use nitrogen to pressurize the system and check for leaks. Repair all leaks.
2. Evacuate the system to remove as much of the moisture as possible.
3. Use nitrogen to break the vacuum and install a liquid line filter drier in the system.
4. Evacuate the system again. Then, weigh the appropriate amount of HCFC-22 refrigerant as listed on unit nameplate into the system.
5. Monitor the system to determine the amount of moisture remaining in the oil. 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.**

Electrical Connections

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 over-current protection size.

NOTE - To facilitate conduit, a hole is in the bottom of the control box. Connect conduit to the control box using a proper conduit fitting.

NOTE - Units are approved for use only with copper conductors.

NOTE - 24V, Class II circuit connections are made in the low voltage junction box. See figure 30 for field wiring diagram.

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

Table 3. Wire Run Lengths

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

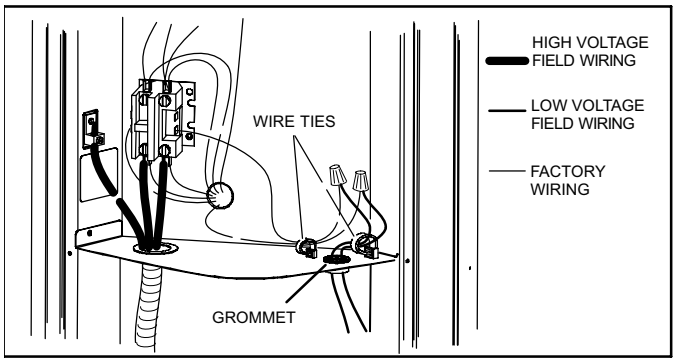


Figure 29. Separating High/Low Voltage Field Wiring

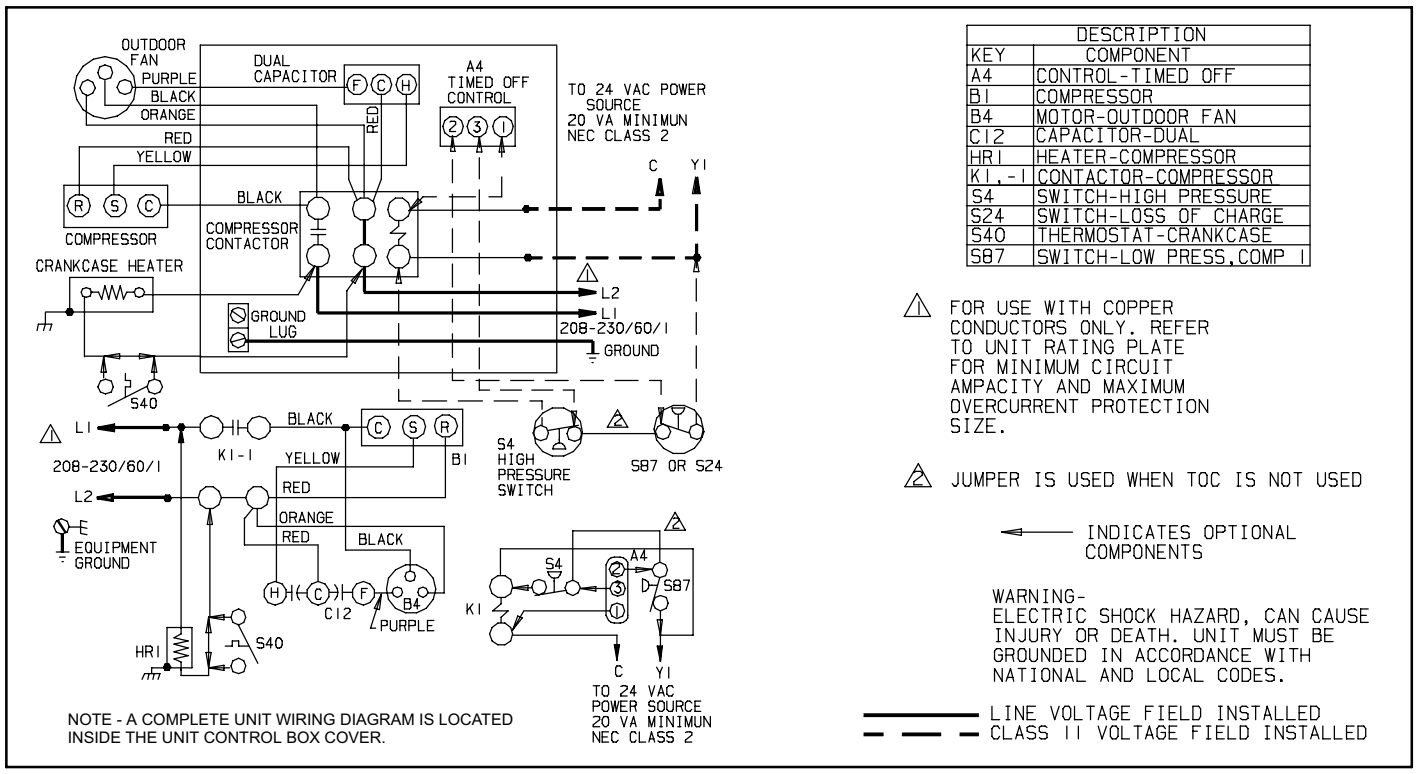


Figure 30. Typical Wiring Diagram

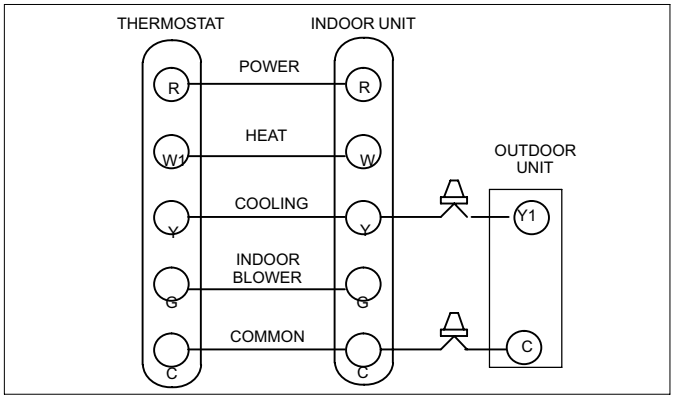


Figure 31. Typical Field Low Voltage Wiring

1. Install line voltage power supply to unit from a properly sized disconnect switch. Any excess high voltage field wiring should be trimmed or secured away from the low voltage field wiring.
2. Ground unit at unit disconnect switch or to an earth ground.
3. Install room thermostat (ordered separately) on an inside wall approximately in the center of the conditioned area and 5 feet (1.5m) 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 as illustrated in figure 31.
5. Do not bundle any excess 24V control wire inside control box. Run control wire through installed wire tie and tighten wire tie to provide low voltage strain relief and to maintain separation of field installed low and high voltage circuits.

Start-Up and Charging Procedures

⚠ 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 suction 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.
8. Check system for sufficient refrigerate by using the procedures listed under *Testing and Charging System* on page 17.

SETTING UP TO CHECK CHARGE

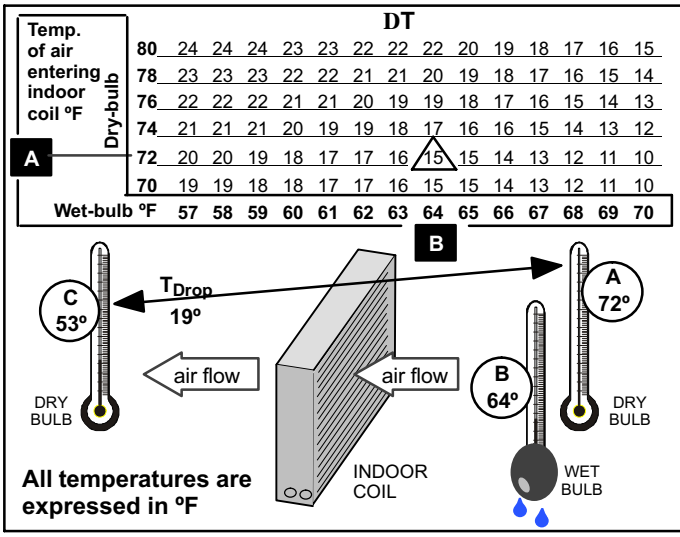
1. Close manifold gauge set valves. Connect the center manifold hose to an upright cylinder of HCFC-22.
2. Connect the manifold gauge set to the unit's service ports as illustrated in figure 3.
   - low pressure gauge to ***suction service port***
   - high pressure gauge to ***liquid service port***

INDOOR AIRFLOW CHECK

Check indoor airflow using the Delta-T (DT) process using the illustration in figure 32.

DETERMINING CHARGE METHOD

Use the illustration in figure 33 to determine the correct charging method.



1. Determine the desired DT—Measure entering air temperature using dry bulb (**A**) and wet bulb (**B**). **DT** is the intersecting value of **A** and **B** in the table (see triangle).

2. Find temperature drop across coil—Measure the coil's dry bulb entering and leaving air temperatures (**A** and **C**). Temperature Drop Formula: (T_{Drop}) = **A** minus **C**.

3. Determine if fan needs adjustment—If the difference between the measured T_{Drop} and the desired **DT** (T_{Drop}–**DT**) is within ±3°, no adjustment is needed. See examples: Assume **DT** = 15 and **A** temp. = 72°, these **C** temperatures would necessitate stated actions:

C°	T_{Drop}	–	DT	=	°F	*ACTION*
53°	19	–	15	=	4	*Increase the airflow*
58°	14	–	15	=	-1	*(within ±3° range) no change*
62°	10	–	15	=	-5	*Decrease the airflow*

4. Adjust the fan speed—See indoor unit instructions to increase/decrease fan speed.

Changing air flow affects all temperatures; recheck temperatures to confirm that the temperature drop and DT are within ±3°.

Figure 32. Checking Indoor Airflow over Evaporator Coil using Delta-T Chart

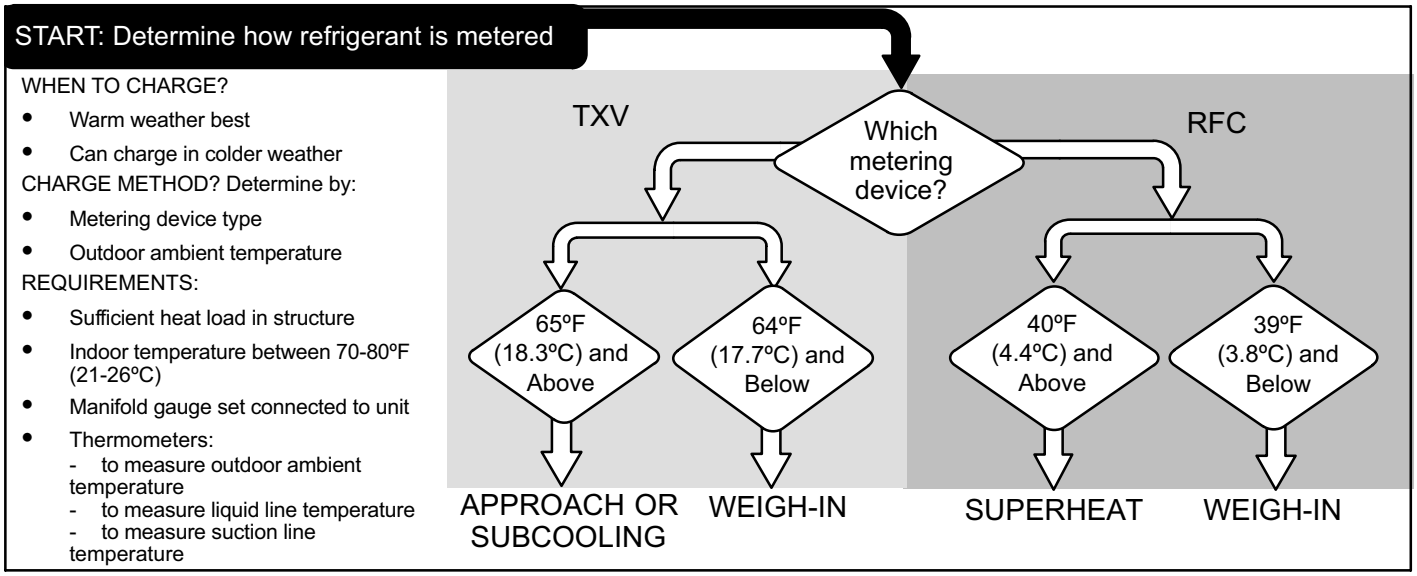


Figure 33. Determining Charge Method

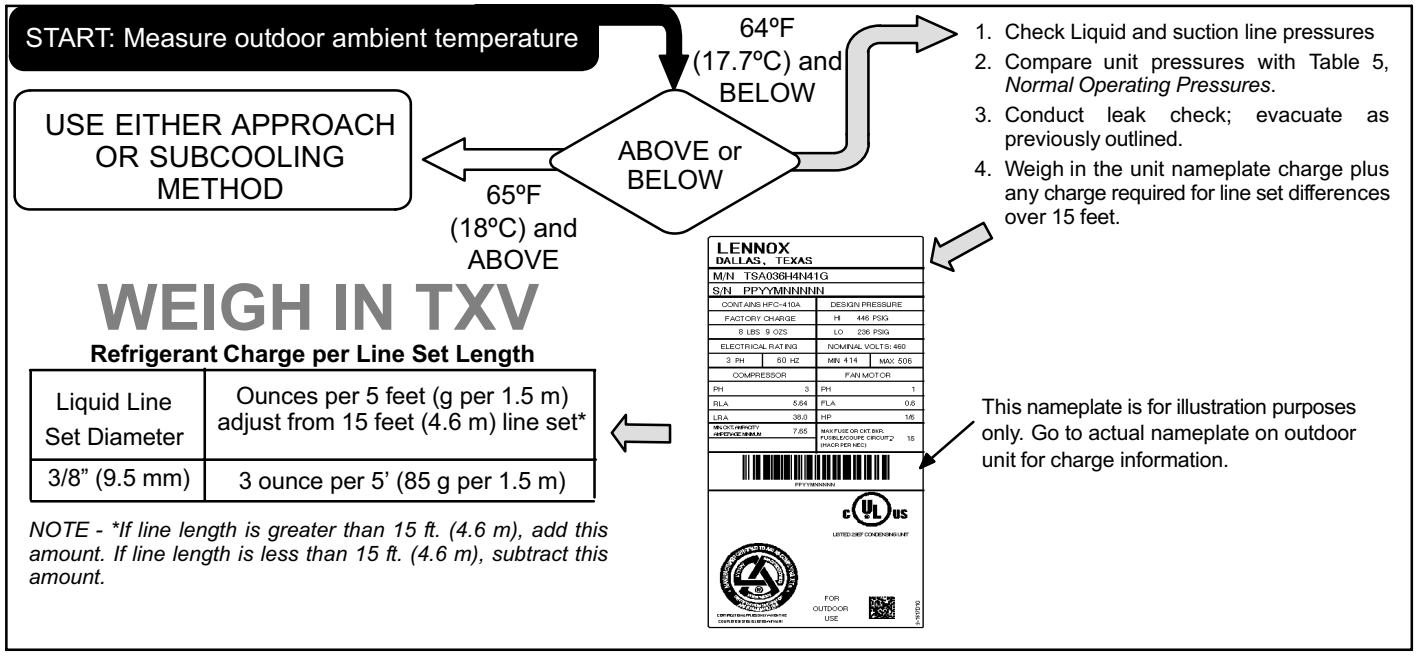


Figure 34. HCFC-22 Weigh In TXV Method

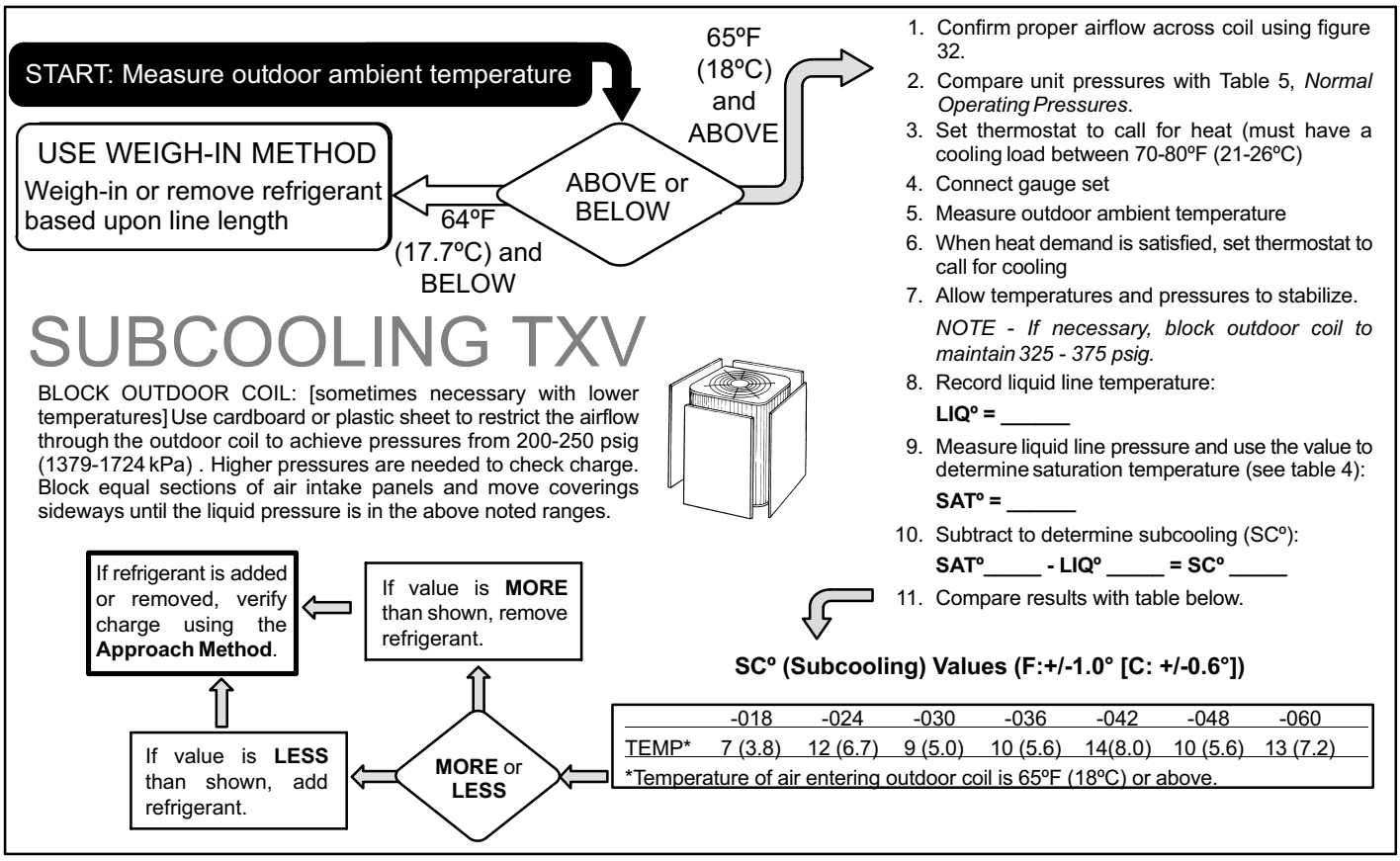


Figure 35. HCFC-22 Subcooling TXV Charge

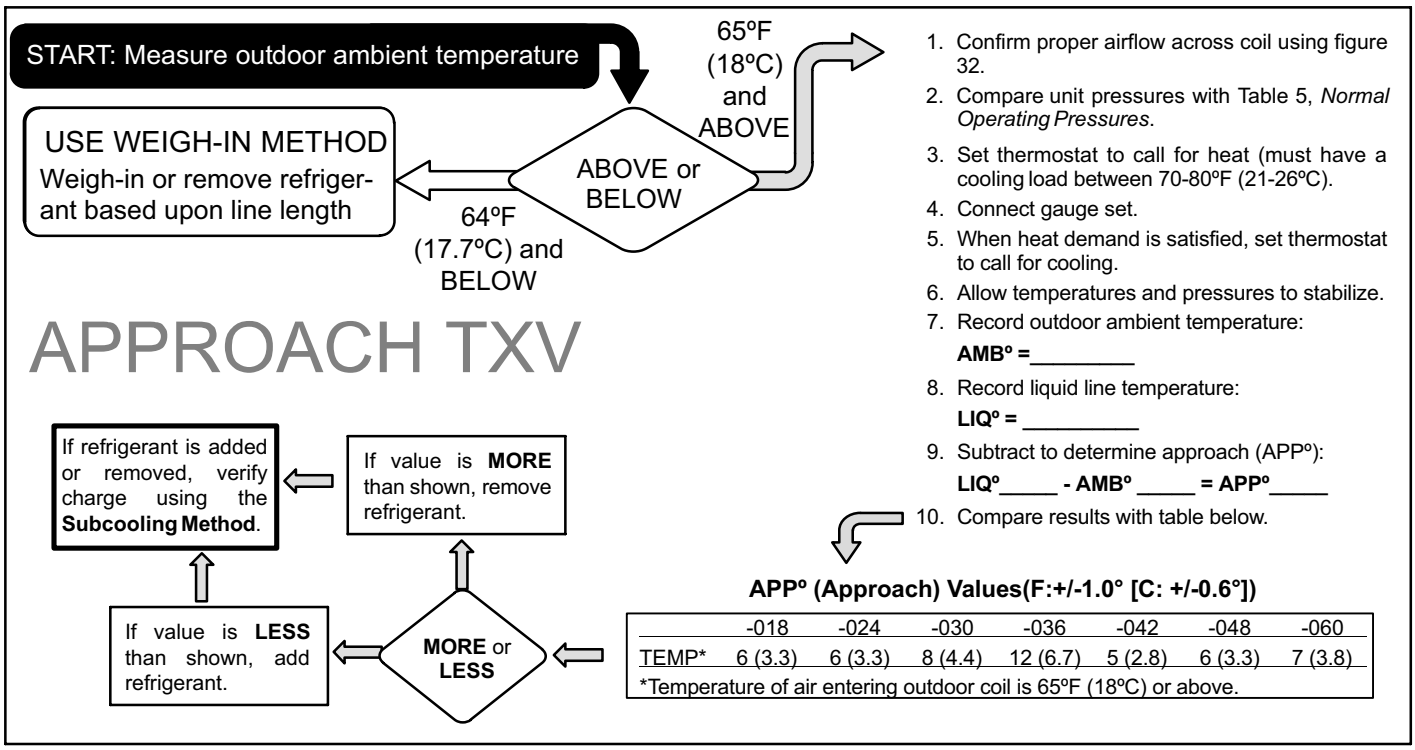


Figure 36. HCFC-22 Approach TXV Charge

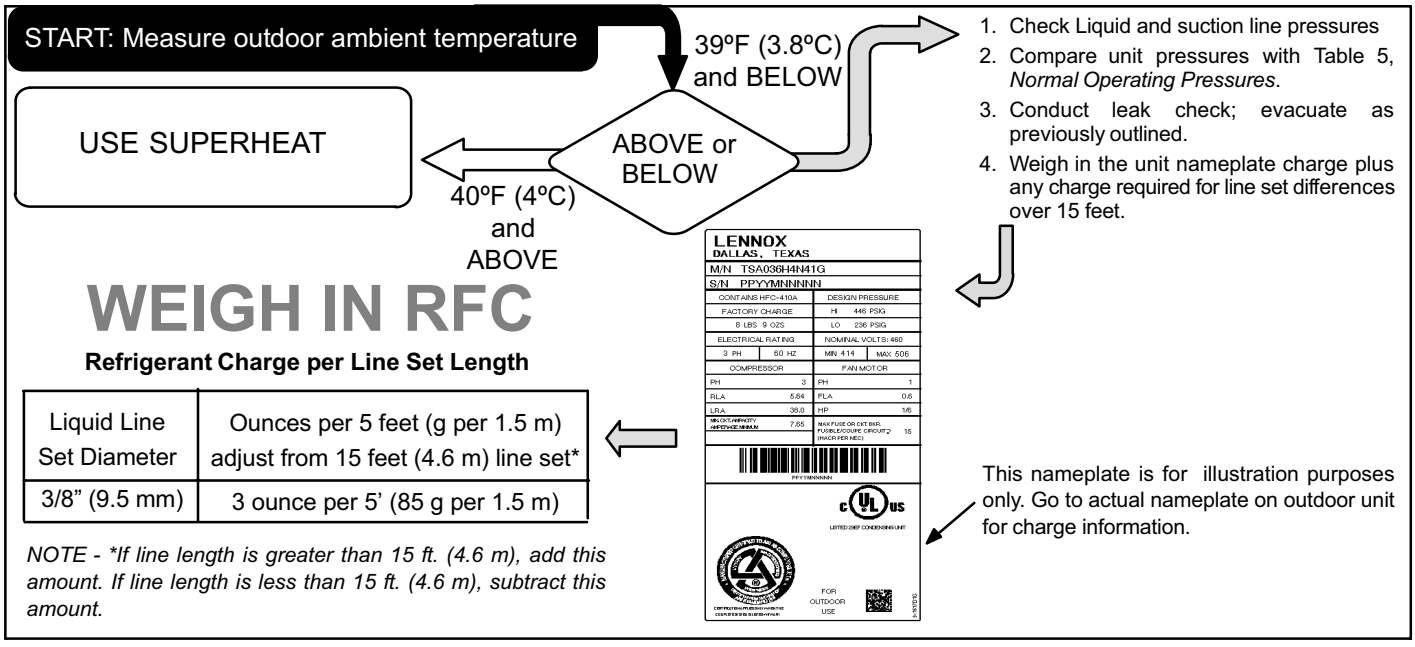
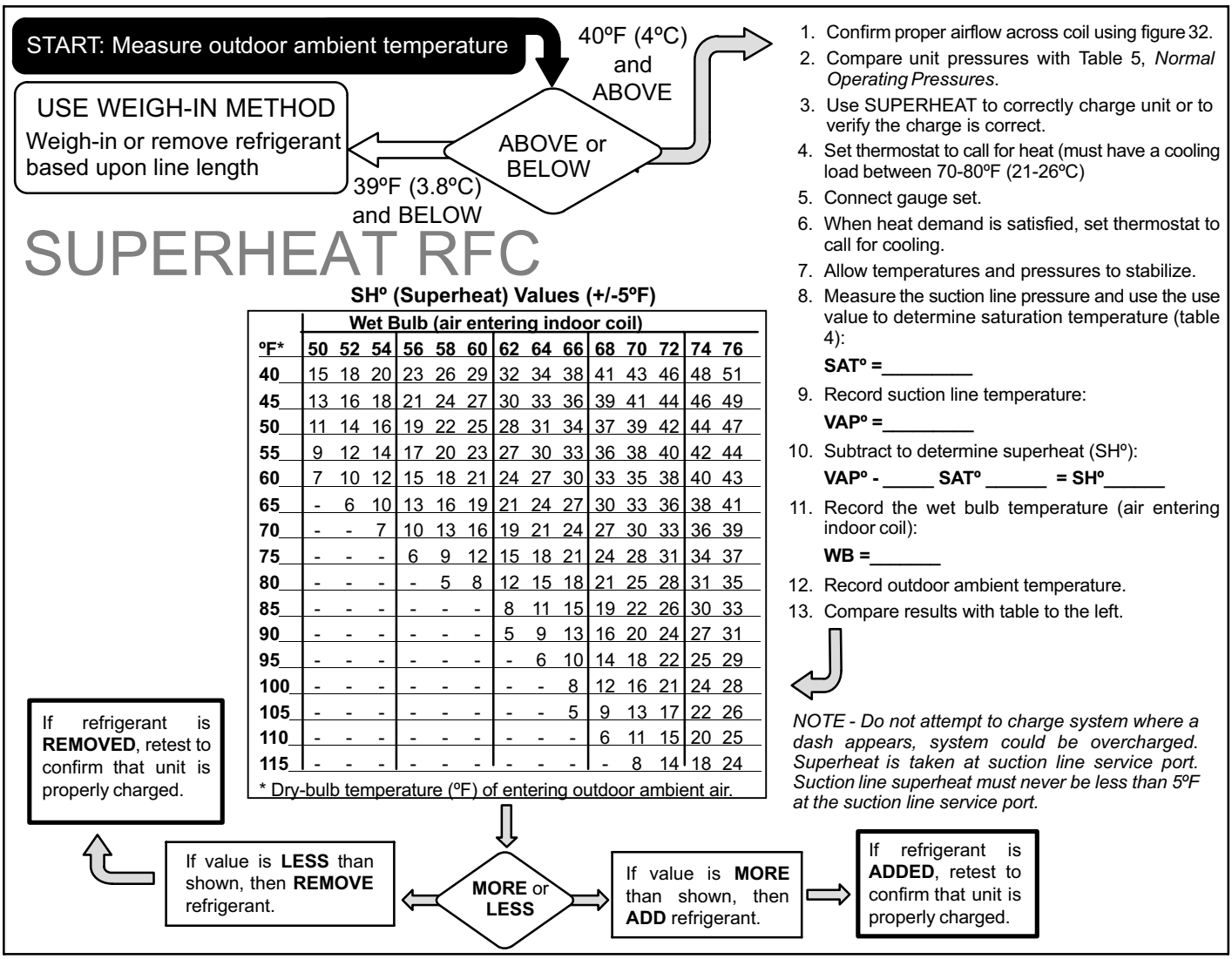


Figure 37. HCFC-22 Weigh In RFC Method



SHº (Superheat) Values (+/-5ºF)

	Wet Bulb (air entering indoor coil)													
ºF*	**50**	**52**	**54**	**56**	**58**	**60**	**62**	**64**	**66**	**68**	**70**	**72**	**74**	**76**
40	15	18	20	23	26	29	32	34	38	41	43	46	48	51
45	13	16	18	21	24	27	30	33	36	39	41	44	46	49
50	11	14	16	19	22	25	28	31	34	37	39	42	44	47
55	9	12	14	17	20	23	27	30	33	36	38	40	42	44
60	7	10	12	15	18	21	24	27	30	33	35	38	40	43
65	-	6	10	13	16	19	21	24	27	30	33	36	38	41
70	-	-	7	10	13	16	19	21	24	27	30	33	36	39
75	-	-	-	6	9	12	15	18	21	24	28	31	34	37
80	-	-	-	-	5	8	12	15	18	21	25	28	31	35
85	-	-	-	-	-	-	8	11	15	19	22	26	30	33
90	-	-	-	-	-	-	5	9	13	16	20	24	27	31
95	-	-	-	-	-	-	-	6	10	14	18	22	25	29
100	-	-	-	-	-	-	-	-	8	12	16	21	24	28
105	-	-	-	-	-	-	-	-	5	9	13	17	22	26
110	-	-	-	-	-	-	-	-	-	6	11	15	20	25
115	-	-	-	-	-	-	-	-	-	-	8	14	18	24

* Dry-bulb temperature (ºF) of entering outdoor ambient air.

Figure 38. HCFC-22 Superheat RFC Method

Table 4. HCFC-22 Temperature (°F) - Pressure (Psig)

°F	Psig	°F	Psig	°F	Psig	°F	Psig	°F	Psig	°F	Psig	°F	Psig
32	57.5	50	84.1	68	117.3	86	158.2	104	207.7	122	267.1	140	337.4
33	58.8	51	85.7	69	119.4	87	160.7	105	210.8	123	270.7	141	341.6
34	60.2	52	87.4	70	121.4	88	163.2	106	213.8	124	274.3	142	345.9
35	61.5	53	89.1	71	123.5	89	165.8	107	216.9	125	278.0	143	350.3
36	62.9	54	90.8	72	125.7	90	168.4	108	220.0	126	281.7	144	354.6
37	64.3	55	92.6	73	127.8	91	171.0	109	223.2	127	285.4	145	359.0
38	65.7	56	94.4	74	130.0	92	173.7	110	226.4	128	289.2	146	363.5
39	67.1	57	96.1	75	132.2	93	176.4	111	229.6	129	293.0	147	368.0
40	68.6	58	98.0	76	134.5	94	179.1	112	232.8	130	296.9	148	372.5
41	70.0	59	99.8	77	136.7	95	181.8	113	236.1	131	300.8	149	377.1
42	71.5	60	101.6	78	139.0	96	184.6	114	239.4	132	304.7	150	381.7
43	73.0	61	103.5	79	141.3	97	187.4	115	242.8	133	308.7		
44	74.5	62	105.4	80	143.6	98	190.2	116	246.1	134	312.6		
45	76.1	63	107.3	81	146.0	99	193.0	117	249.5	135	316.7		
46	77.6	64	109.3	82	148.4	100	195.9	118	253.0	136	320.7		
47	79.2	65	111.2	83	150.8	101	198.8	119	256.5	137	324.8		
48	80.8	66	113.2	84	153.2	102	201.8	120	260.0	138	329.0		
49	82.4	67	115.3	85	155.7	103	204.7	121	263.5	139	333.2		

506109-01 10/08

Table 5. Normal Operating Pressures (Liquid +10 and Suction +5 psig)

⚠ IMPORTANT	**Use this table to perform maintenance checks; it 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.**

AC13	-018	-024	-030	-036	-042	-048	-060
°F (°C)*	Liquid / Suction	Liquid / Suction	Liquid / Suction	Liquid / Suction	Liquid / Suction	Liquid / Suction	Liquid / Suction
Expansion Valve (TXV)							
65 (18)	138 / 79	148 / 79	147 / 75	155 / 79	147 / 78	144 / 77	152 / 73
70 (21)	148 / 80	160 / 79	159 / 75	169 / 80	158 / 78	152 / 77	164 / 75
75 (24)	160 / 80	174 / 80	172 / 76	183 / 81	172 / 79	163 / 78	177 / 77
80 (27)	174 / 81	188 / 81	186 / 77	199 / 81	189 / 79	179 / 78	192 / 78
85 (29)	188 / 81	203 / 81	201 / 77	215 / 82	205 / 80	195 / 79	208 / 79
90 (32)	204 / 81	220 / 82	216 / 78	233 / 82	222 / 81	212 / 80	225 / 80
95 (35)	219 / 82	236 / 83	233 / 79	252 / 83	241 / 81	229 / 80	243 / 80
100 (38)	236 / 82	253 / 83	250 / 80	271 / 83	259 / 82	245 / 81	261 / 81
105 (41)	253 / 83	272 / 84	268 / 80	291 / 84	279 / 82	265 / 81	280 / 82
110 (43)	272 / 84	291 / 85	287 / 81	311 / 85	299 / 83	287 / 82	299 / 83
115 (45)	291 / 84	311 / 85	306 / 82	331 / 86	320 / 84	309 / 83	320 / 83
Fixed Orifice (RFC)							
65 (18)	139 / 67	147 / 71	148 / 65	162 / 75	158 / 72	151 / 71	152 / 68
70 (21)	149 / 70	159 / 73	161 / 67	174 / 76	170 / 75	161 / 73	165 / 71
75 (24)	161 /74	172 / 75	175 / 70	187 / 78	182 / 76	172 / 75	178 / 73
80 (27)	175 / 77	186 / 77	190 / 73	201 / 79	195 / 78	185 / 76	193 / 76
85 (29)	189 / 79	200 / 79	205 / 75	215 / 81	209 / 80	198 / 77	208 / 78
90 (32)	203 / 81	216 / 81	221 / 77	231 / 82	224 / 81	213 / 79	224 / 80
95 (35)	218 / 82	232 / 82	237 / 79	247 / 83	240 / 82	227 / 80	239 / 81
100 (38)	234 / 83	247 / 83	254 / 80	265 / 84	256 / 84	243 / 81	258 / 82
105 (41)	251 / 85	264 / 85	271 / 81	283 / 85	273 / 85	259 / 82	276 / 83
110 (43)	269 / 86	285 / 86	289 / 82	302 / 86	290 / 86	276 / 84	294 / 85
115 (45)	287 / 87	302 / 87	308 / 83	321 / 87	310 / 87	293 / 85	313 / 86

*Temperature of the air entering the outside coil.

**Typical pressures; indoor unit match up, indoor air quality equipment, and indoor load causes pressure variance

INSTALLING SERVICE VALVE CAPS

Disconnect gauge set and re-install both the liquid and suction service valve caps.

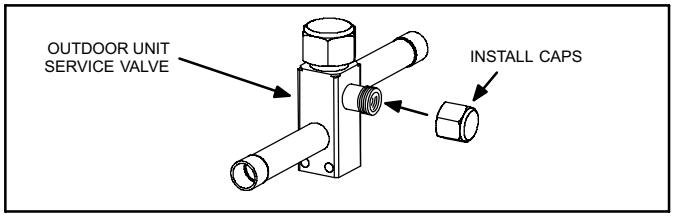


Figure 39. Installing Service Valve Port Caps

System Operation

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

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.

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause personal injury, loss of life, or damage to property.

Installation and service must be performed by a licensed professional installer (or equivalent) or a service agency.

At the beginning of each cooling season, the system should be checked as follows:

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. Outdoor fan motor is pre-lubricated 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 the unit (with the unit operating).
6. Check amperage draw outdoor fan motor.

UNIT NAMEPLATE: _____ ACTUAL: _____

NOTE - If owner reports insufficient cooling, the unit should be gauged and refrigerant charge checked.

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 drive belt for wear and proper tension.
4. Check all wiring for loose connections
5. Check for correct voltage at unit (blower operating).
6. Check amperage draw on blower motor.

UNIT NAMEPLATE: _____ ACTUAL: _____

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:

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

Optional Accessories

Refer to the *Lennox AC13 Engineering Handbook* for the latest available optional accessories for this unit. Below is a list of optional accessories available at the time this instruction was publish.

- Hard Start Kit
- High Pressure Switch Kit
- Loss of Charge Kit
- Sound Cover
- Liquid Line Drier
- Crankcase Heater

Start-Up and Performance Checklist

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 _____ Suction Pressure _____ Refrigerant Charge Checked? ❑

Refrigerant Lines: - Leak Checked? ❑ Properly Insulated? ❑	Outdoor Fan Checked? ❑
Service Valves: --- Fully Opened? ❑ Caps Tight? ❑	**Thermostat**
Voltage With Compressor Operating _____	Calibrated? ❑ Properly Set? ❑ Level? ❑

506109-01 10/08