

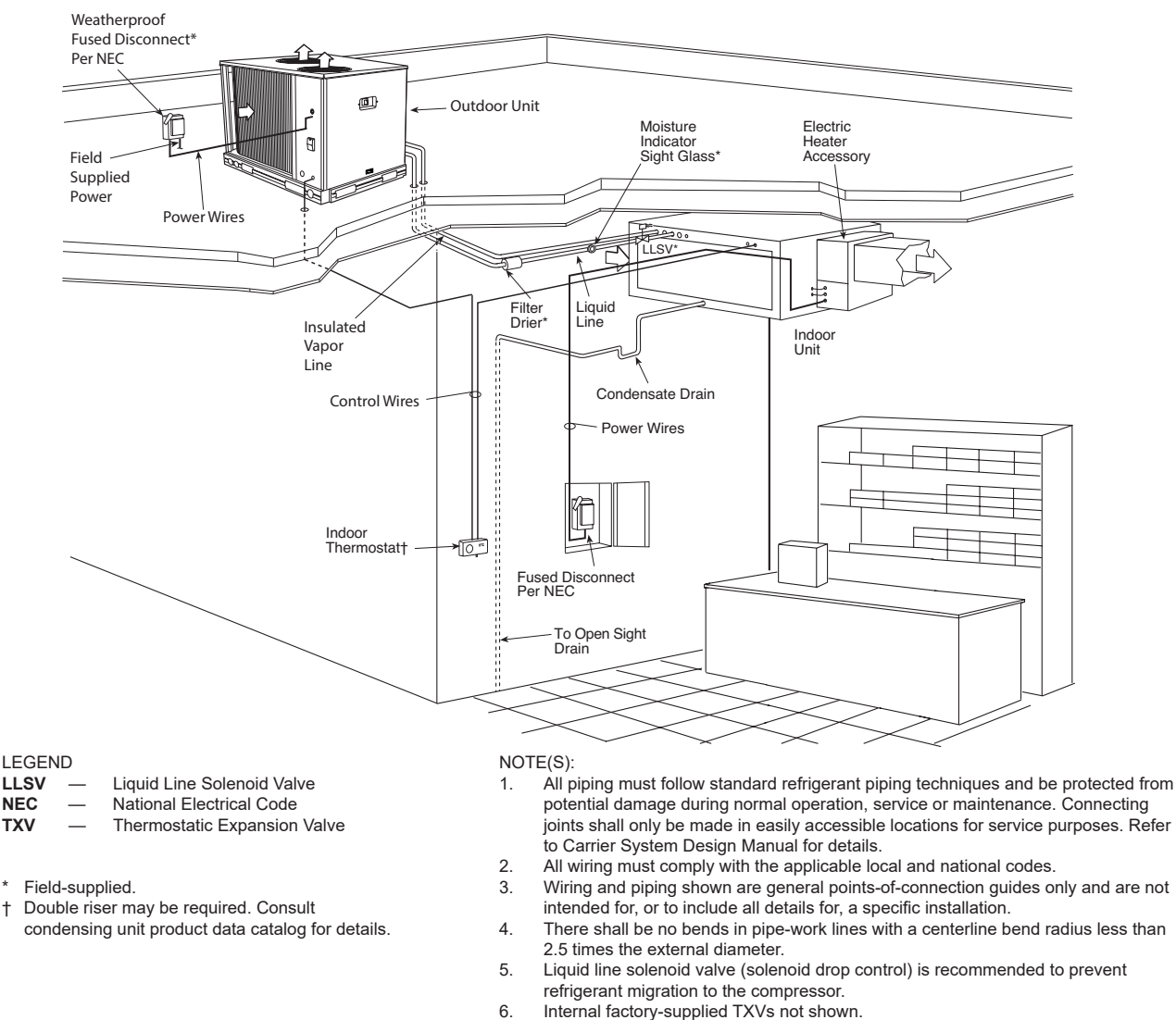
Commercial Split System
Installation Chart

6.0 – 12.5 Ton Condensing Units
6.0, 7.5 and 10.0 Ton Heat Pump Units



See Installation, Start-Up and Service Manual for detailed instructions and safety precautions.

TYPICAL PIPING AND WIRING



SAFETY CONSIDERATIONS

- Installing, starting up, and servicing air-conditioning equipment can be hazardous due to system pressures, electrical components, and equipment location.
 - Only trained, qualified installers and service mechanics should install, start-up, and service this equipment.
 - Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.
- When working on the equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment.
 - Follow all safety codes. Wear safety glasses and work gloves. Keep quenching cloth and fire extinguisher nearby when brazing. Use care in handling, rigging, and setting bulky equipment.

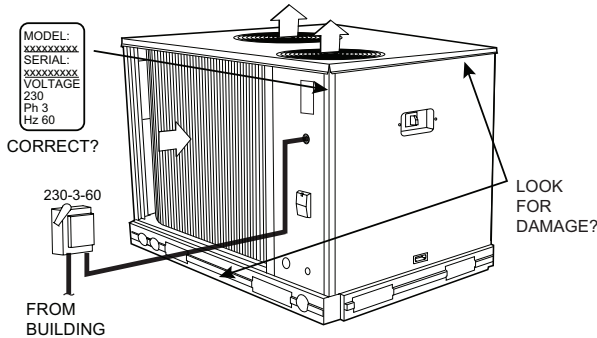
WARNING: FLAMMABLE

Unit Label Safety Symbols

	WARNING	This symbol shows that the appliance used a flammable refrigerant. If the refrigerant is leaked and exposed to an ignition source, there is a risk of fire.
	CAUTION	This symbol shows that the operation manual should be read carefully.
	CAUTION	This symbol shows that the service personnel should be handling the equipment with reference to the installation manual.
	CAUTION	This symbol shows that the information is available such as the operating manual or installation manual.

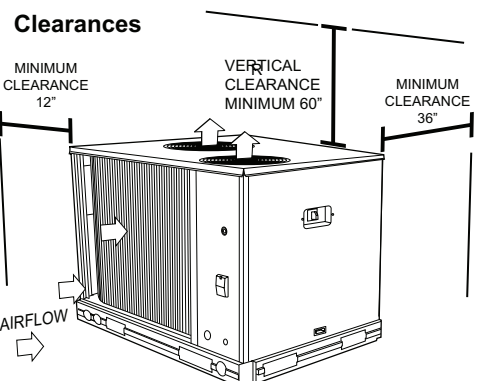
1. INSPECT UNIT

- Verify that power supply matches unit requirements.
- Inspect for damage.



2. INSTALL OUTDOOR UNIT

- Select a location that meets the requirements and limitations of the refrigerant piping recommendations shown in next section, "3. Install Refrigerant Piping."
- Maintain adequate clearance for airflow and service access.
- Unit may be mounted on a field-supplied pad or support rails.



3. INSTALL REFRIGERANT PIPING

- Select suction line (S) size and liquid line (L) size from the table below.
- Select refrigerant specialties.
- Maximum linear line length is 200 feet for cooling only units, and 100 feet for heat pump units. Contact "Applications Engineering" for details on lengths greater than the maximum linear line length.
- Do not bury refrigerant piping underground.
- Evacuate lines before completing any brazing work.

UNIT	CIRCUIT	LINEAR LENGTH OF PIPING (ft)							
		0-25		26-50		51-75		76-100	
		LINE SIZE (in. OD)							
		L	S	L	S	L	S	L	S
6 Ton (Single Circuit)	A	3/8	7/8	3/8 1/2	7/8 1-1/8	3/8 1/2	7/8 1-1/8	1/2 5/8	7/8 1-1/8
7.5 Ton (Single Circuit)	A	1/2	1-1/8	1/2 5/8	1-1/8 1-3/8	1/2 5/8	1-1/8 1-3/8	1/2 5/8	1-1/8 1-3/8
10 Ton (Single Circuit)	A	1/2	1-3/8	1/2 5/8	1-3/8 1-5/8	1/2 5/8	1-3/8 1-5/8	1/2 5/8	1-3/8 1-5/8
10 Ton (Dual Circuit)	A	3/8	7/8	3/8	7/8 1-1/8	3/8	7/8 1-1/8	1/2 5/8	7/8 1-1/8
	B	3/8	7/8	3/8	7/8 1-1/8	3/8	7/8 1-1/8	1/2 5/8	7/8 1-1/8
12.5 Ton (Single Circuit)	A	5/8	1-5/8	5/8 3/4	1-5/8	5/8 3/4	1-5/8	5/8 3/4	1-5/8
	B	5/8	1-5/8	5/8 3/4	1-5/8	5/8 3/4	1-5/8	5/8 3/4	1-5/8
12.5 Ton (Dual Circuit)	A	3/8	1-3/8	3/8	1-3/8 1-5/8	3/8	1-3/8 1-5/8	1/2 5/8	1-3/8 1-5/8
	B	3/8	1-3/8	3/8	1-3/8 1-5/8	3/8	1-3/8 1-5/8	3/8	1-3/8 1-5/8
6 Ton (Heat Pump)	A	3/8	7/8	3/8 1/2	1-1/8 1-3/8	3/8 1/2	1-1/8 1-3/8	3/8 1/2	1-1/8 1-3/8
7.5 Ton (Heat Pump)	A	1/2	1-1/8	1/2 5/8	1-1/8 1-3/8	1/2 5/8	1-1/8 1-3/8	1/2 5/8	1-1/8 1-3/8
10 Ton (Heat Pump)	A	1/2	1-1/8	1/2 5/8	1-1/8 1-3/8	1/2 5/8	1-1/8 1-3/8	1/2 5/8	1-1/8 1-3/8

UNIT	CIRCUIT	LINEAR LENGTH OF PIPING (ft)									
		101-125		126-150		151-175		176-200			
		LINE SIZE (in. od)									
		L	S	L	S	L	S	L	S		
6 Ton (Single Circuit)	A	1/2 5/8	7/8 1-1/8	1/2 5/8	7/8 1-1/8	1/2 5/8	7/8 1-1/8 1-3/8	1/2 5/8	7/8 1-1/8 1-3/8		
7.5 Ton (Single Circuit)	A	5/8 3/4	7/8 1-1/8	5/8 3/4	7/8 1-1/8	5/8 3/4	7/8 1-1/8 1-3/8	5/8 3/4	7/8 1-1/8 1-3/8		
10 Ton (Single Circuit)	A	5/8 3/4	1-3/8 1-5/8	7/8 1-1/8	1-3/8 1-5/8	7/8 1-1/8	1-3/8 1-5/8	7/8 1-1/8	1-3/8 1-5/8		
10 Ton (Dual Circuit)	A	5/8 3/4	7/8 1-1/8	5/8 3/4	7/8 1-1/8	5/8 3/4	7/8 1-1/8	5/8 3/5	3/4 7/8 1-1/8		
	B	3/4 7/8	7/8 1-1/8	3/4 7/8	7/8 1-1/8	3/4 7/8	7/8 1-1/8	3/4 7/8	7/8 1-1/8		
12.5 Ton (Single Circuit)	A	5/8 3/4	1-5/8	5/8 3/4	1-5/8	5/8 3/4	1-5/8	5/8 3/4	1-5/8		
12.5 Ton (Dual Circuit)	A	1/2 5/8	1-3/8 1-5/8	1/2 5/8	1-3/8 1-5/8	1/2 5/8	1-3/8 1-5/8	1/2 5/8	1-3/8 1-5/8		
	B	1/2 5/8	1-3/8 1-5/8	1/2 5/8	1-3/8 1-5/8	1/2 5/8	1-3/8 1-5/8	1/2 5/8	1-3/8 1-5/8		
6 Ton (Heat Pump)	A	—	—	—	—	—	—	—	—		
7.5 Ton (Heat Pump)	A	—	—	—	—	—	—	—	—		
10 Ton (Heat Pump)	A	—	—	—	—	—	—	—	—		

- NOTE(S):
- Pipe sizes are based on a 2°F loss for liquid and suction lines.
 - Pipe sizes are based on the maximum linear length, shown for each column, plus a 50% allowance for fittings.
 - Charge units with R-454B refrigerant in accordance with unit installation instructions.
 - For information on speed riser, double riser and liquid lift, please see full installation instructions.

REFRIGERANT SPECIALTY PARTS NUMBERS – CONDENSING UNITS

LIQUID LINE SIZE (in. OD)	LIQUID LINE SOLENOID VALVE	SOLENOID COIL	SIGHT GLASS
3/8	EF680033	EF680037	KM680008
1/2	EF680035	EF680037	KM680004
5/8	EF680036	EF680037	KM680005

REFRIGERANT SPECIALTY PARTS NUMBERS – HEAT PUMP UNITS

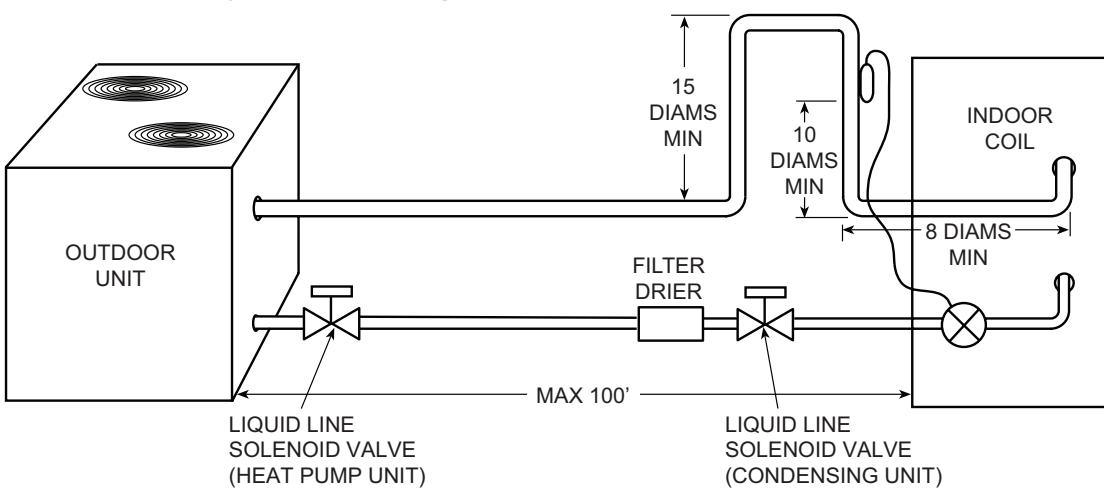
LIQUID LINE SIZE (in. OD)	LIQUID LINE SOLENOID VALVE	SOLENOID COIL	SIGHT GLASS
3/8	EF680033 plus EF680039 Bi-Flow kit*	EF680037	KM680008
1/2	EF680035 plus EF680039 Bi-Flow kit*	EF680037	KM680004
5/8	EF680036 plus EF680039 Bi-Flow kit*	EF680037	KM680005

* Bushings required.

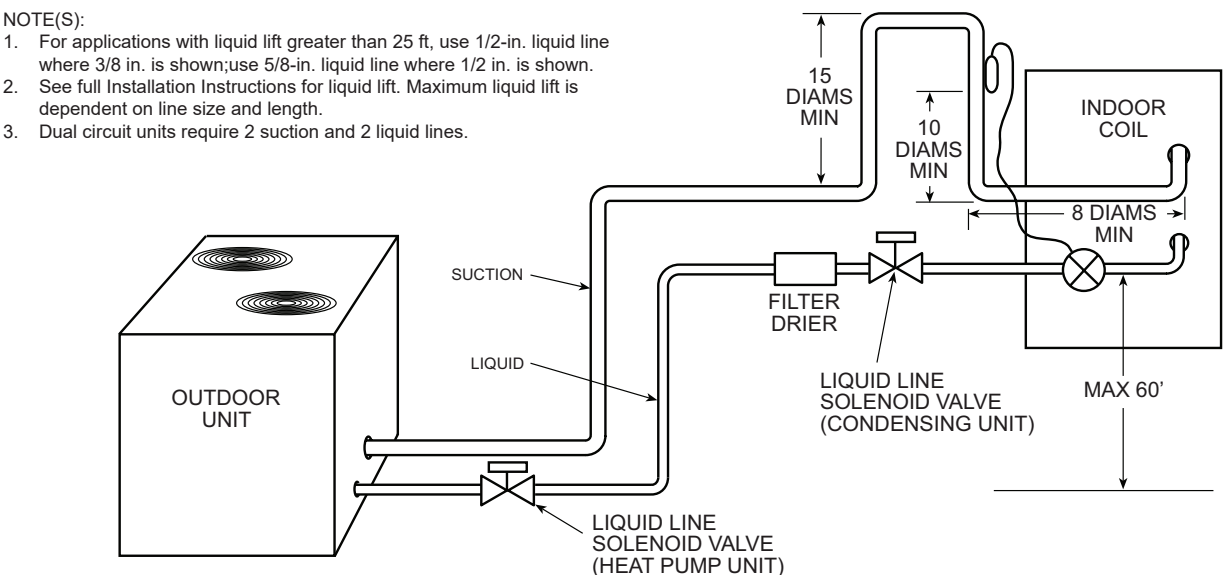
FILTER DRIER PART NUMBERS – CONDENSING AND HEAT PUMP UNITS

UNIT	QTY	LIQUID LINE OD	DESSICANT VOLUME	PART NUMBER
6 Ton (Single Circuit)	1	1/2 in.	8 cu in.	KH43LG091
7.5 Ton (Single Circuit)	1	1/2 in.	16 cu in.	KH43LG085
10 Ton (Single Circuit)	1	1/2 in.	16 cu in.	KH43LG085
12.5 Ton (Single Circuit)	1	1/2 in.	30 cu in.	KH43LG087
10 Ton (Dual Circuit)	2	3/8 in.	8 cu in.	KH43LG091
12.5 Ton (Dual Circuit)	2	1/2 in.	16 cu in.	KH43LG085
6 Ton Heat Pump	1	3/8 in.	8 cu in.	KH43LS088
7.5 Ton Heat Pump	1	1/2 in.	16 cu in.	KH43LS102
10 Ton Heat Pump	1	1/2 in.	16 cu in.	KH43LS102

Typical Piping for Units on the Same Level



Typical Piping When Indoor Unit is Above the Outdoor Unit



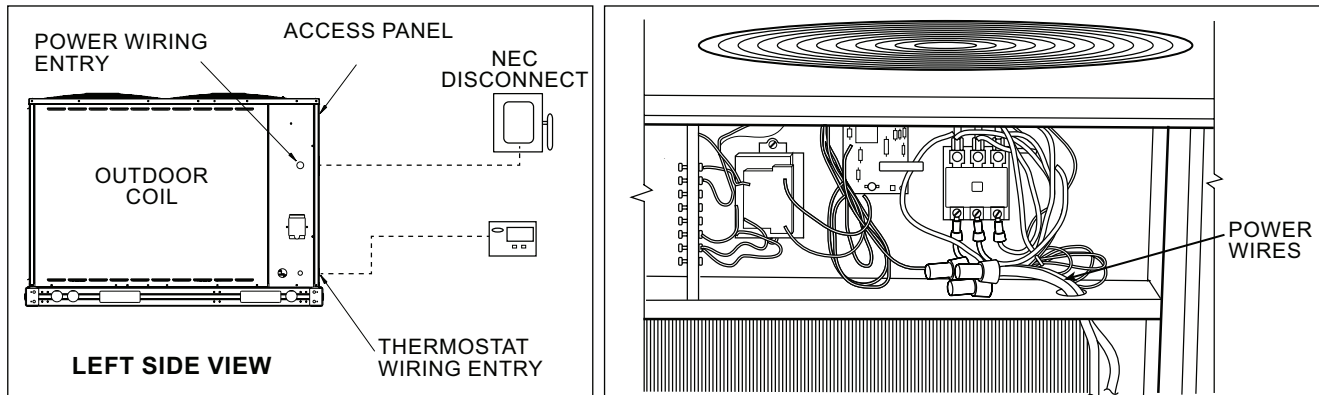
4. MAKE ELECTRICAL CONNECTIONS

⚠ WARNING

Before installing or servicing system, always turn off main power to system and install a logout tag on disconnect. There may be more than one disconnect switch. Electrical shock can cause personal injury.

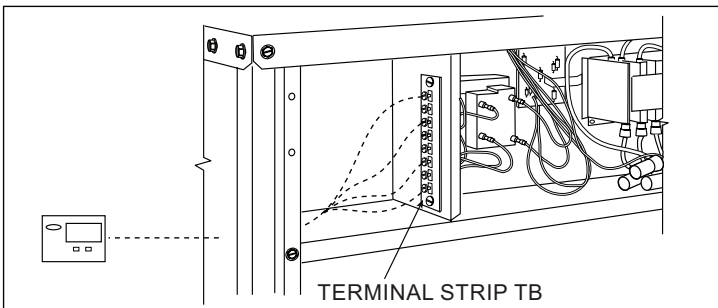
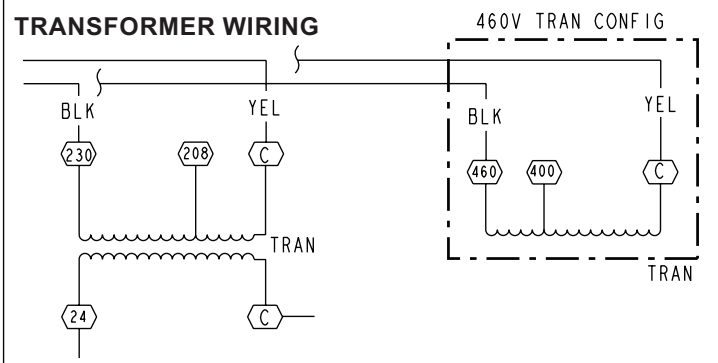
POWER WIRING

1. Verify that the power is off, locked out and tagged out.
2. Route power wiring from disconnect through opening in unit end of panel and connect in unit control box as shown on the unit label diagram.

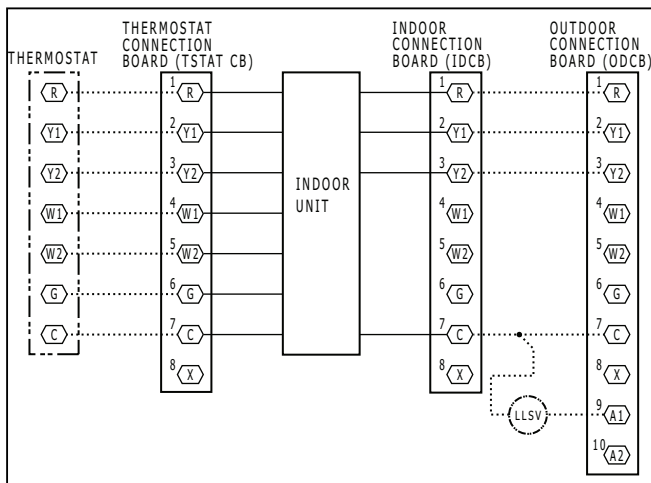


CONTROL WIRING

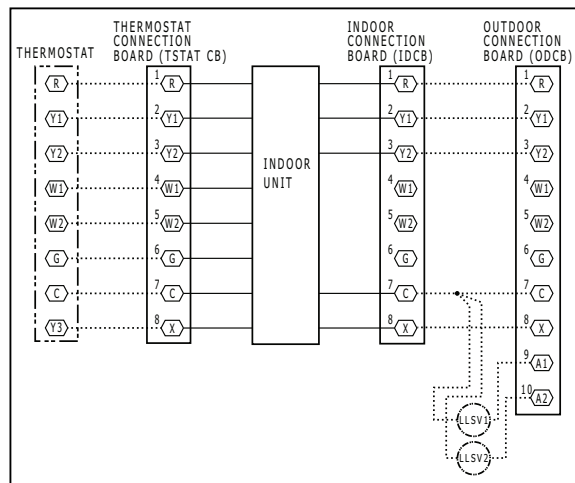
1. Verify that the power is off, locked out and tagged out.
2. Transformer wiring: If supply voltage is 208-volts or 400-volts, move the black wire to the appropriate terminal.
3. Make connections from the thermostat to the TSTAT CB in the indoor unit, and from IDCB in indoor unit to the terminal strip (TB) in the outdoor unit.



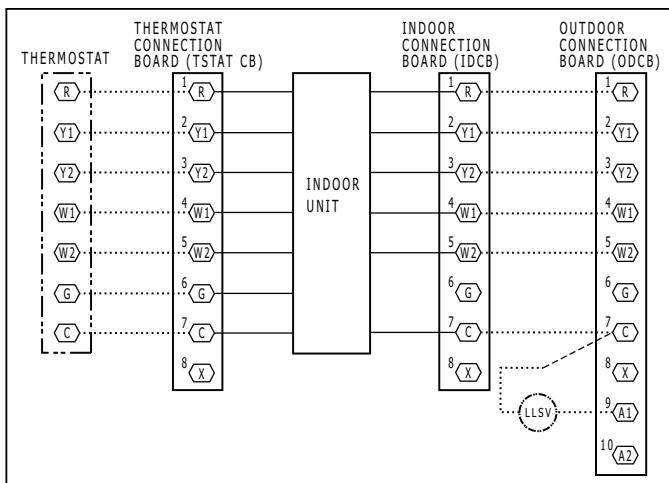
2 Stage Condensing Unit



3 Stage Condensing Unit



2 Stage Heat Pump Unit



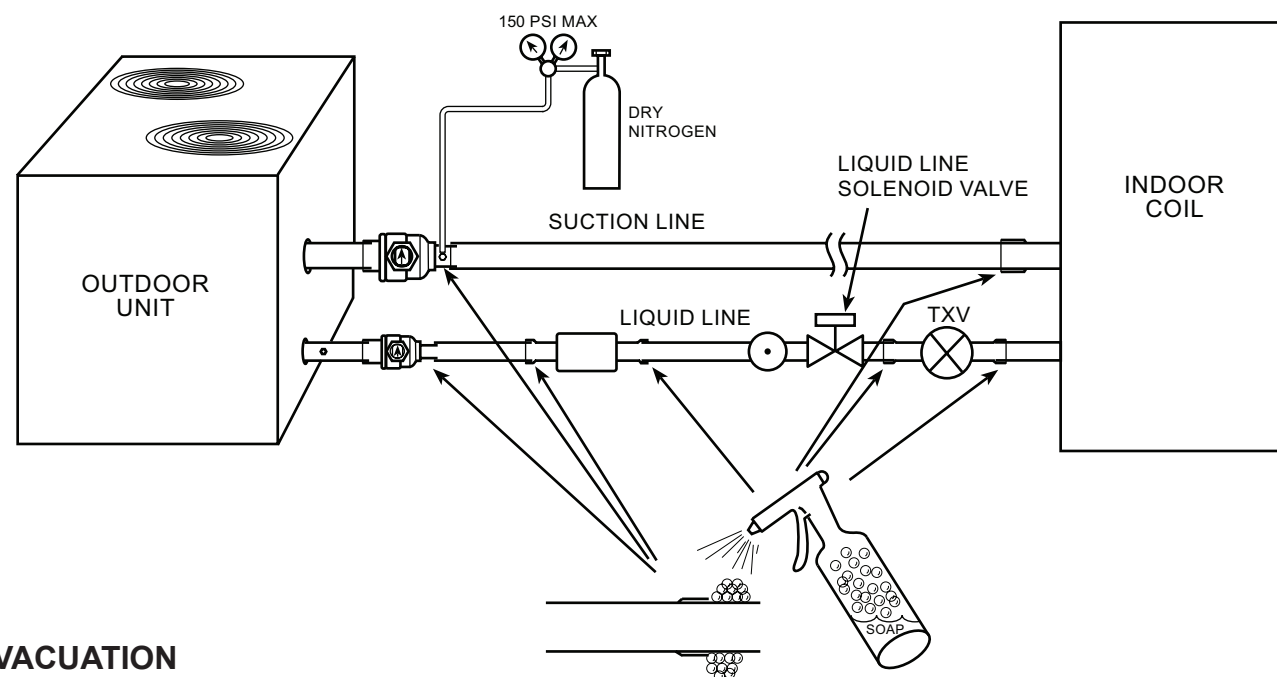
PRE START-UP TIPS

1. Read the Start-up and Installation Manual and/or the Service Manual.
2. Use start-up checklist provided at the back of the Start-up and Installation Manual.
3. Check all wiring connections.
4. Open service valves. ONLY WHEN BRAZE OPERATIONS ARE COMPLETE.
5. Turn on power for the indoor and outdoor sections.
6. Energize the crankcase heater for 24-hours prior to start-up.
7. Make sure compressor(s) can move freely on mounting snubbers or springs.

5. UNIT PRE-START

LEAK TEST

1. Verify there are no active ignition sources while work is being completed.
2. Pressurize refrigerant piping. DO NOT EXCEED 150 PSI.
3. Check for leaks using proper A2L refrigerant leak check procedures. Check the full Installation Instructions or Service Manual for additional information.



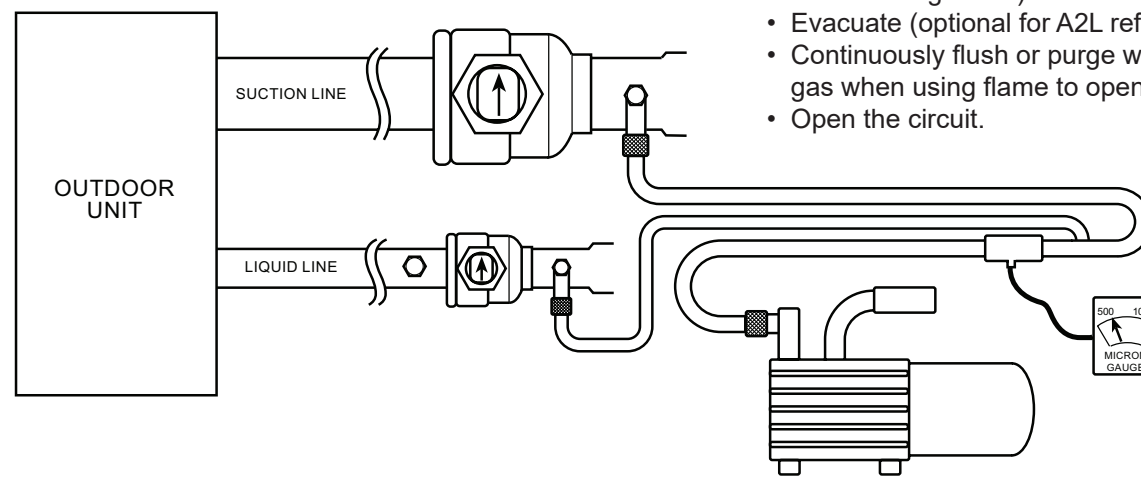
EVACUATION

⚠ CAUTION

Outdoor unit contains a partial factory charge of R-454B refrigerant. Review the rating plate for the exact charge amount. Opening the liquid line ball valve prior to charging the unit will release the holding charge.

Safely remove refrigerant following local and national regulations.

- Evacuate.
- Purge the circuit with inert gas (optional for A2L refrigerants).
- Evacuate (optional for A2L refrigerants).
- Continuously flush or purge with inert gas when using flame to open circuit.
- Open the circuit.



EVACUATE TO A MINIMUM OF 500 MICRONS

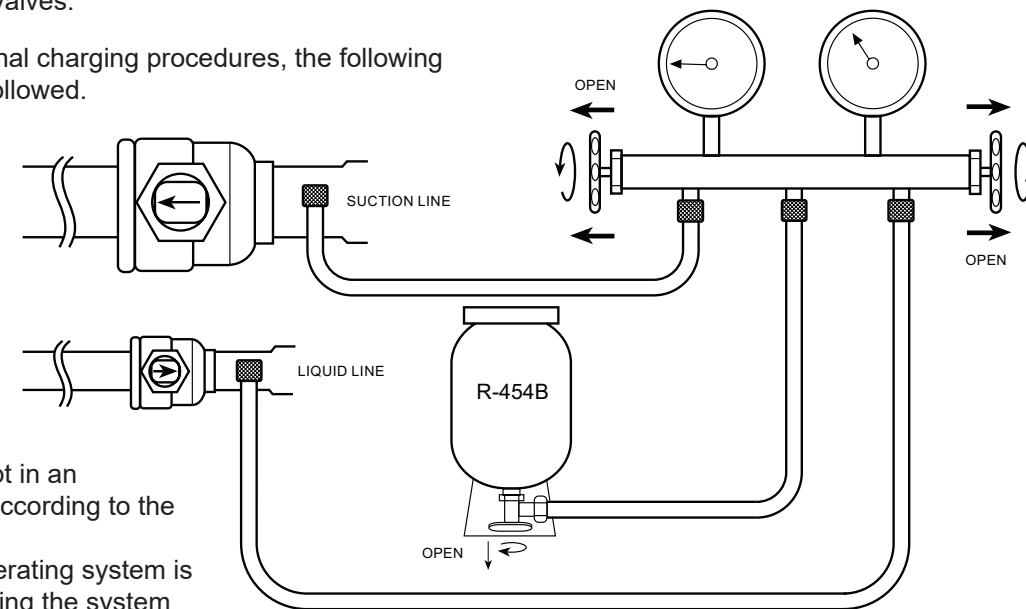
INITIAL CHARGING – UNIT OFF

1. After evacuating the system, fill the liquid line with R-454B refrigerant (tank upside-down).
2. Open both service valves.

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigerating system.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.



Charge the system according to the "Preliminary Charge" section of the unit Installation Instructions.

NOTE: The unit is shipped from the factory with 9 lb of R-454B in each circuit.

TRIM CHARGE LEVEL

1. After the system has been started and allowed to stabilize, adjust refrigerant level, if required, based on the Cooling Charging Chart found on the unit and in the full set of Installation Instructions.
2. Check superheat at the compressor; superheat should be 8°F to 12°F.

IMPORTANT: Units with Copeland compressors may be equipped with Advanced Scroll Temperature Protection. Refer to the full set of Installation Instructions or the Service Manual for additional information.

