Installation and Operation Manual

ALL phases of this installation must comply with NATIONAL, STATE AND LOCAL CODES

IMPORTANT – This Document is customer property and is to remain with this unit. Please return to service information pack upon completion of work.

These instructions do not cover all variations in systems or provide for every possible contingency to be met in connection with the installation. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to your installing dealer or local distributor.

Note: The manufacturer recommends installing only approved matched indoor and outdoor systems. All of the manufacture's split systems are AHRI rated only with TXV/EEV indoor systems. Some of the benefits of installing approved matched indoor and outdoor split systems are maximum efficiency, optimum performance and the best overall system reliability.

Condensing Units

Models

A5AC4018A

A5AC4024A

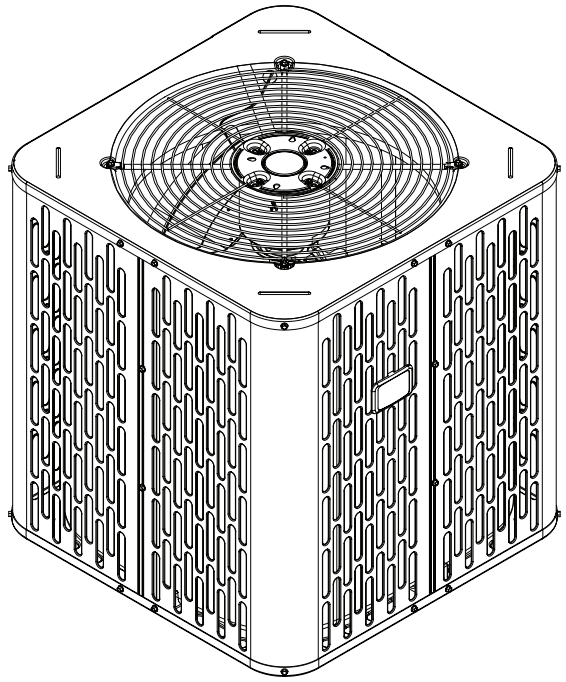
A5AC4030A

A5AC4036A

A5AC4042A

A5AC4048A

A5AC4060A



Note: *"Graphics in this document are for representation only. Actual model may differ in appearance."*

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

October 2024

88-A5AC4001-1B-EN

Section 1. Safety

WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

⚠ WARNING

RISK OF FIRE!

Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.

Dispose of properly in accordance with federal or local regulations. Flammable refrigerant used.

WARNING

This information is intended for use by individuals possessing adequate backgrounds of electrical and mechanical experience. Any attempt to repair a central air conditioning product may result in personal injury and/or property damage. The manufacture or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

WARNING

UNIT CONTAINS R-454B REFRIGERANT!

Proper service equipment is required. Failure to use proper service tools may result in equipment damage or personal injury.

SERVICE

USE ONLY R-454B REFRIGERANT AND APPROVED COMPRESSOR OIL.

WARNING

Extreme caution should be exercised when opening the Liquid Line Service Valve. Turn counterclockwise until the valve stem just touches the rolled edge. No torque is required. Failure to follow this warning will result in abrupt release of system charge and may result in personal injury and/or property damage.

WARNING

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work.

WARNING

The appliance shall be stored in a room without continuously operating ignition sources (for examples: open flames, an operating gas appliance or an operating electric heater). Do no pierce or burn. Be aware that refrigerants may not contain an odor.

WARNING

LIVE ELECTRICAL COMPONENTS!

During installation, testing, servicing, and troubleshooting of this product power should be disconnected. It may be necessary to work with live electrical components. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

WARNING

The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.

WARNING

Children should be supervised to ensure that they do not play with the appliance.

⚠ CAUTION

If using existing refrigerant lines should be brazed not soldered. Solder alloys with a melting temperature less than 427°C are not acceptable.

⚠ CAUTION

Scroll compressor dome temperatures may be hot. Do not touch the top of compressor; it may cause minor to severe burning.

⚠ WARNING

This product can expose you to chemicals including lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov

⚠ WARNING

VENTILATION

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work.

Table 1. Operating Range

Mode	Model	Operating Range
Cooling	1.5 – 5 Ton	55°F – 120°F

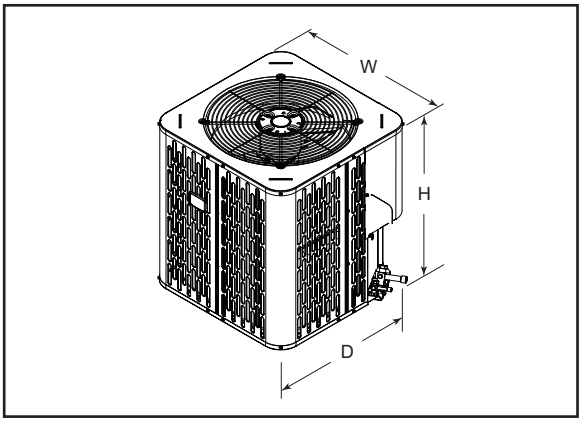
Table of Contents

Section 2. Unit Location Considerations

2.1 Unit Dimensions and Weight

Table 2.1

Unit Dimensions and Weight		
Models	H x D x W (in)	Weight* (lb)
A5AC4018A	37 x 30 x 30	184
A5AC4024A	33 x 30 x 30	161
A5AC4030A	37 x 30 x 30	184
A5AC4036A	33 x 30 x 30	161
A5AC4042A	37 X 34 X 34	212
A5AC4048A	45 X 34 X 34	252
A5AC4060A	45 X 34 X 34	252
* Weight values are estimated.		



When mounting the outdoor unit on a roof, be sure the roof will support the unit's weight.

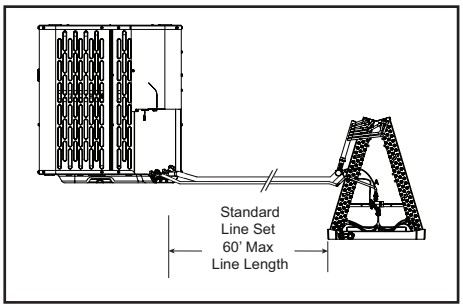
Properly selected isolation is recommended to alleviate sound or vibration transmission to the building structure.

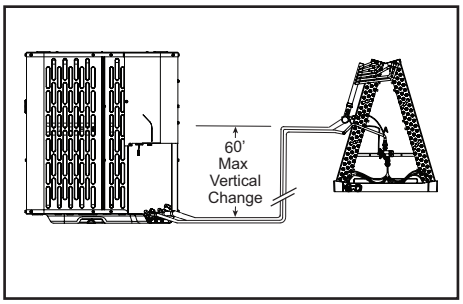
2.2 Refrigerant Piping Limits

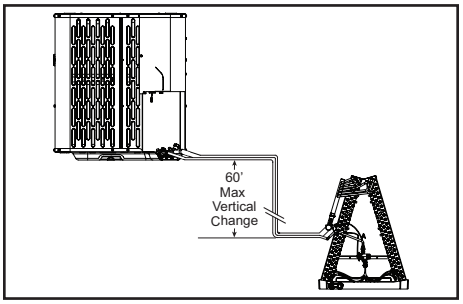
1. The maximum TOTAL length of refrigerant lines from outdoor to indoor unit should NOT exceed 150 feet* (including lift).
2. The maximum vertical change should not exceed 50 feet*.
3. Standard and alternate line sizes and service valve connection sizes are shown in Table 5.1.

* See Table 5.1 for exceptions for certain tonnages.

Note: For other line lengths, Refer to Refrigerant Piping Application Guide, SS-APG006F-EN, or Refrigerant Piping Software Program.







2.3 Suggested Locations for Best Reliability

Ensure the top discharge area is unrestricted for at least five (5) feet above the unit.

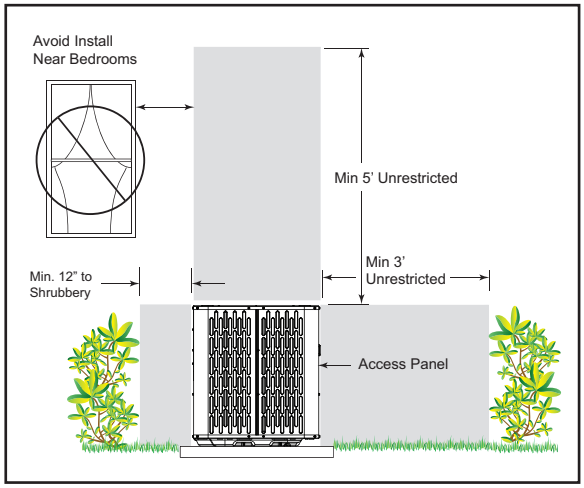
Three (3) feet clearance must be provided in front of the control box (access panels) and any other side requiring service.

It is not recommended to install in a location where noise may distract the building occupants. Some examples of these types of locations are sleeping quarters and by windows of a living area. Please discuss location with the building owner prior to installation.

Avoid locations such as near windows where condensation and freezing defrost vapor can annoy a customer.

Position the outdoor unit a minimum of 12" from any wall or surrounding shrubbery to ensure adequate airflow.

Outdoor unit location must be far enough away from any structure to prevent excess roof runoff water or icicles from falling directly on the unit.



2.4 Cold Climate Considerations

NOTE: It is recommended that these precautions be taken for units being installed in areas where snow accumulation and prolonged below freezing temperatures occur.

- Units should be elevated 3-12 inches above the pad or rooftop, depending on local weather. This additional height will allow drainage of snow and ice melted during defrost cycle prior to its refreezing. Ensure that drain holes in unit base pan are not obstructed preventing draining of defrost water.
- If possible, avoid locations that are likely to accumulate snow drifts. If not possible, a snow drift barrier should be installed around the unit to prevent a build-up of snow on the sides of the unit.

Section 3. Unit Preparation

3.1 Prepare The Unit For Installation

STEP 1 - Check for damage and report promptly to the carrier any damage found to the unit.

Section 4. Setting the Unit

4.1 Pad Installation

When installing the unit on a support pad, such as a concrete slab, consider the following:

- The pad should be at least 1” larger than the unit on all sides.
- The pad must be separate from any structure.
- The pad must be level.
- The pad should be high enough above grade to allow for drainage.
- The pad location must comply with National, State, and Local codes.

For other applications refer to application guide.

Section 5. Refrigerant Line Considerations

5.1 Refrigerant Line and Service Valve Connection Sizes

Table 5.1

RATED LINE SIZES	Line Sizes		Service Valve Connection Sizes	
	Vapor Line	Liquid Line	Vapor Line Connection	Liquid Line Connection
A5AC4018A	3/4	5/16	3/4	5/16
A5AC4024A	3/4	5/16	3/4	5/16
A5AC4030A	3/4	5/16	3/4	5/16
A5AC4036A	3/4	5/16	3/4	5/16
A5AC4042A	7/8	5/16	7/8	5/16
A5AC4048A	7/8	5/16	7/8	5/16
A5AC4060A	1-1/8	5/16	7/8	5/16

ALTERNATE LINE SIZES	Line Sizes		Service Valve Connection Sizes	
	Vapor Line	Liquid Line	Vapor Line Connection	Liquid Line Connection
A5AC4018A	5/8	3/8	3/4	5/16
A5AC4024A	5/8	3/8	3/4	5/16
A5AC4030A	5/8	3/8	3/4	5/16
A5AC4036A	5/8	3/8	3/4	5/16
A5AC4042A	3/4	3/8	7/8	5/16
A5AC4048A	3/4	3/8	7/8	5/16
A5AC4060A	7/8	3/8	7/8	5/16

5.2 Factory Charge

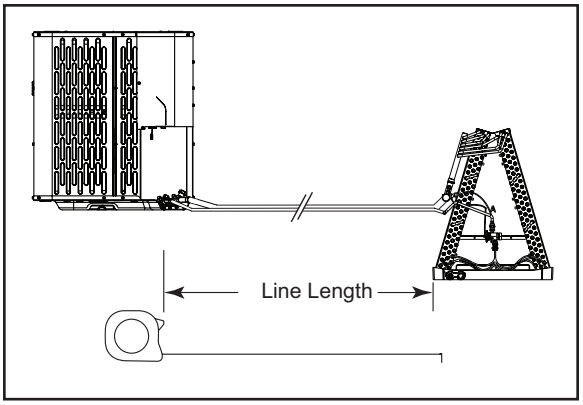
The outdoor condensing units are factory charged with the system charge required for the outdoor condensing unit, ten (10) feet of tested connecting line, and the smallest rated indoor evaporative coil match. Always verify proper system charge via subcooling (TXV/EEV) or superheat (fixed orifice) per the unit nameplate.

5.3 Required Refrigerant Line Length

Determine required line length and lift. You will need this later in STEP 2 of Section 14.

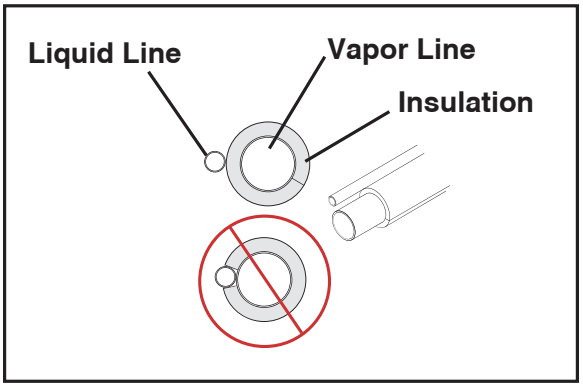
Total Line Length = _____ Ft.

Total Vertical Change (lift) = _____ Ft.



5.4 Refrigerant Line Insulation

Important: *The Vapor Line must always be insulated. DO NOT allow the Liquid Line and Vapor Line to come in direct (metal to metal) contact.*



Section 6. Refrigerant Line Routing

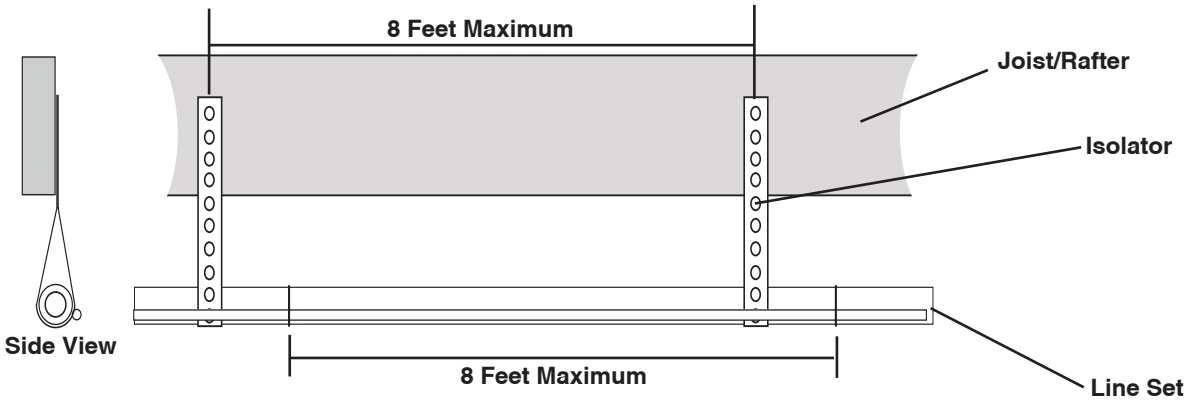
6.1 Precautions

Important: *Take precautions to prevent noise within the building structure due to vibration transmission from the refrigerant lines.*

Comply with National, State, and Local Codes when isolating line sets from joists, rafters, walls, or other structural elements.

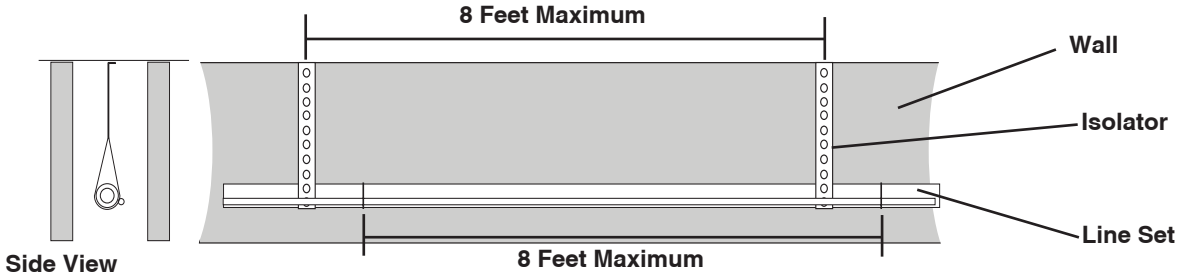
For Example:

- When the refrigerant lines have to be fastened to floor joists or other framing in a structure, use isolation type hangers.
- Isolation hangers should also be used when refrigerant lines are run in stud spaces or enclosed ceilings.
- Where the refrigerant lines run through a wall or sill, they should be insulated and isolated.
- Isolate the lines from all ductwork.
- Minimize the number of 90º turns.



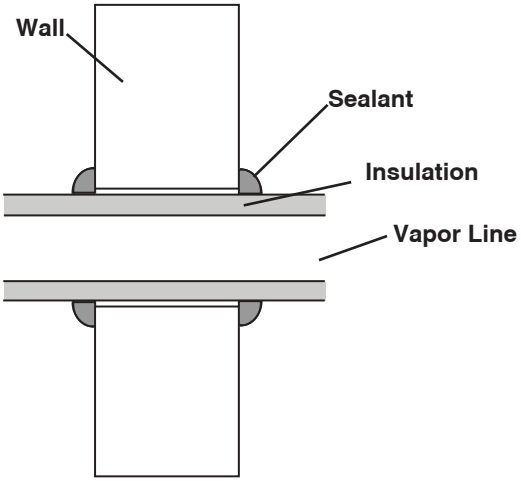
Secure Vapor line from joists using isolators every 8 ft. Secure Liquid Line directly to Vapor line using tape, wire, or other appro–priate method every 8 ft.

Isolation From Joist/Rafter

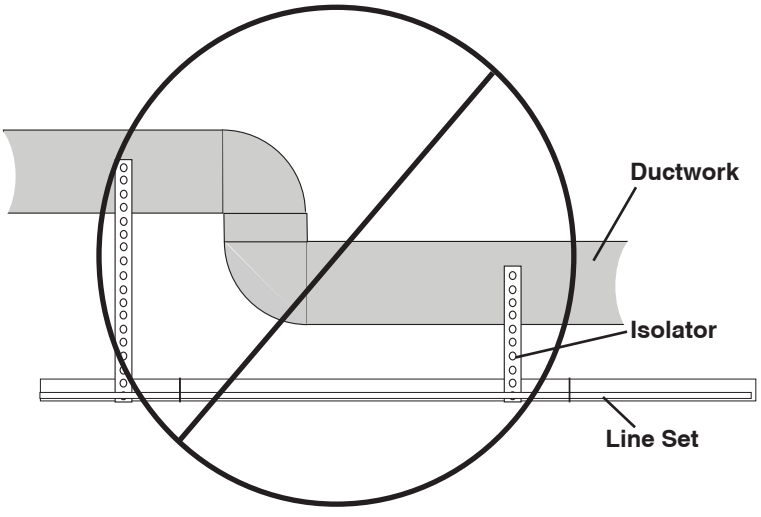


Secure Vapor Line using isolators every 8 ft. Secure Liquid Line directly to Vapor Line using tape, wire, or other appropriate method every 8 ft.

Isolation In Wall Spaces



Isolation Through Wall



DO NOT hang line sets from ductwork

Section 7. Refrigerant Line Brazing

7.1 Braze The Refrigerant Lines

STEP 1 - Remove caps or plugs. Use a deburing tool to debur the pipe ends. Clean both internal and external surfaces of the tubing using an emery cloth.

STEP 2 - Remove the pressure tap cap and valve cores from both service valves.

STEP 3 - Purge the refrigerant lines and indoor coil with dry nitrogen.

STEP 4 - Wrap a wet rag around the valve body to avoid heat damage and continue the dry nitrogen purge.

Braze the refrigerant lines to the service valves.

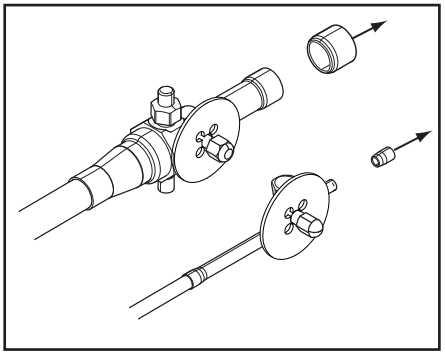
Continue the dry nitrogen purge. Do not remove the wet rag until all brazing is completed.

Important: *Remove the wet rag before stopping the dry nitrogen purge.*

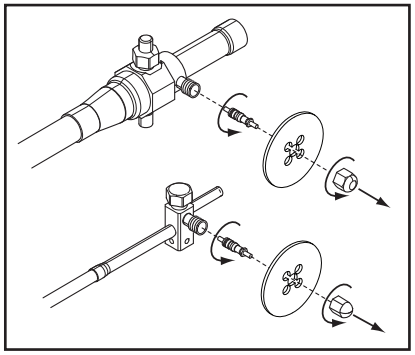
Note: Install drier in Liquid Line.

NOTE: **Precautions should be taken to avoid heat damage to basepan during brazing. It is recommended to keep the flame directly off of the basepan.**

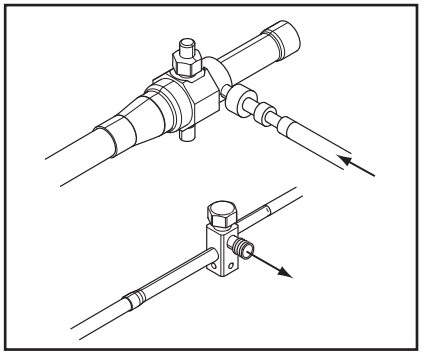
STEP 5 - Replace the pressure tap valve cores after the service valves have cooled.



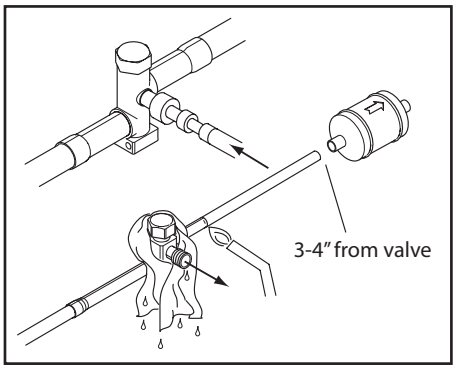
STEP 1



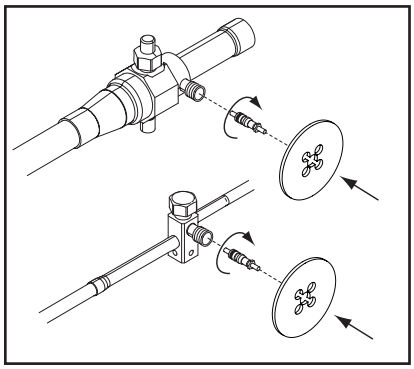
STEP 2



STEP 3



STEP 4



STEP 5

Section 8. Refrigerant Line Leak Check

8.1 Check For Leaks

After completion of field piping for split systems, the field pipework shall be pressure tested with nitrogen and then vacuum tested prior to refrigerant charging.

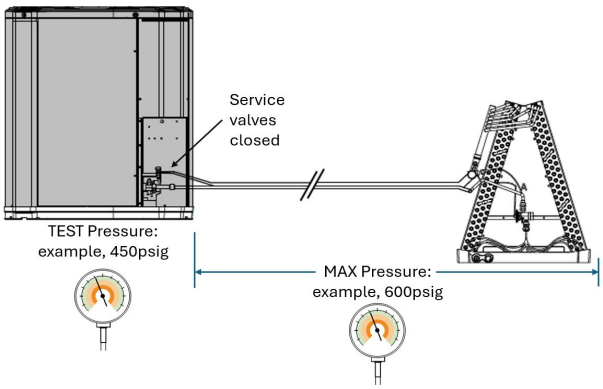
Important: *Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks.*

Important: *The following leak detection methods are deemed acceptable for all refrigerant systems:*

- *Electronic leak detectors calibrated for R-454B (with a sensitivity of 5 grams/year).*

Important: *The outdoor unit should not be tested higher than 450 psig for servicing or component replacement. The indoor unit and linesets should be tested to the max pressure specified on the outdoor or indoor unit nameplate. The service valves should be closed when pressure testing the evaporator coil and linesets to separate the outdoor unit from the indoor unit.*

STEP 1 (Final Pressure Check) - Isolate the outdoor unit from the evaporator coil and linesets using the service valves. Pressurize the evaporator coil and linesets to the max pressure specified on the outdoor or indoor unit nameplate for a minimum of 60 minutes. Do not add additional refrigerant or test gas after reaching the evaporator coil specified pressure. The system should show no loss of pressure once pressurized. Once the pressure test is complete follow the steps for evacuation.



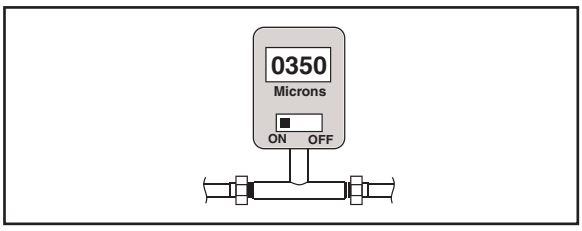
***OPTIONAL (Preliminary Pressure Check) -** Pressurize the refrigerant lines and evaporator coil to 150 PSIG using dry nitrogen. Check for leaks by using a soapy solution or bubbles at each brazed location. Remove pressure and repair any leaks before continuing.

Section 9. Evacuation and Servicing

9.1 Evacuate the Refrigerant Lines and Indoor Coil

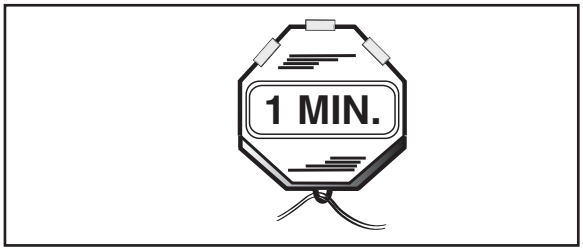
Important: *Do not open the service valves until the refrigerant lines and indoor coil leak check and evacuation are complete.*

STEP 1 - Evacuate until the micron gauge reads no higher than 350 microns, then close off the valve to the vacuum pump.



STEP 2 - Observe the micron gauge. Evacuation is complete, if the micron gauge does not rise above 500 microns in one (1) minute and 1500 microns in ten (10) minutes.

STEP 3 - Once evacuation is complete, blank off the vacuum pump and micron gauge, and close the valve on the manifold gauge set.



9.2 Servicing

- If repairs must be made after system is charged, properly and safely remove or isolate refrigerant and purge the section of the system needing repair with Nitrogen gas or oxygen free nitrogen prior to opening the circuit.
- The REFRIGERANT CHARGE shall be recovered into the correctly marked recovery cylinders.
- Ensure that the outlet for the vaccum pump is not close to any potential ignition sources and the ventilation is available.
- 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.
- Ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. Only use cylinders designated for the recovered refrigerant and labelled for the refrigerant. Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order.
- A set of caliberated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Ensure any associated electrical components are sealed.
- The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder. Do not mix refrigerants.
- If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant.

Section 10. Service Valves

10.1 Open the Gas Service Valve

Important: *Leak check and evacuation must be completed before opening the service valves.*

NOTE: Do not vent refrigerant gases into the atmosphere.

STEP 1 - Remove valve stem cap.

STEP 2 - Using an adjustable wrench, turn valve stem 1/4 turn counterclockwise to the fully open position.

STEP 3 - Replace the valve stem cap to prevent leaks. Tighten finger tight plus an additional 1/6 turn.

10.2 Open the Liquid Service Valve

⚠ WARNING

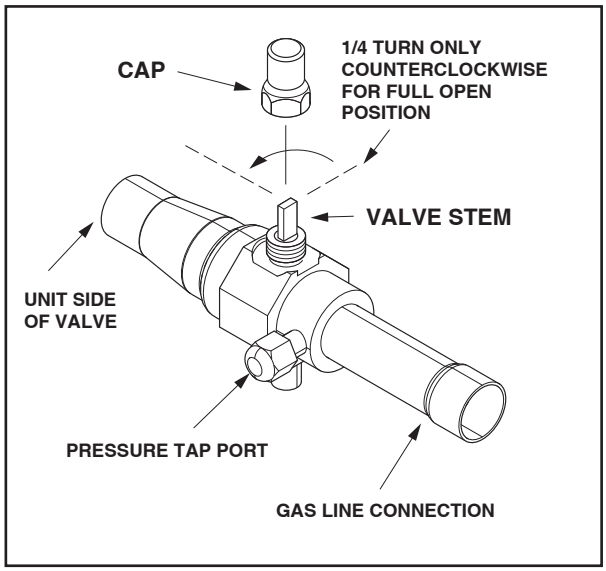
Extreme caution should be exercised when opening the Liquid Line Service Valve. Turn counterclockwise until the valve stem just touches the rolled edge. No torque is required. Failure to follow this warning will result in abrupt release of system charge and may result in personal injury and /or property damage.

Important: *Leak check and evacuation must be completed before opening the service valves.*

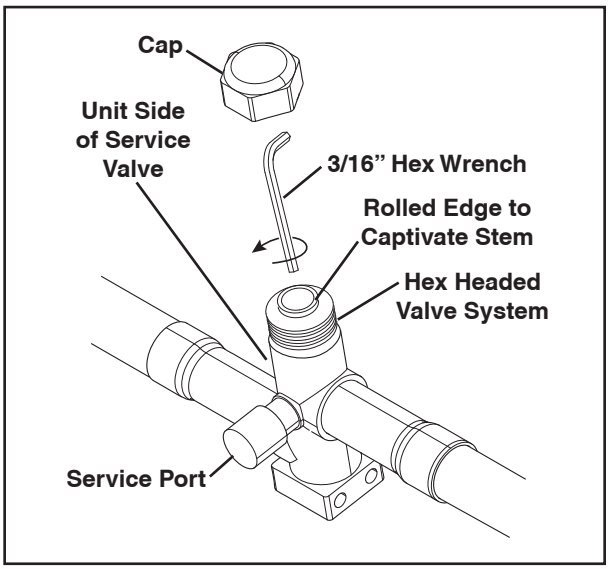
STEP 1 - Remove service valve cap.

STEP 2 - Fully insert 3/16” hex wrench into the stem and back out counterclockwise until valve stem just touches the rolled edge (approximately five (5) turns.)

STEP 3 - Replace the valve cap to prevent leaks. Tighten finger tight plus an additional 1/6 turn.



Gas Service Valve



Liquid Service Valve

Mitigation Board Guidelines

- The approved ID/OD combination will provide sufficient safe ventilation in case of a leak.
- Refer Indoor Unit Installer's Guide for correct specifications on indoor unit install.
- All systems require mitigation boards so on altitude adjustment factors required.
- MCB neds to be included in an A2L System.

Section 11. Electrical – Low Voltage

11.1 Low Voltage Maximum Wire Length

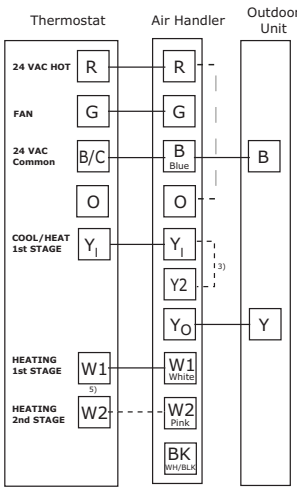
Table 11.1 defines the maximum total length of low voltage wiring from the outdoor unit, to the indoor unit, and to the thermostat.

Table 11.1

24 VOLTS	
WIRE SIZE	MAX. WIRE LENGTH
18 AWG	150 Ft.
16 AWG	225 Ft.
14 AWG	300 Ft.

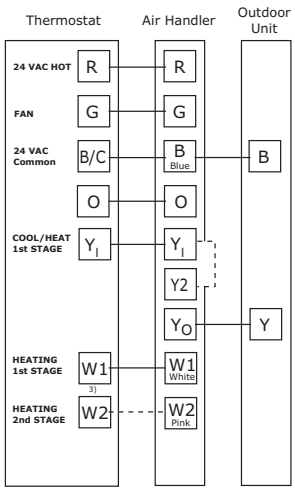
11.2 Low Voltage Hook-up Diagrams

With A5AH6



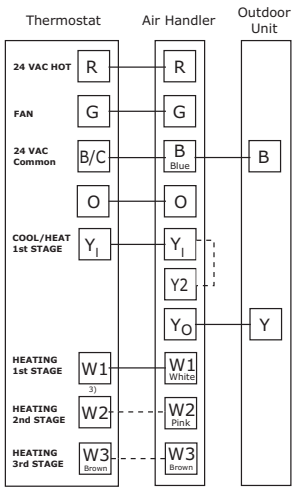
1. Units with pigtails require wirenuts for connections.
2. Cap all unused wires.
3. When BK is used, do not connect Y2 at the air handler.
4. When BK is used, cut the jumper between R and BK on the control board. See indoor wiring schematic for details.
5. In AC systems, for multiple stages of electric heat, jumper W1 and W2 together if comfort control has only one stage of heat.

With A5AH4



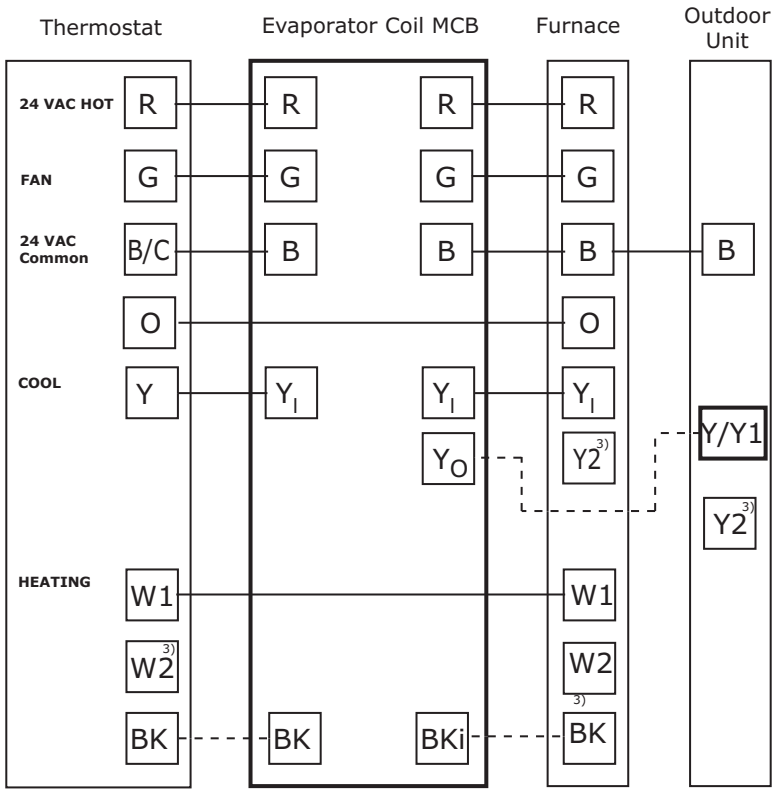
1. Units with pigtails require wirenuts for connections.
2. Cap all unused wires.
3. In AC systems for multiple stages of electric heat, jumper W1 and W2 together if comfort control has only one stage of heat.

With 5TAM5



1. Units with pigtails require wirenuts for connections.
2. Cap all unused wires.
3. In AC systems, for multiple stages of electric heat, jumper W1 and W2 together if comfort control has only one stage of heat.

With Furnace



1. Units with pigtails require wirenuts for connections. Cap all unused wires.
2. For 24V control, connect factory supplied harness to circuit board at evaporator. Complete all other wiring connections at the furnace
3. For 2 stage systems, connect W2 to W2 and Y2 to Y2.

Mitigation Board Guidelines

- The approved ID/OD combination will provide sufficient safe ventilation in case of a leak.
- Refer to Indoor Unit Installer's Guide for correct specifications on indoor unit install.
- All systems require mitigation boards so an altitude adjustment factor may be required.
- Mitigation Control Board needs to be included in an A2L System.

Section 12. Electrical - High Voltage

12.1 High Voltage Power Supply

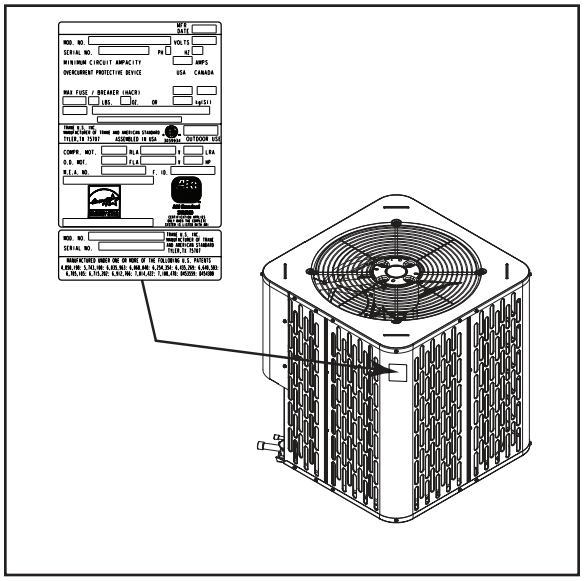
⚠ WARNING

LIVE ELECTRICAL COMPONENTS!
During installation, testing, servicing, and troubleshooting of this product, it may be necessary to work with live electrical components. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

The high voltage power supply must agree with the equipment nameplate.

Power wiring must comply with national, state, and local codes.

Follow instructions on unit wiring diagram located on the inside of the control box cover and in the Service Facts document included with the unit.



12.2 High Voltage Disconnect Switch

Install a separate disconnect switch at the outdoor unit.

For high voltage connections, flexible electrical conduit is recommended whenever vibration transmission may create a noise problem within the structure.

12.3 High Voltage Ground

Ground the outdoor unit per national, state, and local code requirements.

⚠ WARNING

CABLING SAFETY!
Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects.

Section 13. Start Up

13.1 System Start Up

STEP 1 - Ensure Sections 7 through 12 have been completed.
STEP 2 - Set System Thermostat to OFF.
STEP 3 - Turn on disconnect(s) to apply power to the indoor and outdoor units.
STEP 4 - Wait one (1) hour before starting the unit if compressor crankcase heater accessory is used and the Outdoor Ambient is below 70ºF.
STEP 5 - Set system thermostat to ON.

Section 14. System Charge Adjustment (Systems can be rated with TXV, EEV or Piston)

NOTE: For systems using a indoor piston metering device, refer to the Superheat charging method and chart. For systems using a TXV or EEV indoor metering device, refer to Subcool charging method and charts.

14.1 Temperature Measurements

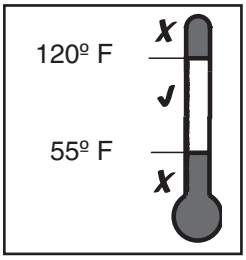
STEP 1 - Check the outdoor temperatures.

Subcooling (in cooling mode) is the only recommended method of charging above 55º F ambient outdoor temperature.

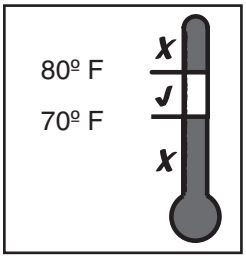
Note: For Superheat (In Cooling Mode), refer to the Superheat Charging Table

For best results the indoor temperature should be kept between 70º F to 80º F.

Note: It is important to return in the spring or summer to accurately charge the system in the cooling mode when outdoor ambient temperature is above 55º F.



Outdoor Temp



Indoor Temp

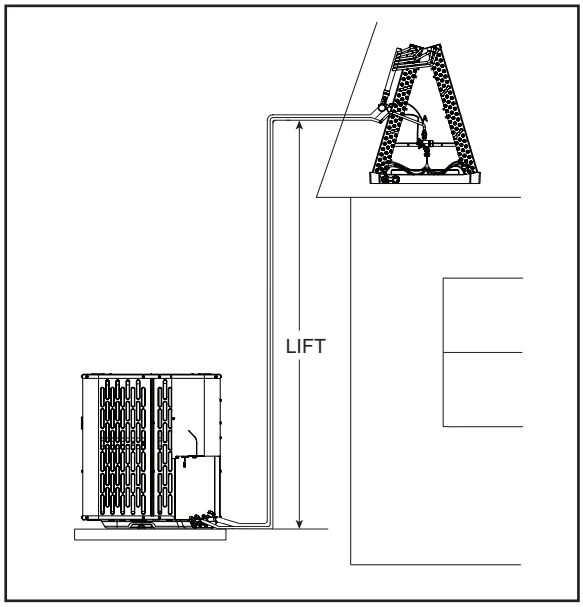
14.2 Subcooling Charging in Cooling (Above 55º F Outdoor Temp.)

STEP 1 - Use the refrigerant line total length and lift measurements from Section 5 and use line length adders as shown in Section 5.2 if required.

Total Line Length = _____ Ft.

Vertical Change (Lift) = _____ Ft.

Note: Use this method when matched with a TXV or EEV indoor unit.



STEP 2 - Determine the final subcooling value using total Line Length and Lift measured in STEP 1 and the charts below.

For 018A - 060A Models:

018A, 024A, 030A, 036A			
Vapor Line	**Liquid Line**	**Length**	**Lift**
5/8	5/16	150	50
3/4	5/16	150	50
5/8	3/8	150	50
3/4	3/8	150	50
Note:			
Ratings/Primary			
Legacy Lineset			

042A, 048A			
Vapor Line	**Liquid Line**	**Length**	**Lift**
3/4	5/16	150	50
7/8	5/16	150	50
3/4	3/8	150	50
7/8	3/8	150	50
Note:			
Ratings/Primary			
Legacy Lineset			

060A			
Vapor Line	**Liquid Line**	**Length**	**Lift**
7/8	5/16	150	50
1-1/8	5/16	75	50
7/8	3/8	150	50
1-1/8	3/8	75	50
Note:			
Ratings/Primary			
Legacy Lineset			

R-454B REFRIGERANT CHARGING CHART							
LIQUID TEMP (°F)	DESIGN SUBCOOLING (°F)						
	8	9	10	11	12	13	14
	LIQUID GAUGE PRESSURE (PSI)						
55	170	172	175	178	181	184	187
60	184	187	190	194	197	200	203
65	200	203	206	210	213	217	220
70	217	220	223	227	230	234	238
75	234	238	241	245	249	252	256
80	252	256	260	264	268	272	276
85	272	276	280	284	288	292	297
90	292	297	301	305	309	314	318
95	314	318	323	327	332	336	341
100	336	341	346	351	355	360	365
105	360	365	370	375	380	385	390
110	385	390	396	401	406	412	417
115	412	417	422	428	433	439	445
120	439	445	450	456	462	468	474
125	468	474	480	486	492	498	504

Figure 1. Subcool Charging Corrections – 018A, 024A, 030A, 036A

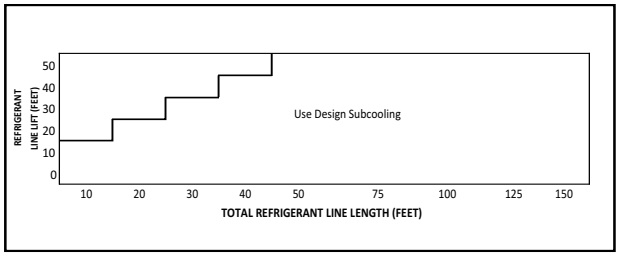


Figure 2. Subcool Charging Corrections – 042A, 048A

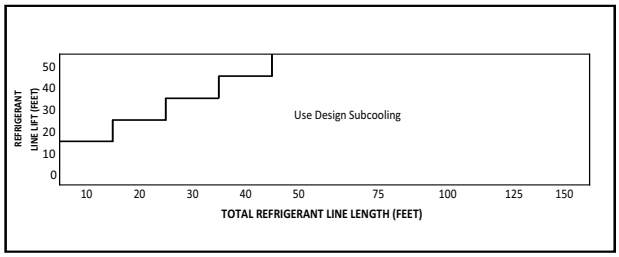
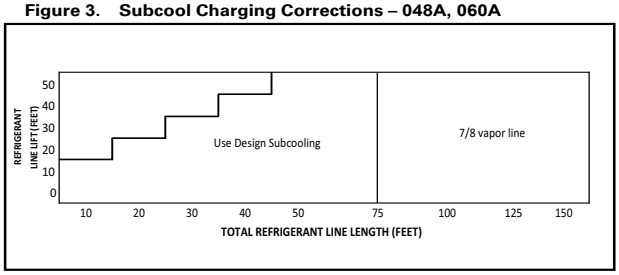


Figure 3. Subcool Charging Corrections – 048A, 060A



Design Subcooling Value = _____ º F
(from nameplate or Service Facts)

Subcooling Correction = _____ º F

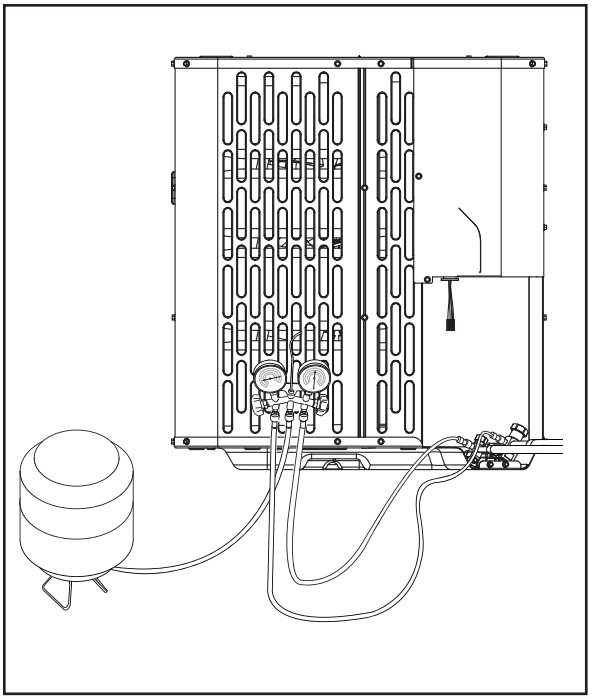
Final Subcooling Value = _____ º F

14.3 Charging the Unit

STEP 1 - Attain Proper Gauge Pressure.
Using the Standard R-454B Subcool Charging Chart, adjust refrigerant level to attain proper gauge pressure.
Note: *Use bubble point, per the included chart, for calculating subcooling.*
Add refrigerant in the Liquid Gauge Pressure is lower than the chart value

1. Connect gauges to refrigerant bottle and unit are illustrated.
2. Purge all hoses.
3. Place refrigerant bottle on a scale and then open bottle.
4. Stop adding refrigerant when liquid line refrigerant and Liquid Gauge Pressure match the charging chart.

Note: *Recover refrigerant if the Liquid Gauge Pressure is higher than the chart value.*
Note: *Ensure that contamination of different refrigerants does not occur when using charging equipment. Cylinders shall be kept in an appropriate position according to the instructions. Ensure that the REFRIGERATION SYSTEM is earthed prior to charging the system with refrigerant.*

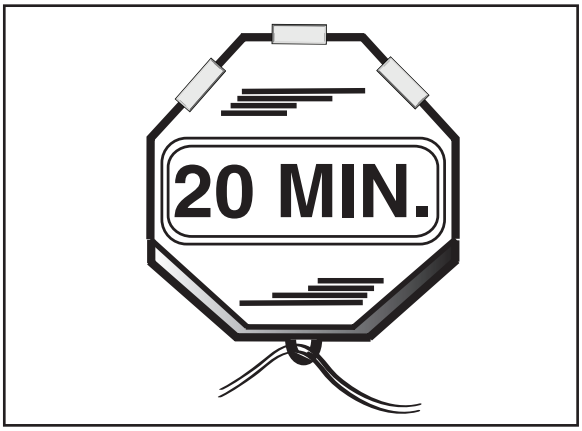


STEP 2 - Stabilize the system.

1. Wait 20 minutes for the system condition to stabilize between adjustments.

Note: When the Liquid Line Temperature and Gauge Pressure approximately match the chart, the system is properly charged.

2. Remove gauges.
3. Replace service port caps to prevent leaks. Tighten finger tight plus an additional 1/6 turn.



STEP 3 - Record System Information for reference.
Record system pressures and temperatures after charging is complete.

Outdoor model number = _____

Measured Outdoor Ambient = _____ º F

Measured Indoor Ambient = _____ º F

Measured Liquid Line Temp = _____ º F

Measured Suction Line Temp = _____ º F

Liquid Gauge Pressure = _____ PSIG

Suction Gauge Pressure = _____ PSIG

STEP 4 - Complete the 'Total System Charge' charge rating label below and label located on the outside of the unit with a permanent marker.

a. Charge added at Factory = _____ lb/oz
b. Charge added at install = _____ lb/oz
c. Total System Charge (a + b) = _____ lb/oz

Fixed Orifice Superheat Charging Table

	Indoor Wet Bulb Temp (F)																														
Outdoor Dry Bulb Temp. (F)		50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78
	55	7	9	10	11	12	14	15	17	18	20	21	23	24	26	27	29	30												
	60	5	7	8	9	10	12	13	15	16	18	19	21	22	24	25	27	28	30	31										
	65			4	6	8	10	11	13	14	16	17	18	19	21	22	24	25	27	28	27	31								
	70					5	7	8	10	11	13	14	16	17	18	19	21	22	24	25	27	28	30	31						
	75							5	6	7	9	10	12	14	16	18	19	21	22	24	26	28	29	31	32					
	80									4	6	7	9	10	11	12	14	16	18	19	21	23	25	26	28	29	31	33		
	85											4	6	7	9	10	13	14	16	18	20	21	23	24	26	28	29	30	31	32
	90													4	6	8	10	11	13	14	16	18	20	22	24	25	27	28	30	31
	95															4	6	8	10	13	14	16	18	20	22	23	25	26	28	29
	100																	6	8	10	12	13	16	18	20	21	23	25	27	29
	105																	4	6	7	9	11	13	15	18	20	22	24	26	28
	110																			4	7	9	11	13	16	18	21	23	26	28
	115																					6	9	12	14	16	19	21	24	26

Using a digital psychrometer, measure the return air wet-bulb temperature at the unit just before the coil. Also measure the outdoor dry-bulb temperature. Use these temperatures to locate the target superheat on the charging table. Do not attempt to charge the system if these conditions fall outside of this charging table.
ADD refrigerant to DECREASE total superheat. REMOVE refrigerant to INCREASE total superheat. Always allow 10 to 15 minutes of operature after any refrigerant or air flow change prior to determining the final superheat.

14.4 Weigh-In Method for Charging

Weigh-In Method can be used for the initial installation, or anytime a system charge is being replaced. Weigh-In Method can also be used when power is not available to the equipment site or operating conditions (indoor/outdoor temperatures) are not in range to verify with the subcooling charging method.

Calculating Charge Using the Weigh-In Method

STEP 1 - Measure in feet the distance between the outdoor unit and the indoor unit and record on Line 1. Include the entire length of the line from the service valve to the IDU (minus 10 ft).

STEP 2 - Enter the charge multiplier (0.47 oz./ft for 3/8" and 0.30 oz./ft for 5/16").

STEP 3 - Multiply the total length of refrigerant tubing (Line 1) times the value on Step 2. Record the result on Line 3 of the Worksheet.

STEP 4 - This is the amount of refrigerant to weigh-in prior to opening the service valves.

1. Line length (ft) = _____
2. Charge multiplier = for 3/8", use 0.47 oz. per foot and for 5/16", use 0.30 oz. per foot
3. Step 1 x Step 2 = _____
4. Refrigerant = _____

STEP 5 - Complete the 'Total System Charge' charge rating label below and label located on the outside of the unit with a permanent marker.

Note: *Complete the 'Total System Charge' chart when final charging is complete.*

a. Charge added at Factory = _____ lb/oz

b. Charge added at install = _____ lb/oz

c. Total System Charge (a + b) = _____ lb/oz

STEP 6 - Return to site for adjustment.

Important: *Return in the spring or summer to accurately charge the system in the cooling mode with outdoor ambient* ***above 55º F.***

Section 15. Checkout Procedures

15.1 Operational And Checkout Procedures

Final phases of this installation are the unit Operational and Checkout Procedures. To obtain proper performance, all units must be operated and charge adjustments made.

Important: *Perform a final unit inspection to be sure that factory tubing has not shifted during shipment. Adjust tubing if necessary so tubes do not rub against each other when the unit runs. Also be sure that wiring connections are tight and properly secured.*

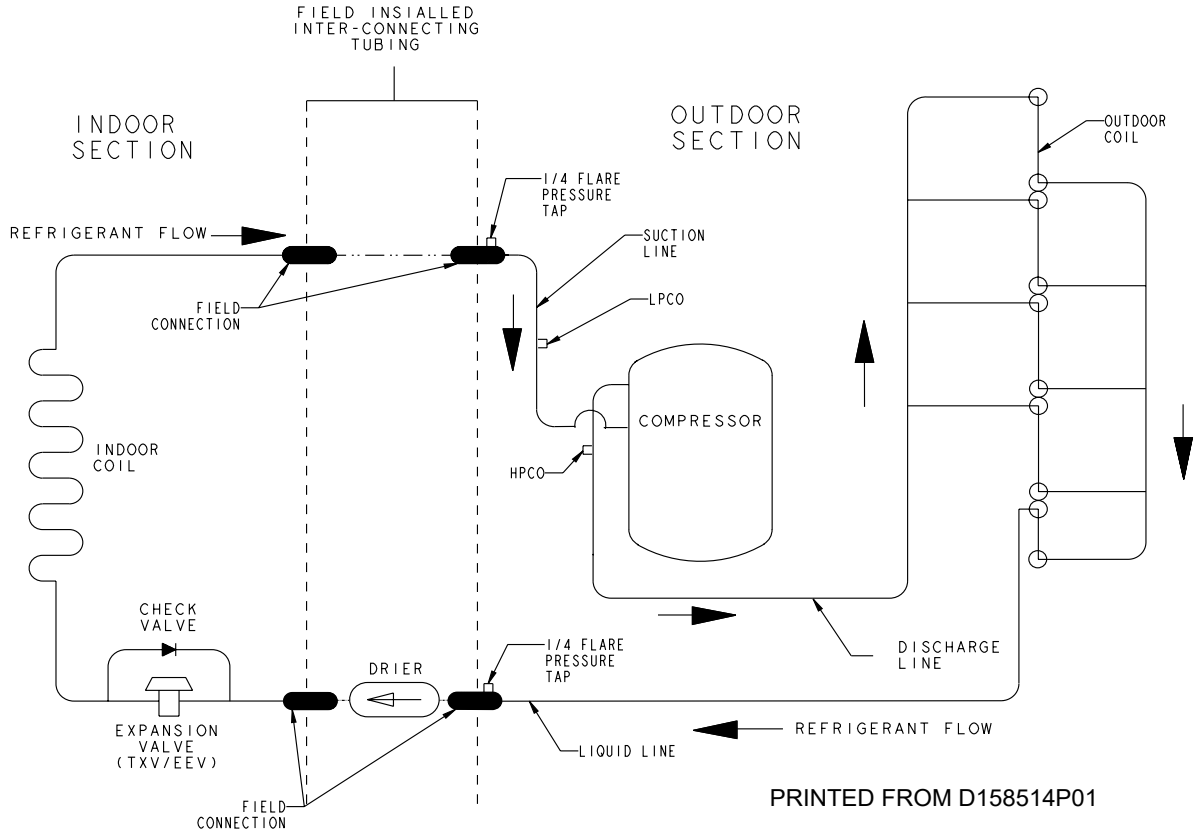
CHECKOUT PROCEDURE

After installation has been completed, it is recommended that the entire system be checked against the following list:

1. Leak check refrigerant lines. ..... [ ]
2. Properly insulate suction lines and fittings..... [ ]
3. Properly secure and isolate all refrigerant lines..... [ ]
4. Seal passages through masonry.
   If mortar is used, prevent mortar from coming into direct contact with copper tubing. ..... [ ]
5. Verify that all electrical connections are tight..... [ ]
6. Observe outdoor fan during on cycle for clearance and smooth operation..... [ ]
7. Be sure that indoor coil drain line drains freely. Pour water into drain pan..... [ ]
8. Be sure that supply registers and return grilles are open and unobstructed..... [ ]
9. Be sure that a return air filter is installed. ..... [ ]
10. Be sure that the correct airflow setting is used. (Indoor blower motor) ..... [ ]
11. Operate complete system in each mode to ensure safe operation. ..... [ ]

Section 16. Refrigeration Circuits

018, 030 & 042 Models



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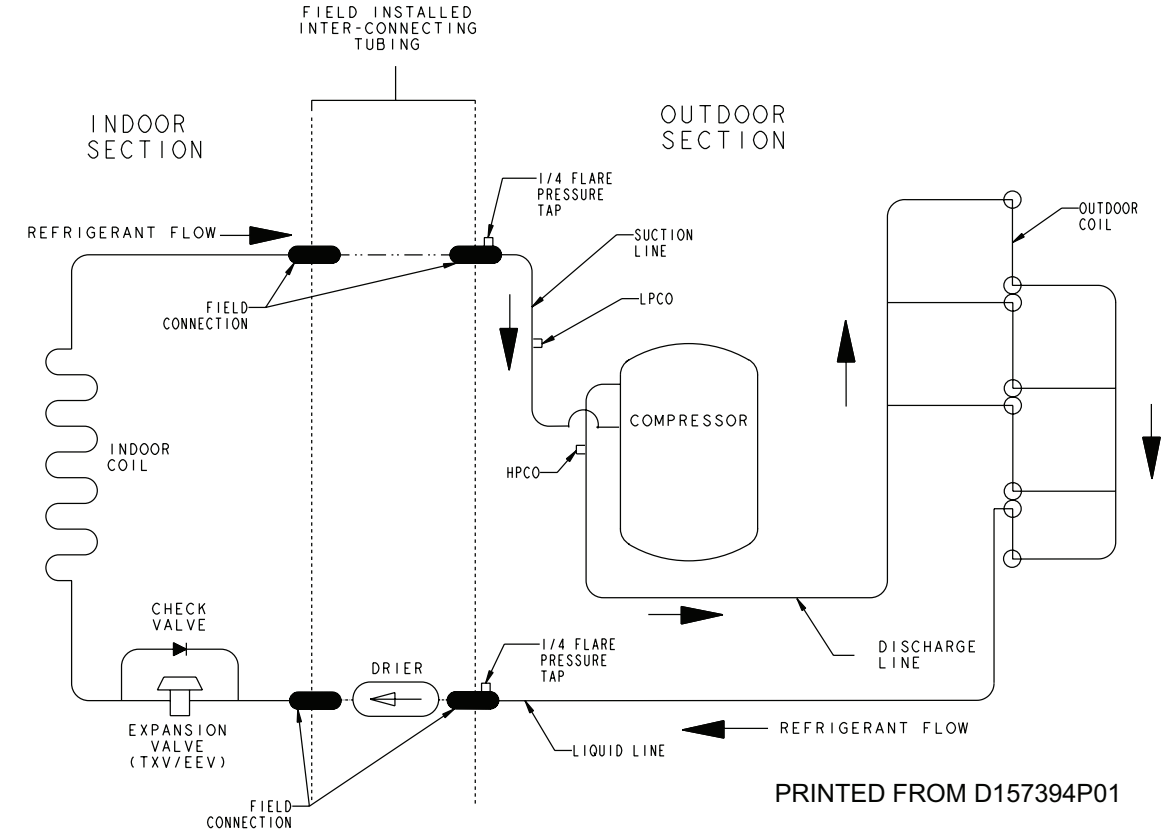
024 & 036 Models



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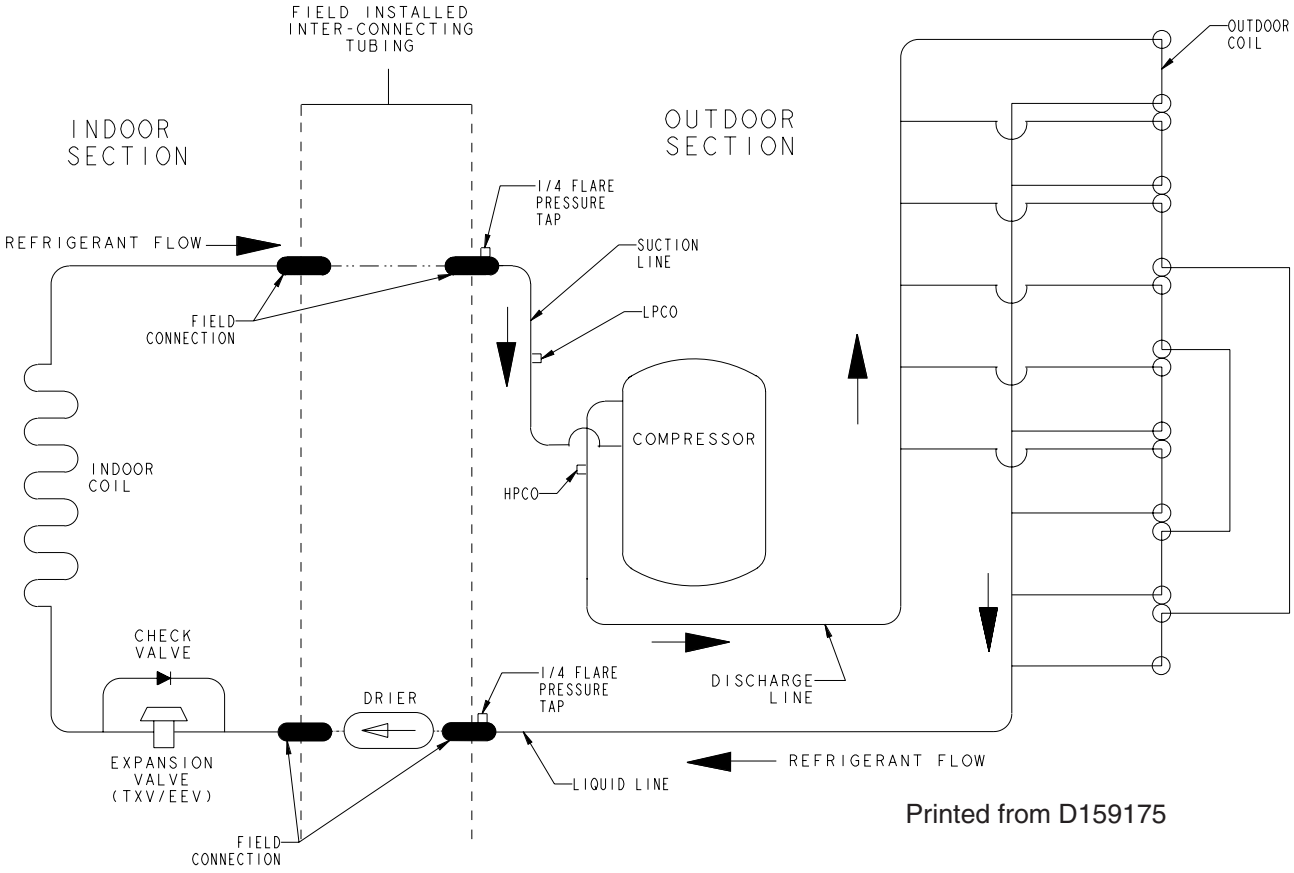
048 & 060 Models



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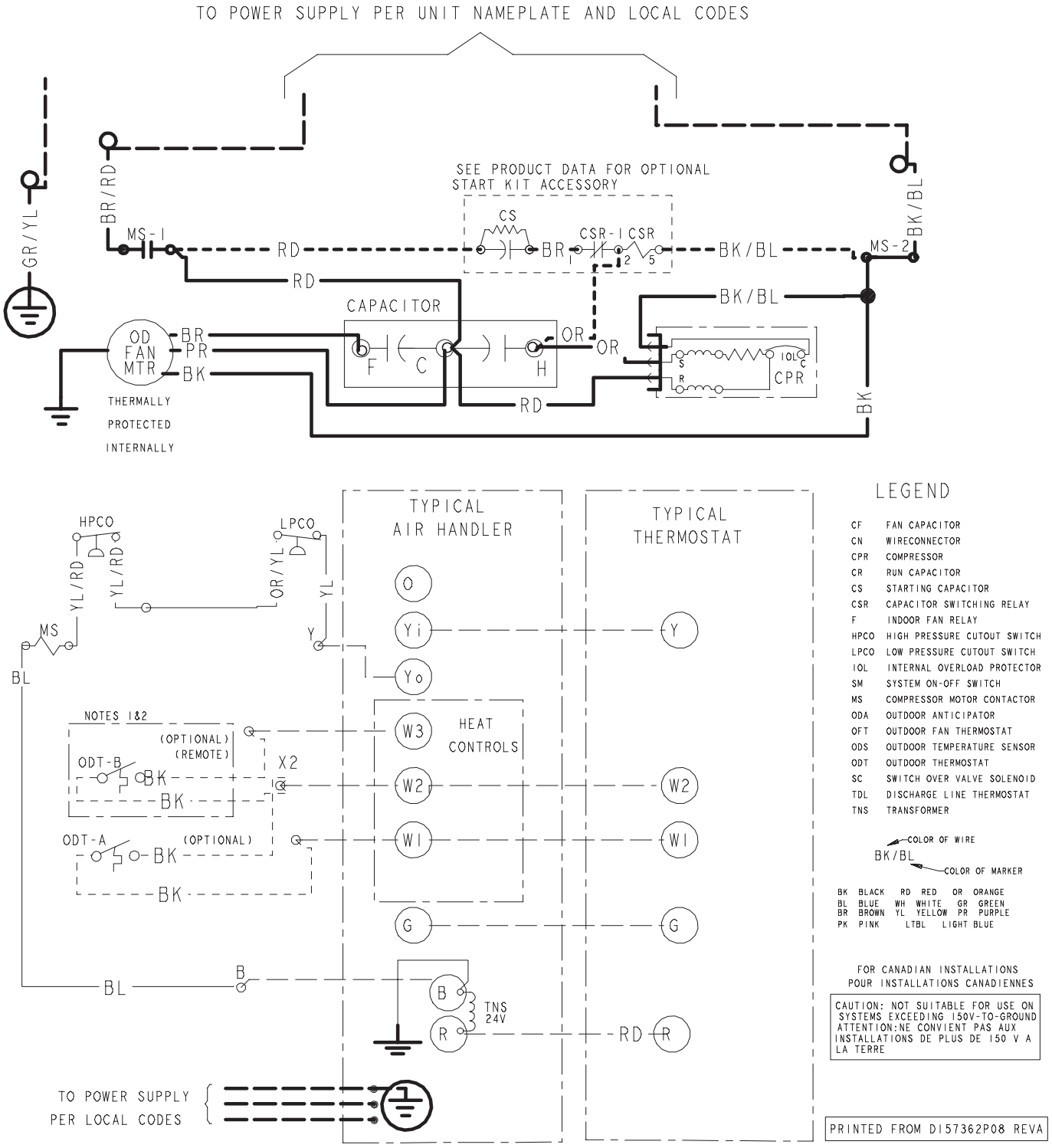
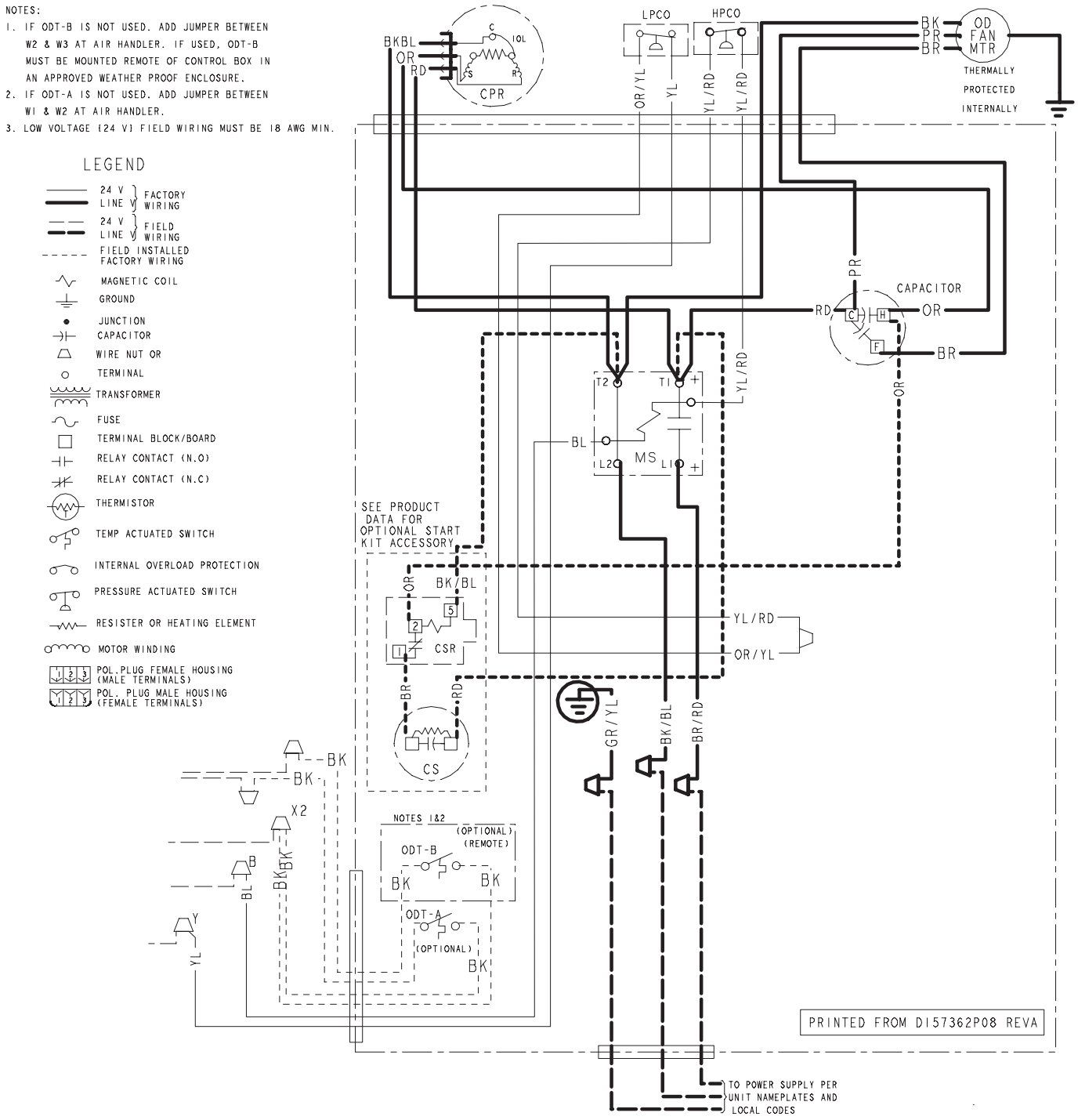
Section 17. Wiring Diagrams

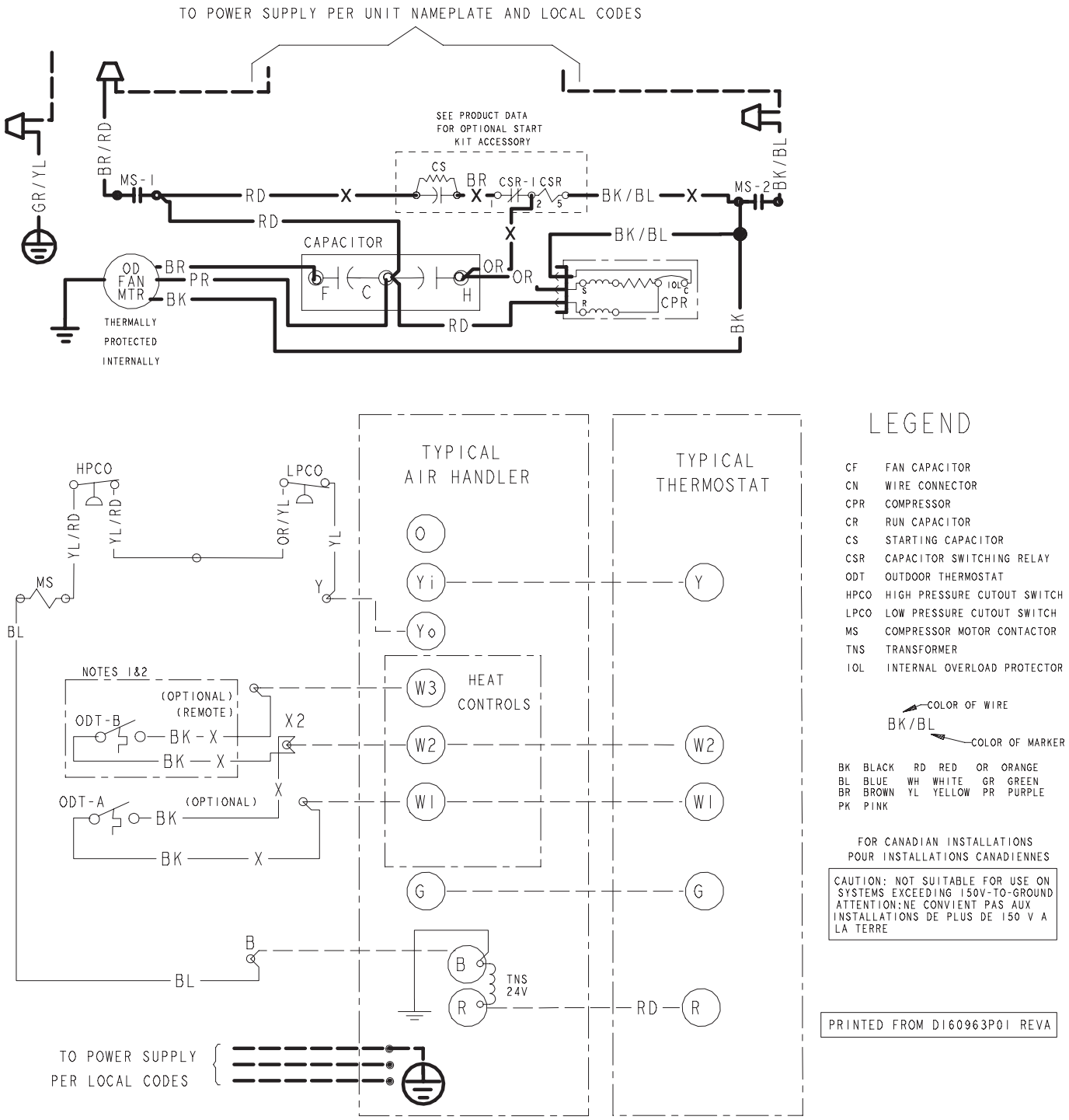
018 - 048 Models



018 - 048 Models



060 Models



LEGEND

CF	FAN CAPACITOR
CN	WIRE CONNECTOR
CPR	COMPRESSOR
CR	RUN CAPACITOR
CS	STARTING CAPACITOR
CSR	CAPACITOR SWITCHING RELAY
ODT	OUTDOOR THERMOSTAT
HPCO	HIGH PRESSURE CUTOUT SWITCH
LPCO	LOW PRESSURE CUTOUT SWITCH
MS	COMPRESSOR MOTOR CONTACTOR
TNS	TRANSFORMER
IOL	INTERNAL OVERLOAD PROTECTOR

COLOR OF WIRE
BK/BL
COLOR OF MARKER

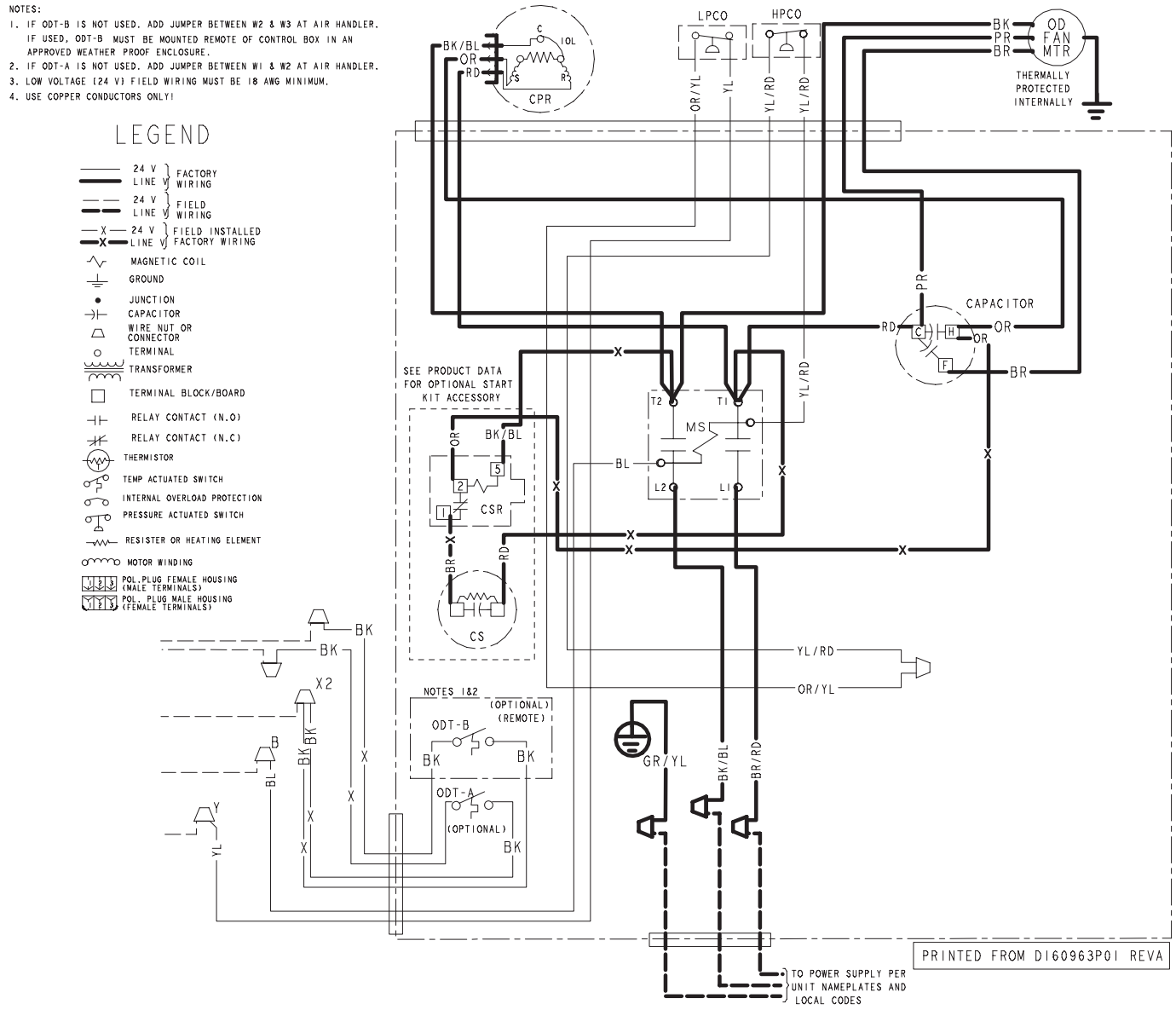
BK	BLACK	RD	RED	OR	ORANGE
BL	BLUE	WH	WHITE	GR	GREEN
BR	BROWN	YL	YELLOW	PR	PURPLE
PK	PINK				

FOR CANADIAN INSTALLATIONS
POUR INSTALLATIONS CANADIENNES

CAUTION: NOT SUITABLE FOR USE ON SYSTEMS EXCEEDING 150V-TO-GROUND
ATTENTION:NE CONVIENT PAS AUX INSTALLATIONS DE PLUS DE 150 V A LA TERRE

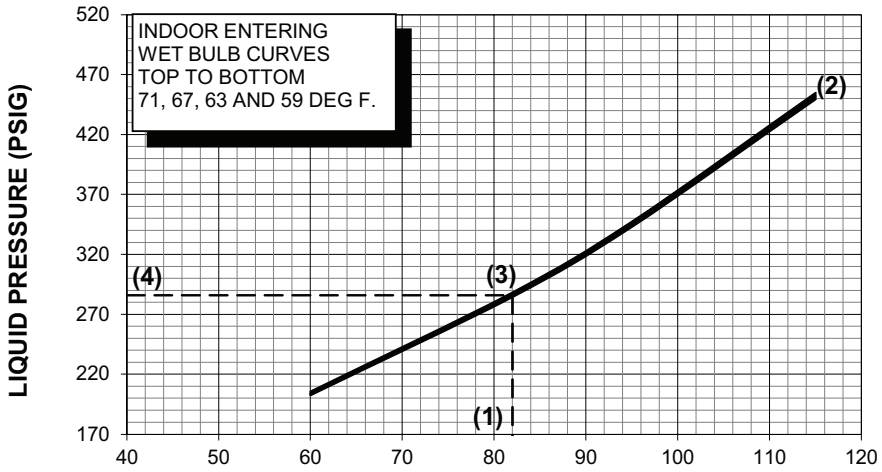
PRINTED FROM D160963P01 REVA

060 Models


NOTES:
1. IF ODT-B IS NOT USED. ADD JUMPER BETWEEN W2 & W3 AT AIR HANDLER. IF USED, ODT-B MUST BE MOUNTED REMOTE OF CONTROL BOX IN AN APPROVED WEATHER PROOF ENCLOSURE.
2. IF ODT-A IS NOT USED. ADD JUMPER BETWEEN W1 & W2 AT AIR HANDLER.
3. LOW VOLTAGE (24 V) FIELD WIRING MUST BE 18 AWG MINIMUM.
4. USE COPPER CONDUCTORS ONLY!
LEGEND
24 V LINE V FACTORY WIRING
24 V LINE V FIELD WIRING
24 V LINE V FIELD INSTALLED FACTORY WIRING
MAGNETIC COIL
GROUND
JUNCTION
CAPACITOR
WIRE NUT OR CONNECTOR
TERMINAL
TRANSFORMER
TERMINAL BLOCK/BOARD
RELAY CONTACT (N.O)
RELAY CONTACT (N.C)
THERMISTOR
TEMP ACTUATED SWITCH
INTERNAL OVERLOAD PROTECTION
PRESSURE ACTUATED SWITCH
RESISTER OR HEATING ELEMENT
MOTOR WINDING
POL.PLUG FEMALE HOUSING (MALE TERMINALS)
POL. PLUG MALE HOUSING (FEMALE TERMINALS)
CPR
IOL
LPCO
HPCO
OD FAN MTR
THERMALLY PROTECTED INTERNALLY
CAPACITOR
SEE PRODUCT DATA FOR OPTIONAL START KIT ACCESSORY
CSR
CS
MS
NOTES 1&2
(OPTIONAL) (REMOTE)
ODT-B
ODT-A
(OPTIONAL)
PRINTED FROM DI60963P01 REVA
TO POWER SUPPLY PER UNIT NAMEPLATES AND LOCAL CODES

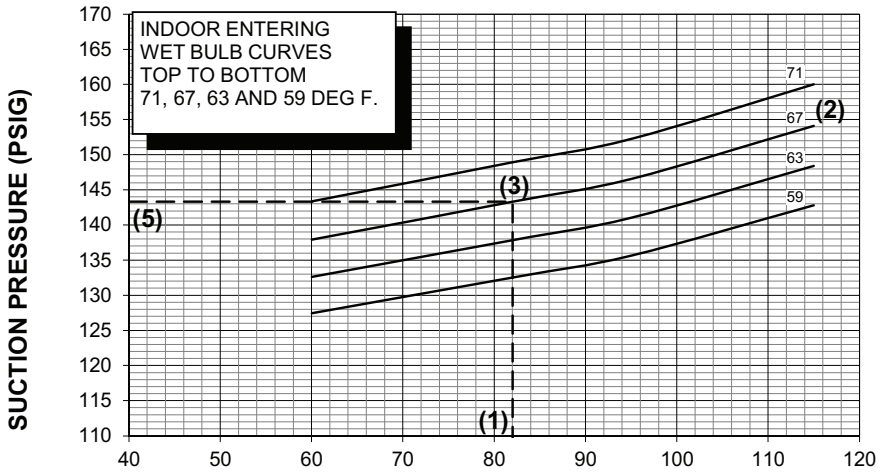
Section 18. Pressure Curves

PRESSURE CURVES (Refer below table for models)



OUTDOOR TEMPERATURE (Degree F)

OD Model	Cooling @SCFM
A5AC4018A1	600



OUTDOOR TEMPERATURE (Degree F)

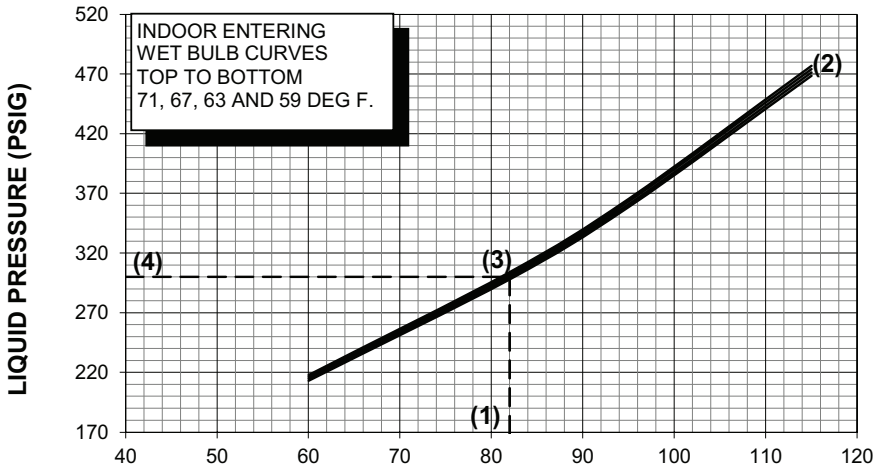
COOLING PERFORMANCE CAN BE CHECKED WHEN THE OUTDOOR TEMP IS ABOVE 65 DEG F.

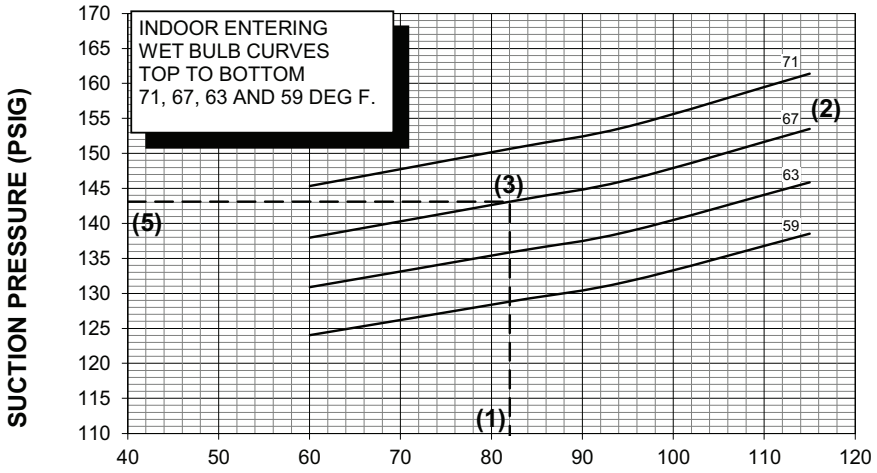
TO CHECK COOLING PERFORMANCE, SELECT THE PROPER INDOOR CFM, ALLOW PRESSURES TO STABILIZE. MEASURE INDOOR WET BULB TEMPERATURE, OUTDOOR TEMPERATURE, LIQUID AND SUCTION PRESSURES. ON THE PLOTS LOCATE OUTDOOR TEMPERATURE (1); LOCATE INDOOR WET BULB (2); FIND INTERSECTION OF OD TEMP. & ID W.B. (3); READ LIQUID (4) OR SUCTION (5) PRESSURE IN LEFT COLUMN .

EXAMPLE: (1) OUTDOOR TEMP. 82 F.
(2) INDOOR WET BULB 67 F.
(3) AT INTERSECTION
(4) LIQUID PRESSURE @ 600 CFM IS 286 PSIG
(5) SUCTION PRESSURE @ 600 CFM IS 143 PSIG

ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

PRESSURE CURVES (Refer below table for models)





OD Model	Cooling @SCFM
A5AC4024A1	750
A5AC4030A1	850
A5AC4036A1	950
A5AC4042A1	1150
A5AC4048A1	1350

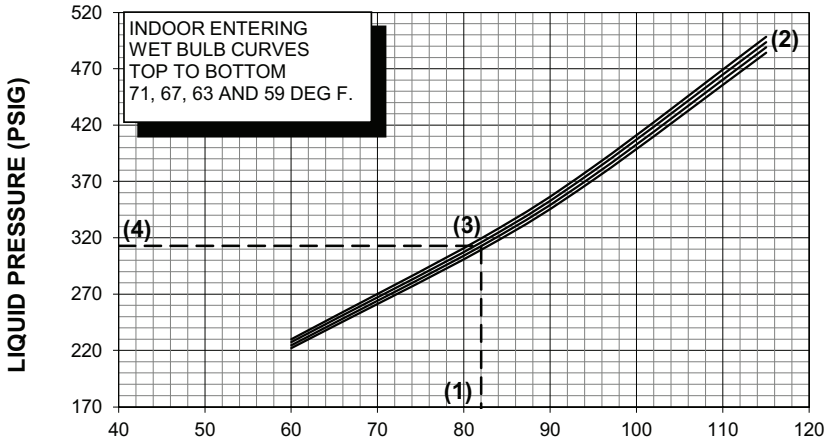
COOLING PERFORMANCE CAN BE CHECKED WHEN THE OUTDOOR TEMP IS ABOVE 65 DEG F.

TO CHECK COOLING PERFORMANCE, SELECT THE PROPER INDOOR CFM, ALLOW PRESSURES TO STABILIZE. MEASURE INDOOR WET BULB TEMPERATURE, OUTDOOR TEMPERATURE, LIQUID AND SUCTION PRESSURES. ON THE PLOTS LOCATE OUTDOOR TEMPERATURE (1); LOCATE INDOOR WET BULB (2); FIND INTERSECTION OF OD TEMP. & ID W.B. (3); READ LIQUID (4) OR SUCTION (5) PRESSURE IN LEFT COLUMN .

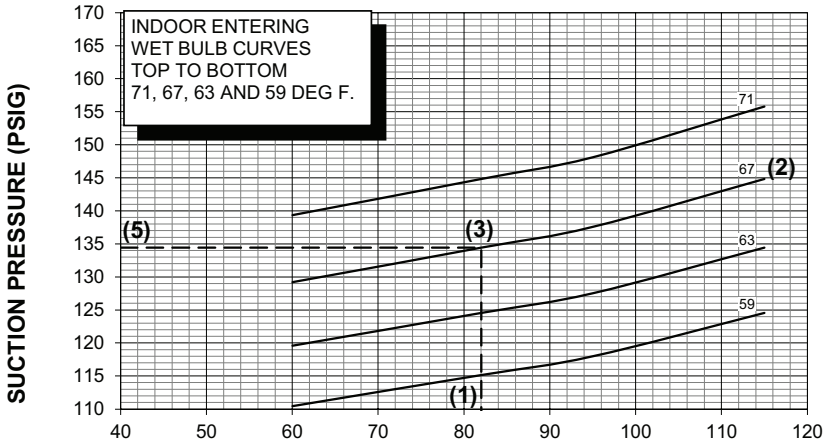
EXAMPLE: (1) OUTDOOR TEMP. 82 F.
(2) INDOOR WET BULB 67 F.
(3) AT INTERSECTION
(4) LIQUID PRESSURE @ 600 CFM IS 300 PSIG
(5) SUCTION PRESSURE @ 600 CFM IS 143 PSIG

ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

PRESSURE CURVES (Refer below table for models)



OD Model	Cooling @SCFM
A5AC4060A1	1450

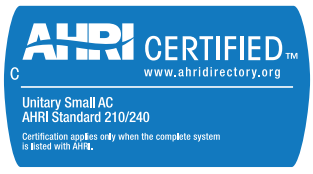


COOLING PERFORMANCE CAN BE CHECKED WHEN THE OUTDOOR TEMP IS ABOVE 65 DEG F.

TO CHECK COOLING PERFORMANCE, SELECT THE PROPER INDOOR CFM, ALLOW PRESSURES TO STABILIZE. MEASURE INDOOR WET BULB TEMPERATURE, OUTDOOR TEMPERATURE, LIQUID AND SUCTION PRESSURES. ON THE PLOTS LOCATE OUTDOOR TEMPERATURE (1); LOCATE INDOOR WET BULB (2); FIND INTERSECTION OF OD TEMP. & ID W.B. (3); READ LIQUID (4) OR SUCTION (5) PRESSURE IN LEFT COLUMN .

EXAMPLE: (1) OUTDOOR TEMP. 82 F.
(2) INDOOR WET BULB 67 F.
(3) AT INTERSECTION
(4) LIQUID PRESSURE @ 600 CFM IS 313 PSIG
(5) SUCTION PRESSURE @ 600 CFM IS 134 PSIG

ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART



The AHRI Certified mark indicates company participation in the AHRI Certification program. For verification of individual certified products, go to ahridirectory.org.

The manufacturer has a policy of continuous data improvement and it reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

88-A5HP4001-1B-EN 17 Oct 2024
Supersedes 88-A5HP4001-1A-EN (August 2023)