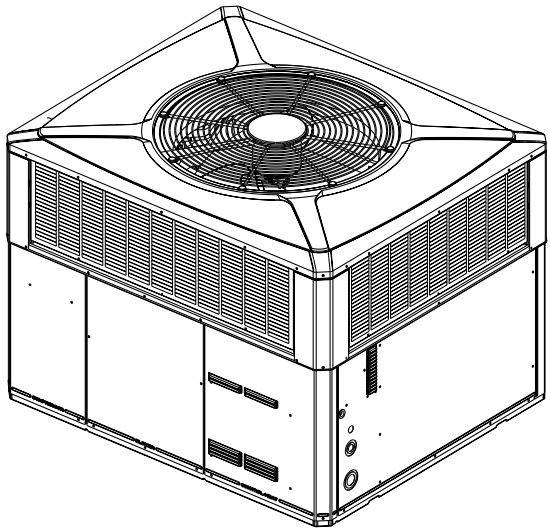
Installation, Operation, and Maintenance

Single Packaged Cooling/Electric Heat Entry, Convertible, 2 to 5 Ton, R-454B

A5PA3024A1000A
A5PA3030A1000A
A5PA3036A1000A
A5PA3042A1000A
A5PA3048A1000A
A5PA3060A1000A



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 2025

PKGR-SVX009B-EN

Introduction

Read this manual thoroughly before operating or servicing this unit.

This document is customer property and is to remain with this unit. Return to the service information pack upon completion of work.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
NOTICE	Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury.

All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, MUST follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- **Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (Examples; cut resistant gloves/ sleeves, butyl gloves, safety glasses, hard hat/ bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.**
- **When working with or around hazardous chemicals, ALWAYS refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.**
- **If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

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⚠ WARNING

Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

- **All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.**
- **Non-Trane personnel should always follow local regulations.**

⚠ WARNING

Cancer and Reproductive Harm!

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

Safety Hazard!

Failure to follow instructions below could result in death or serious injury or property damage.

This unit 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 concerning the use of the appliance by a person responsible for their safety.

Do not allow children to play or climb on the unit or to clean or maintain the unit without supervision.

⚠ WARNING

Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

⚠ WARNING

Safety and Electrical Hazard!

Failure to follow instructions below could result in death or serious injury or property damage.

All servicing MUST be performed by qualified personnel only based on the operating instructions provided.

⚠ WARNING

Grounding Required!

Failure to follow instructions below could result in death or serious injury, or property damage.

- **Reconnect all grounding devices.**
- **All parts of this product that are capable of conducting electrical current are grounded.**
- **If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.**

⚠ WARNING

Risk of Fire — Flammable Refrigerant!

Failure to follow instructions below could result in death or serious injury, and equipment damage.

- **To be repaired only by trained service personnel.**
- **Do not puncture refrigerant tubing.**
- **Dispose of properly in accordance with federal or local regulations.**

⚠ WARNING

Safety Hazard!

Failure to operate the unit without the access panels properly installed could result in death or serious injury.

Do not operate the unit without the evaporator fan access panel or evaporator coil access panel in place. Reinstall the access panels after performing maintenance procedures on the fan.

⚠ WARNING

Leak Detection System Installed!

Failure to follow instructions below could result in death or serious injury or equipment damage.

The unit is equipped with electrically powered safety measures and must be powered at all times after installation, except during servicing, to detect any leak.

⚠ CAUTION

Sharp Edges!

Failure to follow instructions below could result in minor to moderate injury.

The service procedure described in this document involves working around sharp edges. To avoid being cut, technicians MUST put on all necessary Personal Protective Equipment (PPE), including gloves and arm guards.

⚠ CAUTION

Unit Contains R–454B Refrigerant!

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

Use only R-454B refrigerant and approved compressor oil.

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Revision History

- Updated Product specifications table.
- Updated Unit Start-Up chapter.
- Wiring diagrams section added.

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Information on Servicing

All replacement parts shall be in accordance with the manufacturer's specifications.

Prior to Beginning Work

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the refrigerating system, the following shall be completed prior to conducting work on the system:

- Work shall be undertaken under a controlled procedure to minimize the risk of a flammable gas or vapor being present while the work is being performed.
- All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e., non-sparking, adequately sealed or intrinsically safe.
- If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.
- No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. No Smoking signs shall be displayed.
- Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.
- The following checks shall be applied to installations using flammable refrigerants:
  - Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
  - Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

Repairs to Electrical Components

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment, so all parties are advised.

Initial safety checks shall include:

- That capacitors are discharged; this shall be done in a safe manner to avoid possibility of sparking;
- That no live electrical components and wiring are exposed while charging, recovering or purging the system;
- That there is continuity of earth bonding.

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

Detection of Flammable Refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection method is deemed acceptable for all refrigerant systems:

- Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of

the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.

- Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

Example of leak detection fluids are:

- Bubble method,
- Fluorescent method agents

If a leak is suspected, all naked flames shall be removed/ extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut-off valves) in a part of the system remote from the leak.

Removal and Evacuation

When breaking into the refrigerant circuit to make repairs - or for any other purpose - conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:

- Safely remove refrigerant following local and national regulations;
- Evacuate;
- Purge the circuit with inert gas;
- Evacuate;
- Continuously flush or purge with inert gas when using flame to open circuit;
- And open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants.

This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

Charging Procedures

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 minimise 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.

Important: *The unit should not be tested higher than 450 psig for servicing or component replacement.*

See installation instructions below for further details.

Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e., special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

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. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

1. Become familiar with the equipment and its operation.
2. Isolate system electrically.
3. Before attempting the procedure, ensure that:
    a. Mechanical handling equipment is available, if required, for handling refrigerant cylinders;
    b. All personal protective equipment is available and being used correctly;
    c. The recovery process is supervised at all times by a competent person;
    d. Recovery equipment and cylinders conform to the appropriate standards.
4. Pump down refrigerant system, if possible.
5. If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
6. Make sure that cylinder is situated on the scales before recovery takes place.
7. Start the recovery machine and operate in accordance with instructions.
8. Do not overfill cylinders (no more than 80 % volume liquid charge).
9. Do not exceed the maximum working pressure of the cylinder, even temporarily.
10. When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
11. Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerant, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

Introduction, Unit Inspection, and Specification

Introduction

Read this manual carefully before attempting to install, operate, or perform maintenance on this unit. Installation and maintenance should be performed by qualified service technicians only. This unit is listed by Underwriters Laboratory.

Packaged units are designed for outdoor mounting with a vertical condenser discharge. They can be located either at ground level or on a roof in accordance with local codes. Each unit contains an operating charge of refrigerant as shipped.

Extreme mounting kits are available for slab (BAYEXMK003), utility curb (BAYEXMK002) and perimeter curb (BAYEXMK001) mountings.

Inspect Shipment

1. Check for damage after the unit is unloaded. Report promptly to the carrier any damage found to the unit. Do not drop the unit.

   Important: *To prevent damage to the sides and top of the unit when hoisting, use "spreader bars" see,* *"Rooftop Installation — No Curb/ Frame," p. 20.*

2. Check the unit's nameplate to determine if the unit is correct for the intended application. The power supply must be adequate for both the unit and all accessories.
3. Check to be sure the refrigerant charge has been retained during shipment. Remove the Compressor access panel to access the 1/4-in. flare pressure taps.
4. If this unit is being installed on a curb, verify that the correct curb is provided with the unit.
   - A5PA3024-036 use model BAYCURB050,
   - A5PA3042–060 use model BAYCURB051
5. If the unit is being hoisted, accessory kit BAYLIFT002 is recommended. It includes a kit of four (4) lifting lugs and instructions.

Notes:

- *If practical, install any internal accessories to the unit at the shop.*
- *The packaged units have been evaluated in accordance with the Code of Federal Regulations, Chapter XX, Part 3280 or the equivalent. "Suitable for mobile home use."*

Product Specifications

Table 1. Models — A5PA3024A, A5PA3030A, A5PA3036A, A5PA3042A, A5PA3048A, and A5PA3060A

Model	A5PA3024A	A5PA3030A	A5PA3036A	A5PA3042A	A5PA3048A	A5PA3060A
Rated Volts/Ph/Hz	208–230/1/60					
Performance Cooling BTUH[a]	24000	28400	36800	40000	47500	58500
Indoor Airflow (CFM)	820	920	1190	1500	1670	1700
Power Input (kW)	1.98	2.43	3.12	3.53	4.30	5.08
EER2/SEER2 (BTU/Watt-Hr.)[b]	10.6/13.4					
Sound Power Rating [dB(A)][c]	66.6	70.0	69.3	74.6	72.5	73.1
Power Conn. — V/Ph/Hz	208–230/1/60					
Min. Brch. Cir. Ampacity[d]	16	21	28	26	36	41
Fuse Size — Max. (amps)	25	30	40	40	50	60
Fuse Size — Recmd. (amps)	25	30	40	40	50	60
Compressor	Scroll					
Volts/Ph/Hz	208–230/1/60					
R.L. Amps — L.R. Amps	10.3 / 60.2	12.7 /75.6	16.7 / 93.5	14.7 / 109.0	22.4 / 126	25.6 / 150.0
Outdoor Coil — Type	Spine-Fin					
Rows/F.P.I	2 / 24					
Face Area (sq. ft.)	13.32	13.32	15.49	15.63	20.54	22.99

Table 1. Models — A5PA3024A, A5PA3030A, A5PA3036A, A5PA3042A, A5PA3048A, and A5PA3060A (continued)

Model	A5PA3024A	A5PA3030A	A5PA3036A	A5PA3042A	A5PA3048A	A5PA3060A
Tube Size (-in.)	3/8					
Indoor Coil — Type	MCHE					RTPF
Rows/F.P.I	2 / 16					4 / 15
Face Area (sq. ft.)	2.7			3.9	3.9	5.0
Tube Size (-in.)	0.81	0.81	1.00	0.81	0.81	0.38
Refrigeration Control	Expansion Valve					
Drain Conn. Size (-in.)	3/4 Female NPT					
Outdoor Fan — Type	Propeller					
Dia. (-in.)	23.4			28.3		
Drive/No. Speeds	Direct / 1					
CFM @ 0.0 in. w.g[e]	2350	2800	3080	3400	3400	4800
Motor — HP/R.P.M	1/12 /825	1/6 /825	1/5 / 825	1/4 / 825	1/4 / 825	1/3 / 825
Volts/Ph/Hz	208–230/1/60					
F.L. Amps/L.R Amps	0.54 / 0.82	0.85 / 1.65	1.1 / 2.0	1.5 / 3.07	1.5 / 3.07	1.7 / 3.5
Indoor Fan — Type	Constant Torque ECM					
Dia. x Width (-in.)	10.62 X 10.62					11.87 X 10.62
Drive/No. Speeds	Direct / 4					
CFM @ 0.0 in. w.g[f]	**See Indoor Fan Performance Table**					
Motor — HP / R.P.M.	1/3 / 1050	1/2 / 1050	3/4 / 1050			1 / 1050
Volts/Ph/Hz	208–230/1/60					
F.L. Amps	2.7	4.1	6.0	6.0	6.0	7.4
Filter / Furnished	No					
Type Recommended	Throwaway					
Recmd. Face Area (sq. ft)[g]	4			5.3		
Refrigerant	R-454B					
Charge (lbs.)	4.4	7.0	7.2	7.3	6.6	9.8
Charging Specifications						
Subcooling	12˚ F	10˚ F	12˚ F	12˚ F	10˚ F	13˚ F
Dimensions	**H X W X L**					
Crated (-in.)	46 X 45 X 52	48 X 45 X 52	48 X 45 X 52	46 X 47 X 62	50 X 47 X 61	50 X 47 X 61
Weight						
Shipping (lbs.) / Net (lbs.)	436 / 362	454 / 380	458 / 384	564 / 460	564 / 460	589 / 485

[a] Rated in accordance with AHRI Standard 210/240.
[b] Rated in accordance with D.O.E. test procedure.
[c] Sound Power values are not adjusted for AHRI 270–95 tonal corrections.
[d] Calculated in accordance with currently prevailing Nat'l Electrical Code.
[e] Standard Air — Dry Coil — Outdoor.
[f] Standard Air — Dry Coil — Indoor.
[g] Filters must be installed in return air stream. Square footages listed are based on 300 f.p.m. face velocity. If permanent filters are used size per manufacturer's recommendation with a clean resistance of 0.05-in. W.C.

Charging in Cooling above 55°F OD Ambient

If servicing the equipment requires system evacuation, then re-charge the system to the weight specified on the nameplate. Verify the system subcooling using the Subcooling Charging Table and, if necessary, adjust the charge using the procedure below.

1. For best results — the indoor temperature should be kept between 70°F to 80°F. Add system heat if needed.
2. Whenever charge is removed or added, the system must be operated for a minimum of 20 minutes to stabilize before accurate measurements can be made.
3. Measure Liquid Line Temperature and Refrigerant Pressure at service valved in the compressor compartment.
4. Locate your liquid line temperature in the left column of the table, and the intersecting liquid line pressure under the subcool value column, Add refrigerant to raise the pressure to match the table, or remove refrigerant to lower the pressure. Again, wait 20 minutes for the system conditions to stabilize before adjusting charge again.

Note: *System charge shall never be more than 110% or less than 90% of nameplate charge. If specified subcooling cannot be achieved within those charge bounds, contact your Field Service Representative.*

5. When system is correctly charged, you can refer to System Pressure Curves to verify typical performance.

Charging Below 55°F

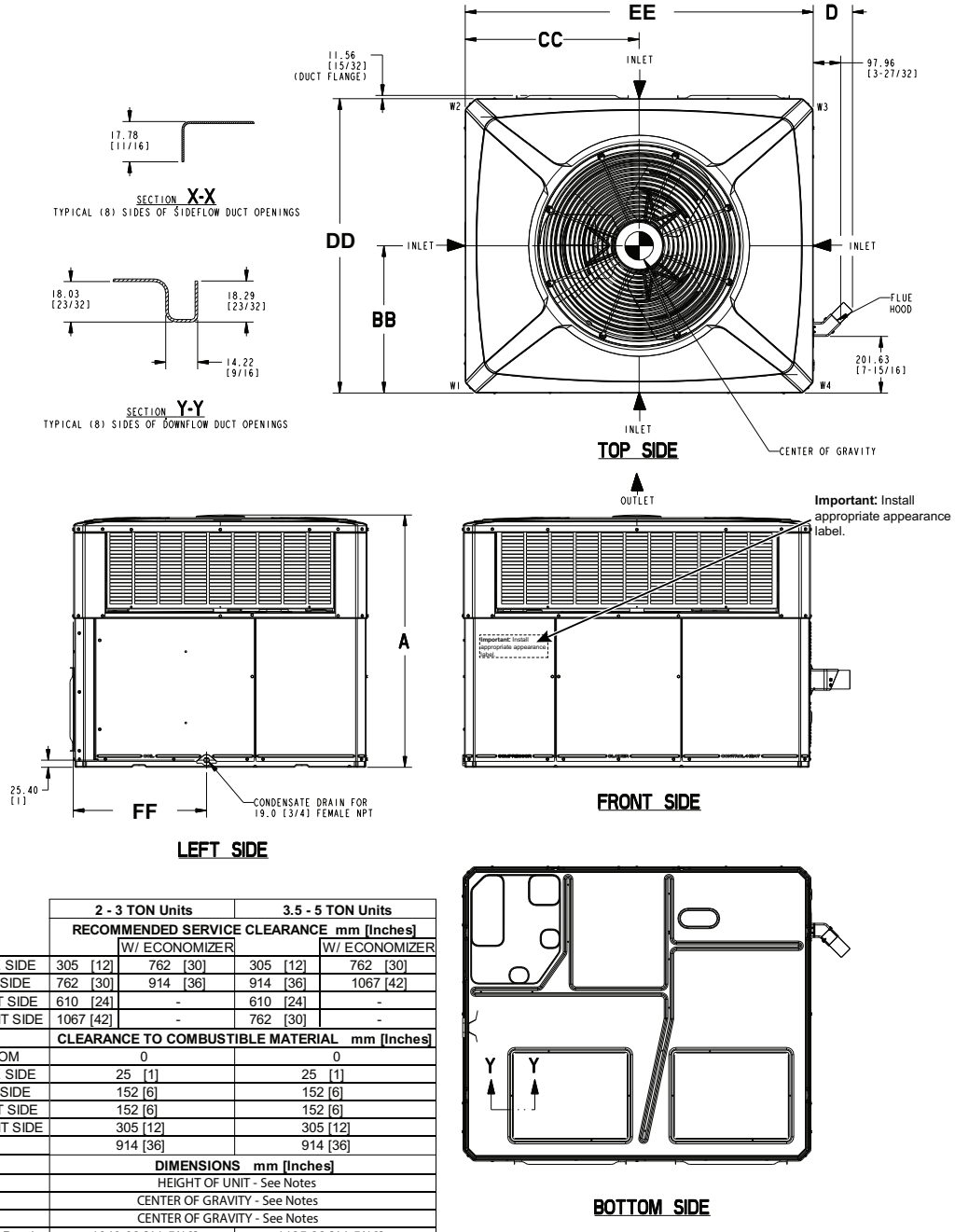
Evacuate system and weigh in nameplate charge or use factory charge. Correct subcooling may be verified when the temperature is above 55°F.

Table 2. R-454B refrigerant charging chart

Liquid temp. (°F)	Design subcooling (°F)								
	6	7	8	9	10	11	12	13	14
	Liquid gauge pressure (psi)								
55	164	167	170	172	175	178	181	184	187
60	178	181	184	187	190	194	197	200	203
65	193	197	200	203	206	210	213	217	220
70	210	213	217	220	223	227	230	234	238
75	227	230	234	238	241	245	249	252	256
80	245	249	252	256	260	264	268	272	276
85	264	268	272	276	280	284	288	292	297
90	284	288	292	297	301	305	309	314	318
95	305	309	314	318	323	327	332	336	341
100	327	332	336	341	346	351	355	360	356
105	351	355	360	365	370	375	380	385	390
110	375	380	385	390	396	401	406	412	417
115	401	406	412	417	422	428	433	439	445
120	428	433	439	445	450	456	462	468	474
125	456	462	468	474	480	486	492	498	504

Dimensional Data

Figure 1. Space on sides requirements



	2 - 3 TON Units		3.5 - 5 TON Units	
	RECOMMENDED SERVICE CLEARANCE mm [Inches]			
		W/ ECONOMIZER		W/ ECONOMIZER
BACK SIDE	305 [12]	762 [30]	305 [12]	762 [30]
LEFT SIDE	762 [30]	914 [36]	914 [36]	1067 [42]
RIGHT SIDE	610 [24]	-	610 [24]	-
FRONT SIDE	1067 [42]	-	762 [30]	-
	CLEARANCE TO COMBUSTIBLE MATERIAL mm [Inches]			
BOTTOM	0		0	
BACK SIDE	25 [1]		25 [1]	
LEFT SIDE	152 [6]		152 [6]	
RIGHT SIDE	152 [6]		152 [6]	
FRONT SIDE	305 [12]		305 [12]	
TOP	914 [36]		914 [36]	
	DIMENSIONS mm [Inches]			
A	HEIGHT OF UNIT - See Notes			
BB	CENTER OF GRAVITY - See Notes			
CC	CENTER OF GRAVITY - See Notes			
DD -Depth	1049.02 [41-5/16]		1125.22 [44-5/16]	
EE -Width	1240.28 [48.27-27/32]		1487.17 [58-9/16]	
FF	469.33 [18-1/2]		551.48 [21-23/32]	

Notes:

- *The Bottom Side view represents looking up from under the unit.*
- *For dimension A unit height, see Table 3, p. 13.*
- *For center of gravity dimensions BB and CC, see Table 4, p. 14.*

Figure 2. Bottom and back duct openings

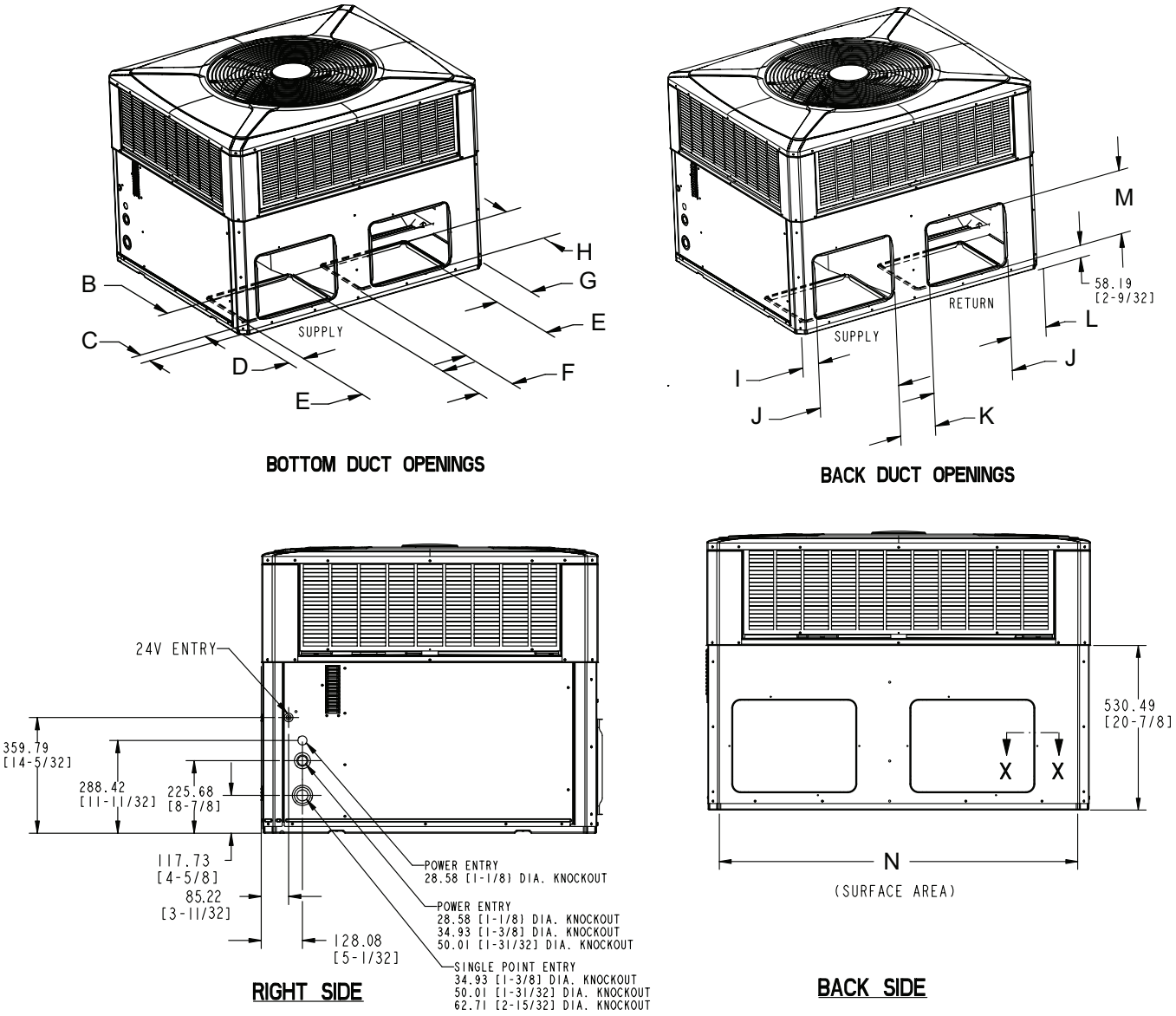


Table 3. Dimensions (mm [inch])

Model	Height-A	B	C	D	E	F	G	H	I	J	K	L	M	N
A5PA3024	898.53 [35 - 3/8]	304.80 [12.0]	75.41 [2.97]	75.41 [2.97]	406.40 [16.0]	167.89 [6.61]	173.46 [6.8]	304.80 [12.0]	79.50 [3.13]	398.22 [15.68]	176.07 [6.93]	177.55 [6.99]	296.62 [11.68]	1155.45 [45.49]
A5PA3030	949.33 [37 - 3/8]													
A5PA3036														
A5PA3042	898.53 [35 - 3/8]	457.20 [18.0]	75.41 [2.97]	75.41 [2.97]	381.00 [15.0]	244.09 [9.61]	318.75 [12.55]	381.00 [15.0]	79.50 [3.13]	449.02 [17.68]	176.07 [6.93]	322.84 [12.71]	372.82 [14.68]	1402.34 [55.21]
A5PA3048	1000.13 [39 - 3/8]													
A5PA3060														

Table 4. Weights and center of gravity

Model	Corner weights KG [LBS]				Shipping weight KG [LBS]	Unit weight KG [LBS]	Center Of Gravity mm [inch]	
	W1	W2	W3	W4			BB	CC
A5PA3024	60.3 [133]	36.8 [81]	26.1 [58]	41.0 [90]	197.8 [436]	164.2 [362]	479.8 [18.9]	527.8 [20.8]
A5PA3030	63.1 [139]	38.7 [85]	27.5 [61]	43.1 [95]	205.9 [454]	172.4 [380]	406.5 [16.0]	594.1 [23.4]
A5PA3036	63.9 [141]	38.9 [86]	27.7 [61]	43.7 [96]	207.7 [458]	174.2 [384]	414.3 [16.3]	697.6 [27.5]
A5PA3042	72.7 [160]	47.2 [104]	35.2 [78]	53.6 [118]	255.8 [564]	208.7 [460]	470.0 [18.5]	731.0 [28.8]
A5PA3048	75.0 [165]	45.0 [99]	33.8 [75]	54.4 [120]	255.4 [563]	208.2 [459]	433.0 [17.0]	743.3 [29.3]
A5PA3060	79.3 [175]	46.3 [102]	34.9 [77]	59.0 [130]	266.7 [588]	219.5 [484]	414.0 [16.3]	635.0 [25.0]

Review Location and Recommendation Information

Note: *There is no declared maximum altitude for operating the appliance.*

Horizontal Airflow Units

1. Location of the unit must allow service clearance around it to ensure adequate serviceability, maximum capacity, and peak operating efficiency.
2. These units are designed for outdoor installation. They may be installed directly on a slab, wood flooring, or on Class A, B, or C roof covering material. The discharge air from the condenser fans must be unrestricted for a minimum of 3 feet above the unit.
3. Check the handling facilities to ensure the safety of personnel and the unit(s).
4. The unit must be mounted level for proper drainage of water through the drain holes in the base pan.
5. The unit should not be exposed to direct roof water runoff.
6. Flexible duct connectors must be of a flame retardant material. All duct work outside of the structure must be insulated and weatherproofed in accordance with local codes.
7. Holes through exterior walls or roof must be sealed in accordance with local codes.
8. All fabricated outdoor ducts should be as short as possible.

Clearances

1. The recommended clearances for single-unit installations are illustrated in “Dimensional Data,” p. 12.
2. Any reduction of the unit clearances indicated in these figures may result in condenser coil starvation or the recirculation of warm condenser air. Actual clearances, which appear to be inadequate should be reviewed with a local engineer.
3. See the unit’s nameplate for the absolute minimum clearance between the unit and any combustible surfaces.

Down Airflow Units

1. Location of the unit must allow service clearance around it to ensure adequate serviceability, maximum capacity, and peak operating efficiency.
2. Refer to the Installation section for instruction on converting the supply and return airflow covers to down airflow.
3. The field assembled Roof Mounting Curb (BAYCURB050 or BAYCURB051) or a field fabricated curb should be in place before the unit is hoisted to the roof top.
   The Roof Mounting Curb (frame) must be installed on a flat, level section of the roof (maximum of 1/4-in. per foot pitch) and provide a level mounting surface for the unit. Also, be sure to provide sufficient height above the roof to prevent water from entering the unit.
4. Be sure the mounting curb spans structural members (trusses) of the roof, thereby providing sufficient support for the weight of the unit, the curb, the duct(s), and any factory or field installed accessories.
5. The unit must be mounted level for proper drainage of water through the drain holes in the base pan.
6. Be sure the hole in the structure for the ducts is large enough to accommodate the fabricated ducts and the insulation surrounding them. Flexible duct connectors must be of a flame retardant material. All duct work outside of the structure must be insulated and weatherproofed in accordance with local codes.
7. Holes through exterior walls or roof must be sealed in accordance with local codes.
8. These units are design certified for outdoor installation. They may be installed directly on a slab, wood flooring, or on Class A, B, or C roof covering material. The discharge air from the condenser fans must be unrestricted for a minimum of 3 feet above the unit.
9. Check the handling facilities to ensure the safety of personnel and the unit(s).

Clearances

1. The recommended clearances for single-unit installations are illustrated in “Dimensional Data,” p. 12.
2. Any reduction of the unit clearances indicated in these figures may result in condenser coil starvation or the recirculation of warm condenser air. Actual clearances, which appear to be inadequate should be reviewed with a local engineer.
3. See the unit’s nameplate for the absolute minimum clearance between the unit and any combustible surfaces.

Refrigerant Leak Detection System

For all tables contained in this section of the manual, the refrigerant charge is the total system charge which is marked on the unit nameplate.

⚠ WARNING

Risk of Fire — Flammable Refrigerant!

Failure to follow instructions below could result in death or serious injury, and equipment damage.

- **To be repaired only by trained service personnel.**
- **Do not puncture refrigerant tubing.**
- **Dispose of properly in accordance with federal or local regulations.**

⚠ WARNING

Leak Detection System Installed!

Failure to follow instructions below could result in death or serious injury or equipment damage.

The unit is equipped with electrically powered safety measures and must be powered at all times after installation, except during servicing, to detect any leak.

To ensure safety of the building occupants, the packaged unit is equipped with a refrigerant leak detection system.

The system is comprised of a refrigerant sensor and a mitigation control board. The system automatically detects leaks in the indoor coil and initiates actions to mitigate the risk of ignition of the leaked refrigerant, including:

- Turning on the blower of the indoor unit to dilute leaked refrigerant;
- Fully opening any zoning dampers, when applicable;
- Turning off the compressor of the outdoor unit;
- De-energizing potential sources of ignition connected to the system;
- Energizing an audible alarm, if so equipped. Examples of potential ignition sources that are de- energized include electrostatic air cleaners.

Minimum Conditioned Space

The installer must verify that the total space conditioned by the system is large enough to safely dilute any leaked refrigerant in the event of a refrigerant leak of the indoor coil.

The minimum space conditioned by the appliance shall be according to Table 5, p. 16. The conditioned space includes any parts of the space connected via an air duct system. The altitude of installation is the altitude above sea level of the site where the equipment is installed.

Table 5. Minimum space conditioned by the appliance

	Altitude (ft)								
	Sea Level — 2,000	2,001 — 4,000	4,001 — 6,000	6,001 — 8,000	8,001 — 10,000	10,001 — 12,000	12,001 — 14,000	14,001 — 15,000	Above 15,000
Charge (lb)	Minimum Conditioned Space (ft^2)								
4	63	66	70	74	79	85	91	94	98
5	79	83	88	93	99	106	113	118	122
6	95	100	105	112	119	127	136	141	147
7	110	116	123	130	138	148	159	165	171
8	126	133	140	149	158	169	181	188	196
9	142	149	158	167	178	190	204	212	220
10	158	166	175	186	198	211	227	235	245
11	173	183	193	205	218	232	249	259	269
12	189	199	211	223	237	254	272	282	294
13	205	216	228	242	257	275	295	306	318
14	221	232	246	260	277	296	318	330	343
15	236	249	263	279	297	317	340	353	367

Unit Installation

Note: *The factory ships this unit for horizontal installation.*

Ground Level Installation

To Install the unit at ground level:

1. Place the unit on a pad the size of the unit or larger. The unit must be mounted level for proper drainage of water through the holes in the base pan. To attach the unit securely to the slab, use extreme mounting kit, BAYEXMK003.

   Note: *Usage of the extreme mounting kit accessories is a recommendation, not a requirement.*

   The pad must not come in contact with the structure. Be sure the outdoor portion of the supply and return air ducts are as short as possible.

   Note: *As indicated in "Vibration Isolators/Snow Feet Locations," p. 19, vibration support is a recommendation, not a requirement.*

2. Location of the unit must allow service clearance around it. Clearance of the unit must be given careful consideration. See, "Dimensional Data," p. 12.

   Note: *Any reduction of the unit clearances indicated in these illustrations may result in condenser coil starvation or the recirculation of warm condenser air. Actual clearances, which appear to be inadequate should be reviewed with a local engineer.*

   Important: *A minimum 0-inch clearance to combustible material shall be maintained on air outlet duct.*

3. Attach the supply and return air ducts to the unit as explained in the ductwork Installation section.

4. Flexible duct connectors must be of a flame retardant material. Insulate any ductwork outside of the structure with at least two (2) -inch of insulation and weatherproof. There must be a weatherproof seal where the duct enters the structure.

5. Do not expose the unit to direct roof water runoff.

6. Seal all holes through exterior walls in accordance with local codes.

7. Continue with the following installation sections to complete the installation: Ductwork, Filter and Electrical Wiring.

Rooftop Installation — Curb Mounting

Convert Horizontal Airflow to Down Airflow

The factory ships the unit for horizontal airflow. Perform this procedure to convert it to down airflow:

1. Remove the three (3) sheet metal screws securing the supply air cover and the four (4) sheet metal screws securing the return air cover from the base of the unit. Remove the covers from the base.

2. Place the covers over the horizontal supply and return openings (painted side out). Align the screw holes, and secure using the same screws removed in step 1.

Install Full Perimeter Roof Mounting Curb

1. Verify that the roof mounting curb is correct for the unit. There are two curbs depending on the unit cabinet sizes:

   - A5PA3024-036 use model BAYCURB050,
   - A5PA3042-060 use model BAYCURB051

2. Assemble and install the curb following the instructions in the Installer's Guide included with the appropriate curb.

Note: *Use the extreme mounting kit, BAYEXMK003, to secure the unit to the slab.*

Figure 3. Typical ground level application

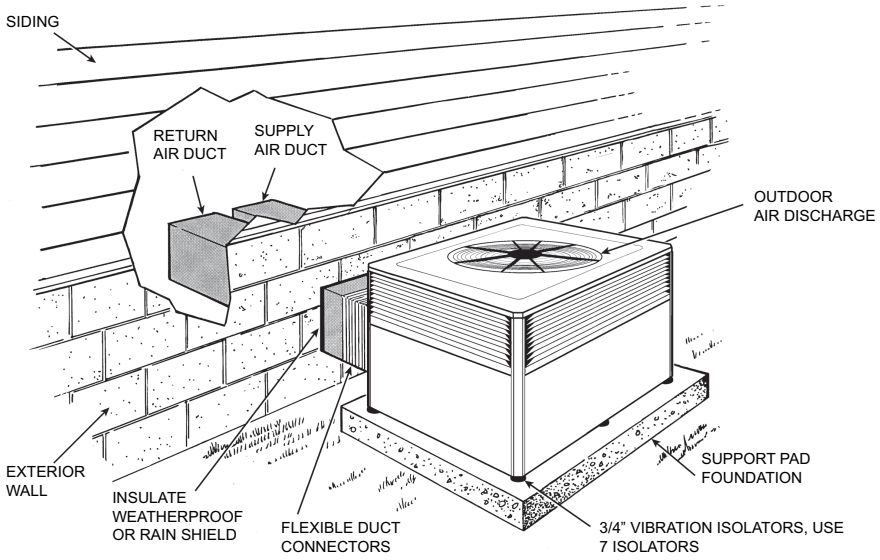
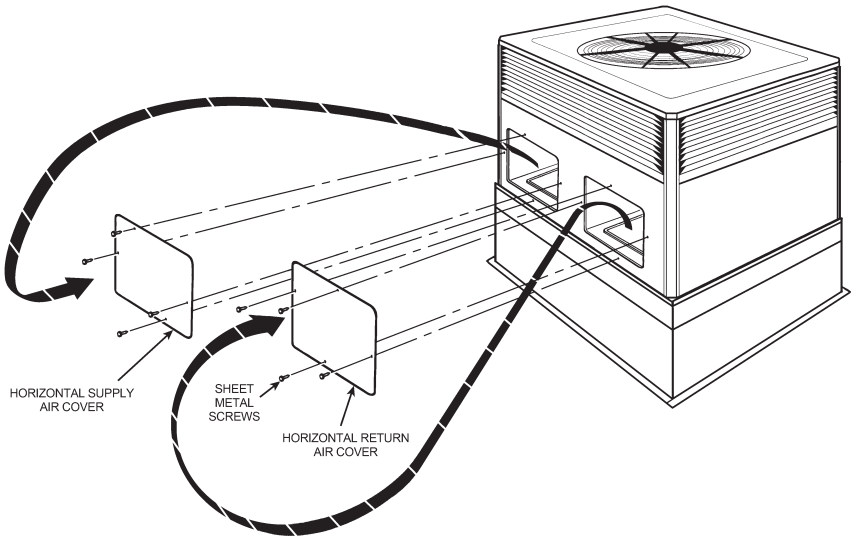


Figure 4. Converting horizontal to down airflow



Lifting and Rigging

⚠ WARNING

Improper Unit Lift!

Failure to properly lift unit in a LEVEL position could result in unit dropping and possibly crushing operator/technician which could result in death or serious injury, and equipment or property-only damage.

Test lift unit approximately 24 inches (61 cm) to verify proper center of gravity lift point. To avoid dropping of unit, reposition lifting point if unit is not level.

Important: *Do not lift the unit without test lifting for balance and rigging. Do not lift the unit in windy conditions or above personnel. Do not lift the unit by attaching clevis, hooks, pins, or bolts to the unit casing, casing hardware, corner lugs, angles, tabs, or flanges. Failure to observe these warnings may result in equipment damage.*

1. Before preparing the unit for lifting, check the unit dimension drawings for center of gravity for lifting safety ("Dimensional Data," p. 12). Because of placement of internal components, the unit's weight may be unevenly distributed. Approximate unit weights are also provided in the unit drawings.

Note: *Unit rigging and hoisting requires accessory kit BAYLIFT002. It includes a kit of four (4) lifting lugs.*

2. Insert the four lifting lugs in the openings provided in the drip lip on each end of the unit. A tap or jerk to the lug will overcome the interference that arises due to the dimple on the lug.
3. When hoisting the unit, be sure that a proper method of rigging is used. Use slings and spreader bars for protection during lifting. Always test-lift the unit to determine the exact unit balance and stability before hoisting it to the installation location.
4. When the curb and air ducts have been properly installed, the unit is ready to be hoisted to the roof and set in position.

Important:

- *To prevent damage to the sides and top of the unit when hoisting use "spreader bars" as shown in Figure 6, p. 21.*
- *The unit must be lowered into position. The P.V.C. rubber tape on the curb flange permits the unit to be repositioned if required without destroying the P.V.C. rubber seals affixed to the mounting curb.*

Placing the Unit on the Mounting Curb

1. The unit is designed with a perimeter drip lip that is lower than the unit base pan, see, Figure 6, p. 21.
2. Position the unit drip lip down over and in contact with the outside corner of the curb.. Continue to lower the unit on top of the curb, with the unit drip lip astraddle, and in contact with, both the end and side rail of the curb. The unit should now rest on top of the curb. Consider using the extreme mounting kit, BAYEXMK001, to add additional hold down strength to the mounting.

Notes:

- *For rooftop applications, the use of extreme mounting kits and vibration isolators is optional and not mandatory.*
- *The ductwork is installed as part of the curb installation. Do not attach ductwork to the unit and lower the unit with ductwork onto the curb.*

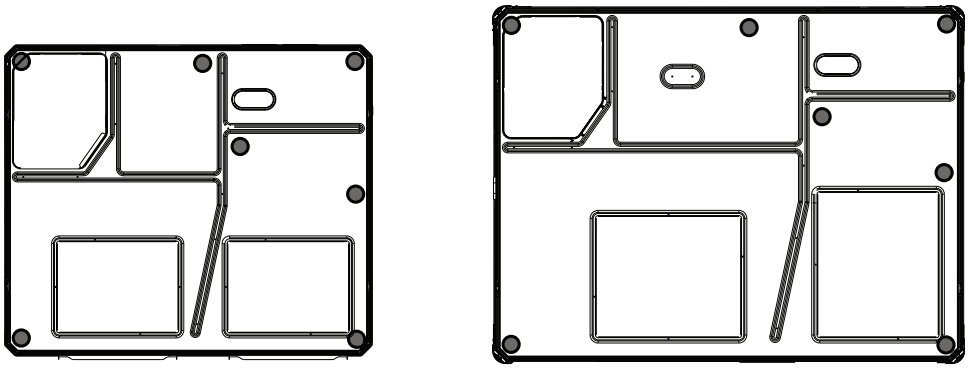
Vibration Isolators/Snow Feet Locations

Notes:

- *The installation instructions indicate typical installation only, but actual installation may differ.*
- *These views represent the base as viewed looking up from underneath the unit.*

Important: *Unit vibration isolator support is recommended in the general areas shown. Locate 3/4–in. thick vibration isolators on the bottom of the basepan as illustrated by black dots for ground level pad applications. Modify vibration isolator location as necessary for frame and rail applications.*

Figure 5. Vibration isolators / snow feet locations



Small Cabinet
*****024-036

Medium Cabinet
*****042-060

Rooftop Installation — Frame Mounting

For rooftop applications using field fabricated frame and ducts use the following procedure:

1. Locate and secure the frame to the roof by bolting or welding. Frame must provide adequate center support via a cross member centrally located channel rail. See, Figure 9, p. 22. Vibration isolators should be installed as indicated in , adjust as necessary for your frame. The isolators must be placed on base pan, not drip lip. Add flashing as required. Flashing must conform to local building codes.
2. Prepare the hole in the roof in advance of installing the unit.
3. Secure the horizontal or down airflow ducts to the roof. Refer to the previous Convert from Horizontal Airflow to Down Airflow section if conversion is needed.

4. All fabricated outdoor ducts should be as short as possible.
5. Place the unit on the frame.
6. The unit must be mounted level for proper drainage of water through the holes in the base pan.
7. Secure the unit to the frame.
8. Insulate any ductwork outside of the structure with at least two (2) inches of insulation and then weatherproof. There must be a weatherproof seal where the duct enters the structure.
9. The unit should not be exposed to direct roof water runoff.
10. Flexible duct connectors must be of a flame retardant material. All duct work outside of the structure must be insulated and weatherproofed in accordance with local codes.
11. Access and service clearances for the unit must be given careful consideration when locating the duct entrance openings. “Dimensional Data,” p. 12 provide unit dimensions.
12. Continue with the following installation sections to complete the installation: Ductwork, Filter, and Electrical Wiring.

Rooftop Installation — No Curb/ Frame

For roof top applications using field fabricated ducts and sleeper rails rather than a curb or frame, use the following procedure:

1. Locate and secure the sleeper rails to the roof by bolting (three (3) rails required). One on each end to support the edges of the unit and one across the center of the unit. The center rail must run inside both drip lips. Vibration isolators should be installed, adjust as necessary for your sleeper rails. The isolators must be placed on base pan, not drip lip. Add flashing as required. Flashing must conform to local building codes.
2. Prepare the hole in the roof in advance of installing the unit.
3. Secure the horizontal or down airflow ducts to the roof. Refer to the previous Convert from Horizontal Airflow to Down Airflow section if conversion is needed.
4. All fabricated outdoor ducts should be as short as possible.
5. Place the unit on the rails.
6. The unit must be mounted level for proper drainage of water through the holes in the base pan.
7. Secure the unit to the rails.
8. Insulate any ductwork outside of the structure with at least two (2) inches of insulation and then weatherproof. There must be a weatherproof seal where the duct enters the structure.
9. No exposure to direct roof water runoff.
10. Flexible duct connectors must be of a flame retardant material. All duct work outside of the structure must be insulated and weatherproofed in accordance with local codes.
11. Access and service clearances for the unit must be given careful consideration when locating the duct entrance openings. “Dimensional Data,” p. 12 provide unit dimensions.
12. Continue with the following installation sections: Ductwork, Filter and Electrical Wiring.

Figure 6. Lifting and rigging

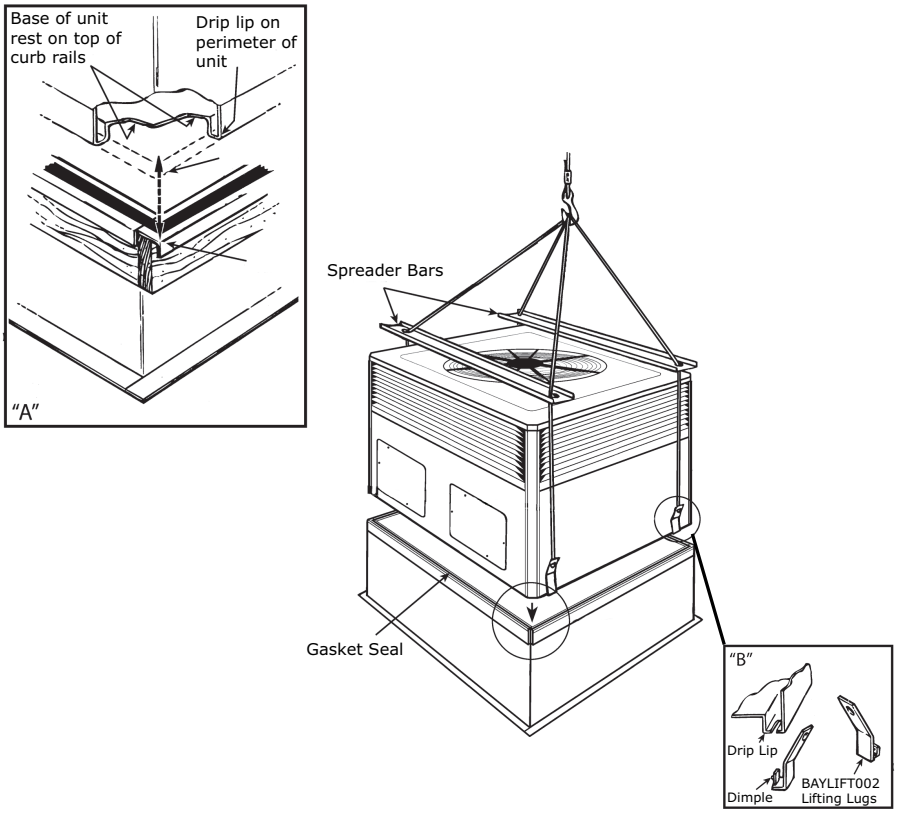


Figure 7. Curb dimensions

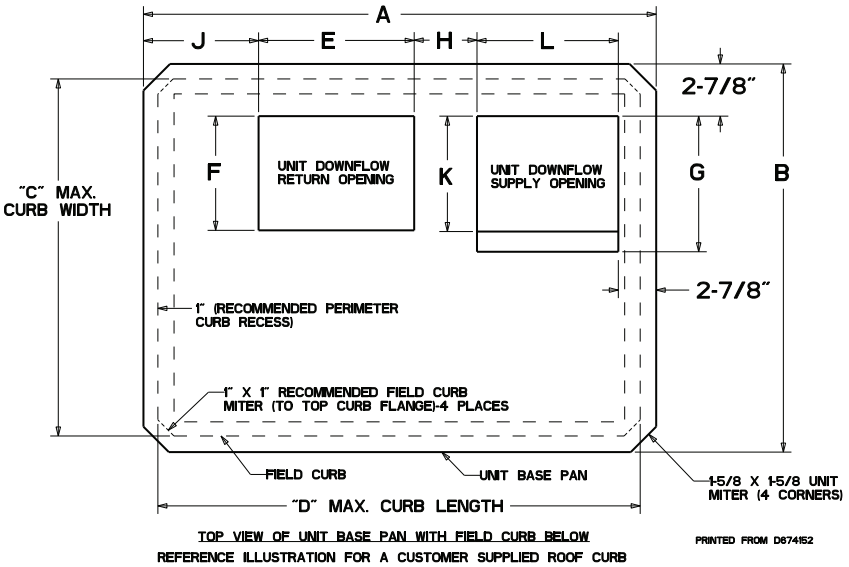


Table 6. Curb dimensions (inch)

Model	A	B	C	D	E	F	G	H	J	K	L
A5 PH*, PA*, PG* *018, 024, 030, 036	48-3/8	40-7/8	38-7/8	46-3/8	16	12	—	6-5/8	6-7/8	12	16
A5 PH*, PA*, PG* *042, 048, 060	58	43-7/8	41-7/8	56	18	15	18	9-5/8	12-1/2	—	15

This drawing was prepared by the manufacturer in order to provide detail regarding job layout only. This drawing is not intended to be used as a basis to construct, build or modify the item depicted in the drawing. The manufacturer is not responsible for the unauthorized use of this drawing and expressly disclaims any liability for damages resulting from such unauthorized use.

Figure 8. Typical rooftop horizontal airflow application with frame

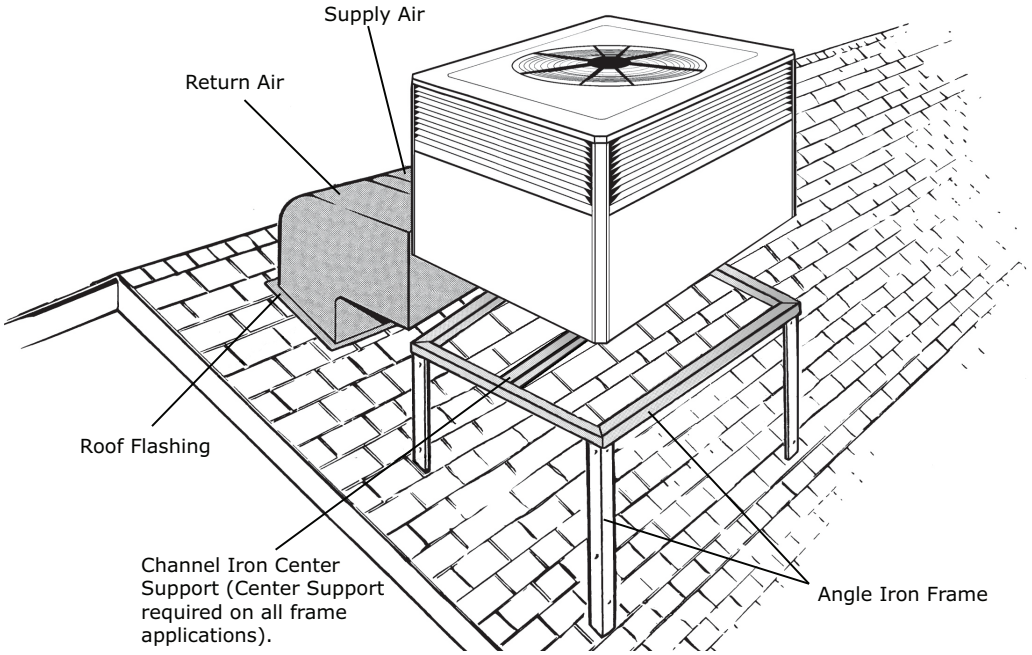
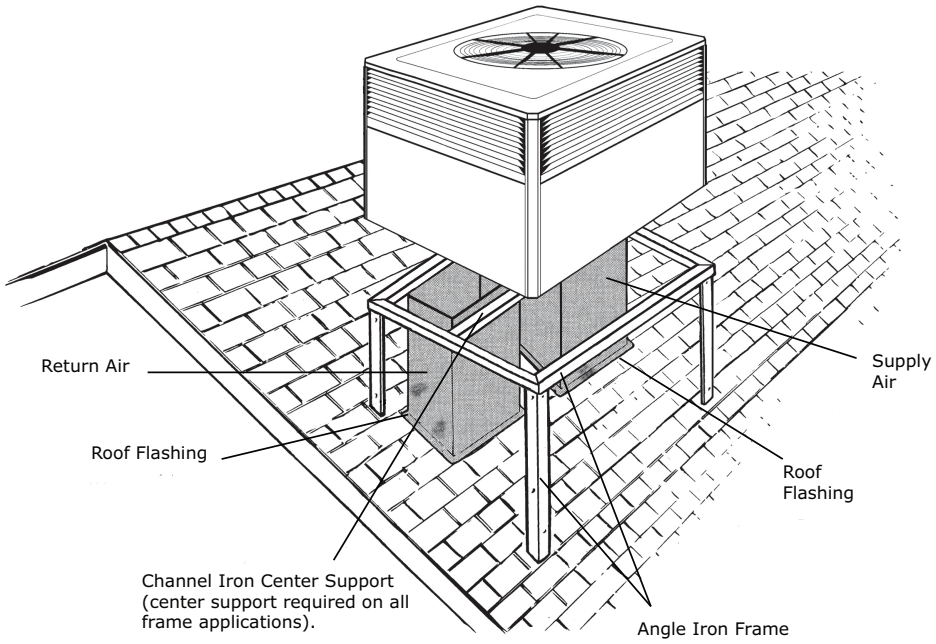


Figure 9. Typical rooftop down airflow application with frame



Ductwork Installation

Attaching Downflow Ductwork to Roof Curb

Supply and return air flanges are provided on the roof curb for easy duct installation. All ductwork must be run and attached to the curb before the unit is set into place.

Attaching Downflow Ductwork to Roof Frame

Follow these guidelines for ductwork construction:

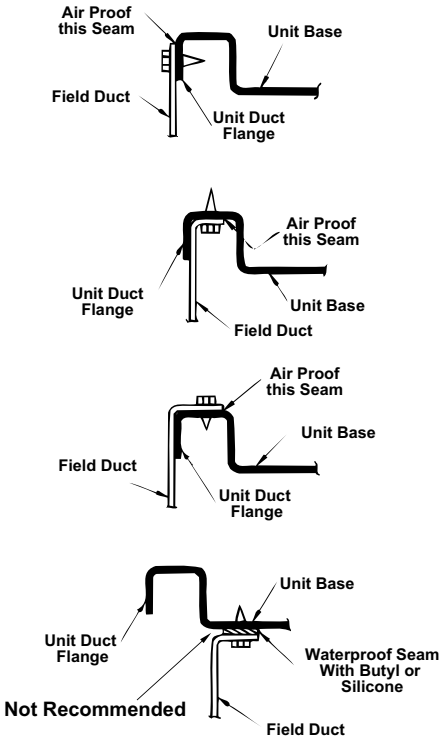
Connections to the unit should be made with three (3) inch canvas connectors to minimize noise and vibration transmission.

Elbows with turning vanes or splitters are recommended to minimize air noise and resistance.

The first elbow in the ductwork leaving the unit should be no closer than two (2) feet from the unit, to minimize noise and resistance.

To prevent leaking, do not attach the ductwork to the bottom of the unit base. Refer to the bottom example in the figure below.

Figure 10. Attaching down airflow ductwork



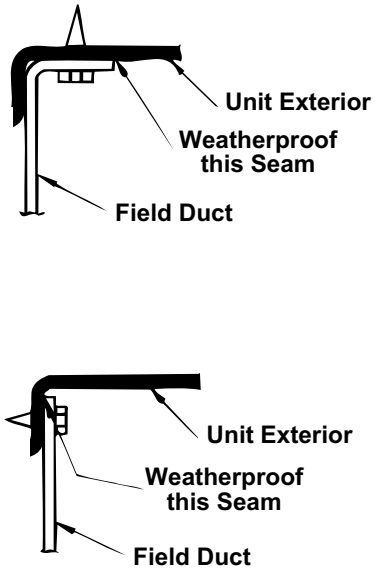
Attaching Horizontal Ductwork to Unit

All conditioned air ductwork should be insulated to minimize heating and cooling duct losses. Use a minimum of two (2) inches of insulation with a vapor barrier. The outside ductwork must be weatherproofed between the unit and the building.

When attaching ductwork to a horizontal unit, provide a flexible watertight connection to prevent noise transmission from the unit to the ducts. The flexible connection **must** be indoors and made out of heavy canvas.

Note: *Do not draw the canvas taut between the solid ducts.*

Figure 11. Attaching horizontal airflow ductwork



Condensate Drain Piping

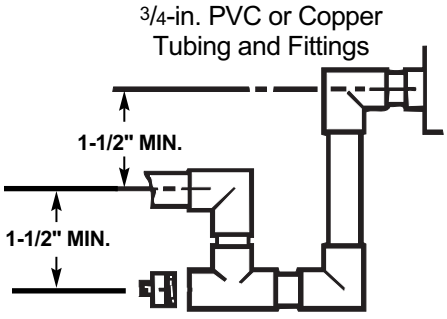
A 3/4-inch female NPT condensate drain connection is provided on the evaporator access panel end of the unit. Provide a trap and fill it with water before starting the unit to avoid air from being drawn through. Follow local codes and standard piping practices when running the drain line. Pitch the line downward away from the unit. Avoid long horizontal runs. See Figure 12, p. 23.

Note: *Do not use reducing fittings in the drain lines.*

The condensate drain must be:

- Made of 3/4-in. pipe size
- Pitched 1/4-in. per foot to provide free drainage to convenient drain system
- Trapped
- Must be connected to a closed drain system unless the trap is properly vented

Figure 12. Typical condensate drain piping



Air Filter Installation

The packaged unit requires an air filter. The unit does not come with a factory installed filter rack in it, however, two filter frame accessories are offered that will allow the installation of a filter within the unit, BAYFLTR101 and BAYFLTR201. Otherwise a field supplied filter rack must be installed by the installer in the return duct work. See Table 7, p. 24 for field supplied filter racks.

Table 7. Filter sizes (Field supplied filter rack)

Unit	Nominal CFM	Filter[a] size (Sq Ft)	Filter resistance (-in. W.C.)
A5PA3024	800	2.67	0.08
A5PA3030	1000	3.33	0.08
A5PA3036	1200	4.00	0.08
A5PA3042	1400	4.67	0.08
A5PA3048	1600	5.33	0.08
A5PA3060	2000	6.67	0.08

[a] Filters must be installed in the return air system. The above square footages are based on 300 F.P.M. face velocity. If permanent filters are used, size per mfg. Recommendation with clear resistance of 0.05-in. WC.

Important: *Air filters and media wheels or plates shall meet the test requirements in UL 900.*

Electrical Wiring

Note: *This unit is factory wired for 230v. See wiring diagram for 208v conversion.*

Electrical Connections

Electrical wiring and grounding must be installed in accordance with local codes or, in the absence of local codes, with the National Electrical Code ANSI/NFPA 70, Latest Revision.

Electrical Power

It is important that proper electrical power be available for the unit. Voltage variation should remain within the limits stamped on the unit nameplate.

Disconnect Switch

Provide an approved weatherproof disconnect within close proximity and within sight of the unit. If disconnect must be mounted to the cabinet, the location shown in Figure 15, p. 24 should be the only one considered.

Over Current Protection

The branch circuit feeding the unit must be protected as shown on the unit's rating plate.

Power Wiring

The power supply lines must be run in weather-tight conduit to the disconnect and into the side of the unit control box. Provide strain relief for all conduit with suitable connectors.

Provide flexible conduit supports whenever vibration transmission may cause a noise problem within the building structure.

1. Remove the Control/Heat access panel. Pass the power wires through the Power Entry hole in the end of the unit. See Figure 13, p. 24.
2. Connect the high voltage wires to the appropriate contactor terminals. Single phase units use a two (2) pole contactor and three phase units use 3 pole contactor. Connect the ground to the ground lug on the chassis. See Figure 15, p. 24.

Ensure all connections are tight.

Figure 13. Power wiring

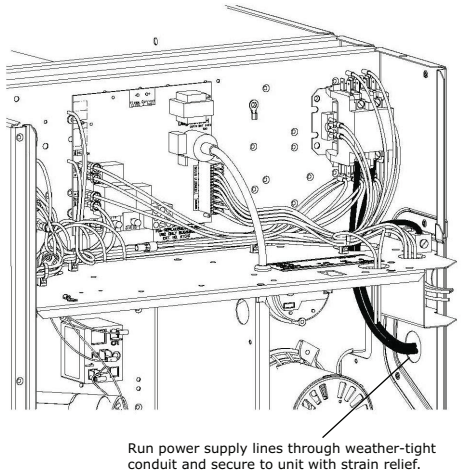


Figure 14. Power connections

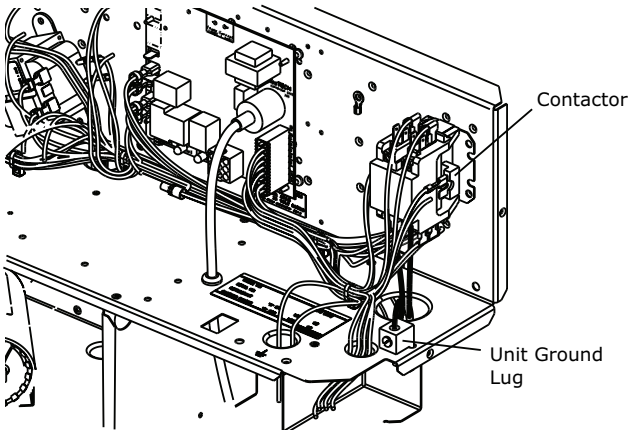


Figure 15. Mounted disconnect location

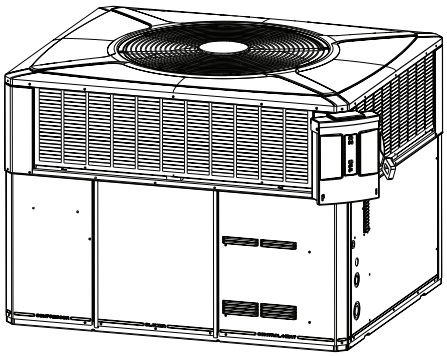
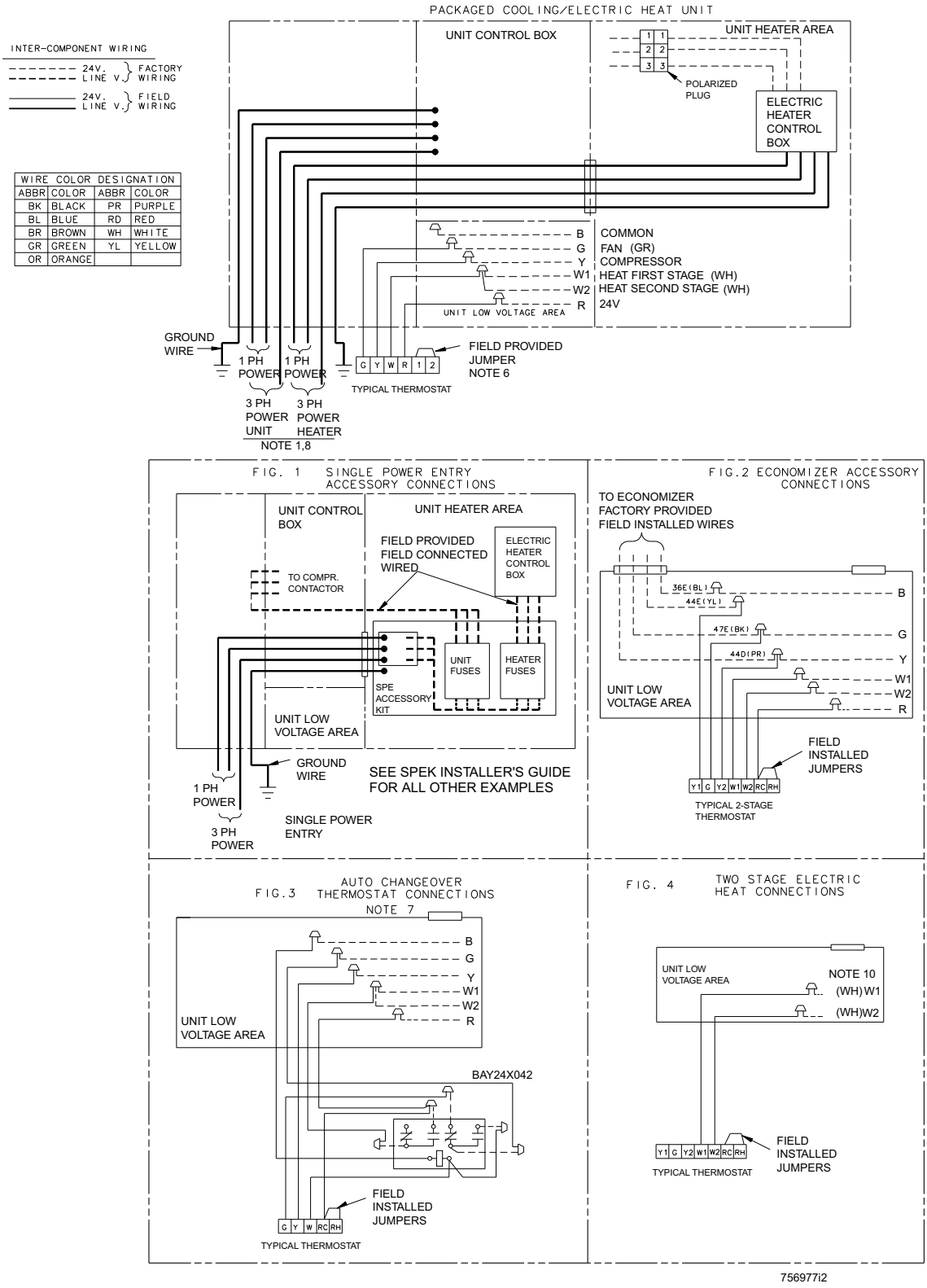


Figure 16. Field wiring diagram



Notes:

1. *Fused disconnect size, power wiring and grounding of equipment must comply with codes.*
2. *Be sure power supply agrees with equipment and heater nameplate.*
3. *Low voltage wiring to be 18 AWG minimum conductor.*
4. *See heater nameplate for current rating of heater used.*
5. *See unit and heater diagram for electrical connection details.*
6. *Jumper must be connected between 1 and 2 for fan to operate in heating.*
7. *Some thermostats provide the 'G' signal in the cooling mode only. To provide the 'G' signal in the heating mode an accessory relay is required. See fig. 3 for proper connections.*
8. *For cooling only omit the electric heater, associated power wires and the 'W' signal thermostat wire.*
9. *Fig. 4 demonstrates connection of the two stage electric heat thermostat accessory only. For further unit connection details refer to the other figures.*
10. *The 41A (BR) wire is first stage electric heat. If the electric heater accessory has two heating stages the 41C (BR) wire is second stage electric heat.*

Control Wiring (Class II)

Low voltage control wiring should not be run in conduit with power wiring unless Class 1 wire of proper voltage rating is used. Route the thermostat cable or equivalent single leads of No. 18 AWG colored wire from the thermostat subbase terminals through the rubber grommet on the unit. See Figures 1–6 for the control entry (24v Entry) location. Make connections as shown on Figure 16, p. 25.

Do not short thermostat wires since this will damage the control transformer.

See Table 8, p. 26 for recommended wire sizes and lengths for installing the unit thermostat. The total resistance of these low voltage wires must not exceed one (1) ohm. Any resistance in excess of 1 ohm may cause the control to malfunction because of the excessive voltage drop.

Table 8. Thermostat wire size and maximum length

Wire Size	Maximum Length (Ft)
18	75
16	125
14	200

Important: *Upon completion of wiring, check all electrical connections, including factory wiring within the unit, and make sure all connections are tight. Replace and secure all electrical box covers and access panels before leaving the unit or turning on the power to the unit.*

Unit Start-Up

Pre-Start Quick Checklist

- ☐ Is the unit properly located and level with the proper clearances? See, "Dimensional Data," p. 12.
- ☐ Is the duct work correctly sized, run, taped, insulated, and weatherproofed with proper unit arrangement as shown in the ductwork installation section?
- ☐ Is the condensate line properly sized, run, trapped, and pitched and shown in the Condensate Drain Piping section?
- ☐ Is the filter of the correct size and quantity? Is it clean and in place? See Air Filter Installation section.
- ☐ Is the wiring properly sized and run according to the unit wiring diagram?
- ☐ Are all the wiring connections, including those in the unit tight?
- ☐ Has the unit been properly grounded and fused with the recommended fuse size?
- ☐ Is the thermostat well located, level, and correctly wired? See Electrical Wiring section
- ☐ Have the air conditioning systems been checked at the service ports for charge and leak tested if necessary?
- ☐ Do the condenser fan and indoor blower turn free without rubbing and are they tight on the shafts?
- ☐ Has all work been done in accordance with applicable local and national codes?
- ☐ Are all covers and access panels in place to prevent air loss and safety hazards?
- ☐ Has the appropriate appearance label been installed as shown in Figure 1, p. 12.

Starting the Unit in Cooling Mode

Note: *See the section on "Sequence of Operation," p. 27 for a description of the cooling operating sequence.*

To start the unit in the cooling mode, set the comfort control to **COOL** and to a setting below room temperature. The condenser fan motor, compressor and evaporator fan motor will operate automatically. Continuous fan mode during Cooling operation may not be appropriate in humid climates. If the indoor air exceeds 60% relative humidity or simply feels uncomfortably humid, it is recommended that the fan only be used in the **AUTO** mode.

Operating Pressure Checks

After the unit has operated in the cooling mode for a short period of time, install pressure gauges on the gauge ports of the discharge and suction line valves (behind the Compressor access panel). Check the suction and discharge pressures and compare them to the normal operating pressures provided in the "Pressure Curves," p. 30.

Note: *Do not use the Pressure Curves to determine the unit refrigerant charge. The correct charge is shown on the unit nameplate. To charge the system accurately, weigh in the charge according to the unit nameplate and check subcooling against the Subcooling Charging in Table 2, p. 11.*

Voltage Check

With the compressor operating, check the line voltage at the unit (contactor is located behind the Control access panel). The voltage should be within the range shown on the unit nameplate. If low voltage is encountered, check the size and length of the supply line from the main disconnect to the unit. The line may be undersized for the length of the run.

Cooling Shut Down

Set the comfort control to **OFF** or to a setting above room temperature.

Important: *De-energize the main power disconnect ONLY when servicing the unit. Power may be required to keep the compressor warm and to boil off refrigerant in the compressor.*

Starting the Unit in Heating Mode

Note: *See the section on "Sequence of Operation," p. 27 for a description of the heating operating sequence.*

Check that all grills and registers are open and all unit access panels are closed before start-up.

Set the comfort control above room temperature until achieving a first stage call for heat and set the fan to **AUTO** or **ON**.

Heating Shut Down

Set the comfort control to **OFF** or at a setting below room temperature.

Sequence of Operation

General

Operation of the system cooling (and optional heating) cycles is controlled by the comfort control. Once the comfort control is set to either the HEAT or COOL, unit operation is automatic. The optional automatic changeover comfort control, when set to AUTO, automatically changes to heat or cool with sufficient room temperature change.

With the unit disconnect closed, voltage is supplied to the unit control transformer and the crankcase heater (if provided). On single phase units, the crankcase heater is an option that is field installed.

Cooling Mode

With the comfort control set to COOL and the fan set to AUTO, the compressor contactor (CC) and the indoor fan motor (IDM) are energized.

The energized compressor contactor (CC) completes the circuit to the compressor (CPR) and a secondary circuit to the outdoor fan motor (ODM). If the compressor safety controls are closed, the compressor (CPR) will operate with the outdoor fan motor (ODM). The indoor fan motor (IDM) will operate. The comfort control will continue to cycle the compressor and fans to maintain the desired temperature.

With the fan switch set to ON, the indoor fan motor (IDM) will continue to run regardless of compressor and condenser fan operation. Continuous fan mode during cooling operation may not be appropriate in humid climates. If the indoor air exceeds 60% relative humidity or simply feels uncomfortably humid, it is recommended that the fan only be used in the AUTO mode.

Heating Mode

Heating mode uses electric heaters, which are installed separately. Refer to the Supplemental Electric Heaters Installer's Guide for additional information.

On a call for heat, power from the comfort control is received at "**W1**," which energizes the "**AH**" contactor coil. The "**AH**" contactor closes, powering the heater provided all element limits are closed.

If two stages of heat are provided and additional heat is required, the comfort control's second stage "**W2**" circuit is energized powering the "**BH**" contactor coil.

Note: *The comfort control must be configured to provide a **"G"** signal to energize the indoor fan during the heating mode.*

Table 9. Pressure drop for electric heater

Airflow CFM	Number of racks	
	1	2
	Air pressure drop inches W.G.	
600	.003	—
800	.004	—
1000	.005	.007
1200	.006	.008
1400	.007	.009
1600	.008	.01
2000	.01	.02
From Dwg. No. 21A730642		

Final Installation Checklist

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.*

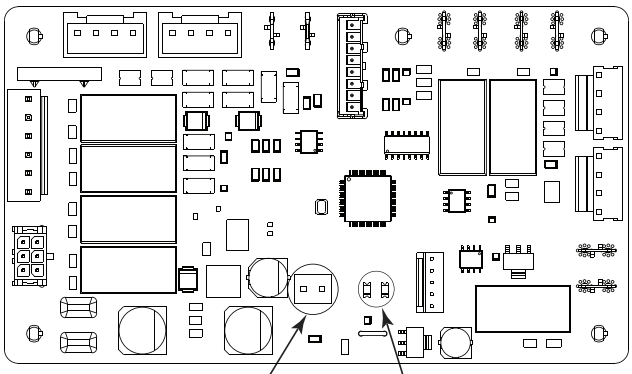
- ☐ Does the unit run and operate as described in the Sequence of Operation section in response to the room thermostat?
- ☐ Are the condenser fan and indoor blower operating correctly with proper rotation and without undue noise?
- ☐ Is the compressor operating correctly and has the system been checked with a charging chart?
- ☐ Has the voltage and running current been checked to determine if it is within limits?
- ☐ Has the thermostat been checked for calibration and the air discharge grills adjusted to balance the system?
- ☐ Has the ductwork been checked for air leaks and condensation?
- ☐ Has the furnace manifold pressure been checked and adjusted if necessary?
- ☐ Has the heating air temperature rise been checked?
- ☐ Has the unit been checked for tubing and sheet metal rattles? Are there any other unusual noises to be checked?
- ☐ Has all mitigation actions been verified?
- ☐ Are all covers and panels in place and properly fastened?
- ☐ Has the owner been instructed on the proper operation and maintenance of the unit? Be sure to leave this manual with the owner.

Verification of Mitigation Actions

After installation, the installer must verify that the refrigerant leak detection system actuates all mitigating actions.

The test can be initiated by shorting the two test pins on the header of the mitigation control board inside of the unit. The mitigating actions will continue for approximately 5 minutes. See Figure 17, p. 28.

Figure 17. Mitigation control board



If any of the mitigating actions are not actuated by the system during the test, please check the following:

- All field wiring connections should be checked against the diagrams in the Electrical Wiring section of this manual.
- The diagnostic indicators on the mitigation control board should be checked against the diagnostic codes given in below.

- Scan the QR code below for more information on field troubleshooting of the refrigerant leak detection system.

Figure 18. Refrigerant leak detection system troubleshooting QR code



Table 10. MCB diagnostic code table for Software V07.1 and earlier

Condition	Green LED	Amber LED
Idle or Off	Off	Off
Start-up	On	On
No Active Alarm	Slow Flash	On
Active Alarm (Refrigerant Leak, Sensor Communicating Error, or Sensor Error)	3 Flash	On
Past Refrigerant Detected Alarm	4 Flash	On
Past Sensor Communication Error	5 Flash	On
Past Sensor Error	6 Flash	On

Table 11. MCB diagnostic code table for Software V9.1 and later

Condition	Green LED	Amber LED
No Power/Off	Off	Off
Start-up	On	On
Normal Operation	Slow Flash	On
Active Alarm - Sensor Communication Error	2 Flash	On
Active Alarm - Refrigerant Leak or Sensor Failure	3 Flash	On
Past Refrigerant Detected Alarm	4 Flash	On
Past Sensor Communication or Sensor Error	5, 6, or 7 Flash	On

Note: Software version is printed on label on control board.

Maintenance

Owner Maintenance

Some of the periodic maintenance functions of the unit can be performed by the owner; this includes replacing the disposable or cleaning the permanent air filters, cleaning the unit cabinet, cleaning the condenser coil, and conducting a general unit inspection on a regular basis.

Filters

When the system is in constant operation, inspect the filters at least once each month.

If the unit has disposable-type filters, replace them with new filters of the same type and size. Do not attempt to clean disposable filters.

Permanent-type filters can be cleaned by washing them with a mild detergent and water. Make sure that the filters are thoroughly dry before reinstalling them in the unit (or duct system).

Note: *It may be necessary to replace permanent filters annually if washing fails to clean the filter or if the filter shows signs of deterioration. Be sure to use the same type and size as was originally installed.*

Condenser Coil

Be sure to keep all vegetation and debris away from the condenser coil area.

Service Maintenance

Cooling Season

To keep the unit operating safely and efficiently, the manufacturer recommends that a qualified service technician check the entire system at least once each year or sooner if needed. The service technician should examine these areas of the unit:

- filters (for cleaning or replacement)
- motors and drive system components
- economizer gaskets (for possible replacement)
- safety controls (for mechanical cleaning)
- electrical components and wiring (for possible replacement and connection tightness)
- condensate drain (for proper sealing and cleaning)
- unit duct connections (to see that they are physically sound and sealed to the unit casing)
- unit mounting support (for structural integrity)
- the unit (for obvious unit deterioration)

Heating Season

Complete the following unit inspections and service routines at the beginning of each heating season.

- Visually inspect the unit to ensure that the airflow required for combustion and condenser coil is not obstructed from the unit.
- Inspect the control panel wiring to verify that all electrical connections are tight and that the wire insulation is intact.

Indoor Airflow Motor Speed Tap Setting

The units are factory set to medium low speed. If an electric Heater is installed refer to the electric heater nameplate for minimum airflow settings.

Pressure Curves

Cooling performance can be checked when the outdoor temperature is above 65°F.

To check cooling performance, select the proper indoor CFM, all pressures to stabilize. Measure indoor wet bulb temperature, outdoor temperature, liquid and suction pressures.

On the plots:

1. Locate outdoor temperature
2. Locate indoor wet bulb
3. Find intersection of OD temperature and ID W.B
4. Read discharge or suction pressure in left column

Example:

1. Outdoor temperature 82°F
2. In door wet bulb 67°F
3. At intersection
4. Discharge pressure as follows:

Model	CFM	PSIG
A5PA3024	800	321
A5PA3030	900	298
A5PA3036	1200	314
A5PA3042	1500	310
A5PA3048	1650	313
A5PA3060	1700	321

5. Suction pressure as follows:

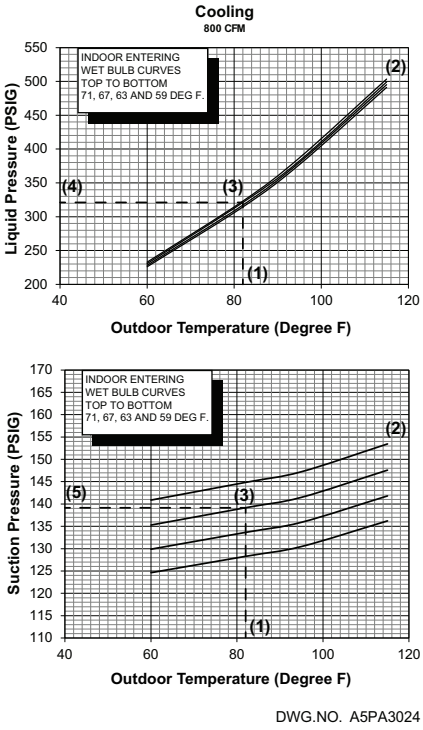
Model	CFM	PSIG
A5PA3024	800	139
A5PA3030	900	132
A5PA3036	1200	132
A5PA3042	1500	137
A5PA3048	1650	130
A5PA3060	1700	130

Actual:

Discharge pressure should be +/- 10 psi of chart.

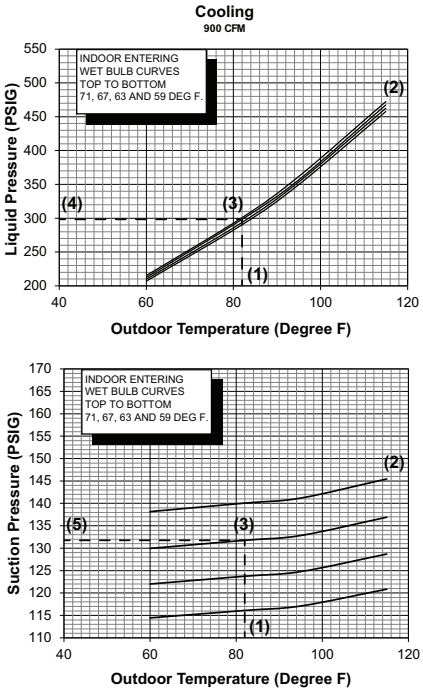
Suction pressure should be +/- 3 psi of chart.

Figure 19. Pressure Curves – model A5PA3024



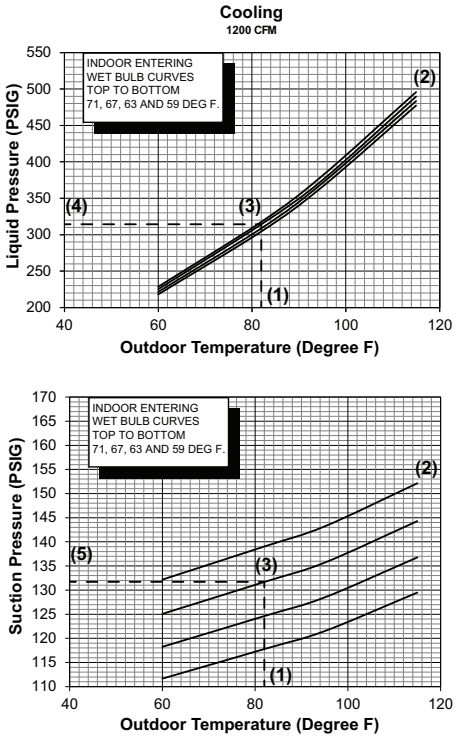
DWG.NO. A5PA3024

Figure 20. Pressure Curves – model A5PA3030



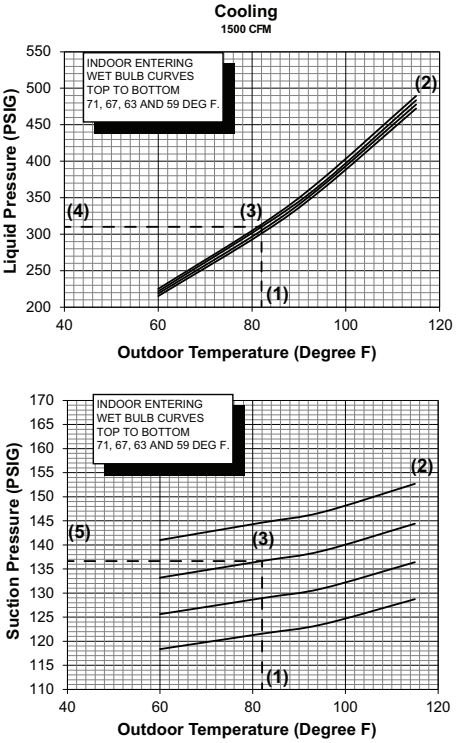
DWG.NO. A5PA3030

Figure 21. Pressure Curves – model A5PA3036



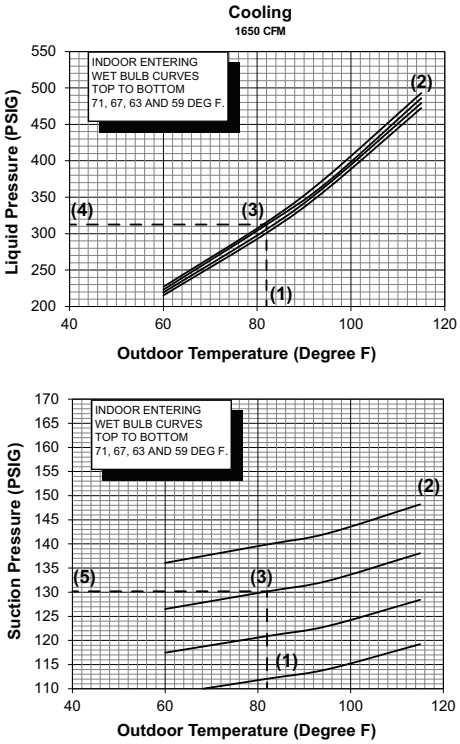
DWG.NO. A5PA3036

Figure 22. Pressure Curves – model A5PA3042



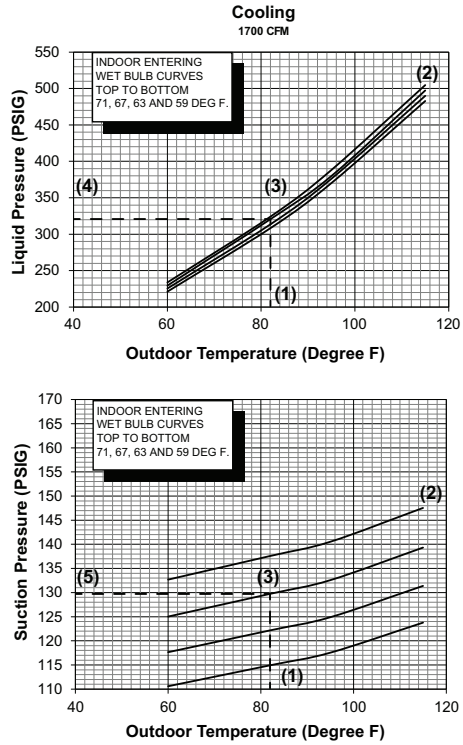
DWG.NO. A5PA3042

Figure 23. Pressure Curves – model A5PA3048



DWG.NO. A5PA3048

Figure 24. Pressure Curves – model A5PA3060



DWG.NO. A5PA3060

Indoor Fan Performance (230v)

Table 12. Airflow – model A5PA3024

A5PA3024		External static pressure (-in. WG) Horizontal Airflow [Cooling Down Airflow]										
Motor Speed		**0.0**	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1**
LOW	Watts	84 [85]	91 [92]	98 [98]	105 [106]	—	—	—	—	—	—	—
	CFM	873 [865]	811 [803]	754 [746]	690 [683]	—	—	—	—	—	—	—
MED-LOW[a]	Watts	—	114 [115]	121 [122]	128 [129]	138 [138]	—	—	—	—	—	—
	CFM	—	900 [891]	846 [838]	794 [786]	729 [722]	—	—	—	—	—	—
MED-HIGH	Watts	—	—	—	158 [159]	167 [167]	175 [176]	185 [186]	—	—	—	—
	CFM	—	—	—	890 [881]	836 [828]	777 [769]	707 [700]	—	—	—	—
HIGH	Watts	—	—	—	—	— [249]	256 [258]	264 [266]	274 [276]	282 [284]	—	—
	CFM	—	—	—	—	— [899]	863 [854]	818 [810]	773 [765]	731 [724]	—	—

Note: Airflow must not exceed 900 CFM due to condensate blowoff.

[a] Factory Default Setting.

Table 13. Airflow – model A5PA3030

A5PA3030		External static pressure (-in. WG) Horizontal Airflow [Cooling Down Airflow]										
Motor Speed		**0.0**	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1**
LOW	Watts	126 [126]	134 [135]	142 [143]	150 [150]	158 [158]	—	—	—	—	—	—
	CFM	1051 [1041]	994 [984]	939 [930]	889 [880]	840 [831]	—	—	—	—	—	—
MED-LOW[a]	Watts	—	175 [176]	184 [185]	192 [193]	200 [201]	209 [210]	219 [220]	—	—	—	—
	CFM	—	1107 [1096]	1054 [1044]	1009 [999]	965 [956]	919 [910]	862 [853]	—	—	—	—
MED-HIGH	Watts	—	—	239 [240]	247 [248]	256 [258]	267 [269]	274 [276]	282 [284]	—	—	—
	CFM	—	—	1108 [1097]	1070 [1059]	1027 [1017]	975 [965]	920 [911]	875 [866]	—	—	—
HIGH	Watts	—	—	—	—	259 [260]	268 [270]	278 [279]	289 [290]	—	—	—
	CFM	—	—	—	—	1099 [1088]	1059 [1048]	1017 [1007]	968 [959]	—	—	—

Note: Airflow must not exceed 1125 CFM due to condensate blowoff.

[a] Factory Default Setting.

Table 14. Airflow – model A5PA3036

A5PA3036		External static pressure (-in. WG) Horizontal Airflow [Cooling Down Airflow]										
Motor Speed		**0.0**	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1**
LOW	Watts	247 [248]	258 [260]	267 [269]	277 [279]	287 [289]	—	—	—	—	—	—
	CFM	1192 [1180]	1160 [1148]	1126 [1115]	1091 [1080]	1052 [1041]	—	—	—	—	—	—
MED-LOW[a]	Watts	—	352 [354]	361 [363]	372 [374]	382 [384]	392 [394]	404 [406]	416 [418]	—	—	—
	CFM	—	1272 [1259]	1243 [1231]	1214 [1202]	1186 [1174]	1154 [1142]	1116 [1105]	1072 [1061]	—	—	—

Table 14. Airflow – model A5PA3036 (continued)

A5PA3036		External static pressure (-in. WG) Horizontal Airflow [Cooling Down Airflow]										
Motor Speed		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
MED-HIGH	Watts	—	410 [410]	419 [419]	427 [427]	437 [437]	447 [447]	423 [423]	—	—	—	—
	CFM	—	1326 [1320]	1300 [1294]	1271 [1263]	1241 [1234]	1201 [1196]	1107 [1102]	—	—	—	—
HIGH	Watts	—	—	—	—	—	516 [519]	527 [530]	539 [542]	552 [555]	566 [569]	575 [578]
	CFM	—	—	—	—	—	1326 [1299]	1296 [1270]	1263 [1238]	1225 [1201]	1183 [1159]	1150 [1127]

Note: Airflow must not exceed 1350 CFM due to condensate blowoff.

(a) Factory Default Setting.

Table 15. Airflow – model A5PA3042

A5PA3042		External static pressure (-in. WG) Horizontal Airflow [Cooling Down Airflow]										
Motor Speed		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
LOW	Watts	224 [228]	233 [238]	242 [247]	252 [257]	262 [267]	—	—	—	—	—	—
	CFM	1358 [1345]	1393 [1379]	1348 [1334]	1296 [1283]	1253 [1241]	—	—	—	—	—	—
MED-LOW(a)	Watts	306 [312]	316 [322]	327 [333]	337 [344]	348 [354]	359 [366]	369 [377]	382 [389]	395 [403]	—	—
	CFM	1521 [1506]	1490 [1475]	1448 [1433]	1391 [1377]	1362 [1348]	1338 [1325]	1315 [1302]	1307 [1293]	1254 [1241]	—	—
MED-HIGH	Watts	—	—	—	—	455 [464]	467 [477]	477 [487]	490 [499]	503 [513]	513 [523]	—
	CFM	—	—	—	—	1529 [1514]	1491 [1476]	1467 [1453]	1425 [1411]	1385 [1371]	1345 [1331]	—
HIGH	Watts	—	—	—	—	490 [499]	502 [511]	514 [523]	527 [536]	540 [550]	554 [564]	568 [578]
	CFM	—	—	—	—	1533 [1518]	1505 [1490]	1476 [1461]	1447 [1433]	1415 [1401]	1383 [1369]	1347 [1334]

Note: Airflow must not exceed 1575 CFM due to condensate blowoff.

(a) Factory Default Setting.

Table 16. Airflow – model A5PA3048

A5PA3048		External static pressure (-in. WG) Horizontal Airflow [Cooling Down Airflow]										
Motor Speed		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
LOW	Watts	302 [308]	313 [320]	324 [330]	332 [339]	346 [352]	—	—	—	—	—	—
	CFM	1583 [1567]	1542 [1526]	1502 [1487]	1460 [1445]	1415 [1401]	—	—	—	—	—	—
MED-LOW(a)	Watts	414 [422]	426 [434]	436 [444]	448 [457]	459 [468]	471 [480]	483 [493]	495 [505]	510 [520]	—	—
	CFM	1763 [1745]	1723 [1706]	1689 [1672]	1648 [1632]	1609 [1593]	1568 [1552]	1527 [1512]	1488 [1473]	1447 [1433]	—	—
MED-HIGH	Watts	—	577 [589]	591 [603]	604 [616]	617 [629]	631 [644]	643 [656]	655 [668]	599 [611]	—	—
	CFM	—	1786 [1768]	1757 [1739]	1729 [1712]	1700 [1683]	1675 [1658]	1648 [1632]	1624 [1608]	1504 [1489]	—	—
HIGH	Watts	—	—	—	—	—	613 [625]	631 [644]	643 [656]	647 [660]	611 [623]	—
	CFM	—	—	—	—	—	1769 [1751]	1728 [1711]	1688 [1671]	1652 [1635]	1545 [1530]	—

Note: Airflow must not exceed 1800 CFM due to condensate blowoff.

(a) Factory Default Setting.

Table 17. Airflow – model A5PA3060

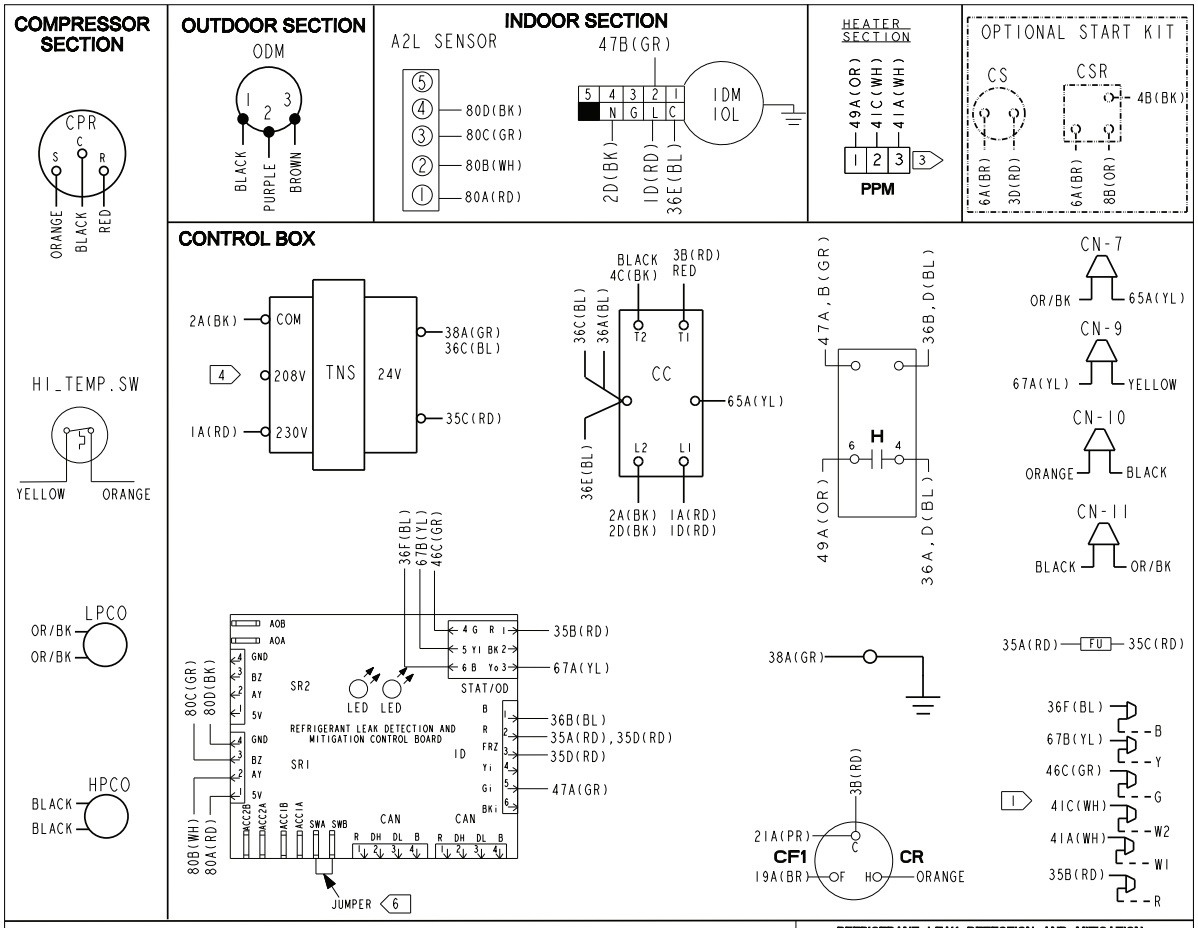
A5PA3060		External static pressure (in. WG) Horizontal Airflow [Cooling Down Airflow]										
Motor Speed		**0.0**	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1**
LOW	Watts	515 [524]	523 [533]	533 [545]	544 [558]	—	—	—	—	—	—	—
	CFM	1857 [1831]	1831 [1802]	1800 [1765]	1766 [1728]	—	—	—	—	—	—	—
MED-LOW[a]	Watts	594 [611]	609 [627]	624 [642]	639 [658]	653 [672]	667 [686]	681 [701]	695 [715]	709 [730]	—	—
	CFM	2031 [2003]	2003 [1975]	1974 [1946]	1940 [1913]	1907 [1880]	1874 [1848]	1837 [1811]	1805 [1780]	1771 [1746]	—	—
MED-HIGH	Watts	749 [770]	759 [781]	769 [790]	779 [804]	788 [819]	803 [832]	816 [845]	830 [858]	845 [872]	860 [887]	—
	CFM	2083 [2054]	2058 [2030]	2032 [2010]	2003 [1976]	1974 [1946]	1943 [1911]	1911 [1879]	1877 [1848]	1843 [1817]	1807 [1781]	—
HIGH	Watts	900 [940]	910 [936]	921 [937]	932 [948]	941 [962]	956 [975]	969 [990]	983 [992]	997 [987]	1010 [985]	—
	CFM	2201 [2201]	2177 [2151]	2152 [2120]	2127 [2095]	2105 [2066]	2071 [2033]	2041 [1999]	2009 [1937]	1975 [1921]	1940 [1871]	—

Note: Airflow must not exceed 2250 CFM due to condensate blowoff.

[a] Factory Default Setting.

Wiring Diagrams

Figure 25. Models - A5PA3024, A5PA3030, A5PA3036, and A5PA3042

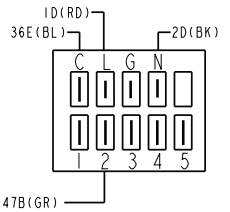


NOTES:

1. CONNECTIONS SHOWN ARE FOR A TYPICAL THERMOSTAT. SEE SCHEMATIC SUPPLIED WITH THERMOSTAT FOR PROPER CONNECTIONS. LOW VOLTAGE WIRING TO UNIT MAY BE NEC CLASS 2.
2. MAXIMUM ADDITIONAL EXTERNAL LOAD (PILOT DUTY) BETWEEN "B" AND "R" OF 0.5 AMPS, 24 VAC IS AVAILABLE WHEN A HEATER IS INSTALLED.
3. SEE WIRING DIAGRAM WITH HEATER FOR DETAILS OF HEATER WIRING.
4. FOR 208 VOLT OPERATION MAKE THE FOLLOWING WIRING CHANGES: AT TNS, REMOVE 1A(RD) WIRE AND CONNECT IT TO 208V TERMINAL ON THE TRANSFORMER
5. IF ANY OF THE ORIGINAL WIRE AS SUPPLIED IN THIS UNIT MUST BE REPLACED, REPLACE IT WITH APPLIANCE WIRING MATERIAL RATED AT 105°C.
6. DO NOT REMOVE JUMPER UNLESS CONFIGURING AN EXTERNAL SWITCH.

REFRIGERANT LEAK DETECTION AND MITIGATION CONTROL BOARD GREEN LED DIAGNOSTIC INDICATOR	
OFF	NO POWER/OFF
ON	STARTUP
SLOW FLASH	NORMAL OPERATION
2 FLASH	ACTIVE ALARM - SENSOR COMMUNICATION ERROR
3 FLASH	ACTIVE ALARM - REFRIGERANT LEAK OR SENSOR FAILURE
4 FLASH	PAST REFRIGERANT DETECTED ALARM
5,6 OR 7 FLASH	PAST SENSOR COMMUNICATION OR SENSOR ERROR

24 VOLT TRANSFORMER FUSE REPLACEMENT FU 36 VOLT TYPE ATC-5 AMP



C = LOW VOLTAGE COMMON
G = ALTERNATE GROUND LOCATION
L = LINE VOLTAGE
N = NEUTRAL
1 = LOW TAP
2 = MED-LOW TAP
3 = MED-HIGH TAP
4 = HIGH TAP
5 = NOT USED

IDM CONNECTION

WIRE COLOR DESIGNATION					
ABBR	COLOR	ABBR	COLOR	ABBR	COLOR
BK	BLACK	PR	PURPLE	GR	GREEN
BL	BLUE	RD	RED	YL	YELLOW
BR	BROWN	WH	WHITE	OR	ORANGE

LEGEND		
DEVICE DESIG	DESCRIPTION	LINE NUMBER
A2L_SR	A2L SENSOR	28
AH,BH	CONTACTOR, ELECTRIC HEATER	27
CC	CONTACTOR	13,30
CF1	OUTDOOR FAN CAPACITOR	12
CPR	COMPRESSOR	11
CR	COMPRESSOR RUN CAPACITOR	12
FU	FUSE	25
H	HEATER RELAY	27,33
HI-TEMP-SW	HIGH TEMPERATURE SWITCH	29
HPCO	HIGH-PRESSURE CUTOFF	30
IDM	INDOOR MOTOR	18,36
LPCO	LOW-PRESSURE CUTOFF	30
ODM	OUTDOOR MOTOR	15
PPM	HEATER PLUG	27,28
TNS	TRANSFORMER, 208/230V - 24V	22
IOL	INTERNAL OVERLOAD	
CN	CONNECTOR AND WIRE NUT	

Figure 26. Models - A5PA3024, A5PA3030, A5PA3036, and A5PA3042

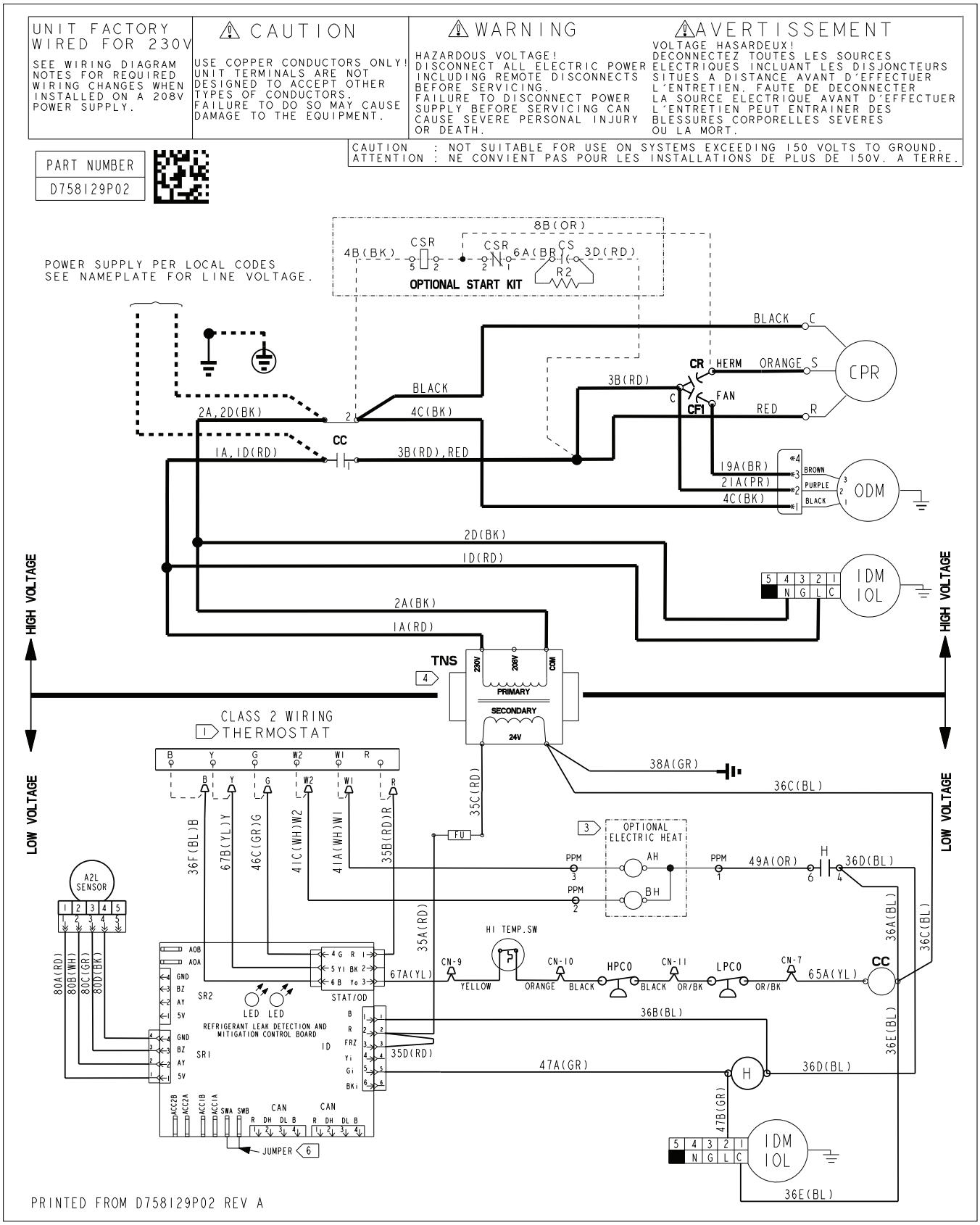
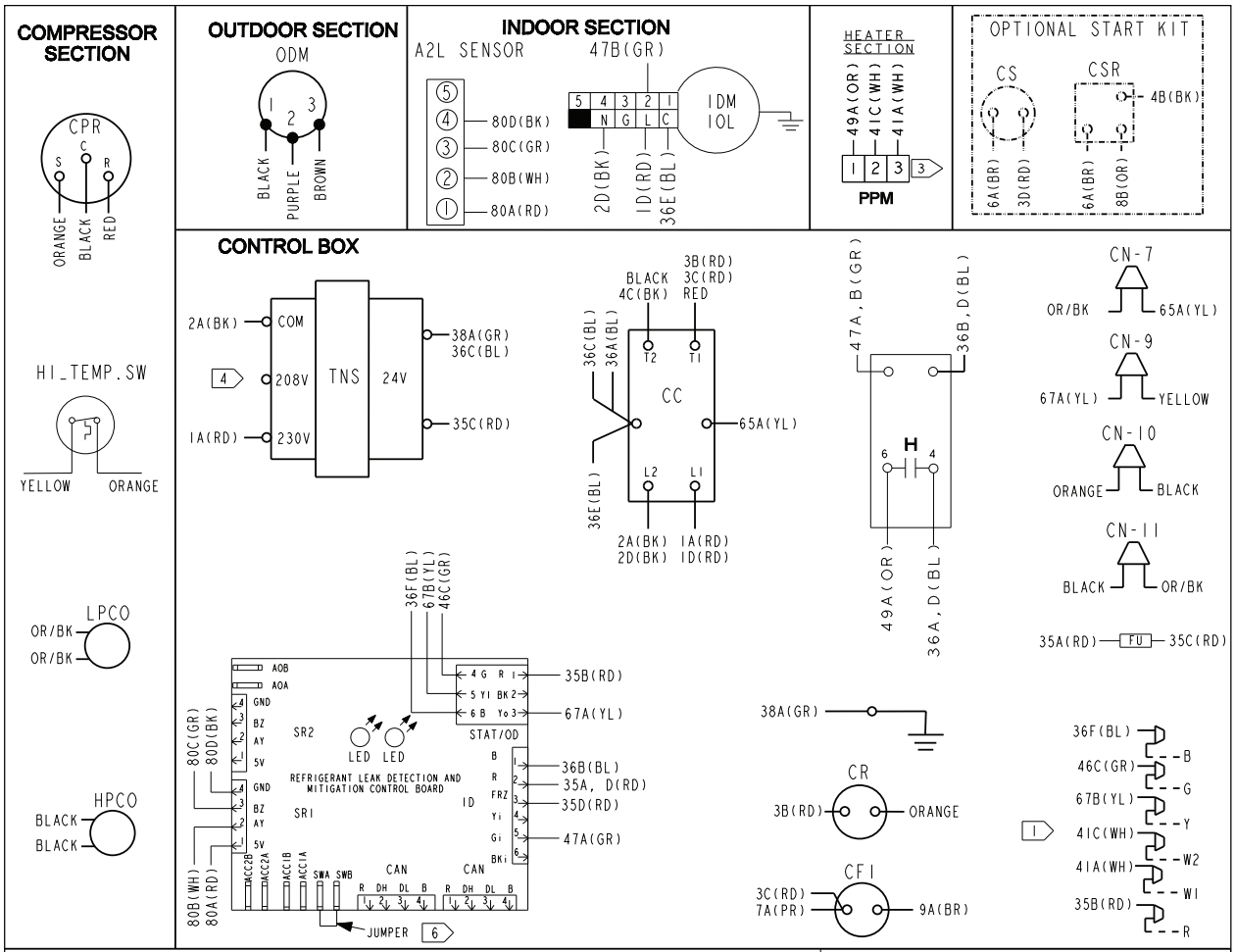


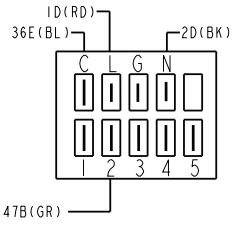
Figure 27. Model - A5PA3048



NOTES:

1. CONNECTIONS SHOWN ARE FOR A TYPICAL THERMOSTAT. SEE SCHEMATIC SUPPLIED WITH THERMOSTAT FOR PROPER CONNECTIONS. LOW VOLTAGE WIRING TO UNIT MAY BE NEC CLASS 2.
2. MAXIMUM ADDITIONAL EXTERNAL LOAD (PILOT DUTY) BETWEEN "B" AND "R" OF 0.5 AMPS, 24 VAC IS AVAILABLE WHEN A HEATER IS INSTALLED.
3. SEE WIRING DIAGRAM WITH HEATER FOR DETAILS OF HEATER WIRING.
4. FOR 208 VOLT OPERATION MAKE THE FOLLOWING WIRING CHANGES: AT TNS, REMOVE IA(RD) WIRE AND CONNECT IT TO 208V TERMINAL ON THE TRANSFORMER
5. IF ANY OF THE ORIGINAL WIRE AS SUPPLIED IN THIS UNIT MUST BE REPLACED, REPLACE IT WITH APPLIANCE WIRING MATERIAL RATED AT 105°C.
6. DO NOT REMOVE JUMPER UNLESS CONFIGURING AN EXTERNAL SWITCH.

24 VOLT TRANSFORMER FUSE REPLACEMENT FU 36 VOLT TYPE ATC-5 AMP



C = LOW VOLTAGE COMMON
G = ALTERNATE GROUND LOCATION
L = LINE VOLTAGE
N = NEUTRAL
1 = LOW TAP
2 = MED-LOW TAP
3 = MED-HIGH TAP
4 = HIGH TAP
5 = NOT USED

IDM CONNECTION

REFRIGERANT LEAK DETECTION AND MITIGATION CONTROL BOARD GREEN LED DIAGNOSTIC INDICATOR	
OFF	NO POWER/OFF
ON	STARTUP
SLOW FLASH	NORMAL OPERATION
2 FLASH	ACTIVE ALARM - SENSOR COMMUNICATION ERROR
3 FLASH	ACTIVE ALARM - REFRIGERANT LEAK OR SENSOR FAILURE
4 FLASH	PAST REFRIGERANT DETECTED ALARM
5,6 OR 7 FLASH	PAST SENSOR COMMUNICATION OR SENSOR ERROR

WIRE COLOR DESIGNATION					
ABBR	COLOR	ABBR	COLOR	ABBR	COLOR
BK	BLACK	PR	PURPLE	GR	GREEN
BL	BLUE	RD	RED	YL	YELLOW
BR	BROWN	WH	WHITE	OR	ORANGE

LEGEND		
DEVICE DESIG	DESCRIPTION	LINE NUMBER
A2L_SR	A2L SENSOR	28
AH,BH	CONTACTOR, ELECTRIC HEATER	27
CC	CONTACTOR	12,31
CFI	OUTDOOR FAN CAPACITOR	15
CPR	COMPRESSOR	11
CR	COMPRESSOR RUN CAPACITOR	11
FU	FUSE	26
H	HEATER RELAY	27,33
HI_TEMP_SW	HIGH TEMPERATURE SWITCH	30
HPCO	HIGH-PRESSURE CUTOFF	31
IDM	INDOOR MOTOR	19,36
LPCO	LOW-PRESSURE CUTOFF	31
ODM	OUTDOOR MOTOR	15
PPM	HEATER PLUG	27,28
TNS	TRANSFORMER, 208/230V - 24V	22
IOL	INTERNAL OVERLOAD	
CN	CONNECTOR AND WIRE NUT	

Figure 28. Model - A5PA3048

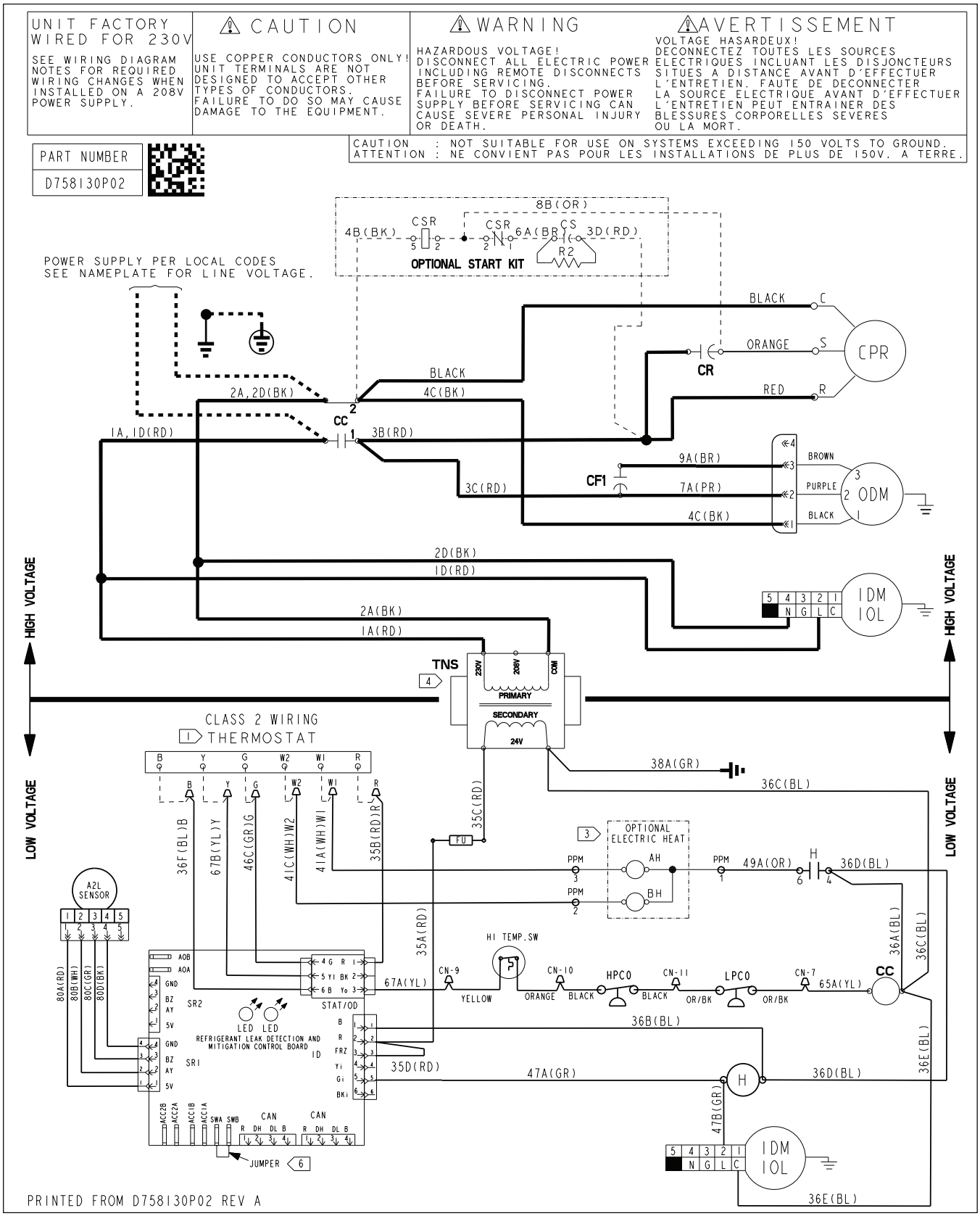
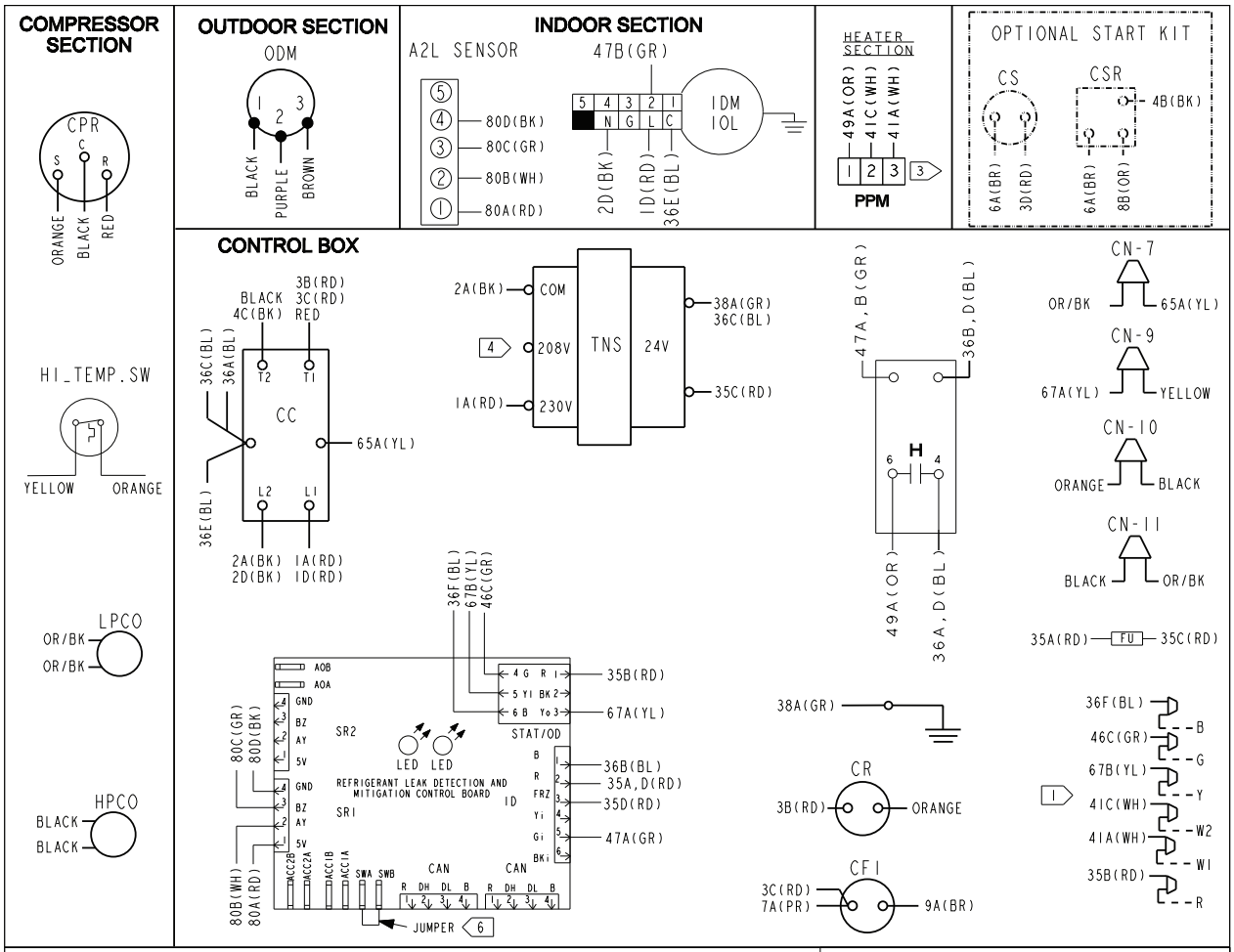


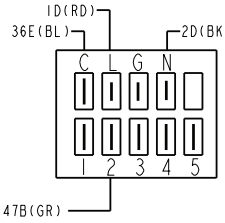
Figure 29. Model - A5PA3060



NOTES:

1. CONNECTIONS SHOWN ARE FOR A TYPICAL THERMOSTAT. SEE SCHEMATIC SUPPLIED WITH THERMOSTAT FOR PROPER CONNECTIONS. LOW VOLTAGE WIRING TO UNIT MAY BE NEC CLASS 2.
2. MAXIMUM ADDITIONAL EXTERNAL LOAD (PILOT DUTY) BETWEEN "B" AND "R" OF 0.5 AMPS, 24 VAC IS AVAILABLE WHEN A HEATER IS INSTALLED.
3. SEE WIRING DIAGRAM WITH HEATER FOR DETAILS OF HEATER WIRING.
4. FOR 208 VOLT OPERATION MAKE THE FOLLOWING WIRING CHANGES: AT TNS, REMOVE 1A(RD) WIRE AND CONNECT TO 208V TERMINAL ON THE TRANSFORMER
5. IF ANY OF THE ORIGINAL WIRE AS SUPPLIED IN THIS UNIT MUST BE REPLACED, REPLACE IT WITH APPLIANCE WIRING MATERIAL RATED AT 105°C.
6. DO NOT REMOVE JUMPER UNLESS CONFIGURING AN EXTERNAL SWITCH.

24 VOLT TRANSFORMER FUSE REPLACEMENT FU 36 VOLT TYPE ATC-5 AMP



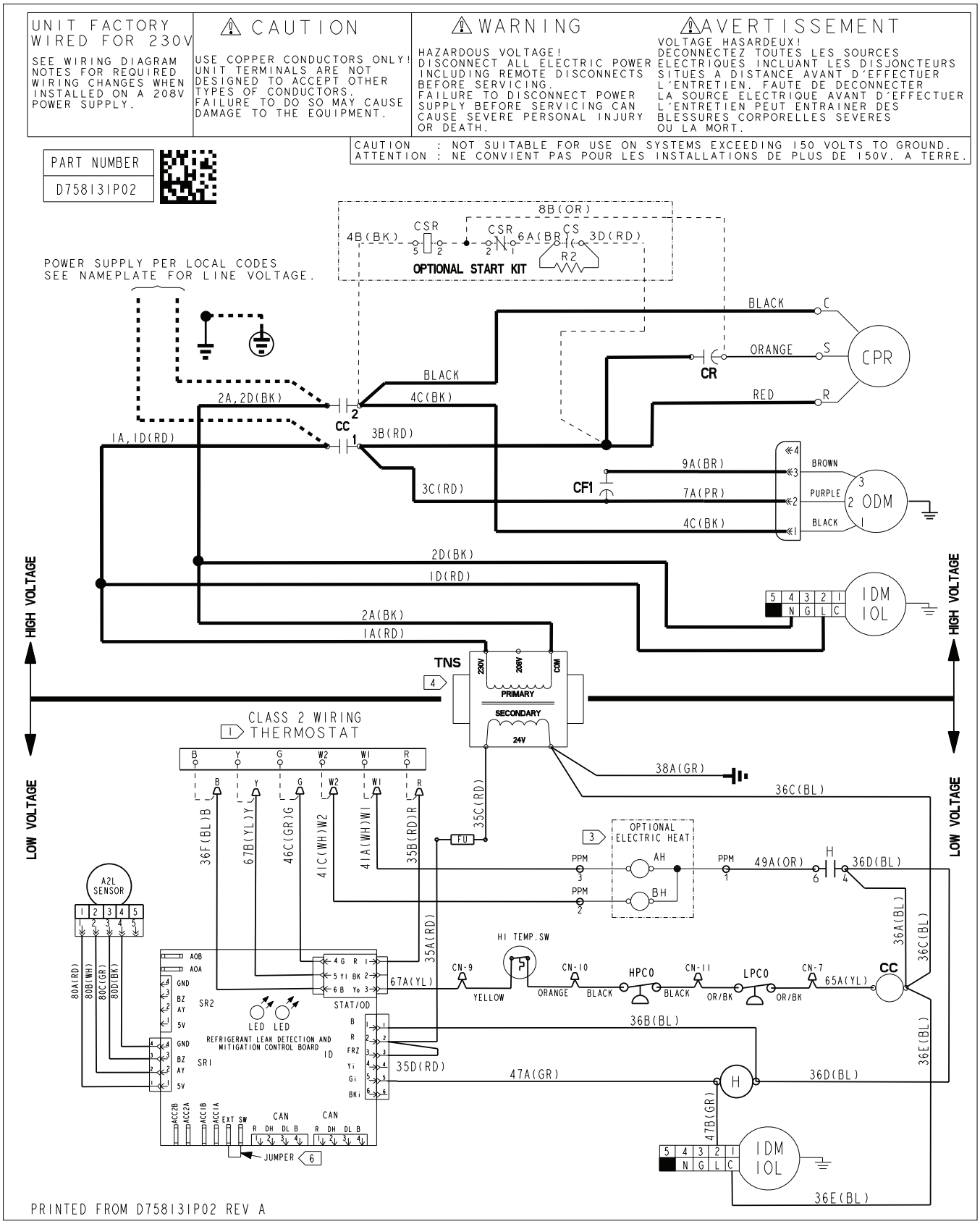
IDM CONNECTION

REFRIGERANT LEAK DETECTION AND MITIGATION CONTROL BOARD GREEN LED DIAGNOSTIC INDICATOR	
OFF	NO POWER/OFF
ON	STARTUP
SLOW FLASH	NORMAL OPERATION
2 FLASH	ACTIVE ALARM - SENSOR COMMUNICATION ERROR
3 FLASH	ACTIVE ALARM - REFRIGERANT LEAK OR SENSOR FAILURE
4 FLASH	PAST REFRIGERANT DETECTED ALARM
5,6 OR 7 FLASH	PAST SENSOR COMMUNICATION OR SENSOR ERROR

LEGEND		
DEVICE DESIG	DESCRIPTION	LINE NUMBER
A2L_SR	A2L SENSOR	28
AH,BH	CONTACTOR, ELECTRIC HEATER	27
CC	CONTACTOR	12,30
CFI	OUTDOOR FAN CAPACITOR	15
CPR	COMPRESSOR	11
CR	COMPRESSOR RUN CAPACITOR	11
FU	FUSE	26
H	HEATER RELAY	27,33
HI_TEMP_SW	HIGH TEMPERATURE SWITCH	30
HPCO	HIGH-PRESSURE CUTOFF	30
IDM	INDOOR MOTOR	19,36
LPCO	LOW-PRESSURE CUTOFF	30
ODM	OUTDOOR MOTOR	16
PPM	HEATER PLUG	27,28
TNS	TRANSFORMER, 208/230V - 24V	22
IOL	INTERNAL OVERLOAD	
CN	CONNECTOR AND WIRE NUT	

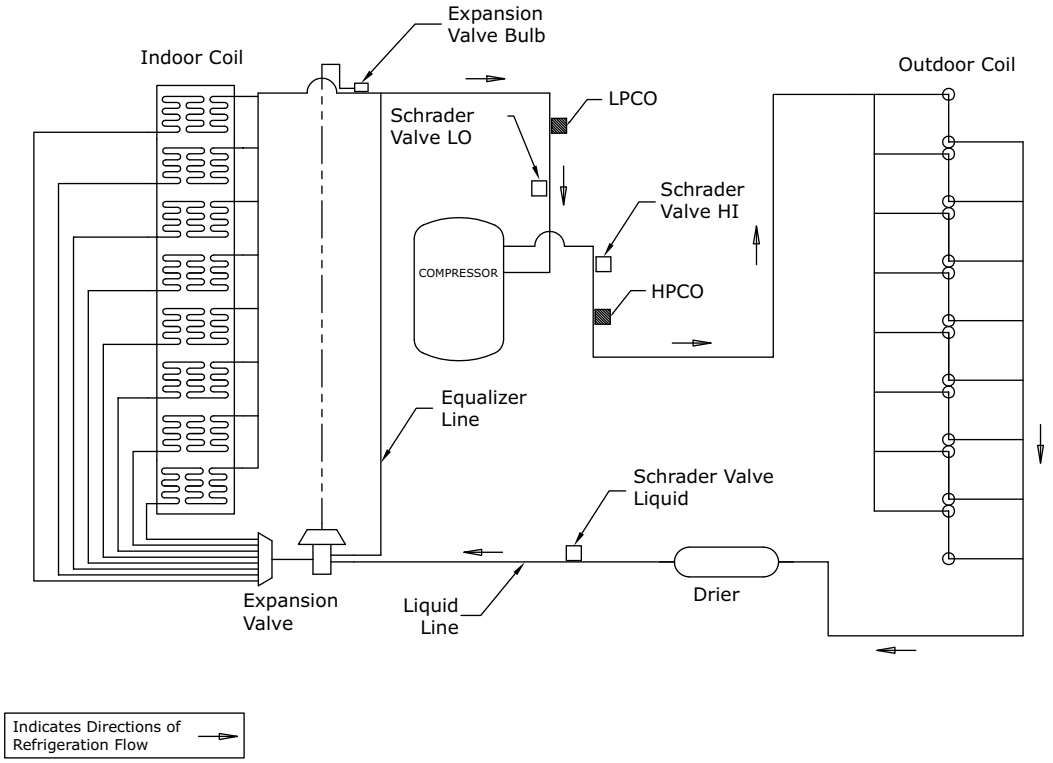
WIRE COLOR DESIGNATION					
ABBR	COLOR	ABBR	COLOR	ABBR	COLOR
BK	BLACK	PR	PURPLE	GR	GREEN
BL	BLUE	RD	RED	YL	YELLOW
BR	BROWN	WH	WHITE	OR	ORANGE

Figure 30. Model - A5PA3060



Refrigerant Circuits

Figure 31. Refrigerant circuit (for reference only)



Troubleshooting

Table 18. Troubleshooting

System Faults	Power Supply	High Voltage Wiring	Compr. IOL	Run Capacitor	Start capacitor	Start Relay	Contactor Contacts	Low Voltage Wiring	Control Transformer	Contactor Coil	Low Voltage Fuse	Stuck Compressor	Ineffecient Compressor	Refrigerant Undercharge	Refrigerant Overcharge	Excessive Evap. Load	Noncondensables	Restricted O.D. Airflow	O.D. Air Recirculation	TXV Stuck Open	Low Superheat	High Superheat	Restricted I.D. Airflow	Ref. Circuit Restrictions	Mitigation System
Refrigerant Circuit																									
Liquid Pressure too High	—	—	—	—	—	—	—	—	—	—	—	—	—	—	P	—	S	P	S	—	—	—	—	S	—
Liquid Pressure too Low	—	—	—	—	—	—	—	—	—	—	—	—	S	P	—	—	—	—	—	S	—	S	—	S	—
Suction Pressure too High	—	—	—	—	—	—	—	—	—	—	—	—	S	—	P	P	—	—	—	S	S	—	—	—	—
Suction Pressure too Low	—	—	—	—	—	—	—	—	—	—	—	—	—	S	—	—	—	—	—	—	—	S	P	S	—
Liquid Refrigerant Floodback (TXV System)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S	S	—	P	—	—
I.D. Coil Frosting	—	—	—	—	—	—	—	—	—	—	—	—	—	P	—	—	—	—	—	—	S	—	P	S	—
Compressor Runs Inadequate or No Cooling	—	—	—	—	—	—	—	—	—	—	—	—	S	P	—	P	S	S	S	—	—	S	P	S	—
Electrical																									
Compressor and O.D. Fan Do Not Start	P	P	—	—	—	—	S	S	P	P	P	—	—	—	—	—	—	—	—	—	—	—	—	—	P[a]
Compressor will not Start but O.D. Fan Runs	—	P	S	P	P	P	—	—	—	—	—	S	—	—	—	—	—	—	—	—	—	—	—	—	—
O.D. Fan will Not Start	—	P	—	P	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Compressor Hums but will Not Start	—	P	—	P	P	P	S	—	—	—	—	S	—	—	—	—	—	—	—	—	—	—	—	—	—
Compressor Cycles on IOL	—	P	S	P	P	P	S	—	—	—	—	P	S	P	S	S	S	S	S	—	—	S	—	S	—
I.D. Blower willnot Start	P	S	—	—	—	—	—	S	P	—	P	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Note: P-primary causes / S-secondary causes

[a] See, Verification of Mitigation Actions, p. 28

Important Product Information

Packaged Unit Serial Number_____

Packaged Unit Model Number_____

Date of Installation_____

Dealer_____

Service Information

Call your installing dealer if the unit is inoperative. Before you call, always check the following to be sure service is required:

1. Be sure the main switch that supplies power to the unit is in the ON position.
2. Replace any burned-out fuses or reset circuit breakers.
3. Be sure the thermostat is properly set.

Service Phone _____

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PKGR-SVX009B-EN 06 Oct 2025
Supersedes PKGR-SVX009A-EN (August 2025)

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