INSTALLATION MANUAL

SINGLE PACKAGE
AIR CONDITIONER / ELECTRIC HEAT

MODELS: PCE4 SERIES

3 THRU 5 TONS – 208/230V - 3 PHASE

AMERICAN QUALITY
DESIGNED, ENGINEERED & ASSEMBLED IN THE USA

C US
AHRI CERTIFIED
www.ahridirectory.org
Unitary Small AC
AHRI Standard 210/240
Certification applies only when the complete system is listed with AHRI.

ISO 9000 REGISTRATION
ISO 9001
Certified Quality
Management System

LIST OF SECTIONS

GENERAL INFORMATION 1
SAFETY 1
MODEL NUMBER NOMENCLATURE 2
INSTALLATION 2
AIRFLOW PERFORMANCE 10
OPERATION 12
MAINTENANCE 13
TYPICAL WIRING DIAGRAMS 14
START UP SHEET 17

LIST OF FIGURES

Component Location 3
Unit 4 Point Load Weight 4
Unit Dimensions 4
Bottom Duct Dimensions (inches) 5
Rear Duct Dimensions (inches) 5
Typical Field Control Wiring Diagram For Air Conditioner Models . . . 6
Typical Field Power Wiring Diagram 6
Measuring External Static Pressure 13
Connection Wiring Diagram 14
Ladder Wiring Diagram 15
R-410A Quick Reference Guide 16

LIST OF TABLES

Unit Limitations 2
Weights and Dimensions 4
Unit Dimensions 4
Unit Clearances 5
Single Point Kit Numbers 7
Electrical Data - 208/230-3-60 Single Source Power 7
Electrical Data for 208-3-60 Multi Source Power 8
Electrical Data for 230-3-60 Multi Source Power 8
Physical Data 9
Airflow Performance - Side Duct Application 10
Airflow Performance - Bottom Duct Application 11
Electric Heat Minimum Supply Air 11
Electric Heat Multipliers 11
Additional Static Resistance 12
Thermostat Signals 12

SECTION I: GENERAL INFORMATION

PCE units are factory assembled air conditioners designed for outdoor installation on a roof top or a slab. Field-installed electric heater accessories are available to provide electric heat.

The units are completely assembled on rigid, removable base rails. All piping, refrigerant charge, and electrical wiring is factory installed and tested. The units require only electric power and duct connections at the point of installation.

SECTION II: SAFETY

This is a safety alert symbol. When you see this symbol on labels or in manuals, be alert to the potential for personal injury.

Understand and pay particular attention to the signal words **DANGER**, **WARNING**, or **CAUTION**.

DANGER indicates an **imminently** hazardous situation, which, if not avoided, **will result in death or serious injury**.

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 **may result in minor or moderate injury.** It is also used to alert against unsafe practices and hazards involving only property damage.

⚠ WARNING

Improper installation may create a condition where the operation of the product could cause personal injury or property damage.
Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. ***Failure to carefully read and follow all instructions in this manual can result in furnace malfunction, death, personal injury and/or property damage.*** *Only a qualified contractor, installer or service agency should install this product.*

⚠ CAUTION

This product must be installed in strict compliance with the installation instructions and any applicable local, state, and national codes including, but not limited to building, electrical, and mechanical codes.

⚠ WARNING

Before performing service or maintenance operations on unit, turn off main power switch to unit. Electrical shock could cause personal injury. Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information consult a qualified installer, service agency or the gas supplier.

⚠ CAUTION

This system uses R-410A Refrigerant which operates at higher pressures than R-22. No other refrigerant may be used in this system. Gage sets, hoses, refrigerant containers and recovery systems must be designed to handle R-410A. If you are unsure, consult the equipment manufacturer. Failure to use R-410A compatible servicing equipment may result in property damage or injury.

Due to system pressure, moving parts, and electrical components, installation and servicing of air conditioning equipment can be hazardous. Only qualified, licensed service personnel should install, repair, or service this equipment. Unlicensed personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters.

Observe all precautions in the literature, labels, and tags accompanying the equipment whenever working on air conditioning equipment. Be sure to follow all other applicable safety precautions and codes including.

Wear safety glasses and work gloves. Use quenching cloth and have a fire extinguisher available during brazing operations.

INSPECTION

As soon as a unit is received, it should be inspected for possible damage during transit. If damage is evident, the extent of the damage should be noted on the carrier's freight bill. A separate request for inspection by the carrier's agent should be made in writing.

REPLACEMENT PARTS

Contact your local Unitary Products parts distribution center for authorized replacement parts.

SECTION III: MODEL NUMBER NOMENCLATURE

PCE	4	A	36	3	1	A
1	2	3	4	6	8	9

1. Model Family
PCE - packaged A/C with electric heat,
PHE - packaged with electric heat,
PCG - packaged A/C with gas heat,

2. Nominal Cooling Efficiency
4 = 14 SEER, 6 = 16 SEER, etc.

3. Cabinet Size
A = small 35 x 51, B = large 45 x 51

4. Nominal Air Conditioning Cooling Capacity
24 = Nominal Capacity, etc.

5. Gas Heating Input BTU/Hr x 1000
050 = 50,000 BTU/Hr. input, blank = electric heat

6. Voltage-Phase-Frequency
2 = 208/230-1-60, 3=208/230-3-60, 4 = 460-3-60

7. NOx Approval
X = low-NOx, blank = not low-Nox

8. Generation Level
1 = first generation

9. Revision Level
A = original release, B = second release

Examples:
PCE4B4231A is a packaged air conditioner, 14 SEER, 3-1/2 ton, large cabinet, 208/230 volt, three phase model, (first generation, first release)

SECTION IV: INSTALLATION

LIMITATIONS

These units must be installed in accordance with the following national and local safety codes.

1. National Electrical Code ANSI/NFPS No. 70 or Canadian Electrical Code Part 1, C22.1 (latest editions).
2. Local plumbing and waste water codes and other applicable local codes.

Refer to Table 9 for unit physical data and to Tables 5-7 for electrical data.

If components are to be added to a unit to meet local codes, they are to be installed at the dealer's and/or the customer's expense.

Size of unit for proposed installation should be based on heat loss/heat gain calculations made in accordance with industry recognized procedures such as the Air Conditioning Contractors of America (manual J).

TABLE 1: Unit Limitations

Model	Unit Voltage	Unit Limitations		
		Applied Voltage		Outdoor DB Temp
		Min	Max	Max (°F)
A36	208/230-3-60	187	252	125
B48	208/230-3-60	187	252	125
B60	208/230-3-60	187	252	125

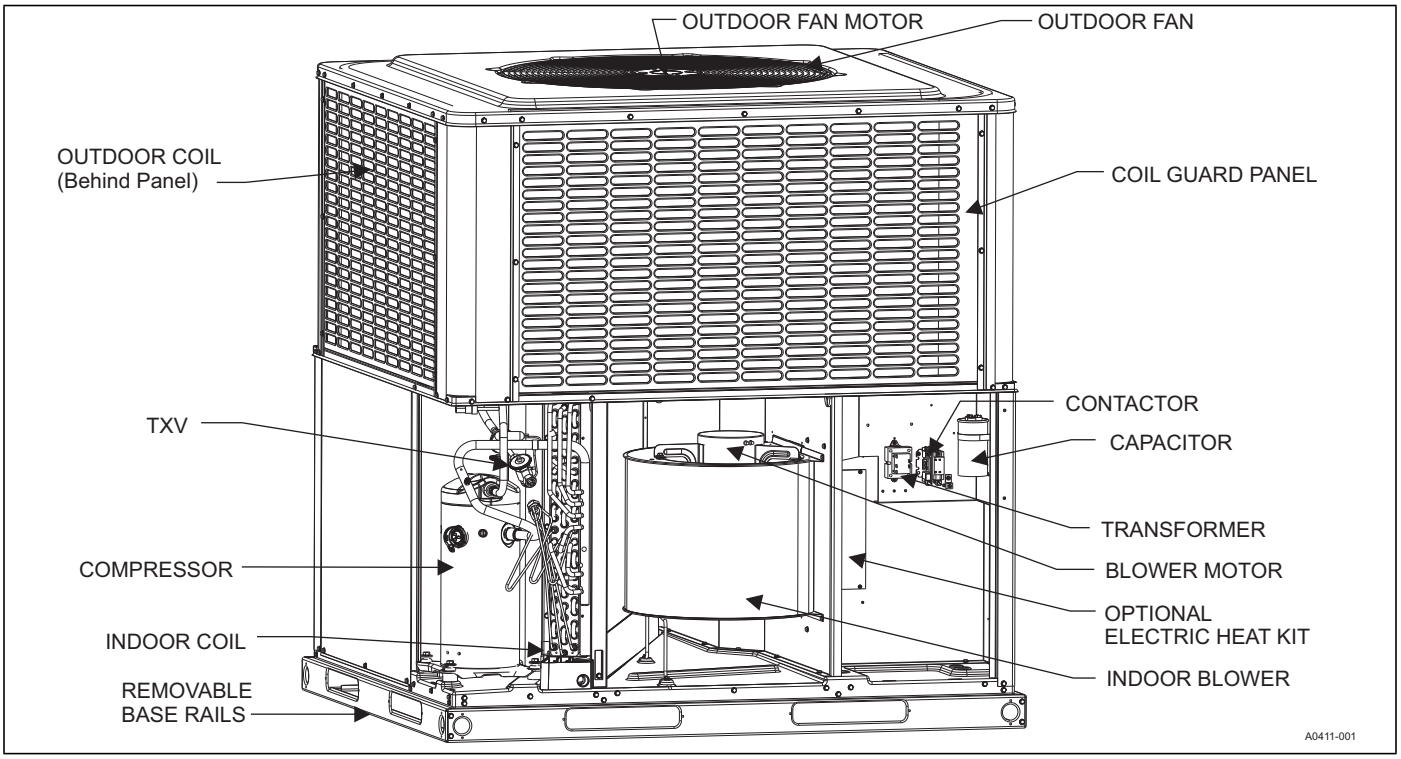


FIGURE 1: Component Location

LOCATION

Use the following guidelines to select a suitable location for these units:

⚠ WARNING

Do not permit overhanging structures or shrubs to obstruct outdoor air discharge outlet.

1. Unit is designed for **outdoor installation** only.
2. Outdoor coils must have an unlimited supply of air. Where a choice of location is possible, position the unit on either north or east side of building.
3. Suitable for mounting on roof curb.

⚠ WARNING

Do not attach supply and return duct work to the bottom of the unit base pan as the drain pan could be compromised.

4. For ground level installation, a level pad or slab should be used. The thickness and size of the pad or slab used should meet local codes and unit weight. Do not tie the slab to the building foundation.
5. Roof structures must be able to support the weight of the unit and its options/accessories. Unit must be installed on a solid, level roof curb or appropriate angle iron frame.
6. Maintain level tolerance to 1/8” across the entire width and length of unit.

CLEARANCES

All units require certain clearances for proper operation and service. Refer to Table 4 for the clearances required for construction, servicing and proper unit operation.

RIGGING AND HANDLING

⚠ CAUTION

All panels must be secured in place when the unit is lifted.
The outdoor coils should be protected from rigging cable damage with plywood or other suitable material.

⚠ CAUTION

If a unit is to be installed on a roof curb other than a Unitary Products roof curb, gasket or sealant must be applied to all surfaces that come in contact with the unit underside.

Exercise care when moving the unit. Do not remove any packaging until the unit is near the place of installation. Rig the unit by attaching chain or cable slings to the lifting holes provided in the base rails. Spreader bars, whose length exceeds the largest dimension across the unit, **MUST** be used across the top of the unit.

⚠ CAUTION

Before lifting, make sure the unit weight is distributed equally on the rigging cables so it will lift evenly.

Units may be moved or lifted with a forklift. Slotted openings in the base rails are provided for this purpose.

TABLE 2: Weights and Dimensions

Model	Weight (lbs.)		Center of Gravity		4 Point Load Location (lbs.)			
	Shipping	Operating	X	Y	A	B	C	D
A36	400	395	30	15	112	123	120	45
B48	488	483	30	19	158	125	130	75
B60	505	500	30	20	157	134	140	74

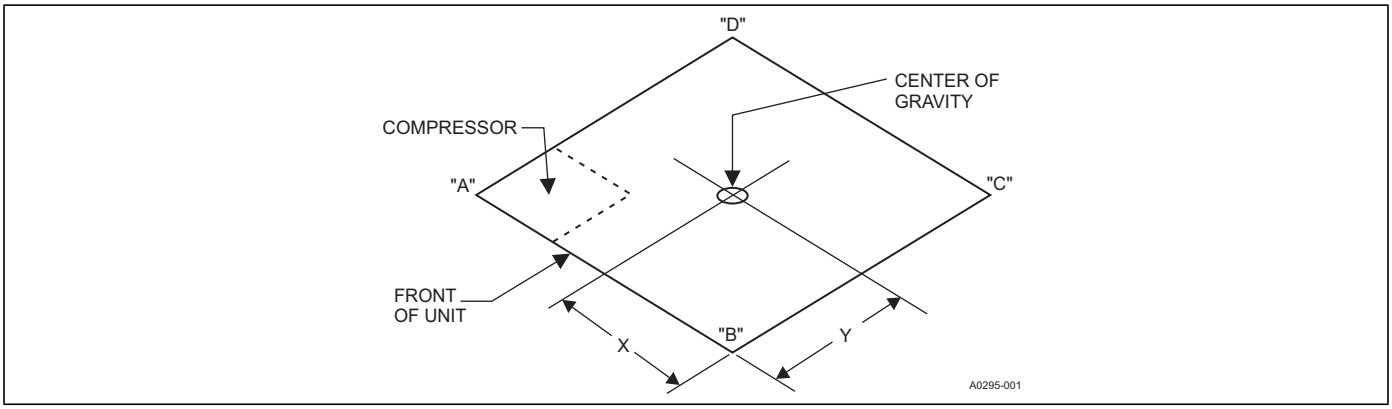


FIGURE 2: Unit 4 Point Load Weight

TABLE 3: Unit Dimensions

Model	Dimensions		
	A	B	C
A36	51-1/4	35-3/4	47
B48	51-1/4	45-3/4	53
B60	51-1/4	45-3/4	55

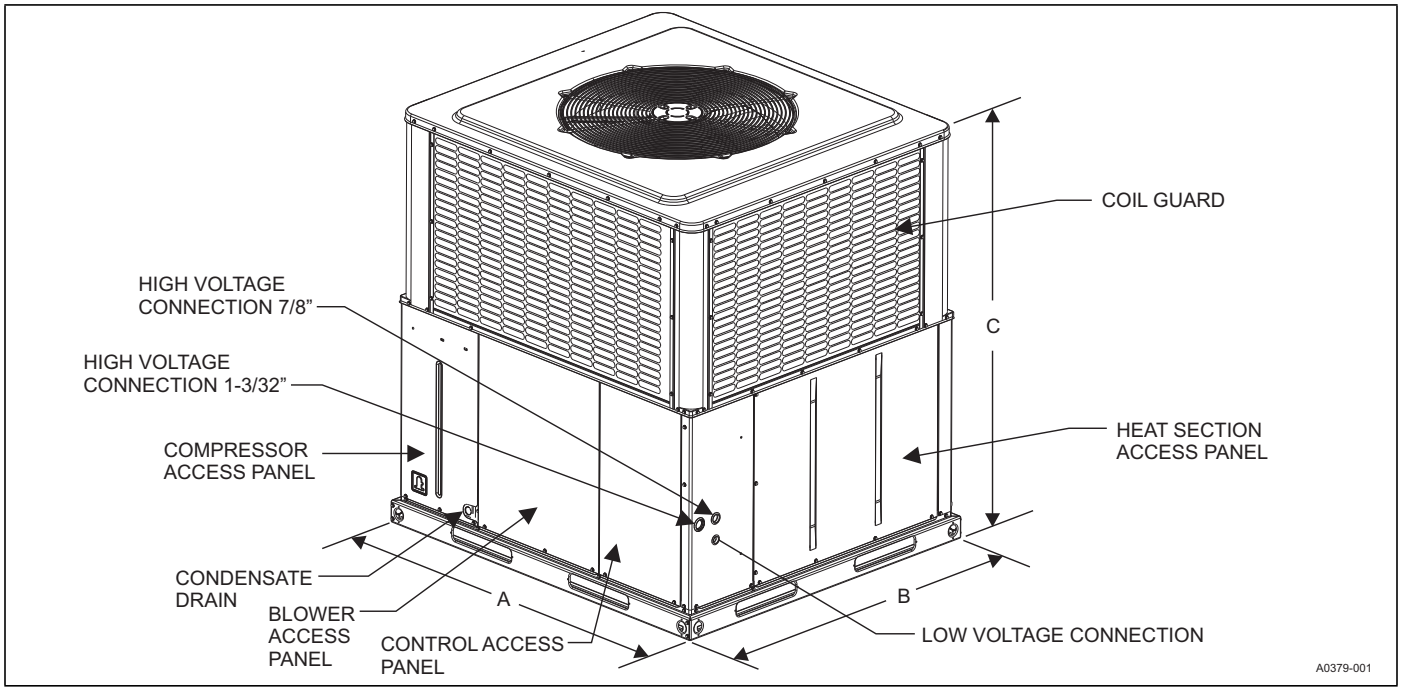


FIGURE 3: Unit Dimensions

TABLE 4: Unit Clearances

Direction	Distance (in.)	Direction	Distance (in.)
Top[1]	36	Right Side	36
Side Opposite Ducts	36	Left Side	24
Duct Panel	0	Bottom [2,3]	1

Note: For units applied with a roof curb, the minimum clearance may be reduced from 1 inch to 1/2 inch between combustible roof curb material and this supply air duct.

1. Minimum Clearance of 1inch all sides of supply air duct for the first 3 feet of duct for 20 & 25 kW., zero inches thereafter. For all other heaters, zero inch clearance all sides for entire length of duct.
2. Units must be installed outdoors. Overhanging structures or shrubs should not obscure outdoor air discharge outlet.
3. Units may be installed on combustible floors made from wood or class A, B or C roof covering materials.

DUCTWORK

NOTICE

All units are shipped in the horizontal supply/return configuration. It is important to reduce the possibility of any air leakage through the bottom duct covers (resulting from cut, torn, or rolled gasket) due to improper handling or shipping processes. To ensure a good tight seal, it is recommended that silicone caulk and/or foil tape be applied along the cover edges.

These units are adaptable to downflow use as well as rear supply and return air duct openings. To convert to downflow, use the following steps:

1. Remove the duct covers found in the bottom return and supply air duct openings. There are four (4) screws securing each duct cover (save these screws to use in Step 2).
2. Install the duct covers (removed in step one) to the rear supply and return air duct openings. Secure with the four (4) screws used in step one.
3. Seal duct covers with silicone caulk.

Duct work should be designed and sized according to the methods of the Air Conditioning Contractors of America (ACCA), as set forth in their Manual D.

A closed return duct system shall be used. This shall not preclude use of economizers or ventilation air intake. Flexible duct connectors are recommended in the supply and return duct work to minimize the transmission of vibration and noise.

⚠ CAUTION

When fastening duct work to the side duct flanges on the unit, insert the screws through the duct flanges only. DO NOT insert the screws through the casing. Outdoor duct work must be insulated and waterproofed.

NOTICE

Be sure to note supply and return openings.

Refer to Figures 4 and 5 for information concerning rear and bottom supply and return air duct openings.

FILTERS

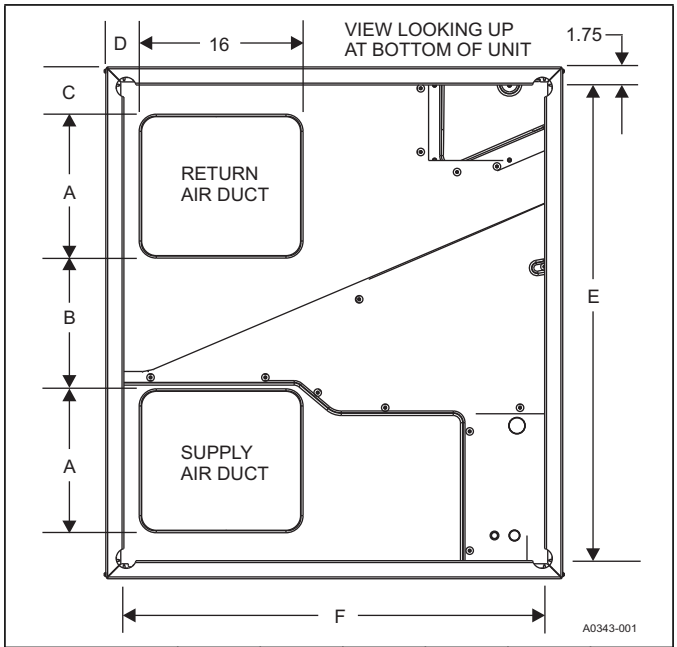
Proper filter size is very important. Filter size, type and pressure drop should always be considered during duct system design.

It is the responsibility of the installer to secure a filter in the return air ductwork or utilize the filter rack.

A filter rack kit is included with all three phase units.

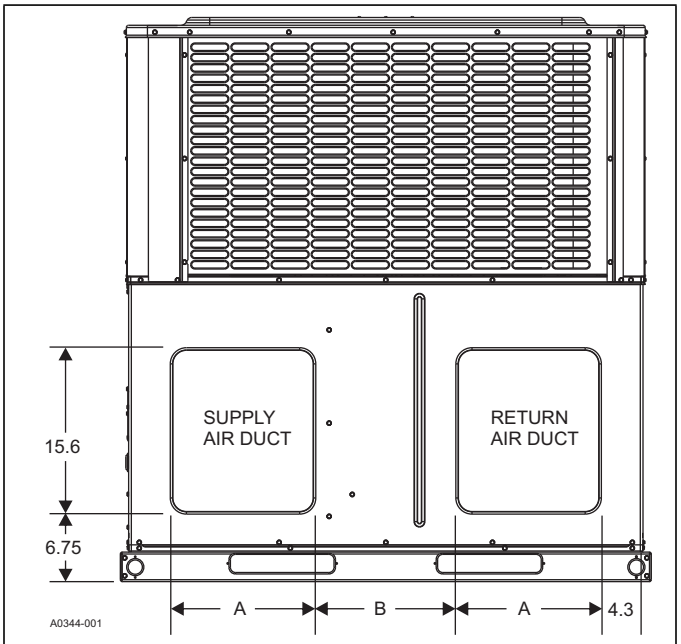
Filters must always be used and must be kept clean. When filters become dirt laden, insufficient air will be delivered by the blower, decreasing your units efficiency and increasing operating costs and wear-and-tear on the unit and controls.

Filters should be checked monthly; this is especially important since this unit is used for both heating and cooling.



Model	A	B	C	D	E	F
36	10	21.5	5	4.5	47.5	32
48, 60	14	13.5	5	3.5	47.5	42

FIGURE 4: Bottom Duct Dimensions (inches)



Model	A	B
36	9.6	22
48, 60	13.6	14

FIGURE 5: Rear Duct Dimensions (inches)

CONDENSATE DRAIN

A condensate trap must be installed in the condensate drain. The plumbing must conform to local codes.

Use Teflon tape or pipe thread compound if needed.

⚠ CAUTION

Hand tighten only.

SERVICE ACCESS

Access to all serviceable components is provided at the following locations:

- Coil guards
- Unit top panel
- Corner posts
- Blower access panel
- Control access panel
- Indoor coil access panel
- Compressor access panel

Refer to Figure 3 for location of these access locations and minimum clearances in Table 4.

⚠ WARNING

Wear safety glasses and gloves when handling refrigerants. Failure to follow this warning can cause serious personal injury.

⚠ CAUTION

This system uses R-410A Refrigerant which operates at higher pressures than R-22. No other refrigerant may be used in this system. Gage sets, hoses, refrigerant containers and recovery systems must be designed to handle R-410A. If you are unsure, consult the equipment manufacturer. Failure to use R-410A compatible servicing equipment may result in property damage or injury.

Refer to Figure 14 for the R-410A Quick Reference Guide.

THERMOSTAT

The room thermostat should be located on an inside wall approximately 60" above the floor where it will not be subject to drafts, sun exposure or heat from electrical fixtures or appliances. Sealant should be used behind thermostat to prevent air infiltration. Follow manufacturer's instructions enclosed with the thermostat for general installation procedure. Color coded insulated wires (minimum #18 AWG) should be used to connect thermostat to unit. See Figure 6. Do not use power stealing thermostats.

POWER AND CONTROL WIRING

Field wiring to the unit must conform to provisions of the current N.E.C. ANSI/NFPA No. 70 or C.E.C. and/or local ordinances. The unit must be electrically grounded in accordance with local codes or, in their absence, with the N.E.C./C.E.C. Voltage tolerances which must be maintained at the compressor terminals during starting and running conditions are indicated on the unit Rating Plate and Table 1.

The wiring entering the cabinet must be provided with mechanical strain relief.

A fused disconnect switch should be field provided for the unit. If any of the wire supplied with the unit must be replaced, replacement wire must be of the type shown on the wiring diagram.

Electrical service must be sized properly to carry the load. Each unit must be wired with a separate branch circuit fed directly from the main distribution panel and properly fused.

Refer to Figures 6-8 for typical field wiring and to the appropriate unit wiring diagram for control circuit and power wiring information.

Single point wiring requires the use of the single point wiring kit accessory.

Unit comes wired for 230 volt power. If supply power is 208 volt, wires connected to the control transformer 230V tap must be moved to the 208V tap.

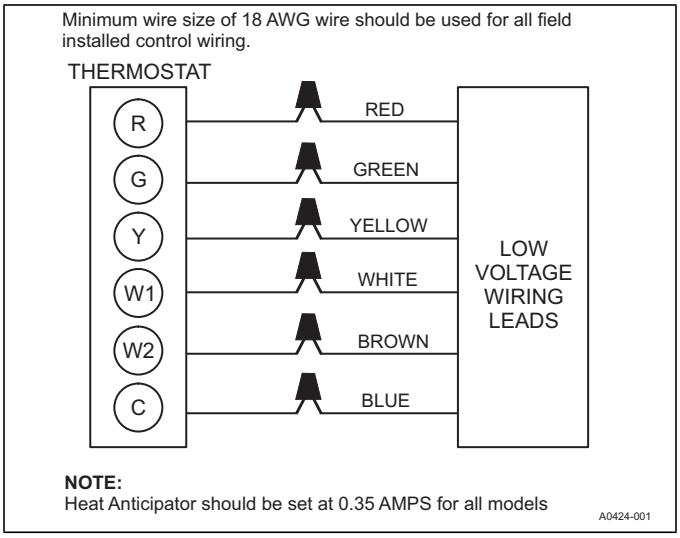


FIGURE 6: Typical Field Control Wiring Diagram For Air Conditioner Models

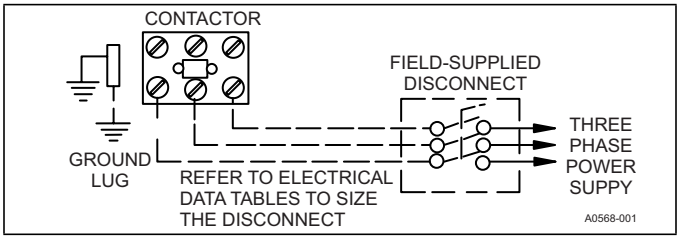


FIGURE 7: Typical Field Power Wiring Diagram

NOTICE

In some applications, the service disconnects on the electric heat kits must be rotated 180° so the up position of the disconnect is the ON position. This service disconnect orientation change is required by UL1995, Article 26.19 (in reference to all circuit breakers).

TABLE 5: Single Point Kit Numbers

Unit Model Number	Voltage	Heater Kit	Single-Point Wiring Kit	Unit Fuse Size (Amps)	Heater Fuse Size (Amps)
PCE4A3631	208-3-60	6HK06501025	S1-2SPWK031	20	25
		6HK06501525	S1-2SPWK032	20	40
PCE4B4831	208-3-60	6HK06501025	S1-2SPWK033	35	25
		6HK06501525	S1-2SPWK034	35	40
		6HK06501825	S1-2SPWK034	35	50
		6HK16502025	S1-2SPWK035	35	N/A*
PCE4B6031	208-3-60	6HK06501025	S1-2SPWK033	40	25
		6HK06501525	S1-2SPWK034	40	40
		6HK06501825	S1-2SPWK034	40	50
		6HK16502025	S1-2SPWK035	40	N/A*
		6HK16502525	S1-2SPWK035	40	N/A*
Unit Model Number	**Voltage**	**Heater Kit**	**Single-Point Wiring Kit**	**Unit Fuse Size (Amps)**	**Heater Fuse Size (Amps)**
PCE4A3631	230-3-60	6HK06501025	S1-2SPWK031	20	30
		6HK06501525	S1-2SPWK032	20	45
PCE4B4831	230-3-60	6HK06501025	S1-2SPWK033	35	30
		6HK06501525	S1-2SPWK034	35	45
		6HK06501825	S1-2SPWK034	35	50
		6HK16502025	S1-2SPWK035	35	N/A*
PCE4B6031	230-3-60	6HK06501025	S1-2SPWK033	40	30
		6HK06501525	S1-2SPWK034	40	45
		6HK06501825	S1-2SPWK034	40	50
		6HK16502025	S1-2SPWK035	40	N/A*
		6HK16502525	S1-2SPWK035	40	N/A*

NOTES:

* The 208/230 volt 20kW and 25kW heater kits include circuit breakers, so no fuse is needed

TABLE 6: Electrical Data - 208/230-3-60 Single Source Power

Model	Compressor			OD Fan Motor	Blower Motor	Electric Heat Option						MCA[1]						Max Fuse [2]or Breaker[3] Size					
						Heater Kit[4]	Heater kW		Stages	Heater Amps		Total Unit		Unit Less Heater		Unit Heater Only		Total Unit		Unit Less Heater		Unit Heater Only	
	RLA	LRA	MCC	FLA	FLA		208	230		208	230	208	230	208	230	208	230	208	230	208	230	208	230
A36	8.3	68.0	14.5	1.3	3.8	none	--	--	--	--	--	15.5	15.5	15.5	15.5	-	-	20	20	20	20	-	-
						6HK06501025	7.2	8.8	1	20.0	22.1	28.8	31.4	15.5	15.5	25.0	27.6	30	35	20	20	25	30
						6HK06501525	10.8	13.2	1	30.0	33.1	41.3	45.2	15.5	15.5	37.5	41.4	45	50	20	20	40	45
B48	13.7	83.1	21.4	1.7	5.4	none	--	--	--	--	--	24.2	24.2	24.2	24.2	-	-	35	35	35	35	-	-
						6HK06501025	7.2	8.8	1	20.0	22.1	30.4	33.0	24.2	24.2	25.0	27.6	35	35	35	35	25	30
						6HK06501525	10.8	13.2	1	30.0	33.1	42.9	46.8	24.2	24.2	37.5	41.4	45	50	35	35	40	45
						6HK06501825	13.0	15.9	1	36.1	39.9	50.5	55.3	24.2	24.2	45.1	49.9	60	60	35	35	50	50
						6HK16502025	14.4	17.6	2	40.0	44.2	55.4	60.6	24.2	24.2	50.0	55.2	60	70	35	35	*	*
B60	16.0	110.0	24.9	1.7	7.0	none	--	--	--	--	--	28.7	28.7	28.7	28.7	-	-	40	40	40	40	-	-
						6HK06501025	7.2	8.8	1	20.0	22.1	32.0	34.6	28.7	28.7	25.0	27.6	40	40	40	40	25	30
						6HK06501525	10.8	13.2	1	30.0	33.1	44.5	48.4	28.7	28.7	37.5	41.4	50	50	40	40	40	45
						6HK06501825	13.0	15.9	1	36.1	39.9	52.1	56.9	28.7	28.7	45.1	49.9	60	60	40	40	50	50
						6HK16502025	14.4	17.6	2	40.0	44.2	57.0	62.2	28.7	28.7	50.0	55.2	60	70	40	40	*	*
						6HK16502525	18.0	22.0	2	50.0	55.2	69.5	76.0	28.7	28.7	62.5	69.0	70	80	40	40	*	*

NOTES: Single-source power MCA and MOP requirements are given here only for reference if the unit is to be installed with a field-installed single-point power modification.

* Breakers for heaters are included in the 20kW and 25kW heater kits.

1. Minimum Circuit Ampacity.
2. Maximum Over Current Protection per standard UL 1995.
3. Fuse or HACR circuit breaker to be field installed.
4. Single Point Connection Kit required.

TABLE 7: Electrical Data for 208-3-60 Multi Source Power

Model	Compressor			OD Fan Motor	Blower Motor	Electric Heat Option				Multi Source					
						Heater Kit	Heater kW	Stages	Heater Amps						
	RLA	LRA	MCC	FLA	FLA		208		208	208	208	208	208	208	208
Multi Source: Compressor Circuit and Heat Circuits						Multi Source:	CIRCUIT #1 Compressor Circuit CIRCUIT #2 1ST Stage Heat CIRCUIT #3 2ND Stage Heat			MCA[1] Amps	MOP[2]	MCA[1] Amps	MOP[2]	MCA[1] Amps	MOP[2]
										Circuit #1		Circuit #2		Circuit #3	
A36	8.3	68.0	14.5	1.3	3.8	none	--	--	--	15.5	20	--	--	--	--
						6HK06501025	7.2	1	20.0	15.5	20	25.0	25	--	--
						6HK06501525	10.8	1	30.0	15.5	20	37.5	40	--	--
B48	13.7	83.1	21.4	1.7	5.4	none	--	--	--	24.2	35	--	--	--	--
						6HK06501025	7.2	1	20.0	24.2	35	25.0	25	--	--
						6HK06501525	10.8	1	30.0	24.2	35	37.5	40	--	--
						6HK06501825	13.0	1	36.1	24.2	35	45.1	50	--	--
						6HK16502025	14.4	2	40.0	24.2	35	25.0	25	25.0	25
B60	16.0	110.0	24.9	1.7	7.0	none	--	--	--	28.7	40	--	--	--	--
						6HK06501025	7.2	1	20.0	28.7	40	25.0	25	--	--
						6HK06501525	10.8	1	30.0	28.7	40	37.5	40	--	--
						6HK06501825	13.0	1	36.1	28.7	40	45.1	50	--	--
						6HK16502025	14.4	2	40.0	28.7	40	25.0	25	25.0	25
						6HK16502525	18.0	2	50.0	28.7	40	31.3	35	31.3	35

1. MCA = Minimum Circuit Ampacity.
2. MOP = Maximum Over Current Protection device; must be HACR type circuit breaker or time delay fuse.

TABLE 8: Electrical Data for 230-3-60 Multi Source Power

Model	Compressor			OD Fan Motor	Blower Motor	Electric Heat Option				Multi Source					
						Heater Kit	Heater kW	Stages	Heater Amps						
	RLA	LRA	MCC	FLA	FLA		230		230	230	230	230	230	230	230
Multi Source: Compressor Circuit and Heat Circuits						Multi Source:	CIRCUIT #1 Compressor Circuit CIRCUIT #2 1ST Stage Heat CIRCUIT #3 2ND Stage Heat			MCA[1] Amps	MOP[2]	MCA[1] Amps	MOP[2]	MCA[1] Amps	MOP[2]
										Circuit #1		Circuit #2		Circuit #3	
A36	8.3	68.0	14.5	1.3	3.8	none	--	--	--	15.5	20	--	--	--	--
						6HK06501025	8.8	1	22.1	15.5	20	27.6	30	--	--
						6HK06501525	13.2	1	33.1	15.5	20	41.4	45	--	--
B48	13.7	83.1	21.4	1.7	5.4	none	--	--	--	24.2	35	--	--	--	--
						6HK06501025	8.8	1	22.1	24.2	35	27.6	30	--	--
						6HK06501525	13.2	1	33.1	24.2	35	41.4	45	--	--
						6HK06501825	15.9	1	39.9	24.2	35	49.9	50	--	--
						6HK16502025	17.6	2	44.2	24.2	35	27.6	30	27.6	30
B60	16.0	110.0	24.9	1.7	7.0	none	--	--	--	28.7	40	--	--	--	--
						6HK06501025	8.8	1	22.1	28.7	40	27.6	30	--	--
						6HK06501525	13.2	1	33.1	28.7	40	41.4	45	--	--
						6HK06501825	15.9	1	39.9	28.7	40	49.9	50	--	--
						6HK16502025	17.6	2	44.2	28.7	40	27.6	30	27.6	30
						6HK16502525	22.0	2	55.2	28.7	40	34.5	35	34.5	35

1. MCA = Minimum Circuit Ampacity.
2. MOP = Maximum Over Current Protection device; must be HACR type circuit breaker or time delay fuse.

TABLE 9: Physical Data

NOMINAL TONNAGE	MODELS		
	A36	**B48**	**B60**
	3.0	4.0	5.0
AHRI Cooling Performance			
Gross Capacity @ AHRI A point (MBH)	37.2	47.7	55.0
AHRI net capacity (MBH)	34.6	45.5	52.5
EER	11.0	11.0	11.0
SEER	14.0	14.0	14.0
Nominal CFM	1200	1600	2000
System power (KW)	3.2	4.2	4.8
Refrigerant type	R410A	R410A	R410A
Refrigerant charge (lb-oz)	8-3	14-4	14-2
Dimensions (inches)			
Length	51-1/4	51-1/4	51-1/4
Width	35-3/4	45-3/4	45-3/4
Height	47	53	55
Operating WT. (lbs.)	395	483	500
Compressors			
Type	Recip	Scroll	Scroll
Condenser Coil Data			
Face area (Sq. Ft.)	15.1	23.8	25.9
Rows	2	2	2
Fins per inch	22	22	22
Tube diameter	3/8	3/8	3/8
Circuitry Type	Interlaced	Interlaced	Interlaced
Evaporator Coil Data			
Face area (Sq. Ft.)	4.6	6.3	6.3
Rows	3	3	3
Fins per inch	16	16	16
Tube diameter	3/8	3/8	3/8
Circuitry Type	Interlaced	Interlaced	Interlaced
Refrigerant control	TXV	TXV	TXV
Condenser Fan Data			
Fan diameter (Inch)	24	26	26
Type	Prop	Prop	Prop
Drive type	Direct	Direct	Direct
No. speeds	1	1	1
Motor HP each	1/4	1/3	1/3
RPM	850	850	850
Nominal total CFM	2400	3200	3200
Direct Drive Evaporator Fan Data			
Fan Size (Inch)	11 x 10	11 x 10	11 x 10
Type	Centrifugal	Centrifugal	Centrifugal
Motor HP each	1/2	3/4	1
RPM	1200 Max	1200 Max	1200 Max
Frame size	48	48	48
Filters			
Quantity size	Field-supplied external filters must be sized so as not to exceed 300 fpm air velocity through disposable filters. For internal filter use, a filter rack kit is included with all three phase models. Consult the instructions supplied with that kit for replacement filter sizes. Filter sizes: A=20x20, B=20x30.		

COMPRESSORS

The compressor used in this product is specifically designed to operate with R-410A Refrigerant and cannot be interchanged.

⚠ CAUTION

This system uses R-410A Refrigerant which operates at higher pressures than R-22. No other refrigerant may be used in this system.

The compressor uses polyolester (POE oil), Mobile 3MA POE. This oil is extremely hygroscopic, meaning it absorbs water readily. POE oil can absorb 15 times as much water as other oils designed for HCFC and CFC refrigerants. If refrigerant circuit is opened, take all necessary precautions to avoid exposure of the oil to the atmosphere.

⚠ CAUTION

*Do not leave the system open to the atmosphere. Unit damage could occur due to moisture being absorbed by the **POE oil** in the system. This type of oil is highly susceptible to moisture absorption*

POE (polyolester) compressor lubricants are known to cause long term damage to some synthetic roofing materials.

⚠ CAUTION

Exposure, even if immediately cleaned up, may cause embrittlement (leading to cracking) to occur in one year or more. When performing any service that may risk exposure of compressor oil to the roof, take precautions to protect roofing.

Procedures which risk oil leakage include, but are not limited to, compressor replacement, repairing refrigerant leaks, replacing refrigerant components such as filter drier, pressure switch, metering device or coil.

⚠ CAUTION

Do not loosen compressor mounting bolts.

Units are shipped with compressor mountings which are factory-adjusted and ready for operation.

PHASING

Three-phase, scroll compressors operate in only one direction. If the scroll is drawing low amperage, has similar suction and discharge pressures, or is producing a high noise level, the scroll is mis-phased.

⚠ CAUTION

Scroll compressors require proper rotation to operate properly. Failure to check and correct rotation may result in property damage.

If necessary, change the incoming line connection phasing to obtain the proper rotation.

SECTION V: AIRFLOW PERFORMANCE

TABLE 10: Airflow Performance - Side Duct Application

Model	Motor Speed	External Static Pressure (Inches WC)								
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.0
		SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM
PCE4A36	Low (1)	1225	1174	1131	1090	1046	993	941	888	782
	Low/Medium (2)	1259	1209	1166	1126	1084	1032	980	928	824
	Medium (3)	1314	1271	1229	1186	1144	1097	1049	998	896
	Medium/High (4)	1348	1306	1259	1222	1179	1133	1086	1036	936
	High (5)	1506	1471	1403	1389	1345	1305	1262	1216	1124
PCE4A42	Low (1)	1436	1382	1342	1304	1262	1220	1179	1131	1035
	Low/Medium (2)	1544	1492	1455	1416	1376	1336	1294	1248	1156
	Medium (3)	1573	1523	1484	1445	1408	1367	1327	1279	1183
	Medium/High (4)	1681	1640	1599	1557	1517	1478	1436	1393	1307
	High (5)	1935	1887	1834	1788	1743	1701	1651	1591	1471
PCE4B48	Low (1)	1620	1564	1517	1466	1418	1360	1308	1206	1002
	Low/Medium (2)	1694	1630	1580	1530	1482	1430	1380	1292	1116
	Medium (3)	1798	1722	1669	1620	1572	1527	1480	1413	1280
	Medium/High (4)	1835	1758	1703	1653	1604	1558	1511	1442	1304
	High (5)	2146	2085	2025	1960	1872	1862	1798	1735	1609
PCE4B60	Low (1)	1730	1682	1628	1592	1552	1517	1479	1439	1359
	Low/Medium (2)	1858	1807	1749	1710	1667	1629	1589	1546	1460
	Medium (3)	2054	1998	1934	1890	1843	1801	1757	1710	1616
	Medium/High (4)	2195	2144	2098	2049	2003	1955	1883	1868	1838
	High (5)	2445	2388	2306	2293	2235	2178	2129	2077	1973

1. Airflow tested with dry coil conditions, without air filters, at 230 volts.
2. Applications above 0.8" w.c. external static pressure are not recommended.
3. Brushless DC high efficiency standard ECM blower motor used for all indoor blower assemblies.
4. Minimal variations in airflow performance data results from operating at 208 volts. Data above may be used in those cases.
5. Heating applications tested at 0.50" w.c. esp, and cooling applications tested at 0.30" w.c.esp per standards.

TABLE 11: Airflow Performance - Bottom Duct Application

Model	Motor Speed	External Static Pressure (Inches WC)								
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.0
		SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM
PCE4A36	Low (1)	1231	1186	1146	1103	1069	1030	977	912	781
	Low/Medium (2)	1270	1225	1189	1140	1098	1046	1008	960	866
	Medium (3)	1317	1286	1245	1198	1151	1110	1064	1024	943
	Medium/High (4)	1358	1317	1275	1238	1197	1148	1105	1057	961
	High (5)	1517	1475	1447	1400	1357	1318	1275	1232	1146
PCE4A42	Low (1)	1455	1414	1379	1335	1294	1254	1212	1160	1056
	Low/Medium (2)	1566	1532	1492	1455	1416	1372	1333	1280	1174
	Medium (3)	1565	1530	1491	1458	1419	1381	1336	1290	1198
	Medium/High (4)	1675	1641	1606	1578	1535	1495	1455	1412	1326
	High (5)	1946	1909	1863	1815	1771	1721	1654	1595	1477
PCE4B48	Low (1)	1598	1548	1502	1454	1410	1362	1307	1251	1139
	Low/Medium (2)	1663	1612	1568	1522	1476	1422	1370	1297	1152
	Medium (3)	1789	1733	1670	1650	1596	1578	1535	1483	1379
	Medium/High (4)	1931	1814	1808	1736	1673	1650	1597	1519	1362
	High (5)	2131	2058	1998	1949	1892	1840	1788	1728	1608
PCE4B60	Low (1)	1655	1612	1596	1531	1461	1462	1429	1391	1316
	Low/Medium (2)	1766	1720	1667	1629	1632	1539	1537	1498	1421
	Medium (3)	1987	1933	1861	1817	1820	1715	1725	1651	1504
	Medium/High (4)	2114	2050	2047	1974	1899	1889	1920	1866	1758
	High (5)	2369	2308	2249	2183	2126	2088	2034	1990	1902

1. Airflow tested with dry coil conditions, without air filters, at 230 volts
2. Applications above 0.8" w.c. external static pressure are not recommended.
3. Brushless DC high efficiency standard ECM blower motor used for all indoor blower assemblies.
4. Minimal variations in airflow performance data results from operating at 208 volts. Data above may be used in those cases.
5. Heating applications tested at 0.50" w.c. esp, and cooling applications tested at 0.30" w.c.esp per standards.

TABLE 12: Electric Heat Minimum Supply Air

Model	Voltage	Minimum Blower Speed for Electric Heat								
		Heater kW								
		2	5	8	10	13	15	18	20	25
A36	208/230-3-60	Low #1	Low #1	Low #1	Low #1	Med. Low #2	High #5	--	--	--
B48	208/230-3-60	--	Low #1	Low #1	Low #1	Low #1	Low #1	Med. Low #2	Med. High #4	--
B60	208/230-3-60	--	Low #1	Low #1	Low #1	Low #1	Low #1	Low #1	Med. Low #2	Med. High #4

TABLE 13: Electric Heat Multipliers

Voltage		kW Capacity Multipliers [1]
Nominal	Applied	
240	208	0.75
	230	0.92

1. Electric heaters are rated at nominal voltage. Use this table to determine the electric heat capacity for heaters applied at lower voltages.

TABLE 14: Additional Static Resistance

Size (Tons)	CFM	Wet Indoor Coil	Economizer[1]	Filter/Frame Kit
36 (3.0)	700	0.01	0.00	0.04
	800	0.02	0.01	0.06
	900	0.03	0.01	0.08
	1000	0.04	0.01	0.10
	1100	0.05	0.01	0.13
	1200	0.06	0.02	0.16
	1300	0.07	0.03	0.17
	1400	0.08	0.04	0.18
48 (4.0)	1100	0.02	0.02	0.04
	1200	0.03	0.02	0.04
	1300	0.04	0.02	0.05
	1400	0.05	0.03	0.05
	1500	0.06	0.04	0.06
	1600	0.07	0.04	0.07
	1700	0.07	0.04	0.08
	1800	0.08	0.04	0.09
	1900	0.09	0.05	0.10
	2000	0.09	0.05	0.11
60 (5.0)	1100	0.02	0.02	0.04
	1200	0.03	0.02	0.04
	1300	0.04	0.02	0.05
	1400	0.05	0.03	0.05
	1500	0.06	0.04	0.06
	1600	0.07	0.04	0.07
	1700	0.07	0.04	0.08
	1800	0.08	0.04	0.09
	1900	0.09	0.05	0.10
	2000	0.09	0.05	0.11

1. The pressure drop through the economizer is greater for 100% outdoor air than for 100% return air. If the resistance of the return air duct is less than 0.25 IWG, the unit will deliver less CFM during full economizer operation. Filter pressure drop based on standard filter media tested at velocities not to exceed 300 ft/min.

SECTION VI: OPERATION

The following sequences of operation are based on using a single-stage air conditioning thermostat.

COOLING SEQUENCE OF OPERATION

1. On a call for cooling, the wall thermostat sends a 24V “Y” signal to the unit. The unit contactor will close, which energizes the outdoor fan and the compressor. The 24V signal is also sent to the indoor blower motor, which will run at the selected cooling speed.
2. When the demand for cooling has been satisfied, the wall thermostat will remove the 24V “Y” signal from the unit. The contactor will open and the outdoor fan and the compressor will stop. The indoor blower has a built-in delay and will continue to run for 60 seconds after the cooling signal has been removed.

HEATING SEQUENCE OF OPERATION
(for units which have an optional electric heat kit)

1. On a call for heating, the wall thermostat sends a 24V “W” signal to the unit. The indoor blower will then start to run at the selected heating speed. The 24V signal will also go to the sequencer(s) or relays in the electric heat kit and will turn on the electric heating elements.
2. When the demand for heating is removed, the wall thermostat will remove the “W” signal. When the 24V signal is removed from the electric heat sequencer, the heating elements will turn off. The indoor blower will continue to run for 60 seconds after the call for heat is removed.

Electric Heat Limit Switch Operation

6HK three phase heat kits utilize a normally closed low voltage limit switch, normally closed line voltage limit switch, and a normally closed fusible link. If the fusible link opens, it must be replaced with the appropriate OEM part and the cause must be investigated and corrected.

When the limit switch opens, the heating elements will turn off. The indoor blower will continue to run. The limit switch will automatically reset when the temperature has fallen to a normal level, at which time the heating elements will be turned on again.

TABLE 15: Thermostat Signals

Signal	State	Function
G	ON	Indoor blower instant on
	OFF	Indoor blower off after 60-second delay
W	ON	Indoor blower instant on
		Electric heat stages on (if so equipped)
	OFF	Electric heat stages off (if so equipped)
		Indoor blower off after 60-second delay
G & W	ON	Indoor blower instant on in heating speed
		Electric heat stages on (if so equipped)
	W OFF	Electric heat stages off (if so equipped)
		Indoor blower switches to continuous fan speed
G & Y	ON	Outdoor fan on
		Indoor blower instant on in cooling speed
		Compressor on
		System operates in cooling mode
	Y OFF	Compressor instant off
		Outdoor fan instant off
		Indoor blower switches to continuous fan speed

* Motor program has 60 second blower off delay on all 5 speed taps.

STARTUP

1. Check the electrical supply voltage being supplied. Be sure that it is within the specified range on the unit data plate.
2. Make sure all electrical connections are tight.
3. If unit is connected to 208 volt supply power, the control transformer must be wired accordingly.
4. Turn unit electrical power on.
5. Set the room thermostat to COOL mode and lower the desired temperature setting lower than the room temperature to create a call for cooling.
6. Measure the total system duct static and set the blower motor cooling speed appropriately per airflow performance tables.
7. If an optional electric heat kit was installed, make sure the “W” blower speed is set at or above required speed. See Table 12.
8. Make sure all units panels are in place and secured, and that an air filter is installed.

Compressor Rotation

Three-phase, scroll compressors operate in only one direction. If the scroll is drawing low amperage, has similar suction and discharge pressures, or is producing a high noise level, the scroll is misphased.

⚠ CAUTION

Scroll compressors require proper rotation to operate properly. Failure to check and correct rotation may result in property damage.

If necessary, change the incoming line connection phasing to obtain the proper rotation.

EXTERNAL STATIC PRESSURE SETUP

To measure external static pressure:

- Measure the supply air static pressure
- Record this positive number
- Measure the return air static pressure
- Record this negative number
- Treat the negative number as a positive and add the two numbers together
- This is total system static

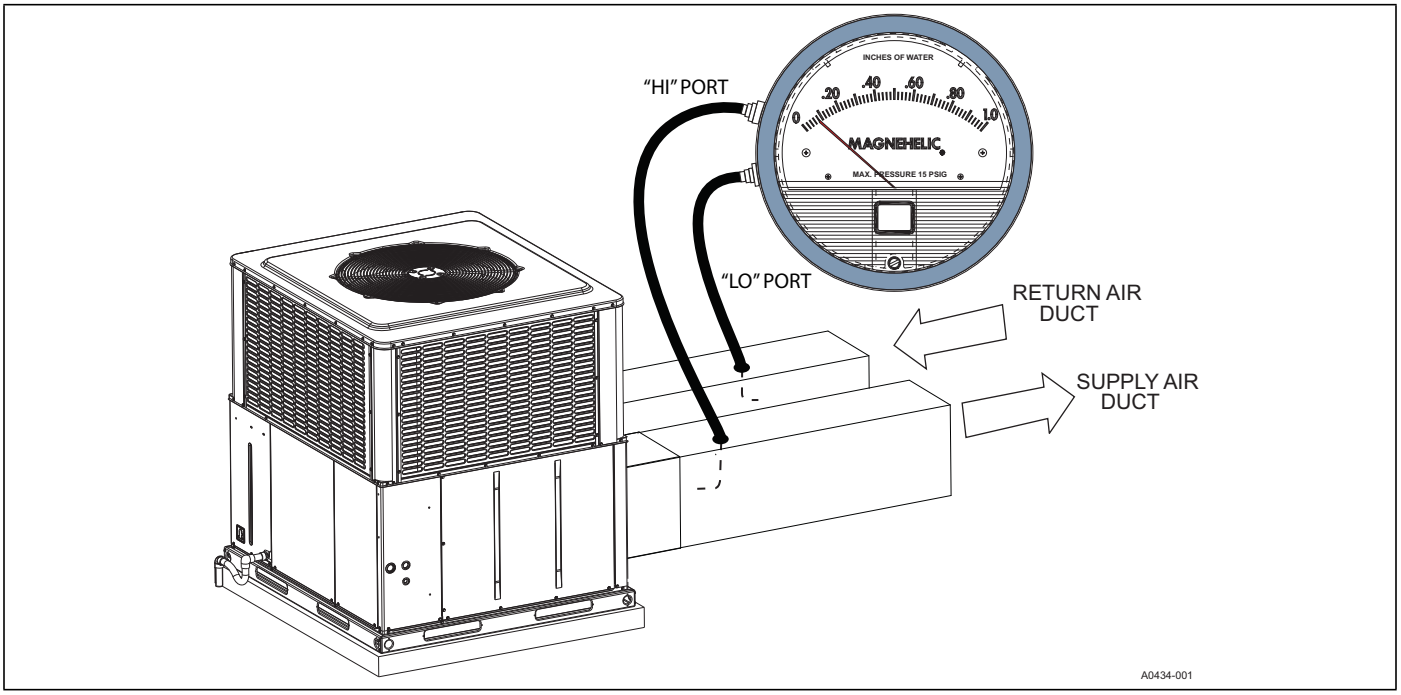


FIGURE 8: Measuring External Static Pressure

SECTION VII: MAINTENANCE

NORMAL MAINTENANCE

⚠ WARNING

Prior to any of the following maintenance procedures, shut off all power to the unit, to avoid personal injury.

Periodic maintenance consists of changing or cleaning filters and general cleaning of the outdoor coil.

FILTERS - Inspect once a month. Replace Disposable or clean Permanent Type as necessary. DO NOT replace Permanent Type with Disposable.

MOTORS - Indoor and outdoor fan motors are permanently lubricated and require no maintenance.

⚠ CAUTION

Exercise care when cleaning the coil so that the coil fins are not damaged.
Do not permit the hot outdoor air discharge to be obstructed by overhanging structures or shrubs.

OUTDOOR COIL - Dirt should not be allowed to accumulate on the outdoor coil surface or other parts in the air circuit. Cleaning should be as often as necessary to keep the coil clean. If water is used to clean the coil, be sure that the power to the unit is shut off prior to cleaning.

NOTICE

DO NOT use a pressure washer as coil fin damage will occur.

TROUBLESHOOTING

⚠ WARNING

Troubleshooting of components necessarily requires opening the electrical control box with the power connected to the unit. Use extreme care when working with live circuit! Check the unit nameplate for the correct range before making any connections with line terminals.

⚠ CAUTION

The wire number or color and terminal designations referred to may vary. Check the wiring label inside the control box access panel for the correct wiring.

SECTION VIII: TYPICAL WIRING DIAGRAMS

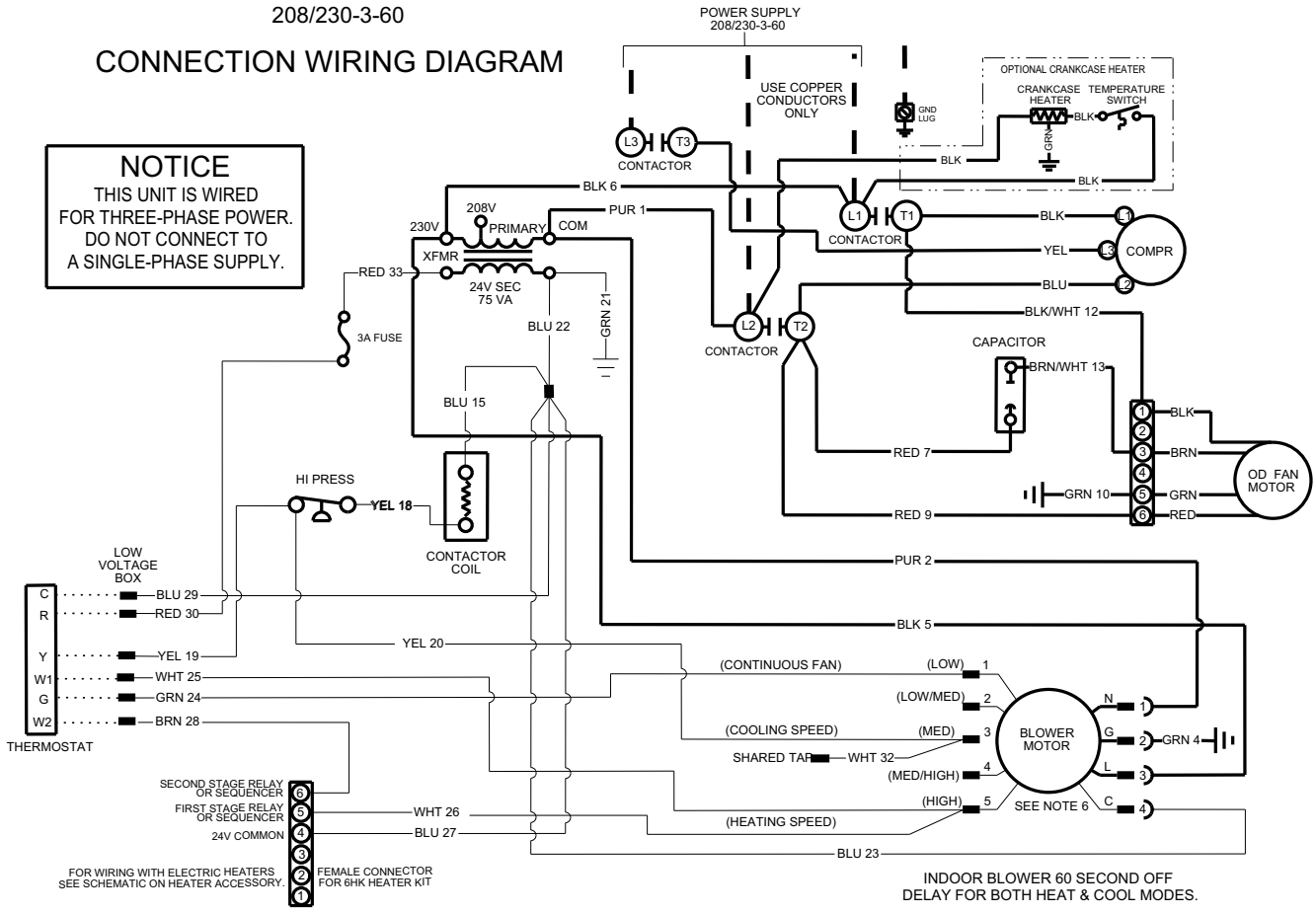
THREE PHASE COOLING UNIT WITH OR WITHOUT ELECTRIC HEAT

208/230-3-60

CONNECTION WIRING DIAGRAM

CAUTION - OPEN ALL DISCONNECTS BEFORE SERVICING THIS UNIT

NOTICE
THIS UNIT IS WIRED FOR THREE-PHASE POWER. DO NOT CONNECT TO A SINGLE-PHASE SUPPLY.



NOTES:

1. ALL FIELD WIRING TO BE ACCOMPLISHED FOLLOWING CITY, LOCAL AND/OR NATIONAL CODES IN EFFECT AT THE TIME OF INSTALLATION OF THE UNIT.
2. CAUTION : LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION. IF ANY OF THE WIRING, AS SUPPLIED WITH THE UNIT, MUST BE REMOVED, IT MUST BE REPLACED WITH TYPE 105 C. 600 VOLT WIRE OR EQUIVALENT CLEARLY RENUMBERED FOR IDENTIFICATION. VERIFY PROPER OPERATION AFTER SERVICING.
3. FACTORY WIRED FOR 230 VOLT THREE-PHASE SUPPLY POWER. FOR 208 VOLT, MOVE BLACK WIRES FROM THE 230 TO THE 208 VOLT TAP ON THE TRANSFORMER.
4. MOTORS ARE INHERENTLY PROTECTED.
5. SEE UNIT NAMEPLATE FOR MAXIMUM FUSE AND/OR CIRCUIT BREAKER SIZE AND MINIMUM CIRCUIT AMPACITY.
6. BLOWER MOTOR SPEED CONNECTIONS SHOWN ARE TYPICAL, BUT MAY VARY BY MODEL AND APPLICATION. SEE INSTALLATION MANUAL FOR PROPER SPEED TAP INFORMATION FOR EACH APPLICATION TO OBTAIN APPROX. 400 CFM/TON IN COOLING.
7. IF ELECTRIC HEAT IS INSTALLED, SELECT A HEATING BLOWER SPEED THAT DELIVERS SUFFICIENT AIRFLOW TO SUIT THE WATTAGE OF ELECTRIC HEAT INSTALLED. SEE TABLE IN INSTALLATION MANUAL.

LINE VOLTAGE
FIELD INSTALLED POWER
LOW VOLTAGE
FIELD INSTALLED CONTROL

5146413-UWD-B-0915

FIGURE 9: Connection Wiring Diagram

THREE PHASE COOLING UNIT WITH OR WITHOUT ELECTRIC HEAT

208/230-3-60

LADDER WIRING DIAGRAM

CAUTION - OPEN ALL DISCONNECTS BEFORE SERVICING THIS UNIT

LINE VOLTAGE

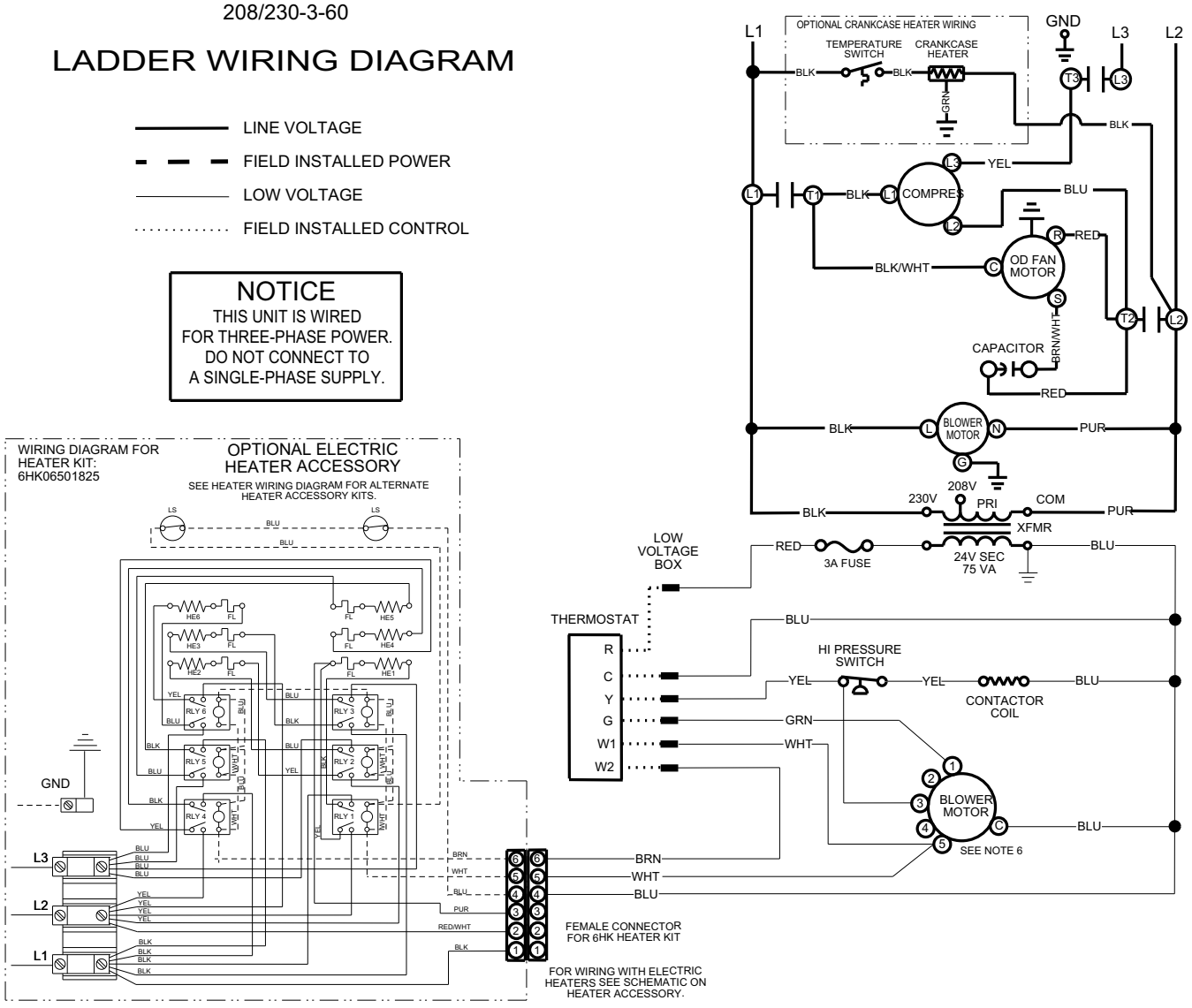
FIELD INSTALLED POWER

LOW VOLTAGE

FIELD INSTALLED CONTROL

NOTICE

THIS UNIT IS WIRED FOR THREE-PHASE POWER. DO NOT CONNECT TO A SINGLE-PHASE SUPPLY.



NOTES:

1. ALL FIELD WIRING TO BE ACCOMPLISHED FOLLOWING CITY, LOCAL AND/OR NATIONAL CODES IN EFFECT AT THE TIME OF INSTALLATION OF THE UNIT.
2. CAUTION : LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION. IF ANY OF THE WIRING, AS SUPPLIED WITH THE UNIT, MUST BE REMOVED, IT MUST BE REPLACED WITH TYPE 105 C. 600 VOLT WIRE OR EQUIVALENT CLEARLY RENUMBERED FOR IDENTIFICATION. VERIFY PROPER OPERATION AFTER SERVICING.
3. FACTORY WIRED FOR 230 VOLT THREE-PHASE SUPPLY POWER. FOR 208 VOLT, MOVE BLACK WIRES FROM THE 230 TO THE 208 VOLT TAP ON THE TRANSFORMER.
4. MOTORS ARE INHERENTLY PROTECTED.
5. SEE UNIT NAMEPLATE FOR MAXIMUM FUSE AND/OR CIRCUIT BREAKER SIZE AND MINIMUM CIRCUIT AMPACITY.
6. BLOWER MOTOR SPEED CONNECTIONS SHOWN ARE TYPICAL, BUT MAY VARY BY MODEL AND APPLICATION. SEE INSTALLATION MANUAL FOR PROPER SPEED TAP INFORMATION FOR EACH APPLICATION TO OBTAIN APPROX. 400 CFM/TON IN COOLING.
7. IF ELECTRIC HEAT IS INSTALLED, SELECT A HEATING BLOWER SPEED THAT DELIVERS SUFFICIENT AIRFLOW TO SUIT THE WATTAGE OF ELECTRIC HEAT INSTALLED. SEE TABLE IN INSTALLATION MANUAL.

FIGURE 10: Ladder Wiring Diagram

R-410A QUICK REFERENCE GUIDE

Refer to Installation Instructions for specific installation requirements

- R-410A refrigerant operates at 50 - 70 percent higher pressures than R-22. Be sure that servicing equipment and replacement components are designed to operate with R-410A.
- R-410A refrigerant cylinders are rose colored.
- Recovery cylinder service pressure rating must be 400 psig, DOT 4BA400, or DOT BW400.
- Recovery equipment must be rated for R-410A.
- DO NOT use R-410A service equipment on R-22 systems. All hoses, gages, recovery cylinders, charging cylinders and recovery equipment must be dedicated for use on R-410A systems only.
- Manifold sets must be at least 700 psig high side, and 180 psig low side, with 550 psig retard.
- All hoses must have a service pressure rating of 800 psig.
- Leak detectors must be designed to detect HFC refrigerants.
- Systems must be charged with liquid refrigerant. Use a commercial type metering device in the manifold hose.
- R-410A can only be used with POE type oils.
- POE type oils rapidly absorb moisture from the atmosphere.
- Vacuum pumps will **not** remove moisture from R-410A refrigerant oils.
- Do not use liquid line driers with a rated working pressure rating less than 600 psig.
- Do not install suction line driers in the liquid line.
- A liquid line drier is required on every unit.
- Do not use a R-22 TXV. If a TXV is to be used, it must be a R-410A TXV.
- Never open system to atmosphere when under a vacuum.
- If system must be opened for service, evacuate system then break the vacuum with dry nitrogen and replace all filter driers.

FIGURE 11: R-410A Quick Reference Guide

SECTION IX: START UP SHEET

Print Form

Residential Package Unit Cooling With Electric Heat Start-Up Sheet

Proper start-up is critical to customer comfort and equipment longevity

Reset Form

Start-Up Date | Company Name | Start-Up Technician

Owner Information

Name | Address | Daytime Phone

City | State or Province | Zip or Postal Code

Equipment Data

Unit Model # | Unit Serial #

General Information (Check all that apply)

◯ Residential	◯ New Construction	◯ Roof level	◯ Down flow
◯ Commercial	◯ Retrofit	◯ Grade level	◯ Side flow

Unit Location and Connections (Check all that apply)

☐ Unit is level and installed on: ☐ Slab ☐ Roof curb ☐ Duct connections are complete: ☐ Supply ☐ Return

☐ Condensate drain properly connected per the installation instructions ☐ Condensate trap has been primed with water

Filters

☐ Filters installed Number of filters | Filter size | ◯ Filter located inside ◯ Filter located outside

Additional Kits & Accessories Installed (Check all that apply)

☐ Refrigerant safety kit ☐ Low ambient kit ☐ Anti-recycle timer ☐ Crank case heater ☐ Filter frame kit

☐ Transformer kit ☐ Economizer ☐ Roof curb kit ☐ Burglar bar kit ☐ Hail guard kit

☐ Manual fresh air damper kit ☐ Motorized fresh air damper kit

Electrical Connections & Inspection (Check all that apply)

◯ Single phase ◯ Three phase ◯ 208 volts AC ◯ 230 volt AC ◯ 460 volts AC ◯ 575 volts AC

☐ Inspect wires and electrical connections ☐ Transformer wired properly for primary supply voltage ☐ Ground connected

☐ Low voltage present at control board "R & C" Measured voltage "R" and "C" outdoor unit control board

☐ Line voltage present at disconnect Measured voltage "L1 to L2" | "L2 to L3" | "L1 to L3"

Compressor amperes "L1" | "L2" | "L3" Total amperes "L1" | "L2" | "L3"

◯ Single stage compressor ◯ Two stage compressor

Air Flow Setup / Cooling

Blower Type & Set-Up	◯ ECM	COOL	◯ A	◯ B	◯ C	◯ D
		ADJUST	◯ A	◯ B	◯ C	◯ D
		DELAY	◯ A	◯ B	◯ C	◯ D
	◯ X-13	◯ 1	◯ 2	◯ 3	◯ 4	◯ 5
	◯ PSC	◯ Low	◯ Medium Low	◯ Medium	◯ Medium High	◯ High

Supply static (inches of water column)	Supply air dry bulb temperature	Outside air dry bulb temperature
Return static (inches of water column)	Return air dry bulb temperature	Return air wet bulb temperature
Total external static pressure	Temperature drop	Supply air wet bulb temperature

Refrigerant Charge and Metering Device

○ R-410A ○ R-22	Data plate - lbs / Oz	Suction line temperature	Discharge pressure
○ TXV ○ Fixed Orifice		Suction pressure	Liquid line temperature
TXV# / Orifice size	Discharge line temperature	Superheat	Subcooling

Electric Heat

Electric heat kit - Model number		Serial number		Rated KW	
○ Single Phase ○ Three Phase	Measured Amperage	Heater 1	Heater 2	Heater 3	
		Heater 4	Heater 5	Heater 6	
Number of elements	Measured Voltage	Heater 1	Heater 2	Heater 3	
		Heater 4	Heater 5	Heater 6	
Heating return air dry bulb temperature		Heating supply air dry bulb temperature		Air temperature rise	

Clean Up Job Site

- ☐ Job site has been cleaned, indoor and outdoor debris removed from job site
- ☐ Tools have been removed from unit
- ☐ All panels have been installed

Unit Operation and Cycle Test

- ☐ Operate the unit through continuous fan cycles from the thermostat, noting and correcting any problems
- ☐ Operate the unit through cooling cycles from the thermostat, noting and correcting any problems

Owner Education

- ☐ Provide owner with the owner's manual
- ☐ Explain operation of system to equipment owner
- ☐ Explain thermostat use and programming (if applicable) to owner
- ☐ Explain the importance of regular filter replacement and equipment maintenance

Comments and Additional Job Details

Subject to change without notice. Published in U.S.A.
Copyright © 2017 by Johnson Controls, Inc. All rights reserved.

5151092-UIM-F-0117
Supersedes: 5151092-UIM-E-0616

York International Corp.
5005 York Drive
Norman, OK 73069