INSTALLATION MANUAL

Standard ECM
Modular Multi-position Air Handlers

Models: JMET Series
208/230 V - Single and Three-Phase

Assembled at a facility with an ISO 9001:2015-certified Quality Management System

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Section I: General

The JMET modular air handler series provides the flexibility for installation in any position. This unit may be used for upflow, downflow, horizontal right, or horizontal left applications.

These units may be located in a closet, utility room, attic, crawl space, or basement. These versatile models may be used for cooling or heat pump operation with or without electric heat or indoor coil.

Top or side power and control wiring, color coded leads for control wiring, and electric heaters all combine to make the installation easy and minimize installation cost.

Electric heat kits are available as field-installed accessories. Single-phase kits are available from 2.5 kW to 25 kW and 208/230 V three-phase kits are available from 10 kW to 25 kW.

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

Fire or electrical hazard

Failure to follow the safety warnings exactly could result in serious injury, death or property damage. A fire or electrical hazard may result causing property damage, personal injury or loss of life.

⚠ WARNING

The air handler area must not be used as a broom closet or for any other storage purposes, as a fire hazard may be created. Never store items such as the following on, near or in contact with the furnace.

1. Spray or aerosol cans, rags, brooms, dust mops, vacuum cleaners or other cleaning tools.
2. Soap powders, bleaches, waxes or other Cleaning compounds; plastic items or containers; gasoline, kerosene, cigarette lighter fluid, dry cleaning fluids or other volatile fluid.
3. Paint thinners and other painting compounds.
4. Paper bags, boxes or other paper products.

Never operate the air handler with the blower door removed. To do so could result in serious personal injury and/or equipment damage.

⚠ WARNING

This appliance is not intended for use 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 use of the appliance by a person responsible for their safety.
Children should be supervised to ensure that they do not play with the appliance.

⚠ WARNING

Incorrect installation, adjustment, alteration, or maintenance may create a condition where the operation of the product could cause personal injury or property damage. Refer to this manual for assistance, or for additional information, consult a qualified contractor, installer, or service agency.

⚠ 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.

NOTICE

To ensure a correct match for this indoor product, refer to the current *Tabular Data Sheet* for the outdoor equipment selected for the system application. If the indoor product model is not listed in the *Tabular Data Sheet* included with the outdoor unit, to access the current version of the *Tabular Data Sheet*, go to the *Residential Equipment and Supplies* section of the Offering Catalog at www.simplygettingthejobdone.com or scan the QR code provided on the outdoor unit rating plate.

Safety requirements

- Failure to carefully read and follow all instructions in this manual can result in air handler malfunction, death, personal injury, or property damage.
- Always install this air handler in accordance with all national and local building and safety codes and requirements, local plumbing or wastewater codes, and other applicable codes.
- Only install this air handler in a location and position specified in *Unit installation*.
- Do not use the air handler for temporary heating of buildings or structures under construction.
- Always install the air handler to operate within the air handler's intended maximum outlet air temperature.
- Clearance from combustible material is provided under *Clearances* in *Unit installation*.
- The unit rating plate displays the air handler model number. The unit dimensions for the supply air plenum are provided in **Figure 2** and **Table 1**. Always install the plenum according to the instructions.
- It is necessary to maintain clearances for servicing and allow access to the electric heaters and blower.
- It is necessary to verify the unit rating plate and power supply to ensure that the electrical characteristics match.
- When attaching ductwork with screws, carefully fasten the screws and keep them within 5/8 in. of the sides and back of the air handler.
- Installing and servicing heating and cooling equipment can be hazardous due to the electrical components. Only trained and licensed personnel must install, repair, or service heating and cooling equipment. Unlicensed service personnel can perform basic maintenance functions such as cleaning and replacing the air filters. When working on heating and cooling equipment, the precautions in the manuals and on the labels attached to the unit and other safety precautions must be observed as applicable.

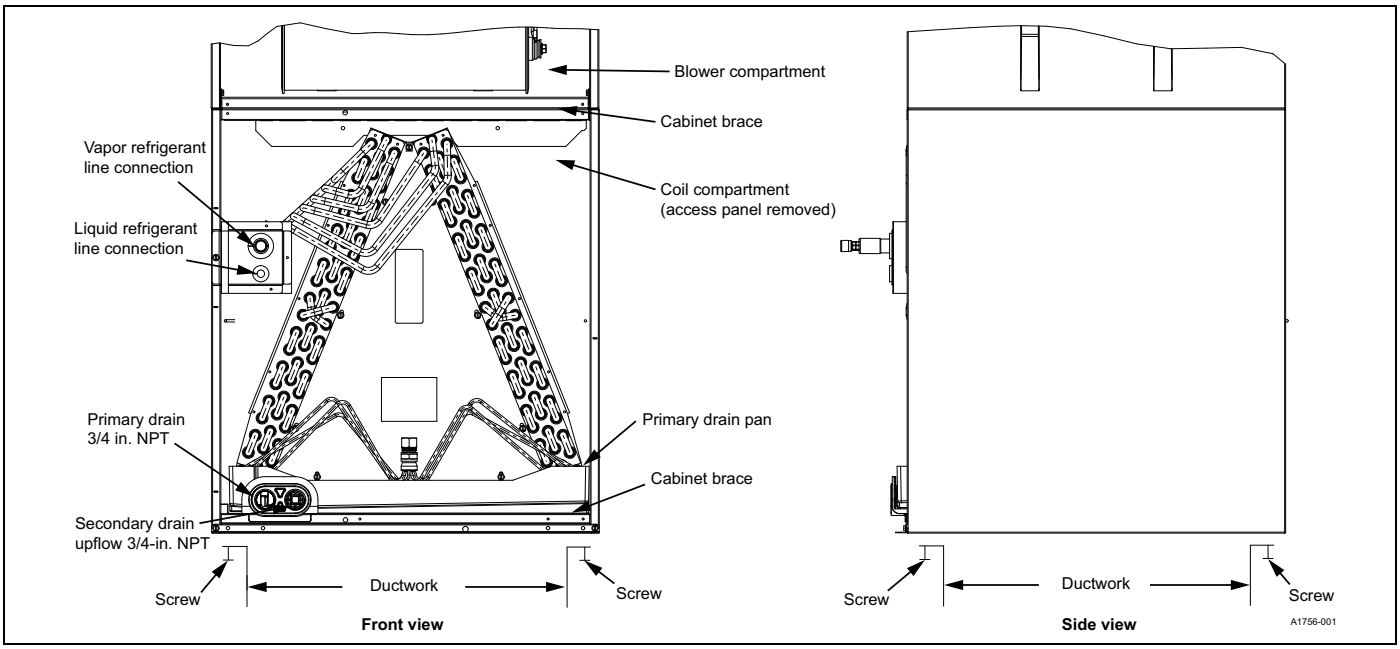

Figure 1: Return air duct attachment and component location

⚠ CAUTION

These air handlers must be transported and handled in an upright, upflow position. Failure to do so may result in unit damage and personal injury. Configuration conversions must be done at the site of installation.

- Install the air handler so the electrical components are protected from water.
- These instructions cover minimum requirements and conform to existing national standards and safety codes. In some instances, these instructions exceed certain local codes and ordinances, especially those who have not kept up with changing residential and non-HUD modular home construction practices. These instructions are required as a minimum for a safe installation.
- These models are not CSA listed or approved for installation into a HUD-approved modular home or a manufactured (mobile) home.

Inspection

Upon receiving the air handler, inspect for possible damage during transit. If damage is evident, note the extent of the damage on the carrier's freight bill. A separate request for inspection by the carrier's agent must be made in writing. Consult the local distributor for more information.

Before installation, check the unit for screws or bolts loosened in transit. There are no internal shipping or spacer brackets that need removing.

You must verify that all accessories, such as heater kits and coils, are available. Complete installation of these accessories or field conversion of the unit before setting the unit in place or connecting any wiring, ductwork, or piping.

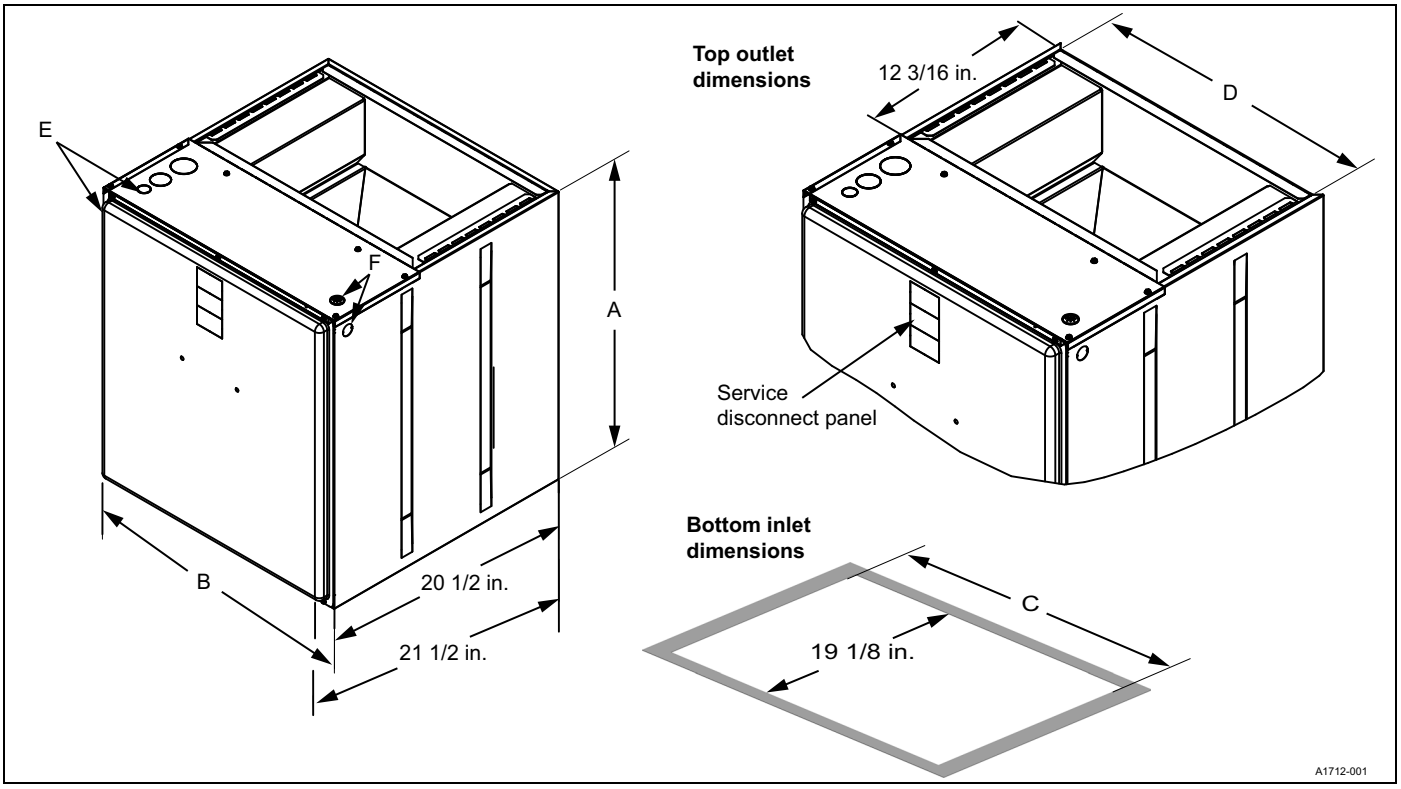

Figure 2: Dimensions and duct connection dimensions

Table 1: Dimensions[1]

Models	Dimensions				Wiring knockouts[2]	
	A	B	C	D	E	F
	Height (in.)	Width (in.)	Opening widths (in.)		Power (in.)	Control (in.)
JMET08BS2N1	22 3/4	17 1/2	16 1/2	16 1/2	7/8 (1/2) 1 3/8 (1) 1 23/32 (1 1/4)	7/8 (1/2)
JMET12BS2N1	22 3/4	17 1/2	16 1/2	16 1/2		
JMET12CS2N1	22 3/4	21	20	20		
JMET16CS2N1	22 3/4	21	20	20		
JMET18DS2N1	22 3/4	24 1/2	23 1/2	23 1/2		

1. All dimensions are in inches.
2. Actual size (conduit size).

Section III: Unit installation

Unit sizing

- The size of the unit must be based on an acceptable heat loss or gain calculation for the structure. Use Air Conditioning Contractors of America (ACCA) Manual J or another approved method.
- Only connect the air handler to a duct system that has an external static pressure within the allowable range.
- Airflow must be within the minimum and maximum limits approved for electric heat, indoor coils, and outdoor units.

Entering air temperature limits			
Wet bulb temperature (°F)		Dry bulb temperature (°F)	
Minimum	Maximum	Minimum	Maximum
57	72	65	95

- When an air handler is installed so that supply ducts carry air circulated by the air handler to areas outside the space containing the air handler, the return air is also handled by one or more ducts sealed to the air handler casing and terminating in the space to be cooled or heated.
- Refer to the unit rating plate for the air handler model number and then see the dimensions page of this manual for supply air plenum dimensions. The plenum must be installed according to the instructions.
- The installer must check available supply power and verify that it is within the normal operating voltage range for the unit. The acceptable voltage range for these units is as follows:

Air handler voltage	Normal operating[1] voltage range
208/230-1-60	187 V to 253 V

1. Rated in accordance with ARI Standard 110, utilization range A.

Clearances

It is essential to provide the following clearances:

- Maintenance and servicing access - there must be a minimum 36 in. clearance from the front of the unit for blower motor.
- The supply air ductwork connected to this unit is designed for 1 in. clearance for the first 18 in. of duct length to combustible materials.
- A combustible floor base accessory is available for downflow applications of this unit, if required by local code.

Location

Location is usually predetermined. Check with the owner's or dealer's installation plans. If location has not been decided, consider the following in choosing a suitable location:

- Select a location with adequate structural support, space for service access, and clearance for air return and supply duct connections.
- Normal operating sound levels may be objectionable if the air handler is placed directly over some rooms such as bedrooms or a study.
- When installing an indoor coil in an attic or above a finished ceiling, an auxiliary drain pan must be provided under the air handler as is specified by most local building codes.
- A sufficient electrical supply must be available.
- If locating the unit in an area of high humidity, such as an unconditioned garage or attic, nuisance sweating of the casing may occur. On these installations, completely seal the unit duct connections and other openings, and use a wrap of 2 in. fiberglass insulation with vinyl vapor barrier.

Air handler configuration

These air handler units are ready to install in any position shown in **Figure 3**. Some XAH model coils require a section of duct between the indoor coil and the modular air handler. See *Horizontal right applications*.

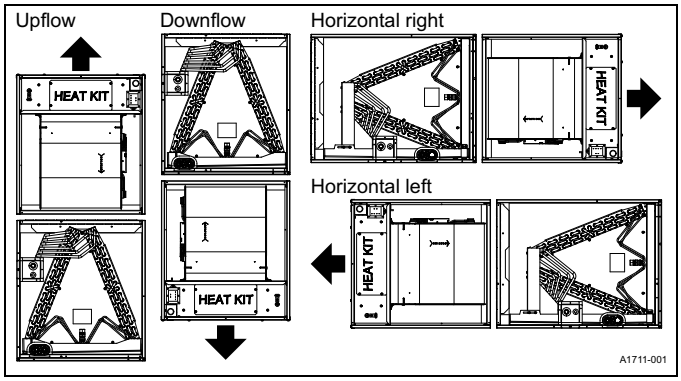

Figure 3: Typical installation

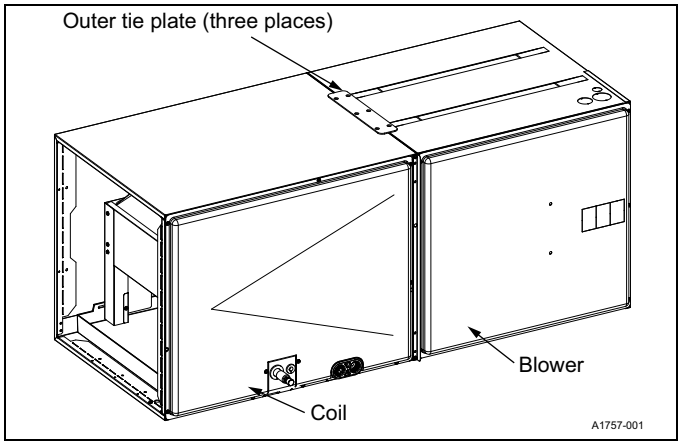

Figure 4: Coil and air handler attachment details

Horizontal right applications

A pan extension to reduce the risk of condensate blow-off is provided with certain models of XAH indoor coils. It is essential to construct, insulate, and attach a 6 in. length duct extension between the XAH coil casing and the modular air handler casing to allow enough room to install the pan extension. The suggested method is as follows:

Note: This method consists of two identical field fabricated duct sections.

1. Attach one duct section to the leaving air end of the XAH indoor coil.
2. Attach the other duct section to the entering air end of the modular air handler.
3. Attach the two sections together using s-lock and drive cleats. See **Figure 5**.

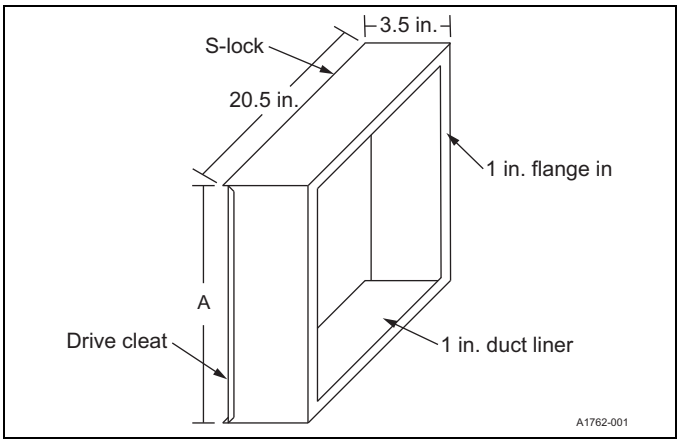

Figure 5: Duct section - modular air handler - horizontal right

Note: A = modular air handler width. See column B in **Table 1.**

Air handler and coil upflow, downflow, and horizontal positions where not using a pan extension

1. Apply the neoprene gasket to the return air end of the air handler.
2. Attach three tie plates to the external sides and back of the air handler casing using screws. See **Figure 4**.
3. Position the air handler casing over the appropriate coil opening, depending on configuration. See **Figure 3**.
4. Attach the three tie plates to the coil casing using screws. See **Figure 4**.
5. Remove the coil access panel.
6. Slide the coil out of the coil cabinet and set the coil to the side.
7. Locate the 2 in. wide foam gasket.
8. Apply the foam gasket over the air handler and coil mating seams on the interior of both unit sides and back.
9. Slide the coil into the housing and install the coil access panel and coil filter door.

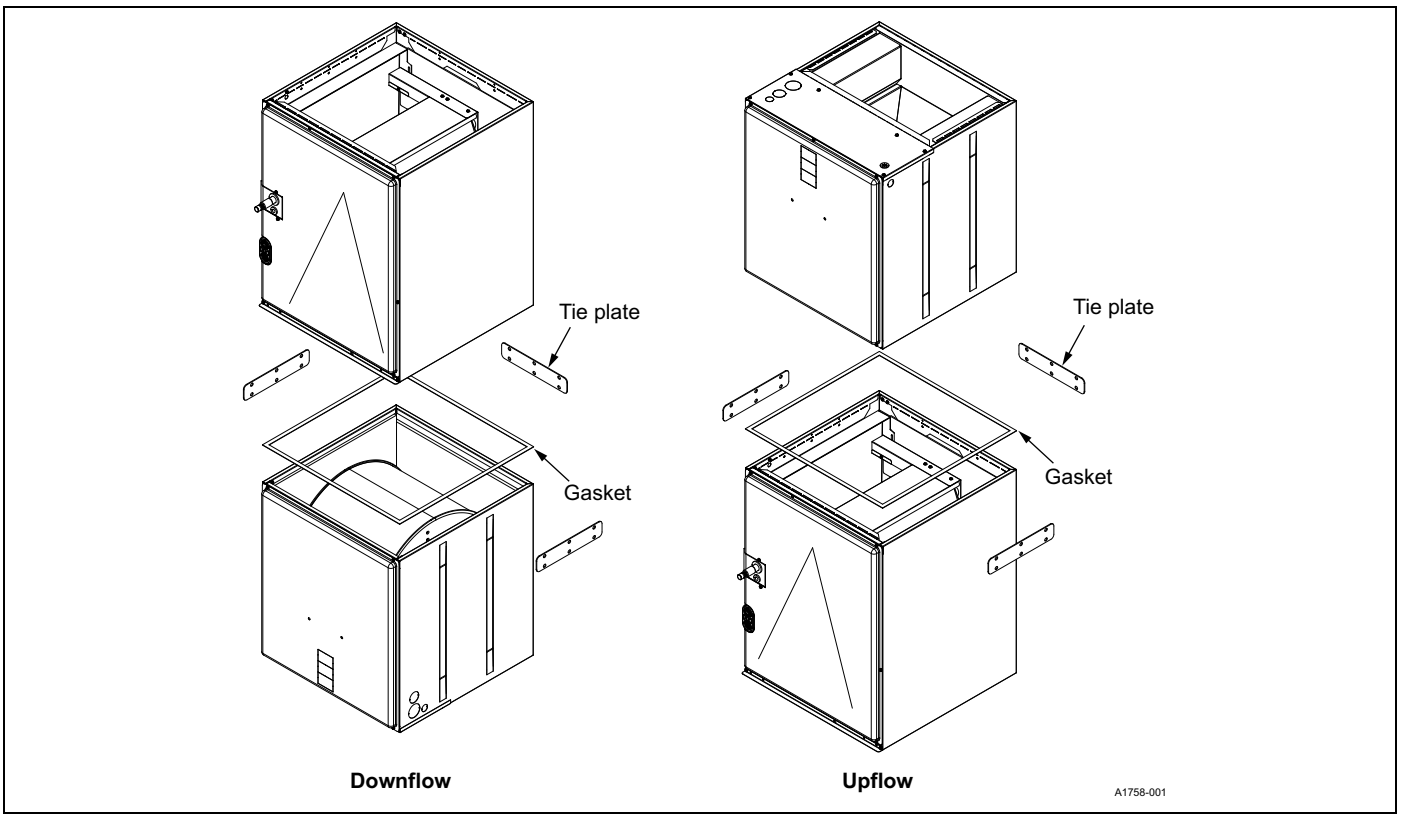

Figure 6: Gasket location

Section IV: Ductwork and connections

Air supply and return may be handled in one of several ways best suited to the installation. Upflow, horizontal, or downflow applications may be used.

The vast majority of problems encountered with heating and cooling systems can be linked to incorrectly designed or installed duct systems. It is therefore highly important to the success of an installation that the duct system be correctly designed and installed.

When installing a central air return grille in or near the living space, design the ductwork so that the grille is not in direct line with the opening in the unit. One or two elbows and acoustical duct liner assure a quieter system. For operation where the return air duct is short or where sound may be a problem, use acoustical duct liner inside the duct. Use flexible duct connectors to minimize the transmission of vibration and noise into the conditioned space.

⚠ WARNING

Do not bring in return air from a location which could introduce hazardous substances into the airflow.

Use 1/2 in. screws to connect ductwork to the cabinet. If pilot holes are drilled, drill only through the field duct and the unit flange.

Insulation of ductwork is imperative where it runs through an unheated space during the heating season or through an uncooled space during the cooling season.

Use a vapor barrier to prevent absorption of moisture from the surrounding air into the insulation.

Use a transition to match unit opening to correctly size the supply air duct. Suspend all ducts using flexible hangers and never fasten directly to the structure.

⚠ CAUTION

This unit is not designed for non-ducted (freeblow) applications. Do not operate without ductwork attached to the unit.

Never operate the equipment without filters.

Ductwork must be fabricated and installed in accordance with local and national codes. This includes the standards of the National Fire Protection Association for Installation of Air-Conditioning and Ventilating Systems, NFPA No. 90B. If using electric heat, non-flammable material must be used. Duct systems must be designed in accordance with ACCA Manual D.

Horizontal suspension

It is possible to suspend these air handlers in horizontal applications. Use angle steel support brackets with minimum 3/8 in. threaded rods, supporting the unit from the bottom. Attach the threaded rods at the locations shown in **Figure 7** or **Figure 8**, leaving enough clearance between the door and the rod so that doors can be easily removed for service.

⚠ CAUTION

Do not lift the air handler by the cabinet brace. The cabinet brace is held in place by the coil channel. The cabinet brace could become disengaged from the cabinet causing the air handler to fall, potentially causing injury or damaging property. See **Figure 1** for the location of the cabinet braces.

NOTICE

When assembling the support structure, size to provide clearance for access door removal.

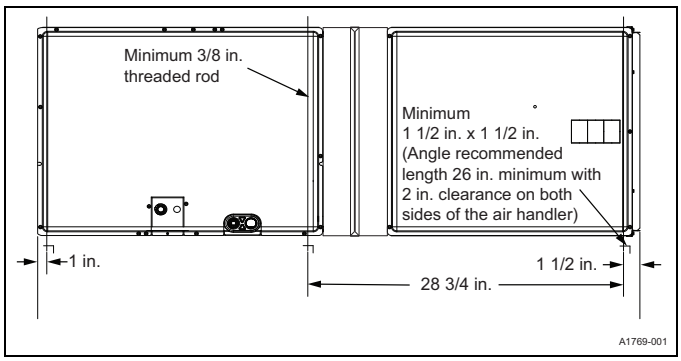

Figure 7: Suspension support locations for horizontal applications that require the drain pan extension

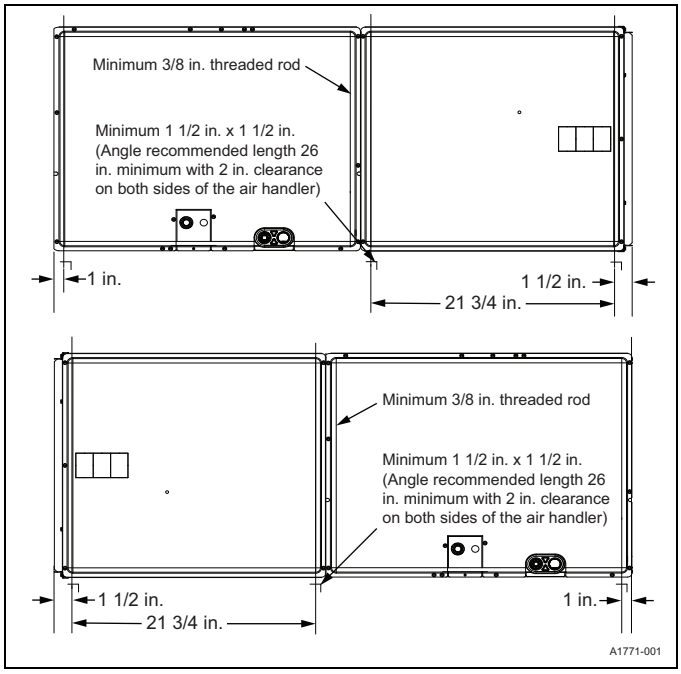

Figure 8: Suspension support locations for horizontal applications that do not require the drain pan extension

Note: Applications shown are with XAH indoor coils that do not contain a horizontal right hand extension pan.

Duct flanges

Duct flanges are integrated into the casing. Fold the flanges into position and use screws to anchor the flanges.

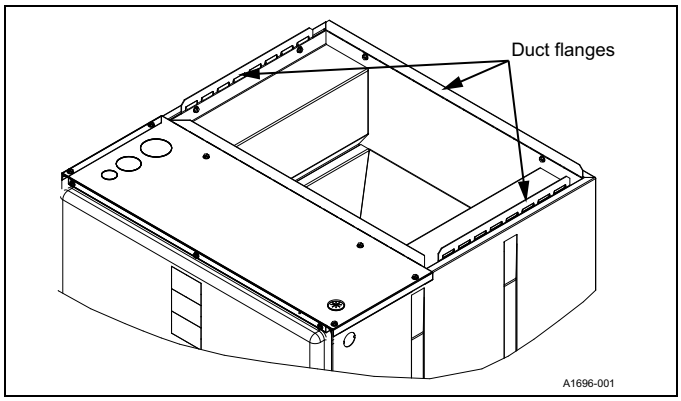

Figure 9: Duct attachment

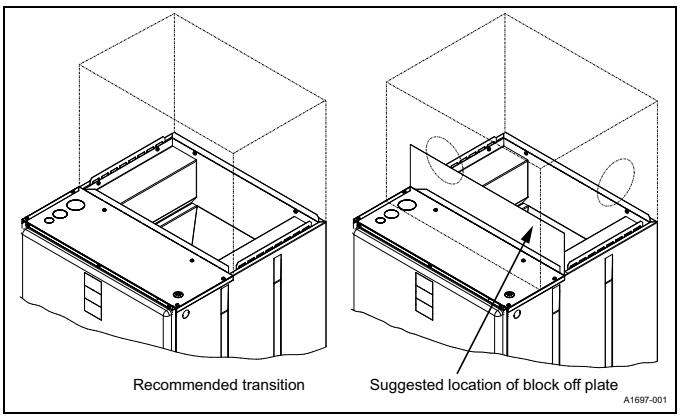

Figure 10: Ductwork transition

Unit connections

There are several ways to handle the supply and return air duct connections. The location and sizing of the connections depends on the situation and the method best suited to the installation. Upflow, horizontal or downflow applications may be used.

Use a transition to match the unit opening to correctly size the supply air duct. See **Table 1** for air handler unit inlet and outlet dimensions.

⚠ CAUTION

Use 1/2 in. screws to connect ductwork to the unit. Longer screws may pierce the drain pan and cause leakage. If drilling pilot holes, drill only though the field duct and the unit bottom duct flange.

Ductwork that is not designed to match the supply air opening can cause turbulence inside the plenum. This turbulence can change the airflow patterns across the electric heater limit switches. If the factory suggested transition cannot be fabricated, attach a block-off plate that is approximately 8 in. high and running the full width of the plenum, to the supply opening. See **Figure 10**. The use of this block-off plate enables better air circulation across the limit switches.

Air filters

⚠ CAUTION

Never operate the equipment without filters.

Return air filters are required and must be field supplied. Filtration must be accomplished external to the unit.

Section V: Electric heater installation

If the air handler requires electric heat, install the electric heat kit according to the installation instructions included with the kit. After installing the kit, mark the air handler nameplate to designate the heater kit that was installed. If no heater is installed, mark the name plate appropriately to indicate that no heat kit is installed.

Use only 8HK heater kits, as listed on the air handler name plate and in these instructions. Use data from **Table 4** to **Table 13** for information on the required minimum motor speed tap to use for heating operation and the maximum over-current protection device required as listed for combination of air handler and heater kit.

NOTICE

In some horizontal 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 UL 60335-2-40 in reference to all circuit breakers.

Section VI: Line power connections

⚠ WARNING

Before obtaining access to terminals, disconnect all supply circuits.

⚠ WARNING

A fused disconnect switch must be field provided for the unit to be in compliance with UL 60335-2-40 Clause 7.12.2.

Power can be brought into the unit through the supply air end of the unit which is on the top left when unit is vertical, or the left side panel. Use the hole appropriate to the unit's orientation in each installation to bring the conduit from the disconnect.

The power lead conduit must be terminated at the electrical control box. See **Table 10** to **Table 13** and the latest edition of the National Electric Code, or in Canada the Canadian electrical Code, and local codes to determine the correct wire sizing.

To minimize air leakage, seal the wiring entry point on the outside of the unit.

All electrical connections to air handlers must be made with copper conductors. **Direct connection of aluminum wiring to air handlers is not approved.**

If aluminum conductors are present, all applicable local and national codes must be followed when converting from aluminum to copper conductors prior to connection to the air handler.

The chosen conductor and connections must all meet or exceed the amperage rating of the overcurrent protector, service disconnect or fuse, in the circuit.

Existing aluminum wire within the structure must be sized correctly for the application according to the National Electric Code and local codes. Use caution when sizing aluminum rather than copper conductors, as aluminum conductors are rated for less current than copper conductors of the same size.

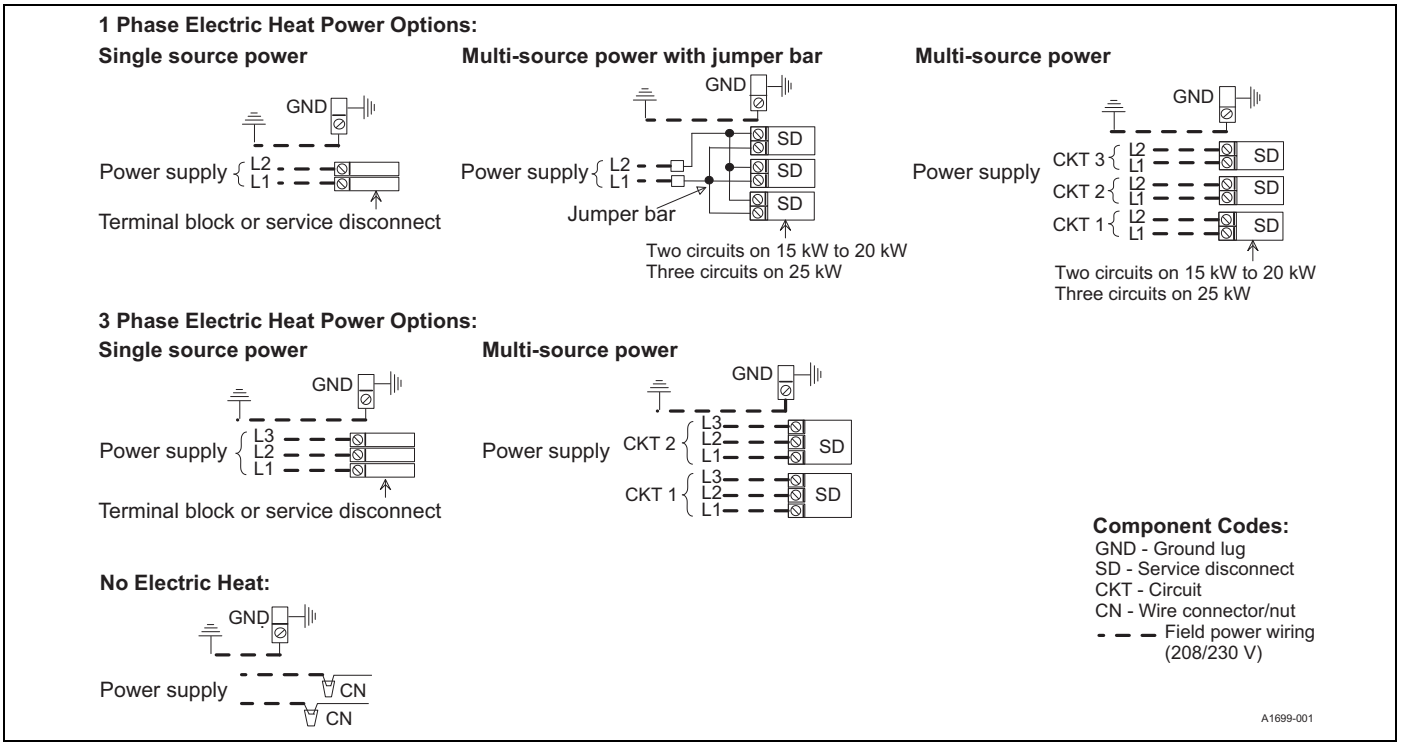

Figure 11: Line power connections

Section VII: Low voltage control connections

The 24 V power supply is provided by an internally wired low voltage transformer that is standard on all models. If connecting the unit to a 208 V power supply, the low voltage transformer must be rewired to the 208 V tap. See the *Wiring diagram*.

Field supplied low voltage wiring can exit the unit through the top right when the unit is vertical upflow, or the right side panel. See **Figure 2**.

Remove the knockout and pierce the foil faced insulation to allow wiring to pass through.

Use as small of a hole as possible to minimize air leakage. Install a 7/8 in. plastic bushing in the selected hole and keep low voltage wiring as short as possible inside the control box.

To further minimize air leakage, seal the wiring entry point at the outside of the unit. Connect the field wiring at the pigtails supplied with the air handler. See **Figure 14** to **Figure 22** for system wiring.

NOTICE

All wiring must comply with local and national electrical code requirements. Read and heed all unit caution labels.

Section VIII: Blower speed connections

Adjust the blower motor speed to provide airflow within the minimum and maximum limits approved for indoor coils, electric heat, and outdoor units. Make speed tap adjustments at the motor terminal block.

See **Table 14** for airflow data. Connect the motor wires to the motor speed tap receptacle for the speed required.

The standard ECM motor operates when a 24 VAC signal is sent to any of its five speed taps. If simultaneous 24 VAC inputs are present, the motor operates at the highest speed tap that is energized. The lowest speed is one and the highest speed is five.

The air handler comes factory-wired with the electric heat kit connected to tap five for the heating speed. There are two speed tap wires for cooling or heat pump blower speeds. The YEL/BLK wire is for first stage compressor speed and the YEL wire is for full compressor speed. The RED continuous fan speed wire is connected to speed tap one. If the lowest speed tap (tap one) is needed for first stage compressor speed, leave the continuous fan speed wire connected to speed tap one and let the room thermostat provide the signal (through its G output) for first stage compressor, as the room thermostat provides a fan output during a heat pump heating or cooling call. In this particular application, cap off the YEL/BLK wire and do not use it. Move the electric heat kit wire for the heating speed from tap five to the appropriate speed tap according to **Table 4** and **Table 5**.

If electric heat requires speed tap five, the highest speed tap available for cooling or heat pump heating is tap four. Do not splice or combine multiple signals to a single blower motor tap. Each of the standard ECM blower motor speed taps have a built-in 60 s off delay.

The circulating blower (green) thermostat input is factory connected to speed tap one, which is the lowest speed. The circulating blower (yellow) thermostat input is used for the second-stage or full blower speed. See **Figure 14** to **Figure 22** for wiring details.

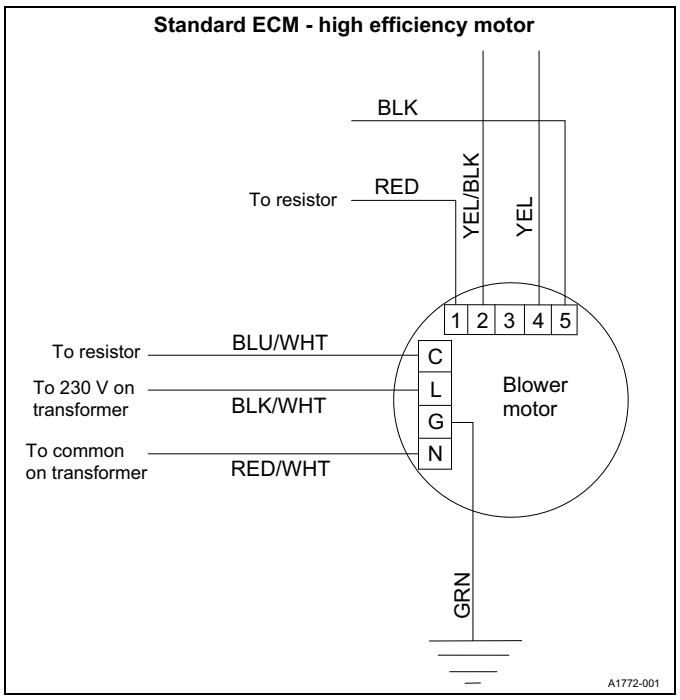

Figure 12: Blower speed connections

Section IX: Unit data

Table 2: Physical and electrical data - cooling only

Models		JMET08B	JMET12B	JMET12C	JMET16C	JMET18D
Blower - diameter x width (in.)		11 x 8	11 x 8	11 x 10	11 x 10	11 x 11
Motor	HP	1/3 HP	1/2 HP	1/2 HP	3/4 HP	3/4 HP
	Nominal RPM	1050	1050	1050	1050	1050
Voltage (V)		208/230	208/230	208/230	208/230	208/230
Full load amps at 230 V (A)		2.6	3.8	3.8	5.4	5.4
Filter[1]	Type	Disposable or cleanable				
	Size (in.)	16 x 20 x 1	16 x 20 x 1	20 x 20 x 1	20 x 20 x 1	23 x 20 x 1
	Bottom rack	1BR01117	1BR01117	1BR01121	1BR01121	1BR01124
Shipping/operating weight (lb)		55/54	57/56	61/60	63/62	67/66

1. Field-supplied.

Table 3: Electrical data - cooling only

Models	Motor FLA[1]	Minimum circuit ampacity (A)	MOP[2]
JMET08B	2.6	3.3	15
JMET12B/JMET12C	3.8	4.8	15
JMET16C/JMET18D	5.4	6.8	15

1. FLA = Full Load Amps
2. MOP = Maximum Overcurrent Protection device; must be HACR type circuit breaker or time delay fuse. Refer to the latest edition of the National Electric Code or in Canada the Canadian electrical Code and local codes to determine correct wire sizing.

Table 4: Electrical heat with heat pump: minimum fan speed (XAF)

Heater kit models[1 2]	Nominal kW at 240 V	Air handler models				
		JMET08B	JMET12B	JMET12C	JMET16C	JMET18D
8HK(0,1)6500206	2.4	Medium (3)	High (5)	High (5)	Medium (3)	Medium (3)
8HK(0,1)6500506	4.8	Medium (3)	High (5)	High (5)	Medium (3)	Medium (3)
8HK(0,1)6500806	7.7	Medium (3)	High (5)	High (5)	Medium (3)	Medium (3)
8HK(0,1)6501006 8HK06501025	9.6	Medium (3)	High (5)	High (5)	Medium (3)	Medium (3)
8HK(1,2)6501506 8HK06501525	14.4	—	High (5)	High (5)	Medium (3)	Medium (3)

Continued on next page

Table 4: Electrical heat with heat pump: minimum fan speed (XAF)

Heater kit models[1] [2]	Nominal kW at 240 V	Air handler models				
		JMET08B	JMET12B	JMET12C	JMET16C	JMET18D
8HK(1,2)6502006 8HK16502025	19.2	—	High (5)	High (5)[3]	Medium high (4)	Medium (3)
8HK(1,2)6502506 8HK16502525	24	—	—	—	—	Medium (3)

1. (0,1) - 0 = no service disconnect or 1 = with service disconnect
2. (1,2) - 1 = with service disconnect, no breaker jumper bar or 2 = with service disconnect and breaker jumper bar
3. -2006 max ESP is 0.4 in., three-phase 8HK not approved for downflow applications. -2025 cannot be used with heat pump applications.

Table 5: Electrical heat with heat pump: minimum fan speed (XAH)

Heater kit models[1] [2]	Nominal kW at 240 V	Air handler models				
		JMET08B	JMET12B	JMET12C	JMET16C	JMET18D
8HK(0,1)6500206	2.4	High (5)	High (5)	High (5)	Medium high (4)	Medium (3)
8HK(0,1)6500506	4.8	High (5)	High (5)	High (5)	Medium high (4)	Medium (3)
8HK(0,1)6500806	7.7	High (5)	High (5)	High (5)	Medium high (4)	Medium (3)
8HK(0,1)6501006 8HK06501025	9.6	High (5)[3]	High (5)	High (5)	Medium high (4)	Medium (3)
8HK(1,2)6501506 8HK06501525	14.4	—	High (5)	High (5)	Medium high (4)	Medium (3)
8HK(1,2)6502006 8HK16502025	19.2	—	High (5)	High (5)	Medium high (4)	Medium (3)
8HK(1,2)6502506 8HK16502525	24	—	—	—	—	Medium (3)

1. (0,1) - 0 = no service disconnect or 1 = with service disconnect
2. (1,2) - 1 = with service disconnect, no breaker jumper bar or 2 = with service disconnect and breaker jumper bar
3. For one-phase 8HK not approved for horizontal right with heat pump applications

Table 6: Default blower speeds for FER compliance - electrical heat only

Model number	High sales volume heat kit[1,2,3]	Nominal kW at 240 V	Default blower speeds			
			w1/[w1+w2]	Heat	Max air flow	Continuous fan
JMET08B	8HK(0,1)6500806	7.7	w1	High (5)	High (5)	Low (1)
JMET12B	8HK(0,1)6501006	9.6	w1	Medium high (4)	High (5)	Low (1)
JMET12C	8HK(0,1)6500806	7.7	w1	Medium (3)	High (5)	Low (1)
JMET16C	8HK(1,2)6501506	14.4	w1+w2	Medium high (4)	High (5)	Low (1)
JMET18D	8HK(1,2)6501506	14.4	w1+w2	Medium (3)	High (5)	Low (1)

1. 0,1) - 0 = no service disconnect or 1 = with service disconnect
2. (1,2) - 1 = with service disconnect, no breaker jumper bar or 2 = with service disconnect and breaker jumper bar
3. For JMET16C and JMET18D models with 15 kW (8HK*65015**) heat kit, tie the AHU W1 and W2 thermostat inputs together for FER compliance.

Table 7: Application factors - rated CFM versus actual CFM

% of rated airflow (CFM)	80	90	100	110	120
Capacity factor	0.96	0.98	1	1.02	1.03

Table 8: kW and MBH conversions for total power input requirement

For a power distribution voltage that is different from the provided nominal voltage, multiply the kW and MBH data from **Table 9** by the conversion.

Distribution power (V)	Nominal voltage (V)	Conversion factor
208	240	0.75
220	240	0.84
230	240	0.92

Table 9: Electric heat performance data: 208/230-1-60 and 208/230-3-60

Heater models[1,2]		Nominal kW at 240 V	Total heat [3]				kW staging			
			kW		MBH		W1 only		W1 and W2	
			208 V	230 V	208 V	230 V	208 V	230 V	208 V	230 V
Single phase	8HK(0,1)6500206	2.4	1.8	2.2	6.2	7.5	1.8	2.2	1.8	2.2
	8HK(0,1)6500506	4.8	3.6	4.4	12.3	15	3.6	4.4	3.6	4.4
	8HK(0,1)6500806	7.7	5.8	7.1	19.7	24.1	5.8	7.1	5.8	7.1
	8HK(0,1)6501006	9.6	7.2	8.8	24.6	30.1	7.2	8.8	7.2	8.8
	8HK(1,2)6501506	14.4	10.8	13.2	36.9	45.1	3.6	4.4	10.8	13.2
	8HK(1,2)6502006	19.2	14.4	17.6	49.2	60.2	7.2	8.8	14.4	17.6
	8HK(1,2)6502506	24	18	22	61.5	75.2	7.2	8.8	18	22
Three phase	8HK06501025	9.6	7.2	8.8	24.6	30.1	7.2	8.8	7.2	8.8
	8HK06501525	14.4	10.8	13.2	36.9	45.1	10.8	13.2	10.8	13.2
	8HK16502025	19.2	14.4	17.6	49.2	60.2	7.2	8.8	14.4	17.6
	8HK16502525	24	18	22	61.5	75.2	9	11	18	22

1. (0,1) - 0 = no service disconnect or 1 = with service disconnect
2. (1,2) - 1 = with service disconnect, no breaker jumper bar or 2 = with service disconnect and breaker jumper bar
3. For different power distributions, see **Table 8**.

Table 10: Electrical data for single source power supply: 208/230-1-60

Air handler models	Heater models[1,2]	Heater amps (A) at 240 V	Field wiring			
			Minimum circuit ampacity (A)		MOP[3] (A)	
			208 V	230 V	208 V	230 V
JMET08B	8HK(0,1)6500206	10	14.1	15.2	15	20
	8HK(0,1)6500506	20	24.9	27.2	25	30
	8HK(0,1)6500806	32	38.1	41.8	40	45
	8HK(0,1)6501006	40	46.5	51.1	50	60
JMET12B	8HK(0,1)6500206	10	15.6	16.7	20	20
	8HK(0,1)6500506	20	26.4	28.7	30	30
	8HK(0,1)6500806	32	39.6	43.3	40	45
	8HK(0,1)6501006	40	48	52.6	50	60
	8HK(1,2)6501506	60	69.7	76.5	70	80
	8HK(1,2)6502006	80	91.3	100.4	100	110
JMET12C	8HK(0,1)6500206	10	15.6	16.7	20	20
	8HK(0,1)6500506	20	26.4	28.7	30	30
	8HK(0,1)6500806	32	39.6	43.3	40	45
	8HK(0,1)6501006	40	48	52.6	50	60
	8HK(1,2)6501506	60	69.7	76.5	70	80
	8HK(1,2)6502006	80	91.3	100.4	100	110
JMET16C	8HK(0,1)6500206	10	17.6	18.7	20	20
	8HK(0,1)6500506	20	28.4	30.7	30	35
	8HK(0,1)6500806	32	41.6	45.3	45	50
	8HK(0,1)6501006	40	50	54.6	50	60
	8HK(1,2)6501506	60	71.7	78.5	80	80
	8HK(1,2)6502006	80	93.3	102.4	100	110
JMET18D	8HK(0,1)6500206	10	17.6	18.7	20	20
	8HK(0,1)6500506	20	28.4	30.7	30	35
	8HK(0,1)6500806	32	41.6	45.3	45	50
	8HK(0,1)6501006	40	50	54.6	50	60
	8HK(1,2)6501506	60	71.7	78.5	80	80
	8HK(1,2)6502006	80	93.3	102.4	100	110
	8HK(1,2)6502506	100	114.9	126.3	125	150

1. (0,1) - 0 = no service disconnect or 1 = with service disconnect
2. (1,2) - 1 = with service disconnect, no breaker jumper bar or 2 = with service disconnect and breaker jumper bar
3. MOP = Maximum Overcurrent Protection device; must be HACR type circuit breaker or time delay fuse. Refer to the latest edition of the National Electric Code or in Canada the Canadian electrical Code and local codes to determine correct wire sizing.

Table 11: Electrical data for multi-source power supply: 208/230-1-60

Air handlers models	Heater models[1]	Heater amps (A) at 240 V	Minimum circuit ampacity (A)						MOP[2] (A)					
			208 V			230 V			208 V			230 V		
			Circuit						Circuit					
			First[2]	Second	Third	First[2]	Second	Third	First[2]	Second	Third	First[2]	Second	Third
JMET12B	8HK16501506	60	26.2	43.5	—	28.4	48.1	—	30	45	—	30	50	—
	8HK16502006	80	48	43.3	—	52.6	47.8	—	50	45	—	60	50	—
JMET12C	8HK16501506	60	26.2	43.5	—	28.4	48.1	—	30	45	—	30	50	—
	8HK16502006	80	48	43.3	—	52.6	47.8	—	50	45	—	60	50	—
JMET16C	8HK16501506	60	28.2	43.5	—	30.4	48.1	—	30	45	—	35	50	—
	8HK16502006	80	50	43.3	—	54.6	47.8	—	50	45	—	60	50	—
JMET18D	8HK16501506	60	28.2	43.5	—	30.4	48.1	—	30	45	—	35	50	—
	8HK16502006	80	50	43.3	—	54.6	47.8	—	50	45	—	60	50	—
	8HK16502506	100	50	43.3	21.6	54.6	47.8	23.9	50	45	25	60	50	25

1. 8HK1 = with service disconnect, no breaker jumper bar
2. MOP = Maximum Overcurrent Protection device; must be HACR type circuit breaker or time delay fuse. The first circuit includes blower motor amps. Refer to the latest edition of the National Electric Code or in Canada the Canadian electrical Code and local codes to determine correct wire sizing.

Table 12: Electrical data for single source power supply: 208/230-3-60

Air handler models	Heater models[1]	Heater amps (A) at 240 V	Field wiring			
			Minimum circuit ampacity (A)		MOP[2] (A)	
			208 V	230 V	208 V	230 V
JMET08B	8HK06501025	23.1	28.2	30.9	30	35
JMET12B	8HK06501025	23.1	29.7	32.4	30	35
	8HK06501525	34.6	42.2	46.2	45	50
	8HK16502025[1]	46.2	54.7	60	60	60
JMET12C	8HK06501025	23.1	29.7	32.4	30	35
	8HK06501525	34.6	42.2	46.2	45	50
JMET16C	8HK06501025	23.1	31.7	34.4	35	35
	8HK06501525	34.6	44.2	48.2	45	50
	8HK16502025[1]	46.2	56.7	62	60	70
JMET18D	8HK06501025	23.1	31.7	34.4	35	35
	8HK06501525	34.6	44.2	48.2	45	50
	8HK16502025[1]	46.2	56.7	62	60	70
	8HK16502525[1]	57.7	69.2	75.8	70	80

1. 0 = no service disconnect or 1 = with service disconnect. The 20 kW and 25 kW heater models (8HK16502025 and 8HK16502525) come with service disconnects standard. Single source power MCA and MOP requirements are given here only for reference if used with field installed single point power modification.
2. MOP = Maximum overcurrent protection device; must be HACR type circuit breaker or time delay fuse. The first circuit includes blower motor amps. Refer to the latest edition of the National Electric Code or in Canada the Canadian electrical Code and local codes to determine correct wire sizing.

Table 13: Electrical data for multi-source power supply: 208/230-3-60

Air handler models	Heater models[1]	Heater amps (A) at 240 V	Minimum circuit ampacity (A)				MOP[2] (A)			
			208 V		230 V		208 V		230 V	
			Circuit				Circuit			
			First[2]	Second	First[2]	Second	First[2]	Second	First[2]	Second
JMET12B	8HK16502025	46.2	29.7	25	32.4	27.6	30	25	35	30
JMET16C	8HK16502025	46.2	31.7	25	34.4	27.6	35	25	35	30
JMET18D	8HK16502025	46.2	31.7	25	34.4	27.6	35	25	35	30
	8HK16502525	57.7	38	31.2	41.3	34.5	40	35	45	35

1. The 20 kW and 25 kW heater models (8HK16502025 and 8HK16502525) come with circuit breakers standard.
2. MOP = Maximum overcurrent protection device; must be HACR type circuit breaker or time delay fuse. The first circuit includes blower motor amps. Refer to the latest edition of the National Electric Code or in Canada the Canadian electrical Code and local codes to determine correct wire sizing.

Table 14: Airflow data (CFM per Watts)

Models	Blower motor speed	External static pressure (in. W.C.)										
		Unit	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
JMET08B	High (5)	CFM	1100	1050	1000	925	875	825	775	725	675	600
		W	113	122	131	140	149	158	167	176	185	194
	Medium high (4)	CFM	1025	975	900	850	800	750	675	625	575	500
		W	95	104	112	120	129	137	145	154	162	171
	Medium (3)	CFM	925	875	800	750	700	625	575	500	450	400
		W	78	85	93	100	108	115	123	130	138	145
	Medium low (2)	CFM	850	775	725	650	575	525	450	—	—	—
		W	63	70	77	83	90	96	103	—	—	—
	Low (1)	CFM	575	500	425	—	—	—	—	—	—	—
		W	32	38	44	—	—	—	—	—	—	—
JMET12B	High (5)	CFM	1475	1425	1400	1375	1325	1300	1250	1225	1200	1150
		W	259	266	275	285	296	308	322	336	351	367
	Medium high (4)	CFM	1300	1250	1225	1175	1125	1075	1025	1000	950	900
		W	177	184	192	201	212	223	235	249	263	279
	Medium (3)	CFM	1150	1075	1025	975	925	875	800	750	700	650
		W	118	129	139	150	160	171	181	192	202	213
	Medium low (2)	CFM	1025	975	900	850	800	725	675	625	550	500
		W	94	103	113	122	132	141	151	160	170	179
	Low (1)	CFM	750	675	600	525	450	400	—	—	—	—
		W	51	57	64	70	77	84	—	—	—	—
JMET12C	High (5)	CFM	1675	1650	1625	1575	1550	1525	1475	1425	1375	1325
		W	294	303	314	326	339	353	369	386	404	424
	Medium high (4)	CFM	1500	1475	1450	1400	1375	1325	1250	1200	1125	1050
		W	216	225	235	247	259	273	288	304	322	341
	Medium (3)	CFM	1350	1325	1275	1225	1175	1100	1025	975	900	800
		W	153	165	178	190	203	216	228	241	253	266
	Medium low (2)	CFM	1075	1000	925	850	775	700	625	550	475	425
		W	87	96	105	114	123	131	140	149	158	167
	Low (1)	CFM	950	875	800	725	650	575	500	425	—	—
		W	67	78	88	97	105	113	120	127	—	—
JMET16C	High (5)	CFM	2075	2050	2000	1975	1950	1925	1900	1875	1850	1825
		W	501	516	531	546	560	575	590	605	620	634
	Medium high (4)	CFM	1875	1850	1825	1775	1750	1725	1675	1650	1625	1600
		W	374	388	402	415	429	443	456	470	484	497
	Medium (3)	CFM	1500	1475	1425	1400	1350	1300	1250	1175	1100	1025
		W	197	210	223	236	249	262	276	289	302	315
	Medium low (2)	CFM	1325	1250	1200	1125	1075	1000	950	875	800	750
		W	132	144	155	166	178	189	200	212	223	234
	Low (1)	CFM	1050	975	900	825	750	650	575	500	425	—
		W	79	88	96	105	114	122	131	140	148	—
JMET18D	High (5)	CFM	2250	2225	2200	2175	2125	2100	2075	2050	2025	2000
		W	595	606	618	633	648	666	685	705	727	751
	Medium high (4)	CFM	2075	2050	2000	1975	1950	1900	1875	1850	1800	1775
		W	444	460	475	491	506	522	537	553	568	584
	Medium (3)	CFM	1875	1850	1800	1775	1725	1700	1650	1625	1575	1525
		W	329	344	359	374	389	404	419	434	449	463
	Medium low (2)	CFM	1450	1400	1325	1250	1200	1125	1050	1000	925	850
		W	153	166	179	192	206	219	232	245	258	271
	Low (1)	CFM	1300	1225	1150	1075	1000	925	850	800	725	650
		W	120	131	143	154	166	178	189	201	212	224

Notes:

- No electric heat installed
- Air handler units are tested to UL60335-2-40 standards up to 0.6 in. W.C. external static pressure.
- Dry coil conditions only; tested without filters
- For optimal performance, external static pressures of 0.2 in. W.C. to 0.5 in. W.C. are recommended. Heating applications are tested at 0.5 in. W.C. external static pressure.
- Airflow data shown is from testing performed at 230 V. JMET units use a standard ECM constant torque motor and there is minimal variation of airflow at other distribution voltage values. The above data can be used for airflow at other distribution voltages.

Section X: Maintenance

Inspect filters at least once per month, and clean or replace them when they become dirty. The frequency of cleaning depends upon the hours of operation and the local atmospheric conditions. Clean filters keep unit efficiency high.

Coil cleaning

⚠ CAUTION

Ensure adequate precautions are taken to protect electrical components from liquid.

If cleaning the coil is necessary, clean with water only. As an alternative to water, Evap-Green by Nu-Calgon is the only pH neutral coil cleaner approved for use when it is correctly diluted. Ensure to thoroughly rinse the cleaned coils after using Evap-Green.

Lubrication

The bearings of the blower motor are permanently lubricated.

Condensate drains

During the cooling season, check the condensate drain lines to be sure that condensate is flowing from the primary drain but not from the secondary drain. If condensate ever flows from the secondary drain, shut off the unit immediately and clean the condensate pan and drains to insure a free flowing primary drain.

Section XI: Air system adjustment

To check the cubic feet per minute (CFM), measure the external duct static using a manometer and static pressure tips. To prepare the coil for static pressure measurements, run only the fan to ensure a dry coil.

NOTICE

See **Table 14** for air handling unit airflow data (CFM).

Drill a hole 12 in. away from the air handler in the supply air duct.

You must take the return air pressure reading between the indoor coil and the air handler.

External duct static

To determine total external system static pressure, complete the following:

1. Drill a hole 12 in. away from the air handler in the supply air duct. You must take the return air pressure reading between the indoor coil and the air handler.
2. Measure the supply air static pressure. Record this positive number.
3. Measure the return air static pressure. Record this negative number.
4. Treat the negative number as a positive, and add the two numbers together to determine the total external system static pressure.

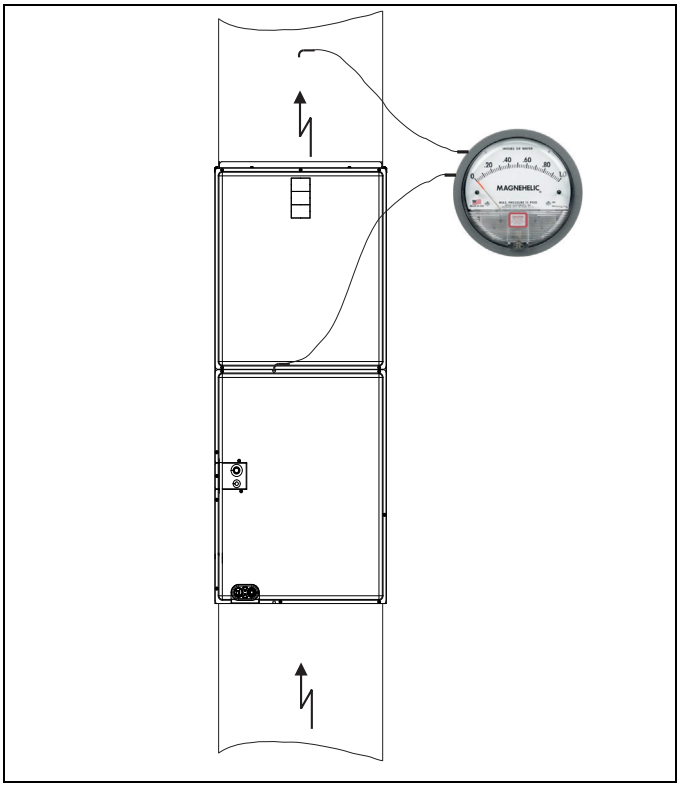

Figure 13: Duct static measurements

Section XII: Wiring diagram

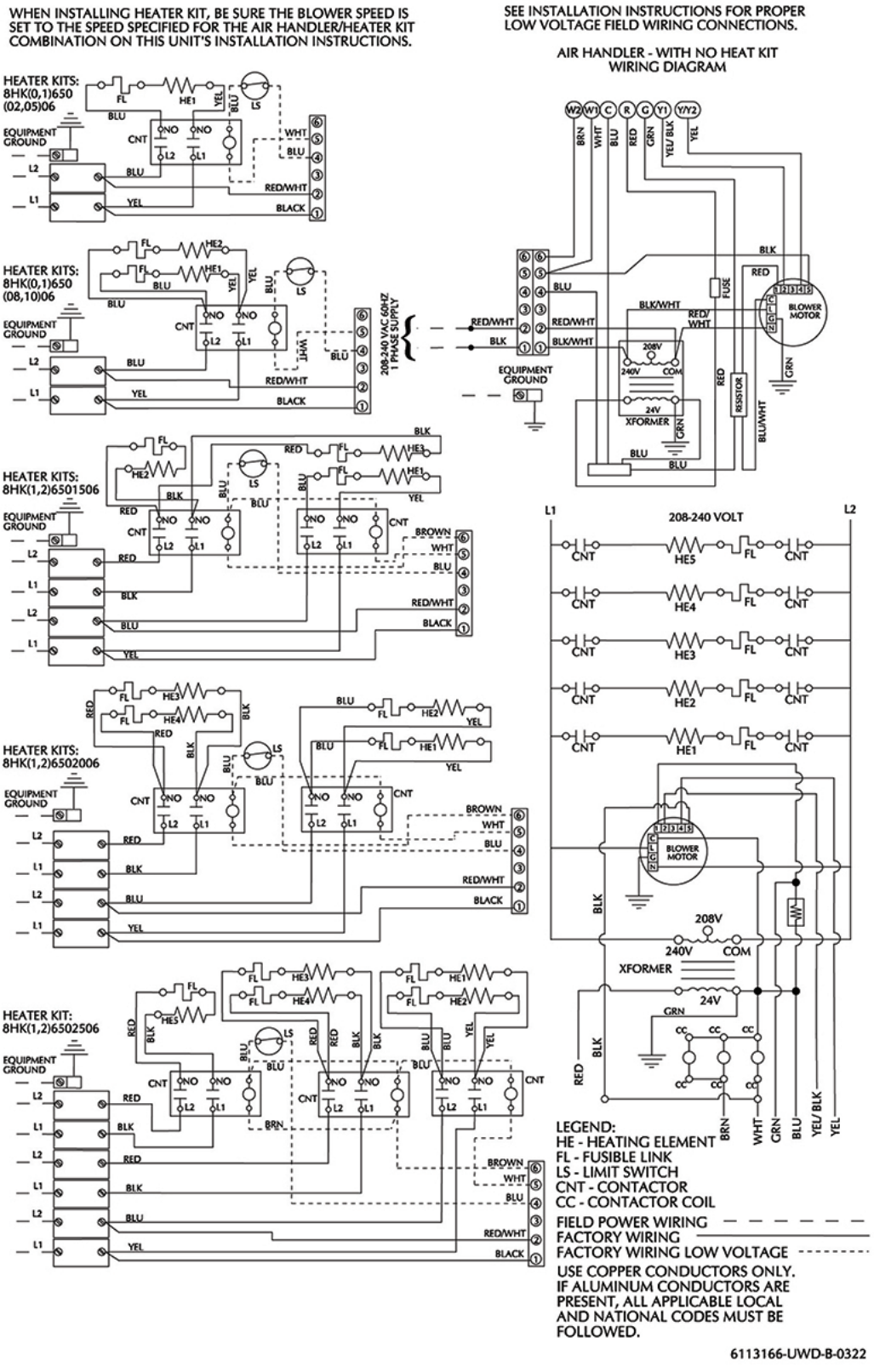

Figure 14: Wiring diagram - standard ECM - single phase heat kits

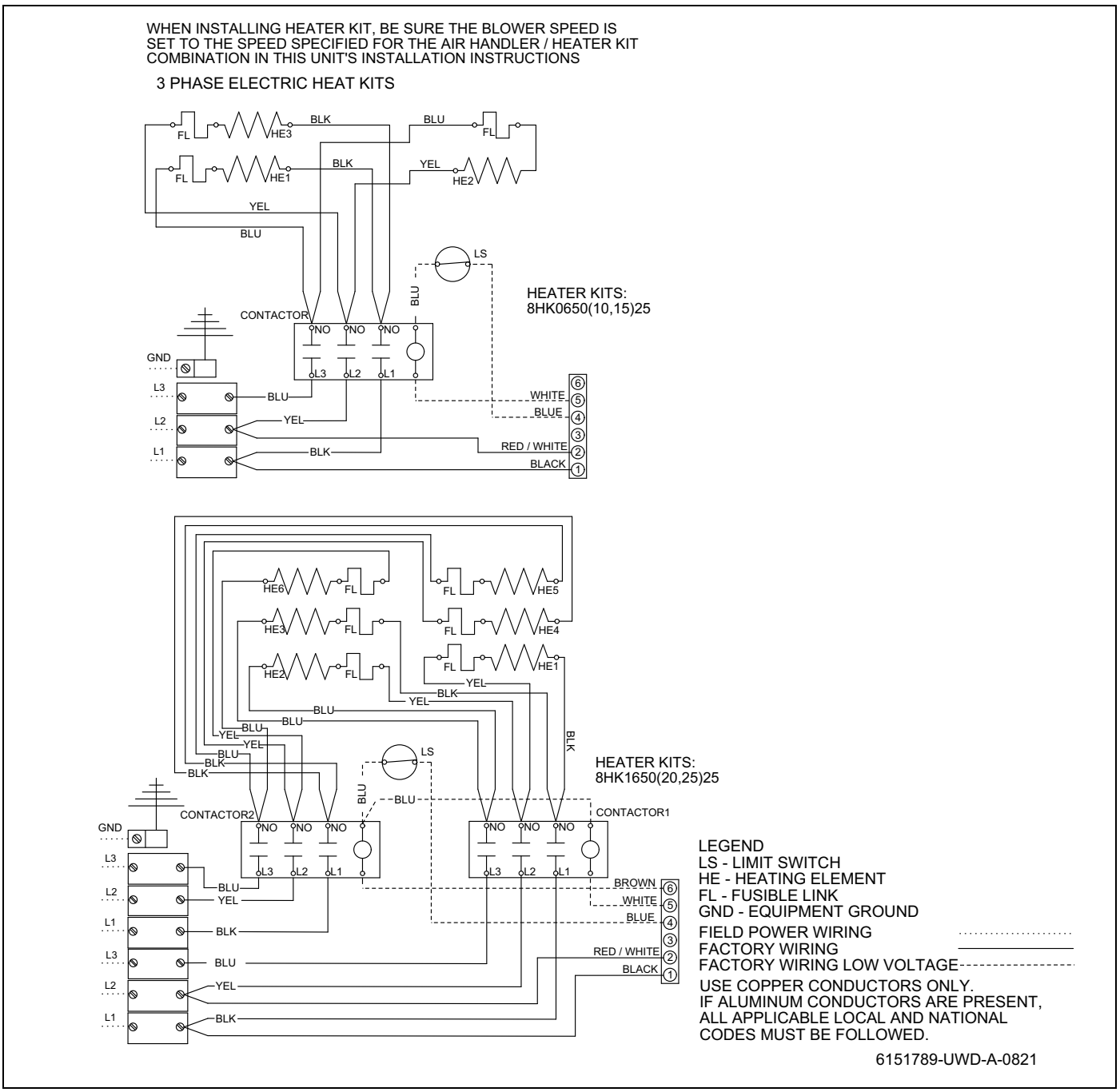

Figure 15: Wiring diagram - 208/230V three phase heat kits

Section XIII: Control wiring

NOTICE

For Figure 16, Figure 17, Figure 18, and Figure 19:
Continuous fan (G) indoor blower speed tap must be set for a lower speed than first stage compressor speed. If the lowest blower speed tap must be used for first stage compressor speed, do not use the air handler Y1 connection. Allow the room thermostat to energize (G) for first stage compressor blower speed.

NOTICE

For Figure 16, Figure 19, and Figure 21:
Do not bond any of the outdoor unit **W** wires together.

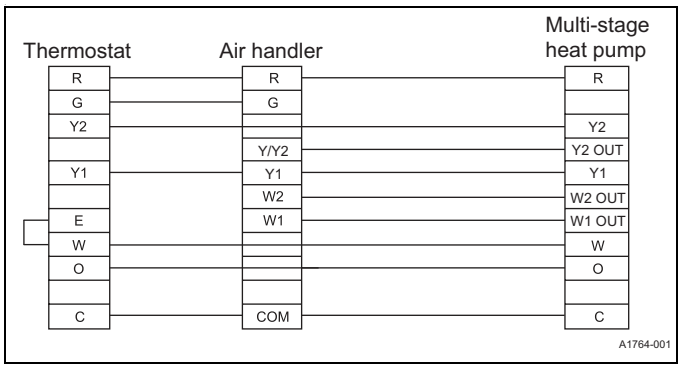

Figure 16: Standard ECM AH and premium multi-stage HP - conventional wiring

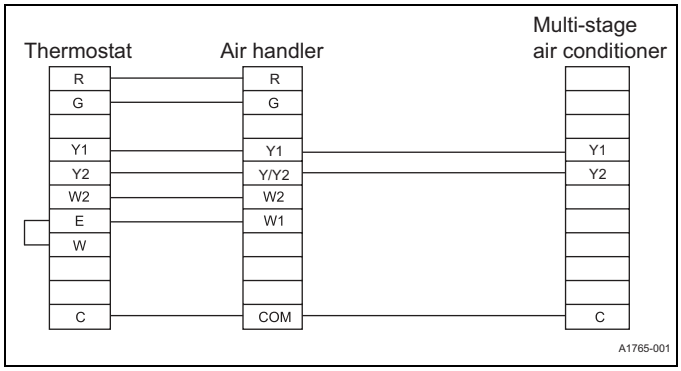

Figure 17: Standard ECM AH and standard multi-stage AC - conventional wiring

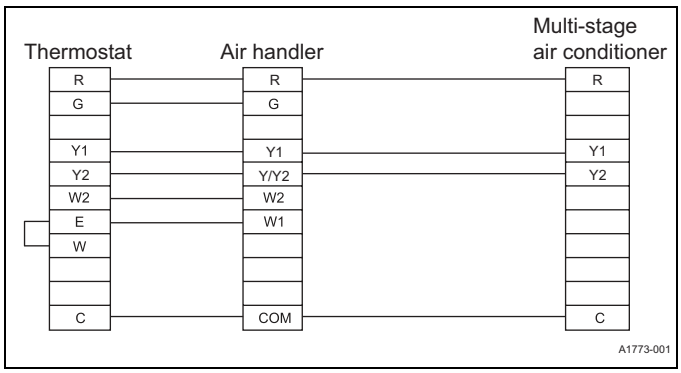

Figure 18: Standard ECM AH and premium multi-stage AC - conventional wiring

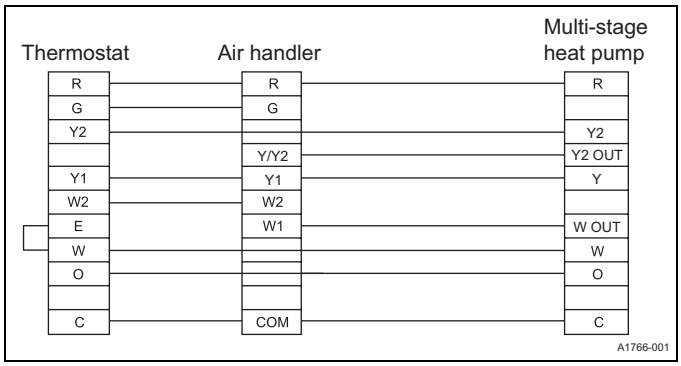

Figure 19: Standard ECM AH and standard multi-stage HP - conventional wiring

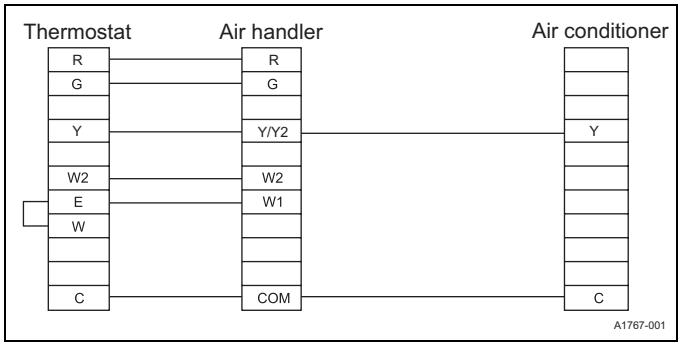

Figure 20: Standard ECM AH and single-stage AC - conventional wiring

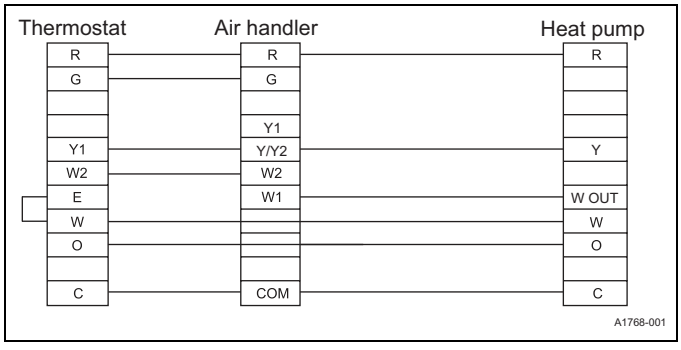

Figure 21: Standard ECM AH and single-stage HP - conventional wiring

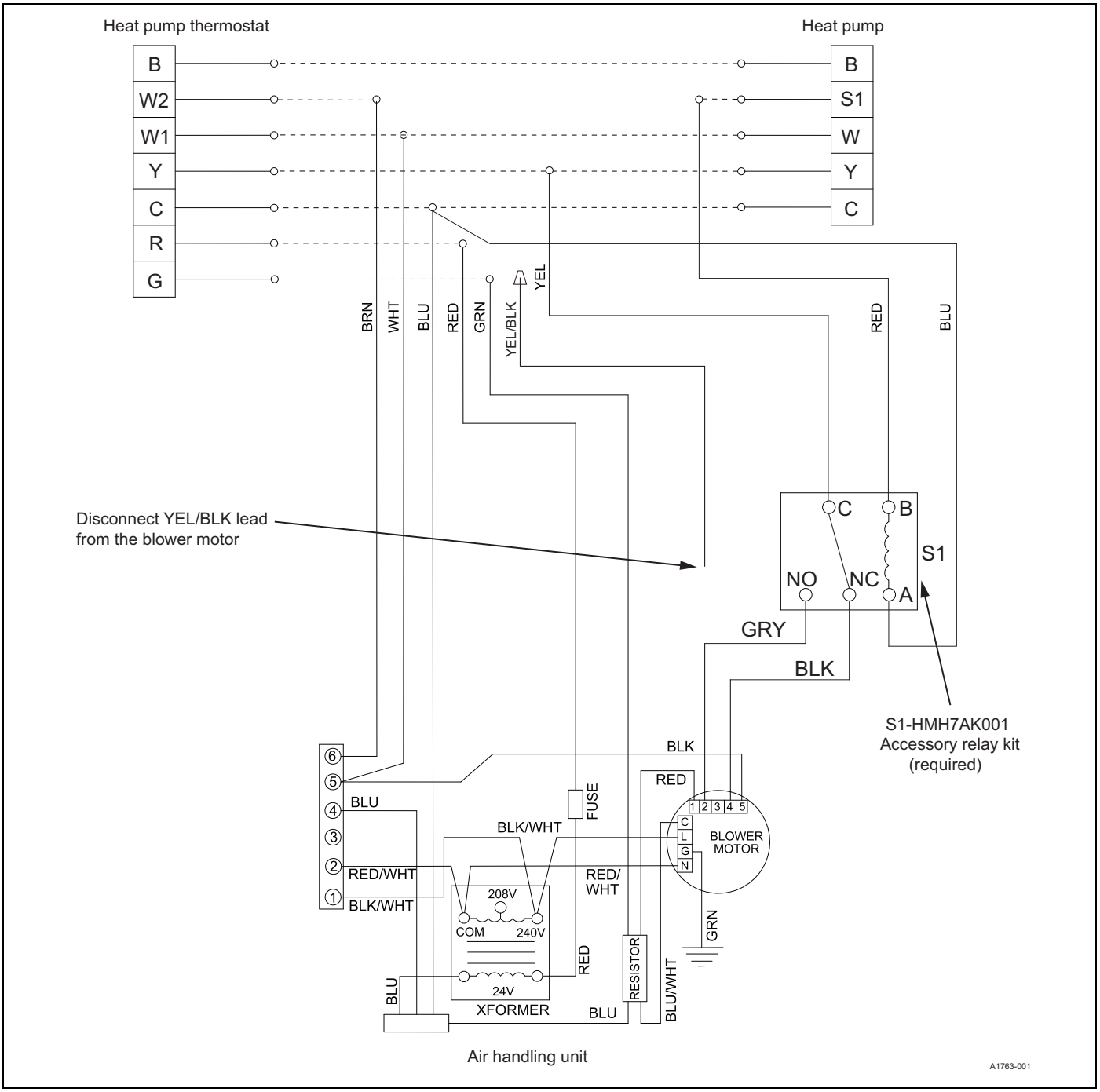

Figure 22: HMH7 HP connection

NOTES

Section XIV: Start-up sheet

Residential Air Handler with Electric Heat

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

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 number | Unit serial number

General information (check all that apply)

- ○ New construction
- ○ Retrofit
- ○ Upflow
- ○ Downflow
- ○ Horizontal Left
- ○ Horizontal Right

Unit location and connections (check all that apply)

- ☐ Unit is level
- Duct connections are complete : ☐ Supply ☐ Return
- ☐ Condensate drain is connected correctly (refer to installation manual)
- ☐ Condensate trap is primed with water

Filters

☐ Filters installed | Number of filters | Filter size

Electrical connections and inspection (complete all that apply)

- ○ 208 VAC ○ 230 VAC ○ 460 VAC
- ☐ Wires and electrical connections inspected ☐ Transformer wired correctly for primary supply voltage ☐ Ground connected
- Line voltage measured (VAC) | Low voltage value between R and C at control board (VAC)
- ☐ Thermostat wiring is complete ☐ Thermostat cycle rate or heat anticipator adjusted to Installation Manual specifications

Airflow setup

Blower type and set-up	Variable speed ECM (circle **0** or **1**)	Heat	0 / 1	0 / 1			
		Low cool	0 / 1	0 / 1	0 / 1		
		High cool	0 / 1	0 / 1	0 / 1		
		Delay	0 / 1	0 / 1			
		Stage 1 kW	0 / 1	0 / 1			
		Heat kit selection	0 / 1	0 / 1	0 / 1	0 / 1	
	Standard ECM	HP heating/cooling Y1	○ 1	○ 2	○ 3	○ 4	○ 5
		HP heating/cooling Y/Y2	○ 1	○ 2	○ 3	○ 4	○ 5
		Electric heat speed	○ 1	○ 2	○ 3	○ 4	○ 5
		Continuous fan speed	○ 1	○ 2	○ 3	○ 4	○ 5

Supply static (in. W.C.) | Supply air dry bulb temperature | Outside air dry bulb temperature

Return static (in. W.C.) | Return air dry bulb temperature | Return air wet bulb temperature

Total external static pressure | Temperature drop | Supply air wet bulb temperature

Other switches (check all that apply)

HUMIDISTAT ○ YES ○ NO AC/HP ○ AC ○ HP CONT FAN ○ 40% ○ 60% ○ 80% ○ 100%

Continued on next page

Electric heat (complete all that apply)

Electric heat kit: Model number		Serial number		Rated kW		
Number of elements		Measured amperage (A)	Heater 1	Heater 2	Heater 3	
			Heater 4	Heater 5	Heater 6	
		Measured voltage (V)	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		

Job site clean-up

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

Unit operation and cycle test (complete all that apply)

- ☐ 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.
- ☐ Operate the unit through mechanical heating cycles from the thermostat, noting and correcting any problems.
- ☐ Operate the unit through emergency heating cycles from the thermostat, noting and correcting any problems.

Owner education

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

Comments and additional job details

6139716-UIM-B-0723
Supersedes: 6139716-UIM-A-0422

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