EHK2

Electric Heater Packages

Installation Instructions

NOTE: Read the entire instruction manual before starting the installation.

SAFETY CONSIDERATIONS

Installing and servicing of heating and air conditioning equipment can be hazardous due to system pressures and electrical components. Only trained personnel should install or service heating and air conditioning equipment.

Untrained personnel can perform basic maintenance functions such as cleaning coils, or cleaning and replacing filters. All other operations should be performed by trained personnel. When working on heating and air conditioning equipment, observe precautions in literature, on tags, and on labels attached to the unit.

Follow all safety codes. Wear safety glasses and work gloves. Have a fire extinguisher available.

Recognize safety information. This is the safety-alert symbol ⚠. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, modifying or servicing system, always turn off main power to system. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label.

⚠ CAUTION

PERSONAL INJURY HAZARD

Failure to follow this caution may result in personal injury.

Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing and gloves when handling parts.

INSTALLATION

This instruction describes the installation of Part No. EHK2 accessory heaters in FFM, FMA, WAMA and WAXA fan coils.

NOTE: Electric heaters require a minimum airflow. Minimum airflow and motor speed selection are listed in Table 2.

Install Electric Heater Assembly

NOTE: Ensure heater coils are not deformed or damaged during heater installation.

1. Make sure power to unit is off.
2. Remove blower access panel of fan coil unit.
3. Remove the plate covering the opening at the back of the top compartment.
4. Insert heater assembly into the opening, coils first. Ensure the arrow stamped into the heater plate is orientated up to correspond with the airflow direction. Use care not to damage the coils during insertion.
5. Use the previously removed cover-plate screws to secure the heater assembly. (See Fig. 1) Discard cover plate.

Attach Circuit Breaker Box

1. Snap the circuit breaker onto the circuit breaker bracket.
2. Install the breaker assembly using the mounting holes in the top compartment.
3. Secure using provided screws.
4. Disconnect and discard the factory-installed high voltage wiring harness.
5. Connect the heater assembly wiring harness to the unit-wiring connector.
6. Use wire ties to secure wires away from sharp edges.
7. Apply the supplemental wiring diagram provided with the heater kit over the existing wiring diagram on the fan coil.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Ensure fuse box is closed before power is turned to ON position. There may be more than one power supply.

ELECTRICAL CONNECTIONS

Refer to unit instructions for recommended wiring procedures. Install wiring in accordance with all applicable local and national codes. (See Table 5.) Connect heater wiring harness plug to receptacle on fan-coil wire harness. A positive connection must be made between plug and receptacle. Plug will interlock with receptacle when properly seated. Harness contains both 24V control and high-voltage wiring. Blower power is provided through heater harness.

Power Connections

NOTE: Heater supply circuit wire size and overcurrent protection must comply with National Electrical Code (NEC) and UL branch circuit requirements. (See Table 5) Wires and overcurrent protection, integral to the heater, are not required to meet branch circuit requirements. **Internal circuit protection of 60 amps (maximum) is acceptable.**

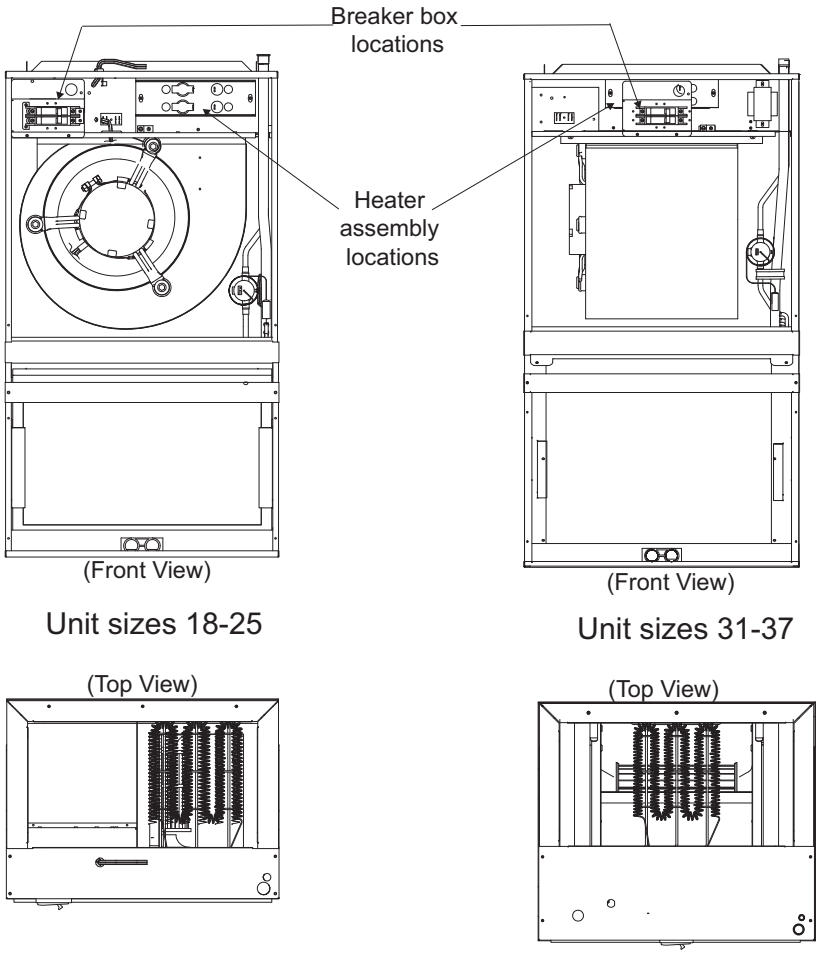
The 5-kW through 10-kW circuit breaker heaters can be wired for single-supply circuit only.

Table 1 – Accessory Heater Usage

ELECTRIC HEATER PART NUMBER	SIZES USED WITH	kW	INTERNAL CIRCUIT PROTECTION
EHK205B	18-37	5	Circuit Breaker
EHK208B	18-37	7.5	Circuit Breaker
EHK210B	18-37	10	Circuit Breaker

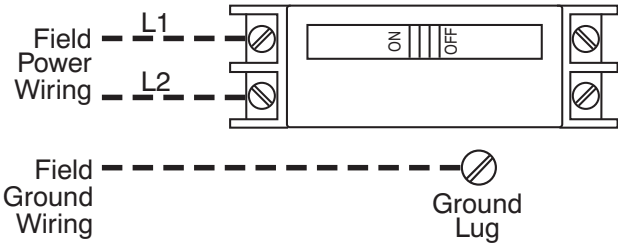
Table 2 – Minimum CFM

Fan Coil Unit Size	EHK2-05B	EHK2-08B	EHK2-10B
18, 19	325	350	375
24, 25	450	475	500
30, 31	575	600	625
36, 37	700	725	750



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Fig. 1 - Installation Locations for EHK2 Heaters



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Fig. 2 - 5-kW, 7.5-kW, 10-kW Circuit Breaker and Disconnect Heaters

NOTE: Use UL-listed conduit and conduit connector for connecting supply wire(s) to unit to obtain proper grounding. If conduit connection uses reducing washers, a separate ground wire must be used. Grounding may also be accomplished by using grounding lugs provided in control box.

Ground Connections

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

According to NEC, ANSI/NFPA 70, and local codes, cabinet must have an uninterrupted or unbroken ground to minimize personal injury if an electrical fault should occur. The ground may consist of electrical wire or metal conduit when installed in accordance with existing electrical codes. (See Ground/Conduit Note below.)

Fan Speeds

Before operating unit, be sure that the proper blower speed has been selected. Fan speeds are selected manually. (See Table 3)

NOTE: The low fan speed tap should not be used for simultaneous heat pump and electric heat applications. Always ensure the minimum CFM shown in Table 2 is met.

To change the fan speed on fan coils with PSC motors:

The factory default is medium speed. To select the desired fan speed for cooling, simultaneous heat pump and electric heat operation, and anytime a "G" signal is present; connect the desired fan motor speed tap wire to Fan Relay Terminal No. 4.

To select the desired fan speed for heating operation, anytime the "G" signal is not present; connect the desired fan motor speed tap wire to Fan Relay Terminal No. 6.

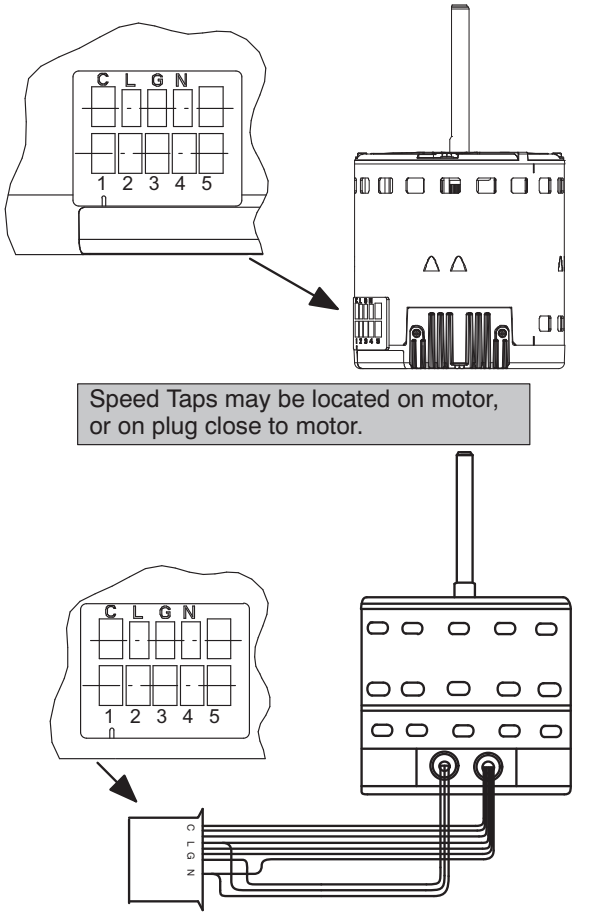
Always connect the unused fan-motor wire to the dummy terminal block. The factory default for electric heat only operation is low speed.

Table 3 – Color Code for PSC Motor Lead Wires

MOTOR SPEED TAP	WIRE COLOR
Common	Purple
High	Black
Medium	Red
Low	Blue

To change the fan speed on fan coils equipped with multi-tap ECM motors:

Fan speeds are selected manually (See Table 4). At the motor connection plug (See Fig. 3) connect the green wire to the desired motor tap number indicated on the motor plug. For the electric heat fan speed selection connect the white wire to the desired motor tap number indicated on the motor plug.



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Fig. 3 - ECM Motor Speed Taps

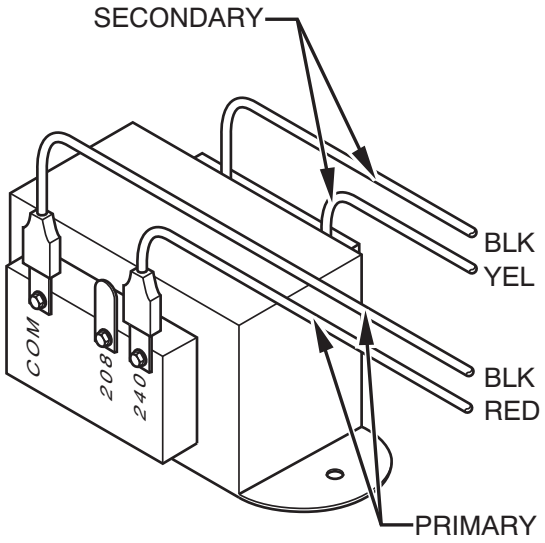
Table 4 – ECM Motor Speed Taps

Tap	Delay–off Time (s)	19	25	31	37
Tap 1	30	–	–	–	–
Tap 2	90	Default	–	Default	–
Tap 3	30	–	–	–	–
Tap 4	90	–	Default	–	Default
Tap 5	30	–	–	–	–

*The defaults shown are for cooling and simultaneous heat–pump / electric–heat operation.

Transformer

All units are shipped from factory wired for 240VAC transformer operation. For 208VAC operation, move primary lead from 240VAC terminal to 208VAC terminal, see Fig. 4.



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Fig. 4 - Connection of Transformer

VERIFY INSTALLATION

After completion of heater installation, check wiring to ensure tightness and that proper connections and routings have been made. Ensure all electrical covers are in place. Reinstall blower access panel before turning unit power on.

Table 5 – Electric Heater Electrical Data for PSC Motor Units

Heat Kit Model	Used on Size	Nominal Heat Capacity @ 240V	Ship-ping Weight	Heater Capacity (MBH)		Minimum Circuit Ampacity (MCA)		MAX. Fuse or Breaker Heat–Kit Ampacity (HACR)		Min Wire Size (AWG) ††		Min Ground Wire Size		Max Wire Length (Ft) ‡‡	
		KW	lbs. (kg)	208	240	208	240	208	240	208	240	208	240	208	240
EHK205B	1–1/2 Ton	5	5.1 (2.3)	12.3	16.4	23.6	27.1	30	30	10	10	10	10	73	74
EHK208B		7.5		22.2	25.6	34.9	40.1	50	50	8	8	10	10	76	77
EHK210B		10		24.6	32.8	46.2	53.1	60	60	6	6	10	10	92	92
EHK205B	2 Ton	5	5.1 (2.3)	12.3	16.4	23.9	27.3	30	30	10	10	10	10	73	73
EHK208B		7.5		22.2	25.6	35.2	40.4	50	50	8	8	10	10	76	76
EHK210B		10		24.6	32.8	46.4	53.4	60	60	6	6	10	10	91	92
EHK205B	2–1/2 Ton	5	5.1 (2.3)	12.3	16.4	24.2	27.7	30	30	10	10	10	10	72	72
EHK208B		7.5		22.2	25.6	35.5	40.7	50	50	8	8	10	10	75	76
EHK210B		10		24.6	32.8	46.8	53.7	60	60	6	6	10	10	91	91
EHK205B	3 Ton	5	5.1 (2.3)	12.3	16.4	24.9	28.3	30	30	10	10	10	10	70	71
EHK208B		7.5		22.2	25.6	36.2	41.4	50	50	8	8	10	10	74	74
EHK210B		10		24.6	32.8	47.4	54.4	60	60	6	6	10	10	90	90

* †† Copper wire must be used. If other than uncoated (non–plated), 75°C ambient, copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the National electric Code (ANSI/NGPA 70).

* ‡‡ Length shown is as measured 1 way along wire path between unit and service panel for a voltage drop not to exceed 2%.

Table 6 – Electric Heater Electrical Data for ECM Motor Units

Heat Kit Model	Used on Size	Nominal Heat Capacity @ 240V	Ship-ping Weight	Heater Capacity (MBH)		Minimum Circuit Ampacity (MCA)		MAX. Fuse or Breaker Heat–Kit Ampacity (HACR)		Min Wire Size (AWG) ††		Min Ground Wire Size		Max Wire Length (Ft) ‡‡	
		KW	lbs. (kg)	208	240	208	240	208	240	208	240	208	240	208	240
EHK205B	1–1/2 Ton	5	5.1 (2.3)	12.3	16.4	25	28.5	30	30	10	10	10	10	69	70
EHK208B		7.5		22.2	25.6	36.3	41.5	50	50	8	8	10	10	73	74
EHK210B		10		24.6	32.8	47.6	54.5	60	60	6	6	10	10	89	90
EHK205B	2 Ton	5	5.1 (2.3)	12.3	16.4	25	28.5	30	30	10	10	10	10	69	70
EHK208B		7.5		22.2	25.6	36.3	41.5	50	50	8	8	10	10	73	74
EHK210B		10		24.6	32.8	47.6	54.5	60	60	6	6	10	10	89	90
EHK205B	2–1/2 Ton	5	5.1 (2.3)	12.3	16.4	26	29.5	30	30	10	10	10	10	67	68
EHK208B		7.5		22.2	25.6	37.3	42.5	50	50	8	8	10	10	71	72
EHK210B		10		24.6	32.8	48.6	55.5	60	60	6	6	10	10	87	88
EHK205B	3 Ton	5	5.1 (2.3)	12.3	16.4	26	29.5	30	30	10	10	10	10	67	68
EHK208B		7.5		22.2	25.6	37.3	42.5	50	50	8	8	10	10	71	72
EHK210B		10		24.6	32.8	48.6	55.5	60	60	6	6	10	10	87	88

* †† Copper wire must be used. If other than uncoated (non–plated), 75°C ambient, copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the National electric Code (ANSI/NGPA 70).

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