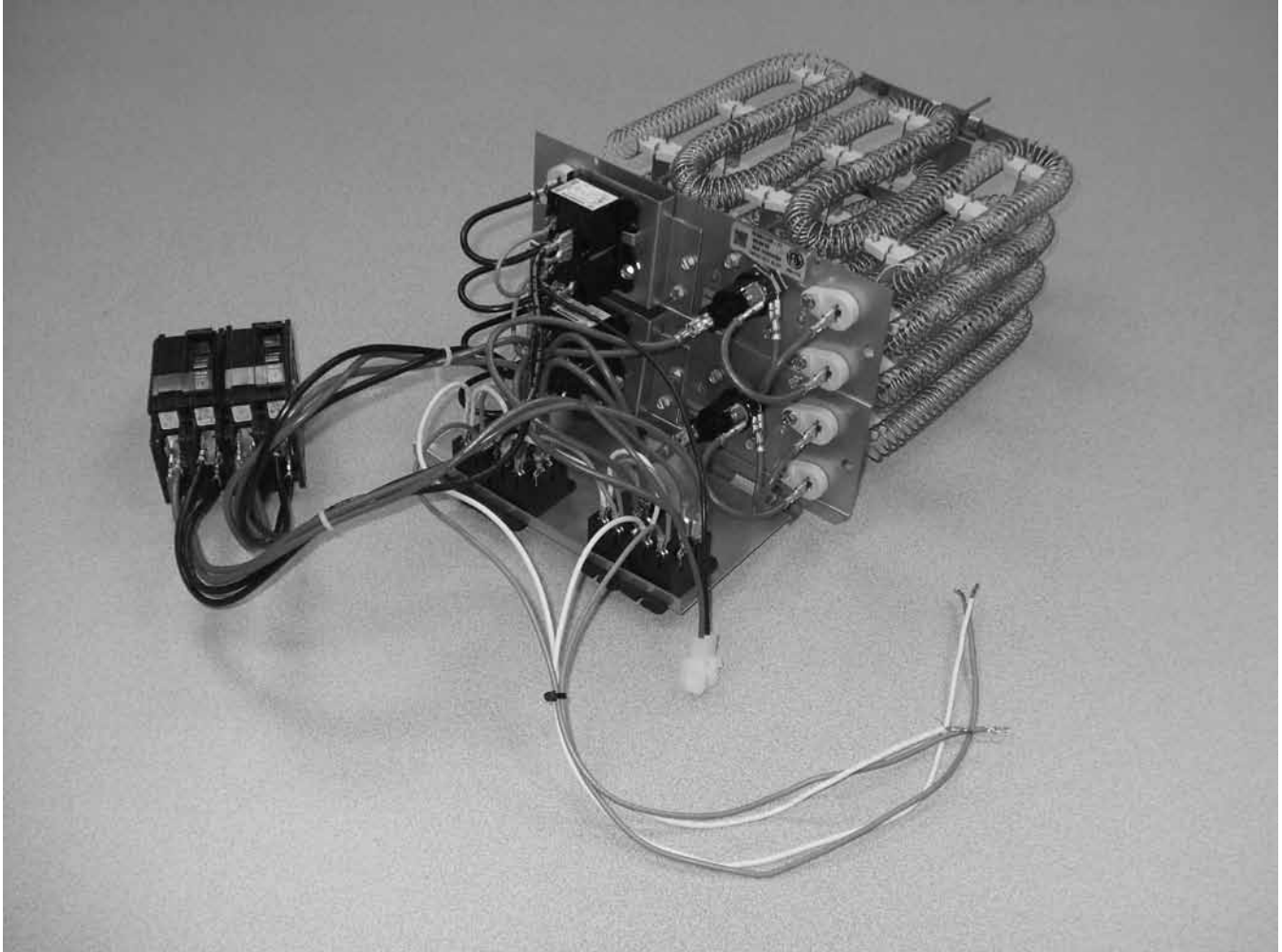


## H8HK SERIES ELECTRIC HEATER KIT

# INSTALLATION INSTRUCTIONS

## INSTALLATION IN STANDARD & VARIABLE SPEED INDOOR AIR HANDLERS



## IMPORTANT

### ATTENTION INSTALLERS:

These instructions are primarily intended to assist qualified individuals experienced in the proper installation of heating and/or air conditioning appliances. Some local codes require licensed installation/service personnel for this type equipment. All installations must be in accordance with these instructions and with all applicable national and local codes and standards.

Read these instructions thoroughly before starting the installation. Follow all precautions and warnings contained within these instructions and on the unit. The instructions included with this heater kit are for installations in air handlers only.

**DO NOT DESTROY. PLEASE READ CAREFULLY & KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.**



- Use caution when handling or installing this component. Personal injury can occur from sharp metal edges present in all sheet metal constructed equipment.

## Clearances to Combustibles

### Standard Air Handlers

All electric heater kits less than 20 kw are approved for use in air handler installations with zero-clearance to combustibles at any blower speed. Horizontal and upflow configuration air handlers equipped with 20, 24, & 29 kw electric heater kits are approved for installation with zero clearance to combustibles at any blower speed. When using a 20, 24, & 29 kw electric heat kit in a downflow installation, the blower must be set at high speed for both heating and cooling.

### Variable Speed Air Handlers

All installations of H8HK electric heater kits in variable speed air handlers are approved for zero-clearance to combustibles when the minimum electric heat airflow is set as directed in these instructions.

## ELECTRICAL SUPPLY

- All electrical connections must be in compliance with all applicable local codes with the current revision of the National Electric Code (ANSI/NFPA 70). For Canadian installations the electrical connections and grounding shall comply with the current Canadian Electrical Code (CSA C22.1 and/or local codes).
- If the air handler was previously installed without electric heat, the existing supply wiring may not be sufficient to carry the increased load. If installing electric heat in the air handler, the supply wiring can be aluminum or copper. The supplied circuit breakers and terminal blocks are approved for either wire type. Make sure to follow all of the rating information on the circuit breaker or terminal block and that the supply wiring is sized according to the current NEC codes and any other state or local codes. See the rating label or [Table 3 \(page 6\)](#) for minimum circuit ampacities and maximum overcurrent protection.
- All heater kits are supplied from the factory configured for use with one or more supply circuits. 5 & 10 kw heater kits 10 are configured for use with a single supply circuit (Circuit A). 15 & 20 kW heater kits are configured for use with 2 circuits (Circuit A & Circuit B). 24 & 29 kW heater kits are configured for use with 3 circuits (Circuit A, Circuit B, & Circuit C). See [Table 3](#) for additional information. **NOTE:** If a single supply is desired, accessory kit #913874 is required to convert to single circuit connection.

## Power Wiring

All wiring must comply with the current revision of the National Electric Code and must be sized for the minimum ampacities as listed on the unit data label or in [Table 3](#). Refer to [Figure 8 \(page 7\)](#), [Figure 9 \(page 8\)](#), [Figure 10 \(page 9\)](#), [Figure 11 \(page 10\)](#), [Figure 12 \(page 11\)](#), [Figure 13 \(page 12\)](#), & [Figure 14 \(page 13\)](#) for proper connections.

If a single circuit adaptor kit is used it may need to be re-configured for some applications. Remove the single circuit adaptor kit cover and verify that the lugs are configured correctly for the application. If the lugs are not configured for the application, reference the instructions included with the kit and modify the configuration. Install the single circuit adaptor kit (if used) in the line side ("on" end) of the circuit breakers. Tighten the lugs securely (45 in-lbs recommended).

Connect the supply wiring to the circuit breaker(s), single circuit adaptor kit, or terminal block. Tighten the lugs securely.

When using multiple supply circuits verify that the supply sized for circuit "A" is connected to the circuit breaker that is connected to the top element assembly.

Install metal circuit breaker line cover on the left side of the circuit breaker to cover the supply wires.

## ELEMENT INSTALLATION

1. Set the thermostat to the lowest temperature setting.
2. Turn off all electrical power to the air handler.
3. Remove the upper access door from the air handler.
4. Remove the screws securing the upper element close-off plate from the back of the air handler control box.
5. Remove the element close-off plate and set the screws aside. Do not discard the screws. **NOTE:** For 2-tiered electric heater kits, remove two close-off plates. For 3-tiered electric heater kits remove all 3 close-off plates.
6. Insert the element assembly into the opening in the air handler control box being careful not to damage the element wire or the ceramic element supports. **NOTE:** Heating element alignment rods will slide into alignment holes in the back of the air handler element box.
7. Secure the element assembly to the back of the air handler control box with the screws removed in step 4.
  - For 15, 20, 24, or 29 kw Heater Kits the AC relay bracket also needs to be installed.
    - a.) Place the AC relay bracket below the bottom element plate so the back edge is behind the element plate.
    - b.) Line up the slot hole on the bracket with the half hole on the element plate. See [Figure 7 \(page 6\)](#).
8. Connect the 2-Pin Power plug from the element assembly into the unit's 2-Pin power plug. Connect the 7-Pin Harness from the element assembly to the unit's circuit board.

**NOTE:** A wiring diagram and a rating label are supplied with the electric heater kit. Affix the wiring diagram to the blower housing.

- When installing the electric heater kit into a standard air handler, affix the supplied rating label over the electrical data section of the air handler unit data label located on the lower access door.
  - When installing the electric heater kit into a variable speed air handler, the rating label supplied with the kit will NOT be used. Check the appropriate block on the air handler ratings label located on the lower access door.
8. Install the circuit breaker bracket inside of the air handler. Position the tab on the bottom of the bracket into the slot of the control panel box. See [Figure 2 \(page 5\)](#) for proper location of bracket.
  9. Slide the bracket forward and align the screw holes with the holes in the bottom of the control panel box. Secure the bracket to the air handler with the supplied screws.

## Electric Heater Kits with Circuit Breakers

**NOTE 1:** Circuit breakers supplied with the H8HK electric heater kit are for short-circuit protection of the internal wiring and to serve as a unit disconnect. They DO NOT provide over-current protection of the supply wiring. Over-current protection of the supply wiring must be provided at the distribution panel and sized as shown in [Table 3 \(page 6\)](#) or the unit data label, and in accordance with the NEC and all applicable local codes.

**NOTE 2:** In some cases, the over-current protection specified in [Table 3](#) (or the unit data label) is less than the 60 amp rating of the circuit breakers used in the H8HK electric heater kit. This difference may occur if the function of the over-current protection required at the distribution panel (field supplied) and the function of the circuit breakers in the H8HK electric heater kit are different.

### 5, 8, & 10 kw Electric Heater Kits

1. Snap the circuit breaker onto the circuit breaker bracket. The circuit breaker must be positioned with the 1/4" tab terminals to the right as shown in [Figure 3 \(page 5\)](#).
2. Remove the lower circuit breaker knockout from the air handler upper access door.

### 15, 20, 24, & 29 kw Electric Heater Kits

**NOTE 1:** The heavy red and black supply leads are bundled by circuit with wire ties at the factory. The bundle coming from the top element tier is circuit "A".

**NOTE 2:** The element assembly is right-side-up when the limits are on the right side). The bundle coming from the second element tier is circuit "B". The bundle coming from the bottom element tier is circuit "C".

1. Snap the circuit breaker onto the circuit breaker bracket. The circuit breaker must be positioned with the 1/4" tab terminals to the right as shown in [Figure 3 \(page 5\)](#).
2. Remove all necessary circuit breaker knockouts in the air handler upper access door.

### 3-Phase 9 & 15 kw electric heater kits

1. Snap the 3-pole circuit breaker onto the circuit breaker bracket. The circuit breaker must be positioned with the 1/4" tab terminals to the right as shown in [Figure 3 \(page 5\)](#).
2. Remove the bottom two circuit breaker knockouts in the air handler upper access door.

### Line Cover

Heater Kits with circuit breakers are supplied with a line cover shown in [Figure 4 \(page 5\)](#). The line cover is required by code in order to protect installers from the line/supply wiring. The line cover should be installed as shown in [Figure 5 \(page 5\)](#).

### **Electric Heater Kits without Circuit Breakers**

1. Attach the supplied power terminal block to the circuit breaker bracket with the supplied screws as shown in [Figure 6 \(page 5\)](#).
2. Using the 1/4" terminals, connect the red supply wire(s) from the element assembly to one pole of the terminal block and connect the black wires to the other pole.

### **Staged Heat**

All Single-phase heater kits are internally staged using B5, B6, HMG and HMB air handler circuit board logic. B5 air handlers may stage the heater kit with a slow or fast timed option. B6 single stage air handlers will not stage the heater kit. B6 two-stage air handlers may stage the heat Kw turned on with either a low or high heat call. All 3-phase heater kits are not equipped for internal staging. Refer to the installation instructions supplied with the air handler for additional staging information.

## **MOTOR SPEED SELECTION**

### **Standard Air Handlers**

The blower speed is preset at the factory for operation at the same speed for heating and cooling, by using the blower motor jumpering terminal on the blower motor and connecting it to the desired speed with both the red and black wires connected to the jumpering terminal. For optimum system performance and comfort, it may be necessary to change the factory set speed. To change the blower speed:

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### **WARNING:**

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**To avoid the risk of electric shock, personal injury, or death, disconnect all electrical power to the unit before performing any maintenance or service. The unit may have more than one electrical power supply.**

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1. Disconnect all electrical power to the unit and remove the upper door.
2. Remove the black and red wires from the blower motor jumping terminal.
3. Connect the heating speed wire (red) and the cooling speed wire (black) to the desired blower speed marked on the terminal block of the blower motor. If needed, re-use the motor jumping terminal.

#### **IMPORTANT NOTE**

**After changing the blower speed setting, make sure to bundle and insulate any unused blower motor leads so that they will not make contact with the air handler cabinet or non-insulated live parts.**

### Standard 3 Speed Motors

Terminal 4 = Hi speed  
Terminal 5 = Med speed  
Terminal 6 = Low speed

### Standard C-Cabinets

Terminal M1 = Low speed  
Terminal M2 = Medium Low speed  
Terminal M3 = Medium speed  
Terminal M4 = Medium Hi speed  
Terminal M5 = Hi speed.

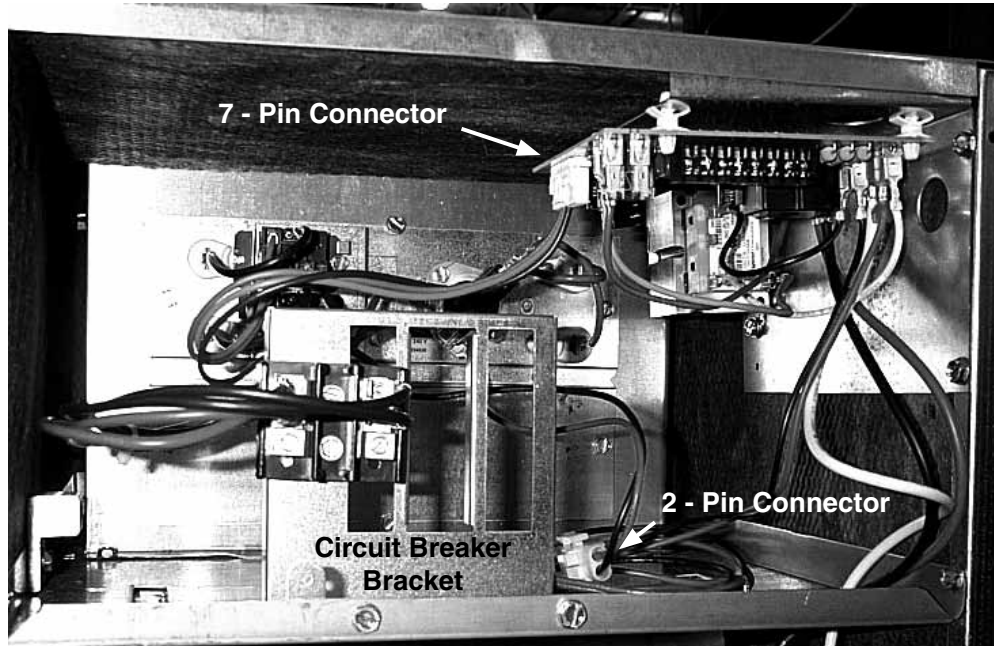
High speed operation may be required when using a 20, 24, or 29 kw electric heater kit in a downflow application. Also see Clearances to Combustibles ([page 3](#)).

4. Replace the upper door and secure it to the unit.
5. Restore power to the unit.

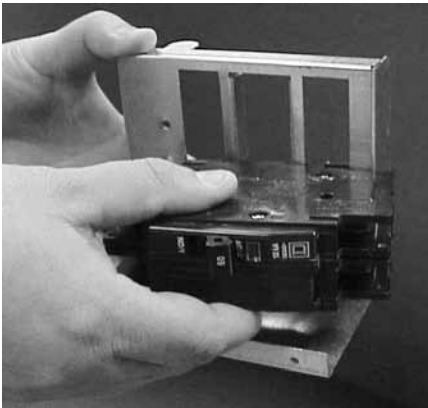
### **Variable Speed Air Handlers**

The minimum electric heat airflow is selected by setting switches on the air handler circuit board. Selecting the minimum electric heat airflow sets the minimum air flow that will be produced whenever electric heater kits are energized. When the electric heater kits are energized along with a heat pump, the airflow may be higher depending on the basic cooling/heat-pump airflow setting. Reference the installation instructions supplied with the air handler for additional airflow information.

## FIGURES & TABLES



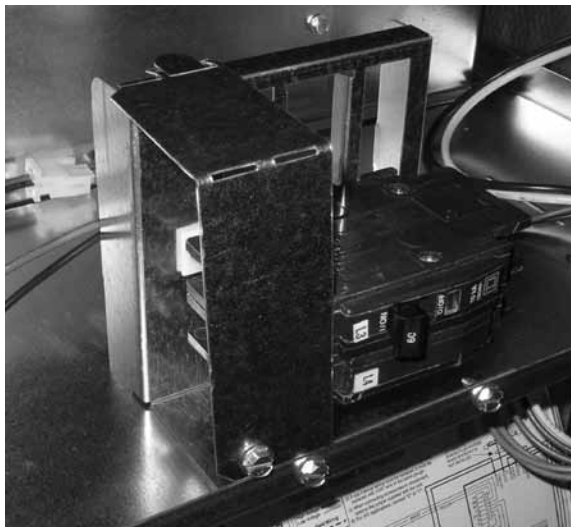
**Figure 2. Sample Installation  
(shown with access door removed)**



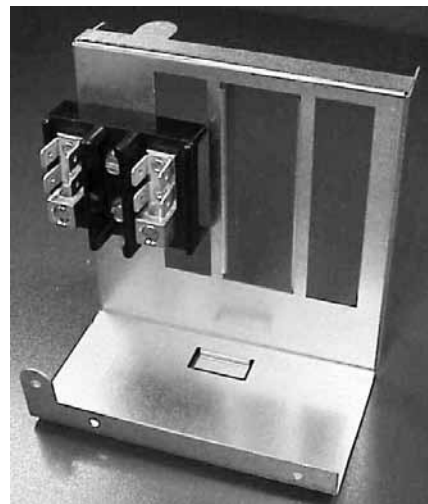
**Figure 3. Installation of Circuit Breakers**



**Figure 4. Line Cover**



**Figure 5. Line Cover Installed**



**Figure 6. Circuit Breaker Bracket with  
Terminal Block Installed**



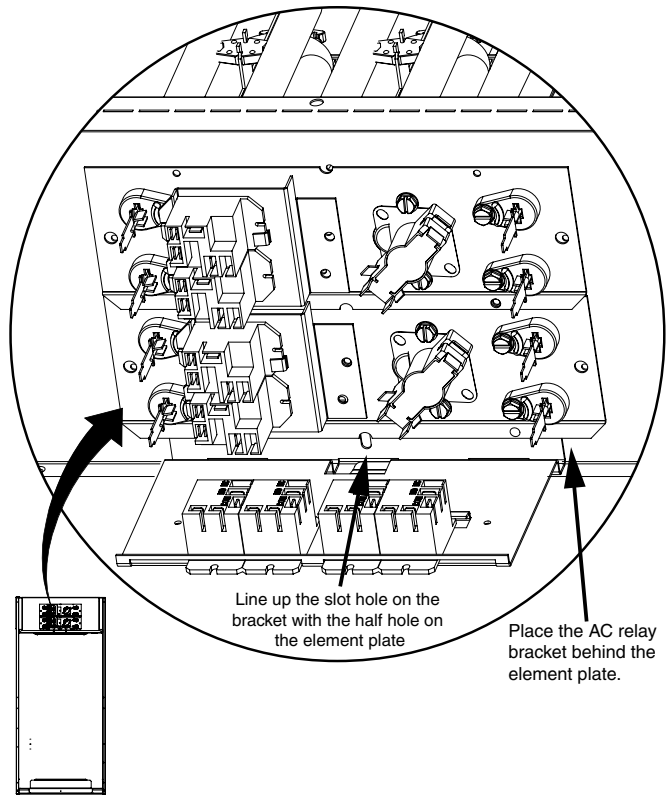
MODEL H8HK-	CABINET SIZE			MINIMUM REQUIRED BLOWER HEATING SPEED		
	A	B	C	UPFLOW	HORIZONTAL	DOWNFLOW
005H	X	X	X	LOW	LOW	LOW
008H	X	X	X	LOW	LOW	LOW
010H	X	X	X	LOW	LOW	LOW
015H	X	X	X	LOW	LOW	MED
020H		X	X	LOW	LOW	HIGH
024H		X	X	MED	MED	HIGH
029H			X	MED	MED	N/A
009Q		X	X	LOW	LOW	LOW
015Q		X	X	LOW	LOW	MED

(1) Only on \*30 (2.5 Ton) model air handlers

**Table 1. Blower Heating Speed**

MODEL	CABINET SIZE
H(M,C)G024	A
H(M,C)G030	A
H(M,C)G036	B
H(M,C)G042	B
H(M,C)G048	C
H(M,C)G060	C

**Table 2. HMG Cabinet Sizes**



**Figure 7. H8HK Heater Kit Installation**

MODEL NUMBER H8HK-	VOLTAGE	KW	STANDARD AIR HANDLER (A & B SIZE)								VARIABLE SPEED & STANDARD AIR HANDLER (C SIZE)							
			MINIMUM CIRCUIT AMPACITY				MAX. OVER-CURRENT CIRCUIT AMPACITY				MINIMUM CIRCUIT AMPACITY				MAX. OVER-CURRENT CIRCUIT AMPACITY			
			CIRCUIT A	CIRCUIT B	CIRCUIT C	SINGLE CIRCUIT	CIRCUIT A	CIRCUIT B	CIRCUIT C	SINGLE CIRCUIT	CIRCUIT A	CIRCUIT B	CIRCUIT C	SINGLE CIRCUIT	CIRCUIT A	CIRCUIT B	CIRCUIT C	SINGLE CIRCUIT
005H-XX	240	4.8	-	-	-	30	-	-	-	30	-	-	-	34	-	-	-	40
008H-XX	240	7.5	-	-	-	45	-	-	-	50	-	-	-	48	-	-	-	50
010H-XX	240	9.6	-	-	-	55	-	-	-	60	-	-	-	59	-	-	-	60
015H-XX	240	14.4	55	25	-	80	60	30	-	90	59	25	-	83	60	30	-	90
020H-XX	240	19.2	55	50	-	105	60	60	-	125	59	50	-	109	60	60	-	125
024H-XX	240	24.0	-	-	-	-	-	-	-	-	59	50	25	134	60	60	30	150
029H-XX	240	28.8	-	-	-	-	-	-	-	-	59	50	50	159	60	60	60	175
005H-XX	208	3.6	-	-	-	27	-	-	-	30	-	-	-	30	-	-	-	40
008H-XX	208	5.6	-	-	-	39	-	-	-	40	-	-	-	42	-	-	-	50
010H-XX	208	7.2	-	-	-	48	-	-	-	50	-	-	-	52	-	-	-	60
015H-XX	208	10.8	48	21	-	70	50	25	-	80	52	22	-	73	60	25	-	80
020H-XX	208	14.4	48	43	-	92	50	50	-	100	52	43	-	95	60	50	-	100
024H-XX	208	18.0	-	-	-	-	-	-	-	-	52	43	22	117	60	50	25	125
029H-XX	208	21.6	-	-	-	-	-	-	-	-	52	43	43	138	60	50	50	150
009Q-XX	240	9.0	-	-	-	32	-	-	-	40	-	-	-	36	-	-	-	40
015Q-XX	240	14.4	-	-	-	48	-	-	-	50	-	-	-	52	-	-	-	60
009Q-XX	208	6.8	-	-	-	29	-	-	-	30	-	-	-	32	-	-	-	40
015Q-XX	208	10.8	-	-	-	43	-	-	-	50	-	-	-	46	-	-	-	50

**Table 3. Electrical Ratings**

# Wiring Diagrams

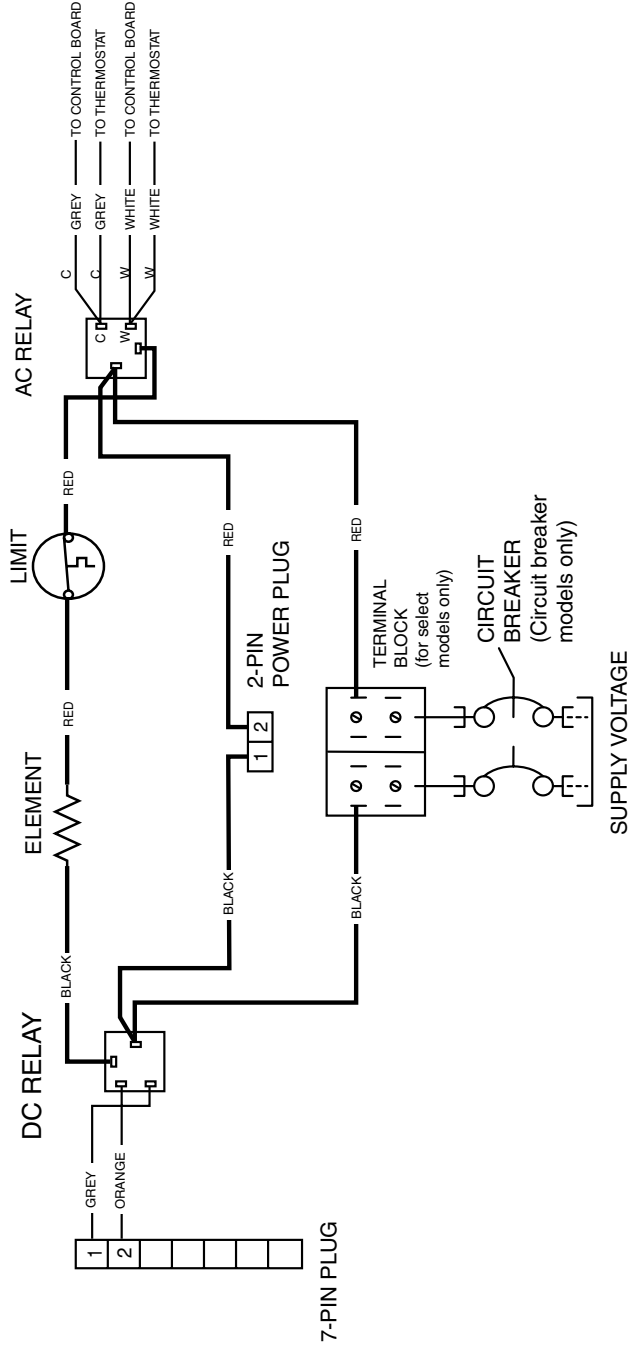
## WIRING DIAGRAM

3 kW, 5 kW, 1-Phase Electric Heater Kit

H8HK005H-01  
H8HK005H-11

**NOTES:**

1. If any of the original wire supplied with this unit must be replaced, it must be replaced with wiring material of the same gauge size and temperature rating.
2. The installation of this heater kit may require a change in the blower speed tap connection. See installation instructions for details.
3. Use copper conductors with a minimum temperature rating of 60°C for supply connections.



**LEGEND:**



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**Figure 8. Single Phase, 3kW & 5 kw W.D.  
(Air Handler with Circuit Breaker(s))**

# WIRING DIAGRAM

**NOTES:**

1. If any of the original wire supplied with this unit must be replaced, it must be replaced with wiring material of the same gauge size and temperature rating.
2. The installation of this heater kit may require a change in the blower speed tap connection. See Installation instructions for details.
3. Use copper conductors with a minimum temperature rating of 60°C for supply connections.

H8HK008H-01 (without circuit breaker) 8kW, 10kW, 1-Stage, 240 VAC, 1-Phase Electric Heater Kit  
 H8HK008H-11 (with circuit breaker)  
 H8HK010H-11 (with circuit breaker)  
 H8HK010H-01 (without circuit breaker)

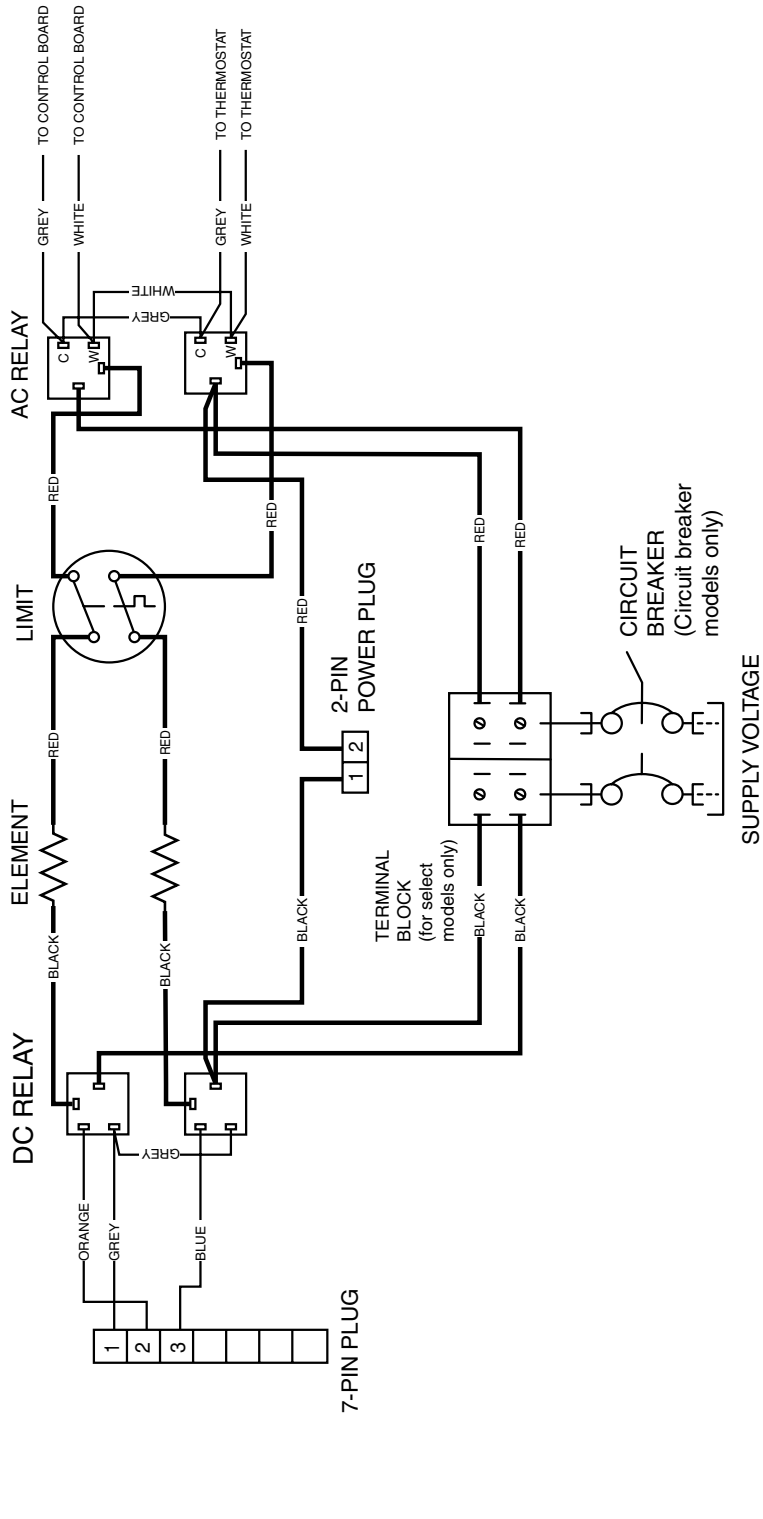


Figure 9. Single Phase, 8kw & 10 kw W.D.  
(Air Handler with Circuit Breaker(s))

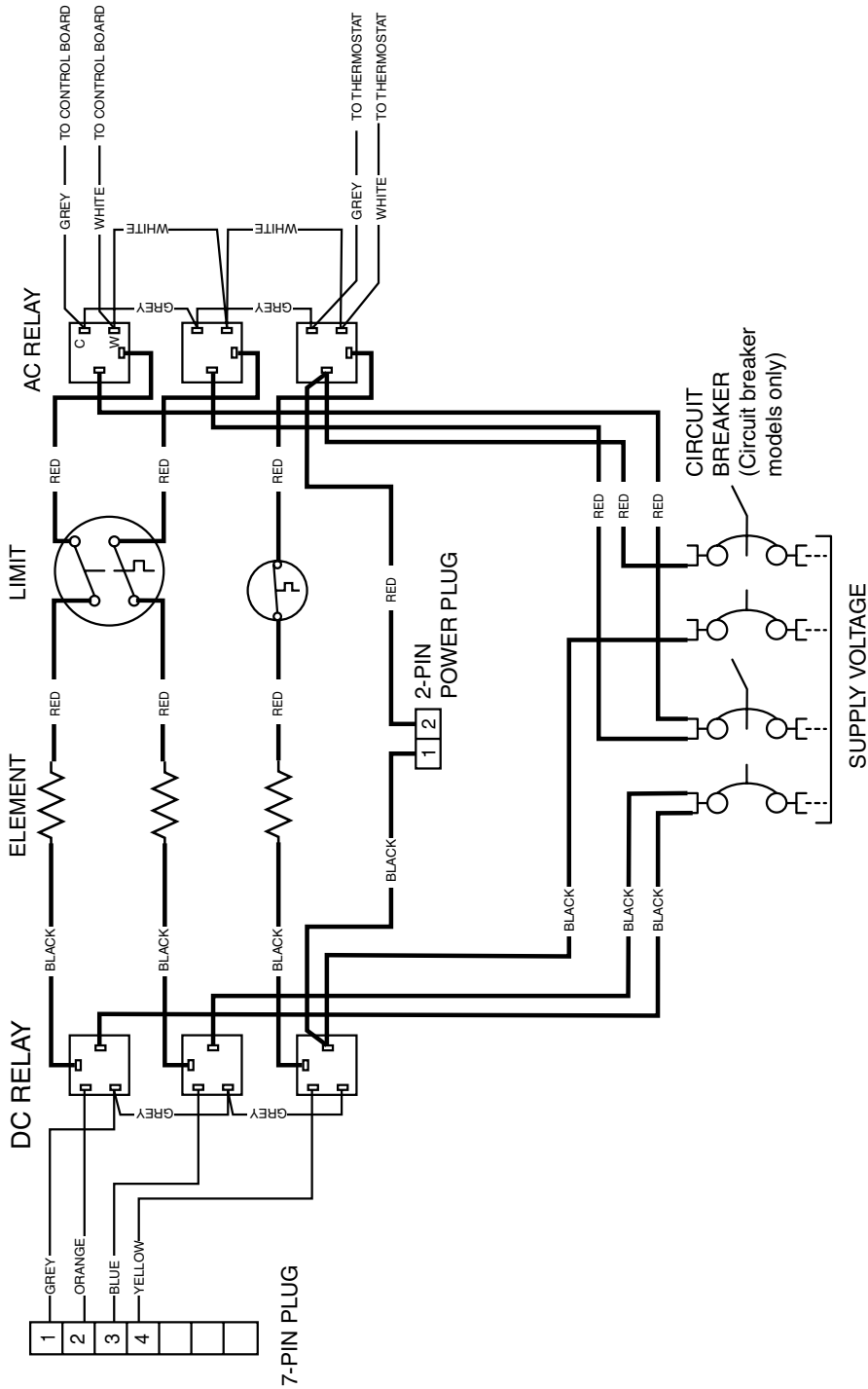


# WIRING DIAGRAM

15kW, 240 VAC, 1-Phase Electric Heater Kit

H8HK015H-21 (with circuit breaker)

- NOTES:**
1. If any of the original wire supplied with this unit must be replaced, it must be replaced with wiring material of the same gauge size and temperature rating.
  2. The installation of this heater kit may require a change in the blower speed tap connection. See Installation Instructions for details.
  3. Use copper conductors with a minimum temperature rating of 60°C for supply connections.



LEGEND:



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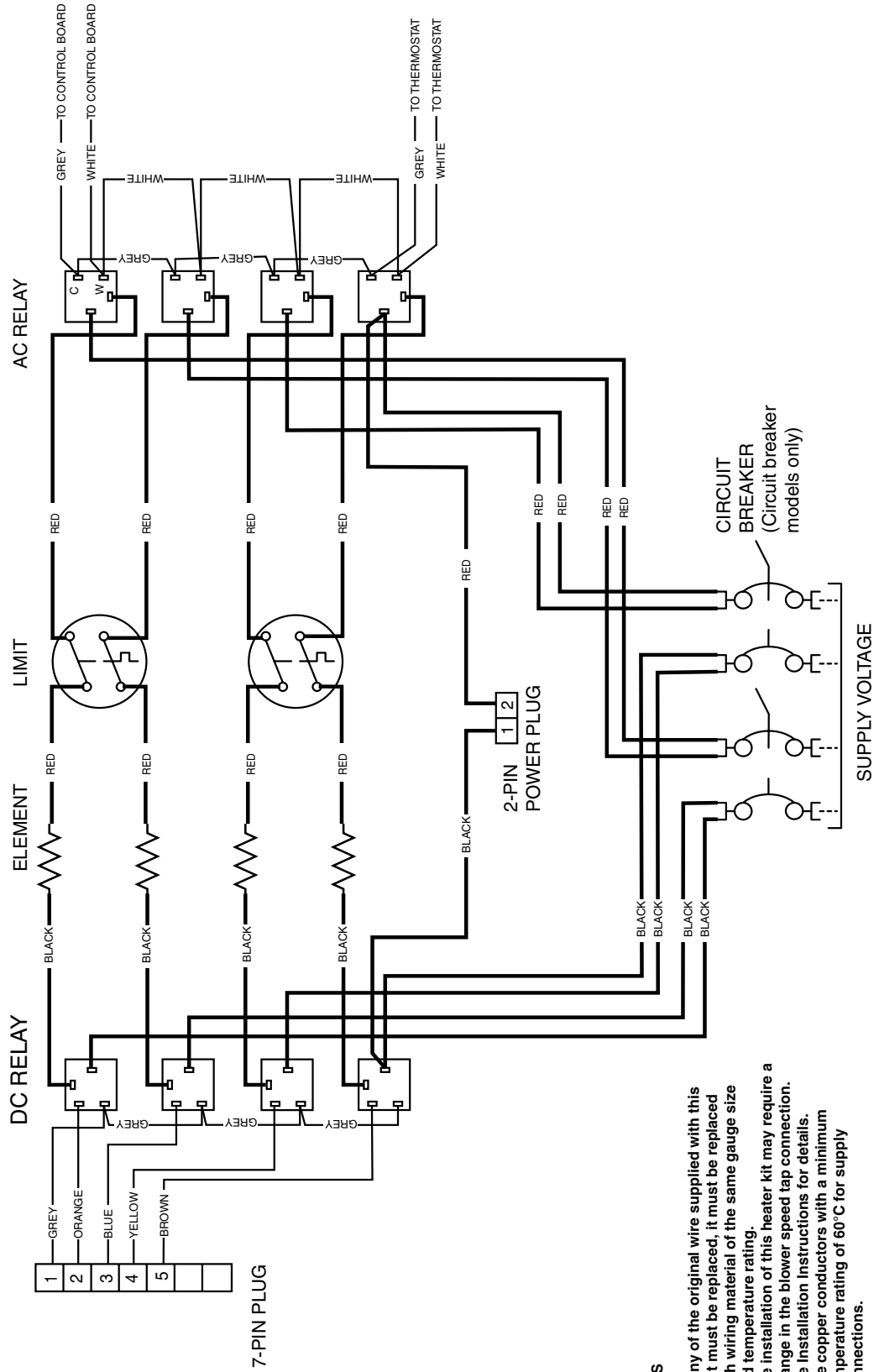


Figure 10. Single Phase, 15 kw W.D.  
 (Air Handler with Circuit Breaker(s))

# WIRING DIAGRAM

H8HK020H-21

20 kW, 240 VAC, 1-Phase Electric Heater Kit



## NOTES

1. If any of the original wire supplied with this unit must be replaced, it must be replaced with wiring material of the same gauge size and temperature rating.
2. The installation of this heater kit may require a change in the blower speed tap connection. See Installation Instructions for details.
3. Use copper conductors with a minimum temperature rating of 60°C for supply connections.

## LEGEND:

FIELD WIRING - - - - -  
 LOW VOLTAGE - - - - -  
 HIGH VOLTAGE - - - - -



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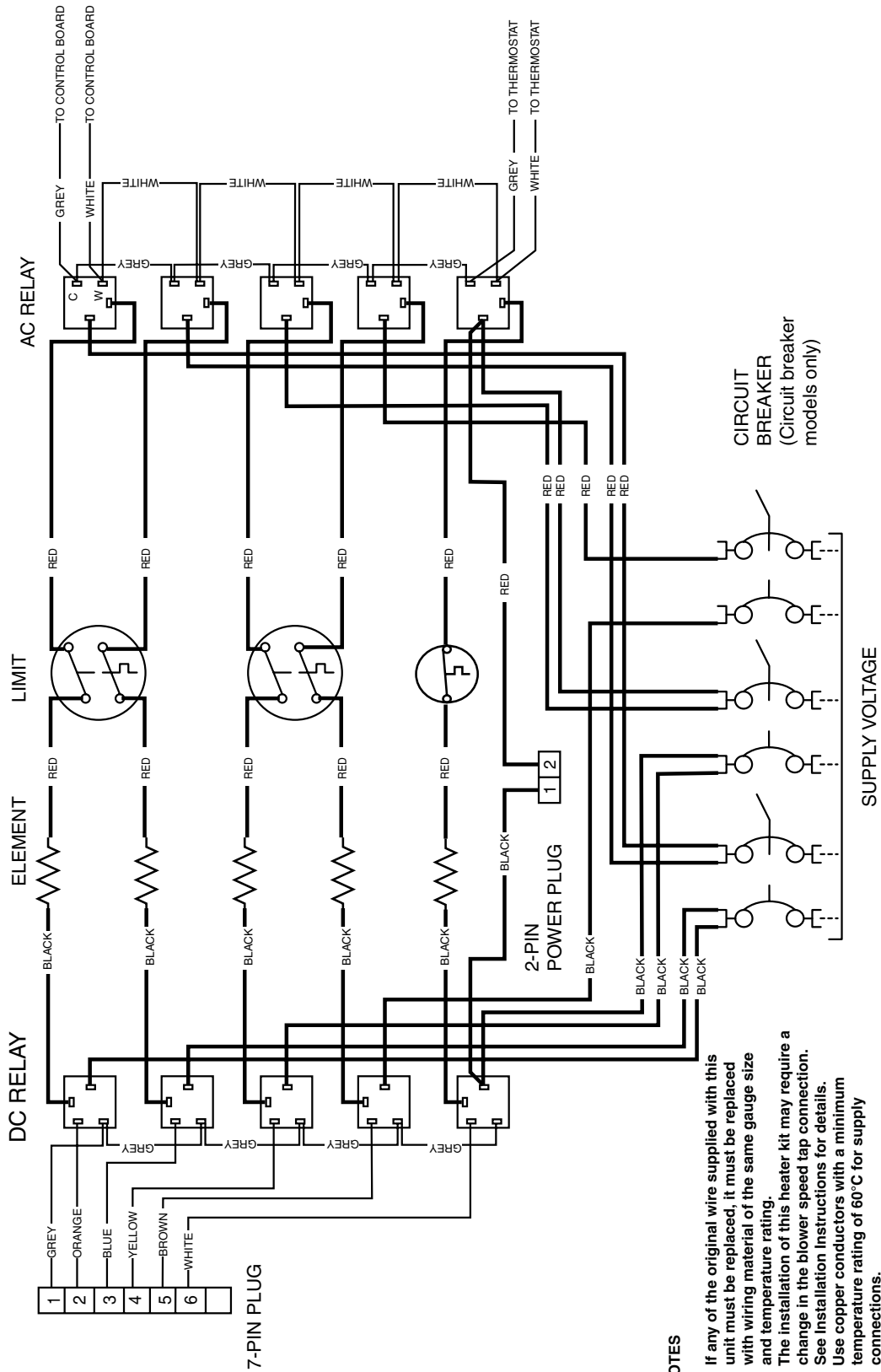
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Figure 11. Single Phase, 20 kw WD  
 (Air Handler with Circuit Breaker(s))

# WIRING DIAGRAM

H8HK024H-31 (with circuit breaker)

25kW , 240 VAC, 1-Phase Electric Heater Kit



## NOTES

1. If any of the original wire supplied with this unit must be replaced, it must be replaced with wiring material of the same gauge size and temperature rating.
2. The installation of this heater kit may require a change in the blower speed tap connection. See Installation Instructions for details.
3. Use copper conductors with a minimum temperature rating of 60°C for supply connections.

## LEGEND:



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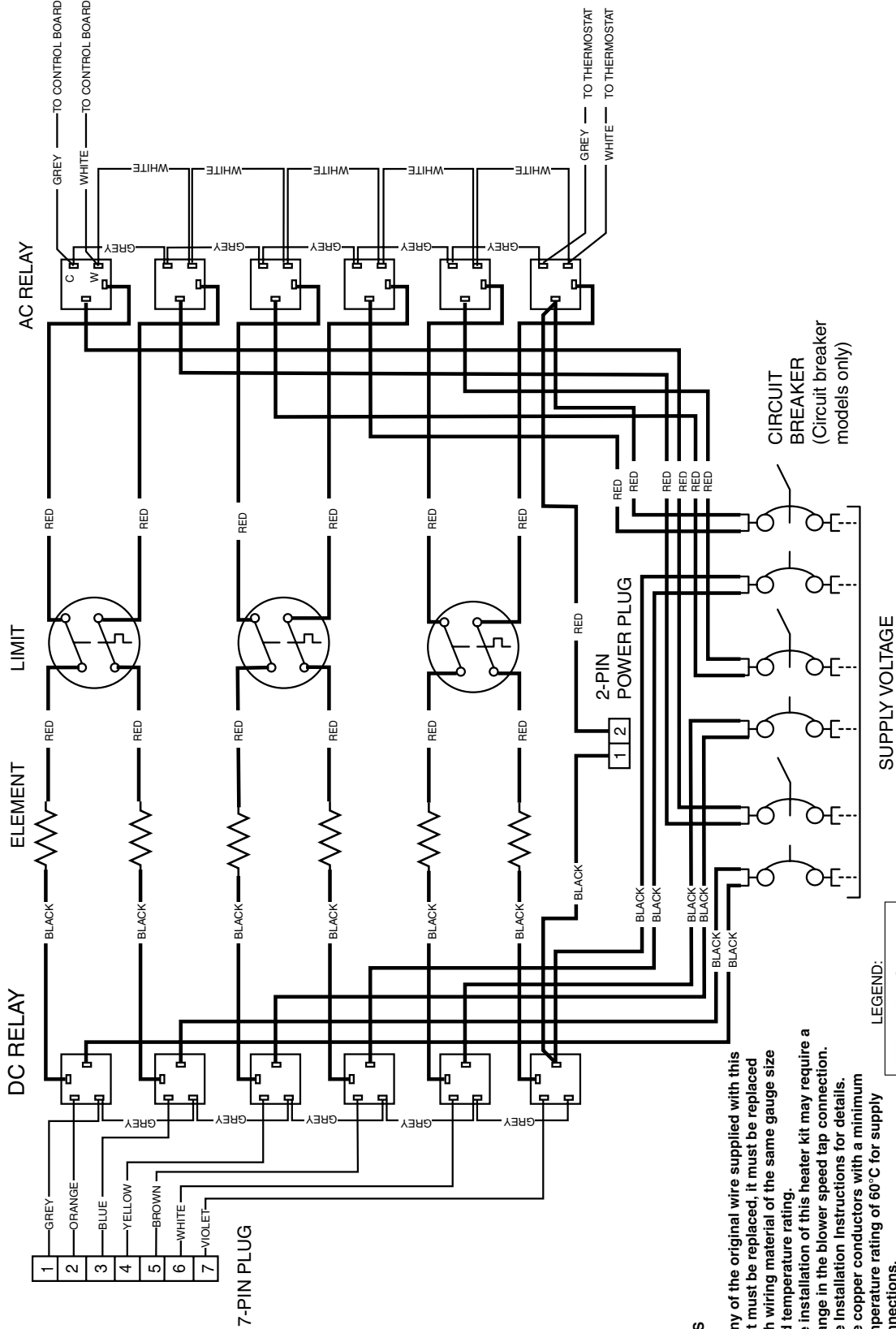
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Figure 12. Single Phase, 25 kw WD (Air Handler with Circuit Breaker(s))

# WIRING DIAGRAM

H8HK029H-31 (with circuit breaker)

30kW , 240 VAC, 1-Phase Electric Heater Kit



- NOTES**
1. If any of the original wire supplied with this unit must be replaced, it must be replaced with wiring material of the same gauge size and temperature rating.
  2. The installation of this heater kit may require a change in the blower speed tap connection. See Installation Instructions for details.
  3. Use copper conductors with a minimum temperature rating of 60°C for supply connections.



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Figure 13. Single Phase, 30 kw W.D. (Air Handler with Circuit Breaker(s))









**INSTALLER: PLEASE LEAVE THESE INSTALLATION  
INSTRUCTIONS WITH THE HOMEOWNER**

