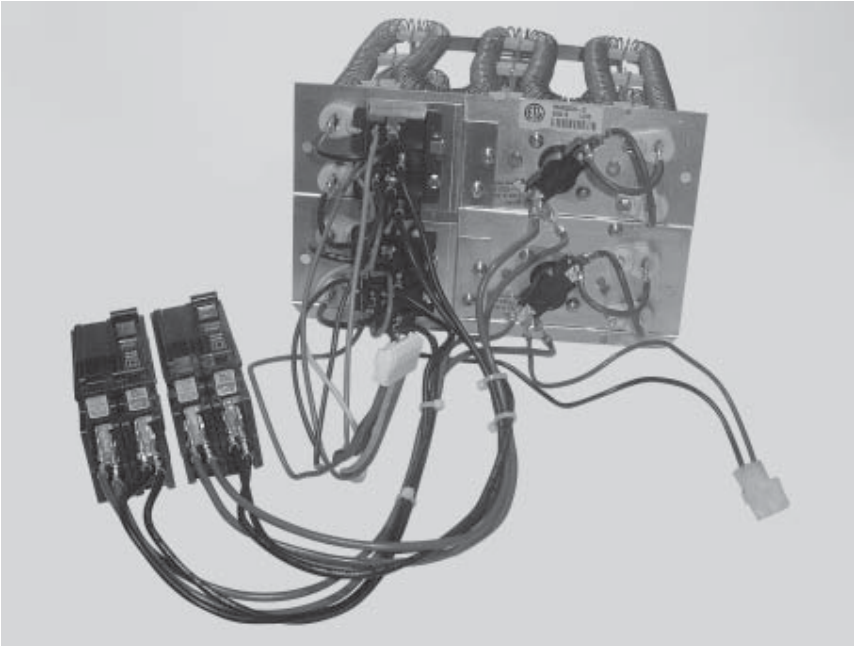
H6HK Series

Installation Instructions

Electric Heater Kits
Installation in Standard and Variable Speed Indoor Air Handlers



⚠ IMPORTANT:

The instructions included with this heater kit are for installations in air handlers only.

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 of equipment. All installations must be in accordance with these instructions and with all applicable national and local codes and standards.

Before beginning the installation, read these instructions thoroughly and follow all warnings and cautions in the instructions and on the unit.

Improper installation, service, adjustment, or maintenance can cause explosion, fire, electrical shock, or other conditions which may result in personal injury or property damage. Unless otherwise noted in these instructions, only factory authorized kits or accessories may be used when modifying this product.

INTRODUCTION

The H6HK Series of electric heater kits are approved for field installation in B5 air handlers and variable speed air handlers. All sizes are available with factory-provided circuit-breakers for short circuit protection and to provide a disconnecting means. Also available are 5, 8, and 10 kw electric heater kits without circuit-breakers. Refer to the National Electric Code (ANSI/NFPA 70) and applicable local codes for over-current protection and disconnect requirements.

Note: The 20, 25, and 30 kw electric heater kits are **Not Approved** for installation in A-cabinet air handlers. Reference **Table 2** for all Heater Kit applications.

Note: These instructions are written assuming the air handler is in the upflow position (with the outlet facing up). For horizontal and downflow applications, it is recommended that the electric heater kit be installed prior to installation of the air handler.

⚠ WARNING:

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.

AIR HANDLER ELECTRICAL SUPPLY

All wiring must be in compliance with the National Electric Code and applicable 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 B5 air handler the supply wiring can be aluminum or copper since the circuit breakers and terminal blocks supplied are approved for either wire type. Be sure to follow all of the rating information on the circuit breaker or terminal block and ensure 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 1** for minimum circuit ampacities and maximum overcurrent protection.

All electric heater kits of 10 kw or less are supplied from the factory configured for use with a single supply circuit. Electric heater kits greater than 10 kw are supplied from the factory configured for use with two supply circuits. See the ratings label or **Table 1** for individual circuit ampacities and over-current protection ratings. If a single supply is desired, accessory kit #913874 is required to convert to single circuit connection.

INSTALLATION

Remove the upper access door from the air handler. Remove the circuit breaker bracket and cover package from the heater kit.

Remove the top-most element Close-off Plate from the back of the air handler control box. For two-tiered electric heater kits remove both Close-off Plates. For three-tiered electric heater kits remove all three Close-off Plates.

Installation into Air Handler, All Heater Kits
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. Heating element alignment rod(s) will slide into alignment holes in the back of the air handler element box. Secure the element assembly to the back of the air handler control box with the screws removed when removing the element close-off plate(s).

For 25 kw and 30 kw Heater Kits, attach the Auxiliary circuit board bracket to the lower right side of the installed Heater Kit Assembly with two screws that were removed from the element close-off plate(s). Snap on the Auxiliary circuit board as shown below**.**

Note: on some units a shipping bracket must be removed before installing the circuit breaker bracket.

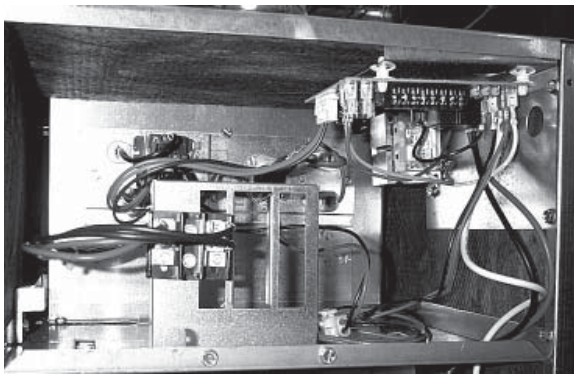


Figure 1. Sample Installation.
Shown without access door.

Install the circuit-breaker bracket **(See Figure 1).** 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. For 25 kw and 30 kw Heater Kits, also attach the 4-Pin and 3-Pin Harnesses to the Auxiliary circuit board.

Model Number H6HK-	Voltage	KW	Standard Air Handler (A & B size)								Variable Speed & Std Air Handler (C size)							
			Min. Circuit Ampacity				Max. Over-Current Protection				Min. Circuit Ampacity				Max. Over-Current Protection			
			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
025H-XX	240	24.0	-	-	-	-	-	-	-	-	59	50	25	134	60	60	30	150
030H-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
025H-XX	208	18.0	-	-	-	-	-	-	-	-	52	43	22	117	60	50	25	125
030H-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 1. Electrical Ratings

A wiring diagram and a ratings label are supplied with the electric heater kit. Attach the wiring diagram to the Blower Housing.

When installing the electric heater kit into a standard air handler, attach the rating label (included with the electric heater kit) on the air handler unit data label (located on the lower access door) over the electrical data section.

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 additional ratings label located on the lower access door.

⚠ WARNING:

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

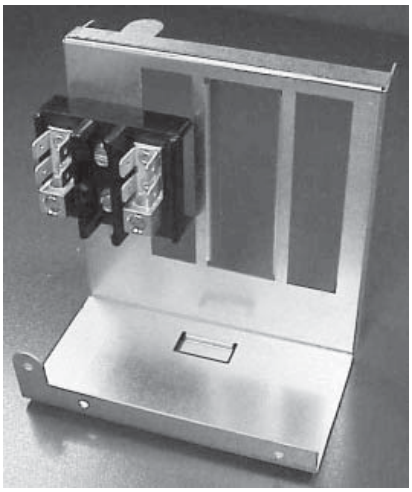


Figure 2. Circuit Breaker Brackets. Shown with Line Cover Removed and Terminal Block Installed.

Electric Heater Kits without Circuit Breakers — Attach the supplied power terminal block to the circuit-breaker bracket with the supplied screws as shown in **Figure 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.

Figure 3. Line Cover

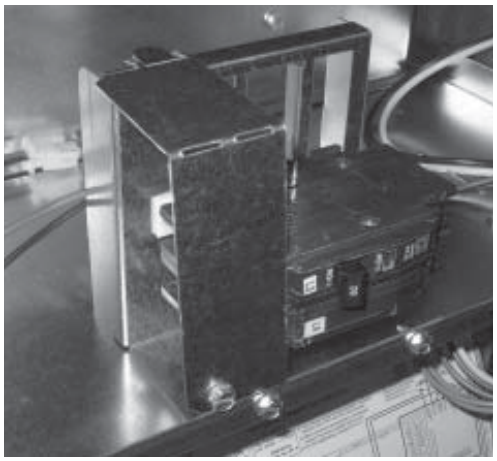


Figure 4. Line Cover Installed

Electric Heater Kits with Circuit Breakers — NOTE : Circuit breakers supplied with the H6HK electric heater kits are for short-circuit protection of the internal wiring and to serve as a unit disconnect. Circuit breakers supplied with the H6HK electric heater kits 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 1** or on the unit data label and per the NEC and applicable local codes. In some cases the over-current protection specified in **Table 1** or on the unit data label is less than the 60 amp rating of the circuit breakers used in the H6HK electric heater kits. This is because the function of the over-current protection required at the distribution panel (field supplied) and the function of the circuit breakers in the H6HK electric heater kit is different.

Heater Kits with circuit breakers are supplied with a line cover shown in **Figure 3**. 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 4.**

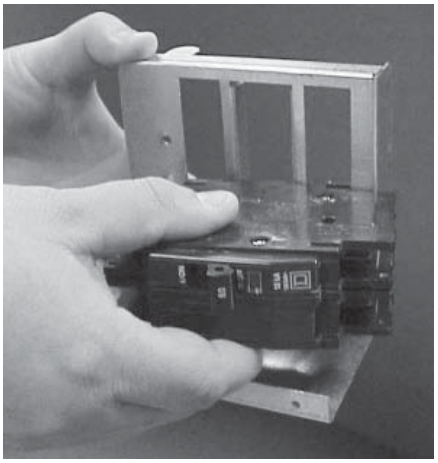


Figure 5. Installation of Circuit Breakers

5, 8, and 10 kw electric heater kits supplied with a circuit breaker.

Snap the circuit breaker on to the circuit breaker bracket as shown in **Figure 5**. The orientation of the circuit breaker must be as shown. (Side with 1/4" terminals to the right).

Remove the lower circuit breaker knockout from the air handler upper access door.

15, 20, 25, and 30 kw electric heater kits supplied with circuit breakers.

Snap the circuit breakers on to the circuit breaker bracket as shown in **Figure 5**. The orientation of the circuit breakers must be as shown in **Figure 1**. (Side with 1/4" terminals to the right).

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:** 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".

Remove all necessary circuit breaker knockouts in the air handler upper access door.

3-Phase 9 and 15 kw electric heater kits supplied with a circuit breaker.

Snap the 3-pole circuit breaker on to the circuit breaker bracket as shown in **Figure 5**. The orientation of the circuit breaker must be as shown. (Side with 1/4" terminals to the right).

Remove all circuit breaker knockouts in the air handler upper access door.

STAGING

All Single-phase heater kits are internally staged using the B5 Air Handler Circuit Board logic. Reference B5 Air Handler Installation Instructions for "slow" or "fast" staging options. All Three-phase heater kits are not equipped for internal staging.

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 1**.

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.

Note; on 3-phase heater kit installations after the air handler door has been attached to the unit, install the circuit breaker close-off to the opening in the door just above the circuit breaker.

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, disconnect all electrical power to the unit and remove the upper door. Remove the black and red wires from the blower motor jumpering terminal. Discard the blower motor jumpering terminal.

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. On standard 3 speed motors terminal 4 = Hi speed, terminal 5 = Med speed and terminal 6 = Low speed. Standard C cabinet units are equipped with 5 selectable blower speeds. Terminal 1=Low speed, terminal 2=Medium Low speed, terminal 3=Medium speed, terminal 4=Medium Hi speed and terminal 5=Hi speed.

IMPORTANT: After making any changes to the blower speed setting be sure to bundle and insulate any unused blower motor leads so that they will not come in contact with the air handler cabinet or non-insulated live parts.

High speed operation may be required when using a 20, 25, and 30 kw electric heater kit in a downflow application. (See Clearance section.)

Replace the upper door and secure it to the unit. 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 variable speed air handler installation instructions for further details.

CLEARANCE

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. For **horizontal** and **upflow** configuration, air handlers equipped with 20, 25, and 30 kw electric heater kits are approved for installation with zero clearance to combustibles at any blower speed. When using a 20, 25 kw electric heat kit in a **downflow** installation, the blower **MUST** be set for high speed for both heating and cooling.

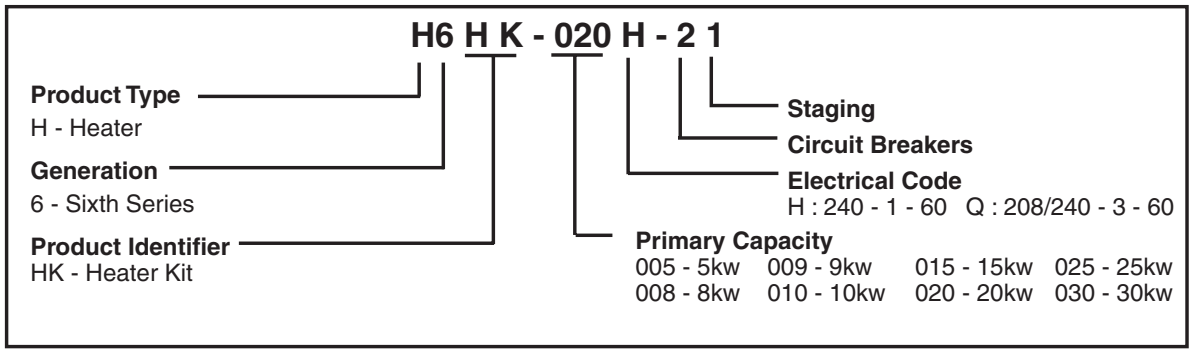
Variable Speed Air Handlers — All installations of H6HK electric heater kits in variable speed air handlers are approved for zero-clearance to combustibles when the minimum electric heat airflow is set as directed in these instructions.

Model H6HK	Applicable Cabinet Size			Minimum Required Blower Heating Speed		
	A	B	C	Up-Flow	Horizontal	Down-Flow
005H	X	X	X	LOW	LOW	LOW
008H	X	X	X	LOW	LOW	LOW
010H	X	X	X	LOW	LOW	LOW
015H	(1)*X	X	X	LOW	LOW	MED
020H		X	X	LOW	LOW	HIGH
025H		X	X	MED	MED	HIGH
030H			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 2. Blower Heating Speed

MODEL IDENTIFICATION



REPLACEMENT PARTS LIST
H6HK Heater Kits

Model H6HK													
No.	**Component Description**	**005H-01**	**005H-11**	**008H-01**	**008H-11**	**009Q-11**	**010H-01**	**010H-11**	**015H-21**	**015Q-11**	**020H-21**	**025H-31**	**030H-31**
1	Set of Wires	288351R	288351R	288361R	288361R	291531R	288361R	288361R	288371R	291531R	288381R	289011R	288391R
2	Harness, Low Voltage	634664	634664	634665	634665	634665	634665	634665	634666	634665	634667	634668	634668
	Element Assy	491214R	491214R	491226R	491226R	491216R	491225R	491225R	491214R	491214R	491225R	491214R	491225R
3	Element Assy					491227R			491225R	491225R		491225R	
4	Relay	622210	622210	622210	622210	622210	622210	622210	622210	622210	622210	622210	622210
	Limit Switch	626487	626487	626458	626458	626458	626458	626458	626458	626458	626458	626458	626458
5	Limit Switch								626487			626487	
6	Terminal Block	631762		631762			631762						
7	Line Cover	257442	257442	257442	257442	257442	257442	257442	257442	257442	257442	257443	257443
8	Bracket, Circuit Breaker	284861	284861	284861	284861	284861	284861	284861	284861	284861	284861	284862	284862
9	Circuit Breaker		632249		632249	632225		632249	632249	632225	632249	632249	632249
10	Harness, 2 Pin Power	288861R	288861R	288861R	288861R		288861R	288861R	288861R		288861R	288861R	288861R
11	Harness, 3 Pin											634670	634671
12	Bracket, Circuit Board											289841	289841
13	Circuit Board											624664	624664
14	Contactor					621888				621888			
15	Relay Bracket	288621	288621	288621	288621	288621	288621	288621	288621	288621	288621	288621	288621
16	Cover Plate, Limit hole					292211				292211			

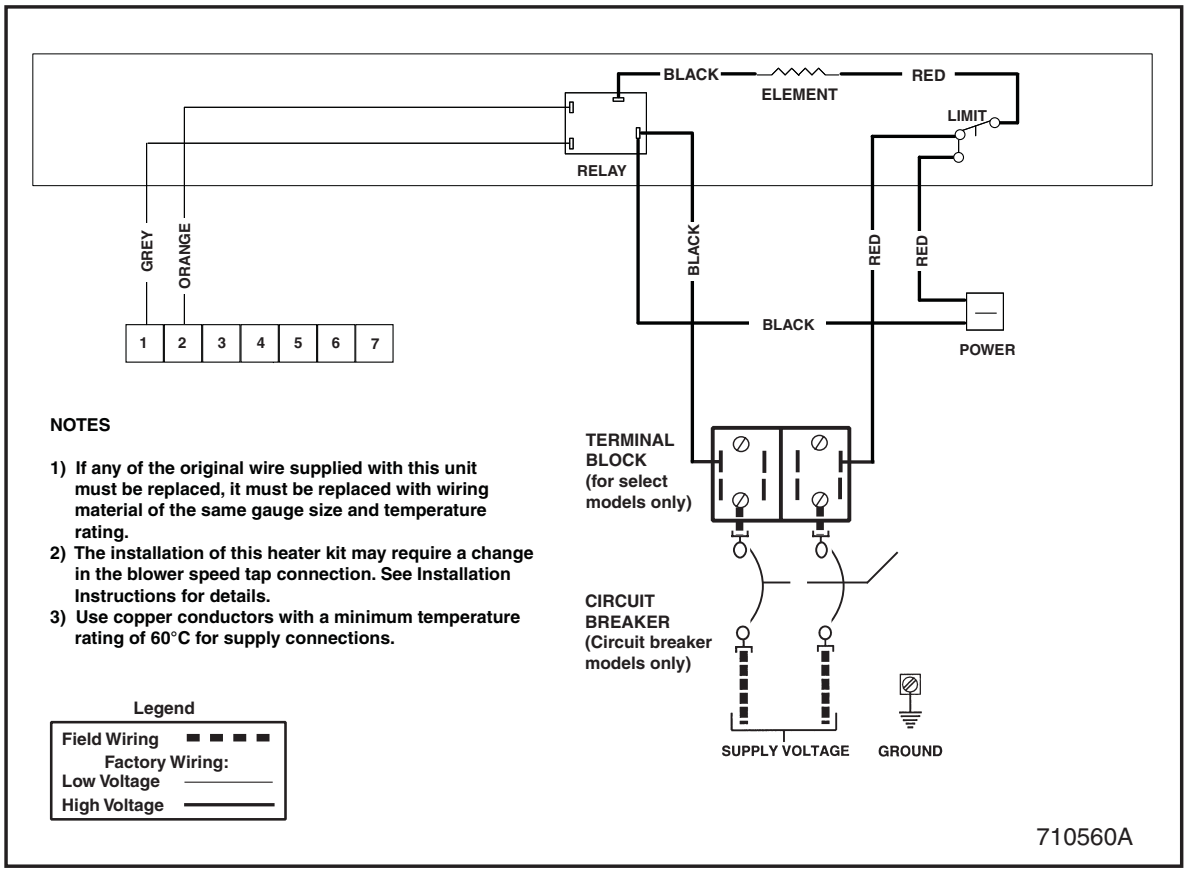


Figure 4. Typical System Wiring Diagram
H6HK, 5 kw 1-stage with circuit breaker

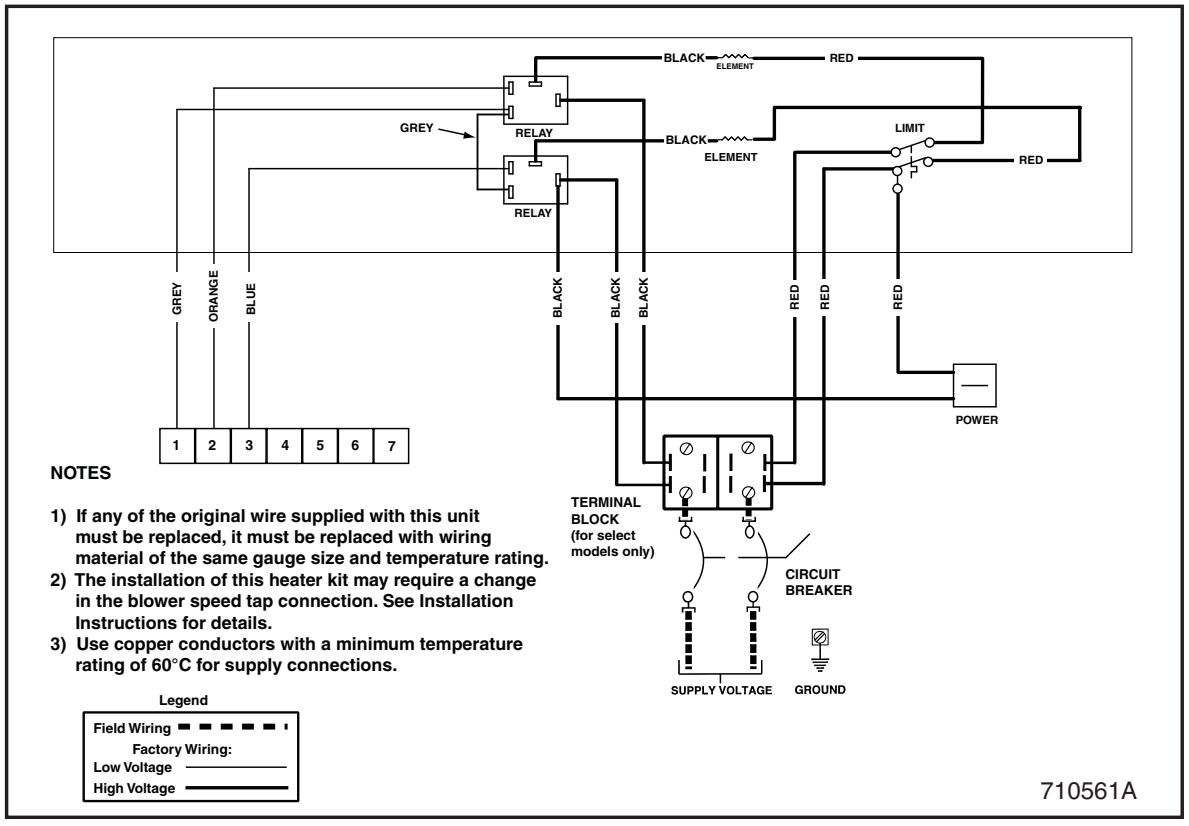
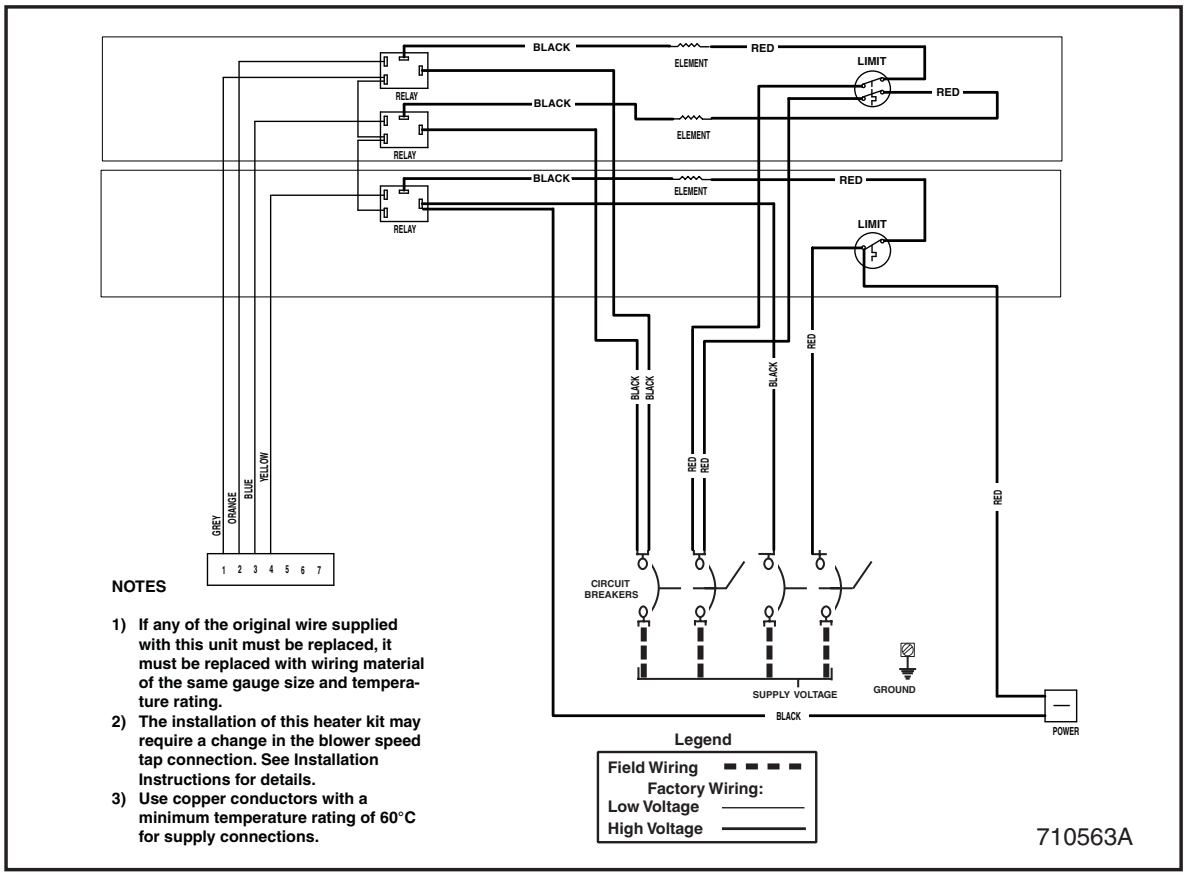


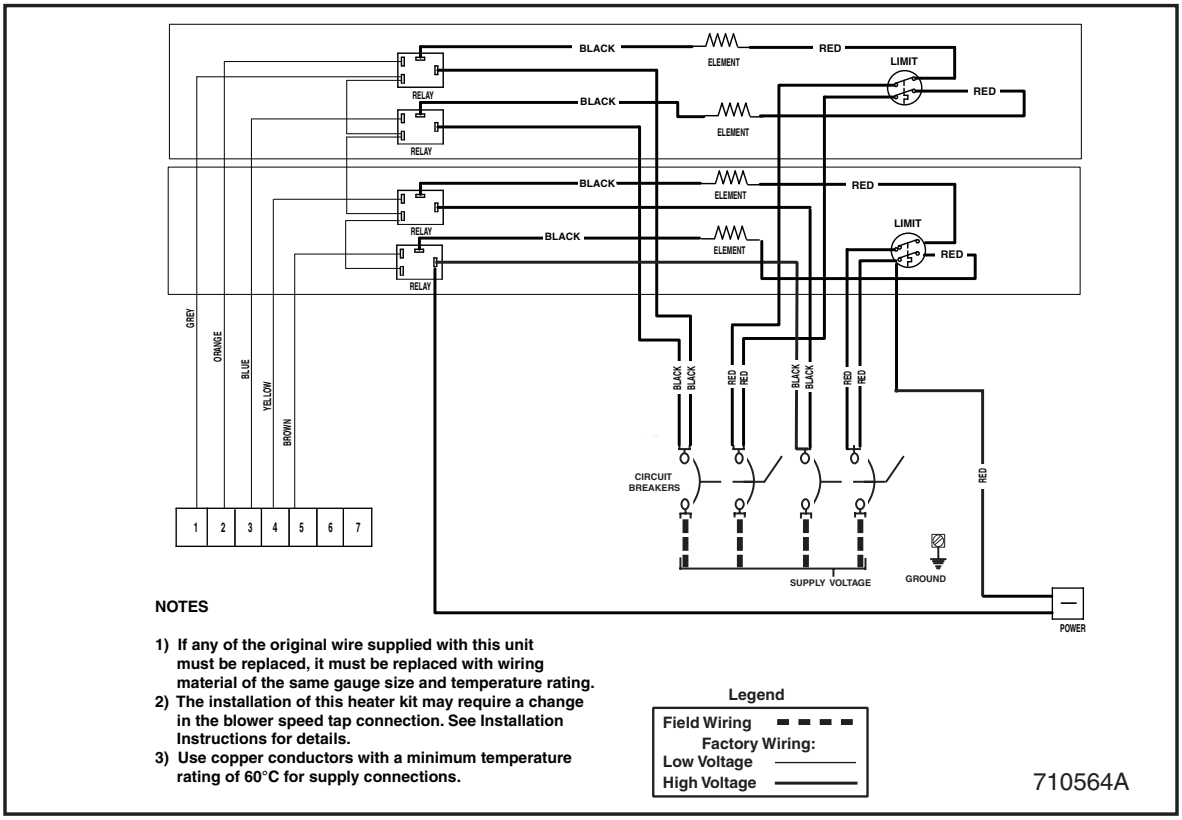
Figure 5. Typical System Wiring Diagram
H6HK, 8/10 kw 1-stage with circuit breaker



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.

Figure 6. Typical System Wiring Diagram
15 kw 1-stage with circuit breakers



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.

Figure 7. Typical System Wiring Diagram
20 kw 1-stage with circuit breakers

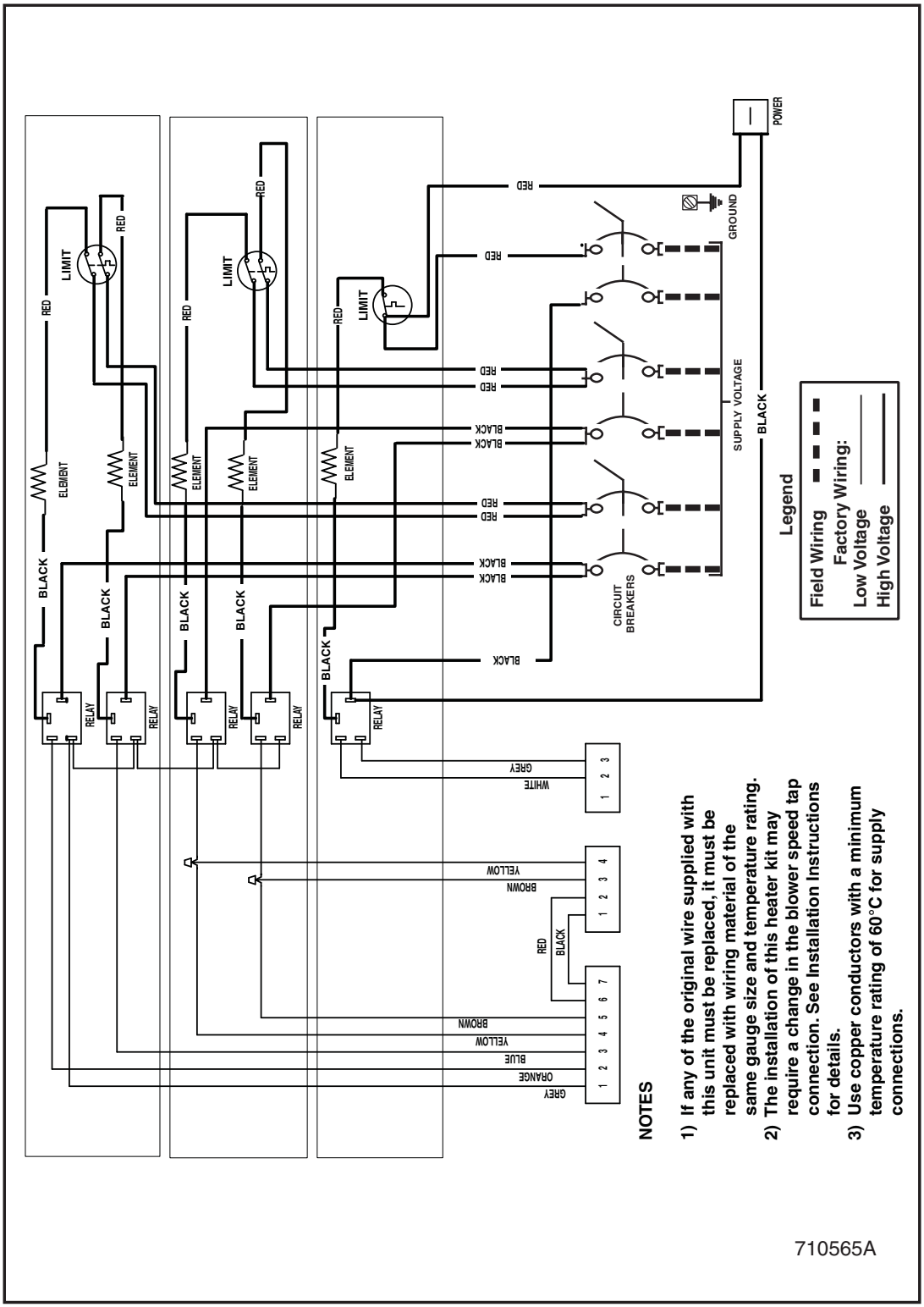
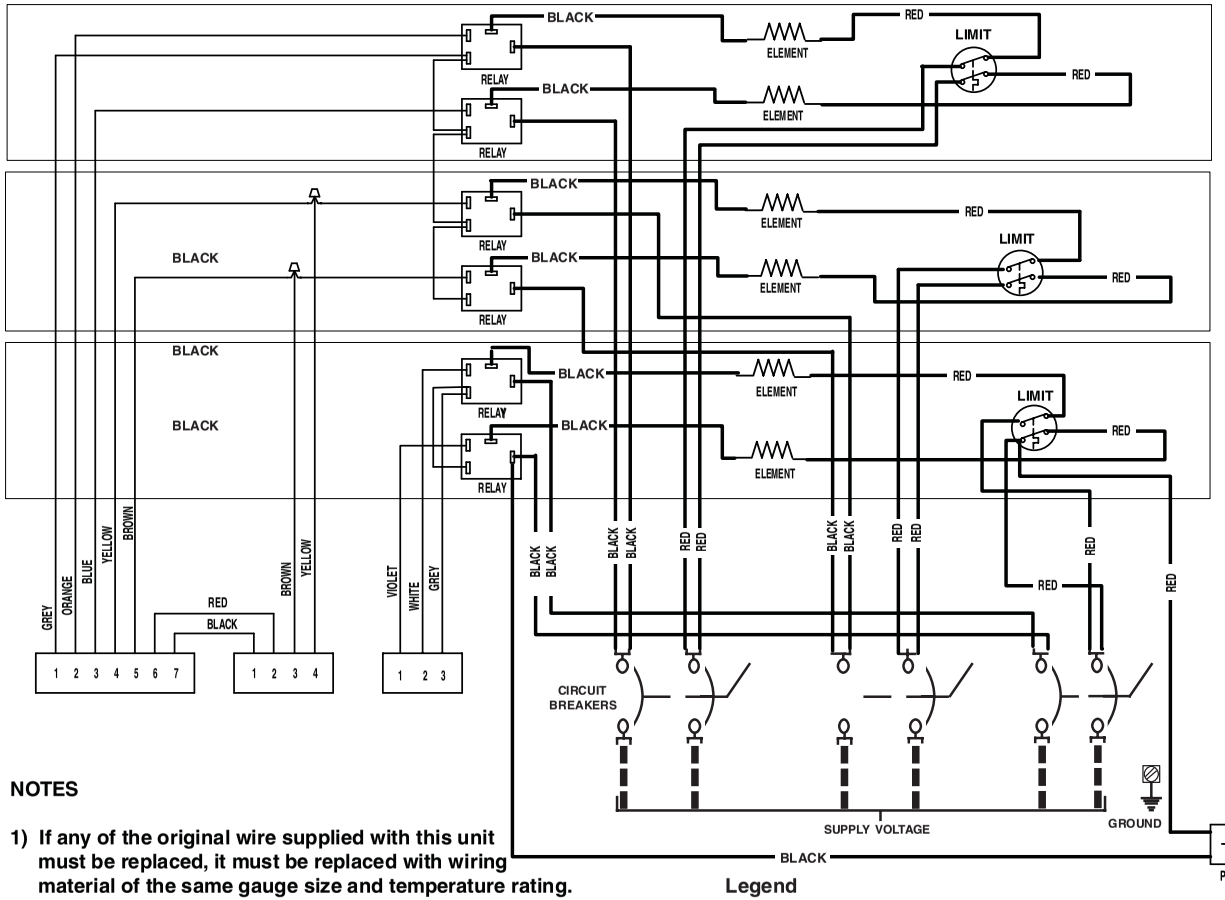


Figure 8. Typical System Wiring Diagram 25 kw 1-stage with circuit breakers



NOTES

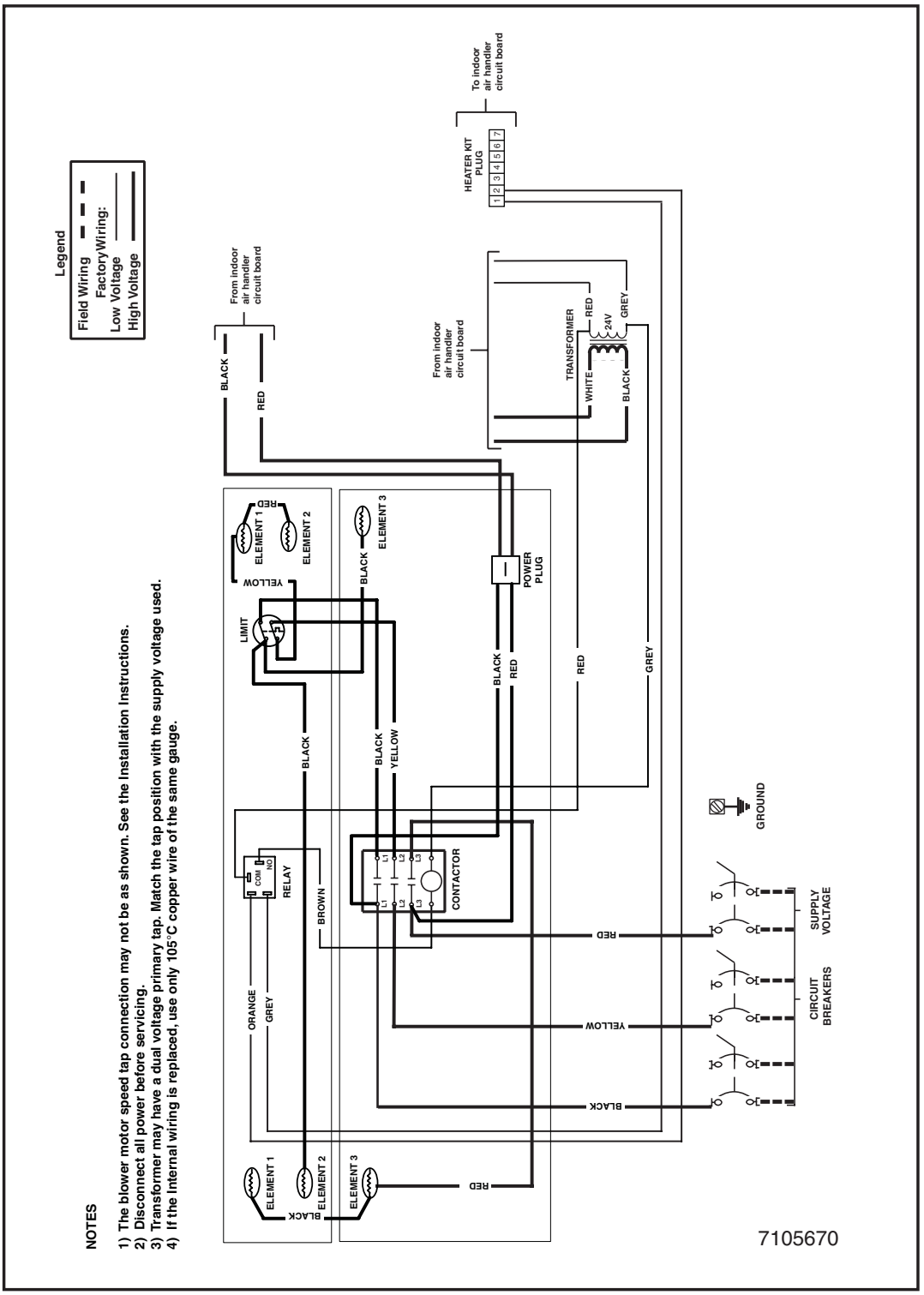
1) If any of the original wire supplied with this unit must be replaced, it must be replaced with wiring material of the same gauge size and temperature rating.
2) The installation of this heater kit may require a change in the blower speed tap connection. See Installation Instructions for details.
3)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

Legend

Field Wiring	- - - -
Factory Wiring:	
Low Voltage	———
High Voltage	———

710566A

Figure 9. Typical System Wiring Diagram
30 kw 1-stage with circuit breaker



NOTES

1) The blower motor speed tap connection may not be as shown. See the Installation Instructions.
2) Disconnect all power before servicing.
3) Transformer may have a dual voltage primary tap. Match the tap position with the supply voltage used.
4) If the Internal wiring is replaced, use only 105°C copper wire of the same gauge.

Figure 10. Typical System Wiring Diagram 9kw and 15kw 3-phase electric heater kit

INSTALLER: PLEASE LEAVE THESE INSTALLATION INSTRUCTIONS WITH THE HOMEOWNER

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Through Technician Certification by NATE

708514B (Replaces 708514A)

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