

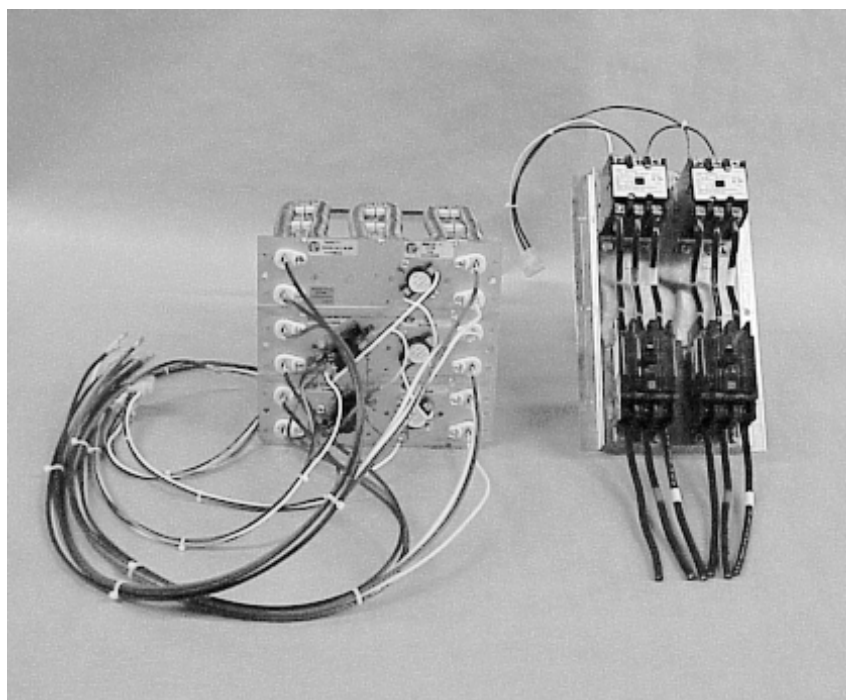
## H5HK Series

# Installation Instructions

### 3 Phase Electric Heater Kits 7.5 and 10 TON Package A/C Systems

#### Description

Installation of 208/240V and 480V H5HK 3 Phase Heater Kits in 7.5 and 10 TON Packaged Air Conditioners.



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.

Read these instructions thoroughly before starting the installation. Follow all precautions and warnings contained within these 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.

---

## GENERAL INFORMATION

H5HK Heater Kits are approved for use in (\*)P4SM Packaged Air Conditioners when applied and installed according to these instructions. See Table 1 for approved H5HK/air conditioner combinations. Refer to the National Electric Code (ANSI/NFPA 70) or in Canada the Canadian Electric Code Part 1 (CSA C.22.1) and applicable local codes for over-current protection and disconnect requirements.

If any of the original wiring as supplied with the unit must be replaced, it must be replaced with material of the same gauge and temperature rating.

## ELECTRICAL SUPPLY

### 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.**

If the unit was previously installed without electric heat, the existing supply wiring may not be sufficient to handle the increased load. See the unit ratings label in Table 2 for minimum

circuit ampacities and maximum over-current protection ratings. The units with installed electric heat may be supplied by a single circuit or dual circuits. Additional accessory kit is required if dual circuit installation is desired. See Table 1 for accessory description and part number.

## INSTALLATION

Before proceeding with the electrical connections, make certain that the voltage, frequency, and phase of the supply source are the same as those specified on the unit rating label. Also verify that the service provided by the utility is sufficient to handle the additional load imposed by this equipment.

Remove the Element/Field Wiring Access Panel.

## CIRCUIT OPTIONS

Units installed with electric heat may be wired for single or multiple circuit supply connections.

**Single Circuit** - Units are factory ready for addition of heater kits. See unit rating label for Minimum Circuit Ampacity and Maximum Over Current Protection of supply wiring.

**Multiple Circuit** - For Dual Electrical Supply connections see unit rating plate or Table 2, Electrical Data for proper high voltage wiring requirements. Use NORDYNE P/N-917468, 3 Pole Dual Circuit Adaptor for converting to dual supply connections. Refer to the instructions included with the 3 Pole Dual Circuit Adaptor kit

Unit Description	Unit Model (*)P4SM-	Volts	Heater Kit Model H5HK-	Heater Kit Part #	Kw	Circuits	Breakers	Wiring Diagram
7.5 Ton Package A/C 3 Phase	090C	208/240	009Q-01	917423	9	1	0	Fig. 3
			018Q-11	917424	17.4	1	1	Fig. 4
			035Q-22	917425	34.8	1	2	Fig. 5
	090D	480	018S-01	917426	18	1	0	Fig. 6
			035S-01	917427	34.8	1	0	Fig. 7
10 Ton Package A/C 3 Phase	120C	208/240	009Q-01	917423	9	1	0	Fig. 3
			018Q-11	917424	17.4	1	1	Fig. 4
			035Q-22	917425	34.8	1	2	Fig. 5
	120D	480	018S-01	917426	18	1	0	Fig. 6
			035S-01	917427	34.8	1	0	Fig. 7

3 Pole Dual Circuit Adaptor	Part No. 917468-0
-----------------------------	-------------------

Table 1. Accessories / Applications

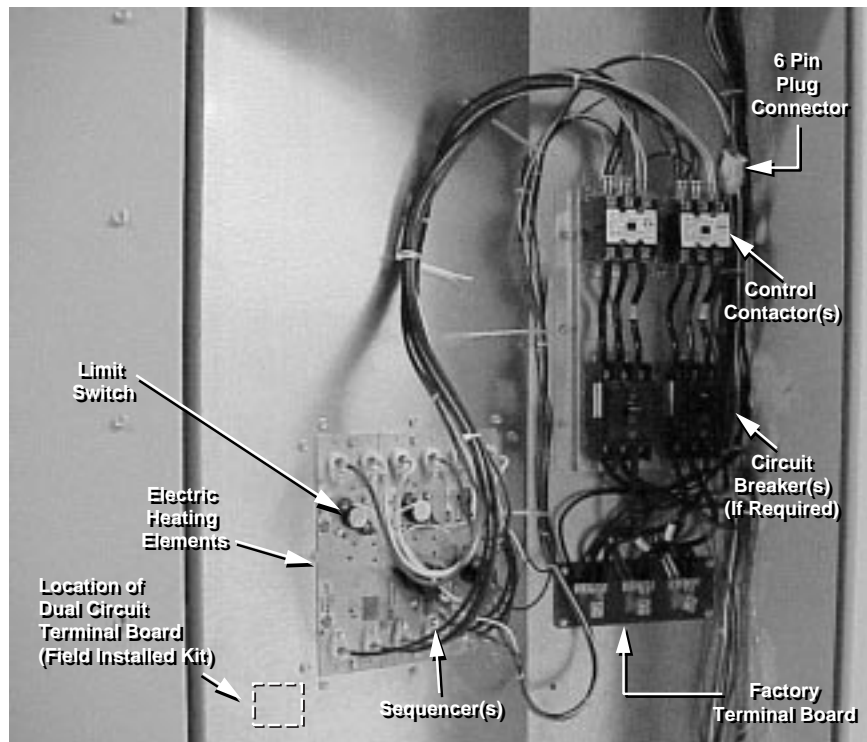


Figure 1. Location of Typical Major Components

for details on how to configure the adaptor for proper Cooling operation hookup.

**NOTE:** Circuit Breakers installed in the unit with the addition of heater kits are for short circuit protection of the internal heater element circuit wiring and NOT to serve as a disconnect. The circuit breakers DO NOT provide over-current protection of the supply wiring.

Whether or not circuit breakers are used in the units, over-current protection must be provided at the branch circuit distribution panel and sized as shown on the unit rating label or Table 2 and according to the National Electrical Code, Canadian Electrical Code, and applicable local codes.

#### TERMINAL BLOCKS

Approved H5HK heater kits are shipped ready to install using single circuit electrical supply and existing factory installed unit terminal block. If dual circuit supply is desired, follow instructions included in adaptor kit and install in lower left

corner of element mounting panel using holes provided.

**NOTE:** Use of 3 pole adaptor is for Cooling circuit only.

#### ELEMENT INSTALLATION

##### **! WARNING:**

**Rooftop installations with vertical ducts must have an elbow installed in the supply ducts so that the elements are not directly over a supply grille.**

##### **! WARNING:**

**Heaters may not function properly if elements are not installed per these instructions.**

**IMPORTANT: Application of H5HK-035Q and H5HK-035S in (\*)P4SM-090 units.**

**The three (3)- 160 Deg. F High Temperature Limits must be replaced with the three (3)- 210 Deg. F High Temperature Limits supplied with the kit on all 7.5 Ton package units. Ensure all wiring and connections are to unit wiring diagram when complete. Short cycling of equipment will occur if proper limits are not installed.**

Remove Element/Field Wiring Access panel. Determine the number of element close-off plates to be removed from mounting panel based on size of kit being installed. Set screws aside for later use and discard close-off plates.

Install heater elements starting closest to the blower with high temperature limits located at the top of the assembly. Be careful not to damage heater element wires or ceramic element supports while inserting through panel opening. Ensure heater element support rods slide into the alignment holes in the back of the element housing box. Secure the element assembly to the mounting panel with the screws removed when removing the element close-off plates.

## CONTROL MOUNTING

**Electric Heater Kits without Circuit Breakers – Models H5HK-009Q, -018S, and -035S only.**

Three pole control contactors locate on the element mounting panel above the factory installed terminal block. See Figure 2 for location of the two (2) mounting holes required for kit power wiring to be of proper length. Mount contactor with screws provided in kit.

**Electric Heater Kits with Circuit Breakers – H5HK-018Q and -035Q Models only.**

**NOTE: Circuit Breakers supplied with the H5HK electric heater kits are for short circuit-protection of the heater element internal wiring and NOT to serve as a disconnect.** Circuit Breakers supplied with the H5HK 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 on the unit rating label or in Table 2 of these instructions.

Contactors/Circuit Breaker control panel is shipped fully assembled for mounting above the

factory installed terminal block using the six (6) mounting holes provided. See Figure 2 for layout location and mount panel with screws provided in kit.

## ELEMENT POWER WIRING

Elements are shipped with element power wiring ready for attachment to top terminals of the three (3) pole control contactors. Connect the two (2) – BLACK w/WH, two (2) – RED w/BK, and two (2) – Yellow w/BK wires to the corresponding T1, T2, and T3 terminals of the contactor.

**NOTE: H5HK-035Q models only - 240 Volt, 35 Kw kits supplied with two sets of six (6) element power wires - the second set of wires will connect to the second or top right control contactor. Connect the two (2) BLACK w/WH, two (2) – RED w/BK, and two (2) – Yellow w/BK wires to the corresponding T1, T2, and T3 terminals of this second contactor.**

Complete the power wiring connections for all kits by attaching the supplied Black, Red, and Yellow or (Black with Yellow markings) from the bottom of the three (3) pole contactors on – 009Q, -018S, and -035S models or from the bottom of the Circuit Breakers on -018Q and -035Q models. Connect Black, Red, and Yellow to Lines L1, L2, and L3 respectively.

Refer to the specific detailed wiring diagram for all final connections. Make sure all connections are secure.

**NOTICE TO INSTALLER - Mark the appropriate box on the unit rating label with a permanent “X” to indicate which heater kit has been installed.**

## Low Voltage Control Wiring

Connect the heater kit six (6) pin plug connector to the units mating plug receptacle located in the upper right hand side of the heater element control compartment. Make sure the connection is secure.

Complete the low voltage connections by joining the three (3) pin plug and receptacle connectors shipped as part of the heater kit assembly. Make sure the connection is secure.

**Wiring Diagrams -** Wiring Diagrams are shipped with each H5HK Heater kit assembly. Attach the wiring diagram in plain view on the heater element mounting panel. Make sure surface is clean before applying.

**AIRFLOW**

The maximum external static pressure (ESP) for the unit is listed on the unit rating label.

The blower speed is preset at the factory for optimum operation in Heating and Cooling modes. It may be necessary for some applications to change the factory set speed. To change the blower speed see the "Blower Speed" section in the Installation Instructions shipped with the unit.

If a lower blower speed is desired from the factory setting then the heater element high temperature limits must be checked for proper operation. Nuisance tripping and cycling of the

limits may result with to little of airflow. Limit operation should be checked with return air temperatures between 72 F and 78 F.

If a higher blower speed is desired from the factory then no other modifications are required.

**CLEARANCE**

All H5HK Electric Heater kits are approved for use in installations with zero-clearance to combustibles at any blower speed for both Horizontal and Downflow applications when installed according to these instructions and other instructions included with the unit and other approved accessories.

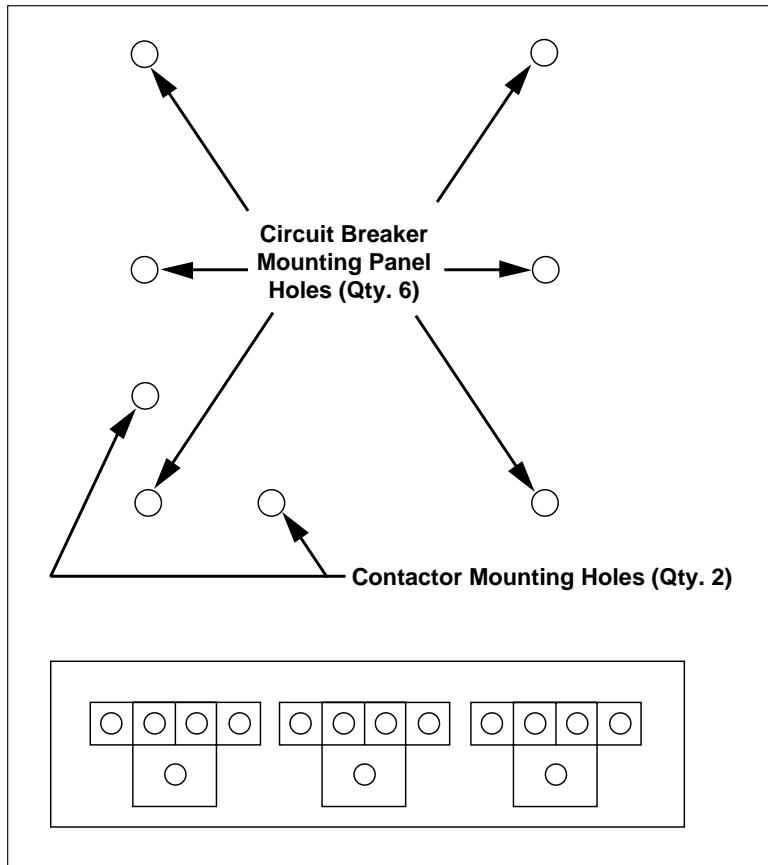


Figure 2. Control Mounting Location

Unit Model Model (*P4SM-	Heater Kit Electrical Data				Single Circuit			
	Model Number H5HK-	Rated Volts	Phase	Kw	Minimum Circuit Ampacity	Rec. Wire Gage (60C Cu)	Rec. Wire Gage (75C Cu)	Maximum Over-Current Rating
090C	No Kit	---	---	---	42.2	4	6	60
7.5 Ton Package A/C 208/230V, 3 Phase	009Q	208/240	3	9	42.2	4	6	60
	018Q	208/240	3	17.4	60.2	4	4	70
	035Q	208/240	3	34.8	112.5	1/0	1	120
090D	No Kit	---	---	---	21.2	10	10	30
	018S	480	3	18	30.9	8	8	40
	035S	480	3	34.8	56.2	4	6	60
120C	No Kit	---	---	---	61.3	2	3	90
	009Q	208/240	3	9	61.3	2	3	90
	018Q	208/240	3	17.4	63.7	2	3	90
120D	No Kit	---	---	---	27.2	8	8	40
	018S	480	3	18	32.6	8	8	40
	035S	480	3	34.8	57.8	4	6	60

Unit Model (*P4SM-	Heater Kit Electrical Data				Multiple Circuits									
	Model Number H5HK-	Rated Volts	Phase	Kw	Circuit A (Cooling)			Circuit B (Heating)						
					Minimum Circuit Ampacity	Rec. Wire Gage (60C Cu)	Rec. Wire Gage (75C Cu)	Maximum Over-Current Rating	Minimum Circuit Ampacity	Rec. Wire Gage (60C Cu)	Rec. Wire Gage (75C Cu)	Maximum Over-Current Rating		
090C	No Kit	---	---	---	---	---	---	---	---	---	---	---	---	---
7.5 Ton Package A/C 208/230V, 3 Phase	009Q	208/240	3	9	---	---	---	---	---	---	---	---	---	---
	018Q	208/240	3	17.4	42.2	4	6	60.0	52.3	4	6	60.0	60.0	60.0
	035Q	208/240	3	34.8	42.2	4	6	60.0	104.6	1	1	110.0	110.0	110.0
090D	No Kit	---	---	---	---	---	---	---	---	---	---	---	---	---
	018S	480	3	18	21.2	10	10	30.0	27.1	10	10	30.0	30.0	30.0
	035S	480	3	34.8	21.2	10	10	30.0	52.3	4	6	60.0	60.0	60.0
120C	No Kit	---	---	---	---	---	---	---	---	---	---	---	---	---
	009Q	208/240	3	9	---	---	---	---	---	---	---	---	---	---
	018Q	208/240	3	17.4	---	---	---	---	---	---	---	---	---	---
120D	No Kit	---	---	---	---	---	---	---	---	---	---	---	---	---
	018S	480	3	18	27.2	8	8	40.0	27.2	8	8	40.0	40.0	40.0
	035S	480	3	34.8	27.2	8	8	40.0	52.3	4	6	60.0	60.0	60.0

Table 2. Electrical Data

Figure 3. Wiring Diagram 9 kw, 1-Stage, 240 VAC

**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 temperture rating.
2. The installation of this heater kit may require a change in the blower speed. See Installation Instructions for details.
3. Use copper conductors with minimum temperature rating of 60C for supply connections.

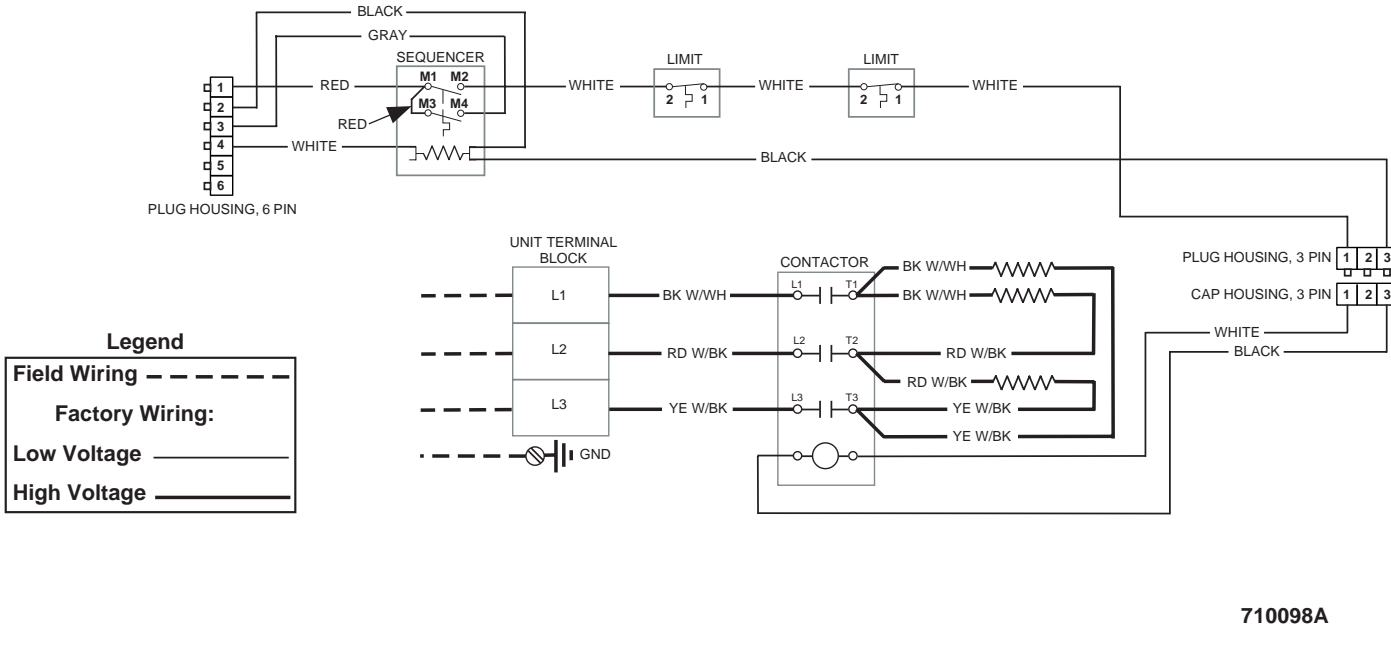
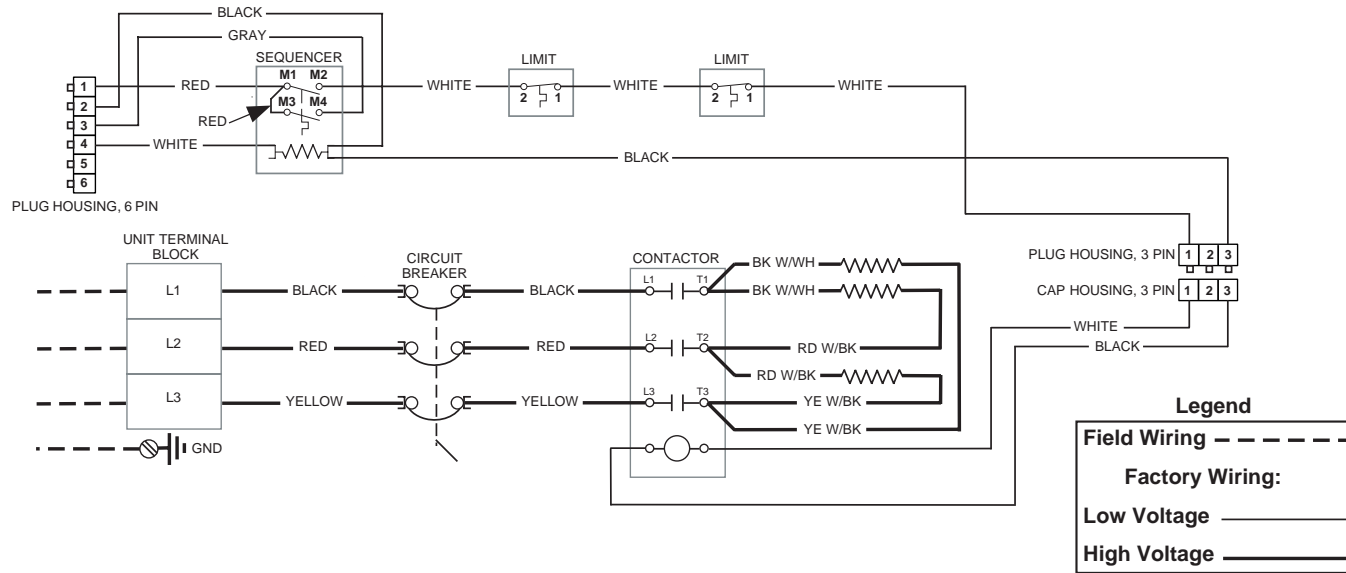


Figure 4. Wiring Diagram 18 kw, 1-Stage, 240 VAC

**NOTES:**

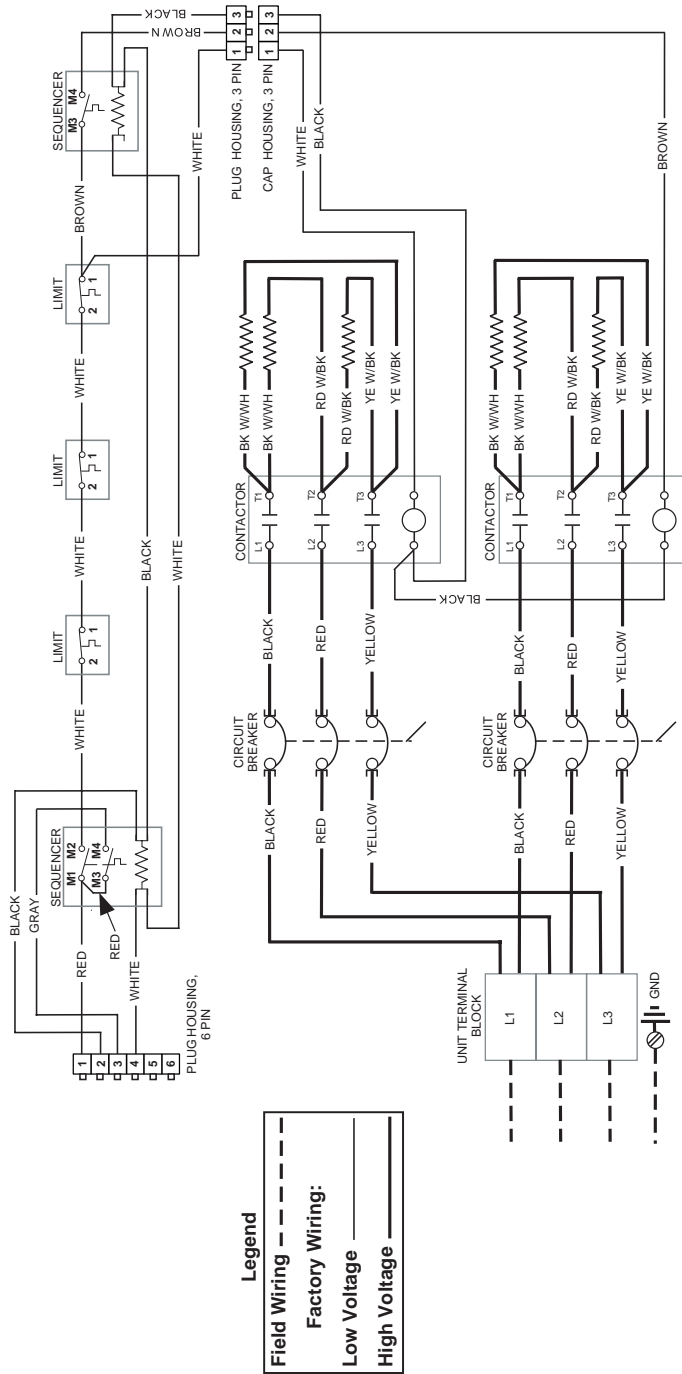
1. Circuit breakers may not be wired to heater kit by the factory, see Installation Instructions for wiring procedure.
2. If any of the original wire supplied with this unit must be replaced, it must be replaced with wiring material of the same gauge size and temperature rating.
3. The installation of this heater kit may require a change in the blower speed. See Installation Instructions for details.
4. Use copper conductors with minimum temperature rating of 60C for supply connections.



710099A



- NOTES:**
1. Circuit breakers may not be wired to heater kit by the factory, see Installation Instructions for wiring procedure.
  2. 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.
  3. The installation of this heater kit may require a change in the blower speed. See Installation Instructions for details.
  4. Use copper conductors with minimum temperature rating of 60C for supply connections.

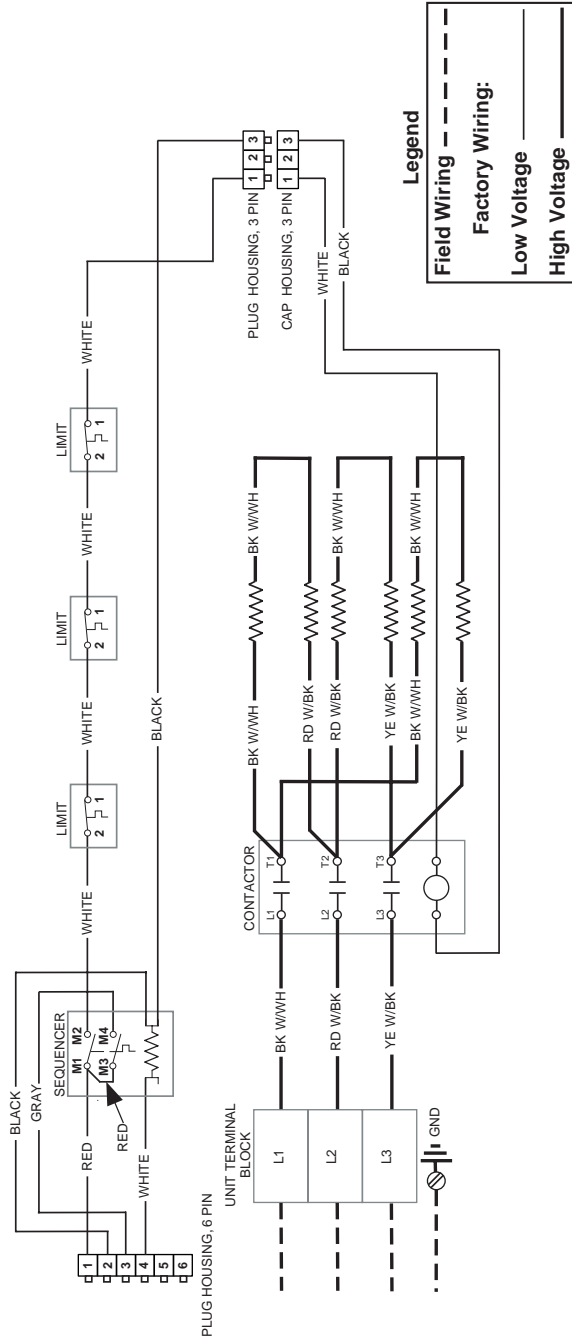


710100A

Figure 5. Wiring Diagram 35 kw, 1-Stage, 240 VAC

**NOTES:**

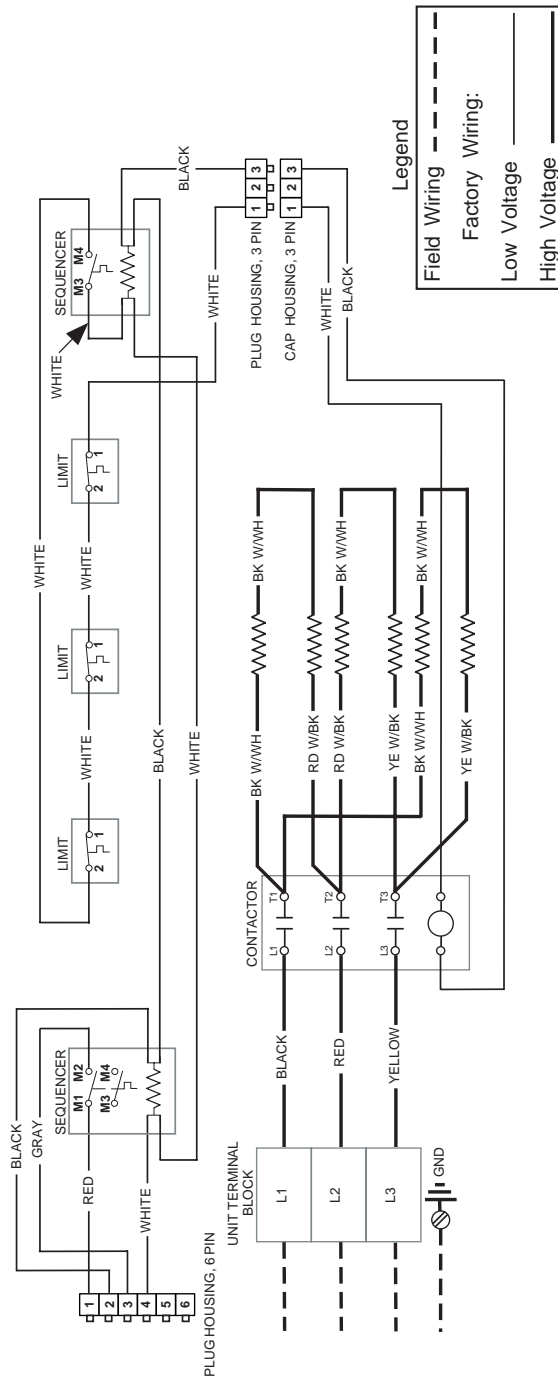
1. If any of the original wire supplied with this unit must be replaced, it must be replaced with wiring material of the same gauge size and temperature rating.
2. The installation of this heater kit may require a change in the blower speed. See Installation Instructions for details.
3. Use copper conductors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



710101A

Figure 6. Wiring Diagram 18 kw, 1-Stage, 480 VAC

- 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. See Installation Instructions for details.
  3. Use copper conductors with minimum temperature rating of 60C for supply connections.

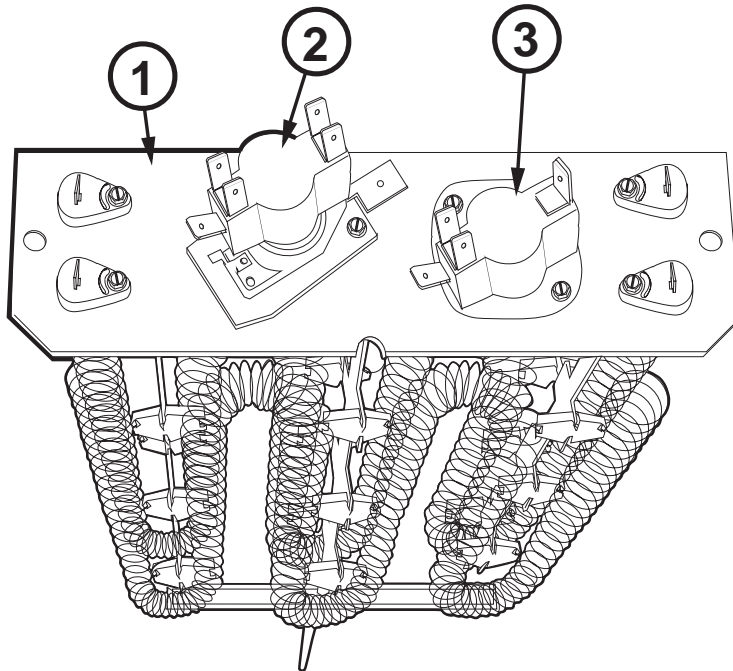


710102A

Figure 7. Wiring Diagram 35 kw, 1-Stage, 480 VAC

## REPLACEMENT PARTS LIST

1	491216	Element Ass'y - 3.0 kw	1				
	175160	Element Ass'y - 5.8 kw		1			
	491227	Element Ass'y - 6.0 kw	1			3	
	498193	Element Ass'y - 11.6 kw		1	3		3
2	621380	Sequencer, 2-pole, Blower Timing	1	1	1	1	1
	621383	Sequencer, 1-pole, Aux. Timing				1	1
3	626501	Limit, 1-pole, 160°F (-120 Models)	2	2	(3)	3	(3)
	626502	Limit, 1-pole, 210°F (-090 Models)			(3)		(3)
Not Shown	632225	Circuit Breaker, 3-pole, 60 amp		1	2		
	621667	Contact, 3-pole, 40A Res.	1			1	
	621888	Contact, 3-pole, 50A Res.		1	2		1



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



707956A

707956A (Replaces 7079560)

Specifications and illustrations subject to  
change without notice and without  
incurring obligations.  
Printed in U.S.A. (3/00)