Electric Heat Accessory

AAH05FBKAA AAH07FBKAA AAH10FBKAA AAH15FBKAA AAH20FBKAA

For Use Witth PAF/PHF & APFM/HPFM Package Units

WARNING

Electrical shock hazard.

Installation or repairs made by unqualified persons can result in hazards to you and others. Installation must conform with local building codes or, in the absence of local codes, with National Electrical Code ANSI/NFPA 70-1996 or current edition.

The information contained in this manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments.

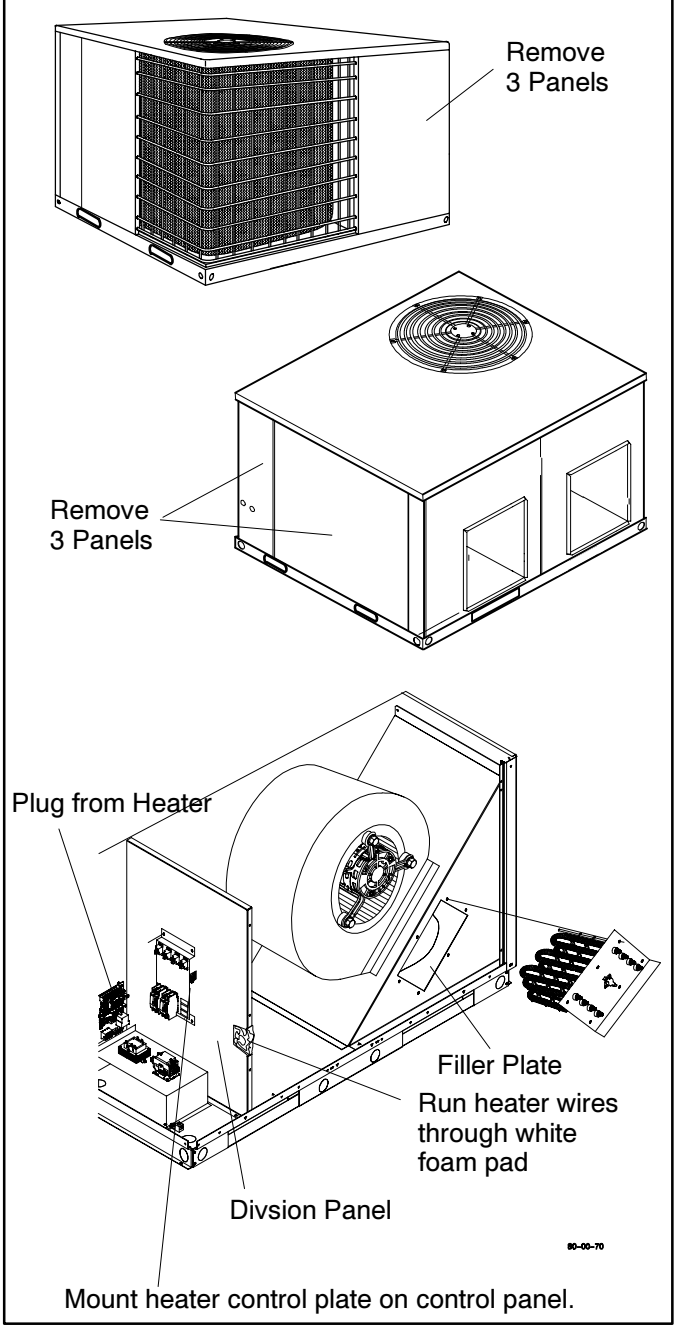
Shut OFF electric power at unit disconnect and/or service panel before beginning the following procedures.

Failure to carefully read and follow all instructions in this manual can result in malfunction, property damage, personal injury, and/or death.

NOTE: Supply voltage, amperage, fuse and disconnect switch sizes **MUST** conform with all technical specifications in this manual and on the unit rating plate.

1. Shut **OFF** electric power at unit disconnect switch or service panel.
2. Remove the three access panels as shown in **Figure 1**.
3. Remove the filler plate from the blower box, **Figure 1**.
4. Insert the heater into the cabinet opening as shown in **Figure 1**, **Exercise caution to prevent tearing of insulation or damage to heater element.**
5. Secure the electric heat accessory with screws removed from filler plate.
6. Route wires through the white foam pad in the division panel to the control side. Mount the heater circuit breaker/relay plate on the control side of the division panel using the four holes and screws provided, **Figure 1**.
7. Connect the plug on the heater wiring into the receptacle on the control board on the side of the cabinet, **Figure 1**.
8. Connect wiring for low voltage and line voltage as shown in **Figure 2** and heater wiring diagram.
9. Reinstall all panels.
10. Mark an "X" in the appropriate box for the heater on the unit rating plate.

Figure 1 **Installing The Electric Heat Accessory**



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Wiring

All line voltage connections and ground connections **MUST** be made with copper wire.

The power supply wiring **MUST** have overcurrent protection. This can be either fuses or circuit breakers. The maximum size for the overcurrent protection is shown in the column labeled "Max. Fuse or NEC HACR Breaker (Amps)" in the Electrical Data Table or on the unit rating plate.

Connect supply voltage wires to the Circuit Breakers on the heater or to the pigtails on the heater. Power for the blower motor is supplied through the connector from the heater to the control board.

Grounding

Permanently ground the electric heat accessory in accordance with local codes and ordinances and in the United States with National Electrical Code ANSI/NFPA70-1996 or current edition. Use a copper conductor of the appropriate size from the electric heat accessory ground lug, to a grounding lug on the circuit breaker panel. On models with more than one circuit, a separate copper ground wire **MUST** be connected for *each* circuit.

Adjusting Thermostat Anticipator

Set the heat anticipator of the thermostat to the proper value. See instructions provided with the thermostat before making this adjustment.

Heater Model	Anticipator Setting
05	.24
07, 10	.32
14, 15	.40
20	.46

Staging

The heater elements are turned on in increments. Refer to Staging Table. In addition on heaters larger than 5KW, the heat can be staged (1st & 2nd) either through an indoor thermostat or by using an outdoor thermostat. This satisfies staging requirements imposed by some electric utilities on heaters larger than 6 kilowatts.

A control signal (24V) from W1 on the Indoor T'stat to W1 on the control board energizes the 1st stage of heat. A control signal (24V) to W2 on the control board energizes the second stage of electric heat. To turn ON both stages at the same time, using one control signal, W1 and W2 are jumpered together.

If the indoor thermostat does not have staging capabilities, accessory electronic outdoor thermostats are available that will control two stages of electric heat.

Temperature Rise Check

Temperature rise is the difference between the supply and return air temperatures.

NOTE: The temperature rise can be adjusted by changing the heating speed tap at the unit's blower terminal block. Refer to the unit's *Installation Instructions* for airflow information.

A temperature rise greater than 60°F (33.3°C) is not recommended.

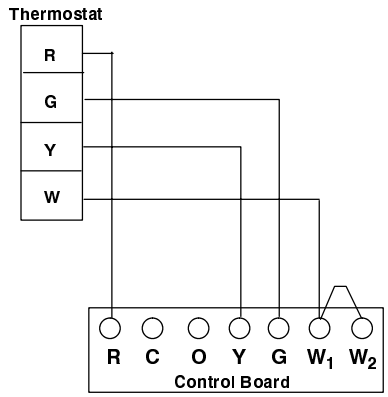
1. To check the temperature rise through the unit, place thermometers in the supply and return air ducts as close to the unit as possible.
2. Open **ALL** registers and duct dampers.
3. Set thermostat Heat-Cool selector to **HEAT**.
4. Set the thermostat temperature setting as high as it will go.
5. Turn electric power **ON**.
6. Operate unit **AT LEAST** 5 minutes, then check temperature rise.

NOTE: The maximum outlet air temperature for all models is 200°F (93.3°C).

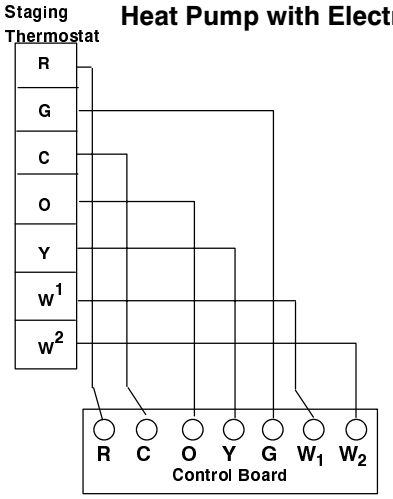
7. Set thermostat to normal temperature setting.
8. Turn electric power **OFF**.
9. Be sure to seal all holes in ducts if any were created during this process.

Figure 2 **Typical Low Voltage Control Wiring**

Cooling with Electric Heat



Heat Pump with Electric Heat



Technical Data

HEATER MODEL	Used With	Supply Voltage	KW Rating	Nominal Heating BTUH	Supply Circuit No.	Heater Amps	Mininum Circuit Ampacity	Maximum Overcurrent Protective Device (Amps)
AAH05FBKAA	2 - 5 Ton	240-1-60	4.8	16,382	L3 - L4	20.0	25.0	30
		208-1-60	3.6	12,287	L3 - L4	17.3	21.6	25
AAH07FBKAA	2 - 5 Ton	240-1-60	7.5	25,598	L3-L4	31.2	39.0	45
		208-1-60	5.6	19,113	L3-L4	26.9	33.6	40
AAH10FBKAA	2 - 5 Ton	240-1-60	9.6	32,765	L3 - L4	40.0	50.0	60
		208-1-60	7.2	24,574	L3 - L4	34.6	43.3	50
AAH15FBKAA	2 1/2 - 5 Ton	240-1-60	14.4	49,147	L3 - L4 L5 - L6	40.0 20.0	50.0 25.0	60 30
		208-1-60	10.8	36,860	L3 - L4 L5 - L6	34.6 17.3	43.3 21.6	50 25
AAH20FBKAA	3 - 5 Ton	240-1-60	19.2	65,530	L3 - L4 L5 - L6	40.0 40.0	50.0 50.0	60 60
		208-1-60	14.4	49,147	L3 - L4 L5 - L6	34.6 34.6	43.3 43.3	50 50

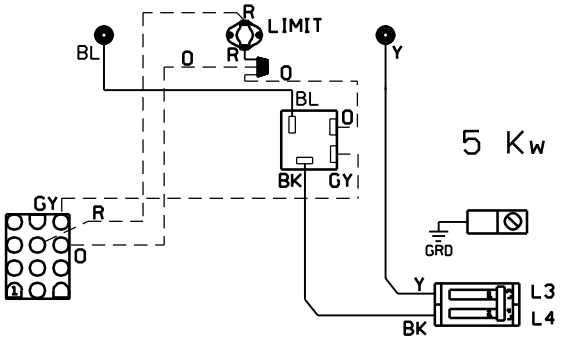
Heater Model	Use With	Supply Voltage	KW Rating	Total Heating BTUH	*Temperature Rise °F @ CFM								
					600	800	1000	1200	1400	1600	1800	2000	2200
AAH05FBKAA	2 - 5 Ton	240-1-60	4.8	16,832	25.3	19.0	15.2	12.6	10.8	9.5	8.4	7.6	---
		208-1-60	3.6	12,287	19.0	14.2	11.4	9.5	8.1	7.1	6.3	5.7	---
AAH07FBKAA	2 - 5 Ton	240-1-60	7.5	25,598	39.5	29.6	23.7	19.8	16.9	14.8	13.2	11.9	10.8
		208-1-60	5.6	19,113	29.5	22.1	17.7	14.7	12.6	11.1	9.8	8.8	8.0
AAH10FBKAA	2 - 5 Ton	240-1-60	9.6	32,765	50.6	37.9	30.3	25.3	21.7	19.0	16.9	15.2	13.8
		208-1-60	7.2	24,574	37.9	28.4	22.8	19.0	16.3	14.2	12.6	11.4	10.3
AAH15FBKAA	2 1/2 - 5 Ton	240-1-60	14.4	49,147	---	56.9	45.5	37.9	32.5	28.4	25.3	22.8	20.7
		208-1-60	10.8	36.860	56.9	42.7	34.1	28.4	24.4	21.3	19.0	17.1	15.5
AAH20FBKAA	3 - 5 Ton	240-1-60	19.2	65,530	---	---	---	50.6	43.3	37.9	33.7	30.3	27.6
		208-1-60	14.4	49,147	---	56.9	45.5	37.9	32.5	28.4	25.3	22.8	20.7

* Temperature Rise Must Not Exceed 60° F (Electric Heat Only) .

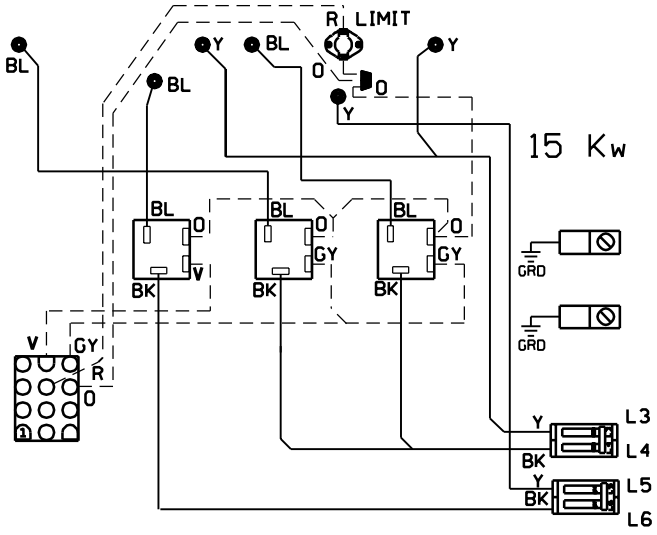
HEATER STAGING

ELECTRIC HEATER	VOLTAGE	TOTAL HEAT		1st STAGE (W1)		2nd STAGE (W2)	
		208V	240V	208V	240V	208V	240V
AAH05FBKAA	208-240/1/60	3.6	4.8	3.6	4.8	-	-
AAH07FBKAA	208-240/1/60	5.6	7.5	2.8	3.75	2.8	3.75
AAH10FBKAA	208-240/1/60	7.2	9.6	3.6	4.8	3.6	4.8
AAH15FBKAA	208-240/1/60	10.8	14.4	7.2	9.6	3.6	4.8
AAH20FBKAA	208-240/1/60	14.4	19.2	7.2	9.6	7.2	9.6

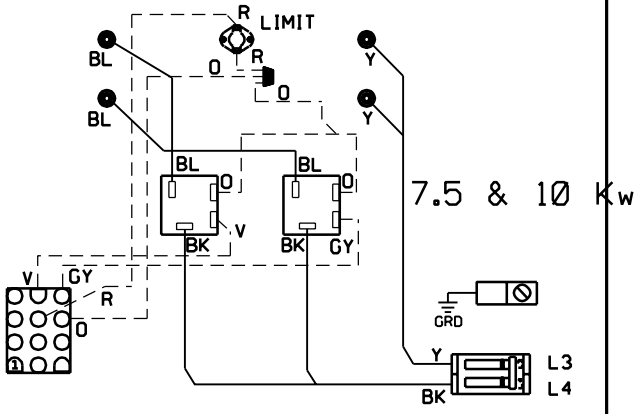
AAH SERIES HEATERS PARTS LIST							
No.	Description	Part Number	AAH05FBKAA	AAH07FBKAA	AAH10FBKAA	AAH15FBKAA	AAH20FBKAA
1	Breaker, 35A 2Pole	1082010	1				
1	Breaker, 45A 2Pole	1082012	*	1			
1	Breaker, 60A 2Pole	1082014	*	*	1	1	1
1	Breaker, 25A 2Pole	1082008	*	*	*	1	
1	Breaker, 50A 2Pole	1082013	*	*	*	*	1
2	Relay, Heater	1084529	1	2	2	3	4
3	Switch, Limit	1096985	1	1	1	1	1
4	Lug, Ground	91590	1	1	1	2	2
)(	Manual, Installation	474 06 1003 00	1	1	1	1	1



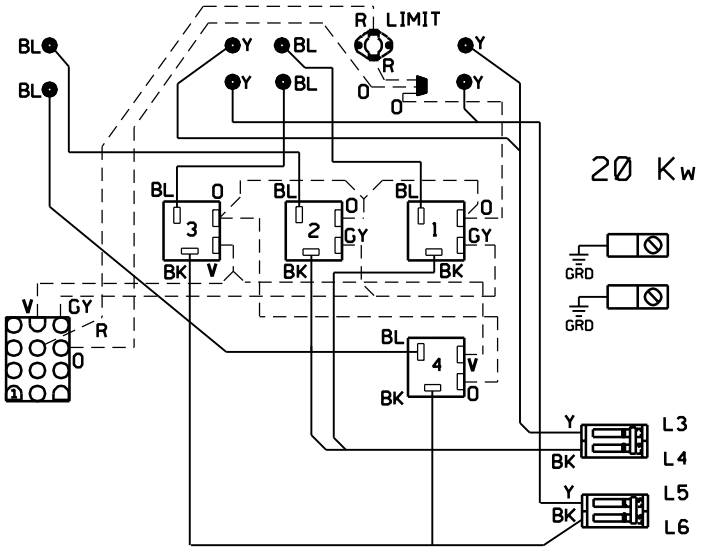
AAH05FBKAA ELECTRIC HEATER



AAH15FBKAA ELECTRIC HEATER



AAH07FBKAA / AAH10FBKAA ELECTRIC HEATER



AAH20FBKAA ELECTRIC HEATER

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