Electric Heat Accessory

AMFH10CHB1 AMFH15CHB1 AMFH20CHB1 AMFH25CHB1 AMFH30CHB1
Three Phase For Use With
Fan Coil Units and Electric Furnaces

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.

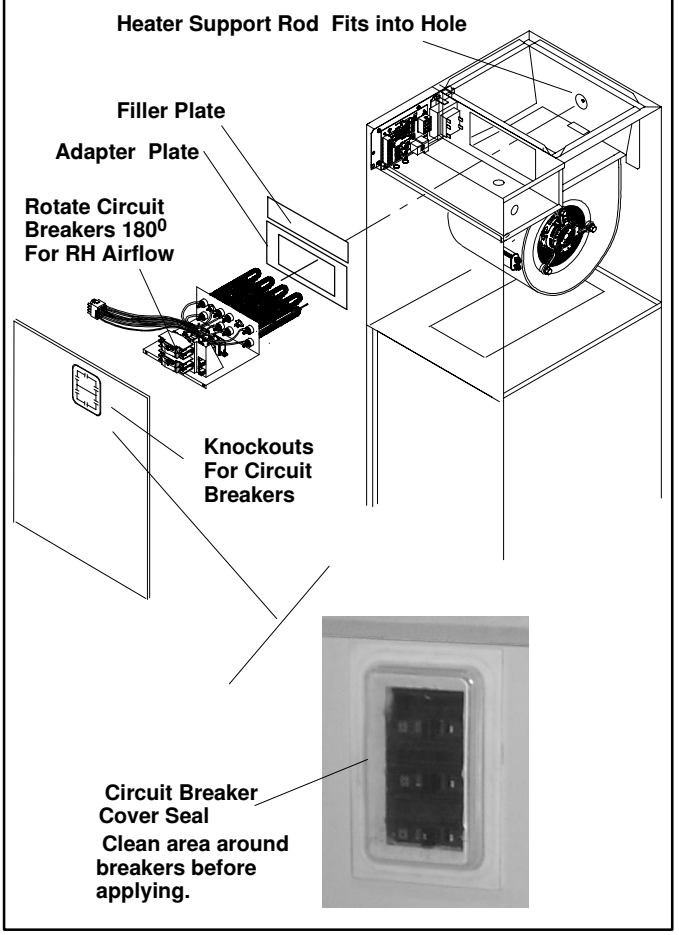
Failure to carefully read and follow all instructions in this manual can result in malfunction, property damage, personal injury, and/or death.

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

Adapter and filler plates are shipped with the indoor units to be used with electric heat as needed depending on unit size and heater size. They may be installed in the unit or supplied loose in a bag.

1. Shut **OFF** electric power at unit disconnect switch or service panel.
2. Remove the front panel from unit and locate adapter and filler plates, with screws inside package or they may be preinstalled.
3. Attach or remove adapter plate and filler plate to heater as required to match the opening in the cabinet.
4. **Right Hand Airflow Application Only/Heaters with CB.** If indoor section is going to be used for right hand airflow, the circuit breakers will have to be removed and rotated 180^0, so the OFF position will be **DOWN** when the cabinet is positioned on the right side. This is an NEC requirement. **DO ONE SET OF BREAKERS AT A TIME to make sure wires are reconnected properly.** Loosen terminal screws on the wires and gently pull wires back from breaker. Remove screws securing breaker and rotate 180^0, then reconnect wires to breaker. Proper torque for terminal screws is 35 inch pounds.
5. Insert the heater into the cabinet opening as shown in **Figure 1**, so the heater support rod goes into the hole in back of the cabinet. **Exercise caution to prevent tearing of insulation or damage to heater element.**
6. Secure the electric heat accessory with four screws.
7. Connect the plug on the heater wiring into the receptacle on the control board on the side of the cabinet.
8. Apply wiring diagram label over the existing label on the blower housing. Existing label is for single phase heaters.
9. Install front door panel. **NOTE:** Remove the appropriate knockout(s) in the door panel to match circuit breaker location. If heater only has one circuit breaker, install breaker cover clip over unused hole in door panel. Clean the perimeter area around the opening. If greasy or highly soiled use alcohol to clean the area.
10. Remove backing from the circuit breaker cover seal and align it with the embossed area so it covers the circuit breakers. Press firmly around the edges so it seals properly. Seal helps to minimize moisture infiltration which can affect electronic components.
11. Mark an "X" in the appropriate box for the heater on the indoor 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
10	.32
15	.40
20	.46
25	.53
30	.57

Staging

The heater elements are turned on in increments. Refer to Staging Table. In addition all heaters can be staged (1st & 2nd) either through an indoor thermostat or by using an outdoor thermostat.

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.

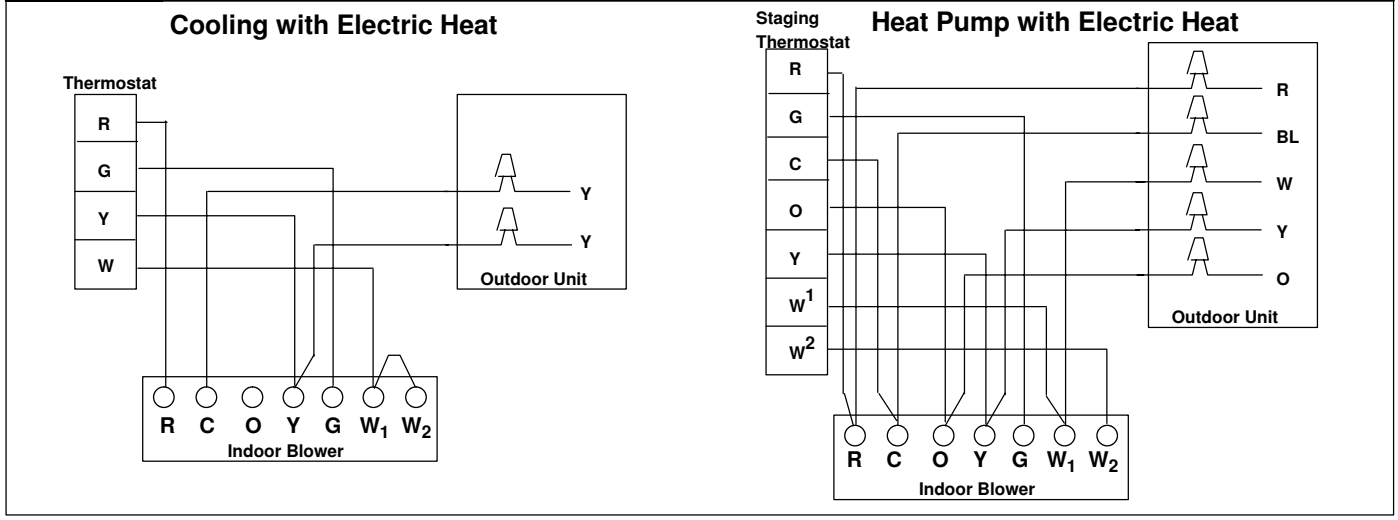
A temperature rise greater than 60°F (33.3°C) is not recommended.

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**



Technical Data

Heater Model	Supply Voltage	Nomial Heating BTUH	Heat KW	KW Per Element	Supply Circuit No.	Heater KW Per Circuit	Heater AMPS.	Max. Motor AMPS.	Total AMP	Branch Circuit Ampacity	Maximum Overcurrent Protective Device (AMPS.)	Recommended Supply Wire 75 ^{0} C. Copper No.	Size	Max. Ft. Length	Ground Wire No.	Siz
AMFH10	240	32,765	9.6	3.2	Single	9.6	23.1	6.0	29.1	36.4	40	3	8	100	1	10
	208	24,574	7.2	2.4	Single	7.2	20.0	6.0	26.0	32.5	35	3	10	61	1	10
AMFH15	240	49,147	14.4	4.8	Single	14.4	34.6	6.0	40.6	50.8	60	3	6	111	1	10
	208	36,860	10.8	3.6	Single	10.8	30.0	6.0	36.0	45.0	50	3	8	70	1	10
AMFH20	240	65,530	19.2	3.2	Single	19.2	46.2	6.0	52.2	65.2	70	3	4	138	1	8
					Mult. 1	9.6	23.1	6.0	29.1	36.4	40	3	8	79	1	10
					Mult. 2	9.6	23.1	0.0	23.1	28.9	30	3	10		1	10
	208	49,147	14.4	2.4	Single	14.4	40.0	6.0	46.0	57.5	60	3	6	85	1	10
					Mult. 1	7.2	17.3	6.0	23.3	29.2	30	3	10	57	1	10
					Mult. 2	7.2	17.3	0.0	17.3	21.7	25	3	12		1	10
AMFH25	240	81912	24.0	4.0	Single	24.0	57.7	6.0	63.7	79.7	80	3	4	113	1	8
					Mult. 1	12.0	28.9	6.0	34.9	43.6	45	3	8	83	1	10
					Mult. 2	12.0	28.9	0.0	28.9	36.1	40	3	8		1	10
	208	61,434	18.0	3.0	Single	18.0	50.0	6.0	56.0	70.0	80	3	4	111	1	8
					Mult. 1	9.0	21.7	6.0	27.7	34.6	35	3	10	57	1	10
					Mult. 2	9.0	21.7	0.0	21.7	27.1	30	3	10		1	10
AMFH30	240	98,294	28.8	4.8	Single	28.8	69.3	6.0	75.3	94.1	100	3	3	120	1	8
					Mult. 1	14.4	34.6	6.0	40.6	50.8	60	3	6	84	1	10
					Mult. 2	14.4	34.6	0.0	34.6	43.3	45	3	8		1	10
	208	73,721	21.6	3.6	Single	21.6	60.0	6.0	66.0	82.6	90	3	4	94	1	8
					Mult. 1	10.8	26.0	6.0	32.0	40.0	45	3	8	61	1	10
					Mult. 2	10.8	26.0	0.0	26.0	32.5	35	3	10		1	10

HEATER STAGING

ELECTRIC HEATER	VOLTAGE	TOTAL HEAT		1st STAGE (W1)		2nd STAGE (W2)	
		208V	240V	208V	240V	208V	240V
AMFH10	208-240/3/60	7.2	9.6	4.8	6.4	2.4	3.2
AMFH15	208-240/3/60	10.8	14.4	7.2	9.6	3.6	4.8
AMFH20	208-240/3/60	14.4	19.2	4.8	6.4	9.6	12.8
AMFH25	208-240/3/60	18.0	24.0	6.0	8.0	12.0	16.0
AMFH30	208-240/3/60	21.6	28.8	7.2	9.6	14.4	19.2

ELECTRIC HEATER STATIC PRESSURE DROP - IN. WG.

CFM	AMFH10	AMFH15	AMFH20	AMFH25	AMFH30
600	0.01	--	--	--	--
700	0.01	--	--	--	--
800	0.01	0.01	--	--	--
900	0.01	0.01	--	--	--
1000	0.01	0.01	0.02	--	--
1100	0.01	0.02	0.02	--	--
1200	0.01	0.02	0.02	--	--
1300	0.02	0.02	0.02	--	--
1400	0.02	0.02	0.03	0.03	--
1500	0.02	0.02	0.03	0.04	--
1600	0.02	0.03	0.03	0.04	0.04
1700	0.02	0.03	0.03	0.04	0.05
1800	0.02	0.03	0.04	0.04	0.05
1900	0.02	0.03	0.04	0.05	0.06
2000	0.02	0.03	0.04	0.05	0.06

Replacement Parts

KEY	DESCRIPTION	PART NUMBER	AMFH 10 CHB1	15 CHB1	20 CHB1	25 CHB1	30 CHB1
1	Circuit Breaker 30 Amp	1083190	-	-	1	-	-
	45 Amp	1084793	-	-	-	1	1
	40 Amp	1084792	1	-	1	1	-
	60 Amp	1080913	-	1	-	-	1
2	Ground Lug	91590	1	1	2	2	2
3	Relay	1084529	3	3	6	6	6
4	Limit Switch	1084735	2	2	2	-	-
		1084749	-	-	-	2	2
5	Fusible Link	1087749	-	-	-	-	6
		1087811	3	3	6	6	-
)(	Clip, Breaker Cover	1082049	1	1	-	-	-
)(	CB Cover Seal	1087843	1	1	1	1	1