Electric Heat Accessory

AMFK05DHA1 AMFK05DHB1 AMFK07DHA1 AMFK07DHB1 AMFK10DHA1 AMFK10DHB1 AMFK14DHB1 AMFK20DHB1 AMFK25DHB1 AMFK30DHB1

Single Phase For Use With

Blower & 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.

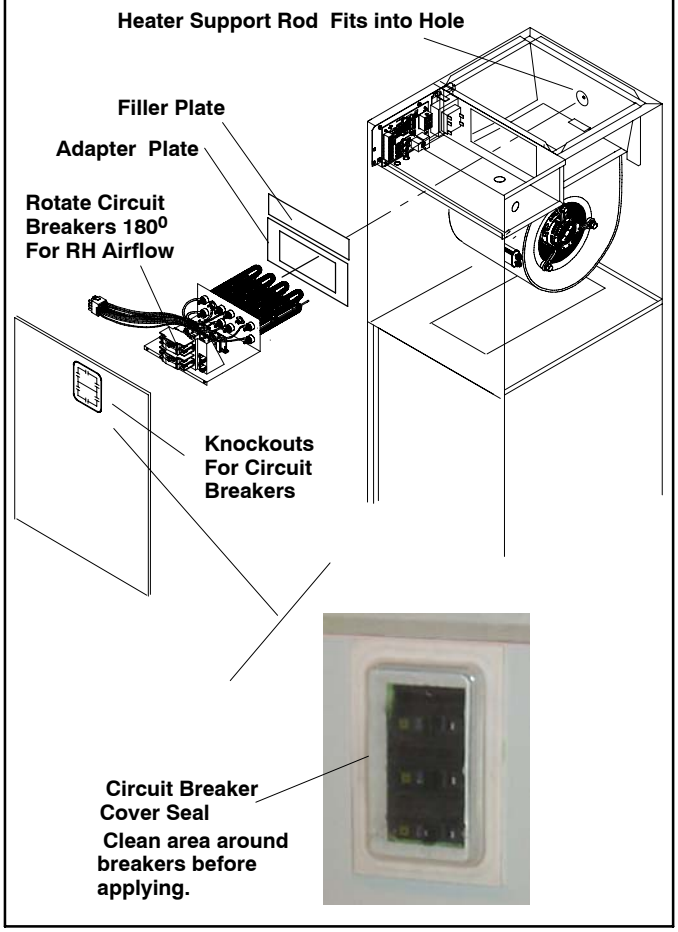
Adapter and filler plates are shipped with the indoor units to be used with electric heat as needed depending on unit size and heater size.

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.
3. Attach adapter plate and filler plate to heater if required to match cabinet, Refer to Figure 1 and table to determine if needed.

Heater AMFK	FCP24,30 FCX24 EF08	FCP36,42 FCX36 EF12	FCP48,60 FCX48,60 EF16,20
05, 07, 10	None	Adapter	Adapter & Filler Plate
14, 20	N/A	None	Adapter
25, 30	N/A	N/A	None

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. Install front door panel. **NOTE:** If the heater has circuit breakers, remove the appropriate knockout(s) in the door panel to match circuit breaker location. Clean the perimeter area around the opening. If greasy or highly soiled use alcohol to clean the area.
9. **Circuit Breakers Models only:** 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.
10. 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
05	.24
07, 10	.32
14	.40
20	.46
25	.53
30	.57

Staging

The heater elements are turned on in increments. Refer to Staging Table. In addition on heaters larger than 10KW, 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.

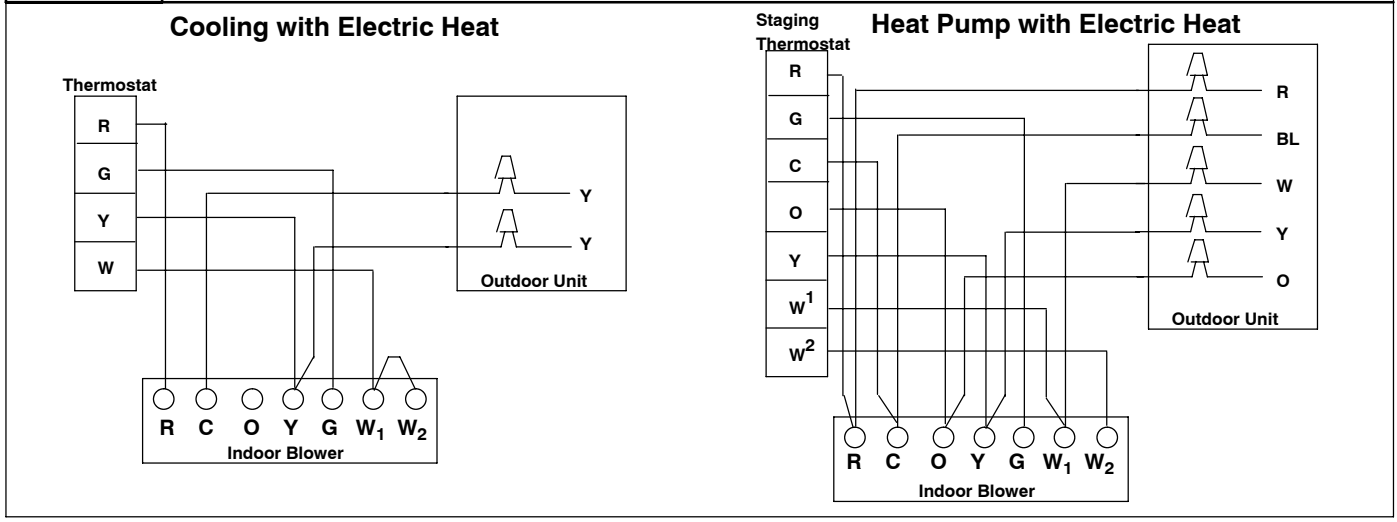
A temperature rise greater than 60°F (33.3°C) is not recommended.

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**



Technical Data

Heater Model	Supply Voltage	Nomi-nal Heating BTUH	Heat-KW	KW Per Element	Supply Circuit No.	Heater KW Per Circuit	Heater AMPS.	Maxi-mum Motor AMPS.	Total AMP	Branch Circuit Ampacity	Maximum Overcurrent Protective Device (AMPS.)	Recommended Supply Wire 75 ^{0} C. Copper No.	Size	Max. Length (F	Ground Wire No.	Size
AMFK05	240	16,832	4.8	4.8	Single	4.8	20.0	6.0	26.0	32.5	35	2	10	61	1	10
	208	12,287	3.6	3.6	Single	3.6	17.3	6.0	23.3	29.2	30	2	10	59	1	10
AMFK07	240	24573	7.2	3.6	Single	7.2	30.0	6.0	36.0	45.0	45	2	8	70	1	10
	208	18430	5.4	2.7	Single	5.4	26.0	6.0	32.0	40.0	40	2	8	68	1	10
AMFK10	240	32,765	9.6	4.8	Single	9.6	40.0	6.0	46.0	57.5	60	2	6	85	1	10
	208	24,574	7.2	3.6	Single	7.2	34.7	6.0	40.7	50.8	60	2	6	83	1	10
AMFK14	240	49,147	14.4	4.8	Single	14.4	60.0	6.0	66.0	82.5	90	2	4	94	1	8
					Mult. 1	9.6	40.0	6.0	46.0	57.5	60	2	6	50	1	10
					Mult. 2	4.8	20.0	0.0	20.0	25.0	25	2	12		1	10
	208	36,860	10.8	3.6	Single	10.8	52.0	6.0	58.0	72.5	80	2	4	93	1	8
					Mult. 1	7.2	34.7	6.0	40.7	50.8	60	2	6	50	1	10
					Mult. 2	3.6	17.3	0.0	17.3	21.7	25	2	12		1	10
AMFK20	240	65,530	19.2	4.8	Single	19.2	80.0	6.0	86.0	107.5	110	2	2	115	1	6
					Mult. 1	9.6	40.0	6.0	46.0	57.5	60	2	6	63	1	10
					Mult. 2	9.6	40.0	0.0	40.0	50.0	50	2	8		1	10
	208	49,147	14.4	3.6	Single	14.4	69.3	6.0	75.3	94.2	100	2	3	90	1	8
					Mult. 1	7.2	34.7	6.0	40.7	50.8	60	2	6	63	1	10
					Mult. 2	7.2	34.7	0.0	34.7	43.3	45	2	8		1	10
AMFK25	240	81912	24.0	4.8	Single	24.0	100.0	6.0	106.0	132.5	150	2	1 / 0	148	1	6
					Mult. 1	9.6	40.0	6.0	46.0	57.5	60	2	6	50	1	10
					Mult. 2	9.6	40.0	0.0	40.0	50.0	50	2	8		1	10
					Mult. 3	4.8	20.0	0.0	20.0	25.0	25	2	12		1	10
	208	61,434	18.0	3.6	Single	18.0	75.1	6.0	81.1	101.4	110	2	2	106	1	6
					Mult. 1	7.2	34.7	6.0	40.7	50.8	60	2	6	50	1	10
					Mult. 2	7.2	34.7	0.0	34.7	43.3	45	2	8		1	10
					Mult. 3	3.6	17.3	0.0	17.3	21.7	25	2	12		1	10
AMFK30	240	98,294	28.8	4.8	Single	28.8	120.0	6.0	126.0	157.5	175	2	2 / 0	158	1	6
					Mult. 1	9.6	40.0	6.0	46.0	57.5	60	2	6	63	1	10
					Mult. 2	9.6	40.0	0.0	40.0	50.0	50	2	8		1	10
					Mult. 3	9.6	40.0	0.0	40.0	50.0	50	2	8		1	10
	208	73,721	21.6	3.6	Single	21.6	90.1	6.0	96.1	120.2	125	2	1	112	1	6
					Mult. 1	7.2	34.7	6.0	40.7	50.8	60	2	6	63	1	10
					Mult. 2	7.2	34.7	0.0	34.7	43.3	45	2	8		1	10
					Mult. 3	7.2	34.7	0.0	34.7	43.3	45	2	8		1	10

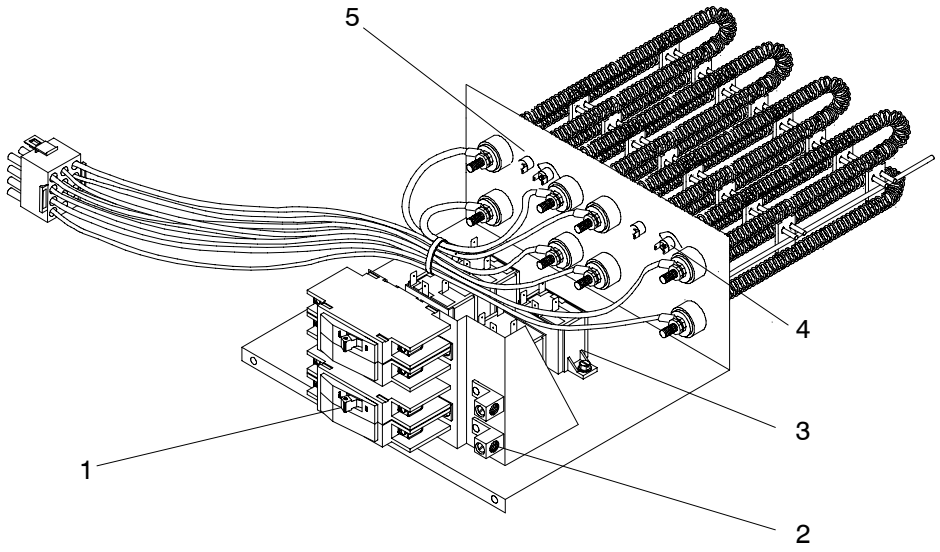
HEATER STAGING

ELECTRIC HEATER	VOLTAGE	TOTAL HEAT		1st STAGE (W1)		2nd STAGE (W2)	
		208V	240V	208V	240V	208V	240V
AMFK05	208-240/1/60	3.6	4.8	3.6	4.8	-	-
AMFK07	208-240/1/60	5.4	7.2	2.7	3.6	2.7	3.6
AMFK10	208-240/1/60	7.2	9.6	7.2	9.6	-	-
AMFK14	208-240/1/60	10.8	14.4	7.2	9.6	3.6	4.8
AMFK20	208-240/1/60	14.4	19.2	7.2	9.6	7.2	9.6
AMFK25	208-240/1/60	18.0	24.0	7.2	9.6	10.8	14.4
AMFK30	208-240/1/60	21.6	28.8	7.2	9.6	14.4	19.2

ELECTRIC HEATER STATIC PRESSURE DROP - IN. WG.

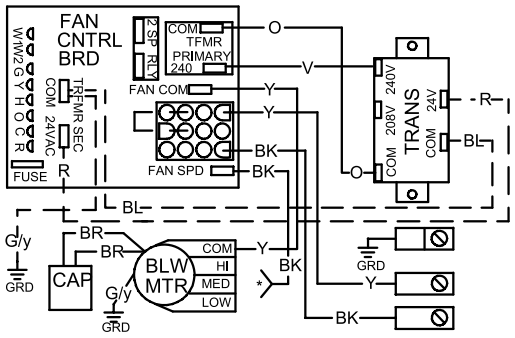
CFM	AMFK05	AMFK07	AMFK10	AMFK14	AMFK20	AMFK25	AMFK30
600	0.01	0.01	0.01	--	--	--	--
700	0.01	0.01	0.01	--	--	--	--
800	0.01	0.01	0.01	0.01	--	--	--
900	0.01	0.01	0.01	0.01	--	--	--
1000	0.01	0.01	0.01	0.01	0.02	--	--
1100	0.01	0.01	0.01	0.02	0.02	--	--
1200	0.01	0.01	0.01	0.02	0.02	--	--
1300	0.01	0.02	0.02	0.02	0.02	--	--
1400	0.01	0.02	0.02	0.02	0.03	0.03	--
1500	0.01	0.02	0.02	0.02	0.03	0.04	--
1600	0.01	0.02	0.02	0.03	0.03	0.04	0.04
1700	0.01	0.02	0.02	0.03	0.03	0.04	0.05
1800	0.01	0.02	0.02	0.03	0.04	0.04	0.05
1900	0.01	0.02	0.02	0.03	0.04	0.05	0.06
2000	0.01	0.02	0.02	0.03	0.04	0.05	0.06

Replacement Parts

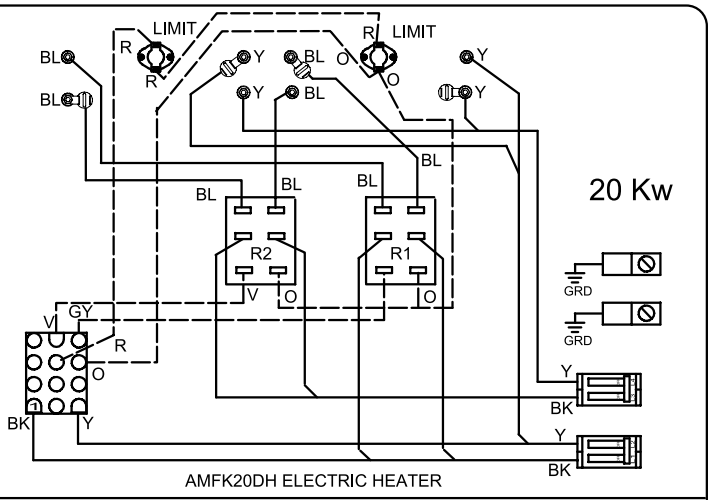


KEY NO.	DESCRIPTION		PART NUMBER	AMFK									
				05 DHA1	05 DHB1	07 DHA1	07 DHB1	10 DHA1	10 DHB1	14 DHB1	20 DHB1	25 DHB1	30 DHB1
1	Circuit Breaker,	25 Amp	1082008	-	-	-	-	-	-	1	-	1	-
		35 Amp	1082010	-	1	-	-	-	-	-	-	-	-
		45 Amp	1082012	-	-	-	1	-	-	-	-	-	-
		50 Amp	1082013	-	-	-	-	-	-	-	1	1	2
		60 Amp	1082014	-	-	-	-	-	1	1	1	1	1
1	Terminal Block		1087753	1	-	1	-	1	-	-	-	-	-
2	Ground Lug		91590	1	1	1	1	1	1	2	2	3	3
3	Relay		1172506	1	1	1	1	1	1	2	2	3	3
4	Limit Switch		1084734	1	1	1	1	1	1	-	-	-	-
			1084735	-	-	-	-	-	-	-	2	-	-
			1084749	-	-	-	-	-	-	-	-	2	2
			1085049	-	-	-	-	-	-	1	-	-	-
5	Fuse Link		1087749	-	-	-	-	-	-	3	-	-	6
			1087811	1	1	2	2	2	2	-	4	5	-
)(	Circuit Breaker Cover Seal		1087843	-	1	-	1	-	1	1	1	1	1

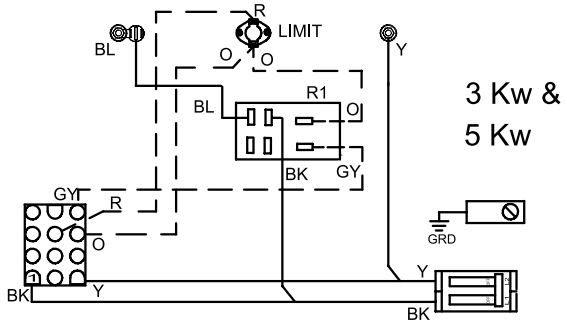
POWER SUPPLY: 208/230-1-60 USE COPPER CONDUCTORS ONLY.
KEY: ——— HIGH VOLT; – – – LOW VOLT.



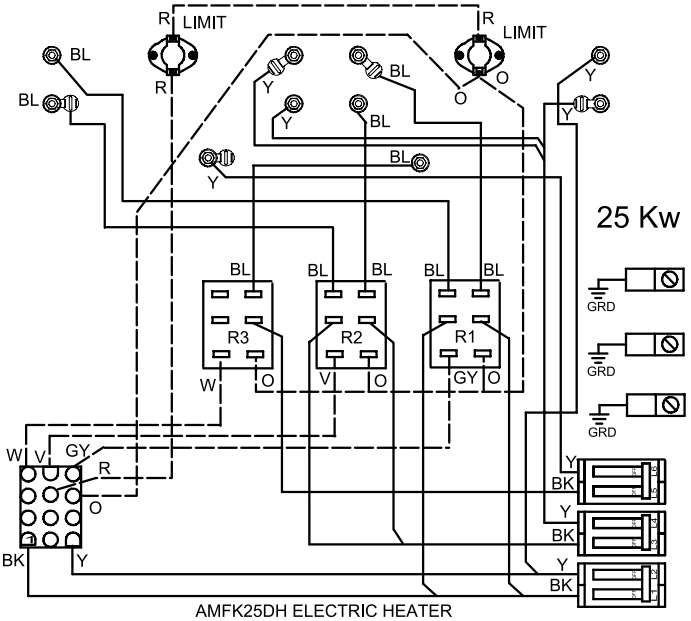
BASE UNIT WITH NO-HEAT KIT AMF001NH INSTALLED
*SEE INSTALLATION MANUAL FOR PROPER HEATING AND COOLING FACTORY PRE-SET SPEED CONNECTIONS FOR YOUR UNIT.



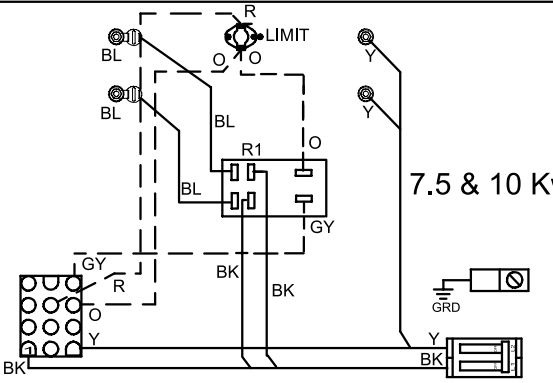
AMFK20DH ELECTRIC HEATER



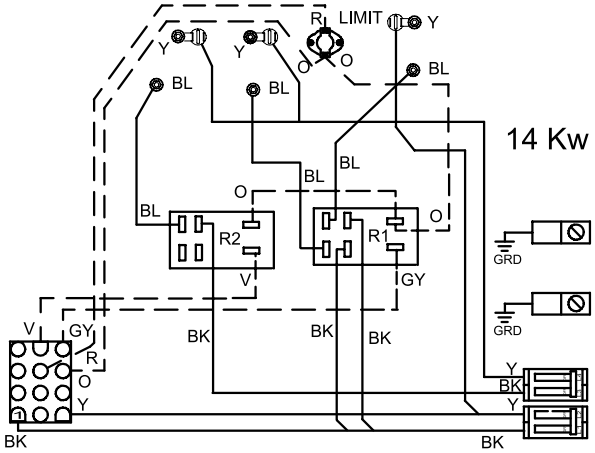
AMFK03DH / AMFK05DH ELECTRIC HEATER



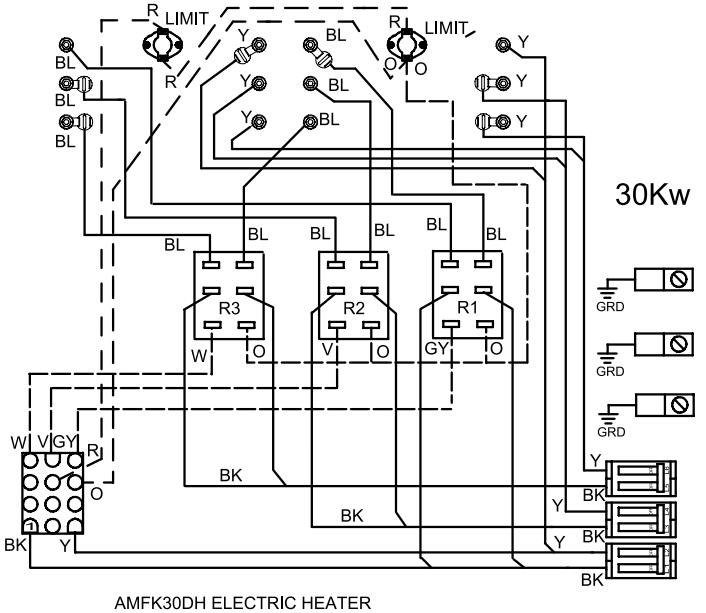
AMFK25DH ELECTRIC HEATER



* AMFK07DH / AMFK10DH ELECTRIC HEATER



AMFK14DH ELECTRIC HEATER



AMFK30DH ELECTRIC HEATER

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