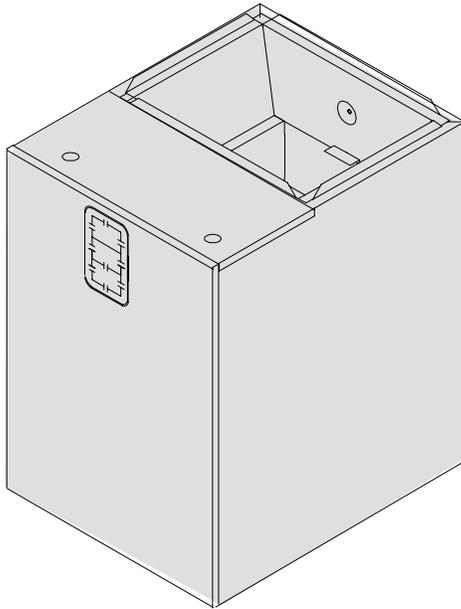


INSTALLATION INSTRUCTIONS



Use **ONLY** factory listed electric heaters.

Modular Blower (Variable Speed)

Models

MV08B1500A2
MV12F1900A2
MV16J2200A2
MV20N2600A2

Require
AMF001NHA
Accessory No Heat Kit

Contents

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Safety Labeling and Signal Words

Danger, Warning and Caution

The signal words **DANGER**, **WARNING** and **CAUTION** are used to identify levels of hazard seriousness. The signal word **DANGER** is only used on product labels to signify an immediate hazard. The signal words **WARNING** and **CAUTION** will be used on product labels and throughout this manual and other manuals that may apply to the product.

DANGER - Immediate hazards which **WILL** result in severe personal injury or death.

WARNING - Hazards or unsafe practices which **COULD** result in severe personal injury or death.

CAUTION - Hazards or unsafe practices which **COULD** result in minor personal injury or product or property damage.

Signal Words in Manuals

The signal word **WARNING** is used throughout this manual in the following manner:

WARNING

The signal word **CAUTION** is used throughout this manual in the following manner:

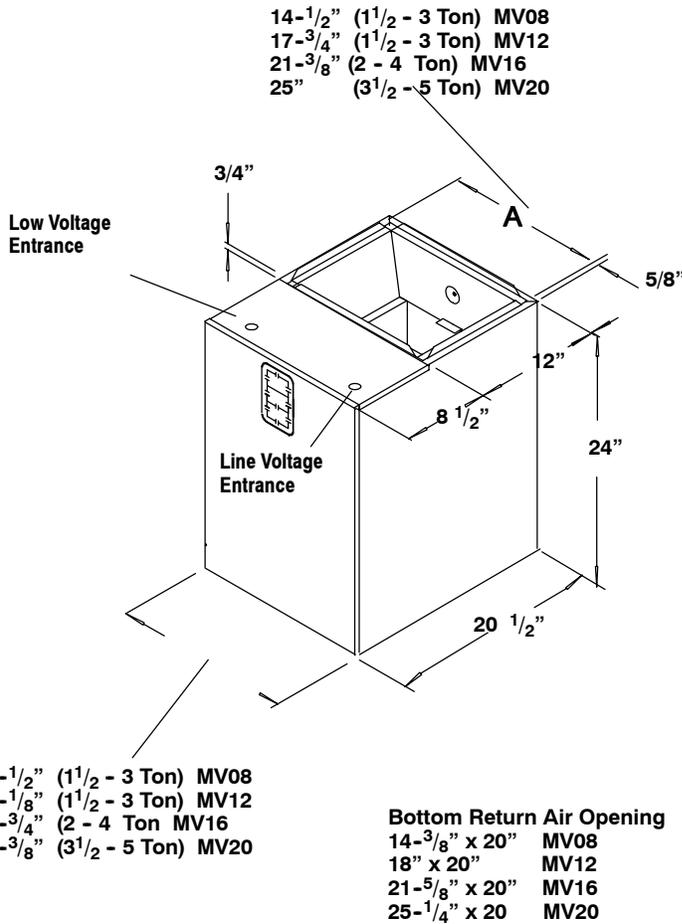
CAUTION

Product Labeling

Signal words are used in combination with colors and/or pictures on product labels.

Figure 1 Nominal Installation Dimensions and Clearances

38-20-17



CLEARANCES

NO HEATERS
 All Sides 0"
 From Supply Duct 0"
 Recommended Service From Front 20"
 (Service for blower, filter if installed)

WITH HEATERS
 All Sides 0"
 From First Three
 Feet of Supply Duct to Combustibles 1"
 From Duct after Three Feet 0"
 Recommended Service From Front 20"
 (Service for blower, heaters if installed)

WARNING

Fire Hazard

When heaters are installed maintain clearances from combustible materials as specified on unit rating plate. Do not use plastic lined or combustible flexible ducting within 36 inches of the supply end of the air handler.

Failure to do so can result in fire, property damage, personal injury and/or death.

General Information

WARNING

Installation or repairs made by unqualified persons can result in hazards to you and others. Installation MUST conform with local building codes and with the National Electrical Code NFPA70 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.

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

The blower cabinet may be used for cooling or heat pump operation with or without electric heat. Installations without electric heat, require a No Heat Kit. The cabinet can be installed in an upflow, downflow or horizontal position (Figure 3, 4).

Location

Select the best position which suits the installation site conditions. The location should provide adequate structural support, space in the front of the unit for service access, clearance for return air and supply duct connections, space for refrigerant piping connections and condensate drain line connections. If heaters are being installed make sure adequate clearance is maintained from supply ductwork, See Clearances and Warning in Figure 1.

If the unit is located in an area of high humidity, nuisance sweating of casing may occur. On these installations a wrap of 2" fiberglass insulation with a vapor barrier should be used.

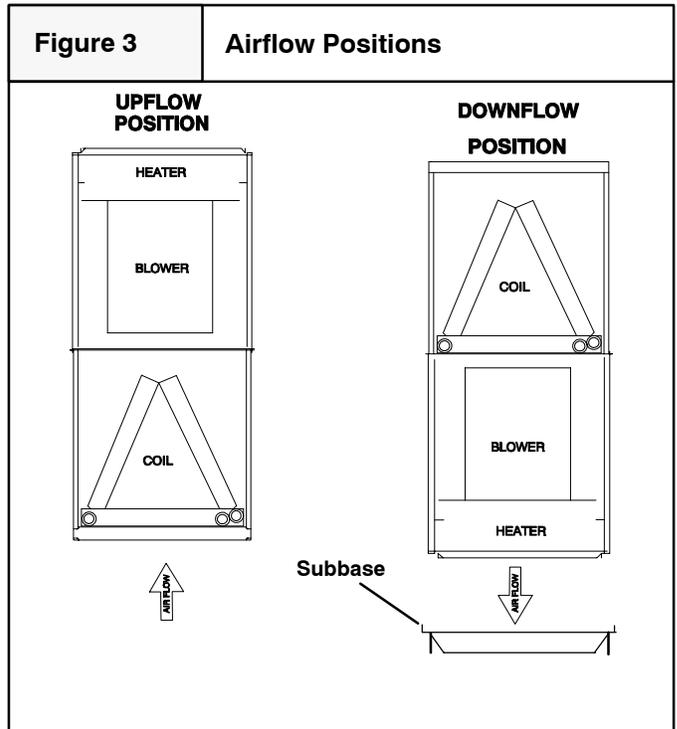
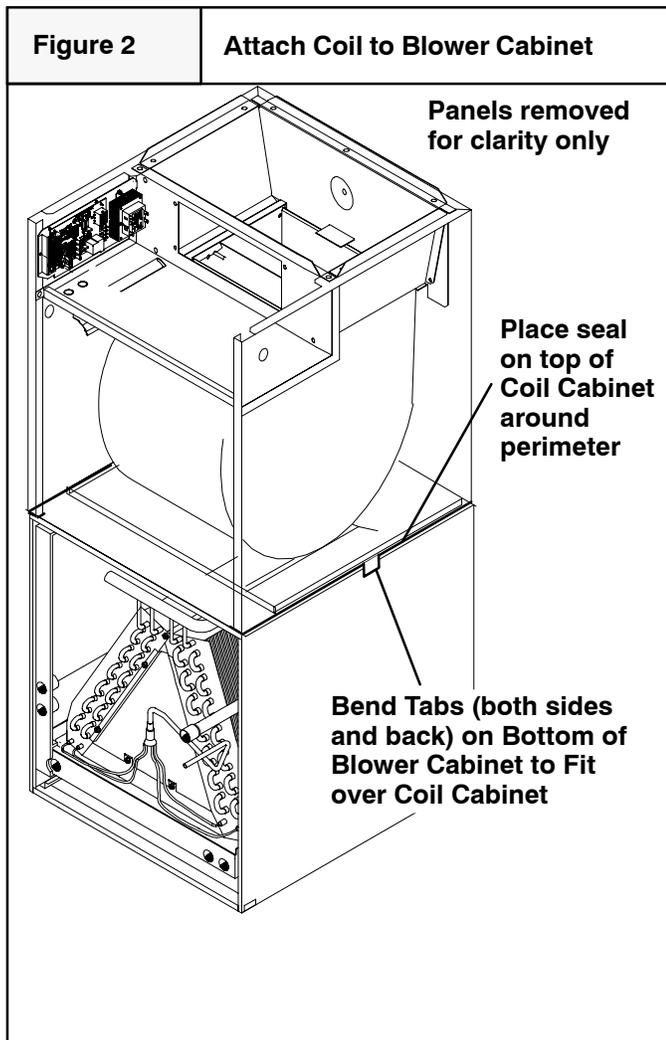
Installations

The unit is ready to install in any position without modifications. Refer to the coil instructions for information on drain pan configurations etc. Make sure coil is set up properly for desired position of blower cabinet.

Coil must be secured to blower cabinet with the three tabs that are part of the blower cabinet base. Bend the tabs out from the bottom so they fit over the coil cabinet.

Position coil cabinet in relation to the blower so they will be correct for desired application.

For upflow and horizontal applications apply foam seal strip around top of coil cabinet. For downflow application apply foam seal strip around bottom of coil cabinet. Set blower on top of coil cabinet so they are flush. Secure cabinets together using the three tabs on the bottom of the cabinet. Bend the tab out from the bottom so it fits over the coil cabinet. If no pilot holes are present, drill a hole as required for a screw.



Downflow Installations

Refer to instructions with Subbase Kit.

Non-Ducted Return Air Closet Installation

The cabinet can be installed in a closet with a false bottom to form a return air plenum, or mounted on an open platform inside the closet. Platform should be high enough to provide a free (open) area for adequate return airflow into the bottom of the cabinet. The open area can be on the front side or a combination of front and sides, providing there is clearance on the sides between cabinet and closet. **Refer to ACCA Manual D for sizing and free area recommendations.**

NOTE: Local codes may limit application of systems without a ducted return to single story dwellings.

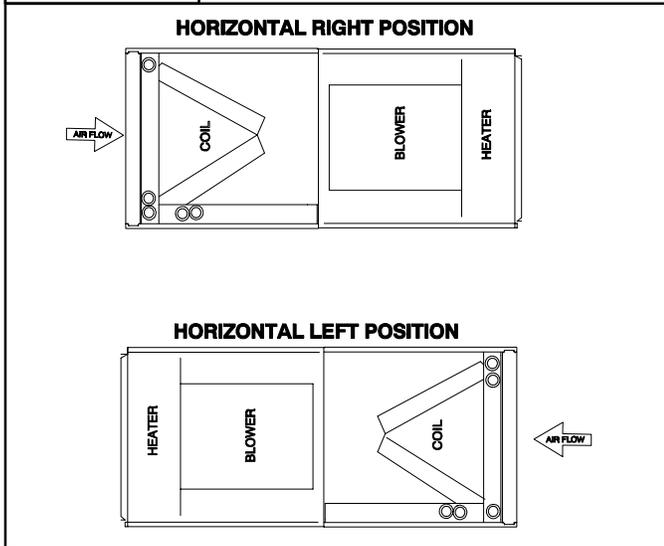
Horizontal Left and Right Installations

Coil cabinets that are shipped with the horizontal drain pan installed are set up for horizontal left hand airflow. They must have the drain pan repositioned for right hand airflow. Refer to coil installation manual.

CAUTION

A field fabricated auxiliary drain pan, with a separate drain is REQUIRED for all installations over a finished living space or in any area that may be damaged by overflow from the main drain pan. In some localities, local codes require an auxiliary drain pan for ANY horizontal installation.

Figure 4 Airflow Positions



Suspended Cabinet Installation

1. The cabinet may be supported on a frame or shelf, or it may be suspended.
2. Use metal strapping or threaded rod with angle iron supports under the auxiliary drain pan to suspend cabinet. These supports **MUST** run parallel with the length of the cabinet (**Figure 5**).
3. Ensure that there is adequate room to remove service and access panels after installing supporting brackets.
4. Place Styrofoam blocks in auxiliary drain pan to support cabinet.

Duct Connections

Supply Duct

Supply duct must be attached to the outside of flange on outlet end of unit. Flexible connectors may be used if desired. Maintain clearances from supply duct to combustibles when heaters are installed. See **Figure 1** and unit rating plate.

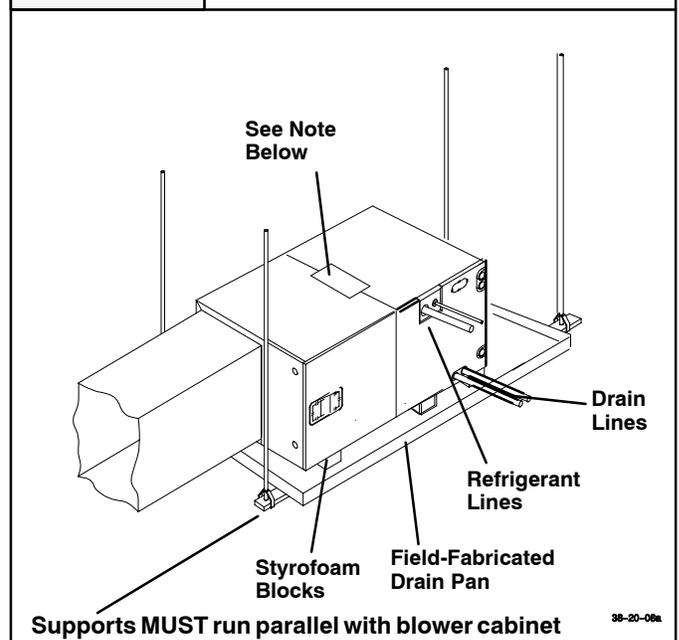
Return Duct

Return duct should be attached to bottom of unit using sheet metal screws or other fasteners.

Filter Installation

Filters must be field supplied. A remote filter grille or other means must be provided. Refer to ACCA Manual D for remote filter sizing.

Figure 5 Horizontal Installation



NOTE

If increased structural strength is needed in the horizontal position, use the two connecting plates that are shipped with the Multipoise Coil Cabinet in place of the tabs on the bottom of the blower.

Electrical Connections

WARNING

Electrical shock hazard.

Turn OFF electric power at fuse box or service panel before making any electrical connections and ensure a proper ground connection is made before connecting line voltage.

Failure to do so can result in property damage, personal injury and/or death.

All electrical work **MUST** conform with the requirements of local codes and ordinances and the National Electrical Code NFPA 70 current edition.

The low voltage transformer and the fan control are standard on all models and are prewired at the factory. Line voltage connections are made to the heater accessory or the lugs on the No Heat Kit.

Overcurrent Protection

The power supply wiring to the unit **MUST** be provided with overcurrent protection. Governing codes may require this to be fuses **ONLY** or circuit breakers.

For blower cabinets without heaters, a 15 amp circuit may be used.

No Heat Kit Installation

If electric heat is not used, install accessory No Heat Kit.

1. Locate adapter and filler plates, with screws inside package.
2. Attach adapter plate and filler plate to bracket if required to match cabinet, Refer to **Figure 6**.
3. Secure the No Heat Kit accessory with four screws.
4. Connect the plug from No Heat Kit wiring into the receptacle on the control board on the side of the cabinet.

CAUTION

Do not attempt to force plug as it only fits one way.

Line Voltage Connections

Line voltage wiring may be brought into the unit through the top right-hand corner. A hole for a 1/2" or 3/4" conduit fitting is provided.

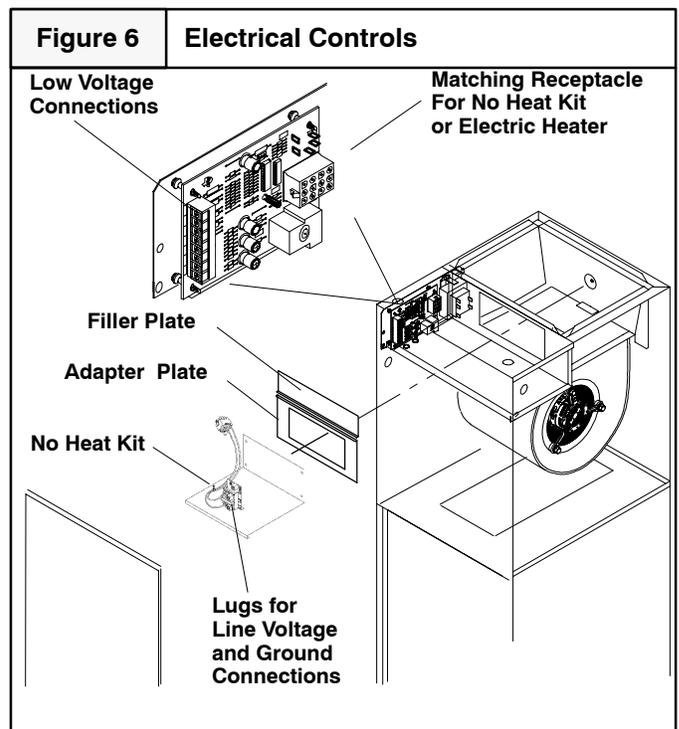
Connect field wiring to appropriate terminals on electric heater or lugs on the No Heat Kit. All line voltage connections must be made with copper wire.

Line Voltage Connection

1. Provide line voltage power supply (208V–240V) from a separate circuit(s). Size per table below or the table in electric heater manual.
2. Connect line voltage to the lugs on the No Heat Kit., or to circuit breakers or wire leads from heaters. Refer to **Figure 6** and wiring diagram.

Grounding Connection

Use a copper conductor(s) from the ground lug on the No Heat Kit or ground lugs on the electric heater to a grounded connection in the electric service panel or a properly installed grounding rod.



Supply Circuit			Supply Circuit No.	Nominal Motor H.P.	Maximum Motor AMPS.	Total AMPS.	Branch Circuit Ampacity*	Maximum Overcurrent Protective Device (AMPS.)	Recommended				
									Supply Wire 75 ° C. Copper			Ground Wire	
Volts	Phase	Hertz							No.	Size	Max. Length (Ft)	No.	Size
240	1	60	Single	1/2	3.3	3.3	3.8	15	2	14	104	1	14
208	1	60	Single	1/2	3.3	3.3	3.8	15	2	14	90	1	14
240	1	60	Single	1	6.6	6.6	6.9	15	2	14	104	1	14
208	1	60	Single	1	6.6	6.6	6.9	15	2	14	90	1	14

* Based on maximum ampacity allowed by Magellan control program.

Low Voltage Control Connections

The 24 volt power supply is provided by an internally wired low voltage transformer which is standard on all models. If power supply is 208 volt, the low voltage transformer must be rewired to the 208 volt tap. See the unit wiring label.

Field supplied low voltage wiring enters the unit on the top left hand corner.

Install the strain relief bushing (supplied with unit) in the hole.

Connect the field wiring at the screw terminals of the control board. Refer to **Figure 6**.

Keep the low voltage wiring as short as possible inside the control box.

Complete connections between indoor blower, outdoor section, indoor thermostat and electronic outdoor thermostat (accessory) according to instruction provided with the Condenser Installation Instructions or those provided with the accessory and refer to **Figures 7 and 8**.

Adjusting Thermostat Anticipator

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

Adding Humidistat or Outdoor Thermostat

Adding a humidistat or outdoor thermostat allows the airflow to be reduced to 80% of normal allowing greater humidity control. Humidistats are preferred but an outdoor thermostat can be used but can only be set based on temperature. Suggested starting point is 85 °F, but this will vary depending on several factors.

The control must be wired differently on air conditioners and heat pumps. On air conditioners connect to Y and H (Dehum) terminals, ref **Figure 7**.

HEAT PUMPS ONLY: Heat pumps must use only the outdoor thermostat, because it is powered instead of just performing a switching function. This allows it to be out of the circuit when continuous circulation is desired, which is required for the system to operate on Fan Only for circulation, which is 60% airflow. On heat pumps connect to Y and H (Dehum) terminals, and C and O to power the outdoor thermostat. ref **Figure 8**.

Electric Heater Staging

The heater elements are turned on in increments. Refer to Heater Staging Table in the Heater Installation Manual. 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.

Motor Speeds and Airflow

See **Figure 9 and Pages 8 & 9**.

The motor speed can be set on one of eight speeds and the air flow will adjust between 60%, 80% and 100% depending on settings. Time ON / OFF settings can also be adjusted.

Determine coil static pressure drop, consult coil manual and measure duct system static pressure, then determine required speed setting from blower charts.

For Cooling - Set switches 6, 7, and 8 on the motor end bell to position 0 (off) or 1 (on) as specified on blower charts.

For Heating - Set switches 3, 4, and 5 on the motor end bell to position 0 (off) or 1 (on) as specified on blower charts.

Set switches 1 and 2 to position 0 (off) or 1 (on) as specified in **Figure 9** to control Fan delay ON - OFF.

NOTE: Power must be completely OFF to unit any time switch settings are changed or settings will not take effect.

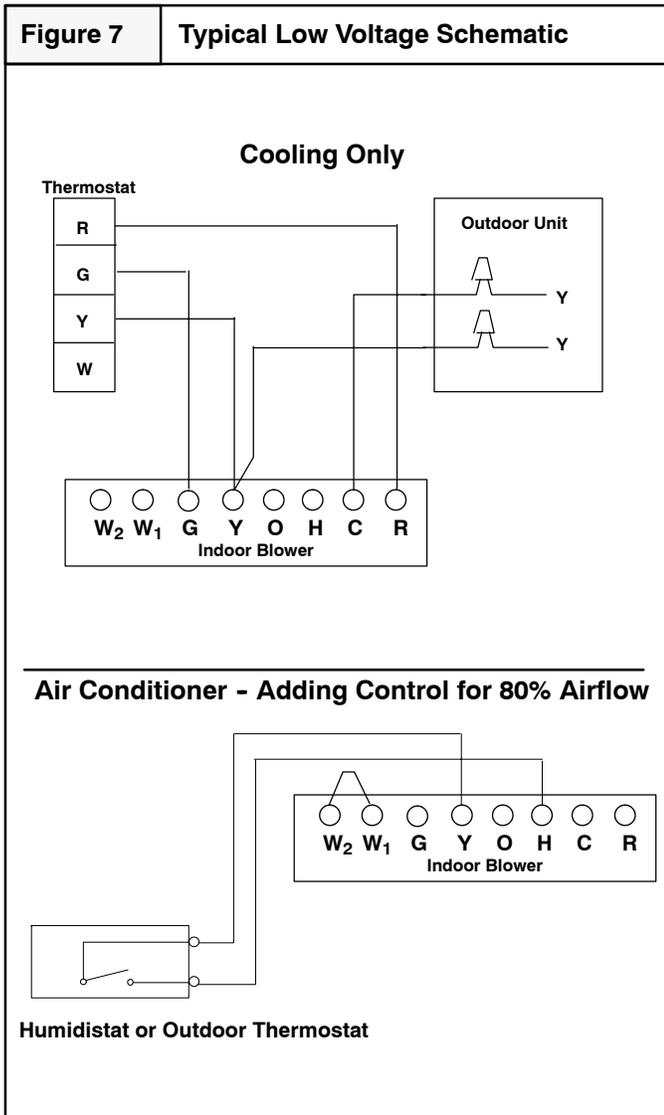
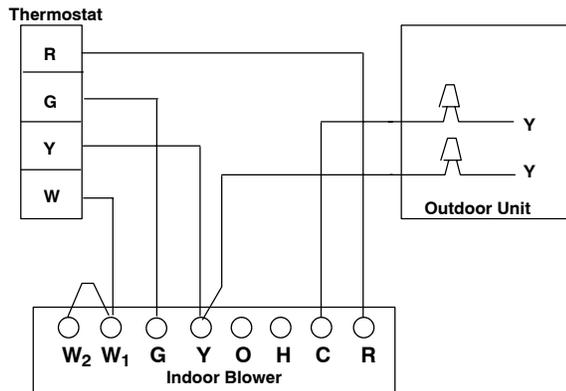
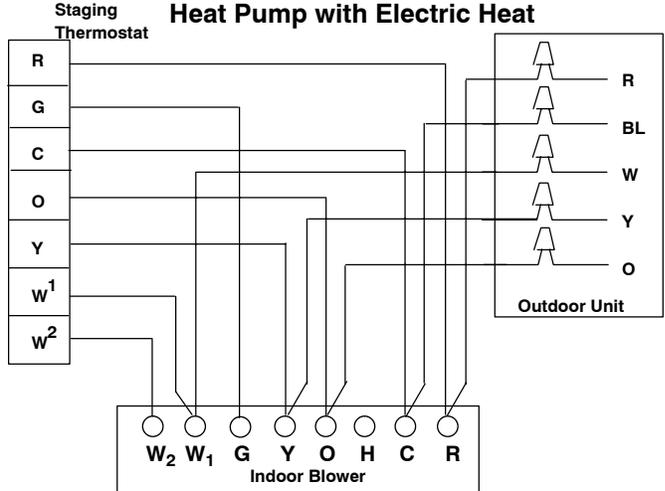


Figure 8 Typical Low Voltage Control Schematic

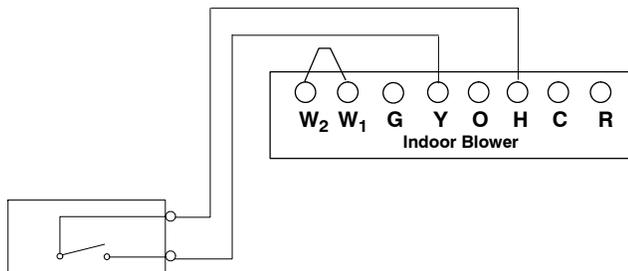
Cooling with Electric Heat



Heat Pump with Electric Heat

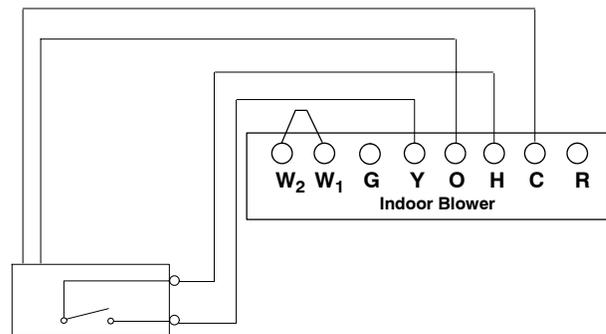


Air Conditioner - Adding Control for 80% Airflow



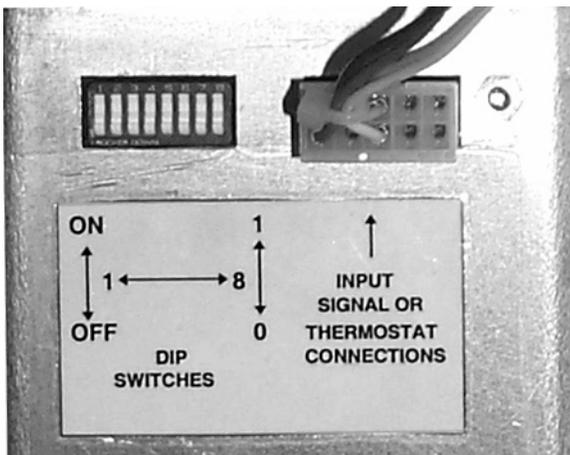
Humidistat or Outdoor Thermostat

Heat Pump - Adding Control for 80% Airflow



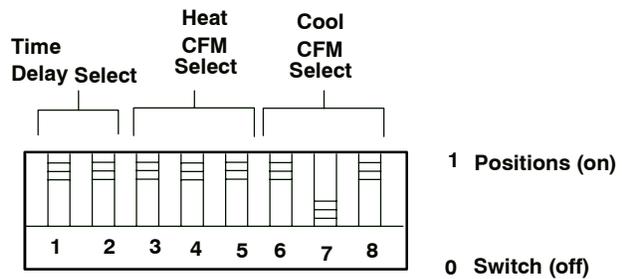
Outdoor Thermostat

Figure 9 Motor Speeds



Motor Controller mounted to blower housing

See next page for switch positions and CFM range



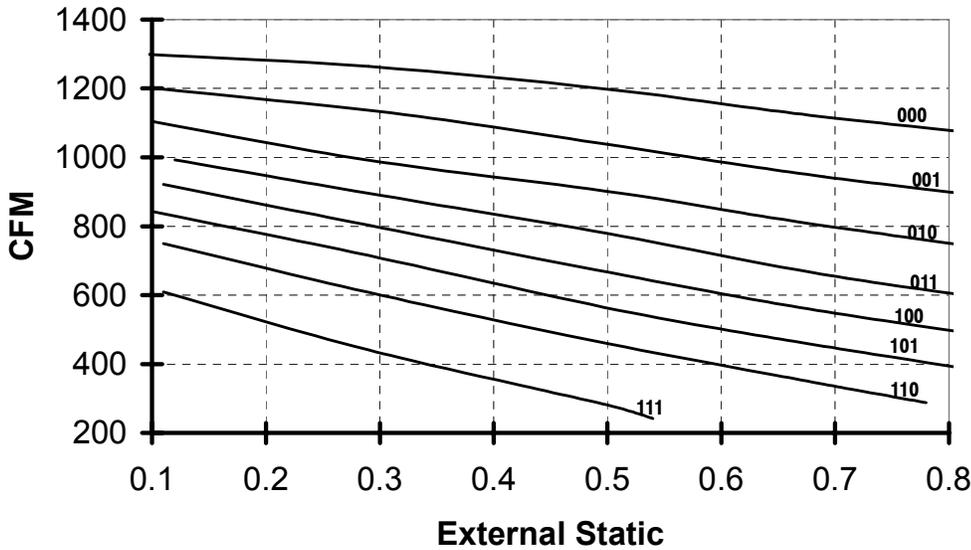
Available Selections:

Time Delays:

- 00 0 sec. on/ 60 sec. off (default)
- 01 0 sec. on/ 90 sec. off
- 10 0 sec. on/ 30 sec. off
- 11 0 sec. on/ 0 sec. off

Airflow and Motor Speeds

MV08B1500A



NOTE:
Both sets of switches must be set

Dip Switch Settings are set at switches 6, 7 and 8 for Cooling, 3, 4, and 5 for Heating.

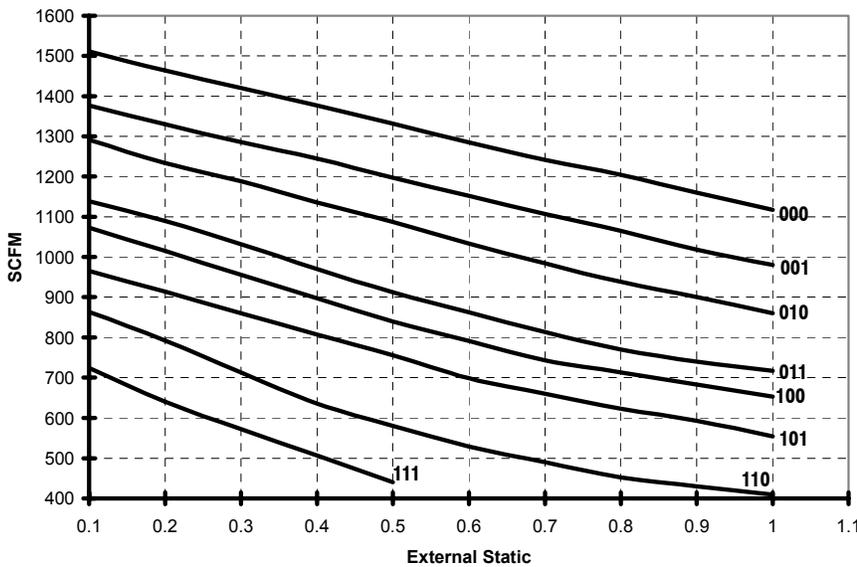
Dip Switch Settings

000 Highest Speed
111 Lowest Speed

For Heat Pumps both sets of switches should be set the same.

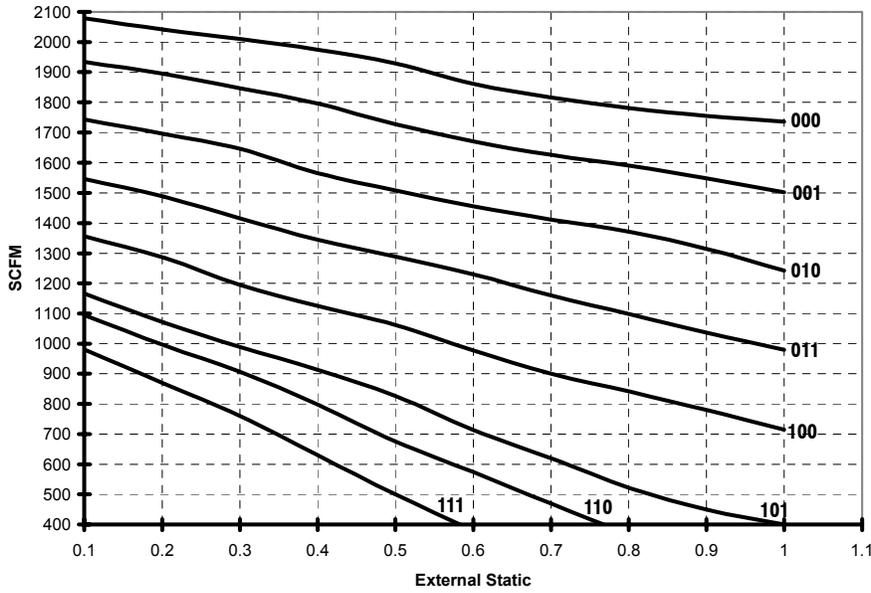
For electric heat the heat switches can be set to obtain a comfort level within the specified heat rise of the unit.

MV12F1900A Airflow



Airflow and Motor Speeds

MV16J2200A Airflow



NOTE:
Both sets of switches must be set

Dip Switch Settings are set at switches 6, 7 and 8 for Cooling, 3, 4, and 5 for Heating.

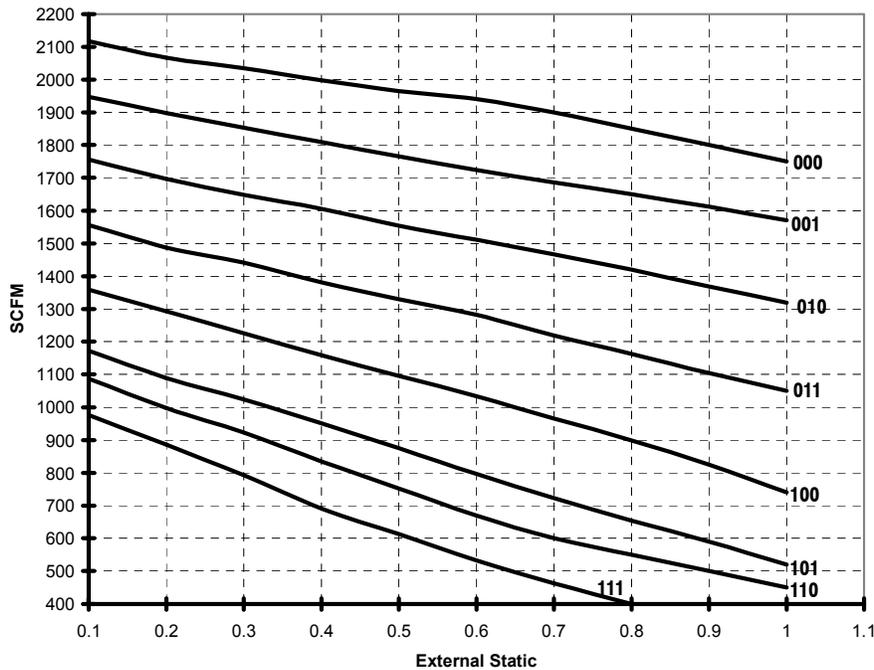
Dip Switch Settings

000 Highest Speed
111 Lowest Speed

For Heat Pumps both sets of switches should be set the same.

For electric heat the heat switches can be set to obtain a comfort level within the specified heat rise of the unit.

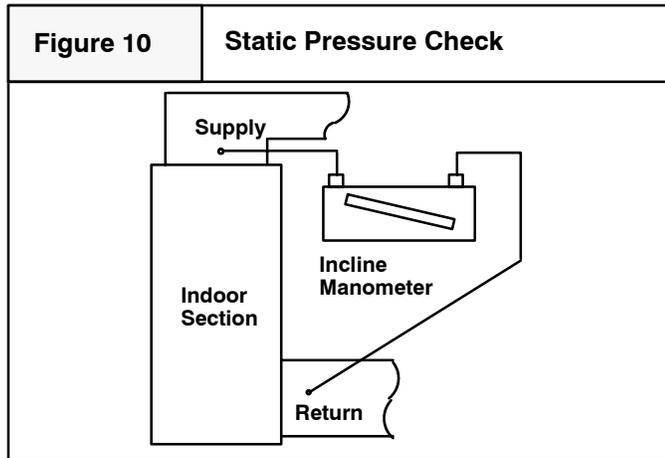
MV20N2600A Airflow



Air Flow Check

For proper system operation, the air flow through the indoor coil should be between 350 and 450 cfm per ton of cooling capacity. The air flow through the unit can be determined by measuring the external static pressure to the unit and selecting the motor speed tap that will most closely provide the required air flow.

1. Set up to measure external static pressure at the supply and return duct connections (**Figure 10**).
2. Drill holes in the ducts for pressure taps, pitot tubes, or other accurate pressure sensing devices.



3. Connect these taps to a level inclined manometer or draft gauge.
4. Ensure the coil and filter are clean, and all the registers are open.
5. Determine the external static pressure with the blower operating.
6. Refer to the Air Flow Data tables, page 8 to find the Dip Switch Speed setting that will most closely provide the required air flow for the system.
7. Refer to Motor Speeds and Airflow in these instructions if the speed is to be changed.
8. Recheck the external static pressure with the new setting, and confirm speed switch selection.

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.

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.

Maintenance

Filters

Filters must be cleaned when they become dirty. Inspect at least once per month. The frequency of cleaning depends upon the hours of operation and the local atmospheric conditions. Clean filters keep unit efficiency high.

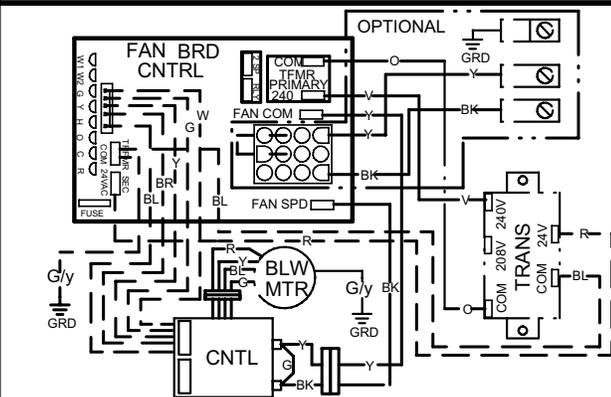
Lubrication

The bearings of the blower motor are permanently lubricated.

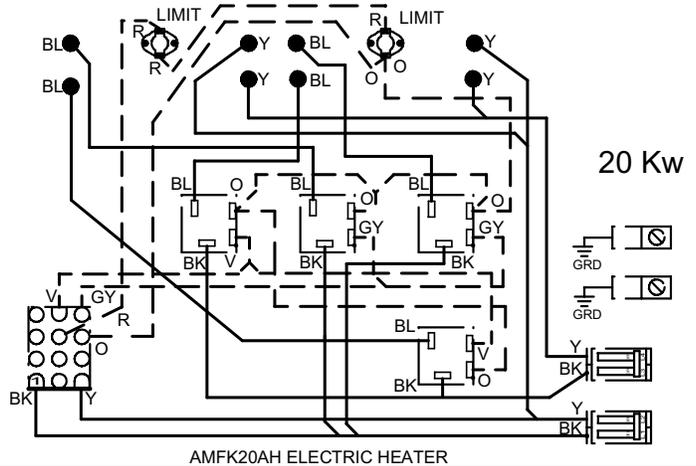
Condensate Drains

During the cooling season check the condensate drain lines to be sure that condensate is flowing from the primary drain but not from the secondary drain. If condensate ever flows from the secondary drain the unit should be promptly shut off and the condensate pan and drains cleaned to insure a free flowing primary drain.

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

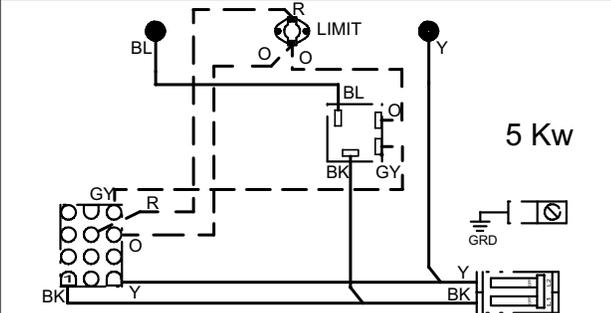


BASE LIMIT OPTIONAL NO-HEAT KIT AMF001NH INSTALLED
 *SEE INSTALLATION MANUAL FOR PROPER HEATING AND COOLING
 FACTORY PRE-SET SPEED CONNECTIONS FOR YOUR UNIT.



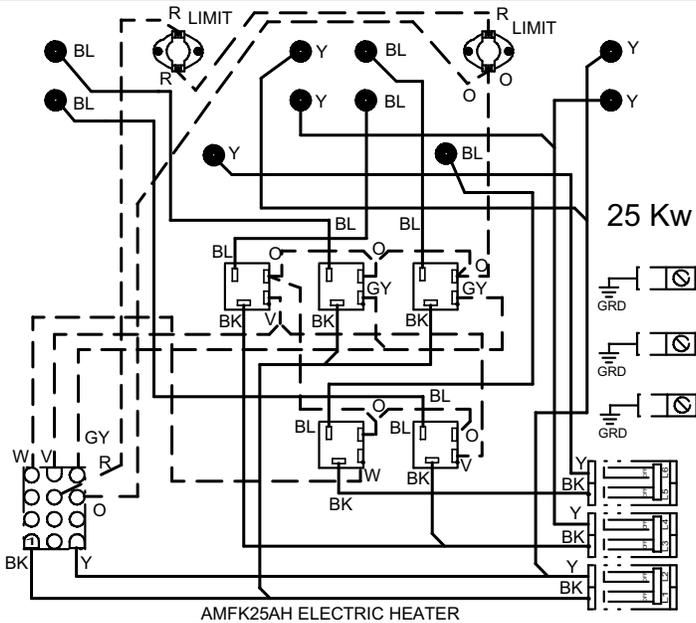
AMFK20AH ELECTRIC HEATER

20 Kw



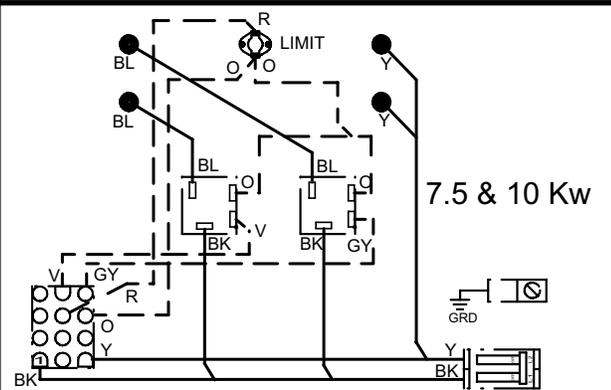
AMFK05AH ELECTRIC HEATER

5 Kw



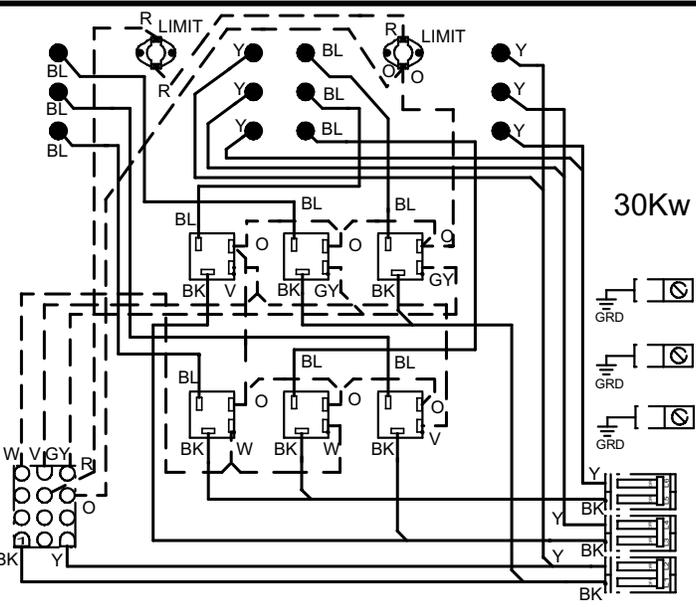
AMFK25AH ELECTRIC HEATER

25 Kw



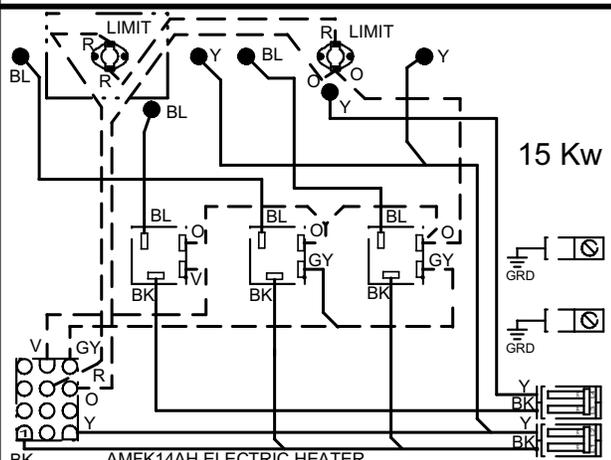
* AMFK07AH / AMFK10AH ELECTRIC HEATER

7.5 & 10 Kw



AMFK30AH ELECTRIC HEATER

30 Kw



AMFK14AH ELECTRIC HEATER
 *AMFK15AH ELECTRIC HEATER (2 LIMITS)

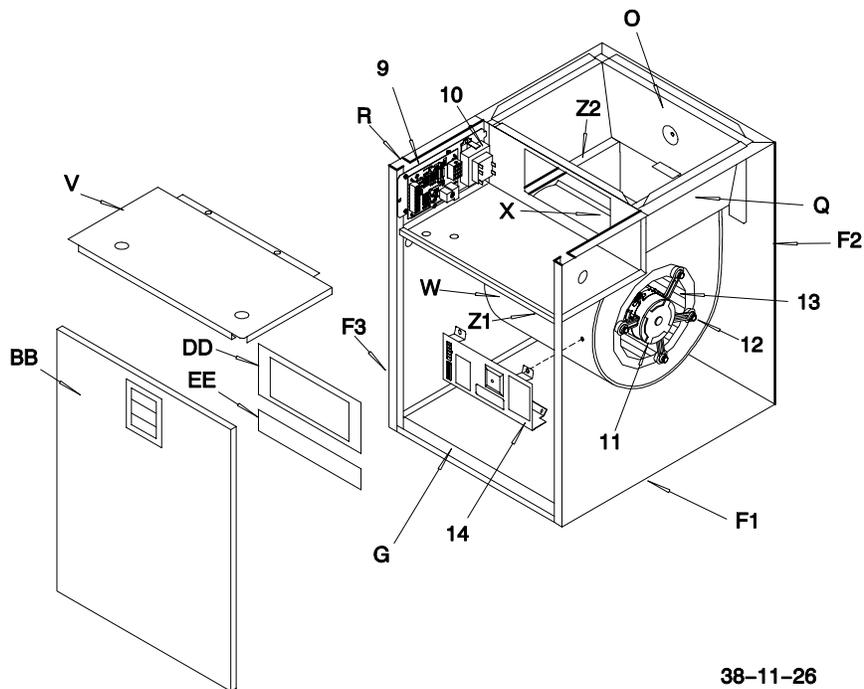
15 Kw

1087574

Replacement Parts

KEY NO.	DESCRIPTION	PART NUMBER				
			MV08B1500A2	MV12F1900A2	MV16J2200A2	MV20N2600A2
9	Control, Fan Timer	1085914	1	1	1	1
10	Transformer	1082611	1	1	1	1
11	Motor, Blower	1012478	1	1		
11		1012479	-	-	1	1
12	Mount, Blower Motor	1066700	1	1		
12		1057955	-	-	1	1
13	Wheel, Blower	600586	1			
13		600587	-	1		
13		96839	-	-	1	1
14	Control, Motor	1012476	1	1		
14		1012477	-	-	1	1
F1	Panel, Side (Right)	1085854	1	1	1	1
F2	Panel, Rear	1085861	1			
F2		1085862	-	1		
F2		1085863	-	-	1	
F2		1085864	-	-	-	1
F3	Panel, Side (Left)	1085855	1	1	1	1
G	Brace, Bottom	1069603	1			
G		1069604	-	1		
G		1069605	-	-	1	
G		1069606	-	-	-	1
O	Panel, Rear Blower Deck	1082604	1			
O		1082844	-	1		
O		1082845	-	-	1	
O		1082846	-	-	-	1

KEY NO.	DESCRIPTION	PART NUMBER				
			MV08B1500A2	MV12F1900A2	MV16J2200A2	MV20N2600A2
P	Panel, Front Blower Deck	1086694	1			
P		1085372	-	1		
P		1085373	-	-	1	
P		1085374	-	-	-	1
Q	Panel, Side Blower Deck	1082622	2			
Q		1082847	-	2		
Q		1082848	-	-	2	
Q		1082849	*	*	*	2
R	Bracket, Control Fan	1085371	1	1	1	1
V	Panel, Top	1085857	1			
V		1085865	-	1		
V		1085866	-	-	1	
V		1085867	-	-	-	1
W	Housing, Blower	1087195	1			
W		1087193	-	1		
W		1087194	-	-	1	1
X	Panel, Blower Cutoff	1082607	1			
X		1082616	-	1		
X		1082949	-	-	1	1
Z1	Rail, Blower R.H.	1085504	1	1	1	1
Z2	Rail, Blower L.H.	1085521	1	1	1	1
BB	Door, Blower Access	1085856	1			
BB		1085858	-	1		
BB		1085859	-	-	1	
BB		1085860	-	-	-	1
DD	Plate, Heater Adapter	1084606	-	1	1	1
EE	Plate, Heater Filler	1084608	-	-	1	1
)	Harness, Wire	1087049	1	1	1	1
)	Harness, Wire	1087519	1	1	1	1
)	Harness, Wire	1087518	1	1	1	1
)	Manual, Installation	44201230300	1	1	1	1



38-11-26