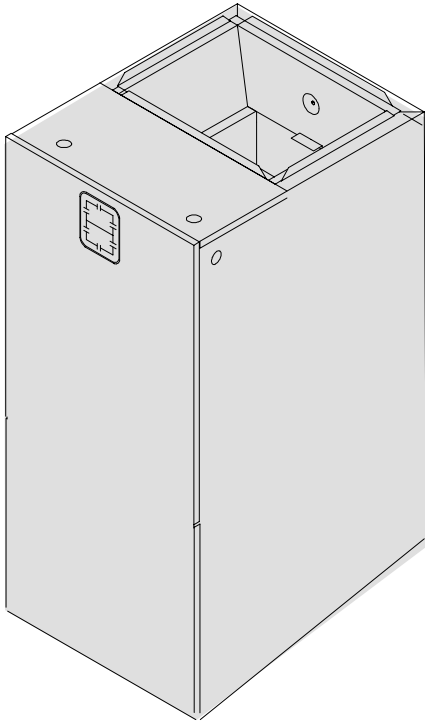


INSTALLATION INSTRUCTIONS



Use **ONLY** factory listed electric heaters.

Blower Coils

Models

EV12F1900A
EV16J2200A
EV20N2600A

Require
AMF001NHA
Accessory No Heat Kit

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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:

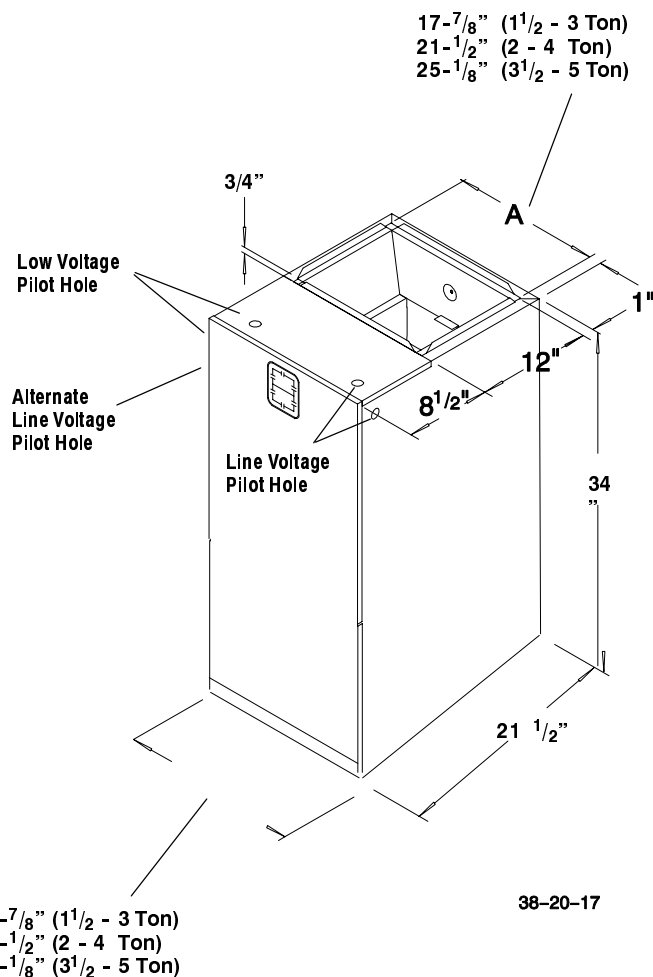
CAUTION

Product Labeling

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

Figure 1

Dimensions and Clearances



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, filter, heaters if installed)	

WARNING

Fire Hazard

When heaters are installed maintain clearances from combustible materials as specified on unit rating plate.

Failure to do so can result in fire, property damage, personal injury 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.

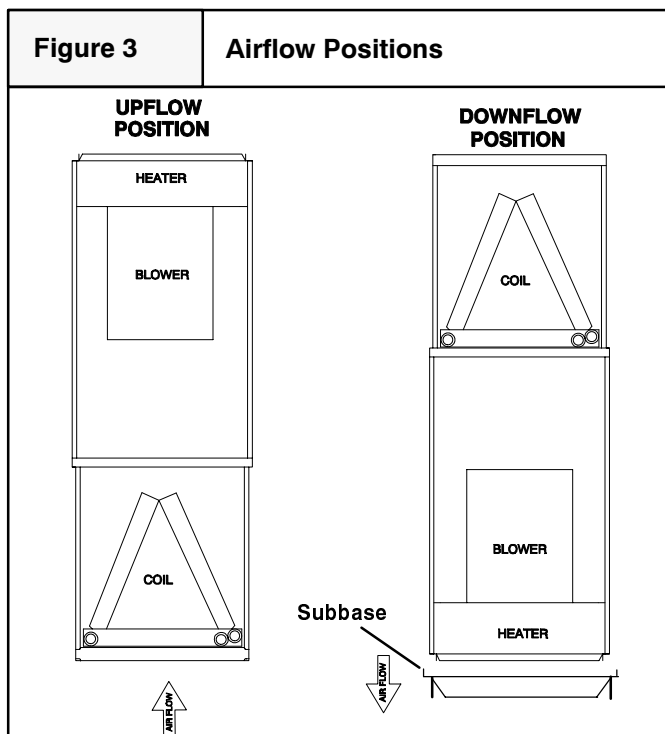
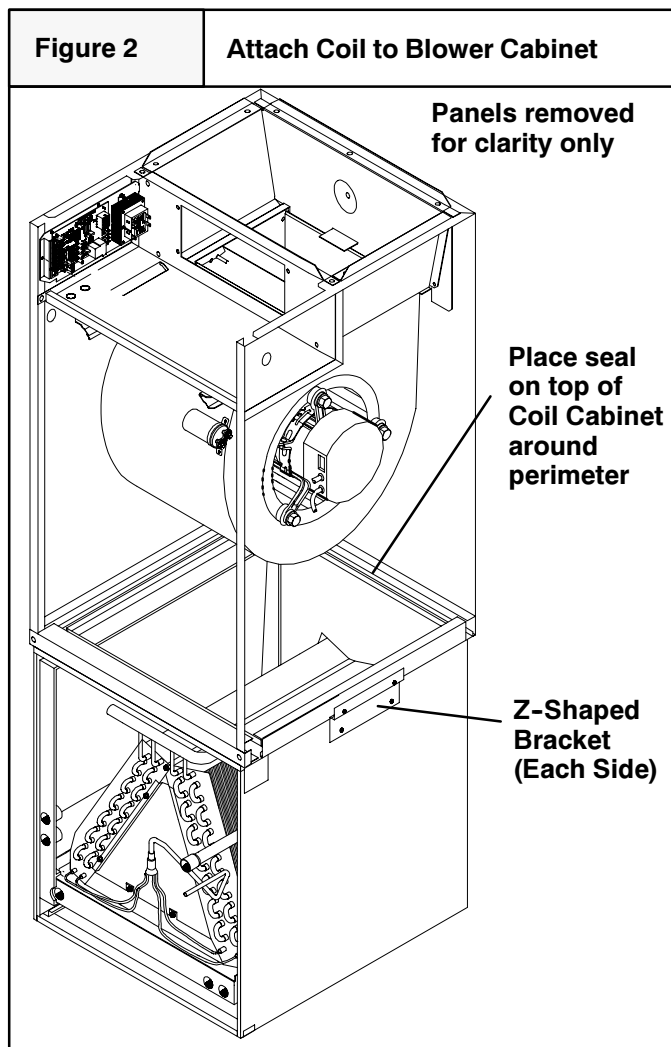
Coil must be secured to blower cabinet with two Z-shaped brackets that fit on the sides.

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

Apply foam seal strip around top of coil cabinet. Set blower on top of coil cabinet so the backs are flush and it is centered side to side. Secure cabinets together using the Z-shaped brackets. If no pilot holes are present, center brackets front to back and drill holes as required for screws.

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

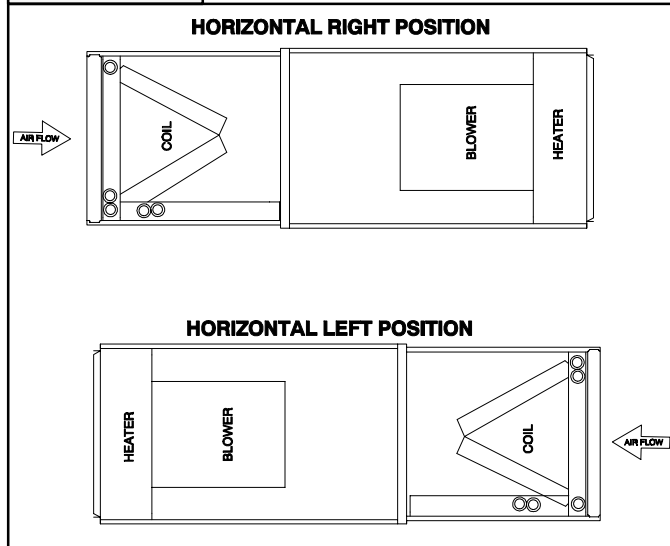
Coil cabinets that are shipped with the horizontal drain pan installed are set up for horizontal left hand airflow. They must have the drain pan repositioned for right hand airflow. Refer to coil installation manual.

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

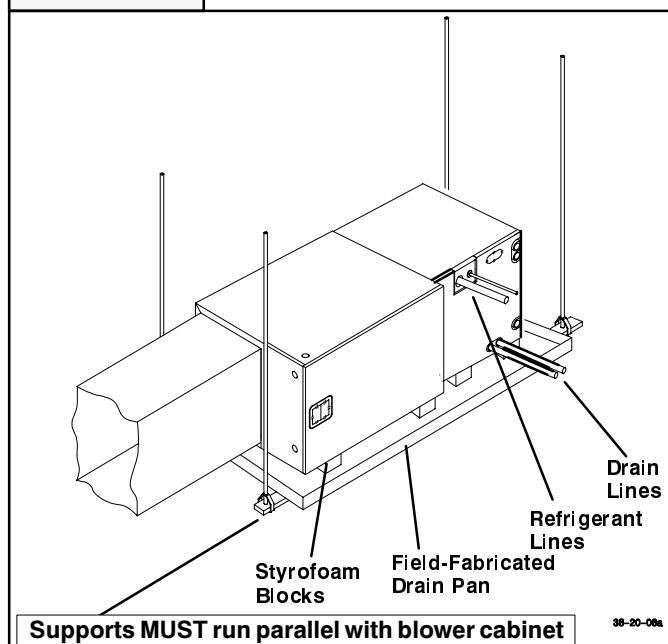
Return duct should be attached to bottom of unit using sheet metal screws or other fasteners.

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



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 or the right-hand side panel. The correct hole size required by the conduit fitting must be punched at the pilot hole location. Plug the unused pilot hole with a hole plug (supplied with unit).

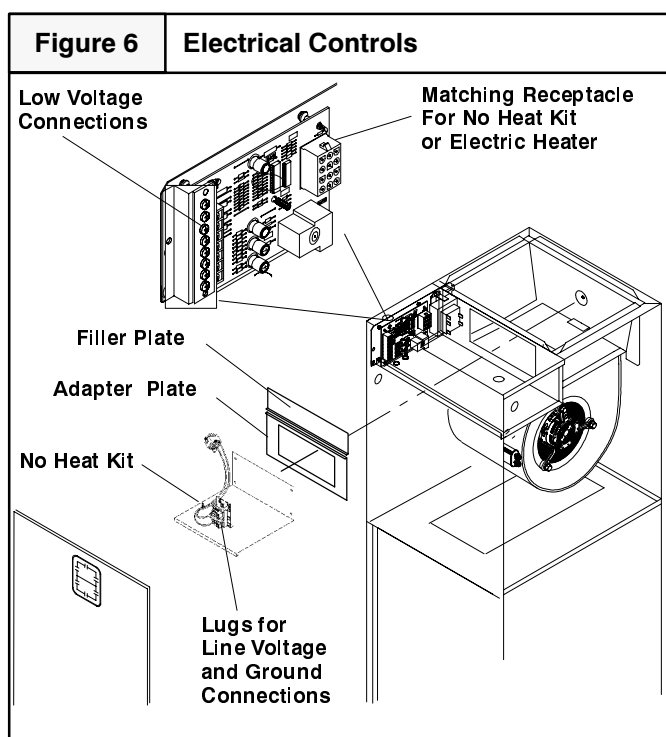
Connect field wiring to appropriate terminals on electric heater or lugs on the No Heat Kit. All line voltage connections must be made with copper wire.

Line Voltage Connection

1. Provide line voltage power supply (208V–240V) from a separate circuit(s). Size per table or table in 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 driven and electrically grounded ground rod.



Supply Circuit			Supply Circuit No.	Maximum Motor AMPS.	Total AMPS.	Branch Circuit Ampacity	Maximum Overcurrent Protective Device (AMPS.)	Recommended				
								Supply Wire			Ground Wire	
								75 ° C. Copper				
Volts	Phase	Hertz						No.	Size	Max. Length (Ft)	No.	Size
240	1	60	Single	6.0	6.0	7.5	15	2	14	104	1	14
208	1	60	Single	6.0	6.0	7.5	15	2	14	90	1	14

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 can enter the unit on the top left hand corner* or the left hand side panel. When using the left hand side panel entrance, the low voltage wiring must be fed through the entrance hole in the bottom of the blower deck into the control area.

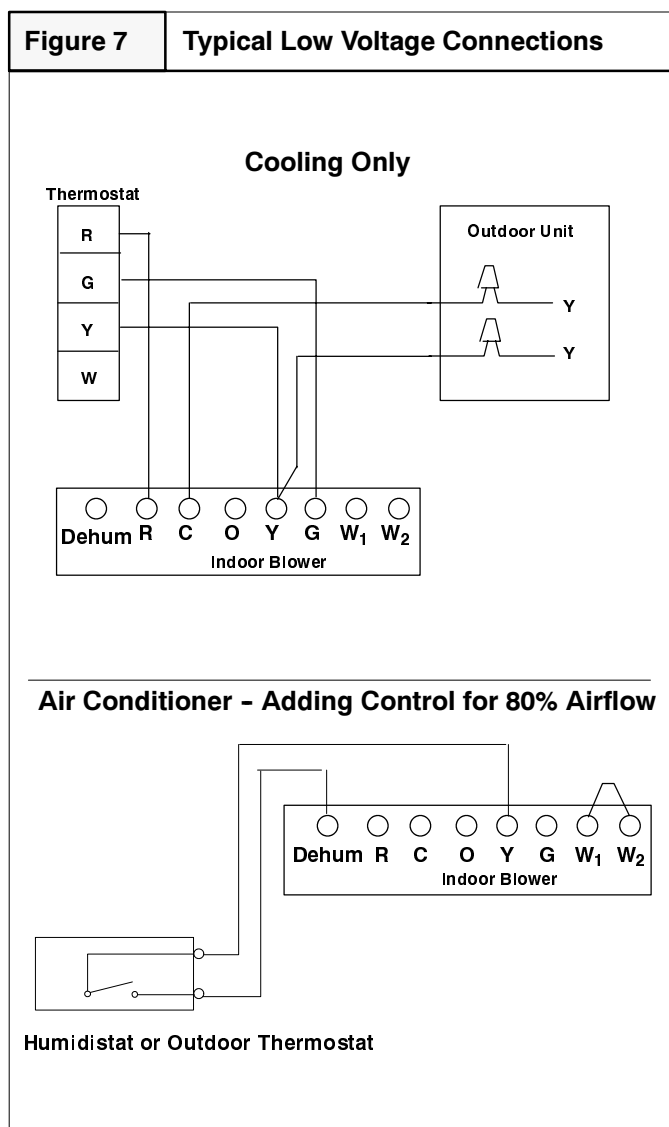
*Use left side entrance if a Hot Water Coil is going to be used.

Install the strain relief bushing (supplied with unit) in the selected hole and a hole plug (supplied with unit) in the unused 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 **Figure 7**.



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 Size - KW	Anticipator Setting
05	.24
07, 10	.32

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 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 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 Page 8.

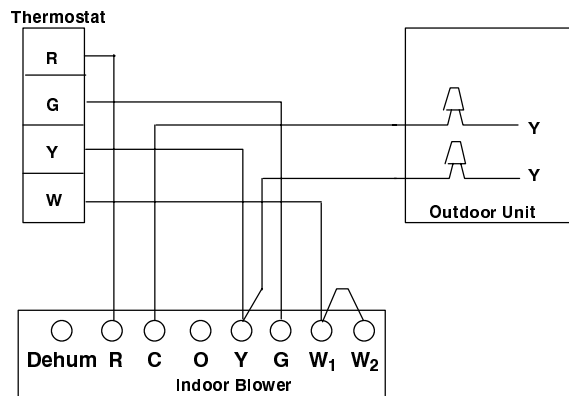
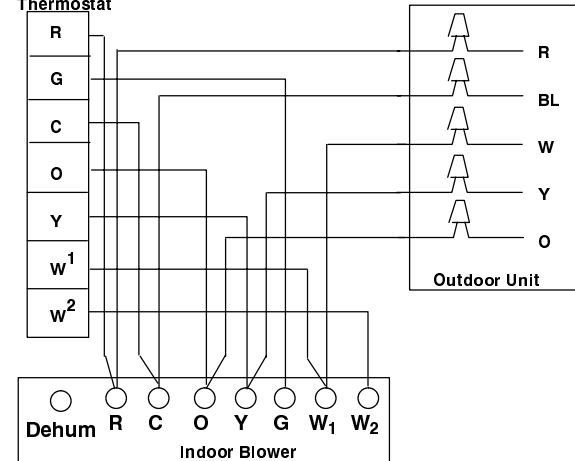
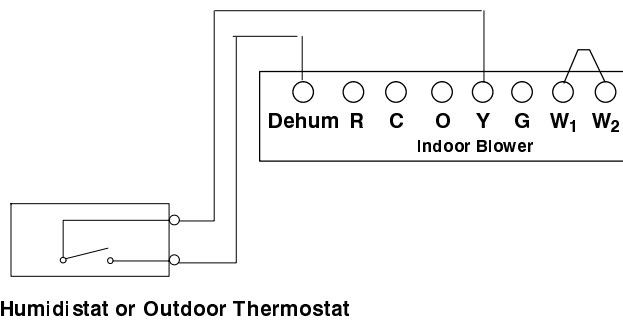
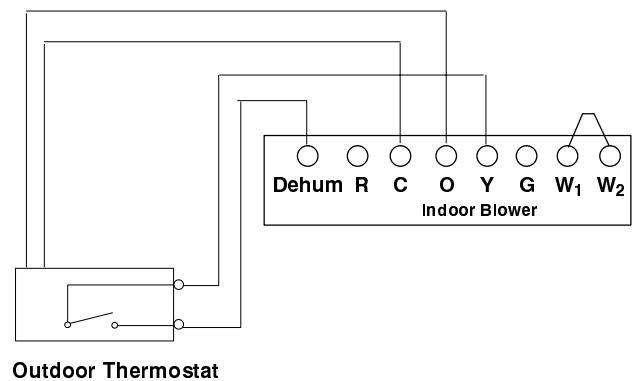
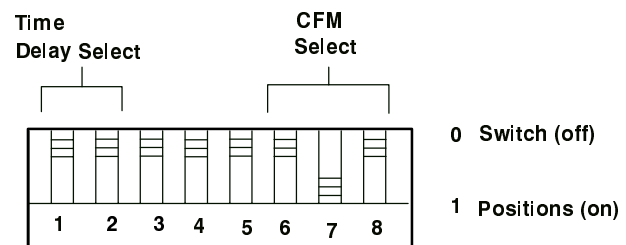
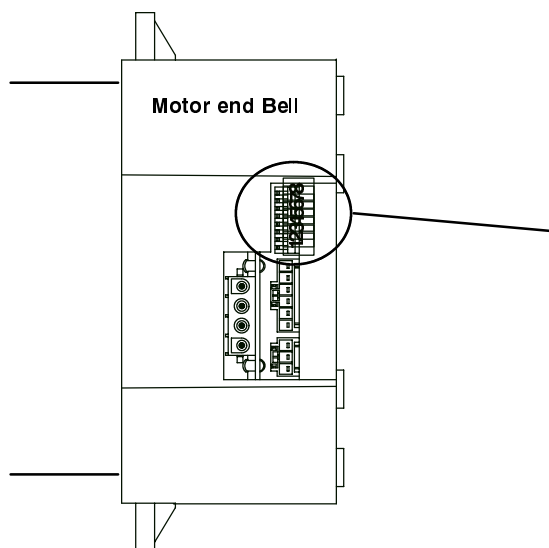
The motor speed can be set on one of eight speeds and the air flow will adjust between 60%, 80% and 100% depending on settings. Time ON / OFF settings can also be adjusted.

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

Set switches 6, 7, and 8 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.

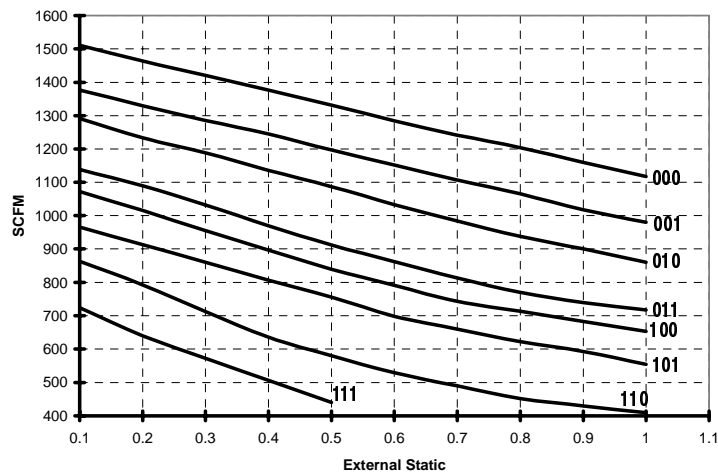
NOTE: Power must be completely OFF to unit any time switch settings are changed or settings will not take effect.

Figure 8 Typical Low Voltage Control Wiring**Cooling with Electric Heat****Heat Pump with Electric Heat****Air Conditioner - Adding Control for 80% Airflow****Heat Pump - Adding Control for 80% Airflow****Figure 9** Motor Speeds**Available Selections:****Time Delays:**

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

Airflow and Motor Speeds

EV12F1900 Airflow

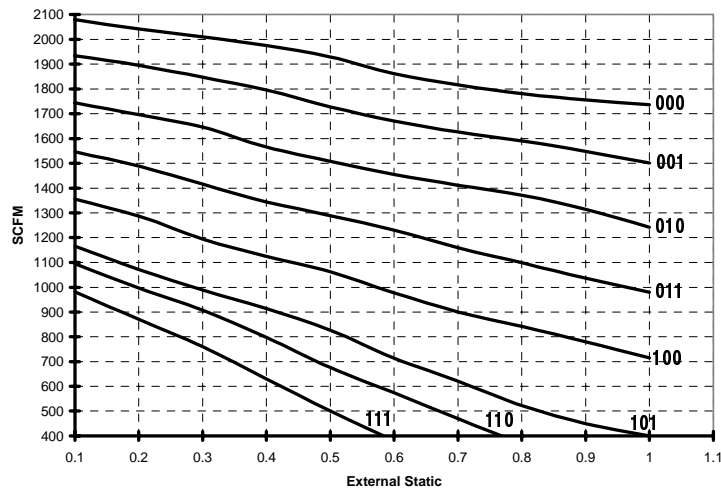


Dip Switch Settings
are set at switches
6, 7 and 8 on the
motor end bell.

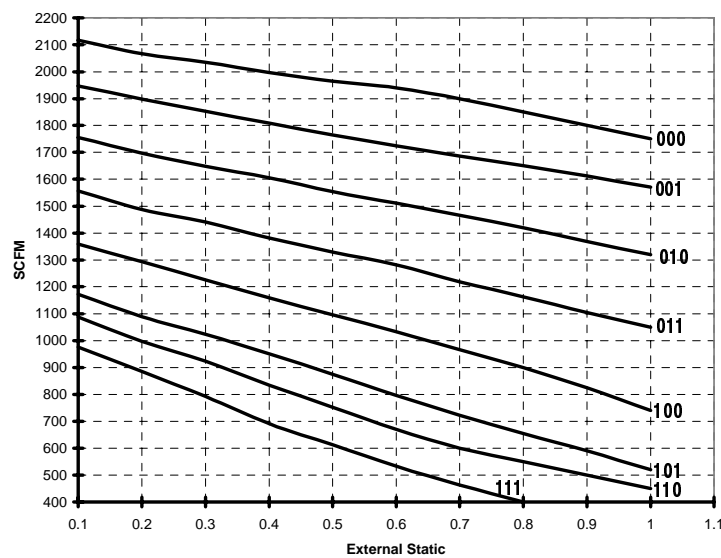
Dip Switch Settings

000 Highest Speed
111 Lowest Speed

EV16J2200 Airflow



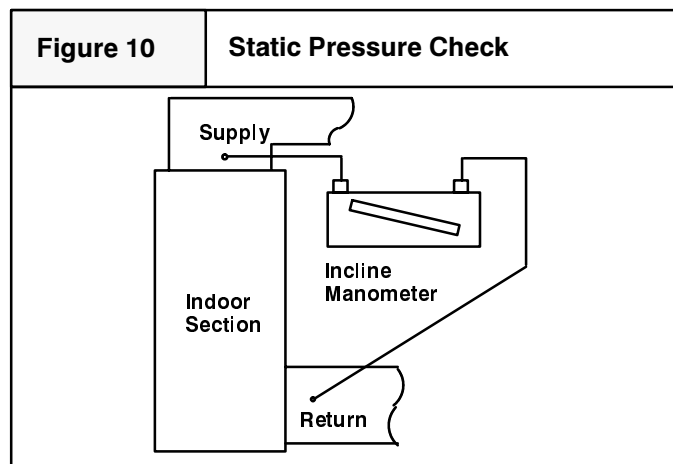
EV20N2600 Airflow



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.

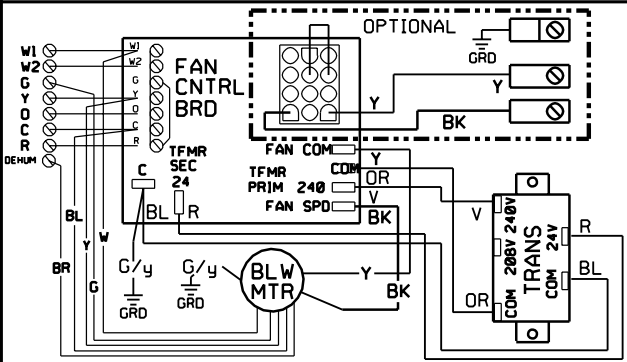
Lubrication

The bearings of the blower motor are permanently lubricated.

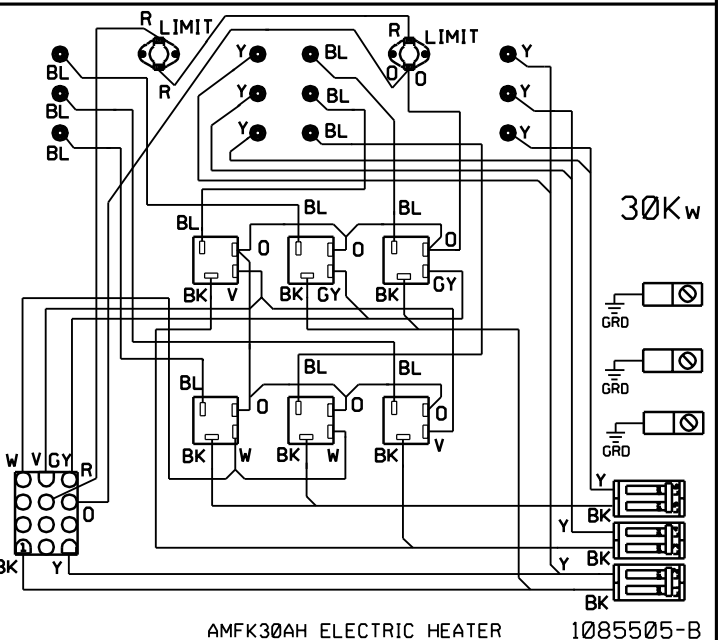
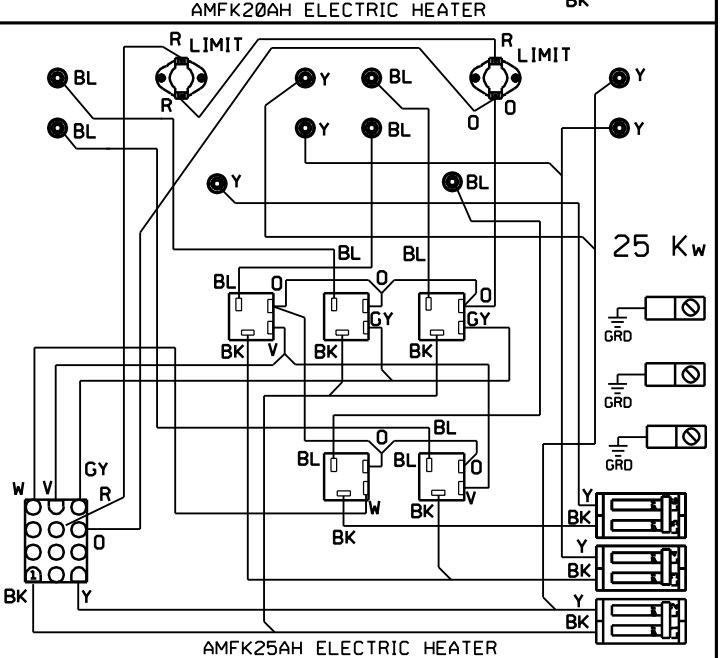
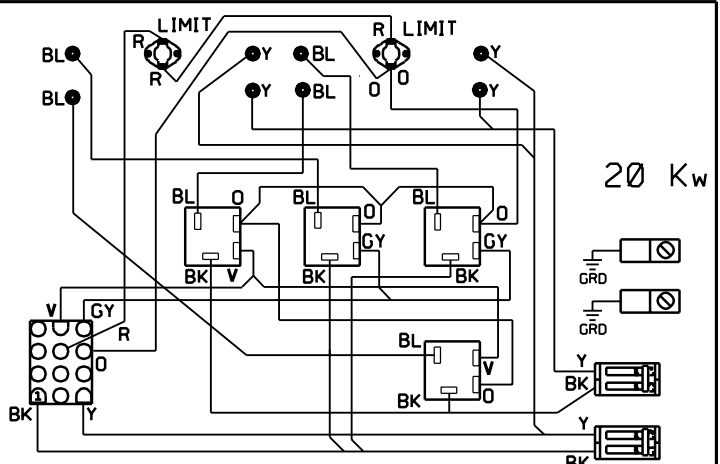
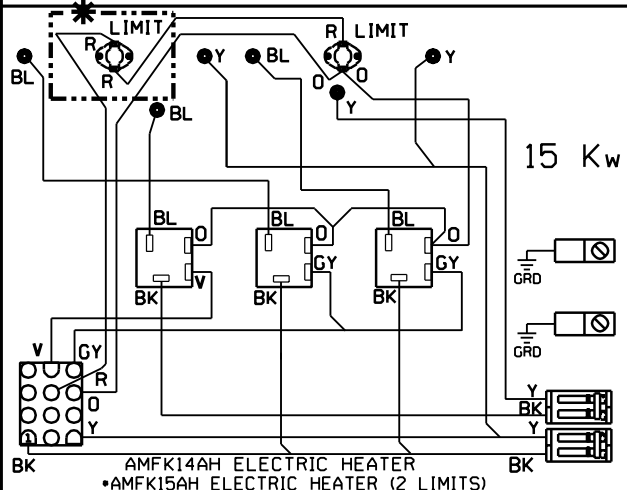
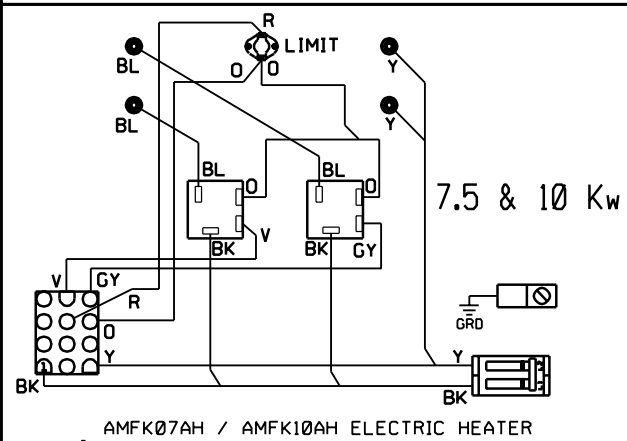
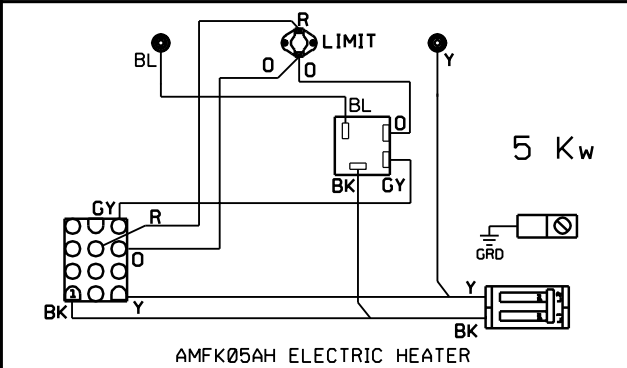
Condensate Drains

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.



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



Replacemaent Parts

KEY NO.	DESCRIPTION	PART NUMBER	12F	16J	20N	KEY NO.	DESCRIPTION	PART NUMBER	12F	16J	20N
9	Control, Fan Timer	1085522	1	1	1	V	Panel, Top	1082835	1		
10	Transformer	1082611	1	1	1	V		1082836	*	1	
11	Motor, Blower	1085510	1			V		1082837	*	*	1
11		1085511	*	1	1	W	Housing, Blower	1085578	1		
12	Mount, Blower Motor	1095236	1			W		1085579	*	1	1
12		1004905	*	1	1	X	Panel, Blower Cutoff	1082616	1		
13	Wheel, Blower	600587	1			X		1082949	*	1	1
13		96839	*	1	1	Z1	Rail, Blower L.H.	1085504	1	1	1
F	Wrapper	1085365	1			Z2	Rail, Blower R.H.	1085521	1	1	1
F		1085366	*	1		BB	Door, Blower Access	1085358	1		
F		1085367	*	*	1	BB		1085359	*	1	
O	Panel, Rear Blower Deck	1082844	1			BB		1085360	*	*	1
O		1082845	*	1		CC	Door, Filter Access	1085195	1		
O		1082846	*	*	1	CC		1085196	*	1	
P	Panel, Front Blower Deck	1085372	1			CC		1085197	*	*	1
P		1085373	*	1		DD	Plate, Heater Adapter	1084606	1	1	1
P		1085374	*	*	1	EE	Plate, Heater Filler	1084608	*	1	1
Q	Panel, Side Blower Deck	1082847	2			KK	Bracket, Terminal Strip	1085361	1	1	1
Q		1082848	*	2		LL	Bracket, Mounting	1085363	2	2	2
Q		1082849	*	*	2)(Manual, Installation	442012301	1	1	1
R	Bracket, Control Fan	1085371	1	1	1						

