

# Installation Instructions for EGA & EGH Series Electric Heaters on V or H Series Units

## NOTES TO INSTALLER

The words "SHALL" and "MUST" indicate a requirement which is essential to satisfactory and safe product performance. The words "SHOULD" and "MAY" indicate a recommendation or advice which is not essential and not required but which may be useful or helpful.

These instructions are for the use of qualified individuals specially trained and experienced in the installation of this type of equipment and related system components.

Installation and service personnel are required by some locales to be licensed. Persons not qualified SHALL NOT install this equipment nor interpret these instructions.

This installation manual is provided to ensure the proper installation and satisfactory performance of your equipment. The instructions contained herein SHALL NOT be deemed to extend, modify, alter, or expand any of the representations contained in the LIMITED WARRANTY.



**DANGER: BEFORE PERFORMING ANY WORK ON THIS EQUIPMENT, POWER SUPPLY MUST BE TURNED OFF AT THE HOUSEHOLD SERVICE BOX TO AVOID THE POSSIBILITY OF SHOCK, INJURY, DEATH, OR DAMAGE TO EQUIPMENT.**



**WARNING: IMPROPER INSTALLATION MAY DAMAGE EQUIPMENT, CAN CREATE A HAZARD, AND WILL VOID THE WARRANTY.**

## INSPECTION AND UNPACKING

A thorough inspection of the shipping container should be made immediately upon receiving the heater. Look for any punctures or openings, and if it appears damage has occurred, it should be noted on the freight bill before signing. The delivering carrier should be contacted immediately to inspect any damage, and no installation work should begin until this inspection is completed.

After carefully checking the heater for loose wires or any damage due to shipping, you are now ready to install the heater

## CODES

The installer SHALL comply with all local, state, and federal codes, and/or regulations pertaining to this type of equipment and its installation. Such codes and/or regulations should take precedence over any recommendations contained herein, in lieu of local codes. Installations SHALL be made in accordance with National Electrical Code and recommendations made by the National Board of Fire Underwriters.

## DESCRIPTION

The EGA05B1 and EGA10B1 are approved for field installation on the V Series 1-1/2 to 5 ton models. The EGH is approved for field installation on the H / V series 2 to 5 ton models. If your installation involves an H Series unit, pay special attention to the staging requirements in these instructions.

## CLEARANCES

The V or H series unit with the EG series heater installed requires a 1/4" clearance for the first three feet of supply duct. Clearance to the cabinet is 0" on all sides including the unit back panel.

Refer to the unit installation instructions for required service clearances.

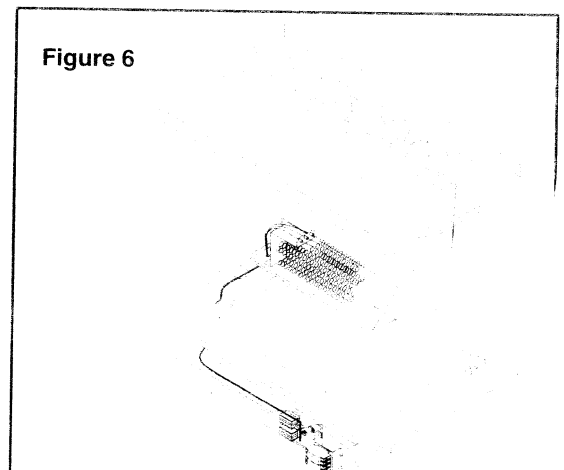
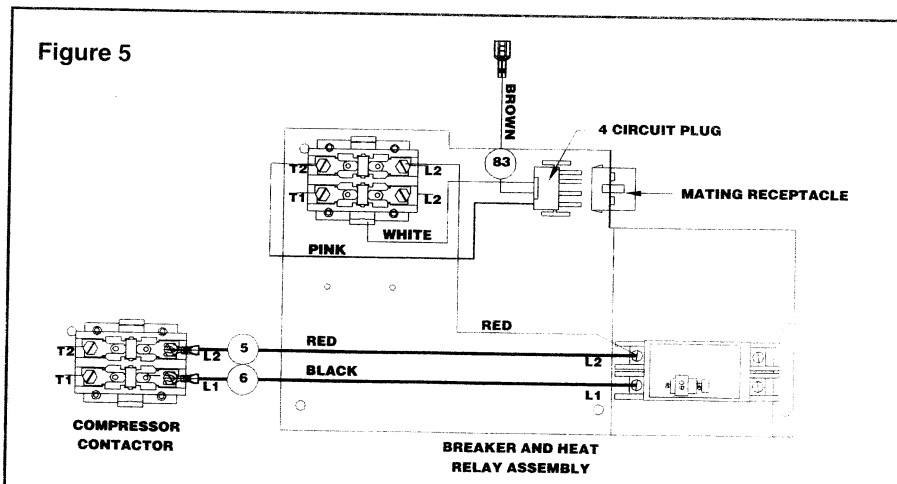
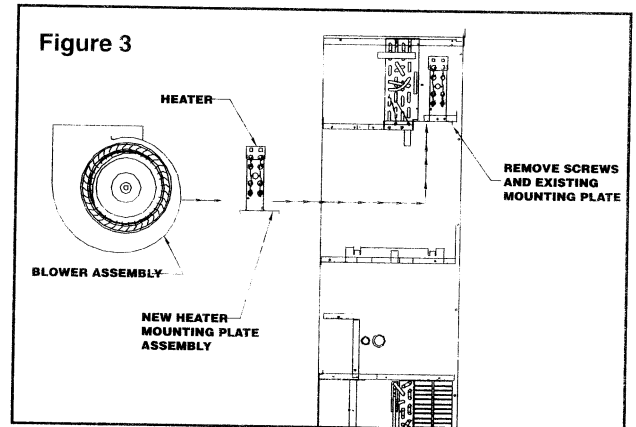
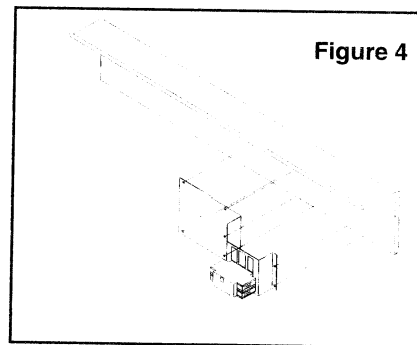
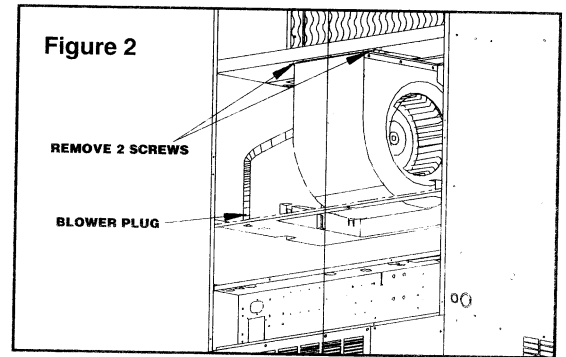
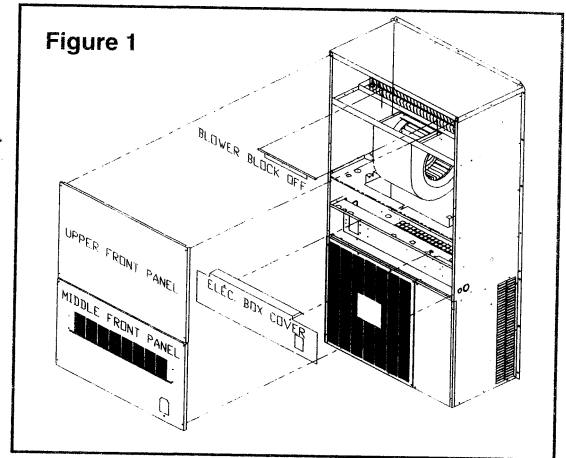
**Refer to the table below to confirm that the heater model to be installed does not exceed the maximum kW allowed for the unit model.**

UNIT MODEL	MAXIMUM ALLOWED kW	HEATER MODEL
V or H 18-24	10	EGA, EGH
V or H 30-36	15	EGA, EGH
V or H 48-60	20	EGA, EGH

# INSTALLATION (ALL UNITS)

## 1. THE POWER TO THE UNIT MUST BE OFF!

- a. Make sure the electrical power source matches the unit name plate and that constant voltage can be maintained to the unit.
  - b. With an ink pen, permanently mark the unit name plate to match the heater model to be installed.
2. Remove the upper front panel and middle front panel. Remove the electrical box cover and the blower block off at the exit of the blower. (Figure 1)
  3. Unplug the blower from the blower plug and remove the two screws securing the blower to the evaporator coil shelf. (Figure 2)
  4. Slide the blower from the unit.
  5. Remove the six (6) screws holding the heater mounting plate to the unit. Slide the heater plate assembly into the opening with the wires on your left. Secure to the heater plate assembly with the six screws. (Figure 3)
  6. If there is a circuit breaker assembly in the control box, it **MUST** be removed. (Figure 4)
  7. Install the breaker and heat relay assembly for the heater kit. Connect the four-circuit plug in the control box to the mating receptacle on the breaker assembly. The plug is keyed to connect in a single orientation. Connect wire #5 to the compressor contactor (L2) and connect wire #6 to L1. (Figure 5)
  8. Route the wires from the heater down the right side of the unit, through the bushing in the filter shelf, route the wires along the top of the control box. Secure the heater wires to the existing wires across the control box with ties provided. Route these wires through the hole in the control box above the breaker assembly. (Figure 6) Connect these wires to the corresponding terminals shown in the wiring diagram. Each wire is numbered and color-coded. For the heater wire connections to the breaker and heat relay assembly locations, see the appropriate diagram on pages 10 – 14.
  9. Place the crack-and-peel wire diagram label on the electrical box cover for future reference.



## ELECTRICAL HOOK-UP

All heater assemblies have single-point line-voltage connection terminals. All 1-phase models above 10 kW have the option of single- or dual-point line voltage connections. If dual-point connection is to be made, remove the single-point wiring terminals.

**NOTE:** If separate over-current devices are used on the dual circuits, they **MUST** be marked to show that both devices **MUST** be turned off to completely shut off power to the unit.

The line voltage electrical service can be routed through the left side panel, the left or right side of the back panel, and the right side panel. Each area is supplied with two line voltage knockouts ( $1/2 - 3/4$ " and  $1 - 1 1/4$ " conduit). Low voltage can be routed through the right side panel, facing the unit from the outside.

**NOTE:** When routing line voltage through the return air compartment, conduit **MUST** be used (even though this is a dry area) to comply with the NEC. Flexible conduit is recommended.

Be sure to install a ground wire of the proper size to the unit's equipment ground lug.

## LOW-VOLTAGE WIRING

230 volt, single- and three-phase units are equipped with dual primary voltage transformers for 208/240-volt operation. These models are factory wired to the 240-volt tap. For 208-volt operation, reconnect the factory-installed wire from the 240-volt tap to the 208-volt tap. The acceptable range for the voltage tap is:

<u>Tap</u>	<u>Voltage Range</u>
240 Volt	253 – 216
208 Volt	220 – 187

Five color-coded conductors should be run from the thermostat location to the unit for V series units. H series units require seven (7) wires.

Conductors should be sized as shown:

Wire Gauge	Maximum Length
20	45'
18	60'
16	100'
14	160'
12	250'

## STAGING OF ELECTRIC HEAT (V SERIES)

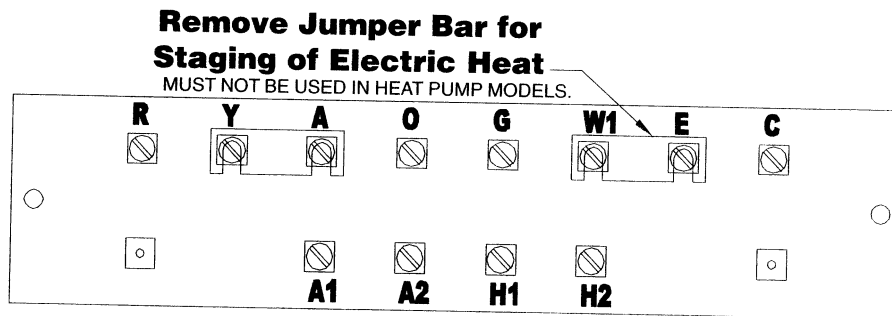
EGA model heaters installed in V series units may be wired for single- or two-stage operation. A jumper bar is supplied with each heat assembly for single-stage operation. For two-stage electric heat operation, disconnect the jumper bar between the W1 (first stage) and E (second stage) terminals of the unit low voltage board.

## REQUIRED STAGING OF ELECTRIC HEAT (H SERIES)

Certain combinations of H model units with electric heat require that the electric heat be staged to prevent the compressor from running with the full complement of electric heat. Staging the heaters assures that the listed wire ampacity and the over current protection will not be exceeded. The heat is staged as follows:

1. The first stage of heat is wired through the O terminal, which will provide refrigerant heat only. (No electric heaters will run.)
2. The second stage of heat is wired through the W1 terminal, which will allow the first stage of electric heaters to operate as supplemental heat and will operate as emergency heat.
3. The third stage is wired through the E terminal and will allow the second stage of electric heat to operate only as emergency heat when the compressor is not running.

If your unit has factory-installed heaters, the second stage of the electric heaters will be wired to the E terminals on all models. W1 and E terminals **MUST NOT** be jumped together.



## DUCTWORK

A section of steel duct or duct board with a length of at least 24" **MUST** be installed on the unit supply opening to serve as a heat sink. Any type of ductwork listed for this application may be used from that point on.

Refer to the unit's installation instructions for the recommended duct static and motor speed selection and heater combination.

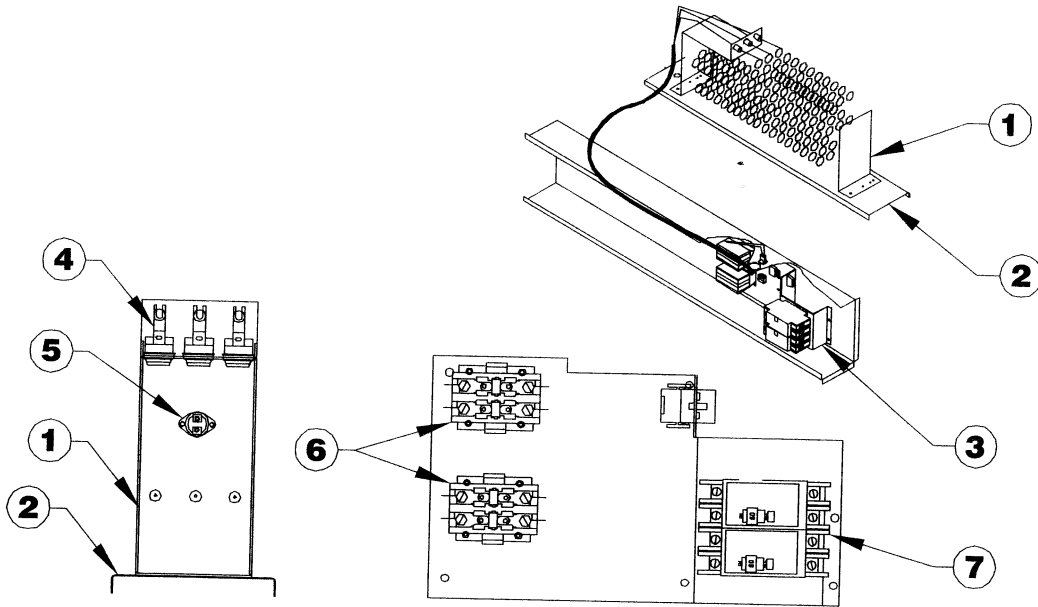
## MAINTENANCE

Always install filters and keep them clean. Check filters every ten days to two weeks. Clean or replace as necessary. Keep the return air grille clean and clear of any obstructions. Do not place any type of furniture over or in front of the grille, as it will restrict airflow. If a supply grille is used do not place any obstructions that will restrict air flow.

**! SERVICE WARNING:**  
WHILE SERVICING THE HEATER, BE SURE TO DE-ENERGIZE BOTH THE HEATER CIRCUIT AND THE AIR-CONDITIONER CIRCUIT, AS A HAZARD OF ELECTRICAL SHOCK MAY EXIST.

THERE MAY BE MORE THAN ONE DISCONNECT REQUIRED TO DE-ENERGIZE THE HEATER AND AIR CONDITIONER.

# PARTS LIST



ITEM NO.	PART NO.	DESCRIPTION	03B1	05B1	07B1	10B1	15B1	20B1	03B3	06B3	09B3	11B3	15B3	18B3	03B4	06B4	09B4	11B4	15B4	18B4
1	0430-0089	HEATER 1P 240V 03kW	1																	
1	0430-0074	*HEATER 1P 240V 05kW		1			1													
1	0430-0090	HEATER 1P 240V 07kW			1															
1	0430-0072	*HEATER 1P 240V 10kW				1	1	2												
1	45-8008	HEATER 3P 240V 03kW							1											
1	45-8009	HEATER 3P 240V 06kW								1										
1	45-8010	HEATER 3P 240V 09kW									1									
1	45-8011	HEATER 3P 240V 11kW										1								
1	45-8012	HEATER 3P 240V 15kW											1							
1	45-8013	HEATER 3P 240V 18kW												1						
1	45-8014	HEATER 3P 480V 03kW													1					
1	45-8015	HEATER 3P 480V 06kW														1				
1	45-8016	HEATER 3P 480V 09kW															1			
1	45-8017	HEATER 3P 480V 11kW																1		
1	45-8018	HEATER 3P 480V 15kW																	1	
1	45-8019	HEATER 3P 480V 18kW																		1
2	2022-HEPL	HEATER EXTENTION PLATE ASSY V/H18-36	1	1	1	1	1		1	1	1	1	1			1	1	1	1	
2	2023-HEPL	HEATER EXTENTION PLATE ASSY V/H42-60	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1
3	2022-0031	CIRCUIT BREAKER STAND	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	65-4600	460V DISCONNECT STAND													1	1	1	1	1	1
4	45-4323	**LIMIT SWITCH 160-30F W/FUSE	1	1	2	2	3	4	3	3	3	3	3							
4	45-8020	**LIMIT SWITCH 160-30F 460V																		
5	45-4332	LIMIT SWITCH 245 DEG 1 SHOT	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3
6	45-3151	HEAT CONTACTOR 30 AMP RES (EGA ONLY)	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	45-3151	HEAT CONTACTOR 30 AMP RES (EGH ONLY)	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	45-3151	CIRCUIT BREAKER 2P 60 AMP (EGA ONLY)	1	1	1	1	2	2												
7	45-3151	CIRCUIT BREAKER 2P 60 AMP (EGH ONLY)	1	1	1	2	2	2												
7	042019	CIRCUIT BREAKER 3P 60 AMP							1	1	1	1	1	1						
7	45-1955	DISCONNECT SWITCH 460V																		
															1	1	1	1	1	1

\* Use both 0430-0074 and 0430-0072 for Electric Heater 15 kW 230 V, 1 phase and 3 phase.  
 \*\* Not interchangeable.