ELECTRIC UNIT HEATERS

Installation Form RGM 411 (Version D)
Obsoletes Form 411 (Version C)

APPLIES TO: **Models AEUH and EUH**

REZNOR Thomas&Betts

INDEX
(by page number)

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury, or death. Read the installation instructions thoroughly before installing this equipment.

FOR YOUR SAFETY
The use and storage of gasoline or other flammable vapors and liquids in open containers in the vicinity of this appliance is hazardous.

1. General

The instructions in this manual apply to installation and operation of Reznor Model AEUH and Model EUH electric unit heaters. These electric unit heaters meet UL requirements for electric air heaters and are UL listed. Read all of these instructions before beginning installation. Specifications are subject to change without notice.

HAZARD INTENSITY LEVELS

1. **Danger:** Failure to comply will result in severe personal injury, death, and/or property damage.
2. **Warning:** Failure to comply could result in severe personal injury, death, and/or property damage.
3. **Caution:** Failure to comply could result in minor personal injury and/or property damage.

2. Installation Codes

Reznor Model Series AEUH and EUH Electric Unit heaters should be installed by a qualified service person in accordance with the standards of the National Board of Fire Underwriters for electric unit heaters. Consult local authorities having jurisdiction to verify local codes and installation procedures. Follow carefully both the national standards and the local codes.

Specific Installations -- Installation in aircraft hangars should be in accordance with ANSI/NFPA No. 409 (latest edition), Standard on Aircraft Hangars. Installations in public garages should be in accordance with ANSI/NFPA No. 88A (latest edition), Standard for Parking Garages. ANSI/NFPA No. 88A (latest edition) specifies heaters must be installed at least eight feet above the floor.

Aircraft Hangars -- ANSI/NFPA No. 409 specifies a clearance of ten feet to the bottom of the heater from the highest surface of the top of the wings or engine enclosures of whatever aircraft would be the highest to be housed in the hangar. Maintain a minimum clearance of eight feet from the floor in other sections of aircraft hangars such as offices and shop which communicate with areas used for servicing or storage. The heaters must be located so as to be protected from damage by aircraft or other objects such as cranes and movable scaffolding. In addition, the heater must be located so as to be accessible for servicing, adjustment, etc.

All Installations -- Clearances from the heater to combustible construction or material in storage must conform with ANSI/NFPA standards, and such material must not attain a temperature over 160°F by continued operation of the heater.

3. Sizing of Equipment

To determine total required kilowatt heating capacity of electric unit heaters, calculate room heat losses by following methods and reference data from the ASHRAE Guide and DATA Book or the NEMA formula for residential or office type applications.

It is important not to oversize equipment heating capacity, otherwise temperature control will be poor and both initial installation and operating costs will be increased.

4. Specification Data

Model (KW/BTU)	Model Size①	Power Supply 60 Hz②	Heating Elements Qty	Heating Elements KW	Amperage Line Current	Amperage Ampacity	Wire Size at 75ºC③	CFM ④	Temperature Rise ºF	Air Throw (feet)	Velocity FPM	Ship Weight (lbs)
AEUH	**3-1-24**	240-1 Ph	3	1.00	13.5	16.6	12	420	23	17	403	36
(3.0 KW/	**3-3-24**	240-3 Ph	3	1.00	8.2	10.0	14	420	23	17	403	36
10,240 BTU)	**3-3-48**	480-3 Ph	3	1.00	4.6	5.5	14	420	23	17	403	36
AEUH	**5-1-24**	240-1 Ph	3	1.60	22.0	27.3	10	520	31	19	500	36
(5.0 KW/	**5-3-24**	240-3 Ph	3	1.60	13.2	16.3	12	520	31	19	500	36
17,065 BTU)	**5-3-48**	480-3 Ph	3	1.60	7.0	8.5	14	520	31	19	500	36
AEUH	**7-1-24**	240-1 Ph	3	2.33	30.2	37.5	8	620	36	21	590	36
(7.0 KW/	**7-3-24**	240-3 Ph	3	2.33	17.9	22.1	10	620	36	21	590	36
23,890 BTU)	**7-3-48**	480-3 Ph	3	2.33	9.4	11.5	14	620	36	21	590	36
AEUH	**10-1-24**	240-1 Ph	6	1.60	43.0	53.5	6	666	47	22	640	41
(10.0 KW/	**10-3-24**	240-3 Ph	6	1.60	25.1	31.1	10	666	47	22	640	41
34,130 BTU)	**10-3-48**	480-3 Ph	6	1.60	13.0	16.0	12	666	47	22	640	41
AEUH	**12-3-24**	240-3 Ph	6	2.00	29.9	37.1	8	666	57	22	640	41
(12.0/40,950)	**12-3-48**	480-3 Ph	6	2.00	15.5	19.1	12	666	57	22	640	41
EUH	**15-1-24-A**	240-1 Ph	3	5.00	62.5	76.3	3	1125	42	35	703	102
(15.0/51,195)	**15-3-24-A**	240-3 Ph	3	5.00	36.1	44.6	6	1125	42	35	703	102
	15-3-48-A	480-3 Ph	3	5.00	18.0	22.3	10	1125	42	35	703	102
EUH	**20-3-24-A**	240-3 Ph	3	6.60	48.1	59.0	6	1700	40	35	1062	102
(20.0/68,260)	**20-3-48-A**	480-3 Ph	3	6.60	24.0	29.5	10	1700	40	35	1062	102
EUH	**25-3-24-A**	240-3 Ph	3	8.30	60.2	73.5	4	1700	46	45	1062	102
(25.0/85,325)	**25-3-48-A**	480-3 Ph	3	8.30	30.1	36.8	8	1700	46	45	1062	102
EUH	**30-3-24-A**	240-3 Ph	3	10.00	72.2	87.9	3	1700	56	45	1062	102
(30.0/102,390	**30-3-48-A**	480-3 Ph	3	10.00	36.1	44.0	8	1700	56	45	1062	102
	35-3-24-A	240-3 Ph	3	5.00	84.2	103.6	2	2250	50	45	1062	204
EUH			3	6.60								
(35.0/119,455	**35-3-48-A**	480-3 Ph	3	5.00	42.1	51.9	6	2250	50	45	703	204
			3	6.60								
EUH	**40-3-24-A**	240-3 Ph	6	6.60	96.3	118.2	1	2250	50	45	703	204
(40.0/136,520	**40-3-48-A**	480-3 Ph	6	6.60	48.1	59.0	6	2250	56	45	703	204
EUH	**50-3-24-A**	240-3 Ph	6	8.30	120.4	147.1	0	3400	46	48	1062	204
(50.0/170,650	**50-3-48-A**	480-3 Ph	6	8.30	60.2	73.6	4	3400	46	48	1062	204
EUH	**60-3-24-A**	240-3 Ph	6	10.00	144.5	176.0	0	3400	56	48	1062	204
(60.0/204,780	**60-3-48-A**	480-3 Ph	6	10.00	72.2	88.0	3	3400	56	48	1062	204

NOTES:

① Model No. Key: First No. = KW; Second No. = Phase; Third No. = Voltage

② a) All motors are 240/60/1
AEUH 3 through 12 KW are equipped with one 1/20 HP open motor.
EUH 15 through 30 KW are equipped with one 1/6 HP totally enclosed motor.
EUH 35 through 60 KW are equipped with two 1/6 HP totally enclosed motors.
b) All 480 volt units have 480/240 volt transformer to power a 240 volt fan motor.
c) 15 through 60 KW units are equipped with a 24 volt control transformer
d) All three phase units have elements wired delta

③Wire size based on type THW, 75ºC wire with a 150 foot run.

④CFM based on standard air. Final air temperature based on 60ºF entrance air.

5. Warranty

Refer to limited warranty information on the Warranty Card in the "Owner's Envelope".

THE WARRANTY IS VOID if wiring is not in accordance with the diagram furnished with the heater and with both local and national electrical codes.

WARNING

Turn off power supply when servicing this heater.

6. Dimensions

Figure 1 - Dimensions (inches and millimeters) - Model AEUH

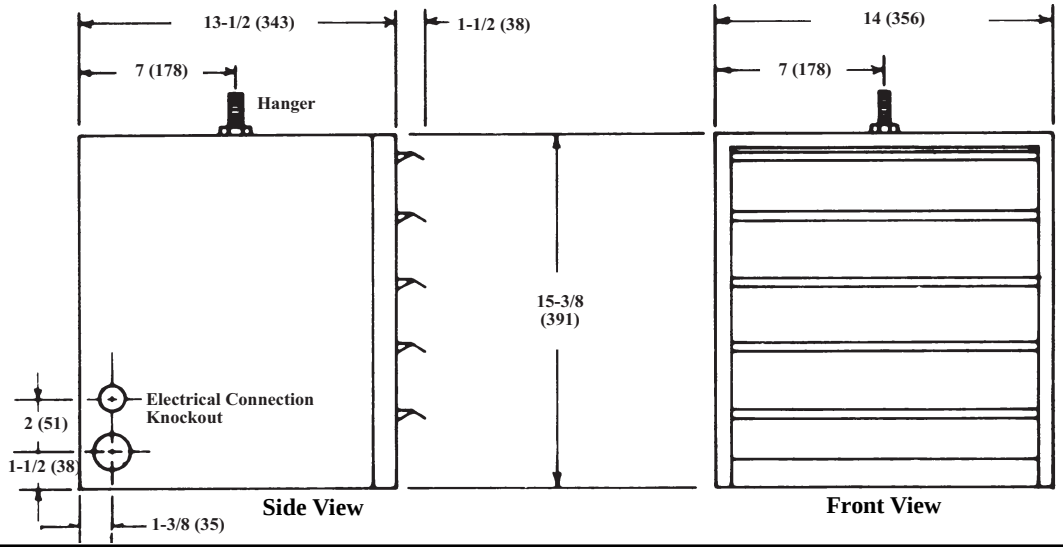


Figure 2 - Dimensions (inches and millimeters) - Model EUH, Sizes 15 - 30

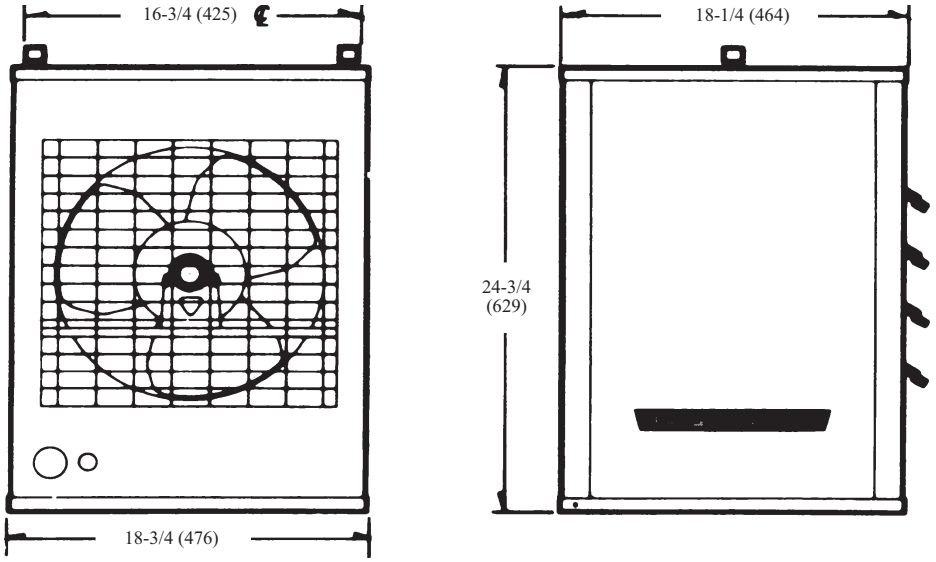
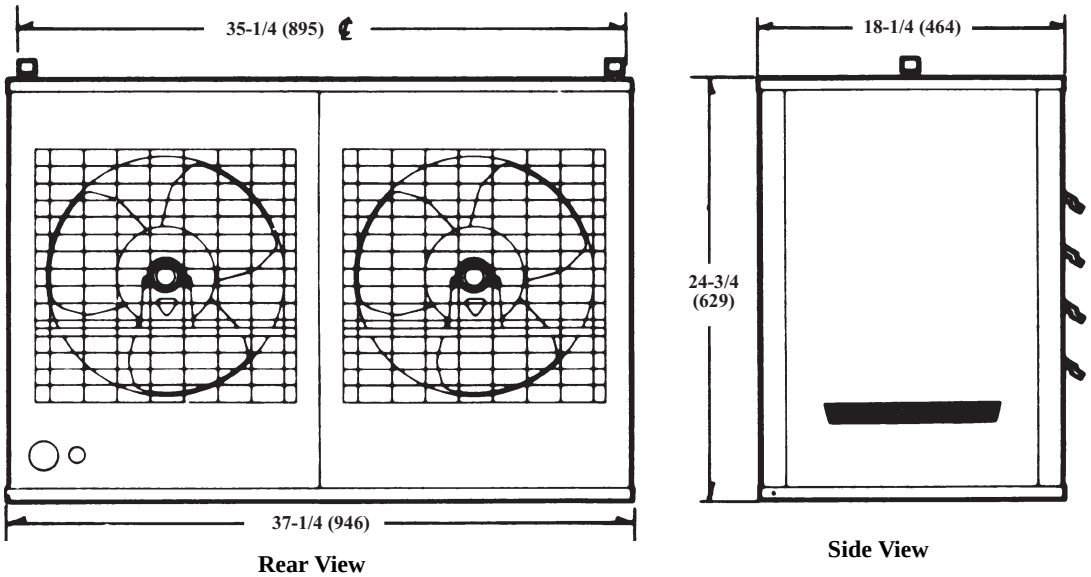


Figure 3 - Dimensions (inches and millimeters) - Model EUH, Sizes 35 - 60



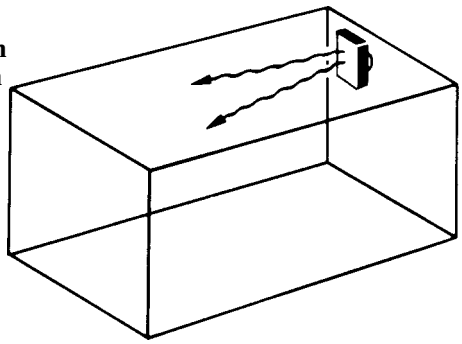
7. Unit Heater Location

For best results, the heater should be placed according to these general guidelines. A unit should be located from 8 to 12 feet above the floor. Heaters should always be arranged to blow toward or along exposed wall surfaces, if possible. Where two or more units are installed in the same room, a general scheme of air circulation should be maintained for best results.

Suspended heaters are most effective when located as close to the working zone as possible, and this fact should be kept in mind when determining the mounting heights to be used. However, care should be exercised to avoid directing the discharged air directly on the room occupants. Partitions, columns, counters, or other obstructions should be taken into consideration when locating the unit heater. The heater should be located so that a minimum quantity of air will be deflected by any obstacles.

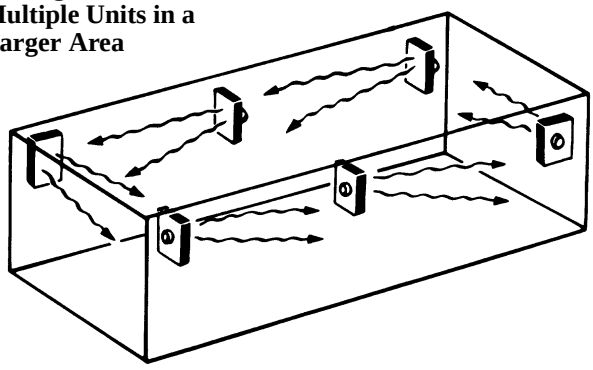
In smaller building areas with one or two outside walls, a single unit as illustrated in Figure 4 may be sufficient.

Figure 4 - Placement of Single Unit in Smaller Area



Larger building areas may require multiple units installed as illustrated in Figure 5, especially where three or four walls are exposed to the outside environment. Units should be arranged for providing perimeter air circulation where the airstream of one supports that of another.

Figure 5 - Arrangement of Multiple Units in a Larger Area



Care should be taken to prevent the hot delivered air from one unit from entering the inlet of adjacent units.

When units are located in the center of the space to be heated, the air should be discharged toward the exposed walls.

In large areas, units should be located to discharge air along exposed walls with extra units provided to discharge air in toward the center of the area.

At those points where infiltration of cold air is excessive, such as at entrance doors and shipping doors, it is desirable to locate the heater so that it will discharge directly toward the source of cold air from a distance of 15 to 20 feet.

8. Uncrating/Shipping Damage

The electric heater is shipped completely assembled. **Immediately upon uncrating, check the specifications and electric characteristics of the unit to be sure that the electric supply at the installation site is compatible with the heater.** Check the unit for any damage that may have been incurred in shipment, and if any damage is found, file a claim with the transporting agency. The heater was inspected at the factory immediately prior to crating.

Be sure any shipped-separate, field-installed optional components are at the installation site.

9. Field-Installed Option Kits

Installation of these options should be done by a qualified service person in accordance with these instructions and in compliance will all codes and requirements having jurisdiction. Failure to follow instructions could result in death serious injury, and/or property damage. The qualified agency performing this work assumes responsibility for this installation.

9A. Vertical Louvers (Option AX3) - Model EUH only

If vertical louvers are being added to a Model EUH heater, they are shipped separately for field assembly.

The option package includes:

EUH Size		P/N	Component Description
15-30	35-60		
Qty	Qty		
2	4	24041	Vertical Louver Supports
6	12	24038	Vertical Louvers
12	24	11813	Screws

Install the vertical louvers before suspending the heater.

9B. Internal Thermostats (Option CL12 and CL16) - Model AEUH only

Model AEUH heaters may be controlled by an optional internally mounted thermostat. The thermostat attaches to the inner side of the rear access panel and is wired to the heater. Option CL12 applies to all models except AEUH 5-1-24. Option CL16 is the internal thermostat for Model AEUH 5-1-24 only. If installing one of these internal thermostat kits, select and follow the appropriate instructions.

Internal Thermostat Option, Option CL12 (P/N 46362) - Applies to all AEUH Models except AEUH 5-1-24 (for Model AEUH 5-1-24, see Option CL16 below)

Option CL12 includes:

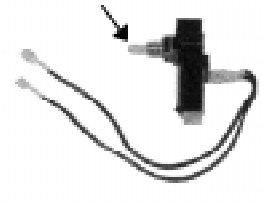
Qty	P/N	Component Description
2	20913	Plastic Wire Ties
1	45541	Wire Connector (center line splice)
2	46363	Wire Assemblies (one wire marked No. 1; one wire marked No. 2)
1	46365	Thermostat (with screws)
1	46859	Thermostat Knob

WARNING: If heater is installed, disconnect power before installing internal thermostat.

Installation Instructions for Option CL12:

1. Remove the rear access panel from the heater.
2. Find the knockout labeled "heat" in the access panel. Remove knockout creating a hole to insert the thermostat.
3. From the **inner side** of the access panel, insert the adjustment shaft of the thermostat through the hole. From the **outer side** of the panel, insert the two screws through the panel and into the thermostat mounting plate. The thermostat is now attached to the inner side of the access panel.

Figure 6 - Insert the thermostat adjustment shaft through the hole in the access panel.



4. Refer to the wiring diagram (on the access panel). Locate the plastic line connector that connects wires No. 1 and No. 2. Remove the No. 2 wire from the line connector. Lengthen Wire No. 2 by using the wire connector in the kit to connect it to Wire No. 2 in the kit. Connect the lengthened No. 2 wire to Terminal No. 2 on the thermostat.
   Lengthen the No. 1 wire by attaching the No. 1 wire in the kit. Connect the lengthened No. 1 wire to Terminal No. 1 on the thermostat.
5. Use the tie wrap provided to make sure the wires do not interfere with the fan blade.
6. Re-attach the access panel/thermostat assembly.
7. Push the adjustment knob on to the shaft of the thermostat. Use the knob to set the thermostat. The heater is ready for control from the internally mounted thermostat.
   If the heater is installed, check for proper operation.
   If the heater is not installed, continue with the installation.

Figure 7 - Push the knob on to the shaft of the thermostat.

Internal Thermostat Option, Option CL16 (P/N 46360) -- Applies to Model AEUH 5-1-24 only

Option CL16 includes:

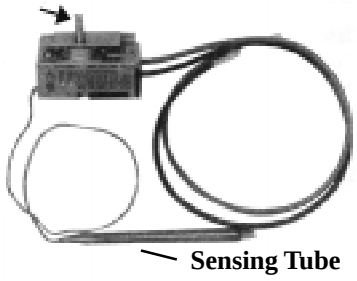
Qty	P/N	Component Description
2	20913	Plastic Wire Ties
1	45541	Wire Connector (center line splice)
1	46361	Thermostat (with screws)
1	46859	Thermostat Knob

WARNING: If heater is installed, disconnect power before installing internal thermostat.

Installation Instructions for Option CL16:

1. Remove the rear access panel from the heater.
2. Find the knockout labeled "heat" in the access panel. Remove knockout creating a hole to insert the thermostat.
3. From the **inner side** of the access panel, insert the adjustment shaft of the thermostat through the hole. From the **outer side** of the panel, insert the two screws through the panel and into the thermostat mounting plate. The thermostat is now attached to the inner side of the access panel.

Figure 8 - Insert the adjustment shaft of the thermostat through the hole in the access panel.



4. Refer to the wiring diagram (on the access panel). Locate the plastic line connector that connects wires No. 1 and No. 2 (marked X on the diagram). Remove the No. 2 wire from the line connector and using the wire connector in the kit, connect the No. 2 wire to Terminal No. 2 on the thermostat.
   Connect the No. 1 wire to Terminal No. 1 on the thermostat.
5. Use the tie wrap provided to attach the thermostat sensing bulb (See Figure 8) to the inside of the fan guard. (Be sure that the fan blade does not hit any wires.)
6. Re-attach the access panel/thermostat assembly.
7. Push the adjustment knob on to the shaft of the thermostat. Use the knob to set the thermostat. The heater is ready for control from the internally mounted thermostat.
   If the heater is installed, check for proper operation.
   If the heater is not installed, continue with the installation.

Figure 9 - Push the knob on to the shaft of the thermostat.

9C. Optional Fan Control (Options CQ2 and CH1) - Model AEUH only

There are two types of optional fan control kits. **Option CQ2**, the optional fan time delay switch delays fan startup preventing circulation of cold air and also delays fan shutdown purging the residual heat from the heater. **Option CH1**, the manual summer fan switch, can be used only in conjunction with the fan time delay switch. With the manual fan switch option, the heater is equipped with the fan time delay option, and the fan can also be used for summer air circulation when the heater is not in use. Instructions follow for installing both of these option kits. Select the appropriate set of instructions and follow carefully.

Fan Time Delay Switch, Option CQ2 (P/N 46385) - The optional fan time delay switch prevents circulation of cold air on startup and purges the residual heat on shutdown.

Option CQ2 includes:

Qty	P/N	Component Description
1	11813	Sheet Metal Screw
2	46383	Wire Assemblies, 6" (one marked L1 and No. 8; one marked L2 and No. 7)
1	46384	Wire Assembly, 4" (marked No. 5 and No. 10)
1	46386	Time Delay Relay Switch

WARNING: If the unit is installed, disconnect the power before installing the time delay relay switch.

9C. Optional Fan Control - Model AEUH only (cont'd)

Installation Instructions for Option CQ2:

1. Remove the rear access panel from the heater.
2. **Install the Time Delay Relay Switch** -- The time delay relay switch will be installed on the inner right side of the bottom of the heater. At the designated location, there are two 7/64" diameter holes prepunched in the bottom panel. Place the relay (on the inside) so that the pin on the base extends through the hole closest to the rear of the heater. Insert the screw through the other hole and attach the relay to the heater.
3. **Wire the Time Delay Relay Switch (Refer to the wiring diagram**) -
   a) Locate the wire connector that connects Wire No. 3 to No. 7. Remove Wire No. 3 from the wire connector and connect it to the No. 3 terminal on the time delay relay.
   b) Locate the wire connector that connects Wire No. 4 to Wire No. 5. Remove Wire No. 4 from the wire connector and connect it to the No. 4 terminal on the time delay relay.
   c) Kit Wire Marked L2 and No. 7 -- Connect the No. 7 end to the No. 7 wire on the heater. Connect the L2 end to the L2 connection point. (The end of the wire marked L2 should be connected to the L2 connection point. The connection point could be either a contactor wire or a wire nut.)
   d) Kit Wire Marked L1 and No. 8 -- Connect the L1 end to connection point L1 and the No. 8 end to the No. 8 Terminal on the time delay relay.
   e) Kit Wire Marked No. 5 and No. 10 - Connect the No. 5 end to the No. 5 wire on the heater and the No. 10 end to No. 10 terminal on the time delay relay.
4. Verify that all wires are clear of the fan blade
5. Replace the access panel.
6. The fan time delay relay switch is completely installed. **NOTE:** If the heater is controlled by an external thermostat which interrupts the power supply to the heater, the time delay feature will not work when the thermostat turns the unit off.

Manual Summer Fan Switch, Option CH1 (P/N 46389) - The optional summer fan switch allows the fan to operate to provide summer air circulation without heat. Option CH1 includes the time delay relay switch (Option CQ2) which prevents circulation of cold air on startup and purges the residual heat on shutdown. (The manual summer fan switch cannot be installed without the time delay relay switch.)
Option CH1 includes:

Qty	P/N	Component Description
2	44024	Wire Assemblies (one marked No. 8; one marked No. 10)
1	101901	SPDT Manual Fan Switch
1	46385	Time Delay Relay Switch Package (see parts list above for Option CQ2)

Installation Instructions for Option CH1:

1. Remove the rear access panel from the heater.
2. **Install the Manual Fan Switch** -- Find and remove the knockout labeled "fan only" in the access panel. Remove the nut from the front of the switch. From the inner side of the access panel, insert the switch through the hole. Replace the nut to attach the switch.
3. **Install the Time Delay Relay Switch** -- The time delay relay switch will be installed on the inner right side of the bottom of the heater. At the designated location, there are two 7/64" diameter holes prepunched in the bottom panel. Place the relay (on the inside) so that the pin on the base extends through the hole closest to the rear of the heater. Insert the screw through the outer hole and attach the relay to the heater.
4. **Wire the Time Delay Relay Switch (Refer to the wiring diagram**) -
   a) Locate the wire connector that connects Wire No. 3 to No. 7. Remove Wire No. 3 from the wire connector and connect it to the No. 3 terminal on the time delay relay.
   b) Locate the wire connector that connects Wire No. 4 to Wire No. 5. Remove Wire No. 4 from the wire connector and connect it to the No. 4 terminal on the time delay relay.
   c) Kit Wire Marked L2 and No. 7 -- Connect the No. 7 end to the No. 7 wire on the heater. Connect the L2 end to the L2 connection point. (The end of the wire marked L2 should be connected to the L2 connection point. The connection point could be either a contactor wire or a wire nut.)
   d) Kit Wire Marked L1 and No. 8 -- Connect the L1 end to connection point L1 and the No. 8 end to the No. 8 Terminal on the time delay relay.
   e) Kit Wire Marked No. 5 and No. 10 - Connect the No. 5 end to the No. 5 wire on the heater and the No. 10 end to No. 10 terminal on the time delay relay.
5. **Wire the Manual Fan Switch (refer to the wiring diagram)** -- a) Kit Wire marked No. 8 -- Connect one end to Terminal No. 8 on the fan time delay switch and the other to Terminal No. 8 on the summer fan switch.
   b) Kit Wire Marked No. 10 -- Connect one end to Terminal No. 10 on the fan time delay switch and the other to Terminal No. 10 on the summer fan switch.
6. Verify that all wires are clear of the fan blade
7. Replace the access panel.
8. The summer fan switch is installed. **NOTE:** If the heater is controlled by an external thermostat which interrupts the power supply to the heater, the time delay feature will not work when the thermostat turns the unit off, and the manual summer fan switch will not operate.

10. Clearance to Combustibles

Clearances from Combustibles					
Model		Top	Bottom	Sides	Back
AEUH	inches	6	6	6	6
	mm	152	152	152	152
EUH	inches	12	12	12	12
	mm	305	305	305	305

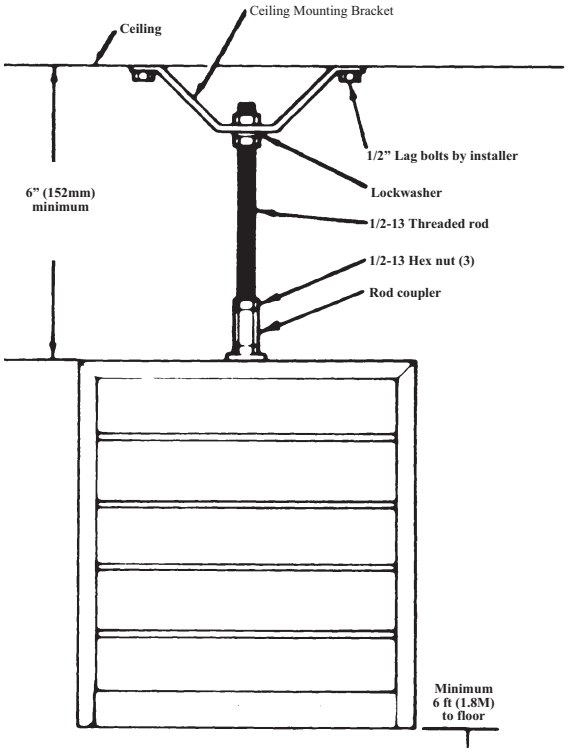
11. Suspension

Before installing this heater, check the supporting structure to be used to verify that it has sufficient load-carrying capacity to support the weight. See Paragraph 4 for weights of all sizes of Model EUH and AEUH heaters.

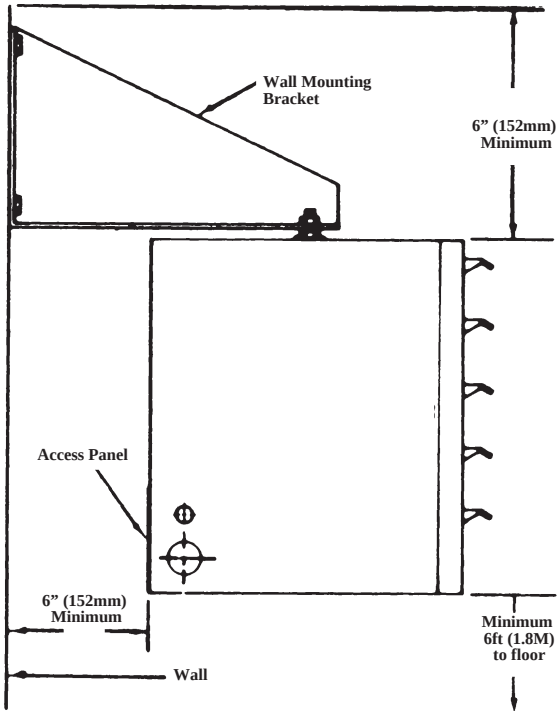
Model AEUH -- Model AEUH heaters have single-point suspension and may be suspended from either a wall or ceiling by using an optional Hanger Bracket Kit (see Figure 10) or a comparable field-supplied bracket. Heaters must be installed at least six inches from any vertical or horizontal surface and at least six feet from the floor. Do not install the heater in such a way that the inlet and/or outlet airflow could be restricted. Heater must be level. Do not place or add additional weight to the suspended unit.

Model EUH -- Model EUH heaters have two-point suspension and are equipped with 1" NPT swivel connectors. Suspend the heater by connecting the swivel connectors to 1" threaded pipe hangers. Units must be level. Do not place or add additional weight to the suspended unit. See Figures 11A and 11B.

Figure 10 - Optional Hanger Brackets - Model AEUH



Ceiling Mounting Kit (Option CK4, P/N 46356)



Wall Mounting Kit (Option CK5, P/N 46354)

Figure 11A - Suspension Dimensions for Model EUH 15/20/25/30 KW units

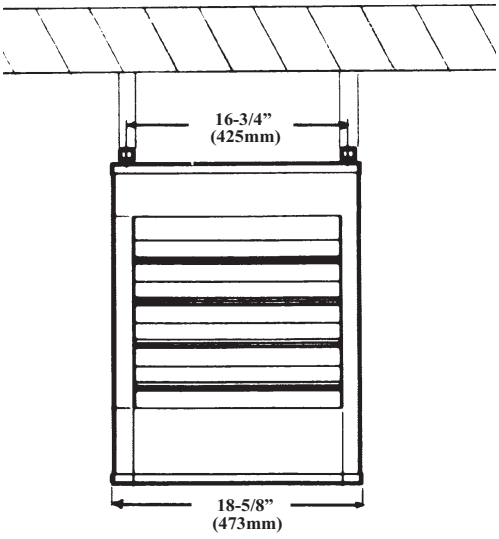
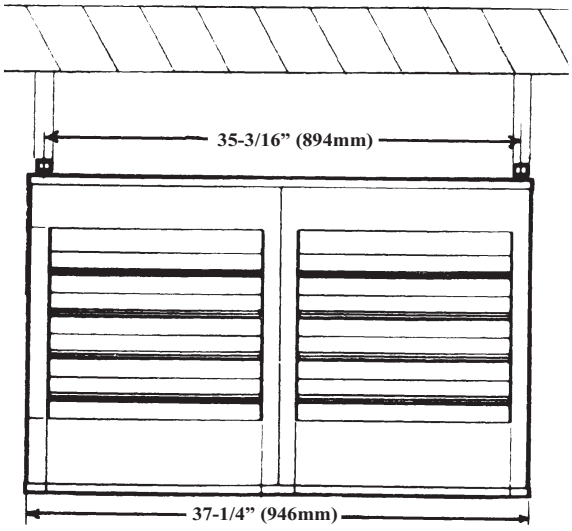


Figure 11B - Suspension Dimensions for Model EUH 35/40/50/60 KW units



12. Electrical

All wiring must be done by a qualified electrician in compliance with all local codes and the National Electric Code (latest edition).

Follow the wiring diagram furnished with your equipment. Field wiring is required. Typical wiring diagrams for all models are shown in Paragraph 16.

Field Wiring - External Control Wiring		
Total Wire Length	Distance from Heater to Control	Minimum Recommended Wire Size
150'	75'	#18 gauge
250'	125'	#16 gauge
350'	175'	#14 gauge

Electrical Connections

1. After the heater is suspended, remove the electrical entrance knockout from the heater side panel.
2. Remove the rear access panel from the heater.
3. Follow the schematic attached to the rear access panel and make connections inside the heater. All wiring must be done in accordance with the latest edition of the National Electric Code and all state and local electrical codes.
4. Replace the rear access panel.

Fuses - Depending on the model and size of heater, internal fuses may be required. The following lists show which units are equipped with internal fuses.

Model AEUH	At Rated Volts	
	Internal Fusing	Quantity of Fuses
3-1-24	None	0
3-3-24	None	0
3-3-48	None	0
5-1-24	None	0
5-3-24	None	0
5-3-48	None	0
7-1-24	6 Amp	2
7-3-24	None	0
7-3-48	None	0
10-1-24	6 Amp	2
10-3-24	None	0
10-3-48	None	0
12-3-24	6 Amp	2
12-3-48	None	2

Model EUH	At Rated Volts	
	Internal Fusing	Quantity of Fuses
15-1-24	FRN 30	6
15-3-24	None	0
15-3-48	None	0
20-3-24	FRN 35	6
20-3-48	None	0
25-3-24	FRN 45	6
25-3-48	None	0
30-3-24	FRN 60	6
30-3-48	None	0
35-3-24	FRN 30	6
	FRN 35	6
35-3-48	None	0
40-3-24	FRN 35	12
40-3-48	FRS 20	12
50-3-24	FRN 45	12
50-3-48	FRS 25	12
60-3-24	FRN 60	12
60-3-48	FRS 30	12

13. Thermostat

Both Model AEUH and Model EUH electric heaters are designed for automatic control from a thermostat. The thermostat is not standard equipment.

If using an optional internal thermostat in a Model AEUH heater, follow the instructions in Paragraph 9B.

If installing an external thermostat, whether using a thermostat option from Reznor or a field-supplied thermostat, install the thermostat according to the manufacturer's instructions. Locate an external thermostat on an inside wall, five feet above the floor. Do not locate a thermostat in the path of warm or cold air currents, nor in corners where air may be pocketed. Do not install on a cold outside wall. When more than one unit is cycled from one thermostat, separately activated relays should be installed at the unit thermostat connections.

EUH Models 35 through 60 may be operated by a two-stage thermostat for two-stage heater operation. The two-stage wiring diagrams in Paragraph 16 include instructions for wiring two-stage thermostats and the operating sequence of the two stage operation.

CAUTION: Make sure the thermostat has an adequate VA rating for the total requirements. Add coil rating of all relays and match thermostat rating.

14. High Temperature Limit Switch

All electric heaters are equipped with a high temperature safety limit switch which shuts off the power to the unit if normal operating temperatures are exceeded. If the limit switch should activate, check if anything is preventing the air from flowing through the heater.

15. Fan Motor

Motors are equipped with thermal overload protection of the automatic reset type. Make certain that the correct voltage is available at the motor. Lubricate, if provided with oil cups or grease fittings.

16. Typical Wiring Diagrams

16A. Wiring Diagrams for Models AEUH (Figures 12, 13A and 13B))

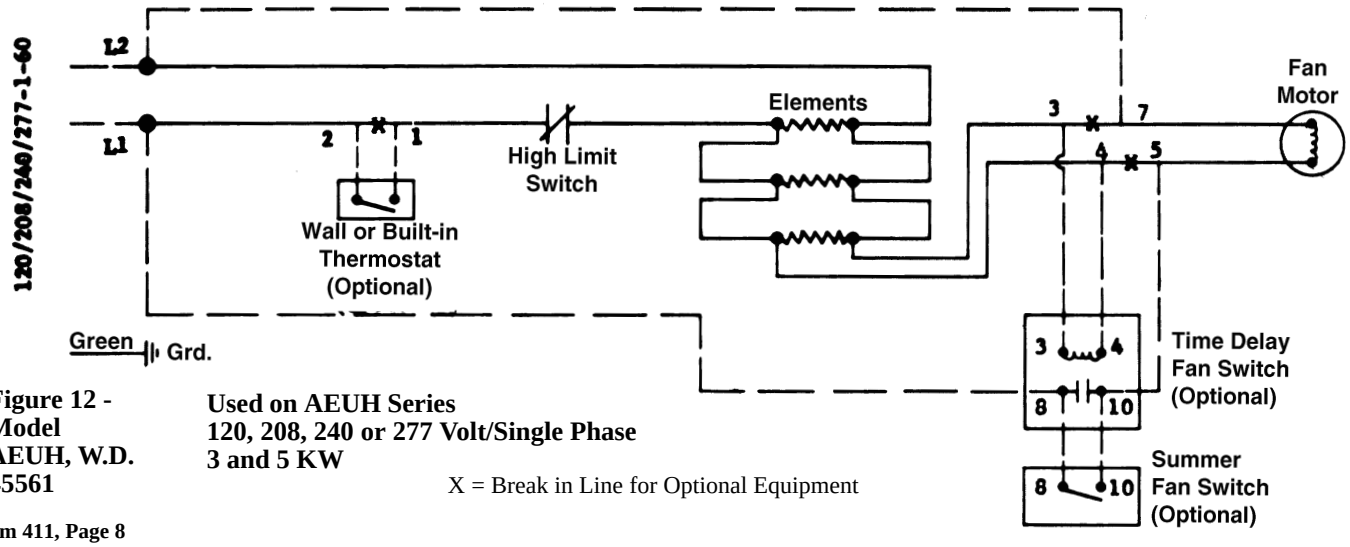


Figure 12 - Model AEUH, W.D. 45561

Used on AEUH Series
120, 208, 240 or 277 Volt/Single Phase
3 and 5 KW

X = Break in Line for Optional Equipment

**Figure 13A - Model AEUH,
W.D. 45566**

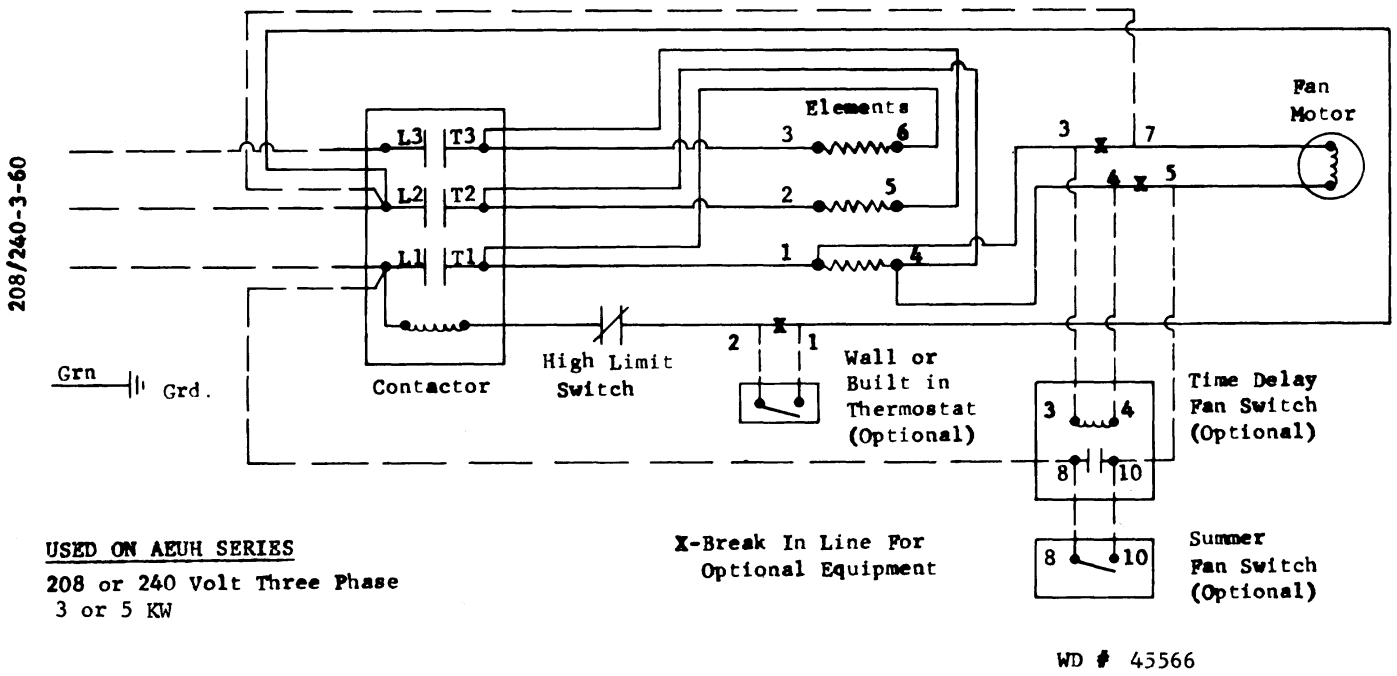
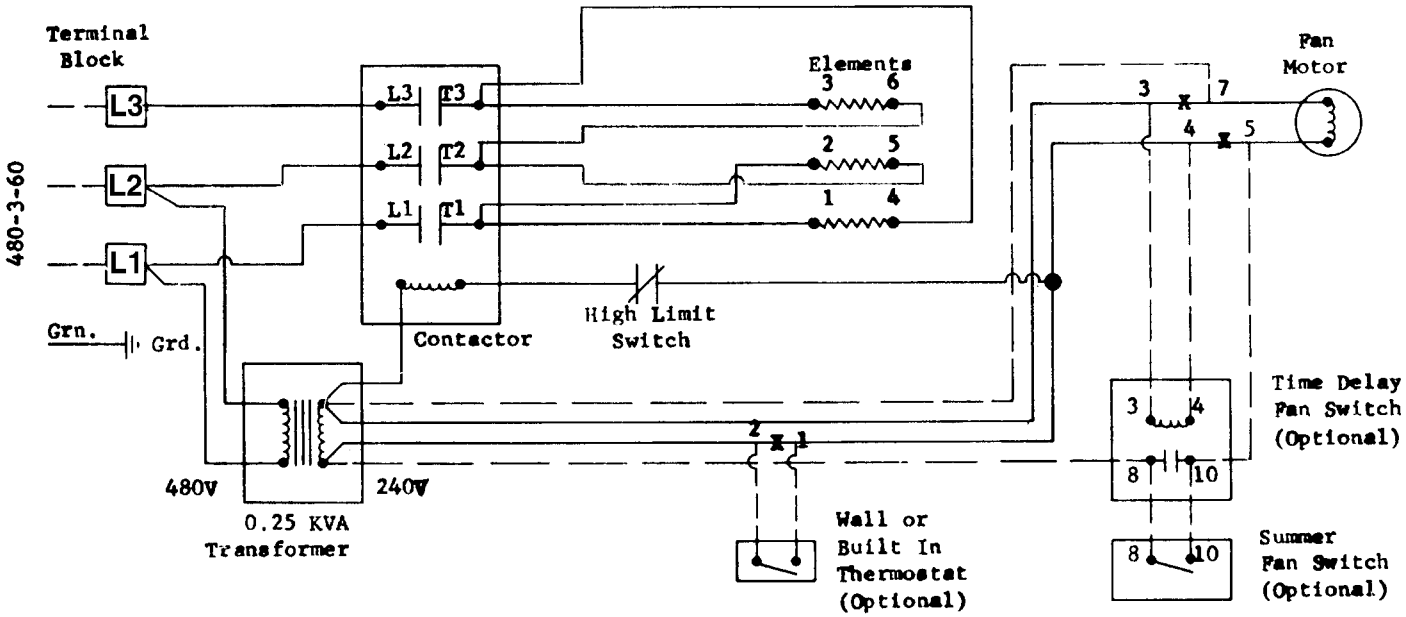


Figure 13B - Model AEUH, W.D. 46367



**Used on AEUH Series
480 Volt Three Phase
3, 5, or 7 KW**

X = Break in Line for Optional Equipment

16. Typical Wiring Diagrams (cont'd)

16B. Operating Sequence and Notes for Wiring Diagrams Nos. 40214, 40215, 40217 (Applies to Figure 14, 15, and 16)

Operating Sequence:

1. Turn on power to the heater.
2. Thermostat calls for heat.
   a) Energizing the contactor(s) (CT1 and CT2), closing circuits to heating elements.
   b) Energizing the time delay relay coil, energizing the fan motor after a delay of approximately ten seconds.
3. Thermostat is satisfied.
   a) Contactor(s) (CT1 and CT2) opens circuit to heating elements.
   b) Time delay relay contacts keep fan operating for approximately 20 seconds.

Wiring Diagram Notes:

1. Dotted wiring furnished and installed by others.
2. Solid wiring supplied and installed by the heater manufacturer.
3. Thermostat supplied as optional equipment.
4. The control transformer has a dual voltage primary. For 240 volt, use black and yellow leads (cap red); secondary side (24 volt) of transformer, use blue and brown leads.

Figure 14 - Model EUH 15-3-24A, 240 Volt, Three Phase, One-Stage Wiring W.D. 40214

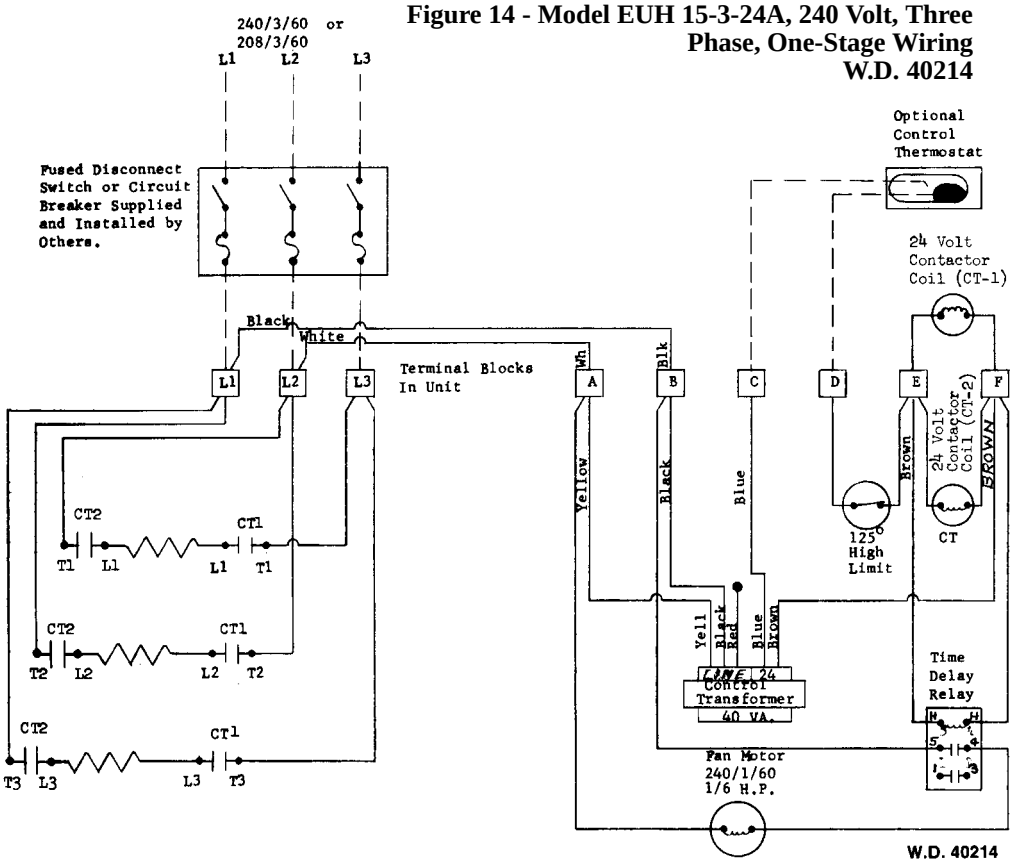


Figure 15 - Model EUH 15-1-24A, 240 Volt, Single Phase, One-Stage Wiring W.D. 40215

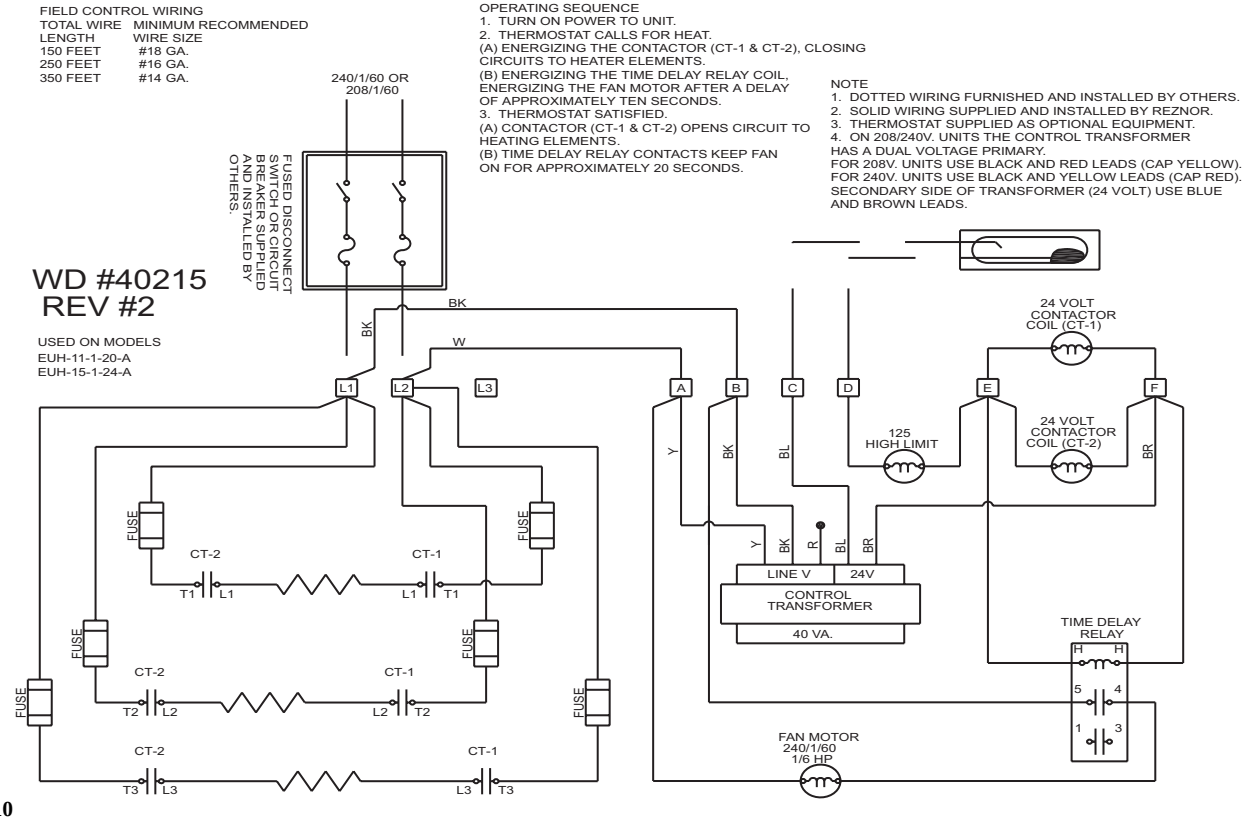
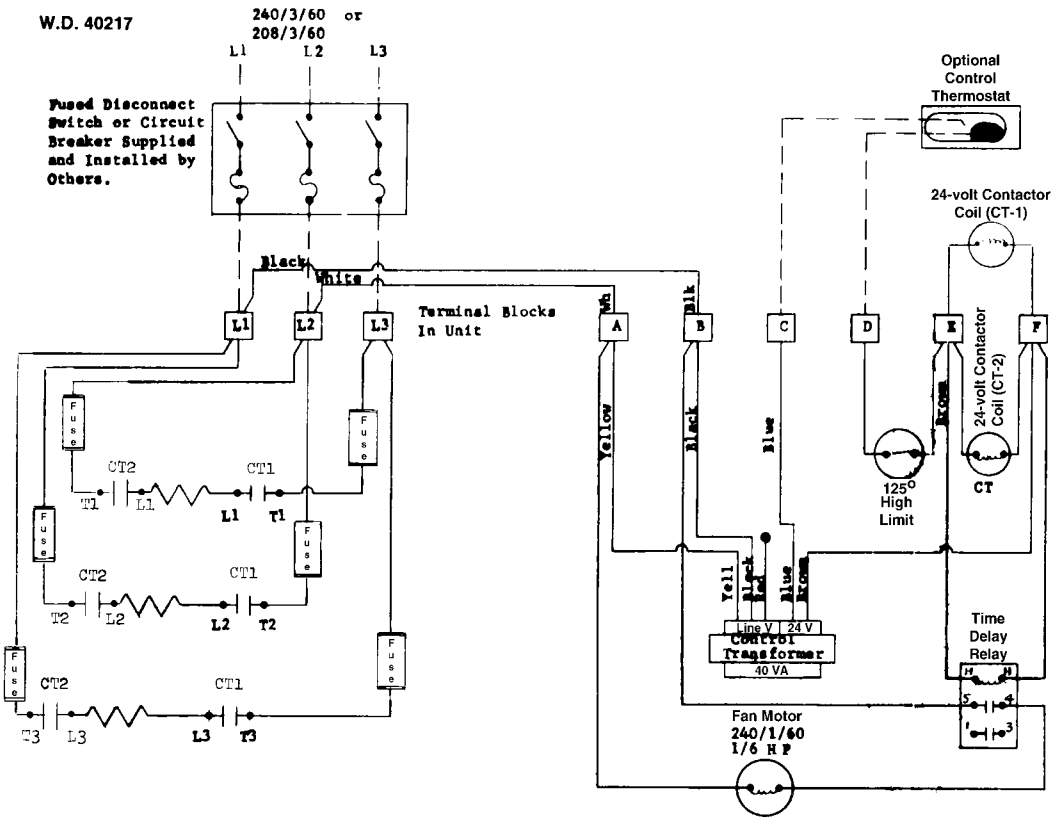


Figure 16 - Models EUH 20-3-24A, EUH 25-3-24A, EUH 30-3-24A, 240 Volt, Three Phase, One-Stage Wiring W.D. 40217



16C. Operating Sequence and Notes for Wiring Diagrams No. 40218 (Applies to Figure 17)

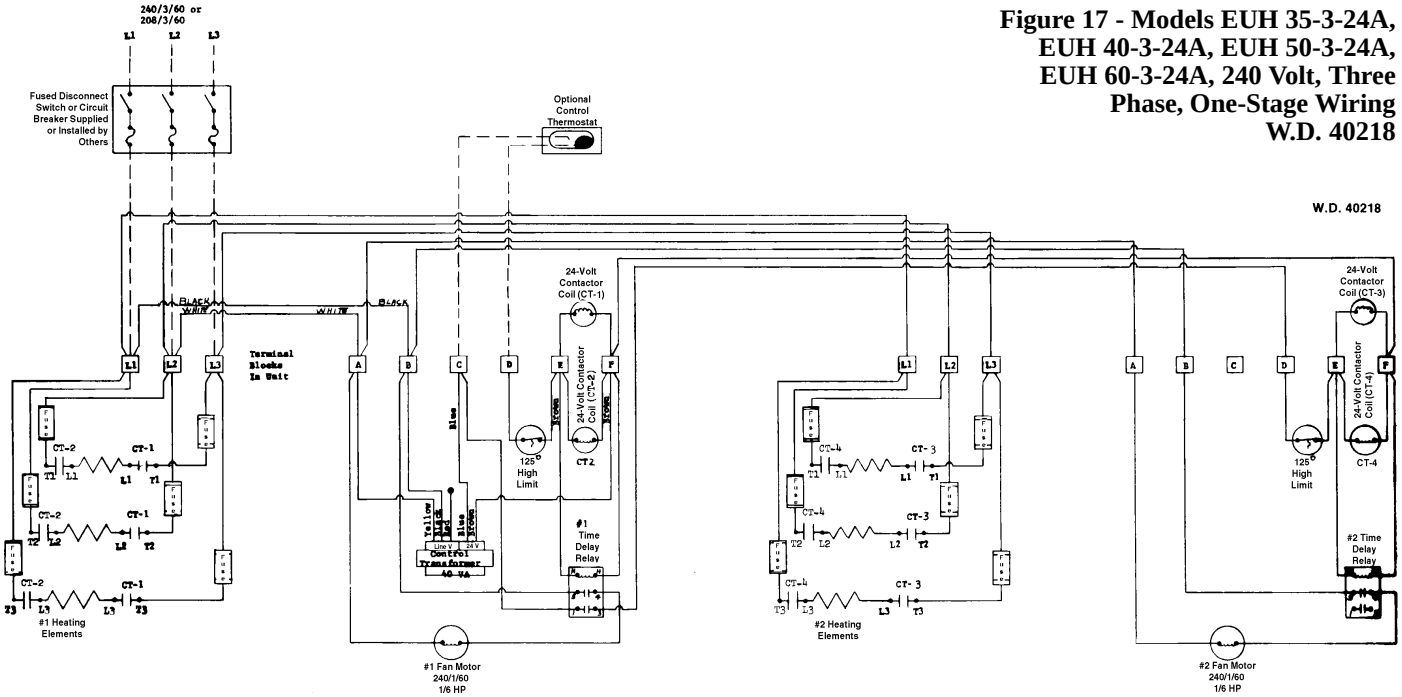
Operating Sequence:

1. Turn on power to the heater.
2. Thermostat calls for heat.
   a) Energizing the #1 heating element.
   b) Energizing the #1 fan motor after a delay of approximately ten seconds through contacts (4-5) of #1 time delay relay.
   c) Energizing the #2 heating element in approximately 30 seconds through contacts (1-3) of #1 time delay relay.
   d) Energizing the #2 fan motor in approximately 40 seconds through contacts (4-5) of #2 time delay relay.
3. Thermostat is satisfied.
   a) #1 heating element de-energized.
   b) #2 heating element de-energized in approximately 20 seconds.
   c) #1 fan motor de-energized in approximately 20 seconds.
   d) #2 fan motor de-energized in approximately 40 seconds.

Notes:

1. Dotted wiring furnished and installed by others.
2. Solid wiring supplied and installed by the heater manufacturer.
3. Thermostat supplied as optional equipment.
4. The control transformer has a dual voltage primary. For 240 volt, use black and yellow leads (cap red); secondary side (24 volt) of transformer, use blue and brown leads.

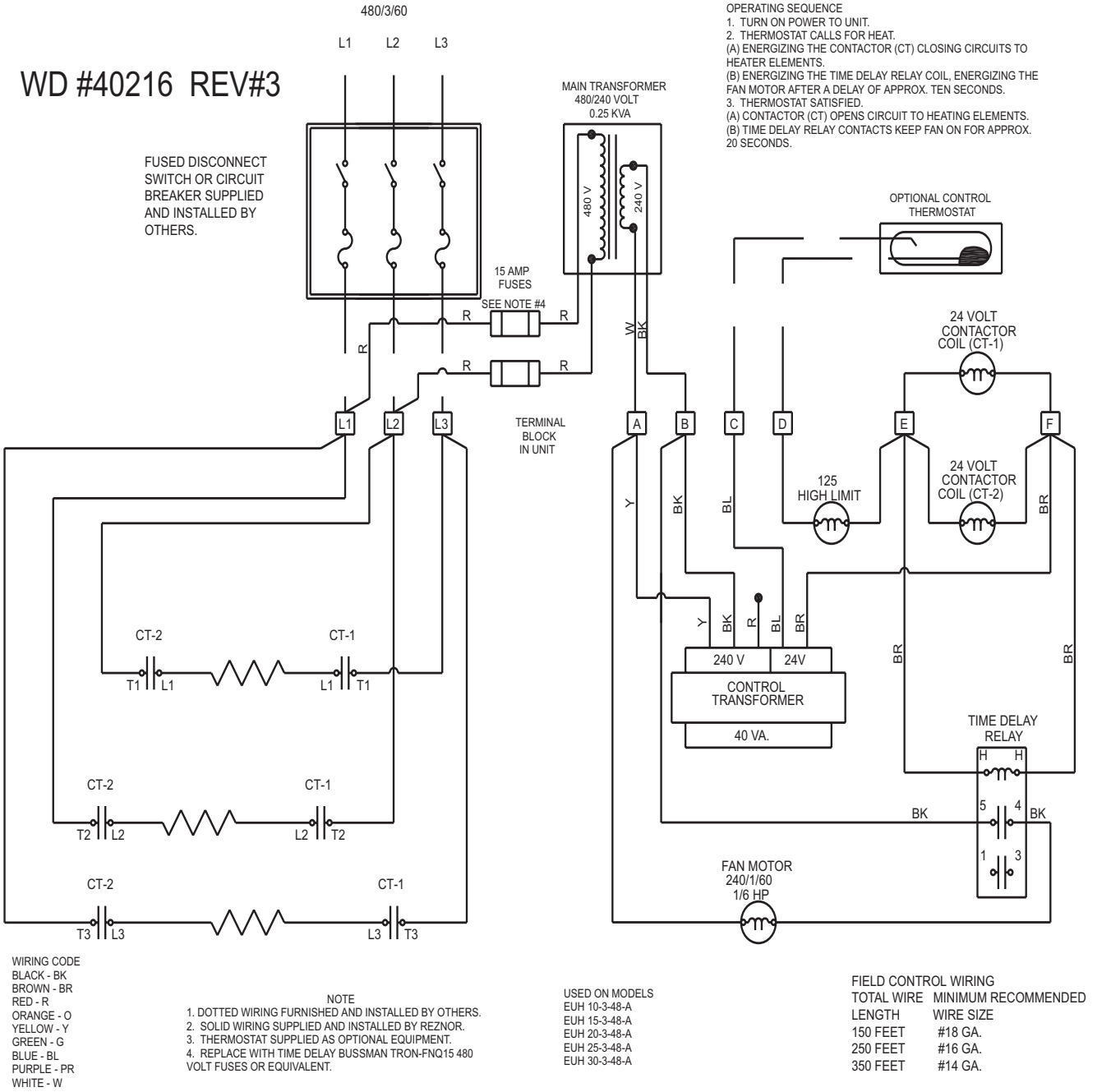
Figure 17 - Models EUH 35-3-24A, EUH 40-3-24A, EUH 50-3-24A, EUH 60-3-24A, 240 Volt, Three Phase, One-Stage Wiring W.D. 40218



16. Typical Wiring Diagrams (cont'd)

16D Operating Sequence and Notes are on Wiring Diagram No. 40216, Figure 18

Figure 18 - Models EUH 15-3-48A, EUH 20-3-48A, EUH 25-3-48A, EUH 30-3-48A; 480 Volt, Three Phase, One-Stage Wiring; W.D. 40216



16E. Operating Sequence and Notes for Wiring Diagrams Nos. 40219 and 40220 (Applies to Figure 19 and 20)

Operating Sequence:

1. Turn on power to the heater.
2. Thermostat calls for heat.
   a) Energizing the #1 heating element.
   b) Energizing the #1 fan motor after a delay of approximately ten seconds through contacts (4-5) of #1 time delay relay.
   c) Energizing the #2 heating element in approximately 30 seconds through contacts (1-3) of #1 time delay relay.
   d) Energizing the #2 fan motor in approximately 40 seconds through contacts (4-5) of #2 time delay relay.
3. Thermostat is satisfied.
   a) #1 heating element de-energized.
   b) #2 heating element de-energized in approximately 20 seconds.
   c) #1 fan motor de-energized in approximately 20 seconds.
   d) #2 fan motor de-energized in approximately 40 seconds.

Wiring Diagram Notes:

1. Dotted wiring furnished and installed by others.
2. Solid wiring supplied and installed by the heater manufacturer.
3. Thermostat supplied as optional equipment.
4. Replace with time delay Bussman #TRON FNQ15, 480 volt fuses, or equivalent.

Figure 19 - Models EUH 35-3-48A 480 Volt, Three Phase, One-Stage Wiring W.D. 40219

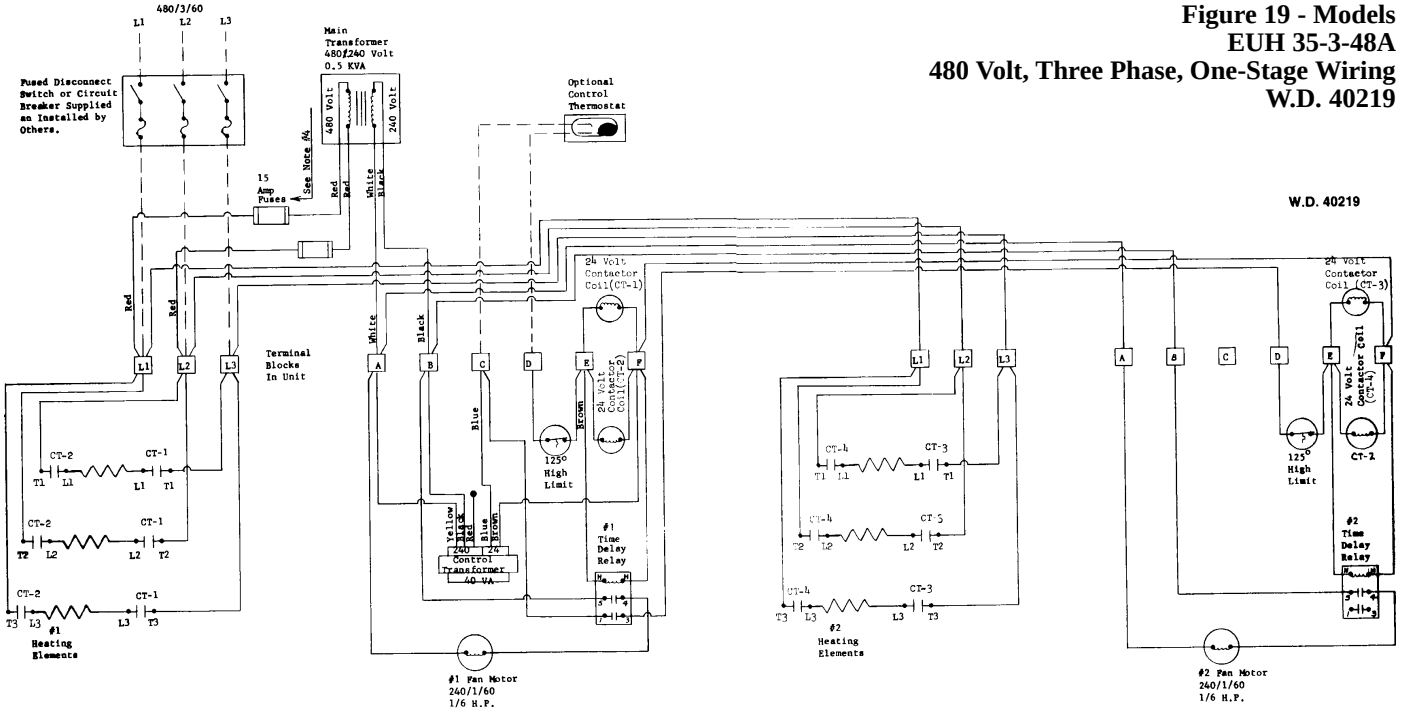
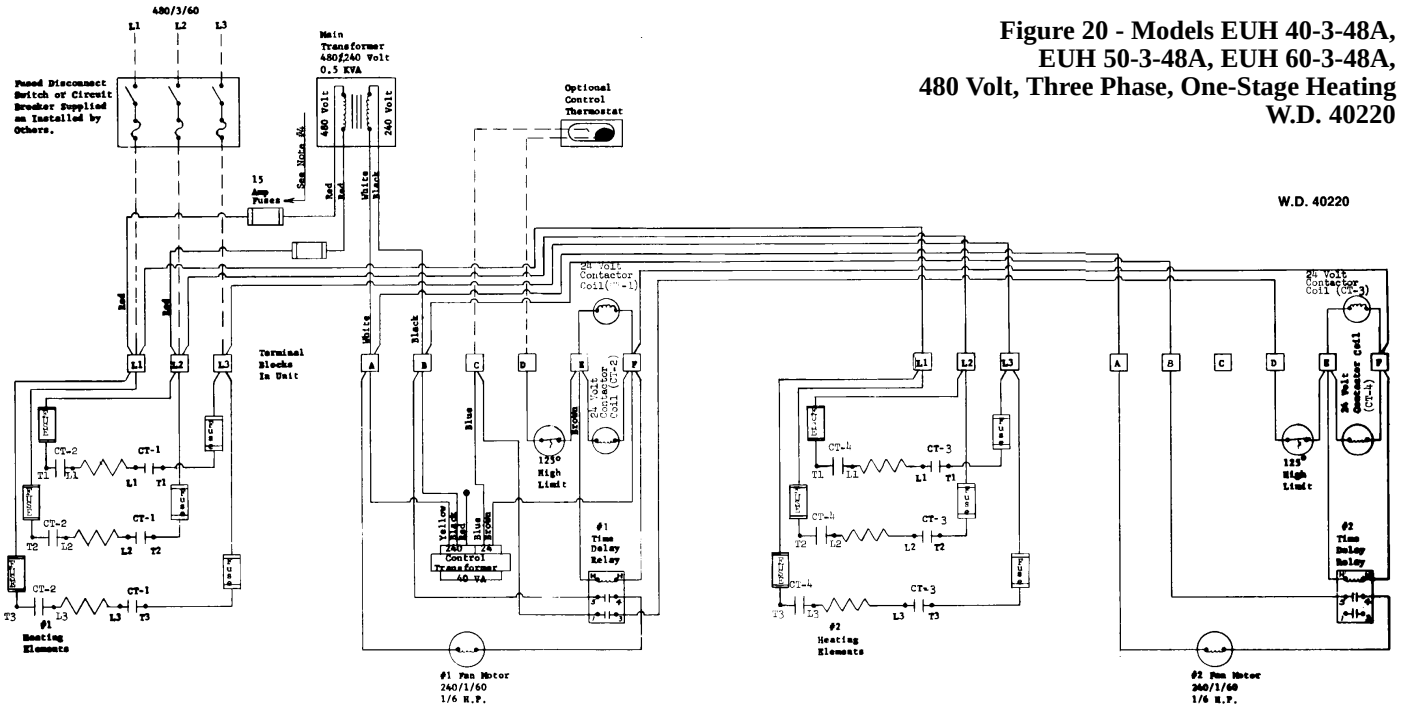


Figure 20 - Models EUH 40-3-48A, EUH 50-3-48A, EUH 60-3-48A, 480 Volt, Three Phase, One-Stage Heating W.D. 40220



16F. Field Wiring Instructions for Two-Stage Thermostat Operation and Operating Sequence and Notes for Wiring Diagrams Nos. 41284, 41285 and 41286 (Applies to Figures 21, 22 and 23, pgs 14-15)

Field Wiring Instructions for Optional Two-Stage Thermostat Operation:

1. Remove black 24 gauge wire from Terminal D and connect with control wire from thermostat Terminal W2 with wire nut.
2. Add control wire from thermostat Terminal W1 to Terminal D.
3. Add control wire from thermostat Terminal R to Terminal C.

Operating Sequence:

1. Set thermostat switch at "OFF" position.
2. Turn on power to the heater.
3. Set thermostat switch at "ON" position.
4. Low stage of thermostat calls for heat.
   a) Energizing the #1 heating element.
   b) Energizing the #1 fan motor after a delay of approximately 10 seconds through contacts (4-5) of #1 time delay relay.
5. High stage of thermostat calls for heat.
   a) Energizing the #2 heating element (**Note**: High stage thermostat circuit is wired through contacts (1-3) of #1 time delay relay which prevents #1 and #2 heating elements from being energized simultaneously.)
   b) Energizing the #2 fan motor in approximately 10 seconds.
6. High stage thermostat is satisfied.
   a) #2 heating element de-energized.
   b) #2 fan motor de-energized in approximately 20 seconds.
7. Low stage thermostat is satisfied.
   a) #1 heating element de-energized.
   b) #1 fan motor de-energized in approximately 20 seconds.

16. Typical Wiring Diagrams (cont'd)

Wiring Diagram Notes (Figures 21, 22, 23):

1. Dotted wiring furnished and installed by others.
2. Solid wiring supplied and installed by the heater manufacturer.
3. Thermostat supplied as optional equipment.
4. Replace with time delay Bussman #TRON FNQ15, 480 volt fuses, or equivalent.

Figure 21 - Models EUH 40-3-48A, EUH 50-3-48A, EUH 60-3-48A, 480 Volt, Three Phase, Optional Two-Stage Heating W.D. 41284

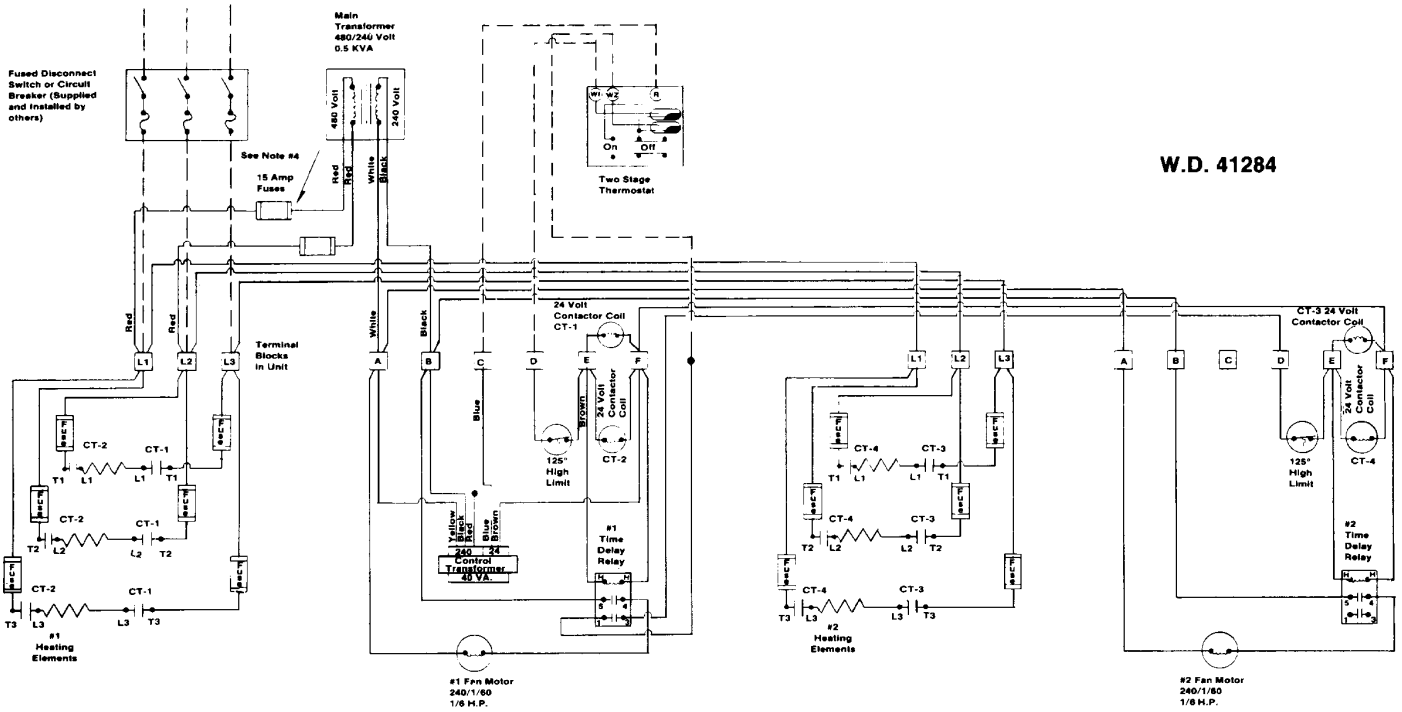


Figure 22 - Models EUH 35-3-48A, 480 Volt, Three Phase, Optional Two-Stage Heating W.D. 41285

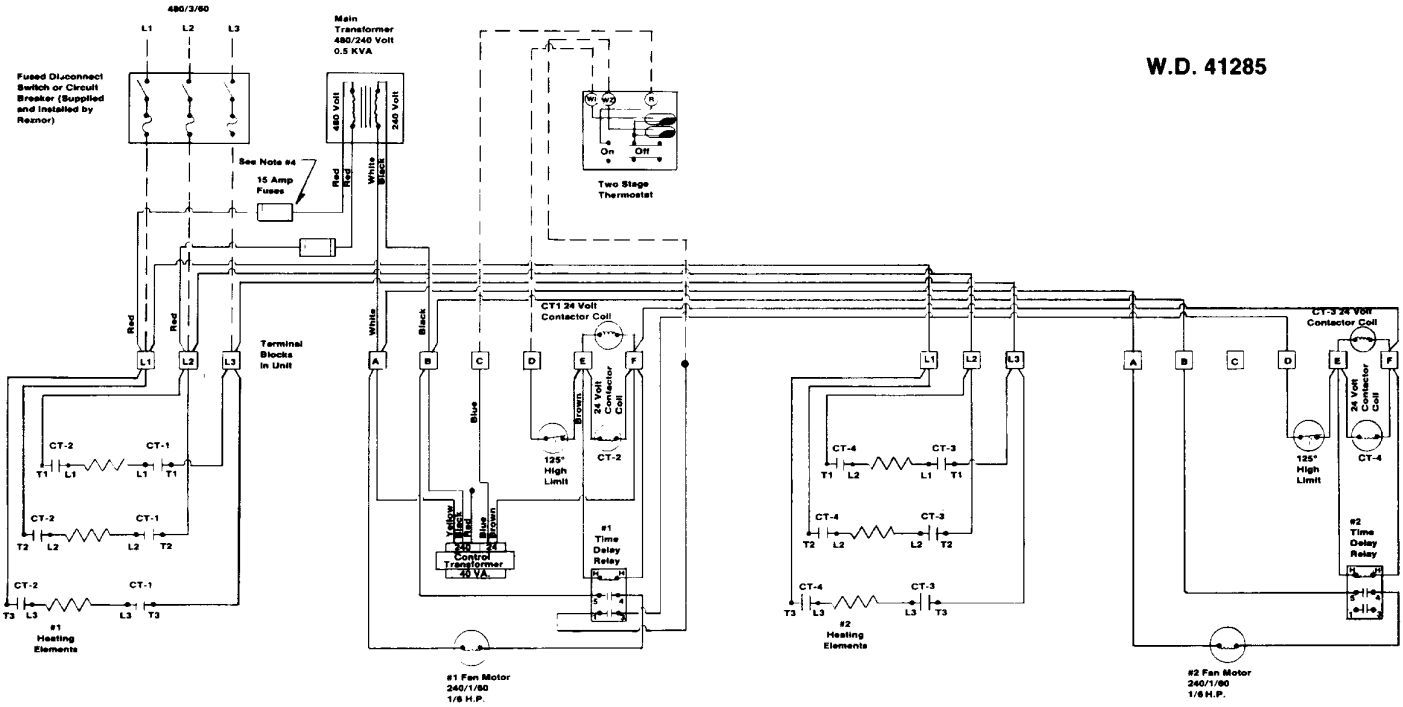
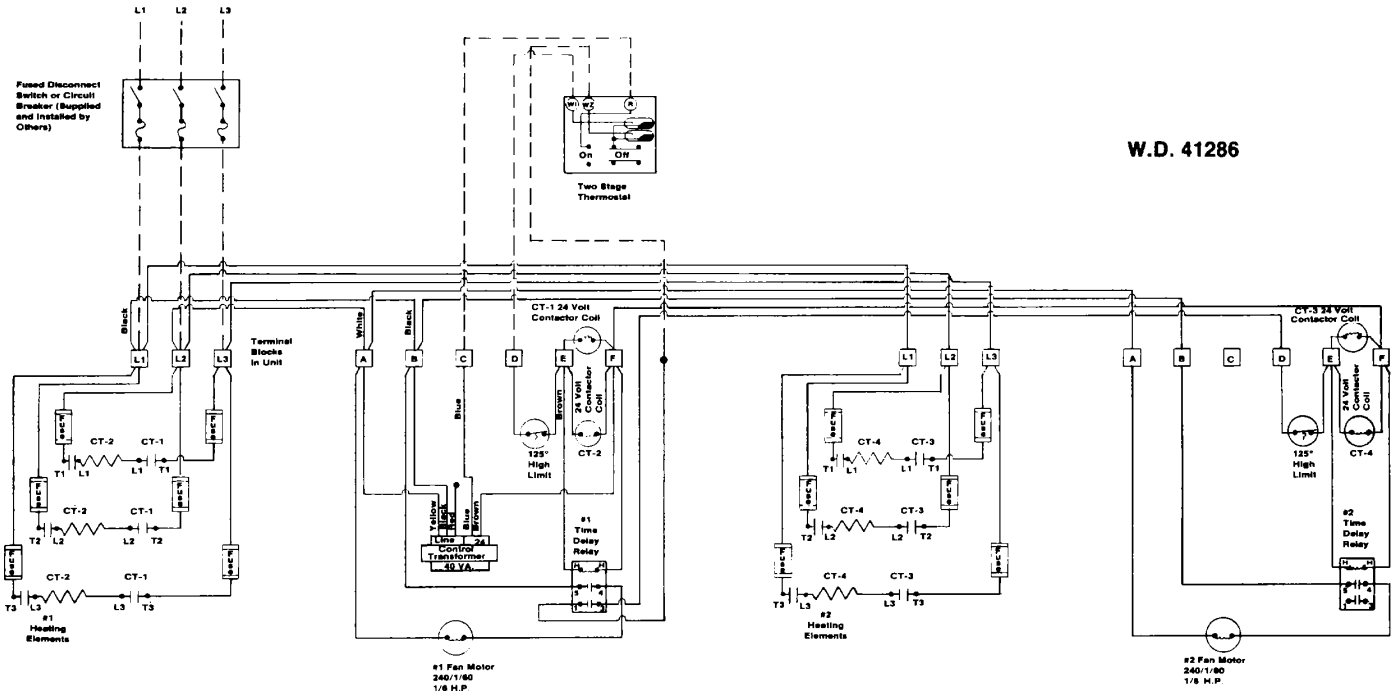


Figure 23 - Models EUH 35-3-24A, EUH 40-3-24A, EUH 50-3-24A, 240 Volt, Three Phase, Optional Two-Stage Heating W.D. 41286



17. Maintenance

Like all quality equipment, this unit will operate with a minimum of maintenance. However, to ensure long life and satisfactory performance, the following service regime is recommended.

WARNING: Turn off the power when servicing heaters.

☐ **Every 4 Months** -- Heaters should be inspected every four months where the equipment is operating under normal conditions. If the heaters are located in areas where an unusual amount of dust, soot, or other impurities are contained in the air, more frequent inspection is recommended.

Keep front and rear air openings of the unit free of grease and dirt. Check motor for cleanliness. Remove dirt and grease from the fan, the outside of the motor, and especially around the shaft. Check fan to be sure it is secure to the motor shaft. Lubricate the motor if it is provided with oil cups or grease fittings.

☐ **Annually** -- The heating element should be checked once a year, more often in areas where air is heavily sooted or dust laden. To clean the heating element, remove the louver frame. Using steel wool or similar material, carefully clean all dust and dirt from the heating element fins. With an air hose or brush, clean the inside of the cabinet, especially the bottom and sides where dirt and dust might accumulate.

CAUTION: Wearing eye protection is recommended when cleaning the heating element and cabinet.

FOR SERVICE OR REPAIR, FOLLOW THESE STEPS IN ORDER:

FIRST: **Contact the installer:**

NAME _____

ADDRESS _____

_____

_____

PHONE _____

SECOND: **Contact the nearest distributor (See telephone yellow pages.)**

THIRD: **Contact:** **REZNOR®/Thomas & Betts Corporation**
150 McKinley Avenue
Mercer, PA 16137
Phone: (724) 662-4400

Model No. _____

Unit Serial No. _____

Date of Installation _____

Thomas&Betts

 Printed in U.S.A.

MANUFACTURER OF GAS, OIL, ELECTRIC HEATING AND VENTILATING SYSTEMS

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