



SERVICE REFERENCE

DIVISION 4	SECTION KUH
SALES REFERENCE (Supersedes PF483-2)	PF483-3
161-303475-001	
DATE	JULY, 2002

Horizontal Unit Heater

INSTALLATION INSTRUCTIONS AND RENEWAL PARTS IDENTIFICATION



Specifications — Table 1

Model	Electrical Data (60 Hz)					Dimensions (In.)			Standard Contactor Rating (Qty.)
	Volts	Watts	Phase	Amps	BTU	Height	Width	Depth	
KUH-C-02-81	208	2,667	1	12.8	8,850	16	13-1/8	8-7/8	—
KUH-C-02-21	208/240	2000/2,667	1	11.1*					
KUH-C-02-71	277	2,667	1	9.6					
KUH-C-04-81†	208	4,000	1	19.2	13,661	16	13-1/8	8-7/8	—
KUH-C-04-83†			3	11.2					
KUH-C-04-21†	208/240	3,000/4,000	1	16.7*					
KUH-C-04-23†			3	9.6*					
KUH-C-04-71	277	4,000	1	14.5					
KUH-C-04-43	480	4,000	3	4.8					
KUH-C-05-81†	208	5,000	1	24.0	17,076	16	13-1/8	8-7/8	—
KUH-C-05-83†			3	13.8					
KUH-C-05-21†	208/240	3,750/5,000	1	20.8*					
KUH-C-05-23†			3	12.1*					
KUH-C-05-71	277	5,000	1	18.2					
KUH-C-05-43	480	5,000	3	6.0					
KUH-C-07-81†	208	7,500	1	36.1	25,598	20-1/2	17-1/4	11-1/2	—
KUH-C-07-83			3	20.9					
KUH-C-07-21†	208/240	5,625/7,500	1	31.1*					
KUH-C-07-23			3	18.1*					
KUH-C-07-71	277	7,500	1	27.2					
KUH-C-07-43	480	7,500	3	9.0					
KUH-C-10-81†	208	10,000	1	48.0	34,130	20-1/2	17-1/4	11-1/2	—
KUH-C-10-83			3	27.8					
KUH-C-10-21†	208/240	7,500/10,000	1	41.7*					
KUH-C-10-23			3	24.0*					
KUH-C-10-43	480	10,000	3	12.0					
KUH-C-12-83	208	12,500	3	34.8					
KUH-C-12-23	208/240	9,375/12,500	3	30.1*					
KUH-C-12-43	480	12,500	3	15.1					
KUH-C-15-83	208	15,000	3	41.8					
KUH-C-15-23	208/240	11,250/13,000	3	36.2*	51,195	20-1/2	17-1/4	11-1/2	—
KUH-C-15-43	480	15,000	3	18.1					
KUH-C-20-23	208/240	15,000/20,000	3	48.0*	68,460	24	20-1/8	11-1/2	—
KUH-C-20-43	480	20,000	3	24.0					
KUH-C-25-43	480	25,000	3	30.0	85,525	24	20-1/8	11-1/2	—
KUH-C-30-83	208	30,000	3	83.4					
KUH-C-30-23	208/240	22,500/30,000	3	72.2*	102,390	24	20-1/8	17-1/4	—
KUH-C-30-43	480	30,000	3	36.1					
KUH-C-35-23	208/240	26,250/35,000	3	84.3*	119,455	24	20-1/8	17-1/4	—
KUH-C-35-43	480	35,000	3	42.1					
KUH-C-40-23	208/240	30,000/40,000	3	96.0*	136,520	24	20-1/8	17-1/4	—
KUH-C-40-43	480	40,000	3	48.0					
KUH-C-45-43	480	45,000	3	54.1	153,585	24	20-1/8	17-1/4	—

* Note: 208V amperage is 86% of 240V value.

† These models can be field changed from single phase to three phase or three phase to single phase.

IMPORTANT

Failure to understand and follow these installation instructions and the "WARNING" notes therein may result in serious personal injury from electrical shock, or from the heater falling due to faulty installation.

WARNING: This heater is not intended for use in hazardous atmospheres where flammable vapors, gases, liquids or other combustible atmospheres are present as defined in the National Electric Code. Failure to comply can result in explosion or fire. For these applications see PDS CXH-A-EP (PF490).

WARNING: Users should install adequate back-up controls and safety devices with their electric heating equipment. Where the consequences of failure may be severe, back-up controls are essential. Although the safety of installation is the responsibility of the user, Chromalox will be glad to make equipment recommendations.

Do not mount mercury type thermostat directly on unit. Vibration could cause heater to malfunction.

The heater must be mounted at least 7' above the floor to prevent accidental contact with the heating elements or fan blade which could cause injury.

Model	WEIGHT (Lbs.) Heater and Brackets		
	Ceiling	Wall	
	Weight	Weight	Ft.-Lbs.
KUH-02-KUH-05	33-3/4	38-1/4	48
KUH-07-KUH-15	55	67-1/4	112
KUH-20-KUH-25	78	90-1/4	150
KUH-30-KUH-45	117	141-1/4	400

Table 2

Keep at least 5' clearance in front of the heater. Refer to Table 4 for side, top and back clearance requirements.

The ceiling mounting structure and the anchoring provisions must be of sufficient strength to support the combined weight of the heater and mounting bracket. (Refer to Table 2 for weights of heater and bracket.)

The wall or mounting surface, and the anchoring provisions must be capable of supporting the combined weight of the heater and mounting brackets cantilevered from the mounting surface. (Refer to Table 2 for weights of heater and brackets and for cantilevered force expressed in foot-pounds.)

Fan blade rotation must be checked. If airflow is not moving out through the louvers, interchange any two of the three cus-

GENERAL

Heater Location Instructions:

Arrange units so their discharge air streams:

- A. are subjected to a minimum of interference from columns, machinery and partitions.
- B. wipe exposed walls without blowing directly at them.
- C. are directed away from room occupants in comfort heating.
- D. are directed along the windward side when installed in a building exposed to a prevailing wind.

Locate thermostat on interior partition walls or posts away from cold drafts, internal heat sources and away from heater discharge air streams.

Small rooms can be heated by one unit heater. Where two walls are exposed, the heater should be mounted as shown in Figure 1.

Large rooms require multi-unit installation. Number and capacity of units will be determined by volume of building and square feet of floor area to be heated. Arrange units to provide perimeter air circulation where each unit supports the air stream from another.

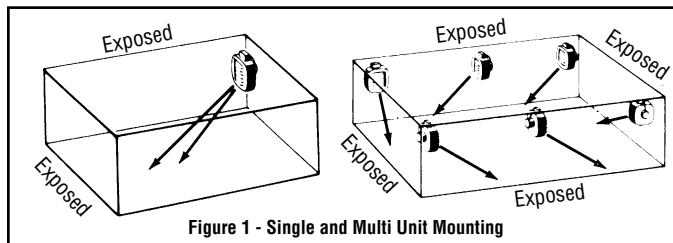


Figure 1 - Single and Multi Unit Mounting

INSTALLATION

WARNING: Hazard of Shock. Disconnect all power before installing heater.

- The heater must be mounted at least 7' above the floor to prevent accidental contact with the heating elements or fan blade which could cause injury.
- Keep at least 5' clearance in front of heater. Refer to Table 4 for side, top and back clearance requirements.
- The ceiling mounting structure and the anchoring provisions must be sufficient to support the combined weight of the heater and mounting bracket. (Refer to Table 2 for weights of heater and bracket.)
- The wall or mounting surface and the anchoring provisions must be capable of supporting the combined weight of the heater and mounting brackets cantilevered from the mounting surface. (Refer to Table 2 for weights of heater and brackets and for cantilevered force expressed in foot-pounds.)

The heater may be mounted either on the ceiling or on the wall as follows:

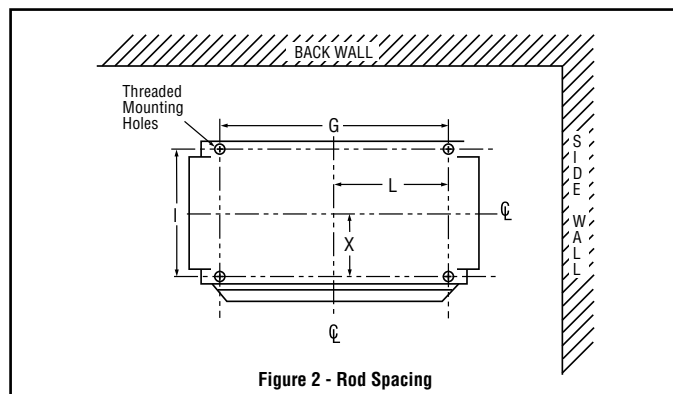


Figure 2 - Rod Spacing

Table 3 — Rod Thread Type and Spacing Dimensions (inches) for Horizontal Discharge.

Unit	Rod Thread Type	Dimensions — (In.)			
		I	G	L	X
2 - 5 kW	5/16 - 18	4-1/2	5-1/2	2-3/4	2-1/4
7-1/2 - 15 kW	3/8 - 16	6-1/4	8-1/4	4-1/8	3-1/8
20 - 25 kW	3/8 - 16	6-1/4	8-1/4	4-1/8	3-1/8
30 - 45 kW	3/8 - 16	11-3/4	8-1/4	4-1/8	5-7/8

INSTALLATION

- 1. CEILING.** The ceiling mounting bracket is fastened to the top of the heater using the four (4) bolts supplied with the mounting bracket. The bracket is then mounted to the ceiling using a 5/8" bolt (by others).

CEILING (ALTERNATE)

- A.** The heater can be rod mounted to the ceiling by installing four (4) threaded mounting rods in the threaded holes located on the top of the heater as shown in Figure 2. (Refer to Table 3 for mounting rod thread size.)
- B.** Securely attach the four (4) mounting rods to the ceiling. (Refer to Table 4 for wall and ceiling clearances, and Figure 3 for mounting spacing Specifications.)

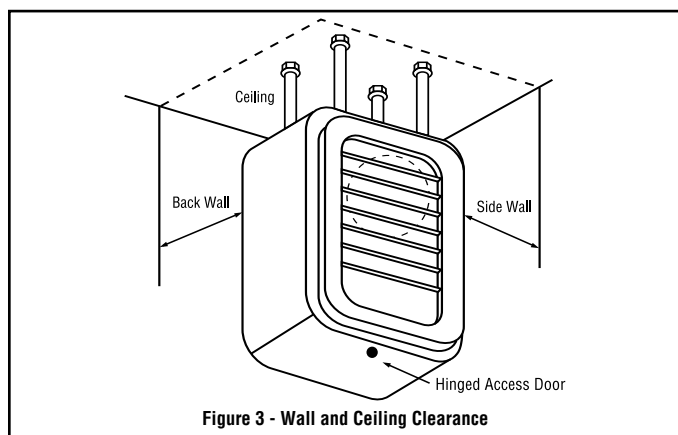


Figure 3 - Wall and Ceiling Clearance

Table 4 — Clearance Requirements

Model	Mounting Limitations (In.)		
	Back to Wall	Side to Wall	Top to Ceiling
KUH-02 Thru KUH-05	6"	6"	4"
KUH-07 Thru KUH-15	6"	6"	6"
KUH-20 and KUH-25	6"	6"	6"
KUH-30 Thru KUH-45	6"	6"	6"

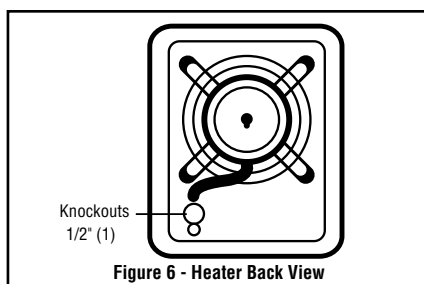


Figure 6 - Heater Back View

Knockout Sizes	
KUH-02 - 05	1/2" (2) 3/4" (1)
KUH-07 - 15	1/2" (2) 1" (1)
KUH-20 - 25	1/2" (2) 3/4", 1", 1-1/4" (1)
KUH-30 - 45	1/2" (2) 3/4", 1", 1-1/4" (1)

- 2. WALL.** Wall mounting necessitates the use of both a ceiling mounting bracket and a wall mounting bracket. First, attach the ceiling mounting bracket to the heater. Then, attach the wall mounting bracket to the wall using four 3/8" bolts (by others). Attach the ceiling mounting bracket on the heater to the wall mounting bracket using the 5/8" bolt provided.

The heater may be rotated to discharge in the desired direction. Open and adjust louvers to desired position. See Figure 4 and 5 for additional mounting details.

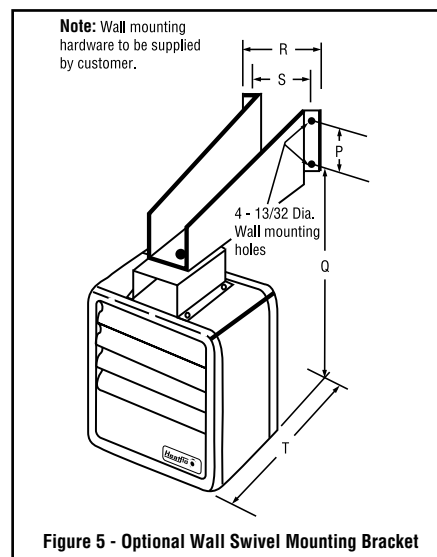


Figure 5 - Optional Wall Swivel Mounting Bracket

Bracket Model No.	Dimensions (In.)					Bracket Weight (Lbs.)	Use With
	P	Q	R	S	T		
BUH-01A	1-3/4	21-1/2	6-34	5-1/2	14-15/16	4-1/2	KUH-02, 04, 05
BUH-02A	2	28-7/16	9-1/2	8-3/8	22-1/4	12-1/4	KUH-07, 10, 12, 15
BUH-02A	2	32	9-1/2	8-3/8	22-1/4	12-1/4	KUH-20, 25
BUH-03A	5-1/2	28-11/16	5	3-1/2	33-1/4	24-1/4	KUH-30, 35, 40, 45

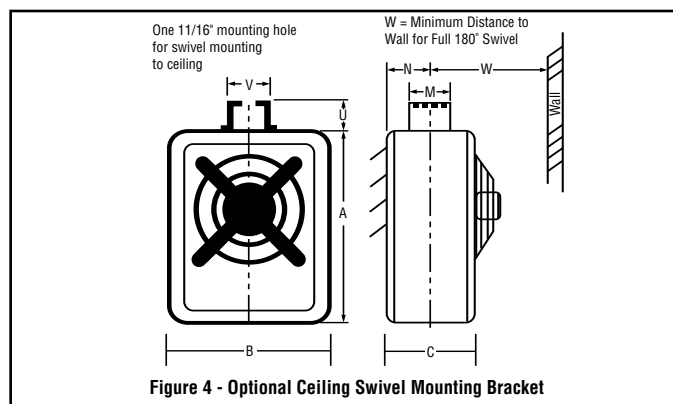


Figure 4 - Optional Ceiling Swivel Mounting Bracket

Bracket Model No.	Dimensions (In.)							Wt. (Lbs.)	Use With	
	A	B	C	M	N	U	V			W
BUH-04A	16	13-1/8	8-87/8	6	4-7/16	4	4-1/2	10-1/2	3	KUH-02, 04, 05
BUH-05A	20-1/2	17-1/4	11-1/2	8	6-1/4	6	7-1/4	16	5-1/2	KUH-07, 10, 12, 15
BUH-05A	24	20-1/8	11-1/2	8	6-1/4	6	7-1/4	16	5-1/2	KUH-20, 25
BUH-06A	24	20-1/8	17-1/4	13-3/4	10	6	7-1/4	23-1/4	11	KUH-30, 35, 40, 45

WIRING

WARNING: Hazard of Shock. Be sure electricity is turned off at main switch first before wiring. Any installation involving electric heaters must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.

1. Use heater only on the voltage and frequency specified on the nameplate.
2. All wiring should be done in accordance with local codes and the National Electrical Code by a qualified person as defined in the NEC.
3. Two knockouts are provided on the back of the heater for wire entry. See Figure 6 for location of knockouts.
4. Branch circuit wire for connection to heater must be at least 60°C wire.
5. The bottom access door is hinged. There is one screw that must be loosened to gain access (Figure 3). This screw is the captive type; do not try to remove it.
6. A ground terminal is provided near the power terminal board. The ground wire should be connected before other connections are made.
7. Stripped wire heads are supplied to be connected to accept the correct size power supply wire. Copper rated at 600V and 60°C is satisfactory for the heater branch circuit.
8. Electrical accessories, either kits or factory-installed options, are shown connected by a dash line on the heater wiring diagram.
9. Wiring connections are to be made on designated wire leads as shown in the wiring diagrams located inside the access door.

POWER DISCONNECT SWITCH

(Available as a kit or factory installed option). This switch disconnects the power to the power leads when the handle is turned to its off position.

1. Use copper conductor supply wire only when connecting to the power line. (See Figure 7.)
2. Connection to the switch pigtails should be made with compression connectors and the joint should be then well insulated.
3. Consult the local wiring code in your area.

SUMMER FAN SWITCH

(MOUNTED ON FRONT OF HEATER). When the switch handle is pointing toward the SUMMER (FAN ON) position, the fan will run continuously. When the switch handle is pointing toward the WINTER (HEAT) position, the fan will run only when the heating elements are hot.

REMOTE FAN SWITCH

(MANUAL SWITCH-LINE VOLTAGE). The wall switch is

packed in the wiring compartment. The remote fan switch is mounted external and remote from the KUH unit heater. The voltage of the remote fan switch is the same as the supply voltage to the KUH heater.

1. Use 14 gage copper, NEC Class 1, 600V rated insulated wire. Wiring must meet all Local and NEC requirements for 480-volt service.
2. Install the remote fan switch in standard wall box in any convenient location that is protected from traffic or other accidental damage.
3. Connect the 14 gage copper field wire to the switch lead wires with suitable connectors.

REMOTE FAN SWITCH

480V + Heaters, require an additional fan relay. (Available as a kit or factory installed option). The wall switch is packed in the wiring compartment.

1. Use 18 gage (min.) NEC Class 1, 600V wiring that meets all Local and NEC requirements.
2. Install the wall switch in a standard wall box in any convenient location that is protected from traffic or other accidental damage.
3. Connect the field wire to the switch lead wires with suitable connectors.

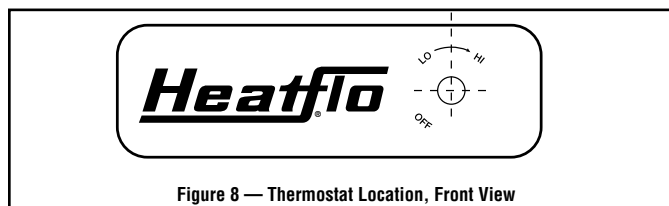


Figure 8 — Thermostat Location, Front View

OPTIONAL THERMOSTAT (KUH-TK)

Heaters can be equipped with an optional thermostat of the Bulb and Capillary type for automatic temperature control (Figure 8). The thermostat controls the heating elements and fan simultaneously to achieve set temperature.

The “Lo” setting of the thermostat is approximately 40°F, and the “Hi” setting is approximately 90°F.

CONTROL VOLTAGE WIRING — EXTERNAL REMOTE THERMOSTATS AND FAN SWITCHES

WARNING: Line voltage is present on some of the terminals. Always disconnect the power from the heater before making any connections.

1. Use 600 volt, NEC Class 1 insulated wiring with a minimum gage of 18 for thermostats and minimum gage of 14 for line voltage motor switch (remote fan switch without relay).
2. The thermostat should be located in the area to be heated on an inside wall. The thermostat should not be exposed to drafts, sunlight, radiation from hot objects, or in a direct line with the discharge from the fan.
3. Install the thermostat approximately 5 feet above the floor line.
4. Install the remote fan switch in any convenient location that is protected from traffic or likely accidental damage.
5. Internal optional controls are shown on the unit heater wiring diagrams by a dash line.

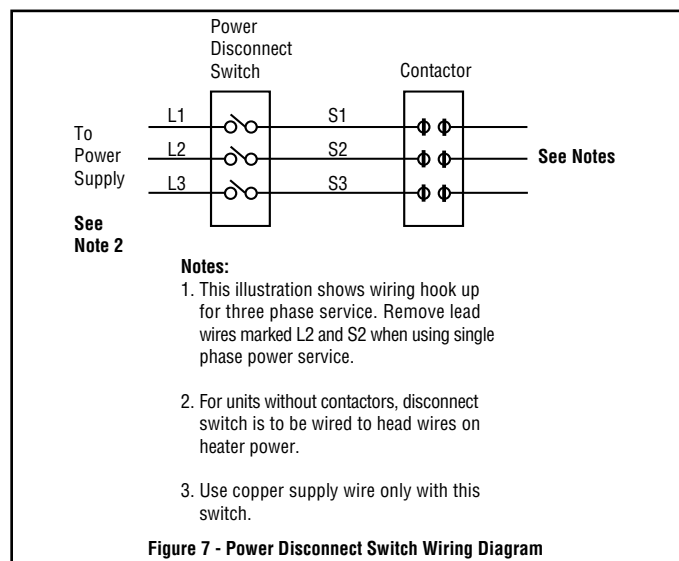


Figure 7 - Power Disconnect Switch Wiring Diagram

WIRING DIAGRAMS

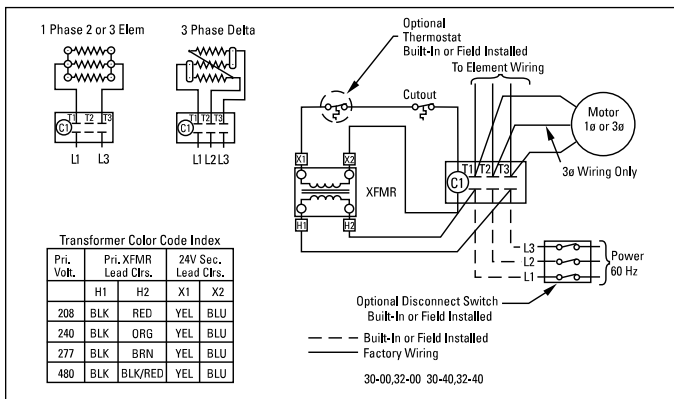


Figure A

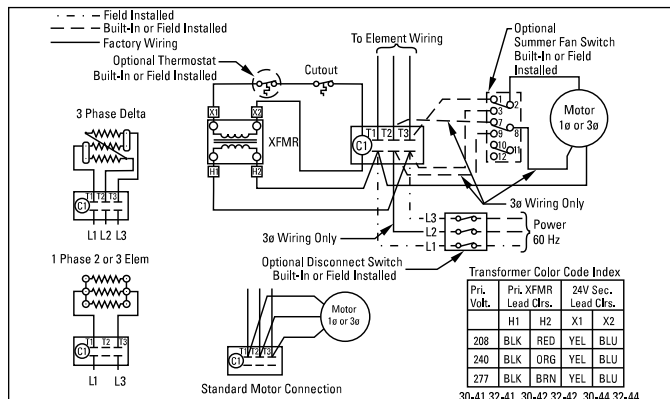


Figure B

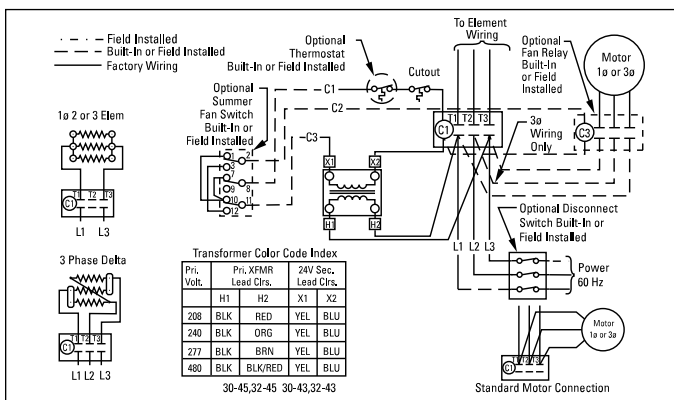


Figure C

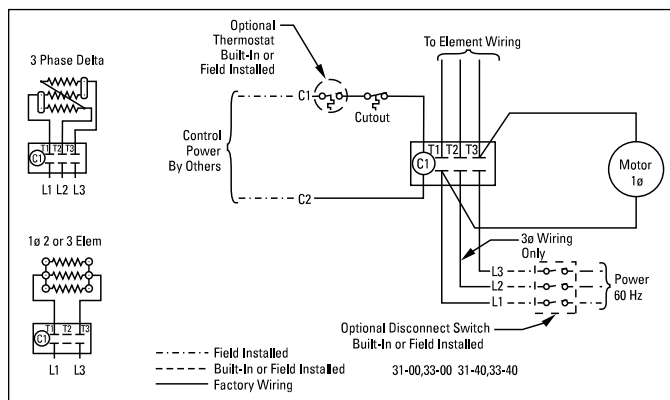


Figure D

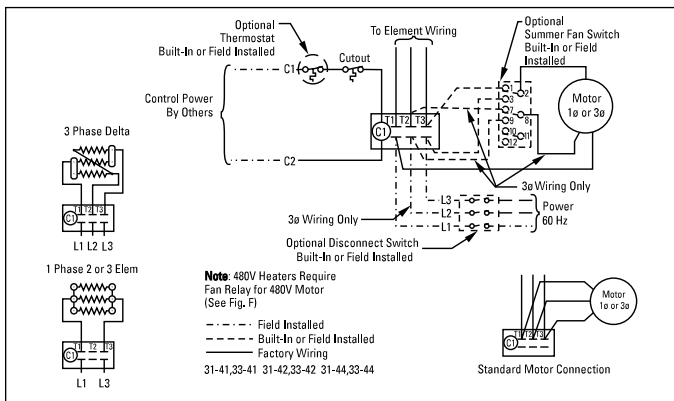


Figure E

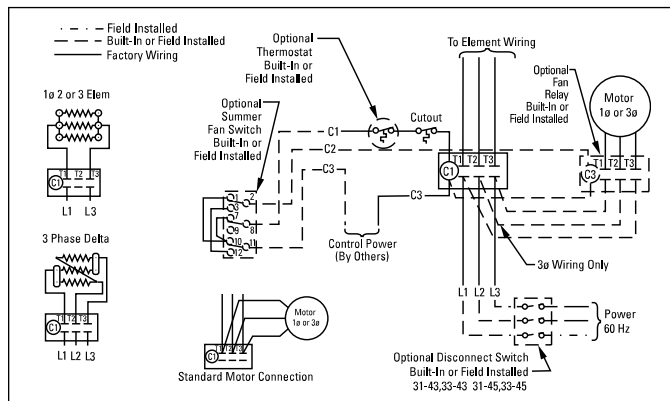


Figure F

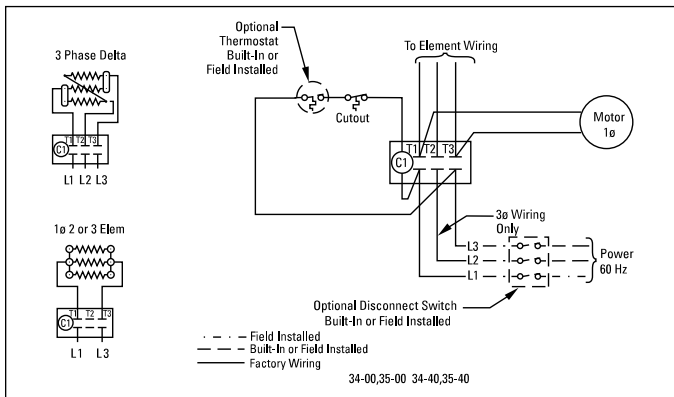


Figure G

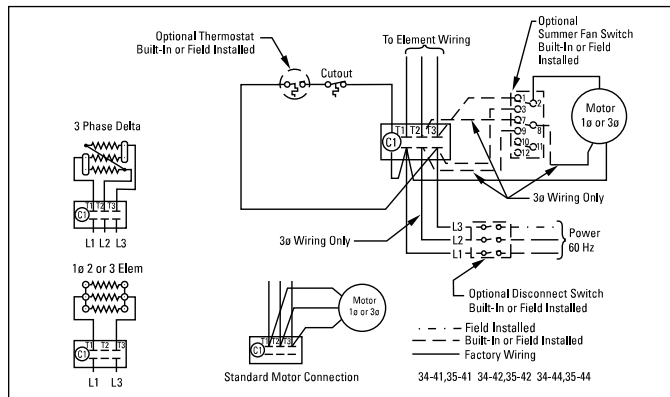


Figure H

WIRING DIAGRAMS

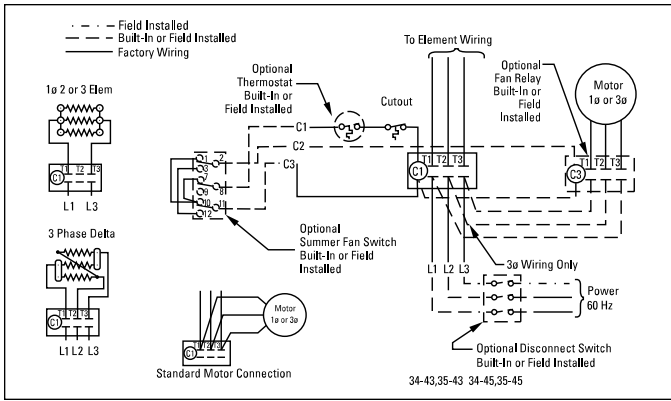


Figure I

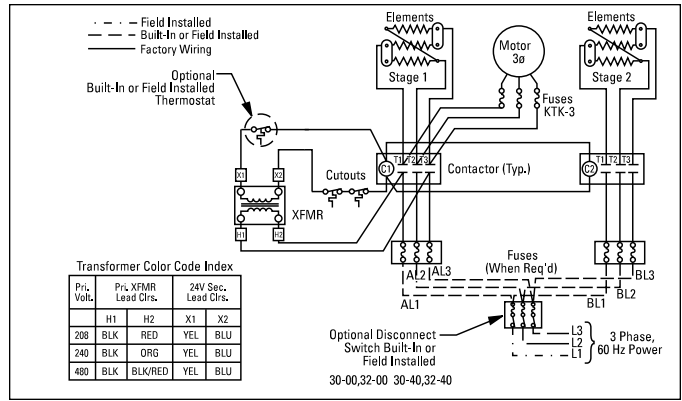


Figure J

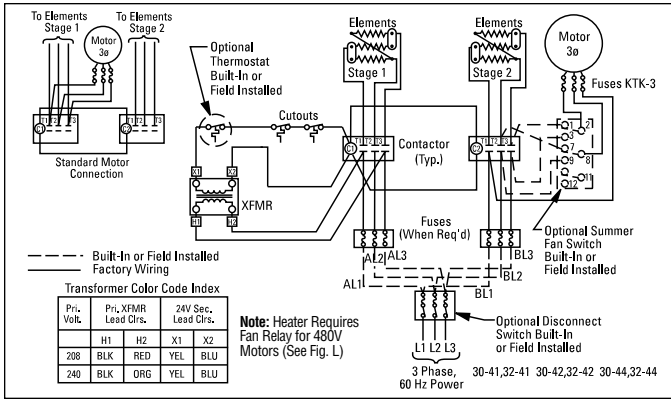


Figure K

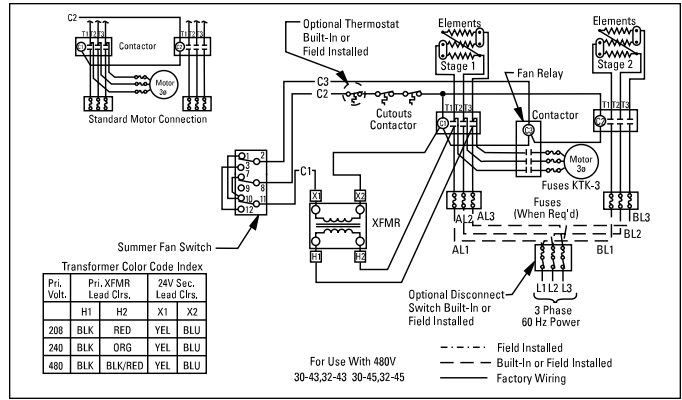


Figure L

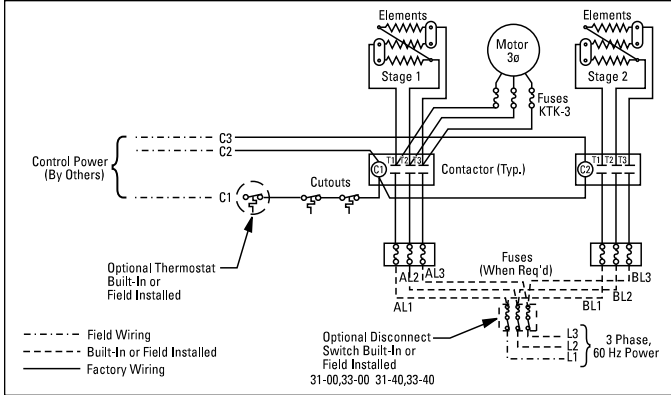


Figure M

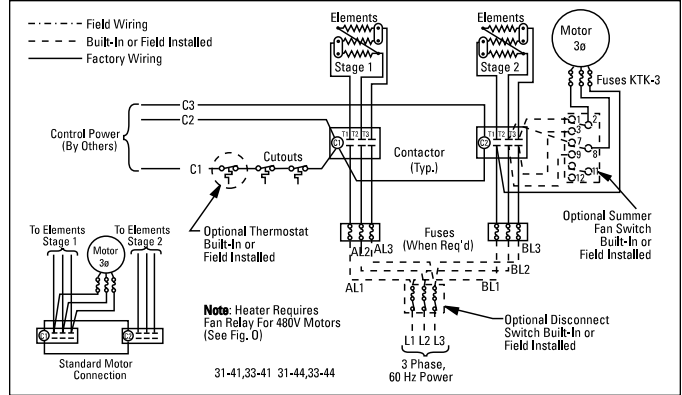


Figure N

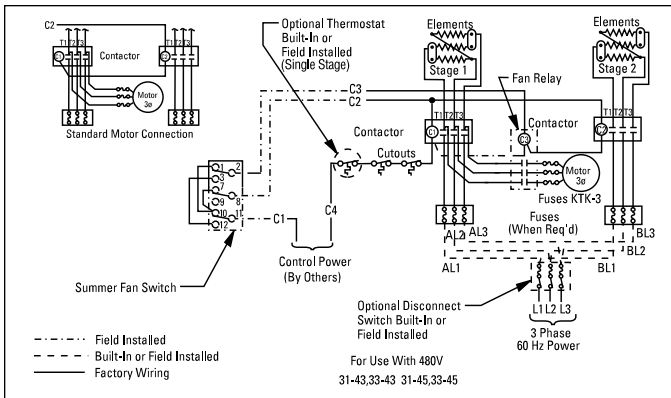


Figure O

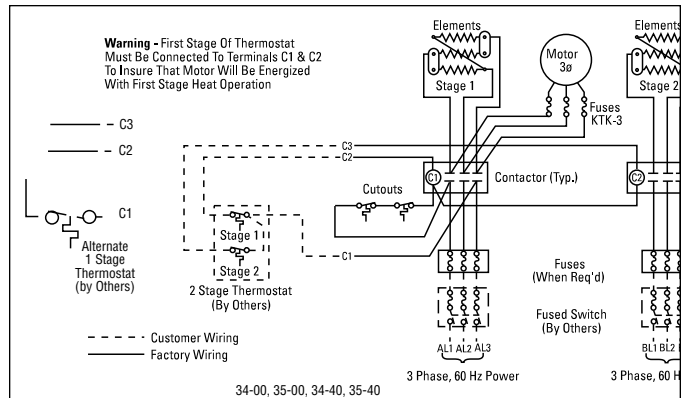
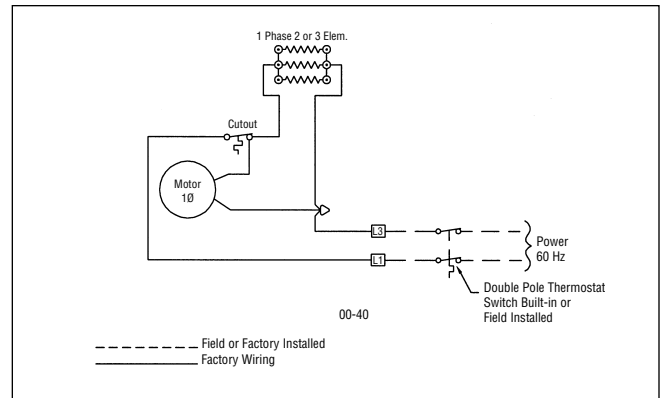
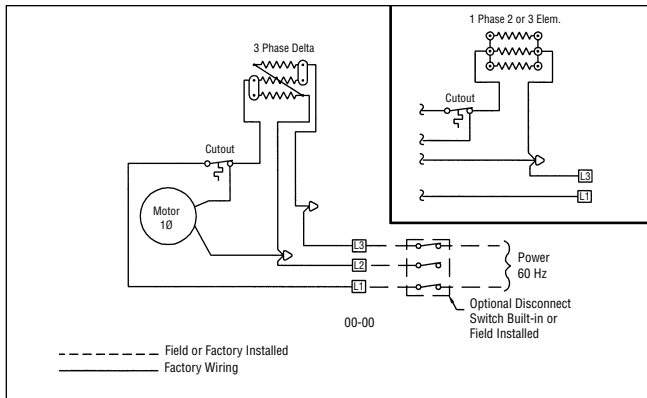
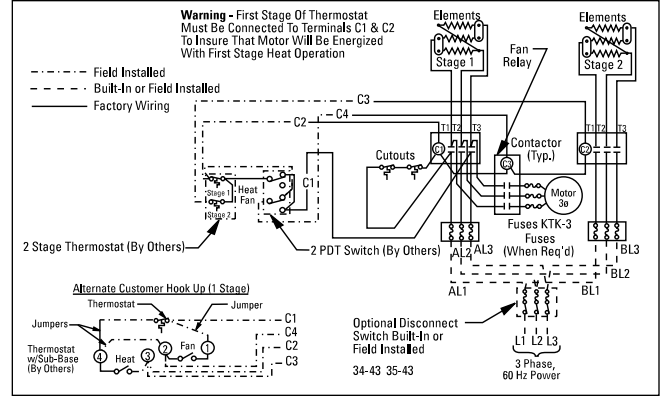
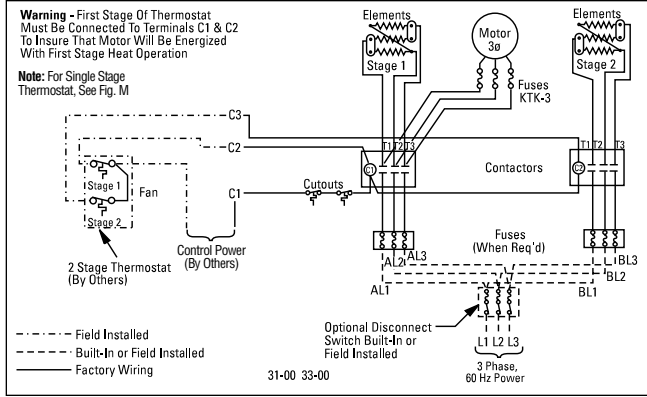
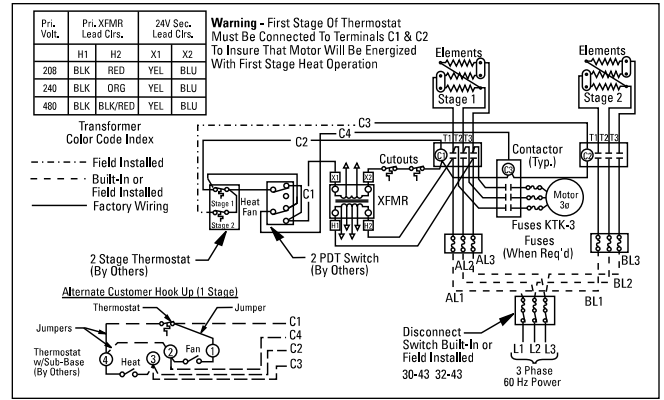
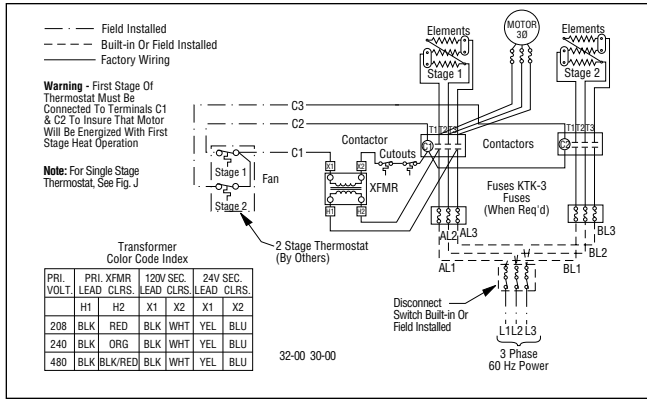
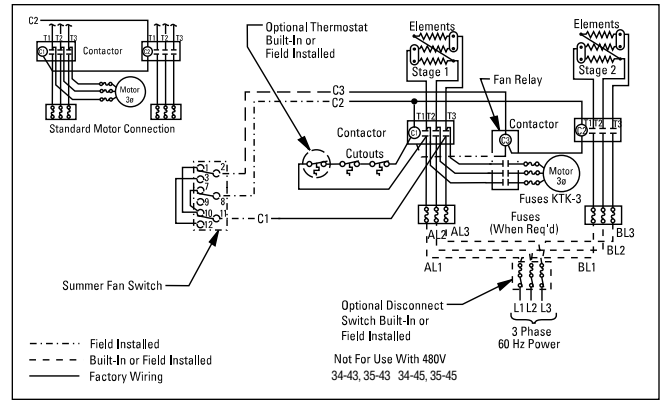
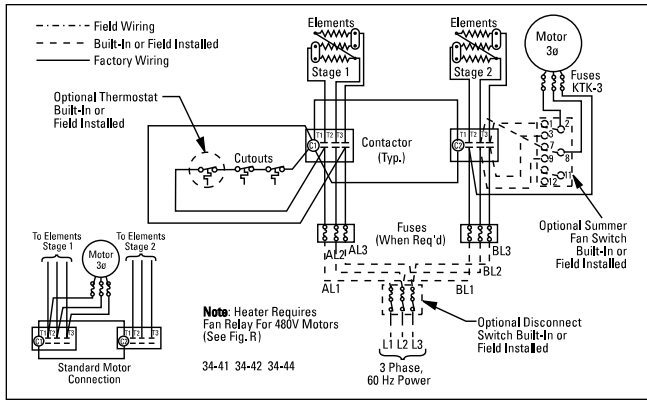


Figure P

WIRING DIAGRAMS



Limited Warranty:
Please refer to the Chromalox limited warranty applicable to this product at
<http://www.chromalox.com/customer-service/policies/termsofsale.aspx>.

Heatflo
INDUSTRIAL HEATING PRODUCTS
PRODUCT SERVICE
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