

# Chromalox®

## Installation, Operation and RENEWAL PARTS IDENTIFICATION

### SERVICE REFERENCE

DIVISION 4	SECTION UB
SALES REFERENCE (Supersedes PF424-2)	PF424-3
161-027049-001	
DATE	MARCH, 1999

## Type UB-3502A, UB-4002A, UB-4502A, UB-5002A Forced-Air Heater

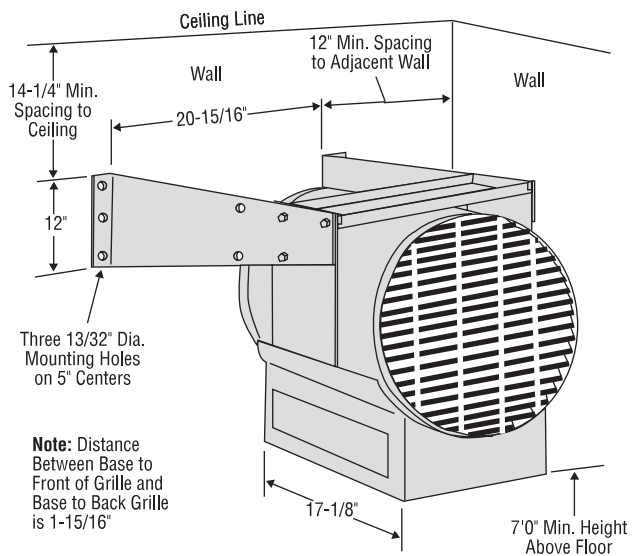


Figure 1  
(Wall Mounted)

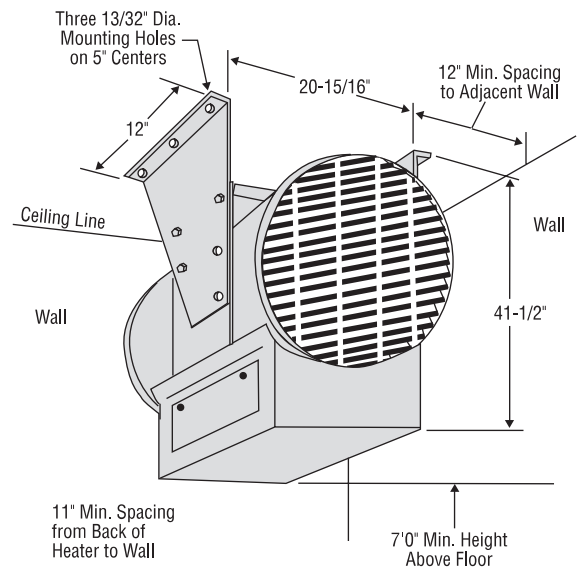


Figure 2  
(Ceiling Mounted)

Specifications – Table A

Model	Volts and Phase	kW	Horizontal Air Discharge	Wt. (Lbs.)
UB-3502A	240V, 550V, 575V, 600V (3ø) 480V (1ø or 3ø)	35	54'	210
UB-4002A	480V (1ø or 3ø) 550V, 575V, 600V (3ø)	40	54'	210
UB-4502A	480V (1ø or 3ø) 550V, 575V, 600V (3ø)	45	54'	210
UB-5002A	480V, 550V, 575V, 600V (3ø)	50	54'	210

### IMPORTANT

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

**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 Electrical Code. Failure to comply can result in explosion or fire. For these applications see PDS CXH-EP (PF305).

**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.

## IMPORTANT

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.

Keep at least 5' clearance in front of the heater. Refer to Figures 1 and 2 for side, top, and back clearance requirements.

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

Fan blade rotation must be checked. If airflow is not moving out through the louvers, interchange any two of the three customer power leads on three-phase units only.

## MOUNTING

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

**WARNING:** These heaters are designed for wall or ceiling mounting only. Other modes of mounting voids factory warranty.

### 1. Height above floor

- A. In areas where ceiling height is more than 12 feet, recommended mounting height is approximately 10 feet to underside of heater.
- B. For ceiling heights of 12 feet or less, maximum mounting height is determined by use of ceiling mounting brackets

offered with these heaters. Minimum spacing to ceiling is 14-1/4".

- C. In either case the minimum mounting height is 7 feet from floor to bottom of heater. (See Figures 1 and 2.)

### 2. Spacing to adjacent walls

- A. Rear of case to back wall 11" minimum.
- B. Side of case to side wall 12" minimum.

3. If two or more units are operated in the same enclosed space, their discharges should be directed to aid in development of mass air movement for uniform heat dispersal.
4. Controlling thermostats to individual heaters should be mounted at shoulder height on inside walls or columns.

## WIRING

**Note:** All wiring should be done in accordance with local codes and the National Electrical Code by a qualified person.

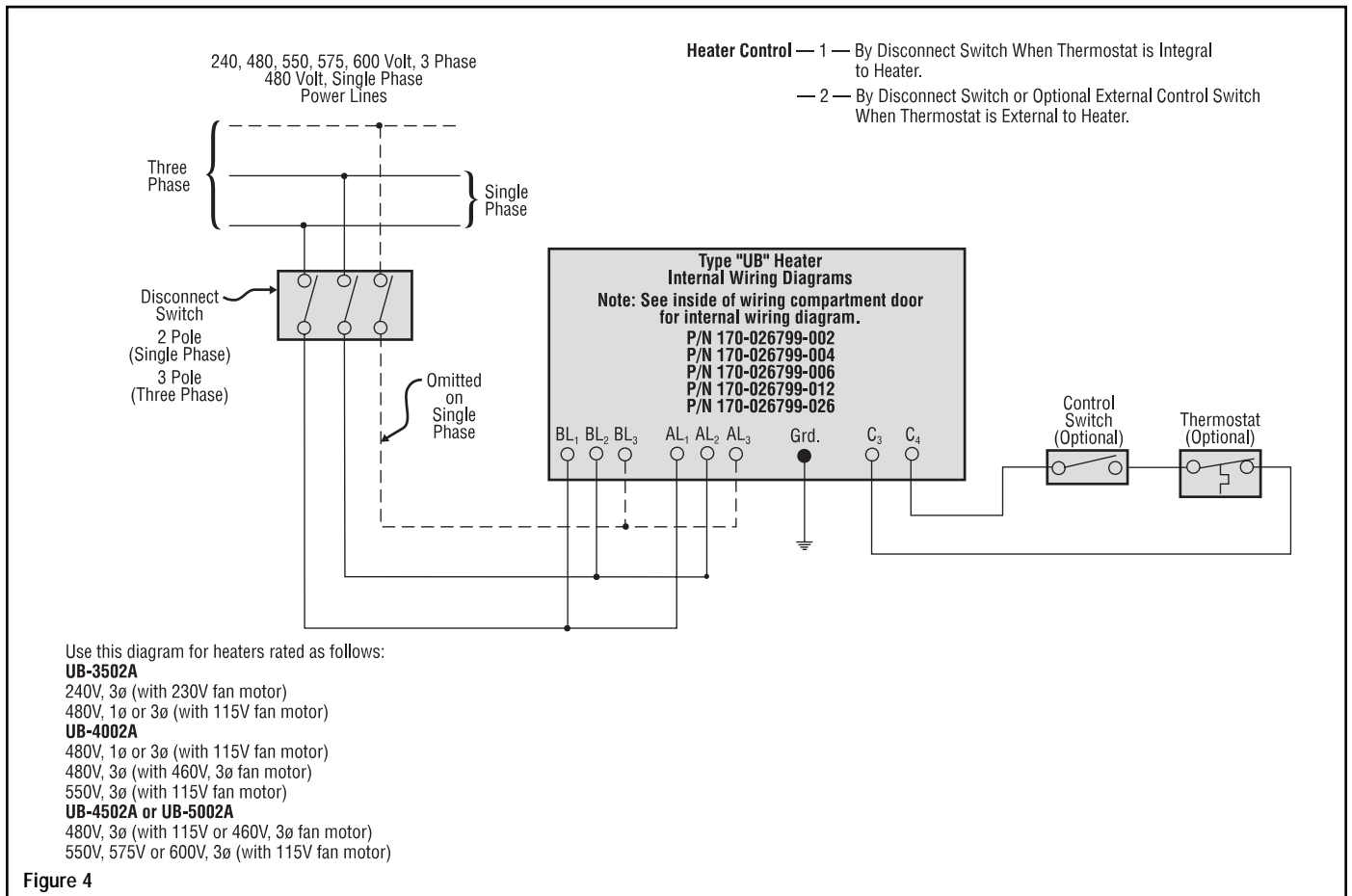
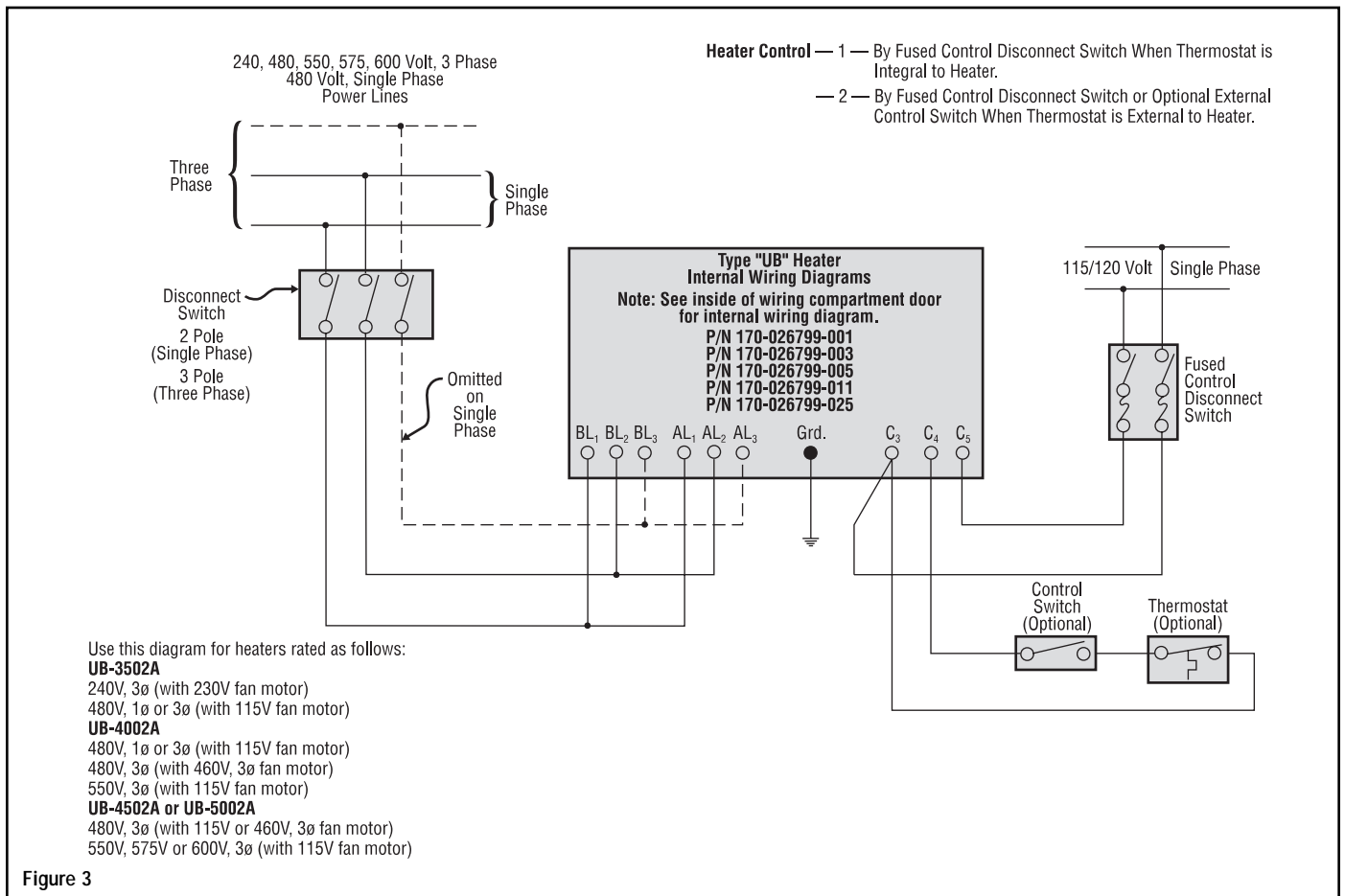
**WARNING:** *Hazard of Electric Shock. Any installation involving electric heaters must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.*

1. Connect heater according to the voltage and frequency specified on the nameplate and using the appropriate wiring diagram (Figures 3 thru 14).

**Note:** Be sure to check the voltage rating of the fan motor since it is not necessarily the same as the heater circuit.

2. If an external transformer is used to step down the voltage for operating the fan motor, use appropriate wiring diagram (Figures 7 thru 14).
3. Heaters are not provided with a control switch and should be controlled by externally mounted disconnect switches and/or separately mounted thermostat and control switch as recommended in appropriate wiring diagrams (Figures 3 thru 14). Key to proper wiring diagram is the part number (P/N) of internal wiring diagram located on inside of the hinged cover of the terminal box.
4. Protection against overheating is provided by an internal automatic thermal cutout which opens the electric circuit if the normal air-flow is restricted or stopped. Cutout automatically energizes heater on removal of the obstruction.

# WIRING DIAGRAMS



# WIRING DIAGRAMS

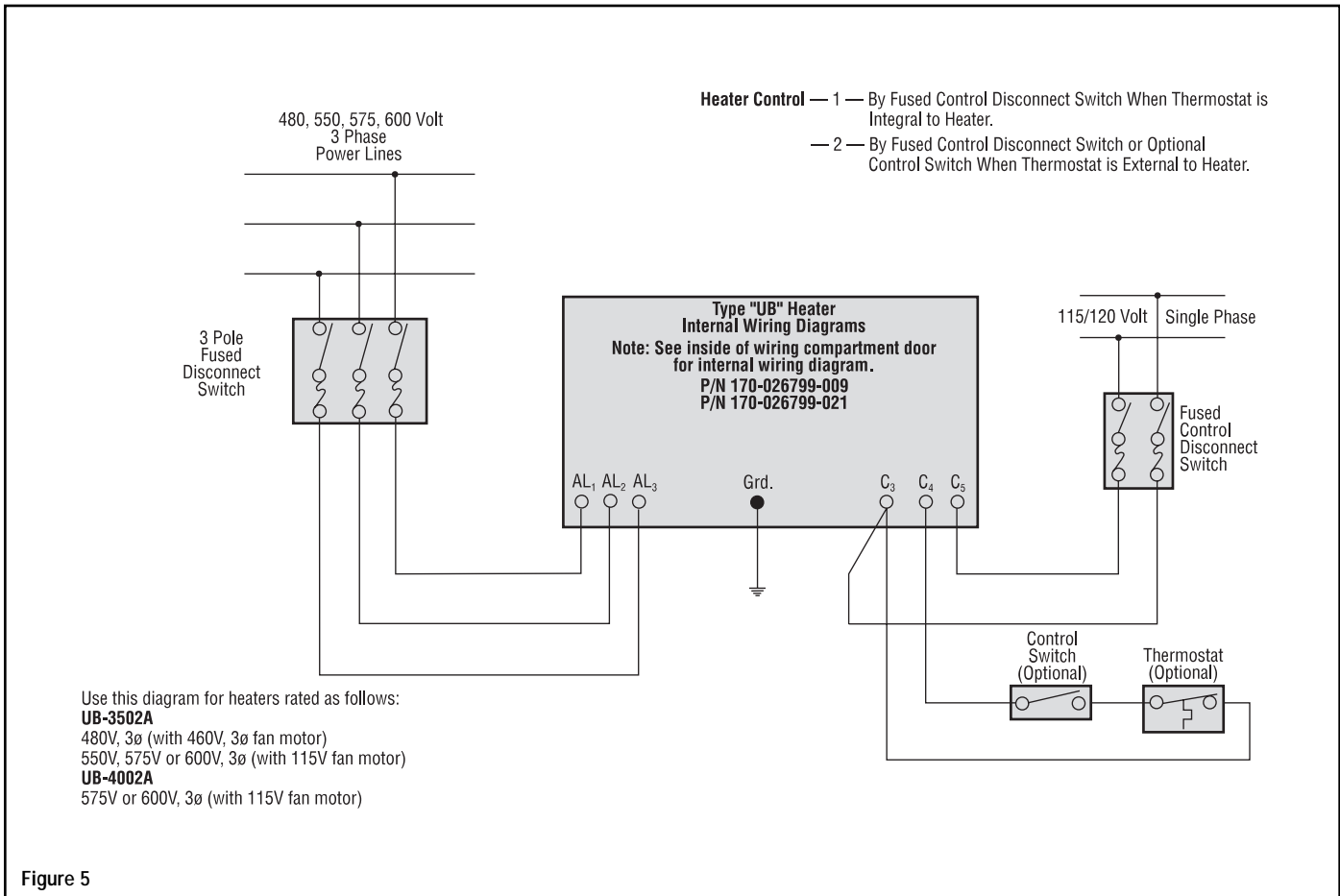


Figure 5

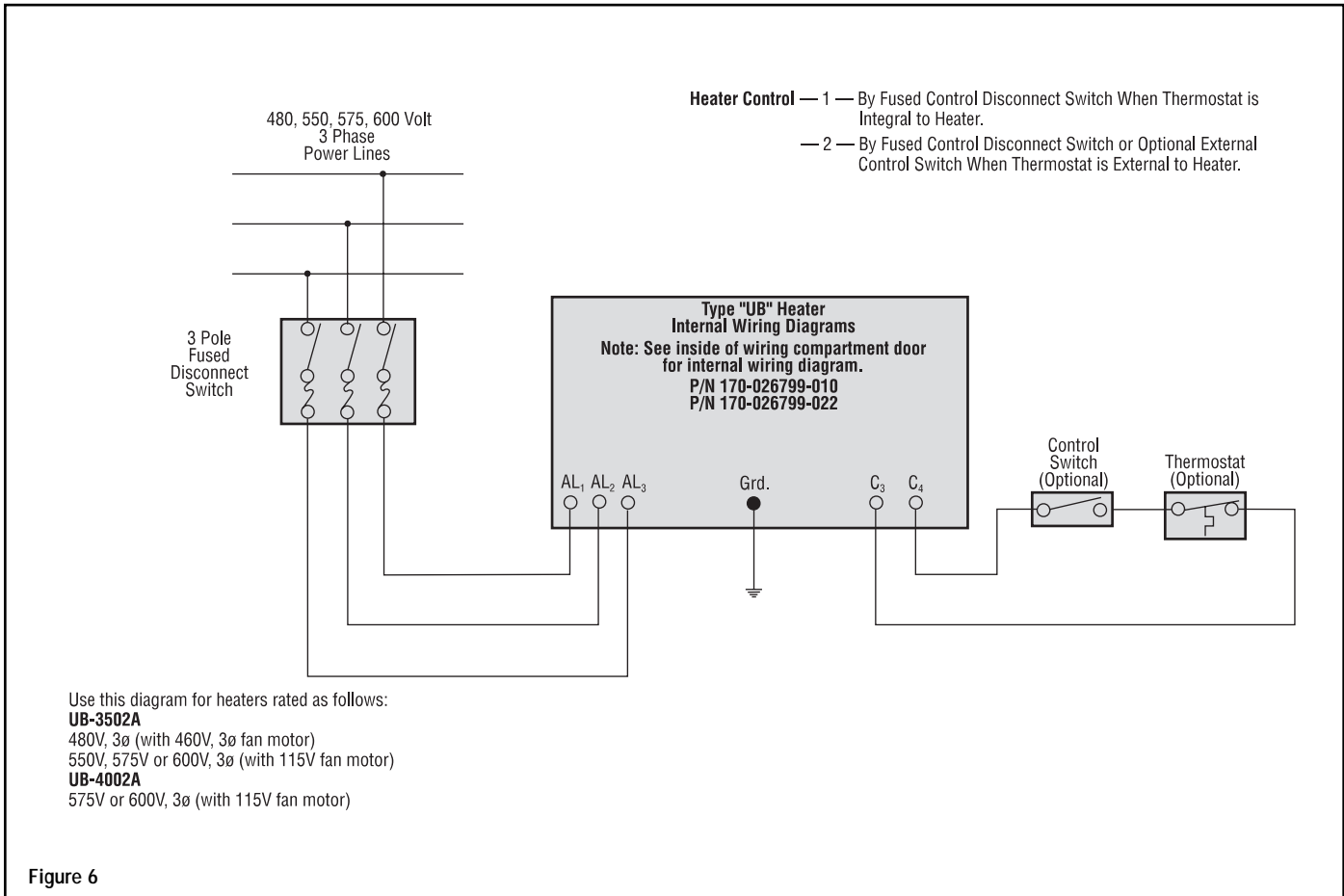


Figure 6

# WIRING DIAGRAMS

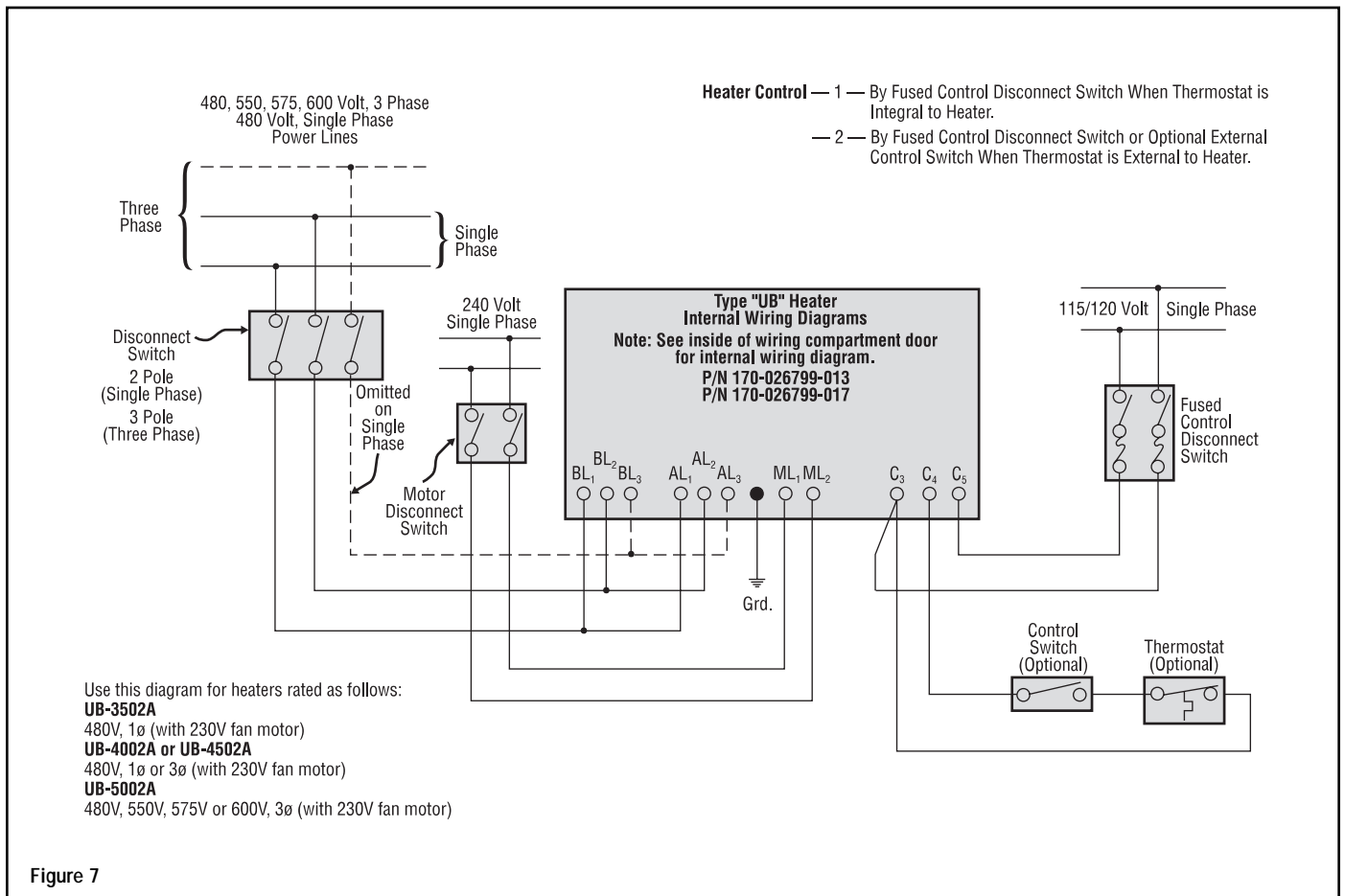


Figure 7

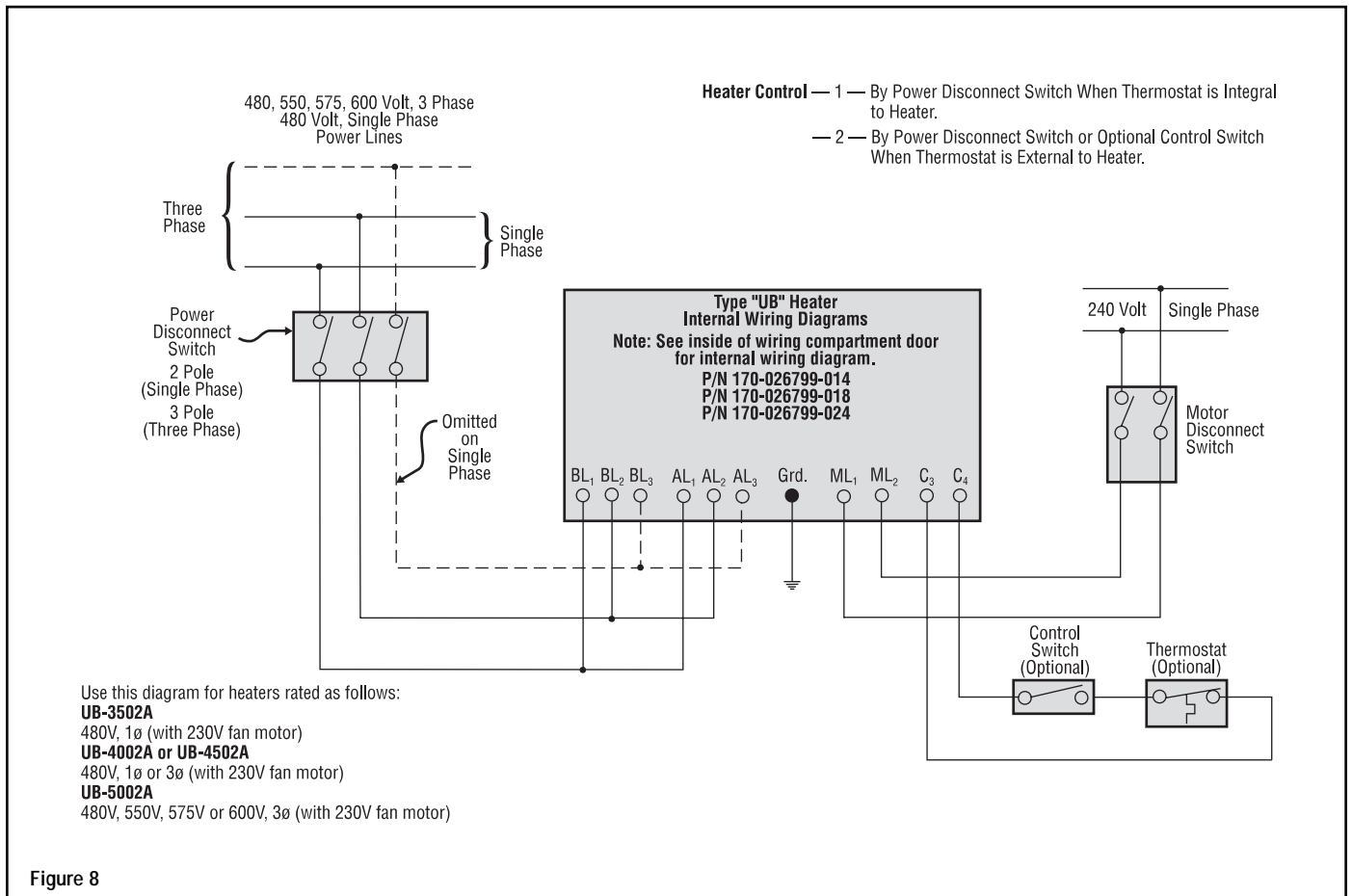


Figure 8

# WIRING DIAGRAMS

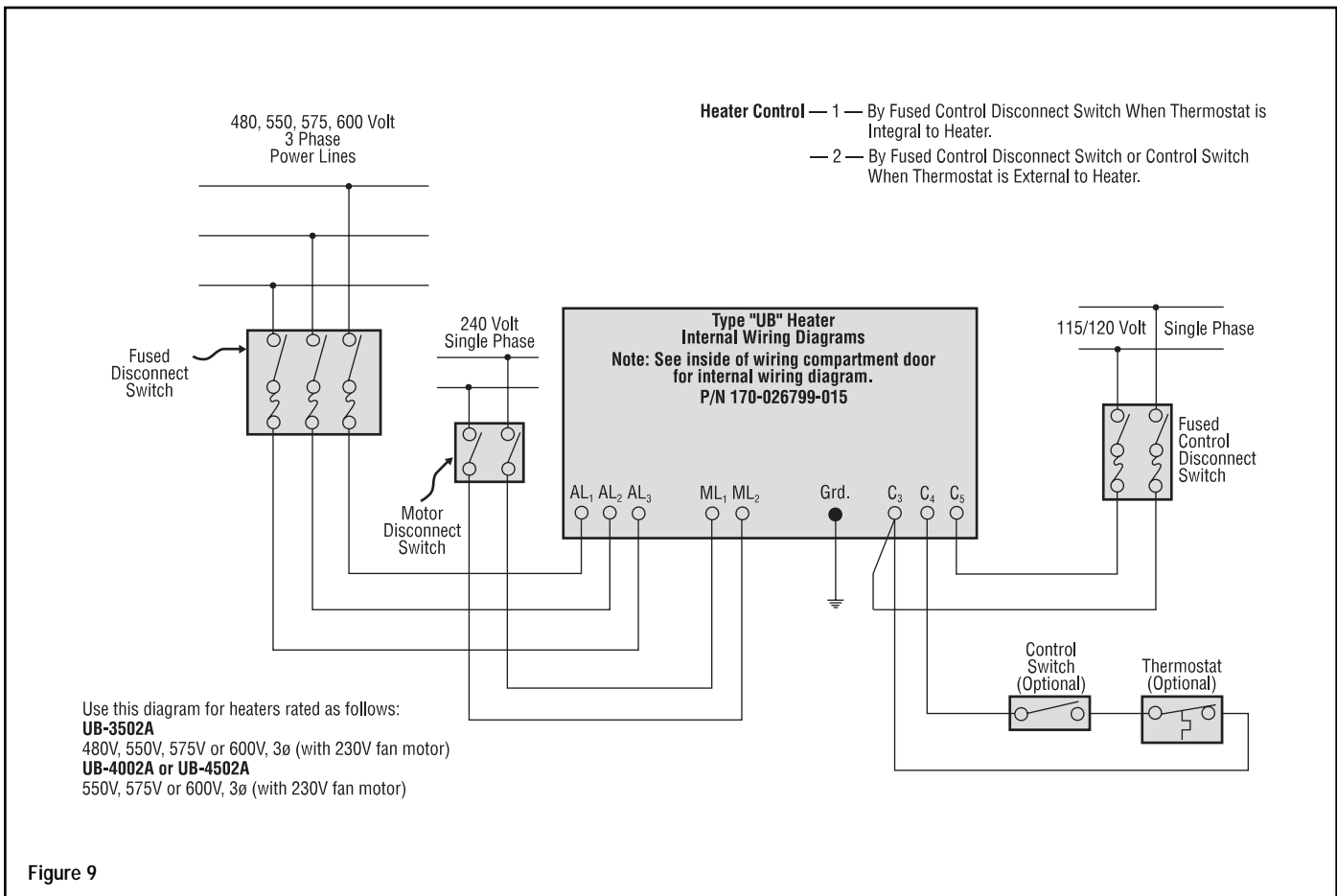


Figure 9

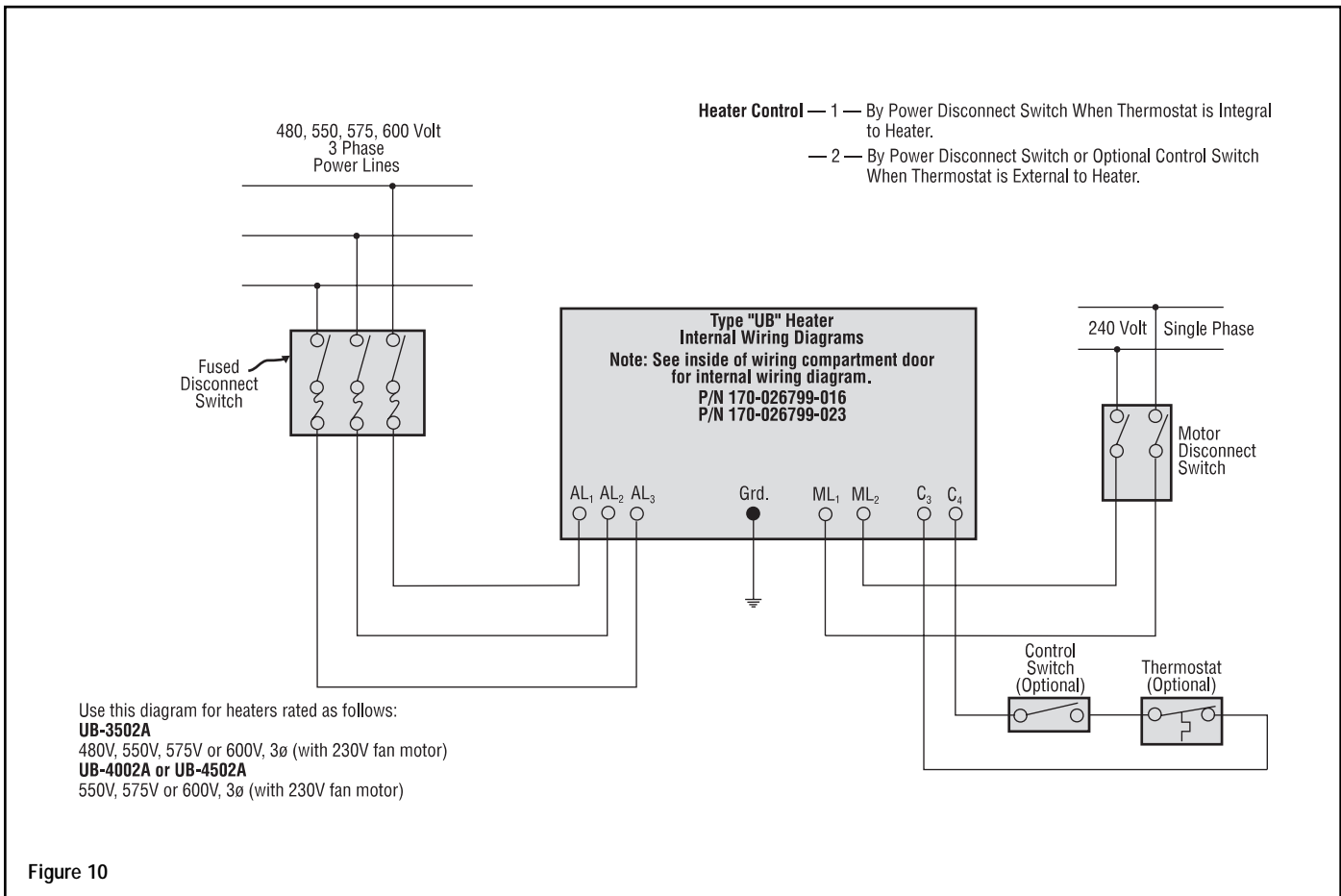


Figure 10

# WIRING DIAGRAMS

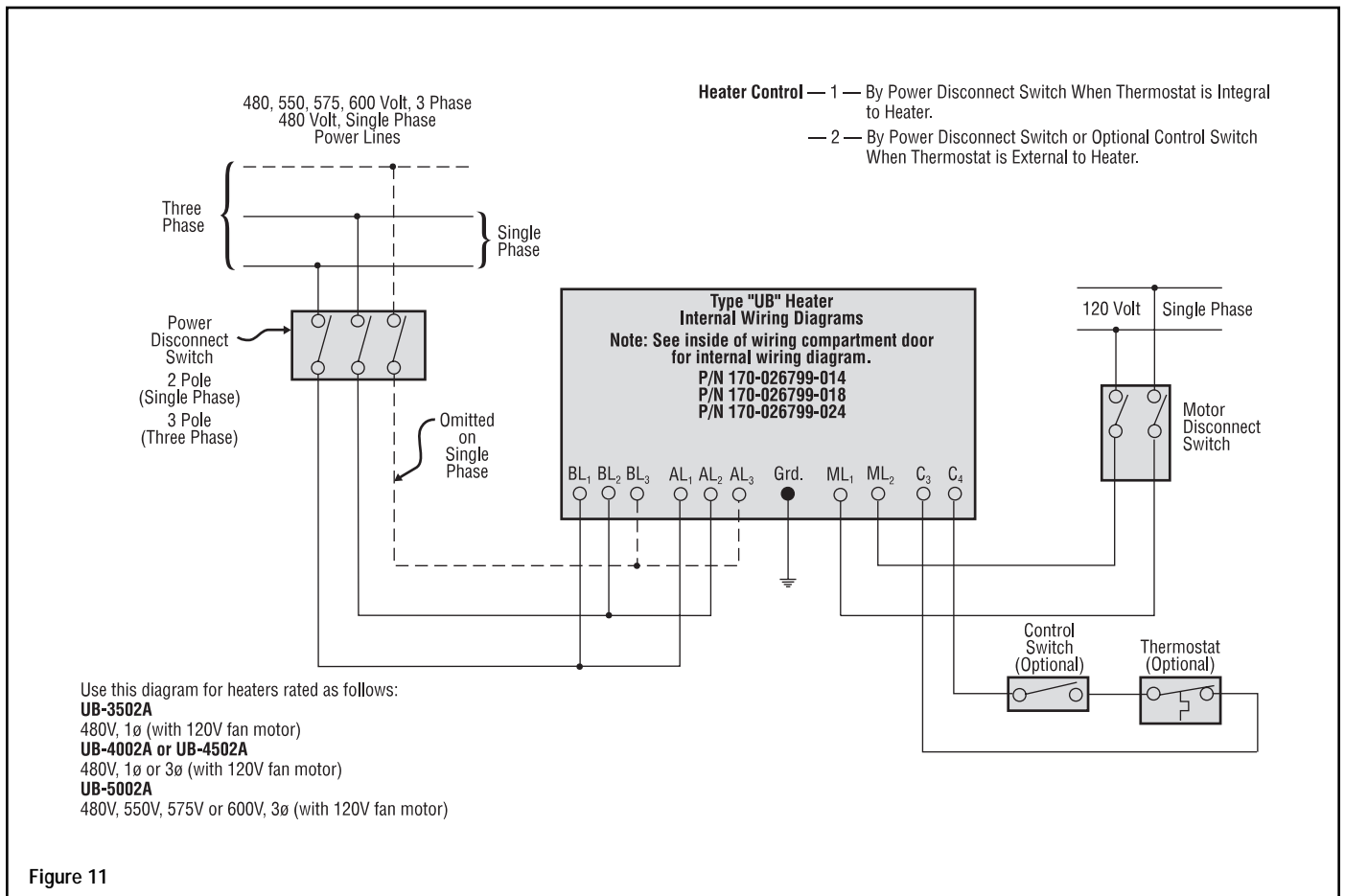


Figure 11

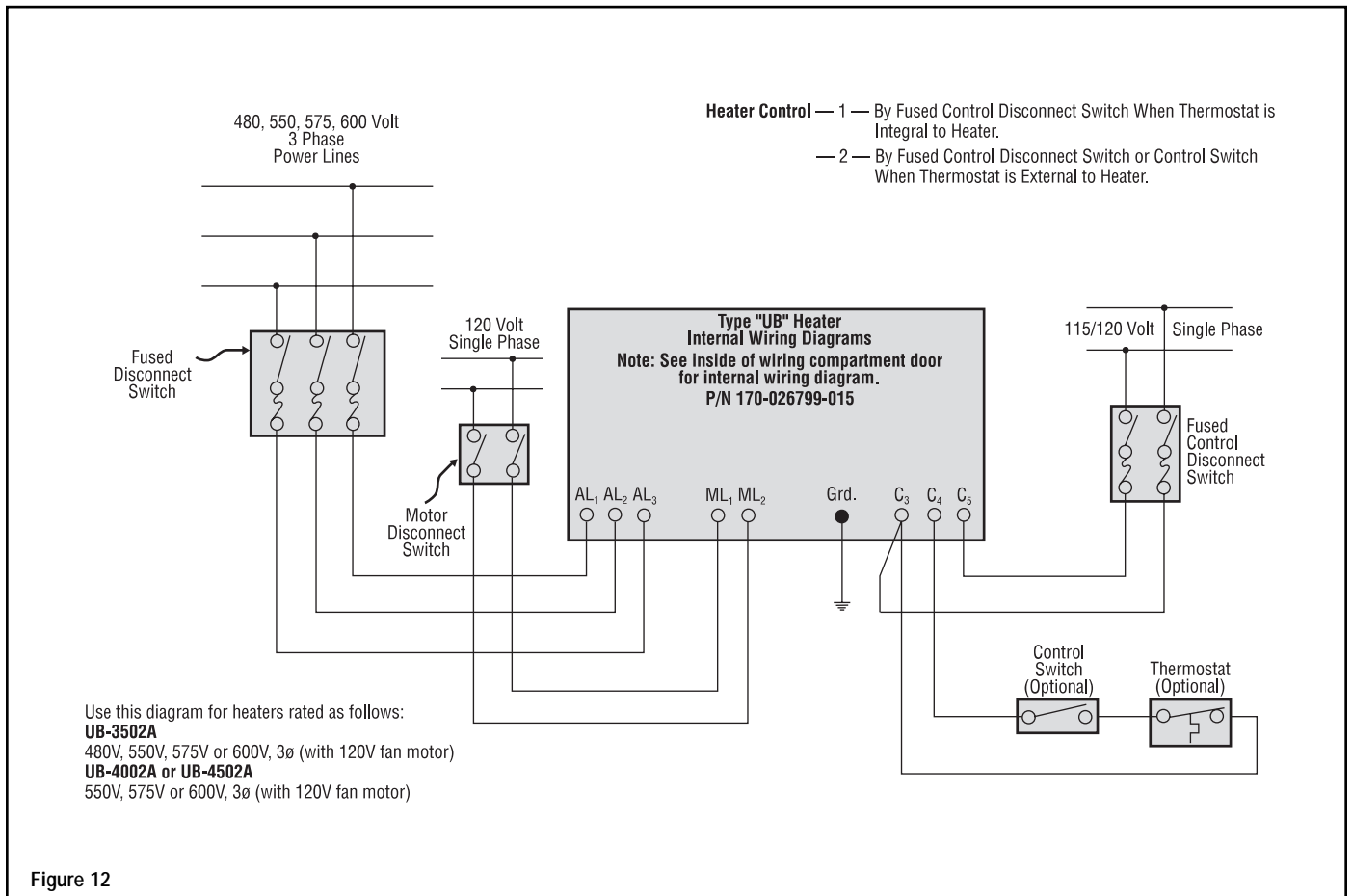


Figure 12

# WIRING DIAGRAMS

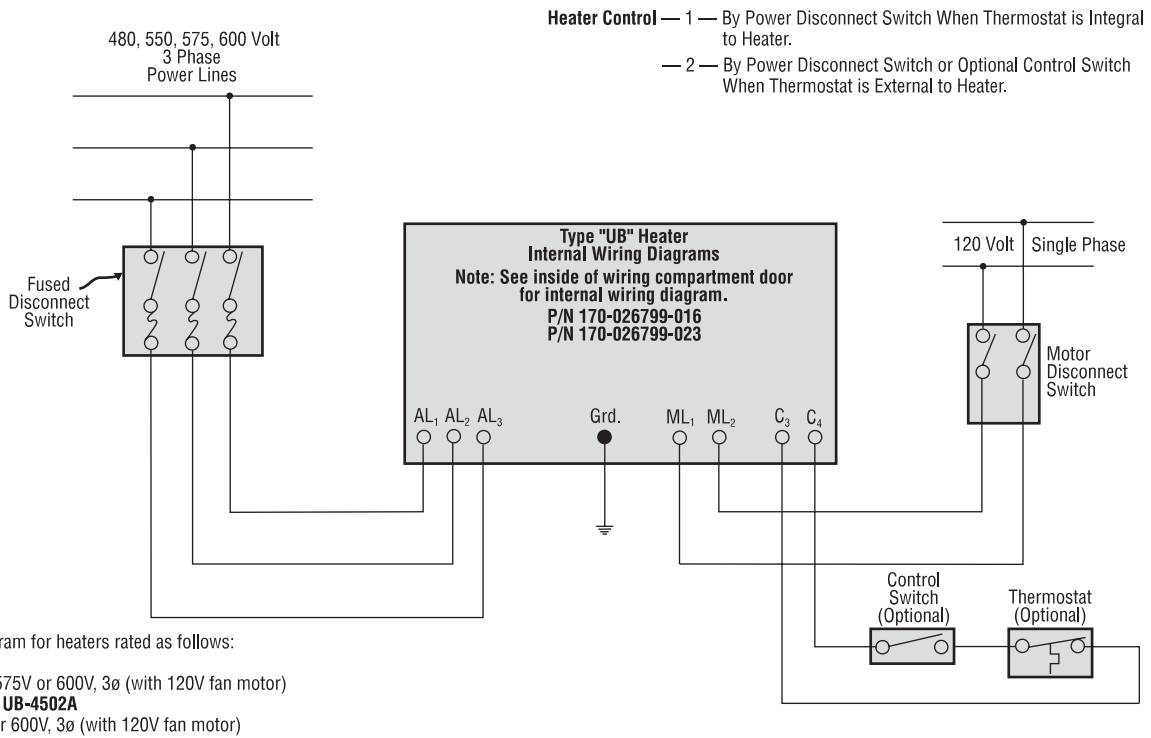


Figure 13

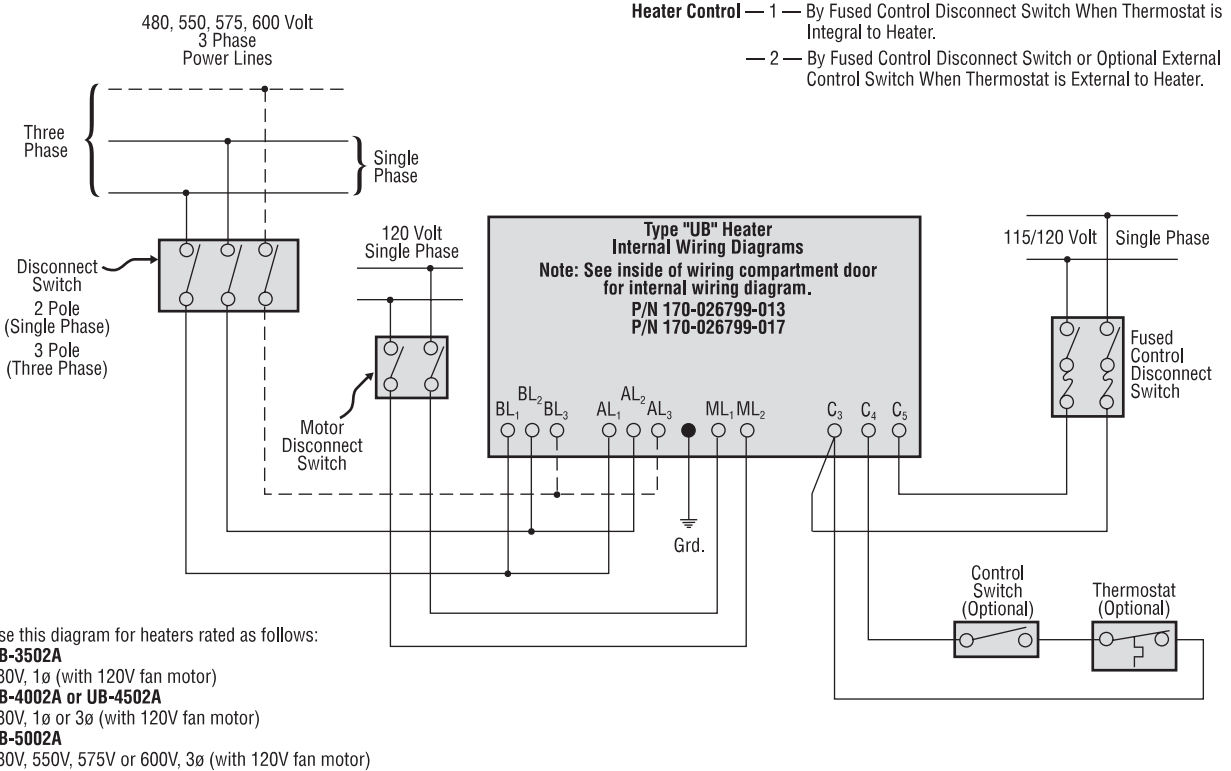


Figure 14



## OPERATION

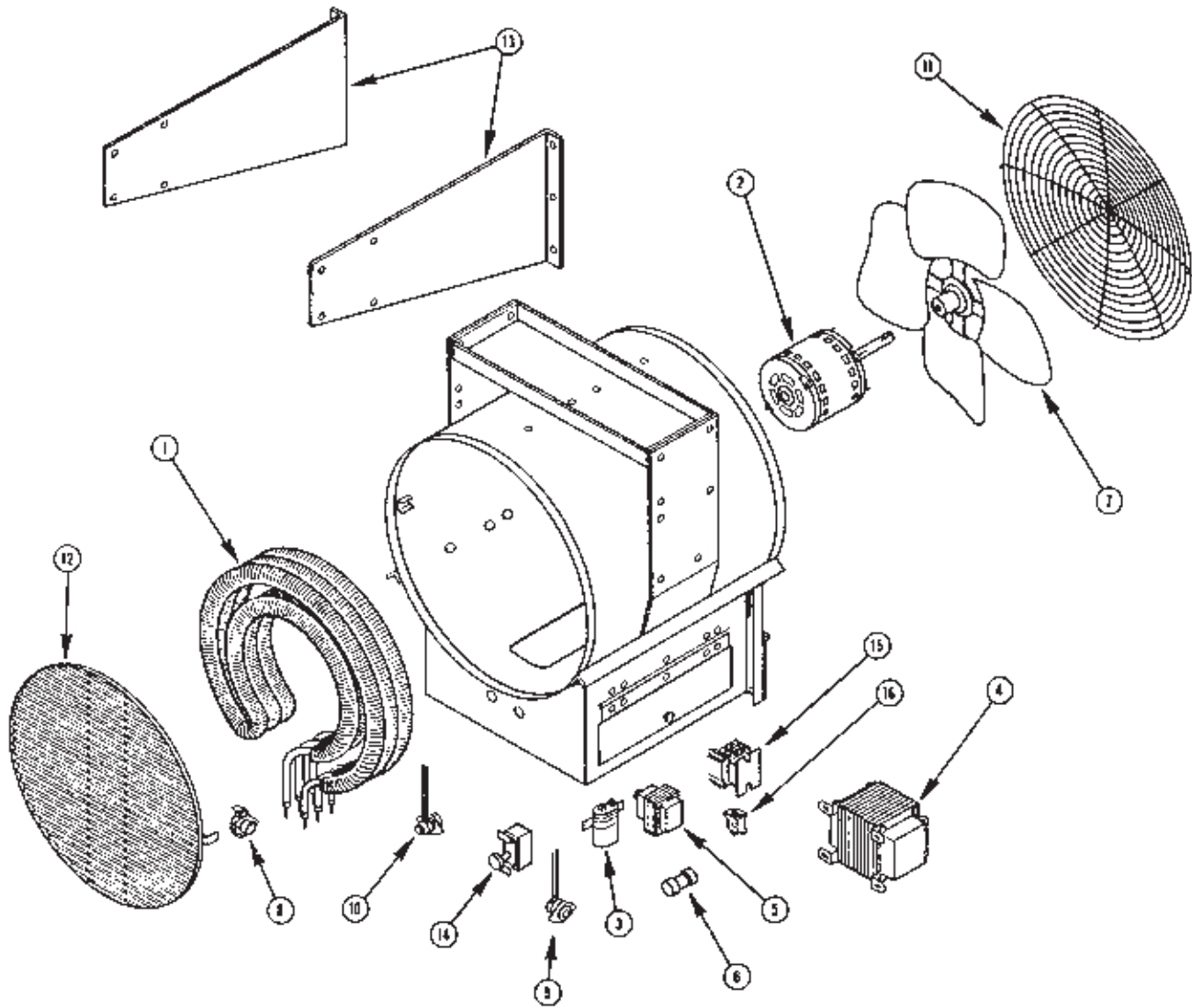
1. **DANGER: Hazard of Fire.**
  - A. Do not restrict air flow through heater by placing fabric or other obstructions in front of or behind the heater. Increased discharge temperatures can discolor or ignite some heat sensitive combustible materials.
  - B. Do not operate heater in areas where combustible lint, dust or flammable vapors, gases or liquids are present.
2. Do not operate heater in corrosive atmosphere conditions to avoid destructive damage to heater.
3. Avoid operating heater in dusty environment which can foul heater fins to dissipate heat or impair motor ventilation leading to excessive operating temperatures.
4. Do not operate heater in ambient temperatures exceeding 90°F.

## MAINTENANCE

**WARNING:** *Turn off all power to service heater. Do not attempt to service heater while unit is operating as there is hazard of electric shock, injury from operating fan, and burns from hot heating elements.*

1. Fan motors in these heaters are provided with sealed ball bearings, factory lubricated, requiring no further lubrication under normal service conditions.
2. Vacuum heater before activating heater for next heating season to remove accumulated dust or lint which otherwise may smoke or incinerate on initial heat up.
3. Periodically inspect all electrical connections and terminals to avoid electrical wiring difficulties. Inspect all wiring for frayed or worn insulation.

# RENEWAL PARTS IDENTIFICATION



## ① HEATING ELEMENTS

Model	Voltage	Phase	① Heating Element	Model	Voltage	Phase	① Heating Element
UB-3502A	240	3	118-117481-001 (6)	UB-4502A	480	1 or 3	118-117481-010 (6)
	480	1 or 3	118-117481-002 (6)		550	3	118-117481-011 (6)
	550	3	118-117481-003 (6)		575	3	118-117481-012 (6)
	575	3	118-117481-004 (6)		600	3	118-117481-013 (6)
	600	3	118-117481-005 (6)	UB-5002A	480	3	118-117481-014 (6)
UB-4002A	480	1 or 3	118-117481-006 (6)		550	3	118-117481-015 (6)
	550	3	118-117481-007 (6)		575	3	118-117481-016 (6)
	575	3	118-117481-008 (6)		600	3	118-117481-017(6)
	600	3	118-117481-009 (6)				

## RENEWAL PARTS IDENTIFICATION

### ②③ MOTORS AND CAPACITORS

② Motors								③ Capacitors				
Part No.	Manufacturer's Cat. No.	Specifications						Part No.	Manufacturer's Cat. No.	Specifications		
		Volts	Amps	Phase	Cycles	RPM	HP			Type	Vac	Cap.
193-025776-001	HF2K007N	115	5.4	1	60	1625	1/3	040-025779-001	1270	Oil	370	5 MFD
193-025776-002	HF2K006N	230	2.54	1	60	1625	1/3	040-025779-002	1271	Oil	370	6 MFD
193-302120-011	P55YYBYV-887	460	0.9	3	60	1725	1/3	—	—	—	—	—

### ④⑤ TRANSFORMERS

Size	Part Number	V.A. Rating	Voltages	
			Primary	Secondary
④ Large	315-052169-011	970	220, 230, 240, 440, 460, 480	110, 115, 120
	315-052169-012		550, 575, 600	110, 115, 120
⑤ Small	315-304252-001	40	240 & 480	120
	315-304252-003		575	120

### ⑥ FUSES

Fuses — 600 Volt				Fuseholders	
Part Number	Amps	Manufacturer's Cat. No.	Use	Part Number	Description
128-026510-003	30	JKS 30	Power	129-025643-002	600 Volt, 30 Amp, 3 Pole
128-026510-001	35	JKS 35	Power	129-025643-001	600 Volt, 60 Amp, 3 Pole
128-026510-004	40	JKS 40			
128-026510-006	50	JKS 50			
128-026510-007	60	JKS 60			
128-027590-001	1	KTK-R-1	Control/ Motor	129-048473-001	2, 3, 4, 5 poles contact section
128-027590-008	8	KTK-R-8		129-048475-001	End barrier section for use with 129-048473-001
128-027590-010	15	KTK-R-15			

### PARTS COMMON TO ALL HEATERS

- ⑦ Fan ..... 112-027568-001
- ⑧ Fan Delay ..... 300-048038-001
- ⑨ Cutout ..... 300-049602-008
- ⑩ Manual Reset Cutout (Optional) ..... 300-117647-006
- ⑪ Grille ..... 134-119147-004
- ⑫ Louver Assembly ..... 182-047073-009
- ⑬ Mounting Bracket - (Right Hand) ..... 027-025836-001  
(Left Hand) ..... 027-025836-002
- ⑭ Thermostat (Optional) ..... 300-026604-001
- ⑮ Contactor ..... 072-304551-008
- ⑯ Auxiliary Contact ..... 072-304551-101

#### WARRANTY AND LIMITATION OF REMEDY AND LIABILITY

Chromalox warrants only that the Products and parts manufactured by Chromalox, when shipped, and the work performed by Chromalox when performed, will meet all applicable specification and other specific product and work requirements (including those of performance), if any, and will be free from defects in material and workmanship under normal conditions of use. All claims for defective or nonconforming (both hereinafter called defective) Products, parts or work under this warranty must be made in writing immediately upon discovery, and in any event, within one (1) year from delivery, provided, however all claims for defective Products and parts must be made in writing no later than eighteen (18) months after shipment by Chromalox. Defective and nonconforming items must be held for Chromalox's inspections and returned to the original f.o.b. point upon request. THE FOREGOING IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES WHATSOEVER, EXPRESS, IMPLIED AND STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Notwithstanding the provisions of this WARRANTY AND LIMITATION Clause, it is specifically understood that Products and parts not manufactured and work not performed by Chromalox are warranted only to the extent and in the manner that the same are warranted to Chromalox by Chromalox's vendors, and then only to the extent that Chromalox is reasonably able to enforce such warranty, it being understood Chromalox shall have no obligation to initiate litigation unless Buyer undertakes to pay all cost and expenses therefor, including but not limited to attorney's fees, and indemnifies Chromalox against any liability to Chromalox's

vendors arising out of such litigation.

Upon Buyer's submission of a claim as provided above and its substantiation, Chromalox shall at its option either (i) repair or replace its Products, parts or work at the original f.o.b. point of delivery or (ii) refund an equitable portion of the purchase price.

THE FOREGOING IS CHROMALOX'S ONLY OBLIGATION AND BUYER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY, AND IS BUYER'S EXCLUSIVE REMEDY AGAINST CHROMALOX FOR ALL CLAIMS ARISING HEREUNDER OR RELATING HERETO WHETHER SUCH CLAIMS ARE BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES, BUYER'S FAILURE TO SUBMIT A CLAIM AS PROVIDED ABOVE SHALL SPECIFICALLY WAIVE ALL CLAIMS FOR DAMAGES OR OTHER RELIEF, INCLUDING BUT NOT LIMITED TO CLAIMS BASED ON LATENT DEFECTS. IN NO EVENT SHALL BUYER BE ENTITLED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES AND BUYER SHALL HOLD CHROMALOX HARMLESS THEREFROM. ANY ACTION BY BUYER ARISING HEREUNDER OR RELATING HERETO, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES, MUST BE COMMENCED WITHIN ONE (1) YEAR AFTER THE DATE OF SHIPMENT OR IT SHALL BE BARRED.

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