

# Chromalox®

## Installation, Operation and

## RENEWAL PARTS IDENTIFICATION

### SERVICE REFERENCE

|                                       |             |
|---------------------------------------|-------------|
| DIVISION 4                            | SECTION UB  |
| SALES REFERENCE (Supersedes PF417-12) | PF417-13    |
| 161-048445-001                        |             |
| DATE                                  | MARCH, 1999 |

## Type UB-1002E, UB-1252E, UB-1502E, UB-2002E Forced-Air Heaters

### Dimensions —

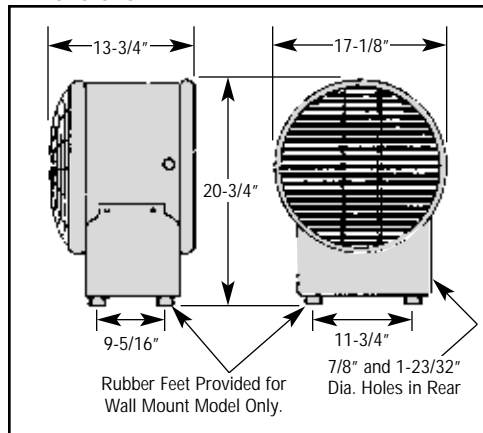


Figure 1  
Mounting UB using  
Ceiling Mounting  
Brackets\*

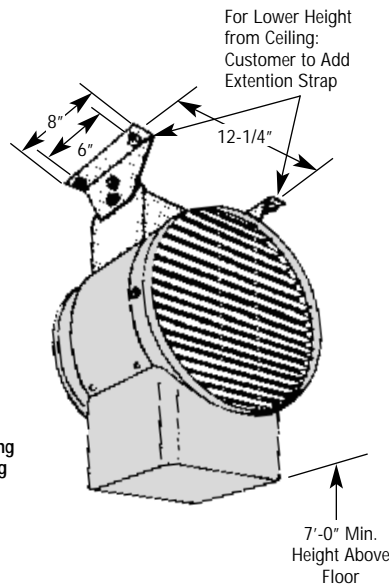


Figure 2  
Mounting UB using Wall  
Mounting Brackets\*

\*Wall and/or Ceiling Mounting Brackets are available as an accessory option — Contact your local sales representative.

### Specifications —

| Model ‡  | Volts and Phase                       | kW   | Horizontal Air Discharge |
|----------|---------------------------------------|------|--------------------------|
| UB-1002E | 208 - 240 - 480 (1 or 3)              | 10   | 40'                      |
| UB-1252E | 208 (3) - 240 (3) - 480 (1 or 3)      | 12.5 | 40'                      |
| UB-1502E | 208 (3) - 240 (1 or 3) - 480 (1 or 3) | 15   | 45'                      |
| UB-2002E | 240 (1 or 3)                          | 19.9 | 45'                      |
| UB-2002E | 208 (3) - 480 (1 or 3)                | 20   | 45'                      |

‡ Models with suffix "T" added (480 volts only) are equipped with a transformer, 480 volt primary — 120/240 volt secondary.

‡ Models with suffix "R" added are equipped with a relay (Example: UB-1002E-R 240 volt or 480 volt — 3 phase only).

## MOUNTING

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

**Note:** 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 for these heaters. Minimum spacing to ceiling is 3" (see Figure 2).

**C.** In either case, 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 4-7/8" minimum (see Figure 2).

**B.** Side of case to side wall 6" minimum (see Figure 2).

**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 7).

**Note:** Be sure to check voltage rating of the fan motor which is either 120, 208 or 240 volt, single phase since heater circuit could be 480 volts, single or three phase.

2. If an external transformer is used to step down the voltage for operating the fan motor, use appropriate wiring diagram (Figures 3, 5 or 7).

3. Heaters are not provided with a control switch and should be controlled by a magnetic contactor (integral or external) and a separately mounted thermostat. External contactor is not necessary with heaters having a model number suffixed with the letter "R".

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.

**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.*

## OPERATION

**DANGER:**

1. Do not restrict air-flow through the heater by placing fabric or other obstructions in front of or behind the heaters. With some combustible materials, the resulting high discharge temperatures could cause a fire.

2. 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).

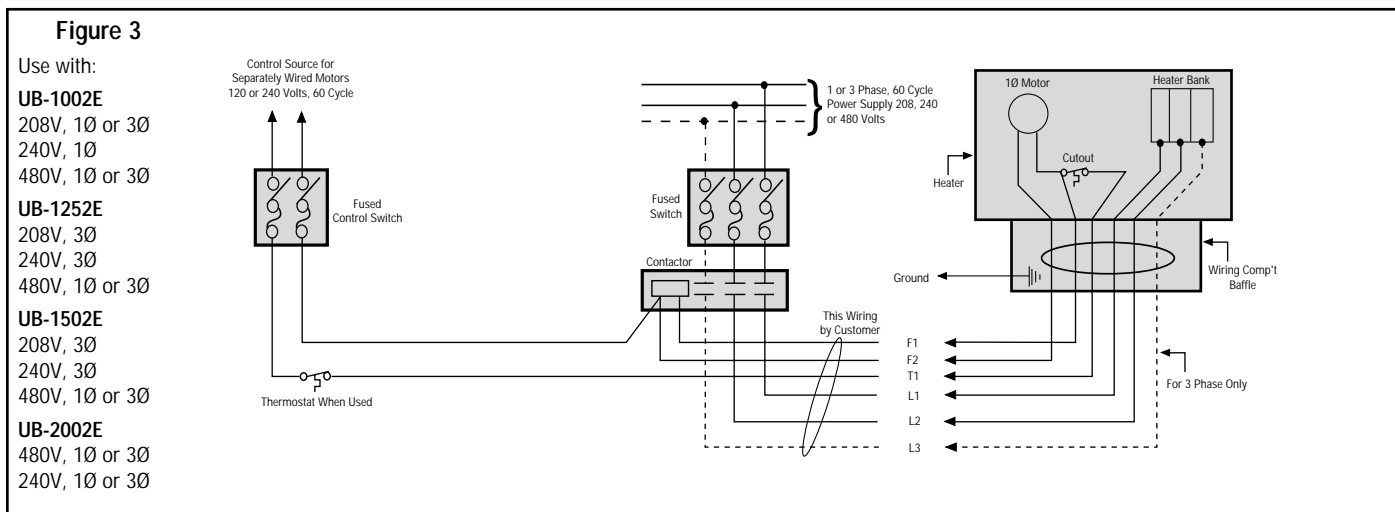
## MAINTENANCE

**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. Following long periods of idleness, heater should be vacuumed before start-up, to remove accumulated combustible particles 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.

## WIRING DIAGRAMS

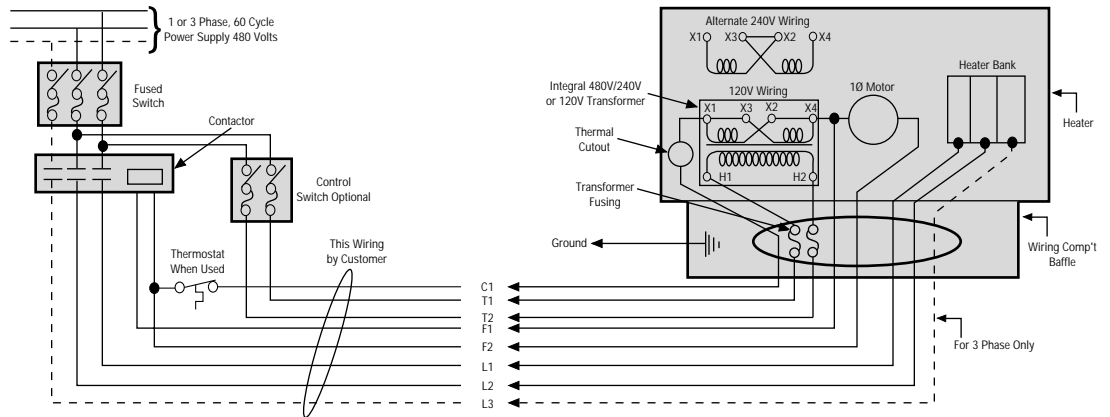


# WIRING DIAGRAMS

**Figure 4**

Use with:

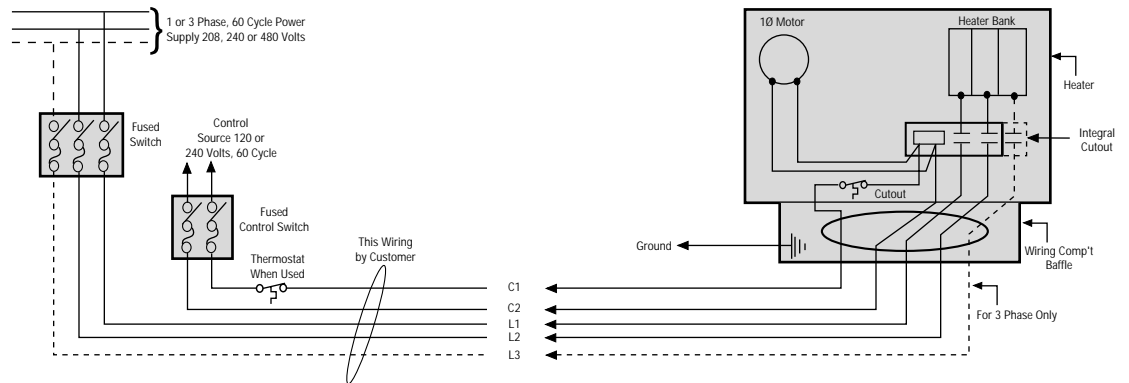
- UB-1002E-T**  
480V, 1Ø or 3Ø
- UB-1252E-T**  
480V, 1Ø or 3Ø
- UB-1502E-T**  
480V, 1Ø or 3Ø
- UB-2002E-T**  
480V, 1Ø or 3Ø



**Figure 5**

Use with:

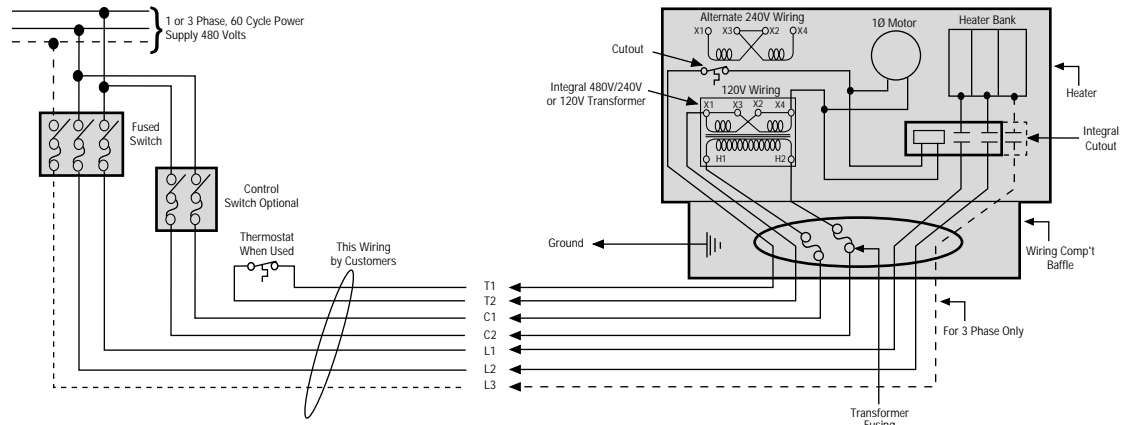
- UB-1002E-R**  
208V, 1Ø or 3Ø  
240V, 1Ø or 3Ø  
480V, 1Ø or 3Ø
- UB-1252E-R**  
208V, 3Ø  
240V, 3Ø  
480V, 1Ø or 3Ø
- UB-1502E-R**  
208V, 3Ø  
240V, 3Ø  
480V, 1Ø or 3Ø
- UB-2002E-R**  
480V, 1Ø or 3Ø  
240V, 3Ø



**Figure 6**

Use with:

- UB-1002E-TR**  
480V, 1Ø or 3Ø
- UB-1252E-TR**  
480V, 1Ø or 3Ø
- UB-1502E-TR**  
480V, 1Ø or 3Ø
- UB-2002E-TR**  
480V, 1Ø or 3Ø



# WIRING DIAGRAMS

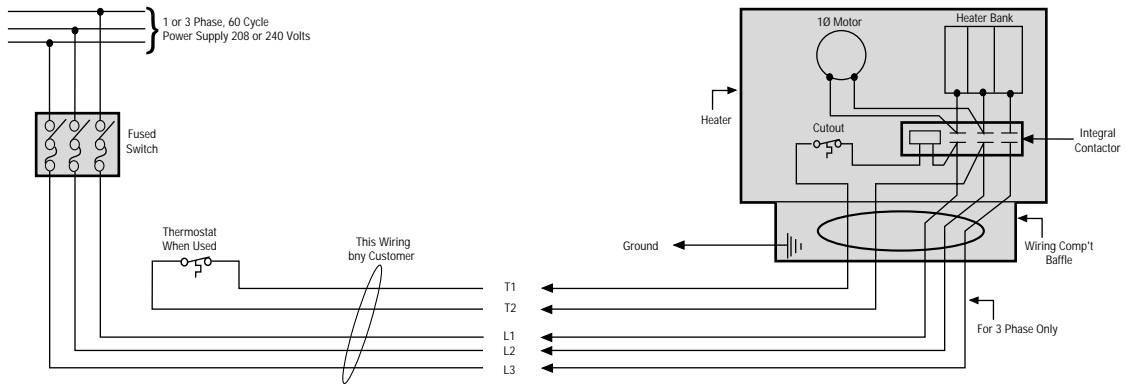
**Figure 7**

Use with:

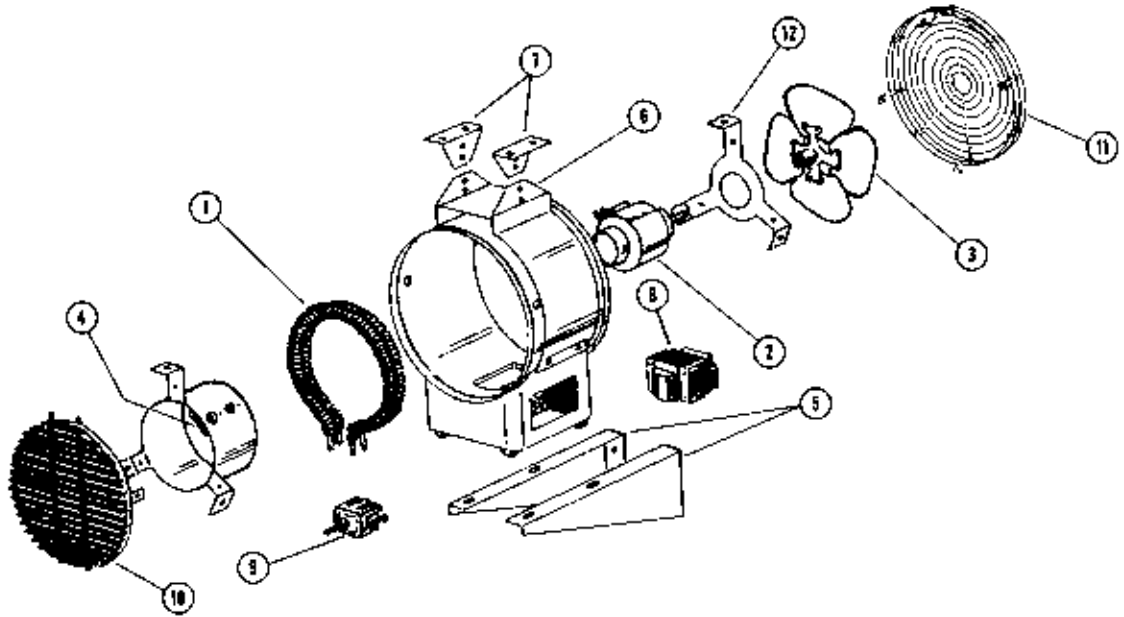
**UB-1002E-R**  
208V, 1Ø or 3Ø  
240V, 1Ø or 3Ø

**UB-1252E-R**  
208V, 3Ø  
240V, 3Ø

**UB-1502E-R**  
208V, 3Ø  
240V, 3Ø



## RENEWAL PARTS IDENTIFICATION



| Model     | Volts | Phase  | ① Heating Element  | ② MOTORS       |                |                | ③ Fan          | ④ Thermal Cutout                             | ⑧ Transformer  |
|-----------|-------|--------|--------------------|----------------|----------------|----------------|----------------|--|----------------|
|           |       |        |                    | 120V           | 208V           | 240V           |                |  |                |
| UB-1002E  | 208   | 1 or 3 | 118-045311-001 (3) | 193-302120-009 | 193-302120-009 | —————          | 112-045422-001 | 300-049200-002 1 (1)<br>300-049200-002 3 (1) | —————          |
| UB-1002E  | 240   | 1 or 3 | 118-045311-002 (3) | 193-302120-009 | —————          | 193-302120-009 | 112-045422-001 | 300-049200-002 1 (1)<br>300-049200-002 3 (1) | —————          |
| UB-1002E* | 480   | 1 or 3 | 118-045311-003 (3) | 193-302120-009 | —————          | 193-302120-009 | 112-045422-001 | 300-049200-002 1 (1)<br>300-049200-002 1 (1) | 315-303675-001 |
| UB-1252E  | 208   | 3      | 118-045311-004 (3) | 193-302120-009 | 193-302120-009 | —————          | 112-045422-001 | 300-049200-002 3 (1)                         | —————          |
| UB-1252E  | 240   | 1 or 3 | 118-045311-005 (3) | 193-302120-009 | —————          | 193-302120-009 | 112-045422-001 | 300-049200-002 1 (1)<br>300-049200-002 3 (1) | —————          |
| UB-1252E* | 480   | 1 or 3 | 118-045311-006 (3) | 193-302120-009 | —————          | 193-302120-009 | 112-045422-001 | 300-049200-002 1 (1)<br>300-049200-002 3 (1) | 315-303675-001 |
| UB-1502E  | 208   | 3      | 118-045307-001 (3) | 193-302120-009 | 193-302120-009 | —————          | 112-045422-002 | 300-049200-006 3 (1)                         | —————          |
| UB-1502E  | 240   | 1 or 3 | 118-045307-002 (3) | 193-302120-009 | —————          | 193-302120-009 | 112-045422-002 | 300-049200-006 1 (1)<br>300-049200-006 3 (1) | —————          |
| UB-1502E* | 480   | 1 or 3 | 118-045307-003 (3) | 193-302120-009 | —————          | 193-302120-009 | 112-045422-002 | 300-049200-006 (1)                           | 315-303675-001 |
| UB-2002E  | 208   | 3      | 118-045307-004 (3) | 193-302120-009 | 193-302120-009 | —————          | 112-045422-002 | 300-049200-006 (1)                           | —————          |
| UB-2002E  | 240   | 1 or 3 | 118-045307-009 (3) | 193-302120-009 | —————          | 193-302120-009 | 112-045422-002 | 300-049200-006 1 (1)<br>300-049200-006 3 (1) | —————          |
| UB-2002E* | 480   | 1 or 3 | 118-045307-006 (3) | 193-302120-009 | —————          | 193-302120-009 | 112-045422-002 | 300-049200-006 (1)                           | 315-303675-001 |

**Note:** Part numbers suffixed by a number in ( ) indicates quantity of same part number used.

\***Note:** Fuse 3A 600V KTK-3 — 128-047763-007 (2)

Fuse BLK Barrier — 129-048475-001 (1)

Fuse Block — 129-048473-001 (2)

# RENEWAL PARTS IDENTIFICATION

## ⑨ RELAYS

| Model    | Volts | Phase | kW   | Motor | Relay          |
|----------|-------|-------|------|-------|----------------|
| UB-1002E | 208   | 1     | 10   | 120V  | 072-303180-008 |
| UB-1002E | 208   | 1     | 10   | 208V  | 072-303180-014 |
| UB-1002E | 208   | 3     | 10   | 120V  | 072-303180-007 |
| UB-1002E | 208   | 3     | 10   | 208V  | 072-303180-013 |
| UB-1002E | 240   | 1     | 10   | 120V  | 072-303180-008 |
| UB-1002E | 240   | 1     | 10   | 240V  | 072-303180-014 |
| UB-1002E | 240   | 3     | 10   | 120V  | 072-303180-007 |
| UB-1002E | 240   | 3     | 10   | 240V  | 072-303180-013 |
| UB-1002E | 480   | 1     | 10   | 120V  | 072-303180-011 |
| UB-1002E | 480   | 1     | 10   | 240V  | 072-304551-015 |
| UB-1002E | 480   | 3     | 10   | 120V  | 072-303180-007 |
| UB-1002E | 480   | 3     | 10   | 240V  | 072-303180-013 |
| UB-1252E | 208   | 3     | 12.5 | 120V  | 072-303180-008 |
| UB-1252E | 208   | 3     | 12.5 | 240V  | 072-303180-014 |
| UB-1252E | 240   | 3     | 12.5 | 120V  | 072-303180-008 |
| UB-1252E | 240   | 3     | 12.5 | 240V  | 072-303180-014 |
| UB-1252E | 480   | 1     | 12.5 | 120V  | 072-303180-011 |
| UB-1252E | 480   | 1     | 12.5 | 240V  | 072-304551-015 |
| UB-1252E | 480   | 3     | 12.5 | 120V  | 072-303180-007 |
| UB-1252E | 480   | 3     | 12.5 | 240V  | 072-303180-013 |

| Model    | Volts | Phase | kW   | Motor | Relay          |
|----------|-------|-------|------|-------|----------------|
| UB-1502E | 208   | 3     | 15   | 120V  | 072-303180-008 |
| UB-1502E | 208   | 3     | 15   | 240V  | 072-303180-014 |
| UB-1502E | 240   | 3     | 15   | 120V  | 072-303180-008 |
| UB-1502E | 240   | 3     | 15   | 240V  | 072-303180-014 |
| UB-1502E | 480   | 1     | 15   | 120V  | 072-303180-008 |
| UB-1502E | 480   | 1     | 15   | 240V  | 072-303180-014 |
| UB-1502E | 480   | 3     | 15   | 120V  | 072-303180-007 |
| UB-1502E | 480   | 3     | 15   | 240V  | 072-303180-013 |
| UB-2002E | 208   | 3     | 20   | 120V  | -----          |
| UB-2002E | 208   | 3     | 20   | 208V  | -----          |
| UB-2002E | 240   | 1     | 19.9 | 120V  | -----          |
| UB-2002E | 240   | 1     | 19.9 | 240V  | -----          |
| UB-2002E | 240   | 3     | 19.9 | 120V  | 072-303180-008 |
| UB-2002E | 240   | 3     | 19.9 | 240V  | 072-303180-014 |
| UB-2002E | 480   | 1     | 20   | 120V  | 072-303180-008 |
| UB-2002E | 480   | 1     | 20   | 240V  | 072-303180-014 |
| UB-2002E | 480   | 3     | 20   | 120V  | 072-303180-007 |
| UB-2002E | 480   | 3     | 20   | 240V  | 072-303180-013 |

### PARTS COMMON TO ALL HEATERS

- ⑤ Wall Bracket Set . . . . .168-026844-003
- ⑥ Ceiling Mounting Support (Includes ⑦) . . . . .027-044419-003
- ⑦ Ceiling Suspension Brackets . . . . .027-033363-001 (2)
- ⑩ Louver . . . . .182-047073-003
- ⑪ Grille . . . . .134-119147-003
- ⑫ Motor Mounting Frame . . . . .194-045314-001

Note: Part Numbers suffixed by a number in ( ) indicates quantity of same part number used.

### 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.

W2008M

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 EMERSON ELECTRIC CO.

