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

Specifications – Table A

<table>
<thead>
<tr>
<th>Model</th>
<th>Volts and Phase</th>
<th>kW</th>
<th>Horizontal Air Discharge</th>
<th>Wt. (Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UB-3502A</td>
<td>240V, 550V, 575V, 600V (3ø) 480V (1ø or 3ø)</td>
<td>35</td>
<td>54’</td>
<td>210</td>
</tr>
<tr>
<td>UB-4002A</td>
<td>480V (1ø or 3ø) 550V, 575V, 600V (3ø)</td>
<td>40</td>
<td>54’</td>
<td>210</td>
</tr>
<tr>
<td>UB-4502A</td>
<td>480V (1ø or 3ø) 550V, 575V, 600V (3ø)</td>
<td>45</td>
<td>54’</td>
<td>210</td>
</tr>
<tr>
<td>UB-5002A</td>
<td>480V, 550V, 575V, 600V (3ø)</td>
<td>50</td>
<td>54’</td>
<td>210</td>
</tr>
</tbody>
</table>

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

Figure 3

240, 480, 550, 575, 600 Volt, 3 Phase
480 Volt, Single Phase
Power Lines

Disconnected
Switch
2 Pole
(Single Phase)
3 Pole
(Three Phase)

Single Phase

Omitted on
Single Phase

Type "UB" Heater Internal Wiring Diagrams
Note: See inside of wiring compartment door for internal wiring diagram.
P/N 170-92679-001
P/N 170-92679-003
P/N 170-92679-005
P/N 170-92679-011
P/N 170-92679-025

Heater Control — 1 — By Fused Control Disconnect Switch When Thermostat is Integral to Heater.
— 2 — By Fused Control Disconnect Switch or Optional External Control Switch When Thermostat is External to Heater.

Use this diagram for heaters rated as follows:
UB-3502A
240V, 3e (with 230V fan motor)
480V, 1e or 3e (with 115V fan motor)
UB-4002A
480V, 1e or 3e (with 115V fan motor)
480V, 3e (with 460V, 3a fan motor)
550V, 3e (with 115V fan motor)
UB-4502A or UB-5002A
480V, 3e (with 115V or 460V, 3a fan motor)
550V, 575V or 600V, 3e (with 115V fan motor)

Figure 4

240, 480, 550, 575, 600 Volt, 3 Phase
480 Volt, Single Phase
Power Lines

Disconnected
Switch
2 Pole
(Single Phase)
3 Pole
(Three Phase)

Single Phase

Omitted on
Single Phase

Type "UB" Heater Internal Wiring Diagrams
Note: See inside of wiring compartment door for internal wiring diagram.
P/N 170-92679-002
P/N 170-92679-004
P/N 170-92679-006
P/N 170-92679-012
P/N 170-92679-026

Heater Control — 1 — By Disconnect Switch When Thermostat is Integral to Heater.
— 2 — By Disconnect Switch or Optional External Control Switch When Thermostat is External to Heater.

Use this diagram for heaters rated as follows:
UB-3502A
240V, 3e (with 230V fan motor)
480V, 1e or 3e (with 115V fan motor)
UB-4002A
480V, 1e or 3e (with 115V fan motor)
480V, 3e (with 460V, 3a fan motor)
550V, 3e (with 115V fan motor)
UB-4502A or UB-5002A
480V, 3e (with 115V or 460V, 3a fan motor)
550V, 575V or 600V, 3e (with 115V fan motor)
**WIRING DIAGRAMS**

**Figure 5**

Type "UB" Heater

Internal Wiring Diagrams

- Note: See inside of wiring compartment door for internal wiring diagram.
- P/N 170-026799-010
- P/N 170-026799-022

Heater Control — 1 — By Fused Control Disconnect Switch When Thermostat is Integral to Heater.

- 2 — By Fused Control Disconnect Switch or Optional Control Switch When Thermostat is External to Heater.

Use this diagram for heaters rated as follows:

- **UB-3502A**
  - 480V, 3a (with 460V, 3a fan motor)
  - 550V, 575V or 600V, 3a (with 115V fan motor)

- **UB-4002A**
  - 575V or 600V, 3a (with 115V fan motor)

**Figure 6**

Type "UB" Heater

Internal Wiring Diagrams

- Note: See inside of wiring compartment door for internal wiring diagram.
- P/N 170-026799-010
- P/N 170-026799-022

Heater Control — 1 — By Fused Control Disconnect Switch When Thermostat is Integral to Heater.

- 2 — By Fused Control Disconnect Switch or Optional External Control Switch When Thermostat is External to Heater.

Use this diagram for heaters rated as follows:

- **UB-3502A**
  - 480V, 3a (with 460V, 3a fan motor)
  - 550V, 575V or 600V, 3a (with 115V fan motor)

- **UB-4002A**
  - 575V or 600V, 3a (with 115V fan motor)
WIRING DIAGRAMS

Figure 7

Use this diagram for heaters rated as follows:
- **UB-3502A**
  - 480V, 1a (with 230V fan motor)
- **UB-4802A or UB-4502A**
  - 480V, 1a or 3a (with 230V fan motor)
- **UB-5002A**
  - 480V, 550V, 575V or 600V, 3a (with 230V fan motor)

Figure 8

Use this diagram for heaters rated as follows:
- **UB-3502A**
  - 480V, 1a (with 230V fan motor)
- **UB-4802A or UB-4502A**
  - 480V, 1a or 3a (with 230V fan motor)
- **UB-5002A**
  - 480V, 550V, 575V or 600V, 3a (with 230V fan motor)
WIRING DIAGRAMS

Figure 9

Heater Control — 1 — By Fused Disconnect Switch When Thermostat is Integral to Heater.
— 2 — By Fused Disconnect Switch or Control Switch When Thermostat is External to Heater.

Type "UB" Heater Internal Wiring Diagrams
Note: See inside of wiring compartment door for internal wiring diagram.
P/N 170-026799-015

Use this diagram for heaters rated as follows:
UB-3502A
480V, 550V, 575V or 600V, 3a (with 730V fan motor)
UB-4002A or UB-4502A
550V, 575V or 600V, 3a (with 230V fan motor)

Figure 10

Heater Control — 1 — By Power Disconnect Switch When Thermostat is Integral to Heater.
— 2 — By Power Disconnect Switch or Optional Control Switch When Thermostat is External to Heater.

Type "UB" Heater Internal Wiring Diagrams
Note: See inside of wiring compartment door for internal wiring diagram.
P/N 170-026799-016
P/N 170-026799-023

Use this diagram for heaters rated as follows:
UB-3502A
480V, 550V, 575V or 600V, 3a (with 230V fan motor)
UB-4002A or UB-4502A
550V, 575V or 600V, 3a (with 230V fan motor)
**Figure 11**

**WIRING DIAGRAMS**

**Power Disconnect Switch**
- 2 Pole (Single Phase)
- 3 Pole (Three Phase)

**WIRING DIAGRAMS**

**480, 550, 575, 600 Volt, 3 Phase Power Lines**

**Heater Control**
- 1 — By Power Disconnect Switch When Thermostat is Integral to Heater.
- 2 — By Power Disconnect Switch or Optional Control Switch When Thermostat is External to Heater.

**Type "UB" Heater Internal Wiring Diagrams**

**Note:** See inside of wiring compartment door for internal wiring diagram.

**P/N 170-026799-914**
**P/N 170-026799-918**
**P/N 170-026799-924**

**BL1, BL2, BL3**
**AL1, AL2, AL3**
**Grd.**
**ML1, ML2**
**C1, C2**

**Motor Disconnect Switch**
**120 Volt Single Phase**

**Control Switch (Optional)**
**Thermostat (Optional)**

---

**Figure 12**

**WIRING DIAGRAMS**

**Power Disconnect Switch**
- Fused Disconnect Switch

**WIRING DIAGRAMS**

**480, 550, 575, 600 Volt 3 Phase Power Lines**

**Heater Control**
- 1 — By Fused Control Disconnect Switch When Thermostat is Integral to Heater.
- 2 — By Fused Control Disconnect Switch or Control Switch When Thermostat is External to Heater.

**Type "UB" Heater Internal Wiring Diagrams**

**Note:** See inside of wiring compartment door for internal wiring diagram.

**P/N 170-026799-015**

**AL1, AL2, AL3**
**ML1, ML2**
**Grd.**
**C1, C2, C3**

**Motor Disconnect Switch**
**115/120 Volt Single Phase**

**Control Switch (Optional)**
**Thermostat (Optional)**

---

**Use this diagram for heaters rated as follows:**

**UB-3502A**
- 480V, 1a (with 120V fan motor)

**UB-4002A or UB-4502A**
- 480V, 1a or 3a (with 120V fan motor)

**UB-5002A**
- 480V, 550V, 575V or 600V, 3a (with 120V fan motor)
WIRING DIAGRAMS

Figure 13

Heater Control — 1 — By Power Disconnect Switch When Thermostat is Integral to Heater.
— 2 — By Power Disconnect Switch or Optional Control Switch When Thermostat is External to Heater.

Type "UB" Heater Internal Wiring Diagrams
Note: See inside of wiring compartment door for internal wiring diagram.
P/N 170-026799-016
P/N 170-026799-023

Use this diagram for heaters rated as follows:
UB-3502A
480V, 550V, 575V or 600V, 3a (with 120V fan motor)
UB-4002A or UB-4502A
550V, 575V or 600V, 3a (with 120V fan motor)

Figure 14

Heater Control — 1 — By Fused Control Disconnect Switch When Thermostat is Integral to Heater.
— 2 — By Fused Control Disconnect Switch or Optional External Control Switch When Thermostat is External to Heater.

Type "UB" Heater Internal Wiring Diagrams
Note: See inside of wiring compartment door for internal wiring diagram.
P/N 170-026799-013
P/N 170-026799-017

Use this diagram for heaters rated as follows:
UB-3502A
480V, 1a (with 120V fan motor)
UB-4002A or UB-4502A
480V, 1a or 3a (with 120V fan motor)
UB-5002A
480V, 550V, 575V or 600V, 3a (with 120V fan motor)
**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

#### Heating Elements

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Phase</th>
<th>Heating Element</th>
<th>Model</th>
<th>Voltage</th>
<th>Phase</th>
<th>Heating Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>UB-3502A</td>
<td>240</td>
<td>3</td>
<td>118-117481-001 (6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>480</td>
<td>1 or 3</td>
<td>118-117481-002 (6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>550</td>
<td>3</td>
<td>118-117481-003 (6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>575</td>
<td>3</td>
<td>118-117481-004 (6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>600</td>
<td>3</td>
<td>118-117481-005 (6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UB-4002A</td>
<td>480</td>
<td>1 or 3</td>
<td>118-117481-006 (6)</td>
<td>UB-4502A</td>
<td>480</td>
<td>1 or 3</td>
<td>118-117481-010 (6)</td>
</tr>
<tr>
<td></td>
<td>550</td>
<td>3</td>
<td>118-117481-007 (6)</td>
<td></td>
<td>550</td>
<td>3</td>
<td>118-117481-011 (6)</td>
</tr>
<tr>
<td></td>
<td>575</td>
<td>3</td>
<td>118-117481-008 (6)</td>
<td></td>
<td>575</td>
<td>3</td>
<td>118-117481-012 (6)</td>
</tr>
<tr>
<td></td>
<td>600</td>
<td>3</td>
<td>118-117481-009 (6)</td>
<td></td>
<td>600</td>
<td>3</td>
<td>118-117481-013 (6)</td>
</tr>
<tr>
<td>UB-5002A</td>
<td>480</td>
<td>3</td>
<td>118-117481-006 (6)</td>
<td>UB-5002A</td>
<td>480</td>
<td>3</td>
<td>118-117481-014 (6)</td>
</tr>
<tr>
<td></td>
<td>550</td>
<td>3</td>
<td>118-117481-007 (6)</td>
<td></td>
<td>550</td>
<td>3</td>
<td>118-117481-015 (6)</td>
</tr>
<tr>
<td></td>
<td>575</td>
<td>3</td>
<td>118-117481-008 (6)</td>
<td></td>
<td>575</td>
<td>3</td>
<td>118-117481-016 (6)</td>
</tr>
<tr>
<td></td>
<td>600</td>
<td>3</td>
<td>118-117481-009 (6)</td>
<td></td>
<td>600</td>
<td>3</td>
<td>118-117481-017 (6)</td>
</tr>
</tbody>
</table>
# RENEWAL PARTS IDENTIFICATION

## ②③ MOTORS AND CAPACITORS

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

## ⑤ TRANSFORMERS

<table>
<thead>
<tr>
<th>Size</th>
<th>Part Number</th>
<th>V.A. Rating</th>
<th>Voltages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Primary</td>
</tr>
<tr>
<td>Large</td>
<td>315-052169-011</td>
<td>970</td>
<td>220, 230, 240, 440, 460, 480</td>
</tr>
<tr>
<td></td>
<td>315-052169-012</td>
<td></td>
<td>550, 575, 600</td>
</tr>
<tr>
<td>Small</td>
<td>315-304252-001</td>
<td>40</td>
<td>240 &amp; 480</td>
</tr>
<tr>
<td></td>
<td>315-304252-003</td>
<td></td>
<td>575</td>
</tr>
</tbody>
</table>

## ⑥ FUSES

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

## ⑦ PARTS COMMON TO ALL HEATERS

- Fan ............................... 112-027568-001
- Fan Delay ....................... 300-048038-001
- Cutout .......................... 300-049602-008
- Manual Reset Cutout (Optional) 300-117647-006
- Grille ............................ 134-119147-004
- Louver Assembly ................ 182-047037-009
- Mounting Bracket - (Right Hand) 027-025836-001
- (Left Hand) ....................... 027-025836-002
- Thermostat (Optional) .......... 300-026604-001
- Contactor ....................... 072-304551-008
- Auxiliary Contact .............. 072-304551-101
Limited Warranty:
Please refer to the Chromalox limited warranty applicable to this product at http://www.chromalox.com/customer-service/policies/termsofsale.aspx.