

INSTALLATION AND MAINTENANCE



PKB4815-3-T-SPECIAL

Ducted Industrial Portable Heater

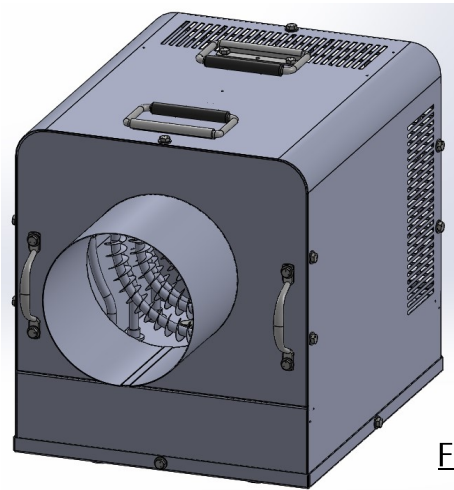
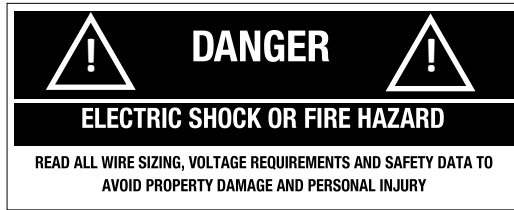


Figure 1

⚠ WARNING ⚠

READ CAREFULLY - Use the heater only as described in this manual. Any other use is not recommended and could result in fire, electric shock, and personal injury. Following these instructions will prevent difficulties that might occur during the installation and use of the heater. Please study the instructions first, as they may save considerable time and trouble during use addition to providing important safety information. Make sure to save these instructions for future use.

NEVER LEAVE HEATER UNATTENDED WHILE CONNECTED TO A POWER SOURCE

Read all instructions before using this heater.

- ⚠ 1. WARNING: This heater is hot when in use. To avoid burns, do not let bare skin touch hot surfaces. Keep combustible materials, such as furniture, pillows, bedding, papers, clothes, etc. and curtains at least 3 feet (0.9 m) from the front of the heater and keep them away from the sides and rear.
2. Extreme caution is necessary when heater is used by or near children or invalids and whenever the heater is left operating and unattended.
3. Always unplug heater when not in use.
- ⚠ 4. WARNING: Do not operate heater with damaged cord or plug, after it malfunctions, has been dropped, or damaged in any manner. Discard heater or return to authorized service facility for examination and/or repair.
- ⚠ 5. WARNING: Do not use outdoors.
6. This heater is not intended for use in bathrooms, laundry and similar indoor areas. Never locate heater where it can fall into a bathtub or other water container.
- ⚠ 7. WARNING: Do not run cord under carpeting. Do not cover cord with throw rugs, runners, or similar coverings. Do not route cord under furniture or appliances. Arrange cord away from traffic area and where it will not be tripped over.
8. To disconnect heater, turn controls to off, then remove plug from outlet.
9. Connect to properly grounded outlets only.
- ⚠ 10. WARNING: Do not insert or allow foreign objects to enter any ventilation or exhaust opening as this may cause an electric shock or fire, or damage the heater.
- ⚠ 11. WARNING: To prevent a possible fire, do not block air intakes or exhaust in any manner.
- ⚠ 12. WARNING: A heater has hot and arcing or sparking parts inside. Do not use it in areas where gasoline, paint, or flammable vapors or liquids are used or stored.
13. Use this heater only as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock, or injury to persons.
14. Always plug heater into wall outlet or receptacle. Never use with extension cord or relocatable power tap, or power strip.
- ⚠ 15. WARNING: THIS UNIT SHALL NOT BE USED WITHOUT A DUCT.

ASSEMBLY & SETUP

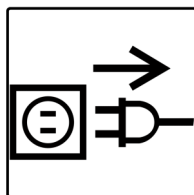


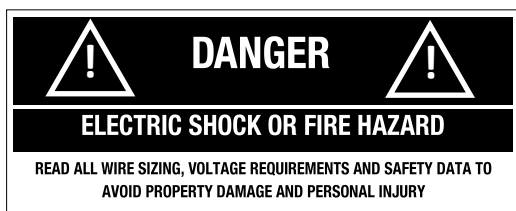
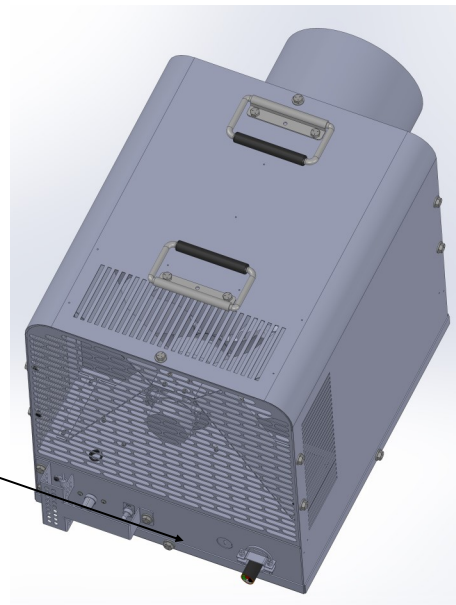
Figure 2

CAUTION!

Remove power by unplugging the Heater while setting up or placing

Figure 3

Rating Label Location



King Electrical Mfg. MODEL:KB2005-3MP
 9131 10th ave so. VOLTS:208
 Seattle Wa. 98166 WATTS:5 KW 60hz 1 OR 3 PHASE
 UL LISTING #KBS-03MP

MP MODELS ARE FACTORY WIRED 3 PHASE. FOR CHANGE TO 1 PHASE SEE WIRING DIAGRAM. INSTALLER MUST INDICATE 1 OR 3 IN PHASE BLOCK THERMOSTAT RATING:240VOLTS AC 25AMP RESISTIVE, 2 F.L.A. 40VA PILOT DUTY.
 DO NOT INSTALL LESS THAN 6" FROM VERTICAL SIDE WALLS OR 6" ABO IE FLOOR. USE COPPER WIRE ONLY.
 NOT SUITABLE FOR RESIDENTIAL OR HOUSEHOLD USE 05/14/13

HEATER SETUP

1. Unpack and inspect your heater for any damage. Any damage discard heater or return to authorized service facility immediately.
2. Place heater at least 6" (15cm) away from vertical surfaces and keep the intake clear of obstructions. Keep all combustible materials, such as furniture, papers, clothes, drapes, and curtains at least 3 feet (0.9 m) from the front of the heater and keep them away from the sides and rear.
3. Route power cord away from traffic areas to avoid tripping. NEVER rout power cord under carpets, rugs, drops furniture or other equipment.
4. Plug power cord into a grounded wall outlet only DO NOT use an extension cord or power strip.
5. Wiring diagram located in wiring housing.
6. Attach 8" ducting to 7-3.4" duct collar. WARNING: THIS UNIT SHALL NOT BE USED WITHOUT A DUCT.
7. WARNING: This heater is floor ONLY and should not be tipped on side, placed upside down, mounted on or inserted into a wall. A tip over auto disconnect switch will activate when tipped more then 30°.
8. DO NOT use heater in areas where gasoline, paint, or other flammable liquids are used.
9. DO NOT use heater outdoors or in wet or moist indoor areas such as bath or laundry rooms.
10. Store unplugged and in a dry indoor location.
11. This heater is for use on 240 (or 208) volts). The type outlet is a 240 (or 208) volt grounding outlet. When properly installed, it provides a ground connection through the cord to the heater to protect the operator from electric shock.

PLUG SELECTION

Check rating label on heater (See Figure 3) and verify the proper voltage and SO cord type. The SO cord requires a plug per the chart in Figure 4. No adapter is available for this blade configuration, and none should be used. The type outlet required is grounding outlet. When properly installed, it provides a ground connection through the cord to the heater to protect the operator from electric shock.

Plug Specifications










Fits Cable Dia.	Plug Type	Description	Volts	Amps	Configuration	NEMA #	ANSI #
.385"-.780"	Locking	3 Pole, 4 Wire	250	20		L15-20	C73.85
.385"-.780"	Locking	3 Pole, 4 Wire	250	30		L15-30	C73.86
.595"-1.150"	Locking	3 Pole, 4 Wire	480	30		L16-30	C73.88
.595"-1.150"	Locking	3 Pole, 4 Wire	600	30		L17-30	C73.89
.750"-1.125"	Locking	2 Pole, 4 Wire	600	50		—	—

Figure 4

.750"-1.125"	Locking	3 Pole, 4 Wire	600	50		—	—
.625"-1.187"	Non Locking	2 Pole, 3 Wire	250	50		6-50	C73.53
.390"-.775"	Non Locking	3 Pole, 4 Wire	250	20		15-20	C73.59
.750"-1.250"	Non Locking	3 Pole, 4 Wire	250	50		15-50	C73.61

OPERATION AND ADJUSTING THERMOSTAT

This heater must be properly placed before it is used.

DO NOT tamper with or change the operating of this heater. All service should be preformed by a authorized service representative. Only replace components with King approved replacement parts.

Operation:

1. After the electric heater has been completely placed, the thermostats should be turned to LOW or NO HEAT position.
2. Plug unit into grounded outlet, Do not use extension cords.
3. Turn thermostats to highest position and wait 3 to 5 minutes. Check to see that all heaters are operating. Should any not be operating, disconnect power and check wiring.
4. Allow entire system to operate steadily for 1/2 hour. This should remove oily residue from manufacturing. (Some smoking may occur).

Selecting desired temperature on the thermostat:

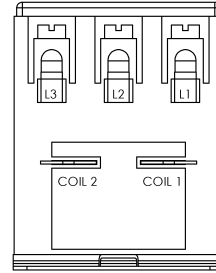
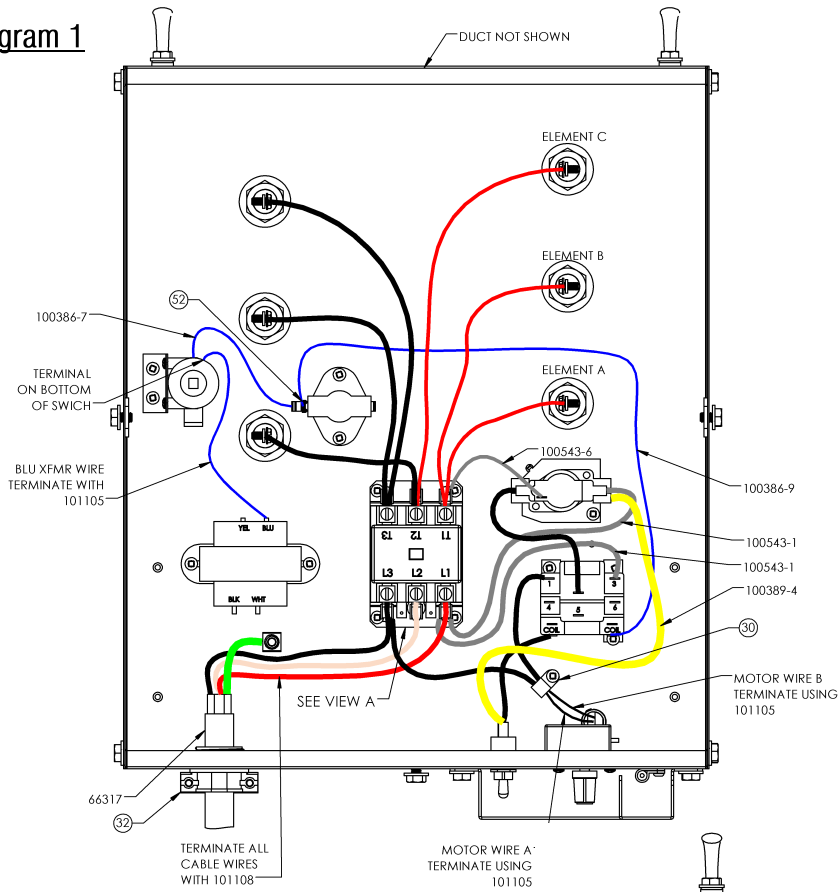
To adjust the temperature to your requirements, turn the dial on the thermostat clockwise all the way to turn heater on. When the room reaches the desired temperature, turn the thermostat knob counter clockwise until you hear the click. Leave in this position to maintain the room temperature at this setting. For additional heat, turn clockwise until you the click and the heater will turn on.



A safety limit control is provided to turn off the heater automatically if it is blocked or otherwise overheats due to an abnormal condition. DO NOT bypass or remove this safety device from the electrical circuit. During normal use, this safety control should not operate. If you find that this control is operating, make sure the heater is not being blocked. If it continues to cycle the heater off, disconnect power to heater and have it checked and repaired by a qualified electrician.

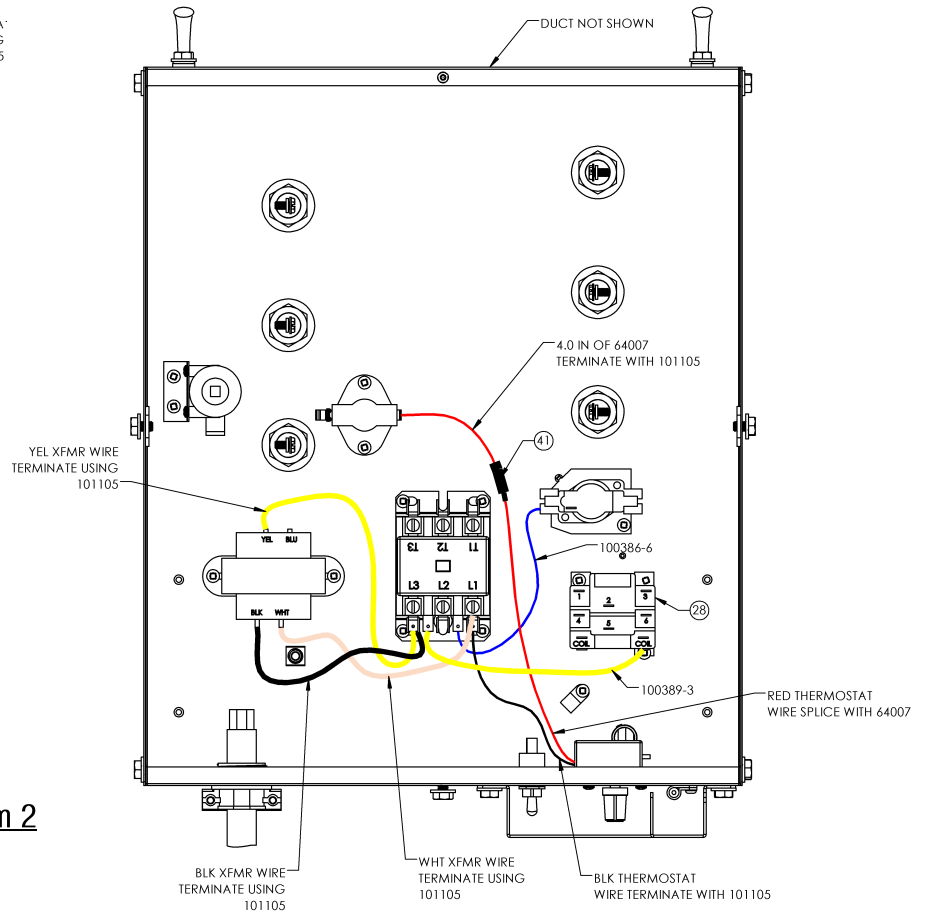
INTERNAL WIRING DIAGRAMS

Diagram 1



VIEW A

Diagram 2



BILL OF MATERIALS

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	102685	WELDMENT, KBS 11" SCREEN TO Ø8" DUCT, COLD ROLLED STEEL	1
2	SEE TABLE 1	KB ELEMENT	3
3	00504	MOTOR UB 50W 460V 1550 RPM CCW CAST IRON	1
4	60263	FAN BLADE, 11"-5 WING, CW, 34 DEG PITCH, 3/8" HUB, KB 60263	1
5	102684	KBS 11" REAR SCREEN WITH WELD NUTS	1
6	102680	WELDMENT, 11-3 PKB CASE WITH LEGACY CHASSIS, COLD ROLLED STEEL	1
7	61888	6-18x1/2 Sq Drv Truss Black	2
8	62828	6-32X3/16 COMBO PHIL/SQ TRUSS STEEL M/S ZINC	2
9	61910	8-15X1/2 COMBO PHIL/SQ PAN STEEL "A" W/LOCKING SERRATIONS ZINC	19
10	102359	PKB 16GA BASE, COLD ROLLED STEEL	1
11	102360	PKB 1" RUBBER FOOT	4
12	102813	BOLT, 1/4-20 x 3/4 GRADE 5 STEEL FLANGED HEX HEAD	4
13	100903	WASHER, FLAT, 1/4 NORMINAL, .281 ID X .625 STEEL-ZINC	21
14	60099	SWITCH, TIP OVER, LXW-16A NON-MERCURY FOR KP1210 AND PKB'S	1
15	100103	LIMIT, PTC-24V SELF-HOLD LIMIT, KB	1
16	61873	KBP DCP 40A-RES 24V KBP CONTACTOR 3P 30FLA 24V CKC2C2-30/3 COIL 50/60HZ	1
17	60053	TRANSFORMER, 480V/24V 40VA 15" WIRE LEADS	1
18	67010	25A SP CAP TUBE STAT W/23" RIBBON GREEN HOUSING ES4T38S-23" RIBB	1
19	15902	KNOB, THERMOSTST, PT-2-P-S KNOB ONLY - KB, BB, KCV, RW, U	1
20	66290	HEYCO NYLON CLAMP #3364:BLACK CCL 250-170 DIA LENS HOLE .312	3
21	66438 SENSOR	PART OF 66438 THERMOSTAT	NA
22	66041	1" CABLE CONNECTOR NM CABLE	1
23	66317	CORD, SO WIRE 12/4 12GA 3 Ø 4-WIRE (INCLUDING GND) 12 TO 16 AMP 3PHS	6
24	64071-G	CA4SP LUG, MECHANICAL, ALUM	1
25	66933	10-32X1/4 HEX FLANGE ZINC	1
26	66932	#10 WASHER LOCK EXT TOOTH	1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
27	60016	12S50-3058231 FAN DELAY SWITCH 24V H1-20 C55-110 (YN# KSD301C C-015W 24V)	1
28	60215	R8222 D1022/B 24V FAN RELAY DPDT UL RATED	1
29	64025	SB625-500 Heyco Shorty Bushing #2827 BLK	1
30	101907	TOGGLE SWITCH, ON-NONE-OFF, SPST	1
31	101906	ON/OFF TOGGLE SWITCH PLATE	1
32	100538	BRACKET, TILT SWITCH, PKB	1
33	62831	8-32 X 7/16 SQ PAN STEEL TYPE 23 W/ LOCKING SERRATIONS HARDENED ZINC	2
34	62833	8-32 X 7/16 SQ PAN STEEL TYPE 23 W/ LOCKING SERRATIONS HARDENED ZINC	4
35	102690	PKB HEAT SHIELD	2
36	5-8 WASHER PART OF 61120	5/8 FLAT WASHER	6
37	5/8-18 NUT PART OF 61120	5/8-18 HEX JAM NUT, ZINC	6
38	NUT, PART OF 101907	NUT FOR 101907 SWITCH	NA
39	10-32 SET SCREW-PART OF FAN	10-32 SET SCREW, PART OF FAN	1
40	66232	TERMINAL, VWA-0 DOUBLE UP PIGGY BACK (PN#19043-0010)	1
41	66024	BUTT SPLICE, CS-V-346X YELLOW 12-10 #0191 540037	1
42	45-85-10	KB ELEMENT STRAP FOR 10" UNIT	3
43	102807	PKB SWITCH AND THERMOSTAT GAURD	1
44	102812	BOLT, 1/4-20 X 3/8 MEDIUM-STRG GRADE 5 ZINC-PLTD STL	25
45	103143	PKB HANDLE, SPRING LOADED, FOLDING, MODIFIED	2
46	103142	PKB HANDLE, OVAL GRIP, TWO MOUNTING HOLES, MODIFIED	2

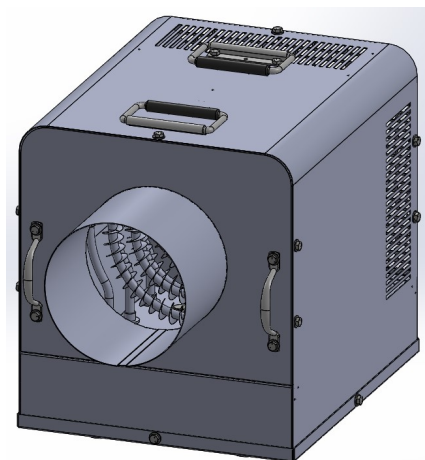
CLEANING INSTRUCTIONS

Before cleaning this heater, heating element must be cool.

1. Before removing front ducted housing, turn the electrical power OFF by unplugging it. If not, electricity may still be flowing to the heater. If you are uncomfortable working with electrical appliances consult a qualified electrician. Once power is off completely, proceed to the next step.
2. Remove 4 x 1/4-20 screws located on the sides of the ducted housing. Wipe housing with soft cloth or brush.
3. Using a hair dryer or vacuum on blow cycle, blow debris back through the element. Do

not touch element. Vacuum lose debris without touching the elements.

4. Replace ducted housing and secure with screws.
5. To clean the fan and motor remove the safety grill from the rear of the heater. This provides access to the fan and motor. Wash Grill with hot soapy water and dry immediately
6. Wipe the fan and motor with a soft cloth or brush.
7. Replace safety grill & plug the unit back in.



TROUBLESHOOTING

Troubleshooting Chart for Electric Heaters

SYMPTOM	PROBLEM	SOLUTION
Breaker Trips	<ol style="list-style-type: none"> Short Circuit Overloaded Circuit Improper Voltage 	<ol style="list-style-type: none"> Find source of short. Trace heater circuit and verify the heater is wire properly. Reduce wattage in circuit. Refer to circuit sizing table for maximum wattage. Verify the heater voltage matches the supply voltage.
Heater not working	<ol style="list-style-type: none"> No Power Loose Connections Defective Limit 	<ol style="list-style-type: none"> Turn Breaker ON, turn thermostat ON, check that the breaker is position properly on panel bus-bar. A 2-Pole breaker must be connected to both bus-bars (A&B phase) to produce 240V power. Tighten wire connections. By-pass the limit to test. If heater works, replace the limit.
Heater Smokes	<ol style="list-style-type: none"> Oil on Element Needs Cleaning 	<ol style="list-style-type: none"> It is normal for the element to burn off some light finishing oil used in the manufacturing process when first energized. Open windows and allow room to vent until it stops, usually within a few minutes. Remove any dust or dirt accumulations.
Room Temperature does not match thermostat setting	<ol style="list-style-type: none"> Thermostat affected by another heat source. Improper calibration 	<ol style="list-style-type: none"> Sunlight or other heat sources can affect the thermostat. Move the thermostat to another location or remove the heat source. Remove cover and adjust calibration screw.
Room Temperature swings from too hot to too cold	<ol style="list-style-type: none"> Defective or low quality thermostat 	<ol style="list-style-type: none"> Replace with a better quality thermostat. Anticipated thermostats are fairly accurate; an electronic thermostat is best.

SMART LIMIT PROTECTION AND MAINTENANCE



Heater Safety Limit Tripped?

This heater is equipped with a thermal overload Smart Limit Protection which disconnects elements and motor in the event normal operating temperatures are exceeded. If thermal overload

trips due to abnormal operating temperatures, thermal overload shall remain open until manually reset by turning the heater OFF for fifteen minutes. Inspect for any objects on or adjacent to the heater that may cause high temperatures. After inspecting the heater, keep the power to the heater off for 15 minutes to reset the SLP thermal protector. If the SLP thermal protector shuts the heater off again, immediately turn the heater OFF at the circuit breaker and inspect the heater for possible fan motor failure or dirt and lint on the heating element. Repeat the starting procedure.

DO NOT TAMPER OR REMOVE THIS THIS DEVICE

Maintenance

With proper care your electric heater should last a lifetime, however, seasonal cleaning is recommended to maintain the efficiency of the heater. Keep heating element, fan and motor free of debris. Use compressed air to blow out any debris.



Smart Heating Solutions