

INSTALLATION INSTRUCTIONS



SMART LIMIT PROTECTION®

PAW - DEC - SL SERIES

Wall Heaters

Models: 1215 (120V) 2022 (208V)
2422 (240V) 2720 (277V)



DANGER

ELECTRIC SHOCK OR FIRE HAZARD

READ ALL WIRE SIZING, VOLTAGE REQUIREMENTS AND SAFETY DATA TO AVOID PROPERTY DAMAGE AND PERSONAL INJURY

⚡ WARNING ⚠

It is ***extremely important*** to verify the electrical power supply is the same voltage as the heater being installed. **240 and 120 Volt heaters are not interchangeable.** Powering a 208/240/277 Volt unit with 120 Volt supply wires will reduce heater output by approximately 75%. Powering a 120 Volt unit with 208/240/277 Volt supply wires will destroy the heater and voids all guarantees and warranties.

CAUTION: Keep electrical cords, drapery, furnishings and other combustibles at least 3 feet (.9m) from front of the heater and away from side and rear. Do not block the heater in any manner. To insure proper operation of this heater it should be a minimum of 4 inches above the floor (zero clearance to floor for SL Slimline series only) and no closer than 6 inches to the open edge of a door and/or adjacent wall. Never paint the heater grill.

WARNINGS: Turn off the power source supplying the heater before attempting any installation, maintenance or repairs. Lock or tag circuit breaker/fuse panel door. Failure to do so could result in serious electrical shock, burns or possible death.

MAINTENANCE & WARRANTY

The superior quality and design of this heater will provide years of trouble-free performance. Each year the heater should be checked and cleaned for lint and/or dust accumulation. King recommends using a soft bristle brush and vacuum to knock off contaminants. The motor is permanently lubricated and requires no oiling.

PAW Wall Heaters and SL Slim Line Wall Heaters carry a five (5) year warranty on the elements and a two (2) year warranty on components from date of installation. The DEC Wall Heater carries a ten (10) year warranty on the motor and element from date of installation. This warranty requires that the owner or his agent install the equipment in accordance with the National Electrical Code, any other applicable heating or electrical codes, and the manufacturer's installation instructions. It further requires that reasonable and necessary maintenance be performed on the unit. Failure to properly maintain the unit will result in the warranty being voided. The company is not liable for abuse or misuse of product as may be finally determined by the company. The customer shall be responsible for all costs incurred in the removal or reinstallation of products, including labor costs and shipping costs incurred to return products to King Manufacturing. King Manufacturing will repair or replace, at our option, at no charge to the customer with return freight paid by King. King Manufacturing shall not be liable for consequential damages arising with respect to the product, whether based upon negligence, tort, strict liability or contract. No other written or oral warranty applies, nor any warranties by representatives, dealers, employees of King, or any other person. All returns require a King Return Goods Authorization (RGA); Unauthorized returns will be refused. Do not return malfunctioning/defective products to store.

Operating voltage cannot exceed 5% of rated voltage. Operating heater above listed voltage ratings voids all guarantees and warranties.

INSTALLATION INSTRUCTIONS

INSTALLATION

Following are installation guidelines:

- Disconnect power at main panel.
- Make certain all wiring is in accordance with any/all local codes.
- Ensure units are properly grounded.
- Heater voltage rating should be the same as supply load.

1. Remove two screws on front grille. Remove grille. Loosen mounting screw. Remove fan heater assembly.
2. Remove a 7/8" knockout. Thread supply wire into wallbox. Use an approved strain relief bushing to prevent chafing of supply wires through the opening in wallbox.
3. Install wall can a minimum of 6" from vertical sidewalls and 4" above floor (zero clearance to floor for SL series). **The front edge of wall can must be 1/2" beyond finished wall.**
4. Secure wallbox to the 2x4 studs using the two (2) holes on each side of wallbox. Secure twist lock to wall stud on opposite side.
5. Select heater wattage (see diagram). King recommends the installer indicate the selected heater wattage by circling the wattage listed on the nameplate. To prevent the heater from being rewired to a higher wattage, cut the push-on 1/4" female terminal off the disconnected wire (orange, blue or yellow). Tape all exposed wires. By disabling the heater in this manner there is no need to size the circuit beyond the actual connected load. (For future flexibility to increase wattage, size circuit for the maximum 2250 Watts per heater for 208/240 Volt, 1500 Watts per heater for 120 Volt).
6. Reinstall heater assembly at top of wallbox with mounting screw. Connect supply and ground wires. (see diagram)
7. Reinstall grille securely with screws provided. *For proper air circulation, the top louver in grille must open into and between wall can and top of heater.*

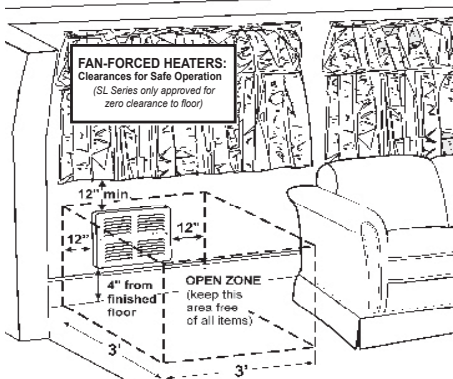
FIELD WIRING – 120/277 VOLT:

1. Connect power supply L1 (white neutral wire) to white heater wire.
2. Connect power supply L2 (black hot lead) to black heater wire.
3. Connect groundwire to green wire on wall can.

FIELD WIRING – 208/240 VOLT:

1. Connect power supply L1 (hot lead) to a black heater wire.
2. Connect power supply L2 (hot lead) to a black heater wire.
3. Connect groundwire to green wire on wall can.

NOTE: The two black leads on the heater can be connected to either hot lead. There is no polarity. The 208/240 Volt heater does not require a neutral wire from the power panel.



NOTE: SL Slimline Series only is zero clearance to floor

CAUTION
The heater should not be covered or blocked in any manner.

WIRING DIAGRAM

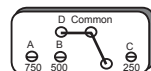
WATTAGE SELECTION

The heater is factory wired to 1500 Watts at 120 Volts. To reduce wattage unplug an insulated push on terminal per color coding below. Wrap with electrical tape to prevent possibility of electrical contact with other parts.

WIRE COLOR CODING

- A Orange** Disconnects the 750 Watt element
- B Blue** Disconnects the 500 Watt element
- C Yellow** Disconnects the 250 Watt element
- D Black** DO NOT DISCONNECT (Common)

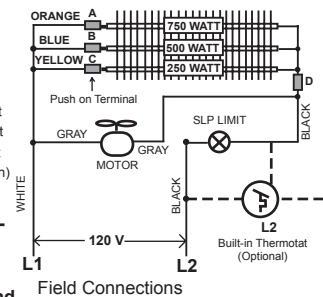
END VIEW OF ELEMENT



- A - 750 W B - 500 W C - 250 W D - Common Leg of Power Supply

PIC-A-WATT

Steel Sheath Element 1215 120V 1500W



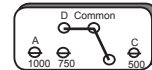
WATTAGE SELECTION

The heater is factory wired to 2250 Watts at 208/240 Volts. To reduce wattage unplug an insulated push on terminal per the color coding below. Wrap with electrical tape to prevent the possibility of electrical contact with other parts.

WIRE COLOR CODING

- A Orange** Disconnects the 1000 Watt element
- B Blue** Disconnects the 750 Watt element
- C Yellow** Disconnects the 500 Watt element
- D Black** DO NOT DISCONNECT (Common)

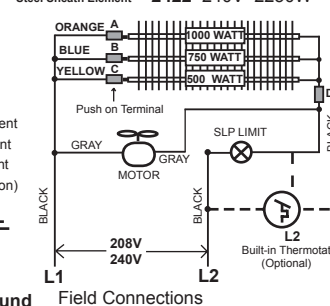
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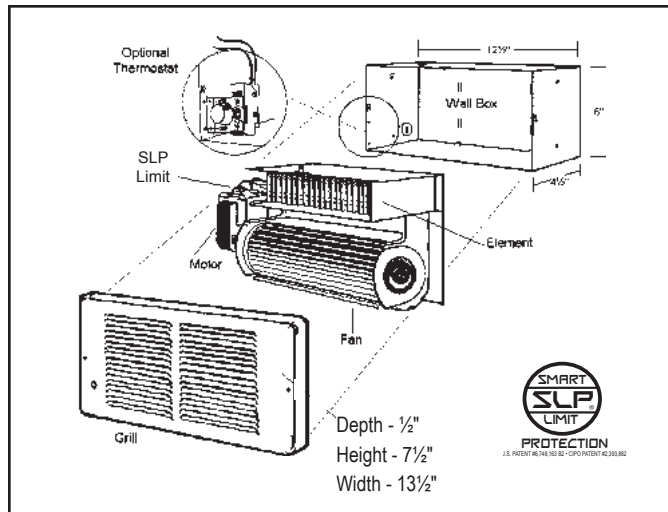
- A - 1000 W B - 750 W C - 500 W D - Common Leg of Power Supply

PIC-A-WATT

Steel Sheath Element 2022 208V 2250W



EXPLODED VIEW



J.S. PATENT # 6,146,785 B1 - COPYRIGHT © 2002 KING

This heater includes a manual reset SLP thermal protector with a self-hold feature. If the heater shuts off in the on position and the room temperature is below the highest thermostat setting, immediately disconnect the power to the heater at the circuit breaker. 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 10 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.



File #E41422

INSTALLATION INSTRUCTIONS

COMMONLY ASKED QUESTIONS

Q. Will the room heat up faster if I put the thermostat on 90 degrees when I get home?

A. No. The thermostat is just an on-off switch that is temperature sensitive. The heater is either on or off.

Q. My baseboards are on outside walls, should fan heaters be also?

A. No. A fan heater, recessed into an outside wall, will create extra heat loss and air leakage for that room. An inside wall, facing a cold window, is the best location.

Q. My thermostat is above my fan-heater. Why?

A. The fan heater blows warm air away from itself and into the room. By the time the warm air has recirculated and reached the thermostat above the heater, a comfortable room temperature has been achieved.

Q. Will my electric bill be lower if I use 120 volt heaters?

A. No. Same size 120 volt and 240 volt heaters will use the same amount of power, measured in watts or kilowatts. Your electric company charges by kilowatt hours.

Q. Should I clean my heater?

A. Yes. Once a year you must clean and inspect your heaters. You may request a copy of the operation & maintenance for your heater if you have lost it.

Q. Why does my new heater produce smoke when I turn it on?

A. In the manufacturing process a high temperature stove paint is used, which will burn when the heater is energized. The smoke will stop after the heater has fully heated. There is no cause for alarm. It is recommended to open a window during initial operations.

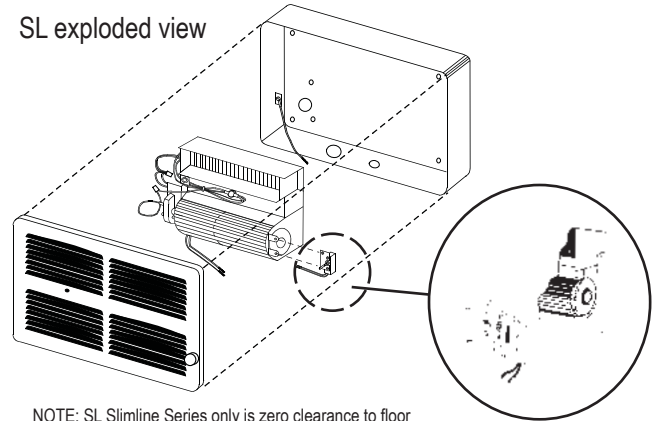
Q. If I need to replace my heater, can I use a higher wattage heater?

A. Your electrical system was sized for the original heater's wattage. A smaller heater would be OK, but a larger heater may create a hazard. Have the circuit checked by a licensed electrician.

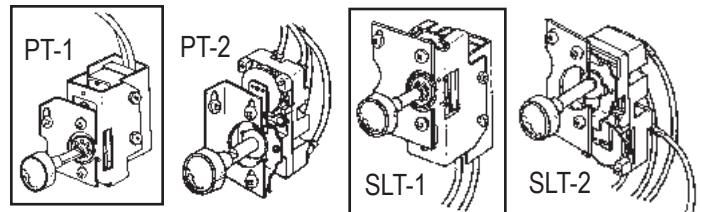
Q. Are King heaters actually made in Seattle, Washington?

A. Yes. Since 1958 we have made quality residential, commercial and industrial heating products in the same location.

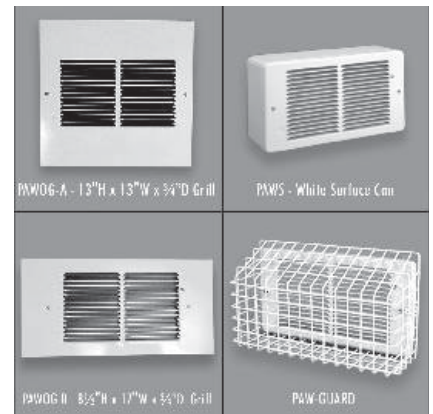
SL exploded view



NOTE: SL Slimline Series only is zero clearance to floor



ULTRA GRILLE
Depth - 1 1/4"
Height - 7 1/4"
Width - 16"



OPTIONS

MODEL	DESCRIPTION	UPC# 093319 PART #	WEIGHT
PAW - GUARD	PAW Safety Guard	16550	3.5
PAWOG-A	13" x 13" x 3/4" Retrofit Grille	00555	3
PAWOG-B	8 1/2" x 17" x 3/4" Retrofit Grille	00560	3
ULTRA-W	ULTRA Grille (White)	18740	4
ULTRA-A	ULTRA Grille (Almond)	18745	4
PT-1	Single Pole Thermostat Kit	16306	.5
PT-2	Double Pole Thermostat Kit	16307	.5
SLT-1	Single Pole Single Throw Thermostat Kit	19562	.5
SLT-2	Double Pole Single Throw Thermostat Kit	19564	.5
ES230-R	Electronic Line Voltage	10374	1
ESP230-R	7 Day Independant Electronic Programmable	10380	1

Between 5-10 years you may want to upgrade your thermostat, as the sensing element may not be as accurate as when new. The most accurate thermostats are the electronic ES230 or ESP230 models. If, in the future, you decide to remodel or add rooms to your home, you won't have to worry about the size of your heating system. With electric heat you can add to the heating system, in large or small increments.



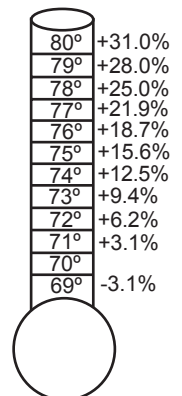
ESP

Zone Control (setting the thermostats):

Thermostat settings are a matter of personal preference. A few days of adjustments will help you determine the setting that is comfortable for you. Most people keep their living quarters at 68 to 72°F (20 to 22°C) and sleeping areas at 65°F (18°C). It is also wise to set living area thermostats back at night, but not below 60°F (16°C).

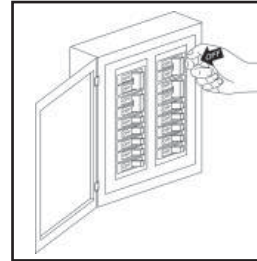
Temperature & cost relationship:

When setting your thermostat you may want to consider the relative cost of various temperatures. The chart at right shows how much higher your heating bill may be if you like temperatures warmer than 70°F (21°C).



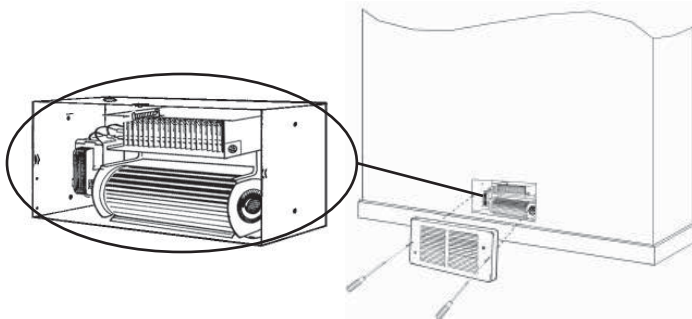
CLEANING & MAINTENANCE GUIDE FOR PAW - DEC - SL SERIES HEATERS

Regular maintenance on an electric wall heater will prolong the life of the product and keep it operating safely. Heaters should be cleaned and inspected every 6 months. This guide will show in detail how to properly clean and maintain your King electric wall heater. It will also show when parts or perhaps the entire heater should be replaced. Listed below are step by step instructions for cleaning and maintaining the PAW Series Wall Heater.



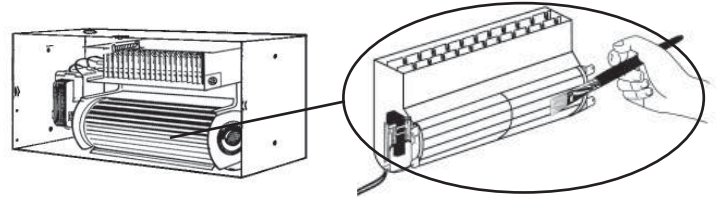
WARNING: Take extreme caution when working with electrical heaters. Turn off the electrical power to the heater before removing the grille of the heater. Lock, tape or tag the circuit breaker so that the power cannot be turned on accidentally while working on the heater.

1. After the power is turned off, remove grille using a #2 square drive or a #2 Phillips head screw driver. **DO NOT remove heater interior and wall can from wall!** Clean grille before reinstalling.

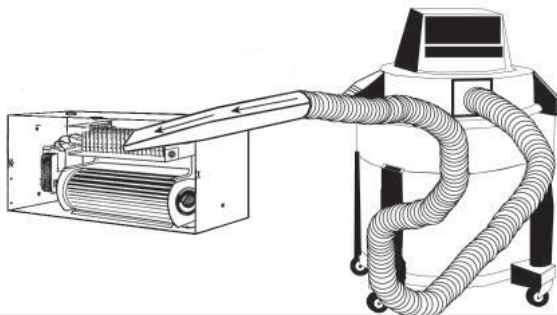


2. Use a soft bristled brush (1" to 2" wide) such as a paint brush to remove any contaminants from the fan cage. Also spin the fan by hand to make sure that it spins freely. If it feels like the motor is binding see instructions below for oiling motor.

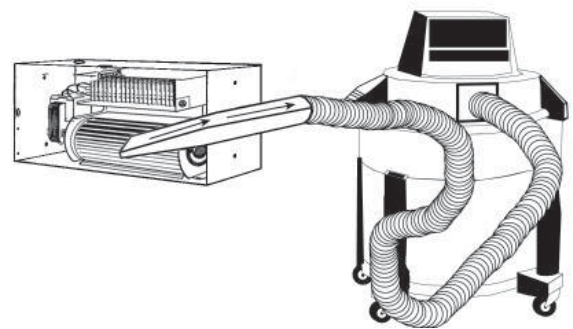
To clean heater, start by using a vacuum cleaner nozzle in the blow out mode.



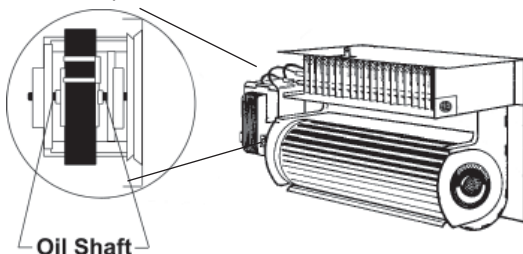
3. To clean the element, point the nozzle at the element as shown on the diagram and blow the dust out. This will dislodge any contaminants caught on the heating element. Compressed air blown onto the element works well also. If you have another vacuum, you can blow out from the bottom and suck the debris from the opening at the same time which will minimize dirt and lint being blown into the room.



4. Vacuum out any material in the squirrel cage by placing the vacuum nozzle close to the fan cage. Be careful not to bend the squirrel cage because it could become out of balance if deformed.



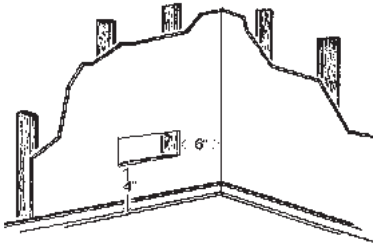
5. After removing contaminants lubricate the motor shaft and bearing with a few drops of S.A.E. 20 synthetic oil at the locations shown. **Do not use WD-40.** If the motor does not spin freely after oiling, it should be replaced. Newer models have capped bearings and cannot be oiled. Inspect the limit and look for signs of overheated wires and parts that may need to be replaced.



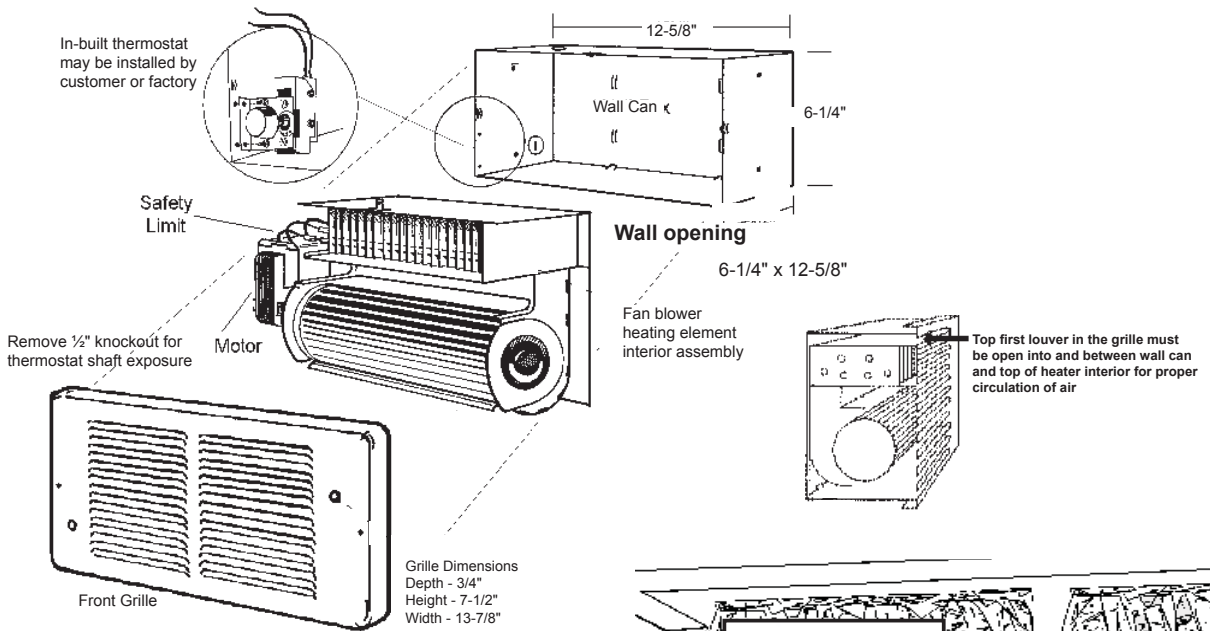
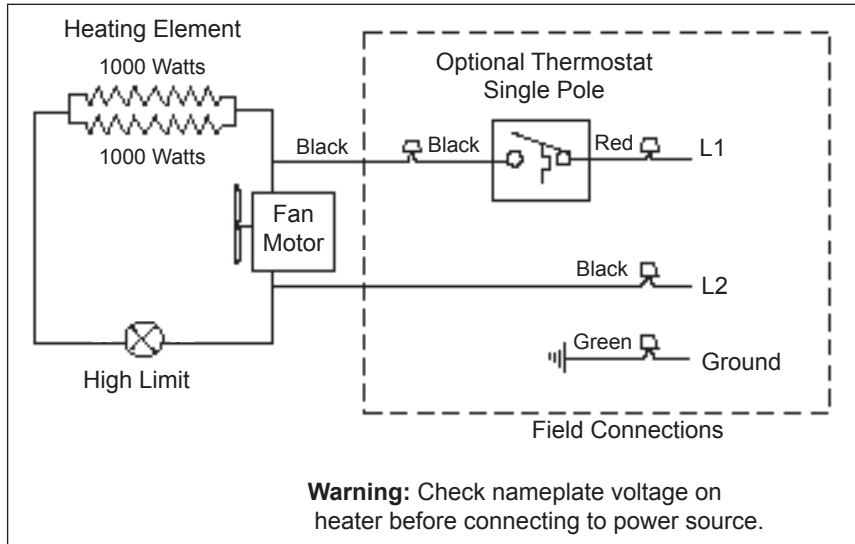
The useful life on a PAW - DEC - SL Series Heater depends on the amount of use, environment, and how often it is cleaned and maintained. Heaters operated beyond their useful life are more prone to problems. For example, when a motor slows down due to wear or lack of cleaning it reduces the CFM and can cause the heater to overheat, tripping the limit control. The limit will cycle the heater on and off. It is much safer to fix the cycling heater before it fails. Heaters produced after 1992 have a light which turns on when the limit trips. Heaters prior to that do not have the light and are therefore more difficult to detect a cycling occurrence. One way to tell is by listening for the click that is made when the limit trips. With regular inspection and maintenance, your heater will operate safely and efficiently. Heaters manufactured after 2003 use a manual limit and do not have a light.

INSTALLATION INSTRUCTIONS

277 Volt Wiring Diagram

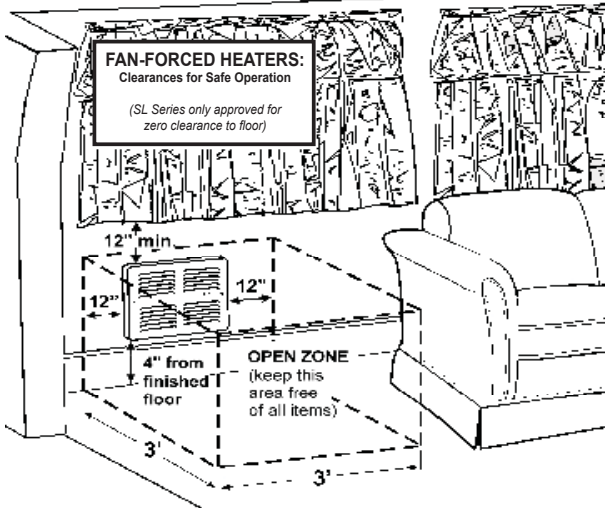


Minimum Clearances
 Side Wall - 6"
 Outside Wall - 16" (Recommended)
 Floor - 4" (10" Recommended)
 SL Series approved for zero clearance to floor



Maintenance & Warranty Information:
 The high quality and superior design of this heater will provide years of trouble-free performance. Each year the heater should be checked and cleaned for lint and dust accumulation. We recommend using a soft bristle brush such as a paint brush to assist in removing contaminants from the heater.

Limited One Year Warranty:
 King Mfg. Co. will repair or replace, without charge, any King product found to be defective or malfunctioning during the first year of purchase to the original owner. The PZ-Series wall heater carries an **Extended Five Year Warranty** on the heating element.



NOTE: SL Slimline Series only is zero clearance to floor