

# INSTALLATION AND MAINTENANCE



## GH Compact Heavy Duty Unit Heaters



DANGER

ELECTRIC SHOCK OR FIRE HAZARD

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

### DO NOT RETURN TO STORE

If you experience any difficulties installing or operating this product.  
 Call us Toll Free at: 1-800-603-5464 (Select Option 2 from the Menu) / 7:00am to 3:30pm PST Mon-Fri  
 Support at [king-electric.com](http://king-electric.com) or email us at [info@king-electric.com](mailto:info@king-electric.com)

### ⚠ 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.

- ⚠ WARNING** Verify power supply and control voltages coming to the heater match the ratings printed on the heater nameplate before energizing.
- ⚠ WARNING** To prevent a possible electrical shock, disconnect all power coming to heater at main service panel before wiring or servicing.
- ⚠ WARNING** All wiring must be in accordance with the National Electrical Code (Canadian Electrical Code in Canada) and all applicable local codes.
- ⚠ WARNING** Heater must be installed so the minimum clearances shown in Specifications table are maintained.
- ⚠ WARNING** This heater is NOT suitable for use in hazardous locations as described by the National Fire Protection Association (NFPA). this heater has hot and arcing or sparking parts inside. DO NOT use in areas where gasoline, paint or other flammable liquids are used or stored.
- ⚠ WARNING** The mounting structure and anchoring hardware **MUST BE** capable of reliably supporting the weight of the heater plus mounting bracket if used. Refer to specifications table for heater weight.
- ⚠ WARNING** Heater air flow **MUST** be directed parallel to or away from adjacent walls.
- ⚠ WARNING** To prevent a possible fire, DO NOT block air intakes or exhaust openings in any manner. DO NOT allow foreign objects to enter grill openings as this may cause electric shock, fire or damage to heater.
- ⚠ WARNING** Louver adjustment (Do not attempt to adjust while heater is operational): The Louvers are opened during testing at factory, but may have shifted during shipping, make sure the louvers are rotated less than 45 degrees from horizontal before operation. To adjust the opening angle, grasp the left and right end of louver and twist with two hands to the desired position. CAUTION: Increasing the angle beyond 45° degrees from horizontal may restrict air flow causing the over temperature limit to activate and shut off the heater.



**CAUTION—RISK OF ELECTRIC**



# GH INSTALLATION INSTRUCTIONS

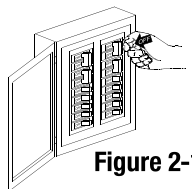




Figure 2-1

**CAUTION!**

**Turn OFF all electrical power to install heater**



**DANGER**



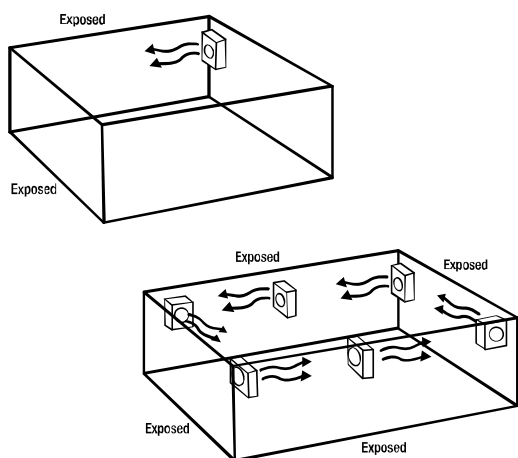
**ELECTRIC SHOCK OR FIRE HAZARD**

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

**Selecting a location for your heater:**

The heater should be installed out of the reach of persons. The direction of air flow should not be restricted by machinery, beams, etc., and the air flow should wipe exposed walls rather than blowing directly at them. When more than one heater is used in an area the heaters should be arranged so that the air discharge of each heater supports the air flow of the others to provide best circulation of warm air.

(see air flow chart)



**Unpack & Inspect Your New Heater**

Remove heater from the box and inspect it for any damage. Verify you have received the universal wall/ceiling mounting bracket.

**Tools Needed**

You will need the following tools to install your unit heater:

- Screwdriver - (Phillips head & slotted)
- Pliers
- Electric Drill
- Wire Cutters
- Adjustable Wrench

**Hardware Needed**

You will also need the following hardware, which can be purchased from your local hardware store or electrical supply house:

- adequate gauge and length of wire for your application
- proper size fuses or breakers to handle amperage
- proper wire connectors for your application
- fasteners appropriate for application that are strong enough to hold unit

For certain applications conduit may be required. Check local electrical codes. Also, if you run the wiring in conduit and wish to be able to turn the heater, be sure to purchase enough flexible conduit to allow the heater to be turned.

**Mounting Height**

When the airflow of the heater is directed vertically or horizontally the minimum mounting height 6 feet from vertical side walls and 6 feet above floor (8 feet above floor for Canada).

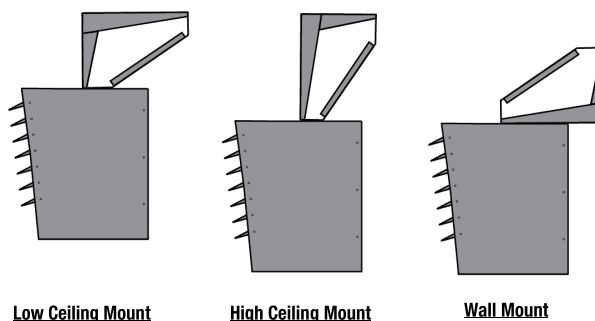
Mounting heights depend upon building utilization and heater kW capacity.

**Distance From Walls**

Be sure to maintain 8" minimum clearance to walls and ceilings.

**Mounting Bracket & Heater**

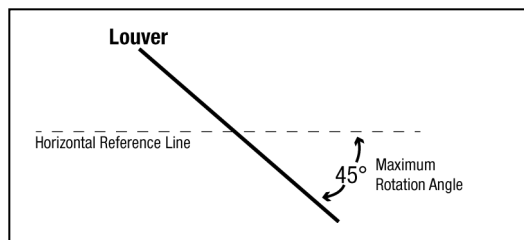
Locate a stud in ceiling or wall and securely fasten bracket to supporting surface with 2 fasteners (appropriate for application and strong enough to hold unit) at least 1-1/4" in length.



Attach heater to bracket with 3/8" x 1" bolt supplied with bracket. After desired air discharge position has been determined, tighten bolt so the heater will not pivot.

**Louver Adjustment: (Do not adjust while heater is operational):**

The Louvers are opened during testing at factory, but may have shifted during shipping. Confirm louvers are rotated less than 45 degrees from horizontal before operation. To adjust the opening angle, grasp the left and right end of louver and twist with two hands to the desired position. CAUTION: Increasing the angle beyond 45° degrees from horizontal may restrict air flow causing the over temperature limit to activate and shut off the heater.



Louver Adjustment

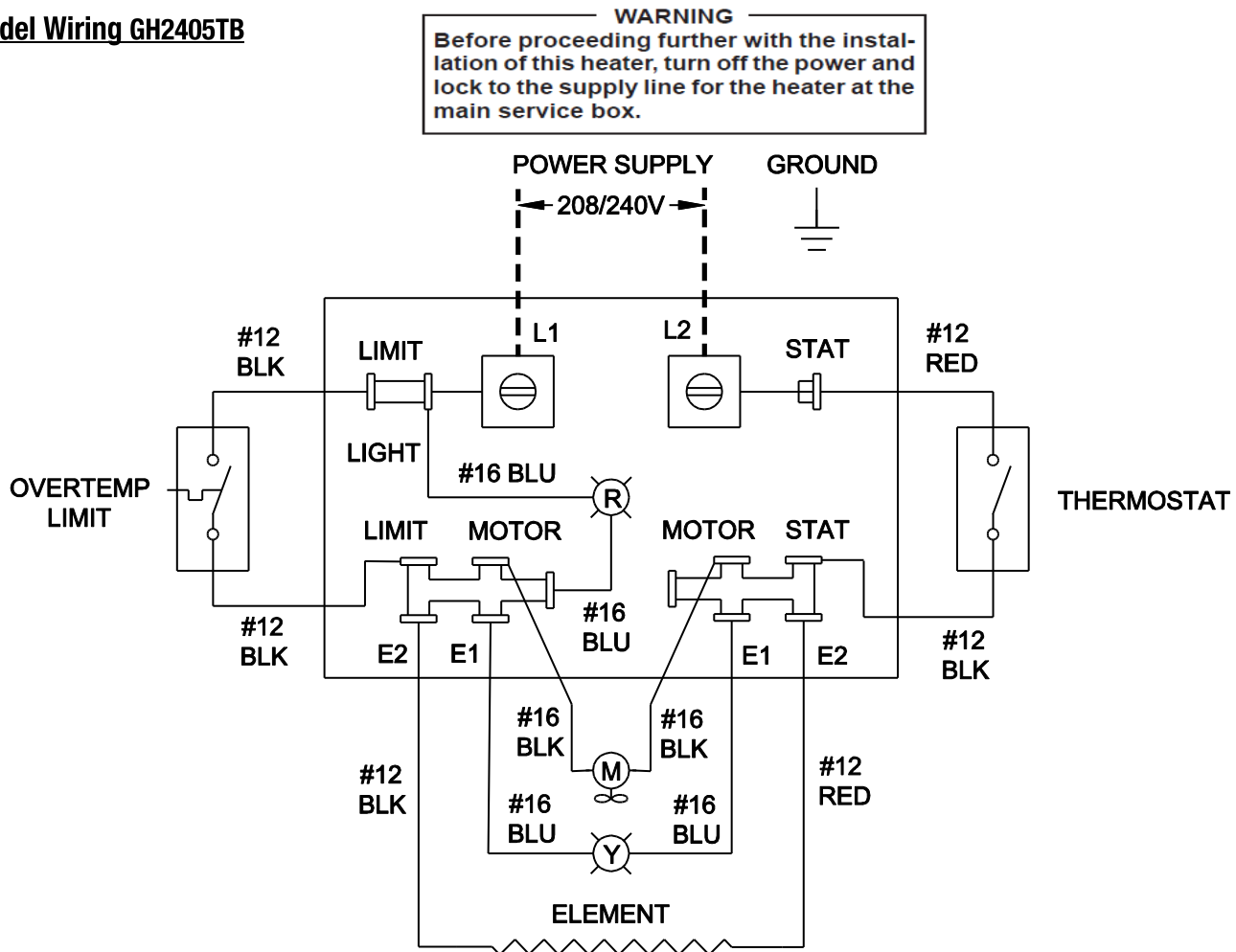
# THERMOSTAT OPERATION INSTRUCTIONS

## Setting Thermostat

1. Set the thermostat dial to the maximum temperature.
2. Once the room reaches the desired temperature, turn the thermostat dial back until the heating elements turn off. The heater will cycle automatically around this present temperature. To increase temperature, turn the thermostat knob clockwise. To lower temperature, turn the thermostat counterclockwise.

## WIRING AND OPTIONAL REMOTE THERMOSTAT CONNECTION

### Model Wiring GH2405TB



### Power Supply Connection

Connect the power supply wires to the lugs on the terminal board marked L1 and L2. Torque lugs to 35 in.-lbs. Connect the power supply ground wire to the equipment ground in the case (green wire, lug or screw).

### Line Voltage Wall Thermostat Option

The heater is equipped with a built-in thermostat, but can be wired for a Line Voltage wall thermostat. The thermostat must be 22 Amps for 240V heaters and 25 Amps for 208V heaters. Run the power supply to the wall thermostat and then to the heater. The turn the thermostat control knob to the highest setting and leave it there. This will bypass the internal thermostat enabling the wall thermostat to control the temperature.

### Low Voltage Wall Thermostat Option

A low voltage (24V) wall thermostat can only be used in conjunction with a special transformer relay purchased separately: Model 24A01G-3 or RC840T-240/U for 240V heaters or Model 24A05E-1 for 208V heaters.

Contact factory for other available options.

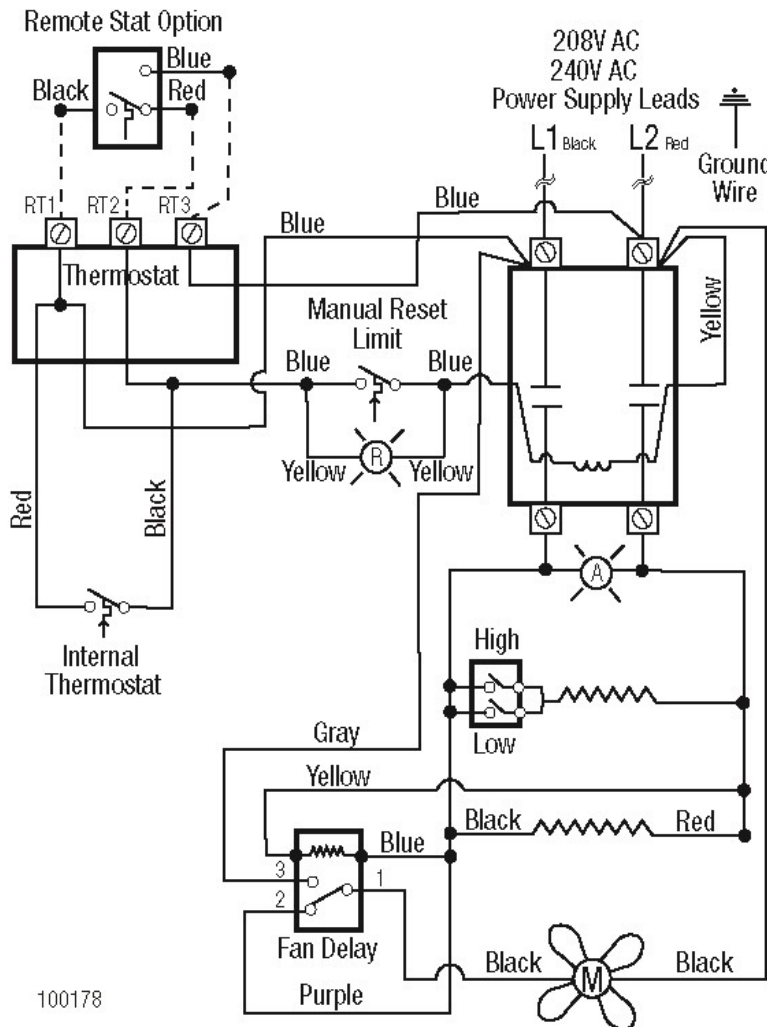
CAUTION: Do not use a 24V thermostat without installing the optional transformer relay for risk of fire and/or bodily harm.

Volts	Watts	Amps	Wire Size	Circuit Protection
208V	5,000	24	#10/2	30/2
240V	5,000	21	#10/2	30/2

NOTE: \*240V heater will operate at 208V producing 25% less wattage and will draw 13% less amperage

# WIRING AND OPTIONAL REMOTE THERMOSTAT CONNECTION

## Model Wiring GH24010TB



100178

### Power Supply Connection

Connect the power supply wires to the wire leads in the junction box. Connect the ground wire to the ground lug.

### Wiring Instructions for Remote Mechanical Thermostat

- 1.) The remote wall thermostat must be rated for 240V and 1-Pole only, do not use a 2-Pole thermostat. Caution: DO NOT use a low voltage (24 volt) thermostat.
- 2.) Pull off the red wire on terminal (RT1) and black wire on terminal (RT2) from the terminal block. This will disconnect the internal thermostat.
- 3.) Connect the field wires for the remote thermostat to the screw terminals marked (RT1) and (RT2). Connect ground wire to the heater ground.

**DO NOT MAKE ANY FIELD CONNECTIONS TO RT3.**

### Wiring Instructions for King Hoot Thermostat

- 1.) Pull off the red wire on terminal (RT1) and black wire on terminal (RT2) from the terminal block. This will disconnect the internal thermostat.
- 2.) The King Hoot requires a 3rd wire installation. Run three conductors plus ground (240V rated) from the wall thermostat to the heater. Connect the thermostat leads as follows: Black on screw terminal (RT1), Red on screw terminal (RT2) and Blue on screw terminal (RT3). Connect ground wire to the heater ground.
- 3.) Refer to the manufacturer's instructions when using another 3-wire thermostat for proper connections to the heater.

### Low Voltage Wall Thermostat Option

A low voltage (24V) wall thermostat can only be used in conjunction with a special transformer relay purchased separately: Model 24A01G-3 or RC840T-240/U for 240V heaters or Model 24A05E-1 or RC840T-240/U for 208V heaters. Note that the transformer relay only requires a 3 amp rating in this application. It connects into the control circuit where the contactor will carry the amp load. **Contact factory for other available options.** CAUTION: Do not use a 24V thermostat without installing the optional transformer relay for risk of fire and/or bodily harm.

Volts	Watts	Amps	Wire Size	Circuit Protection
208V	7,500	36	#8/2	50/2
208V	9,200	44.2	#6/2	60/2
*240V	7,500	31.2	#8/2	40/2
*240V	10,000	41.6	#6/2	60/2

**NOTE:** \*240V heater will operate at 208V producing 25% less wattage and will draw 13% less amperage

## 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 ob-

jects 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.