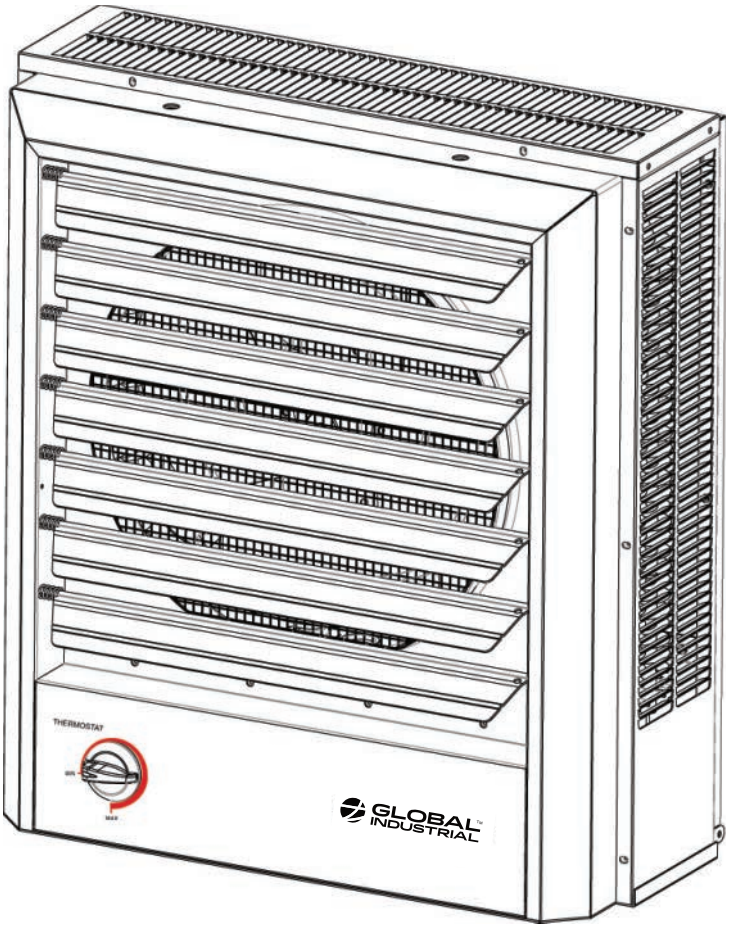
User's manual	Manual del usuario	Manuel de l'utilisateur
Customer Service US: 1-800-645-2986	Servicio de atención al Cliente US: 1-800-645-2986	Service à la clientèle Canada: 888-645-2986

Vertical or Horizontal Downflow Unit Heater

Models: 246103, 246104, 246132, 246133 ,
246134, 246725, 246727, B3781897,
B3781898, B3781899, B3781900 & B3781901



READ & SAVE THESE INSTRUCTIONS

MODEL #

Vertical or Horizontal Downflow Unit Heater

IMPORTANT INSTRUCTIONS

⚠ WARNING

Please read all instructions before using this heater.

When using electrical appliances, basic precautions should always be followed to reduce risk of fire, electrical shock and injury to persons or property, including the following:

1. Read all instructions before using this heater.
2. 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 and curtains at least 3 ft. (0.9 meters) from the front and top of the heater and keep them away from the sides and rear.
3. Extreme caution and reasonable supervision is necessary when any heater is used by or near children, invalids or pets and whenever the heater is left operating and unattended.
4. Always switch off the heater when not in use.
5. Do not operate any heater after the heater malfunctions, has been dropped or damaged in any manner. Disconnect power at service panel and have heater inspected by a qualified electrician before reusing.
6. Do not use outdoors.
7. To disconnect heater, turn off power to heater circuit at main disconnect panel.
8. Do not install less than 6 feet (1.8 m) high from the floor.
9. 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.

NOTE: This product must be installed by a certified electrician in accordance with local codes.

Traces of smoke or odor when unit is initiated indicates that small amounts of oil leaked on heating coil during manufacturing. It will evaporate quickly and should not re-occur. Make sure the appliance location is well ventilated during operation. It is normal for the unit to emit sounds when turned on for the first time.

Make sure that the room in which the appliance is located is well ventilated during this operation.

10. To prevent a possible fire, do not block air intakes or exhaust in any manner.
11. A heater has hot and arcing or sparking parts inside. To reduce the risk of fire, do not use it in areas where gasoline, paint, or flammable vapors and liquids are used or stored.
12. 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.

⚠ CAUTION

High temperature, risk of fire, keep electrical cords, drapery, furnishings, and other combustibles at least 3 feet (0.9 m) from the front of the heater and away from the side and rear.

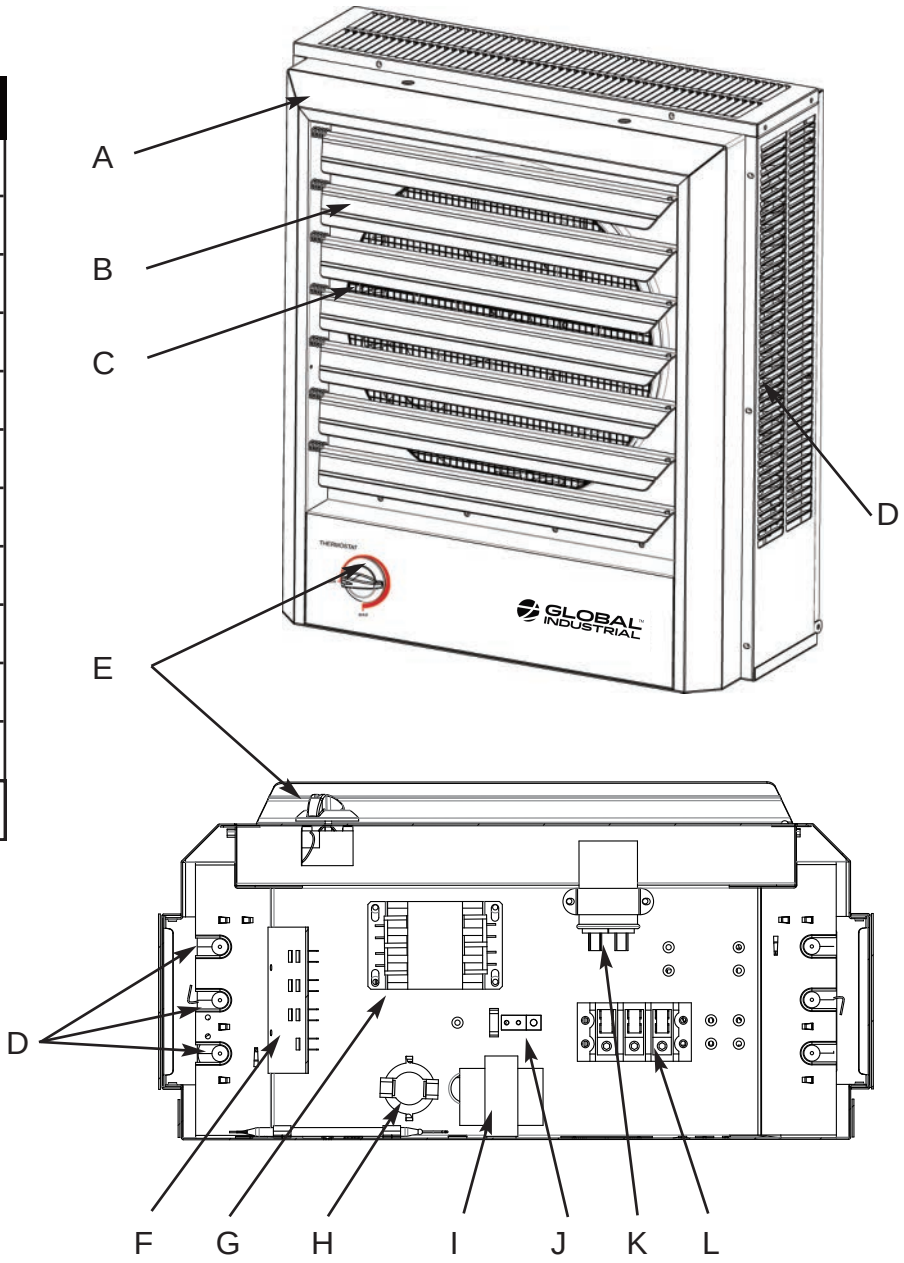
Product Specifications

Model	Voltage	Phase	Amps	Watts	RPM	Wire Size For Installation	Circuit Breaker Amp rating	Cfm (High)	Outlet Air Temp.@ Ambient Temp. 77°F	Btu (High)	N.W (lbs)
246103	480	3	12	10,000	1550	14AWG	15A	650	149°F	34,100	41
246104	480	3	9	7,500	1550	14AWG	15A	650	140°F	25,600	41
246132	208/240	1or3	27/31.3 (1P)	5,600/ 7,500	1550	8AWG	40A	650	140°F	25,600/ 19,100	41
246133	208/240	1or3	36/42 (1P)	7,500/ 10,000	1550	6AWG	55A	650	149°F	34,100/ 25,600	41
246134	480	3	18	15,000	1650	12AWG	25A	910	152°F	51,200	58
246725	480	3	6	5,000	1700	14AWG	20A	350	150°F	17,000	28
246727	480	3	24	20,000	1550	10AWG	32A	1320	160°F	68,200	64.8
B3781898	208/240	1	11.0/12.5	2,200/ 3,000	1600	14AWG	20A	350	140°F	7,500/ 10,200	
B3781897	208/240	1or3	18/21 (1P)	3,700/ 5,000	1600	8AWG	32A	350	150°F	12,600/ 17,000	28
B3781899	208/240	3	63/72 (1P)	22,500/ 30,000	1500/ 1650	6AWG	100A	1800/ 2100	160°F	77,000/ 102,000	110
B3781900	480	3	36	30,000	1500/ 1650	6AWG	50A	1800/ 2100	160°F	102,300	103.6
B3781901	480	3	60.2	50,000	1550/ 1650	8AWG	80A	2600/ 3000	185°F	170,500	145.5

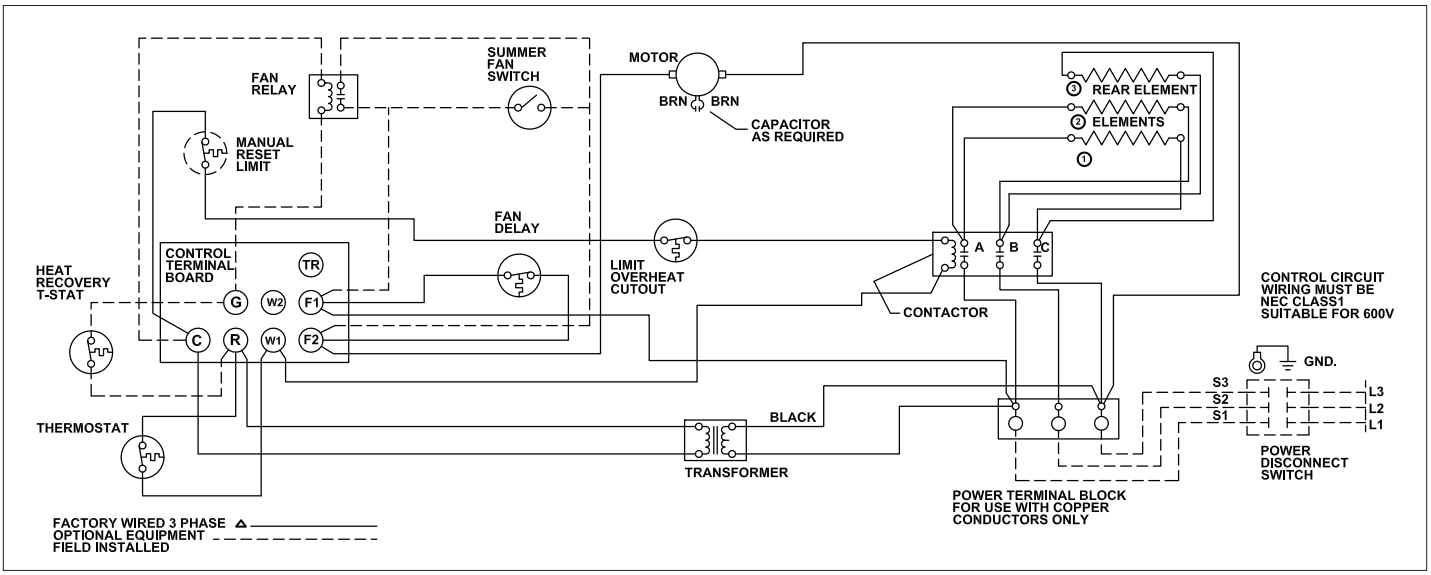
Vertical or Horizontal Downflow Unit Heater

PARTS OF THE HEATER

Parts List	
A	Housing
B	Louver
C	Front Exhaust Grill
D	Heating Element
E	Thermostat Knob
F	Wiring Board
G	Contactor
H	Linear Limit Protector
I	Transformer
J	Ground Lug
K	Capacitor
L	Terminal Block-Power

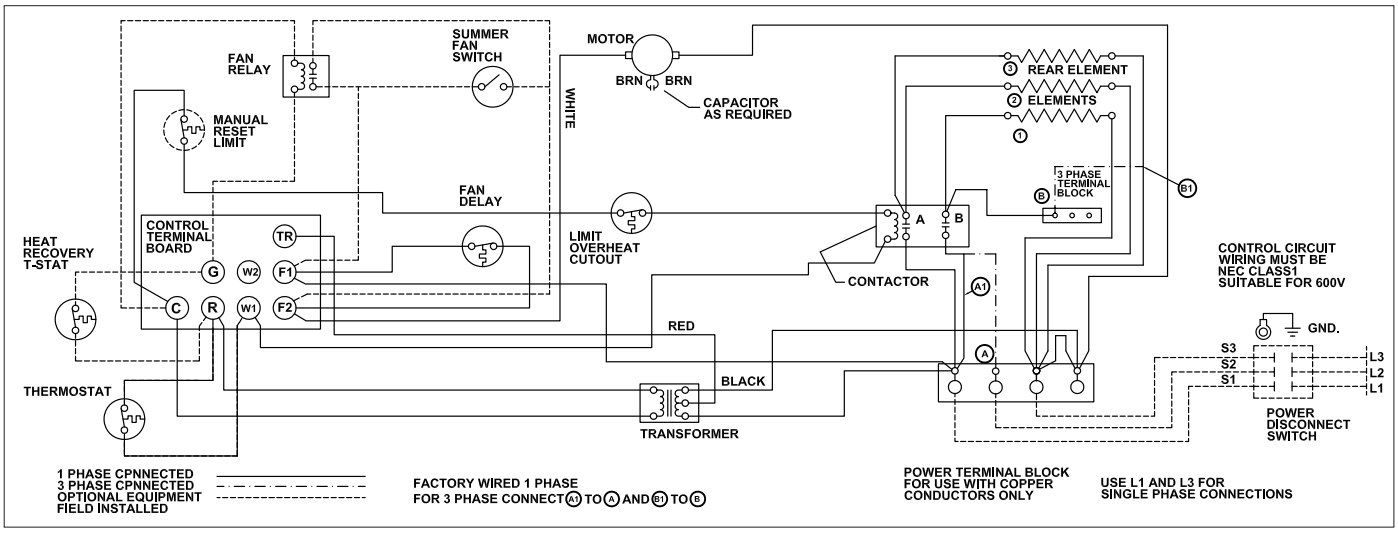


Wiring Diagram for 246103 & 246104

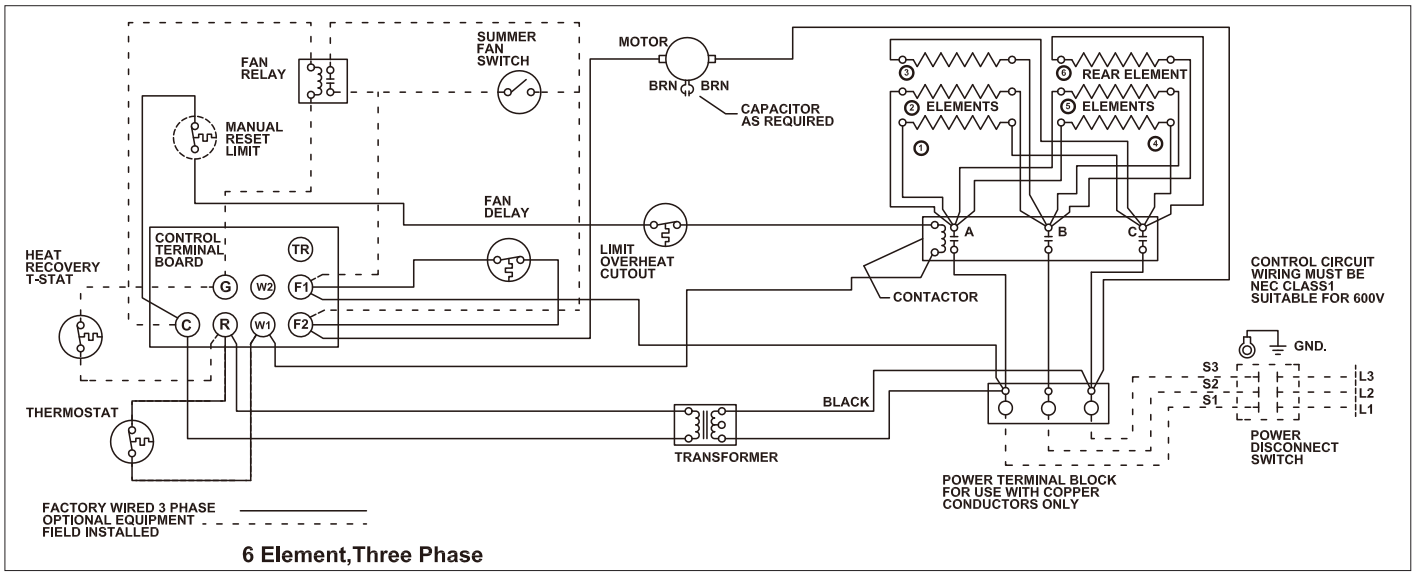


Vertical or Horizontal Downflow Unit Heater

Wiring Diagram for 246132 & 246133

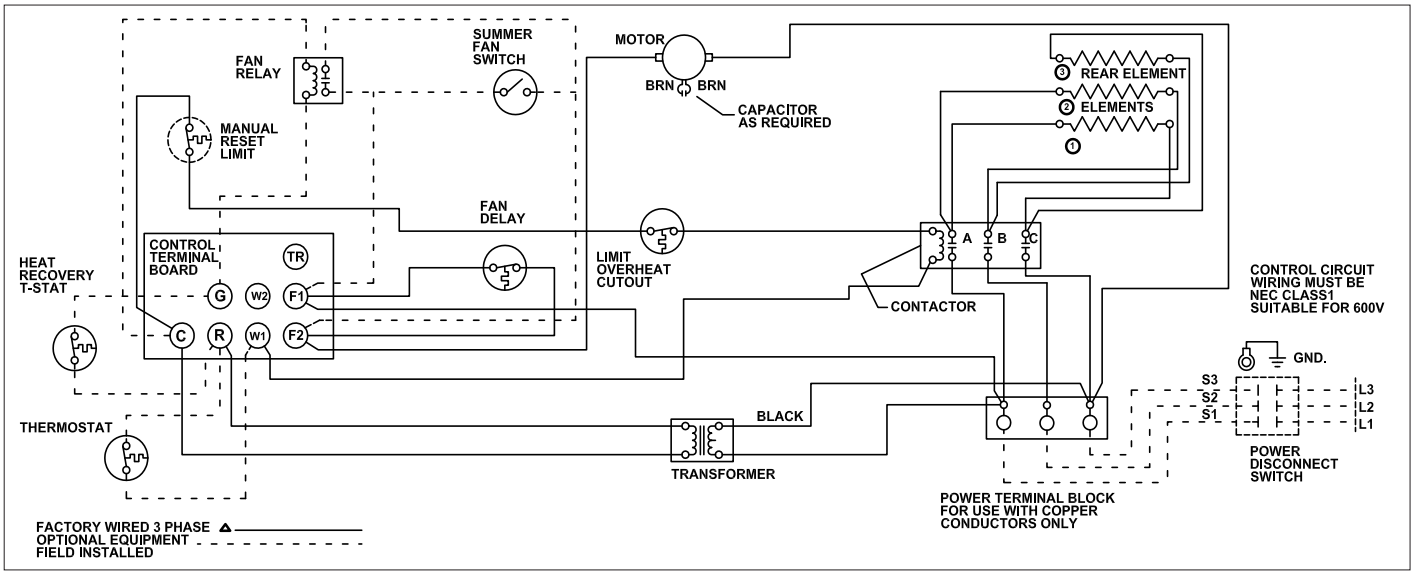


Wiring Diagram for 246134 & 246727



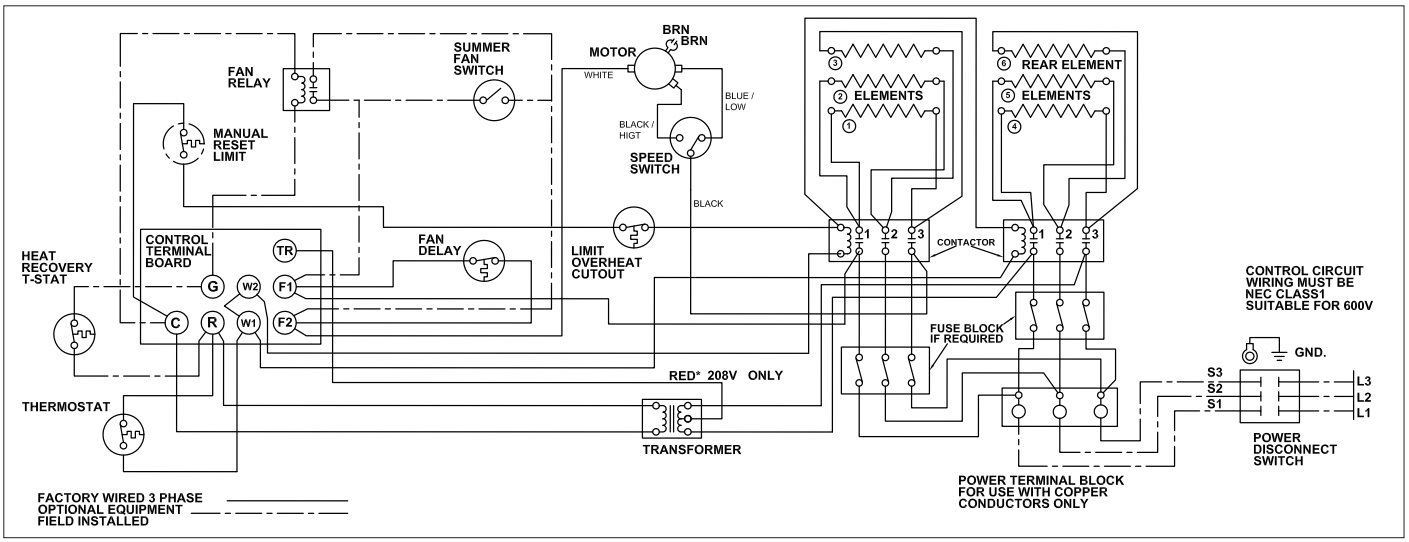
6 Element,Three Phase

Wiring Diagram for 246725

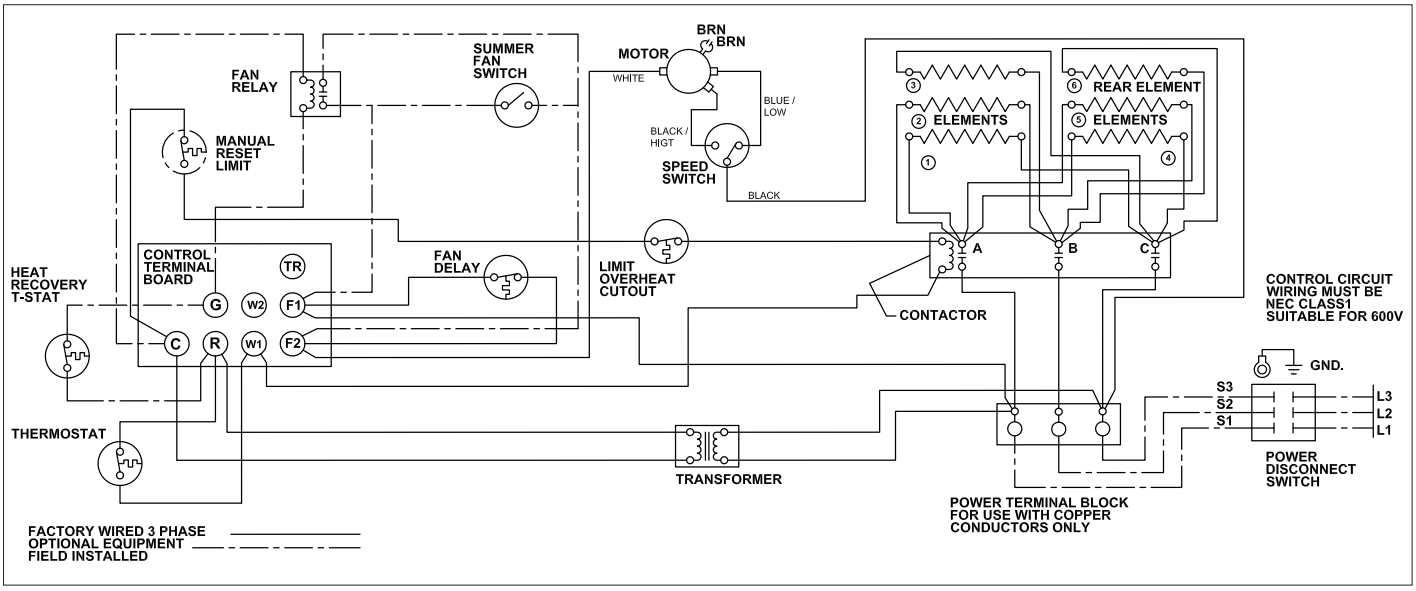


Vertical or Horizontal Downflow Unit Heater

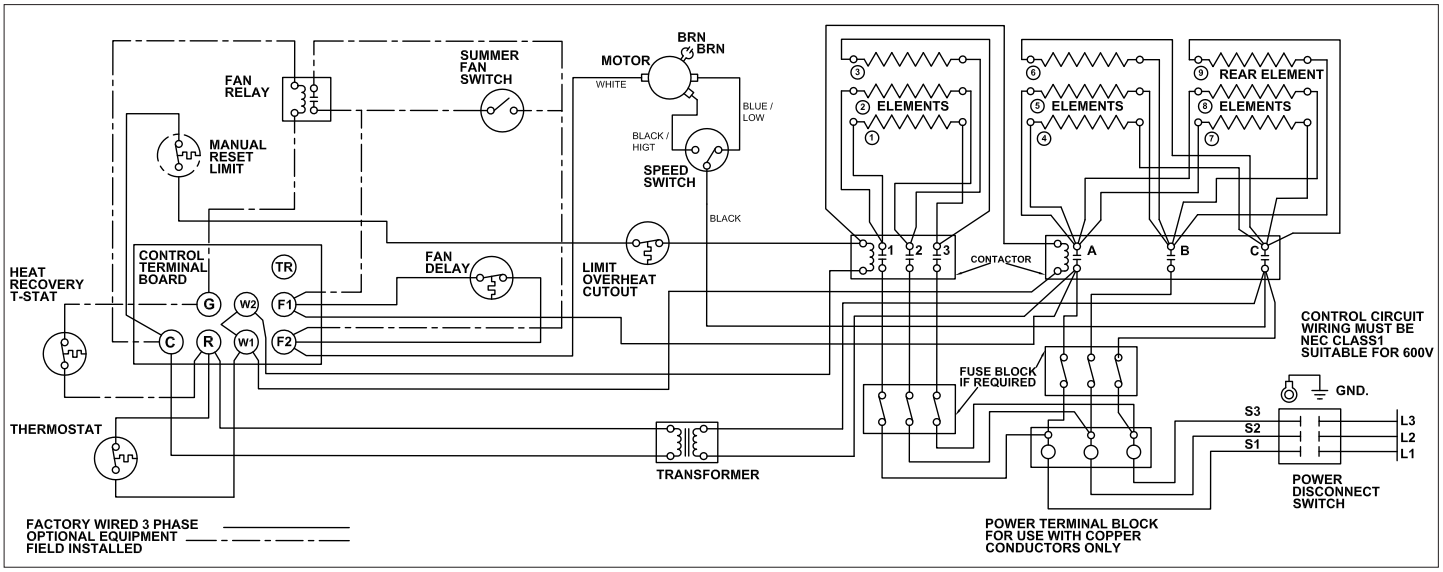
Wiring Diagram for B3781899



Wiring Diagram for B3781900

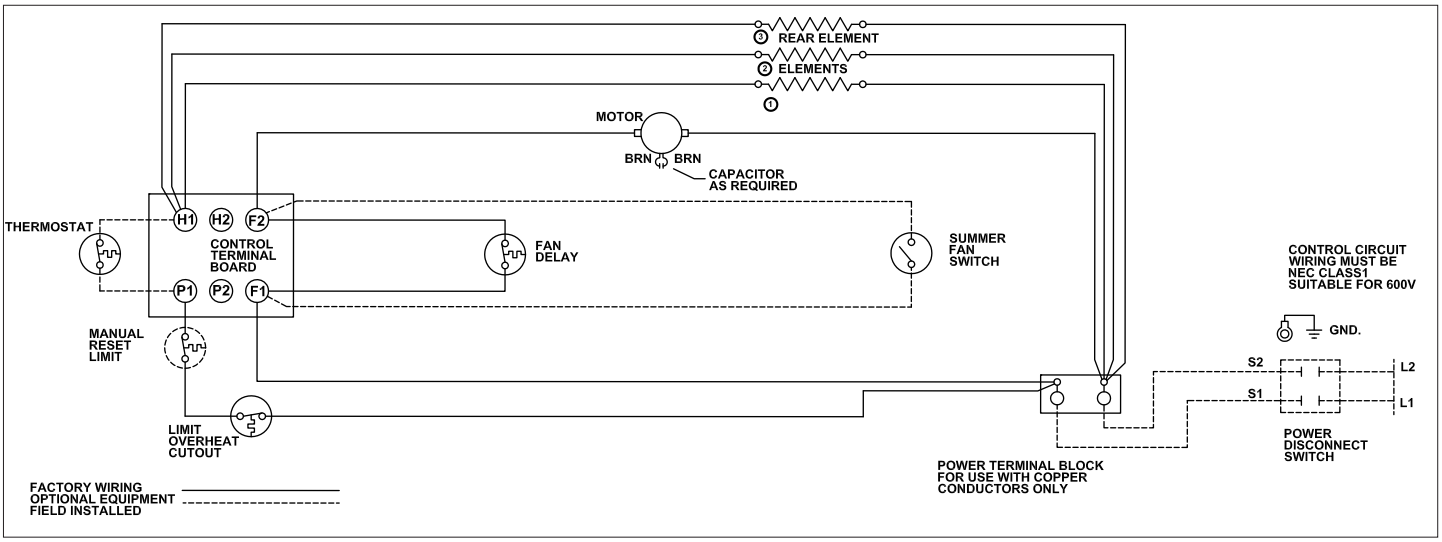


Wiring Diagram for B3781901

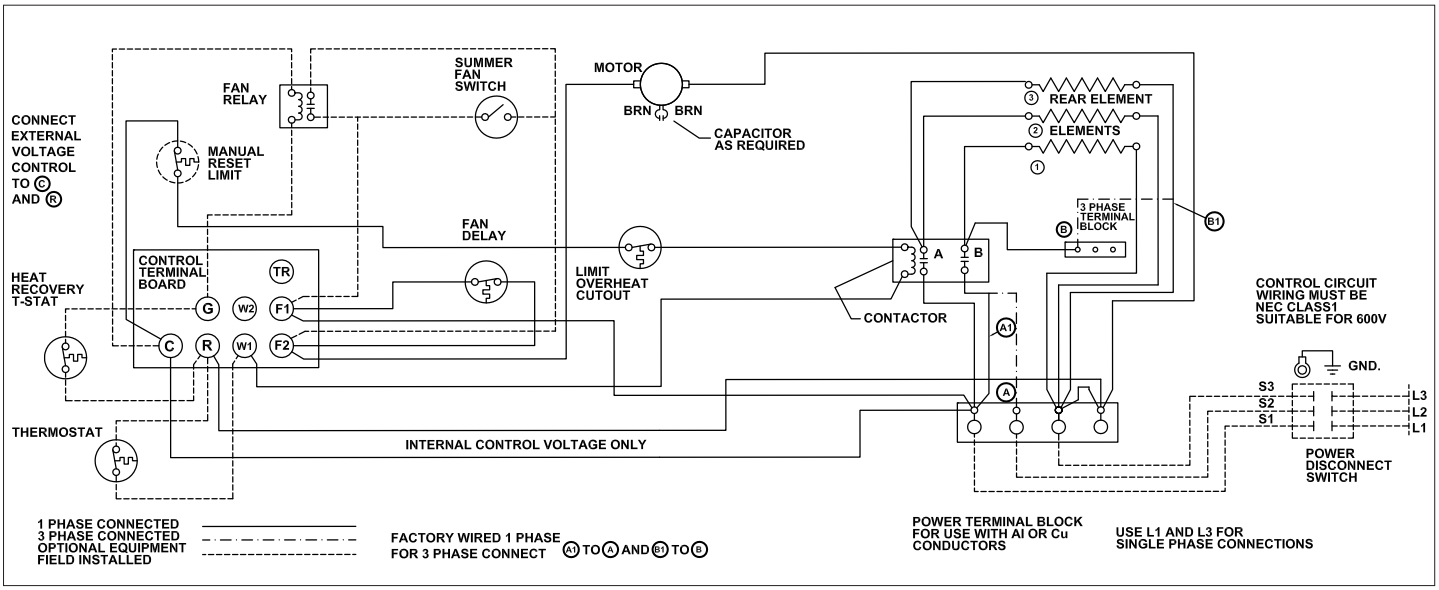


Vertical or Horizontal Downflow Unit Heater

Wiring Diagram for B3781898



Wiring Diagram for B3781897



INSTALLING INSTRUCTIONS

⚠ WARNING

All wiring must be installed by a certified electrician according to the local electrical codes. The ceiling heater must be grounded in accordance with all national and local building codes.

All wiring procedures and connections shall be in accordance with the national and local codes having jurisdiction.

Before installation:
Disconnect the main supply connection.
The heater must be connected to individual branch circuit.

Installation location:
1. Arrange units so their discharge air streams are subjected to a minimum of interference from columns and partitions.
2. Direct air stream away from room occupants.
3. Do not blow air steam directly at wall.
4. Direct air stream along the windward side of a room when installed in a building exposed to a prevailing wind.
5. If using a remote thermostat, locate thermostat approximately **5** feet above partition walls or posts away from cold drafts, internal heat sources, and away from heater discharge air streams.
6. Large rooms require multi-unit installations. Arrange units to provide perimeter air circulation where each unit supports the air stream from another.

⚠ CAUTION

High temperature, risk of fire, keep electrical cords, drapery, furnishings, and other combustibles at least 3 feet (0.9 m) from the front of the heater and away from the side and rear.

⚠ WARNING

To reduce the risk of fire, do not store or use gasoline or other flammable vapors and liquids in the vicinity of the heater.

⚠ CAUTION

Mount the heater at least 6 feet above the floor to prevent accidental contact with the fan blade which could cause injury.

⚠ CAUTION

To prevent possible over heating or damage due to overheating, keep at least a 5 feet clearance in front of the heater. Refer to Table 1 for side, top and back clearance requirements.

MOUNTING

Table 1 -Wall and Ceiling Clearance, inches(mm) / Mounting Brackets

Model	Discharge	Ceiling	Side Wall	Back Wall
B3781897, B3781898, 246725	Horizontal	2" (50.8)	6" (152.4)	9" (228.6)
	Vertical	6" (152.4)	18" (457.2)	18" (457.2)
246103, 246104, 246132, 246133	Horizontal	6" (152.4)	6" (152.4)	13" (330.2)
	Vertical	6" (152.4)	24" (609.6)	24" (609.6)
246134, 246727	Horizontal	6" (152.4)	9" (228.6)	12 1/2" (330.2)
	Vertical	6" (152.4)	24" (609.6)	24" (609.6)
B3781899, B3781900, B3781901	Horizontal	16" (406.4)	12" (304.8)	18 1/2" (470.0)
	Vertical	12" (304.8)	36" (914.4)	36" (914.4)

Table 2 - Mounting Rod Spacing

Model	Rod Thread Type	Rod Length	Horizontal (Figure 1)				Vertical (Figure 2)			
			A	B	C	D	E	F	G	H
B3781897, B3781898, 246725	5/16-18	at least 10"	6 1/16"	6"	4 1/16"	3/4"	6"	9 3/4"	2"	4 3/16"
246103, 246104, 246132, 246133	5/16-18	at least 10"	6 1/16"	8 7/8"	5 1/8"	3/4"	8 7/8"	14 5/8"	2"	5 1/8"
246134, 246727	5/16-18	at least 10"	11 3/8"	8 7/8"	5 1/8"	3/4"	8 7/8"	14 5/8"	2"	5 1/8"
B3781899, B3781900	3/8-16	at least 10"	10 9/16"	14 1/2"	6 3/16"	5/8"	14 1/2"	21 1/4"	2 3/16"	6 3/16"
B3781901	3/8-16	at least 10"	15 15/16"	14 1/2"	6 3/16"	5/8"	—	—	—	—

ROD MOUNTING
HORIZONTAL DISCHARGE
NOTE: Mounting rods not included. Mounting rods need to contain a 5/16"-18 thread size and must be a minimum of 7.5" long.
1. Remove the four bolts from the threaded holes on the top of the heater.
2. Install four threaded mounting rods (not included) in the threaded holes of the heater and secure in place using lock nuts.
3. Securely attach the four mounting rods to the ceiling.
   Refer to Table 1 for wall and ceiling clearances and Table 2 for mounting rod spacing.

Vertical or Horizontal Downflow Unit Heater

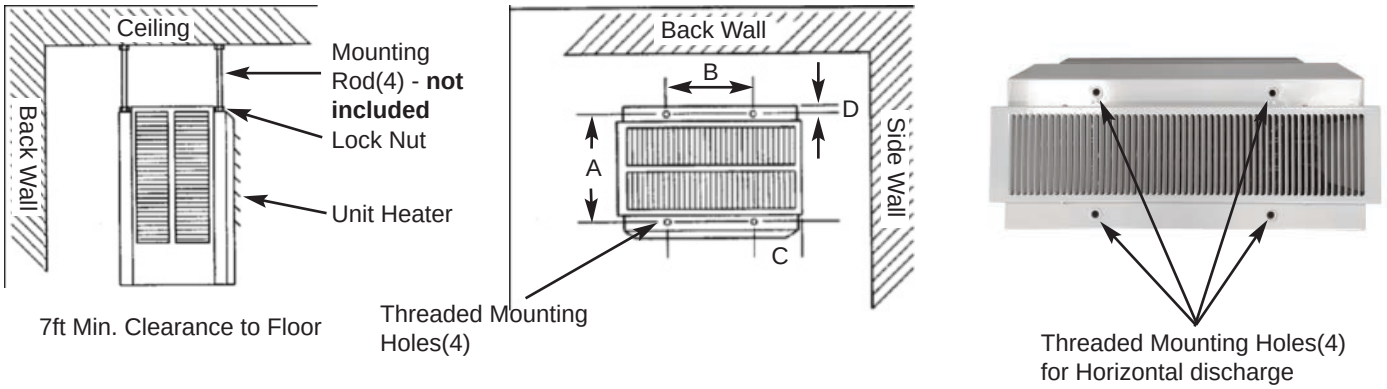


Figure 1 - Horizontal Discharge Mounting and Spacing

VERTICAL DISCHARGE

NOTE: Mounting rods not included. Mounting rods need to contain a 5/16"-18 thread size and must be a minimum of 7.5" long.

1. Remove the four bolts from the threaded holes on the back of the heater.
2. Install four threaded mounting rods (not included) in the threaded holes of the heater and secure in place using lock nuts.
3. Securely attach the four mounting rods to the ceiling.
   Refer to Table 1 for wall and ceiling clearances and Table 2 for mounting rod spacing.

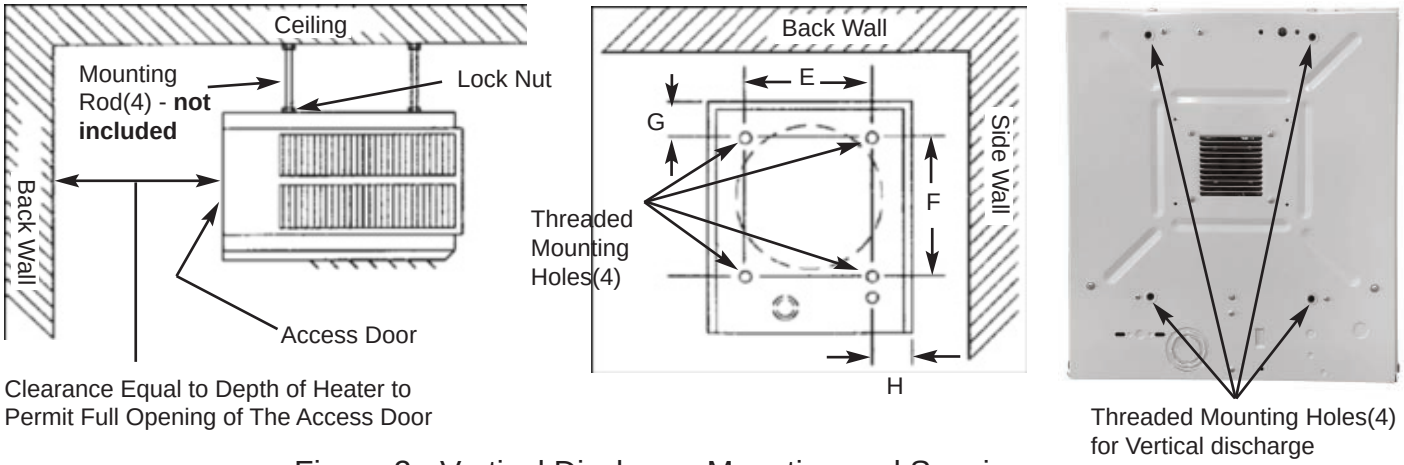
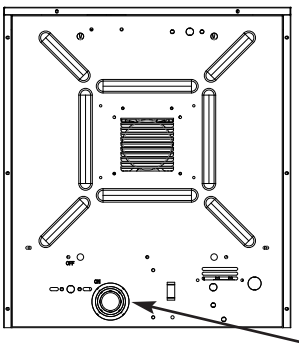


Figure 2 - Vertical Discharge Mounting and Spacing

WIRING INSTRUCTIONS

BRANCH CIRCUIT (POWER)

1. Connect heater only to the voltage, amperage and frequency specified on the nameplate.
2. Field wiring must be properly sized to carry the amperage in accordance with the NEC.
3. The access door is hinged. There are either one or two screws accessible from the bottom that must be removed to gain access.
4. A knockout is provided in the back of the heater close to the power terminal board. The control terminal board knockout is 1/2 inch conduit size. The power terminal block knockout is multiple diameter. Use the diameter that fits the required conduit size.



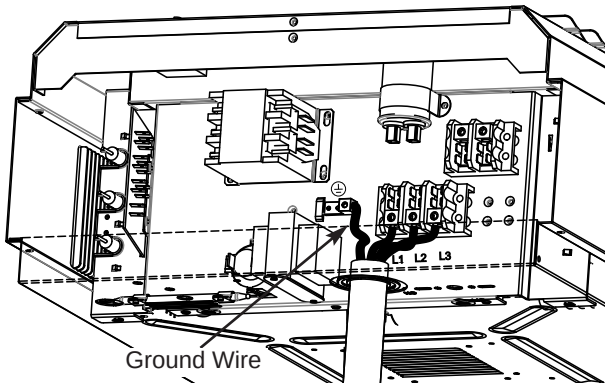
5. A ground terminal is provided near the power terminal board. The ground wire should be connected before other connections are made. The ground wire of model as below.

Model	Grounding wire AWG#
246103, 246104, 246725, B3781897	14
246134	12
246727	10
246132, B3781897, B3781901	8
246133, B3781899, B3781900	6

6. The power terminal board is equipped with box terminals sized to accept the correct size power supply wire. Wire rated at 600V and 194°F is satisfactory for the heater branch circuit. Copper wire is satisfactory for connection to the heater power terminal board box terminal.

7. Each heater has a wiring diagram affixed to the inside of the access door. Consult this diagram before making any field connections.
8. Electrical Accessories, either kits or factory-installed options, are shown connected by a dashed line on the heater wiring diagram.
9. Single or three-phase connections may be used with heater models **246132, 246133** and **B3781897.** These factory wired for single phase operation. If these heaters are for use with three-phase power, reconnect the wires as indicated in the wiring diagram attached to the heater.
10. Connect the red live wire to L1, black live wire to L2 and white live wire to L3 of the connector. Connect ground wire to ⏚.

L1: red live wire L2: black live wire L3: white live wire



11. For model **246132, 246133** and **B3781897** the heaters are wired for 240V from factory. When heater is to be connected to 208V supply, the transformer leads have to be inter changed. Inter change transformer red and black primary leads (see wiring diagram on heater door). The color lead is the COMMON for the 40VA control transformer provided with these heaters.

CONTROL WIRING OF OPTIONAL EQUIPMENT

⚠ WARNING

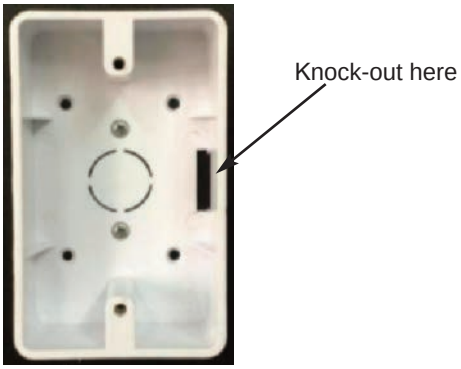
Line voltage is present on some of the terminals on the control terminal board. Always disconnect the power from the heater before making any connections to the control board to prevent hazards.

1. Use min. 600 volt, NEC Class 1 insulated wire for all control circuit wiring.
2. Use a crimp-on type fork terminal on the wire ends that attach to the control terminal board if more than one connection is to be made under the terminal screw.
3. Control wiring must be rated minimum **18** AWG.

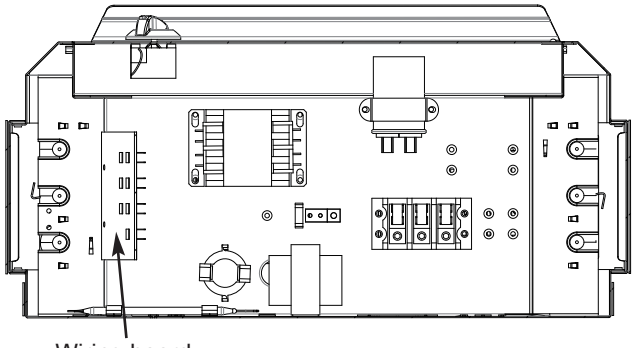
NOTE: Thermostat and control circuit wiring must be suitable to handle the full load of the heater

How to Install Wall Thermostat. (246110 Not Included.)

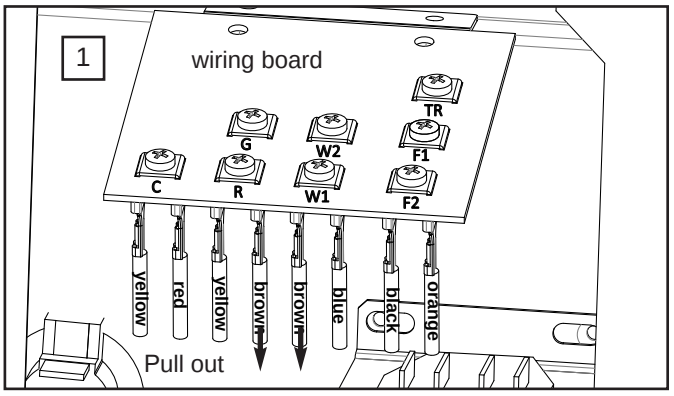
1. Install Thermostat Outlet Box to the wall. Open the knock-out on the right. Run line voltage wires to the thermostat location via the knock-out.

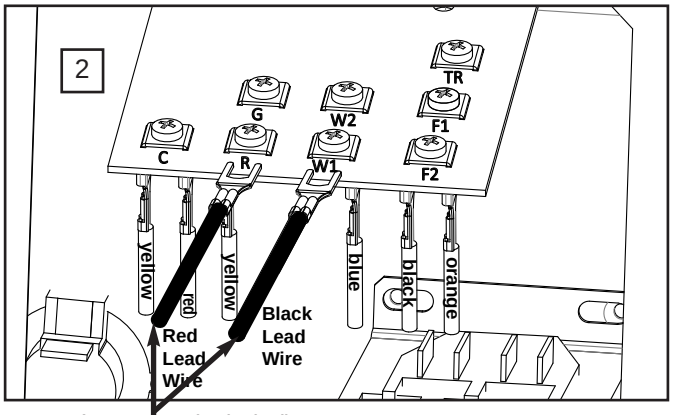


2. Open the bottom cover (wire connection cover), to access the wiring board.



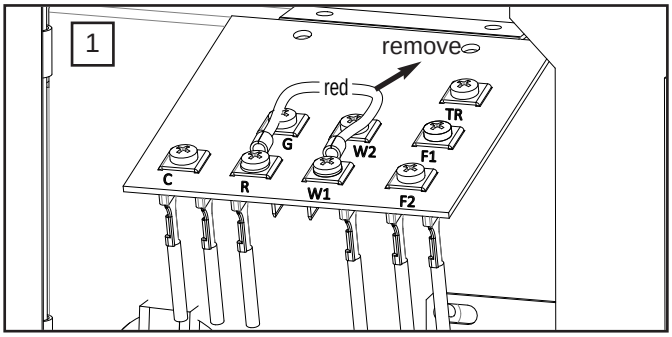
3. For model **246103, 246104, 246132, 246133, 246134, 246727, B3781899, B3781900** and **B3781901**, pull out two **brown** wires carefully. Lossen the screw **R** and screw **W1**, insert two lead wires with U-Type Wire Connector Electrical Crimp Terminal (not included) to the screw **R** and screw **W1**, and tighten the screws.

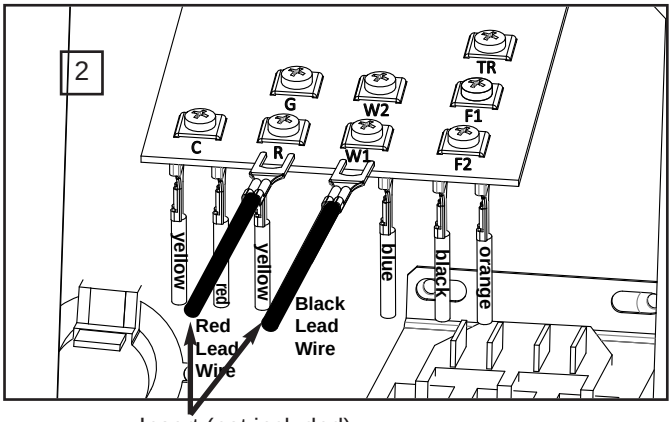




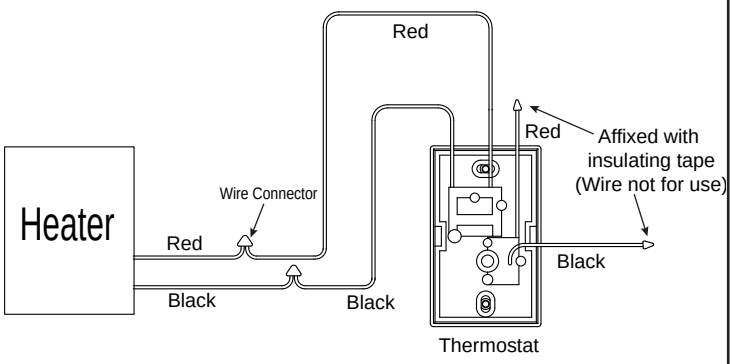
Vertical or Horizontal Downflow Unit Heater

4. For model **246725,** remove the red wire between the screw **R** and screw **W1**. Insert two lead wires with U-Type Wire Connector Electrical Crimp Terminal (not included) to the screw **R** and screw **W1**, and tighten the screws.

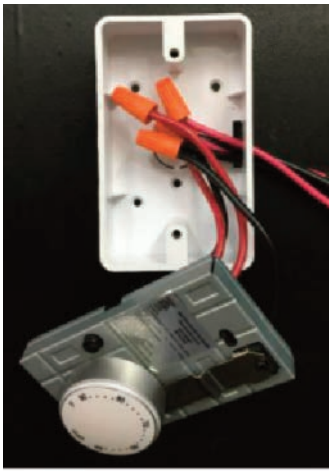




5. Connect the other side of the two lead wires to the wall THERMOSTAT as below image:



6. Insert wires into the Thermostat Outlet Box, and screw up the thermostat.





7. Cover the thermostat.



⚠ WARNING

Do not use thermostat 246110 for direct load control.

⚠ CAUTION

The external temperature controller must be installed by a qualified electrician in accordance with all applicable electrical codes and safety regulations.

7. Replace the bottom cover and lock in place with the screw.

OPERATION INSTRUCTIONS

1. Heater must be properly installed before operation.
2. Turn power supply "ON" at main service panel.
3. Where applicable, refer to control accessory instructions regarding proper operation of any controls or accessories used with the heater.
4. Ambient temperature is regulated by adjusting the built-in thermostat to a desired position.
5. Allow the unit to operate and warm up the room.
6. When the desired temperature is reached, turn the control knob counterclockwise until the heater turns off. This is the ideal setting.
7. The heater will start automatically when the room temperature drops below this set point, and will turn off when the set point is reached.

It is important to keep this heater clean. To assure efficient operation follow the simple instructions below.

MAINTENANCE CLEANING INSTRUCTIONS

(To be performed only by Qualified Service Personnel)
At least annually, the heater should be cleaned and serviced by a qualified service person to assure safe and efficient operation. This should include the removal of the grille and, as necessary the heater from the back box to clean residue from the unit. After completing the cleaning and servicing, the heater should be fully reassembled and checked for proper operation.

To reduce the risk of fire and electric shock or injury, disconnect all power coming to heater at main service panel and check that the element is cool before servicing or performing maintenance.

USER CLEANING INSTRUCTIONS

1. After the heater has cooled, a vacuum cleaner with brush attachment may be used to remove dust and lint from exterior surfaces of the heater including the grille openings.
2. With a damp cloth, wipe dust and lint from grille and exterior surfaces.
3. Return power to heater and check to make sure it is operating properly.

TROUBLE SHOOTING

If the heater fails to operate, please follow these procedures:

This heater has thermal cut-off protection. If the thermal cut-off protection trips, turn off the power and switch off the circuit breaker.

The unit should reset automatically after 10-30 minutes. If the thermal cut-off protection trips again, consult a certified/licensed electrician to determine the reason for overheating.

Problem	Probable Cause	Solution
Unit is not heating.	Overheat protection has temporarily deactivated the heater.	Turn the heater OFF. Switch off the circuit breaker. Wait 10-30 minutes before turning back on.
	Breaker/Fuse has been tripped.	Check your electrical box to confirm the breaker has not been blown. This may occur if the receptacle is shared with other high consumption appliances.
The heater is producing a burning smell.	Check & ensure there are no combustible materials within 3ft. (0.9 meters) surrounding the heater.	Remove any combustible items from the vicinity of the heater.
	A small amount of oil fell on the heating coil during the manufacturing process. It will quickly evaporate and should not occur again.	Ensure room in which heater is situated is well ventilated.
	Ensure a minimum clearance of 1 foot (0.3 m) from both sides and rear of heater to any adjacent surface/wall.	Reposition the heater so there is enough space between the heater and any adjacent surface/wall.

**PLEASE DO NOT ATTEMPT TO OPEN OR REPAIR THE HEATER YOURSELF.
DOING SO COULD CAUSE DAMAGE TO THE HEATER OR PERSONAL INJURY.**