



Heavy-Duty Electric Unit Heaters

OWNER'S MANUAL



Model: DR-P130
DR-P350
DR-P275
DR-P2100
DR-P3150
DR-P3200



**IMPORTANT INSTRUCTIONS
READ & SAVE**



IMPORTANT INSTRUCTIONS

PLEASE READ ALL INSTRUCTIONS BEFORE USING THIS HEATER

NOTE: There may be a trace of smoke or odor when unit is first operated. Don't be alarmed. This indicates that a drop of oil fell on the heating coil during the manufacturing process. It will quickly evaporate and should not re-occur. Make sure that the room in which the appliance is located is well ventilated during this operation. It is normal for the appliance to emit small cracking sounds when you turn it on for the first time. Do not be alarmed.

WHEN USING ELECTRICAL APPLIANCES, BASIC PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE RISK OF FIRE, ELECTRICAL SHOCK AND INJURY TO PERSONS, 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' (0.9 m) from the front of the heater and keep them away from the sides and rear.
- 3) Extreme caution is necessary when any heater is used by or near children or invalids 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 reputable 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 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.
- 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.
- 13) This product must be installed by a certified electrician, in accordance with local codes.
- 14) **WARNING – RISK OF FIRE, DO NOT USE AS A RESIDENTIAL OR HOUSEHOLD HEATER.**
- 15) Do not install closer than 1 foot (0.3 m) from both sides and rear of heater to any adjacent surface/wall.

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.

SAVE THESE INSTRUCTIONS

WARNING – RISK OF FIRE, DO NOT USE AS A RESIDENTIAL OR HOUSEHOLD HEATER.

Features and Benefits

These heavy-duty Electric forced-air unit heaters are suited for factories, schools, service buildings, dormitories, hospitals, stock rooms and other public buildings. The Heaters' high capacity and wide range of voltages/phases selections meet most installation requirements. All units are equipped with overheat protection and a totally enclosed, permanently lubricated motor. Can be installed for use in down flow or horizontal applications.

- Heavy-duty bearing, permanently lubricated, totally enclosed overheat protected Motor
- Heavy-duty finned steel sheath heating element for lower operation and longer life
- Heavy-gauge die-formed steel housing for maximum impact resistance
- High efficient, dynamically balanced fan blade
- 208-480V 1/3 phases 3-20 KW
- Optional vertical and horizontal brackets available

Specifications

Model	KW	BTU/HR 1000'S	Heater/ Motor Voltage	Pha se	Control Voltage	Amps Per Phase	Fan Motor		CFM at Outlet	FPM at Outlet	Air Temp Rise (°F)
							HP	RPM			
DR-P130	3	10.2	208	1	208	14.5	1/100	1600	350	800	27
DR-P350	5	17	480	3	24	6	1/100	1600	350	800	45
DR-P275	7.5	25.6	208	1 or 3	24	36	1/30	1600	650	970	37
DR-P2100	10.0/ 7.5	34.1/25.6	240/208	1 or 3	24	42.0/36.0	1/30	1600	650	970	49
DR-P3150	15.0/ 11.2	51.2/38.2	240/208	3	24	36.1/33.3	1/20	1530	910	1640	52
DR-P3200	20	68.2	480	3	24	24	1/10	1500	1320	2060	48

INSTALLING INSTRUCTIONS



All wiring must be installed by a certified electrician according to the electrical safety.
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.

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 over heating, keep at least a 5 feet clearance in front of the heater. Refer to **Table 1** for side, top and back clearance requirements.

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 in comfort heating.
- 3 Air streams should wipe exposed wall without blowing directly at them.
- 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.

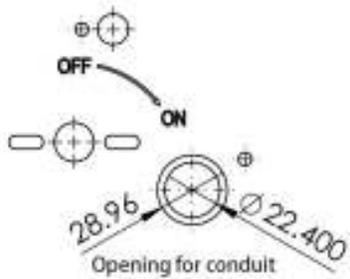
Table 1 - Wall and Ceiling Clearance, inches(mm) / Mounting Brackets

Unit	Discharge	Ceiling	Side Wall	Back Wall
3 & 5 kW	Horiz.	2" (50.8)	6" (152.4)	9" (228.6)
	Vert.	6"(152.4)	18"(457.2)	18" (457.2)
7.5 to 10 kW	Horiz.	6"(152.4)	6"(152.4)	13" (330.2)
	Vert.	6" (152.4)	24" (609.6)	24" (609.6)
15 to 20 kW	Horiz.	6 "(152.4)	9" (228.6)	12 ¹ / ₂ "(317.5)
	Vert	6"(152.4)	24" (609.6)	24" (609.6)

WIRING

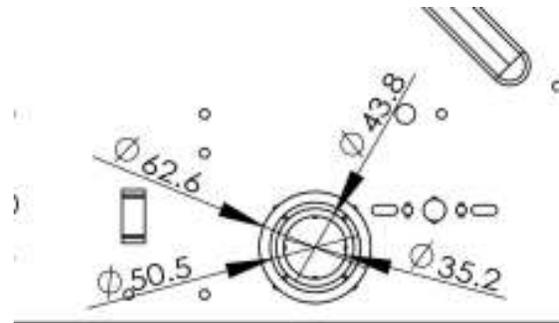
BRANCH CIRCUIT (POWER)

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. For model DR-P130 and DR-P350, the opening size of the conduit is at least 22.4mm as below image.



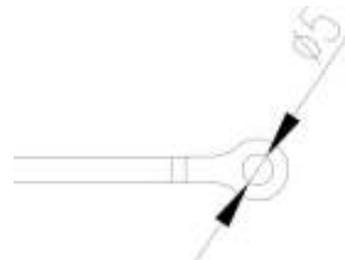
For model DR-P2100, DR-P275, DR-P3150 and DR-P3200, the opening size of the conduit is as below list.

No.	Model #	Trade size of conduit (inch)	Knockout	
			Nominal	Minimum
1	DR-P275	1	34.5	44.96
2	DR-P2100	1	34.5	44.96
3	DR-P3150	1	34.5	44.96
4	DR-P3200	1/2	22 1/5	28.96



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 AWG# of model DR-P130 and DR-P350 is as below list:

No.	Model#	Grounding wire
		AWG
1	DR-P130	14
2	DR-P350	14



DR-P2100, DR-P275, DR-P3150 and DR-P3200 use grounding lug to install the grounding wire. The ground wire AWG# and the lug screw size of model DR-P2100, DR-P275, DR-P3150 and DR-P3200 is as below list:

No.	Model#	Grounding wire AWG#	Grounding Lug Screw Size
1	DR-P275	6	M6X1.0
2	DR-P2100	6	M6X1.0
3	DR-P3150	6	M6X1.0
4	DR-P3200	10	M6X1.0

- 6 The power terminal board is equipped with box terminals sized to accept the correct size power supply wire. Wire rated at 600V and 60°C 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 Single or three-phase connections may be used with heater models DR-P275 and DR-P2100. These units are 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.
- 9 For model DR-P275 and DR-P2100 (Figure 4a), move only the two wires marked "A1" and marked "B1" do not move or change any other wiring. The element lead wire marked "B1" which is factory connected to the power terminal block (terminal located closest to the elements) must be moved to terminal "B" on the three-phase terminal block.
- 10 The relay (contactor lead wire "A1") must be moved from the end terminal of the power terminal block (terminal closest to the contactor or control terminal board) to the "A" terminal of the lower terminal block (center terminal).

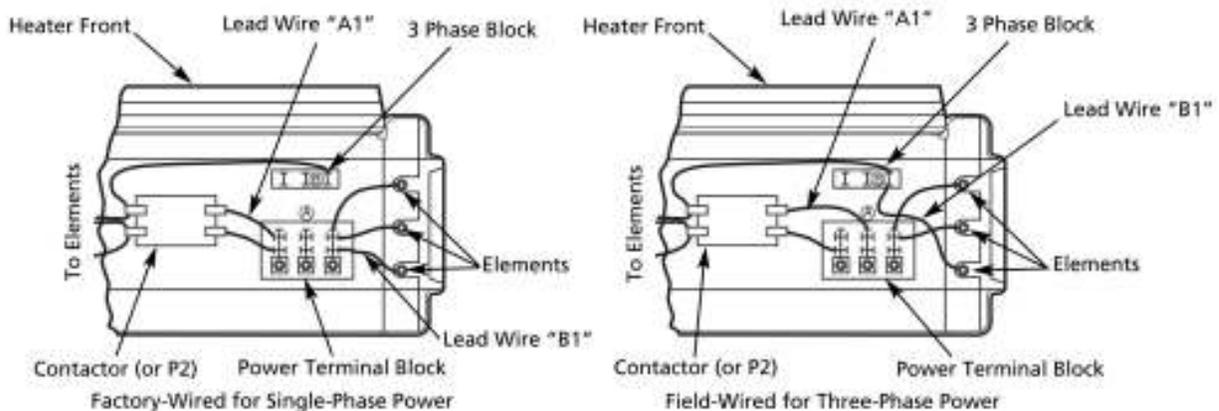


Figure 4a - Wiring Connections for Single-Phase and Three-Phase Power (DR-P275 and DR-P2100)

- 11 Electrical Accessories, either kits or factory-installed options, are shown connected by a dashed line on the heater wiring diagram.
Note: We do not include the thermostat, we use a jumper wire to connect the thermostat terminals, if you want to use a thermostat, you must remove the jumper wire, or not the thermostat would not be effective.
- 12 208/240 VOLT HEATER. 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 white color lead is the COMMON for the 40VA control transformer provided with these heaters.

CONTROL WIRING



Line voltages 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 hazard.

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 (example DR-P2100 is rated 42 amps).

Operation Instructions

- 1 Heater must be properly installed before operation.
- 2 Turn power supply to heater “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.

It is important to keep this heater clean. Your heater will give you years of service and comfort with only minimum care. 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.

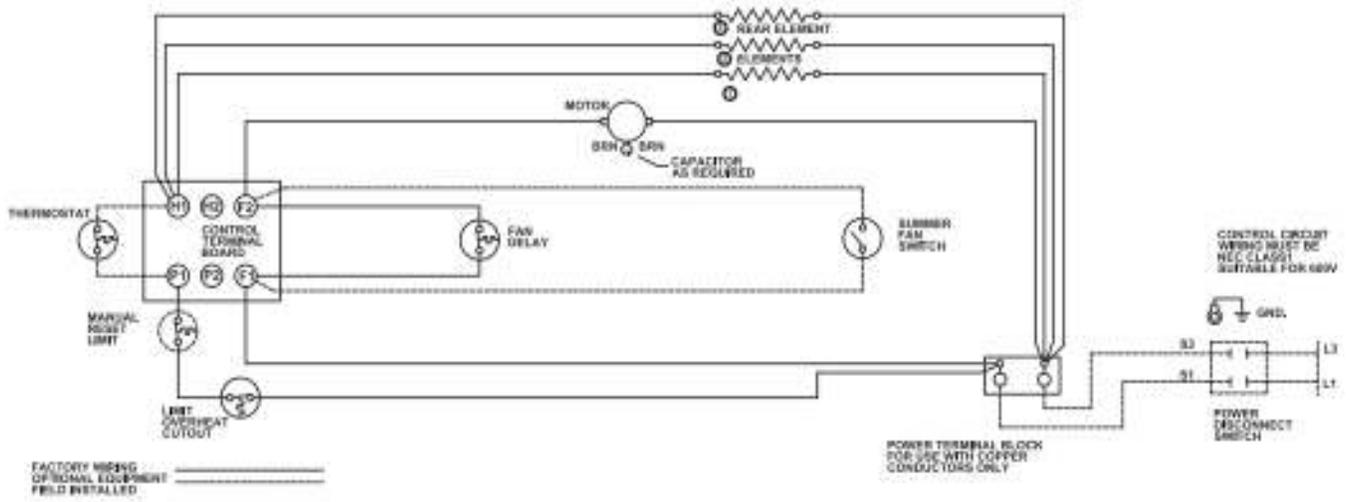
To reduce the risk of fire and electric shock or injury, disconnect all power coming to heater at main service panel and check that the element is cool before servicing or performing maintenance.

USER CLEANING INSTRUCTIONS

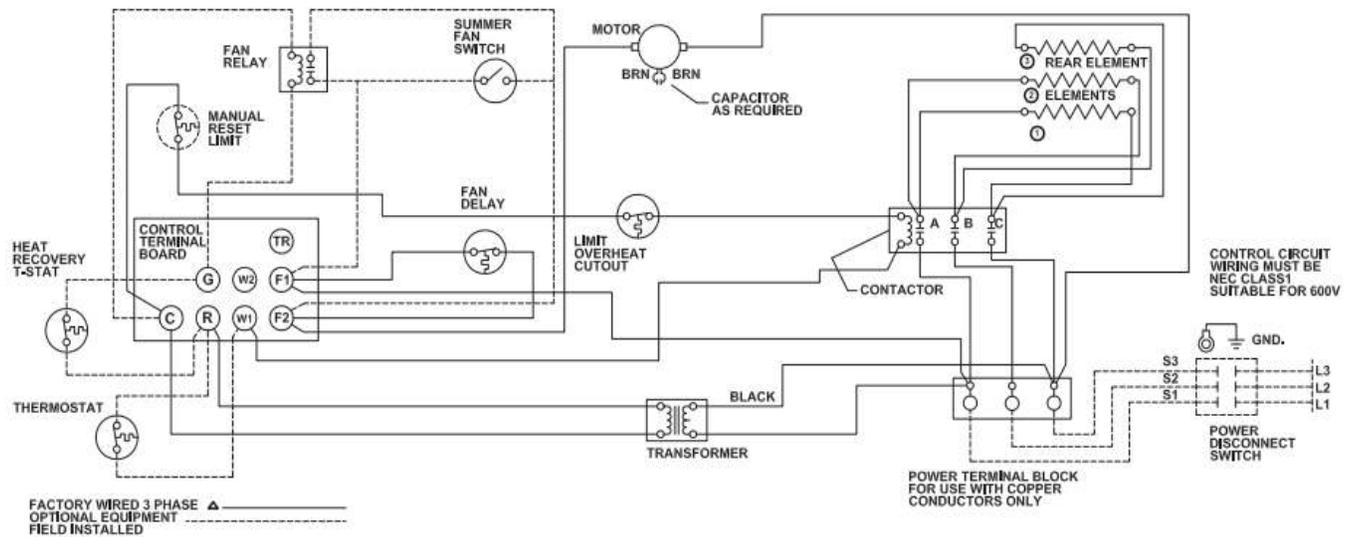
1. After the heater has cooled, a vacuum cleaner with brush attachment may be used to remove dust and lint from exterior surfaces of the heater including the grille openings.
2. With a damp doth, wipe dust and lint from grille and exterior surfaces.
3. Return power to heater and check to make sure it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

Wiring Diagrams

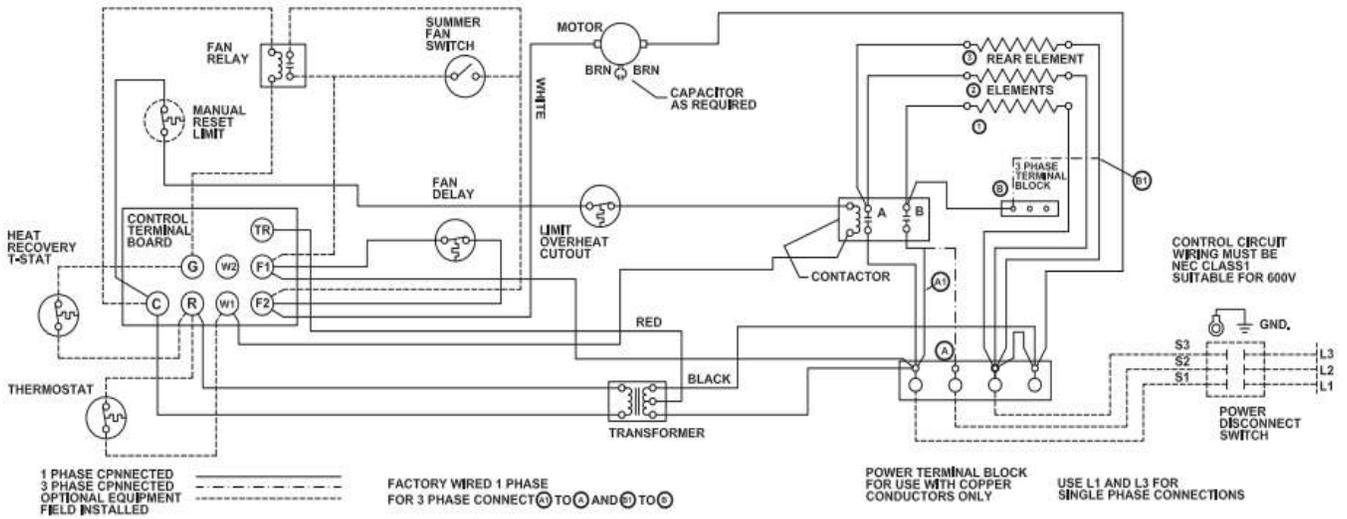
DR-P130



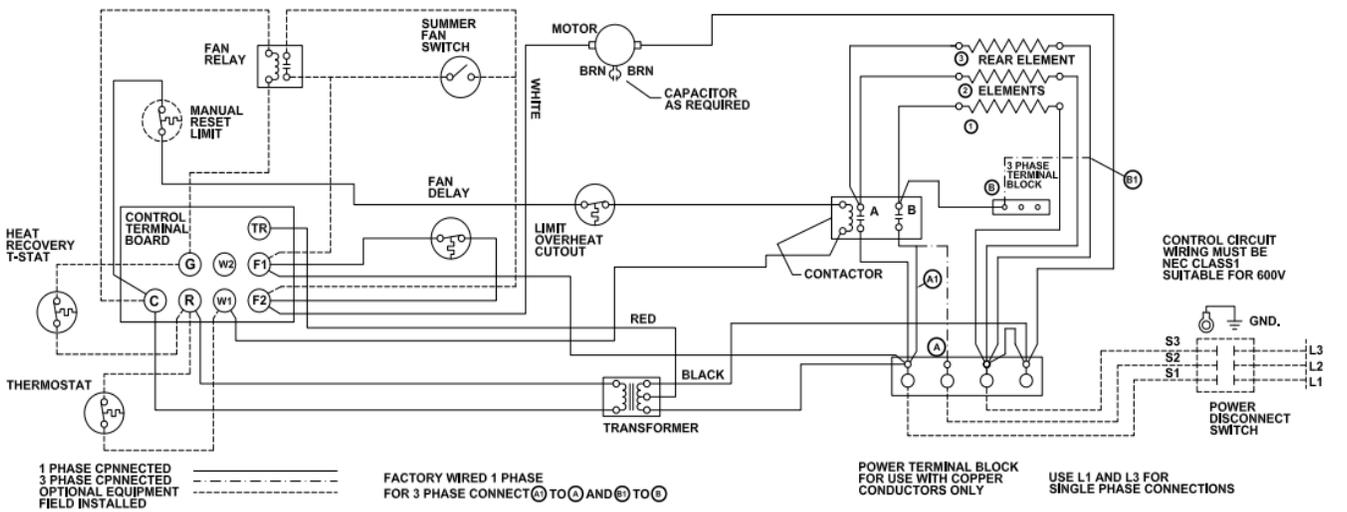
DR-P350



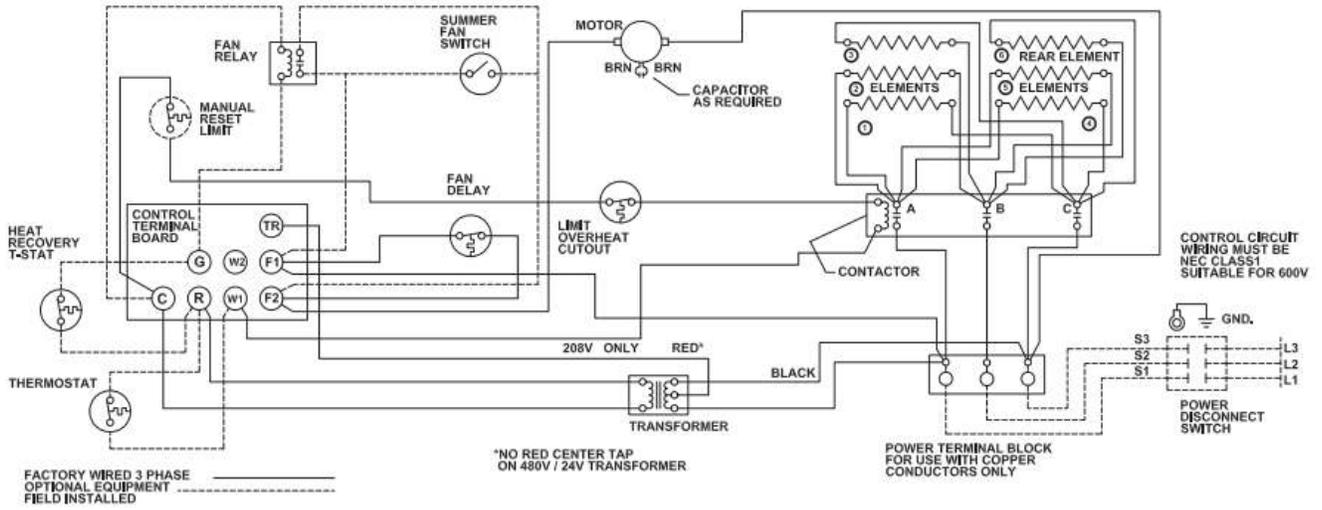
DR-P2100



DR-P275



DR-P3150&DR-P3200



TROUBLE SHOOTING

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

This heater has a thermal cut-off protection. If the thermal cut-off protection trips, **switch off the power, 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 on the heater.
	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 0.9 meters (3 feet) surrounding the heater.	Remove any combustible items from the vicinity of the heater.
	A drop 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.

How long is the warranty?

This heater comes with a ONE-YEAR LIMITED COMPONENT WARRANTY. If your unit does not appear to be working properly, please contact our service center by calling 1-800-317-1688. Prior to your call, we encourage you to visit our service related website www.DrHeaterUSA.com for troubleshooting tips and service instructions if needed.

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