

**Electric Heater Kit
For use with GC
Geothermal Heat Pumps**

**KWCEH0101B05
KWCEH0101B10
KWCEH0101B15
KWCEH0101B20**


Installation Instructions

NOTE: Read the entire instruction manual before starting the installation.

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause death, personal injury, or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Use quenching cloth for brazing operations. Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit.. Consult local building codes and current editions of the National Electrical Code (NEC) NFPA 70. In Canada, refer to current editions of the Canadian electrical code CSA 22.1.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before beginning any installation or modification, be sure the main electrical disconnect switch is in the OFF position. TAG THE DISCONNECT SWITCH WITH A SUITABLE WARNING LABEL

Unit contains two power supplies - make sure BOTH are off before servicing.

CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in compressor damage.

NEVER turn unit on its top or side to install support feet.

CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

This Electric Heater Kit is designed for installation in the heat pump model published in this document. Do not install this heater kit in a heat pump not specified in this manual.

CAUTION

CUT HAZARD

Failure to follow this caution may result in personal injury.

Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing and gloves when handling parts.

INTRODUCTION

The Electric Heater Kit is a field installable electric resistance heater kit designed for the GC series heat pumps.

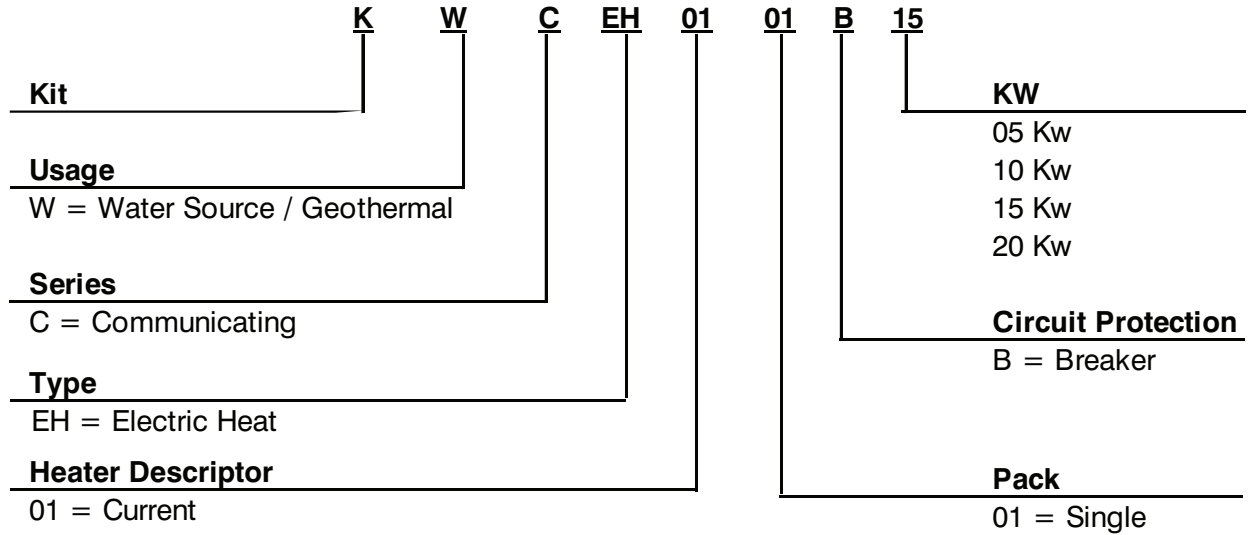
The heater kit requires separate electrical service connection, independent from the heat pump's power supply. Installation of this Heater Kit will convert the heat pump into a two point power connection. The Heater Kit is available in several kW capacities. Unit tonnage vs Heater Kit capacity compatibility table is below. The Heater Kit can be installed on vertical (VT), horizontal (HZ) and counter-flow (CF) units.

NOTE: Electric Heat Kits are not available for any side discharge models at this time. Communicating Duct Heaters are being designed for future release.

Aux. Heat Size Compatibility				
GHP Model	5 Kw	10 Kw	15 Kw	20 Kw
GC024	•	•	—	—
GC036	•	•	•	—
GC048	•	•	•	•
GC060	•	•	•	•
GC072	•	•	•	•

• = Heater Kit compatible / — = Heater Kit NOT compatible

AUXILIARY HEATER KIT NOMENCLATURE



PRE-INSTALLATION

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

DO NOT wire the heater elements into the same circuit as the compressor.

IMPORTANT: Electric Heater Kit can only be installed on single phase units.

IMPORTANT: A heater collar is installed in the geothermal heat pumps so there is no need to order a collar separately (not available on side discharge units).

IMPORTANT: Electric Heat is NOT available for any side-discharge models. Duct heaters should be used if electric heat is desired for side discharge units. Check with your local distributor for available duct heaters per your duct design.

Unpacking and Inspection

1. Unpack the heater kit and inspect contents and condition. If any part or the kit appears damaged (i.e.: broken heater elements, damage relays) or missing, do not attempt to install the kit. Contact your local distributor for further help.
2. Ensure that the heater kit package includes all the listed components. Contact your local distributor for further help.

EH Kit Components List:

- (1) One-piece heater including elements, breakers, cover and low voltage wiring harness
- Installation manual
- Wire schematic label (self-adhesive)
- MCA/MOP data label (self-adhesive)
- (4) #10-16 X .500" lg. Screws
- (2) wire ties

Required Tools:

- Small flat head screwdriver
- 5/16" Socket
- 1/4" Socket

ELECTRIC HEAT KIT

The field-installed Electric Heater Kit is a one piece design that allows the heater elements to be slipped into the blower electric heater collar located in the blower compartment. (See Fig. 1-2.)

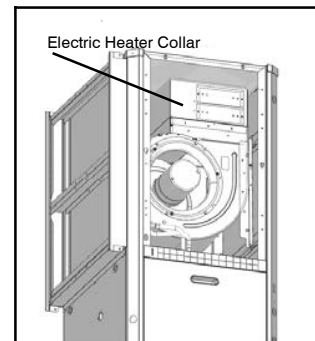


Fig. 1 — Electric Heater Collar Vertical Upflow Configuration

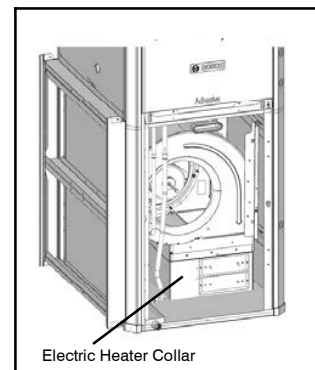


Fig. 2 — Electric Heater Collar Downflow (Counterflow) Configuration

INSTALLATION - HARDWARE

1. At thermostat, turn system to "OFF"
2. Turn the main power to the heat pump to "OFF" at the unit's disconnect switch or breaker panel.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before beginning any installation or modification, be sure the main electrical disconnect switch is in the OFF position. TAG THE DISCONNECT SWITCH WITH A SUITABLE WARNING LABEL

Unit contains two power supplies - make sure BOTH are off before servicing.

3. Remove the access panel(s) from the unit exposing the blower section and compressor section of the packaged heat pump unit.
4. Remove the heater collar cover plate(s) using a 5/16" socket (see Fig. 3).
NOTE: 5 and 10kW heater kits only need the bottom plate (closest to the blower) removed. 15 and 20kW heater kits require both plates be removed.

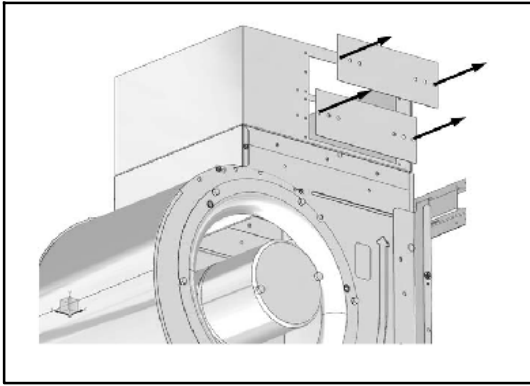


Fig. 3 — Heater Collar Cover Plate Removal

5. Using tin snips, snip off the thin 18 gauge metal strip between the two element slots to allow the 15-20 kW heater elements to slip in as one piece (see Fig. 4).
DO NOT SNIP OFF METAL FOR 5-10 kW heaters.

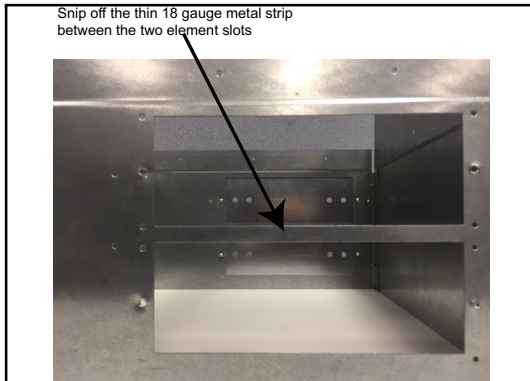


Fig. 4 — Snip Metal (18 gage) Strip for 15 or 20Kw Heaters Only

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6. Carefully file the sharp edges if step 5 above was accomplished.

⚠ CAUTION

CUT HAZARD

Failure to follow this caution may result in personal injury.

Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing and gloves when handling parts.

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

Proper thermal overloads (cut-outs) orientation is required for safe unit operation.

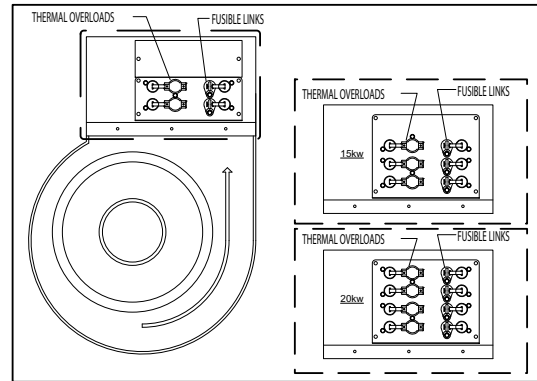


Fig. 5 — Electric Heater Collar Trim Cutouts for 15kW - 20kW Heaters

7. To ease installation, using a 1/4" socket, remove the 4 screws holding the heater cover. Remove the cover, set aside screws and cover. See Fig. 6.

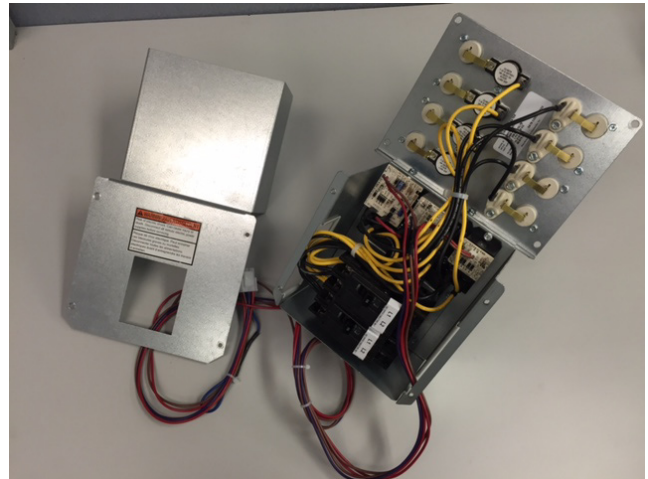


Fig. 6 — Heater Cover Removed

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8. Insert heating element(s) into collar. Secure heater kit by using the screws removed in Step 4.
NOTE: Be careful not to damage the heater coils while inserting.



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Fig. 7 — 10 Kw Heater Inserted in Collar with Top Plate Still in Place

INSTALLATION - WIRING

⚠ CAUTION

PERSONAL INJURY AND/OR UNIT DAMAGE HAZARD

Failure to follow this caution may result in personal injury and/or unit damage.

When routing wiring, avoid sharp edges as these can chafe wiring insulation, exposing the conductor which can result in equipment damage and personal injury.

Electric heater relays and staging are factory pre-wired. The field connections are 2 simple steps:

1. Control wiring
2. Site Line Voltage Connection

Control Wiring:

Connect the male 12 pin connector from the heater harness to the female 12 pin connector on the existing blower motor harness.

Site Line Voltage Connection:

Routing new line voltage wires from circuit breaker panel to heater kit main power lugs:

1. Select the proper wire size based upon the electrical load required by the electric heater element(s). Refer to the data tag label that is included in the heater kit or to Table 2 - Electric Heater Electrical Data. Ensure that all national and local electrical codes are followed for installation, wire sizing, and breaker sizing.
2. Select the proper breaker size required by the heater electrical load for the heat pump. Refer to Table 2 - Electric Heater Electrical Data..
3. Route the new line voltage wiring and the ground wire from the circuit breaker panel to the heat pump.
4. Use the knockout provided in the heat pump corner post as the entry for the electrical service wiring.
5. Access the heater kit breaker power lugs by removing the heater kit cover. Remove 4 screws using 1/4" socket and the cover. Set aside parts.
6. Connect line voltage to heater breaker power lugs:
 -“L1” and ”L2” terminal connection for single circuit electric heat or,
 -“L1” and ”L2” in CB1 and “L1” and ”L2” in CB2 for dual circuit electric heat. (See Fig. 8)



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Fig. 8 — Heater Power Plugs

7. Use ground lug provided in the heater control box to connect the field ground from the power supply.
8. Install the cover and screws removed in Step 5.

Label Placement

1. Secure the self-adhesive heater wiring label next to the unit wiring label on the heat pump inside panel.
2. Place the adhesive backed heater data label next to the knockout in the post where the new electrical service for the fan motor and heater elements is entering the cabinet.

THERMOSTAT WIRE CONNECTIONS

These kits are designed to be used only with the GC units and communicating thermostats. When the unit is powered up and runs through initial set up, the user interface will identify the heater kit automatically.

Follow the Installation Instructions of the communicating thermostat for further details

NOTE: A non-communicating option for the GC units is planned to be released soon and further updates to this manual will address wiring for the non-communicating thermostats at that time.

NOTE: It may be necessary to run a new system set-up if installing heater kit after a prior initial install.

UNIT START-UP

1. Turn the disconnect switch or breaker switch to the “ON” position for the heat pump.
2. Energize the breaker(s) for the electric heat kit.
3. Turn the disconnect switch or breaker switch to the “ON” position for the compressor and for the new separate circuit servicing the heating elements.
4. Ensure the heater kit breakers are on the ON position.
5. Run system set up to ensure the user interface identifies the heater kit.
6. Run the unit in Emergency mode with the heating elements engaged for at least 10 minutes to ensure the unit does not shut down due to any temperature limiting device.
7. Test staging of the heaters and confirm heater works per Table 1.

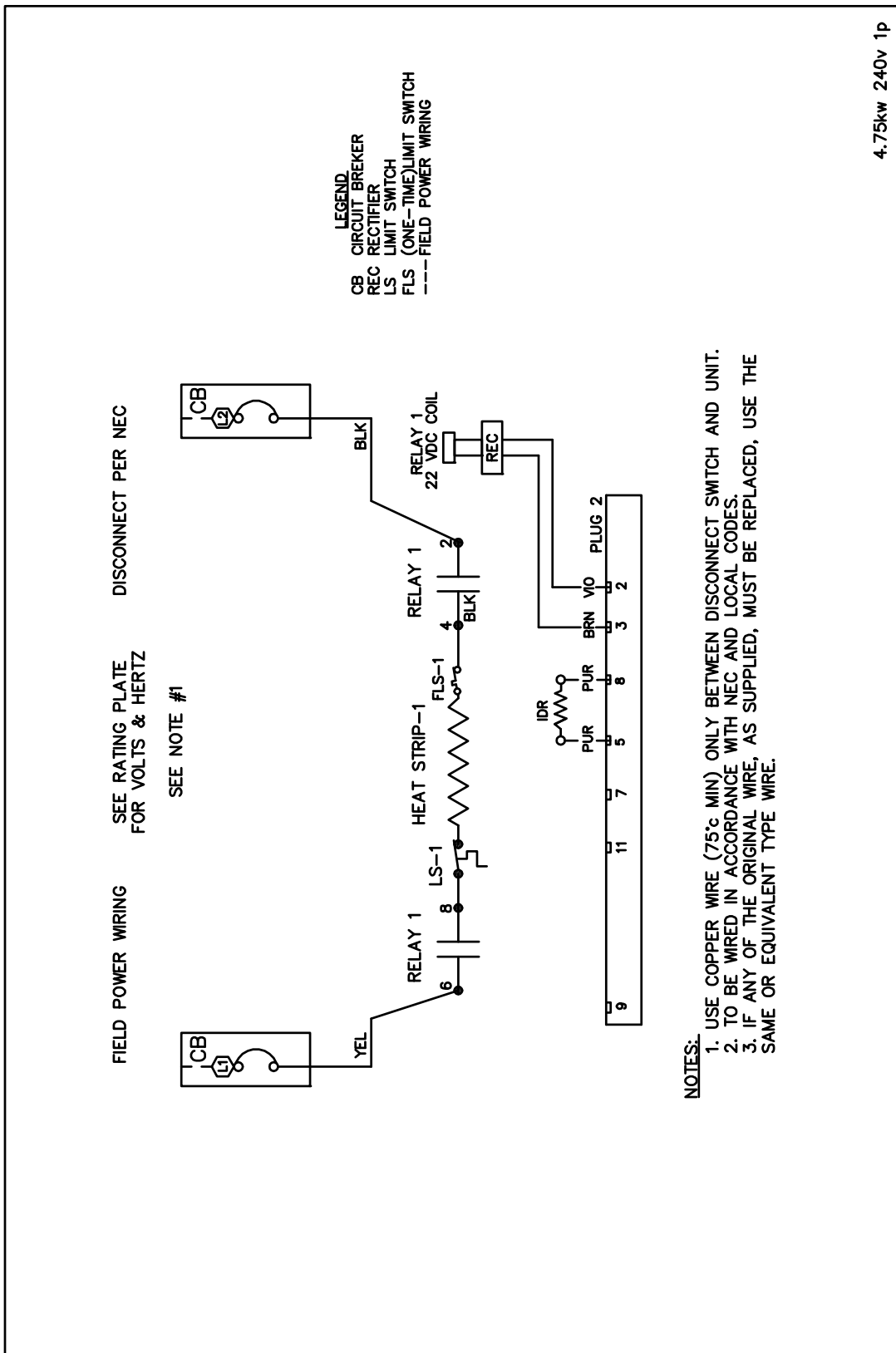
Table 1—Staging Table

KWCEH0101B	STAGING
5kW	1 stage (single stage heater)
10kW	1 stage (single stage heater)
15kW	3 stages
	– 1 st stage: 5kW (heater 1)
	– 2 nd stage: 10kW (heater 2)
	– 3 rd stage: 15kW (heater 1 + heater 2)
20kW	3 stages
	– 1 st stage: 5kW (heater 1)
	– 2 nd stage: 15kW (heater 2)
	– 3 rd stage: 20kW (heater 1 + heater 2)

Table 2—Electric Heater Electrical Data

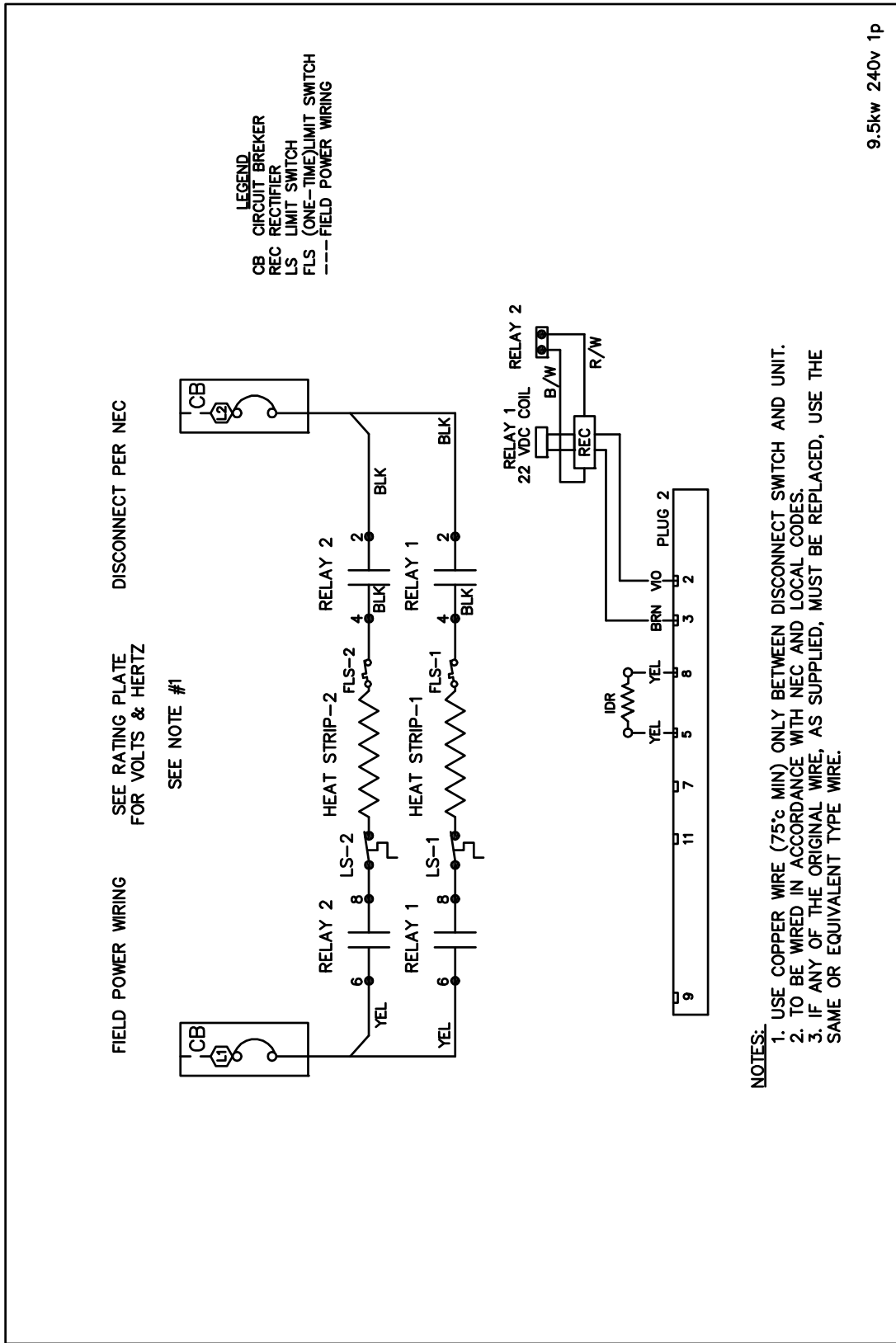
Heater Model	Nom. KW @ 240V / 208V	Circuit 1*		Circuit 2*	
		MCA	MOP	MCA	MOP
KWCEH0101B05	4.8 / 3.6	25.0 / 21.6	25 / 25	N/A	N/A
KWCEH0101B10	9.6 / 7.2	50.0 / 37.5	50 / 40	N/A	N/A
KWCEH0101B15	14.4 / 10.8	50.0 / 37.5	50 / 40	25.0 / 21.6	25 / 25
KWCEH0101B20	19.2 / 14.4	50.0 / 37.5	50 / 40	50.0 / 37.5	50 / 40

* Calculations are for Heater Only. For heat pump electrical information, refer to the unit Product Data.



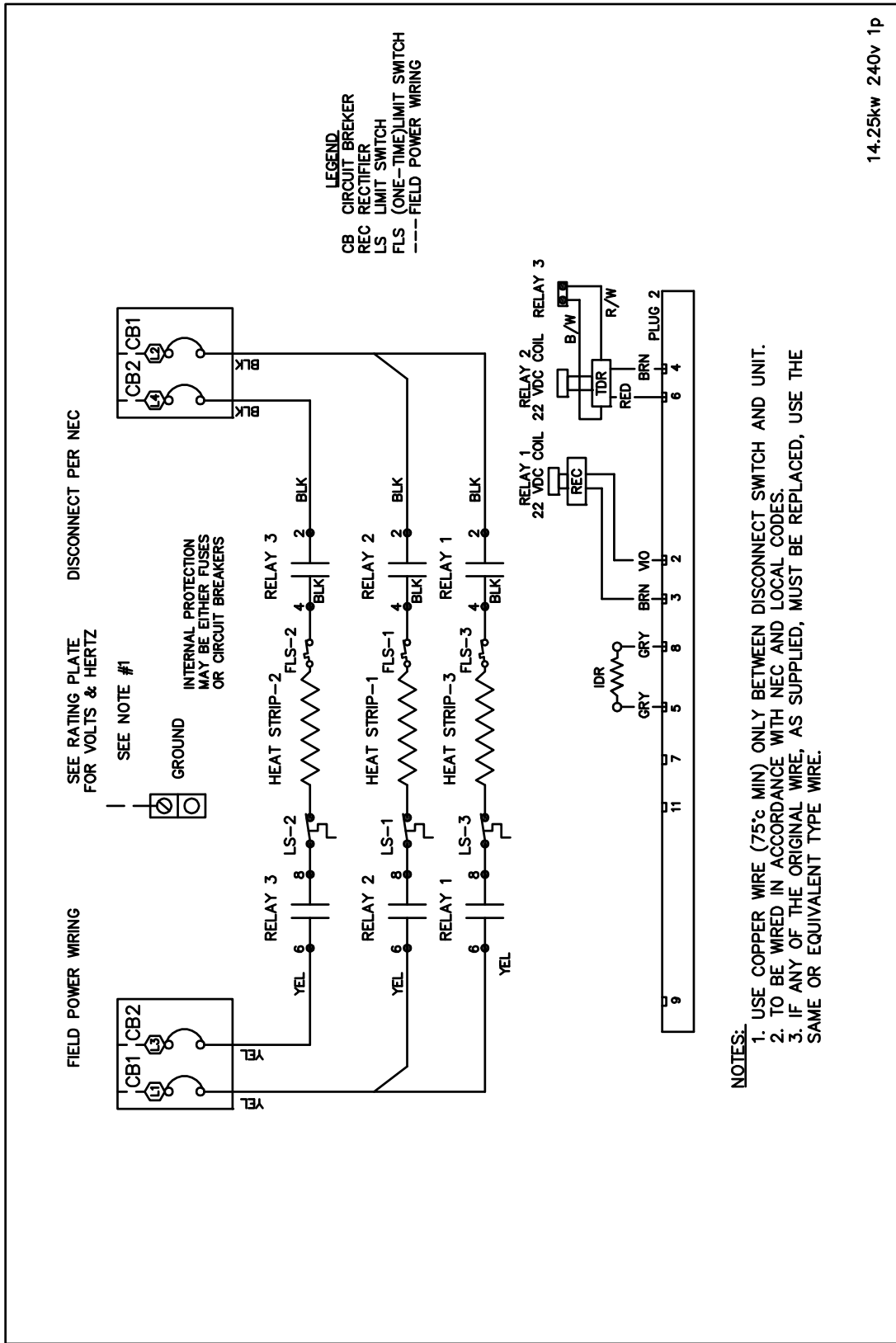
4.75kW 240v 1p

Fig. 9 — Electric Heater Wiring Diagram
4.75kW 240v



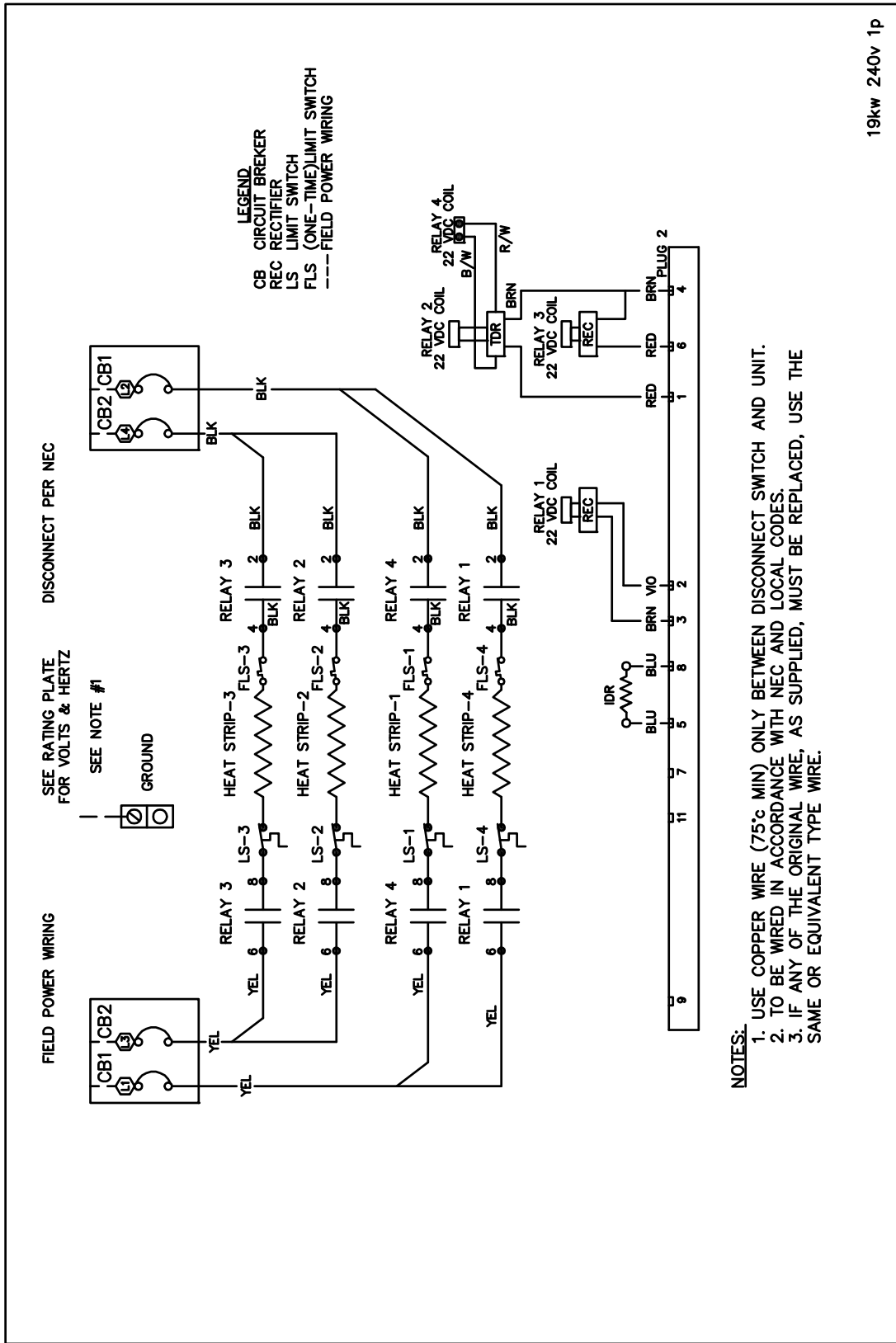
9.5kW 240v 1p

Fig. 10 — Electric Heater Wiring Diagram
9.5kW 240v



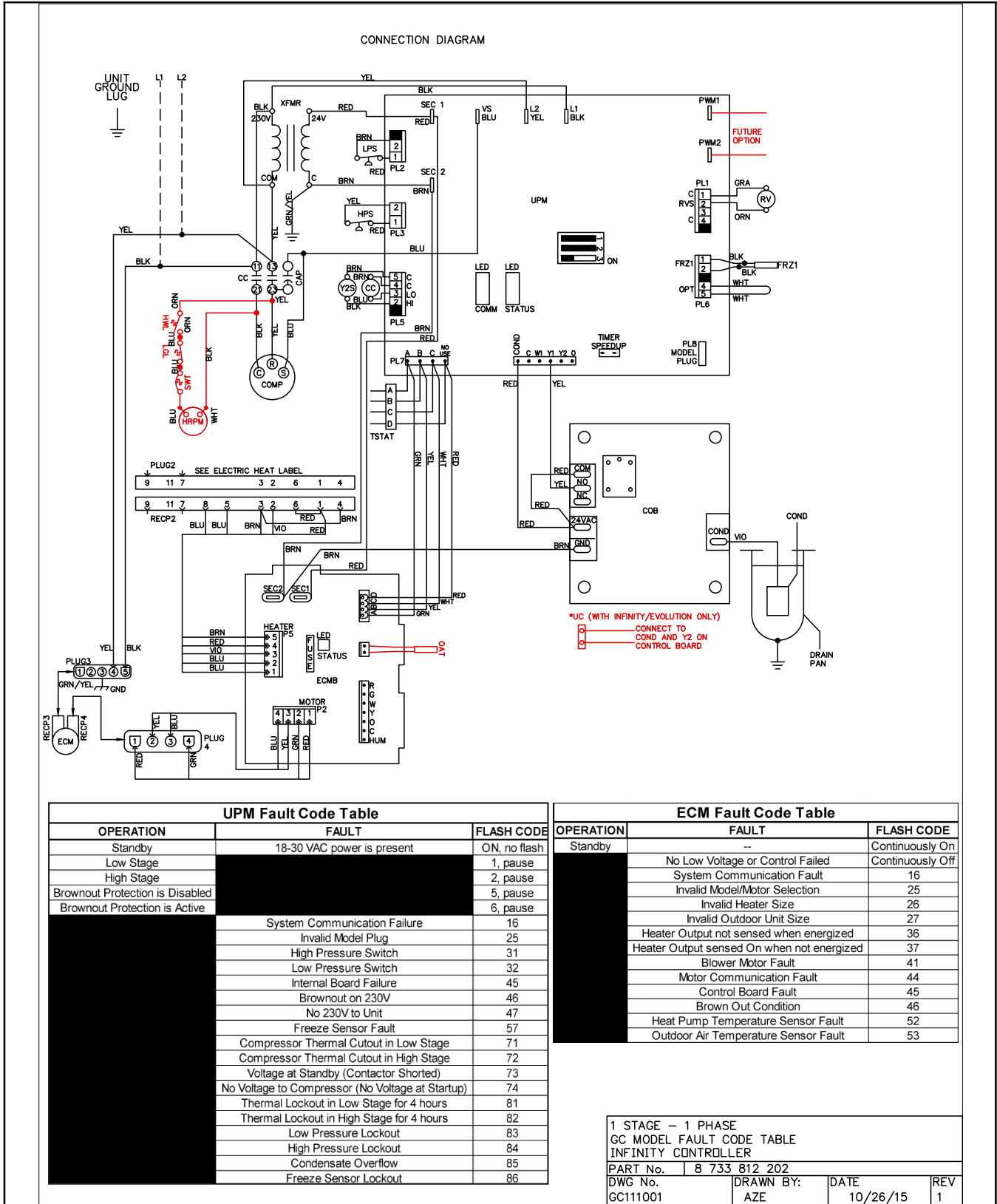
14.25kW 240v 1p

Fig. 11 — Electric Heater Wiring Diagram
 14.25kW 240v



19kW 240v 1p

Fig. 12 — Electric Heater Wiring Diagram
 19kW 240v



**Fig. 13 — Connection Diagram - GC Series
1 Stage - 1 Phase**

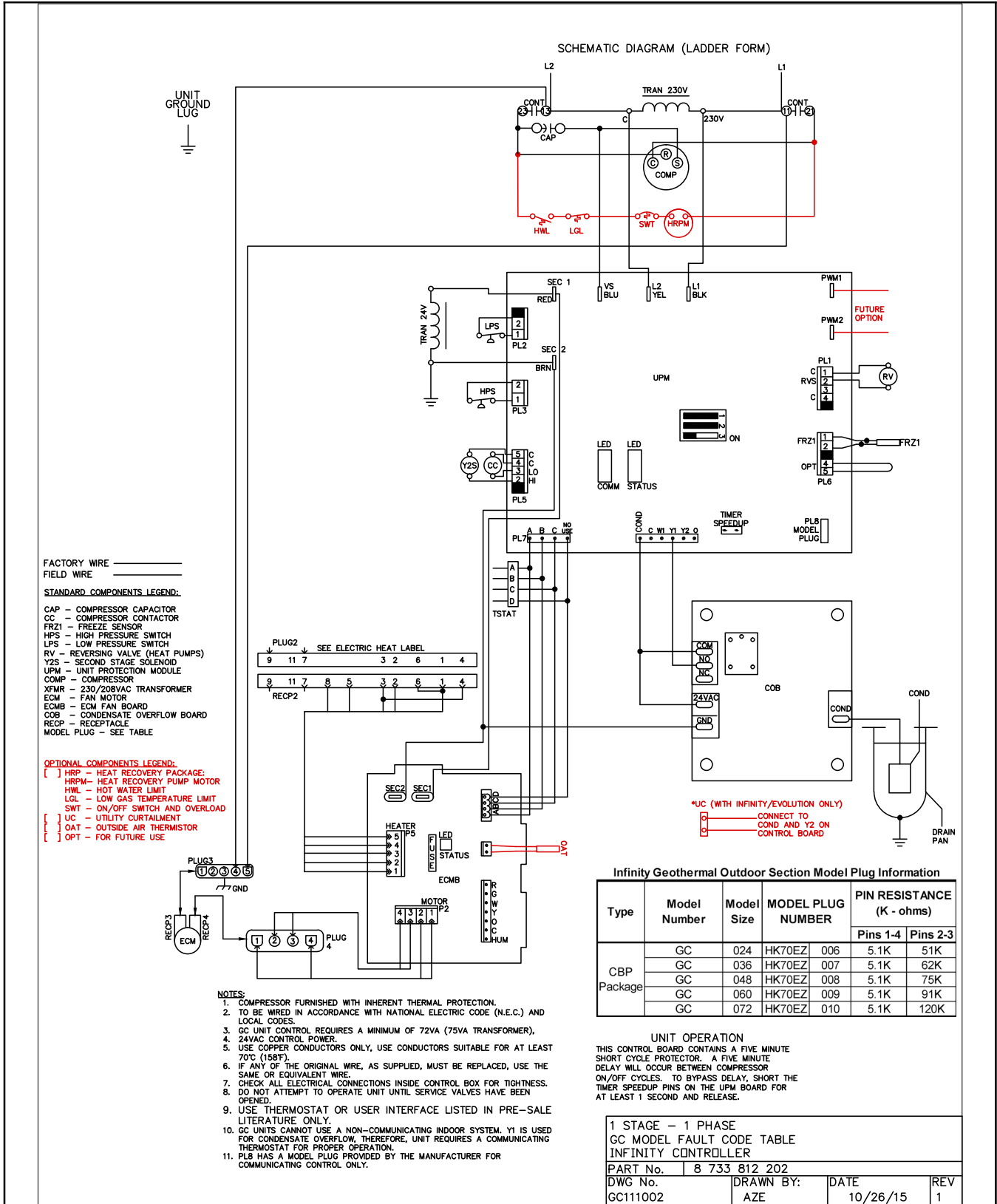


Fig. 14 — Schematic Diagram - GC Series 1 Stage - 1 Phase

