

ELECTRIC HEAT UNITS

506847-04
4/1/2024
Supersedes 506847-03

ELECTRIC HEATERS

INSTALLATION INSTRUCTIONS FOR ELECTRIC HEAT (LB-111141A-AA & 602424-01-53; 14W32-46, 30W26, 46W28-42 67W88-95 & 12F06, 22V70-77) AND FUSE BLOCKS (LB-112399A-AA; 17W94-18W08, 24U10-25, 26W68, 26W69, 31B27, 52W14-16, 52W35) USED WITH LC/LH/KC/KH 024-090 UNITS

Shipping and Packing List

Electric Heat Package Contains:

- 1- Electric element/control box assembly
- 1- Bag assembly containing:
 - 2- Wiring diagram stickers

Fuse Block Assembly Contains (KC/KH Only):

(ordered and shipped separately)

- 1- Fuse block assembly
- 1- TB2 terminal block
- 2- Wiring harnesses
- 1- Fuse block cover assembly
- 1- Bag assembly containing:
 - 8- Screws
 - 3- Fuses (2 on 17W94-99, 28W68, 28W69, & 12F06)

Inspect package upon receiving. If damage is found, contact last carrier immediately.

Requirements

Installation of electric heaters must conform with the standards of the National Fire Protection Association (NFPA) "Standard for the Installation of Air Conditioning and Ventilating Systems," NFPA No. 90A; "Standard for the Installation of Residence Type Warm Air heating and Air Conditioning Systems," NFPA No. 90B; in Canada, CSA C22.1 Canadian Electrical Code Part I and all applicable CSA requirements; manufacturer's installation instructions and local municipal building codes. Heaters are approved for clearance to combustible materials as listed on heater rating plate. Accessibility and service clearances must take precedence over fire protection clearance. All wiring must conform with local codes and the current National Electric Code (NEC) ANSI--C1 and in Canada, CSA C22.1 Canadian Electrical Code Part I and applicable CSA requirements.

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional HVAC installer or equivalent, service agency, or the gas supplier.

CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

Application

Electric heat is used as primary heaters in LC/KC 024-090 units and as a secondary heat source in LH/KH 024-072 heat pump units. See TABLE 1 for usage.

TABLE 1

Unit	Electric Heat (kW)	
	208-230, 460, 575V 60 Hz	380-420V 50 Hz
024, 030	5.0, 7.5, 10	--
036, 048	7.5, 15	5.7, 11.5
060	7.5, 15, 22.5	5.7, 11.5, 17.2
072, 090	7.5, 15, 22.5, 30	5.7, 11.5, 17.2, 23

WARNING

To prevent serious injury or death:

- 1- Lock-out/tag-out before performing maintenance.
- 2- If system power is required (e.g., smoke detector maintenance), disable power to blower, remove fan belt where applicable, and ensure all controllers and thermostats are set to the "OFF" position before performing maintenance.
- 3- Always keep hands, hair, clothing, jewelry, tools, etc., away from moving parts.

Electric Heat Installation

- 1 - Disconnect all power to unit.
- 2 - Open or remove the unit heat access panel. See FIGURE 1. If the panel is hinged, remove the right mullion.
- 3 - Disconnect P2 jumper from J2 unit electric heat jack on heat section wall. See FIGURE 2.
- 4 - Remove the cover over the heat vestibule opening and retain screws

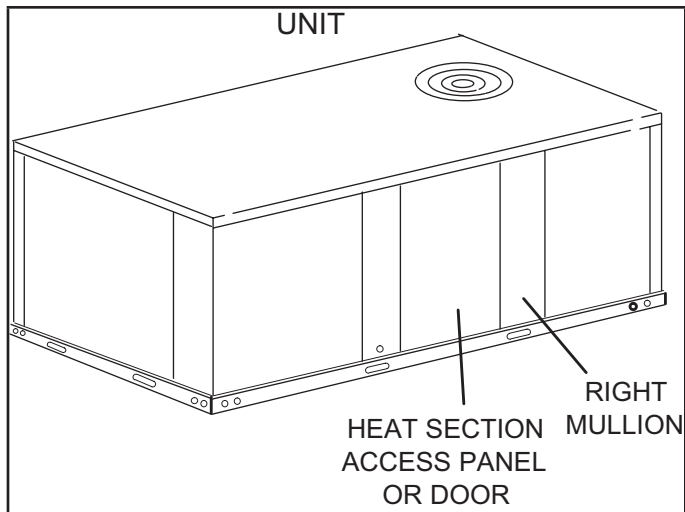


FIGURE 1

- 5 - Install the electric heat assembly in unit as shown in FIGURE 2.
- 6 - Open electric heat assembly door and secure assembly to the vestibule with retained screws.
- 7 - Connect P2 from electric heat assembly to J2 in heat section wall. See FIGURE 2.
- 8 - Route power wiring through knockout in heat section wall.

Fuse Block & TB2 Terminal Block

- 1 - Insert fuses from bag assembly in fuse block assembly.
- 2 - Install fuse block and TB2 terminal block in locations shown in FIGURE 3. Secure with #8 screws provided. Retain three screws to secure fuse block enclosure.

Field Wiring Connections

Wiring must conform to local codes and the current NEC/CEC. Refer closely to FIGURE 3, the field wiring diagram in this kit, and the following information: If heater is being installed in an existing unit, a change in power supply wiring may be required. Remove the original supply wires or disconnect at power source. Refer to heater nameplate for minimum circuit ampacity and maximum fuse size.

- 1 - When installing electric heat in an existing unit, disconnect power wiring to top of K1 contactor. Reconnect power wiring to the bottom of the TB2 terminal block.
- 2 - Route power wires from electric heat assembly to control area. Connect wire to load side of TB2 terminal block. Refer to FIGURE 3.
- 3 - Locate the two harnesses provided in the kit. Install the longer harness between K1 contactor and F4 fuse block. Install the shorter harness between F4 fuse block and TB2 terminal block. Connect to the terminal marked on each wire.

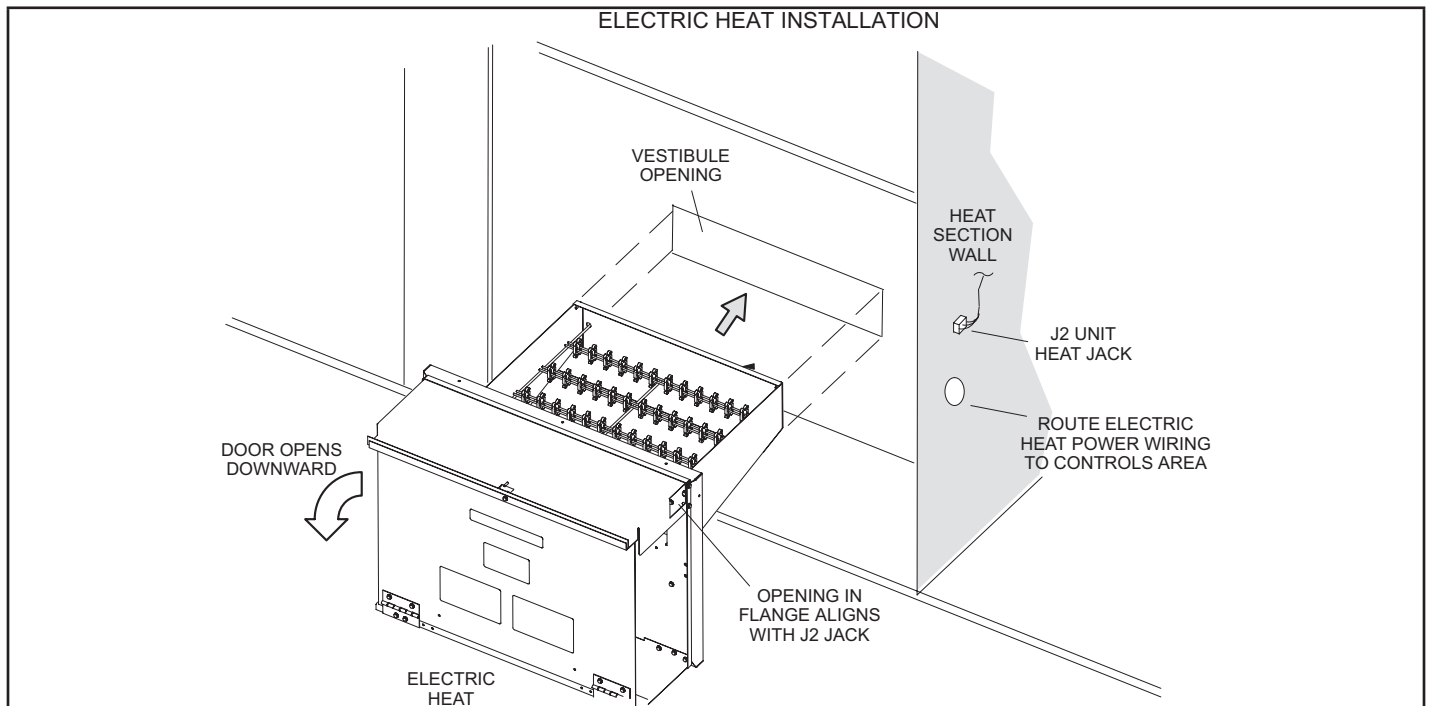


FIGURE 2

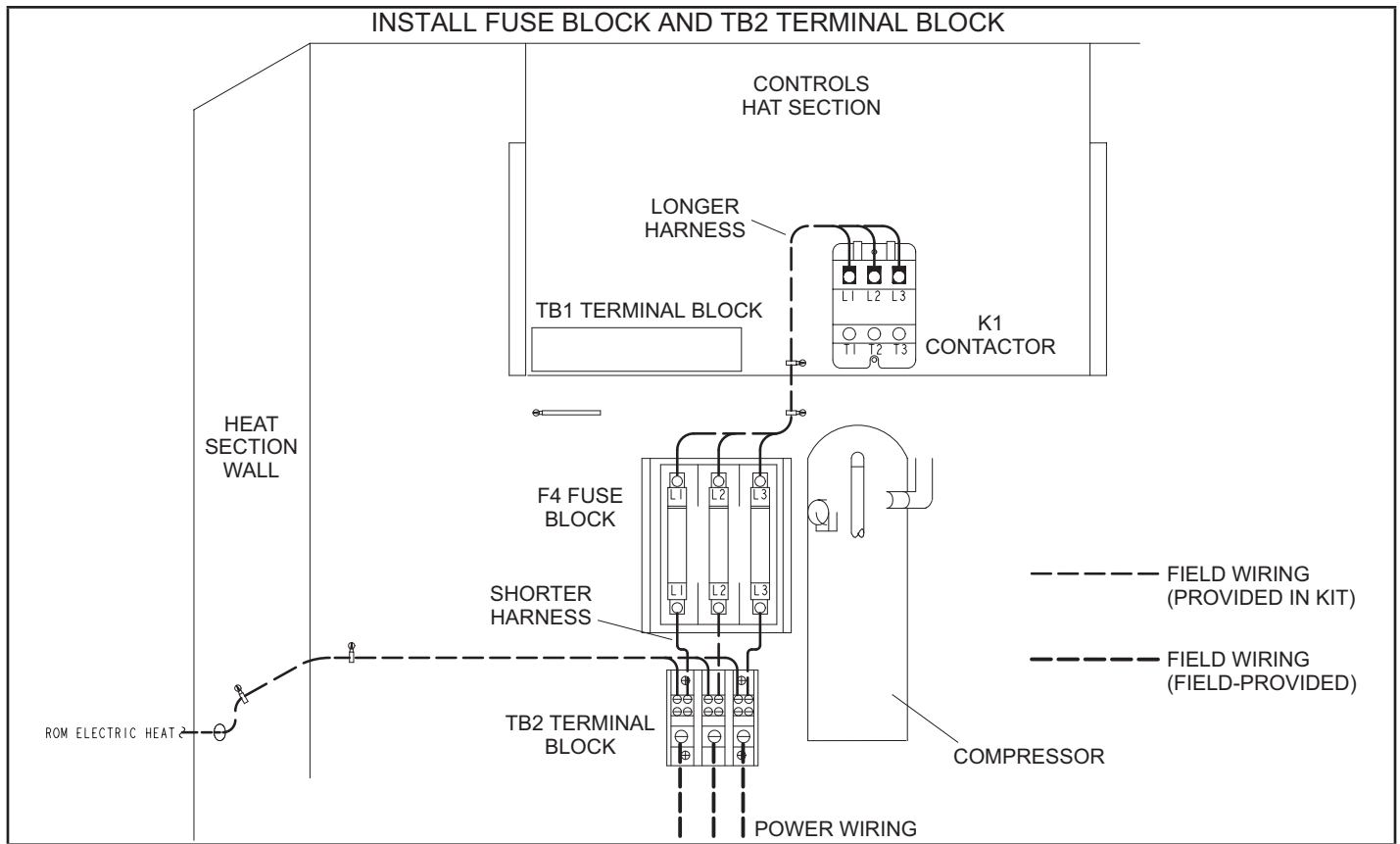


FIGURE 3

Wiring Diagram

Place appropriate electric heat wiring diagram (provided) on the inner side of the compressor access panel. Ensure that model number matches model numbers on Wiring Diagram.

Fuse Block Cover - LC/LH Units

Place cover over fuse block and align with holes in panel. Secure with three retained screws.

SCR EH Controller - LCH/LCM/LCT Units

The SCR is a factory-installed option only; this kit would be used to replace an existing electric heat assembly. When replacing the electric heat assembly, discard the longer power harness provided in this kit (power wiring is supplied with factory-installed SCR units).

The SCR (A38) will provide small amounts of power to the electric heat elements to efficiently maintain warm duct air temperatures when there is no heating demand. The SCR maintains duct air temperature based on input from a field-provided and installed thermostat (A104) and duct sensor (RT20). SCR is located in the compressor section on the left wall. Use only with a thermostat or Novar control system.

Use the instructions provided with the thermostat to set DIP switches as follows: S1 On, S2, S3 Off. Use the instructions provided with the duct sensor to install sensor away from electric element radiant heat and in a location where discharge air is a mixed average temperature.

Once power is supplied to unit, zero SCR as follows:

- 1 - Adjust thermostat (A104) to minimum position.
- 2 - Use a small screwdriver to slowly turn the ZERO potentiometer on the SCR until the LED turns solid red.
- 3 - Very slowly adjust the potentiometer the opposite direction until the LED turns off.

Blower Speed Requirements

Electric heater applications require specific blower air volumes. Refer to the blower tables in the unit installation instruction for start-up.

NOTE - Minimum air requirements are shown in the following tables; do not set CFM lower than minimum CFM listed.

Unit Start-Up (Heating Cycle)

Set room thermostat for proper heat or auto operation if switching subbase is used. Apply power to unit and position heat setpoint lever above room temperature. Refer to unit installation instructions for additional information on start-up operations and adjustments.

Set Unit Controller - LC/LH Units

Set the Unit Controller using one of the following menus. M2, M3, or M4 is printed near the bottom of the Unit Controller by the SBUS connector on LCH units and near the seven-segment display on LCM/LCT/LCX/LHT/LHX units. Refer to the Unit Controller manual provided with each rooftop unit.

M2 Unit Controller

Use this menu to enable the appropriate number of electric heat stages.

SETTINGS > INSTALL > ELECTRIC HEAT STAGES

M3 Unit Controller

The Unit Controller configuration I.D. must be set to identify that electric heat has been installed.

NOTE - The number of electric heat stages do not have to be entered with version 08 and later.

- 1 - Use the Unit Controller keypad to enter the following menu:

MAIN MENU > SETUP > INSTALL

- 2 - Press SAVE until CONFIGURATION ID 2 appears. Change the 9th digit to specify the electric heat installed as follows:

N = No EH

Q = 5 kW C = 7.5kW

E = 15 kW G = 22.5 kW

J = 30 kW K = 45 kW

L = 60 kW D = 70 kW

P = 90 kW S = 120 kW

- 3 - Press SAVE. The Unit Controller is now set up to operate electric heat.

M4 Unit Controller

Use the following menu in the mobile app to enable electric heat.

RTU MENU > SETUP > INSTALL

Select configuration I.D. 2 and change (9) Field Electric Heat to Y (Installed).

MINIMUM AIRFLOW - KC/LCH/LCX UNITS (BELT DRIVE BLOWER)

kW	CFM	
	Downflow	Horizontal
30	1900	2000
22.5	1500	1600
15	1200	1300
7.5	1050	1200

NOTE - 5 & 10kW available in direct drive only.

Direct drive units with electric heat (5.0-22.5kW) can operate on low speed up to 0.6" w.g. maximum static pressure.

MINIMUM AIRFLOW - LCT/LHT/LCX/LHX UNITS

Tons	kW	Electric Heat (kW)		
		Belt Drive Downflow	Belt Drive Horizontal	Direct Drive
2-5	5	NA	NA	600
	7.5	1050	1200	600
	10	NA	NA	600
	15	1250	1350	1100
	22.5	1750	1800	1600
6	30	2250	2050	NA

MINIMUM AIRFLOW - LCH/LCX UNITS (DIRECT DRIVE BLOWER)

Unit	CFM
	Downflow & Horizontal Airflow
LCH/LCX036HE	1080
LCH/LCX048HE	1280
LCH/LCX060HE	1600

MINIMUM AIRFLOW - LCM/LCT/LCX UNITS (DIRECT DRIVE IMPELLER-STYLE BLOWER)

kW	CFM
	Downflow & Horizontal Airflow
30	2000
22.5	1800
15	1350
7.5	1200

MINIMUM AIRFLOW - LHT UNITS (DIRECT DRIVE IMPELLER-STYLE BLOWER)

kW	CFM
	Downflow & Horizontal Airflow
30	2400
22.5	2000
15	1500
7.5	1200