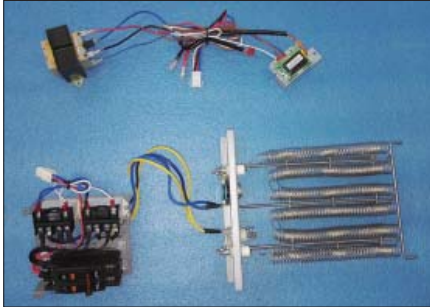
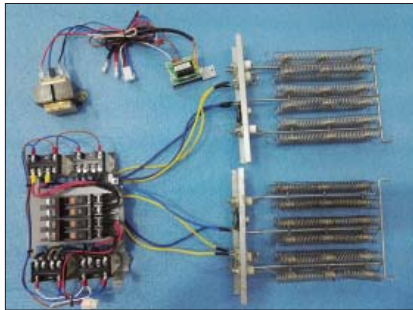




©2016 Lennox Industries Inc.
Dallas, Texas, USA



V8EH0050P-1P, V8EH0080P-1P & V8EH0100P-1P



V8EH0150P-1P & V8EH0200P-1P

▲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, service agency or the gas supplier.

Failure to follow safety warnings and these instructions exactly could result in property damage, dangerous operation, serious injury, or death.

Any additions, changes, or conversions required in order for the appliance to satisfactorily meet the application needs must be made by a licensed professional HVAC installer (or equivalent) using factory-specified parts.

Do not use this system if any part has been under water. A flood-damaged appliance is extremely dangerous. Immediately call a licensed professional HVAC service technician (or equivalent) to inspect the system and to replace all controls and electrical parts that have been wet, or to replace the system, if deemed necessary.

Electric Shock Hazard. Can cause injury or death. Line voltage is present at all components on units with single-pole contactors, even when unit is not in operation! Unit may have multiple power supplies. Disconnect all remote electric power supplies before opening access panel. Unit must be grounded in accordance with national and local codes.

INSTALLATION INSTRUCTIONS

Electric Heat Kit for VVCA Vertical Air Handler

VRF SYSTEMS -- V8EH-1P Series Electric Heat Kit
507567-02
04/2016

General

The V8EH-1P series electric heat kits are used with VRF VVCA***H4-1P and VVCA***H4-2P indoor units.

Heat kits may be installed in either upflow or horizontal air discharge applications.

The V8EH-1P units are designed for indoor use only.

Shipping and Packing List

Check the components for shipping damage. If you find any damage, immediately contact the last carrier.

Package 1 of 1 contains the following:

- 1 - Assembled electric heat coil assembly including breaker
- 1 - 24VAC transformer and relay assembly
- 1 - Grounding terminal
- 1 - Grounding screw
- 2 - Long screws (used to install transformer)
- 3 - Short screws (used to install circuit breaker panel and relay)
- 2 - Plastic wire ties
- 1 - Plastic wire clamp
- 1 - wiring diagram sticker
- 1 - Installation/Operations manual

Requirements

Installation of electric heat sections must conform with standard in National Fire Protection Association (NFPA) Standard for Installation of Air Conditioning and Ventilation Systems NFPA No. 90A, Standard for the Installation of Residence Type Warm Air Heating and Air Conditioning System NFPA No. 90B, 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 clearances. All wiring must conform with local codes and the National Electric Code (NEC). ANSI-C1-1978.

▲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.

Installation

IMPORTANT!

This heat kit includes a transformer and relay assembly. The transformer is factory-wired for 240V. For 208V, remove the red lead from the 240V terminal and connect it to the 208V terminal on the transformer. See step 6.

Failure to connect to the appropriate terminal can cause the heat assembly to not operate properly.

1. Disconnect power to the VVCA unit.
2. Remove the blower access panel and top panel. See figure 1.



Figure 1. Remove Blower Access Panel and Top Panel

3. Remove the screws that secure the main control board and terminal strip assembly inside of the control panel.



Figure 2. Remove Control Board Assembly Screws

4. Lay the panel horizontal inside of the control panel to allow for room to install the heat kit. See figure 3.



Figure 3. Reposition Control Board Assembly

5. Prepare the transformer and relay assembly for installation. Figure 4 shows the transformer and relay assembly.

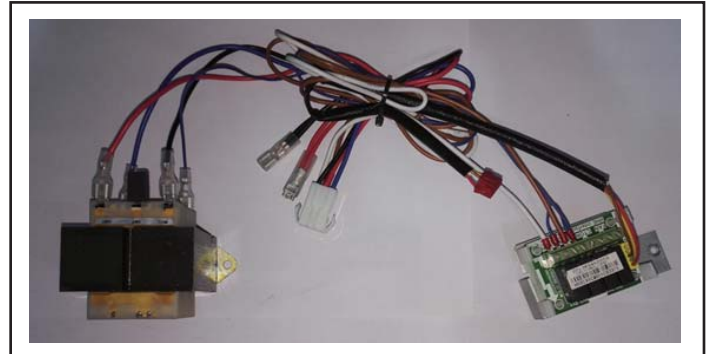


Figure 4. Transformer and Relay Assembly

6. The transformer is factory-wired for 240V. No changes are necessary for 240V applications. For 208V applications, remove the red lead from the 240V terminal and connect it to the 208V terminal on the transformer. See figure 5.

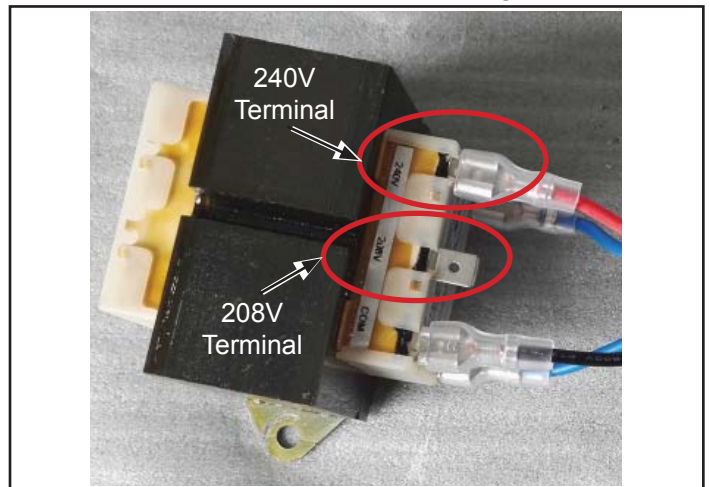


Figure 5. Select 240V or 208V Terminal on Transformer

- Position the transformer on the back of the control box and secure with the two long screws. See figure 6.

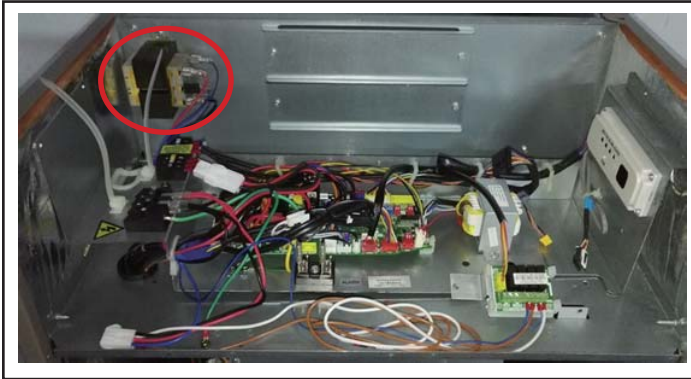


Figure 6. Secure Transformer

- Route wiring under main control board and terminal strip assembly and through the white plastic grommet. See figure 7.

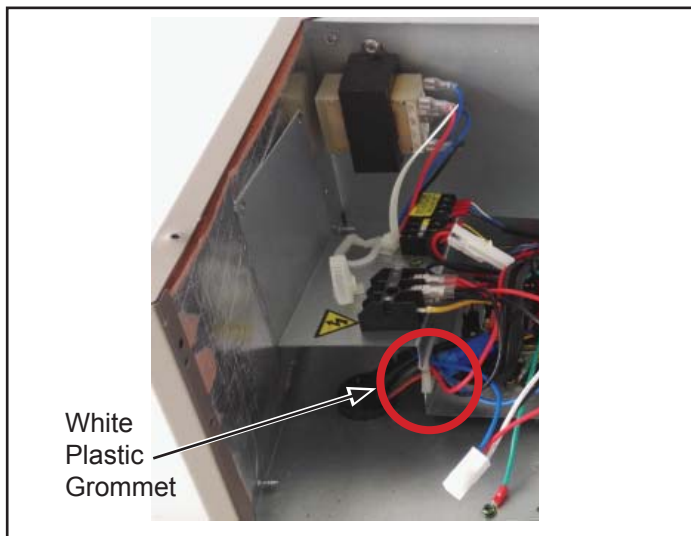


Figure 7. Route Wiring Through Grommet

- Connect the red wire spade terminal to L1 and connect the black wire spade terminal to L2 on the VVCA terminal block. See figures 8 and 9.

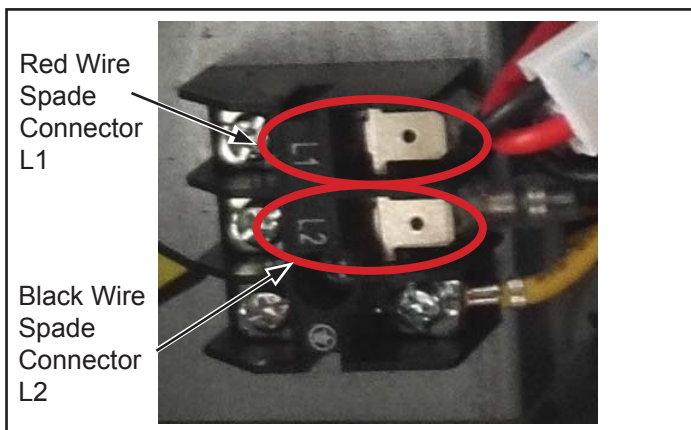


Figure 8. Connect Heat Kit to L1 & L2

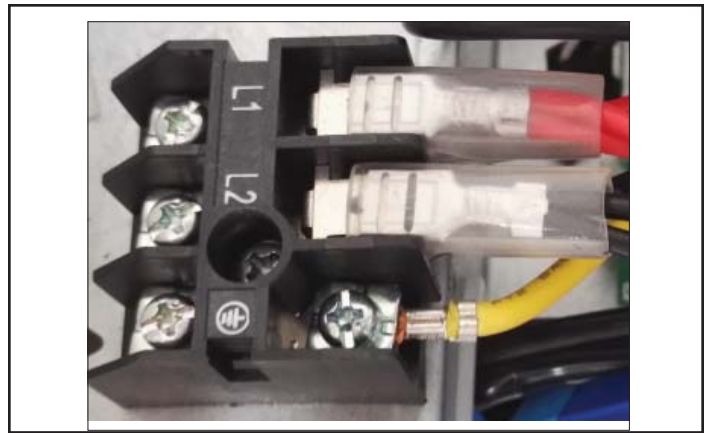


Figure 9. Heat Kit Connected to L1 & L2

- Connect the red plug to CN 14 on the VVCA main board. See figures 10 and 11.

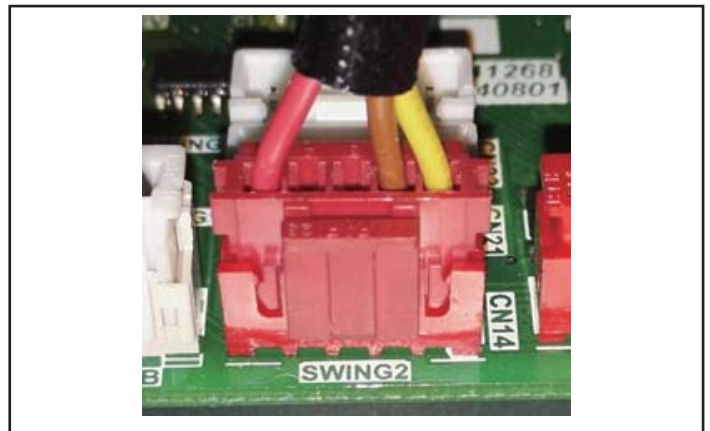


Figure 10. VVCA*H4-1P Connect Heat Kit to CN 14**

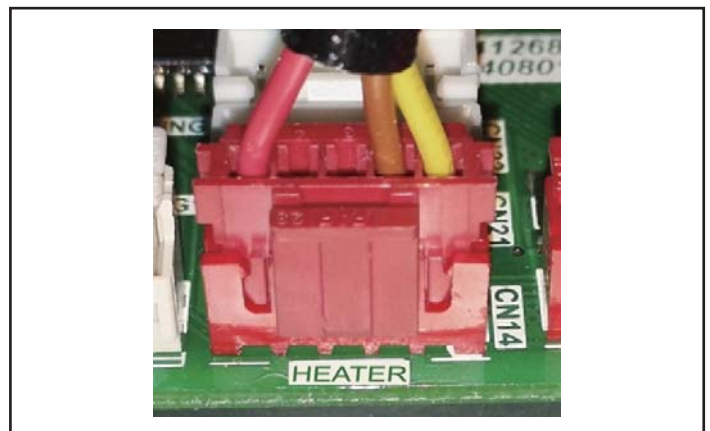


Figure 11. VVCA*H4-2P Connect Heat Kit to CN 14**

11. Remove the heat kit access panel. Retain screws for use in securing the heating element in a later step. See figure 12. **NOTE** - For V8EH0050P-1P, V8EH0080P-1P and V8EH0100P-1P, remove only one panel.



Figure 12. Remove Heat Kit Access Panel

12. Align the electric heat kit with the air handler unit and slide the heating element into the heat kit opening. The prongs on the back of the heating elements must be inserted into the holes in the back of the VVCA unit. See figure 13.

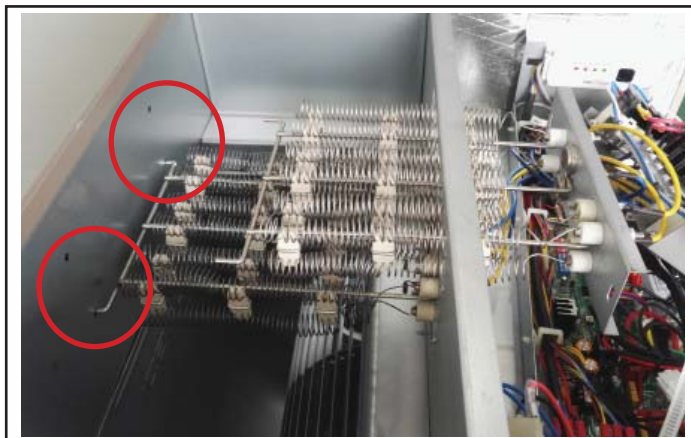


Figure 13. Position Heating Elements

13. Secure the mounting plate with the screws removed in Step 11.
14. Reinstall the main control board and terminal strip assembly with the screws removed in step 3.
15. Install the grounding terminal as shown in figure 14.

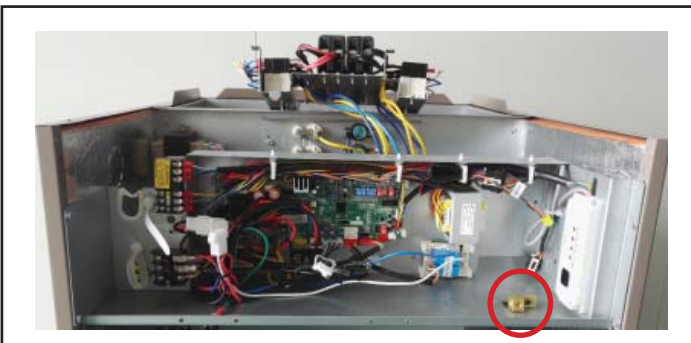


Figure 14. Install Grounding Terminal

16. Secure the relay to the bottom of the VVCA control box as shown in figure 15.

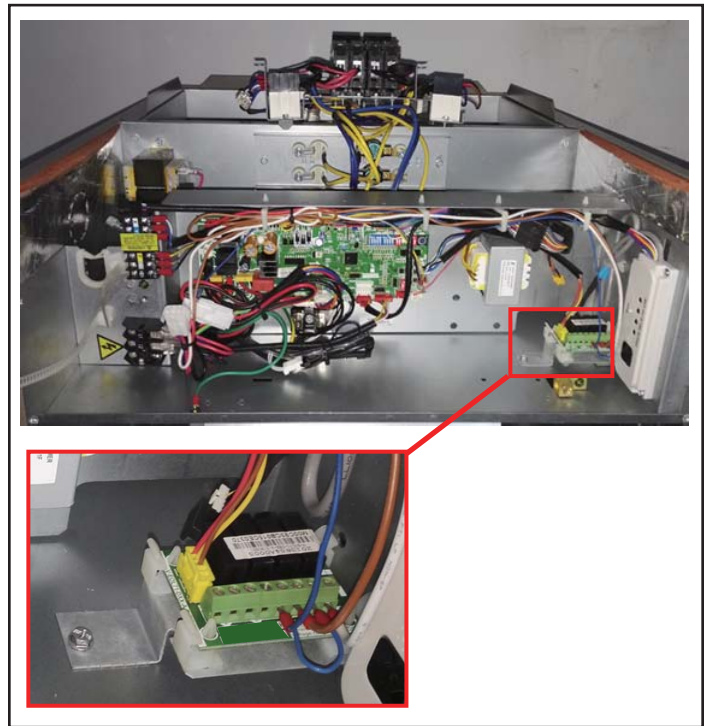


Figure 15. Secure Relay

17. Secure the circuit breaker panel onto the lip at the front of the control box with the two short screws. See figure 16.

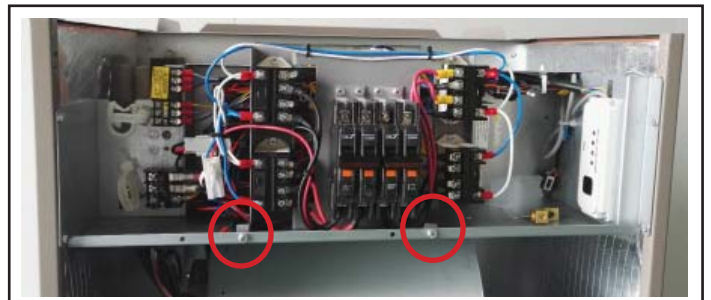


Figure 16. Secure Circuit Breaker Panel

18. Use the provided plastic wire clamp to secure the wires between the heater elements and the breaker panel to the top of the main control board and terminal strip assembly. Use an additional wire clamp already in the VVCA control box to secure the wires. See figure 17.

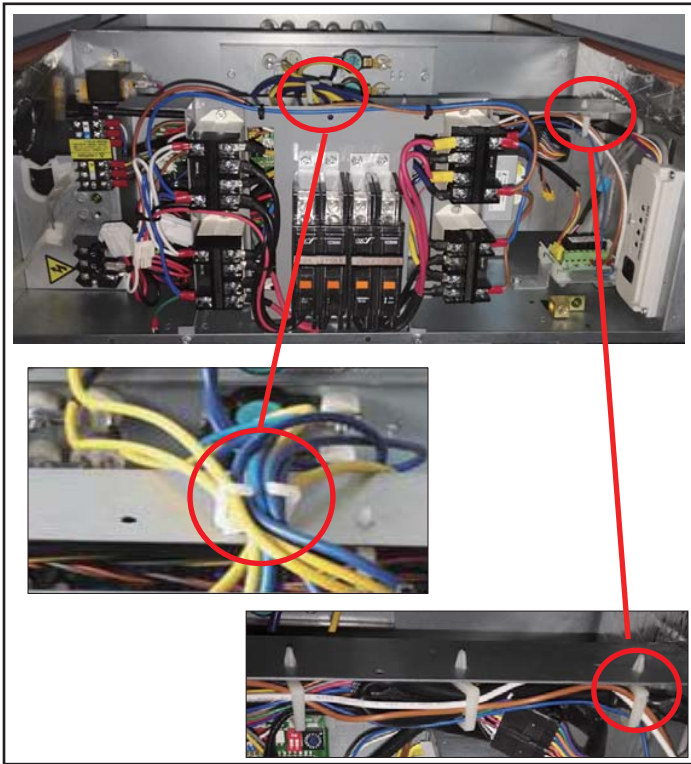


Figure 17. Secure Wires

19. Connect the white plug of the breaker panel to the white connector of the transformer and relay assembly. See figure 18.

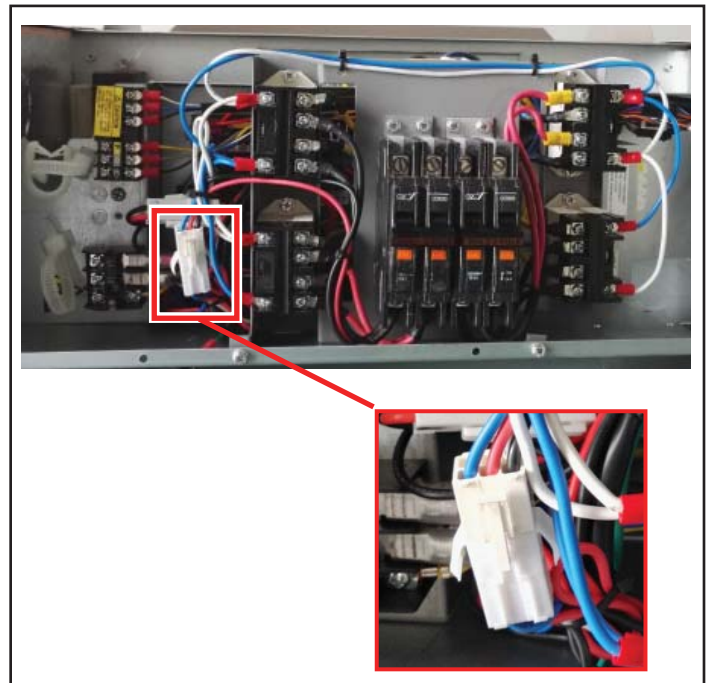


Figure 18. Connect White Plug

20. Follow NEC/CEC and local codes for the electrical supply. See figure 19 for power wiring connection location. **NOTE** - Heat kit provides power to indoor unit.

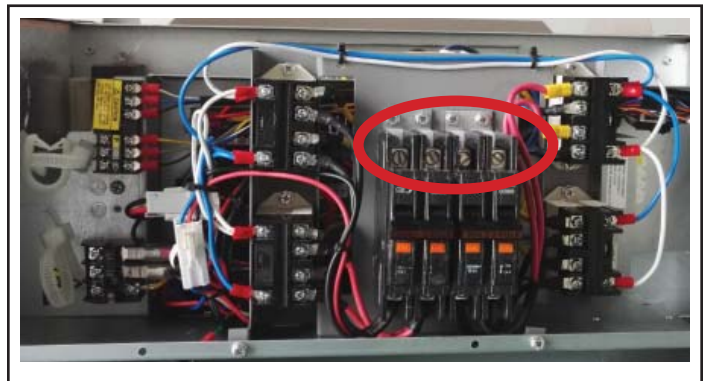


Figure 19. Connect Electrical Power

21. Ground power wiring to grounding terminal installed in step 15.

Unit Start-Up

1. Check that all electrical connections have been completed and jumpers configured (if required).
2. Break out appropriate area of the circuit breaker knockout on the blower access panel. See figure 20.
NOTE - For V8EH0050P-1P, V8EH0080P-1P and V8EH0100P-1P, remove only the left knockout.



Figure 20. Break Out Circuit Breaker Knockout

3. Reinstall the blower access panel and top panel on the VVCA unit.
4. Restore power to the unit.

5. If using a local controller, set the setpoint above room temperature to signal a call for heat.
6. Confirm new Heater kit has been engaged.
7. Confirm that the total amp draw of the new heater kit does not exceed Minimum Circuit Ampacity for installed heater kit stated on unit nameplate or this manual.
8. Confirm expected temperature difference exists between return air and supply air.
9. Adjust temperature setting on controller and confirm Heater kit completely disengages.
10. Confirm blower continues to run for a minimum period of time if the system is turned off at the controller when the heater kit is engaged.
11. Remove the blower access panel. Affix the wiring diagram sticker to blower scroll, aligned with the unit wiring diagram sticker.
12. Reinstall the blower access panel. Final installation shown in figure 21.
13. Set the local controller to the desired setting.



Figure 21. Completed Installation

Electrical Data

VVCA018H4

	Description	Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Blower Speed		
		Volt	kW	¹ Btuh				Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	3.0	26.8	30	•	•	•
		220	4.2	14,300	3.0	27.8	30	•	•	•
		230	4.6	15,700	3.0	28.8	30	•	•	•
		240	5.0	17,100	3.0	29.8	30	•	•	•
7.5 kW	V8EH0080P-1P (13P63)	208	5.6	19,200	3.0	37.8	⁴ 40	⁵ - - -	•	•
		220	6.3	21,500	3.0	39.8	⁴ 40	⁵ - - -	•	•
		230	6.9	23,500	3.0	41.8	45	⁵ - - -	•	•
		240	7.5	25,600	3.0	42.8	45	⁵ - - -	•	•

VVCA024H4

	Description	Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Blower Speed		
		Volt	kW	¹ Btuh				Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	3.0	26.8	30	•	•	•
		220	4.2	14,300	3.0	27.8	30	•	•	•
		230	4.6	15,700	3.0	28.8	30	•	•	•
		240	5.0	17,100	3.0	29.8	30	•	•	•
7.5 kW	V8EH0080P-1P (13P63)	208	5.6	19,200	3.0	37.8	⁴ 40	⁵ - - -	•	•
		220	6.3	21,500	3.0	39.8	⁴ 40	⁵ - - -	•	•
		230	6.9	23,500	3.0	41.8	45	⁵ - - -	•	•
		240	7.5	25,600	3.0	42.8	45	⁵ - - -	•	•
10 kW	V8EH0100P-1P (13P64)	208	7.5	25,600	3.0	48.8	⁴ 50	⁵ - - -	•	•
		220	8.4	28,700	3.0	51.8	60	⁵ - - -	•	•
		230	9.2	31,400	3.0	53.8	60	⁵ - - -	•	•
		240	10.0	34,100	3.0	55.8	60	⁵ - - -	•	•

VVCA030H4

	Description	Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Blower Speed		
		Volt	kW	¹ Btuh				Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	3.0	26.8	30	•	•	•
		220	4.2	14,300	3.0	27.8	30	•	•	•
		230	4.6	15,700	3.0	28.8	30	•	•	•
		240	5.0	17,100	3.0	29.8	30	•	•	•
7.5 kW	V8EH0080P-1P (13P63)	208	5.6	19,200	3.0	37.8	⁴ 40	⁵ - - -	•	•
		220	6.3	21,500	3.0	39.8	45	⁵ - - -	•	•
		230	6.9	23,500	3.0	41.8	45	⁵ - - -	•	•
		240	7.5	25,600	3.0	42.8	45	⁵ - - -	•	•
10 kW	V8EH0100P-1P (13P64)	208	7.5	25,600	3.0	48.8	⁴ 50	⁵ - - -	•	•
		220	8.4	28,700	3.0	51.8	60	⁵ - - -	•	•
		230	9.2	31,400	3.0	53.8	60	⁵ - - -	•	•
		240	10.0	34,100	3.0	55.8	60	⁵ - - -	•	•

NOTE - Circuit 1 Minimum Circuit Ampacity includes the Blower Motor Full Load Amps.

¹ Electric heater capacity only - does not include additional blower motor heat capacity.

² Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F.

³ HACR type breaker or fuse.

⁴ Electric heat is rated at 240V. If voltage is less than 240V installer must supply different circuit breaker as shown in the tables. Installer must also size wiring based on reduced voltage for proper installation.

⁵ Do not operate fan on low speed when V8EH Electric Heat Kit is used with VVCA air handler.

VVCA036H4

	Description	Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Blower Speed		
		Volt	kW	¹ Btuh				Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	4.2	28.3	⁴ 30	•	•	•
		220	4.2	14,300	4.2	29.3	⁴ 30	•	•	•
		230	4.6	15,700	4.2	30.3	35	•	•	•
		240	5.0	17,100	4.2	31.3	35	•	•	•
7.5 kW	V8EH0080P-1P (13P63)	208	5.6	19,200	4.2	39.3	⁴ 40	•	•	•
		220	6.3	21,500	4.2	41.3	45	•	•	•
		230	6.9	23,500	4.2	42.3	45	•	•	•
		240	7.5	25,600	4.2	44.3	45	•	•	•
10 kW	V8EH0100P-1P (13P64)	208	7.5	25,600	4.2	50.3	60	⁶ ---	•	•
		220	8.4	28,700	4.2	53.3	60	⁶ ---	•	•
		230	9.2	31,400	4.2	55.3	60	⁶ ---	•	•
		240	10.0	34,100	4.2	57.3	60	⁶ ---	•	•

VVCA048H4, VVCA054H4

	Description	Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity		³ Maximum Overcurrent Protection		⁵ Single Point Power Source		Blower Speed		
		Volt	kW	¹ Btuh		Ckt 1	Ckt 2	Ckt 1	Ckt 2	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	4.2	28.3	---	⁴ 30	---	---	---	•	•	•
		220	4.2	14,300	4.2	29.3	---	⁴ 30	---	---	---	•	•	•
		230	4.6	15,700	4.2	30.3	---	35	---	---	---	•	•	•
		240	5.0	17,100	4.2	31.3	---	35	---	---	---	•	•	•
7.5 kW	V8EH0080P-1P (13P63)	208	5.6	19,200	4.2	39.3	---	⁴ 40	---	---	---	•	•	•
		220	6.3	21,500	4.2	41.3	---	45	---	---	---	•	•	•
		230	6.9	23,500	4.2	42.3	---	45	---	---	---	•	•	•
		240	7.5	25,600	4.2	44.3	---	45	---	---	---	•	•	•
10 kW	V8EH0100P-1P (13P64)	208	7.5	25,600	4.2	50.3	---	60	---	---	---	•	•	•
		220	8.4	28,700	4.2	53.3	---	60	---	---	---	•	•	•
		230	9.2	31,400	4.2	55.3	---	60	---	---	---	•	•	•
		240	10.0	34,100	4.2	57.3	---	60	---	---	---	•	•	•
15 kW	V8EH0150P-1P (13P75)	208	11.3	38,400	4.2	50.3	23	60	⁴ 25	73.3	80	⁶ ---	•	•
		220	12.6	43,000	4.2	53.3	24	60	⁴ 25	77.3	80	⁶ ---	•	•
		230	13.8	47,000	4.2	55.3	25	60	⁴ 25	80.3	90	⁶ ---	•	•
		240	15.0	51,000	4.2	57.3	26	60	30	83.3	90	⁶ ---	•	•
20 kW	V8EH0200P-1P (13P76)	208	15.0	51,200	4.2	50.3	45	60	⁴ 50	95.3	100	⁶ ---	•	•
		220	16.8	57,300	4.2	53.3	48	60	⁴ 50	101.3	110	⁶ ---	•	•
		230	18.4	62,700	4.2	55.3	50	60	⁴ 50	105.3	110	⁶ ---	•	•
		240	20.0	68,200	4.2	57.3	52	60	60	109.3	110	⁶ ---	•	•

NOTE - Circuit 1 Minimum Circuit Ampacity includes the Blower Motor Full Load Amps.

¹ Electric heater capacity only - does not include additional blower motor heat capacity.

² Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F.

³ HACR type breaker or fuse.

⁴ Electric heat is rated at 240V. If voltage is less than 240V installer must supply different circuit breaker as shown in the tables. Installer must also size wiring based on reduced voltage for proper installation.

⁵ Single point power source breaker for unit with 15 and 20 kW electric heat is not furnished and must be field provided.

⁶ Do not operate fan on low speed when V8EH Electric Heat Kit is used with VVCA air handler.

Wiring Diagrams

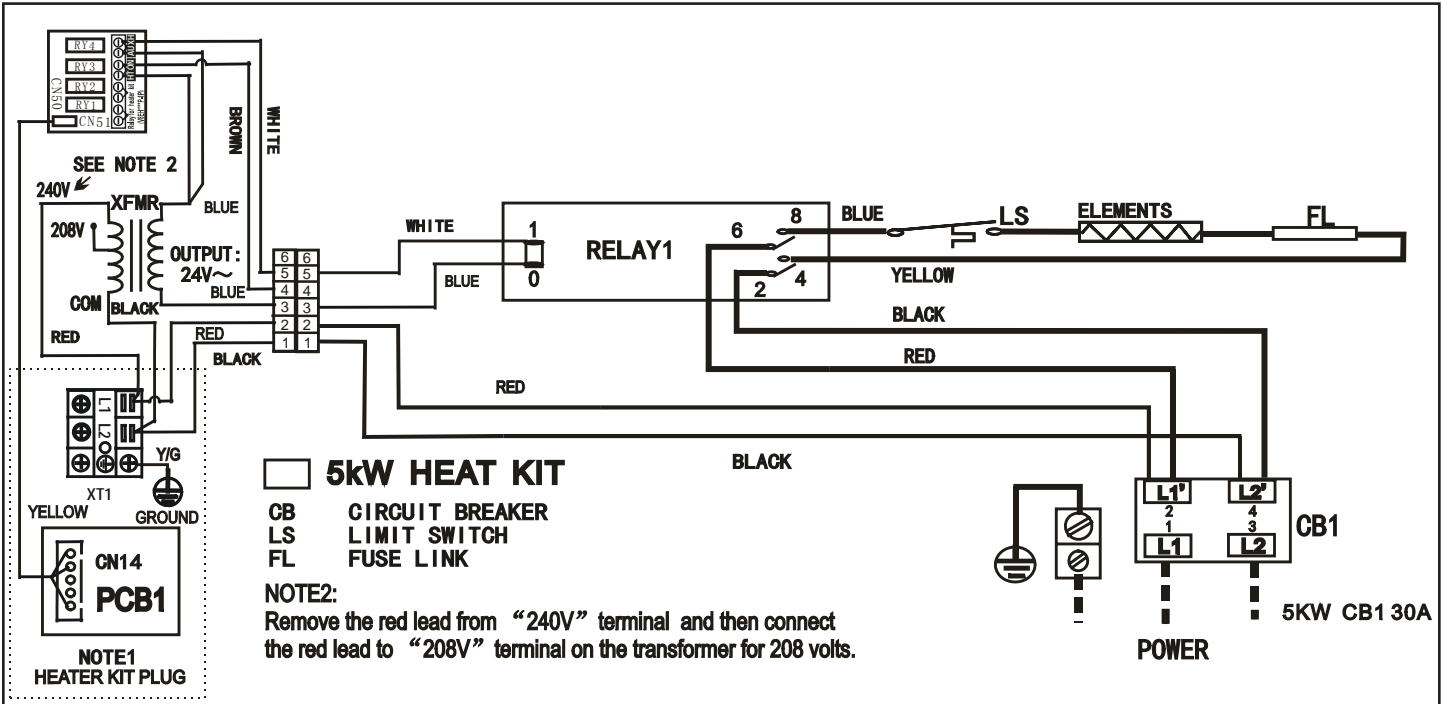


Figure 21. V8EH0050P-1P 5kW Wiring Diagram

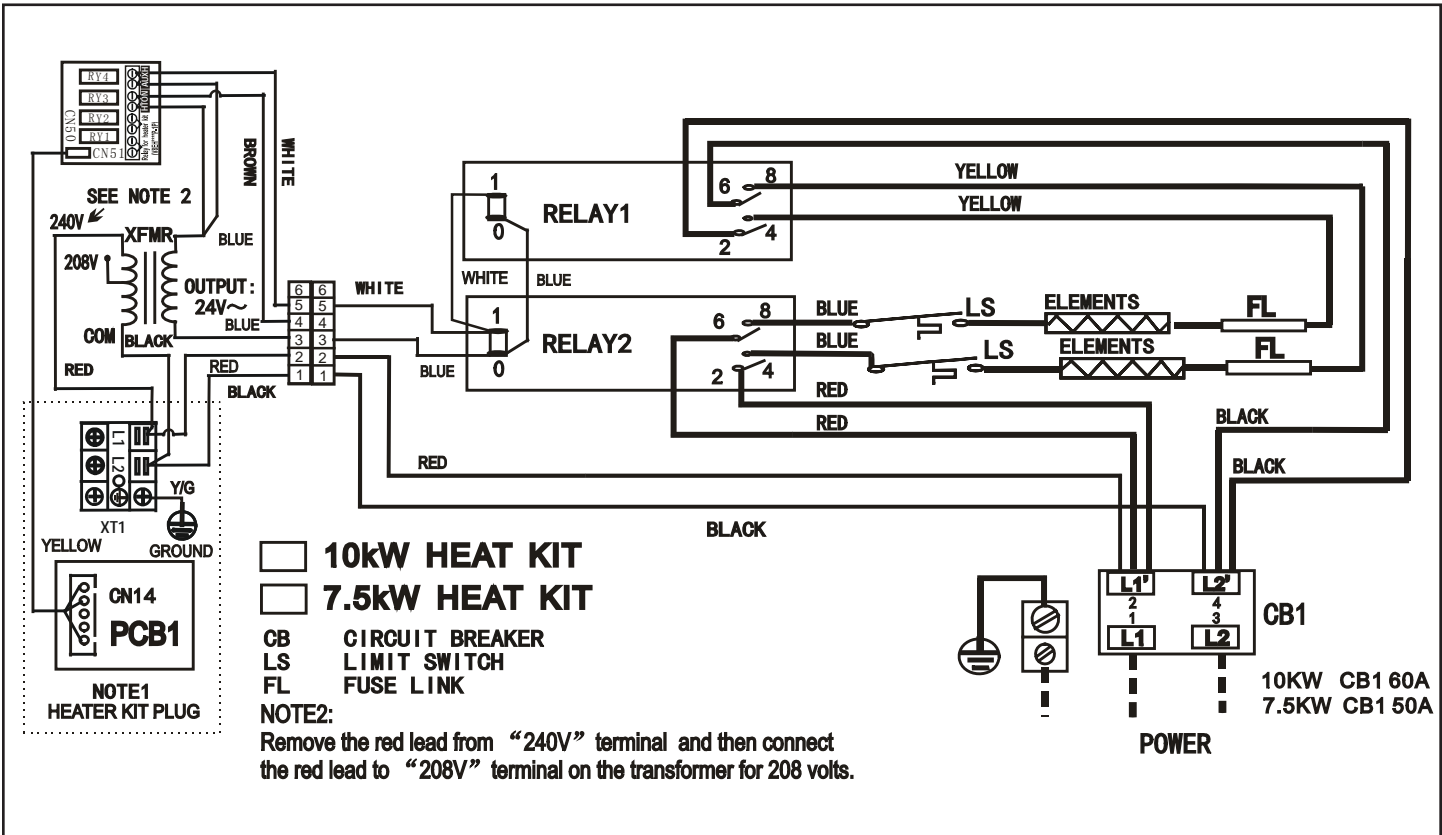


Figure 22. V8EH0080P-1P 7.5 and V8EH0100P-1P 10kW Wiring Diagram

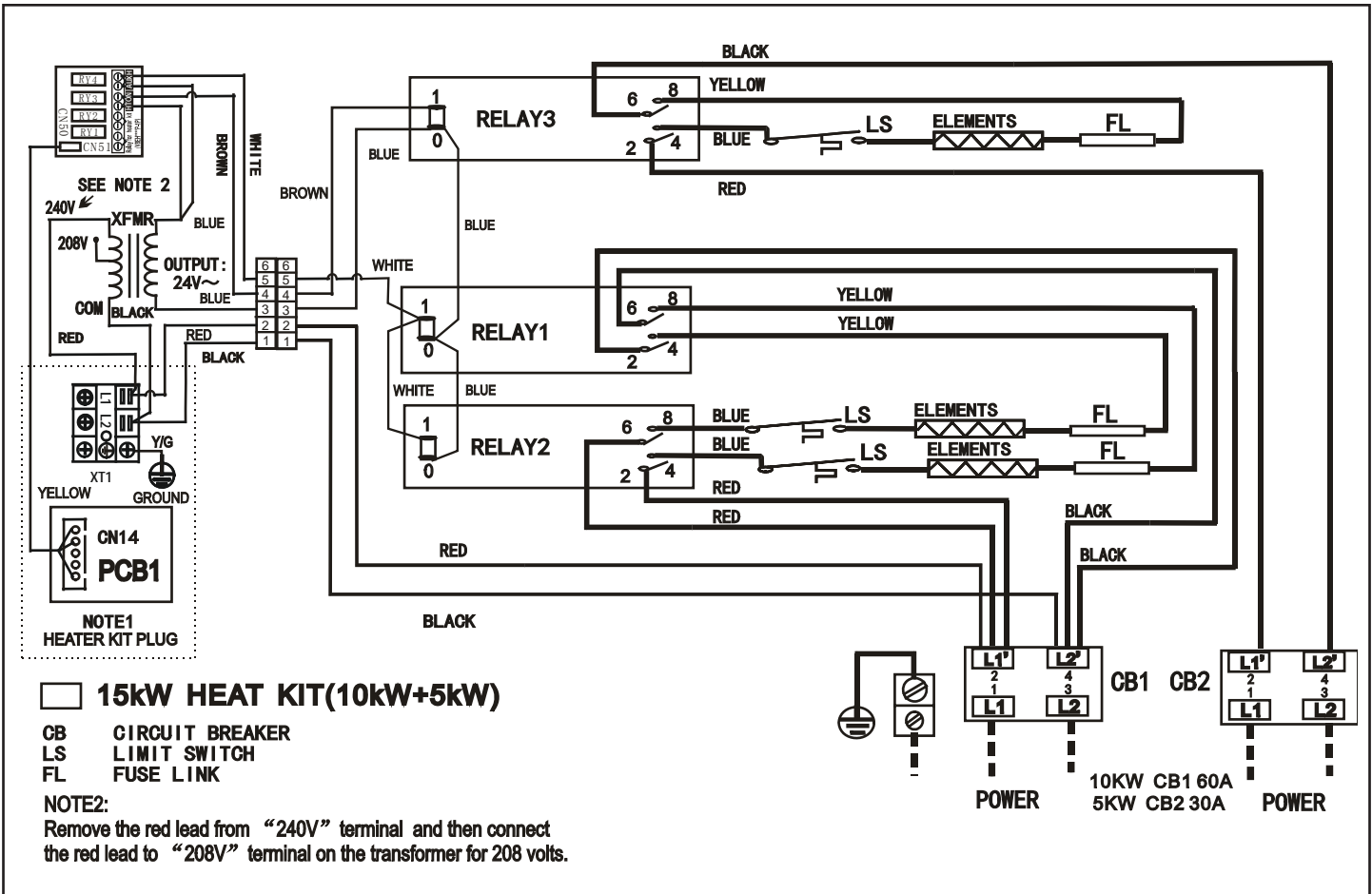


Figure 23. V8EH0150P-1P 15kW Wiring Diagram

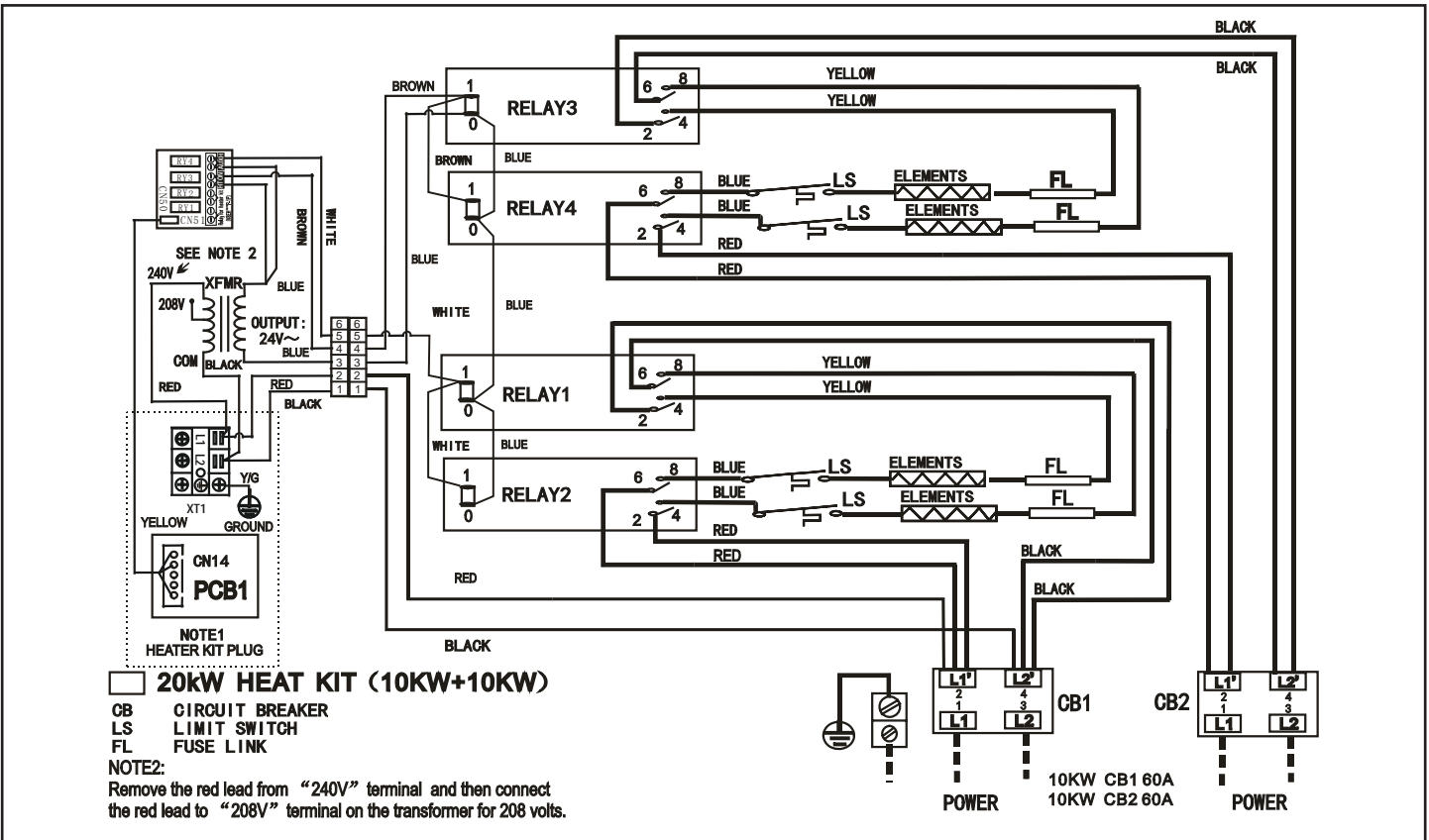


Figure 24. V8EH0200P-1P 20kW Wiring Diagram

