
SAMSUNG

Accessory Heat Kit For V-AHU

VHK-✳✳✳A

installation manual

imagine the possibilities

Thank you for purchasing this Samsung product.

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Contents

Safety Precautions

(Carefully follow the precautions listed below because they are essential to guarantee the safety of the equipment.)

WARNING

- Always disconnect the air conditioner from the power supply before servicing it or accessing its internal components.
- Verify that installation and testing operations are performed by qualified personnel.
- Verify that the air conditioner is not installed in an easily accessible area.

General information

▶ Carefully read the content of this manual before installing the air conditioner and store the manual in a safe place in order to be able to use it as reference after installation.

▶ For maximum safety, installers should always carefully read the following warnings.

▶ Store the operation and installation manual in a safe location and remember to hand it over to the new owner if the air conditioner is sold or transferred.

▶ This manual explains how to install an indoor unit with a split system with SAMSUNG units. The use of other types of units with different control systems may damage the units and invalidate the warranty. The manufacturer shall not be responsible for damages arising from the use of non compliant units.

▶ The manufacturer shall not be responsible for damage originating from unauthorized changes or the improper connection of electric lines. Failure to comply with these instructions or to comply with the requirements set forth in this manual, shall immediately invalidate the warranty.

▶ The air conditioner should be used only for the applications for which it has been designed: the indoor unit is not suitable to be installed in areas used for laundry.

▶ Do not use the units if damaged. If problems occur, switch the unit off and disconnect it from the power supply.

▶ In order to prevent electric shocks, fire or injuries, always stop the unit, disable the protection switch and contact SAMSUNG's technical support if the unit produces smoke, if the power cable is hot or damaged or if the unit is very noisy.

▶ Always remember to inspect the unit, electric connections, refrigerant tubes and protections regularly. These operations should be performed by qualified personnel only.

▶ Do not attempt to repair, move, alter or reinstall the unit. If performed by unauthorized personnel, these operations may cause electric shocks or files.

▶ Do not place containers with liquids or other objects on the unit.

CAUTION

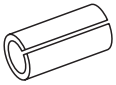
- Make sure that you earth/ground the power cables.
  - Do not connect the earth wire to the gas pipe, water pipe, lighting rod or telephone wire. If earthing is not complete, electric shock or fire may occur.
- Install the circuit breaker.
  - If the circuit breaker is not installed, electric shock or fire may occur.

Product Inspection

As soon as the air handler is received, it should be inspected for possible damage during transit. If damage is evident, the extent of the damage should be noted on the carrier's freight bill. A separate request for inspection by the carrier's agent should be made in writing. Before installing the air handler you should check the cabinet for screws or bolts which may have loosened in transit. There are no shipping or spacer brackets which need to be removed before startup. See local Distributor for more information. Samsung assumes no liability for freight damage.

Accessories

The following accessories are supplied with the indoor unit.

Installation manual	Cable ties	Insulation
		

General Information

- This installation manual covers the physical installation of the following electric heat kits with the AM0**JNZDCH/AA and AM0**TNZDCH/AA air handling unit.

AHU Model	Heat Kit Compatibility
AM012JNZDCH/AA, AM012TNZDCH/AA	VHK-103A
AM018JNZDCH/AA, AM018TNZDCH/AA	VHK-103A, VHK-105A
AM024JNZDCH/AA, AM024TNZDCH/AA	VHK-103A, VHK-105A
AM030JNZDCH/AA, AM030TNZDCH/AA	VHK-205A, VHK-210A
AM036JNZDCH/AA, AM036TNZDCH/AA	VHK-205A, VHK-210A
AM048JNZDCH/AA, AM048TNZDCH/AA	VHK-305A, VHK-310A
AM054JNZDCH/AA, AM054TNZDCH/AA	VHK-305A, VHK-310A, VHK-315A
AM060JNZDCH/AA, AM060TNZDCH/AA	VHK-305A, VHK-310A, VHK-315A, VHK-320A
AM072JNZDCH/AA, AM072TNZDCH/AA	VHK-305A, VHK-310A, VHK-315,A VHK-320A

Codes

The wiring must be installed in accordance with the following codes:

- National Electrical Code (NFPA 70)
- Canadian Electrical Code, Part I (CSA C22.1)
- All local codes (State, City, and Township)

NOTE: All applicable codes take precedence over any recommendation made in these instructions.

Indoor unit Installation

Install the indoor unit as described in the indoor unit installation manual before installing the accessory electric heat kit.

Wiring Requirements

Small chassis (12,000 - 24,000 Btu/h)		Indoor Unit Model		
		AM012*NZDCH/AA	AM018*NZDCH/AA	AM024*NZDCH/AA
VHK-103A	3 kW Heater Amps - 208/240V	10.9 / 12.5	10.9 / 12.5	10.9 / 12.5
VHK-105A	5 kW Heater Amps - 208/240V	-	18.0 / 20.83	18.0 / 20.83
Indoor blower amps		0.72	0.72	0.72

Heater kW	3	3	5	3	5
Minimum wire size (90°C)	#12	#12	#10	#12	#10
Minimum wire size (75°C)	#12	#12	#10	#12	#10
Minimum wire size (60°C)	#12	#12	#10	#12	#10
Max fuse size (amps)	15	15	30	15	30

Medium chassis (30,000 - 36,000 Btu/h)		Indoor Unit Model	
		AM030*NZDCH/AA	AM036*NZDCH/AA
VHK-205A	5 kW Heater Amps - 208/240V	18.0 / 20.83	18.0 / 20.83
VHK-210A	10 kW Heater Amps - 208/240V	36.06 / 41.67	36.06 / 41.67
Indoor blower amps		1.66	1.66

Heater kW	5	10	5	10
Minimum wire size (90°C)	#10	#6	#10	#6
Minimum wire size (75°C)	#10	#6	#10	#6
Minimum wire size (60°C)	#10	#4	#10	#4
Max fuse size (amps)	30	60	30	60

Large chassis (48,000 - 54,000 Btu/h)		Indoor Unit Model	
		AM048*NZDCH/AA	AM054*NZDCH/AA
VHK-305A	5 kW Heater Amps - 208/240V	18.0 / 20.88	18.0 / 20.88
VHK-310A	10 kW Heater Amps - 208/240V	36.1 / 41.7	36.1 / 41.7
VHK-315A	15 kW Heater Amps - Circuit 1 - 208/240V	-	18.0 / 20.8
	15 kW Heater Amps - Circuit 2 - 208/240V	-	36.1 / 41.7
Indoor blower amps		2.09	2.09

Heater kW	5	10	5	10	15	
Circuit #	1	1	1	1	1	2
Minimum wire size (90°C)	#10	#6	#10	#6	#10	#6
Minimum wire size (75°C)	#10	#6	#10	#6	#10	#6
Minimum wire size (60°C)	#10	#4	#10	#4	#10	#4
Max fuse size (amps)	30	60	30	60	30	60

Large chassis (60,000 - 72,000 Btu/h)		Indoor Unit Model	
		AM060*NZDCH/AA	AM072*NZDCH/AA
VHK-305A	5 kW Heater Amps - 208/240V	18.0 / 20.88	18.0 / 20.88
VHK-310A	10 kW Heater Amps - 208/240V	36.1 / 41.66	36.1 / 41.66
VHK-315A	15 kW Heater Amps - Circuit 1 - 208/240V	18.0 / 20.8	18.0 / 20.8
	15 kW Heater Amps - Circuit 2 - 208/240V	36.1 / 41.7	36.1 / 41.7
VHK-320A	20 kW Heater Amps - Circuit 1 - 208/240V	36.1 / 41.7	36.1 / 41.7
	20 kW Heater Amps - Circuit 2 - 208/240V	36.1 / 41.7	36.1 / 41.7
Indoor blower amps		2.09	5.72

Heater kW	5	10	15		20		5	10	15		20	
Circuit #	1	1	1	2	1	2	1	1	1	2	1	2
Minimum wire size (90°C)	#10	#6	#10	#6	#6	#6	#8	#6	#10	#6	#6	#6
Minimum wire size (75°C)	#10	#6	#10	#6	#6	#6	#8	#6	#10	#6	#6	#6
Minimum wire size (60°C)	#10	#4	#10	#4	#4	#4	#8	#4	#10	#4	#4	#4
Max fuse size (amps)	30	60	30	60	60	60	35	60	30	60	60	60

Wiring Work

WARNING

• For personal safety be sure to turn the electrical power "OFF" at the main entrance (Home Circuit Breaker Box) and at the unit control box circuit breakers before attempting any service or maintenance operations. Homeowners should never attempt to perform any maintenance which requires opening the air handler control box door.

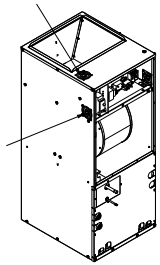
• This air handler is not equipped with a shield that covers the line voltage electrical supply wires and the circuit breaker connections. Take precautions to prevent accidental electrical shock. Be sure to turn the electrical power "OFF" at the main entrance (Home Circuit Breaker Box) and at the control box circuit breakers before removing the front panel.

Power supply wiring with accessory electric heat kit

- The unit internal wiring is complete except for the power supply and control wires.
- The use of cable connectors on incoming power supply wires to relieve any strain on wiring is recommended.
- Follow the steps below to connect the power supply wires.
- Supply voltage is 208/230V, 1ø, 60 Hz.

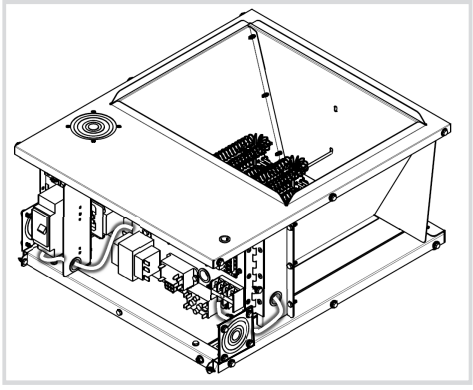
Power supply wiring with accessory electric heat kit

1. Before wiring work, you must turn off all power source.
2. Indoor unit power should be supplied through the breaker (ELCB or MCCB+ELB) separate from the outdoor power.
   ELCB : Earth Leakage Circuit Breaker
   MCCB : Molded Case Circuit Breaker
   ELB : Earth Leakage Breaker
3. Only copper power cables should be used.
4. Remove the blower and control box access panel (door).
5. Install the cable connectors on the 7/8" diameter holes on the left side of the control box.



Power conduit connection openings

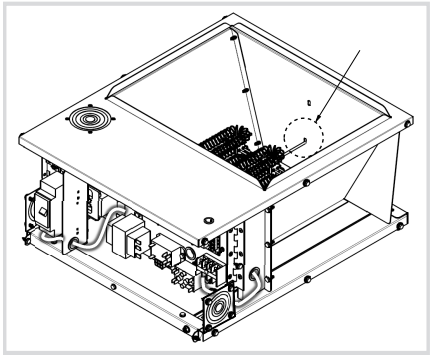
6. Connect a wire (minimum 14 AWG) with ring connectors to 1(L) and 2(N) terminals located on the right side of the control box that is long enough to reach the other side of the control box as pictured below.
7. Route the power pigtail leads through the control box opening pictured below and route to the left side of the control box for connection to the heat breakers in a later step.



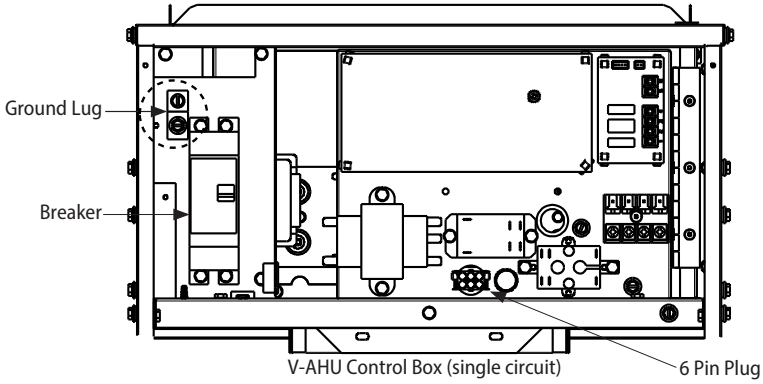
Wiring Work

Power supply wiring with accessory electric heat kit

8. Swing the hinged control plate outward exposing the back side of the control box. Remove the screws holding the electric heat kit block off plate. Save the screws.
9. Carefully pass the accessory heating element through the rectangular opening in the discharge of the air handler and secure the heating element with the screws from step 8. Heating element support rod must be seated in the hole on the opposite side of the discharge.



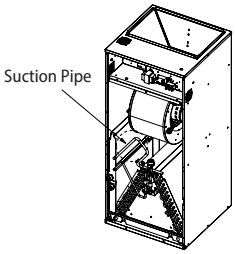
10. Install the breakers at the front-left of the control box.
11. Connect the power pigtail leads that are connected to 1(L) and 2(N) to the bottom of the breakers.
12. Insert the power wires through the holes in the casing and through the cable connectors.
13. Strip ½" of the insulation on the end of each power wire.
14. Connect the black supply wire to the high voltage connection lug on the accessory heat kit breaker.
15. Connect the white supply wire to the other high voltage connection lug on the accessory heat kit breaker.
16. Connect the green (ground) wire to the ground lug to the left of the accessory heat kit breakers and tighten the ground lug screw. Make sure to leave extra slack in the ground wire to allow service to the unit without disconnecting the ground wire. If the heat kit requires 2 circuits (dual circuit) , both circuit ground wires must be connected to a ground lug (dual circuit kits have two individual ground lugs).

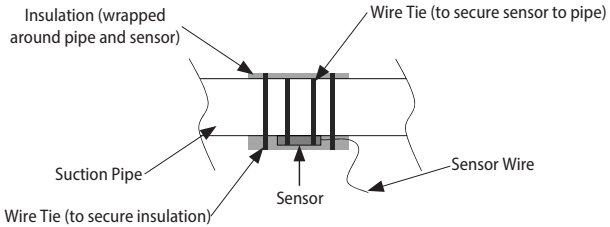


Wiring Work

Power supply wiring with accessory electric heat kit

17. Connect the six pin male plug on the electric heater assembly to the six pin female plug mounted at the bottom of the control assembly door.
18. Remove the wiring diagram from the accessory heat kit. Remove the paper that covers the adhesive back and place the electric heat wiring diagram over the wiring diagram located on the blower housing.
19. Route temperature sensor from the accessory electric heat kit to the lower section of the AHU cabinet. Attach the sensor to the bottom of the suction pipe as shown below with included wire ties.





20. Wrap included insulation around the sensor and secure with included wire ties.
21. Remove the breaker opening cover plate on the AHU door and secure the doors to the unit.

NOTE: The electric heat kits are equipped with either one or two circuit breakers. These circuit breakers protect the wiring inside of the AHU in the event of a short circuit. Additionally, these breakers provide a means of disconnecting the power to the unit. The circuit breakers in the AHU's are not meant to protect the branch circuit wiring between the furnace and the building's breaker panel. If sheathed cable is used, refer to NEC National Electrical Code (NFPA 70) or the Canadian Electrical Code, Part I (CSA C22.1) and local codes for additional requirements concerning supply circuit wiring. Electrical data can be found in Tables 2-5.
IMPORTANT - All installation on field wiring must be rated at 60ºC or higher. Please refer to the wiring diagrams on the furnace or the tables this manual for more information. The 15kW and 20kW models may be connected to a single or dual branch circuit. Refer to the NEC National Electrical Code (NFPA 70) or the Canadian Electrical Code, Part I (CSA C22.1) and local codes for wiring material requirements.

Wiring Work

Power supply connections

If the air handler has been installed prior to installing the electric heaters or if an older unit is being replaced, the supply power wires must be checked to make sure the wires are the proper sizes to handle the current load for the heaters. Refer to table below for correct wire size. If the supply power wire size is incorrect, new wires will need to be installed. Follow the instructions "Power Supply Wiring" on page 18 of these instructions for proper installation.

ELECTRICAL DATA																						
Indoor Unit Model	Electric Heater Data						Minimum Circuit Ampacity (MCA)				Maximum Overcurrent Protection (MOCP)				Minimum Wire Size (AWG)				Short-Circuit Current Rating	
	Circuit Qty.	Kw (2)	Amps 208V Circuit 1	Amps 208V Circuit 2	Amps 240V Circuit 1	Amps 240V Circuit 2	208V Circuit 1	208V Circuit 2	240V Circuit 1	240V Circuit 2	208V (3,4) Circuit 1	208V (3,4) Circuit 2	240V (3,4) Circuit 1	240V (3,4) Circuit 2	Circuit 1 75°C / 90°C	Circuit 1 60°C	Circuit 2 75°C / 90°C	Circuit 2 60°C	"SCCR" kA rms symmetrical	"SCCR" V maximum
SMALL CABINET-NOMINAL1.0, 1.5 & 2.0 TONS (0 To 5 Kw)																				
AM012JNZDCH/AA, AM012TNZDCH/AA	1	0	0	-	0	-	0.90	-	0.90	-	10.0	-	10.0	-	#14	#14	-	-	n/a	n/a
	1	3	10.90	-	12.50	-	13.63	-	15.63	-	15.0	-	20.0	-	#12	#12	-	-	n/a	n/a
AM018JNZDCH/AA, AM018TNZDCH/AA, AM024JNZDCH/AA, AM024TNZDCH/AA	0	0	0	-	0	-	0.90	-	0.90	-	10.0	-	10.0	-	#14	#14	-	-	n/a	n/a
	1	3	10.90	-	12.50	-	13.63	-	15.63	-	15.0	-	20.0	-	#12	#12	-	-	n/a	n/a
	1	5	18.03	-	20.83	-	23.26	-	26.76	-	30.0	-	30.0	-	#10	#10	-	-	n/a	n/a
MEDIUM CABINET-NOMINAL 2.5, 3.0 TONS (0 To 10 Kw)																				
AM030JNZDCH/AA, AM030TNZDCH/AA, AM036JNZDCH/AA, AM036TNZDCH/AA	1	0	-	-			2.08	-	2.08	-	10.0	-	10.0	-	#14	#14	-	-	n/a	n/a
	1	5	18.03	-	20.83	-	24.20	-	27.70	-	30.0	-	30.0	-	#10	#10	-	-	n/a	n/a
	1	10	36.06	-	41.67	-	46.73	-	53.74	-	50.0	-	60.0	-	#6	#4	-	-	n/a	n/a
LARGE CABINET-NOMINAL 4.0, 4.5, 5.0, 6.0 TONS (0 To 20 Kw)																				
AM048JNZDCH/AA, AM048TNZDCH/AA	1	0	-	-			2	-	2.6	-	15.06	-	15.0	-	#14	#14	-	-	n/a	n/a
	1	5	18.0	-	20.8	-	24.6	-	26.0	-	30.0	-	30.0	-	#10	#10	-	-	n/a	n/a
	1	10	36.1	-	41.7	-	45.1	-	52.1	-	50.0	-	60.0	-	#6	#4	-	-	n/a	n/a
AM054JNZDCH/AA, AM054TNZDCH/AA, AM060JNZDCH/AA, AM060TNZDCH/AA	1	0	-	-			2	-	2.6	-	15.06	-	15.0	-	#14	#14	-	-	n/a	n/a
	1	5	18.0	-	20.8	-	24.6	-	26.0	-	30.0	-	30.0	-	#10	#10	-	-	n/a	n/a
	1	10	36.1	-	41.7	-	45.1	-	52.1	-	50.0	-	60.0	-	#6	#4	-	-	n/a	n/a
	2	15	18.0	36.1	20.8	41.7	24.6	47.2	28.1	54.2	30.0	50.0	30.0	60.0	#6	#4	#10	#10	5	240
AM072JNZDCH/AA, AM072TNZDCH/AA	1	0	-	-			7	-	7.2	-	15.02	-	15.0	-	#14	#14	-	-	n/a	n/a
	1	5	18.0	-	20.8	-	28.3	-	26.0	-	30.0	-	30.0	-	#10	#10	-	-	n/a	n/a
	1	10	36.1	-	41.7	-	45.1	-	52.1	-	50.0	-	60.0	-	#6	#4	-	-	n/a	n/a
	2	15	18.0	36.1	20.8	41.7	28.2	50.8	31.7	57.8	30.0	60.0	35.0	60.0	#6	#4	#10	#10	5	240
	2	20	36.1	36.1	41.7	41.7	50.8	50.8	57.8	57.8	60.0	60.0	60.0	60.0	#6	#4	#6	#4	5	240

(1) Rated Motor Amps (at DOE External Static Rating Point)

(2) Nominal Kw At 240V (Derate 25% For 208V)

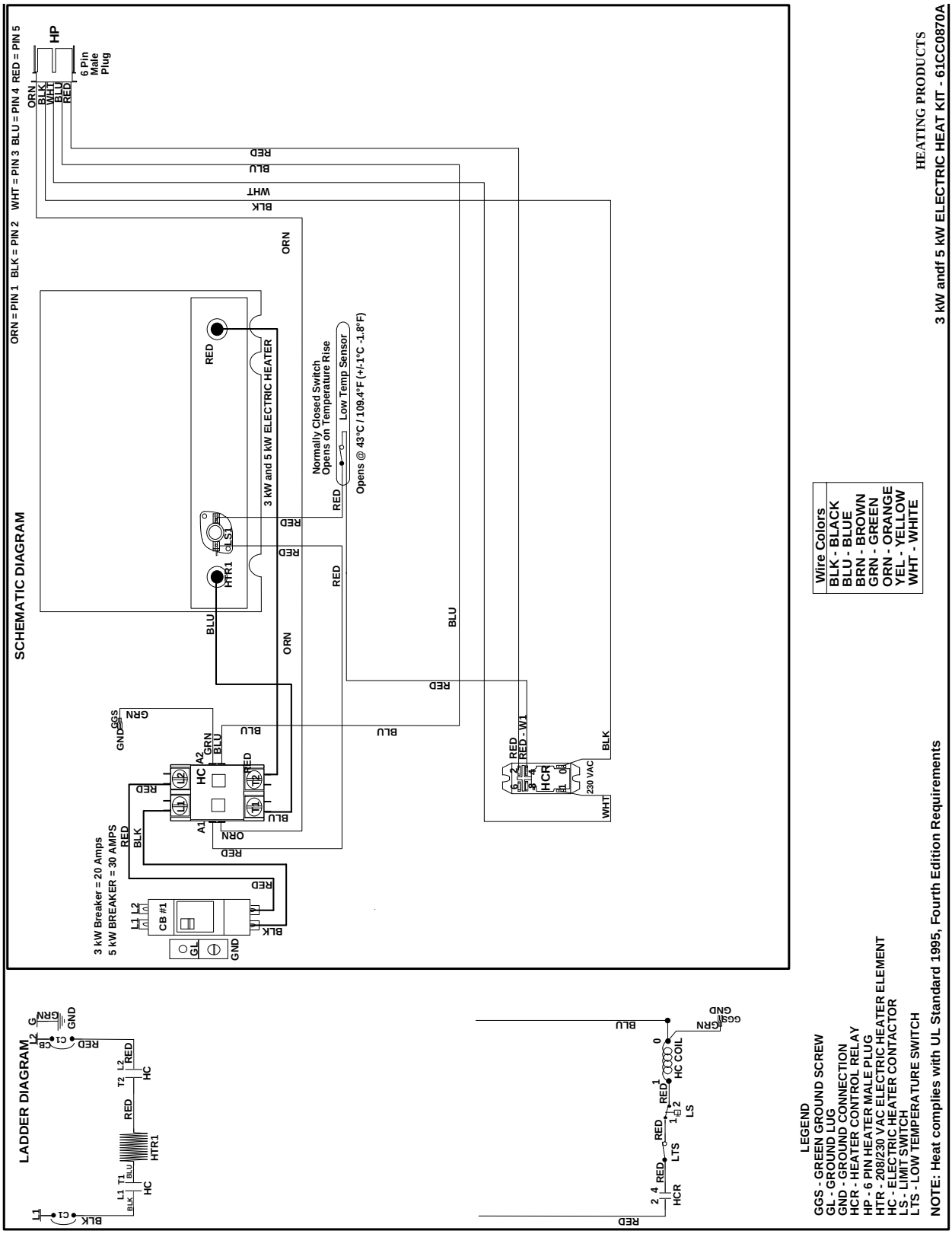
(3) Fuse or HACR Breaker

(4) Maximum Overcurrent Device, Overcurrent Protection Installed On Breaker Models Are Sized Per MCA

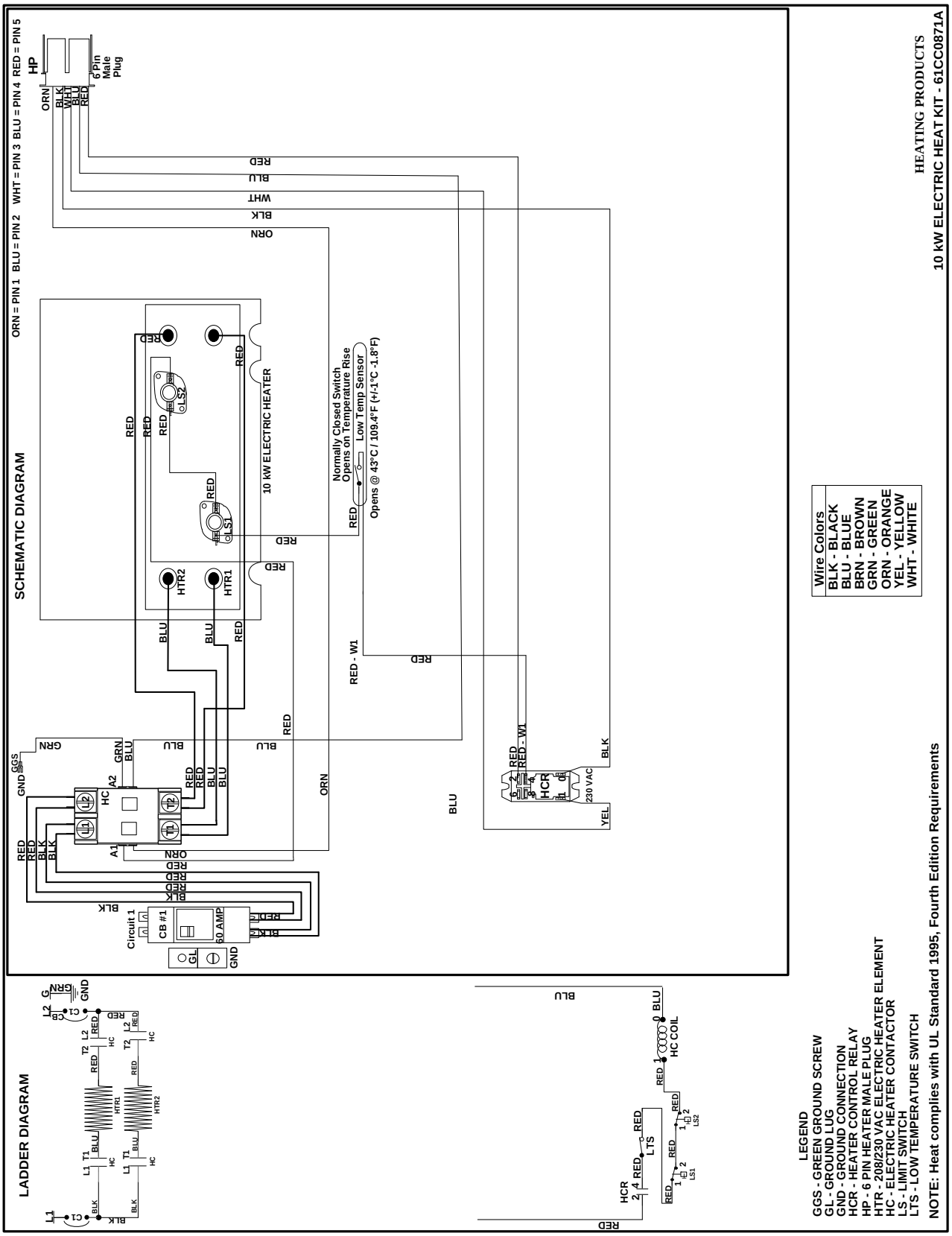
• To prevent damage, carefully insert the electric heating assembly through the rectangular opening in the front of the discharge opening so the heat element support rod is seated into the hole on the back side of the discharge opening.

• After installing the electric heater, a one inch clearance must be maintained on all sides of the supply air duct and/or plenum for a minimum of thirty six inches from the air handler discharge opening.

Wire Diagram



Wire Diagram



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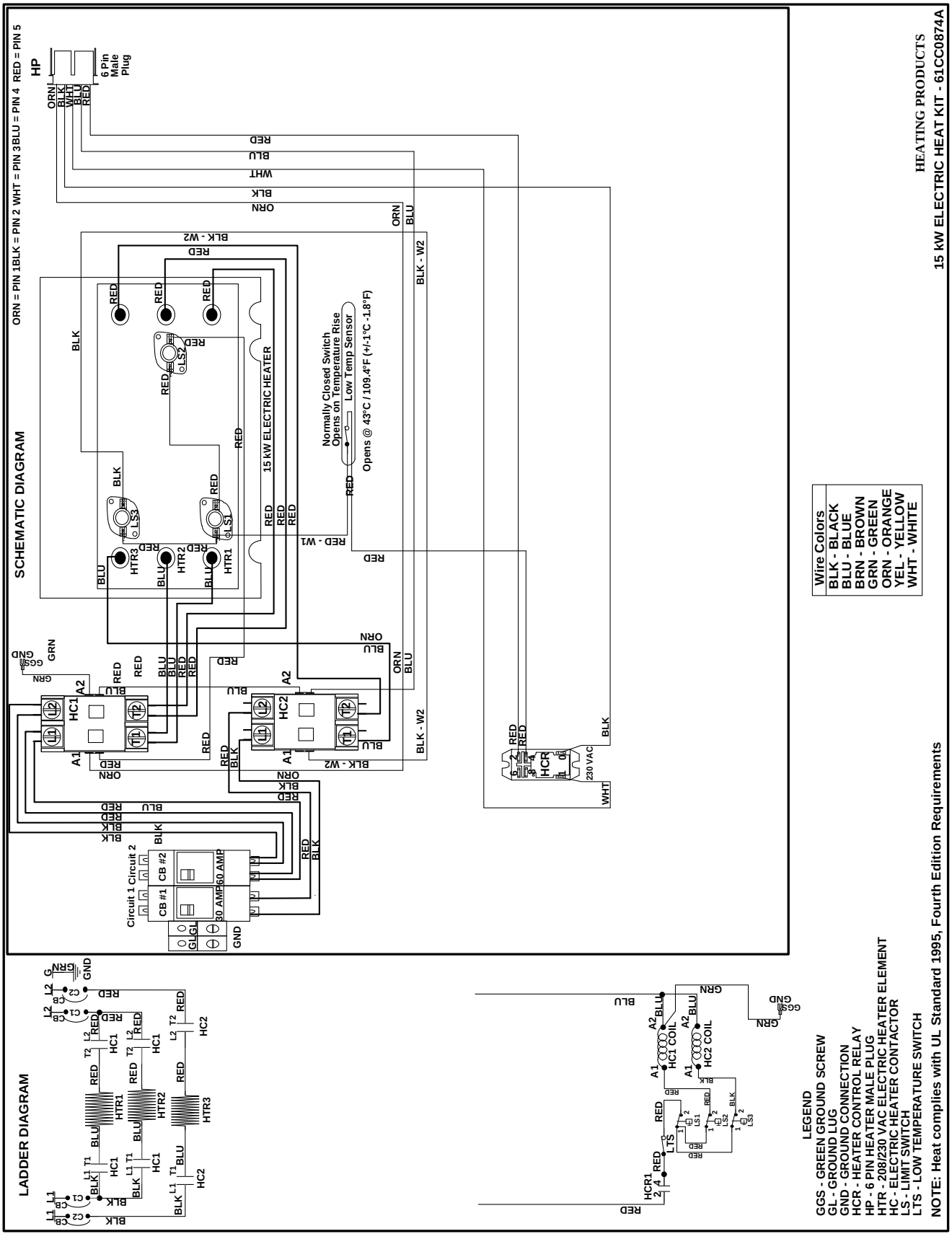
Wire Diagram



Wire Diagram