

Installation Instructions

Electric Heater Kits

Foundation™ Packaged Rooftop Units

7.5 to 12.5 Tons

Model Numbers:

BAYHTMA310B
BAYHTMA315B
BAYHTMA325B
BAYHTMA332B
BAYHTMA341B
BAYHTMA350B
BAYHTMA414B
BAYHTMA416B
BAYHTMA425B
BAYHTMA433B
BAYHTMA441B
BAYHTMA450B

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

NOTICE Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury.

All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in **NEC** and your local/state/national electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- **Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.**
- **When working with or around hazardous chemicals, ALWAYS refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.**
- **If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING**Follow EHS Policies!**

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

⚠ WARNING**R-454B Flammable A2L Refrigerant!**

Failure to use proper equipment or components as described below could result in equipment failure, and possibly fire, which could result in death, serious injury, or equipment damage.

The equipment described in this manual uses R-454B refrigerant which is flammable (A2L). Use **ONLY** R-454B rated service equipment and components. For specific handling concerns with R-454B, contact your local representative.

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Table of Contents

Pre-Installation	5	General Information	6
Inspection	5	Installation	9
Parts List	5	Wiring Diagram	12
Main Components	5		
Electric Heaters	6		

Pre-Installation

Inspection

1. Unpack all components of the kit.
2. Check carefully for shipping damage. If any damage is found, report it immediately, and file a claim against the transportation company.

Parts List

Table 1. Parts list

Qty	Description
1	Heater elements
1	Heater control assembly (including power supply and control)
1	Wiring diagrams
16	ANSI/B-4.8*16 screws
1	Cable ties

Important:

- The 41kW heater consists one 16kW and one 25 kW element.
- The 32kW heater consists of two 16kW elements.
- The 50kW heater consists of two 25kW elements.

Main Components

Figure 1. Electric heater elements

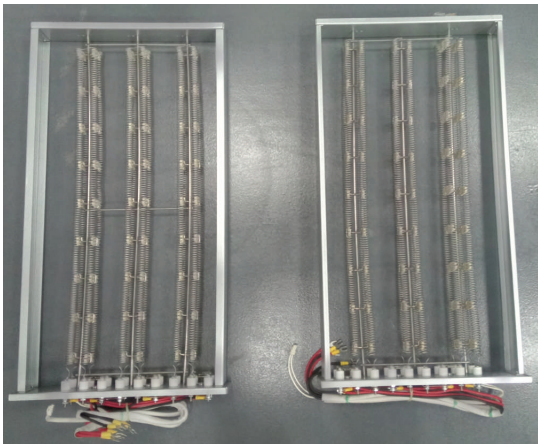


Figure 2. Control assembly

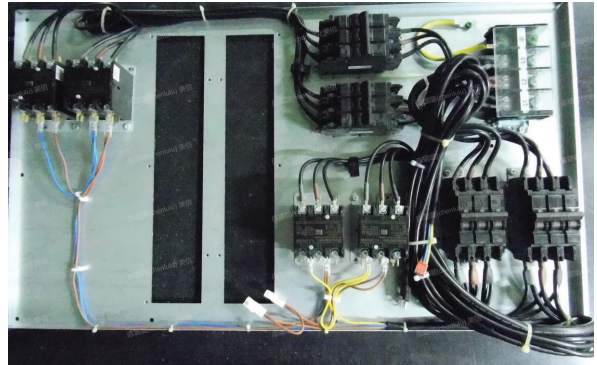


Figure 3. Wiring diagram, screws, and cable ties



Figure 4. Support plates



Pre-Installation

Figure 5. Support plates (shorter used with 7.5 tons)



Electric Heaters

These installation instructions apply to the following heater models:

Electric Heater Models	Nominal kW Rating
208/230 Volts Three Phase	
BAYHTMA310B	10.4
BAYHTMA315B	16.0
BAYHTMA325B	25.0
BAYHTMA332B	32.0
BAYHTMA341B	41.0
BAYHTMA350B	50.0
460 Volts Three Phase	
BAYHTMA414B	13.9
BAYHTMA416B	16.5
BAYHTMA425B	25.0
BAYHTMA433B	33.0
BAYHTMA441B	41.5
BAYHTMA450B	50.0

General Information

All phases of this installation must comply with National, State, and Local codes. Installer must mark unit nameplate with heater information per instructions on nameplate.

Table 2. Limit control settings

kW	Stages	10 Ton 4000 cfm	7.5 Ton 3000 cfm	8.5 Ton 3400 cfm	12.5 Ton 5000 cfm
208/230 Volts Three Phase (°F)					
10.4	1	8.2	10.7	9.9	6.8
16.0	1	12.6	14.6	13.8	10.9
25.0	1	–	22.4	22.4	–
32.0	2	25.3	28.2	27.1	22.9
41.0	2	32.4	37.5	35.6	30.1
50.0	2	39.5	–	–	37.0
460 Volts Three Phase (°F)					
13.9	1	10.5	12.4	11.8	8.7
16.5	1	13.1	15.0	14.4	11.3
25.0	1	–	22.4	22.4	–
33.0	2	26.2	29.2	28.3	22.5

Table 2. Limit control settings (continued)

kW	Stages	10 Ton 4000 cfm	7.5 Ton 3000 cfm	8.5 Ton 3400 cfm	12.5 Ton 5000 cfm
41.5	2	33.0	38.2	36.1	28.2
50.0	2	39.5	–	–	33.8

Table 3. Air temperature rise across electric heaters (°F)

kW	Stages	10 Ton 4000 cfm	7.5 Ton 3000 cfm	8.5 Ton 3400 cfm	12.5 Ton 5000 cfm
208/230 Volts Three Phase (°F)					
10.4	1	8.2	10.7	9.9	6.8
16.0	1	12.6	14.6	13.8	10.9
25.0	1	–	22.4	22.4	–
32.0	2	25.3	28.2	27.1	22.9
41.0	2	32.4	37.5	35.6	30.1
50.0	2	39.5	–	–	37.0
460 Volts Three Phase (°F)					
13.9	1	10.5	12.4	11.8	8.7
16.5	1	13.1	15.0	14.4	11.3
25.0	1	–	22.4	22.4	–
33.0	2	26.2	29.2	28.3	22.5
41.5	2	33.0	38.2	36.1	28.2
50.0	2	39.5	–	–	33.8

Table 4. Unit wiring with electric heat (single point connection)

Tons	Unit Model Number	Heater kW Rating	Control Stages	Standard Indoor Fan Motor		Oversized Indoor Fan Motor	
				Minimum Circuit Ampacity	Maximum Fuse Size or Maximum Circuit Breaker	Minimum Circuit Ampacity	Maximum Fuse Size or Maximum Circuit Breaker
208/230 Volts Three Phase							
7.5	BAYHTMA341B	41	2	116/133	125/150	122/139	125/150
	BAYHTMA332B	32	2	93/106	100/110	99/112	100/125
	BAYHTMA325B	25	1	75/85	80/90	81/91	90/100
	BAYHTMA315B	15	1	51/58	60	57/64	60/70
	BAYHTMA310B	10	1	37/41	45	43/47	50
8.5	BAYHTMA341B	41	2	116/133	125/150	126/142	150
	BAYHTMA332B	32	2	93/106	100/110	102/115	110/125
	BAYHTMA325B	25	1	75/85	80/90	84/94	90/100
	BAYHTMA315B	15	1	51/58	60	60/67	60/70
	BAYHTMA310B	10	1	38/41	45/45	46/50	50/50
10	BAYHTMA350B	50	2	146/136	150	149/139	150
	BAYHTMA341B	41	2	122/139	125/150	126/142	150
	BAYHTMA332B	32	2	99/112	100/125	102/115	110/125
	BAYHTMA315B	15	1	57/64	60/70	60/67	60/70
	BAYHTMA310B	10	1	50/50	60/60	52/52	60/60
12.5	BAYHTMA350B	50	2	146/136	150	149/139	150
	BAYHTMA341B	41	2	122/139	125/150	126/142	150
	BAYHTMA332B	32	2	99/112	100/125	102/115	110/125
	BAYHTMA315B	15	1	64/62	80	64/67	80/80
	BAYHTMA310B	10	1	62/62	80	64/64	80/80
460 Volts Three Phase							
7.5	BAYHTMA441B	41	2	70	70	76	80
	BAYHTMA433B	33	2	57	60	63	70
	BAYHTMA425B	25	1	44	45	50	50
	BAYHTMA416B	16	1	31	35	37	40
	BAYHTMA414B	14	1	27	30	33	35

Pre-Installation

Table 4. Unit wiring with electric heat (single point connection) (continued)

Tons	Unit Model Number	Heater kW Rating	Control Stages	Standard Indoor Fan Motor		Oversized Indoor Fan Motor	
				Minimum Circuit Ampacity	Maximum Fuse Size or Maximum Circuit Breaker	Minimum Circuit Ampacity	Maximum Fuse Size or Maximum Circuit Breaker
8.5	BAYHTMA441B	41	2	70	70	78	80
	BAYHTMA433B	33	2	57	60	65	70
	BAYHTMA425B	25	1	44	45	52	60
	BAYHTMA416B	16	1	31	35	39	40
	BAYHTMA414B	14	1	27	30	35	40
10	BAYHTMA450B	50	2	74	80	76	80
	BAYHTMA441B	41	2	76	80	78	80
	BAYHTMA433B	33	2	63	70	65	70
	BAYHTMA416B	16	1	37	40	39	40
	BAYHTMA414B	14	1	33	35	35	40
12.5	BAYHTMA450B	50	2	74	80	76	80
	BAYHTMA441B	41	2	76	80	78	80
	BAYHTMA433B	33	2	63	70	65	70
	BAYHTMA416B	16	1	37	45	39	45
	BAYHTMA414B	14	1	35	45	35	45

Installation

⚠ WARNING

Hazardous Voltage w/Capacitors!

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

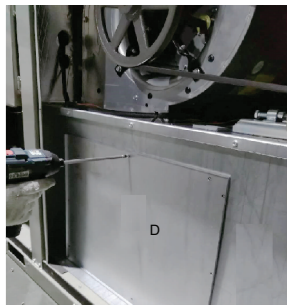
Important: Turn off power to unit. Follow proper lockout/tagout procedures to ensure power cannot inadvertently be energized.

The figure shown in this manual is for reference only and may be slightly different from the actual product.

1. Remove access panels A and B. See following figure. Retain screws for future use.



2. Remove duct access panel D. See following figure. Retain screws for future use.

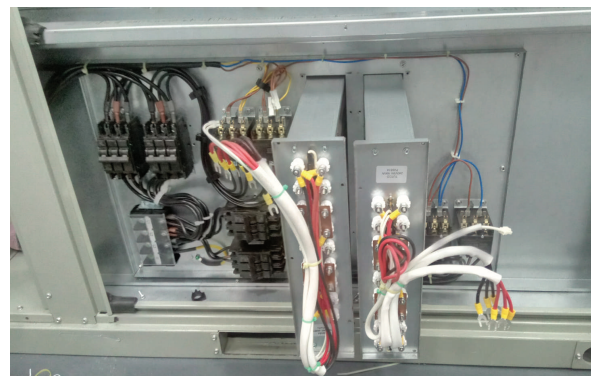


3. Install the electric heaters support plate to the base of unit. Both ends of the support plate must be secured to the bottom panel, using provided screws. See following figure.



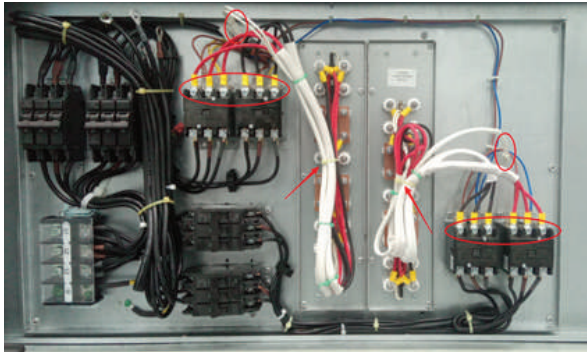
4. Check the opening in the panel. Remove any metal burrs or slivers that could damage or pinch the heater elements resulting in a short circuit when elements are installed in the opening.
5. Slide in the control assembly. Secure to panel D hole. Use retained screws from Step 2. See following figures.
6. Slide in the electric heater. Secure to control assembly hole. Use new screws. See Figure 6, p. 9.

Figure 6. Electric heater aligned to screw holes



7. Connect the electric heater power wire to the contactor, fix the wire with the cable tie. Connect the temperature protection switch wire. See Figure 7, p. 10.

Figure 7. Electric heater wiring



8. Secure guard panel with wire hook. See following figure.



9. Install rubber ring. See following figure.



10. Cutoff the cable tie as arrows shown in the following figure. Pass the signal wire through the upper wire passing rubber ring and the power wire through the lower wire passing rubber ring. Fasten the wire passing rubber ring with cable tie. See following figures.

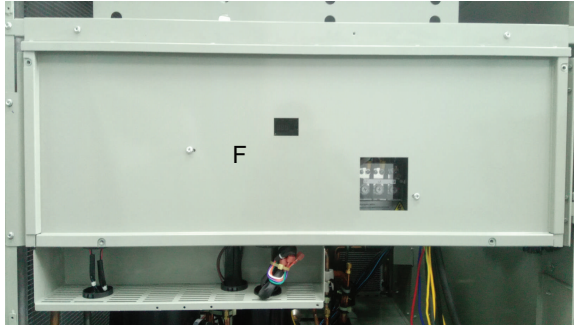


11. Install the waterproof box and fix the wire with the cable tie. See following figure.



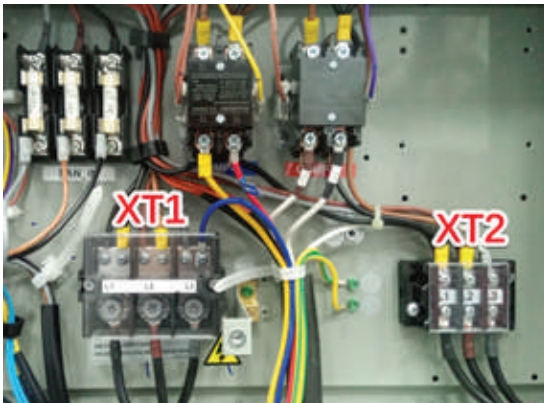
12. Remove the cover E and F from the electric control box. See following figures.





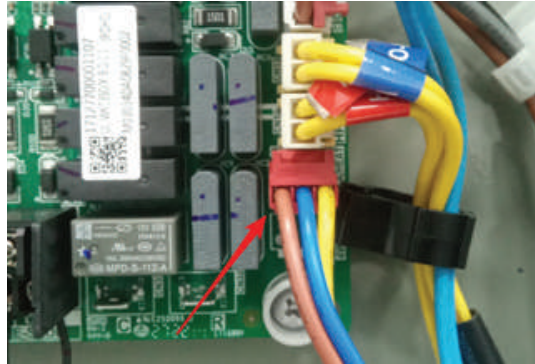
13. Install the new terminal block (XT2).

- For 208/230V model: Disconnect the power supply wires for the fuse and contactor to COMP-B from XT1, and connect them (the power supply wire for the fuse and COMP-B which disconnect from XT1) to the new installed terminal XT2, other wires keep same as before. At the same time, reinstall the W phase power line of COMP-B to the L3 terminal of the new terminal block.
- For 460V model: Disconnect the power supply wires for the fuse from XT1, and connect them (the power supply wire for the fuse which disconnect from XT1) to the new installed terminal XT2, other wires keep same as before.

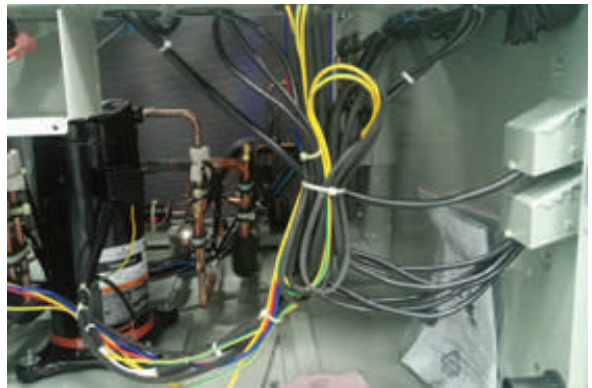


14. Connect the power wires from the single point box to the units power terminal block XT1 and XT2. Note the phase sequence color of the wires.

15. Connect the heater control wiring to Socket CN26 on the mainboard.



16. Fix the wire with cable ties.



17. Mark the appropriate block on the unit nameplate for the accessory heater kW installed. Note the required Minimum Circuit Ampacity (MCA) value for this unit–heater combination. Ensure the field power conductors are sized to handle this ampacity. Check the unit disconnect size and the overcurrent protection device for the branch circuit conductors are suitable for this unit–heater combination.

18. Run wire through conduit connecting outside power to the designated terminals at the top of the single point box. Ensure to ground appropriately.

Wiring Diagram

Figure 8. 230V

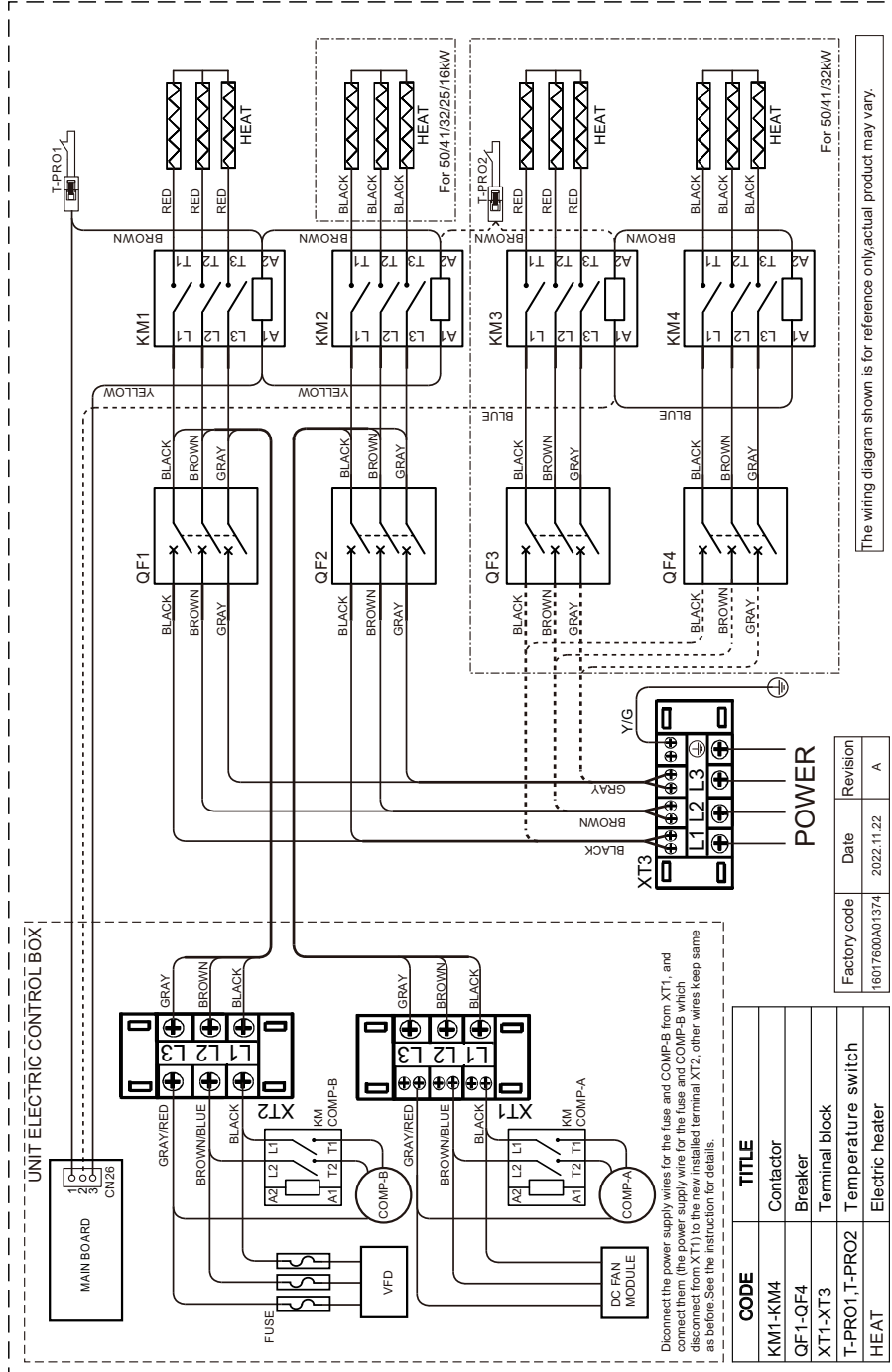
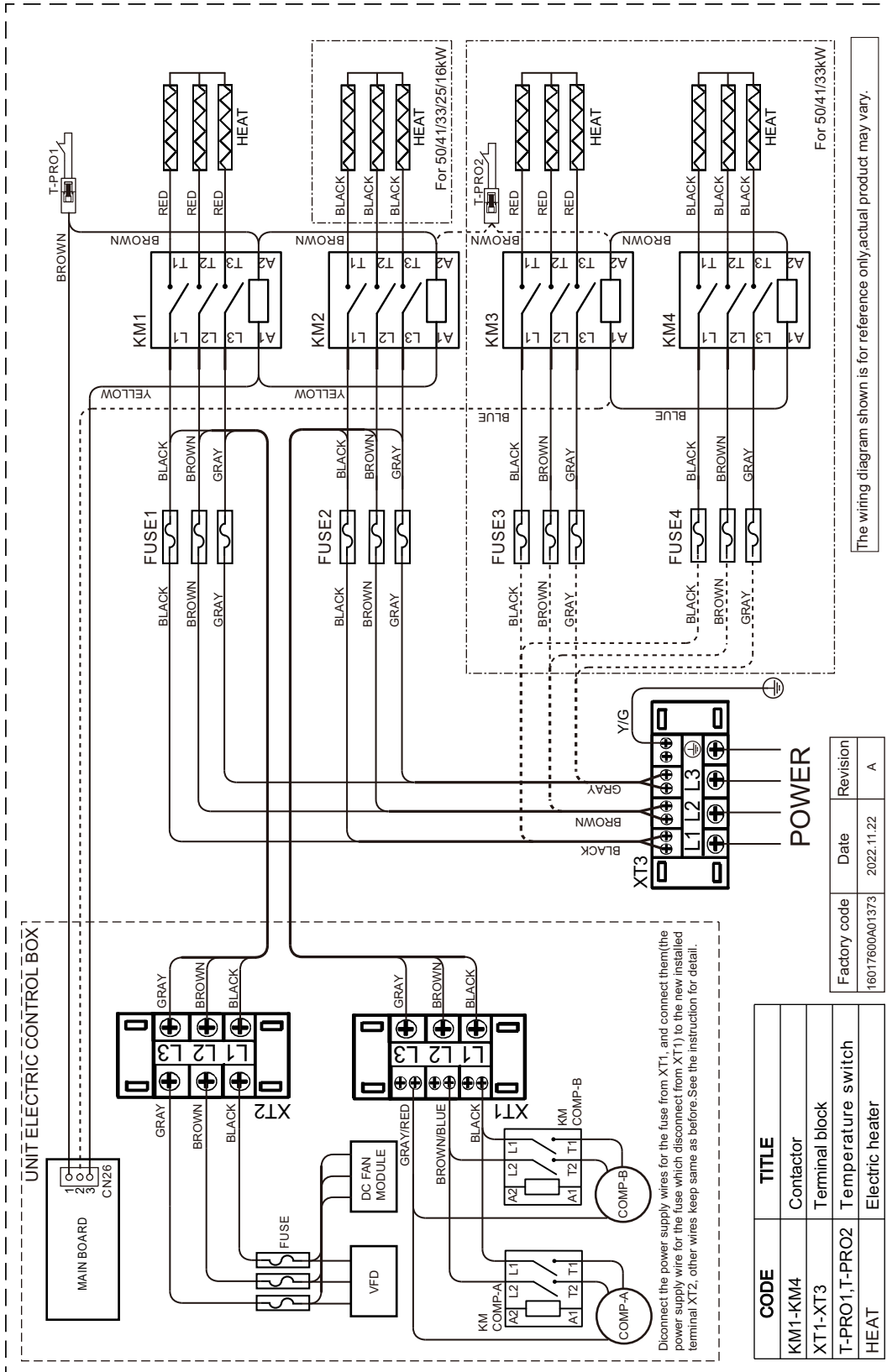


Figure 9. 460V



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