

Electric Heaters 5–20 kW

SMALL PACKAGED PRODUCTS

Accessory Electric Heaters For Models:

50CE, 50CR, 50DT, 50DU, 50XL, 50XT

604C, 607B, 607D, 704C, 707B, 707D

Installation Instructions

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

SAFETY CONSIDERATIONS

Installation and servicing of this equipment can be hazardous due to mechanical and electrical components. Only trained and qualified personnel should install, repair, or service this equipment.

Untrained personnel can perform basic maintenance functions such as cleaning and replacing air filters. All other operations must be performed by trained service personnel. When working on this equipment, observe precautions in the literature, on tags, and on labels attached to or shipped with the unit and other safety precautions that may apply.

Follow all safety codes. Installation must be in compliance with local and national building codes. Wear safety glasses, protective clothing, and work gloves. Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit.

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 these 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.

Follow all safety codes. Wear safety glasses and work gloves. Have a fire extinguisher available.

Before proceeding with heater installation, inspect thoroughly for shipping damage. Notify shipper immediately if any damage is found. Clean all dirt, dust and moisture from heater package. Check for proper clearances of live parts, between phases and to ground. Make sure that all required barriers are in place. Check conductors run in multiple to insure that they are properly wired. Refer to unit installation instructions for complete unit installation details. The minimum air quantity for safe electric heater operation is automatically set by the unit fan control.

WARNING

ELECTRICAL SHOCK HAZARD

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

Before performing installation, service or maintenance operations on this system, turn off all main power to system. There may be more than one disconnect switch. Turn off accessory heater power switch, if applicable. Lock out and tag switch with a suitable warning label.

DESCRIPTION AND USAGE

These heaters are comprised of a single heater and control module located in the unit control box. Heater models are provided with single-point electrical connections for powering both the heater and the unit.

These heaters are intended for use only in SPP units as noted in Tables 1 - 4.

INSTALLATION

HEATER INSTALLATION

1. Open all electrical disconnects and install lock-out tag before beginning any installation or service work.
2. Check for proper equipment model number from list in Tables 1 - 4.
3. Verify that unit ductwork is installed per base unit instructions.
4. Remove unit access panel to heater compartment (See Fig. 1).
5. Locate and remove the heater access cover plate inside unit access panel (See Fig. 2). Save screws.
6. Remove electric heater from packaging.
7. Install heater, sliding assembly carefully through access hole. Ensure that mounting holes of heater align with mounting holes on the unit. Secure heater assembly with screws provided.
8. Dress wires with wire ties provided.

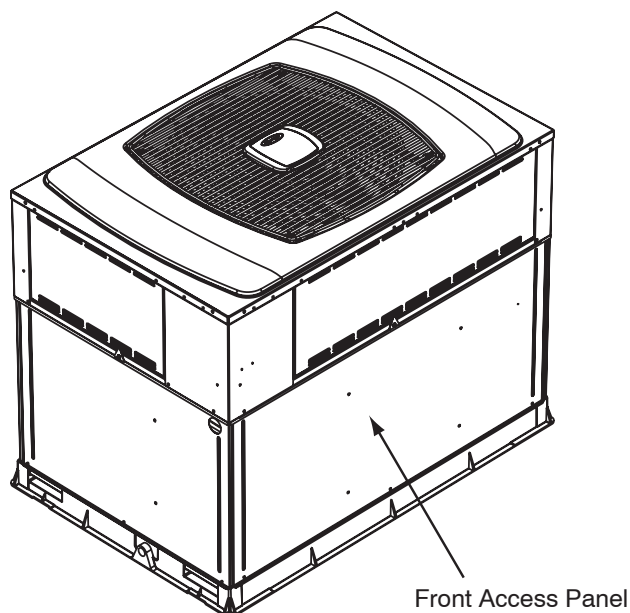


Fig. 1 - Unit Access Panel

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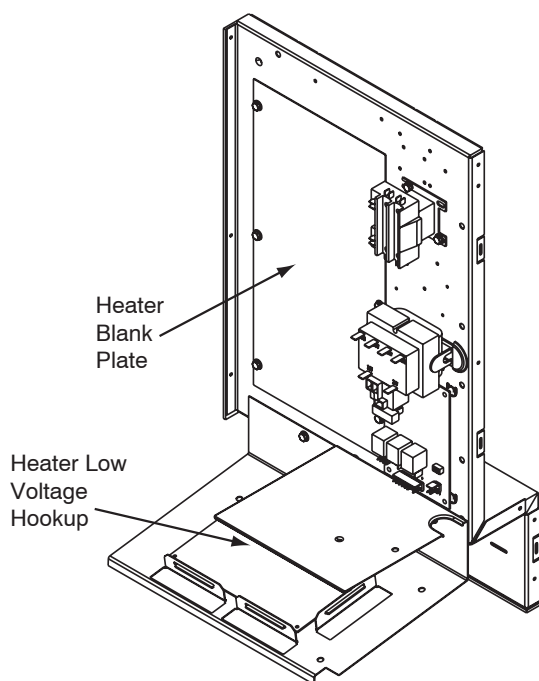


Fig. 2 - Unit Control Box

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ELECTRICAL CONNECTION

1. Verify all electrical disconnects are open and lockout tag(s) are installed before beginning any installation or service work.
2. All electrical connections, wire sizes and type of conduit shall meet the National Electric Code and state and local codes. Main power supply, minimum wire sizes, circuits, fusing, etc. are shown on schematic wiring diagrams.

NOTE: Use minimum 75° C copper wire only.

3. Refer to base unit instructions for recommended wiring procedures.

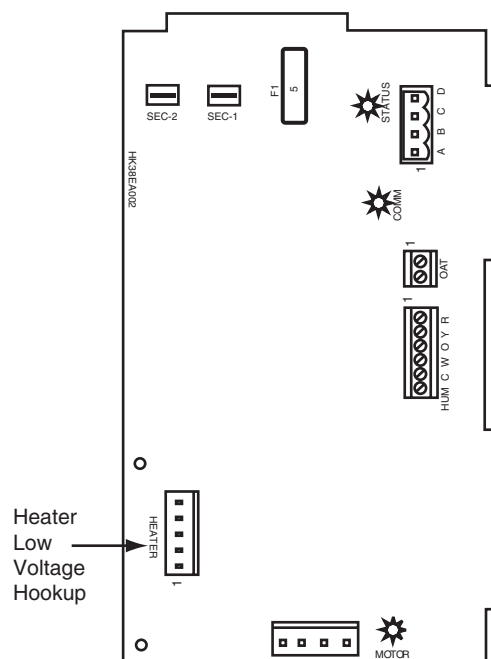
4. Connect low voltage wires as shown in unit schematic diagrams. Low voltage wires from heater control terminate in a harness plug; the mating 5 pin connector is located on the control board found at the bottom of the control box (See Fig. 2 and 3).
5. **Connect field power wiring as shown in unit wiring diagram (See Fig. 6 thru 9). All connections should be made inside the unit and comply with the National Electric Code and state and local codes. Heaters with factory-installed fuses may be installed on a branch circuit protected by either a fuse or circuit breaker. For all other heaters, the branch circuit must be protected by a fuse or circuit breaker supplied by others.**
6. Make all high voltage wire splice connections inside the unit control box. Use splice connectors provided. Properly insulate connectors. Separate all wires from incoming power leads.
7. For fused heaters, incoming power leads should be strain relieved. After attaching field power wires to the fuse block lugs, use the pre-mounted wire tie on the inside of the control box cover to secure and strain relieve these wires.
8. Be sure that all electrical terminal connections, clamps, screws, etc. are tight before proceeding.
9. Check wiring diagram supplied with heater for specific connections and information (See Fig. 10 thru 25).
10. Check operation as described in Start-Up section.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

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

Before performing installation, service or maintenance operations on this system, turn off all main power to system. There may be more than one disconnect switch. Turn off accessory heater power switch if applicable. Lock out and tag switch with a suitable warning label.



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Fig. 3 - Unit Control Board

START-UP



WARNING

ELECTRICAL SHOCK HAZARD

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

Before proceeding, verify that all wiring is correct per factory approved schematic. Notify factory immediately of any discrepancies.

1. Refer to base unit installation instructions as required.

2. Check for loose terminal connections.
3. Check that all fuse and circuit breaker short circuit interrupting ratings are adequate.
4. Turn on unit and heater power.
5. Using the User Interface (UI), enter Electric Heat CHECKOUT mode. (See UI Installation Instructions for more detailed information.)
6. Check operation of heater.
7. Airflow across the heater is automatically determined by the unit fan control. Heater identification is accomplished by use of the Identifier Resistor (IDR) provided as a part of the low voltage harness. (See Troubleshooting for additional information.)
8. Any modifications or repairs to this equipment without written permission from the factory will be done at the installer's own risk and expense.

TROUBLESHOOTING

1. Fuses-Malfunction will interrupt power to the unit. Check for cause of failure, replace fuses.
2. Limit Switch-Malfunction prevents heating element(s) from being energized. Replace switch if malfunction occurs.
3. Contactor-Malfunction will not allow heater to energize. Replace faulty contactor. Do not attempt to replace coil or dress contacts.
4. Control Faults-See Status Code 26 and Status Code 36 below.

STATUS CODE 26, INVALID HEATER SIZE

On initial power-up, unit control will write into memory electric heater size as read from heater if heater is provided with Identifier Resistor (IDR). Heater size must be valid for combination of indoor and outdoor components installed. Unit control will read IDR value connected to pins 1 and 2 of heater harness connector. If no resistor is found, system UI will prompt installer to verify that no heater is installed. Verifying that this is correct will establish that the unit is operating without an electric heater accessory. Upon choosing negative option, installer will be prompted to select heater size installed from a list of valid heater sizes for unit size installed.

If heater ID resistor value read is invalid, Status Code 26 will be displayed on STATUS LED.

If heater installed is equipped with a resistor connected to pins 1 and 2 of heater harness connector and status code 26 is displayed on STATUS LED:

1. Check wiring harness connections to be sure connections are secure.
2. If symptoms persist, disconnect wiring harness at unit control board and check for a resistance value greater than 5000 ohms.
3. Check for proper wiring of resistor assembly.
4. Make sure heater size installed is an approved size for unit and size installed.

NOTE: Unit control will not operate electric heater until this Status Code is resolved. If the heater size is set through the UI, the heater will be operated as a single stage heater. If staging is desired, the IDR value must be read in by the unit control.

STATUS CODE 36, HEATER OUTPUT NOT SENSED WHEN ENERGIZED

Unit control is provided with circuitry to detect presence of a 24-vac signal on electric heater stage 1 and stage 2 outputs.

If unit control energizes either heater stage and does not detect the 24-vac signal on output, Status Code 36 will be displayed on the STATUS LED, unit control will continue to energize heater output(s) and adjust blower operation to a safe airflow level for energized electric heat stage(s).

To find the fault:

1. Check for 24-vac on heater stage outputs. Unit control or sensing circuit may be bad.

NOTE: It may be useful as an electric heater troubleshooting procedure to disconnect the system communications to force Status Code 16 enabling of emergency heat mode. It is difficult to know which heater output is energized or not energized in normal operation. When unit is operated in emergency heat mode using electric heaters, both outputs are energized and de-energized together. Terminal strip inputs to control can then be connected R to W to turn on both electric heat outputs. Heater output sensing circuits can then be checked to resolve Status Code 36 or 37 problems.

PACKAGE CONTENTS

ELECTRIC HEATER PACKAGE CONTENTS

1. Heater assembly.
2. UPC heater label.
3. Installation Instructions.
4. Identification label.
5. Schematic on lid door for all fused units.
6. Schematic on sticker to be placed inside unit panel for non-fused units (See Fig. 5)
7. Wire connectors (Quantity 3).
8. Wire ties-6" (Quantity 5).
9. Screws #10A (Quantity 5).

**Table 1—50CE / 704C Packaged Air Conditioner
Field-Installed Electric Heaters**

ODS CATALOG	NOMINAL CAPACITY	USED WITH SIZES							
ORDERING NO.	(kW)	FUSED	STAGES	24	30	36	42	48	60
ELECTRIC HEATERS (208/230 —SINGLE PHASE —60 Hz)									
CPHEATER080A00	3.8 / 5.0	NO	1	X	X	X	X	X	X
CPHEATER082A00	5.4 / 7.2	NO	1	X	X	X	X	X	X
CPHEATER084A00	7.5 / 10.0	NO	1	X	X	X	X	X	
CPHEATER085A00	7.5 / 10.0	YES	1						X
CPHEATER086A00	11.3 / 15.0	YES	2		X	X	X	X	
CPHEATER087A00	11.3 / 15.0	YES	2						X
CPHEATER088A00	15.0 / 20.0	YES	2				X	X	
CPHEATER089A00	15.0 / 20.0	YES	2						X
208/230 - THREE PHASE - 60 Hz									
CPHEATER090A00	3.8 / 5.0	NO	1			X	X	X	X
CPHEATER091A00	7.5 / 10.0	NO	1			X	X	X	X
CPHEATER093A00	11.3 / 15.0	NO	2			X	X	X	X
CPHEATER095A00	15.0 / 20.0	YES	2				X	X	X

**Table 2—50CR / 604C Packaged Heat Pump
Field-Installed Electric Heaters**

ODS CATALOG	NOMINAL CAPACITY	USED WITH SIZES							
ORDERING NO.	(kW)	FUSED	STAGES	24	30	36	42	48	60
ELECTRIC HEATERS (208/230 —SINGLE PHASE —60 Hz)									
CPHEATER080A00	3.8 / 5.0	NO	1	X	X	X			
CPHEATER081A00	3.8 / 5.0	YES	1				X	X	X
CPHEATER082A00	5.4 / 7.2	NO	1	X					
CPHEATER083A00	5.4 / 7.2	YES	1		X	X	X	X	X
CPHEATER085A00	7.5 / 10.0	YES	1	X	X	X	X	X	X
CPHEATER087A00	11.3 / 15.0	YES	2			X	X	X	X
CPHEATER089A00	15.0 / 20.0	YES	2				X	X	X
208/230 - THREE PHASE - 60 Hz									
CPHEATER090A00	3.8 / 5.0	NO	1			X	X	X	X
CPHEATER091A00	7.5 / 10.0	NO	1			X	X	X	
CPHEATER092A00	7.5 / 10.0	YES	1						X
CPHEATER094A00	11.3 / 15.0	YES	2			X	X	X	X
CPHEATER095A00	15.0 / 20.0	YES	2				X	X	X

**Table 3—50DU, 50XL / 707B, 707D Packaged Air Conditioner
Field-Installed Electric Heaters**

ODS CATALOG	NOMINAL CAPACITY	USED WITH SIZES							
ORDERING NO.	(kW)	FUSED	STAGES	24	30	36	42	48	60
ELECTRIC HEATERS (208/230 —SINGLE PHASE —60 Hz)									
CPHEATER080A00	3.8 / 5.0	NO	1	X	X	X	X	X	X
CPHEATER082A00	5.4 / 7.2	NO	1	X	X	X	X	X	X
CPHEATER084A00	7.5 / 10.0	NO	1	X	X	X	X	X	
CPHEATER085A00	7.5 / 10.0	YES	2						X
CPHEATER086A00	11.3 / 15.0	YES	2		X	X	X	X	
CPHEATER087A00	11.3 / 15.0	YES	2						X
CPHEATER088A00	15.0 / 20.0	YES	2				X	X	
CPHEATER089A00	15.0 / 20.0	YES	2						X
208/230 - THREE PHASE - 60 Hz									
CPHEATER090A00	3.8 / 5.0	NO	1			X	X	X	X
CPHEATER091A00	7.5 / 10.0	NO	1			X	X	X	X
CPHEATER093A00	11.3 / 15.0	NO	2			X	X	X	X
CPHEATER095A00	15.0 / 20.0	YES	2				X	X	X

CPHEATER

**Table 4—50DT, 50XT / 607B, 607D Packaged Heat Pump
Field-Installed Electric Heaters**

ODS CATALOG	NOMINAL CAPACITY	USED WITH SIZES							
ORDERING NO.	(kW)	FUSED	STAGES	24	30	36	42	48	60
ELECTRIC HEATERS (208/230 —SINGLE PHASE —60 Hz)									
CPHEATER080A00	3.8 / 5.0	NO	1	X	X	X			
CPHEATER081A00	3.8 / 5.0	YES	1				X	X	X
CPHEATER083A00	5.4 / 7.2	YES	1	X	X	X	X	X	X
CPHEATER085A00	7.5 / 10.0	YES	1	X	X	X	X	X	X
CPHEATER087A00	11.3 / 15.0	YES	2		X	X	X	X	X
CPHEATER089A00	15.0 / 20.0	YES	2				X	X	X
208/230 - THREE PHASE - 60 Hz									
CPHEATER090A00	3.8 / 5.0	NO	1			X	X	X	X
CPHEATER091A00	7.5 / 10.0	NO	1			X	X	X	
CPHEATER092A00	7.5 / 10.0	YES	1						X
CPHEATER094A00	11.3 / 15.0	YES	2			X	X	X	X
CPHEATER095A00	15.0 / 20.0	YES	2				X	X	X

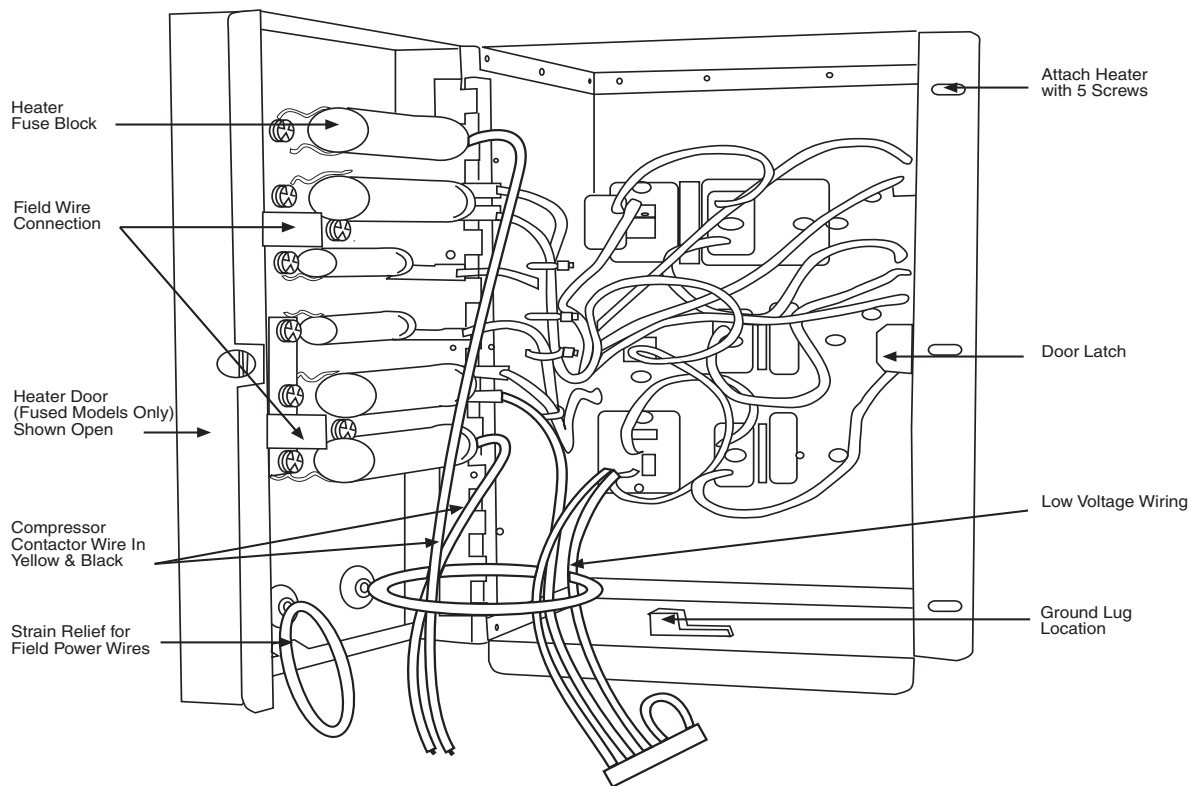


Fig. 4 - Heater Control Box

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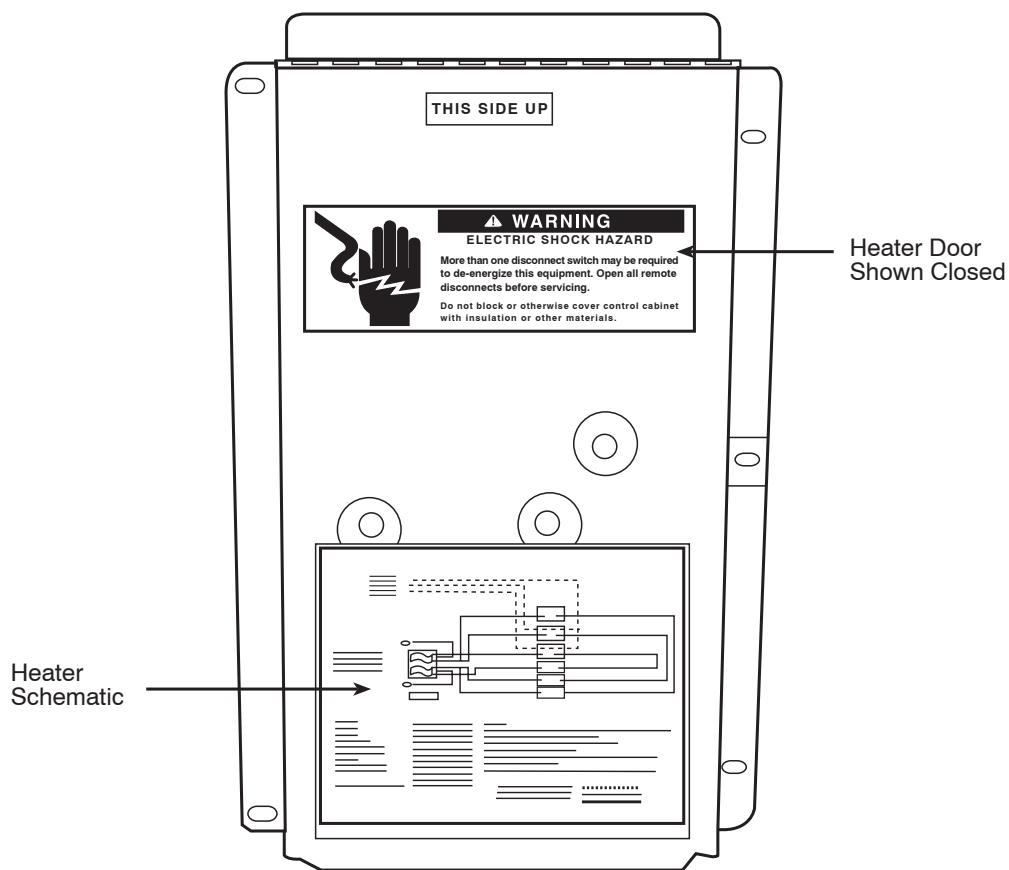


Fig. 5 - Schematic Location

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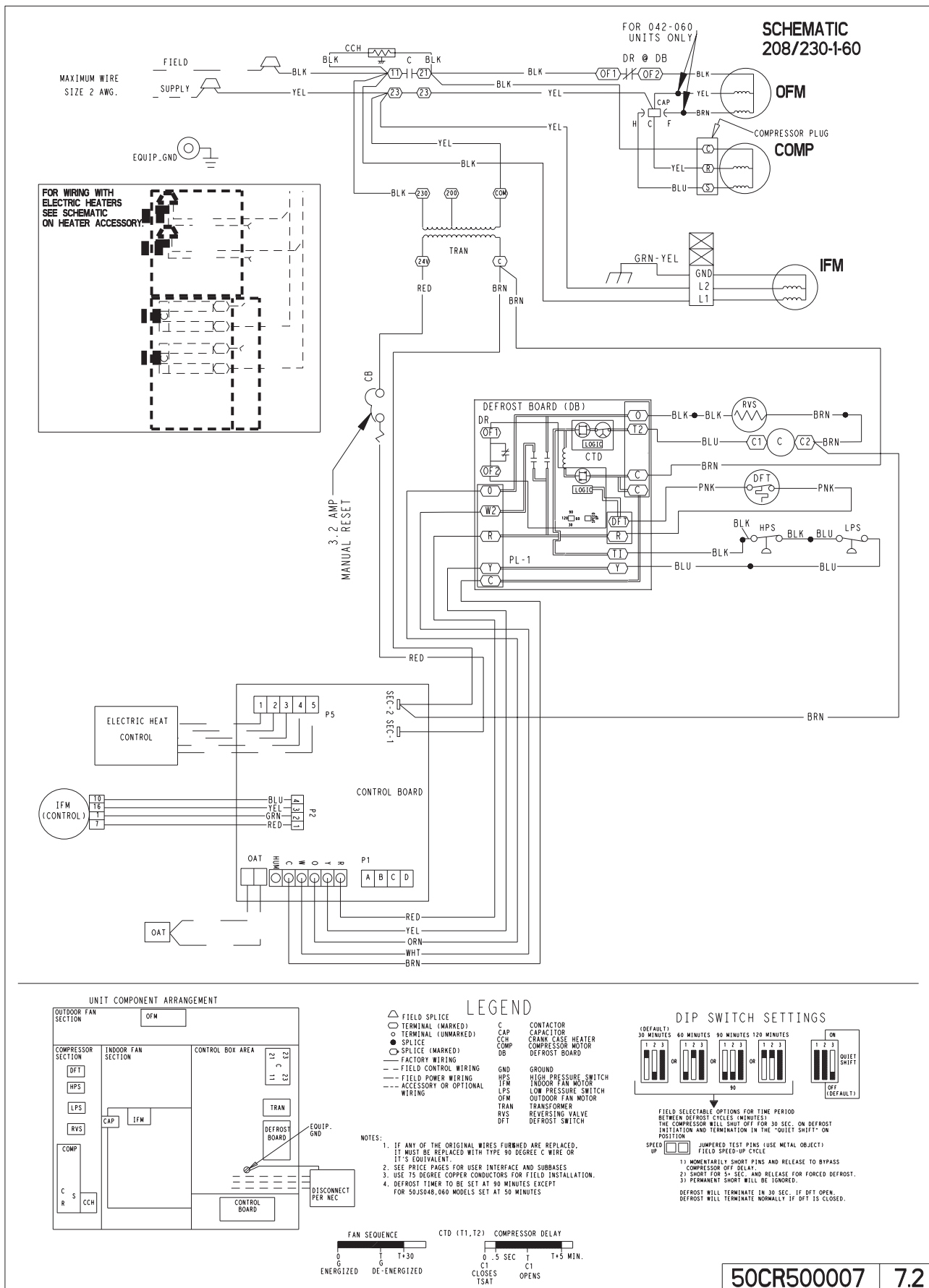


Fig. 6 - Typical Wiring Schematics-Heat Pump Single Phase

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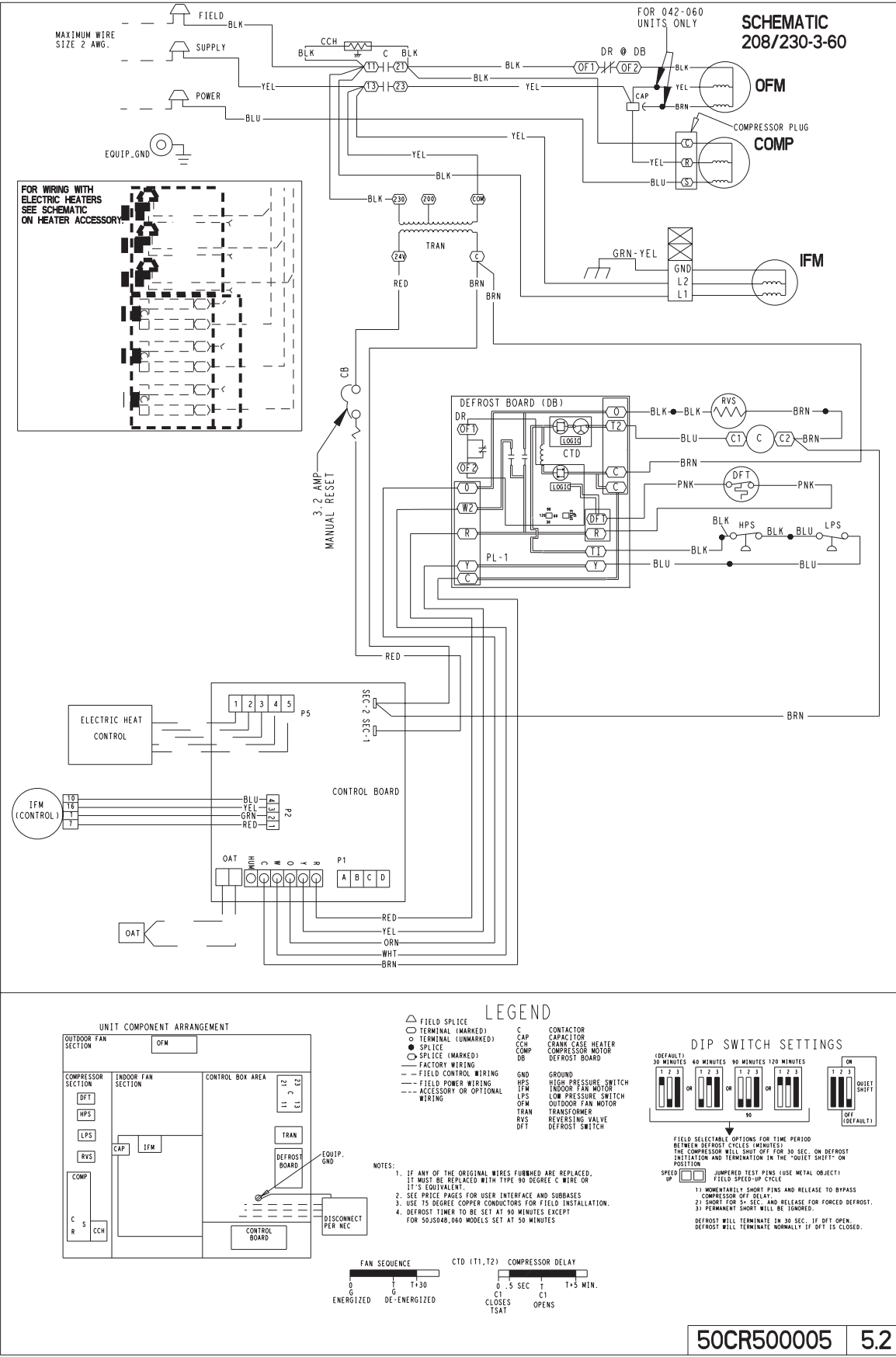


Fig. 7 - Typical Wiring Schematics-Heat Pump Three Phase

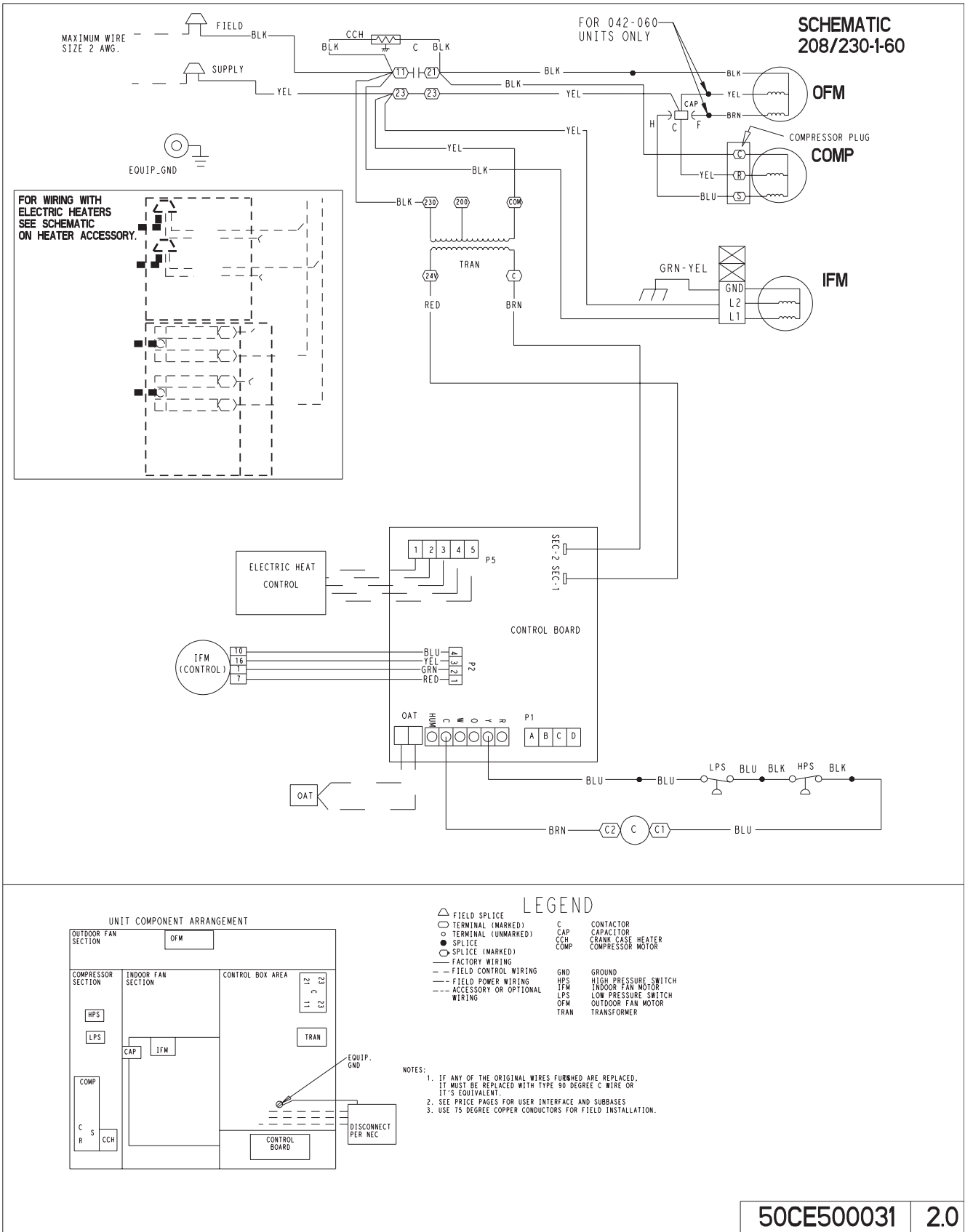


Fig. 8 - Typical Wiring Schematics-Air Conditioner Single Phase

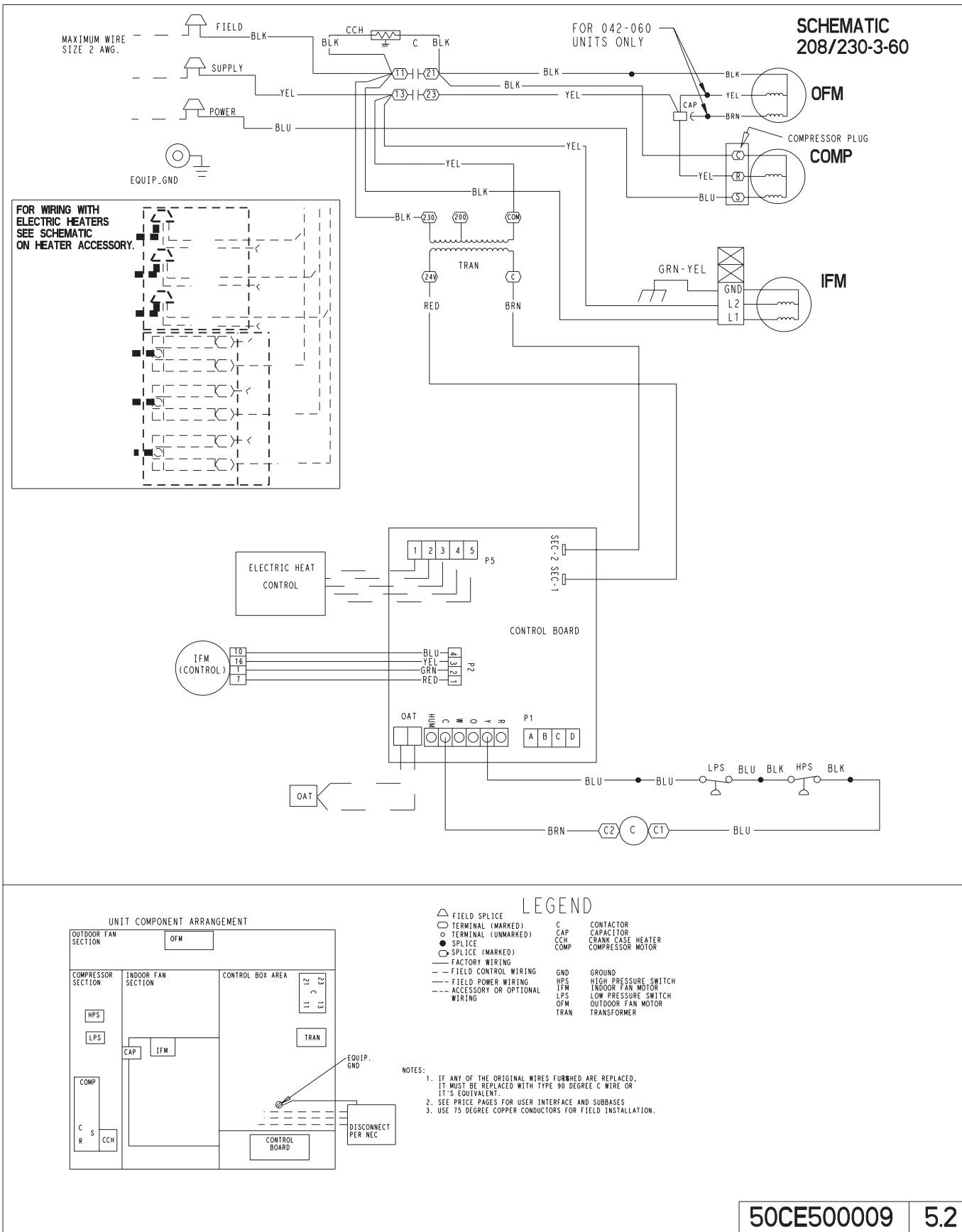


Fig. 9 - Typical Wiring Schematics-Air Conditioner Three Phase

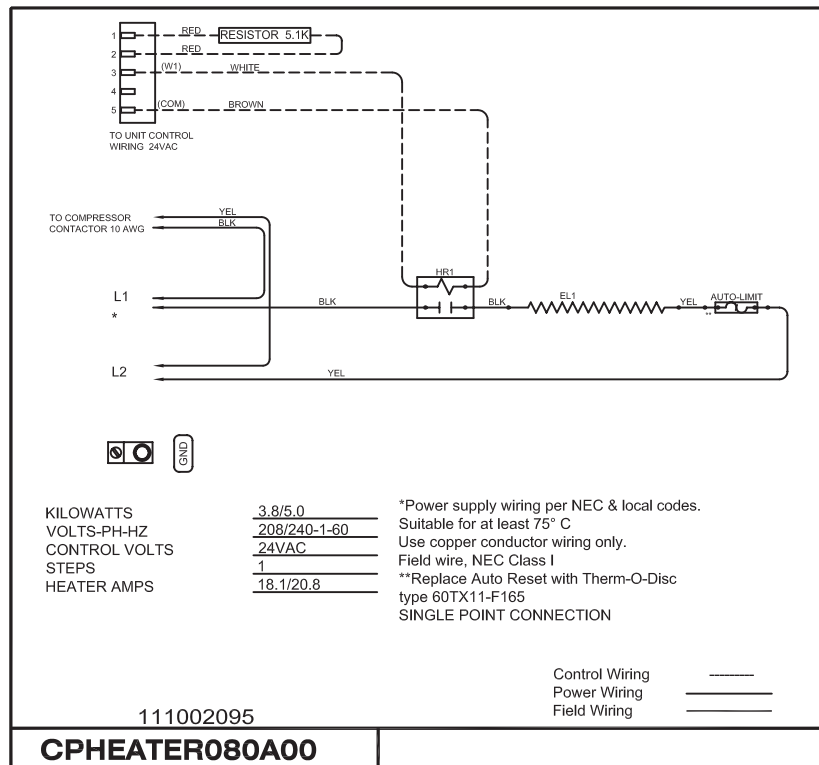


Fig. 10 - CPHEATER080A00

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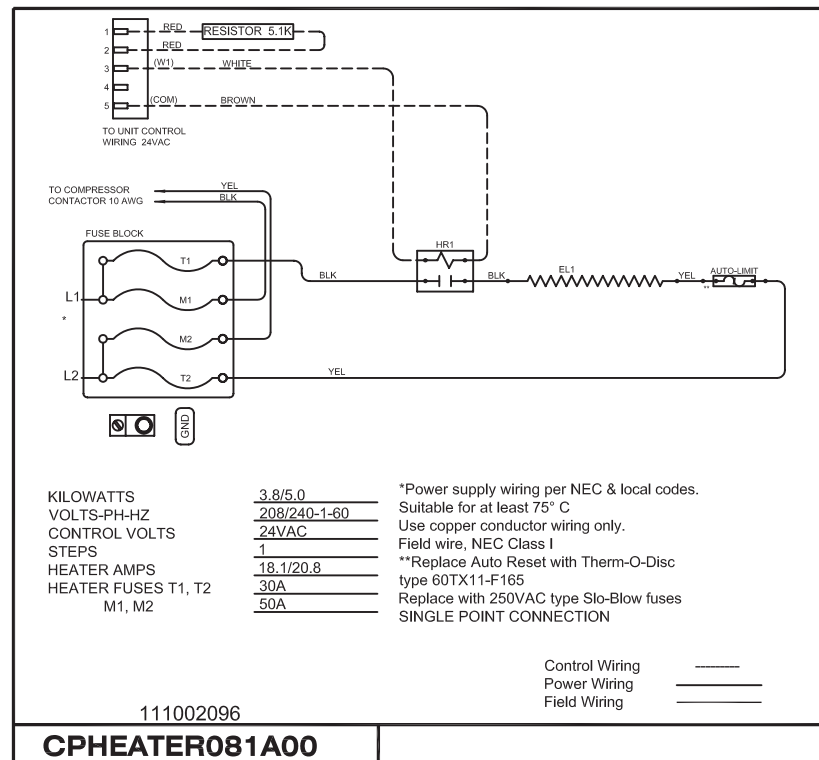


Fig. 11 - CPHEATER081A00

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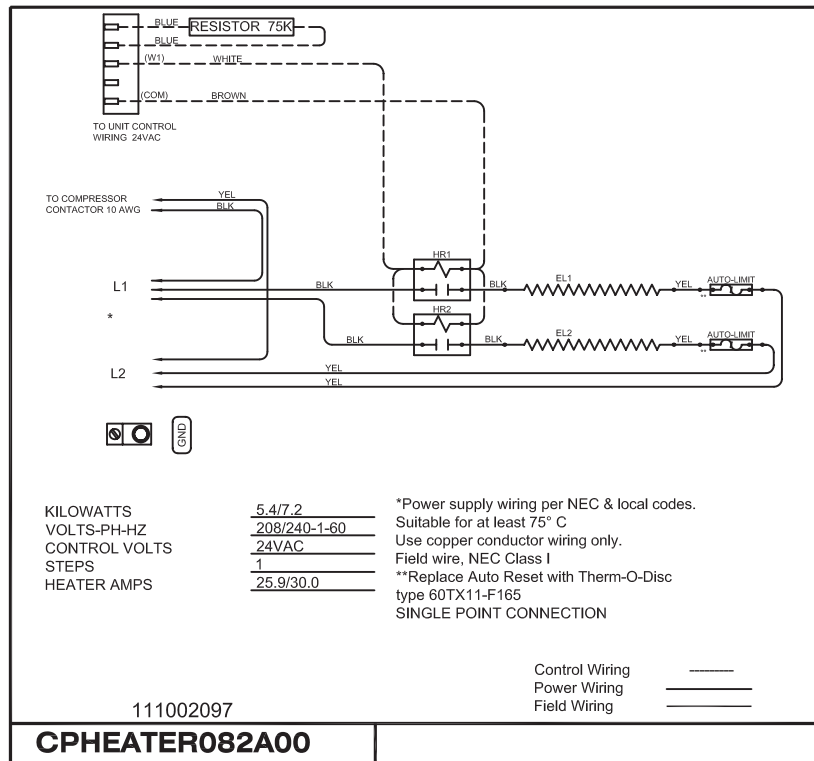


Fig. 12 - CPHEATER082A00

A06138

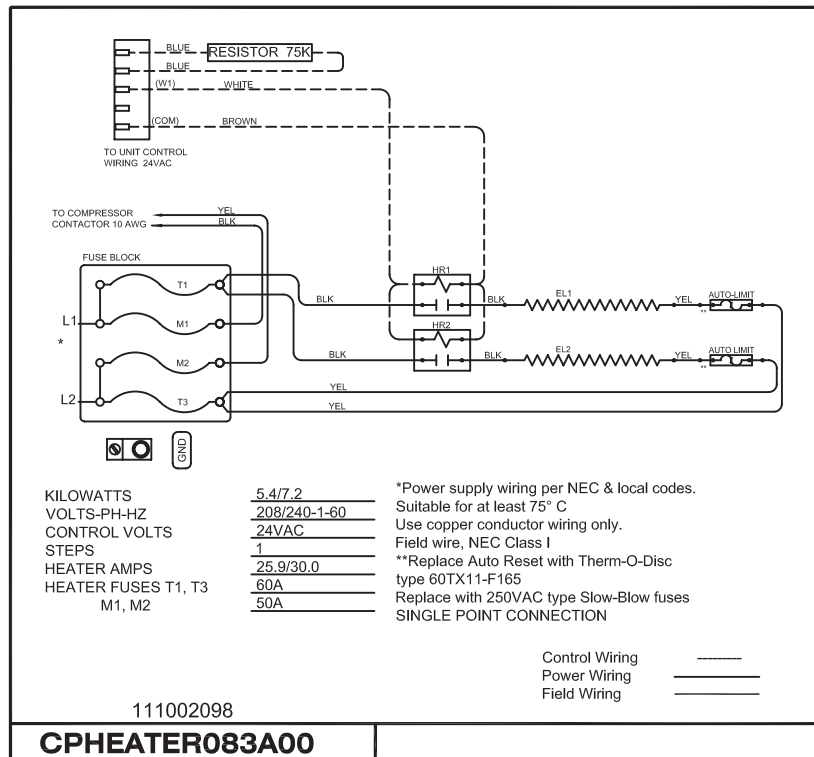


Fig. 13 - CPHEATER083A00

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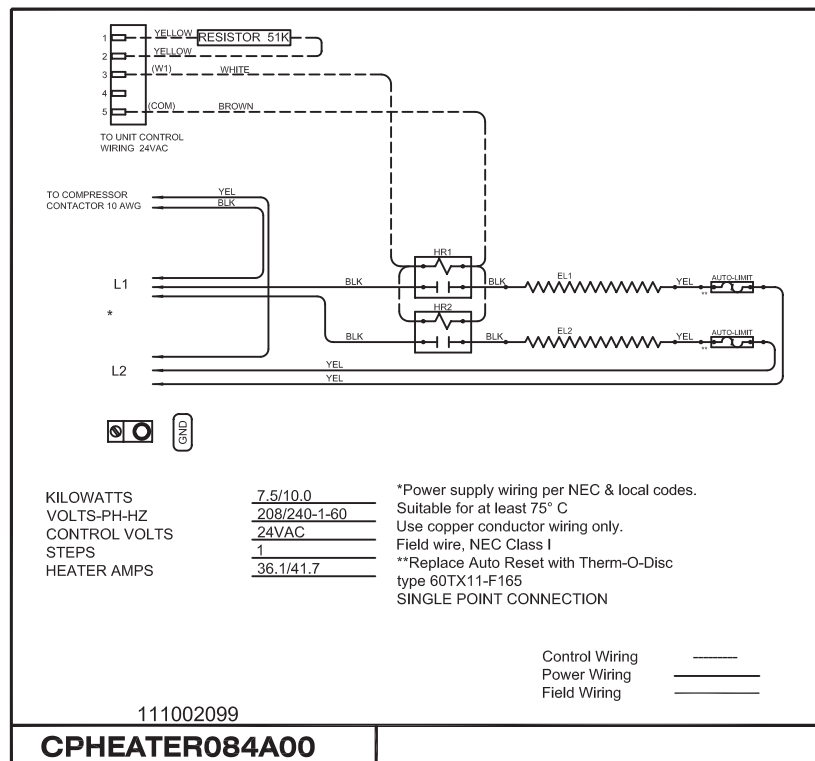


Fig. 14 - CPHEATER084A00

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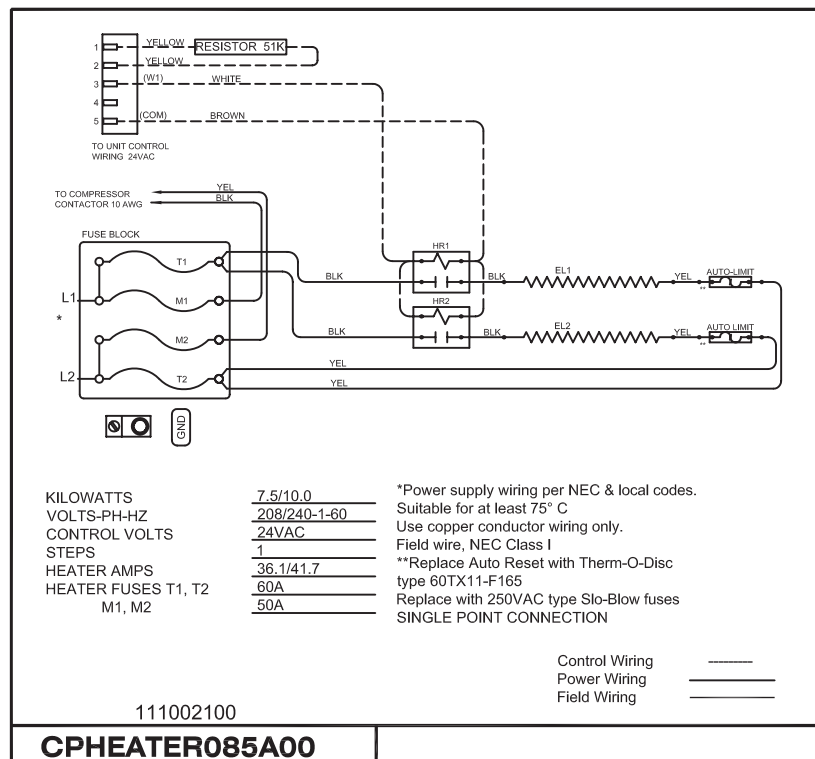


Fig. 15 - CPHEATER085A00

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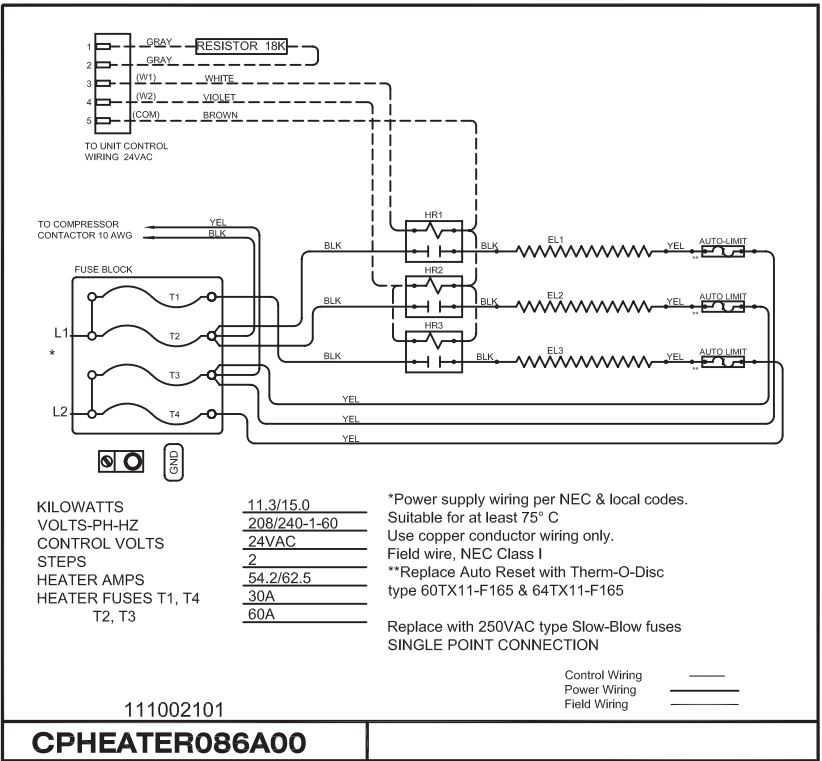


Fig. 16 - CPHEATER086A00

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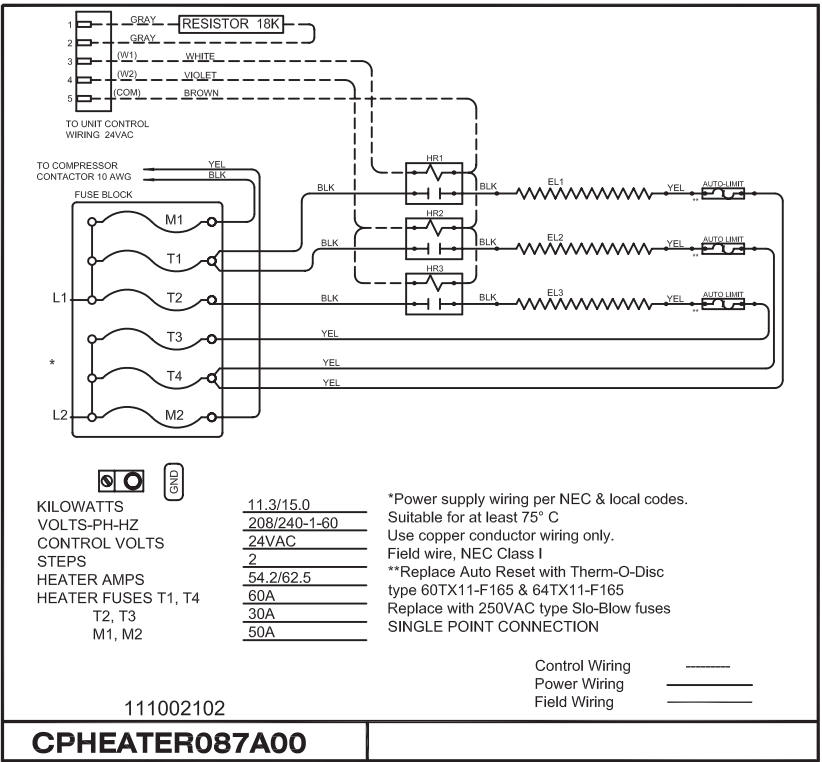


Fig. 17 - CPHEATER087A00

A06143

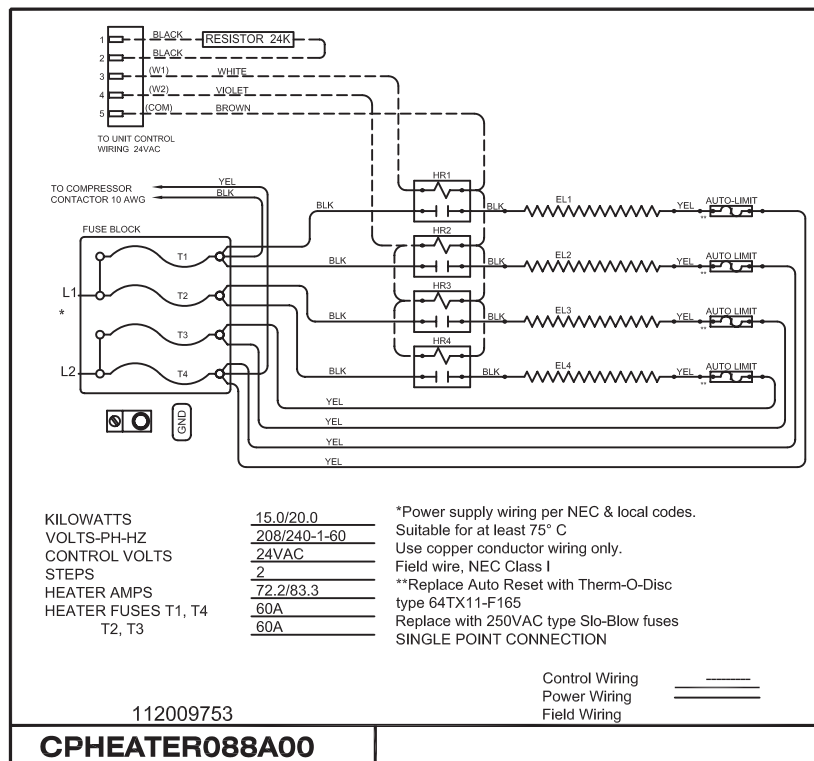


Fig. 18 - CPHEATER088A00

A06144

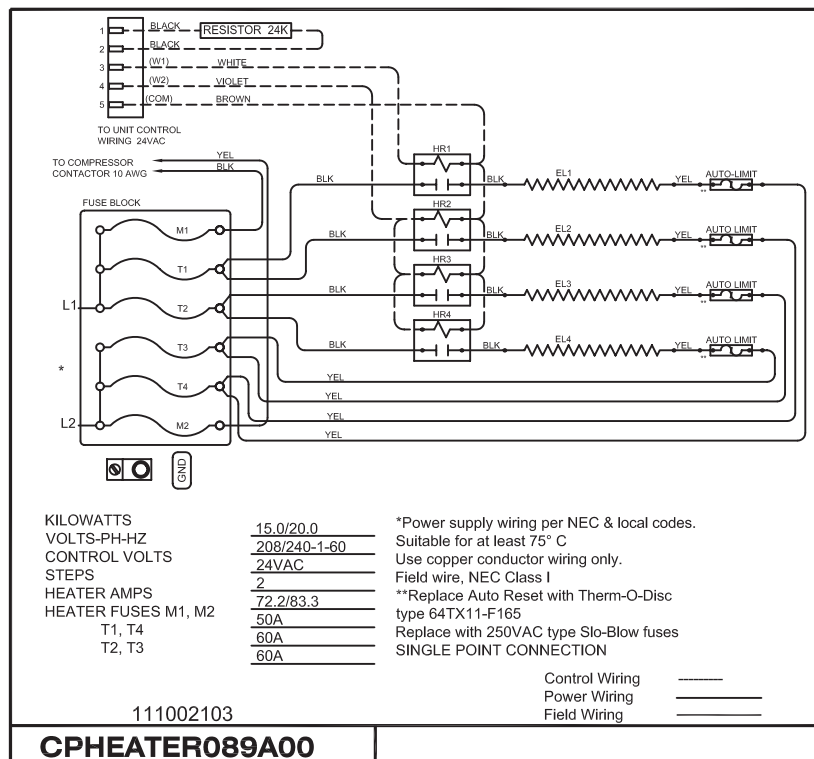


Fig. 19 - CPHEATER089A00

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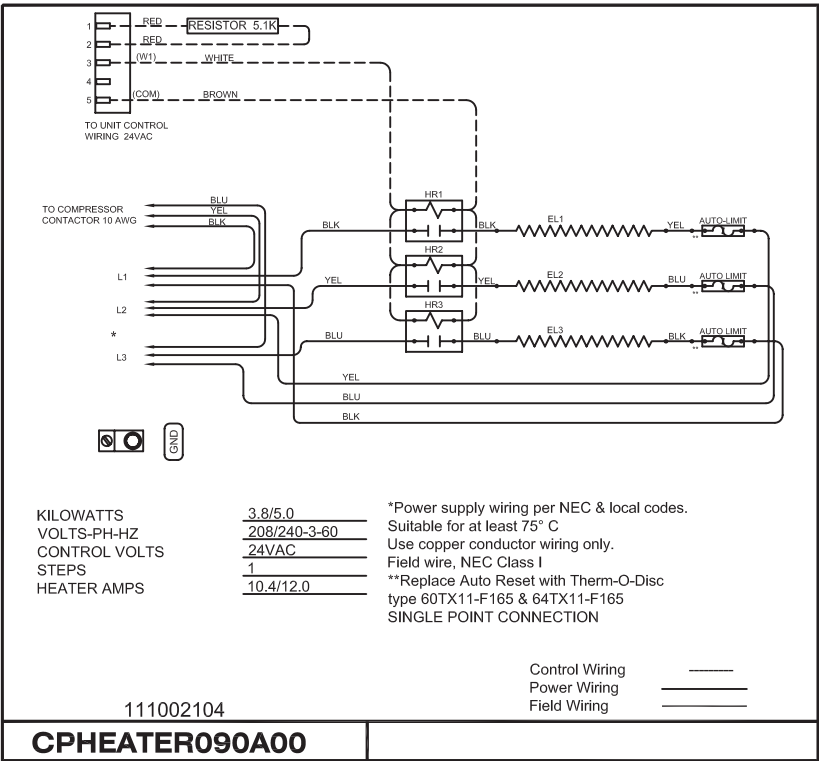


Fig. 20 - CPHEATER090A00

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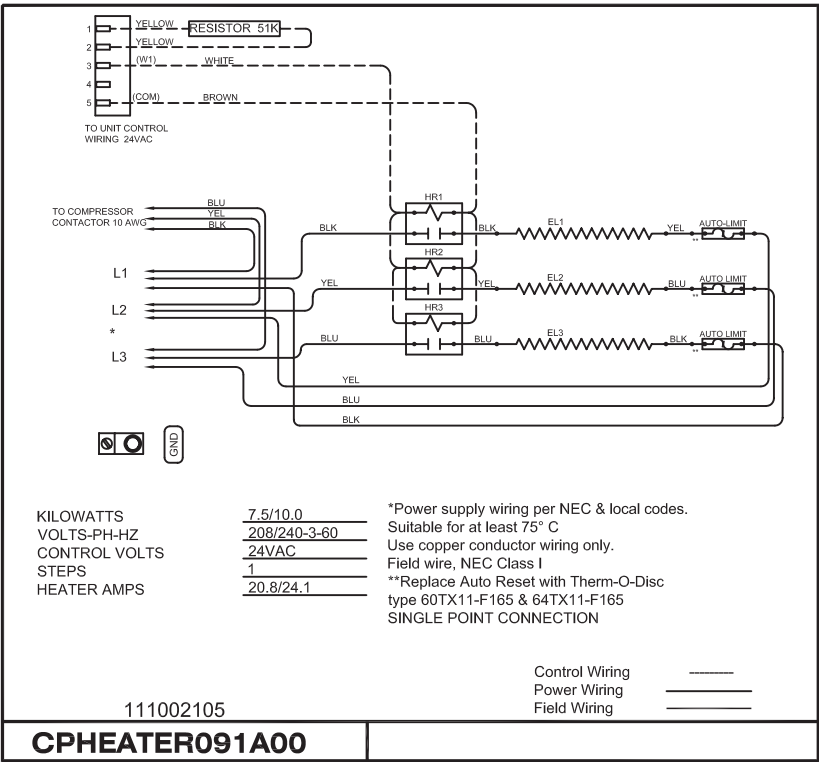


Fig. 21 - CPHEATER091A00

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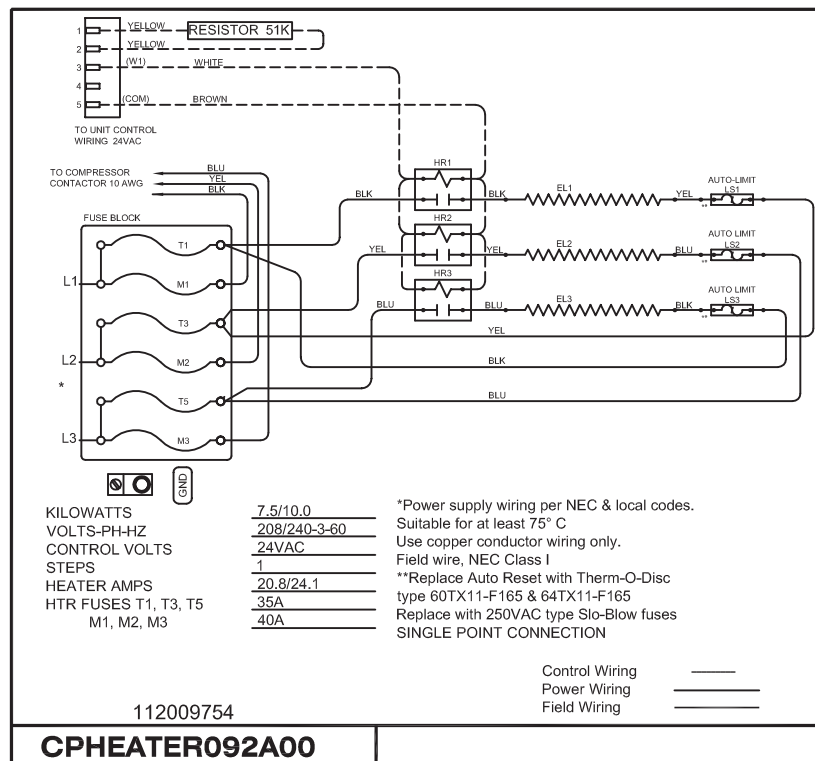


Fig. 22 - CPHEATER092A00

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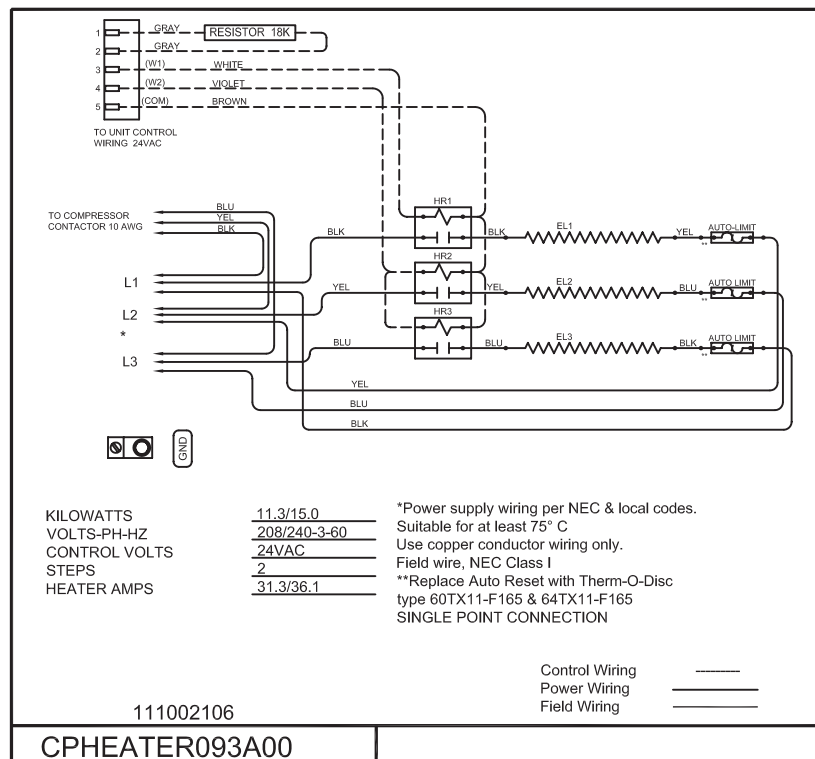


Fig. 23 - CPHEATER093A00

A06149

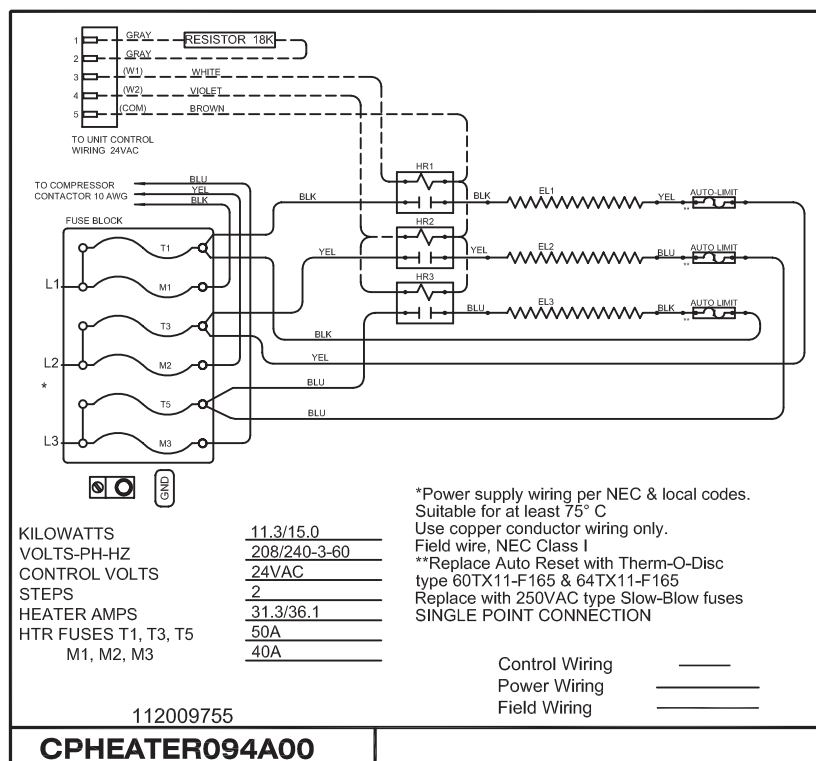


Fig. 24 - CPHEATER094A00

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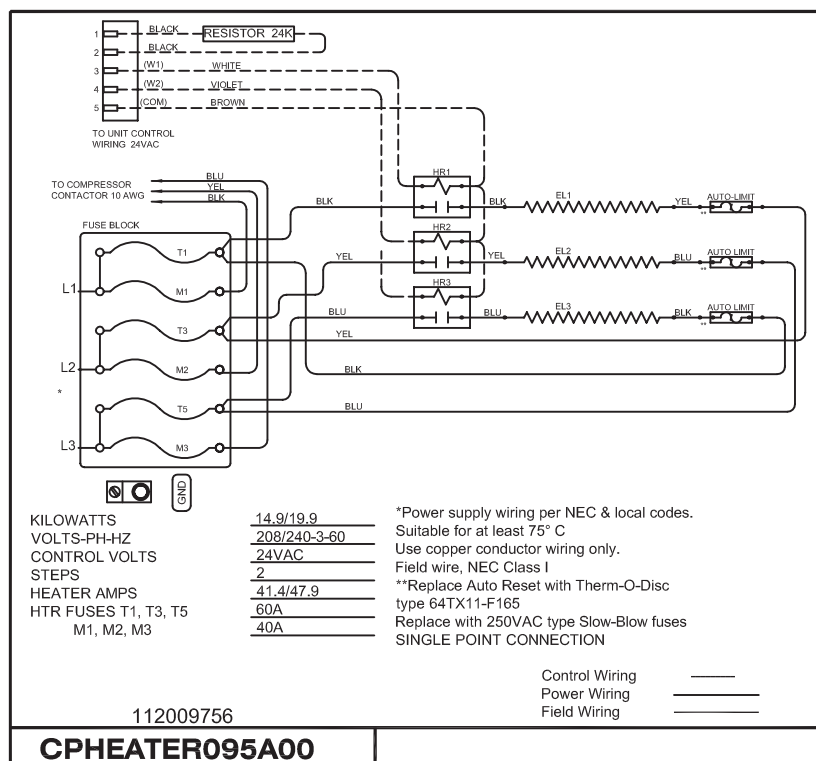


Fig. 25 - CPHEATER095A00

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