

# INSTALLATION INSTRUCTIONS

## Electric Heat Sections

Used with Air Handler Units

ELECTRIC HEAT SECTIONS

507303-01 (0655012-61)

7/2014

Supersedes 1/2014

**THIS MANUAL MUST BE LEFT WITH THE HOMEOWNER FOR FUTURE REFERENCE**

### **⚠ WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause personal injury, loss of life, or damage to property.

Installation and service must be performed by a licensed professional installer (or equivalent) or a service agency.

### **Shipping and Packing List**

Package 1 of 1 contains

- 1 - Assembled electric heat section
- 1 - circuit breaker cover

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

### **General Information**

These instructions are intended to be a general guide and do not supersede any local or national codes. Installation must conform with the local building codes and with the latest editions of the National Electric Code.

Be sure to disconnect all power to the unit while you install and service this equipment. Use proper tools and protective equipment during installation and service.

Installation of air handler with or without optional electric heat must conform with standards in the National Fire Protection Association (NFPA) "Standard for Installation of Air Conditioning and Ventilation Systems NFPA No. 90A," and "Standard for Installation of Resident Type Warm Air Heating and Air Conditioning System, No. 90B," the manufacturer's installation instructions, and local municipal building codes.

### **Electric Heat Sections**

The electric heat sections provide field-installed electric heat for air handler units.

Table 1 shows the available heat sections. Refer to the applicable indoor unit product specifications bulletin for heat section applications.

**Table 1. Electric Heat Sections**

Termination Type	Used on	Catalog Number prior to 10/15/14	Catalog Number after 10/15/14
2.5kW with stripped wires	CBX25UH, CBX25UHV, BCS3 and BCE3	89W42	12R08
5 kW with terminal block		89W43	12R45
5 kW with breaker		89W44	12R60
7.5 kW with breaker		89W45	12R61
7.5 kW with terminal block		89W46	12S08
10 kW with breaker		10T37	N/A
10 kW with breaker	CBX25UH, BCS3 and BCE3	89W48	12S60
10 kW with terminal block		89W47	12S59
10 kW with terminal block	CBX25UH, CBX25UHV, BCS3 and BCE3	10Z43	N/A
12.5 kW with breaker		89W49	12S77
15 kW with breaker	CBX25UH, BCS3 and BCE3	89W50	N/A
	CBX25UH, CBX25UHV, BCS3 and BCE3	10T14	12S87
20 kW with breaker	CBX25UH, BCS3 and BCE3	89W51	12S88
	CBX25UH, CBX25UHV, BCS3 and BCE3	10T35	N/A

### **Heat Section Installation**

### **⚠ WARNING**

Before installing or servicing unit, be sure ALL power to the unit is OFF. More than one disconnect switch may be present. *Electrical shock can cause personal injury or death!*

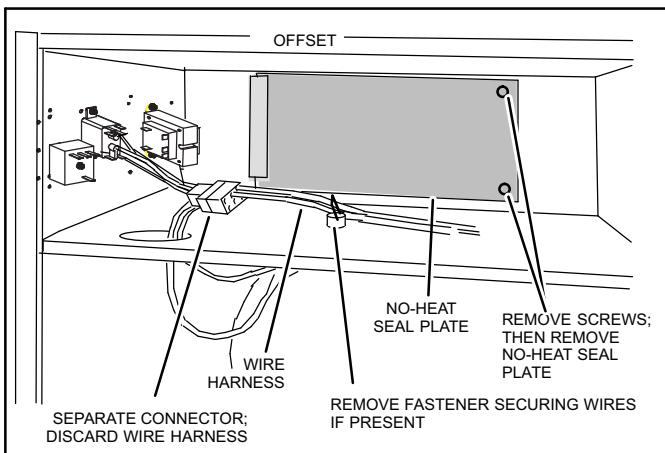
## **CAUTION**

Physical contact with metal edges and corners while applying excessive force or rapid motion can result in personal injury. Be aware of, and use caution when working near these areas during installation or while servicing this equipment.

Before installing the unit, check information on the unit rating plate to ensure that the unit meets the job specification, proper electrical power is available, and that proper duct clearances are maintained.

*NOTE - If installing heat sections at the same time as the air handler unit, install the electric heat section in the air handler unit before setting the air handler unit and attaching the plenum.*

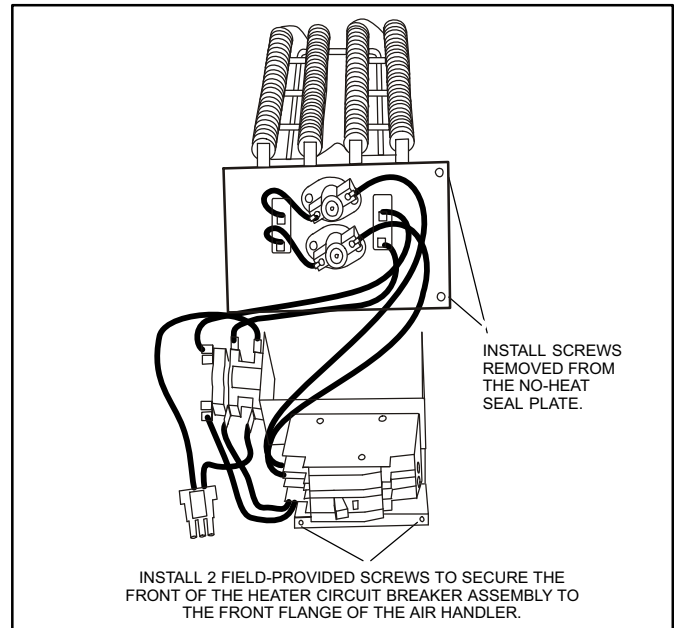
1. Shut off all power to the air handler unit. More than one disconnect may be required.
2. Remove air handler access panel and keep the six screws to reattach access panel after installing heat elements.
3. Disconnect any existing field supply wires and pull them out of the air handler. Disconnect and remove wiring harness and fastener (see figure 1). If not removed, these items will prevent the heat section's base from resting properly in the compartment.
4. Remove the no-heat seal plate in the air handler frame (see figure 1).



**Figure 1. Prepare to Install Heat Element**

5. Slide the electric heat section into the air handler. Be careful that the heating elements do not rub against the sheet metal opening when they slide into the air handler. The side opposite the side with the mounting holes should slip behind the offset. The mounting holes should then line up with holes in the air handler control box.

6. Secure the electric heater assembly into place with the screws that were removed from the heat element panel. Install two field-provided #8 SDST screws in the front of the electric heater assembly (see figure 2).



**Figure 2. Installing the Heat Element Assembly**

7. The air handler's access panels have knockouts over the circuit breaker opening. Knock out both plates to accommodate the number of circuit breakers used. If installing a heat element assembly with circuit breakers, remove the knockouts but do not install the access panel until all electrical connections have been completed.

## **WARNING**

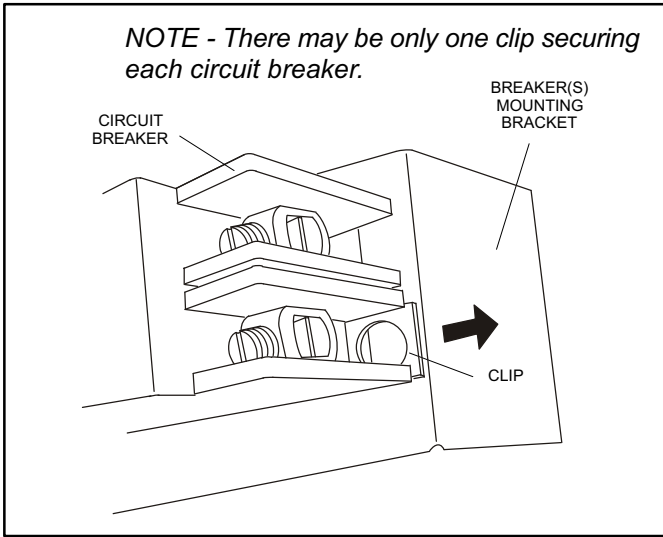
Foil face insulation must be cut to eliminate the possibility for any frayed foil to coming in contact with any main or low voltage connections. Insulation must be kept a minimum of 1/2" away from any electrical connection.

### **Changing Circuit Breaker Orientation**

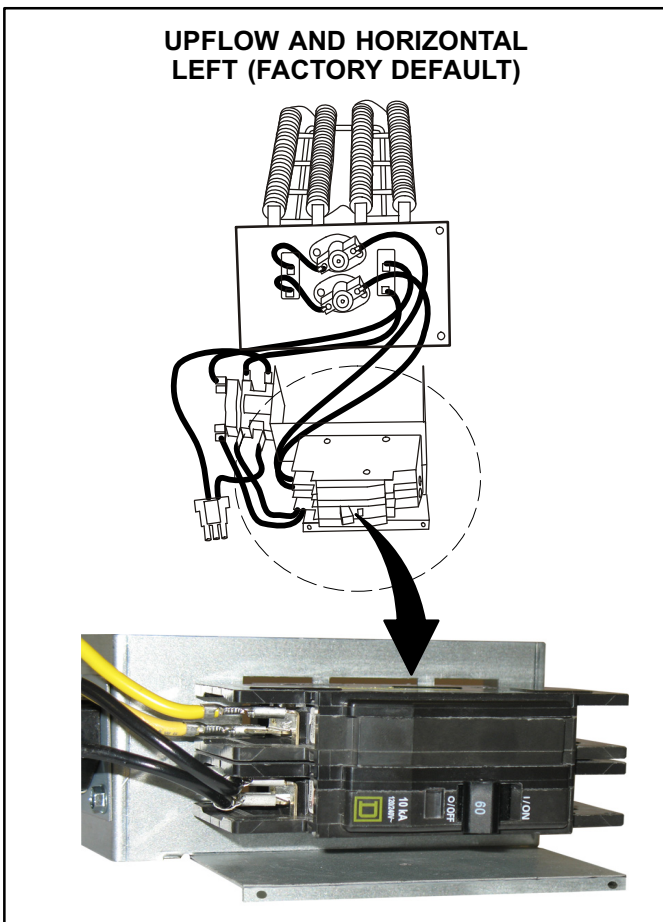
The air handler comes from the factory ready for horizontal left-hand discharge installation and will require no change in the circuit breaker orientation. However, if the air handler is installed in a horizontal right-hand discharge position, the breaker will need to be rotated 180° so that the **UP** position of the breaker is the **ON** position. The circuit breaker orientation change is required by UL 1995, Article 26.18 (25 September 2005).

1. The factory default configuration for the two circuit breakers is horizontal left-hand discharge which will require no change (see figure 4). To change the applicable circuit breakers orientation for right-hand discharge, proceed to step 2.

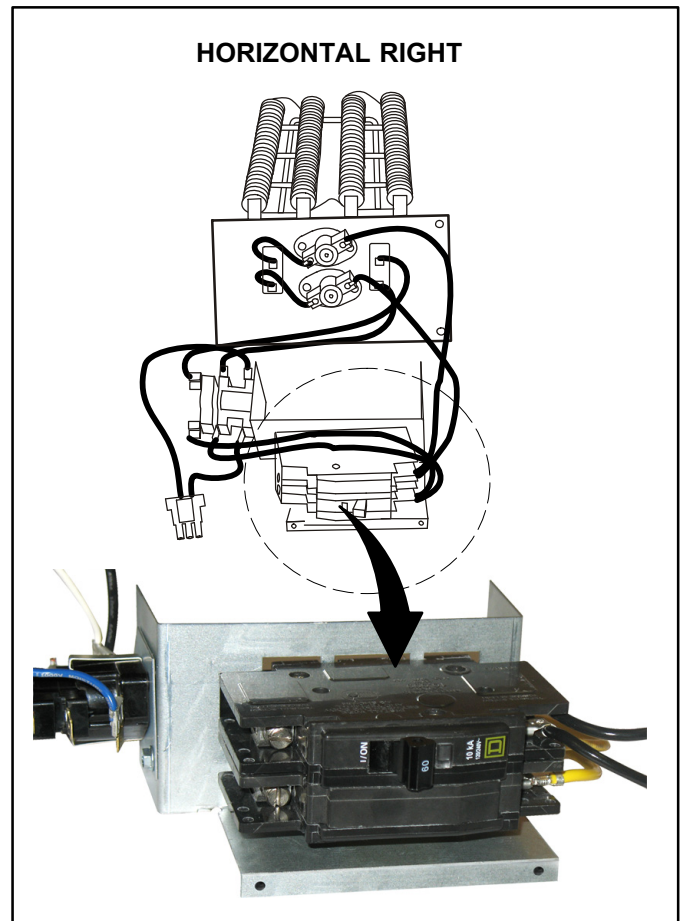
2. Locate the one clip which is located on the right side (see arrow) of each breaker (see figure 3). The clip secures the circuit breaker to the mounting bracket. Pull the clip to release the breaker from the mounting bracket.



**Figure 3. Circuit Breaker Clip**

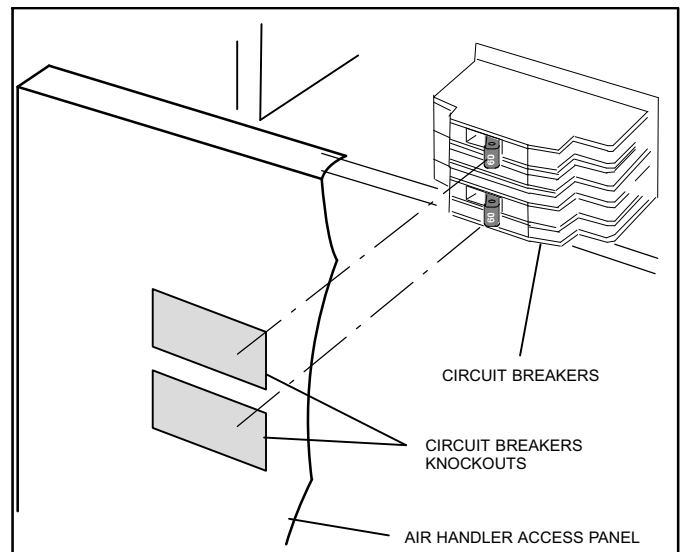


**Figure 4. Circuit Breaker Orientation (Upflow and Horizontal Left)**



**Figure 5. Circuit Breaker Orientation (Horizontal Right)**

3. Flip the breaker so that the wires attached to the circuit breaker terminals are on the left side (see figure 4).
4. Use the black clip to reattach the circuit breaker to the mounting bracket.



**Figure 6. Circuit Breaker Knockouts**

## Electrical Connections

### ⚠ WARNING



Electric shock hazard! - Disconnect all power supplies before servicing.  
Replace all parts and panels before operating.  
Failure to do so can result in death or electrical shock.

### ⚠ WARNING

USE COPPER CONDUCTORS ONLY.

**NOTE** - Refer to the nameplate on the air handler unit for minimum circuit ampacity and maximum overcurrent protection size.

The air handler units are provided with openings to be used with 1-1/2 inch trade size (1-31/32 inch diameter) conduit.

If you want a single point power supply, refer to the nameplate on the single point power supply accessory for minimum circuit ampacity and maximum overcurrent protection size. Select the proper supply circuit conductors in accordance with tables 310-16 and 310-17 in the National Electric Code, ANSI/NFPA No. 70 or tables 1 through 4 in the Canadian Electric Code, Part I, CSA Standard C22.1.

Refer to figure 13 for typical low voltage field wiring for air handler/condensing unit and heat pump applications. Figure 12 is a diagram of the air handler connections and the heater high-voltage wiring.

1. Make wiring connections as follows:

**Heaters equipped with circuit breakers** — Connect field power supply wiring to circuit breaker(s). Figure 7 shows **L1**, **L2** and ground **GND** connections for a 2-breaker configuration.

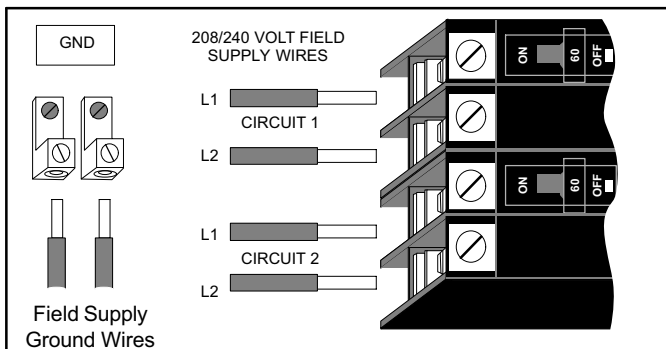


Figure 7. Field Power Supply Wiring

**Heaters equipped with terminal blocks** — Connect field power supply wiring to terminal block(s). Figure 8 shows L1, L2 and ground (GND) connection for a terminal block configuration.

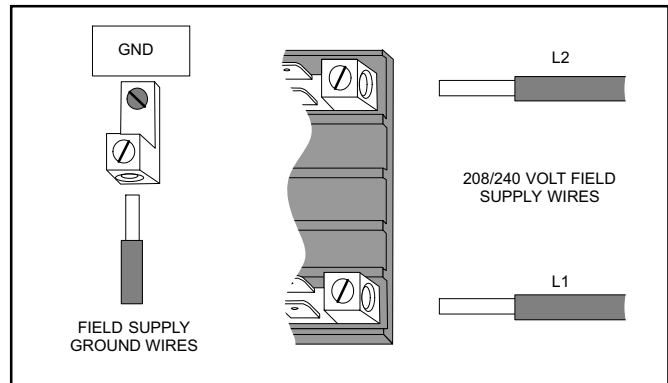


Figure 8. Terminal Block Connections

2. Remove the interface harness from the air handler unit and connect the 6-pin connector on the heater assembly to the mating connector on the air handler unit.
3. For applications using a two-stage room thermostat and/or an outdoor thermostat, connect wiring as shown in figure 13.

## Circuit Breaker Cover Installation

1. Remove any installed patch plates still present.
2. Remove paper backing from the adhesive around the perimeter of the back side of the circuit breaker cover (figure 9).
3. Position the breaker cover over the air handler circuit breaker opening (figure 10).

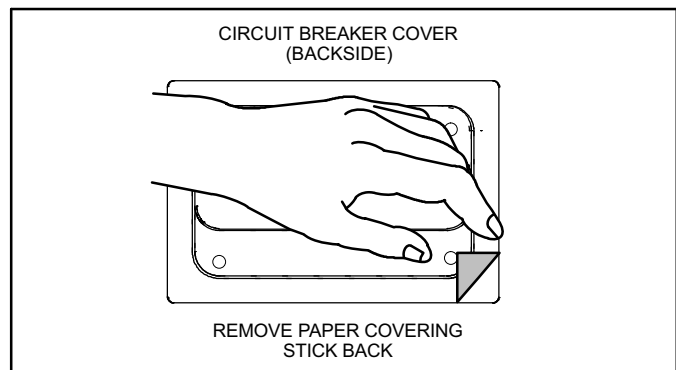
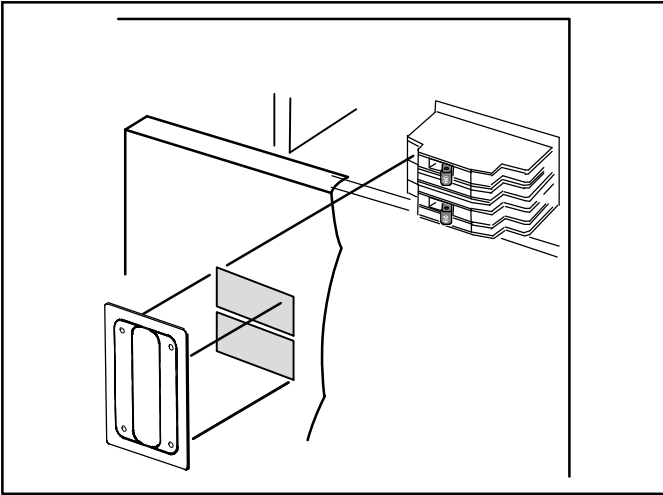


Figure 9. Remove Paper Cover

## **⚠ IMPORTANT**

Confirm air tight seal between breaker cover and air handler access panel. Apply a thin silicone bead to the adhesive back seat to ensure air tight seal.

Failure to seal circuit breaker cover will allow warm moist air to be pulled into control panel which can create condensation to form on the circuit breaker and other electrical components within the control panel.



**Figure 10. Typical Circuit Breaker Cover Installation**

## **Air Handler Speed Connections**

When using the electric heat sections with air handler units, you must adjust the air handler speed according to the size of electric heat and air handler unit.

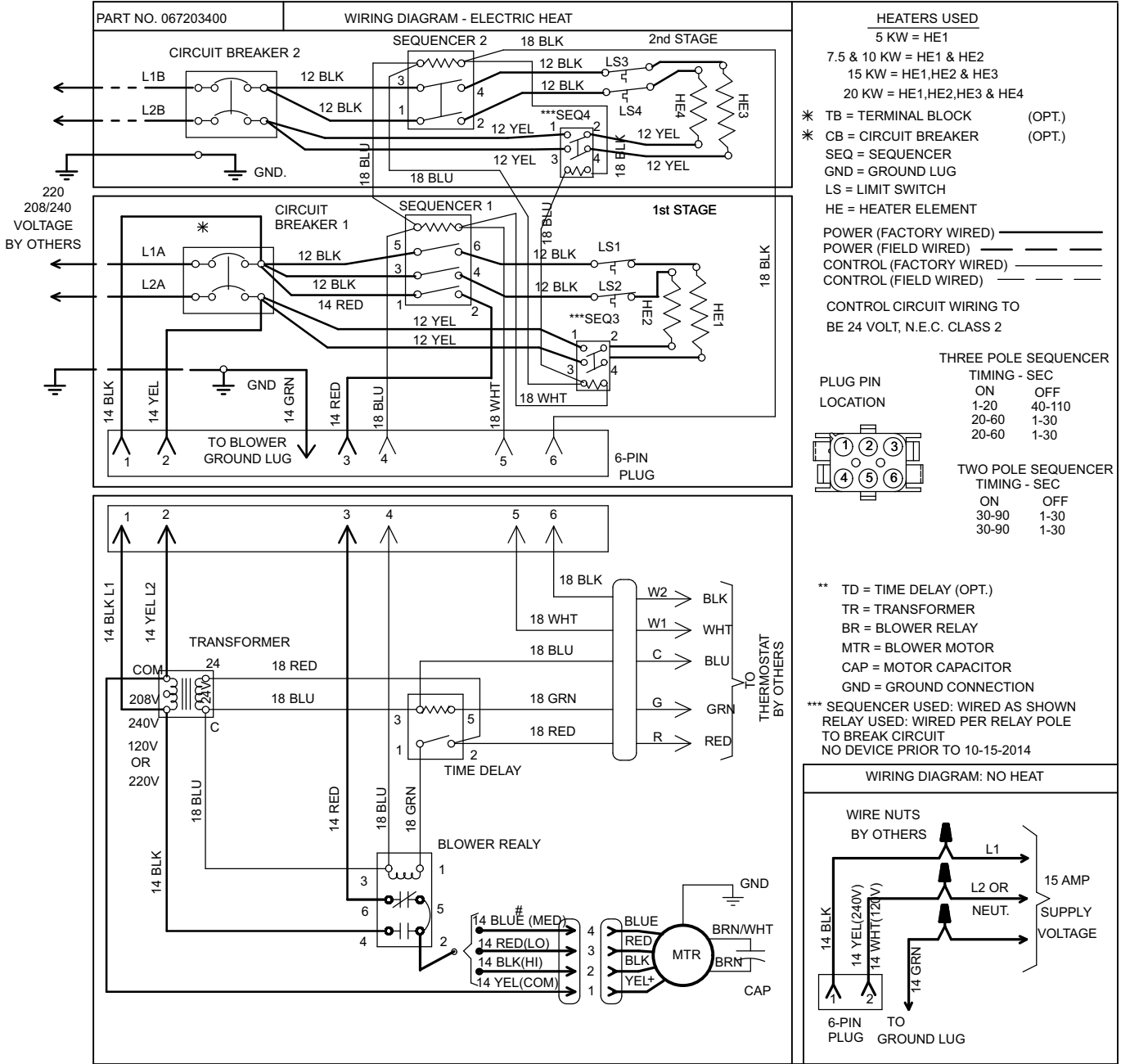
- For air handlers with PSC motors, speed tap for electric heat in upflow and horizontal position is medium. Use high speed tap for downflow position.
- For air handlers with variable speed motors, see air handler instruction for additional information.

See applicable air handler installation instructions for air handler speed adjustment procedure and location.

## **Unit Start-Up**

1. After all electrical connections have been completed and jumpers configured (if required), replace the air handler compartment access cover.
2. Restore power to the unit.
3. If using an electromechanical room thermostat, set the thermostat heat anticipator to 0.4 amps.
4. Set the thermostat above room temperature.
5. Check the heat pump and the heat section for normal operation.
6. Set the thermostat to desired setting.
7. Affix the wiring diagram sticker to air handler scroll, aligned with circuit breaker unit wiring diagram sticker.

# Wiring Diagrams



**WARNING**  
 USE COPPER CONDUCTORS ONLY

Figure 11. Wiring Diagram - Electric Heat and PSC Air Handler

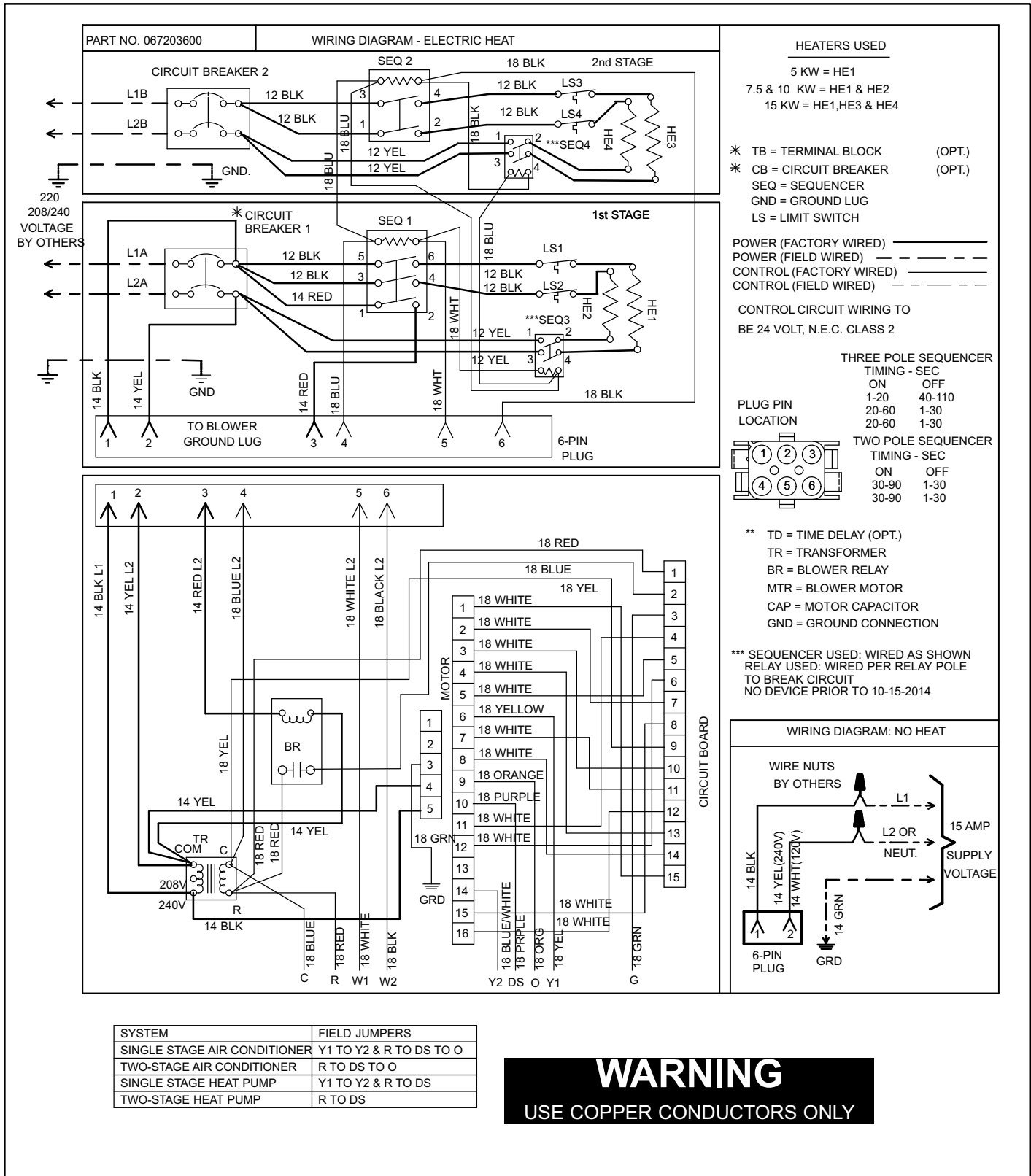
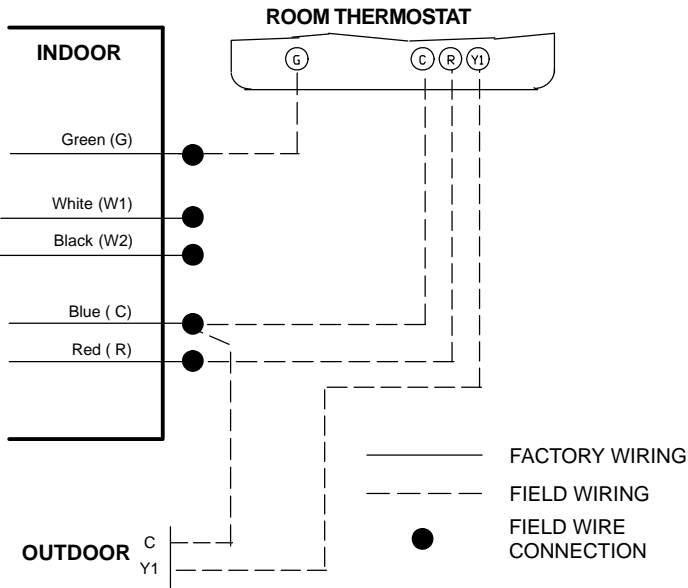
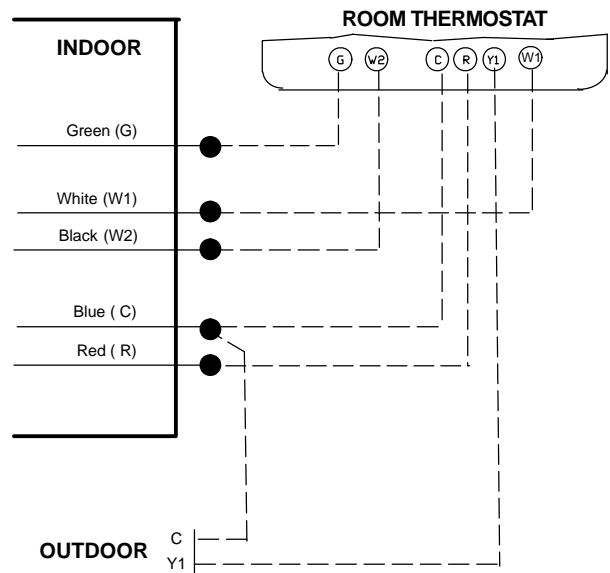


Figure 12. Wiring Diagram - Electric Heat and Variable Speed Air Handler

**Low Voltage Connection (Cooling Only)**

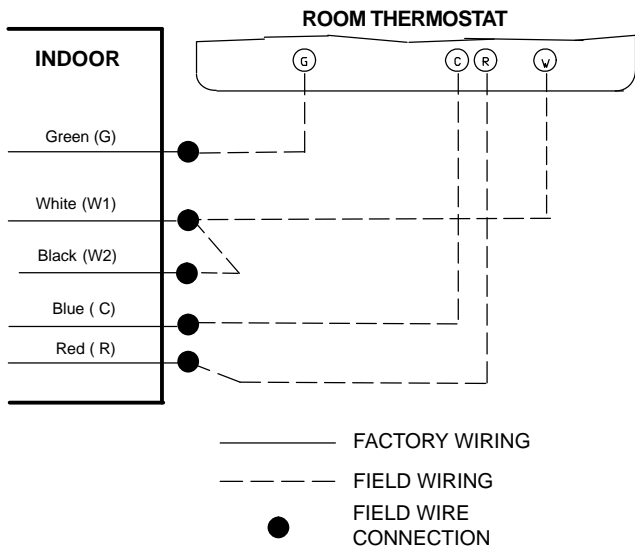


**Low Voltage Connection (Cooling Only with Electric Heat)**

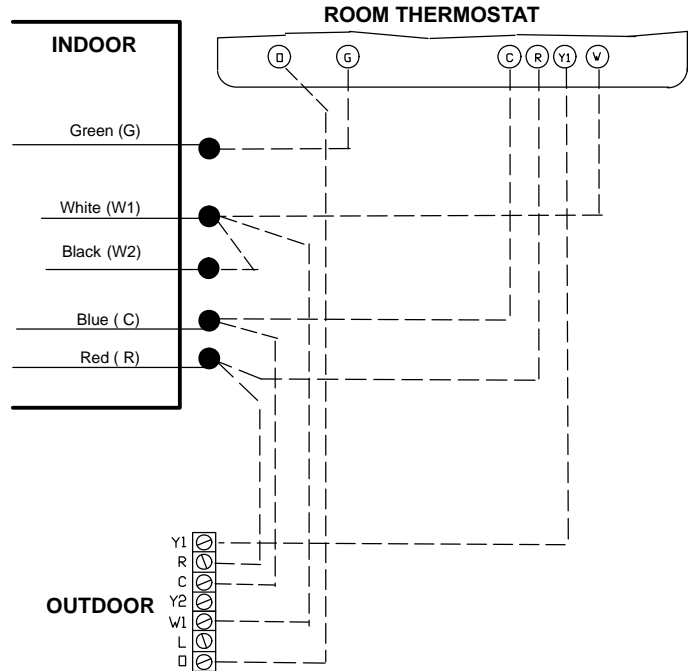


NOTE: CONNECT COMMON WIRE ONLY IF RQUIRED.

**Low Voltage Connection (Heating Only)**



**Low Voltage Connection (Heat Pump with Electric Heat)**



**Figure 13. Low Voltage Field Wiring Electric Heat (PSC Models only)**



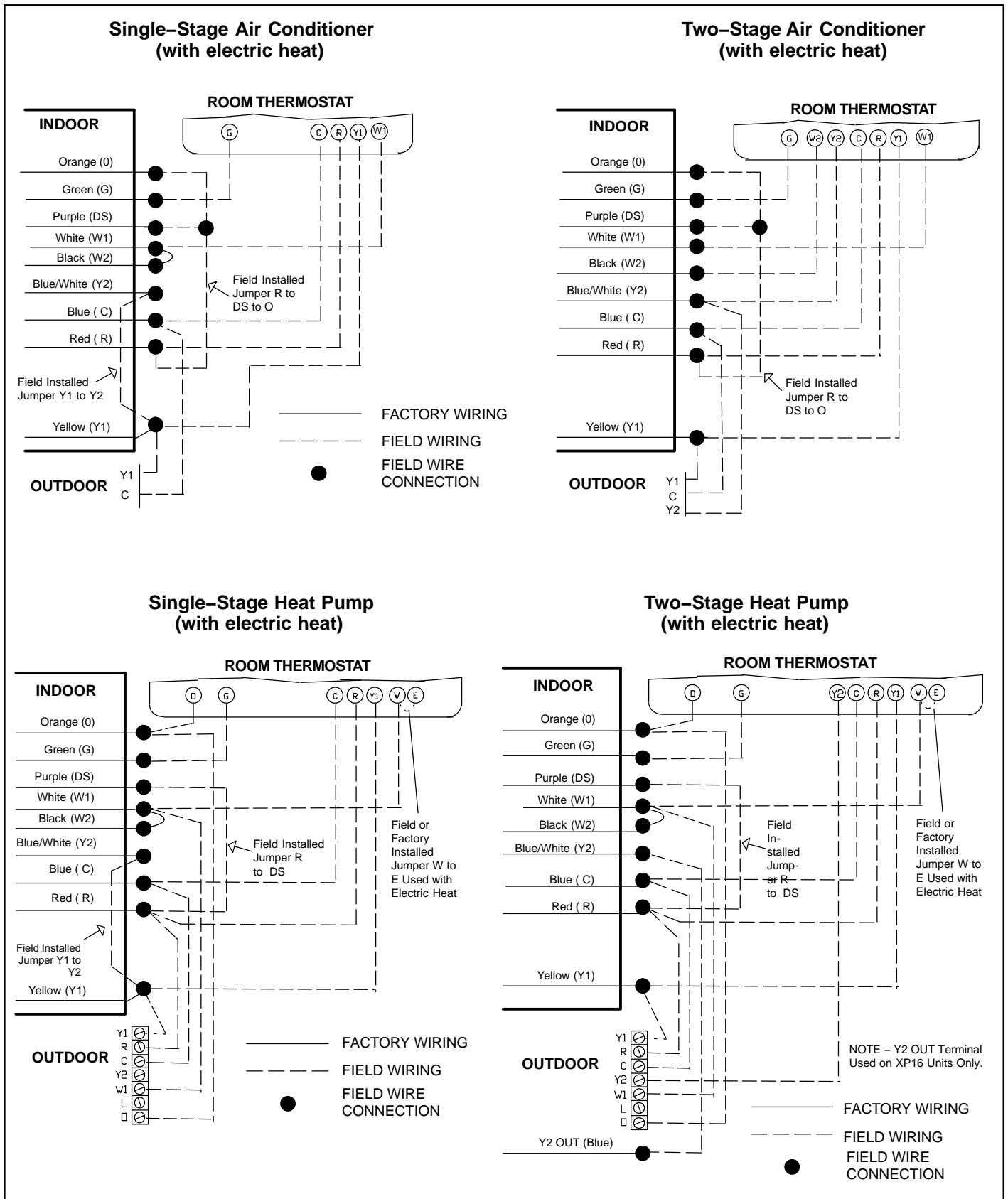


Figure 14. Low Voltage Field Wiring Electric Heat (Variable Speed Models)