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# SUPPLEMENTAL INSTRUCTIONS

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## CMA-39 Low Ambient Fan Cycling Control

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The CMA-39 is a field-installable low ambient fan cycling control kit. This low ambient control is only for use on R-410A refrigerant systems. The low ambient control pressure sensor is attached to the liquid line of the system, and monitors high side system pressure. Operation of the LAC occurs as outdoor temperatures drop below the 65°F to 50°F range. On/Off LAC operation cycles the condenser fan operation based on outdoor temperature.

The CMA-39 kit is for use with Bard models W12AB, W30AB, W30LB, W36AB, W36LB, W42AC, W48AC, W60AC, W72AC, W3SAC, W4SAC and W5SAC wall-mount air conditioners.

The CMA-39 kit consists of:

- 7960-848D Installation Instructions
- 8406-112 Low Ambient Fan Cycling Control
- 910-2058 Outdoor Temperature Switch Assembly
- 8408-048 Freeze Protect Thermostat
- 1012-066 3/4" Screw (1)
- 8607-017 Terminal Block
- 1012-085 1/2" Self-Tapping Screw (2)
- 7961-312-0482 CMA-39 Unit I.D. Label

Field-supplied tools needed:

- Personal protection equipment, including gloves and safety glasses
- 5/16" nut driver
- 1/2" wrench (service port) and 9/16" wrench (LAC control)
- T20 Torx screwdriver
- Small flat head screwdriver for securing wire in terminal block

### **WARNING**

***Electrical shock hazard.***

***Disconnect the remote electric power supply or supplies before servicing.***

***Failure to do so can result in serious injury or death.***

### **WARNING**

***Exposed moving parts.***

***Disconnect all electrical power before servicing.***

***Failure to do so can result in severe injury or amputation.***

### **CAUTION**

***Sharp metallic edges.***

***Take care and wear appropriate protective devices to avoid accidental contact with sharp edges.***

***Failure to do so can result in personal injury.***



**Climate Control Solutions**

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Bryan, Ohio 43506  
www.bardhvac.com

Manual: 7960-848D  
Supersedes: 7960-848C  
Date: 9-9-22

## Installation

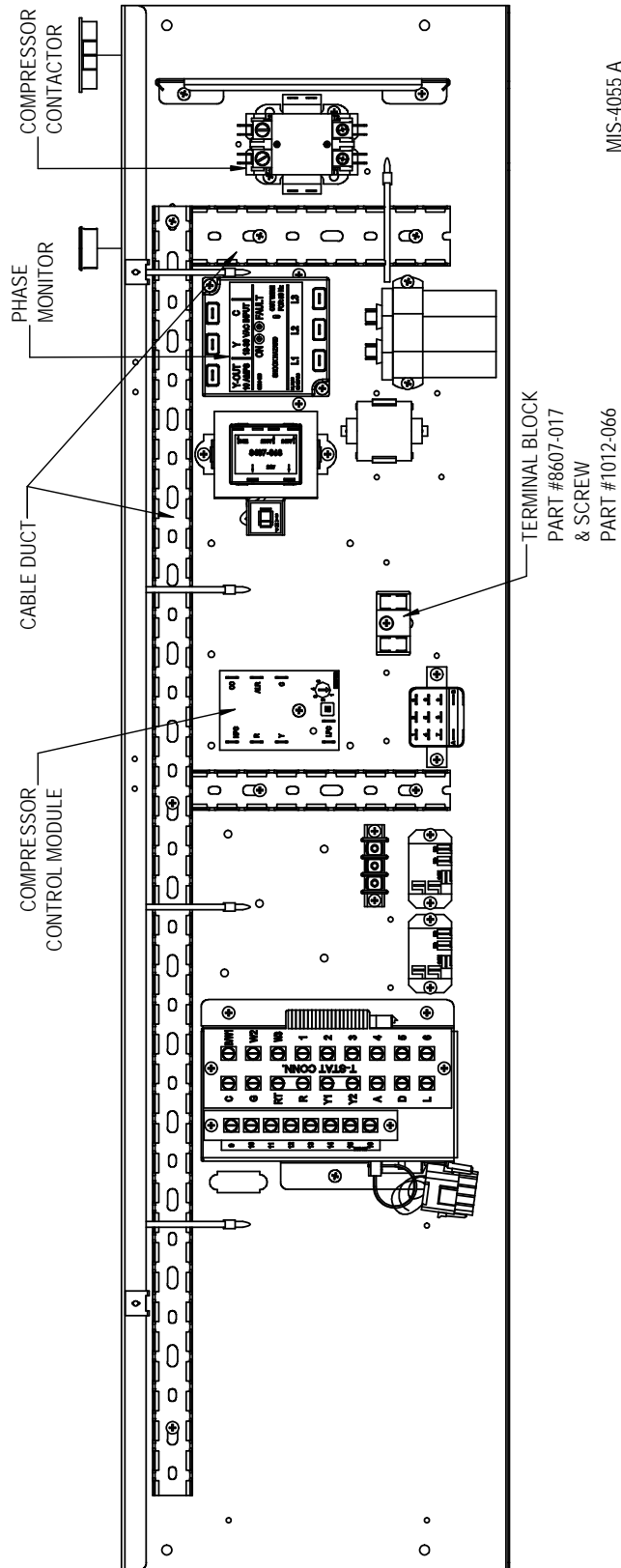
1. Disconnect all power to the unit. Remove control panel inner and outer covers, upper front panel and right-side condenser inlet grille.
2. Mount supplied 8607-017 terminal block into control panel with supplied 1012-066 screw as shown in Figure 1 or Figure 2 (page 4). Terminal block comes installed in W12 unit; see Figure 3 on page 5.
3. Disconnect black high voltage outdoor motor lead from compressor contactor and reconnect to terminal block that was installed in Step 1 as shown in Figure 1.
4. Remove the service port cap from the liquid line. Install the low ambient control (LAC) on the liquid line by screwing it into the service port. Snug the connection with wrenches and check for leaks. See Figure 4 (page 6), Figure 5 (page 7) or Figure 6 (page 8). Route low ambient control wires up through the bushing in the bottom of the control panel. Route the wires through the cable duct in the control panel as shown in Figure 1 or Figure 2.
5. Install outdoor temperature switch assembly to the fan shroud and route the wires to the control panel as shown in Figure 4, Figure 5 and Figure 6. This switch defeats Balanced Climate airflow when the temperature falls below 50°F to help prevent evaporator freeze up. Refer to the unit installation manual for more information on Balanced Climate operation.
6. Install freeze protect thermostat to the evaporator coil as shown in Figure 7 (page 9), Figure 8 (page 10) and Figure 9 (page 11). For W12, W30 or W36 units, route the wires down through the copper bushing and into the control panel with the blower motor wires. For W42, W48, W60, W72 and W\*SAC units, route the wires down through the bushings in the blower partition and filter partition beside the filters and into the control panel.
7. Connect the low ambient control wires to the terminal block and T2 of the compressor contactor (see Figure 1, Figure 2 or Figure 3).
8. For single stage units: Find the purple wire not connected to anything that is tucked in the cable duct (see Figures 1 or 2). Pull it out and connect it to the LAC terminal block on the terminal that is separate from the LAC control wire (the purple wire in W12 units comes connected to the terminal block—see Figure 3). Connect the end of the outdoor temperature switch to the terminal block beside the purple wire. Find the yellow/white wire that is tucked in the cable duct and connect it to the other end of the outdoor temperature switch. Refer to Figure 10 on page 12 or the unit wiring diagram.  
  
For two stage units: Find the purple and yellow/white wires not connected to anything that are tucked in the cable duct. Pull them out and connect them to each end of the outdoor temperature switch. Refer to Figure 11 on page 13 or the unit wiring diagram.
9. Connect the freeze protect thermostat wires in line with the “Y” input signal to the compressor control module (CCM). Refer to the unit wiring diagram.  
  
For 1-phase units, connect the end with the 1/4" quick connect to Y terminal on the CCM and the other end with the 1/4" tab to the yellow/white wire coming from the low voltage terminal strip or to the yellow/black wire coming from the dehumidification logic board if unit has mechanical dehumidification.  
  
For 3-phase units, connect the wire end with the 1/4" quick connect to “Y out” on the phase monitor, and the other end with the 1/4" tab to the yellow/black wire going to the CCM.
10. Recheck wiring by referring to unit wiring diagram.
11. Apply “This unit equipped with CMA-39 control module” label to the inside of the inner control panel cover above the wiring diagram.
12. Replace all panels and covers. This completes the installation.
13. Turn on power to unit. Check for proper operation of the unit by referring to **Sequence of Operation**.

## Sequence of Operation

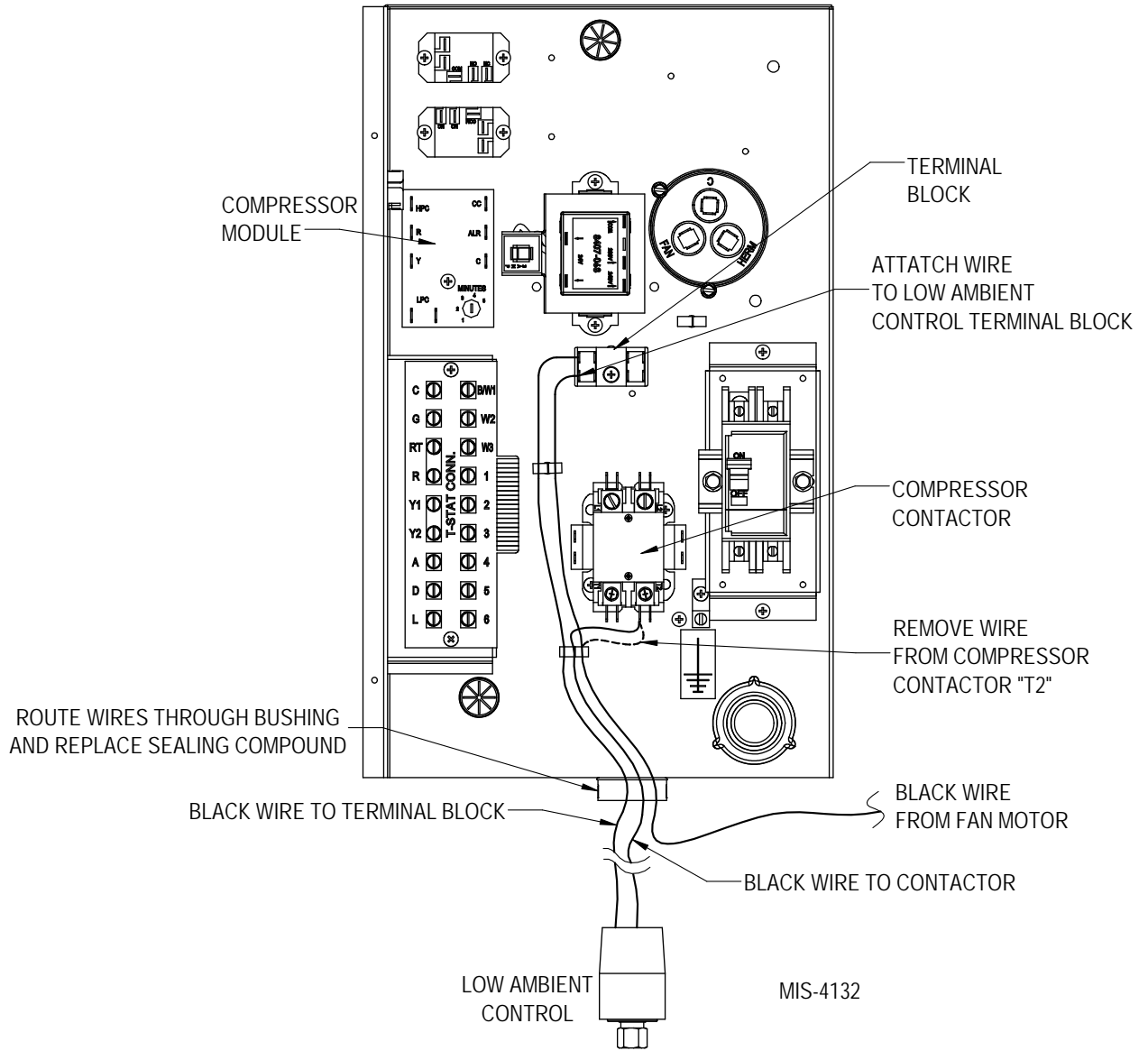
Energize the unit in cooling mode (first or second stage). The compressor should start (except when equipped with economizer and enthalpy control is energizing “free cooling” mode. Energizing Y2 will override the enthalpy control, allowing the mechanical cooling to operate). Run the unit for at least 5 minutes. The condenser fan motor should not run until the liquid pressure has reached 350 PSI. Should the liquid pressure fall below 225 PSI while running, the condenser fan motor will de-energize until the head pressure builds to 350 PSI.



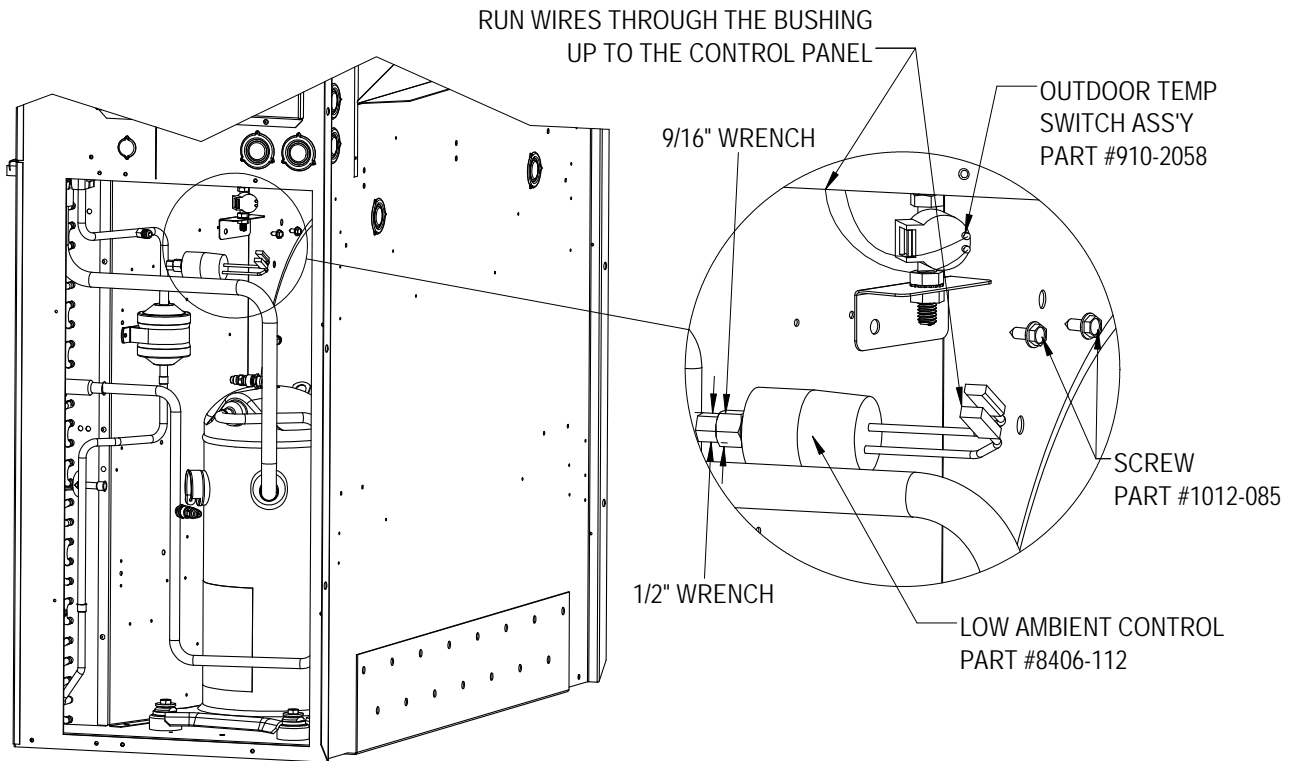
FIGURE 2  
W42AC, W48AC, W60AC, W72AC, W\*SAC



**FIGURE 3**  
**W12AB**



**FIGURE 4**  
**W30AB, W30LB, W36AB, W36LB**



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**FIGURE 5**  
**W12AB**

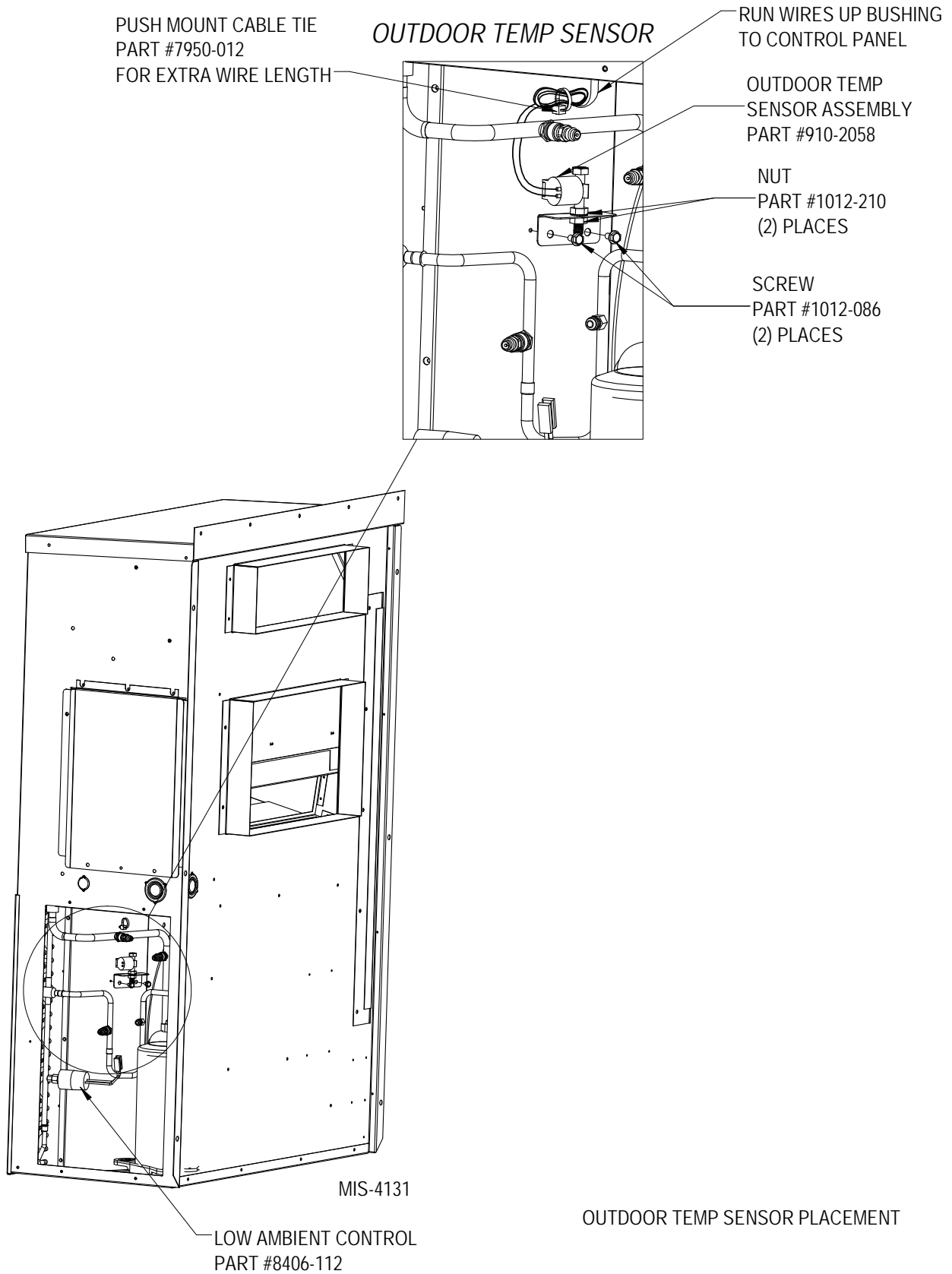
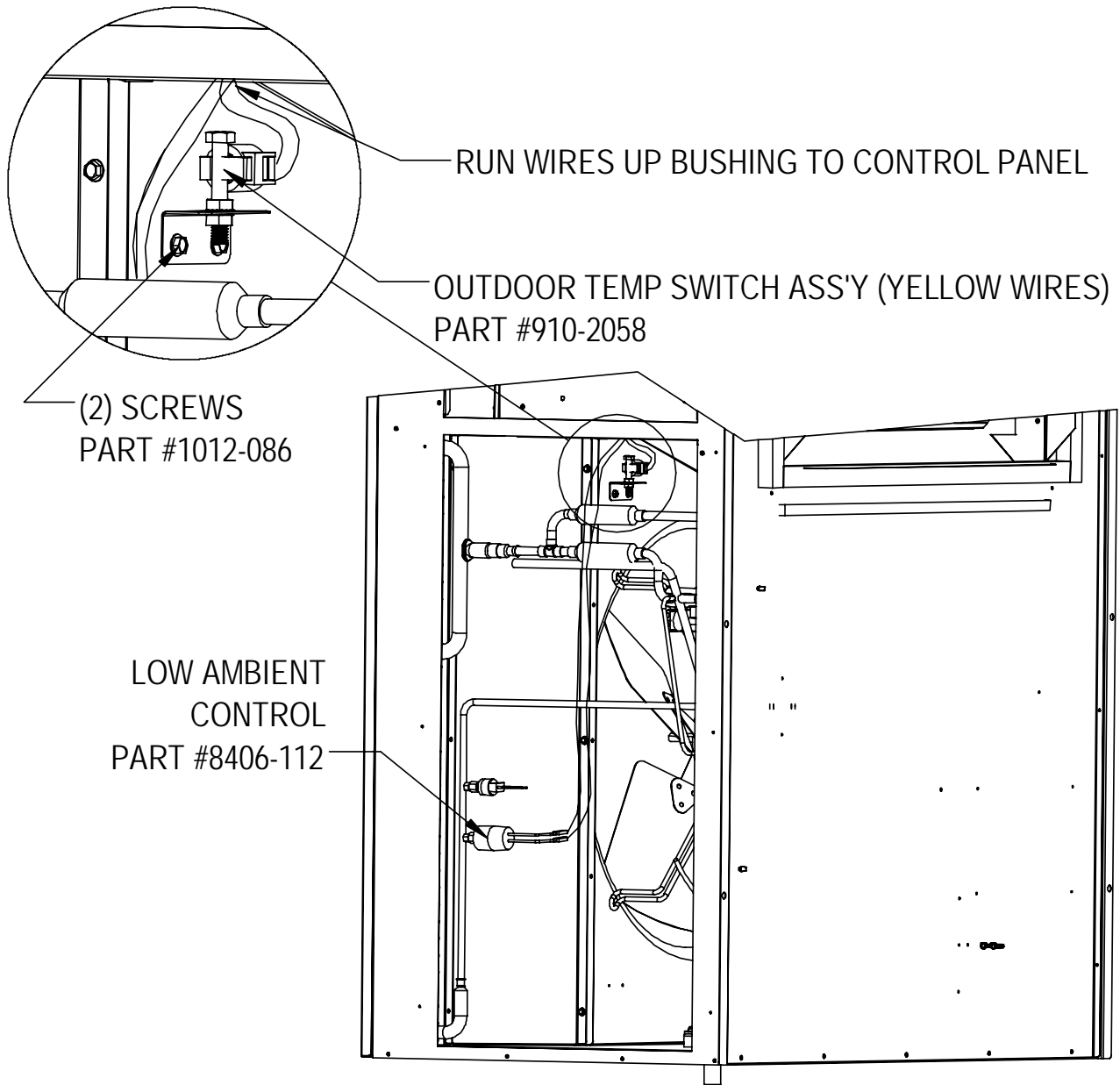
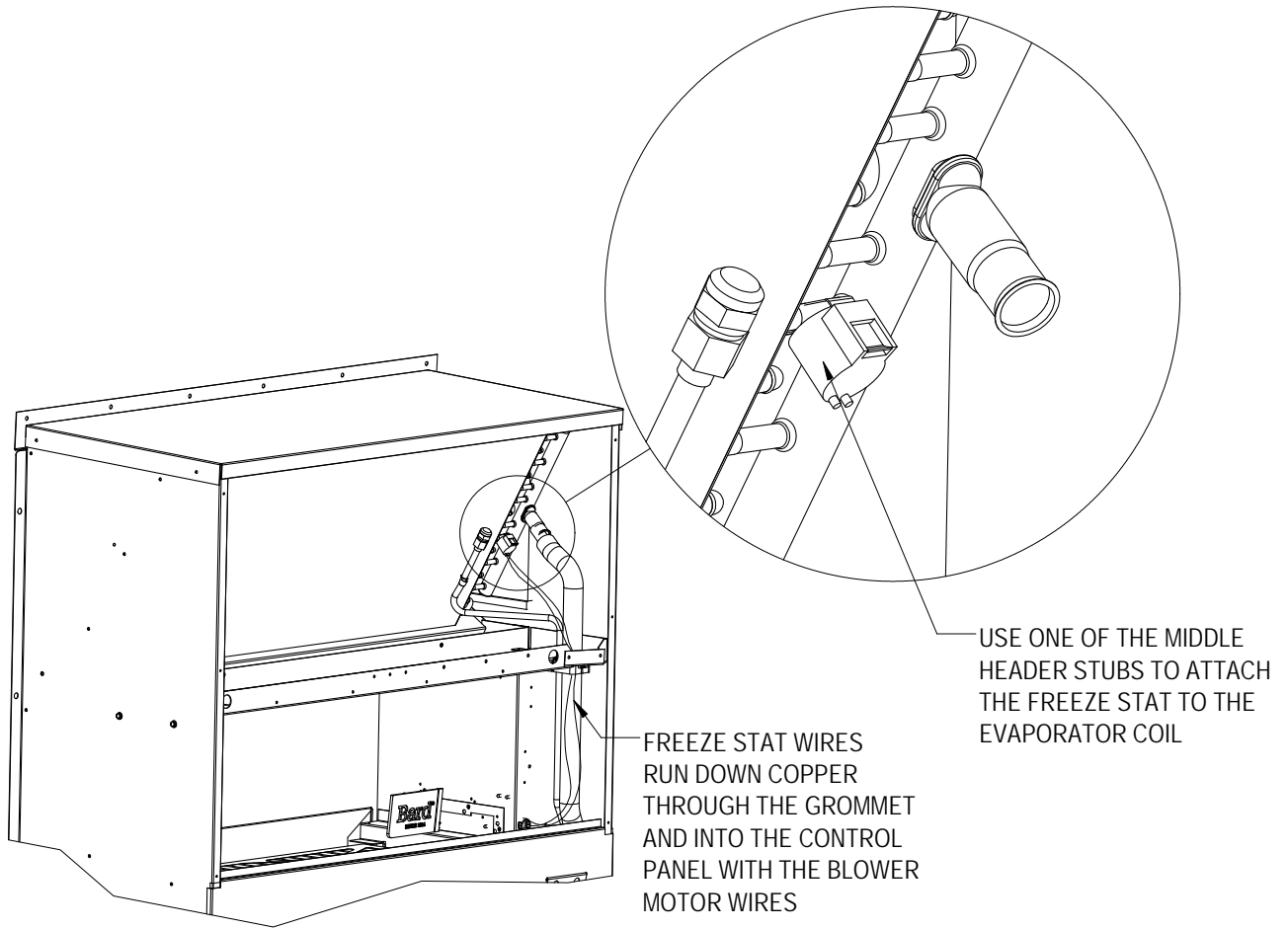


FIGURE 6  
W42AC, W48AC, W60AC, W72AC, W\*SAC



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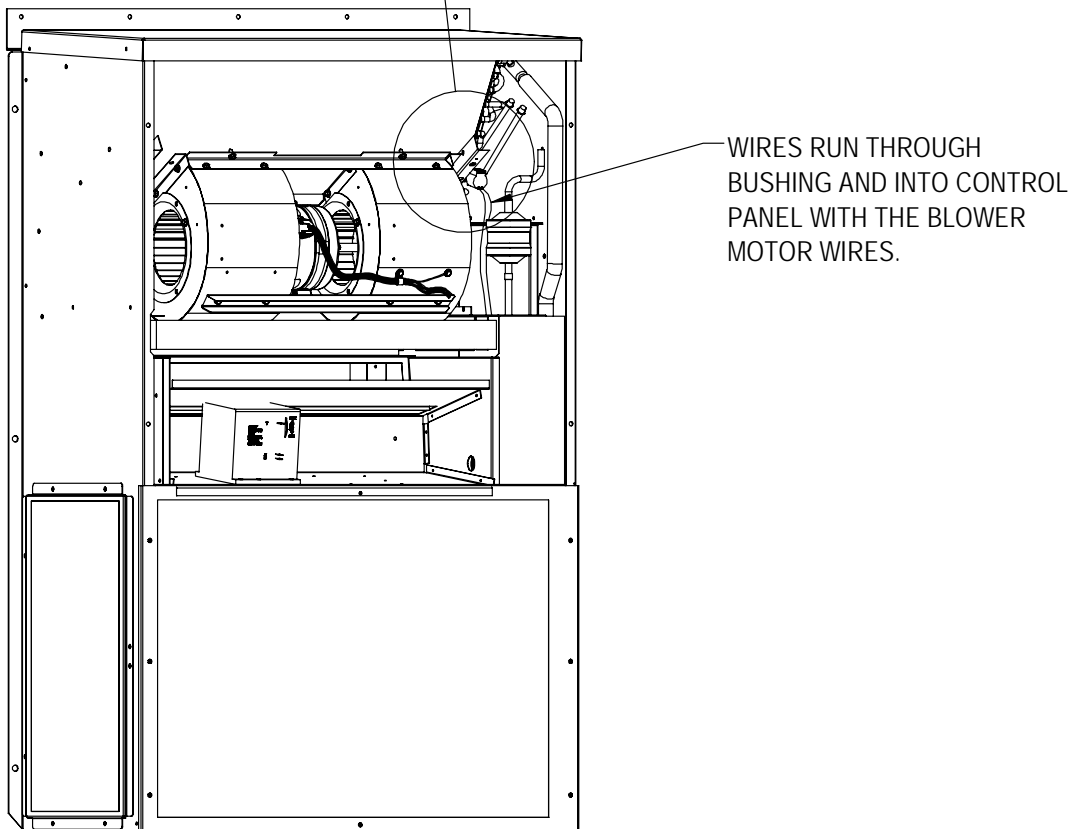
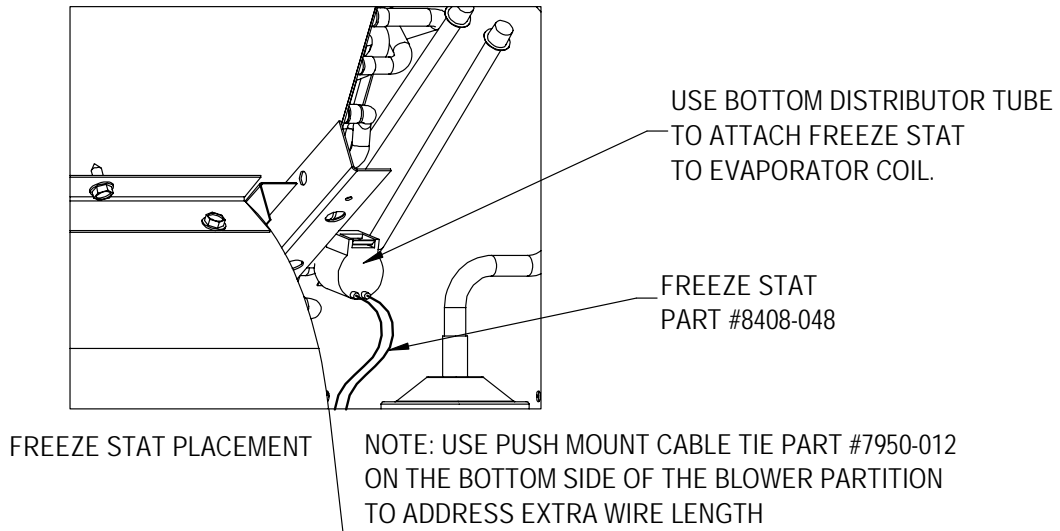
**FIGURE 7**  
**W30/W36 Freeze Stat Location and Wire Routing**



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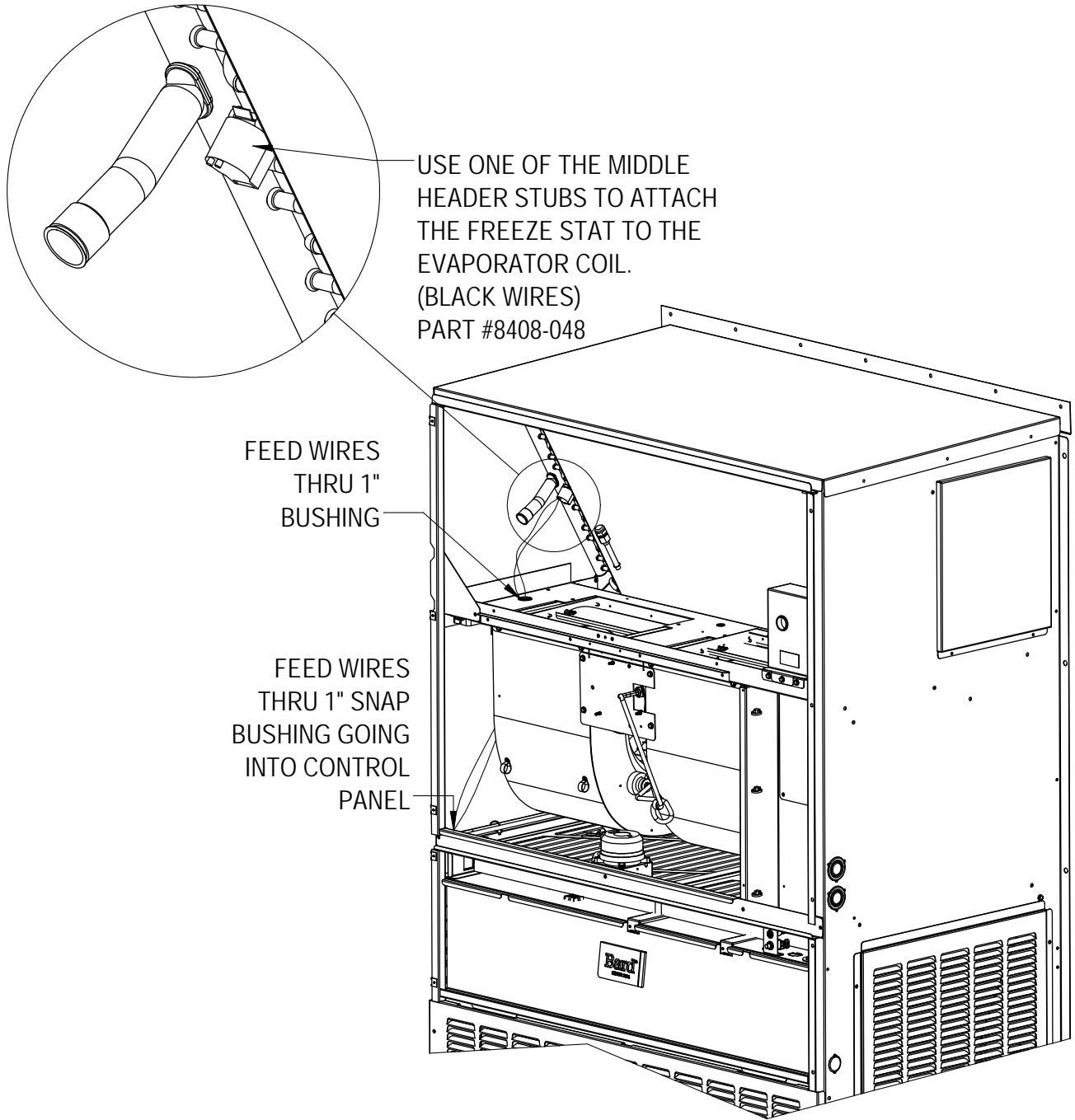
**FIGURE 8**  
**W12AB Freeze Stat Location and Wire Routing**

# FREEZE STAT



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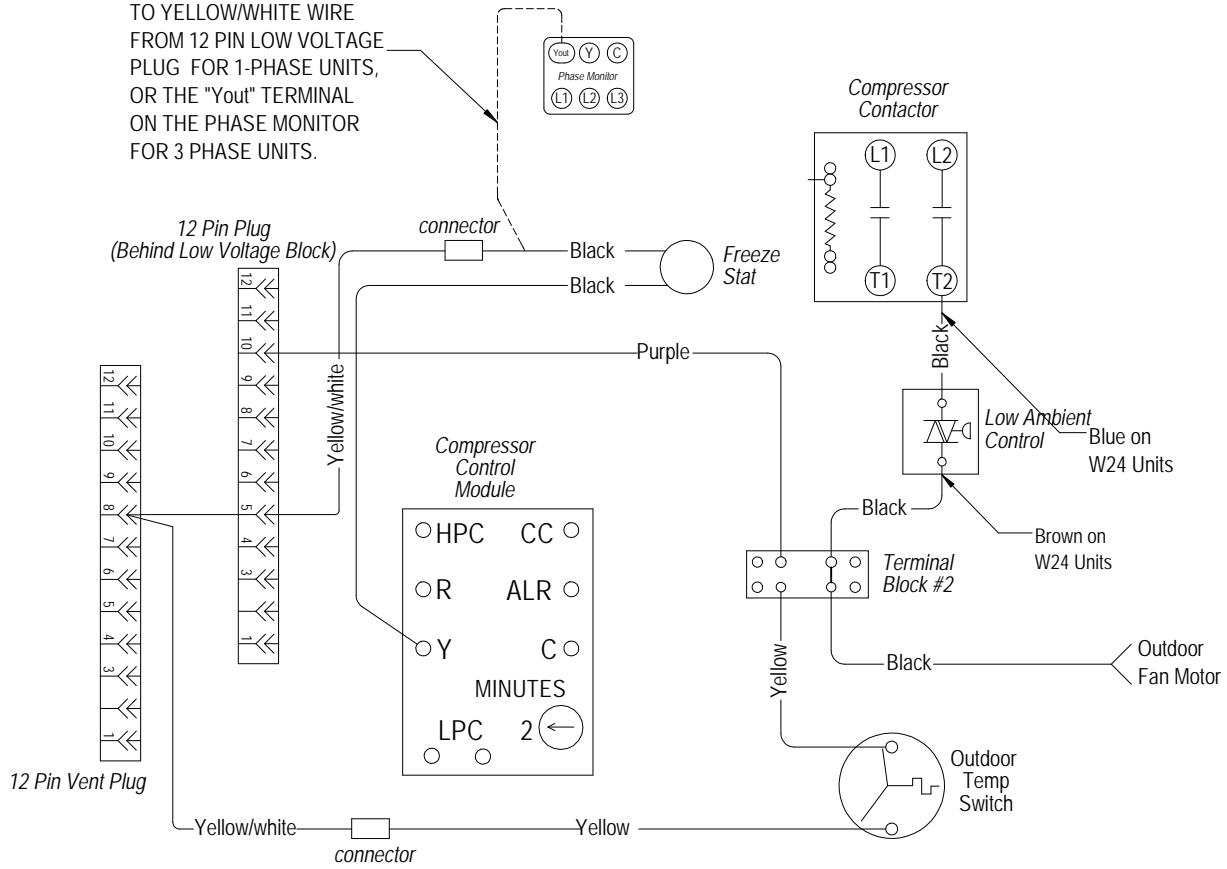
**FIGURE 9**  
**W42/W48/W60/W72/W\*SAC Freeze Stat Location and Wire Routing**



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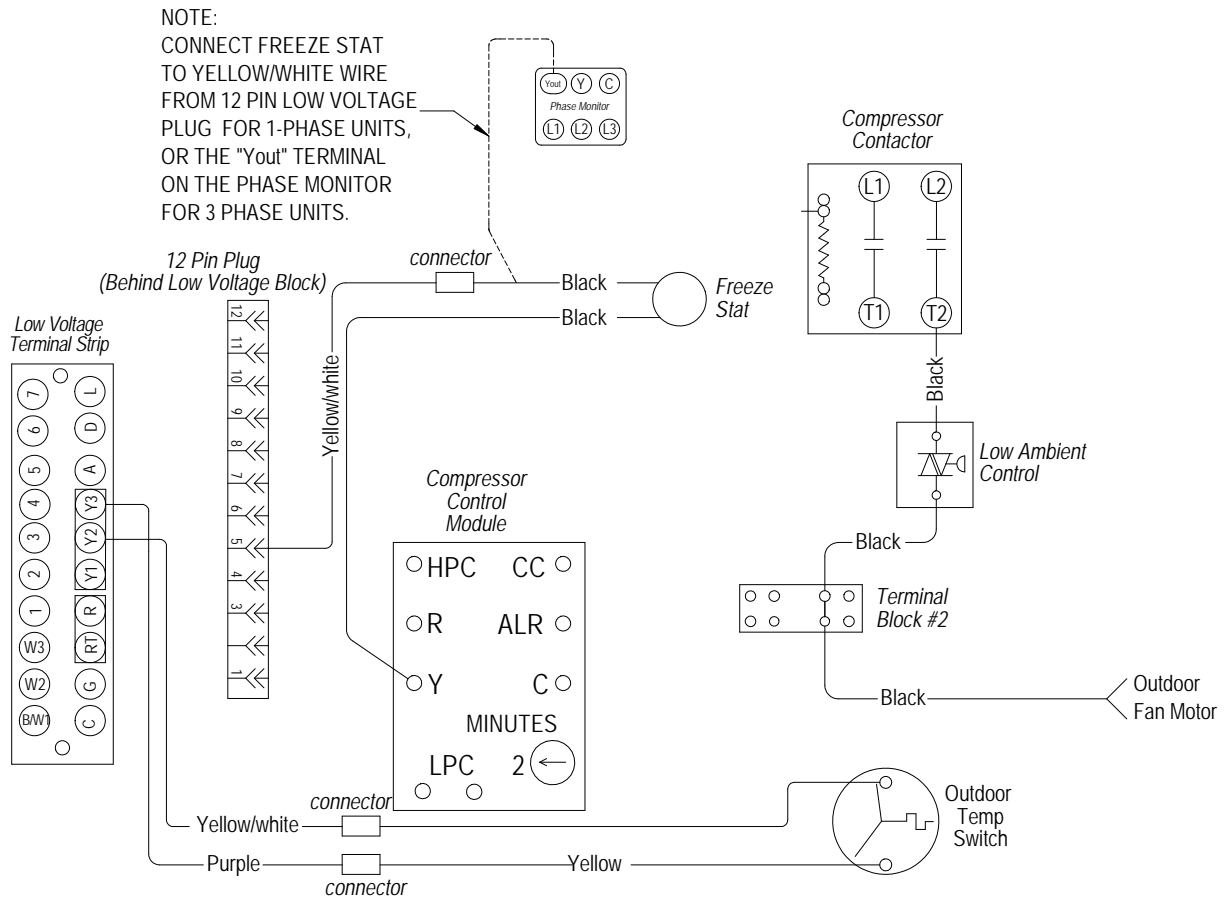
**FIGURE 10**  
Single Stage Units

NOTE:  
CONNECT FREEZE STAT  
TO YELLOW/WHITE WIRE  
FROM 12 PIN LOW VOLTAGE  
PLUG FOR 1-PHASE UNITS,  
OR THE "Yout" TERMINAL  
ON THE PHASE MONITOR  
FOR 3 PHASE UNITS.



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**FIGURE 11**  
**Two Stage Units**



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