507727-01
05/2020

CONTROL REPLACEMENT KIT

Installation Instructions for Outdoor Control Replacement Kit for iComfort 1- or 2-Stage AC and HP Units (16X41)

Shipping and Packing List

Check kit for shipping damage. Consult last carrier immediately if damage is found.

Qty.	Part Description	Part Numbers
1	Outdoor unit control	105250-02
1	Compressor solenoid harness (2-stage units only)	49M7301
7	#10-32 x 1/2" hex slotted washer head self-tap screws	P-8-3981
5	Tie wraps	100082-02
8	Replacement wiring diagrams (stickers)	537507-01 537508-01
1	Display and configuration guide (sticker)	580656-01
1	Jumper and Link Guide (sticker)	580657-01

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional HVAC installer or equivalent, service agency, or the gas supplier.

⚠ CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

⚠ 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.

General

This instruction covers the removal and replacement of the iComfort unit control board, the removal of the PWM fan control and the installation of the new compressor solenoid harnesses for older two-stage units.

This kit can be field-applied to models that use a single- or two-stage outdoor control listed in Table 1.

TABLE 1. iComfort Existing Outdoor Controls and Components

Applicable Outdoor Unit	Outdoor Control Part Numbers	PWM Fan Control Part Number	Compressor Solenoid Harness Part Numbers
Single-stage air conditioner	101799-XX	102791-01	N/A
Two-stage air conditioner	101798-XX		100037-01
Single-stage heat pump	101797-XX		N/A
Two-stage heat pump	101796-XX		100037-01
All outdoor units with controls	103369-01, -02, -03, -04, -05, -06, -07	N/A	N/A

***NOTE** – This kit can be used in the following models:*

- All versions of the XC17,XP17, XP17N, XP21, XP21N, SL18XC1 and SL18XP1.
- XP19-XX-230-06 only.
- XC21-XX-230-04 or higher.

⚠ IMPORTANT

TWO-STAGE (XP19-XX-230-06 AND XP21) OUTDOOR HEAT PUMP UNITS BUILT BEFORE FEBRUARY 2012

THESE SYSTEMS WILL REQUIRE A 70VA CONTROL TRANSFORMER (CATALOG # 13H2801 - ORDER SEPARATELY)

FOR INDOOR AIR HANDLERS THAT USE ECB29 ELECTRIC HEAT SECTIONS LARGER THAN 10 KW. THE LARGER 70VA IS REQUIRED TO HANDLE THE REVISED LOADING OF THE TWO-STAGE SOLENOID IN THE COMPRESSOR.

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Control Replacement

1 - Disconnect all power to system (indoor and outdoor units).

2 - Remove the existing communicating thermostat from the wall base.

3 - Remove unit access panel. See unit installation instructions for access panel removal procedure.

4 - Tag location of wires attached to the existing control. Use wiring diagram on access panel for reference if necessary. The replacement control may be configured differently, so it is essential that the wires be clearly marked with the current terminal connection.

5 - Remove all wiring connections from installed control.

6 - Remove existing outdoor control.

7 - Install new outdoor control in the same location as original outdoor control.

8 - Reconnect wires to same terminals as original outdoor control.

***NOTE** - Terminals may not be in the same location on the replacement control.*

9 - Turn the main power on to the indoor unit and outdoor unit. Control should auto program the settings and the outdoor unit model number and serial number will be transferred into the new control. On systems installed with the iComfort Wi-Fi thermostat, the thermostat will display “Compatible Device Found”. Select “Yes” to copy the model and serial number into the new control. If it does not, turn off power to system and remove i+ and i- communicating wires, leaving R and C wires connected. Turn power back on and use push button on control to program control using procedure outlined in figures 2, 3 and 4.

10 - Turn indoor and outdoor power off and reconnect the i+ and i- wires to the control board.

11 - Turn main power **ON** to indoor and outdoor unit.

12 - Reinstall unit panels and verify unit operation.

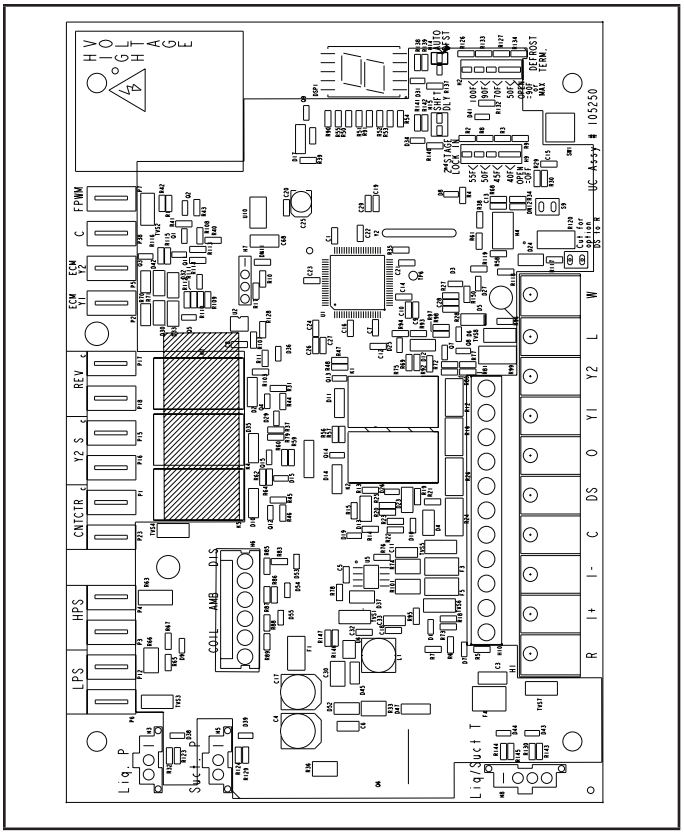


FIGURE 1. Lennox Unitary Control

⚠ WARNING

ELECTROSTATIC DISCHARGE (ESD) Precautions and Procedures	Electrostatic discharge can affect electronic components. Take care during unit installation and service to protect the unit’s electronic controls. Precautions will help to avoid control exposure to electrostatic discharge by putting the unit, the control and the technician at the same electrostatic potential. Touch hand and all tools on an unpainted unit surface before performing any service procedure to neutralize electrostatic charge.

Configuring Unit - Single Stage

For the new outdoor control to work correctly, it **MUST BE** programmed for unit type (AC or HP and number of stages), unit capacity and outdoor fan profile (RPM). The new outdoor control has an auto-detection feature that will determine the unit type. The following set up procedures MUST be done on all new outdoor controls.

Auto-Detection of Unit Type (air conditioner or heat pump and number of stages)

During initial power-up the control will auto-detect the unit type. The unit type is determine by what is connected to various outputs on the new control.

The unit capacity and fan speed are manually configured. Until those parameters are configured the 7-segment display will show 3 bars for the unit capacity and fan speed.

- Anytime there is a connection to **REV** terminal, the control will detect the unit type as a heat pump.
- Anytime there is no connection to **REV** terminal, the control will detect the unit type as an air conditioner.

- Anytime there is a connection to **Y2 S** terminal, the control will detect the unit as two-stage.
- Anytime there is no connection to **Y2 S** terminal, the control will detect the unit as single-stage.

If the control auto-detects the unit type incorrectly it may be due to the control being miswired, loose connection or missing connection to the required control output terminal. Disconnect power to the control, verify connections, correct wiring and reconnect power. Verify that the correct unit type is displayed on the seven-segment display.

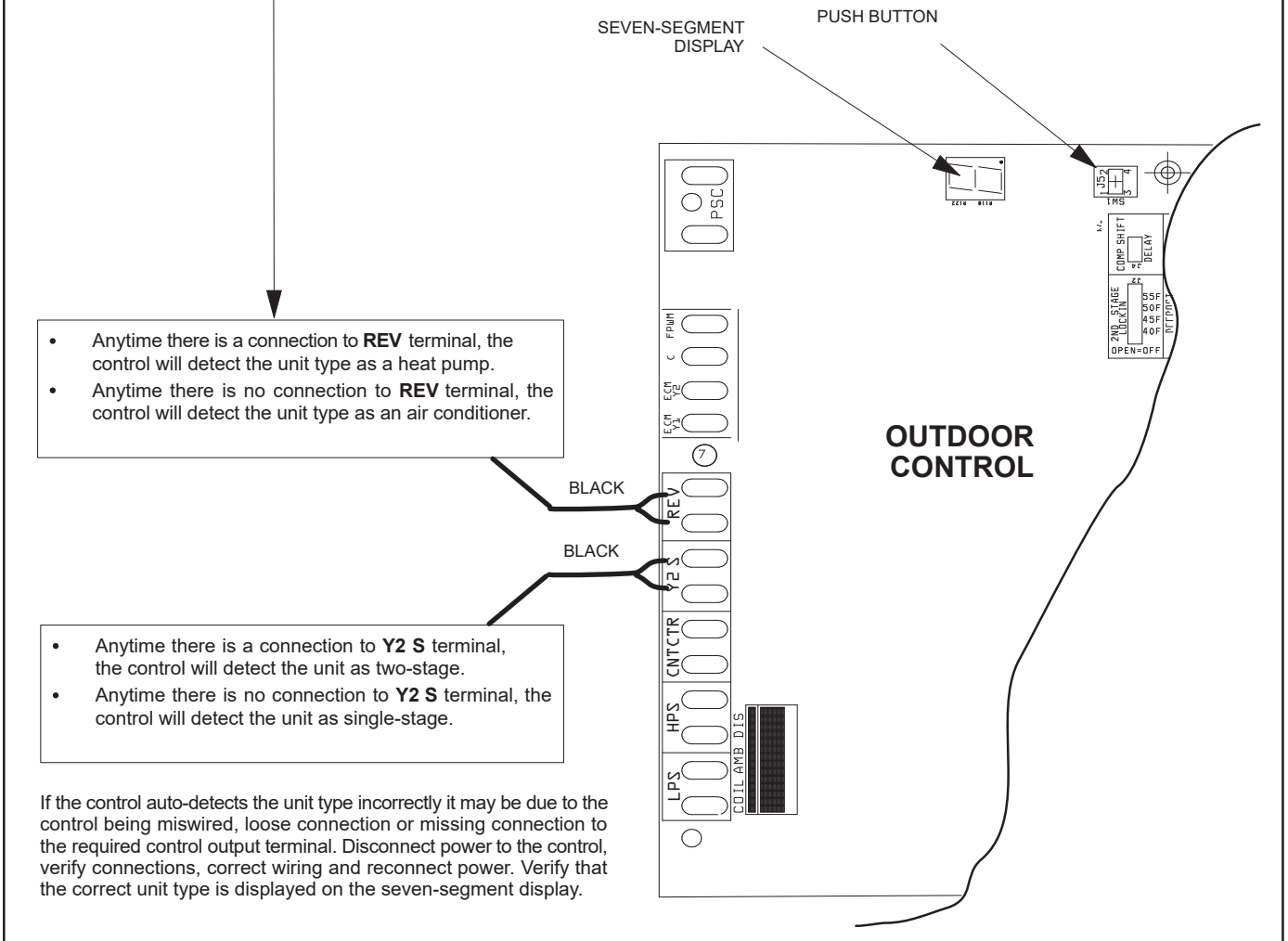


FIGURE 2. Configuring Unit – Single Stage

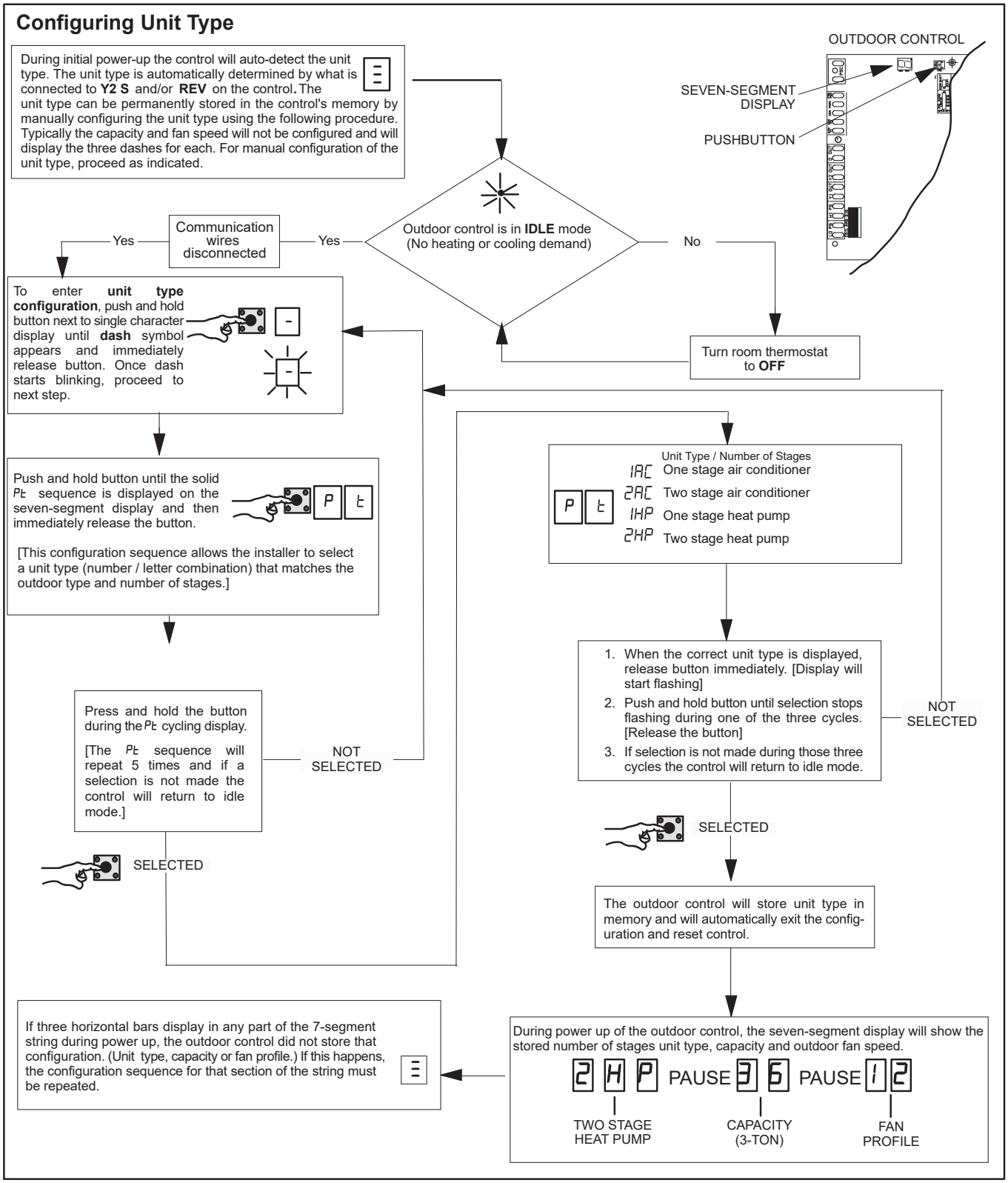


FIGURE 3. Configuring Unit – Single Stage (continued)

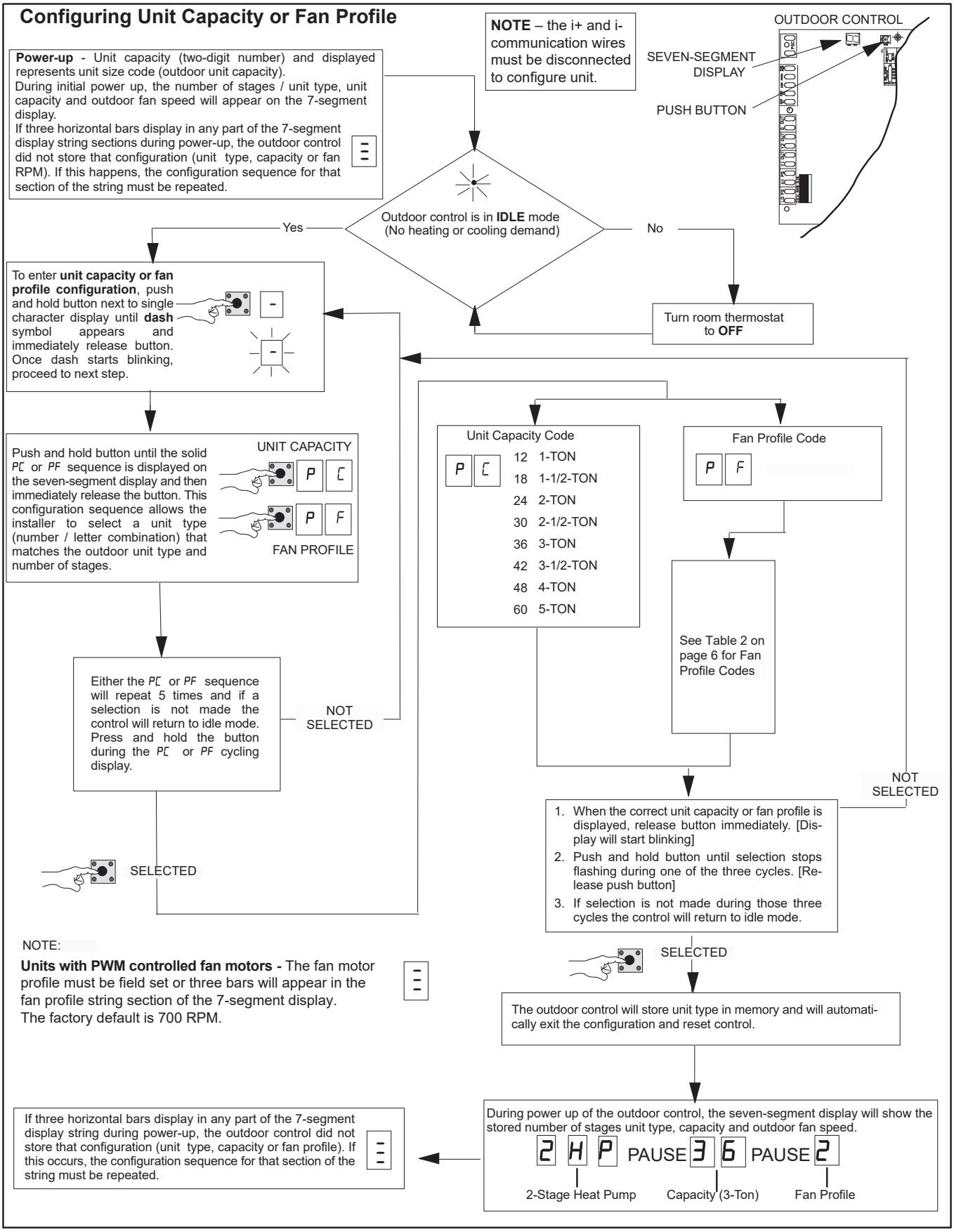


FIGURE 4. Configuring Unit – Single Stage (continued)

TABLE 2. Fan Profile Codes

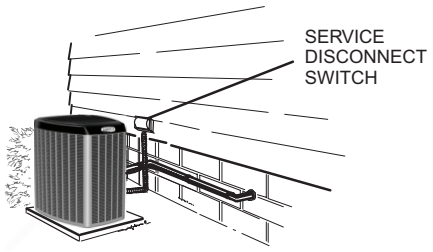
Fan Profile	Model Number
0	XC/XP17-024, SL18XP1-024
1	XC/XP17-030, SL18XC1-024, SLP18XP1-030, 036, 042, 048
2	SL18XP1-060
3	Not assigned
4	XC/XP17-036, 042, SL18XC1-036, 042
5	Not assigned
6	XC/XP17-048, 060, SL18XC1-048, 060
7	Not assigned

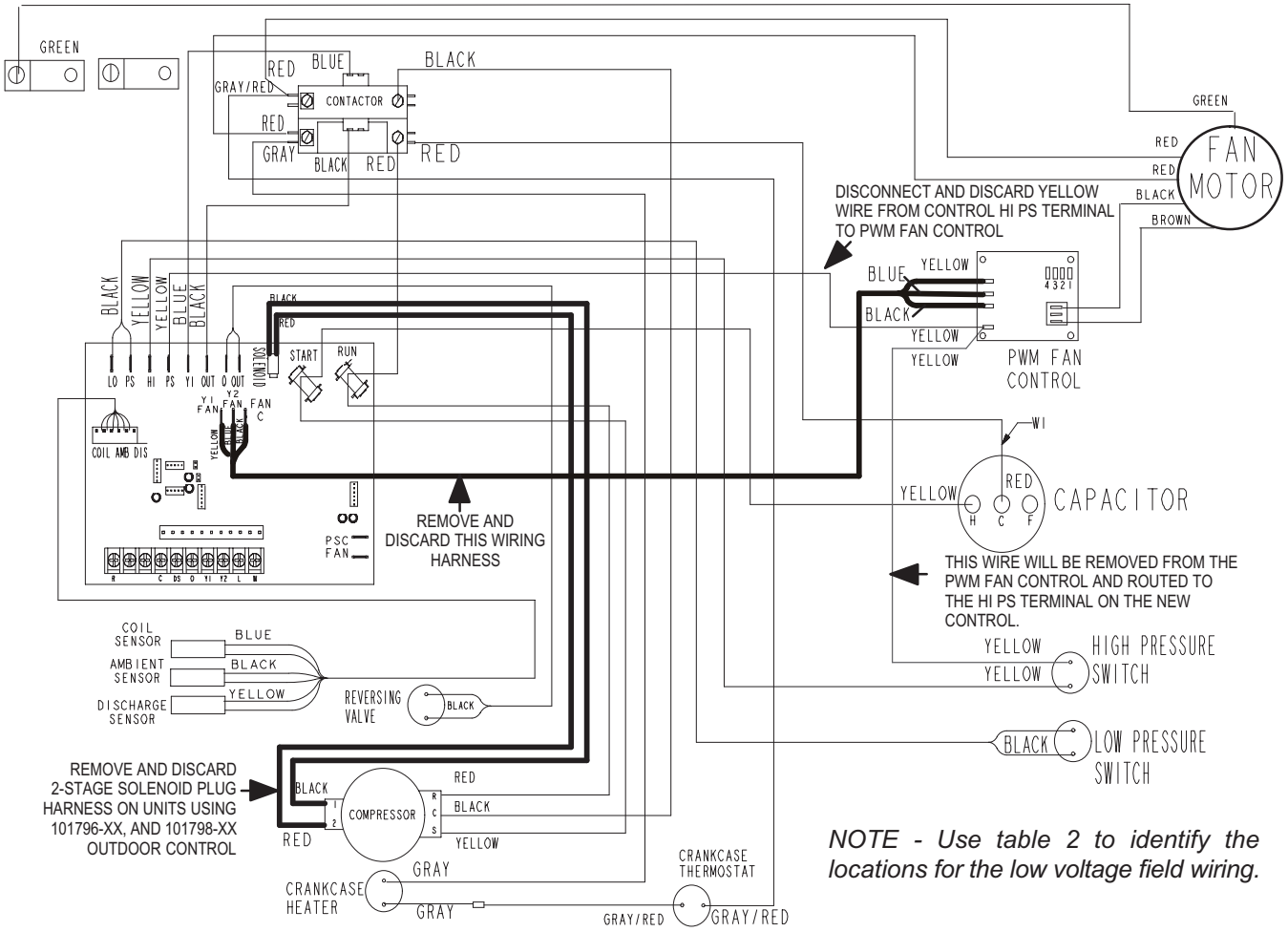
Fan Profile	Model Number
8	Not assigned
9	Not assigned
10	XP21-024
11	XC21-024
12	XC/XP21-036
13	Not assigned
14	XC21-048, -060, XP21-048
15	XP21-060

Air Conditioner or Heat Pump Control Removal

1. Disconnect power to the indoor and outdoor units at both service disconnect switches.
2. Remove unit access panel. See unit installation instruction for access panel removal procedure.
3. Remove the necessary wiring attached to the existing control (A175) and PWM fan control (A177) (if present) in order to remove them.

   NOTE - Remove the existing 2-stage compressor solenoid harness as noted below and discard.





NOTE - Use table 2 to identify the locations for the low voltage field wiring.

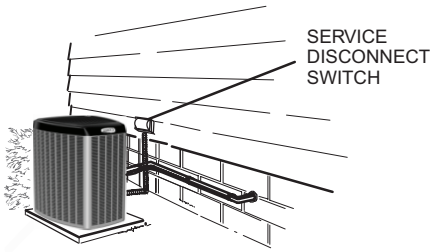
FIGURE 5. All Units – Electronically Commutated Motor (ECM) made by EBM-PAST (Typical Original Wiring – AC or Heat Pump)

TABLE 3. Record Low-Voltage Field Wiring

Terminal Designation	Wire Color	Terminal Designation	Wire Color
R		O	
I+		Y1	
I-		Y2	
C		L	
DS		W	

XP19-XX-230-06 Units Only

1. Disconnect power to the indoor and outdoor units at both service disconnect switches.
2. Remove unit access panel. See unit installation instruction for access panel removal procedure.
3. Remove the necessary wiring attached to the existing control (A175).



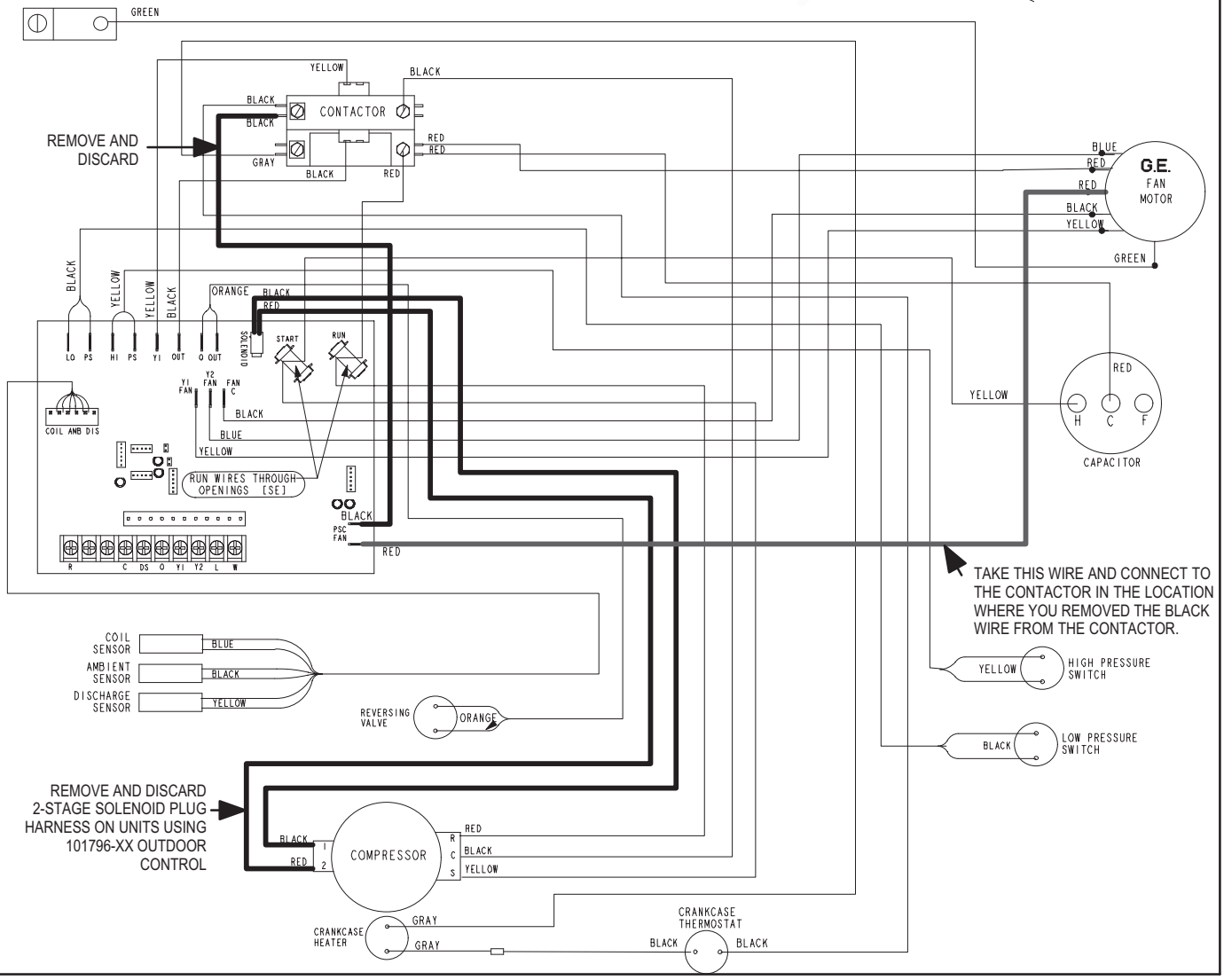


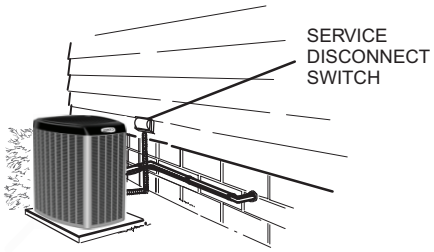
FIGURE 6. XP19-XXX-230-06 – Electronically Commutated Motor (ECM) Fan Motor (Typical Original Wiring)

TABLE 4. Record Low-Voltage Field Wiring

Terminal Designation	Wire Color	Terminal Designation	Wire Color
R		O	
I+		Y1	
I-		Y2	
C		L	
DS		W	

XC21-XX-230-04 Units Only

1. Disconnect power to the indoor and outdoor units at both service disconnect switches.
2. Remove unit access panel. See unit installation instruction for access panel removal procedure.
3. Remove the necessary wiring attached to the existing control (A175).



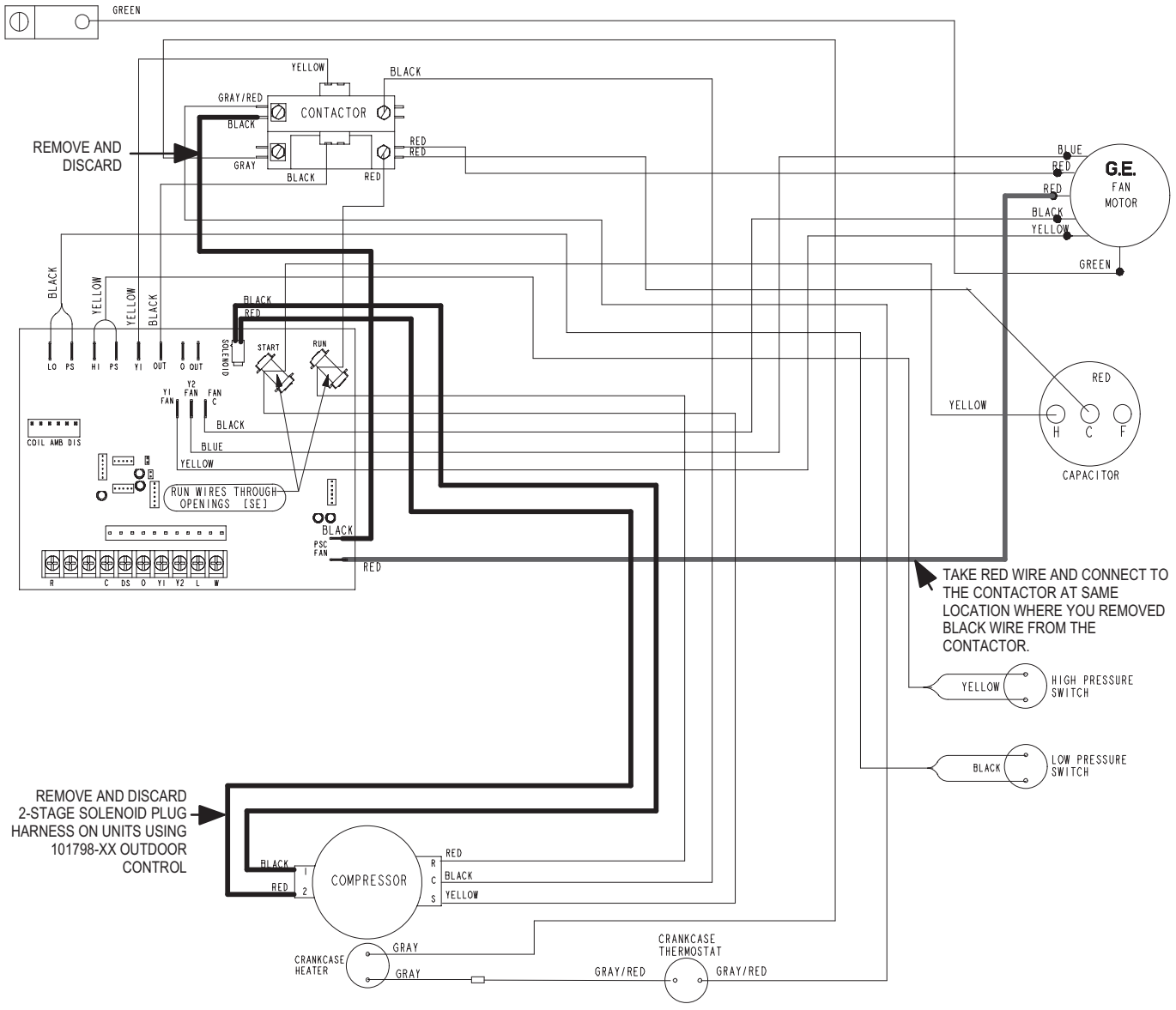
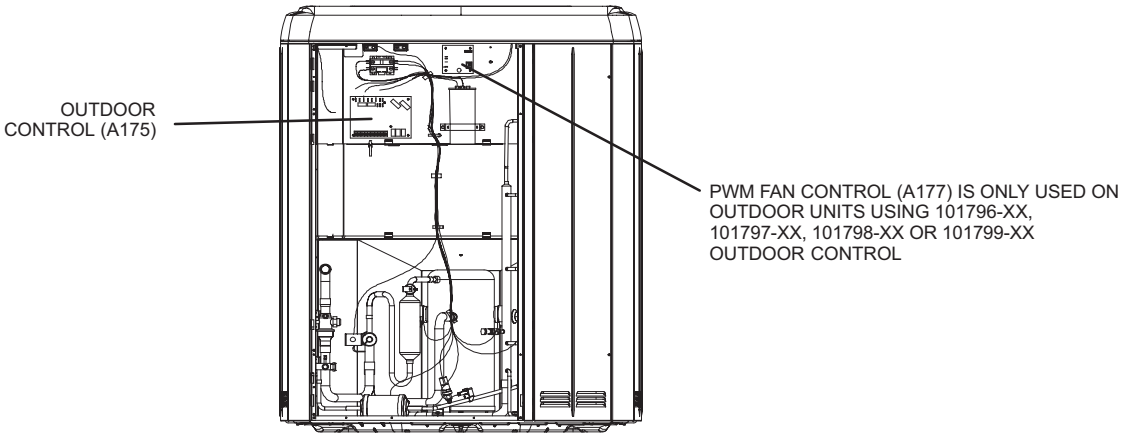


FIGURE 7. XC21-XXX-230-04 — Electronically Commutated Motor (ECM) Fan Motor (Typical Original Wiring)

TABLE 5. Record Low-Voltage Field Wiring

Terminal Designation	Wire Color	Terminal Designation	Wire Color
R		O	
I+		Y1	
I-		Y2	
C		L	
DS		W	

4. Remove existing outdoor control (A175) and PWM fan control (A177) from panel.



5. Plug all unused holes with provided screws to prevent water from entering the control box.

   NOTE - Unused holes are only present if 101796-XX, 101797-XX, 101798-XX or 101799-XX outdoor control is being replaced.

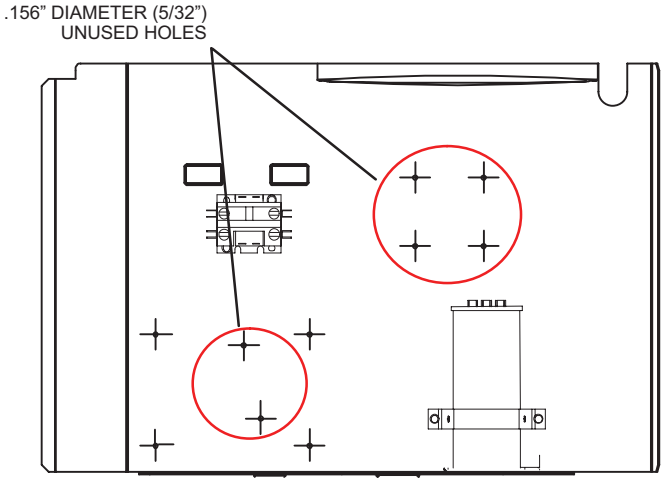
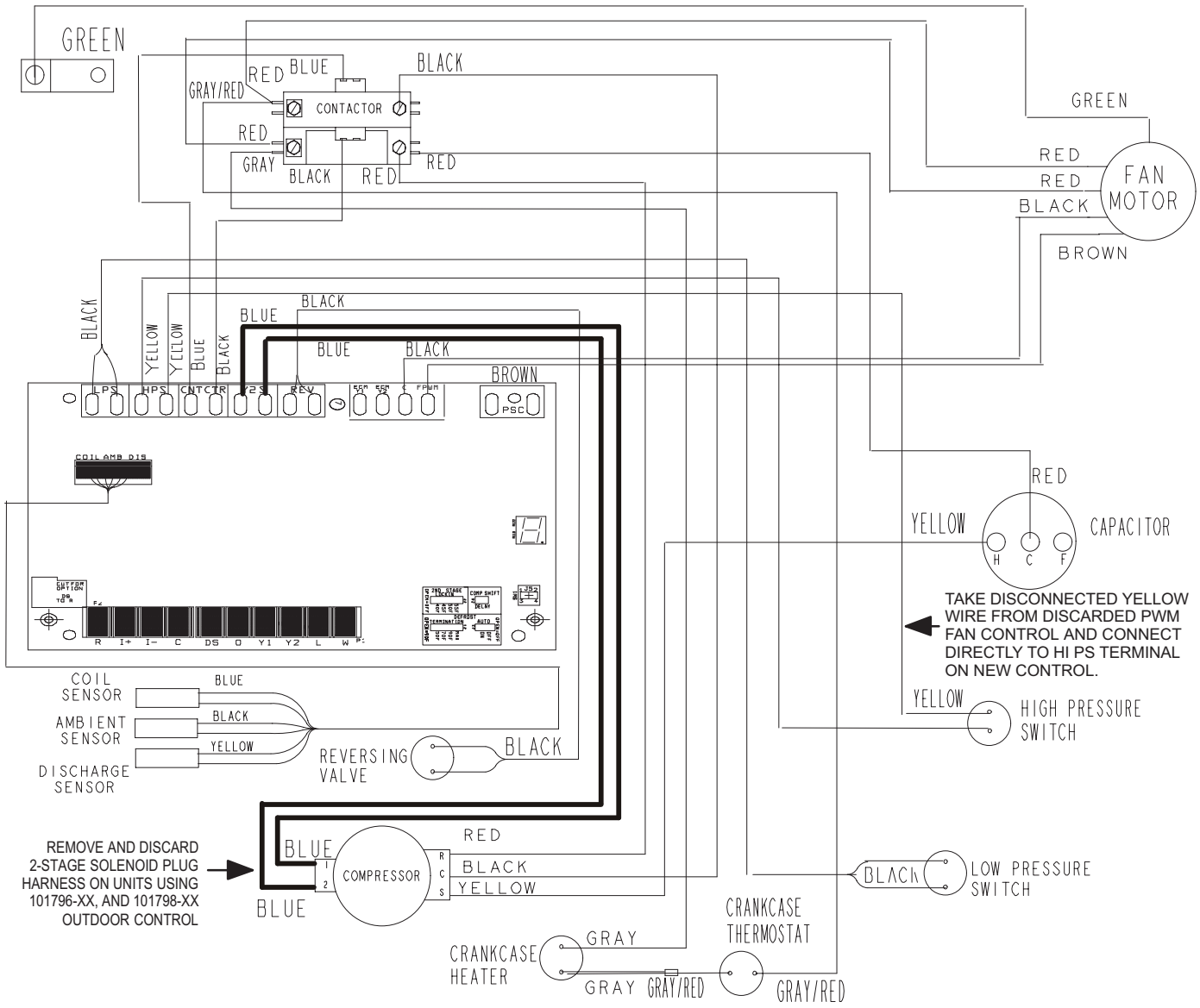


FIGURE 8. XC21-XXX-230-04 — Electronically Commutated Motor (ECM) Fan Motor (Typical Original Wiring)

Air Conditioner or Heat Pump Control Installation

1. Install new outdoor control (A175) and wire per wiring diagram below.

NOTE - Install the new two-stage compressor solenoid harness as noted below.

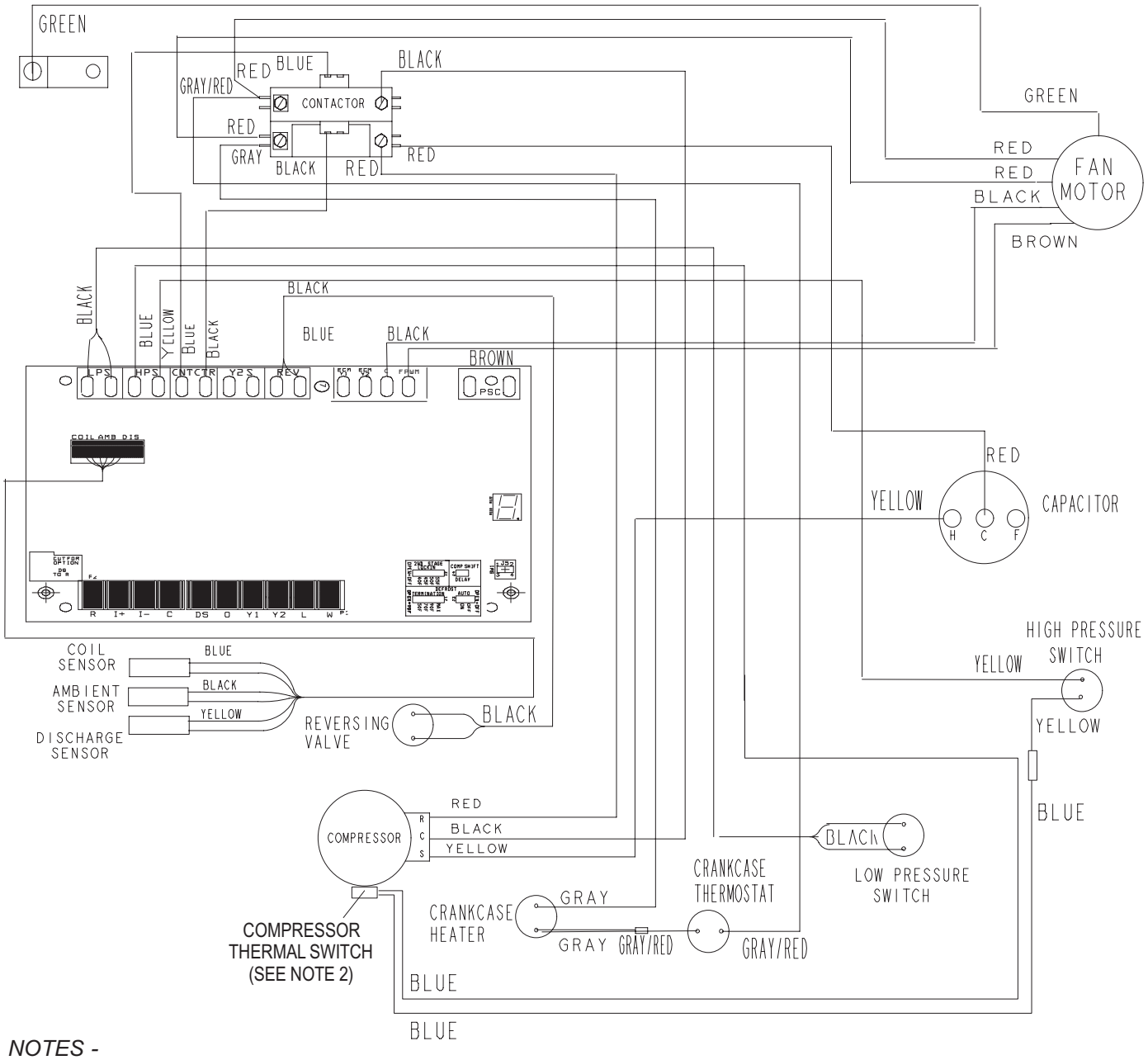


NOTES -

1. Use the information entered in table 2 to make the connections for the low-voltage field wiring.
2. The new outdoor control (A175) does not include an integrated LSOM function. A ComfortAlert Ultratech Diagnostics module will need to be purchase separately (catalog number 85M53) if that feature is desired. The new outdoor control's R, C and L terminals are used to connect this device.

FIGURE 9. All Units (Typical New Wiring) (Copeland Compressor Used)

Install new outdoor control (A175) and wire per wiring diagram below.



NOTES -

1. Use the information entered in table 2 to make the connections for the low-voltage field wiring.
2. Compressor thermal switch is present on XC17 and XP17 when an Interlink compressor is used. Units are equipped with a compressor-mounted normally-closed temperature switch that prevents compressor damage due to overheating caused by internal friction. The switch is located on top of the compressor casing. This switch senses the compressor casing temperature and opens at 239-257°F (115°C-125°C) to shut off compressor operation. The auto-reset switch closes when the compressor casing temperature falls to 151-187°F (66°C-86°C), and the compressor is re-energized. This single-pole, single-throw (SPST) bi-metallic switch is wired in series with the high pressure switch.

FIGURE 10. XC17 and XP17 Interlink Compressor Used (Control Replacement Only)