

Installer's Guide

Low Ambient Control Kit

BAYLOAM105

ALL phases of this installation must comply with NATIONAL, STATE, AND LOCAL CODES.

Important: *This document is customer property and is to remain with this unit. Please return to service information pack upon completion of work.*

Note: * indicates an alpha character

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.

Low Ambient Control Kit

Note: Units operating in low ambient conditions require compressor crankcase heaters due to changes in head pressure. Refer to Table 1 for the appropriate crankcase heater accessory number. Install the heater before operating the low ambient control.

Table 1. Crankcase Heater Accessory Numbers

For this Unit	Use this Heater
**CY4024 - 030	BAYCCHT101
TC, *YC*, *WC**036*4	BAYCCHT405
TC, *WC*, *YC*3036A3 *DCY4024-4030D *TCC, *WCC, *YCC4024 - 4036 A5PA, A5PH, A5PG3024 - 3036 *DCY, *TCY, *WCY, *YCY4036 *TCY, *WCY, *YCY5024 - 5036 *DCZ, *WCZ, *YCY5024 - 5036*1 or *3 *DCZ, *WCZ, *YCY6024 *TCA4036, *YCA4036 *WCA4024 - 4036	BAYCCHT103
TC, *YC*, *WC**048-060*4	BAYCCHT404

Table 1. Crankcase Heater Accessory Numbers (continued)

For this Unit	Use this Heater
TC, *WC*, *YC*3048*3 - 3060*3 *TCC, *WCC, *YCC4042 - 4060 A5PA, A5PH, A5PG3042 - 3060 *DCY, *TCY, *WCY, *YCY4042 - 4060 *TCY, *WCY, *YCY5042 - 5060 *DCZ, *WCZ, *YCY5048 - 5060*1 or *3 *DCZ, *WCZ, *YCY6048 - 6060*1 or *3 *TCA4, *WCA4, *YCA4042 - 4060	BAYCCHT102

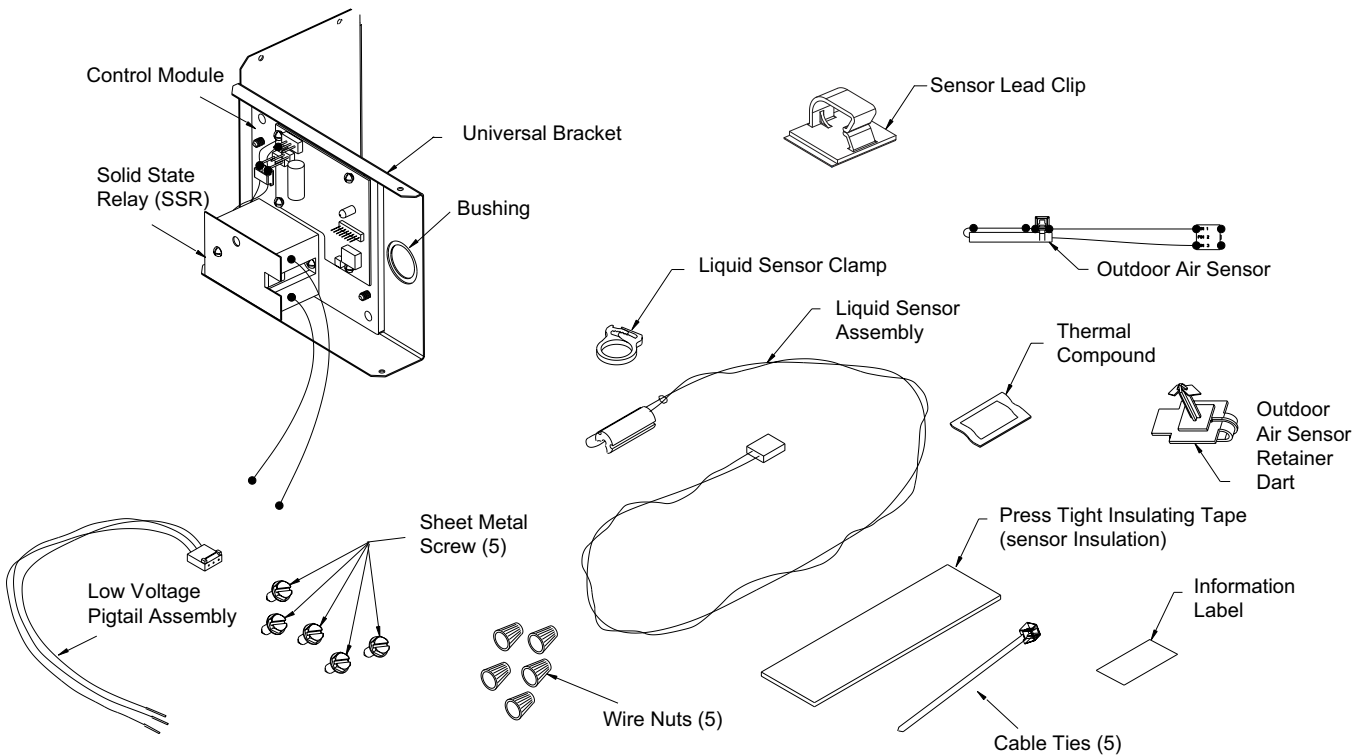
Identify Low Ambient Kit Contents

Refer to [Figure 1, p. 2](#) to identify the kit components.

Inspect Contents

You must report damage and make claims to the transportation company immediately. Report missing parts to your supplier immediately and replace with authorized parts only.

Figure 1. Identify LOAM Kit Components



Install BAYLOAM Kit

1. Disconnect and verify that power is off.
2. Remove these four (4) access panels (see [Figure 2, p. 3](#)).

- Control/Heat box access panel
- Blower access panel
- Compressor access panel
- Coil access panel

3. Mount Control Module.

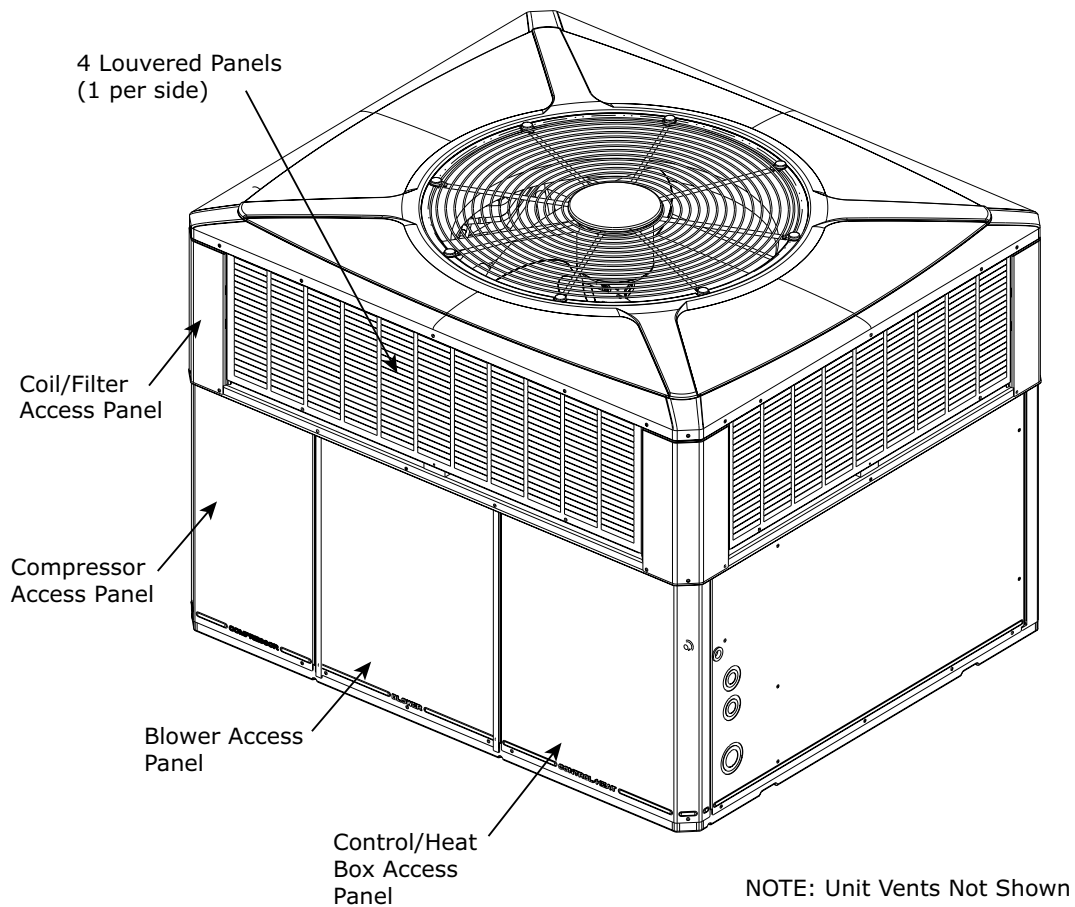
The Control Module is to be mounted to the universal bracket (included in the kit) or the Compressor Start Kit Bracket, depending upon your unit's configuration.

Continue with the following section that applies to your configuration:

- a. 230 Volt *WC** and A5PH with Compressor Start Kit, 460 Volt *WC*3060A4, All 460Volt *WC*4 and 460 Volt *WCZ units, see [Figure 3, p. 4](#).

- b. 230 Volt Single Phase *WC** and A5PH units without Start Kit, All *TC** and A5PA units and 230/460 Volt Three Phase *WC** units except for *WC*3060A4 and 460 Volt *WCZ units, see [Figure 4, p. 5](#).
- c. 230 Volt *YC** and A5PG units with Compressor Start Kit, 460 Volt *YC*3060A4, 460 Volt *YCZ units, see [Figure 4, p. 5](#).
- d. 230 Volt *YC** and A5PG Single Phase units without Start Kit and 230/460 Volt Three Phase *YC** units except 460 Volt *YC*3060A4, 460 Volt *YCZ units. See [Figure 6, p. 7](#).
- e. 230 Volt *TCA4, *WCA4 and *YCA4 Single Phase units. See [Figure 7, p. 8](#).
- f. 230 Volt *DC** unit with Compressor Start Kit. See [Figure 8, p. 9](#).
- g. 230 Volt *DC** without Start kit. See [Figure 9, p. 10](#).

Figure 2. Identify Exterior Components (Excluding *TCA4, *WCA4, *YCA4 models)



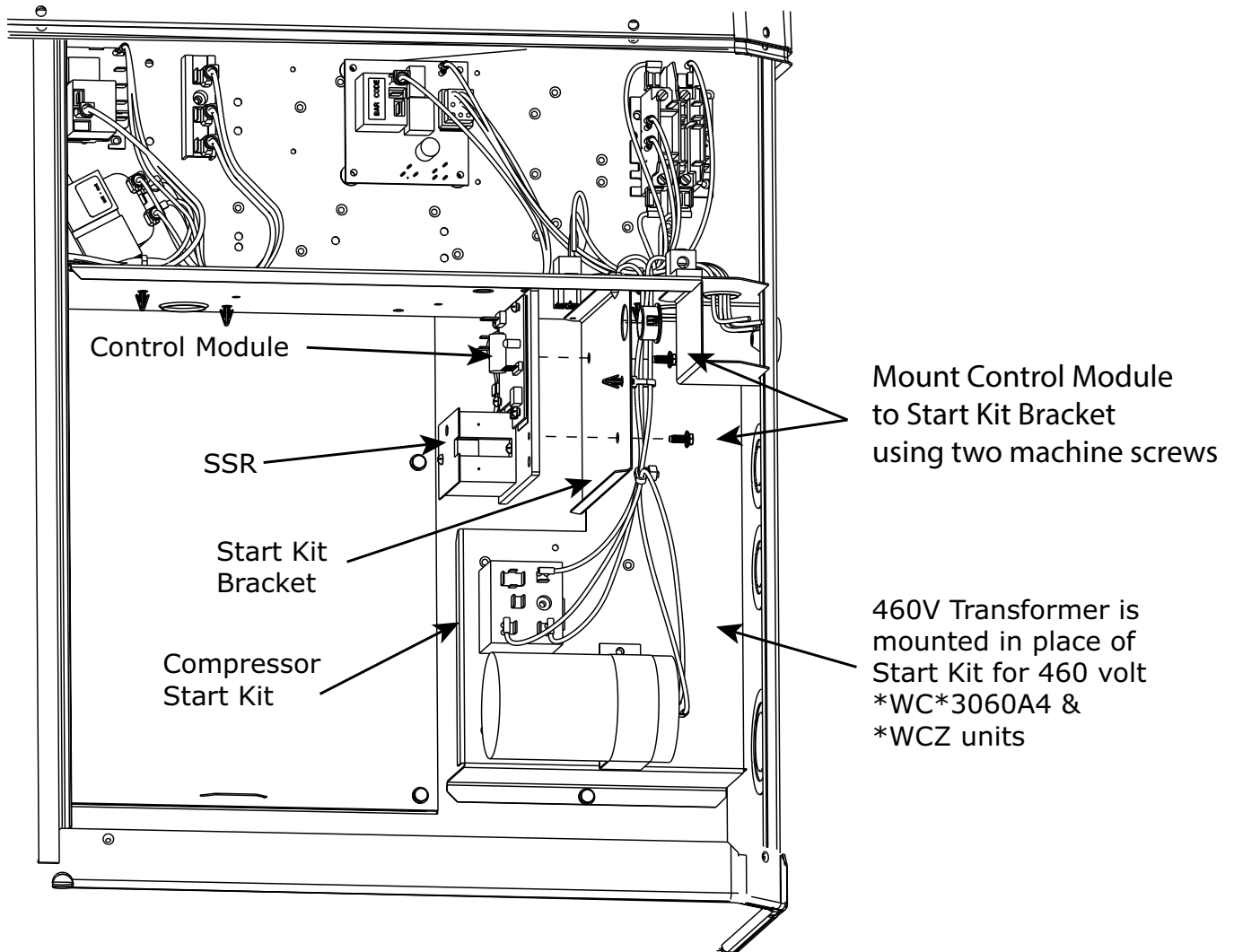
Low Ambient Control Kit

3a. *WC** and A5PH units

230 Volt *WC** and A5PH with Compressor Start Kit,
460 Volt *WC*3060A4, All 460 Volt *WC*4 and 460 Volt
*WCZ units.

1. Remove the Control Module from the Universal Bracket (remove 2 screws).
2. Mount the Control Module to the Compressor Start Kit bracket using the two (2) machine screws. See [Figure 3, p. 4](#).
3. Continue with step 4. *Mounting the Liquid Line Sensor*. See [Figure 10, p. 11](#).

Figure 3. 230 Volt *WC and A5PH with Compressor Start Kit,
460 Volt *WC*3060A4, All 460 Volt *WC*4 and 460 Volt *WCZ units**



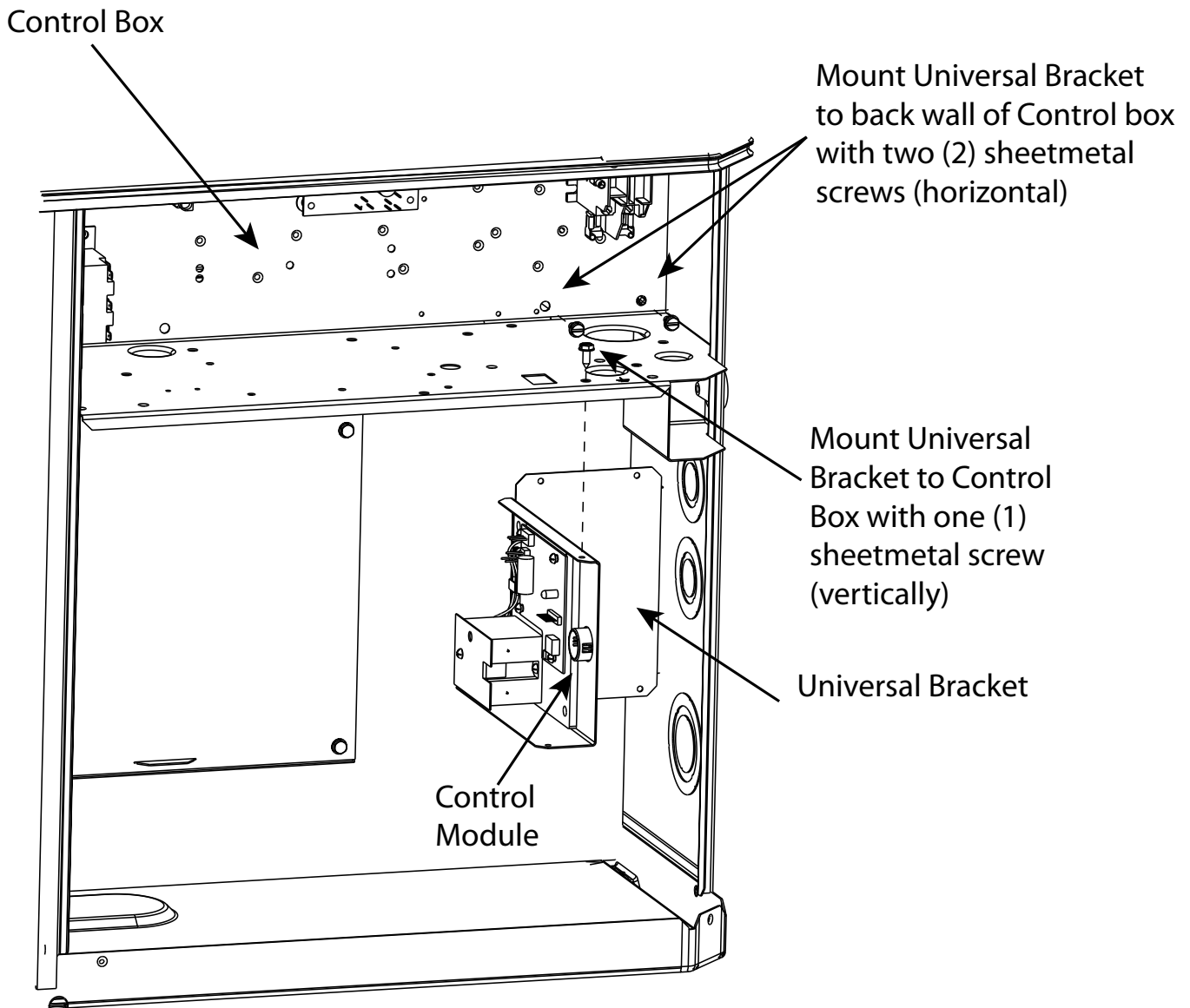
3b. *WC, *TC**, A5PA and A5PH units**

230 Volt Single Phase *WC** and A5PH units Without Start Kit, All *TC** and A5PA units and 230/460 Volt Three Phase *WC** units except for *WC*3060A4 and 460 Volt *WCZ units.

Note: Use the Universal Bracket shipped in the Low Ambient kit. Mount the Control Module to the Universal Bracket as needed so that the assembly matches the illustration below.

1. Mount the Control Module and Universal Bracket assembly bracket to the back of the control box with two (2) sheetmetal screws inserted horizontally. Also, mount the Universal Bracket to the bottom of the control box with one (1) sheetmetal screw inserted vertically. See [Figure 4, p. 5](#).
2. Continue with step 4, *Mounting the Liquid Line Sensor*.

Figure 4. 230 Volt Single Phase *WC and A5PH units Without Start Kit, All *TC** and A5PA units and 230/460 Volt Three Phase *WC** units except for *WC*3060A4 and 460 Volt *WCZ units**



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3c. *YC** and A5PG units

230 Volt *YC** and A5PG units with Compressor Start Kit, 460 volt *YC*3060A4 and 460 volt *YCZ units.

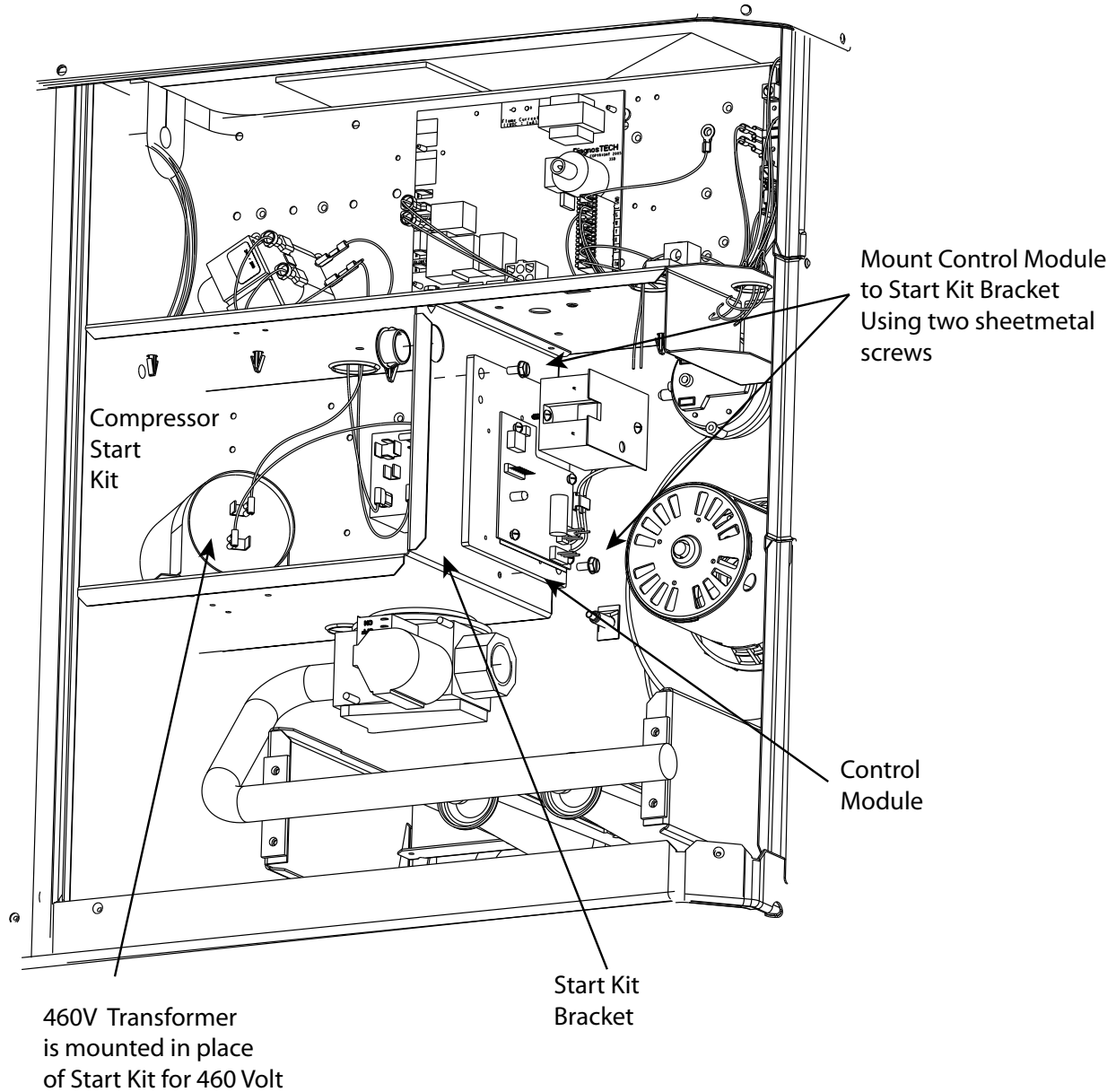
1. Remove the Control Module from the Universal Bracket (2 machine screws).
2. Then, align the two holes in the control Module with the two clearance holes in the Start Kit Bracket.

3. Mount the Control module to the Start Kit bracket with the two (2) machine metal screws you removed from the Universal Bracket.

See [Figure 5, p. 6](#).

Continue with step 4, *Mounting the Liquid Line Sensor*. See [Figure 10, p. 11](#).

Figure 5. 230 Volt *YC and A5PG units with Compressor Start Kit, 460 volt *YC**3060A4, and 460 volt *YCZ units**



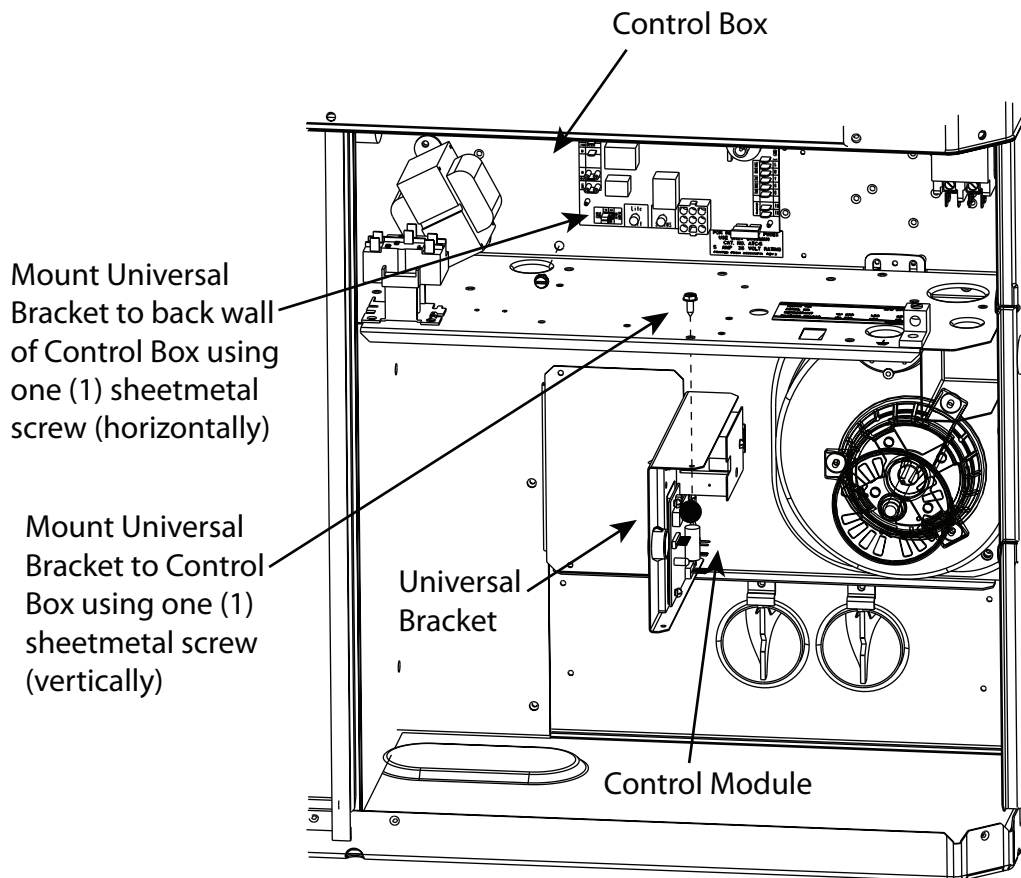
3d. *YC and A5PG units**

230 Volt *YC** and A5PG Single Phase units Without Start Kit and 230/460 Volt Three Phase *YC** units except 460 Volt *YC*3060A4, and 460 Volt *YCZ units.

Note: Use the Universal Bracket shipped in the Low Ambient kit.. Mount the Control Module to the Universal Bracket as needed so that the assembly matches the illustration below.

1. Mount the Control Module and Universal Bracket assembly to the bottom of the control box with two (2) sheetmetal screws. One is inserted horizontally from inside the control box into the universal bracket, and one is inserted vertically . See Figure 6, p. 7.
2. Continue with step 4, *Mount the Liquid Line Sensor*, see Figure 10, p. 11.

Figure 6. 230 Volt *YC and A5PG Single Phase units Without Start Kit and 230/460 Volt three phase *YC** units except 460 volt *YC*3060A4, and 460 volt *YCZ units**

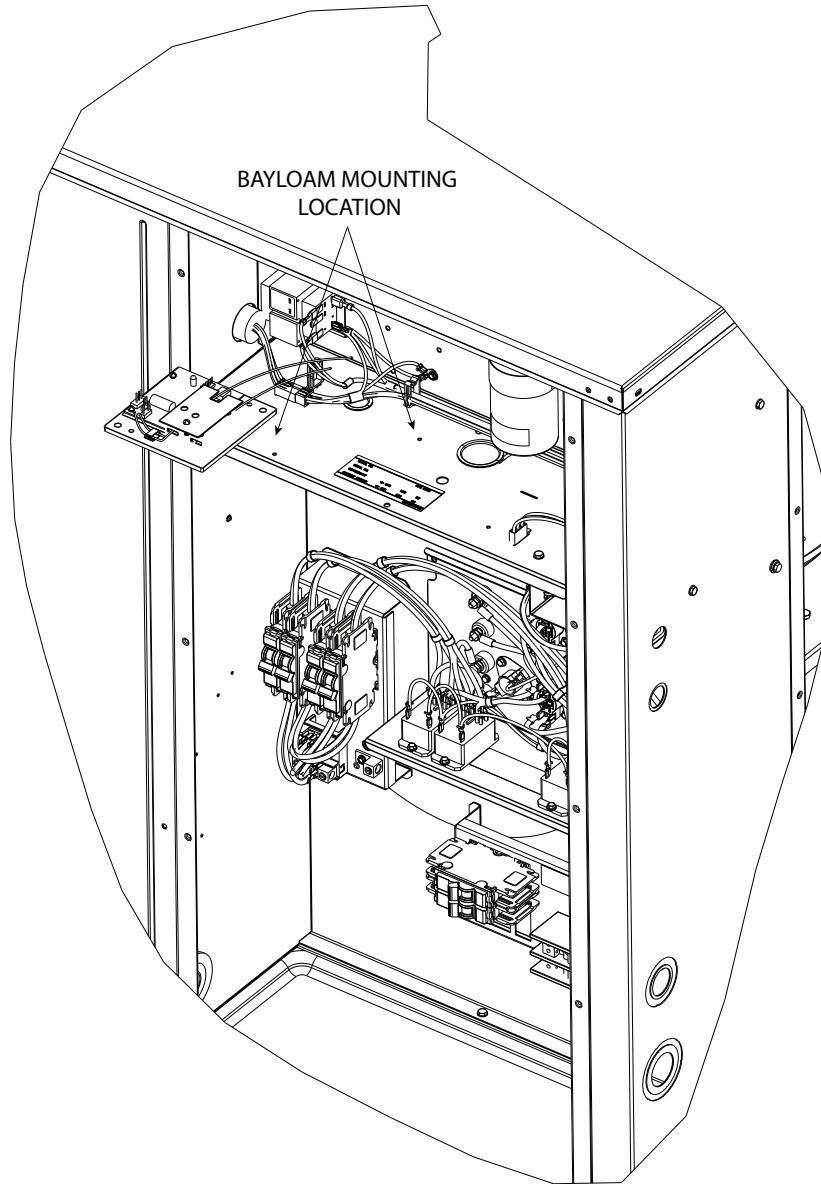


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3e. *TCA4/*WCA4/*YCA4 Units

1. Remove Control Module (2 screws) from metal bracket.
2. Mount the Module assembly with 2 screws, as shown in [Figure 7, p. 8](#).
3. Continue with step 4a. for mounting the liquid line sensor.

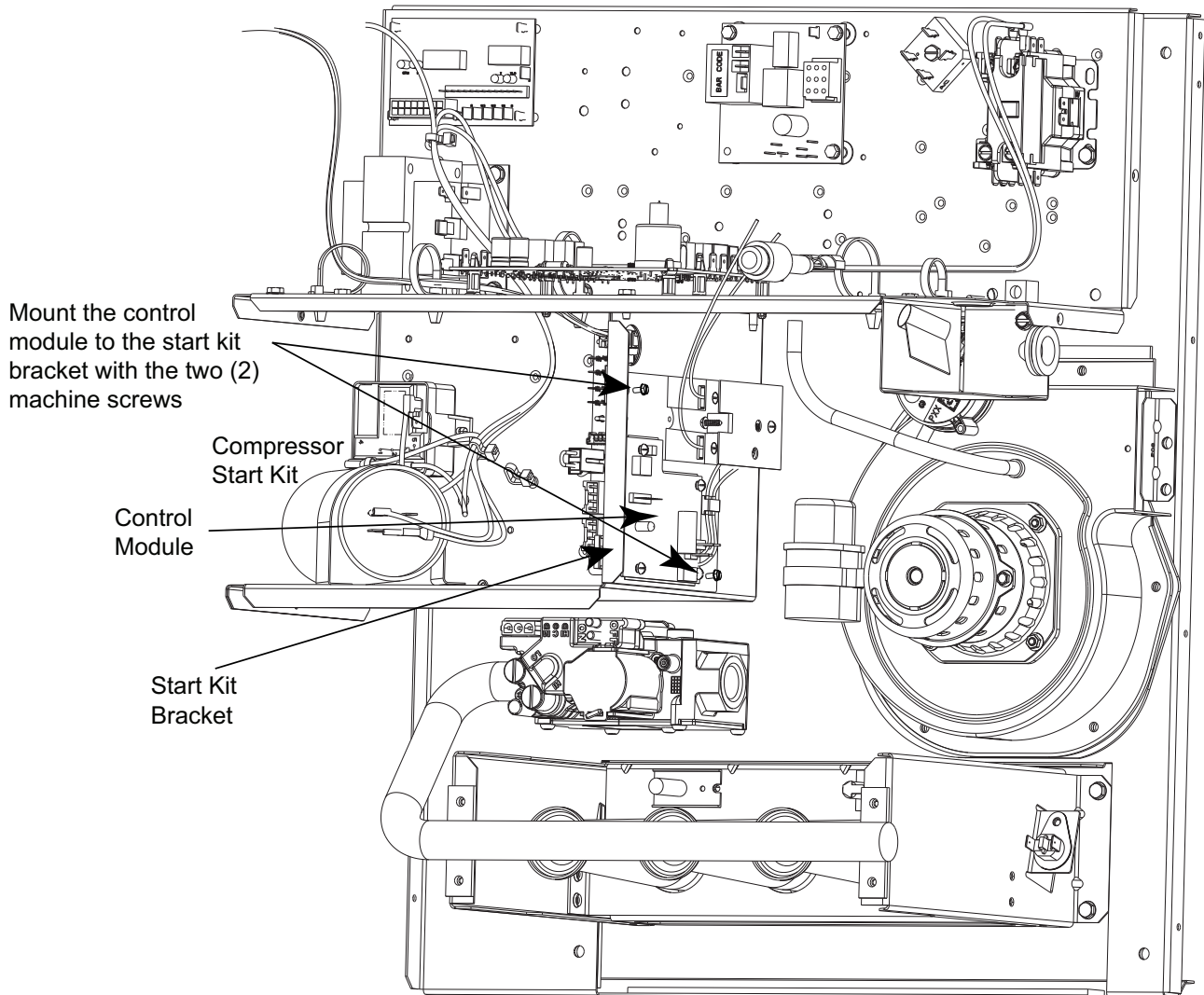
Figure 7. 230 Volt *TCA4, *WCA4 and *YCA4 Single Phase units



3f. *DC units (with compressor start kit)**

1. Remove the Control Module from the Universal Bracket (2 machine screws).
2. Then, align the two holes in the control module with the two clearance holes in the start kit bracket.
3. Mount the control module to the start kit bracket with the two (2) machine screws you removed from the universal bracket. See [Figure 8, p. 9](#).
4. Continue with step 4. Mounting the liquid line sensor. See [Figure 10, p. 11](#).

Figure 8. *DC units with compressor start kit**

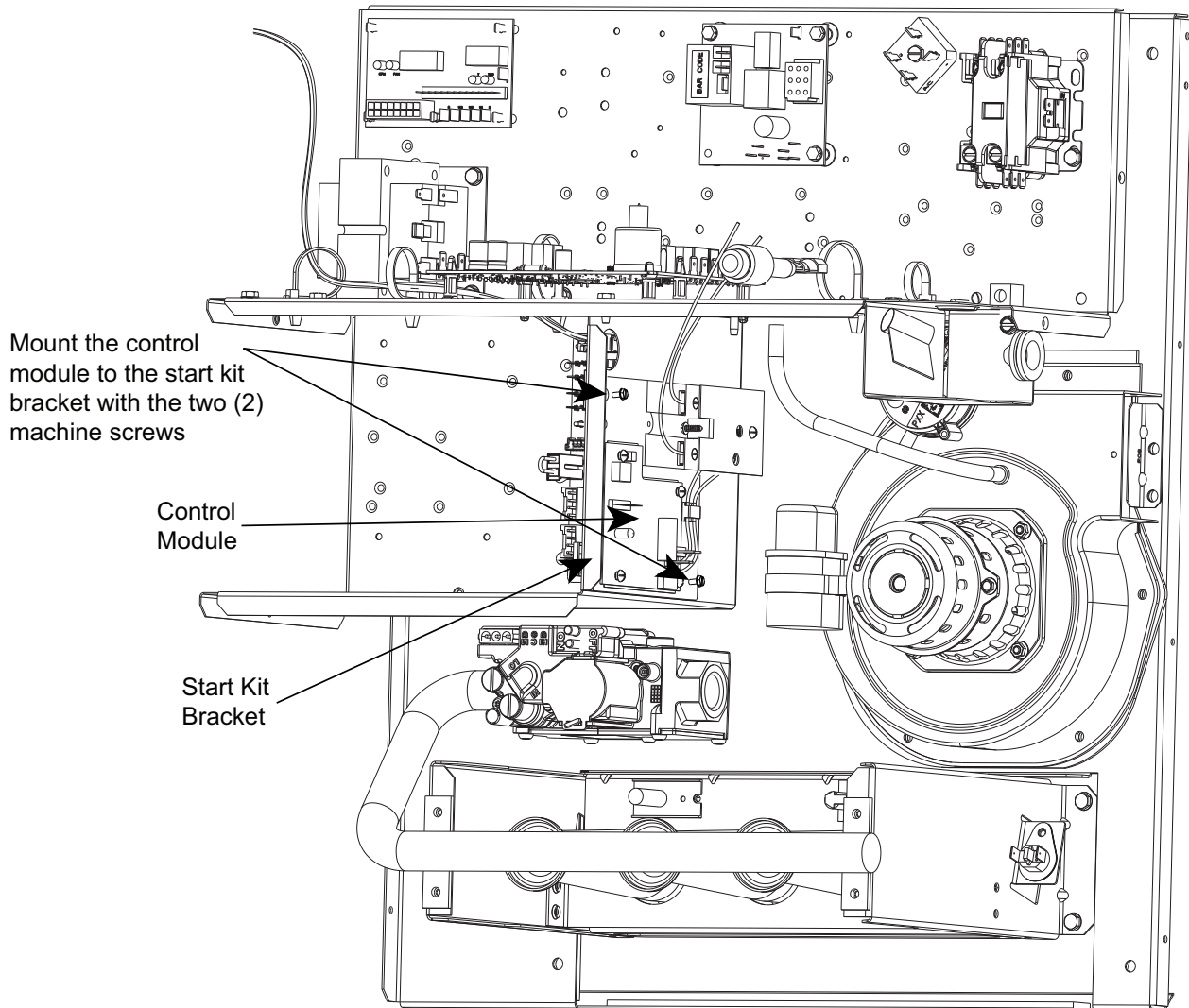


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3g. *DC** units (without compressor start kit)

1. Remove the Control Module from the Universal Bracket (2 machine screws).
2. Then, align the two holes in the control module with the two clearance holes in the start kit bracket.
3. Mount the control module to the start kit bracket with the two (2) machine screws you removed from the universal bracket. See [Figure 9, p. 10](#).
4. Continue with step 4. Mounting the liquid line sensor. See [Figure 10, p. 11](#).

Figure 9. *DC units without compressor start kit**



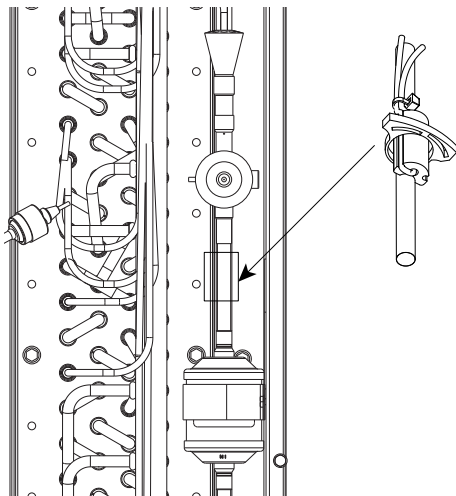
4. Mount the Liquid Line Temperature Sensor

In this step you mount the liquid line sensor to the liquid line. See [Figure 10, p. 11](#).

1. Attach the liquid line temperature sensor to the liquid line above the TXV as follows.
 - a. Apply thermal compound (provided in kit) to an area on the liquid line where you are mounting the sensor. See [Figure 10, p. 11](#).
 - b. Use the clamp (provided in kit) and attach the sensor to the liquid line. See [Figure 10, p. 11](#).
 - c. Wrap the sensor with insulating tape (provided in kit).
2. Route the sensor wires through the compressor area, past the blower and into the Control Box. See [Figure 14, p. 13](#).

Continue with step 5. Route the Sensor Leads.

Figure 10. Liquid Line Temperature Sensor Location

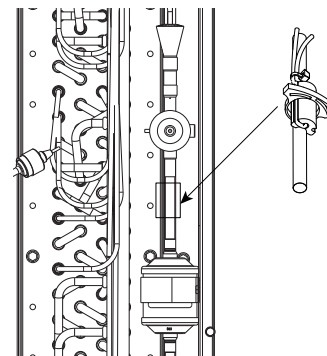


4a. Mount the Liquid Line Temperature Sensor (*TCA4/*WCA4/*YCA4 models only)

In this step you mount the liquid line sensor to the liquid line.

1. Attach the liquid line temperature sensor to the liquid line below the TXV as follows. See [Figure 11, p. 11](#).
 - a. Apply thermal compound (provided in kit) to an area on the liquid line where you are mounting the sensor.
 - b. Use the clamp (provided in kit) and attach the sensor assembly to the liquid line.
 - c. Wrap the sensor with insulating tape (provided in kit).
2. Route the sensor wires into the control box area. See [Figure 13, p. 12](#).
3. Continue with step 5a. for mounting the outdoor temperature sensor.

Figure 11. Liquid Line Temperature Sensor Location (*TCA4/*WCA4/*YCA4 models only)

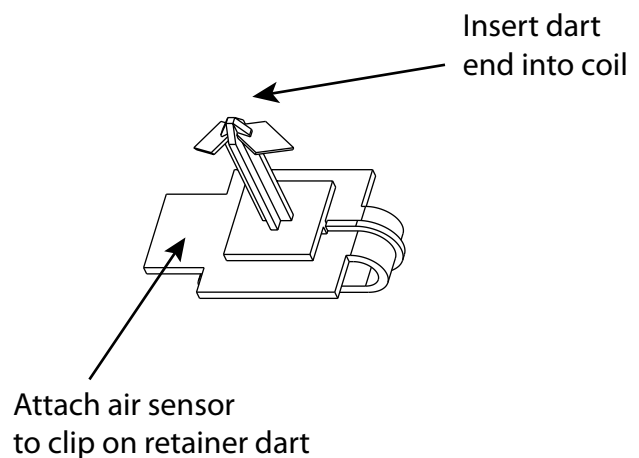


5. Mount the Outdoor Temperature Sensor

In this step you attach the outdoor sensor to the outside of the outdoor coil. See [Figure 14, p. 13](#).

1. On the outdoor fan grill, remove eight (8) plastic screw caps covering the fan screws. Then, remove the eight (8) screws that secure the outdoor fan grill to the top of the unit. See [Figure 12, p. 11](#). Remove the fan assembly and place it on top of the unit with the fan blades facing up.
2. Remove the back outdoor coil louvered panel to access the outer surface of the outdoor coil:
 - a. Remove the three (3) screws across the top of the panel.
 - b. Lift or slide the panel up enough to unhook it from the slots in the unit.
3. Insert the retainer into the outside surface of the spine-fin coil about half way up the outside surface of the coil. Attach the outdoor air sensor to the clip on the outdoor air sensor retainer dart. See [Figure 12, p. 11](#) and [Figure 14, p. 13](#).

Figure 12. Mount Outdoor Air Sensor



Continue with step 6, Route the Sensor Leads.

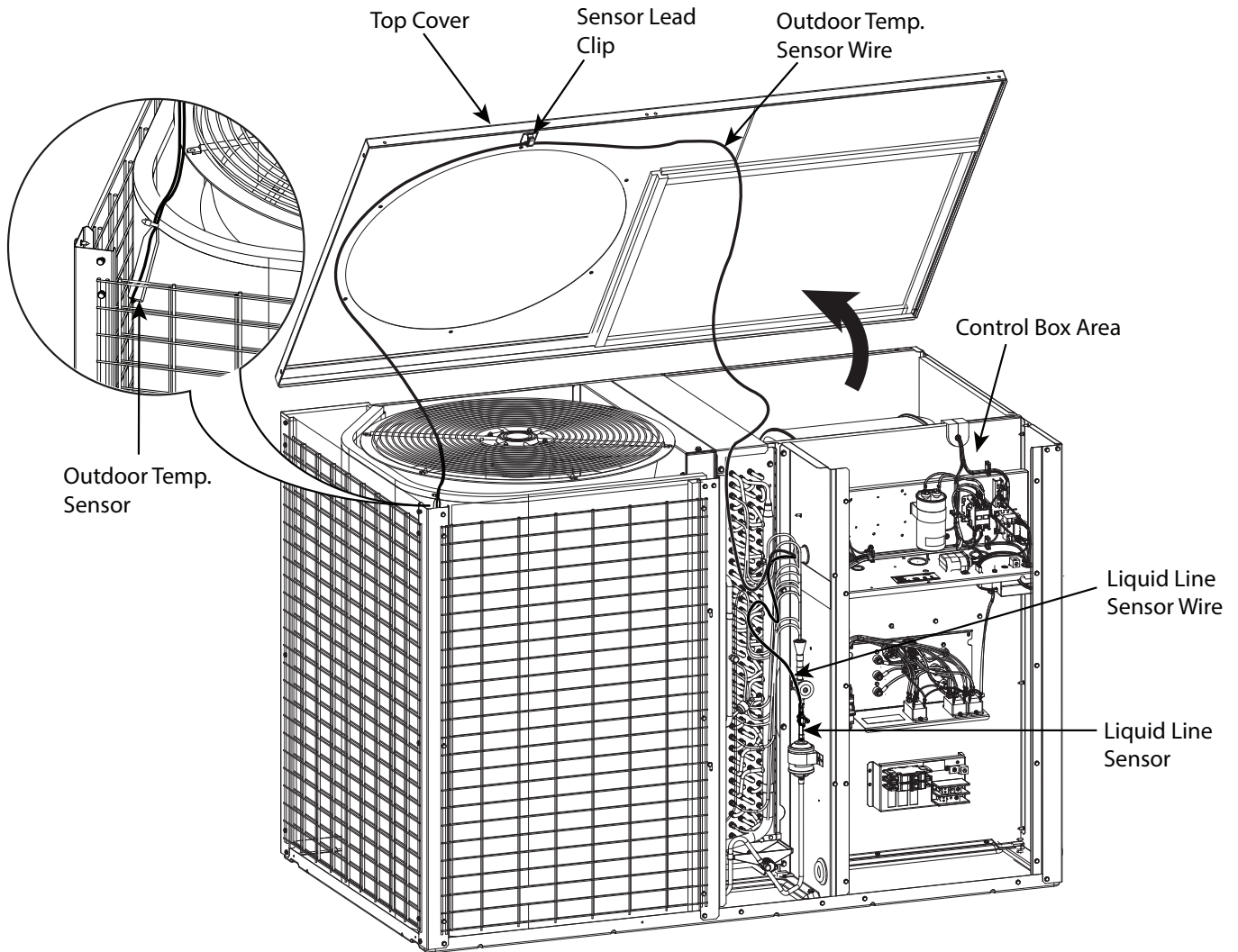
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5a. Mount the Outdoor Temperature Sensor (*TCA4/*WCA4/*YCA4 models only)

See [Figure 13, p. 12](#)

1. Remove the screws that attach the top cover to the cabinet assembly.
2. Remove or prop up the top cover.
3. Apply adhesive backed clip to underside of top cover, for routing sensor wire away from fan and coil area.
4. Lay outdoor temperature sensor over top coil corner, with probe hanging 1–2 inches over coil edge (as illustrated). See [Figure 13, p. 12](#).
5. Wire tie sensor leads to wire bundle.
6. Carefully reinstall the top cover using the screws that was removed earlier.
7. Route the sensor wires into the control box area.
8. Continue with Step 7.

Figure 13. Mount Outdoor Temperature Sensor (*TCA4/*WCA4/*YCA4 Models Only)

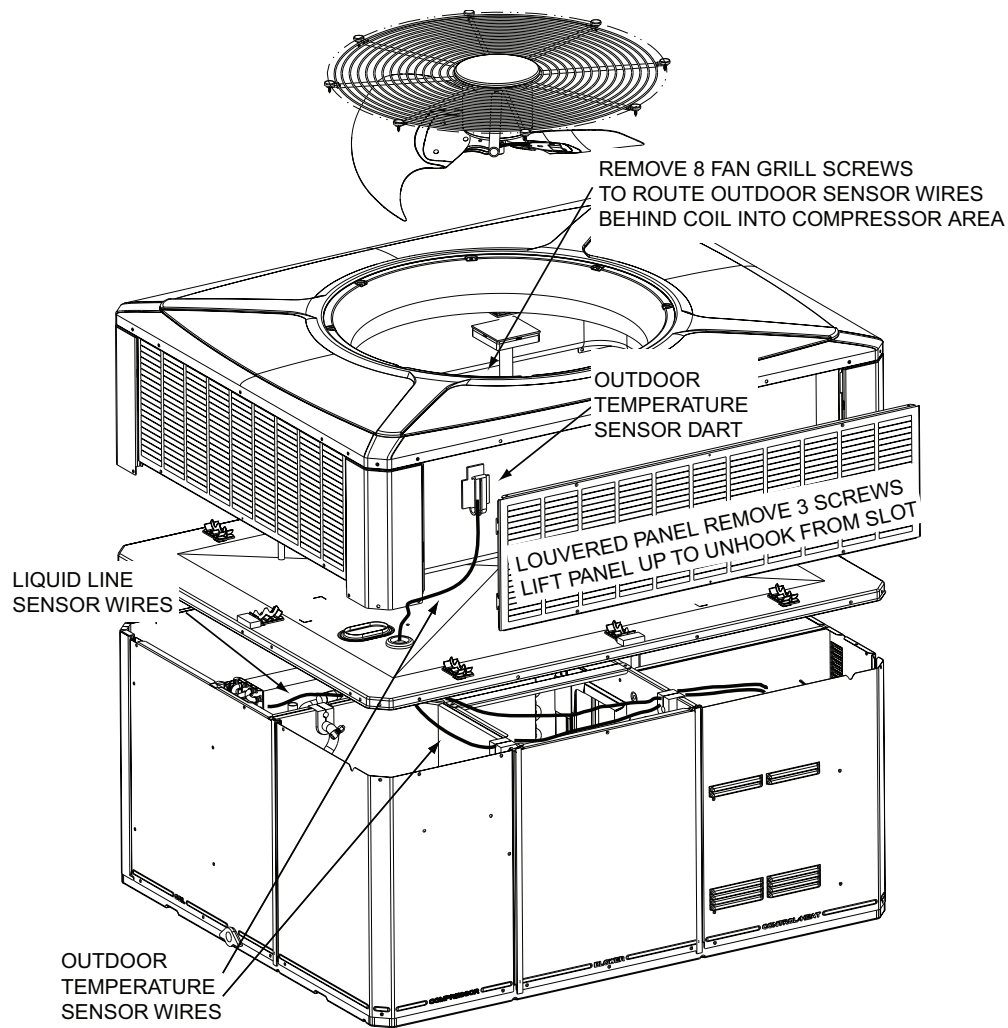


6. Route the Sensor Leads

In this step, you route the outdoor sensor leads to the Control Box.

1. Route the outdoor temperature sensor lead wires down to the intermediate top and then under the outdoor coil. See [Figure 14, p. 13](#). You may need to lift the coil slightly to slide the sensor lead wires under the coil.
2. Route the outdoor temperature sensor leads down into the compressor compartment through the one (1") hole. See [Figure 14, p. 13](#). Using a wire tie from the kit, tie the leads to the existing wiring at the point where the leads go through the sheet metal opening. Ensure that the leads DO NOT lie across the sharp sheet metal edges of the openings.
3. Continue to route the sensor leads through the compressor compartment, through the partition, and into the Blower compartment. From the Blower compartment, continue to route the leads into the Control Box. Use wire ties to secure the leads to the existing wires. This ensures that any wiring is kept away from the blower and sharp sheet metal.
4. In the Control Box, route the sensor leads to the Control Module. You make the connections later.
5. Reinstall the outdoor fan assembly with the eight (8) screws and screw caps you removed in the *Mount the Liquid Line Temperature Sensor* section.
6. To make your connections, continue with step 7 *Connect Module Wires*.

Figure 14. Mount Outdoor Temperature Sensor



7. Connect Control Module Wires

There are seven (7) Control Module wiring configurations. Depending on your configuration, continue with the selection that applies.

- 7a. For *YC**, *TC**, A5PA and A5PG Single Phase 230 Volt Cooling and Gas/Electric Models. See [Figure 15, p. 15](#). For *TCA**/*YCA**, see [Figure 16, p. 16](#).
- 7b. For *WC**, *DC** and A5PH Single Phase 230 Volt Heat Pump Models. See [Figure 18, p. 18](#). For *WCA**, see [Figure 19, p. 19](#).
- 7c. For *YC** and *TC** Three Phase 230 and 460 Volt Cooling and Gas/Electric Models. See [Figure 20, p. 20](#).
- 7d. For *WC** and *DC** Three Phase 230 Volt Heat Pump Models. See [Figure 22, p. 22](#).
- 7e. For *WC** Three Phase 460 Volt Heat Pump Models. See [Figure 23, p. 23](#).

7a. *YC, *TC**, A5PA and A5PG Single Phase 230 Volt Cooling and Gas/Electric Models.** See [Figure 15, p. 15](#). For *TCA**/*YCA**, see [Figure 16, p. 16](#).

Disconnect the **black** fan motor lead from the contactor (this wire is attached to contactor terminal "L2," with a quick connect terminal). Cut the terminal off of this wire and strip the end about 1/2 inch. Select one of the black wires from the SSR relay on the Control Module, cut the terminal off and strip the end about 1/2 inch. Connect these two (the black fan motor lead to the black SSR lead) with a wire nut supplied.

Connect the other black wire from the solid state relay (SSR) to the contactor terminal "L2" (from where the fan motor lead was disconnected).

Connect Low Voltage wires (BYO):

1. Connect the 3-pin BYO low voltage wire harness (supplied in kit) to J5 on the Control Module (3-pin male connector). See [Figure 17, p. 17](#).

***Note:** To ease the insertion of the connector housing on to the J5 header, place the connector on the tips of the three header pins. Angle the connector upward toward the header latch while pushing connector over the header pins.*

2. Connect the **yellow** lead wire of the harness to a 1/4 " male tab on the right hand side of the main contactor (low voltage contactor coil terminal).
3. Connect the **blue** lead wire of the harness to the wire nut junction of the blue wire (use new wire nuts from kit).
4. Connect the **orange** wire to the wire nut junction of the yellow wire (use new wire nuts from kit).
5. Connect the Liquid Line Sensor to J2 on the Control Module. See [Figure 17, p. 17](#).
6. Connect the Outdoor Temperature Sensor (Ambient Sensor) to J3 on the Control Module. See [Figure 17, p. 17](#).
7. Reinstall louvers and panels. Continue with step 8 *System Setup*.

Figure 15. *YC**, *TC**, A5PA and A5PG Single Phase 230 Volt Cooling and Gas/Electric Models

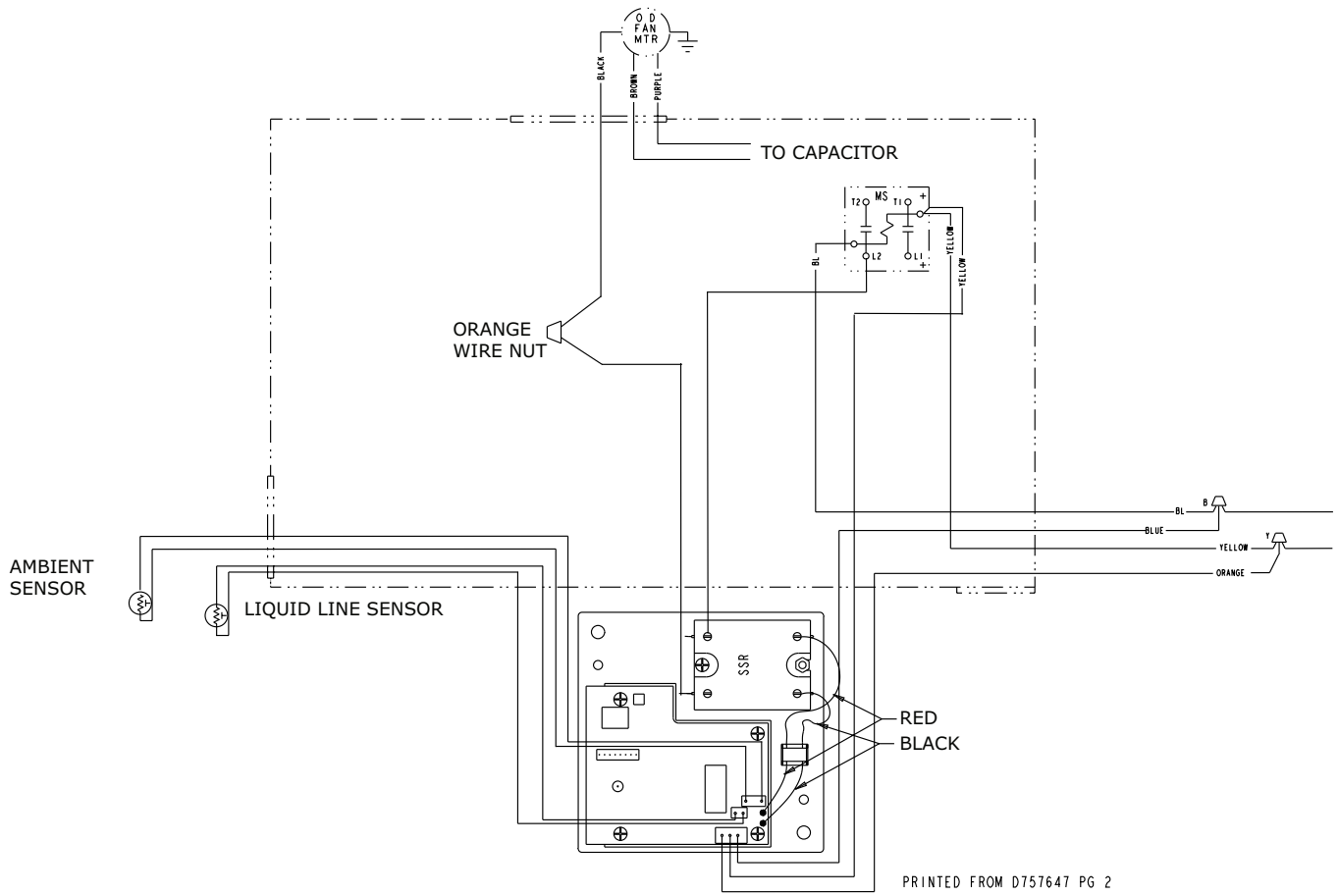
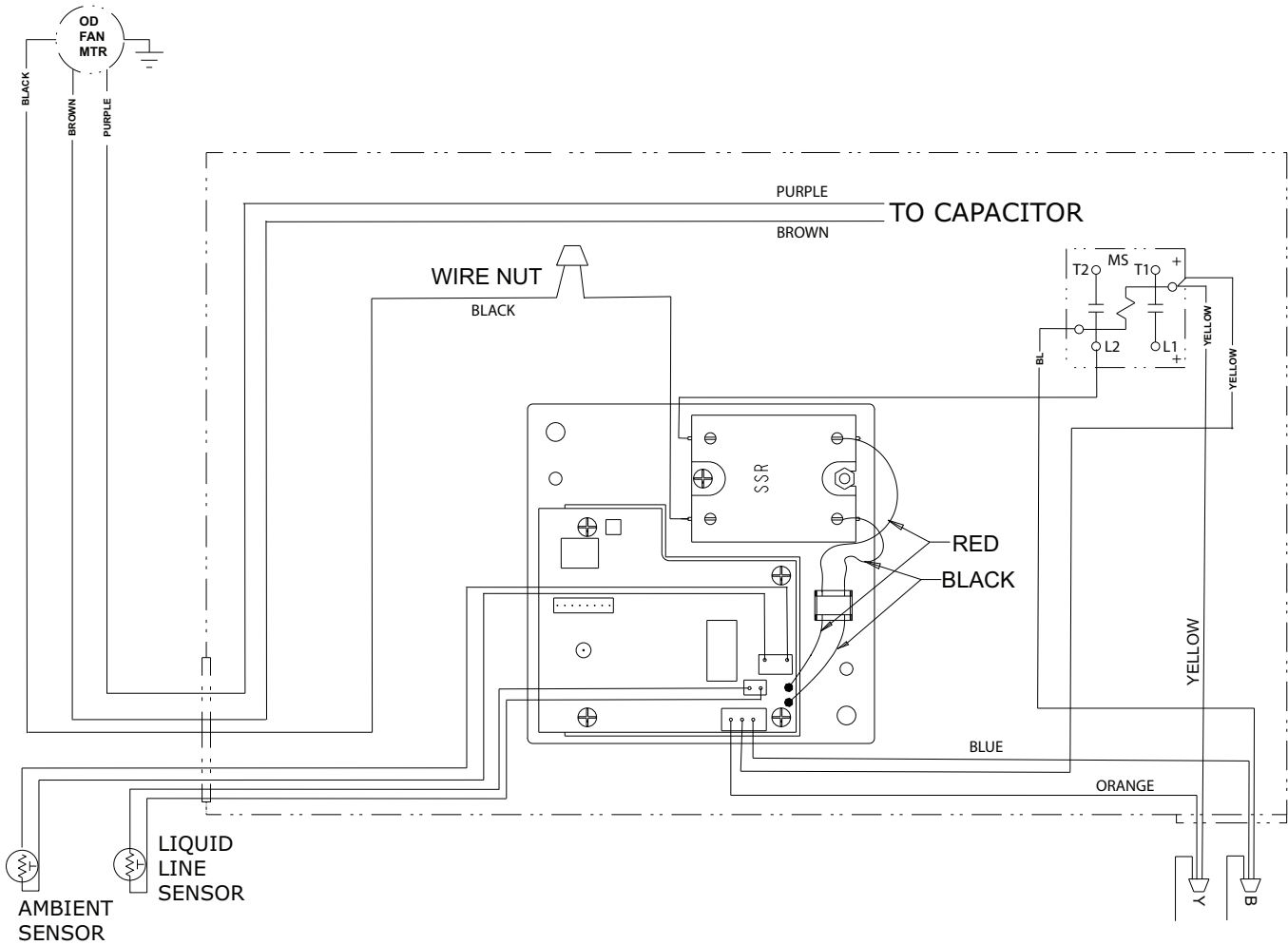


Figure 16. *TCA** and *YCA** Single Phase 230 Volt Cooling and Gas/Electric Models



7b. *WC, *DC** and A5PH Single Phase 230 Volt Heat Pump Models. See Figure 18, p. 18. For *WCA**, see Figure 19, p. 19**

Disconnect and remove the **black** lead from the Defrost Board relay to the "L2" terminal of the contactor (the black wire is attached to the "COM" terminal of the relay). Firmly hold relay when removing wire. Connect one of the **black** leads from the (SSR) on the Control Module to the position on the unit contactor "L2" (where the previous wire was removed). Connect the other black lead on the (SSR) on the Controller Module to the "COM" terminal on the Defrost Board.

Connect Low voltage wires (BYO):

1. Connect the 3-pin BYO low voltage wire harness (supplied in kit) to J5 on the Control Module (3-pin male connector). See Figure 17, p. 17.

Note: To ease the insertion of the connector housing on to the J5 header, place the connector on the tips of the three header pins. Angle the connector upward toward the header latch while pushing connector over the header pins.

2. Connect the **yellow** lead wire of the harness to a 1/4" male tab on the right hand side of the main contactor (low voltage contactor coil terminal). [Figure 18, p. 18](#)
3. Connect the **blue** lead wire of the harness to the wire nut junction of the blue wire (use new wire nuts in kit).
4. Connect the **orange** wire to the wire nut junction of the orange wire (use new wire nuts from kit).
5. Connect the Liquid Line Sensor to J2 on the Control Module. See [Figure 17, p. 17](#).
6. Connect the Outdoor Temperature Sensor (Ambient Sensor) to J3 on the Control Module.
7. Reinstall louvers and panels. Continue with step 8. *System Setup*.

Figure 17. Control Module Switches, Connectors, and LEDs

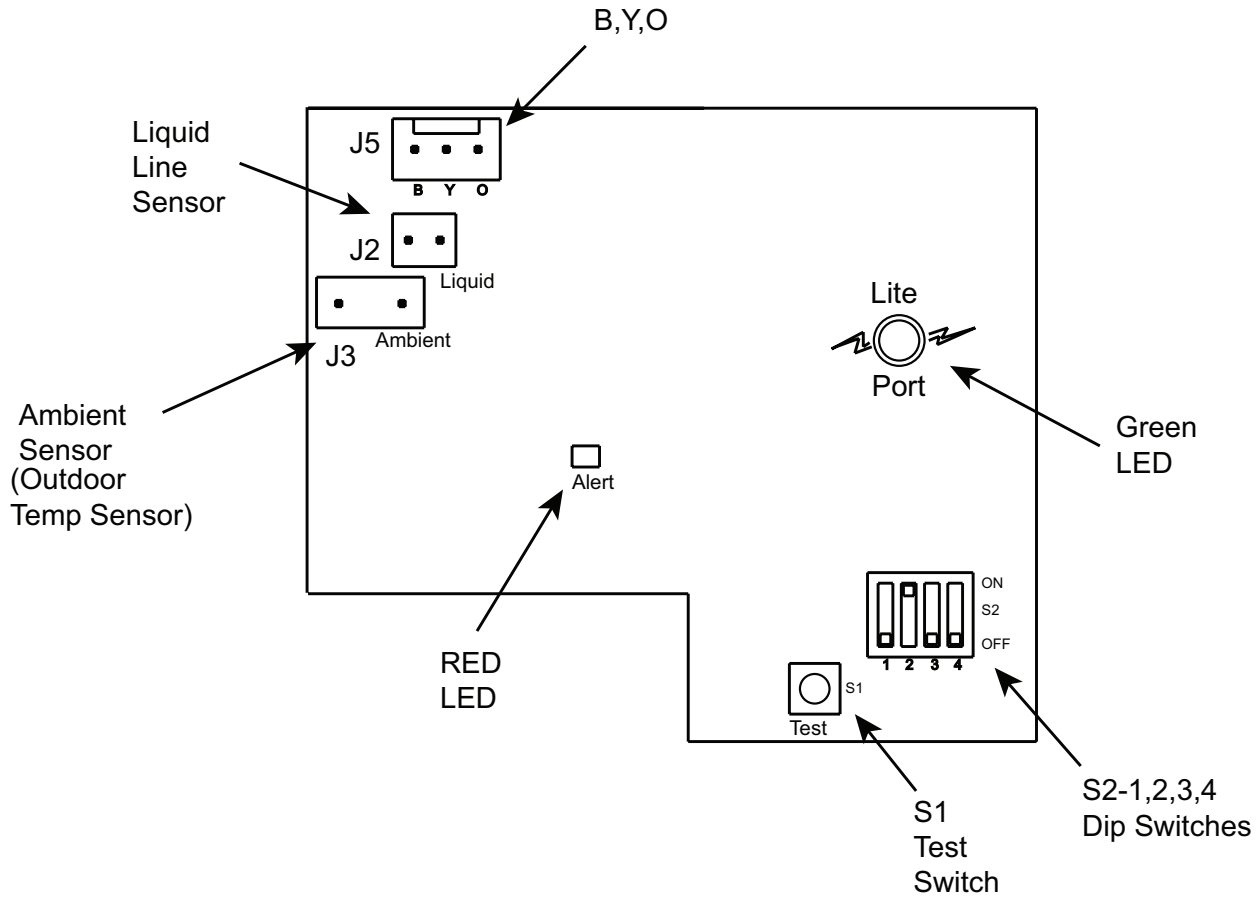
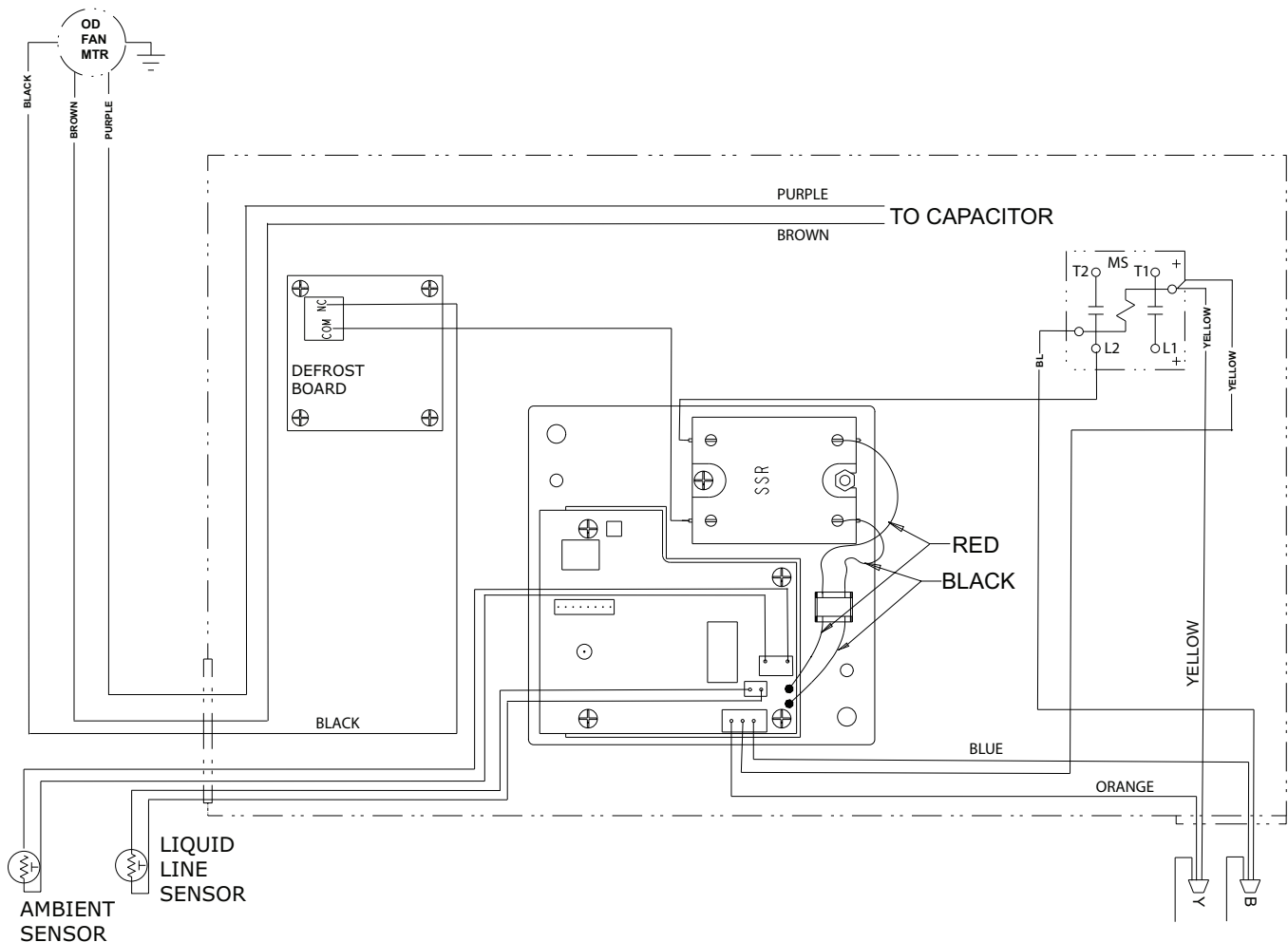


Figure 19. *WCA** Single Phase 230 Volt Heat Pump Models



7c. *YC and *TC** Three Phase 230 Volt Cooling and Gas/Electric Models.**

See Figure 20, p. 20.

Disconnect the **black** fan motor lead from the contactor (this wire is attached to contactor terminal "T2", with a quick connect terminal). Cut the terminal off of this wire and strip the end about 1/2 inch. Select one of the black wires from the SSR relay on the Control Module, cut the terminal off and strip the end about 1/2 inch. Connect these two (the black fan motor lead to the black SSR lead) with a wire nut supplied.

Connect the other **black** wire from the SSR to the contactor terminal "T2" (from where the fan motor lead was disconnected).

Connect Low Voltage Wires (BYO):

1. Connect the 3-pin BYO low voltage wire harness (supplied in kit) to J5 on the Control Module (3-pin male connector). See Figure 17, p. 17.

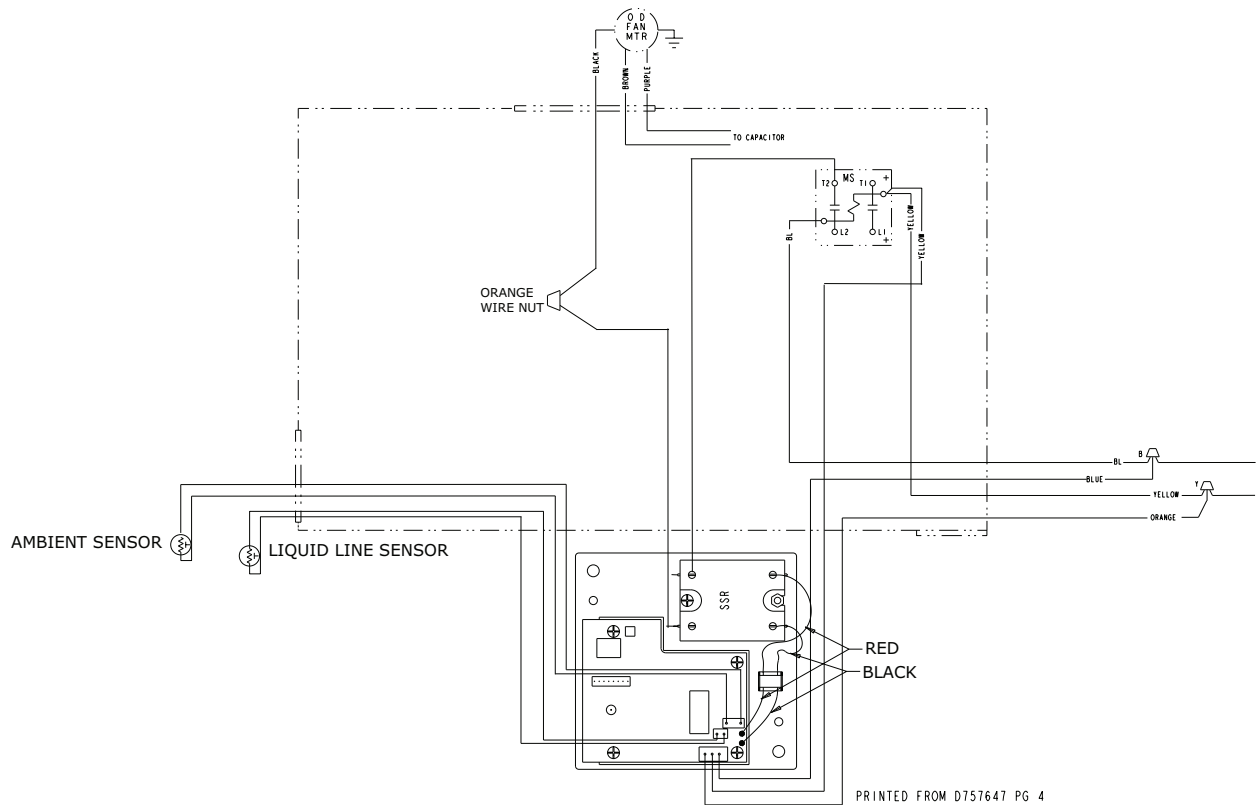
Note: To ease the insertion of the connector housing on to the J5 header, place the connector on the tips of the three header pins. Angle the connector upward toward the header latch while pushing connector over the header pins.

2. Connect the **yellow** lead wire of the harness to a 1/4 " male tab on the right hand side of the main contactor (low voltage contactor coil terminal). See Figure 20, p. 20.
3. Connect the **blue** lead wire of the harness to the wire nut junction of the blue wire (use new wire nuts from kit).
4. Connect the **orange** wire to the wire nut junction of the yellow wire (use new wire nuts from kit).
5. Connect the Liquid Line Sensor to J2 on the Control Module. See Figure 17, p. 17.
6. Connect the Outdoor Temperature Sensor (Ambient Sensor) to J3 on the Control Module.

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7. Reinstall louvers and panels. Continue with step 8.
System Setup.

Figure 20. *YC and *TC** 230/460 volt Three Phase Cooling and Gas/Electric Models**



IMPORTANT - Retain this wiring diagram; please return this document to service information pack upon completion of work.

7d. *WC** and *DC** Three Phase 230 Volt Heat Pump and Dual Fuel Models. See Figure 22, p. 22.

Disconnect and remove the black lead from the Defrost Board relay to the "T2" terminal of the contactor (the black wire is attached to the "COM" terminal of the relay). Firmly hold relay when removing wire. Connect one of the black leads from the (SSR) on the Control Module to the position on the unit contactor "T2" (where the previous wire was removed). Connect the other black lead on the (SSR) on the Control Module to the "COM" terminal on the Defrost Board.

Connect Low voltage wires (BYO):

1. Connect the 3-pin BYO low voltage wire harness (supplied in kit) to J5 on the Control Module (3-pin male connector). See Figure 17, p. 17.

Note: To ease the insertion of the connector housing on to the J5 header, place the connector on the tips of the three header pins. Angle the connector upward toward the header latch while pushing connector over the header pins.

2. Connect the **yellow** lead wire of the harness to a ¼" male tab on the right hand side of the main contactor (low voltage contactor coil terminal). See Figure 22, p. 22.
3. Connect the **blue** lead wire of the harness to the wire nut junction of the blue wire (use new wire nuts in kit).
4. Connect the **orange** wire to the wire nut junction of the orange wire (use new wire nuts from kit).
5. Connect the Liquid Line Sensor to J2 on the Control Module. See Figure 17, p. 17.
6. Connect the Outdoor Temperature Sensor (Ambient Sensor) to J3 on the Control Module.
7. Reinstall louvers and panels. Continue with step 8.
System Setup.

Figure 21. Control Module Switches, Connectors, and LEDs

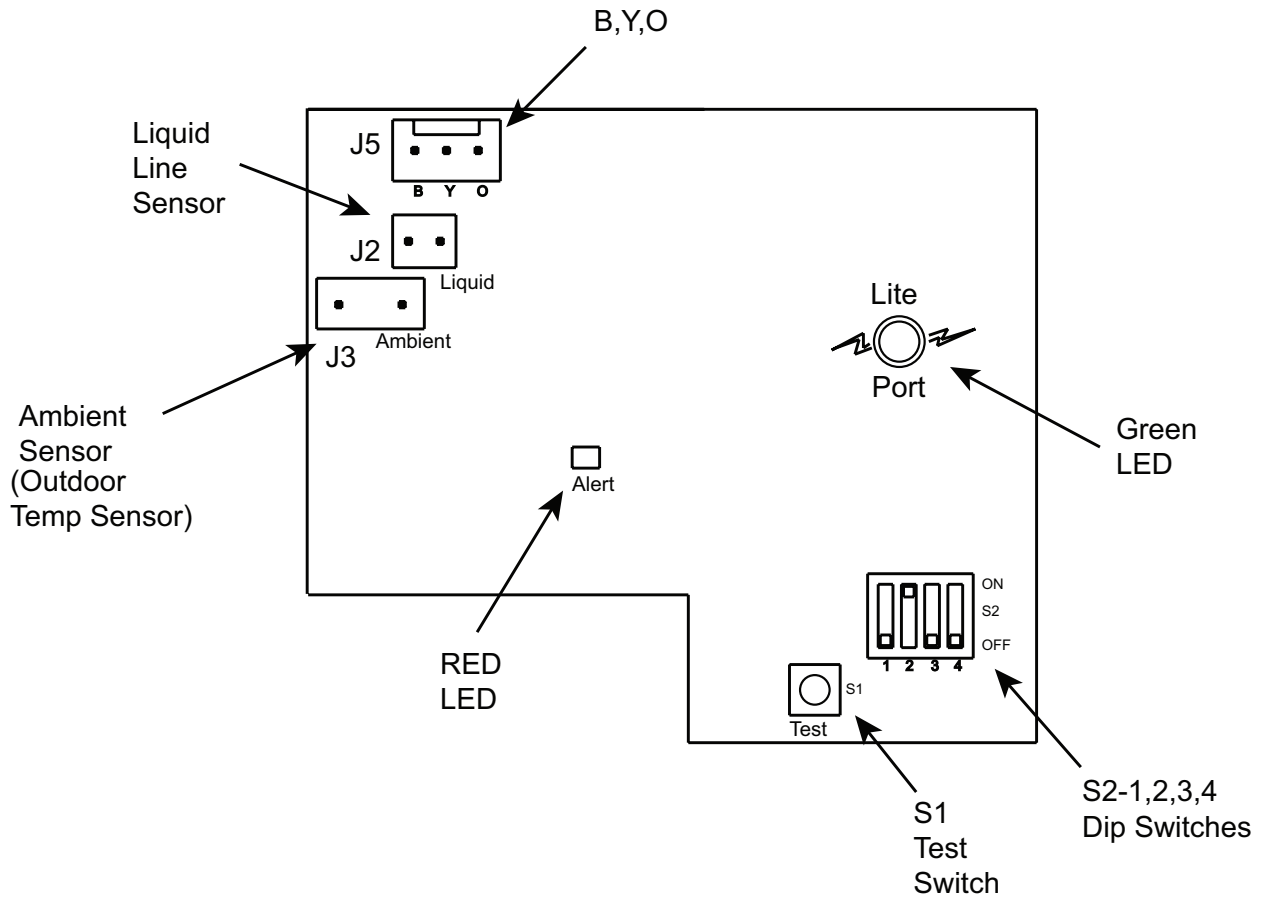
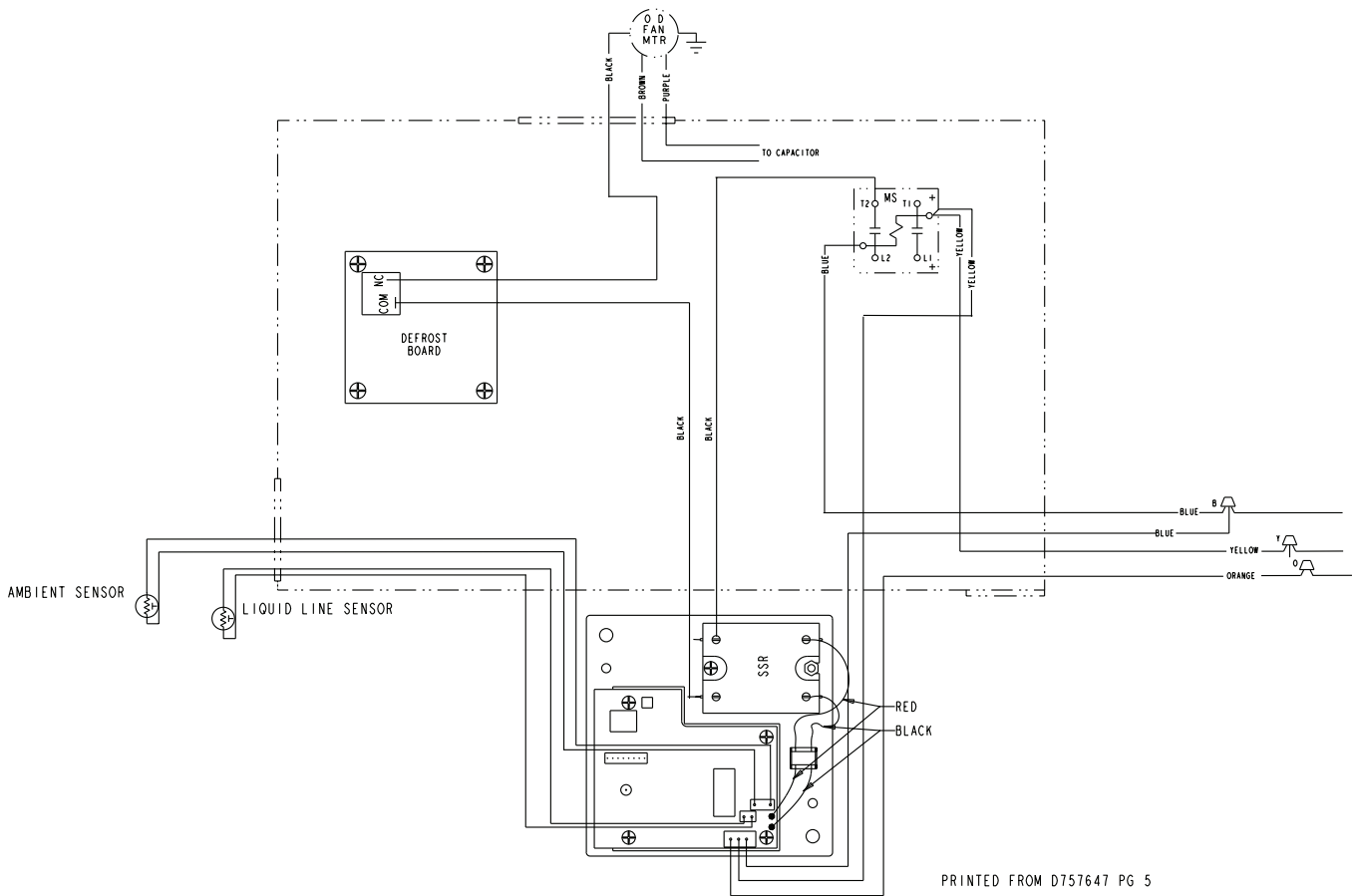


Figure 22. *WC** and *DC** Three phase 230 Volt Heat Pump Models



7e. *WC Three Phase 460 Volt Heat Pump Models. See Figure 23, p. 23.**

Disconnect and remove the black lead from the fan relay (terminal #1) to the unit contactor "T2". Connect one black lead from the SSR on the Control Module to the #1 terminal of the fan relay. Connect the other black lead to the unit contactor "T2" terminal.

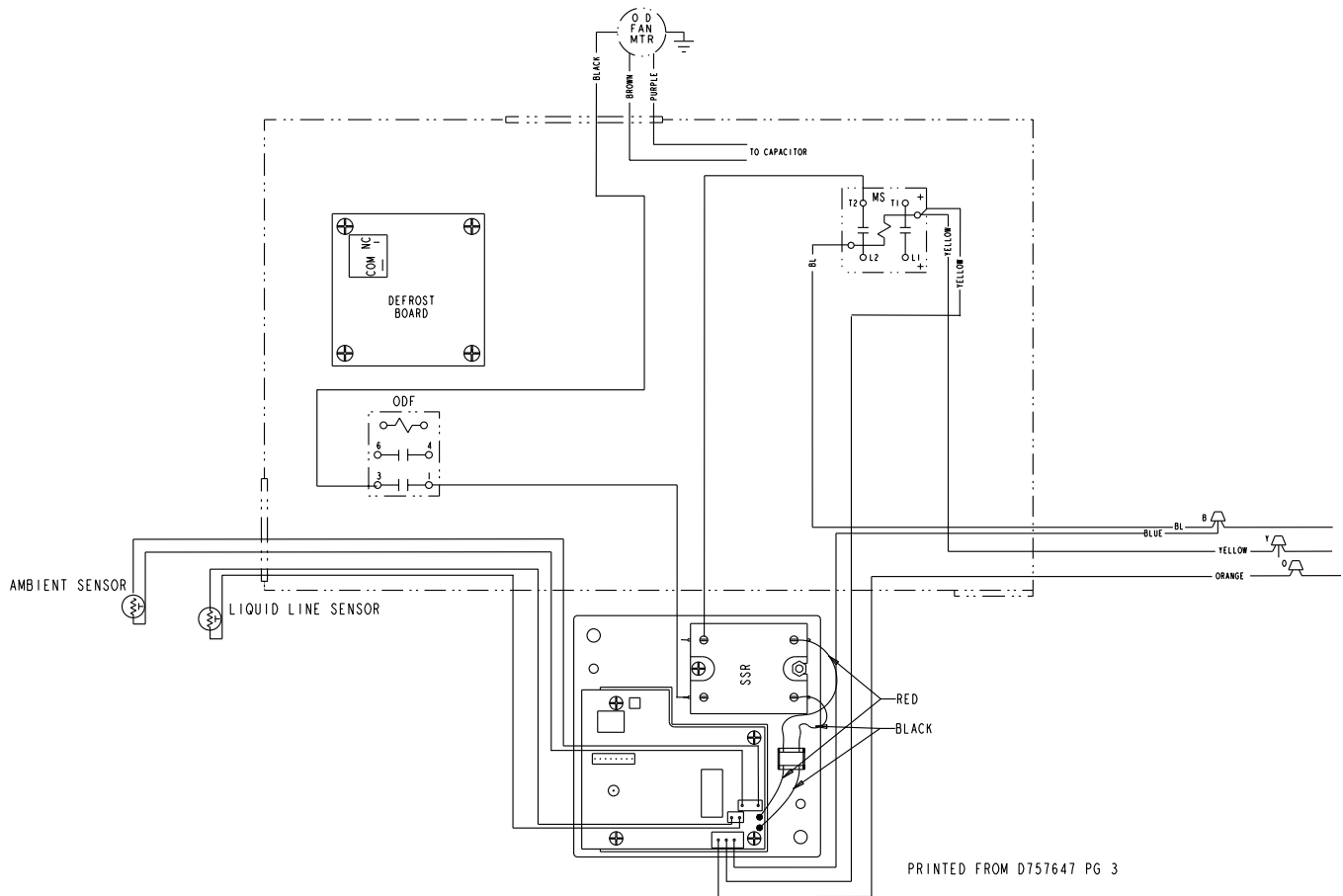
Connect Low voltage wires (BYO):

1. Connect the 3-pin BYO low voltage wire harness (supplied in kit) to J5 on the Control Module (3-pin male connector). See Figure 17, p. 17.

Note: to ease the insertion of the connector housing on to the J5 header, place the connector on the tips of the three header pins. Angle the connector upward toward the header latch while pushing connector over the header pins.

2. Connect the **yellow** lead wire of the harness to a ¼" male tab on the right hand side of the main contactor (low voltage contactor coil terminal). See Figure 23, p. 23.
3. Connect the **blue** lead wire of the harness to the wire nut junction of the blue wire (use new wire nuts in kit).
4. Connect the **orange** wire to the wire nut junction of the orange wire (use new wire nuts from kit).
5. Connect the Liquid Line Sensor to J2 on the Control Module. See Figure 17, p. 17.
6. Connect the Outdoor Temperature Sensor (Ambient Sensor) to J3 on the Control Module.
7. Reinstall louvers and panels. Continue with step 8. System Setup.

Figure 23. *WC** Three phase 460 Volt Heat Pump Models



8. System Startup

The Control Module contains a momentary test switch (S1) and a 4-position installer selectable dip switch (S2). Both components are located in the lower right hand corner of the Control Module. See Figure 17, p. 17.

8a. Test Switch (S1)

The test switch provides a means of verifying that the fan motor is under the control of the Low Ambient Control Module. A "Y" signal must be present in order to test the control. Depressing the test switch causes the fan to alternately cycle on (for 3 seconds) and off (for 3 seconds) for a total time of 12 seconds. The on / off fan operation may be observed by watching the fan once the test function has been invoked or by monitoring the head pressure using a gauge set. The LED on the solid state relay should light when voltage is being applied to the fan motor. Once the 12-second test period is complete the control resumes normal control operation.

8b. Dip Switches (S2)

The Control Module will control a liquid temperature set point as determined by the dip switch settings. The dip switch is used:

1. To select either Automatic mode or Manual Mode operation (S2 dip switch 4 setting).
2. To select the liquid temperature set point (S2 dip switch 1, 2 and 3 settings).

Automatic Mode (S2 dip switch 4 in "Off" position) - The Control Module determines the approach temperature based upon the liquid and ambient temperature readings. The approach temperature = liquid temperature – ambient temperature. The approach temperature is calculated only when the ambient temperature is in the range of 65 to 75 deg F and the outdoor fan is on continuous. If the Control Module has not yet acquired an approach temperature, S2 dip switch 1, 2 and 3 settings are used for determining the liquid temperature set point the same as in Manual Mode. If the Control Module has acquired an approach temperature, then the liquid temperature set point is determined as follows:

Liquid Temperature Set Point = Approach Temperature + 70 deg F

Manual Mode (S2 dip switch 4 in "On" position) - The S2 dip switch 1,2,3 settings are read by the Control Module and used to determine the liquid temperature set point when:

Low Ambient Control Kit

1. Y is first applied,
2. After initial startup mode completion, during the system control mode and no sooner than six minutes after Y is applied

The liquid temperature set point will not change during system start-up.

The dip switches should be set prior to initial application of the Y signal to the Control Module.

The dip switches should be set for each specific HVAC system based upon the following instructions:

8c. Determine liquid temperature set-point

Reference appropriate high side charging chart for liquid pressure for cooling units and head pressure for heat pump units.

Locate the high side pressure for 70 deg F outdoor temperature at the expected indoor wet bulb temperature. See [Table 2, p. 24](#). Correct the high side pressure according to the specific unit being used. For Heat pumps subtract 7 psi, for cooling only units subtract 0 (zero) psi. Using the refrigerant properties chart, find the saturation temperature for the calculated liquid pressure. Subtract the anticipated sub-cooling temperature (typically 12 degrees) from the saturation temperature to obtain an estimate of the liquid temperature. Set S2 dip switch 1, 2 and 3 settings to the nearest liquid temperature set point in the table.

S2 Dip Switch 4:

Off - Automatic Mode (recommended setting)

On - Manual Mode

Table 2. Liquid Temperature Set Point

LIQUID TEMP SET POINT °F	DIP SWITCH 1	DIP SWITCH 2	DIP SWITCH 3
70° F	OFF	OFF	OFF
76° F	OFF	OFF	ON
82° F	OFF	ON	OFF
88° F	OFF	ON	ON
94° F	ON	OFF	OFF
100° F	ON	OFF	ON

8d. LEDs

The Control Module contains two LEDs, one green and one red surface mount. See Figure 11 on page 10. The green LED is a status indicator labeled Lite Port on the Control Module and flashes at a ½ second on (plus fast blink at the end for lite port data) and ½ second off rate in the cooling mode. In the heating mode the green LED is full on with a blink/flicker OFF (LitePort data transmission) every second.

The red LED is a small surface mount component located near the end of the large capacitor. The red LED is labeled ALERT on the Control Module. The red LED

indicator is normally off. If the red LED is on or flashing then a fault is indicated according to the following:

If the cause of a fault is cleared or repaired then the red LED fault indication will clear with the removal and reapplication of 24 VAC power (Y) to the control.

Table 3. Control Module Red LED Status

Red LED Status	Results
Flashing: 1/10 Second On 1/10 Second Off	Liquid Sensor Fault
Flashing: 1/2 Second On 1/2 Second Off	Ambient Sensor Fault
ON Continuously	I2C EEPROM Fault board failure. Not field repairable.

Control Module SSR LED

The solid state relay (SSR) on the Control Module also contains a green LED indicator. This LED indicates when the solid state relay is energized by the control. If the control is cycling the fan then this LED will be on/off accordingly.

9. Attach the Information Label

Attach the Information Label to the Control Box cover. This label identifies the fan motor cycling during low ambient operation.

10. System Check-Out

10a. *YC**, *TC**, A5PA and A5PG units only

- Verify that the Control Module is installed and wired per the instructions contained within this installer's guide (J5-Blue connected to "B", J5-Yellow connected to "Y", J5-Orange connected to "Y", Liquid sensor installed and connected, ambient sensor installed and connected).
- If uncertain about S2 dip switch 1,2,3,4 settings, leave in the factory preset position.
- Apply power to the unit. Apply "Y" control signal.
- Verify the green LED is flashing at ½ second ON – ½ second OFF rate.
- Verify no red LED faults are present.
- The fan should run continuously for a minimum of 10 seconds after "Y" is applied. After 10 seconds the control may begin to cycle the fan if the ambient outdoor temperature is 70 degrees or below. If the fan is cycling and the outdoor temperature is below 70 degrees, the control is working. If after 10 seconds of "Y" application the fan is on continuously, the TEST Switch (S1) may be used to verify the Control Module has control over the fan. Momentarily depress the TEST Switch (S1) on the Control Module. The fan should then cycle 3 seconds on then 3 seconds off for 12 seconds.

Note: *If the green LED on the Control Module is full on with a blink/flicker OFF every second make certain the orange wire from the Control Module is connected to "Y" per these instructions.*

10b. *WC**, *DC** and A5PH units Only

- Verify that the kit is installed and wired per the instructions contained within this installer's guide. (J5-Blue connected to "B", J5-Yellow connected to "Y", J5-Orange connected to "O", Liquid sensor installed and connected, Ambient sensor installed and connected).
- If uncertain about dip switch settings (S2-1,2,3,4), leave in the factory preset position.
- Apply power to the unit. Apply "Y" and "O" control signal.
- Verify the green LED is flashing at ½ second ON — ½ second OFF rate.
- Verify no red LED faults are present.
- The fan should run continuously for a minimum of 10 seconds after "Y" and "O" have been applied.

After 10 seconds the control may begin to cycle the fan if the ambient outdoor temperature is 70 deg or below. If the fan is cycling and the outdoor temperature is below 70 deg, the control is working. If after 10 seconds of "Y" application the fan is on continuously, the TEST Switch (S1) may be used to verify the Control Module has control over the fan. Momentarily depress the TEST Switch (S1) on the Control Module. The fan should then cycle 3 seconds on then 3 seconds off for 12 seconds.

Note: *If the green LED is full on with a blink/flicker OFF every second make certain the orange wire from the Control Module is connected to "O" per these instructions and the "O" signal is present.*

The Control Module will leave the fan ON continuously during heating mode, that is No "O" signal present. The green LED is full on with a blink/flicker off every second in the heating mode.

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