INSTALLATION INSTRUCTIONS ZERO DEGREE LOW AMBIENT CONTROL PACKAGE (RXAD-A08)

FOR OUTDOOR HEAT PUMPS & CONDENSING UNITS

R-410A

⚠ Recognize this symbol as an indication of Important Safety Information!

⚠ WARNING

THIS ACCESSORY IS INTENDED FOR INSTALLATION BY A QUALIFIED, LICENSED SERVICE PERSON. TO AVOID UNSATISFACTORY OPERATION OR DAMAGE TO THE PRODUCT AND POSSIBLE UNSAFE CONDITIONS, INCLUDING ELECTRICAL SHOCK, REFRIGERANT LEAKAGE AND FIRE, THE INSTALLATION INSTRUCTIONS PROVIDED WITH THIS ACCESSORY MUST BE STRICTLY FOLLOWED AND THE PARTS SUPPLIED USED WITHOUT SUBSTITUTION. DAMAGE TO THE PRODUCT RESULTING FROM NOT FOLLOWING THE INSTRUCTIONS OR USING UNAUTHORIZED PARTS MAY BE EXCLUDED FROM THE MANUFACTURER'S PRODUCT WARRANTY COVERAGE.

PARTS LIST

DESCRIPTION	PART NUMBER	QTY.
Low Ambient Cooling Control (LAC)	47-100571-02	1
Low Ambient Relay (LAR)	42-102234-01	1
Adapter	83-21457-02	1
Wire BK 13″ (DR (1) To LAR (2)	AS-50201-20-BB	1
Wire OR 22″ (LAR (Coil) To Strain Relief)	AS-50206-28-AB	1
Wire BR 22″ (LAR (Coil) To DFC (Com. Wire Nut)	AS-50207-28-AB	1
Wire Ties	64-17606-01	7
Cover, Flag Terminal	45-19245-01	2
Instructions	92-21458-65	1
Switch Mounting Bracket	AE-50892-21	1
Wire Nuts	45-18058-01	2
Bushing	45-21895-01	1
1/4" Male Insulated Q.C.	45-23549-01	1
1/4" Female Insulated Q.C.	45-21684-02	1

⚠ WARNING

BEFORE BEGINNING ANY MODIFICATION, BE SURE THE MAIN DISCONNECT SWITCH IS IN THE "OFF" POSITION. FAILURE TO DO SO CAN CAUSE ELECTRICAL SHOCK RESULTING IN PERSONAL INJURY OR DEATH.

INSTALLATION PROCEDURE

1. Remove covers required to gain access to the control box and the compressor area.
2. Remove compressor bolt nearest to the control panel and service valves.
3. Wrap low ambient control mounting bracket around low ambient control and put compressor bolt through holes in bracket.
4. Re-install compressor bolt with low ambient control attached by bracket.
5. **For Rectangle Unit:** Route capillary tubing such that it does not touch any other tubing, paneling, or any surface of the unit.

   For Cube Unit: Route capillary tubing through the bushing provided, install bushing in knock-out hole.
6. Connect flare nut to the adapter fitting that does not have a valve core. See Figure 1.
7. Remove cap from liquid service port on small service valve and place on remaining adapter fitting with valve core.

   HP Note: When installing with heat pump monitor, the extra cap and core must be removed to accommodate second control.

   AC Note: When installing in a condensing unit the low ambient relay is not used.
8. Securely connect the flare nut on adapter to the service port on the liquid line service valve (small service valve).
9. Check all refrigerant connections for leaks and repair if necessary.

ELECTRICAL CONNECTION FOR UNITS WITH DEFROST FAN RELAY: HEAT PUMP

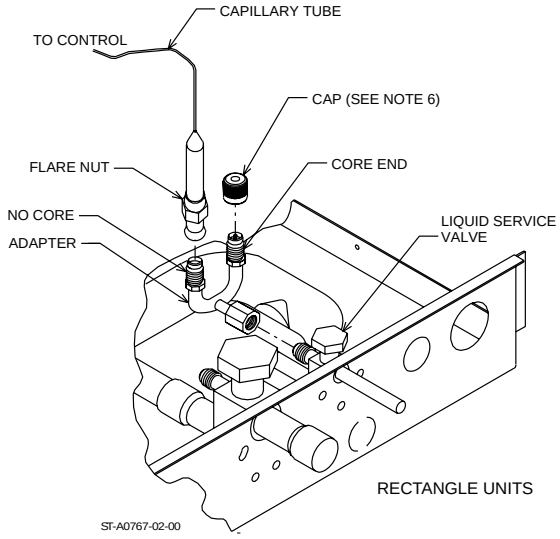
1. The low ambient relay needs to be located in the control box. (See unit wiring diagram.)
2. Route low ambient cooling control leads through back of control box. Connect one lead with female terminal to terminal #1 on LAR. Connect other lead from low ambient control with female to terminal #2 on LAR. 1/4" female quick connect must be added to low ambient control lead prior to installation.
3. Connect 22″ orange lead to coil terminal on LAR and run lead to bottom of box through strain relief bushing in low

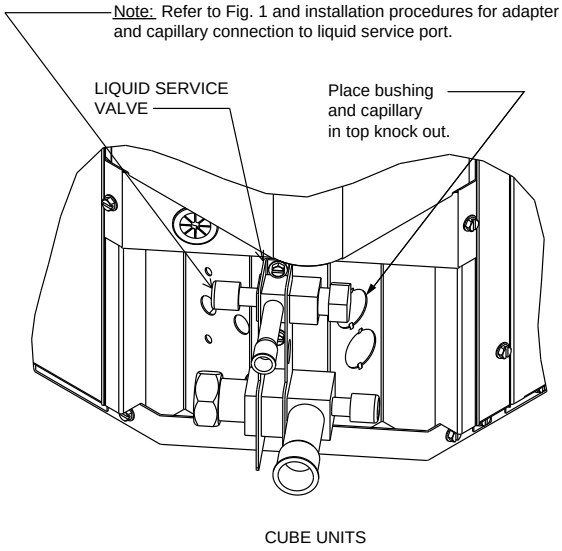
voltage cover. Remove bushing and include orange lead with other low voltage pigtails and replace bushing leaving 6″ of lead below cover. Orange lead must be connected to “O” terminal on thermostat subbase. Connect 22″ brown lead to remaining coil terminal on LAR and connect to brown terminal on thermostat.

4. On all outdoor fan motors the low ambient control is to be connected across terminal 1 and terminal 2 of the low ambient relay. The 24 volt coil on the low ambient relay is to come from the brown (common) lead on the thermostat and the “O” terminal on the thermostat.

   For HP With PSC Motor: The outdoor fan motor black lead is to be broken with the motor side going to the low ambient relay terminal 1 and the defrost fan control side going to the low ambient relay terminal 2.

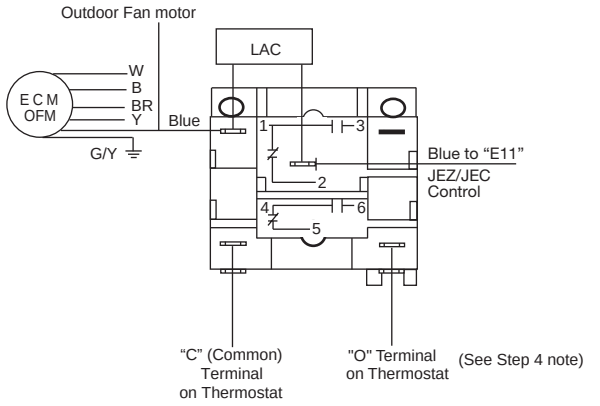
FIGURE 1
LOW AMBIENT CONTROL MOUNTING





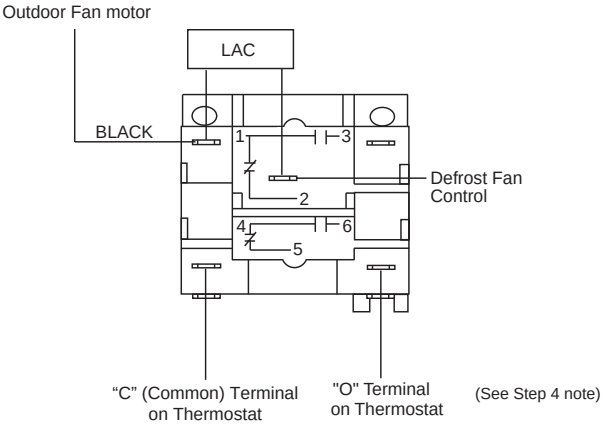
DIAG. 1

RECTANGLE HEAT PUMP WIRING WITH ECM OUTDOOR MOTOR



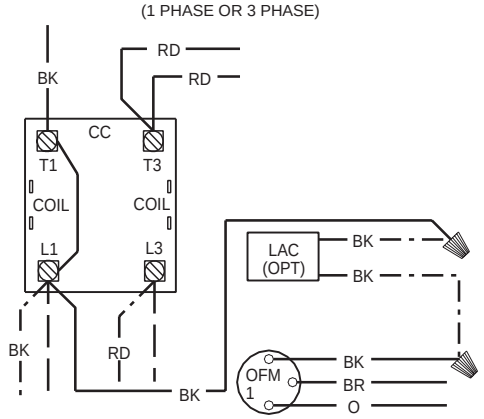
DIAG. 2

HEAT PUMP WIRING WITH PSC OUTDOOR MOTOR



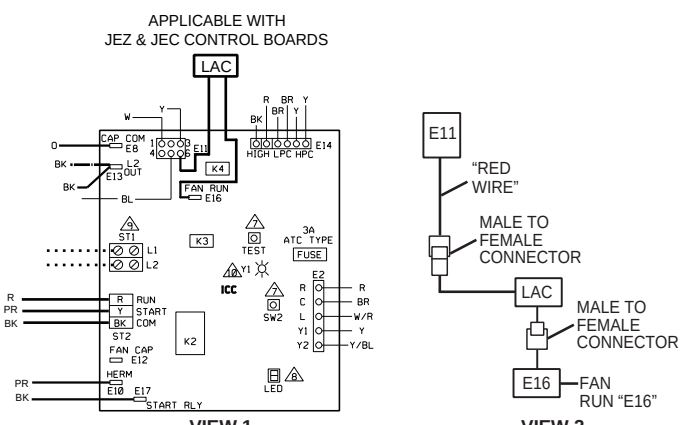
DIAG. 3

AC WIRING WITH PSC OUTDOOR MOTOR
(1 PHASE OR 3 PHASE)



DIAG. 4

AC WITH ECM OUTDOOR MOTOR



DIAG. 5

VIEW 1 **VIEW 2**

FIGURE 1 (continued)
WIRING DIAGRAM AC WITH ECM MOTOR UNITS WITHOUT A CONTROL BOARD

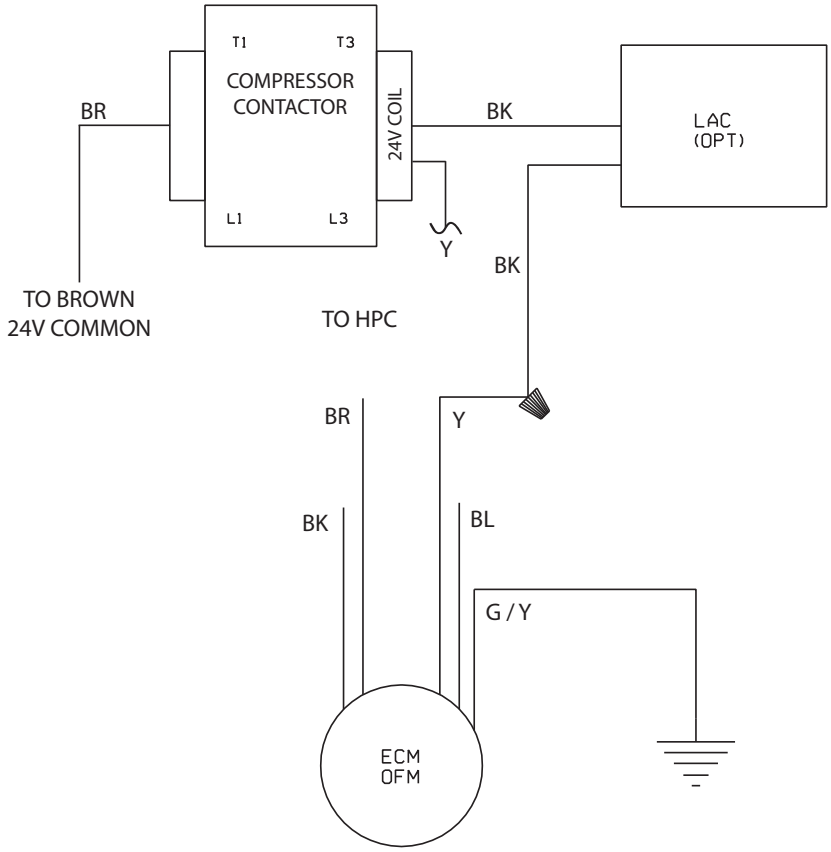


DIAGRAM 6

CUBE HEAT PUMP WIRING WITH ECM OUTDOOR MOTOR

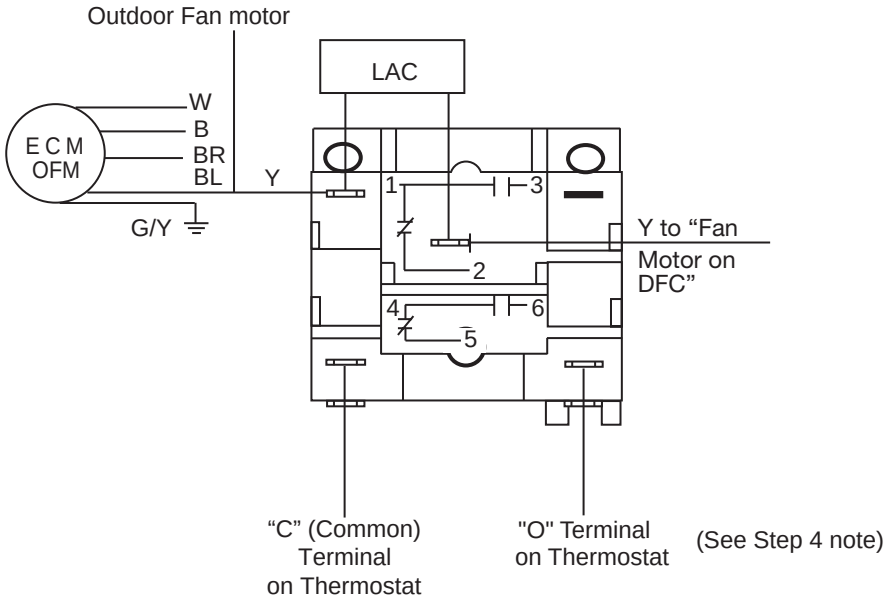


DIAGRAM 7

For Rectangle HP With ECM Motor: The outdoor fan motor blue lead is to be broken with the motor side going to the low ambient relay terminal 1 and the JEZ control side going to the low ambient relay terminal 2.

For Cube HP With ECM Motor: The outdoor fan motor yellow lead is to be broken with the motor side going to the low ambient relay terminal 1 and the "fan motor on DFC" going to the low ambient relay terminal 2.

NOTE: When "O" is not available: If "O" is not available on the thermostat sub-base, the outdoor fan motor should be connected across terminals 1 and 3 of the low ambient relay (normally open contacts) and the 24 volt coil on the low ambient relay should be connected to the "B" and "common" thermostat terminals.

Refer to the unit wiring diagram and the appropriate diagram provided.

5. Use wire ties to tie low ambient control leads to compressor leads in unit to keep them off the base and away from hot tubing and the fan blade. Wire tie orange lead going to bottom of box, to the tied wire bundle running to lower part of box. Tie wires going to LAR in wire bundle going to the top of the box and tie brown low voltage lead to bundle in top of box. Make sure low voltage wires do not touch high voltage live terminals or high voltage wires do not touch low voltage live terminals.
6. Reinstall access panels.
7. Restore power to the unit and check unit operation.

   Control cycles outdoor fan off when liquid pressure drops below 220 psig ± 10, and fan cycles on when liquid pressure rises above 320 psig ± 10.

ELECTRICAL CONNECTION: CONDENSING UNIT

1. Route both leads from the low ambient control through a wire opening in the back or bottom of control box.
2. **For AC With PSC Motor** applications the low ambient control is to be connected in series with the outdoor fan motor circuit. See Diagram 4.

   Refer to the wiring diagram in the unit. Trace the black lead from the outdoor fan motor to the point where it is connected in the control box.

   Refer to wiring diagram and remove the fan motor black lead terminal connection. Remove the terminal from the black lead and strip the wire insulation back 1/2". Using a wire nut (supplied in package), secure the black lead to the control lead with the stripped end. Attach the other lead from the low ambient control to the terminal on the contactor vacated by the motor lead. Secure the two L. A. C. leads to a convenient wire bundle by using the wire tie supplied in the package.
3. **For AC With ECM Motor Applications With JEZ and JEC Control** is to be connected in series with the "Red Wire" running between E11 and E16 fan run terminals. See Diagram 5.

   For JEC make sure application is used on primary control board.
4. **For AC With ECM Motor Applications Without A Control Board** is to be wired in series with the yellow wire of the ECM motor. See Diagram 6 in Figure 1.
5. Reinstall access panels.
6. Restore power to the unit and check unit operation. Control cycles outdoor fan off when liquid pressure drops below 250 psig ± 10, and fan cycles on when liquid pressure rises above 450 psig ± 10.