

# LOW AMBIENT CONTROL KIT (LACK) DX14XA/DZ14XA (7.5-10 Ton) INSTALLATION INSTRUCTIONS

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## WARNING

DO NOT BYPASS SAFETY DEVICES.

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## DESCRIPTION

A properly installed Low Ambient Control Kit (LACK) expands the working cooling operation of the equipped unit to 0 °F ambient. This is accomplished by cycling the power to the condenser fan motor(s) to regulate compressor discharge pressure.

The kits utilize a combination of pressure switch(es) (285 psi open, 435 psi close) and relay(s) to cycle the condenser fan motor(s) when needed. An ambient temperature switch (55 °F open, 65 °F close) is also included to lock out cycling at temperatures that do not require it. All supplemental mounting hardware, wiring, and fittings are included with the kits.

## CONSIDERATIONS

ASHRAE 90.1-2016 requires units with a cooling capacity of 54,000 BTU/H or greater to be equipped with an economizer. A properly functioning economizer significantly reduces the annual cycle count on the LACK components. Ignoring this requirement could result in a shorter lifespan for these components.

The following accessories must be installed on all condensers and remote heat pumps when equipped with low ambient kits.

1. Freeze protection kit must be installed on indoor coil.
2. Crankcase heater must be installed (if not factory installed).

For installation areas where the ambient temperature can drop below 10 °F, and cooling operation is required below 30 °F, jumper wire(s) have been included in the kit to disable the factory low-pressure switch(es). This is necessary because the low-pressure switch(es) will open if the unit is off and exposed to sub 10 °F ambient for an extended period and will not reset until 30 °F ambient. Disabling of the low-pressure switch(es) is not necessary outside of this specific application.



In installation areas where sustained winds are common during low ambient seasons, a device to deflect, check, or regulate flow through the condenser coil may be required for stable operation. The added airflow at low ambient temperatures can drive the operating conditions of the unit below the design envelope and cause malfunction, e.g., a frozen evaporator coil.

### AC CONFIGURATION BOM

LAKT00AC (LOW AMBIENT KIT)	QTY
0130L00282 (SWITCH, TEMPERATURE)	1
0130L00279 (SWITCH, PRESSURE)	1
0163M00542 (TUBE-V-SLIT)	1
M0221817 (SCREW-SM)	1
B1096101 (TIE, CABLE)	1
0259L02115	1
BT1391500 (TAPE, 3", PACKAGING)	1.32
M0050301 (CARTON)	1
0141M00040 (TAPE-STRAPPING)	0.002
M0051203 (MATERIAL-CUSH)	0.001
W18203050160013 (ASSY, YELLOW WIRE)	1
IOD-7155	1
0111L00041 (SWIVEL ACCESS TEE)	1

### HP CONFIGURATION BOM

LAKT00HP (LOW AMBIENT KIT)	QTY
10135604 (RELAY)	1
0130L00282 (SWITCH, TEMPERATURE)	1
0130L00279 (SWITCH, PRESSURE)	1
A4617503 (NUT-WIRE)	1
0163M00542 (TUBE-V-SLIT)	1
W18203160160004 (WIRE ASSY YELLOW)	1
W18204160220018 (WIRE ASY, 18 GA, BLUE, 18")	1
W18206050160024 (WIRE ASY, 18 GA, ORANGE, 24")	1
0163M00279 (SCREW)	2
M0221817 (SCREW-SM)	1
B1096101 (TIE, CABLE)	1
0259L02114	1
BT1391500 (TAPE, 3", PACKAGING)	1.32
M0050301 (CARTON)	1
0141M00040 (TAPE-STRAPPING)	0.002
M0051203 (MATERIAL-CUSH)	0.001
IOD-7155	1
0111L00041 (SWIVEL ACCESS TEE)	1

## AC & HP 7.5 - 10 TON INSTALLATION



### WARNING

#### HIGH VOLTAGE

DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



1. Disconnect all sources of power to the unit and lock out and tag out.
2. Remove and save the control box cover from the unit. Save the screws which held it in place (Figure 1).

CONTROL PANEL

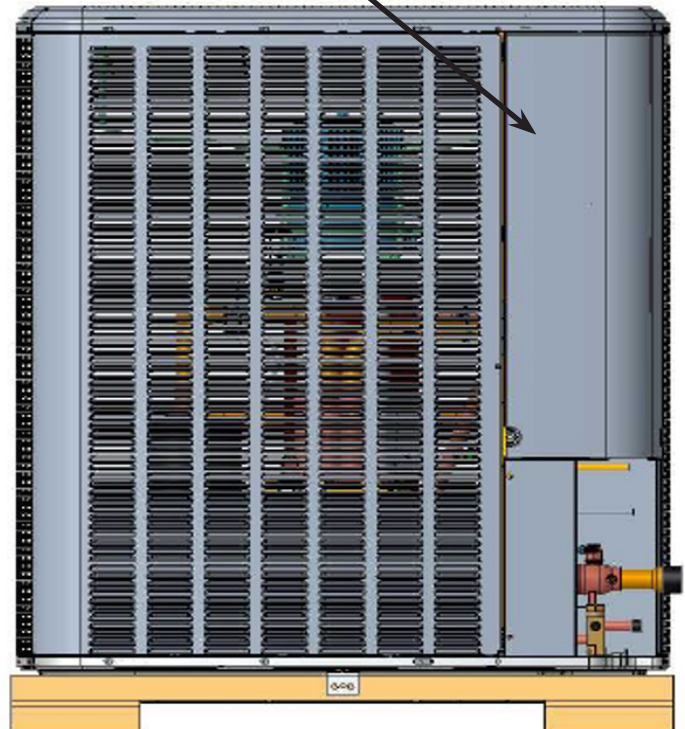


Figure 1

3. Locate and mount relay (see figure 2) with the provided screws within the kit. Skip to Step 4 if unit is AC only.

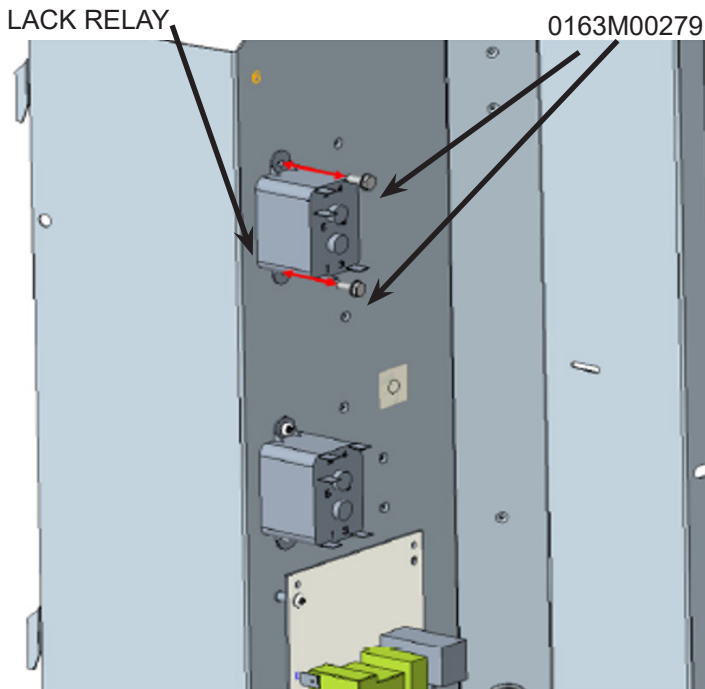


Figure 2

4. Using the included cable tie and screw, secure the temperature switch to the control box. See figure 3 for installation instructions.

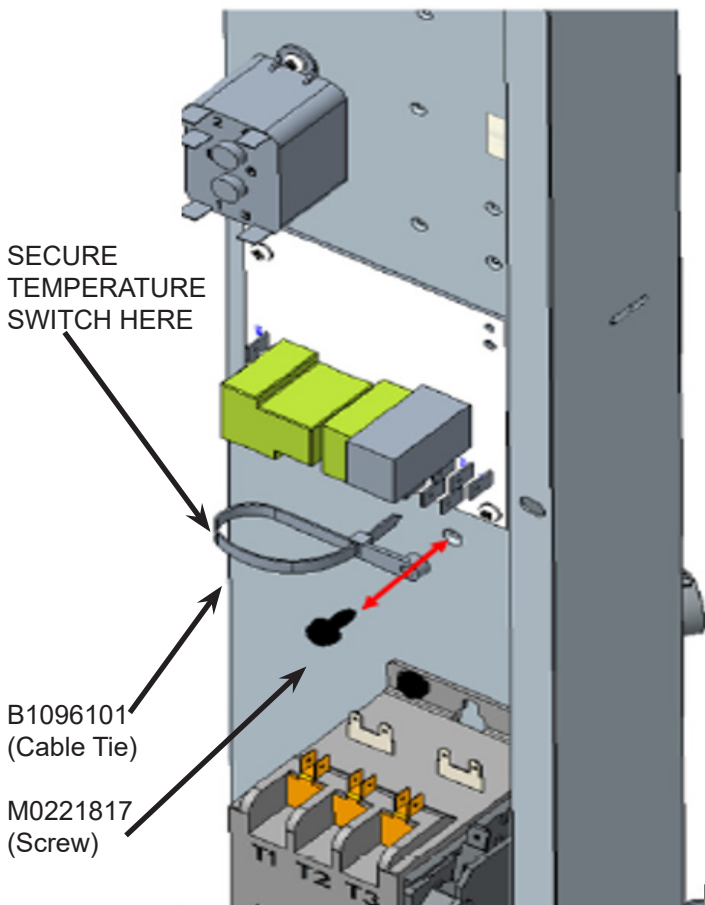


Figure 3

5. Remove and save the lower access panel cover from the unit. Save the screws which held it in place.

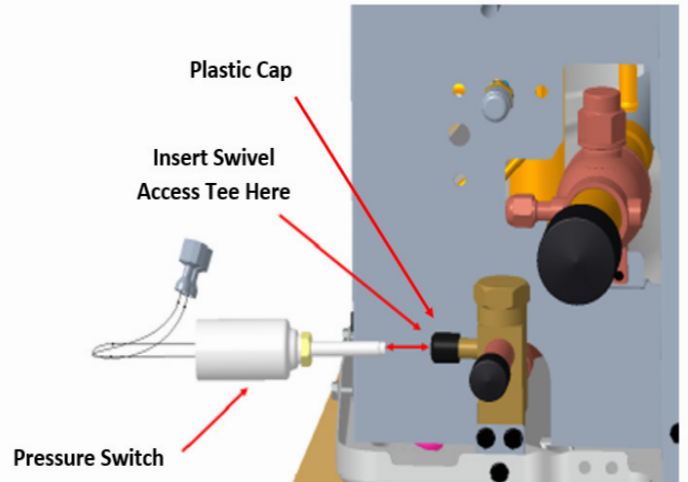


Figure 4

6. Remove the plastic cap from the liquid line access fitting shown in figure 4.

7. On the liquid line first screw the included Swivel Access Tee (not shown in figure 4), then screw the Pressure Switch onto the Swivel Access Tee per figure 4.

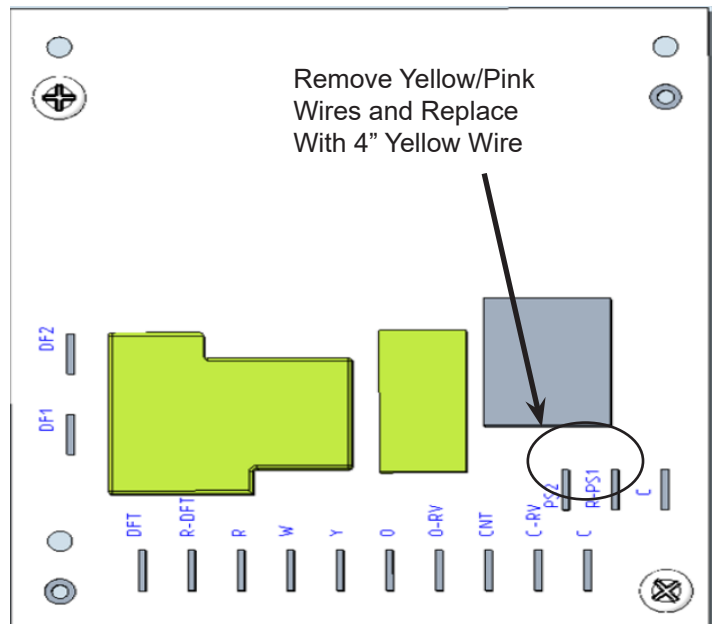


Figure 5

**HP Configuration**

8A. Remove the low pressure switch Yellow/Pink wires off pins PS2 & R-PS1 on the Defrost Control Board. Terminate the 4" Yellow wire that came with the kit to PS2 & R-PS1. Ensure the low pressure switch yellow/pink wire leads are not connected or touching any electrical equipment. See Figure 5 for further installation instructions.

## **AC Configuration**

8B. Disconnect the yellow/pink wire from the low pressure switch on the contactor terminal, pin A1. Disconnect the high pressure switch blue/pink wire that is nut crimp with a yellow/pink wire from the low pressure switch. Using the 13" yellow wire that came with the kit, twist and crimp the stripped end with the high pressure switch blue/pink wire. Terminate the other end of the 13" wire to contactor, pin A1. See AC Wiring Diagram for further installation instructions

***Important: Ensure refrigerant system connections are tight and no leaks are present.***

9. Install and connect the wires as depicted in the wiring diagrams that match the kit being installed.
10. Remove the backing from the low ambient kit label. Without covering the unit wiring diagram, attach the label on the inside of the control box cover. Reattach the control control box and lower access panels.
11. Restore all sources of power to the unit.
12. Test the unit for proper operation.

## WIRING LEGEND

### Wire Code

----- FIELD WIRING  
————— FACTORY WIRING

### Components

CM - CONDENSOR MOTOR

LVJB - LOW VOLTAGE  
JUNCTION BOX

DFCB - DEFROST  
CONTROL BOARD

CC - COMPRESSOR CONTACTOR

RLY - RELAY

HPS - HIGH PRESSURE  
SWITCH

TS - TEMPERATURE SWITCH

LAK - LOW AMBIENT KIT

### Colors

BK - BLACK

OR - ORANGE

BR - BROWN

PK - PINK

BL - BLUE

RD - RED

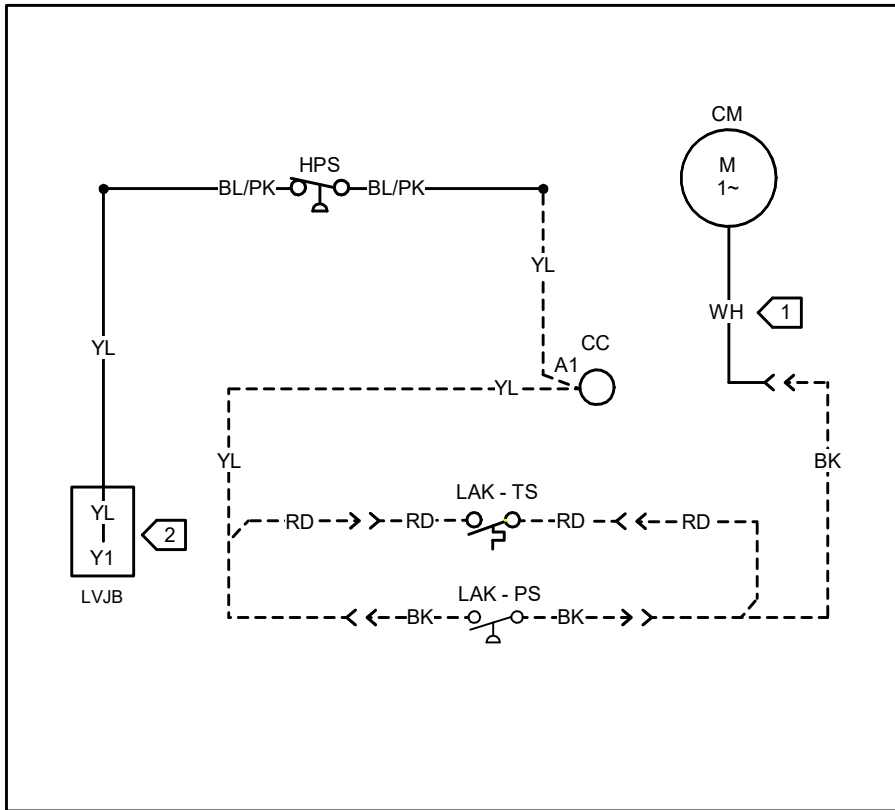
GR - GREEN

YL - YELLOW

WH - WHITE

BL/PK - BLUE WITH PINK STRIPE

**AC WIRING DIAGRAM**



**LOW AMBIENT KIT  
DAX, DX14XA**

**NOTES:**

1. EXISTING FACTORY WIRING REPURPOSED TO FUNCTION WITH LOW AMBIENT KIT.
2. TO INDOOR UNIT'S LOW VOLTAGE TERMINAL BLOCK AND THERMOSTAT.
3. FACTORY LOW PRESSURE SWITCH REMOVED FROM UNIT CONTROLS WIRING.

**COMPONENT LEGEND:**

- CC COMPRESSOR CONTACTOR
- CM CONDENSOR MOTOR
- HPS HIGH PRESSURE SWITCH
- LAK - TS LOW AMBIENT KIT - TEMPERATURE SWITCH
- LAK - PS LOW AMBIENT KIT - PRESSURE SWITCH
- LVJB LOW VOLTAGE JUNCTION BOX

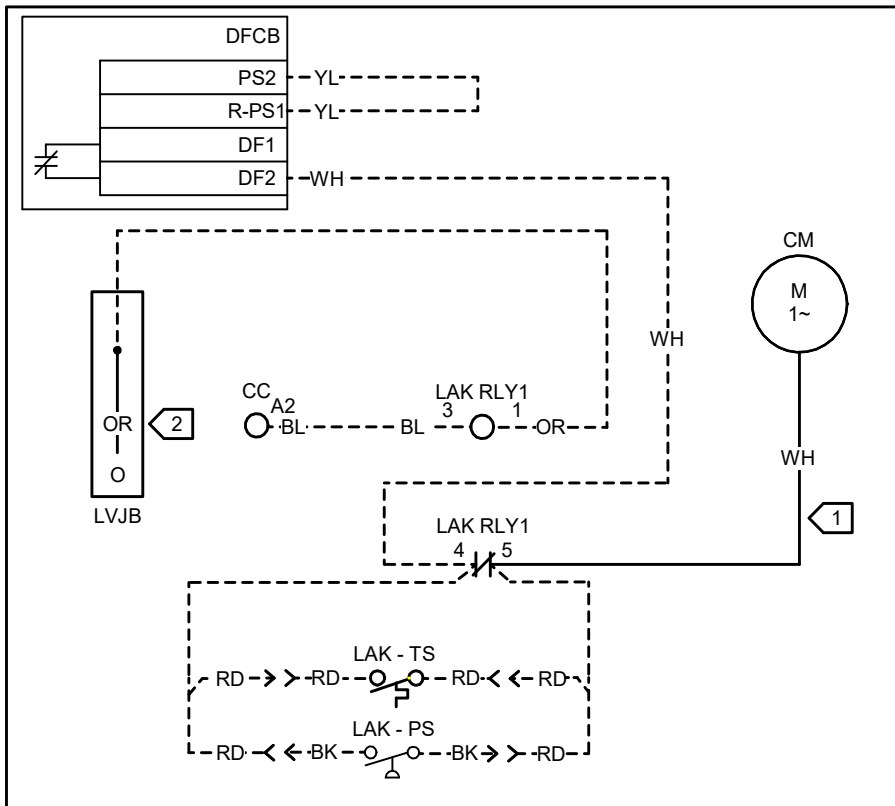
**WIRING LEGEND:**

- FACTORY WIRING
- LOW AMBIENT KIT FIELD WIRING
- WIRE CRIMP CONNECTION



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**HP WIRING DIAGRAM**



**LOW AMBIENT KIT  
DAX, DZ14XA**

**NOTES:**

1. EXISTING FACTORY WIRING REPURPOSED TO FUNCTION WITH LOW AMBIENT KIT.
2. TO INDOOR UNIT'S LOW VOLTAGE TERMINAL BLOCK AND THERMOSTAT.
3. FACTORY LOW PRESSURE SWITCH REMOVED FROM UNIT CONTROLS WIRING.

**COMPONENT LEGEND:**

- CM CONDENSOR MOTOR
- DFCB DEFROST CONTROL BOARD
- LAK RLY LOW AMBIENT KIT RELAY
- LVJB LOW VOLTAGE JUNCTION BOX
- LAK - TS LOW AMBIENT KIT - TEMPERATURE SWITCH
- LAK - PS LOW AMBIENT KIT - PRESSURE SWITCH

**WIRING LEGEND:**

- FACTORY WIRING
- LOW AMBIENT KIT FIELD WIRING
- FIELD CONNECTION



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