

Large Rooftop Units 12 to 25 Tons Low-Ambient Kit 50/60 Hz

Cancels: IIK 542J-150-11

IIK 542J-150-21
9/15/02

Installation Instructions

Part Number: CRL0WAMB001A01

Application Temperature Limitations

UNIT	TEMPERATURE LIMITATION F (C)
12 and 15 Ton, High Tier Units (48/50HJ015,017 and 551A/581A155 and 180)	20 (-6.7)
15, 17.5, and 25 Ton, Standard Tier ASHRAE 90.1 Compliant Units (48/50TM016,020,028 and 558F/580F180,210,300)	10 (-12.2)
15 and 17.5 Ton, Standard Tier Units (48/50TJ016,020 and 559F/579F180,216)	10 (-12.2)
12 and 15 Ton, Heat Pump Units (50HJQ014,016 and 542J150,180)	0 (-17.8)

ASHRAE — American Society of Heating, Refrigeration and Air Conditioning Engineers

Package Contents

ITEM	QTY	PART NO.
Temperature Switch*	1	HH18HA455
Temperature Switch†	1	HH18HA415
Heater Contactor**	1	HN53CB024
No. 6B, 3/4-in. (19 mm) Long Screw	4	—
No. 8, 1/2-in. (13 mm) Long Screw	2	—
Low Ambient Wiring Harness	1	50TJ401122
Heat Pump Wiring Harness**	1	50HJ403218

*This switch has a 45 F (7.2 C) break point and a 55 F (12.8 C) make point.

†This switch has a 15 F (-9.4 C) break point and a 25 F (-3.9 C) make point. This is not required on high tier units.

**Required for heat pump units with 3 single-phase outdoor-fan motors.

SAFETY CONSIDERATIONS

Installation, start-up, and servicing of this equipment can be hazardous due to system pressures, electrical components, moving parts, and equipment location.

Only trained, qualified installers and service mechanics should install, start up, and service this equipment. Untrained personnel can perform such basic maintenance functions as cleaning coils or replacing air filters. All other operations should be performed by trained service personnel only.

When working on equipment, observe precautions in literature; tags, stickers, and labels attached to equipment; and any other safety precautions that apply. Follow all safety codes, and wear safety glasses and work gloves. Use care in handling, rigging, and setting bulky equipment.

⚠ WARNING

Before performing service or maintenance operations on unit, turn off main power switch to unit. Electrical shock could result in personal injury.

GENERAL

IMPORTANT: This low-ambient kit is designed for large rooftop units (12 to 25-tons) equipped with 3 (or 6 on 25-ton units) single-phase outdoor-fan motors.

This accessory package sequences outdoor fans to control head pressure at low outdoor ambient temperatures from 45 to 20, 10, or 0° F (7.2 to -6.7, -12.2, or -17.8 C) depending on the application. Outdoor fan no. 3 (and 6 on 25-ton units) sequences off at 45 F (7.2 C) outdoor ambient and outdoor fan no. 2 (and 5 on 25-ton units) sequences off at 15 F (-9.4 C) outdoor ambient. Outdoor fan no. 1 (and 4 on 25-ton units) runs between 15 F (-9.4 C) and 0° F (-17.8 C) outdoor ambient.

The sequencing is accomplished by two bi-metal switches mounted in the control box. This accessory package can be used on 208/230, 400, 460, and 575 v units.

BEFORE INSTALLING

Inspect the contents of this accessory package before installing. File a claim with the shipper if contents are damaged or parts are missing.

INSTALLATION

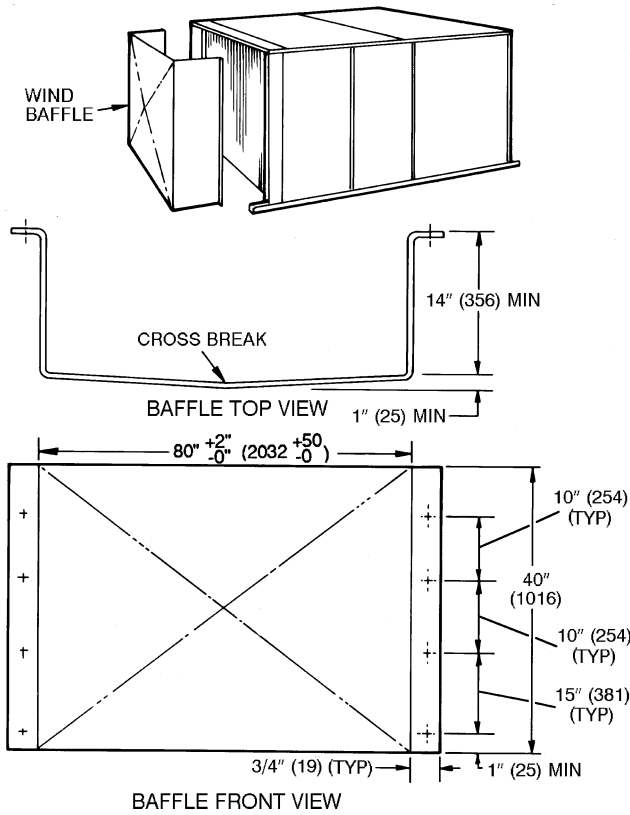
Step 1 — Install Wind Baffles — Wind baffles must be field fabricated for all units to ensure proper cooling cycle operation at low-ambient temperatures. See Fig. 1 and 2 for baffle details. Use 20-gage (4.1-mm diameter) galvanized sheet metal or similar corrosion-resistant materials for the baffles.

⚠ CAUTION

Use extreme care when drilling screw holes and screwing in fasteners near outdoor coil to avoid damage to tubing.

Use field-supplied screws to attach baffles to the unit. Screws should be 1/4-in. (6-mm) diameter or larger. Drill required screw holes for mounting baffles.

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.



NOTE: Dimensions in () are in mm.

Fig. 1 — Wind Baffle Details (All Units Except 25-Ton, Standard Tier ASHRAE 90.1 Compliant)

Step 2 — Install Temperature Switches

1. Turn off power to unit.
2. Open control box door. Using a voltage meter, check that no power is present at unit terminal block.
3. Identify outdoor-fan capacitors 1, 2, and 3 (also 4, 5, and 6 on 25-ton units). See Fig. 3 and 4 for capacitor locations. Capacitors can be identified by the wire label markings at the capacitor terminals.

4. Wire the capacitor. See Fig. 5-7.
 - a. Disconnect the 6-in. (150-mm) long yellow leads between capacitors 1 and 2 and between capacitors 2 and 3. Securely wire tie these jumpers to the yellow wire in the jumper sequence which is connected to capacitor 1.
 - b. If the unit has 6 capacitors (25-ton units), disconnect the 6-in. (150-mm) long yellow leads between capacitors 4 and 5 and between capacitors 5 and 6. Securely wire tie these jumpers to the yellow wire in the jumper sequence which is connected to capacitor 4.
5. Remove the knockouts provided in the bottom of the control box.
6. With four no. 6B screws provided, install temperature switches on inside bottom of control box. Be sure switches are mounted over knockouts removed in Step 5. Screw holes are provided in the control box near the control circuit terminal block.

NOTE: The 15 F (-9.4 C) temperature switch is not actuated on high tier units due to temperature limitations. However, this switch is critical when the low-ambient kit is used in conjunction with the Motormaster® I Head Pressure Control accessory.
7. Connect low ambient wiring harness, provided, between the capacitors, temperature switches, and the outdoor-fan contactor. Wire tie the harness and unused wires to the existing control box harness. The harness is labeled with location of the wire ends, but for the wire labeled "OFC1", connect as shown in Fig. 5-7 depending on the application.
8. For heat pump units only, perform the following procedure (see Fig. 6):
 - a. With the two no. 8 screws provided, install the heater contactor within 15-in. (381-mm) of the outdoor-fan contactor located in the unit control box.
 - b. Connect heat pump wiring harness, provided, between the capacitors, outdoor-fan contactor, and the heater contactor installed in Step 8a. Wire tie the harness to the existing control box harness. The harness is labeled with location on wire ends.
9. Replace panels and turn on power to unit.

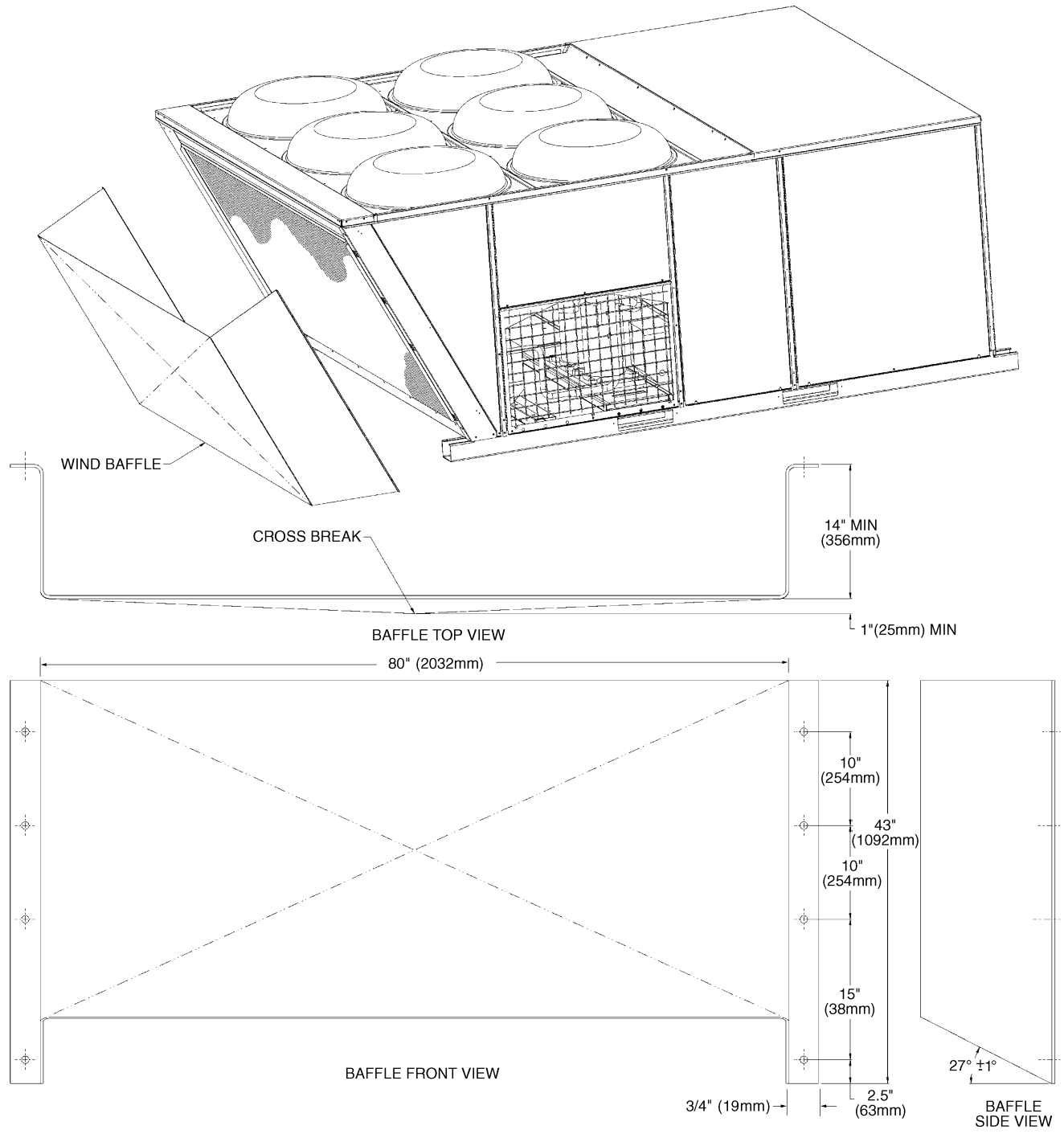
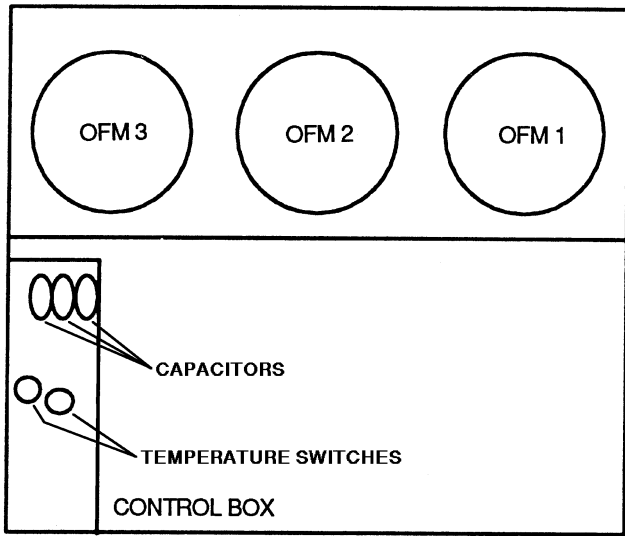
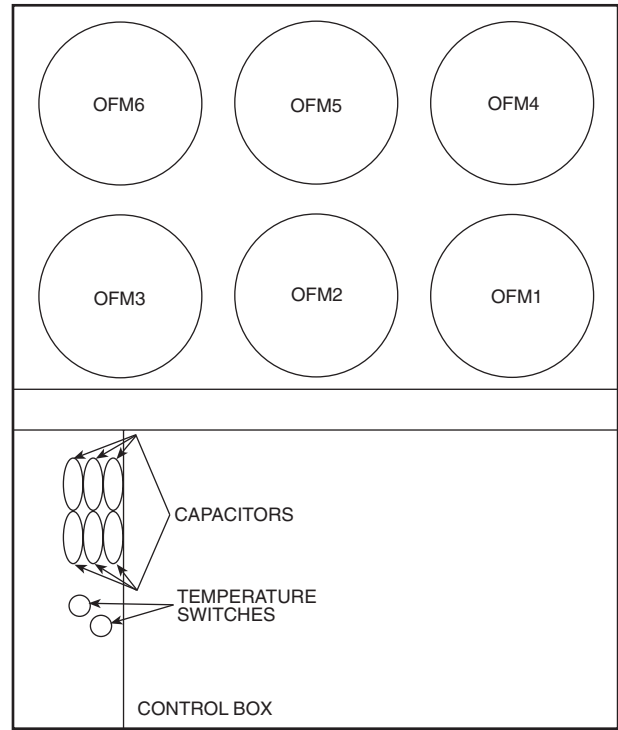


Fig. 2 — Wind Baffle Details (25-Ton, Standard Tier ASHRAE 90.1 Compliant Unit)



OFM — Outdoor-Fan Motor

**Fig. 3 — Outdoor Fan and Capacitor Location
(All Units Except 25-Ton, Standard Tier
ASHRAE 90.1 Compliant)**



**Fig. 4 — Outdoor Fan and Capacitor Location
(25-Ton, Standard Tier
ASHRAE 90.1 Compliant Units)**

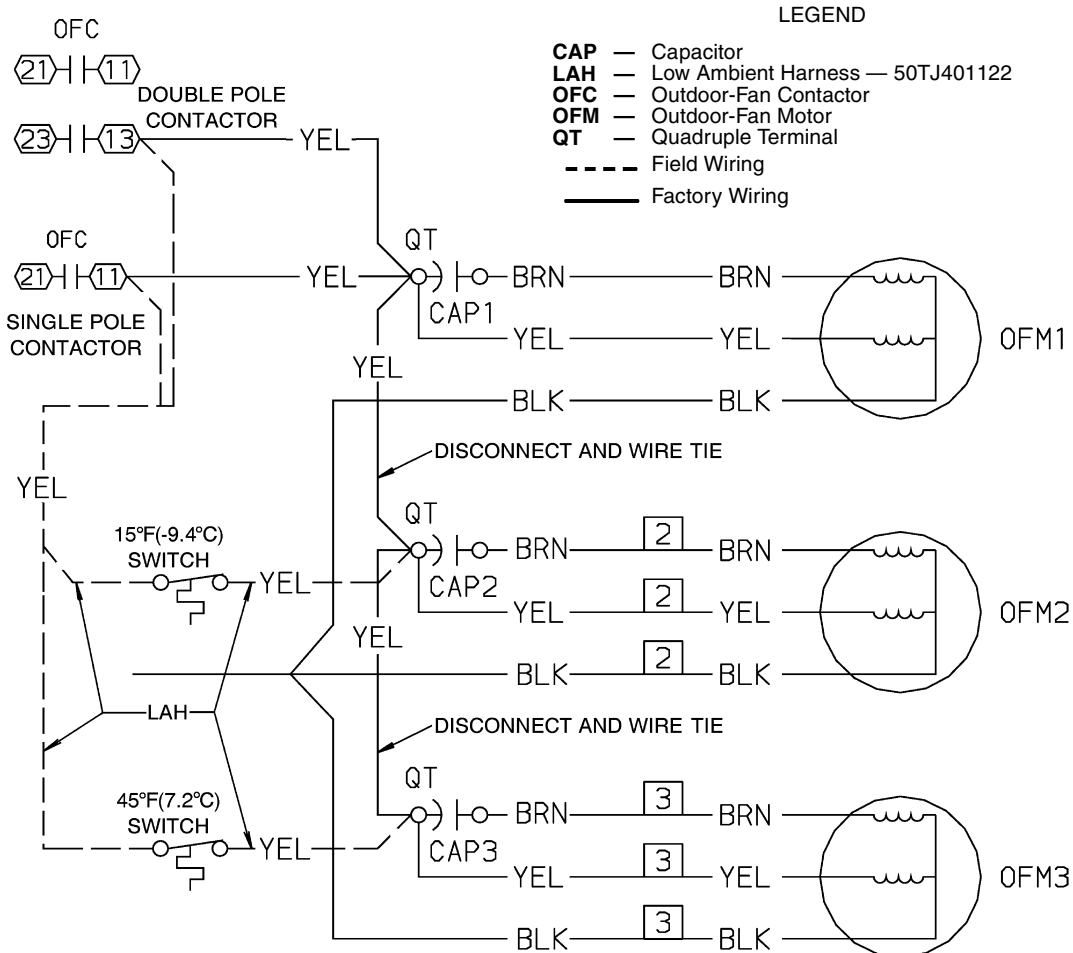


Fig. 5 — Typical Wiring Diagram (Cooling only and Heating/Cooling Unit Applications, 12 to 17.5 Tons)

LEGEND

- CAP — Capacitor
- HC — Heater Contactor (included in accessory kit)
- HR — Heater Relay
- HPH — Heat Pump Harness — 50HJ403218
- LAH — Low Ambient Harness — 50TJ401122
- OFC — Outdoor-Fan Contactor
- OFM — Outdoor-Fan Motor
- QT — Quadruple Terminal
- TB — Terminal Block
- - - Field Wiring
- Factory Wiring

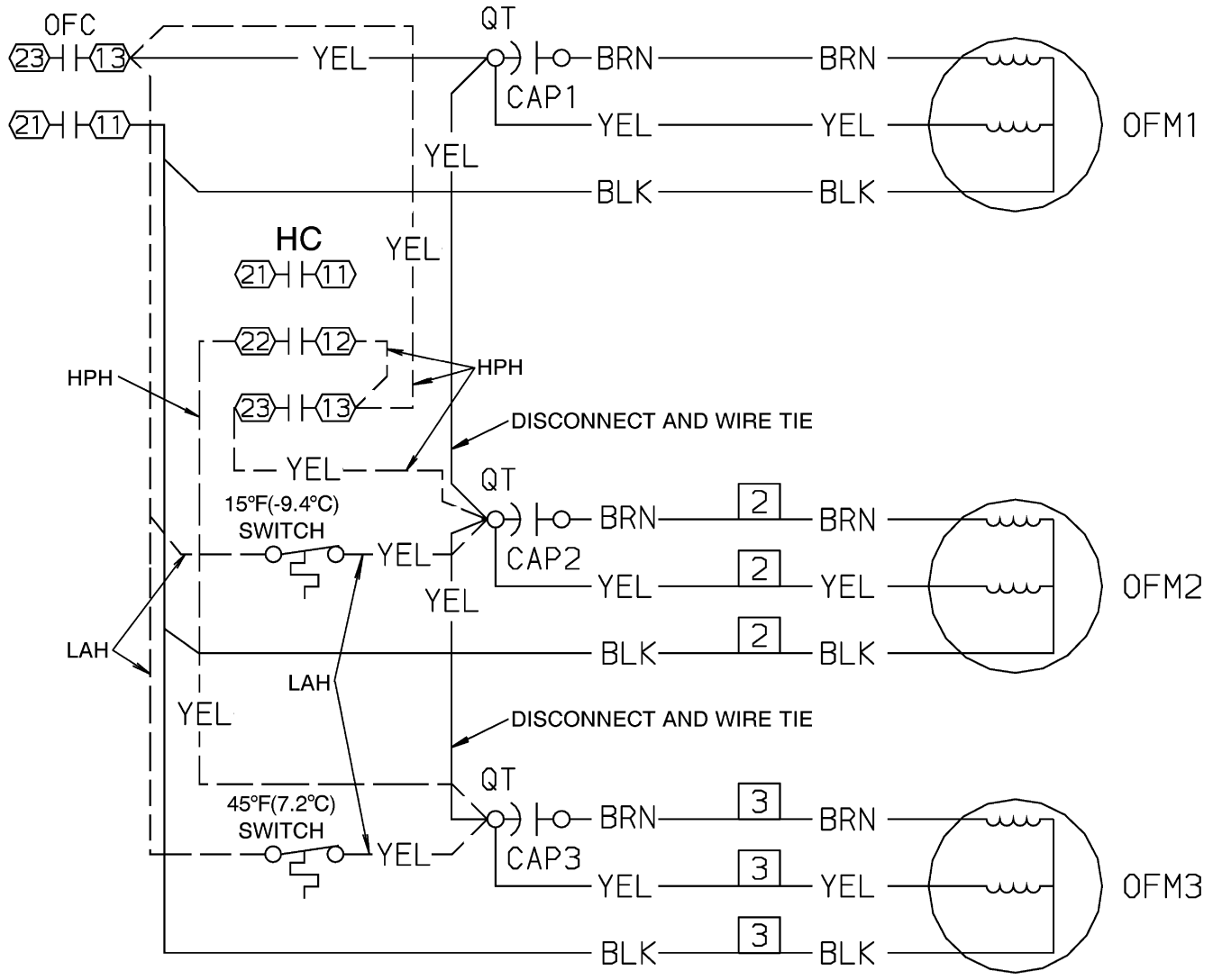
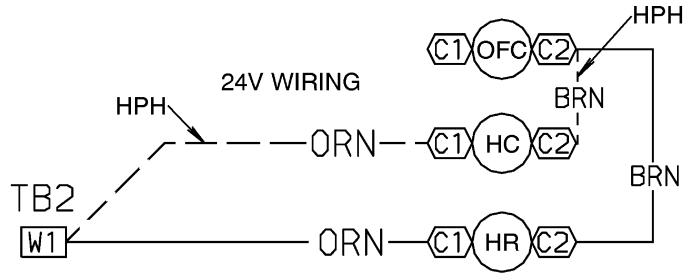


Fig. 6 — Typical Wiring Diagram (Heat Pump Applications, 12 and 15 Tons)

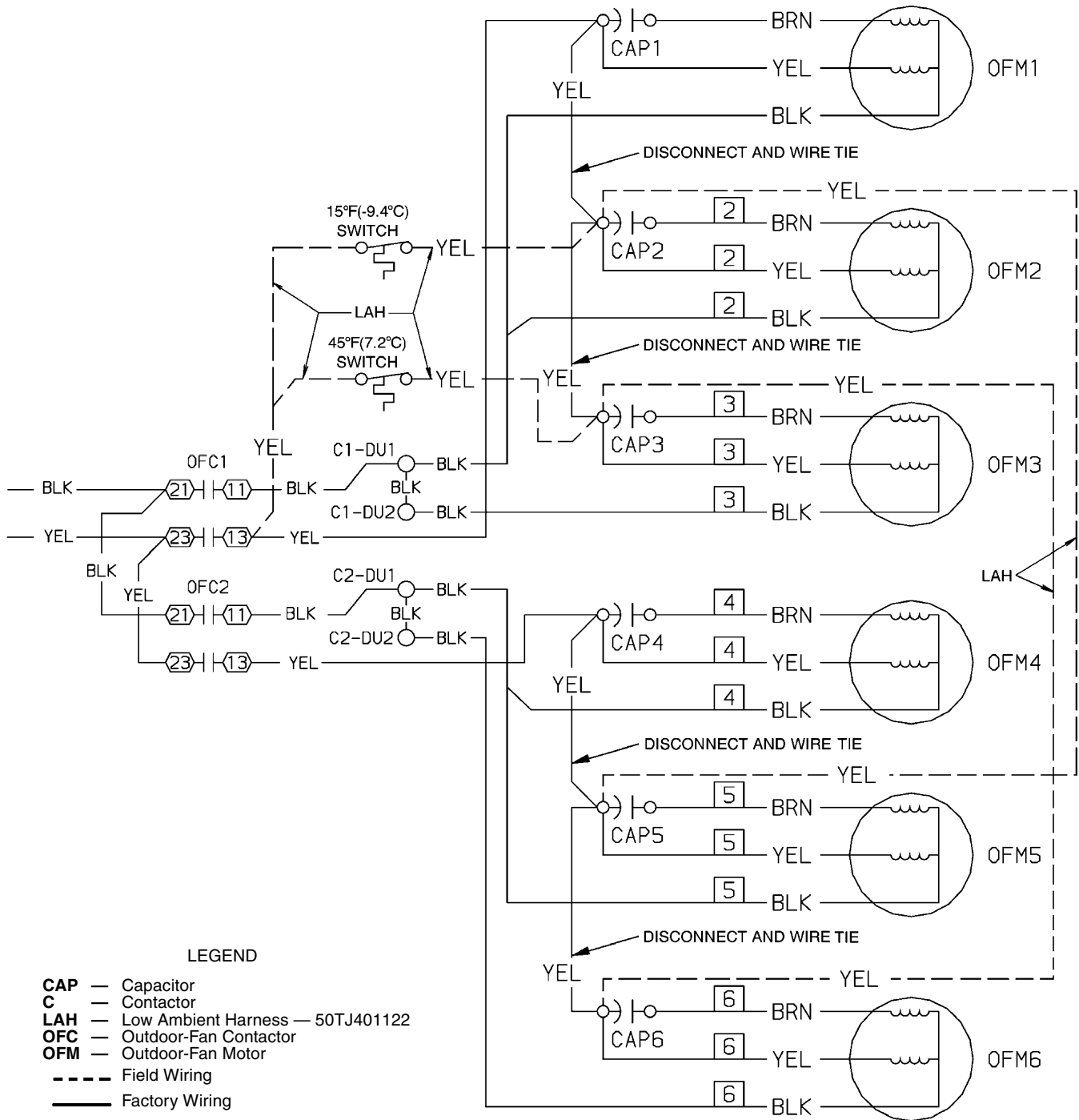


Fig. 7 — Typical Wiring Diagram (Cooling Only and Heating/Cooling Unit Applications, 25 Tons)

