

Installation Instructions

Usage

ACCESSORY PACKAGE 50DJ900 ---	MODELS 48/50DK*	BASE UNIT VOLTAGE
591	024	208/230; 460
611	024	575
601	028, 030	208/230; 460
621	028, 030	575

*Use accessory modulating power exhaust only with Models 48/50DK equipped with optional economizer

INSTALLATION

IMPORTANT: Before installing power exhaust, be sure the return duct has at least one 90-degree bend before it enters the conditioned space.

Accessory package contains:

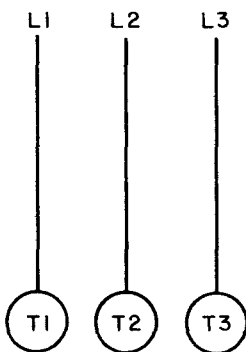
- 1 channel clip
- 1 pre-assembled hood/damper/motor assembly
- 1 pre-assembled fan deck assembly
- 1 fastener package (taped to inside of hood)

The fastener package contains:

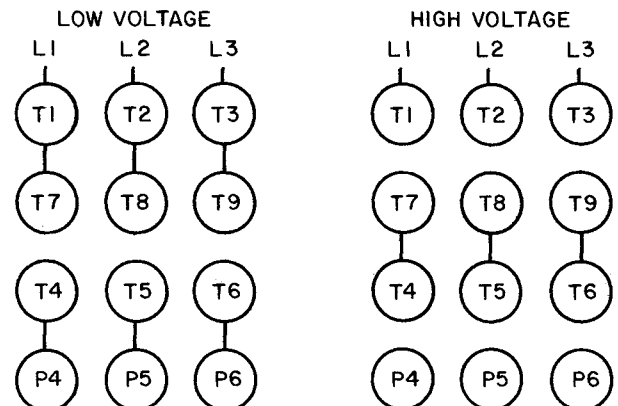
- 9 wire nuts
- 3 wire ties
- 6 screws, 1/4-AB x 5/8-in. long
- 12 screws, #10
- 2 seal strips, 36-in. long x 1-in. wide x 1/8-in. thick, with pressure-sensitive adhesive on one side
- 2 seal strips, 33-in. long x 1-in. wide x 1/8-in. thick, with pressure-sensitive adhesive on one side
- 1 seal strip, 4-ft long x 1/2-in. wide x 1/8-in. thick, with pressure-sensitive adhesive on one side

Remove the lagscrews holding the hood assembly to the shipping skid. Find the modulating power exhaust control box under the skid. The modulating power exhaust control box contains a 24-volt transformer to power the damper motor, a differential pressure switch, a pressure gage, and a plug assembly.

SINGLE VOLTAGE (575 V, 3 LEADS)



DUAL VOLTAGE (208/230 AND 460 V, 12 LEADS)



Plastic tubing connects the high-pressure taps of the differential pressure switch and the gage runs to a tee; the third leg of this tee is for the field-supplied, field-installed tubing that must be run to a field-supplied, field-installed pressure tap in the conditioned space or in the return air duct. The field-supplied tubing should be 1/4-in. type with a 0.40-in. wall thickness. The field-supplied tap can be made of 1/4-in. copper, brass, or aluminum tubing (ends of probe should be cut square to the sides of the tube and de-burred) or the probe can be purchased, e.g. Barber-Coleman p/n AP-301. Plastic tubing also connects the low side taps of the differential pressure switch and the gage to a tee; the third leg of this tee has additional plastic tubing which must be run to the pressure tap on the unit corner post. The tees are located outside of and behind the power exhaust control box.

Turn off unit power. Before beginning installation, wire power exhaust motor for the correct voltage. See Fig. 1 or back of motor junction box cover for connection diagram.

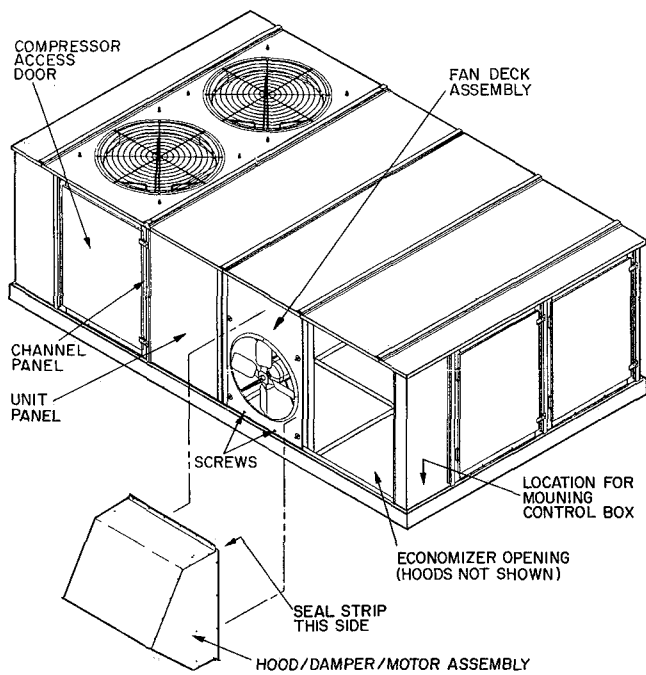
Models 48DK

- The power exhaust fan deck is installed in place of the unit panel between the economizer outdoor air intake and the unit panel next to the compressor access door. See Fig. 2.
- Remove the channel panel between the 2 panels between the compressor access door and the economizer outdoor air intake. Discard this channel panel, as it is no longer needed.

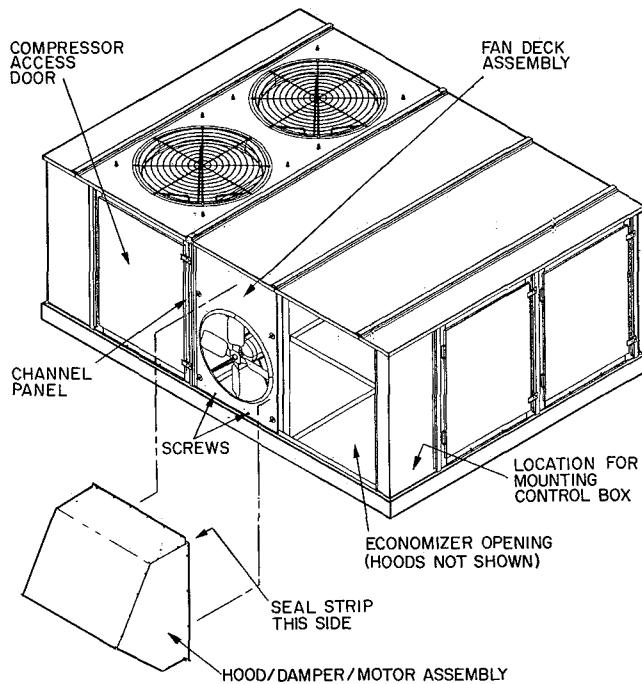
Models 50DK

- The power exhaust fan deck assembly is installed in place of the unit panel between the compressor access door and the economizer outdoor air intake. See Fig. 2.

Fig. 1 — Motor Connection Diagrams



48DJ,DK024-030



50DJ,DK024-030

Fig. 2 — Accessory Modulating Power Exhaust Installation

- Open the compressor access door and remove the channel panel between the door frame and the adjacent panel (the panel to be replaced by the power exhaust fan deck). Discard the channel panel, as it is no longer needed.

On all models, remove the channel panel between the unit panel being replaced by the fan deck assembly and the economizer. Save this channel panel, as it will be used at another location later. Remove the screws in the top and bottom of the unit panel being replaced. Remove panel and discard. Save all screws for later use.

There are 5 wires that run from the unit control box to the return air section of the unit. Of these, 3 (black, yellow, and blue) go to the power exhaust motor. These 3 wires have stripped ends that are wire-nutted and secured to the bulkhead. In the control box, these 3 wires have ring terminals and are wire-tied to the other wires. The 2 remaining wires (white and red) go to the primary side of the 24-volt transformer in the power exhaust control box when the box is installed in the corner post next to the economizer. Each of these wires has a quick-connect at one end and is wire-tied to the economizer motor damper frame. The other end of each is wire-tied back on the other wires in the control box.

There are 5 additional wires that run from the power exhaust control box to the power exhaust damper motor. They are violet, blue, orange, black, and white. The black and white wires go to the secondary side of the power exhaust transformer, while the others go to the power exhaust differential pressure switch. These wires are run in a plug to the back of the power exhaust control box. The matching plug is installed in all Variable Air Volume (VAV) units equipped with the economizer option. One end is wire-tied to the economizer damper frame. This is the end that connects to the plug in the back of the power exhaust control box. The other end is wire-tied to the partition that separates the return air from the outside air. This end connects to the power exhaust damper motor.

Before installing the power exhaust control box in the corner post, remove the cover that seals this opening and locate the 2 wires that are to go into the control box (they are wire-tied to the economizer damper frame) and the plug that connects to the plug in back of the power exhaust control box. Reach in through the opening and remove the cap which covers the pressure tap in the corner post. Connect the field-supplied tubing to the third leg of the high-pressure tap tee. Run the other end of the field-supplied tubing to its desired location. Hold the control box up to the hole and connect the plastic tubing from the low side tee to the pressure tap in the unit corner post. Push the 2 wires that go into the control box through the grommet and connect the plug that was wire-tied to the economizer damper frame to the plug in the back of the power exhaust control box. Hold the box in place and secure it using 12 screws (#10) from the fastener package (3 per flange). See Fig. 2 and 4. Connect the red and white wires to the primary of the transformer as shown in the unit label diagram (red to L1 side and white to L2 side).

Enter the base unit control box and connect the other ends of the red and white wires going to the power exhaust transformer as shown in the unit label diagram (red to terminal 3 on TB3 and white to terminal 6 on TB3). Connect the 3 power exhaust motor wires to the power exhaust contactor as shown in the unit label diagram.

Secure the power exhaust fan deck assembly in place using the screws removed from the top and bottom of the panel discarded earlier. Do not use the middle 2 screws that hold the assembly to the unit base rail, as they are for use later.

With the power exhaust fan deck assembly secured, wire the power exhaust motor to the black, yellow, and blue wires from the wire harness that was previously secured to the bulkhead. Use wire ties from the fastener package to secure the wires to the legs of the motor mount. This is necessary to prevent the wires from becoming entangled in the power exhaust fan when it is running. Use wire nuts from the fastener package to connect the wires.

Turn on unit power briefly and energize the power exhaust motor to check the fan rotation, which should be

clockwise when viewed facing the fan. If the rotation is incorrect, reverse any 2 leads entering the motor to change the rotation.

⚠ CAUTION

Use extreme care when testing fan rotation.

Disconnect unit power after checking rotation.

Apply the 36-in. long seal strips to the side flanges of hood/damper/motor assembly. Apply the 33-in. long seal strips to the top and bottom flanges. (On 024 units, which have narrower hoods than 028 and 030 units, trim the excess seal strip as needed.) Make seal strips flush with the outer edges of the flanges. Use a punch to punch-out holes for the screws. When viewed facing the hood, the right side of the hood assembly has 2 side panels. The lower one is removable for access to the damper motor. Slit the side seal strip at the point where the 2 side panels meet to facilitate removal of the lower panel during servicing.

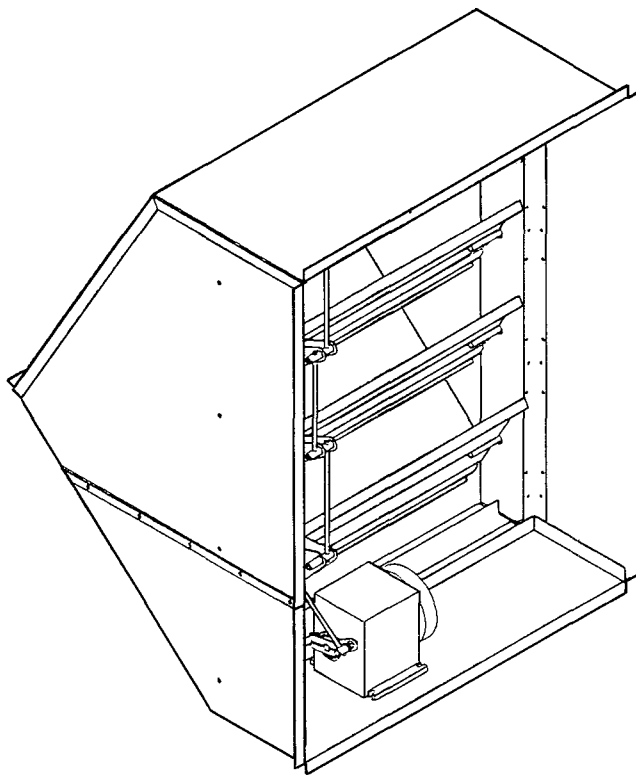


Fig. 3 — Hood/Damper/Motor Assembly

Reach in through the fan deck orifice and locate the plug secured to the partition which separates the return air from the outdoor air. Route this plug through the grommet in the hole in the lower part of the power exhaust fan deck. Hang the plug on the fan orifice while attaching the hood to the unit.

⚠ CAUTION

Hood assembly is heavy. At least 2 persons should handle.

Line up the top flange of the hood assembly with the 6 holes in the fan deck assembly (approximately 6-1/2 in. from the top). Using the 6 screws from the fastener package, secure the top flange of the hood assembly to the fan deck assembly. Re-install the 2 screws attaching the fan deck assembly to the unit base rail. (The holes in the

bottom flange of the hood assembly should line up with these holes.) Remove the 8 screws securing the lower side plate to the right side of the hood. This provides access to the power exhaust damper motor. Connect the plug from the damper motor to the plug previously pulled through the power exhaust fan deck assembly. Re-install the lower side plate using the 8 screws removed earlier.

Install the channel panel that was removed from between the discarded panel and the economizer (on Models 50DK, it was between the compressor access door frame and power exhaust hood; on Models 48DK, it was between the power exhaust hood and the adjacent panel).

Cut a 43-3/4-in. length from the 4-ft seal strip provided in the accessory package for placement on the channel clip that will go between the economizer and the power exhaust. Begin one inch from the top of the flange and center seal strip on the flange of the channel clip, covering holes, and begin applying seal strip. This one-inch dimension is critical: if seal strip is applied too high or too low, water leakage may result. Use a punch to punch-out holes in the seal strip for the screws. Attach the channel clip between the economizer and power exhaust hoods.

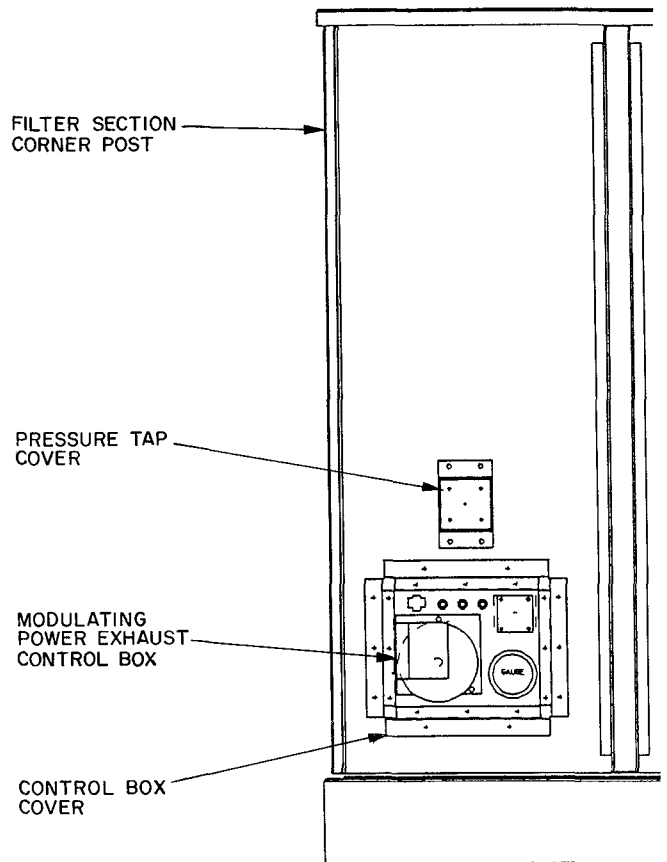


Fig. 4 — Installation Detail, Modulating Power Exhaust

The 3 holes in the left side flange of the hood assembly should line up with the corresponding holes in the power exhaust assembly and channel panel. The 3 holes in the right side flange of the hood assembly should line up with the holes in the power exhaust assembly and the holes in the channel clip.

Restore unit power and adjust differential pressure switch as described below. Then replace power exhaust control box cover securely, so water leaks do not occur.

The differential pressure switch controls the damper position. See Fig. 5. Remove the cover from the differential pressure switch. Adjust setpoint by turning the setpoint adjusting screw. Turning clockwise decreases the setpoint; turning counterclockwise increases the setpoint. The factory setting is 0.1-in. wg.

The switch also has an adjustable null span. The null span is the pressure change that can be made without the contacts opening or closing. The null span is adjustable from 0.06 to 0.14 in. wg when the setpoint is at the minimum position (-0.5 in. wg) and is 0.07 to 0.14 in. wg when the setpoint is at the maximum position (+0.5 in. wg). To adjust the null span, turn the null span adjusting screw clockwise to decrease the span, and counterclockwise to increase the span. The null span is factory set for the maximum position. The smaller the null span, the closer the pressure will be maintained to the desired setpoint. Be sure the null span is not set too low, or the power exhaust dampers will be unstable; they will hunt.

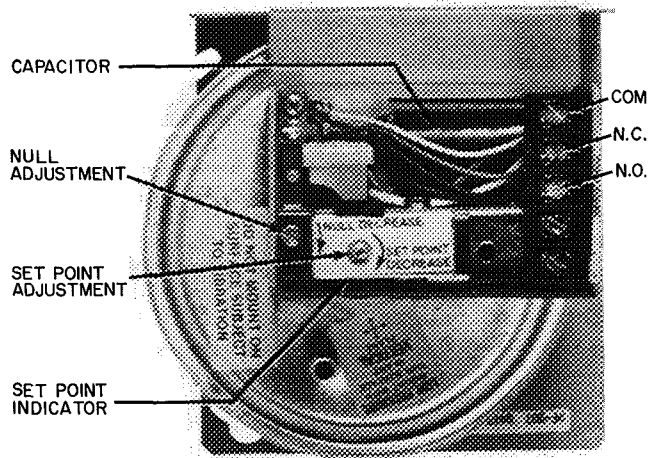


Fig. 5 — Differential Pressure Switch