

Installation Instructions

CRTWOPOS010A00, CRTWOPOS011A00, CRTWOPOS014A00

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GENERAL

These two-position outdoor air packages can be used in either a vertical or horizontal airflow configuration. The damper assembly travel can be adjusted to allow from 25% to 100% outdoor air for the applicable rooftop unit.

Refer to Tables 1-2 for contents and usage of the package.

Table 1 — Package Contents

QUANTITY	CONTENTS
2	Hood Side
1	Hood Top
1	Hood Divider
1	Aluminum Filter ^a
1	Bottom Panel
1	Damper Assembly
1	Hardware Bag

NOTE(S):

- a. CRTWOPOS014A00 has 2 filters, 1 filter divider, and 2 rain shield angles.

Table 2 — Package Usage

UNIT SIZE	UNIT FOOTPRINT SIZE	PART NUMBER
2 to 6 Tons (small cabinet)	46-3/4" x 74-3/8"	CRTWOPOS010A00
7-1/2 to 12-1/2 Tons (large cabinet)	58-1/2" x 88-1/8"	CRTWOPOS011A00
12-1/2 to 15 Tons (extra large cabinet)	63-3/8" x 115-7/8"	CRTWOPOS014A00

⚠ IMPORTANT

Read these instructions completely before attempting to install the accessory outdoor air damper.

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes, including ANSI (American National Standards Institute) Z223.1. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguisher available for all brazing operations.

It is important to recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

INSTALLATION

To install the outdoor damper, perform the following:

IMPORTANT: Follow all applicable local and national electrical codes when installing this accessory.

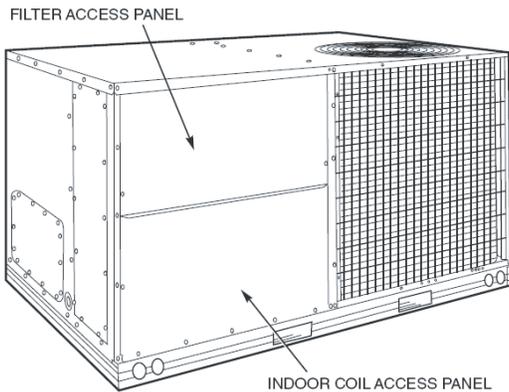
⚠ WARNING

ELECTRICAL OPERATION HAZARD

Failure to follow this warning could result in personal injury or death.

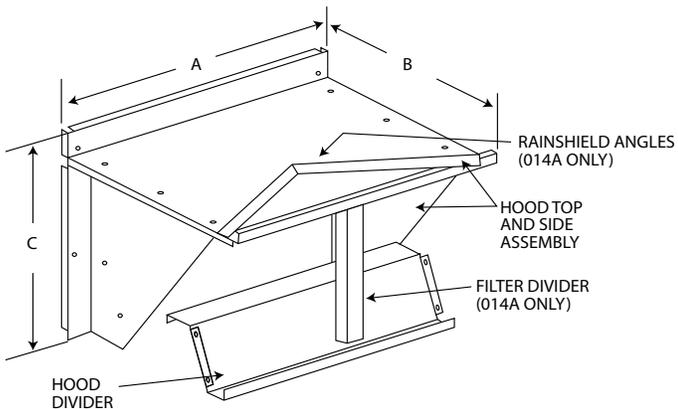
Disconnect power supply and install lockout tag before attempting to install accessory.

1. Turn off unit power supply and install lockout tag. For gas units, turn off the gas supply.
2. Remove filter access panel shown in Fig. 1 by raising panel and swinging panel outward. Panel is now disengaged from track and can be removed. No tools are required to remove filter access panel. Remove the outdoor-air opening/indoor coil access panel.



**Fig. 1 — Rooftop Unit Panels
(2-6 ton unit shown — small cabinet)**

3. Assemble outside-air hood top, sides, and divider as shown in Fig. 2. Do not install hood at this time.



DAMPER P/N	A	B	C
CRTWOPOS010A00	33.37"	17.43"	19.05"
CRTWOPOS011A00	40.37"	22.28"	24.48"
CRTWOPOS014A00	52.92"	30.35"	33.37"

Fig. 2 — Damper Hood Panels

NOTE: For the 014A00 kit (extra large cabinet), also assemble the filter divider and rain shield angles.

4. Install galvanized, insulated bottom panel per Fig. 3, with the slot at the top of the panel. The lip of the slot should fit behind the corner post as shown. Screw in place.

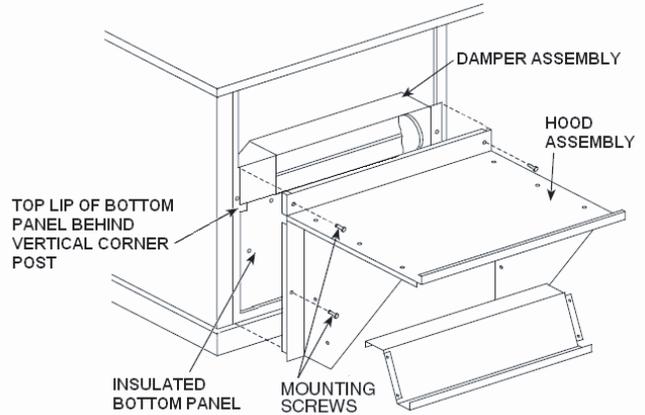


Fig. 3 — Damper and Hood Panel Installation

5. Lift damper assembly and set in place over the top of the bottom panel, per Fig. 3. Secure the damper assembly in place with provided screws.
6. Install the assembled outside-air hood onto the HVAC unit, covering the damper assembly. Screw in place.
7. Install the provided aluminum filter into the hood and lock in place with top filter clips as shown in Fig. 4.

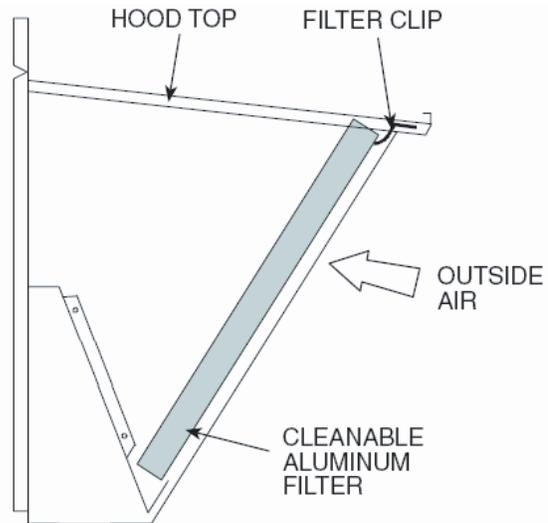


Fig. 4 — Filter Installation

8. Replace the top filter access panel.
9. Remove lockout tag and restore base unit to operation.
10. Determine quantity of ventilation air required for building. Record amount of air for use in Step 11.
11. Remove the Jumper Plug shipped attached to the Economizer Harness in the HVAC unit per Fig. 5. **DO NOT DISCARD.** Connect the plug from the Damper Actuator Assembly to the Economizer Plug in the HVAC unit. Set the Jumper Plug aside in case it is determined at a later date that the 2-Position Damper is no longer required, at which time the Jumper Plug can be re-installed.

To determine the minimum position setting, calculate the appropriate mixed air temperature using the following formula.

NOTE: At least 10°F temperature difference should be present between the Outdoor and Return Air Temperatures when performing this task.

$$(TO \times OA) + (TR \times RA) = TM$$

- TO** = Outdoor Air Temperature
- OA** = Desired Percent of Outdoor Air
- TR** = Return Air Temperature
- RA** = Desired Percent of Return Air
- TM** = Mixed Air Temperature

For example, if Local Codes require 10% outdoor air during occupied conditions, the outdoor air temperature is 60°F, and the return air temperature is 75°F, then the mixed air temperature as 73.5°F.

$$(60 \times 0.10) + (75 \times 0.90) = 73.5$$

Depending on the amount of time needed to make the adjustments, it may be necessary to recalculate the mixed air temperature as the indoor and outdoor temperatures change.

NOTE: Damper movement from full open to full close (or vice versa) is approx. 30 seconds.

12. To limit the maximum open position of the damper to the amount of desired Ventilation Air from Step 10, the Rotation Limiter may need to be relocated. The adjustment is made by removing the C-Clip holding the Limiter, which is on the backside of the Actuator, and repositioning the bracket. This may require the removal of the Actuator. Re-install the Limiter at the desired position, then reinstall the C-Clip seen in Fig. 6. This adjustment can be made through the RTU Horizontal Return Panel to access the Actuator.
13. Remove Lockout Tag and restore base unit to operation.

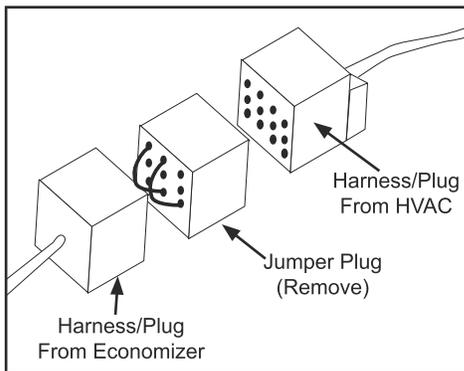


Fig. 5 — Harness/Plug from Two-Position Damper (PL6)

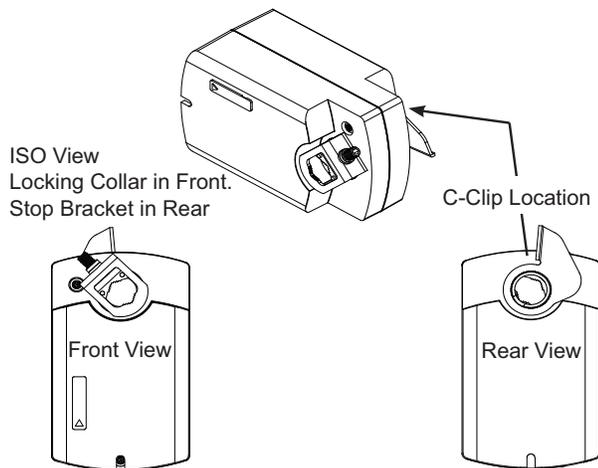


Fig. 6 — Multiple Views of Actuator

SEQUENCE OF OPERATION

Cooling

When the room thermostat calls for cooling, the cooling controls are energized as described in the base unit installation, start-up and service instructions. The indoor-fan motor is energized and the two-position damper moves to the set position. When the indoor-fan motor is de-energized, the two-position damper moves to the fully closed position.

Heating

When the room thermostat calls for heating, the heating controls are energized as described in the base unit installation, start-up and service instructions. The indoor-fan motor is energized and the two-position damper moves to the set position. When the indoor-fan motor is de-energized, the two-position damper moves to the fully closed position.

Ventilation (Continuous Fan)

The two-position damper remains at set position as long as the indoor fan is energized. When the indoor fan is cycled off, the two-position damper moves to the fully closed position.

Low Temperature Lockout (Optional)

If desired, a temperature lockout switch can be field installed to override the damper signal and keep it closed if the outside air temperature falls below a specified air temperature. The recommended method is to use an outside air lockout switch or thermostat to make/break the red wire on the damper actuator harness depicted in Fig. 7.

NOTE: In the event of a power failure or if the disconnect to the unit is shut off, the damper will close due to the internal spring in the actuator.

SERVICE

Once each heating or cooling season or as conditions require, perform the following:

1. Inspect the two-position damper blade to ensure it is clean and moves freely.
2. Visually verify that the damper opens upon a call for cooling or heating and shuts when the unit is cycled off.
3. Inspect the actuator limit screw on the damper actuator. Verify it is still in the desired position, and that it has not slipped. Adjust as required.

WIRING DIAGRAM

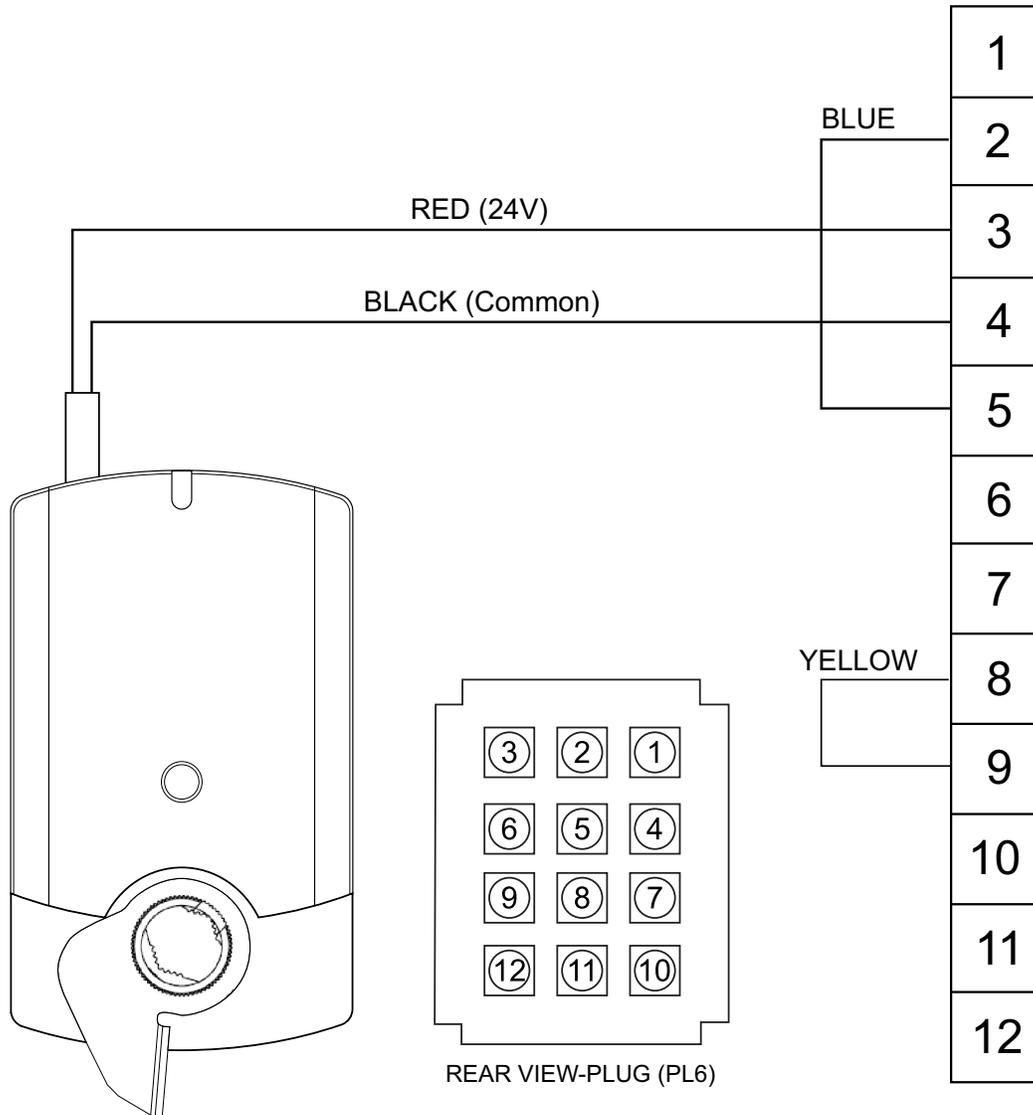


Fig. 7 – CRTWOPOS010A00, CRTWOPOS011A00, CRTWOPOS014A00 Wiring