
INSTALLATION INSTRUCTIONS

Commercial Room Ventilator with Exhaust

Model:
CRVS-1B

For Use with Bard 1 Ton
Wall Mount Air Conditioner



Climate Control Solutions

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Bryan, Ohio 43506
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COMMERCIAL ROOM VENTILATOR FEATURES

- One piece construction; easy to install with no mechanical linkage adjustment required.
- Exhaust air damper built in with positive closed position.
- Actuator motor – 24 volt, power open, spring return with built in torque limiting switch.
- Provides up to 50 percent of outside air.

GENERAL INFORMATION

The ventilator should only be installed by a trained heating and air conditioning technician. These instructions serve as a guide to the technician installing the ventilator package. They are not intended as a step-by-step procedure with which a mechanically inclined owner can install the package.

The ventilator housing is shipped in one carton which contains the electrical harness, miscellaneous hardware and installation instructions.

UNPACKING

Upon receipt of the equipment be sure to compare the model number found on the shipping label with the accessory identification information on the ordering and shipping document to verify that the correct accessory has been shipped.

Inspect the carton housing of each ventilator as it is received, and before signing the freight bill, verify that all items have been received and that there is no visible damage. Note any shortages or damage on all copies of the freight bill. The receiving party must contact the last carrier immediately, preferably in writing, requesting inspection by the carrier's agent. Concealed damage not discovered until after loading must be reported to the carrier within 15 days of its receipt.

DESCRIPTION

The CRVS-1B ventilator is designed to be used with a wall mount series air conditioner (see Table 1). It is an electromechanical vent system designed to provide fresh air to meet indoor air quality standards.

MODELS

When installed in the listed model, the CRV provides built in exhaust provisions. When the damper blade opens to bring fresh air in, the damper also opens an exhaust relief. The exhaust air will flow into the condenser section of the unit. The condenser fan will help draw exhaust air out.

TABLE 1

| Model ① | Wall-Mount Unit |
|----------------|------------------------|
| CRVS-1B | W12AB |

INSTALLATION

BASIC INSTALLATION



WARNING

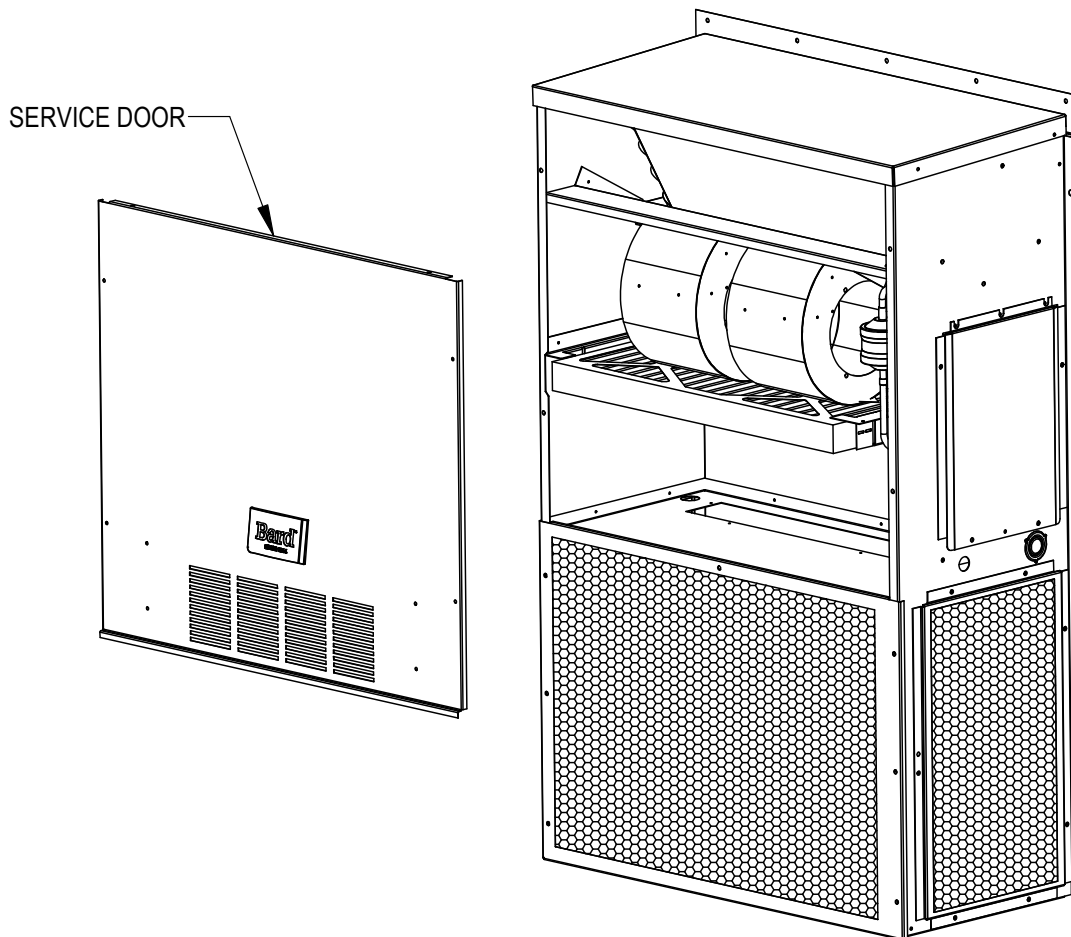
Open and lock unit disconnect switch before installing this accessory to prevent injury or death due to electrical shock or contact with moving parts. Turn thermostat to OFF.

Preparing Unit for CRV Installation

1. Disconnect power to unit.
2. Unpack the ventilator assembly which includes the integral ventilator with attached electrical harness, mixed air thermistor, miscellaneous hardware and installation instructions.
3. Remove and save the existing exterior service access panel on the Bard wall mount unit. (See Figure 1.)

NOTE: Removal of Barometric Fresh Air Damper (BFAD) may be required.

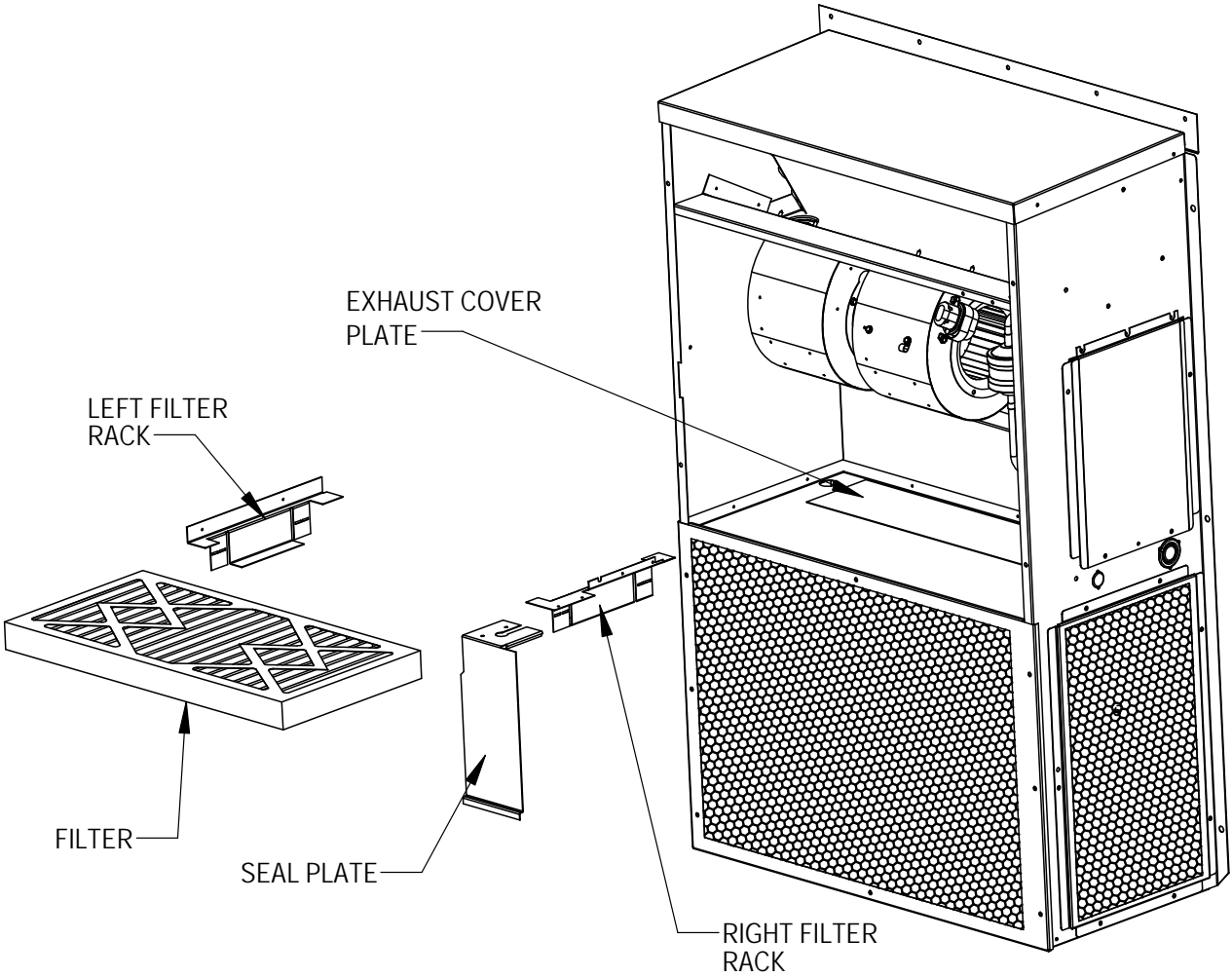
FIGURE 1
REMOVE SERVICE ACCESS PANEL



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- 4. Remove and save filter. Remove and save existing right and left side filter support bracket.
- 5. Remove and discard the exhaust cover plate. (See Figure 2.)

**FIGURE 2
REMOVE FILTER SUPPORT BRACKETS, FILTER AND EXHAUST COVER PLATE**



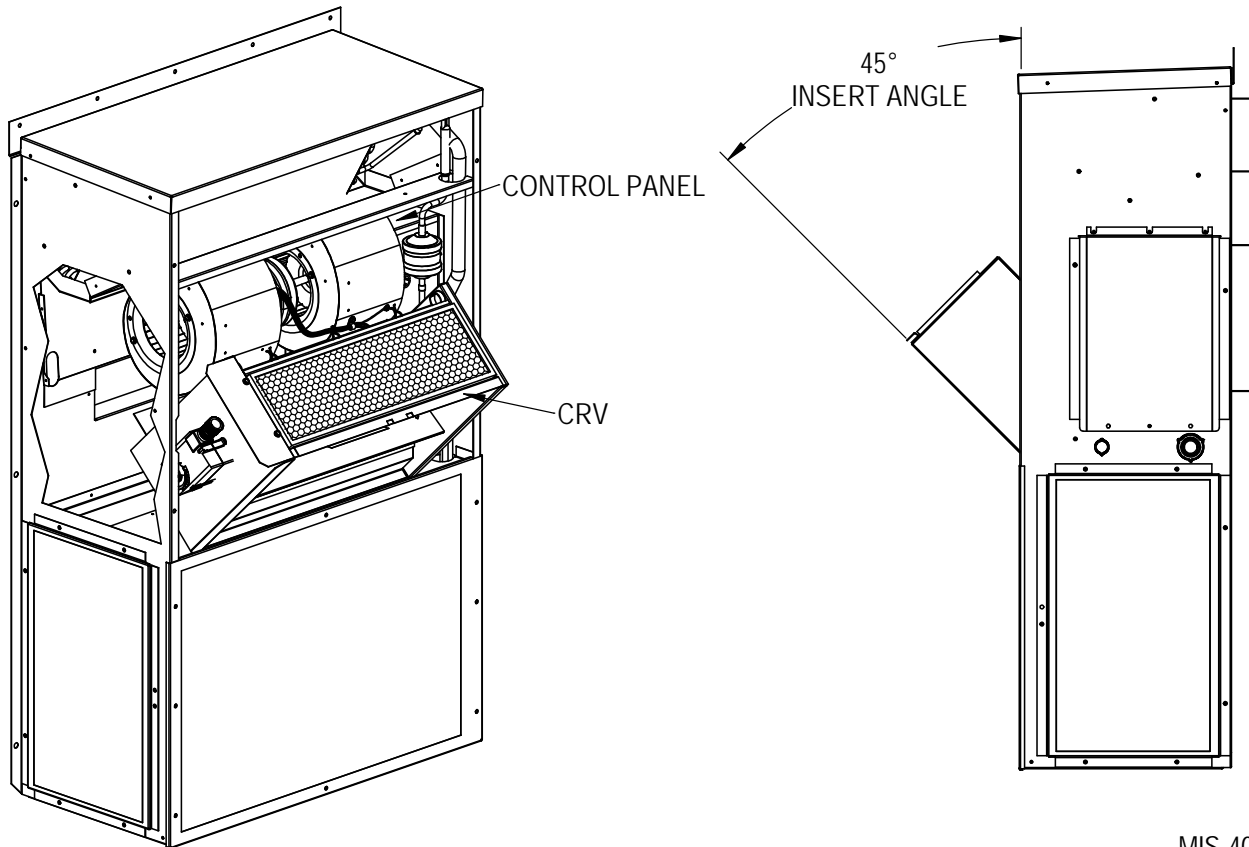
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CRV Installation

1. Insert CRV into opening in wall unit to the far left side. To clear blowers, position the ventilator at 45° angle under the blowers (see Figure 3). Fully seat the assembly to the rear of the wall unit cavity. Slide CRV to right and line up with return air opening in back of wall unit.

IMPORTANT: Position front lip of ventilator over the front grille. This is important to ensure proper drainage of any water entering damper assembly.

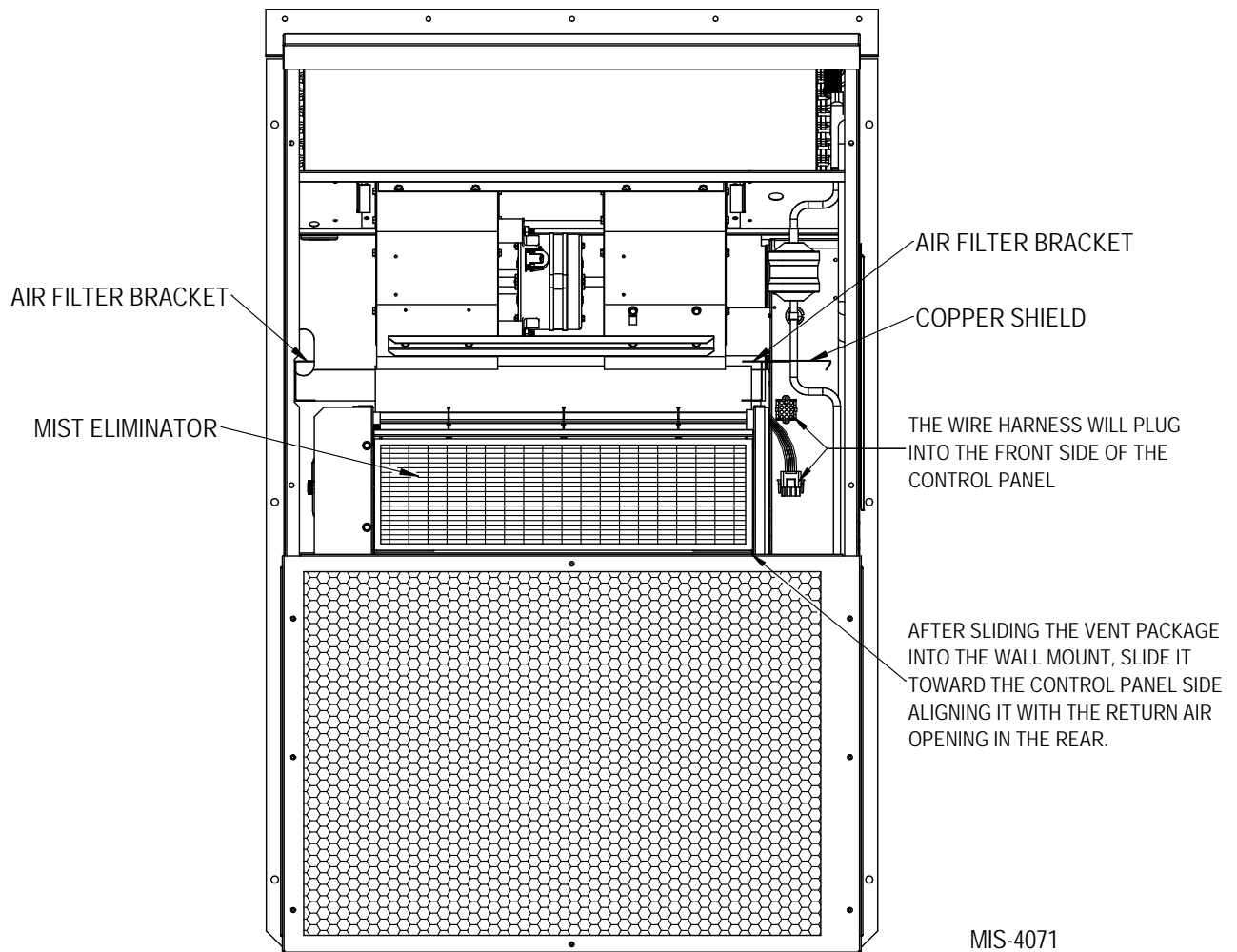
**FIGURE 3
INSTALLING VENTILATOR IN UNIT**



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2. Insert and lock in the 12-pin plug end of the wiring assembly into the side of the control panel.
3. Adjust damper blade for required ventilation airflow (see next section.)
4. Re-install the filter brackets, seal plate and filters. Airflow direction is up.
5. Replace mist eliminator. Be sure it is installed with the drain holes to the bottom
6. Make all the required thermostat connections per the applicable connection diagram.
7. Replace control panel and service access panel.

**FIGURE 4
CRV ASSEMBLY INSTALLATION**



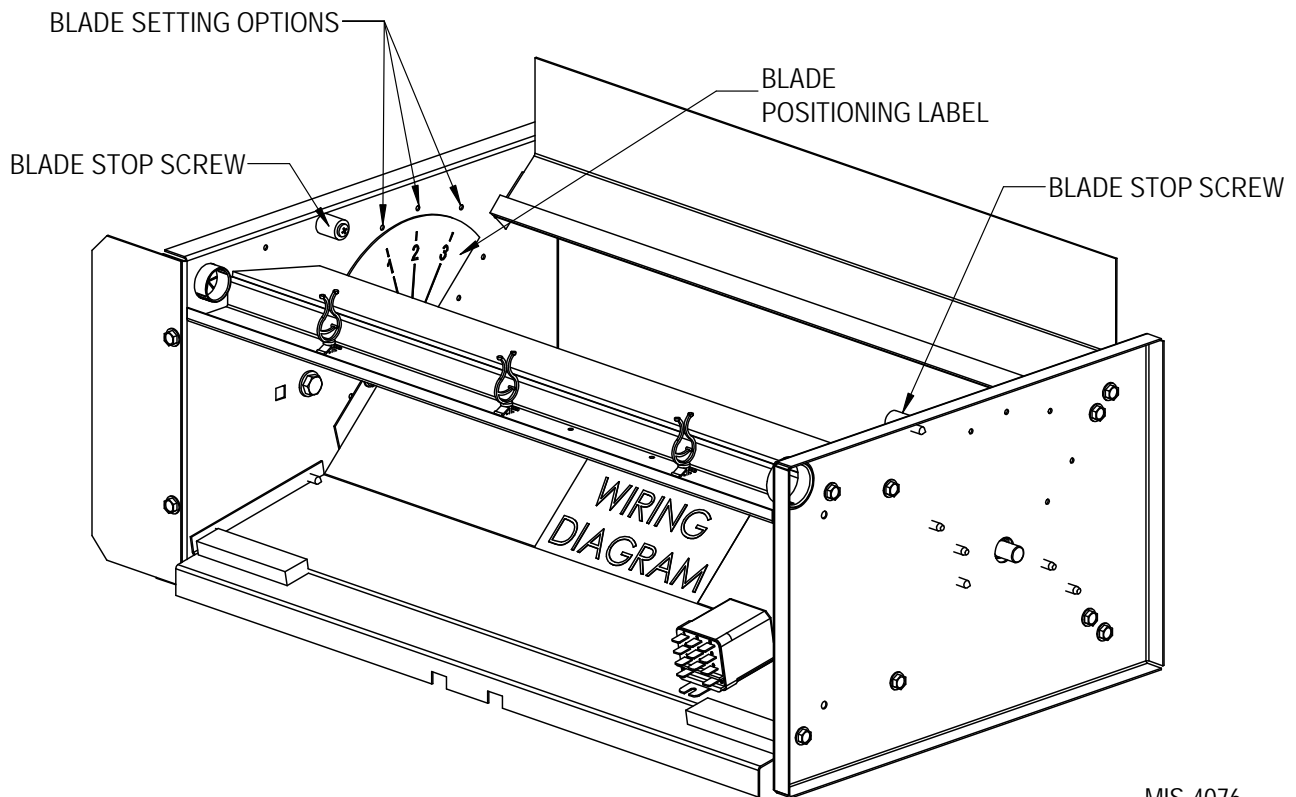
Blade Adjustment for Desired Ventilator Air

The amount of ventilation air supplied by the commercial room ventilator is dependent on four factors.

1. Return air duct static pressure drop.
2. Supply air duct static pressure drop.
3. Indoor blower motor speed.
4. Damper blade open position setting.

Refer to Chart 1 to determine the blade setting needed for required airflow. Adjust blade stop screws accordingly (see Figure 5).

**FIGURE 5
BLADE ADJUSTMENT FOR DESIRED VENTILATION AIR**

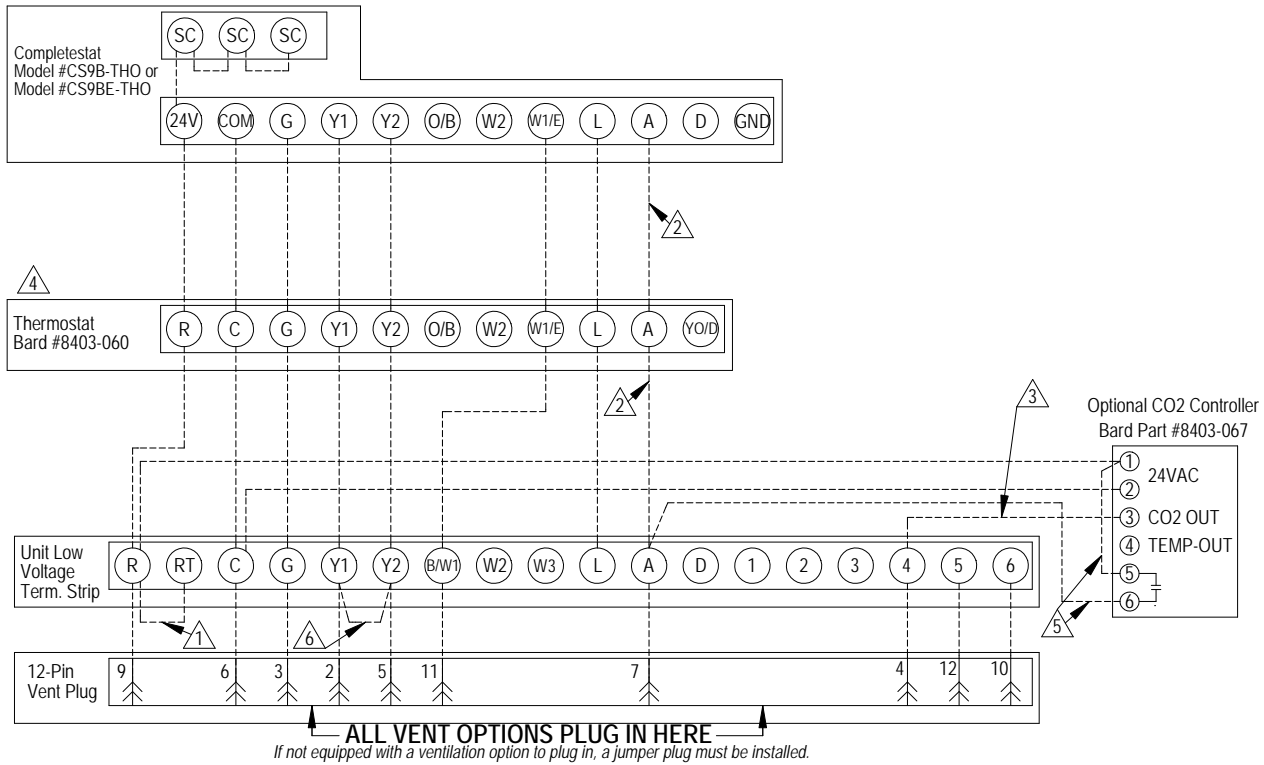


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**CHART 1
W12AB CRVS VENTILATION DELIVERY**



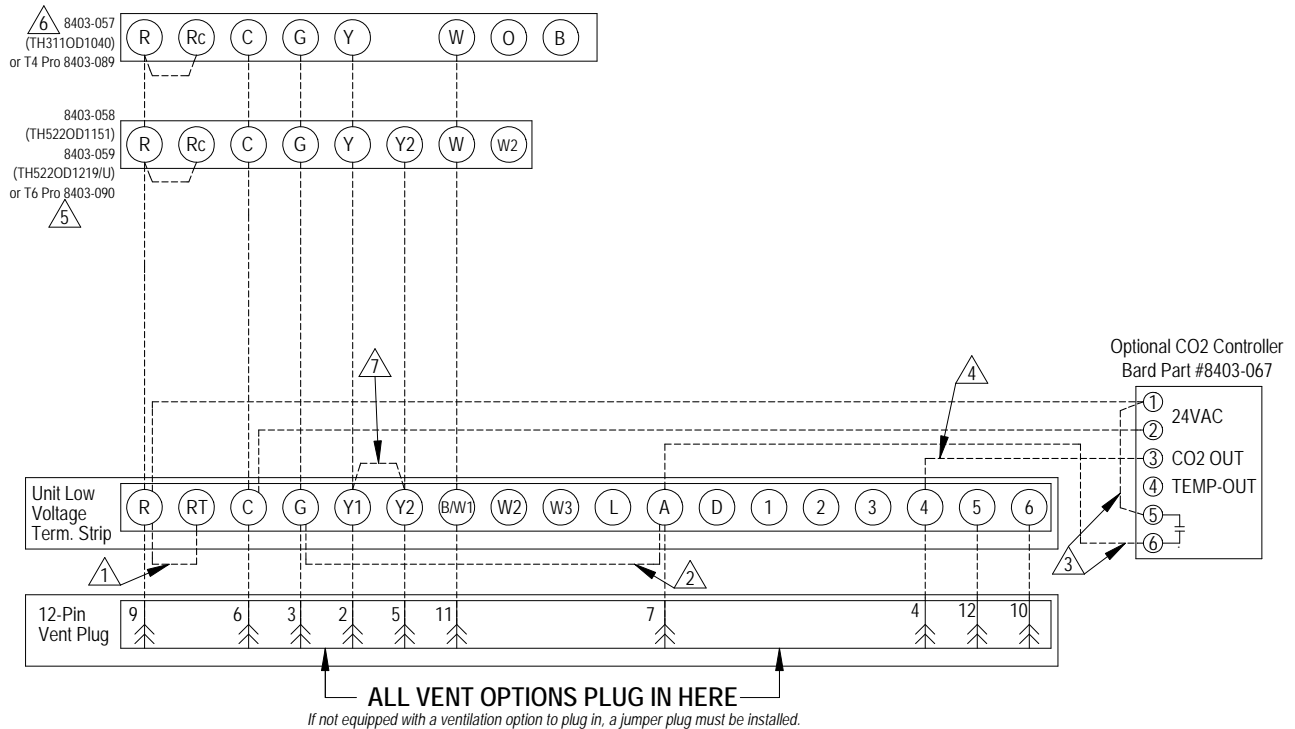
**FIGURE 6
LOW VOLTAGE WIRING
PROGRAMMABLE THERMOSTAT CONNECTIONS**



- ⚠ 1 Factory installed jumper. Remove jumper and connect to N.C fire alarm circuit if emergency shutdown required.
- ⚠ 2 Do not connect "A" from thermostat if optional CO2 controller is used
- ⚠ 3 0-10 VDC modulating CO2 control signal for modulating ventilation control (optional for ECON only - see vent instruction manuals)
- ⚠ 4 Change model configuration from heat pump to heat/cool. Must be configured to programmable and fan set to be programmed fan for the "A" output to function during scheduled occupied periods. Must be configured for multi-stage for Y1 output to be active 1st stage cooling.
- ⚠ 5 Do not add these wires if setting up for modulating control. See note 7.
- ⚠ 6 Factory installed jumper. Remove jumper to activate Balanced Climate™ mode. A 2-stage thermostat is recommended for Balanced Climate mode. (Jumper is removed in factory for units with economizers.)

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**FIGURE 7
LOW VOLTAGE WIRING
NONPROGRAMMABLE THERMOSTAT CONNECTIONS**



- ⚠ 1 Factory installed jumper. Remove jumper and connect to N.C fire alarm circuit if emergency shutdown required.
- ⚠ 2 For vent operation, add jumper if optional CO2 controller is not used. Vent will run while blower is energized.
- ⚠ 3 Do not add these wires if setting up for modulating control. See note 7.
- ⚠ 4 0-10 VDC Modulating CO2 control signal for modulating ventilation control (Optional for ECON Only) - See vent installation manual.
- ⚠ 5 For 8403-058, change "system type", set up Function 1, From 5 (2 Heat/ 1 Cool heat Pump) to 6 (2 Heat / 2 Cool Conventional). For 8403-059, No change required.
- ⚠ 6 Thermostat will not work with units equipped with economizers.
- ⚠ 7 Factory installed jumper. Remove jumper to activate Balanced Climate™ Mode. A 2-stage thermostat is recommended for Balanced Climate mode. (Jumper is removed in factory for units with economizers.)

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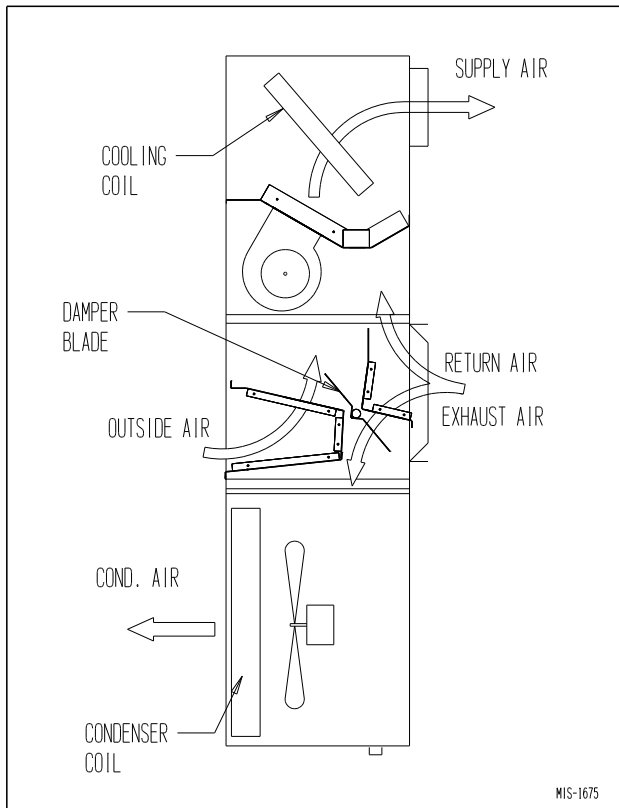
IMPORTANT NOTE

An additional wire change is required if jumper **2** is used which connects "A" to "G" (shown on Figure 7). The orange wire on the blower interlock relay (located on the vent control plate) needs to be moved from the "normally open" 4 terminal to the "normally closed" 1 terminal. **If this change is not made, the relay will latch on once the "A" signal is received and the blower will not turn off.** Refer to page 14 to see the vent wiring diagram with this change called out.

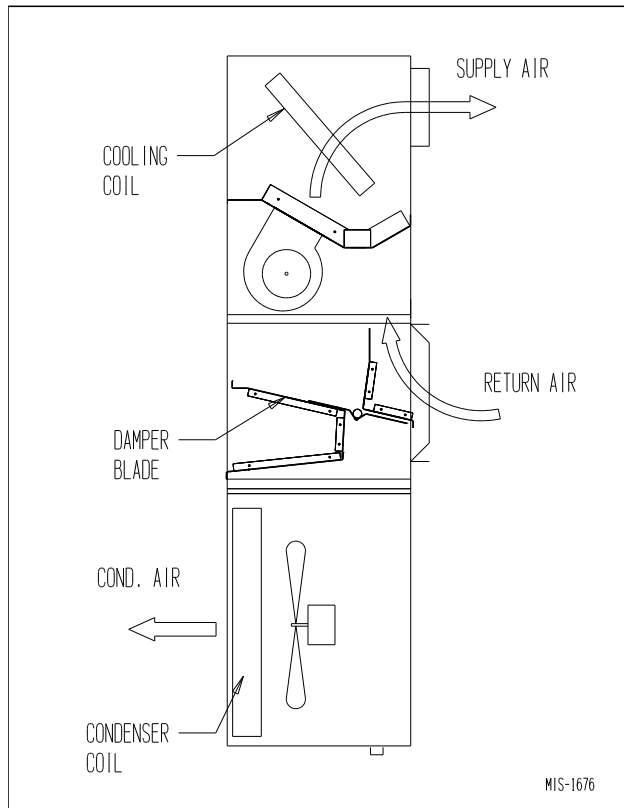
COMMERCIAL ROOM VENTILATOR SEQUENCE OF OPERATION

On a call for blower operation, CRV opens to position as set by minimum position potentiometer. See Figure 6.

**FIGURE 8
CALL FOR BLOWER OPERATION**



**FIGURE 9
CALL FOR COMPRESSOR OR FAN ONLY WITH
VENTILATION OFF**



On/Off ventilation options energize when the “A” low voltage strip terminal is energized signaling occupancy, and de-energize when “A” terminal is no longer receiving a 24VAC signal. The “G” low voltage strip terminal is used to operate the indoor blower for unit airflow.

The M On/Off CRV vent option is a damper blade operated by a 24VAC motor that when energized opens to a pre-adjusted setting. The airflow amount being brought in will be dependent on the blower speed during unit operation.

**TABLE 2
UNIT OPERATION WITH V OPTION (ON/OFF CRV)**

| Unit Operation | Occ. Signal | Low Voltage 24VAC | | | | | | | Fan Speed | Compressor Operation | Damper |
|----------------|-------------|-------------------|----|----|----|---|---|------------------|-----------|----------------------|--------|
| | | G | Y1 | Y2 | W1 | A | 1 | 2-3 ¹ | | | |
| Fan Only | Yes | X | | | | X | | X | Vent | Off | Open |
| Fan Only | No | X | | | | | | X | Vent | Off | Closed |
| BC Cooling | Yes | | X | | | X | X | | B Climate | On | Open |
| BC Cooling | No | | X | | | | X | | B Climate | On | Closed |
| Full Load Cool | Yes | | X | X | | X | X | X | Lo/Hi | On | Open |
| Full Load Cool | No | | X | X | | | X | X | Lo/Hi | On | Closed |
| 1st Stage Heat | Yes | | | | X | X | | X | Lo/Hi | Off | Open |
| 1st Stage Heat | No | | | | X | | | X | Lo/Hi | Off | Closed |

BC and B Climate – Balanced Climate

¹ Fan speed is selectable through the blower speed relay. LO (default) or HI speeds can be used.

FIGURE 10
CRVS-1B LEAD CONNECTORS

