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# OPERATION AND SERVICE INSTRUCTIONS

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## Q-TEC™ Commercial Room Ventilator with Spring Return and Exhaust

Models: QCRV-F3

For Use with Bard Q-TEC Heat Pumps Models:

Q24H4-A,-B,-C    Q30H4-A,-B,-C    Q36H4-A,-B,-C  
Q24H4DA,B,C    Q30H4DA,B,C    Q36H4DA,B,C



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## QCRV-F3 Features

- Exhaust air damper – built in with positive closed position. Provides exhaust air capability to prevent pressurization of tight buildings.
- Actuator motor – 24 volt, power open, spring return with built-in torque limiting switch.

## WARNING

***Electrical shock hazard.***  
***Disconnect remote electrical power supply or supplies before servicing.***  
***Failure to do so could result in electric shock or death.***

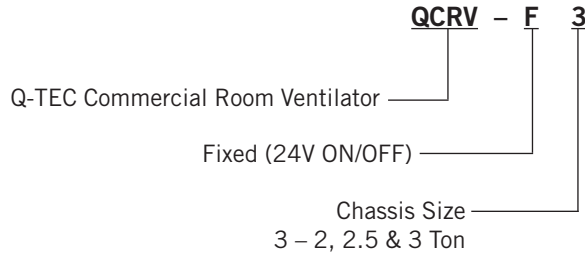
## WARNING

***Exposed moving parts.***  
***Disconnect all electrical power before servicing.***  
***Failure to do so can result in severe injury or amputation.***

## CAUTION

***Sharp metallic edges.***  
***Take care and wear appropriate protective devices to avoid accidental contact with sharp edges.***  
***Failure to do so can result in personal injury.***

## Q-TEC Commercial Room Ventilator Model Nomenclature



### Description

Commercial room ventilator QCRV-F3 is designed to be used with specific heat pump models as designated on the front page of this manual.

The QCRV-F3 ventilator is an electromechanical vent system designed to provide fresh air to meet indoor air quality standards.

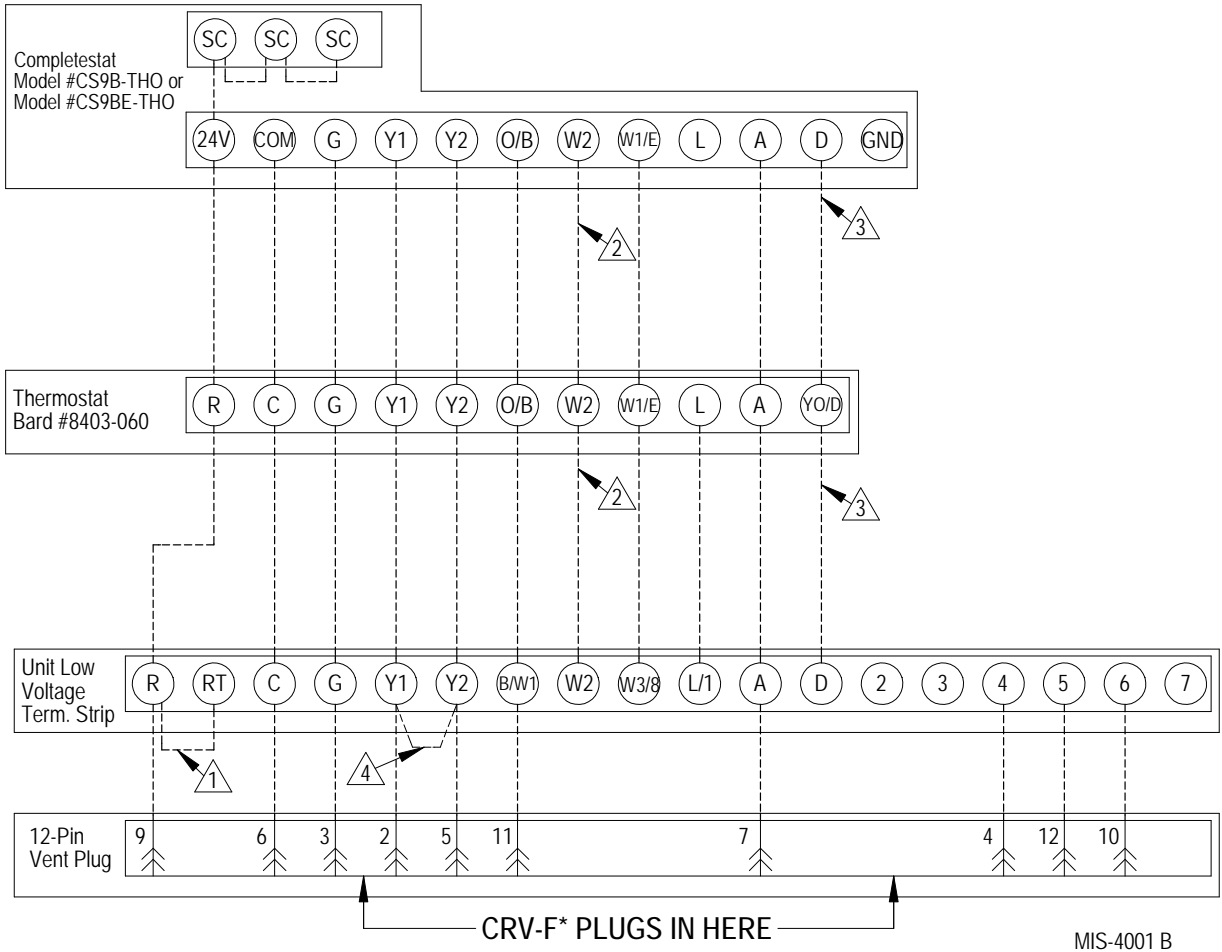
Commercial room ventilator QCRV-F3 is an internally mounted damper with exhaust designed to provide up to 50% fresh air. The damper blade is powered by a 24 VAC motor with spring return on power loss. The damper is powered open anytime A is energized. Blade stop screws are located under the fresh air blade and will provide 10 different airflow settings.

When installed in the models listed on the front page, the QCRV-F3 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 when it is operating with compressor in cooling or heat pump mode.

### Application

The amount of outside fresh air brought into the structure is dependent on the supply and return duct static pressure present in the duct system. Refer to Graphs 1-3 on pages 7-8 for ventilation air that will be supplied at different blade settings and duct static pressures. For duct-free applications with return air filter grilles and supply grilles, use 0.00 supply air static pressure.

**FIGURE 1**  
**Programmable Thermostat Connections for QCRV-F3 with Heat Pumps**



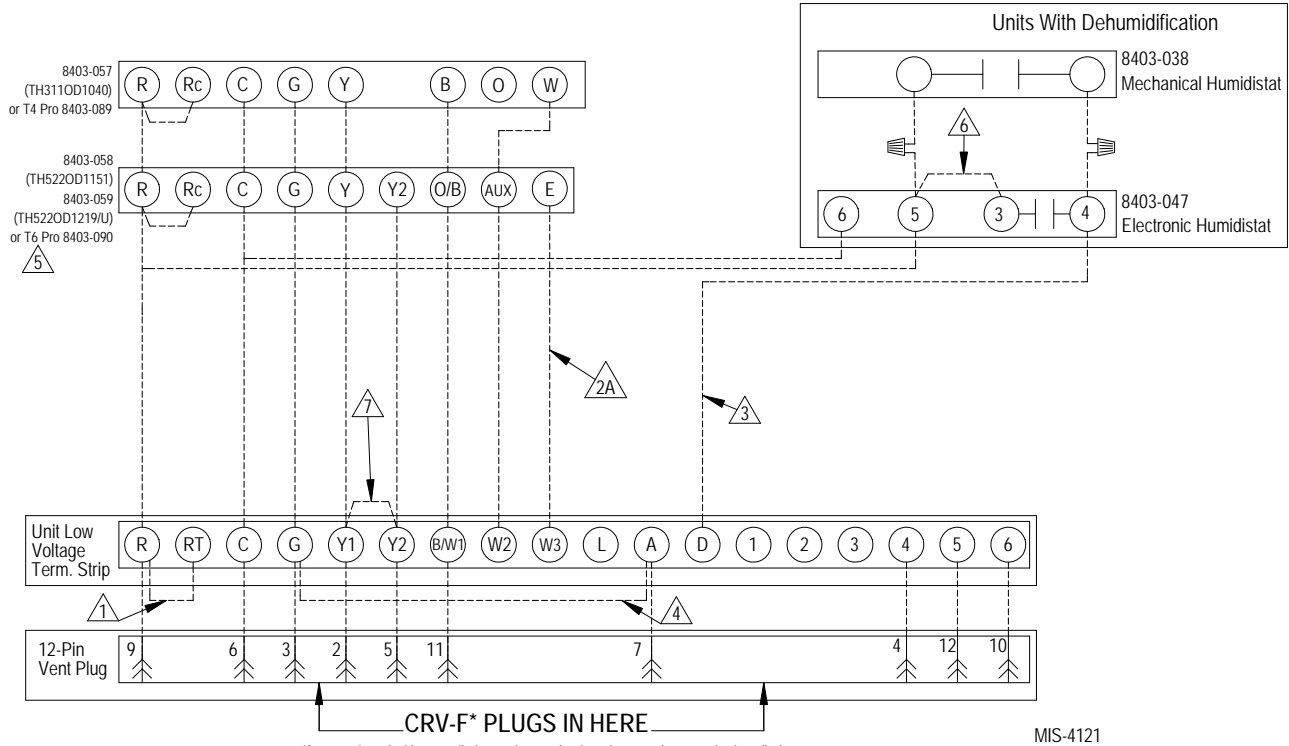
1 Factory installed jumper. Remove jumper and connect to N.C fire alarm circuit if emergency shutdown required.

2 Not needed below 15KW.

3 Additional wire required for dehumidification models.

4 Factory installed jumper. Remove to activate Balanced Climeate™ mode. A 2 stage thermostat is recommended for Balanced Climate mode.

**FIGURE 2**  
**Non-Programmable Thermostat Connections for QCRV-F3 with Heat Pumps**



**CRV-F\* PLUGS IN HERE**

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*If not equipped with a ventilation option to plug in, a jumper plug must be installed.*

- ⚠ 1 Factory installed jumper. Remove jumper and connect to N.C fire alarm circuit if emergency shutdown required.
- ⚠ 2 Wire not needed below 15KW.
- ⚠ 3 Wire required for dehumidification models only.
- ⚠ 4 Add jumper for vent to operate when blower is energized.
- ⚠ 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 Jumper needs added.
- ⚠ 7 Factory installed jumper. Remove jumper to activate Balanced Climate™ Mode. A 2-stage thermostat is recommended for Balanced Climate mode.

## Blade Adjustment for Desired Ventilation Air

The amount of ventilation air supplied by the commercial room ventilator is dependant 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 the appropriate graph on the following pages to determine the blade setting needed for required airflow. Adjust blade stop screws accordingly (see Figure 3).

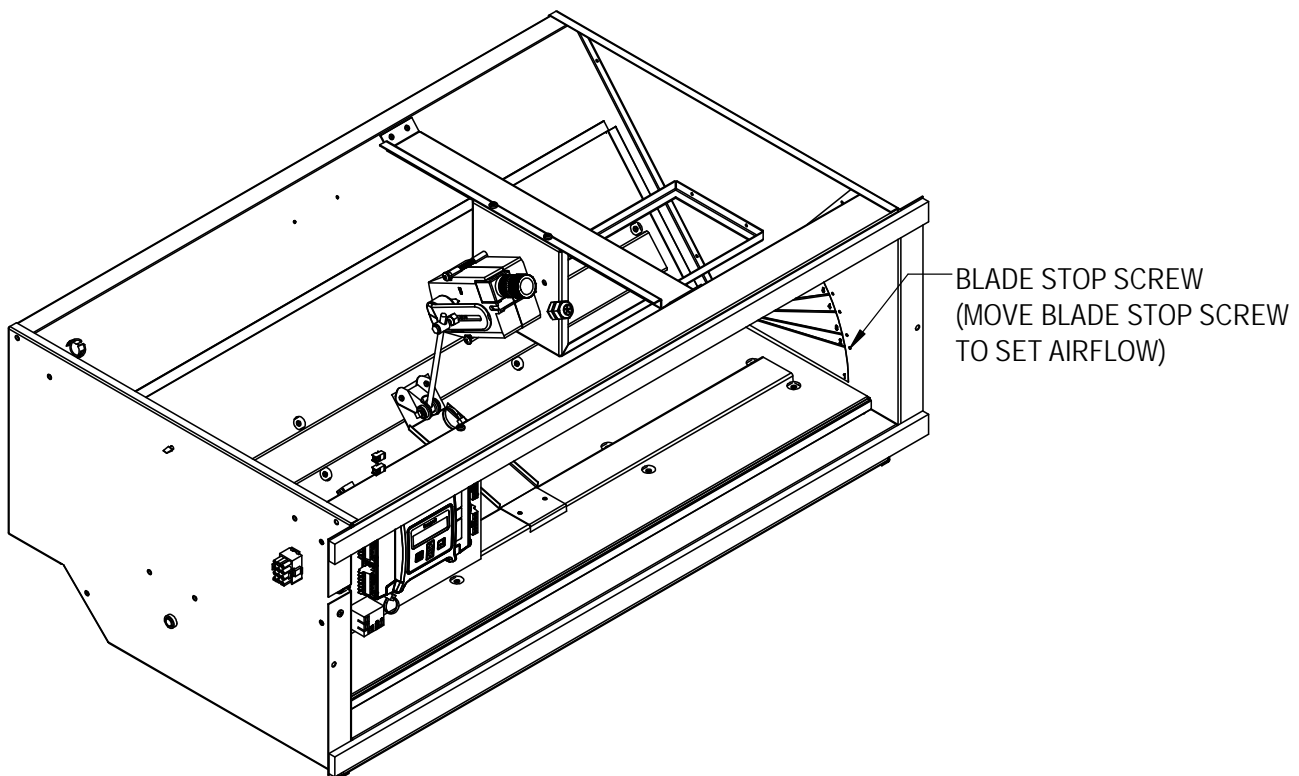
**NOTE:** Blade setting shipped from factory in #2 position.  
This will provide 100-150 CFM fresh air.

## Balanced Climate™ Mode

Balanced Climate mode can be used for duct free and ducted applications below 0.2" W.C. ESP total static.

If Balanced Climate mode is enabled, blade stop screw positions will need to be adjusted to allow approximately 28% more outdoor air to maintain minimum ventilation requirements.

**FIGURE 3**  
**Blade Adjustment for Desired Ventilation Air**



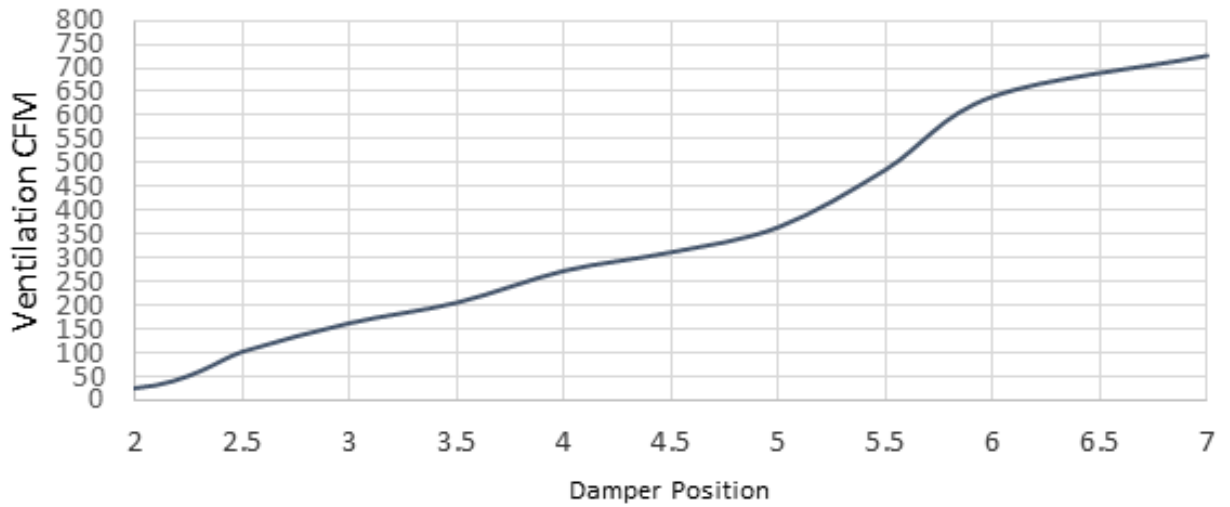
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**GRAPH 1**  
Q24H4 CRV Ventilation Delivery



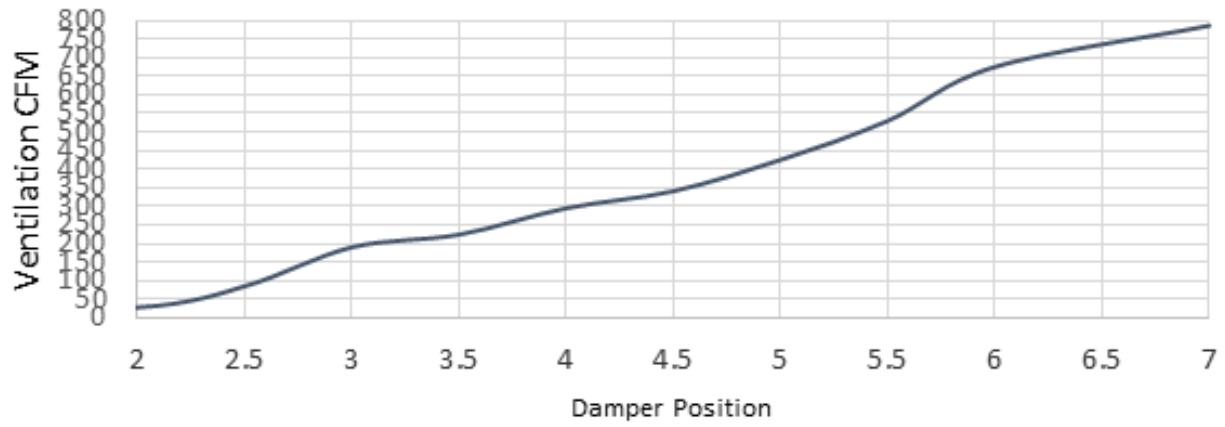
Constant CFM .10 Through .5 Static

**GRAPH 2**  
Q30H4 CRV Ventilation Delivery



Constant CFM 1.0 Through .5 Static

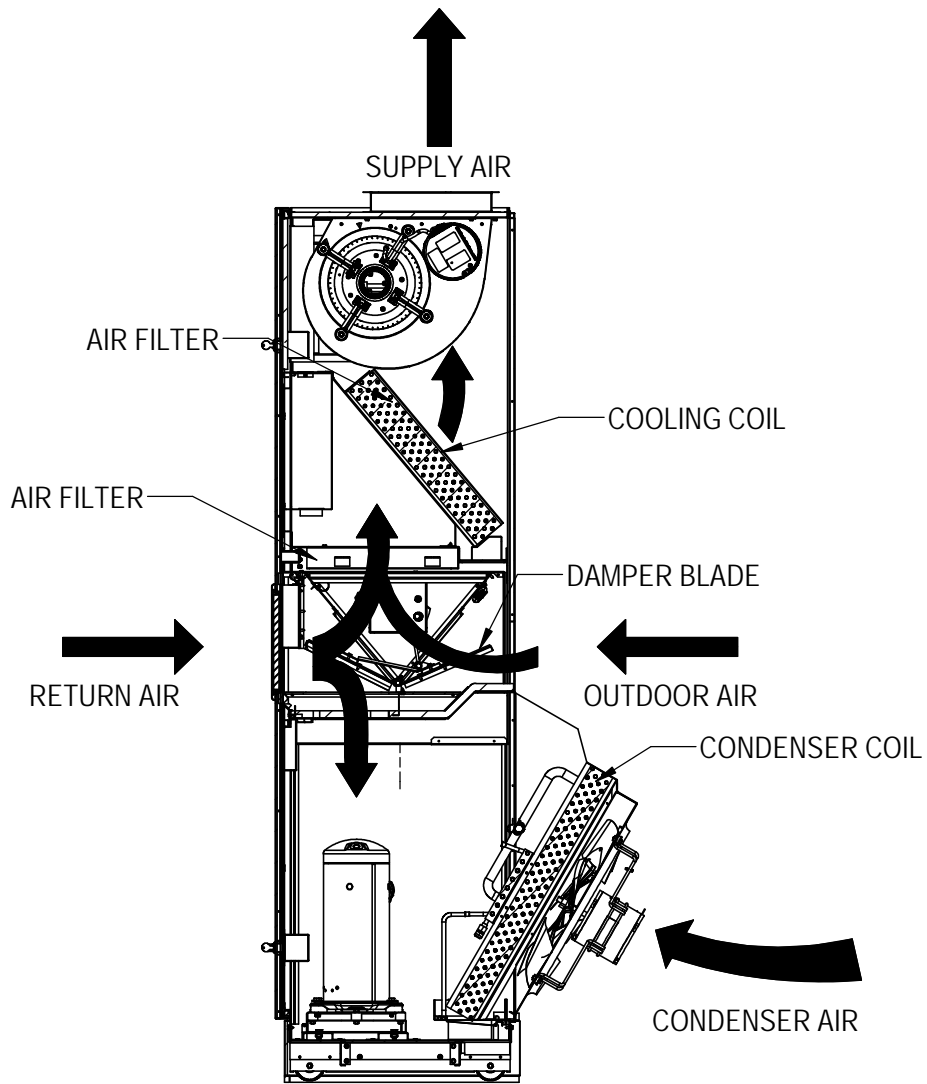
GRAPH 3  
Q36H4 CRV Ventilation Delivery



Constant CFM .10 Through .5 Static

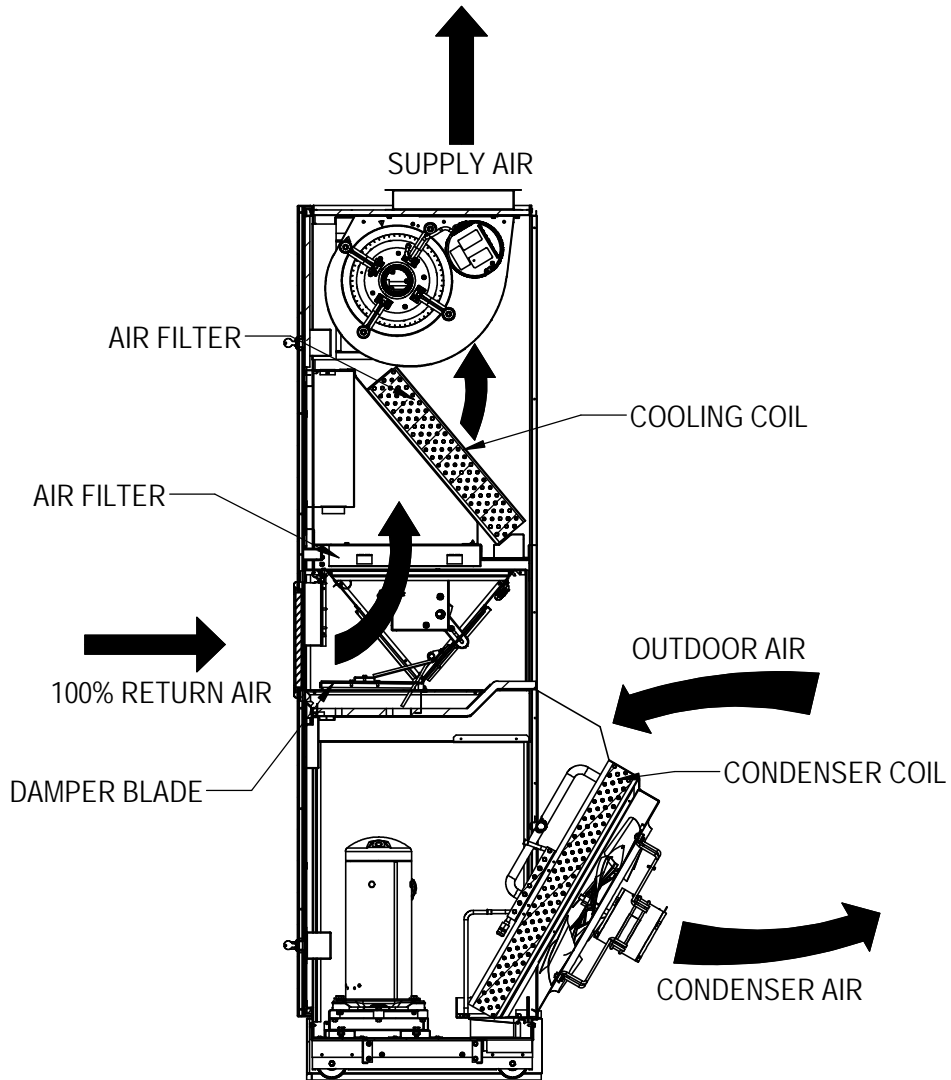


**FIGURE 4**  
**Call for Ventilation With or Without Compressor Operation**



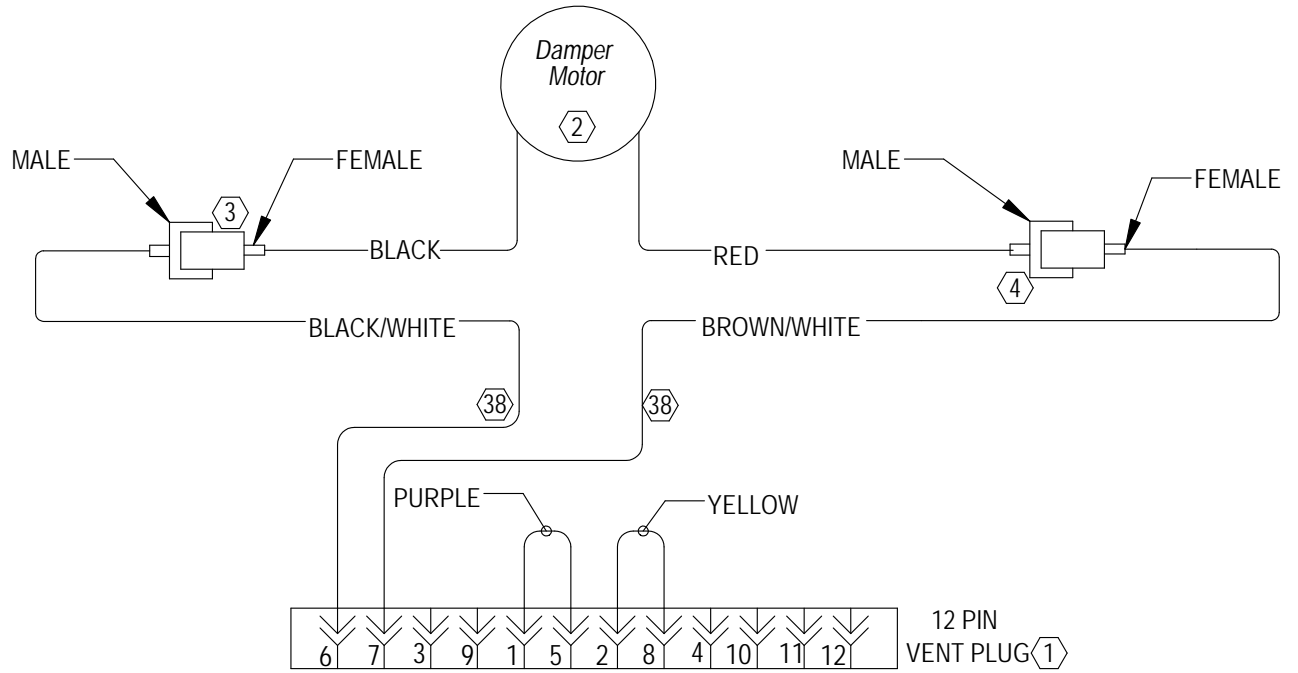
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**FIGURE 5**  
**Call for Compressor or Fan Only with Ventilation Off**



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**FIGURE 6**  
**Wiring Diagram**



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