
INSTALLATION INSTRUCTIONS

Partial Flow Commercial Room Ventilator 24 Volt On/Off with Spring Return and Exhaust

Models:
CRV-F2 CRV-F3

For Use with Bard Wall Mount
Air Conditioner and Heat Pump Models:

CRV-F2: W18A/LY, W24A/LY, W18HY, W24HY
CRV-F3: W30A/LY, W36A/LY, W30HY, W36HY



Climate Control Solutions

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Bryan, Ohio 43506
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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.**

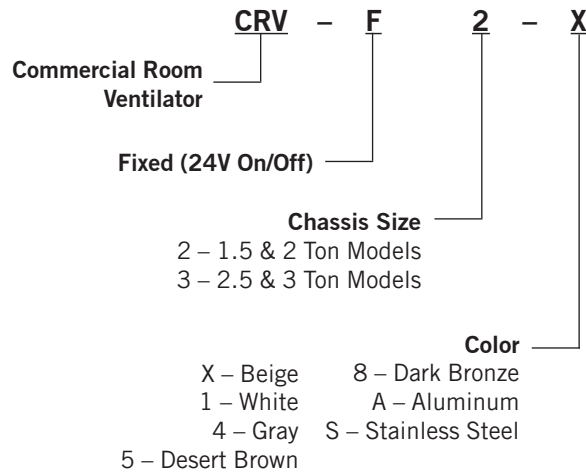
CAUTION

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.**

CRV Features

- One piece construction – easy to install.
- 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.

Commercial Room Ventilator Model Nomenclature



General

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 the 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.

Factory-Supplied Components

- Vent assembly
- Condenser cover plate
- Filter bracket fill plate

- Vent option door assembly
- Mist filter
- Screen media
- Parts bag with 5/16" hex head screws

Field-Supplied Tools Needed

- Appropriate personal protection equipment, including gloves and safety glasses
- 5/16" nut driver
- Phillips head screwdriver
- Small flat head screwdriver for securing wire in terminal blocks
- Electrical tools
- Multimeter

Description

Commercial room ventilators CRV-F2 and CRV-F3 are designed to be used with the specific models with "letter" revision codes as designated on the front page of this installation instructions manual.

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

Commercial room ventilators CRV-F2 and CRV-F3 are internally mounted dampers 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 CRV-F 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 1-4 on pages 14 – 15 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.

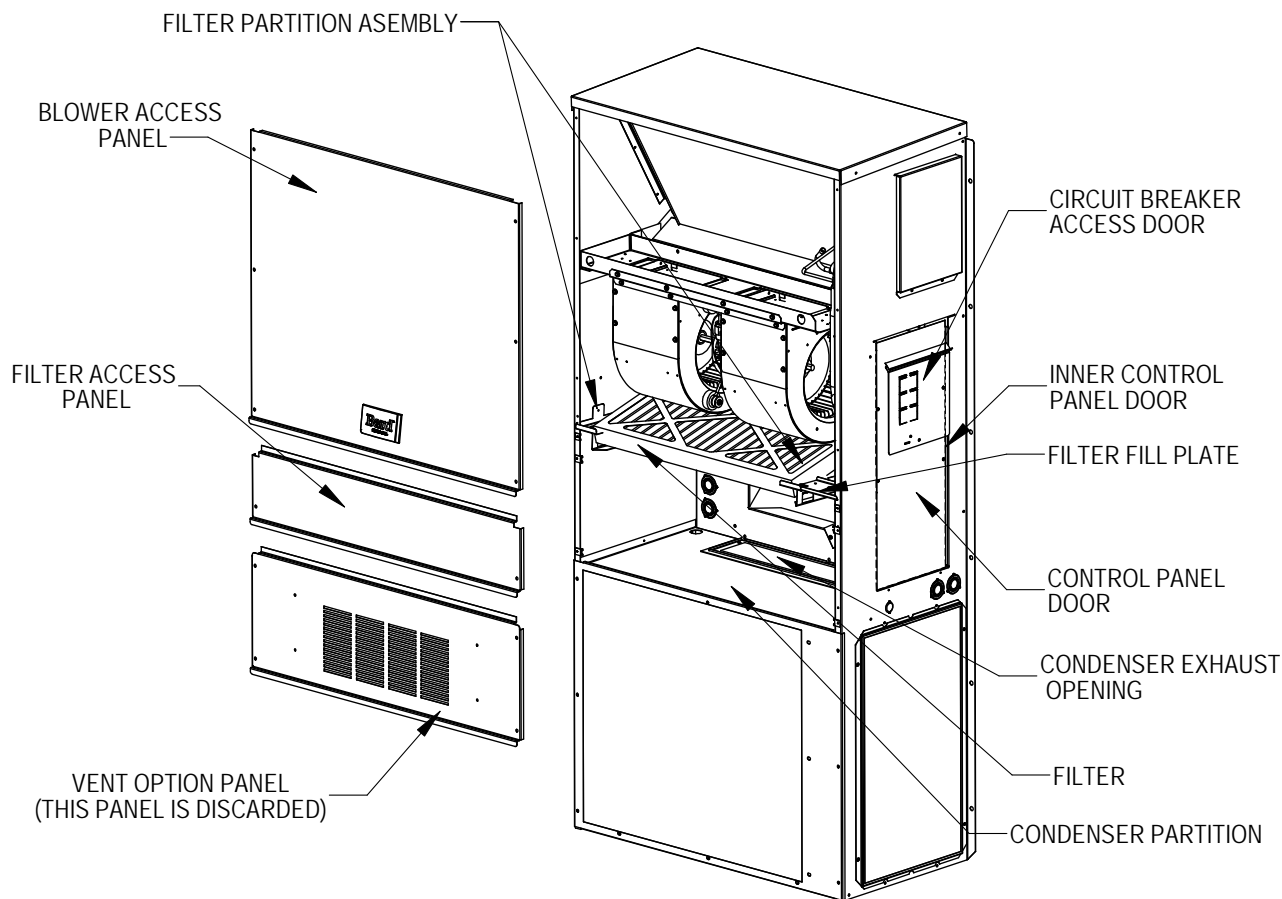
INSTALLATION OF FIELD-INSTALLED CRV-F*

Basic Installation

Preparing Unit for CRV-F Installation

1. Disconnect power to unit.
2. Unpack the CRV-F assembly, which includes the integral controls and electrical harness, body panels, miscellaneous hardware and installation instructions.
3. From existing wall mount unit, remove and save (or discard) as directed (see Figure 1):
 - Blower access panel (save)
 - Vent option panel (discard)
 - Filter access panel (save)
 - Filter (save)
 - Outer and inner control panel doors (save)
 - Exhaust cover plate (discard)
4. Install new condenser exhaust plate with screen over opening into condenser section (see Figure 2).
5. The unit includes a filter partition and tray assembly installed below the blower. The ventilator can be installed without moving this assembly, but it may be beneficial to loosen the front two (2) mounting screws of the filter partition assembly. The assembly can then be lifted up slightly to allow more room for installation of the unit ventilator.
6. Install the return fill plate using three (3) screws as shown in Figure 3 on page 6.

FIGURE 1
Wall-Mount Unit Access Panels



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FIGURE 2
Condenser Exhaust Plate with Screen

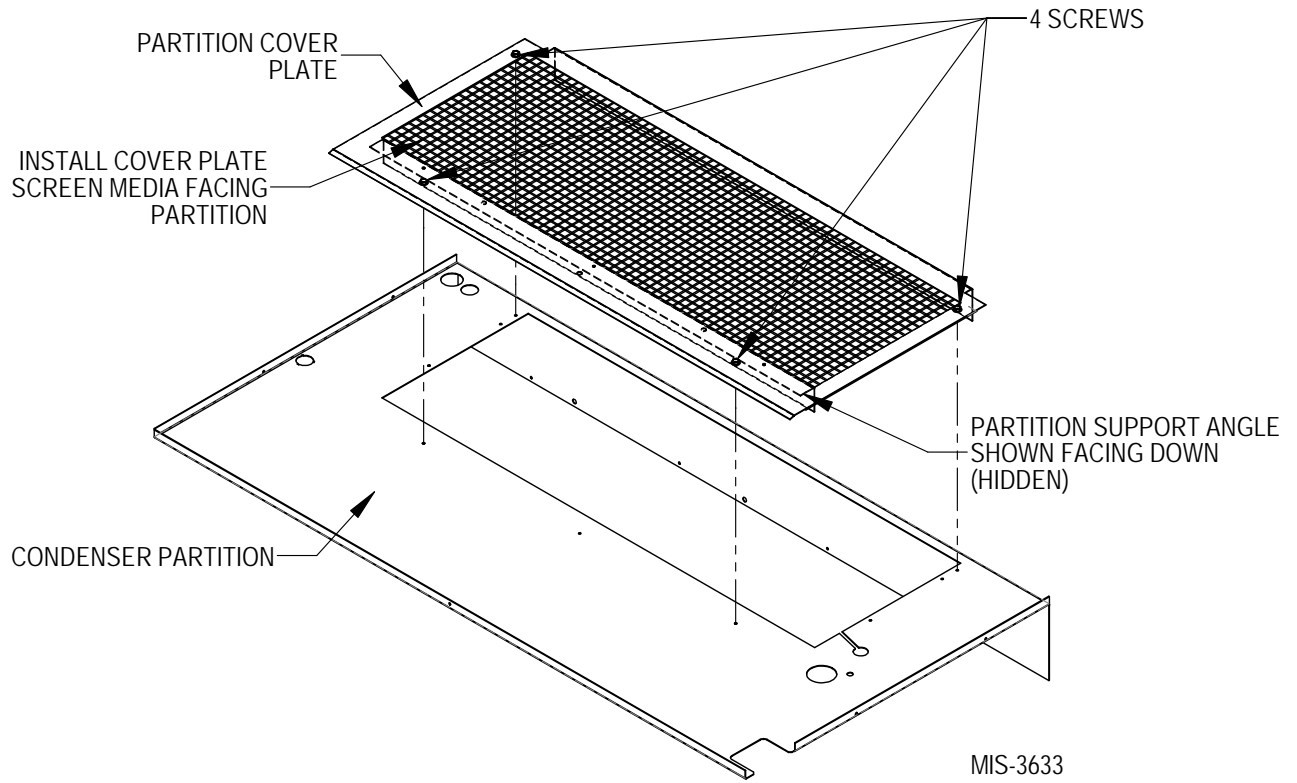
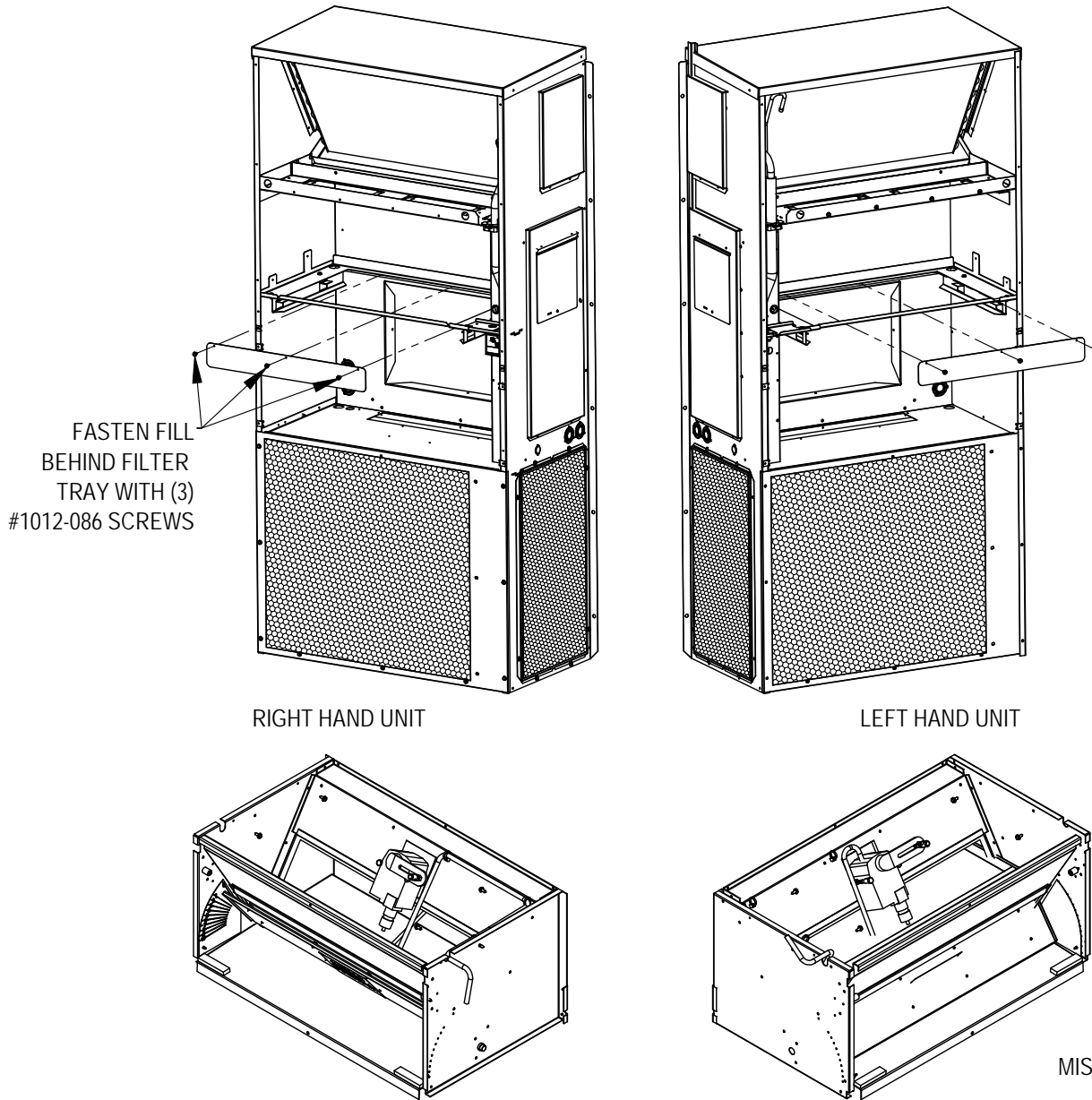


FIGURE 3
CRV and Return Fill Installation with Filter Partition and Tray Assembly

NOTE: The return fill plate will need to be installed before the CRV assembly (see below).

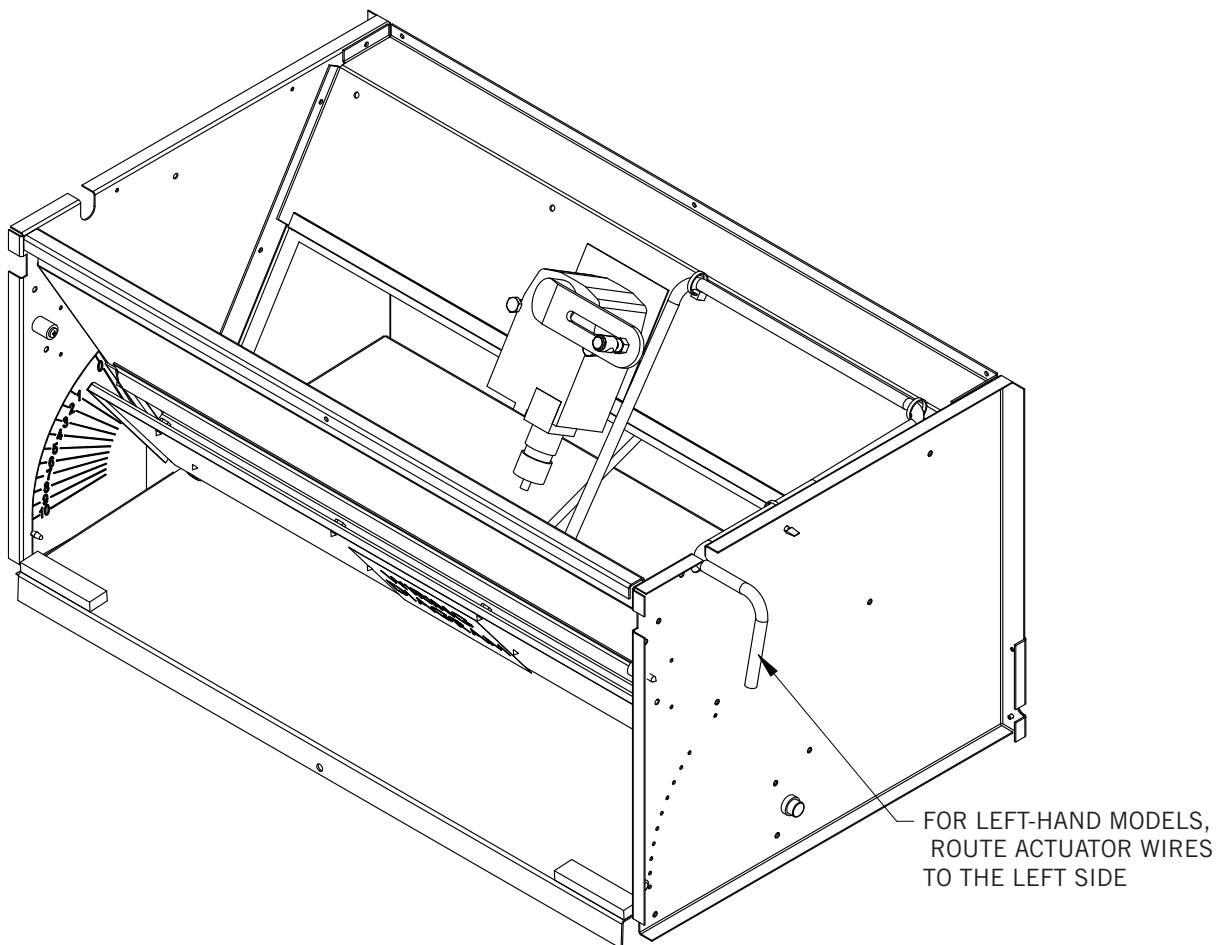


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Commercial Room Ventilator (CRV) No Hood Installation

1. Insert CRV into opening in the wall mount unit between the filter rack and the condenser section, being careful not to tear the unit insulation. Fully seat CRV assembly to rear of the cavity. Slide the CRV toward the control panel so that it lines up with the return air opening in the rear of the wall mount unit (see Figure 5 on page 8).
2. Insert and lock in the 12-pin plug end of the wire assembly into the front side of the unit's control panel (see Figure 5).
3. Re-install and tighten front filter tray mounting screws (if loosened in Step 5 on page 4).
4. Replace the air filter if it was removed (airflow direction is up).
5. Put mist eliminator filter into place (as shown in Figure 6 on page 8), then install the unit filter door.
6. Make all the required thermostat connections per the applicable connection diagram found on pages 9 or 10, and restore power to the unit.
7. Replace the vent option panel with the door that is provided in the CRV kit. Attach using the four (4) provided screws as shown in Figure 6.

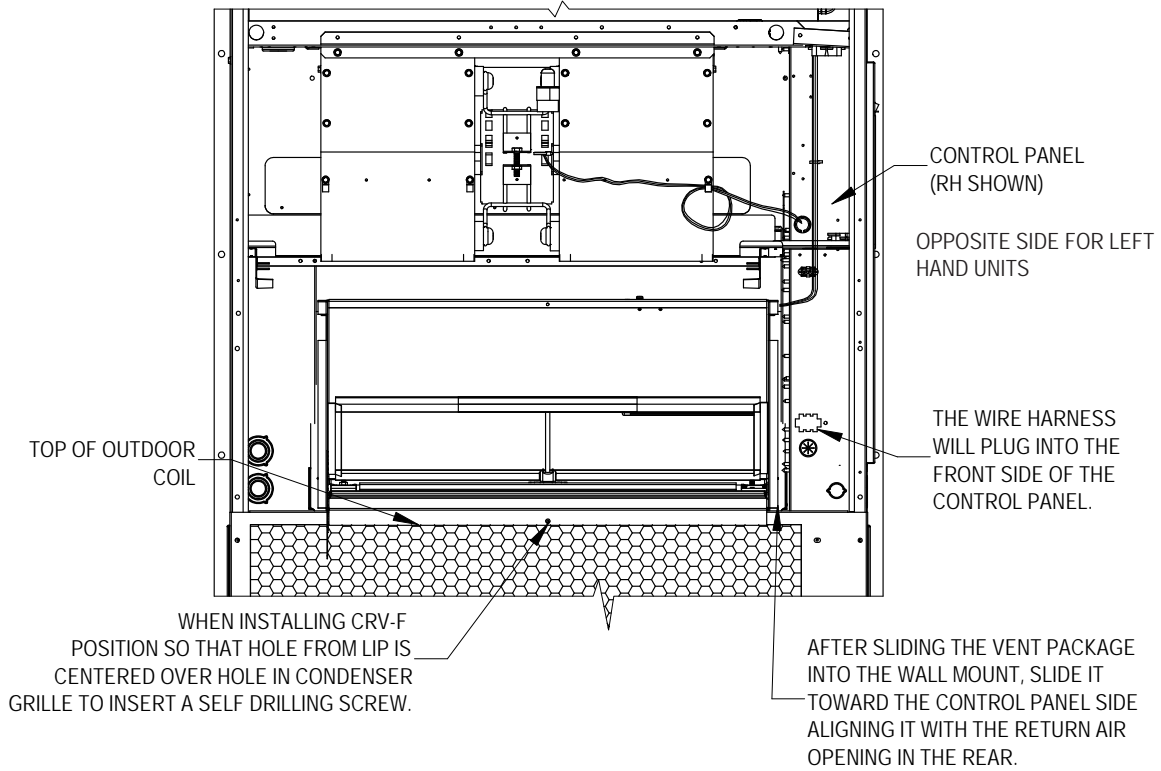
FIGURE 4
Extension Cable Installation



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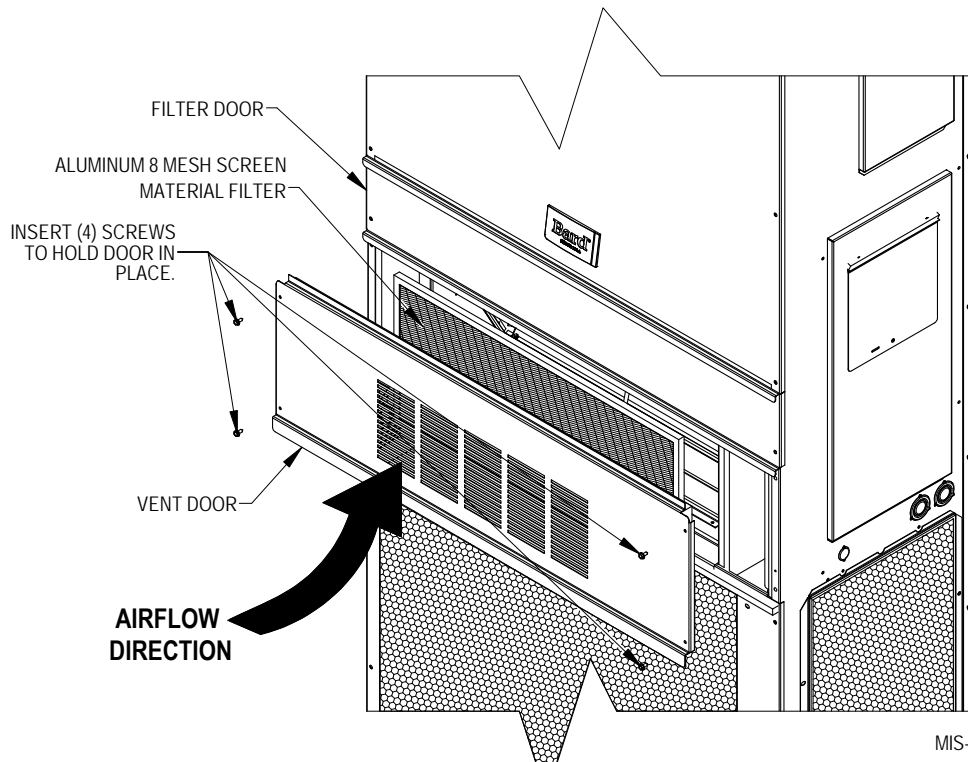
NOTE: Incorporated with the CRV-F is one piece of 20" split tubing. The tubing will cover the wire assembly routed to the actuator. The tubing and wires will be routed under the actuator assembly.

FIGURE 5
Damper Assembly Installation



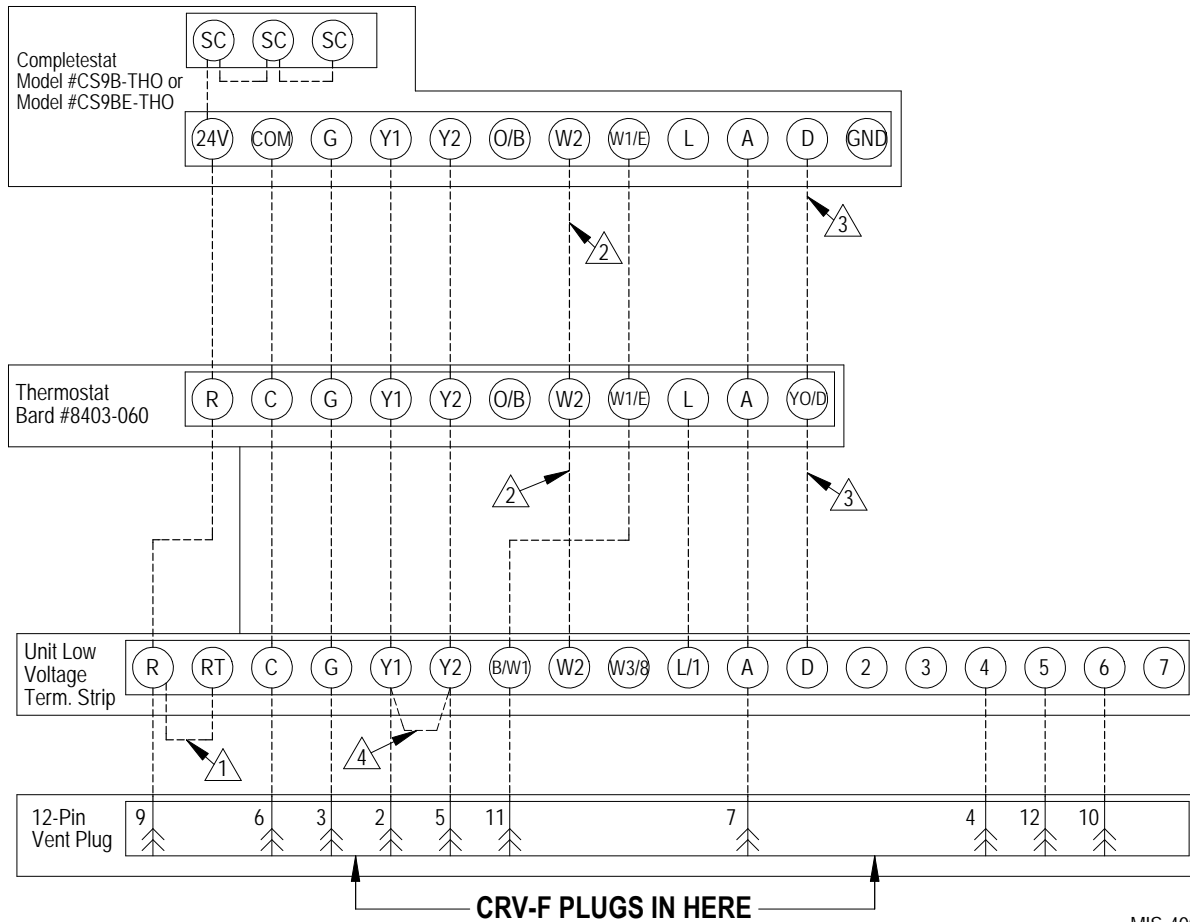
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FIGURE 6
Vent Door Assembly



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FIGURE 7
Programmable Thermostat Connections for CRV-F* with Air Conditioners



MIS-4000 B

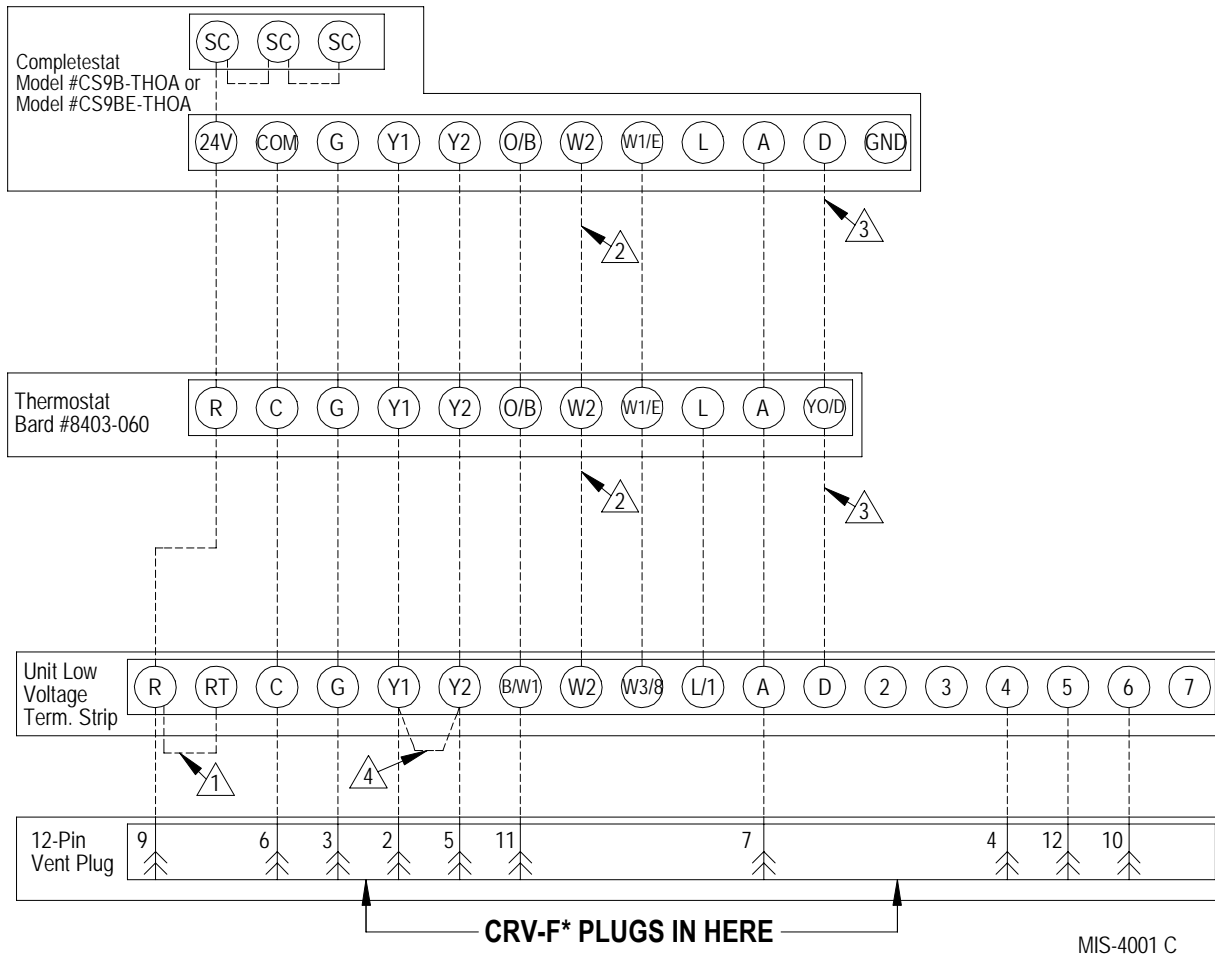
△1 Factory installed jumper. Remove jumper and connect to N.C fire alarm circuit if emergency shutdown required.

△2 Not needed below 15KW.

△3 Additional wire required for dehumidification models.

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

FIGURE 8
Programmable Thermostat Connections for CRV-F* with Heat Pumps



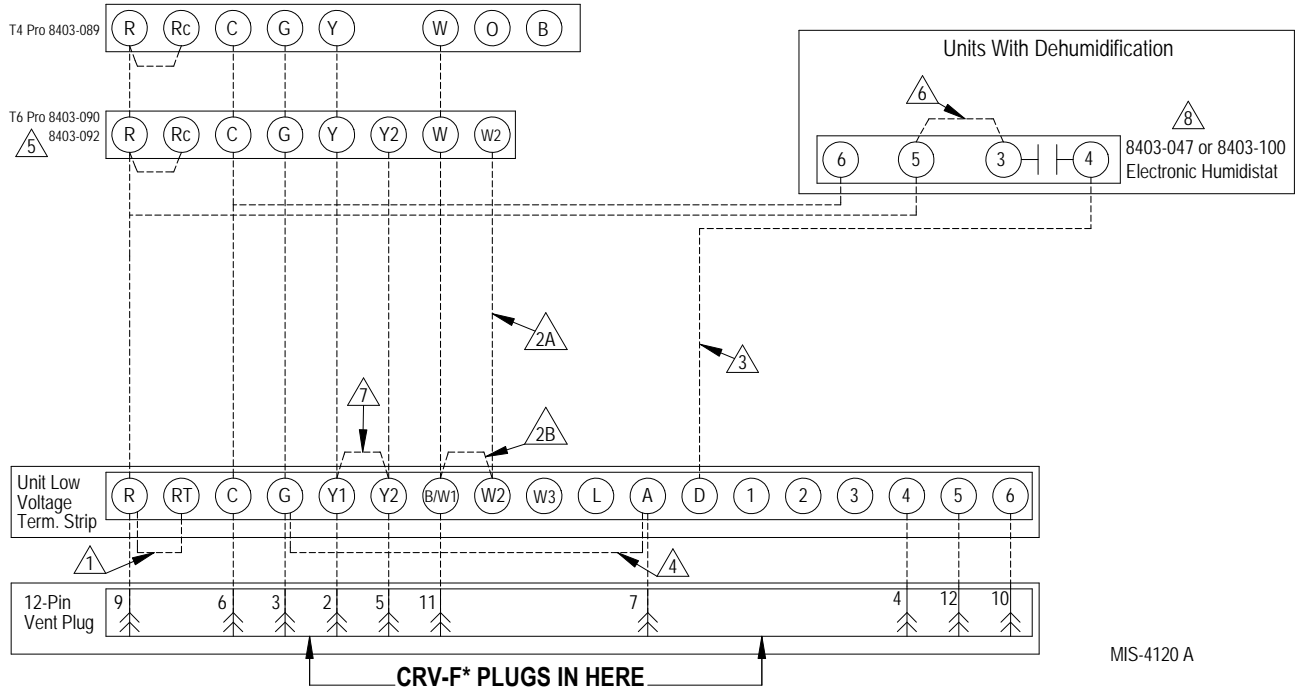
△1 Factory installed jumper. Remove jumper and connect to N.C fire alarm circuit if emergency shutdown required.

△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 9
Non-Programmable Thermostat Connections for CRV-F* with Air Conditioners

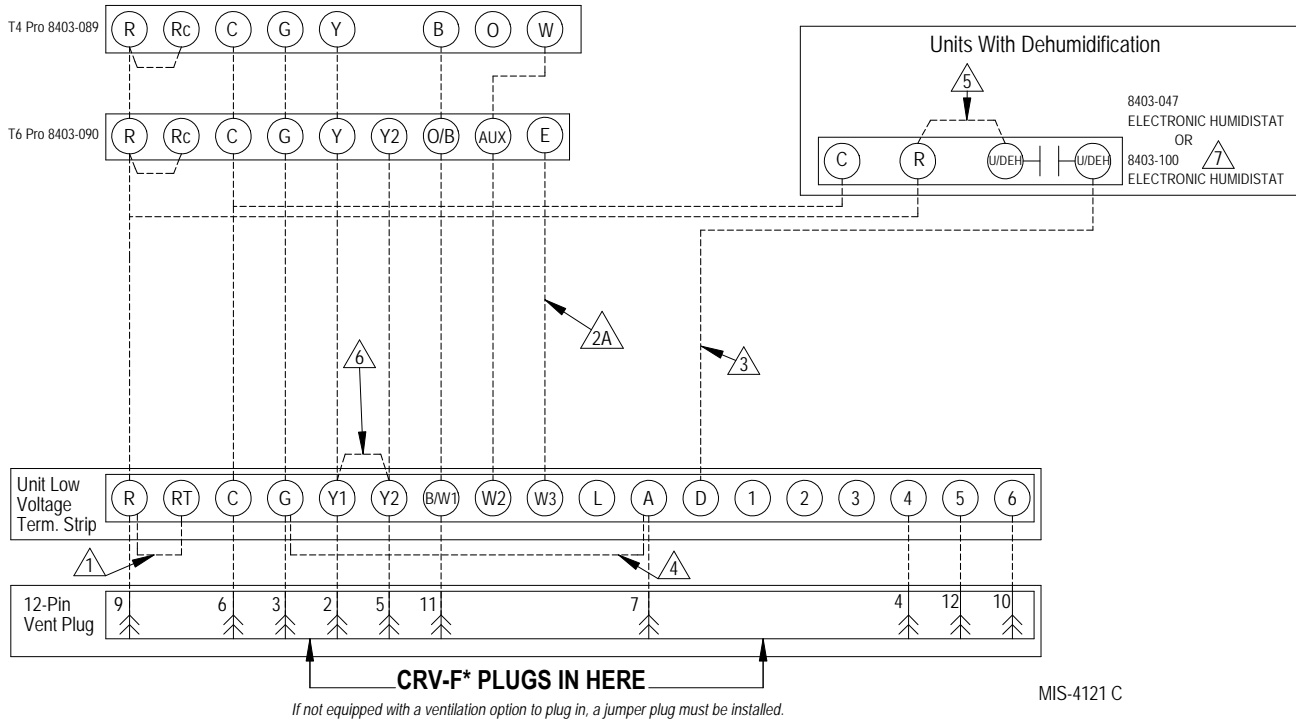


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If not equipped with a ventilation option to plug in, a jumper plug must be installed.

- | | |
|--|--|
| <ul style="list-style-type: none"> △1 Factory installed jumper. Remove jumper and connect to N.C fire alarm circuit if emergency shutdown required. △2A Wire not needed below 15KW. △2B Install Jumper for 1 stage electric heat on units with more than 10KW. △3 Wire required for dehumidification models only. △4 Add jumper for vent to operate when blower is energized. | <ul style="list-style-type: none"> △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. △8 Humidistat at 8403-100 will need to be configured for dehumidification in the menu. See user's manual. |
|--|--|

FIGURE 10
Non-Programmable Thermostat Connections for CRV-F* with Heat Pumps



- 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. JUMPER NEEDS ADDED.
- 6. FACTORY INSTALLED JUMPER. REMOVE JUMPER TO ACTIVATE BALANCED CLIMATE™ MODE. A 2-STAGE THERMOSTAT IS RECOMMENDED FOR BALANCED CLIMATE MODE.
- 7. HUMIDISTAT 8403-100 WILL NEED TO BE CONFIGURED FOR DEHUMIDIFICATION IN THE MENU. SEE USER'S MANUAL.

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 11).

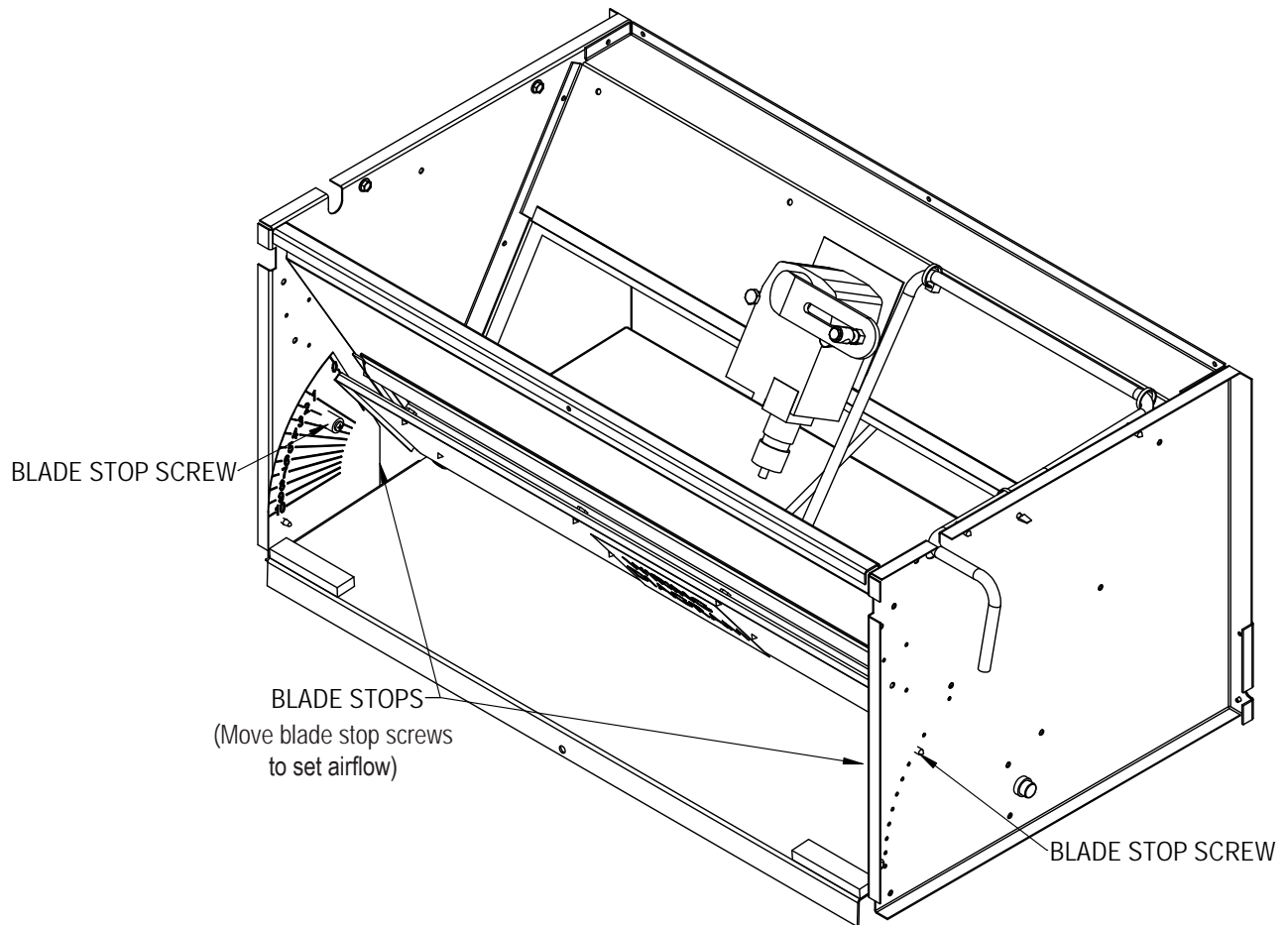
NOTE: Blade setting shipped from factory in #2 position. This will provide 100-150 CFM fresh air.

Balanced Climate™ Mode

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

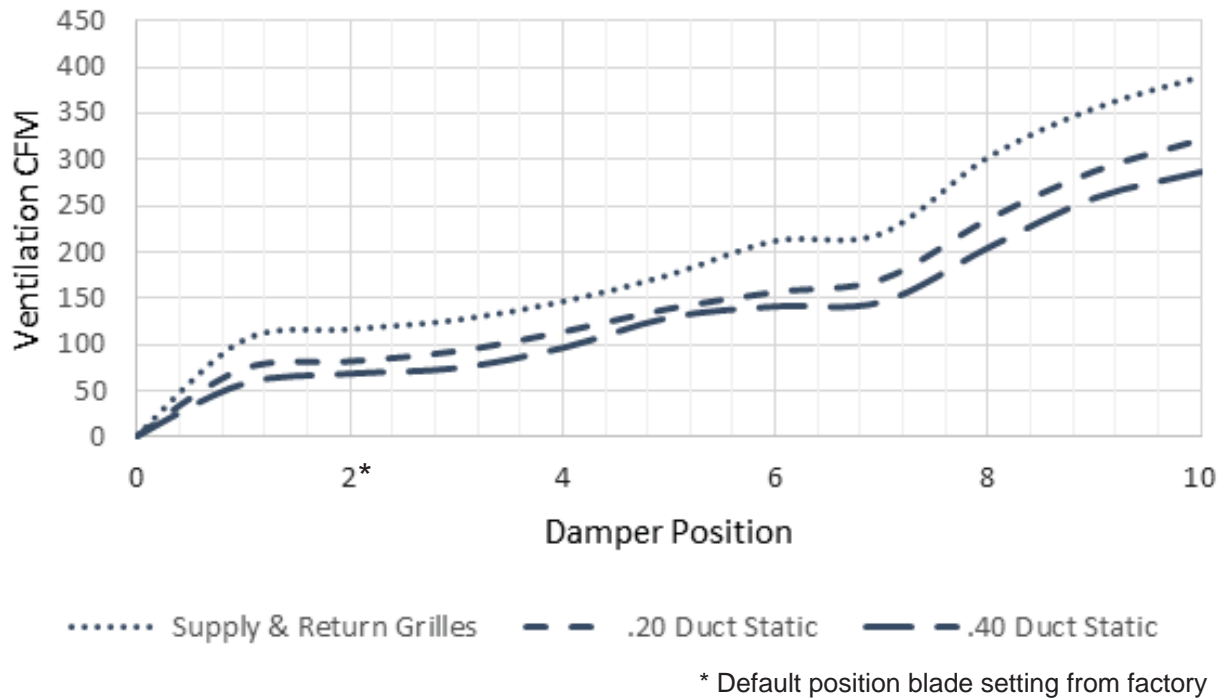
If Balanced Climate mode is enabled, blade stop screw positions will need to be adjusted to allow approximately 28% more outdoor air to maintain minimum ventilation requirements.

FIGURE 11
Blade Adjustment for Desired Ventilation Air

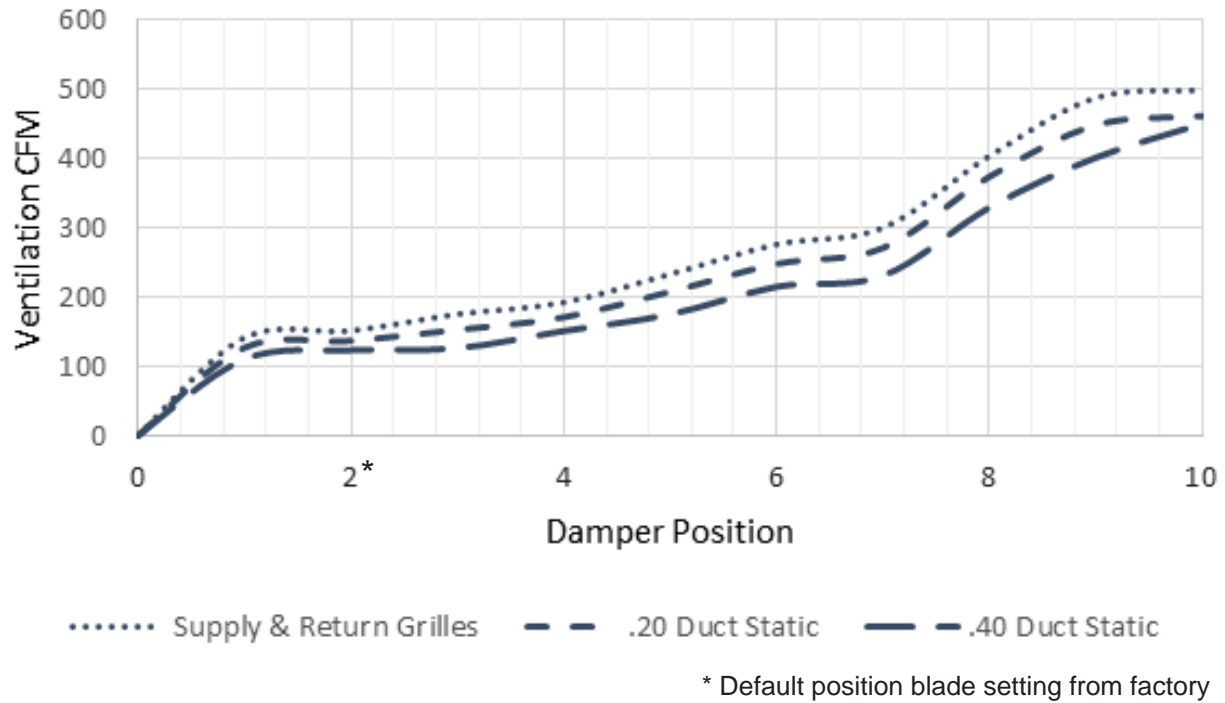


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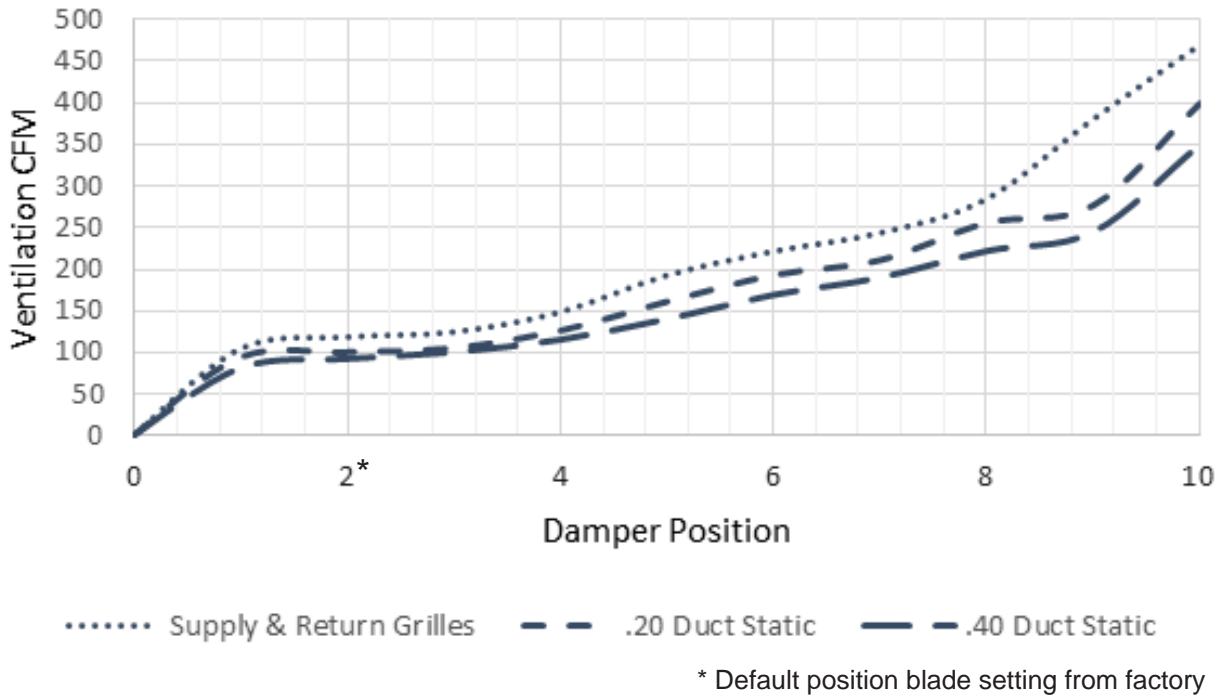
GRAPH 1
W18 Ventilation Delivery



GRAPH 2
W24 Ventilation Delivery



GRAPH 3
W30 Ventilation Delivery



GRAPH 4
W36 Ventilation Delivery

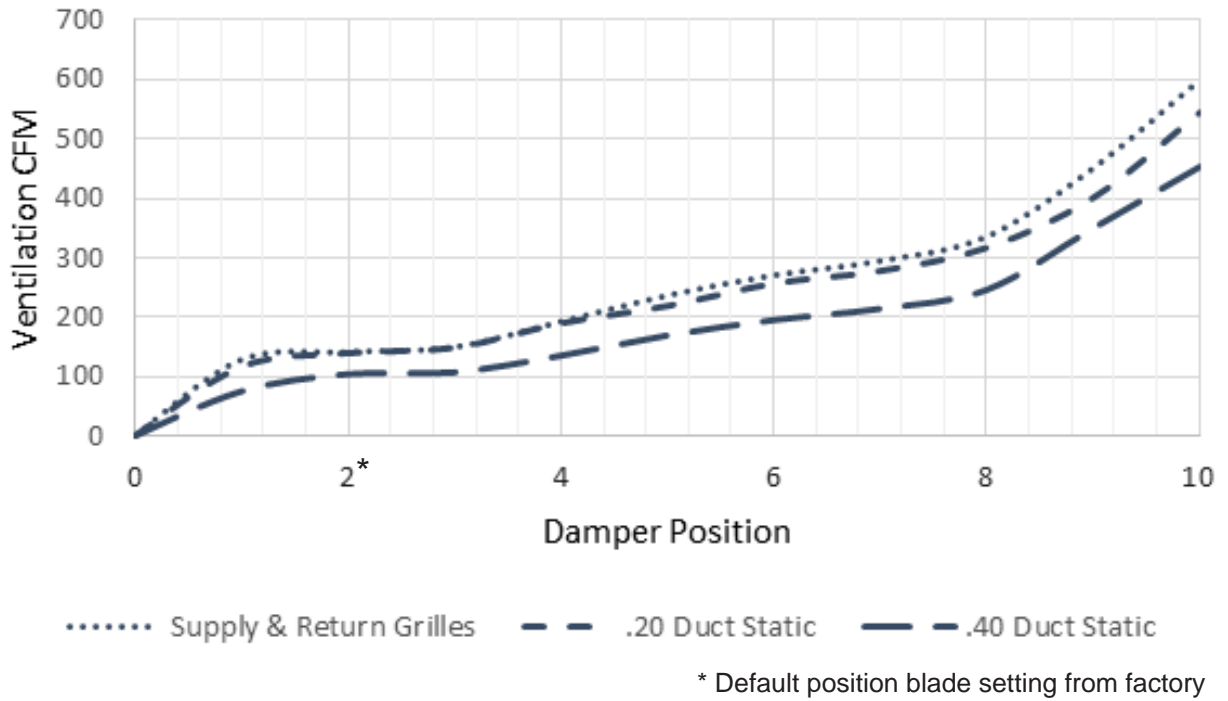
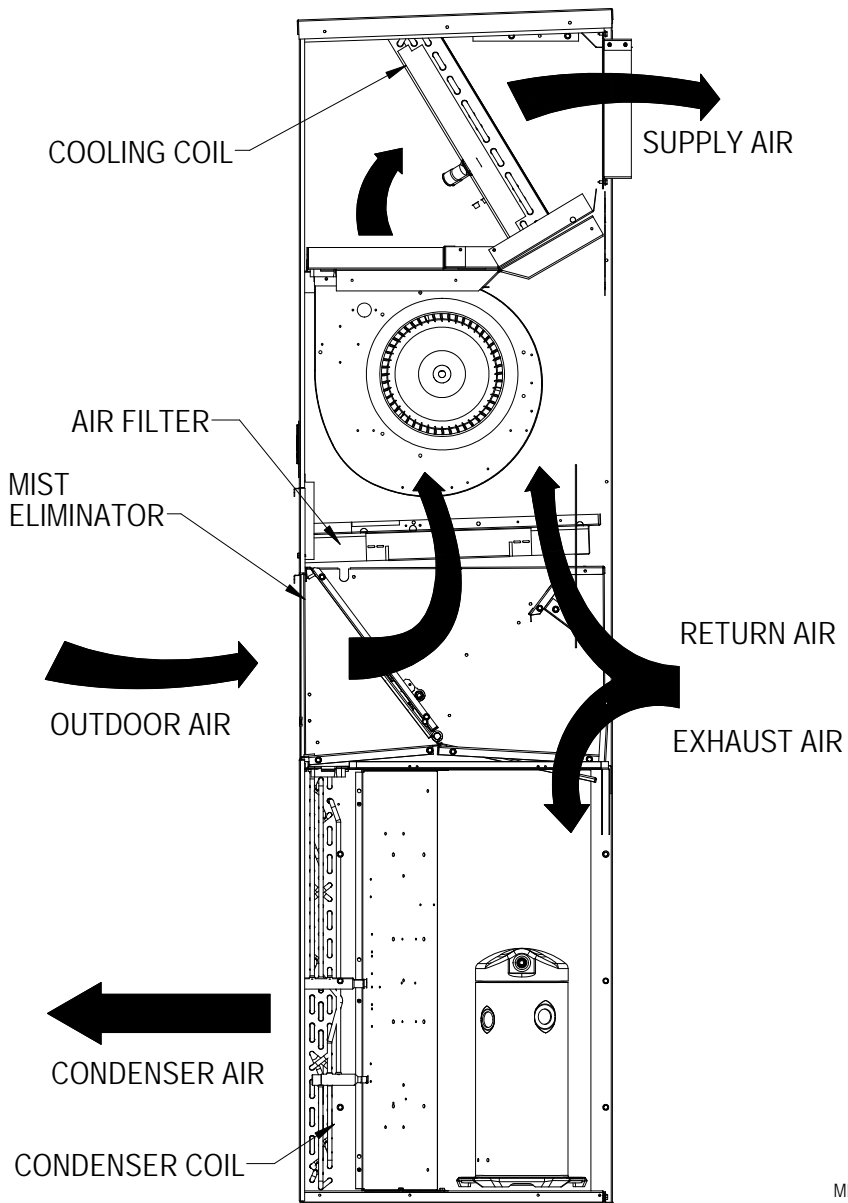


FIGURE 12
Call for Ventilation With or Without Compressor Operation



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FIGURE 13
Call for Compressor or Fan Only with Ventilation Off

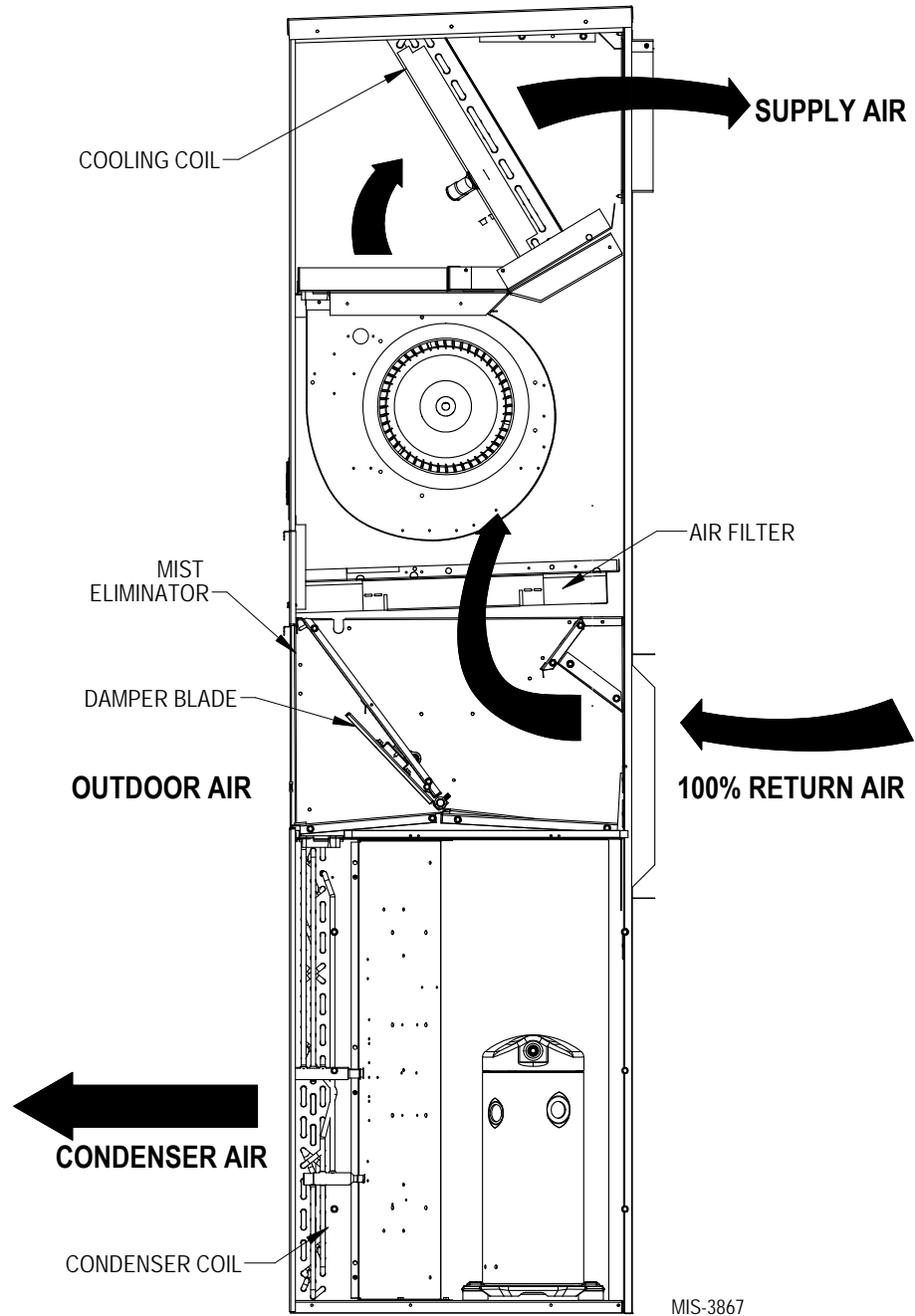
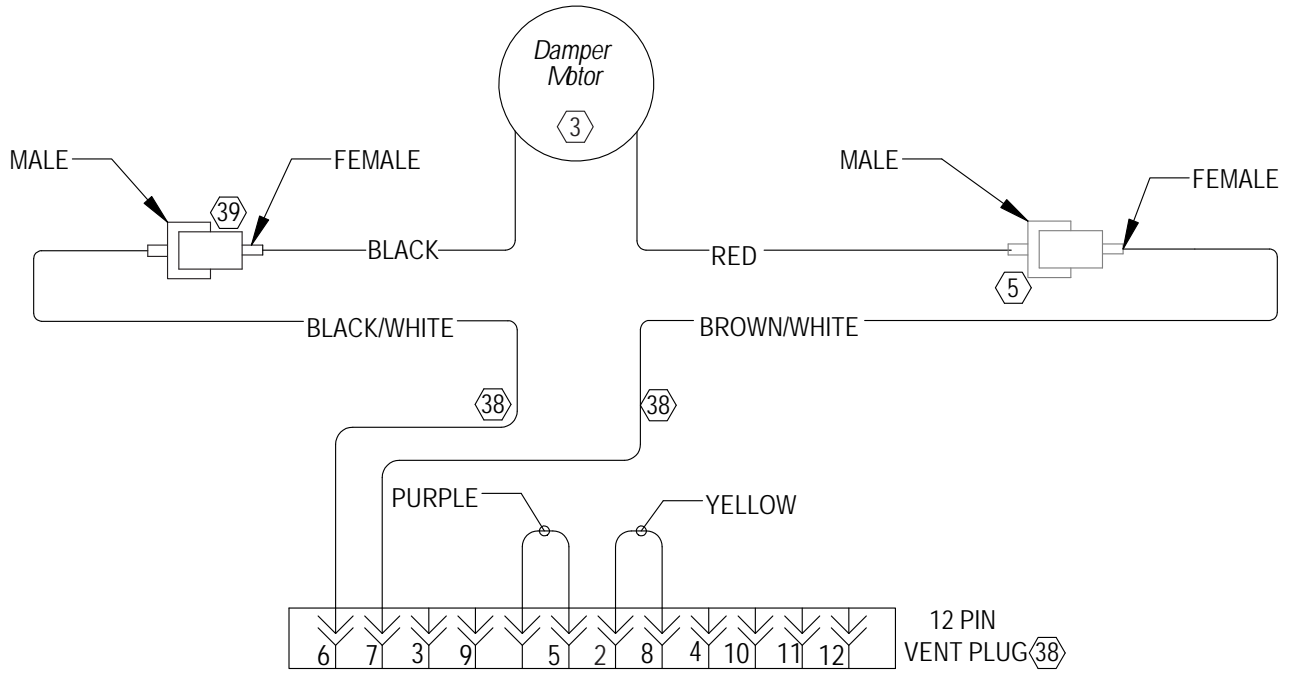


FIGURE 14
Wiring Diagram



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