
INSTALLATION INSTRUCTIONS

Full Flow Low Leakage Economizer with Exhaust for Building Applications (To Be Used with Field-Installed DCV Controls)

Models:

ECON-NC2 & ECON-NC3
(Factory-Installed Vent Option)

For Use with 1-1/2 Through 3 Ton
Wall Mount Air Conditioners
and Heat Pumps

NOTE: *These instructions are written to cover field-installed economizers, but are also included with factory-installed economizers. For factory-installed economizers, all portions addressing "installation" are for reference only.*



Climate Control Solutions

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Supersedes: 2100-706
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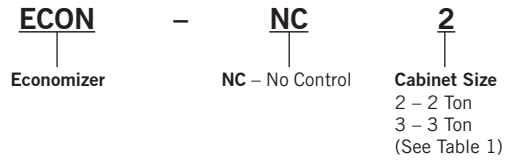
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Economizer Features

- One piece construction—easy to install. Direct-drive actuator eliminates linkage.
- 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, direct-coupled with stall protection. Self-centering shaft clamp and access cover facilitate ease of replacement/maintenance.
- 10K outdoor temperature sensor

Economizer with Exhaust Model Nomenclature



General Information

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

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

Any wall mount unit equipped with an economizer must also have a factory/field installed low ambient control. Please refer to appropriate model/year Specification Sheet for requisite field installed low ambient control kit part numbers.

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 orders and shipping document to verify that the correct accessory has been shipped.

Inspect the carton housing of each economizer assembly as it is received and, before signing the freight bill, verify that all items have been received and 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

ECON-NC economizers are designed to be used with the wall mount series air conditioners and heat pumps, shown in Table 1, equipped with low ambient controls and field-installed controller. They are electromechanical economizer systems designed to provide “free” cooling where the outdoor air temperature is cool enough to provide the needed cooling without running the compressor, or in addition to the compressor. When cooling is required, the system automatically takes advantage of cold outdoor air when available and uses it for first stage cooling. This then reduces the need to run the air conditioning compressor providing lower operating costs and increasing the service life of the equipment. If the outdoor air temperature is too warm to be sufficient for cooling, the dry bulb outdoor air temperature sensor detects the condition and should automatically close the outdoor air intake/exhaust damper, open the return air damper and switch to compressor-only operation.

ECON-NC Series economizers are not for use with variable capacity ECU models.

**TABLE 1
Economizer Application**

Model ①	For Use with the Following Units		
ECON-NC2	W18A W24A	W18H W24H	W18L W24L
ECON-NC3	W30A W36A	W30H W36H	W30L W36L

① Low ambient control is required w/economizer for low temperature operation.

INSTALLATION OF FIELD-INSTALLED ECONOMIZER

Basic Installation

WARNING

Electrical shock hazard.

Disconnect remote electrical power supply or supplies before servicing.

Failure to do so could result in electric shock or death.

Preparing Unit for Economizer Installation

1. Disconnect power to unit.
2. Unpack the economizer assembly, which includes the integral economizer with attached electrical harness, mixed air sensor, 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 and screws (save)
 - Ventilation access panel (discard)
 - Filter access panel (discard)

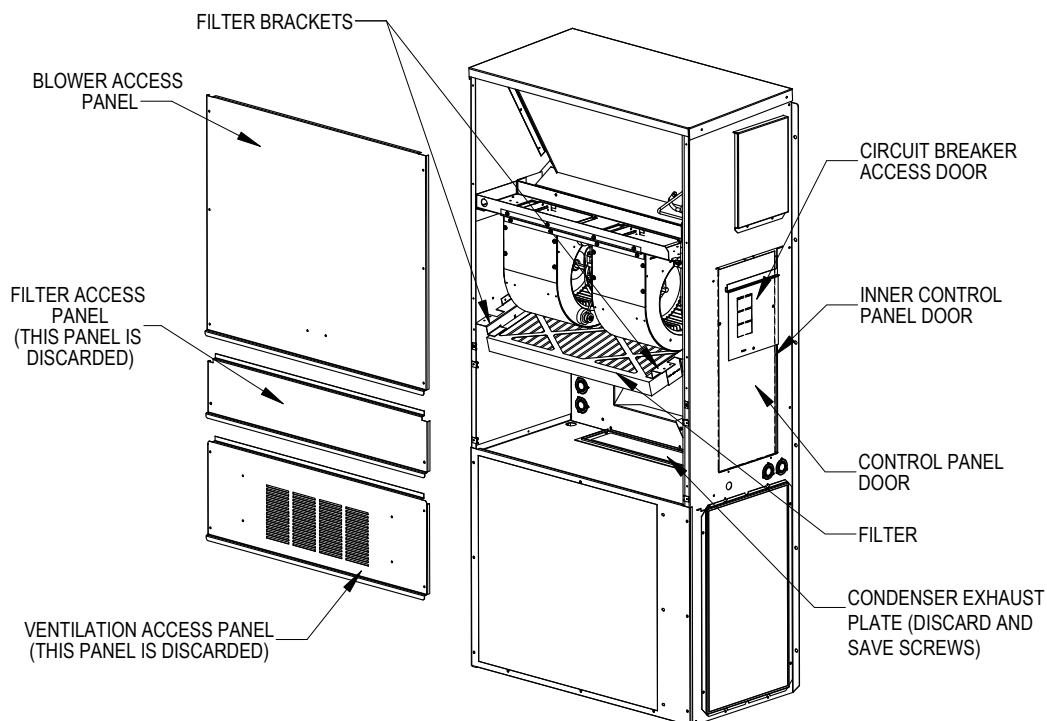
- Filter (save)
- Outer and inner control panel doors and screws (save)

4. Remove and discard the exhaust cover plate (save screws).
5. Install new condenser exhaust plate with screen over opening into condenser section (see Figure 2).
6. Verify what type of filter racks are in the unit. The unit may include either a filter partition and tray assembly, or two separate filter brackets.

If the unit contains a partition and tray assembly, this may be left as-is for the ventilator installation. Continue to Step 1 of **Economizer Installation** on page 8.

If the unit contains two separate filter brackets, remove the filter brackets. Two types of filter brackets have been used with these wall-mount units. If the filter brackets are mounted flat, they can be used with the economizer. If the brackets are set at a 30° angle, they must be removed, discarded and fill plates added (see Step 7). The circuit breaker offset plate must be loosened and moved slightly to gain access to several of the screws holding the filter brackets in place. Tighten the screws holding control panel after the filter brackets have been removed.

FIGURE 1
Wall-Mount Unit Access Panels



MIS-3619 A

If filter brackets were removed in Step 6, proceed to Step 7. If the brackets were not removed, proceed to **Outdoor Air Sensor Installation** on page 8.

7. Install filter bracket fill plate as shown in Figure 4 on page 6.
8. Install provided filter brackets on economizer (see Figure 4).

FIGURE 2
Condenser Exhaust Plate with Screen

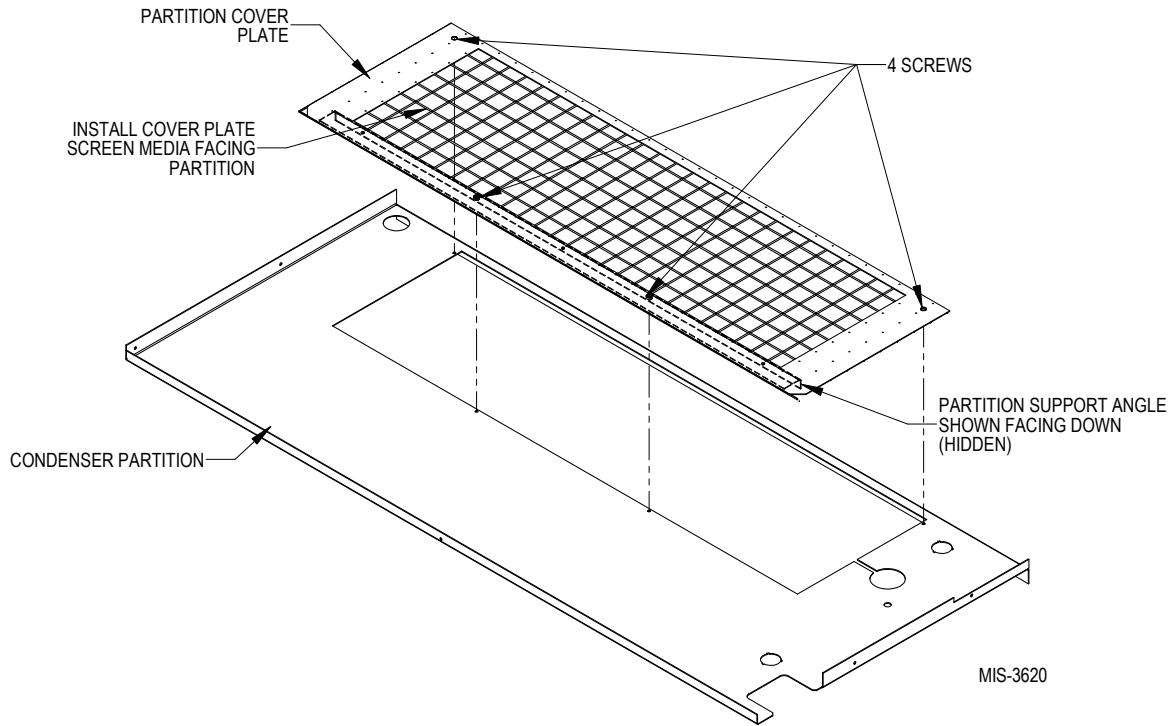


FIGURE 3
Filter and Filter Brackets

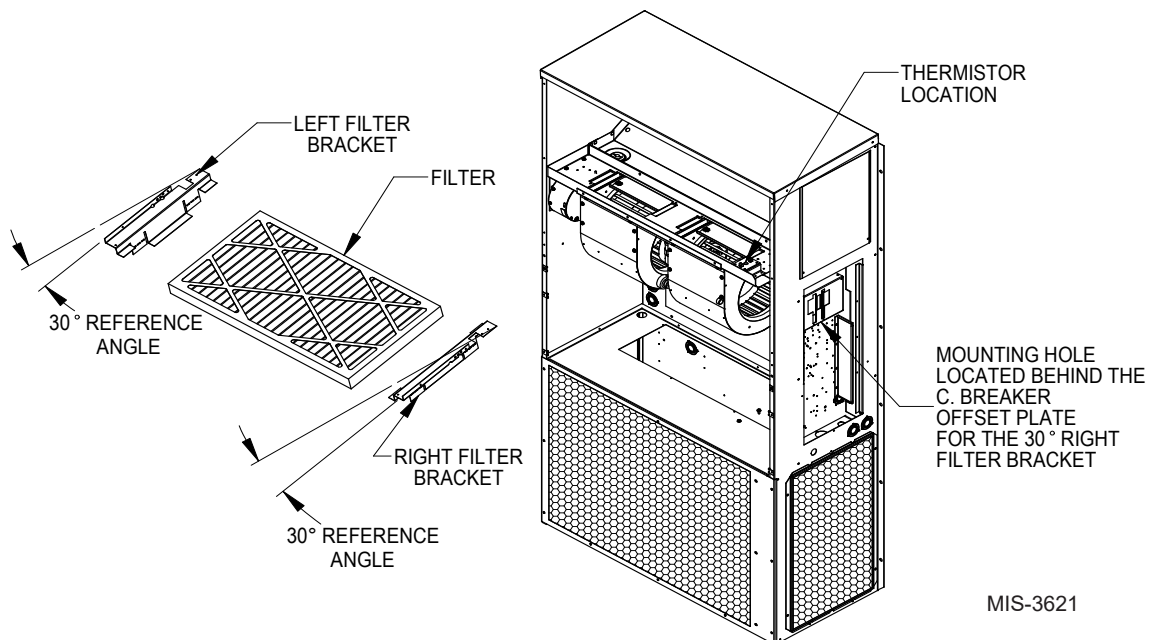


FIGURE 4
Filter Bracket and Filter Bracket Fill Plate Installation

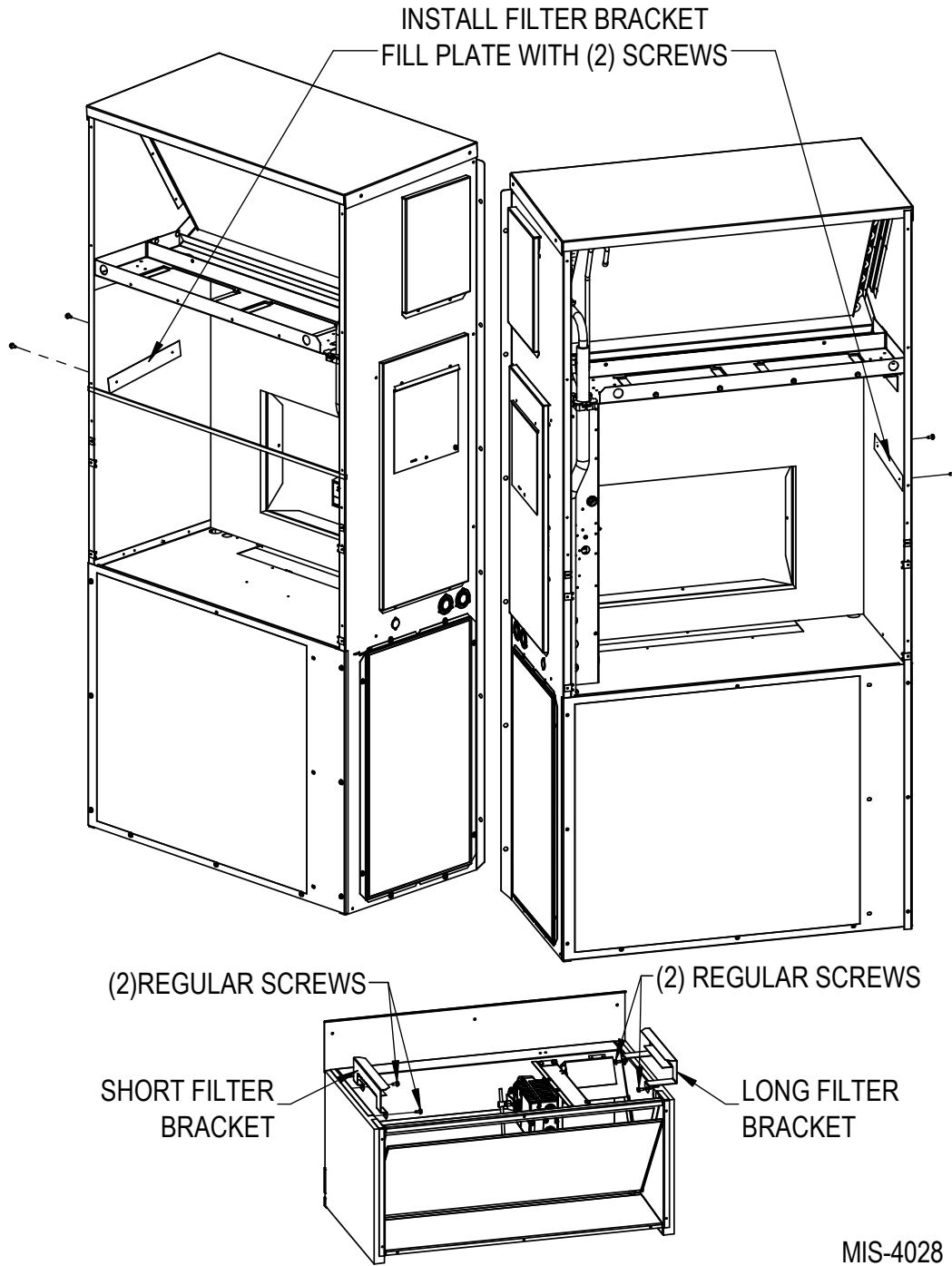
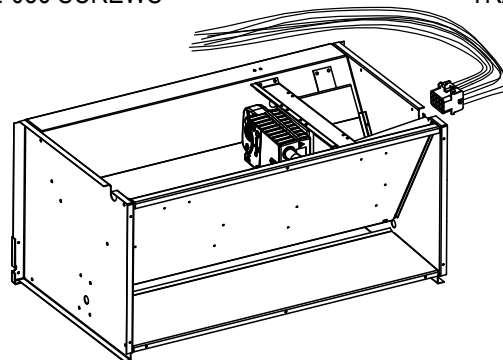
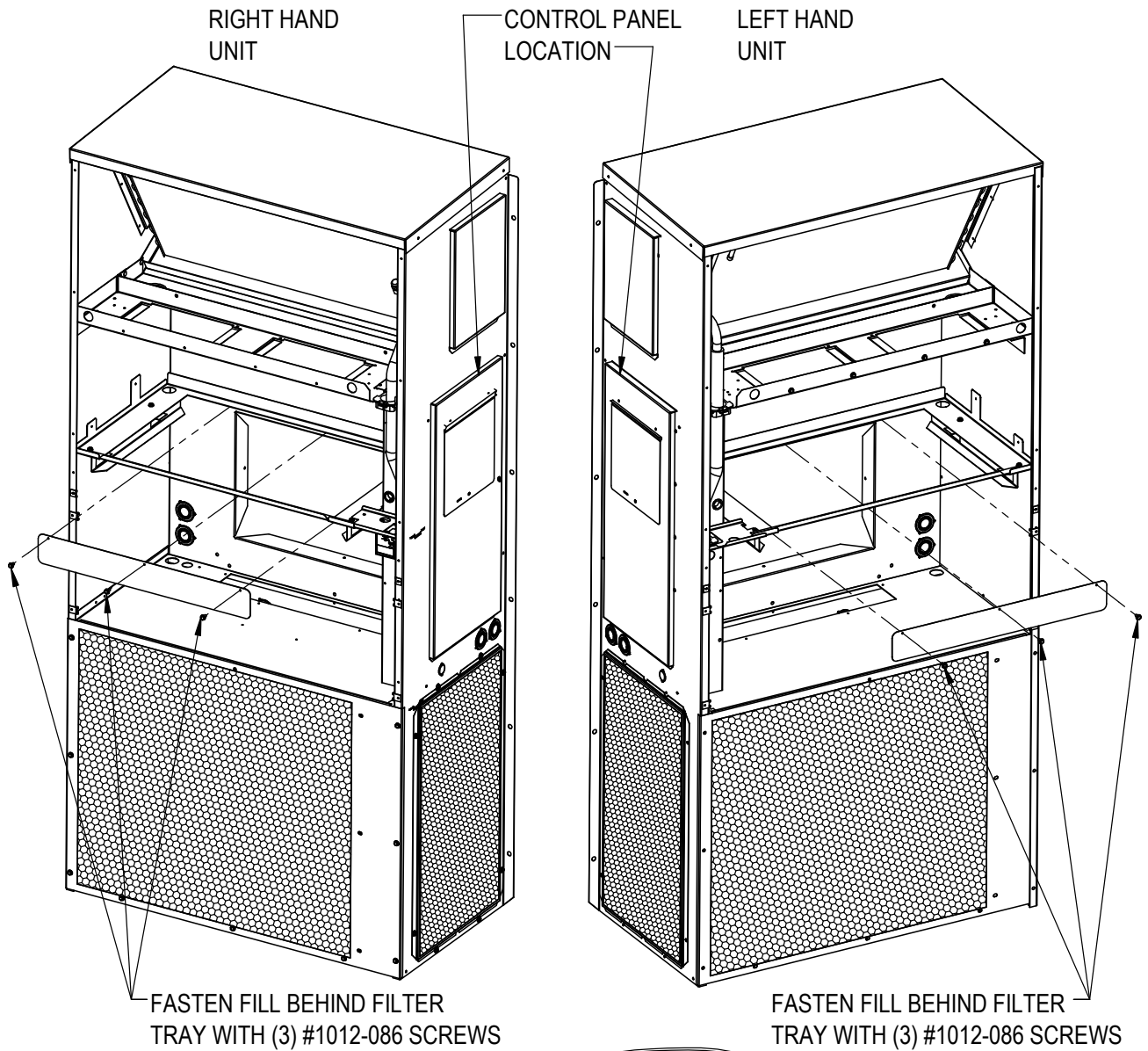


FIGURE 5
Return Fill Plate and Vent Installation
(For Units with Partition Assembly)



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RIGHT AND LEFT HAND UNIT VENT ASSEMBLY
USE 52" WIRE HARNESS FOR LEFT HAND UNITS ONLY

Outdoor Air Sensor Installation

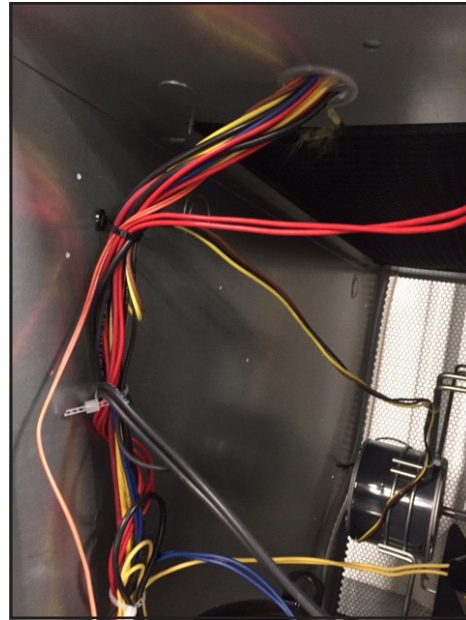
1. Remove and save both side grilles and screws.
2. Install the outdoor temperature sensor in the lower condenser section on the same side as the control panel with two (2) screws provided as shown in Figure 6.

FIGURE 6
Outdoor Air Sensor Installation



through the grommet in the bottom of the control panel. Secure with wire ties (provided) to the other wires in the grommet. Ensure the wire harness cannot contact moving parts or copper tubing. Replace side grilles.

FIGURE 7
Route Wire Harness

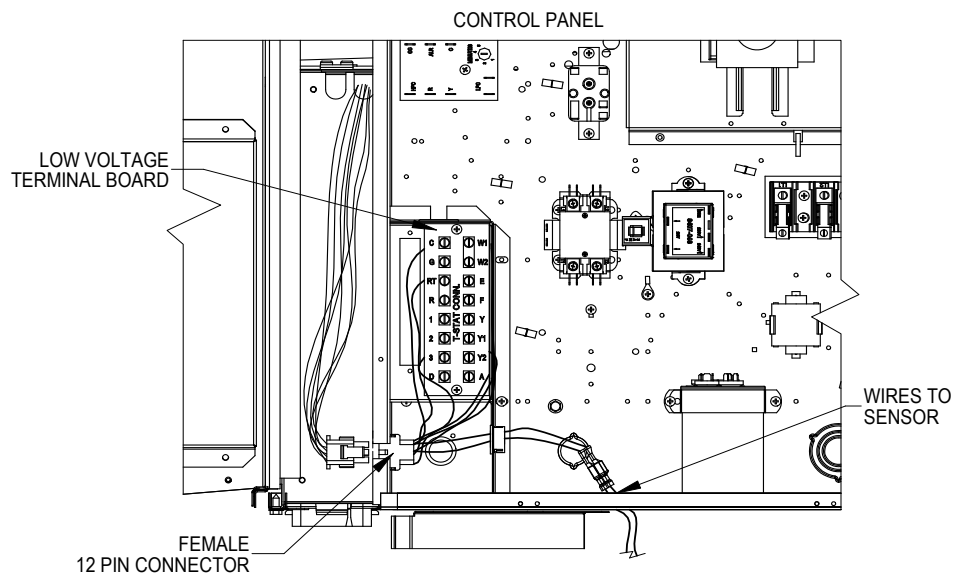


3. Route the wire harness through the condenser base and into the control panel (see Figure 7). Secure with two wire ties (provided). Push harness up

Economizer Installation

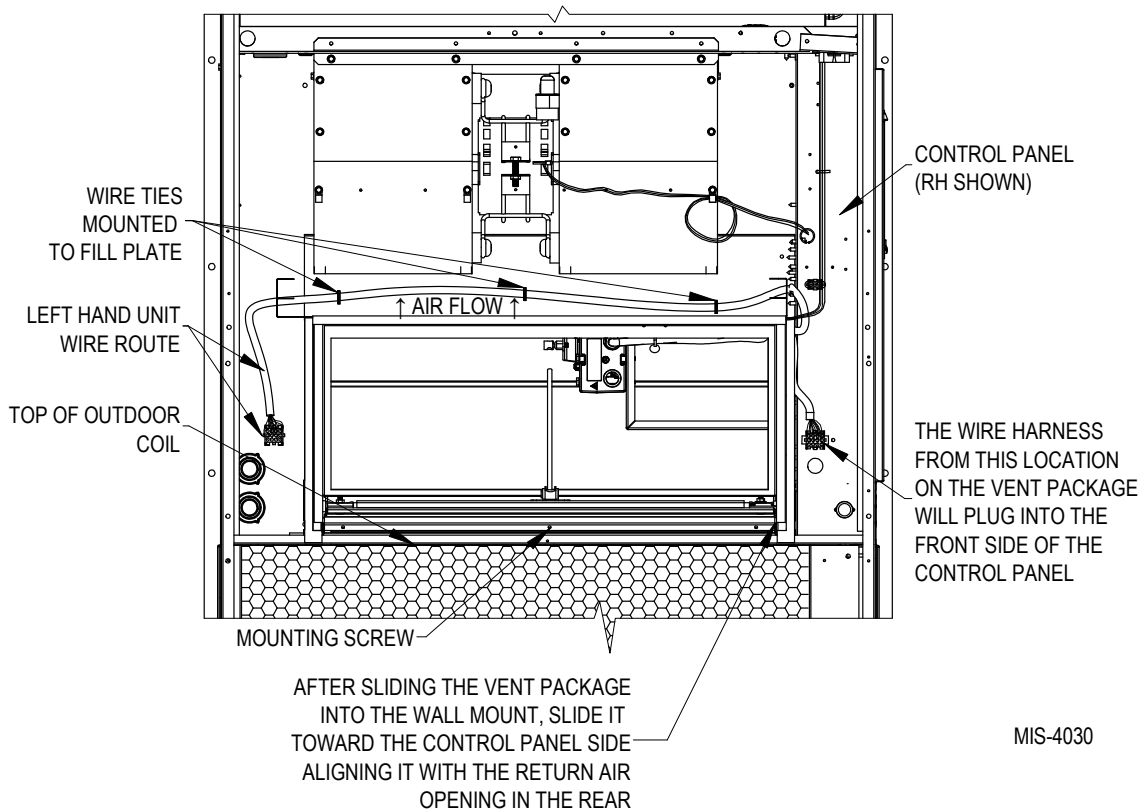
1. Connect 12-pin male plug into female plug in side of the control panel as shown in Figure 8. See wiring diagram found on page 11.

FIGURE 8
Control Panel



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FIGURE 9
Mixed Air Temperature Sensor Installation



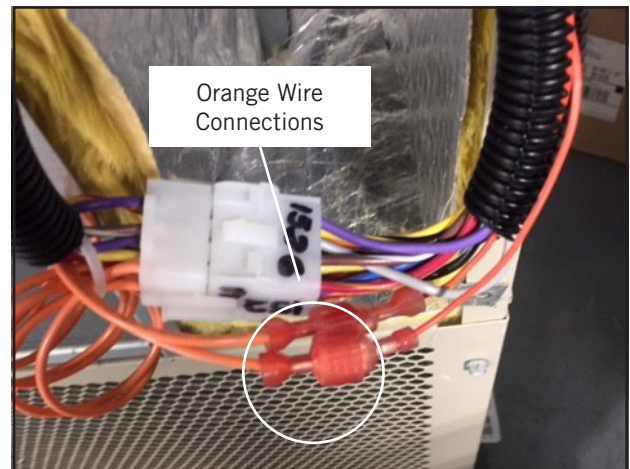
MIS-4030

2. Remove (and discard) left and right filter brackets from economizer assembly if existing wall mount unit brackets are in place.
3. For units with a partition and tray assembly, install the return fill plate. Refer to Figure 5 on page 7.
4. Insert economizer into opening in wall unit between the filter rack (if not removed earlier) and condenser section, being careful not to tear unit insulation. To clear blowers, position economizer at 45° angle under the blowers. Fully seat economizer assembly to the rear of the wall unit cavity. Slide economizer to right and line up with return air opening in back of wall unit.
5. **Left hand units:** Use the 52" wire harness (provided). Plug the 12-pin male connector into the female plug in the control panel. Route the wire harness to the back of the economizer and attach to the upper fill plate using the push-in wire ties provided (see Figure 9). Plug the male 12-pin connector from the economizer actuator into the wire harness.

Right hand units: Plug the 12-pin male connector straight into the female plug in the control panel.

Plug the outdoor sensor wire connectors into the spade connectors on the 12-pin male plug (orange wires) as shown in Figure 10.

FIGURE 10
Outdoor Sensor Wire Connections



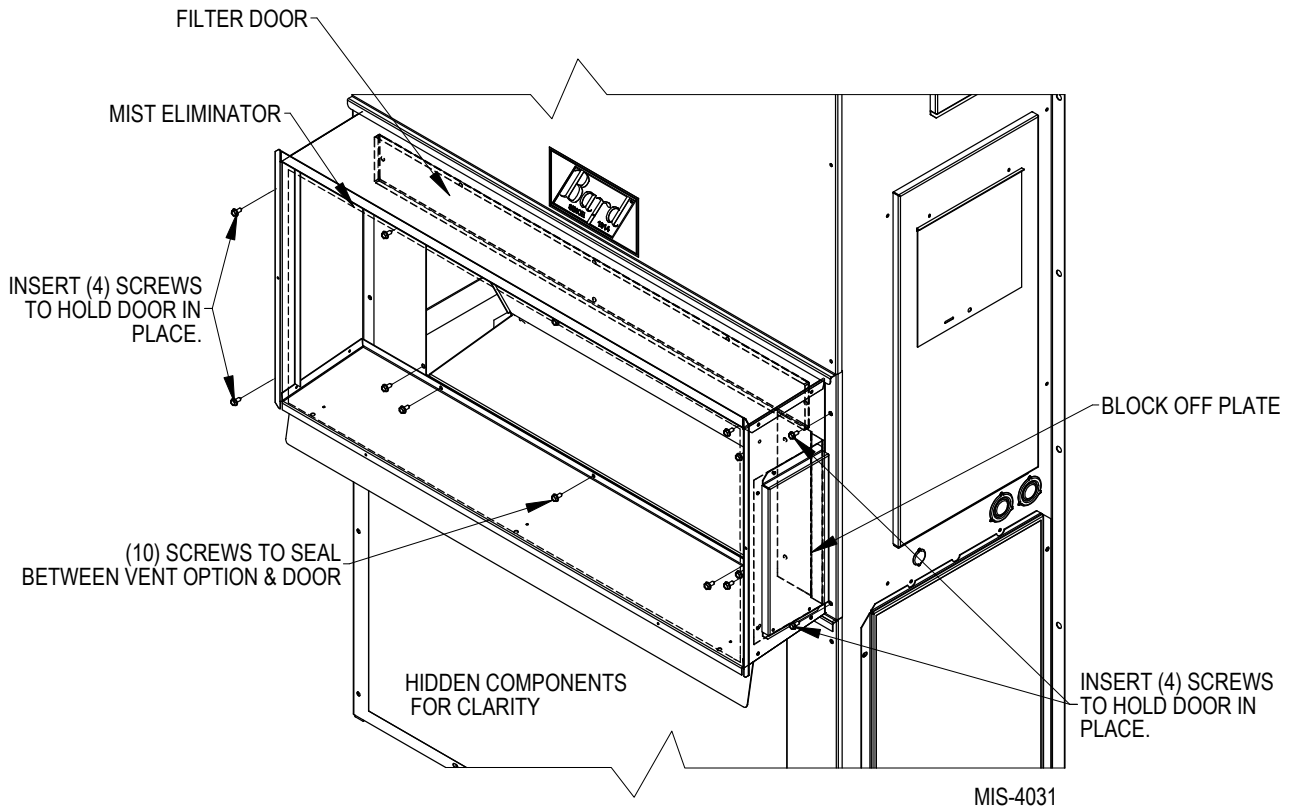
6. Remove front door, control door and mist eliminator from economizer hood assembly.
7. Lift economizer hood to unit and hold in position. Line up four (4) holes in outer economizer hood door (two on each side) with corresponding holes in unit and mount economizer hood to unit with four (4) screws.

8. Connect vent option front to vent hood door (see Figure 11) using ten (10) screws (supplied).
9. Re-insert filter into filter brackets. Arrow on filter should point up.
10. Install filter door.
11. Attach blower access panel.

Economizer Checkout

1. Attach wall unit outer and indoor control panel doors.
2. Turn power to unit on.
3. After confirming economizer operation, attach the economizer hood mist eliminator (with airflow arrow pointed towards unit), control door and front door.

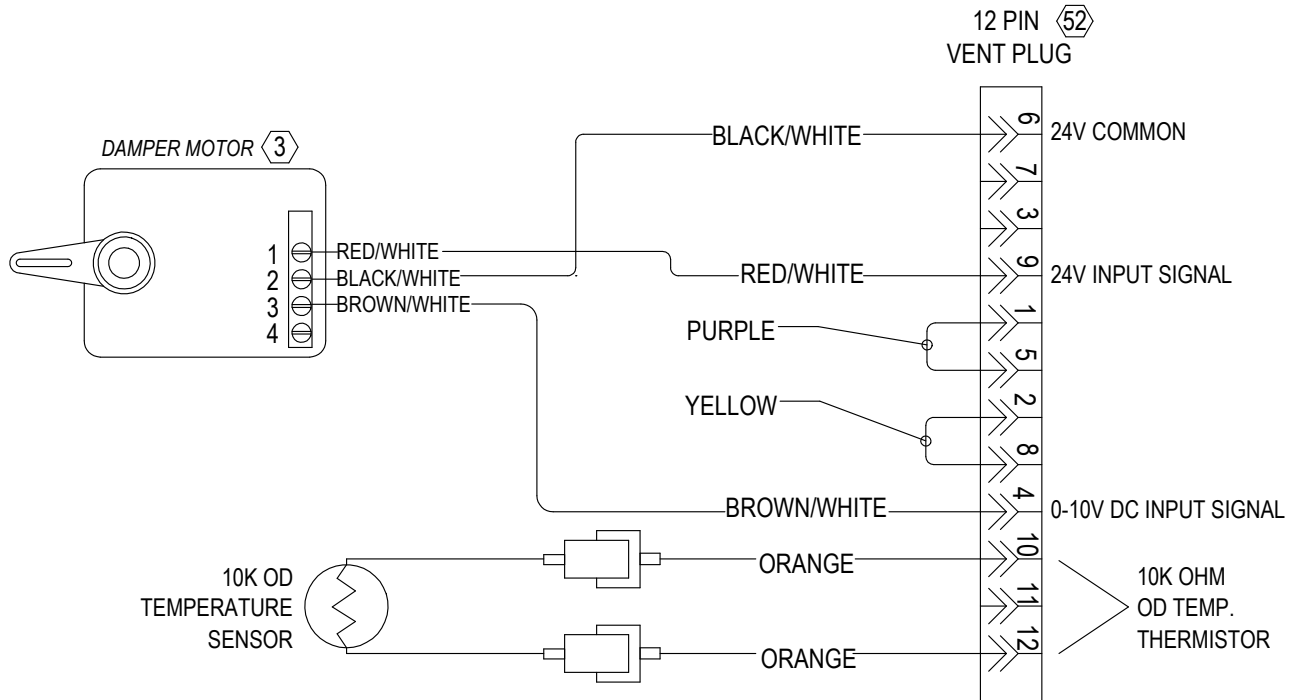
FIGURE 11
Vent Option Door Installation



Control Wiring Connection Diagram

See the economizer wiring diagram in Figure 12. For low voltage connections, refer to the wall-mount unit installation instructions manual.

FIGURE 12
Economizer ECON-NS* Wiring Diagram



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FIGURE 13
100% Outside Airflow Path

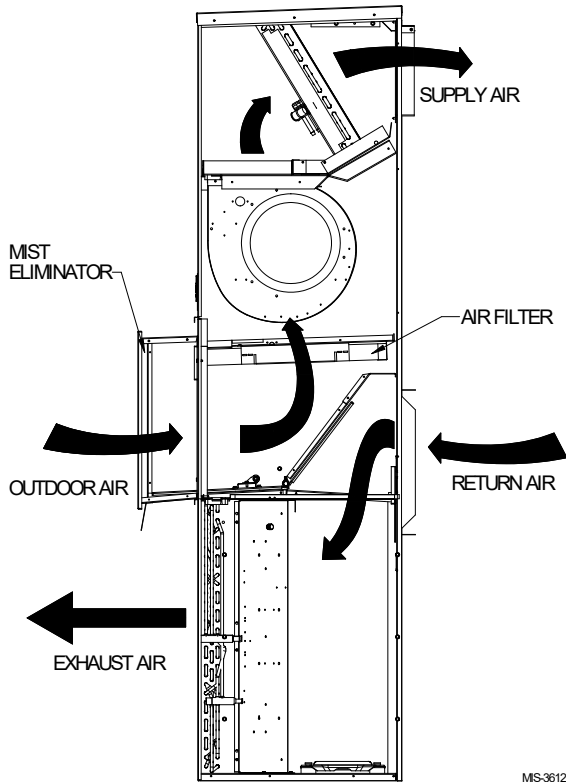


FIGURE 14
Mixed Airflow Path

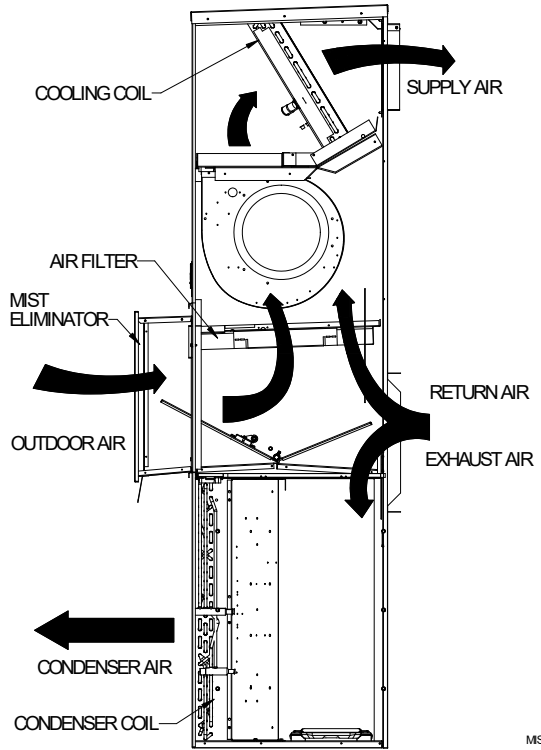


FIGURE 15
100% Closed Loop Airflow Path

