

Installation Instructions

Economizer

Precedent™ Packaged Rooftop Units with Symbio™ 700 Controls 3 to 12.5 Tons

Model Numbers: Used With:

FIAECON001* Precedent A cabinet (Digit 39 = A)

FIAECON002* Precedent B and C cabinet (Digit 39 = B, C)

SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

NOTICE Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs and HCFCs such as saturated or unsaturated HFCs and HCFCs.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in **NEC** and your local/state/national electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING

Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

⚠ WARNING

R-454B Flammable A2L Refrigerant!

Failure to use proper equipment or components as described below could result in equipment failure, and possibly fire, which could result in death, serious injury, or equipment damage.

The equipment described in this manual uses R-454B refrigerant which is flammable (A2L). Use ONLY R-454B rated service equipment and components. For specific handling concerns with R-454B, contact your local representative.

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Revision History

- Updated Model number information in Front cover page.
- Updated General Information chapter.
- Updated Field Installed Assembly and Installation FIAECON001*/02* chapter.

General Information

Inspection

- 1. Unpack all components of the kit.
- 2. Check carefully for shipping damage. If any damage is found, report it immediately, and file a claim against the transportation company.

Parts List

Table 1. Parts list

Qty	Description
1	Economizer Assembly
1	Mist Eliminator
1	Wire Tie
10	Screws
1	Actuator Harness
1	Grommet
1	Duct Block-off Plate
12	Screws
1	Bottom Block-off

Field Installed Assembly and Installation FIAECON001*/02*

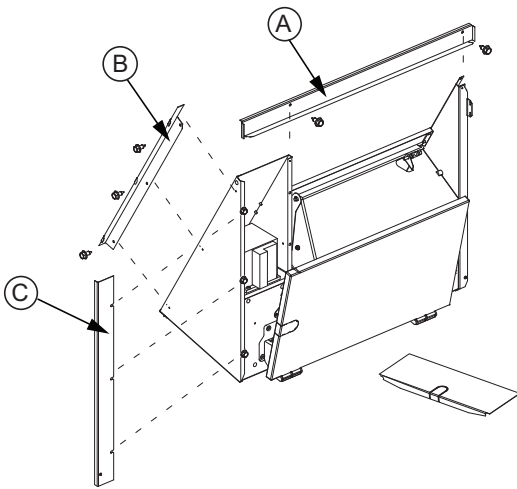
This section covers installation of economizer units not installed in the rooftop unit at the factory.

Unpack Economizer

See [Figure 1](#).

1. Uncrate the economizer and locate all parts. Each economizer ships with items economizer bottom block-off (A), economizer side bracket (B), and adapter backing plate (C) attached.
2. Remove screws completely from items (A) and (B). Retain them for reassembly.
3. Remove item (C) by loosening the three screws but do not remove them.

Figure 1. Unpacking the economizer

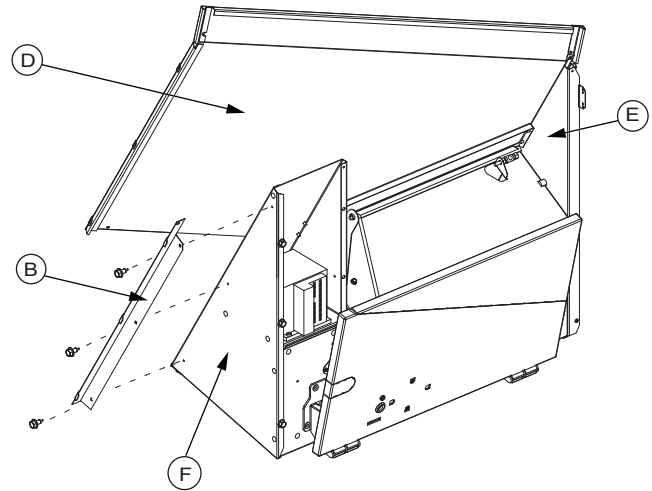


Assembling the End Panel

See [Figure 2](#).

1. Remove unit end economizer panel (D), retain the screws removed from the top and the bottom of panel for later use.
2. Align three slots in (D) with three tabs on economizer side panel (E).
3. Pivot (D) into place.
4. Align three tabs on (B) with three slots in (D).
5. Pivot (B) into place.
6. Secure (B) with three screws to the economizer side panel.

Figure 2. Assembling the end panel



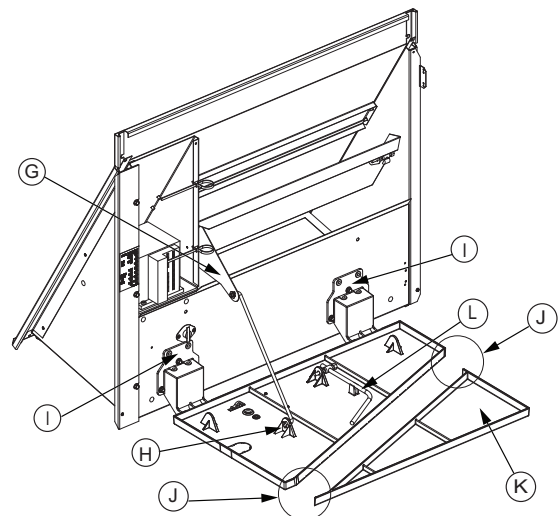
Reconfigure the Damper (For Horizontal Installation Only)

The economizer damper is pre-configured at the factory for downflow applications. Reconfigure the damper for horizontal applications.

See [Figure 3](#) for disassembly.

1. Remove two screws from (G).
2. Remove nut and disassemble (H).
3. Remove six screws from (I) (three in each location).
4. Make two cuts at (J).
5. Detach and discard (K).

Figure 3. Disassembling the damper

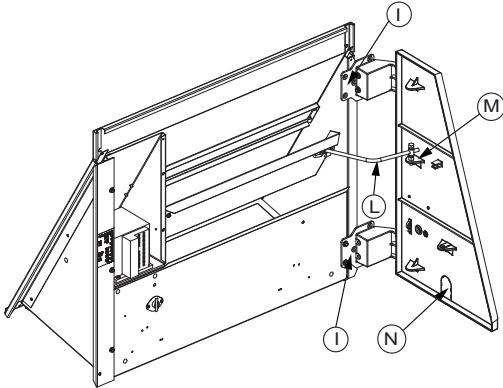


Field Installed Assembly and Installation FIAECON001*/02*

See [Figure 4](#) for reassembly.

1. Attach two screws at each location (I).
2. Connect (L). Do not allow more than 0.25 inch. (6.25 mm) of rod to protrude through the ball joint at (M).
3. If the unit has a smoke detector, remove knockout (N).

Figure 4. Reassemble the damper



Optional Sensors

If the optional sensors for humidity and temperature monitoring are needed (FIAENTH001* and FIAENTH002*), install them using the instructions provided in those kits.

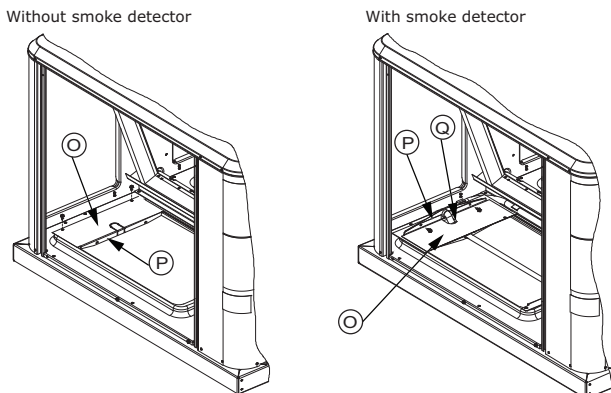
Install Duct Block-off Plate (Downflow Units Only)

Important: If power exhaust or barometric relief accessory kits are installed along with an economizer, do not install the duct block-off plate.

See [Figure 5](#).

- For units without a smoke detector, install (O) with flange (P) pointing down.
- For units with a smoke detector, remove knockout (Q), and then install (O) with flange (P) pointing up.

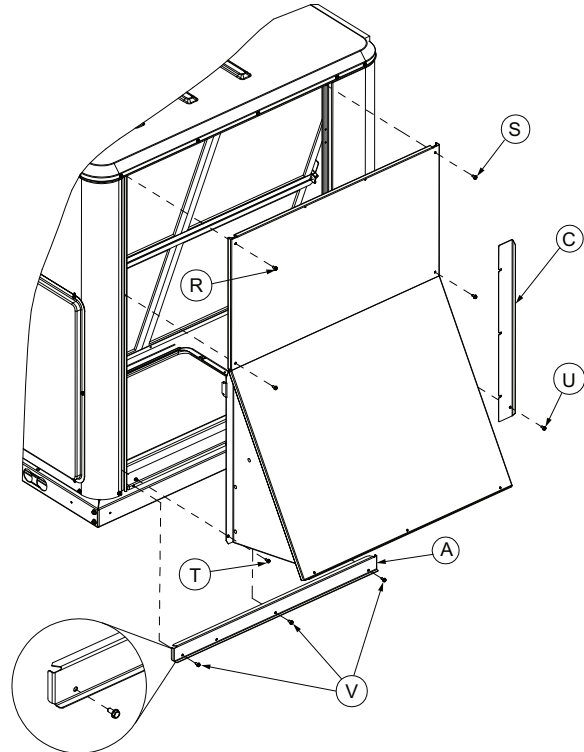
Figure 5. Installing the duct block-off plate



Install Economizer into the Rooftop Unit

See [Figure 1](#), p. 5, [Figure 6](#), and [Figure 7](#), p. 7.

Figure 6. Installation of economizer assembly



1. Lift the assembled economizer into position.
2. Fit the upper left-hand corner around the channel in the cabinet post.
3. Pivot the economizer into the opening in the cabinet.
4. Once the economizer is in place, lift the economizer and panel assembly to align the upper screw holes.
5. Secure the top left and top right with screws (R) and (S) respectively.
6. Pull out the bottom of the economizer and secure bottom left with screw (T).
7. Remove the filter access panel.
8. Position (C) inside the filter section. (C) will slip over the three screws that were loosened in [Figure 1](#), p. 5.
9. Align the engagement screw hole in (C), with the screw clearance hole at the bottom of the right corner post.
10. Secure the bottom right side of the economizer with a screw (U).
11. Install A and secure it with three screws (V).
12. Using field supplied silicone, apply sealant around economizer hood (W).

Figure 7. Sealing and seams

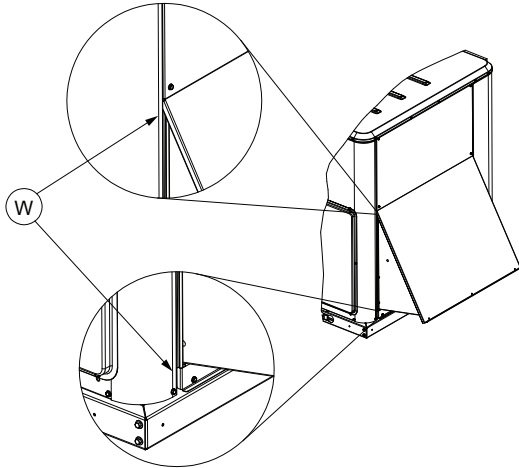
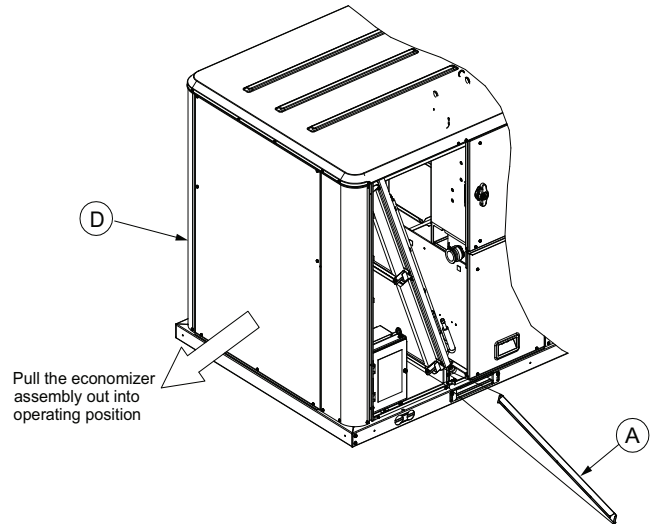


Figure 8. Removing the bottom block-off



Factory Installed Economizer Setup

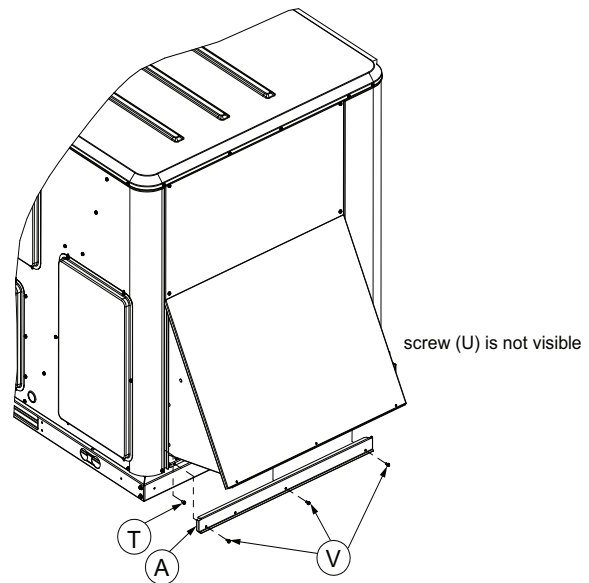
This section covers setup of economizer units that have been installed in the rooftop unit at the factory.

Downflow Configuration

See [Figure 7](#), [Figure 8](#) and [Figure 9](#).

1. Remove filter access panel.
2. Remove the screw that holds bottom block-off (A) in place and remove bottom block-off (A), from its shipping location.
3. Remove the bottom three screws (V) from the economizer panel (D).
4. Pull the economizer assembly out into operating position.
5. Secure the economizer assembly with two screws (T and U) at the bottom of the corner posts.
6. Install bottom block-off (A) and secure with three screws (V).
7. Using field supplied silicone, apply sealant around economizer hood (W). See [Figure 7](#).

Figure 9. Fastening the economizer and bottom block-off



Horizontal Configuration

See [Figure 1](#) and [Figure 5](#).

1. Remove filter access panel.
2. Remove (B), shown in [Figure 1](#). (Leave the screws loosely in place).
3. Remove the bottom three screws and top two screws from the economizer panel.
4. Remove (O), shown in [Figure 5](#).
5. Pull the economizer assembly and end panel out of the unit.
6. Reconfigure the damper for horizontal operation. See [“Reconfigure the Damper \(For Horizontal Installation Only\),” p. 5](#) for instructions, and then return to this procedure.
7. If optional sensors for humidity and temperature monitoring will be used (FIAENTH001* and FIAENTH002*), install them at this step. Use the instructions provided in those kits.
8. Remove supply and return duct covers from the horizontal openings and install over the downflow openings.
9. Reinstall the economizer. See [“Install Economizer into the Rooftop Unit,” p. 6](#) for instructions.

Symbio™ Wiring Connections

Using the supplied harness connect PPF87 (black connector) to the actuator connector. Route harness to fresh air options module located in the return section and connect to FAOM-J11 (blue connector). After installation is complete, Symbio™ 700 UC unit configuration will need to be updated to reflected installed option.

Table 2. Precedent economizer control options

Control Option	Enable Conditions	Option Sensor Required
Comparative Enthalpy	Outside Air Enthalpy < Return Air Enthalpy – Econ Enthalpy Offset AND Outside Air Temperature < Economizer Drybulb Setpoint – Econ DryBulb Offset	Outdoor Air Temperature Sensor Outdoor Air Humidity Sensor Return Air Temperature Sensor Return Air Humidity Sensor
Reference Enthalpy	Outside Air Enthalpy < Reference Enthalpy Setpoint – Econ Enthalpy Offset AND Outside Air Temperature < Economizer Drybulb Setpoint – Econ DryBulb Offset	Outdoor Air Temperature Sensor Outdoor Air Humidity Sensor
Dry Bulb	OA Temp < [Economizer Outdoor Air Enable Setpoint BAS - Economizer Dry Bulb Enable Offset]	Outdoor Air Temperature Sensor
Differential Dry Bulb	OA Temp < RA Temp - Economizer Dry Bulb Enable Offset - Economizer Dry Bulb Disable Return Air Offset	Outdoor Air Temperature Sensor Return Air Temperature Sensor

Minimum Position Setting

To adjust the minimum position setting and check out the economizer, the power must be connected.

1. Close the unit disconnect and place the zone sensor fan selector in the fan **ON** position and the heat/cool selector in the **OFF** position. This will place the damper in the minimum ventilation position.
2. To adjust the minimum position setting for the required ventilation air, use the Symbio™ service and installation mobile app or Symbio™ 700 on-board UI to adjust the economizer minimum position setpoint BAS in the fresh/return air settings menu. The damper will open to this setting each time the blower circuit is energized.

When adjusting minimum position, the damper may move to the new setting in several small steps. Once the damper has remained in position for 10 to 15 seconds without movement, it can be assumed it is at the new position.

3. Replace the filter access panel.

The damper will close when the blower circuit is de-energized.

Dry Bulb Settings

Standard economizer dry bulb changeover is field selectable and has a range of 50°F to 140°F.

Reference Enthalpy Settings

Economizer enthalpy changeover is field selectable and has a range of 50°F to 140°F. The default is 60°F. This selection can be made using the Symbio™ service and installation mobile app or Symbio™ 700 on-board UI.

Wire Routing

Using the supplied harness connect PPF87 to the actuator connector. Route harness to fresh air options module located in the return section and connect to FAOM-J11. See [Figure 10, p. 9](#).

Wiring Connections

Refer to main unit schematic sheet 6 for electrical connections to Fresh air module located in return section control box, See [Figure 10, p. 9](#).

After installation is complete, the Symbio™ 700 UC configuration will need to be updated to enable this installed feature. See *Symbio™ 700 Controller with Precedent™ Packaged Rooftop Air-Conditioners Application Guide (ACC-APG002*-EN)*.

Figure 10. Fresh air options module location



Fresh air options module access (A, B, and C cabinet)

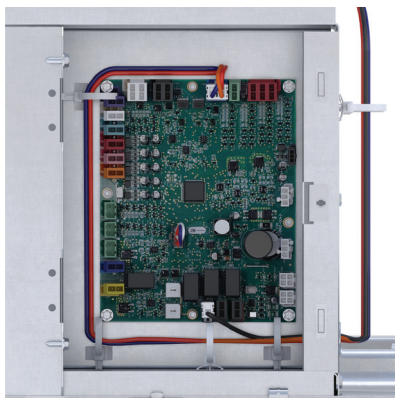


Figure 11. Wire routing to fresh air options module



Notes

Trane and American Standard create comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or americanstandardair.com.

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