ACCESSORY KIT INSTALLATION INSTRUCTIONS

ECONOMIZER DAMPER AND HOOD
MODELS 2EE04703424, 2EE04703524 2EE04703624, 2MD04703424, 2MD04703524 & 2MD04703624
FOR 15, 17.5, 20, AND 25 TON ROOFTOP UNITS

General
This instruction provides the necessary information to properly field-install economizer dampers and hood assembly on 15, 17.5, 20 and 25 ton single package rooftop units.

Kit Includes:

The damper accessory provides the return air and outdoor air dampers and actuator for economizer operations. Contained in this kit are all rain hood components.

<table>
<thead>
<tr>
<th>Box #</th>
<th>Item #</th>
<th>Description</th>
<th>Box #</th>
<th>Item #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>Bottom Track</td>
<td>3</td>
<td>8</td>
<td>Economizer Hood Right Side Panel</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>Top Flange</td>
<td>3</td>
<td>9</td>
<td>Lower Filter Bracket</td>
</tr>
<tr>
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<td>Return Air (RA) Damper</td>
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<td>10</td>
<td>Economizer Hood Left Side Panel</td>
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<tr>
<td>1</td>
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<td>2</td>
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<td>Economizer Filters</td>
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<td>1</td>
<td>7</td>
<td>Linkage Rod</td>
<td>1</td>
<td>14</td>
<td>Electric Sub-Package Bag of Screws</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
<td>Linkage Rod</td>
<td>3</td>
<td>14</td>
<td>Bag of Screws</td>
</tr>
</tbody>
</table>

NOTE: To ease installation, read all instructions prior to assembling economizer kit.

Tools Required:

- 5/16” Hex Socket Driver
- 3/16” Hex Socket Driver
- Drill for self-drilling screws (recommended cordless)
- 3/8” Hex Socket Driver
- Socket Drive Extension
- 5/8” Hex Socket Driver
- Hammer
- 7/16” Hex Socket Driver
- Awl

Unitary Products Group
**Damper Assembly Procedures**

1- Remove the four access panels (two OA, one RA, and one filter shown in Figure 2) by using a \( \frac{7}{16}'' \) hex socket to loosen the screws securing the rotating latches and a \( \frac{5}{16}'' \) hex socket to remove the four screws on the bottom of each panel.

**CAUTION**

When installing dampers, use care to avoid damage to filters or coils located in the adjacent compartment.

**NOTE:** Retain the "O" rings which provide the seal between the panel and unit bottom.

2- Remove the support brackets on 20 and 25 ton rooftop units.

**WARNING**

If the return air duct cover has been removed, install a covering over the open hole to prevent personal injury or equipment damage.

- Use a \( \frac{7}{16}'' \) hex socket to remove the top screws securing the support bracket located between the return air and outdoor air compartments.
- Use a \( \frac{5}{16}'' \) hex socket to remove the top screws securing the corner support bracket.
- Use a \( \frac{3}{8} \)\(^{\circ} \) hex socket to remove the two inside top and bottom screws. Save the screws and bracket for installation later.

**CAUTION**

Lift the roof when removing the support bracket to prevent tearing the roof seal.

3- Install the bottom track:
- Refer to Figure 6 and remove the 8 screws for 15 tons or 11 screws for 20 and 25 ton units, securing the drip and bottom pans along the bottom inside of the unit. Save the screws for installation later.

4- Remove the RA Damper and the top flange from their packing materials.
- Position the bottom track so that clearance holes in the bottom track can match the unit hole pattern. Use and awl to align the holes.

5- Install the RA Damper:
- Inside the top lip, align the holes of the top flange with the holes in the lip.
- Use the self-drilling screws provided to secure the top flange to the lip. Install the screws from outside the unit as shown in Figure 8.

- Remove the nuts attached to the swivel ball joints on the linkage arm. Retain for future use.
- Align the two swivel ball joints attached to the linkage arm with the crank arms attached to the RA damper blades.
- Insert the swivel ball joints into the top holes of the crank arms and secure with nuts.
• Use two \( \frac{3}{8} \)" wrenches to tighten and secure the swivel ball joints.

**Figure 10: Installing Return Air Damper**

- With the identification label facing up in the lower left corner of the damper, position the lower edge of the damper on the bottom pan.
- Slide the RA Damper on the edge of the bottom pan until the bottom flange of the damper is past the bottom track.
- Lift the RA Damper up past the top flange and pull the RA Damper towards you until the damper is positioned in the bottom track.
- Rest the RA Damper on the top flange.

**Figure 11: Positioning Return Air Damper**

- Slide the RA Damper to the left until the seal contacts the heating compartment wall.

**Figure 12: Securing Damper to Top Flange**

- Fasten the Damper to the top flange using pilot holes and self-drilling screws provided. Refer to Figure 12. No fastening to the bottom track is required.

6- Install the OA Damper:

- Remove the outdoor air damper from the packing material.

**Figure 13: Installing OA Damper**

- With the identification label facing up in the lower left corner of the damper, set the bottom of the OA damper into the bottom track from the filter access area.
- Lift the top of the OA damper up past the top flange and push the damper towards the RA damper along the bottom track, and rest it on the top flange.

**Figure 14: Initial Damper Frame Alignment**

- To aid the installation of the damper assembly, slide the OA damper to the left until the frame overlaps the RA damper frame as shown in Figure 14.
7- On 20 and 25 ton units install the two support brackets previously removed.

**CAUTION**

Lift the roof when installing the support brackets to prevent tearing the roof seal.

- Align the bottom holes, lift the roof and rotate the bracket to a vertical position.
- Use the screws previously removed from each bracket to secure.

8- Securing the OA Damper:

- Using the \( \frac{3}{8} \)" foam tape supplied, measure and cut a length that will fit the long edge of the damper frame that will rest against the access panel.

**Figure 16: Foam Tape Installation Location**

**Figure 17: Positioning OA Damper**

- From the OA compartment near the filters, pull the OA damper towards you aligning the notch in the damper flange with the support bar.

**Figure 18: Damper Frame Alignment**

**Figure 19: Connecting Linkage Rod**

- Remove and keep the nut attached to the swivel ball joint on the linkage arm.
- Align the swivel ball joint attached to the actuator linkage arm with the crank arm attached to the damper blade. This procedure will open the RA damper blades while the OA damper blades will remain in the closed position.

**Note:** FOR 25 TON Units, Attach Damper Extension Arms (provided) to the Actuator Crank Arm and Outdoor Damper Pivot Arm.

- Insert the swivel ball joint into the bottom hole of the crank arms and secure with nut.
- Use two \( \frac{5}{16} \)" wrenches to tighten and secure the swivel ball joint.

**Figure 20: Flange Screws**
9- Use a ¼" driver to remove the 2 screws located in the floor flange between the return air and outdoor air

![Figure 21: Applying Tape to Divider](image1)

10- Install the RA/OA divider:
- Remove the return air/outdoor air divider from its packing material.
- Using the 16" foam tape supplied, apply a length that will fit on the diagonal edge of the RA/OA divider.

![Figure 22: Installing Divider](image2)

- Use 4 self-drilling screws to secure the RA/OA divider to the RA damper frame using the pilot holes provided.
- Fill the gap at the base of the divider with ¾" foam tape provided.
- On single enthalpy units, mount the enthalpy sensor to the metal surface on the RA/OA divider. On dual enthalpy units, mount the second enthalpy sensor on the opposite surface in the return air. Use two self-tapping screws to secure.

![Figure 23: Installing Cable Assemblies](image3)

11- Mounting Sensors and wire harness:
- Cut the wire tie securing the cable harness to the damper.
- Insert the 15 pin connector to the unit economizer plug near the filters.

![Figure 24: Routing Cables](image4)

- Slide the divider into position against the return air damper.
- Use the 2 screws removed in step 9 to secure the RA/OA divider to the floor flange.
- Use two self-drilling screws to secure the OA/RA divider to the support bracket.
- Uncoil the remaining wiring harness and route through the round hole in the top flange. Allow the wires to hang in the OA compartment.

- Locate the discharge air sensor mounting location on the heating section wall. Mount the sensor bracket provided using one self-tapping sheet metal screw.

![Figure 25: Component Location on RA/OA](image)

**TABLE 1: Sensor Connection Table**

<table>
<thead>
<tr>
<th>Sensor Type (Terminal)</th>
<th>15, 17.5, 20 and 25 Ton Units (Wire Color)</th>
<th>Logic Module (Terminal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enthalpy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O.A. (+)</td>
<td>PURPLE</td>
<td>+o</td>
</tr>
<tr>
<td>O.A. (-)</td>
<td>RED</td>
<td>So</td>
</tr>
<tr>
<td>R.A. (+)</td>
<td>BLUE</td>
<td>+R</td>
</tr>
<tr>
<td>R.A. (-)</td>
<td>ORANGE</td>
<td>S_R</td>
</tr>
<tr>
<td>Discharge Air Temperature</td>
<td>2 Leads</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T1</td>
</tr>
</tbody>
</table>

- Make all wiring connections as shown in Table 1.

- Insert the wire harness into split grommets and push the grommets through each hole that the wires pass.

- Use tie wraps to bundle the wires and secure to the top flange and RA/OA divider as shown in Figure 24 on page 6.

**IMPORTANT**

When using the wire harness, insert a loop between the two tie wraps so that the wire harness does not rub on the damper frames during operation.

![Figure 27: Grommet Installation Locations](image)

- Insert the wire harness into split grommets and push the grommets through each hole that the wires pass.

- Use tie wraps to bundle the wires and secure to the top flange and RA/OA divider as shown in Figure 24 on page 6.

**Figure 26: Installing Discharge Air Sensor**

**Figure 27: Grommet Installation Locations**

**Figure 28: Installing Blank-Off Section**
12- For 20 and 25 ton units only:
- Remove the blank-off section from the packaging.
- Using the 1/8” foam tape supplied, apply a length that will fit on the long edge of the blank-off section which contacts the access panel.
- Insert the blank-off section through the side access opening of the OA compartment.
- Use the pilot holes on the top flange for the self drilling screws provided to secure the top of the blank-off section to the top flange.
- Install ¾” foam tape around the cut-out for the vertical support bracket.

13- Damper Assembly is now complete. Proceed to the hood assembly instructions.

Economizer Hood Assembly Procedures

NOTE: If the dampers were field-installed, proceed to Step 2. If dampers were factory installed, start with Step 1.

1- Remove the three access panels (return air compartment and two outdoor air compartments) by using a 7/16” hex socket to loosen the screws securing the rotating latches.

2- Remove the economizer hood box from the unit and remove the right side panel from the packing material.

3- Install the economizer hood right side panel against the lip of the vertical corner of the rooftop unit matching the holes in the right side panel with the holes in the frame.

4- Insert and fasten six self-drilling screws supplied with the hood kit. Use a 5/16” drive to tighten screws.
5- Remove the lower filter bracket from the packing material.

6- Angle the lower filter bracket to insert the right tab into the slot in the right side panel and lower the hood bottom resting it on the frame of the rooftop unit.

8- Tilt the left side panel towards the right as shown in Figure 33 and position the side panel so that the tab from the lower filter bracket can be inserted into the slot in the side panel.

9- Return the left side panel to the vertical position and align the holes in the left side panel with the holes in the center support bracket.

10- Insert and fasten six self drilling screws supplied with the hood kit to secure the side panel to the center support bracket. Use a 5/64” driver to tighten screws.

Figure 32: Left Side Panel Location

Figure 33: Aligning Left Side Panel

Figure 34: Securing Left Side Panel

Figure 35: Economizer Hood Middle Section
11- Remove the economizer hood middle section from the packing material.

12- Insert the tabs of the middle section into the slots of the right side panel.

**NOTE:** The tabs are bent slightly down from the factory to facilitate retaining position.

13- Push the left side panel to the left and raise the middle section until the back tab fits into the slot in the left side panel.

14- As the left side panel and middle sections are being guided towards each other, insert each tab into the corresponding slot.

15- Bend the two tabs of the lower filter bracket up and bend all of the tabs from the middle section down.

16- Install and tighten the self drilling screws into the pilot hole of each tab.

17- Remove the economizer hood top from the packing material.
18- Lift the hood top and lay the edges on the right and left side panels and push the hood top towards the rooftop unit frame.

19- As the top nears the frame, lift the hood top and continue pushing until the edge of the top clears the top lip as shown in Figure 40.

20- Lower the hood top making sure that the edge of the hood top catches the lip of the frame as shown in Figure 40.

21- Install the self-drilling screws along the top first and then along the hood top to the side panels. Manually tighten the screws to prevent stripping the holes in the sheet metal.

22- Seal all seams and tab edges with silicone caulk (not provided).

23- Install the filters inside the top and bottom sections of the economizer hood assembly as shown in Figure 41.

24- Install and secure the right side OA, filter and RA access panels.

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**CAUTION**

Care must be taken when using cordless drivers that the screws do not strip the metal take holes.

*NOTE: If the barometric damper is to be installed, do not install the screws on the left side at this time.*