

INSTALLATION INSTRUCTIONS FOR OUTDOOR AIR DAMPERS AND OUTDOOR AIR HOOD USED WITH 156-300S UNITS

Shipping and Packing List

**Package 1 of 1 contains:
Outdoor Air Damper**

- 1- Outdoor air damper (OAD) assembly
- 1- P4 wiring harness (58W62 only)
- 1- Economizer end plate
- 1- Bag assembly containing:
 #10 Sheet metal screws
 D2 Wiring diagram section

Outdoor Air Hood

- 1- Hood top*
- 1- Hood top seal
- 2- Hood sides*
- 2- Top filter brackets*
- 1- Bottom filter bracket*
- 2- Side filter brackets*
- 3- Filters*
- 1- Hood top stiffener
- 1- Top seal stiffener

*When economizer is factory-installed, hood sides, side filter brackets and filter are packaged separately and shipped in the blower compartment. The top and bottom filter brackets are secured to the hood top and the hood top is shipped in place on the unit.

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a qualified installer, service agency or the gas supplier

⚠ CAUTION

Danger of sharp metallic edges. Can cause injury. Take care when servicing unit to avoid accidental contact with sharp edges.

Application

Optional outdoor air dampers provide fresh outdoor air. See table 1 for usage.

K1DAMP20C-1 and E1DAMP20C-1 Motorized Dampers:

Damper opens to a set position, as shown in the "Determine Fresh Air Percentage" section, when the blower is operating. To operate the dampers only during the occupied time period, an optional thermostat or energy management system must be installed when a unit is not equipped with a Unit Controller. Both blower operation AND an occupied signal are required for dampers to energize. See figure 1.

C1DAMP10C-1 Manual Damper:

Damper is manually operated; damper position is manually set at installation and remains in that position. See figure 2.

Motorized Damper - K1DAMP20C-1

- 1- Disconnect all power to unit and open filter access panel.
- 2- Align bottom of damper assembly with support bracket and slide assembly into unit. See figure 1. Make sure flanges align as shown in figure 3.
- 3- Fit damper assembly end plate over end of assembly and secure with retained screws.
- 4- Remove P3 jumper plug from J3 unit jack and discard.
- 5- Connect damper motor plug P4 to unit jack J3.

TABLE 1

Damper Type	Unit	Model #	Part #	Cat. #
Manual	156-300S	C1DAMP10C-1	604592-01	54W76
Motorized	LGH/LCH156-300S	E1DAMP20C-1	604592-02	54W74
Motorized	KG/KC/KH 180-300S	K1DAMP20C-1	604592-05	58W62

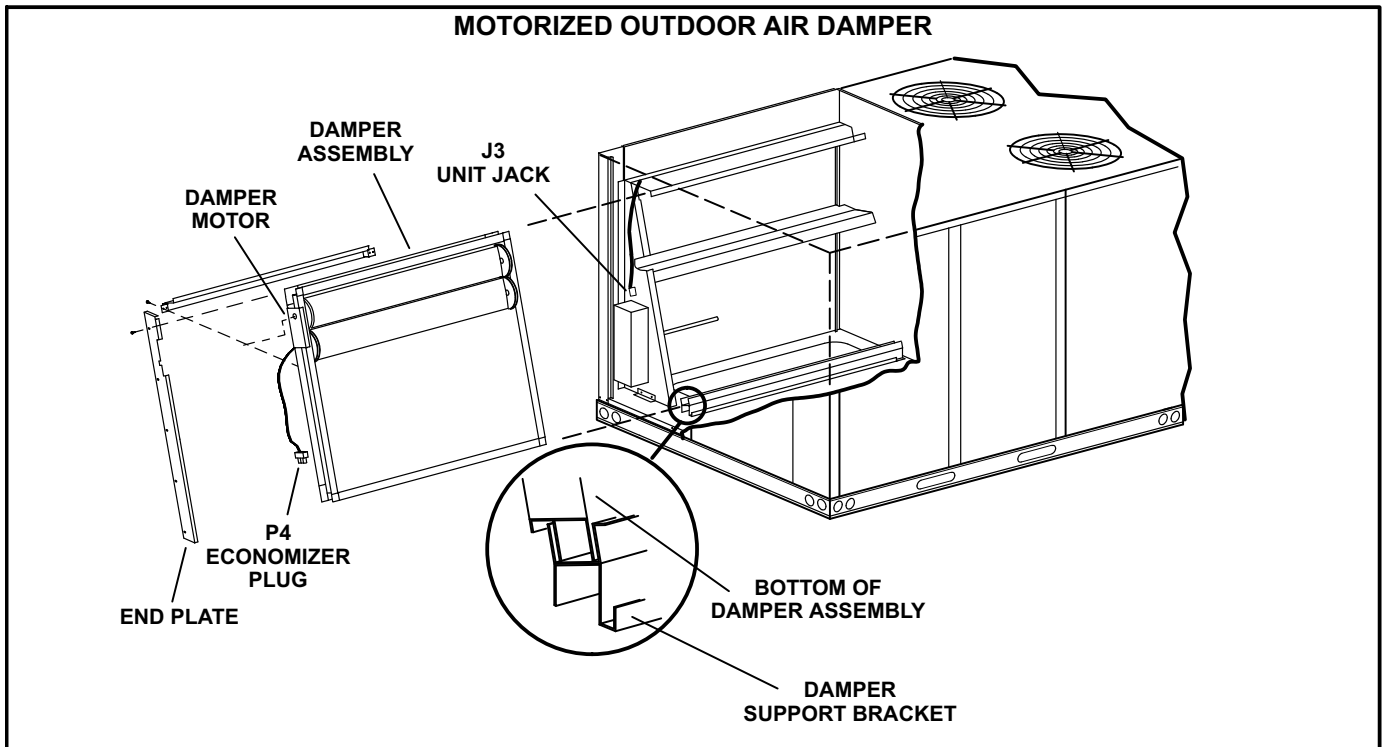


FIGURE 1

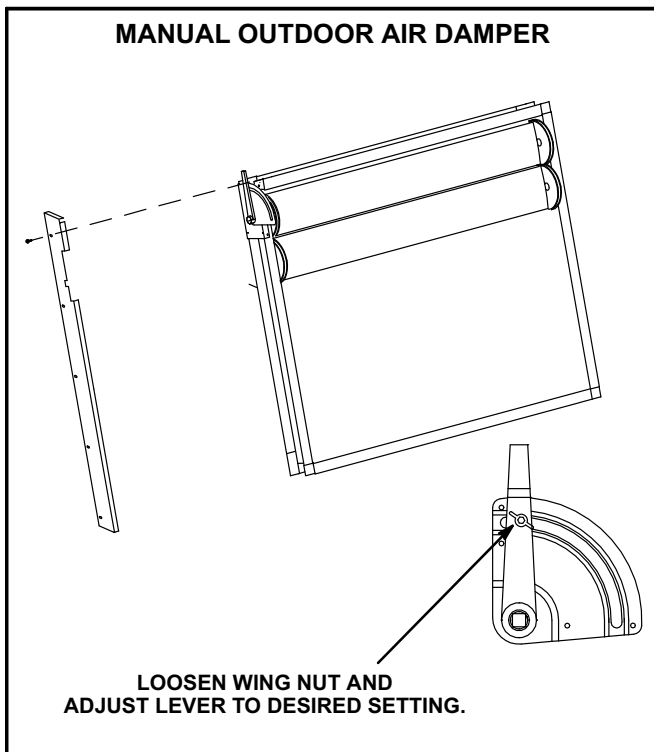


FIGURE 2

- 7- Affix wiring diagram section to inside of compressor access panel. Position to the right of the C1 control section diagram.
- 8- Replace filter access panel and apply power to unit.

- 6- Connect three harness wires to OAD damper motor. See figure 4.

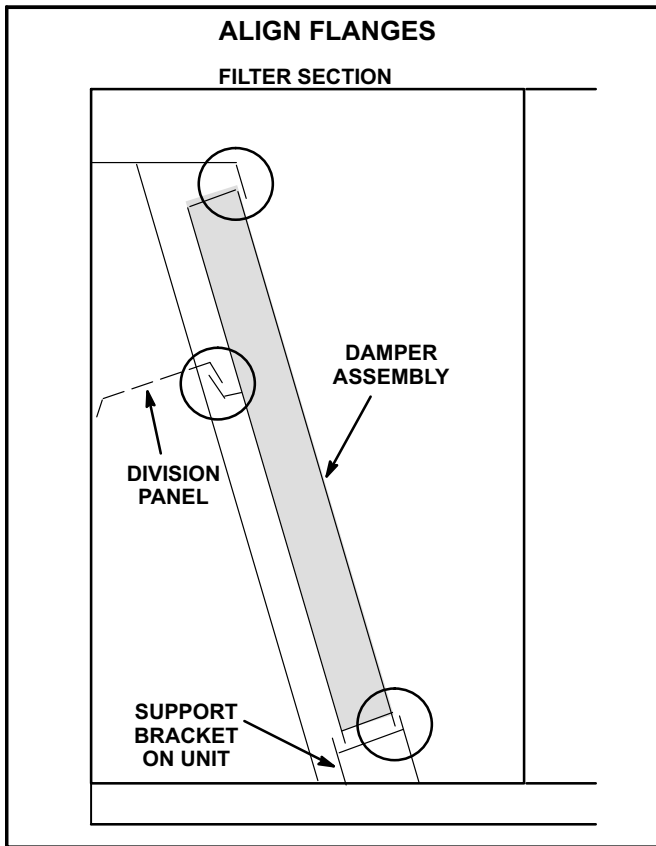


FIGURE 3

9- When connecting a thermostat or energy management system occupied/unoccupied output, remove the jumper wire between TB1 terminals R and OC. Connect output signal wires to R and OC on TB1.

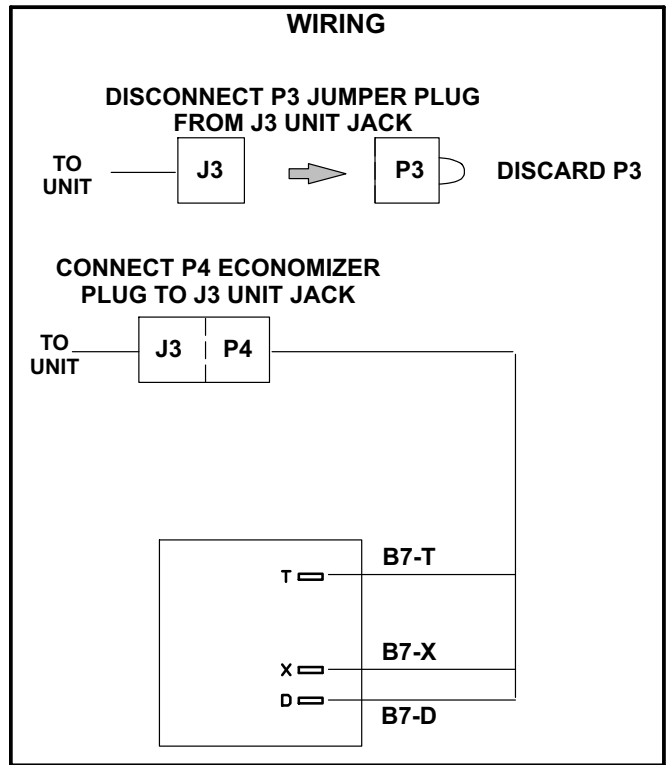


FIGURE 4

Motorized Damper - E1DAMP20C-1

- 1- Disconnect all power to unit.
- 2- Release latches and open filter access panel.
- 3- Align bottom of damper assembly with support bracket and slide assembly into unit. See figure 1.
- 4- Fit damper assembly end plate over end of assembly and secure with retained screws.
- 5- Connect damper motor plug P3 to unit jack J3.

Manual Damper - C1DAMP10C-1

- 1- Disconnect all power to unit.
- 2- Open filter access panel.
- 3- Align bottom of damper assembly with support bracket and slide assembly into unit. See figure 2.
- 4- Fit damper assembly end plate over end of assembly and secure with retained screws.
- 6- Loosen wing nut on damper adjustment lever on damper assembly end plate. Adjust to desired setting and tighten wing nut. See figure 2.

Prodigy Unit Controller Damper Settings

Use the following procedure to enable motorize damper operations for both the M2 and M3 Unit Controllers.

MOTORIZED DAMPERS

PRODIGY M2 UNIT CONTROLLER

Use the following menu:

Settings>Install>New M2> > Damper > MOAD

PRODIGY 2.0 M3 UNIT CONTROLLER

To enable the motorized damper function on the M3 Unit Controller, go to **SETUP > INSTALL** and proceed through the various screens until **CONFIGURATION ID 1** appears. To enable set position **3** to **M** (Motorized Outdoor Air Damper Only).

Determine Fresh Air Percentage

Fresh air percentage is determined in the same manner for both manual and motorized dampers. Measure fresh air percentage according to the following steps and adjust dampers to the specified amount.

- 1- Set damper to allow approximate amount of outdoor air into the unit.

MANUAL DAMPERS - Loosen screws on both sides of dampers and slide to open dampers.

PRODIGY M2 UNIT CONTROLLER

E1DAMP20C-1 Only -

Locate the Unit Controller in the main control area. See figure 5. Set the DIP switch to "DSET" position as shown in figure 6.

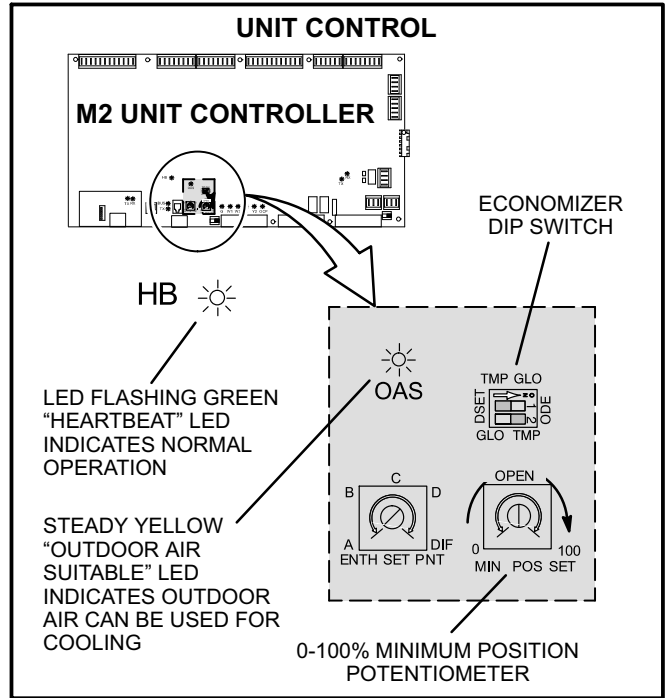


FIGURE 5

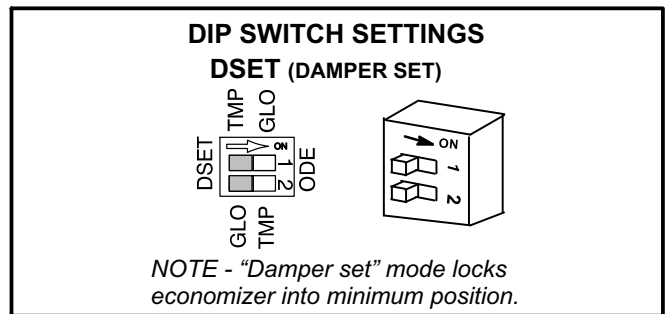


FIGURE 6

PRODIGY 2.0 M3 UNIT CONTROLLER

E1DAMP20C-1 Only -

Go to **SETUP > TEST & BALANCE > MIN DAMPER POSITION (BLOWER ON HIGH)** and adjust Min Damper Position to desired air percentage.

NOTE - If blower supports more than one speed, then the blower is running at high speed at this point.

- 2- Measure outdoor air temperature. Mark the point on the bottom line of chart 1 and label the point "A" (40°F, 4°C shown).
- 3- Measure return air temperature. Mark that point on the top line of chart 1 and label the point "B" (74°F, 23°C shown).
- 4- Measure mixed air (outdoor and return air) temperature. Mark that point on the top line of chart 1 and label point "C" (70°F, 21°C shown).

- 5- Draw a straight line between points A and B.
- 6- Draw a vertical line through point C.
- 7- Draw a horizontal line where the two lines meet. Read the percent of fresh air intake on the side.
- 8- *K1DAMP20C-1 Only* -
Honeywell Actuator - If fresh air percentage is less than desired, adjust thumbwheel higher. If fresh air percentage is more than desired, adjust thumbwheel lower. Repeat steps 2 through 7 until calculation reads desired fresh air percentage. See figure 7.

Siemens Actuator - Damper stops are factory-set at 100% outdoor air and are adjustable in five degree increments. To adjust fresh air percentage, remove retainer clip and adjust damper stop to desired air percentage. See figure 8. Replace retainer clip. Repeat steps 2 through 7 until calculation reads desired fresh air percentage.

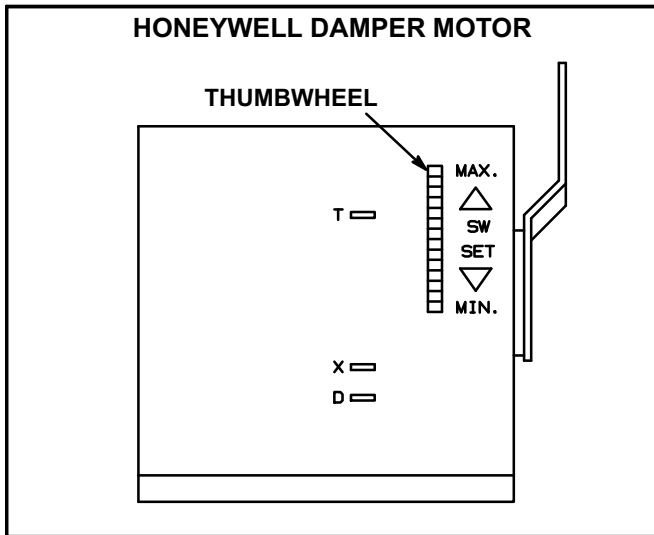


FIGURE 7

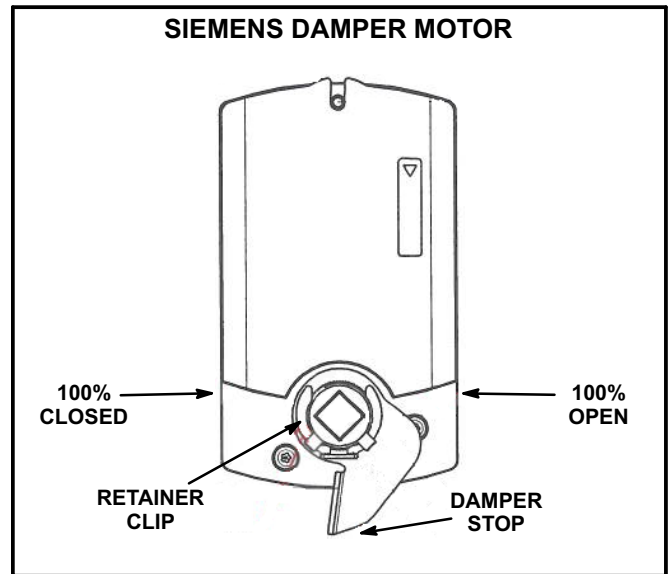


FIGURE 8

PRODIGY M2 UNIT CONTROLLER

E1DAMP20C-1 Only -

If fresh air percentage is **less** than desired, adjust MIN POS SET potentiometer higher.

If fresh air percentage is **more** than desired, adjust MIN POS SET potentiometer lower.

Repeat steps 2 through 7 until calculation reads desired fresh air percentage.

NOTE - Manual damper fresh air intake percentage can be determined in the same manner.

PRODIGY 2.0 M3 UNIT CONTROLLER

If fresh air percentage is **less** or **more** than desired, increase or decrease minimum damper position.

Go to **SETUP > TEST & BALANCE > MIN DAMPER POSITION**

Repeat steps 2 through 7 until calculation reads desired fresh air percentage.

PRODIGY M2 UNIT CONTROLLER

E1DAMP20C-1 Only -

Set the DIP switch to "GLO" position as shown in figure 9.

NOTE - E1DAMP20C-1 Only - In addition to the previous method, damper minimum position may also be remotely set using Unit Controller software (ECTO 5.24). A remote adjustment will override potentiometer adjustment. Refer to Unit Controller manual.

PRODIGY 2.0 M3 UNIT CONTROLLER

Press **SAVE** to save the minimum damper position. At this point, if blower supports more than one speed, then the user interface prompts you to enter the min damper position when blower is running at low speed. Repeat steps 2 – 7 to determine the minimum damper position when blower is running at low speed and save the value.

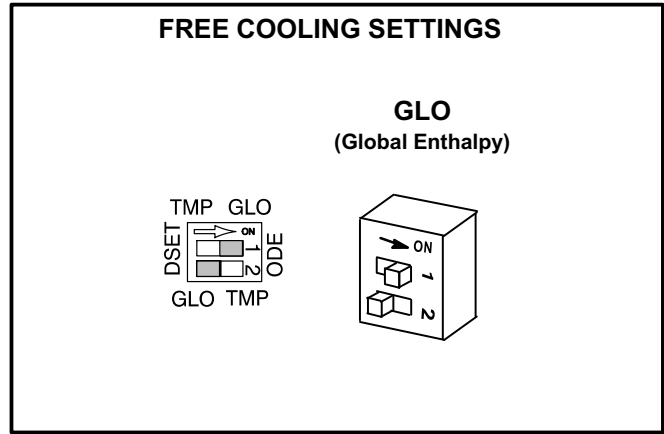
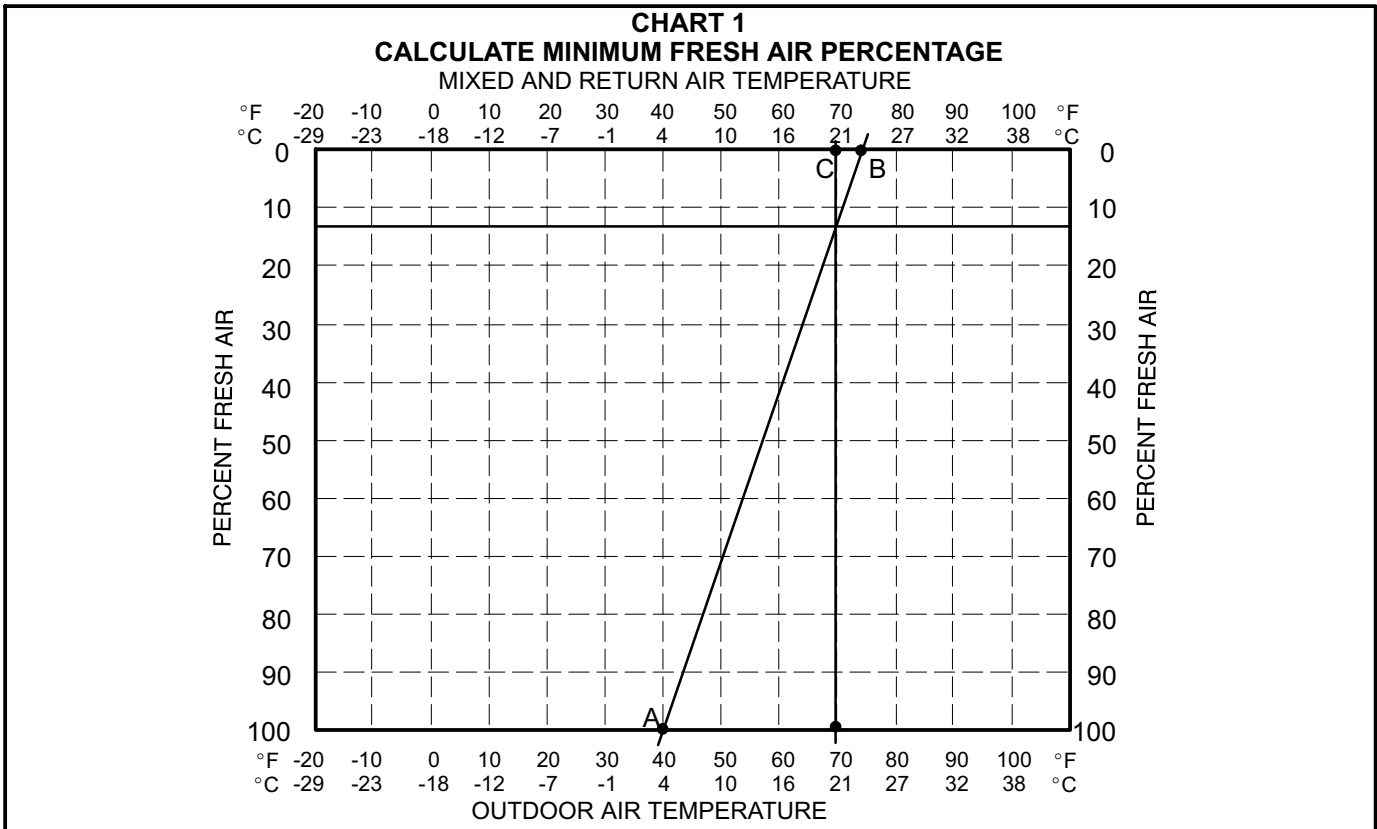


FIGURE 9

PRODIGY 2.0 M3 UNIT CONTROLLER



Outdoor Air Hood

The outdoor air hood is packaged separately but attached to the damper assembly crate. Use #10 self drilling screws to install hood unless noted otherwise. Refer to figures 10, 11, 12, 13, and 14.

- 1- Remove and retain screws securing unit top back panel; remove and discard panel.
- 2- Secure top seal stiffener to back side of hood top seal. See figures 10 and 11.
- 3- Slide hood top seal under unit cabinet top and secure using five retained top screws. Install, but do not tighten, the two screws on each end of the hood to seal. Refer to figure 11.
- 4- Remove and retain top three screws on the left mullion of the outdoor air section. See figure 11.
- 5- Secure hood top stiffener to unpainted side of the hood top with ten screws. See figures 10 and 12.
- 6- Position the hood top edge V-channel under the corresponding V-channel on the hood top seal and slide into place from right to left. See figure 10 and 11.
- 7- Tighten the two screws on each end of the hood top seal left loose in step 3.

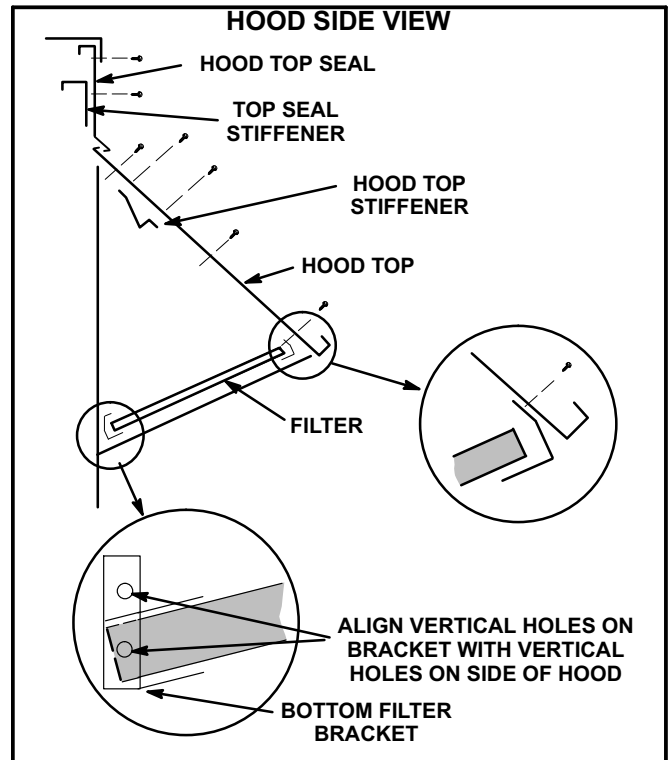


FIGURE 10

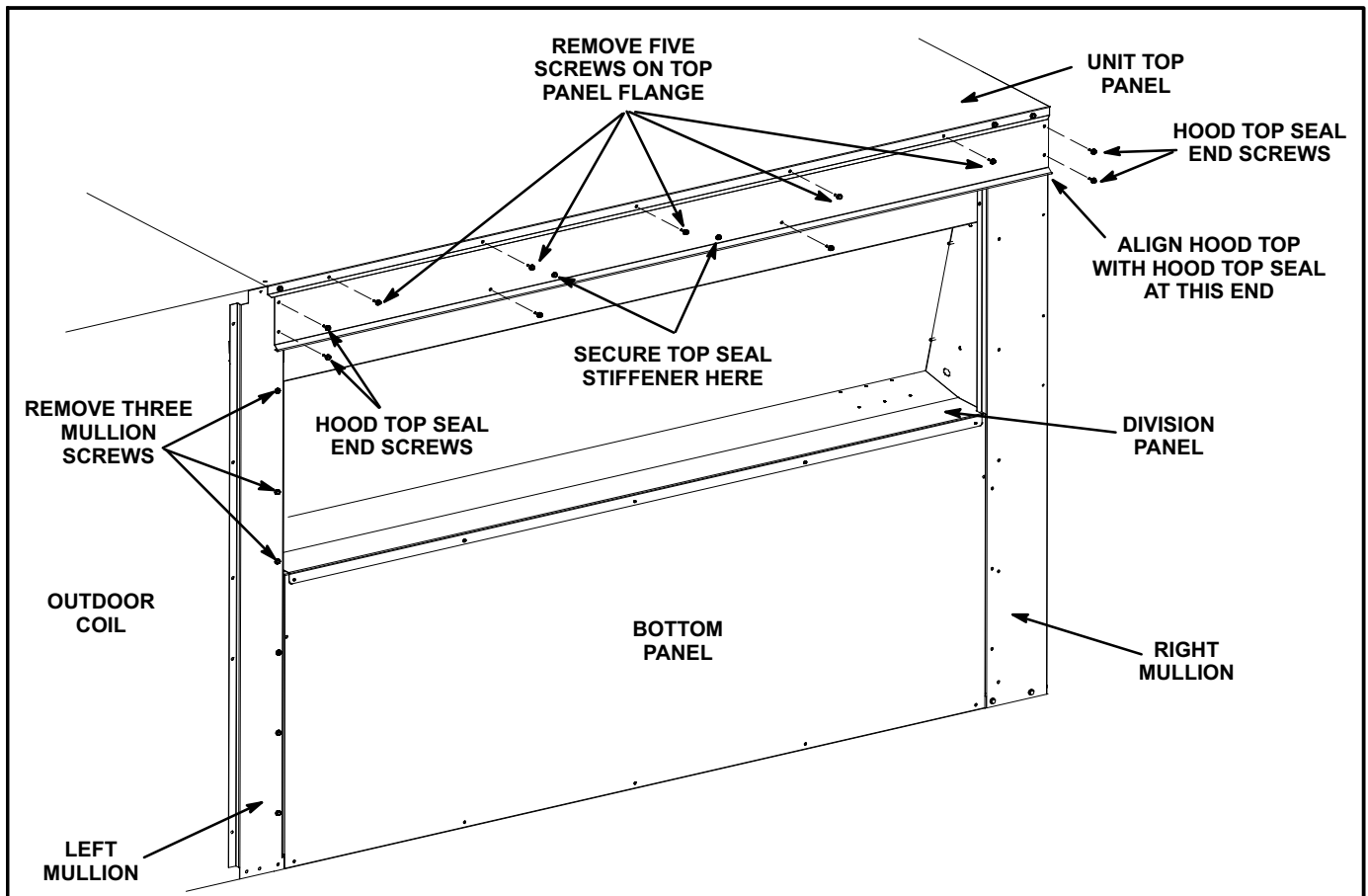


FIGURE 11

- 8- Install L-shaped left side filter bracket to left hood side. See figure 12.
- 9- Secure left hood side to the hood top. See figure 13. Secure the left hood side to the unit using three screws removed in step 4. See figure 13.
- 10- Install the right side filter bracket to the right hood side. See figure 12.
- 11- *Factory-Installed Economizers* - Remove the bottom filter bracket from the hood top assembly panel. See figure 15.
- 12- *Factory-Installed Economizers* - Remove the short and long top filter brackets from the hood top assembly panel. See figure 15.
- 13- Secure the right hood side to the hood top. See figure 14. Do NOT secure the right hood side to unit.
- 14- Align the two holes on the left hood side with the two holes in the bottom filter bracket. See figures 10 and 13. Secure with screws.

- 15- Secure bottom filter bracket to right hood side in the same manner. See figures 10 and 14.
- 16- Secure the right hood side to the unit as shown in figure 14.
- 17- Secure the top filter bracket (long) to the hood top. See figures 10 and 12. Slide two filters into place.

Note - Slide the filters to the left side of the hood. Make sure there are no air gaps between either two filters or the filter and the left hood side.

- 18- Insert the third filter into the bottom filter bracket. Position the top filter bracket (short) as shown in figures 10 and 12. Secure the bracket to the hood top with screws.
- 19- Make sure there are no gaps between the filters by sliding the filters to the left.
- 20- Caulk (field-provided) both ends of the top seal and hood top as shown in figures 13 and 14.

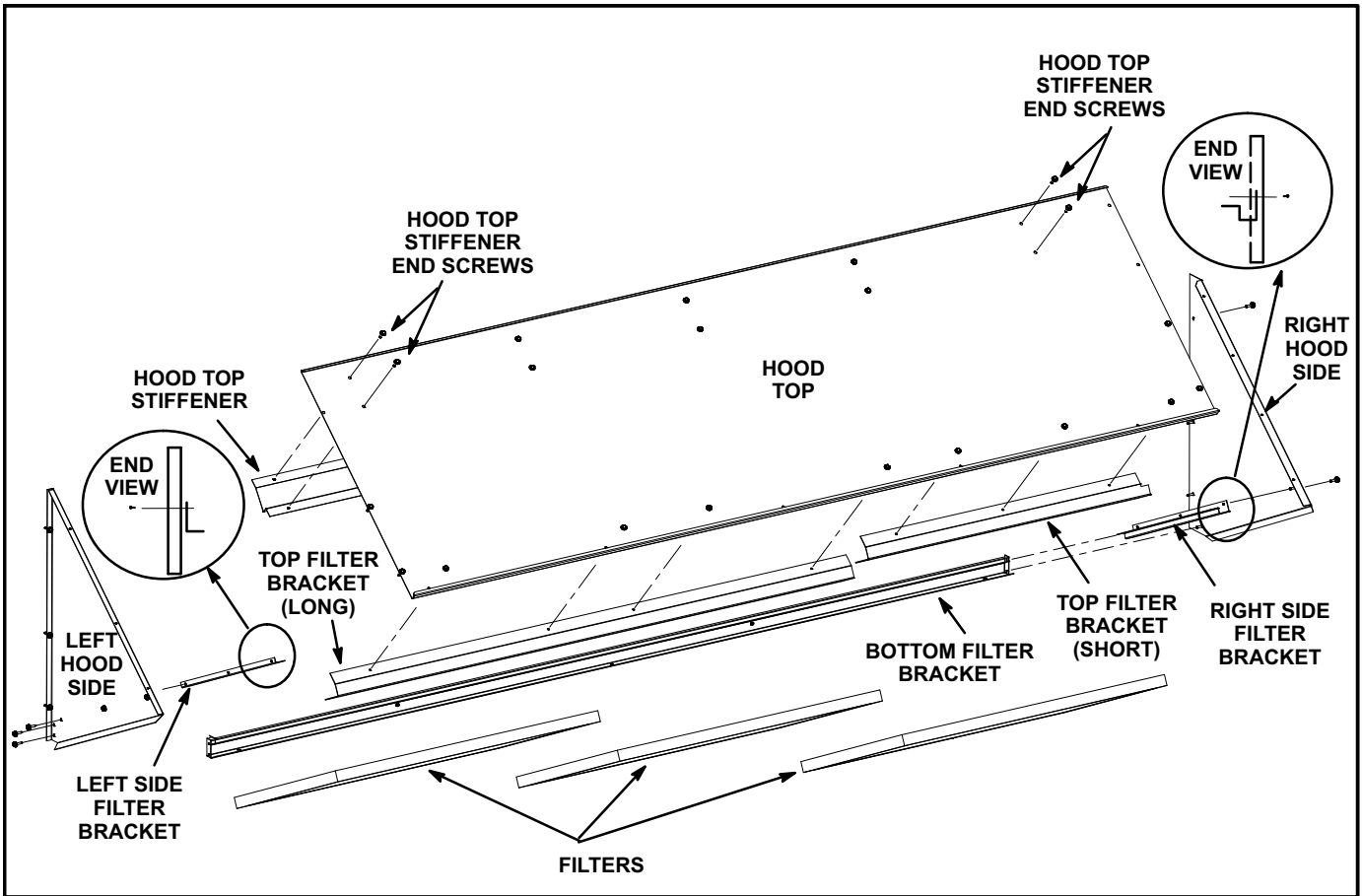


FIGURE 12

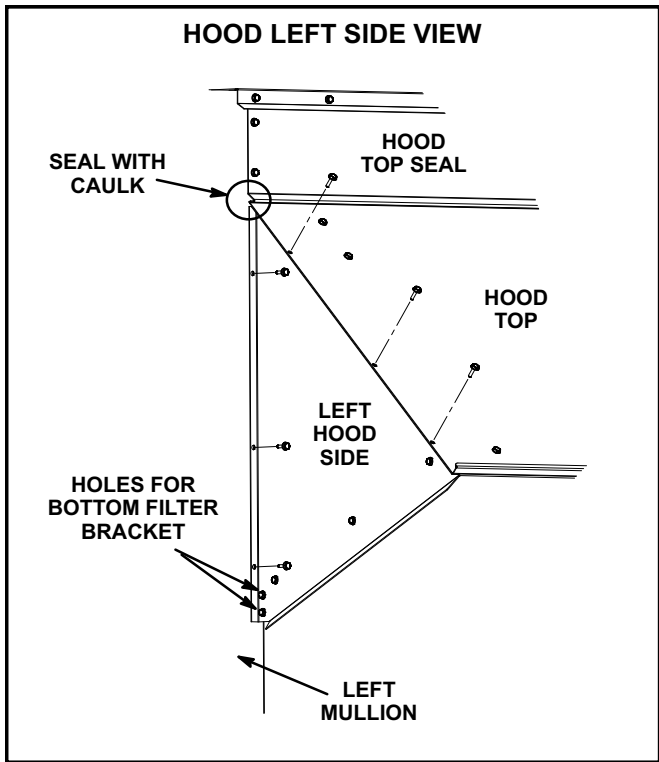


FIGURE 13

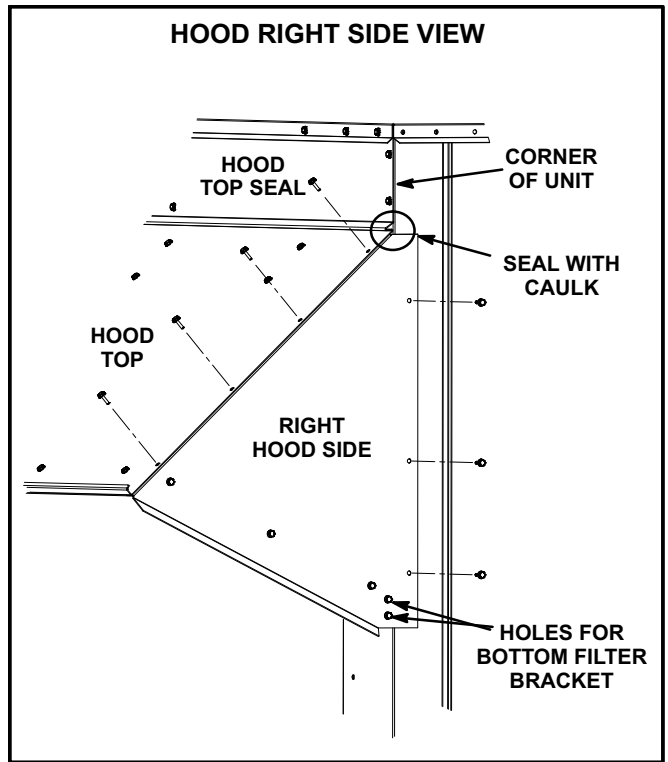


FIGURE 14

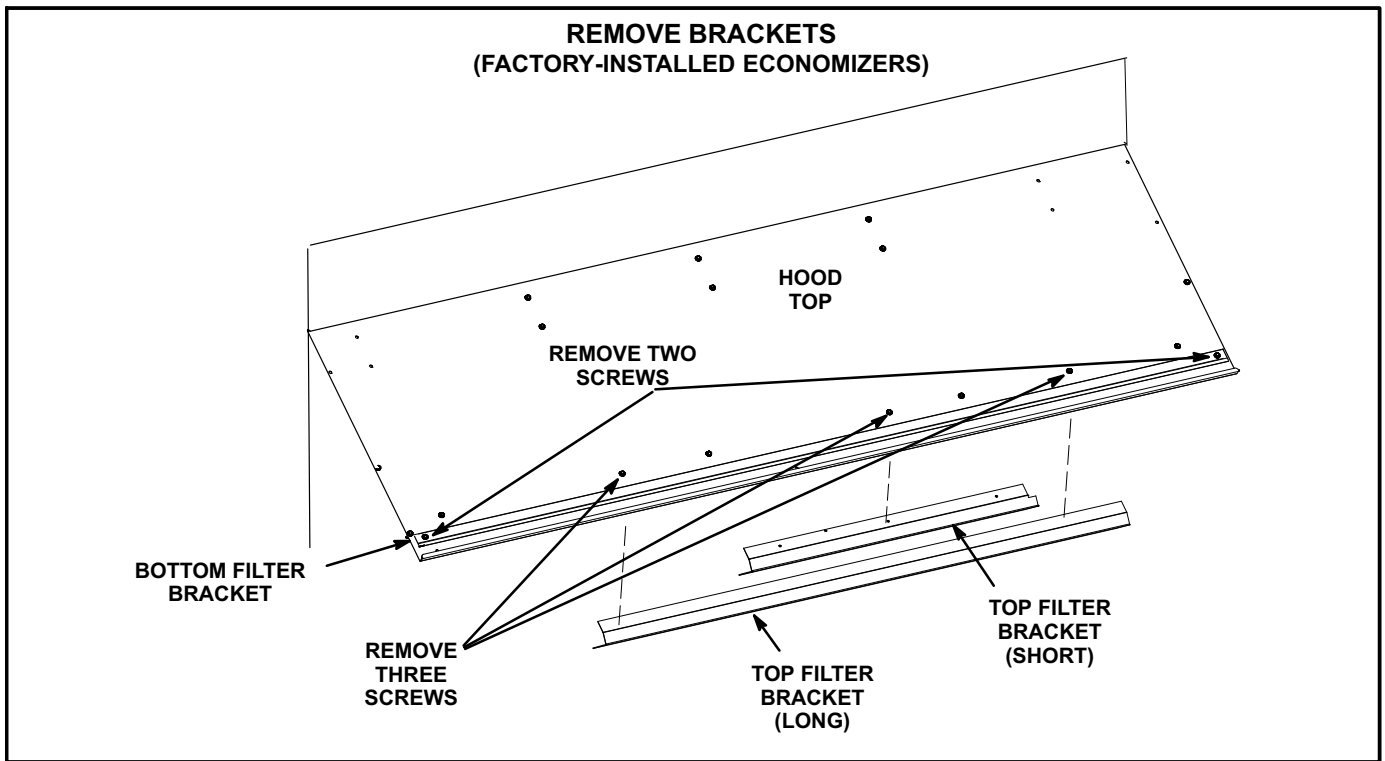


FIGURE 15