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6/2017
Supersedes 506619-01

OUTDOOR AIR DAMPERS

INSTALLATION INSTRUCTIONS FOR OUTDOOR AIR DAMPERS AND OUTDOOR AIR HOOD USED WITH LGH/LCH242H-360H UNITS

Shipping and Packing List

Package 1 of 1 contains:

Outdoor Air Damper

- 1- Outdoor air damper (OAD) assembly
- 1- Economizer end plate
- 1- Bag assembly containing:
 - #10 Sheet metal screws
 - #6 Sheet metal screws
 - Wiring diagram (74W44 only)

Outdoor Air Hood

- 1- Hood top
- 1- Hood top seal
- 2- Hood sides
- 2- Front filter brackets
- 1- Back filter bracket
- 2- Filter side seals
- 5- Filters
- 1- Filler panel
- 1- Hood top stiffener

Application

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

E1DAMP25D-1 Motorized Damper:

Damper opens to a set position, as shown in the “Determine Fresh Air Percentage” section, when the blower is operating. Both blower operation AND an occupied signal are required for dampers to energize. See figure 1.

E1DAM015D-1 Manual Damper:

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

Motorized Damper

- 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

- 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.

⚠ 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 licensed professional HVAC installer or equivalent, service agency, or the gas supplier

⚠ CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

TABLE 1

Damper Type	Unit	Model #	Part #	Cat. #
Manual	LGH/LCH242H-360H	E1DAM015D-1	606207-03	74W45
Motorized	LGH/LCH242H-360H	E1DAMP25D-1	604207-02	74W44



MOTORIZED OUTDOOR AIR DAMPER

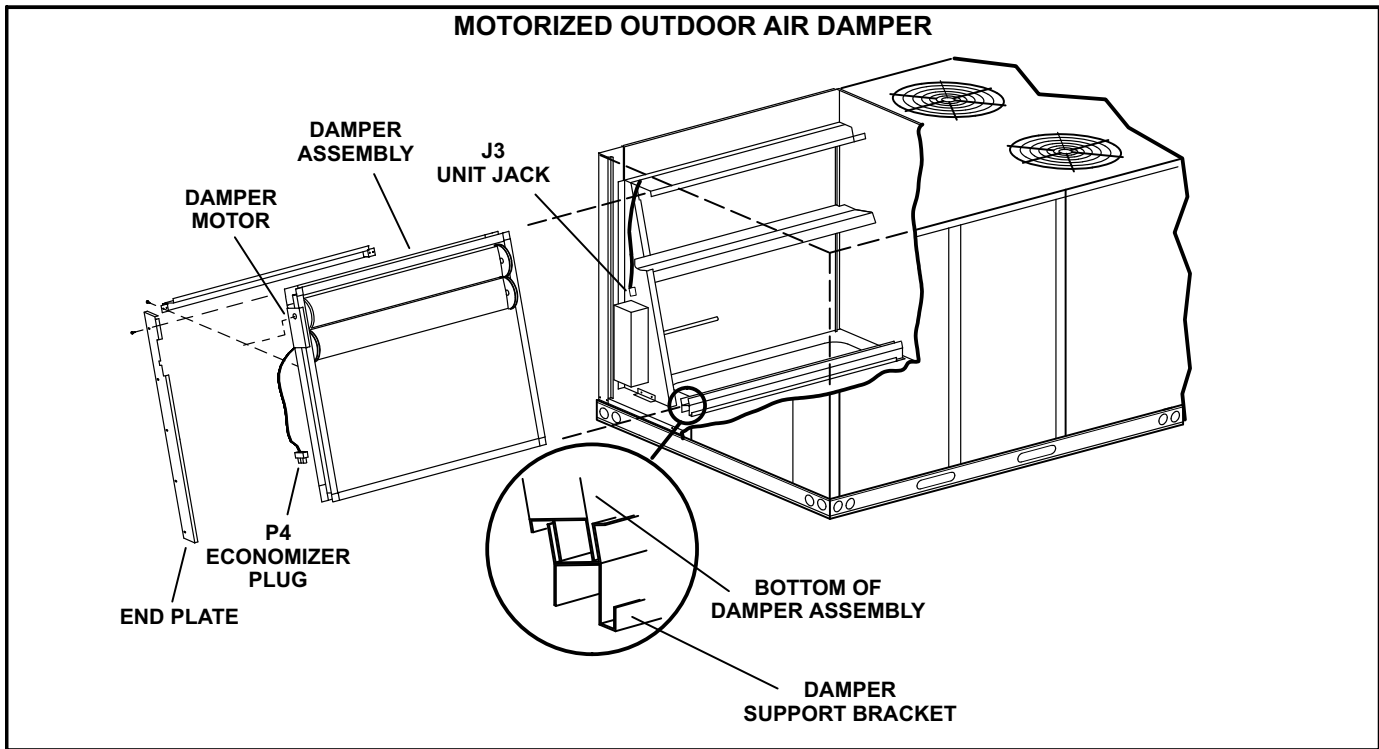


FIGURE 1

MANUAL OUTDOOR AIR DAMPER

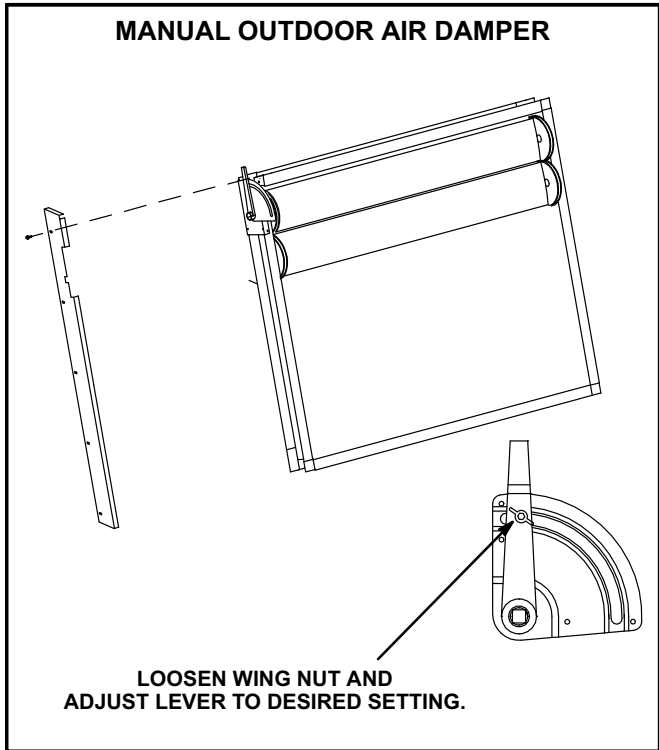


FIGURE 2

ALIGN FLANGES

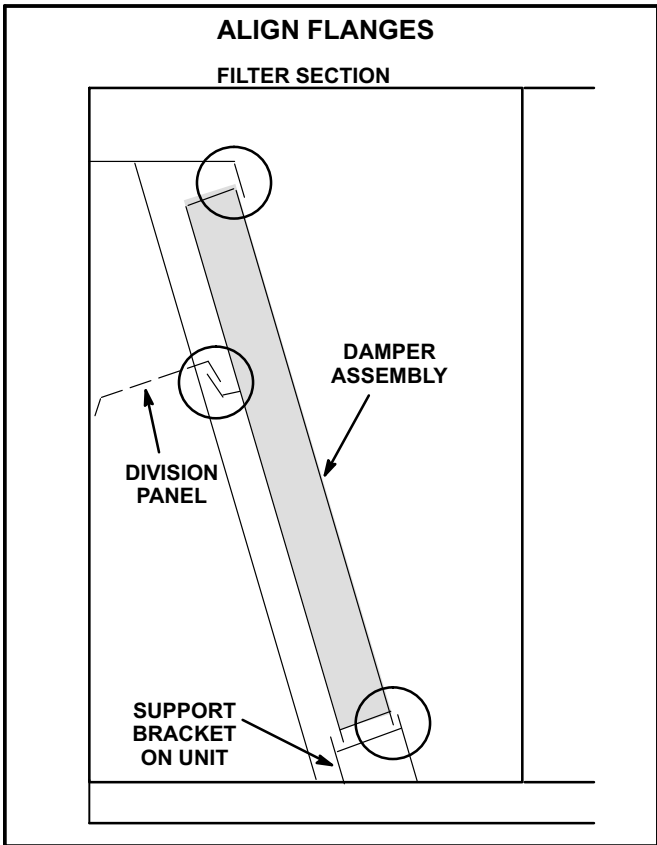


FIGURE 3

Damper Minimum Position Adjustments

Units Equipped With M3 Unit Controllers

The damper minimum position or positions are adjusted using the Unit Controller input screen. For a unit equipped with a staged supply air blower, the unit should initially be run on highest speed.

1. Field-Installed Dampers Only -

Use one of the following menus to enable the motorized damper function on the Unit Controller.

SETUP > INSTALL

Navigate through the various screens until CONFIGURATION ID 1 appears. Set position 2 to M (motorized outdoor air damper only) to enable dampers.

2. Use the following menu path to set the minimum damper position.

SETUP > TEST & BALANCE > DAMPER > MIN
DAMPER POSITION BLOWER ON HIGH=.%
(parameter 132 for manual input)

3. Use the *Determine Outdoor Air Percentage* section to verify the minimum damper air percentage.

4. Use the following menu path to set the low speed minimum damper position.

SETUP > TEST & BALANCE > DAMPER > MIN
DAMPER POSITION BLOWER ON LOW=.%
(parameter 9 for manual input)

5. Use the *Determine Outdoor Air Percentage* section to verify the low speed minimum damper air percentage.

Note - For additional details, refer to Unit Controller manual shipped with unit.

Minimum Damper Position Range

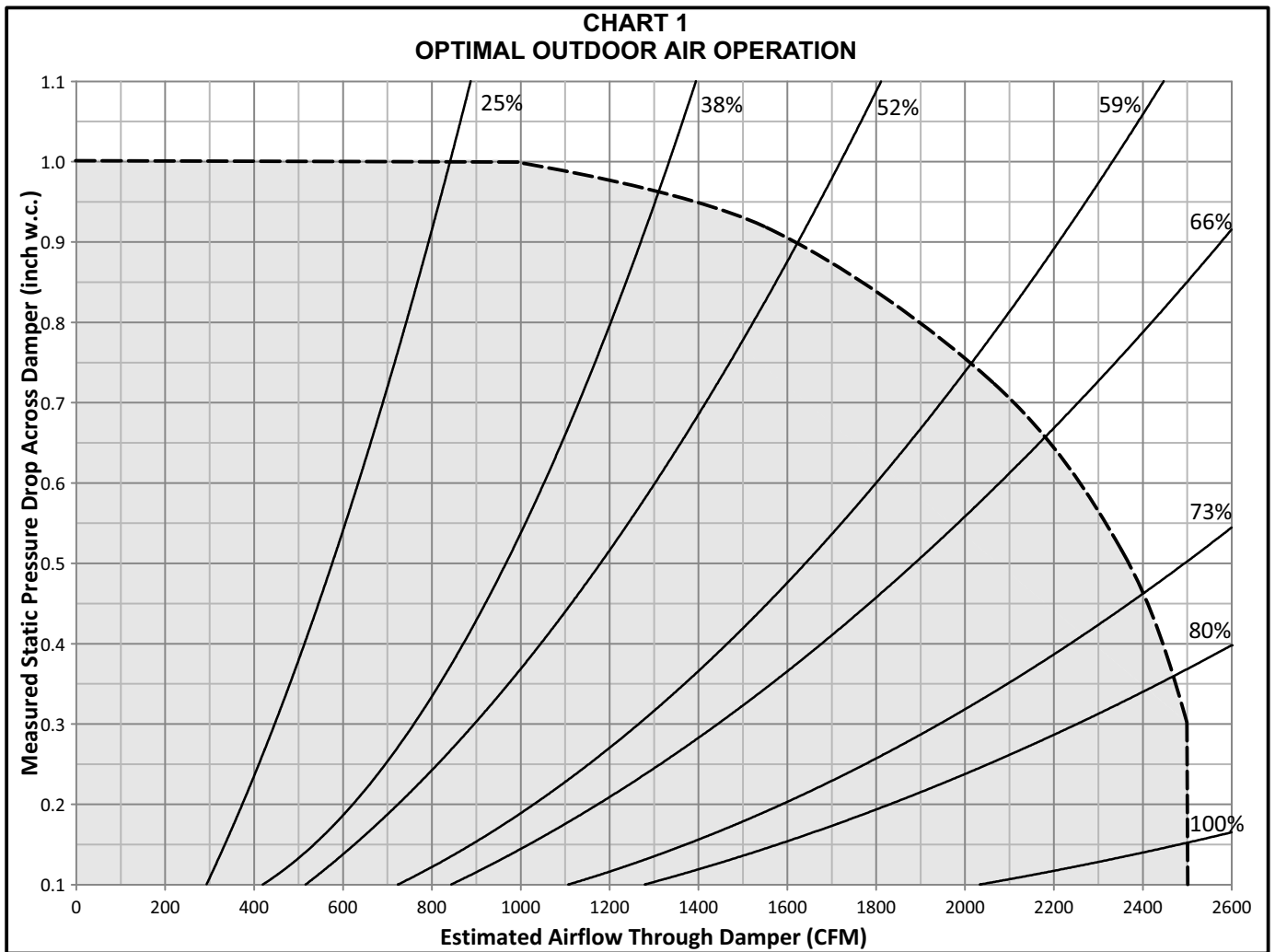
The motorized outdoor air damper operation is optimized as shown in the shaded area of Chart 2. Unit operation during minimum damper position above this curve increases the potential for rain being drawn into the unit.

1. Remove the metal mesh filter from the hood. Measure the static pressure differential between the return compartment (through filter door is recommended) and outside the unit. Operate the unit with the damper open to minimum position and the supply air blower on high. Record the high speed pressure differential in table 2.

2. *Units With Staged Supply Air Blowers* - Repeat the static pressure measurement at the low blower speed/minimum damper position previously identified. Record the low speed pressure differential in table 2.
3. Read the damper percentage open. This is the damper position (% open) that was entered into the Unit Controller in a previous step.
4. Plot the damper % open and static pressure drop on Chart 2.
5. Replace the metal mesh filter.

TABLE 2

Supply Air Blower High Speed		Supply Air Blower Low Speed	
Static Pressure Differential - "w.c.	Damper % Open	Static Pressure Differential - "w.c.	Damper % Open



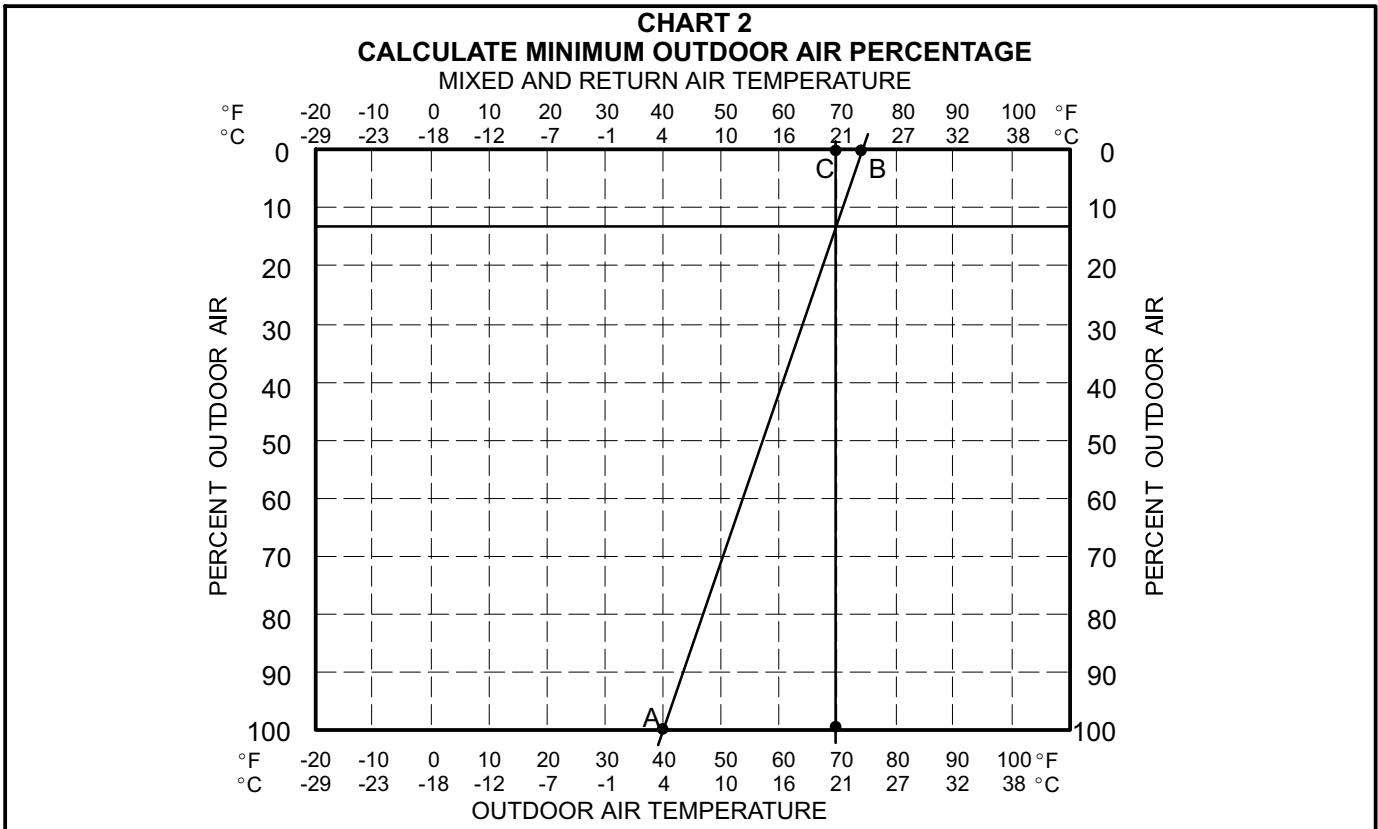
Determine Outdoor Air Percentage

Outdoor air percentage can be estimated in the same manner for both manual and motorized dampers. Measure outdoor air temperatures according to the following steps and calculate the outdoor air percentage. For motorized dampers, refer to unit specific damper adjustment details following these steps.

1. Measure outdoor air temperature. Mark the point on the bottom line of chart 1 and label the point "A" (40°F, 4°C shown).
2. Measure return air temperature. Mark that point on

the top line of chart 1 and label the point "B" (74°F, 23°C shown).

3. 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).
4. Draw a straight line between points A and B.
5. Draw a vertical line through point C.
6. Draw a horizontal line where the two lines meet. Read the percent of outdoor air intake on the side.
7. If outdoor air percentage is less or more than desired, increase or decrease minimum damper position. Then, repeat steps 2 through 7 until calculation reads desired outdoor air percentage.



Outdoor Air Hood

The outdoor air hood is packaged separately but attached to the damper assembly crate. Assemble hood and install as follows:

1- Remove screws securing back panels and discard panels.

2- Secure filler panel to header. See figure 4.

3- Slide hood top seal under unit cabinet top; remove and retain screws securing top as needed. Secure top seal using retained screws. See figure 5 and 6.

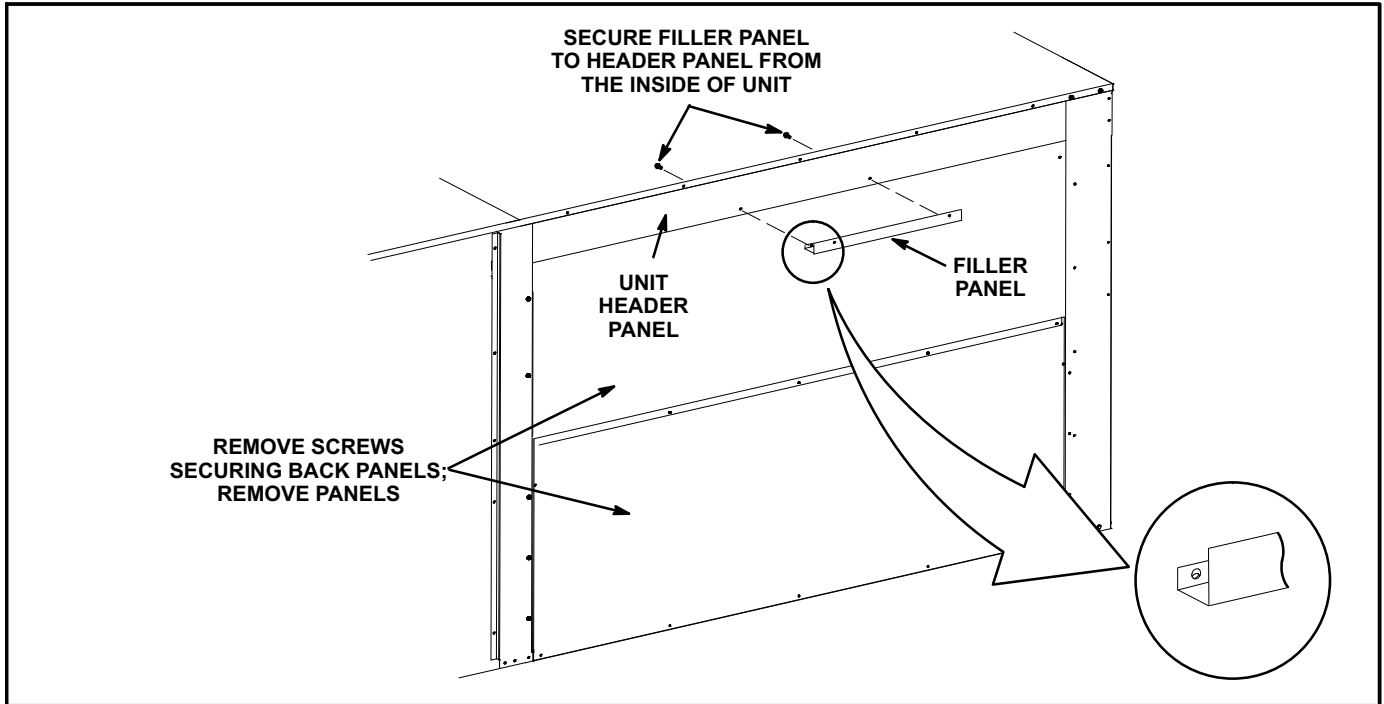


FIGURE 4

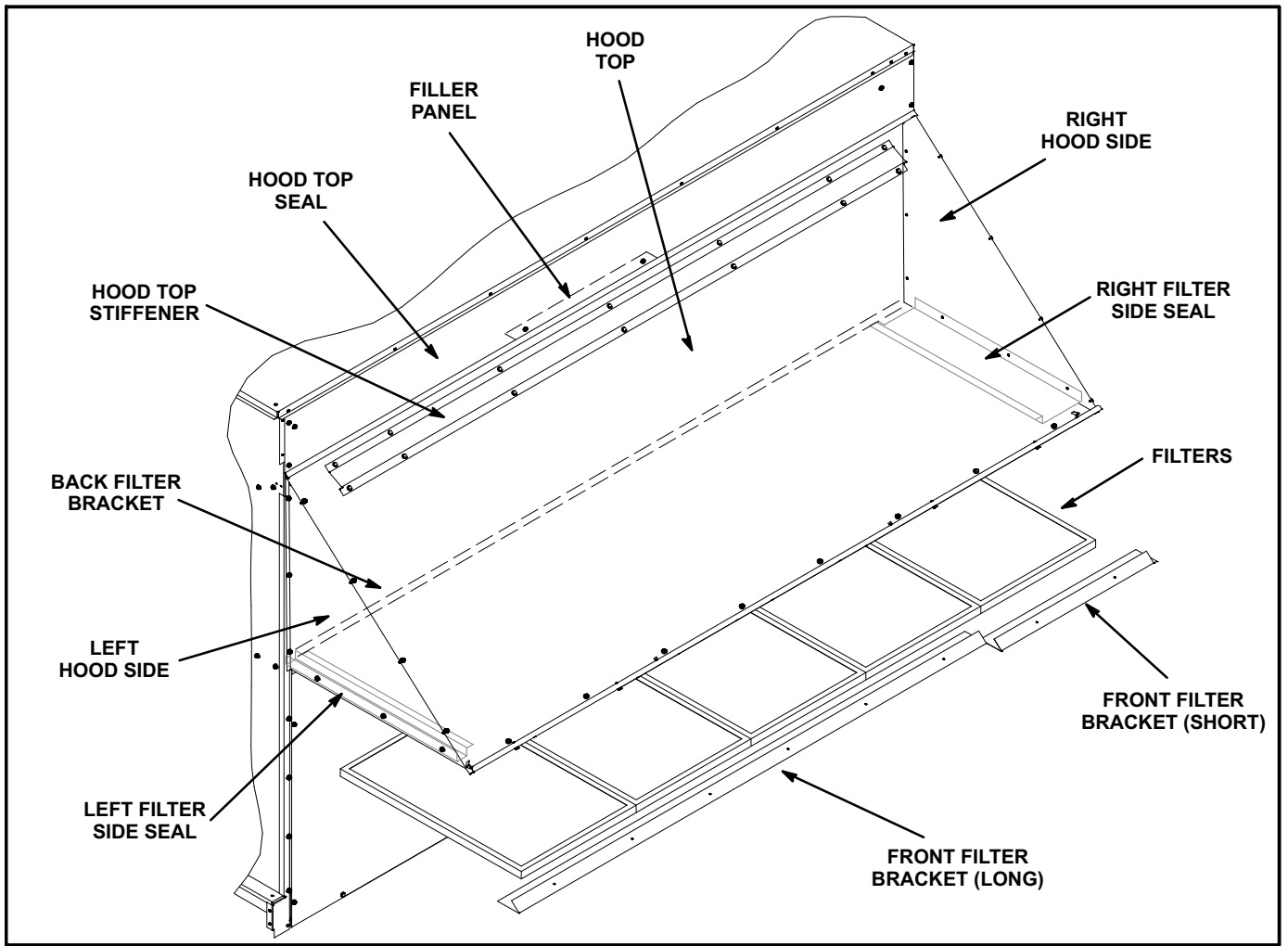


FIGURE 5

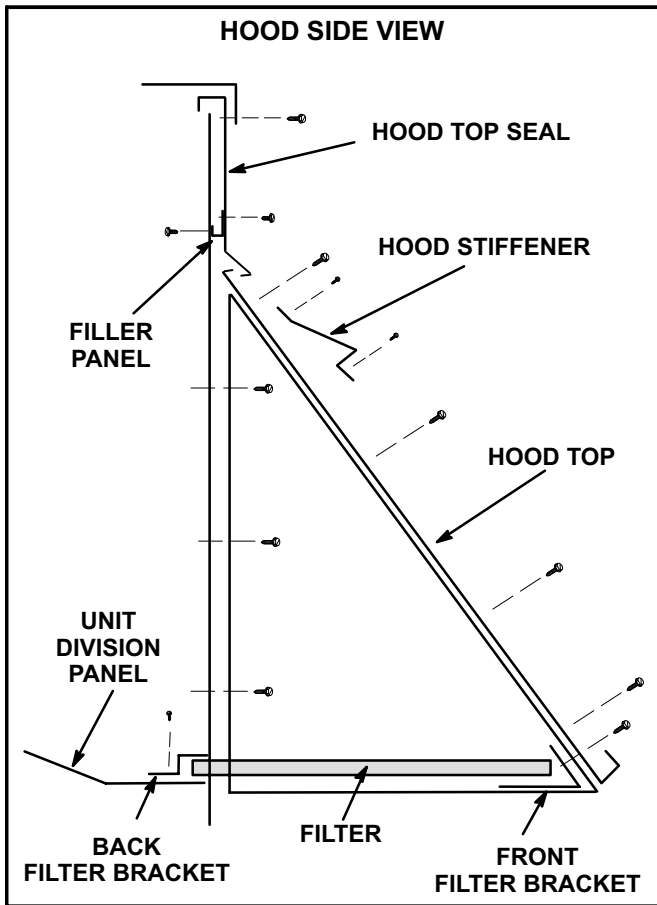


FIGURE 6

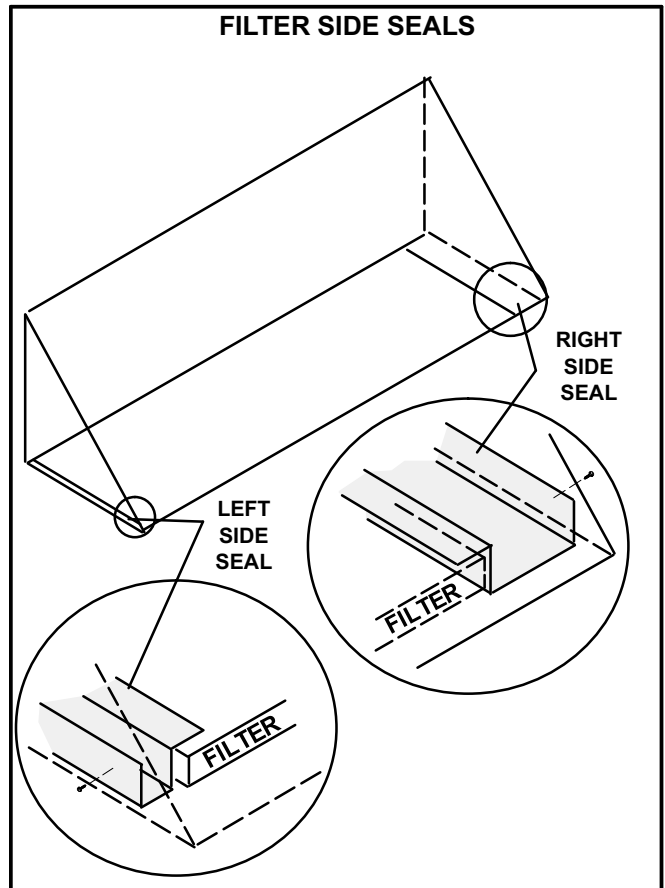


FIGURE 7

- 4- Position filter side seals on hood sides; make sure brackets are on the INSIDE of the hood. Secure with screws provided. See figure 7.
- 5- Secure intake hood sides to hood top using four sheet metal screws on each side.
- 6- Align back filter bracket with holes in unit division panel. See figure 6. Secure with sheet metal screws.
- 7- Align hood stiffener screw holes with hood top screw holes. Secure with sheet metal screws.
- 8- Position hood top lip under top seal and slide hood assembly into place. See detail in figure 6. Secure intake hood sides to unit using screws provided.
- 9- Secure the longer front filter bracket flush with the left end of the hood top. Install all but last filter. See figures 5 and 8.
- 10- Slide last filter into the right corner of the back filter bracket. slide the remaining (shorter) top filter bracket over the other end of the filter. Align the holes on the hood top with the holes on the shorter top filter bracket. Secure the the top filter bracket using sheet metal screws.

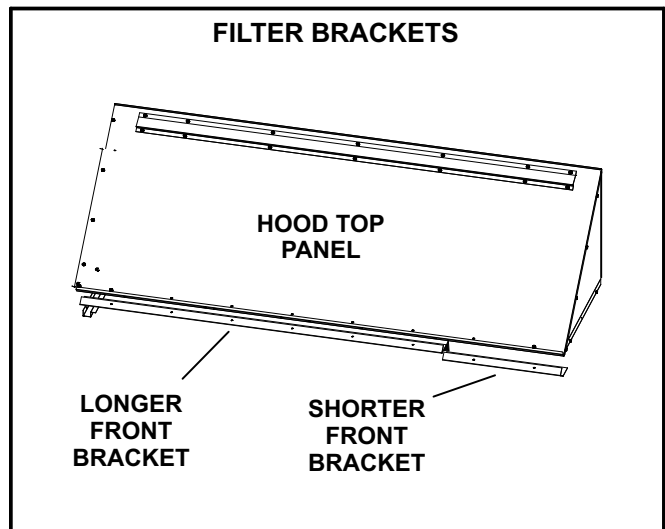


FIGURE 8