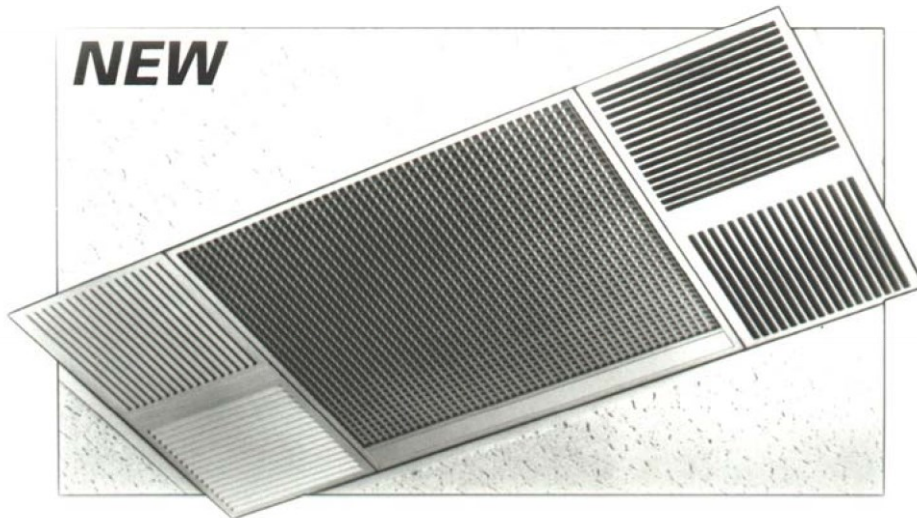


# OWNER'S MANUAL

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# EverClear<sup>TM</sup>

## Total High Efficiency Particulate & Gaseous Filtration System



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*State-of-the-art air cleaner is the ultimate solution for indoor air pollution capturing both particulate and gaseous contaminants. Removes odors, tobacco smoke, pollen, dust, vapors and many other irritants.*

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## SPECIFICATIONS

**ELECTRICAL RATING:**

115 Vac, 6.5 Amps, 60 Hz  
208-230 Vac, 4 Amps, 60 Hz

**AIRFLOW CAPACITY:**

| FILTER<br>PN | EFFICIENCY    | AIR<br>VOLUME<br>MAX. | AIR<br>VOLUME<br>LOW |
|--------------|---------------|-----------------------|----------------------|
| 41149        | 95% DOP @ .3µ | 1100 CFM              | 250 CFM              |
| 41156        | 85% ASHRAE    | 1200 CFM              | 265 CFM              |
| 41154        | 65% ASHRAE    | 1305 CFM              | 285 CFM              |

Air volumes listed above are at the low & maximum speed settings using the filters listed above with two of the odor/vapor modules, PN 41150. The 95% DOP filter comes standard along with the two-odor/VOC filter modules.

**FINE PARTICLE FILTER:**

The particle filters listed above (Airflow Capacity) each contain a minimum of 130 square feet of media. The dimensions of each filter are 21 7/8" x 22" x 4.56".

**PREFILTER:**

The standard prefilter is a 1" thick washable aluminum mesh, PN 41147. Optional higher efficient disposable filters are available.

**ODOR FILTER MODULE:**

The EverClear™ standard unit comes with two refillable filter modules, PN 41150. Each PN 41150

contains 10 disposable filters. The total adsorbent weight contained in the two modules is 44 lbs.

**DIMENSIONS:**

46 5/8"L x 24 5/8"W x 19 9/16"H. The minimum depth above the false ceiling required for installing the EverClear™ is 19 9/16".

**WEIGHT:**

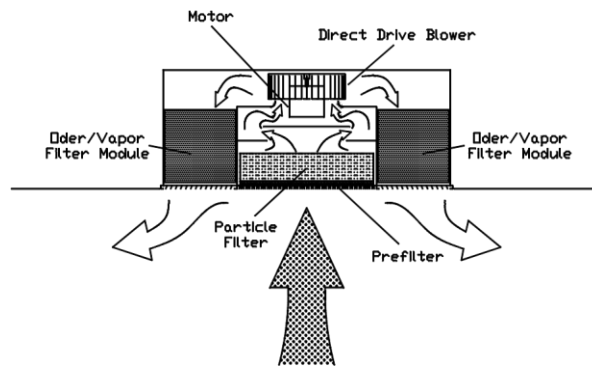
200 lbs., installed; 250 lbs., shipping

**MOTOR:**

1/2 Hp, permanent split capacitor, with sealed ball bearings.

**BLOWER WHEEL:**

Forward curved, direct drive, 12 1/2" x 4", single inlet wheel.



## PLANNING THE INSTALLATION

### WARNING!

**EXPLOSION HAZARD—Can cause property damage, severe injury or death.**

1. Do not install where there is any danger of gas, vapor or dust explosion.
2. Do not install if explosion-proof electrical appliances or fixtures are specified.

### APPLICATION & OPERATION

The EverClear™ is designed to be installed in a false ceiling where overhead air cleaning is required. Typical applications include offices, designated smoking areas, computer rooms, data processing rooms, etc.

Because it provides its own circulation, the EverClear™ may be used in almost any application requiring the removal of airborne contamination from an enclosed space. **The EverClear™ must only be used in areas that are ventilated for human occupancy.**

## MAKEUP AIR

Recommended quantities of clean outdoor ventilation air for various applications are described in Table 2 of the ASHRAE Standard 62-89, "Ventilation for Acceptable Indoor Air Quality." ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineering, Inc., Telephone #404-636-8400) notes that these recommended outdoor air quantities may be reduced by the use of clean, recirculated air if the IAQ Procedure 6.2 is used. Appendix E of ASHRAE 62-89 includes recommendations for the use of clean, recirculated air. However, in most cases, adequate control of carbon dioxide generally requires a minimum clean outdoor air quantity of no less than 15 cubic feet of air per minute per person.

Additional ventilation may be required for toxic contaminants. In any event, the air cleaner must only be used in areas that are ventilated for human occupancy.

## SIZING

Air cleaners are generally best sized according to the use of the area and the volume of the room (Air Changes per Hour method).

Secondary factors to consider in applying air cleaners include:

- Type of contamination
- Number of occupants
- Outside air quality
- Anticipated fan setting
- Rate of contaminant generation By considering these factors, the number of air cleaners required can be adjusted up or down to account for abnormalities in operating conditions.

Follow Steps 1-4 below to determine the number of air cleaners required:

**Step 1** – Measure the length, width and height of the room in feet.

**Step 2** – Determine the Air Changes per Hour required. See Chart A below.

**Step 3** – Determine the CFM (Cubic Feet per Minute of Air). See Chart B below.

**Step 4** – Plug the figures from Steps 1-3 into the sizing formula below and calculate the number of air cleaners required.

| CHART A – AIR CHANGES PER HOUR |                                  |                      |
|--------------------------------|----------------------------------|----------------------|
| Load                           | Description of Application       | Air Changes Per Hour |
| Light                          | General offices & computer rooms | 4-5                  |
| Aver.                          | Conference and break rooms       | 6                    |
| Heavy                          | Designated smoking areas,        | 8-10                 |

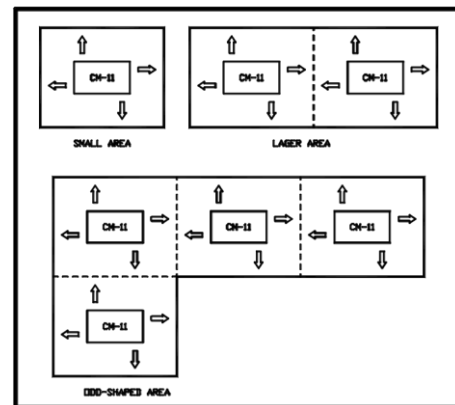
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|  | bingo halls, bars & extra smoky areas |          |          |
|--|---------------------------------------|----------|----------|
| CHART B – CUBIC FEET OF AIR PER MINUTE   |                                       |          |          |
| The air cleaner has a variable speed controller. Use the CFM that corresponds to the speed that the air cleaner will operate on normally. Ex./ Low speed where noise is a prime concern and maximum speed where noise is not a factor. |                                       |          |          |
| EverClear™   | Low                                   | High     | Maximum  |
| CFM  | 350                                   | 725      | 1100     |
| Noise Level  | 51 dB(A)                              | 59 dB(A) | 69 dB(A) |
| SIZING FORMULA   |                                       |          |          |
| $\frac{L \times W \times H \text{ of Room} \times \text{Air Changes/Hr.}}{\text{CFM of Air (see Chart B)} \times 60 \text{ Min.}} = \# \text{ of Air Cleaners}$  |                                       |          |          |

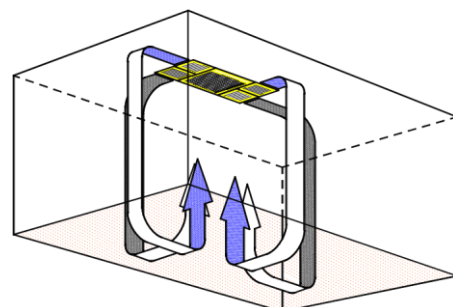
## CHOOSE LOCATION

The EverClear™ is mounted horizontally and can be used in almost any air cleaning application where a suspended ceiling is in place. Install the EverClear™ on the ceiling near the center of the room. In larger rooms, divide the area into sections and install the EverClear™ in the center of each section. In rooms requiring varying levels of air cleaning, concentrate the EverClear™ where air cleaning is most required.

To ensure even air distribution, the EverClear™ draws air into the center of the air cleaner and discharges air in four directions as shown in the figure below. This Coanda airflow pattern ensures that all air in the room passes through the EverClear™. See diagram below when mounting the EverClear™ to aid the air circulation already established in the room.



## MOUNTING CONSIDERATIONS



Revised 03/06

# INSTALLATION

## IMPORTANT!

Read these instructions carefully. A hazardous condition or damage to product could result if instructions are not followed.

## CAUTION!

1. Do not connect power source until after the air cleaner is mounted. Electrical shock and equipment damage may result. Always disconnect power to the air cleaner before servicing.
2. Wear gloves when installing air cleaner to protect hands from cuts.
3. Motor is equipped with automatic thermal overload protection. Should motor become overloaded, it will de-energize. However, it automatically energizes after sufficient cooling time (several minutes to an hour). Therefore, be sure to turn off air cleaner before servicing.

## EQUIPMENT NEEDED

1. Phillips screwdriver
2. Wire cutters
3. Pliers
4. Drill with 1/8" bit
5. Four 1/4" turnbuckles from your local hardware store
6. Twelve gauge galvanized steel wire (enough to hang four wires from the true ceiling to the T-bar level)
7. Electrical wire, conduit, boxes, etc.

## UNPACKING

## IMPORTANT!

The EverClear™ is packaged in three boxes on one skid. Check carefully all packaging before discarding any materials.

1. Remove intake grille (center grille) by depressing push button fasteners, tipping and disengaging the grille.

2. Remove the primary filter by turning the two turnstile latches then lift the filter out of the unit. Be careful not to damage the filter.
3. Remove the two discharge grilles that are individually packaged and located inside the two discharge openings.
4. Lift the air cleaner out of the box. This will require two people.

## PREPARATION

The EverClear™ is designed to be installed within a T-bar drop ceiling. Remove tiles from the ceiling to open an area 23" x 47". Removal of one 2 foot x 4 foot ceiling tile or two 2 foot x 2 foot ceiling tiles will accommodate the air cleaner. The area between the drop ceiling and the true ceiling must be free of obstructions such as pipes, ducts, etc. There must be at least 19 9/16" between the bottom of the T-bar and the true ceiling.

## MOUNTING

## WARNING!

The following instructions are intended for qualified service personnel only.

1. Attach four galvanized steel support wires to the true ceiling at the location shown in Fig. 1. Twist each wire at least four times to provide safe support for the air cleaner. The free wire end should extend six inches or more below the bottom of the T-bars.
2. Place the two hanger brackets on both ends of the T-bar with the "J" shaped portion of the hanger brackets facing towards the inside of the opening. See Fig. 1.
3. Using an electric drill with a 1/8" drill bit, drill through the holes in the stepped portion of the hanger bracket (using the holes in the hanger bracket as a guide) and through the T-bars. Attach the hanger brackets to the T-bars with four #8 sheet metal screws provided.
4. Hook the turnbuckles to the hanger brackets and then secure the support wires to the eyes of the turnbuckles. Twist the wire at least four times. See Fig. 1.

5. Adjust the turnbuckles until the hanger brackets are securely suspended by the support wires. To avoid lifting or buckling the T-bar framework, do not over tighten the turnbuckles.
6. Lift the air cleaner body into the opening and let the cabinet slide into the "J" shaped portion of the hanger brackets.
7. Fasten the air cleaner cabinet to the support bars using four #8 self-tapping screws and flat

washers. Screws are installed through slots in the ends of the air cleaner into the hanger brackets. Center the air cleaner cabinet within the T-bars before tightening the screws.

8. Install U-shaped vinyl extrusion around the perimeter of the air cleaner. The vinyl extrusions slip over the lip of the T-bar and trim out the air cleaner in the event of uneven gaps between the cabinet and the T-bar.

## ELECTRICAL INSTALLATION

### CAUTION!

**Persons qualified to install electrical wiring should only attempt this procedure. All wiring must comply with applicable codes and ordinances.**

1. **Double check that the rating on the air cleaner is consistent with the power source, either 120 Vac, 60 Hz or 208-240 Vac, 50/ 60 Hz.**
2. **Run three No. 14 gauge (or heavier) wire through conduit to the wiring compartment on the air cleaner. The green wire should be attached to the external ground. The black and the white wires are the power conductors. The connections are shown in Fig. 2.**

3. Install the primary filter so that the airflow arrow points up into the ceiling. Turn the two turnstiles so that they properly support the filter.

4. Hang the intake grille. Position the prefilter and latch the intake grille into place.

5. Clean up the installation area.

### REASSEMBLE

1. Install the two carbon filter modules into the two discharge cavities. Make sure the support clips are in place before letting go of the filter modules. **Caution must be used when handling the filter modules. They weigh approximately 40 lbs. when new.**
2. Screw the exhaust grille louvers to the air cleaners. This must be done after the carbon filter modules are installed.

## MOUNTING DIAGRAM

Clear Ever™

HIGH EFFICIENCY AIR CLEANER

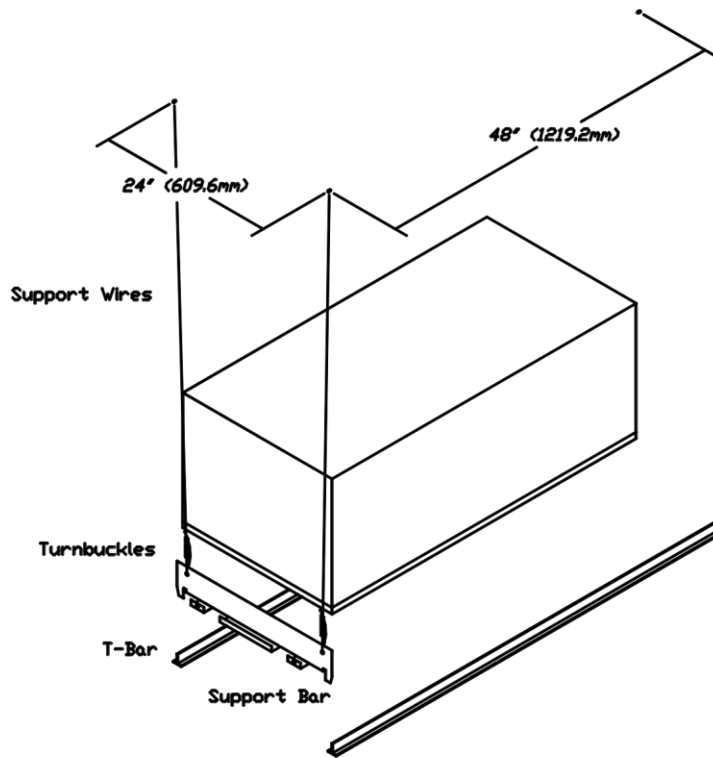


FIGURE 1

## WIRING SCHEMATIC

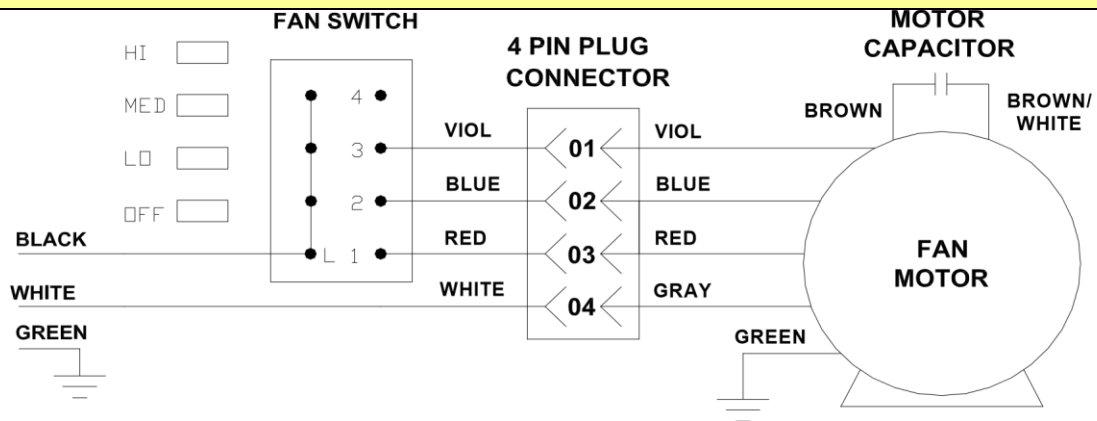


FIGURE 2

## CHECKOUT

### INSPECT THE INSTALLATION

1. Make sure that the air cleaner is correctly and securely installed. Make sure that the weight of the air cleaner is supported by the

hanger brackets and the mounting hardware to the true ceiling.

2. Observe that the air cleaner is oriented for good air circulation.



3. Make sure that the intake grille is easily opened and that the prefilter, primary filters and carbon modules are secure within the unit and properly oriented. The prefilter and the primary filter must be installed with the airflow arrows pointing up towards the blower.
4. Be certain that the electrical junction box cover is reinstalled.
5. Turn the air cleaner on using the knob near the intake grille. Make sure that the blower energizes and creates airflow into the intake grille.

removes odors from the air, it is time to replace the

## MAINTENANCE

### CAUTION!

1. **The power must be shut off before servicing the filters.**
2. **When servicing the air cleaner, stand on a stable work platform or ladder.**
3. **The carbon modules weigh approximately 40 lbs. They require two people to safely remove them.**

disposable filters within the odor/vapor modules. When there is a noticeable reduction in airflow with the prefilter clean, it is time to replace the particle filter. It is a good idea to keep track of how long a period of time the particle filter and odor/vapor filters lasted so that you can anticipate how long the new filters will last.

Please note that your EverClear™ unit is equipped with a variable speed controller. If you are running your unit on medium blower speed, you can increase the blower speed to compensate for the filter plugging with contaminant. If you are operating your unit on the maximum speed setting and your airflow is reduced, you will need to replace the particle filter.

### FREQUENCY OF FILTER MAINTENANCE

The EverClear™ is designed to have a very long filter maintenance interval. This is accomplished because of the large volume of media used in both the particle filter and the odor/vapor module. See Specifications for details.

The exact maintenance interval is determined by the specific application of the EverClear™ unit. In an office application, the prefilter could require cleaning every 2-3 months. The particle filter and odor/vapor filters may last 2-3 years.

In a commercial application, such as a print shop or a large smoking lounge, the prefilter could require cleaning every 2-3 weeks with the particle filter and odor/vapor filters lasting 12-18 months.

Because of the different variables with each application, it is recommended that the prefilter be inspected every two weeks during the first couple of months of operation. When there is a noticeable accumulation of dust and dirt, clean the filter. After inspecting the unit for a one or two month time period, you will have established the proper cleaning interval for the prefilter. When the EverClear™ unit no longer

### CLEANING THE PREFILTERS

The prefilter is removed from the air cleaner by opening the intake grille. Push the two buttons on the grille and guide the grille to the open position, the grille will hang down towards the floor on its hinges.

Shake out or vacuum the accumulated contaminants from the prefilter. If necessary, the prefilter can be soaked in an alkaline detergent solution. Do not soak in an acid detergent solution or use high-pressure water, air or steam to clean the prefilter.

### REPLACING THE PARTICLE FILTER

The particle filter is removed from the air cleaner by:

1. Opening the intake grille.
2. With one hand supporting the filter near the turnstiles, rotate the two turnstiles to the open position.
3. Lower the filter with both hands until the filter clears the frame of the cabinet.
4. Discard the filter. It cannot be vacuumed, washed or reverse air blasted.



5. **Be extremely careful when handling the new filter. A damaged filter will compromise the air cleaning efficiency.**

6. The new filter must be installed with the airflow arrows pointing into the air cleaner.

### **REPLACING ODOR/VAPOR FILTERS**

The standard EverClear™ comes with two filter modules. These modules are located above the discharge louvers. Each module contains 10 individual disposable filters that must be replaced on a periodic basis.

### **TO REMOVE THE ODOR/VAPOR MODULES:**

1. Open the intake grille and remove the particle filter. See removal instructions in previous section of the manual.

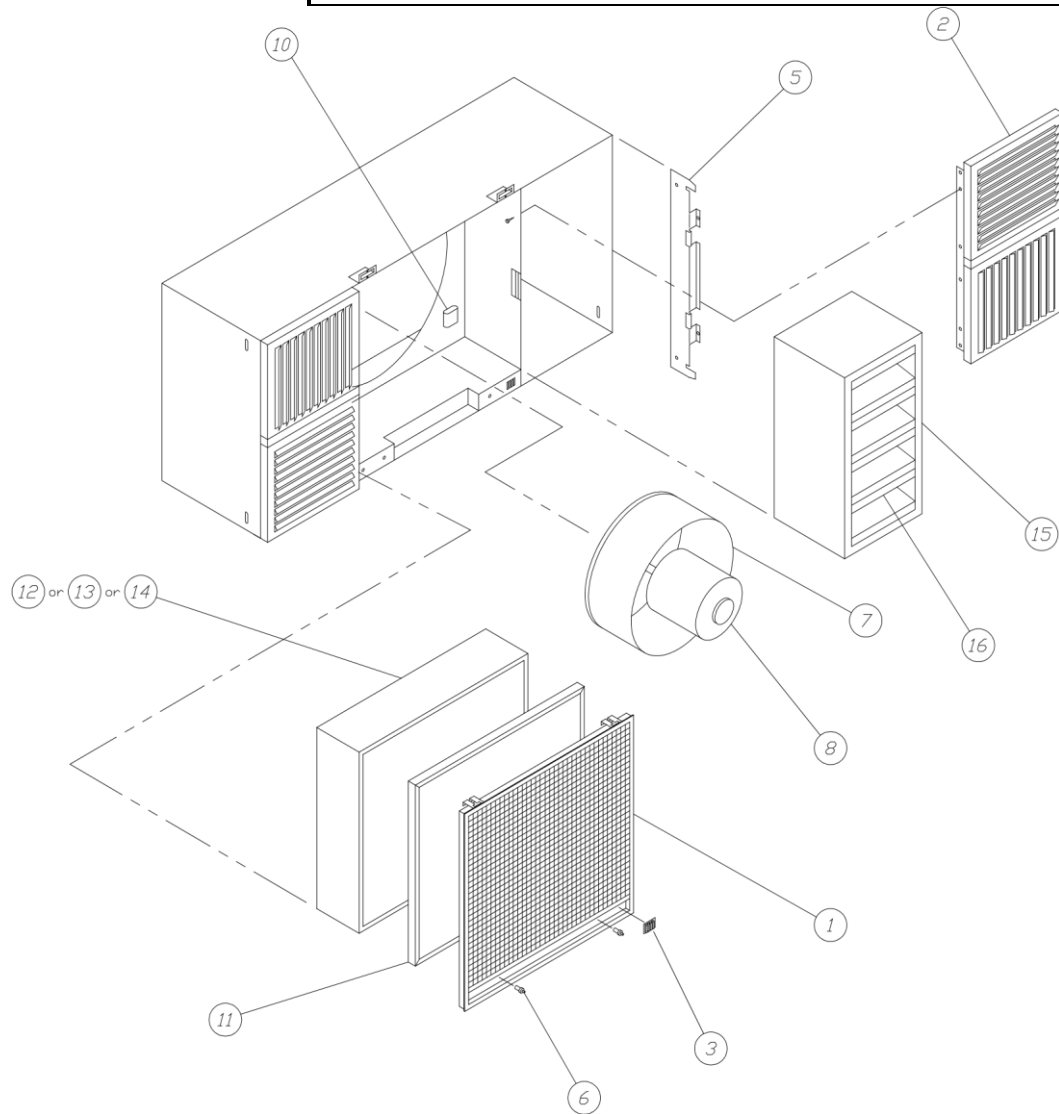
2. Remove both of the discharge louvers. This requires a Philips screwdriver. Handle the louvers with care.

3. The odor/vapor modules are removed by lifting the module up into the cabinet and rotating the retaining bracket to the open position. At this point, the module can be carefully lowered out of the unit.

4. Place the filter module on a tabletop or workbench. Remove the two hex head bolts and retaining brackets. Slide the 10 disposable filter panels out of the module and replace with the new filter panels.

5. Install the odor/vapor modules by following Steps 1, 2 and 3 in reverse order.

# PARTS LIST



| NO. | DESCRIPTION             | PART NUMBER | NO. | DESCRIPTION  | PART NUMBER |
|-----|-------------------------|-------------|-----|--|-------------|
| 1   | Grille Assembly         | 05456       | 10  | Capacitor  | 40120       |
| 2   | Louver Assembly         | 05454       | 11  | Prefilter  | 41147       |
| 3   | Switch 3 Speed          | 10110       | 12  | 95% DOP Filter   | 41149       |
| 4   | Motor Mount (Not Shown) | 21645       | 13  | 85% ASHRAE Filter  | 41155       |
| 5   | Hanger Bracket          | 21654       | 14  | 65% ASHRAE Filter  | 41154       |
| 6   | Push Buttons            | 30492       | 15  | Odor Module, includes frame & 10 filters.                              | 41150       |
| 7   | Blower Wheel            | 37028       | 16  | Disposable Filter Kit, includes 20 disposable filters for two PN 41150 | 07133       |

|   |                        |         |    |  |       |
|---|------------------------|---------|----|--|-------|
| 8 | Motor 120 V            | 40076   | 17 | Remote Speed Control<br>120V (Not Shown) | 07269 |
| 9 | Inlet Ring (Not Shown) | 37029-1 |    |  |       |