



## HIGH EFFICIENCY ELECTRONIC AIR CLEANER

### Installation & Operation Manual

#### MODELS

AE14-1620-51 • AE14-1625-51 • AE14-2020-51

AE14-2025-51 (120 VAC)

AE14-1620-52 • AE14-1625-52 • AE14-2020-52

AE14-2025-52 (240 VAC)



**IMPORTANT: READ AND SAVE THESE INSTRUCTIONS. THIS GUIDE TO BE LEFT WITH EQUIPMENT OWNER.**



# INTRODUCTION

**INTRODUCTION ..... 3**  
 What the Air Cleaner Does ..... 3  
 Features and Benefits ..... 3  
 How It Works ..... 3  
**SPECIFICATIONS ..... 4**  
 Components ..... 4  
 Static Pressure ..... 5  
**INSTALLATION ..... 5**  
 Location ..... 5  
 Installation Location With Humidifier ..... 6  
 Installation Location With Air Conditioner ..... 6  
 Installation Steps ..... 6  
**WIRING ..... 7**  
 System Check ..... 7  
 Operation ..... 7  
**CHECKOUT ..... 8**  
 CHECKOUT - Visual ..... 8  
 CHECKOUT - Operational ..... 8  
**MAINTENANCE ..... 9**  
 Cell and Prefilter Cleaning ..... 9  
 Cleaning the Collector Cells ..... 9  
 Cleaning the Prefilters ..... 9

Reinstalling the Cells and Prefilters ..... 10  
 Replacing the Carbon VOC filters ..... 10  
 Maintenance Parts ..... 10  
**TROUBLESHOOTING ..... 11**  
 Testing For High Voltage at Power Board ..... 11  
 Measuring High Voltage at Power Board ..... 11  
 Testing Air Proving Switch (APS) ..... 12  
 Testing the 24 V Transformer ..... 12  
 Setting Voltage of Power Board ..... 13  
 Testing for Voltage at The Cell ..... 13  
 Testing Cell for Bad Contacts ..... 13  
 Testing Cell with an Ohmmeter ..... 13  
**SERVICE ..... 16**  
 Replacing a Performance Light ..... 16  
 Replacing a Power Board ..... 16  
 Replacing the 24 V Transformer ..... 16  
 Replacing an Air Proving Switch (APS) ..... 17  
 Removing Power Box ..... 17  
 Replacing a Tungsten Ionizing Wire ..... 17  
**PARTS LIST ..... 18**  
**LIMITED WARRANTY ..... 20**

**Proprietary Notice**

This document and the information disclosed herein are proprietary data of Daikin North America LLC. Neither this document nor the information contained herein shall be reproduced, used, or disclosed to others without the written authorization of Daikin North America LLC, except to the extent required for installation or maintenance of recipient’s equipment.

**Liability Notice**

Daikin North America LLC does not accept any liability for installations of air cleaning equipment installed by unqualified personnel or the use of parts/components/filters/equipment that are not authorized or approved by Daikin.

**Copyright Notice**

Copyright 2015, Daikin North America LLC  
 All rights reserved.



Our continuing commitment to quality products may mean a change in specifications without notice.

© 2015 DAIKIN NORTH AMERICA LLC

Houston, Texas • USA  
 www.cleancomfort.com  
 1-800-267-8305 • Fax: 1-416-213-5593



# INTRODUCTION

## READ AND SAVE THESE INSTRUCTIONS

### Certified for shock and electrical fire hazard only

**⚠ WARNING!**

This symbol indicates important instructions. Failure to heed them can result in serious injury or death.

**⚠ CAUTION!**

This symbol indicates important instructions. Failure to heed them can result in injury or material property damage.

**⚠ WARNING!**

Before beginning any installation or modification, be certain that the main line electrical disconnect switch is in the **OFF** position. Unexpected start-up of system blower may cause serious injury. Tag disconnect switch with suitable warning labels.

**⚠ CAUTION!**

Read and follow instructions carefully. Follow all local electrical codes during installation. All wiring must conform to local and national electrical codes. Improper wiring or installation may damage air cleaner. Only a heating/air conditioning installer or qualified service person should install your air cleaner, unless you are completely familiar with the necessary tools, equipment and potential hazards involved. If you plan to install this air cleaner yourself, please be aware that the improper use of any tool can be dangerous. The manufacturer will not assume any responsibility for failures due to incorrect installation procedures.

- Homeowners can perform the basic maintenance functions of cleaning cells and replacing filters.
- When working on the air cleaner, observe precautions in the Owner's Manual, labels attached to the furnace or air handler, and other safety precautions that may apply. Follow all safety codes. Wear safety glasses and work gloves.

- Activated carbon VOC filters help remove unpleasant odors (such as those from cooking, smoking, or other household activities).
- Helps protect heating/cooling equipment, prolonging the operating efficiency
- Helps improve indoor air quality for a more comfortable environment, year-round.
- Electronic air-proving switch automatically cycles air cleaner **ON** and **OFF** with the system fan.
- Power switch (orange) indicates when the air cleaner is powered.
- Performance indicator light (green) indicates when the air cleaner is operating.
- Heavy-gauge galvanized steel cabinet.
- Can be installed in either vertical or horizontal orientation.

### How It Works

This electronic air cleaner operates on the principle of electrostatic precipitation. Return air ducts of heating and cooling systems carry airborne particles to the air cleaner where the air is treated with four stages of filtration.

1. The prefilter removes all large, visible particles such as lint and pet hair.
2. Smaller particles not caught by the prefilters then enter a two-stage electrostatic collecting cell where they are given a powerful positive electrical charge by the ionizing wires.
3. These charged particles then enter the collecting area of the cell where they are attracted to a series of electrically grounded plates. Particulates become attached to these plates by electrostatic forces, much like iron filings are attracted to a magnet. They remain attached to the collecting plates until they are washed away when the unit is cleaned as part of its scheduled maintenance.
4. Finally, air exiting the collecting cell passes over activated carbon VOC filters which help reduce unpleasant odors, such as those from cooking, smoking or painting.

### What the Air Cleaner Does

The Clean Comfort AE14 Series of Electronic Air Cleaners help remove a wide range of airborne particles as small as 0.06 micron (1/424,000 of an inch).

### Features and Benefits

- Two aluminum mesh prefilters help prevent lint and large particles from entering the collecting cells.
- Features a permanent, washable filter system
- Heavy-gauge aluminum collecting cells are durable and easy to maintain.
- Washing the collecting cells takes only 15 minutes.

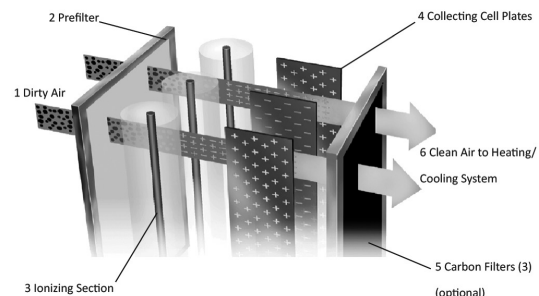


Figure 1



# SPECIFICATIONS

**Table 1:** Specifications

120V MODELS	AE14-1620-51	AE14-1625-51	AE14-2020-51	AE14-2025-51
240V MODELS	AE14-1620-52	AE14-1625-52	AE14-2020-52	AE14-2025-52
<b>House Size Area (typical)</b>	up to 2400 ft <sup>2</sup> up to 223 m <sup>2</sup>	up to 3000 ft <sup>2</sup> up to 279 m <sup>2</sup>	up to 3000 ft <sup>2</sup> up to 279 m <sup>2</sup>	up to 4000 ft <sup>2</sup> up to 372 m <sup>2</sup>
<b>Airflow</b>	up to 1200 CFM up to 2040 m <sup>3</sup> /hr	up to 1400 CFM up to 2380 m <sup>3</sup> /hr	up to 1400 CFM up to 2380 m <sup>3</sup> /hr	up to 2000 CFM up to 3400 m <sup>3</sup> /hr
<b>Duct Size</b>	16 x 20 in 40.5 x 51.0 cm	16 x 25 in 40.5 x 63.5 cm	20 x 20 in 51.0 x 51.0 cm	20 x 25 in 51.0 x 63.5 cm
<b>Unit Weight</b>	35 lbs 15.9 kg	37 lbs 16.8 kg	37 lbs 16.8 kg	41 lbs 18.6 kg
<b>Input Voltage</b> AE14-XXXX-51 models AE14-XXXX-52 models	120 V 60 Hz 220 V 50 Hz	120 V 60 Hz 220 V 50 Hz	120 V 60 Hz 220 V 50 Hz	120 V 60 Hz 220 V 50 Hz
<b>Power Consumption</b> (when operating)	30 Watts	30 Watts	30 Watts	30 Watts
<b>Options Available</b>	• Power Cord	• Power Cord	• Power Cord	• Power Cord

**Certifications:** C22.2 NO. 187-09 (R2014) – CSA Standard for Electrostatic Air Cleaners UL 867 UL Standard for Electronic Air Cleaners. **This device is certified for shock and electrical hazard only**

## Components

**Cabinet:** Constructed of heavy gauge galvanized steel to resist corrosion and provide trouble-free installation. Holes are provided to facilitate mounting to the ductwork or air handling equipment.

**Power Box:** Removable. Contains the power switch, performance indicator light, safety interlock switch, high-voltage power board, air-proving switch and high-voltage contacts.

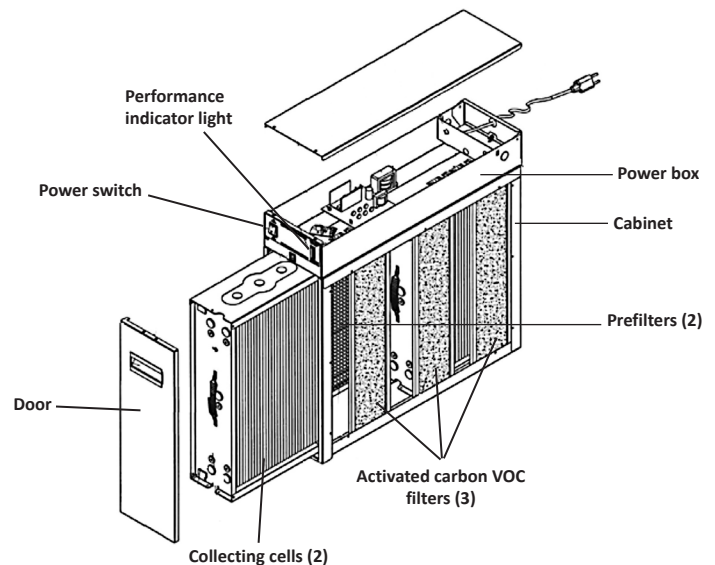
The power board is equipped with a variable resistor (potentiometer) to adjust high-voltage output. Output has been pre-set for optimum efficiency. As voltage varies in extreme conditions of dryness, humidity, or proximity to hydro towers, raising or lowering potentiometer allows for proper voltage output.

**Air-Proving Switch (APS):** Integrated. Automatically cycles air cleaner **ON** and **OFF** with the system fan. The APS will detect airflow (fan on) and energize the air cleaner.

**Collecting Cells:** Consist of an ionizing section and a collector plate section. The arrow on the cell must point toward the system fan (in the direction of the airflow).

**Prefilters:** Constructed of aluminum mesh to prevent lint and large particles from entering the collecting cells.

**Carbon VOC Filters:** Remove odors. Maximum of (3) carbon VOC filters can be used at the same time.



**Figure 2:** Air Cleaner Components

# INSTALLATION



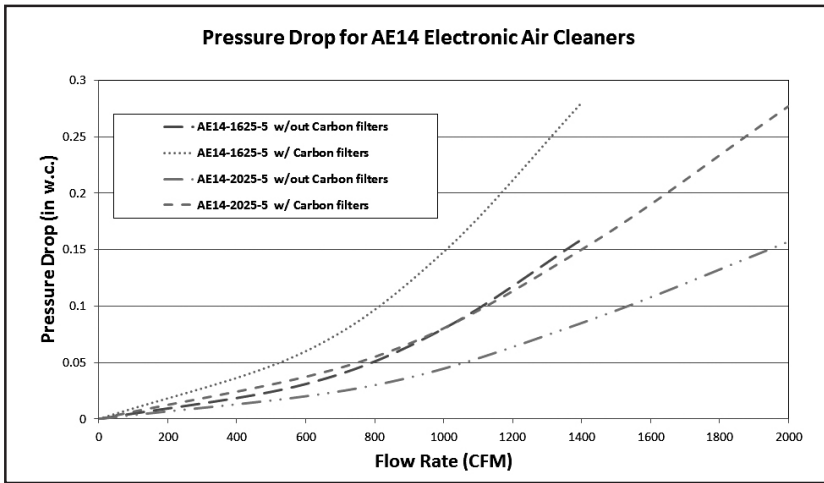
## Static Pressure

The static pressure drop across the air cleaner will vary with CFM and whether the carbon VOC filters have been installed in the unit.

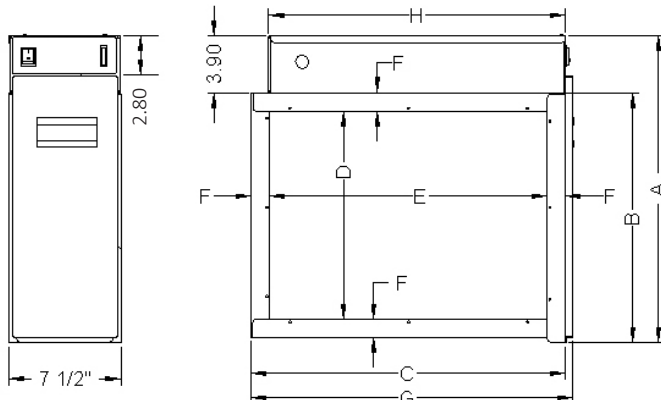
**Table 2:** Pressure Drop (Inches w.c.)

100% Airflow No Carbon VOC Filters	100% Airflow With Carbon VOC Filters	40% Airflow No Carbon VOC Filters	40% Airflow With Carbon VOC Filters
0.158	0.250	0.030	0.060

**Figure 3:** Pressure Drop across Air Cleaner



**Figure 4:** Dimensions



**Table 3:** Air Cleaner Dimensions

MODEL	Dimensions — in (cm)							
	A	B	C	D	E	F	G	H
AE14-1620-51	19.8	15.9	23.2	13.1	20.7	1.3	23.7	21.2
AE14-1620-52	(50.4)	(40.5)	(58.9)	(33.3)	(52.5)	(3.2)	(60.2)	(53.9)
AE14-1625-51	19.8	15.9	26.1	13.6	24.1	1.0	26.6	25.8
AE14-1625-52	(50.4)	(40.5)	(66.3)	(34.6)	(61.2)	(2.5)	(67.7)	(65.4)
AE14-2020-51	24.7	20.8	21.2	18.0	18.7	1.3	21.7	21.2
AE14-2020-52	(62.8)	(52.9)	(53.9)	(45.7)	(47.5)	(3.2)	(55.2)	(53.9)
AE14-2025-51	24.7	20.8	25.8	18.0	23.3	1.3	26.3	25.8
AE14-2025-52	(62.8)	(52.9)	(65.4)	(45.7)	(59.1)	(3.2)	(66.8)	(65.4)

## Installation

### Location:

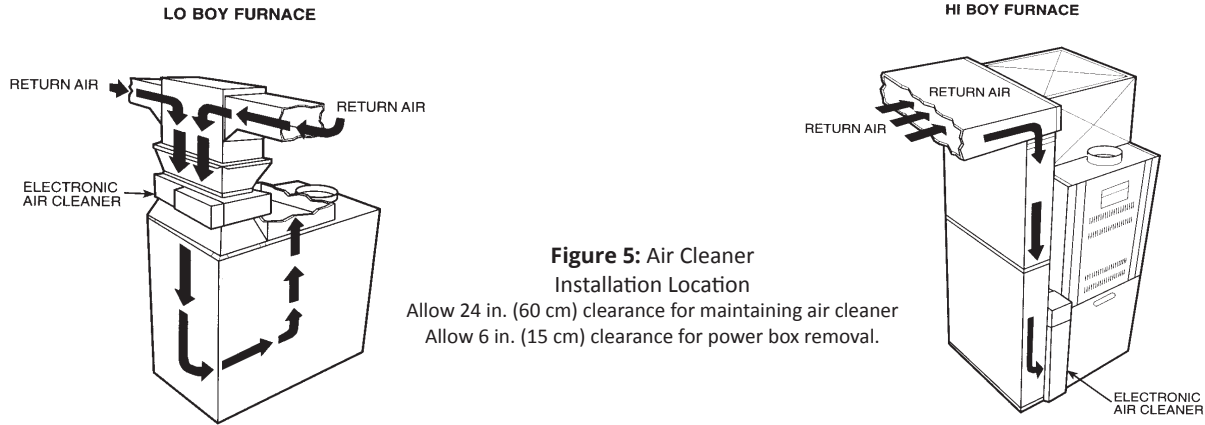
The air cleaner must only be installed in the return air duct, as close to the fan compartment as possible. This location provides the most even airflow across the collecting cells and helps the air cleaner to keep the system motor, blower, and cooling coil clean. The installation can be vertical or horizontal. When choosing a location, there must be adequate room to wire the air cleaner and remove prefilters, collecting cells, and power box for maintenance.

**Note:** Once the air cleaner has been installed, do not allow the placement of any device such as a new hot water heater,

water softener, gas pipe, or electrical cable to be put 24 in. (61 cm) in front of or within 6 in. (15 cm) from top of air cleaner. This distance is needed to allow access for the removal of filters and air cleaner parts, which are necessary for maintenance or servicing.



# INSTALLATION



**Figure 5: Air Cleaner Installation Location**  
 Allow 24 in. (60 cm) clearance for maintaining air cleaner  
 Allow 6 in. (15 cm) clearance for power box removal.

## Installation Location with Humidifier

A humidifier should be installed in the furnace warm air duct. However, it may be installed in the return duct without causing problems to the air cleaner. Care must be taken to ensure that the humidifier does not leak, as this may cause arcing and a mineral deposit to build up on the collecting cells.

An atomizing type humidifier should be installed downstream from the air cleaner. If the atomizing type humidifier is installed upstream, high humidity, salts and minerals may decrease the efficiency of the collecting cells and cause service problems.

If the atomizing type humidifier must be installed upstream, the following precautions should be taken:

1. Atomizing type humidifier must be installed as far from the air cleaner as possible.
2. Collecting cells must be washed frequently to prevent a mineral deposit build-up.

## Installation Location with Air Conditioner

Whenever possible, the air cleaner should be installed upstream of the cooling coil. This location will clean the air before it reaches the evaporator coil.

## Installation Steps

1. **Remove existing equipment filter (if present) and clean blower compartment:** Thoroughly clean the blower compartment, since your air cleaner can not remove accumulated dirt from the blower chamber and distribution ducts.
2. **Open air cleaner access door.** Slide filters and collecting cells out of cabinet.
3. **Installing the cabinet:** Holes are provided to attach cabinet to ductwork or equipment. If the adjoining ductwork is flanged, install the screws so that the screw heads are inside the cabinet. This will help

prevent damage to prefilter and carbon VOC filters during removal for cleaning. Never put screws or rivets into the removable power box.

4. **Transitions:** If the air duct does not fit the air cleaner opening, a gradual transition is recommended to reduce air turbulence through the air cleaner and ensure its efficient operation. A maximum of 20° of expansion, or approximately 4 inches per running foot (10 cm per 30 cm), is recommended for each side of the transition fitting.

Do not reduce ductwork size to fit a smaller air cleaner. This will increase the velocity of airflow and may decrease cleaning efficiency.

5. **Turning vanes:** If the air cleaner is installed adjacent to an elbow or angle fitting, field-installed turning vanes are recommended to improve air distribution across the collecting cells.
6. **Seal the joints in the return air system:** All joints between the air cleaner, the heating / cooling equipment and the return air duct should be sealed to prevent dust from entering the clean air stream.
7. **Replace the prefilters in the track on the air entering side of the air cleaner.** Place new carbon VOC filters into the air cleaner. Space filters evenly across the discharge opening of air cleaner. Never put more than 3 carbon VOC filters in the air cleaner, as this may cause a problem with airflow.

The collecting cells are placed between the tracks, with the arrow on cell pointing towards the fan. The cell handle may need to be repositioned if the airflow is in a different direction than the left to right set up. The handle should face the door. Close access door.

### WARNING!

Electrical shock can cause injury or death. Be certain main line disconnect switch is **OFF** before wiring.

# WIRING



## Wiring

Wiring should only be performed by qualified personnel. All wiring must comply with all applicable codes and standards. The voltage of the power source must match the voltage indicated on the air cleaner. The air cleaner must operate **ONLY** when the system fan is running. Make sure the air cleaner is properly grounded.

If the air cleaner is equipped with a cord and plug, the air cleaner can be plugged into an outlet within 6 feet of the unit. Do not use an extension cord if the outlet is too far away. Have an electrician wire in a new outlet closer to the air cleaner.

If the air cleaner is not equipped with a cord, then wire the air cleaner directly to a power source, as indicated on the rating label, preferably to the same source that is supplying power to the furnace or air handler. The APS will power the air cleaner when there is sufficient airflow to activate the sensor. See Figure 5.

**Note:** The ORANGE power switch will be lit even if there is no airflow.

This 120VAC air cleaner may only be wired to the EAC contacts on the system module if these contacts carry 120 VAC power. Before wiring this air cleaner to the system module, check the specifications of the furnace or air handler to ensure the system module has sufficient unused capacity to power this air cleaner with the fan operating in all conditions. The air cleaner uses approximately 30 Watts when operating. Some systems do not power the EAC contacts on the system module on low speed.

## System Check

Perform the following system check before operation.

1. Replace prefilters, collecting cells and carbon VOC filters. Close the access door.
2. Turn air cleaner power switch **ON**. Ensure system fan is operating. Both the power switch light and performance indicator light should be lit. The power switch light indicates the air cleaner has unit voltage. The performance indicator light shows that the air cleaner is operating.

**Note:** There may be some arcing or snapping sounds from the collecting cells. This is normal when the unit is new. In about two weeks, as the sharp edges of the cells become smoother, the arcing will disappear.

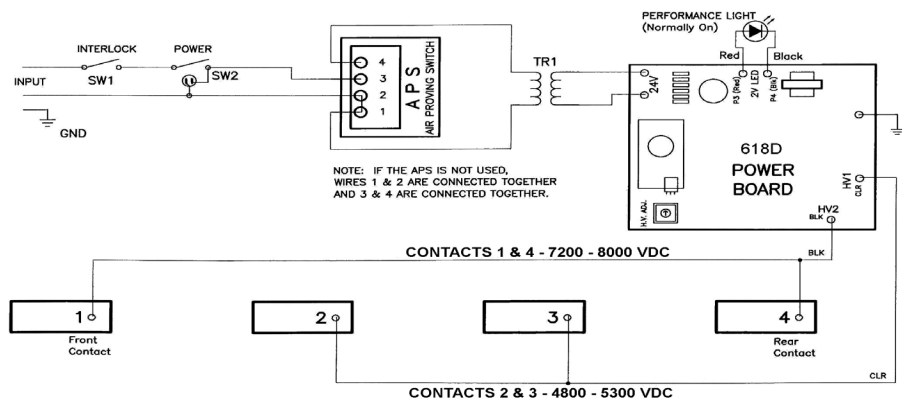
## Operation

The air cleaner will run as long as there is adequate airflow through the ducts. The air cleaner will not run if the system fan is off.

To improve the performance of your air cleaner, these simple steps are recommended:

3. Run your heating/cooling system fan continuously, on low speed if available, since your air cleaner only removes particulate matter when the system fan is operating.
4. Ensure there are no obstructions to airflow (for example, from furniture or carpets) in front of the return air grilles so that air moves freely to the heating/cooling equipment.
5. Check for proper operation of the system fan.

**Figure 6:** Air Cleaner Schematic (with Air-Proving Switch)





## CHECKOUT

### **WARNING!**

Electronic air cleaners use high voltage (low amperage) power. Only trained personnel should perform service. Electric shock can cause injury or death.

### **CAUTION!**

**For most troubleshooting, the cells should be removed from the air cleaner.** A short in one of the cells will cause the power board to shut down and the performance light will stay off. Unless otherwise directed, remove the cells from the unit when testing.

### **WARNING!**

When performing LIVE tests in the power box, NEVER touch any components inside the air cleaner other than what is mentioned in the tests. Components carry dangerous voltages and extreme care must be taken.

When operating normally, with the fan running, the air cleaner should have both the orange power switch light and the green performance indicator light **ON**. If the fan is running and the lights are not on, see the Troubleshooting Guide for probable causes and remedies.

### **CHECKOUT – Visual**

Visually check the air cleaner installation to verify that:

- The arrows on the front of the collector cells are pointing in the direction of the airflow.
- The aluminum mesh prefilter is installed on the upstream side of the air cleaner and the activated carbon VOC filters are on the downstream side.
- The handles on the collector cells are facing the front of the air cleaner cabinet.
- The collector cells and aluminum prefilters are clean and dry.
- All joints in sheet metal between the air cleaner and the heating and cooling system are sealed.
- Previously-installed furnace filter has been removed (if present) and blower compartment has been cleaned.

When you have performed the preceding physical checkout, proceed to do the operational checkout that follows:

### **CHECKOUT – Operational**

1. Replace any access doors removed during the Installation.
2. Toggle the air cleaner power switch to the **ON** position and energize the furnace or air handler (system) fan.
3. Verify that the orange power switch is **ON** (lighted). The orange light shows that there is power supplied to the air cleaner.
4. Verify that the green performance indicator light is **ON**. The green light shows that the high voltage power supply is working correctly.
5. Turn **OFF** the system fan. The green light should go **OFF** after a few seconds, but the orange light should remain **ON**.
6. For furnaces or air handlers with a multi-speed fan, air cleaner operation should be verified by repeating steps 3 through 5 for each fan speed.
7. For any issues related to air cleaner performance, refer to Troubleshooting and Service sections in this manual.





# MAINTENANCE

## Maintenance

It is important to perform regularly-scheduled maintenance of the air cleaner. For best performance of the air cleaner and to keep airflow restriction low, it is recommended that the collector cells be cleaned at least twice a year or when the static pressure across the air cleaner reaches 0.5 inches w.c. If you find significant loading of particulates on the collector cells when you perform the first cleaning, clean the cells more frequently. The prefilters should be cleaned regularly and the post filters should be replaced at least twice per year.

**⚠ WARNING!**

Make sure to turn air cleaner and system fan **OFF** before performing any maintenance or removing any components.

**⚠ CAUTION!**

Metal edges of the air cleaner collector cells, ionizing wires and system ductwork are very sharp and can cause personal injury. Carefully handle the cell or wear protective gloves to avoid cuts from metal edges.

**⚠ CAUTION!**

Damage to cells may occur if improperly handled or washed. Do not wash cells in a dishwasher. Never use any object to clean between the cell plates, as this may cause damage to plates or ionizing wires. Never place cell in oven to dry. The edges of the cell may be sharp – handle with care.

### Cell and Prefilter Cleaning

The collecting cells and prefilters must be cleaned on a regular basis for best performance of the air cleaner. As the collector cells become coated with trapped particulates, the cleaning efficiency of the air cleaner is reduced and the resistance to airflow (static pressure) is increased. The recommended frequency of cleaning will depend on several factors, including number of family members, pets, activities (such as cooking or woodworking), leaving the windows open and smoking. Use the Cleaning Record to help keep track of scheduled cleanings.

### Cleaning the Collector Cells

1. Remove access door, collecting cells and prefilters.
2. Place cells in a laundry tub. Rinse with hot water (maximum 120°F/49°C) and spray completely with DAX Detergent (or a non-chlorine, non-corrosive, non-abrasive liquid household detergent). Allow detergent to run down both sides of plates and ionizing wires. Let stand for 5 minutes or fill up laundry tub with water and DAX Detergent, and dunk cells up and down until water is dirty.
3. If dirt remains on the cell plates, let the cells soak in a solution of DAX Detergent and water for 30 minutes.
4. When the collector cells are clean, drain the tub and rinse cells thoroughly with hot water (maximum 120°F/49°C).
5. Remove accumulated particulate from the ionizing wires with an old toothbrush. Slide the brush bristles over the wire and gently drag the brush up and down the wire once. Be very careful when cleaning the wires as they become very brittle with age and can be very sharp. Tilt collector cells on a 45° angle on their short side.
6. Tilt collector cells on a 45° angle on their short side, with arrows pointing sideways. Allow to dry completely, approximately 12-24 hours. Drying time can be reduced by using a hair dryer on the collector cells before replacing them in the air cleaner cabinet.
7. **Do not place the cells in the air cleaner if they are wet.**

### Cleaning the Prefilters

1. To clean the prefilters, first vacuum the upstream side to remove larger trapped particles.
2. Then, wash the prefilters with DAX Detergent, rinse and let dry. Do not wash in the same water as collecting cells.





## Troubleshooting

The air cleaner, when operating normally with the fan running, should have both the orange power switch light and the green performance indicator light **ON**. If the fan is running and the lights are not on, follow instructions below for probable causes and remedies.

Quick Check (Orange Power Switch Light **ON**, Green Performance Indicator Light **OFF**)

1. Remove both cells from the air cleaner cabinet. Replace the cabinet door.
2. Toggle the air cleaner's orange power switch **ON**, and turn the HVAC fan **ON**.
3. If the green performance indicator light is still **OFF**, check the power board for an arc to ground at HV1 or HV2. Refer to Troubleshooting section ①.
4. If there is a good arc and the performance indicator light is still **OFF**, then replace the light. Refer to Service section A "Replacing a Performance Light". If the performance indicator light comes **ON**, check the cells for a fault. Refer to Troubleshooting sections ④, ⑤, and ⑥.
5. If there is no arc, test the output voltage of the transformer. Refer to Troubleshooting section ④.
 

If there is transformer output, replace the power board. Refer to Service section B) "Replacing a Power Board" If there is no transformer output, check for output of the APS. Refer to Troubleshooting section ③.

  - If there is output from the APS, replace the transformer (refer to Service section C) "Replacing the 24 V Transformer") and retest the power board for an arc. Refer to Troubleshooting section ①.
  - If there is no output from the APS, jumper terminals 3 & 4 on the APS and retest the output. If there is APS output with the jumper installed, replace the APS. Refer to Service Section D) "Replacing an Air Proving Switch (APS)".
6. If there is still no output from the APS, check the output voltage from the power switch.
7. If there is no voltage from the power switch, test the input to the switch. If there is input, replace the power switch.
8. If there is no input to the switch, check the interlock switch and the supply voltage.

### ⚠ CAUTION!

For most troubleshooting, the cells should be removed from the air cleaner. A short in one of the cells will cause the power board to shut down and the performance light will stay **OFF**. Unless otherwise directed, remove the cells from the unit when testing.

### ⚠ WARNING!

When performing LIVE tests in the power box, **NEVER** touch any parts other than what is mentioned in the tests. Components carry dangerous voltages and extreme care must be taken.

## Detailed Troubleshooting

### ① Testing For High Voltage at Power Board

With the collecting cells out of the unit, the door on the unit and the system fan on high speed, turn the air cleaner **ON**. With a long shafted screwdriver with a plastic handle, short between the grounded side of the power box and the HV1 terminal of the power board. If you draw a good spark, there is high voltage from the power board.

### ② Measuring High Voltage at Power Board

A high voltage meter capable of measuring up to 10,000 VDC is required to test the voltage.

1. The air cleaner should be **ON** with the cells installed, the door closed and the system fan running. The air cleaner should be on at least 5 minutes to allow voltage to stabilize. The cells and ionizing wires must be clean.
2. Remove the cover from power box.
3. Connect the ground of the high voltage meter to an unpainted surface in the power box.
4. Check terminals HV1 and HV2 on the power board to determine if voltage is present. See Table 3 for values
 

If no voltage is present, remove both cells from the air cleaner and replace door. Recheck the voltage at HV1 and HV2

If voltage is present, the problem is with one of the cells or the wiring to the copper contacts.

With a flashlight, look into the cabinet to check condition of the copper contacts.

If the contacts are not bent, replace one cell and retest voltage. If cell is OK, test the other cell. If the problem is with a cell, see Troubleshooting sections ⑥, ⑦, and ⑧.

If there is no voltage with both cells removed, check the power board, APS and transformer to make sure that they are functioning correctly.



## TROUBLESHOOTING

High voltage can be adjusted with high voltage potentiometer if required. See Table 4 below.

**Table 4:** Power Board Voltage Settings (with load)  
The voltage will be higher without the cells in the unit.

MODEL	Max. Voltage on Plates (KVDC)	Max. Voltage on Ionizer (KVDC)
AE14-1620-51 AE14-1625-51	4.8 - 5.3 (HV1)	7.2 - 8.0 (HV2)
AE14-2020-51 AE14-2025-51	4.8 - 5.2 (HV1)	7.2 - 7.8 (HV2)

### ③ Testing Air Proving Switch (APS)

The APS sensor must sit in the plastic bushing to operate correctly. The sensor is very sensitive and operation may be affected by cold ambient temperatures, an HRV/ERV, or a fresh air duct connected to the return air duct just upstream of the air cleaner.

The APS uses a triac in its output circuit, which affects the voltage sine wave. Measuring voltage with a regular digital voltmeter may give a false reading. To check the output from the APS, use a true RMS (root mean square) meter to measure the output at terminals 1 and 4 of the APS. The output should be between 102 and 115 VAC or 205-230 VAC, depending on the airflow across the sensor

When the air cleaner is turned on without airflow, the APS sensor heats up, and after 20-30 seconds opens the circuit to turn **OFF** the power board. When the fan starts up (the sensor is cooled), the circuit will close, the power board is turned on, and the performance light will come on within a few seconds.

The light on the power switch will be lit even when the APS is open.

If the power board fails to come on with the fan on, check that the sensor is properly seated in the bottom of the plastic bushing, in the front of the power box. To check the APS for proper operation remove the collecting cells, turn the unit ON without the fan on. The power board should come on immediately, and then turn **OFF** in 20-30 seconds

as the sensor heats up. To check sensor, blow directly on it lightly. This should activate the power board within 10 seconds. Service the sensor carefully. The sensor leads are live. If the APS does not turn the power board and performance indicator on, by-pass the APS by placing a jumper between wires 3 & 4 on the APS. This removes the APS from the circuit.

**Note:** If the airflow through the air cleaner is less than 360 CFM, the APS sensor may not have enough airflow to activate the air cleaner. In very low airflow applications, the air cleaner may need to be controlled by wiring it to the EAC contacts on the system control module. In this case, the APS must be disabled by connecting terminals 3 and 4 together.

See **Wiring** section for information on how to wire the air cleaner to the EAC contacts on the furnace or air handler control module.

If there are no EAC contacts on the system control module or they are not powered on low speed then a relay will have to be installed to activate the air cleaner when the fan starts. The APS will have to be disabled.

### ④ Testing the 24 V Transformer

1. Remove power box cover.
2. Disconnect the leads of the 24 V transformer from the power board. See Fig. 5. Do not short leads.
3. The air cleaner should be **ON**. The system fan should be running on high speed. The access door should be closed.
4. Measure voltage across the leads with a voltmeter. Voltage should read 25 - 28 VAC.
5. If no voltage is present, check operation of the APS.
6. Reconnect leads to the power board.
7. Replace power box cover.

### ⑤ Setting Voltage of Power Board



## TROUBLESHOOTING

Voltage on the power board may drop below required level when installation area is too damp, too cold, or if there is a leakage of water from a humidifier. Voltage on power board may be too high when installation area is too dry or too hot, or home is in close proximity to hydro towers or situated in remote farm land areas. By adjusting the HV Adj. potentiometer, the voltage can be set to optimum level. A high voltage meter capable of measuring 10,000 VDC is required. To test and adjust voltage level, perform the following procedure:

1. Turn the air cleaner **OFF**.
2. Remove the power box cover.
3. Connect the ground of the high voltage meter to an unpainted surface in the power box.
4. Turn **ON** the air cleaner and wait 5 minutes before checking voltages to allow voltages on cells to stabilize. The cells and ionizing wires must be clean.
5. Measure the voltages at HV1 and HV2 on the power board.
6. Adjust the HV Adj. potentiometer until the voltage reading matches the voltage in Table 3. Adjusting the potentiometer **clockwise decreases** the voltage and turning **counter-clockwise increases** the voltage.
7. Turn **OFF** the air cleaner.
8. Remove the high voltage meter.
9. Replace the power box cover.
10. Turn **ON** the air cleaner.

### Setting Approximate Voltage without High Voltage Meter

A high voltage meter should be used to set the high voltage. If one is not available, this method can be used. This will only set an approximate voltage. After using this method, the voltage should be reset with a high voltage meter as soon as possible.

1. Remove power box cover.
2. Turn the HV Adj. potentiometer fully counter-clockwise. The air cleaner may arc or snap at this point.
3. Turn the HV Adj. potentiometer clockwise until the arrow is at the half way point.
4. Replace power box cover.

### ⑥ Testing for Voltage at The Cell

1. Open access door to air cleaner.
2. The cells must be in the air cleaner for this test and the system fan should be on high speed.
3. Turn the air cleaner **ON** and press the safety interlock switch lever.
4. Place a plastic handled screwdriver into the direction arrow slot. Do not apply excessive force.
5. If there is a good snap, then there is high voltage at the cell.

### ⑦ Testing Cell for Bad Contacts

1. Open access door to air cleaner.
2. The cells must be in the air cleaner for this test and the system fan should be on high speed.
3. Turn the air cleaner **ON** and press the safety interlock switch lever.
4. Place a plastic handled screwdriver into the direction arrow slot. Do not apply excessive force.
5. There should be an initial snap when the plates are shorted, then no sound. If a hissing occurs, then there is a bad contact. Look along the top of the cell, with the short still in place. If there is a small arc between the cell top and copper contact, then that is the bad contact. Pull cell out and gently pull the copper contact down.
6. If an arc is not seen and there is a bad contact, then the problem may be an internal contact in one of the cells.
7. Let up on safety interlock.
8. Close access door.

### ⑧ Testing Cell with an Ohmmeter

To test the cell for a dead short or a bad contact, an ohmmeter can be used.

**Always discharge the cell with a screw driver before testing with an ohmmeter.**

1. With the ohmmeter set on its lowest scale, take a reading between the top center contact of the cell and the ionizing fingers on the bottom of the cell. You should have continuity. If you do not, then there is a bad contact between the center contact and the top set of ionizing fingers.
2. Test the resistance between the top center contact and the cell frame. You should read infinite resistance. If not, you have a short in the ionizing section.
3. Take a reading between the two outside contacts on the top of the cell. You should have continuity. If you do not, then there is a bad contact between one of the contacts to the live cell plate. Test each top outside contact to the last plate in the cell to determine which contact is not mating properly.
4. Test the resistance between the outside contacts and the cell frame. You should read infinite resistance. If not, you have a short in the collecting section.



# TROUBLESHOOTING

**Table 5** Troubleshooting Guide

<b>Problem</b>	<b>Probable Causes</b>	<b>Remedy</b>
<b>Unit does not function correctly. Power light and performance indicator light are OFF.</b>	System fan is not on.	Turn system fan on.
	Wiring improperly connected.	Check wiring or verify that plug is inserted in receptacle and receptacle is powered.
	Defective power switch.	Check power switch for continuity with ohmmeter. Replace if defective.
	Defective safety interlock.	Remove door and press safety interlock with a screwdriver. If lights come on, bend interlock lever towards front and close door.
<b>Unit does not function correctly. Power switch light is ON and performance indicator light is OFF.</b>	Short in cells due to: 1. Broken ionizing wire. 2. Large particles wedged between cell plates. 3. Cells washed recently and are still wet. 4. Cell end plate insulator is dirty or damaged. 5. Cell plate(s) are bent.	1. Remove wire or wire fragments. Replace. 2. Shake large particles out or wash cell. 3. Allow cells to dry completely. 4. Clean or replace end plate insulator. 5. Straighten plates with pliers.
	Defective performance indicator light.	Determine whether high voltage is present by testing power board ②. If voltage is present, replace performance indicator light.
	Defective power board.	Adjust high voltage potentiometer on power board counter-clockwise. If high voltage is not present, replace power board.
	Air Proving Switch (APS) sensor is burnt out.	Remove power box lid and blow lightly for 10 seconds on APS sensor at bottom of power box. If light does not come on, replace APS.
	Air Proving Switch is not getting enough airflow across the sensor.	Check that sensor is located in the plastic bushing at the front of the power box.  Check that the return duct is installed flush to the top and front edge of the air cleaner duct opening. Ensure there is a minimum of 360 CFM of air to the air cleaner.
	Off board 24V transformer is not working.	Verify output of transformer. Replace if necessary.
	Defective power switch.	Verify output of switch. Replace if necessary.
<b>Power switch light is OFF and performance indicator light is ON.</b>	Defective power switch light.	Replace power switch.
<b>Cell makes loud hissing noise or causes radio interference.</b>	Internal cell contacts are not touching plates.	Test contacts and repair.
	Copper contacts on high voltage tray not making good connection on cell.	With needle-nose pliers, gently pull contacts down or replace contacts.



# TROUBLESHOOTING

<b>Cells arcing excessively (power light and performance indicator light ON or flashing).</b>	Cells wet from washing.	Allow cells to dry completely.
	Particles lodged in cell or broken ionizing wire.	Wash cell. Shake particle out of cell. Replace wire, if necessary.
	Ducts were not cleaned prior to installation of air cleaner.	Clean ducts.
	Cell plates are bent.	Remove cells and adjust to original spacing using needle-nose pliers.
	Dirty cells.	Wash cells and clean ionizing wires.
	Voltage is too high.	Adjust high voltage potentiometer on power board clockwise.
	High voltage wires are on wrong copper contact.	Reposition high voltage wires on proper contact (see Fig. 6).
	Internal contact on cell out of alignment.	Realign cell contact.
	Humidifier (if installed) is leaking water on air cleaner.	Repair humidifier. If possible, move humidifier to different location.
<b>Cells arcing excessively at top of cell near copper contacts (power light and performance indicator light ON).</b>	Copper contact on high voltage contact board is broken or bent upward.	If possible, pull down contacts with needle-nose pliers or remove power box and replace contacts.
<b>Cells not collecting dirt (power light and performance indicator light ON).</b>	Arrow on cells not pointing towards fan blower.	Reposition cell handle and place cell in properly.
	System fan is on "Automatic" setting (air cleaner not on continuously)	Use "Fan On" system fan setting for continuous fan operation.
	Not enough voltage on collecting cells.	Adjust high voltage potentiometer counter-clockwise on power board.
<b>Ozone odor</b>	Cell plates are bent.	Straighten with needle-nose pliers.
	Loose or broken ionizing wire.	Replace wires.
	Dirty cells.	Wash cells and clean ionizing wires.
	Air cleaner is on when system fan is not running. Air cleaner wired incorrectly or air proving switch is defective.	Check operation and wiring of air switch and air cleaner.
	Incoming voltage is higher than rated input.	Adjust high voltage potentiometer clockwise on power board.
	Air cleaner is oversized for house. Not enough airflow to cover surface area of cells.	Use correct size of air cleaner.
	Home is extremely dry.	Repair or install central humidifier.
<b>White dust</b>	Clean lint dust is too heavy to remain airborne.	Keep fan running continuously. Ensure that return air grilles are not obstructed.
	Gaps around air cleaner.	Seal or use duct tape around air cleaner cabinet.



## Service

### A) Replacing a Performance Light

Before replacing the performance light, turn **OFF** power to the air cleaner at the source.

1. Remove the power box cover.
2. Disconnect the performance light wiring connected to the LED terminals on the power board. Carefully cut the wire ties from the wire bundle.
3. Push the light out through front of power box.
4. Push the new light into the power box.
5. Connect the wiring to the LED terminals on the power board. P3 - red; P4 - black. Route the wires away from the high voltage wires or contacts.
6. Replace cover.
7. Return power to air cleaner. Test light.

### B) Replacing a Power Board

Before replacing the power board, turn **OFF** power to the air cleaner at the source or remove the plug.

1. Remove the power box cover.
2. Make note of position of wires connected to the LED, HV1, HV2 and 24 V terminals, then disconnect these wires.
3. Remove the three hex nuts from the power board.
4. Remove the power board from the studs.
5. Place the new board onto studs with the 24 volt input close to the transformer.
6. Replace the hex nuts removed in Step 3. Ensure the star washer is in place over the steel spacer at the ground location on the power board. For proper grounding, the washer must be located on the top of the steel spacer, under the power board.
7. Reconnect wiring to LED, HV1, HV2, and 24 V terminals on the new power board.
8. Return power to air cleaner. Test power board.
9. Replace power box cover.

**Note:** The power board voltage has been set before shipping. It is not usually necessary to reset the voltage to the new load. If you do need to adjust the voltage, refer to ⑤ **Setting Voltage of Power Board** in the **Troubleshooting** section for more information.

### C) Replacing the 24 V Transformer

Before replacing the transformer, check the resistance across the power board's 24 V input terminals, without the transformer connected. Resistance should read above 20K ohms with an analog meter and above 4M ohms with a digital meter. If the resistance readings are below these values, the power board may be the cause of the transformer failure.

Before replacing the 24 V transformer, turn **OFF** power to the air cleaner at the source.

1. Remove power box cover.
2. Disconnect the secondary leads from the transformer to the 24 V terminals on the power board. See Fig. 5.
3. Cut the primary leads (to the APS) close to the transformer.
4. Remove the 2 hex head nuts from the transformer studs.
5. Remove the transformer.
6. Place new transformer over studs and re-install 2 hex head nuts to secure into place.
7. Connect secondary leads (white) to the 24 V terminals on the power board (P1 & P2).
8. Wire nut primary leads from APS (cut in Step 3) to the primary leads of the new transformer.
9. Replace power box cover.
10. Turn **ON** the power to the air cleaner and test





## SERVICE

### D) Replacing an Air Proving Switch (APS)

Before replacing the performance light, turn **OFF** power to the air cleaner at the source.

1. Disconnect wiring from terminals 1, 2, 3, and 4 on the APS. See Fig. 6.
2. Remove the circuit board from the studs by removing the two nuts. Do not remove the spacers.
3. Install the new APS on the studs and secure with the nuts. Ensure sensor protrudes only to the bottom of the plastic bushing.
4. Connect wiring to terminals on APS. Wiring from the power switch is connected to terminals 2 and 3. Wiring to the transformer is connected to terminals 1 and 4.
5. Test the new APS.

### E) Removing Power Box

1. Turn the main system switch **OFF** or disconnect the power cord.
2. Remove the power box cover.
3. If the unit does not have a cord, disconnect the source wires to the air cleaner. Cap off the wires so the system can still be operated.
4. Remove the two nuts holding the power box to the cabinet.
5. Slide the power box forward then up to remove it from the cabinet.
6. If you are removing the power box for any length of time, tape a cover over the top opening to prevent air from entering into the system.

### F) Replacing a Tungsten Ionizing Wire

Replacement wires are cut to the correct length and have eyelets at each end for easy replacement.

1. Turn **OFF** power to air cleaner.
2. Remove cell from air cleaner.
3. Remove all parts of broken wire from the cell.  
If necessary, the cell may be used temporarily with one wire missing until a replacement is received.
4. Place one end of the loop over the finger at the bottom of the cell.
5. Using needle-nose pliers, grip the other end of wire near the bottom of the top loop. Pull the wire up toward the top finger. As you apply tension, the bottom finger will give, allowing the placement of the loop around the top finger.
6. Install cell in air cleaner.
7. Return power to air cleaner.
8. Test cell for proper operation.

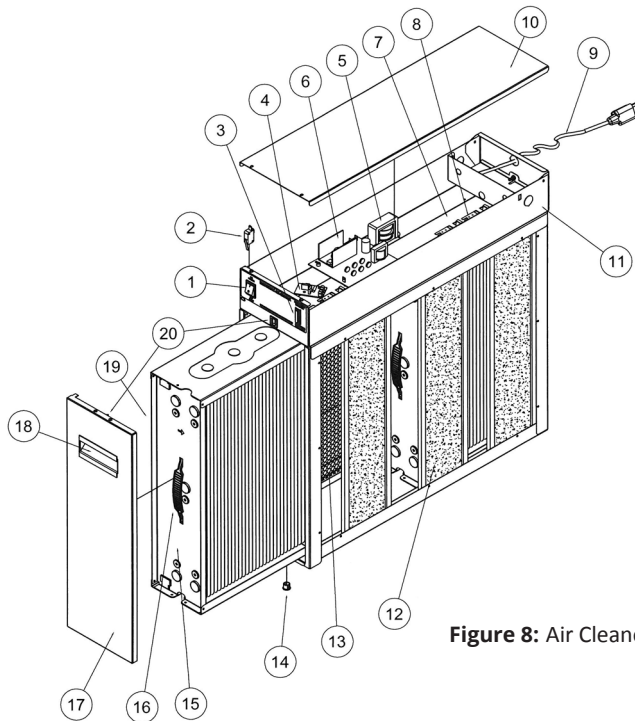


# SERVICE

**Table 6:** Air Cleaner Components List

For more information on ordering parts, call 1-800-267-8305 or your installing contractor.

#	Part Description	AE14-1620-51	AE14-1625-51	AE14-2020-51	AE14-2025-51
		AE14-1620-52	AE14-1625-52	AE14-2020-52	AE14-2025-52
1	Power Switch	R1-0205	R1-0205	R1-0205	R1-0205
2	Safety Interlock Switch	R1-0202	R1-0202	R1-0202	R1-0202
3	Performance Indicator Light (Green LED)	R1-0123	R1-0123	R1-0123	R1-0123
4	Air Proving Switch - 120VAC models	D1-0217	D1-0217	D1-0217	D1-0217
	Air Proving Switch - 220VAC models	D1-0217E	D1-0217E	D1-0217E	D1-0217E
5	24 Volt Transformer - 120VAC models	D1-053D	D1-053D	D1-053D	D1-053D
	24 Volt Transformer - 220VAC models	D1-053E	D1-053E	D1-053E	D1-053E
6	Power Board - 120VAC models	D1-055D	D1-055D	D2-055D	D2-055D
	Power Board - 220VAC models	D1-055E	D1-055E	D2-055E	D2-055E
7	Fibreboard (with 4 Copper Contacts)	D0-0521	D1-0521	D2-0521	D8-0521
8	Copper Contact	R1-9925	R1-9925	R1-9925	R1-9925
9	Cord Assembly (Optional)	R1-062D	R1-062D	R1-062D	R1-062D
10	Cover for Power Box	D0-0509	D1-0509	D0-0509	D1-0509
11	Power Box Complete (No Cover)	Depends on options with power box			
12	Carbon VOC Filters (Set of 3)	AEP-1156-3	AEP-1156-3	AEP-1856-3	AEP-1856-3
13	Prefilter	R0-0855	R1-0855	R2-0855	R8-0855
14	Cell Guide (Plastic)	R1-0603	R1-0603	R1-0603	R1-0603
15	Collecting Cell	D0-0400	D1-0400	D2-0400	D8-0400
16	Cell Handle	R1-0484	R1-0484	R1-0484	R1-0484
17	Door (with Plastic Clip & Handle)	D0-0632	D1-0632	D2-0632	D2-0632
18	Door Handle (Plastic)	R1-0634	R1-0634	R1-0634	R1-0634
19	Ionizing Wire	D1-0443	D1-0443	D2-0443	D2-0443
20	Male & Female Door Clip Set	R1-0636	R1-0636	R1-0636	R1-0636



**Figure 8:** Air Cleaner Component View





**CLEAN COMFORT™ ELECTRONIC AIR CLEANER  
LIMITED FIVE YEAR WARRANTY**

This Clean Comfort™ product is warranted by Daikin North America LLC (“Daikin”) to the original owner to be free from defects in material and workmanship, under normal use and maintenance, within its listed capacity, for a period of five years from the date of purchase, except however, for the prefilters and carbon VOC filters, which will have to be replaced from time to time depending upon the use. This Clean Comfort™ product must not have been moved from the site of original installation. Daikin’s exclusive obligation, and the owner’s sole remedy, under this warranty shall be for Daikin to supply, without charge through a Daikin authorized service dealer, a replacement for any covered part of the Air Cleaner which is found to be defective and is returned by the owner or a qualified servicing Daikin dealer prepaid, together with the serial number, date of installation, and proof of purchase. If the date of installation is unknown, Daikin will guarantee the unit for a period of sixty (60) months from the date of manufacture listed on the product’s rating plate. Any part replaced pursuant to this warranty is warranted only for the unexpired portion of the warranty term applying to the original part.

THIS WARRANTY DOES NOT COVER ANY LABOR OR OTHER COSTS incurred for diagnosis, repairing, removing, installing, shipping, servicing, or handling of either defective parts or replacement parts.

LIMITATIONS - THE EXPRESS WARRANTY CONTAINED HEREIN IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY ARE LIMITED TO THE DURATION OF THE WARRANTY DESCRIBED HEREIN. THE EXPRESS WARRANTY MADE HEREIN MAY NOT BE ALTERED, ENLARGED, OR CHANGED BY ANY DISTRIBUTOR, DEALER OR OTHER PERSON WHATSOEVER.

CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR THE BREACH OF ANY WARRANTY, WHETHER EXPRESS OR IMPLIED, FOR ANY OTHER CONTRACT BREACH, OR FOR NEGLIGENCE OR OTHER TORT, INCLUDING BUT NOT LIMITED TO LOSSES OF PROPERTY ARISING OUT OF THE FAILURE OF THIS EQUIPMENT TO OPERATE FOR ANY REASON WHATSOEVER, ARE EXCLUDED.

Some states and provinces do not allow limitations on how long an implied warranty lasts or the exclusions of consequential or incidental damages, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state or province to province.

**DAIKIN WILL NOT BE RESPONSIBLE FOR:**

1. Normal maintenance including cleaning of electronic collecting cells and replacement of prefilters and carbon VOC filters as outlined in the Installation and Maintenance Instructions.
2. Damage or repairs needed as a consequence of any mis-application, faulty installation, abuse, improper servicing, unauthorized alteration, or improper operation.
3. Damage as a result of floods, winds, fires, lightning, accidents, corrosive atmosphere, or other conditions beyond the control of Daikin.
4. Parts not supplied or designated by Daikin.
5. Products installed outside the continental U.S.A., Alaska, Hawaii and Canada.

**Model No.** \_\_\_\_\_

**Serial No.** \_\_\_\_\_

**Date Of Installation** \_\_\_\_\_

**Installed By** \_\_\_\_\_

**Owner’s Name & Address** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

ATTENTION INSTALLING CONTRACTOR: IF FAILURE SHOULD OCCUR, DO NOT RETURN PRODUCT TO THE DISTRIBUTOR.

CALL THE TOLL-FREE HOTLINE 1-800-267-8305.

**Daikin North America LLC**

351 North Rivermede Road  
Concord, ON L4K 3N2

FOR TECHNICAL ASSISTANCE, CALL THE AIR CLEANER  
HOTLINE TOLL FREE 1-800-267-8305

Our continuing commitment to quality products may mean a change in specifications without notice.

© 2015 DAIKIN NORTH AMERICA LLC  
Houston, Texas • USA

Email: info@cleancomfort.com • 1-800-267-8305 • Fax: 1-416-213-5593

