

## SAFETY INSTRUCTIONS

Read the safety and installation instructions carefully. They will help ensure a correct and SAFE installation of the Aprilaire® Electronic Air Cleaner.

### WARNING

**120 Volts may cause serious injury from electrical shock.**

Disconnect power to the furnace/air handler before starting installation. Leave power disconnected until installation is completed.

**Arcing in electrical components may cause an explosion.**

Do not install unit where explosive gasses will be present.

**Sharp edges may cause injury from cuts.** Use care when cutting and handling sheet metal.

**To reduce the risk of electrical shock, this equipment has a grounding-type (three prong) plug.** This plug will fit only into a grounding-type power outlet. If the plug does not fit into the outlet, contact qualified personnel to install the proper outlet. **Do not alter this plug in any way.**

**To reduce the risk of electrical shock,** locate product so that the power cord can be plugged into an electrical outlet without the use of an extension cord.

### CAUTION

To prevent component failure, do not install the air cleaner on the warm air supply or in an area where the temperature may exceed 140°F. This may include areas above heat exchangers in downflow furnaces or above exhaust flues in lowboy furnace cold air returns.

The air cleaner must be installed where the ambient air temperature remains between 32°F and 140°F [0°C and 60°C].

Installation must conform to all applicable codes.

Do not install an atomizing humidifier upstream of the air cleaner. Water or mist will cause power supply to shut down.

Do not plug the air cleaner into an outlet that is always live. The outlet must only be live when the furnace/air handler blower is operating. Failure to properly wire the outlet can result in excessive ozone production.

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# SPECIFICATIONS

**TABLE 1 – Model 5000 Specifications**

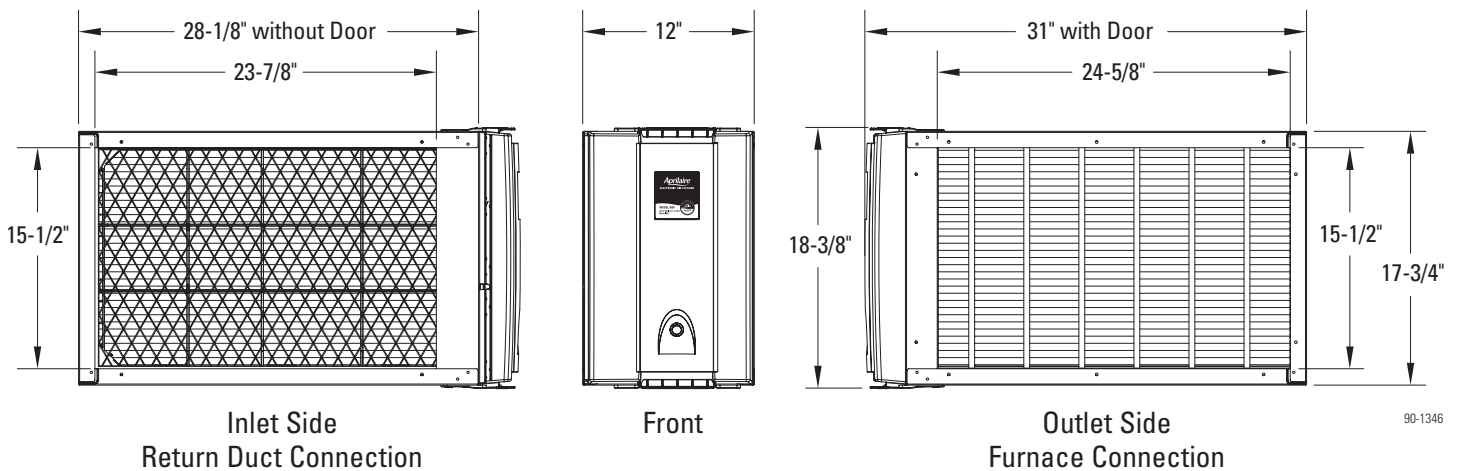
<b>0.3-0.4 <math>\mu</math>m Particle Filtration Efficiency @ 347 fpm</b>	94%
<b>Replacement Media</b>	Model 501
<b>Airflow Capacity</b>	up to 2000 CFM maximum
<b>Electrical – Voltage</b>	120 VAC $\pm$ 15% @ 50/60 Hz
<b>Electrical – Current/Power</b>	Consumes less than 50 watts with high voltage active
<b>Max. Equipment Weight</b>	Cabinet will support 400 lb. static load

**TABLE 2 – Model 5000 Initial Airflow Resistance (inches w.c.)**

Airflow (CFM)					
1000	1200	1400	1600	1800	2000
.10	.14	.17	.21	.25	.29

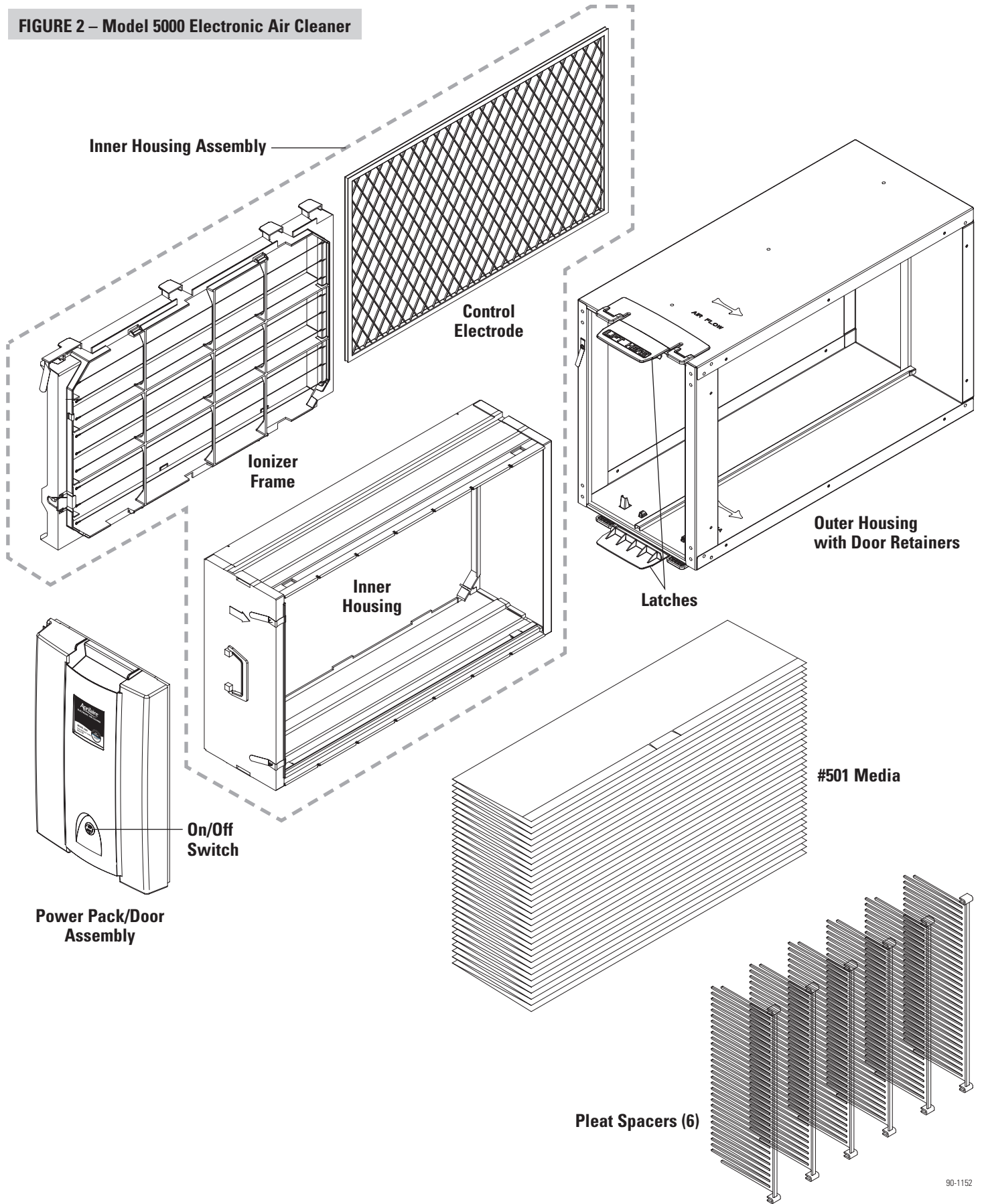
# DIMENSIONS

**FIGURE 1 – Dimensions of the Model 5000 Electronic Air Cleaner**



# COMPONENTS

FIGURE 2 – Model 5000 Electronic Air Cleaner



# LOCATING THE AIR CLEANER

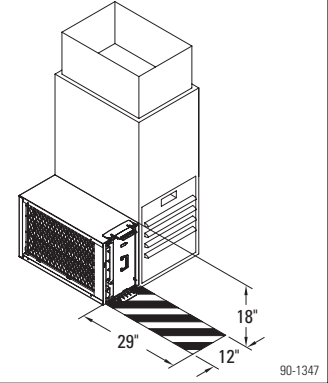
The Model 5000 can be installed in a variety of ways. The figures below show some of the possibilities.

The air cleaner may be installed on the left or right side of the air handler. If installed on the right, the ON/OFF switch will be on top and the nameplate will be on the bottom. Remove the nameplate and rotate it 180° to read properly.

**FIGURE 3 – Clearance for Inner Housing Removal**

It is important to leave enough room to remove and re-install the Inner Housing.

Allow Clearance for Removal of Inner Housing for Filter Replacement.



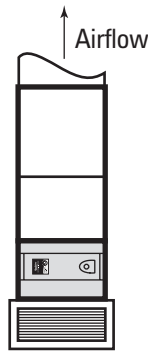
Bottom Return in upflow  
“Highboy” installation.

**(Figure 4)**

Inline in duct, horizontal  
or vertical installation.

**(Figure 5)**

**FIGURE 4**



**Note:** Air Cleaner outer housing can support up to 400 lbs.

**FIGURE 5**

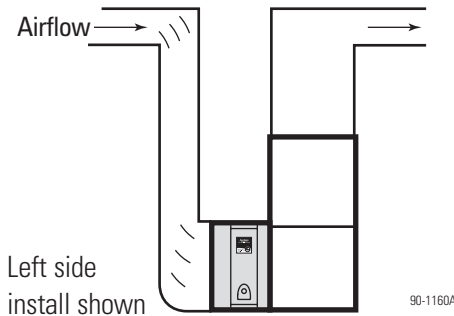


Left side  
install shown

Side Return in upflow  
“Highboy” installation.

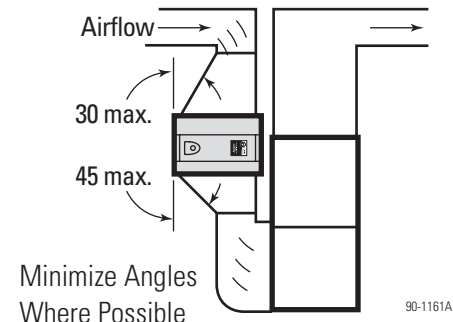
**(Figures 6 & 7)**

**FIGURE 6**



Left side  
install shown

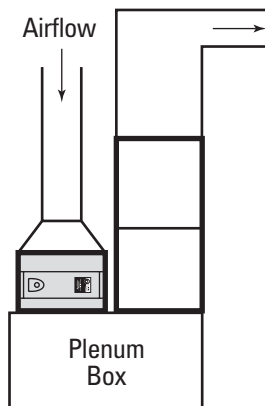
**FIGURE 7**



Minimize Angles  
Where Possible

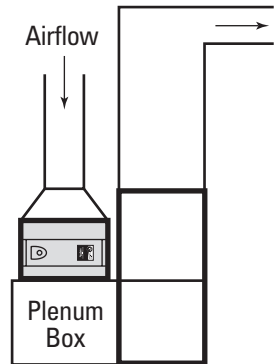
Compact Side Return in upflow  
“Highboy” installation **(Figures 8 & 9)**.  
Either of the methods shown in **Figures 6 and 7** will result in a narrower “footprint”, creating better clearance in tight mounting applications.

**FIGURE 8**



Plenum  
Box

**FIGURE 9**



Plenum  
Box

Size Plenum Box to fit outer housing  
without door: 17-3/4" x 28-1/8".  
See **Figure 1** for complete dimensions.

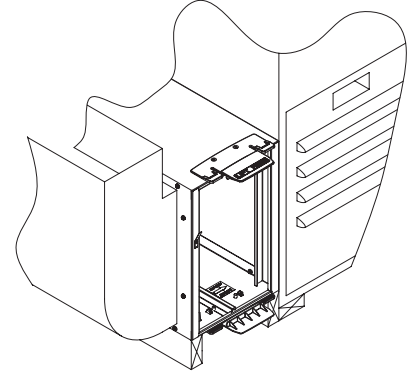
## INSTALLING THE OUTER HOUSING AND INNER HOUSING ASSEMBLY

### ⚠ WARNING

**120 Volts may cause serious injury from electrical shock. Leave power disconnected until installation is complete.**

1. Turn the system OFF at the thermostat by changing the mode selector to OFF – this may be a switch or a pushbutton, depending on the type of thermostat.
2. Disconnect power service to the furnace or air handler.
3. Remove air cleaner power pack / door assembly and pull inner assembly out of the outer housing.
4. Remove the media carton and the cardboard inserts and strapping, used to hold the media, from the inner housing.
5. On retrofit applications, remove and discard the existing filter and filter housing. Thoroughly clean the blower, blower compartment and evaporative coil.
6. With the airflow label on the outer housing pointing toward the furnace/air handler (see **Figure 10**), attach the outer housing to the furnace/air handler.

**FIGURE 10**

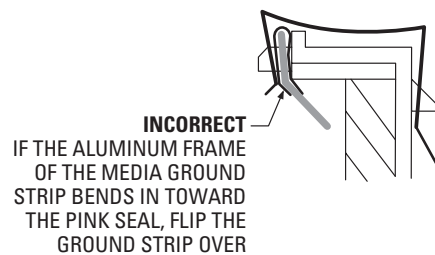
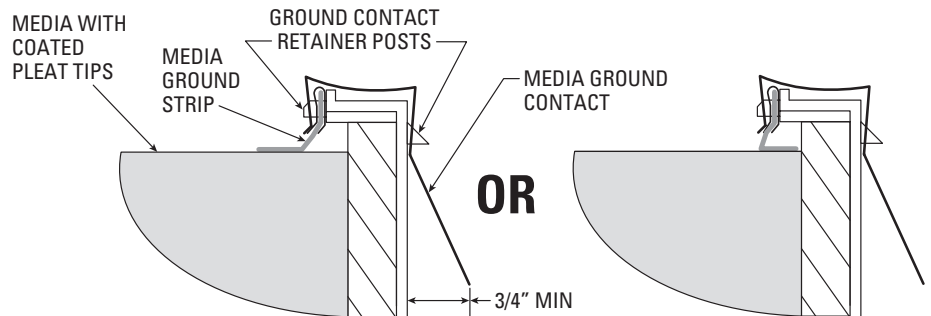


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Support Air Cleaner to Prevent Torque on Outer Housing.

7. Provide support for the housing, as shown in **Figure 10**, if the unit is to be installed on the side of an upflow furnace/air handler (see example of this type of installation in **Figure 6**).
8. Seal the perimeter of the inlet and outlet connections with mastic, caulk or tape as desired. **DO NOT USE SILICON BASED CAULK.**
9. Open the inner housing and install the media. Use the instructions provided on the carton of the media.
10. After installing the media, close the inner housing. Check the media ground strip to ensure it is properly contacting the pleats – see **Figure 11**. If not, remove the ground strip by removing the ground contacts, and reposition as shown in **Figure 11**. Verify that the holes in the media ground contacts go over the ground contact retainer posts.
11. Check to make sure that the ionizer frame is fully installed onto the inner housing and that the control electrode is inserted fully into the ionizer frame.
12. Insert the inner assembly (ionizer frame and inner housing) into the outer housing.
13. Continue with **WIRING AND START UP** on page 6.

**FIGURE 11**



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## WIRING AND START UP

### WARNING

**120 Volts may cause serious injury from electrical shock. Leave power disconnected until installation is complete.**

1. Install a grounded (earth ground) 120-volt single receptacle outlet in accordance with NEC Standards and local codes, into which the EAC will be plugged. This outlet is to be live only when the furnace/air handler blower is running.

#### **For equipment with EAC terminals:**

- A. Install a single-receptacle outlet to the furnace/air handler wired as shown in **Figure 12**.
- B. Use a marker or label to identify the outlet as **"EAC USE ONLY"**.

#### **For 120-volt equipment without EAC terminals:**

- A. Use an Aprilaire Model 51 Current Sensing Relay to wire a single receptacle outlet as shown in **Figure 13**. Refer to the instructions provided with the Model 51 for details on wiring requirements.
- B. For blowers that are 1/2 hp or larger, clamp the Model 51 around the common wire of the blower – see **Figure 14**.
- C. For blowers that are less than 1/2 hp, clamp the Model 51 around two wraps of the common wire as shown in **Figure 14**.
- D. Use a marker or label to identify the outlet as **"EAC USE ONLY"**.

#### **For 240-volt equipment without EAC terminals:**

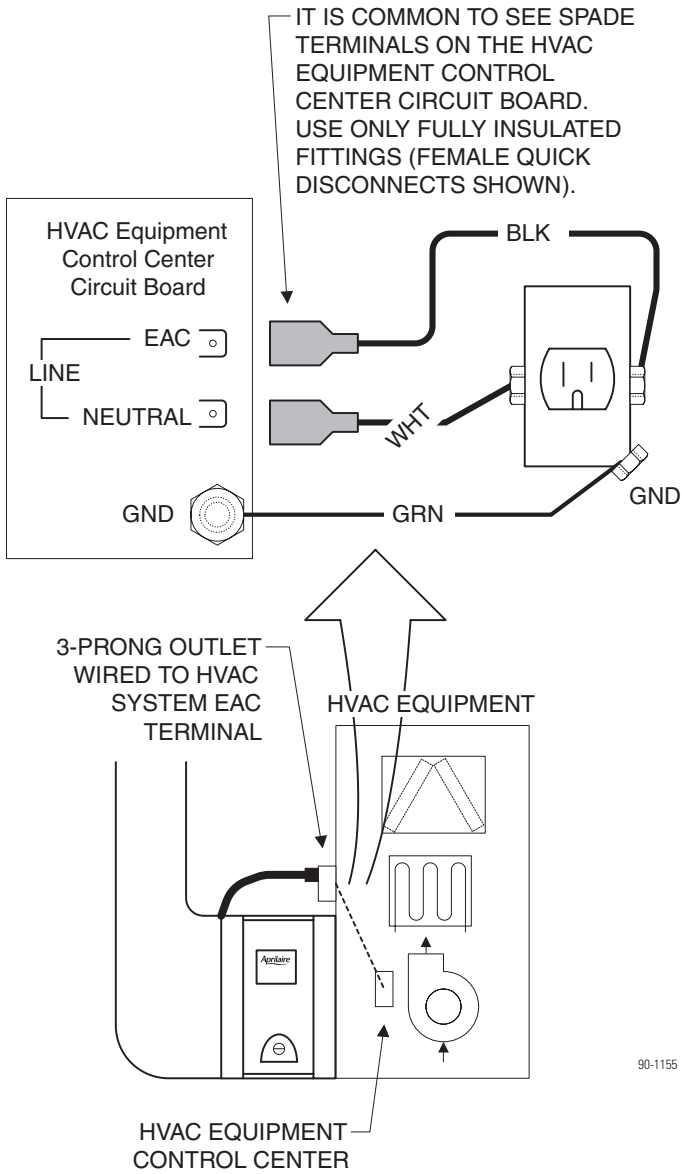
- A. Install a 2:1 step down transformer to get 120-volt service. Use the instructions provided with the transformer to ensure it is properly installed. Do not use ground as the common connection for the outlet.
  - B. Follow the instructions **"For 120-volt equipment without EAC terminals:"** above, except double the number of wraps around which the Model 51 is clamped.
2. Press the power cord into the slot in the side of the power pack (door) so that the plug is directed toward the installed outlet.
  3. Install the door on the housing (with the inner assembly installed in the housing). Place the bottom of the door on the lower door retainer, then swing the door toward the upper door retainer and snap into place.
  4. With the door ON/OFF switch in the OFF position, plug the door into the installed outlet.

### CAUTION

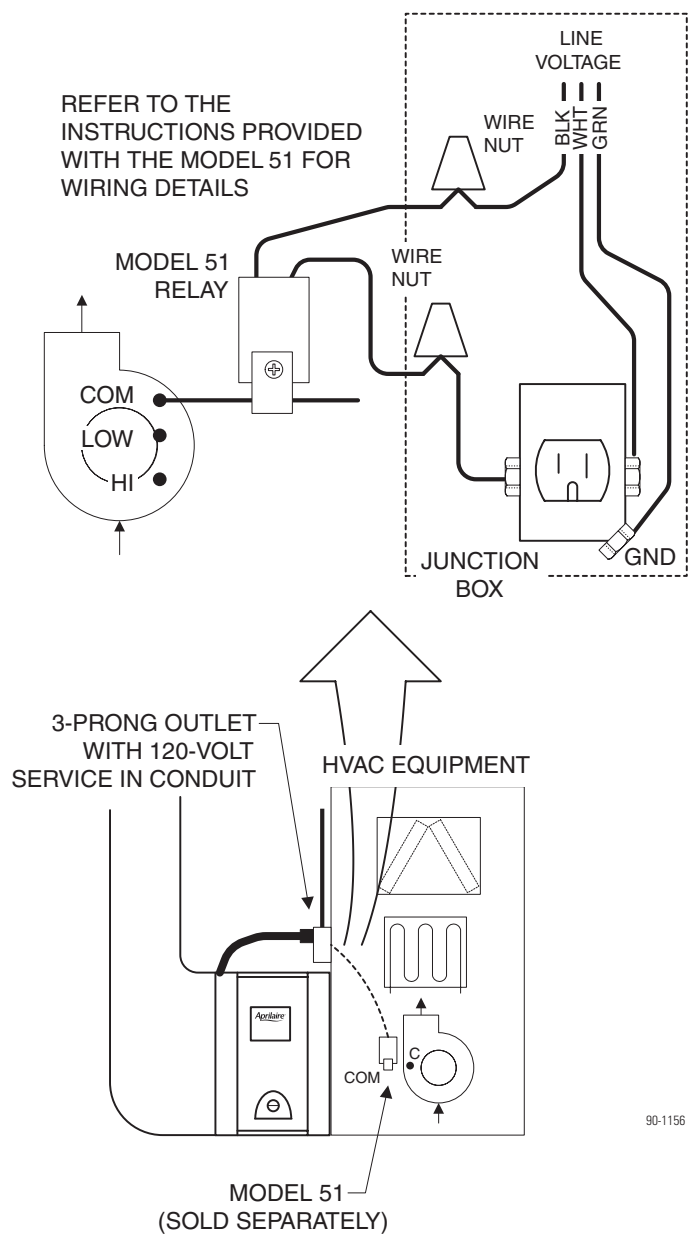
**Do not plug the air cleaner into an outlet that is always live. The outlet must only be live when the furnace/air handler blower is operating. Failure to properly wire the outlet can result in excessive ozone production.**

5. Restore power to the furnace/air handler.
6. Turn on the heating or continuous fan (whichever uses the slowest fan speed) and verify that the **blue light on the door is not on** (see **Figure 15**).
7. Turn ON the door switch.
8. Verify that the **blue light on the door turns on** (see **Figure 15**).
9. If the light is on, turn off the heating or fan and verify that the light on the door turns off. If the light turns off, installation is complete. If the light on the door does not turn on and off as described, continue with Step 10.
10. If the light stays on after the blower has stopped running, the outlet is continuously live and must be rewired in accordance with Step 1.
11. If the light flashes on, then turns off, or if the light does not come on at all, refer to the **TROUBLESHOOTING** section on page 8.

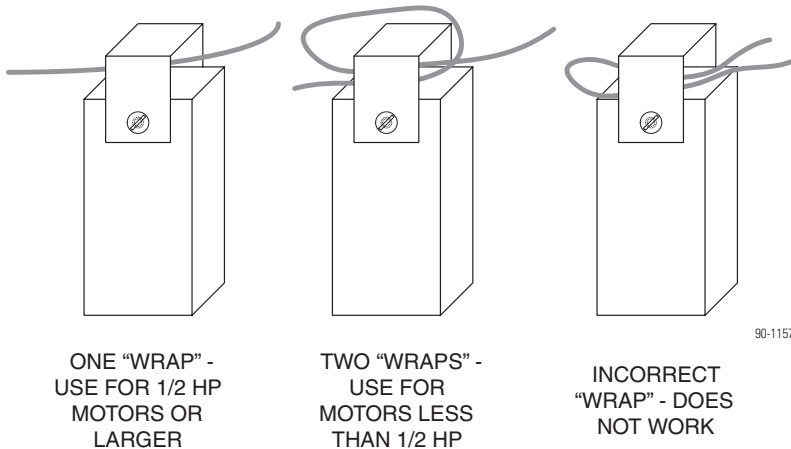
**FIGURE 12**



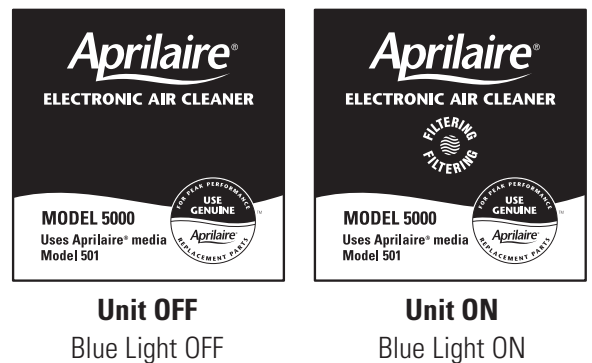
**FIGURE 13**



**FIGURE 14**



**FIGURE 15**



## TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE(S)	SOLUTION(S)
Light does not come on at all after 90 seconds	ON/OFF switch not in ON position	Turn switch ON.
	Air cleaner not plugged in	Plug in air cleaner.
	Insufficient current to activate Model 51 relay	Wrap blower common wire around relay bracket more – see <b>Figure 14</b> on page 7 for wire wrapping method.
	Furnace/air handler not running	Turn blower on by making a heat call or turning Fan ON.
Light flashes on then off quickly	Over current or arcing detected	Ensure components are dry.
		Excessive humidity - run cooling to lower humidity levels.
		Ensure that all 9 ionizer wires are held at both ends.
		Look for foreign object contacting ionizer wires or buss bar.
	Door not fully installed - ensure door is latched into top and bottom retainer.	
	Insufficient current to sustain Model 51 relay	Wrap blower common wire around relay bracket more – see <b>Figure 14</b> on page 7 for wire wrapping method.
Loose connection in outlet junction box or at furnace/air handler EAC terminal	Check wire nuts, screw terminals and crimped connectors for loose wires. Use only fully insulated crimped connectors.	
Light stays on after blower stops running	Outlet in which air cleaner is plugged is continuously live	See Step 1 in Wiring and Start Up section – page 6.
Produces an ozone smell	Outlet in which air cleaner is plugged is continuously live	See Step 1 in Wiring and Start Up section – page 6.
	Large crack/hole in media	Replace media.
	Poor connection between media ground strip and media	Remove ground strip and reinstall as shown in <b>Figure 11</b> on page 5.
	Poor contact between control electrode and ground contact	Push in control electrode so it fully seats in the ionizer frame – see <b>Figure 16</b> on page 10.
	Ground contacts not touching door liner	With the inner assembly installed in the outer housing, bend up ground contacts (2-media ground contacts, 1-control electrode ground contact) so they are at least 3/4" higher than the top of the inner housing. Refer to <b>Figure 11</b> and <b>Figure 16</b> .
	Media ground contacts not fully installed	Remove ground contacts and reinstall as shown in <b>Figure 11</b> on page 5.
Makes a buzzing sound or causes TV interference	Large crack/hole in media	Replace media.
	Poor connection between media ground strip and media	Remove ground strip and reinstall as shown in <b>Figure 11</b> on page 5.
	Poor contact between control electrode and ground contact	Push in control electrode so it fully seats in the ionizer frame.
	Ground contacts not touching door liner	With the inner assembly installed in the outer housing, bend up ground contacts (2-media ground contacts, 1-control electrode ground contact) so they are at least 3/4" higher than the top of the inner housing. Refer to <b>Figure 11</b> and <b>Figure 16</b> .
	Media ground contacts not fully installed	Remove ground contacts and reinstall as shown in <b>Figure 11</b> on page 5.



## MAINTENANCE RECOMMENDATIONS

Whenever performing maintenance on the air cleaner, turn off the HVAC system, then turn off and unplug the air cleaner.

### **Before performing any maintenance item listed below:**

1. At the thermostat, turn the Fan to Auto (this is done with a switch or a button on the thermostat – refer to thermostat Operating Instructions for details) and the Mode (Heat-Off-Cool) to Off (also done with a switch or a button at the thermostat – refer to thermostat Operating Instructions for details).
2. Turn the ON/OFF switch on the air cleaner door to the OFF position.
3. Unplug the door, remove the door from the outer housing and then pull the inner assembly out of the outer housing.

### **CLEAN THE CONTROL ELECTRODE**

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Most homes will require cleaning of the control electrode once a year, while a few homes may require cleaning more often.

The primary purpose of the control electrode is to develop a good ionization field, but it does attract particles and will filter out larger particles like pet hair. Check this item 6 months after initial installation to determine how often it should be cleaned in the future.

- If build up of larger particles that partially block the airflow is occurring, clean the control electrode every 6 months.
- If there is only dust build up occurring, clean the control electrode every 12 months.

### **Procedure:**

1. Lay the inner housing assembly on a flat surface with the control electrode facing up (see **Figure 16**).
2. Slide the control electrode out of the ionizer frame and wipe with a clean cloth, or vacuum with a brush attachment.
3. Return the thermostat Fan and Mode selectors to their appropriate settings.

### **REPLACE THE MEDIA**

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The media attracts and neutralizes ionized particles. Most homes require replacement of the media once a year. How quickly build up occurs will depend on many factors including lifestyle, construction details and environment.

- Check the media 6 months after initial installation. If the media appears dark grey or brown, replace it and check the media for replacement every 6 months thereafter.
- Replace the media no less often than once per year.
- **Always use Genuine Aprilaire Model 501 Replacement Media. The Model 5000 is designed to work only with Genuine Aprilaire 501 Replacement Media. Use of other media will damage your Model 5000 Electronic Air Cleaner.**

**Procedure:** Follow the instructions on the 501 media carton.

### **CLEAN THE IONIZER WIRES**

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Particles will normally build up on the positively charged ionizer wires during operation. The ionizer wires should be cleaned to maintain the highest level of filtration.

- Clean the ionizer wires at least once a year.

### **Procedure:**

1. Lay the inner assembly on a flat surface with the control electrode facing up (see **Figure 16**).
2. Slide the control electrode out of the ionizer frame and set it aside.
3. Using 200 grit sandpaper or an abrasive dish scrubber, clean each of the nine ionizer wires. Even if the wires don't appear dirty, clean each one. Do not use steel wool as this material readily sheds.
4. Replace the control electrode in the ionizer frame, return the inner assembly to the outer housing, reinstall the door, and turn the ON/OFF switch to the ON position.
5. Return the thermostat Fan and Mode selectors to their appropriate settings.

### **CLEAN THE INNER ASSEMBLY**

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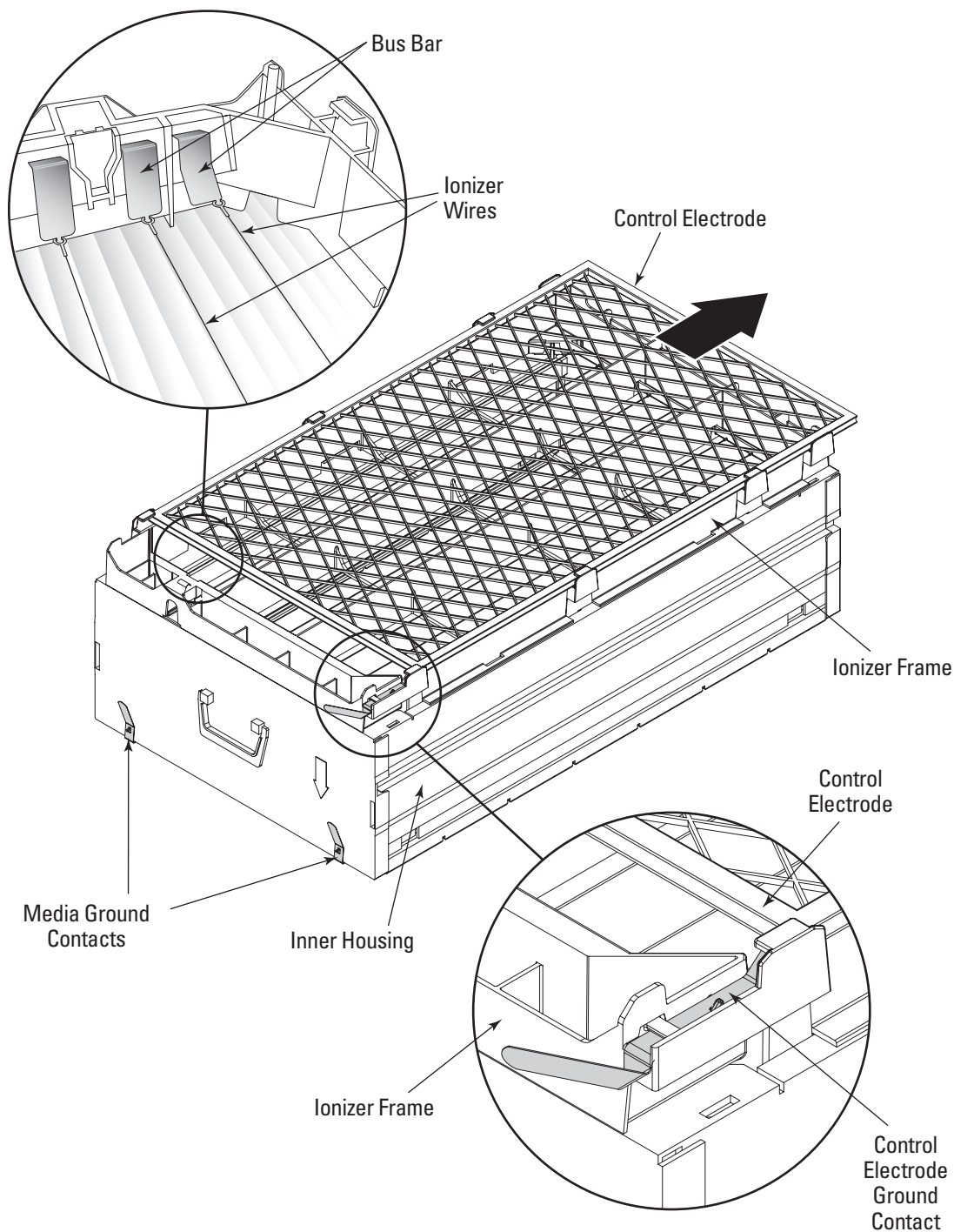
Dust will collect on all parts of the air cleaner, which is normal.

- Clean the inner housing and ionizer frame once a year.

### **Procedure:**

1. Use a vacuum with a brush attachment or a cloth to wipe off collected dust on the inner housing and ionizer frame.
2. Return the inner assembly to the outer housing, reinstall the door, and turn the ON/OFF switch to the ON position.
3. Return the thermostat Fan and Mode selectors to their appropriate settings.

**FIGURE 16 – Maintenance**



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## APPLICATIONS WITH A HUMIDIFIER

An Aprilaire® Automatic Humidifier can be mounted upstream from the air cleaner.

### CAUTION

**Do not install an atomizing humidifier upstream from the air cleaner.**



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