

# OWNER'S MANUAL



Smokemaster  
CONSOLE  
ELECTRONIC  
AIR CLEANER

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# INTRODUCTION

Your Smokemaster Electronic Air Cleaner is an advanced design electronic instrument which is an effective indoor air pollution fighter. You can expect noticeable improvements in your atmosphere as your electronic air cleaner begins the job of removing tiny airborne pollution particles, such as, dirt, grime, pollen and smoke from the air in your home or office.

## SMOKE

Smoke is composed of invisible submicroscopic particles. Collectively, these particles make up that annoying haze. In dense concentrations, the particles form layers and can stay suspended in the air for hours. These particles eventually settle out as a dulling film, which is often visible on windows or mirrors. Your electronic air cleaner can remove nearly all these smoke particles before they have a chance to be inhaled by people in the room or before they have a chance to soil your furnishings.

## POLLEN

Pollens are also airborne particles, some of which can be seen but many of which are invisible. Your Smokemaster Electronic Air Cleaner removes up to 97% of the pollens. This is why your doctor may have recommended an electronic air cleaner for allergy or hay fever relief.

## DIRT, DUST AND OTHER POLLUTION

Your electronic air cleaner also effectively removes irritating airborne dirt, dust, etc., from the air.

## REDUCED HOUSEKEEPING AND REDECORATING

Keeping your office or home furnishings clean is an easier job when the air is clean because most of the dirt and grime you clean is carried through the air. With the help of an electronic air cleaner, walls, windows, mirrors, draperies and furniture stay clean longer. You should notice a reduction in the soiling effect of these pollution particles on your furnishings.

Because most of the staining particles are removed from the air before having a chance to settle on walls, ceilings and draperies, you don't have to redecorate so frequently. Painted surfaces last longer, draperies stay cleaner and wallpaper stays brighter.

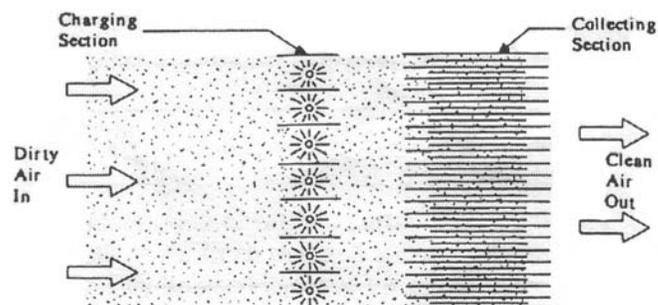
## LOW OPERATING COST

Your electronic air cleaner costs no more to operate than a 60-watt bulb. The benefits you realize from a "full-time" air cleaning operation far outweigh these small operating costs.

# PRINCIPLES OF OPERATION

## HOW YOUR ELECTRONIC AIR CLEANER WORKS

A process called "Electrostatic Precipitation" traps airborne contaminants. The fan draws particulate-laden air successively through the prefilter, the cell ionizing section and the cell collector section. The ionizing section imparts an electrical charge to the individual particles, which are then drawn by electrostatic forces to the oppositely charged collector plates. Cleaned air is then discharged back into the room.



# SPECIFICATIONS

## IMPORTANT

THE SPECIFICATIONS GIVEN IN THIS PUBLICATION DO NOT INCLUDE NORMAL MANUFACTURING TOLERANCES. THEREFORE, THIS UNIT MAY NOT MATCH THE LISTED SPECIFICATIONS EXACTLY. ALSO, THIS PRODUCT IS TESTED AND CALIBRATED UNDER CLOSELY CONTROLLED CONDITIONS AND SOME MINOR DIFFERENCES IN PERFORMANCE CAN BE EXPECTED IF THOSE CONDITIONS ARE CHANGED.

**MODEL:** The Smokemaster unit includes a cabinet, electronic cell, 3-speed fan, prefilter, activated carbon filter and high-voltage power supply. The unit includes a six-foot, three-prong power cord.

**AMBIENT TEMPERATURE RANGE:** The Smokemaster Air Cleaner is intended for use at temperatures normally found in occupied spaces. The minimum temperature is 40°F and the maximum is 104°F.

**INDICATOR LIGHT:** Located next to the control switch. Indicates the presence of high-voltage power.

**TEST BUTTON:** Located next to the indicator light. Indicates that the electronic cell is properly energized.

**ELECTRICAL RATINGS:**

**Voltage and Current:** 120V, 60 Hz; 220/240V, 50 Hz

**FAN MOTOR:** 1/40 Hp, shaded pole with sleeve bearings.

**NOMINAL CURRENT AND POWER CONSUMPTION:**

FAN SPEED	60 HERTZ	
	Amps	Watts
High	1.4	120
Medium	1.05	80
Low	.75	60

FAN SPEED	50 HERTZ	
	Amps	Watts
High	.72	157
Medium	.5	110
Low	.4	86

**INTERLOCK SWITCH:** Interrupts supply power to the unit when the cover is opened.

**CABINET:** All steel cabinet painted.

**DIMENSIONS:**

	Height	Width	Depth
Cabinet	24" *	14 5/8"	15 7/8"
Cell	20"	12 1/2"	4 1/2"
Prefilter	20"	12 1/2"	1/2"
Carbon Filter	20"	12 1/2"	1/2"

\* - 25.5" with casters

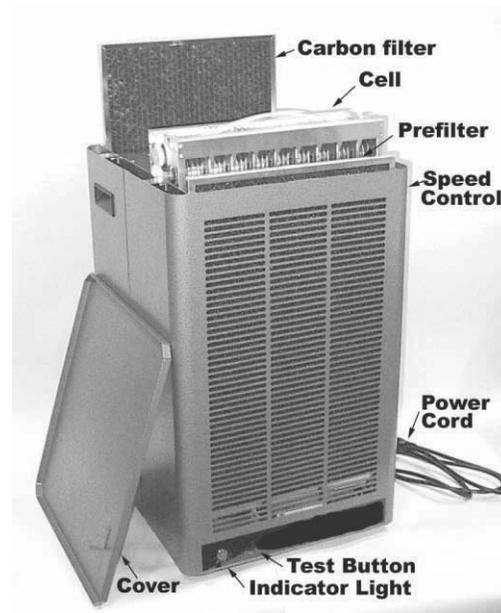
**WEIGHT:** Shipping: 60 lbs., Installed: 54 lbs.  
(Cell weight - 10 lbs.)

This product is independently lab tested and certified to be in compliance with UL standard 867 and CSA standard C22.2 No. 187-M1986 by ETL and bears The ETL and cETL mark under Report No. 3035728.005

**CAPACITY:**

FAN	60 HERTZ		
	CFM	m <sup>3</sup> /hr.	Eff. %
High	430	731	88
Medium	285	484	93
Low	235	400	98

FAN SPEED	50 HERTZ		
	CFM	m <sup>3</sup> /hr.	Eff. %
High	360	611	89
Medium	240	408	94
Low	190	322	99



**FIGURE 1 – Smokemaster AIR CLEANER COMPONENTS**

# SETUP AND OPERATION

## WHEN USING THIS PRODUCT

Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.

## CAUTION

To reduce the risk of electric shock, this equipment has a grounding-type plug that has a third grounding pin. This plug will only fit 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 the plug in any way.

## UNPACKING THE AIR CLEANER

Check that all components are included. The electronic air cleaner is shipped assembled and should include everything shown in Fig. 1.

## SETUP/LOCATING THE UNIT

1. Position the unit so:
  - the airflow in and out of the air cleaner is not blocked or partially obstructed.
  - the discharge air does not cause uncomfortable drafts for any occupant.
  - the power cord does not interfere with normal occupant traffic.
2. Remove and discard the plastic bag from the carbon filter. Install the carbon filter in the track near the exhaust grille. See Fig. 2.

**NOTE: The center filter track is used for an optional second carbon filter when additional odor removal is needed.**

3. Replace the cover on the unit. The cover must be installed properly for operation. See Fig. 4.
4. Plug the power cord into the standard grounded outlet.

## OPERATING Smokemaster AIR CLEANER

The speed control, Off-Low-Med.-High, is on the right side of the Smokemaster Air Cleaner. There is an indicator light and test button on the front side of the unit. The indicator light should be on whenever the unit is operating properly. The test

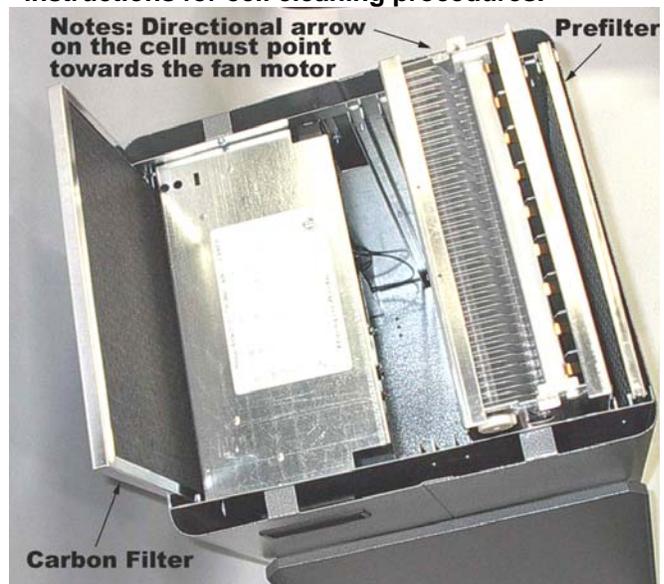
button insures that the electronic cell is properly energized. See Fig. 1

Generally, the high fan speed is used in extreme conditions for rapid cleaning or for large areas where the high fan speed is required to circulate the air. Medium and low settings are usually adequate to maintain a clean air environment and to offer a quieter operation.

At the initial start-up, the indicator lamp may flicker on and off and is no cause for alarm. Should the indicator light fail to come on, review the Troubleshooting section.

During the initial use, snapping sounds may be heard. This is normal and the unit may continue to make these noises the first few days of operation. After this break-in period, only an occasional snap will be heard.

**NOTE: As the electronic cell becomes dirty, it will snap more frequently. When this occurs, the cell should be washed. See the Service instructions for cell cleaning procedures.**



**FIGURE 2 – MAKE SURE THE CELL AND FILTERS ARE PLACED CORRECTLY.**

## WARNING

Air cleaners are not a substitute for fresh makeup air. Air cleaners should not be used as a safety device.

# SERVICE

## Automatic Dishwasher

### **CLEANING**

The Smokemaster Air Cleaner works by electrically charging and collecting airborne contaminants. As these contaminants collect, the collector plates and prefilter become extremely dirty. With an excessive amount of contamination built up on the collector plates and the prefilter, the electronic air cleaner's efficiency decreases. Also, as dirt builds up, the snapping noise will occur with greater frequency.

To prevent this loss of efficiency, the electronic cell and prefilter must be cleaned regularly. How often will depend on usage. Variables, such as, number of occupants, pets, and smoke, will determine how often the air cleaner requires cleaning. Usually the cleaning interval will be between once a month to once every six months.

### **CLEANING THE PREFILTER**

Remove the prefilter and shake out or brush off the accumulated dust and lint. If this is not adequate, a vacuum cleaner may be used or the prefilter can be cleaned with an all-purpose alkaline detergent to remove tobacco smoke and cooking grease stains. A thorough rinsing is required after each cleaning.

### **CLEANING THE ACTIVATED CARBON FILTER**

Occasionally, the carbon filter will need cleaning. Use a vacuum cleaner to remove the dirt. The odor absorption capabilities of the carbon lasts between three to six months. Once the carbon filter can no longer remove odors from the air, the filter will have to be replaced.

### **CLEANING THE ELECTRONIC CELL**

#### **CAUTION**

**Sharp edges can cause injury.**

**Handle the cell carefully to avoid cuts from the sharp metal edges.**

The cell can be washed in many automatic dishwashers or manually washed using Smokemaster Liquid Cell Cleaner.

#### **CAUTION**

**Burn hazard--can cause personal injury.**

**Allow the cell to cool in the dishwasher at the end of the wash cycle or wear protective gloves to avoid burns. Hot water may accumulate in the tubes supporting the collector plates. Tip the cell so these tubes will drain.**

#### **IMPORTANT**

- **Check your dishwasher owner's manual. Some manufacturers do not recommend washing electronic cells in their dishwasher.**
- **If the dishwasher has upper and lower arms, position the cell carefully to allow good water circulation.**
- **Use care to avoid damaging or bending the cell plates when placing it in the dishwasher. If bent, arcing will result.**
- **A very dirty cell, especially from tobacco or cooking smoke, may discolor the plastic parts and lining of the dishwasher. The discoloration is not harmful. To minimize it, wash the cell more frequently or try a different brand of detergent.**
- **Do not allow the dishwasher to run through the dry cycle. This will "bake on" any contaminants not removed during the wash cycle and reduce air cleaner efficiency.**

1. Put the cell on the lower rack of the dishwasher with the directional arrow pointing up. It may be necessary to remove the upper rack. Don't block the water flow to the upper arm, if provided on the dishwasher.
2. Using the detergent that works best for normal dishwashing, allow the dishwasher to run through the complete wash and rinse cycle. Do not use the dry cycle. To avoid burns, let the cell cool completely before removing or wear protective gloves when removing the cell. Remember that water may be trapped in the tubes that support the collector plates. Tip the cell so these tubes can drain.
3. Wipe the ionizer wires and red contact board on the end of the cell with your thumb and forefinger holding a small, damp cloth.

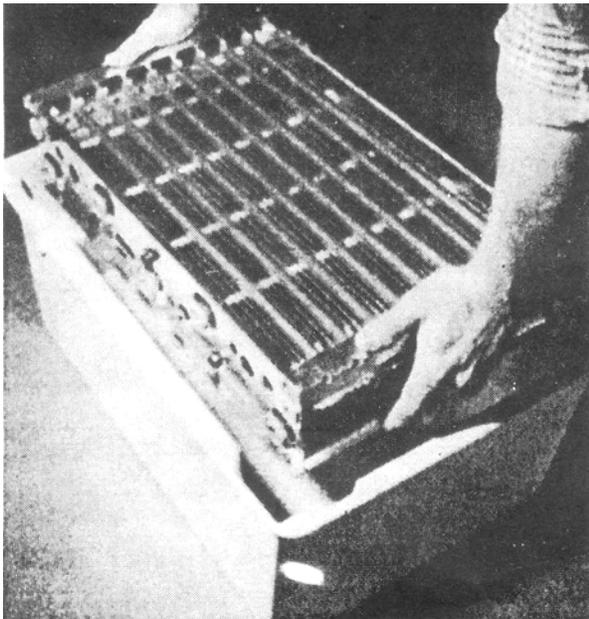
4. Inspect the dishwasher. You may wish to repeat the wash and/or rinse cycle with the dishwasher empty if you see dirt or residue from washing the cell. If dirt or residue seems excessive, wash the cell more often or try a different detergent.
5. Inspect the cell for bent plates. Bend back to normal to prevent arcing.

**Manual Washing/Smokemaster Liquid Cell Cleaner**

1. Pour the cleaner into a container nearly the size of the cell. Cleaners and containers are available from your Smokemaster dealer.
2. Immerse the cell in the cleaner and remove immediately. Set the cell aside for 5-7 min.

**NOTE: If the detergent is allowed to dry on the cell, repeat the above procedure.**

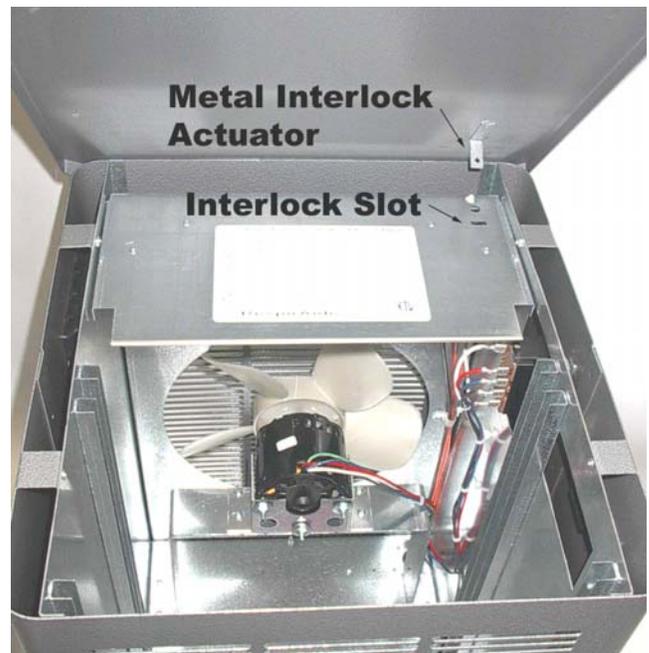
3. Thoroughly rinse the cells with very hot water. Make certain no residue remains on the cells. Residue will adversely affect cell performance by causing frequent arcing and low efficiency.
4. Allow the cell to dry.
5. Cell cleaner is reusable. Save for repeated use.



**FIGURE 3 – Smokemaster DIP TANK AND CELL.**

**REINSTALLING THE CELL, PREFILTER AND POSTFILTER**

1. Inspect the cell for broken wires and bent collector plates. Repair as necessary.
2. Slide the dry cell in so that the directional arrow (located on the side of the cell) points toward the center of the air cleaner cabinet.
3. Slide the prefilter into the track near the inlet grille and the carbon filter into the track near the outlet grille.
4. Replace the cover on the cabinet. The locator pin on the top of the metal guard must fit into the round hole on the bottom of the cover. See Fig. 4. If the cover is not installed properly, the unit will not operate.
5. Turn on the unit. If the cell is still damp, the indicator light may not come on until the cell is dry which would normally take about three hours. If the cell is energized and annoying snapping sounds occur, the cell should be removed from the air cleaner and allowed to thoroughly dry.



**FIGURE 4 – THE COVER MUST FIT CORRECTLY FOR OPERATION. IONIZER WIRE REPLACEMENT**

Broken ionizer wires can cause a short to ground often resulting in visible arcing or sparking. The cell should not be used until the pieces of broken wire are removed. It can be used temporarily with one wire missing although the wire should be replaced as soon as possible. See the Parts list, Pg. 11, for order number.

Replacement wires come cut to length with eyelets on both ends for easy installation. To install:

1. Hook the eyelet on one end of the wire over the spring connector on one end of the cell. See Fig. 5. Be careful to avoid damaging the spring connector or other parts of the cell.
2. Hold the opposite eyelet with a needle nose pliers and stretch the wire the length of the cell. Depress the opposite spring connector and hook the eyelet over it.

**REDUCING OZONE ODOR**

The electronic air cleaner generates a small amount of ozone in normal operation. During the first week or two of operation, the amount may be higher because of sharp edges on some of the new high voltage metal parts. Normal use dulls these edges in a short time.

The average person can detect the odor of ozone in concentrations as low as 0.003 to 0.010 parts per million (PPM). The electronic air cleaner contributes 0.005 to 0.010 PPM of ozone to the indoor air. The U. S. Food and Drug Administration and Health and Welfare Canada recommend that indoor ozone concentration should not exceed 0.050 PPM. As a comparison, the outdoor ozone level in major cities is sometimes as high as 0.100 PPM. However, if desired, the ozone generated by the air cleaner can be reduced by regular replacement of the carbon filter (every 3-6 months). Also, a second carbon filter can be installed in the filter track in the center of the Unit. See Fig. 2, Pg. 5.



**FIGURE 5 – INSTALL NEW IONIZER WIRES BY HOOKING EYELETS OVER THE SPRING CONNECTORS.**

# Smokemaster AIR CLEANER SCHEMATIC

## Smokemaster ELECTRONIC AIR CLEANER

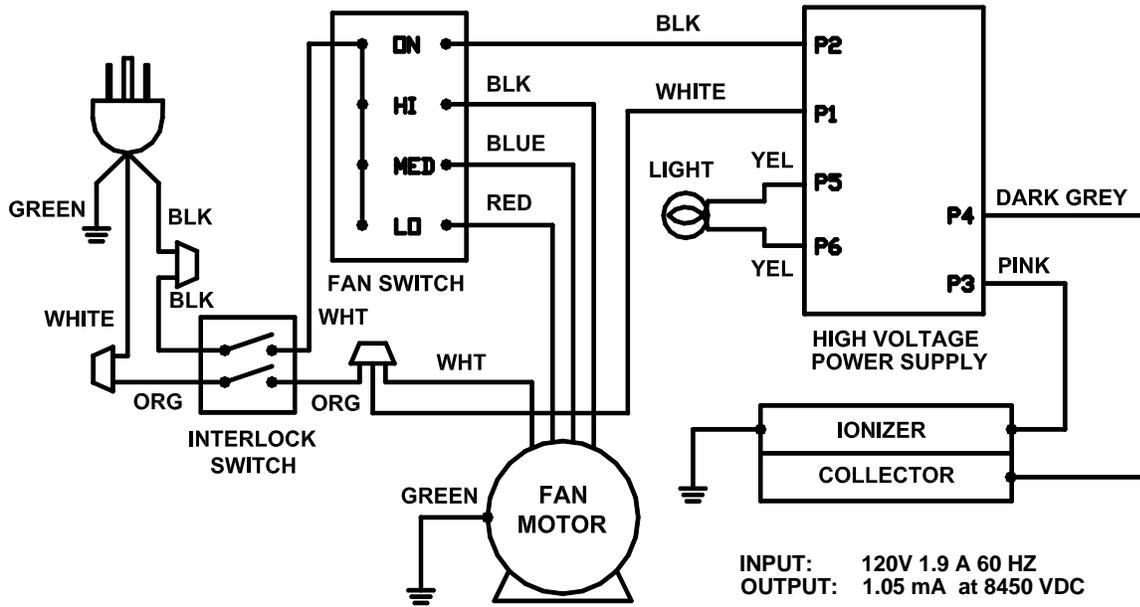


FIGURE 6 – 120V SCHEMATIC

# ELECTRICAL TROUBLESHOOTING

In the event that you experience problems with the operation of your unit, please:

- Make sure that the cell and filters are properly installed. See Fig. 2, Pg. 5.
- Make sure the cabinet cover is properly installed. See Fig. 4, Pg. 7.
- Check fan motor operation and indicator light on all three speeds.
- Push button test. A snapping noise indicates the cell is properly energized.

If your air cleaner still has any of the following problems, proceed step-by-step as shown underneath. If you cannot resolve the problem, contact your Smokemaster representative.

**CAUTION**

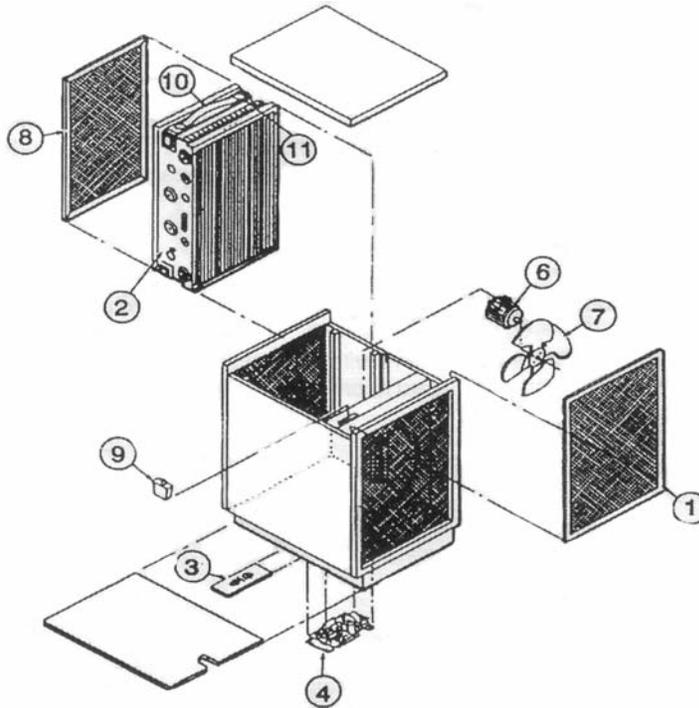
**The following instructions are for use by qualified personnel only.**

**WARNING: RISK OF ELECTRICAL SHOCK**

**These servicing instructions are for use by qualified personnel only. To reduce the risk of electrical shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.**

<b>PROBLEM 1</b>	<b>PROBLEM 2</b>	<b>PROBLEM 3</b>
FAN OFF LAMP OFF	FAN ON LAMP OFF	FAN OFF LAMP ON
Make sure the supply cord is plugged into a standard receptacle.	If the fan is on and the light is out, the problem is with the electronic cell or high voltage power supply.	Check the motor on all three speeds. Be certain that the control buttons are pushed all the way in.
Make sure there is voltage to the receptacle by using any other electric device.	To determine which component is faulty:	If the light is on and the fan is off, the motor will have to be replaced.
Make sure the top access cover is properly in place in order to actuate the interlock switch. See Fig. 4, Pg. 7.	<ul style="list-style-type: none"> <li>• Remove the electronic cell and operate the unit. If the light does not come on, then the high voltage power supply will have to be replaced.</li> </ul>	
	<p>If the indicator light does come on, the problem is with the electronic cell. Check the cell for:</p> <ul style="list-style-type: none"> <li>• Bent collector plates. Straighten and space the plates using a needle nose plier.</li> <li>• Check for missing ionizer wires. Replace the missing wires. See Pg. 8.</li> <li>• Check for dirt buildup on the collector plates and the insulators. See Pg. 6.</li> </ul>	

# PARTS LIST



**FIGURE 8 – Smokemaster PARTS LIST**

NO.	DESCRIPTION	60 Hz	50 Hz
1	Activated Carbon Filter	41006	41006
2	Electronic Cell	38001	38001
3	Contact Panel	46113	46113
4	Solid State Power Supply	07103	07104
5	Indicator Light	10097	10097
6	Fan Motor	07101	07102
7	Fan Blade	37006	37006
8	Prefilter	41005	41005
9	Interlock Switch	10106	10106
10	Cell Removal Handle	21328	21328
11	Cell Handle Fastener (2)	30550	30550
Not Shown	Mounting Feet (4)	30074	30074
Not Shown	Interlock Actuator Bracket	20036	20036
Not Shown	Control Switch	10110	10110
Not Shown	Ionizer Wire	38004	38004
Not Shown	Wall Mounting Kit	07047	07047
Not Shown	Four Caster Wheels	30177	30177
Not Shown	Alkaline Detergent	45008	45008
Not Shown	Fiberglass Wash Container w/Lid	30182	30182

# CERTIFICATE OF WARRANTY

## LIMITED ONE-YEAR WARRANTY

Smokemaster Distribution Center (RDC), warrants the Smokemaster Electronic Air Cleaner to be free from defects in workmanship or materials, under normal use and service, for a period of one (1) year from the date of purchase by the consumer. If, at any time during the warranty period, the product is defective or malfunctions, RDC shall repair or replace it (at RDC's, option) within a reasonable period of time.

If the product is defective,

- (i) obtain a Return Goods Authorization Number from your RDC representative,
- (ii) return the unit or defective component, with a bill of sale or other dated proof of purchase, to the retailer from which you purchased it, or
- (iii) package the unit or component, along with proof of purchase (including date purchased) and a short description of the malfunction, and mail or ship, postage or freight prepaid, to the following address:

**AIR QUALITY ENGINEERING, INC.  
Warranty/Return Goods Department  
7140 Northland Drive North  
Minneapolis, Minnesota 55428-1520 USA**

The repaired or replaced part or unit will be shipped freight collect by RDC, to the purchaser with the purchaser to be responsible for all freight charges. The warranty on any repaired or replacement part shall be for a duration of time no longer than the remaining or unexpired term of the original warranty. This warranty does not cover any labor or other service charges incurred by the purchaser.

This warranty shall not apply if it is shown by RDC, that the defect or malfunction was caused by damage which occurred while the product was in the possession of the consumer.

RDC's, sole responsibility shall be to repair or replace the product within the terms stated above. RDC SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY, EXPRESS OR IMPLIED, APPLICABLE TO THIS PRODUCT. Some states do not allow the exclusion or limitation of consequential damages, so this limitation may not apply to you.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY EXCLUDED BEYOND THE ONE-YEAR DURATION OF THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation 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.