

# lakeair®

**Clean Air ~ Everywhere**

## Operating and Service Manual MAX Guard 120



# INDEX

<b>TOPIC</b>	<b>Page</b>
Index	2
About the MAX-Guard	3
Unpacking	3
Operation	3
Getting to Know Your MAX-Guard	4
Unit Maintenance	4
Major Parts	5
Filter Removal and Replacement	6-9
Pre Filter	6
Main Filter	7
Carbon Filter	7
Electrostatic Filter	8
UVGI Filter	9
UVC Bulb Replacement	9
Bulb and Ballast Disposal	9
Special Warnings UVGI	10
Filter & Bulb Replacement	11
Return Shipping	11
Specifications	12
Wiring Diagram	12
Positioning You MAX-Guard	13
Washing Your Electrstatic Filter	14
Trouble shooting	15
7 Year Limited Warranty	16
Usher's Responsibilities	16

# ABOUT Your MAX-Guard

The MAX-Guard air purifier was designed to provide long service. The unit was designed to be easily repairable. The product warranty is 7 years but you can expect 15 or more years of useful product life. The MAX-Guard is a heavy duty all air purifier. There are no circuit boards. We use simple switches that if necessary are easy to replace.

## Unpacking

Your MAX-Guard air purifier is shipped on a 26" x 26" pallet. If you ever need to ship your air purifier back to the factory it MUST be shipped strapped to a pallet. The MAX-Guard was designed to be easily repaired so it is unlikely to need to ship your unit back.

Care should be taken while unpacking the MAX Guard. The unit is quite heavy and the box should be placed in the upright position. It may be necessary to slice the corners of the box if you are unable to lift the unit out.

It is a good idea to get help from another person while removing the unit from the box. Place the air purifier on a flat surface. The MAX-Guard is a high-volume air purifying system and can clean the air in a large area. However, to clean the air, the air must get to the unit. Unit location will be best if the product is centrally located in the room. Use of an additional fan to move the air in the space may be helpful.

## Operation

Plug the line cord into a standard household outlet with 120V AC 60 Hz. Caution should be taken to operate the unit with the required voltage, as to do otherwise may damage the unit and void the warranty.

The unit starts in turbo speed. As you rotate the knob clockwise the unit's blower speed will begin to slow. Note: blower normally takes 5-10 seconds to start rotating. **To turn off:** Turn counter clockwise until you hear a click. Most times you will not need to run the MAX-Guard in turbo mode. There is sufficient volume of air purification to run the unit at a slower speed with little noise and still clean the room air sufficiently.

## Getting to Know your MAX-Guard

The MAX-Guard is sold with a number of different filter package options. Not all of the following information will apply to your product. The filter options available are:

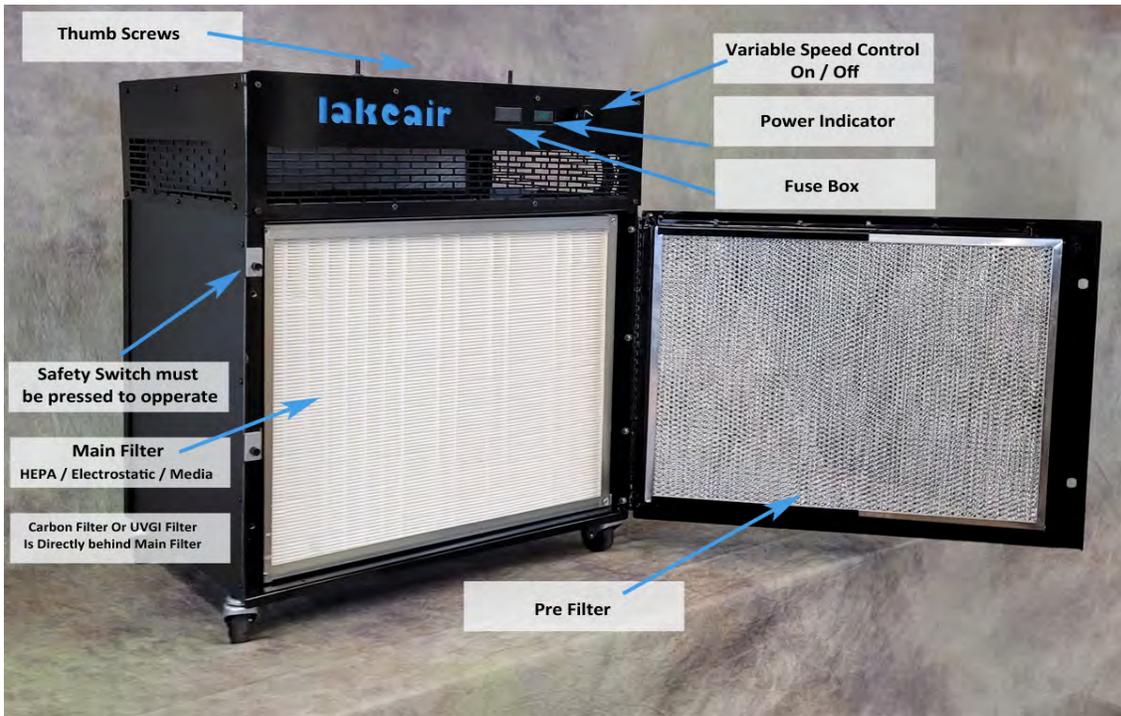
1. Standard HEPA
2. MERV 15
3. Electrostatic
4. HEPA / UVGI

All MAX-Guard filter packages include a pre filter and carbon filter. In the HEPA/UVGI model the carbon filters are incorporated into the UVC chamber. It is important to regularly inspect, clean and replace filters as needed. Failure to do so may lead to poor unit performance and voiding of the product warranty. The Blowers in this unit depend on air flow to keep the cool. Insufficient air flow may cause the motor bearings to over heat and fail. The Blowers are rated for 60,000 hours of normal use. Proper maintenance can greatly extend the blower life.

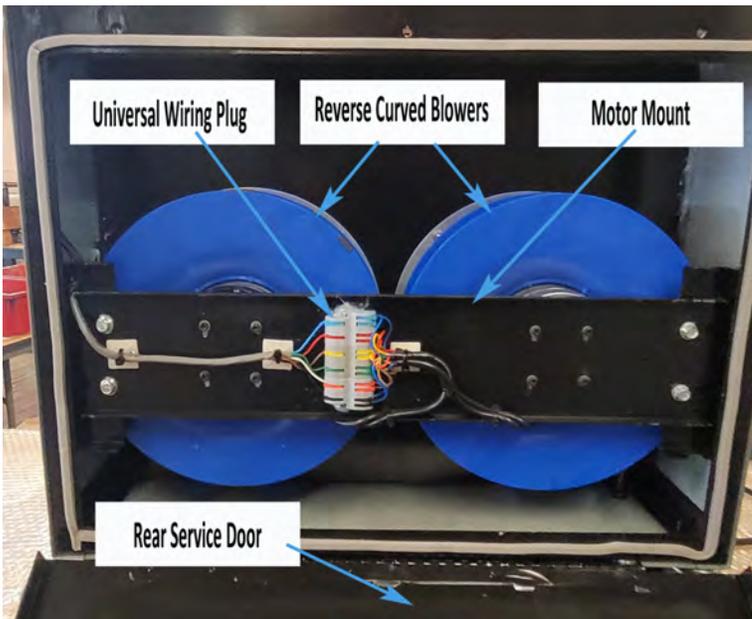
## Maintenance

Your LakeAir Air Cleaner is a high quality, precision piece of equipment designed for many years of satisfactory performance. Adhere to a regular maintenance schedule and no problems should occur. Your Air purifier should be checked periodically for “dust load” and cleaned if found to have a large accumulation of dust and lint. Under regular conditions The HEPA filter should last 1 year and be replaced annually. The carbon filter should be changed every 3-6 months. When odors are no longer being removed, it is time to replace the carbon filter. The electrostatic filter cell should be washed every 3-6 months. The prefilter should be cleaned every 3 months. When used in a smoky environment the MAX-Guard filters should be serviced more often. The UVGI bulbs (UVGI units only) should be changed every 12 months.

# MAX-Guard Major Parts



Fuse Box	497546	Thumb Screw	470122
LED Indicator	100139	Safety Switch	497567
Potentiometer	371922		

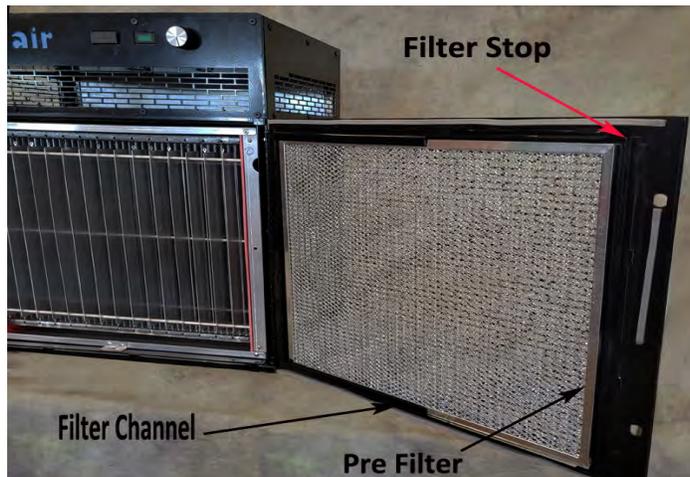


Blower	300781
Motor Mount	200478
Universal Plug	497546

# Filter Removal and Installation

## PreFilter

The pre filter is the first of 3 filters used in the MAX-Guard. The pre filter removes large particles from the air stream. It also extends the life of the main filter. The prefilter's rating is MERV 2 and its Part# is 490052. The pre filter is mounted into the door of the MAX-Guard



To remove or re-install lift the end of the prefilter over the filter stop and slide along filter channel



## Main Filter

The main filter will be one of 4 different filters. Possible options are Standard HEPA (20 x 16 x 4.75), MERV 15 Media filter (20 x 16 x 4), Electrostatic filter (20 x 16 x 4.5) or UVGI HEPA (20 x 26 x 2.4) The main filters fit snugly into the filter box and can be removed easily. All 4 filters have a lip that allows you to get a good hold on the filters. The filter lip may be a bit sharp so take care not to cut yourself.



Move the filter back and forth with a side-to-side motion drawing it slowly to you. You can reinstall the filter in the same manner gently moving the filter back into place. The main filter should touch the carbon filter.

## Carbon Filter

The carbon filter is located directly behind the main filter. To remove the carbon filter, put your fingers on the lip of the filter and gently remove the filter with a side-to-side motion. Note: The lip is metal and may be a bit sharp use caution not to cut yourself while removing. In an UVGI unit the carbon filter is incorporated into the UVGI chamber. You should never run the UVGI filter without a carbon filter both in front and back of the UVGI element.

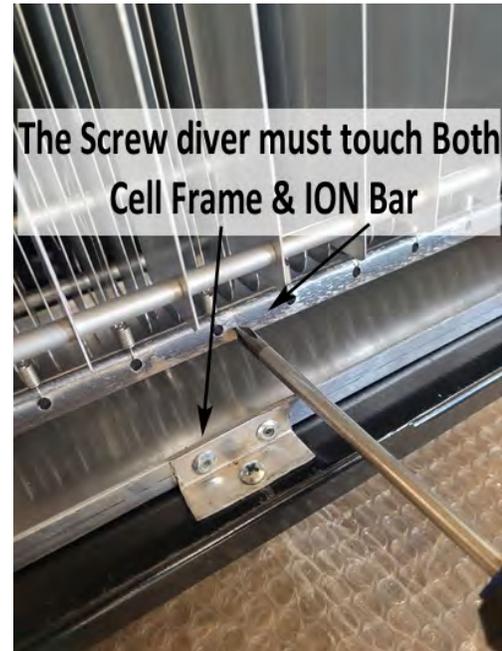


# Electrostatic Cell Removing and Re-installing

## CAUTION

**Always Ground the Cell before handling!**

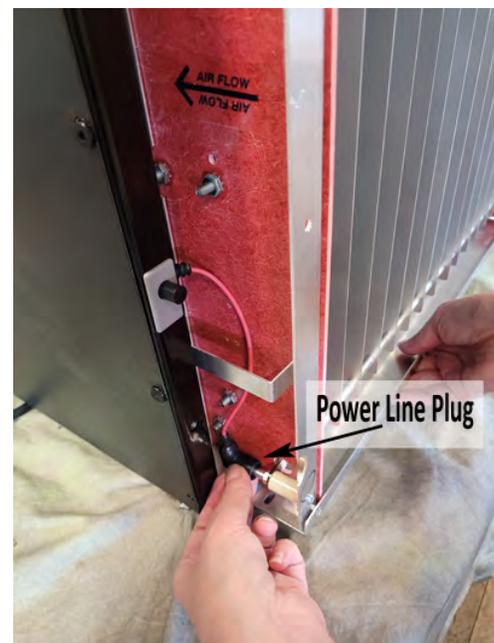
When you open the door to the Unit all power is cut off. It is possible however that some residual electricity is still residing in the Filter Cell. So, the **FIRST** thing to do is ground the voltage side of the cell. To do this take a Philips screw driver with an insulated handle and touch both the cell side and the ION Bar. This will dissipate any residual charge.



Remove the ground screw. The ground screw secures the filter cell and provides the ground needed to allow the filter cell to function properly

Slide the cell out slowly, The Cell Power Line is on the left hand side. With the Cell partially out remove the Power Line Plug. by disconnecting from the Cell Power Lug. Then remove the cell from the air purifier.

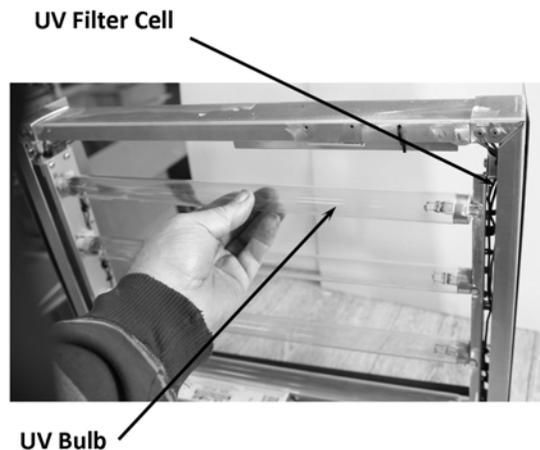
**To re-install:** reverse these steps, be sure that the power line is with the cell frame and avoid crimping the power. Line



## UVGI Filter

The UVGI (ultra violet germicidal irradiation) filter sits behind the main filter and is surrounded on both sides by carbon filters. The carbon filters serve 2 purposes to 1. Remove gasses and odors from the air and 2. Block UVC rays from escaping the unit. Carbon absorbs the UVC energy making it harmless to people and pets. It is imperative that you always have carbon filters on both sides of the UVGI filter. If there is no carbon filter to help block the UVC rays some of the rays may escape and cause a danger to people and pets. We test each unit for UVC ray leakage before shipping.

## UVC Bulb Replacement



## UV Bulb Replacement

The UV Bulbs have a useful life of about 9000 hours. They should be replaced every year, While the bulbs may continue to function, they will do so at a less efficient rate. To remove the bulb rotate them 90 degrees and remove from the UV Cell Fixture. Reconnect power wires and slide UV Cell Fixture back into the air purifier.

## UV Bulb & Ballast Disposal

UVC lamps should be treated in the same manner as other mercury-containing devices, such as fluorescent lamps. Some lamps may need to be treated as hazardous waste and not discarded with regular waste, although low mercury lamps may be an exception; however, check state and local codes for proper determination. The U.S. EPA's universal waste regulations allow users to treat mercury lamps as regular waste for transport to a recycling facility (EPA 2018). This simplified process was developed to promote recycling. The National Electrical Manufacturers Association maintains an online list of companies claiming to recycle or handle used mercury lamps (NEMA 2009). The most stringent of local, state, or federal regulations for disposal should be followed.

## Special Warnings

# Caution: Ultraviolet energy.

## Protect eyes and skin.

This product utilizes UVC Bulbs to provide microbial sanitation. The light waves are invisible to the human eye but are extremely dangerous. This unit must be run with all safety devices and switches in working order. Do NOT By-Pass any safety measures.

This unit must be run with both carbon filters in place. The carbon filters act as an additional shield from wayward UVC rays.

### Hazards of Ultraviolet Radiation to Humans

UVC is a low-penetrating form of UV compared to UVA or UVB. Measurements of human tissue show that 4 to 7% of UVC (along with a wide range of wavelengths, 250 to 400 nm) is reflected ( and absorbed in the first 2  $\mu\text{m}$  of the stratum corneum (outer dead layer of human skin), thus minimizing the amount of UVC transmitted through the epidermis. Although UV is far more energetic than the visible portion of the electromagnetic spectrum, it is invisible to humans. Therefore, exposure to ultraviolet energy may result in transient corneal inflammation, which can go unnoticed.

Ocular damage generally begins with photokeratitis (inflammation of the cornea) but can also result in photokeratoconjunctivitis (inflammation of the conjunctiva [ocular lining]). Symptoms, which may not be evident until several hours after exposure, may include an abrupt sensation of sand in the eyes, tearing, and eye pain, possibly severe. These symptoms usually appear within 6 to 12 h after UV exposure, and resolve fully within 24 to 48 h. Acute overexposure to UVC radiation may cause some incapacity due to eye discomfort, but this generally abates after several days, leaving no permanent damage.

## Filter cleaning and replacement recommendations.

### Filter and Bulbs listing

Filter / Kit	Part#	Replace/Clean
Standard HEPA filter	# 499180	Annually
UVGI HEPA Filter	# 499176	Annually
MERV 15 Media Filter	# 499097	Annually
Pre Filter	# 490052	Annually
Standard Carbon Filter	# 499075	3 months
Cannablend Filter	# 499146	3 months
Electrostatic Filter Cell	# 101213	3 months
UVGI Carbon Filter Kit	# 499115	6 months
UVGI Bulb Kit	# 400109	Annually

#### Note:

HEPA and Media filters should be replaced more often in smoking areas

Carbon filters should be replaced when odors re-appear

Electrostatic filter cell should be inspected to see when dirty

NEVER OPPERTAE UVGI WITHOUT CARBON FILTERSS

## Return Shipping

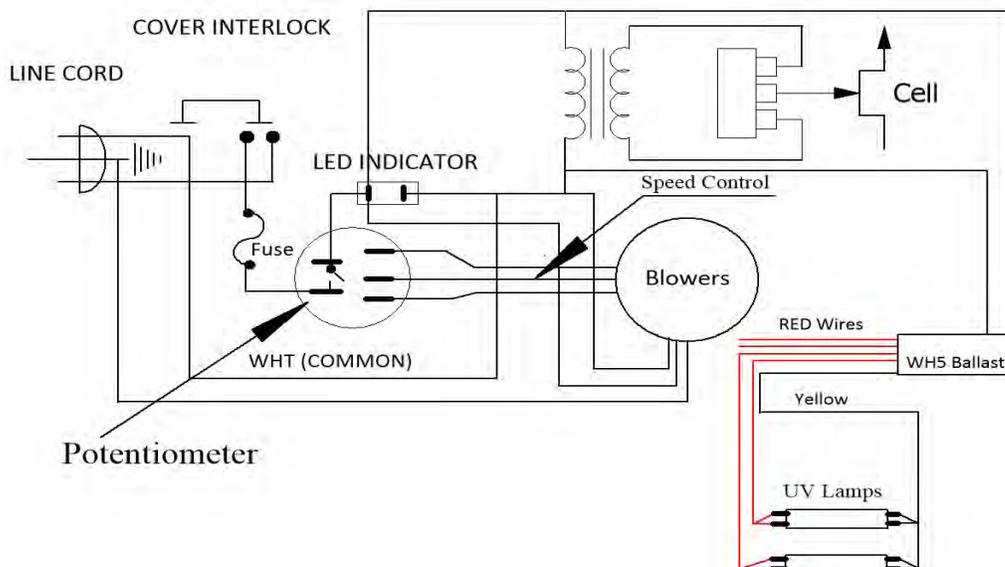
Your MAX-Guard air purifier was designed to be easily repaired. This design should allow the average user to make repairs to continue long life of the product. We will gladly work with you to keep your air purifier running like it should. In the unlikely event you need to return your unit for repair or any other reason there are steps you must take.

1. Units must have a Return Merchandise Authorization Number. You can obtain one by calling (262-632-1000) or email lakeairsales@gmail.com. We will send you a RMA form which MUST be fully filled out. Shipping a unit to the factory without a RMA form and number will likely result in extra charges and or delays in repairs.
2. All MAX-Guard models must be returned in a box that is strapped to a shipping pallet. Failure to do this will almost certainly cause the unit to be damaged in shipment and you will be charged for those repairs. It is vital that you take great care in packaging the returned unit. We advise strongly that you insure your returned unit with the carrier that you choose.

# Specifications

Capacity.....	300-1500 cfm
Standard HEPA Filter. ....	4.5 inch mini pleat
UVGI HEPA Filter.....	2.4 inch mini pleat
HEPA Efficiency.....	99.97% to 0.3 micron
Electrostatic Precipitator .....	4.5 inch / 5kv
Cell Collection Area.....	5000 sq. inches
Electrostatic Efficiency.....	97% to 0.1 micron
MERV 15 Media .....	High Capacity 4 inch Mini Pleat
MERV 15 Efficiency .....	95% to .3 micron
UVGI.....	+1000 $\mu\text{cm}^2$ UVC dose
Lamp Life .....	9000 hours / 1 Year
Blower Life Expectancy.....	60,000 hours
Carbon Filter.....	2 chamber / 1050 gram
inches Unit size.....	26 x 22 x 14
Shipping size.....	24 x 16 x 40
Unit weight.....	60 lbs.
Shipping weight.....	75 lbs.
Power usage.....	200 - 400 watts
Sound level.....	38- 65dB(A)
Power.....	120v, AC/60Hz/ 3.5 amps
Variable speed control.....	Low to Turbo
Cabinet finishes.....	Black & White
Warranty.....	7 Year Limited

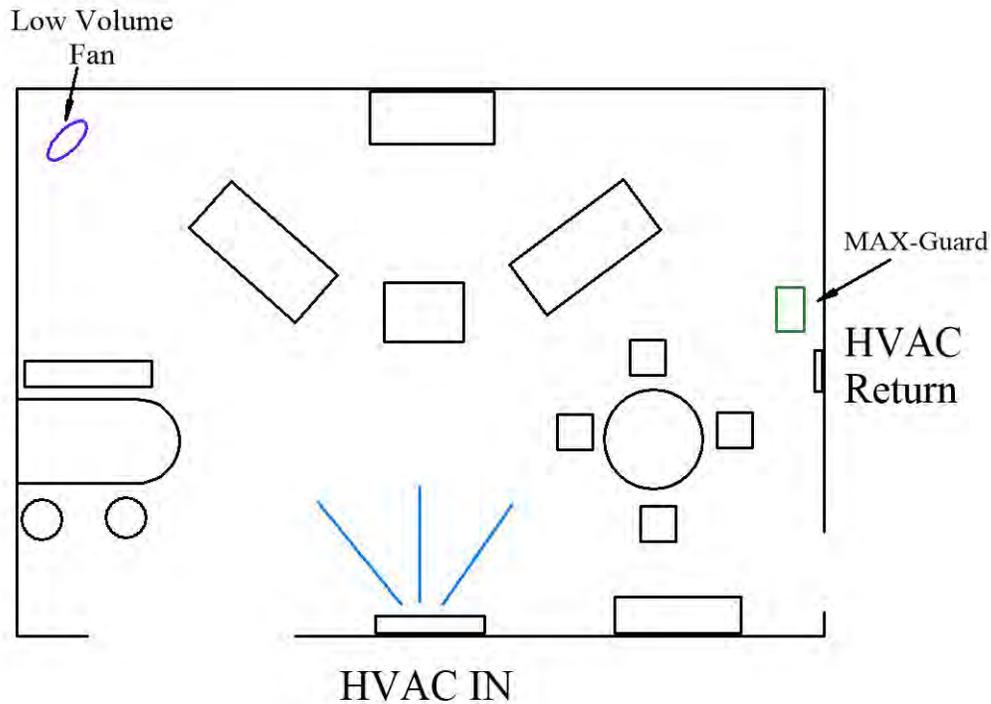
## Wiring Diagram



MAX Guard S / H / M Wire Diagram

## Positioning Your MAX-Guard

There are several things to take into consideration when choosing where to place the MAX-Guard in the room. While the unit will draw in a large quantity of air it will not necessarily move air on the far end of a large room. If you are using your air purifier to control smoke, you will want the unit close to the source. As much air as the unit takes in, it also expels the same amount of air. Placing the air purifier next to a chair may create an undesirable draft. It will likely take several attempts to find the right place for unit placement.



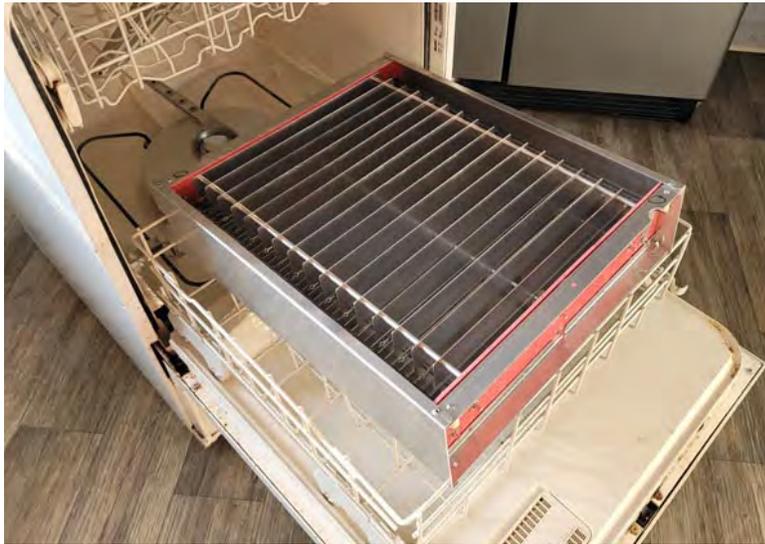
In the drawing above the MAX-Guard is placed in the Great Room near a return vent. This will help keep the air in the entire home clean. As the return draws in freshly cleaned air it distributes the air throughout the entire home

Things to keep in mind when choosing the best place for your air purifier:

1. Do not block the intake in front of the unit.
2. Place the unit in a way that air from the room flows to it
3. Add a low volume fan to help with room air circulation.
4. Place the unit near the source of indoor air pollution.

## Washing Your Electrostatic Filter

Your electrostatic filter gathers smoke, dirt and other particles from the air. These particles are bonded to the filter plates by a strong electromagnetic force. As these particles build up the filter becomes less efficient. It is important to clean the filter on a regular basis. There are 2 basic ways to wash your electrostatic filter. The easiest is in your dishwasher. We were able to fit the MAX-Guard filter cell in to a 20 year old portable dishwasher with little difficulty



Wash the cell by itself or with the prefilter. Do not run through the wash cycle with regular dishes. Be VERY CAREFUL to not bend the aluminum plates. In our tests we could safely set the cell on the dishwasher basket tines.

The other option is to soak the filter cell in a tub of very hot water. In both cases use the hottest water possible. Be sure to use an aluminum safe detergent. A strong emulsifier will help to more quickly breakdown the film on the collection plates. Soak the filter for 20-30 minutes. In case of super dirty filters you can buy our LA-99 Cell cleaning solution. You can order LA-99 from us or your re-seller. Part# 499066

After your electrostatic filter cell is clean, inspect it for broken or missing wires. Inspect the cell plates for bent plates. The cell plates are thin high grade aluminum and can be easily bent back into the proper position. Let the cell dry **fully** before you put it back into your MAX-Guard.

# Trouble Shooting

Problem	Possible Cause	Possible Remedy	
Air Purifier will not operate	Control switch is off	Turn dial clockwise	
	Power cord is not plugged in	Plug in power cord	
	Blown fuse in house or tripped breaker	Replace fuse or reset breaker	
	Blown fuse in air purifier	Replace fuse in air purifier (5 amp)	
	Door is not closed tightly	Tighten door fastener snugly	
Small volume of air discharge	Extremely dirty filters	Replace according to instructions	
Unit not cleaning air effectively	Filters are Dirty /need replacement	Replace according to instructions	
Odors more pronounced	Carbon filters have been saturated	Replace Carbon Filters	
UV Light is not functioning	Wires loose in universal connector	Make certain wires are in right place	

# LakeAir ELECTRONIC AIR CLEANERS 7 YEAR LIMITED WARRANTY

The LakeAir MAX-Guard Air Purifier is warranted by RK Ventures Inc. to the **original purchaser** to be free from defects in material and workmanship under normal use and service for a period of seven years from the date of purchase. The blowers of the LakeAir MAX Guard is warranted for (1) year from the date of purchase to the original purchaser. A extended blower warranty is available for purchase and extends the warranty to 7 years. LakeAir's liability is to be limited to repairing or replacing such products during the warranty period at its option, providing the product is sent prepaid to RK Ventures, Inc. or an Authorized Service Center and is deemed to be defective in part or portion to the satisfaction of RK Ventures, Inc.

This warranty is in lieu of any other warranty expressed or implied and of all other obligations or liabilities in connection with the sale of the described LakeAir Electronic Air Cleaner. In no case will any claim for consequential damages or labor expenses be allowed. This warranty does not apply to a LakeAir Electronic or any part thereof which has not been operated in accordance with the operating instructions herein contained; where components or other accessories not compatible with the LakeAir Electronic Air Cleaner have been used or attached to it; which has been subject to accident, unauthorized alteration, abuse, damage by flood, fire or acts of nature.

## **User's Responsibility:**

1. To operate and maintain according to instructions.
2. Regularly replace filters and cleaning of the unit including electrostatic filters. Failure to replace filters or clean the unit will void the warranty.
3. Use product controls in accordance with owner manual and maintain them or warranty will be voided.
4. Provide adequate electrical service, within voltage ratings that are indicated on the unit rating plate. Provide electrical protection devices to protect unit from voltage surges. Failure to provide proper electrical service or safety devices will result in warranty being void.

## **Damage not covered by Warranty:**

5. Damage occurring during transportation or resulting from improper handling is not covered by the warranty.
6. Damage due to accident, alteration or tampering is not covered by the warranty
7. Misapplication of the product or use for purposes other than cleaning ambient air will void all warranties.