



Installation, Operation Manual

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IMPORTANT: READ THIS!

For Indoor Use only!

Use only in well-ventilated areas away from walk-by traffic!

Ozone is an oxidizer. Use proper safety precautions.

READ the Material Safety Data Sheet in this manual.

Know how to use your Ozone system.

ALWAYS wear a carbon mask when operating system.

Use Best Management Practices for using this system to ensure safety and effectiveness.

BEST MANAGEMENT PRACTICES:

Mount the system away from constant human traffic (employees or customers).

Use the system only in a Well-Ventilated area.

Use a Carbon Mask for anyone operating the system.

Use the recommended dosages.

Use a fan or blower for removing residual Ozone from the vehicle.

Follow the Instructions for use.

SYSTEM CONTENTS

1. Ozone Generator
2. Air Dryer
3. Controller
4. Clear Plastic Tubing
5. White "Teflon" (Ozone) tubing
6. Manual
7. Teflon Tube Mounting Hanger
8. One-page Laminated Instruction Sheet (hangs on system)
9. Carbon Mask - to be worn while operating system.

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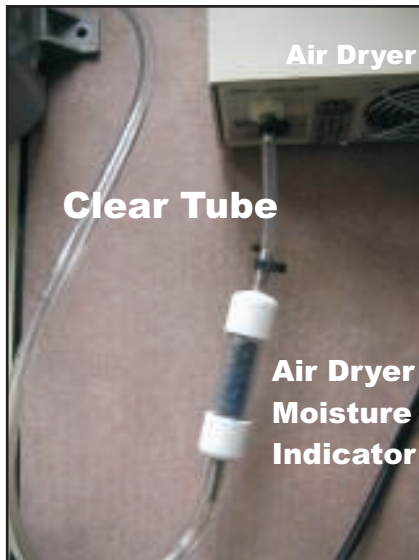
INSTALLATION



Securely mount
Air Dryer, Ozone Generator
and Controller

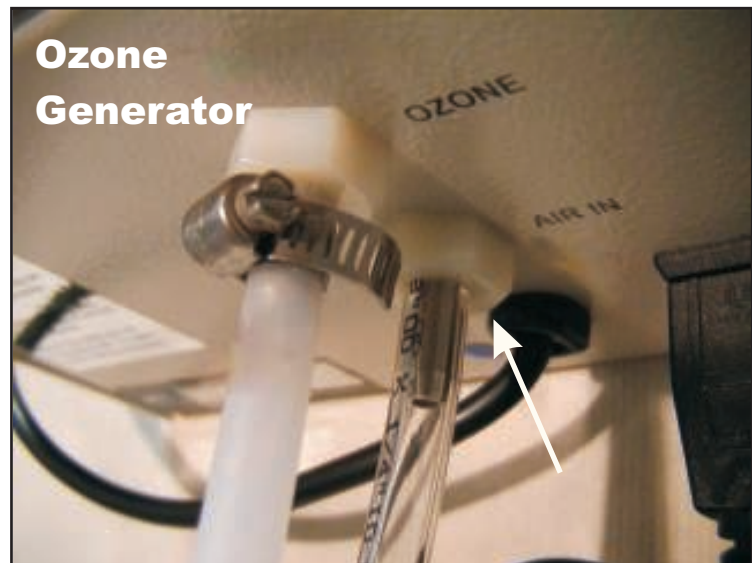
1

Connect Air Dryer to Controller (use clear tube)



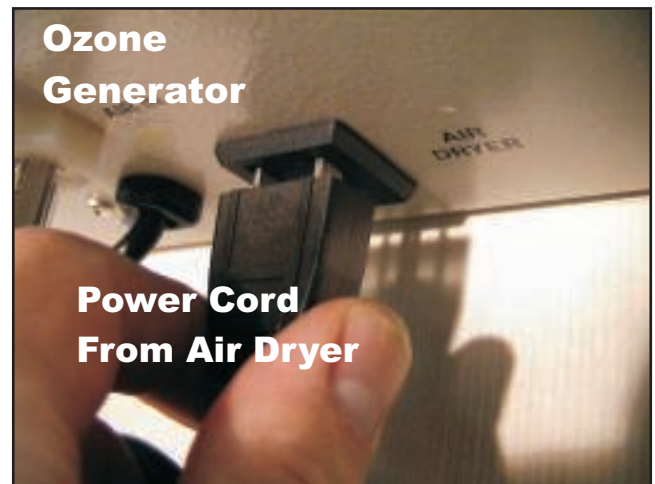
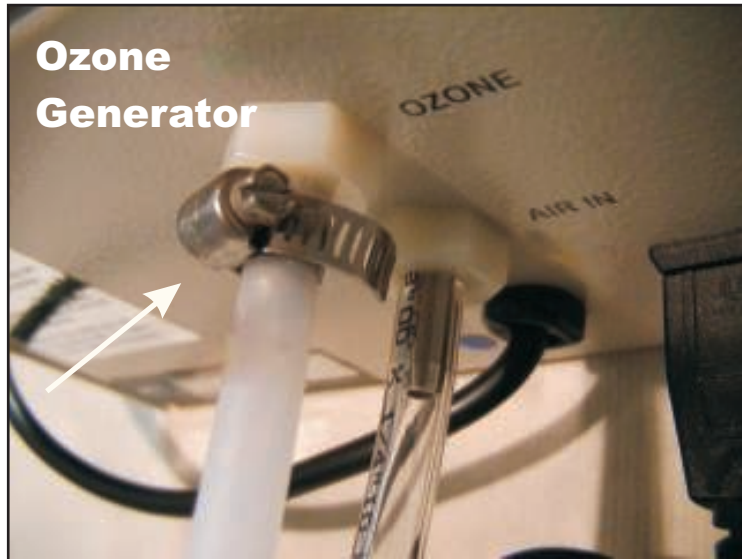
2

Connect Controller to "Air In" On Ozone Generator (use clear tube)



3

Connect Teflon Tubing (white tubing) to Ozone Generator, Plug In Air Dryer



4

PLEASE NOTE: You must only use “teflon-lined” or pure Teflon tubing to connect to the Ozone “out” nipple. All other tubing will be damaged or cause problems with the system. Plug in the Ozone Generator and Controller. Always keep the Ozone Generator plugged into a live outlet. Turn the “power” switch on the Ozone Generator to “on”.

Your System Should Look Like This! - You're Done Setting up the Ak47!



Please note: The Air Dryer light should be ON continuously. The Air Dryer must have power 24 hrs/day to function correctly. Do not unplug the Ozone Generator from a live power source.

The Power Switch on the Ozone Generator should be turned “on” at all times. The System automatically starts when the timer button is pushed. Leave the Ozone Generator plugged into a live wall socket.

System Operation - Controller

Power On indicator light

Ozone on indicator light

Set Buttons for Minutes, 10 Minutes and Hours

Start Button



For setting the correct time, see the section "Ozone Application Times"

Display - Blinks for setting time. Set time using minute, 10 minute and hour button or combinations. Please note: when start is pushed, blinking will cease and time is counted down in seconds, minutes and hours.

Stop (clear) Button - shuts system off or clears display.

Ozone Generator - Operation

Flowmeter



Flowmeter - When "Start" on Controller is pushed, the flowmeter should indicate 2-3 L/min.

Ozone Flow. The Ozone Generator automatically turns on when "Start" on the controller button is pushed.

Fuse - Indicates Ozone Generator needs service.

No Flow - indicates Ozone Generator is not sensing air flow through the system).



Indicator Lights

SAFETY

WARNING: This system MUST be mounted in a well-ventilated area. Employees or customers must be kept away from Ozone. Anyone operating the system must wear a carbon mask to protect from any residual ozone. The best possible location for mounting and using the system is an area that is free from walk-by traffic (employees or customers). See the MSDS in this manual.

In Vehicle

1. Put the Ozone hose in the vehicle window.
2. Turn on the vehicle's interior fan.
3. Select a time on the controller.
4. Hit the "Ozone Threshold"(problem vehicles).
5. Let the Ozone circulate for 10 minutes (or longer) after timer stops.
6. Open the doors in the vehicle and blow out any residual Ozone with a fan or vacuum set on "blow." Please note: WEAR a carbon mask.



Remove the Odor Source

Ozone is used to remove the "residual" odors in a vehicle. Ozone will not clean up whatever is causing the odor. If there is still an odor-causing substance in the car, Ozone may remove the odors for a short time, but they will return once the materials become active. If the car odors return after an Ozone application and you've hit the "odor threshold" you have missed cleaning up the odorous materials or dampness in the vehicle. Remove the odor source before re-applying the Ozone. Ozone cannot clean your car for you or remove moisture or dampness. If the car is not properly cleaned in the first place, Ozone may temporarily remove the odors, but they will return.

The "Ozone Threshold"

For problem vehicles or large vehicles:-
Ozone destroys odors and is in turn, destroyed by the odors. You can tell when Ozone is no longer reacting with odors when you smell a strong scent of Ozone in the vehicle.

We call this the "Ozone Threshold" or the point where you have enough Ozone to do the job. However, if you do not detect a strong Ozone odor, it means that the Ozone is still reacting with the odors.

When "Start" Button is pushed:

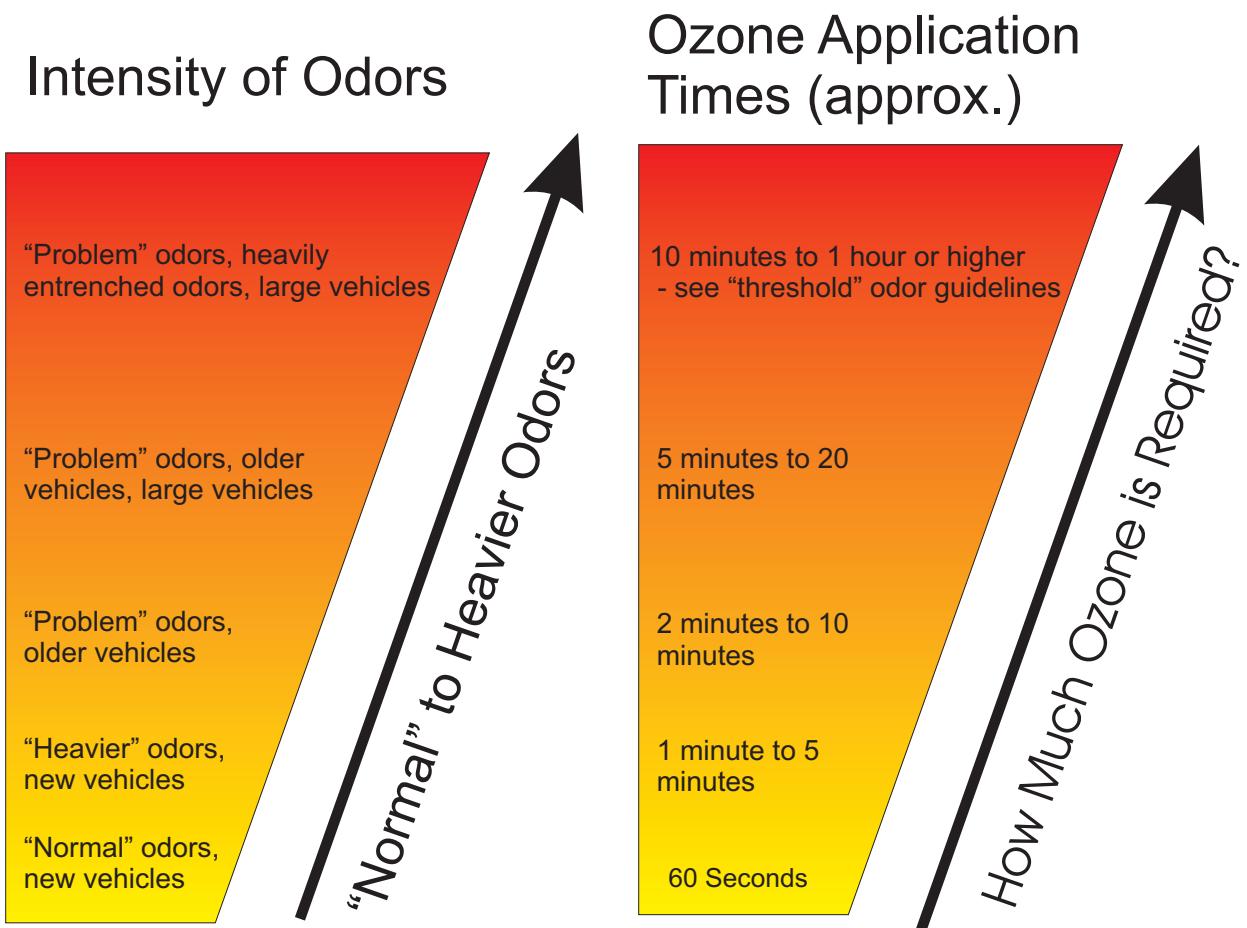
The air pump in the controller should be heard. The No Flow light on the Ozone Generator should turn off. The Ozone Light on the Ozone Generator should turn on. A light buzzing noise or hum can be heard from the Ozone Generator. The flow meter on the front of the Ozone Generator indicates 3 l/min. Ozone flows into the vehicle through the Ozone tubing.

**IF THIS DOES NOT HAPPEN -
SEE TROUBLESHOOTING**

Ozone Application Times

Ozone is the LAST step in Odor Control.

1. Thoroughly clean the vehicle - the odor source MUST be removed or odors will return!
2. DRY the vehicle - if the vehicle is damp, bacteria will grow and odors will return!
3. If steps 1 and 2 are done correctly - Apply Ozone - odors WILL NOT return.



PLEASE NOTE: ALWAYS WEAR A CARBON MASK WHEN OPERATING THE OZONE SYSTEM. DO NOT OPERATE WHEN PEOPLE ARE IN THE VICINITY OR THERE IS A CHANCE THAT PEOPLE WILL BE EXPOSED TO OZONE. SEE the MSDS that is part of this manual.

Detailed Operating Instructions

There are **BEST PRACTICES** for using this system to ensure safety and effectiveness.

BEST PRACTICES:

Mount the system away from human traffic (employees or customers).

Use the system only in a Well-Ventilated area.

Operators should use a Carbon (organic) mask when operating the system.

Use the smallest dosage required to do the job.

Use a fan or vacuum cleaner blower for removing residual Ozone from the vehicle.

Follow the Instructions for use.

INSTRUCTIONS FOR USE:

1. Clean the vehicle interior by vacuuming, shampooing etc. Remove the odor-causing materials. Shampoo vehicle if required. *THOROUGHLY* dry the vehicle.
2. Turn on the interior fan in the vehicle to HIGH. (If the vehicle does not have an interior fan, place a small electric recirculating fan in the vehicle).
3. Put the Ozone hose into a vehicle window.
4. Tighten the hose in the window by rolling the window up.
(Do not crush the hose)
5. Keep all other windows in the vehicle closed.
6. Set the timer using the guidelines shown for the system.
7. After the Ozone timer shuts off, let the vehicle sit for 10 minutes or longer. **DO NOT** enter the vehicle or open the doors during this time.
8. After 10 minutes (or longer if possible) open all the doors in the vehicle.
9. Using a vacuum set to "blower" or a floor-mounted fan, blow out all the residual Ozone from the vehicle. Ensure that no one is in the immediate vicinity of the vehicle when blowing out the residual Ozone.
10. If odors are not totally eliminated, repeat the above procedure.



Always wear a carbon safety mask when using the Ozone system.

TROUBLESHOOTING

The Power Light(s) are not on

Check that all the units are plugged in and the wall plug-in is functioning.

I Don't Get Flow at the Ozone Generator Flow Meter

When the power lights are on (see above) and you operate the controller, you should hear the air pump. If you do not hear the air pump, the system is damaged and must be repaired.

If you do hear the air pump and there is no flow at the flow meter on the Ozone Generator, check that all the tubing on the system is connected and not cracked or plugged. A plugged tube will not allow air to flow through the system. A cracked tube may prevent air from reaching the Ozone Generator.

The Fuse Light is on

This indicates damage to the Ozone Generator. Contact your local representative or Environ Odor Control Division.

The Flow Meter is working, but the Ozone Generator Doesn't Turn On

This indicates a problem with the air flow switch in the Ozone Generator. The Air Flow switch should automatically turn on the Ozone Generator once it senses air flow through the system. Call your dealer for repairs.

OZONE MATERIAL SAFETY DATA SHEET

Effective Date: 06/01/00

Product: Ozone

1. Product Identification

Synonyms: Triatomic oxygen

CAS No.: 10028-15-6

Molecular Weight: 48.0

Chemical Formula: O₃

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Ozone gas	10028-15-6	1 - 15%	Yes

3. Hazards Identification

Emergency Overview

Highly reactive, can explode on contact with organic substances, especially strong reducing agents.

Ozone is a powerful oxidizing agent and oxidation with ozone evolves more heat and usually starts at a lower temperature than oxidation with oxygen. It reacts with non-saturated organic compounds to produce ozonides, which are unstable and may decompose with explosive violence. Ozone is an unstable gas which, at normal temperatures, decomposes to diatomic oxygen. At elevated temperatures and in the presence of certain catalysts such as hydrogen, iron, copper and chromium, this decomposition may be explosive.

Potential Health Effects

Inhalation: Causes dryness of the mouth, coughing, and irritates the nose, throat, and chest. May cause difficulty in breathing, headache, and fatigue. The characteristic sharp, irritating odor is readily detectable at low concentrations (0.01 to 0.05 ppm).

Skin: Absorption through intact skin is not expected.

Eye Contact: Ozone is an irritant to the eyes causing pain, lacrimation, and general inflammation.

Ingestion: Not a route of exposure.

Aggravation of Pre-existing Conditions:

Ozone may increase sensitivity to bronchoconstrictors including allergens.

4. First Aid Measures

Inhalation:

Remove to fresh air; if breathing is difficult a trained person should administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. Get medical attention.

Ingestion:

Not an expected route of exposure.

Skin Contact:

Wash skin thoroughly with soap and water.

Eye Contact:

Immediately flush eyes with large amounts of water for at least 15 minutes, while forcibly holding eyelids apart to ensure flushing of the entire eye surface. If irritation,

pain, or other symptoms persist seek medical attention.

Acute:

May cause irritation of skin, eyes, and mucous membranes of the respiratory tract. Drowsiness, dizziness, headache, and fatigue have been associated with exposure.

Chronic:

Long term health effects are not expected from exposures to ozone. A partial tolerance appears to develop with repeated exposures.

5. Fire Fighting Measures

Flash Point:

N/D

Auto ignition Temperature:

N/D

Flammable Limits in air, % by volume - Upper: N/D

Lower: N/D

Extinguishing Media:

Use extinguishing media suitable for surrounding fires.

Unusual Fire and Explosion Hazard: None expected.

Since ozone is highly unstable and decomposes under all conditions and is not encountered except at very small levels in the immediate vicinity where formed.

6. Accidental Release Measures

Evacuate danger area. Open doors and windows to allow area to ventilate. Consult an expert.

Ozone should be contained within a chemically compatible piping system.

Ozone is a powerful oxidizing agent and oxidation with ozone evolves more heat and usually starts at a lower temperature than oxidation with oxygen. It reacts with non-saturated organic compounds to produce ozonides, which are unstable and may decompose with explosive violence. Ozone is an unstable gas which, at normal temperatures, decomposes to diatomic oxygen.

8. Exposure Controls/Personal Protection

Exposure Guidelines:

OSHA PEL: 0.10-ppm PEL/TLV

Ventilation Requirements:

General exhaust recommended. Avoid working with ozone generating equipment in enclosed spaces.

Specific Personal Protective Equipment

Respiratory:

Respirators may be used when engineering and work practice controls are not technically feasible, when such controls are in the process of being installed, or when they fail and need to be supplemented. Respirators may also be used for operations which require entry into tanks or closed vessels, and in emergency situations.

Only appropriate respirators shall be provided and used when the use of respirators is the only means of controlling exposure for routine operations, or during an emergency. (Refer to Table 1 of ANSUI/ASTM E591-77 for appropriate respirator selection).

Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.

Eye:

Not necessary

Gloves:

Not necessary.

Other Clothing and Equipment:

Not necessary.

9. Physical and Chemical Properties**Specific Gravity (H₂O=1):**

2.144 g/L

Molecular Weight:

48.00

Boiling Point:

-111.9°C

Melting Point:

-192.7°C

Vapor Pressure:

N/A

Evaporation Rate (BuAc=1):

N/A

Vapor Density (Air=1):

1.7

Solubility in H₂O % by Weight:

0.49

Appearance and Odor:

Colorless to bluish gas with a characteristic pungent odor similar to the smell after strong lightning storms.

10. Stability and Reactivity**Stability:**

Ozone spontaneously decomposes under all ordinary conditions, so that it is not encountered except in the immediate vicinity of where it was formed. The decomposition is speeded by solid surfaces and by many chemical substances.

Hazardous Decomposition Products:

Free radical oxygen. O[•])

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Ozone is a powerful oxidizing agent and reacts with all oxidizable materials, both organic and inorganic. Some reactions are highly explosive. Alkenes, benzene and other aromatic compounds, rubber, dicyanogen, bromine diethyl ether, dinitrogen tetroxide, nitrogen trichloride, hydrogen bromide, and tetrafluorohydrazine.

11. Toxicological Information

Ozone is extremely irritating to the upper and lower respiratory tract. The characteristic odor is readily detectable at low concentrations (0.02 ppm to 0.05 ppm). Ozone produces local irritation of the eyes and mucous membranes and may cause pulmonary edema at high exposure. Systematically, ozone has

been reported to mimic the effects of ionizing radiation, and may cause damage to chromosomal structures. A partial tolerance appears to develop with repeated exposures. Although most effects are acute, the possibility of chronic lung impairment should be considered, based upon animal experimentation.

12. Ecological Information**Environmental Fate:**

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Do not dispose of ozone off gas to atmosphere without properly designed off gas destruct unit. State and local disposal regulations may differ from federal disposal regulations.

14. Transport Information**Proper Shipping Name:**

N/A

Hazard Class:

N/A

Identification Number:

N/A

Packing Group:

N/A

15. Regulatory Information**SARA TITLE III:**

N/A

TSCA:

The ingredients of this product are on the TSCA Inventory List.

OSHA:

Nonhazardous according to definitions of health hazard and physical hazard provided in the Hazard Communication Standard (29 CFR 1910.1200)

16. Other Information**Label Hazard Warning:**

HIGHLY REACTIVE. OZONE GAS AFFECTS THE RESPIRATORY SYSTEM.

Label Precautions:

Keep away from heat, sparks and flame. Avoid contact with eyes, skin and clothing. Avoid breathing. Use with adequate ventilation.

Label First Aid:

If inhaled, remove to fresh air. Get medical attention for any breathing difficulty.

Product Use:

Laboratory Reagent.

Revision Information:

Pure. New 16 section MSDS format, all sections have been revised.

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