AM5000

SERIES
Ozone Generator

INSTALLATION, OPERATING & MAINTENANCE

INSTRUCTIONS FOR MODELS

AM5100, AM5200

Model Specifications:
AM5100 - 1gm/hr output
AM5200 - 2gm/hr output

For settings see appendix A

AM5000 Doc No. 290-062-00 Rev. A June 2005

INTRODUCTION

This range of Ozone Generator is designed to allow flexibility in the control and output of Ozone to suit the application. There are many applications for which the Ozone may be used e.g. the destruction of malodours in air, the destruction of bacteria and chemicals in water, air and on surfaces. This manual does not specify applications in which these units may be used, nor does Aircare Systems Ltd. or Ozone Industries Ltd. take any responsibility for any associated equipment used with these units and not supplied by Aircare Systems Ltd. or Ozone Industries Ltd. This manual covers the 'open cell' range of generators capable of producing up to 2 grams per hour (g/hr) of Ozone.

NOTE: The ozone generator contains brittle ceramic plates and must not be knocked, dropped or subjected to vibration.

1.0 HEALTH AND SAFETY

Ozone is an irritant and a powerful oxidising agent. Like most products Ozone is only dangerous if used irresponsibly, therefore it is important to follow the guidelines detailed in this manual.
Due to the high levels of Ozone produced by the unit it is strongly recommended that no person or animal be in the room when the unit is running.

The UK Health and Safety Executive (HSE) issue two documents controlling the use of Ozone.
EH38 'Ozone: health hazards and precautionary measures'
EH40 'Occupational Exposure Limits'
In addition a material Safety Data Sheet, required for COSHH compliance, has been included (Appendix 1)
As Ozone cannot be stored, transportation legislation (CHIP) does not apply.

2.0 UNIT DESCRIPTION

The AM5000 series of generator is designed to convert Oxygen found in the normal air into Ozone. It does this using the Corona Discharge (CD) principle, where air is blown over a ceramic plate with a stainless steel electrode, known as an open cell. Each cell has its own power supply, which delivers high voltage, high frequency electricity to the cell. Each cell is capable of producing up to 1g/hr of Ozone.
The unit is available in two sizes, the AM5100 and the AM5200.
AM5100 is a single cell design.
AM5200 is a double cell design.

3.0 INSTALLATION

These Ozone generators are primarily designed as a portable unit which is supplied with a UK 3 pin plug, fitted with a 3 Amp fuse and only requires a 13 Amp 230V 50Hz switched power supply. All electrical connections should comply with current IEE wiring regulations (BS 7671: 1992 or equivalent).
There are a few guidelines to positioning the unit in order to maximise its effectiveness:

- On a flat, vibration free surface.
- Centrally in the area to be treated and if possible at approximately table height.
- The airflow around the unit should not be restricted, a minimum clearance of 800mm around the unit is recommended.
- There should be no risk of the unit being splashed with water, or other liquids.
- The temperature should be between 0ºC to +30ºC.
- The relative humidity should not exceed 75% at 20ºC, non-condensing.
- The environment should contain no combustible gases or aggressive/corrosive chemicals such as bleach, bromine or similar.

Additional fixings are available separately, to allow connection to a 4” ducting set-up and Heating, Ventilation and Air Conditioning (HVAC) ducting. Instructions on how to fit these are supplied with the parts.

4.0 OPERATION

4.1 Output Setting.

The output setting of the unit will depend upon the model of generator used, the volume of the room to be treated and the level of Ozone required. The Ozone level achieved in a room will depend on the room size, temperature, humidity, the number of air changes, the length of time the Ozone generator is run and the output setting.
Any ventilation installed may reduce the effectiveness of your ozone generator.

The output can be set as follows:

a) 100% output, with the countdown timer, for up to 2 hours.

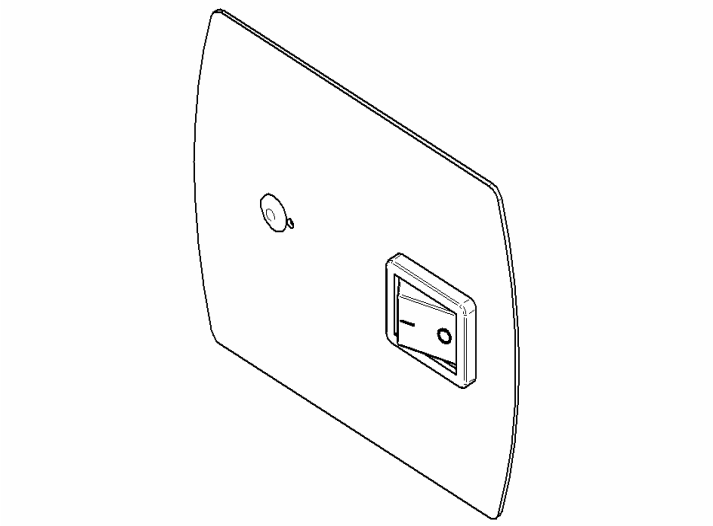
b) 100% output permanently (without countdown timer).

c) 75% output, using mechanical segment timer with three segments set to switch ON per hour. (one segment equals 15 minutes).

d) 50% output, using mechanical segment timer with two segments set to switch ON per hour.

e) 25% output, using mechanical segment timer with two segments set to switch ON per hour

4.2.2 ON/OFF Control Panel.



- Connect the unit to the electrical supply and start treatment. The red mains switch on the control panel will illuminate to indicate that the unit is running.
- It is recommended that this panel is used in conjunction with an external power switch or plug in timer to turn the unit off remotely. If this is not possible use a protective mask to enter the room and switch off the unit.

4.2.3 Mechanical Segment Daily Timer (Mains socket plug in type).

The timer is for indoor use only.
Unplug the timer before setting times.
The timer will turn the unit ‘on’ and ‘off’ up to 48 times per day.

a) Setting switch OFF times:
With your finger, pen or small screwdriver, pull up segments corresponding to the required OFF period.
Check that you cannot see ‘red’ against the rim of dial.
Note: each segment represents 15 minutes; 4 segments equal 1 hour.

b) Setting switch ON times:
With your finger, pen or small screwdriver, push down all segments corresponding to the required ON period. Check that you can see ‘red’ against the rim of dial.

c) Setting current time:
Turn the dial clockwise (as per indicating arrows) until the current time of day is set against the arrowhead (24 hour clock). Check that segments have not been accidentally pushed when rotating the dial.

d) Connecting the generator:
Plug the generator into the socket of the timer and insert the timer into a socket outlet. Ensure the outlet socket is switched on.

e) Manual override:
To switch the plugged in generator permanently on, set the red slide switch on the side of the timer to the '1' ON position.
To switch the plugged in generator permanently off, set the red slide switch on the side of the timer to the '0' ON position.

Usage –Important

The timer is rated at 13 Amps (resistive load) and 4 Amps (inductive load).

If you have any queries regarding the operation of the various control panels please contact your supplier.

5.0 MAINTENANCE AND SERVICING.
The exterior of the unit requires an occasional wipe with a damp cloth to maintain its appearance, do not use abrasives.

Servicing of the unit must be carried out by a competent person who has read and understood the instructions.
The service frequency will vary depending upon the output setting and the environments in which the unit has been used in.
A guide to maintenance and service of the unit is:

5.1 Weekly: Check the operation of the fan.
- Switch on the power supply to the unit.
- Check that the fan is rotating freely. If the fan is faulty please refer to the Annual service section for details on how to replace it.

5.2 Three Monthly: Check and clean the inside of the unit.
- Isolate the mains supply to the unit.
- Remove the lid of the unit by undoing (anti-clockwise) the 8 quarter turn fasteners.
  NOTE: the lid has an earth lead attaching it to the base, take care when removing the lid not to stress the lead.
- Check the overall condition inside the unit and remove any debris.
- Check that all the electrical connections are in good condition.
- Clean the surface of the generator cell plkate, highlighted in the diagram below, using a cleaning wipe*, ensuring that the surfaces are free of all deposits, some of these deposits may be difficult to see.
  * Please see the spares list for details of the cleaning wipe.

5.3 Annually: Replace the generator cell plate and fan assembly.

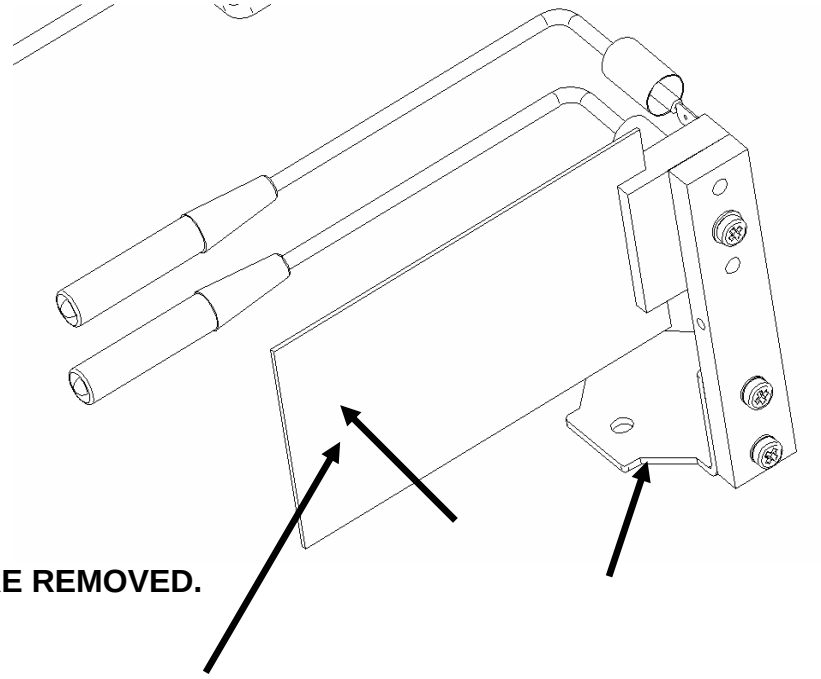
- Isolate the mains supply to the unit.
- Remove the lid of the unit by undoing (anti-clockwise) the 8 quarter turn fasteners.
  NOTE: the lid has an earth lead attaching it to the base, take care when removing the lid not to stress the lead.
- Check the overall condition inside the unit and remove any debris.
- Check that all the electrical connections are in good condition.
- Unplug the red and black generator cell connectors from the bulkhead.
- Unplug the Live and Neutral connectors and undo the earth connection from the fan, do not lose the shakeproof washer and screw as you will need these to re-connect the earth to the new fan.
- Undo the four nuts that secure the fan to the base and lift out the assembly.
- Replacement of the new assembly is the reverse of the removal.

5.4 To replace a damaged/faulty generator cell plate assembly.

- Remove the lid as described above to gain access to the cell.
- Pull the black and red connectors free from the sockets.
- Using a suitable 7mm across flats spanner or socket spanner remove the two nuts and washers securing the plate support bracket.
  Retain the nuts and washers.
- Replacement of the new assembly is the reverse of the removal.

GENERATOR FAN PLATE ASSEMBLY

CLEAN THIS SURFACE ENSURING



ALL DEPOSITS ARE REMOVED.

PLATE SUPPORT BRACKET

6.0 TROUBLESHOOTING

Fault	Possible Cause	Suggested Action
No power to unit	Power not switched on Fuse in plug blown	Switch on power Replace fuse (3A)
No Ozone smell	Generator cell(s) not connected. Generator cells damaged Generator cell(s) dirty	Check and correct Replace damaged cell(s) Clean cell(s)
No airflow through unit	Fan not connected Fan faulty Filter blocked (if fitted)	Check and correct Replace fan Clean or replace filter.

7.0 SPARE PARTS

Description	Model	Stock No:
Generator Cell Assembly	5100/5200	400-201-00
Fan	5100/5200	060-010-00
Cleaning Wipe	N/A	010-069-00

8.0 UNIT SPECIFICATIONS

	5100/5200
Length	430mm
Width	340mm
Height	205mm
Weight	5.5Kg/6Kg
Electrical Supply	230Vac, 50-60Hz
Power Rating	5100 - 50W / 5200 - 100W
Enclosure material	White Powder Coated Aluminium
Ozone Output	5100 = 0-1g/hr ±20%
	5200 = 0-2g/hr ±20%

Appendix A

SETTING GUIDE

1) Calculate the room volume (length x width x height)

2) Set the output of the machine to suit the room size and odour by altering the timer.

3) Each segment on the timer is equivalent to 15 minutes.
For example, to run the generator for 30 minutes per hour for 2 hours: (a) push down two segements at the time setting you want the generator to start; (b) leave the next two segments "up"; c) push down the next two segments.

4) Do not enter the treated room until at least **two hours** after the ozone generator has stopped.

Example

A room measures 20m x 5m x 3m. So its volume is 300m^3
From the chart, the unit can be set at any level to be effective at removing odours. The stronger the odour the higher the setting.

If the room to be treated is clear of people at 18.00hrs and access is not needed until 07:00hrs the following morning, the timer should be programmed to turn on at 19:00hrs, run for 9 hours and turn off at 04:00hrs the following morning.

This will allow 3 hours for the room to be safe to enter.
The warning signs on the entrances should state that the room should not be entered between 18:00hrs and 07:00hrs.

ROOM VOLUME	**timer setting (mins per hour)**		
m^3	15	30	60
100	☺	☺	X
150	☺	☺	X
200	☺	☺	☺
300	☺	☺	☺
400	☺	☺	☺
500	☺	☺	☺
600	☺	☺	☺
700		☺	☺
800		☺	☺
900		☺	☺
1000		☺	☺
1500			☺
2000			☺

Note:

15 minutes = 1 segment in 4
30 minutes = 2 timer segments in 4
60 minutes = 4 timer segments in 4

X	NOT RECOMMENDED
☺	RECOMMENDED
	OZONE LEVEL TOO LOW TO BE EFFECTIVE