Ozon Maker Magneti Marelli
The Passenger Cars Sector

User's Manual

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IMPORTANT INFORMATION

READ THE OPERATING MANUAL CAREFULLY

1. Before using the device read the operating manual carefully.
2. Do not cover the upper air intake and the side ozone input. Inappropriate ventilation may cause mechanical damages.
3. The ozone generator is to be kept in a ventilated and dry place.
4. Do not open the generator: in the event of damage, the device shall be returned to the supplier to repair it.
5. If the device is used for air and surface disinfection, **no one shall be present inside the place being disinfected.**
6. Before entering the place disinfected with ozone, it shall be thoroughly ventilated.
7. **Do not breathe the ozone directly in.**
8. Do not make animals vulnerable to ozone.
9. Keep the manual with due care.

APPLICATION IN THE AUTOMOBILE SECTOR

The device can be used for disinfection of car cabins as well as air conditioning systems in the cars where cleanness and hygiene is required, when manual operations, which involve technologies using chemical products, frequently turn out to be ineffective for total disinfection. There are places and points from which it is impossible or very difficult to remove the dirt and dust causing contamination: the bacteria, viruses, spores, mould, and so on, are breeding there. These microorganisms, which breed at a very high rate, are the main reason for disagreeable and unpleasant odours.

No detergent is capable of destroying it, except from ozone!

Ozon Maker ®, used in accordance with the operating manual, provides total microbiological disinfection and eliminates all disagreeable odours, both organic and inorganic.

OZONE IS A DISINFECTANT

Ozone kills: *bacteria, viruses, spores, moulds, and all other microorganisms.*

Ozone destroys: *chemical agents causing contamination (originating from the emission from panels, carpets, insulations, paints, wood varnishes, and plastic materials).*

Ozone eliminates: *both organic and inorganic disagreeable odours, destroying the volatile particles which propagate odours. Ozon does not covers up the odours but removes them.*

CONTROL PANEL

ON/OFF Buttons with the Lit Indicators

The ON/OFF buttons with numbered circles are to turn the device on/off and to select the duration of the operation, basing on the range of disinfection.

NOTE: In the event that the ozone generator is unplugged or there is no power in the outlet when the operation is in progress, the duration set will be automatically set to 0. In such case, it is necessary to reselect the duration and proceed again with the operation:

- button **5** – press to turn on the timer for 5 minutes
- button **10** – press to turn on the timer for 10 minutes
- button **15** – press to turn on the timer for 15 minutes
- button **30** – press to turn on the timer for 30 minutes
- button **60** – press to turn on the timer for 60 minutes.
- **continue button-press to keep it running without stop**

DECLARATION OF CONFORMITY

Application of the Council Directive

Low Voltage Directive 73/23/EEC – European Union (EU) Directive

EMC (Electromagnetic Compatibility) 89/336/EEC – European Union (EU).

The standards with which the conformity has been declared:

EN 60335-11: “Safety of Household and Similar Electrical Appliances; Part 1: General Requirements, 5th Edition including Amendments A1:95 + A1:96 + A12:96”

EN 60335-2-60: 1998 “Safety of Household and Similar Electrical Appliances; Part 2: Particular Requirements for Whirpool Baths”

EN 61000-3-2: 1995 “Limits for harmonic current emissions (equipment input current <= 16A per phase)”

EN 61000-3-3: 1995 “Limitation of voltage changes, voltage fluctuations and flicker in low-voltage supply systems, for equipment with rated current <= 16A”

EN 55022: 1998 “Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement”

EN 55014-1: 1997 “Electromagnetic Conformity - Requirements for household appliances, electric tools and similar apparatus: Part 1: Emission – Product Family Standard”

EN 55014-2: 1997 “Electromagnetic Compatibility – Requirements for household appliances, electric tools and similar apparatus: Part 2: Immunity – Product Family Standard”

IEC 60335-2-60: 1997 “Safety of Household and Similar Electrical Appliances; Part 2: Particular Requirements for Whirpool Baths”
IEC 61000-4-2: 1995 “Electromagnetic Compatibility (EMC) – Part 4: Testing and measurement techniques – Section 4: Electrostatic discharge immunity test”
IEC 61000-4-4: 1995 “Electromagnetic Compatibility (EMC) – Part 4: Testing and measurement techniques – Section 4: Electrical fast transient/burst immunity test – Basic EMC publication”
IEC 61000-4-6: 1996 “Electromagnetic Compatibility (EMC) – Part 4: Testing and measurement techniques – Section 6: Immunity to conducted disturbances induced by radio-frequency Fields”
IEC 61000-4-11: 1996 “Electromagnetic Compatibility (EMC) – Part 4: Testing and measurement techniques – Section 11: Voltage dips, short interruptions and voltage variations immunity tests”.

Signed by: Mr. D. Lavelle (manager) Via Ponte, 83 – Pescantina (VR)

OPERATING MANUAL – CAR CABIN DISINFECTION

NOTE – Please read the following instructions carefully.
NOTE – Nobody may stay in the cabin during the disinfection process.
After the disinfection process is finished, the cabin shall be ventilated for 10-15 minutes.

HOW TO PARK THE CAR WHICH IS TO BE DISINFECTED

IMPORTANT – the disinfection operation shall not be performed in the car which is strongly effected by the sun rays, as ozone quickly degenerates in the temperature above 25°C and is much less effective. In the case the temperature in the cabin exceeds 25°, it is recommended to cool it before the disinfection operation.
IMPORTANT – the car shall be parked in a place where it may be stood for the whole period of disinfection causing no obstacle.
IMPORTANT – all fragrance accessories (air fresheners and other perfumes) shall be removed from the cabin.

STANDARD PROCEDURE

1. Place the device horizontally outside the car, next to the driver’s or front passenger’s door, and connect it to the electric power outlet of 220V.
2. Set the air cycle to the constant circulation with the airflow blower set **to minimum** speed to enable disinfection of the whole cycle. If possible, it is recommended to place a dust filter (even if new) inside the cabin.
3. On the rear-view mirror put the tube with a porous ceramic distribution tip, leading a connecting tube through the door window. The window shall not be fully closed to prevent the tube squeezing. Then, turn the Ozon Maker device for 30 minutes (and afterwards ventilate the cabin for 10-15 minutes).

4. Check whether any disagreeable odours are still coming from the climate control system.

5. If they cannot be smelled, the disinfection process is finished.

6. If they still can be smelled, put the porous ceramic tip on the external air intake and set the air cycle to normal with the airflow blower set **to minimum** speed. Then, turn on the Ozon Maker device for 15 minutes (and afterwards ventilate the cabin for 10-15 minutes).

7. At this point, the disinfection process is finished for 90% of cases but

NOTE: In certain cars the climate control evaporator is displaced against the airflow system. This causes that the air stream taken by the airflow blower is pushed a different way, preventing the optimal impact of ozone on the condensate and mould that forms on the condenser. This is the reason for significant decrease in ozone ability to influence bacteria and moulds, which partially impairs the final effect of disinfection. Because of that, in such particular cases, it is recommended to perform the following procedure in addition to the standard operation.

ADDITIONAL PROCEDURE

Performed with the Airflow Blower Turned off

1. Take the porous ceramic tip off the tube and push the tube as far as possible through the external air intake into the duct of the evaporator.

2. If possible, the condensate offtake shall be closed with a plug so as to avoid the ozone dispersion (remember to remove the plug after the operation).

3. Turn on the device for 15 minutes (then ventilate the system for 5 minutes).

PROCEDURE NO. 2

The Evaporator Disinfection

In the event that appropriate results are not achieved after the standard procedure (option which is not available in other devices generating ozone)

1. Insert the ceramic probe instead of the removed dust filter.

2. Turn on the internal cycle, if the air is pushed through the cabin filter when the cycle is closed, otherwise, leave the cycle open. In both cases, set the blower to the minimum speed so that the ozone concentration near the evaporator was as high as possible. The device shall remain outside the car, all doors and windows should be closed (except from the place where the tube providing the probe with ozone is running through). The climate control **charger must be turned off**. The suggested time of disinfection: 15-30 minutes.

3. Ventilate the cabin for 5-10 minutes (open the doors and turn on the cabin blower).

4. Repeat the process described in par. 2, without turning on the charger in the mean time.

Recommendations on Microbiological Disinfection or Removing Disagreeable Odours from the Car Cabins

In the event of microbiological disinfection, the STANDARD PROCEDURE par. 1-3 shall be applied:

- duration – 30 minutes.

In the event of removing disagreeable odours, the STANDARD PROCEDURE par. 1 and 3 shall be applied:

- if the level of the unpleasant odours in the cabin is normal, the duration is 30 minutes;
- if the level of the unpleasant odours in the car is high, repeat the operations several times, lasting 30 minutes each, in 30-minute intervals, until the disagreeable odours disappear.

IMPORTANT – if the disagreeable odours are concentrated within a small area of the cabin (e.g. the front or back seat), the porous ceramic tip shall be placed as closely as possible to the source of the unpleasant odours so that the ozone concentration was highest at the particular point.

IMPORTANT – Because the device for disinfection (code: 4018045) generates ozone at a certain, limited speed, it may happen that the disagreeable odours are not fully removed after the first operation lasting 30 minutes, which means that the generated quantity of ozone is insufficient to fully remove the source of the unpleasant odour. In such case, it is necessary to repeat the disinfection operation several times, lasting 30 minutes each, in 30-minute intervals, until the disagreeable odours disappear.

INFORMATION DATA SHEET

Ozon Maker ® is the unit fitted with the system generating ozone on the principle of gas glowing. It is intended for microbiological disinfection of interiors and surfaces, without chemical remnants, as ozone, being an unstable gas, autogenously converts into oxide. The gas glowing is an electro-chemical reaction which, by use of oxide from the atmosphere, generates almost clear ozone. Ozone has been accepted by the Italian Ministry of Health as a **NATURAL AGENT** for **microbiological disinfection** of interiors and surfaces from bacteria, viruses, spores, mould, fungus, etc. This natural gas may also be used to neutralize disagreeable odours, not by covering them up but removing them definitely.

CERTIFICATES

THE ITALIAN MINISTRY OF HEALTH, DEPARTMENT OF FOOD SAFETY AND ANIMAL NUTRITION:

Protocol no. 24482 of 31/07/1996

THE FEDERICO II UNIVERSITY IN NAPOLI:

In vitro tests concerning neutralizing properties of ozone against pathogenic bacteria and lack of the gene mutations.

THE UNIVERSITY OF UDINE – DEPARTMENT OF FOOD SCIENCE:

The disinfection test on flat surfaces of the equipment for meat processing (Salmonella – Listerella) – Protocol no. 219/94.

THE UNIVERSITY OF PARMA – INSTITUTE OF MICROBIOLOGY:

The test of sterilizing capacity of ozone on Escherichia Coli bacteria – Staphilococcus Aures – Pseudomonas Aeruginosa – Streptococcus Durans.

TECHNICAL SPECIFICATION

The Ozon Maker microbiological disinfection device consists of:

1 The air suction and ozone injection pump.

2 A special unit generating ozone using the gas glowing principle.

3 A transformer converting low voltage into high voltage which supplies the above-mentioned device with power.

4 The TIMEREM ON/OFF panel for ozone generating time selection.

CHARACTERISTICS:

Dimensions: 320 x 220 x 95 mm.

Power supply: 220/240 V – 50 Hz -0,15 A – 18 W.

Capacity: 3 litres/minute.

Ozone generating: 0.250 g/hour.

SAFETY DATA SHEET

The following recommendations shall be strictly applied:

NOTE: While the disinfection operation is performed, nobody may stay inside the cabin.

NOTE: A plate with the following inscription must be highly visible on the car:

NO TRESSPASS

- THE CAR DISINFECTION -

After the disinfection operation is finished, the car shall be ventilated for 10-15 minutes, or nobody shall get into the car for at least 2 hours after the disinfection is finished.

In the event that it is necessary to enter the cabin while performing the disinfection operation, the device shall be turned off, and the car shall be ventilated for 5/10 minutes.

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