

READ THIS FIRST

MOBILE FOG GENERATOR™ DRAFT USER GUIDE

511 - 013000 - 000A rev. A/a

The MOBILE FOG GENERATOR™

DRAFT User Guide

P/N: 511 – 013000 – 000A Rev. A/a



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This manual covers the description, warnings, cautions, operation and maintenance of the **MDG MOBILE FOG GENERATOR™**.

**Please take the time to read this manual before operating the MOBILE FOG GENERATOR™.
Save this guide for future reference.**

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1. BREAKAGE OR DAMAGE DURING SHIPMENT

The transportation company is fully responsible for all shipping damage and will resolve problems promptly if you handle it correctly. Please read these instructions carefully.

Examine the contents of all shipping cases. If you find any damage, call your transportation agent at once and have them make a description on the freight or express bill describing the damage and the number of pieces. Then write us and we will send you the original bill of lading. Get a claim blank from the express or truck company. Fill the claim form out. Attach the claim blank to the original bill of lading together with a copy of our invoice. Attach a memo on which you show the value of the damaged goods. Mail or hand these papers to your local transportation agent. They will process your claim with reasonable promptness.

Please note, we cannot and will not enter claim for damages. If we filed claim here, it would be sent to your local freight agent for verification and investigation. This time can be saved by your filling the claim directly. Every consignee is on the ground floor and in contact with the local agent who inspects the damaged goods and thus, each claim can be given individual attention.

Since our goods are packed to comply with the regulations of all railroad, truck and express companies, we cannot allow deduction from any invoice because of any damage, however, be sure to file your claim promptly. Our goods are sold F.O.B. factory. We take receipt from the transportation company certifying that the goods were delivered to them in good order, and our responsibility ceases.

It is seldom that any breakage or damage occurs in any of our shipments, and in no case will the customer be out any expense if they follow the above instructions.

Be sure to keep all damaged goods subject to examination of the truck or express company inspector, who may call on you some time later. These damaged goods, of course, will belong to them, and they will inform you what to do with them. If you dispose of these damaged goods, your claim may not be paid.

2. INTRODUCTION

Congratulations for purchasing the MDG Mobile Fog Generator™. We hope it will bring you long hours of satisfaction.



Please carefully and completely read the following instructions for the safe operation of the MDG Mobile Fog Generator™.



WARNING and **CAUTION** are used throughout this manual to forewarn of possible danger to the users if precautions are not observed.

As is customary in military and some commercial manuals, the precautions will always precede the steps to which it refers so that the users will be aware of any potential danger before performing the task.



WARNING and **CAUTION** labels are key equipment parts. Do not remove, change or cover these labels. If the labels or the silkscreen are not readable, contact MDG Fog Generators.



Removing or tampering with **WARNING** and **CAUTION** labels or silkscreen will void all warranties.

3. BASIC DESCRIPTION

The MDG MOBILE FOG GENERATOR™ is designed for indoor and outdoor use. It is mounted on a rack with wheels. It is controlled with either a MFG Remote Control or a PLC or a LOGIC INTERFACE.

It is designed with safety and reliability in mind. This unit will generate pure white non-toxic fog for as long as you want (100% duty cycle with specified line voltage). This fog generator is also equipped with:

- An Automatic Purging System™ (APS™). This system purges the heating module(s) after the first heating cycle and after every emission of fog preventing residual build-up and clogging.
- A Transit Valve. This manual valve closes the gas line to the fluid reservoir preventing the fluid from seeping into the gas system during MOVING / TRANSPORTING the generator.

At the heart of the MDG MOBILE FOG GENERATOR™ is an electronic assembly that keeps the heating module(s) at a stable temperature. This is done by the integration of three electronic fail-safe systems. This design will protect against over and under-heating conditions and component failures. Also included is a gas regulator with a pressure relief safety that will protect against over pressurizing failures.

- When an overheating of the heating block is detected, a safety circuit is triggered, cutting off power to the heating element, preventing hazardous conditions.
- When an under-heating condition is detected, the unit will stop producing fog until the temperature of the heating block is back within parameters.
- When the internal temperature of the unit exceeds 140°F, a separate safety circuit is triggered, cutting off power preventing damage and hazardous conditions.
- Finally, a gas regulator with a pressure relief safety, activated at a 100 psi, protects the pneumatic system. This will prevent over pressurizing.

4. TECHNICAL SPECIFICATIONS

Fog production:	Up to 300 m ³ (10000 ft ³) per minutes
Fog colour:	Pure white
Fluid consumption:	3,12 litres (105.6 oz) per hour at 50 psi (345 kPa / 3,45 bar) (maximum operating pressure)
Fog fluid type: (use only)	MDG NEUTRAL™ Fog Fluid – M.S.D.S. available on request
Fluid reservoir capacity:	6,5 litres (1.7 US gallon)
N ₂ Gas consumption:	1,56 kg (3,44 lbs.) per hour at 50 psi (345 kPa / 3,45 bar)
Gas bottle size:	9 kg (20 lbs.)
APS™:	Automatic Purging System™
Particle size:	0,5 – 0,7 micron
Warm-up time:	Maximum 10 minutes
Operating voltage:	115 or 208 or 230 VAC, 50/60Hz, 1 phase
Power consumption:	2815 Watts
Isolated control signal:	20 - 28 VDC
Dimension of unit:	D x W x H
Dimension of remote control (MFG):	14,2 cm x 6,4 cm x 3,8 cm (5.5" L x 2.5" W x 1.5" H) with 8 m (26 ft.) extension cable
Weight of unit:	185 lbs.
Shipping weight:	215 lbs.

5. SETTING UP



WARNING

It is recommended that this unit be operated under the supervision of personnel who have read and understood this manual.

Never install this unit above people.

Do not operate closer than 2 metres (6.5 ft.) from personnel.

The Mobile Fog Generator TM must be operated and stored in an upright position on a stable and level surface.

The maximum operating pressure is 345 kPa / 3,45 bar / 50 psi.

Use in a well-ventilated area.



WARNING

RISK OF FIRE HAZARD - The Mobile Fog Generator TM output shall not be installed closer than 2 metres (6.5 ft.) from any open flame.

NOTE: Cut back on fog production when the level of fog desired is achieved.

DO NOT OVER SATURATE.

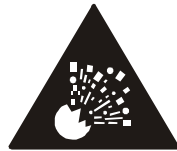
6. GAS AND FLUID REQUIREMENTS

6.1 Gas



WARNING

The gas cylinder must be manufactured, inspected and tested in accordance with U.S. Department of Transportation (DOT) 3AL and Transport Canada (TC) 3ALM.



WARNING

To avoid fire hazard as well as explosion risk, use only industrial grade Nitrogen (N₂) gas.



WARNING

N₂ gas is used as a propellant when generating fog; it is also used to purge the heating modules when the APS is initiated. Output pressure of the Mobile Fog Generator™ is adjusted by mean of the main N₂ regulator (located on the right inside the unit). The maximum operating pressure for the Mobile Fog Generator™ is 50 psi / 345 kPa / 3,45 bar.

6.2 Fluid



WARNING

Operate the MDG Mobile Fog Generator™ only with the MDG NEUTRAL™ Fog Fluid.

Making sure that no other particles are mixed or added to the MDG NEUTRAL™ Fog fluid.



CAUTION

The MDG NEUTRAL™ Fog Fluid produces a pure white non-toxic fog. Use of this Mobile Fog Generator™ with any other fluid will automatically void the warranty. MDG NEUTRAL™ Fog Fluid is available at authorized MDG dealers and distributors.

7. FILLING OF THE MDG 6,5-litre (1.66 US gallon) FLUID RESERVOIR



To fill the fluid reservoir, the following sequence must be observed:

- If the Mobile Fog Generator TM is operated with the remote control, turn off the fog switch on the remote (see Fig. A), wait 2 to 3 minutes for the APS TM cycle and the depressurization of the fluid reservoir.
- If the unit is controlled with the user I/O system, make sure the fog signal is turned off and then wait 2 to 3 minutes for the APS TM cycle and the depressurization of the fluid reservoir.
- Disconnect the AC power connector from the unit.
- Open the door of the Mobile Fog Generator TM.
- Now, unscrew the brass closure located on the fluid reservoir and slowly pour the MDG NEUTRAL TM Fog Fluid until it reaches the inside bottom of the opening. **Avoid overfilling.**
- Screw back the brass closure and make sure it is hand tight.



To avoid fire hazard and explosion risk, use ONLY MDG NEUTRAL TM Fog Fluid.
The use of any other fluid will void the warranty and may damage the MDG MOBILE FOG GENERATOR TM.

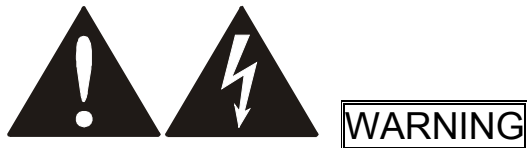
8. OPERATING INSTRUCTIONS



WHEN MOVING, THE TRANSIT VALVE MUST BE IN THE OFF POSITION



BURN HAZARD – The Mobile Fog Generator™ output NOZZLE reaches high temperatures – AVOID CONTACT EVEN AFTER SHUT DOWN.



**This unit must be connected to a circuit that is protected by a ground fault breaker.
Use only NEMA 4 or IP66 wiring devices to insure an environment – resistant unit.**

The MDG Mobile Fog Generator™ is quite easy to operate and requires no preventive maintenance.

8.1 PLC or LOGIC INTERFACE

To operate the unit from a **PLC or a LOGIC INTERFACE**, the following sequence must be observed:

- When the Main Power (115, 208 or 230 VAC) is applied “make sure that the breaker located on the back of the unit above the A.C. receptacle is at the ON position”, the generator is placed in a Stand-By mode indicated by the green Vdc LED on the control status display located inside the unit. When in Stand-By mode, most of the electronics controls are off (except for the fail-safe systems), waiting for the POWER Signal or HEAT ON to be activated.
- When the POWER ON Signal is activated, the green Power LED will light. A second later the yellow LED(s) called HEATER will light indicating the initial heating cycle has been started. This first cycle will last under 10 minutes.
- At this point make sure the gas cylinder is opened & the regulator is adjusted to a minimum of 10 psi and that the transit valve is at the on position.

When the temperature reaches a pre-adjusted level called the READY level indicated by the green Ready LED, the yellow HEAT LED(s) will turn off and the green GAS LED will turn on indicating that the Automatic Purging System TM (APS TM) has been initiated. The APS lasts for approximately 30 seconds.

- At this point, the unit is ready to produce fog. The Fog On Signal can be applied to produce fog for as long as the READY level is maintained and all other internal control parameters are within specifications. When the Fog On Signal is applied the Fog, Fluid and Gas green LED's will turn on. The generator is producing fog until the Fog On Signal is removed. When the fog stops, the APSTM cycle is automatically initiated to purge the heating module(s) for approximately 30 seconds.

The operating temperature of the MDG Mobile Fog Generator TM is maintained within a narrow margin. The yellow HEAT LED(s) will turn on and off from time to time to indicate that the heaters are functioning and that the READY level is maintained.

8.1 MFG remote control

To operate the unit with the **MFG remote control**, the following sequence must be observed:

- Connect the MDG MOBILE FOG GENERATOR™ to a (115, 208 or 230 VAC) power outlet and turn on the BREAKER located on the back of the unit above the A.C. receptacle.
- Connect the remote control and turn on the POWER / Stand By switch on the remote control to the POWER position, the yellow light will turn on indicating that the heating cycle has started. This should take a maximum of 10 minutes.
- Now open the gas cylinder and adjust the regulator to a minimum of 10 psi, the READY condition will be indicated by the green light which will come on when the pre-set temperature is reached; at this stage, the yellow light will turn off and the initial Automatic Purging System™ (APS™) will be automatically triggered.
- After this initial APS cycle, which will take approximately 30 seconds, the unit is ready to produce fog.
- The fog output is adjustable by increasing or decreasing the N₂ gas pressure regulator (10 to 50 psi) located on the right inside panel of the unit.

Refer to Remote Control Fig. A on page 15.

The operating temperature of the unit is maintained within a narrow margin. The yellow HEAT light on the remote control will turn on and off from time to time indicating heat ON and heat OFF.

There is also a red FAILURE MONITOR LED indicating an error condition ***If two of the three electronic fail-safe systems (namely, the over-heating or the internal temperature limit) is detected, the fog production will stop and the red FAILURE MONITOR led will be lit indicating a fail mode.*** Immediately remove the power from the unit, wait 4 to 5 minutes and retry the unit. If the failure monitor reappears, disconnect the unit and contact MDG.

Fog production will continue as long as all control parameters are within specifications. When the FOG ON Signal is turned off, the APS™ (Automatic Purging System™) is automatically triggered to purge the heating modules.

The 100% duty cycle is continuous within specified line voltage, and will degrade with line voltage loss.

9. MFG REMOTE CONTROL Fig. A

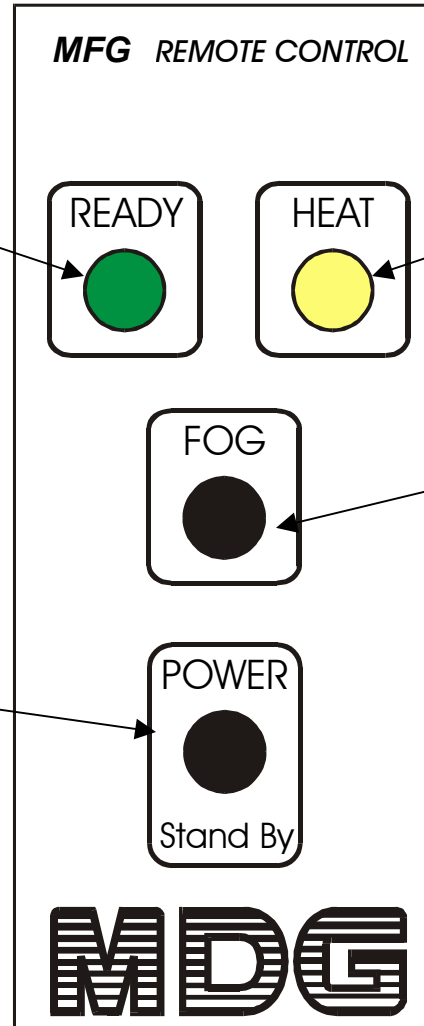
Functions

The READY green light indicates that the Mobile Fog Generator is ready to produce fog.

The HEAT yellow light will turn on and off from time to time to indicate heat ON and OFF.

FOG On/Off switch.

The POWER / Stand By switch, indicating that the unit is powered and that the heating cycle has started.



10. SHUTDOWN PROCEDURES

Refer to Remote Control Fig. A on page 15.



CAUTION

Never disconnect or power off while your Mobile Fog Generator is producing fog. Read the following shutdown procedures. The 100% duty cycle is continuous with specified line voltage and will degrade with line voltage loss. Reducing the operating pressure can compensate this.

To power off the unit, the following sequence must be observed:

- Turn off the **FOG** switch on the remote control.
- Wait for the Automatic Purging System TM to complete. The recommended minimum APS TM pressure is 10 psi.
- Turn off the **POWER / Stand By** switch on the remote control.
- Turn off the breaker, located on the back of the unit and then disconnect from the power outlet.
- Turn off the N₂ gas cylinder.

11. SHIPPING PROCEDURES

When returning the unit for repair or warranty, always drain the fluid reservoir, ship with an empty N₂ cylinder and the remote control.

NOTE: The fluid drain plug (3/16 Allen) is located under the fluid tank.

12. WARRANTY

LIMITED WARRANTY TWO YEARS

MDG Fog Generators warrants that the equipment is free from defects in materials and workmanship when used and operated for a period of two years. The responsibility of MDG Fog Generators under this limited warranty is limited to the repair and replacement of any parts which are found defective and which are returned to MDG Fog Generators at 5639 Christophe Colomb, Montreal, QC, Canada H2S 2E8 with transportation charges prepaid (C.O.D. shipments will not be accepted).

Prior to returning defective parts to MDG Fog Generators, the original purchaser shall make a claim in writing to MDG Fog Generators at the above address indicating the model number and type of defect. No parts or equipment will be received by MDG Fog Generators for repair or replacement under this warranty without specific written authority from it in advance.

Any parts damaged by improper installation, overloading, abuse or accident of any type or causes are not covered by this warranty.

All equipment manufactured by us is pre-run and tested before leaving our plant, and is shipped in good working order and condition. We therefore extend to the original purchasers the following Limited Warranty for the period of two years from the original date of purchase:

1. This warranty does not apply to defects caused by accident, misuse, neglect, or wear and tear, nor can we be held responsible for incidental and consequential expense and loss, nor does this warranty apply to equipment where alterations have been executed without our knowledge or consent. These conditions are readily discernable when the equipment is returned to us for inspection.
2. If equipment received is found to have been damaged in transit, a claim should be made against the carrier within three days, as we assume no responsibility for such damage.
3. Any service other than our Authorized Service voids this warranty.
4. This warranty is in lieu of and is intended to exclude all other warranties, express or implied, oral or written, including any warranties of MERCHANTABILITY or FITNESS for a particular purpose.

13. CONTACT INFORMATION

For parts or service information, contact:

MDG Fog Generators, Ltd.
5639 Christophe Colomb,
Montreal QC Canada H2S 2E8

Phone: 800-663-3020
514-272-6040
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Website: www.mdgfog.com



The Fog Specialist Since 1980