

# INSTRUCTIONS MANUAL MT424E

## MécaCleaner II



**INJECTION + INTAKE/EGR/TURBO  
CLEANING EQUIPMENT:  
GAZOLE/PETROL + DPF Regeneration**

**CAREFUL**

**It is recommended to scrupulously read the instructions for use described in this manual before switching on the machine.**

**This will be the guarantee for obtaining excellent performance and reliability from the machine over time.**

**Keep this manual close to the machine for any quick consultation by Users!**

**The Manufacturer declines all responsibility for malfunctions and/or other consequences deriving from incorrect operations by the User.**

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# 1. INTRODUCTION

## 1.1 BEFORE STARTING

Dear User,

congratulations for purchasing the **MÉCACLEANER II** cleaning system, a very modern machine that can help you in the maintenance of motor vehicles. We remind you that this manual is an integral part of the machine and contains the general indications for its correct use. We therefore invite you to carefully read the instructions for use before switching on the machine, to adequately instruct the Users and to keep the manual carefully for any future consultation. These good practices will be the guarantee for obtaining excellent performance and reliability from the machine over time.

Bad combustion and poor quality fuels tend to increasingly contaminate vehicle systems, in particular: air intake system and injection system. The **MÉCACLEANER II** is a machine which, powered by the 12Vdc of the vehicle battery and with the use of the correct cleaning liquids, is able to effectively clean these systems, allowing to effectively solve their typical problems without disassembling any components of the engine.

## 1.2 POSSIBLE TREATMENTS

### PROCEDURE

The treatments can be performed in sequence, one treatment at a time. Depending on the User's needs, it is possible to decide to perform a single treatment or more than one, on the same vehicle. If several treatments are carried out on the same vehicle, to obtain the best possible results it is strongly recommended to respect the sequences below:

1. Air intake system cleaning (AIR)
2. Injection system cleaning (INJ)

### INJECTION SYSTEM TREATMENT – PETROL AND DIESEL VEHICLES

This treatment cleans the injectors, the intake valves (indirect injection) and the combustion chamber from dirt and carbon deposits, using appropriate cleaning additives, without removing the injectors and without disassembling any part of the engine. **MÉCACLEANER II** can be connected to all diesel and petrol fuel systems with continuous injection, multipoint, mono-point, direct (GDI, FSI, ...), to all diesel fuel systems, including common rail and injectors (HDI, JTD , CDTi, CDI, ...). The treatment is suitable for all passenger cars, trucks, buses, marine engines and stationary engines. The pressure can be adjusted with precision from 1 to 7 bar to make the machine usable on all types of injection. The machine is powered by the vehicle battery and does not require other power supply. The cleaning treatment does not require any modification to the fuel circuit (pressure regulator, fuel distributor, cold start injector, etc. work normally). The liquid remains in a closed circuit, avoiding the return of the cleaning liquid in the vehicle's tank. No fluid leakage is possible, if the connections to the vehicle are done correctly. The high flow rate of the pump (180 l/h) allows the treatment of engines of all displacements. In order to avoid the fuel delivery from the vehicle pump towards the open pressure pipe, the fuel delivery must be short-circuited with the return to the vehicle tank. In certain cases the fuel pump of the vehicle can be excluded by removing the appropriate fuse or relay. Treatment can be stopped at any time; this makes the system more secure. Connecting the machine to the injection system is quick and easy thanks to the accessories supplied.

## AIR INTAKE SYSTEM TREATMENT – PETROL AND DIESEL VEHICLES

The treatment is carried out by spraying appropriate cleaners into the air intake system to remove contamination from the manifold and inlet valves, in both diesel and petrol engines, without disassembling any part of the engine. The sprayer, controlled by a pump, is applied directly and rapidly to the engine intake manifold without any particular procedure. The treatment takes place by spraying appropriate detergents, which are dosed by suitably regulating the spray times (ON) and waiting times (OFF), removing dirt and carbon and oily deposits from the air intake system and thus restoring correct operation of the engine.

### 1.3 MACHINE COMPONENTS



1. Graphic display
2. Command buttons
3. Tank INJ
4. Tank AIR
5. Quick-coupling AIR

6. Quick-coupling for INJ delivery hose
7. Quick-coupling for INJ return hose (with 10 micron filter)
8. Power supply cable 12 Volt

## 1.4 HOSE AND ADAPTER KITS



1. Air intake system kit + clamp fixing

2. Injection system kit

## 1.5 TECHNICAL FEATURES

Weight:	15 kg
Language:	English, French
Power supply:	12 Vdc
Display:	Graphic 128 x 64 pixels
Pump 1:	Electronically controlled magnetic drive steel gear pump
Tank capacity:	1 liter each
Fabrication:	Europe

## 2. SAFETY AND ENVIRONMENT

### 2.1 SAFETY PRESCRIPTIONS

#### CAREFUL

**Always read the safety data sheet of the liquids used for cleaning before starting the treatments**

1. Avoid contact of the product with the skin: it is advisable to wear safety goggles and suitable gloves
2. Keep a fire extinguisher nearby (suitable for fuels)
3. Immediately rinse painted surfaces that have been in contact with cleaning fluids with water
4. Use the machine in an airy room
5. The vehicle's injection system must be leak-tight
6. Check for leaks before any treatment
7. Supervise the vehicle during the treatment
8. The machine only works at 12V: when connected to a power source higher than 16V, the internal safety fuse of the machine's electronic system blows, to protect the machine from damage
9. Do not smoke in the vicinity of the engine or machine to avoid the risk of fire
10. Protect all hot parts or parts that will heat up during treatment with the engine running from possible splashes of cleaning liquid or fuel
11. In case of fire, immediately switch off the machine and the vehicle engine (car key), then remove the battery clamps
12. The machine has been designed for the purposes indicated: it is recommended to carefully read the safety instructions and to comply with what is contained therein
13. The machine has been specifically designed for use with the indicated liquids: if necessary, contact technical assistance
14. The noise value emitted (acoustic pressure level) is extremely low (<70dBA): the assessment of the level of exposure to noise for each individual worker is still the responsibility of the employer

## 2.2 DELIVERY AND TRANSPORT

### Delivery

1. Proceed with unloading in compliance with the provisions of current legislation on hygiene and safety in the workplace
2. Remove the packaging, don't disperse it in the surrounding environment
3. Always check the integrity of the machinery and of the kits: if necessary, contact the technical service immediately

### Transport

1. Every time the machine is transported, even inside the workshop, make sure that the tanks are empty to avoid liquid leakage
2. Apply the current legislation on health and safety at work (in particular as regards the total weight of about 15 kg)
3. Remove the pipes, accessory devices or anything else that could be an obstacle
4. In case of manual lifting, grasp the machine firmly
5. Keep operators not involved in the moving phase at an adequate distance
6. In case of transport by vehicle, check the degree of stability before moving
7. In case of transport by vehicle, empty the tanks from the various liquids

## 2.3 SAFETY DURING USE

### Working environment

1. The machine is intended to be used with flammable and aggressive liquids
2. Carry out the work phases in an environment compliant with current legislation on work health and safety
3. Make sure that the area is adequately ventilated and that there are no possible sources of ignition
4. Make sure that, in the vicinity of the machine, there are fire-fighting devices in compliance with the provisions of current legislation on work health and safety
5. The machine must be installed in a position that does not constitute a danger to the operators present; avoid placing the machine in transit areas
6. Always use the machine under adequate lighting conditions
7. Avoid harsh environmental conditions

### During use

1. The machine must never be left unattended by the operator during operation
2. The machine must be used on a horizontal plain
3. The use of the machine is intended for professional use, for an adult and responsible User
4. Other people are recommended to keep an adequate distance during the work phases
5. Always wear protective equipment (e.g. gloves, goggles and work shoes)
6. Always obtain the safety data sheet of the materials used and comply with what is contained therein

## Maintenance and end of work

1. Do not perform maintenance when the machine is connected to the vehicle and to the power supply
2. The Manufacturer is not liable for interventions not indicated in this booklet
3. During the maintenance phase it is recommended to adopt suitable protective devices
4. Do not dispose of any residues in the surrounding environment, but comply with the provisions of current regulations (the product is at high environmental risk)

## Used liquids

The machine is designed to be used exclusively with suitable Mécatech cleaning liquids: if in doubt, consult the technical service. The disposal of liquid residues must be evaluated according to the legislative provisions in force and according to the indications given in the safety data sheet (SDS/MSDS).

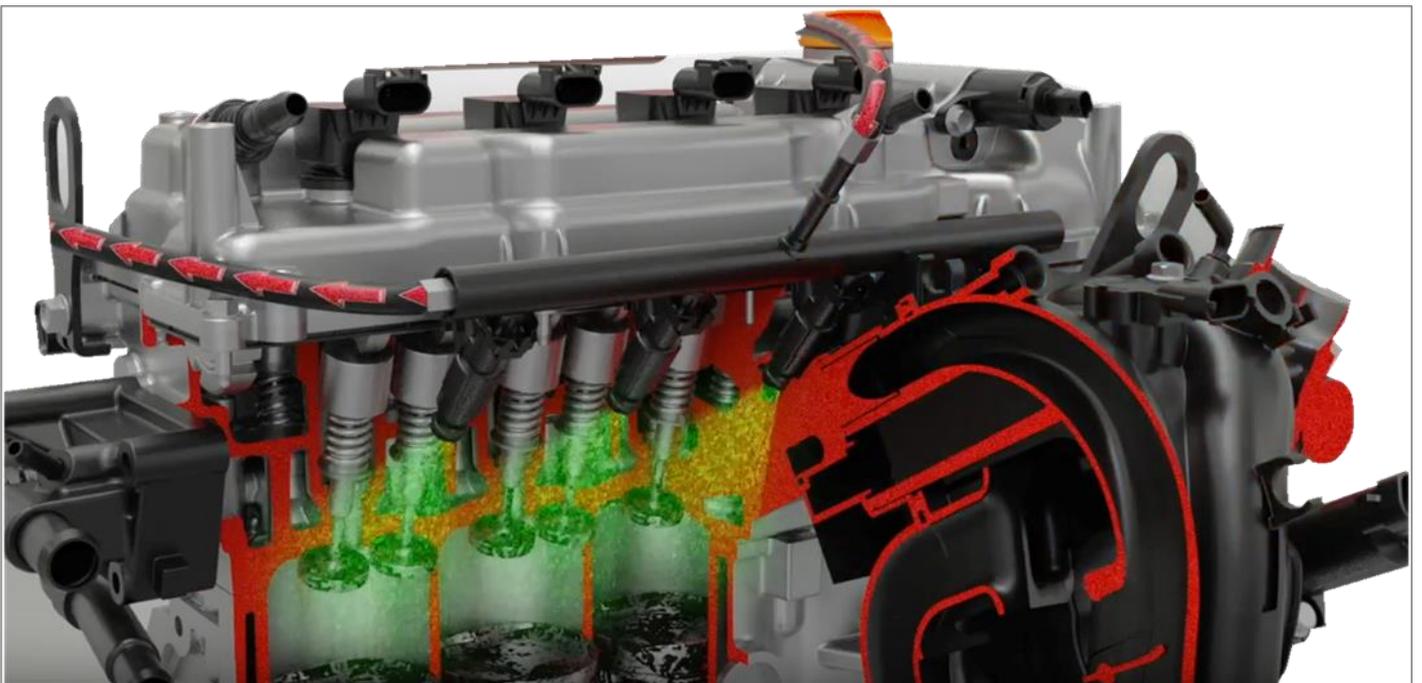
## 3. PETROL AND DIESEL INJECTION SYSTEM CLEANING

### 3.1 INTRODUCTION

The injection system cleaning operation requires 1 liter of liquid, sufficient for a cycle of approximately 20-30 minutes. Fill the **INJ** tank (capacity 1 litre) with the relative MÉCATECH cleaning liquid, making sure that it is compatible with the type of fuel with which the vehicle is powered. With large capacity engines or in the event of excessive contamination, it may be necessary to increase the quantity of product required, or repeat the treatment, in order to achieve the desired result.

#### CAREFUL

**The machine cannot function if there is not enough liquid in the tank: only use the specific MÉCATECH cleaning products, as the Manufacturer accepts no responsibility for damage to the vehicles and machine caused by the use of non-recommended products**



## 3.2 CONNECTION TO THE INJECTION SYSTEM

1. It is strongly recommended to connect the diagnostics to investigate any vehicle problems, even those not related to injection system cleaning: take a test drive, do not use the machine on broken or damaged injection systems
2. Start the engine and run it until it reaches normal operating temperature (min. 70°C), then stop the engine
3. Position the machine near the vehicle
4. Connect the hose marked in **red** to the **red** fitting (delivery) and the one marked in **blue** to the **blue** fitting (return) of the machine: both hoses have a quick-coupling
5. Identify the fuel delivery hose and, if necessary, the return hose on the vehicle, which connect the tank or the fuel filter to the injectors
6. Connect the delivery hose to the fuel tank return hose using an 8 or 10mm internal diameter hose, bearing in mind that on some cars it may be necessary to use adapters with quick-couplings instead of the simple hose: this way a closed circuit is created through which the fuel is returned to the vehicle tank via the vehicle pump (in some types of engines, the electric fuel pump can be deactivated by removing a relay or a fuse)
7. Use the hoses with quick-coupling provided, to connect the **red** delivery pipe to the supply hose previously disconnected, and the **blue** return hose to the injection system return connection (if present)

### CAREFUL

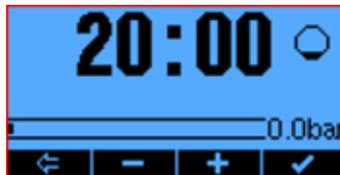
**The machine only works at 12V: when connected to a power supply higher than 16V, the internal safety fuse of the machine's electronic system blows, to protect the machine from damage**

### 3.3 INJECTION SYSTEM PROCEDURE

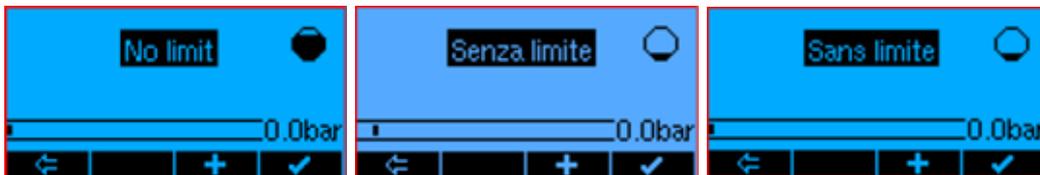
1. Connect the clamps of the electric cable of the machine to the vehicle battery: the black clamp to the negative pole (-) and the red clamp to the positive pole (+)
2. Select **fuel system** and press **ok**



3. If the tank is empty, the low level symbol will appear



4. Fill the **INJ** tank: as soon as the minimum level threshold is exceeded, the full level symbol will appear, therefore set the operating time (e.g. 20min) or select **no limit** (using the + / - keys) if you want the procedure to finish when the tank has emptied



5. Set the treatment duration time, then press **ok** to move on to adjusting the vehicle system pressure (do not exceed the injection system pressure indicated by the vehicle OEM): press **ok** to start and start the vehicle engine



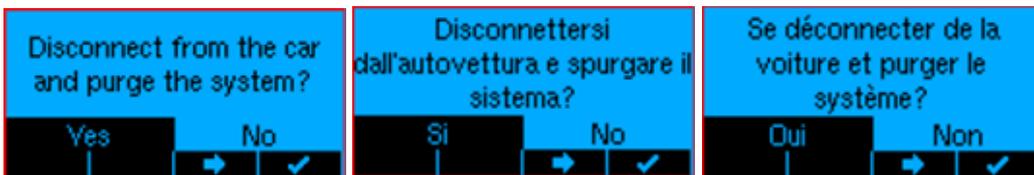
#### CAREFUL

If you do not know the specifications provided by the OEM for the vehicle injection system, it is advisable to start with a low pressure (e.g. 2 bar) and correct it during the treatment if necessary

6. When the operation is completed, press **ok**



7. Turn off the vehicle, restore the pipes and restore the engine connections: once the cleaning operation is complete, the machine asks whether to proceed with emptying its hoses (strongly recommended) or to terminate the operation



## CAREFUL

The emptying or purge procedure is strongly recommended to avoid contamination of petrol/diesel based liquids, and to prevent the liquids from damaging gaskets and blocking hoses: it can be carried out at any time also by selecting it from the fuel system menu (with the + / - keys)

8. If you wish to proceed with the **purge**, connect the universal hose diam.8 (code **1700089**, see the injection system kit list) to the **red** delivery pipe, then insert it inside an empty container (e.g. the original can of the liquid, to recuperate some of it)
9. Press **ok** and the machine will start pumping the liquid for 1 minute at 0.5 bar: as soon as the sensor signals a low level, the pump stays activated for another 20 seconds so that the tank and pipes can be completely emptied



10. Connect the universal hose diam.8 (code **1700089** see the injection system kit list) to the **blue** return hose, then insert it inside an empty container: in this case the liquid will be emptied via drop effect without having to activate the pump

## 4. PETROL AND DIESEL AIR INTAKE SYSTEM CLEANING

### 4.1 INTRODUCTION

The air intake system cleaning operation requires 1 liter of liquid sufficient for a cycle of approximately 40 minutes: the duration of the cycle depends on the nebulization and waiting times set. Fill the **AIR** tank with the relative MÉCATECH cleaning liquid making sure that it is compatible with the type of fuel with which the vehicle is powered. With large capacity engines or in the event of excessive contamination, it may be necessary to repeat the treatment in order to achieve the desired result.

#### CAREFUL

**The machine cannot function if there is not enough liquid in the tank: only use the specific MÉCATECH cleaning products, as the Manufacturer accepts no responsibility for damage to the vehicles and machine caused by the use of non-recommended products**



## 4.2 CONNECTION TO THE AIR INTAKE SYSTEM

1. It is strongly recommended to connect the diagnostics to investigate any vehicle problems, even those not related to air intake system cleaning: take a test drive, do not use the machine on broken or damaged air intake systems
2. Start the engine and run it until it reaches normal operating temperature (min. 70°C), then stop the engine
3. Position the machine near the vehicle

### CAREFUL

**Before connecting the sprayer to the vehicle for the actual treatment, it is essential instead to insert the sprayer into the AIR tank of the machine to carry out the calibration/priming procedure: the procedure pushes all the air out of the circuit of the machine, to stabilize the pressure at 4 bar, that will be maintained throughout the treatment**

4. Only after having carried out the calibration/priming procedure will it be possible to connect, using the appropriate flange with sprayer, to the vehicle's intake manifold
5. Place the sprayer always after the turbo or the intercooler, since contact with the nebulized liquid could damage these mechanical parts: disconnect the air flow mass sensor

### CAREFUL

**The machine only works at 12V: when connected to a power supply higher than 16V, the internal safety fuse of the machine's electronic system blows, to protect the machine from damage**

## 4.3 AIR INTAKE SYSTEM PROCEDURE

1. Connect the clamps of the electric cable of the machine to the vehicle battery: the black clamp to the negative pole (-) and the red clamp to the positive pole (+)
2. Select **air intake** and press **ok**



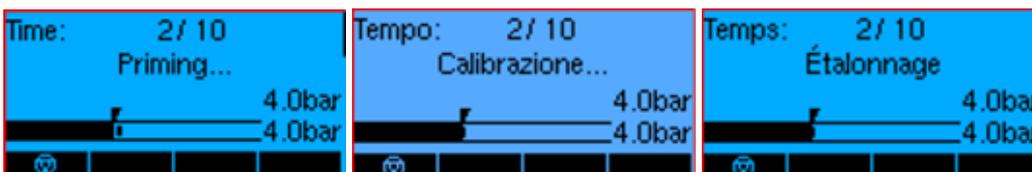
3. Fill the **AIR** tank and set treatment intervals with the keys + / - :
  - a) **Spraying time** – 1-2 seconds: 1 second for very clogged/dirty air intake system, or 2 seconds for average air intake systems



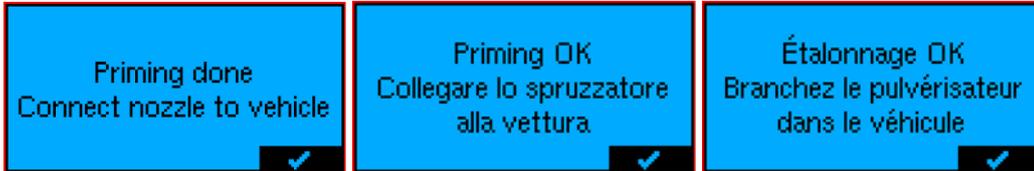
- b) **Waiting time** – 5-90 seconds: suggested at least 15-20 seconds, especially in the first 10 minutes of the treatment



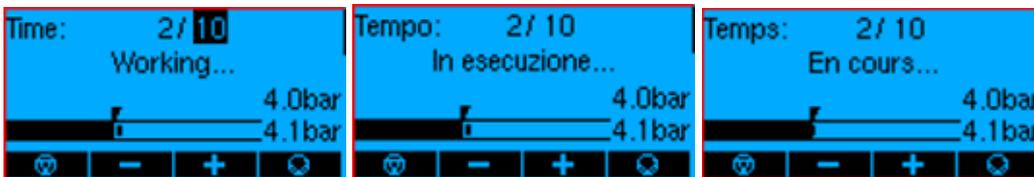
4. After setting the nebulization times, insert the sprayer into the **AIR** tank of the machine to start the **calibration/priming** procedure and press **ok**: the procedure pushes all the air out of the machine circuit, to stabilize the pressure of 4 bar that will be maintained throughout the treatment



- The **calibration/priming** procedure will last approximately one minute: after this time, place the sprayer on the vehicle's air intake, taking care to position it after the turbo or intercooler (it is important to do this to avoid damaging the turbo or intercooler), but as close as possible to the throttle body, and where present, disconnect the air flow mass sensor



- To start the treatment, press **ok** and start the vehicle engine



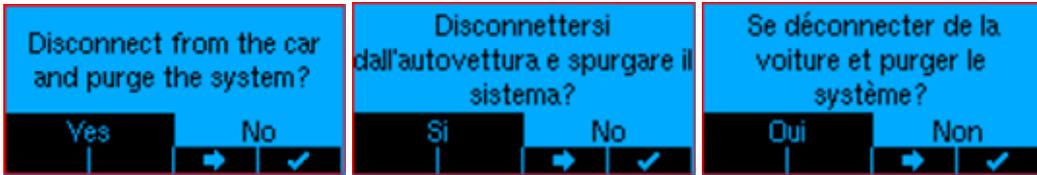
- During the treatment keep the engine between 1100 rpm/min and 1500 rpm/min maximum, to open the throttle body
- If you notice any knocking or hydrolock phenomena, especially likely in the first 10 minutes of treatment, pause the treatment by pressing **ok**



- After pausing the treatment, keep the engine idling in order to eliminate the knocking or hydrolock, and wait at least 5 minutes before resuming the treatment
- If the engine starts working normally again, resume the treatment by pressing **ok**
- When the liquid in the **AIR** tank reaches the minimum quantity and the machine no longer detects the necessary 4 bar of pressure, the treatment ends automatically



12. Turn off the vehicle, restore the hoses and restore the engine connections: once the cleaning operation is complete, the machine asks whether to proceed with emptying its hoses (strongly recommended) or to terminate the operation

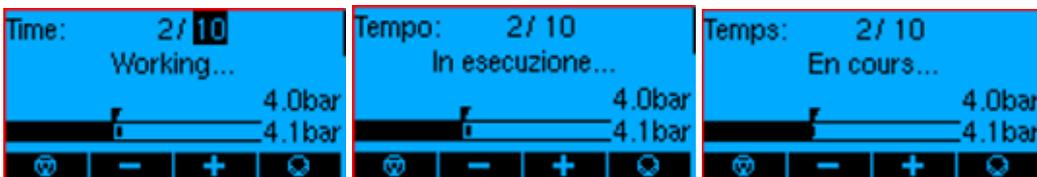


### CAREFUL

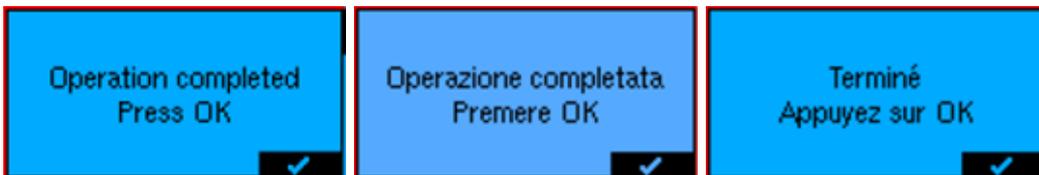
The emptying or purge procedure is strongly recommended to avoid contamination of petrol/diesel based liquids, and to prevent the liquids from damaging gaskets and blocking hoses: it can be carried out at any time also by selecting it from the air intake menu (with the + / - keys)

13. If you want to proceed with the **purge**, insert the sprayer hose inside an empty container (e.g. the original can of the liquid, to recuperate some of it) and press **ok**

14. The liquid is pumped until the pipes are completely empty



15. Once the **purge** is done, press **ok** to end the treatment



16. Start the vehicle and idle it for 5 minutes before taking it for a low speed test drive, or follow the instructions for the cleaning fluid used

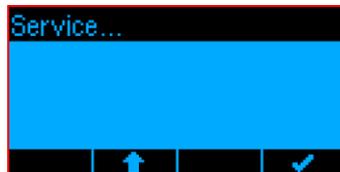
## 5 SERVICE MENU

### 5.1 INTRODUCTION

This menu is used to set the screen contrast and menu language. Next to the **contrast** mode, you can identify the current version of the machine's **firmware**, in case of need for an update. The test mode is reserved for the Manufacturer's authorized personnel: it is forbidden to use this mode without prior authorization from the Manufacturer's authorized personnel.

### 5.2 CONTRAST MODE

1. Connect the clamps of the electric cable of the machine to the vehicle battery: the black clamp to the negative pole (-) and the red clamp to the positive pole (+)
2. Select the **service** mode



3. Select **contrast** and press **ok**

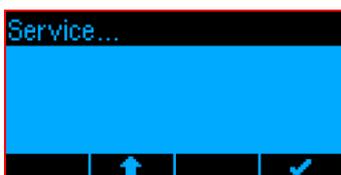


4. Set the desired contrast with the keys + / - and press **ok**: the suggested contrast is **20**



## 5.3 LANGUAGE MENU

1. Connect the clamps of the electric cable of the machine to the vehicle battery: the black clamp to the negative pole (-) and the red clamp to the positive pole (+)
2. Select the **service** mode



3. Select **language** and press **ok**



4. Set the desired language with the keys + / - and press **ok**



## 6 FINAL NOTES

### 6.1 MAINTENANCE, CARE AND DISPOSAL

#### CAREFUL

**All maintenance operations must be carried out with the machine disconnected from the power supply and from the vehicle. It is recommended to wear personal protective equipment and to comply with current legislation on occupational health and safety**

#### Metal body cleaning

1. Perform this operation with non-aggressive and non-abrasive products, such as neutral soaps or surface cleaning agents
2. Do not use solvents, which can damage the paint

#### Pump maintenance

1. The cleaning agents present in the liquids, especially those for the air intake system, are very aggressive: in case of prolonged contact they can damage the electrical components of the pump
2. In case of prolonged contact with air, the products can form a film of a viscous substance: this substance could negatively affect the functioning of the pump
3. Consequently it is recommended to empty the pump and the tanks after each treatment using the **purge** function

## Quick-couplings maintenance

1. Quick couplings contain moving parts: the movement of these parts can cause wear to metals and gaskets, consequently quick couplings will need to be replaced after a certain period
2. The following factors reduce the life of quick couplings: number of times the couplings are connected and disconnected; cleaning product which remains in prolonged contact with the fittings, oxidizing and forming a viscous film; atmospheric attacks such as water, salt, acids; dust and dirt which can cause abrasion to moving parts
3. The following prevention measures can be taken: always leave the two pipes for the **delivery** and **return** injection system attached to the machinery; do not expose the machine to external agents such as rain, salt, etc.; keep the machine clean as described in the previous paragraph; lubricate the quick couplings before inserting them in case of long inactivity
4. If, however, hardening problems should occur with the quick couplings, they can be released and lubricated by spraying a special lubricating and unblocking product
5. Quick-couplings are treated with a silicone layer which can be restored by spraying silicone lubricant on them

## Dismantling

In case of demolition, comply with the regulations in force in the country where this operation is carried out

## 6.2 IDENTIFY ERRORS

MESSAGE	CAUSE	SOLUTION
2301 2302	Pump	Check pump turn-on, check pump connections, replace pump if necessary
4201 91xx 92xx 93xx	Solenoid valves	Check solenoid valve connections, unscrew the head of the solenoid valve to release any residue from the spring, replace the head of the solenoid valve if necessary
5001 5002 500A 500D 500E	Electronic board	Check electronic board connections, replace electronic board if necessary
500C	Transitory error	Disconnect and reconnect the clamps from the vehicle battery
9001 9002 9003 9004	Pressure sensor	Check for clogging in the AIR circuit, check pressure sensor connections, replace pressure sensor if necessary
A001	Level sensor	Check level sensor connections, replace level sensor if necessary
500B 6101 6102 6103 6104 6105 6106 6107 6108 6109 610A 610B A000	Software	Contact assistance



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