UR FOG

FAST PUMP PRO PLUS

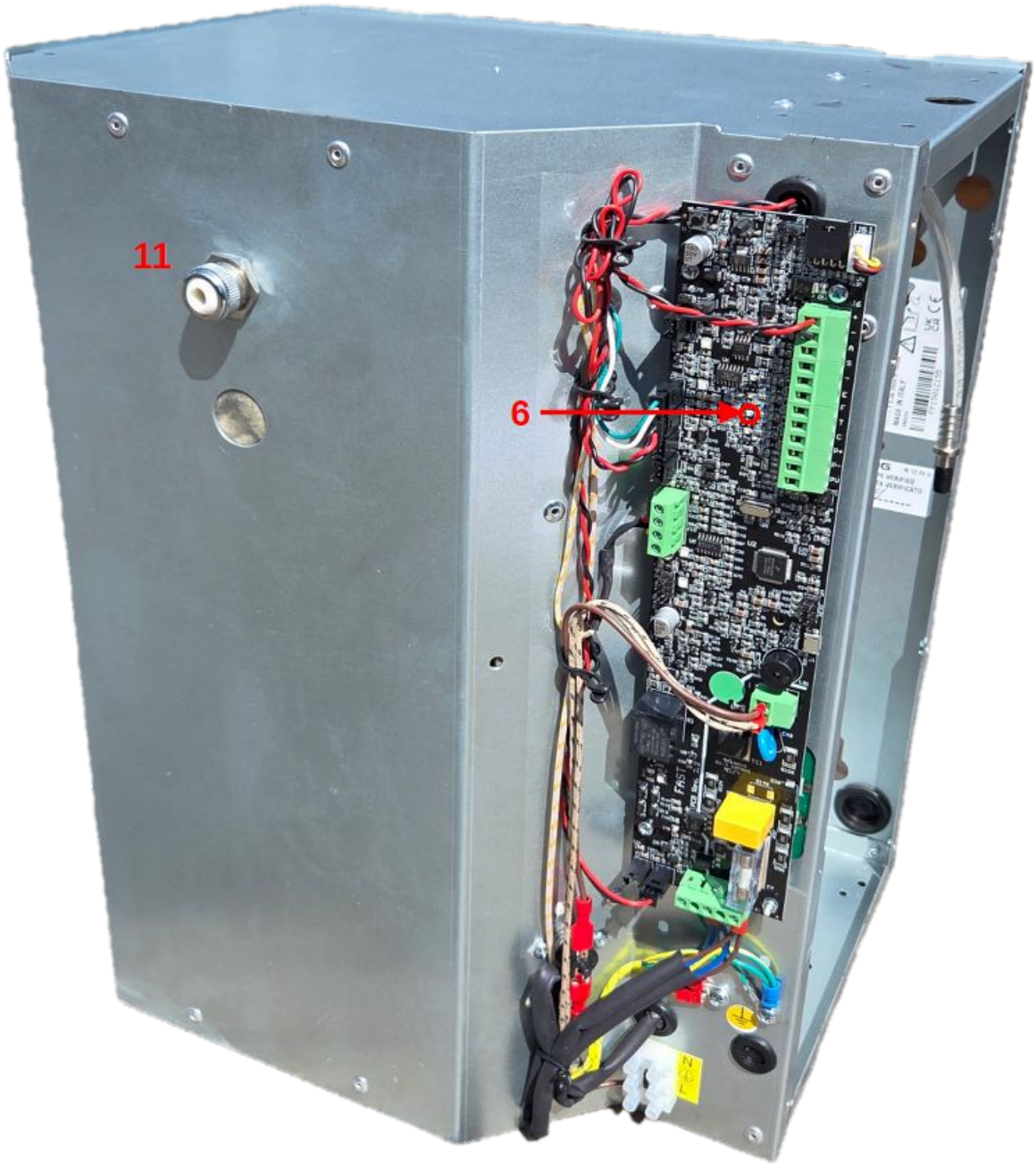
ANNUAL MAINTENANCE PROCEDURE

FAST PUMP Line

Models

Pump 1500 Pro Plus
Pump 4000 Pro Plus
Pump 6000 Pro Plus
Pump 14000 Pro Plus

Document revision	2.1.2 — June 2026
Reference standard	EN 50131-8:2019
Intended audience	Qualified maintenance technicians
Service interval	Annual (mandatory)
Estimated duration	15 minutes (excluding warm-up and additional tests)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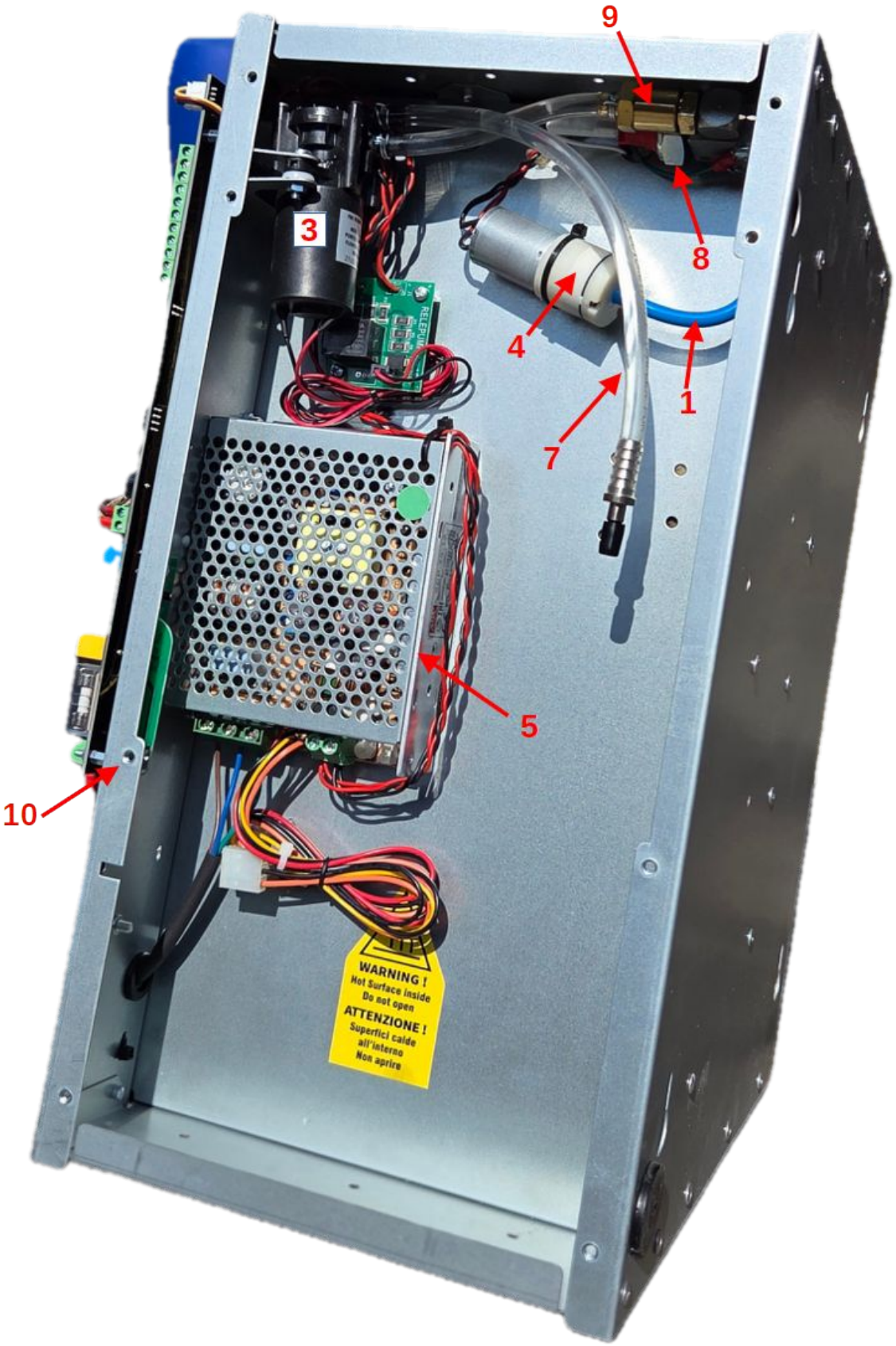
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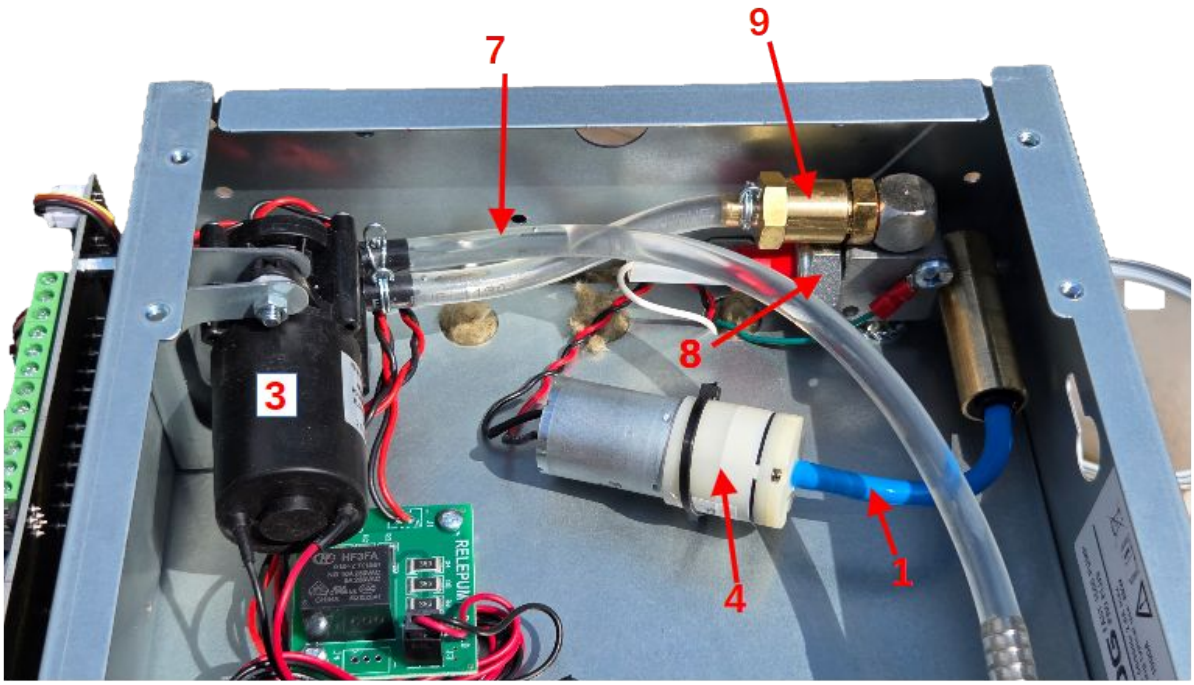
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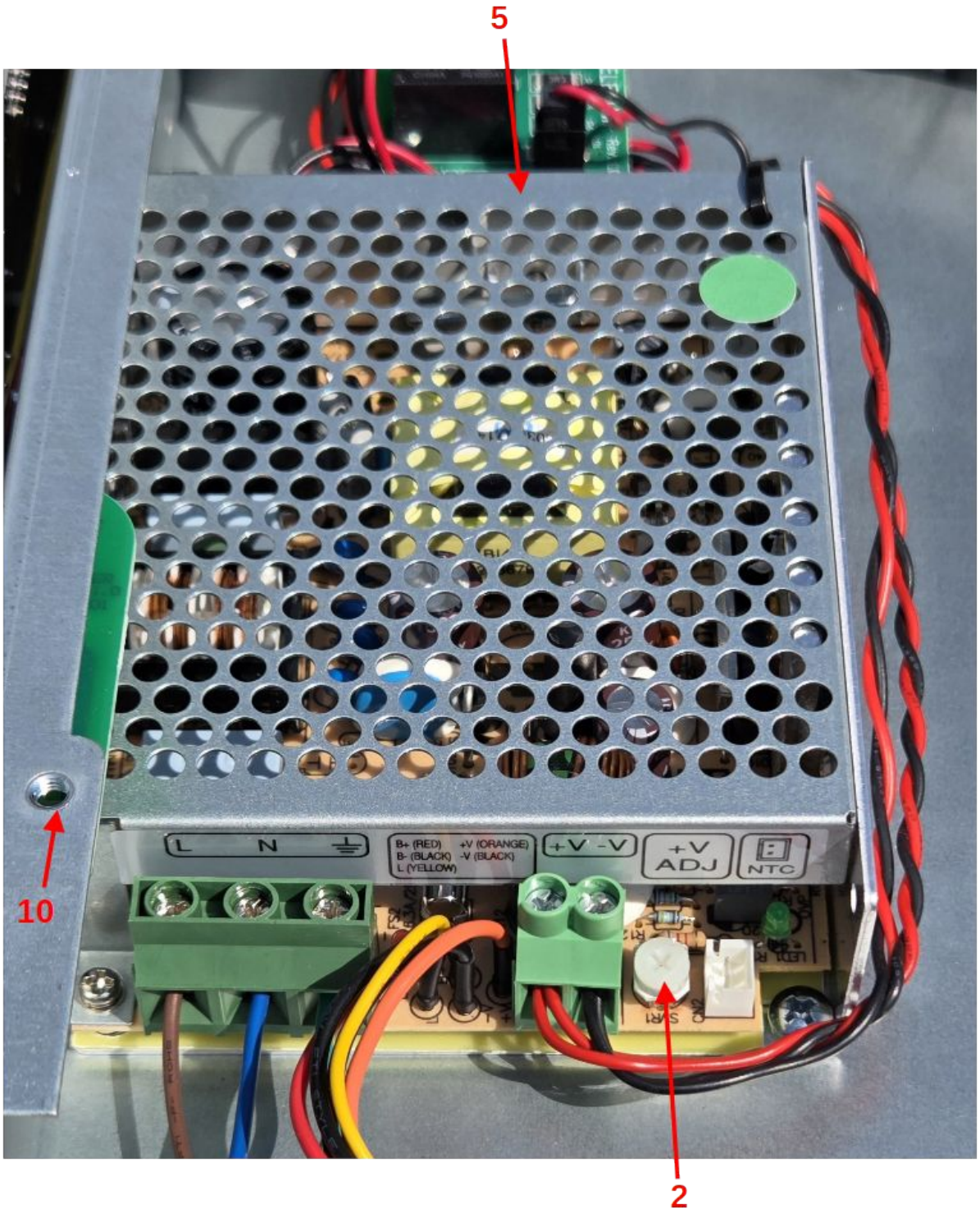
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1. INTRODUCTION AND SCOPE

The fog generators UR FOG of the FAST PUMP line are designed to the highest quality standards. As with any security device, mandatory annual maintenance must be performed in order to:

- comply with EN 50131-8:2019 (where applicable);
- ensure the correct operation of all components (batteries, sensors, pumps, valves, etc.).

⚠ **WARNING:** Maintenance operations must be performed exclusively by qualified operators. Live mains-voltage parts are present: use the required personal protective equipment (PPE) and avoid touching with bare hands any metal parts other than the outer chassis.

The maintenance procedure must always end with a test shoot of at least 5 seconds, carried out under normal operating conditions, with the fluid bag fitted and containing enough fluid to complete the test.

The results of the intervention, any anomalies found and any replaced part must be recorded in the maintenance log by the person responsible for maintenance.

The text that follows refers to the items shown in the previous figures, each of which is identified by a numeric reference.

2. PRELIMINARY OPERATIONS — opening the device

1. Check that the device is not armed: the blue LEDs on the front of the fog generator must be off.
2. To open the unit: remove the 4 closing screws of the door on the right side. The door is fitted with an anti-tamper switch (Ref. 10).
3. Using a 10 mm wrench, remove the nut securing the blind screw beneath the door, then unscrew the side screws and remove the metal cover.
4. If the unit is not running the latest available firmware, perform the update before proceeding (see Section 13) and record the operation in the log.

At this point all the electronic and pneumatic components of the device are accessible.

3. DOOR TAMPER CHECK — anti-tamper switch

The unit detects the opening of the fluid compartment door through the contact of one of the four screws (the bottom-left one, 14 mm long, 4 mm longer than the others) with the PCB installed in the fluid bag compartment.

✔ **Procedure:** Place the correct screw (the longest one) in the bottom-left hole of the door. Screw clockwise until it makes contact with the PCB: a confirmation beep must be heard.

✔ **If no sound is emitted:** Press button S2 on the main board to test the buzzer. The green LED DL6 (Ref. 6) must change state (should be off on units with standard firmware). At this point two scenarios are possible:

1. an audible signal is emitted: this means the tamper detection board is faulty and must be repaired;
2. no sound is emitted: the tamper detection circuit on the main board is faulty and must be repaired.

4. FLUID BAG COMPARTMENT — VISUAL INSPECTION

✔ **Pump leaks:** There must be no traces of fluid leakage from the pump, from the feed pipe or from the fluid bag quick-connect fitting.

As a precaution, replacement of the feed assembly (pipe + pump) is recommended after three years of operation, regardless of the number of shots performed during that period.

✔ **Fluid piping:** There must be no drips from any section of pipes. The fluid visible inside the transparent pipes must occupy at least 50–70% of the total volume.

A change in fluid colour toward pink/dark red is normal and does not affect functionality.

If the fluid bag has been installed for more than 3 years, replacement is recommended regardless of partial usage. The fluid bag with any residual fluid remains usable for tests and demonstrations.

The feed pipe (Ref. 7, between the fluid bag and the FogStorm pump) must be filled for at least 2/3 of its length. If it is empty: lay the fluid bag horizontally without removing it from its cardboard packaging and press it gently until the desired fill level is reached.

5. POWER SUPPLY (REF. 5) — output voltage check

The units are equipped with a high-quality power supply with built-in UPS functions, which also acts as a charger for the 12 V VRLA batteries:

- *Pump 1500*: capacity 3.2 Ah;
- *Pump 4000/6000/14000*: capacity 7.2 Ah.

The output voltage is factory-set to 13.8 V. The power supply has a green operation indicator, located next to the adjustment trimmer.

✔ **Voltage measurement:** With a multimeter set for measurements in DCV, check that the voltage at the **+V** and **-V** terminals of the power supply is between 13.7 V and 13.9 V. Otherwise, adjust it using the dedicated trimmer (Ref. 2).

6. FOG STORM PUMP (REF. 3)

The FogStorm pump requires no maintenance: the fluid itself lubricates it. Do not open the pump, there are no user-serviceable parts inside.

✔ **Functional test:** During the annual test shot (at least 5 s under normal operating conditions and with the fluid bag fitted), check that fog is generated for the expected duration.

In case of partial emission, repeat the shot several times until the required result is achieved.

7. PRESSURE SWITCH (REF. 8)

The ON/OFF pressure sensor checks for the presence of fluid in the heater during the shot. Carry out this check only if there are doubts about its operation.

✔ **Check:** Remove the connector with the white/green wires from the PCB (J8): an audible signal must be heard. The signal must stop when the connector is reinserted.

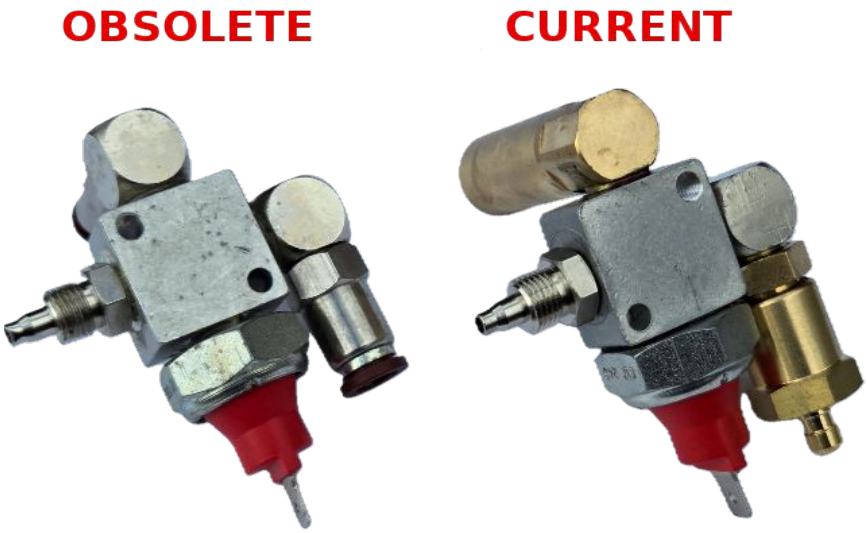
8. CHECK VALVE (REF. 9)

The non-return valve prevents reverse overpressure that could damage the pump. It is factory-calibrated to open/close at the correct pressure and is screwed onto the pneumatic manifold block.

✔ **Functional test:** During the annual test shot (at least 5 s under normal operating conditions and with the fluid bag fitted), check that nebulisation is generated for the expected duration.

⚠ **WARNING:** If the unit does not correctly perform the activation/shoot sequence, or if the valve has already completed 50–60 shots, note the counter value and replace the valve.

⚠ **WARNING:** The steel push-fit valve (earlier versions) has been replaced by the brass version with improved performance. If the steel version is present, replace it and record the change in the maintenance log.



On the left, the pneumatic block (obsolete version) with steel valve; on the right, the block with brass valve (current version)

9. ADJUSTABLE NOZZLE BALL (REF. 11)

Differences between models:

- *Pump 1500/4000*: nozzle ball in Teflon with a hole to direct the jet. Indicative service life: approx. 30 shots or 3 years from installation.
- *Pump 6000/14000*: nozzle ball in metal with a hole to direct the jet. No maintenance required.

✔ **Ball seal:** Check that the ball retaining sleeve is not loose (to avoid unwanted fluid passing through the nozzle).

✔ **Hole condition (Teflon ball):** If the inner circular hole of the Teflon ball appears deformed, replace the nozzle ball.

✔ **Hole condition (metal ball):** If the inner circular hole of the ball appears dirty, remove the ball, wait for it to reach ambient temperature and clean it with a soft tissue dampened with isopropyl alcohol.

⚠ **WARNING:** The retaining ring and the nozzle ball can be extremely hot, especially right after a shot. Always use suitable protective gloves, capable of withstanding temperatures above 200 °C (or 400 °F).

Always check the hole direction before closing the sleeve: an incorrect orientation can decrease the protective effect of the device.

10. AIR PUMP (REF. 4)

The air pump detects any tampering with the nozzle by generating an air flow in three conditions:

- (i) when the unit is armed (blue LED on);
- (ii) at the end of the fog emission;
- (iii) when the reset button S1 is pressed.

The pump remains active for at least 15 minutes, then stops automatically.

✔ **Efficiency check:** Temporarily arm the unit (blue LED on): a faint hum must be audible and a light air flow must be present at the nozzle.

⚠ **WARNING:** DO NOT press the reset button S1 to check the pump: this operation resets the fluid counter.

11. PNEUMATIC CIRCUIT (REF. 1) — anti-obstruction check

The device is protected against intentional nozzle obstruction by a tamper detection system. If an obstruction occurs, a characteristic optical and acoustic signal must be generated.

✔ **Test procedure:**

1. Arm the unit (blue LED on): the air pump activates and generates a light air flow from the nozzle.
2. **using thick rubber protection**, completely block the ball hole to stop the air flow.
3. The obstruction must be detected within 10–15 seconds (depending on the model) and signalled by the characteristic visual-audible pattern.
4. Disarm and rearm the machine to stop the signal.

12. ACTIVE MAINTENANCE SOFTWARE — advanced diagnostics

For in-depth diagnostics, the Active Maintenance program, developed for Microsoft Windows, is available free of charge. The program communicates with the fog generator via the serial port and displays in real time all operating parameters.

It is also possible to arm/disarm, trigger a full or short shot (test shot), set the shooting time and perform the fluid reset.

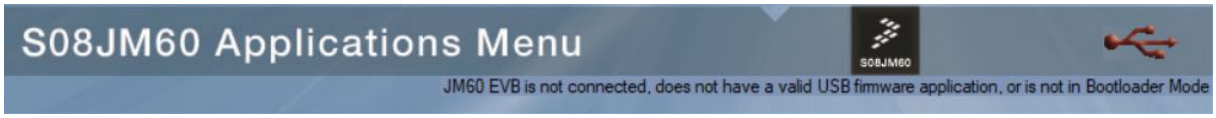
For communication with the fog generator, the software requires the 8-pin USB-to-serial adapter cable available in the catalogue with code FPUCPAS8.

⚠ **WARNING:** Remember to restore the correct shooting time and to close the unit at the end of every maintenance session.

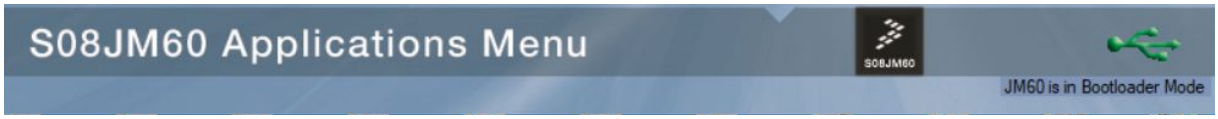
13. FIRMWARE UPDATE

Perform the update before starting maintenance. The following items are required: laptop with Windows 7 or higher, Freescale JM60 bootloader software, .S19 firmware file supplied by the manufacturer, micro USB cable.

STEP	OPERATION
1	Install the Freescale program on the laptop with administrator privileges.
2	Fully power down the device: disconnect both mains power and the backup battery.
3	Close jumper W3 on the main board.
4	Power on the device by connecting only the backup battery. WARNING: the board is in SERVICE mode and all LEDs must be off. If one or more LEDs are lit, check the jumper and repeat from step 2.
5	Start the Freescale program: the USB icon at the bottom right will appear in RED.
6	Connect the USB cable (micro USB) to connector J1 on the board. The USB icon turns GREEN. If the icon stays red, it is not possible to proceed: the cause of the problem must be identified and resolved.
7	Select the BOOTLOADER option and provide the path to the .S19 file matching the model to be updated (see note below).
8	Select Execute: check that all 4 operations (Erase, Program, Verify, Checksum) report the Done status. In case of error, wait a few seconds and repeat Execute.
9	Wait 2–3 seconds, remove the USB cable and disconnect the power supply (disconnect one battery terminal).
10	Remove jumper W3 from the main board.
11	Reconnect mains power and backup battery. The signalling LEDs become active again: the firmware is updated.



Bootloader software waiting for connection



Bootloader software connected

Firmware filename format (example): **20251216 – Pump-6000 – 3.1.8.s19**

- *20251216*: firmware release date;
- *Pump-6000*: target model (must match exactly the model to be updated);
- *3.1.8*: firmware version.

⚠ **WARNING:** Each firmware is model-specific. Do not install on a unit any firmware whose name does not exactly match the model to be updated.

14. ANNUAL MAINTENANCE CHECKLIST

Fill in one form for each intervention. Keep it in the maintenance log of the unit.

Model / Serial No.	Location / Customer	Maintenance date	Operator

#	Operation	Result	Notes / Anomalies / Replaced parts
1	Door tamper check (audible signal on closing)	☐	
2	Fluid bag compartment inspection — no traces of fluid leakage	☐	
3	Fluid level check in pipes (≥ 50–70% of volume filled)	☐	
4	Check absence of leaks from piping	☐	
5	Power supply voltage check (13.7 V – 13.9 V DC)	☐	
6	Firmware update (if a newer version is available)	☐	
7	Device arming (blue LED on)	☐	
8	Check valve verification (shot counter < 50÷60)	☐	
9	Adjustable nozzle ball check (retaining sleeve + hole condition)	☐	
10	Nozzle anti-obstruction protection check (visual-audible pattern within 15 s)	☐	
11	Pressure switch check (J8)	☐	
12	Air pump check (hum + air flow at the nozzle)	☐	
13	Test shot (≥ 5 s, fog generated for the expected duration)	☐	
14	Restore correct shooting time	☐	
15	Close unit and rearm (if necessary)	☐	

Date: _____

Operator signature: _____

15. NOTES

Below is some useful information for the maintenance technician:

- **PPE**: during the maintenance operations described in this document, the operator may come into contact with mains-voltage parts and/or high-temperature parts (up to 250 °C). Make sure you understand the risks and use suitable personal protective equipment.
- **Battery*:*** the average service life of a good-quality VRLA battery installed inside the fog generator is approximately 2 years. After this period, replacement is recommended regardless of its actual state of health.
- **Spare parts**: to order spare parts, please contact your distributor. If this is not possible, contact the manufacturer directly.