



- **iCAT 13-300**

iCAT



Use and Maintenance Manual

These instructions are translated from Italian (the original language).

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iCAT



ATTENTION: BEFORE USING THE AIR SPRAYERS , FULLY READ THE OPERATION AND MAINTENANCE MANUAL PROVIDED WITH THE EQUIPMENT.



ATTENTION: BEFORE CARRYING OUT ANY WORK ON THE ENGINE CONSULT THE ATTACHED ENGINE USE AND MAINTENANCE MANUAL.

Dear Customer,

Thank you for choosing a "TIFONE AMBIENTE" product. It is with pleasure that we provide you with this Use and Maintenance Manual, as it will allow you to make the best possible use of our product and ensure you obtain outstanding results from your work.

We invite you to carefully read the recommendations on the following pages and to make the Manual available to the staff who will take care of the management and maintenance of the Atomizer.

TIFONE AMBIENTE is at your disposal for any additional explanations which you may need, both in the start up phase of the Air Sprayer, and at any time during its use.

For any requests, please contact us to our Fax number: +39 0532 730 588

When operations of ordinary or extraordinary maintenance are necessary, TIFONE AMBIENTE puts at your disposal its commercial and technical staff to provide all the assistance and spare parts that may be necessary.

To ensure your request is processed quickly please contact us at:
Manufacturer data:



Tifone Ambiente s.r.l.
Via Modena, 248a
44044 Cassana - (FE) - Italy
Tel. +39 0532 730 586
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1 - GENERAL DESCRIPTION

1.1 PRELIMINARY INFORMATION

This is the Operation and Maintenance and manufacturing Manual within the meaning of Annex V of the Machinery Directive 2006/42/EC and its subsequent amendments and additions.

Do not destroy or modify; integrate only with additional files.

Machine type: Atomizer-Nebulizer for deodorization, disinfection, public disinfection, environmental protection and green areas

Models: iCAT 13-300

Manufacturer data: Tifone Ambiente s.r.l.

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Annex list: - Pump Use and Maintenance Manual

- Engine Use and Maintenance Manual

- UE Declaration of conformity

- Accessories

1.2 IMPORTANT INFORMATION FOR USE

The operating rules contained in this Manual apply exclusively to the TIFONE AMBIENTE machine Model iCAT.

The instruction manual must be read and used as follows:

- each operator and the maintenance staff of the Atomizer should fully read this Manual with maximum attention and respect its contents;
- the operator must possess the skill requirements for use of the Air Sprayer;
- read this Manual carefully and consider it an integral part of the Air Sprayer;
- the Manual must be within easy reach of the personnel assigned to driving and maintenance;
- keep the Manual for the entire life cycle of the Atomizer;
- make sure that any upgrade received is added to the text;
- deliver the Manual to any other user or subsequent owner of the Air Sprayer;
- use the Manual in a way that avoids damage to all or part of the contents;
- do not remove, tear or rewrite parts of the Manual for any reason;
- keep the Manual in areas protected from moisture and heat;
- in the event the Manual is lost or partially ruined and therefore it is no longer possible to read its complete contents it is advisable to request a new copy from the manufacturer.

Pay the maximum attention to the following symbols and to their meaning.

Their function is to highlight particular information such as:



WARNING: In reference to additions or suggestions for the correct use of the Air Sprayer.



DANGER: In reference to hazards that may occur with the use of the Air Sprayer to ensure the safety of persons.



ATTENTION: With reference to hazards that may occur with the use of the Air Sprayer to avoid damage to property and to the equipment itself.

1.3 INTRODUCTION

The service rules described in this manual are an integral part of the supply of the Air Sprayer.

These rules are, moreover, designed for an operator already expressly trained to use this type of machine, and contain all the information necessary and essential for the operational safety and optimal use of the Air Sprayer.

Hurried preparations cause improvisation and this is a cause of many accidents.

Before starting work, carefully read and thoroughly observe the following tips:

- familiarise yourself, before you begin to operate the Atomizer, with any acceptable operation and position;
- the operator should always have the Instruction Manual at his/her disposal;
- schedule each task with care;
- obtain all the necessary information for the road transport of the Atomizer.
- know in detail where and how the use of the Atomizer is required;
- make sure you always have at your disposal the necessary equipment;
- before beginning work, make sure that the safety devices work correctly; moreover, be certain about their functioning, otherwise do not to use the machine under any circumstances;
- carry out mixtures change properly and safely;
- constant and accurate preventive maintenance always guarantees the machine a high level of operational safety.

Never put off the necessary operations, and ensure they are performed exclusively by specialised personnel, using only original spare parts.

Terminology:

Mixture: product, diluted or not, containing biocides, plant protection products, pesticides, disinfestation products, deodorization products and/or any product used for treatments performed with this machine.



DANGER: Use by persons under 18 years of age is prohibited.

1.4 WARRANTY



WARNING: The materials provided by the company TIFONE AMBIENTE s.r.l. are covered by a guarantee of 12 months from the date of commissioning, proven by the delivery note to the customer.

The company TIFONE AMBIENTE s.r.l. reserves the right to repair or replace, during the warranty period, the parts recognized as being faulty.

With the replacement of the part considered defective, TIFONE AMBIENTE s.r.l. shall be free from any other expenses incurred by the Dealer and by the Customer of the Dealer as perceived damage (present or future), including loss of earnings, conventional penalty, etc...

Ordinary and extraordinary maintenance must be performed in accordance with the instructions contained in this Manual.

In all cases not included and for any kind of assistance, it is recommended that you contact directly TIFONE AMBIENTE s.r.l. via registered mail or by fax, even in the case of agreements made by phone.

TIFONE AMBIENTE s.r.l. shall not be liable for any delays or non-action.

TIFONE AMBIENTE s.r.l. shall not be liable for any damages or malfunctions due to technical interventions performed on the machine by unauthorized personnel.

TIFONE AMBIENTE s.r.l. guarantees its machines from any defect in design, manufacturing or materials used, which may become manifest within 12 months from delivery of the Atomizer.

The customer must notice TIFONE AMBIENTE s.r.l. about vices and/or defects detected within 8 days from detection, in writing, otherwise the warranty shall be void.

The guarantee applies only to the vices and defects that occur in the conditions of correct use of the Atomizer, following the instructions in this Manual and carrying out the planned periodic maintenance.

Failures arising from improper use of the Atomizer, atmospheric agents, damage caused by transport, are expressly excluded from warranty.

All consumables and regular maintenance materials are not covered under the warranty and their costs are entirely borne by the customer; in each case, the warranty is automatically voided wherever the Atomizer has suffered tampering or interventions by technicians not authorized by TIFONE AMBIENTE s.r.l..

The warranty is voided when:

- the oil level of the pump is not regularly checked;
- the pump is not stopped immediately in the event of breakage of the membranes;

The following is not covered by warranty:

- damage caused by frost to the pump and/or to other parts;
- damage due to failure to thoroughly clean the main circuit each time the Air Sprayer is used;
- damage caused by an excess of pressure of the circuit.
- damage caused by any improper use of the atomizer.

TIFONE AMBIENTE s.r.l. reserves the right to carry out the repair, or replacement, during the warranty period, of the parts it deems to be defective, at its factory in Cassana (Ferrara) or at its affiliated workshops, at its sole discretion.

The sole responsibility of the customer are the shipping costs for the replacement parts and supplies.

If it necessary a warranty service at the customer premises, the customer shall pay for the travel and accommodation expenses for the staff sent by TIFONE AMBIENTE s.r.l..

Taking delivery of machines and/or any defective components or any missions for the verification of defects and/or vices reported by the customer shall not, in any case, imply any implicit recognition concerning the applicability of the guarantee.

Repairs and/or replacements made by TIFONE AMBIENTE s.r.l. during the warranty period do not extend the duration of the same.

Recognition of the guarantee does not in itself give rise to any liability claims for compensation against TIFONE AMBIENTE s.r.l..

As regards any damage to persons and property, as well as any other direct or indirect damage (loss of production or earnings etc.), possibly due to the defects of the Air Sprayer, TIFONE AMBIENTE s.r.l. shall not be liable, except for cases of gross negligence.

1.5 RESPONSIBILITIES

TIFONE AMBIENTE s.r.l. shall not be liable for any accident to persons or property, that may occur due to:

- failure to comply with the instructions in this manual regarding operation, use and maintenance of the Air Sprayer;
- violent actions or incorrect manoeuvres in use and maintenance of the Air Sprayer;
- changes made to the Air Sprayer without prior written permission by TIFONE AMBIENTE s.r.l.;
- events unrelated to the normal and correct use of the Air Sprayer.

In any case, if the user ascribes the accident to a defect of the Air Sprayer, he must demonstrate that the damage was a main and direct consequence of this "defect".



ATTENTION: Always exclusively use genuine spare parts for repairs.

TIFONE AMBIENTE s.r.l. accepts no responsibility for any damage that may occur due to failure to comply with the above.

The Air Sprayer is guaranteed according to the contractual agreements.

The warranty however is void if the rules and instructions for use provided for in this manual are not respected.

1.6 IDENTIFICATION OF THE AIR SPRAYER

Every machine has an identification plate (a) that is located on the frame of the Air Sprayer.




TIFONE
AMBIENTE s.r.l.
 44124-CASSANA, Ferrara, Italia tel. +39 532 730586
 Modello **CE** _____
 Numero di Serie _____
 Anno di costruz. _____
 Pressione max. del circuito: 50 bar
 Peso a vuoto kg. _____
 Peso totale kg. _____

2 - SAFETY REQUIREMENTS

2.1 PERMITTED USES

The sprayers model iCAT have been designed for sanitization, pesticide, disinfection and pest control treatments with biocides for the defense of the urban and non-urban environment, including green, public and/or private areas.

Any other use is considered not appropriate and the manufacturer accepts no responsibility for any damage to people, property or to the machine itself that could arise from it.

2.2 MISUSE OR NON-ALLOWED USES



ATTENTION: This section lists some of the improper or not allowed uses.

As it is impossible to predict all the possible improper uses, if special uses of the machine are required, CONTACT the company TIFONE AMBIENTE s.r.l. before performing the work.



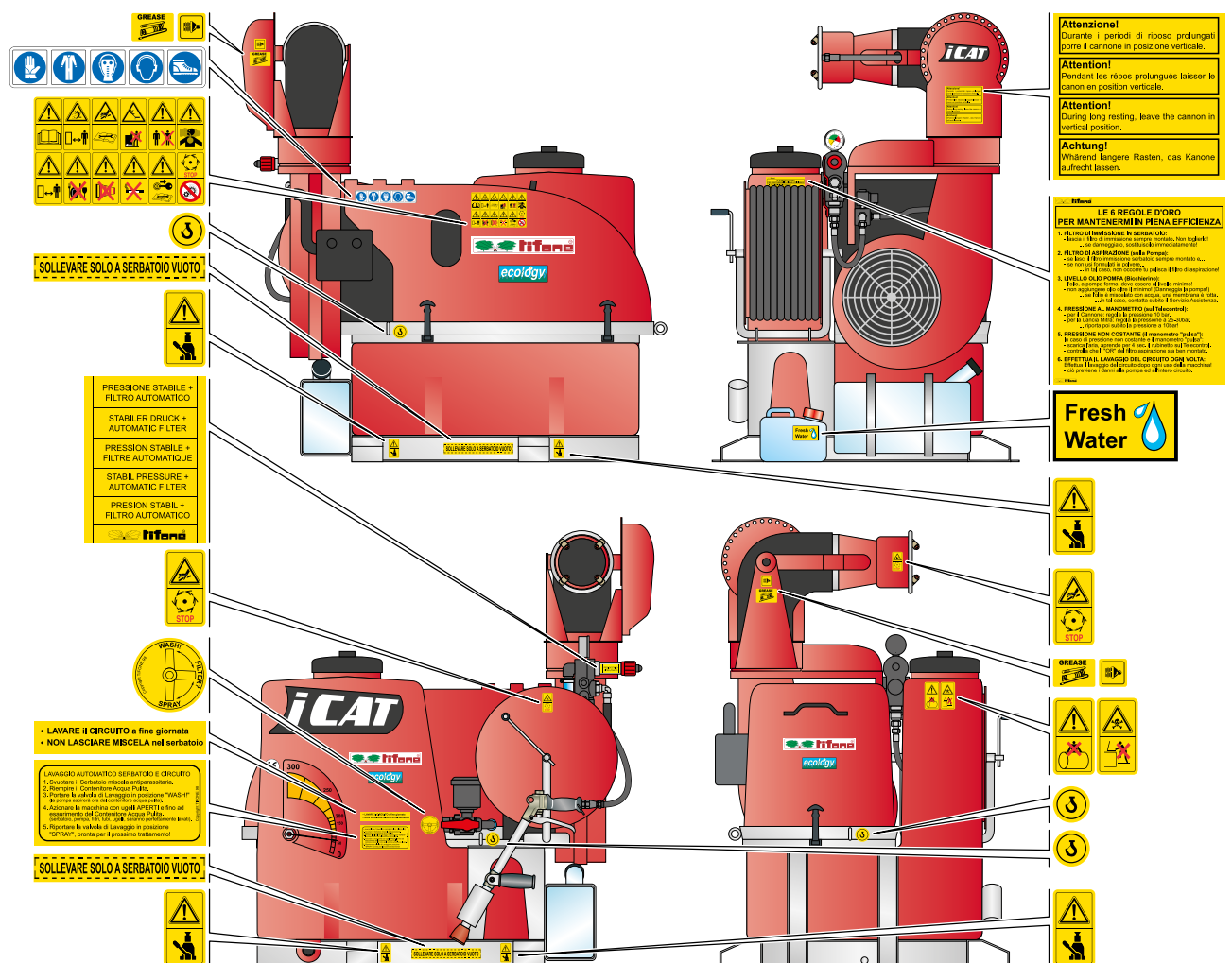
WARNING: Instructions regarding the optional devices allowed are described in the respective Operation and Maintenance manuals.

If the equipment is provided by TIFONE AMBIENTE s.r.l., those manuals are annexed to this manual.

The following uses must always and absolutely be avoided:

- Use of the Air Sprayer by minors, inexperienced persons and by those without a driving licence.
- Use of the Air Sprayer to lift persons or objects.

2.3 LOCATION OF THE STICKERS



2.3.1 Description of the stickers

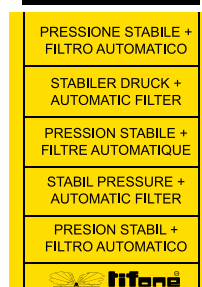
AUTOMATIC WASHING OF TANK AND CIRCUIT. Indicates the operations to be performed for a proper washing of the Tank and of the circuit of the mixtures.



CLEAN WATER. Indicates the tank containing clean water to wash your hands and face in the event of accidental contamination by Pesticides.

STEADY PRESSURE. This device allows you to keep the pressure at a set value during the work.

AUTOMATIC FILTER. The automatic pressure regulator contains a filter that automatically cleans itself.



WASH THE CIRCUIT. At the end of each working day, the cannon and lance circuit must be cleaned. **DO NOT LEAVE MIXTURE** in the tank. Empty the tank of the mixture by carrying out the operations described in this manual.

- **LAVARE il CIRCUITO a fine giornata**
- **NON LASCIARE MISCELA nel serbatoio**

THE 6 GOLDEN RULES. Directions to follow in order to use and maintain the Atomizer in full efficiency.



ATTENTION. During prolonged periods of rest or winter shelter, place the gun in a vertical position and grease the joints.

Attenzione!

Durante i periodi di riposo prolungati porre il cannone in posizione verticale.

Attention!

Pendant les répos prolongués laisser le canon en position verticale.

Attention!

During long resting, leave the cannon in vertical position.

Achtung!

Whährend langere Rasten, das Kanone aufrecht lassen.

LIFT ONLY WHEN THE TANK IS EMPTY. Before lifting or moving the mist sprayer, completely empty the tank of the mixture.

SOLLEVARE SOLO A SERBATOIO VUOTO

- 1 View the instructions manual.
- 2 Danger of projection and of the throwing of objects. Remain at a safe distance.
- 3 Danger of being struck by pressurised liquids. Replace hydraulic hoses according to the schedule specified by the manufacturer.
- 4 Danger of falling. Do not climb onto access means when the machine is moving.
- 5 During use, do not allow the presence of other persons aside from the driver of the machine.
- 6 Danger of inhalation of dangerous substances.
- 7 Generic danger. Remain at a distance from the machine.
- 8 Prohibition of consumption of food and drink when using chemicals.
- 9 Prohibition of treating crops during windy conditions.
- 10 Prohibition of smoking when using chemicals.
- 11 Turn off the engine and remove the key each time maintenance is to be performed.
- 12 Do not remove guards and covers while the machine is running and/or moving; stop and switch off the machine before removing guards and cover.
- 13 Prohibition on entering the tank - Danger of asphyxiation.
- 14 Danger of pressurized fluids being ejected. Stop, switch off and relieve residual pressure before approaching for nozzle maintenance.
- 15 Indication of the points at which to apply the lifting systems of the machine.
- 16 Indication of grease points.
- 17 Obligation to use the required Personal Protective Equipment (gloves, overalls, respiratory protection, shoes, headphones).



2.4 GENERAL PRECAUTIONS



WARNING:

- Before performing any operation or manoeuvre with the Air Sprayer, it is mandatory to read and follow the instructions on the Operation and Maintenance Manual.
- Doing it during work is too late.
- Improper use or an incorrect manoeuvre can result in serious damage to persons or property.
- Operators must be informed about the risks of accidents and in particular on the risks deriving from noise, on the personal protective equipment provided and on the general accident-prevention rules provided for by the international laws and regulations and by those of the country of destination of the Atomizer.
- All operators must comply with the accident-prevention regulations, the directives regarding the safety and health of workers, (international or of the destination country of the Air Sprayer) in order to avoid possible accidents.
- Before starting any work on the Air Sprayer, every user must be fully aware of its operation and its controls and must have read and understood the information contained in this Manual.



ATTENTION: It is forbidden to tamper with or replace parts of the Air Sprayer, if not expressly authorized by TIFONE AMBIENTE Srl.

The use of accessories, tools, supplies or spare parts other than those recommended by the manufacturer and/or illustrated in this Manual, may constitute a danger for the operators and/or damage the machine. Any modification to the Air Sprayer not expressly authorized by TIFONE AMBIENTE Srl exonerates the manufacturer from any civil or criminal liability.



WARNING:

- It is strictly prohibited to remove or tamper with any safety device.
- All the operations concerning installation, routine and extraordinary maintenance must be performed with the Air Sprayer turned off and thoroughly washed.
- Once the cleaning of the Air Sprayer has been performed, the operator must verify that no parts are worn, damaged or not securely fastened. In this case seek the intervention of the maintenance technician.



WARNING:

- Particular attention should be paid to the state of the flexible hoses or of the other parts subject to wear.
- It must also be checked that there are no leaks of oil, mixture or of other dangerous substances.
If such situations occur, the operator must not restart the atomizer before the issue is resolved.
- If these facts are observed at the end of the spraying, the operator, before leaving, must affix on the atomizer a sign indicating that maintenance work is necessary and it is forbidden to use it.
- Do not put your hands or introduce screwdrivers, wrenches or other tools into the moving parts.
- It is forbidden to use flammable fluids for cleaning.
- Periodically check the condition of the stickers and restore them if necessary.
- Operators must avoid carrying out unsafe operations in uncomfortable positions that may compromise their balance.
- Operators must pay attention to the risks of entrapment and entanglement of clothes and/or of hair in moving parts. We recommend the use of caps to contain long hair.
- The use of chains, bracelets and rings can also pose a risk.
- The workplace must be adequately illuminated for the required operations. Insufficient or excessive lighting can cause risks.
- The instructions, accident-prevention regulations and warnings contained in this Manual must always be respected.
- The machine may be subject to the national requirements (of the country in which it is being used) with regard to regular checks by the designated bodies.

2.5 ACCIDENT PREVENTION SAFETY



WARNING:

- Never pass in front of the cannon in motion.
- Completely stop the engine and wait for the machine to cool down completely before performing any filling, adjustment or maintenance operation.
- Do not tamper with or modify the protective grilles.
- During work breaks with the cannon running, never stop nearby.
- Never put your fingers or objects through the grilles. This can cause serious injury.
- DO NOT operate on the nozzles with the pump running.
- NEVER blow the nozzles to unblock them.
- NEVER exceed the working pressures indicated in this Manual.
- NEVER fill the Tank of the machine beyond the rated capacity of the machine, and absolutely avoid leakage of liquid or foam from the hatch.
- NEVER apply spraying in windy conditions! In case of even moderate winds, reduce the Volume per hectare to reduce the overhead drift.
- DO NOT apply spraying in proximity of streams or ponds or other sources of public water or in conditions that can cause contamination.
- NEVER enter the Tank or introduce your face into it!
- DO NOT smoke during the preparation and work stages.
- DO NOT eat during the preparation and work stages.
- DO NOT discharge the pesticide residues on the ground, in ditches or waterways.
- Leave or dispose of the empty containers of Pesticides only after thoroughly washing and decontaminating them.
- Touch the constituent parts of the circuit of the "Electrostatics" device (if present) only after being certain of having turned off the system.
- Keep your hands, feet and clothing away from any moving part of the machine.
- In the event of an accident, immediately stop the atomizer and consult a doctor or call for emergency assistance.

2.6 SAFETY WARNINGS



WARNING:

- Keep children, adults and animals away from the areas being treated.
- Make sure that all guards are in place and are in a perfect condition.
- Remove (temporarily) the guards only if specifically required by the instructions of this Manual.
- Make sure that the machine is mounted correctly on a means of transport and that it is tightly restrained.
- Keep the machine clean and free it immediately from any accumulation of dirt, mud and debris.
- Stop the engine before refills and/or checks.
- Beware of any sharp parts or ends also due to galvanisation residues.
- Cautiously inspect all the galvanized parts of the machine before starting work and remove any offensive points not detected during assembly checks.
- Always keep a fire extinguisher to hand. Check that it is always in good working condition.
- Use of closed-cab vehicles is preferred.
- Do not use open-cab vehicles without the use of personal protection against contamination by mixtures (helmet, sealed overalls, etc.) according to the safety standards applicable in your country.

2.7 SAFETY: USING THE ENGINE



WARNING:

FIRE PREVENTION

- NEVER add combustibles to the tank with the engine running.
- Accurately clean eventual fuel traces with a clean cloth.
- Hold petrol, kerosene, matches and other explosive and/or inflammable products far away from the engine, since during the operation, the temperature around the exhaust pipe is very high.
- Make the engine work as far as possible on a flat surface. For continuous operation, the allowed maximum inclination of the engine is 20 degrees. A greater inclination of the engine, could provoke a spillage of the fuel or cause pressure problems of the lubrication oil.
- Do not arrange the engine or the machine installed inside, while it is still hot.
- When topping up the fuel level be careful not to cause spillages as there is a fire risk. If you do spill fuel clean it up immediately.
- Fuel is flammable: DO NOT use naked flames or smoke when topping up; DO NOT use materials that may generate sparks.
- Use protective gloves when refuelling.
- Always have a fire extinguisher to hand when refuelling.

HOW TO AVOID INHALATION OF EXHAUST GASES.

- The exhaust gasses contain carbon monoxide, a toxic gas.
- NEVER use the engine inside galleries or however in premises with little ventilation. Whenever use inside is unavoidable, it is indispensable to supply correct and effective ventilation with the aim avoiding intoxication to persons or animals present.

HOW TO AVOID BURNS.

- NEVER touch exhaust, its protection or the body of the engine when it is in function or is still hot.

OTHER SAFETY ADVICE.

- The correct knowledge both of the modalities of stopping and the operation of all the commands is recommended. Do not allow the engine to be used by unqualified staff.
- Always wear a protective helmet, safety shoes (antiskid) and suitable clothing.
- Do not use the machine after having consumed alcoholic drinks.
- Keep children and domestic animals far away from the engine in function.
- Do not approach the rotary elements when the engine is in function.
- In case the engine is coupled to another machine, assess that the strap, the joints and other dangerous elements have adequate protection.
- The supply of a spark catcher device is not included in the basic equipment. In some countries the use of the engine in absence of this accessory is prohibited. Before using the engine verify the laws and local regulations.
- Work in compliance with the laws and regulations relative to the working area.
- Only use appropriate tools and equipment.

LOADING THE BATTERY

- The electrolyte of the battery contains sulphuric acid; it is therefore necessary protect the eyes, skin and clothes. In case of accidental contact, wash abundantly with water and immediately seek a doctor, above all if the eyes are affected.
- The batteries produce hydrogen, a gas that can highly be explosive. Do not smoke and avoid above all that naked flames or sparks come into contact with the battery, during loading phases.
- Proceed to the operation of recharging of the battery in a very ventilated place.
- Do not neglect to verify the polarity of the battery.

SAFETY: REFUELLING/TOPPING UP

- Fuel, oil and some types of antifreeze are easy inflammable.
- Keep naked flames far away from the inflammable fluid.
- Switch off the engine and do not smoke during refuelling.
- Only refuel with the engine stopped and in a very ventilated area.
- Do not allow of unauthorized persons to approach.
- During refuelling to hold the gun of distribution or the jerry can firmly and always keep them in contact with the hole until the end of the refuelling in order avoiding sparks due to the static electricity.
- Lock the safety taps with care once refuelling had finished.
- Do not fill up the tank completely, but leave a space for expansion of the fuel.
- Dry any fuel spillage immediately.
- Always use fuel appropriate to the engine. Other fuels with different specifications can damage the engine or reduce the power.
- When refuelling check that there is no water on the fuel cap stalk as this could mean that condensation water is lying on the bottom and could be drawn into the engine.
- After having exhausted the fuel or after changing the filter fuel, clear the air from the pipes.



DANGER: When the replenishing of fuel is carried out, avoid spillages (there is a danger of fire).

If fuel is poured out accidentally clean the smeared zone accurately.

The fuel is a highly inflammable liquid so do not use naked flames and do not smoke during the refuelling, moreover hold the gun or the jerry can of replenishing touching the hole in order to avoid sparks.

When replenishing the fuel use protective garments. Always have an extinguisher to hand when refuelling is carried out.

2.8 MIXTURE PREPARATION SAFETY



WARNING:

- Always wear protections to prevent poisoning, avoiding any contact of hands, face and body with the mixture, both in preparation and during treatment. Always wear mask, gloves, goggles and overalls or long apron.
- Make sure they are washed every time.
- Never smoke during refuelling, mixture reparation, treatment.
- Apply the spraying preferably in the morning and evening, avoiding the hours of greatest heat and wind.
- Mixtures are always toxic and dangerous.
Handle them with extreme care and caution.
- Never handle mixtures or dissolve them manually.
- Completely empty and thoroughly wash the packages of the mixtures.
Then bring them to the appropriate collection centres.
- Never leave mixtures or other chemicals in areas within the reach of children or unauthorised persons.
- During the preparation of the doses and the mixture, it is necessary to be cautious:
- Do not insert objects into the containers of mixtures, nor in the machine tank.
- Do not put your arms or hands in the Tank, even when protected by gloves. It is a significant danger.
- Never enter the tank for any reason. Never insert your head into it. There is serious risk of poisoning.
- Exert extreme caution when cleaning filters, nozzles or other parts of the spraying circuit.
- Do not blow the nozzles to unblock them. Use a brush or compressed air.
- In the case of nozzles with anti-drip, release pressure from the circuit before intervening.
- Work on the nozzles only with the fan stopped. Discharge the residual pressure by opening the delivery valves before intervening!
- If a hose looks even slightly damaged, replace it immediately!
- Always adjust the pump for the recommended minimum pressure values. Never exceed the recommended pressures.
- Do not tamper with the pressure regulator to try to get higher pressures.
- During spraying, especially in windy conditions, make sure that the spray does not reach people, animals, houses or roads, to avoid any risk of environmental pollution and poisoning or damage to third parties.
- After every working day, do not leave mixture residues in the atomizer tank: it may cause damage to different parts of the machine and could be harmful to others.
- When washing and rinsing the atomizer, exercise extreme caution with pesticide residues: they are very poisonous and are environmental contaminants.
- Do not discharge the tank mixture residues on the ground or into drains or in other places. Dilute them using the washing circuit function provided and distribute the mixture spraying it normally.
- Always work away from watercourses, ditches and areas frequented by people and animals.
- In case of water collection from streams or other public sources, make sure not to cause chemical mixture reflux. This is harmful for the environment and is punishable by the law.
- Do not eat, drink or smoke during the preparation of the doses and mixtures nor during the treatment.
- After spraying, wash your hands thoroughly and change clothes before touching food, drink or people.
- **WASH THE CIRCUIT BEFORE ANY MAINTENANCE.**
Including suction filter cleaning.
- In the event of contamination or contact with a pesticide, immediately wash the affected area vigorously using the Clean Water tap from the appropriate tank.
- In severe cases, seek immediate medical attention, always providing a container of the contaminating pesticide (empty and washed), to enable the physician to quickly identify an effective antidote.
- Carefully read the labels of the products that are used for the treatments and strictly follow the doses, warnings and methods of use.
- Always comply with the regulations in force in the country where the machine is being used for the use, preparation and storage of the treatment products.

2.9 SAFETY FOR USE OF THE BATTERY



ATTENTION:

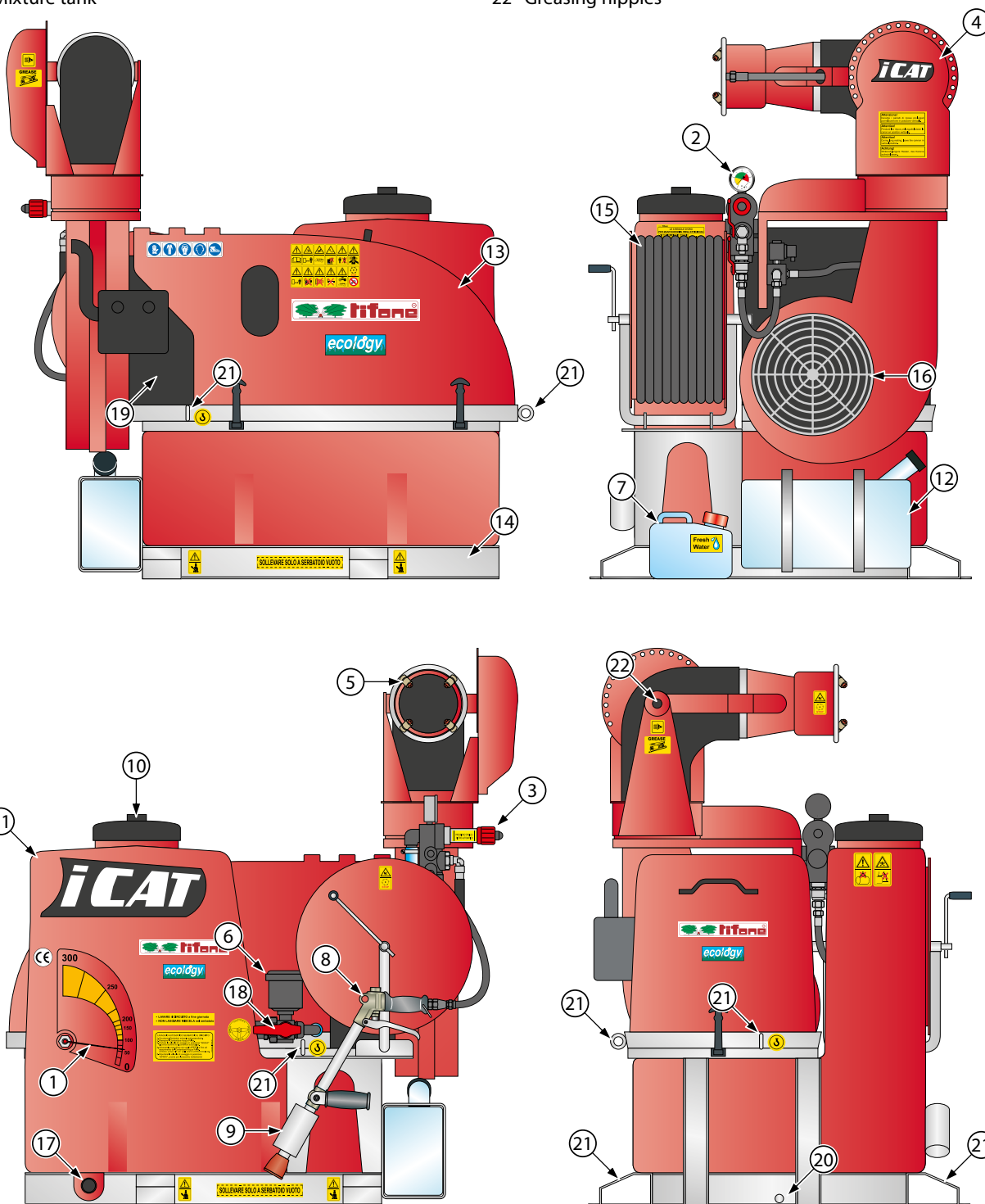
- Carefully read all precautions on the battery.
- Batteries contain sulfuric acid, which can leak out for various reasons. The acid may also disperse in the form of droplets and / or sprays / sprays during recharging.
- Sulfuric acid is a corrosive and poisonous liquid, which can cause burns and irritation to the skin and eyes, and can seriously damage clothing.
- Always handle batteries with care.
- Never overfill with acid.
- Store in an upright position.
- Keep out of reach of children.
- Charge in a well-ventilated room.
- Always wear protective clothing, gloves and glasses.
- When working on a vehicle's electrical system, always disconnect the battery.
- Be very careful to avoid shorting the terminal in voltage with the ground terminal.
- Never invert the positive and negative pole terminals on the battery.
- Before disconnecting the battery:
 - Turn off all electrical users. The first terminal to be disconnected and the last to be connected must be the ground pole, which must be kept at a distance from the battery.
- Always make sure to handle cables and connectors carefully to avoid accidental sparks.
- DO NOT smoke near a battery. DO NOT place naked flames near the battery. DO NOT create sparks near a battery.
- In case of contact with battery acid: Rinse the affected area immediately with plenty of clean water and remove any contaminated clothing. Consult a doctor.
- If battery acid is swallowed: Drink plenty of water immediately. DO NOT induce vomiting and contact emergency medical facilities immediately.

3 - TECHNICAL DATA

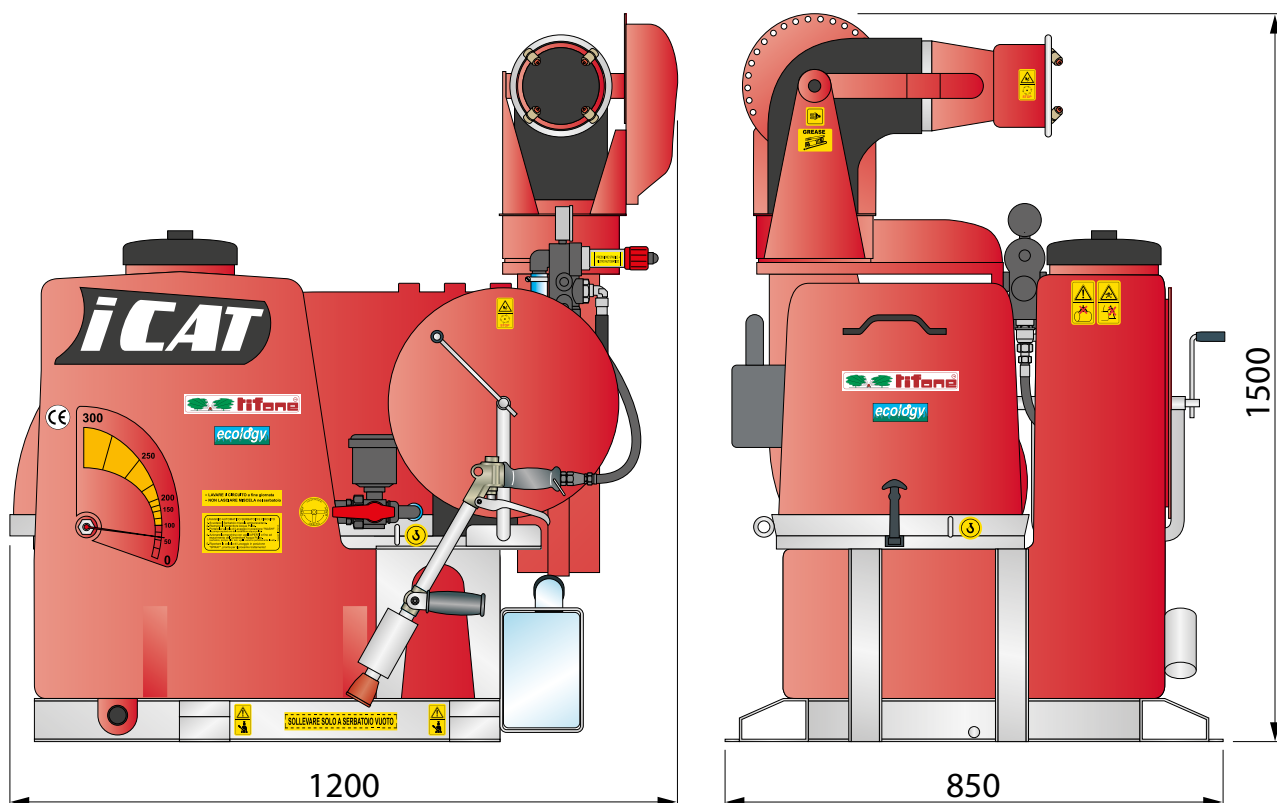
3.1 MACHINE PARTS

- | | |
|--------------------------------|-------------------------------|
| 1 Mixture tank level indicator | 12 Clean water tank |
| 2 Pressure gauge | 13 Hood |
| 3 Pressure regulator | 14 Frame |
| 4 Cannon | 15 Hose winder |
| 5 Spray nozzles | 16 Centrifuge fan |
| 6 Circuit filter | 17 Tank drain plug |
| 7 Hand-cleaning tank | 18 Three-way valve |
| 8 Lance | 19 Engine-Pump |
| 9 Lance bracket | 20 Pin for fixing on conveyor |
| 10 Mixture tank cover | 21 Lifting and fixing points |
| 11 Mixture tank | 22 Greasing nipples |

MACHINE PARTS



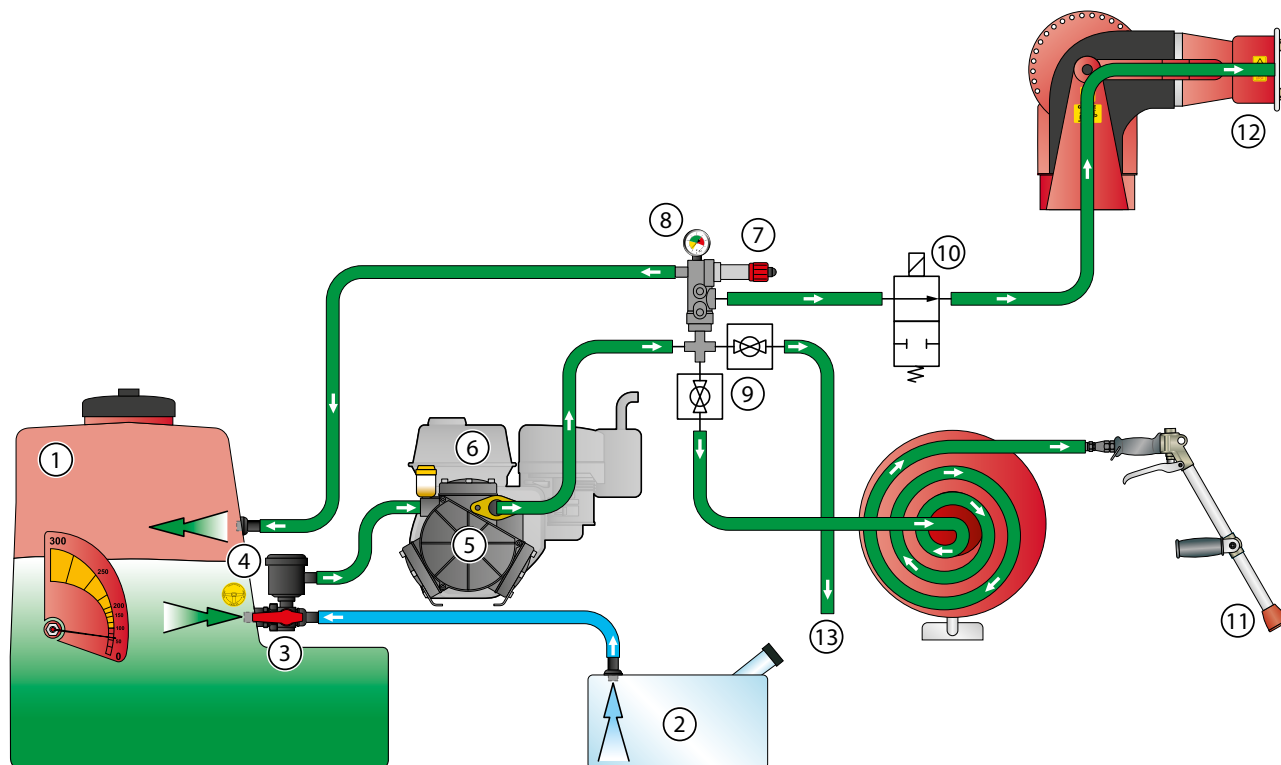
3.2 OVERALL DIMENSIONS



3.3 TECHNICAL FEATURES

Model		iCAT 13-300
Frame		galvanized steel
Tank	Capacity (l)	315
	Type	With total emptying
	Material	Polyethylene HD
Circuit washing tank	Capacity (l)	20
Engine	Type	KAMA - benzine - Electric Starter
	Power (Hp)	13
Battery		12 V 55 Ah
Pump	Type	TEA 430
	(l/min)	40
Pressure (min ÷ max)	(bar)	0 ÷ 40
Cannon 4 nozzles	Handling	Horizontal up to 220° - Vertical up to 220°
	Range (m)	15-18
Lance 1 nozzle with control lever	Range (m)	8
Regulator + safety valve		Exact Remote control
Self-filter		Automatic self-cleaning
Stirring		Automatic
Noise level	LpA - LwA (dB)	96 - 103
Weight	Unladen (Kg)	247
	Fully loaded (Kg)	588
Dimensions (LxPxH)	(mm)	1200x850x1500

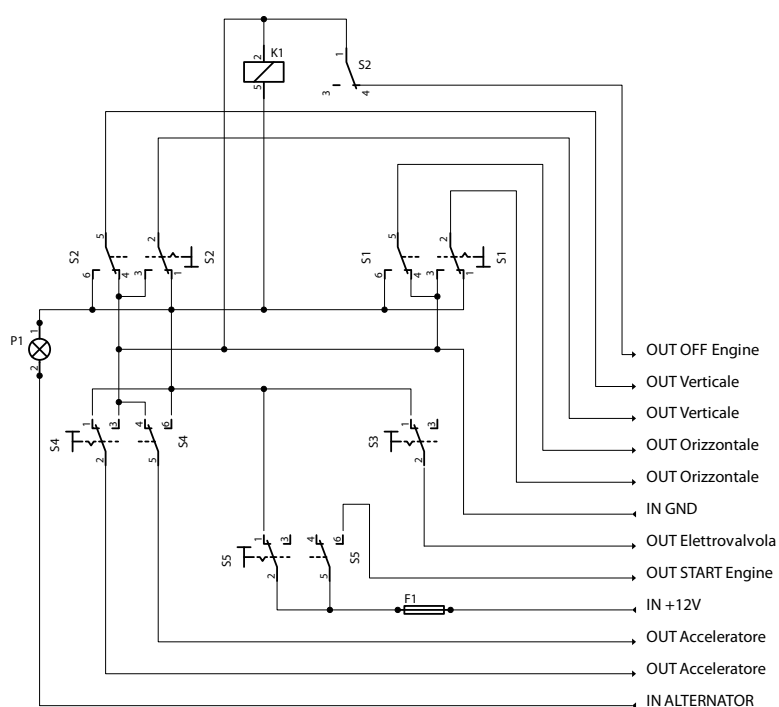
3.4 PRESSURE CIRCUIT



- | | | | |
|---|--------------------|----|-----------------------|
| 1 | Mixture tank | 8 | Pressure gauge |
| 2 | Clean water tank | 9 | Ball valve |
| 3 | Three-way valve | 10 | Solenoid valve |
| 4 | Circuit filter | 11 | Lance |
| 5 | Pump | 12 | Cannon |
| 6 | Motor | 13 | Discharge air circuit |
| 7 | Pressure regulator | | |

3.5 WIRING DIAGRAM

ICAT - REMOTE CONTROL



4 – AIR SPRAYER HANDLING



ATTENTION: Before carrying out the tasks described below it is important to have read the entire contents of this Manual.

4.1 TRANSPORTATION

Depending on the destination of the machine, the following shipping solutions should be considered:

- with trucking, for shipments by road.
- in containers, for overseas shipments.

Here are the means by which to perform the lifting and handling of the machine and its components:

- bridge crane and/or crane
- chains with safety hooks
- self-propelled forklift

The above means must be chosen according to the size and weight of the material to be lifted and handled.

Please, refer to the chapter concerning the safety arrangements.



DANGER: There is a residual risk of crushing and impact, due to slipping and falling of the atomizer or its components improperly lifted or handled, if these operations are not performed properly.



WARNING:

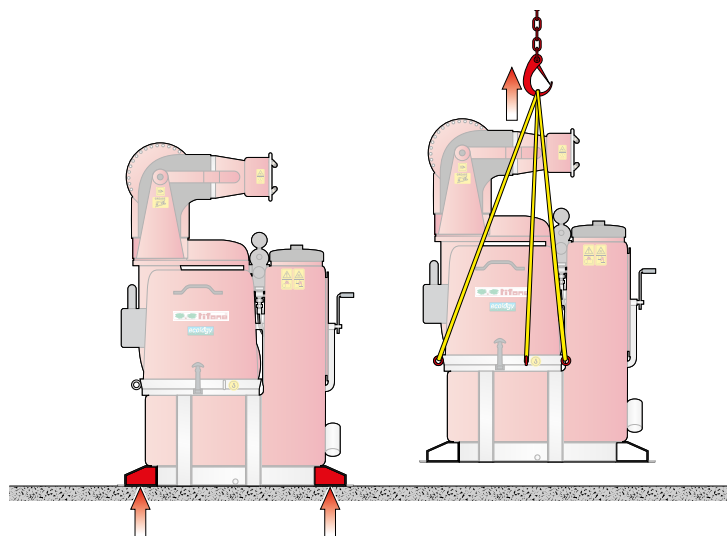
- Machine handling and loading on truck must only be performed with the means and the methods already described.
- Transport operations may only be performed by personnel with adequate technical expertise and experience in each of the areas covered.
- The presence of a helper is of considerable importance for the signals during transport and for the physical aid in the operations of installation and removal of bulky and/or heavy items.
- For lifting and transport, take all the precautions required and recommended by the current safety standards, in order to prevent possible damage to persons or property.
- Prepare a lifting system with length and a capacity suitable for the load to be supported.
- Settle the load by moving the lifting system with limited movements until the condition of optimum stability is reached.
- Slowly lift and handle with extreme caution to avoid even the slightest fluctuations.
- No person must be in the vicinity of the suspended load and/or otherwise within the operating range of the lifting and handling system of the machine.

4.2 HANDLING



CAUTION: Before handling or lifting the mist sprayer, make sure that the mixture tank is empty.

For machine lifting and handling, perform the operations as shown in the figure.



DANGER:

The equipment used for lifting the machine must be approved and suitable to support the weight of the machine (check the capacity of the lifting machines).

When these operations are not performed correctly, there is a residual risk of reversal and fall of the machine.

4.3 INSTALLATION IN A VEHICLE



DANGER: The support surface of the vehicle on which the mist sprayer is fixed must be solid and capable of supporting the full load weight of the mist sprayer; it must also have the dimensions suitable for housing the mist sprayer.



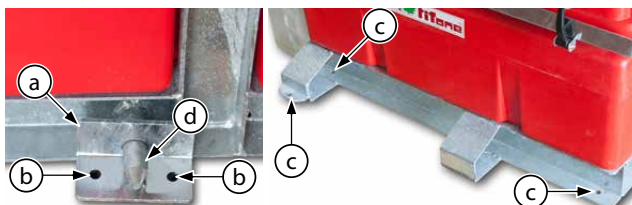
WARNING: The frame of the atomizer must be horizontal before starting work. Otherwise the accuracy of the scales content indicators will be distorted and complete emptying of the tank will not be achieved.

To fix/hook the atomizer to the vehicle:

- place the mist sprayer on the vehicle bed, making sure that it is well supported on the bed (do not use pallets or wood to support the mist sprayer);
- fix the plate (a) to the vehicle floor with two screws (of adequate size/diameter) passing through the holes (b);
- fix the sides of the mist sprayer on the floor through the fixing holes (c) with screws of adequate size/diameter.

To remove the mist sprayer from the vehicle:

- remove the side screws from the holes (c);
- move the atomizer until the pin (d) is removed from the bracket (a); at this point you can lift and remove the atomizer;
- the bracket can remain fixed on the vehicle bed ready for a new installation.



DANGER: When moving fully loaded check that the hatch cover of the tank is always present and tightly closed and that there is no leakage of mixture from the machine that could cause environmental contamination.

5 – AIR SPRAYER OPERATION



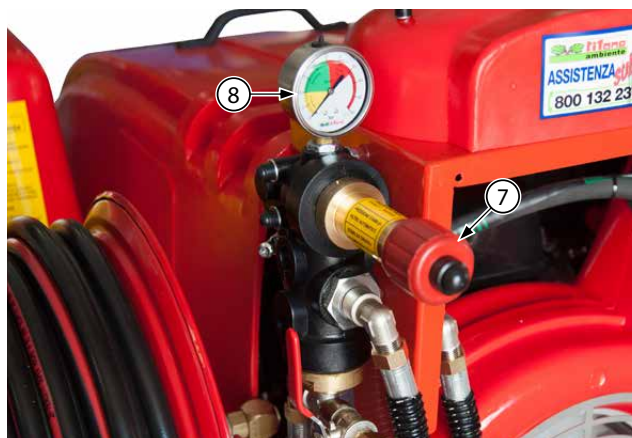
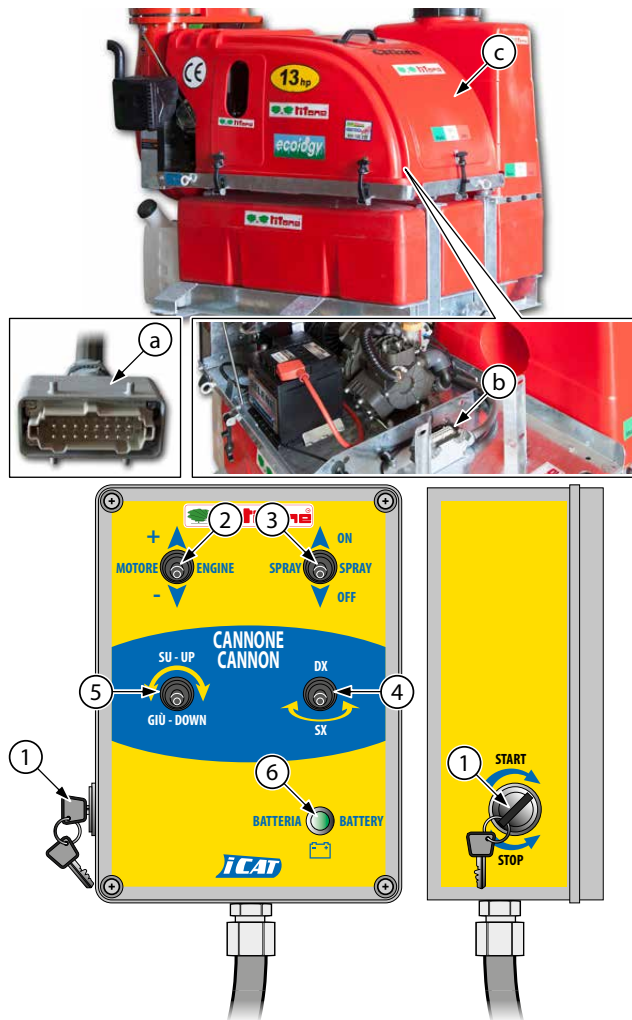
ATTENTION: Before carrying out the tasks described below it is important to have read the entire contents of this Manual.

5.1 DESCRIPTION OF THE MACHINE CONTROLS

Connect the connector (a) of the control panel to the control connector (b) located inside the hood (c).

Descriptions of the control panel:

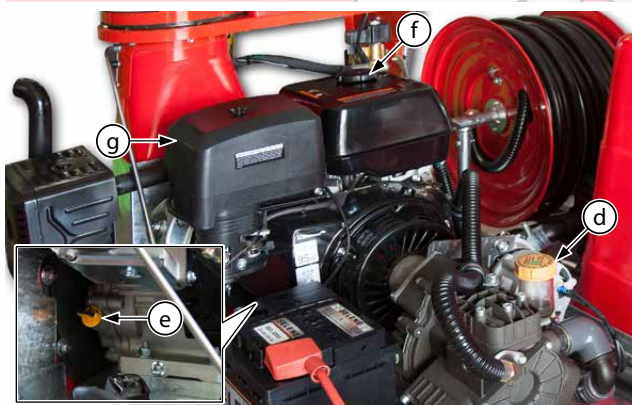
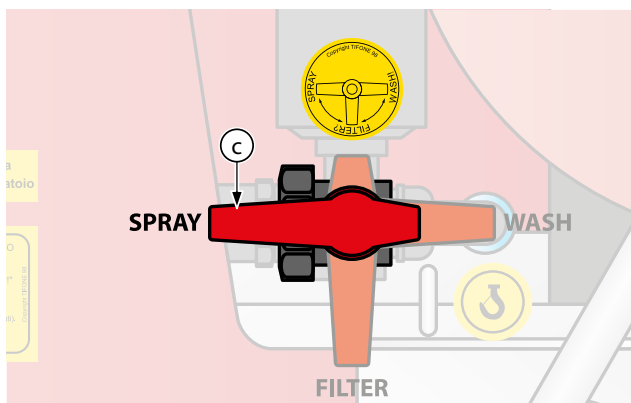
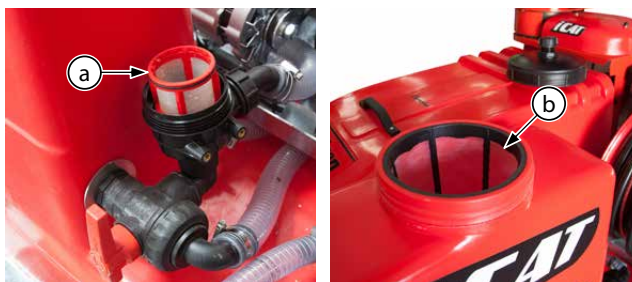
- 1 Ignition key:**
Turning the key clockwise starts the engine.
Turning the key counterclockwise turns off the engine.
- 2 Engine speed selector switch:**
Moving the joy-stick forward increases the engine revs.
Moving the joy-stick backwards reduces the engine speed.
- 3 Spray gun delivery:**
Turning the selector switch to the ON position activates the gun nozzles. Turning the selector switch to the OFF position deactivates the nozzles.
- 4 Horizontal rotation of the gun:**
Moving the joy-stick forward rotates the gun horizontally clockwise. Moving the joy-stick back rotates the cannon horizontally counterclockwise.
- 5 Vertical rotation of the cannon:**
Moving the joy-stick forward rotates the cannon vertically clockwise. Moving the joy-stick back rotates the cannon vertically counterclockwise.
- 6 Battery indicator light:**
If the light is "on", the alternator is charging the battery correctly, if the light is "off", the alternator is not charging the battery or the battery is low (in this case contact TIFONE AMBIENTE s.r.l.).
- 7 RAdjusting the pressure:**
To adjust the pressure, use the knob (7) on the control unit.
Turning the knob clockwise increases the pressure.
Turning the knob counterclockwise reduces the pressure.
- 8 Circuit pressure gauge:**
The pressure gauge (8) indicates the pressure of the machine's spraying circuit.



5.2 PRELIMINARY OPERATIONS

Before starting any operation on the atomizer, proceed as follows:

- Lower the pressure to the minimum value.
- Check that the suction filter (a) is clean.
- Check that the hatch filter (b) is in good condition and clean;
- Check the inside of the tank for debris and dirt.
- Open the drain valve (h) and pour clean water into the tank for preventive rinsing (ensuring the cleaning water is collected in the relevant containers); once the tank has been emptied, close the valve.
- Make sure the lever (c) of the 3-way valve of the automatic washing system is in "SPRAY" position.
- Check the oil level of the pump (d) and verify that there are no oil or water leaks from the pump.
- Check the engine oil level (e), check the fuel level (f), check the engine air filter (g) and clean it if necessary.
- Check that the spraying nozzles are open.



5.3 TANK FILLING



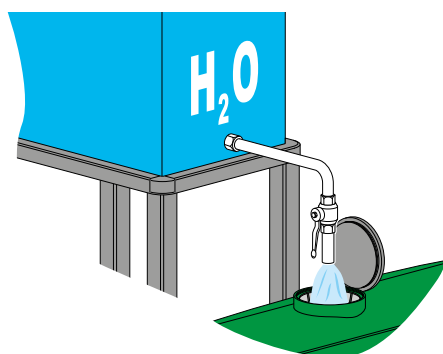
ATTENTION: The law prohibits the use of aspirating fillers connected to the machine for the suction from ditches, waterways and public water systems.

If the above instructions are not respected, there is a residual risk of environmental contamination.

5.3.1 Mixture tank filling

To fill the water tank:

- open the cover (a) and verify that the hatch filter (b) of the Air Sprayer is in place.
- fill the tank until reaching the necessary capacity (the level in the tank is displayed in the indicator (c));
- Do not introduce into the tank an amount exceeding its rated capacity in order to prevent any leakage of fluid into the environment;
- tank filling can be performed from elevated water tanks or from water sources, always respecting the Environment Anti-pollution Rules.



5.3.2 Circuit washing tank filling

To fill the circuit washing tank:

- open the cover (a).
- fill the tank with clean water until the necessary capacity has been reached.
- Tank filling can be performed from elevated water tanks or from water sources, always respecting the Environment Anti-pollution Rules.



5.3.3 Handwash tank

To wash hands or face in case of contact with antiparasitic products, use the handwash tank (a).

The tank is fitted with a tap (b).



ATTENTION: The tank must only be filled with clean and not contaminated water.

5.4 NOZZLES CALIBRATION

Nozzles flow rate and droplet size

Flow rate and droplet size depend on the following factors:

- Pump pressure
- Number of nozzles in use
- Type of nozzle (color).

Pressure (bar)	FLOW RATE (l/min)									
	WHITE	PINK	BROWN	YELLOW	ORANGE	RED	GREY	GREEN	BLACK	BLUE
3	0,21	0,28	0,38	0,57	0,77	1,08	1,18	1,40	1,57	1,92
4	0,24	0,32	0,43	0,65	0,89	1,24	1,35	1,60	1,80	2,20
5	0,27	0,36	0,48	0,73	0,99	1,38	1,50	1,78	2,00	2,45
6	0,29	0,39	0,52	0,80	1,08	1,51	1,63	1,94	2,18	2,67
7	0,32	0,42	0,56	0,86	1,17	1,62	1,76	2,09	2,35	2,87
8	0,34	0,45	0,60	0,92	1,24	1,73	1,87	2,22	2,50	3,06
9	0,36	0,48	0,64	0,97	1,32	1,83	1,98	2,35	2,64	3,24
10	0,38	0,50	0,67	1,03	1,39	1,92	2,08	2,47	2,78	3,40
11	0,39	0,52	0,70	1,07	1,45	2,01	2,17	2,58	2,90	3,56
12	0,41	0,55	0,73	1,12	1,51	2,09	2,26	2,69	3,03	3,71
13	0,43	0,57	0,76	1,17	1,57	2,17	2,35	2,79	3,14	3,85
14	0,44	0,59	0,79	1,21	1,63	2,25	2,43	2,89	3,26	3,99
15	0,46	0,61	0,81	1,25	1,69	2,33	2,51	2,99	3,36	4,12
16	0,47	0,63	0,84	1,29	1,74	2,40	2,59	3,08	3,47	4,25
17	0,48	0,64	0,86	1,33	1,79	2,47	2,67	3,17	3,57	4,37
18	0,50	0,66	0,89	1,37	1,84	2,54	2,74	3,25	3,67	4,49
19	0,51	0,68	0,91	1,40	1,89	2,60	2,81	3,34	3,76	4,61
20	0,52	0,70	0,93	1,44	1,94	2,67	2,88	3,42	3,85	4,72
21	0,54	0,71	0,95	1,48	1,99	2,73	2,95	3,50	3,94	4,84
22	0,55	0,73	0,98	1,51	2,03	2,79	3,01	3,57	4,03	4,94
23	0,56	0,74	1,00	1,54	2,07	2,85	3,07	3,65	4,12	5,05
24	0,57	0,76	1,02	1,58	2,12	2,91	3,14	3,72	4,20	5,15
25	0,58	0,77	1,04	1,61	2,16	2,97	3,20	3,80	4,28	5,25

Pressure (bar)	DROPLET SIZE (micron)																													
	WHITE			PINK			BROWN			YELLOW			ORANGE			RED			GREY			GREEN			BLACK			BLUE		
D10	35	28	23	36	28	25	36	29	25	38	30	25	39	31	27	40	31	28	41	33	28	42	34	29	50	38	30	59	40	31
D50 VMD	72	65	57	77	68	61	81	70	64	88	78	71	96	84	79	116	100	88	124	105	92	131	109	94	151	127	102	207	150	114
D90	145	135	126	152	139	130	165	145	133	203	191	169	240	213	205	292	268	234	311	275	241	340	287	253	385	320	290	493	411	323

Calibration

To determine the type of nozzle to be used for treatments based on the quantity of product to be distributed described on the nozzle label, apply the following formula:

$$P = \frac{Q \times V \times G}{600 \times N}$$

P = Flow rate of each nozzle in litre/minute (l/min)

Q = Volume of the mixture to be distributed in litres per hectare (l/ha)

V = Vehicle speed in kilometres per hour (Km/h)

G = Range in metres (m)

N = Number of nozzles used

From the nozzle flow chart, the type of nozzle that meets the calculated flow characteristics, compatibly with the pressure limits at which it operates correctly, will be chosen, i.e. it will produce a quantity of drops of adequate size for the treatment to be carried out.

Calibration Check

Since the delivery rate of the nozzles is not always exact, it is advisable to check the calibration.

There are 2 ways to do it:

- 1 Using the special TIFONE AMBIENTE "Spraymeter" flow meter, the check will be accurate, instantaneous and continuous (optional).
- 2 Filling the tank completely and up to a specific level. Then perform a spraying test for 2 minutes.

By means of a measuring jug, then fill the tank back up to the pre-set level. The amount added is the delivery over 2 minutes.

5.5 PREPARATION OF THE MIXTURE



DANGER: The preparation of the chemical dose and of the mixture is a delicate and important operation that can pose serious risks to people, animals, and the surrounding environment.

It should therefore be carried out with the utmost care and professionalism.

Always wear the suggested protective clothing (gloves, goggles, overalls) and follow the instructions of prudence given in this manual.

Check on the pesticide container the dose recommended by the manufacturer and do not exceed that dose.
Calculate the dose of pesticide according to the amount of water poured into the tank, then enter it into the tank.
Verify, in the case of use of solid pesticides, that in the hatch filter there are no undissolved residues of the pesticide.
In that case dissolve them, adding water.



ATTENTION: Before beginning the spraying, leave the engine running for a few minutes so that the mixture is thoroughly mixed with the water of the tank through the mixing circuit.



ATTENTION: To clean the empty mixtures containers, rinse them thoroughly with clean water and pour the residue of washing into the atomizer provided for treatment; otherwise dispose of the residue according to the regulations in force in the country where the Atomizer is being used.



ATTENTION: Deliver empty, thoroughly washed containers to an authorized toxic waste disposal centre.
If the above rules are not respected, there is a residual risk of intoxication and/or environmental contamination.

5.6 SWITCHING ON THE ENGINE



ATTENTION: Before starting the engine, consult the attached engine Use and Maintenance Manual.

Before switching on the engine:

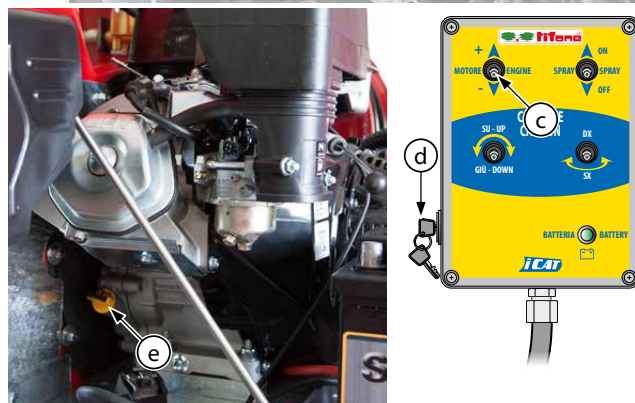
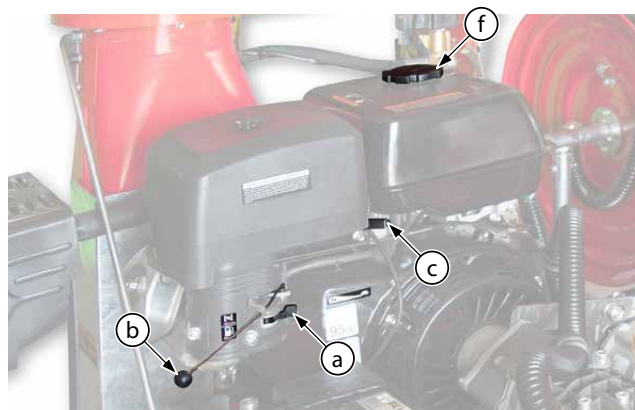
- check engine oil level (e)
- check fuel level (f)

To switch on the engine:

- shift the fuel lever (a) to ON.
- if the engine is cold shift the air lever (b) to the closed position.
- turn the key (d) clockwise a bit further for a few seconds until the engine starts; if the engine does not start within 10 seconds release the key and try again;
- if the air lever was in the closed position at the start gradually shift it to the open position as the engine warms up.
- if the engine is cold let the engine idle for 2-3 minutes.

To switch off the engine:

- turn the key anticlockwise;
- shift the fuel valve lever (a) to OFF.



ATTENTION:

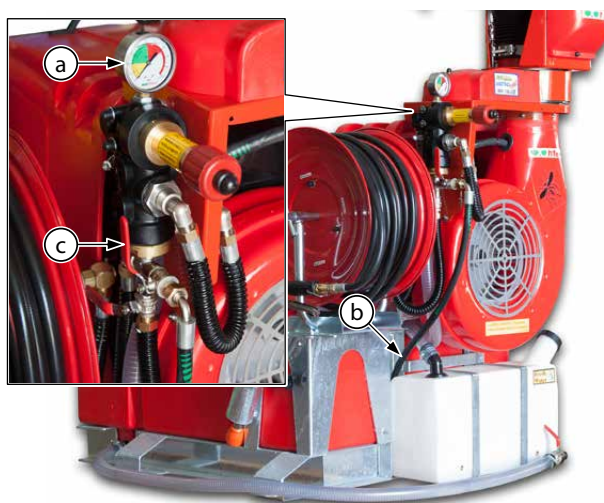
Carbon monoxide is a toxic gas: Breathing it can cause loss of consciousness and death. Avoid areas or actions that will expose people to carbon monoxide.

If you notice any unusual noises or if the engine is not running properly switch off the engine immediately and contact TIFONE AMBIENTE Customer Care.

5.7 AIR BLEEDING FROM THE SPRAYING PRESSURE CIRCUIT

If the pressure of the pressure gauge (a) is not constant, that means that there are air bubbles inside the circuit; to eliminate the air bubbles:

- place the end of the tube (b) inside a container suitable for pesticide disposal or in the mixture tank;
- open the valvola (c) for a few seconds to release the air from the circuit;
- close the valve;
- check on the gauge if the pressure is constant;
- if the pressure is not yet constant, repeat the steps described above until the pressure is constant;
- if the tank contains pesticide mixture or other mixture, vent air from the circuit by attaching a hose to the valve (b) and insert it into the tank.



DANGER: Exert extreme caution with pesticide residues: they are very poisonous and are environmental contaminants.

Do not discharge the tank mixture residues on the ground or into drains or in other places.

5.8 SPRAYING START

During the transfer, it is advisable to leave the engine in motion in order to ensure a mixture stirring continuity, especially in the case of mixtures of powders and/or granulated materials.

When you arrive at the spraying area:

- verify that the three-way valve (a) is in the "SPRAY" position;
- adjust the pressure (b) to the minimum value for approximately 30 seconds to remove any remaining air from the circuit;
- accelerate the engine (c);
- adjust the pressure (b) to the desired value.

To carry out treatment with the cannon:

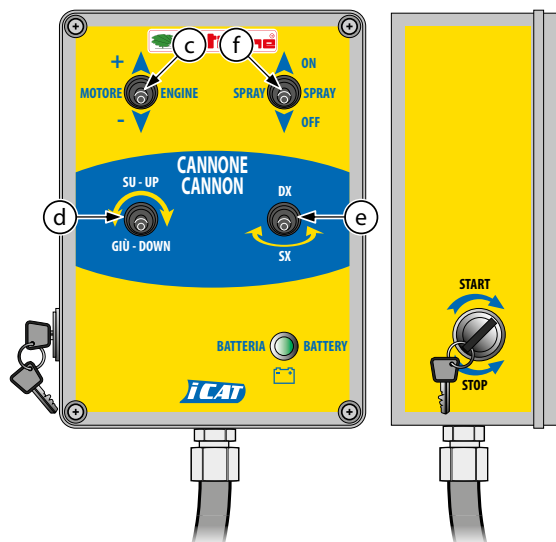
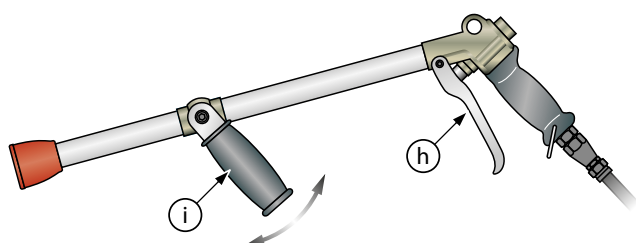
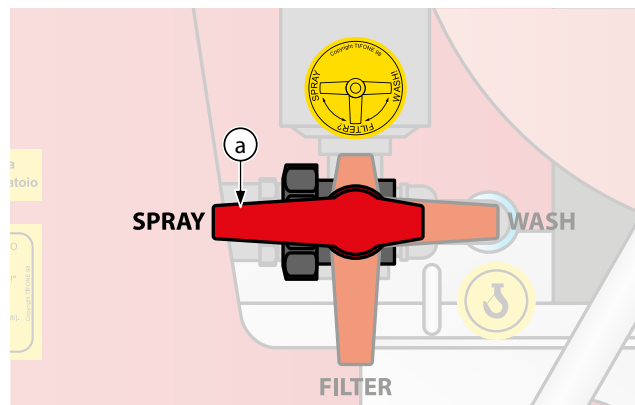
- direct the cannon towards the area to be treated using the joy-stick (d-e);
- adjust pressure to 10 bar;
- shift the lever (f) forwards to start treatment.

To carry out treatment with the lance:

- open the valve (g);
- go to the area to be treated;
- adjust pressure to 25-30 bar;
- press the mixture feed lever (h);
- act on the mixture flow adjuster lever (i).

At the end of the spraying:

- completely empty the tank continuing the spraying;
- adjust the pressure to the minimum value;
- close all the mixture dispensing applications;
- switch off the engine.



DANGER: The spraying can be very dangerous to people, animals and the environment. It is essential to comply with all the safety precautions and rules applicable in the country where the machine is used.

Always check that the soil in which the treatments are carried out is uniform and free from obstacles that could affect the stability of the machine.

Carefully read the safety instructions in this manual.

The maximum working pressure must be less than 40bar; never exceed this value.

6 - MAINTENANCE



DANGER: All maintenance operations must be carried out with the atomizer engine off and with the Air Sprayer placed on a stable and secure surface.

Be careful to relieve the pressure inside the circuit, taking care, before turning off the Air Sprayer, to bring the pressure to the minimum value.

Always use protective clothing.

Always have a fire extinguisher handy when you refuel.



ATTENTION: The maintenance operations must be carried out exclusively by the Customer Service Department of TIFONE AMBIENTE Srl or by qualified personnel.

Before performing any maintenance on the Air Sprayer, read the chapter on the safety instructions.

Cleaning residue must be disposed of according to the laws in force.



WARNING: For maintenance operations of the internal combustion engine, read the use and maintenance manual of the engine itself attached to the machine.

To get the best performance from the Air Sprayer and to ensure the maximum life of all the parts, it is necessary that the provisions of Operation and Maintenance are scrupulously followed by the Air Sprayer operators.

It is therefore advisable to read these notes and consult the manual every time you need a suggestion to eliminate any inconvenience.

For further information, please contact our Service Centres or directly contact:

Tifone Ambiente s.r.l. - Via Modena, 248a - 44044 Cassana - (FE) - Italia

Tel. +39 0532 730 586 - Fax. +39 0532 730 588

<http://www.tifone.com> - e-mail: tifone@tifone.com

6.1 SCHEDULED MAINTENANCE TABLE

Maintenance	As required	Every day	End of treatments	Hours				
				10	30	50	100	500
Pump oil	■	■						
Liquid leaks		■						
Safety parts and warning labels		■						
Engine fuel		■						
Engine oil		■				■		
Engine suction filter					▲	■		
Input filter			▲					
Water suction filter			▲					
Circuit washing			▲					
Equipment cleaning			▲					
Nozzle check			▲					
Greasing and lubrication				●			●	

■ Check

■ Replacement

● Greasing

▲ Cleaning

6.2 PERIODIC REPLACEMENT OF THE SAFETY ITEMS

To ensure the safety at any time during the use of the atomizer, the operator is required to perform the substitutions of the components listed below:

Component Replacement frequency

- Hydraulic pipes _____ Every 2 years or 400 hours

6.3 MAINTENANCE AT THE END OF EACH SPRAYING

6.3.1 Input filter cleaning

At the end of each spraying, clean from debris and dirt the input filter (a) which is located within the hatch of the Air Sprayer tank. Also check the integrity of the filter and replace it if necessary.



6.3.2 Cleaning the lance

Cleaning the lance requires a large amount of water because the lance hose is very long and there is not enough water in the wash tank:

- fill the tank half-way with clean water;
- switch on the engine and regulate pressure to 25-30bar;
- open the lance valve (a);
- operate the lance for several minutes, making sure you spray areas already treated in that the hose and the lance itself may still contain mixtures residues;
- return pressure to minimum;
- close valve (a);
- switch off engine.



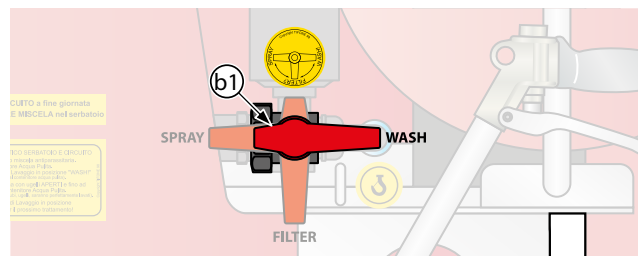
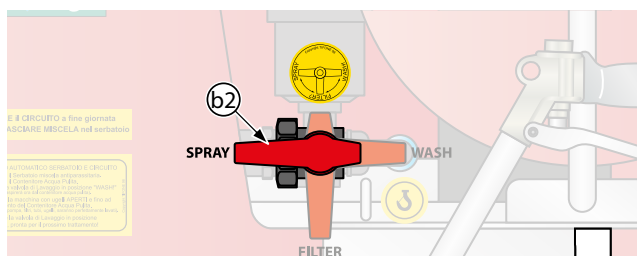
6.3.3 Circuit washing



ATTENTION: If, at the end of the spraying, a huge amount of liquid has remained inside the tank, drain the tank and collect the liquid in cans and dispose of according to the provisions of law in force or use up the content by spraying on an area already sprayed.

To wash the tank circuit, perform the following steps:

- make sure the circuit washing tank is full;
- empty the remaining liquid from the tank through the drain valve (a), taking care to collect it in cans and to dispose of in accordance with the legal provisions in force;
- close the drain valve (a);
- move the three-way valve lever to the "WASH" position (b1);
- the circuit will be cleaned by the clean water of the circuit cleaning tank;
- if you want to clean the cannon nozzles leave the 3-way valve in the "WASH" position and run the cannon, making sure it is directed at already-treated areas as the water exiting the cannon contains mixtures residue;
- empty the remaining liquid from the tank through the drain cap (a), taking care to collect it in cans and to dispose of it in accordance with the legal provisions in force;
- return the three-way valve to the "SPRAY" position (b2);
- fill the circuit washing tank.



ATTENTION: If the tank is not completely empty and still contains the mixture, you should leave the lever of the three-way valve in "WASH" position up to the next use of the product; that is to avoid it enters the pump suction circuit when the equipment is unused.

Failure to accurately wash the pump and tank circuit after each use shortens the life of the machine and VOIDS ANY WARRANTY.

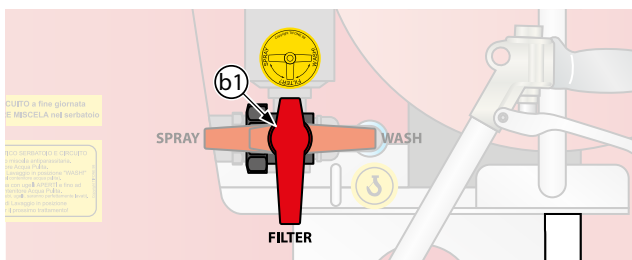
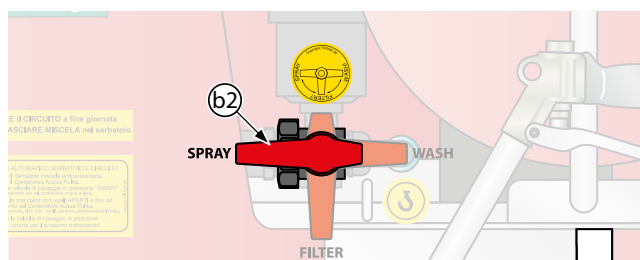
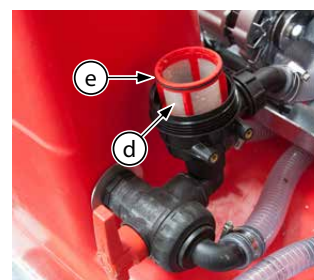
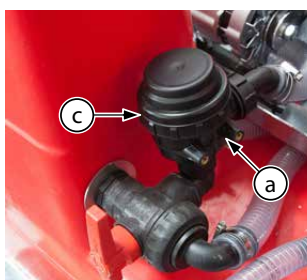
6.3.4 Suction filter cleaning



ATTENTION: If, at the end of the spraying, a huge amount of liquid has remained inside the tank, drain the tank and collect the liquid in cans and dispose of according to the provisions of law in force or use up the content by spraying on an area already sprayed.

To remove debris and dirt from the suction filter (a) located on the pump:

- Move the three-way valve lever to "FILTER" (b1);
- remove the ring nut (c);
- remove the cartridge (d) and wash it carefully; make sure the cartridge is intact and if necessary replace it with a new one.
- check the integrity of the O-ring (e) and replace it if necessary;
- reinsert the filter, the O-ring and the ring nut.
- return the three-way valve to the "SPRAY" position (b2);
- in the event of leaks on the filter, tighten the ring nut (c) or check that the O ring (e) is in place or that there is no damage or deformation.



WARNING: If the intake filter is always in excellent condition and fitted and if you do not use powder formulations, the suction filter does not need cleaning.



ATTENTION: In "FILTER" position, the 3-way valve is closed and the pump cannot aspirate and if it turns in this way for a long time, the membranes may get damaged or may fail. The "FILTER" position should be used only when cleaning the cartridge of the suction filter (a).

6.3.5 Cannon cleaning

At the end of each spraying session the cannon and the turbine must be washed thoroughly with a high-pressure jet of clean water.

6.3.6 Checking the spray nozzles

At the end of each spraying session check that there are no leaks from the nozzles. Check also that the fitted misting platelets are not visibly worn.

6.4 MAINTENANCE AT THE BEGINNING OF EVERY WORKING DAY

6.4.1 Preliminary checks

At the beginning of every work day check the integrity of the atomizer.

- Check for oil or water leaks from the pump.
- Check that the galvanized steel frame is intact.
- Check the integrity of the tank.
- Check that the nozzles are intact.
- Check that the equipment is intact.
- Check that the safety guards are intact.
- Check that the safety labels are intact.
- Check that the Handwash tank is full of clean water.
- Check the integrity of the spray hand lance.



ATTENTION: If one of the checks described highlights an irregularity, solve the issue or call the service centre of TIFONE AMBIENTE.

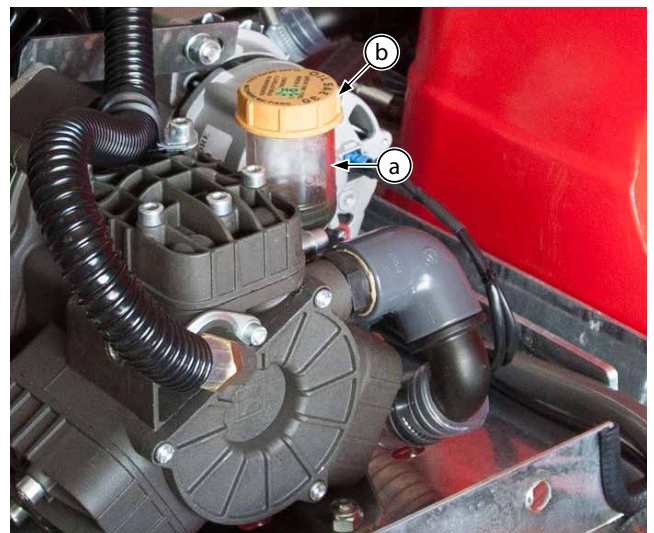
6.4.2 Pump oil level check

The pump oil level should be checked every day.

To check the oil level in the pump, check through the level indicator (a) with the pump running.

If it is necessary to refill the oil:

- turn off the engine;
- unscrew the cap (b);
- pour into the cup (a) an amount of oil (SAE 20W30) sufficient to restore the level of the same so that it falls within the correct parameters;
- screw the ring nut (b).



6.4.3 Checking engine oil level and topping up

The engine oil level must be checked at the start of every working day.

The engine oil level can be checked directly on the dipstick (a). The oil level must be between the minimum and maximum levels indicated on the dipstick.

If the oil level is at minimum:

- remove the dipstick (a);
- top up with special oil for gas engines until the standard level is reached;
- re-insert the dipstick (a);
- switch on the engine and let it idle for a few minutes;
- switch off the engine and re-check the oil level; repeat the top up procedure again if necessary.



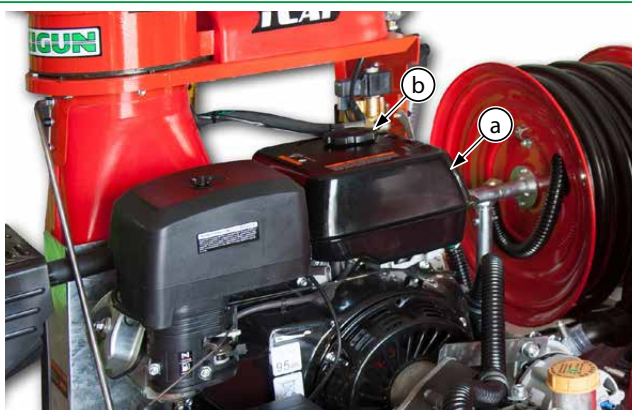
DANGER: When topping up the oil level be careful not to cause spillages. If you do spill oil clean it up immediately. Use protective gloves when topping up the oil.

6.4.4 Checking fuel level and topping up

The fuel level must be checked at the start of every working day. The fuel level can be checked directly on the fuel tank (a).

To top up:

- unscrew the plug (b);
- top up with the fuel described in the Engine Use and Maintenance Manual. Do not fill to the brim: leave a gap for expansion;
- screw the plug (b) back on.



DANGER: When topping up the fuel level be careful not to cause spillages as there is a fire risk. If you do spill fuel clean it up immediately.

Fuel is flammable: DO NOT use naked flames or smoke when topping up; DO NOT use materials that may generate sparks.

Use protective gloves when refuelling.

Always have a fire extinguisher to hand when refuelling.

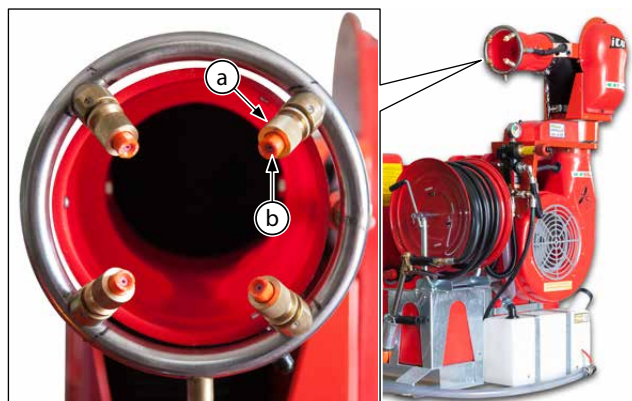
6.4.5 Checking the nozzles

Periodically check the nozzles and make sure that:

- there are no leaks;
- the spray nozzles are of the correct type according to the required calibration and are not visibly worn. If they are, replace them.

To change the spray nozzles:

- unscrew the nut (a);
- replace with a new spray nozzle (b);
- screw the nut (a).



6.5 SCHEDULED MAINTENANCE

Grease gun

Every 50 hours, grease the cannon with the appropriate grease for this type of operation.

To grease the cannon:

- grease the cannon with a grease pump using the grease gun (a);
- remove the bonnets (b-c) and grease the vertical and horizontal rotation chains (d-e) with a brush.



6.6 BATTERY MAINTENANCE



WARNING: If the machine does not switch on or does not make any movement, check that the positive pole terminal “+” red (a) and the negative terminal “-” black (b), are not oxidized and are correctly fixed to the poles of the battery.

Battery recharge

If the battery voltage is lower than 12.2 Volt, the battery must be recharged:

- check that the battery charger is compatible to charge the battery;
- connect the positive “+” red terminal of the battery charger to the positive “+” red pole (a) of the battery;
- connect the negative “-” black terminal of the battery charger to the negative “-” black pole (b) of the battery;
- turn on the battery charger and let it go until it is fully charged;
- disconnect the negative “-” black terminal of the battery charger from the negative “-” black pole (b) of the battery;
- disconnect the positive “+” red terminal of the battery charger from the positive “+” red pole (a) of the battery.

Battery replacement

If the battery suddenly fails or no longer holds a charge, replace it:

- disconnect the black “-” negative pole terminal (b) from the battery;
- disconnect the positive “+” red terminal (a) from the battery;
- replace the battery with a new battery with the same characteristics;
- connect the positive pole terminal “+” red (a) to the battery;
- connect the negative pole terminal “-” black (b) to the battery.



6.7 TROUBLESHOOTING

Anomalies	Causes	Solutions
Abnormal turbine vibration.	Imbalance due to accumulation of mud or dust.	Wash the turbine.
	The nuts and bolts securing the turbine unit are loose.	Check and tighten all the nuts and bolts of the turbine unit.
Abnormal vibration of the pump Inconstant pressure and noisy pump.	The mounting nuts and the screws are loose	Check and tighten all the nuts and bolts.
	Suction and delivery valves are damaged or jammed.	Contact the TIFONE service centre.
	Air intake.	Check for and remove any leaks from fittings or from the suction filter. Contact the TIFONE service centre.
	Throttled suction.	Check the intake filter and the entire system.
Insufficient pressure at the pump.	Suction filter blocked.	Check and clean the suction filter.
	Pump oil level low.	Check and restore the oil level.
	Pump not primed.	Air discharge.
	Pressure regulator valve worn.	Contact the TIFONE service centre.
	Nozzle plates worn or holes too large.	Check and replace the nozzles.
The tank does not drain completely.	Possible air intake or blockage during the work phase of the circuit.	Contact the TIFONE service centre.
Pump oil mixed with water.	Pump membrane broken.	Contact the TIFONE service centre.
The nozzles become clogged despite the remote control filter-auto filter being present.	Self-cleaning filter damaged.	Contact the TIFONE service centre.
The pump is noisy.	Throttled suction.	Check and remove the choke
The pressure gauge fluctuates and the value is not constant.	Air intake from the circuit	Check suction filter assembly
		Check and tighten hose clamps.
	Product residue (cap) inside the system.	Check the suction path of the tank.
		Contact the TIFONE service centre.
The pump pulses, the pressure gauge fluctuates and the value is not constant.	Pump oil level low and possibly water in the oil.	Pump membrane broken.
		Contact the TIFONE service centre.
	Inlet or outlet valve worn or impeded by a foreign body.	Contact the TIFONE service centre.
Oil leak from the reducer.	Worn oil seals.	Contact the TIFONE service centre.
Clogged nebuliser nozzle.	Self-cleaning filter broken.	Contact the TIFONE service centre
Drip nebuliser nozzle.	worn or defective drip valve	Contact the TIFONE service centre

6.8 SET-ASIDE AND WINTER STORAGE

For the set-aside and for winter storage perform the following steps:

- carry out any repair and mechanical check and possible replacement of parts that are not perfect or worn (filter cartridges, nozzle plates, pump oil, gear oil)
- perform all the operations listed in paragraph "6.3 MAINTENANCE AT THE END OF EACH SPRAYING"
- stop the pump
- completely empty the automatic washing tank
- open the drain valve of the Tank and empty it completely
- drain the nozzle support manifolds by opening the taps at the entrance of the manifolds (if any) or disconnect the feeding hoses.
- open at least one of the valve placed in the bottom front section of the pump (delivery)
- let the pump run for a minute to remove all the residual water from the circuit
- clean the suction filter
- close the valve on the pump previously opened
- stop the pump
- open the pump suction filter and remove the filter cartridge
- pour into the pump suction filter about 1 litre of antifreeze liquid turning the pump manually up to the complete suction of the antifreeze fluid
- reinstall the cartridge and close the suction filter
- grease the cannon
- check and if necessary restore the oil level of the pump and of the gearbox.
- store the Atomizer in a dry and well sheltered place and cover it with a securely fixed sheet of plastic.
- check and top up the pump oil level.
- check and top up the engine oil level.
- disconnect the battery wires.

6.9 RESTART AFTER WINTER STORAGE

For restart after winter storage:

- prior to restart of the atomizer, after the winter break, it is recommended that you move the machine to a heated environment for a few hours;
- perform the operations described in the paragraph "5.2 PRELIMINARY OPERATIONS";
- grease the cannon;
- carry out any repair and mechanical check and possible replacement of parts that are not perfect or worn (filter cartridges, nozzle plates, pump oil, gear oil);
- Before connecting the cardan shaft, manually rotate the pump to ensure that it turns freely.



ATTENTION: The manual rotation of the pump is an important precaution, because if the antifreeze operation was poorly made or forgotten, the pump may be frozen and there could be a presence of residual ice that could cut the membranes of the pump.

7 - DISMANTLING, DECOMMISSIONING

If you no longer use the atomizer, or some part of it, it is necessary to proceed to the dismantling and decommissioning of the same.

Carry out these operations according to the regulations in force.



ATTENTION: If the atomizer, or part of it, has been decommissioned, the parts liable to cause any danger must be made safe.



ATTENTION: On every replacement of oils, filters, and any part of the atomizer subject to separated disposal, you should always refer to the applicable provisions of law on the subject.

7.1 WASTE DISPOSAL

The use of the atomizers produces special waste.

The residues resulting from industrial, agricultural, craft, commercial activities and from services, that cannot be considered equivalent to municipal waste due to their quality or amount, are to be considered as special waste.

Also worn or obsolete machines are special waste.

Particular attention must be paid to the residues of mixtures that require the respect of the rules concerning disposal in force in the country where the atomizer is used.

It is mandatory to record loading and unloading of waste oil, special waste and toxic-poisonous waste arising from industrial or craft processes. The collection of oils and special, toxic and harmful waste, should be performed by appropriately authorized companies.

In particular the disposal of waste oils should be performed in compliance with the provisions of law in force in the country

7.2 AIR SPRAYER DISPOSAL



WARNING: Dismantling and demolition must be entrusted to qualified personnel.

For the dismantling of the Air Sprayer, follow the requirements imposed by the laws in force in the user's country.

Before demolition, require an inspection by the pertinent body and consequent verbalization.

Drain the lubricating oil from the pump and the reduction gear and dispose of it according to law.

Proceed to the disassembly of the individual components of the atomizer by grouping them according to their composition.

The Air Sprayer is composed essentially of components in steel, stainless steel, aluminium, plastic and rubber.

Proceed finally to scrapping according to the provisions of the law in force in the country of the user.



WARNING: Observe carefully, during all scrapping stages, the safety precautions listed in this manual.

8 - INSTRUCTIONS FOR EMERGENCY SITUATIONS

8.1 FIRE

In case of fire, use a CO₂ fire extinguisher according to the relevant standards in force.

Contact the Fire Department.

9 - MAINTENANCE REGISTER

Component	Operation and notes	Date
		Signature

Component	Operation and notes	Date
		Signature

Component	Operation and notes	Date
		Signature

Component	Operation and notes	Date
		Signature

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