

IND-MD-TF-MGF-HH-R1

Gas Powered Misting Odor and Pest Control Cannon

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Table of Contents

INTRODUCTION 3
PERFORMANCE CHARACTERISTIC 3
COMPOSITION AND WORKING PRINCIPLE 4
MAIN TECHNICAL PARAMETERS 4
START, STOP PROCEDURES AND NOTES 4
COMMON FAILURE AND TROUBLESHOOTING 8
REGULAR MAINTENANCE AND LONG-TERM STORAGE 10
RANGE OF APPLICATION AND PESTICIDE DOSAGE 11
SAFETY SIGNS 12

Warning: protective measures must be done before spraying operation, wearing gloves, masks and protective clothes etc. Violation of the provisions may result in danger and personal injury, which is not the company's responsiblity.

This machine is strictly prohibited to use strong corrosive drugs, such as: peroxide acetic acid, chlorine dioxide and etc. when it is occasionally used for above chemicals, the machine must be cleaned with water immediately.

Tips: This product design aims to continuously improve and innovate, the contents of the specification are subject to change without notice. The appearace of the product in this manual is only for reference.

Product introduction

Thank you for your purchase of the Larson Electronics IND-MD-TF-MGF-HH-R1. It uses modern rocket technology, with maintenance free pulse jet engine, without any rotating parts in the whole macine and has no need for a lubrication system. The unit is a simple structure that has no wearing between components, low failure rate, long service life, easy maintenance, less fuel consumption, and high working efficiency. It is an ideal, high-tech product tor pesticide spraying, epidemic prevention and disinfection.

Performance characteristics

The smoke and mist spraying machine can be widely used for pesticide spraying for crops, economic forest, cotton, greenhouse crops, sanitation and disinfection tor warehouse, wharf, army camp, city underground waterways, farms, passenger cars, residential areas and city.

Characteristics:

1. High working efficiency, high killing rate, large spraying range, strong penetration and high safety factor;
2. All around working without power off, stable performance and reliable;
3. High- efficiency, pesticide-saving, low cost, good diffusibility and high adhesion;
4. Light weight and easy operation.

Characteristics when the machine is used in forestry and fruit trees:

(1) Drug-saving and less pollution: due to the small drug particle size and sufficient effect, the pesticide and water usage is greatly reduced, which is good to be used in the water shortage area such as the mountains, hills, plateau and etc.

(2) High insecticide efficiency: the special diffusion agent specially developed for smoke and mist sprayer by the company has very good sterilizing effect. It has the advantage of strong adhesion, good anti-rain erosion, weathering resistance, and large diffusion area etc. For example, it can used for the fruit rot, canker, pear scab, anthracnose, aphids moth and whitefly, Botrytis cinerea and downy mildew, early blight, late blight, cotton bollworm, fleahopper, and red spider etc, and is suitable for use with a variety of pesticides (foliar fertilizer, pesticides, sterilization powder , etc.).

(3) To increase the temperature: in spring, when the crops is sprouting and flowering, the spraying smoke can increase the surface temperature to prevent flower freezing and increase the yield and income.•

(4) Large spraying area and long distance: the flat spray area is large, and the spraying smoke can reach more than 50 meters far. With small particle size and strong penetration, it is suitable for high stem and density plants such as tea plantations, forest, fruit trees, the wheat in middle and later periods, cotton, maize, and rice etc..

(5) The city hygiene and disease control, sanitation and transportation: suitable for hotels, parks, residential property, city underpass, garbage dump, toilet, container, and warehouse etc to kill the "four pests". It is also used for disinfection and sterilization of vehicles, such as station?,,docks, passenger ships, trains, automobiles, aircraft, and etc.

Characteristics when it is used in greenhouse:

(1) Saving time and effort: one 100-meter-long greenhouse can be sprayed in 10 minutes.

(2) Quickly become effective: fine particles produced by the machine has strong penetrating power, which can directly penetrate through the plant canopy insecticidal and bactericidal, without dead space.

(3) With sustained effect and the temperature can be raised. The drug particles of 05-10 microns stay long time (2-8 hours floating in the air) in greenhouse when temperature is too low in winter, the greenhouse temperature can be increased. Therefore, the machine can be used to improve the temperature of the greenhouse (the flame sprayed by the machine can increase the air temperature) .

(4) To decrease the temperature and increase production and income: The water consumption of the machine is very small, and the spraying of pesticides can be done also in rainy days, which does not affect the growth of crops.

(5) To save the drug with less residue: The fine drug particles atomized by the machine spray very even, is the most ideal machinery to develop the green and non-pollution vegetables in nowadays.

Composition and working principle

1, The machine is mainly composed of four parts: water circuit, electrical circuit, gas circuit and oil circuit, including carburetor, engine and explosion tube, frame, oil tank, pesticide tank and pipeline.

2, Working principle:

Smoke and mist machine uses gasoline as fuel, when it is started, the high temperature and high pressure_gas flow at high speed generated by the engine sprays from the pulse nozzle. When the pesticide valves is opened, the pressure in the pesticide tank presses the drug into the pipe to meet the high temperature and high speed flow. At the moment of meeting, the drug solution is atomized into smoke and jetted out from the nozzle, and quickly spread and diffuse. When the object is exposed to the mist or smoke, it will be killed.

Technical parameters

1. Working environment: temperature between -10 degrees to 35°C, air humidity 80% - 30%
2. Spraying amount: 80-120L/h.
3. Pesticide solution tank volume: 15L
4, Fuel tank volume: 2.0L
5, The weight of the whole machine: 6.5/10.5Kg
6, Outline dimension (length, width and height): 960/1150*260*315 (mm) 7, The fuel to be used: gasoline (93# or above lead-free gasoline, not to add any lubricant agent)
8, Fuel consumption: 3.0L/h
9, Ignition power: 12V rechargeable batteries

Start, stop procedures and notes

1 Before you start

1) Ensure there are no onlookers or other animals nearby;

2) The machine is prohibited to face directly towards humans, animals and plants.

3) The machine shall be started in a flat space without flammable and explosive materials within a radius of 2 meters from the nozzle.

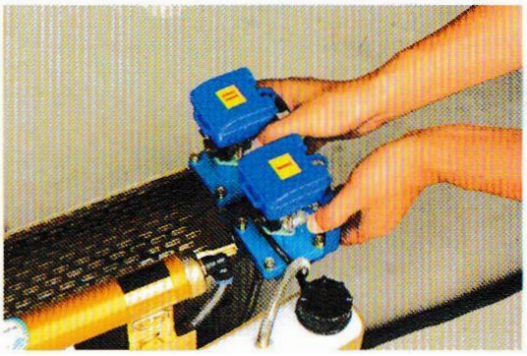
4) The machine must be at least 3 meters away from the refueling site;

2. Preparation

1) Check and confirm the battery is charged and the circuit is in good condition.

2) The oil tank (recommend to fill 93# or above lead-free gasoline, which can prevent the blockage of the carburetor) is not more than 80% full.

3) The pesticide solution tank is filled with the well mixed pesticide solution (the cover must be tightened).



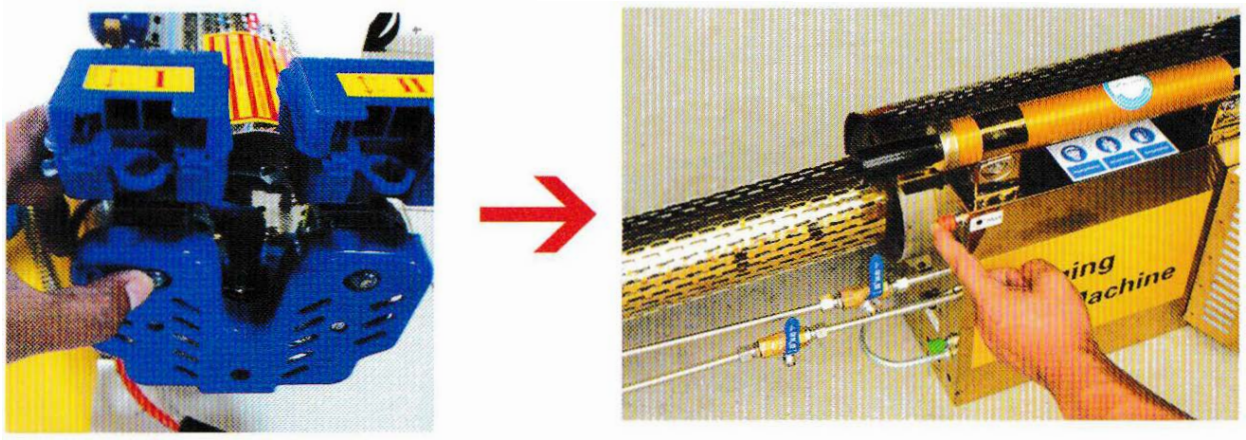
3. **Start**

3-1, Open gear 1 and 2. (Note: when spraying mist, both gear 1 and 2 shall open)



3–2, When the machine is used for the first time, each of the oil bubbles need to be pressed 7–8 times until the oil bubble is filled with 2/3 of the gasoline (Note: when the machine is used again and there is oil in the oil bubble and pipeline, skip this step directly to the next step).

3–3, Gently press oil bubble of 1# carburetor, and long press the start button (***Note: the start button needs to be long pressed, not intermittently***) until the machine is started. **Note:** After spraying is completed, to restart the machine, just press one oil bubble, and then press the start button gently to start. Don't press two oil bubbles nor press one oil bubble many times when there is oil in two bubbles, otherwise the machine won't be started due to too much oil.

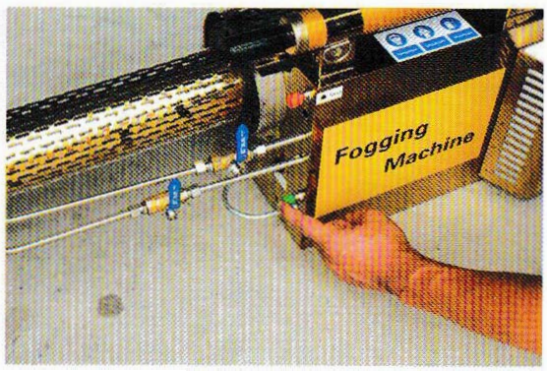


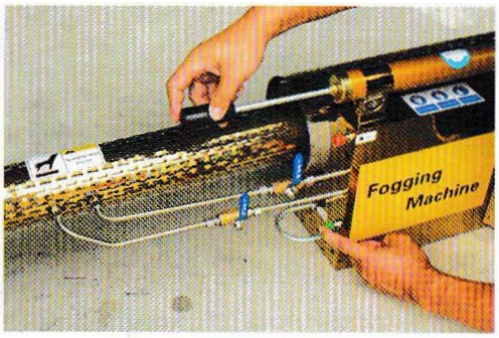
3–4. If the machine is not started, repeat step 3. When the mahcine is started, open the solution valve to start spraying (water cooling type: first open water tank valve and then open the solution tank valve. Both valves cannot fully open, only 1/3, Max. 1/2.). Note: before the machine is started, both valves must be closed. Before turning off, both valves must be closed.

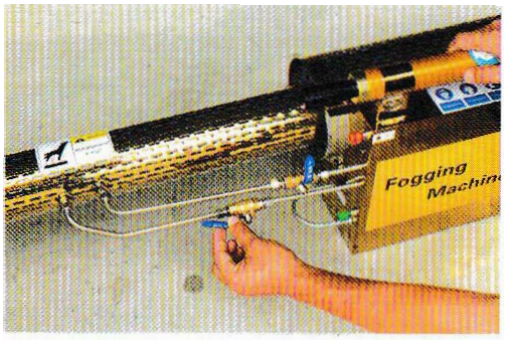
3–5 Gas tube starting method:

a. Before the machine is started, press the test power to check if there is squeak sound of the ignition needle. When the sound is normal, the machine can be started.

b. To long press the test power with one hand, to pull the gas tube from slow to fast to inflate by the other hand, the sound of machine starting can be heard after about pulling 5–6 times. Don't release the test power before the machine is started. Then stop pulling, open the solution valve and start to spray.

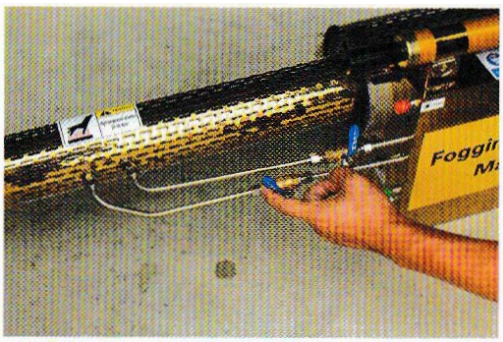






4. Safely shutdown procedure:

After the work is completed, first close the solution valve, and then switch off gear 1 and 2. After power off, open one solution box cover to release the excessive gas in the shortest time







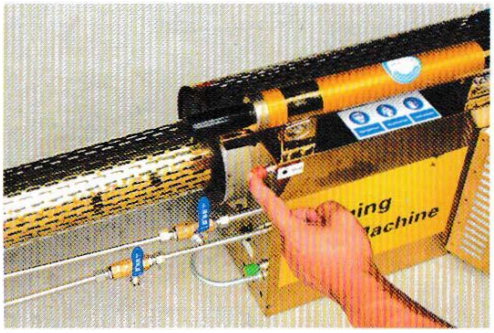
5. Notes in operation of the machine:

5-1, If the oil bubble is pressed too many times in case there is oil in the bubble, which leads to too much oil in the carburetor, you need to bring the machine with the nozzle downwards to poured out the extra petrol. Then the machine can be started directly without pressing the oil bubble.

5-2, In the shutdown, if the solution valve is closed after the machine is accidentally turned off, it will cause the solution return to the machine, and the machine does not work. In this case, do not immediately start the machine again, otherwise the machine will be damaged due to short circuit of the high-voltage bag. Bring the machine with the nozzle downwards to poured out the extra petrol. And then start the machine.

5–3, When the outside temperatl:lre is too low, the machine will power off instantaneously. In this case, you need to long press the start button after the machine is started, and open the solution valve meanwhile until the machine works normally.





6. Notes

1, The machine is strictly prohibited to be used in flammable and explosive places.
2, The machine uses gasoline as fuel, attention should be paid to fire fighting. Ignition and smoking is strictly prohibited near the machine.
3, It is strictly prohibited to open the carburetor to check igniter ignition.
4, The oil tank cover should be tightened after the oil is filled, the leakage of fuel should be cleaned, and the machine should be started far away from the refueling site.
5, It is prohibited to fill or dump the oil when the machine is in operation or just stopped.
6, In operation, the high temperature parts can not touch people or animals, to avoid accidental injury, see figure 2. Forcibly cooling with water after the machine is stopped is strictly prohibited, which can seriously damage the machine.
7, For the health of operators, when working in the field, the operator should stand in the uptake of the nozzle to operate, and should not walk along the direction of the wind. When working indoors, the operator should spray from the inside to the outside. When the operator comes to the door, he stops the machine, and closes the door after coming out from the room to ensure the personal safety and effective killing of the insect or virus.

8, It is prohibited to use electric arc or acetylene welding method for welding or cutting on the machine with pesticides or gasoline residues. When the oil tank or pesticide solution tank leaks, please contact the dealer or professional after-sales service personnel to handle.
9, When the residual pesticides or washing liquid of the pesticide tank is handled, please follow the safety instructions provided by the pesticides manufacturer. 10, After the machine completes its work, please close the pesticide solution valve and then turn off the engine, or do both actions at the same time; if the engine unexpectedly flameout, please close the valve quickly.
11, Empty the fuel inside the oil tank and carburretter before the machine is stored. For products of electrical series, the pesticide tank and pump shall be Gleaned with clean water, and the machine shall be cleaned also, then place the machine in ventilated place away from fire. For long time storing, the machine should be charged every 30 days and each time for 5 hours.
12, The machine should be placed in a place away from children, to avoid accidents.
13, The operator must wear labour protection appliance according to the following requirements. (see Figure 3):

A. They must wear working clothes: the work wear must be applicable, which can not interfere with the action. Do not wear skirts, coats, scarves, ties and jewelry;
B. They must wear protective gloves;
C. They must wear protective shoes;
D. They must wear a safety helmet;
E. They must wear a gas defensive mask;
F. They must wear ear protectors (especially when working for a long time).
14, When the machine works, nobody is allowed to enter the work area of danger.
15, The machine must be stopped before the operator leaves. It is not allowed to keep the machine running with the operator left.
16, In the spraying process, the distance between the nozzle and crops shall be more than 0.5 meters. The spraying in one direction to the crops shall not be longer than 3 seconds
17, The pesticide solution should be prepared for immediate consumption, don't do it in advance.
18, The treatment of pesticides should comply with the safety instructions provided by the manufacturer.
19, The use of special working fluid is prohibited.



Common failures and troubleshooting methods

6-1 Difficult to start-up

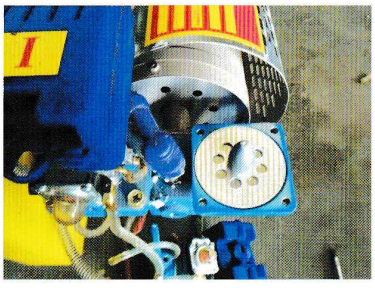
1, **Ignition needle does not work or high voltage package is damaged**

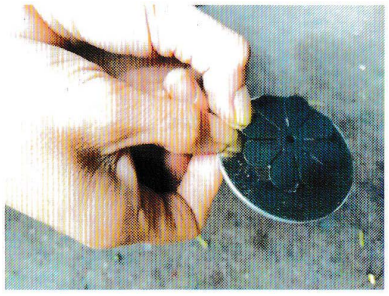
When the machine is difficult to start, check the test power first, to check whether there is squeak sound when the needle works. If there is no sound, it means that the ignition needle or high voltage package is damaged. In this case, remove the cap on the carburetor first, and then remove the ignition needle with the sleeve, check whether there is carbon deposition on the ignition needle. When carbon deposition is found, grind it with sand paper. After grinding finished, reload needle to the machine, and check the test power again. If the ignition needle still does not work, check the battery condition, cables and high voltage package. Before the high voltage package is.ehecked, remove the cap, place the high voltage cable at a distance of 2mm away from the machine to test the power and high voltage package. If it is not ignited, check if the cable is loose or fall off. If the cable is not loose or fall off, replace high voltage package. If the ignition is weak, it shows the electricity is insufficient, please charge the battery.

2, **The diaphragm damage of carburetor**

After a long time operation, if the machine is not easy to start, please check the carburetor diaphragm. Remove the plastic protective cover and the carburetor screws, take out the diaphragm a,ssembly and check the diaphragm. If it is damaged, please change it.

Note: when the diaphragm is changed, don' t put it into wrong position. Remember the order when you demolish it, and install it in reverse order.





6-2 No oil to the carburetor

1, Press the start button, at the same time gently continuously press the oil bubble, the machine can be started.

2, If step 1 is not successful, screw off the bolt of oil / gas mixing ratio of gear 1 and 2, clean the bottom of the oil/gas mixing ratio hole with carburetor cleaning agent. Cleaning 5–6 times is enough. After cleaning the screw, tighten the screw, which means rotate it two and a half rounds counterclockwise. (Note: do not tighten too much to break it)



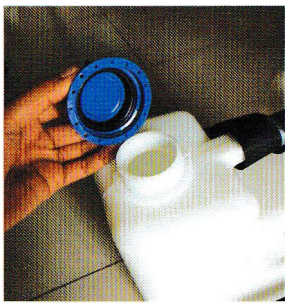
6-3, Machine sound and spraying mist not stable.

When the mist or smoke is not stable, please adjust the oil/ gas mixing ratio screw of carburetor counterclockwise, to regulate it and make it stable.

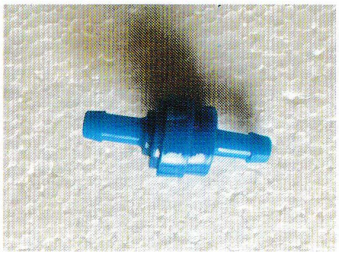


6-4 Mist or smoke too small or no mist

1, Check the solution tank cover is tightened and the sealing ring inside the cover does not fall oft.



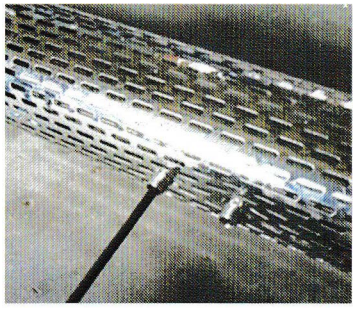
2, Check the check valve of the solution tank gas Inlet is not damaged. (Note: do not install it in wrong way. the principle is: the gas goes into the solution tank from the machine and not return back.)





3, Check if the pipeline and the solution inlet screw is blocked.

Note: if you have any other questions, please contact the manufacturer



Regular maintenance and long-term storage

(a) **Regular maintenance**

1, Daily maintenance (/shift)

(1) clean up the oil and dust on the surface of the gasoline engine.

(2) strict filtration before the oil, or pesticide solution is filled, keep the filling appliance clean to prevent sundries into the fuel tank and the solution tank.

(3) for both oil and pesticide solutions, check whether the pipe connection leaks, whether the pipe is open.

2, Maintenance per 50 hours (according to the machine running hours)

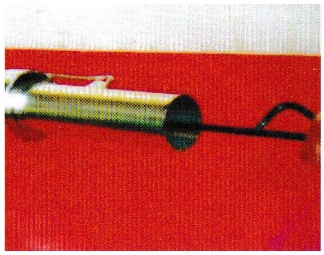
(1) complete daily maintenance work.

(2) clean oil tank.

(3) clean the pesticide solution tank.

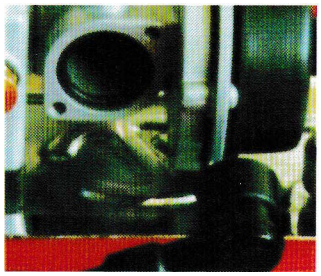
Clean the tank with boiling water: add 500ml-2000ml of boiling water to the tank, shake the tank emphatically and open the valve to empty the water into the container. The cleaning water is handled according to the instructions of pesticide manufacturer.

(4) clean the carbon desposition on the nozzle, carburetor chamber and ignition needle, and clean the inlet valve.



Be careful!

Please do not disassemble carburetor chamber. For its maintanance, please contact professional service people. If there is problem with it, please contact the dealer or service network station.



3 , Maintenance per 100 hours (according to the machine running hours)

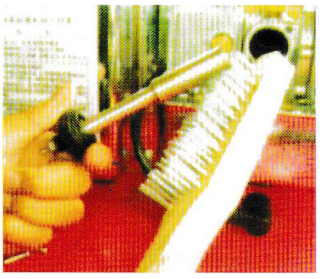
(1) complete the maintenance work per 50 hours;

(2) clean the carbon deposition on various parts.

(3) empty the oil and pesticide solution, clean the solution tank and pipe with boiling water to check if the pipe is blocked.

(4) check-the pipes and screws to see if there are any loose or have fallen off.

(5)check the ignition system, to ensure the cable and connections is good and ignition needle works well.



4. Maintenance per 500 hours (according to the machine running hours)

Dismantle the whole machine (except the carburetqr chamber) to clean and check, including the wearing parts and sealings. If there is any parts damaged or worn, it shall be repaired or replaced.

(b) Long term storage

Empty the .fuel tank.

1 .clean the gas intake diaphragm, and reassemble them.

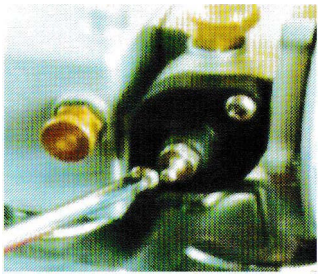
2. clean the pesticide solution tank and pipe with boiling water.

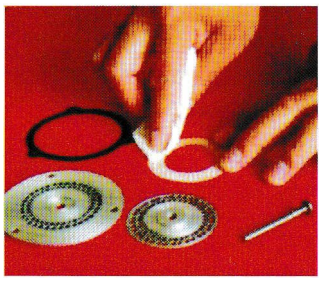
3. clean the carbon deposition on all various parts, and recharge the battery. (recharge once every 4 months for a long time no use).

4. clean every parts.

5 .check each part, replace the damaged parts timely.

6. store the machine in a ventilated and dry warehouse.





Application range and pesticide dosage (only for reference)

A, Application on forestry and fruit trees (spraying mist):

1, Spraying time: before sunrise and after sunset with no wind or with breeze. 2, Weather: air humidity between 30-80%, temperature below 35 C (***the lower the temperature, the higher the humidity, the better the effect of spraying***).

3, For crops lower than 5 meters, the pesticide can be blended with water for spraying mist. Generally with pesticide/water ratio of 1:5 to 1:10, the solution with amount equals to 150kg of water to be filled to the solution tank of 15-30kg, can complete the spraying work of one acre of land, whose spraying and diffusing length can reach more than 10 meters. (in case of more pests in the land, more solutions shall be used and longer distance and more areas will be covered.}.

B, (Diesel smoke spraying) formulating method on non-edible crops

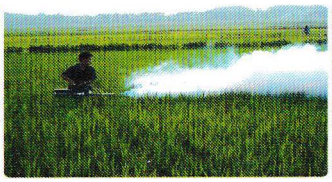
(the following method is only for reference, as the case might be) The spraying and diffusing length can reach 50 meters, with no wind or with breeze.

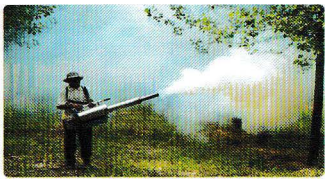
Blending order:

1.First mix the diesel diffusion agent with diesel and stir to uniform mixture, then add water and pesticide. The mixture shall be fully dissolved before use. In mist spraying, open the water valve to position of 1/3-2/3, switch gear 1 and 2 uniformly to small opening, until the spraying is even and no flameout happens. Proportioning method:

1, Blend (diesel emulsifier or agricultural organosilicon) and diesel according to the ratio of 1:15 (the total amount of diesel covers 10% - 20% of the oil tank capacity). The mist concentration shall be regulated according to the water/diesel ratio. The pesticide with amount of 10% oil tank capacity shall mix with water of 70% - 80% tank capcity, stirred to uniform mixture and ready for use.

2, With diesel of 12-15 kg, pesticide of 5-6 kg, organosilicone of 200-300ml added to the tank, the rest will be filled with water. The amount of organosilicon to be added depends when the diesel, pesticide and water mix together





Safety signs

The smoke produced by gasoline combustion is dangerous. Take care!Safety signs are attached to parts such as the cover of oil tank, combustion chamber and etc. The sign name and installing position is as the following:

No.	Signs	Contents	Installing position
1		Gasoline in tank, no smoking or fire.	Oil tank
2		Burning danger, any parts of your body away from the hot source.	Cover of combustion chamber
3		Fill the gasoline after machine stopped. No spilling of oil.	front wall of the oil tank
4		Wear protective clothes	Upper and front of the solution tank.

Please operate the machine safely, take care to defense the gas and poison, fight the fire, and prevent all operating accidents. Pay attention to it from the thought, and be on the alert. Don't be careless and ensure your personal safety.

Auxiliaries:

Operating manual 1 pc oil filling funnel 1pc pesticide filling funnel 1 pc
Electricity charger 1 pc carburetor diagram 4pcs sling 1pc
Carbon deposition cleaning bar 1 pc Tool kit 1 set Check valve 1 pcs
Gas defense mask 1 pc

USE AND CARE

Unauthorized modification may impair the function and/or safety of this device and could affect the life of the equipment. Always check for damaged or worn out parts before using the device. Store it in a secure place out of the reach of children when not in use. Inspect for good working condition prior to storage and before re-use.

REPLACEMENT PARTS

The IND-MD-TF-MGF-HH-R1 is designed to provide years of reliable performance. Should the need for replacement parts arise, please contact Larson Electronics.

THESE INSTRUCTIONS MAY NOT COVER ALL DETAILS OR VARIATIONS OF THIS PRODUCT FOR YOUR EQUIPMENT OR INSTALLATION REQUIREMENTS. SHOULD FURTHER INFORMATION NOT COVERED BY THESE INSTRUCTIONS BE REQUIRED, PLEASE CONTACT LARSON ELECTRONICS BY EMAIL AT SALES@LARSONELECTRONICS.COM OR BY PHONE AT 1-800-369-6671 FOR FURTHER ASSISTANCE.

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