VECTOR FOG

Experts in Fogging Technology™

INSTRUCTION MANUAL THERMAL FOGGER VECTORFOG H500/H500SF

Only fog for short periods at a time, when there is not much wind and moving away from the projecting smoke.

It's essential to read the manufacturer's instructions of the chemical being used before you start applying, including diluting ratio and safety precautions.

Only experienced personnel should operate this equipment.

You must exercise caution if fuel is spilt, in order to avoid the risk of fire.

CAUTION MARKS

Please read this manual before using the equipment.

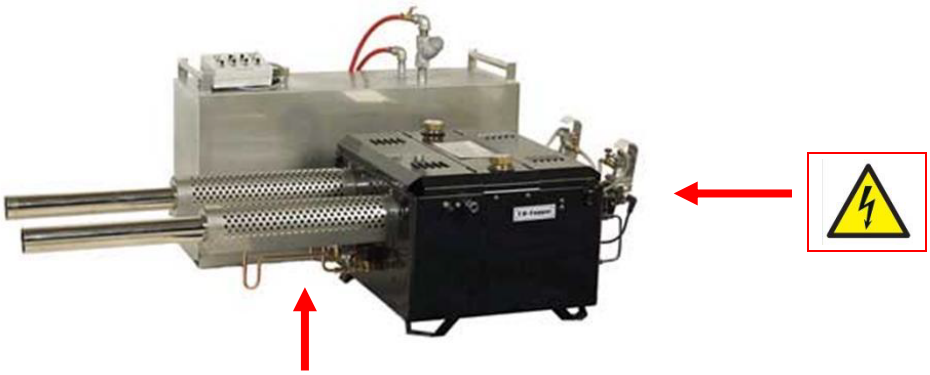
You must wear protective equipment (face/breathing mask, protective clothing, gloves, etc.) when handling potentially hazardous chemicals.

It is advisable to wear ear plugs to protect from the high noise produced by this machine

The interior of this machine heats up to extrem high temperatures. Do not add fuel or chemicals during the operation of the machine or when it is hot after use.

Avoid fogging chemicals upwind.

High voltage can be dangerous. Do not turn on the machine when the spark plugs electrode is exposed.



SPECIFICATIONS

Model	H500/H500SF
Type	Vehicle Mounted
Engine	Pulse Jet
Tank material & shape	Stainless Steel / Rectangular
Tank Capacity	150 Litres
Droplet Size	10-30 Microns
Flow Rate	80 Litres Per Hour
Fuel	Petrol
Fuel Consumption	4.5 Litres Per Hour
Resonator Angle (SF Model Only)	0-45° Angle (Adjustable upwards from horizontal position)
Start	Automatic start via remote control Independent resonator start Power from vehicle battery
Fuel Tank Capacity	10 Litres
Weight (net)	65 Kg
Dimensions	162x72x80 (cm)
Additional Features	Tools Kit Cleaning Kit Basic spare parts Kit
Warrantee	1 year
Origin	South Korea

ACCESORIES

Basic spare parts Kit (1)

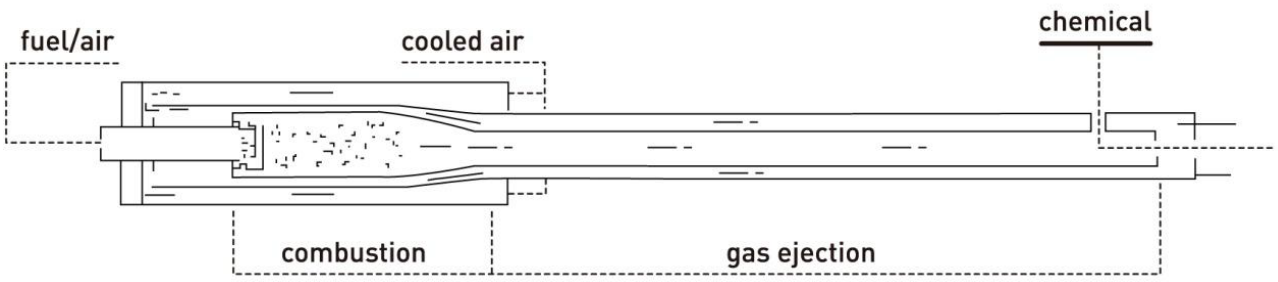
Tools Kit (1)

Instruction Manual (1)

Remote Control (1)

Cleaning Kit (1)

BASIC CONCEPT OF THERMAL FOGGING

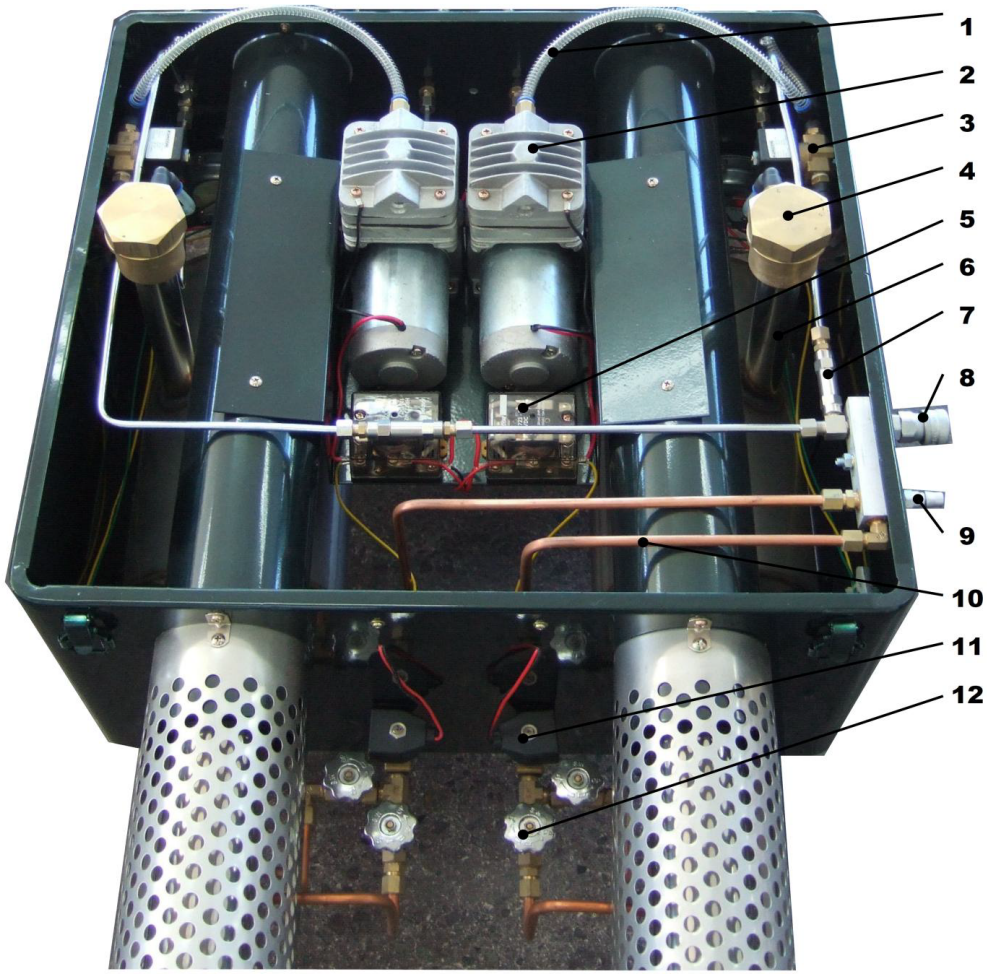


PRINCIPLES OF OPERATION

VectorFog™ Thermal Foggers are powered using the pulse jet principle. Pulse jet engines don't have any moving parts; instead they have a funnel shaped combustion chamber similar to a rocket engine which opens into a long resonator or exhaust pipe. VectorFog thermal foggers have an auto start and operate through compressed air via a compressor. When the auto start button is pressed, the compressed air pressurizes the fuel tank, causing fuel to flow to the injector and then into the carburettor. Air/fuel mixture is then ignited by a spark plug in the carburettor. The spark is created by an ignition coil which is powered by the vehicles battery. The ignition coil, battery and compressor are all housed inside of the main body of the machine. Operating at its optimum performance, combustion and injection is repeated with a frequency of around 200-250 cycles per second. Once the machine starts, the chemical tank also becomes pressurized by means of a non-return valve. A close valve and supply valve are then opened to allow the flow of the chemical/oil solution in to the resonator. At this stage the solution is heated up to around 1,400º C and dispersed into millions of tiny droplets (around 10-30 microns in size) creating a dense and visible smoke.

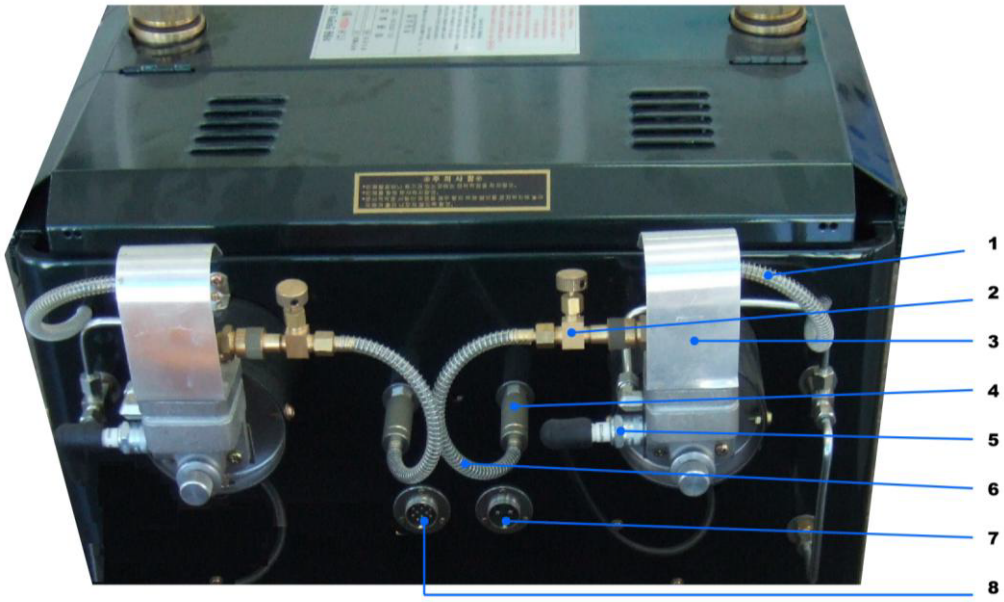
MAIN COMPONENTS

FIG. 1



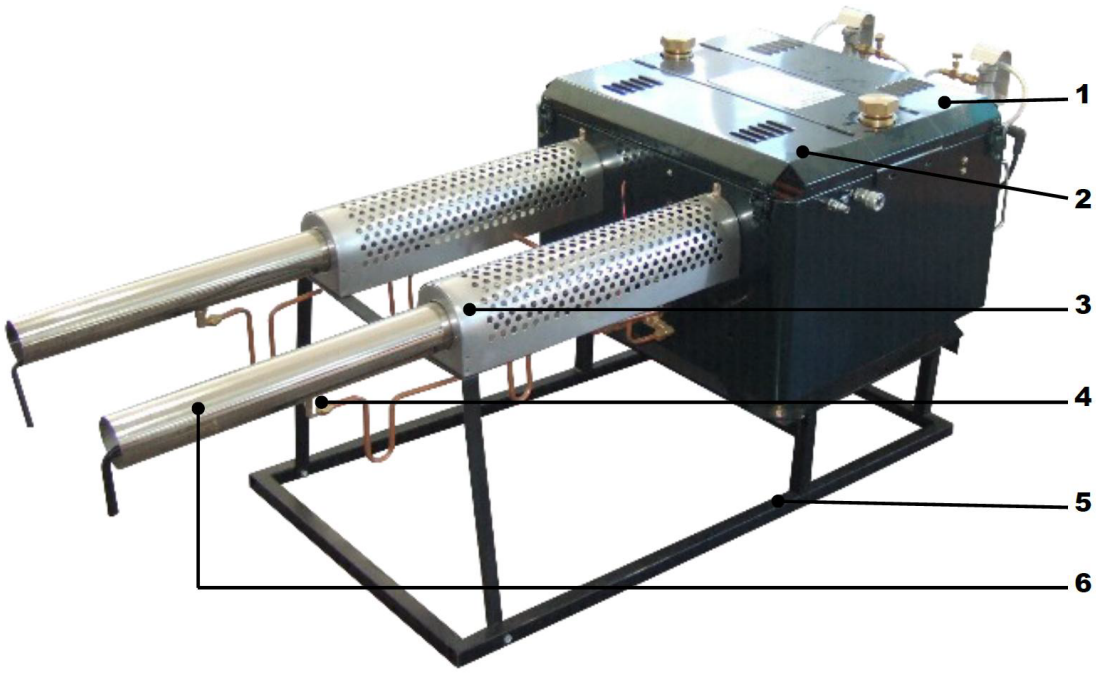
1. Air supply tube to carburettor	5. Relay	9. Chemical inflow from tank
2. Air compressor	6. Fuel tank	10. Chemical tube
3. Fuel solenoid valve	7. Air valve	11. Electronic flow control
4. Fuel cap	8. Air outflow to chemical tank	12. Chemical flow regulator

FIG. 2



1. Air tube to carburettor	5. Spark plug
2. Fuel flow control valve & Injector	6. Fuel hose
3. Carburettor	7. 12V Power supply input
4. Fuel filter	8. Remote control input

FIG .3

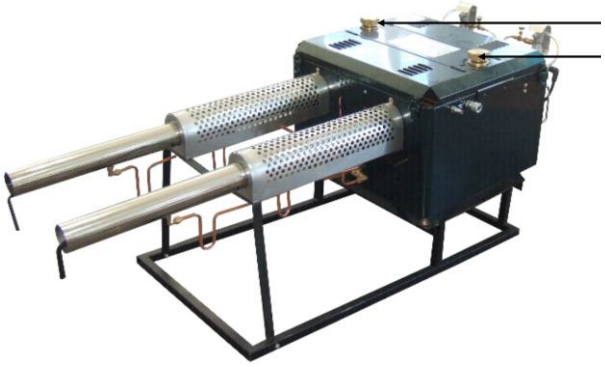


1. Rear access cover	4. Chemical injector to resonator
2. Front access cover	5. Vehicle frame
3. Resonator shield	6. Resonator

CHECKLIST BEFORE STARTING THE UNIT

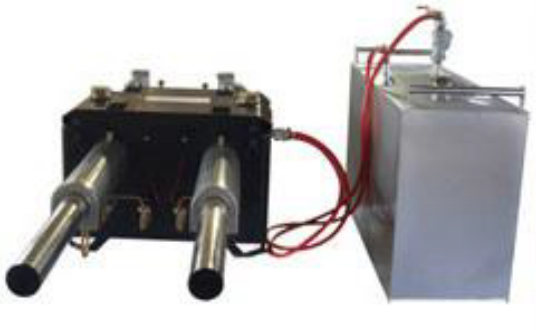
Fill the fuel tank

Fill the tank with undiluted petrol using a funnel. Fill the tank to a third of its capacity. When you finish filling the tank, close the tank cap tightly. Note: Please make sure you only add the prescribed amount of fuel.



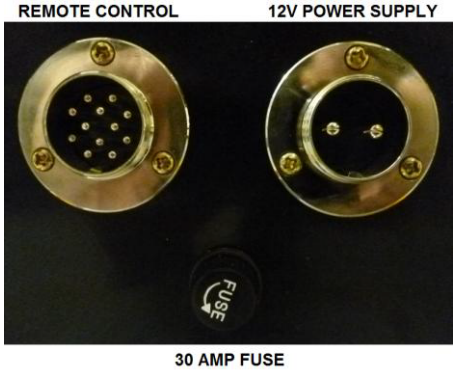
Fill the chemical tank and connect to the thermal fogger

Pour the special fogging chemical mixture into the chemical tank. It is important not to add more chemical mixture than it's needed. Leaving remaining chemical in the tank after use, could affect the performance of the machine next time you use it, as deposits may solidify in the system. When you finish filling the tank, close the tank cap tightly.



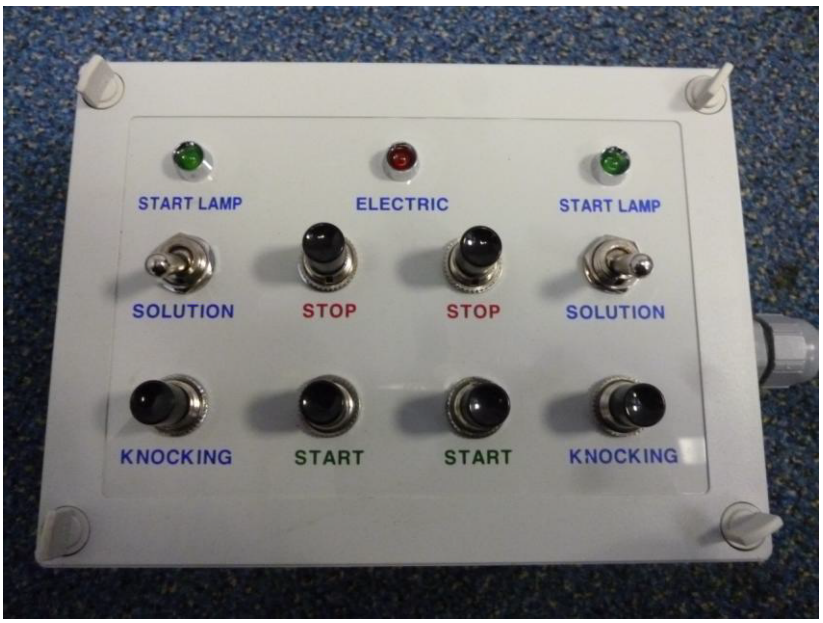
Connect the power and remote control

Connect the 12V power lead (right) and remote control cable (left) as indicated in the picture below. Once plugged in, connect the power lead directly to the battery using the cigarette lighter plug. Red (Positive), Black (Negative). Once connected, check that the green power light on the control remote is on. Note: Please make sure solution tank switch on the remote control is turned to the "OFF" position before connecting the power



To turn on the machine

Making sure that the solution switch on the remote control is on the "OFF" position. Press the start button (one resonator at a time) and keep it pressed for 5 seconds after you hear combustion starting (sounds like a small explosion). It is necessary to keep the machine on for about 10 seconds to warm up before turning on the solution switch. TIP: If the machine fails to start, press the button "KNOCKING" so pressure in the fuel tank can be re-established. Press the start button again and repeat the above procedure until it starts.



To start fogging

Once the machine has heated up for 10 seconds, flick the solution switch to the ON position. When you are ready to start fogging, turn clockwise the Chemical Flow Regulator (FIG 1.12). Note: This valve also regulates the amount of flow/chemical being used, by turning it left to right.

To turn off the machine

Flick the solution switch to the OFF position and press the STOP button. Turn the Chemical Flow Regulator anti-clockwise to stop the flow of chemical. Tip: After use, keep the machine in operation for 5 seconds to help get rid-off any chemical mixture still in the system.

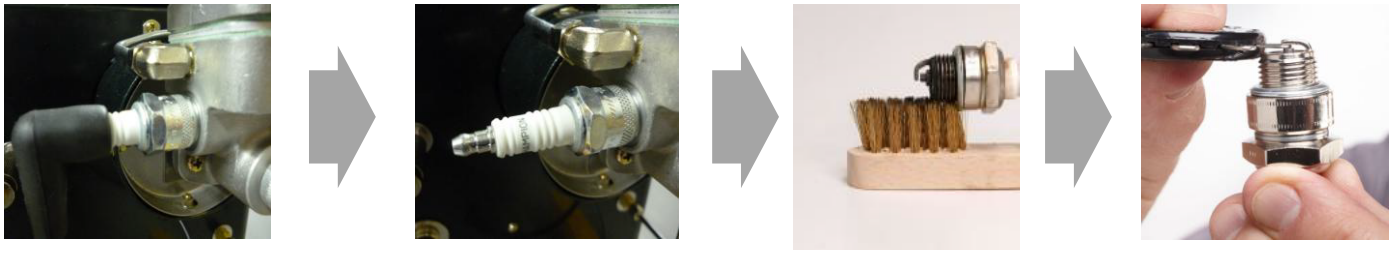
MAINTENANCE

Cleaning the Chemical Tank and Pipes

Fill the chemical tank with 25% of clean water and turn on the unit. This will prevent corrosion and the accumulation of chemical deposits in the tank and pipes.

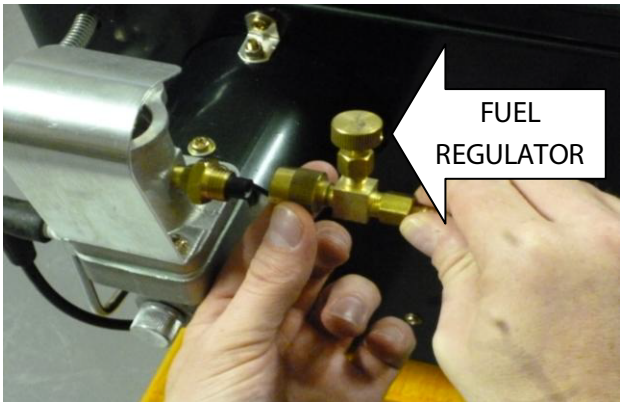
Spark Plug Maintenance

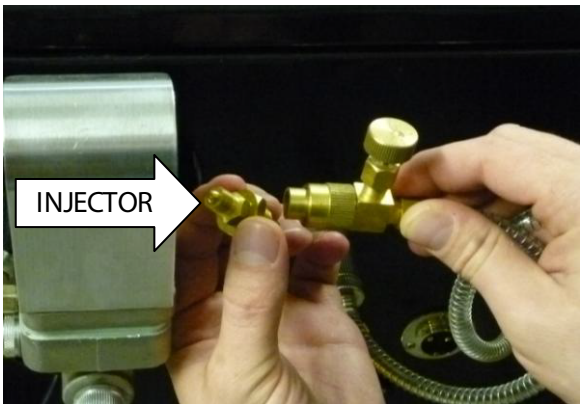
Remove the spark plug using a spanner or spark plug remover. Remove any carbon deposits between the electrode and the earth section with a wire brush. Make sure that there is a space of 3 to 5 mm between the electrode and the earth.



Fuel injector Maintenance

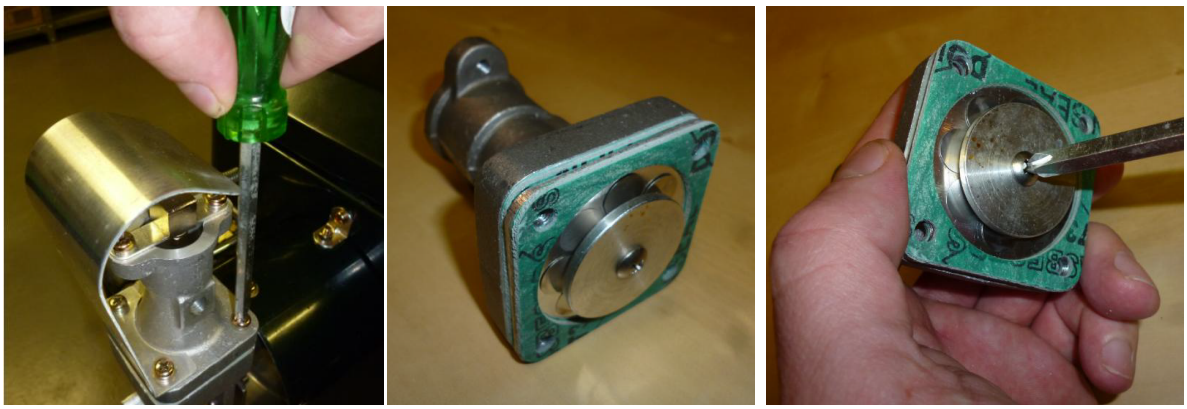
Unscrew the fuel Injector situated on the back of the machine (FIG 2.4). Clean the injector with compressed air.





Maintaining the valve petal

Remove the top of the carburettor. Check the gasket and valve for any distortions or cracks. If it's damaged, you will need to replace this part. TIP: It's important to assemble the parts of the carburettor in the order there where disassembled. The distance between the petal valve and the valve plate o should be approximately 1 mm.

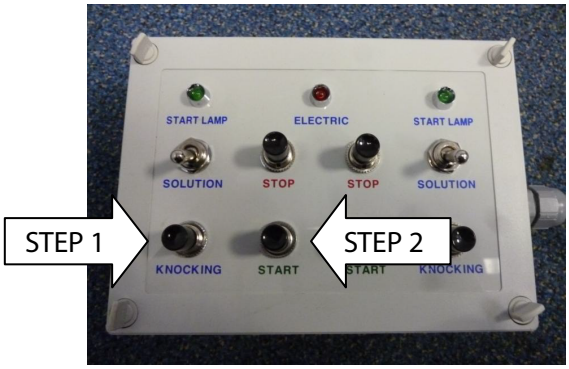


TROUBLESHOOTING

If there is no ignition:

• Listen for any noises coming from the engine

If there is noise coming from the engine but there is no ignition, this could be because the engine has flooded (an over-supply of fuel in the carburettor). To solve this problem, first press the button “KNOCKING” and then press the “START” button until you hear the machine ignite. Repeat this procedure several times if it doesn’t start the first time.



• Check the spark plug

Remove the spark plug using a spanner or spark plug remover. Hold the plug by its plastic cap and press the start button to check if there is a spark between the electrode and the earth. Also you should hear if there buzzing sound from the ignition coil. Note: The ignition coil can be accessed through the “Rear access cover”

If there is no spark:

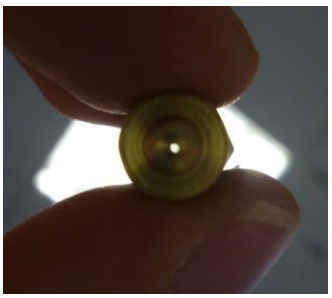
Clean any carbon deposits in between the electrode and earth with a wire brush.
Check that there is a distance of 3 to 5 mm between the electrode and earth.
Check that the vehicle’s battery is fully charged.
Check that the battery and ignition coil are working. If necessary, replace the battery or coil
Clean the contacts and check all the wires

Once these checks have been carried out, try starting the machine again.

• Check the fuel is being injected into the carburettor.

Examine the fuel hose connected to the fuel flow control valve and injector (FIG 2.2) is not blocked. If there is a lack of fuel adjust fuel supply with the fuel regulator valve. Make sure the fuel tank is full before starting the machine. Make sure the seal in the petrol caps are not damaged. Make sure the caps are firmly closed. Check the fuel injector (FIG 2.4). Clean the injector with compressed air if blocked.



• Check the Petal Valve.

Remove the spark plug cap, filter and unscrew the carburettor. Examine the petal valve to see if it's damaged. If it's damaged, replace petal valve. TIP: It's important to assemble the parts of the carburettor in the order there where disassembled. The distance between the petal valve and the valve plate o should be approximately 1 mm.

The machine is turned on, but the engine works intermittently or stops:

• Examine the fuel tank assembly to check for any leakages.

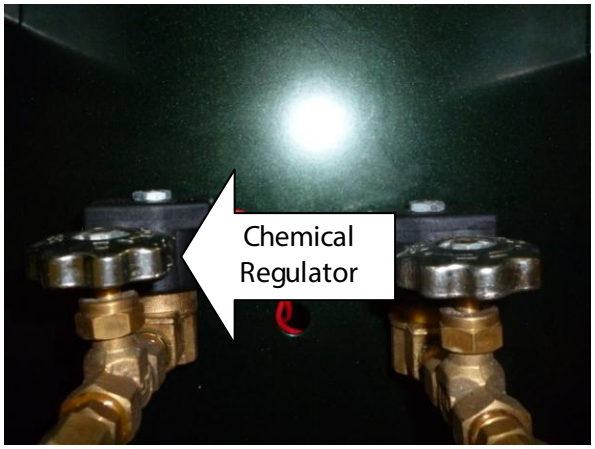
After pressing the start button, cover the tank and connections with soap to check for leaks. If bubbles are observed, the gasket needs replacing on the fuel tank cap or the tank itself.

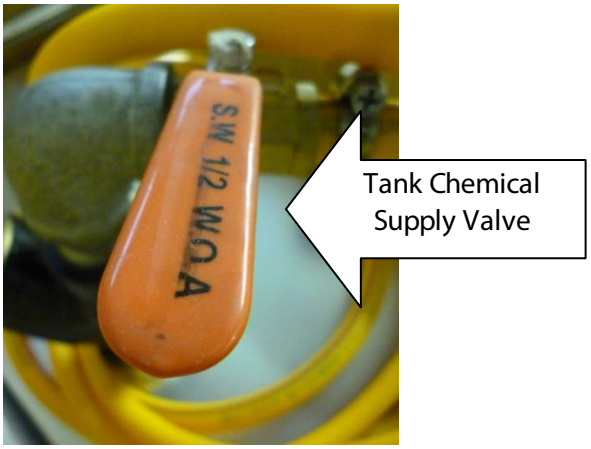
• Clean the resonator.

Remove carbon deposits in the heat tube inside de resonator with the wire brush provided. Use and forward and backward motion.

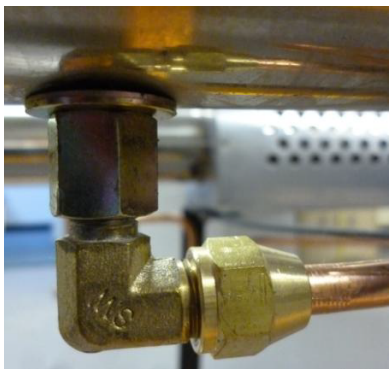
The machine doesn't fog or doesn't fog enough:

• Check that the chemical regulator is opened. This is done by turning it anticlockwise. Make sure that the Tank Chemical Supply Valve is set to the open position.





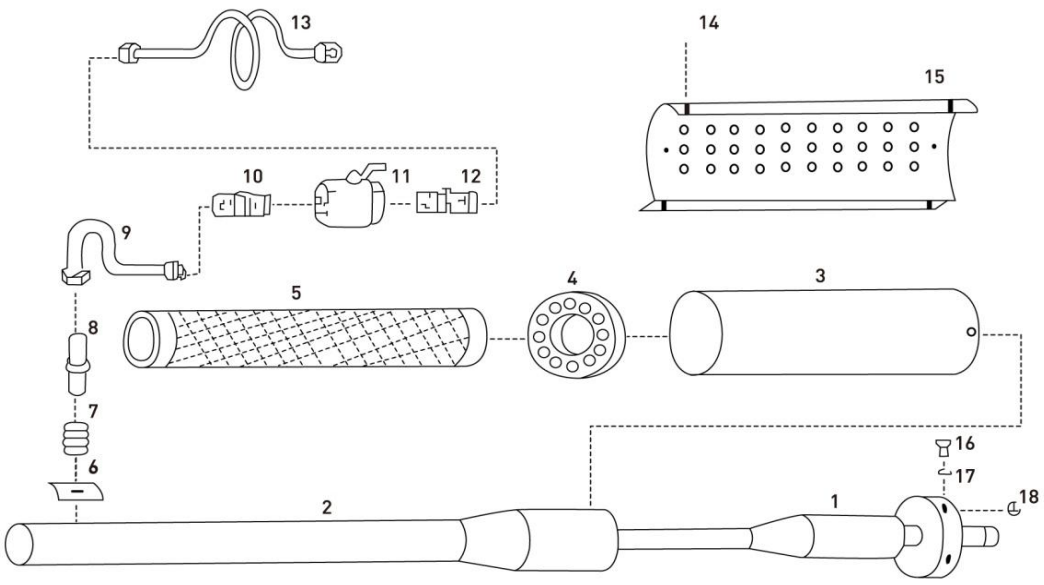
• Unscrew the main chemical inlet nozzle from the resonator and clean it using compressed air to remove any blockages.



• Check there is no leaks in the chemical tank. Blow compressed air backwards though the chemical tube from the inlet nozzle to see if any bubbles appear. Replace leaking parts if necessary

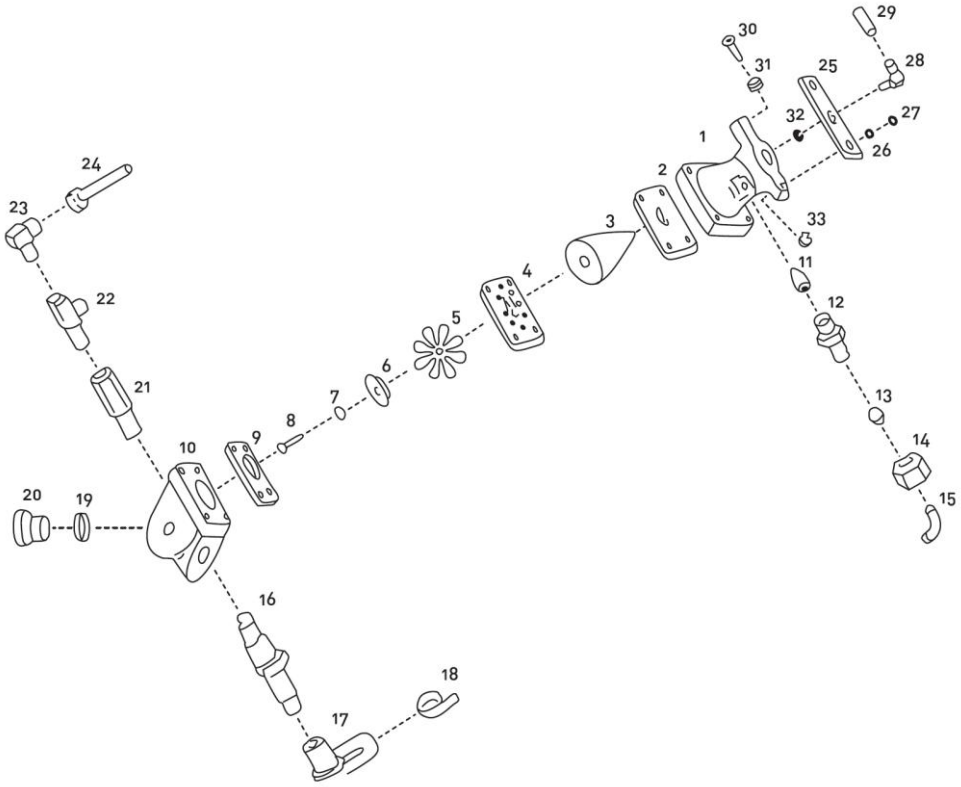
Parts Assembly

01. Resonator & chemical Inlet nozzle



1. Ejection pipe	2. Inner cooling pipe	3. Outer cooling pipe	4. Bracket	5. Safety net	6. Ejection nipple plate
7. Ejection buffer spring	8. Ejection nipple	9. Ejection nipple tube	10. Straight nipple	11. Ball valve	12. Straight nipple
13. Chemical pipe	14. Bolt	15. Protective cover	16. Bolt	17. Flat washer	18. Nut

04. Carburettor



1. Venturi	2. Upper Gasket	3. Cone shaft	4. Petrol valve board	5. Petrol valve	6. Petrol valve support
7. Spring washer	8. Bolt	9. Lower Gasket	10. Engine	11. Ejection nozzle	12. Nozzle
13. Ring	14. Nut	15. Engine upper pipe	16. Plug	17. Plug cap	18. Metal grip
19. O-ring	20. Engine rear peg	21. Reducer	22. Run tee	23. Elbow	24. Explosion pipe
25. Air gasket	26. Washer	27. Air Gasket Bolt	28. Air elbow	29. Extension hose	30. Air gasket bolt
31. Air gasket washer	32. Air gasket nut	33. Air gasket nut