VECTOR FOG

Experts in Fogging Technology™

INSTRUCTION MANUAL THERMAL FOGGER VECTORFOG H400/H400SF

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

It's essential to read the chemical manufacturer's instructions 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.

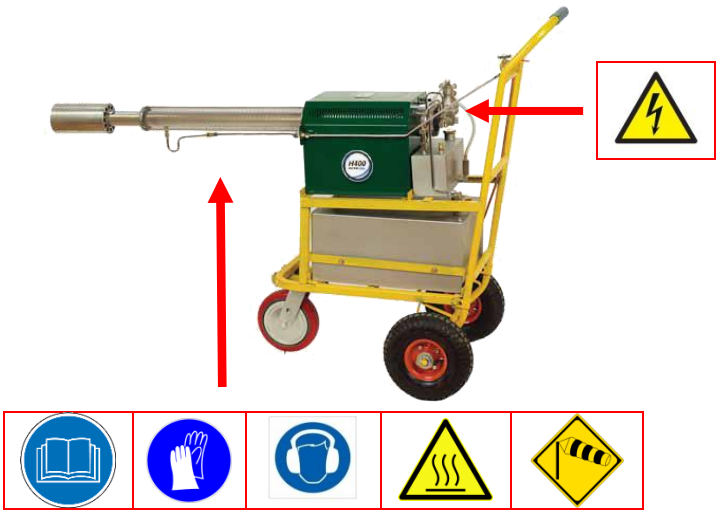
You must wear protective equipment (face/breathing mask, protective clothing, gloves, etc.) when handling potentially hazardous chemicals.

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 extreme high temperatures. Do not add fuel or chemicals during the operation of the machine or when it is still hot after use.

Avoid fogging chemicals upwind.

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



SPECIFICATIONS

Model	H400/H400SF
Type	Trolley Mounted
Engine	Pulse Jet
Tank material & shape	Stainless Steel / Rectangular
Tank Capacity	30 Litres
Droplet Size	5-30 Microns
Flow Rate	80 Litres Per Hour
Fuel	Petrol
Fuel Consumption	1.8 Litres Per Hour
Start	Automatic
Fuel Tank Capacity	3.8 Litres
Performance	23kW / 30.08 hp
Weight (net)	36 Kg
Dimensions	162 x 110 x 58 (cm)
Additional Features	Tool Kit Cleaning Kit Basic spare parts Kit
Warrantee	1 year
Origin	South Korea

ACCESORIES

Basic spare parts Kit (1)

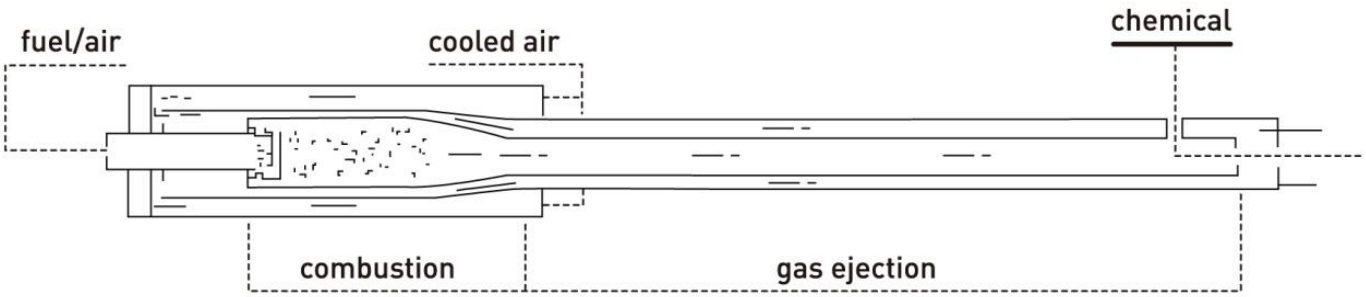
Tools Kit (1)

Instruction Manual (1)

Remote Control (1)

Cleaning Kit (1)

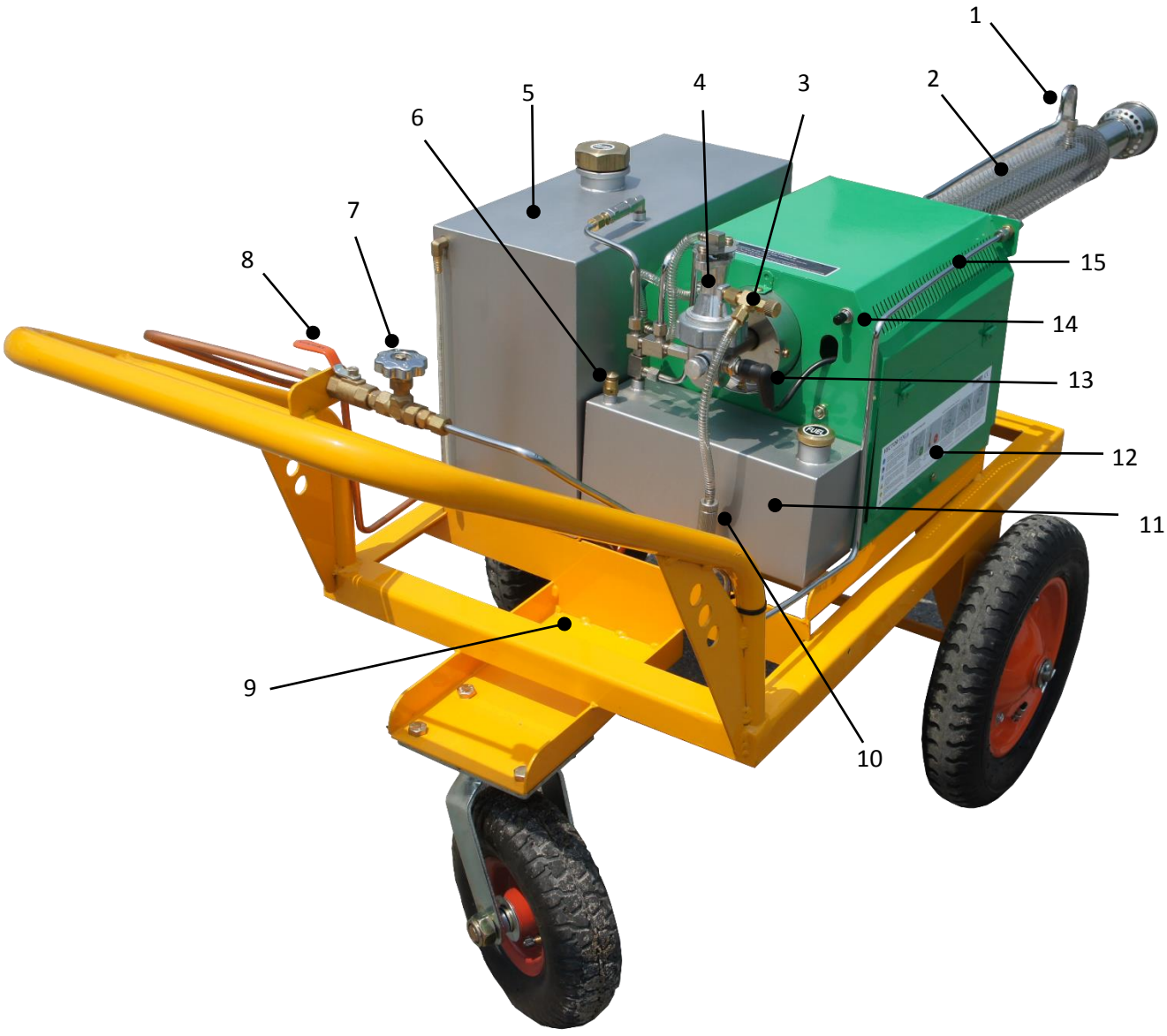
BASIC CONCEPT OF THERMAL FOGGING



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 a rechargeable 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



1. Chemical Inlet	6. Stop Button (Air Release)	11. Fuel Tank
2. Resonator	7. Chemical Flow Control	12. Battery, Air Compressor & Ignition Coil Compartment
3. Injector	8. Chemical Cut Off Valve	13. Spark Plug
4. Carburettor	9. Trolley Frame	14. Auto Start
5. Chemical Tank	10. Fuel Filter	15. Chemical Supply valve

CHECKLIST BEFORE STARTING THE UNIT

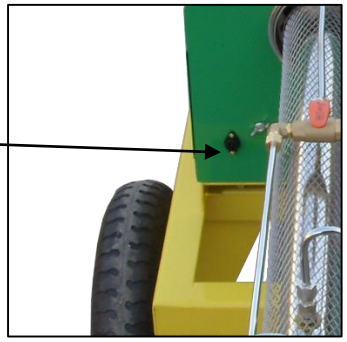
Unpacking the unit

When unpacking the unit, please make sure that that the machine is not damaged and that all the accessories mentioned in this manual are not missing.

Charge the battery

Make sure the right power supply is being used (110/220 volts). Connect the charger to the unit and then connect to the mains. When first purchased, the machine requires around 8 to 10 hours to fully charge.

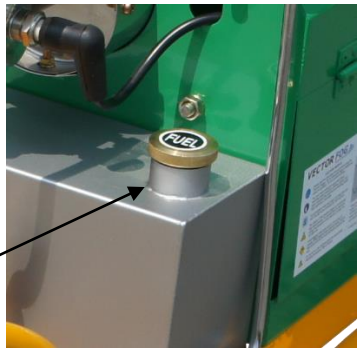
6V Charger Point



Fill the fuel tank

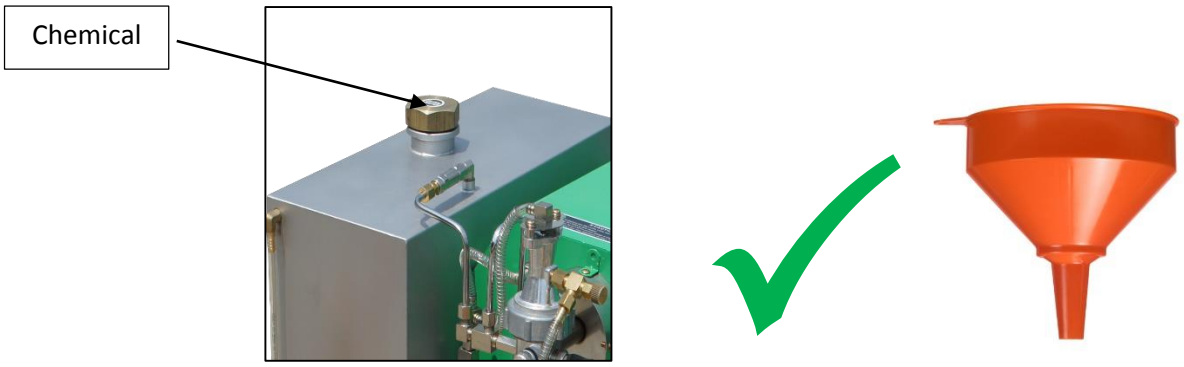
Fill the tank with undiluted petrol using a funnel. Fill the tank to a third of its capacity. When you finish filling the tank, close the tank cap tightly. **Note: Please make sure you only add the prescribed amount of fuel.**

Petrol



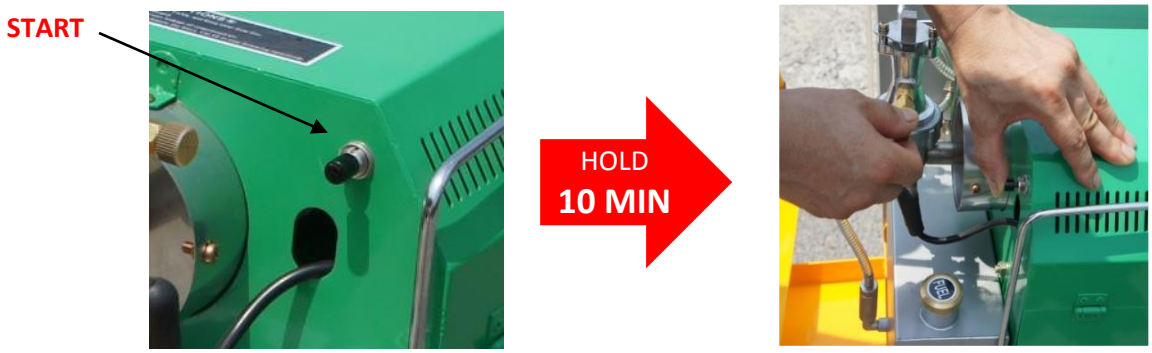
Fill the chemical tank

Pour the special fogging chemical mixture into the chemical tank. It is important not to add more chemical than it's needed. Once you have used the machine, please make sure there is no chemical left in the tank. Chemicals can solidify and could block the system next time round. When you finish filling the tank, close the tank cap tightly.

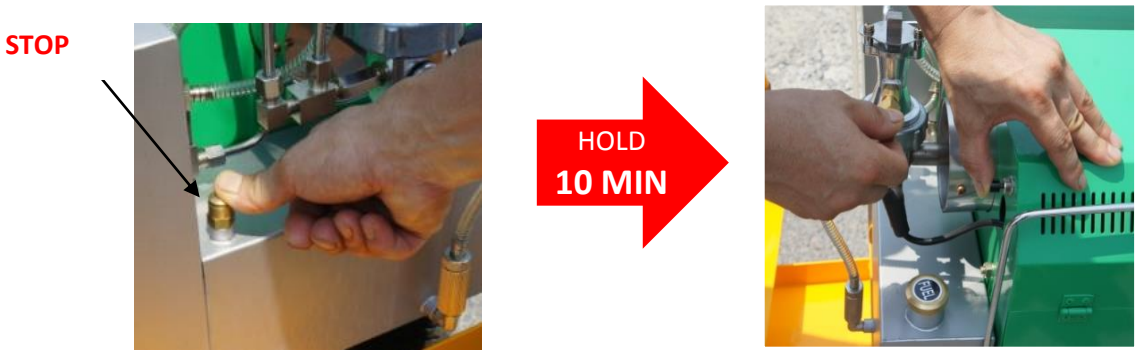


To turn on the machine

Press the power button "START" and keep it pressed for 8 to 10 seconds once you hear combustion starting (sounds like small explosions). After the engine starts, leave the machine to warm up for around 10 to 20 seconds before opening the chemical valves.



TIP: If the machine fails to start, press the STOP button (air release) so pressure can be re-established. Press and hold the start button again for 10 seconds until it starts. If it fails to start, repeat the procedure.



To start fogging

Once the machine has heated up for 10 seconds, first turn the “Close Valve” and then the chemical supply valve slowly counter clockwise. On SF models you will need to switch the directional valve situated on top of the resonator to fog oil based chemicals, by turning it clockwise.

STEP 1

Close Valve

STEP 2

Chemical supply Valve

STEP 3
(SF MODEL ONLY)

Directional Valve
Turn right for Oil Based fogging

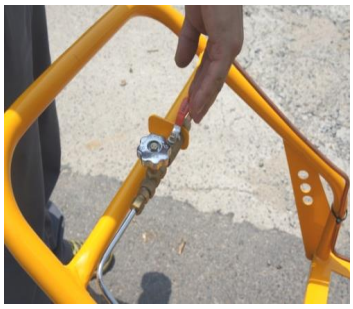
To turn off the machine

Turn the “Chemical Supply Valve” clockwise to stop the supply of chemical to the resonator. Before turning the “Close Valve” off, keep it running for 5-10 seconds to get rid-off any chemical mixture still in the system. Once you are sure that all the Chemical has been burned off. Turn the Close Valve and press the STOP button located on top of the fuel tank to stop the machine. Important: Never switch off the machine without closing the chemical valves in the order shown below. Failure to do this could cause the system to back-fire.

STEP 1

Close Valve

STEP 2



Chemical supply Valve

STEP 3
(SF MODEL ONLY)

Directional Valve
Turn right for Oil Based fogging

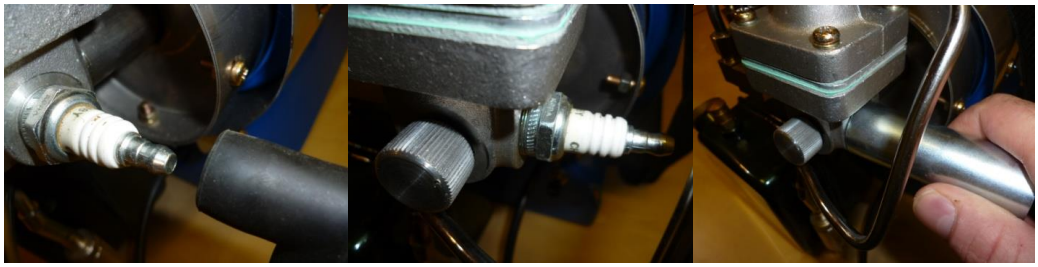
MAINTENANCE

Cleaning the Chemical Tank and Pipes

Fill the chemical tank with 25% of clean water and turn on the unit. Then open the chemical supply and close valves to flush it through. 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 3.5 mm between the electrode and the earth.



Fuel injector Maintenance

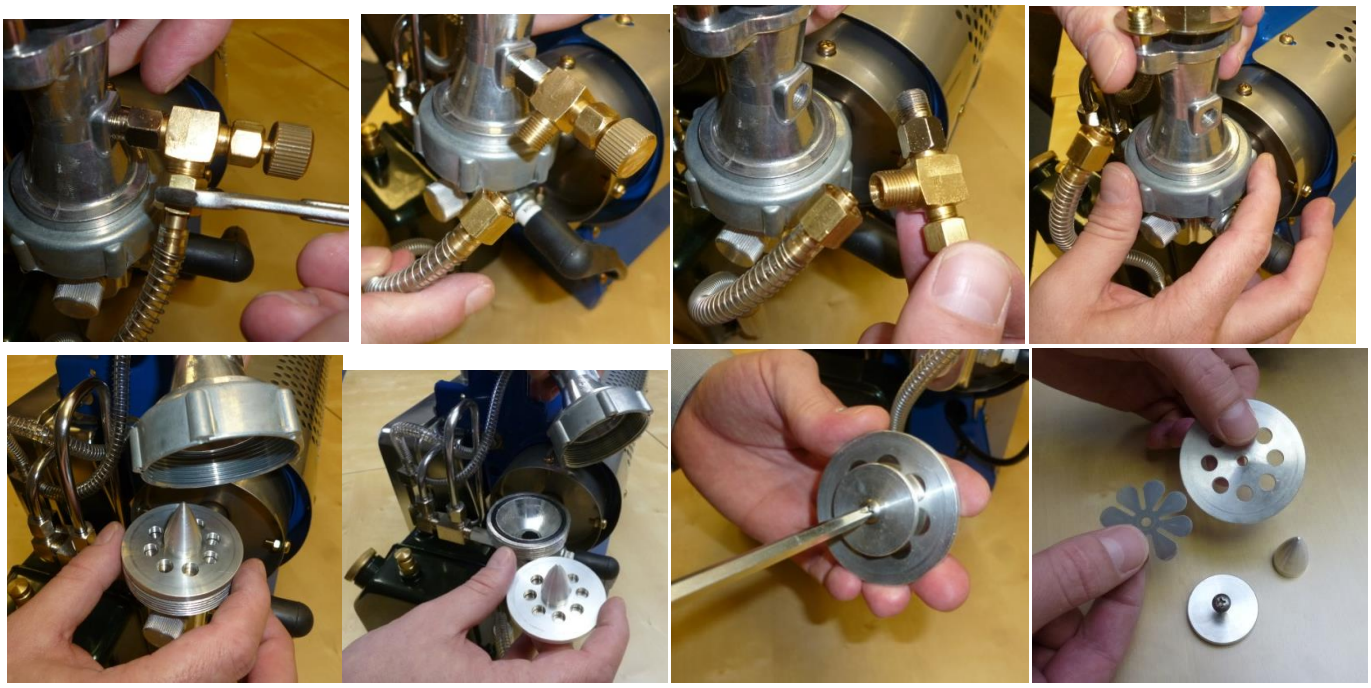
Unscrew the fuel injector situated on the side of the carburettor. Clean the injector with compressed air to remove any blockages. Important: Never use a metallic punch to clean the injector. The injecting hole is calibrated for optimum performance

STANDARD SYSTEM

SF MODEL

Maintaining the valve petal

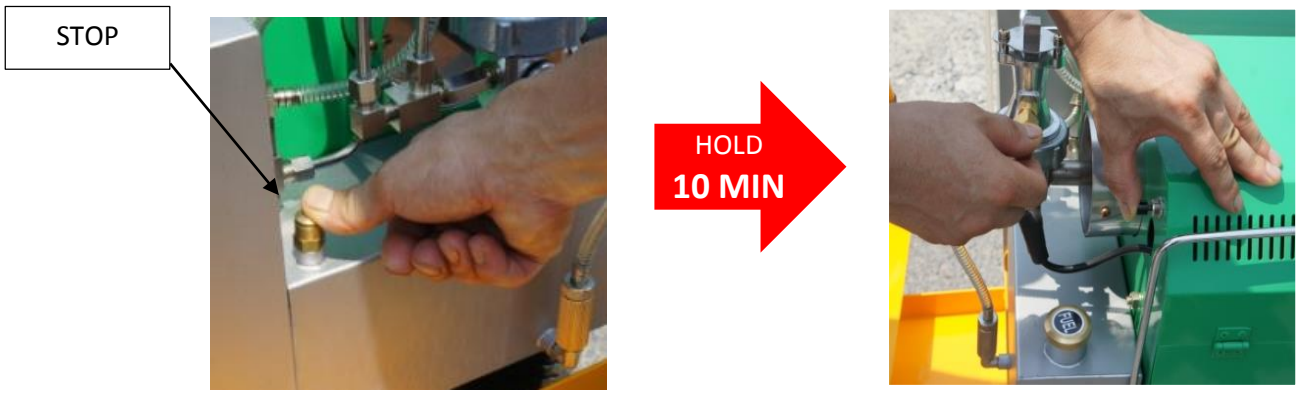
Unscrew the fuel filter and regulator (if applicable) before unscrewing the top of the carburettor. Check the valve for any distortions or cracks. If it's damaged, you will need to replace this part. *TIP: It's important to assemble the parts of the carburettor in the order there where disassembled. The distance between the petal valve and the valve plate o should be approximately 1 mm.*



COMMON TROUBLESHOOTING

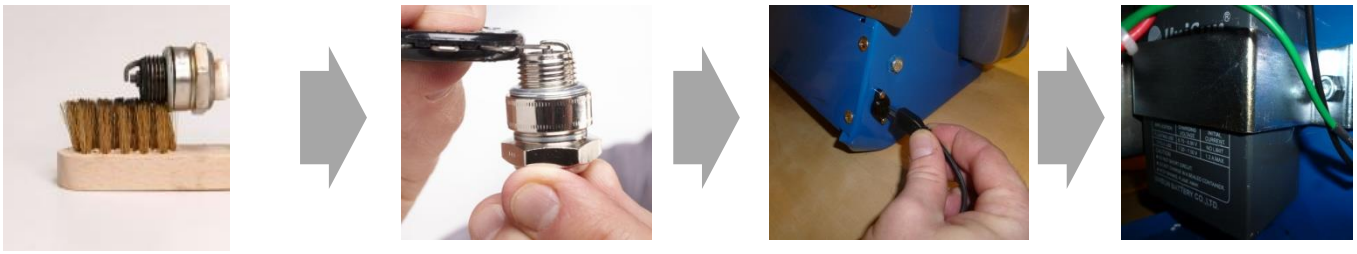
If there is no ignition:

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 and air in the carburettor). To fix this, press the STOP button (air release) so pressure can be re-established. Then press and hold the "Start" button again for 10 seconds until it starts. If it fails to start, repeat the procedure.



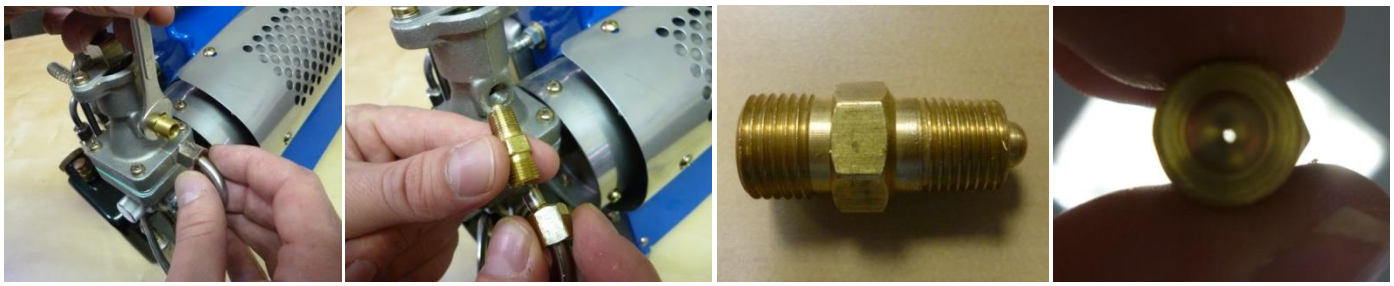
Check there is a spark coming from the spark plug:

- ✓ Clean any carbon deposits in between the electrode and earth with a wire brush.
- ✓ Check that there is a distance of 3.5 mm between the electrode and earth.
- ✓ Check that the battery is fully charged.
- ✓ Check that the battery and ignition coil are working. If necessary, replace the battery or coil
- ✓ Clean the contacts and wires inside the battery case



Once these checks have been carried out, try starting the machine again. If the machine doesn't start, replace plug.

• Check the fuel injector is not blocked.



Examine the fuel hose located on the side of the fuel tank to make sure it's not blocked. Make sure the fuel tank is full before starting the machine. Make sure the seal in the petrol cap is not damaged. Make sure the cap is firmly closed to prevent leakage. Unscrew the fuel injector and examine that the injector hole is not blocked. If blocked, clean with compressed air.

• 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 resonator with the wire brush provided. Use and forward and backward motion.

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

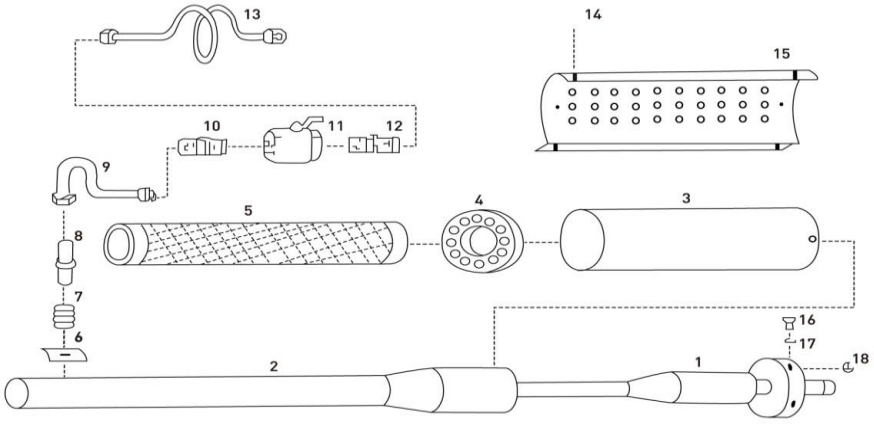
• Check that the chemical supply valve is opened. This is done by turning it anticlockwise. Make sure that the close valve is set to the open position.

• 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.

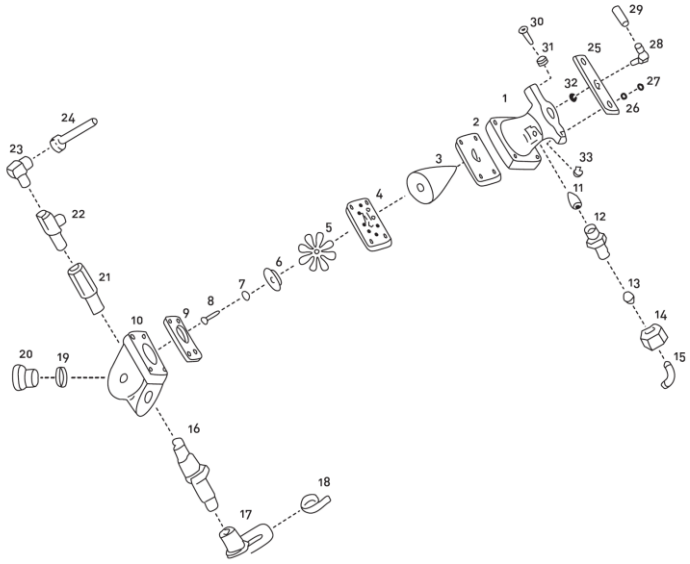
Parts Assembly

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			