

Fog Generator **ST FOG**



ST FOG

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ST FOG

Instruction Manual

ST FOG

Dear customer,

Congratulation for purchase of our ST FOG quality product and we wish you every success in the employment of this equipment.

For a better understanding of the Instruction Manual parts of the unit described in the text of the Instruction Manual are often combined with an item number in brackets. By using the item no. combined with the explosion drawing all descriptions in the Instruction Manual become clear.

If you send us an order for spare parts, always mention the item number, the **part number** and the **spare parts name** out of the spare parts list.

Restricted fields of application

The unit TS35S are suitable for transforming chemical solutions (formulations) into finest aerosol fog. The units are exclusively restricted to the following fields of application:

- Pest and vector control
- Protection of crops
- Protection of stocks (foodstuff, tobacco, cotton)
- Hygiene and disinfection

All other applications are regarded as forbidden fields of application.

The owner of TS35S must give the Instruction Manual to the user, because of the safety instruction described in the Instruction Manual. If the owner would sell the unit to another person, then the owner has to guarantee that the Instruction Manual is attached to the unit.

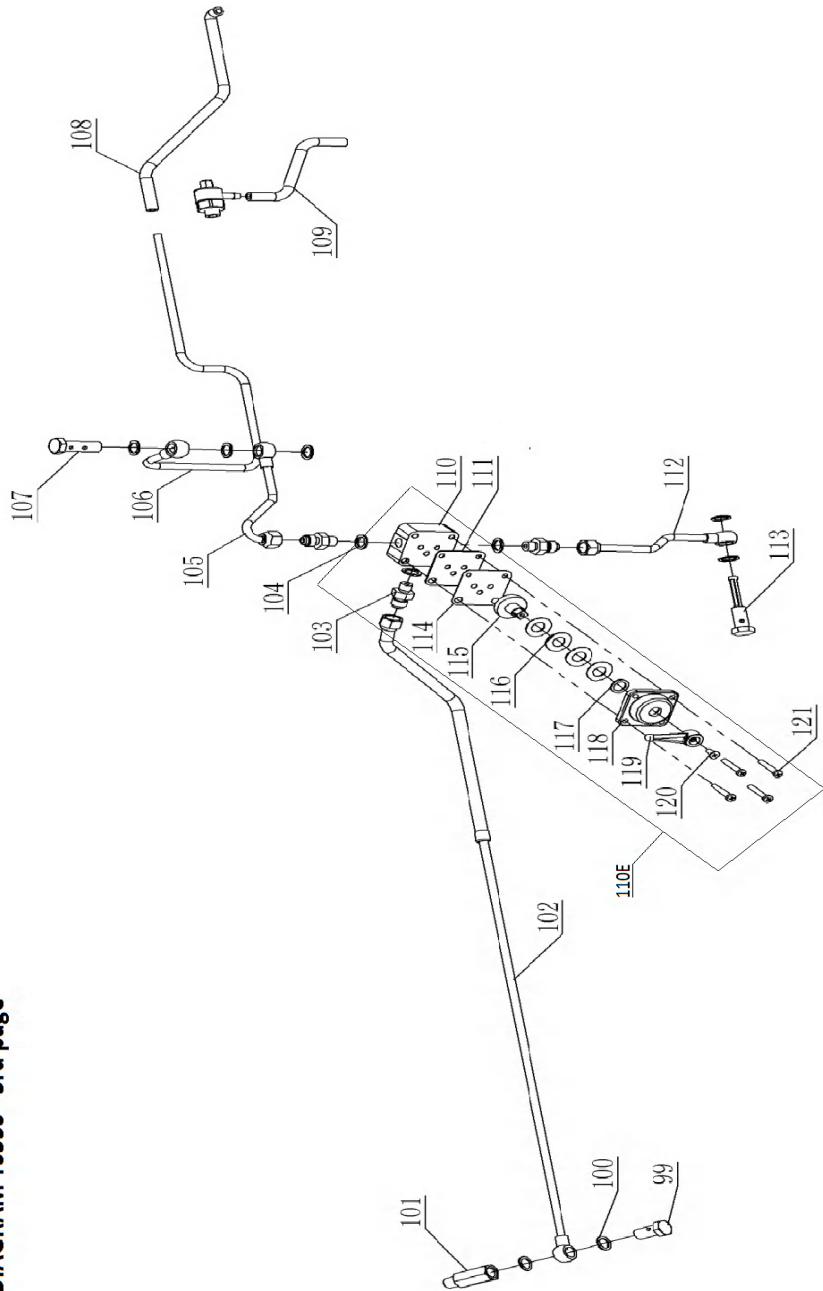
Before starting the unit, user must read then Instruction Manual with due diligence. User must be familiar with the above applications, especially with all risks and safety precautions in the order to avoid damage.

The unit is not suitable for mounting on/in vehicles.

Risks for persons and environment could arise out of faulty operation and out of forbidden fields of application. Damages due to faulty operation of the unit and usage in forbidden fields of application are consequently out of Syarikat Perniagaan Kemuncak responsibility

SPARE PARTS LIST ST FOG

Item No	Description	Item No	Description	Item No	Description
1	Fog Tube	44	Contact Spring	87	Screw
2	Protective Guard	46	Battery Holder	89	Surge Tank
3	Cooling Jacket	48	Gasoline Tank Cap	90	Screwed Socket
4, 5	Fixing Device	48E	Solution Tank Cap	91	O-Ring
6	Resonator	49	Gasoline Cap Gasket	92	Atomizer Nozzle
8	Hood	49E	Solution Tank Gasket	93	Gasket
9	Protective Cover	51	Battery Cover	94	Set Screw
12	O-Ring	53	Ignition Coil	95	O-Ring
12A	O-Ring (Thick)	54	Fill Head Screw	96E	Gasoline Stop Button
13	Heat Deflector Shield	55	Fill Head Screw	99A	Dosage Nozzle - 0.8
14	Cap Nut	56	Solution Tank	99B	Dosage Nozzle - 1.0
15	Red Gasket	57	Knurled Nut	99C	Dosage Nozzle - 1.2
16	Connecting Link	58	Silencer	100	Copper Gasket
17	O-Ring	61	Screw	101	Fog Solution Socket
18	Diaphragm	62	Valve Plate	102	Solution Line Teflon
19	Gasket	63	Diaphragm	103	Screw Connection
20	Valve Complete	64	Spacer Plate	104	Gasket
20E	One Way Valve	66	Gasket	105	Ventilating Air Line
21	Screw Connection	67	Mixing Chamber	106	Pressure Pipe
22	Gasket	69	Swirl Vane	107	Double Hollow Screw
22A	Gasket Teflon	70	Spark Plug Socket	108	Viton Tube
24	Starter Button	71	O-Ring	109	Viton Tube
25	Support	72	Regulating Housing	110E	Solution Tap Complete
28	Pump Tube	73	O-Ring	111	Gasket
28A	Pump Tube Bracket	74	Regulating Needle	112	Solution Rising Line
29	Support	75	Gasoline Tank	113	Hollow Screw
35	Collar	76	O-Ring	114	Teflon Gasket
38	Pump Spindle Cpl	78E	Screw Fitting	115	Tap Center Part
38E	Spring	80	O-Ring	116	Disc Spring
39	Cap	81	Hollow Screw	119	Lever
41	Handle	83E	Hose with Filter	120	Countersunk Head Screw
42	Wing Screw	84	Felt Tube	121	Fill Head Screw
43	Battery Cover	86	Gasket		



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Mode of operation

The Fog Generator operates on the principle of the on-sided open jet-tube (Schmidt-Argus-Tube) with a valve at the inlet side (carburetor) and an open outlet (fog outlet). This system - operating without any moving parts - with carburetor, mixer tube, combustion chamber and resonator constitutes an acoustical oscillation system at a certain frequency. This Fog Generator works at an operating frequency of abt. 100 cycles/second.

Liquids (chemical formulations, oils, etc.) can be fed into the pulsating gas stream of the resonator at the outlet end. The high frequency of the gas allows the application and break up of solutions, otherwise susceptible to combustion or de-composition, due to the very short time they are exposed to the hot gas stream.

Short manual instructions

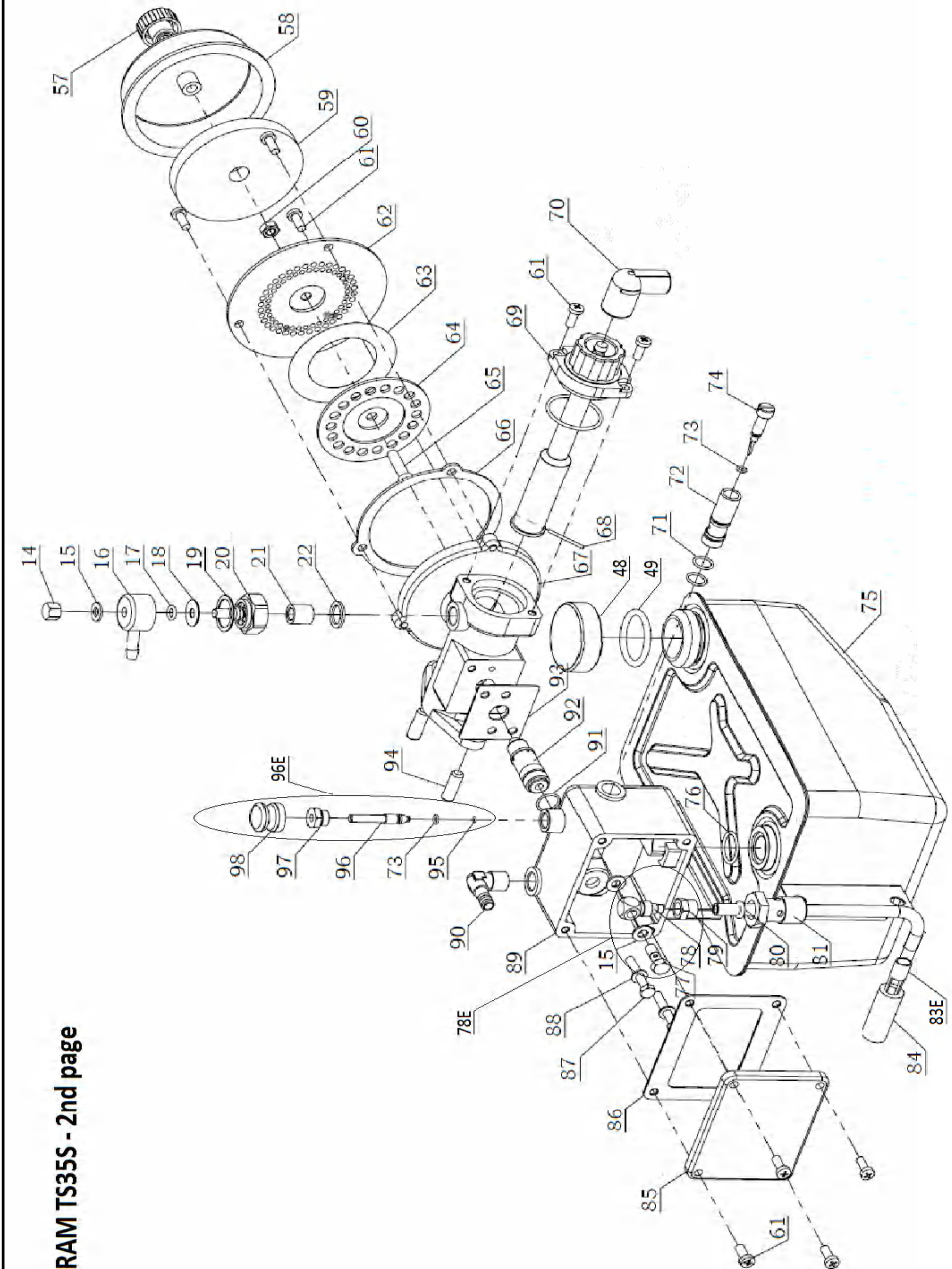
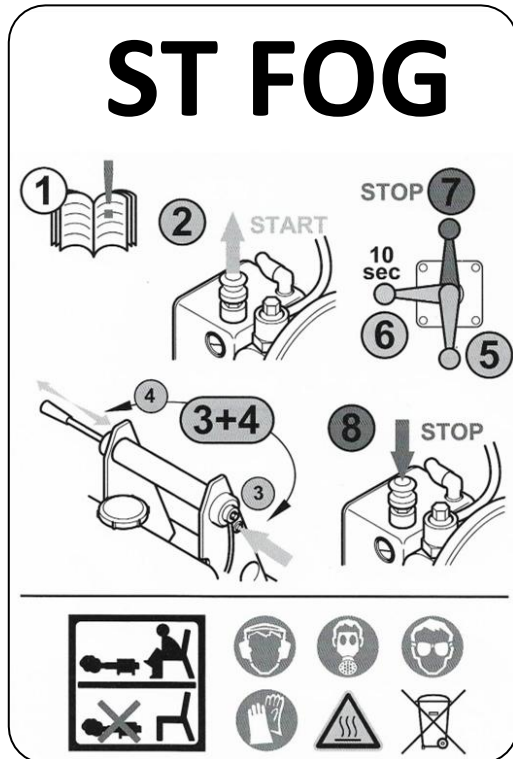
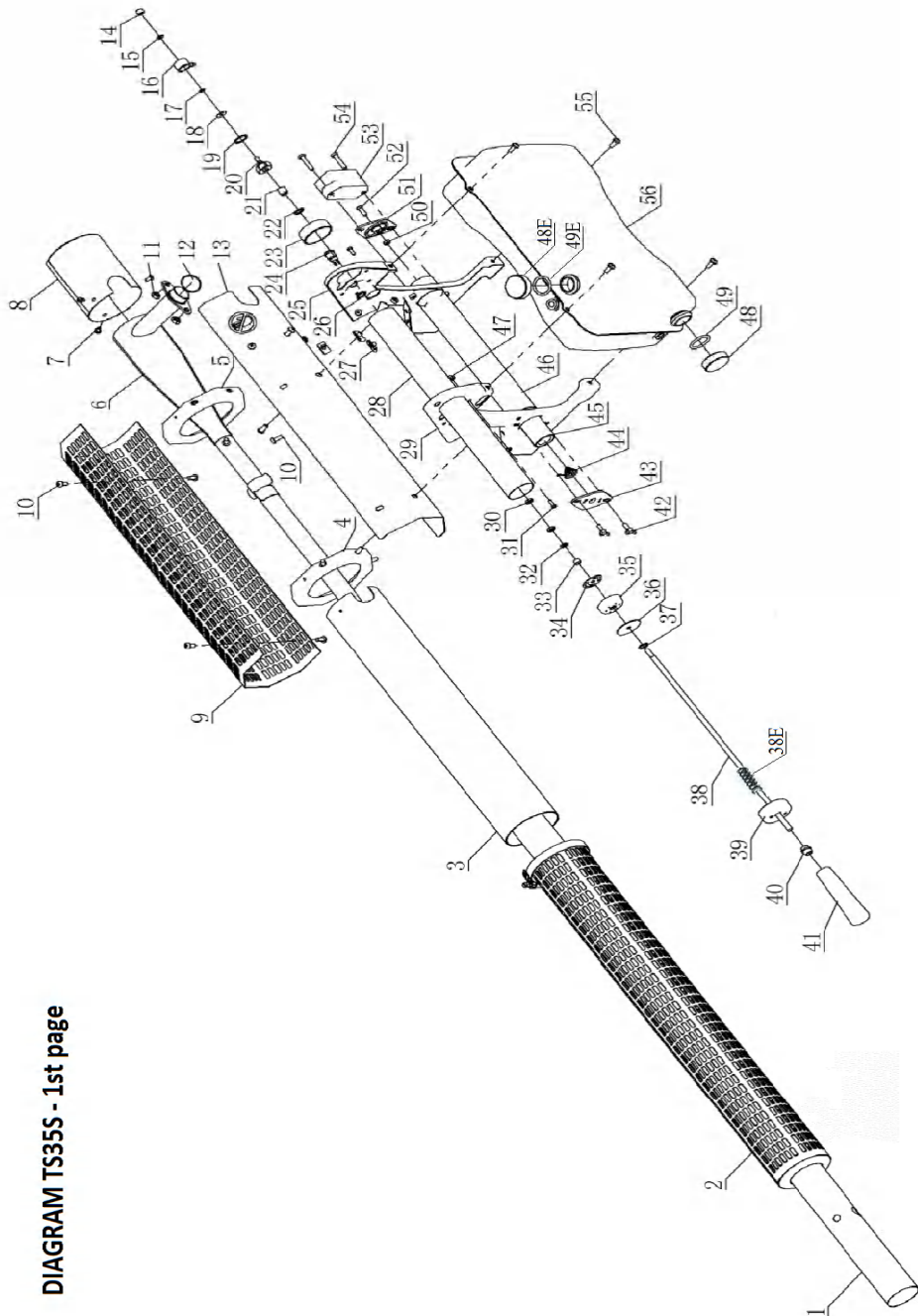


DIAGRAM TS355 - 2nd page



Read Safety Instruction

Before first starting the unit the operator must be firm with the safety instructions. Only educated and authorized persons are allowed to work with the unit.

Trouble-shooting maintenance, cleaning and repair must be carried out at the cold unit only.

1. The operator must follow the actual rules for the prevention of accidents, when working with fuel and fuel driven units like ST FOG
2. Smoking is strictly forbidden, while working with fuel. Nearby to the fuel open flames or other hot thermal sources should not exist.
3. Do not fill the fuel into fuel tank, as long as the temperature of the unit is still high. Danger of fire and explosion exist.
4. Do not spill fuel, when filling the fuel tank. Use the ST FOG funnel with strainer. In case of spilling fuel, use a dry cloth and take residual fuels away from the unit.
5. Never operate the unit, when combustible materials or gas are nearby. Danger of fire and explosion exists, because there is an open flame inside of the fogging tube. Avoid direct contact between the hot fogging tube and other materials, because materials will be damaged due to the high temperature.
6. It is forbidden to fog in rooms with finest combustible dust particles (i.e. grain silo), because danger of dust explosion exists.
7. It is forbidden to fog into enclosed rooms where open flames, candle light, hot engines or electrical appliances exist, because of danger of fire.
8. When fogging in enclosed rooms, take into account that fogging can lead to fire and explosions if the concentration of fog in a room exceeds a crucial value. This is due to the combustible additives of such a fog. Do not fog longer than allowed into enclosed rooms. Make yourself familiar with the dosage of combustible additives in enclosed rooms. Calculate the maximum quantity of combustible additive depending on room size, nozzle size and fogging time, before you start fogging into enclosed rooms.
9. It is not allowed to transport the unit in a closed vehicle, as long as the unit is hot. Wait until the unit has cooled down.

10. Do not leave the working unit unattended in closed rooms.
11. Comply with the specifications of manufacturers regarding safety instruction and dosage of formulations, Do not spill solution, when filling the solution tank. Use the ST FOG funnel with strainer. In case of spilling solution, use a dry cloth and take the residual solution away from the unit. In case of etching formulations wear protective gloves and protective spectacles. Store and dispose residual formulations carefully according to legal regulations..
12. Wear suitable ear protectors when operating the unit. The noise level of the unit exceed 90 dBA.
13. Wear a breathing mask and protective clothing. When fogging in enclosed spaces. Use suitable filters against organic fumes and solvents. When etching formulations are used for fogging, then wear a full protection including breathing mask, protective clothing and protective gloves.
14. In stationary operation the unit must stand horizontal and stable in a rigid base. Unstable positions of the unit are not allowed. Do not leave the working unit unattended in closed rooms.
15. In mobile operation carry the unit by means of the carrying belt. When carrying the unit, tanks show to your body. Do not put the carrying belt onto hot areas of the unit. Carry the belt at the same shoulder side which has to carry the unit. That means, do not put the belt over your neck.
16. Do not touch hot areas of the unit, because touching leads to harmful burns on hand and fingers. Especially the fog tube, the combustion chamber and adjacent part gets extremely hot. During operation the protective covers and the heat deflector shield heats up due to the temperature radiation. Avoid touching those parts.
17. Repair the unit after the unit cooled down, After repair do not forget to reattach heat deflector shield and protective covers.
18. Do not fog if the unit does not work properly.
19. Do not fog directly against persons, walls or other objects. During operation keep distance of minimum 3 meter.



Standard Accessories ST FOG

Dosage nozzle set	- 0.8mm (10 l/h) x 1 unit - 1.0mm (15 l/h) x 1 unit - 1.2mm (20 l/h) x 1 unit
Fuel funnel with strainer	1 Unit
Solution funnel with strainer	1 Unit
Tool bag	1 Unit
Pipe cleaning tool	1 Unit
Screwdriver - Short (2 way)	1 Unit
Screwdriver - Long (2 way)	1 Unit
Open ended spanner (8/10)	1 Unit
Open ended spanner (14/17)	2 Unit
Open ended spanner (17/19)	1 Unit
Carrying belt	1 Unit
Instruction manual and spare part list	1 Unit



Technical Specification ST FOG

Performance of combustion chamber, approx.	18.7 kw (25.4 HP)
Fuel consumption, approx.	2 l/h
Fuel tank capacity	1.2 l
Fuel	Normal grade petrol
Pressure in fuel tank, approx.	0.08 bar (8,000 Pa)
Electronic ignition supplied from	4 x 1.5 V batteries
Solution output, approx.	8 - 42 l/h
Dosage nozzles	0.6 - 2 mm
Solution tank capacity	5.5 l
Pressure in solution tank, approx.	0.25 bar (25,000 Pa)
Weight, empty, approx.	8 kg
Dimension (W x H x L)	27 x 34 x 137.5 cm

20. If the unit stops running due to malfunction or due to missing fuel, close immediately the solution tap (lever show upwards) Slightly incline the fog tube downwards, so that liquid solution flows out of the fog tube. Attention! Liquid solution is inflammable, Use a suitable metal receptacle for collection of liquid solution.
21. Never start the unit, if the swirl vane is detached from the mixing chamber (carburetor) but still connected with the ignition. If fuel tank is open, ignition spark could inflame fuel or fuel vapour. Danger of fuel vapour explosion exist.
22. The reconstruction of the unit without written permission of ST FOG is not allowed. Use only original spare parts and accessories from ST FOG.
23. If you fog into enclosed rooms, those room must be marked as forbidden areas and must be protected against access, especially children.
24. Make sure that a fire extinguisher is available, before you start working with TS35S in enclosed rooms.
25. Before the unit is stored for longer periods, remove residual fuel, residual formulation and batteries out of the unit.
26. Store formulations, fuel and the unit itself at places where they are not accessible to children and other persons, who may not be aware of danger involved.
27. Regards the unit as your personal fogger. Keep the unit always under your responsibility.
28. To avoid chemical reaction when mixing different active substances. The instructions of the manufacturer must be followed.
29. When solution tank is filled, the instruction of the chemical manufacturer must be followed regarding transport, storage etc.
30. Danger of burn / burning by stumble.
31. Walking direction should be contrary to the fogging direction. Pay attention to sufficient sight.

1. Prepare unit ready for use

Having unpacked the unit, you will find the fog tube (1) not assembled, due to safety reasons.

Attention! Never use the fog tube water base setting for oil based formulations, There is a risk of fire. A share of 10% FX Hidro is allowed. When fogging water based formulation with fog tube water based setting.

- Push the protective guard (2) to the end of the cooling jacket (3) and secure to the cooling jacket.
- Push fog tube (1) over the resonator (6) into the cooling jacket (3) until the holes align with the screw neck in the fog solution socket (101).
- After screwing the fog solution socket (101) by hand join the solution dosage nozzle (99) to the solution tube (102) by connecting with the hollow screw (99) and copper gaskets. When tightening the dosage nozzle (99) it is necessary to hold a second spanner against fog solution socket .
- Remove battery cover (43) and insert batteries as per diagram. The positive pole is situated at the contact plate (51) and the negative pole of the battery must be connected with the spring (44) at the battery cover (43). After inserting batteries press battery cover (43) down and first push slotted side over the lower - half unscrewed - wing screw. Thereafter fix upper wing screw (42). Now tighten the lower wing screw.
- Check ignition coil by pressing starter button (24). A buzzing sound is easily audible.
- Fill petrol tank (75) with petrol, without any additives. After filling, tighten petrol cap (7) firmly by hand.
- Make sure that solution tap (110E) is closed. Lever point upwards.
- Fill solution tank (56) Always use solution funnel with filter. Place tank cap in proper position and turn to the right.

1.1 Solution output through Dosage Nozzles

TS35S is already equipped with a dosage nozzle size of 1.2. Nozzles with size 0.8 and 1.0 are attached as accessories.

Water has been used to determine the following outputs (rough values):

Nozzle size	0.8	1.0	1.2	1.4	1.6	2.0
Liter/hour	10	15	20	30	35	42

The output (liter/hour) differs up 20% due to the different chemical and physical properties of the formulations, We advice you to do your own metering of the output under prevailing conditions. This refers mainly to tropical countries.

When applying water based formulations use a small dosage nozzle size max. 1.0 and adjust fog tube to water based setting.

2. Starting the unit

- Pull stop button (96E) at the carburetor upwards.
- Press starter button (24) for ignition and keep pressed.
- Actuate air pump (38). Pump regularly and evenly.
- When the first explosions are audible, pump another 1-2 strokes. The unit should run properly now.

Notice! The air pump creates pressure for the petrol supply. The lower the petrol in the tank, the more pumping strokes are necessary. Therefore always start with a full tank if possible. Let the unit warm up for about 1 minute and keep the solution tap (110E) in close position.

Important! Make sure that the amount of the petrol is sufficient for the intended period of fogging. The content of the standard solution tank is 5.5 L, which is fogged according to the size of the dosage nozzle between 8 - 36 minutes. The unit runs about 36 minutes with a full tanks (1.2)!

3. Stopping the unit

- Turn lever of solution tap (110E) at first into position VENTILATION. Lever is in horizontal position. In position VENTILATION air is ventilated through the solution line (102/ and through the fog solution socket (101).
- Wait until fog is no longer visible.
- Now turn lever of solution tap (110E) into position CLOSED.
- Push stop button (96E) at the carburetor down into position STOP. The unit stops and no explosions are audible.
- Release pressure from solution tank by turning tank cap (48E) to the left.