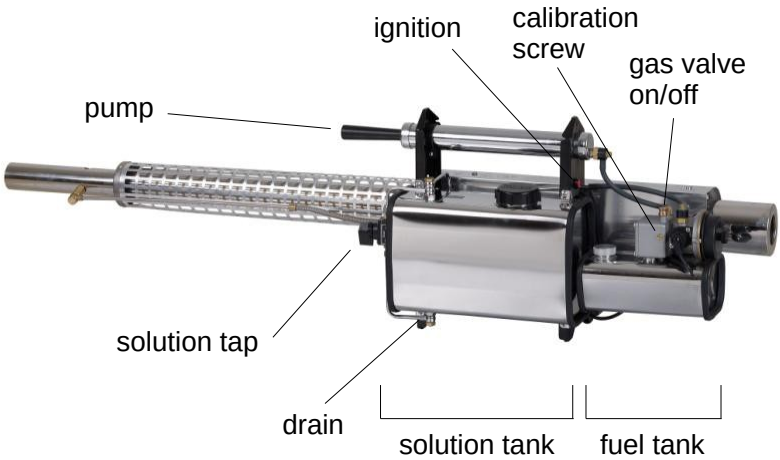
Longray

User Manual



TS35N, TS35NE

Contents

1 Warnings

- Do not use the machine to spray humans or animals.
- After spraying, use water to clean the solution tank and pipeline. This is especially important for corrosive chemicals.
- Strongly corrosive chemicals (such as peroxyacetic acid) may damage the unit. Limit to occasional use, and spray 1/4 gallon of clean water afterwards.
- Do not fill or use fogger near flammables, explosives, or an open flame.
- Wear ear protection and a breathing mask.
- Some components, such as the fogging tube, get hot while spraying.
- Let the unit cool down before adding more solution or fuel. Do not transport or pack the unit while hot.
- Do not exceed the maximum fogging concentration for your solution.

2 Warnings for indoor operation

- In closed spaces, operator should wear a breathing mask.
- Do not leave a running fogger unattended.
- Some aerosol carriers become flammable at high concentrations. Do not exceed these limits per 1000 m^3.

Special carriers	
Nebal	3.0L
Glyzerine	2.5L
Ekomist	2.0L
Ethylengkole	2.0L
UK2-spezial	2.0L
VK1	1.5L
Nevolin/nevocol	1.5L

Fuels and white oils	
Vegetable Oil	2.5L
Diesel/Heating Oil	2.0L
Kerosene	2.0L
Petropal	2.0L
Shell Risella	1.5L

The special carriers volume must be calculated accurately according to the rooms volume.

3 Tech specs

Exact specifications depend on altitude and temperature.

Solution flow rate	5.2 gal/hr
Solution capacity	1.6 gal
Solution pressure	0.2 bar
Fuel engine	25.2 hp
Fuel consumption	0.4-0.5 gal/hr
Fuel capacity	0.4 gal
Fuel pressure	0.1 bar
Fuel type	regular gasoline
Batteries	4 x D batteries
Dimensions	53.9 x 10.6 x 12.2 in
Weight, empty	17.4 lb

Flow rates

Exact flow rate depends on carrier viscosity, which depends on temperature.

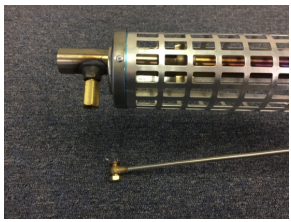
Nozzle diameter (mm)	0.8	1.0	1.2	1.4	1.6	2.0
Flow rate (L/h)	10	15	20	30	35	42
Flow rate (gal/h)	2.6	4.0	5.3	7.9	9.2	11

4 Install

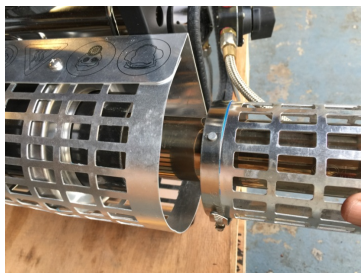
Installing the cooling tube

1. Using the included wrench, remove nozzle screw and nozzle connector. Detach solution pipe.






2. Pull out the inner cage

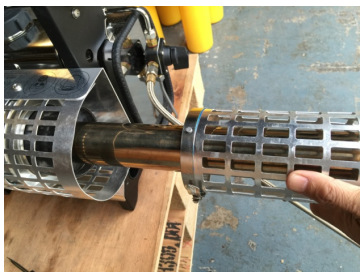


3. Slide in the cooling tube.

    - For oil-based solutions, the end with 4 holes should face outward.
    - For water-based solutions, the end with 1 hole should face outward

4. Align the opening in cooling tube with the opening in the inner fogging pipe. (For oil-based, align the smallest of the 4 holes.)

5. Slide the inner cage back into place.



6. Reinstall the solution pipe. Use one wrench to hold the nozzle connector in place while using the second wrench to tighten the nozzle screw. If not tight, solution may leak.

5 Operation

Prep

1. You must install the cooling tube before operating the fogger. Follow the instructions in the install section.

2. Install 4 x “D” batteries into the battery compartment at the base of the nozzle.

3. Fill gas tank to between 1/4 and 3/4 full.

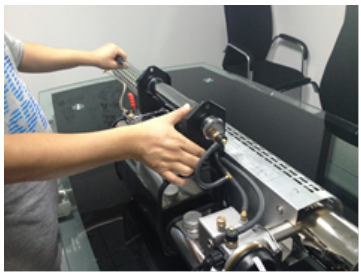
4. Fill solution tank about 2/3 full.

5. The solution tap should be OFF.

To start spraying

1. Open the gas valve by pulling up.

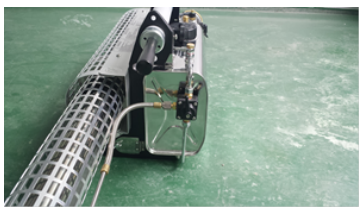
2. With your right hand on the ignition button, use your left hand to make full-length pumps, one cycle per second.



3. Pump faster as you hear engine start, until it runs continuously.

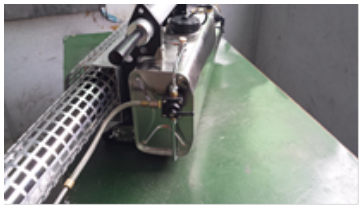
4. Wait 1 minute for the machine to warm up and build solution pressure.

5. To start fogging, turn solution tap to ON.



To stop spraying

1. Turn solution tap to CLEAN. This releases the solution pressure.



2. Once the spray dies down, turn solution tap to OFF. **You must turn off solution tap before shutting off the engine in the next step, otherwise solution left in the fogging tube will burn. If you forget to do this, follow the Reset Procedure in the Appendix.**

3. Shut off the engine by pushing down on the gas valve.

4. Empty the solution tank and rinse with clean water. **Do not store chemicals in solution tank for long periods.**

5. If you won't be using the machine again soon, remove the batteries.

6 Troubleshooting

Engine does not start

WARNING: Do not try to take apart the engine. Doing so can damage it.

Follow the Reset Procedure in the Appendix, and try again. If the machine still doesn't start:

1. Check ignition box by pressing the ignition button. You should here a "Ta Ta Ta" sound. If you do not hear any sound, check the batteries.

2. Check for damage around the ignition button.

3. Check the one-way valve for damage or poor fitting.

1

2

good

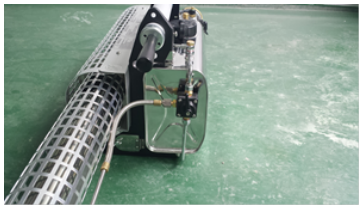
broken

When reinstalling the one-way valve, do not screw too tightly, otherwise air flow may be blocked, preventing startup.

4. Clean the air intake diaphragm - see appendix.

Engine starts, but no fog comes out

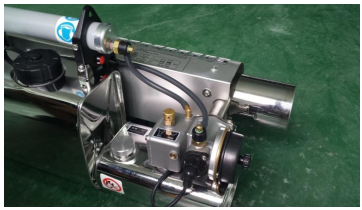
1. Make sure solution tap is turned to ON.



2. Open the solution tank lid, and check the rubber gasket inside the lid is in place.

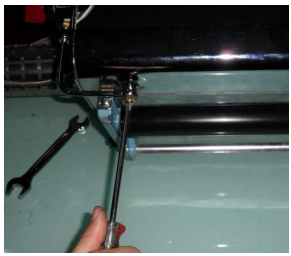
3. Check solution tank pressurization. Start up the machine, remove the solution tank lid, and cup your palm over the solution tank opening.

4. If you cannot feel solution pressure, check the airway tube for damage.



The airway tube is the top tube in this picture.

5. Check the solution filter for clogging.



6. Clean the solution pipeline - see appendix.

7. Check the solution tap for jamming.

8. Remove any clogs from the solution feed tube.

Nozzle emits flame.

Decrease the engine power - see appendix.

7 Appendix

Reset procedure

1. If the solution tap is ON, turn it OFF.
2. Close the gas valve by pushing down.
3. With right hand on ignition button, use left hand to push and pull the air pump.
4. Pump until there are no more engine pops, or after 8-10 pumps.

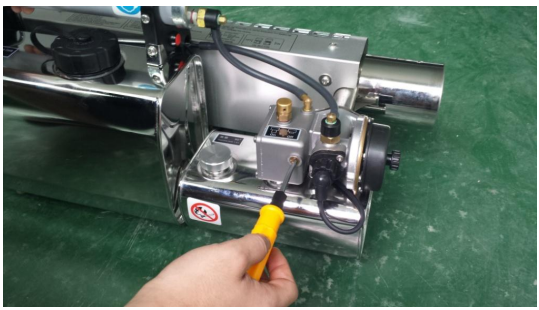
Engine power setting

Your machine's engine power was set at the factory.

In cold climates, you may need to increase the engine setting to get the engine to start. In hot climates, you may need to decrease the setting to get the engine to start.

- The engine power setting is too low if: engine does not start and emits low, weak noises durings startup.
- The engine power setting is too high if: engine does not start and emits a "Pu Pu Pu" sound.

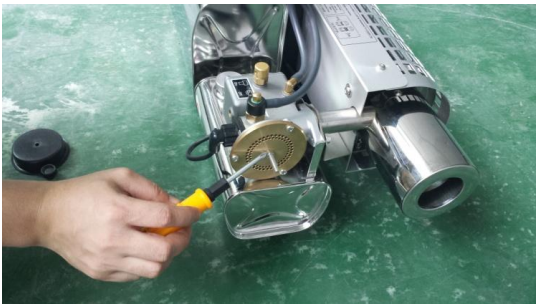
To increase engine power, turn the flat-head engine power screw counter-clockwise by 90 degrees. If more power is needed, turn the screw another 90 degrees counter-clockwise. **Do not turn the screw any further (no more than a total of 180 degrees from the factory default setting)**.



Cleaning the diaphragm

If the diaphragm in the air intake is wet, dislocated, or damaged, the engine may suffer airflow issues and not start.

Follow these steps to remove the diaphragm for cleaning.



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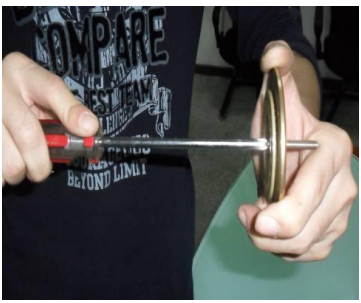

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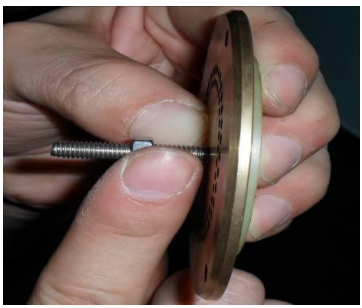

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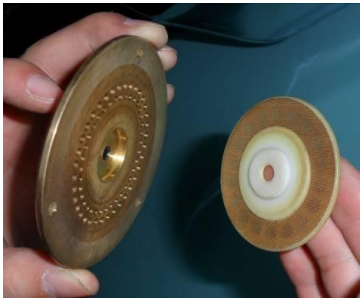

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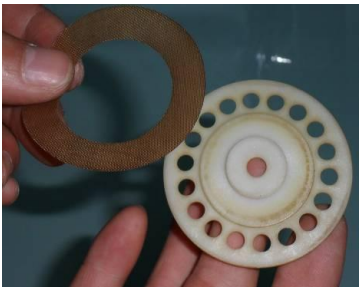

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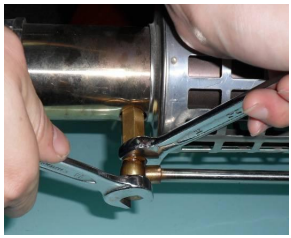
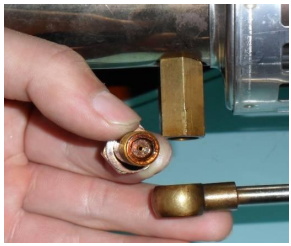
Use a soft cloth to wipe the diaghragm. Make sure the diaphragm is dry, wrinkle-free, and sits flat and **centered**.

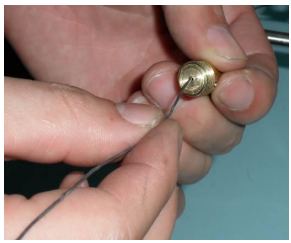
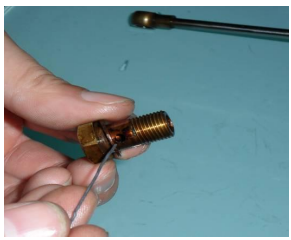
Follow the instructions in reverse to reinstall. Be sure to tighten the central nut in step 6.

Cleaning the solution pipeline

1. Use wrenches included in the spare parts kit to take apart the solution pipeline.

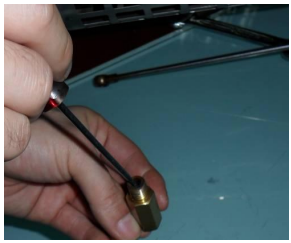



2. Use a thin wire to clean out the nozzle.

3. Scrape away any residue in the connecting joint.

4. Remove any deposited carbon from the pipeline connector.

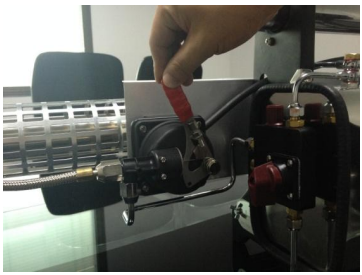


Automatic Cutoff Device

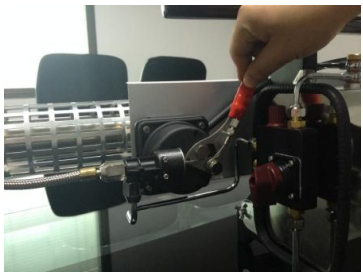
In the usual shutdown procedure, solution flow is turned off **before** the engine is turned off, since solution that is allowed to settle in the still-hot fogger tube can burn.

If the engine shuts off unexpectedly, for example if gas runs out, then you may not have time to turn off solution flow beforehand.

The optional automatic cutoff device immediately turns off solution flow if the engine stops.



READY



DISABLED

If your unit is equipped with an automatic cutoff device, follow these modified startup and shutdown procedures:

1. **Automatic cutoff should be DISABLED.**
2. Start the engine as usual.
3. Turn solution tap to ON.
4. **Set automatic cutoff to READY by pushing the lever LEFT.**
5. Begin spraying.
6. When you are done, turn solution tap to CLEAN, then OFF.
7. Turn off the engine by pressing DOWN on the gas valve.
8. **Set automatic cutoff to DISABLED by pulling the lever RIGHT.**