

This guide is to help you diagnose and repair some common fogger problems. We recommend using water for troubleshooting and testing. Most tests pertain to all models. Those that apply only to specific products are noted.

If you don't want to do your own repairs, you can send the unit to us. We charge for repair parts only (no labor), plus shipping both ways. Repair cost estimates are free. (See the "Contact Us" page of our web site for instructions.)

The first step in fixing your fogger is to determine exactly what the fogger is not doing. This guide is broken down into sections that pertain to each problem.

### 1. The motor does not run.

Is power available at the electrical outlet? Is the fogger's power switch turned ON? Is the power cord in good shape with no bare spots or breaks? If 'yes', you must open up the unit to troubleshoot further.

- A. Open the power head.** Unplug power cord. (see FTN-028 "Front housing removal for HH/DM units")

The motor, switch, and electrical contacts are now accessible. Verify that the power cord, switch, and electrical contacts are good. Verify continuity from plug to motor brush lead with an ohmmeter. If you find a problem in the power cord or switch, replace them. If everything is OK, check the motor brushes.

- B. Check motor brushes.** Unplug power cord. Remove brushes (see FTN-004 "How to change motor brushes") and inspect. The graphite conductor should push out from its housing (a new brush extends about 3/4 inch). If the brushes are worn out, install new ones. If the commutator is severely scratched or damaged, replace the motor.

### 2. The motor runs, but is noisy. Or there is no (or limited) air flow.

Open the power head [1A]. Lift the motor out of the rear housing. Leave the wires attached, letting the gaskets and metal torque ring dangle. Make a quick check of the fan assembly to see if it is loose or contains debris. The nut holding the fan should be securely in place, and the fan blade (partial view) should be securely fastened.

Turn the shaft by hand, listening for a noisy motor bearing or scraping of a fan blade dragging on the housing. If the fan blade is broken or has its center torn out, replace it (see Note FTN-011 "How to replace a fan blade"). Otherwise, replace the motor.

Inspect the rear louvers for damage. Sometimes these can become dented and decrease the amount of air the motor can pass through the unit. Straighten any louvers that have become closed off.

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### 3. The machine produces no fog, diminished fog, or a spitting, pulsating fog.

The fogger nozzle creates a venturi effect to draw liquid into the head. If there is no liquid flow, there are several possibilities:

- A. **The liquid path is blocked.** Check the fluid path. Open the fogger regulating valve [note: the 6309 Pow-R-Jet® has no valve] and force air or water into the liquid inlet tube (if you use water, point the nose of the fogger down). It should pass through the internal tubing and exit the venturi assembly at the nose of the power head.

If not, something is blocking the liquid lines. Check the easily accessible parts first: intake screen and tubing, and the liquid tube between the front housing and the cover plate. If these are clear, check for a blockage in the power head, most likely in the control valve. Turn the knob to make sure the valve is open.

- B. **The venturi assembly (nozzle) is not functioning properly.** The venturi may be damaged or dirty, or the air flow around the nozzle assembly may be distorted, most likely because the front housing is dented. Sometimes you can fix a dent [see 3D, below].

Cleaning the venturi may fix the problem. Inspect it closely prior to disassembly so you can reassemble it properly. Taking a picture before disassembly is a great tip. If any component is damaged, install a new assembly.

- C. **There is a break in the internal tubing (loose or cracked).** Some chemicals can cause the tubing to swell or come loose, breaking the suction needed to raise the liquid to the nozzle. Install a tubing kit, replacing all tubing. The standard tubing material is fuel and oil resistant vinyl. If you suspect the standard tubing is incompatible with your chemical, install a Viton® tubing kit instead.

- D. **The front housing is dented or uneven, allowing air to bypass the nozzle assembly.** Open housing [1A], remove venturi assembly (take note of its orientation), set the nose on a flat surface and tap the front of the housing flat with a hammer and wooden dowel from the inside.

### 4. The machine blows air (bubbles) back into the tank or drum.

An internal liquid line is disconnected, letting pressurized air escape from the power head through the suction tube. Reconnect loose tubing. If tubing is cracked or brittle, install a new tubing kit. If the standard tubing is being attacked by your chemical, another tubing material may perform better. Consult the factory for alternate materials.

*NOTE: The power head of certain models has two tubes, one to draw liquid into the unit, and one (on the switch side of the power head) to supply make-up air to the reservoir. Make sure they are connected properly to the barbs on the cover plate.*

### 5. The machine fogs for a few seconds then stops.

This is usually a sign of the vent hole in the unit being plugged by some type of debris. This hole is located in the center of the coverplate or lid of the tank. Use a paperclip or small pin to push through the opening and ensure it is not plugged.

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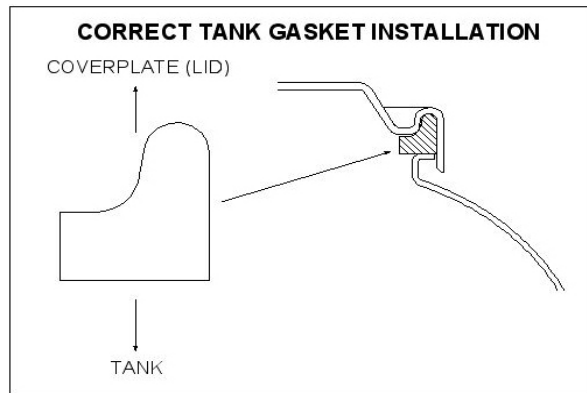
## 6. Leaking tank or improper tank closing.

Several different issues can lead to chemical leakage from the tank of your fogger. The most common issues are:

**A. The tank gasket is damaged.** The most common problem is a tank gasket that is old and damaged. Old tank gaskets can either shrink or stretch depending on the effects of the fogging solution. Once the gasket is removed from the fogger base, try to reinstall it. If it is too large to go back into the groove or too small to stay in place, replace it.

**B. The tank sealing lip is damaged.** The sealing lip can be damaged if the tank is dropped or banged into a hard object. Empty the tank and dry the inside. Turn the tank over and place the sealing surface onto a hard flat surface like a table. Look where the sealing lip comes in contact with the table. If you see any areas where the lip is not in contact with the table, it is a possible leak. Use pliers to gently bend the lip back into position and recheck to ensure the lip lays flat against the table.

**C. The tank gasket is installed incorrectly.**  
The tank gasket only installs in one direction. The flat side should face toward the tank. The side with the contoured edges should face toward the tank lid.



**E. The tank clamps are incorrectly adjusted.** Over time, the clamps can stretch and not seal the power head tightly to the tank. They can also get too tight and not close completely if the tank gasket is installed incorrectly. Please read FTN-017 ("Fixing tank clamp problems") for several suggestions to solve these issues.

**F. The tank has a hole in the bottom.** Older tanks that have had fogging solution stored in them for long periods of time can develop small holes in the bottom. Rinse the tank out thoroughly and wipe the inside with a clean towel. Hold the bottom of the tank up to a light source and look at the inside of the tank. If you see any light shining through the bottom, replace the tank.

[This note does not apply to the Fogmaster Jr, model 5330.]

Motor brushes conduct electricity from the fogger's fixed wiring to the motor commutator, causing the shaft to spin. Brushes are made of graphite – a good conductor and a good lubricant. A motor uses two brushes.

### Brush Life

Motor brushes are wear parts. The typical life of a conventional brush is about 600 operating hours under good conditions, but brush life may be reduced by other factors. A rough or worn commutator increases wear. Operating without an intake filter exposes the brush to dust or grit in the intake air. Both reduce brush life.

One remedy for brush wear is a "brushless" motor such as that used in the Sentinel® 58xx product family. Sentinel motors routinely run 5-6,000 hours with minimal maintenance.

Another remedy is the LS motor, which has demonstrated lifetimes in excess of 3,000 hours in run-to-failure tests. LS (for Longer, Stronger) motors are particularly well suited for heavy-duty, 24/7 applications such as landfill odor control.

### Brush part numbers

To replace brushes, consult the parts list for your machine to identify the proper ones. If you have a Ametek/Lamb motor, we recommend installing a MOTOR SAVER brush on one side. The MS brush shuts down the motor when it is has been used up, minimizing the likelihood that the brush tang will scratch the commutator. Replacement brushes and part numbers are:

P/N 033: Brush kit (one standard, one MOTOR SAVER, Lamb). 120 VAC.

P/N 034: Brush kit (one standard, one MOTOR SAVER, Lamb). 240 VAC

P/N 030: Brush kit (two standard, Lamb). 120 VAC.

P/N 032: Brush kit (two standard, Lamb). 240 VAC

P/N 031: Brush (one standard, GS). 120 VAC.

P/N 037: Brush (one standard, GS). 240 VAC

P/N 035: Brush (one MOTOR SAVER, Lamb). 120 VAC.

P/N 036: Brush (one MOTOR SAVER, Lamb). 240 VAC

P/N 550: Brush kit (one standard, one MOTOR SAVER, Sentinel II). 120V

P/N 555: Brush kit (one standard, one MOTOR SAVER, Sentinel II). 240V

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### To replace Ametek/Lamb motor brushes

1. Unplug unit from power to prevent shock. On hand held and drum mounted foggers, remove front housing to access the motor. (Note FTN-005 "Maintenance Tips" tells how to build a simple workstation for this task.)
2. For Sentinel II models only: remove the black plastic shroud protecting the cooling fan. The shroud is secured by two metal clips anchored above the motor brushes. Use a small flat blade screwdriver to pry the clips out while gently lifting the shroud to remove it.
3. With a small flat blade screwdriver push the motor lead terminals out of the plastic brush housing, towards the commutator. Take care not to break the contact or the wire. If the housing is tight, heat it slightly with a hair drier or heat gun to soften it before sliding out the terminal lead.
4. When the terminal lead is loose, remove the two screws and retainer holding the motor brush. Remove and discard brush.
5. Hold the new brush in position (tab down). Insert the contact (flat brass piece) into the brush assembly between the brass shell and the plastic housing.
6. Slide the brush assembly towards the commutator until the tab seats into the notch on the motor frame. Replace brush retainer clamp and two screws.
7. Slide or pry wire terminator securely back into brush housing.
8. Repeat steps 3-7 for the other side.
9. Replace motor fan shroud (if installed) and reassemble fogger housing.

### To replace GS motor brushes

1. Unplug unit from power to prevent shock. Remove front housing (see "Workstation" in FTN-005).
2. Using a long nose pliers, gently pry the wire and spade connector from the brush. Do not break wire.
3. Use a 1/4" nut driver to remove the retaining screw. Raise the rear of the brush and twist counterclockwise slightly to remove.
4. Twist new brush into position, making sure it is seated in slot. Replace screw and wire spade connector.

Repeat for the other side.



Fogger motors run at very high speeds (18-20,000 rpm). If you twist the fogger aggressively while it is running, you can stress the thin back plate of the fan blade, causing it to flex and scrape against the housing with a shrill, scraping noise.

Repeated flexing reduces the ability of the fan blade to absorb this stress. Eventually the blade will fail and separate from the motor shaft. When this happens, the motor runs, but does not blow any air.

### To Replace a Broken Fan Blade

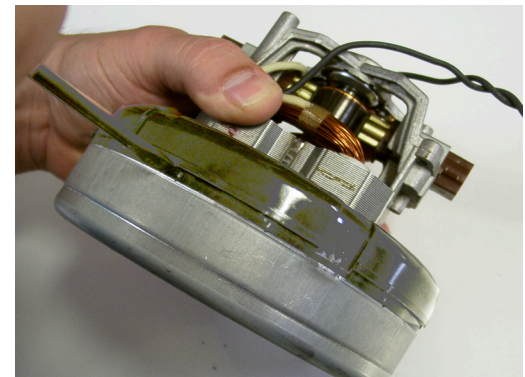
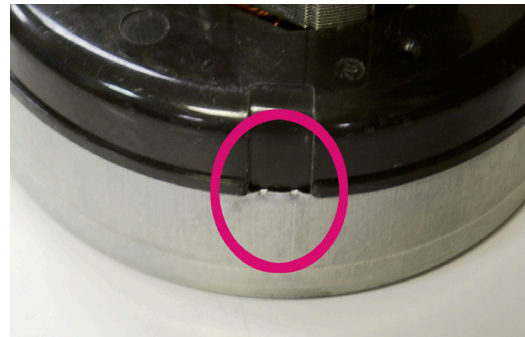
Open the fogger (see FTN-006 "Troubleshooting Guide") and remove the motor.

Remove fan housing: Straighten the three bent tabs that secure the housing to the plastic motor housing. With a screwdriver, gently tap the metal housing downward until it releases from the black plastic housing.

Work the metal housing down until it pops off.

Remove the motor shaft nut securing the back plate of the fan blade to the shaft. Remove remnants of old fan blade and install new one (part number = 040). Reassemble.

If the shaft nut is too tight, you may not be able to unscrew it using only your hand to hold the armature. Use a 1/8" Allen hex wrench to prevent the shaft from turning.



New units ship with the tank clamps in position, fully latched. Clamps should open with a definite click. Closing them requires a little effort. When closed, clamps should hold the tank or drum adapter tightly to the power head, with no air or liquid leaks.

For information about fixing a tank clamp problem, read on.

#### Clamp is loose: Missing Tank Gasket

The tank gasket is required to give a tight seal. Confirm that the gasket is in place.

#### Clamp cannot be closed: Tank Gasket Is Reversed

The contoured side of the gasket fits in a groove on the cover plate. The flat side of the gasket should face out to rest on the top of the tank. An upside-down gasket will raise the cover plate, and make it impossible to latch the clamps.

#### Clamp is loose: Torn Rivet Hole

The clamps are held by rivets. If rivet holes are torn or opened up (perhaps by chemical attack or by excessive force closing the clamp), you may be able to drill out the rivet and replace it with a machine screw and nut. Usually, however, you must replace the tank.

#### Clamp is loose: Bent

If the clamp has been bent out of shape, you may be able to bend it back using off-set pliers, as shown.

The clamp is manufactured of spring steel and will resist your efforts. Squeeze cautiously, but firmly, bending a little at a time, and try the fit on the tank.

If both clamps are bent, make minor adjustments to each in turn, testing the fit as you go.



During the course of its life, a fogger may need to be disassembled for repair. This may be to clean a dirty nozzle assembly, repair a dent, inspect the unit for motor brush wear or to diagnose an electrical issue.

The following procedure can be used for both the hand held or drum mount foggers. Always unplug the power cord of the unit before any maintenance is performed.

- **Loosen the four housing screws.** These consist of a straight bladed screw head and a 3/8" acorn hex nut on the other end. These screws should be loosened but not taken apart.

- **Remove the tank gasket from the base of the fogger.** Stretch the gasket over the back of the unit until it touches the screw heads. This holds the screws and stops them from falling out of the housing.

- **Place the fogger on a hard work surface.** Place the louvered end on the surface and the nozzle end facing toward the ceiling. The four nuts that were loosened in the first step can now be removed.

The tank can also be used as a simple workstation to hold the unit. Place the louvered end of the unit into the top of the empty, dried tank. This will hold the fogger in place while you continue.

- **Remove the liquid tubing.** Slide the outer spring down to expose the yellow liquid tubing. Grasp the yellow tube near the hose barb and pull the tube loose of the front housing.

- **Remove the front housing.** The front housing of the unit can now be removed and laid over to the side to reveal the inside of the unit. If the housing will not come loose, a simple shake of the front housing will usually allow it to break free.

- **Reassemble the unit.** To reassemble the unit, reverse these steps. Tighten the nuts until they are all in contact with the housing. Then proceed to final tighten the nuts in a crisscross pattern. This ensures the housing screws are tightened evenly.

Note: If the unit has a high-pitched squeal when it runs after this procedure, the front housing is not setting correctly on the unit. Loosen the four screws again and re-tighten using the crisscross method.

