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How to Resurrect a Potentially Dead Fog Machine

I decided to document this so that my fellow haunters, who might be in the same situation I was, can possibly save themselves some cash and aggravation if they discover their Lite F/X Fog machine won't blow fog. I originally found the same type of write up online, but I didn't bookmark it, nor can I remember who the author was. If I figure out where I saw it, or find out who wrote it up, I will gladly make note of it later. Till then, let's carry on.

During last year's haunt, 3 out of our 5 fog machines stopped working. Two of the three stopped because they ran out of fog juice. As everyone that owns one knows, this is the worst thing that can happen to a fog machine. Without the vital fog juice to keep the pump lubricated, the pump seizes up and prevents the fog machine from working properly.

So, how do you know if this is the case with your fog machine? You can usually tell by the fact that the heating elements still heats up and the light on the remote control still turns off to indicate that it is ready to create fog. When you press the switch, the light comes on, but the typical hum of the pump doesn't happen, nor does it create fog.

OK, so we diagnosed the problem, now how do we fix it? Actually, very simply. What we have to do is open the fogger, clean out the pump, reassemble, and test. Sounds easy enough, so lets get started.

Step 1: Before We Begin...

Please read thru the ENTIRE How To before you start. If there is a step you don't understand, email me! I would much rather answer questions before you get started, than have you tear into it and get stuck in the middle. I will answer any questions I can. You can find my contact info at the end of this How To.

Step 2: Gather the Required Tools

To complete this tutorial, you will need the following tools...

1. A Phillips head screwdriver with a decent point. (Not Pictured)
2. A pair of side-cutters. (to cut plastic wire ties if necessary)
3. A utility knife
4. A 6 inch piece of #14 or #16 gauge wire (not pictured)
5. A syringe (obtained from the local Giant Eagle pharmacy with an infant prescription)
6. A 12mm open end wrench
7. Miscellaneous disposable bowls / cups
8. Coffee Filters
9. Paper towels
10. Funnel (not pictured)

While you are gathering things, make sure you have your fogger remote and a bottle of "clean" fog juice handy. You will need them to test the fog machine after you are done.

Tip: If you don't have any spare "clean" fog juice (or you just don't want to risk contaminating fresh fluid with contaminated fluid), you can use the coffee filters and funnel to strain the fluid into a separate container. I had to do this with my fogger. The strainer was completely trashed from years of sitting in fog juice. Eventually, over time, fog juice and moisture get to the metal under the silver coating and cause it to erode. This erosion destroys the strainer and contaminates the fog juice in the bottle with little metal pieces. These pieces sometimes make it into the pump and can cause the pump to fail. They also can clog the tubing to the pump, in effect causing the pump to seize due to lack of lubrication. To strain your fog juice, simply place a coffee filter in the funnel and pour the fluid into the funnel.

Obviously, you will want to collect the strained fluid into a clean vessel for storage. Make sure you rinse out the fog juice jug thoroughly before refilling it with fog fluid. No sense pouring good juice into a jug that still has metal bits inside.

Step 3: Disassemble Fogger

Make sure your fogger is Unplugged from the electrical outlet and that it is completely cool. Don't try to complete this How To with a fogger that has recently been plugged in. Those parts get awfully hot!

If your fogger has any fog fluid left in the bottle, empty it into a plastic cup big enough to hold all the fluid. Set aside for now. With the yellow cap removed, take your side cutters and cut the plastic wire tie holding the strainer onto the end of the plastic tubing. Remove the strainer by pulling it off the hose and set aside. Once the strainer is removed, using your utility knife cut the section of tubing off just above where the strainer has faired it out. This is necessary to allow you to pull the tubing out of the top cover plate. If you can't pull off the strainer, simply cut it off. You can nibble the tubing off the strainer barb later. Pull the yellow cap off the tubing and set aside.

Using your screwdriver, remove ALL the screws from the top cover (the piece with the two plastic handles). With the screws removed, lift off the cover using the handles. Pull the tubing out of the hole, and set the cover aside. Remove the fog juice bottle by simply pulling it out.

Now flip the fogger over so it is sitting on its top. Remove all the screws EXCEPT the four corner screws and the three screws in the middle of the bottom plate. If correctly done, the two side panels should slip off now leaving you with the bottom plate and the two end plates, as seen below. Roll the fogger back the right side up.

Step 4: Remove Pump

Now that we have complete access to the insides, we now need to remove the pump. This is done by using your 12mm wrench and completely loosening nut number 1 . Once loosened, slide it up the brass tube so it is out of the way. Next LOOSEN nut number 2. Do not completely remove it. We just need to give the tubing enough play so we can rotate it up and out of the way.

After loosening the nuts, roll the fogger onto it's side. Locate the single screw in the bottom plate that is directly under the pump, and remove it using your screwdriver. With the fogger back on it's base, you should be able to CAREFULLY pull the brass tube out of the top of the pump, as seen below. Make sure you do not kink or bend the brass tube.

Step 5: Disassemble the Pump

Now that the tubing is out of the way, we can pull the pump out of the housing so we can work on it easier. Feel free to snip any of the wire ties that are keeping the wires tidy. It will be much easier to work with out in the open. During this step, GO SLOW! Take notes if you have to of what goes where. If you put the parts back in the wrong place, you can cause more damage to the pump assembly.

With the pump in one hand, grasp the exhaust housing and twist it counter clockwise until separated from the pump. The exhaust housing is the 90 degree elbow that the brass tube used to connect to. You might think that the pump and the exhaust housing is a solid piece, but it is not. This is evident by the red splotch of material used to mark the seal for tampering.

After you have removed the exhaust housing, be careful you do not loose any of the parts inside. These small parts are what pump the fog fluid from the tank into the heater element. When completely apart, you should have the following parts, Pump housing (not in picture), Inner Spring, Small Rubber Ring, Flat metal Washer, another slightly thicker Rubber Ring, Piston, 2 larger Rubber Rings, and the Exhaust Housing.

Step 6: Cleaning the Pump and Miscellaneous Parts

I don't have a clue to what the junk is that accumulates on the piston and inside pump walls, but I do know that it can be removed using certain types of household cleaning products. For example, I used Kaboom to clean the parts of this fogger. It actually worked quite well. Although I haven't tried them, I would assume that products like Lime Away or CLR will work also. I just use whatever my wife buys to clean the shower stall from mineral build up.

It is a little hard to tell in the photo, but if you look at the piston, you will see a buildup of "crud". The crud actually gives the piston a dull finish. This crud needs to be removed, along with any other crud you see. The easiest way I found to do this is to soak the piston in the Kaboom for a couple minutes, then wipe it down with a cloth or paper towel.

Once cleaned, your piston should be smooth all over. No gouges or scratches to speak of.

The same goes for the rest of the parts. Go ahead and submerge them in the Kaboom. While they are soaking, take a Q-Tip soaked in Kaboom and rub down the interior of the Pump. Repeat until the Q-Tip comes out clean. Verify that the tiny inlet hole on the far side of the pump is open. You should be able to see daylight thru the pump. If not, pull off the plastic tubing and clean the other side. If necessary, use your utility knife to scrape any crud buildup off. Just be careful not to gouge the pump housing.

After cleaning all the parts, you need to clean the exhaust housing. Once again, take a Q-Tip soaked with Kaboom and carefully clean the inside of the housing. There is a tiny ball in the corner of the bend that needs to be able to move freely. I believe this ball acts as a check valve (meaning fluid can only flow in one direction, out of the pump and into the heater). Continue cleaning until the Q-Tip comes out clean. Make sure you wipe down the insides of the short section. If the rubber ring seals can't mate to a solid surface, the pump will not work optimally or at all.

If you cleaned everything properly, you should have shiny smooth surfaces on all the metal pieces (except the exhaust housing which has a dull finish). The rubber rings should be solid with no flat spots or nicks. Be sure to inspect each part for damage or wear. Replace if necessary.

IMPORTANT: Make sure you wipe down all surfaces that were cleaned. Kaboom (and other cleaners) react with certain metals. Although I haven't had any problems, the last thing you want to do is have to clean the pump again next year.

Step 7: Reassembly

Following any notes you might have taken, reassemble the pump.

VERY IMPORTANT! When assembling the pump, make sure you soak every part in clean Fog Juice. The reason for this is because it is the only thing that lubricates the pump during operation. No lubrication, the pump won't work. I personally like to take a cup and place the piston, rubber rings, metal washer, and spring inside with enough fog juice to submerge the parts. The only part I don't submerge is the exhaust housing. Let the parts sit for a minute to make sure they are coated evenly.

Start by installing the spring back into the pump housing. Then take the two large rubber rings and insert one into the gap in the pump housing. The other is inserted into the short side of the exhaust housing.

Next, take out of the fog juice the piston, small rubber rings, and the metal washer. Slip the thicker ring onto the piston, then the metal washer, then the thinner rubber ring. Put this assembly back into the fog juice.

Now take your syringe and fill it the whole way with fog juice. With your syringe, place several drops of fog juice into the inlet side and exhaust side of the exhaust housing. Use the piece of wire to help the fog juice settle to the bottom if necessary. Once all the internal cavities of the exhaust housing have been lubricated, insert the piston assembly into the exhaust housing. Once again, re-apply fog juice to any of the parts you handled. Take the exhaust housing with the installed piston and screw it back onto the pump housing. You will have to push slightly and turn at the same time in order to compress the spring inside. Go slow and don't cross thread the assembly. Keep twisting until it is fully seated and the red tamper protection sealant lines up.

Before you mount the pump back into the fogger, this would be a good time to clean up the brass tubing if necessary. As you can see in the picture, mine had Teflon tape hanging from it. I purchased this fogger used, so I wasn't surprised when it didn't work. I could tell that the previous owner tried to fix it once already and failed.

Anyway, remove any tape or other crud that might be on the line. This will ensure easier reinstallation of the nut. Slip the brass tube into the exhaust housing and tighten the nut. Tighten nut #2 on the heater core. Roll fogger onto it's side and install the screw back into the bottom of the pump housing.

Tip: If the black pump housing no longer lines up with the bottom plate, simply twist it around. The plastic housing simply slips over top of the motor to allow for positioning. You can see what I mean in the picture on the right.

Step 8: Testing

All right, you made it! Now that wasn't that hard, was it?

For testing, don't worry about putting all the side panels and such back on. Your fogger will work just fine without them. Besides, if it doesn't work, you will just need to pull all those panels back off to get back at the insides.

Before you plug in your fogger, take the syringe of fog juice that you filled earlier and carefully press it onto the end of the plastic tubing that would normally be inside the fog juice jug. Once that is done, go ahead and plug in your fogger trigger switch and power plug.

Once the unit is heated up and ready to blow fog, grasp your syringe and GENTLY push in the plunger with one hand AT THE TIME you activate the fogger trigger. The reason for this is to help the pump start pulling fog juice thru the plastic tubing. If you didn't notice, when you dissembled the pump whatever fog juice that might have been in the line probably dripped out all over your work surface. The syringe will help the pump get fog fluid faster, therefore keeping it from seizing up again. Once the pump is pulling the fog juice normally, go ahead and remove the syringe and put the tubing into the normal jug that was in the fogger. Make sure there is enough juice to submerge the end of the hose.

If everything was done correctly, your fogger should now be bellowing fog like a champ. I, of course, couldn't be that lucky. This fogger must have been abused. The little fog it did produce had a bad burt smell to it, and shot out the end of the nozzle at an angle to the right side only. Not a good sign.

CAUTION: Before attempting to clean any part of the heater element, disconnect the fogger and allow it to completely cool! Even without the switch depressed, foggers will without warning, shoot out very short whisps of fog. You do NOT want your hands or face anywhere near the nozzle if this happens. You can get burned.

The only thing I could think to do was to jam something in the nozzle to try to clear any obstruction that might be in the way. I took my piece of wire and stripped off a section of the insulation about 4 inches long. I then made sure it was as straight as possible. With the fogger completely cool, I removed the nozzle cover by simply twisting and pulling simultaneously. It is not threaded on, so a simple twist and it pops right off.

With the nozzle cover removed, I could see the tiny opening where the fog exits. I proceeded to carefully slide the wire into the nozzle, carefully scraping the inside edges of the heater. I didn't notice any major blockages, but it seemed to do the trick. After I was done, I replaced the nozzle cover, plugged the unit back in, and retested. Actually, my 2 year old retested it for me. He is definitely going to be a haunter when he grows up!

In Summary:

This is actually a pretty straight forward project. I had no problem completing it in about 30 minute's time, not including the multiple warm up/cool down cycles.

As stated earlier, if you have any questions about the steps I outlined above, please don't hesitate to contact me. I would be more than willing to answer any questions you may have. You can contact me using the following email address: coffinbound at verizon.net

So what are you waiting for? Go get that fogger out of the trash and get to work!