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## Cleaning Instructions: Epson Direct Inject Cleaning

**Problem:** Some or all of the Nozzles on an Epson printer are missing.

**Solution:** Install a brand new cartridge and run cleaning cycles in groups of three

**Dilemma:** A new cartridge and running cleaning cycles has no effect on the problem

**Potential Solution:** Use MIS Nozzle Fluid or do Direct Inject Cleaning

**Hopeless Situation:** Nozzle Fluid and Direct Inject Cleaning did not work

**Solution:** Send the printer to Epson for repair or buy a new one.

## First Try Eliminating Banding on Epson Printers:

This tip is somewhat generic; it was suggested for Epson printers but works on all the printers. Don't run more than 3 back to back cleaning cycles, it just makes things worse.

Epson printers have 3 durations of cleaning; short, medium and long. The short cleaning cycle occurs on the first and 4th cleaning cycle and on every one after that, until a print is made. This short cleaning cycle can knock out all the nozzles. In other words, if you do a bunch (8 or 10) cleaning cycles with out making a print, you may destroy your printer.

After 3 cleaning cycles, print a test pattern (MIS purge6.tif is a good one). Print it using 360 dpi, plain paper settings. Make at least one print. It may not be perfect, but this will reset the firmware in the printer so you can get the short, medium and long cleaning cycles again. It is the medium and long cleaning cycles that will get your printer back up and running again.

If you have done 6 cleaning cycle, two groups of 3, and the nozzles are not getting any better, give the printer a rest for at least 2 hours. This rest period will allow the small air bubbles in the ink to rise to the surface and get out of the nozzles.

After the rest period, try a few more cleaning cycles. If you are seeing the same exact nozzles missing each time, then you may have dried ink in the print head. This of course is not good. (See article on using Windex to clean print head.)

The newer Epson printers, like the C82 and 2200 are sensitive to too many cleaning cycles. For these printers only do 3 cleanings, then give them a 2 hour rest. If you run too many cleaning cycles, you may never get a good nozzle pattern.

### If Cleaning Cycles Do Not Help:

Before you send your Epson printer in for repair or decide to buy a new one, either using **MIS Nozzle Fluid or Direct Inject Cleaning** may be the answer. **We do not guarantee it will work, nor are we responsible if it makes things worse.** Epson strongly recommends that you do not do this. However, many of our customers have told us they have tried this and it works. So, we are passing it on to you. If you are not comfortable with this, then send your printer to Epson or an authorized repair center. Read carefully.

When Epson printers with missing nozzles are left alone and not used for several days, ink can dry in the nozzles. You will know if you have this problem when your nozzle patterns repeat. In other words, it is always the same nozzles that are missing every time you print a nozzle check. This is bad news. It is very hard to get dried ink out of a nozzle.

### MIS Nozzle Cleaning Fluid:

We have a new creation called Nozzle Cleaning Fluid. It has a low viscosity, close to that of water. It contains chemicals that will dissolve dried ink, both dyebase ink and pigment ink. Getting it in contact with the dried ink is the challenge. Follow this procedure for best results.

- Push cartridge change button, or paper feed button until print head moves to the cartridge removal position. When it gets there, pull the power plug out of the wall. This will leave your print head free so you can move from right to left. Push your carts to the far left to get them out of the way.
- At the far right of the print, where the cartridges park, there is a sponge. It will be right under where the cartridges go to park on the far right. Use a flash light if you can not see it. This is called the Dump Sponge. Clean the dump sponge with paper towel. Try to get all of the liquid ink out of it. This is a little messy, so wear rubber gloves if you have them. Be gentle with the Dump Sponge, you don't want to break anything, just clean it. Also clean all around the Dump Sponge. This area gets quite messy. Warm water on a paper towel is best.
- Saturate the Dump Sponge with MIS Nozzle Fluid. You want it to be nice and juicy. Use the syringe and tube in the kit to inject the fluid into the sponge. Now push your cartridges to the far right. This will force the Dump Sponge up against the bottom of the nozzle plate that is under the cartridges. The MIS Nozzle Fluid will be in direct contact with the nozzles that are blocked.
- Because the MIS Nozzle Fluid has low viscosity, it will wick up into the nozzles. Hopefully it will be in direct contact with the ones that are blocked. The nozzle fluid will begin to soften and dissolve any dry ink that it is in contact with. Depending on how thick the dried ink is, it may take a day or several days for the dried ink to dissolve.

- After a few days (3 or more), give your printer a test. Install a new set of cartridges and run cleaning cycles and nozzle checks. Compare these with what you saw before applying the nozzle fluid. If the pattern is different, there is hope. If there is no change to the nozzle pattern, then repeat this procedure and double the waiting time before doing another test. If your nozzle pattern is not exactly the same each time, this is good.

If you have random patterns of missing nozzles, then it is just air bubbles caught in the print head. Run a few cleaning cycles (not more than 9) and then let the printer rest overnight. The next day try doing a few more. Fresh cartridges always help recover missing nozzles, so put some in if you think you are getting close. Never use refilled cartridges for cleaning nozzles.

### Direct Inject Cleaning:

If you have tried the above procedure and still have missing nozzles then you can follow this procedure. This should only be done as a last resort. If you plan on getting a new printer or taking this one in for service, then proceed.

Small, very small, air bubbles can get trapped in the Epson print head. They act like a clog, preventing ink from flowing from the nozzles. The individual nozzles will not work if there is air in them. They lose their prime. A high viscosity, alcohol cleaning agent, like Windex No Drip, can be injected into the print head, through the print head post, to force out trapped air and re prime the print head. The volume of liquid contained in the print head is about 1/5 of a ml or cc. It is not much. If 3 to 5 cc of MIS Cleaning Solution is forced through the print head and out the nozzles into the waste collector, this can (sometimes it does not work) bring the print head back to life. Here is how it is done.



1. Load a 10 cc syringe with about 3 to 5 cc of "MIS Cleaning Solution". Hold the syringe, pointing up and push the plunger to remove all the air from the tubing by filling it with the solution. Put this aside, it is ready to use.

2. Go to the printer with the problem. Press and hold the paper feed button until the cartridges move to the "cartridge remove position". Remove the cartridge(s) you are having problems with, color or black or both. **Pull the printer power plug out of the wall.**
3. Carefully attach the end of the tubing to the print head post. Push it down so you have an air tight seal between the post and the enlarged end of the tubing. The print head posts are hard to see, so you will need a flash light. They are directly underneath the cartridges and they stick up about 3/8 of an inch. Be very careful not to damage the posts. Do not twist or pull on the tube once it is attached. If you break the print head post, *GAME OVER*, your printer will be worthless.

**Note:** If you are working on an EX or 700 printer, the cartridges will unexpectedly return to the right after about 45 seconds. If you have the tubing attached to the post, this could cause major damage to the post and the printer. To avoid this, unplug the printer as soon as it reaches the "cartridge remove position". Then attach the tubing to the print head post.

4. Slowly and forcefully inject about 2 cc of the solution into the print head. Remove the tubing from the print head post carefully. If you have more than one color that is a problem, repeat the injection for the other corresponding posts, but wash the ink off the tube with warm water first. Put in a **Brand New Cartridge** (not a refill or a partially used one). If the printer was unplugged, move the cartridges all the way to the right, then plug it back in. If it was not unplugged, push the paper feed button to return the cartridges to the right. The printer should run a cleaning cycle on its own.

*Installing a new, unpunctured cartridge after injecting the solution is very important. If you skip this step, chances for success are quite limited.*

5. Run three cleaning cycles with a nozzle check before and after each one. Then print one of our bar charts (see purging page) or something that has all the colors in it. If your nozzle check was good after the third cleaning cycle, you are all set. If not, run three more cleaning cycles and then print some bar charts. If you still can not get the nozzles to print correctly then, let it rest overnight and try again in the morning. If it still is not corrected, it is time to send the printer to Epson or get a new one.

We are not sure why this works sometimes and not others. It can be an electrical problem with the print head or associated circuits. It is rarely a physical clog. At least you know you gave it your best shot.