

**MIS**

Continuous Flow System

For

Epson Stylus Photo EX Printer

## Installation Instructions

Based on a Personal Computer  
Using Windows software

Rev 5/22/00

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## 1. Fill Cartridges With Ink

Get a place to work where you can spill a little ink and not ruin anything. Spread some newspapers down and have plenty of paper towels handy. Make sure you have good lighting.

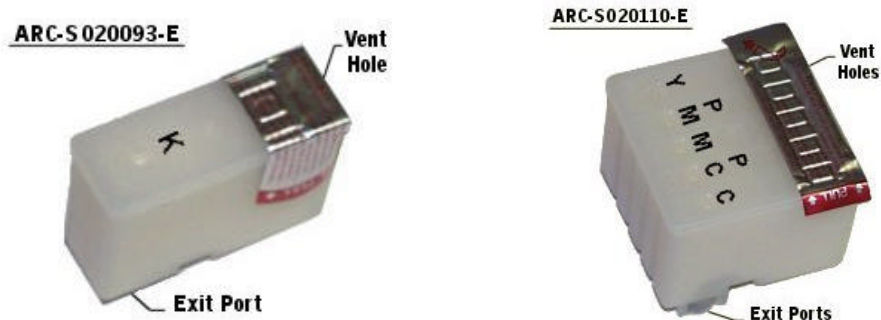
Here is what you will need....

- Continuous Flow Cartridges (CFC), color and black with tubes attached
- 6 MIS-Syringe (10 cc)
- 6 Green needles (MIS-Needle-10 Ga)
- 6 Bottom Fill Adapters (MIS-BADPT)
- 6 Bottles of ink, one of each color \*(CMYK,PC,PM)
- 6 Rivets (MIS-Rivet)

Follow the table below for determining how much ink to inject into each chamber. The instructions for each color are identical, just the volume of ink injected is different.

Color	Volume (cc)
Black	16
Cyan	8
Photo Cyan	8
Magenta	8
Photo Magenta	8
Yellow	10

See the photo below to determine which color goes into which chamber. You must not make a mistake on this, it is vital to be correct. Use a felt tip pen and label each chamber with the correct letters.... **K, C, PC, M, PM, Y.**



**Follow these steps for each chamber, starting with Black.....**

- A) Use the Bottom Fill Adapter and puncture the clear seal over the exit port for the color you are about to inject. Only puncture the one you are going to put ink into.
- B) Unwrap the syringe, remove the protective cap, and attach a green needle to the end of the syringe. Twist it on with your fingers, so it is tight.
- C) Make sure the syringe plunger is down all the way, then insert the tip of the needle into the ink and pull ink into the syringe. Pull in a 1/2 to 1 cc more than is shown in the table above. (For the black you will have to do this in two steps, 10 cc and then 6 cc).

- D) Hold the syringe, needle pointed up, and remove the needle and attach the Bottom Fill Adapter.
- E) While holding the syringe vertical, pointed up, wrap some paper towel around the tip of the Bottom Fill Adapter, and carefully push on the syringe to remove any air trapped in the top of the syringe. If you push too hard, ink will shoot up to the ceiling, be very gentle.
- F) Now that the air is gone, adjust the volume of ink in the syringe so that you have the amount shown in the above table. Hold the syringe tip over the open ink bottle and push the syringe plunger until you have the bottom of the rubber plunger at the right mark.
- G) Hold the cartridge being filled at eye level, keeping the cartridge orientated in its normal position. Insert the tip of the Bottom Fill Adapter into the exit port on the bottom of the cartridge. Don't turn the cartridge upside down. Push the tip firmly into the exit port and slowly inject the ink into the cartridge.



45°



Level

Keep the cartridge at a 45 degree angle, front down, for the first half of the ink injection. Then, for the second half, keep the cartridge level. Never turn cartridge upside down.

- H) Put the cartridge down on your work surface or bench, and insert a Rivet into the **exit port** you just filled. Don't turn the cartridge upside down. Make sure the Rivet is all the way in, so the head is touching the cartridge. Use a paper towel and wipe any excess ink off the bottom of the cartridge. The Rivet will prevent leakage and cross contamination from other inks.
- I) Now go to the next color and repeat this process until all 6 of the chambers are full.

Take the filled cartridges and tubing to a place near your printer and set them on a flat surface. Put a pencil or some sheets of paper under the end of the cartridge so that it is perfectly level. Make sure the end of the tubes are open and not kinked or twisted.

**You are done for today.** Let the freshly filled cartridges age overnight. You can continue in the morning or later in the day with the next step in the process. This is important, don't try to rush it. The ink needs about 8 hours to get fully absorbed by the sponge. Any bubbles or gases will come to the surface and disappear.

## 2. Establish Working Condition of Printer- Make sure nozzle check is perfect

Before installing the cartridges, your printer must be tested. With an image on your screen and paper in the printer, click on **file** | **print**, then on printer **properties**. When you see the **Utility** tab on the printer properties dialog box, click on it, then on **Nozzle check**. This can also be done from the Control Panel | Printers section by right clicking on the correct printer and then clicking on properties.

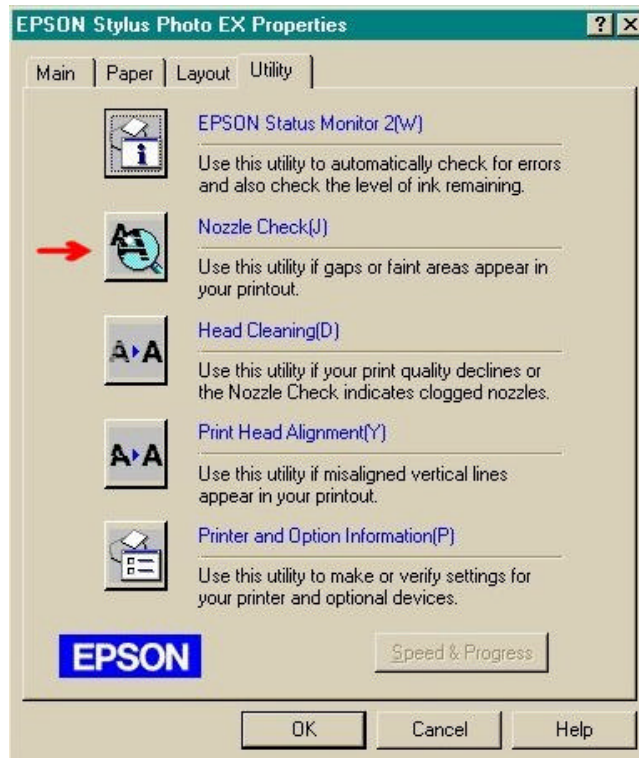
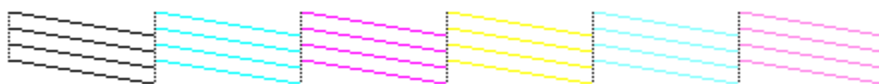


Figure 1

The nozzle check is very important. If your printer can not produce a **PERFECT** nozzle check, then there is something wrong with it and you should **not** proceed with the installation of the CFC. Run cleaning cycles to achieve a perfect nozzle check.

Here is what a perfect nozzle check should look like....

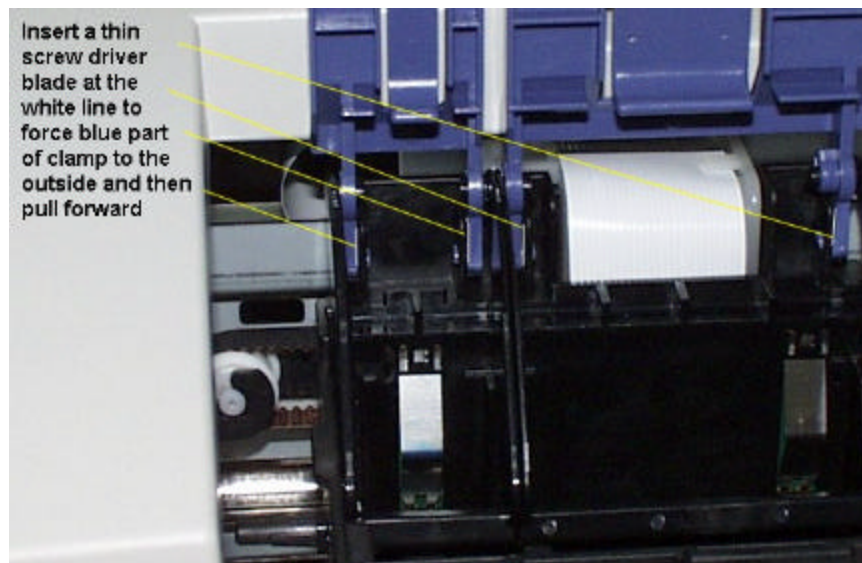


There are 32 segments in each section. Each one of these represents an inkjet nozzle on the print head. They must all be working properly before you proceed.

### 3. Remove the printer cover –

The printer cover un-snaps from the printer housing. There are no screws holding it. Just a little bit of force in the right direction and it pops off. Keep it near by to use to cover the printer if you plan on leaving it unattended for a long period of time, like a vacation break.

### 4. Remove Cartridge Clamps – See photo



Push the paper feed button and hold it down until the cartridge holder moves to the left. Pull the power plug out when the cartridge holder is in its left position. This will keep it from returning to the right unexpectedly.

Use a thin flat screw driver blade to remove the clamps. Be sure not to break them. You may need them some day. Remove the black clamp first. This will give you more room to remove the larger color clamp. Follow the instructions on the above photo. You may need a small flash light to help you see what is happening where the clamps attach. They will both come out clean with no damage to either the clamp or the printer, so don't be over aggressive. It is a bit of a puzzle but it can be done easily. Both the **blue piece** and the **black piece** have to be removed.

**5. Install Tubing Bracket - at right end of printer opening – See photo**



Use an alcohol swab to clean the plastic before attaching the bracket. Wipe the area dry with a paper towel after using alcohol swab. Once it goes down, it is there to stay, so don't put it in the wrong spot. **This is important.** If you have to remove it, use a wide blade screwdriver and twist it under the bracket.

**6. Prepare Cartridges for Installation**

Move the cartridges to the left position by holding in the paper feed button for 3 long seconds. When it arrives in the left position, unplug the printer.

Put some newspaper or paper towels in front of your printer.

**Do not remove foil pull tabs from top of cartridges. This is important.**

Use a small flat blade screwdriver and remove the MIS Rivets from the bottom of the cartridge. Some ink may drip out onto the paper. This is ok. Don't let the paper wick the ink out. Soft paper towel or cloth in contact with the exit port should be avoided.

After all the Rivets are out, blot the bottom of the cartridge off with some paper towel.

Insert the cartridges into the cartridge holder. The felt pads on the side of the cartridges will keep them in place. Make sure they are seated down into the cartridge holder all the way.

Find the semi transparent plastic shims, included with the CFS unit. Fold one in half and insert it, open ends first, down between the front of the cartridges (toward you) and the cartridge holder. This is so that the cartridge will make contact with the out of ink switches. Do it for both the color and the black cartridges.

**Do not lift the cartridges off the posts or out of the cartridge holder once they are down. This will introduce a large air pocket into the print heads and may prevent the printer from working properly. This is very important.**

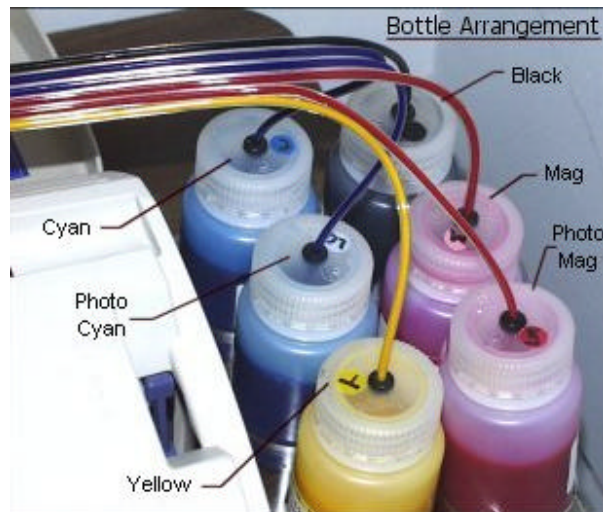
## 7. Attach Ribbon Tube to Bracket

Insert tubing into the bracket. Do not twist the tubes. Make sure the tubing is secure and all the way down into the bracket. Pull the tubing through the bracket to take up the slack. Use some hand lotion to lubricate the tuber and the inside of the bracket so it will slide. You will have to make some adjustments so that the tube is not too tight when the carts are in the left most position. As the cartridges traverse from left to right, the tubing should not touch the bottom of the carriage.

When you have the right spot, mark the tubes with a magic marker. Clean off the excess hand lotion from the tubes and the inside of the bracket so the tube will stay put and won't slide around.

The tubes should now make a large arc as the carriage moves from left to right and back again. They should not touch anything during this motion.

## 8. Set up the ink bottles



Put the tops that have the rubber grommet installed in them on the 4 oz bottles of ink. Put the ink bottles in the acrylic tray as shown in the above photo. Position in the tray is not critical. Check to verify that there is a vent hole in each of the tops to let air into the bottles. If any of the vent holes are missing, you will have to make one using a drill.

## 9. Insert the tubes into the bottles

There should be a black mark on the ends of the tubes, 3.5 to 4.0 inches from the end of each tube. If these black marks are not present, use black magic marker and a ruler and make a mark or line on each tube, 3 3/4 inches from the end. **This is important.**

It is very important to get the right tube into the right color bottle or the cartridges will be ruined. Check the label on the cartridge and trace down the yellow tube from the cartridge to the end of the tube. The yellow chamber is the one closest to the right end of the printer as you look at the cartridges in the printer.

If you are installing MIS Quadtone inks, use the diagram below to translate from color to percent black.

Yellow	= 50%	Magenta	= 75%	Cyan	= 25%
Photo Mag	= 45%	Photo Cyan	= 15%	Black Cart	= 100%

Keep a cup of water near by. Wet the ends of the tube with water up to the black mark. Insert the end of the yellow tube through the grommet in the yellow ink bottle. Keep pushing it down into the bottle until the black mark has entered the grommet. Stop there, that puts 3.5 inches of tube inside the bottle, which is perfect.

Now do the rest of the tubes, being careful to get the right tube into the right colored bottle of ink. If you have trouble pushing the tube through the grommet, use more water.

You can rearrange the bottles if you find a neater sequence to keep the tubes from tangling. You can also separate the tubing from the ribbon by pulling them apart. Do what ever you have to do to get a neat arrangement.

The ink bottle tray must be on the same surface as the printer. Do not elevate the tray or set it below the printer surface. Put the tray in a position so that the ribbon tubing is not touching the paper in the feed tray.

If the bottles are too high, the ink will flood the print head and it will not work. If the bottles are too low, the print head will not have enough power to pull up the ink and it will not work. The best level for the bottles is the same level that the printer is sitting on.

## 10. Establish Working Condition of the Cartridges

At this point, the tubing is empty and the ends have been installed in the ink bottles.

Slide the cartridges and cartridge holder to the right most position. Plug the printer bac

Bring up the MIS purging image (purge6.tif) using Photoshop, Paintshop Pro, Corel or any graphics program. These images, and several others, are on the diskette that came with the CFC. If you don't have this image, you can download it from the MIS website ([www.missupply.com](http://www.missupply.com)), it is on the ARCHIVAL/PURGING page.

Assuming you have the file loaded, go to **file** and click on **print**, when the printer dialog box comes up, click on properties, then click on the utilities tab. See Figure 1 on the first page.

Run a nozzle check. It most likely will not be acceptable.

Run the first cleaning cycle, then another nozzle check. You should see the ink begin to climb up the tubes.

Run a second cleaning cycle, then another nozzle check. On the second cleaning cycle there is about 7 seconds worth of pumping and the ink should travel several inches up the tubes.

If the nozzle check is good, skip the third cleaning cycle.

If necessary, run a third cleaning cycle, then another nozzle check.

If the nozzle check is **not** perfect, print three pages of the purging image (purge6.tif) then run a nozzle check. If it is not perfect run up to 3 more nozzle check-cleaning cycles until you get a good nozzle check. After 3 cleaning cycles, print a couple of pages of the purging image.

If after running a lot of cleaning cycles, and you still do not have a good nozzle check, the conclusion is that there is something wrong with the. **You will need to refill your cartridges using the MIS Residual Foam Method.** This is not caused by poorly filled cartridges that have foamy ink in them.

## 11. Fill Tubes With Ink by printing bar charts

Now that you have a good nozzle check, print 10 copies of the purging image, purge6.tif. After the 10 copies have finished, run a nozzle check and a cleaning cycle, then another nozzle check and cleaning cycle. After the 2<sup>nd</sup> cleaning cycle, run a nozzle check. If it is good, then print 10 more copies of the purging image. Repeat this process until the ink has reached the cartridges.



If you find that the Photo Cyan, or Photo Magenta is not being pulled up at the same rate that the other inks are, you can elevate the bottle, by one bottle height. This will give the photo cyan a boost. For some reason, on the photo EX printer the Photo Cyan suction is the weakest.

If all went well, you are almost finished. You can print some images and use the printer like you normally would use it. If you see any banding, run a couple of nozzle check – cleaning cycles. It will clear up.

When the day is done, check your tubes. The ink should be right up to the cartridges. The next morning, the ink will have retracted a little bit, as much as 4 inches back from the cartridges. This is normal. When you start to print again the ink will be drawn into the cartridges and it will function normally.

In the morning, if you see the ink has retracted more than half way back to the bottles, on any of the tubes, **this is a problem**. It means there is an air leak. There is no fix for this, other than a new CFC. We will replace the CFC at no cost if this occurs.

You should enjoy printing with a minimum of problems. Occasionally you will have to run a couple of cleaning cycles, just like you would have to without the CFC. The bottles hold approximately 12 cartridges full of ink, when they start to get low, remove the top and add more ink. There is no vacuum in the bottles, they are vented to atmosphere. The tops can be removed at any time.

You will find that the CFC does not print well at 360 dpi. It will band after a few pages. We are working on improving this. Print your images at 720 dpi or higher.

### **Resetting the Out of Ink Switches –**

On the Photo EX printer there are two switches in the back of the cartridge holder. These switches get released and then pushed in each time you remove the cartridges and reinstall them. These switches control the lights on the front panel of the printer. When an out of ink condition occurs, the lights come on and the printer will not print again until the cartridges are replaced.

Removing the cartridges is **not** desirable. When the cartridges are lifted off of the printer posts, inside the cartridge holder, an air pocket forms in the prechamber of the cartridge. This air pocket then gets sucked in by the print head and requires a couple of cleaning cycles to clear it out. It is a pain.

You will need a thin ruler or machinist scale that is not thicker than about .040 inches. A 6" long one works the best, but longer or shorter ones will work also. Hold in the paper feed button until the cartridges go to their left most position. Rock the cartridges back and forth, front to back, so you can find the space between the back of the cartridges and the cartridge holder. **The black switch is on the far left and the color switch is on the far right.** Push the ruler or scale down in between the black cartridge and the cartridge holder, then twist the scale a little. This will activate the switch. Remove your scale, then do the color switch. When you are done, push the paper feed button and the cartridges should return to the right position and the printer will do a cleaning cycle. **The Out of Ink light will stay on until the cleaning cycle is over.** The printer now thinks you have installed new cartridges.

Let it finish the cleaning cycle, then run a nozzle check. If the nozzle check is good, you are all set to continue printing. If the nozzle check is not good, then you will have to run additional "nozzle check – cleaning cycles". Remember only do 3, then print something and do 3 more if you have to. Always stop when you get a good nozzle check.

If for some reason, you can not get the printer to go into a cleaning cycle when it first returns to the right, you will have to lift the cartridges out of the cartridge holder and then put them back in place. This will reset the switches and when you push the paper feed button a cleaning cycle will run. For sure, you will have to run a series of nozzle checks and cleaning cycles to get back to normal. Some printers can be reset manually and others can not. It is the low cost construction of the small switches that causes this problem. You can try bending the metal tabs to make them work better.

Please feel free to call (248-814-9398) for technical assistance at any time or email us (Cobra@inksupply.com). We will be glad to help. We have been wrestling with these for about a year now and we do have quite a bit of experience. After you use the CFC for a while, let us know what you think of it. Hopefully, in a few months we will begin to mass produce them and we will make them available for all Epson printers.

## WORDS OF WISDOM FOR USING YOUR NEW PRINTER

Each morning before you print anything, run a NOZZLE CHECK.

Find this on Control Panel → Printers → Right Click on printer icon → click on PROPERTIES → click on UTILITY tab → click on NOZZLE CHECK.

If the Nozzle check is not perfect, every horizontal line segment must be there, then run up to 3 Head Cleaning Cycles. Check the Nozzles after each head cleaning. If it is OK, don't run extra cleaning cycles. After 3 cleaning cycles, print 2 copies of the bar chart... purge4.tif. If you need to, you can run 3 more cleaning cycles. Printing something in between prevents the print head from losing prime.

When the printer stops and one of the red lights is on, this indicates that the printer **thinks** one of the cartridges are empty. Follow the instructions on the previous page, "**Resetting the Out of Ink Switches** –"

If you have a dusty environment, reattach the printer cover. Leave it up when the printer is running. Put it down when you are not using the printer. This will help keep the dust from accumulating.

Don't let your printer set for long periods of time without printing something. The ink in the print heads can dry, especially if you are in a hot dry climate.

The ink in the tubes will retract after the printer is idle for an hour or so. This is normal. The inks may move back about 2 or 3 inches. Don't worry about it, they will be pulled up when you start printing. The weather will also cause the inks to change position. When a high pressure front is present, the inks will be closer to the cartridges. When a low pressure front is present, the inks will move back. The inks should **never** return all the way to the bottle leaving the tubes empty. This indicates that there is an air leak. Call us if this happens.

For printing images, always use a high quality inkjet paper, either matte finish or glossy. Adjust your print settings to 720 dpi or 1440 and select the proper paper type.

Don't let the ink bottles go empty. When they start to get low, like 1/4 or less, order replacement bottles from MIS. If you order 4 oz bottles of ink, you can just unscrew the empty ones and screw the full ones back on the cap. Having the tubes out of the ink does not hurt anything as long as the printer is not printing. For better economy order an extra set of 4 oz bottles and bulk ink, in pints or gallons.

For additional information on your CFS, check our COBRA page on the webstie...  
[www.inksupply.com](http://www.inksupply.com)