

# MIS

Continuous Flow System

for

Epson Stylus Photo 870/890 Printer

## Installation Instructions

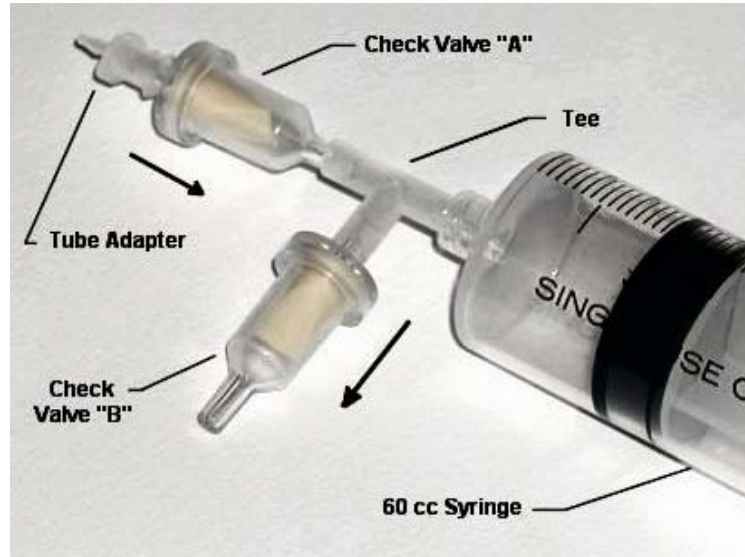
**For Empty Cartridge Version  
With Auto Reset Chips**

Rev 6/2/03

This version of the MIS Continuous Flow System comes with empty cartridges and requires that you use the MIS Auto Reset Chips. Do not lift the cartridges after the initial installation into the printer. Do not use the Swedish Reset, SK168, QB7, or IRLS resetters. Reset by turning printer power off for 10 seconds and then back on again..

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1. Fill Cartridges With Ink using the vacuum pump assembly



Attach one of the CFS tubes to the end of the "Tube Adapter". Don't push it on too far, or it will be very difficult to get off. Just far enough to make a seal.

Pull on the plunger of the 60 cc syringe to create a vacuum in the CFS tube. (*this takes some hand strength*). Air from inside the tube and cartridge will flow across Check Valve "A".

When the plunger is all the way back, push the syringe plunger forward, causing the air extracted from the cartridge to be expelled across Check Valve "B", while Check Valve "A" maintains a seal preventing air from going back into the cartridge.

Pull back on the plunger again, getting even more air out of the cartridge. Then push the plunger forward, expelling the extracted air out Check Valve "B". Do this at least 3 more times and a perfect vacuum has been created inside the cartridge and the CFS tube.

Next, fold the CFS tube in half about 3 inches from the Tube Adapter. Make sure it stays folded and the vacuum is not lost. Hold it tight.

Before you detach the tube from the vacuum pump, make sure your cartridges are properly orientated. See photo.



Detach the tube from the end of the Tube Adapter make sure it remains folded over and the vacuum is not lost. Insert the end of the tube at least one inch into the ink bottle without unfolding the bend (make sure it is the right color).

Slowly let the tube unfold. Keep the end of the tube 1" or more under the ink surface during this time. The ink will flow from the bottle, through the tube and into the cartridge. Be sure to unfold the tube slowly. The ink will surge into the cartridge. Some portion of the cartridge, in the front, will not get filled, this is normal and it will not interfere with the operation of the CFS.

Repeat this procedure for each tube on the CFS unit. Keep the cartridge on end, as shown. After all the tubes are full, set the cartridge on your bench. 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.

Let the freshly filled cartridges age for about an hour. You can continue later in the day with the next step in the process. This is important, don't try to rush it. The ink needs about 2 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

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.

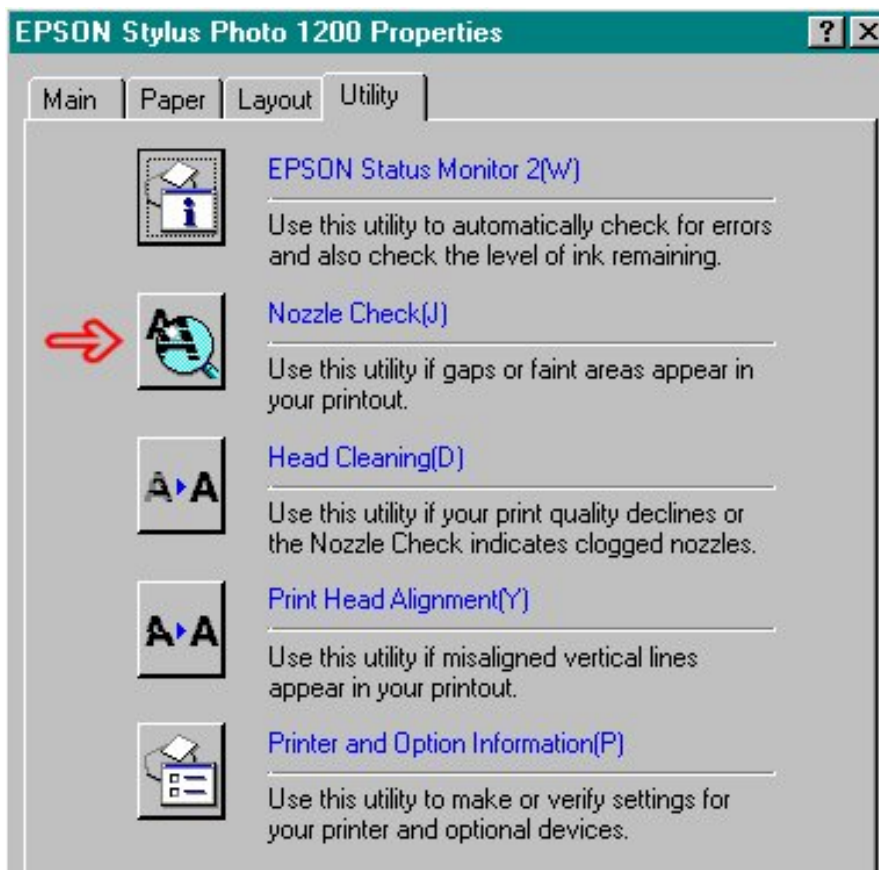


Figure 1

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 (Continuous Flow Cartridge).

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



There are 48 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 Cartridge Clamps –

Remove both the black clamp and the color clamp. With the power on and with the printer idle, push the **Orange button** under the printer lid. The cartridges will slide to the left, to the cartridge removal position. Use your screw driver to remove the clamps. Put the screw driver blade in between the blue and black plastic parts where the clamps are hinged, and twist. The clamps will pop right off. With the cartridges in the left position, pull the power cord for the printer out of the wall, disconnecting the printer power.

**“At this point, disconnect the printer power by pulling the plug out of the wall”**

### 4. Install Tube Bracket -

Lift or remove the printer cover. Clean the housing surface where the bracket will attach with alcohol. Clean both bottom and top of housing. Wipe dry with a paper towel or clean cloth. The tube clip on the bracket should be on the right side. Remove the paper backing from the foam tape and place the bracket 4 3/8” from the inside edge of the printer housing, as shown below.

Attach the small tube bracket later, after the cartridges are installed.



## 5. Install Cartridges –

With the power disconnected, remove the old cartridges, insert the new CFS color cartridges. There should be 4 felt pads on each cartridge. You may have to guide these felt pads into the cartridge holder, it is a tight fit. Push the cartridge all the way down, so it is seated at the bottom of the cartridge holder. If it is not seated all the way down, the chip may make partial contact causing it to become **unusable**. Do the same with the black cartridge. Both should now be firmly in place. You don't want them to be lifted by accident or by the tubes pulling on them.

Next, install the nylon tie wrap, hold down strap, as shown below. It is important to get it in the exact position as shown in the photo, so it will be in the depressed area of the chassis. See photo. This is your insurance that the cartridges will not pop up and cause damage to the electronic chips on the front of the cartridges. If you have "red light" problems after installing your CFS, it is due to the chips on the carts being damaged. Careful here, they are delicate electrically. Do not use pliers or any tools to tighten the tie wrap, just your hand strength. If it is pulled too tight, it will cause the black cartridge to lift up.



## 6. Route the Tubing to the Bottles -

Put a little alcohol on the tubes at the position that will interface with the bracket. Do not rotate the tubing. Slide the tubing into the tube clip attached to the bottom of the bridge bracket. This is the bracket you installed in step #1. With the cartridges still in the left hand position, make sure there is a little slack in the tubing, not a lot but just enough. If you can't get the tubing into the bracket, use a little more alcohol on the tubing.

Move the cartridges, by hand, from far left to far right. Make sure there is sufficient slack in the tubing so that the cartridges can reach the far right and far left without putting excess tension in the tubes. If you have too much slack in the tubes, then the tubing will touch the bottom of the printer. Adjust the tube position in the tube clip so the tubes don't touch the bottom of the printer, and so the carts can reach far left and right without the tubes stopping the motion. **This is important.**

## 7. Trim Tubes and Insert Into Bottles

Set up the bottle tray next to the right hand side of the printer. The cartridges come with extra tube length. Some of the tubing must be cut off of each tube. Un-web the tubes all the way back to the small tubing bracket on the right hand edge of the printer. Trim each tube length so that the tube will make a turn into the

bottle with out rising up. There must be 3 ¾ inch of tubing inside the bottle. The bottles should be arranged in order.... Y-PM, M-PC, K-C from front to back. You just want to have a neat orderly tube arrangement. Cut the ends of the tubes on a 45 degree angle so they have a point on them. After you cut the tubes to length, use a black marker and make a mark on each tube 3 ¾ inch from the end of the tube. Insert the tubes through the larger hole in the center of the cap until the black mark is just inside the cap. Don't cut the tubes too short.



Almost done. Now the tubes are all attached and inserted into the bottles. Press the Orange button and the cartridges will move to the right and do a cleaning cycle. Make sure the tubes are not restricting the motion of the cartridges. Add more slack if they are. When the cleaning cycle is done, you are ready to start printing.

#### **8. Ready to Turn Power On**

Move the cartridges, by hand to the far right side of the printer until they stop. Plug the printer power plug back into the wall. If the power light on the front panel is not on, press it in to turn on the power. The printer should make some quiet noises and the cartridges may move left to right. There should NOT be a red light on the front panel. THIS IS IMPORTANT. If there is a red light, this means the chips on the front of the cartridges are not making contact with the printer. See the troubleshooting section of our website if this happens.

Now the tubes are all attached and inserted into the bottles. Make sure the tubes are not restricting the motion of the cartridges. Add more slack if they are. When the printer stops making noise, you are ready to start printing.

#### **9. Check Nozzles**

Run 3 cleaning cycles then print 10 MIS-Bar Charts (file purge6.tif on the diskette). If you can not read the diskette or you don' have one, the files can be downloaded from our webstie, on the bottom of the Archival page. If your nozzle check is perfect you are ready to start making prints. If it is not perfect, then run three cleaning cycles and check them again. Always do cleaning cycle in groups of 3. Print a few copies of the purge6.tif diagram then you can do 3 more.

#### **10. Understanding the Auto Reset Chips**

Your CFS cartridges have Auto Reset chips on them. Each time the printer power is turned on the chips will reset themselves to full. If need to reset the ink levels, simply turn off the printer power, wait 10 seconds, and turn the power back on. This resets the chips. The actual ink level inside the cartridges is kept full by the CFS unit. The ink level displayed on your screen by the Epson monitoring system is not the true ink level inside the cartridges. It is what the monitoring system and chips are indicating.

Enjoy your new system. If you are a frequent printer, get ready to save a lot of money.

## Troubleshooting –

Our website, [www.inksupply.com](http://www.inksupply.com), has an excellent section on CFS troubleshooting. If you are having problems with your CFS, then this is the place to go for assistance. Carefully read the symptoms of the various problems and determine which solution you need. You can email or call us for tech support if needed.

Don't let your CFS go for several days without printing. They tend to develop problems if left idle. Try to make a print each day, or at least once per week. This is especially true if you live in a hot dry climate. If you are not there to make a print, use our **Autoprint** program contained on the MIS diskette. See the Readme file for installation instructions.

If you have missing nozzles, they must be recovered within 24 hours. If you wait to take corrective action you are putting your printer at risk. Use Epson cartridges to recover nozzles if our troubleshooting tips do not solve the problem.

## Most Common Problem -

The chips on the cartridge must remain in contact with the 7 small fingers in the printer that touch the chip. If just one of them loses contact, a red light will come on preventing further printing. When you are pushing the cartridge down into the cartridge holder, it must go down ALL THE WAY. Contact with the chip is only made in the last 1/32 of an inch. If the cartridge moves up just slightly, contact with the chip is lost and a red light comes on. Or if the tubes have too much tension when the cartridges move to the far left, it will pull the cartridge (black) up, causing a red light. If you do not think the cartridges are secure, then add shims, tape or whatever you can devise to keep them in place. Release some of the tension on the tubes by moving the tube in the bracket to the left. Don't put too much slack in the tubing or it will interfere with the cartridges moving back and forth. This adjustment is critical and best done by disengaging the white lever under the cartridge holder with the power off. Then slide the cartridges back and forth by hand while adjusting tubing tension. Be sure to put the carts all the way to the right before turning the power back on.

If you have a premature red light on, when it is not supposed to be on this is a serious problem. Try turning the printer power off for 10 seconds, then turn it back on again. If this does not work, new chips may be needed for the CFS carts. Call us for technical support.

## Ink Foam Accumulation –

Some where between 6 months and 18 months of operation, you will have to do some preventive maintenance on your CFS. Ink foam gets trapped in the sponge inside the cartridge. This ink foam will accumulate and reach an intolerable level after many, many prints. We don't know the exact number, but it usually occurs somewhere between 6 months and 18 months. It depends how heavily you use your printer. The symptoms of "Ink Foam Build Up" are missing nozzles or the disappearance of an entire color. Normally a few cleaning cycles will bring your printer back to normal, but when excessive ink foam has accumulated, cleaning cycles will not bring it back. Correcting the problem is not difficult. It amounts to flushing out the foam by drawing fresh ink out of the bottom of the cartridge. The details of the procedure are described on the CFS troubleshooting page on the website. Keep your original Epson cartridges, they are needed for this procedure. They can be used several times for revalidation of printer performance.