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Installation Instructions: Empty Epson 820 CFS with Auto Reset Chips

Provided:

- Continuous Flow Cartridge set with Tubes attached
- MIS Short Bracket
- MIS Bridge Bracket for 820/C60 Printers
- MIS 6 Bottle Tray
- MIS Inkset and Drilled Caps 6
- Small amount of Silicone lubricant.

Needed:

- Ruler or tape measure
- Black Felt Marker, Pen or Pencil
- Small thin screw driver, not phillips.
- Scissors
- Alcohol or Alcohol swabs

Get everything together in one place so you can do this all at the same time. It will take about 15 minutes of your time. It is not difficult if you have the right tools. Of course the second time you do it, it will be a lot easier.

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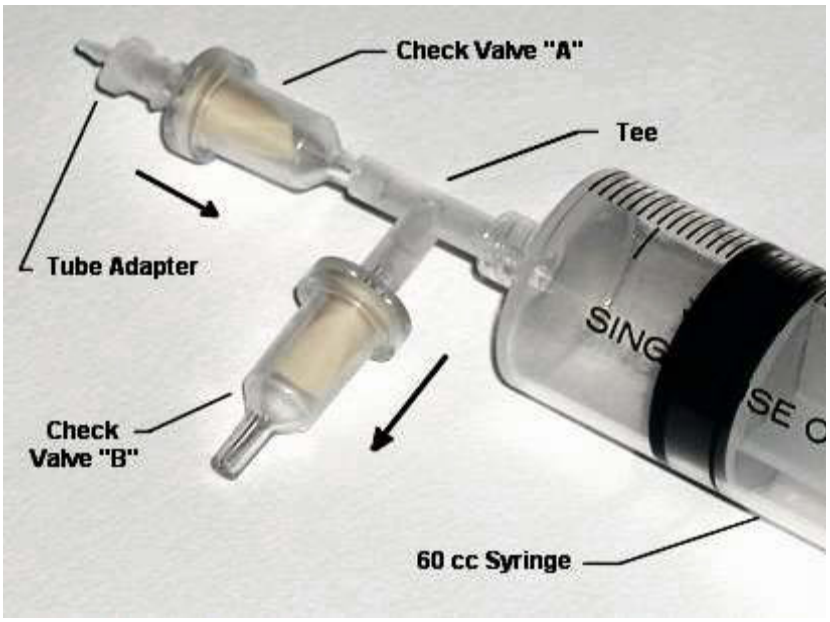
Filling Procedure:

Fill Cartridges with ink using the vacuum pump assembly shown below.



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.

Alternate Procedure – Fill from Bottom:

If you used the vacuum fill method, skip this section. If you only achieved a partial fill using the vacuum method, then you can use this "Bottom Fill Method" to finish the filling. If you don't have a vacuum pump, use this alternate procedure.

Materials:

- MIS-Syringes (10 cc),
- Bottom Fill Adapters (MIS-BADP),
- Bottles of ink for each color (4 - C/M/Y/K, 6 - C/M/Y/K/Lc/Lm) [Note: Lc=PC and Lm=PM]
- Rivets (MIS-Rivet).

1. Use the Bottom Fill Adapter and puncture the clear seal covering the exit port for the color you are about to inject. Only puncture the one you are going to put ink into. If all the ports are punctured, then put rivets in all of them except the one you are going to put ink into.

2. Unwrap the syringe, remove the protective cap, and attach the bottom fill adapter. Twist it on with your fingers, so it is tight. **Remove the pull tab or foil from the vent holes on the top**, exposing them to atmosphere.

3. Make sure the syringe plunger is down all the way, then insert the bottom fill adapter into the ink bottle and pull ink into the syringe. Pull in a 1/2 to 1 cc more than is shown in the table below.

4. 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, so be very gentle.

5. Now that the air is gone, adjust the volume of ink in the syringe so that you have the amount shown in the table below. 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.

6. Hold the cartridge being filled at eye level, keeping the cartridge oriented 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

7. 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 the cartridge upside down.

8. 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.

9. Now go to the next color and repeat this process until all of the chambers are full. Be sure to clean the excess ink off the tools you are reusing before you move on to the next chamber. 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.

Cartridge Number	Virgin Empty (cc)
T026 Black	18
T027 Tri Color	12

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.

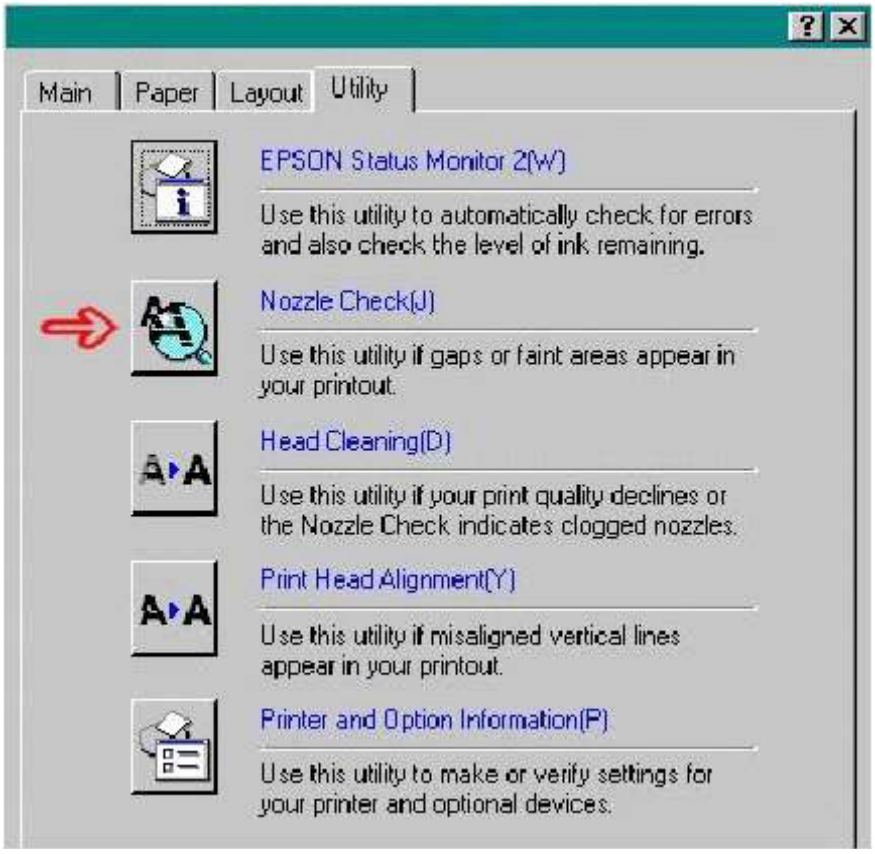
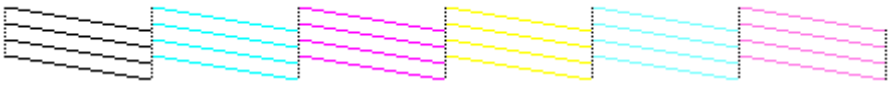


Figure 1

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.

Installation Instructions:

Pre-Installation:

1. Unwrap the CFS cartridge and lay out the ribbon tubing flat. You do not want any major creases or bends in the tubing. Keep the large paper clip attached to the end of the tubing. If necessary, use some heat from a blow dryer if the tubing is deformed or just let it rest flat over night. Don't turn the cartridge upside down. Always keep the cartridge upright in its installed position.

2. Print the PURGE6.TIF image on the 820 using Photoshop, PaintShop Pro, or the graphics program of your choice. Print at 360 dpi, plain paper settings. The purge4 file can be found on the diskette in the CFS kit or on the bottom of our Archival webpage. The output should not have any banding or skipping on it. Print several copies (5 or 6). This is a good test of the printer. If you have skipping or white horizontal lines, then do 3 cleaning cycles and print another copy. If it does not clear up, do 3 more cleanings. Always check the nozzles before and after each cleaning. You must have a perfect nozzle pattern before you begin installing the CFS.

   Do not proceed unless you have a perfect nozzle pattern

3. Push the paper feed button on the printer to move the cartridges to the cartridge change position. Remove the original cartridges from the printer and the cartridge hold down clamps. Use a small screw driver and twist it at the hinge point of the clamps. They will come right out with a twist of the screwdriver. Set them aside in a safe place, you may need them in the future.

   With the power still on the printer, pull the power plug from the wall

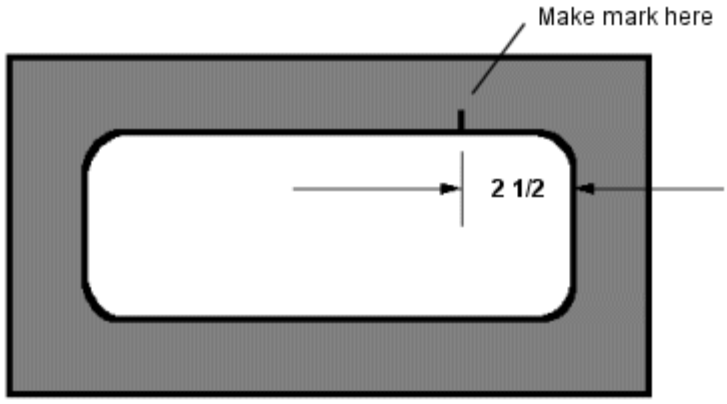
Cartridge Installation:

4. Check the CFS cartridge, there should be 4 Velcro strips on each cartridge. You may have to guide these pads into the cartridge holder, it is a tight fit. Push the cartridge all the way down, so printer posts puncture the seals on the bottom of the cartridge. Make sure they are down all the way and are making contact with the fingers that read the chip. If they are not seated all the way down, the chip may make partial contact causing electrical damage to the chip. Both the color and black cartridges should now be firmly in place. Keep the cartridges in the approximate center of the printer and let the tubing extend out the right side of the printer.

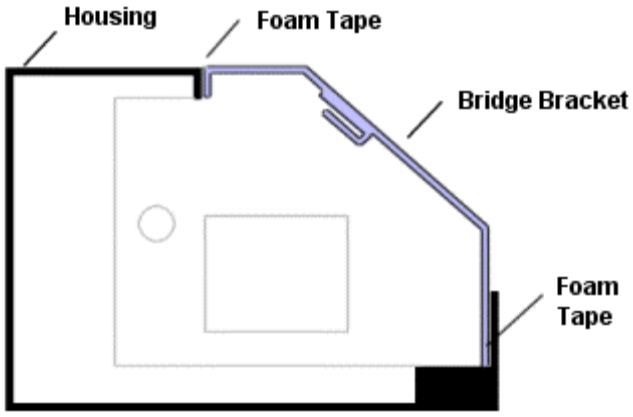
Bridge Bracket Installation:

5. The cartridge holder should move freely from side to side, power is off. Use some alcohol and a paper towel and clean the top front edge of the printer and the bottom inside edge. This is where the Bridge Bracket will attach with foam tape.

6. Use a pencil or pen and make a small mark on the top of the printer 2 1/2 inches from the right hand inside edge of the printer housing opening. The mark will be 2 ½ inches to the left of the right edge of the opening of the housing. See diagram below.



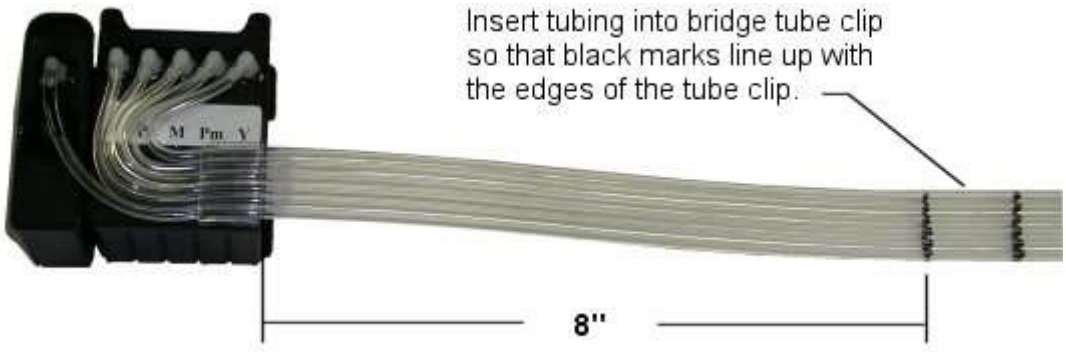
7. Find the clear acrylic Bridge Bracket (long bent piece with foam tape on each end). Peel the backing off of the foam tape, top and bottom. The top is the part with the short bend. Carefully line up the right edge of the Bridge Bracket with the mark you made in step 6. Press the top portion of the foam tape against the inside top vertical edge of the housing, and the bottom piece of foam tape against the inside of the lower part of the printer housing. See diagram below.



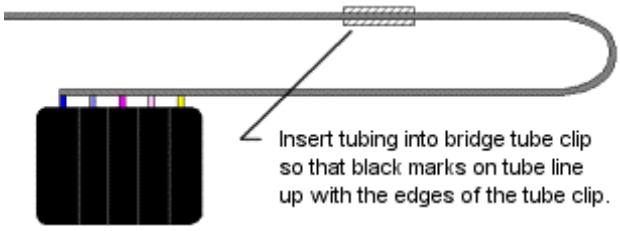
Tubing Installation:

8. Move the cartridges towards the left side of the printer, but don't push them under the housing. Get the end of the tubing that you left hanging off the right

side of the printer. Loop it back towards the left side of the printer, under the Bridge Bracket. Put alcohol on the tube clip on the underside of the bridge bracket and on the tubes at the position that will interface with the bracket. Slide the tubing into the tube clip. Make sure it goes in all the way. Use more alcohol if needed. We have marked the position on the tubes where it goes into the bracket. Don't lose or wipe off these marks. (See photo below.)



Be sure you have the loop in the tubing as shown below. Without the loop back it will not work. When the tubes are securely installed in the bridge tube clip, the excess tubing should be hanging off the left side of the printer.



Slide the cartridges back and forth from left to right, and right to left, several times. Make sure the tubes are not too tight when the cartridge is in the far right and far left positions. The tubing will touch the housing when the carts are in the far right position, this is not a problem, don't worry about it. Make any needed adjustment in the tube position so the cartridges can move freely from full right to full left and back again. Power is still off.

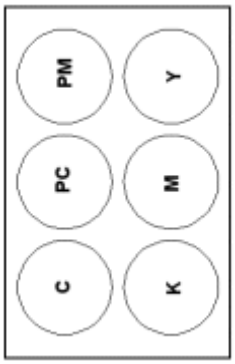
Install Tubes into Bottles:

9. We have provided extra tube length so you can install your ink bottles either behind the printer or on the left side. Set up the bottle tray one of the three ways shown below.

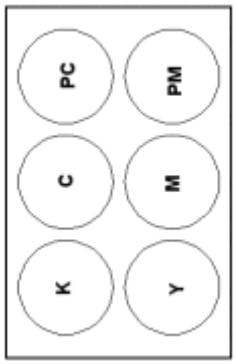
   Use the extra clear acrylic tube clips to organize the tubes. Attach one or two of them to the edge of the printer. Use alcohol to get the tubing into the tube clip.

Remove the large black paper clip from the ends of the tube. Once you have the tubes secure, un-web the individual tubes back to the tube clip you just installed. Cut off the end of the tubes where they are dented. Don't cut any more off than needed, 1" maximum.

Trim each tube length so that the tube will make a turn into the bottle without rising up. There must be 3 ¾ inch of tubing inside the bottle. When you cut the tube, cut on a 45 degree angle so the end of the tube is pointed. 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.



side



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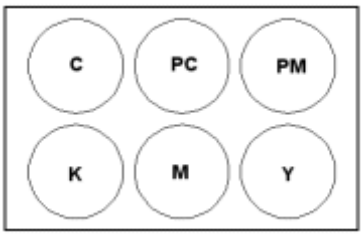

back

Be sure to get the right color tube into the right ink bottle – follow tube from cart to bottle to be sure.

Maiden Voyage:

10. Okay, now everything is put together. Double check your cartridges, they may have become lose during the assembly steps above. Reseat them, make sure they are down all the way. Some black electrical tape to hold them down is not a bad idea. If they pop up slightly you will have red light problems. You may find a spring assembly in your kit. If you have it, install it to hold down the cartridges. We are experimenting with different methods to hold the cartridges down.

Never Lift Your Cartridges Up

Push the cartridges to the far right until they stop. Plug the printer in, and **turn on the power**. Watch for anything unusual. You are ready to start printing.

11. Run 3 cleaning cycles. Print a couple of copies of purger4.tif, found on the diskette. The inks should begin to climb up the tubes. They will not all rise at the same rate. If you have banding or incomplete printing, run cleaning cycles in groups of 3. Always do a nozzle check before and after each cleaning. As soon as you have a good nozzle check, you are ready to start using the system. As you print, the inks will continue their climb until they reach the cartridge. Don't worry if the inks seem to be moving slowly, they will all get to the cartridge eventually. If you have trouble getting a good nozzle check, let the system rest for a few hours or overnight, then try again in the morning.

12. 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.