

# PLEASE KEEP THESE INSTRUCTIONS AND ALL PARTS FOR LATER USE



## CIS Instructions for the Epson 870/890, 1270/80/90/90S and 2000P

Thank you for your purchase of the Lyson Continuous Ink System. We appreciate your custom and will do our best to make your experience with our products a pleasant one. If you have any questions, please refer to 'Stage 3 - Your CIS in Day-to-day Use' and the 'Troubleshooting and Support' sections.

**The installation process is three-stage: First you prime the CIS with ink, and then you install the primed CIS into the printer. Finally, there are a few items that you need to know about for general operation of the CIS.**

We recommend that you allow the primed CIS sit overnight (before installing into the printer) to allow the ink to settle in the system.

Please take your time installing the CIS system. Many people have found it possible to go from opening the box to printing in less than 30 minutes, but there is no reason to rush things. Do not remove your old cartridges until you have the CIS system primed and ready to install (to prevent ink from drying in the print head). In addition, make sure you are getting perfect nozzle checks before installing the CIS. The CIS will not be able to work properly if the nozzles are previously clogged.

It is best for you to test a new printer with Epson®™ OEM inks before installing a CIS. Should you find a fault with the printer, it will be far easier for you to return the printer to Epson without having to uninstall the CIS! Keep the part-used cartridges in case you should need them in the future.



**Risk of Static**

Due to a potential risk of static damage to the 100% full chips, we recommend that you earth yourself (e.g. touch your computer's case near the power supply) prior to handling the cartridges with 100% full chips.



1270 Epson Stylus Photo printer with installed CIS

### **\*\*\*Please read the information below on Colour Management before installing your CIS\*\*\***

Please note that Lyson **Fotonic** and **Lysonic** inks will produce different colour output to the original Epson ink sets. To aid you in achieving accurate colour output Lyson produce free ICC profiles for the Fotonic and Lysonic inksets when they are used in combination with Lyson's ink jet media. These can be downloaded from our website, at [www.lyson.com](http://www.lyson.com), free of charge. Alternatively, contact your CIS supplier and request the profile you require for your ink, paper and printer combination.

ICC profile compatible software is required to use the profiles, such as Adobe PhotoShop full version (5.0, 5.5, 6.0, or 7.0) or PhotoShop Elements II. Some of the more recent versions of Corel Draw and Corel Photo Paint (8.0 and upwards) are able to support ICC profiles, however, if you are unsure about this facility within your preferred choice of imaging software please check with your software provider that RGB ICC Profiles can be supported before installing your CIS system. Alternatively you can check this with your CIS supplier or email [technicalsupport@lyson.com](mailto:technicalsupport@lyson.com).



print essential

If you prefer to use a non-Lyson media you may be able to get accurate results using our free ICC profiles, but bear in mind the free Lyson ICC profiles are not written for non-Lyson papers. To achieve accurate colours you may need to have a custom profile written by a colour management company. Again for a referral on this please email our technical support address as detailed above.

Within the Technical section of the Lyson website under "Support Documents", there is a PDF document which deals with these issues in more detail, entitled Colour Management 2003. All our ICC profile downloads contain PDF support documents to help you install and use the profiles.

Lyson's **Small Gamut** inks require ICC profiles for accurate colour reproduction in many cases. Please follow the same process as with Lysonic and Fotonic inks for profile downloading and the same stipulations regarding ICC profile compatible software apply. There is a PDF support document in the Technical section of [www.lyson.com](http://www.lyson.com), entitled Small Gamut User Guide, which covers the colour management of Small Gamut inks in more detail.

**Quad Black** inks can be used without ICC profiles by setting your print space or profile to Grey Gamma 1.8 at the File and Print stage in PhotoShop. Ensure your media setting is Photo Quality Glossy Film for Lyson Media. We do offer ICC profiles for use with Quad Black on certain machines, this is usually an optional requirement although some improvement in greyscale gradation can be made using the profile. Again, go to the Technical section of [www.lyson.com](http://www.lyson.com) to download the available profiles. Also in this section, under Support Documents, is a PDF file entitled Quad Black User Guide, which covers all this in more detail and covers image conversion and PhotoShop tips and techniques.

## Stage 1: Priming the Cartridges and Tubing with Ink

### Preparation



Set the cartridges and attached support structure down on a level surface as shown left, with the cartridges tilted forward onto their front edges and the bottle caps neatly arranged.



Screw the white T shaped connector with attached valves onto the 35cc syringe as shown in the picture on the right. It takes about 1/2 of a turn with light pressure for it to lock securely onto the syringe.

**DO NOT OVER TIGHTEN.**

### Tips for proper vacuum pump usage:

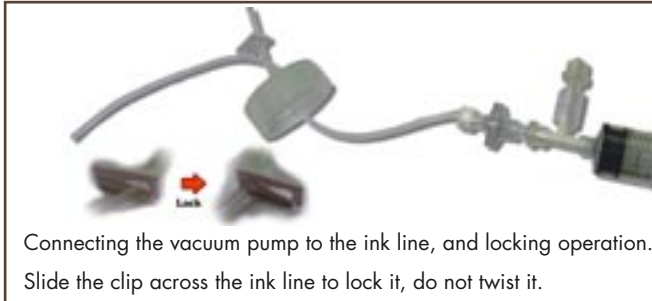
- Moisten the tip of the nipple before inserting it into the tubing (to make it easier to get it out later).
- Insert and remove the nipple from the CIS tubing by holding the filter, not the body of the syringe (more control and less stress on the syringe tip).
- Place your ink bottles well away from your hands and the vacuum pump when you are taking the pump on and off the tubing or working the handle. If your hand should slip by accident, you don't want to knock over any ink bottles!
- Unscrew the cap from the ink bottle that you are about to use before you start pumping. Place the open bottle far enough away from you that there is no risk of knocking it over while pumping. This way it is ready to use immediately after pumping out all the air – you do not want unnecessary delays between pumping and filling.
- When you pump, you should be able to hear air being expelled from the exit valve with each return stroke. Each cycle should result in less air being expelled (after the first few pumps, the amount of air being expelled may be so small that you won't hear anything, which is good). If the amount of air being expelled does not decrease, something major is wrong. Make sure that the clear membrane covering the holes on the bottom of the cartridges is intact, and that all connections are tight.



# Priming

Attach the slide clamps to each ink line in turn, just above the bottle caps. Leave it hanging loosely (as shown the first picture insert below).

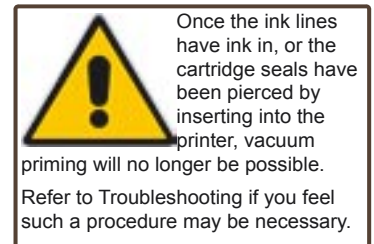
- 1 Gently insert the vacuum pump into the end of the tube leading to the black cartridge. (NOT the smaller 4" long venting tube). A label on the right side of acrylic support indicates what colour ink should go into each tube. In order from top to bottom: K=Black, C=Cyan, C\*=Photo or Light Cyan, M=Magenta, M\*=Photo or Light Magenta, and Y=Yellow)



**\*\*\* Make sure you put the right colour ink into each cartridge chamber. \*\*\***

**\*\*\* Once the chamber is filled, there is no way to undo it! \*\*\***

- 2 Remove all the air from the cartridge by pulling the syringe handle back all the way to the 35cc mark, and hold it for 2-4 seconds. Then push it all the way forward to the Occ mark. Repeat the pull and push cycle 10 times. After even the first pump cycle, you should notice a substantially different feel to the pump, and hear virtually no air being expelled on the 'push' cycle. Do not pump more than 10 times!
- 3 Slide the clamp over so that it pinches the tubing as shown in the picture insert above.
- 4 Remove the vacuum pump from the end of the tubing.
- 5 Place the end of the tubing down into your ink bottle and screw the cap down loosely (If you bought ink from us, you can use the original bottle the ink came in).
- 6 Slide the clamp back to it's original position (where it hangs loosely and does not pinch the tubing), and the cartridge will fill within seconds. If your CIS has translucent cartridges, a white spot may be visible on the side of each chamber after it is filled (The edge of the cartridge that is furthest away from the fill tube). This is the result of a very small amount of air that remained in the cartridge. It will not affect print quality in any way since the chamber is more than 99 percent filled with ink. If your cartridges are not translucent, a good fill can be inferred from the drop in ink levels in the bottle.
- 7 Tighten down the bottle cap securely.



Repeat the preceding steps for each ink colour until both cartridges are filled; Black plus five colours.

Tape down the breathing tube using any household tape (optional), or if you bought the acrylic rack, stick the venting tube into the small hole beside every bottle hole in the rack. This tube functions to virtually eliminate evaporation (our internal testing showed no ink loss after 6 weeks using a scale accurate to .01 grams). This is important because it keeps the colour from shifting and also keeps the more volatile alcohol components of the ink from evaporating, which would change the viscosity. Your ink should stay just as fresh as if it were in a sealed container.

The tubing for each colour has been accurately measured and cut. Arrange the bottles beside the printer as shown to the right.

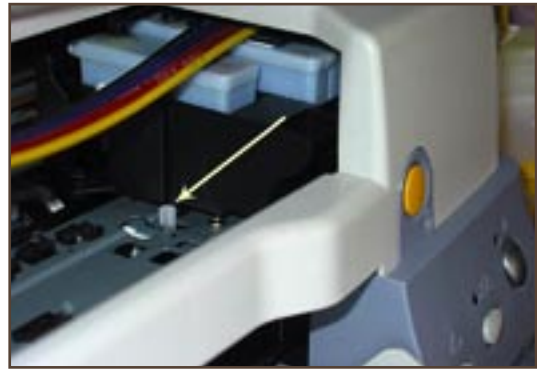
Now wait and allow the ink to settle in to the CIS cartridges, typically at least thirty minutes or ideally overnight. Pigmented inks in particular will benefit from longer settle times.

If you need to use cleaning cartridges in your printer before installing the new ink (this is recommended for moves from some inks to others), then this is a good time to go commence that procedure.



# Stage 2: Installing the CIS into the Printer

## Removing the Cartridge Holder Lids



The two cartridge holder lids must be removed in order to attach the CIS system. This is the only printer modification required. If you wish to return the printer to its original factory condition, the lids can be easily refitted

(keep them in a safe location in case you ever need them again).

Turn off your printer and open the cover.

Locate the white gear wheel on the left side of your printer (shown in above left picture), and rotate it towards you about 1/2 of an inch or 1 cm. This will cause the print head locking pin (shown in the above right picture) to move down and out of the way.

Slide the print head over to the left side of the printer and remove the original cartridges.

Remove the cartridge lids by squeezing or pulling apart the tabs as shown in the picture to the right.

Continue to the next step without delay. If there is no cartridge installed in the printer for a significant period of time, ink may dry in the inlet nipples causing a clog.

Make sure the print head is still over toward the left side of the printer. If not, move it over the left side following the directions in the previous section.

## Installing the Cartridges into the Printer

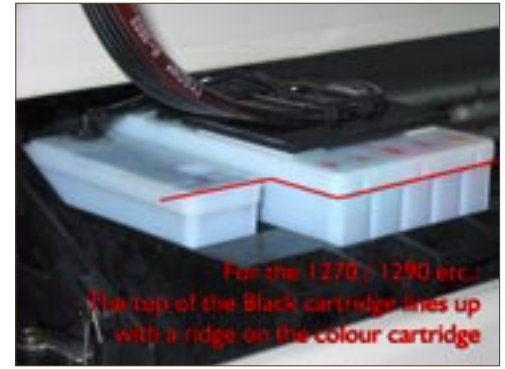
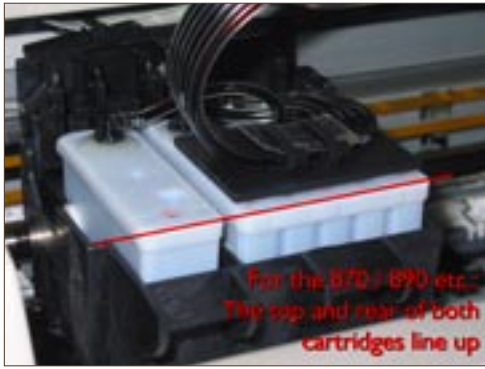
Lock all six ink lines using the white clamps; this will help prevent ink movement in the system should you experience any difficulty with this procedure.

Install your newly filled cartridges by pushing them firmly down into position, making sure the holes in the bottom of the cartridges line up with the nipples found at the bottom of the cartridge bay. There is a friction pad on each side of the cartridge designed to hold the cartridge firmly in place in the absence of the lids that were removed. It will require more force to push the CIS cartridges into position compared with regular cartridges.

Push the cartridges down carefully at first to make sure you don't catch the friction pads on the edge of the cartridge bay and knock them off, then push the cartridges down very firmly to make sure they are all the way down.



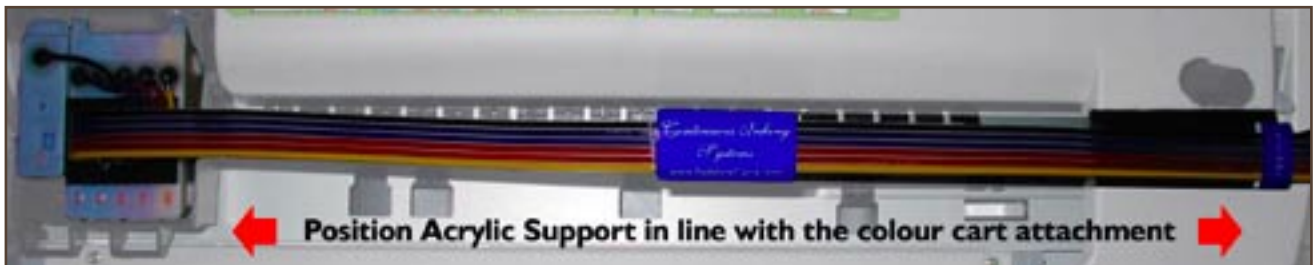
Unlock the ink lines once you are sure the cartridges are in place.



## Positioning the Support Bar

Position the acrylic support arm over the right side of the printer. Adjust the support arm so that it is directly in line with the tubing where it is attached to the colour cartridge and is also parallel to the motion of the print head.

Mark the position where the Velcro should be attached as determined by the previous step. Clean the area with one of the alcohol pads provided.



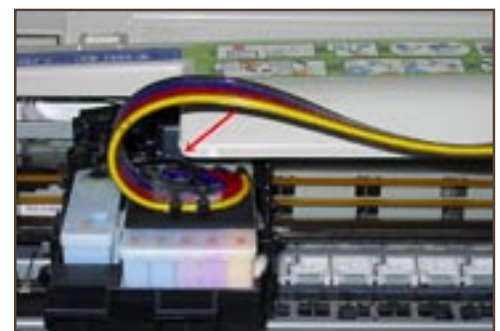
Pull the bottom piece of Velcro off of the support bracket. Peel off the plastic backing and attach it to the spot you marked. Push down firmly and repeatedly over the entire piece. Velcro sets within a couple of minutes, and reaches full strength in 24 hours. It will be strong enough to hold the support bracket immediately. (Velcro can be removed at a later date if the printer needs to be returned to its original condition. It will take some force but it will come off with little or no residue) If you ever remove the Velcro, or it comes off, you will need to get a new piece because it will not stick securely a second time.

Slide the print head as far as it will go both left and right to make sure that none of the ink line touches the printer case or internals.

You may need to shift the support arm left or right up to 1/4 inch if the tubing contacts any part of the printer. If the tubing appears to be overly stressed when the print head is in the far left position, move the support arm slightly left (pull Velcro connection apart and reattach).

With this model CIS, it is especially important you keep an eye out for contact between the tube that leads to the black cartridge and the shelf that extends across most of the middle and right side of the printer (shown by the arrow in the picture above). On some printers, this unsupported shelf may droop down, leaving little or no clearance. If that is the case, pull the shelf up firmly for 30 seconds and release – repeat until the shelf stays at a higher position.

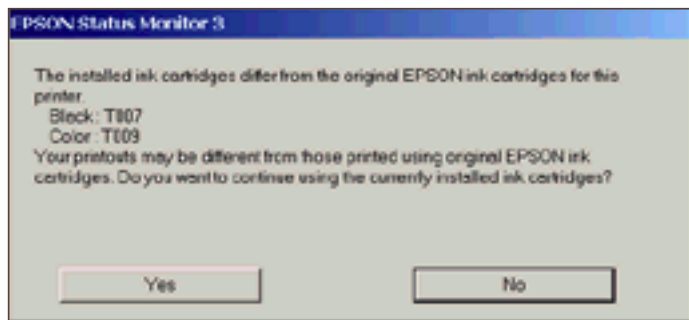
When you are confident that the CIS system will not interfere with normal print head movement, and confident that the cartridges are pressed properly into place, unlock the ink lines, push the print head to the far right (the parked position) and turn the printer on.



Make sure the Velcro on the support arm is fully locked onto the Velcro on the printer by applying pressure to it and twisting the support arm back and forth slightly.

## First Prints with the CIS Installed

When you first try to print, you will get the following message (or something similar, depending on your exact printer model). Click 'Yes' to continue.



This message will reappear the first time you try to print after you have restarted the printer or the computer. You may choose to disable this appearing by disabling the Epson Status Monitor software; but this will also prevent ink levels being displayed on screen (which should not be an issue if you frequently power down your equipment, as that will reset the ink levels).

Using the Epson printer utility, print a "Nozzle Check" to make sure that all the nozzles are firing properly. If necessary run a cleaning cycle or two. If that does not clear things up, let the printer sit for an hour or two before trying again. Running numerous cleaning cycles in a row does not normally help the situation. Some people have had success printing large colour blocks in order to get all the nozzles firing.

Using the Epson utility, do a "Print Head Alignment". (You may need to do this twice if the first alignment is off the scale.)

Position the rubber bumpers used to prop up the lid. Make sure the bumpers are far enough towards the back of the printer to hold the lid up sufficiently – double check before attaching the Velcro. If they are not back far enough, the lid will put pressure on the CIS support



arm and push it down. Clean the printer and the bottom of the rubber bumpers with the second alcohol pad provided before attaching the Velcro circles and pushing firmly. Do not put the left prop on the shelf that overhangs the printer – the weight of the lid will push it down causing the shelf to contact the CIS tubing.



## **Congratulations, you have successfully installed your CIS!**

**Please keep this manual and all your parts for future use and reference.**

**Read on to find out the basic things you will need to know for successful long-term operation of the CIS.**

## Stage 3: Your CIS in Day-to-Day Use

As with many things in life, your CIS will serve you best if you treat it with respect and apply the following maintenance procedures regularly. They take just a few seconds, and could prolong the life of the system, and prevent the need for more drastic maintenance items in the long term.

### Resetting the Ink Levels

The printer keeps track of how much ink has been used, and tries to write that level to the chip. Because our chips are write protected, it is not successful at changing the ink level value on the chips, but the software based "Epson Status Monitor" reports the level in the printer's memory to the computer. In order to clear the printer's memory (and reset it to the 100% full level on the chips), either unplug the printer for 1 second, or turn it off via the front power button and leave it off for 15 or more seconds. Some of our beta testers found their printers always read 100 percent full, and they did not have to reset the internal counter.

We recommend that you leave the printer on as a matter of course...and apply this simple procedure before the ink levels recorded by the printer get too low. Leaving it too late could result in you having to cancel a print half way through to apply the reset procedure.

## Frequent Checks Required

The following checks of your system should be applied frequently – they will take no more than a few seconds and we suggest it would be a good habit to do them weekly or monthly at least:

- Check ink levels in your bottles and top-up if necessary (a procedure follows);
- Check for correct positioning of the support bar, that the ink lines are not overstretched or catching anywhere. The ink lines will stretch a little after first installation into the printer;
- That the ink is in the line for the majority of the length (a few centimetres of air bubble is not normally a problem) of the lines;
- That the cartridges are fully pressed into their holders;
- That the airlines into the bottles are clear of obstruction.

## Refilling your Ink Bottles

For pigment and pigmented inks we recommend you run individual bottles to about a cm or two of the bottom of the bottle. Follow this procedure:

- 1 Lock the ink line for the colour you will be changing;
- 2 Unscrew the bottle cap and fit it to a new, full bottle of the same ink type and colour;
- 3 Unlock the ink line;
- 4 Over time, as the ink level in this full bottle drops, you can just pour the last bits of the old ink bottle into this new one.

For dye inks, this procedure is less critical, and you can simply unscrew the bottle cap, and pour in fresh ink to top up your bottles. Be sure to put the correct ink into the correct bottle!

Do not fill the bottles too high or you may get ink drops on your paper. If you do get ink drops after refilling, raise your printer ½ to 1 inch (leaving the bottles at the original height), or pour some of the ink back out of the bottles).

Keep at least ½ inch of ink in the bottles, you do not want to run out of ink and draw air into the cartridge (if that happens and only a small amount of air enters you will be ok, as long as you don't use up more than half of the ink in the ink line). You can refill all the bottles at the same time or individually as each one gets low, it makes no functional difference.

Use this as an opportunity to check-over the whole system (See the first item above).

When refilling, be sure to use the same type and make of ink that is already in the system. Some inks may mix badly with others, and this mixing inks could clog your CIS or printer. Additionally, mixing different types of inks could result in colour changes over many hundreds of prints, as the new inks run through the system. If you wish to change the ink set in use, we have instructions to do this online.

## Removing the CIS from the Printer

'Lock' the ink lines before removing the system. The cartridges may drip slightly when removed from the printer because they are filled with more ink than the sponge can retain. Keep the cartridges above the level of the reservoir bottles until you are able to plug the exit holes with EZ Plugs or with 3M electrical tape (exit port area must be perfectly dry or the tape won't stick). Make sure that the CIS cartridges are well sealed – you do not want ink to leak out of them, or ink to drain out of the cartridges back into the bottles. Tape alone will not provide a good long-term seal!

# Troubleshooting and Support

If you have any questions regarding installation or operation of the CIS system please contact your supplier. If they are unable to resolve the query your supplier will contact Lyson for the correct information and refer it straight back to you. Please pass on the details of your CIS model, the type of ink you are using, and how long the system has been installed in any technical query. If your CIS supplier is unavailable please email [technicalsupport@lyson.com](mailto:technicalsupport@lyson.com). If you need to send us another email after our initial response, ALWAYS reply to our email or copy the old text into your new email. It is a lot easier for us to respond to your questions if we have the old dialogue right there rather than have to search through thousands of old emails.

Please note that most component parts of the CIS system are replaceable should there be a fault. Please do not remove CIS systems and return them to your supplier without first discussing the problem you are experiencing, and allowing us the opportunity to deliver the best solution to the problem, in the most economical manner.

If you find any part of the CIS system or instructions confusing or difficult, please let us know so that we can continue to improve the product, by emailing [technicalsupport@lyson.com](mailto:technicalsupport@lyson.com).

## Parts List

- Patent pending CIS unit  
(with modified cartridges, tubing and acrylic support arm with Velcro backing, bottle caps with breathing tubes)
- 2 rights protected microchips that always read 100% full
- 2 rubber lid props with Velcro circles to attach to printer
- 6 slide type tube clamps
- 2 alcohol cleaning pads
- 1 vacuum pump (35cc syringe, 2 check valves (intake and exit), T adapter, filter, 2 nipples (one spare))
- Installation instructions

### Key Extras (Optional)

Acrylic Bottle Rack – to hold the bottles safely and neatly to the right of the printer

EZ-Plugs to plug the outlet ports of the CIS when it is removed from the printer