Refillable Cartridge System for Epson™ Pro 7700/9700, 7890/9890 and 7900/9900 Printers

The instructions below describe how to fill and use refillable cartridges, in general terms. Color managed work flows are not discussed here, nor are instructions for using Piezography inks. Filling and using these cartridges is easy, provided you are prepared before you begin and follow the instructions below. High quality ink is available in various size bottles from www.inkjetmall.com. For further information on ConeColor inks, visit www.conecolor.com. An info sheet for ConeColor and Piezography K7 ink use is located on page 2 of these instructions, please refer to it before filling the cartridges with ink.

Background Information to Read Before Beginning:

Cartridges are sold individually, as sets and with ink bottles. Refer to the item description to know what is included with the specific item you purchased.

1. Before beginning, make sure to have the following items on hand:
- Ink bottle(s), which can be ordered from www.inkjetmall.com.
- Empty refillable cartridge(s). **Each cartridge must have a fill hole plug and chip attached on the top.**
- Funnel(s) for filling and refilling cartridges with ink.
- A pair of thin rubber gloves to wear when filling or refilling cartridges.
- A slip-tip syringe and priming tip needed for priming cartridges with ink before installing into the printer.
- A table or work surface large enough to hold cartridges and ink bottles. If you wish, cover the table with newspapers or a plastic sheet to protect it from ink spills.
- Work near a sink for easy cleanup.
- A roll of paper towels.
- A bottle of Windex or other glass cleaner.
- Printer: before you begin, verify all positions in the nozzle check pattern are fully printing and your printer is in perfect working order. Fix any printing related problems before proceeding.
- A chip resetter is needed when a cartridge reads empty to make it read full again- but is NOT necessary when installing new cartridges. Chip resetters are available thru Inkjetmall.

2. Treating and avoiding ink spills:
- If ink spills, wipe it up as quickly as possible. Blot ink with paper towels, then spray glass cleaner and wipe with a paper towel.
- Ink spilled on clothing or other fabric, on carpets or porous surfaces like wood or unglazed ceramic tiles will likely cause permanent stains. Keep this in mind as you choose the workspace area and clothing you wear.
- If you spill ink on the outside of a cartridge during filling, wipe it off with a paper towel, rather than rinsing, to avoid getting water in the cartridge.
- If you spill ink on your skin it will temporarily stain. Clean ink off with water and an abrasive soap, such as "Lava" soap or with regular soap using a rough sponge. Thin rubber gloves are recommended when filling ink cartridges because accidents can happen.

Procedure for Filling Cartridges:

1. Please refer to the photos above to familiarize yourself with the cartridge parts before filling. If filling cartridges for the first time, unwrap and inspect them for damage. Contact Inkjetmall if you suspect that a cartridge is damaged. Make sure the chip is attached straight and flush on top of each cartridge. Also, make sure a plug is in the fill hole on top of each cartridge. If not, please check inside the cartridge wrapping before you discard it. Be careful not to touch the chip contacts and be aware chips are sensitive to static or electrical shock, which can short them out. We recommend everyone have a set of spare chips on hand in case any need to be replaced. Chips are very easy to replace by following instructions on page 4.

2. Place an ink bottle and cartridge on your work surface. Do not open the ink yet. For Piezography ink, make sure to follow the ink shade placement chart (below) when filling and refilling cartridges. <u>Proper shade placement is NECESSARY for correct output</u>. We recommend writing the Piezography ink shade # on each cartridge by following the chart- this will make for easy refilling in the future and avoid accidental ink mixing.

3. Put on your gloves. Place cartridge upright and remove the silicone plug from the filling hole on top (**refer to photos on top of page 1**). Select the correct bottle of ink for the cartridge, and shake it gently. Unscrew the top, and open bottle by removing the silicone plug or cutting around the foil seal.

4. Insert funnel into the cartridge fill hole. Support the funnel and the cartridge with one hand. Pour ink with the other.

5. Fill the cartridge until the ink level reaches the "Max" line on the cartridge side label. Do not add more ink than this, as it may cause problems during printing.

6. Repeat the above steps for the remaining cartridges. After filling a cartridge with ink, the funnel can be rinsed with water, air dried and used for later refilling. If the funnel stains and can't be cleaned to a "new" condition, this will not contaminate your inks. However, introducing even small amounts of ink from one color bottle into another color bottle **will** contaminate your inks, so be careful of this.

Color Ink Users:
Match label on the ConeColor Pro HDR (pigment) or Ink-Thrift (dye) ink bottles, cartridge color position label and printer's ink position label.

ConeColor Pro pigment inks provide such a close match to Epson UltraChrome K3 and HDR inks, that you can install ConeColor inks one at a time as your Epson carts run empty, though ConeColor Pro specific ICC color profiles should be used for optimal results with ConeColor Pro HDR inks and non-Epson media, which can be downloaded from here: http://conecolor.com/icc/index.html, along with instructions for printing with color ICC profiles. Contact Inkjetmall to purchase custom ICC profiles for papers not already profiled.
Gently shake ink cartridges every few weeks to keep pigment in suspension and printing full density, as pigment inks settle over time.

InkThrift dye should be used as a whole set for the best results, as pigment and dye inks look and work differently. Install the set of InkThrift cartridges, then preform an Initial Fill cycle.

Piezography Ink Shade Placement for 7900/9900 & 7890/9890 Printers:
These tables apply to Piezography ink, make sure to follow the shade placement chart for the specific setup you're using. Shade 1 is the darkest (black) and Shade 7 is the lightest. For easy refilling (and to avoid accidental mis-filling carts with the wrong ink), we recommend writing the ink and shade # on the side of each cartridge, following the chart below. **Note:** For Piezography **gloss** printing, Photo Black, Gloss Overprint, and glossy curves must be used. Contact Inkjetmall for more information or to have a custom Piezography curve made.

*Before attempting to print with Piezography inks, be sure to read the Piezography manual, located at www.Piezography.com, along with other helpful documents related to Piezography printing.
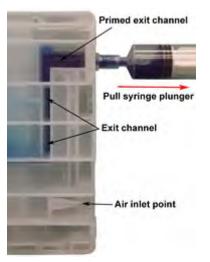
7890/9890:

Cartridge Position (Left to right)	1) Piezography **K7***	2) Piezography **P2***	3) Piezography **PRO***
Cyan	Shade #2	Shade #2	Cool: Dark
Yellow	Shade #7	Shade #7	Warm: Light
Light Cyan	Shade #3	Shade #3	Cool: Medium
Matte Black	Shade #1 (Matte Black)	Shade #1 (Matte Black)	HD Matte Black
Photo Black	Shade #1 (Photo Black)	PiezoFlush (unused)	HD Photo Black
Magenta	Shade #4	Shade #4	Warm: Dark
Light Black	Shade #6	Shade #6	Cool: Light
Light Light Black	Gloss Overprint (for gloss printing) PiezoFlush (if NOT printing gloss)	Gloss Overprint (for gloss printing)	Gloss Chroma Overprint (for gloss printing)
Light Magenta	Shade #5	Shade #5	Warm: Medium
NOTES	* Change black ink for matte or gloss printing. Can print digital negatives. Use "K7" curves	** NO need to change black ink, can also print digital negatives. Use "P2" curves	*** Warm and cool split-tone, change black ink for matte or gloss printing, can also print digital negatives. Use "PRO" curves

7900/9900:

Cartridge Position (Left to right)	1) Piezography **K7***	2) Piezography **PRO***
Cyan	Shade #2	Cool: Dark
Orange	PiezoFlush (unused)	Warm: Very Light
Yellow	Shade #7	Warm: Light
Light Cyan	Shade #3	Cool: Medium
Matte Black	Shade #1 (Matte Black)	HD Matte Black
Photo Black	Shade #1 (Photo Black)	HD Photo Black
Magenta	Shade #4	Warm: Dark
Light Black	Shade #6	Cool: Light
Green	PiezoFlush (unused)	Cool: Very Light
Light Light Black	Gloss Overprint (for gloss printing) PiezoFlush (if NOT printing gloss)	Gloss Chroma Overprint (for gloss printing)
Light Magenta	Shade #5	Warm: Medium
NOTES	* Change black ink for matte or gloss printing. Can print digital negatives. Use "K7" curves	*** Warm and cool split-tone, change black ink for matte or gloss printing, can also print digital negatives. Use "PRO" curves

Prime Cartridges Before Installing into Printer:

After filling a cartridge with ink, the exit channel must be primed with ink before installing into the printer for proper ink flow.
To prime a cartridge with ink, place it upright on a table with chip side up. Remove orange plug from air inlet point. With priming tip attached to the slip-tip syringe, insert the priming tip straight into the exit valve to depress the spring and open the valve. Pull the syringe plunger to draw ink up the exit channel until air is removed and some ink enters the syringe. Remove the syringe by pulling it straight out of the exit valve. Now the cartridge is ready to be installed in the printer.

Installing Cartridges into the Printer:

1. Before installing a cartridge into the printer, prime the exit channel with ink by following directions above. If the cartridge is not primed before installation, air from the exit channel will enter the printer's ink line. An air bubble can cause interrupted printing or a poor nozzle check, but is usually fixed with a cleaning cycle. After priming with ink, install cartridge into the appropriate slot in the printer.

2. Purging the system: ConeColor Pro HDR inks provide such a good color match to Epson UltraChrome HDR inks; therefore, purging the Epson inks from your printer is optional and may be skipped if desired. When installing one cartridge/ink at a time, continue printing as normal- purging is only recommended when switching the full set of cartridges. If you choose to purge your printer after installing, run an Initial Fill cycle. Be sure to have a spare maintenance tank on hand, if yours is nearly full. Initial Fill procedures can be found on the Inkjetmall support forum, in the Articles section.

We recommend flushing the printer's internal ink system with a set of flush cartridges if switching from any ink other than Epson, as this is the only ink we have tested and know our inks are compatible with, though other inks may or may not be compatible.

Piezography inks are compatible with Epson inks, although some color staining can occur when switching from color to Piezography inks. After installing Piezography ink cartridges, do one Initial Fill Cycle (following instructions below) to move ink from carts to the print head. To avoid color staining, we recommend using flush cartridges between the two inks, but flush is not required. If flush cartridges are not used and color staining occurs, usually a few Power Cleaning cycles clears this up.

3. Verify all positions are fully printing on the nozzle check pattern.

Printing with ConeColor and Piezography Inks:

ConeColor inks: You can use the same printer settings and workflow as when printing with Epson UltraChrome HDR inks and Epson papers. The excellent color match between ConeColor Pro HDR and Epson UltraChrome HDR inks allow Epson profiles to be used with ConeColor inks to produce very close results to Epson ink output, although the best quality is produced when using the full set of ConeColor Pro HDR inks and CCP specific profiles. Several pre-made color ICC profiles can be downloaded from www.conecolor.com, and custom profiles are available thru Inkjetmall.

Piezography K7 inks: Roy Harrington's QuadTone RIP or Ergosoft's StudioPrint RIP support many different printer models with our inks. Be sure to follow OUR Piezography Manual for using QuadTone RIP with Piezography inks to get the best results, as our workflow differs from Roy Harrington's.

Refilling Cartridges:

Monitor ink levels and refill cartridges before the ink level reaches about 1/2" from the bottom to avoid introducing air into the ink lines of your printer. Use necessary steps from the procedure above for refilling cartridges. Always shake the bottles gently before pouring ink from them. Fill each cartridge to the "Max" line, securely replace the plug in the ink fill hole, gently shake the cartridge to get all the ink in suspension, tilt the cartridge forward to ensure the exit channel is filled with ink, reinsert the cartridge into the printer and close the cartridge bay door.

Resetting Cartridge Chips:

The chip resetter has a guide that fits snugly around the sides and front of the cartridge to easily align resetter pins and chip contacts. Fit the resetter guide over the chip end of the cartridge, then gently press the resetter against the cartridge chip. The resetter light will flash red several times then turn solid green to indicate the reset is complete. If the light turns solid red, then either the reset was not successful, resetter and chip were not properly aligned or the chip is damaged- in this case, try resetting again. You can't "over-reset" a chip, but occasionally if resetter pins and chip contacts aren't correctly aligned it can short out the chip.

NOTE: Chips are fragile, sensitive to electrical shock, and can short out. We recommend resetting and reusing them whenever possible, but suggest having a set of replacement chips on hand if needed. New chips can be attached in place of the old chips by following instructions on page 4. Replacement chips can be purchased from www.inkjetmall.com

Attach New Chip to Cartridge:

Chips occasionally go bad and need to be replaced. When the printer gives a cartridge error which is not resolved by resetting the chip, this usually means the chip has shorted out and is no longer read correctly by the printer. We recommend everyone have a set of spare chips on hand to be prepared if a chip needs to be replaced, which is very quick and easy to do. The cartridges themselves are robust and will likely last the life of your printer.

New chips already read full, so do NOT need to be reset. Carefully cut the top of the plastic nub located at the top of the chip, as indicated in the photo on the left. Gently pry the current chip off the cart using a straight edge razor blade or something similar. attach the new chip in place of the old one using a small piece of double sided tape (**don't glue chips into place**). Make sure gold contacts are facing the front of the cartridge (same direction as the one you removed). Chips are sensitive to static, so against what you may think, it is best to handle them with clean, dry hands instead of wearing cotton gloves. Some people wear anti-static bands when working with carts/chips to help avoid damage. With the new chip in place on the cart (with a small piece of double sided tape on the back of the chip), press straight down with your clean + dry finger or thumb to secure the new chip to the cartridge- making sure it sits **flat/flush** in the chip area of the cart and nothing is on the chip contacts that could interfere with the chip read.

Helpful Information and Troubleshooting Guide:

- **Shaking ink bottles and cartridges:** over time pigment particles can separate and settle. In most cases this looks worse than it actually is; however, regular shaking is a good idea. The best time to shake the bottles and cartridges is when refilling the cartridges. If a printer is not used for a few weeks pigment will settle in the cartridges and ink lines- to fix this agitate the cartridges and perform 2-3 power clean cycles. To agitate ink cartridges, remove and gently shake the carts by tilting forward and swishing around, then reinstall into the printer. Don't shake too hard because this will create froth in the ink and introduce air into the ink lines, just a few tilts back and forth is good. Make sure exit channel is filled with ink before reinstalling cartridge. Print a nozzle check to confirm all positions are printing then resume printing as normal.

- **Use the printer on a regular basis for best function.** To keep ink moving thru the internal ink lines and head moist, print a small image or do a few cleaning cycles at least once a week. It is not recommended to leave pigment inks installed in a printer that will be unused for an extended period of time. If a printer won't be used for a while, it's best to install a set of flush cartridges and preform an Initial Fill cycle to purge ink from the lines, dampers and print head. This will allow for safe long term storage of the printer.

- **Monitor and maintain humidity levels between 40-60% in the printing area.** Both low and high humidity can cause problems with printers, inks and papers.

- Storage of cartridges out of the printer: If you want to take cartridges out of the printer for a long period of time, you must store them upright in sealed plastic bags to prevent evaporation and spills. A printer should never be left sitting for extended periods of time without cartridges installed.

- Watch ink levels in the cartridges: refill a cartridge before ink level gets below 1/2" from the bottom. If a cartridge runs empty and air is introduced in the ink line, several power clean cycles must be preformed to purge air and get the ink line filled with ink again, as air can interrupt ink flow and ruin a print.

- Printer gives a "wrong cartridge" or "cartridge error" message: be sure cartridges are installed in the correct positions and securely locked into position for tight connection between the cartridge chip and printer's chip sensor for good read. Make sure there's nothing on the chip blocking the read and tightly reinstall the cartridge into the printer.

- Unable to print a perfect nozzle check pattern after installing new cartridges: occasionally when installing new ink cartridges, the print head will flood with ink and a perfect nozzle check pattern may be difficult to print. Running additional cleaning cycles can make this problem appear worse, rather than better. Wait about 30 minutes to allow ink to settle, then print a nozzle check. Don't do excessive cleaning cycles if the nozzle check isn't perfect, as excessive cleaning cycles can damage the print head.

- Unable to print a perfect nozzle check after use of printer: each time you remove a cartridge from the printer you can introduce a small bubble of air into the ink tube. This air bubble slowly works its way thru the ink line and may interrupt ink flow when it reaches the damper or print head. If standard cleaning cycles don't fix the problem and if cleaning the capping station doesn't fix the problem, then run one or two high powered cleaning cycles to push the air bubble out of the print head. Before putting a cartridge into the printer, tilt it forward to fill the exit channel with ink. If the cartridge is not tilted forward before installing, this channel can contain air so the air enters the printer's ink line before ink starts flowing. You can open the printer's lid and examine the length of ink tubes, make sure they are all filled with ink and there are no sections of air inside.

  ** If you continue having problems or have additional questions, please refer to our InkjetMall Support Forum, which contains lots of helpful information in the Articles> Product Manuals and Instructions section, as well as previously asked/ answered threads to read. You can post a new question to contact us for support if you're unable to find the answer you need.