Product Advisory

B3F58A/B3F58B Solvent cartridge maintenance and handling

When the B3F58A/B3F58B solvent cartridge is used without an automatic or hardware service station, proper cartridge maintenance and handling can have a significant impact on product quality and performance. Refer to this document for cartridge maintenance and handling best practices for this solvent cartridge.

Introduction

This document provides best practices for cartridge maintenance and handling for B3F58A/B3F58B solvent cartridges, when used without an automatic or hardware service station. These techniques allow you to optimize ink availability and maintain image quality.

Cartridge maintenance may be necessary when you are no longer getting the expected quality output. Print cartridge servicing must be performed on a regular basis to prevent (or recover from) clogged nozzles and to remove puddled ink or debris from near the nozzles. Optimum maintenance is a trade-off between highest image quality and the expense of wasted ink, reduced throughput, and mechanism wear. Keeping in mind that the orifice plate can have ink on it and still produce an acceptable image quality, the amount of servicing needed is a matter of experimentation and determining an acceptable level of orifice plate cleanliness for your application.

The topics covered in this document include:

1. Initial Use
2. Storage Guidelines for Cartridge Nozzles Not in Use
3. Wiping (Servicing) Techniques During Normal Use
4. Intensive Recovery Methods
5. Electrical and Interconnect Servicing
6. Working with the SPS Customer Support Service Desk or Your Distributor

1. Initial Use

The B3F58A/B3F58B print cartridge should remain in the vacuum-sealed pouch until it is installed in a printing device.

- For the best performance, use the cartridge within 2 weeks after removing it from the pouch.
- Never shake the cartridge back and forth in an attempt to mix the ink or recover the printhead.

Once a print cartridge is removed from its package, the nozzles must be protected to keep the ink from drying out. The ink ejector structures will not function properly if the ink becomes too concentrated (highly viscous) or solidifies. To prevent this, the print cartridge nozzles should be sealed (capped) with a cartridge clip when not in use. Capping the print cartridge nozzles also protects the print cartridge from dust and shock. Store the cartridge clip provided for the B3F58A/B3F58B solvent cartridge near the printer for this use.

- To prevent the ink from drying out, cap the cartridge with a cartridge clip (provided by HP) if the cartridge will be idle for extended periods of time.
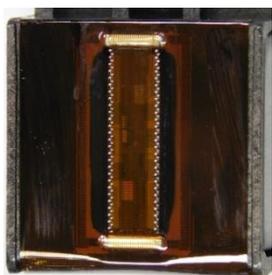

Figure 1 - Image of an orifice plate after uncapping a cartridge and before maintenance wiping

Before inserting the cartridge into the printer, gently wipe the printhead to remove any ink on the orifice plate that accumulated during the shocks and vibration that can occur during shipping. Follow the instructions provided in section 3.

Figure 2 - Image of an orifice plate after maintenance wiping with a dry, lint-free wipe

2. Storage Guidelines for Cartridge When Not in Use

When print cartridge nozzles are uncapped and exposed to the environment, they are subject to contamination and loss of ink solvent. Capping the print cartridge puts them in a sealed environment and helps reduce the formation of ink plugs, which form in the print cartridge's nozzles when the solvents in the ink evaporate. When ink plugs form, the image quality is reduced.

- The printer should not be powered on when the print cartridge is capped.
- Use the correct type of cartridge clip to cap the print cartridge. For the best results, use the cartridge clip provided with the print cartridge.

Do not use cartridge clips from other types of print cartridges, even if it appears that they may fit. Use of the wrong capping material may impact image quality. Figure 3 shows the aqueous and solvent cartridge clips. Be sure to use the solvent cartridge clip when capping the B3F58A/B3F58B solvent cartridge.

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Figure 3 – Clips for aqueous (left) and solvent (right) cartridges

Non–vented clips are provided with the B3F58A/B3F58B solvent cartridge to minimize the potential of pressure spikes occurring during capping and to reduce the vapor diffusion rate. During capping, a small amount of ink will wick from the nozzles onto the capping surface - this is normal.

- To minimize the build-up of this ink on the clip, wipe the printhead prior to capping. Follow the instructions provided in the next section to gently wipe the printhead.

3. Wiping (Servicing) Techniques During Normal Use

Wiping is a method of cleaning the orifice plate, and is the most common form of print cartridge servicing in a printing system that does not have a built in service station. Wiping removes fibers and debris from the media and surroundings, dried ink (in the form of plugs or crust), and excess ink (in the form of ink puddles on the orifice plate). When these materials accumulate on the orifice plate, this can cause ink droplets to deflect from the desired trajectory, resulting in degraded image quality.

The recommended technique for wiping is a "wicking wipe" shown in Figure 4 and Figure 5. A wicking wipe is characterized by a combination of absorbent material, slow speed, and proper applied pressure. This combination provides enough capillary draw along the nozzles to wick ink from them. The wiping material should be absorbent, lint-free, and non-reactive with the ink. For intensive cartridge recovery, the wiping material may be wetted with a generous amount of isopropyl or ethyl alcohol (95%), see section 4.

When wiping, hold the cartridge with the nozzles down and pull from either side of the cartridge. As the ink is slowly wiped across the orifice plate, it will soften hardened deposits of ink and debris. Wiping the orifice plate too slowly causes ink to wick out of the nozzles and streak across the orifice plate. Wiping too fast bounces the orifice plate over the surface and won't remove the debris. It is better to repeat the process several times with constant speed and force than to wipe too fast or press too hard.

- Wiping too fast may incorporate air bubbles and lead to inadequate wicking.
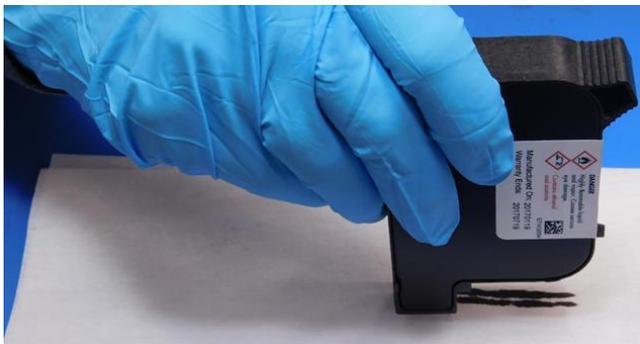- Pressing too hard will scratch the orifice and may break the fragile drop ejectors.

Figure 4 – "Wicking wipe" technique for removing hardened deposits of ink and debris (initial wipe)
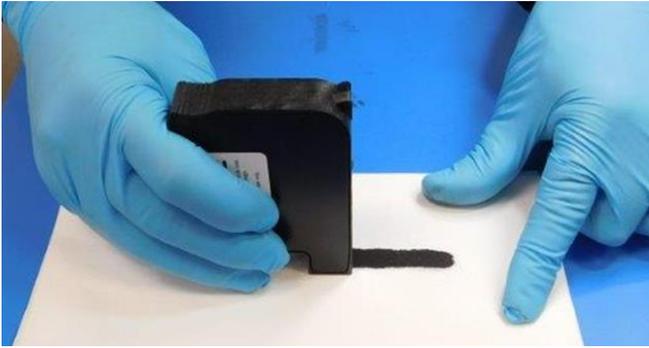
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Figure 5 – "Wicking wipe" technique for removing hardened deposits of ink and debris (later wipe)

If a solid working surface is unavailable, a finger supported wiping method can be used (Figure 6).

Figure 6 - Finger supported wiping method

4. Intensive Recovery Methods

If the image quality degrades and is not improved with routine wiping maintenance of the print cartridge, additional recovery methods may be required. Intensive recovery methods may restore print cartridges that have had excessive thermal or pressure cycling, extended uncapped storage, prolonged media contact, or accidental dropping. When intensive recovery methods do not restore the print head, replace the cartridge.

Wicking wipe with 95% alcohol or acetone

Perform a wicking wipe procedure, but first wet the lint-free wiping material with a generous amount of isopropyl or ethyl alcohol (95%), or acetone. The alcohol or acetone on the wipe will dissolve hardened deposits of ink and debris better than wicked ink alone.

Repeat the wet wicking wipe until no visible signs of ink accumulation are visible on the orifice plate, and then finish with a dry wicking wipe to remove any traces of alcohol from the cartridge, prior to printing.

Do not shake the cartridge because shaking allows air into the cartridge causing nozzle blockage. To avoid air bubbles in the nozzles, wait 10 minutes after wiping and inserting the cartridge into the printer before print testing. This allows time for air bubbles to reabsorb into the ink.
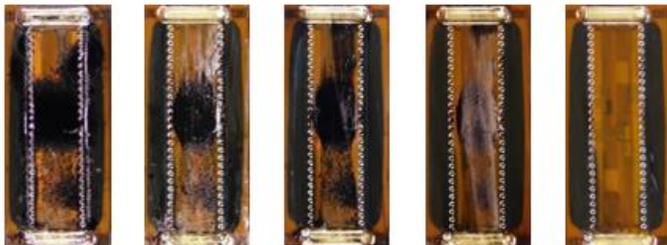

Figure 7 – The photo on the left shows the printhead before wiping, the middle photos show the printhead after successive dry wipes, and the photo on the right shows the printhead after an alcohol wipe

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Priming (air removal)

Air can accumulate in the cartridge from dropping the print cartridge, vibration when not capped, or excessive thermal cycling while printing in a horizontal orientation. Air in the cartridge is difficult to remove, but careful priming may help.

To prime a print cartridge, a volume of ink is purged from the nozzles. This pushes out viscous plugs from the nozzles and air bubbles from the printhead. Priming is also used to reprime the print cartridge by returning ink to a nozzle that has lost its meniscus. Priming does not remove air in the standpipe, which can occur during high flux printing in the horizontal position.

Priming will require a syringe and a cartridge clip with a good seal for the printhead. Use a cartridge clip that is appropriate for the cartridge, such as the cartridge clip that was included with the print cartridge. Be aware of any material compatibility issues between the syringe, cartridge clip, and ink. The most common problem is cross contamination with old ink resulting from reuse of the components. This can result in nozzle clogging or ink contamination-based clogging.

5. Electrical and Interconnect Servicing

If a cartridge test print shows unintended white spaces (missing nozzles) that are equally spaced or in a large block, this can indicate a debris or ink contamination problem on the electrical interconnect pads. Figure 8 shows examples of a normal barcode segment (left), a bar code with equally spaced white lines with approximately 2mm spacing, indicating an open address (middle), and a bar code with a large missing block, indicating an open primitive (right).

Figure 8 - Barcode segment examples: no unintended white lines (left), equally spaced unintended white lines (multiple arrows, middle), and single block of unintended white lines (single arrow, right)

Inspect the interconnect pad for debris or ink (Figure 9). Then apply a small amount of alcohol to a lint-free wipe and gently wipe the interconnect pads.
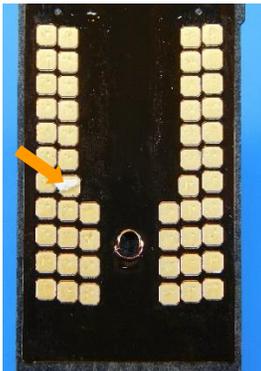

Figure 9 - Interconnect pad with debris (arrow)

Before inserting the cartridge back into the cartridge stall, inspect the pins in the cartridge stall for damage, debris, and accumulated ink. Clean the interior of the cartridge stall using a soft bristled dental toothbrush wetted with alcohol (Figures 10 and 11). Rinse off any ink that accumulates on the toothbrush with alcohol, and repeat, brushing very gently. Do not use a metal bristled brush, which may damage the connecting pins.
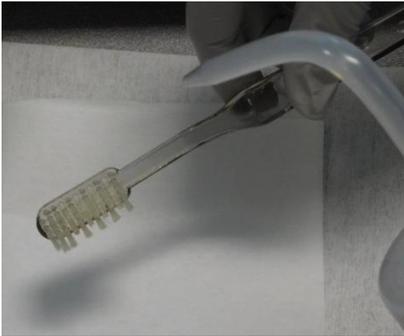

Figure 10 – Toothbrush used for cleaning the cartridge stall

Figure 11 – Using a toothbrush to clean the cartridge stall

After cleaning with a brush, dab the cartridge stall with a lint-free wipe. Allow the alcohol to dry completely before inserting the cartridge into the cartridge stall.

Figure 12 - Example of dabbing the cartridge stall with a lint-free wipe.

6. Working with the SPS Customer Support Service Desk or Your Distributor

To submit a support request or to request additional information, visit

hp.com/go/spssupport

If you are reporting an issue to the SPS Customer Support Service Desk, please use the Customer Support Request Form from the web address above. When reporting an issue, we recommend providing answers to the additional application-specific questions contained in Table 1 below. This information will help SPS customer support diagnose your product issue. Note: For "as-received damaged parts" and other visible workmanship issues, a photo of the part may contain sufficient information.

Table 1 – Detailed questions

Customer site feedback	
End User Name (optional)	
End User Location (optional)	
Cartridge Part Number	
Cartridge warranty end date	
Cartridge manufacturing ID	
Cartridge weight at the time of failure	
Image type (text, 1D, 2D, image). Please provide a sample of the image	
Customer feedback issues/problems	
Estimated failure rate or quantity affected	
Date of customer's feedback on issue(s)	
Date failed cartridges arrived at OEM premises	
What did the customer do to recover from failure?	
Printed Substrate Material Type	
Operating Environment (Temp)	
Operating Environment (Humidity)	
Application related	
Application - Cartridge Fixed or Cartridge Scanning	
Time between images in normal operation including the space between images (time or distance)	
Calculated Image Rate (seconds/image)	
Cartridge Orientation (Horizontal, Vertical, Side)	
Printing Resolution (DPI)	
Printing Speed (ips,m/min):	

Electrical Firing Frequency (kHz):	
Number of cartridge columns used to generate images (one or two)	
Throw distance (mm)	
Pulse Warming (on/off)	
Cartridge Voltage	
Cartridge Pulse Width (micro seconds)	
Cartridge Warming Pulse Width	
Verification at OEM site	
Describe the procedure used at OEM to validate the customer returns	
Returning failed cartridges	
Ensure cartridge is capped	
Ensure cartridge is vacuum-sealed in pouch (for solvent cartridge only)	
Attached any print sample from end uses	
Attached verification samples by OEM	