DUET™

Care and Cleaning of Duet™ Ink Jet Cartridges

Revision B

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1 Duet Ink Jet Cartridge

Duet uses a proprietary ink jet cartridge while printing. This is placed into the carriage assembly under the top cover of the unit, as shown in Figures 1 and 2.

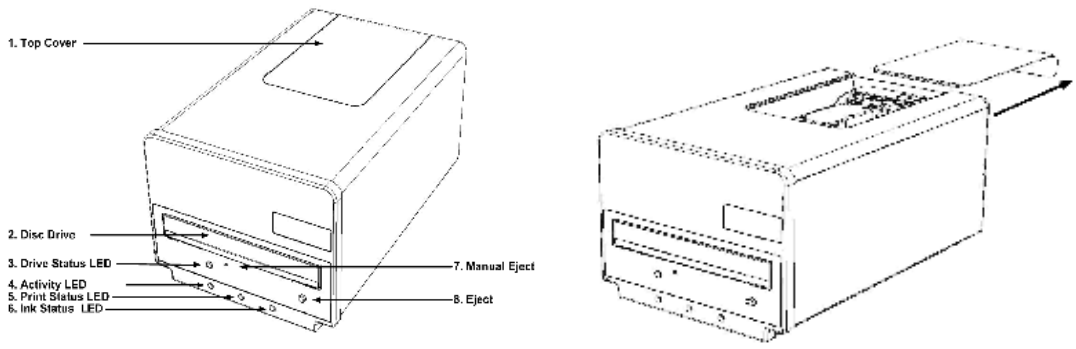


Figure 1—Duet Top Ink Cover

Duet uses a proprietary ink jet cartridge for printing. It is placed into the carriage assembly under the top cover of the unit shown in Figures 1 and 2.

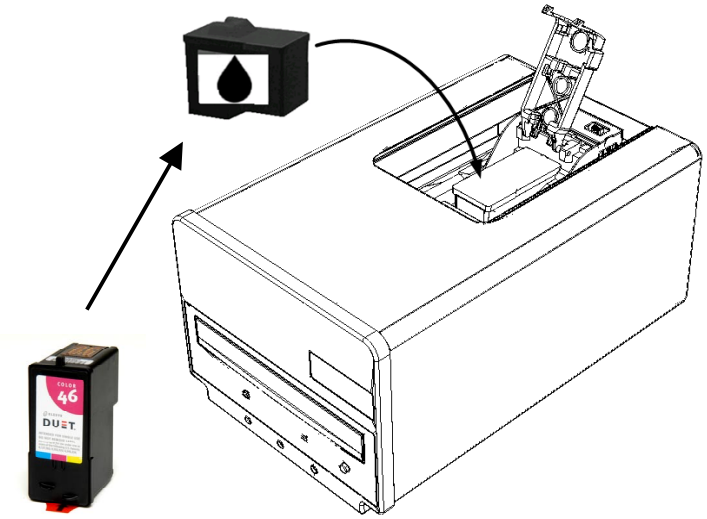


Figure 2—Duet Ink Jet Carriage Holder

Follow the procedure in the Duet User Guide to install or remove the ink cartridge.

2 Automatic Ink Cartridge Servicing

Duet is designed to automatically maintain the ink cartridge ready for use. This is crucial to ink jet printing since their beginning—ink jet print heads require fastidious care to ensure that they print properly.

Duet handles this for the user. With advances in very small ink nozzle orifices on the order of 3-4 picoliters in size, these nozzles and the nozzle faceplate are susceptible to clogging. Dried ink can temporarily plug the nozzles, causing misfiring of the nozzles. Periodically performing a purging clean, which fires the nozzles into a spittoon, can usually clear this condition and restore a nozzle to full use.

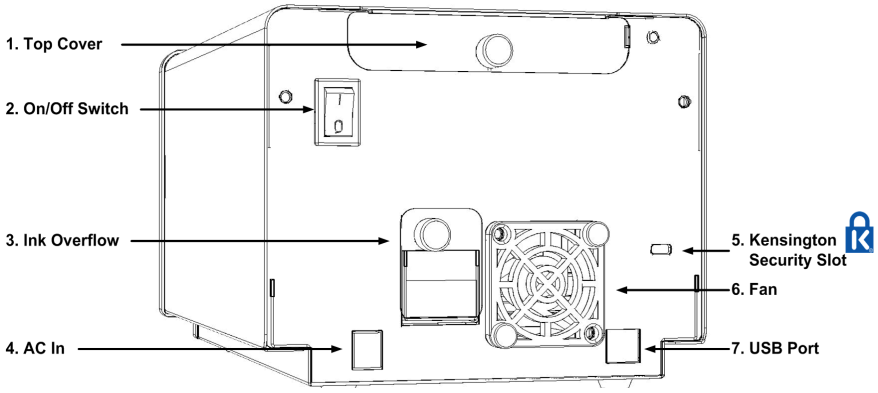


Figure 3—Duet Back Panel showing Ink Overflow

Ink jet cartridge-servicing tasks include: spitting to prime or clear a nozzle obstruction, wiping to remove debris and excess ink from the nozzle plate and capping the cartridge print nozzles to prevent their drying out. During normal use, Duet accomplishes this sequence behind the scenes. The following steps are performed prior to initiating a print:

1. The ink jet service station positions the spittoon under the cartridge nozzles.
2. Spitting is performed into the spittoon for the purpose of clearing dried ink or debris obstructing the nozzle.
3. The ink jet service station moves so as the wiper scrubs and removes any excess debris and wet or dried ink from the nozzles.
4. Upon completion of printing, the print cartridge is capped.

Ink from the spittoon drains into the service station. Excess inks eventually drain into the ink overflow blotter, as shown in Figure 3. The blotter is large enough to provide service for many thousands of prints prior to needing replacement. Access is via the rear panel Ink Overflow door. Contact Elesys for an ink blotter replace kit when required at:

http://www.buyduet.com

3 Cleaning the Cartridge

The Duet driver Status Monitor includes a “Clean Cartridge…” button function for performing a clean, as shown in Figure 4.

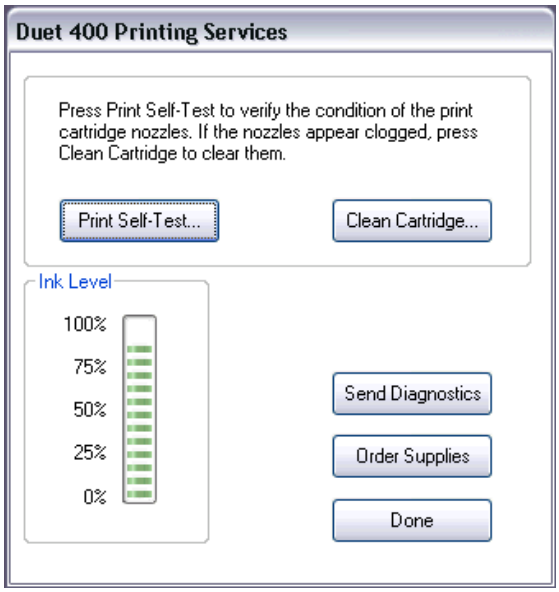


Figure 4—Printer Service Clean and Self-Test buttons

Pressing the Clean Cartridge button causes a dialog to be displayed to allow the user to select cleaning a shown in Figure 5 the Duet 400 Clean Cartridge dialog to display, as shown in Figure 5. Pressing Clean on this dialog starts a cartridge spitting and wiping process to clean the print head nozzles. You may optionally choose lighter or heavier cleaning. This function would normally be used when a print job or self-test shows that the nozzles are not all firing. Use of the Print Self-Test button is explained in the next section.

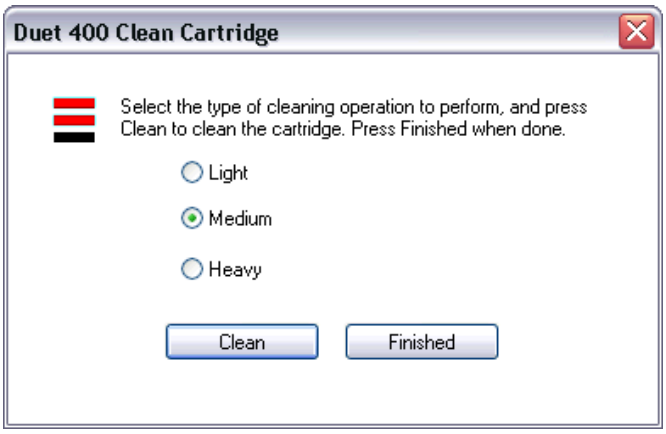


Figure 5—Clean Cartridge Dialog

4 Print Self-Test Function

Included in Duet firmware is a Self-Test Print function, as shown in Figure 4, which prints a test pattern (see Figure 6) to allow users to view the current "health" of their ink jet print nozzles. The test pattern enables you to check for plugged or misfiring nozzles. The test allows up to five tests rings concentrically on one disc, starting from the last used position in the previously run test ring. The self-test varies the offset from the center for each test ring or "cycle" to minimize overlap risk. Nozzles are fired by nozzle color in column order, first printing the larger, 11 pl nozzles, followed by the smaller 4 pl nozzles (the lighter image) respectively in each of the three ink colors: cyan, magenta and yellow.

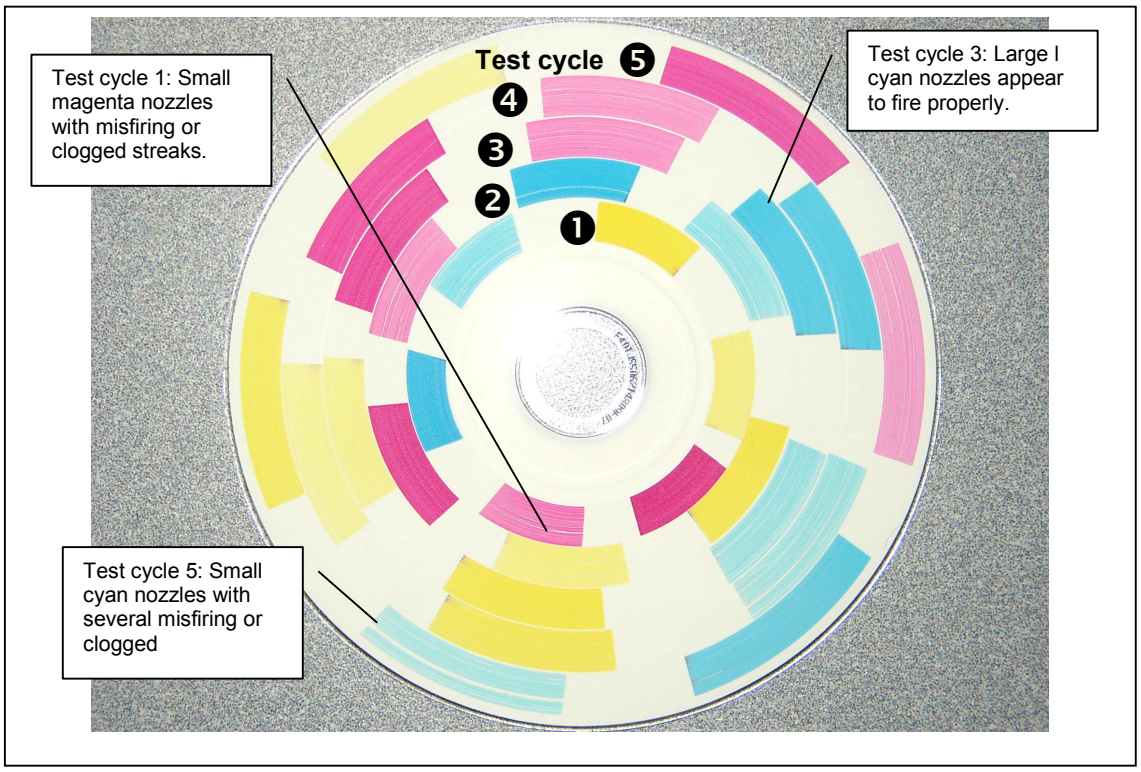


Figure 6—Self-Print Test Patterns

Plugged nozzles show up as missing or streaking lines. Duet has software algorithms to compensate for some clogged or missing nozzles that are usually present due to the nature of ink jet cartridges; however, if there are too many streaks and it affects print quality, first try cleaning the cartridge using Clean Cartridge button and then printing another test ring pattern. If the streaking persists after several tries, clean the cartridge according to the manual wipe procedure below. As a last resort, replace the cartridge.

5 Hand-Wiping Cartridge Nozzles and Contacts

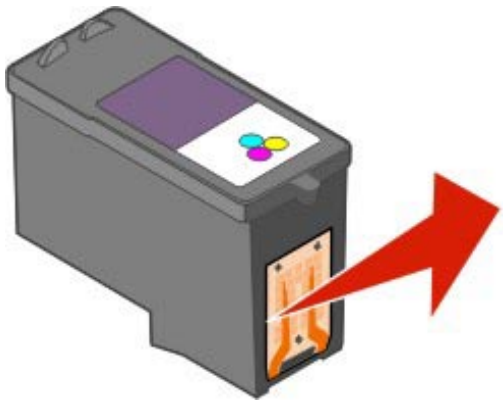
If the print quality has not improved after using Duet to clean and test-print a cartridge, there might be dried ink on the nozzles and contacts.

1. Remove the cartridges.
2. Dampen a clean, lint-free cloth with water and place it on a level surface.

   Note: Place two pieces of paper under the cloth to avoid getting ink on the work surface.

3. Gently hold the nozzles against the cloth for about three seconds, and then wipe in the direction shown. (This direction is important to prevent cross-color contamination or forcing contaminants into adjacent nozzles.)

4. Gently hold a clean section of the cloth against the contacts for about three seconds, and then wipe in the direction shown.



5. Allow the nozzles and contacts to dry completely before reinstalling them.
6. Perform a Print Self-test again per Section 4 above.

6 Recognizing Cross Contamination

If you inadvertently wipe the nozzle plate sideways instead of lengthwise, you may experience cross-color contamination. As shown in Figure 7, this may cause wrong colors to appear in the when printing Self-test, such as orange or red for yellow, or green for cyan.

1. Rerun a Self-Test.
2. Inspect the freshly printed test ring for missing or discolored areas.
3. If unsatisfactory, use Clean Cartridge in Figures 5-6 to purge the nozzles.
4. Repeat steps 1-3 until satisfied.
5. If necessary, replace the cartridge and prime, as illustrated in Figure 7

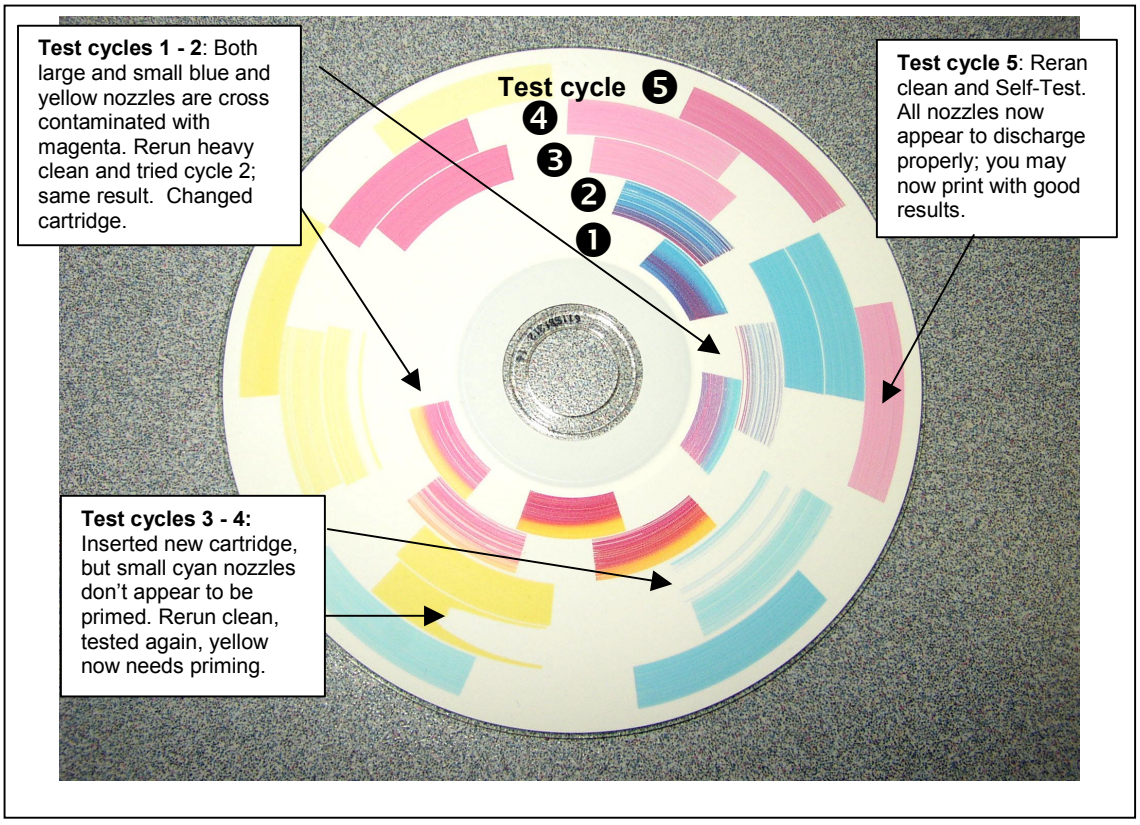


Figure 7— Cross-Contaminated and Unprimed Ink Nozzles

Usually using one of the above methods allows you to restore a cartridge to use. If one or more colors are always missing in Self-Test, they may be permanently clogged or out of ink. In this case, you should replace the ink cartridge.

Ink cartridges are available from your distributor or on-line directly from Elesys at:

http://www.buyduet.com.