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THE SUBLIMATION REPORT

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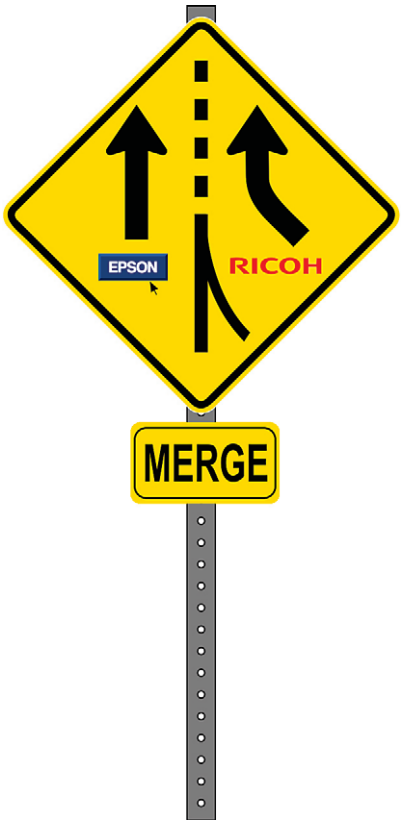
THE ROAD TO SUBLIMATION SUCCESS

Full Throttle: Ricoh Update

BY DAVID GROSS

"Alice laughed. 'There's no use trying,' she said. 'One can't believe impossible things.' 'I daresay you haven't had much practice,' said the Queen. 'When I was your age, I always did it for half-an-hour a day. Why, sometimes I've believed as many as six impossible things before breakfast.'"

Lewis Carroll, Alice in Wonderland



This is a follow-up to my article in the 2009 Sublimation Almanac. Missed it? No problem, you can read it here: www.conde.com/webinar.

Looking back on the long and winding road we've been traveling on, dye-sub venturers can attest to the many changes this technology-driven industry has experienced. Big and small advances in software, supplies, equipment, and technique have continually contributed to the viral popularity of dye-sub transfer. Without a doubt, however, the biggest and most newsworthy change we've ever experienced has been the introduction of Ricoh printers into our previously Epson-dominated industry. Since their introduction (the GX7000 in Nov. '08 and GX5050N in Jan. '09), the Ricohs have become quite dominant as new and replacement printers. The buzz and excitement over something so new and different has convinced a lot of folks in our industry to either add a Ricoh to their current Epson line-up or replace their current Epson(s) altogether. Newbies to the industry are often choosing Ricohs without ever having been behind the wheel of an Epson! But are the Ricoh printers living up to the hype? What do the road tests show? As a seasoned roadside dye-sub technician, I hope to provide some valuable insight into these unique printers now that they have had a few years of on-the-road experience.

MEET THE UPDATED FAMILY

Our current lineup of GX series printers consists of the GX e3300N (which replaced the GX5050N printer mentioned in the original article) and the GX7000.

The GX e3300N, which has been out for about a year and uses next-generation e-series gel technology, is an amazingly low-cost printer (about $200) that provides up to 8.5"x14" media output—which is just the right size for producing most sublimatable products. Combining incredible speed and reliability with new styling and smoother operation, I'm happy to say that the GX e3300N gets my vote as the best sublimation printer of all time.

The GX7000, now three years old and a tried and proven workhorse in the sublimation industry, provides up to 11"x17" media output right-out-of-the-box and up to 13"x19" media using the optional multi-bypass tray. The GX7000's larger output size and broader paper handling capabilities make it the clear winner for professional decorators needing to produce a broader variety of products such as signage and T-shirts.

ALL DRIVERS WELCOME

The Ricoh GX Series printers feel right at home on any computer, whether PC or Mac. ICC Profile support is available for the Microsoft Windows family of operating systems ranging from Windows 2000 to Windows 7 (both 32 and 64 bit) and for the Mac OS X operating systems (10.3 and up). The GX e3300N comes standard with a 10/100 wired Ethernet port (those folks that would like to print wirelessly can connect the printer to a wireless router via this port). An Ethernet port is not standard on the GX7000, but there is a slot available on the printer for

adding it later. Both printers come with a built-in USB 2.0 port.

BUCKLE YOUR SEAT BELT

Without a doubt, the Ricohs are the fastest desktop inkjet printers I have ever seen (see Chart #1). Designed to compete with color laser printers, the GX series printers achieve superb quality prints and ultra high speeds by combining inkjet technology with laser printer technology. If you open the top cover of the printer, you will see a shiny black belt that's more commonly associated with laser printers. This electrostatic belt-transfer system provides high-speed precision printing that can run circles around standard inkjet printers.

PAPER HANDLING: WHERE THE RUBBER MEETS THE ROAD

The Ricoh printers were designed for high volume and diverse office environments and therefore have excellent media expansion capabilities. The GX e3300N features a 250-sheet paper tray that handles up to 8.5"x14" media and an optional 100-sheet multi-bypass tray that handles up to 8.5"x14" media and up to 8.5"x51" sheets of banner paper (available by the roll, banner paper allows users to print necktie and other long transfers).

The GX7000 comes standard with one 250-sheet paper tray that handles up to 11"x17" media. Two additional paper sources can also be added. First, a 100-sheet multi-bypass tray can be mounted to the back of the printer that handles up to 13"x19" media (a favorite in our world) and up to 13"x51" sheets of banner paper. Second, an additional 250-sheet paper feed unit (up to 11"x17") can be mounted underneath the printer. Putting all these sources together allows the

Since their introduction (the GX7000 in Nov. '08 and GX5050N in Jan. '09), the Ricohs have become quite dominant as new and replacement printers.

CHART #1

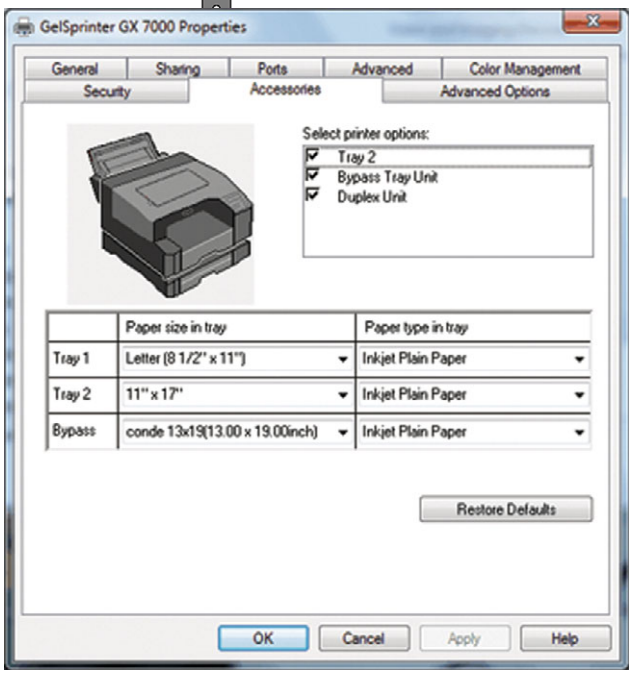
PRINT SPEED COMPARISONS

	RICOH GXe3300N	RICOH GX7000	EPSON 1400	EPSON 4800	EPSON 4880
8.5"x11"	:23	:25	1:51	1:48	1:45
11"x17"	N/A	:44	3:10	2:55	2:48

user to have three different sizes/types of paper available at once. No swapping media types in and out of the printer! You can even program the front panel of the printer to know what size is in each tray so that when you select your paper size at the computer, the printer knows which tray to pull from! That's slick!

PAPER TYPES

Over the years, different papers have been introduced and/or fine-tuned to provide optimum results on different types of substrates. What type of paper should be used with the Ricoh printers? You have two choices: standard or high-release.



DyeTrans SPP is a superior standard paper that features ultra-low dot gain (essential for producing incredibly sharp and detailed images) and releases the right amount of ink into hard substrates such as ceramic, FRP, and hardboard.

High-release paper is designed to transfer an additional amount of ink, making it ideal for thirsty substrates such as T-shirts and clear substrates such as glass cutting boards (the additional ink increases the opacity of the transfer). In my previous article, I recommended against using high-release paper with the Ricoh printers. Since that time, however, Beaver Paper has introduced TexPrint-R for Ricoh—an excellent high-release paper that keeps up with the speed of the GX series printers while maintaining clarity and high transfer yield.

INKS: THE FUEL OF SUBLIMATION

The Ricoh printers are fueled by Sawgrass' SubliJet-R ink formula. The thickness of the Gel formula makes it more efficient than ink produced for the Epson printers. My testing indicates it has roughly a 1:3 ratio—meaning 1ml of gel ink is equivalent to 3ml of standard dye-sub ink. This translates to a considerable ink cost savings over Epson desktop printers.

Being that ink cartridges for Epson desktop printers (such as the C88 and C120) hold very little ink, they're essentially only adequate for occasional use. Only the Epson 4000 series printer cartridges contain reasonable amounts of ink, but the cost of buying the printer plus eight ink cartridges (C,M,Y,K,LC,LM,LK,PK) could easily push the cost to over $3,000. Adding a bulk ink system to Epson desktop printers has been/is standard practice for those high-volume decorators wanting efficient and cost-effective ink delivery. The downside is that there's no prompt to add more ink when low, and attaching a bulk ink system lowers the printer's overall reliability.

Each Ricoh printer utilizes four ink cartridges (C,M,Y,K), each holding plenty of ink for our world. The GX7000 cartridges (65ml per K cartridge and 60ml per C,M,Y cartridge) contain twice the ink of GX e3300n ink cartridges (29ml

CHART #2

INK REMAINING AFTER CHARGING

	CYAN	MAGENTA	YELLOW	BLACK
GX e3300N	54%	52%	58%	66%
GX7000	80%	80%	80%	82%

CHART #3

INK COSTS
8.5"x11" Full-Coverage Page

	CART SIZE	% USED	ML	COST
GX e3300N	29ml	1%	.24ml	60¢
GX7000	60ml	.5%	.24ml	45¢

per C,M,Y,K cartridge). Like the Epson 4000 series (or any bulk ink system), the Ricoh ink cartridges need to charge/fill the printer before it can print its first transfer (charging is typically only done once in the life of the printer). Although this procedure pulls a lot of ink from the cartridges, the ink is not wasted; a portion is simply moved from the cartridges to the print head via previously empty ink tubes. This results in a lower yield from the first set of cartridges, but does not affect the yield from future replacement cartridges. After charging, the printer's front panel will reflect the amount of ink remaining in each cartridge (see Chart #2).

How much ink is used for printing and how much does it cost? As a test, I printed an 8.5"x11" sheet of paper (with full-coverage) to both printers and noted the results (see Chart #3).

Keep in mind that the costs shown are for ink only and do not include the cost of paper. Also, these costs reflect what I consider continuous printing (highway driving). Expect higher costs for infrequent printing since printers go through a warm up cleaning cycle to insure that the print head is full of ink before printing the first page. And, of course, your actual cost could be higher due to cleanings, nozzle checks, and mistakes. All this together still

puts the Ricoh's cost at significantly less than Epson desktop printers. During continuous printing, the printer will sometimes pause and display a "Maintenance in Progress" message. This means that the printer is replenishing the ink supply to the print head. This is normal and does not mean that ink is being wasted.

THE RICOH CARTRIDGE SYSTEM

Each Epson printer cartridge has an electronic chip that keeps up with ink usage. These electronic chips are preprogrammed to know how much ink is in the cartridge and calculates usage based on a prescribed yield. Once the chip thinks the ink has been completely used, it shuts that cartridge down and prompts the "Replace Ink Cartridge" message in the front panel. One of the biggest complaints about Epson printers is that there's often ink remaining in the cartridge, even though the printer says it's empty.

The Ricoh printer cartridges have an electronic chip that provides ink level information to the front panel (interestingly, the inks levels are displayed at a much lower level than they really are; this is Ricoh's way of getting you to order inks early), but the printer won't force a cartridge replacement based on these levels. Instead, the printer continues to print until a vacuum sensor is tripped, indicating that the cartridge is truly empty. This means that you are able to use every drop of ink in the cartridge! You can find several helpful Ricoh videos at www.condetv.com, including a video that will show you how to read the electronic ink levels. This is valuable for determining the cost of printing, as you can record a job's beginning inks levels and ending ink levels and then do the math to determine how much ink was used.

PRINT QUALITY

How does Ricoh compare with the Epson? I find it difficult to distinguish between the two printers based on print quality alone. However, Ricoh transfers seem to produce substrates with noticeably better blacks (my dream for the Ricoh ink was to produce a "Harley Davidson" black, and I think it does). Even an untrained eye can appreciate an incredibly colorful transfer that's contrasted by deep blacks.

Can Ricoh's four colors really perform as well as an Epson's eight colors? Yes! Since the extra colors are just light versions of the real thing, they don't extend the color gamut. And, at the resolution(s) we print, the extra colors don't help with lights or mid-tones.

Do the Ricohs band? Well, yes, but every inkjet print can and will band at some point. Banding (horizontal lines that run across the printed page) is usually caused by either an incomplete nozzle check or incorrect print settings. For the Ricohs, however, banding can be caused by a third reason. If the computer doesn't send data fast enough, the printer will essentially stutter as it proceeds through stop-and-go printing—resulting in banding. Due to the Ricoh's extreme speed, we must make sure that the computer is not busy doing other things while printing. A few changes to driver settings can also help prevent this from happening. If you experience banding, first perform a nozzle check. If that is okay, re-boot your computer and print again. If that fails, contact your supplier for further assistance.

CLOGGING

For folks that have been around a while, clogging is perhaps the scariest word in sublimation. An excellent way to throw

off an entire day, a clogged printer can leave you stranded and possibly in need of a little roadside assistance. Well, I have good news! The Ricohs have shown to be truly amazing at the ability to maintain a perfect nozzle check. Even though it's still necessary to perform a nozzle check at the beginning of the day and whenever there might be an issue, seasoned veterans will revel at having a printer that actually works when it's supposed to.

COLOR MANAGEMENT

Perhaps the single most important issue in sublimation is accurate color. Color management insures that our photographs print well and that spot colors are as accurate as possible. Many folks assume that the printer's colors should match their computer screen. Well, go to Best Buy and see if any two monitors match each other; it's just not going to happen! I tell folks that the reason their monitor does not match the printer is that there are four magic letters missing from their monitor, S-O-N-Y. An inexpensive monitor simply cannot represent colors accurately.

To get great color, we offer two strat-

egies. The first (and preferred) method is through the use of ICC profiles. The industry standard for color management, ICC Profiles are provided for each printer. The profiles work with Macs and PCs and are controlled through whatever program you print from (e.g., CorelDRAW, Adobe Photoshop, Adobe Illustrator). This approach is a simple and effective way to achieve excellent and consistent colors while also providing stability through the use of Ricoh drivers. The second method is the traditional approach of using Sawgrass' PowerDriver. The PowerDriver applies the profile (instead of the application) and sends the corrected colors to the Ricoh driver for printing.

Whether you use our ICC profile or the PowerDriver, matching spot colors (like a Pantone color) requires that you print a color chart, sublimate it, and then reference this chart to find the desired color. Then simply choose that color in your artwork.

FRONT PANEL

Unlike most Epson printers, both Ricohs provide full-function front panels. You cannot only view status messages, but also perform many functions such as a nozzle check, head cleaning, print head alignment, network configuration, and accessing the printer's service mode.

WASTE INK TANK

All inkjet printers have waste ink tanks. Some printers have replaceable tanks while others simply give you a message such as "parts in your printer are worn out". The Ricoh printers have replaceable tanks. For the GX7000/GX 5050N, you can reset the tank with a couple of easy steps. See my video at www.condetv.com and search for "waste tank". I am working on a reset for the GX e3300N. I recommend having a spare tank on hand. Once you install the spare, then learn to reset the old one. How long should a tank last? With regular use, a waste ink tank might last six months. I strongly recommend keeping a journal for documenting when you replace the tank and/or cartridges along with the page count. The page count can be found by pressing the menu key and enter key three times.

View videos at www.condetv.com or visit www.conde.com to browse through our collection of dye-sub resources.

KEEPING THEM ON THE ROAD

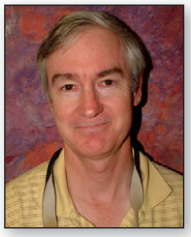
After about three years, I have learned a lot about how to take care of these printers.

Here are my suggestions:

- Keep your printer's firmware updated. However, don't update 'til somebody like me says it is worth it… updating can sometimes fix one problem and then create another!
- Clean your electrostatic belt about twice a year. This shiny black belt is the transport mechanism for the paper, and can accumulate ink, causing print errors and print quality issues.
- Clean the capping station twice a year. The capping station primes the printhead by applying a mild vacuum to it. If the capping station's plumbing is contaminated with ink plaque (sort of like the arteries in our body), then it has to work extra hard.
- Perform a printhead alignment once a year.
- I recommend you keep the printer turned on except for extended non-use of three weeks or more. Turning the printer off and on every day will only waste ink.
- You can view many helpful and informative videos at www.condetv.com or visit www.conde.com to browse through our extensive collection of dye-sub resources and helpful tips and tricks.

WHERE ARE WE HEADING?

I have had the honor to help hundreds (if not thousands) of digital decorators become successful during my last 18 years. Without a doubt, the Ricoh printers have allowed us to travel the Road to Sublimation success faster and easier. Yes, there are always potholes along the way, but I look at sublimation as an unlimited decorating technology that is just getting started. Can you imagine how Thomas Edison would have answered the question: "Hey Tom, what's next after electricity?" Well, like Tom, I think that there's an endless road ahead that's filled with exciting opportunities.



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