

Fast, versatile and good enough for most of us

Color Laser Printers Xerox Phaser 7700

by Dan Brill

It's been about a decade since we heard anyone use the phrase "paperless office". No surprise, given that the number of pages being printed in offices around the globe has mushroomed since the explosion of desktop technologies during the 1990s. But up until not long ago, black and white single page output was where the line was usually drawn for office printing.

For the past decade, Hewlett-Packard has reigned as the dominant force in the desktop and office laser printer market, with Tektronix not far behind. But two years ago, following its 1999 acquisition of Tektronix, Xerox began challenging HP's supremacy when it unveiled the first-ever single pass tabloid color laser printer, the Phaser 7700.

It may seem that writing an article on this machine two years after its release is a bit behind the times, but in truth, the 7700 didn't really start to make its presence felt in significant numbers until early last year. And this review has been in preparation for about a year, given that a full evaluation of this kind of hardware means seeing how it performs over time.

But having run through all the basic consumables, print jobs, and environmental conditions possible, it's finally time to declare that Xerox has a clear winner with the Phaser 7700.

COMPACT AND IDIOT-PROOF

There really isn't much to say about setup with this machine. Once unpacked, you hook it up to the network, plug it in, put in paper, and start printing.

The unit itself is compact, occupying a footprint of only 3.42 square feet (25.4"W x 19.4"D x 19.4"H).

In the event of a problem, there's no

need to guess about what could be wrong. The 7700's display panel tells you whatever you need to know, whether it's locating the exact location of a paper jam (which was actually a rare occurrence), or warning you that a toner cartridge is ready to run out, or advising you which paper tray is empty. A simple basic green-orange-red light indicator shows the machine's operating status at a glance.

And replacing any of the four toner cartridges is so simple, a child could do it. Just twist the old one, pull it out, shove the new one in, and rotate it until it locks into position.

One tip in passing: When our printer started warning us that we would soon need to replace a couple of the print cartridges, we decided to carry on until we got the red light (indicating that it couldn't print any more). I'm glad we didn't rush to replace them, because another four and a half months actually passed before they finally expired.

With previous Phaser models we had tested we had noticed rather unpleasant chemical fumes that seemed to emanate from the printer all the time, so it was a relief to find out that Xerox has eliminated this problem with the 7700. In fact, this model features an energy-saver mode that powers it down when not in use, much like the one on a computer.

SPEED AND RELIABILITY

The key technological advance in the 7700 is the ability to print four colors in a single pass. Prior to this, color laser printers in this class would require four separate paper passes to lay down each of cyan, magenta, yellow and black. By achieving single pass efficiency, the Phaser 7700 is able to pump out 22 single-sided pages per minute, with a first page out in as little as 13 seconds (although it can take a lot longer for a more complex page).

Think about it—100 pages in full color ready in less than five minutes. Try doing that on your inkjet.

Its duplexing ability, standard on all models, is a thing of beauty. Set your print dialog for two-sided printing, then just sit back and watch the pages roll out. The 7700 works on two sheets at a time, finishing off the second side on one sheet while the first side on the next is being printed.

And because it operates with a fast 500MHz G4 class PostScript 3 processor and a 5GB hard drive, there's virtually no file it can't swallow and digest. We printed



XEROX PHASER 7700

Print speed 22 ppm (color or b/w), first page out in 13 seconds (color)

Image processing 500MHz G4 class processor, Adobe PostScript 3

Paper sizes 4x6" postcard to 12x18" tabloid

RAM 7700DN 128MB (expandable to 512MB), 7700GX/DX 256MB (to 512MB)

Hard disk Standard 5GB internal HD

Network connectivity 10/100 Base-TX Ethernet, Parallel, USB

Maximum resolution 600 x 1200 dpi

Duplex printing Standard

Monthly duty cycle Up to 100,000 pages/month

Dimensions 25.4"W x 19.4"D x 19.4"H (64.4cm x 68.2cm x 49.3cm)

Pricing

7700DN CDN\$10,249

7700GX \$12,149

7700DX \$14,649

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using every standard desktop application and file format we could think of, including complex vectors and huge bitmaps, and not once were we disappointed.

The Phaser's 600 x 1200 dpi resolution produces type that's sharp, vignettes that are smooth, knockouts that knock out, and overprinting that overprints, in sizes ranging from postcard to tabloid, and on a full range of substrates, including card stock

and transparencies. About the only complaint we could come up with was the inability to print bleeds. And don't try to run envelopes, either—it's not worth the frustration.

Also, humidity continues to be the archenemy of laser printers; try to avoid running heavy coverage duplex pages on a hot sticky July day unless you have a very heavy paperweight to flatten out the curls. But as has been said before, everyone complains about the weather but nobody ever does anything about it.

WHAT ABOUT THE COLOR?

Realistically speaking, don't expect this printer to deliver contract color proofs—laser printing just isn't that good yet, although with enough tweaking and regular calibration the 7700 can produce results that are far better than any laser printer we've ever seen.

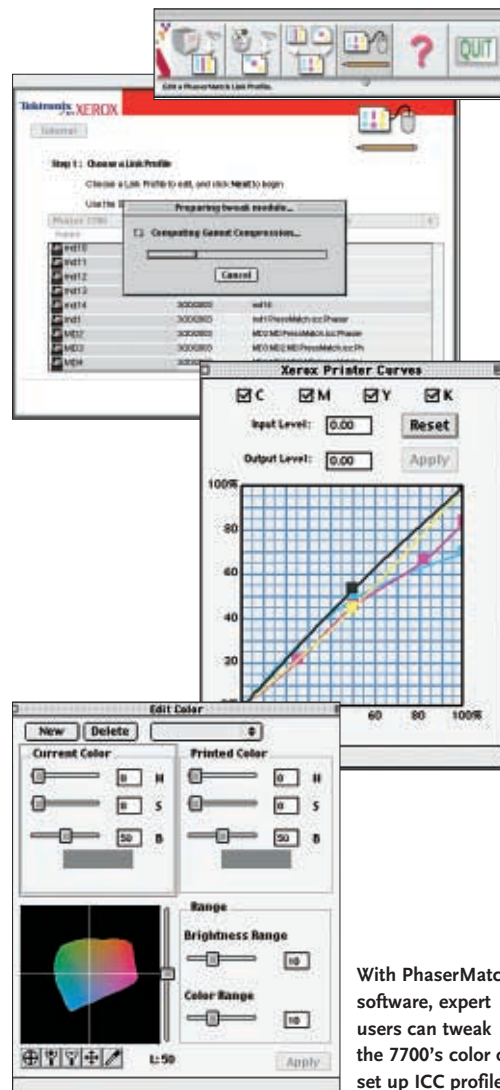
Basic calibration begins with the "honeycomb" tests which let you correct highlight, midtone and shadow detail output. I almost went blind studying these test pages, but in the end I could see a noticeable improvement.

However, to really fine tune color on the 7700, you'll have to experiment with the PhaserMatch calibration software which lets you play with curves and gamuts, assuming you have the expertise to know how to perform this exercise.

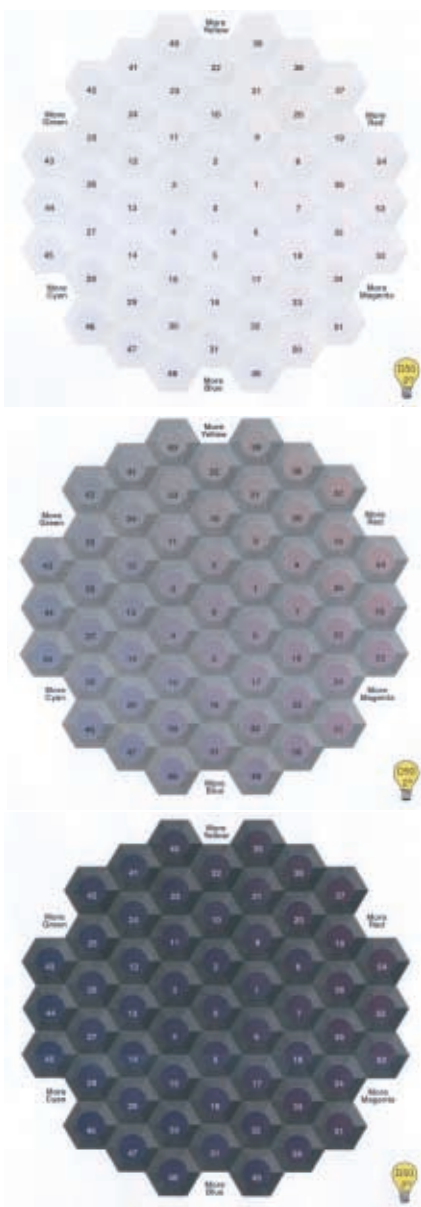
Does it really matter? Not for most users. Basic calibration will get you close, giving you color that's "good enough". Certainly, for our purposes—even including content proofing for the magazine—the Phaser 7700's output was more than adequate. Yes, neutral greys and certain tints will be off, and no matter how hard we tried, we couldn't seem to keep the magenta down, but when all was said and done, we got pages that were decent matches to what we saw on our screens. Just don't try to match rich blacks.

THE NICETIES

For IT administrators, or for that matter anyone who wants to track usage of the



With PhaserMatch software, expert users can tweak the 7700's color or set up ICC profiles.



These "honeycomb" tests are printouts used to balance the 7700's highlights, midtones and shadows, and must be performed to set up custom color tweaking through Xerox PhaserMatch software.

consumables in a Phaser 7700, Xerox provides a variety of on-board reports which can be printed out at any time. It's a simple matter to scroll to a menu that lets you print a Supplies Usage summary showing whether toner cartridges are about to run out, and what percentages of life are left in the print cartridges, fuser, transfer roller, accumulator belt and belt cleaner assembly, which are virtually all the replaceable components in this machine.

Or if you want more detail, run a full Usage Profile report that tells you more than you'd ever want to know, right down to how many million pixels per color have been printed or how many pages were output under various humidity conditions.

But the real magic happens when the

7700 is assigned its own IP address on a network. This allows you to use your browser to access the machine's history via Xerox's Centroware software interface, as well as troubleshoot problems remotely or check the status of paper or consumables.

Using the online tools lets you retrieve details on any job that's been run, including individual page counts, toner usage (as a percentage of a cartridge), users, the time the job was output, how long it took to print, and more. One obvious benefit to this log is being able to print a sample page of any job before you send through a long print run, so you can calculate exactly how much toner will be used.

The 7700 can even be set to automatically send an e-mail to your consumables supplier whenever a cartridge or other part is due for replacement.

COSTS AND REAL COSTS

Xerox quotes estimated life expectancies for each of the Phaser 7700's parts and consumables, making it easy enough to calculate a theoretical cost per page. A high capacity cyan, magenta or yellow toner cartridge (CDN\$373 each), for in-

stance, is supposed to be good for 10,000 pages (black gives you 12,000).

The problem with all Xerox's numbers is that they're based on only 5% coverage. But if you're using this device to do what it does best—that is, print full color pages—you'll never get that many pages out before it's time to replace the cartridges.

Based on Xerox ratings, the total cost per page including every part that could be replaced (but excluding paper costs and equipment amortization) works out to be about 16.4 cents. However, under real world conditions, our experience with the Phaser 7700 yielded a cost per page of closer to 20.4 cents, based on printing about 20,000 pages—still not too bad, all things considered.

But once you start running pages with lots of color photos and background tints and colored type, toner usage skyrockets, at which point the cost of toner alone can easily jump to well over 40 cents per page—and print cartridges are consumed at about the same rate. So on a job with heavy coverage, you could be looking at a total cost per page of 60 cents or more—\$1.20 each for a two-sided 8 1/2 x 11" sheet.

The Phaser 7700 comes with a one-year warranty, but after that Xerox expects that you'll want to buy a service contract at just over CDN\$2,000 per year. So, unless you want to roll the dice, this is another cost to take into consideration, especially in a commercial print environment.

Mind you, it depends on how many pages you print. Xerox says the 7700 has a duty cycle of up to 100,000 pages per month, although it would be hard to find more than a handful of units being consistently run at this volume level.

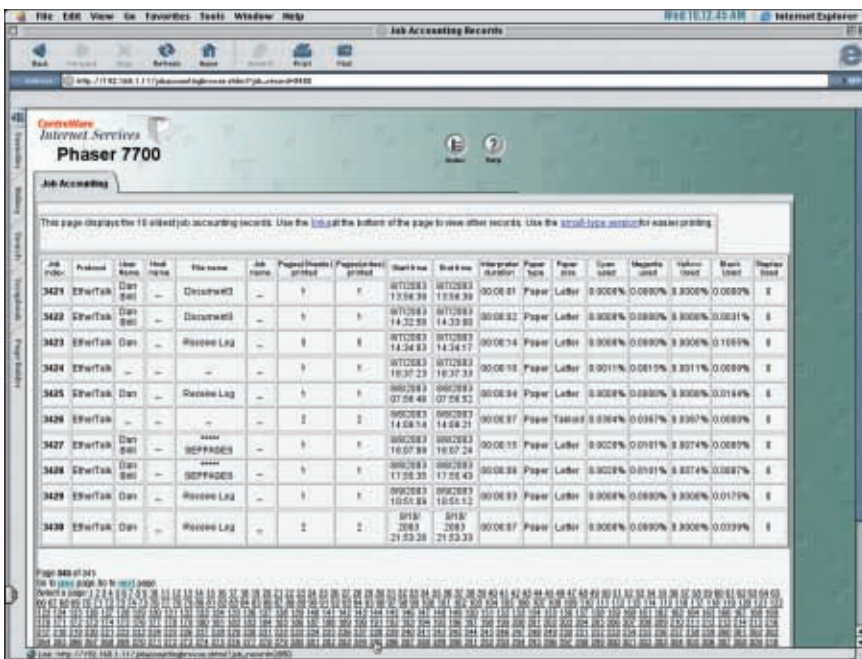
In any case, just for the record, we have now run our Phaser 7700 for twelve months without requiring a service call.

WILL CORPORATES MAKE THE SWITCH?

For designers or other graphics professionals, it has always been standard practice to think in color. But the task of converting the corporate mindset from black and white printing to color has been more difficult, impaired at least in part by an absence of speedy, reliable, cost-efficient devices. With the Phaser 7700, Xerox has developed a printing solution that fulfills the requirements of both kinds of users.

At over CDN\$10,000, the purchase of a Phaser 7700 is not an insignificant investment. However, divided across a group of users, spread over several years of service, and factored in combination with a relatively low usage cost per page, its capital cost becomes much easier to justify—especially when considering the overall benefits of routinely delivering business documents in color instead of black and white. Until September 30th, Xerox is also offering Phaser 7700 buyers a special bonus rebate in supplies worth CDN\$1,500—the rough equivalent of getting up to 7,500 pages of free printing.

Sixty-five years after Chester Carlson made his historic discovery of "electrophotographic" imaging, the Phaser 7700 brings a fast, affordable PostScript-based alternative to the desktop color printing environment. At the same time, it may also be just the thing that revolutionizes office printing. 🖨️



Once the Phaser 7700 has been set up with its own IP address, Xerox's Centroware software lets users use a standard browser to check the status of supplies, troubleshoot problems, or review a complete history of print jobs.