Lines

RIPON PRINTERS

Software we support at Ripon Printers

Macintosh
Adobe Illustrator 8.x, 9.x 10.x, CS & CS2
Adobe InDesign 1.5, 2.x, CS & CS2
Adobe PageMaker 6.x & 7.x
Adobe Photoshop 5.x, 6.x 7.0, CS & CS2
Macromedia FreeHand 8.0 9.0 & 10
QuarkXPress 4.x, 5.x & 6.x

Windows '98 SE & XP PROFESSIONAL
Adobe InDesign 1.5, 2.x, CS & CS2
Adobe PageMaker 6.x & 7.x
QuarkXPress 4.x, 5.x & 6.x

If a program you use is not on this list, please call.

*Current as of February 1, 2006

Hot topics for cold days…
Prepress Extra Reruns

For this issue, we went back into our archive for items of current interest. We offer these articles about color and document setup guidelines to increase your understanding about color, your documents and how they work together.

RGB… Gamut… CMYK…
Some honest talk about color

We have encountered some frustrated designers who cannot understand why the printed piece does not match the color image they saw on their computer monitor. Here's where things get complex.

Whether a television screen or computer monitor, colors are created using additive primary colors – red, green and blue (***RGB****) – as light sources. When these three colors are combined in equal amounts, they produce the appearance of white.

On the printed page, colors are created using subtractive colors. Starting with a white surface that reflects light, the pigments in ink subtract portions of white light to create the


Additive Color

Subtractive Color
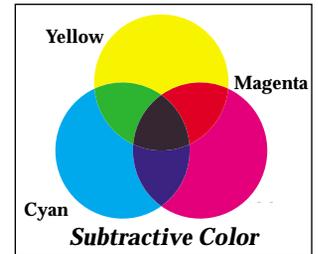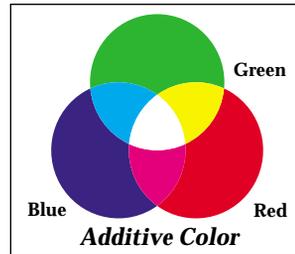
colors we see. In four color process printing, cyan, magenta and yellow inks in combination with black to add depth (***CMYK****) create the colors.

The calibration and the quality of your monitor affects color perception. Likewise, the color of the paper and its brightness greatly affect how color is perceived.

*Color gamuts…**
The RGB and CMYK models are each limited by the colors they can create. This is known as a gamut. Neither of these can accurately recreate all the colors that our eyes can see. Like- ☞

✳ *A glossary of terms you may not be familiar with – noted in **bold italic** – can be found on page 2.*
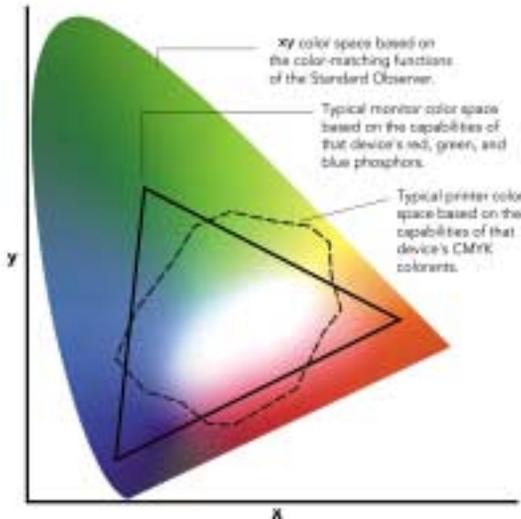
Chromaticity Diagram

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wise, there are colors we can see on a computer monitor that cannot accurately be re-created on the printed page. The chromaticity diagram above shows the relationships between the colors we can see and the CMYK and RGB gamuts.

Pantone® in a CMYK world

There are many **Pantone**®* spot colors that cannot accurately be created with CMYK inks. The Pantone® Color Bridge Guide *(see shaded box on next page)* is a helpful tool for seeing Pantone® colors in their 4/color equivalent.

So you have no surprises in your heatset project, we recommend you refer to the Color Bridge when creating your documents — you might end up changing your base Pantone® color to achieve a better CMYK blend.

For your coldset project, if you desire a consistent spot color between 4/color and 2/color sections, we strongly recommend you use the Pantone® color as a fifth color in your 4/color sections.

Now on to proofing…

If you are working with a CMYK image or Pantone® colors, your computer monitor is creating these elements in RGB. Considering the earlier section on gamuts, you will see colors on your screen that are not achievable in print.

Your color laser proof is a fair representation of color relationships but, again, is not calibrated and is not the same as ink-on-paper.

We rely on our Epson proofs for our press work since it is adjusted to the print characteristics of our sheet and web presses.

Finally…

Without a sophisticated color management system, these variances between monitor to proof to printed page are unpredictable at best.

Citing the GRACOL (General Requirements for Applications in Commercial Offset Lithography) document, "never trust your monitor to give you a true representation of image color or blend. The color gamut of your monitor is different than what can be produced in process printing."

It is critical that you understand the limitations present here. If you envision your printed piece to be very close to the color laser proof you created, please inform us — or any other printer you use — of that fact. We will do our best to make adjustments to accomplish this.

But please keep in mind that your computer monitor and the printed page exhibit colors created in two different color methods and rarely the twain shall meet. ■

G · L · O · S · S · A · R · Y

Color Gamut: The range of colors that can be formed by all combinations of a given set of light sources or colorants of a color reproduction system. The normal human eye can perceive a wide gamut of colors — colors within the full range of the visible spectrum, including detail in very bright light and deep shadows. Transparencies and monitors, which display color using transmitted light, can hold some of that color range (or gamut). Due to such limitations as reflected light, ink impurities and paper absorption, a conventionally printed image is limited to a much smaller range of colors.

CMYK: Represents the ink colors used to print 4/color images — **C**yan, **M**agenta, **Y**ellow and blac**K**. These letters also represent *subtractive* color — where reflected light and colorants (such as pigments or dyes) create the colors that we see in nature and on the printed sheet.

Luminance: A numerical value used to define lightness of a color. Black has the luminance value of 0; pure white has the luminance value of 255.

Pantone: The Pantone Matching System® is used to communicate ink colors between designer and printer. Using standardized premixed inks in exacting formulas, a variety of spot colors can be created.

PDF (Portable Document Format): Is a universal file format that allows a user to distribute a document to anyone for the Internet or print.

Raster Image Processor (RIP): The computerized process that results in an electronic bit map which indicates every spot position on a page in preparation for an actual printout. **Rasterization**: converting the document on screen into data that can be used by a high-end imagesetter is the raster (image) process — placing miniscule dots in position on the page.

RGB: Represents the additive primary colors — **R**ed, **G**reen and **B**lue. Lights of these colors create the images on monitors. These screen colors are not for printing. Images submitted in RGB must be converted to CMYK.

Trapping: The overlapping of different colored elements to eliminate white lines between colors in printing.

Putting good color practices to work

"Registration" as a color

Using the color "Registration" from the color palette will result in the element outputting to **all** the plates a job requires. This is not the proper way to, say, create a duotone — and may not be recognized until far into file preparation. Since "Registration" cannot be deleted from the color palette, color-separated lasers are the best way to see if this color was used.

Only use "Registration" for trim marks, register marks or other items that are not intended to appear in the printed piece.

Multi-Ink feature in QuarkXPress

Ability to mix two spot colors and have them work together to create a third spot color. *Also an issue*

The Pantone® Color Bridge

In 2005, Pantone® introduced a replacement for the popular Solid to Process Guide. Their new **Color Bridge** goes beyond CMYK blends for 1,089 Pantone® colors to include formulations for optimal display on monitors and Web pages.

This new guide is produced using a complete digital workflow. Quite a few of the CMYK blends have been modified for improved color matches. The highlight is the addition of sRGB and HTML values to support color consistency on monitors and Web pages.

When you find a desirable CMYK blend, enter the screen tint percentages into the color palette in your software application. Electronic support files for using this data in your software applications are accessible at www.pantone.com. As of this writing, these new formulations were not written into any available software applications.

For more information, or to order, visit the Pantone® Web site at www.pantone.com. Place your cursor on "products" and then select "graphics" from menu below.

when creating circular, linear or mid-linear blends using two spot colors.

Problem: Occurs when ***RIPing**** the file. Multi-ink is not supported by many RIPs, including the one we use here at Ripon.

Solutions: 1) Convert your project to CMYK and work with the two spot colors as 4/color blends or select a third Pantone color that is close to your desired blend of the two Pantone colors. Multi-ink is not recommended for small type (18pt or less) due to registration issues when printing. 2) Use Illustrator or Photoshop to create two separate spot color elements that overprint each other.

The Pantone® spot color you really want may not be what you get

When converting Pantone® colors to 4/color blends, CMYK inks do not always faithfully recreate Pantone® colors. For example, dark blues are notorious for shifting toward purple. The main reason for this is so many dark blue shades have Reflex Blue or Blue 072 in their formulas.

These two inks are known as mixing inks and replicating them — as well as other named colors — in CMYK just doesn't work. These colors include Warm Red, 032 Red, Purple, Violet, Green, Rubine Red, Rhoadmine Red, and even Process Blue. Mixing Process Blue is not the same as the Cyan in 4/color process. The strength and vibrance of these colors can't be captured.

We hope this will alert you to the limitations of CMYK inks to accurately recreate all Pantone® colors. And also draw attention to possible unanticipated color reproduction if Illustrator graphics created with an older Solid to Process blend are placed in an InDesign or QuarkXPress document where the new Color Bridge blend was

manually entered. This is the reason we often recommend using a 5th color if your coldset project includes a Pantone® color as a solid *and* a blend.

Designating color in your graphics and page layout files

It is very important that all elements in one Pantone® color have the same name. If your document contains some elements in Pantone® 185 CV and other elements in Pantone 185 CVU, this will result in two spot color plates. If you apply color to elements in Photoshop or Illustrator, use the color names these graphics add to your color palette for other items in your page layout or change their color names to exactly match what is already used in your page layout application.

Color lasers often do not match press reproduction

One reason could be the color of the inks in your laser printer. The pigmentation in laser printer inks may not be close in shade to printing inks.

Below are solid patches of our web press 4/color ink set. Create an identical set of patches and print to your color laser. If the shade of your inks differ greatly from our web press inks, we will not be able to match your proof on press.

A second reason — in offset printing, the inks are wet when they lay on top of each other — a situation that does not happen in a laser printer. Color reproduction is altered as these wet inks intermingle with each other. ■

Cyan

Magenta

Yellow

Black

A few tips to successful document creation

Create your document in the actual ink colors

There is variation inherent in any printing method. If two colors simply butt up against each other, gaps could become apparent due to this variation. Printers apply **trapping*** – a controlled overlapping between the two colors – based on the relationships of the colors.

If a text box has a dark colored border and a light color fill, the fill is spread *(trapped)* into the border. If the text in the box is the dark color or even black, the light color fill will spread into the darker text or we can set this type to overprint the fill.

We can apply custom trapping item-by-item or let our Rampage RIP do the job. When Rampage does the trapping as we RIP the job, it works with the **luminance*** of each color.

■ If you select different colors after seeing the proof, in some cases the job may need to be re-processed depending on the color choices.

■ If you build your document with a process color and plan to select a Pantone® color after reviewing the proof, again the file may need to be reprocessed.

■ If you create your document with process *and* Pantone® colors, we have the ability to simulate the spot colors to CMYK. We also have the ability to map similarly named spot colors to one another. For example, Pantone® 185CVC can be mapped with Pantone® 185C.

■ If you create your document with process colors, say magenta and cyan, we *cannot* simply map

process colors to print as one color. The document would need to be reworked or an additional unit on the press would be needed.

To save additional costs, create your document in the colors you intend to print with.

Work in one "color space"

One place where "mix and match" is not a good thing is when documents include graphics in RGB and CMYK or when a black + spot color job includes graphics in either RGB or CMYK.

■ If a CMYK job is supplied with color graphics in RGB, we can set the Rampage RIP to do the CMYK conversion automatically.

■ For all black jobs, graphics supplied in CMYK or RGB can be converted to grayscale in the RIP.

■ For black + spot color(s) job, graphics should not be built in RGB or CMYK. These graphics cannot be processed in the RIP.

We recommend you do the RGB-to-CMYK conversion so you can see if any undesirable color shifts occur.

Create your document at the final trim size stated on the estimate

Our standard trim size is 8-3/8" x 10-7/8" — not the 8-1/2" x 11" that we often see. And for digest size, our standard size is 5-3/8" x 8-3/8" — not 5-1/2" x 8-1/2".

■ If there is 1/4" margin between live copy and trim, we may be able to use the document as created at 100%.

■ In other cases, we need to reduce the pages to fit the final trim. If the bleeds extend 1/8" past final trim, they will need to be extended.

To save additional costs, create your document at the final size it will be produced at.

"Bleeds" that don't need bandages & margins that need breathing room

Again, the variance inherent in printing also affects the relationship between design elements — and text — and the final trim.

For photos or color blocks that want to end flush to the final trim, picture and colored text boxes **must** extend beyond the final trim size.

■ Open picture and colored text boxes to extend 1/4" past the trim.

■ If you plan to send **PDF*** files, you need to select a larger page size when postscripting the pages. For example, center your 8-3/8" x 10-7/8" page in a 8-7/8" x 11-3/8" page — that will maintain the bleeds.

And the text within colored boxes and any other text elements should be 1/4" from final trim.

■ We prefer 1/4" margin from all "live" copy to trim **and** 1/4" bleeds — it allows "wiggle room" once all the parts join together on the binder if we need to under-trim or overtrim for any reason. If you must change one of these, please leave the other alone.

Keep creative control by extending your bleeds and following our preferred margins.