



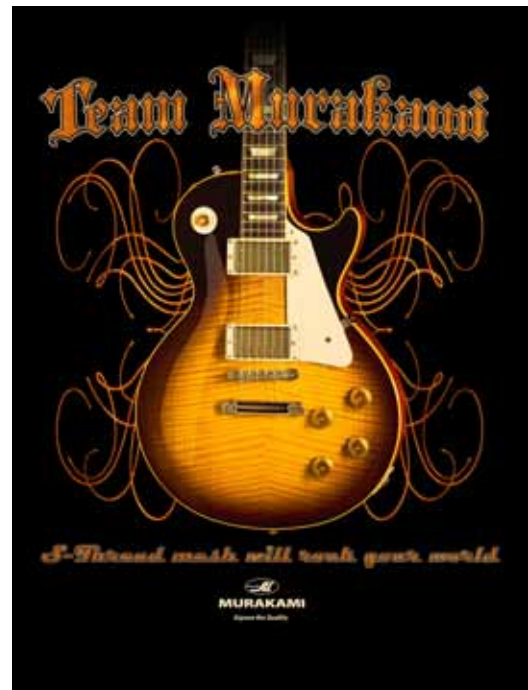
Technical Newsletter

MURAKAMI SCREEN U.S.A., INC. 745 Monterey Pass Rd. Monterey Park, CA 91754 Tel 323.980.0662

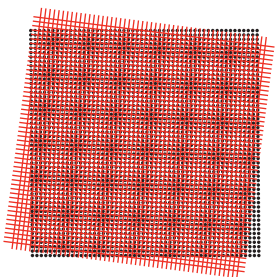
Quick Simulated Process Separation and Performance Printing

Repeat sales are golden. No sales calls, marketing, or sweat equity is needed. The customers have seen the quality of your prints before and trust your capabilities. Price is important, but price is only one aspect of repeat sales. Print quality is probably more important in the long run. I used to print for the major department stores, amusement parks and other local apparel companies who then re-sold the shirts. If my shirts didn't sell, commonly referred to as 'sell through', my customer's client was forced to discount and unload them. If my print quality was inferior to a competitor's, guess who my customer bought from the next time around? Like one of my distributor's said to me, you can pay in the beginning or you can pay in the end. Paying through lost business and lost repeat sales is far more expensive than the supplies you use. Accountants often question costs, but do they realize what you print with determines future success or worse, loss of sales from using products that don't perform?

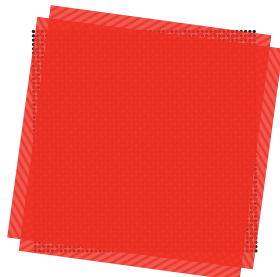
Last month we looked at moire and the benefits of choosing correct angles and quality mesh that can print tight register non stop with great print quality. In this month's article I will walk you through an entire design, using simple image mode changes to separate art quickly and easily



For the design I chose a high resolution photo of a Les Paul Guitar, (I play one in my band so for me its the perfect subject matter!). We then added 'Team Murakami' and some graphic elements in Photoshop using colors from the guitar photo to round out the design and prepared it for the separation work to be done next. The art was placed on a transparent background to make the separation go easier and then I created two duplicate files, one for the color separations, and one for base plate creation saving the original art in a master file for backup. It is very important to save the original and only use duplicate files as the separation technique and base plate are destructive to the original art, it is impossible to return to the original once we modify the files with these techniques so always use duplicate files.



Moire



No Moire



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Separating the Art - Index to Sim Process Tricks

Simulated Process separation quality often varies depending on how well the separator knows Photoshop tools like color range, the magic wand, curves; combining and knocking out different selections, using fuzziness on the color range tool to overlap color. It can be a slow painful method to create stunning prints on dark shirts, especially black shirts as they dominate the market in sales nowadays. The base plate also can be a work of art unto itself and when it gets to the screen room the production manager and screen maker agonize over what mesh count to use to print the base plate, often losing valuable tonals and brightness of print due to too low or high a mesh count and often introducing moire into the print. Last month's article shows the Halftone Angles that work with Smartmesh S thread from Nitoku to produce no moire. The precision openings and thread placement combined with the best low elongation properties in the industry assure high performance production.

Link to last month's article on how to prevent moire by using Smartmesh S thread at the correct halftone angles:

<http://www.murakamiscree.com/documents/StepTestInstructions.pdf>



Well at Murakami we have the best emulsions and mesh available to test out different sep techniques, halftone angles, on a nice Sidewinder hand press from M&R. The actual print described in this article has been sent to your Murakami Distributor who

can show you the final results. The design was chosen with analagous colors, (colors that are side by side on a color wheel) which I chose since I only have six heads on the hand press. Multi color art would have required an auto of 12-14 colors but the same technique I am about to describe would have worked and required some cleanup of stray pixels to avoid confetti in different colors.

I used Photoshop CS4 for the following separation technique. The face of the guitar was the most important area and I chose 4 analagous colors, (colors that are together on a color wheel) choosing yellow gold, orange, a dark warm brown and an off white for the highlights and pickguard.

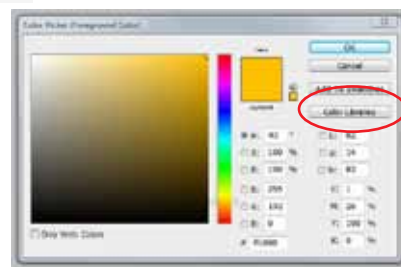


Using the eyedropper tool select colors that will mix with each other to produce secondary colors. In this case choosing the brightest yellow, orange, and brown allows them to mix during the print process to produce combinations and shades of each.

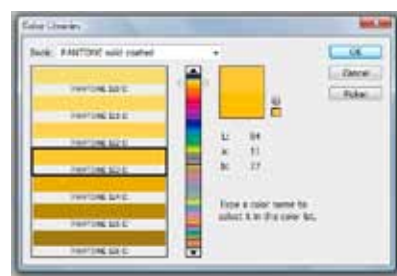
At this point it helps to know what the PMS numbers are for these colors since we will be using them later in the separation process and to mix the ink for the print. With the eyedropper tool I clicked on the color I wanted in the guitar to place the color in the foreground color square.



With the selected color in the foreground place the cursor inside and double click to bring up the color picker shown below, then click on color libraries.



In the drop down menu choose Pantone Solid Coated Library and your selected color will be outlined in black, write this number down and repeat for all remaining colors.





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Separating the Art - Index to Sim Process Tricks Continued.

In the past I would have used the *color selection tool*, then *color range* in photoshop to create a selection of color from an RGB image and saved the selection to create a channel in the channels pallette. Quite often I would need to build a specific color by combining or subtracting one channel from another until I was ready to turn the channel into a spot color channel which can be a very time consuming procedure and may still need to be modified when the design is sampled.

A new shortcut method that a lot of separators may know of but I discovered by sheer chance shortens the separation process considerably by using image modes to do the work for you.

Use one of the duplicate files with a transparent background for the separation of the colors in the design. I will use all capitals and bold type to show command paths or snapshots of the dialogue box for the separation steps.

1. Using a duplicate file take image to index mode from RGB mode, **IMAGE>MODE>INDEX**
2. This will bring up the index dialogue box where you can indicate the number of index colors you want. Usually the number of print heads minus 3 since you will need a baseplate, a flash, and a cool down station on an auto, or minus 1 for a hand press. Also use 'perceptual' in the drop down menu. Then click OK.
3. When converted to index the colors may not be exactly what you want, and it may appear very grainy on your screen. Zooming in to 100-200% will show you the actual smoothness of index mode.



At 25% Zoom Level, your index image will look very 'chunky' for lack of a better word. Zoom in to view actual index pixels visible at 100-200% zoom level. Zoom in to see the difference in these two images.



4. Index mode will not choose the same colors you see. Go to **IMAGE>MODE>COLORTABLE**, dialogue to begin modifying the Color Table colors.



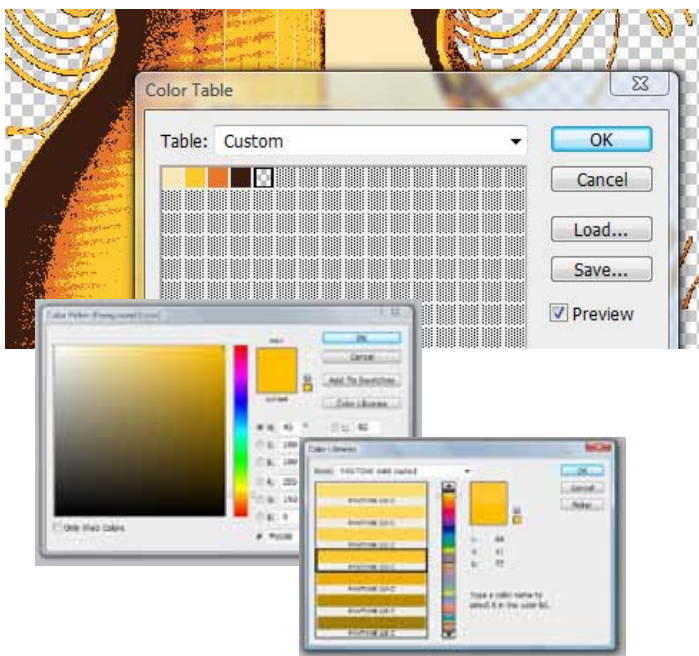
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Sim Process using Index Mode

With the color table dialog open click on the color that index mode picked for the yellow gold in the body of the guitar. (Index will never choose the colors you chose, they are usually darker and have less primary color). When the color picker dialog opens click on the 'color libraries' button and go to Pantone Solid Coated if it isn't showing already. Simply start typing the PMS number, 123 for PMS 123 (the yellow gold that was chosen on page 2) and the color picker will automatically go to PMS 123. Click OK and the Index Color Table will change to PMS 123 as well as all of that color in the image.

Repeat for the other colors changing the color that Index Mode chose for the colors we determined on page 2. Look at the image at various zoom levels. If the image doesn't look like the original you can play with different shades or tints of the color using the above steps in Color Table to change the coloring of the image. Just remember that we are not seeing the final results of the print, just an approximation in index mode, the color selection here is just to get it close, the final print can still modify color, transparency, and yield many more colors than are showing in this index mode.



Converting Index Colors into Channels

By changing modes from RGB to Index I reduced the number of colors to 4 colors that will print over a base plate. The magic of this mode change is index assigns color to fill the entire image. This assignment of color over the entire image can now be used to create channels that we can use to make halftone film instead of index film. The advantage of halftones is being able to use 5 mesh in lower mesh counts that can produce excellent halftone prints with no moire and preserve the color information in the print and create smooth transition of color with tonal dynamics.

Make a duplicate of the index file and save the original. Go to **IMAGE>MODE>CMYK** to change the image into a format that we can create channels in. Now go to **SELECT>COLOR RANGE** and click on one of the colors in your design. You can adjust the 'spread' of this color using the 'fuzziness' slider to expand the color selection. More fuzziness overlaps the color more. For this separation we used a setting with only minor increase in fuzziness as you will capture more pixels than the little thumbnail shows.

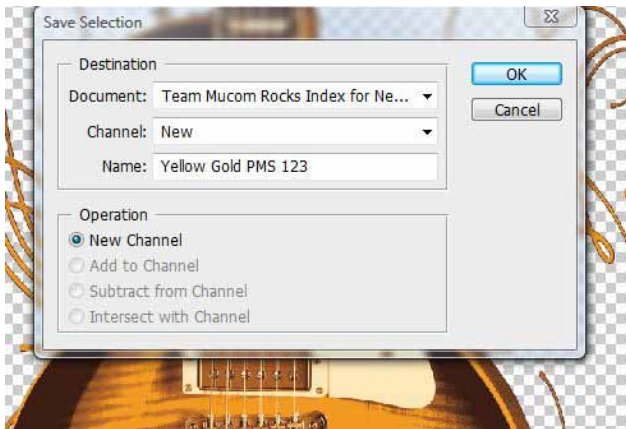




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Click OK in the Color Range Dialogue Box to create a selection, that marching line of ants around the color you just selected. Since the design was converted to index the color range tool will select all of that color. Now go to **Select>Save Selection**



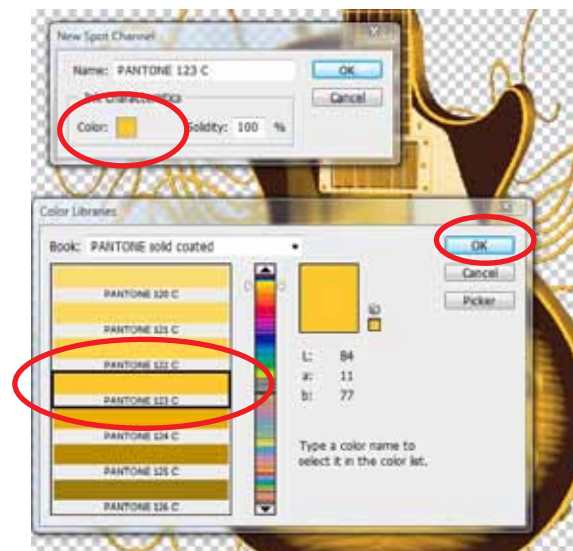
Give the selection a name, in this case Yellow Gold PMS 123. Adding the PMS number will help in the next steps. Anytime you save a selection you are creating a 'channel' for that selection. This channel is the magic behind this separation method since a channel can be used by rips to separate color to film and more importantly convert channel information to a halftone output. Clicking on the channels tab in Photoshop now shows the saved selection that has become a channel.



The selection for PMS 123 yellow gold should still be active, (marching ants around color). If not hold down the ctrl key (PC) or Cmmnd (Mac) and click on the small thumbnail in the channel layer we just created via the color range process. Now click on the small down arrow in the upper right of the channel pallet.



From the drop down menu choose '**NEW SPOT CHANNEL**' and it will automatically use the active selection to create a new spot color channel. Double click on the color square in the dialogue box to bring up the color picker, which should show our PMS Solid Coated Color Library. Simply start typing 1,2,3 for PMS 123 and the dialogue will highlight PMS 123, click OK and it will label the channel 'PANTONE 123 C'. Always use the default naming of Spot Color channels that Photoshop uses so that RIP devices will capture this color data and make it easier for your printers to know what color each film and screen will print.





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Repeat the COLOR RANGE selection for each color until all colors have their own assigned spot color channel. In this case I saved the selection in the beginning to have a backup of my selection in case I lost it off the screen. You can take the original selection and go straight to Spot Color channel creation, saving the selection is just insurance to preserve the selection. When using the COLOR RANGE tool make sure the CMYK channels are visible as shown below.



The method I just described produced the print shown below. As a comparison we sent this image to Tom at Motion Textiles in Sacramento who has printed for us in the past. Tom has an excellent shop with state of the art equipment and personnel. We will now compare our small hand print to his production statistics.



Murakami Print using the techniques described in this article.

Create a spot color Pantone channel for all of the colors we created in the index mode. In this case we need 4 Spot Color Channels.

The Pantone Colors originally chosen during the index mode are as follows:

- Pantone 123 - Yellow Gold
- Pantone 145 - Orange
- Pantone 4625 - Brown
- Pantone 7401 - Tan

Note that you can turn off the eye symbols to view how the image is appearing with just the four spot channels and no CMYK.

During printing these colors can be adjusted for transparency and hue to improve on the printed image. I added about 20% half-tone base to create some transparency in the ink so they would mix to create secondary colors where they overlapped.



Motion Textiles Print



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Murakami's Index to Sim Process Print Sequence:

1. White Base Plate - 150/48
2. Flash
3. Pantone 4625 C - Brown - 225/40 Mesh
4. Pantone 145 C - Orange - 225/40 Mesh
5. Pantone 123 C - Yellow Gold - 225/40 Mesh
6. Pantone 7401 C - Tan - 225/40 Mesh

All film was output at 55 line halftones at 83 degrees using the charts from our previous newsletter to avoid moire. Print the colors wet onto wet to bring out secondary colors in the design using semi transparent inks.

Saving the Separated File (*Crucial*)

You must save the file in the proper format for your RIP Program to recognize the spot colors. I used Filmgate RIP from Colorgate that we sell for creating the films. It has many halftone options and complete control over linearization, (accuracy of halftones) and produces high quality positives on an Epson 9880.

Save the separated spot color file that was created on page 6 as a **Photoshop DCS 2.0 (EPS)**.

This allows the RIP program to recognize the spot color channels. You do not need to output the CMYK channels, only the spot channels.

Motion Textile Print Sequence:

1. Matte White Base - 180 Mesh
2. Flash
3. Cool Down
4. Pantone 4695 C - Brown - 350 Mesh
5. Pantone 7426 C - Off Red - 350 Mesh
6. Pantone 159 C - Orange - 350 Mesh
7. Pantone 465 C - Med Tan - 350 Mesh
8. Pantone 137 C - Dark Orange - 350 Mesh
9. Pantone 115 C - Yellow - 350 Mesh
10. Pantone 7402 C - Tan - 350 Mesh
11. Pantone 7500 C - Dark Tan - 350 Mesh
12. Flash
13. Cool Down
14. Matte White

Comparing the two prints, Motion Textile's print showed greater detail and more of the wood textures in both the guitar and the lettering. Tom's separations yielded far more detail and his MHM had many more heads (14) than our little six color hand press. Still the results were acceptable in both cases with Tom's high end separation and detail looking very good. Surprisingly though the fast method described here produced excellent results as well and in some areas like the lettering produced a brighter print. In both cases the hand or feel of the print was soft due to the S-thread mesh used since it can lay the ink on the surface of the shirt.

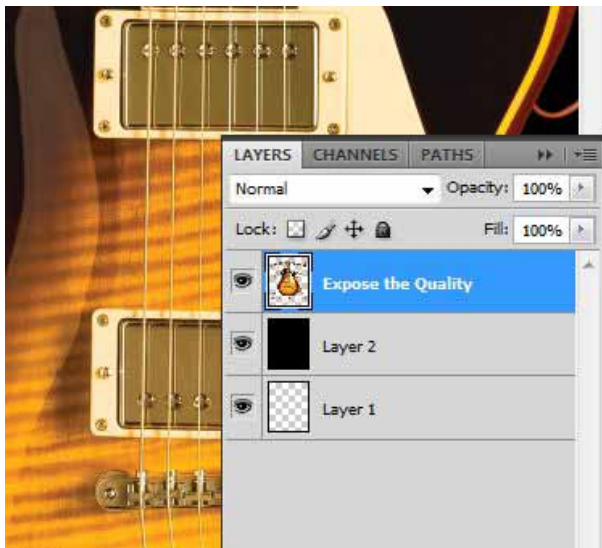


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Creating the base plate

Open a duplicate file of the original and place the art on a transparent background. If you created the art, always work with a transparent background so you can add the shirt color layer below the art layer.

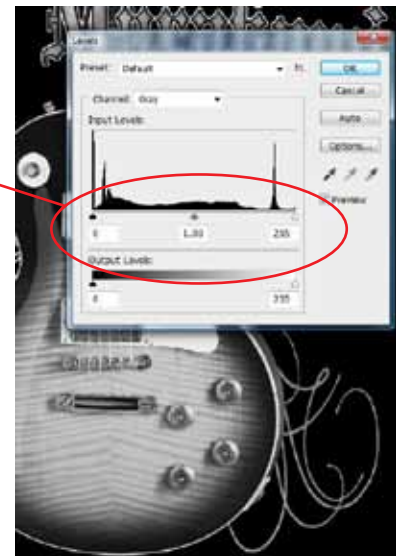


Note all the art is on a transparent layer. A 100% black layer has been added below, with a transparent layer below that. With the above file set up completed go to **IMAGE>MODE>GREYSCALE**.

In the dialogue boxes that pop up allow layers to be merged and discard all color information. The image will become the baseplate after we punch up contrast and brightness. I wanted the yellow gold and pickguard to have almost a solid white base and I wanted to increase light and dark contrast to bring out the pattern in the wood.

Go to **IMAGE>ADJUSTMENTS>LEVELS** and use sliders to increase the contrast in the stripes and brighten solid -areas.

Default Levels slider positions:



Adjusted Levels slider positions





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The adjustment process on the previous page is subjective. The goal is to make the image at this point as dynamic and aesthetically pleasing as possible. You can also use curves, brightness/contrast tools to achieve similar effects. I like levels since it allows me to control contrast as well as brightness within the three major tonal areas of light, medium, and dark.

Now go to **IMAGE>ADJUSTMENTS>INVERT** to create a positive image for the base plate. This will become the base plate film.

Some notes: Always use duplicate files from the original art at final print size for creating the index color file and the base plate. That way when you output film with registration marks everything will line up. Changing the canvas dimensions will make registration difficult.

All screens for both prints were made with Smartmesh sold by Murakami and imaged with Photocure PRO. In production Smartmesh will hold register for the life of the print. Our hand press set-up has been set up now for two months and still has excellent registration. In production Smartmesh achieves registration sooner and maintains it on long print runs better than any mesh available.

We started this article with a discussion about print quality and repeat sales. The products we used for this article are the state of the art in screen printing today. Anything less, is well, less. If quality of print creates repeat customers and production yields creates profits then you owe it to your company to try Smartmesh and Photocure PRO for Sim Process printing. The results are both amazing and profitable.



S-Thread mesh will rock your world



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Expose the Quality

To order any products mentioned in this article call anyone of us.

To discuss this separation method call Alan.

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Smartmesh



ColorGATE
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