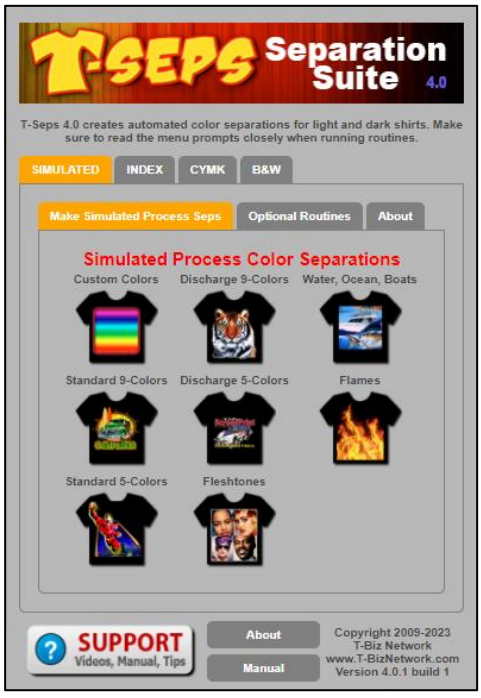
T-SEPS™ Automated Color Separations

Separation Suite

Plug-in for Adobe Photoshop CC versions.
For Mac (including M1/M2 processor) **and Windows**

Version 4.0

Reference Manual



Distributed by
T-Biz Network International, LLC
Scottsdale, Arizona USA
Toll Free in USA 1/888-801-1561 Main Phone 480-212-1078
info@tbiznetwork.com
www.T-BizNetwork.com www.T-Seps.com

Welcome to T-Seps

In 1999 I developed one of the first automated color separation programs for screeners called *FastFilms*. FastFilms was based on my many years of teaching how to do high-end color separations first in the camera (yes – a LONG time ago), and then in Photoshop. The program evolved out of my frustration in not being able to spend the weeks or even months it might take to train someone in how to do separations. I realized that for the majority of jobs I could automate many of the procedures. FastFilms has evolved into my new program T-Seps. T-Seps has all the great features and functions of FastFilms but with many improvements, enhancements, and new routines.

With T-Seps 3.5 and 4.0 I made major changes and improvements to the program. It now works in the Panels section of Photoshop and has a new graphical interface.

T-Seps is the most powerful separation software available for T-shirt screen printers. With just the push of a button you will be able to do industry specific separations for simulated process color on light and dark shirts, index color on light and dark shirts, real process color, basic spot color, and sepiatone.

Unlike other programs that only do one thing, T-Seps is a suite of programs in one. Certain designs are perfect for index separations where specific Pantone colors are needed, or where a high contrast bright image is required. Other images that are very photo-realistic need to be separated as true process color (CMYK) for light shirts, or simulated process color for dark shirts. Other images work better if a graphic treatment is given to them like the stunning “old photo” routine.

And for those of you who need a little artistic help, T-Seps has built in edge effects and does the distressed look! In fact, T-Seps even does basic spot color separations right in Photoshop!

T-Seps was created as a way to automate the color separation process. It is the culmination of dozens of years of teaching the process to large and small companies and quite literally contains the knowledge gained from thousands of hours spent doing color separations and high-end printing. What has taken years to learn and perfect is now at your fingertips and just a push button away.

It is my hope that printers will no longer need to spend hours learning intricate computer moves and can now focus on the artistic aspects and challenges of simply running a business. T-Seps is a very powerful tool to help you become more proficient, do higher quality work and increase profits.

If you are new to Photoshop and high-end computer separations, don’t let the power of Photoshop and T-Seps intimidate you. Read the manual, view the training videos online - and dig in. In no time you will be a master of both!

I hope you enjoy the program as much as I enjoyed creating it!

Scott Fresener, T-Seps developer

T-Seps Reference Manual

Credits
Created, programmed and developed by Scott Fresener

A WORD ABOUT THIS MANUAL

This manual has details about the key routines in T-Seps. There are a number of optional routines and buttons that are not covered in this manual. When you run any of the routines in T-Seps, you are shown simple “help” tutorial menus that tell about the routine. It is VERY important to not brush by these menus. They explain the routine and the steps necessary to make it run correctly. Please take time to read the tutorial menus to minimize problems or questions.

ON-LINE VIDEOS

This manual is very detailed but there is often nothing better than seeing something in action. There are dozens of online videos at www.T-Seps.com. Click on *Training Videos*. Please take time to watch some of the videos – especially the ones on *Installation* and *Quick Start*. If you are new to Adobe Photoshop check out our online training courses at T-ShirtPrintingMasterClasses.com.

T-Biz Network International, LLC

14747 N. Northsight Blvd. Suite 111-402
Scottsdale, Arizona 85260 USA
1/888-801-1561 480-212-1078
Email: info@tbiznetwork.com
Internet: www.T-BizNetwork.com

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*Applies to software used in Canada

Table of Contents

WHAT'S NEW IN T-SEPS 4.0

If you have been a regular user of earlier versions of T-Seps then you may not need to read this manual although please take a few minutes and breeze through it.

Here is a quick list of new features:

- Mac Apple Silicon M1/M2 processor compatible.
- Windows 11 compatible.
- Missing Pantone Color Books compatible.
- All Photoshop CC versions compatible.
- New and improved security program.
- 11 Step Grayscale on all films.
- Channel header details on separations.
- Job name on all films.
- Improved and updated routines with more options.
- Improved text and graphic effects.
- Job Proof update.
- New training videos.
- Updated and improved manual.
  ……. and of course much more.

Section 1
Quick Start

In a Hurry?

If you have already used T-Seps but have upgraded to a newer version or if you have used other Photoshop separation programs and you don't need all the background and tips in this manual – then get T-Seps installed and start to make seps. If you are new to Photoshop and separation programs then this section is NOT for you. You will have many questions that are answered in the rest of this manual.

But….. if you are ready to jump in…

1. Download the free trial from T-Seps.com.
2. The Mac and PC versions are both "archived" "zip" files. Unzip the file.
3. The PC version is a standard EXE executable file. The Mac version is a standard Installer Package. These can be downloaded from T-Seps.com as a free trial.
4. Close Photoshop.
5. Run the Installer.
6. Open Photoshop.
7. At the T-Seps License window click *Try* (you have 20 days to unlock T-Seps).
8. Windows and Mac (not Silicon M1/M2). In Photoshop go to *Window/Extensions*. Load the *T-Seps 40 Separation Suite*.
9. Mac Silicon M1/M2. In Photoshop go to *Plug-Ins* and select *T-Seps 40*.
10. Open the *Channels* panel.
11. Go to *Edit/Color Settings.* Click *Load* and Load *T-Seps Settings* (see page 15). Change the Photoshp Display Settings (see page 16). **DO NOT IGNORE THESE STEPS**.
12. Open a file. Make sure it is around 300dpi, RGB, no additional layers, 8-bit, and it you want an underbase and a sep that will work on light and dark shirts it should have a transparent background.
13. Run the *9-Color Standard Simulated Process* routine as a start. It might be more colors than you want to print – but it gives you lots of choices.
14. When done you should have a lot of channels. Put the Photoshop "eye" (preview) next to each channel to see how the seps look.
15. You can delete channels you don't want.
16. You can use a *Tone Curve* on various channels to boost them or reduce the amount of color.

17. You can double-click on a channel name and change the assigned color. If you want to know the nearest Pantone Color then see how to use *Pantone Connect* on page 41 or if on a Photoshop version of 23.0 or less – click on the *Pantone Coated Color Book* and *Color Library*.

18. You can print directly from Photoshop or you can save the file as a PDF and print from Adobe Illustrator or Corel Draw.

19. If the file has gray levels you need to print to a RIP for halftones or use the T-Seps *Convert to Halftone Dots* routine.

20. Output films, burn screens and have a great print.

Section 2
T-Seps Overview

About T-Seps

T-Seps is a plug-in for Adobe Photoshop that enhances the abilities of Photoshop and enables an artist or screen printer to do automated color separations in a matter of minutes. T-Seps 4.0 works in its own *Panel* in Photoshop and has dozens of routines that analyze the image for the correct colors and color intensities based on very specific garment printing requirements, applies proper levels and curves, it takes into account garment ink dot gain and ink impurities and many more behind the scenes functions.

The program separates images into the proper colors and builds *Alpha Channels*. Separations done like this are called *Channel separations*. These *Alpha Channels* can then be printed out to film or vellum and exposed on to screens to screen print high quality, multi-color images on light or dark shirts.

If the images have gray levels then the final output on film will need to be converted to halftone dots where there are shades of a color. This is typically a function of a software RIP (raster image processor) that is either built into a graphics large format laser printer or is third party software used with inkjet printers. If you don't have a RIP T-Seps 4.0 will convert each channel into halftoned files that can be printed to an inkjet printer but the printer needs to be of the newer models that prints dense black on inkjet film.

The reason the program works in a *Panel (this use to be called a Palette and is often referred to as a "palette" in the video tutorials)* is that Panels are used for most functions in Photoshop and they provide a graphical user-friendly interface for the program. In most cases the program does EVERYTHING for you because it separates for a specific ink color set. The only time it needs minor user input is when it asks for the file to load and also when you specify custom colors in the *Custom Index* and *Spot Color* routines.

Take a look at online sample seps and images done by customers.
If you are new to Photoshop channel separations you might take a minute and download and examine some of the sample seps provided online at T-BizNetwork.com/T-Seps.You can also checkout the T-Seps Gallery of images from jobs customers have done.

There is also a folder on your C: drive (PC) or the *Applications* folder (Mac) called *TSEPS40* with a sub-folder called *Samples*. You will find test files there along with sample separations.

Not Just for T-shirts
The program will also work with non-textile and graphics screen printing applications. It is simply a matter of changing the dot gain characteristics before running the routines. Certain areas of the program are specific to T-shirts. It is also so easy to use that you will be doing color separations almost the minute you install the program.

It Does More Than Separate
Not only does the program separate, it determines the proper color sequence and tells you what halftone frequencies and angles to use PLUS it indicates ink colors, types of ink and mesh counts. All the guesswork is taken out of the process. Artists can now be artists rather than separators!

Types of Separations
T-Seps separates a variety of ways depending on the end goal and type of original artwork that you have. It will do normal RGB to CMYK conversions including building additional spot color channels (bump plates) and creating *Underbase* and *Highlight* whites for dark shirt printing. It also creates very high-quality *Simulated Process* color for light and dark shirts.

The program has an excellent *Index Color* routine (square dot/stochastic) that uses your own custom color panel and creates *Underbase* and *Highlight* channels. The *Underbase* and *Highlight* channels can be either standard index channels, or *Simulated Process* channels that can be adjusted for more brightness using *Tone Curves*.

Special Effects Too!
Along with its excellent separations, T-Seps also creates special effects for images. There are a number of graphic edge effects that can keep an image from being a plain rectangle on a shirt. You can also make an image look like it has been washed and worn with the *Distressed Look*.

To give the image an old photo look, there's a very effective *Black and White* routine and a stunning S*epiatone* routine too.

T-Seps is a Tool
Think of T-Seps as a tool allowing you to reach new levels of print quality. It will separate most designs in less than one minute and saves you hours of art and production time!

Section 3
General Information and Support

T-Seps and Adobe Photoshop Versions
T-Seps 4.0 works in all CC versions of Adobe Photoshop on a Mac or Windows/PC in the ***Extensions Panel*** or in a ***Plug-Ins Panel*** for Mac Apple Silicon M1/M2 users. Adobe is planning to slowly eliminate the *Extensions* panel and as updates happen to Photoshop all versions of T-Seps will have to load in the *Plug-Ins Panel.*

About This Manual
This manual is designed to work with version 4.0 of the program. Most support calls are from first time users who have not read the manual at all. Please take time to review this entire manual first. If you are an experienced computer user and want to get up and running in a short amount of time, go to *Section 1 – Quick Start* of the manual.

Prerequisites and Assumptions
T-Seps is a separation program. It is designed to work with the quality of the images that it is given. In other words, if you ask T-Seps to separate a very flat, muddy image that is not sharp, the image on the shirt will be flat, muddy, and not very sharp. It's known as GIGO….*Garbage In Garbage Out.* Try to brighten the original with *Saturation* and *Hue* to get color information on many channels during separation – then you will have more to work with and choose from.

It is almost impossible for any program to "just know" that you don't want the image to have a color cast or dust specks from the scan as a part of the final print. Photoshop is a very powerful program that can be used to enhance the quality of the original image. It is your responsibility to make the original look as good as possible, nice and vibrant, and be at the correct resolution in order for T-Seps to generate a high-end separation. The program has *Color Adjustment* and sharpening features, but you must determine the degree of adjustment for each file. Cleaner originals will produce the best separations. Using high quality files should be a priority.

A Word About Photoshop
This *Reference Manual* assumes that you know the basics of working in Photoshop since T-Seps is a program designed to work in Photoshop. If you do not know how to use the basic tools and moves in Photoshop please take the time to watch online tutorials or check out our T-ShirtPrintingMasterClasses for Adobe Photoshop. *Section 5 – Original Art and Photoshop Adjustments* of this manual details how to adjust the image and work with the original art. The good news is that if high enough resolution image then only minor adjustments may be needed before simply running a T-Seps routine.

A Word About Screen Printing
It is often assumed that you have a good grasp of the screen printing process. Other than simple *Spot Color* separations, the program produces very high quality separations that will require good screen making and good screen printing skills to look like the original. This means high tension screens, the ability to hold fine halftone dots, a good printing press, sharp squeegees, proper inks, and good printing technique.

Obviously some will have better success than others. For the best initial success, try using the software on a non-critical image such as a cartoon type image. You will be surprised at how great the image looks. Next, use T-Seps on a sample image with flesh

tones. Reference colors such as flesh are harder to reproduce and will require better overall printing technique.

Film Output

T-Seps creates color separations in Photoshop that end up with solid areas where needed and grayscale areas where there are tones and shading. These grayscale areas of the image need to be printed on films as halftone dots. T-Seps can convert the final separations into halftone dots for output to a laser or inkjet printer. But, typically a screen printer uses a software program called a RIP (raster image processor) that converts the file to halftone dots and also controls the ink volume when printing to a low priced inkjet printer. There is more detail on this later in the manual.

Technical Support

Technical support is offered free.

Email: support@tbiznetwork.com
Phone: Toll Free in the USA: 1/888-801-1561
Main Phone: 480-212-1078
Internet: www.T-BizNework.com/T-Seps. Click on *Support*

Support hours are 8:30am to 4:30pm M-F Mountain Standard Time USA.

Please allow sufficient time for a support member to respond. Response is generally the same day or at least within 24 hours. If you have an immediate job deadline please make sure to note in the Subject Line of your email “Urgent.”

If you have a problem with the program please re-read the manual to make sure you are following the on-screen prompts exactly before you email support. Basic technical support is offered to T-Seps trial users. There is also an excellent **Troubleshooting** section with current issues (normally Adobe induced) and work arounds for Windows or Adobe problems.

In many cases better support can be given if the file is available for inspection. If you are having problems with a file or need assistance with what routine to use you can send the file via one of the free online services like *WeTransfer.com*. Send the file to support@tbiznetwork.com.

If sending a file – make sure to note the shirt color(s), the number of colors you want to print AND the number of colors you can print.

Section 4
Installation and Program Setup

Installing T-Seps

The installation of T-Seps 4.0 is very simple. The installer program will do all the work for you other than making minor changes to the *Color Settings* menu (more later) and opening the actual Panel that contains T-Seps.

IMPORTANT NOTE: T-Seps is a plug-in. That means works inside Photoshop and there is no desktop icon or EXE file to run (other than the installer).

During installation T-Seps will create a new folder on your hard disk called *TSeps40.* You may be asked if you want to change the location of this folder. Do NOT change this. The T-Seps routines will often look to key files in the *TSeps40* folder and if it can't find that folder you might get errors. The Installer will also install a number of additional folders and files in the TSeps40 folder. These include ink company ink values, the most current manual, special ReadMe files, sample files, license files and more.

The new *TSeps40* folder will be on your **C:** drive for Windows, or in the **Applications** folder for a Mac. If you already have an earlier version of T-Seps you can leave it on your computer and still work with it. Mac.

You will need to have full administrative rights or privileges for your computer during installation. You may be asked for your computer password if you do not have full rights. Typically, if you are the owner of the computer then you obviously have all rights. But, if you are in a corporate environment or on a network you may need to have an IT or network administrator give you full access during installation.

There is a chance you will get an error "T-Seps is not from an authorized or known developer." You may be asked if you want to continue. These are standard security warnings, and you can bypass them. For more help with this consult the Troubleshooting page.

Windows Computers

Locate the downloaded file or file on the CD called ***TSeps40Installer.zip***. Unzip (unarchive) the file before you run it. You should have other programs including Photoshop closed when you run the installation routine. Double-click on this file. Follow the instructions on the screen. This is a normal Windows installer program that will show progress screens as it installs the program.

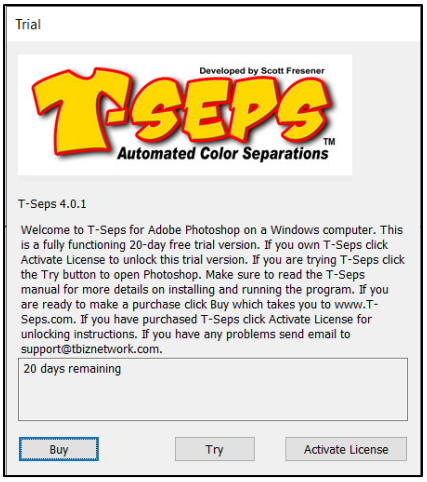
You may get a typical Windows error that this program is from an unknown developer. Simply click on *Run Anyway*.

Mac Computers

Locate the downloaded file called ***TSeps40Installer.pkg.dmg.zip***. Unzip (unarchive) the file. Make sure other programs including Photoshop are closed when you run the installation routine. Double-click on this file. Follow the instructions on the screen.

Unlocking the Program

T-Seps has a security feature that locks the program to a specific computer. If you bought just one copy of this program then it is designed to be installed on no more than TWO computers. If you wish to have the program on more than two computers you will need to purchase additional licenses for the program.



If you have a computer crash or need to move the program to a newer computer simply follow the unlocking routine and we will unlock the program again at no additional charge.

The unlock feature does not activate until you have installed T-Seps. When you open Photoshop you will get a T-Seps window. Click on *Activate License*. You will be taken to a new screen with an alphanumeric number called a *Request Code*. This number is specific to your computer. If you install T-Seps on a different computer you will get a different number.

If you are a trial user of the program or are waiting for your unlock code, simply press the TRY button to run T-Seps for 20 days. Until you receive your permanent unlock you will get this T-Seps window every time you open Photoshop and every time you run a main separation routine.

Send unlock requests with the *Request Code* to support@tbiznetwork.com and make sure to include your company name and order number. You can help speed up the process by giving all the details when requesting the unlock. We need to verify that you are a legal user, and we lose time if we have to email back asking for more information.

You will generally be issued the *Activation Code* within 24 hours. We do NOT unlock Free Trials for users who don't own the program. We will often grant additional trial time in which case send the *Request Code* to use and tell us that you want a few more days to try T-Seps. We will issue a temporary unlock.

IMPORTANT NOTE: If for some reason you do not get the T-Seps window either when opening Photoshop or when you start to run a T-Seps routine, then it means the key plug-in files have not loaded correctly. You will NOT get this window once you have been permanently unlocked. There could be a variety of reasons the plug-ins did not load including permissions/rights or other software conflicts. Refer to the *Troubleshooting* section of this manual or the Support pages at www.T-Seps.com. You can also send email to support@tbiznetwork.com.

Opening T-Seps in a Panel

T-Seps works in a special custom *Extension Panel* or in a standard *Plug-Ins Panel* in Photoshop. For Windows or Mac (not Silicon M1 or M2) to open/load T-Seps go to *Window/Extensions* and click on *T-Seps Separation Suite*. You will now have a new Panel in Photoshop for T-Seps.

If you have a Mac Silicon M1 or M2 processor go to *Plug-ins* and select *T-Seps40*.

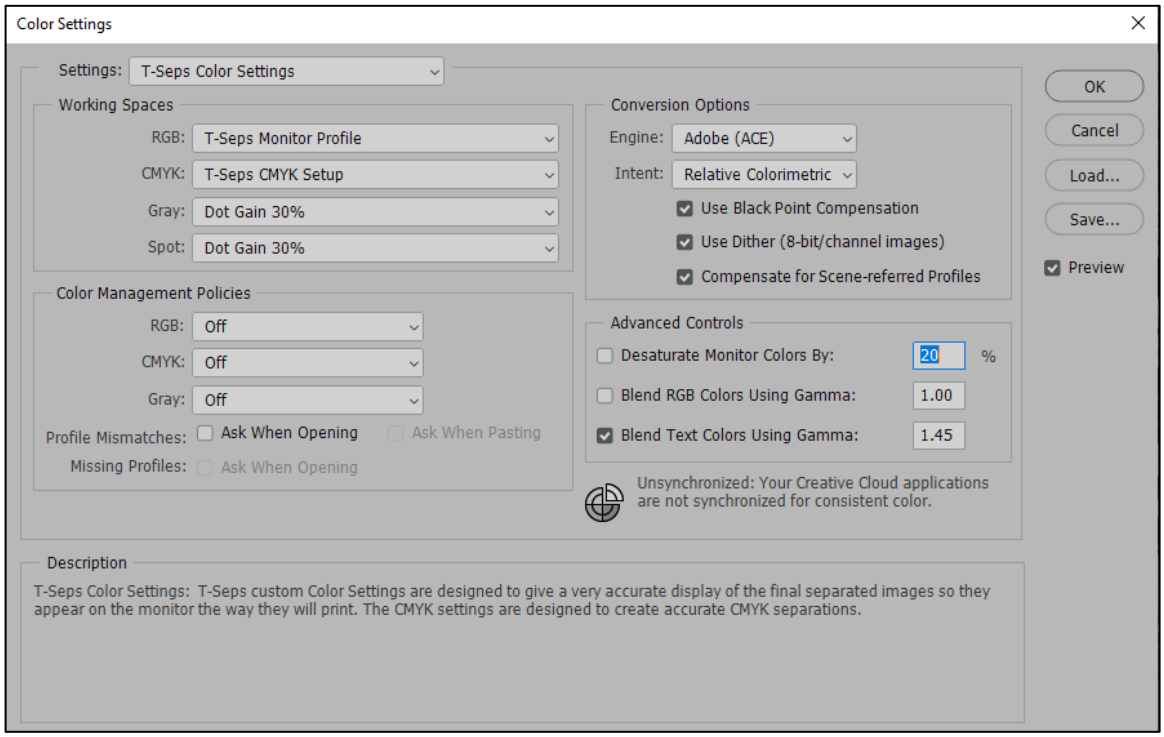
These panel are like all other Photoshop panels in that you can dock them with other panels, move them around, have them on a second monitor if you are multi-monitoring or you can simply minimize minimize them to give you more screen space.

Configuring Photoshop Setup

Prior to running T-Seps you will need to do some basic setups to Photoshop. These are small changes to certain program settings that will have an effect on how T-Seps operates. Photoshop is designed for paper printing and the display of final channels, and the dot gain applied to that display is wrong for T-Shirt printing. Also, if creating CMYK separations the default Photoshop settings are wrong.

Changes to these settings are simple. We have provided a special *T-Seps Color Settings* file that makes all the changes automatically.

If you don't load this file correctly your separations will be dull on the monitor and your CMYK prints will be muddy.



In Photoshop go to *Edit/Color Settings*. Click on *Load.* On a Windows computer go to your **C:** drive and find the *TSeps40* folder. Find a sub-folder called *Actions.* Load a file called ***T-Seps Color Settings***.

On a Mac computer go to your *Applications* folder. Find the *TSeps40* folder. Find a sub-folder called *Actions.* Load a file called ***T-Seps Color Settings***.

If you have any problems with the installation don't hesitate to email support@tbiznetwork.com. We can do an online session and check out your settings and get you going. Easy!

Photoshop Final Setup – PLEASE READ

Opening Documents in Tabs
For many older Photoshop users this seems foreign, and you can change Photoshop to NOT open files as Tabs if you go to *Edit/Preferences/Interface* and uncheck *Open Documents as Tabs*. **DO NOT DO THIS**. Regardless of your own preferences – there is a documented bug (as of this manual writing) where Photoshop will not recognize the "Previous Document" if more than one document is open - unless the documents are in tabs. T-Seps will often have duplicate versions of files open and will look to a *previous document* that is open for information. If you are not opening documents as tabs you may get a *scripting error*.

IMPORTANT:

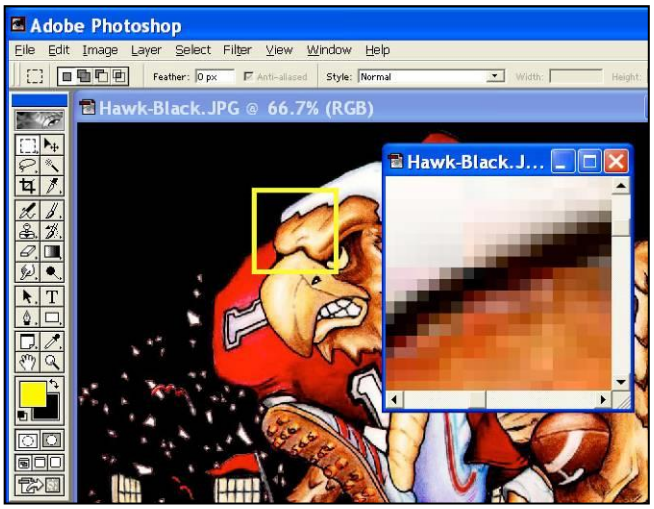
Photoshop Separation Preview Bug!
There is a well-documented bug in Photoshop where channel separations will not preview with dot gain applied. Your final seps will look dull on the monitor if you don't make a change to the *Preferences* file in Photoshop. This "fix" is detailed at the T-Seps website under Support/Important Display Settings.

Interface Color Theme
Photoshop now allows you to choose from four different color themes. The default theme is the dark theme that is popular with a lot of software. If you are more familiar with a lighter color theme you can change to the lighter color or medium grays by going to *Edit/Preferences/Interface*. T-Seps changes color depending on the theme you are using.

Section 5

Original Art and Photoshop Adjustments

About Original Art



The problem today is that everyone is an artist. Typically, you don't get a great photograph or image. Customers think they can take a web graphic and it will look great on a shirt. Or they think they are doing you a favor by providing a JPG file and they make it a Low Quality JPG so they can email it. They just screwed up what might have been a great piece of artwork.

The problem is they don't know this, and they think you can perform miracles. OK, T-Seps can perform miracles when doing separations, but it can't do much for a bad piece of artwork. Over the years a majority of support phone calls for T-Seps are about how to fix a bad piece of artwork.

In general, ALL artwork can use a little tweaking to make it better. Photoshop is excellent for adjusting images and making them look better than the original. T-Seps will give you a very high quality set of separations but only if you give it a very high quality image. If you tell it to separate a low resolution image that has no detail, expect the same of your separation.

A common problem with new Photoshop users is they take what artwork is given to them (even if from a graphic design studio), and they assume that is all they get. With a few simple adjustments the artwork can go from very poor to outstanding.

About Adobe Photoshop

Photoshop Basics

Let's start with some basics. We will assume you have installed Photoshop. If you are new to Photoshop there are a lot of excellent Photoshop tutorial videos on YouTube. There is also an excellent online training course on using Photoshop at T-ShirtPrintingMasterClasses.com.

For a quick video overview of Photoshop click HERE for a YouTube video.

Photoshop is a pixel/raster based program. That means that images in Photoshop are made up of tiny square dots of color. These dot/pixels/raster (call them what you like), are a fixed size/resolution. If you enlarge an image the pixels get bigger.

A Word about Vector Programs

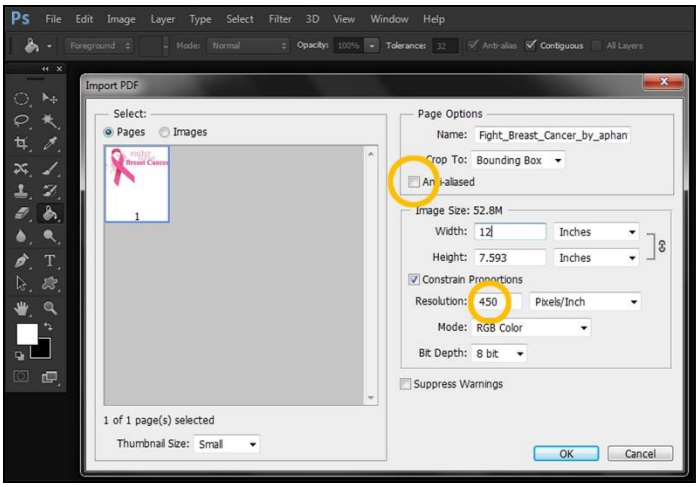
Programs like Corel Draw and Adobe Illustrator are Vector based programs that are great where the image has more of a cartoon or hard edge graphic. With a vector image, as you enlarge the image the resolution (sharpness) of the image does not deteriorate.

Most GREAT pieces of artwork combine the best of both programs. T-Shirt artists typically use Corel or Illustrator for the text and hard edge portion of the image and they use Photoshop for the photorealistic portion. T-Seps ONLY works with Photoshop.

You can easily create files in your favorite vector program and then separate the file with T-Seps in Photoshop. Files from these programs can be exported as PDF files. Of course, you can always us an "AI" Adobe Illustrator file. Make sure to export from these programs at the final image size and a resolution of at least 300 dpi. If you have control, set the *Fountain Fill* steps as high as possible. Files should be exported as RGB.

If you want to use a vector file on separate Layers in Photoshop, ALWAYS export the file as a PDF file format. The file will have a transparent background that works well on Layers.

VERY IMPORTANT NOTE:
When you open a PDF, EPS or other vector file in Photoshop you get an *Import* window. The default settings in this window are 72 dpi for resolution and anti-aliasing checked. You MUST turn off *anti-aliasing* because it is Photoshop's way of softening edges. You MUST change the file resolution to 300 dpi for normal jobs and up to 450 dpi if you really want to maintain edge sharpness.



The Photoshop Main Screen

You will notice Photoshop has a variety of items on the right of the screen that have divider tabs on top. These are called *Panels* and you can "hide" them or "show" them. If you go to the *Window* pull down menu you will see the *Panel* list. You don't need all of the *Panels* open for basic work. In fact, the ones we like to "show" are *Layers, Channels, History, Info*. The rest you can close by clicking in the upper right X in each *Panel*. You can group *Panels* together by "docking" them. You can also click and drag on a Panel name and "undock" it. The idea here is to keep the working area clear of clutter. Keep the *Panels* docked and to the right of the page.

The top *Menu Bar* has lots of Pull Down menus and there is a typical *Toolbar* on the left.

The key thing to remember is to NOT get too bogged down with all the bells and whistles. You will find that with most graphic programs you will use 20% of the program 80% of the time (the old 80/20 rule).

File Formats

Photoshop will let you open a wide variety of files including TIF, JPG, GIF, EPS, PSD, AI and others. If you open a file that is vector based like one from Adobe Illustrator, Photoshop will convert the file from mathematical vectors to small pixels. This is called Rasterizing a file (converting it to pixels). The important point here is to keep the file resolution high enough for the image to remain sharp. It is generally taught that a file needs to be at 300 dpi at the final size in order for it to remain crisp. In T-Shirt printing, you can get away with file resolutions of 200 or higher at the final size **BUT IF POSSIBLE STAY AT 300 dpi**. In fact, if you want to have "vector quality" edges to type

you can even work at 500 dpi or higher. The default setting for opening vector files in Photoshop is 72 dpi. REMEMBER to always change the resolution setting when opening a vector file in Photoshop.

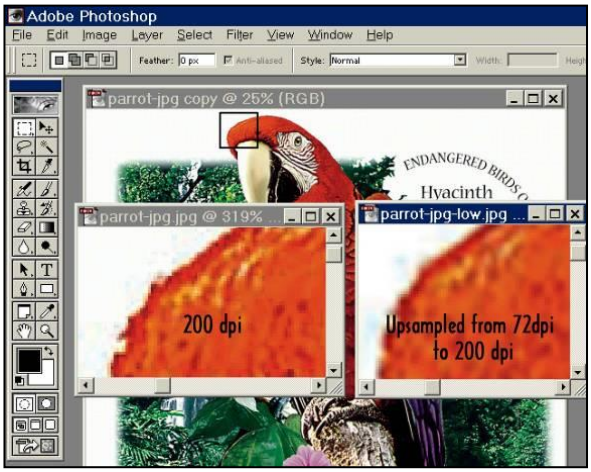
JPG Files

The most common file type you get is called a JPG. This is typically a file that someone has made using their digital camera or from a website. JPG is a popular "compression" format that will make a large file small enough to email. When a JPG file is made there are different qualities. A quality of "1" is very low and is almost impossible to use. The file has been compressed so much that areas of gradations have "boxes" and averaged areas. Areas that have hard edges now have "artifacts" around these edges.

One solution is to use JPG Enhancement programs. These will soften areas with excessive compression to the file size and will help eliminate artifacts. The image on the right shows a very low quality JPG file with a lot of artifacts (unwanted garbage in file). T-Seps 4.0 has an **Improve JPG Quality** feature that is excellent. The image below shows a "before and after" comparison.

Check File Size and Resolution

You MUST know the actual resolution and size of the image. Otherwise, you could be working on a very small file and not know it. Go to *Image/Image Size*. If it says pixels per CM, change this to inches. The physical size should be the final print size. Many graphics coming from customers are often very low resolution and off of a website. Stock graphic images that are downloaded from the web are typically only 72 dpi and physically small in size. Even though a file like this will work, it will not be as sharp as an image that is higher resolution at a larger physical size. You must know what you are working with.



The image on the right shows a magnified view of a file that is 200 dpi and one that is 72 dpi. Obviously, the 72 dpi file will be softer. And, if the physical size of the file is small, when you enlarge the image to print full-size on a shirt, the image will be softer yet.

What if the file size and resolution is not correct? This is where it gets hard. Let's say your file is only 5 inches in width and 72 dpi, AND you want it to print 10 inches wide. In the Image Size window, under Document Size, if you uncheck *Resample Image*, you will see that all three windows are now "locked" together. If you change the file size to 10 inches notice that the resolution changed to 36! 36 dpi is a LONG WAY from 200.

The problem you have is the file is very low resolution. Your only real choice is to check Resample Image and change the width to 10 inches and the resolution to 200. Photoshop "upsamples" the image. But, it has to guess at where to place all the extra pixels and what color to make the pixels. Images can get softer when upsampled. If this is the only thing you have to work with then so be it. If you can get a higher resolution file from the client, by all means do it.

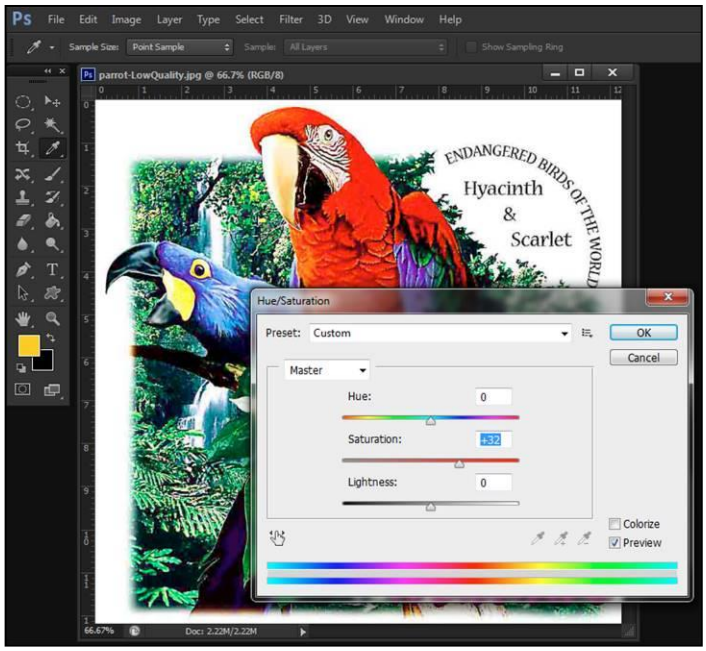
There are a number of Photoshop plug-ins on the market that are designed to upsample a file without losing detail. These range from free to hundreds of dollars. Some use very complete math formulas to make a very low resolution file look sharp at high resolutions. Notice the improvement in the edge detail on the upsampled image at the top of the next page! T-Seps 4.0 has a routine called *Upsample Image* in the *Optional Routines/Improve Image Quality* drop down menu. The image on the left was 72dpi and the right upsampled image is 200dpi. We use a complex algorithm that really works.

Check File Mode

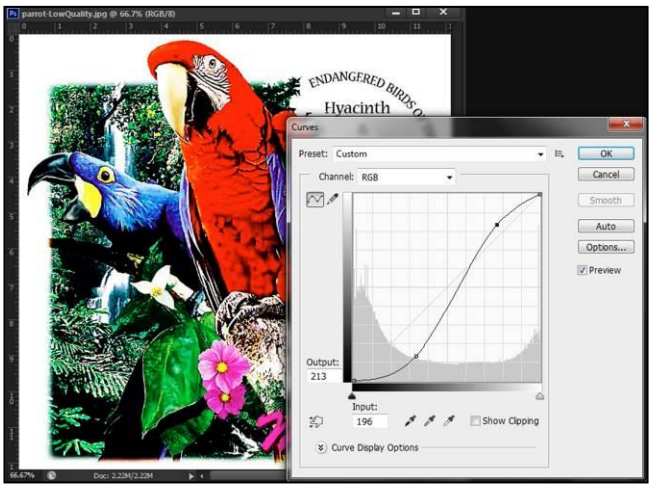
This is where beginners go wrong. You open a file and don't bother to learn about the file. At this point, the file should be RGB and not CMYK. Yes, Photoshop will process color separations for screen printing called CMYK, but for file manipulation and adjustment you should work in RGB mode. To see the Mode of the file, go to *Image/Mode*. If CMYK is check, click on *RGB*. The file should also be 8-bit.

Check file Saturation

Most files from customers are flat and need a color boost. Always check a file to see if it needs a saturation boost by going to *Image/Adjustments/Hue Saturation* Don't be shy here. You can boost the color saturation of the overall file, or you can select key colors to saturate. Remember - when you reproduce the image with screen printing, heat transfers or inkjet-to-garment printing techniques, the file will often print flatter and less saturated.



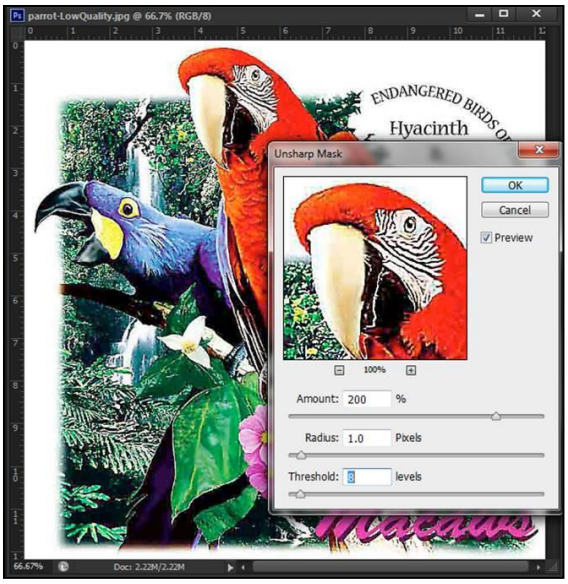
Using the Tone Curve



Images tend to get muddy when printed which is why boosting color saturation helps. But another excellent way to make images pop is to brighten them a little. You could use the *Brighten* slider, but a better method which gives you more control over the different tonal areas is to use the *Tone Curve*. If you have a file with lots of detail in the shadow areas, this will probably be lost when printed. Go to the *Image* pull down menu and then to *Adjustments/Curves*. The *Tone Curve* is a very powerful tool. It lets you adjust specific tonal areas from the lightest highlights to the darkest shadows.

By placing your cursor in the middle of the curve "midtones" and dragging the mouse up or down, you can lighten and darken the medium or midtones in an image. By clicking on the very top corner and dragging the mouse in, you can make the highlights lighter. Play around with the *Tone Curve* and see what happens. A good curve for flat images is a slight “S” where you lighten the highlight 25% area and darken the 75% shadow area.

Sharpening Images



Typically, an image can be made sharper. Even if the file came from an agency or large licensed job, don't assume that their artist knew your needs. Images that are printed, not only get darker but they get softer. You MUST make them as sharp as possible.

Go to *Filter/Sharpen/Unsharp Masking*. Don't let the "unsharp" term fool you. This term came from the old process camera days and basically means it only sharpens areas of high contrast. It sharpens but keeps it less apparent that you have sharpened the image.

Set the *Amount* slider to 200, the *Radius* to 1 pixel and the *Threshold* to 8. How does the image look? To compare the original to the sharpened version, uncheck the *Preview* check box. Click it on and off and compare the results. If you can't see much difference, move the *Amount* slider higher. Go all the way to 500% if you need. Don't get the image too grainy. Remember, Photoshop displays images a little sharper than they really are which means you can go a little too far and be OK.

Selecting Areas

If you want to apply a *Tone Curve* adjustment or apply *Unsharp Masking* to select areas, you can choose these areas with one of the *Selection Tools* on the Toolbar. Click on the tool that looks like a Lasso - yes it is called the *Lasso Tool*. Now, simply hold the mouse button down and draw around an area you want to change. When you release the mouse, you will have little moving dashes, commonly called "marching ants". You have just selected an area. Now, anything you do ONLY happens to this area. Think of this

like "selecting" an object in Corel or Illustrator. To remove the marching ants, go to the *Select* pull down menu and to *De-Select*. If you want to select square or round areas, the top left tool is called the *Marquee* Tool. It does the same thing as the Lasso tool only it does it to square or round areas.

Channels and Layers

For most of your work, make sure to have the *Layers Panel* and the *Channels Panel* showing - and separate. People always get these confused because they look very similar. Here are the rules. The *Channels Panel* shows whether the image is RGB or CMYK. T-Seps uses the *Channels Panel* to create color separations that can be output (called *Channel Separations*). Channels can be printed individually for color separations. If you are printing directly to a heat transfer or inkjet-to-garment printer, the file needs to be in RGB channels.

The *Layers Panel* is used to create or build the image. You use the *Layers Panel* to put various components together including adding type to an image.

You will notice that your *Channels Panel* shows four channels. RGB, R, G and B. If you opened a graphic from a digital camera or web JPG file, it should only have one Layer called Background.

When you click on a Layer, you make it "active" and available for changes. You can also select areas for adjustment using the Marquee or Lasso tools.

Image Resolution and T-Seps

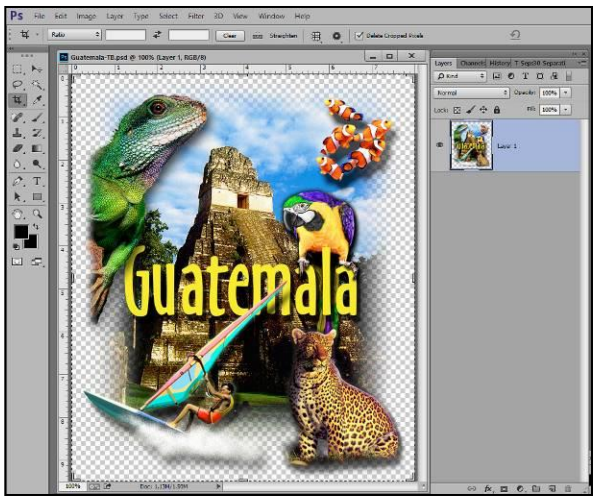
A beginner's mistake when creating artwork is to take a graphic off of the internet that is 72 dpi and use it as the basis for a design. Beginners leave the resolution alone and start to add other graphic elements like text. When they are ready to separate the image, the upsample the image to the final print size and wonder why the text is jagged. When you add type to a graphic in Photoshop the type will end up the resolution of the file. In this case 72 dpi.

TIP: ALWAYS, ALWAYS, ALWAYS take the original graphic file and upsample it to the final print size and final resolution you want – around 300 dpi. THEN start to add text elements and build the design! The text will be high resolution and not jagged. If you feel that 300dpi is not high enough to keep your text razor sharp then use a higher resolution.

IMPORTANT NOTE: You CANNOT re-sample the resolution or make color adjustments of an *Index Color* separation after you have run the routine! Make sure all size and color adjustments have been made *before* running an *Index Color* routine! Changing either will ruin the separation! (Exception: you may adjust the *Underbase* and *Highlight* channels of the *Index Color - Halftone Base* routine.

IMPORTANT NOTE: When running *Index Color* routines, the actual dot size that is put onto the media *directly* correlates to pixel size and you may not be able to hold these smaller square dots on your screens! 225 DPI is considered the maximum for high detail *Index Color* separations. See *Section 9* for more about *Index Color* separations.

Preparing Artwork for T-Seps

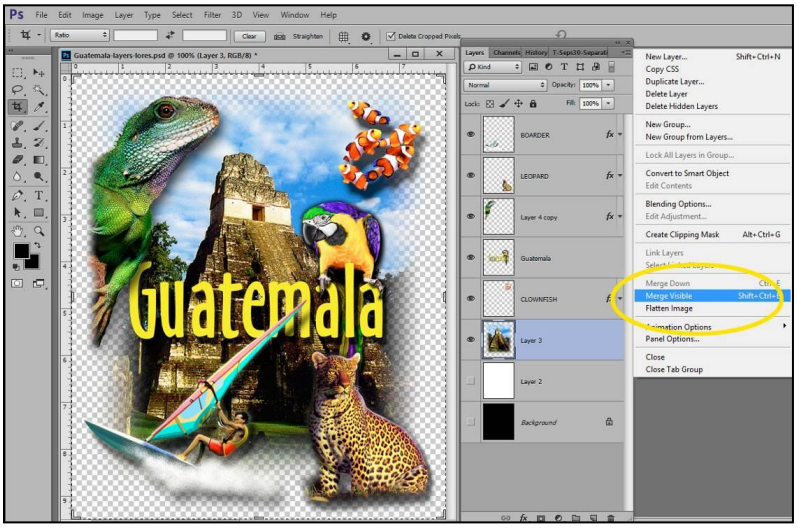


In the original FastFilms program and T-Seps 1.0 and 2.0, you needed two versions of the artwork. One version needed black in any "non-image" areas – called the *Canvas* – if the design was going on a black shirt. The other file needed white in any Canvas areas if the image was going on a white or light shirt color. The reason is simple – T-Seps would not know if the black canvas around an image was an ink color. The same for a white shirt. If you ran a routine on a file with white in the canvas but needed the image to go on a black shirt – T-Seps would think the white was a color and not canvas.

T-Seps can use Artwork with a Transparent Background

Starting with T-Seps version 3.0 the program was upgraded to work with any image with a transparent background in Photoshop. That feature is a real time saver if you have a file that was created in layers in Photoshop or if you open a vector file created in Adobe Illustrator or Corel Draw (they will automatically have a transparent background as long as there is no embedded bitmap image with color in the canvas area).

In Photoshop you know an image has a transparent background if it has checks around the image. If you have a file with the layer name of *Background* then you know the image is "flattened" and does not have a transparent background.



If you are a previous FastFilms or T-Seps user you can also still use two pieces of artwork – one with white in the canvas area and one with black in the canvas area. When you run T-Seps you will be prompted on the type of artwork files you are using.

Either way, you must ONLY have ONE layer in a file that is to be separated. Remember the rules. ***The file must be RGB, it can only have one layer and it must be 8-bit.*** If you created the file with multiple layers including a layer for the shirt colors (just to see how it will look), you must MERGE all of the layers you want as part of the file – and not include the shirt color layers. Simply delete them after you have merged the other layers. You should name this file something that might tell you what it is. For the sample above we might name it *Guatemala-TB.psd* so we know it has a "transparent background."

Dealing with Flattened and JPG Files

This all sounds great – you can work with a file with a transparent background or files with black or white as background colors. But what if all you get is a file that is a JPG. JPG files don't have layers and they are flattened (they say *Background* in the Layers panel). You might even get a standard Photoshop PSD file and the artist could have

thought they were doing you a favor by flattening the image. Remember, if the image is flattened and if they included the shirt color as part of the image – you now have to find a way to remove that color depending on the shirt color you need to print on.

This is where it gets tricky. If the image you get is flattened with a black background/canvas – AND if the print is going on a black shirt – you are OK. You don't normally print black ink on a black shirt, and you can simply run T-Seps on the image. You would delete and not use the black channel because it will not be correct (black around the entire image).

The same goes for a white shirt. If you get a flattened image with white in the canvas area and if you are going on a white shirt – easy! You simply run T-Seps on it. T-Seps will make an underbase and highlight - which will not be correct – but you don't need them and won't use them.

The problem lies with shirts that are not black or white but are colors. For these shirts you need to print black ink and you will need an underbase and maybe a highlight. This is where you would need two versions of the artwork – one with white in the canvas area and one with black in the canvas area – OR – a version of the artwork with a transparent background.

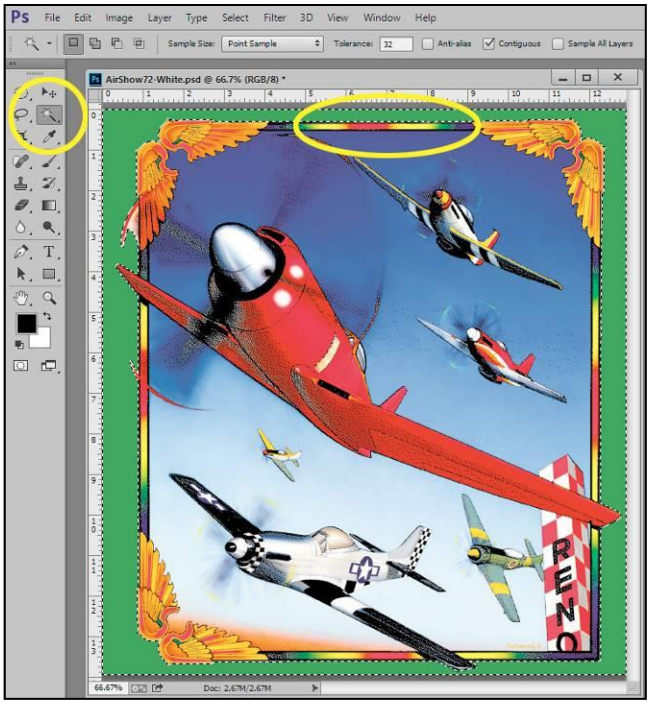
Removing Backgrounds
This is a whole topic to itself and there are separate software programs (called *Knockout* programs) that do this. Photoshop also has great tools for removing backgrounds. There are also some great YouTube videos on this topic.

You will often need to remove a colored background in order to get a file with a transparent background. This again is often the case where the artist includes the shirt color with the image. The shirt color is not a printing color, and it can often have an effect on transparent areas of the image. It is easy to say, "ask for a file with a transparent background" but what you often hear back is "this is all we can get."

This brings home the point that if at all possible ask the artist for the layers version of the artwork. If they won't give you that then request that they merge all layers other than the shirt color or background layers and give you that.

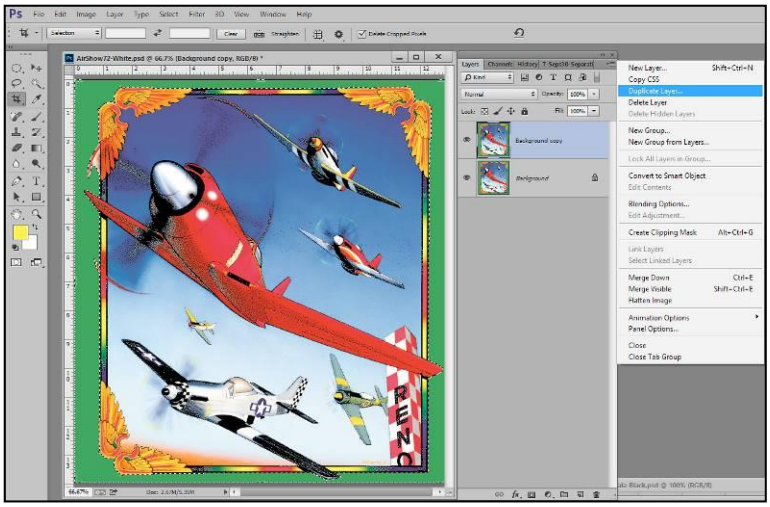
Using the Magic Wand Tool

Removing backgrounds from images with hard edges is pretty easy using the *Magic Wand* tool. Select the *Magic Wand* tool and click on the canvas area around the image. In this example the file is a flattened PSD image where the artist left the green shirt color as part of the image. We need to remove this "non-printing" color.



Check your *Tolerance Setting* in the top toolbar for the Magic Wand. The default setting is 32 pixels. The more tolerance the more the *Magic Wand* will find similar colors. We are assuming – hoping – the background is a solid color.

When you click on the green area you will see the "marching ants" selection around the image where the Magic Wand found the green. Remember – this technique works well if there is a hard edge to the image and if the background is a fairly solid color.



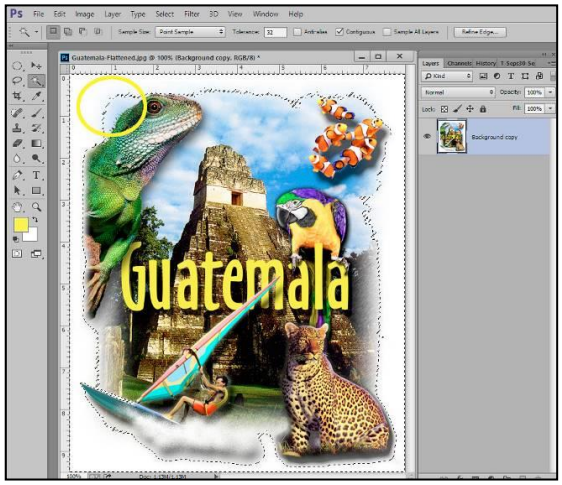
Our goal here is to make the background transparent. It is not as easy to do on a flattened file with *Background* in the layers panel. If we Delete our selection and if our *Background Color* in the *Toolbar* is white – we will now have filled the background/canvas with white.

But, if we *Duplicate* the Layer (the new duplicate layer will no longer be flattened) and delete the locked Background layer – and NOW delete or cut the selection – we will have a transparent background. Done. Easy!

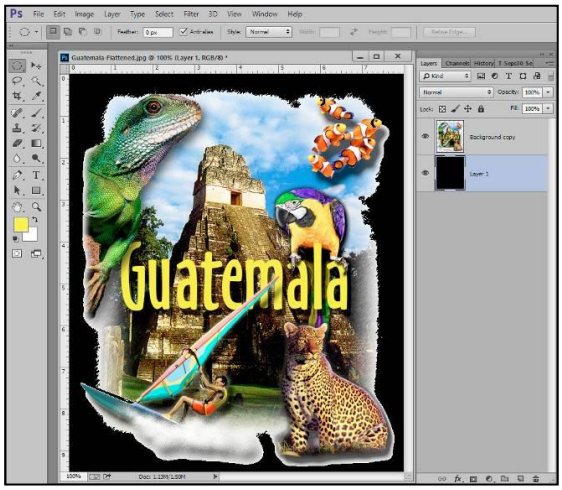
Working with Files with Soft Edges

This is where it gets tricky. If you get a file with a background color in a file with a soft edge then the *Magic Wand* may or may not remove what you want.

A good example is the Guatemala sample. Let's assume we got the file with a white background as a JPG file that is obviously flattened. And the customer says "I need these on black shirts." That means we have to find a way to remove all the white background and also not leave too much white in the soft areas – or the separations will have a nice white glow to them.

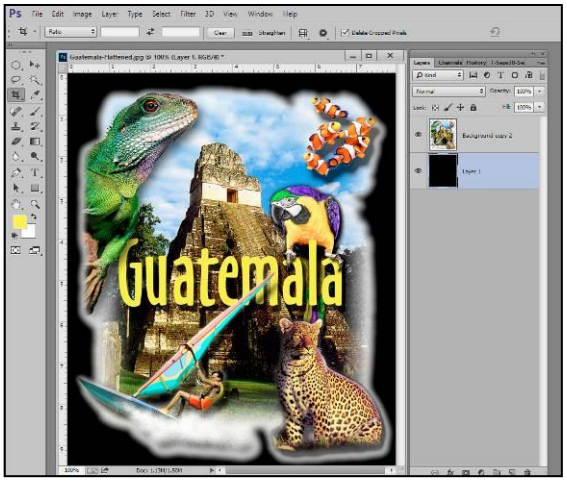


If you use the *Magic Wand* you will have to play with the *Tolerance* setting to have it select just enough but not too much. The problem with this method is you will get a hard edge when you delete the selection of the white and this hard edge could be too harsh when printed on a shirt. In our examples here we have included a black layer ONLY so you can visually see how the selection looks and how the image will look on a black shirt color. You might even do this yourself, but you would delete the black layer before you run the seps. It is only used to see the edge.

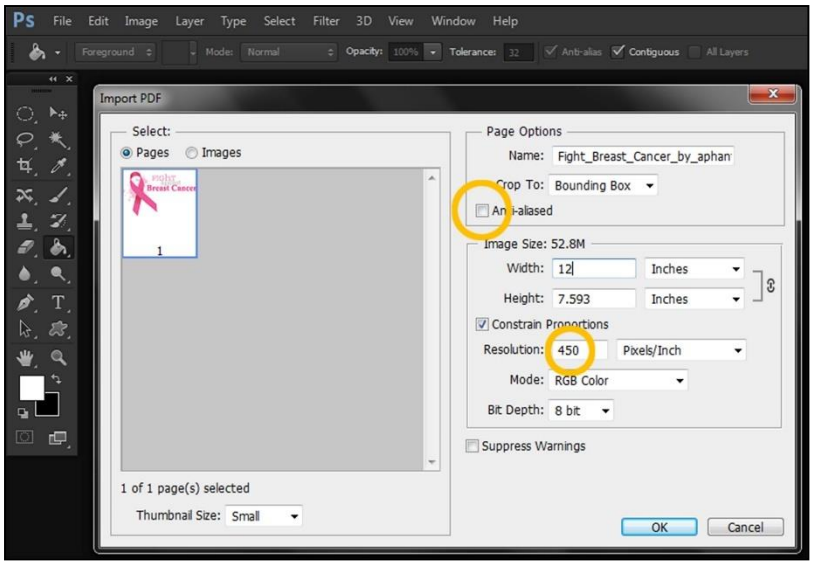


Soften the Selection

You can soften the selection so it is not so harsh by using *Feathering*. Once you make your selection around the image you can go to *Select/Modify/Feather* and select a number between 10 and 50 – depending on *the resolution of the file and how much softness you want. You will often do this over and* over until you get the feature edge you are happy with. Again, we have included a black layer so you can see the feathered edge.



Working with Vectors files made in Adobe Illustrator or Corel Draw



We talked about this in the Photoshop tutorial section, but it is worth repeating here. Other than Photoshop files created in layers, the best files to work with are often files created in a vector program.

If you are wondering why you would need T-Seps with a vector file the answer is simple. The vector file could have lots of shading and gradations and extensive detail and lots of colors. It is often much easier to create a file in a vector program a NOT WORRY about the number of colors or if the colors are spot colors. Simply build the file in a vector program and separate it in T-Seps.

Also, a vector file is widely used to add additional text or graphic elements to a placed/imported bitmap image.

When you open a PDF, EPS or other vector file in Photoshop you get an *Import* window. The default settings in this window are 72 dpi for resolution and anti-aliasing checked. You MUST turn off *anti-aliasing* because it is Photoshop's way of softening edges. You MUST change the file resolution to 300 dpi for normal jobs and up to 600 dpi if you really want to maintain edge sharpness.

Artwork Preparation Summary

Remember, time spent adjusting artwork before you separate it will give you a much better set of separations. You will find that "tweaking" original artwork becomes automatic. You will find yourself immediately checking the resolution and upsampling the resolution and the physical file size. You will then use a *Tone Curve* to boost the file contrast and next boost the *Hue/Saturation* to boost the color intensity. You will become very proficient at using *Unsharp Masking*.

It is IMPORTANT to note that you may feel you need to maintain the file integrity – meaning to match the shirt print to what the customer gave you to work with. Our approach is that you need to not be shy about improving the file so it will print bright and sharp. Yes, if there are key colors or critical flesh tones you don't want to deviate too far or have the file "glow" with color saturation. Use your instincts and give the customer an excellent print!

Section 6
Running T-Seps

Choosing the Best Routine to Run

There are a number of ways and methods that can be used to separate a design. If the image is only going on light colored shirts, it could be separated as *Real Process Color* (CMYK), *Simulated Process Color*, or even *Index Color*. If you are not familiar with these processes it can be difficult to determine which is the best method to use.

Often, the method used is dictated by the customer's demands and/or the artwork style. The following section should help greatly in making the correct decision. Since T-Seps is easy to run and very fast, you may want to try separating an image in a variety of ways to see the final outcome for each routine. There are specific sections of this manual that detail how to use each separation method.

Simulated Process Color

This method works well on light and dark shirts. Although this routine creates a lot of channels of color, many of them you will not need – especially on light shirts. If your image has a lot of standard colors such as red, yellow, blue, purple, green and brown then this routine should be run first. In fact, even though this routine is designed for images with a lot of color gradations, you may be surprised at how well it does on simple spot color images.

Simulated Process Color is also called *tonal spot color*. Because all-purpose plastisol inks are used, the image will print very bright and be more wash-fast than *Process Color*.

When in doubt, run Simulated Process Color Standard 9-Color routine FIRST since it gives you a lot of choices. Even if you only want to print five or six colors this routine gives you a lot to work with and then you can easily reduce the color count.

The *Simulated Process Color* routine gives you the MOST freedom and control over the separation, allowing you to eliminate colors, combine colors, boost colors and much more. The Simulated 9-color plus Two Whites gives you a lot of color choices.

Process Color – RGB to CMYK Conversion

If the image is very photo-realistic and needs to go only on light or medium color shirts, this may be the method to use. It will give somewhat of a softer look to an image and will not work as well on dark shirts. The program does create an *Underbase* and *Highlight* white plus the CMYK channels, with the option to create additional spot colors if there are Pantone matches or problem colors – though *Process Color* on an *Underbase* of white may be somewhat dull looking.

This routine should be run where absolute photo-realism is a must and where you are trying to come as close as possible to the original. *Process Color* prints are not as bright as *Simulated Process Color* and because of the high mesh counts used they may fade slightly when washed. *Process Color* uses an elliptical halftone dot with varying screen angles to eliminate possible moiré patterns (screen angle interference) in the final print.

Index Color

Index Color separations are great for light and dark shirts. They print easily and very consistent because you are printing a square stochastic dot *next to* a dot and not a

halftone *on top of* a halftone dot. Indexing works well for many designs but for close accuracy on colorful designs, Index Color separations like a lot of print colors. It is not uncommon for a great index print to be eight colors or more.

T-Seps has an optional routine for Index Separations to separate the file and have the *Underbase* and *Highlight* white channels output as halftoned channels that may be adjusted with tone curves after separation, unlike the previous standard *Index Color* routines. This is called a “hybrid” *Index Color* routine and will be covered in more detail later in this manual.

By choosing your own colors, you can tell the program specifically what colors to use although you may need six or eight colors to get a more accurate match. With *Index Color* separations, the more colors, the better. The downfall is that you lose the option to curve channels to increase color information (as with halftones), eliminate certain channels, combine channels, or resize the image after separation. For these reasons, you may want to run the *Simulated Process Color* routine first and the *Index Color* routine second to find the appropriate method.

Much has been written about *square dots* and *round dots* and there is great confusion about *Index Color*. It can be an excellent method of reproduction and also fall short if the colors are not correct. Even though competing programs tout that *square dots* are far superior to (round) *halftone dots,* if you simply look at all the great award winning shirts, 75% of them are done using halftone dots. Also, since some complex images require so many colors to reproduce with *Index Color*, smaller shops that do not have the ability to print so many colors gain greater control over the quality of their garments with the *Simulated Process* routines because of much increased ability to manipulate the color channels after separation, thereby keeping the number of screens to a minimum.

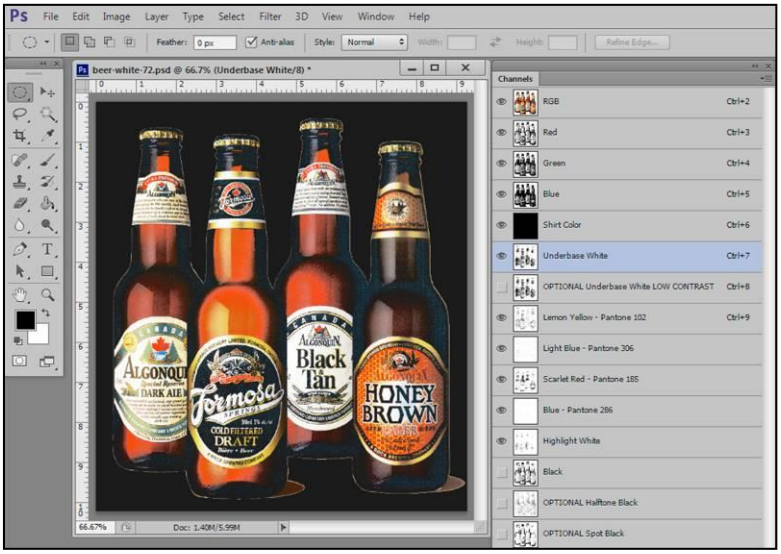
If you run an *Index Color* routine, you have NO control over the image once it is separated – other than to put a different color of ink in the actual screen on the press or to rearrange the print sequence. *Index Color* uses a *diffusion dither* (stochastic) dot that is a *bitmap* and not a *grayscale*. For this reason, you do not need to specify lines per inch or angle for *Index Color* since the square dots are determined by original file resolution.

IMPORTANT NOTE: Once *Index Color* is run, you CANNOT apply tone curves or eliminate colors because an *Index Color* routine places dots side by side and the image is like a puzzle. If you remove a color there will be “holes” in the design. Changing these WILL ruin the separation. (This does not apply to the halftoned *Underbase* and *Highlight* channels in the *Run Index Color – Halftone Base* routine since these channels are created as grayscale channels and still require you to set the frequency and angle.)

Black and White

The Black and White routine is great for monochrome images where you need a final grayscale image that has no color. For the best prints these images are generally printed using white, black (not on black shirts), and various levels of gray.

General Running of the Program



T-Seps is very easy to use. The T-Seps *Panel* is grouped by the above mentioned separation types. By clicking on a tab for the separation type - you are given a main tab that has the key separation routines for that particular type of separation. When first starting out explore each of the main separation type tabs.

And, if you drop down the *Optional Routines* tab you get other options. The *Optional Routines* tab choices will vary depending on the type of separation you are making.

Don't be overwhelmed by all the choices. Keep your focus and realize that the various separation types and optional routines give you a lot of power. You simply need to determine the type of separation you want to run and then play with all the options.

Most of the program is designed to separate to a specific color set, such as *Yellow, Red, Light Blue*, etc. This is to your benefit. You no longer need to mix custom colors for each job, unless you need a precise Pantone spot color match.

Just Click on a Button

To run a routine simply click the appropriate color separation button.
Each routine starts with help message screens that explains what is going to happen and tells you exactly what to do. The program contains over 100 help screens. In fact, these help screens are like an on-line manual. It is VERY IMPORTANT to read these help screens. They give specific instructions that need to be understood and followed.

Each help screen contains either both *Continue* and *Stop* buttons or a single *Stop* button. You will normally press *Continue* to have the program continue running a routine. You might press the *Stop* button if you feel you need to re-start the routine, fix the file or just stop the routine.

<u>IMPORTANT NOTE:</u> If you get errors during running a routine then the plug-in is not installed correctly. It is ONLY the first error that is important, and it is usually "can't find T-Seps4" which means Photoshop has not found the main plug-in. After you get this error you will get dozens and dozens of other errors – all created because the plug-in is not installed correctly. If this happens refer back to the Installation and Program Setup section or the Troubleshooting section.

Previewing Images on Screen

After you have run a specific routine, you will need to preview the image to see how it will look on a shirt.

Photoshop allows you to *see* a channel by clicking on the small square box at the left of each channel. This places an "eye" in the box. With an eye checked it means that the channel is visible. If only one channel has the eye next to it, the image will be in black and white grayscale on the monitor. If more than one channel has an eye, Photoshop will display the image in the correct color.

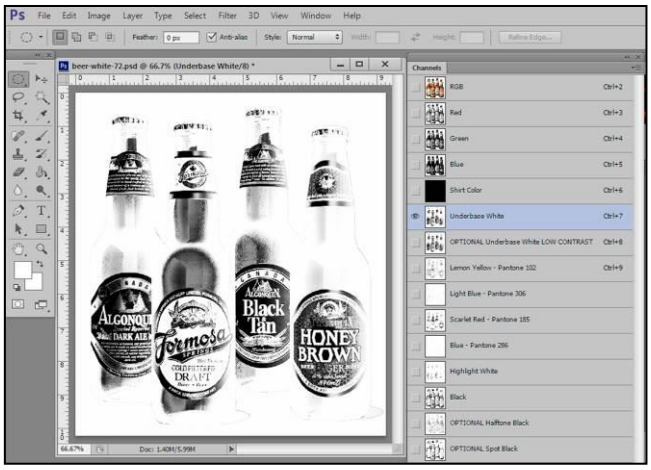
T-Seps has a very accurate on-screen display which allows for dot gain that will get when you print the image on a shirt. If the image seems flat or dull make sure you have made the display changes to fix a Photoshop bug outlined in the Installation section of this manual. Once you make the changes to the graphics accelerator (follow the steps online) you need to re-start Photoshop.

T-Seps assigns a pre-determined color to each channel and sets the ink "solidity/opacity" based on all-purpose plastisol ink (it works for waterbased and discharge also). These colors can of course be changed as we do the final tweaks.

Working With Channels

You can preview a single channel by placing just one eye next to the channel (making it visible) and removing the eyes from the others. If you want to adjust a specific channel it will need to be selected.

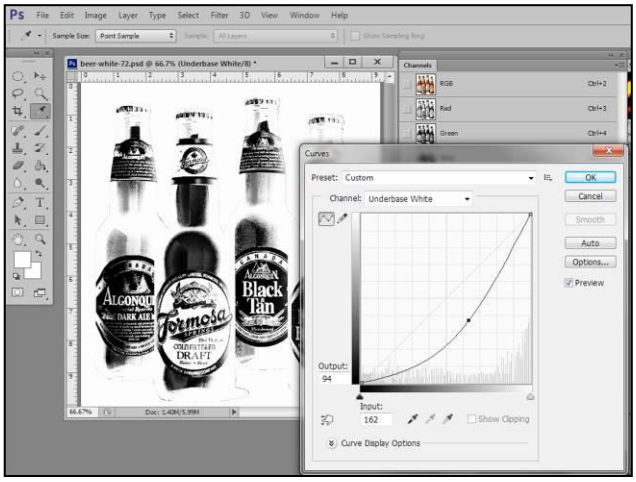
Don't confuse SELECTING a channel – clicking on it so it is highlighted with a blue background in the channels panel - with placing an EYE next to it and PREVIEWING it. These are two separate commands. You can have channels set for preview (with eyes) and have only one selected (highlighted and light blue in color) for adjustment. Sometimes you might forget and have an eye on one channel and think you are working on it when in fact you have a different channel selected/highlighted.



Optional Channels

You will notice that in most routines there is more than one underbase white and multiple black channels. Each piece of artwork is different. For some images – especially on black shirts where we use the shirt as the black in the image – a high contrast underbase is better to let more shirt show through. On other images a low contrast more detailed underbase is better. You have these choices with T-Seps.

The same goes for the black channel. Some images that have a lot of shadow areas benefit from printing two different black screens. One screen has just the solid spot color black information and one has just the grayscale halftone information. Also, even though you should try not to print black ink on a black shirt there are times it is helpful to maintain detail if you print just the halftone black on a black shirt. Again, you have options, and you simply delete the extra channels you don't want.



Adjusting Individual Channels

Once a channel is selected it's possible to apply a tone curve or levels, sharpen or erase sections, use the *Dodge/Burn* tool and much more. There are times when image touch-up will be necessary if you find that a color is not intense enough. If the preview of the image is close but maybe just not dead on, don't be afraid to adjust channels. Good

separators run the program first and then *tweak* individual colors. You can double-click on the *Shirt Color* channel and see a preview on different color backgrounds. You may find that the black shirt looks great but on a white shirt the *Black* channel needs a curve.

Don't be shy. Go to extremes to see what adjustments need to be made.

Using Tone Curve

The best place to start is with the *Tone Curve* (*Image/Adjustments/Curves*). Put your cursor on the center of the curve a pull it up or down. If you have the preview eyes on all the channels but only have the channel you are adjusting selected you will be able to see the effect the adjustment has on the overall image.

Changing the Assigned Color

The problem with using a pre-set palette of colors is that often T-Seps has the right color information but maybe the wrong color. T-Seps uses Yellow Pantone 102 as a stock yellow. If your image has a more golden yellow – the T-Seps yellow will have the correct information. You just need to double-click on the channel header and change the assigned color to the proper color. Simple.

It is very easy to simply sample the color from your image using the eye dropper and determine what Pantone color this is and then change a channel to display in this color. T-Seps calls for a Pantone 185 red. Your image might have a Pantone 485. No big deal. Change it

Moving Channels to Change Print Order

Some images may need a different print order than T-Seps recommends. Simply click on a channel name and hold the mouse down while moving the channel to a different location. A typical print order is light to dark but also you can print the smallest print area to the largest.

Changing the Shirt Color

The default shirt color in all routines is Black. You can easily preview the image on a different shirt color by double-clicking on the *Shirt Color Channel* and then clicking on the colored square box. This will bring up the *Color Picker*. Select any color you choose, and you will see an immediate on-screen change to the new shirt color.

Deleting Channels

Channels that you don't need can also be deleted by dragging the channel to the *Trash Can* at the bottom of the *Channels Panel*. This can simplify the file to make and also make the file size smaller when saved to conserve disk space.

Combining Channels

T-Seps will give you two blues and in the case of the Simulated 9-color separations, the normal red, yellow, black and underbases – along with brown, gray, green, and pink/purple. When trying to reduce the color count you often can combine the blues. Keep the one that is the right shade or change one of the blues to a medium blue and combine the other one with it. Go to the *Optional Routines* and you will see you have a lot of options here for tweaking the separations. Try combining about 50% of the brown with the red channel and you get brown “for free.” More on this later.

Changing Channel Header

You can also change the wording in the channel header by double-clicking on the channel name. This feature will allow you to put the color sequence, mesh count or other information here. This information will be printed on the actual individual separation films if you check the *Labels* option in *the Print with Preview* window.

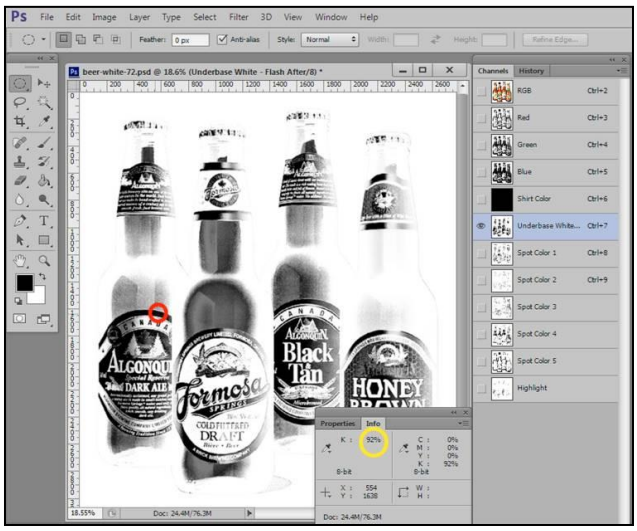
Using the Dodge/Burn Tool

This is a tool you will use all the time. The *Dodge* tool looks like a lollipop and is on the *Toolbar*. By moving this tool around the image, you can lighten areas of the design. You can also change how big the "tip" of the tool is by changing the *Brushes*. If these terms are new to you simply do a web search of using these tools or watch the short Photoshop tutorial videos at www.T-Seps.com.

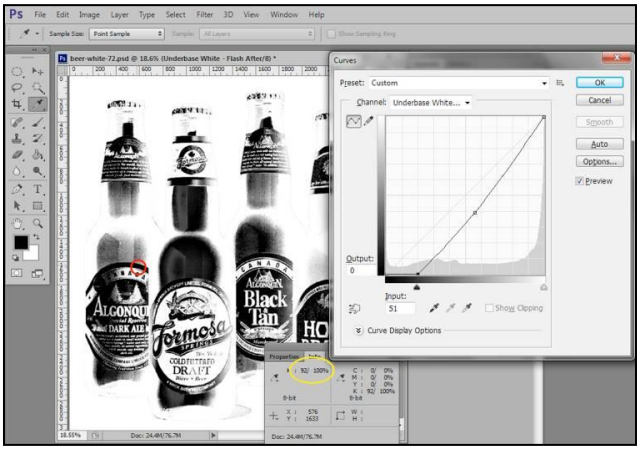
By converting this tool to the *Burn* tool (looks like a cupped hand), you can burn areas in and make them darker.

Using the Info Panel

This one is HUGE. On the surface - a set of separations might look great on the monitor. But, based on the colors in the image, some of the colors that look solid (100%) on the monitor might actually not be 100%. Using your screen printing experience and intuition you know that if there is a solid red area in a design – this area should probably be solid red – 100%. The same goes for the underbase below a bright red. On a black shirt this should be 100%.

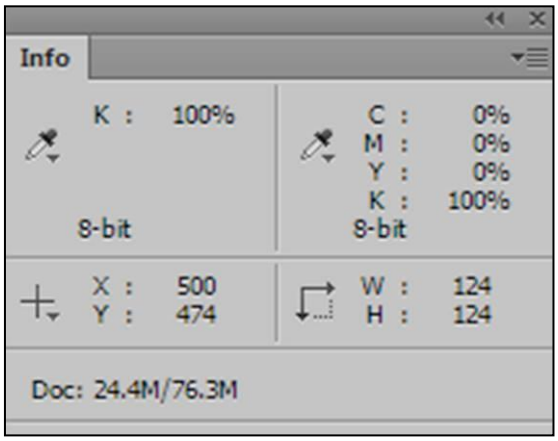


If your original image is dull, T-Seps might make the red only 90% and the underbase 80%. It will look good on the monitor but when you output films you will have halftone dots on the films. That is not what you want.



You can never trust your eyes for color density on the monitor. An image might look solid when it is not. This is where the *Info Panel* comes into play. You can open it from *Window/Info*. It reads density levels. You should keep this panel open ALL THE TIME and use it on every channel.

In the image on the right, the red area shows what is being sampled by the cursor or eye dropper. The yellow area shows the reading in the Info Panel. The reason it says "K" is that K is a common reference for Black or Grayscale images.



Select one of your channels. Place the cursor or eye dropper over various areas of the image. Check parts of the image that you think are 100%. If they are not – and you know they should be – use a *Tone Curve* or *Dodge/Burn* tool to make them 100%. The *Info Panel* reads "before and after" when doing tweaks so you can see exactly how it is turning out.

Checking each channel this way will help your prints be brighter and save film. Often an area that should

really be 100% might end up 95% with T-Seps. Your film will have halftone dots on it, and you don't want that.

The *Info Panel* is not only to read areas that should be 100%. If you have subtle light areas in your image you should read them also. Sometimes areas will appear to have some color on the monitor but when you read those areas they are less than 5%. Unless you are a really good screen maker – you can probably not hold any halftone dot less than 5% on the screen. You should boost these light/weak areas a little so they will actually show up as halftones on your films and end up on the screens.

Section 7

Simulated Process Color Separations

What is Simulated Process Color?

Generally, a *Real Process* job is a photo-realistic image that is printed with the colors of cyan, magenta, yellow and black (CMYK). This process generally only works well on a light shirt although some jobs that have a lot of colors that need to be kept to six or less on a black shirt benefit from CMYK.

The term *Simulated Process Color* has evolved to mean an image that is photo-realistic but does not use CMYK. *Simulated Process* colors generally are made up of specific spot colors that are halftoned. From a distance they look like *Real Process Color* but upon examination are not CMYK. In the old days *Simulated Process* applied only to black shirts. In recent years it has also been applied to photo-realistic images on light shirts that are not printed with CMYK. The beauty of *Simulated Process* color images is that they look vibrant on black shirts because other than the *Underbase* and they are printed with all-purpose inks. *Simulated Process* prints are generally at least six colors and if going on a dark shirt almost always have an *Underbase* white and a *Highlight* white.

In the past, doing separations for *Simulated Process* color was an art that took a very good understanding of Photoshop and screen printing. T-Seps has changed all of that. A complete set of separations can be done in just a few minutes with very little intervention of the user.

Simulated Process or Index Color?

A common question is whether to use *Simulated Process Color* or *Index Color* for an image. *Index Color* has gained popularity because it was easy to let Photoshop do the separations without much knowledge of the process. *Simulated Process* has always been harder to separate because the separator needed to have more knowledge. *Simulated Process Color* has a smoother look to gradations because you are printing a halftone dot rather than one size pixel. If the image is critical use *Simulated Process Color*. Indexing can tend to have a posterized and grainy look to the images. This is OK for some graphics but may not work where you need true photo-realism. Now that you have T-Seps do all the thinking for you, *Simulated Process Color* may be the better choice for a more photo-realistic look, but you can also run the same job as Index Color and see which one is best.

Specific Color Set

To make separating and printing easier, T-Seps was designed with a very specific color set for all routines other than the *Custom Color* routine. The program will analyze the image for specific colors and separate according to what it finds. It also applies the

proper *Tone Curve* and *Levels* adjustments based on the ink color, amount of coverage, dot gain expected from each color and other industry specific parameters. The beauty of the program is that you can eliminate unnecessary colors and reduce the color panel down.

There are standard routines that work for most designs. These are the Standard 9-Color and Standard 5-Color. Remember, it is often best to run the 9-color to get lots of choices.

If you have images with a water/ocean/boat theme – there is a routine that focuses more on blues in the image. If you have an image with flames and oranges, there is a routine for that. Flesh tones are very hard to reproduce and T-Seps has an excellent routine for that.

Other than the *Underbase* which is a high opacity ink, the rest of the inks are just off-the-shelf <u>all purpose</u> inks and in most cases very basic colors that should be found in every shop. You will have much softer prints and better overlay colors (color on color to make a secondary color) if you DO NOT use high opacity inks other than for the underbase.

Simulated Process Color Ink Set, Suggested Mesh Counts and Sequence

Standard 9-Color Plus 2 White

Print order – Ink Color	Mesh Counts
1. High Opacity White	180-230 (70-90cm)
2. Lemon Yellow - Pantone 102	280-355 (110-140cm)
3. Pink - Pantone 219	280-355 (110-140cm)
4. Light Blue - Pantone 306	280-355 (110-140cm)
5. Green - Pantone 361	280-355 (110-140cm)
6. Gray - Pantone 421	280-355 (110-140cm)
7. Scarlet Red - Pantone 185	280-355 (110-140cm)
8. Blue - Pantone 286	280-355 (110-140cm)
9. Brown - Pantone 167	280-355 (110-140cm)
10. Highlight White - all-purpose	180-230 (70-90cm)
11. Black	280-355 (110-140cm)

Standard 5-Color Plus 2 White

Print order – Ink Color	Mesh Counts
1. High Opacity White	180-230 (70-90cm)
2. Lemon Yellow - Pantone 102	280-355 (110-140cm)
3. Light Blue - Pantone 306	280-355 (110-140cm)
4. Scarlet Red - Pantone 185	280-355 (110-140cm)
5. Blue - Pantone 286	280-355 (110-140cm)
6. Highlight White - all-purpose	180-230 (70-90cm)
7. Black	280-355 (110-140cm)

Discharge 9-Color Plus 2 White

Print order – Ink Color	Mesh Counts
1. High Opacity White	180-230 (70-90cm)
2. Lemon Yellow - Pantone 102	280-355 (110-140cm)
3. Pink - Pantone 219	280-355 (110-140cm)
4. Light Blue - Pantone 306	280-355 (110-140cm)
5. Green - Pantone 361	280-355 (110-140cm)
6. Gray - Pantone 421	280-355 (110-140cm)
7. Scarlet Red - Pantone 185	280-355 (110-140cm)
8. Blue - Pantone 286	280-355 (110-140cm)
9. Brown - Pantone 167	280-355 (110-140cm)
12. Black	280-355 (110-140cm)

Discharge 5-Color Plus 2 White

Print order – Ink Color	Mesh Counts
1. High Opacity White	180-230 (70-90cm)
2. Lemon Yellow - Pantone 102	280-355 (110-140cm)
3. Light Blue - Pantone 306	280-355 (110-140cm)
4. Scarlet Red - Pantone 185	280-355 (110-140cm)
5. Blue - Pantone 286	280-355 (110-140cm)
6. Highlight White - all-purpose	180-230 (70-90cm)
7. Black	280-355 (110-140cm)

Water, Ocean, Boats 10-Color Plus 2 White

Print order – Ink Color	Mesh Counts
1. High Opacity White	180-230 (70-90cm)
2. Lemon Yellow - Pantone 102	280-355 (110-140cm)
3. Turquoise – Pantone 319	280-355 (110-140cm)
4. Pink - Pantone 219	280-355 (110-140cm)
5. Light Blue - Pantone 306	280-355 (110-140cm)
6. Green - Pantone 361	280-355 (110-140cm)
7. Gray - Pantone 421	280-355 (110-140cm)
8. Scarlet Red - Pantone 185	280-355 (110-140cm)
9. Blue - Pantone 286	280-355 (110-140cm)
10. Brown - Pantone 167	280-355 (110-140cm)
11. Highlight White - all-purpose	180-230 (70-90cm)
12. Black	280-355 (110-140cm)

Flames 10-Color Plus 2 White

Print order – Ink Color	Mesh Counts
1. High Opacity White	180-230 (70-90cm)
2. Lemon Yellow - Pantone 102	280-355 (110-140cm)
3. Pink - Pantone 219	280-355 (110-140cm)
4. Light Blue - Pantone 306	280-355 (110-140cm)
5. Green - Pantone 361	280-355 (110-140cm)
6. Gray - Pantone 421	280-355 (110-140cm)
7. Orange – Pantone 1374	280-355 (110-140cm)
8. Scarlet Red - Pantone 185	280-355 (110-140cm)
9. Blue - Pantone 286	280-355 (110-140cm)
10. Brown - Pantone 167	280-355 (110-140cm)
11. Highlight White - all-purpose	180-230 (70-90cm)
12. Black	280-355 (110-140cm)

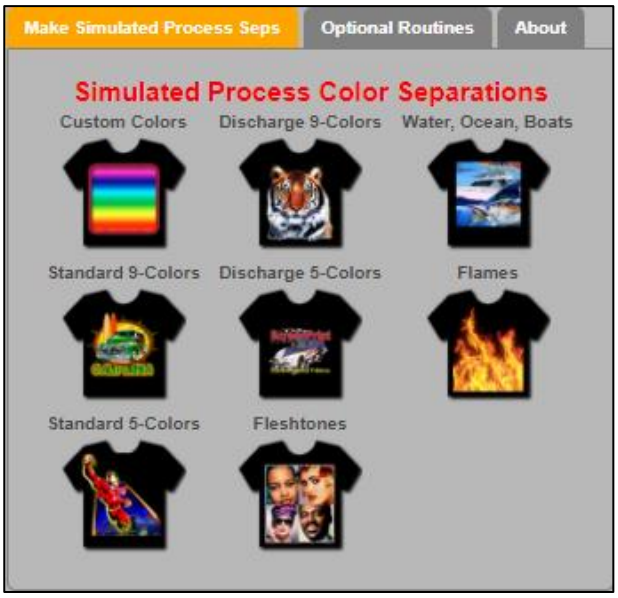
Fleshtones 15-Color Plus 2 White **

Print order – Ink Color	Mesh Counts
1. High Opacity White	180-230 (70-90cm)
2. Lemon Yellow - Pantone 102	280-355 (110-140cm)
3. Light Flesh - Pantone 7507	280-355 (110-140cm)
4. Medium Flesh - Pantone 472	280-355 (110-140cm)
5. Pink - Pantone 219	280-355 (110-140cm)
6. Light Blue - Pantone 306	280-355 (110-140cm)
7. Green - Pantone 361	280-355 (110-140cm)
8. Gray - Pantone 421	280-355 (110-140cm)
9. Orange – Pantone 1374	280-355 (110-140cm)
10. Scarlet Red - Pantone 185	280-355 (110-140cm)
11. Blue - Pantone 286	280-355 (110-140cm)
12. Dark Flesh - Pantone 7525	280-355 (110-140cm)
13. Brown - Pantone 167	280-355 (110-140cm)
14. Highlight White - all-purpose	180-230 (70-90cm)
15. Black	280-355 (110-140cm)

** This is a lot of colors, but you don't need all of the fleshtones and may or may not need the brown. This routine gives you a lot of choices.

Running Simulated Process Color

Which Routine to Run



There are a number of Simulated Process routines in T-Seps, and some are designed for specific image types. The main routines are *Standard 5-Colors* and *Standard 9 Color.* When you run any of the routines you will also get THREE white underbase options, THREE Black separation options and TWO Highlight options. Don't worry. It gives you a lot to work with and you simply delete the channels you don't want.

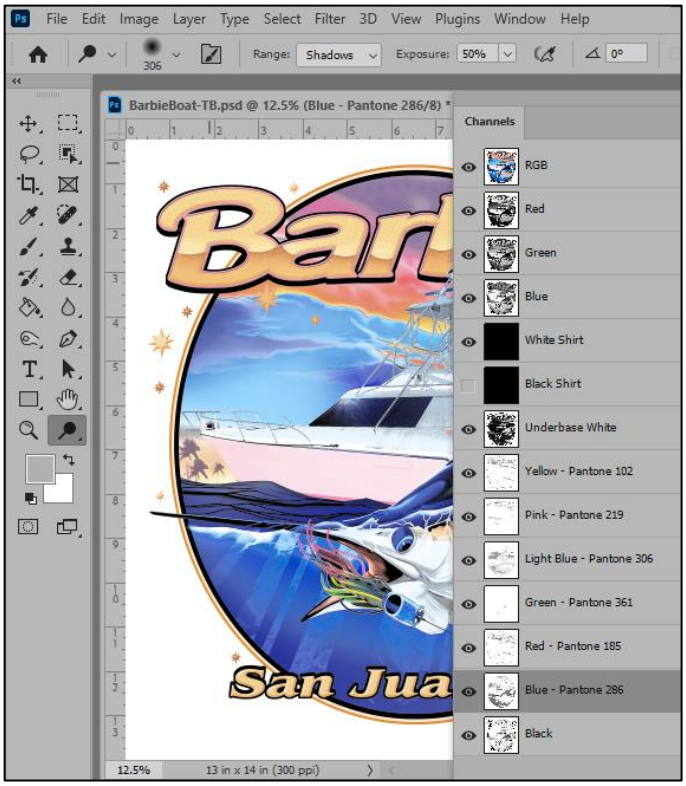
If your image is of a typical ocean or lake image with water, boats, fish, etc., you might run the *Water, Ocean, Boats* routine. This is the same for images with flames and fleshtones. Analyze your image and determine what might work best. The beauty of T-Seps is you can run a number of different routines in a matter of minutes and see which one suits your needs.

When in doubt run the *Standard 9-Color* routine. It gives you good options and you can easily reduce the color count with this routine.

The *Standard 5-Color* routine is also good, and it has reduced the color count for you.

The only error you might get when running routines is "Warning No Pixels Selected." Say OK to this. You might get it more than one time.

The above image shows all the color options you get when you run the *9-Color Standard* routine. The image on the right shows the color count reduced down to an eight color print by deleting the channels you don't need.



A Quick Word About You Photoshop Workspace

You can have the Photoshop main window setup any way you like. Everyone has a preference they feel comfortable with. The problem when doing color separations is that once you are done you need to reference the original. And, you need to have various Panels available so that you can easily move from one Panel to another.

Having a very large monitor is one option. That way you can have lots of Panels open at one time. A second monitor is a good option so you can have key Panels on one monitor.

But no matter what you have you MUST have a copy of the original artwork open so you can compare your seps to the original. Otherwise, you are flying blind when you make tweaks.

If you have a single monitor and/or a large monitor you need to have the separations near a copy of the file (no separations), and key Panels open and/or docked together including *Channels, Layers, History, Pantone Connect*, and *T-Seps*.

First Look at Separations

After running your first set of seps – don't panic at all the colors..... examine the separations. If it is going on a black shirt you will not normally print black as a color. If it is going on a white shirt you will not need any of the whites (you may print just the *Highlight*). By taking a quick second to eliminate unneeded colors you will see that it is not hard to reduce the number of colors.

After the program is done, analyze the image. Try rearranging color sequences and if necessary select specific channels and boost or decrease the intensity of colors with *Tone Curve*. If you have a limited number of print heads, now is the time to determine what colors are not necessary or that you can live without. Use the visible channel "eyes" to turn colors in the channel display on and off. The program selected two blues. Chances are you don't need two. In fact, you might try combining the two blues using the *Combine Channel* routine. To eliminate channels simply drag them down to the trash container.

Important Note About Pantone® Colors

Pantone® colors are the worldwide standard for color reference. If you do a set of normal separations in T-Seps they are assigned a Pantone color from one of the many Color Books that came standard with Adobe Photoshop.

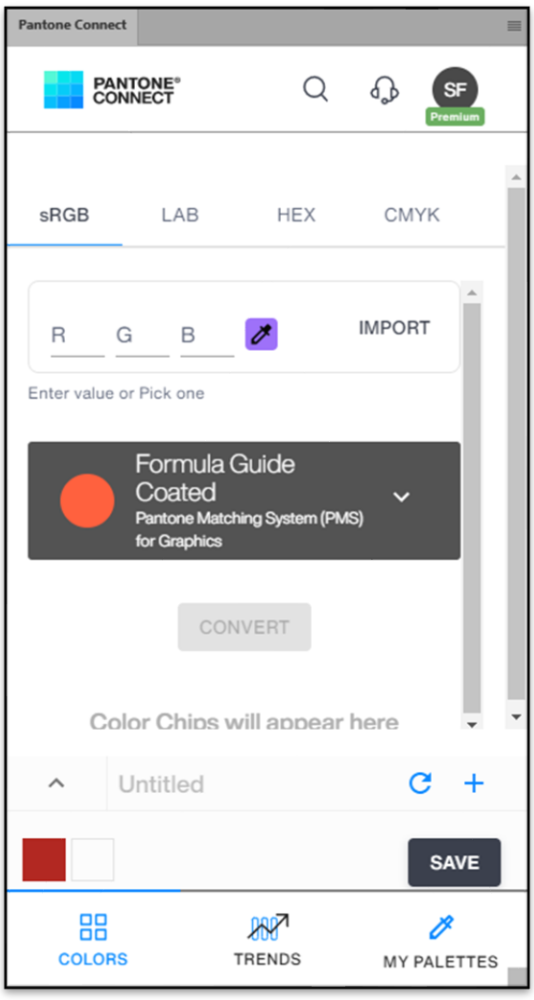
When you view the separations on the monitor you apply a color to each channel so you can see how the seps will look when printed. But when you send the separations to the print shop you need some sort of reference so they can either find a close off-the-shelf color or they can mix the color using a Pantone mixing system.

In late 2022 Adobe started to slowly remove the Pantone Color books over what appears to be a dispute with Pantone and Adobe. Starting in Photoshop version 24.0 and higher - if you want to find the nearest Pantone match for the colors you pick for your design you now have to either have a Pantone Color Guide physical book and compare the color on the monitor to the color on the book or download and use Pantone Connect and pay Pantone $15 per month!! No one is happy about this and as of this writing there is no easy solution.

Learn more HERE at Adobe.

Order and download the Pantone Direct plug-in from Adobe Exchange HERE.

This “issue” may be a moving target and for current details always check the T-Seps Troubleshooting page online.



Finding the nearest Pantone match using Pantone Direct

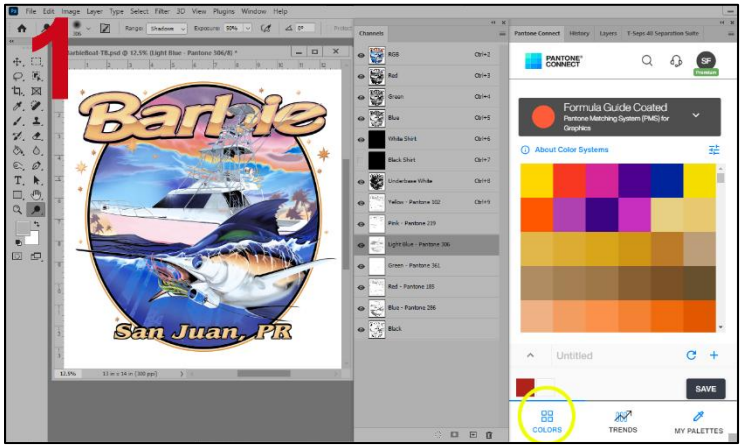
T-Seps assigns a Pantone color to the off-the-shelf colors it picks. But often the color is close to what you want but not exactly. You get two blues with the 9-Color Simulated routine but maybe one of those blue seps has the blue information on the separation correct but the blue in the design is a few shades off.

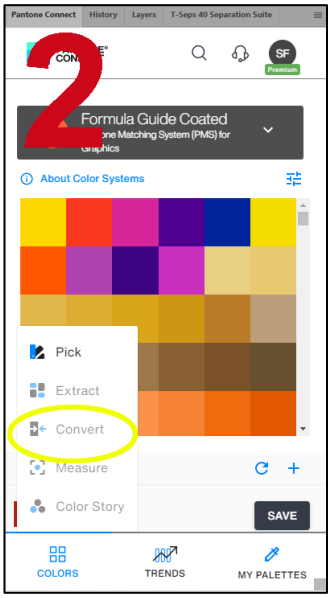
In version 24.0 or older of Photoshop changing the color and finding the Pantone match is easy. You simply double-clicked on the channel and then clicked on the small square in the *Channel Options* window. That brings up *Color Picker* and you click on *Color Libraries*. Choose the Pantone Coated library (various versions). You now have the nearest Pantone color match AND when you say OK, that Pantone names is now in the channel name. Done. Easy.

In Photoshop 24.0 or higher you can't do that. You have to use *Pantone Direct*. Download the Pantone Direct from the Adobe Exchange link provided earlier. It is a plug-in that works in the *Extensions* Panel. Go to *Window/Extensions* and click on it. Dock it with your other Panels to save screen space.

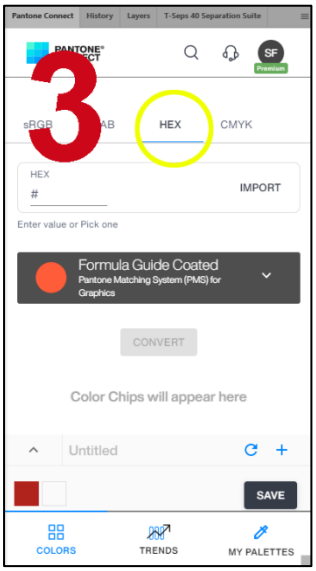
It is not too hard to use if you follow the directions on the next page.

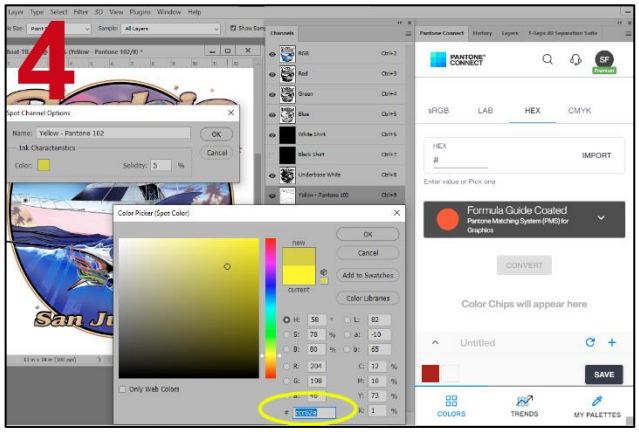
Using Pantone Connect to find the nearest Pantone Match

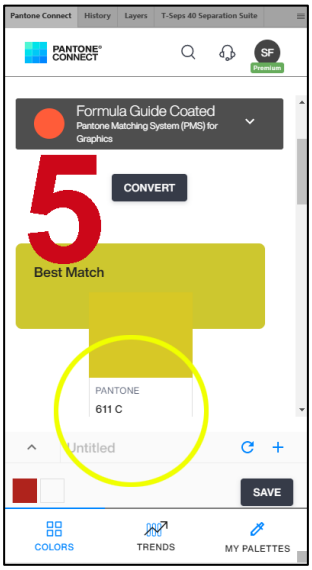


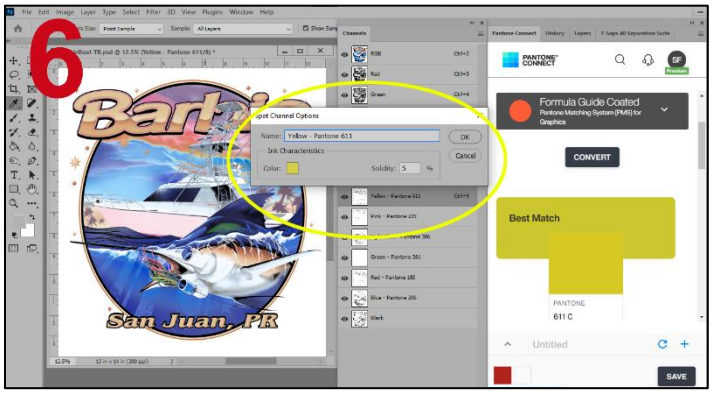


1. Open *Pantone Connect* panel. Click on *Colors*.
2. Click on *Convert.*
3. Click on *HEX*.
4. In your separations - click on the Channel you want to change. Click on small square Color in *Spot Channel Options*. In *Color Picker* select the new color. Highlight and copy the # at the bottom of that page (HEX number).
5. Paste the HEX number into the *HEX* box in Pantone Connect. Click *Convert*. Note the *Best Match* number.
6. Assign this number to the *Channel Name* in your separations.









Running the Custom Colors Routine

It always sounds perfect if you can pick the colors from the image rather than using pre-set colors. The problem with this is that you often need to pick a lot of colors – similar to how you pick colors with Index Color seps – and if you are not smart about what colors you pick – the result will not be good.

The Custom Color routine is a GREAT routine when you have a lot of colors and have a hard time reducing the color count or when you have a lot of odd non-standard colors.

T-Seps has a *Custom Color* routine that is based on how the *Index Color* routine works. It lets you build a Color Table of key colors and then creates separations from that. When done correctly, this routine is a thing of beauty.

Based on the complex routines it runs, this routine will build huge temporary files. Your file size might grow from to 20 to 30 times its original size during the process. When the routine is done the file is back to a manageable size. The problem is that Photoshop creates HUGE temporary files and if you don't have a lot of RAM or free disk space, these files can bog down Photoshop. If you find that Photoshop is sluggish after running this routine, shut down Photoshop and re-start it to clear out these huge temporary files.

This routine works best with files that are sharp and 300 dpi. It does not do as well with files from very low quality/low resolution "soft" files – even if you upsample them.

It is very important to read and follow the menu prompts in this routine. You will need to pick the colors from the image and if you have the basic settings wrong the seps will not be correct.

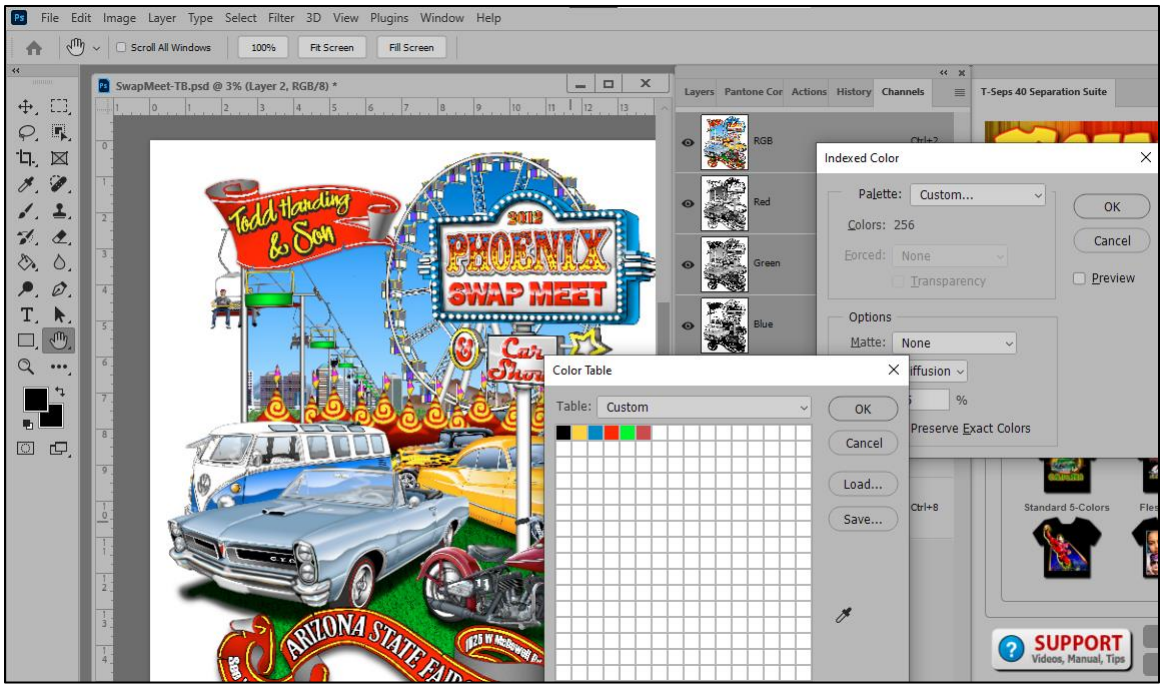
This routine has a few more menu prompts and uses the strength of Photoshop's Index Color color table routine and combines it with creating non-indexed separations that can be printed as halftone dots. You MUST read the menu prompts closely and follow the steps exactly.

You may get a window that says, "Merge Layers". Say OK to this.

When you get to the Index Color window drop down the *Palette* window and choose *Custom*. If you have done index jobs before then this window may already have colors in it. These colors have NOTHING to do with your current job. They are from the last job. You need to make this Color Table all white. Simply click and drag over all of the squares. When *Color Picker* comes up, select white (255 levels of R,G,B) by dragging the cursor off the upper left corner. Say OK to this screen and when asked again to say OK a second time. You now have a blank palette.

Picking Colors

You need to next click on the first upper left white square and use the eye dropper to select a key color from the image. Do this for all key colors including black but don't pick white. T-Seps already has made the white underbase and highlight.



When you are done picking colors say OK to this window and the *Indexed Color* window (the more colors the better and don't forget the key colors are the colors of red, yellow, blue and black).

T-Seps builds individual channels for each color, and it has already created the underbase and highlight white.

Previewing a Custom Color Image

When the *Custom Color* routine is finished, each color that you chose during the routine will show up named *Spot Color 1, Spot Color 2*, etc. To change each channel to a specific Pantone color, first double click the *Channel Thumbnail*, click on the *Spot Channel Color Swatch* and then click *Color Libraries* to see the Pantone swatch list. You should use the *Solid Coated* Pantone list for *Book*.

You can now tweak the channels with *Tone Curve* and you can pull additional spot colors and use all the *Additional Color Separation* options.

Discharge Waterbased Ink Separations

Color separations for printing with Discharge ink or waterbased inks are very different than traditional Simulated Process separations. With Simulated Process you print an underbase white ink below colors to make them brighter. With Discharge ink each ink color has a discharge agent in it that removes the dye color in the shirt and replaces it with the ink color. This means you don't need an underbase. The white separation only

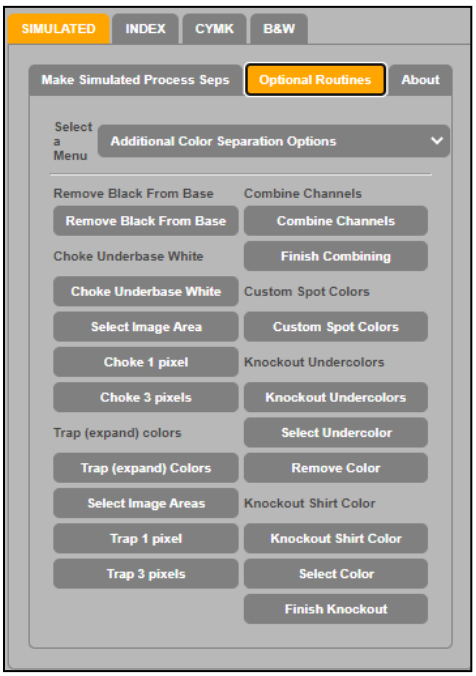
prints white discharge ink where it needs this color. And there is no highlight white with this process. Each color is also knocked out so there is little to no color printing on top of color.

These separations are ONLY designed to work with Discharge ink for ALL the print colors. If you are using a Discharge ink for an underbase and printing the rest of the colors with normal plastisol ink, then run the Simulated Process routine and boost the underbase using the Tone Curve.

Fleshtone Separations

Fleshtones are very hard. Starting with Photoshop CS6 there is a new facial recognition routine that T-Seps takes advantage of. The *Fleshtones* routine actually gives you a lot of choices. It may appear that there are far too many colors to print. Your goal is to find the fleshtone that closely matches the skin tones in your image. The best fleshtones on shirts have an overall flesh, a shadow color such as brown or red, and a highlight white to sit on top of the flesh to give it a highlight.

Additional Color Separation Options



Custom Spot Colors

Certain jobs have colors that are hard to separate from a design. If the program has not found a very specific color or if there is a critical Pantone color, simply use this routine to "pull" the color. Follow the screen prompts very closely. This routine only works after you have run the other main separation routine. When it is done, you will need to move the channel to the correct channel preview order – usually from light to dark in the sequence.

Remove Black from Underbase Button

This is a GREAT button. It can help increase the detail and contrast of the *Underbase*. The *Black* channel often has the most detail in it. When creating an *Underbase* white, this detail is often lost. By clicking this button, you will be removing any areas of image that are on the *Black* channel from the *Underbase* white. You can run this routine more than once to increase the contrast of the *Underbase*.

Choking Underbase White

Certain designs have solid text areas with a solid *Underbase* of white. For these images to print better it is often helpful to choke back the *Underbase*. Choking an *Underbase* makes it "skinnier" where the solid top colors print over it. This allows for better registration and less of the white peeking around the top colors. This routine will choke the solid areas of the *Underbase* white by 1 or 3 pixels (approx. 2 to 5 point choke at 200 dpi). This may help designs with a lot of heavy text that need to have the *Underbase* choked.

<u>IMPORTANT NOTE ABOUT CHOKING:</u> This routine DOES NOT work properly on low resolution test images. The amount of choking is based on pixels. If the image is low resolution the choking will be greatly exaggerated. This routine does not work on halftone images. It only works on solid areas of color. You can run this routine as many times as you want. Follow the on-screen message prompts very closely!

Combining Two Channels

If you have a limited number of printing heads this routine will help you combine channels in order to eliminate the number of colors. FIRST, select the channel you want to copy another channel into. Then click on *Finish Combining Channels.* It is also possible to combine a channel with more than one other channel. Try combining the *Green* channel with the *Yellow* and *Lt. Blue*. You will now be making the green with those two colors and you can eliminate the *Green* channel!

Knockout Under Colors

Sometimes there is a lot of a top color (such as brown) that prints over the yellow and scarlet halftones. Also, when pulling custom spot colors, they will print over other colors that the program has already created. For a job to print cleaner, it is helpful if you can knockout or remove the colors that are under other solid colors. To do this run the *Select Colors to Knockout* first and then follow the on-screen prompts.

Knockout Shirt Color

This routine is designed to let you knock out any areas of a separation where you want the shirt color to be part of the image. For example, if you do race cars you might want the car to be the color of the shirt. This routine will alter the look of each separation. The program will make a duplicate of the image first. If you don't like how the knockout routine worked, simply close the duplicate and run the routine again. To run this routine, follow the on-screen prompts.

Section 8

True Process Color Separations (CMYK)

What is Process Color on Shirts?

True Process Color (also known as four-color process) is where an image is separated from its RGB component on the computer to the pigment colors of CMYK. These images are then printed through very high mesh counts using special process plastisol ink. In most cases, *Process Color* is more than four colors of ink. It is impossible for just four colors of ink to reproduce the millions of colors that may be in a design. Important design colors that cannot be reproduced are often printed as additional spot colors or touch plates. Also, since many images are printed on light colored or pastel shirts, white is an additional color that may be printed. This white is generally not an *Underbase* but what is called a negative white printer - it just puts white where there is white in the image.

The Problems of CMYK on Shirts

In shirt printing we manage to take a great image and then make it look poor by converting it to halftone dots, putting it on a woven screen mesh and then printing it on a knit shirt. The quality of the original degrades all the way down the line. On top of that, it is hard to hold the very fine dots on the screen - causing dot loss AND the dots in the mid-tones and shadows grow in size, causing dot gain.

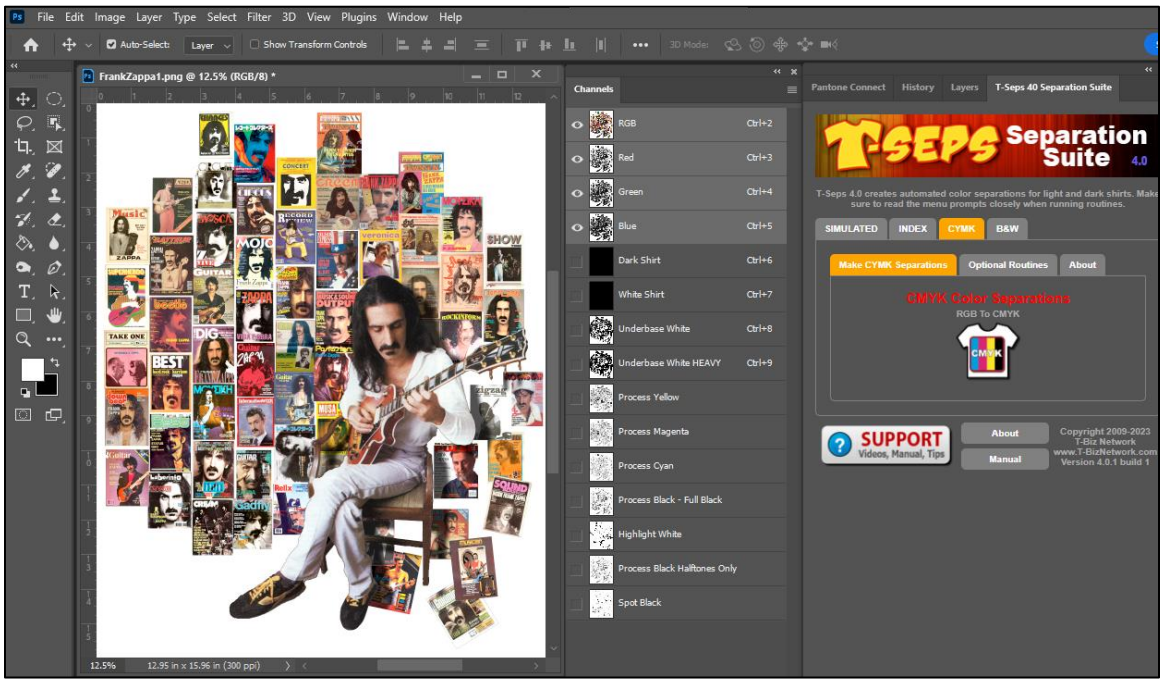
While CMYK will do the best job at separating very colorful/detailed images – the final print will normally not be bright. That is where additional spot colors come into play. And CMYK is harder to print. The screen printer must be very consistent with each color. If the printer prints too heavy on the magenta screen then the browns, reds, purples and other colors will be darker. It is much harder to control CMYK than Simulated Process Color which is more forgiving.

Process Separations with T-Seps

T-Seps automates doing *Process Color* separations using industry specific numbers and standards. It also compensates for weaknesses in Adobe Photoshop and does calculations that help the image print clean and sharp. The program will automatically make two white plates. One is a minimal white plate for light shirts and the other is an *Underbase* white plate for medium and dark colored shirts. You can choose the one you want to use.

T-Seps also gives you three black plate options. The best CMYK jobs often have two blacks. One black is for the solid type areas of an image and the second black is for any grayscale areas or black to make other colors. When printing at the press it is hard to control solid areas without making the shadow halftone areas too dark. Two black plates is the answer if you have enough press heads.

After running the main separation routine, you can create additional spot colors if necessary from the *Optional Routines* drop down menu.



Color Settings Setup

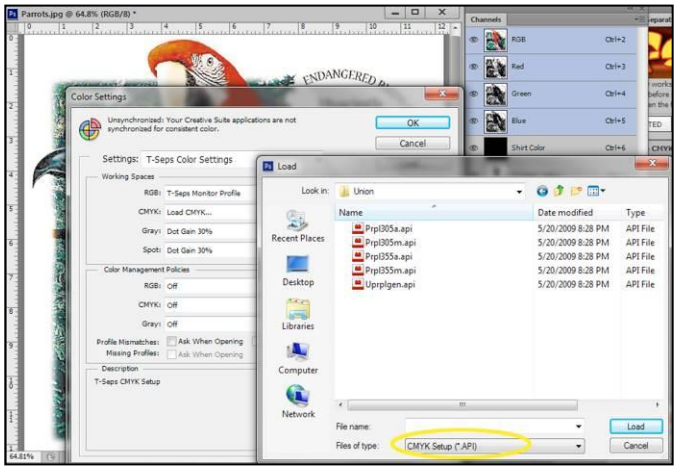
In For the best results make sure you have loaded the *T-Seps Color Settings* file in the *Color Settings* menu – see the *Installation* section of this manual.

Custom Ink Values

For a better reproduction of the original, install the ink values for the brand of ink you are using. Some ink companies provide this information as Photoshop files that you can simply load. If you have ever printed CMYK jobs then you know that you can put four brands of ink side-by-side and each one will be a little different in color. One company's magenta might be more purple while another might be more red. They should all be the same, but they aren't.

We have provided ink values for a few companies in a folder called *Inks* in the *TSeps40* folder. To load these values into the *Color Settings/CMYK* window go to *Edit/Color Settings* and drop down the *CMYK* window and scroll to the top and click on *Load CMYK.*

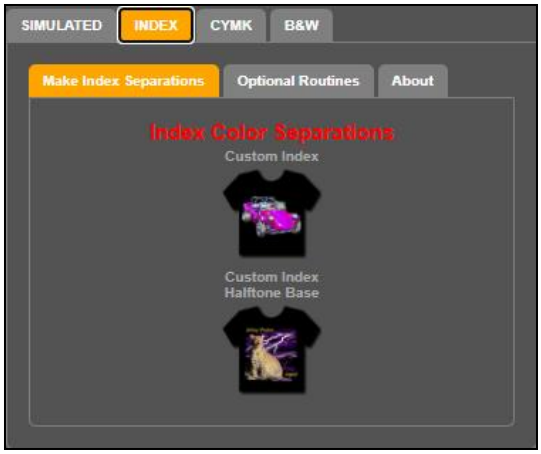
<u>IMPORTANT NOTE:</u> Change the *Files of Type* at the bottom of this window to search for an API file. The default is ICM and this NOT the file format provided by T-Seps.



If you choose Union Ink you will see that they have provided five different files. The file name refers to mesh count and manual or automatic printing. Not all companies provide the files this way and some ink companies do not have a clue that a file like this would help your prints be more accurate.

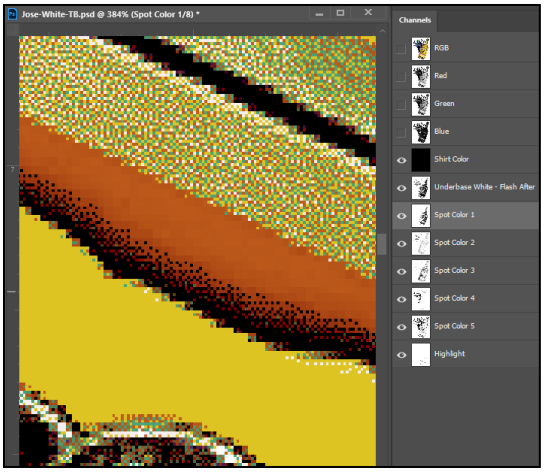
Section 9
Index Color Separations

What is Index Color?



Index Color is a term that generally means to reduce the number of colors in the color panel. Photoshop has an *Index Color* routine that has been used for years in internet web graphics to make images have a smaller file size with a limited color palette. The process was adapted to T-Shirt separations a number of years ago.

When indexing, Photoshop is told what colors to use to index and then tries to make the other non-index colors from those chosen. Generally a color palette or color table is made up of the dominant colors in the image. *Index Color* separations are made up of small random pixels called a diffusion dither (stochastic). Unlike halftone dots that have different dot sizes, all of the pixels in an *Index Color* separation are the same size. Because of this, *Index Color* images are very easy to print. You are not printing a dot on top of a dot, but rather square dots next to square dots. This is why you do not need to set the angles and line counts for *Index Color* channels.



Index Color prints are also very forgiving. The prints can be done with all-purpose inks on light and dark shirts (if underbased properly), and all the prints look the same. Other than a flash after the *Underbase* (if on dark shirts), *Index Color* images can be printed wet-on-wet. This technique actually helps blend the colors and gives very smooth gradations. T-Seps did not invent *Index Color*. Photoshop does the indexing. T-Seps simplifies the procedure and automates the task of converting an index image into individual channels that can then be printed out.

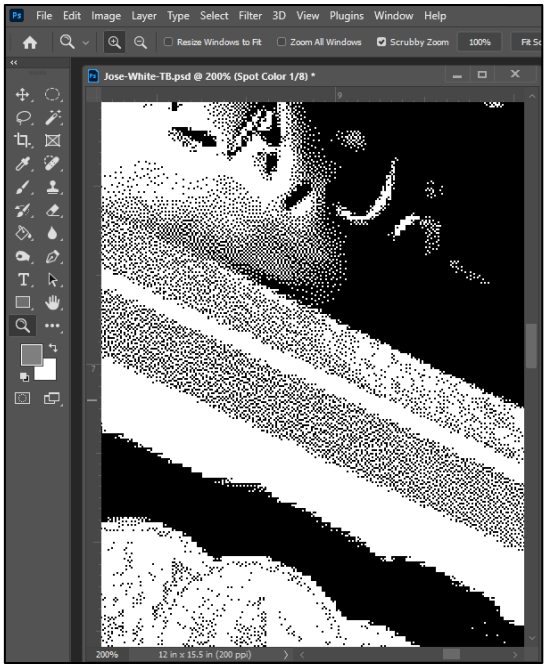


Image Resolution

The image resolution is much more critical for *Index Color*. Since there is no halftone dot, the size of the pixel is determined by the resolution of the image. A 200 DPI image has a very small pixel that is equivalent to a 10% 65 LPI halftone dot. A 60 DPI image has a very large pixel and if indexed, will give a hand stippled look to the print. For general work, scan the image at 150 to 175 DPI - at the final print size. For high-end work, go to 200 or 225 DPI at the final print size. Try to keep from sampling up. The *Index Color* routine has a hard time knowing what to do with unwanted shadow areas around the image. It is also helpful to have your original index

image higher contrast and use the hue/saturation menu to increase the saturation slightly. Try to make the black areas dead black.

Custom Index Colors

T-Seps will let you pick your own colors for jobs that are more critical. When in doubt you should run this routine for Index Colors. This is actually a much more accurate method if you are trying to match the original artwork. This routine builds an *Underbase* and *Highlight* white and then lets you pick a *Custom Color Table*. You can pick as many colors as you wish. When you are done selecting the colors the program automatically makes the channels, assigns the correct color, and puts them in the correct print sequence.

IMPORTANT NOTE: It is VERY important to follow the on-screen prompts closely during this routine.

The Problem with Index Color Seps

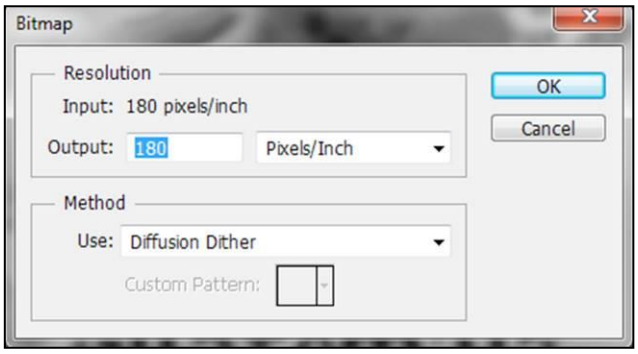
The problem with index color is that when you are done running a routine you no longer have any control over the density (lightness or darkness) of any of the channels. They are now fixed as small square dots. You are pretty much done. Photoshop tools work on grayscale images and these channels are no longer grayscale. You can use the erase tool. About all you can do is change the ink color for the channel preview or change the ink color or color sequence on the printing press to change the look.

This is not normally a problem for the colors, BUT sometimes you want to apply a *Tone Curve* to the Underbase channel to boost it. With that in mind, there are TWO different Index Color routines. One routine makes all channels small square dots. The other routine makes the color channels square dots but the **Underbase** and **Highlight** channels grayscale (like Simulated Process Color). This means you can apply a tone curve or use other Photoshop tools to adjust the Underbase or Highlight channels. This is a GREAT feature and one you should use.

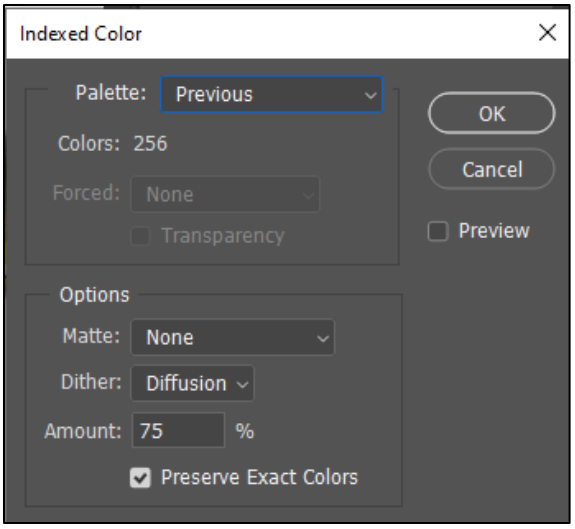
IMPORTANT NOTE: Do not forget that when using the *Index Color – Halftone Base* routine, that you still need to set the angle and line counts for these white channels before you print them out.

Running Custom Index Separations

If running the Index Base routine, you will be asked to verify the input and output resolution. Just make sure the output resolution is set the same as the input.



When you get to *the Indexed Color* window make sure *Preview* is unchecked and that this window is moved away from your image so you can see the image. Set the *Amount* to 75% for the best accuracy and check *Preserve Exact Colors* if there are a lot of critical colors.

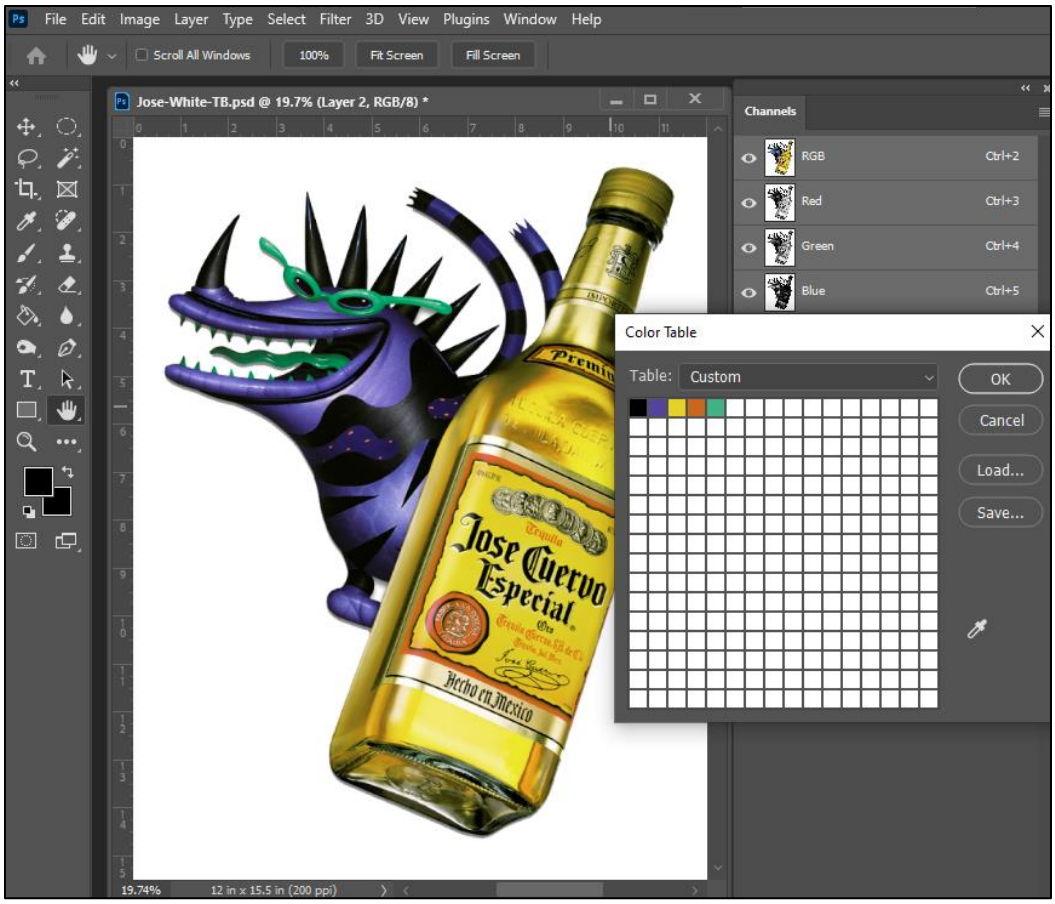


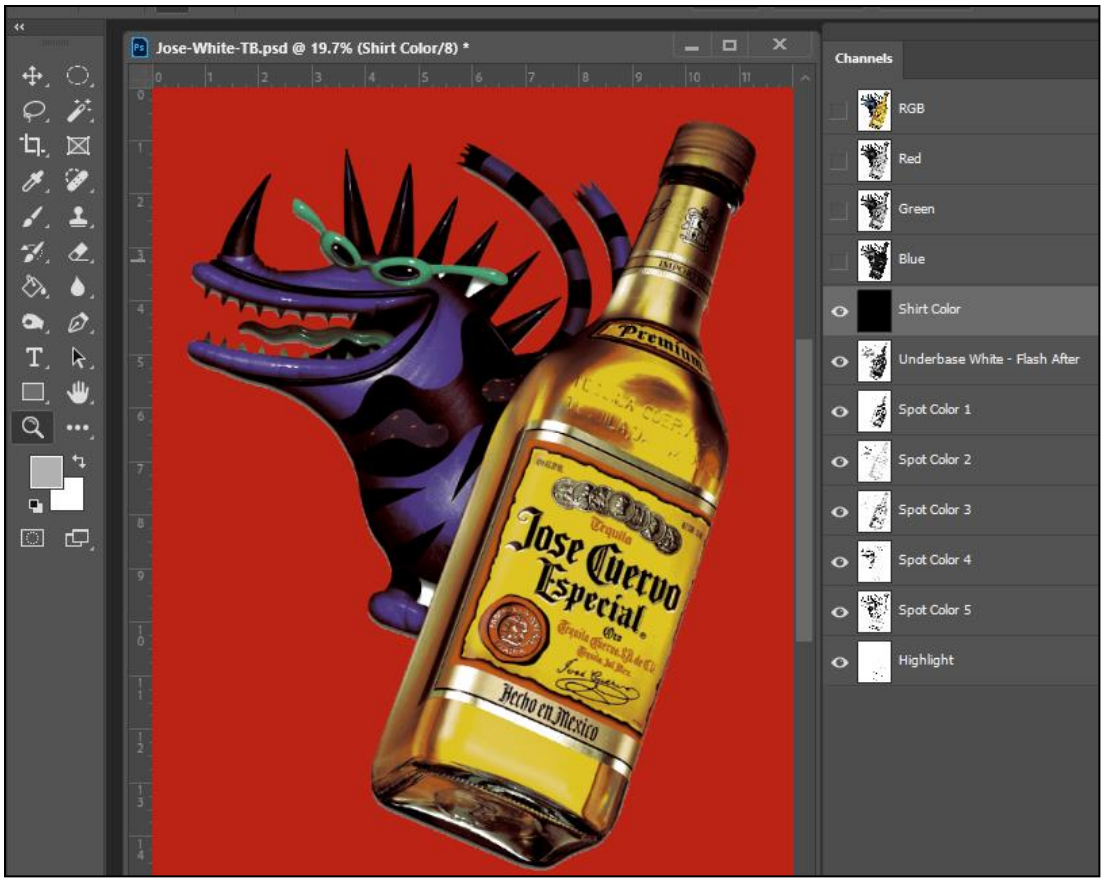
Drop down the *Palette* window and choose *Custom*. If you have done index jobs before then this window may already have colors in it. These colors have NOTHING to do with your current job. They are from the last job. You need to make this Color Table all white. Simply click and drag over all of the squares. When *Color Picker* comes up, select white (255 levels of R,G,B) by dragging the cursor off the upper left corner. Say OK to this screen and when asked again say OK a second time. You now have a blank palette.

Picking Colors

You need to next click on the first upper left white square and use the eye dropper to select a key color from the image. Do this for all key colors including black but don't pick white. T-Seps already has made the white underbase and highlight.

When you are done picking colors say OK to this window and the *Indexed Color* window (the more colors the better and don't forget the key colors are the colors of red, yellow, blue and black).





T-Seps builds individual channels for each color, and it has already created the underbase and highlight white. **It is very important to read the menus and follow them exactly with this routine.**

Previewing and Printing Index Color

Index Separations can be previewed, and channels moved around to see what color sequence works best. Remember, even if the image is only going on a black shirt you MUST make black one of your colors. You will just not print this plate. Also, it is much harder to eliminate index channels because there will be a hole where the color is missing from. This is not the same as in *Simulated Process Color* where you can delete certain minor colors. Photoshop tends to preview indexed images very grainy until you zoom in to see what the image looks like close-up.

Once indexed you can also convert the image back to RGB mode to improve the preview and it will have no effect on the individual channels. The individual channels will preview correctly when the Photoshop “eye” is placed next to each channel image. Another area of concern is that once the image is indexed it is no longer in *Grayscale* mode. You cannot apply curves, sharpen, etc. (Unless it is the *Index Color – Halftone*

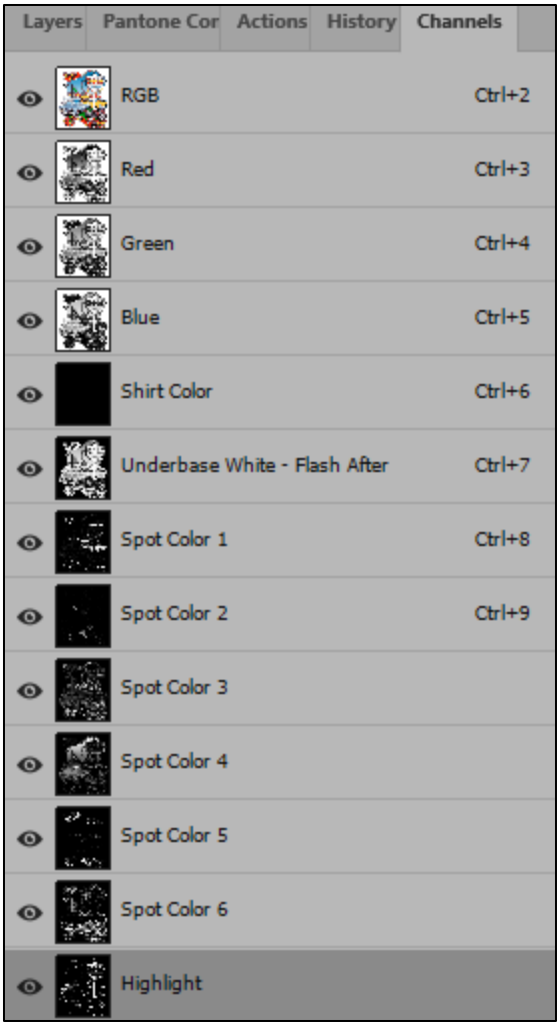
Base routine – then you can adjust the *Underbase* and *Highlight* channels. You can still use the eraser to remove random dots and clean up images on all channels.)

When the *Index Color* routine is finished, each color that you chose during the routine will show up named *Spot Color 1, Spot Color 2*, etc. To change each channel to a specific Pantone color, first double click the *Channel Thumbnail*, click on the *Spot Channel Color Swatch* and then follow the directions about how to use Pantone Direct if you have Photoshop 24.0 or higher.

Photoshop Error

Photoshop has an error and every now and then it will display the final Index separations as a negative for the colors. This error is random, and it also happens for the *Simulated Process Color Custom Color* routine.

To “fix” the separations simply select each “negative” channel and *Invert* it (*Image/Adjustments/Invert*).

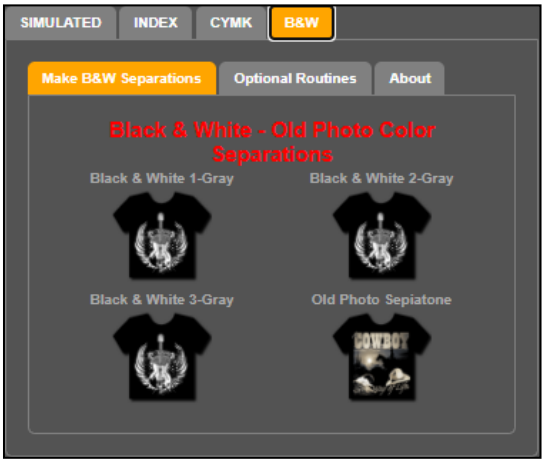


Section 10

Black & White & Sepiatone Separations

About Black & White and Sepiatone Effects

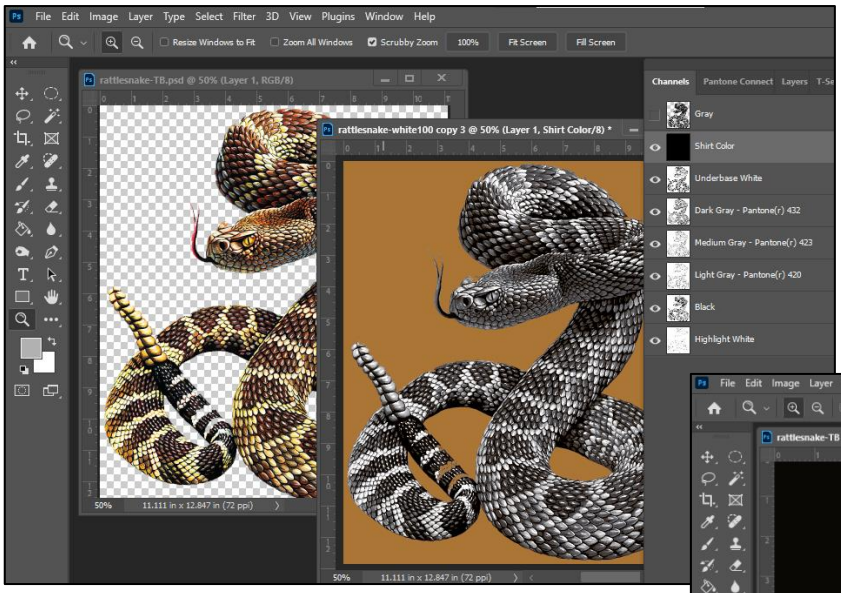
These routines are almost like a special effect. They convert a full-color image into either a high-quality black and white image, or they give the image an old photo sepiatone tint.

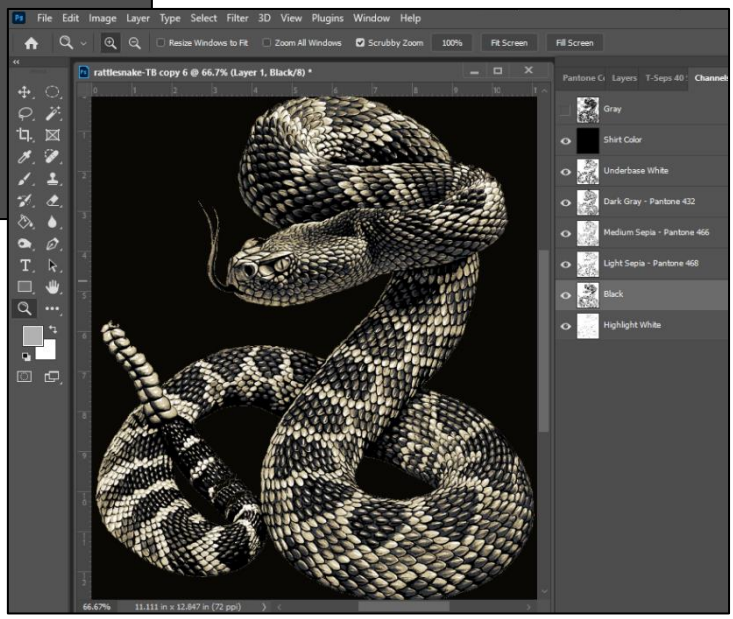


The routines are very straight forward. There are actually three different Black and White routines. Each one creates the underbase, highlight white and black, and they make an additional 1, 2, or 3 grays to help the image print richer and use less halftones of black to make the gray.

There is also a vintage/old photo sepiatone routine that creates a nice effect on a graphic.

If the final seps have the channels looking like negatives then this is a Photoshop random bug. Simply *Invert* the channels (*Image/Adjustments/Invert*).





Section 11
Special Effects

About Image Graphic Effects

In order to make an image more appealing on a garment, T-Seps has a number of special *Edge Effects* that give designs interesting and very graphical edge treatments. These effects can make a simple rectangular design take on life and graphically jump off the shirt.

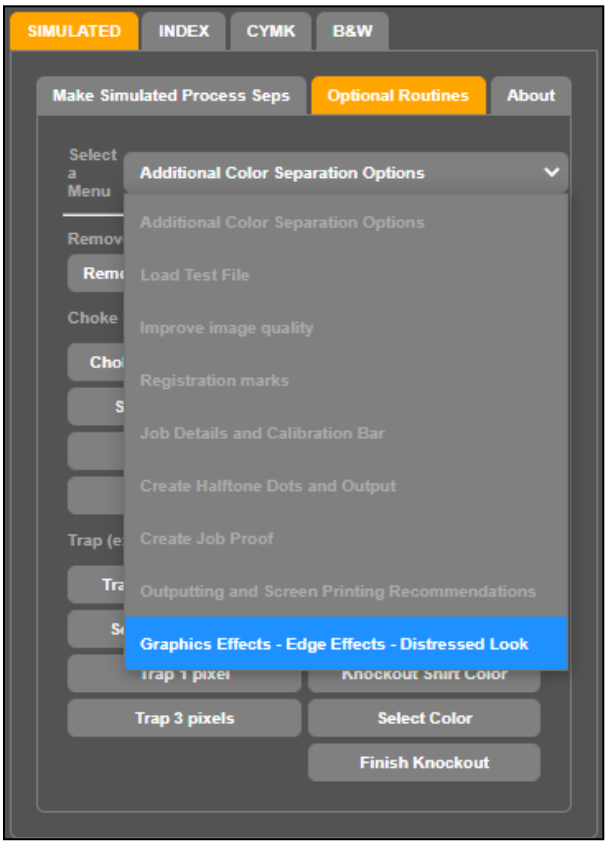
To use these effects, click on the *Optional Routines* and drop down *Select a Menu* menu and select *Graphic Effects – Edge Effects and Distressed Look.*

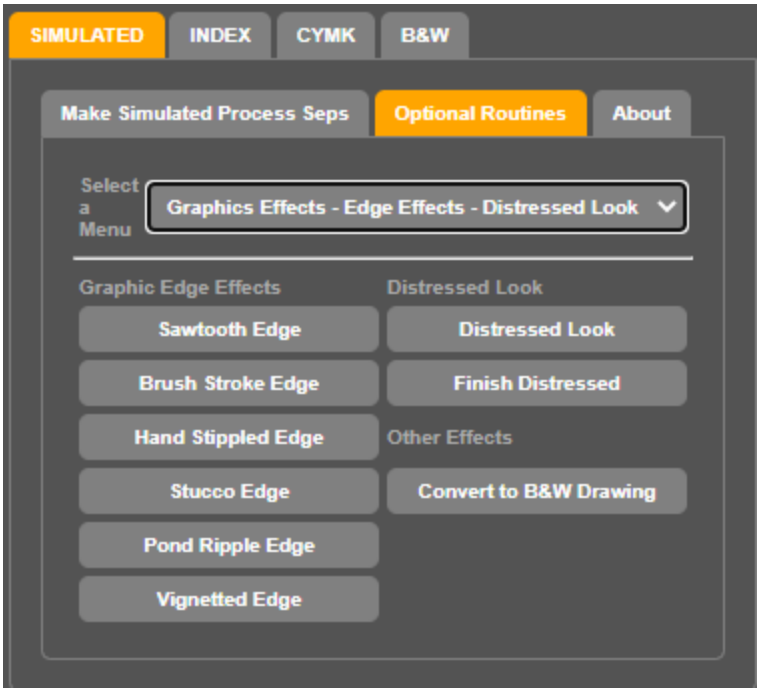
The program also can make the image look like it has been washed and worn. This effect works best on simple text images and is called the *Distressed Look*.

These routines do not harm the original image. The special effect routines make a duplicate and close the original.

Before running any of these effects the image must be the original RGB with no layers AND no additional channels. Run these routines BEFORE you do the separations.

All of these routines have excellent help menus, and you must read and follow them exactly.

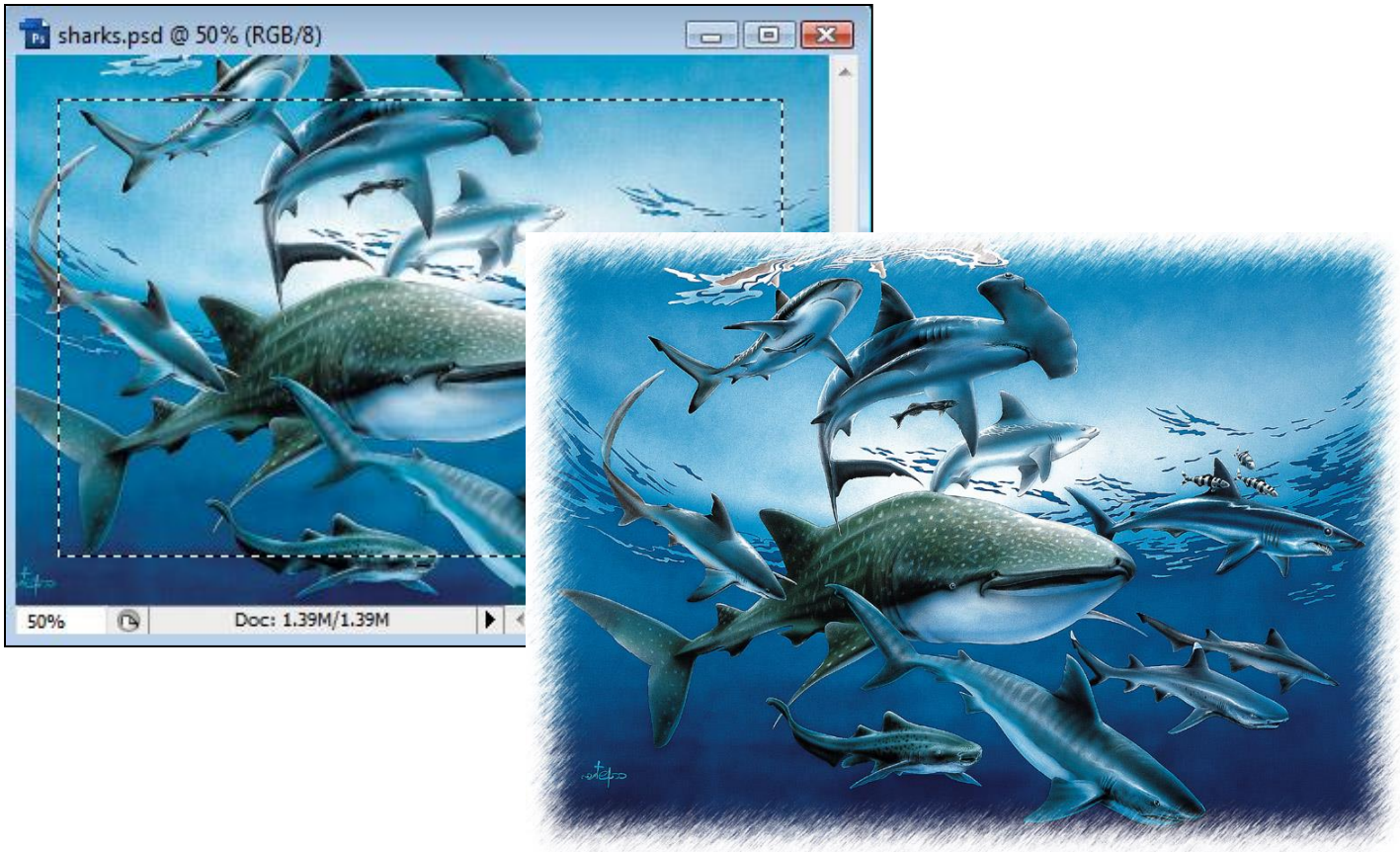




Edge Effects

For Edge Effects you must use the *Marquee Tool* and make a rectangular selection approx. 1/2" from the outside edge of the image all the way around.

For a more interesting edge effect, use the *Lasso Tool* and make a more freeform selection about 1/2” to 1” in from the edge of the image. Make sure to carefully follow all of the on-screen message screens.



Different settings will give different results. The remaining canvas around the images can be black or white and the program allows you to run the routine twice without losing the original marquee selection. This means you can run the same effect on the image twice to give you the two versions you need to run most of the separation routines or prepare the files for the *Distressed Look* routines.

Sawtooth Edge
This effect will give the design a special edge treatment that looks like a sawtooth.

Brush Stroke Edge
This effect will give the design a special edge treatment that looks like brush stroke.

Hand Stippled Edge
This effect will give the design a special edge treatment that looks like it has been hand stippled.

Stucco Edge
This effect will give the design a special edge treatment that looks like a stucco wall.

Pond Ripple Edge
This effect will give the design a special edge treatment that looks like a ripple in a pond.

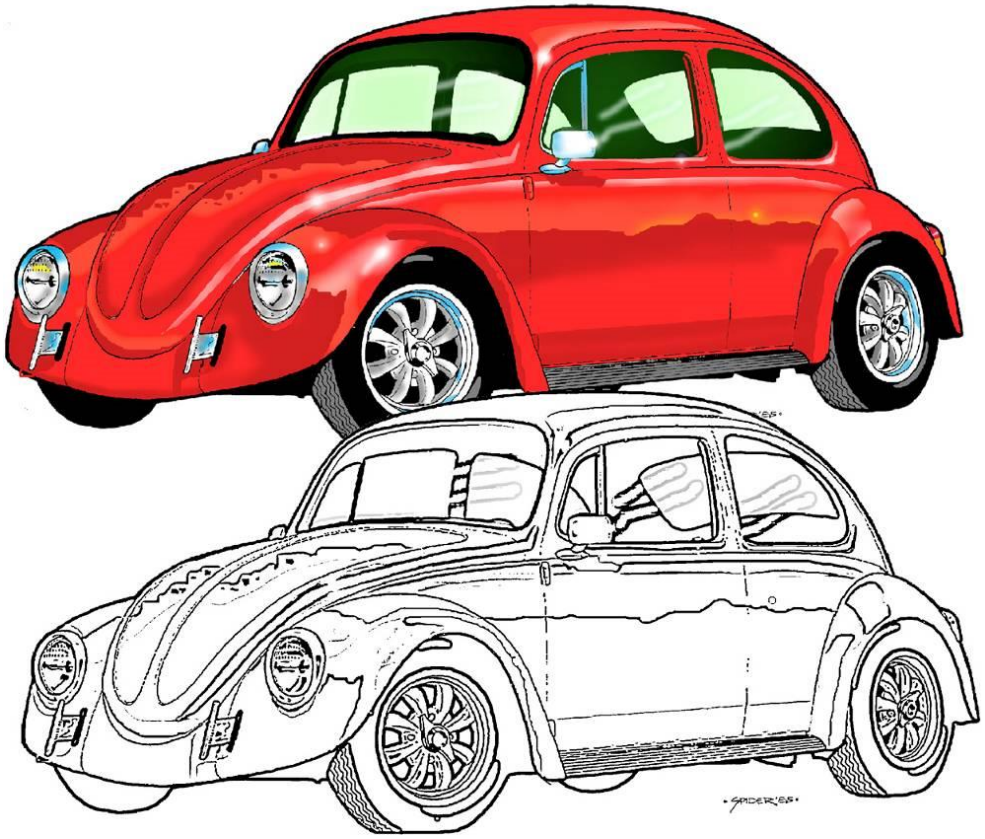
Vignetted Edge Effect
This effect will give the design a soft “vignetted” edge effect.

Distressed Look - Washed and Worn

This is not an edge effect. You do not need to make a marquee selection on your image before running these routines – just make sure to follow the on screen prompts closely. You must run this routine before you create the separations. It gives the entire image a distressed or washed and worn look. You have probably seen this effect before on sports shirts in the mall. If you want the image to have a soft edge AND distressed look, run one of the *Edge Effects* first and then run this routine.

Convert to Black and White Drawing

T-Seps lets you convert a photograph or full-color image to a black and white drawing. Keep in mind that this routine works well on most designs and OK on some. If your image has a lot of dark shadow areas, these will be solid black on the conversion and may not be what you want. For best results use high contrast images or use the Tone Curve and make the image high contrast before running this routine.



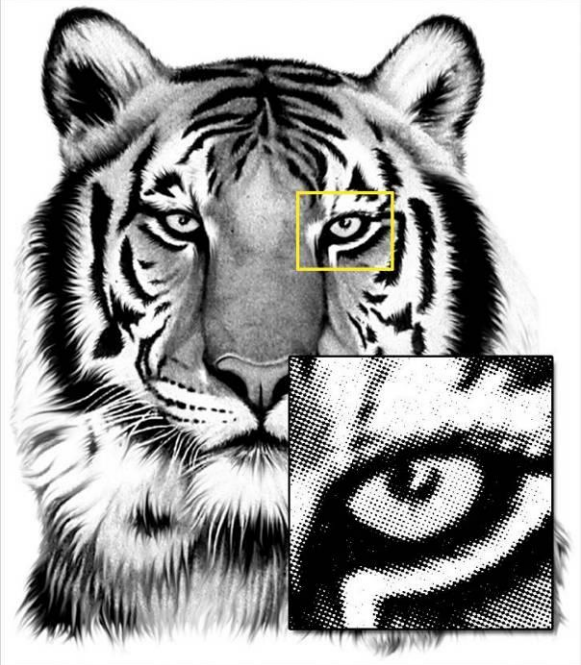
Section 12
Outputting Films and Proofing Files

Printing Directly from Photoshop

T-Seps has been designed for ease of output. Many graphic designers are taught to take Photoshop images into Adobe Illustrator or Corel Draw or other programs for additional graphics and printing. This is great if you are proficient with all those programs and want to spend the extra time exporting and importing individual channels. But the majority of T-Seps users print directly from Photoshop to a software RIP for halftones (for better ink deposit and halftone dots) to an inexpensive inkjet printer. More on this later.

A Word about Halftone Dots

When a file is done being separated in Photoshop the channels either have solid information where you want to print solid ink colors or they have grayscale information for shades or blends of colors. These parts of the image have to be converted into halftone dots in order to burn them on a screen. Photoshop will NOT convert a channel separation to halftone dots. You can split the channels apart and then use the *Image/Mode/Bitmap* routine to convert each individual file into halftones but the final output is not a very clean dot unless you output at 1440dpi.



Getting Halftones from an Inkjet Printer

The most popular printers today for film output are Epson inkjet printers. They print in perfect registration on specially coated inkjet receptive film. The problem is these printers are designed to print in color and they have no idea what a halftone dot is.

There are a number of software products on the market called RIPs (raster image processor) that convert a Photoshop file into halftone dots and also tell an inexpensive inkjet printer to do more passes of the head to lay down more ink. With a software RIP and an inexpensive inkjet printer you are able to print out very high quality films that burn great screens!

What makes a rip different than printing directly to the printer with the Epson driver is that it not only converts the gray level images into halftone dots, but it also controls ink deposit or density. Many inkjet printers simply don't lay down enough ink to have good black density on the film. A RIP solves this problem.

The good news is many of the newer Epson model printers use dye based ink which prints much darker than the standard pigment ink that many inkjet printers use. If you print directly to one of the dye base printers using the Epson driver and use the highest photo quality setting possible, you get very dense black. T-Seps has a built in *Convert to Halftone* routine that works like a RIP when printing to a printer that prints dark black.

Printing Channels

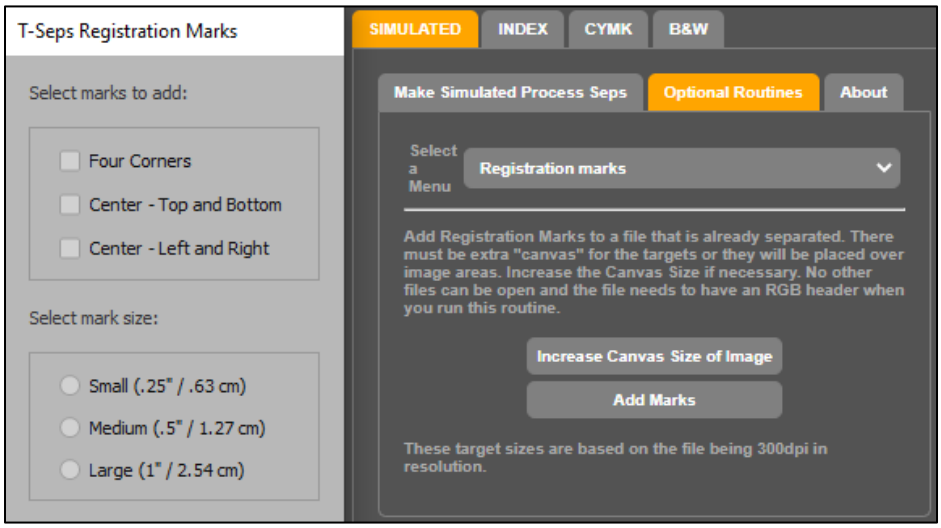
To print directly from Photoshop either to a printer that will print halftones or to a RIP that then prints to an inkjet printer, simply select or put the C*hannel Visibility* “eye” on a channel. You can send all of the channels to your printer at once by simply putting the “eye” next to all the channels you would like to print.

Registration Marks

The standard registration targets/marks in Photoshop are often hard to burn on a screen because they are so small. You can use the Photoshop registration marks by checking that feature in the *Print Settings* window in the *Printing Marks* section. You should check *Labels* here, so any channel information prints on the film.

T-Seps 4.0 has a feature that allows you to place bolder registration marks on the corners of the films. Go to *Optional Routines* and drop down *Registration Marks*. Click on *Add Marks*. Make sure you have enough “canvas” around the actual image. If not, the marks will print in the actual image. There is a button to *Increase Canvas Size of Image*.

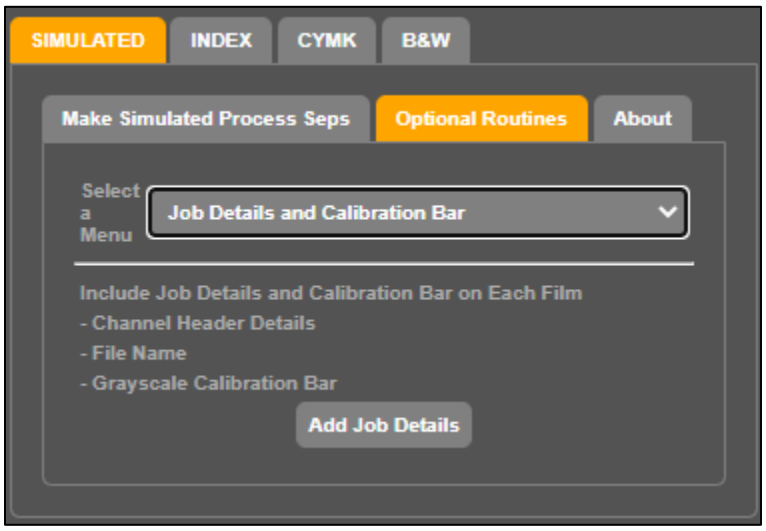
There are three sizes to choose from ¼” (.63cm), ½” (1.27cm) and 1” (2.54cm). You can choose to place registration marks in the four corners, the four centers, or just top and bottom center.

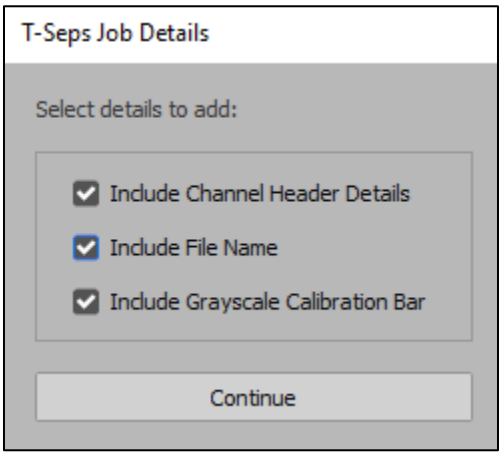


This routine needs to be run on a file that is separated, tweaked, and ready to print out. If you plan to use the *Convert to Halftone* routine then you must run the registration mark routine first.

Adding Channel Header Details to Separations

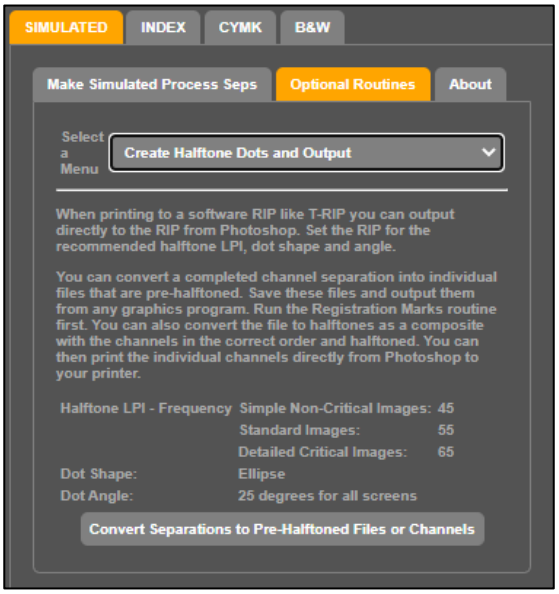
You can include the Channel Header details and the File Name on the individual separations along with an 11 step *Gray Scale* at the bottom of the films to help your screen makers see how well they held halftone dots. This scale starts at 5% and then in 10% increments goes to 100% solid.





Converting File to Halftones

T-Seps has two different routines for converting files to halftone dots. Although the best method of printing halftones is through a software RIP for better ink density – some printer models print very black images on film without a RIP.

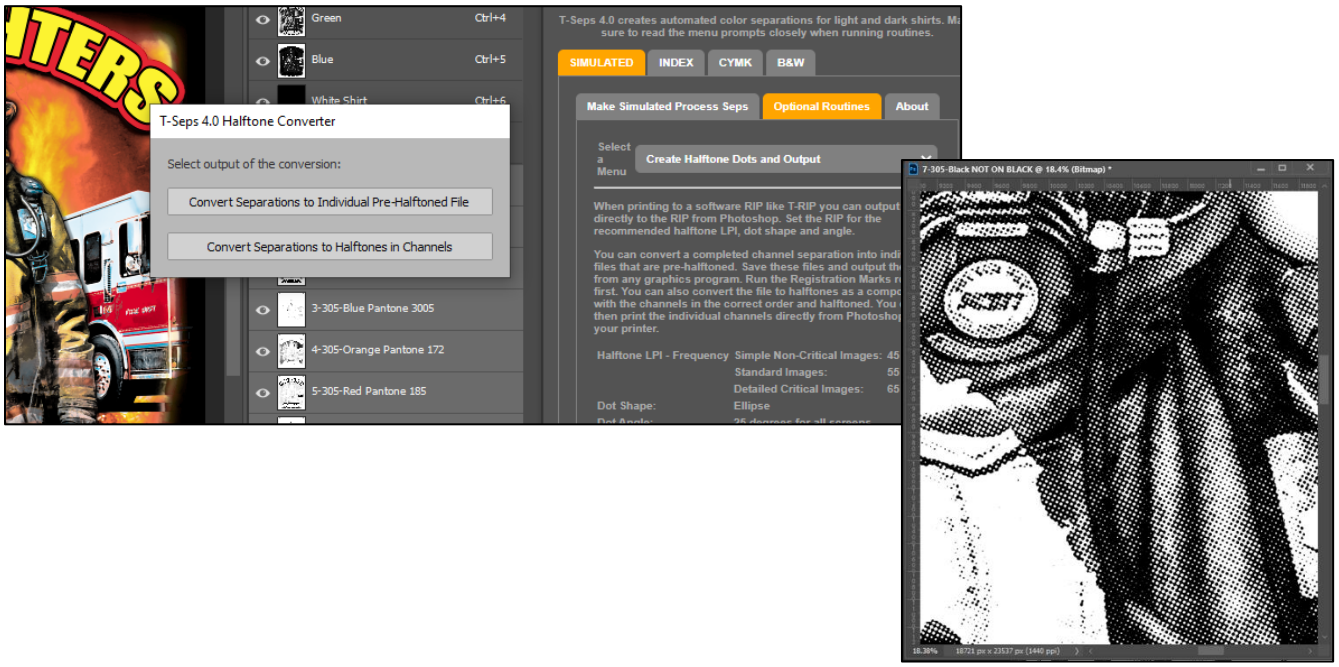


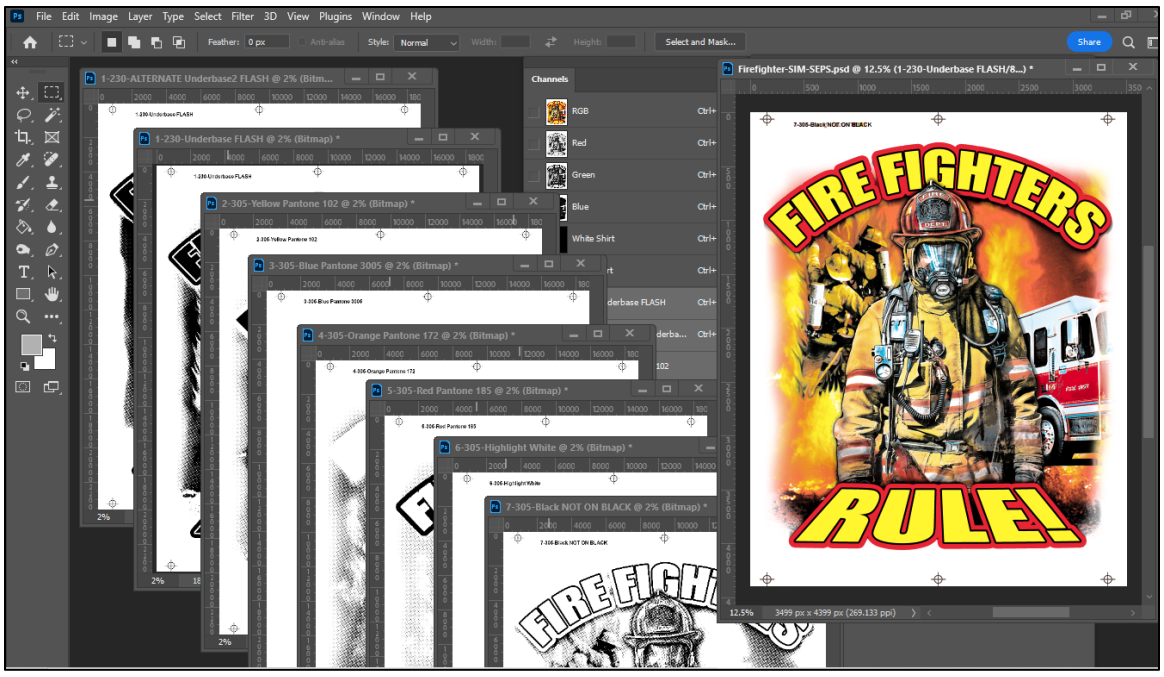
T-Seps will convert each channel into a separate file that is already halftoned and ready to print to any printer. You can choose the frequency of the dot (LPI), the angle and the dot shape.

You can also convert your channel separation into halftone dots and the files are put back into the final seps so you can see exactly how the images and halftones will look when printed.

These routines are under *Optional Routines* in a menu called *Create Halftone Dots and Output*.

With these routines you can print the seps that are pre-halftoned from Adobe Illustrator, Photoshop or Corel Draw without a RIP. These routines take a normal channel separation (don't forget to put registration marks on the file) and makes individual files that are halftoned.

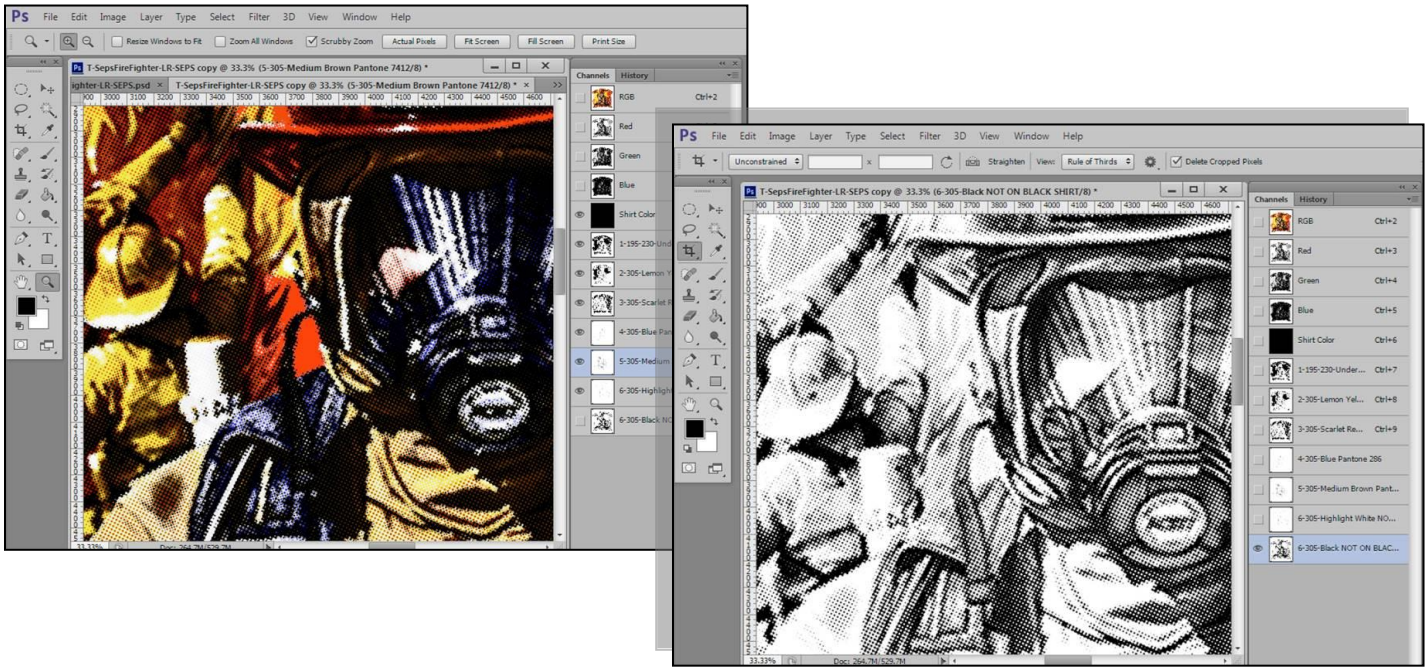




Halftone Converter Routine in Channels

In order to let you create separations that are still a composite (all the channels in place) that are halftoned and ready to output, T-Seps has a routine called *Convert Separations to Halftones in Channels*. This routine makes a very large file because in order to have sharp edges and clean halftones the image needs to be upsampled to 720 dpi or higher. If you find Photoshop is sluggish after running this routine then close it down and re-start it to clear out the large temp files.

This routine is very informative! You can see each channel as halftones and each channel still has the color and the solidity/opacity applied to it. When you put the “eye” on each channel you see how it will look when printed! In fact, you run this routine and then use the *Create Job Proof* routine and you will end up with an RGB file that is of the actual seps as they will look on a shirt.



Creating a Job Proof

Simple RGB Seps Proof

T-Seps makes it very easy to create a proof of the job to show the customer. The simplest proof is where the individual channels – including the shirt color – are merged together to make a new RGB file that is of the actual separations. This file can then simply be printed to an inkjet printer.

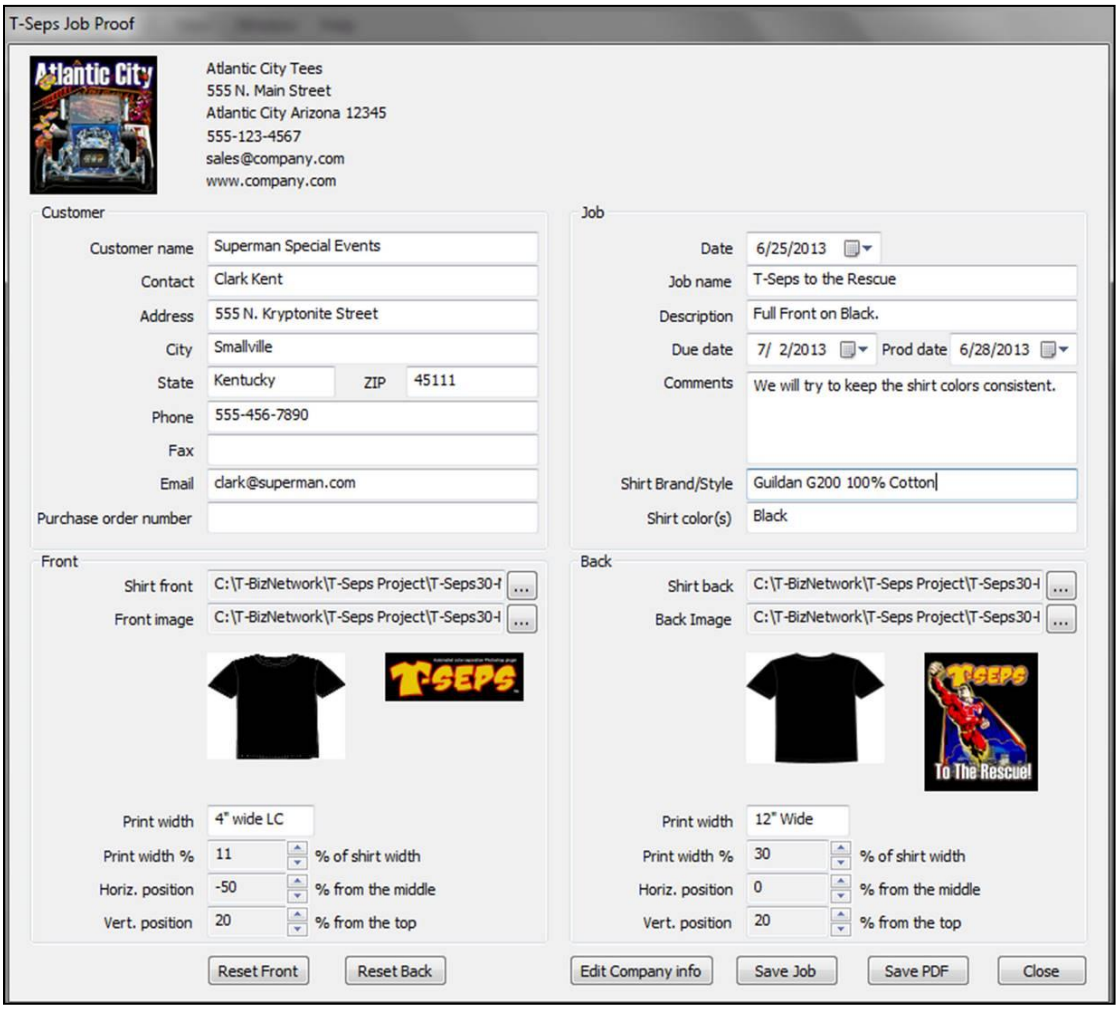
Better yet, create a job proof of a file that has had the channels converted to halftone dots as a composite set of channels. That way the printed proof will be in halftones and look closer to the final image.

To do this go to the *Optional Routines* menu and select *Create Job Proof*. Click on *Merge All Channels to Make Composite Seps Proof*.

Create a PDF Detailed Job Proof

This routine will save you a lot of time. It allows you to create a detailed PDF of the job to show the customer and send to production. Click on *Create PDF Job Proof Sheet* and you will be shown a window where you can fill out all the detailed job information.

If you click on *Edit Company Info* you can customize this with your logo and company details.



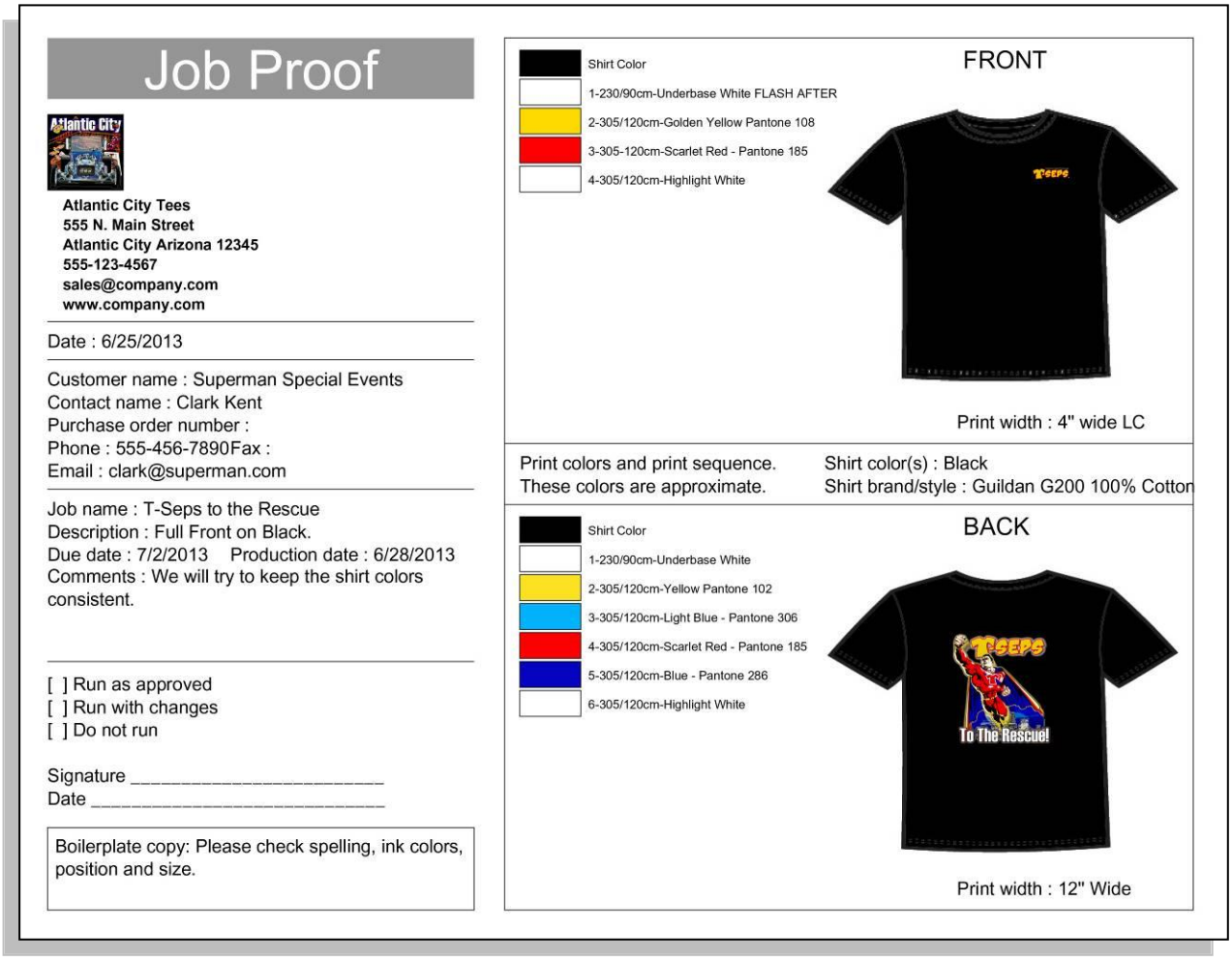
All you need to run this routine is a channel separation of the image. If you don't want registration targets, job name and other items you have placed around the image then save a version without these. The "Shirt Color" channel must still say ***Shirt Color*** and it has to have a color assigned to it.

To create a *Job Proof*, fill out the form with all the pertinent information. T-Seps comes supplied with two basic T-Shirt images for the front and back of a shirt. These images are PNG files, and they are colored in from the *Shirt Color* information in your channels. You can supply your own shirt (or other item) graphic files, but they must have a transparent background and be in PNG format.

<u>IMPORTANT POINT:</u> The critical point in running this routine is that you MUST load the *Shirt Front* or *Shirt Back* before you load the *Front Image* or *Back Image* (the channel separations). Otherwise, the shirt graphics will be white.

To use the included shirt graphics, when you click on *Shirt Front* or *Shirt Back* you will get a *Browse* window to browse your computer. The stock shirt graphics are in a folder called *Job Proof Graphics* in the *TSeps40* folder on your computer.

When you are done simply click on *Save Job* – for future editing or use and then click on *Save PDF*. T-Seps will create a standard PDF file that has all the details along with the channel header information showing the colors, print order, shirt color, etc. You can print this out or email it to the customer for approval. This document can also go with the job work order to production.



Section 13

Dark Shirt Screen Printing Techniques

Quick Tips for Successful High-End Dark Shirt Printing
Printing *Simulated Process Color* and *Index Color* on dark shirts can be very rewarding and also very frustrating. If you have never done this type of printing you might be shocked at the high mesh counts and type of ink used. If you normally print spot color and heavy athletic printing this will be MUCH DIFFERENT. In order to have great results with T-Seps you may need to change your thinking about how you print and make screens. It is important to try to follow these guidelines.

1. All screens should be properly tensioned. At best, use retensionables that are at 30 Newtons or use rigid aluminum screen frames with well tensioned fabric. If you have wood frames, use the tightest ones you have. Yes, these images will work with wood, but you will lose some detail and not have as good an *Underbase*.

2. Use medium-hard squeegees that are sharp. Triple durometers are better (70/90/70).

3. The *Underbase* white plastisol should be designed as an *Underbase* or if not, should at least give a smooth deposit of ink. Some of the low-bleed whites tend to bubble slightly when heated and do not make a good *Underbase*.

4. The *Underbase* should be printed through 180 to 230 (70-90cm) meshes. Try to do one good stroke. If necessary a second stroke may help coverage. Try to hold the fine detail in the image. You ARE NOT really looking for the white to jump off the shirt. This is the job of the *Highlight* white! Flash cure after the *Underbase*. This is the most critical print.

5. The *Highlight* white can be the same as the *Underbase* white, but IDEALLY should be a standard mixing white (semi-opaque). This will let it blend better when laid on top of other colors. Print the *Highlight* white through a 180 to 230 (70-90cm) mesh and keep the stroke to one firm pass. The *Highlight* white is printed last in the sequence.

6. The top colors (other than *Highlight*) should be all-purpose plastisol. They should be smooth and creamy and printed through 280 - 355 (110-140cm) mesh with one good stroke, wet-on-wet. Again, do not kill these prints. A fast stroke is better to clean off the screen and hold the halftone dots. DO NOT PANIC until the last color is printed. Often, it is the *Highlight* that brings it all together. It brightens areas and lightens other colors.

7. If a design does not look like the original art, modify an ink color and try different color sequences. This is normal when printing on dark shirts. It generally takes more than one shirt for an image to settle in and print correctly. There are many variables that affect the final print, from screen tension to quality of the printing press, and technique of the printer or machine. Adjustments at the screen press are commonly performed by high-end printers who have often spent thousands of dollars on separations. T-Seps takes into account the crushing of inks wet-on-wet.

8. Print on a good shirt. DO NOT use a test square - other than for lining up the screens. The print needs to have the absorbency of the shirt AND the tighter the knit the better. 100% cotton is obviously better than a 50/50 Cotton/Polyester blend because of the dye migration from the shirt.

9. For stencil systems, we recommend a dual-cure or pure photopolymer direct emulsion. Use thin coats and try to hold all the halftone dots. It may mean adjusting exposure times and doing a test exposure. Use dyed mesh in order to hold better halftone dots. Also, denser, crisper film positives will obviously have a positive effect on variance in exposure times.

To fine tune your screen making go to www.T-Seps.com/screen-printing-tips/. There is a Halftone Test File you can download, print to your film output device, burn on high mesh screens and see if you can hold down to a 5% dot. It might mean a drastic reduction in exposure time but once you get the times down your prints will look great if you hold all the small dots.

Section 14
Important Terms

The Most Misunderstood Computer and Art Terms – All About Halftones, DPI, PPI, LPI, SPI

Quick Screen Printing Glossary:

Halftone
A series of large and small dots that represent image areas of a continuous tone image. Continuous tone artwork can be converted into printable halftone dots using a process camera or by scanning into a computer and outputting onto film or paper as a series of dots. Even the photos in this manual are printed as a series of halftone dots. They are just smaller than we use in garment printing.

LPI - Lines-per-inch
This actually refers to the number of dots-per-inch in a halftone but the term is LPI and NOT DPI. You can see where LPI and DPI can get confused. This term is also known as the frequency in computer graphics (frequency of lines-per-inch). The standard LPI of a screen printable design is 35 LPI to 45 LPI for cartoon type work and from 55 LPI for manual process prints to 65 LPI for automatic process prints. The higher the number the smaller the dot and the harder it is to put on a screen. The LPI's are higher for automatic presses because the mechanized squeegee pulling systems can pull the squeegee harder and more consistently than the human hand, enabling the printer to use higher screen mesh counts and therefore higher LPI's.

Percentage
The amount of coverage in a halftone dot is called *Percentage* or *Tint*. A 10% dot is much smaller than an 80% dot - but if the LPI was at 45, there would still be 45 halftone dots per inch no matter what the percentage. When screen printed, a dot grows in size. This is called dot gain and it can be as much as 30% when printing on an automatic press and 40% when using a manual. For this reason, you should try not to apply any tints in designs above 70% (they will just grow and be a solid). It is also important to take into account dot gain when using tints. Always use a smaller tint percentage than you think because in most drawing programs you cannot specify the dot gain (you can in Photoshop).

Shape
Dots are also used in various shapes that range from diamonds, to squares, circles and ellipses. An elliptical dot is the best to use no matter what program you are printing from because it tends to chain together and is easier to burn on a screen and the dot gain will not be as noticeable in the mid-tone range.

Angle
The angle of the dot is the angle at which the dots chain together. The problem with most computer graphics programs is that the angles of the halftones are generally great for offset printing but not good for screening. The recommended angle for *Simulated Process Color* and even *CMYK* printing is for all color channels set for 25 degrees.

Moiré Pattern
A moiré is an interference of two patterns. It generally has a checkerboard pattern to it. If you have ever looked through a chain link fence and it momentarily looked closer than it actually was, you could say that the angle difference between your two eyes was causing moiré. You get moiré patterns when using patterns on patterns - as you do when you put halftone dots on screen mesh and/or halftone dots on screen mesh on a shirt pattern. Moiré patterns can be reduced or even eliminated by using a different angles for each plate and using a higher mesh count in relation to the LPI of the halftone. The default CMYK angles in most graphic programs are just fine for things such offset printing though we have found that our recommended angles are best for garments. The general rule of thumb has been that to reduce moiré patterns use a mesh that is 4 to 5 times the LPI. For example, when using a 55 LPI halftone frequency, a mesh count of 230 would be a good start. There have been lengthy articles written about moiré.

DPI - Dots-per-inch
Generally used to describe printer resolution and often used to describe scanner resolution. Obviously the higher the number the better the resolution of the image. By doubling the number the resolution actually becomes four times larger. In the old days (a few years ago) 300 dpi was normal for a laser printer. Unfortunately, at 300 dpi, the edges of the image were still a little ragged and at 300 DPI a halftone will only generate around 16 gray levels. A 600 dpi halftone will give you over 300 gray levels. DPI is also used as the designation for a scan. Like printers, the higher the number, the higher the resolution. Most scanners default to 300 dpi when they should really be set much higher when scanning line art.

PPI - Pixels-per-inch
This is actually what a scanners resolution should be referred to. PPI is the same as DPI and you see the terms used interchangeably.

SPI - Samples-per-inch
This is the same as PPI or DPI and again is really how we should talk about a scanner’s resolution. You see SPI used for some older scanners. It is the same as PPI and DPI. This may be much more information than you need but you must get the vernacular down. You know……. "I scanned the job at 600 DPI and printed it on a 250 mesh with a 45 LPI ellipse at 20 degrees and didn’t get any moiré."

Section 15
Troubleshooting and Technical Support

Please read this section before calling for technical support.

T-Seps 4.0 is a GREAT program that is an improved version of FastFilms and T-Seps 2.0, 3.0 and 3.5 – which are being used by thousands of printers in more than 70 countries. It is very "clean" and should run totally without errors. If errors are encountered it generally means that the program was not installed properly, being run properly or the files are not set up correctly. If you continue running a routine after getting an error, the separations will not be correct. If you encounter problems please read all of the following section before emailing for technical support. For the best success with the program, please take time to view some of the many training videos at www.T-Seps.com. Even videos created in earlier versions of T-Seps are very applicable to T-Seps 4.0.

Technical Support and Troubleshooting

If you have a problem with the program, please re-read the manual and make sure you are following the on-screen prompts exactly.

The most current information and technical support is at our Troubleshooting web page. It is more current than this manual and it has workarounds for things Adobe likes to break.

Please check the Troubleshooting webpage before you email or call for support. Technical support is offered free.

Email: support@tbiznetwork.com
Phone: Toll Free in the USA 1/888-801-1561
Main Phone 480-212-1078
Internet: www.T-Seps.com Click on *Support*

Support hours are 8:30am to 4:30pm M-F Mountain Standard Time USA. Note that Arizona does not change time during daylight savings so during the summer months Arizona is the same time as Pacific time.

Please allow sufficient time for a support member to respond. Response is generally within a few hours but can take up to 24 hours. If you have an immediate job deadline please make sure to note in the Subject Line of your email “Urgent.”

If you have a problem with the program please re-read the manual to make sure you are following the on-screen prompts exactly before you email support. There are excellent Training Videos online at www.T-Seps.com. Basic technical support is offered to T-Seps trial users.

In many cases better support can be given if the file is available for inspection. If you are having problems with a file or need assistance with what routine to use you can send a file via one of the free online services like WeTransfer.com to scott@tbiznetwork.com.

If necessary we can use a remote viewing program to log onto your computer and see what the issue is. Contact Support for details.

ABOUT THE DEVELOPER

Scott Fresener

Director of T-Biz Network International, LLC
Former CEO of U.S. Screen Print & Inkjet Technology
Co-Founder of The U.S. Screen Printing Institute

Scott Fresener has been in the screen printing industry since 1970, when he and his wife Pat opened a small garment printing business out of their garage. This business grew to be a large company with automatic equipment and gave the Freseners experience in both technical areas and business management. The lack of standardization and training programs in the industry prompted the Freseners to write their books and begin offering training classes.

Scott and Pat are the authors of *How To Print T-Shirts For Fun and Profit!* and *The Encyclopedia of Garment Printing*. In 1979 they co- founded the U.S. Screen Printing Institute and have taught over 14,000 students the business of screen printing on garments. In 1989 and 1992, Scott and the Institute received the coveted *Magnus Award* from the Screen Printing Association International (now called the Specialty Graphic Imaging Association, or SGIA) for outstanding contributions to the industry. Scott has written hundreds of articles for trade magazines and has been a feature speaker and lecturer at industry trade shows and has presented over 500 seminars and workshops around the world.

In 1995, Scott was made a member of prestigious *SGIA Academy of Screen Printing Technology*. In 1996 Scott was awarded the Specialty Graphic Imaging Association's prestigious *Parmele Award*, which is the highest honor you can receive in this industry. This award is given for outstanding lifetime contributions to the industry.

Scott was a member of the Board of Directors of the SGIA from 2004 to 2008. He is also a popular industry consultant and has spent much of his time on the road consulting large and small firms in this country and abroad on screen printing and computer graphics. His specialty is teaching companies how to do very high-end separations for light and dark shirts in house. In the pre-computer days Scott taught the separation process using the original darkroom method with a process camera.

Scott has also produced dozens of video tapes and DVD (no longer being sold) on screen printing and computer graphics including *T-Shirt Graphics with Adobe Photoshop*, *T-Shirt Graphics with Corel Draw, Dark Shirt Printing Made Easy* and *Index Separations for Screen Printers* and he currently has over 200 videos on his *YouTube* channel HERE.

Scott also is a professional color separator and does thousands of separations every year for large and small clients around the world including people who print for Disney, Harley, WalMart and more. Chances are when you buy a hot NASCAR shirt or get a shirt from a Disney theme park – Scott did the separations. And of course Scott uses his own programs to do the separations and then applies his own screen printing knowledge and understanding of the printing process to tweak the separations.

Scott also offers online training classes at www.T-ShirtPrintingMasterClasses.com.

In his spare time Scott has one of the most popular Pink Floyd tribute bands in the country. You can learn more about his band at ShineOnFloyd.com.