T-SEPS™
Automated Color Separations

Version 2.0

REFERENCE MANUAL

Plug-in for Photoshop 6.0 all the way to the latest CS6

Compatible with:
Mac older PowerPC and OS9 to OSX and the latest Mac with Snow Leopard, Lion and Mountain Lion.
Windows/PC including Windows XP, Vista, Windows 7 and Windows 8.
Both versions run in either 32- or 64-bit mode depending on the version of Photoshop you are running.
If you are running Photoshop CS5 or CS6 in 64-bit mode on a Mac you need to run the special 64-bit Mac Installer.

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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 give the separator my years of experience. 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.

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. If you own T-Seps you got a DVD with over 20 videos. If you are just trying the program there are over 25 videos online 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*.

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*Applies to software used in Canada

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Section 1

In a Hurry? T-Seps Quick Reference Guide

Who Is This Section For?

For those of you who wish to get up and running fast and don't want to have to wade through the manual….. this section is for you. If you are experienced with Photoshop and have already done separations in this program or other similar programs – or if you are familiar with "channel" separations in Photoshop, this section will give you the basic steps needed to start doing your first set of separations in just a few minutes! If you are new to Photoshop and color separation it is highly recommended that you go through the entire manual to get familiar with T-Seps.

T-Seps is very easy to use. There is much more of a learning curve to Photoshop or Corel Draw. Those programs do thousands of things. T-Seps does just a few things (very well!) and only has a couple of dozen buttons that are important.

Once you get up and running please take the time to read this entire manual. Even if you are a seasoned pro you will find little tips and tricks that will help you run the program and produce better separations.

1. Installation in Adobe Photoshop

Read and follow all the steps in *Section 4 – Installation and Program Setup*.

2. Open The *Channels Panel* in Photoshop

Go to *Window* and select *Channels* or *Show Channels*. Place it next to the *Actions Panel (these use to be called Palettes)*. T-Seps will separate each color into a separate channel to be printed and you will need to see the channels to make any final adjustments and print them out correctly.

3. Create Two Versions of the Artwork

You will need two versions of the artwork to create the separated channels correctly. If you do not understand this brief explanation, please see *Section 6 – Original Artwork and Photoshop Adjustments* for more detailed information. Some people are initially confused about creating these two files though it is actually quite simple. A "masked" file is one that has black in the background - just exactly as the art would look on a black shirt. An "unmasked" file is the same except with white in the background. These two files must be flattened and have no additional channels or layers and also be in RGB Mode.

IMPORTANT NOTE: All files that are loaded for any T-Seps separation MUST have the following attributes:

A. **In RGB mode. (Check by going to *Image/Mode*)**
B. **Flattened with ONLY a *Background* layer (the easiest way to ensure this is to save the files in .JPG format – Photoshop will automatically flatten the visible layers.)**
C. **Have NO additional channels other than *RGB: Red, Green, Blue***

If these things are not correct then you WILL have errors during the routines.

4. Use the Correct Resolutions
The file resolutions need to be between 250 to 300 DPI, in RGB Mode and with no additional channels or layers. For most of the separation routines, 300 DPI is as high as you will ever need to go for a crisp separation and is the norm in this industry. For any of the *Index* routines, use files that are between 150-225 DPI. The image needs to be already adjusted for proper color balance and sharpness. (See Sections 5 thru 11 for more specific information.) If your file is not the correct resolution you need to "upsample" it by going to *Image/Image Size* and make it the correct physical size and resolution.

5. Close the Work Files Before Running Separations
The work files need to be closed before running any of the T-Seps routines. T-Seps will prompt you to open the files during the routine. The exception is for any of the *Edge Effect* routines - the files should already be open.

6. Run Any of the Main Separation Routines
If you are in doubt about which routine to run when starting out, run the *Simulated 9 Color + 2 Whites* routine. This routine gives you the most control over the separation and will be your "bread and butter" routine. Even if you cannot print all of these channels on your particular press, you can pick and choose the channels that you need and preview them on the screen.

After separation, you may also adjust individual channels and how much ink will be printed through that screen (*Image/Adjustments/Curves*), lighten and darken channels, delete channels that you do not need, combine certain channels together on one screen and much more.

7. Follow the On-screen Help Messages Exactly!
Each routine will have messages throughout the process that will help you to select the correct settings (if any) for that particular type of separation. Once you do the routines a few times, these things will be second nature.

If you get ANY errors that say *"can't find T-Seps"* the program is not installed correctly and no matter how many times you say "OK" to these errors, the final routine will not be correct. Go back and make sure the key .8li files are in the Plug-ins folder in Photohsop.

8. Adjust the Separation
Very Important Tips:
It is not uncommon for the image to NOT match the original exactly when the separation routine is first run. Keep in mind that we are trying to separate an image with thousands of colors into just a handful of colors. Don't get discouraged with your first job. T-Seps is a tool that will get you very close to where you want to be. You will learn after doing a few sets of separations that all it takes to make a good set of separations GREAT is to do minor adjustments if necessary. This is where the training DVD comes into play. You can see exactly how to adjust an image after the routine is run.

The program will automatically use Black as the shirt color as default (Except the *Real Process* routine). You can easily change the shirt color by double-clicking the on the *Shirt Color Channel*. When viewing an image on a black shirt you should take the Photoshop "eye" off of the *Black Channel*, since you would not need to print that color. When you do this, the image will often look a little washed out. THIS IS NORMAL. T-Seps displays the image with *Dot Gain* applied. Even if you have little 1% dots in *Highlight* areas, Photoshop will make them brighter when they print (you probably won't even be able to hold them on a screen). A simple tweak with the *Tone Curve* to the *Underbase* channel will help make it a higher contrast.

The same thing applies to light shirts. The *Black* channel may seem weak. Remember, the color that will get darker more than any other at press is black. The image will print correctly but may not display quite as dark.

Remember that you can also use a *Tone Curve* to any of the color channels as well, allowing more ink through the screen at press. Also remember that T-Seps likes files that are bright to begin with. If the original is dark and muddy, so will be the separation. The important thing is to start with a bright, clean original. This will allow the program to get sufficient color information on each channel, if there are adjustments to be made, the information will be there to work with.

After the image is separated, try to eliminate colors, combine channels and tweak individual color channels. Don't let the number of colors fool you. If you only have a six-color press it is easy to get most designs down to six or eight colors. You can also try to use the *Simulated 5-color + Two Whites* routine (You don't print the *Black* channel on a black shirt and you don't need the two *White* channels on a light shirt).

Some designs separate better if you pick the actual colors to be used (*Custom Index* separations). Other images look better on light shirts if you use the *Real Process* (CMYK) routine and add additional spot colors. You will not have nearly the control over the result though as with *Simulated Process*.

The beauty of T-Seps is that you aren't stuck with just one routine. This is why we have thousands of users (of FastFilms) in over 70 countries doing work for companies such as Disney, Harley, Walmart, Warner Bros., and more, plus thousands of small shops doing award winning work that would not have been possible before FastFilms and now T-Seps. Yes, there may be a slight learning curve to understand how to adjust the separations but the reward will be well worth it. To see samples of the type of work being done with T-Seps, go to www.T-Seps.com.

9. Output the Image

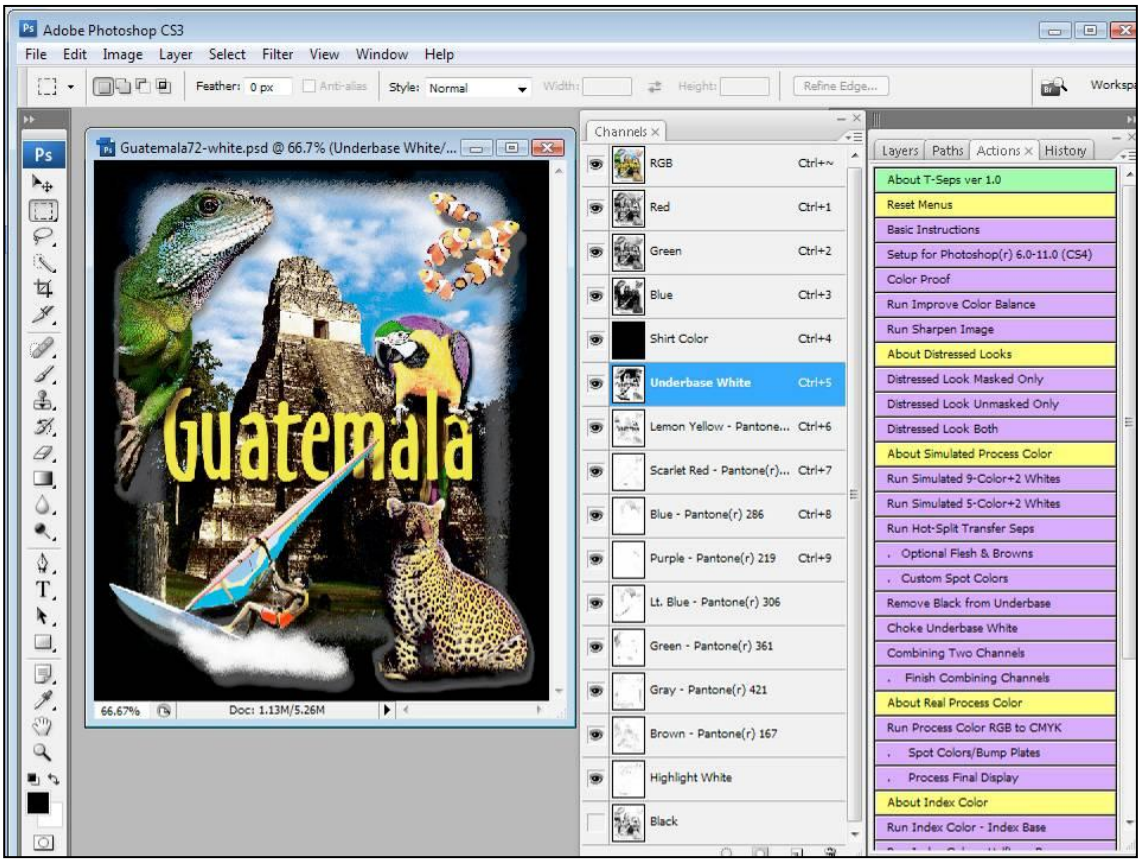
Print out the image to vellum, film, acetate or whatever you normally use. Select the *Outputting Images* button (at the bottom of each separation type section in the *Actions Panel*) to see what the recommended frequency (LPI) and angles are. For true imagesetter quality output, we recommend using special software called a RIP (raster image processor) that tells a "dumb" inkjet printer how much black ink to lay down (a lot), and how to create a halftone dot (inkjet printers do not come with a RIP to create halftone dots.

Plan B for film output: T-Seps has a built in routine that will AUTOMATICALLY convert each separation to a separate file that already has the grayscale information converted to a halftone dot! This process is very close to what you can get from an expensive software RIP. The only difference is that a software RIP will generally have more control over the ink deposit and will give you darker black images on film.

10. Make a Print on a Shirt

Screen print the image using the recommended mesh counts from the *Screening Images* button (at the bottom of each separation type section in the *Actions Panel*). You can use your normal off-the-shelf plastisol for the colors and your favorite high-opacity white for the *Underbase White* and *Highlight White*. For *Real Process* (CMYK) prints, use your favorite brand of process inks.

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 the printer to do automated color separations in a matter of minutes. T-Seps works in the *Actions 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, apply proper levels and curves, take into account garment ink dot gain and ink impurities and many more behind the scene 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. T-Seps does NOT convert images to halftones. This is typically a function of a software RIP that is either built into a graphics large format laser printer or is third party software used with inkjet printers. For more details on a RIP go to www.T-BizNetwork.com and click on T-RIP.

The reason the program works in the *Actions Panel (this use to be called a Panel and is often referred to as a "panel" in the video tutorials)* is that this panel in Photoshop is easily accessible and provides a 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.

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 color sequence and tells you what halftone frequencies and angles to use PLUS 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 or 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*.

Another nice feature is the ability to do basic *Spot Color* separations. While this is normally done in a vector based program, it can be done with T-Seps including trapping and choking colors!

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 2 minutes and saves you hours of art and production time!

Section 3
General Information

T-Seps and Adobe Photoshop Versions
T-Seps is an Adobe Photoshop plug in that runs under the *Actions Panel*. It will run in Photoshop versions 6.0 to 13.0 (CS6) on either Macintosh OS9 or OSX (including older PowerPC and newer Intel base Mac computers) all the way to the newer Mountain Lion OS, or Windows/PC compatible computer running Windows XP, Vista, Windows 7, and Windows 8. It will work in both 32-bit and 64-bit versions of Photoshop. If you are running Photoshop CS5 or CS6 in 64-bit mode on a Mac you need to run the special 64-bit Mac installer. T-Seps 2.0 will not run in Adobe Photoshop's CC version.

About This Manual
This manual is designed to work with version 1.0 and 2.0 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 Reference Guide* section 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 something that is not very sharp. It's TITO….*Trash In, Trash Out*, also 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. The cleaner originals will produce the best separations. Using high quality files should be a priority.

A Word About Photoshop
The *Reference Guide* 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 read the Photoshop manual or purchase the *T-shirt Graphics in Adobe Photoshop* DVD's from the T-Biz Network International at www.T-BizNetwork.com/store/. *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 you do a good scan at a high enough resolution, only minor adjustments may be needed before simply running a T-Seps routine. There are also a number of short Photoshop Tutorial videos at www.T-Seps.com.

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 one of the sample images 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 does NOT create the halftone dots. 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. You can also go to www.T-BizNetwork.com and click on T-RIP to learn more about a RIP.

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-Seps.com Click on *Support*

Support hours are 8:30am to 4:30pm M-F Mountain Standard Time USA. Arizona does not observe daylight savings so between mid-March and mid-October Arizona is on the same time zone as Pacific Standard Time (the same as California).

Please allow sufficient time for a support member to respond. Response is generally 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. 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 e-mail the file to support@tbiznetwork.com. DO NOT EMAIL A FULL SIZE FILE. The file must be low resolution (72 DPI) and saved as a JPG (JPEG) file format. This should make the file size no more than 200 – 500 Kb that is easy to e-mail. For some files the support technician may request a higher resolution file though please wait to see if the technician requests a larger file.

You can also send files via one of the free online services like www.YouSendIt.com. Send files to support@tbiznetwork.com with details about your needs or questions.

Section 4
Installation and Program Setup

You must read and follow these steps for the program to run correctly. If you follow and understand these steps it will eliminate unnecessary support emails. There is also short video called Installation at www.T-Seps.com. Click on *Training Videos*. In fact, all of the information covered in this manual is covered in the over 25 videos online.

T-Seps is very easy to install. The installation will place a number of key files on your hard disk. The next section assumes you have downloaded the Free Trial version of the program and have placed the download file in a download folder of your choice, or that you have a CD with both Mac and Windows versions of the program.

During installation T-Seps will create a new folder on your hard disk called *TSeps*. You may be asked if you want to change the location of this folder. No NOT change this. The T-Seps routines will often look to key files in the TSeps 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 TSeps folder. These include ink company ink values, the most current manual, special ReadMe files, sample files, license files and more.

Installation in Adobe Photoshop

The following section is for both Mac and Windows users. This section assumes you have downloaded the Free Trial version of the program and have placed the download file in a download folder of your choice, or that you have a T-Seps CD. The T-Seps installer will create a new folder on your hard disk called ***TSeps*** or ***TSeps64*** (for the 64-bit Mac version). This will be on your C: drive for Windows, and on the Mac Hard Disk for a 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.

32- and 64-bit Versions

T-Seps uses TWO plug-ins to operate. One is called *TSeps* and one is called *TSepsCustom Index*. On Windows computers there are two versions of each plug-in because older computers are 32-bit and newer computers are 64-bit. On Windows if you are using Photoshop CS4, CS5 or CS6 both 32-bit and 64-bit versions of Photoshop are automatically installed as part of the Photoshop installation routine.

On a Mac, versions prior to CS4 are only 32-bit. On CS5 you can run Photoshop in either 32-bit or 64-bit mode. Photoshop CS6 on a Mac will ONLY run in 64-bit mode.

Why 64-bit? With 32-bit programs you are limited to use only 1.7 gb of RAM on your computer. With the 64-bit version of Photoshop you can access almost as much RAM as you can put on your computer. RAM is the temporary storage area that Photoshop uses when working on files. It is not uncommon with larger files over 200 mb for Photoshop to make temporary work files far over 1 gb. The more available RAM the better.

Windows Computers

Locate the downloaded file called ***TSeps20.exe*** or file on the CD called ***TSeps20-32.exe***. (This file may also be called ***TSeps20Installer.exe***.) 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.

32- and 64-bit Versions

T-Seps uses TWO plug-ins to operate. One is called *TSeps* and one is called *TSepsCustom Index*. On Windows computers there are two versions of each plug-in because older computers are 32-bit and newer computers are 64-bit If you are using Photoshop CS4, CS5 or CS6 both 32-bit and 64-bit versions of Photoshop are automatically installed as part of the Photoshop installation routine.

The plug-ins are named accordingly. The main T-Seps plug-in is called ***TSeps32.8li*** and ***TSeps64.8li***. The Custom Index plug-in is named ***TSepsCustomIndex32.8li*** and ***TSepsCustomIndex64.8li***.

The installation routine should install the appropriate plug-ins in the proper Photoshop *Automate* folder. If it did not, these files can be found at *C:/TSeps/Actions*. You will need to copy these files to the appropriate *Automate* folder in the *Plug-ins* folder in the *Adobe* folder that is found under your C: drive *Program Files* or *Program Files (x86)* which is the 32-bit version.

Mac Computers

Locate the following appropriate downloaded file or the file on the CD. There are THREE different Mac Installer filed depending on the type of Mac computer you have and the version(s) of Photoshop you will be using. Make sure to install the correct version.

One is for the older PowerPC Mac computers OR if you are running Photoshop version CS on an Intel based Mac. The download file name for this version is ***TSeps2Installer.dmg.zip***. If you have a CD, the file is in a folder called **Mac.PowerPC** and the file is called ***TSeps2Installer.dmg***.

The second version is for newer Intel based Mac computers. The download file is called ***TSeps2Intel.Installer.dmg.zip.*** If you have a CD, the file is in a folder called **Mac.Intel** and the file is called ***TSeps2Intel.Installer.dmg****.*

The third is a special installer for Mac running Photoshop CS5 or CS6 in 64-bit mode. (You can only run the 64-bit version of Photoshop CS6 on a Mac.) The download file is called ***TSeps20-64.Installer.dmg.zip.*** If you have a CD, the file is in the **Mac.Intel** folder and is called ***TSeps20-64.Installer.dmg****.*

If the file is a download it is a standard ZIP file that needs to be unzipped before you can run it. Once unzipped simply click on the file to run the installer. This is a standard Mac installer package with various screens telling the status of the installation. If the file is on a CD simply click on the file to install it.

Important note: If you have multiple versions of Photoshop on your computer (Intel based) including 32-Bit versions of Photoshop and 64-Bit versions of CS5 and CS6 - then you MUST install BOTH Intel installers.

Make Sure Plug-Ins are installed correctly
The installation program for T-Seps attempts to install all the files in the proper location for the program to be run from the "actions" panel in Photoshop. If you have previous versions of Photoshop or have multiple versions installed on your hard disk, the installation program may not place the files in the correct folders.

In order for T-Seps to run correctly, the T-Seps *Plug-In* files MUST be in the Photoshop *Automate* folder. There are TWO main plug-in files. One is called *T-Seps* and one is called *T-SepsCustomIndex* and there are various versions of each depending on if you are running a PowerPC or Intel Mac with either Photoshop CS2 to CS5, or Photoshop CS6.

If for some reason T-Seps does not start when you open Photoshop, you will need to manually place the T-Seps *Plug-In* files/folders in Photoshop's *Automate* folder.

Depending on the version you installed your *Macintosh Hard Drive/TSeps/Actions* folder should have the correct files for either the Intel or PowerPC version. Remember – there are Intel versions that work for CS2 to CS5 32-Bit and then an Intel version that works only for CS5 and CS6 64-Bit.

For the PowerPC versions there is a typical "extension" of .8li. For the Intel version plug-ins are called "plug-in packages" and have an extension of .plugin.

Here are the various plug-in names. You may or may not have all of these versions depending on which version of T-Seps you are installing.

T-Seps.plugin (for Intel based Mac with 32-bit version of Photoshop)
T-Seps64.plugin (for Intel based Mac running Photoshop CS5 or CS6 64-bit version)
T-SepsCustomIndex.plugin (for Intel based Mac with 32-bit version of Photoshop)
T-SepsCustomIndex64.plugin (for Intel based Mac running CS5 or CS6 64-bit version of Photoshop)
TSepsOSX.8li (for older PowerPC or for use with Photoshop CS),
CustomIndex.8li (for older PowerPC or for use with Photoshop CS).

Mac and Windows

OPTIONAL INSTALLATION OF PLUG-INS
Every now and then Photoshop will simply not find plug-ins even when they are in the correct folder. It can be a permissions/administration issue or if Photoshop has moved the Automate folder during upgrades. A good example of this is the upgrade from Photoshop CS5 to CS5.1. Adobe changed the name of the folder and the current T-Seps installer will not find the correct location.

To make it real simple for Photoshop to find the plug-ins you can simply point Photoshop directly to them. This can be done within Photoshop.

On a Windows version go to the *Edit* menu and *Preferences*. On a Mac, go to the *Photoshop* name in the upper left of the screen and then *Preferences*.

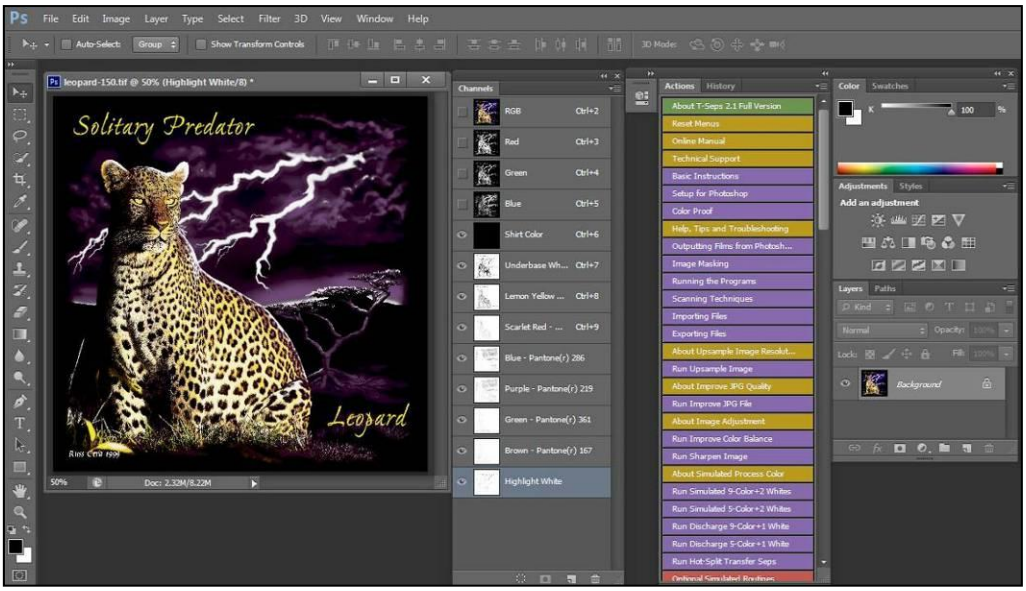
In *Preferences* click on *Plug-Ins*. Next, check the box *Additional Plug-ins folder*.

Click *Choose* and drill around to your C: drive on Windows or your Mac Hard Disk on a Mac. Find the folder called *TSEPS* and the sub-folder called *ACTIONS*. Choose *Actions*. Exit *Preferences* and re-start Photoshop.

How to Know if the Plug-ins are Loaded?
It is simple to know if the plug-ins are in the correction location and that Photoshop finds them. If Photoshop finds and loads the plug-ins when you start Photoshop you should get a T-Seps windows that allows you to *Try* T-Seps as a free trial or allows you to *Authorize* it for permanent use. If you don't get a T-Seps windows when you start Photoshop then it has not loaded the plug-ins.

A word about Photoshop CS6
Adobe made some major changes with CS6. One of the more obvious is the default darker screen color. If you are a current Photoshop user you may not like this new look. If you go to Preferences in Photoshop you can change the look back to the more normal light gray color scheme.

Adobe has a new default color palette called *Pantone Solid+Coated*. This palette is not available in older versions of Photoshop. If you create a set of separations using T-Seps in CS6 and want to bring the file into an earlier version of Photoshop you may get a "missing color palette" error. You will need to change the assigned color for each channel in your CS6 T-Seps separations to *Pantone Solid Coated* and then save the file.



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 are a trial user of the program or are waiting for your unlock, simply press the TRY button to run T-Seps for 20 days.*** (You may be asked to click on "try" a number of times.)

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.

The unlock feature does not activate until you open Photoshop. Click on *Authorize* in the T-Seps window that you get when you open Photoshop. You will either be given a *Request Code*. This number is specific to your computer. If you install T-Seps on a different computer you will get a different set of numbers. If or when you upgrade to a new computer or replace or format the hard drive on your existing computer simply give us a call for another unlock.

Send unlock requests to support@tbiznetwork.com and make sure to also include your company name and order number. If you bought T-Seps from a dealer, give us details about the purchase and dealer name.

The windows in your version may or may not look exactly like those shown here.

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 *Welcome Screen* either when opening Photoshop or when you start to run a T-Seps routine, please refer back to the Installation in Photoshop steps and make sure you have not missed something. If you still don't get the T-Seps window refer to the Support section at www.T-Seps.com or send email to support@tbiznetwork.com.

You also have the option to *Quit* or *Try* the unlock routine and still use Photoshop while you wait for the *Authorization Code*. T-Seps will run for 20 days as a trial version without being unlocked though it is recommended to send in your unlock request well before the trial version expires so that you are not waiting for your unlock at the last minute.

Load T-Seps Into the *Actions Panel*

This step is very important!!

There are two parts to installing T-Seps. The first part we just covered. The plug-in files need to be in the correct location. These files are the heart of T-Seps. The actual running of T-Seps is done with scripts that are called "actions" in Photoshop. Actions call various Photoshop commands and open the plug-ins. The installation covered earlier can't load the T-Seps Actions in the Actions Panel because there is no way to automate that process. It must be done manually.

Open Photoshop and open your *Actions Panel* (*Window/Show Actions or Actions*).

With the *Actions Panel* open, click on the drop down menu (it's a small round button with an arrow on it in the upper right hand corner of the *Actions Panel* window) and select *Replace Actions.*

Find the *TSeps* folder on your hard disk. Users often get confused with this step. When you click on *Replace Actions* you are taken to a Photoshop Actions folder where it keeps the default Photoshop actions. This is NOT where you want to be. You need to find your C: drive on a PC or the Mac Hard Disk on a Mac and find the folder called *T-Seps* and a sub-folder called *Actions*.

In the new *TSeps/Actions* folder on your hard disk, you will select the correct action set (.ATN file). The Action file you load depends on your computer and your version of Photoshop. You may NOT have all three of the following files available depending on which installer you run. If you are a foreign language user these files are also available in a variety of languages.

TSeps20W-English.ATN – All Windows versions of Photoshop. 32- and 64-Bit.

TSeps20-English.ATN - Mac – Intel processor 32-Bit versions of Photoshop.

TSeps20-64English.ATN Mac only 64-Bit version of Photoshop on CS5 and CS6.

TSeps20-CS-English.ATN Mac PowerPC only for the older CS version of Photoshop.

When you load the T-Seps Action the “buttons” need to be in color. If they are in black and white then you are looking at the raw scripts. To turn the buttons on go back to the small upper right arrow in the Actions panel and make sure ***Button Mode*** is checked and that the buttons are in purple and yellow.

Stopping An Action During a Routine

If for some reason you stop an action during a routine (before the on screen prompts tell you that “*the separation process is complete*”) you MUST reset the menus. If you do not reset the menus, the last action will pick up where it left off the next time you select it and the routine will not run correctly. You will know that a routine has been stopped before it finished because its button in the *Actions Panel* will turn RED. To reset the menus, click on the yellow button named *Reset Menus* at the top of the *Actions Panel*.

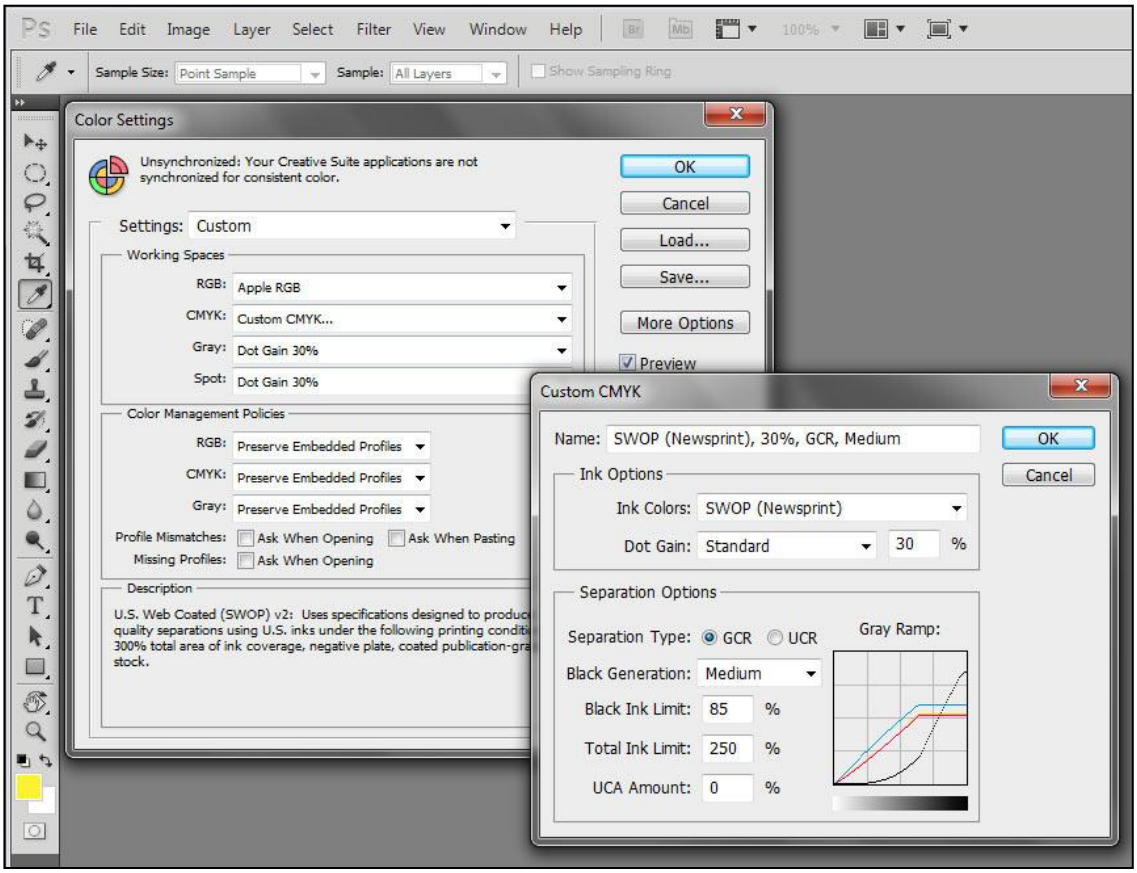
Reasons for Stopping the Program

There could be a number of reasons for stopping the program in the middle of a routine. If you are low on hard disk space you may get an *Out of Memory* error. Also, you might have loaded the wrong file by mistake, or selected *Stop* rather than *Continue* on one of the help menus.

The following setups are VERY IMPORTANT.

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. The following routines need to only be done once. Photoshop remembers these settings for future sessions.



General Settings

All of the default settings in Photoshop will work with T-Seps but there are some settings that have an effect if you change them.

Dot Gain

Screen printers typically get 30% to 40% dot gain at the press. This means that the ink that comes through the screen will “gain” or grow in size compared to the size of the dots that are burned into the screen. In order to preview separations on the monitor the way that they will look when printed, it is important to apply the correct dot gain settings to Photoshop.

Photoshop Color Settings For T-Seps

Most of the under-the-hood settings are made by going to *Edit/Color Settings*.

Change *RGB* to *Apple RGB*.

Change the *CMYK Setup*: This is very important if you will be doing *Real Process* (CMYK) separations. T-Seps comes with specific ink values for the most common brands of process inks. If you do not see your brand during this setup, please contact your ink supplier for specific values. These can then be entered manually.

Drop down the *CMYK* list in the *Working Spaces* window. Select *Load CMYK*. Browse to the T-Seps folder on the hard disk and open the *Inks* folder. Select the folder for your brand of ink. The brands that are pre-loaded are *Wilflex, Union* and *Excaliber*. (If you do not see your brand and cannot get the custom values for your brand, it is OK to select *SWOP Newsprint* for the default.) At the bottom of the *Load* window, change *Files of Type* to *CMYK Setup* (*.API). You will now see a list of files that you must choose from. The numbers “305” or “355” denote the mesh counts you will be using. Generally most printers should be using the “305” files unless you are doing very detailed work on high mesh screens. If you are unsure, select a “305” file. The letters “A” or “M” denote an auto or manual press. So if you had a manual press and were using 305 screens with Wilflex ink, you would select the file *Prpl305m.api*.

Drop down the CMYK list in the *Working Spaces* window again. This time select *Custom CMYK*. Input the following values:

Dot Gain: Standard 30-35%
Separation Type: GCR
Black Generation: Medium
Black Ink Limit: 85%
Total Ink Limit: 250%
UCA Amount: 0%

Change *Gray* to *Dot Gain 30%*

Change *Spot* to *Dot Gain 30%*

Now your color settings are correct for the most accurate display of your separations as they will print on your T-shirts. If you would like to save all of these settings in a file so that you can easily restore them at a later date, before you close the *Color Settings* window, select *Save*. This will allow you to save a “.CSF” file that will remember all of these settings. Photoshop will also allow you to enter a detailed description of your color settings (.CSF file) that will display when loading them.

A Note About Color Profiles:
In the *Color Settings* window, there is also a section about *Color Management Policies* that many people ask about. This is Photoshop asking you what you want the program to do when opening files that were saved under a different profile – such as files that you may get from customers that have the default settings or files that were saved before you changed your color settings. Depending on these settings, Photoshop may ask you what you would like to do when you open a file – either:

1. To change the profile to your workspace profile (*Apple RGB*)
2. Use the embedded profile
3. To not color manage at all. You will want to always change the profile to your working space profile.

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 FastFilms and now 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.

The program has an excellent help section that will guide you through many of the important points of scanning and image manipulation. Do not ignore this section of the program. If you are unfamiliar with Photoshop you should go through the Help, Tips and Troubleshooting section step-by-step.

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.

Photoshop Computer Graphics Tutorial
If you are experienced in computer graphics you may want to skip this section. Better yet, skim over it…… you might find something you didn't know.

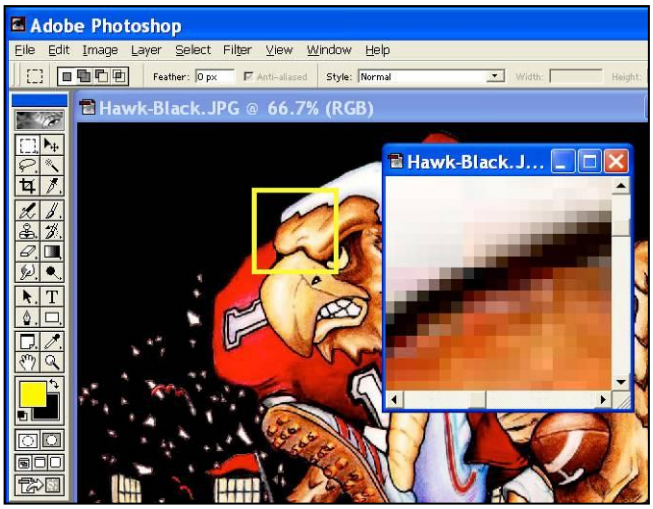
Photoshop is the flagship product of Adobe Systems at www.adobe.com. It retails for around $650 and as of this writing version CS6 is the most current version. It is often sold as a bundle called a *Creative Suite* that includes *Illustrator* and *In Design*. It is always nice to have the latest and greatest version, but frankly, you can do everything we show here with version 6.0 or higher. If you are a student, teacher, or work for a school, you may be eligible for an "educator version" from places like www.academicsuperstore.com. You can even download a FREE trial of the latest version from www.adobe.com.

In mid-2012 Adobe changed how they sell Photoshop. You can now subscribe to their www.CreativeCloud.com service and pay around $50 per month to have access to ALL of the Adobe's more than 17 programs. This includes updates. A common misconception is the program is provided to your computer from cloud computing. That is not true. The Creative Cloud service actually allows you download all the Adobe

programs to your computer and each month they are authorized to work as your payment is processed.

Photoshop Basics

Let's start with some basics. We will assume you have installed Photoshop and followed the steps in their excellent manual. The program also comes with tutorials and there are many excellent articles on Photoshop at www.T-BizNetwork.com.



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, Adobe Illustrator and Adobe Freehand 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 us Photoshop for the photorealistic portion. T-Seps ONLY works with Photoshop. If you are dealing with an artist who uses more than one program you need to tell them that when all is said and done, you need a Photoshop PSD file type (more on this later) if at all possible.

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 EPS, TIF or PSD files. Make sure to export from these programs at the final image size and a resolution of at least 200 - 300 DPI. If you can, export them with *Anti-Aliasing* turned OFF to maintain edge sharpness. If you have control, set the *Fountain Fill* steps as high as possible. Files should be exported as RGB, 16 bit or higher color.

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

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, Actions, 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 175 to 225 dpi at the final size BUT IF POSSIBLE STAY AT 300dpi. In fact, if you want to have “vector quality” edges to type you can even work at 500dpi 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.

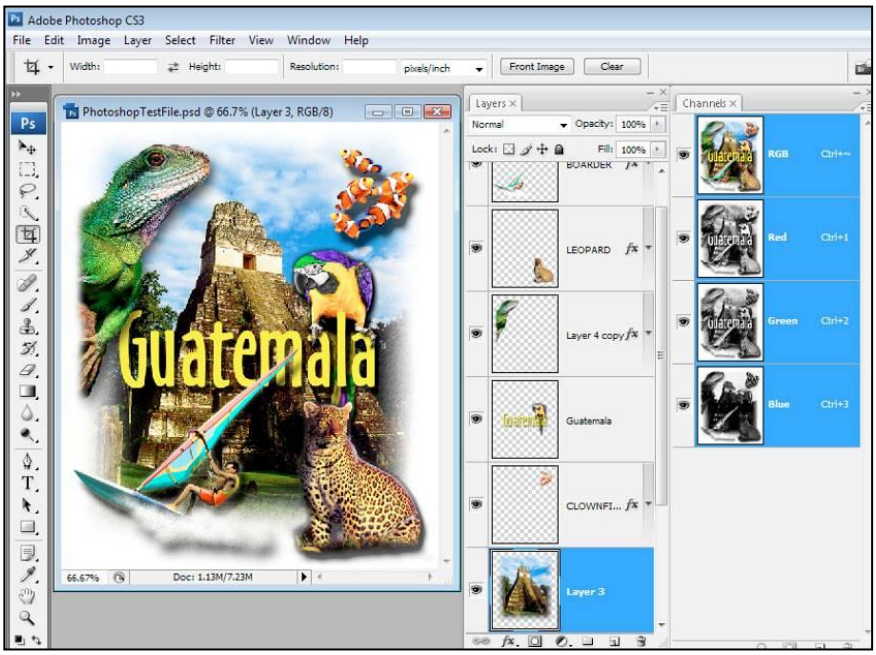
The most common file type is called a JPG. This is typically a file that someone has made using their digital camera or from a website. JPG is a popular “compression” format that will make a large file small enough to email. When a JPG file is made there

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 2.0 has an **Improve JPG Quality** feature that is excellent. The image below shows a “before and after” comparison.

Photoshop Test File

To *Open* a file. Go to the *File* menu and then to *Open*. Search your hard disk for a test file, or if needed, find the Samples folder that comes with Photoshop or the Samples folder that came with T-Seps. Open or load a file. There is a file with Layers in the *TSeps/Samples* folder called **PhotoshopTestFileLowRes .psd**. This is a good file to use for learning.



This file started off as a scan of a photograph from a travel guide of a picture of a monument called Tikal. The original picture was no larger than 6” x 8”. The sample test file has a resolution (more about this later) of 72 dpi which is typical of what a customer will give you. The rest of the elements are from stock clipart (royalty free artwork available online). The text was added in Photoshop and the soft edge was created using the *Edge Effect* routine in T-Seps.

If you have your *Layers Panel* open then you can see that this image is made up of a variety of Layers. There is a Layer for each key element. You will see as you play around a little that you can select a Layer (click on it) and then use any of the Photoshop tools tore-size, lighten, darken, blur, and more. This is how all great images are built in Photoshop. When you see a HOT magazine ad with a lot going on – the ad was “built” in Layers in Photoshop using a wide variety of graphic elements.

Check File Size and Resolution

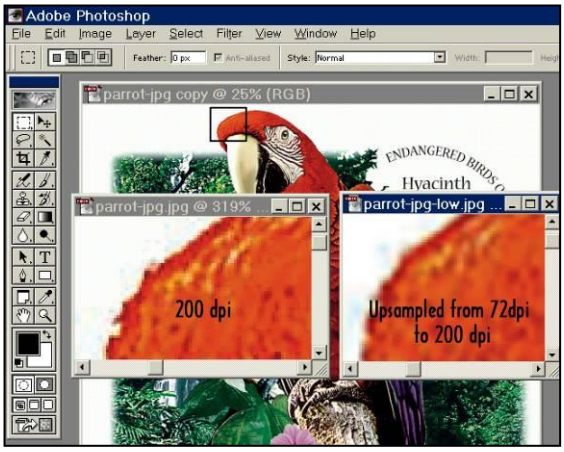
You MUST know the actual resolution and size of the image. Otherwise you could be working on a very small file and not know it. Go to *Image/Image Size*. If you are using

the test file you will see it is 72 dpi and 8” x 9”. This is not very big physically and a pretty low resolution. The resolution should be 175 to 225 dpi or higher in pixels-per-inch.

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.



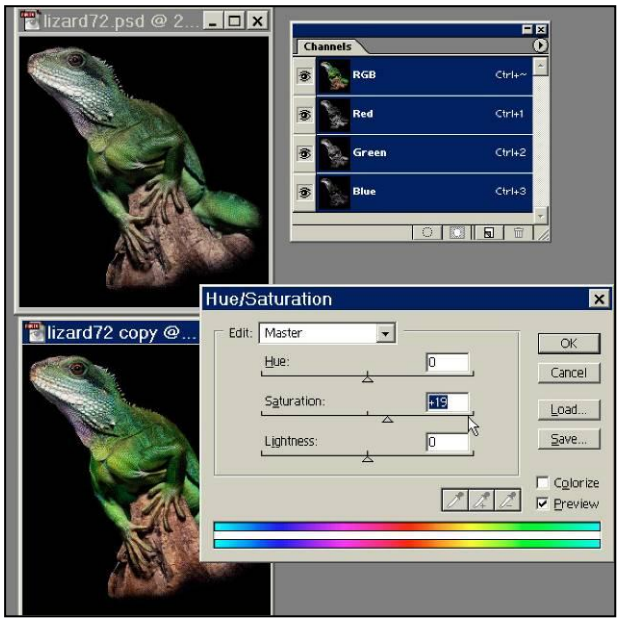
The problem you have is the file is very low resolution. Your only real choice is to check Resample Image and change the width to 10 inches and the resolution to 200. Photoshop "upsamples" the image. But, it has to guess at where to place all the extra pixels and what color to make the pixels. Images 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.

For our sample file change the physical width to 13” and let the height change by itself (proportional). Make sure Resample Image is checked and that only the Width and Height are locked together. Make the Resolution 200 dpi. When you say OK, the image on the screen will now be much larger.

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. T-Seps 2.0 had an excellent routine called **Upsample Image.** Notice the improvement in the edge detail on the upsampled image at the top of the next page! The left image was 72dpi and the right upsampled image is 200dpi. We use a complex algorithm that really works.

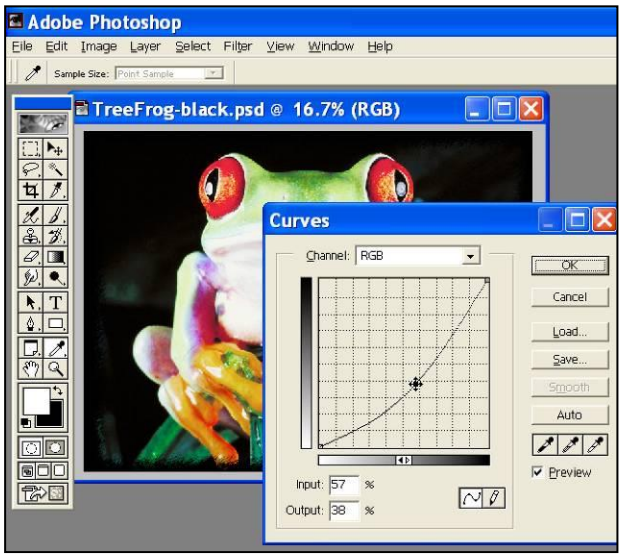
Check File Mode

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 do 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.

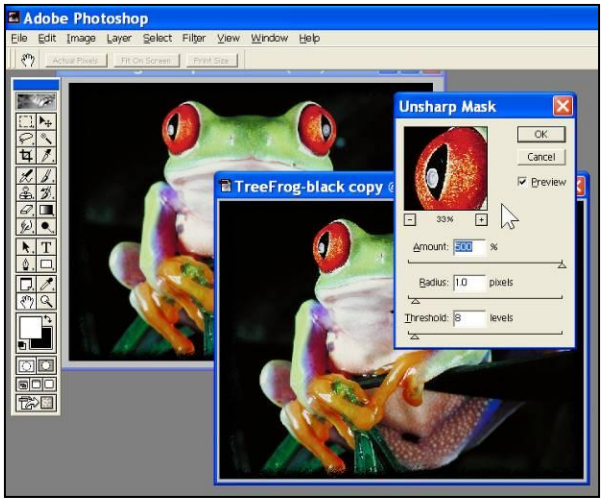


Using the Tone Curve

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

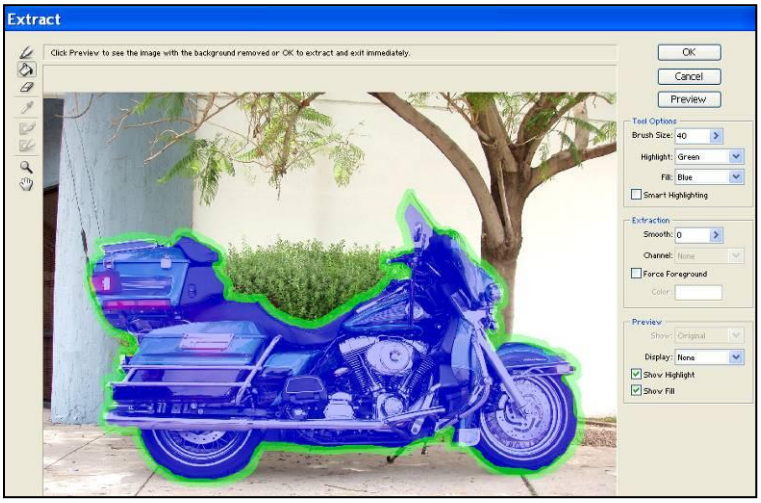
For most of your work, make sure to have the *Layers Panel* and the *Channels Panel* showing - and separate. People always get these confused because they look very similar. Here are the rules. The *Channels Panel* shows whether the image is RGB or CMYK. T-Seps uses the *Channels Panel* to create color separations that can be output (often 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 as with our sample file. Layers don't print. Simple.

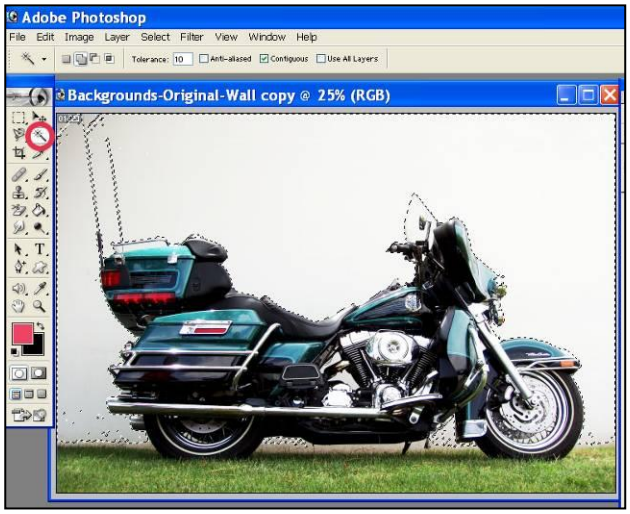
You will notice that your *Channels Panel* shows four channels. RGB, R, G and B. If you opened a graphic from a digital camera or web JPG file, it should only have one Layer called Background.

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.

Removing Backgrounds



In order to apply effects to objects on Layers they need to have a transparent background (this shows up as “checks” on a Layer). The easiest method is to have an image with very simple backgrounds. If you are in charge of taking the photo, take it with very uniform backgrounds that are of the same color. If the photo is of a car, park it with just sky behind it and nothing else. OK, if you can't do that, park it in front of a solid colored building. Make sure to take the photo at as high a resolution as possible. If your "old" digital camera is only 2 megapixels, about the best you are going to get is an image that is 10 inches wide at 150 dpi. On the edge of being too low resolution. You should try for full image size with a resolution of 250 to 300 dpi.

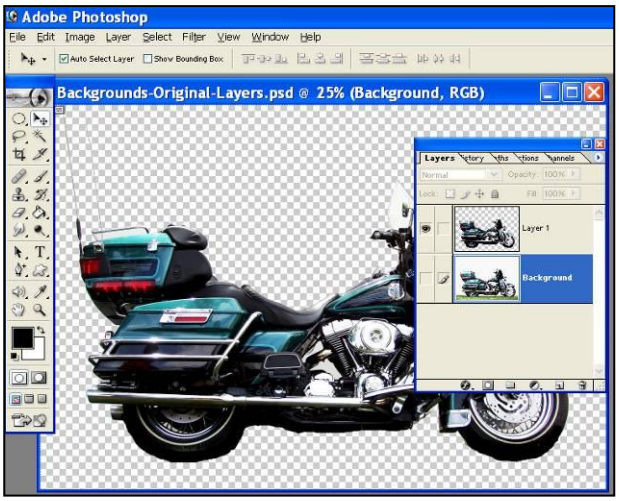


Use Magic Wand and Click and Delete

They don't call it the *Magic Wand* for nothing. This tool is hot. With the *Magic Wand* you simply click on the neutral areas around the image. It works best if the background color is slightly different than any of the edges of your image. Just click and watch the *Magic Wand* make a selection around the image. If the "marching ants" selection goes into the main design, change the *Tolerance* on the *Property Bar*. The default is 32 pixels.

Making Your Selection a New Layer

You need to get your main image on a layer with a transparent background. In Photoshop this will show as checks all around the image. With a transparent background you can add additional elements to the image including type behind the image, drop shadows, glows and more.



Using Extract
Photoshop also has a Filter called *Extract* where you draw around an image and then fill the center with color and Photoshop removes all the areas around the image leaving you with a transparent background. *Extract* is used to remove backgrounds. *Extract* works OK but is not the magic bullet for removing backgrounds.

Finalizing a File before Separating
If you built the file using Layers, you MUST always remember to save the file and name it so you know it has Layers. Call it something like **TestFile_Layers.psd**.
BEFORE you run a separation routine with T-Seps the file must NOT have any Layers. The file must be Flattened. Click on the small upper right arrow in the Layers Panel and click on Flatten. Once Flattened and saved you can't come back and adjust the Layers (they are gone). That is why you always have two versions of the final artwork…. one that has Layers (for future use), and one that is Flattened (for separating).

This concludes the short Photoshop tutorial. For additional help consult the Photoshop manual and view some of the excellent Photshop DVDs online and from the Store at www.T-BizNetwork.com.

Image Resolution and T-Seps
In the past due to slow computer speeds we often suggested resolutions of 175 to 200dpi for normal T-Shirt images. With faster computers that is no longer an issue and you should try to keep images around 300dpi – especially if the image has a lot of type or hard edges. Re-sampling up will often put soft edges around areas of high contrast and these areas become shadows and garbage in the image when printed. Always be mindful of the resolutions of the files you are working with. You can check the resolution of the image by going to *Image/Image Size* in Photoshop. Also make sure that you are working with files that are *already at the size that they will be printed.* It is a good idea to always show the *Rulers* in Photoshop so that you are aware of the DPI as it relates to the *Image Size*. Request high resolution files for your jobs as often as possible.

A beginners mistake when creating artwork is to take a graphic off of the internet that is 72dpi 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 72dpi.

TIP: ALWAYS, ALWAYS, ALWAYS take the original graphic file and upsample it to the final print size and final resolution you want – around 300dpi. 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.

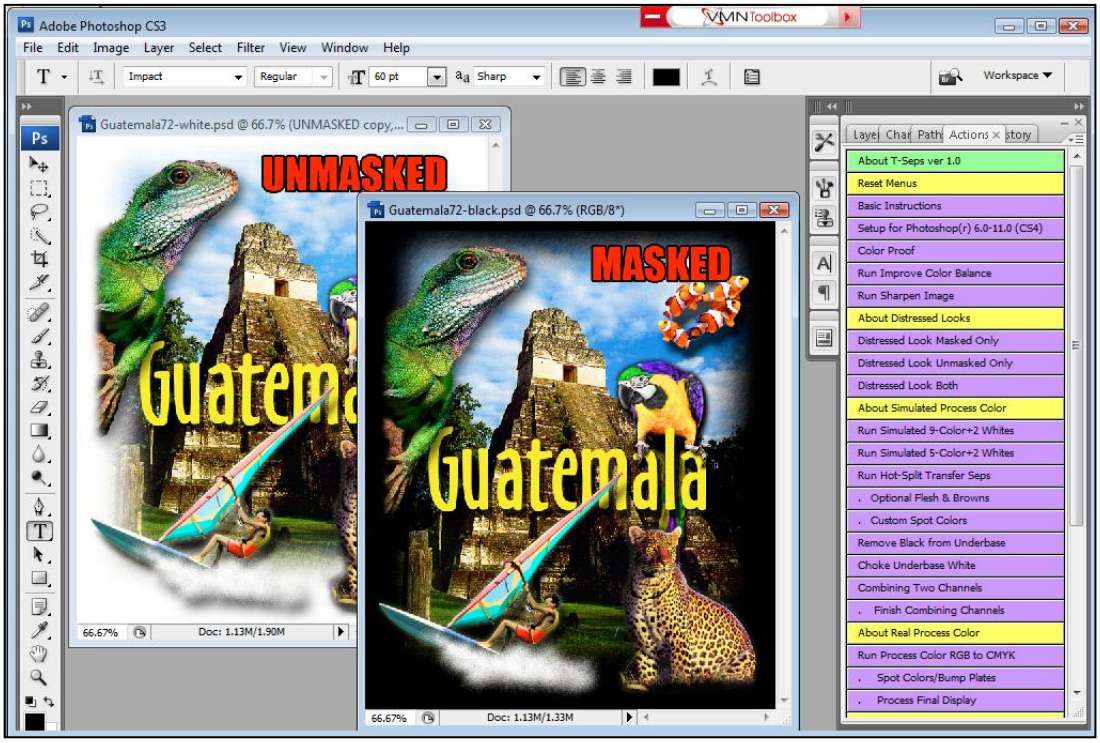
IMPORTANT NOTE: When running *Index Color* routines, the actual dot size that is put onto the media *directly* correlates to pixel size and you may not be able to hold these smaller square dots on your screens! 225 DPI is considered the maximum for high detail *Index Color* separations. See *Section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

File Types for T-Seps
Photoshop supports a wide variety of file types, including TIF, JPG, PSD, EPS and more. A JPG or JPEG file is a compression that will lose quality as you open and save as a new file name. It is OK to save a file in JPG for sending over the internet or as an archive backup but you are much better off working with the file as a PSD (native Photoshop format). Files in a PSD format open and separate faster. Once you have run a separation routine you MUST save the file as a TIF or PSD file. These are the only formats in which Photoshop can maintain the color channels that T-Seps creates. Other formats such as JPG will not save the channel information.

The following is a very important concept!

Two Versions of Art
If your image is going on light AND dark shirts, T-Seps will need to have TWO versions of the art. The main version will be the image as it should look on a white shirt. This is called the *Unmasked* file. The second version will have black around the image so that it looks the way it should print on a black shirt. This is called the *Masked* file. This does not mean to have a black box around the image. It means that the image MUST have black that goes all the way to the edge of the image. It should look EXACTLY how you would expect it to look on a black shirt. If the image does not have a canvas around it, just load the same file twice.

If you are ONLY making black shirts, you may load the Masked file twice (black background). In this case, the black channel will be incorrect, though you will not be printing it on a black shirt.



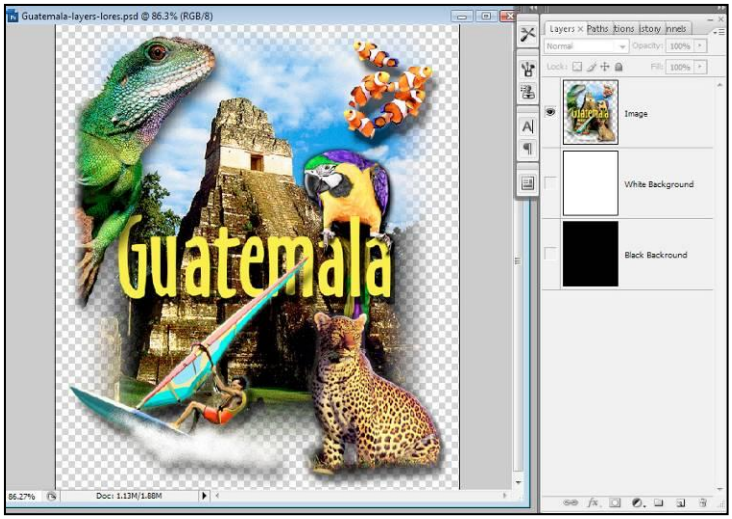
If you are ONLY making white shirts, you may load the Unmasked file twice (white background). In this case, the white *Underbase* and *Highlight* channels will be incorrect, though you will not be printing them on a white shirt.

If you need to print an *Underbase* and or *Highlight* channel AND a *black* channel (for a blue, or green shirt for example) then you MUST have both files!

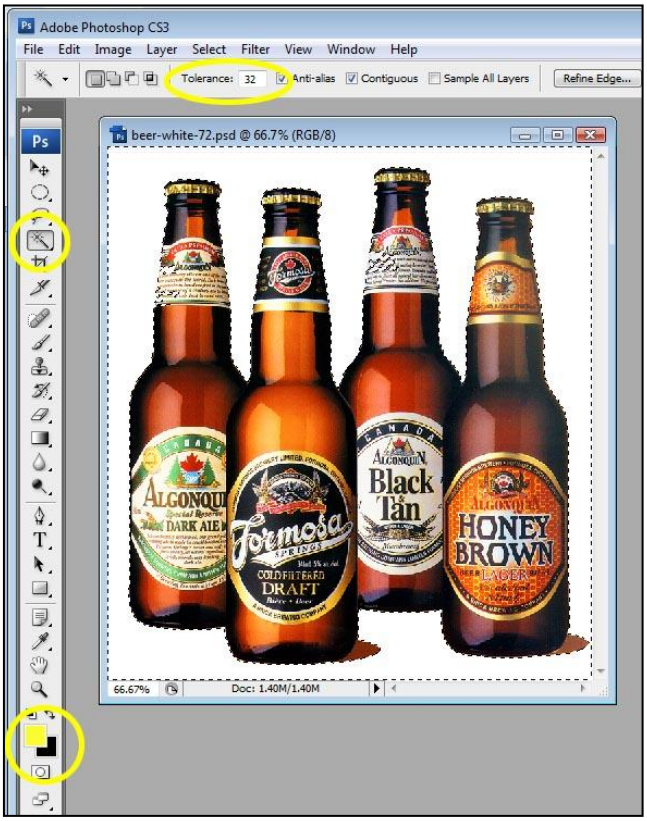
Image Masking
Many people call support and ask how to create their Masked and Unmasked files. Most of the files you will get will already have a white background, it is creating the masked file that often poses a problem.

There are a number of ways to place black around the image. The more skilled you are in Photoshop, the easier this will be. Make sure that your main file is the correct size first and has any color adjustments already made to it. This will ensure that both files are identical except for the backgrounds. Next, duplicate the file. It will be the one that you will mask with black and it will be saved with a different file name than the main file.

Using Layers
If you are familiar with layers (or if your image was created using layers) you can simply make the *Background* layer black on one version and white on the other. *If at all* you have an opportunity to get a layered file from your artist or customer then by all means do so! This is by far the easiest way to create your Masked and Unmasked files – especially if the edge of the image fades into the background, whereas it may be nearly impossible to create the masked file without completely redoing the edge effect.



Using the Magic Wand Tool
Another easy way to give an image a black mask is to first change the *Background* color on the Photoshop *Toolbox* to black. You will see two small swatches in the *Toolbox* and by default, the *Foreground* is black and the *Background* is white. Click the small two-way arrow to switch them. Next, select the *Magic Wand Tool* and make sure it's *Tolerance* (at the top of the screen) is set to 32 pixels (default). This number determines how many pixels of similar color range the *Magic Wand Tool* will stop at. If the image has a soft edge or very light colors blending into the edge, you may need to lower this number.



Next, simply click on the white area around the image with the *Magic Wand Tool*. After it makes its selection around the image, simply press the *Delete* key. You will have selected the white around the image and replaced it with black, since Photoshop deletes to whatever color is in the *Background* thumbnail.

If the *Magic Wand Tool* selected too much or not enough of the outside edge, change the *Tolerance* setting until you get just the right selection that you need. Also, you may add to the current selection by holding the *Shift* key

and subtract from the current selection by holding the *Alt* (*Option* on a MAC) key. This is especially helpful if the areas that you wish to fill do not touch each other. You may also select the area with the *Magic Wand Tool* and simply use the *Paint Bucket Tool* to fill in the area with black – or go to *Edit* and select *Fill* and choose black.

Work On a Duplicate File
It is always safest to work on a duplicate image. The program will not harm or change the Masked file (it is loaded, analyzed and then closed). T-Seps will add channels to the main file. These channels can be deleted if you want, but for safety, work on a duplicate of this file. Many of the *Special Effect* routines and *Distressed Look* routines the will automatically create a duplicate of the file for your protection. The easiest way to create a duplicate file is to go to the *Image* menu and select *Duplicate*.

RGB Mode and No layers
The image(s) you load MUST be in RGB mode and have no layers (*Background* layer ONLY). If you have problems with a separation, check this first by going to *Image/Mode*.

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.

IMPORTANT NOTE: It is very common for new users to email support only to ask what type of separation they should run on a certain image. Since T-Seps runs separations so quickly, it is recommended that you at least try one or two different types and see the results and take a few minutes to experiment before contacting support.

Simulated Process Color
This method works well on light and dark shirts. Although this routine creates eleven 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*. *Simulated Process* prints use an *Elliptical* halftone dot.

When in doubt, run Simulated Process Color FIRST.

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 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 in Section 9 of 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.

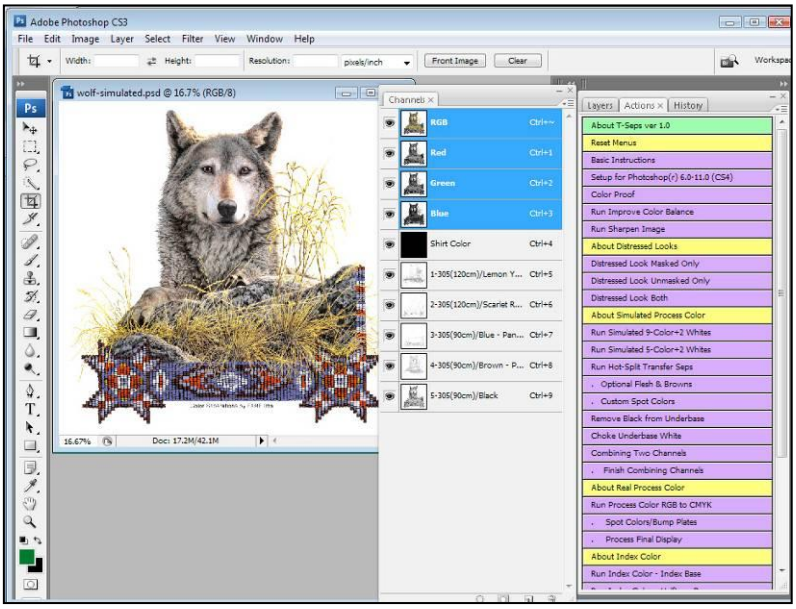
IMPORTANT NOTE: Once *Index Color* is run, you CANNOT apply tone curves or eliminate colors because an *Index Color* routine places dots side by side and the image is like a puzzle. If you remove a color there will be "holes" in the design. Changing these WILL ruin the separation. (This does not apply 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. You can still use Tone Curves on the *Underbase* and *Highlight* channels in these routines See *Section - 9.5 – Hybrid Custom Index Routines* for more information.

Spot Color

The *Spot Color* routine should be used for very simple designs (solid color) that don't have gradations. *Spot Color* is better separated using a vector based program such as Corel Draw or Adobe Illustrator. The *Spot Color* routine in T-Seps is available for those occasional jobs that are already finished in a pixel based painting program (such as a JPG) and can't be reconverted to vectors.

General Running of the Program

T-Seps is very easy to use. The T-Seps *Actions Panel* is divided into color-coded sections. The YELLOW buttons tell about the buttons that follow them. Clicking on these buttons produces help screens for those sections. The VIOLET buttons are actual action programs. Clicking on these buttons run the actions that analyze the image and create separations. Don't let the number of buttons confuse you. Also, make sure that the *Actions Panel* is viewed in a SINGLE column, or the buttons will all be out of order.

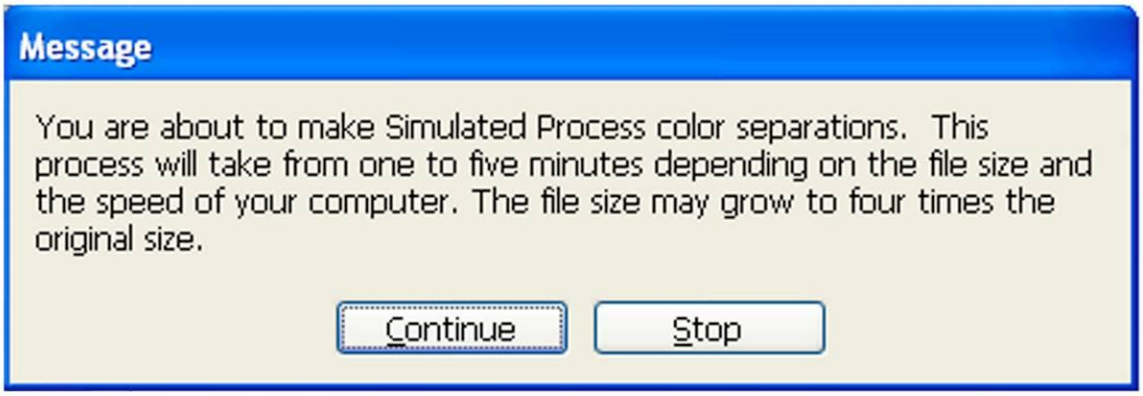


Most of the program is designed to separate to a specific color set, such as *Lemon Yellow, Scarlet Red, Light Blue*, etc. This is to your benefit. You no longer need to mix custom colors for each job, unless you need a precise Pantone spot color match.

Just Push a Button

To run a routine simply push the appropriate button. Make sure to have the file ready but CLOSED before starting any routine. Each routine is started with a help *message* screen 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. If the screen contains BOTH buttons and you press the *Stop* button you will have stopped in the middle of a routine and will need to reset the buttons. You can do this by pressing the *Reset Menus* button at the top of the T-Seps action list. When you stop a routine in before it is finished, its action button will turn red.

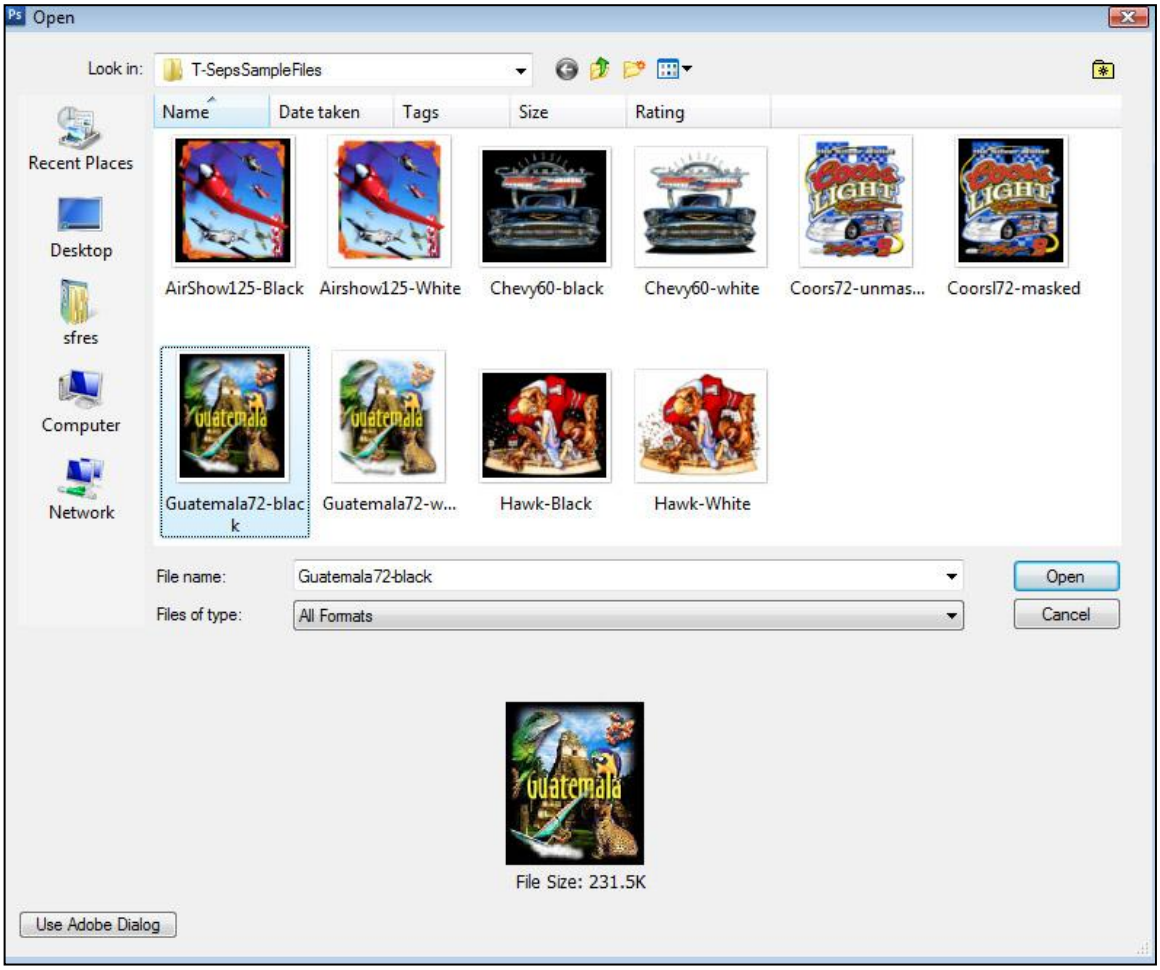
IMPORTANT NOTE: If you get errors during running a routine then the plug-in is not installed correctly. It is ONLY the first error that is important and it is usually "can't find T-Seps" which means Photoshop has not found the main plug-in. After you get this error you will get dozens and dozens of other 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.

Work File Formats
Other than the *Special Edge Effects*, *Image Adjustments*, and *Optional Flesh and Browns*, all other routines start with the image **CLOSED**. The routines will ask you for the file names when needed.

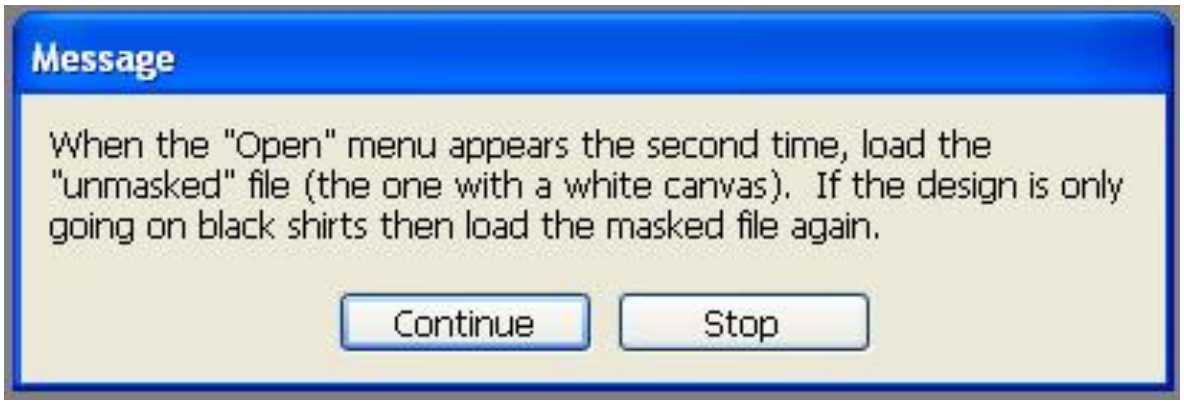
The work files MUST also be in RGB Mode and have no layers. Many of the support calls received from new users of the program are because the files are in CMYK mode or have unflattened layers.

About The Work Files
As you know from *Section 5 – Original Art and Photoshop Adjustments*, if the final films need to work on both light and dark shirts you will need TWO working files. One version needs to have a white canvas around the design and the other needs a black canvas. This version is also called the *masked* file. If the image is only going on a light shirt (where you don't need an *Underbase* or *Highlight* white) then a version with a white canvas is all you need. This is covered in *Section 5 – Original Art and Photoshop Adjustments.* For T-Seps to run correctly the image MUST be at the final resolution and be adjusted for optimum quality (sharpness, good tonal range, etc.). If the image is dark in the mid-tones and shadows, apply *Tone Curve* adjustments.

Opening the Working Files
When you press a *Run* button, the separation routine starts and a help message screen will tell you that you need to load the *masked* version first. You can use whatever naming convention you want. Some users call these files "black" and "white."



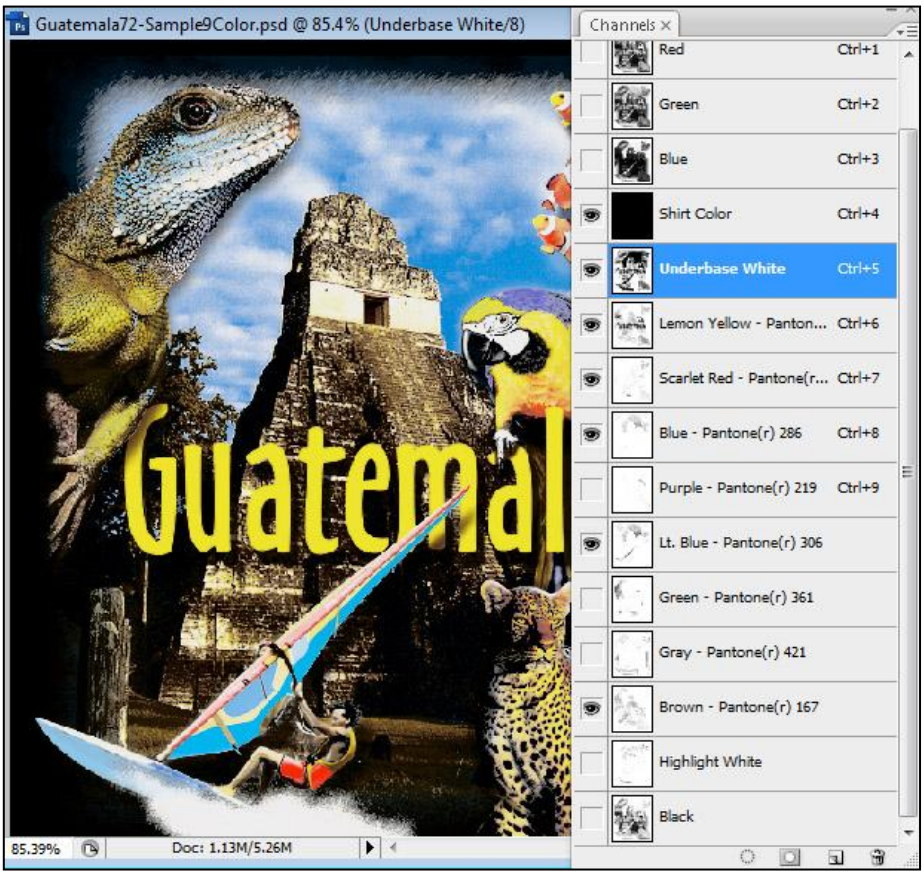
The program will take you to the *Open File* screen of Photoshop and you simply select the correct file. After the masked version of the file is loaded, the program creates the *Underbase* and *Highlight* white channels. The program then tells you to load the next file.



You will again be taken to the *Open File* screen and simply select the proper file. T-Seps will now separate the individual colors, place them in the correct print sequence, place the color name and Pantone number on each channel, adjust for dot gain and ink interaction, adjust for the opacity of each color, adjust for shirt color, and do hundreds of other behind-the-scenes calculations.

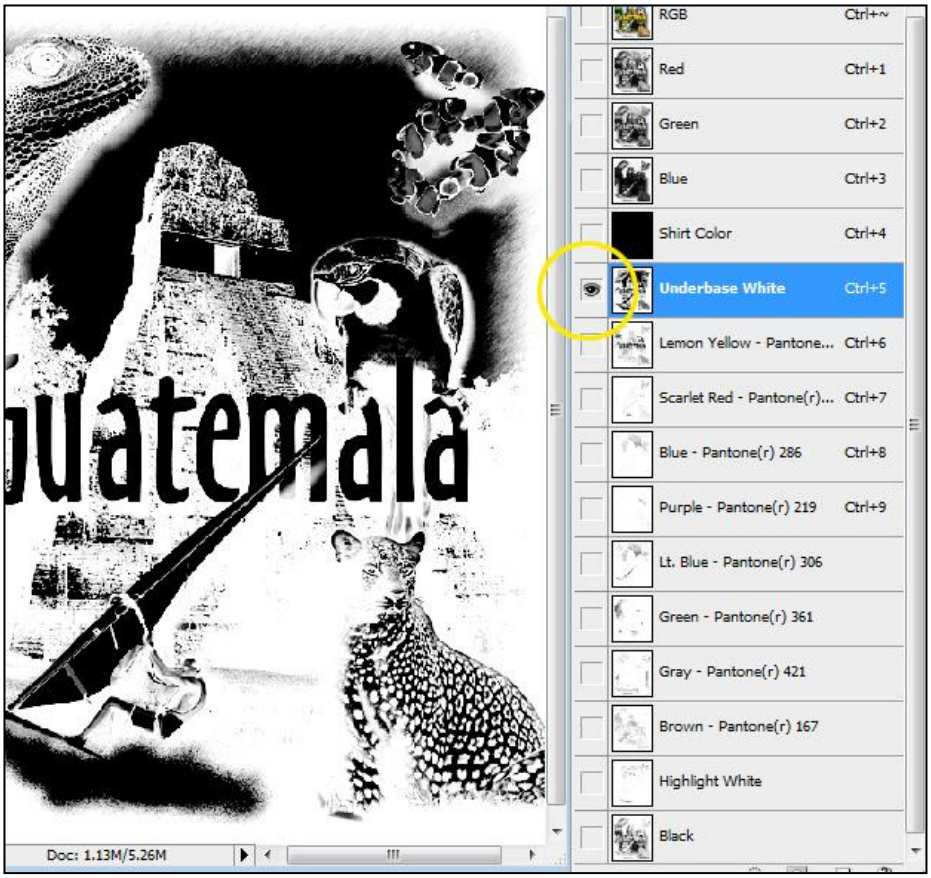
Previewing Images on Screen

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 placing the *eye* in the small box next to the thumbnail of each channel. This 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 the 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.



Working With Channels

You can also 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 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 for adjustment. In the above example, the *Underbase* White channel has the “eye” next to it (visible channel) but the *Light Blue* channel is SELECTED. Any adjustments would affect the *Light Blue* channel.

Adobe Photoshop CS4 and CS5 Channel Display
There is a quirk which many think is a bug in Photoshop CS4 and CS5. It may not preview the channels with dot gain applied (brighter) unless you go to *View/Gamut Warning* and check *Gamut Warning*. If your images look dull when you put the “eye” on them, check *Gamut Warning* and see if they change.

Adjusting Individual Channels with Tone Curves
Once a channel is selected it's possible to apply curves, sharpen or erase sections 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 where adjustments need to be done.**

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.

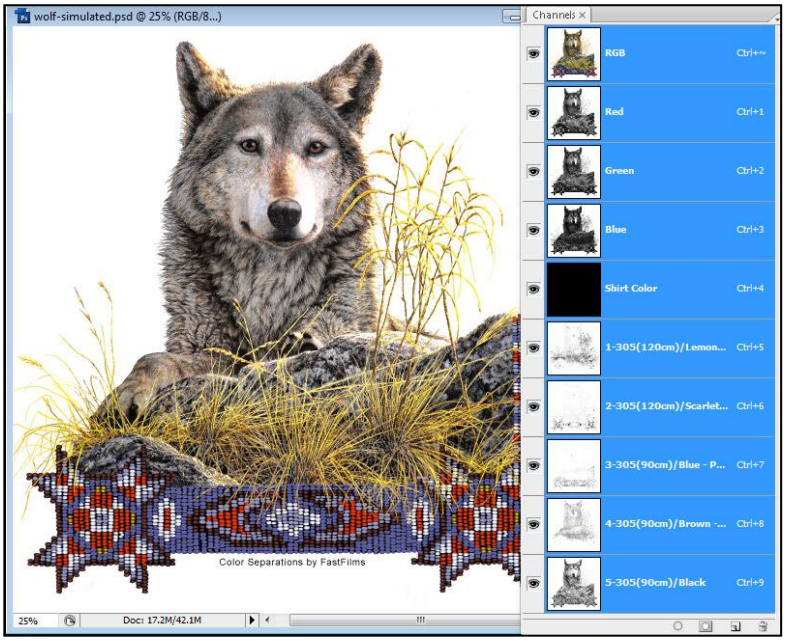
Moving Channels to Change Print Order
Some images may need a different print order than T-Seps recommends. Simply click on a channel name and hold the mouse down while moving the channel to a different location. This is especially important when you run the *Optional Flesh and Browns* routine. This routine is run after separation and the new channels will be placed *after* all of the existing channels, and need to be placed in print order to preview correctly. Generally, the print order will be light to dark. For example, a light flesh tone channel would need to be placed between lemon yellow and scarlet red to display correctly.

Changing the Shirt Color
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.

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 print on the actual individual separation films if you check the *Labels* option in *the Print With Preview* window.

Printing a Paper Proof by Merging Spot Channels
T-Seps allows you to merge all *Spot Color* channels with the original RGB image and print a composite paper proof! Simply select each channel you want to merge (don't forget the shirt color!) by holding down the shift key and clicking on each channel. Once they are all selected, simply go to the upper right horizontal arrow in the *Channels* menu and select *Merge Spot Channels*. All of the channels will now be part of the RBG image. If you DO NOT select the shirt color, the original RBG image will show through and change the look.



The merged channels will merge in the order they are stacked and the shirt color will block the original RBG from showing through. Make sure to work on a duplicate of the separated image because once merged, the image is now a composite and the individual channels do not exist any more! Once merged you can print out a composite ink jet proof of what the image will look like on the shirt.

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 only works well on a light shirt. 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 the 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*, 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 Pocess 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.

Specific Color Set

To make separating and printing easier, T-Seps was designed with a very specific color set. The program will analyze the image for these 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. The program is designed to pull seven colors (*Run 5-colors + Two Whites*) or eleven colors (*Run 9-colors + Two Whites*), plus additional spot colors and *Optional Flesh and Browns*. Without the flesh plates, T-Seps generates excellent flesh tones using the yellow and red plates. If the image has large and/or important flesh areas the optional flesh plates will help enhance the flesh. The following section has a listing of the ink set that is used. Other than the *Underbase* which is a high opacity, the rest are just off-the-shelf all purpose inks and in some cases very basic colors that should be found in every shop.

T-Seps Simulated Process Color Ink Set, Suggested Mesh Counts and Sequence

Inks	Mesh Counts
1. High Opacity White	180-230 (70-90cm)
2. Lemon Yellow - Pantone 102	280-355 (110-140cm)
3. Scarlet Red - Pantone 185	280-355 (110-140cm)
4. Blue - Pantone 286	280-355 (110-140cm)
5. Purple - Pantone	219 280-355 (110-140cm)
6. Green - Pantone	361 280-355 (110-140cm)
7. Light Blue - Pantone 306	280-355 (110-140cm)
8. Gray - Pantone	421 280-355 (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)

Optional Flesh & Brown Routine

12. Light Flesh - Pantone 475	280-355 (110-140cm)
13. Dark Brown - Pantone 161	280-355 (110-140cm)
14. Medium Brown - Pantone 181	280-355 (110-140cm)
15. Orange - Pantone 150	280-355 (110-140cm)

* ***Bold*** *type colors are those used in the Five Color plus Two Whites routine.*

Running Simulated Process Color

To run the program, have two versions of the original art as mentioned earlier. Have the channels and *Actions Panel* open at the same time if you have room on the screen. Don't be confused by the number of buttons under the *Simulated Process Color* routine. Many of them are for special effects. The main buttons are *Run 5-Color + 2 Whites* and *Run 9 Color + 2 Whites.* The program will make twelve new channels, including one for the shirt color if you run the *9 Color + 2 Whites* routine. Before you panic..... examine the image. 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. For this example it wasn't too hard to reduce the number of colors for a black shirt to just SIX! To eliminate channels simply drag them down to the trash container.

Six Color Press Routine
If you really don't feel comfortable with your ability to reduce the number of colors, we have included a *5-Color + 2 Whites* routine that will create separations that will work on a six-color press. Even thought you have seven separations, you generally don't print black ink on a black shirt and you can eliminate the *Underbase* white on white shirts or the *Highlight* white on medium colored shirts.

IMPORTANT NOTE: When in doubt, run the *9-Color + 2 Whites* routine and reduce it down to the best six printable colors. This will give you many more colors to work with.

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.

Optional Flesh & Brown
If a design has large important flesh or brown areas run this routine. This routine only works after T-Seps has created the basic color channels first and will only work *on an image that is open*. To preview the flesh or browns, move these channels above the *Highlight* (earlier in the print order) and turn the "eye" next to each new channel on and off to see what colors improve the overall design.

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.

Heat Transfer Base and Clear Coat
If you screen print hot split (hot peel) heat transfers then this is for you. The program will make ten channels (no *Highlight* white) that are flipped horizontally and have the ink opacities adjusted so the image displays the way it will print. This includes a *Clear Coat* plate to be used as a backing for the transfer. You can delete unnecessary colors, combine channels and do other adjustments to enhance the image.

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 pressing 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.5 to 3 point choke at 150 to 200 dpi). This may help designs with a lot of heavy text that need to have the *Underbase* choked.

IMPORTANT NOTE ABOUT CHOKING:
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.

Outputting Simulated Process Color
Print the individual channels out using a 55lpi frequency, angle of 25 degrees for ALL channels and *Elliptical* dot. Any channel with the "eye" next to it will print. Change the settings by going to *File/Print With Preview* and click on the *Screen* button. Note: Adobe removed the *Screen* button in CS5 and CS6 and you need to rely on your software RIP for the halftone settings or use the optional *T-Seps Halftone Converter* available from www.T-BizNetwork.com. For more detailed information about outputting images refer to *Section 13 – Outputting Images.* Certain laser printers and dry film image setters have a hard time using elliptical dots. They produce a slight moiré pattern on the film. You may have better luck using a *Round* dot. In general, films/separations are output to an inkjet printer, laser printer, or dry film image setter that uses software RIP (raster image processor) that converts the image to halftone dots (in the RIP) before the file gets to a printer. A typical desktop inkjet printer does NOT have a RIP and will NOT create a halftone dot.

Plan B for film output: In order to make outputting film more affordable for small shops that can't afford a RIP, T-Seps has a built in routine that will AUTOMATICALLY convert each separation to a separate file that already has the grayscale information converted to a halftone dot! This process is very close to what you can get from expensive software RIP. The only difference is that a software RIP will generally have more control over the ink deposit and will give you darker black images on film. Once separated using the *Convert to Halftone Dot* routine, the file can be printed out to any laser printer (to clear film) or to any inkjet printer. A RIP does tell a printer to lay down more ink or toner but for everyday jobs, the *Convert to Halftone* routine will work fine.

Screening Simulated Process Color

For best results use retensionables screens at 30 newton or higher. Put the *Underbase* and *Highlight* on 180 - 230 (70 - 90 cm) and the top colors on 280 - 355 (110 - 140 cm). Flash only after the *Underbase* white. Use lower mesh counts for basic images. For more detailed information on screening *Simulated Process Color* refer to *Section 14 – Dark Shirt Screen Printing Techniques.*

Section 8

True Process Color Separations (CMYK)

What is Process Color on Shirts?

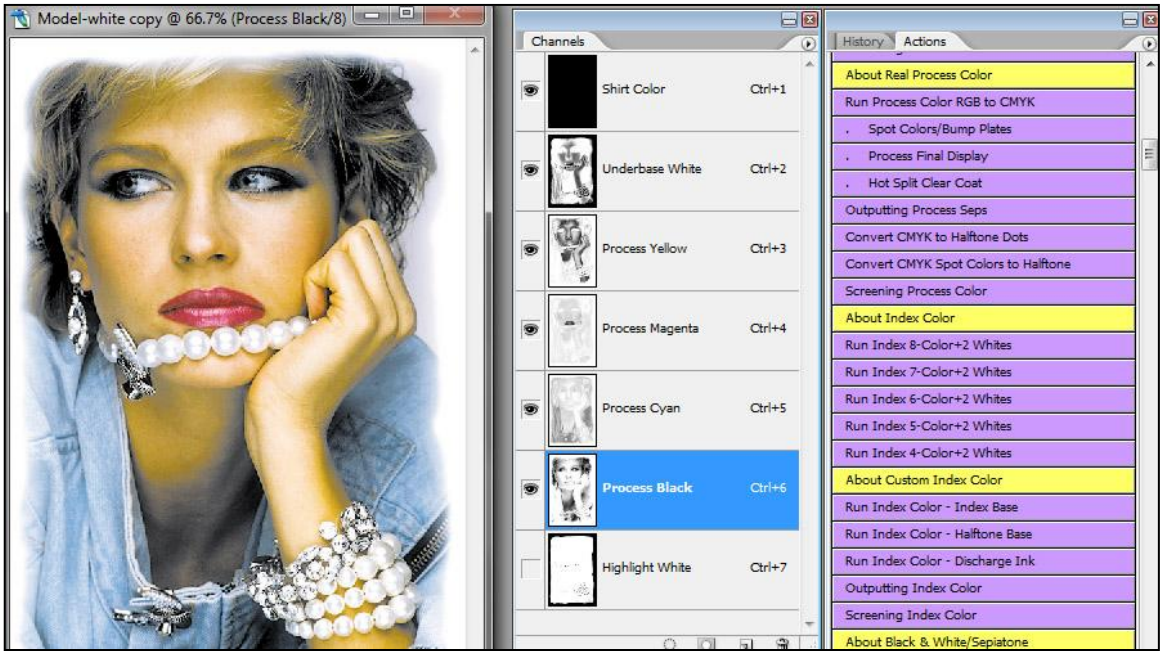
True Process Color (also known as four-color process) is where an image is separated from its RGB component on the computer to the pigment colors of CMYK. These images are then printed through very high mesh counts using special process plastisol ink. In most cases, *Process Color* is more than four 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.

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 negative white plate and the other is an *Underbase* white plate for medium and dark colored shirts. You can choose the one you want to use. The program will also ask what spot colors you want and allow you to sample the spot colors from the image and will then build a channel for these spot colors. You will be prompted to verify the *CMYK Setup* settings when the program runs. Follow the on-screen prompts carefully.



After the initial routine is run, the image will be separated but will still be what Photoshop calls a *composite*. When in composite mode you can't move around the channel sequence. To preview the image the way it will print on a shirt click on *Process Final Display*. T-Seps will place the CMYK channels in the correct print order and make a *Shirt Color* channel and move the white channels their proper location. This routine is only for your display and preview and has no effect on the files.

IMPORTANT NOTE: If you are going to export this file into Adobe Illustrator DO NOT do the *Process Final Display* routine. Adobe Illustrator will want to see the composite image and not a multi-channel image.

Custom Ink Values
For a better reproduction of the original, install the ink values from the CD during the setup routine, or use ink values from your favorite ink company. Most ink companies will provide the ink values for their process colors for free. Most of the major ink companies values are on the CD or downloadable from the *T-Seps User's Arena*. See *Section 4.7 – Photoshop Color Settings for T-Seps* for more information.

IMPORTANT NOTE: Remember that the *Run Process Color RGB to CMYK* routine makes your shirt color a tan color by default. To display the result correctly, make sure to change the shirt color accordingly by double clicking the *Shirt Color* channel thumbnail, then clicking on the *Spot Channel Color Swatch* to get the color picker.

Outputting Process Color
To output the process separations select *File/Print With Preview* and click on the *Screen* button. Note: Adobe removed the *Screen* button in CS5 and CS6 and you need to rely on your software RIP for the halftone settings or use the optional *T-Seps Halftone Converter* available from www.T-BizNetwork.com.

You should use a *Frequency* of 65 LPI for automatic printing and 55 LPI for manual. Use an *Ellipse* dot shape for all screens. Use the following angles to avoid moiré:

Cyan	**15 degrees or 22.5 degrees**
Magenta	**45 degrees or 52.5 degrees**
Yellow	**75 degrees or 82.5 degrees**
Black	**75 degrees or 82.5 degrees**
Both Whites	**15 degrees or 22.5 degrees**
Spot Colors	**15 degrees or 22.5 degrees**

These may seem odd, but work great! And, users have had good luck simply using 25 degrees for all CMYK colors.

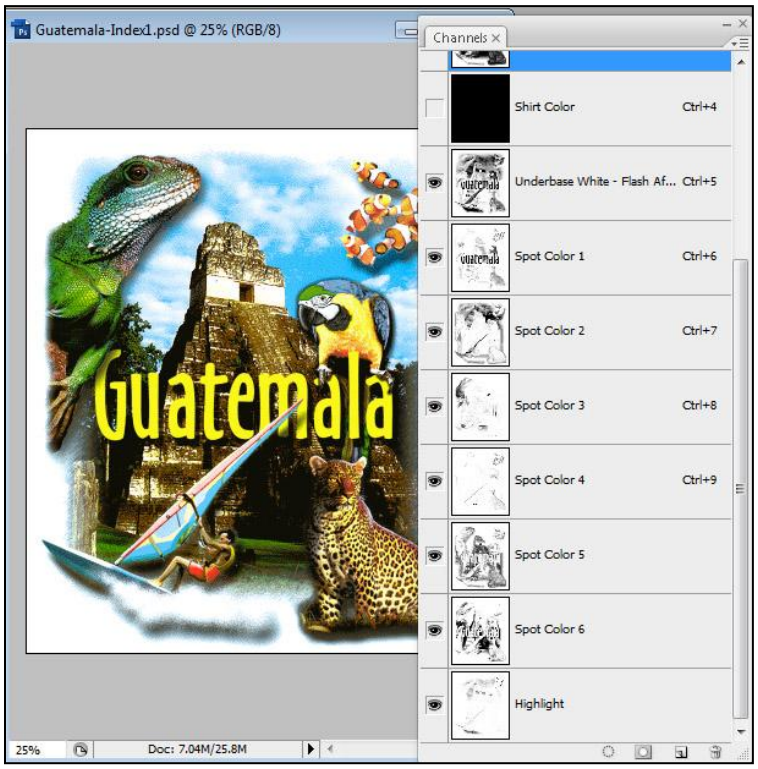
For more detailed information refer to *Section 13 - Outputting Images.*

Screening Tips
This is where a great set of films can make a poor print. You need to be a good printer, use retensionable screens if possible and good technique. For best results have all screens at 25 to 30 newtons. Use a specific brand of ink that goes with the ink values you installed. Print with a medium hard, sharp squeegee on a good press with low off-contact on the screens. Use a good quality shirt too! Your mesh selection should be 305 to 330 for manual printing and 355 for automatics. The white can go on lower meshes if necessary. The printing sequence should be YMCK. The white will obviously go first and if it is the negative white printer - do not flash. Any spot colors should be printed after the similar color (i.e. spot red after magenta).

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. 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 panel is made up of the dominate 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.

Index Color Tables

Although index separations have been normally done from custom color tables that were created specifically for each design, T-Seps has developed a number of stock color tables that will work with most images AND allow you to once again use a stock ink set. The following color tables are menu selections for T-Seps. You may find that less is more with indexing. A common belief is that you need a lot of colors. This is true if you are picking your own color table. But, it you choose a table that is made up of primary colors, plus other standard colors you will be pleasantly surprised at the results. You can do a very respectable index job just using the five color table below!

All of the stock tables below show the number of colors you would print on a light shirt. Each routine also creates an underbase white and a highlight white. If you pick one of the routines that does not have colors similar to those in your design the final separations may look very pixilated. For best results use the Custom Color Index routine.

Eight Color Index Table

Lemon Yellow - Pantone® 102
Scarlet Red - Pantone® 185
Royal Blue - Pantone® 286
Purple - Pantone® 219
Green - Pantone® 361
Lt. Blue - Pantone® 311
Orange - Pantone® 716
Black -
Plus Two Whites

Seven Color Index Table

Lemon Yellow - Pantone® 102
Scarlet Red - Pantone® 185
Royal Blue - Pantone® 286
Purple - Pantone® 219
Green - Pantone® 361
Lt. Blue - Pantone® 311
Black -
Plus Two Whites

Six Color Index Table

Lemon Yellow - Pantone® 102
Scarlet Red - Pantone® 185
Royal Blue - Pantone® 286
Green - Pantone® 361
Lt. Blue - Pantone® 311
Black -
Plus Two Whites

Five Color Index Table

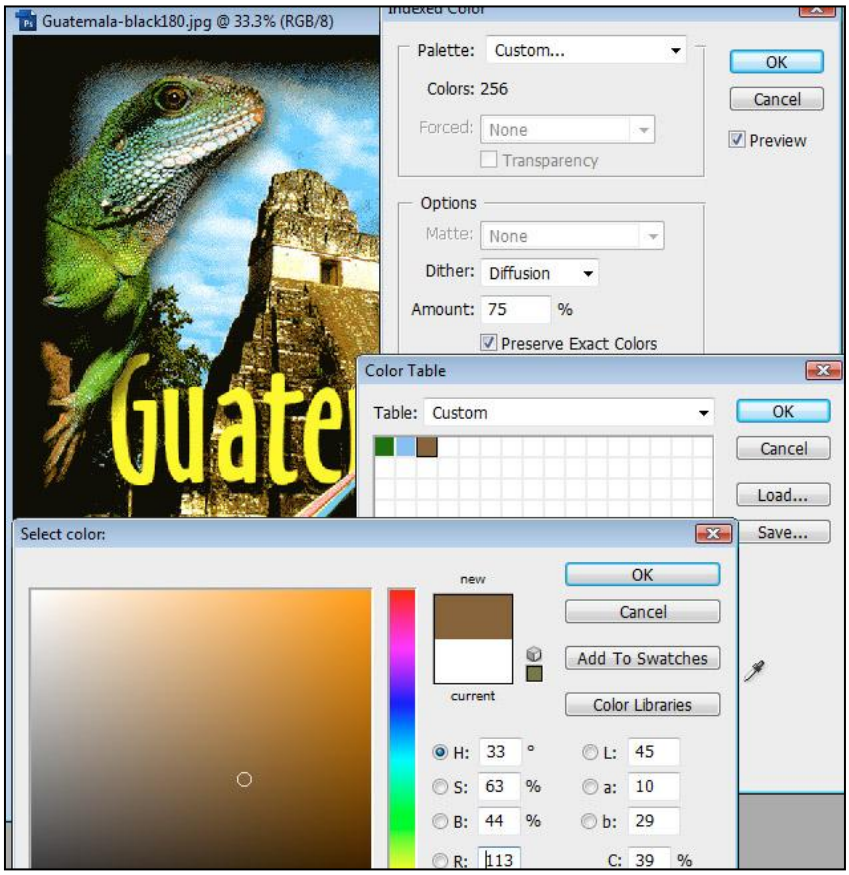
Lemon Yellow - Pantone® 102
Scarlet Red - Pantone® 185
Royal Blue - Pantone® 286
Lt. Blue - Pantone® 311
Black -
Plus Two Whites

Four Color Index Table

Lemon Yellow - Pantone® 102
Scarlet Red - Pantone® 185
Lt. Blue - Pantone® 311
Black -
Plus Two Whites

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 very closely during this routine.



Custom Index Routines
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 new *Index Color – Halftone Base* routine, that you still need to set the angle and line counts for these white channels! Do this as in other routines by going to *File/Print With Preview* and clicking on the *Screen* button.

Discharge Index Separations
There is also and index routine that makes separations that work well when printing with discharge ink. See this part of the Simulated Process routine for more details.

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 the 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 new *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 click *Color Libraries* to see the Pantone swatch list. You should use the *Solid Coated* Pantone list for *Book*. (In some versions of Photoshop, the Color Libraries button will be named *Custom.*)

Outputting Index Color
Index Color does not have a changeable frequency of dots. The size of the dot is determined by the scan resolution (DPI). For best results use a scan resolution of 175 to 200 dpi. When printing *Index Color* films, you do not need to specify a frequency, angle or dot shape (except for the *Underbase* and *Highlight* channels on the *Index Color – Halftone Base routine)*. The indexed image MUST be the correct resolution before running the routines. You CANNOT up-sample an indexed image to a higher resolution after it has been separated. For additional information refer to *Section 13 - Outputting Images.*

Because an index color separation is converted to tiny square pixels, you do NOT need a software RIP to output these films.

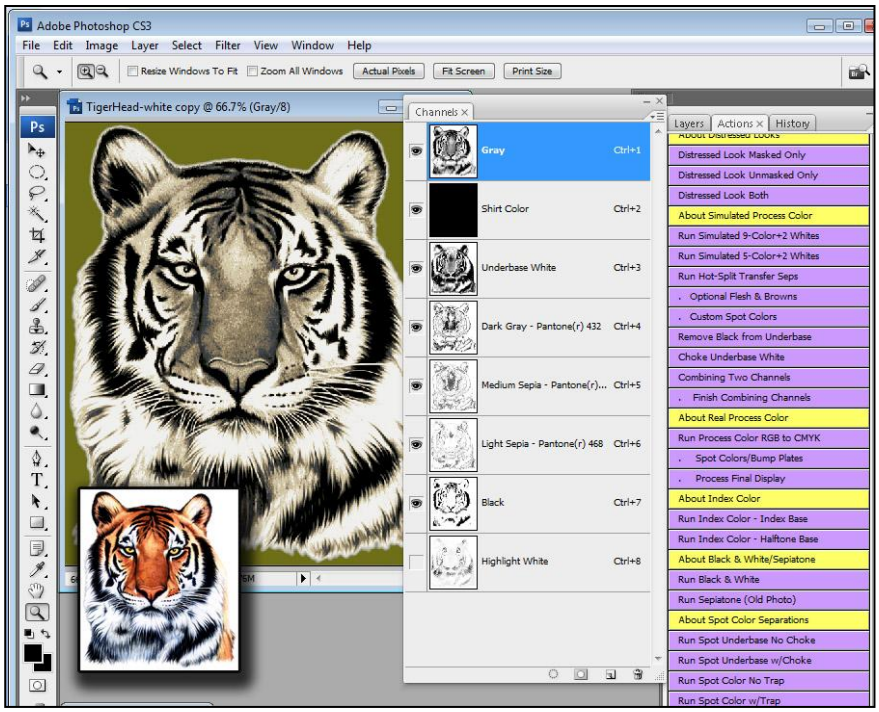
Screening Index Color
For best results use retensionable screens at 30 newtons or higher. Put the *Underbase* and *Highlight* on 180 - 230 (70 - 90 cm) and the top colors on 280 - 355 (110 - 140 cm). Flash only after the *Underbase* white. Use lower mesh counts for basic images. For additional information refer to *Section 14 - Dark Shirt Screen Printing Techniques.*

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. They actually create six channels including an *Underbase* white, *Highlight* white, three gray or sepia levels and black. As with the other routines in T-Seps, the program asks for a masked file and an unmasked file. You can also rearrange the channel sequence, change the colors, etc. For a very stunning effect, replace the various shades of gray (or sepia) with shades of another color like blue or red.



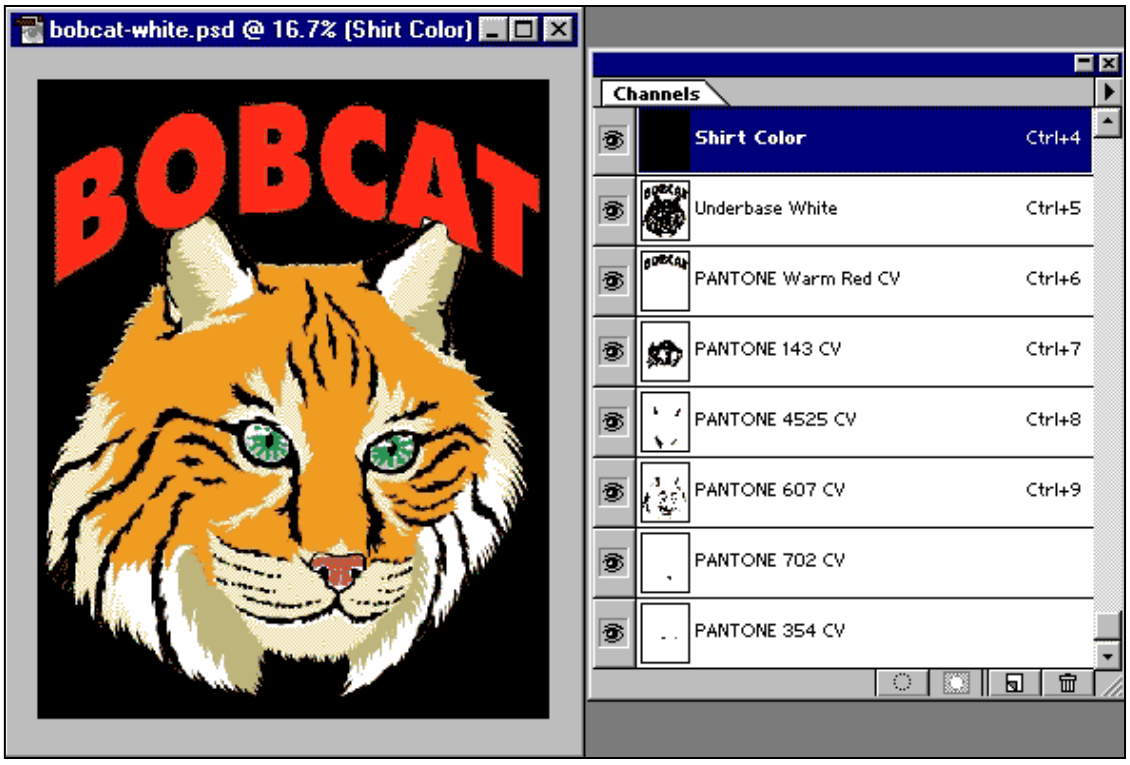
Outputting B&W/Sepiatone
Print the individual channels out using a 55lpi frequency, angle of 25 degrees for ALL channels and elliptical dot. Make these changes under *File/Print With Preview* and click on the *Screen* button.

Screening B&W/Sepiatone
For best results use retensionable screens at 30 newtons or higher. Put the *Underbase* and *Highlight* on 180 - 230 (70 - 90 cm) and the top colors on 230-255 (110 - 100 cm). Flash only after the *Underbase* white. Use lower mesh counts for basic images.

Section 11
Basic Spot Color Separations

Creating Simple Spot Color Separations
T-Seps will create simple *Spot Color* separations. Generally, these images are separated in a drawing program and not in Photoshop, BUT if you have a simple image, this is the place to do it. Also, this is the place to pull additional spot colors for your *Simulated Process Color* images. Just run this routine AFTER you have completed doing the main *Simulated Process* separations first. The secret to having good luck with this in T-Seps is to make sure the image resolution is high enough to give hard edges. A resolution of 175 to 220 dpi will work well for most designs. Simply create the design in your favorite drawing program and export the image at the correct resolution at the correct size. This routine will also work with images that have been scanned and have very specific solid colors. The image should also have solid well-defined colors. You can separate images with gradations, but may find doing even these jobs in the *Simulated Process or Index Color* routines will work better.

Underbase and Trapping
The program will allow you to create basic underbases that can also have a slight choke (made skinnier). You can also apply a trap to the spot color images to allow for easier setup and printing (especially if using vellum paper on wooden screen frames).



Running Spot Color Separations
This part of the program requires a fair amount of user intervention.

You will need to read and follow the on-screen prompts.

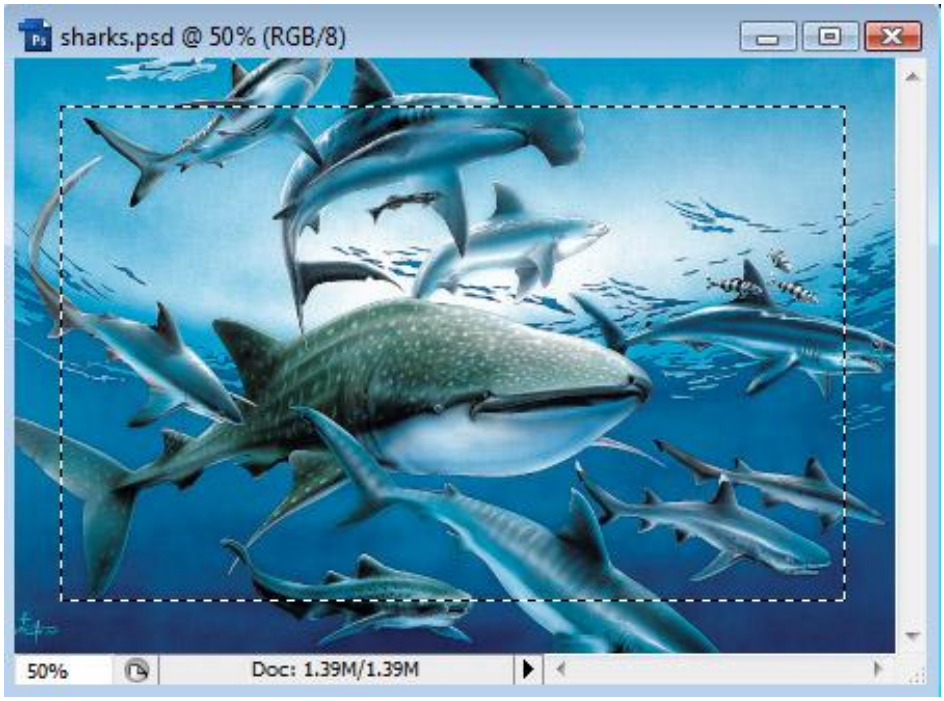
Outputting Spot Color
For solid spot colors simply print out each channel. If the image has gradations, go to *File/Print With Preview* and click the *Screen* button. Select the proper channel from the menu. Use settings of 35 to 45 LPI, angle of 25 degrees, *Ellipse* dot shape.

Screening Spot Color
You can use a wide variety of meshes for *Spot Color*. Simple designs can go on 125 to 180 (48 - 70 cm). Images with halftones can be on 180 - 230 (70 - 90 cm). The *Underbase* can be on 86 - 125 (34 - 48 cm).

Section 12
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. 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.

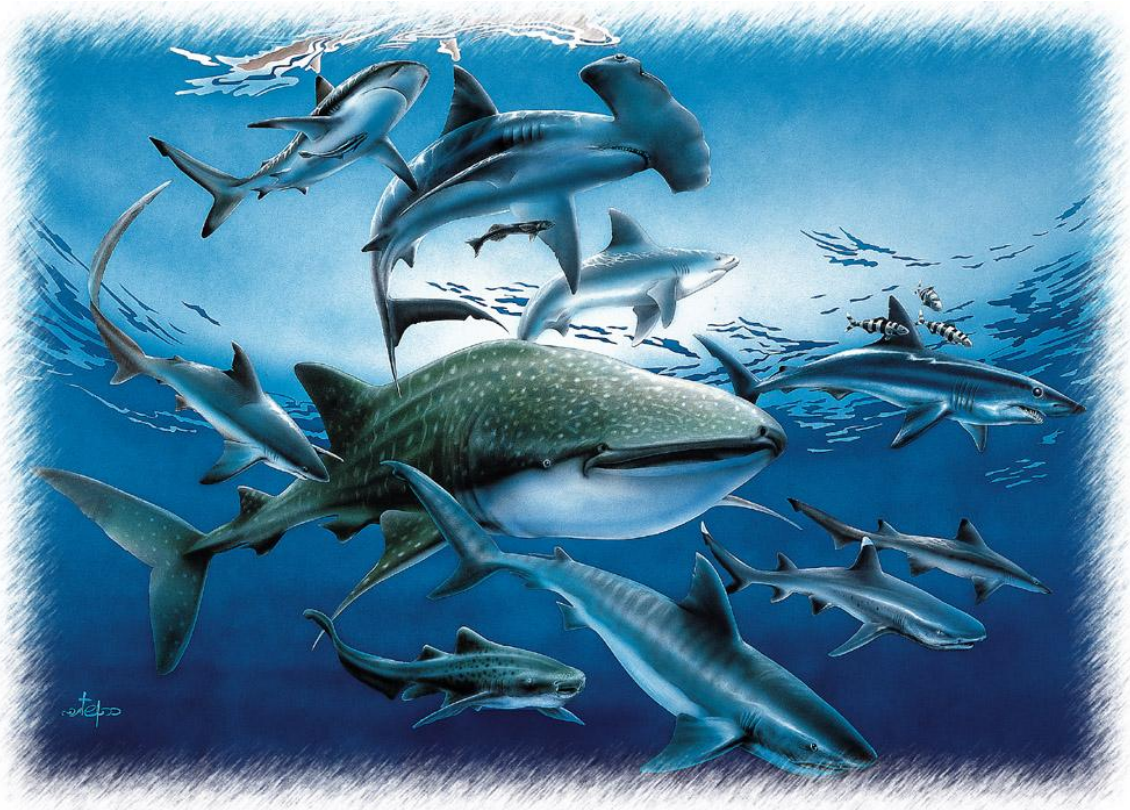
Before running any of these effects the image must be the original RGB with no layers AND no additional channels. Run these routines BEFORE you do the separations. You must use the *Marquee Tool* and make a rectangular selection approx. 1/2" from the outside edge of the image all the way around. (except for the Distress Routines – these run just like separation routines, with the files closed and with a masked and/or umasked image(s) ready) 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.

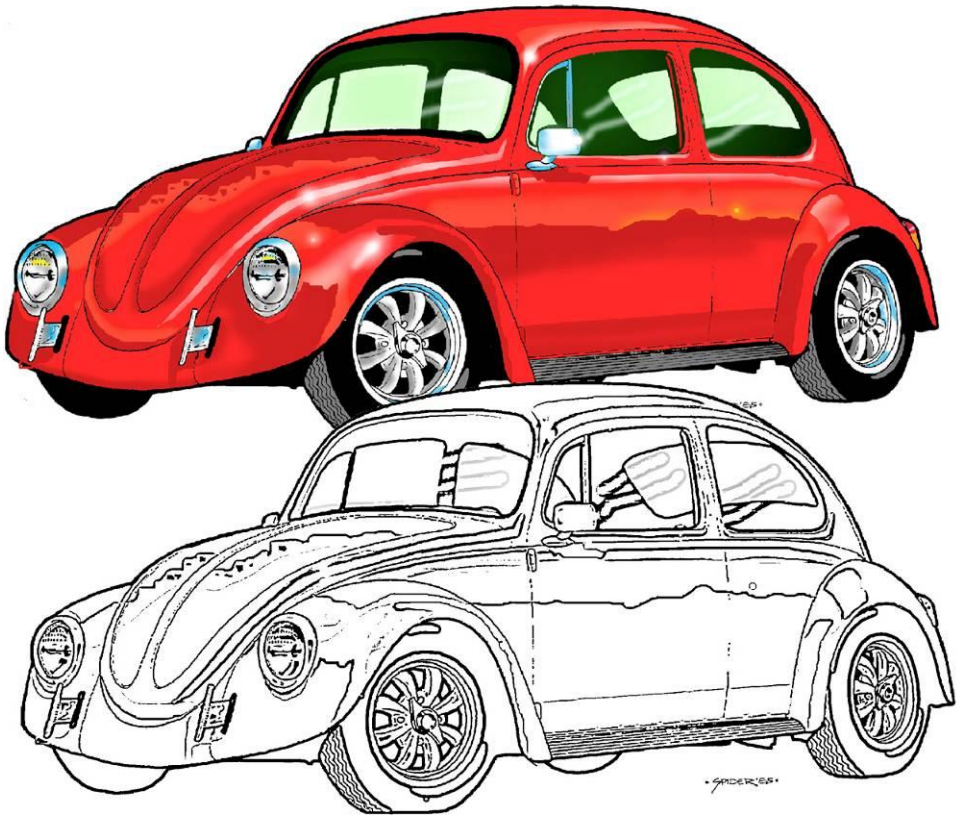
Distressed Look - Washed and Worn
This is not an edge effect. You do not need to make a marquee selection on your image before running these routines – just make sure to follow the on screen prompts closely. It gives the entire image a distressed or washed and worn look. You have probably seen this effect 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.

This routine runs on masked files, unmasked files or both at the same time to create new files for multi-colored shirts. Just have your masked and

unmasked files ready and flattened and follow the on screen prompts. The *Distressed Look* routines also incorporate many new texture files that have not been seen on the shelves since the printing of this manual. You can even create your own distressed patterns. Just use the provided files in the *Distressed* folder on the disc as examples

Convert to Black and White Drawing

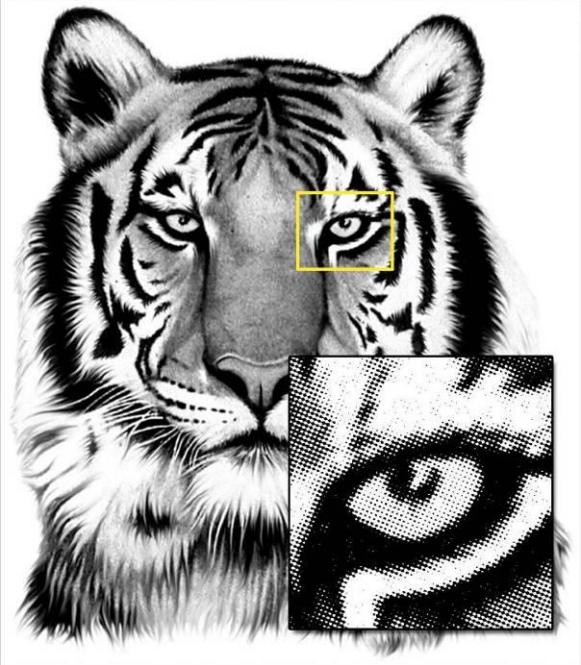
A new routine in T-Seps 2.0 lets you convert a photograph or full-color image to a black and white drawing. Keep in mind that this routine works well on most designs and OK on some. If your image has a lot of dark shadow areas, these will be solid black on the conversion and may not be what you want. For best results use high contrast images or use the Tone Curve and make the image high contrast before running this routine.



Section 13
Outputting Files

Printing Directly from Photoshop
T-Seps has been designed for ease of output. Many graphic designers are taught to take Photoshop images into Quark Express, Adobe Illustrator, 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 like T-RIP (for better ink deposit and halftone dots) to an inexpensive inkjet printer. More on this later.

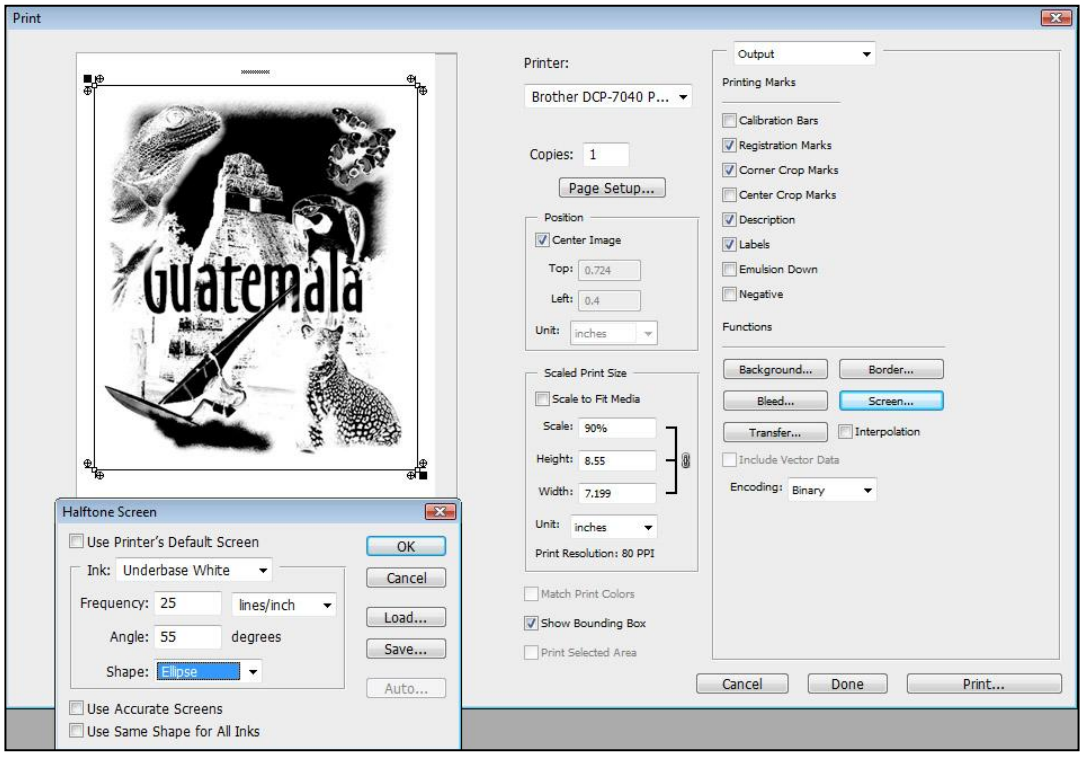
A Word About Halftone Dots
When a file is done being separated in Photoshop the channels either have solid information where you want to print solid ink colors or they have grayscale information for shades or blends of colors. These parts of the image have to be converted into halftone dots in order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



Getting Halftones from an Inkjet Printer
The most popular printers today for film output are inexpensive 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. The most popular of these products is a program called ***T-RIP*** (formerly called FastRIP) available from www.T-BizNetwork.com. Click on *T-RIP*. With a software RIP and an inexpensive inkjet printer you are able to print out very high quality films that burn great screens!

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.



IMPORTANT NOTE: If you have the *Channel Visibility* eye on the RGB channels - your print will be as a composite (all channels on the same page). Also, if you have the eye on the *Shirt Color* channel, that channel will print as solid black on your film or vellum and waste a lot of ink! To print a channel(s), first go to *File/Print With Preview* and click on the *Screen* button. This is where you will tell Photoshop about the *Frequency* (LPI or line count) and *Dot Shape*. You have to input the *Frequency, Dot Shape* and *Angle* for each individual channel.

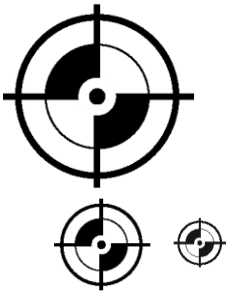
You should also put a check on *Registration Marks*, *Labels* (will print each *Channel Name* on each film), *Caption* (will print the *File Name* on each film). These items will print on the films and make setting up the press and analyzing a job easier.

Outputting Films from Photoshop CS5 and CS6.
Adobe made a MAJOR change to CS5 and CS6 that now makes it much harder to output films directly from Photoshop. If you are using Adobe Photoshop CS5 or CS6 the "Screen" button has been removed from the *Print Output* window. You can no longer specify the halftone line count, angle, or dot shape.

Photoshop CS6 also does NOT have the "Screen" button in spite of complaints from the T-Shirt screen printing community.

Halftone Converter Software
An option for the missing screen button is the *T-Seps Halftone Converter*. This small program takes a standard channel separation and converts each channel into a separate file that is halftoned to your specified frequency, angle and dot shape. You can purchase this program from www.T-BizNetwork.com/store/. Click on *Software*.

Registration Marks



The standard registration targets/marks in Photoshop are often hard to burn on a screen because they are so small. T-Seps 2.0 has a feature that allows you to place bolder registration marks on the corners of the films. You have three sizes to choose from ¼" ½" and 1". You MUST run this routine on a design that still has the original RGB composite above the shirt color.

If you have created a CMYK separation and gone to the Final Display, then there is no longer an RGB composite above the Shirt Color. Simply name three new channels and drag them above the Shirt Color and then go to Image/Mode/RGB. The separations won't change but the file is not an RGB composite and the registration mark routine will work on it.

Make sure to follow the on-screen help menus exactly. If you plan to use the T-Seps Convert to Halftone routine, run this routine FIRST.

If you are on a Mac there can be an occasional problem where the Registration Mark routine will not find the actual graphic files that contain the marks. If you run this routine and an Open window appears, go to your Mac Hard Disk and the TSEPS folder and choose the appropriate mark file.

Printing Media

Inkjet Output

This technology has come a long way in just the last few years and that's why we list it first. Inkjet printing on clear film was the first step in creating the perfect, economical film positive. Your films are dense black, in perfect registration, and output very quickly. All of this, and much more cost effective than even the most inexpensive laser printer or imagesetter. Most inkjet printers use pigment based ink which is not as dark on film as dye based ink. You can normally replace the pigment ink with dye ink from most screen print supply companies.

Vellum

For non-critical jobs you can use vellum or translucency, and many screen printers still use vellum for simple spot color jobs. It is not as stable as inkjet film and may not hold tight registration but will be adequate. Vellum will have a hard time holding a 5% dot without getting burn-through when exposing the screen.

Laser Acetate

This is a matte finish acetate product that goes through a laser printer and is more stable than paper vellum. It should be used for jobs that are a bit more critical.

Darkening the Image

Both vellum and laser acetate benefit *greatly* by spraying the printed images with an artist's matte finish spray or fixative (make sure it doesn't have a UV block in it). This spray makes the black toner almost twice as dark and helps the material hold a finer dot during exposure.

Dry Film Image Systems

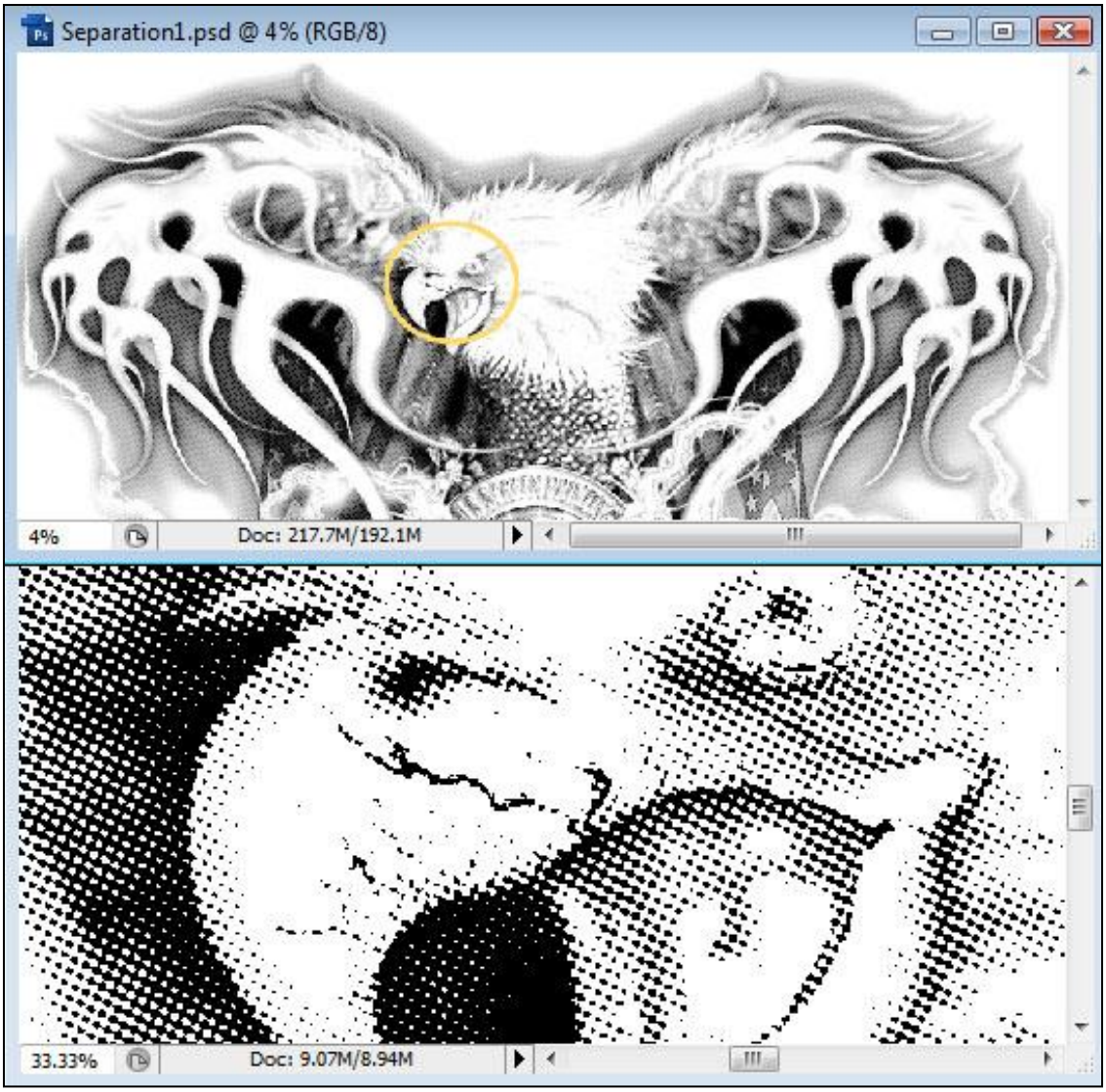
For *Process Color*, high-end *Simulated Process Color* and high resolution *Index Color*, a good choice of media would be a dry film imaging systems such as an imagesetter from OYO Industries. The material is much more stable than acetate or vellum and holds a harder, denser dot. These systems are very expensive.

Printing without a RIP from T-Seps
Printing to a software RIP is certainly the standard, and will give a darker and crisper halftone dot, but for most average work this might be overkill. And, some companies simply can't afford a RIP.

In order to make it less expensive to printout films (or vellums to a laser printer), T-Seps has a built in routine that will AUTOMATICALLY convert each separation to a separate file that already has the grayscale information converted to a halftone dot! This process is very close to what you can get from a software RIP. The only difference is that a software RIP will generally have more control over the ink deposit and will give you darker black images on film.

You can convert *Simulated Process Color*, *Old Photo*, and *Real Process Color* using this technique. Since *Index Color* is already converted to a square dot, you do not need a rip or to convert the file to halftone dots.

When running these routines you must have your separations already run and tweaked. Once this routine is run the file will be converted to a *Bitmap* with halftone dots BUT you won't be able to make any changes to the file/film.



Make sure to save your channel separated file before using this routine. The conversion routine will split each channel out to its own separation and you won't be able to put the job back together again if you want to re-run the routine or make tweaks to a channel. If you need registration marks on your films, run the Registration Marks routine first.

Simply click on *Convert to Halftone Dots* button and follow the on-screen prompts VERY CAREFULLY.

When the file is converted you will have a separate JPG file in your *Samples* folder. The files will be named *Separation1, Separation2,* etc. You should make note of the color sequence so when you output films you know what film goes with what color. The sequence is numbered from the top color down – meaning the Highlight White channel will generally be Separation1.

Print these files to any non-RIP printer and the halftone dots will already be done. These converted separations are pre-set for a halftone line count of 55 lpi with the correct angles. You will not be able to change this.

To get the darkest black image from and inkjet printer without a RIP, use the highest resolution setting possible or the highest quality possible. The higher the dpi you print on an inkjet printer the more ink it lays down. The printing may be slow but the image will be denser.

Many third party companies also carry special dye based ink for Epson inkjet printers that prints darker than the standard Epson pigment based ink.

Exporting Files to Other Programs
It is possible to take a T-Seps separated image into Corel Draw, Adobe Illustrator, Quark Xpress or Freehand to either output or add additional graphic elements. For Corel Draw and early versions of Adobe Illustrator and Freehand the channels will first need to be split. Simply click on the horizontal arrow at the top of the *Channels Panel* and select *Split Channels*. (Once split you CANNOT put them back together!) Each channel is now a separate file that can be saved, named and imported into the other programs and graphic elements added.

DCS2 Files for Quark Xpress and Adobe Illustrator
Photoshop 5.0 and later supports DCS2 files with alpha channels that you can bring into Quark Xpress or Adobe Illustrator version 8.0 and newer (many MAC users who print to imagesetters need to print through a program like Quark Xpress). To create a DCS2 file (for the *Simulated Process* and *Index Color* routines only), simply convert the main RGB or Index image to grayscale (*Image/Mode/Grayscale*). For CMYK images from the *Process Color* routines you do not need to convert to a grayscale. You should be doing this on a duplicate file so you will not lose the original image colors. Next, simply do a *Save As* a *DCS2 EPS format*.

Section 14

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 on 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.

Section 15
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 for all color channels* is 25 degrees. For *Real Process Color* (CMYK or True Process) try Cyan 15, Magenta 45, Yellow and Black 75, or Cyan 22.5, Magenta 52.5 and Yellow and Black 82.5 (alternate angles - you notice that each one is 7.5 degrees higher).

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 16
Troubleshooting and Technical Support

Please read this section before calling for technical support.

T-Seps is a GREAT program that is an improved version of FastFilms – which is 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 the training videos and re-read this *Full Reference Manual*.

Technical Support

If you have a problem with the program, please re-read the manual and make sure you are following the on-screen prompts exactly. Please read the following ***Problems and Solutions*** before you email for support.

Support is free to the original purchaser of the program. Support is available via email at support@tbiznetwork.com and by phone at 1/888-801-1561 (toll free in the US) or 480-212-1078.

Support hours are 8:30am to 4:30pm M-F Mountain Standard Time USA. Arizona does not observe daylight savings so between mid-March and mid-October Arizona is on the same time zone as Pacific Standard Time (the same as California).

When emailing support please allow 24 hours for a response. If you are up against a deadline we will do everything we can to resolve your problem quickly. Please put URGENT in the Subject line of your email if you need immediate help.

E-Mail Support

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 e-mail the file to: *support@tbiznetwork.com*. DO NOT E-MAIL A FULL SIZE FILE. The file must be low resolution (72 - 100dpi) and saved as .JPG (JPEG) file format. This should make the file size no more than 200 to 500 Kb that is easy to email.

Adobe Photoshop Support

Generally, we will help with minor Photoshop issues or problems as they relate to T-Seps. If you are having technical problems that are only Photoshop related you will need to contact Adobe Photoshop support. Adobe customer service: 206-675-6303. Adobe Expert Support 1/800-915-9425.

Problems and Solutions

Problem: ***I keep getting a "can't find T-Seps" or "can't find FastFilms" error.***
This is the most common error you will get if the program is not installed properly. When you get this error, you will get dozens of errors after it. Users often say "they are getting all types of errors" when in reality it is just the first error that is the problem.

Solution #1: (MAC Only)
There are two Mac versions. One is for the older PowerPC and one for Intel based Macs. With Apple walking away from the PowerPC platform we were not able to make one plug-in that worked on both. And we had to use the older "FastFilms" core separation engine for the PowerPC version. There is NO difference in the function or routines because it is the "actions" script that controls the main functions. But, it means that you MUST load the correct T-Seps ATN file into the Actions Panel in Photoshop.

For an Intel based Mac this action is *TSEPS20-English.atn*. For a Power PC it is *TSEPS20-CS-English.atn*.

BUT…. due to the changed both Adobe and Apple made – if you are running an Intel based Mac with CS or CS2 Photoshop you will need to install the PowerPC version and load the "CS" ATN file.

Solution #2: (MAC and Windows)-
T-Seps must have the proper *T-Seps* and *TSepsCustomIndex* files in the Adobe *Automate* folder. If you have multiple versions of Photoshop or possibly are installing on a drive letter that is unusual or external – then the installer may not find the correct folder. Refer back to the installation section of this manual and make sure you have the plug-ins in the *Automate* folder. If the files are not in the correct *Automate* folder, then they must be moved from the *TSeps* folder to the *Automate* folder. Simply copy and paste these files to the new folder before starting Photoshop.

Solution #3: (MAC and Windows)
For some reason Photoshop CS4 and CS5 will not find certain plug-ins even though they are in the proper *Plug-ins/Automate* folder. And, if you have upgraded to CS5.1, Adobe decided to change the installation path. During the installation of T-Seps a folder is place on your Local C: drive (Windows) called *TSEPS*, and on you Mac Hard Drive called *TSEPS*. In this folder is a folder called *Actions*. You can point Photoshop to this folder.

On Windows go to the *Edit* menu and then *Preferences*. On a MAC go to the Photoshop logo/name and then *Preferences*. Select *Plug-ins*. Check on *Additional Plug-in Folders*. Click *Choose*. Find the folder called *TSEPS/Actions* and select *Choose* (or OK). Click on *OK* in the Preferences window and then close and re-start Photoshop. ***This forces Photoshop to find the T-Seps plug-ins regardless of the version of Photoshop you are running.***

Problem: ***The channels do not look right when separated.***
Solution:
The image MUST be in RGB mode and there cannot be any layers except a locked (lock symbol on the layer) or any additional channels besides RGB, Red, Green, Blue. This is the most common support issue. Check the mode of the image *(Image/Mode)* and open the *Layers Panel* to verify that the image is flattened. It MUST say ***Background*** in the *Layers Panel.* Make sure the program was not stopped in the middle of a routine. If ANY

action button is RED, the program was stopped and the *Actions Panel* must be reset. In this case, click the yellow *Reset Menus* button near the top of the T-Seps action list.

Also, this could be caused by memory errors. Photoshop has a "memory leak" that allows it to build very large temporary files that are not always deleted as you close work files. If certain channels do not look correct, close and re-start Photoshop and/or re-boot your computer.

Problem: ***I can't change the halftone line count or angle in CS5 or CS6. The "Screen" button is missing.***
Solution:
For years Adobe Photoshop has had a feature called "Screen" where you were able to change the halftone line count and angle before printing to a software RIP. Adobe chose to REMOVE this feature from CS5 and CS6. Outlandish! They now force printers to take a separation done in CS5 or CS6 and place the image in In-Design or Adobe Illustrator to print. Or, you need to have a software RIP like T-RIP that allows control of the halftone dots in the RIP.

If you are upgrading from an earlier version of Photoshop to CS5 or CS6, keep the older version installed for film output. We are working hard to let Adobe know that they have removed a key part of the program.

An option is to buy the inexpensive *T-Seps Halftone Converter*. Go to www.T-BizNetwork.com/store/ and click on *Software*.

Problem: ***The final separations look dull in Photoshop CS4 and CS5.***
Solution:
There is a quirk which many think is a bug in Photoshop CS4 and CS5. It may not preview the channels with dot gain applied (brighter) unless you go to *View/Gamut Warning* and check *Gamut Warning*. If your images look dull when you put the "eye" on them, check *Gamut Warning* and see if they change.

Problem: ***The routine stops in the middle and Photoshop gives me "Out of Memory" errors.***
Solution:
The program greatly increases the file size. Try to have at least 1gb and preferably more free hard disk space. Because of Photoshop's memory leaks, try re-starting Photoshop or re-booting your computer to eliminate as many temporary files as possible.

Problem: ***The separations are not dead on - the job doesn't look like the original.***
Solution:
It is very difficult to take an image with thousands of colors and have them print with only a handful. Many designs will be extremely close. Other images may need a little "tweaking" to bring them around to match the original. Sometimes your first few jobs will be a learning experience - especially if you have never done this type of work. You will learn to trust what the monitor shows you and to trust your screen printing experience when "tweaking" the separations.

Color Settings can affect this as well. Refer back to the Installation section and review the *Color Settings*. Most of the time, one or two minor adjustments with the *Tone Curve* is all it takes. T-Seps will generally get you within 95% of where you want the

separations to be. Without a program like T-Seps it can take hours and hours of work, even for a Photoshop professional, to do the separations and many failures at the printing press. With T-Seps as a tool, it generally takes less than one minute on most modern systems to run a basic routine and then just a few more minutes to do minor adjustments.

Problem: ***The separations on the monitor look great when the* Black Channel *is turned on but when I turn it off, the image looks flat.***
Solution:
This is not uncommon. If you have areas of solid black in the image, they must not have any color. This means if you use the *Info Panel* and do a reading, they should be at 0 levels for RGB. If these areas are NOT dead black, T-Seps will "think" you want color where you actually want it to be the color of the black shirt. When you display the *Underbase Channel* without the *Black Channel* on, you will be seeing a small 1% or 2% dot pattern. Obviously you won't be able to burn this on the screen, but it will show on the monitor.

To clean up the *Underbase*, simply press the button marked *Remove Black from Underbase*. This removes all areas on the black channel from the *Underbase* and helps the image display better. You can also take a *Tone Curve (Image/Adjustments/Curves)* and adjust the *Highlight* end slightly give the *Underbase* a higher contrast.

NEW CS5/Mac Bug – Problem: ***When running the Custom Index routines there is no way to pick colors from the design.***
Solution:
This is a bug in Photoshop CS5 on a Mac. It is documented in online forums but there is a fix for it. When running a Custom Index routine there is part of the routine that tells you to choose a Custom Panel and then select the key colors from your design. When you go to click on the actual image with the eye dropper – nothing happens. You can select a color from *Color Picker* but to do it right you MUST select colors from the image.

The simple fix – when you are at that point and *Color Picker* is open is to FIRST click on the gray area of the color picker and THEN select the color from the image. Here is a link that explains this problem and the fix in more details.

Problem: ***The Underbase and Highlight channels are blank.***
Solution #1:
There is a known issue with Photoshop occasionally turning off the “copy/paste” command due to low memory or conflicts with other programs. T-Seps uses this command to copy and then paste the underbase and highlight channels into the final separations. The only known solutions are to free up hard disk space, assign a larger “scratch disk” to an external drive in Preferences or shut down Photoshop and re-boot the computer – to remove any temporary files that take up hard disk space.

Solution #2:
Photoshop allows you to show the channel thumbnails images in the actual color you have assigned to them. You do NOT want to do this. In Preferences/Interface you can check or uncheck “Show Channels in Color.” Turn this off. If you have white as an ink color then if you have this option checked you will think the white channel is blank – white on white.

Problem: ***The prints at press look muddy and are not bright.***
Solution:
It is critical that you have a good clean *Underbase*. Low tension screens will give a mottled look to the white. Increase the screen tension and make sure you are on the correct mesh. The top colors need a clean and fairly fast stroke.

Problem: ***The separations on screen are muddy and are not bright.***
Solution:
It is very important to begin with bright, vibrant images so that T-Seps can separate as much color on each channel as possible. Photoshop is very good at displaying poor quality images better than they actually are. Images that have been upsampled (increased in physical size at the same DPI) may have pixel compression that won't be very noticeable until the file is broken down to just a few colors. Sometimes, this is caused by a darker color printing over areas of a lighter color.

Example: You separate a photograph of a horse standing on a field of grass. You definitely need to print a brown channel because of the tones in the horse, but you notice that when you turn the brown channel on, the grass area becomes darker. Because the original file had a darker shade of green on the grass area, it separated brown in those areas. You can either spend more time adjusting the channels after separation, or begin with bright original files in the first place.

Also in this case, you may *use* the green channel to make quick adjustments. You could put the Photoshop eye (channel visibility) on only the green channel (also select the channel) and use the *Magic Wand* tool to make a selection in the areas where green would print. Then you would simply select the brown channel and push the delete key. This would effectively delete any information that was going to print on the Brown Channel wherever it was going to print over Green Channel, since you are only affecting the selected areas. This gives you GREAT control over what colors print in certain areas after separation, since you can use the different channels to make these selections.

Problem: ***Process color prints look muddy on the shirt.***
Solution:
If you are experiencing too much dot gain (from low tension screens, soft shirts, poor printing conditions, etc.) apply 10% more dot gain to the image before running the routines (make it 10% lighter) by using *Image/Adjustments/Curves*.

Problem: ***The original design has solid spot colors of text and the program made the colors halftones.***
Solution:
T-Seps uses a pre-determined panel of colors. If your image has a light red, T-Seps will have to make the red (Scarlet Pantone 185) from its panel lighter by using halftone dots and other colors. If you want the red area to be 100% color, simply be aggressive with a *Tone Curve* to that particular channel. **If you need to do 100% solid Pantone matches through-out the image, it is better to run the *Custom Index Color routine* where YOU pick the colors from the image.**

Use the *Info Panel* (*Window/Info*) to read the gray levels of each separation/channel. Solid areas should read 100% K. If not, use a *Tone Curve* to make obvious solid areas 100%.

Problem: ***I can't get the Registration Marks routine to work on a Mac.***
Solution:
This is a problem depending on what the Mac Hard Disk is called. The program is hard coded to look to a certain location for the targets. If you get an *Open* window when running this routine simply find your Mac Hard Disk and the folder called *TSEPS*. There are three files. "regmark15.png" (.25 inches), "regmark1.png" (1 inch), "regmark 5.png" (1/2 inch). Simply choose the file you want and follow the rest of the prompts.

Problem: ***Index images do not look correct if resampled.***
Solution:
Some of the users have created Index Color Separations and then decided to upsample the image to a larger page size. DO NOT DO THIS. When upsampling an indexed image, Photoshop places grayscale pixels of various shades around other pixels causing the pixels during printout to be very soft. Make sure to be at the final resolution and size before running the Index Separation routines.

Problem: ***White underbase is not heavy enough.***
Solution:
The white *Underbase* has been carefully created to make a soft *Underbase* where there are gradations in the image, and a solid *Underbase* where there is solid text and graphic elements. If this *Underbase* is too weak, simply select the *Underbase* channel and apply a *Tone Curve* adjustment to it (*Image/Adjustments/Curves*).You cannot adjust the white *Underbase* in an index image once it has been indexed. (Except in the *Custom Index - Halftone Base* routine, where the white channels are halftoned). If the *Underbase* it too weak in an *Custom Index - Index Base* routine or any of the standard index routines make the version of the file that has been masked (the first one to load) lighter than normal before running the program routine.

Problem: ***Black channel too weak on simulated and real process jobs.***
Solution:
The dilemma is how to make the black display the way it will print. Since black ink will gain more than any other color, it is hard to have it both ways. Generally the black plate is correct but may look a little light on the monitor. If you feel the black channel is too light, simply apply a slight *Tone Curve* to it. Another way to avoid this is by changing a setting in the *Color Settings*. Try setting *Black Generation* to *Heavy* and/or *Black Ink Limit* to 100% instead of 85%.

Problem: ***Program asks to approve all of the routines.***
Solution:
If you run the program and it asks you to approve almost every move it makes, you have accidentally turned *on* the "stops" in the program. This is an easy mistake to make when switching from *List View* to *Button Mode* in the Actions panel. The only solution is to "refresh" the action to get it back to the original version. Go back to the Actions Panel and *Replace Actions* from the Actions menu.

Problem: ***General File Errors when running routines.***
"can't perform command" "command not available" "object not available" etc.
Solution:
If you get continuous errors such as "commands" can't be found, it usually means the file is not in the correct format. Make sure the original file is RGB, No Layers (must say

"Background Layer") and has no additional channels other than the RGB composite and individual R, G, B (four channels total). Even if you think the file is OK, take time to open the file and double-check these issues:

Checking for RGB:
1. Open the file.
2. Open the Channels Panel (*Window/ Channels*).
3. The file MUST have four channels - RGB, R, G, B. There can be no additional "alpha" channels, channel masks, etc. Sometimes if you stop a routine in the middle and save the file, these extra channels stay with the file. Also, when getting files from customers, there are often mask channels that they forgot to delete. NEVER run a file without opening it first to check it out.

Checking Layers:
1. Open the file.
2. Open the *Layers Panel* (*Window/Layers*).
3. There MUST only be ONE layer and it MUST say "Background." If there is more than one layer or if the single layer says "Layer 1" or anything else, the layers are not flattened. To flatten the layers, go to the upper right arrow in the Layers Panel and click on Flatten Layers, or save the file as a .JPG - since this file format will not allow additional layers or channels.

Problem: ***Can't find T-Seps in Actions Panel. "I loaded the action and it is still not there"***
Solution:
There is no way to automate the loading of the actual "action" that T-Seps uses in the *Actions Panel*. This must be done manually. Simply open the *Actions Panel* (*Window/Actions*) and go to the upper right hand arrow. Come down to *Replace Actions*. When the *Load* menu appears, select the appropriate action from the T-Seps folder. Make sure the actions are in *Button Mode* (upper arrow and select *Button Mode*). The buttons are in purple, yellow, etc. A common mistake when moving from a demo version to a full version or when upgrading to a newer version is that if you load the action, it places the new version BELOW the old version. You have to scroll down on the menu to even find it. You must REPLACE the action - not LOAD it.

Problem: ***The Index routine images look grainy on the monitor.***
Solution:
Index images can be grainier on the monitor than when they print. Also, the file resolution determines how "grainy" the image will be. You must be at a resolution of at least 150 to 200dpi for indexing to look good. If you run the routine on a low resolution file it will be very grainy AND you can't upsample an indexed image once the routines are run.

Problem: ***Index routine underbase and top colors don't match in size.***
Solution:
This one is easy to miss. When the index routine is running the menus will prompt you TWICE to "*verify that the input and the output resolutions are the same*." Sometimes Photoshop will change the resolution in this menu. If it says Input 200 dpi and Output 150 dpi, then you will be sampling the image down in size. The *Underbase* will now be SMALLER than the top colors. You must read the menus and follow the directions.

Problem: ***Image has a square box of black around it.***

Solution:

Many first time users don't understand about the black "masking" around an image. Any areas outside of the actual design are called the canvas. These areas must be filled with black. This doesn't mean a black box around the design. It means the black must go up the edge of the image. Just imagine what the image should look like on a black shirt and this is how the masked version must look.

Problem:

If All Else Fails.....

Solution:

If all else fails, please re-read the manual and re-run the routine making sure to **follow the on-screen menus exactly.** It is also helpful to view the video training again and learn more about proper image adjustment.

Developed by Scott Fresener

T-SEPS™ Automated Color Separations

QUICK Reference Sheet

Print this sheet out on an inkjet printer. The colors may vary slightly but will give an idea of the colors T-Seps uses to separate.

Important Points

Make sure to follow Reference Manual steps for setting up Photoshop's Color Settings. For images to display correctly you must have the dot gain set correctly.

Support Numbers

T-Seps Serial Number: _____

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

Simulated Process

Sequence/Swatch/Pantone®/Mesh

1. Opaque White 180-230 (79-90cm) mesh
2. Lemon Yellow - Pantone® 102 280-355 (110-140cm) mesh
3. Scarlet Red - Pantone® 185 280-355 (110-140cm) mesh
4. Blue - Pantone® 286 280-355 (110-140cm) mesh
5. Purple - Pantone® 219 280-355 (110-140cm) mesh
6. Green - Pantone® 361 280-355 (110-140cm) mesh
7. Light Blue - Pantone® 306 280-355 (110-140cm) mesh
8. Gray - Pantone® 421 280-355 (110-140cm) mesh
9. Brown - Pantone® 167 280-355 (110-140cm) mesh
10. Highlight White - all purpose or opaque 180-230 (79-90cm) mesh
11. Black 280-305 (110-120cm) mesh
12. Light Flesh - Pantone® 475 280-355 (110-140cm) mesh
13. Dark Brown - Pantone® 161 280-355 (110-140cm) mesh
14. Medium Brown - Pantone® 181 280-355 (110-140cm) mesh
15. Orange - Pantone® 150 280-355 (110-140cm) mesh

Image Output:

55 lpi
25 degrees for all films
Elliptical dot shape

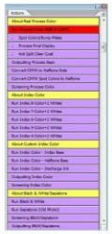
Screen Printing:

Use specified meshes
Flash after Underbase
Use properly tensioned screens

Loading & Resetting Actions Palette

Before running T-Seps for the first time you must load the program into the Photoshop Actions Palette. Open the Actions Palette (Window/Actions) and click on the upper right button. Go to Replace Actions and find the appropriate action in the Tseps folder on your hard disk.

If any button is RED you must reset the action before running it again.



Process Color

For best results use ink values from your favorite ink company. Load these values in the Color Settings, Printing Ink Setup menu (Photoshop 4.0), or the CMYK Setup menu (Photoshop 5.0 & 5.5). If you don't have these numbers use SWOP Newsprint with a dot gain of 35%.

In Edit/Color Settings/CMYK Working Space/ Custom CMYK - set Photoshop to GCR, Black Generation Medium (or Heavy if the image has a lot of black), Black Ink Limit to 85%, Total Ink Limit to 280%.

Image Output:

55 lpi (Manual) 65 lpi (Automatic)
Angles: C/15, M/45, Y/75, K/75
or C/22.5, M/52.5, Y/82.5, K/82.5
Elliptical Dot Shape

Screen Printing:

Mesh: Manual 305-330 (120-130cm)
Automatic 355 (140cm)
Use properly tensioned screens.
Print sequence YMCK

All Pantone® color swatches are for reference only. For a more accurate match consult your Pantone® book.

8-Color Index

Plus Underbase & Highlight White

Sequence/Swatch/Pantone®/Mesh

1. Opaque White 180-230 (79-90cm) mesh
2. Lemon Yellow - Pantone® 102 280-355 (110-140cm) mesh
3. Scarlet Red - Pantone® 185 280-355 (110-140cm) mesh
4. Blue - Pantone® 286 280-355 (110-140cm) mesh
5. Purple - Pantone® 219 280-355 (110-140cm) mesh
6. Green - Pantone® 361 280-355 (110-140cm) mesh
7. Light Blue - Pantone® 311 280-355 (110-140cm) mesh
8. Orange - Pantone® 716 280-355 (110-140cm) mesh
9. Black 280-305 (110-120cm) mesh
10. Highlight White - all purpose 180-230 (79-90cm) mesh

6-Color Index

Plus Underbase & Highlight White

Sequence/Swatch/Pantone®/Mesh

1. Opaque White 180-230 (79-90cm) mesh
2. Lemon Yellow - Pantone® 102 280-355 (110-140cm) mesh
3. Scarlet Red - Pantone® 185 280-355 (110-140cm) mesh
4. Blue - Pantone® 286 280-355 (110-140cm) mesh
5. Green - Pantone® 361 280-355 (110-140cm) mesh
6. Light Blue - Pantone® 311 280-355 (110-140cm) mesh
7. Black 280-305 (110-120cm) mesh
8. Highlight White - all purpose 180-230 (79-90cm) mesh

Image Resolution:

Average Image 150-175 dpi
Detailed Image 200-220 dpi
Image CANNOT be resampled or adjusted after separated.

Image Output:

No Frequency, Shape or Angle

Screen Printing:

Use specified meshes
Flash after Underbase
Use properly tensioned screens

7-Color Index

Plus Underbase & Highlight White

Sequence/Swatch/Pantone®/Mesh

1. Opaque White 180-230 (79-90cm) mesh
2. Lemon Yellow - Pantone® 102 280-355 (110-140cm) mesh
3. Scarlet Red - Pantone® 185 280-355 (110-140cm) mesh
4. Blue - Pantone® 286 280-355 (110-140cm) mesh
5. Purple - Pantone® 219 280-355 (110-140cm) mesh
6. Green - Pantone® 361 280-355 (110-140cm) mesh
7. Light Blue - Pantone® 311 280-355 (110-140cm) mesh
8. Black 280-305 (110-120cm) mesh
9. Highlight White - all purpose 180-230 (79-90cm) mesh

5-Color Index

Plus Underbase & Highlight White

Sequence/Swatch/Pantone®/Mesh

1. Opaque White 180-230 (79-90cm) mesh
2. Lemon Yellow - Pantone® 102 280-355 (110-140cm) mesh
3. Scarlet Red - Pantone® 185 280-355 (110-140cm) mesh
4. Light Blue - Pantone® 311 280-355 (110-140cm) mesh
5. Green - Pantone® 361 280-355 (110-140cm) mesh
6. Black 280-305 (110-120cm) mesh
7. Highlight White - all purpose 180-230 (79-90cm) mesh

4-Color Index

Plus Underbase & Highlight White

Sequence/Swatch/Pantone®/Mesh

1. Opaque White 180-230 (79-90cm) mesh
2. Lemon Yellow - Pantone® 102 280-355 (110-140cm) mesh
3. Scarlet Red - Pantone® 185 280-355 (110-140cm) mesh
4. Light Blue - Pantone® 311 280-355 (110-140cm) mesh
5. Black 280-305 (110-120cm) mesh
6. Highlight White - all purpose 180-230 (79-90cm) mesh

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 the 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 numerous video tapes and DVD's 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.*

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, Wal-Mart 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.