

KEEPING PACE

A Monthly Newsletter Devoted to the Darkroom Arts

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Dupe transparencies, how are they made?

The making of dupe transparencies is a simple operation, almost.

The main ingredient is a good enlarger with a sharp lens, (apochromatic) and an even light source. A quality color head is all that is necessary.

However, the main ingredient to own and use is a quality easel meter. I didn't say "analyzer," but a quality easel meter. I used to recommend the Wallace Fisher meter. It was excellent. The few that are still in operation work well. However, ZBE has an easel meter that is called "the Density Reader." It works in the same fashion but instead of having a 6 f stop range this gem has a 12 f stop range.

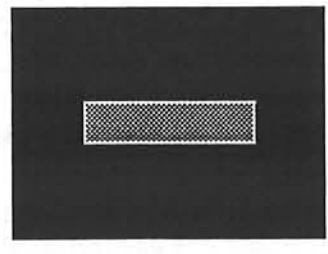
The key to making great dupes is to have a color corrected light source. This means that it should be incandescent.

The light source demands that the color of the lamp be a complete spectrum, as opposed to a gas tube or fluorescent lamp.

What kind of reversible duplicating film must you use? You have a few choices. Kodak is very close to perfection.

Regardless of the name of the manufacturer, the first thing you must do is to establish a good grey. This is done by using a Kodak or Stouffer's 21 step grey scale (film tablet) in the following manner.

Cut out and mount the grey scale in a sheet of opaque material, such as exposed and processed Litho film.



This step, unfortunately, is a hit and miss approach.

Make a series of different exposures onto duplicating color film through different color packs and process the film normally. Look for the step with the closest accuracy in density and contrast. Then look for the closest accuracy in color balance.

For this part of the process you must have a quality light source such as a Macbeth viewer.

When you begin to get close, use color correction filters over one eye to examine the dupe, while looking at the original with the other eye and no filter. Soon you will be able to close the gap and eventually make a close match.

If you get a fairly close color match but a poor density match, record the color pack, then remove the carrier and record the light level of the appropriate exposure.

This will take a little experimenting to get close. Once you pick a close image, remove the grey scale from the enlarger's carrier and take a reading of the light level and record the filter pack. The light reading is an **aim point**.

Now, let's pick a 35mm original. Place it in the carrier and enlarge it to any size you wish. Once you are satisfied with the size and position on the easel, place the filter pack and remove the carrier from the enlarger. Now, place the probe of the meter dead center on the easel and adjust the light source thru the f stop until it matches the aim point. The exposure will be the same as it was when the test was approved.

Now, for the **complications**: The color of the original will influence the color of the final image, unless it is made by contact. The flare that occurs when any image is enlarged will distort the final image.

However, you will be close enough so that a slight color correction can be affected without much of a problem. How about color correction? What does one need to get a better dupe than the original?

The answer is relatively simple. Using the same color correction (CC) filters as you used in finding the correct exposure for the grey scale, you can look at the results through any filter or

set of filters and when you feel that the addition of the filters is correct, then add the same filter amounts to the color head. Remember to make the adjustments needed by f stop to produce a correct density as before. This step is only good for the current film you will be using.

What about contrast? Are your results going to be too contrasty or too flat? It really depends on your enlarger. Kodak wisely manufactured the material so that a diffusion enlarger would be more accurate than a condenser type. However, if the results are too contrasty, a simple solution would be to make a contrast mask.

How does one make a contrast mask.? You will need a contact frame, with registration pins and a matching punch and a registration carrier, and a bare bulb hanging over a work table. I prefer to use a Kodak acorn safe light fixture as the unit to place a bulb into. A 2 or 3 inch square filter holder can be attached to this unit and filters can be added and removed at will. The process needs to have one able to make masks at various levels of contrast. However, once you have established the degree of contrast needed in your own case, you need not search any

longer unless you want the advantage of being able to change the contrast to suit your own personal desires in the final image. My book on masking details all you will ever need to know about contrast masking.

Suppose the image is too flat? How can you increase the overall density and contrast from the original? Again, you need the same equipment. One short cut is to make a very light (over exposed) dupe transparency which can then be placed over the original image. This is one method to use when all else fails.

I once saved a job for a client. The image was of Marilyn Monroe lying in a bed with white satin sheets covering her. The camera angle was from above. The image was shot by Douglas Kirkland. The shot was great. However, it was slightly over exposed and looked washed out. A print was made by another lab and they matched it to a T. Unfortunately, the final client was dissatisfied with the result and asked to have another print made. I was called in and I saw the excellent print made by my competitor and the original transparency. I was asked if I could do better? I said yes. I had no idea of what to do, but I felt it was an opportunity to impress a client. After thinking about it for a while I decided to make a

very thin dupe transparency on Ciba dupe film stock. I made sure that it was a very thin attempt. However, when I added the new dupe to the original transparency, a number of things happened. The image gained density, the color was intensified, and the detail was improved. I was amazed at how much better the image appeared.

I added the new dupe to my original, and found that the contrast was improved enough that a contrast mask was needed. Just about 12%. I made the mask using the red and green filters so that colors wouldn't shift and made a 16x20 final Cibachrome print. It looked great. The client also thought the same. We had a new client for a very long time. This is a simple correction. For very difficult color shifts in certain areas, a longer method is described in my book on Cibachrome in the section on **Isolation masking**.

Do I recommend making serious changes in the processing of the materials? No I do not. The manufacturer has had much more time and experience to be able to establish proper processing habits.

How does one process his own dupes in a small lab? There are a number of processing gadgets that do the job with perfection. The list is rather impressive.

Jobo has a few systems that work well, including the CP units and the Duolab, as does Photo Therm and their unit called the "Side Kick," and HK makes a unit that works very well, as does King Concept's Image Maker. Others are also in the wings. I don't recommend any one processing with tank and gas burst and film hangers.

The method used to accurately move the hangers is old fashioned and doesn't work well.

The chemistry must be replenished often and the method of reliably making sure that the chemistry is O.K is usually suspect. "One shot" chemistry is all that you need.

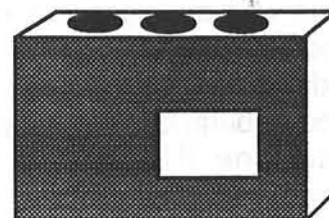
So, to make sure that you understand the methodology, here it is in capsule:

1. First find the correct filter pack (for the current film).
2. Record the correct light level aim point.
3. Place the original transparency in the enlarger and size it up.
4. Adjust the color filter pack and remove the image from the enlarger and adjust the light level by adjusting the *f* stop.
5. Make the exposure and keep your fingers crossed.

What advantage, if any, is the use of an easel analyzer at this point? None at all. If you go through the steps of

finding the matching grey in the film tablets, why would you need the analyzer? The color balance of the enlarger has been found and the only thing that will upset the applecart is the amount of color shift caused by the color in the original transparency. The only valid reason for owning an analyzer is when you are working from color negatives and need to distinguish between colors or grey's.

How is it possible to make great color and density changes in order to improve the "look" of a dupe? How about the magic box?



The "Magic Box" I write about is simply a color correction system that I dreamed up many years ago. It was constructed from color head used in a small Omega enlarger.

The way I used it was as follows;

First, I would set it up to resemble the color balance and brightness of a Macbeth light box. I did this by eye. Nothing fancy about it so far. Once I had a good match to a Macbeth light box, I recorded the settings for each color filter. This was my zero white light setting.

I would then be able to place a transparency on the light area and examine it. I could then adjust the color balance to my wishes. If I wanted a warmer color, I would simply add some magenta and yellow to the filter pack. If the density was not proper, I could then reduce all three colors the same amount so that the color would hold but the intensity would change. This was simple tool that I used to make an image look more favorable.

In fact, I once placed one hundred 35mm transparencies on this box (one at a time) and ended up with some variation from "normal" on every single slide. Each change was an improvement for the better.

The difference in density and color balance was easy to determine. If I added 10 Magenta to the magic box, all I had to do was add a 10 magenta to the color head of the enlarger when making my dupe, and of course, remembering to adjust the overall density by playing with the *f* stop and my easel meter.

If the overall density was changed, then adding or subtracting exposure by the use of logarithm is a simple task also. For every .30 change in density you either double the exposure or half the exposure.

The use of a simple Texas Instrument calculator (TI-30) makes this chore a simple task.

Here is an example; If your image has to be increased in exposure for a .25 change in density, the procedure is as follows;

Press the difference ".25"
Then press the button marked "INV."
Then press the button marked "Log.)
Then press the button marked "X" and then the original exposure (for this example press 10 for 10 seconds) Then press the button marked "=" for the answer.

If you must reduce the exposure the steps are slightly different:
Press the difference ".25)
Press "INV"
Press "LOG"
Press the button "1-X"
press the "X" button and then the 10 for the original exposure of 10 seconds.
Then press the button "=" for the new answer.

This method of finding the new exposure or color pack is so exact that your timer may not be able to deliver accurately the minute differences in exposure. Make sure that your timer works within a 1/10 of a second accuracy.

The production of a dupe transparency now takes on very professional dimensions. No longer are you stuck with the results by simply making an exposure.

If you are making your dupes through the enlarger, you also have the opportunity of dodging and burning in order to make subtle, or great changes in the appearance of the final dupe. You can also use diffusion to enhance the image. Don't forget, the final appearance of the dupe depends on factors such as brightness and color influence of the original. Always make your correction based on the appearance of the test dupe. If you are making dupes with the intention of reproduction, make sure that you place the original in the enlarger carrier with the emulsion up. Do the same with the dupe material on the easel. I highly recommend using a vacuum easel. Condit makes a great one. Suppose that your image looks great but lacks brilliance in the highlight areas. How does one repair this problem?

This method is easy to handle.

Using a material such as Dupont's CRR4 (a reversible Litho material) and processed in a strong developer such as Kodak's D19, a too short of an exposure would produce a black sheet of film. However, a slight bit more would reveal just the tiniest little clear highlights in this sheet of otherwise black film. This sheet of film is laid over the dupe material on the vacuum easel, in register, of course, after it has

already been exposed, and re-exposed a bit more so that just the highlights are affected.

The difference can be quite dramatic. The best part is that you have complete control of the image and can make it as bright as you wish.

If you need to exaggerate a color in the image without touching any other colors, make an exposure on a Pan Litho film such as Agfa's P-911 through an opposite colored filter so that the area in question develops as a clear area. Add this sheet of film to an already exposed dupe and re-expose through a strong separation filter to make a red look redder, or a green look greener. And so on.

The list of possible corrections begin to grow every time you think about it.

Have you ever thought about using a specific color that you would like to add to your color print or dupe? Maybe it is some lettering, or a symbol that you need to make a point and you want to produce it in a specific color. A simple method is to use color filters and mix them if necessary. Place the color filters under the lens only if you must, otherwise, try to make large enough filters so that they can be placed in the area above the image.

The trick here is the exposure. Stop the lens down to f 22. Use the easel meter

to record the light level for each filter

Place a red filter in the filter drawer (if you have one) and using one strip of the dupe film, make an exposure of ten seconds. Cover that area and open another strip. make another exposure of 15 seconds. Cover that area and make another strip, and expose that area for 20 seconds. Make as many as will fit on the same length with the red filter. Then change the filter to a green one. Do the same thing. Make another strip and use a blue filter and do the same thing. Remember to use the easel meter each time a filter is changed. This is critical.

If you have room on the film, or if necessary, use another sheet of dupe material.

If you have an enlarger with a color head, do the same thing, but mix the colors as follows. First the red alone then part red and part yellow. Vary the exposures and differences between the filters and make sure to record them. Do the same for all of the possibilities

Glen Peterson did a great job with his color matching system. He produced an 8x10 step wedge. He was able to take density reading through this wedge with white light. If he exposed a strip, the density changed with only one exposure. The reading were accurate. All that was necessary after this

was to set the colors for each strip.

He began with the first strip being all magenta. (160)

Then the next strip consisted of 140 magenta and 20 Yellow. He read this light level and exposed the color image through the step wedge.

The next strip was 120 Magenta and 60 yellow. He kept doing this so that he went from a solid magenta through the changes to a solid yellow. Her did this with all of the other color variations that were possible. He ended up with 540 different colors and densities that he could recall in less than 10 seconds. He sells his procedure and I know for sure that it works. The easel meter he used to offer with this package was the discontinued Wallace Fisher meter. However, ZBE has a meter that works with double the f stop range. You can contact Glen Peterson at :

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For those of you who would like to get involved on your own with the digitized system of making separation negatives but don't want to spend lot's of money, here is a solution.

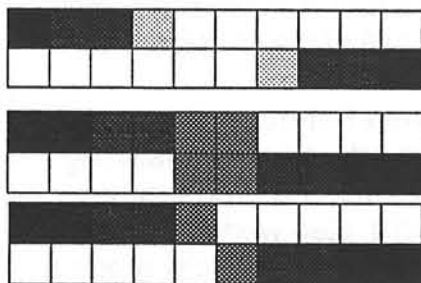
It is possible to get a transparency scanned by a Litho house that uses a premier Crosfield scanner and have

a set of screened 4 color separation negatives produced at a reasonable screen size for as little as \$170 including a 3M color key. The screen size may be coarse by the standards set by the best pigment printers, but for the exercise and experience it requires to make a quality print, this is a very reasonable way to go. Any quality Litho house can accommodate you with ease. Your only contribution to this effort is to make sure you have a good vacuum frame and an ultra violet light source. Magazines such as Horsetrader based at PO Box 11712 Santa Ana, CA 92711 can supply you with a list of various sizes and conditions so that for as little as \$300 you can purchase a used plate maker. This is your main expense. A film punch and a set of pins must be used to make registration automatic. A flat surface, and a sink with hot water is the balance of your main cost. A roller such as those used in the Dye Transfer process helps, but I have seen the results by just using a squeegee. They both work, if you are careful. The pigment sheets the materials from UltraStable should include the receiver sheets. They can be purchased from Chas. Bergers UltraStable Co. at 500 Seabright Ave Santa Cruz, CA 95062. Phone 408-427-3000. This effort will start you on

your way to understanding how the exposure system works.

The idea of making exposures based on anything you have ever done before will be changed completely. No longer will you make exposures based on the density of the negative alone, but on the base exposure that each color must be started with. In other words, if the base exposure for the Cyan is 30, and the magenta is 50, and the yellow is 90, and the black is 22, how does one get the correct exposures for the color balance.

The speeds of each color (the base exposure) can be obtained by using two 21 step grey scales. Place them in opposing positions and make a series of different exposures of the combined scales. If you are over exposed, the two scales will pass each other in the middle of the scales. If they are under exposed, there will be a space between the scales in the middle area.



The top scale is under exposed, the middle scale is over exposed, and the bottom scale is O.K. This will indicate the base exposure

I don't know what the correct base exposure will be for each color but they could be as bizarre as I have indicated.

The same negatives could be used for making Dye Transfer prints. Here, however, is a chance to make adjustments in exposure balance just as you would in conventional color printing, as the matrix film is a black and white material and color has no bearing on the overall exposure base. Expose the material using the same vacuum easel, but a simpler incandescent light source can be used.

Incedently, the Dye Transfer process is about to get off the ground. Dr, Patterson is about to mail out questionarres to many thousands of people that have an inclination towards the process. In this way he will get an idea of the sise of the run he will order. The dyes have been produced that match Kodak's colors and also have true archical qualities that will make the prints last indefinitely. This effort has been costly for the good Doctor. For those of you who have called him and expect an answer, remember that his phone bill must be well over \$800 per month. Be patient. His efforts have been nothing short of miraculous considering the initial stalling by Kodak.

ering the initial stalling by Kodak.

I have been recommending the Wallace Fisher easel meter for the past ten years. As you may know, this excellent meter has been discontinued. However, ZBE, has produces a similar meter with double the *f* stop range. It sells for around \$480., This little meter is all you will ever need for printing Ciba, or making dupes, or Dye Transfer or any other process that requires exact repeatability for exposures. The Type C process requires an analyzer, but even here, an easel meter will still be a great instrument to have.

Have you ever wondered when the time would come when your enlarger is no longer necessary to expose photographic paper? The time has arrived.

We have had film recorders for quite some time now, and it was only a matter of when the great event would occur. Well it has happened.

We are all familiar with the fact that film recorders can expose a sheet of film with such accuracy that it defies the imagination. I have examined the original 8x10 transparencies with the subsequent corrected dupes, and except for the changes that were made, the grain structure was basically the same. The next step was for digitizing systems that would use ink jet or dye sublimations

processes to produce prints up to 40x60. (The Iris printer is such a machine,)

But now, systems have been developed so that all it is necessary to do is to expose a sheet of Ektacolor paper with a scanning type of exposing system so that the print can be processed in conventional solutions.

One such company is called **Metrum PhotoPrint.**

What are the advantages for this kind of system? **Many.**

The first advantage is that no longer must one be saddled with the clogging ink jets, or the possibility of running out of ink in the middle of a run. The time it takes to print a large sheet of paper with ink jet or dye sublimation processes take well over 30 minutes.

The exposing of a sheet of paper is much, much, shorter. The developing of the sheet in RA4 is quite rapid.

The cost of a processor is well below the cost of an ink jet system. The main advantage is that conventional photographic images can be combined with the digitized image on the same sheet of photographic paper.

The new revolution in reproduction will continue. The next phase, (it is almost here.) is the production of printing plates directly from the computer. No darkroom, or plate making operations will be necessary. Imagine if you can, looking at your

image on your color screen and then pressing a button that allows the image to be prepared for actual printing press operations.

The company is able to generate prints or transparencies made from a number of sources. (Digitized original prints, Photo CD's, slides, computer disks and much more.

They use their computer system to produce photo comps with 300 pixels per inch resolution with all 16 million colors, and do it so that the final is a photographic print. If they happen to use Fuji papers, the long life is also there. However, I doubt if they are concerned with longevity.

If you would like more information about this company, call:

1-800-Metrum 2.

Pretty soon some one will come up with some system to eliminate the camera.

One of my readers is about to make his own 11x14 camera so that his reproductions of his scenic's will be by contact rather than projection. Is there a call for this kind of purity? You can bet your life there is. Some of the best black and white prints I have ever seen were produced by Morley Bear. He uses a large camera and makes contact prints that are exceptional in quality.

The reason for such clarity is the total lack of flare. Flare is the ingredient that can destroy the image quality.

A call from EverColor has again enlightened me. They have finally gotten Irving Penn to try their system of printing. However, he does not want to see any screen (which is virtually invisible) and has insisted on the new raster process. They have already embarked on a new system of printing from their fabulous screened separation negatives on Fuji paper to make some of the finest conventional color prints available. The company has been growing steadily and has been gaining ground in the field of fine arts.

They have been printing for some very prestigious photographers who are planning large shows. The only companies in the world who have embarked on this method of pigment printing are EverColor and UltraStable. The fact that they are concerned only with quality and little else makes them both valuable companies. The fine art community needs the craftsmanship that these companies have committed themselves to. Many fine photographers do not want to make their own prints. I know this from personal experience. The many great photographers that I had the honor of

working with in my almost 50 years of quality printing would rather spend their time behind the camera and using their skills in composition and artistic emotions to produce sensational works of art.

However, they depended on top notch darkroom technicians that had the same artistic emotions and understood the reason for their being.

Photographers such as Irving Penn and Richard Avedon did not make color prints. In the first place, they would not have even bothered with the Type C or Type R print. This was not their idea of a quality print. They would not have had the time to make Carbro prints or Dye Transfer prints. These processes were too time consuming. Their time behind the camera was too important.

However, some photographers knew enough about the various processes that they hired people to do what they wanted. Photographers such as Tony Venti, Nicholas Murray, Anton Bruehl, and others had their own darkrooms in their studios so that they could have personal control of the final prints. These prints were generally the best in town.

One of the largest commercial photographic companies in New York was Pagano Studios. This large studio

was located in an area that was considered living quarters for many New Yorkers. The building they bought used to be a gentlemen's club. The large building consisted of a swimming pool and an indoor tennis court. When they were finished with the reconstruction the pool became their warehouse for films and papers, the tennis court became one of the largest stages in the country. They finally ended up with 96 employees (I was one of them) which consisted of 6 full time top notch photographers, each of whom specialized in their own field. A staff of 5 to 7 assistants were used by each photographer.

Remember, the photographers used one shot cameras for their color work, as Carbro prints were made from them. One of my jobs was to load the special glass plates into the special holders, and the unload them when they were finished shooting, and processing the plates into separation negatives. We, the technicians, and not the photographers were responsible for creating the final Carbro color print. We had to know what we were doing.

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