# KEEPING PACE

A Monthly Newsletter devoted to the art of Darkroom Photography

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## Another Look at Masking for the Cibachrome Process.

**Masking for Cibachrome.**

I recently received a call from one of my students. Apparently he was confused about the masking procedure that I had taught him here in my workshop.
He has been turning out some very spectacular photos of night shots. His transparencies are great and unique. I don't know of anyone else that will be out in the middle of a national park at 2:00 A.M. and shooting pictures with moonlight and getting such incredible images.

However, for some reason, he has been confused about the function of masking when it comes to exposure and processing.

Some local printers that he has visited in the Los Angeles area make masks to reduce the overall contrast of the original transparency without really knowing just what they are doing.
They just make a thin mask by under exposing the mask and developing it to a fixed developing time.
At one point this procedure turned out a "good" print and they kept the exposures the same with just slight changes depending on the density of the original.
This procedure confused him and he fell into the same routine.

Let me explain again just what this Cibachrome process is all about.
The material is fixed by the manufacturer, Ilford, with a specific contrast range built into the paper and chemistry.
**It is fixed.**
It won't change because of anything that you do in processing.
**Flashing** is one method of improving the contrast of the print, but at the expense of the overall quality of the image.
The only way to produce top quality Cibachrome prints is to understand **how the masking process should work and why.**

Remember, every enlarger produces it's own level of contrast on any given material because of the different variables that are part of the photographic process.
For instance, we all know that a condenser enlarger is contrastier than a diffusion enlarger, but, by how much?
The color of the lens, the color of the lamphouse and the chemistry mix or water supply and even the exact voltage in your system will be different than some one else's.

If you made prints with the MINOLTA color head and compared it to a Beseler dichroic color head or a Pavelle head or an Omega Color head or a semi- condenser type such as the original Elwood enlarger with drop in filters, they would all be different. The list goes on and on.

**Making a mask by eye is totally wrong.**
You must know the exact amount of contrast the mask % requires to make a professional print.

Anybody can make a print. I can guarantee you that I can take an 8 year old kid, boy or girl, and in one day have them making prints via the Type C print or Type R system without too much trouble. If you really want proof of this statement, go to any one hour print service and watch the people at work. If they had to make a print with a conventional enlarger, forget it.
The one hour machines are just that, machines.
The manufacturer has the whole thing figured out so that a completely inexperienced person can be, and usually is, chosen as the worker in such a lab.

Some of the labs in Los Angeles have a great reputation. The images they work with get most of the credit. One west coast lab recently invented a system where he could, in one day, take 500 35mm transparencies and make masks through a camera , exposed on a thin masking film, processed to one specific developing time, and was able to automatically replace the mask over the original 35mm transparency, still in it original cardboard frame, and make inexpensive Cibachrome prints.

The process worked great except for one thing, the mask was processed somewhere around 15%. So every transparency in the batch of 500 slides were masked to the same amount, whether or not they needed that kind of masking. The idea was great for a one day service, quick delivery kind of inexpensive print.
5 x 7 prints were usually made for less than $2.00 ea.
At least the printer was able to identify his market.
If this is your market, fine, do the same thing and don't worry about hanging your work in any kind of prestigeous gallery.

But, if you are serious about your work and what kind of print quality you are aiming for, then hopefully, the following pages will be enlightening.

The masking procedure begins with the total understanding of just what is about to occur.

**Most original transparencies are too contrasty for the Cibachrome process.**
We all agree on this statement.
Is this bad or good?
I think that it is great. Imagine if the process were less contrasty, what in the world could you do with it besides making prints without masks. You couldn't influence the kind of snap or softness the the print demanded in order to make a spectacular print. **You** begin this entire print making process by deciding on what kind of image contrast **you** want.

All transparencies are different. Some are contrastier than others. Without masking, you would have no method of controlling contrast. This isn't a black and white process, such as Kodak's Polycontrast paper. If it were possible to control contrast with the color balance shifting out of control, then a new process would have to be invented.

The method that I subscribe to is as follows:
Find out what the contrast limit is for your enlarger with a specific material, such as Cibachrome paper.
For this procedure, you will need a densitometer. This is an absolute must.

The first step is mounting a Kodak or Stouffer's 21 step grey scale into a sheet of opaque material.
Then project this image onto a sheet of Cibachrome paper.
Make at least 4 or 5 different exposures so that one of them will be close enough to work with.
If you already have a filter pack that you are working with, fine. If not, take a guess. At this point in time, it is not critical.
Process this strip in whatever processing system you have. I use a Jobo for individual tests and prints. I have also used a 30x40 Colenta Processor.

Then pick out the best exposed scale and **look at it** by eye.
**This step is critical. From now on every mask you make will be made because of your interpretation of this grey scale.**

Try to find where the image just begins to show detail in the shadows and highlights of the grey scale. Mark these areas. If the grey scale is numbered, it will make it easier to find the same areas on the original grey scale.
Then remove the original grey scale from the enlarger carrier and, using a densitometer, read the same exact steps on the original.

Determine a density range by subtracting the lower reading from the higher reading.
Whatever that reading is, **it is yours, and yours alone.** This is the unique part of the process. This number is yours and no one else's.

Let us assume that your enlarger density range requirement for Cibachrome II paper is 1.85. From now on, if you want to get all that you can out of the transparency whenever you make a print, the density range of the transparency must be reduced to the 1.85 reading.

Not always, but only if you want to retain the shadows and highlights of the original transparency. This is important. If you are a creative type, maybe you want to distort that reading. Fine, then do so. You have the freedom to play with the masking steps, but first know what the fundamentals are before you start operating without knowledge.

Here is a simple formula that I use every time I make a Cibachrome print:

Original transparency density range
2.25
The required combined mask and transparency
1.85

subtract the low from the high. The answer is 0.40
The difference 0.40 is divided by the original D.R.

$$\frac{0.40}{2.25} = 17.7 \text{ or } 18\%$$

The task before us is to make a mask of 18% (or gamma .18)

When this mask is added back to the transparency the combined sandwich should read 1.85

This is the first hurdle. You now know that you need a specific percentage with **each and every transparency.** Some may have the same reading, but don't guess at it. Make sure.

Some transparencies may need a 5% mask and others may need a 40% mask. How in the world can one guess at this.

The next hurdle is to make a simple chart that will allow you to find the correct exposure and development time for any % or gamma that you may need.

For this stage of the process, you will need some graph paper and a 3 step gray scale called the Kodak Q6C. This scale is both a color guide and a three step grey scale. I usually cut off the color patches and just use the grey steps.

The object here is to find the limits of exposure and development time of two sheets of film.
Make a series of contact exposures of the 3 step grey scale on Kodak's Pan Masking Film with increasing exposure times such as 1, 2, 4, 8, 16, 32, 64 and 128 seconds.

You must make 2 identical sheets.

If you process the first sheet for a short time and the second sheet for a long time, with all of the different exposures on each sheet, you should be able to construct a chart that will allow you to find all of the correct developing times for specific percentages or gamma, and also the correct exposures for all of theses developing times.

The object here is to find which grey scale fits the criteria.

**What is the criteria?**
The object is to find which exposure produced a .35 reading in the lightest part of the mask grey scale.

Most of this procedure was explained in the Oct..87 issue, Volume #4.

Look at the array of grey scales that were exposed on these two sheets of film. I have circled the grey scales that came close to .35.

We now have two grey scales that have the correct density in the shadow portion, .35.
This .35 reading will insure you of getting the correct amount detail in the shadow portion of the mask.

Without this minimum density, the detail in the shadow of the transparency will not have been masked and the contrast in the shadow of the image will be overwhelming.

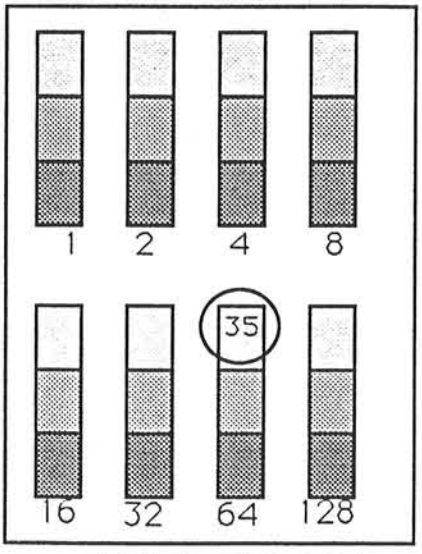
Make a simple graph as shown in the following diagram the next page.

Then read the density ranges of the two chosen grey scales.
Divide the density range of the original grey scale into the density range of the new masks. The two answers will be the two percentages or gamma of processing for each sheet of film.

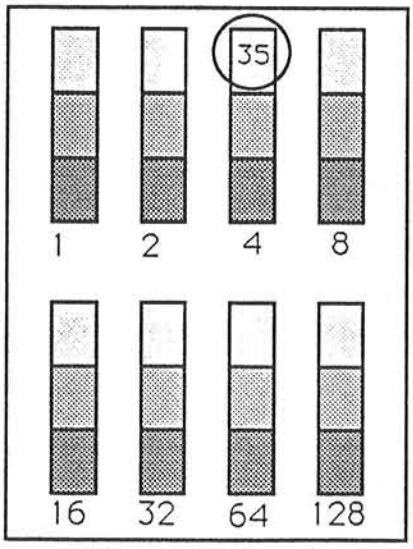
Mark these two areas on the chart wherever the gamma number and the developing time intersect.
Then place a line through the two dots.

Look at the chart for a moment.
Choose any gamma between .05% and .50% then move your eye across to the right until it meets the diagonal line, then look straight down to the developing area and find the correct developing time for that particular gamma.

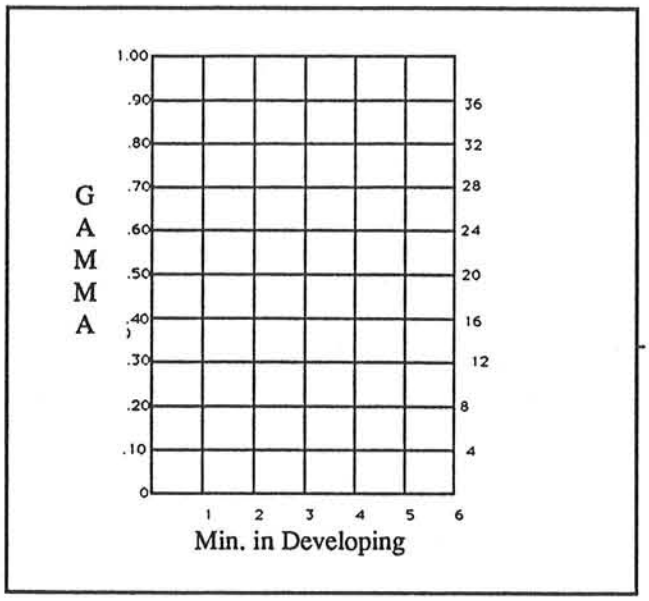
These same two grey scales were also exposed. What were their exposure times? Write them down.

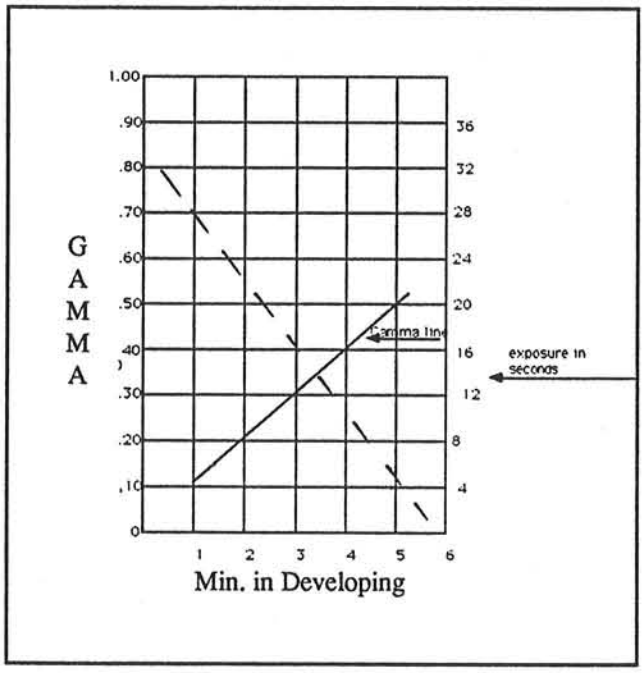


1:30 development



4:00 development




On the same chart place a mark where the exposure times and the developing times intersect. Then draw a line through these two marks. Call this line the exposure line Use a pen of a different color to identify it with ease. Here is how the chart works.

Choose a gamma of .30

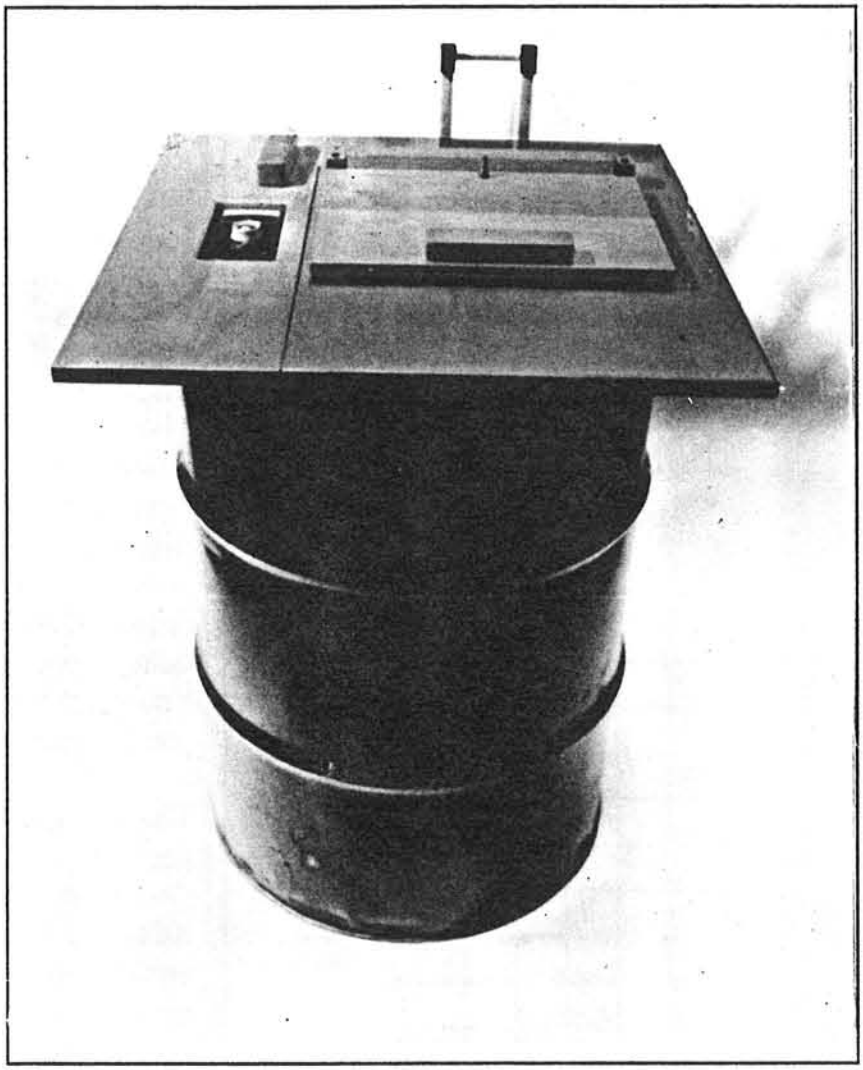
Look across until your eye meets the diagonal gamma line, look straight down until you see the new developing time. Then, while you are in the same area and line, look straight up, until your eye meets the diagonal exposure line. Look to the right side of the chart where we have listed different exposure times. There you will find the new exposure for that particular development time.

Why go through all of this charting and math? Well, if you are serious about quality results, you will recognize the importance of being "right on" for contrast.
The rest of the process depends on your eye and your emotional feeling about images, but unless you have the image masked properly and place the image on the straight line portion of the Cibachrome paper, you will experience dismal results quite often.
You must be in charge of the contrast of your image. Don't guess.

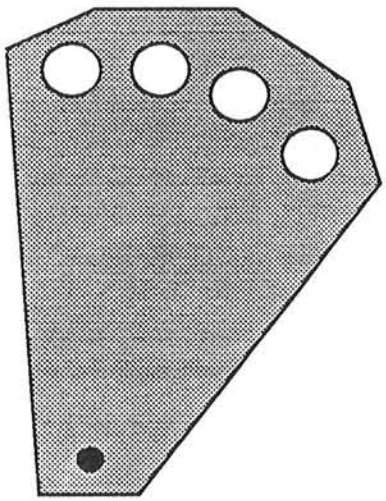
The next item is something most of you will appreciate.
One of my former students, Don Mitchell, of Kansas City Mo. has produced a very convenient item. A complete contact exposing system for masks, negatives, and any other kind of photographic material
The difference is that this system is built into a 55 gallon barrel.
All of the controls such as timing, light intensity and color filter choice is built into this very convenient apparatus.
It is well designed. The lever of the top left will allow you 3 choices of filtration as well as white light.
The light source is a 20 volt system. The rheostat is adjustable with a meter to precisely position it. The timer is built in and has a 0 to 99 seconds range.
The electronics are built in so that the only wire visible is the line cord that plugs into your wall.

The exposing platen is very well made. An external vacuum pump is the only accessory you will have to purchase.
The Vacuum system in my lab was hooked up to this new contact printer and it worked great.
The price for this great device has not yet been established.
If you are interested, let me know and I will relay the information to Don.

For those of us who are not as handy as we would like to be, this is a great device. The pin registration punch and pin glasses must still be purchased from a competent machinist such as Condit Mfg. in Sandy Hook, Vt. But the top of the system looks and feels like a piece of fine



The inside of the barrel is coated pitch black. The light source is a small but very broght light. The mechanism to move the filters is precise and space saving.



The handle on the top side of the system controls the positioning of the filters below, in the barrel.
There are spaces for 3 filters and white light, or 4 filters, if you wish.

The timeris conviently situated at the left side of the unit.

The unit is virtually light tight. The best part of the system is that it has been thoughfuly designed and manufactured. It can be shipped quite easily.

The beauty of this printing systen is that it can used for more than one process.
It takes up very little room in a lab and can be moved to any part of the lab that you desire.
The only other thing that may be added here is a shelf, just above the working area, so that fresh unexposed material as well as finished material can be stored.
There are no light leaks with this system.

**For the Dye Transfer enthusiasts among us here is a tip on getting to the correct density with your exposure on the first matrix with relative ease.**

This process requires an easel meter that really works. I used a Speedmaster A10 meter, but any good meter that has the ability to present readings in a digital form would be perfect.

The object here is to find a method of setting the correct light level, with the enlarger, on the easel.

1. We need a neutral density sheet of film. You can either buy one or make one. Then we cut this sheet up into a few hundred pieces, all the same size.

2. When preparing a transparency for contact printing or enlargement place one of these small pieces of film adjacent to the edge of the original film. You should also use the 3 step grey scale in conjunction with this little piece of film.

3. This "little piece of film" will travel with you when making principal masks and separation negatives. This will be your "guide"

4. When your separation negatives are done, place the cyan printer in the carrier, size the image on the easel and stop the lens down to f 16. Make a "good print" by trial and error.

5. Take a reading of the "little piece of film" on the easel and record it.

6. Take any new set of separation negatives. Size it up to any size you wish. Place your easel's probe on the projected "little piece of film". Then, adjust your f stop until the reading is the same as it was for the original test, unless you want to make a change in the overall density of the print. Use the same exposure for the cyan printer as you did for the test.

Read the other two separation negatives "little piece of film" to find any difference in density. Make any changes using the log scale on a Ti-30 calculator and proceed to make a full color test set of matrices.

**The middle step of a 3 step grey scale serves the same purpose.**

This procedure will allow you to get an accurate density on the first exposure without too much trouble. However, if you feel that your transparency was a little light or dark, this will be reflected in the matrix exposures. This is where the change in the first exposure must take place. The other two readings are used to obtain the correct balance.
This is not a cure all, but simply a quick way to establish an overall density without making strip tests.

When I had a lab in full production, this method was used daily with all kinds of originals from 35mm to 8x10 transparencies. It worked so well that I would go through long periods of work before I had to modify my exposures, and this was usually caused by a different film batch number.

In fact, If you make internegatives, and want to get a more accurate first print, add this "little piece of film" to the edges of your original transparency so that it would be visible on the outer edge of the internegative.

Again, make a good print by trial and error, then read the "little piece of film" through

all three filters with an easel meter, and record all of the numbers.
When a new internegative is produced in the same fashion, all that needs to be done is to look at the original and determine if you want to change the exposures, and if not, then project the new internegative to the size you wish, read the "little piece of film" through the red filter, adjust the f stop until the red reading is the same as the test, then read the other two filters and determine whether or not a change in overall filtration is necessary.

Make a test print. I can assure you that your first attempt will be very close to a final print.

**Let me tell you about the growing acceptance of photography in art galleries.**
For the past years, black and white has been the main attraction. However, during the past few years, the color field has grown until it is now a major portion of most galleries that feature photography.

I had the pleasure to visit a gallery in Mammoth Mountain. This gallery is called Mammoth Mountain Frame and photo gallery.
I saw some spectacular images shot by some very well known photographers as well as some not too well known.
Two of my former students have their work hanging there and I was pleased to see that they were the best prints in the gallery.

I'm trying not to be prejudiced beecause they were my students, but the prints were outstanding.

There were other prints in the gallery that had beautiful images, but the prints were not quite up to par. This, of course, is my observation.

One spectacular set of prints were made on Cibachrome paper. Unfortunately, they were not maske for contrast control. To my eye, they looked garish. The photographer shot the originals in a low light and low contrast mode, but even this was too much contrast for the print

The prints were also made on the glossy stock, which looks sharper and more intense than the pearl surface, but the pearl surface has a quality of it's own and is easier to see.

The Dye Transfer prints that were made by **Vern Cleverger** were outstanding.
The owner of the gallery was quite impressed with the Dye Transfer prints.
Another of my former stiudents may have a show at the prestigeous G.Ray Hawkins Gallery, in L.A.

**The video is done.** So is the **book**. By the time you all get this newsletter, I will be mailing out the announcement about the big event.

I say big event, because it has taken me about 1 1/2 years to get this show on the road. **Watch for the mail.**

Frankly, without the help of two very important people, namely Lee Vierling, my video production man, and Rick Warner, formerly with Kodak for 32 years as a professional photographer, teacher, color expert, and coordinator of shows for Kodak, as my technical advisor , this project would have looked like an amateur event.

To all of you who have waited so patiently for this project to be completed, I want to say thanks.

Incedently, I still have back issues of this newsletter for $4. ea
and I still have a few of my "The art of Photo Composition" books available.

Thank you

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