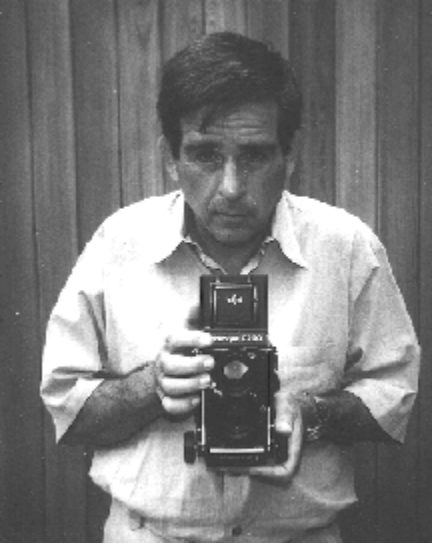

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User Profile: Leonard Caplan

Printing from slides is easier than you'd think!

My venture into color printing started back in the early 60's using "FR" brand chemistry for Kodacolor negative, processing in trays. Since I never did produce an acceptable print, I pretty much stuck to black and white in the darkroom, and had all my color work done professionally. It was in the early 80's that I gave it another try, this time using a JOBO CPE processor and the various color processes that were available at the time. I was truly astounded by the results. Not having a real darkroom, I would print in the bedroom, and process in the kitchen. It worked out well.

Here I am, fifteen years later, with a 4x5" color enlarger in the office, and a JOBO CPP-2 in the kitchen. The addition of the JOBO TBE tempering box, Colorstar 3000 analyzer, JOBO Processor Timer, and a good selection of drums, allows me to produce prints up to 20x24" equal to any custom color lab in the country. Maybe one day I will be in a place where I can have a real darkroom.

Through the years I had produced some really beautiful prints using color negatives. I preferred shooting with transparency film though, and would either make internegatives, or use negative film when I traveled or knew I would want prints. I had seen many Cibachrome prints, and felt that there was a beauty to them that was impossible to get with negative stock. I decided to take the plunge and give Cibachrome (now known as Ilfochrome) a try.

There are quite a few products on the market that can be used for direct color printing such as those manufactured by Kodak, Fuji, and Ilford. The Ilfochrome differs from the others in how it works, and in my opinion produces much more brilliant and saturated colors. Without getting too technical, all color print paper, both negative and direct, except for Ilfochrome, use a process called "dye coupling". Portions of each color dye are included in the emulsion of the paper. During development in the color developer, the additional portions of the required dyes are added as needed for the final image. This is similar to the way E-6 slide film and Kodachrome work. Ilfochrome instead uses a method called "dye destruction", in which all of the dye is in the emulsion to begin with, and any dye not needed in the final image is bleached away.

Following are some techniques and observations that might help someone new to direct color printing get started with Ilfochrome: This is not intended as a technical manual, but rather some hints and ideas based on my experience. Most of this is also applicable to all of the direct printing papers.

Understanding the limitations of the direct printing process. Before starting with any direct printing process, it is important to understand its limitations. Whether using Ilfochrome, or Kodak or Fuji process, printing directly from slides is a double edged sword. The advantage is incredible color purity and saturation, with startling realism. The down side is that none of the direct printing papers are capable of producing as great a contrast range as that of a well exposed transparency and originals with large contrast ratios (bright highlight areas and lots of shadow detail) do not print well. One method of overcoming this is to use a soft edge black & white mask, made from the original, in registration with the slide during printing. A more practical method for the novice is

to learn how to manipulate the print by dodging and burning in. The simple solution to this problem is to stick to well saturated but not too contrasty originals, especially in the beginning.

Dodge and burn in, but mostly burn in. Manipulation of your print by these two techniques is exactly the opposite of when printing black & white. With direct process prints, you **burn in** highlight areas, and **dodge** when trying to bring out shadow detail. You will save yourself much time and aggravation if you expose your print to insure as much shadow detail as you need, and then burn in the highlight areas if the contrast range of the paper leaves you with highlight areas without proper detail. Gaining experience in this will allow you to produce superb prints that are made from originals that are just too contrasty for a straight print, without having to resort to masking the transparency.

In many cases the final contrast range, and how much highlight or shadow detail you will have in the print will be a compromise, and will depend on the content of the print, and the visual effect that you want. Keeping track of what you did in any given print is very important.

Take and keep good notes. Repeatability is the key to any photographic printing. To achieve this end, it is important to keep notes on just about anything that you do. This is important in order to duplicate results again later, as well as to see what went wrong if you have problems. Use a three ring binder, and set up a format that you find easy to work with. Make it fancy or make it simple, but set it up in a way that is easy for you to use and understand.

Each box of paper has both an emulsion number on it as well as a starting filter pack. When starting to use a new box of paper, add a page to your notebook noting the emulsion number and the starting filter pack. On this page, note the settings that you use for each print that you make such as the pack used, the exposure time and f: stop, and the magnification or enlarger head height. Also keep notes as to any dodging or burning in, as well as make sketches when needed. I actually include a portion of a print sometimes in the notebook, so later on I can compare a new print to an old one to see if everything is working well. This will pay dividends if you ever want to print a particular slide in the future, as well as to track changes in your paper or chemistry.

Be consistent in whatever you do. The key to successful color printing whether from slides or negatives is consistency. Regardless of what process you use, or what equipment you process your prints with, standardization and consistency is the only way to assure yourself of being able to produce well balanced and well exposed prints. An advantage with all of the JOBO processors is that whatever you do, a routine can be developed that assures that you do everything exactly the same each time you make a print.

It is not as important to obsess as to whether your chemistry is to within .01 degrees as it is to be sure that the temperature that is set on your processor is the same each time you use it. It matters not whether you start draining 10 seconds or 15 seconds before the next step is to begin as long as you do it the same every time. Even the slightest changes in your procedure become cumulative, and will result in differences in your prints. After a while you will develop a rhythm. If using a drum processor, empty the drum always in the same amount of time. Speed is not important, but consistency is.

Go for quality instead of quantity. Unless you need to produce a bunch of straight prints in a short period of time, you will be better served by concentrating on making a couple of quality exhibition prints in an evening, rather than print an entire roll. As you become more experienced, you will become more of a perfectionist. Slight color shifts that were acceptable with commercial processing will no longer be tolerated. You will find the entire process of making your own prints more enjoyable by not forcing yourself to work under pressure. At the end of a printing session you will feel much better looking at one perfect print than ten not so perfect ones.

Cutting costs. You can save considerably on the cost of chemistry, without sacrificing print quality, by re-using 50% of the chemistry from the previous print. Combine 50% of the required chemistry from a just processed print with an equal amount of fresh chemistry for the next print. Use the same times as if you were using completely fresh chemistry. Although not mentioned in any of the Ilford spec sheets, I find that an additional 30 second water rinse between the bleach and the fixer is required. This prevents any carry over of the bleach into the fixer. You will not see any noticeable difference in the prints. Do not save used chemistry longer than one day.

Use an Analyzer to save time and money. Color printing chemistry and paper is expensive. Eliminating large amounts of test prints is advantageous from a financial and time standpoint. Although you can print successfully without owning an analyzer, the key to obtaining proper color balance and exposure on a consistent and quick basis is to use one. An analyzer will pay for itself in a very short time, as well as to eliminate frustration. It should be understood though that a color analyzer can no more insure good prints than a light meter can ensure good exposures in your camera without an understanding of how they work. In order to be successful with a color analyzer one must be able to make a perfect print without the use of one. The JOBO analyzer has a built in program that allows you to achieve this in a very simple way, as long as you can follow directions. The use of Bob Mitchell's Colorbrators help with the first print, as well as allowing you to make changes in your filter pack and exposure when changing boxes of paper with different emulsions, and by doing only one print. In my opinion, the Colorbrator is the best thing since sliced bread when it comes to color printing, and is probably the best thirty bucks you will ever spend. The Colorbrator will work with any analyzer and is even useful if you do not own an analyzer.

Make extra prints, it's easier now. When you finally do get the print the way you want it, spending the time to make a few extra copies pays off in dividends. The extra time involved in making extra prints now is well worth the effort if you ruin a print in mounting, or if you just want to give a copy to someone who admired it, rather than to have to go back in the darkroom at a later date. With even the tightest in controls, future prints from the same transparency might vary slightly due to age of the paper, slight variations in the way you manipulated the print during exposure, or maybe not remembering exactly what you did when you first made the original print in the first place...I usually make four or five extra copies of anything worthwhile.

Avoid Cyan filtration. Most filtration in color printing requires only the use of Yellow and Magenta. Without getting technical, these are the two easiest colors to work with. When purchasing paper look at the starting filter pack printed on the box. You will see Yellow, Magenta, and Cyan printed, with a value for each. Only buy paper where there are values for Yellow and Magenta, and "00" for Cyan. This will insure that you can avoid any Cyan filtration during printing.

Purchase paper with the same emulsion number, or at least the same starting filter pack if possible. Whenever you open a new box of paper you will have to make adjustments to the basic filter values that you are using based on the differences in the color requirements of the old and new boxes. If you have the luxury of buying from a dealer who has a large supply of paper on hand, go through his current stock to find starting filter packs as close to the values as the ones that you have been using, or possibly even the same emulsion number. I make it a practice of purchasing as much paper as I can both afford and refrigerate of the same emulsion number.

Make your endeavor into color printing fun, and a learning experience. It takes time to become a good color printer. As with any skill, experience is the best teacher. Understanding the science and techniques is important, but practice and patience is most important in becoming a skilled craftsman. Make the experience fun, and the results will be very rewarding.

Leonard Caplan is an amateur photographer and the distributor of various photographic products. His experience goes back to the early 50's, when he first picked up his father's Leica IIIF, and fell in love with the world of picture taking. Intrigued by the whole process of taking the picture and then producing the final print, he has always pursued the latest innovations in processing and printing.

Feature Article: Making Prints From Slides

by Wendy Erickson

Making prints from slides onto ILFOCHROME material (formerly known as Cibachrome) is easier than you might think. Making your own color prints can save you money, and give you control over the final result. All you need to get started is an enlarger, a drum processing system or table-top processor and basic darkroom accessories that you probably already have.

For the enlarger, you can use either a color head with a built-in dichroic color printing filters or a condenser head and separate color printing filters. They both work equally well, although the color head enlarger offers easier filter changes. ILFOCHROME print materials have an ISO rating of about 2, so the brighter the enlarger bulb, the shorter the exposure time you'll have. You can choose the economical ILFOCHROME CLASSIC RC GLOSSY or PEARL surface papers, or use the DELUXE GLOSSY polyester material for real high impact.

Here's how to get started

The key to making great prints is to get a good start using an accurate test slide. Don't pick your favorite sunset slide, or a scene that was exposed under unusual lighting conditions. Pick a slide that was exposed under even light, without harsh shadows or color casts. If you are a portrait photographer, pick an image that shows good skin tones, and try to include a variety of colors. That way you can quickly zero in on a filter correction for your enlarger.

Filtration and test prints: Step by Step

Before you start, cut out a piece of cardboard into an "L" shape. There is a piece of cardboard packed in every package of ILFOCHROME material. This cardboard "L" will allow you to make 4 separate exposures on one piece of paper.

Step 1: Set the starting filtration. With a color head, start with the filtration printed on the package of ILFOCHROME paper. If you are using a condenser enlarger and color printing filters, you can automatically subtract 20Y and 20M from the starting filter pack, since the tungsten bulb in this type of enlarger is warmer in color temperature than the one in a color head. The idea is to balance out your enlarger and calculate a correction "factor" that is unique to your own darkroom.. You'll use this correction factor for subsequent packages of print materials.

Step 2: Set the timer. For a 250 watt bulb, set the timer for 10 seconds, for lower wattage bulbs start with 20 seconds.

Step 3: Make 4 exposures of ONE area of the image. Use the SAME exposure time, and vary the f-stops. (Try f-16, 11, 8, and 5.6.) You'll have to move the easel in the dark to get the same area of the image on the exposing quadrant. Remember, the photo should be the size you want it, don't make it smaller to accommodate the whole picture in the quadrant area!

Step 4: Process the Print in P30P chemicals, and make sure it is dry before evaluating it.

Step 5: Evaluate the print for density. Choose the best quadrant. Look for well exposed highlights and shadows.

Step 6: Expose a full print at the best exposure. Process and dry the print.

Step 7: Determine the color correction needed. Use viewing filters or color printing filters to determine the filtration changes needed to color correct the print. With ILFOCHROME printing, color corrections usually need double the filtration value. It's easy to make color corrections. If the print is too yellow remove yellow from the filter pack. It's a "wysiwyg" (what you see is what you get) system, so if the print is too dark, add exposure. If it is too light, subtract exposure.

Step 8: Expose the color corrected print, then process, dry and evaluate it. Your enlarger correction "factor" is whatever it took to make a color corrected print. So, for example, if you had to add 15 Magenta to the filter pack to make a good print, your correction "factor" for your enlarger (and subsequent packs of paper) is "+15M".

It's easy to make prints from slides. Work slowly and keep a record of your color corrections. You'll be amazed at the control you will have over the final result!

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Article II: Comparing Reels & Expert Drums

For 4x5" Film Processing

By Ken Owen

When it comes to processing sheet film, one of the most commonly asked questions is "What is the difference between the 2509n reels and the Expert Drums?"

This is never an easy question to answer. On the one hand you can process more film in the reels than you can in the Expert Drum. For instance on an ATL-3000 using four 2509n reels, you can process up to 24 sheets of 4x5" film, while in the Expert Drum 3010, you can only load up to 10 sheets. But on the other hand, sheet film processed in the Expert Drums has better evenness at its edges than the film in the reels. And lastly, if you are using a CPE-2, CPE-2 Plus or ATL-1000, the Expert Drums won't fit, so you can only use the 2509n reels and their associated 2500 system tanks.

But there is more to this debate than these superficial answers. To dig into the topic, it is necessary to become familiar with some of the history of sheet film processing in JOBO tanks. When JOBO first introduced the modular tank system, back in the early 1980's, we also introduced a sheet film reel 2509 (without the n-suffix) as part of the system. It had six slots in it to handle up to 6 sheets of film per reel, but here in the states, we quickly encountered a problem that was not found in Europe. A significant variety of the popular sheet films were coated on thinner stock here. This allowed the film to flex and flutter in the reels during rotation, and

frequently caused streaks which ran down the middle of the 5 inch dimension of the film. We quickly discovered a cure, which was to load only 4 sheets of film, leaving the middle slot on each side empty, which allowed the film to move about without touching any adjacent sheets.

JOBO engineers decided to focus their attention on other ways to solve the sheet film dilemma and introduced the Expert Drum series to the USA in 1987. The individual tubes of these large drums provided a way to simplify the handling of the film, give excellent processing results, and eliminate the problems of adjacent sheets of film affecting one another. It produced even processing more reliably than the older sheet film reels. In fact the evenness of the processing rivaled the finest commercial dip and dunk machines. But it came at a significant productivity cost, since the most sheet film you could load into a 3010 drum is just 10 sheets.

Then at Photokina in late 1990, JOBO introduced the ATL-1000 processor. This compact machine was unable to fit the very large diameter 3000 series Expert Drums, so the JOBO engineers were sent back to the project of improving the 2509 sheet film reels to solve the problem of film movement. The result was the new and improved 2509n reel. ("n" as in new!) The engineers added two panels which snapped in at the ends of the film. They effectively wedged the film tightly onto the reel, so the sheets could not move during rotation. This solved the problems associated with loose sheets moving in the slots and rubbing against adjacent sheets. But it also improved the symptoms of another problem; edge agitation.

All spiral reels cause some degree of turbulence as liquids flow through the spiral on one side of the film, across the film and out the other side. This turbulence increases the agitation just next to the spiral. This is called "edge agitation". For some reason, the larger the film format, the more apparent this agitation characteristic becomes. You almost never see it in 35mm film, sometimes in 120, and occasionally in 4x5". Getting back to the point of all this, the addition of the end panels to the 2509n reels, caused the chemistry to flow more in a rotary direction and reduced the lateral turbulence. This reduced the edge agitation effect and made quite an improvement in the results.

So once again we return to the original question, "What is the difference between the 2509n reels and the Expert Drums?" Or to ask it a different way, "Which 4x5" system should I be using?".

If you are using an ATL-1000 , a CPE-2, or a CPE-2 Plus, the answer is still easy, the 2500 system tanks, and the 2509n reel are for you. The 3000 series Expert Drums simply won't fit.

If you are operating a CPP-2, CPA-2 or ATL-2, 2 Plus, 2000, 3 or 3000, then you have to sit back and make a decision based primarily on quantity. If you need 18 or 24 sheets at a time, then go with the 2500 system. If you don't need the quantity, and want to avoid any chance of edge agitation effects, then go with the Expert drums.

A footnote to all of this is a brief mention of the necessary accessories for sheet film processing. When you are using the 2509n reel, you may also want to get the #2508 loader base and the #2512 guide. Since the two halves of the reel are 4 inches apart, it can be tricky aligning the film in the dark. The loader and guide solve that problem, and make it an easy procedure of turning the reel and listening for the "clicks" as each opening of the reel passes the guide to let you know which slot is lined up for loading.

For the Expert Drums, you will need the foot pump #3360. Since the lids to the 3000 series drums are a tight "press fit" design, they can become difficult to remove. The foot pump increases the pressure inside the drum, and pops the lid off. Please DO NOT try to use an air compressor for this job. The inside walls of the drum are quite thin in order to allow the water bath to evenly temper the film tubes. If you apply too much pressure from the compressor, it can permanently damage the drum. Using the foot pump you can slowly increase the pressure without damaging

the tubes. You should also replace the small white rollers that support the 3000 series drums on the lift arm with black rollers. The color is not important except to let you know which set you are using. The black rollers have a 30% greater rolling efficiency and help take the load off the rotation motor. Their part number is 92167, and they come as a package of two, already installed in their own extension arms to fit the 3000 series drums. You can order them from your dealer or directly from JOBO.

Article III: New Owners Manual For CPA-2 & CPP-2 Processors

Article reprint from ColorBAT LAB PRO newsletter - August 1996

by Darryl Nicholas

I've read a lot of Owner's Manuals over the years. I've even re-written the Owner's Manual for the Beseler 45A Color Head. But, without exception, this new manual for the JOBO Rotary Drum Processors is the best, greatest, grandest, most exceptional manual I have ever seen or heard about!! I'm embarrassed to say that it's even better than the one I wrote for Beseler!

It was written by JOBO's own, Damon Dean. Damon... you did good! In fact, you did GREAT! In this season of the World Olympics, this is a Gold Medal performance!

This manual is actually a short course in darkroom procedures - B&W and color. It includes a small library of reference material, conversion data, a lengthy parts list, trouble shooting data, and a liberal amount of information on maintenance and repair when things wear out. If you can't do rotary drum processing after reading this manual, you're brain dead! It is 8.5"x11", spiral bound and runs 94 pages. This manual should serve as the benchmark for all manuals in the future.