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User Profile: Ron Keller

Photographic Specialist at the Space Center in the State of New Mexico

My interest in photography began in the early sixties, taking photos for my junior high school camera club and later my high school newspaper in Sacramento, CA. I knew then that photography was the career for me, even though I played a pretty respectable trombone. (I still play in the community band formed by my alma mater, New Mexico State University.)

My formal education in photography began when I joined the Navy in 1971. I attended the US Naval School of Photography in Pensacola, FL, graduating in 1972. (It was a terrific school that gave me a solid technical education even though I was almost too young to appreciate it.)

After my four years as a Navy Photographer, I wanted to further my education. I attended New Mexico State University where I spent the next five years immersed, studying photojournalism and fine-art photography. I received my BA in Fine-Art Photography in 1981.

One thing always stressed in my education, both in the Navy and later in college, was the absolute importance of quality, both in the processing and printing of my work. To that end, my college photo professor introduced me to JOBO equipment in 1980; a CPP-2 processor. Professor Wickstrom said it was the "most versatile piece of lab equipment he'd ever used." The CPP-2's ability to precisely control contrast and emulsion speed in negatives and slides through consistent agitation combined with precise temperature control gave my negatives that 'edge'. This proved to have much to do with turning out images with that professional look, increased shadow detail and contrast when needed.

Following college, my first professional position was as a photographer for the State of New Mexico at the International Space Hall of Fame museum in Alamogordo. I was the Space Hall's first staff photographer. I selected and purchased all the equipment including a new CPP-2 processor.

The CPP-2 was put to good use processing everything from color and B&W neg's, to slides of all formats and display transparencies to 16x20" for exhibit in the museum's galleries. It did the job perfectly and saved me money by being so frugal with chemistry.

Two years into my employment with the state my sister-in-law asked me to help her set up a custom photo lab. As her start-up budget was limited and she needed a machine that could 'do it all' I selected an ATL-1. This was in 1985, and three years later when the lab expanded she purchased another ATL-1. Both machines proved extremely reliable, 'real profit makers' she said, running an average of 30 rolls per day per machine without any problems.

Persuaded by a good salary offer I left my state job in 1986 to work for my former college photo professor who now operated a custom photo lab and studio in Santa Fe. When I first toured the lab I was pleased to see that his commitment to JOBO products hadn't waned a bit as his lab featured three ATL-1's. And later, when they were first introduced, he purchased a brand new ATL-3 with everything. This proved to be an amazing machine that produced volumes of perfectly processed negative, transparencies and exhibition grade Cibachrome prints. Our regular clientele included such accomplished photographers as Paul Caponigro, Barbara Van Cleeve, and Kenny Rogers (yes, that Kenny Rogers), just to name a few.

Although working with all those well-known photographers was a great experience, I missed being a full-time photographer. I departed Santa Fe in 1990 and worked for the next five years as a photojournalist for newspapers first in California, and then back in New Mexico. About a year ago I heard that my old job at the Space Hall was open and they were interested in rehiring me.

The responsibilities of the position had expanded. They now included providing photography services for several of the state's museums as well as tourism promotion photography for magazines and brochures. The money was pretty respectable too. So I got my old job back.

Along with my 'new' job came a new photo lab (still under construction). When completed it will feature a new ATL-3000, the original CPP-2 I purchased in 1983, and the Nova ClubMate 12x16" processor I bought recently. The quality of the prints processed in my Clubmate is unbeatable: Totally even development, super color saturation, and great contrast. This combined with my JOBO Maxilux color safelight makes doing dupe RA and Ilfochrome prints for display a cinch!

I'm also teaching photography part-time at the local NMSU college branch. The commercial photography program, headed by Greg Mosier (a Brooks graduate) is growing quickly and the students learn automated film processing techniques on an ATL-3, of course.

Feature Article: Printing Color Reversal

Tetenal Mono-R

By Paul Rowe

I knew that prints from slides had to be addressed again in the Quarterly, especially because of our change of chemical suppliers. The shock came when I dug out the old Quarterly and discovered it has been about 18 months since the last article. Seems like last month, but it was the 1st quarter of 1995.

There is really no change in the comments made in the last article. There are still two choices, Ilfochrome (nee Cibachrome), or Kodak R-3/R-3000 or a clone thereof. Fairly large numbers of photo hobbyists consider doing prints from slides, but are still searching for a lab that does the work rather than tackle it themselves. In this article I want to cover again the print from slide process, especially using the Tetenal Mono-R. The last issue of the JQ (JQ9603) contains an excellent, no-nonsense approach to Ilfochrome printing written by Erickson, the Manager of Training and Education for Ilford.

The whole point of these two articles is to show how much easier prints from slides are than rumor and hearsay would lead you to believe. There will be some unavoidable duplication from the older article. Facts are facts, and many things have not changed. But let us get on with it.

The Papers:

The major players in the field of photographic papers show up here. Kodak produces a paper called "Radiance" in both glossy and matte finishes. Fuji has Type 35 in both glossy and matte, and Fuji Super Gloss (an Ilfochrome glossy look-alike). Agfa also has a fine entry in both gloss and semi-matte finishes.

The problems that Fuji had over the past several years with paper supply have been solved with the opening of their new paper plant in South Carolina. It has been on-line since winter, 1996. In testing for this article, I used Kodak Radiance-glossy and Fuji Type 35-glossy.

The Chemicals:

The R-3 process was designed for use in a continuous and replenishable processor. Light reversal of the image was normal. For the rotary drum and tube processors like JOBO's, R-3000 chemistry is the choice. It has a chemical reversal agent built into the color developer, and light reversal is unnecessary.

Kodak offers their R-3000 in one gallon setups. You must purchase the First Developer, Color Developer, and Bleach-Fix as separate items. Kodak suggests processing at 34° C (93.2° F). However, they give tables in their Z-129 manual that cover a temperature range from 20° C (68° F) to 38° C (100° F).

The JOBO Tetenal chemistry is called Mono-R, and is available in a 2½ Liter kit. It is unique in several ways: 1) the reversal agent is shipped as a separate item. You may use the chemistry with light reversal, or add 12 ml/liter of reversal agent to the color developer and use it as R-3000 with no light reversal required. 2) The "Mono" part of the name indicates that each solution in the kit is in a single bottle. The developers need to be well mixed by shaking, and then you can mix as little or as much working solution as you require. The Bleach-Fix portion of this kit comes as a single bag of powder. It mixes easily, and since Bleach-Fix is the longest lasting of the solution there is no problem in mixing the entire 2½ liters. 3) The useful temperature range of the chemical is between 18° C (64.4° F) to 28° C (82.4° F).

The Process:

If you are making prints from transparencies for the first time, there are a few idiosyncrasies about the paper you need to know. The paper is slower than RA-4. Exposure times will be longer, and f-stops will be wider, or both. Filtration will be different, generally less than you are used to for prints from negatives. Also, do not be surprised if you find yourself using Cyan filters. My experience is that I am using the Cyan and Magenta rather frequently.

When using a JOBO processor, you can choose any of the temperatures in the range given by the manufacturer. With Kodak, I normally use 38° C, which lets me keep the bath at the same temperature as C-41 and E-6. I normally use Tetenal around room temperature- 24° to 28° C, since they recommend 28° C as the top useful temperature. The steps and suggested times are as follows:

STEP, KODAK, TETENAL

Temperature, 38° C, 28° C

Pre-Wet, :30, :30

First Developer, 1:15, 1:10

First Wash, 2:00*, 3:00

Color Developer, 3:20, 2:50

Second Wash, 1:00*, 1:00

Bleach-Fix, 2:00, 1:00

Final Wash, 2:00*, 3:00

Total Time, 12:05, 12:30

**NOTE: Kodak wash times for the first and second washes are actually 20-second segments for a one-minute first wash and 40 seconds for the second. The final wash is stated as 2:15 with running water. With a JOBO it is difficult to use a 20-second segment, and impossible to use a running water wash. I have included in the Kodak steps times which should be broken into 30-*

second segments The first wash would then have four 30- second washes, the second wash would have two 30-second washes, and the final wash would have four 30-second washes. This sequence is more than adequate for the proper washing of the print. Tetenal wash times should be broken into 30-second segments just as Kodak.

Using the Tetenal kit on a one-shot basis, you can print twenty 8x10"s per liter of working solution. It is possible to reclaim solution once used and reuse it. In this case (according to Tetenal), you can produce 38 prints 8x10" per liter. I have not had the opportunity to test this reuse quantity as yet, but the one shot certainly works perfectly. Since the Tetenal Mono-R kit sells for \$66.00 (2½ liters), the cost per liter is \$26.00. This figures to \$1.30 per 8x10" for one shot use, or \$.69 per 8x10 if you reuse the solutions. Additionally, there are people working on dilution of Mono-R in order to extend the print production. We will report on this in a later issue of the JQ.

A few little points to remember: R-3000 is a reversal process, just like E-6 for film. If you want more density in a print you reduce your exposure. If you want the print lighter, you increase your exposure. Print borders will be black. When changing filtration, adding a filter to the light path adds that color to the print. Taking away a filter removes that color from the print.

One of the drawbacks to printing from transparencies is a build up of contrast. There are ways to work and overcome this problem with black and white contrast masks, but if you are just embarking on your journey of printing from transparencies I would not concern myself with contrast masking. The newer papers are lower in contrast than some of the older versions, and you will find that most of your slides will be more than satisfactory when converted into prints. Printing from transparencies can open a whole new dimension to your photography, and there is no additional hardware to purchase, just software (paper and chemicals).

Article II: The New Fujimoto 450M-C Enlarger

by Ken Owen

In the last issue of the JOBO Quarterly (JQ9603), you got a sneak preview of the Fujimoto 450M-C enlarger. It is new to the USA as of October 31, when we introduced it at the Viscomm Show in New York. For many years, JOBO has been looking to add a 4x5" enlarger to its family of fine darkroom equipment. Working with Fujimoto's engineers, we think we have come up with one of the finest available on the market today.

Evenness of illumination is one of the first qualities I look for in an enlarger. If it can't give equal illumination in the corners and in the center, then it is just adding new challenges to the task of the darkroom technician. Fujimoto has 3 different mixing chambers available: one for 35mm, another for up to 6x9 cm and the third for up to 4x5" film. In each of these, the illumination quality has been fine-tuned to assure you that the image on your film is reproduced on paper. Illumination from the center to the corners has been adjusted and refined until it is matched to within a fraction of an *f*-stop.

Brightness is always a useful feature in the illumination from an enlarger. The Fujimoto 450M has a 200 watt lamp yet is up to 4 times brighter than competitors with 250 watt lamps.

Another lighting quality I like to check is the accuracy of the color filtration itself. Using our ColorLine 5000 to measure the character of the color accuracy, we found most enlargers fail to provide accurate filter scales. The Fujimoto was extremely linear in its performance, and gave even, reliable filtration control throughout the entire range of the filter scales. Most other brands of enlargers could not be counted on at any point of their filter scales to give the amount of filtration you might dial in. Sometimes they gave more, and other times they gave less. It's nice to know that when you want to make a 10 cc change, you'll get a 10 cc change in your filter pack with the Fujimoto 450M-C. Its filter scales go up to 150 cc in all three colors.

Now that may sound like low filtration, since some other brands of dichroic color filters are scaled up to 200 cc. But every enlarger that we tested with 200 cc labeled on the scale, gave a real filtration lower than that of the Fujimoto. In other words, 150 cc filtration from Fujimoto gives you more color than 200 cc of other enlargers' filtration.

After comparing the subtleties of the illumination, we compared the mechanical features of the 450M-C. It has a counter-balanced lamphouse and carriage assembly that makes it easy to raise and lower the head of this enlarger. It has a convenient hand crank on the right, and you can easily turn it exactly to the magnification you are looking for, adjust the focus and lock the carriage in place. While on the subject of focusing, it has an optional fine-focus extender. By adding this item, you get a two piece extension handle to make focusing easy regardless of the height of the enlarger head, while bent over a traditional grain focuser.

The negative carriers have been designed to block out any possible light leaks above or below the negative carrier at the film stage of the enlarger. This eliminates a traditional source of light leaks from enlargers. The lamphouse remains stationary when you insert or remove the carriers. This helps keep the enlarger properly aligned.

Another source of unwanted light on most enlargers is the illumination scale of each of the filters. Fujimoto has overcome this problem by adding a dimmer control, so you can adjust the brightness of the scale to suit your own needs, and the material you are using. Further, Fujimoto found a great way to remind you of the white light control: When you turn the knob to zero the filters, the illumination of all three filter scales turns off to remind you to restore the filtration before making your print.

The lensboard is another source of frustration in many enlargers. If you don't have the lens aperture scale pointing toward you, it can be quite frustrating. The bayonet style lensboard of the 450M-C can be installed in any of four positions, virtually assuring you of having the lens scale pointing toward you. When you open the enlarger carton, you will find a rather complete package. The Fujimoto 450M-C includes a 4x5" glassless carrier and a flat, 39mm threaded lensboard as part of the standard equipment, along with the baseboard and a voltage-stabilized power supply. With many other enlargers, these items are considered options. When you buy the accessory 35mm mixing chamber, it includes the recessed lensboard you will need for your 50mm enlarging lens.

Be prepared for a tall enlarger; this one is an XL (extended length) model. Fully elevated it stands about 5½ feet tall. With all this height, it produces an impressive 22x magnification from a 50mm lens, giving you a 22x33" image from a 35mm negative.

With all these features, it's no wonder the Fujimoto 450M-C was one of the most asked-for items at the Jobo booth at Viscomm. It even has a reasonable price for all these features. It has a suggested list price of \$2875. Check with your favorite dealer for their price.

For additional information consult our latest full-line catalog. You'll find the Fujimoto 450M-C inside the back cover. To receive our latest catalog call 800/664-0344, extension 4721 for Customer Service, give us your mailing address and we'll send you a copy.

Article III: Making Proof Sheets

(aka Contact Sheets)

by Paul Rowe

In the past months we have had several requests to publish something regarding the making of proof sheets. My initial reaction was puzzlement, but second thoughts told me that I had not seen anything printed on making proof sheets in

years. There must be a number of darkroom workers who have had little or no help in the making of proof sheets (along with a number of other darkroom procedures).

The proof sheet is nothing more than a contact print of your negatives on a single sheet of enlarging paper. Naturally there are some rules which must be followed, and therefore there are a few accessories that you need in order to make the process less traumatic. First, the contact sheet must be made with the emulsion of the negative facing the emulsion of the print. Secondly, the negatives must be as flat as possible against the emulsion of the paper. The accessory which will accomplish this easily is the contact frame. There was at one time a number of these on the market, but there seems to be fewer and fewer available. Several of the mail order houses offer them in both 8x10" and 8½x11" inch sizes and some also offer larger sizes. (Photographers may choose to file their negatives and contact sheets in a 3-ring binder. They will use the 8½x11" paper so that they can punch for the rings without disturbing the image area.)

An alternate to the contact frame is the Jobo VarioCopy, which when used in conjunction with the VarioFormat Easel allows the two to be used as an 8x10" contact frame. Another and less expensive option does away with any of the commercial frames. Just use a piece of plate glass to cover your negatives and paper. Normally you will choose a glass that is a little larger than your paper choice. The only problem with this approach is the difficulty in getting the negatives to lie flat. The commercial frames all have a means of fastening the negatives so they do not have a violent curve. Many photographers choose to use the "Print-File" type negative files. These will immediately overcome the curling and twisting of the negatives, but the price you pay is a slightly reduced clarity in your contact sheet since you are exposing through the plastic of the print file. Personally, I use the Print-File method of storing my negatives, and expose my contact sheets through the plastic. For my purposes the contact sheet is sharp enough, and the ease outweighs all else.

Once you have determined how you want to handle your negatives, the next step is exposure. If you are using an analyzer or another means to determine your exposure time, you can use the same method to determine exposure for the contact sheet. Use the following sequence:

1. Place your negative carrier in the enlarger.
2. Turn on the enlarger, turn off the room light.
3. Raise the enlarger to a height that allows the projected light to cover the contact frame.
4. Take a typical negative from the group to be printed insert it in the negative carrier, and place it in the enlarger.
5. Analyze this projected negative for exposure, and record.
6. Remove the negative from the carrier and replace it in the plastic sleeve. Replace the negative carrier in the enlarger

7. Turn off the enlarger, place the enlarging paper emulsion side up, put the PrintFile with negatives over the paper, and place the glass over the PrintFile to press the negatives flat to the paper.
8. Be sure your enlarger lens and timer are set for the recorded exposure.
9. Expose your contact sheet, and process.

Note that this method works equally well for both black and white and color. It is possible that all negatives may not print equally well due to exposure variations, but this method will give you a good average exposure for your contact sheet. If you need or desire to change the exposure for the purpose of detail you can easily change the exposure and make another sheet.

There are always some good and logical questions which arise at this point. First, the many workers who do not use analyzers or other means of determining exposure ask "How do I find my exposure?" You can, of course, use trial and error. If you have an exposure time and f -stop for the same size enlargement as the contact sheet (probably 8x10"), then you have an excellent starting point. As an alternate, for black and white, use 10 seconds at f -8 as a starting point. When determining the exposure for color it is best to refer to an 8x10" print you have recently made. Set your exposure time and f -stop to the same settings as used for the recent print. This setting may have to be tweaked to give exact color and density, but this will certainly give you an exposure which will be in the ballpark.

Another point of confusion arises in the setting of the exposure time and F -stop. When you analyze one negative from the roll by putting it in the negative carrier and reading it as if you were making an enlargement of it, you have determined the light needed for proper exposure of the paper you are using. It makes no difference where in the light path the negative rests, be it in the negative carrier, or laying on the enlarging paper. The light coming through the negative to the paper is the same, and this light determines the exposure of the paper. When you make a contact sheet, every negative receives the same light as the negative you used to analyze for exposure. This principal is true in black and white, as well as color.

All that is written here gives you starting points for your contact sheets. After a few tries you will be producing contacts and never refer to the instructions. It is a lot easier to determine the negatives you want to enlarge when you can refer to a contact sheet, since most of us do not read a negative easily, or accurately.

Article IV: Tetenal Tri-toner

by Paul Rowe

In the last issue of the JOBO Quarterly we listed four Tetenal toners, Tri-Toner, Blue Toner, Sulfide Toner, and Gold Toner. All of these are now in stock. Because of its versatility and economy we have selected Tri-Toner as the first to report on.

If you have worked with toner before, the first thing you'll notice is the lack of odor. You receive two bottles of concentrate and a small packet of powder. The bleach comes in a 250ml bottle and is mixed with water to make 1 liter. The packet of powder, or toner, is dissolved in 100ml of water and is called the "Core" solution. The third part is a 250ml bottle of concentrate called the "Control" part. The Control concentrate and the Core solution are mixed together with water in various concentrations depending on the desired tone of the finished photograph. You can vary the print from a pale yellow-brown to a dark brown depending on the mix of Control and Core solutions.

Tri-Toner works equally well with both fiber base and RC papers, but you will need to test the paper of your choice, since each different brand and type of paper responds differently to the toner.

Recently, when toning prints for the Viscomm Show in New York, I worked with both Ilford Multigrade and Kodak Polymax. Regardless of the Control/Core solution mixture, the papers responded differently. There is no judgment implied here as to "good" or "bad", just that they were different responses, and the user needs to make the choice based on subjective preference.

At another session using the Tri-Toner, I opted to use the JOBO processor for the entire operation, processing the original print and immediately going to the toner. Using RC paper, I processed the print, washed it in the drum, went to the bleach for 2 minutes, washed for 5 minutes, introduced the Control/Core solution for 2 minutes, and then washed for 5 minutes more. The Control/Core solution had been tested on a print in a tray, so the results of the tone were known. This proved to be a useful method, especially if you have a great number of the same print to tone. For lesser numbers of prints the use of a tray is just as effective.

The Tri-Toner concentrates have an unlimited shelf life. Core solution, when mixed, has a shelf life of about 3 months. Working solutions of either bleach or toner last approximately one week. One liter of solution can process two square meters of RC paper (approx. 38 sheets 8x10"), or one square meter of fiber-based paper (approx. 19 sheets 8x10").

The time factors for use in trays are really the same as I outlined for drum use in the Jobo. When working with a dry print, be sure to pre-wet it thoroughly, then go into the bleach for 2 minutes. Next, wash the bleached print, five minutes for an RC print or ten minutes for a fiber based print. The Control/Core solution is the next step, for one to two minutes (the time of this step is subjective depending on

the tones you are looking for in your final print). The final step is a wash which is a repeat of the wash after the bleach step.

As a word of caution, be sure that any print to be toned is both thoroughly fixed and washed. Incompletely fixed or washed prints may yield spots or smears when toned, but the Tri-Toner does not seem to be adversely affected by over-fixing. Tetenal suggests the use of fresh fixer on prints to be toned.

Ease of use is high in the reasons for using this toner. With a little experimentation you can arrive at just the level of tone desired.

The Tri-Toner is item #109558, and the list price is \$18.95.