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"JOBBO Fanatic" from down under

Everyone has to start somewhere and my photographic genesis was in Switzerland (heaven, after war-time England) in 1947, being let loose by my parents with one of those 'box-brownies' with everything. It had a pull-out yellow sky filter, what I later discovered was an adjustable 'f/stop' and a 'portrait' lens. I was entranced and spent most of the ensuing two weeks asking all sorts of quite ridiculous questions of my elders and betters. A kindly schoolmaster took me under his photographic wing and introduced me to the delights of elementary darkroom work. My school had its own darkroom and I'm quite sure I had more than my share of available time in there.

Thereafter, with ups and down of activity caused by the requirements of raising a family and making a living - you name it, I've probably had a go: Artillery Officer, Police Assistant, Superintendent in Uganda, Salesman, Insurance Office Manager, Security Patrolman, semi-Accountant and much much more - before, in 1988, getting myself a job in a retail photo shop. Now I wasn't all that hot as a salesman and I absolutely hated dusting cameras and stocking shelves but I used the occasion to buy myself good gear at the right price and, especially, my JOBBO CPA-2 Processor with a LIFT. I cannot think of a photographic process that I haven't carried out in this excellent JOBBO equipment: C-41, E-6, EP-2, RA-4, P30 (and P3) Ilfochrome and, of course, the full range of black & white film and paper development.

Before becoming mildly disabled in 1990, I did about a year's work as an "odd job" processor, doing just about everything that the local minilabs couldn't, wouldn't do - you know the sort of thing: Copy negatives, copy slides, Ilfochrome (Cibachrome in those days), toning, strangely-sized prints, the lot! I also developed a taste for writing about my work and my very first article (in 1990) was accepted, first go, for an Australian Camera Magazine all about my beloved CPA-2. Since then I have been writing for this publication regularly on (mostly) darkroom matters, and for Ilford (Australia) Ltd. who publish a magazine for schools called "Images."

In 1995 I was invited by Australian Camera to become their 'official' Darkroom Consultant and this accreditation allowed instant access to just about all manufacturers and importers of film, paper, and chemistry. Since then I can only say I've had a ball with lots of lovely new things to try out! I found the time to write a couple of books, one on do-it-yourself darkroom photo chemistry (to fill a deep hole in Australian literature - Patrick Dignan's excellent book on the subject was admittedly my inspiration, but I took it into the T-Max age and told folks where to get what they needed locally) and the other an aid for high-school teachers. I didn't make much money, but the doing was more than worth the effort, as there is nothing like writing for getting one's mind in order.

The advent of 'official' retirement and the coming of imaging technology forced me to concentrate more and more on writing and experimentation; both a lot more fun than the increasingly boring - been there, done that - jobbing work, although I still do enough to keep my hand in. My last work has been on doing direct reversal printing onto Multigrade and Multicontrast papers from color and black & white transparencies - a project in my mind since 1950 when I had a Kodachrome slide of a girlfriend (I often wonder how she fared in life... nice kid, lovely red hair) and wanted a black & white print. It took a while, but I got there... with a little help from my JOBBO.

Kodak EIR Infrared Transparency Film

By Sam Proud

In February, at the Photo Marketing Association meeting in New Orleans, Kodak announced a new infrared film to replace the long standing Ektachrome Aero Infrared (EI) film. EI film had appeal for scientific applications and limited appeal to amateur and advanced amateur photographers for its interesting artistic effects. The big problem was the film could only be developed using the outdated E-4 process that only a few labs in the country still offered. The cost of processing was expensive due to the small volume of film the labs handled. Processing charges were approximately twenty five dollars per roll.

What makes me excited about Kodak's EIR film is that it can be processed at home in traditional E-6 chemistry. I love new toys, especially photographic ones so as soon as my local photo shop got their first shipment in I went down and bought a couple rolls to see what EIR was going to do. I have to admit I winced when I pulled out forty dollars for the two rolls but the results for the first try were outstanding.

If you are searching for a new look to wake up your eyes then this may be it. What you see is definitely not what you get! The colors are vibrant and high in contrast, grain is moderate in structure. After shooting a few rolls you can start to get a perception of what your transparencies will look like. Since I have been using this film, I now not only look for color and composition in standard transparency film but what it might look like if shot in infrared. All of a sudden ivy-covered buildings take on a whole new perspective. EIR is not for everyone, and it's not meant to be. But if you're looking for something new to experiment with, this film is something you must try.

EIR is not a true infrared film, since it records in a range from 400 to 900 nm (nanometers). The average human eye can see reflected light from 400 to 700nm. The infrared portion of the spectrum begins at about 700nm. In short EIR, responds to certain image colors as we do and goes beyond the visible portion of the spectrum.

Kodak rates the film at 200 ISO for E-6 development and 100 ISO if the film is processed using AR-5. The recommended ISO's as published have taken into account the filter factors of the Wratten 12 or deep yellow filter needed to make this film work. I exposed the film at the recommended 200 ISO. The camera used for the initial test was a Bronica ETRS with a 35mm back and a 50mm PE lens with a Tiffen deep yellow # 15 filter. The meter used was a Minolta Autometer IV. Weather conditions, especially temperature, may have an effect on the films recording of colors, so for the record, the first roll was exposed on a cloudless day in strong sunlight between 1 and 2 p.m., with an outside temperature around 82 degrees. Subsequent rolls were exposed at 200 ISO with a Canon EOS A2E.

Published data from Kodak indicates that the film has a latitude of plus or minus 1/2 stop.

On an over-and-under test of two stops, I found that one stop under can produce a good transparency but one stop over will produce a washed out transparency with little color or contrast.

Loading and Processing:

Kodak states that the film must be handled in complete darkness. It may have been a bit of overkill, but for that initial roll of film, I first loaded the camera, and then later loaded the exposed

film onto the reels, in the darkroom using a changing bag for extra insurance. On subsequent rolls I did away with both the changing bag and darkroom and loaded the film in the camera under subdued light without any indication of fogging.

As mentioned before there are two ways to process the film. The standard E-6 method and the AR-5 Process. AR-5 is a process used to develop aerial film. When EIR is processed in AR-5 the film will produce a more accurate, but less saturated, color transparency. The E-6 will produce higher contrast and more saturated colors. According to Kodak, there are only three labs in the country that can run the AR-5 process.

For this test, the film was developed in freshly mixed Tetenal E-6 three-bath and six-bath kits. Processing was done in a JOBO ATL-1000 and an ATL-3000 using both 2500 and 1500 series tanks. The process times were standard Tetenal / Kodak E-6 times. Temperature controls of 38° Celsius \pm 1/2 degree were adhered to.

Kodak states in their data sheet that the film must be kept under 55°C (131°F) otherwise fogging may occur. To emphasize this constraint, I should note that Kodak ships the film in boxes with ice packs to protect it from heat. This may raise a few questions as to processing in a JOBO drum or processor and following Tetenal or JOBO's instructions that recommend a five minute prewarm of the drum before the process is started. From the tests conducted, the brief elevation in temperature and the material used in JOBO drums have no fogging effects on the film.

Outside IR Sources:

Kodak points out in the data sheet that the process should be carried out in total darkness. This indicates a concern for (but is not limited to) IR sensors in film processing machines, night vision goggles used in labs, or cameras that use infrared devices for film advance. The best advice I can give is "photographer beware." Unfortunately, the only way to be sure your images will process properly is to test the film yourself in your camera with your processing technique, or with the lab you work with. If you are using an outside lab make sure that the lab is aware of the special handling instructions. The film canister only shows the film can be processed using the AR-5 method, so you may want to take the data sheet that comes enclosed with the film or a copy of the Kodak data sheet with you to remove any doubts of the film contaminating the lab's chemistry.

If you are processing film yourself, check your darkroom for any external light leaks, then recheck your darkroom for any internal light. Telephones, motion detectors, glow in the dark markers, florescent lights, any LED's or LCDs or furnace pilot lights that might emit light can cause fogging. Twenty minutes in your darkroom may save you hours and dollars of frustration. This rule should be practiced for EIR film and any film with which you are working. Don't forget to check yourself! We all take a lot of the things we wear for granted like watches and pagers, and some now have continuous glow dials that could easily fog any film. As a friend of mine once said "If you find a light leak in your darkroom chances are the film found it first!"

Slide Duplication and Internegatives:

You stock shooters will be happy to find out that EIR does very well when duplicated. We took several transparencies of different exposures to a custom lab for duplication. We then brought them back and set them next to the originals. In a blind test, no one could tell the differences between the original or the duplicate. For those of us who just can't bring ourselves to the point of making our friends sit down and look at slides, prints from EIR can be made easily by use of an interneg or Ilfachrome process. Both will produce, as expected, a higher contrast print but in some cases may make the print more dramatic than the original transparency.

Canon Cameras:

Canon EOS cameras may pose a special problem with EIR film. With the exception of the Canon EOS, EOS 1, and the EOS 1N, the film transport system uses an infrared eye to advance the film by counting the sprocket holes. According to Canon, the IR film advance can fog infrared film as much as 15% into the image area, though this fogging factor may vary from camera to camera and model to model. As mentioned earlier in this article, many of the rolls tested were done in two Canon A2E's. Some fogging of the lower sprocket holes was noticeable, however it did not affect the image area. Again if you're using a Canon EOS you must test your equipment to see if fogging is going to be a problem with your cameras.

Additional information and footnotes:

Additional information can be found at Kodak's web site at: www.kodak.com

* *Basic photographic materials and processes*

<http://www.kodak.com/aboutKodak/bu/ppi/technicalPubs/tiDocs/ti2323.shtml>

Comparator 2

To determine Exposure Times and Paper Grades

By Paul Rowe

Have you ever stood over the light box in your darkroom and tried to determine density and contrast for the dogzillionth time? In the back of your mind the little voice is saying "I never can do this right!" And after your judgment has failed, you are standing over the sink developing the tenth test strip, still trying to determine exposure and contrast. The little voice is saying "Why do I have to go through this torture every time? Can't I learn from the past?" Then you decide that you really should do this negative on a warmer toned paper. Here you are, back at the sink going through the test strip routine again! A knock at the door interrupts your reverie. It is your wife, holding a color negative from her sister. She insists she needs an 8x10" print for the mail tomorrow morning, and inside you groan as the little voice starts all over again.

Most of us are familiar with part or all of this scenario. We at JOBO have been hiding a little instrument that will relieve much of the pain you can experience. It's called the Comparator 2.

It is palm-sized, battery powered, easy to use, and relatively inexpensive. Once you have programmed it, a simple task of turning a single dial and watching some lights go on and off, you can breeze through your basic requirements. The fly in this ointment is that you must make a "perfect print" first, but most of you looking at this article have already done that!

If you are printing black and white, probably your first interest is in selecting the paper grade. This is a matter of sliding the spot sensor to two different areas of the projected negative and reading which one of 6 LED's light up to tell you the paper grade. The Comparator comes programmed for average density ranges, but you can tweak this (with a few turns of a screw driver) to fit your taste.

In place of the interminable test strips you can determine overall exposure as easily as turning a dial and watching lights change color. The measurement of exposure time has two avenues of approach, one by use of the spot probe, and the alternate by the use of the overall averaging method. The overall reading is accomplished through a diffuser supplied with the Comparator and placed under the lens.

A change in your paper base or a new box of paper requires a new program. Once you have programmed a perfect print, the dial you are using will show you a setting which you need to record. It is probably easiest to record this on the lid of the paper box. Then, whenever you go back to that box of paper, you will know the setting to properly use the Comparator.

How about that color negative? The same procedure for programming exposure is used for color as for black and white. Record the dial setting on the paper box and you are ready to make prints as soon as the color negative shows up. Alas-the Comparator 2 will not help you with filter settings for color work. We have not yet been able to design a color analyzer this inexpensive. (I wish we could-we would corner the market.)

I do not want to claim that the Comparator will end your processing of test strips, because there is always the need to "fine tune" the process. It may not end test strips, but it will sure cut down your time with them. The same is true with paper grades. If you can start out only a half grade away the time is markedly reduced!

The gory details are: the Comparator is product #6251, and has a suggested selling price of \$137.50. See your local dealer.

ColorLine 5000 Short-cuts

By Ken Owen

Why can't things be simple? In the good old days when on-easel color analyzers first came into the marketplace they were little more than a light meter to guide the user to a filter pack for enlarging color negatives. Comparing that to the ColorLine 5000 Analyzer of today, is like comparing a pocket calculator to a 200mhz Pentium II computer. The ColorLine 5000 reads color or black and white filtration and exposure time simultaneously. It also:

- operates as a control panel for most enlargers
- serves as a timer for most enlargers
- provides an easy way to adjust exposure time in partial (1/30th of a stop increments) or full stops
- works as a color or b/w transmission densitometer measuring yellow, magenta, cyan, and density
- programs itself (with a little help from you) to a standard gray for easy analyzing and process control
- measures and corrects for long exposure times (slope of reciprocity failure) with any print material
- reads and suggests the contrast grades and exposure times for black and white papers
- sets and measures the filtration for variable contrast black and white papers.

With all these functions, it's no wonder that some people get a little bit confused when they first try to use the ColorLine 5000. It can be compared to getting a new digital watch and not knowing

which key to push and how many times to push it to set the alarm function. After a little bit of practice it becomes second nature.

All that being said, I'd like to give you a "cheat sheet" of steps to use with the ColorLine 5000 to get you started quick and easy. Maybe these will make it simpler and easier for you to use.

Selecting and Setting the Correct Channel

The ColorLine 5000 has 99 channels from which to choose. Each channel can be programmed for use with color negatives (NEGATIVE), prints from slides or transparencies (POSITIVE), black and white prints on graded paper (B/W), or prints on variable contrast black and white papers (V/CONTR).

Each channel can also be programmed to indicate which type of probe measurement method was programmed: Spot measuring using the clear plastic probe cover (SPOT), partial integration using just the white plastic diffusion probe cover (PT/INT), or fully integrated readings using both the white plastic diffusion probe cover plus the frosted diffuser under the enlarging lens (INTEG).

To select a different channel to use (other than the one you are currently in):

1. Press the SET key, and the channel number will begin blinking.
2. Now turn the encoder wheel until the channel number you want appears in the blinking field on the display.
3. Press the LAMP key to return to the READY mode.

If you want to change the characteristics of a channel, then while in the SET mode, press the START/STOP key until the field you want to change is blinking. For instance if you want to reprogram channel 20 for printing color negatives using the spot probe cover:

1. Press the SET key. (The channel number field will be blinking.)
2. Turn the ENCODER WHEEL until channel 20 appears in the number field.
3. Press the START/STOP key one time so the material field is blinking.
4. Turn the ENCODER WHEEL to display the word NEGATIVE.
5. Press the START/STOP key once so the probe field is blinking.
6. Turn the ENCODER WHEEL to display the word SPOT.
7. Press the LAMP key to return to the READY mode.

This same technique applies to setting any field on any of the 99 channels.

You might consider setting channels 1-10 for your most often used paper (eg: color negative), channels 11 - 20 for B/W and 21 - 30 for reversal printing (if you do that). Keep a log of how each channel is configured and what each one is used for and the programmed settings. It will make life much easier than trying to remember it all.

Programming to Make Color Prints from Negatives

Having just made a "perfect" print, leave the enlarger's filter and lens settings alone, and note what time was used to make the print. For our example, let's say the time was 8 seconds. Make sure you are in the correct channel for programming this information. (The channel number itself could be anything from 1 to 99, but you will want to be in a channel that is set for NEGATIVE and probably for SPOT reading.)

1. Press the ANALYZE key.
2. Place the probe in the part of the picture which you want to program for, such as skin tone, blue sky, green foliage; whatever will be useful to you. Be sure to cosine correct the probe if you are using the spot cover. (Cosine correction simply means tilting the probe so that the sensing cell is looking straight into the enlarger lens, and the probe's sensor is in the center of the projected circle.)
3. Simultaneously press the top two keys (SET and DENSI) for about 1 second and then release them. The analyzer has now memorized the color of your selected area.
4. Now turn the ENCODER WHEEL until the display shows 8 seconds. (Make sure it says 8 seconds and not 8 tenths of a second.)
5. Press the ANALYZE key to lock all this information into memory. The analyzer is now programmed for whatever color was being measured by the probe's sensor, and set for the exposure time used when you made your "perfect" print.

Analyzing a "New" Color Negative

Once you have programmed the analyzer as described above, it's ready to use. After you place a "new" negative in the negative carrier just follow these easy steps:

1. Press the ANALYZE key.
2. Place the probe in the part of the picture for which you have programmed, such as skin tone, blue sky, green foliage, etc., and cosine correct the angle of the probe if you are using the clear spot cover. (Remember that the programmed color limits what you can analyze. If channel 20 is programmed for a skin tone, then that is all it will be useful for. A different channel will be needed for blue sky, or green foliage, etc.)
3. Adjust the filter dials on your enlarger until the display on the ColorLine 5000 is nulled to zero in all three colors and the time displayed is within about $\frac{1}{2}$ stop of the 8 seconds (or whatever time) you programmed to originally. (Later, when you have gone through the slope testing procedures, the time won't really matter. Until then, stay within $\frac{1}{2}$ stop of the originally programmed time.)
4. Press the LAMP key to turn off the analyzing function and lock in the exposure time on the display. The enlarger lamp will remain switched on so you can finalize your composition.
5. Press the LAMP key again to switch off the enlarger lamp.
6. Insert your paper into the easel and press the START/STOP key to begin the exposure.

Now that you are more familiar with the analyzer's use, take the time to program a channel to produce truly neutral gray, which will make integrated readings more accurate. You can also use it to spot read cement or other gray areas in your negative, making your Colorline 5000 truly easier to use and more powerful than any other analyzer for the price! Oh, and be sure to record the settings for each channel in your darkroom log.

Now you know how to quickly set up a channel for use, program it and use it to analyze a new color negative. It's basically the same for prints from slides and black and white prints. So get back into your darkroom and let these simple instructions help you make great prints right away.

Fixing It

The ability to reuse fixer, and the existence of both hardening and non-hardening black and white fixer seems to spawn many questions. If you don't want to get into chemically checking your fixer by the use of Hypo-check you can use a rule of thumb and reuse your black and white fixer 1 or 2 times before discarding it. This practice will keep you from having problems with retained silver because your fixer was not strong enough to remove all of the silver in its last use. I know many people reuse fixer more times than this, but they are not beating the solution with constant agitation as we do using a JOBO rotary processor. The corollary question is "Should I use a hardening fixer?"

Years ago black and white emulsions were soft and easily scratched. A hardening fixer was preferred because it hardened the emulsion and helped prevent accidental damage. Modern emulsions do not suffer from these problems, and it is actually preferable to use a non-hardening fixer. The non-hardening fixer takes less time to fix the film, and can be removed faster in the final wash. In addition, if you are planning to use a toner on the negative the non-hardening fixer should be your choice. It will do nothing to impede the absorption of the toner, while a hardening fixer can resist the toning, and/or cause streaking.