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User Profile: Home Appliance Mart Employees are Loyal JOBBO Users

Just around the corner from the JOBBO Fototechnic main office in Ann Arbor, Michigan is Home Appliance Mart, a JOBBO dealer for over 14 years. Thirty-eight years ago George Simon opened Home Appliance Mart, also known as "Big George's" in the Ann Arbor area. The stores clientele ranges from the working professional photographer, commercial photographers, students, to the hobbyist. With many large colleges in the area, photo students look to the Home Appliance Mart salespeople for suggestions and advise. If the student shopping list doesn't have JOBBO on it, the seasoned salesmen recommend the JOBBO drums and processors for the ultimate quality. Manager Lee Kitada, salesmen Brad Blackwell, and Jim Oehl all use JOBBO equipment outside of work. There is no limit to the versatility of lifestyles the JOBBO equipment fits into.

Profile: **Lee Kitada**, the Buyer / Manager of the Photo Department has worked at Big George's for 10 1/2 years. In that time he has learned that in dealing with a customer it is important to take every question they have seriously, and to be patient. "My undergraduate and graduate schooling centered around the sciences and probably explains why I'm better suited for the retailing, technical side rather than the actual creative (artsy) aspects of photography." He has spent 25 years in the business, 5 in photofinishing, 4 in repairs, 1 in free-lance & studio work, and 15 in retail. However, photography has been a part of Lee's life since 1957 when he received his first camera, a Bazooka Joe 127 . Serious picture taking began in 1971 when he began to really think about what he 'wanted' in his photographs. Processing his own work came from his desire for 'Freedom of control'. "I can control the final product without relying on a photo finished 'best judge' for my final print." When asked, "Why do you choose JOBBO equipment?" Lee's responds, "For me it's the simplicity, the modulated system and tempered water for drum processing. The real key is the people at JOBBO, whose support base is the best I've ever dealt with in the photo industry." When working in the darkroom as time allows, his primary interest is processing RA-4 and slides to prints, desiring the control of the final print. The transparency and negative processing are a means to an end but not Lee's major interest. As a busy father of two his photography for now is mainly quick shots of the kids. He would like to pursue photography as a hobby again, however after 25 years in the business his creative urge has been put on hold... for now.

Profile: **Brad Blackwell**, Assistant Manager / Lab Manager, has been with Big George's for almost 7 years. Having an Uncle who worked as a Detroit News Photographer piqued Brads interest in photography in the early '60's. He received his first camera and darkroom set up in 1963. Brad photographed weddings for a number of years and he now shoots for fun as time permits. Brads main interest in developing is in E-6, however he processes prints from slides, and some B&W. He uses a JOBBO CPE-2 Plus with the E-6 conversion kit. Brad develops his slide film using the Tetenal E-6 bath chemistry. The results are excellent colors and professional quality.

Profile: **Jim Oehl**, Commercial & Counter Sales, also works as a free-lance photographer. In 1984 Jim graduated from WCC (Washtenaw Community College) Photo Program and worked for a Major Research Institute the following November, becoming the senior photographer in 1987. His 20 years interest in photography began with a 16mm Minolta camera and now Jim works mainly with his Leica R7, and Zone VI 4x5". In his darkroom, Jim uses a JOBO CPP-2 processor and recently began using a 4x5" expert drum #3005 for processing his sheet film. Using the CPP-2 gives Jim the ability to switch processes quickly, processing from 35mm to 4x5" film (color and B&W) as well as RA-4 and prints from slides. Although the versatility in his portfolio is impressive, when Jim is asked what his future photographic plans are, he says he looks forward to doing more fine art photography. Yet his motivation is a general interest in all things photographic.

The freedom of creativity makes JOBO equipment an important part photography for these seasoned salesmen as well as many of the customers they serve, from many different backgrounds.

Feature Article: Introducing The ColorLine 5000

A New Analyzer From JOBO

by Ken Owen

It was slightly over ten years ago that JOBO Fototechnic introduced the original Colorstar Analyzer to the United States. It was soon followed by the Colorstar 1000 and 2000, and then in 1992 the Colorstar 3000 arrived. As each new Colorstar model was introduced, they were highly acclaimed by darkroom users across the country and around the world.

Now JOBO proudly announces the ColorLine 5000. This newest member in the family of JOBO analyzers takes all the best features and functions of these past models, enhances them, and adds to them. It is intuitive enough for beginners and powerful enough for professionals. In the ColorLine 5000, JOBO engineers found ways to overcome many of the minor shortcomings that remained in the Colorstars.

The first thing you will notice is the 4 line LCD screen which gives both feedback on the image being measured and instructions on what to do next. The LCD screen gives birth to the new name of this analyzer. Instead of having a Y shaped pattern of LED's, we use a series of horizontal lines to represent Cyan Magenta and Yellow, hence the name ColorLine. If you prefer,

you can set the unit to read out in CC units of filtration instead of the lines. Both methods are easy to use. You can even select to have just two (Yellow & Magenta), or all three colors displayed.

The second big feature is 99 memory channels. These can be subdivided by both paper type (color negative, color positive, BW graded and BW variable contrast) and by the specific slope for reciprocity correction. In previous JOBO analyzers, the slope dominated the programming, so all 8 channels of the analyzer had to be used for the same type of paper. Now, you can have a wide variety of slope settings to match a wide variety of papers.

The slope settings themselves are improved too! In most of the Colorstar models, you had only a handful of preset, average slopes to choose from. Now, in the ColorLine 5000 (CL5K), the analyzer itself measures the gray strips of paper, and adjusts individual slopes for cyan, magenta and yellow filtration. In this way, you get the most accurate slope adjustments possible.

Of course, the CL5K can self-program to a perfect gray program. Once you have that done, you can measure the control of the process and make use of the master channels to adjust the analyzer to any changes in the chemicals.

With the 99 channel memory, you can select any channel for any paper type or slope setting. When you need to change a master channel only the papers with the same paper type are affected. (Master channels are used primarily to correct for changes in processing conditions such as chemicals that have aged or chemicals that are being replenished.)

The main push button controls use color-coded LED's adjacent to them for easy identification in the dark.

In Black & White printing the ColorLine 5000 has separate functions for BW graded or Variable Contrast papers. In both cases, YOU can program the contrast grades to perform to your own standards. Let's face it; each manufacturer makes their papers a bit different from all the others. With the CL5K, you can program for the brand of paper you use instead of some hypothetical average paper.

In variable contrast use, you can set the contrast grades yourself as described above for graded papers, AND after you analyze the image, the CL5K will tell you how to set your dichroic color filter head to get the contrast you need. It actually tells you how much yellow, magenta and cyan filtration you need for the contrast you want. NO OTHER ANALYZER has ever done that before. (Note: most dichroic heads only have enough filtration built-in to get up to about a contrast grade of 3-1/2 or so. You will probably need to add magenta filtration to get all the way to contrast grade 5.)

The reference densitometer can be used for determining the correct speed for films when using the zone system. Or you can read the color of an image, and match it in a duplicate print.

When you want to make manual adjustments to many of the display fields, it's as simple as turning a wheel. Actually its called a rotary encoder, and it has the unique advantage that the faster you turn it, the more it changes the displayed numbers. In other words, you don't have to press a button and wait forever to make a large change in a displayed value. By turning the wheel quickly, the numbers jump fast! And when you want to make a small value change, such as 1 or 2 units of filtration, you can calmly make a small adjustment to the wheel and get a simple and controlled change on the display.

If you want to make a manual adjustment to the exposure recommended by the analyzer, just turn the rotary encoder. The display will show both the time change in seconds (and/or tenths of seconds) as well as the logD change. That's especially handy! If you want to make a 1/3 stop adjustment to the exposure time, you don't have to stop and calculate. As long as you remember that 30 points equals a one stop change you know the system. 1/3 of 30 is 10, so simply turn the wheel until you see a logD +10 or logD -10 on the screen, and then you know you've added or subtracted 1/3 of a stop. Of course 1/2 stop is 15 points, 1/6 stop is 5 points, and so on.

Then there is a list of more subtle features. You can select the brightness of the LCD screen and LED's on the control panel. You can select one five different languages on the display. A one second interval beeper can be switched on or off during exposure times. The list goes on and on. It may even get longer by the time it gets to Michigan. The production line is just now getting

started on this marvelous new analyzer. Shipments are expected to begin arriving by early August. If you have been thinking about getting a JOBO analyzer, don't put it off any longer. The ColorLine 5000 offers everything the previous Colorstar 3000 had, plus more features, and at a competitively low price. The JOBO ColorLine 5000, item #6230, \$1065 list price.

Article II: Take Three Deep Breaths

Frustration-Free Techniques for Loading JOBO Plastic Reels

By Brad Bunnin

The plastic reels for JOBO processors are wonderful devices if you know how to load them. If you don't, they can become instruments of torture. I found out through personal experience, by making every possible mistake until I discovered the truth: a few simple loading techniques will pacify the reels. Once pacified, they work beautifully.

Before you turn off the lights, look closely at the reel, which comes apart into two sections. To separate them, turn the reel until the three little tabs that you can see riding in the slots click into the slightly raised channels on the hub of the reel and pull. You'll now see that one part of the reel has two sets of tabs, the other two sets of slots. The wider slots are intended for 35mm film, the narrower for 120/220. The problem is that the 120/220 tabs will fit into the slots for 35mm (but not vice versa). If you put the 120/220 tabs in the 35mm slots, you will not be able to load 120/220 film. I know this from personal experience. Reassemble the reel, making sure the right tabs mate with the right slots.

Take a close look at the outer rims of the reels. They're complex. Most of the rim consists of a narrow edge that steps down to a slightly wider, inner ledge closer to the center of the reel. Place the red clip (it allows you to load two rolls of 120 film on the same reel, about which more later) at the 12 o'clock position. Then starting at 2 o'clock and continuing to 4 o'clock is a wider portion of each outer rim. Call this the film guide. And from 4 o'clock to about 5:30 the rim is at its narrowest. Call this the finger slot. Close your eyes and feel the differences: they are crucial to successful loading. Keeping your eyes closed, move the reel around. Put it down and pick it up again, make sure your fingers recognize the guides and the slots.

Now it's time to load. Place the empty reels on your dry side counter, always in exactly the same position: flat with the red clip face up and pointing directly toward you. Place the exposed roll right next to the reel, to its right and even with it. With your darkroom lights out, pry off the cartridge's end cap (or break the film's seal, if you're loading roll film). Then unroll the film (and separate roll film from its paper backing). Slowly pull the tape off the spool or backing (do it quickly if you want to see a pretty spark. That's static electricity at work; fast film is capable of recording it). Then fold back the tape over the end of the film, to stiffen it. This is especially helpful with roll film. Finally, clip the corners of the film at about a 45 degree angle, using finger and thumb as a guide for your scissors. The trimmed edge reduces the tendency of the film's sharp corners to jam. If you're trimming 35mm film, try to avoid creating a double rough edge by leaving the remnants of two sprocket holes at the leading edge. You may have to refine the trim a little.

With this preparatory work behind you, you're finally ready to insert the film on the reel. Pick up the reel and turn it 90 degrees to the right, so that the red clip is to your right and pointing at you. The film guides are now at the top of the reel. Feel for them. Align them so that they're even with one another. Hold the reel in one hand, and slide the leading edge of the film between the two film guides. The leading edge of the film *must* be fed onto the reel between and under the film guides, which will guide the film into the reel's spiral groove. I've found that it's possible to start the film elsewhere on the reel, but you'll regret it if you do. You must get - and keep - the film's edges under the film guides, or the film's natural springiness will pop it right out of the grooves.

You may encounter a little resistance as you guide the film into the grooves, but there shouldn't be much. Don't force the film! When it jams (and it will, occasionally, no matter how careful you are), take three deep breaths, remove the film from the reel, and start over.

Once the film starts to glide smoothly into the groove, feed about three inches into the reel, and make sure the leading edge is still in the grooves (it's easy for it to assert itself and pop out of the grooves). Now you have two choices: either put the reel edge-down on the counter top (like a rolling wheel) and load that way, or keep it in your hands. I prefer to keep it in my hands. Feel for the edges of the film, which will now be accessible through the finger slots. Place an index finger on each edge, holding the reel gently with your thumbs and other fingers extended and spread along the edges of the reel. Put a little pressure on the left film edge with your left finger, and rotate the left side of the reel away from you without putting any pressure on the right edge of the film. As you hold the edge of the film in place, and turn half the reel, the film will in effect slide further into the grooves.

Now change finger pressure: press on the edge with your right finger, relax your left finger, and rotate the right half of the reel away from you. Alternate! Get the rhythm of it! Take it easy! Very little pressure or movement is required. And don't squeeze the reel! Because it's flexible plastic, too much pressure can - no, will - distort it and cause the film to buckle and jam. Feel the edges of the film moving as you move the opposite halves of the reel. You may hear some slight crackling sounds from the film as you load; they're normal. You'll be able to feel the first one, then two, and finally several edges of the film under your fingers, if the loading is going correctly. A roll of 120 fills about four levels of spiral, 220 about eight. A 24 exposure roll of 35mm film fills about four levels, a 36 exposure fills five or six, depending on how deep you load. In less than a minute, you'll be fully loaded - unless something goes wrong.

What can go wrong? First, the leading edge of the film can pop out of the spiral groove, and you can blithely keep on loading it onto the floor of your darkroom. So right after you've begun the alternating movements of your hands, check to make sure the leading edge is still in the groove. Secondly, the film can jam, usually because two turns have found their way into one groove, or because it's buckled, in which case you won't feel the edges moving. Rather, you'll sense the edge standing still against the pressure of your fingers. Take three deep breaths, remove the film from the reel, and start over. Third, the film can double up in a groove, but not jam. You can detect this problem best by using a finger nail to count the edges you feel through the finger slots. If they're equal on both sides of the reel, you loaded correctly. If you feel more edges on one side than the other, you should begin again and reload.

If you're working with 120, you can load two rolls on one reel. Here's how: load the first roll all the way to the center of the reel.. You'll know when you have because the film will stop moving, and because you can feel the edges through the finger grooves from the center of the reel out to about the fifth groove from the center. Then push the red clip into place. Now load the second roll onto the reel. You'll know you've done it right if the entire second roll fills the grooves and there's no film left over. If there is, take three deep breaths and... you know the rest of the drill.

Once the reel is loaded, insert the core, attach the core to the inside of the lid, and you're ready to develop the film. I keep the tank, with the core and the lid, on the wet side, again always in the

same place and position. This is no place to be constantly creative! Instead, be a slave to routine. As a matter of fact, consistency with JOBO reels and tanks will reduce your frustration to the vanishing point and allow you the benefits of this well-designed equipment.

Brad Bunnin is a publishing consultant who works with a number of leading photographers. He lives in Berkeley, CA. He's been working in darkrooms for five decades. His current darkroom is filled with JOBO equipment he's acquired over the years

Article III: Size It Up For Yourself

By Ken Owen

Very often, the instructions for measuring a chemical kit will only tell you how to mix the full amount of the kit, or maybe a couple intermediate quantities. But sometimes you only want to mix up enough chemistry to process just one roll of 35mm film in a JOBO 35mm (1510) tank; 140ml. I doubt if any instructions anywhere will give you the guidelines you need for this size. The good news is it's really quite simple. Just determine the number of "parts" to mix each chemical, and divide 140ml by that number.

Let's try this with a couple of "real" chemicals. For our 1st example, let's use Tetenal E-6 Six Bath 1st Developer. It's easy since it requires only a single concentrate plus water. The instructions tell us to start with 800ml of water and add 200ml of 1st developer concentrate. That's a ratio of 800 to 200 or "4 to 1". 4 parts water plus 1 part 1st developer concentrate will mix in any size to give you a proper working solution. (Remember we're only discussing the Tetenal E-6 6-Bath as an example right now. Other brands may need different dilutions.) The 4 parts of water plus 1 part of developer equal a total of 5 parts. ($4+1=5$) It's really not very difficult is it?

Going back to our example of processing in 140ml of solution, we now divide that by the 5 total parts. 140 divided by 5 equals 28. So each part of the solutions used to make the working strength 1st developer is 28ml. Now, multiply 28×4 to determine the amount of water needed. ($28 \times 4 = 112$ ml water) Then add 28ml of concentrate to the 112ml of water and stir. You have just prepared exactly 140ml of working strength solution. (112ml water + 28ml concentrate = 140ml working solution.)

Sometimes these small volumes will be difficult to mix accurately, if you don't have graduated cylinders (graduates) marked in small enough increments to get the right amount. JOBO makes 6 different styrene graduates that are easy to read and easy to measure accurately. They come in the following sizes; 25ml, 50ml, 100ml, 250ml, 500ml and 1000ml. (See below for more information.) Good graduates can make measuring a lot easier.

Once in a while, you will encounter a chemical that requires more than 1 concentrate to mix into its working solution. How do you calculate that? Basically it's done the same way, but you have to go back to the basics; determining the number of parts to be mixed. Let's use Tetenal E-6 6-Bath Color Developer for this example. It has a part 1 and a part 2 concentrate to be mixed. According to the instructions, you will start with 800ml of water and add 100ml of part 1 and 100ml of part 2 for a total of 1000ml of working solution. ($800 + 100 + 100 = 1000$) This is still easy! 8 parts water plus 1 part of "part 1 concentrate" plus 1 part of "part 2 concentrate" ($8 + 1 + 1$) equals 10 total parts. Simply divide the 140ml needed in our example by 10 parts. Each part is 14ml.

8 parts of water times 14ml equals 112ml. ($8 \times 14\text{ml} = 112\text{ml}$) Then for both color developer part 1 and color developer part 2, 1 part equals 14ml. So start with the 112ml of water, and add 14ml

of color developer part 1 and stir. Then add 14ml of color developer part 2 and stir, and you have mixed 140ml of color developer. ($112 + 14 + 14 = 140$)

Always remember to stir after adding each separate component, and before adding the next in any multiple concentrate chemical.

In virtually all of the Tetenal color chemical instructions we have done the calculations for you. After giving a couple standard volumes, you'll find the "part ratios" and total volume of parts. Just divide the quantity of chemicals you want to mix by the total parts and you'll know how to mix just the right volume for the size tank you need to fill.

It may seem a little bit confusing with all the numbers I had to give you in the text above, but it all comes down to simply determining the ratio of each liquid used to make the working solution of any chemical, then dividing the total volume by the total number of parts. With this simple formula, plus some Protectan spray to protect your remaining developer concentrates, you can easily economize when you use your photo chemicals.

Article IV: Nova Temperatures; Get 'Em While They're Hot

by Ken Owen

When it comes to Nova processors, one of the most frequent areas of discussion from customers calling Customer Service is its heating technology. Customers will comment to us that they are surprised/disturbed/concerned, etc. about the differential in heat between the developer slot and the water core right next to it. When they want a 35° Celsius temperature in the developer, they find they have to set the water core, somewhere in the neighborhood of 40-45° C. This large differential in temperature (5-10° C) makes them think there is something wrong with their Nova heating system. The first thing they want to do is attach Styrofoam insulating panels to the outside surface of the developer slot to cut down the heat loss. Actually, that is the last thing they should do!

The heat loss that occurs is normal and improves the performance of the Nova in maintaining accurate tempering while you use the processor. The wide differential of temperatures between the water core and the developer bath is actually what allows the developer to recover its correct temperature. If the temperature of the water core is only a few tenths of a degree away from the target temperature of the developer bath, it will take "forever" for the developer to come back up to temperature after a single print is developed. The room temperature print processed in the 35° C solution for 45 seconds, chills the developer like an ice cube in tea. Then the developer has to come back up to temperature quickly for use with the next print.

But by having the water core temperature set 5-10° C higher than the developer, and allowing the outer wall of the processor to continually "lose" some of the heat of the developer, there is a constant heat exchange going on. This provides rapid recovery of temperature while you process prints, without you having to do anything special.

A related question has to do with "layering" of the heat in the solutions. Often a customer will process their first print, and find the bottom has reduced density, compared to the top. When they check the processor with a thermometer, they find the bottom of the developer slot is colder than

the top. This is true. If you haven't used the processor in the last 15 minutes, you will need to stir up the solution or you will suffer from temperature striation. While you agitate the prints during processing you will get further agitation of the solution, but not enough to have that first print process evenly. So feel free to stir things up from time-to-time.

Tips & Techniques

Rush Heating for Rotary Processing

by Ken Owen

In case you rotary owners feel left out by my article on the temperature differential in Nova processors, I thought I might pass along a tempering tip for you too.

Temperature differentials speed up heating in just about anything. JOBO rotary processors are no exception. On any of our manual rotary processors (CPP-2, CPA-2, CPE-2, CPE-2 Plus, DuoLab) and even on our AutoLabs you can speed up the warming of your chemicals. When you fill your water bath, add the water 5-10° C warmer than the target temperature, such as 38° C for most color film processes. Instead of waiting for the water heater in the trough to do all the work, the water is already up and above the desired temperature, and the cool chemicals in their bottles will quickly bring the overheated water temperature down. Then the heater will start to do the work of maintaining the temperature. This procedure can shorten the "ready" time for a CPP-2 or CPA-2 from over an hour to under 30 minutes.

There is one exception to the rapid warming rule; the ATL-1000. DO NOT pre-warm either its water bath or its chemicals. The ATL-1000 needs to do all its own heating to achieve accurate tempering. If you pre-warm either the water or the chemicals, you may shortchange the pre-warming of the film tank, and particularly with color film, you may end up with underdeveloped film. Besides, the ATL-1000 is able to warm itself up in less than 20 minutes from room temperature, so rapid warming is not needed as much with this machine.