

## SPLIT GRADE PRINTING

Max Ferguson

Multigrade printing isn't just all the grades in one box, but also all the grades on one sheet. Well-known though this fact is, its full implications aren't always appreciated. I didn't even know them myself until a happy accident at a summer school I was teaching in Wales some years ago. On that occasion, a student showed me a print with clear white highlights, so I told him to go back into the darkroom and burn-in using a lower contrast grade. He came back with an interesting result that didn't look as if it had been burned-in locally, so I asked exactly what he'd done. It turned out he'd done the same as he had before, then given another overall exposure at lower contrast. The crucial word here is overall. Rather than burning-in separate areas, he'd burned-in the entire print. It wasn't quite what I'd meant, but suddenly I realised that this technique had tremendous potential. I went back to my own darkroom and perfected what I call "split grade printing".

The basic facts of MULTIGRADE printing upon which this technique relies are two-fold. Firstly, everything that is needed to print all the grades is contained in every single sheet of MULTIGRADE paper. Secondly, high contrast grades effect on shadow areas while low contrast grades have greatest effect on highlight areas. Conventional wisdom says that you should choose the contrast grade to best suit the negative, with the option to burn-in at other grades if required. With split grade printing, you choose not one grade but two, allowing you to print highlights and shadows differently.

Users of fixed grade papers may recognise this idea, which is akin to using two-bath development. The difference is that split grade printing is more flexible. When I first started printing, I was putting RC paper through a processing machine, so all the creative control had to be done under the enlarger rather than in the development tray. That approach has stuck with me: I still prefer to work with light rather than with chemicals. The beauty of split grade printing is that it works with everything; MULTIGRADE III and MULTIGRADE IV, RC and FB.

The test strip is the most important part of split grade printing. Learning to read it is the hardest skill, and not everybody gets it straightaway. Testing is done in three stages, though with practice and experience you can usually skip the first one, which is simply an initial exposure test done on a typical mid-contrast grade (i.e. 2 or 3). This gives a basic time for the next, and most important stage.

Using two different contrast grades (I usually start with 2 and 4), proceed as follows. Make a normal low grade test going across the paper in one direction. Choose the exposure times so that one of the middle strips has approximately normal density. Now, keeping the same piece of paper in the easel, change to the high grade and make a series of test exposures going across the sheet in

the perpendicular direction, but keeping the very bottom strip marked off completely so that it has been exposed only by the softer grade. Develop the print, then dry it off. The result will be an image with a series of squares that have been exposed with different combinations of the two grades used.

Choose the square that gives the best rendering of highlight and shadow detail: that square will correspond to the grade combination that will probably give the best final result over the whole image. Sometimes the differences between the squares can be very subtle, so look carefully. To make absolutely certain that you've chosen the best square, do the final stage of the test. This involves making a print of the entire negative, giving the lower grade exposure to the whole area. Mask off half the paper, and give the visible half the second, high grade exposure. Process and dry, then examine to confirm that the image does work as hoped. Look at the low grade side to check the highlight details are correct. Look at the double exposure side to ensure both that the shadow details are right and that the highlights haven't been degraded. Assuming all is well, make the finished print using the combination chosen.

Those are the basics, but there are a few variations and notes that can make all the difference when putting theory into practice. The first is that although you can choose any grades you like, it is best to keep them at least two grades apart. This may sound like a hefty restriction, but it isn't. The ILFORD below-the-lens MULTIGRADE Filter Kit contains twelve steps, from 00 to 5. If you're treating MULTIGRADE as all the grades in one box, you've got the equivalent of twelve boxes of paper. But using combinations of contrasts that are two grades or more apart adds another thirty-six possibilities - three times as many as in straight single grade printing!

The next important point is that you can't make separate tests of Grade 2 and Grade 4 and just compare the two prints to choose a happy medium since the effects of split grade exposures are cumulative. A print that is too soft after 10 seconds at Grade 1, and too hard after 10 seconds at Grade 3, could well look fine printed for 10 seconds at Grade 2. But giving one sheet of paper 5 seconds at Grade 1 followed by 5 seconds at Grade 3 does NOT give the same result as 10 seconds at Grade 2. That's the whole beauty of split grade printing: the results are different to what you get from the use of single grades alone.

You don't have to test using a basic low grade then adding high contrast exposures: you can do it the other way around if you think it will work better. Times when this is likely are when the negative is a bit thin or the subject is lacking in contrast. The same principles apply. Try to ensure that the exposure steps you use are easy to work with (a foot switch on the exposure timer makes life much easier).

Split grade printing can be especially useful when making prints for toning.

Highlight details can sometimes bleach out and not return during toning, so it pays to have plenty of substance in those areas. To help this even more, I make the prints up to half a stop darker than they would normally be...

... If this all sounds a bit complicated, don't worry. You don't need to understand how it works, only how it can be used. Get into the darkroom and take a couple of tricky negatives with you. Rather than burning-in like crazy, try using split grade printing. You can still burn-in if you need to, but you shouldn't have to do anything like as much. And remember, any burning-in can be done under either high or low contrast filtration. Low contrast will emphasise highlight detail, while high contrast will mostly increase shadow density without degrading the highlights. Give it a go. You might be surprised how much time and effort split grade printing can save you.

Reply to letters from Ilford

I've seen a variety of approaches to split grade printing. Some based on Grade 0 for minimum Gamma then an added exposure on Grade 5 for maximum Gamma, tested on 2 separate sheets of paper.  
Oooops! A bit limiting.

My test strip is based on Gene Nocon's pre-flash method whereby Gamma could be altered to give less toe and shoulder by exposing emulsion to "white light" before making an exposure from the negative. This trick was employed by cinematographers and also by Ansell Adams. The neat thing was that D-Max and D-Min still have the same relationship, ie: Grade 4 remains Grade 4 BUT with an extended straight line thereby extending the tonal range, ie; more detail in the highlights and also in the shadows.

Gene test-stripped the white light in one direction and the negative at 90° in the other direction, giving a checkerboard test strip. The chosen square giving a combination of exposures, eg; 2 secs pre-flash plus 12 secs negative. Burning in was made subtler without the obvious "hot spot" that can and does occur.

When demonstrating split grade printing I start with Grade 2 and Grade 4 ( the old fashioned normal and hard grades ) testing Grade 2 across and Grade 4 up. Choosing the right square is the hard bit, (experience helps ). This is followed by a second test, checking out that I've chosen the correct exposure, the whole image on the low grade followed by half the image on the high grade. >From this I can then see if the low grade is correct in grade and exposure and if the high grade is adding the right amount of density. The final exposure is an adjustment based on the second test. eg: 20 secs grade 1.5 plus 4 seconds grade 4.

The squares can also guide the amount of "burn and dodge" eg: Add 5 secs Grade 1.5 plus 4 secs Grade 4 in the sky. Subtract 3 secs Grade 1.5 1 sec Grade 4

tree stump lower right corner and so on. Learning to read the test strip is very important, I can't teach people to see alas.

I now have an Ilford Multigrade head thanks to Ilford U.K's sponsorship but recommend below lens filters, less chance of moving the head when changing grades. Colour heads vary, my Leitz Focomat is great, but I've had real problems when using LPL's. The main hassle in changing filtration can result in moving the head, shielding the paper while enlarger is on to illuminate filter dials etc.

Colour heads can give you Grade 2 and a little bit, Grade 1 ish etc. If you use multiple filtration for Grade selection ( magenta and yellow collectively ) the speed between grades remains fairly constant. If magenta or yellow are used individually to increase or decrease Grade, neutral density is varied as filtration is increased in either direction therefore a variation in paper speed will follow. I've found that exposure must be increased, usually double for Grades 4.5 and 5.

I usually work 2 or more Grades apart to give 2 discernable Gammas. A box of below lens filters gives 12 filter choices, using 2 Grades, (at 2 or more apart) will give 36 combinations plus the variation of exposures of each Grade will extend this even further. Ilfords Multigrade IV has 3 emulsions, use 'em all. Not only all the Grades in 1 box, but all the Grades on 1 sheet, AT THE SAME TIME.

It does take time to get this method on board but it will increase the tonal range of your prints. It is particularly useful for toning as you can bleach highlights while still hanging on to increased D-Max allowing beautiful split tones with selenium - bleach - sepia combinations.

Having established a method, let your now enhanced pallet increase your creativity.

Max Ferguson