Black And White Printing

The procedure of enlarging and printing is the final and most rewarding step in the production of a photograph. It allows considerable artistic and physical control over many factors and using techniques that can alter the way we present the final image.

Note: Some procedures in processing paper are based upon have archival quality prints ie they will last a long time. Less stable prints can be processed with less washing time and not using a hypo clearing bath.

Equipment required:

- Enlarger
- Timer
- Trays
- Safelight
- Print tongs
- Thermometer
- Chemicals Eg.
    - Developer
    - Stop bath
    - Fixer
    - Hypo clearing agent

Procedure:

Note: The Ilford and Kodak articles on processing should be downloaded for a more detailed description although they, obviously, use proprietary products.

Preparation

Prepare all chemicals as per maker's instructions. Have all chemicals at much the same temperature. Try to process at about 20°C.

Ensure the negative is clean and dust free.

Test process

1. Place the negative in the enlarger and adjust height and focus to give the required image size and sharpness.
2. Set the lens aperture (f stop) to about the middle setting.
3. Select a representative section of the projected image. This area should include good range across black through to white. Make a test strip by exposing a piece of printing paper with progressively increasing exposure times. You cover each section in succession after it is exposed:

   Whole strip 5 Sec, next section 5 sec, next 5, next 5 and final 5 sec (ie final section expose for 5+5+5+5+5 = 25 secs)
4. Develop, Stop and Fix the test strip for the full recommended time. (see *Production Process* below)

5. Select the area with the best image density. That is, it has the best range of black through to white. Try to select the area where the whites are good and where the area with the next longest exposure has whites that start to become grey.

   NOTE: If no area is of acceptable density, or you don't have a clear definition of whites, re-do a complete new test strip at a higher or lower time range or aperture size as required.

Production Process

1. Organise the actual print composition that you prefer but do not change the height of the enlarger or the aperture setting used for the test print.
2. Making sure you are working only under safe lights, remove a sheet of photographic paper from the paper drawer and place it in the easel.
3. Expose for the period decided in final step in the *Test Process.*
4. Develop the print:

   for the time recommended by the paper manufacture

   OR

   using the rule of thumb that maximum development will have been attained at 3 times the time the first signs of your image shows up on the paper.
5. Drain and place in Stop Bath for about 20 seconds.
6. Drain and place in fixer for the time shown on the fixer label – normally about 3 minutes.
7. Wash for 10 minutes then hang print to dry.

Note: You cannot over-develop prints.

Enlargers

Enlargers are of two main types: Diffusion or Condenser. In the MCC Darkroom and Annex we have a mixture of these. All of the Ilford enlargers are the condenser type while the LPL and Kaiser are diffusion enlargers. The Chromega is also a diffusion enlarger.

The condenser enlarger produces a sharper image than the diffusion enlarger but it also highlights any defects in the negative and shows up dirt particles.

The type of enlarger you use will tend to be based upon the type of print you prefer.

Filters

The enlargers in the club have some way of inserting filters between the light source and the negative. These are used to control contrast (see Print Contrast). The Ilford enlargers take filter gels that go in the filter tray. The Kaiser, LPL and Chromega each have a colour head where you dial up the filter mix you need.

Paper Types

Photographic paper comes in two types: *resin coated (RC)* and *fiber based (FB)*. Like many tthings in photography, the type you use will depend on what you want from your prints and what you intend to do with them.

RC paper is cheaper and easier to use than FB paper. RC paper washes more quickly, dries more quickly and has less drying down effect (the print getting darker as it dries). Glossy RC paper is ideal for printing to show detail.

RC paper is seen as having more 'character'. Toning procedures tend to have more effect on a FB print. The surface can add a texture or feel to your print. Some say it gives more apparent depth to the image. When properly washed it has excellent archival properties.

Print Size

The first decision in enlarging is the obvious one of print size. Printing papers are produced by all manufacturers in a standard range of sizes as follows eg

12.75	X 17.8	CM.	5 X 7	INCHES
20.3	X 25.4	CM.	8 X 10	INCHES
27.9	X 35.6	CM.	11 X 14	INCHES

Paper Texture

To cater for individual preferences, and in many cases to suit the technical requirements of specific prints, printing papers have a range of surface textures:

a. Glossy

b. Semi matt

c. Lustre or pearl

The maximum degree of both fine detail visible, and image tonal range possible, is achieved when using glossy surface papers, with a notable degrading in both factors as progressively more heavily textured surface types are used.

Print Contrast

A photographic negative can vary considerably in its tonal range or contrast depending on the subject matter that was originally photographed, the characteristics of the negative, and negative developer used, and the length of development time given.

This variation in a negative's contrast will be reflected in any print made from it, and it is often desirable for either artistic, technical or simply person preference reasons to either increase or decrease this contrast level in the final print.

The original means to control contrast change was through the physical grading of papers produced by the manufacturers. There were at least five contrast grades numbered from 1 to 5 with number one being the lowest in contrast and number five the highest; ie:

Grade 1 - a very low contrast paper, used to compensate for high contrast negatives.

Grade 2 - considered a normal contrast grade, suits most negatives at medium degrees of enlargement.

Grade 3 - moderate degree of contrast, used for normal negatives at higher degrees of enlargement; in the Ilfospeed paper type this grade is accepted as normal.

Grade 4 - high contrast, for use with low contrast negatives.

Grade 5 - very high contrast, for use with extremely low contrast negatives.

The final contrast and density of a print can also to a minor degree be affected by the type of paper developer used, and to a much larger extent by the length of both exposure and development times given to the print.

Today we tend to buy Multigrade paper that covers all 5 grades listed above. Contrast is controlled by means of a colour head in the enlarger or by a set of coloured filters, numbered from 0-5 which vary the colour of the enlarger lamp. The paper gives a contrast response appropriate to the number of the filter used. In this way a single packet of paper can be used effectively with any, or all, negatives.