

Do It Yourself

Black & White Film Processing: The Twelve-Step Program

By Mason Resnick

You've built a darkroom. You've taken the pictures. Now it's time to process the film.

Why process and print your black-and-white photos instead of sending them to a lab? Quality and control: both are diminished the moment you let someone else process your photographs. If you have the time and commitment, processing your own work will give you an amazing amount of control--and creativity.

The down side to control is that you need to know what to do, and do it well. So although this column is for beginners, it will get technical. Sorry about that. (Remember: every technology requires a learning curve.)

By the time you finish this column, you'll be an expert in the basics needed to process black-and-white film (assuming you read it diligently and practice, practice, practice). Print it out and paste it over your film processing workspace for handy reference.

Hold onto your hat. Here goes.

How to Develop A Roll of Black-and-White Film

First, you need to load the film onto a reel and place it in the tank. A straightforward sounding affair. Until you learn that it must be done blind.

Lay out your tools in front of you: film cassette, can opener, film reel, tank and tank cover. Memorize their positions. Turn off the light. You're ready.

Step 1: In total darkness, remove the film from the cassette. Pull the flat end (as opposed to the end with the tip of the spool sticking out) off the 35mm canister with a can opener. Unwind the film and remove the end of the film from the spool by peeling off the tape that connects it.

Step 2: Load the film onto either a metal or plastic film reel. For beginners, plastic may be easier to learn than metal. With plastic, you simply slide one end of the film into a slot on the outer edge of the reel and "walk" the film in until it is loaded. Metal demands a higher degree of dexterity, which might not be appreciated when you're standing in the dark struggling to get your valuable shots onto the @#%\$^ing reel.

Following the instructions that come with the tank, practice loading a few times with a sacrificial roll in daylight so you can see and get the feel for it. THIS IS VERY IMPORTANT! Once you feel competent in daylight, close your eyes and try it. You'll fumble. You'll fume. Keep trying. You'll get it.

The first roll you actually try to develop should not have important material on it, just in case things don't quite work out.

Step 3: Place the loaded reel in the film tank and cover it as directed. The film is now in a light tight container. You can turn on the light.

"Soup" Time

Now you're ready to process your film. Lay out the chemicals in front of you: a film developer (nickname: soup), a stop bath, and a fixer with hardener, and a hypo eliminator bath.

Step 4: Make sure the temperature of the chemicals (especially the soup) is carefully controlled. Development time is directly affected by two things: the speed of the film and the temperature of the developer. Most manufacturers suggest 68-70 degrees as the ideal temperature for processing, although you can develop at slightly higher and lower temperatures as long as you make adjustments (the exact times vary from brand to brand, but each company gives recommended processing times and temps on the packaging.)

Most film is processed between 65 and 75 degrees. Higher temperatures could lead to "reticulation", which gives film a coarse, overly-grainy appearance. This can be an interesting effect to play with, but if not if you're trying to get the best negative possible.

Step 5: Pour developer into the open part of the sealed film tank, known as the pour spout, and cover it. Do not open the tank itself! To keep fresh chemical on the film surface, agitation is essential throughout the process. To agitate, briefly turn the tank upside down once a minute. When it is upright again, tap it several times against your work surface to remove any air bubbles that might form on the film during agitation. (If you don't, the bubbles will leave dark under-developed areas on your negatives).

Develop film for the time recommended on the packaging. When done, take the lid off the tank's pour spout and pour it out (either back into a container for re-use or into the sink if only one use is recommended).

Step 6: Pour running water into the pour spout for one minute to stop development. Alternatively, you can mix a small amount of glacial Acetic Acid with water (a 1:30 ratio) and let the film sit in that for 30 seconds to wash off the developer. Either method is known as "stop bath."

Step 7: Now it is time to fix the image so you can view it in normal light. Be sure to use a fixer with hardener, since that will help protect the negative from getting easily scratched. Fixing takes 5-10 minutes, depending on if you used a normal or rapid fixer. At the end of the fixing time, you could actually inspect the negatives although you'll probably want to wait until everything is finished.

Step 8: Since you no longer have to worry about exposing the film to light, remove the tank cover completely and let the film sit in cold running water for five minutes. You can pull out a bit of film to inspect it and make sure your negatives are there.

Step 9: Now you need to remove all traces of the fixer to avoid the appearance of white stains on the negatives. Pour in a tank full of Hypo Eliminator (also called Hypo Clearing Agent) and agitate for two minutes.

Step 10: One final wash, for five minutes.

Step 11: Carefully pull the film out of the tank. Don't touch the surface of the negatives! Use washing pins or film clips to hang the film to dry in a dust-free area.

Step 12: In about 1-2 hours, the film will be dry. Use scissors to cut the film into strips six negatives long. Be careful to cut the film in the space between the images. Store the negatives in clear glassine envelopes or PVC plastic negative pages.

And that's it!

Control your images by choosing the right developer

You can control the overall look and feel of your final print long before you actually start printing by which film developer you select.

Some developers, like Kodak D-76 and Edwal FG-7, are fine-grain general-purpose developer. Either one is a good developer to start with.

Kodak T-Max developer and Edwal TG-7 are especially designed for the super fine-grain characteristics of Kodak T-Max and Ilford Delta films. If you are using a slow speed film and want incredibly fine grain, try Kodak's Microdol X. It will also make pictures taken on Kodak Tri-X, Ilford HP-5 Plus and other ISO 400 films look less grainy.

For a softer look, try Ethol UFG (it's hard to find, so ask your local photo store to help you locate it) or Agfa Rodinol. There are also developers designed for high contrast, low contrast and big grain. Experiment!

Finally, there is one developer additive no darkroom should be without: Sodium Sulfit. Add a pinch of this powder to increase the dynamic range of your images.

What You'll Need

- * A metal or plastic film tank
- * Three dark plastic containers to hold chemistry
- * Graduates (used to measure chemicals)
- * A darkroom timer
- * A can opener
- * A room that is totally light proof (not even the slightest sliver of light should be visible).
- * Developer (see other sidebar)
- * Glacial Acetic Acid (optional, for Stop Bath)
- * Fixer (Kodak Rapid Fixer with Hardener is highly recommended)
- * Hypo Eliminator