

## DARKROOM HELP (FAQ)

**I've put my print through the chemicals but it doesn't look like anything happened. What could be wrong?**

This is symptomatic of a couple of different problems. First, you may have switched your developer and fixer. They both look the same and it is easy to get them confused. Second, you may be exposing the paper through the back rather than on the emulsion side. Glossy paper is fairly easily identified as the emulsion side is shiny. Matte paper is a bit more difficult. When in doubt touch the paper to the inside of your lip. Whatever side sticks a little is the emulsion side.

**I've been in the darkroom for a few hours and my prints are starting to look grey and low in contrast. What is happening?**

Your chemicals could be getting weak. All photo chemicals exhaust with use. Some, like developers, oxidize when exposed to air. Carefully follow the storage instructions that come with your chemicals and replace them regularly.

There is also a chance that your chemicals have become cross-contaminated. Something as simple as not thoroughly washing your mixing containers and trays between uses can leave sufficient residue to cause problems. It is best to have designated mixing containers and trays for developer, stop bath and fixer.

**Do I need Stop Bath?**

It is not required for making a successful print, but it has benefits. Stop Bath quickly neutralizes the developer before going into the fixer. This is particularly important for special processes like Lith Printing. More importantly, a stop bath saves your fixer from wearing out too quickly – valuable if you are doing a lot of prints in a single session.

**Recommended Text:**

**Black and White Photography: A Basic Manual**  
by Henry Horenstein

**The Photographic Eye**  
by O'Brian & Sibley

**Photography Foundations of Art & Design**  
by Mark Galer

**Photo Books by Master Printers:**

Be inspired by the works of master printers, like those of our Freestyle Advisory Board of Photographic Professionals:

**Visual Prayers**  
by Richard Garrod

**Henry Gilpin**  
by Henry Gilpin

**Places of Power**  
by John Sexton

**Orchestrating Icons**  
by Huntington Witherill

# Freestyle™

Photographic Supplies

## Making Your First B&W Print



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Freestyle Advisor #4

## INTRODUCTION

Ask anyone who's ever printed their own pictures in a real darkroom what they thought of their first experience. "It was Magic!" They'll say.

If you're at all serious about photography, custom printing is a natural and rewarding extension of your interest in taking pictures. Only by making your own enlargements can you be sure that the personal creativity you put into exposing the negative is faithfully preserved in the final print. You'll have a lot of fun, and probably even save money.

This booklet makes it fast and simple for you to set up and operate that first darkroom. All the steps, equipment, and procedures are spelled out in clear language and easy-to-follow instructions, and as you'll discover, it's much easier than you thought!

What's involved? Get together all the basic equipment. Find a room that you can make completely dark, such as a bathroom or closet. Then perform three simple steps:

1. Mix the chemicals
2. Expose the paper
3. Develop the print

## THE EQUIPMENT

Here are the essentials of any good basic darkroom. In setting up yours, you can choose from a wide variety of types and designs to suit your personal style.

### Arista®

Throughout this guide we recommend Arista® brand equipment, chemicals and paper. The Arista® family of darkroom products, including Arista®, Arista Plus®, and Arista Premium® have been setting the standard for quality and value for over half a century and is widely seen as the industry's darkroom leader.



## SUPPLY LIST

### Essential Equipment

Enlarger	Holga Enlarger w/50mm lens	141-120
Enlarger Timer	Time-O-Lite Enlarging Timer GR-90	2071890
Easel	Arista 4-in-1 Easel	18511
Safelight	Premier 5x7 Safelight	57184
Printing Tongs	Bamboo Print Tongs	194369
Processing Trays	8x10 Set of 4 (red, buff, white, green)	0120810
Thermometer	6" Glass Thermometer	161006
Graduates	100 ml cylinder	173502
	650 ml cylinder	17350
	2000 ml (72 oz.) Mixing Beaker	8773
Storage Bottles	16 oz. Bottle w/Level Indicator	011600
	32oz. Bottle w/Level Indicator	013200
	64 oz. Bottle w/Level Indicator	016400
Funnel	Filter Funnel	025000
Squeegee	9" Print Squeegee	9199

### Chemicals

Developer	Arista Premium® Paper Developer	6871
Stop Bath	Arista Premium® Odorless Stop Bath	6511
Fixer	Arista Premium® Odorless Rapid Fixer	6200

**Paper** – Start with a glossy "RC" paper at first, but be sure to try other surfaces like pearl/luster and semi-matte, too. Every brand has a variety of surfaces to choose from.

Glossy	Arista® Premium RC VC 8x10/25 Sheets	13782
Pearl	Ilford MG IV Pearl 8x10/25 Sheets	771284
Semi-matte	Kodak Polycontrast III RC semi-matte	1310366
Contrast Filters	Ilford 3x3 inch square contrast filters	137633

### You'll Also Want:

Paper Safe	Keep unused paper safe from stray light and chemicals. Provides easy access.	166141
Dodging Kit	Makes dodging and burning easy.	1944342
Darkroom Apron	Freestyle's own. Protection with Pockets.	204066
8x10 Print Pages	Store and protect your work.	6031
Hypocheck	Is your fixer still fresh? Check it first.	250381

### The Arista Darkroom Magic Kit

For your convenience, we have assembled everything you need to start in a complete darkroom starter kit – along with a few added extras. Available exclusively from Freestyle, the Arista® Darkroom Magic Kit can have you making black and white prints in as little as one hour. It eliminates the need to shop for each component separately and is available at an affordable price. #635123

## Contrast

Contrast in a photographic print refers to the tonal relationship between the highlights and the shadows. A normal print will have white highlights and black shadows with some detail visible in both. If the highlights and/or the shadows have no discernable detail, you would say the print is high contrast. If the highlights and/or shadows look grayish, the print is low contrast.

When using variable contrast paper, you can control the contrast by using filters. Filters suitable for low contrast negatives have high "grade numbers" (numbers  $3\frac{1}{2}$ , 4,  $4\frac{1}{2}$ , 5.) High contrast negatives need low "grade numbers" (numbers 00, 0,  $\frac{1}{2}$ , 1,  $1\frac{1}{2}$ .) Grades 2,  $2\frac{1}{2}$  and 3 are "normal" contrast grades. Changing filter grades will produce different effects from the same negative.

Sets of loose-leaf contrast filters (for above-the-lens filter holders) come in various sizes and can be cut down to fit your specific enlarger. Rigid, framed sets (for below-the-lens filter holders) are also available. Check your enlarger's instructions on which set you need. When you have reached a level where your negatives have consistent contrast all the time, you can switch to single-grade papers that do not need contrast filters. These papers come in full grades 1 to 5 with grade 2 having medium contrast.

Many other techniques can be used to help you produce the finest-quality custom photographic enlargements. Part of the fun of having a darkroom is swapping ideas with other photographers and trying out new techniques.

## It Is All Easier Done Than Said!

We have tried to convey just how enjoyable and easy custom printing can be. But words are just not adequate to describe the "magic" of making your own enlargements. Simply trying to make this booklet complete can make printing sound complicated. But custom printing isn't. Once you've made that first print, it becomes progressively easier. Your prints get better and better, and doing it yourself makes it ever more satisfying. Once you become a custom print maker, you'll never let anyone else print your negatives again.

## CLEANING UP

When you are done, clean up everything that comes in contact with chemistry including trays, containers, tongs and stir rods. Wash with hot water (no soap!), dry with a clean cloth and store everything away from dust as much as possible.

If you should get fixer on your clothes, wash them when you are done printing to prevent stains. Should fixer stains develop, Arista® Stain Away does a great job of removing them and is safe on nearly all fabrics.

## SUPPLIES & EQUIPMENT

Here is a list of everything you need to start making your own custom prints. It is by no means everything available. There is a wide array of papers, chemistry and equipment that will add to your darkroom experience and help you define your own personal style. Enjoy.

## Enlarger

This is the most important piece of equipment you will buy. The enlarger projects the negative onto the photographic paper and allows you to make a print with the exact size and composition which pleases you most. The enlarger has basically two controls – elevation and focus. The elevation control determines how big or small the print will be. The focus control allows you to keep the image sharply focused when you change the elevation.

You may also need a 35mm negative carrier, and a 50mm lens (with lens board and jam nut).

Although there are many brands and models on the market, the Holga Enlarger is the ideal beginning enlarger. It offers professional quality and features at an affordable price. It comes with a 3-in-1 negative carrier, 50mm lens and it has the capacity to grow with you as your interest and technique grows.



## Enlarger Timer

In order to get prints which are correctly exposed, you need to control the length of time that the enlarger light is on. The timer is used to do this. Set the timer for the number of seconds you want the enlarger light to be on. The timer, along with the aperture on your enlarger lens, is used to control the print exposure so that your prints are neither too light nor too dark.



We recommend a controlling timer that automatically turns the enlarger on and off.

## Easel

The easel is used to hold the photographic printing paper while you are exposing it. The paper holders on the easel are used to correctly position the unexposed paper and hold it flat during the exposure.



## Safelight

Since most photographic papers are not sensitive to red, a red light must be used for illumination in the darkroom without ruining the paper. It is also safe to use an "OC orange" colored light. The safelight should be positioned to provide the best illumination of the work area, but should be kept at least four feet from the photographic paper.

## Printing Tongs

These are used for moving the photographic paper through the processing solutions. It is not a good idea to handle the print in the processing solutions with your fingers, since chemicals may stay on your fingers and stain the next print. You should have a set of four. Label one for each solution.



## Processing Trays

The trays hold the processing solutions. The first tray is for the developer, the second for the stop bath, the third is for the fixer and the fourth is for the wash. Label the trays and always use the same tray for each solution. It is a good idea to get trays at least one size larger than the paper you are using.



## Thermometer

Use it to measure the temperature when mixing and using processing solutions. Photographic thermometers will not be damaged by the photographic chemicals.

## Graduates

These are used to mix and measure the processing solutions. It is best to have a variety of sizes with at least one with markings at 1oz. or 10ml intervals. Some people have one graduate for each chemical type.



## Bottles

These hold the mixed processing solutions. Bottles can be glass or plastic, and should be opaque brown or black. Make sure the lids are airtight. Label the bottles and always use the same bottle for each solution.

## Funnel

This is how you get solutions back into the bottles. Don't try it without one.

## Print Squeegee

Remove excess water from your prints after they are washed so that they'll dry faster and more evenly.



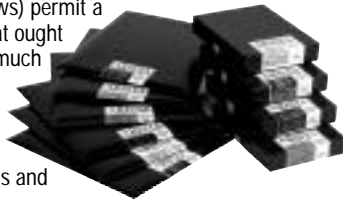
That takes care of the equipment. All you need now are:

## Processing Chemicals

The three basic chemicals are (1) Developer (2) Stop Bath and (3) Fixer. Mix these with the appropriate amount of water and store them in your bottles.

## Photographic Paper

Photographic paper is sensitive to light and should be handled only in a darkroom with the correct safelight. The more light that the paper gets during exposure, the darker it will turn, and the darker it will turn during processing. On your negative, the areas that ought to be dark (the shadows) permit a lot of light to reach the paper. The areas that ought to be light (the highlights) do not permit much light to reach the paper.



Still not sure what you need? At the end of this booklet we have a complete supply list for you that includes all the paper, chemicals and accessories you need to get started.

considerably by using a hand-held dryer set on "high" and drying both sides the same way you would dry your hair.

There it is... your first custom print!

## NOW THAT YOU ARE AN "EXPERT"

It is a good feeling to make a good print, but why stop there? Here are some ways to fine-tune your technique and make prize-winning photographs.

## Dark and Light

As you have seen, the more exposure your print gets the darker it will be. While your test print will usually get you a pretty good first exposure, you can often help a print a lot by making it a little lighter or darker. To make this type of judgement it is important to get a good look at your first print. After the fixer, rinse the print briefly in water and carry it (in a tray or on a towel so you do not drip all over the place) to a well-lit area. The lighting by which you judge the print should be pretty close to the type of lighting where it will ultimately be viewed. Study the print objectively. Might it look better if it were a little darker or lighter? Use your judgement... it is better than you might think and it is an important part of making great photographs. A fine point: photographic paper looks slightly darker when it is dry than when it is wet. When you really get serious, you may want to dry your print before evaluating it, or you can make a mental adjustment for the change. How much does it change? Take a dry finished print, and wet half of it. There is the difference. Not much, but noticeable.

Sometimes a print will look just fine except for a certain area. Perhaps the photograph is of a group of people and some faces are darker or lighter than others. Often in a flash photograph the subjects nearer the camera will be more brightly illuminated than those at some distance. The way to control this effect is by "dodging and burning." "Dodging" is holding back the exposure to a part of the picture by holding an opaque object between the enlarging lens and the easel during part of the exposure, thereby preventing a specific part of the picture from getting the full exposure that the rest of the picture gets. This will cause that section of the picture to print lighter than it normally would.



A kit like this can help you "dodge and burn" like a pro.

Similarly, if you want to darken a small part of the picture, you would cut a hole in a piece of cardboard, and after the normal exposure you would "burn in" the desired section for an additional period of time. Whichever technique you use, be sure to keep the dodging or burning-in tool moving slightly to avoid a sharp line around the area you are working on.

extremely important) you control the darkness or lightness of the print with the exposure time, not the development time.

When the minute is up, lift the print from the developer with the tongs. Let it drain for about 10 seconds, and drop it into the tray of stop bath for thirty seconds. Lift the print out with the second pair of tongs, let it drain, then drop it face down into the tray of fixer. Using the third pair of tongs, flip the print over, face up. Agitate the tray for 30 seconds.

After 30 seconds, you can turn on the room lights and look at what you have got. The purpose of the fixer is to make the paper insensitive to light, and if you want your prints to last for a long time you should keep them in the fixer for a full two minutes. For the test strip, however, 30 seconds is fine (you are going to throw it out anyway, so why waste time?)

Look at the test strip (don't touch it, you will get fixer on your hands) and you will see that there are six sections of the print representing the exposure series you have made. The lightest section is the 5 second exposure, the darkest is the 30 second exposure.



A test strip lets you choose the best exposure for your print.

### DEVELOPING THE PRINT (Magic...before your very eyes)

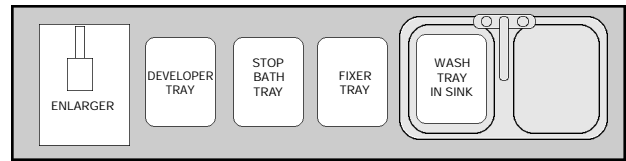
Go back to your enlarging timer and set it for the exposure time that made the best looking section on your test strip. Turn off the room lights. Remove a sheet of paper from the package and place it in the easel. Be sure to re-close your paper package carefully. Start the timer to make the exposure. Process the sheet of paper exactly as you processed the test strip. You can turn on the room lights after the print has been in the fixer for 30 seconds, but be sure to leave it in the solution for 2 minutes. How does it look? Good? Great! All it needs now is to be washed and dried.

Most popular papers in use today are resin coated (RC paper) and can be washed in 4 minutes under running water. Wash them in a sink which has an overflow outlet or use the fourth tray which is placed in the sink under the faucet. The wash water should be between 65°F and 75°F. Be sure to keep the prints moving in the wash water – it is important that all the fixer gets washed out or you may find stains on the print later on. After the prints are washed, lay them face down on a smooth surface such as a large sheet of glass or smooth countertop, and wipe the water off the back surface with your squeegee. Lift the print from the surface, flip it over and wipe the water from the front of the print with the squeegee. Drying the print is simply a matter of hanging it from a string by a clothespin, or laying it face up on a towel, and letting it air dry. If you use fiber-based papers, follow the washing and drying instructions that come with the paper. You can hurry things along

### SETTING UP YOUR DARKROOM

You're going to need a room which can be made completely dark, at least temporarily. Since you'll need running water to mix the chemicals and wash the prints, it is often convenient to use a bathroom or kitchen. However, you'll never need darkness and running water at the same time so it is just as well to have a "dry" darkroom and do the mixing and washing elsewhere. If there are any windows in the room you are using, you can temporarily cover them with black plastic, fabric, or other opaque material. Light leaks around the door can be sealed off with dark fabric and tape. Very often it will be most convenient to do your printing after sundown when the problems of light-proofing a room are minimized. Whatever room you use should have a sturdy counter or table for the enlarger and enough room to set out the four trays of processing solutions.

Since some photographic chemicals can stain many types of fabric and furniture, the area around the trays may be covered with plastic (such as an old shower curtain). Finally, the room must have electrical outlets for the enlarger, timer and the safelight, and should be comfortably ventilated. The illustration below shows a suggested layout for a temporary darkroom.



If you have a controlling timer, plug the power cord from the enlarger into the timer and set up the timer according to the manufacturer's instructions. Once both are in place, conduct a test: set the timer, turn the enlarger cord switch to the "on" position and activate the timer. The enlarger should turn on and off automatically.

The red safelight bulb can be screwed into any household lamp socket such as a desk lamp. Position the safelight so that it provides adequate illumination at both the enlarger and the trays, but be sure that it will be at least four feet from the unprocessed photographic paper.

### Mix the Chemicals

Once your darkroom is set up and you are ready to print, you will need to mix the chemicals: Arista Premium® liquid paper developer, stop bath and fixer. They are easy to mix and use since they only require dilution with water and a working temperature of 68°.

To make enough Arista Premium® liquid paper developer to fill an 8x10 darkroom tray, measure out 45 ounces of water and add in 5 ounces of concentrate (written 1:9 or 1+9.) If you prefer metric units, measure out 1350ml of water and add in 150ml of concentrate. No matter what chemical you are preparing, always mix it

according to the instructions on the package, and use your thermometer to check the solution temperature from time to time.

Now, using the instructions on the bottles, follow the same procedure to fill trays two and three with stop bath and fixer respectively. The fourth tray should be filled with running water. This is used to wash the prints after the fixer. Finally, place a pair of print tongs near each tray.

To avoid possible problems with contaminated chemicals, all bottles, graduates and trays should be labeled with the solution for which they are used. In this way, you will not inadvertently use a tray or bottle for developer the first time and for fixer the next. You will also want to be sure that your hands are free of any chemicals before touching anything in the darkroom. Keep a towel handy, and if you should get any of the chemicals on your hands, rinse them in water and dry them thoroughly before you continue working. Wet or chemical-contaminated hands can stain prints, negatives and equipment. Empty containers should be washed thoroughly in hot water **without soap**. Dry and store them carefully.

## EXPOSING THE PAPER

To make a print, the very first thing you will need is a negative. You probably already have one or more that you would like to enlarge. We recommend that you make your first prints from negatives that have been commercially processed. Developing your own film is something you will surely want to do eventually, but it is best to master your printing technique first, without the potential variables that may be introduced by improperly processed film. The negative you choose should be sharp and well-exposed. If you have a good print that was previously made from this negative, perhaps by a photofinisher, you will have a good idea of how the negative should print.

The negative is placed in the enlarger's negative carrier, emulsion side down. To identify the emulsion side, hold the negative so that a light is reflected off the surface. One side of the negative will be shiny and the other side will be dull. The dull side is the emulsion. Another way to tell is to look through the negative. The image will be oriented correctly only if the emulsion side is away from you. If the emulsion is facing you, the image will be reversed from left to right, like the reflection in a mirror. After the negative is in the carrier, clean off any dust with an anti-static brush or a dust gun. Place the easel on the baseboard of the enlarger and position a focusing sheet (an 8x10 sheet of plain white paper) in the easel. The white paper will make the projected image of the negative more visible and aid in the focusing and composing.



Place your negative shiny-side up in your negative carrier.

With your safelight on, turn off the room lights and turn on the enlarger. Adjust the lens aperture to get the brightest looking image on the easel and turn the focusing knob on the enlarger until the image pops into sharp focus. Do you like what you see? If not, you can change it. You are in control now. Raise the enlarger head with the elevation control and refocus the image. How's that? Move the easel around on the baseboard and see if you can find a part of the negative that makes a better picture than if you printed the whole thing. You can "crop out" any part of the picture you don't like and make the part you do like almost any size you want. See how many different pictures you can make from the same negative. This is "custom printing."

When you've found a cropping that you're happy with, check the focus carefully and turn off the enlarger. Set the lens aperture to f/8. You're going to have to make a test to find the best exposure for your print and this is how to do it: **With the enlarger light off and only the safelight on**, open the package of enlarging paper and take out one sheet. Cut the sheet into three strips lengthwise, put two of the strips back in the package and close it up tight. Remove the white focusing sheet from the easel and place the test strip so it runs down the center of the easel.

When the test strip is positioned correctly in the easel, set the timer for 30 seconds and cover all but the bottom 1/6 of the test strip with an opaque sheet of cardboard or the like. Start the timer and uncover another 1/6 of the sheet every five seconds. The entire strip should be uncovered during the last five seconds. This makes a series of exposures on the test strip representing exposure times of 5, 10, 15, 20, 25 and 30 seconds. One of them is bound to look right.

Now take the strip out of the easel and drop it face down in the tray of developer. Grab one of the edges with the first pair of tongs and flip it over face up.

Now you are going to have to "agitate" the print. Some people like to continually flip the print over in the tray (face up, face down, face up, face down, etc.) with the tongs. Others like to rock the tray gently so that the developer moves (but does not slosh) back and forth over the face of the print. Do whatever feels best to you.

The important thing is to keep things moving (gently) and to keep the print covered with developer. After about 15 seconds an image is going to appear on the face of the print. At first it will be very light, but it will grow steadily darker. Do not get excited and pull the print out when it "looks ready." Develop the print for one full minute no matter what it looks like in the tray. Use your timer or a wristwatch or clock with a second hand and time your process. Remember (and this is



Focus and crop your image before you make a test strip.

