Identification System for Film Holders

A binary numbering pattern for large format sheet film

by Ralph W. Lambrecht

Today's roll films, both 35 mm or medium format, are marked with the manufacturer's name, the product name, and the frame numbers. The pre-exposed frame numbers don't always perfectly match the frames we are exposing, but they still allow us to correlate our exposure records with each individual frame on the roll. This is a service too easily taken for granted, and the benefits of it did not become apparent to me, until I exposed and developed my first sheet film.

Sheet film, in sizes 4x5 inches and up, does not have any pre-exposed markings on it. The only standard identification is a pre-cut notch system, which specifies the manufacturer and the product itself. This system identifies the film in front of you, as Kodak's TMax-400 for example, and another negative as Ilford's FP4, but it does not tell you which of your film holders was used during the exposure of a particular negative. However, this is valuable information to a careful photographer, for a couple of reasons.

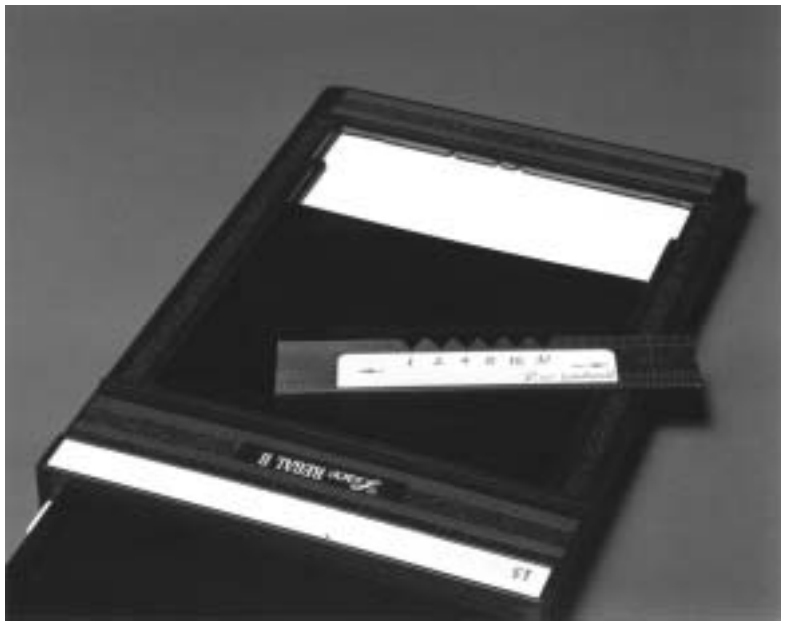

fig.1 With the use of a steel template, a binary notching system can be cut into the bottom lip of the film holder. This correlates the sheet film with the holder after development.

Not all film holders function with exactly the same results. Their purpose is to hold the sheet film flat at the image plane, within a given tolerance, and to provide a light tight environment, protecting the film while closed. When they get older and begin to wear, they may lose one or both functions and the possible results are unsharp images and light leaks. It would be useful to know, by looking at the ruined negative, which holder failed, so that the culprit can be eliminated or repaired. Luckily, I have never had such a drastic failure, but since I began numbering my film holders, I have discovered that some produce a sharper image than others. A far stronger reason to correlate film holders with individual negatives are the detailed exposure records I keep.

I am in the habit of making precise exposure records. During every photo session I record the shutter speed, aperture, focal length, filtration, reciprocity modifications, subject brightness range, and any other relevant data for every frame or film holder number used. I like to have this data, because it allows me to learn and improve, and it can be interesting reference information in the future. The tedium of recording this data can be a chore, but it is made easier using a simple hand-held tape recorder. The data is recorded within seconds and is available for later transcription to my written records, which are then filed with my negatives.

Unfortunately, a limited number of film holders and sorting sheet film by development needs, can lead to a loss of the correlation between a particular negative and the related sheet film holder. Here is an example. I own 12 holders allowing for 24 exposures, which is enough for my shooting habits to last me for a day. At the end of the day, the film holders are

emptied and the exposed film sheets are stored in separate old film boxes, depending on the suggested development compensations, from N-3 to N+3. Then the holders are loaded with fresh film, so they are ready for the next day. After the film is developed, one box at a time, a correlation between the film holders and the exposure records is lost or difficult to retrieve. A precise subject and image description on the audio tape can help, but often fails when multiple exposures of the same scene were taken.

I have solved this problem by notching all of my film holders with a binary pattern. It leaves a permanent mark on the negative, clearly identifying the film holder used, without any intrusion into the image area. Fig.6 shows a negative and the binary pattern left from film holder number '21'.

The Binary System

To understand this system, you only need to understand general numbering systems, and the binary system is actually the simplest of them all. Let's first look at the familiar decimal system. Fig.2 shows the basics of the system with two examples. From right to left, each digit is dedicated to the base of '10' with increasing exponent values, each of which can hold any number from 0 to 9. Therefore, we have a digit for the *singles*, the *tens*, the *hundreds* and so on. To display the number '13' in the decimal system, the digit for *tens* is set to '1' and the *singles* are set to '3', summing up to the desired '13'. We were all brought up with the decimal system, and it is second nature to us. We assume the base of '10', when communicating numbers, to the point that we forget about it altogether. The binary system is very similar to the decimal system. The only difference is that it assumes a base of '2' and not '10'. Therefore, each digit can only hold numbers from 0 to 1. Consequently, we now have digits for *singles*, *twos*, *fours*, *eights*, *sixteens* and so on. Fig.3 shows the basics of the binary system using the same two examples as before. To display the number '13' in the binary system, the digits for *eights*, *fours* and *singles* are set to '1' and the sum will make the desired '13'.

The benefit to our application is that each digit of a binary number can only hold a number from 0 to 1. Whereas in the decimal system it can be any one of ten numerals. A simple notching system can simulate one of two conditions easily, by either having a notch at a certain location or leaving the location without a notch.

decimal base & exponent	10^3	10^2	10^1	10^0
decimal	1,000	100	10	1
13	0	0	1	3
21	0	0	2	1

fig.2 The decimal system.

binary base & exponent	2^5	2^4	2^3	2^2	2^1	2^0
decimal	32	16	8	4	2	1
13	0	0	1	1	0	1
21	0	1	0	1	0	1

fig.3 The binary system.

Cutting the Holders

I am only familiar with the film holders from Lisco, Riteway and Fidelity. They all have a lower lip, which is taped to the holder, to form a hinge. Fig.4 shows this lip lifted up, as it would be to insert or remove sheet film. This lip also holds the film down, when the holder is closed.

The lower part of the lip is an ideal location to place the binary notches. The lip has a groove for the dark slide to fit into, and we want to make sure that

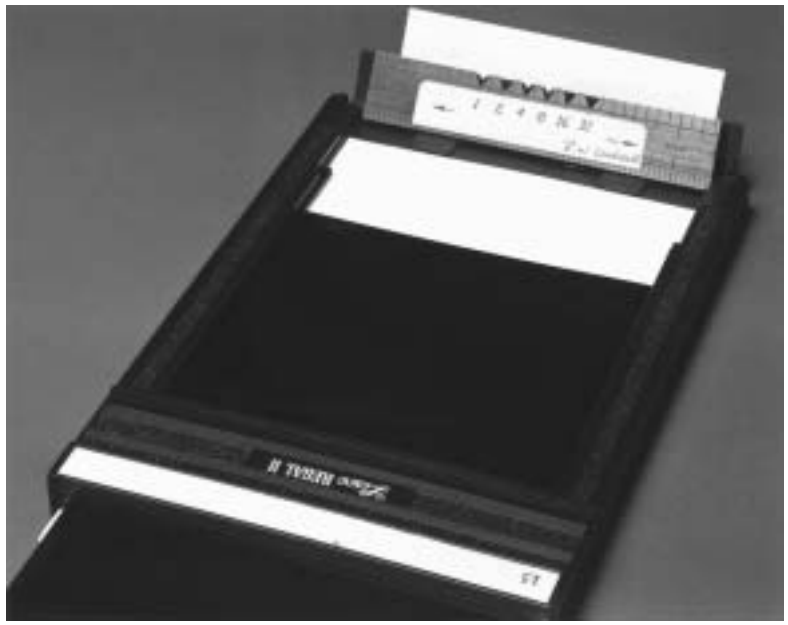

fig.4 The template in cutting position. The numbering is reversed, because the films emulsion is pointing up while in the film holder.

	1	2	4	8	16
1	▼				
2		▼			
3	▼	▼			
4			▼		
5	▼		▼		
6		▼	▼		
7	▼	▼	▼		
8				▼	
9	▼			▼	
10		▼		▼	
11	▼	▼		▼	
12			▼	▼	
13	▼		▼	▼	
14		▼	▼	▼	
15	▼	▼	▼	▼	
16					▼
17	▼				▼
18		▼			▼
19	▼	▼			▼
20			▼		▼
21	▼		▼		▼
22		▼	▼		▼
23	▼	▼	▼		▼
24				▼	▼

fig.5 This notching table shows where to cut the correct notches for up to 12 double-sided film holders.

only the side in contact with the film receives the notches. This prevents the use of a file, which would cut into the upper lip as well. A file would also create unwanted dust particles, which may be hard to remove. The best way to cut the notches is with the tip of a sharp utility knife guided by a customized steel template.

Get a small steel ruler from the hardware store and cut it to length, so it fits inside of the holder. Then, using a small triangular file, create six notches, 1/8 inch deep and 1/4 inch apart from one another. Fig.4 shows the template with a sticker to mark the binary values of each notch. The numbering sequence is reversed from the table in fig.3, because we are looking at the underside of the lip while cutting the notches and at the film emulsion side when reading them. Now insert the template into every holder in question and notch them one by one, being very careful not to cut yourself. A pair of heavy leather gloves will protect your fingers, and a pair of goggles will save your eyes. This template will allow you to mark up to 32 double-sided holders, but if required, an additional notch will double this amount. Getting used to the binary system can be confusing at first, but you will soon get the hang of it. It is the most efficient way to cut a minimum amount of notches. Fig.5 shows where to cut the correct notches for up to 12 double-sided film holders, and fig.6 shows how to use the steel ruler to read the notches on a sample negative.

I haven't had to eliminate any of my film holders due to focus problems or light leaks yet, but correlating my exposure records from the field to the right negative is now a much easier task.

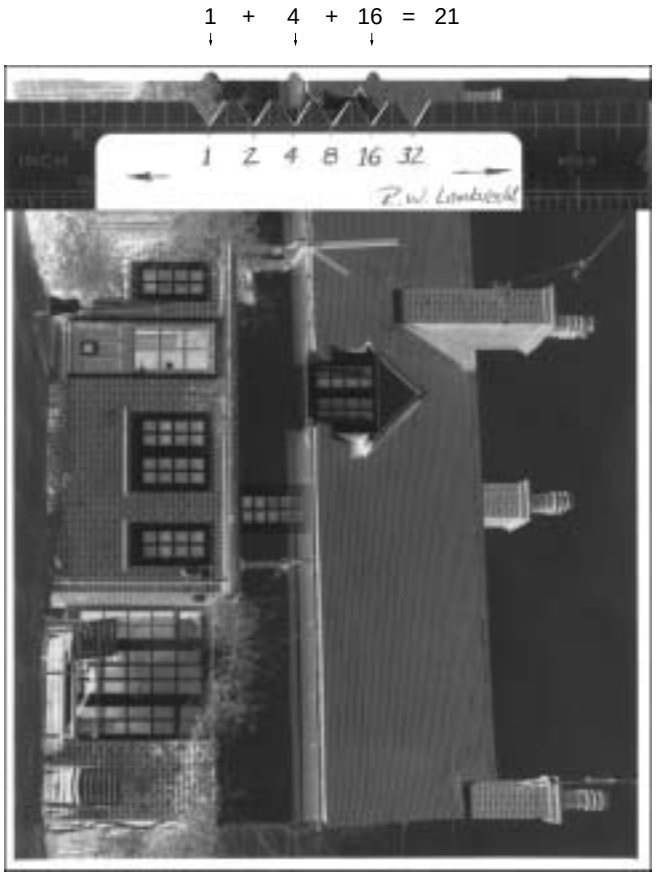

fig.6 The notches in the film holder '21' left a permanent imprint on a sample negative, here shown with the emulsion side up. The same steel ruler, used to cut the notches, can be used after film processing to identify which film holder was used during exposure. This is best done with the negative in its protective sleeve, where the sensitive emulsion side is protected against scratches.