

# KEEPING PACE

A Monthly Newsletter Devoted to the art of Darkroom Photography

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## Logistical Problems That We Have Encountered

We recently received a letter from Japan in which our subscriber was having difficulty removing objectional lines from around silhouetted figures when they were stripped into a background.

Our answer letter required 8 pages of diagrams and explanations. I felt it was important enough to use as an example of "how to" in order to explain the solutions that I sent to my subscriber.

I had some trouble with his explanation of what he was trying to accomplish, as I did not know the logistics.

For instance, what were his originals? were they slides, or larger color films? Was he trying to end up with a negative, or a positive transparency?

A finished negative that was sent along as a reference indicating to me that he wanted to end up with a finished print consisting of a man (slightly silhouetted) against a background of Mt Fuji.

I am going to assume that he was working from 2 sheets of color film, either 35mm or 2 1/4.

To begin with, when choosing lith films for use as "friskets" it would be better to use .7 mil. film as you will have a better opportunity to hold sizes more accurately.

Secondly, I believe he was using the Condit vacuum easel in the wrong fashion. If he used the vacuum easel as he described, I am certain that he would have had problems.

The film, whether it is .4 mil. or .7 mil will not really make any difference, except that the .7 mil. film acts more like a sheet of steel by comparison to the .4 mil. It will hold it's shape

All current litho films are coated on a very stable polyester base. The fact that lines appear are not caused by the film, but by the procedure.

My experience in making photo composed images is that it was much simpler to make the strip-in at the size of the print, rather than at the size of the negative. The smaller the negative image, the greater will be the display of any errors

However, our subscriber wanted to make his finished negative on a sheet of 4x5 film from which he wants to make final prints.

I don't know what kind of darkroom equipment he has. If he had more than one enlarger it would be of help.

If you only have one enlarger, you will find it almost impossible to make a viable strip-in.

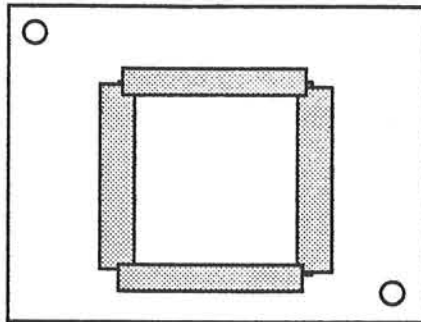
Here is why:

If the two images are not the same size, it means that the enlarger would have to be adjusted for each image. If it is so moved, how can you be certain of repeating the exact position. It is just about impossible.

If the film's images were the same size, then it is a simple matter to place them in the correct position.

Let us assume that you are working with 2 1/4 film size. Using a sheet of 4x5 film, (.4 mil litho) position the smaller image in the center of the film, tape it in place on 2 sides then cut the edges accurately on the other two sides. Tape the cut sides, remove the tape from the uncut sides, and cut these as well.

1. Tape the film into place. Using a ruler and a sharp knife (Exacto) cut the top and bottom edges.
2. The right side image shows the cut top and bottom being temporarily taped to hold the position. Then cut the left and right sides, and using Magic Tape (3M) or any silver polyester tape them as shown, then remove the top and bottom tape and finish them as well. The entire sheet should look like this;



The next item is to use your 4x5 film punch (Condit) and punch two (diagonal) pin holes in the outer edges of the film.

You should have a 4x5 film carrier. The one that I recommend is the carrier that Condit made for me. I call, it the "Ciba Carrier."

It has a permanent sheet of glass cemented in the bottom of the carrier with diagonal register pins cemented in position.

Ask Condit to make sure that the pins fit within thousands of an inch when being positioned.

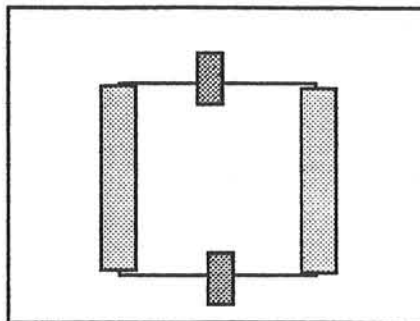
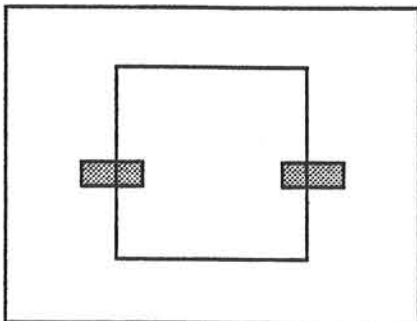
Also ask for a working register pin glass with the same placement of pins cemented into the same position as the carrier.

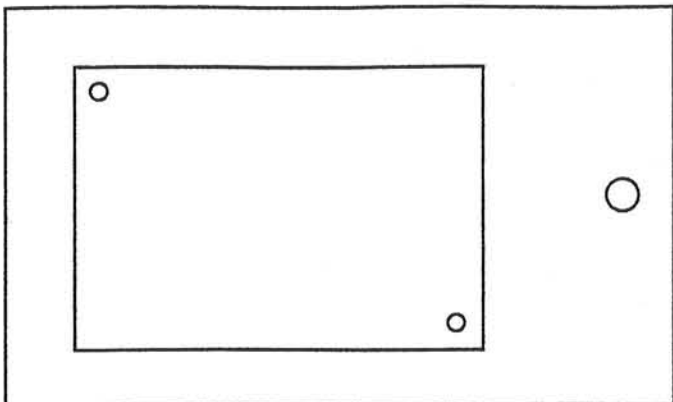
This carrier is capable of being locked into a housing, that in turn, is locked into the enlarger. This is an absolute must.

The enlarger must also be locked into position. The enlarger and it's bar attached to the carrier housing while the other end is attached to a length of angle iron on the wall, at the same slope as the enlarger

This slope allows the enlarger to be fastened regardless of the height.

The enlarger must not be allowed to move at all.





This is the kind of carrier that Condit Mfg. can and will make for you. The glass is set permanently and is leak proof. The pins are set to fit the punch.

If your two images are the same size, place the mounted transparency on the working pin glass, punch a sheet of clear film of the same thickness, and place it on the pins. Cut and position the first image

Then using a loupe, place the second image into position. When you are satisfied with the position, tape it on two edges.

Remove it from the glass and use the same procedure as was done with the first transparency. Cut and tape them in place

Now, with both images the same size and in the correct position, you have two options;

1. You can make hold out masks to the contact size and try to make all of the hold backs and burn ins at this small size, or,

2. You can enlarge the image to a comfortable size (let us say 4x5) and make the working friskets to this larger size.

There are advantages and disadvantages in each approach.

For instance;

1. The small size makes it almost impossible to get an accurate frisket to fit, but if this were possible, then the resulting image would be much sharper, because the negatives could be made by contact on a fine grain film. However, if the silhouette masks could be made by first enlarging the image, use a large vacuum register easel and use a large sheet of litho film to capture the image then develop the image in a weak solution such as 15 cc of HC 110 per liter of water until the image is visible.

Developing lith film in such a dilute developer will produce a detailed image with much less contrast.

This punched sheet is to used as a guide for cutting a Rubylith frisket.

The Rubylith mask, after it is cut, is placed back on the register pins on the vacuum easel over a sheet of thin white paper. Vacuum it down. Using two lights, use the enlarger as a camera. Remove the small original transparency from the enlarger carrier and in a safe-light environment, replace it with a sheet of unexposed litho film, and after activating the vacuum, turn on the copy lights. How long? Make a test.

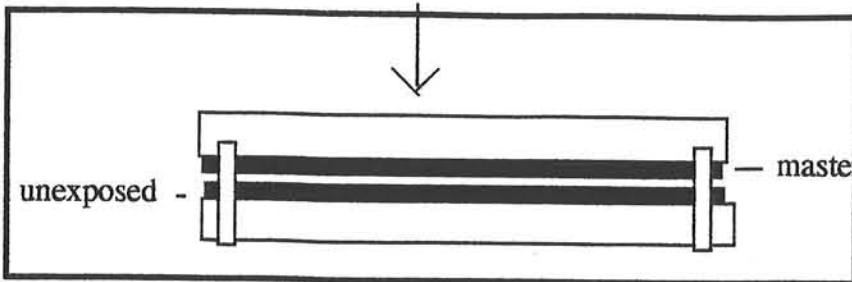
Process this sheet in litho developer. This will be considered the first negative.

The next step is the use of a contact system. If your light source comes from above, (such as an enlarger) then do the following.

Using a vacuum frame or a gasket vacuum easel, place a sheet of unexposed litho film, after it is punched, on the pins emulsion up, and the punched master on the same pins, emulsion down, using a dual vacuum system such as Condit's.

Using a register pin glass, place the images emulsion to emulsion. Make sure that the bottom unexposed sheet is punched properly.

Process the bottom sheet in litho developer, and label it "the master."



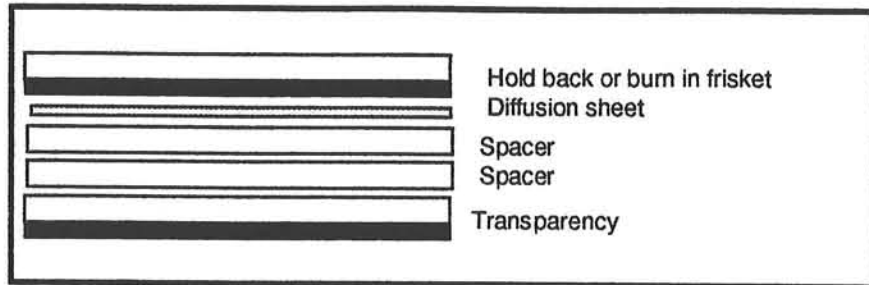
It is essential that quality pin register systems be employed.]  
 The spacing between the two pins must be measured and if necessary, adjusted to fit the original punch size within thousands of an inch.

In order to make two sheets of film that will fit properly we must use two different kinds of film.

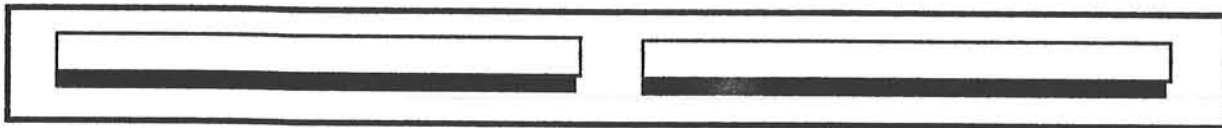
**A regular litho film, and a reversal film such as Kodak's LPD 7.**

Using the same contact pin glass, punch the two sheets of final films so that they are emulsion up. Then expose each sheet, through the master, one at a time. Both sheets are now ready to be used as the final friskets.

Place the transparencies and their appropriate masks in the contact vacuum frame as follows:



With the exposing light from above the natural effect would be a sharp contact image (at the bottom) and a diffused mask image (at the top)



What will occur is this:

Both sheets are now facing the same direction. One will be a positive and the other will be a negative.

Since these two images were originally enlarged to a great size (16x20 or even 20x24) the Rubylith cut outs will be very accurate when they are reduced to the small size. They will fit the original image like a glove. They will also fit the pin system.

The next operation is essential. Getting a smooth edge without creating any lines.

It is absolutely essential that both sheets of film (the positive and the negative) have their emulsions facing the same direction.

If they do not face the same direction, the emulsions will not be in the same focal plane and will automatically permit light to escape around the edges and cause lines to appear.

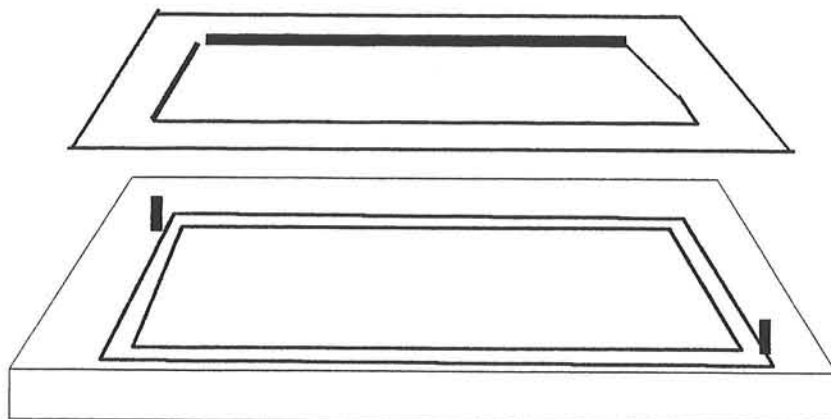
With both sheets facing the same direction, this will not happen unless you are overexposed on one of the images. This is known as "spread and choke."

This system is not magic but simple logic.

Most labs that make photo comps or strip-in's will experience trouble unless they understand this problem. Some labs have gone through extensive methods of making one sheet slightly larger than the other in order to make the sandwich work.

This is mostly educated guesswork. It makes more sense to make sure all pieces fit when facing the same direction.





### A Double Vacuum Easel

When placing the top cover over the vacuum system, use a piece of hard board cut to the opening of the top piece and press this down very tightly before starting the vacuum.

The vacuum pump should be more powerful than the little units usually associated with vacuum pumps. . A company in Pasadena, California called C&H can supply you with a surplus pump for very little money. Write to them and ask for a catalog.

If we wanted to make enlarged negatives, use the same friskets, in the same order, and place them in the enlarger instead.

Now you will have complete control of the size, and contrast.

Test each image by itself to establish the contrast and exposure level. When you are satisfied with the results, then place the exposures on one sheet of film.

You must use some kind of easel meter to make the exposures. I have used and highly recommend the Wallace Fisher Easel meter. It has a 6 stop range and is absolutely repeatable.

#### **Making friskets on the easel to the enlarged size of the print.**

This could be more of a problem than the first system. The simple fact that you must expose through a third sheet of film in order to make a hold out or burn in, can, and will diffuse your image to some degree. It may not be noticeable to some critics, but the diffusion is there.

The solution (to some degree) is to make sure that the friskets are emulsion down and that a very strong vacuum be used to make sure the fit is tight.

Making prints through a glassless or filmless frisket is the sharpest way to make a comp print, however, there is no chance to diffuse the edges or to make a really tight fit.

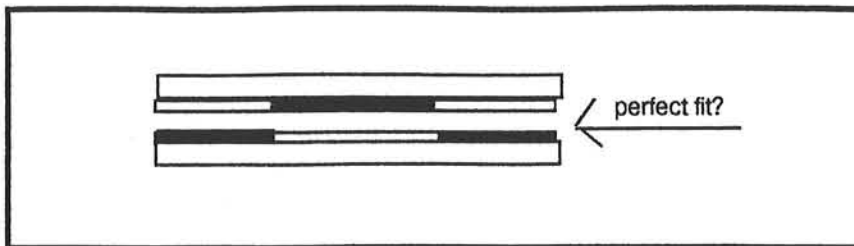
If a sheet of thin black cardboard were to be used, as I have done many times in my youth, the images can be made to fit tightly, but the odds are that they won't. The problem occurs when you are making a multiple image print from different size images.

If you had spare enlargers for each image, as I once did, it was a simple matter to place a transparency in each enlarger, size the image to a master sheet, on register pins, and proceed to make all of the elements, to the size of the print, on the easel.

This is the system that I used for many years.

But the older I became, and the more experienced I became, the more I realized that accuracy was only available when friskets could be controlled. (Such as spacing in the enlarger or contact system)

If you have three enlargers, and three images, here is the procedure if you are producing a color print, such as a Cibachrome:



**These two friskets were made emulsion to emulsion. They do fit each other perfectly, however when they are used to make the print, here is what happens.**



**The two focal planes do not meet. This will produce lines and will never fit.**

1. First make an accurate layout to the size of the print.
  2. Punch it and place it on the register pins of a vacuum easel with the first enlarger.
  3. Size the image, lock the enlarger and secure the easel.
  4. Do the same with image # 2 using enlarger # 2.
  5. Do the same with image # 3 using enlarger # 3
- All of the images are now positioned according to the layout, and fit the layout. Make litho images as described on page 3 and 4 of this letter. However, use them at the size they are made. Use Rubylith material to make the accurate cut-outs and make the necessary reverses to make positives and negatives. Use the same films as mentioned before to make the images face the same direction. Here is why this is so important.

If you are working with one enlarger, and have more than one image to contend with, then I would recommend making very accurate dupe transparencies to the exact size needed and proceed as I have outlined previously.

If you wish to create a glow instead of lines around your image, or lettering, fine. Make your friskets with the emulsions away from each other and use diffusion sheets to enhance the glow. This system will work without question.

Use Pan Masking film, it is diffused already and it wouldn't hurt. You may have to use taller pins than are usually supplied by Condit. He will make longer pins upon request. Are larger vacuum easels also supplied by Condit? Absolutely.

I know he makes them as large as 30 x 40? Vacuum frames are easily available through any graphic arts supply company and use vacuum pumps that can generate 25 lbs. of vacuum pressure. This is necessary if you want tight fitting friskets.

A company in California known as **Royce Photographics (818-240-1530)** can supply you with very accurate vacuum easels up to 20x24 that work as a center loaded system rather than as scored lines. These vacuum system works well. They come supplied with their own pump.

A California based magazine called **"Horsetrader" PO Box 11712 Santa Ana CA. 92711**, which is concerned with graphic arts equipment and services lists many kinds of equipment.

The next item to discuss is Condits aerial masking unit It is a fine easel, but must be used in a specific manner or it won't work at all.

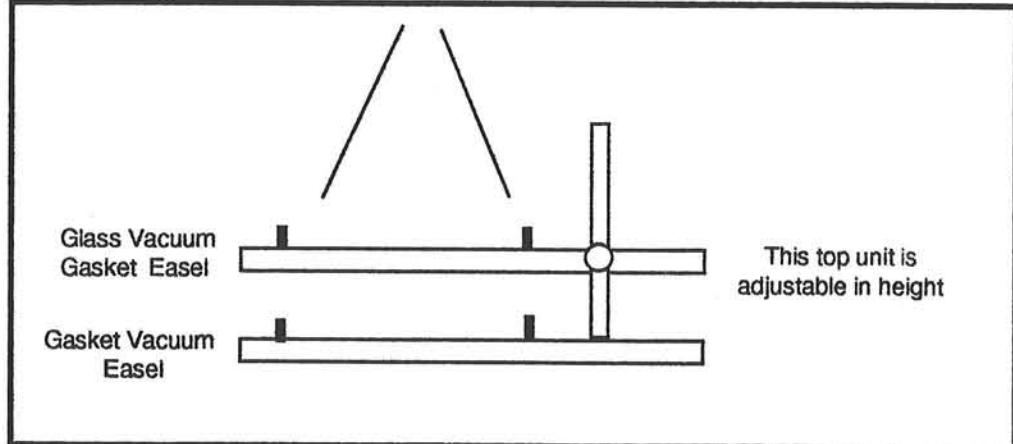
If you have two or more images to be fused together and you want to enlarge them into one print, they must be in the same position and same size and in register to each other. How often does this happen? Hardly ever. But if they are the same size and in the same position and are in register, then the unit can be used. Here is how:

The easel cannot be moved once it has been established in place. Nor can the *f* stop on the lens be adjusted because it would change the degree and angle of the light source. The image will also be slightly diffused as it passes through the glass. First, a layout is made to fit the enlarger. Then it is projected through the top glass to the bottom unit. Dupe transparencies are made to fit the size at the bottom unit and positioned exactly to the layout. When projecting the images to the bottom unit, swing the top

unit in place and expose a litho film in order to make a working frisket. Regardless of the amount of images used, as long as the dupe transparencies are used at the bottom unit, and the friskets are at the top unit, sharpness will be no problem as the result will be a contact final with diffused friskets.

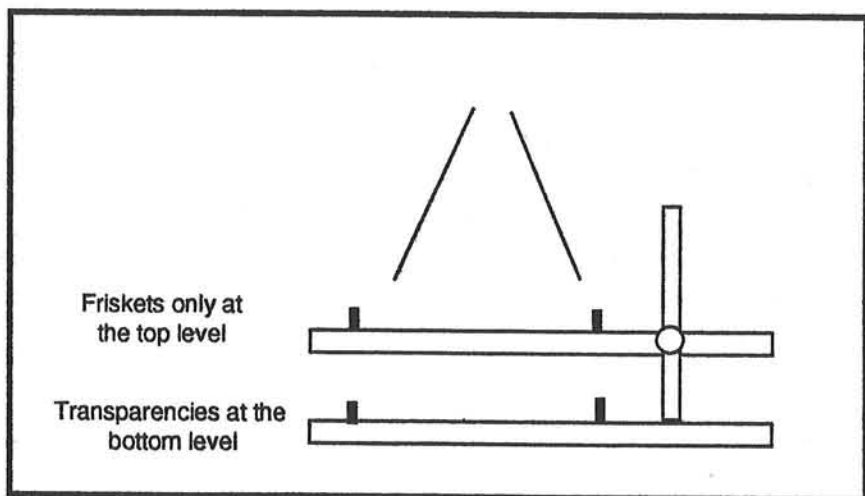
The making of a soft edged frisket will only work when you are trying to silhouette a single image against a plain or white background.

Remember, sharp images can easily be made. Soft



edges are only possible when they are deliberately diffused or thrown out of focus

The images are projected through the top glass vacuum easel to the bottom easel. Any friskets are made and placed again, at the top of the unit. Images can be exposed at the top level, processed, and then replaced back over the top set of pins. The whole top unit is hinged and can be swung out of the way when film has to be placed on the bottom vacuum easel.



This system does seem a little far fetched, but it does work and is extremely accurate.

It's original purpose was to make an aerial contrast mask, but the diffusion caused by the mask, and the glass would ruin the final print effect.

What kind of duping film should be used when we need to make dupe transparencies? We are using Kodak E-6 dupe film with little trouble. We have also used Fuji. Both are excellent, with Fuji getting the edge because it is a bit richer in color rendition.

Making a mask that would capture hair and tiny details, would require using a litho film and enough separation to get a photographic edge. Doing it by hand is virtually impossible.

The spring vacuum easel I describe in my book was actually built by my staff. It needed to have friskets at the top of the unit made from stiff board. We would just lightly touch the unit during exposure and the vibration alone would cause a soft edge.

Condit does not produce a backlit easel for rear lighting larger than 11x14. I feel that the larger the easel the more accurate the friskets. We made our own. It isn't that difficult.

If you are new at this kind of printing technique, keep trying. Use some of the information I have written and let me know how you are doing. If you have a good artistic sense and can be serious about it's outcome, you will succeed.

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Just a word about digitized imagery. Kodak's new CD system is increasing in acceptance and popularity. At a recent showing in New York City at the Nikon House, a series of prints were displayed that were originally scanned, and digitally stored on Photo CD's.

30 large 20x30 prints were produced by transferring the CD images into a new Kodak Lazer Enlarger which has been designed and developed by Kodak.

This new device is not yet on the market and is being used as a research tool for studying digital imaging systems.

The enlarger uses lazer beams to expose directly onto a sheet of conventional color paper and then processed using standard procedures.

Text or graphics can be added to the print or CD. Either reversal paper or the conventional Type C paper can be used.

Before printing, the images can be manipulated using Adobe Photoshop, so that the color and contrast can

be thoroughly controlled in any direction.

What next?

The new CD system is amazing. The fact that you can place many images on the CD and recall them at will is remarkable.

I recently finished a personal project of my own.

I copied hundreds of prints, slides and many hundreds of feet of motion picture film onto video tape.

It is the story of the Pace's beginnings and all of the people in our family and it is in cronological order.

If I had the new Kodak CD system, I could have created such a memory with ease, however, my video lasts 3 1/2 hours long and is narrated along with appropriate music. I am not sure how this could have been accomplished with the new CD system.

Try it for yourself. If you have a camera that enables you to adjust for color balance and density, it will be a treasure for many years and generations.

I am working on Part two of "Photo Composition." I will alert you when I am ready for distribution

Thanks,

**Bob Pace**

**2823 Amaryllis Ct.**

**Green Valley NV 89014**

**702-896-2515**