FilmTips Photographic

Films for Scanning

Get great scans from color negatives, color slides and black-and-white films

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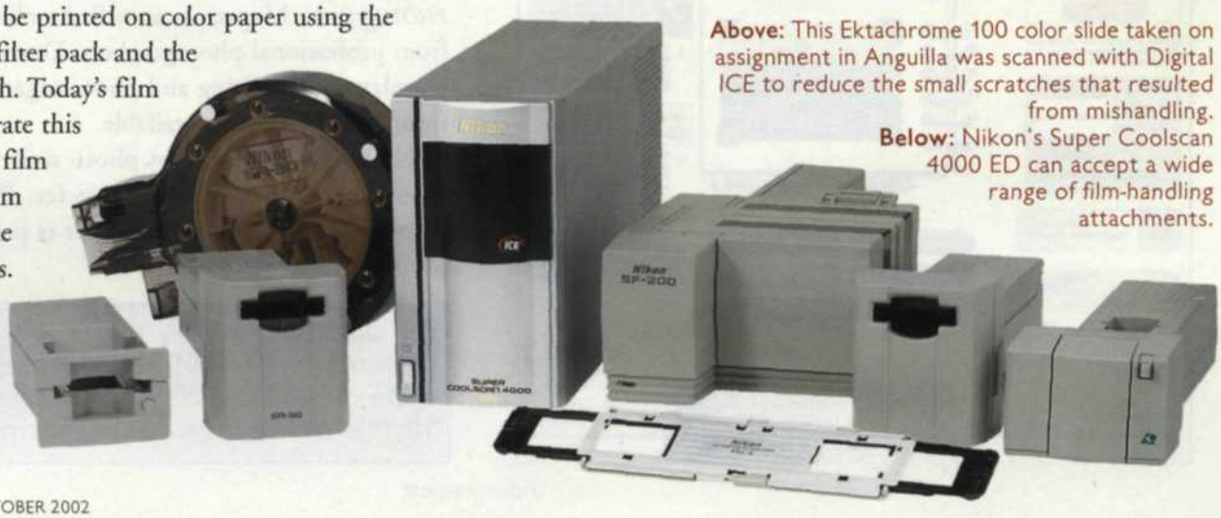
Although the digital camera is becoming increasingly popular, the film camera still leads the pack. A merger of the two entities allows the conversion of silver halide crystals to bytes of data via a unique process called scanning. Initially, the film scanning process was very expensive, difficult to do, and more often than not yielded unacceptable results. Today, film scanners are easy to use and relatively inexpensive, so you'll find that the film scanner is now a common tool in the digital darkroom.

Is one film better than another for scanning? To best answer this question, we first need to break down the films into several groups. Film comes in color slide, color negative and black-and-white emulsions. There are hundreds of film types, all with various color sensitivity. You will also find that images have been subjected to a wide variety of environmental situations such as humidity, heat, light, fingerprints, fungus growth and even time itself. If you multiply all these factors together, you end up with millions of possible variations that the film scanner must handle.

The most common film type is color negative, which is used to make color prints. Since the introduction of color negative film, this group has made great strides in image quality and versatility. The introduction of the film families or series allows the photographer the flexibility of choosing everything between ISO 100 and 1600 film. Each film within a specific family can be printed on color paper using the same color printing filter pack and the final images all match. Today's film scanner can incorporate this concept and scan all film negatives within a film family using the same color balance settings. Since most of the new film scanners have preset film tables already loaded, there is very little color balancing necessary. Even if your color negative film is not listed, it is easy to load the default color negative setting and adjust it to your film type and save it for any future scans.

Color negative films offer a wide exposure latitude, allowing you to capture extreme ranges of detail. Sometimes this extended range is difficult to output on traditional color printing paper, so this is where scanning has an advantage. As the images are scanned, this range is converted to digital data which can then be enhanced using the editing software. When



Above: This Ektachrome 100 color slide taken on assignment in Anguilla was scanned with Digital ICE to reduce the small scratches that resulted from mishandling.
Below: Nikon's Super Coolscan 4000 ED can accept a wide range of film-handling attachments.

Near right: 30-year-old Kodak Panatomic-X negative (above) was scanned in color-negative mode with GEM, then converted to B&W in Photoshop. Chromogenic APS negative (below) was scanned in mono mode. **Far right:** Digital ICE and GEM were used. Default color-negative setting was adjusted for best color and contrast.

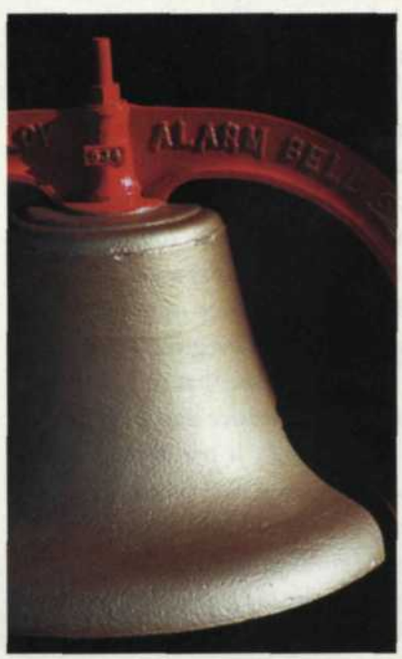
your final image is output to inkjet or traditional printing paper, you will find the extreme detail in the highlights and shadows that was initially captured on the film, but not evident by traditional printing methods, will now show itself.

Color slide films (E-6 process) other than Kodachrome can be grouped and scanned under the heading of positives. The default setting for positive images in most film scanners works well with the bulk of the slide emulsions available today. Even films like color infrared and slides with extra color saturation can use the same initial film scan setting.

Slides often possess detail in the deep shadows that is not evident in projection or viewing on a light box. Through the scanning process, these slides can be adjusted in the editing software to maximize this hidden detail. The results are images that take the captured data just one step further.

Kodachrome presents us with a different problem. Kodachrome slide film's popularity has dropped over the years, so most images you scan will probably come from your files. If your Kodachrome has been projected in a slide projector or cleaned with a liquid film cleaner, the image scans will be very unpredictable. You will most likely have to color balance them from one image to the next. This is due to the changes in the protective coating on Kodachrome and how it has weathered the environment over time. Many of the new film scanners, such as the Nikon Super Coolscan 4000 ED, have a special Kodachrome setting designed to address this problem.

Scanning images one at a time is very time intensive, so many serious photographers turn to the bulk adapter as a solution. There are several options and adapters available that



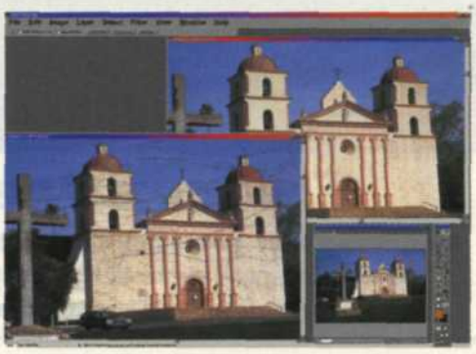
ICE, you can use Digital ROC (Reconstruction of Color) to fix faded images, and Digital GEM (Grain Equalization Management) to minimize grain. Digital ROC and Digital GEM work on all films, although using the grain-reduction feature on Kodachrome seems a waste since Kodachrome has virtually no grain.

Another nice feature of most film scanners today is the ability to alter the film's gamma. This is an especially useful tool for color-slide scans as most will lose some shadow detail if you use the default setting of 1. We usually set our color negatives from 1 to 1.1 and color slides closer to 1.25 to get the most out of each film scan.

For more advanced scanning problems many scanners today also include an eyedropper color-balancing system for quick and accurate color balancing. Just look for a black, gray, or white area in the image and touch the appropriate eyedropper to that point in the image. The correction may not be perfect, but it will get you close enough to make final corrections in your image-editing program.

Finally, let's address the black-and-white film scanning problem. If you find that the default settings for scanning black-and-white silver-based film are unacceptable and no amount of adjustment helps, you might consider scanning it as though it were a color negative. Load a black-and-white negative in using the color negative settings and modify the levels to achieve maximum gray tone. Then bring this monotone RGB image into your editing program and convert it to a grayscale. Although this takes a bit more effort, it should yield a good black-and-white scan.

Left: GEM reduces grain appearance, easy to see in this side-by-side comparison. **Below:** Severe scratches were removed from the scan of this old Kodachrome slide using the Digital ICE function.



The film scanning process does have a drawback concerning image sharpness. You will find that with any scanner there will be a slight loss of image sharpness during the scan. Some of the scanner menus offer a sharpening function, but we recommend that you wait and use the Unsharp Mask in Adobe Photoshop or whatever editing program you are using.

The extensive film choices today offer photographers a variety of film speeds, saturation levels and contrast ranges from which to chose. Thanks to new scanner technologies, our film can now be converted to digital data, thus making film a solid player in the digital process. ■

Right: The blue cast created by the sky was reduced with color sliders in color adjustment menu of scanner. **Below:** Underexposed image was corrected using brightness function in scanner menus. **Far right:** This slide was color-corrected and cropped to improve the image.