

The Electronic Darkroom

The Nikon LS3510-AF Scanner can bring your images into the computer and your photography into the 21st century

TEXT AND PHOTOGRAPHY BY JACK AND SUE DRAFAHL



The scratch on this slide seemed irreparable until we began working in the electronic darkroom. Once a high-quality scan was made, the scratch was removed in a few minutes and a new slide was printed.

Photographers today are constantly bombarded with technological advances, especially in the area of electronic imaging. Nikon has always been a top name with the latest electronic enhancements to its 35mm camera systems, and now the company's gone one step further with the LS3510-AF 35mm Film Scanner. This electronic tool allows photographers to fix damaged photos, perform electronic airbrushing and even create new and exciting images with the help of the computer.

Nikon Scanner Basics

Photographers understand the basic operation of the camera, lenses, film and lighting, but often find some electronic devices alien. The Nikon scanner is about the size of a slide projector and connects to a Macintosh via the standard SCSI port while the IBM-compatible PC uses a GPIB board and cable. Special photographic software controls the scanner: The PC system uses Aldus PhotoStyler while the Macintosh system utilizes Adobe Photoshop.

The Nikon scanner can read a variety of film formats including slides, color negatives and black-and-white films. A light in the scanner projects a beam through a red filter onto a single strip of electronic sensors behind the slide or



negative. When a full scan with the red light is made, the scanner resets to make a green scan and then a final scan is made with the blue filter. When all the information is scanned into the computer's memory, it's displayed in full color on the computer screen. Black-and-white images require only one pass with the green filter.

Software tools are used to manipulate the image before it's sent out to diskette, film recorder or printer. The scanner can be set for a variety of image resolutions, depending on its final application. A black-and-white image used for newspaper production can be scanned in at one-quarter or one-fifth resolution, compressed and sent over a phone wire. Images used for magazine reproduction are usually

scanned in at half and full resolution. The higher the resolution, the better the quality, but the scans take longer and result in larger computer files.

"Unusable" Images? Save Them!

How many images have you trashed because of large scratches that made them unusable? In many cases these images were impossible to repair by traditional photographic methods, or the expense of such repair was not feasible. With the Nikon LS3510-AF scanner, fewer images will be tossed into the round file because a variety of simple repairs can be accomplished. Here are some of the ones we found most useful to our stock photo operation.

Scratches—Once the damaged image is scanned into the computer, zoom in on the area to be repaired and select a section adjacent to the scratched area. Move a copy of this selected area over the scratch and paste it on top. Zoom in even tighter on the pasted image and use a special "smudge" tool to smooth out any unevenness in the paste. Any dust accidentally scanned in can be removed with this method before the image is saved out as a computer file for imaging on a film recorder.

D-Max errors due to processing—How many times have you received your film of those once-in-a-lifetime moments back from the processing lab, only to find out that the processor had a bad day? Let's say the highlights and midtones are fine, but the shadows have a green cast with no black base density. Don't consider this the end of the world. Simply scan in the film and run a "histogram" on the image. A contrast curve of the red, green and blue colors will be displayed on the screen. Using the mouse control, merely reduce the green density at the toe end of the green curve until the green disappears from the shadows on your display screen. Save out the resulting image and send it to a film recorder to create a new "original" on the film of your choice.

Faded originals—Color film processing in years past was not as accurate as the standards maintained by today's labs, and photographers are finding that images taken years ago are starting to lose color and density. Until recently the only way to save these images was to duplicate them on duplicating film, but the results were less than adequate. The scene contrast increases, the highlights take

a muddy white cast, the D-max takes a color shift and the final image is still on a less-sharp "dupe" film. With the LS3510-AF, the scanned image is color-corrected using software color controls: The contrast of each color is adjusted with the contrast controls and the highlights and shadows are controlled with the "histogram" function. Best of all, the final "original" can be imaged on your film of choice.

Creative Photo Manipulation

With the Nikon LS3510-AF scanner and a high-resolution film recorder, you can take any color negative film and convert it to your choice of chrome film. Scanned color negatives can be adjusted for color balance and exposure and cropped, or scratches and shadow detail can be repaired or adjusted before creating a new "original." The advantage is that your original color negative never leaves your files and you can generate many "originals" for submission.

One of the most controversial uses of the film scanner is manipulation of original images. What everybody forgets is that photographers have been manipulating images since photography began in 1826. The difference is that now it's easier to do; therefore, more photographers can do it. Some simple image manipulations we performed on the Nikon scanner included:

1. Scan in high-speed (ISO 1600) color negatives, select the grainy background, run a soft-focus function on that area and image a new "original." The result is a finer-grained image of a subject only capable of being captured on high-speed film that is now imaged on a film like Velvia.

2. Removal of flashback, double highlights, reflections and problem backgrounds are possible with the "select," "paste" and "smudge" software tools.

3. Conversion of a horizontal to a vertical image is easily accomplished with the scanner by enlarging the original and cropping out the new format before scanning it into the computer system.

4. One of our favorite applications is to scan in several images, add graphics and generate a complete mock-up for a magazine proposal or for desktop publishing.

5. We also use the scanner to mix parts of one photo with another such as adding skies, removing artifacts in the background or removing or add-

(Cont'd on page 81)

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Nikon LS3510-AF 35mm film scanner

(Cont'd from page 57)

ing items to the image. This is where acceptance of electronic imaging gets sticky. Because of technological advances, electronic image manipulation is now a reality. The ASMP has issued its recommendation for a symbol of "≠" to indicate that the photo was manipulated.

Computer System Necessities

Photographic quality scans on the Nikon scanner require at least nine megabytes of space, so a few images will quickly eat up disk storage and memory. We recommend a minimum of a 200-megabyte hard disk and 12 megabytes of memory, but even with all this space you can run out of hard disk space.

Not to worry—there's a solution called JPEG. This new international file format allows you to compress photo files so that several can fit in the space of one. Compressions of 10 percent or less will not result in any noticeable quality loss. This popular file format can now be found in almost all scanning software programs.

The Role Of Film Recorders And Service Bureaus

Okay, you've made the scan—now what do you do? Just how do you get it onto film? The device required to make the new film original is called a film recorder. Simply put, this is a box with a camera attached that photographs the computer image onto a high-quality CRT (cathode ray tube) or monitor. Your photographic file is broken and separated into a black-and-white image that is reassembled by projecting through a series of red, green and blue filters in front of the camera and

lens. When all three exposures have been made on one frame of film, the end result is a full-color exposure.

Photographic quality film recorders start at \$30,000. If that's more than you want to invest, what do you do now? The solution is simple—find a company that specializes in imaging film from computer files, commonly known as a service bureau. The best way to locate these companies is to look in the *Yellow Pages* under "slides" or "computer graphics."

Ethical Hindrance or Environmental Help?

There are a number of photographers who might consider the Nikon scanner a threat to photography because there's virtually no limit to what you can do with it. By going to electronic manipulation and reducing the amount of wet photo process, however, you're helping reduce pollution of the planet. If you have any doubts, just remember how much film, developer, fixer and time are required to create a single posterization. Consider the environmental impact when you can now move a few million electrons around in your computer and create even better posterizations with only a single keystroke.

Scanning In Moderation

Remember that you don't want to scan in every image you shoot. The scanner should never replace what you can do in your camera and you should strive to control the image with the camera before it ever strikes the film. When you've done your best and the image still isn't what you wanted, look to the Nikon LS3510-AF Scanner for a helping hand. Price: approximately \$8,995. OP



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