"Skin Copy" and "Smudge Tool" used to repair forehead scratch.
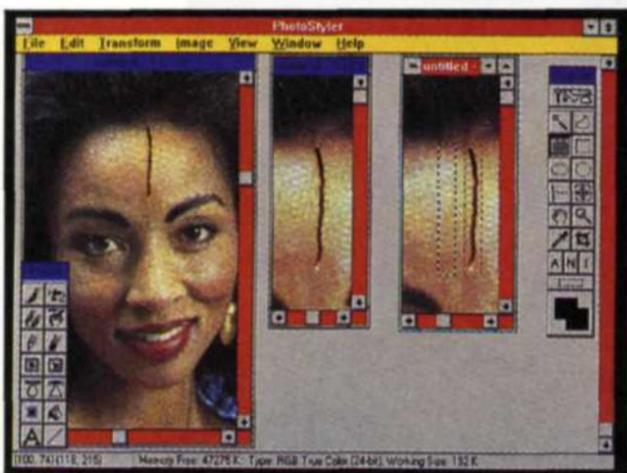
Nikon Scanner screen "Edit and Scan."


Original on Ektar 25.

Computer Duplicate.
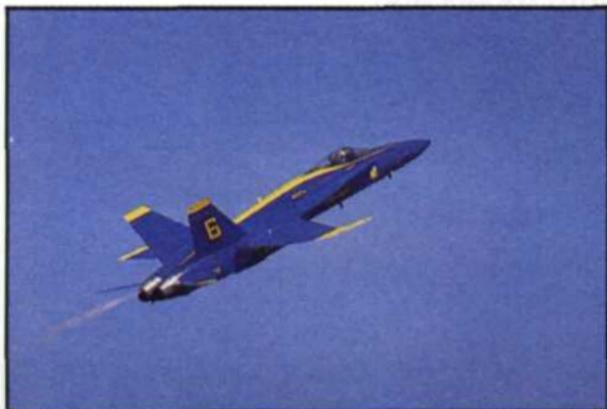
Photo composition using "Cut and Paste" tool.
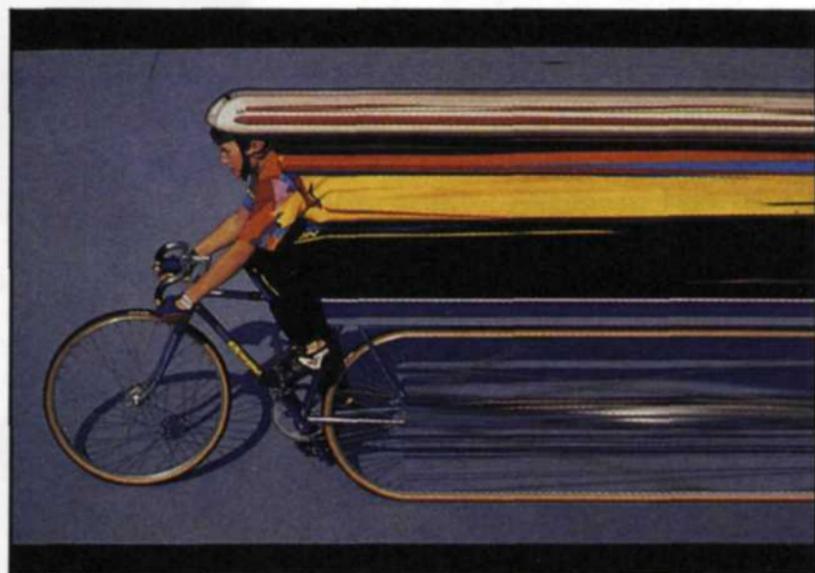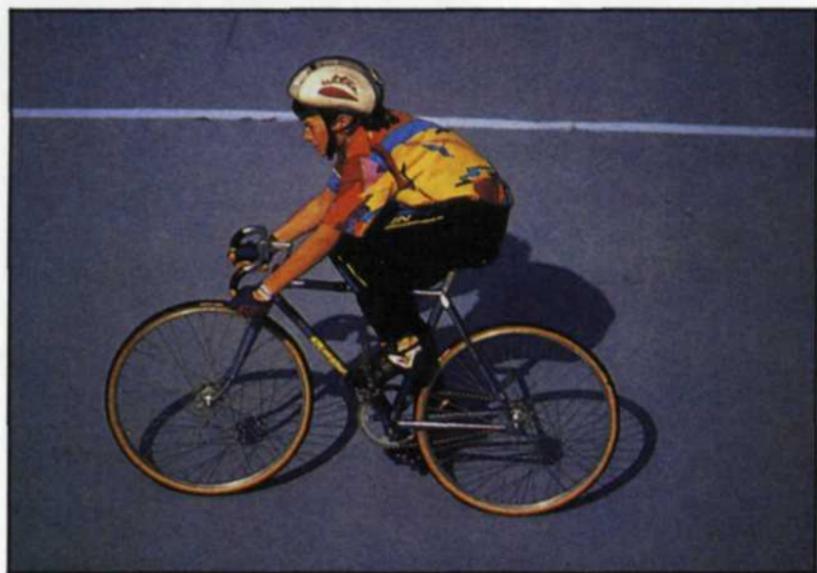
2K resolution: Image stretched with "Free Resize" tool.

Torn and faded family photo restored with "Cut" and "Contrast" tools.

Nikon LS-3510AF Film Scanner

Jack and Sue Drafahl

OF ALL THE photo equipment we have tested in past years, the Nikon LS-3510AF Film Scanner has been the most difficult—to get our hands on! The popularity of the Nikon Scanner put it in such demand that getting one for review took months of negotiations. We found it was well worth the wait. After exhaustive testing, we found this scanner to be an excellent addition to the electronic photo lab. Let's look at just how valuable this scanner can be in your operation.

Installation

The scanner itself is about the size of a slide projector, and is connected to either a MAC or IBM/PC computer via a special communication cable. If you use a MAC system, the scanner cable is linked to the computer through the SCSI port in the back of the computer. The IBM/PC system requires a communication board called a GPIB board to link the scanner cable and PC system.

The scanner is controlled by photo manipulation software installed on the computer. The LS-3510AF is bundled with the customer's choice of either Adobe PhotoShop or Letraset ColorStudio on the Macintosh, and PhotoStyler for Windows on the PC.

In order for the scanner to be time efficient in your lab, your computer system will need to operate with speed and have a large amount of memory available. We would recommend at least IBM 386 with a minimum of 8 MB of RAM and a 200-300 MB hard drive.

Macintosh with Systems 7 users need 64 MB RAM and those without Systems 7 should have between 8 and 32 MB of RAM. With either system, a 200-300 MB hard drive is recommended.

For our testing we used an IBM 386 PC with Aldus PhotoStyler software. We have 16 MB of RAM, a 220 MB hard drive and an additional 44-125 MB of SyQuest removable hard disk storage.

Nikon LS-3510AF

Scanner Controls

The Nikon Scanner is able to read positive and negative color and black and white film. It then converts this analog data to digital while reading 256 gradations each of red, green and blue, reproducing 16.7 million colors. All scanner control is done with photo manipulation software that comes with the scanner.

To help you understand just how simple this scanner is to use, join us as we walk through the scanning process.

First, load your slide or negative into the special carriers designed for the Nikon Scanner. You should use a negative brush and/or compressed air to clean dust from the image before placing it in the scanner. Don't worry if you do miss a dust particle, as you can remove it later using the photo manipulation software.

After inserting the negative or slide into the scanner, select the "scan" function and you will be presented with the Nikon Scanner Screen and its scanner controls. From this screen select the film type to be scanned. If you are scanning a color slide, you would select the default color setting and select the "pre-scan" function. If a color negative is to be scanned, you can select the Kelvin color temperature setting of the original negative. Possible selections are daylight, flashbulb, tungsten, north light, early

Nikon LS-3510AF Film Scanner.

For Fast Response Circle 504

sunset or any specific Kelvin setting. Once this is selected, you would select the "pre-scan" function.

The scanner will then make an auto-exposure and auto-focus your film. A small image representing the scanned image will be presented in the corner of the scanner control screen. Coarse color adjustments and exposure can be made to this image and previewed before the full scan is made. Remember that corrections to color slides are made by decreasing the red, green or blue setting to eliminate a specific color shift, while with color negatives you add your correction.

After you have made all color and exposure corrections you can, set the image resolution, and crop the image for the final scan. All these setup procedures take less than a couple of minutes to accomplish.

The final step is to initiate the scan itself. The scan time depends on your computer configuration, file
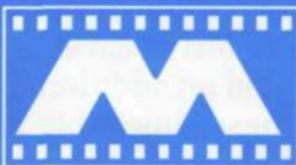
Nikon LS-3510AF
(Continued from page 11)

size and resolution of the final image. Once the scan is complete, the image is displayed on the screen in the photo manipulation software. Images scanned at 1/4 resolution result in 794 DPI files with 4 MB file size. Half resolution files result in 1588 DPI files at about 9 MB size. Maximum resolution is approximately 3175 DPI with 34 MB file size. We found that for most photographic applications, 1/2 resolution was acceptable and the scan time was approximately two minutes.

Photo Lab Applications

The secret to the successful introduction of the Nikon Scanner in your photo lab depends on how you incorporate it into services you can offer your clients. The following is a list of some of the uses we found.

Internegative or Slide Duplication Device—Film conversions are easily accomplished with this scan-ner and a high-resolution film recorder. Since the LS-3510AF can scan any type of 35mm or superslide film, you can make any type of conversions a client wishes.

Suppose a client brings in several Kodachrome slides, some Ektar negatives, and T-Max negatives and wants all the images on Ektachrome 100. You would scan each image into your computer, save out each file and re-output them to a film recorder that has Ektachrome loaded in its camera. The loss of quality for this type of electronic conversion is about the same as making a slide duplicate from an original image.

This service is especially useful for those clients who bring in old faded originals. With traditional copy films, you can control exposure and color balance. With a scanned image, you can control color balance, exposure, gamma, and contrast, *and* you can even repair stained sections of the image.

Universal Printer—Using the Nikon Scanner and an electronic color printer, you can offer a variety of print services outside your normal lab operation. Suppose your lab only supports C-print processing, but you occasionally get requests for prints from black and white or color slides. These images can be scanned into your computer in either black and white or color and re-output to the color printer as color or black and white prints. The cost of this type of print is more than traditional services, but it allows you to keep all your customer's work in-house.

Densitometer—One way to justify the use of this scanner in your lab is by using it as a high-quality densitometer. Scan in your master control strip, and balance the red, green, and blue until they are the same value. Turn off the auto-exposure function of the scanner, and make a low-resolution scan of the new control strip that needs testing. Once the image is scanned into the computer, you would touch each square with the "eyedropper" tool in the software. Red, green, and blue values are immediately read onto the screen. The advantage of

this system is that one reading is taken for all steps on one negative, and the image can be saved to disk for future reference.

Scratch Repairs—One of the most valuable uses of the Nikon Scanner is saving images that would otherwise be lost due to scratches and other damage. After the image is scanned into your computer system, magnify the section to be repaired. Use the "Paste," "Copy," and "Smudge" tools to quickly cover a scratch. We found we could repair major scratches on a color negative in a matter of minutes. Once the repair is made, a new negative or slide can be generated on the film recorder, or a print made on the electronic color printer.

Retouching Services—Using the photo manipulation software, you can scan in images and remove straggling hairs, add highlights, remove red eye, change blinks, and fix any background problems. You can even make composite images of different members of a family who were photographed at different times on different negatives.

A-V Services—If your client base includes Audio-Visual producers, you can offer a variety of special effect services normally done on expensive optical stands. For example, if your client wants color text burned into an original, you have two choices. With traditional optical stands, you would make several negative and positive pin-registered masks and then re-expose each onto a new frame of film. This is a slow and costly method. With this scanner you merely scan in the original slide and type the desired color text onto the image, save out the file and re-expose it on the new frame of film. This method is quicker, uses less materials and can be repeated or changed easily.

Long-Term Storage of Nikon Scanner Images

You may find that you will want to keep your customers' files in storage, in case they require additional work with those scanned images. Storage of 8-34 MB images can use up disk storage in a hurry, so you will need to use a special file compression technique called JPEG. We used a JPEG compression software from ITR Corporation. This IBM-PC software will compress a file to about 1/10 its size with little loss of information. We found we could store 1-2 eight MB images on a 1.4 MB floppy. This compression technique is useful for sending images over the modem.

The Nikon Film Scanner is by far one of the biggest advances in the growing trend towards electronic darkrooms. Its high quality, ease of use and versatility will expand your lab's capabilities and pay for itself in a matter of months.

We like it so much that when Nikon asks for its return, we will simply reply, "What Scanner?"

Jack and Sue Drafahl own and operate a full-service commercial photo lab just outside Portland, OR. Services include audio visual productions, computer graphics and stock photography. The Drafahls are also contributing editors to Petersen's Photographic, and specialize in photo lab procedures.