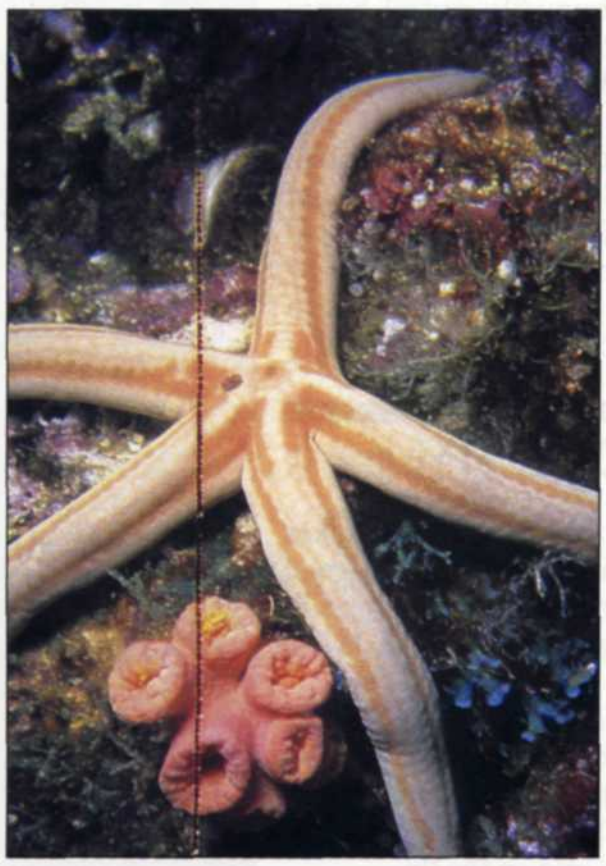
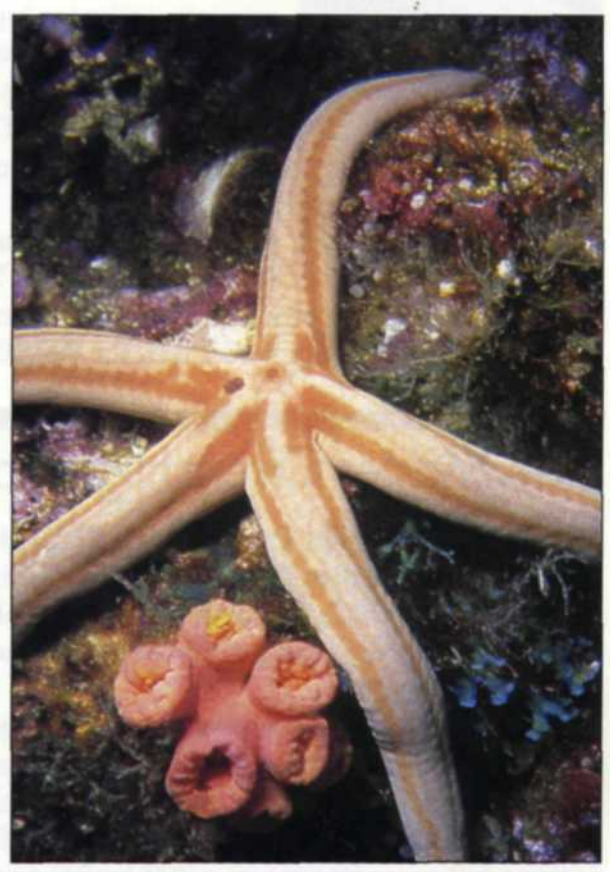
How to Fix THE SCRATCH



Scratched original.



Repaired original.

Sue and Jack Drafahl

AS MORE AND more photo labs are adding digital services to their operations, lab managers are finding ways to replace those difficult and expensive jobs done the traditional way. Scratched negatives seem to be a problem that labs must deal with on occasion. In order to make the repairs, traditionally the scratch is analyzed as to severity and then the most cost-effective repair is initiated.

Usually, direct repair on the original film is not the answer, and the most common approach is to make a print, retouch it and then make a new copy negative. The time and material cost of such a project has traditionally been too expensive for the customer. However, with the addition of digital imaging, scratch repair is now no more difficult than other services in the lab. In this article we will show you how you can set up a profitable scratch repair service in your photo lab.

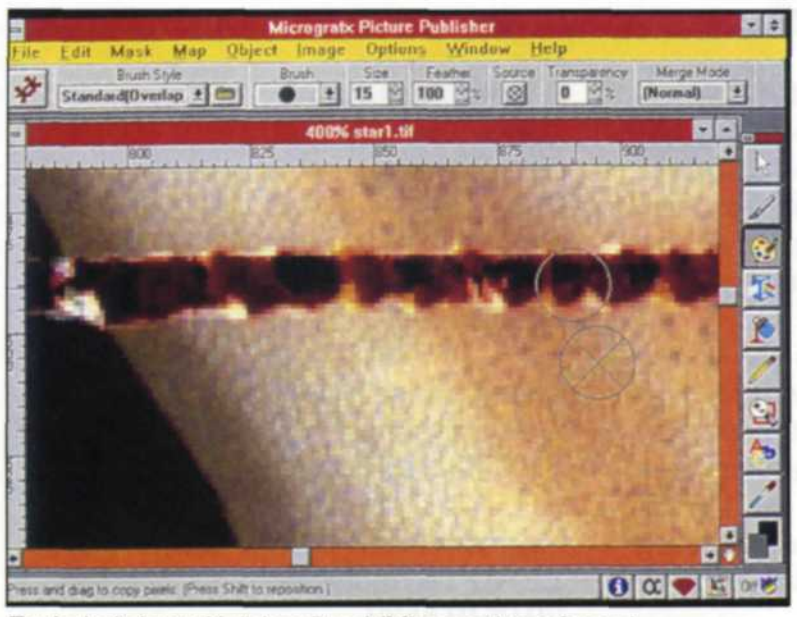
In order to make this repair service work, you need hardware, software, training, practical experience and good advertising of this newfound service.

There are three basic steps necessary for digital scratch repair: input, editing and output. The input requires the use of a high quality image scanner. If the scratch is on a print, a flatbed scanner will be needed. For scratches on film, a film scanner will be used. If you have a high production lab, you may even have a drum scanner that scans both film and prints into your computer system. In past articles we have stressed the importance of matching the scanned input resolution to the applied end-use by the customer. In makes no sense to scan in a scratched image at so high a resolution that the end file is 80 megabytes, if the client is only going to use it in a small advertisement or newsletter.

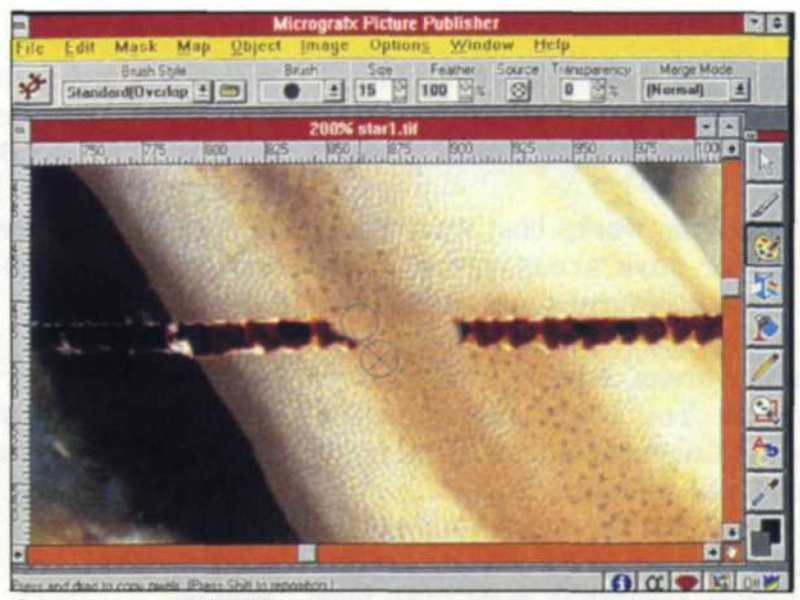
The software necessary for editing scratches can be any standard photo editing software as long as it features a "clone" tool. This is the most common tool used to remove scratches. Some of the software packages tested in our lab for scratch repair include Adobe Photoshop 3, Micrographx Picture Publisher 5, Fractal Design Painter 3, Image Pals Editor, Leadview 3, and Corel Paint 5. Each of these programs has different variations of the clone tool, but all produce similar end results.

Photoshop has a full complement of editing tools for just about every aspect of image editing. Picture Publisher 5 has a unique "Fast Bit" mode that allows you to load only the specific section that has the scratch. This is extremely beneficial if the file is very large, because this function loads fast and only requires a small amount of memory. Fractal Design Painter 3 is the most versatile, with brush and clone settings. Image Pals and Leadview 3 are database programs. Each offers a large variety of file formats and editors, yet still does a good job of editing scratches. Corel Paint 5 is for those who like to drop the edited picture into its companion vector program, Corel Draw 5.

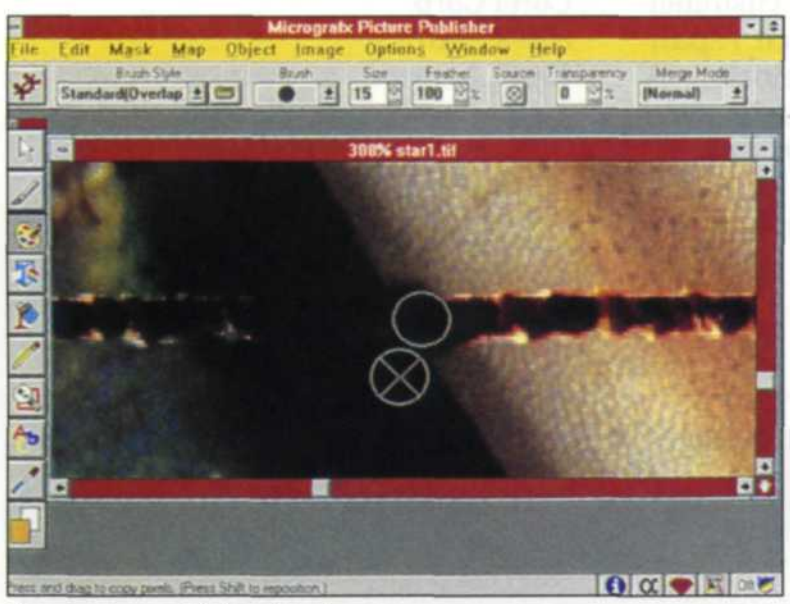
You are probably wondering just



Exploded view with "clone" tool (Micrographx software).



Correct use of "clone" tool.



Incorrect use of "clone" tool.

Using the "select" tool.

which software to buy. Many of the software manufacturers offer demo disks so you can try a few tricks for yourself before actually buying. Check your local computer software stores, as they may offer demonstrations in the store to help you make your software selection. We haven't found one program that offers the solution to all digital applications, so we use as many as six different editing softwares.

Enough about software, let's get back to repairing that scratched negative. We mentioned that the clone tool is the heart and soul of repair work, so here's how the tool works. The clone function is like a miniature image copy tool. Instead of copying an entire image or selected area, it clones the area in a very small circle or square and copies it to another similar-size area in the image.

Using the clone tool is a two-step operation. First, you assign the area to be cloned using a special hot key assigned to the clone tool. Once the clone area is selected, press the mouse button, and that area is copied from the selected circle or box to the second circle or box. In some of the programs the boxes or circles are not visible, and the centers are indicated with a cross cursor. With some of the software programs, if you hold down the mouse button, you can drag the selected area and the copied area in parallel, allowing fast scratch editing.

Your first attempts using the clone tool may be frustrating, but with a few hours of practice you can become a pro. The clone tool itself can be changed in size, and also to what degree it feathers toward the edge of the selected area. In some of the programs you can turn the feather "off," or the default may even be in the "off" position. Feathering makes a much smoother transition, so make sure that your clone tool is always in the feathered position for repair work.

Two important techniques using the clone tool will help improve the quality of your scratch edits. The first is correctly selecting the size of the clone tool. The size of the area to be copied should be about the same size as the width of the scratch. If it is much larger, it will copy unnecessary data to the copied area. This could be a problem if the scratch runs through a sharp line in the image.

The second technique requires that you keep the area to be copied parallel to the tonal values surrounding the scratch. If tonal values run at an angle to the scratch, the clone setup must run at the same angle, or you will be copying the wrong color and density onto the scratched area.

It may sound complicated, but as soon as you start editing your first scratch, it will make more sense. The best part of editing is that if you make a mistake, you merely hit the "undo" function and your incorrect edit is removed. You can start over and try the edit again.

If you are very lucky, the scratch will cross a large area that has no change in tonal value. If this is the case, you can use the "select" tool and select a similar

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area next to the scratch, copy it, place it over the scratch, and feather the edges so that the copied area has a perfect match.

This technique works best with areas in the sky or dark areas. Even if the scratch crosses several tonal areas, you could use the select method, select several smaller areas, and copy them over the scratch. You could then use the clone tool to finish those areas that have too much tonal change.

Most scratches that cross an entire image can take up to 15 minutes to repair. Shorter scratches may take less than a couple of minutes. Once you have a final edit, you can output it to a film recorder, ink jet printer or dye sublimation printer, or just save it to file.

If you plan set up a scratch repair service, make samples showing before and after the edit and indicate the cost to make the repair. We find that using a "by the minute" fee for scratch repair makes it easy for quoting and keeping track of billing.

Make sure that the person taking the order has been trained to estimate correctly the time necessary to make the repair. The actual "by the minute" charge you use will depend on the level of equipment used, pay scale for the operator, and the proficiency of the scratch editor.

Use the scratch repair as a showpiece for your digital services. Customers usually find it one of the most practical applications and most impressive uses of digital imaging. You may even want to include a line in your advertising stating that you offer digital scratch repair.

We all know that photo labs never scratch a customers' work, but if the impossible happens, and your customer is having a fit, digital scratch repair may offer a viable hi-tech solution. A couple of customer "saves" might even help you pay for your digital system!

Micrografx Picture Publisher
Micrografx Inc.
800/326-3576

Adobe Photoshop
Adobe Systems Inc.
800/833-6687

Fractal Design Painter 3
Fractal Design Corp.
800/297-2665

Ulead Image Pals
Ulead Systems
310/523-9393

Leadview 3
LEAD Technologies
704/549-5532

Corel Paint 5
Corel Corp.
800/772-6735
Corel

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