

**PHOTOGRAPHIC'S
USER REPORT**

Kodak's new Ektachrome 320T Professional tungsten-balanced slide film is basically a "spin-off" of the recently introduced Ektachrome 400x Professional daylight-balanced film. Rather than have photographers use 400x with a correction filter when a high-speed tungsten-balanced film is needed, Kodak simply built in the necessary filtering effect, and the Ektachrome 320T emulsion was born.

Why a high-speed tungsten film? If you used a daylight-balanced film like Ektachrome 400x in tungsten light, you'd have to add a No. 80A filter to your camera lens, to keep your pictures from being too orange. This filter requires two stops of exposure compensation, leaving you with an effective film speed of 100—and a dim, blue image in the viewfinder. There's also a slight loss of image quality whenever filtration material is placed between the lens and the subject. So, Kodak had a great idea in creating Ektachrome 320T.

NEW HIGH-SPEED FILM TECHNOLOGY

Ektachrome 320T utilizes the now-famous T-Grain technology that made its debut in Kodak's Kodacolor VR 1000 color-print film about ten years ago. The tabular T-Grain particles are flattened, so that the ratio of surface area to mass is much greater than with conventional grains. This produces a more-light-sensitive (i.e., faster) emulsion, while maintaining fine grain. Improvements to the film's red- and green-sensitive layers decrease the effect of blue light, resulting in cleaner whites and more-saturated blues. Additional improvements to the magenta filter dye result in richer greens than found in previous Ektachrome emulsions. Kodak has also improved image stability by employing new sensitizers in all emulsion layers.

APPLICATIONS

Ektachrome 320T Professional is ideally suited for situations involving low light, action, mixed lighting, and extreme lighting ratios. It thus makes theatrical, sports, architectural, and industrial photography a snap. Many theatrical shows and indoor sporting events employ tungsten lighting, so Ektachrome 320T is a perfect match.

Outdoor sports at night, on the other hand, are usually played under high-intensity discharge lamps, and require red filtration (we found CC50 red to be a good starting point for testing). In architectural and industrial photography, you'll frequently encounter mixed lighting, and we would advise pretesting for color balance and needed filtration whenever possible. It's generally best to balance your film to the primary light source, and let the other light sources shift accordingly. For example, you may find an interior that has both tungsten and fluorescent lighting. Even though 320T is balanced for tungsten, you may want to filter the film for the fluorescent lighting if the primary subject is illuminated by that light source.

**COLOR BALANCE, EXPOSURE,
AND FILTRATION**

Ektachrome 320T is balanced for standard 3200 K light sources. Unfortunately, many of today's artificial light sources do not accommodate any standard film balance. There are over 60 different types of fluorescent tubes, for example, each with a different Kelvin temperature (and, due to the non-blackbody spectrum of fluorescent sources, you won't be guaranteed perfect color reproduction even if you do filter for the source's color temperature). Add to this all the high-intensity discharge lamps, neon, and other frequently used light sources, and you have over 100 different color balances to deal with. Add to this the fact that the color balance of each lamp changes with age, and you can see that finding the correct filtration can be tricky, at best.

The best solution, as always, is to shoot a test roll. Bracket exposures, with no filtration, then bracket exposures using a variety of generic color-compensating filters, such as CC50 magenta, CC50 red, and CC70 red. Process your film, analyze the results, and fine-tune your exposure and color filtration accordingly. If it's a can't-be-redone shot, bracket exposures and filtration, and select the best frame.

Adjustments for short and long exposures are not really necessary, unless you make exposures shorter than $\frac{1}{10,000}$ or longer than $\frac{1}{10}$. One-second exposures require an exposure increase of $\frac{1}{3}$ stop, and the addition of CC05 red filtration. If exposure times exceed ten seconds, you will have to add $\frac{1}{2}$ stop of exposure and a CC10 red filter. Kodak recommends

exposure times of $\frac{1}{60}$ or longer with fluorescent lights, to avoid color changes during the alternating-current cycle, and exposure times of $\frac{1}{25}$ or longer with high-intensity discharge lamps, for the same reason.

Ektachrome 320T uses standard E-6 processing. The film can be pushed one stop, to EI 640, with only a minimal loss of detail.

FIELD TESTS

When we first received our batch of 320T film, we thought the field tests would be a snap. Not so! The problem was not with the film, but with the mixed lighting conditions. At first, it seemed like no light source we encountered was a true 3200 K. We tested with and without filters, and found that CC50 red was the best compromise when the color temperature

A New, Fast,
Tungsten-Balanced
Pro Slide Film

1. A sharp new box for a sharp new film.
2. Ektachrome 320T's high speed allowed Jack to make this shot of a county-fair ride handheld, with an exposure of $\frac{1}{60}$ at f/4.
3. This tight shot of a Ferris wheel was made by zooming a 28–85mm lens during a long ($\frac{1}{2}$ -second at f/11) exposure.
4. Ektachrome 320T's tungsten balance reproduced this night scene realistically. Jack braced the camera against a pole for the exposure, which was $\frac{1}{2}$ at f/5.6.
5. Two 3200 K lamps were used to light this still life. A small plastic tent was placed over the subjects to diffuse the light. The exposure was $\frac{1}{2}$ at f/11.

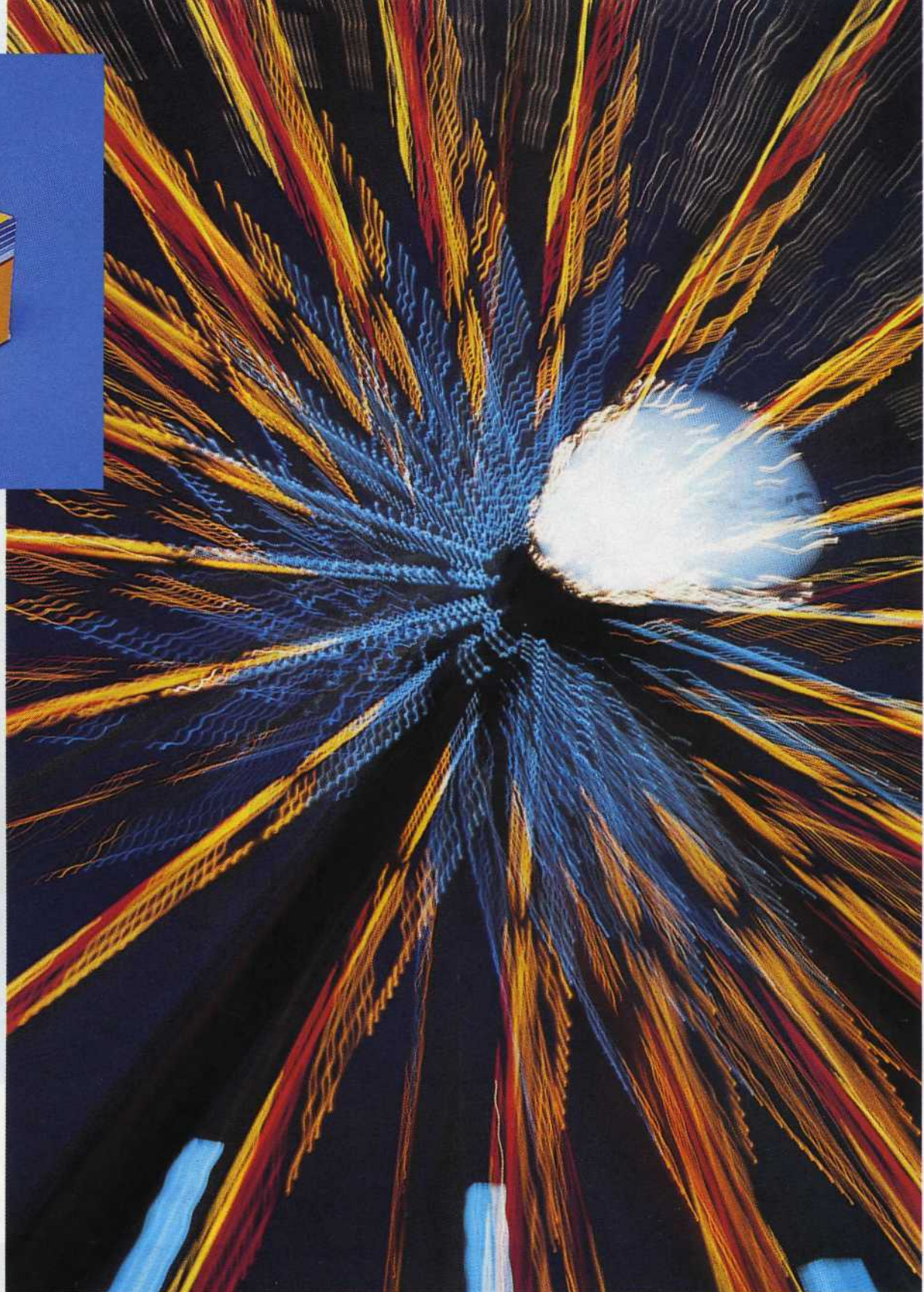
KODAK Ektachrome **320T**



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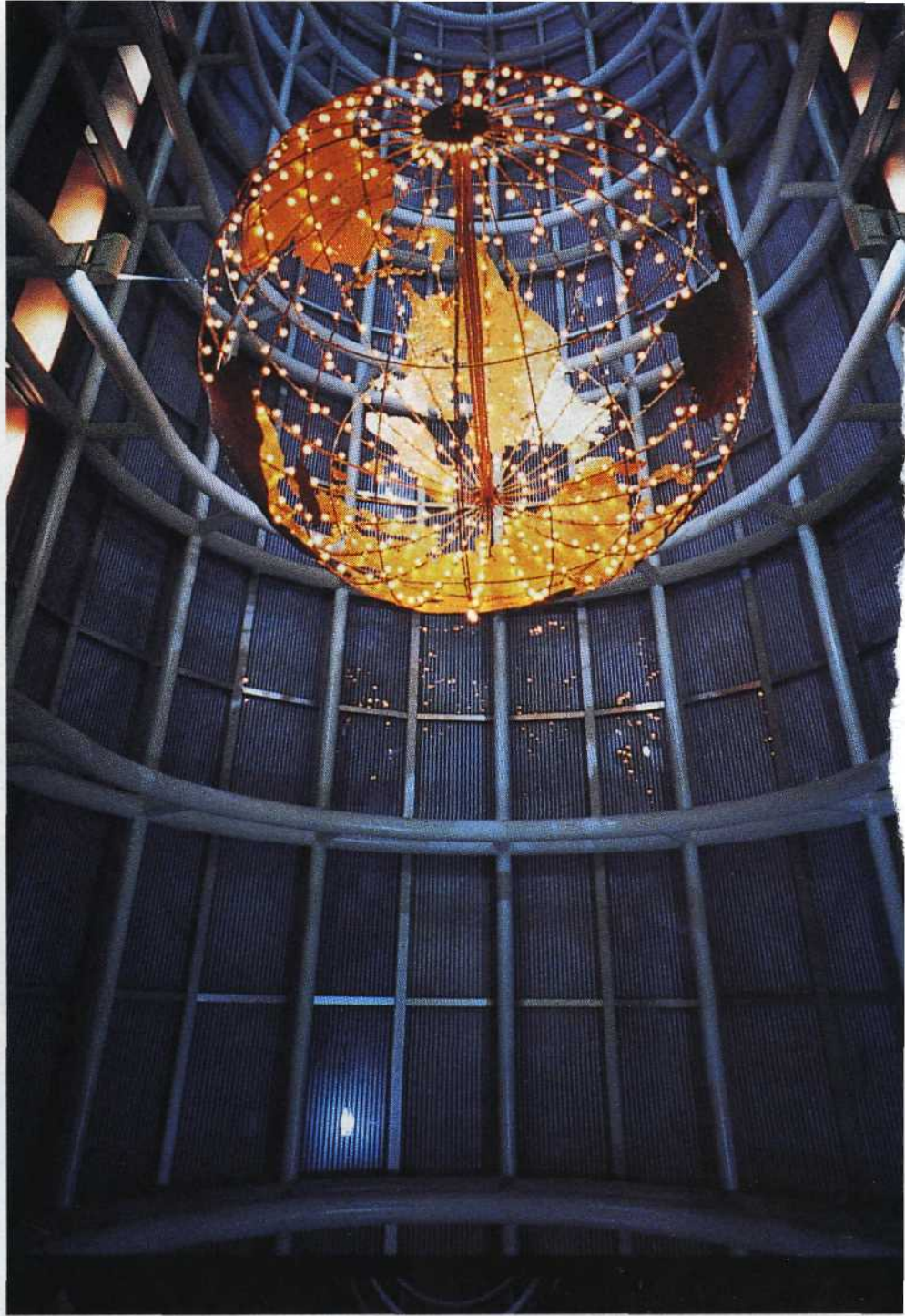
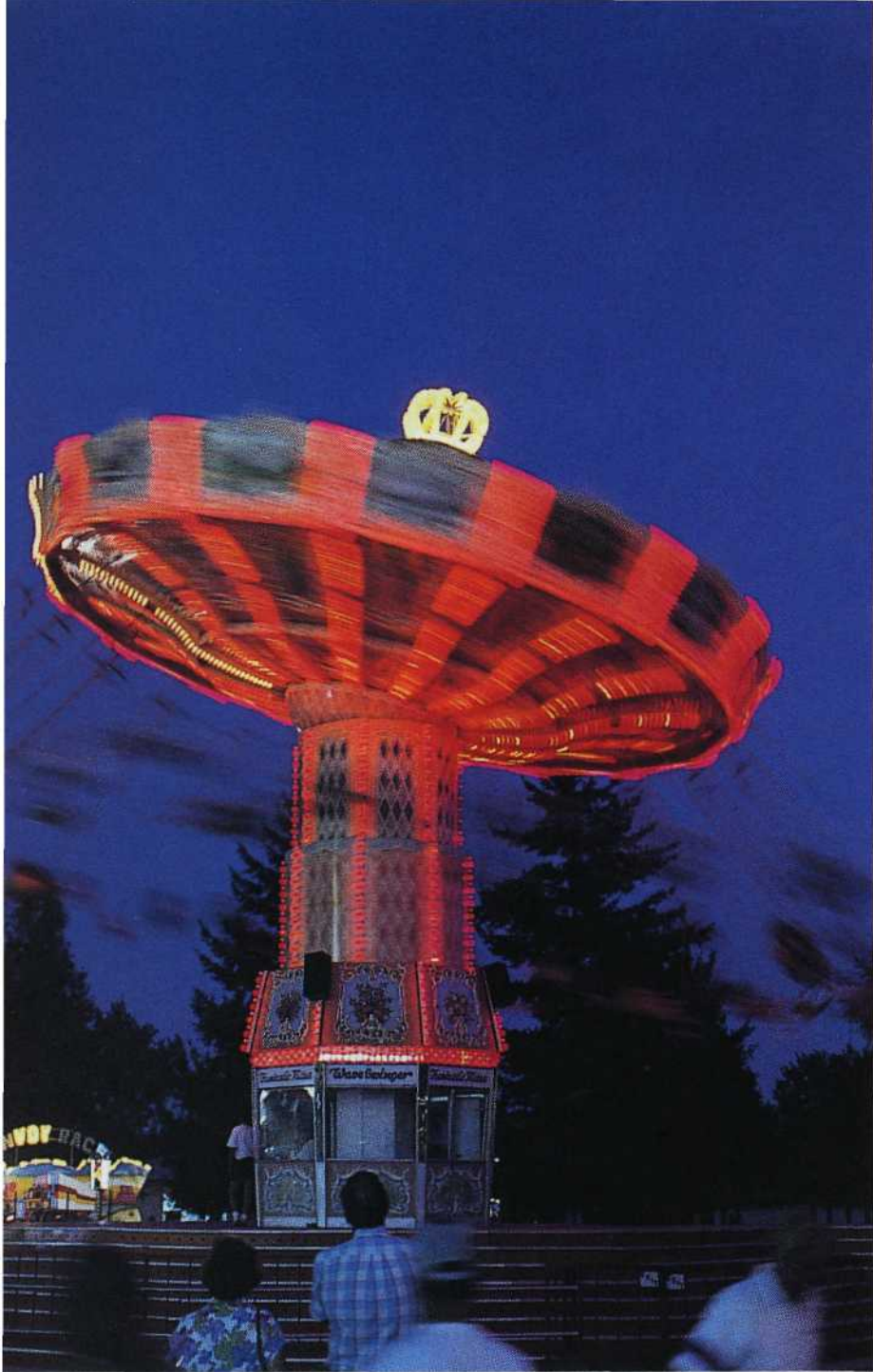


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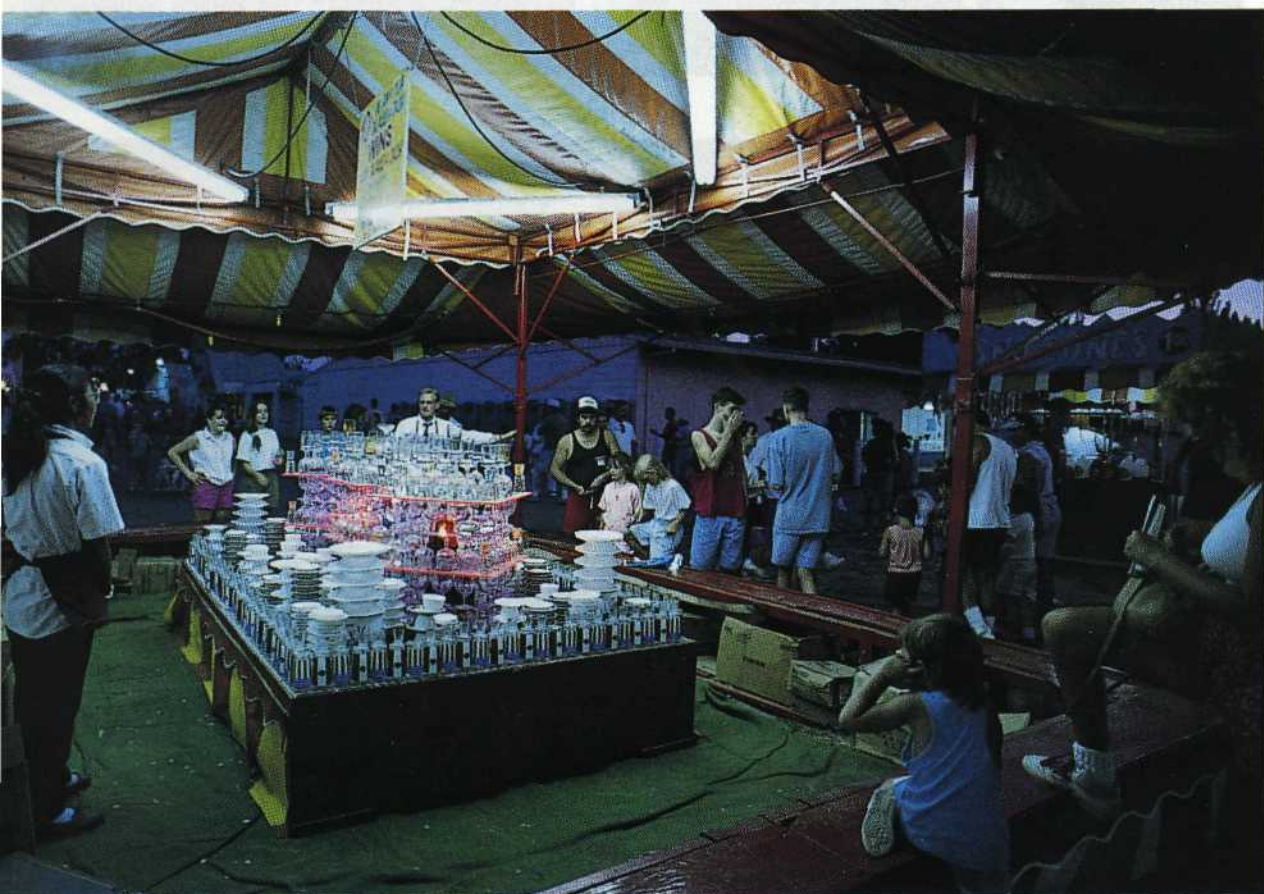


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ALL PHOTOS BY AUTHORS



KODAK Ektachrome 320T



1. This 24mm-lens shot was made handheld; 320T permitted an exposure time of $\frac{1}{5}$ at f/8.

2. Planet Earth was photographed at Chicago's O'Hare Airport with a Nikonos-V camera and a 21mm lens. Ektachrome 320T permitted shooting for $\frac{1}{8}$ at f/4 in the dim light.

3. This handheld interior shot demonstrates 320T's ability to handle mixed-lighting situations. The shot was made handheld; the exposure was $\frac{1}{8}$ at f/4.

was unknown.

Using photos taken under ideal 3200 K conditions, we were able to determine a usable exposure latitude of $+\frac{1}{3}$ to $-\frac{2}{3}$ stops. As we increased the EI with push-processing, this latitude dropped to $+\frac{1}{6}$ and $-\frac{1}{3}$.

Ektachrome 320T's grain structure appears to be identical to that of Ektachrome 400x. We found the contrast range to be a little higher than that of Ektachrome 200 film, but the color saturation closely matched many of the ISO 200 films on the market today.

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