

Kodak

TRI-X 

Film

** it's new! it's super-fast!*

All pictures reproduced in this booklet were made on Kodak Tri-X film with available light only. All films received normal development in either Kodak Microdol or Kodak D-76 Developers.



1/10 sec., f/8 Very dull



1/50 sec., f/4 Daylight in room



You too can get pictures like these with Tri-X film in your camera

1/2 sec., f/5.6 Dusk

1/10 sec., f/4 Two 60W. lamps
1/25 sec., f/4.5 Very dull afternoon



KODAK TRI-X FILM

... HAS THESE FEATURES:

- *High speed to cope with difficult light and action situations.*
- *Wide latitude in both exposure and development.*
- *Low graininess, comparable to that of medium speed films.*
- *Increased acutance, resulting in better image definition.**

... WHICH GIVE YOU THESE ADVANTAGES:

- *Greatly increased range with your equipment — faster shutter speeds with smaller lens openings.*
- *Good shadow detail simultaneously with excellent highlight separation.*
- *Amazing "available light" pictures easily obtainable.*
- *Freedom from excessive contrast in the event of development errors.*
- *Maximum efficiency from all flash equipment — both bulbs and electronic — giving maximum economy.*
- *The latest and best photographic emulsion development in the world.*

* Acutance means: negatives and prints which look sharper.

NIGHT PHOTOGRAPHY AND DAYLIGHT INDOORS

Many outdoor night scenes can be made at snapshot speeds with cameras having moderately fast lenses. For brightly lit city scenes the typical exposures would be approximately 1/25 second at $f/3.5$. Pictures made inside buses, aeroplanes, trains, etc., have been made (daylight) at 1/25 second at $f/3.5$. Most of the big theatre sets can be shot at 1/100 second at $f/3.5$ when spotlights are superimposed on the actors. At other times it is safer to use a long time and catch the peak of actions when there is a temporary pause in the action. Illuminated night tennis, football and other sports can be shot with cameras having fast lenses.

AVAILABLE LIGHT

Pictures made with available light have a naturalness, warmth, and spontaneity which are seldom matched by other lighting. In the brightly lighted interiors of schools, gymnasiums, cafeterias, stores, industrial and commercial interiors, art galleries, museums, exhibitions, etc., pictures have been made at exposures of 1/100 second at $f/5.6$. The lighting level will vary widely, of course, from place to place and also within the hall itself. A sensitive photo-electric exposure meter is a great help in these situations. At this point it should be emphasized that any exposure-guide data given here is based on negatives which were given the normal development used by the average photo-finishing laboratory.

The amount of light present in rooms at home varies so widely that general recommendations are difficult to make. Good

1/10 sec., $f/4$ Dusk—hand held



negatives have been made in average-size rooms near a 3 by 5-foot window at 1/50 second at $f/5.6$. At night, with the regular tungsten lighting, 1/25 second at $f/3.5$ yielded good negatives. A popular novelty for photographers overseas has been to make pictures of a normally bright television screen; these have been well recorded at 1/25 second at $f/4.5$.

Meters which read **incident light** directly in foot-candles are useful in available light situations. The following table shows the foot-candle reading and corresponding exposure which yielded negatives with good shadow detail in average subjects, using a **shutter speed of 1/50 second**.

| | | | | | |
|---------------------|---------|-------|---------|-------|-----|
| Lens Openings | $f/2.8$ | $f/4$ | $f/5.6$ | $f/8$ | |
| Foot-Candle Reading | 25 | 50 | 100 | 200 | 400 |

FLASH

More opportunities than ever are yours with flash and flood lighting. The higher shutter speeds and smaller lens openings are a tremendous advantage in indoor action pictures such as basketball, swimming carnivals, ice shows, boxing, etc. The guide numbers on the back cover will serve to illustrate the exposures possible. For example, with a shutter having Class M synchronization and using a No. 5 or 25 lamp in the usual 5-inch reflector, you can take action shots at 1/200 second and $f/8$ from 22 feet away. You can readily see that in the home, especially for close-ups, you may not be able to use a small enough lens opening and high enough shutter speed to avoid over-exposure. There are several ways of reducing the light intensity for a more accurate exposure, and sometimes a better lighting effect is achieved. If the synchronizing arrangement of your shutter permits, you can use one of the smaller lamps, such as the GEC No. 3 or PF3. Or you can use a layer or two of clean white cloth, such as a handkerchief, over the flash reflector. This results in less light and also provides a diffuse and often-times more pleasant lighting. One layer of a typical white handkerchief cuts down the light by about one stop.

Another method which results in a much improved lighting is to remove the reflector from your flash gun and use it as an extension **away from the camera**.

Indirect (bounce) flash can also be used to reduce the amount of subject illumination. The details of this technique are also described in the Kodak Data Book "Flash Technique"

The diffuser and indirect flash (bouncing the flash off ceilings and walls) can also be applied when using speed lights. Speed



1/25 sec., f/4 Night

lights with a capacity of 100 watt-seconds provide enough light so that a guide number of about 320 can be used with this film. So for close-ups it is advisable to reduce the exposure by one of the above methods or use a neutral density filter over the lens.

FLOOD

The advantage of continuous burning lamps like photoflood is that you can study the lighting effect before you take the picture. One of the disadvantages has been the tendency to dazzle the subject's eyes. With the increased sensitivity of this new film, the methods described under flash for reducing the illumination can now be better applied to flood with the resultant improvement in lighting and in better subject expressions. It has always been the aim of first-class photographers to make their close-ups of people with low-intensity illumination.

For certain situations where you may wish to record rapidly a sequence of events, perhaps with a simple camera, you might like to try using a photo-light bar on which reflector-type photoflood lamps are mounted, one each side of the camera. Examples of exposures for pictures made this way are:

| | | |
|-----------|-------------|------------------|
| 1/25 f/8 | 6 to 10 ft. | (two 500W lamps) |
| 1/50 f/11 | 4 ft. | (two 500W lamps) |
| 1/50 f/8 | 4 ft. | (one 500W lamp) |
| Snapshot | 4 ft. | (two 500W lamps) |

DAYLIGHT—The exposures suggested in the table on the back cover allow for a generous safety margin: So if your method of working produces negatives which are heavier than you like, cut the exposure in half or more. A little experience will soon show you how to modify the suggested exposures.

SAFETY FACTORS IN EXPOSURE RECOMMENDATIONS

General experience and research have shown that for each negative film a certain minimum exposure is required for excellent print quality. Increasing exposure by several times has no appreciable effect on the print quality, but even slight under-exposure causes a definite loss.

Daylight exposure tables and Kodaguides have included a safety factor of about four times for black-and-white film to allow for misinterpretation of lighting or subject type. The safety factor in exposure indexes for the same materials is about two times, since a meter, if properly used, can be more accurate than an estimate. This means that when all picture-taking factors are accurate, exposure can be reduced by these safety factors without loss in quality. In practice, if your negatives are consistently denser than necessary, you can give less exposure than recommended.

Certain overseas magazine articles have changed or disregarded safety factors by giving exposure-index values higher than our recommendations. For example, if the normal safety factor of 2.5x in the daylight rating of 200 for Kodak Royal Pan Film is disregarded, and if the high shutter efficiency at low aperture gives a time twice as long as marked, then an "exposure index" of $200 \times 2.5 \times 2 = 1000$ would be apparently

FILTER FACTORS

If you cannot get a shutter-speed lens-opening combination which will not result in over-exposure, use a light filter. The filter factors for this film are:

Increase normal exposure by filter factor given below:—

| Kodak Filter | Sunlight | | | | | Photoflood | | | | |
|---------------|----------|-----|---|----|---|------------|-----|---|-----|---|
| | K1 | K2* | G | X1 | A | K1 | K2 | G | X1* | A |
| Filter Factor | 1.5 | 2 | 3 | 4 | 8 | 1.5 | 1.5 | 2 | 3 | 5 |

*Correct monochromatic rendering of coloured subjects.



2 secs., f/16 Overcast

justified. Likewise, if some under-exposure is tolerable, even higher "indexes" would suffice.

Obviously, the publishing of a series of exposure indexes for one film and for various situations and quality levels would lead to chaos. Kodak therefore publishes one exposure index per film and light source and this includes the safety factor. The photographer should start with it. The results are usually good, but if a change is consistently indicated, the photographer should make that change. He can assign an "exposure index" that suits his own equipment and requirements. Changing to a higher index will give less exposure. Thus, a change of 2x, that is from 200 to 400, could be tried. This safety factor of course relates only to black-and-white films. Similar remarks apply to photography by artificial light.

PROCESSING

SAFELIGHT FILTER: Kodak Tri-X film is extremely sensitive to light of all colours, and should be handled and developed only in total darkness. However, a Kodak Safelight Filter, Wratten Series 3 (dark green) in a suitable safelight lamp with a

15-watt bulb can be used for a few seconds after development is 50 per cent completed, provided it is kept at least four feet from the film.

RINSING AND FIXING

After development is completed, rinse the film in water or in a Kodak Stop Bath SB-5 for about 30 seconds at 65-70°F. (18-21°C.) with agitation. Then fix it for 10 to 20 minutes at 65-70°F. (18-21°C.) in a solution prepared from Kodak Acid Fixer or from Kodak Fixing Bath F-5 or F-6. Agitate the film frequently while it is in the fixing bath.

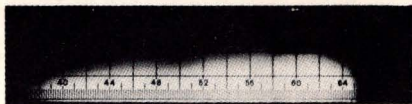
WASHING AND DRYING

Wash the film for 20 to 30 minutes in running water. Wipe the film carefully with a chamois or a soft sponge, and hang it in a clean, dry place until it is thoroughly dry. Drying marks can be minimized by bathing the films in Kodak Photo-Flo Solution after washing and before drying.

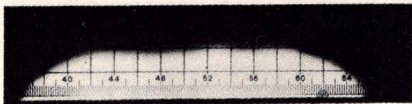
GENERAL CHARACTERISTICS

EXPOSURE INDEXES—Daylight 200, Tungsten 160.

COLOUR BALANCE—Type B panchromatic—high green, low red sensitivity for excellent flesh tones.



COLOUR SENSITIVITY TO TUNGSTEN LIGHT



COLOUR SENSITIVITY TO SUNLIGHT

DEVELOPMENT at 68° F for approximate times given below :

| Kodak Developers | Continuous Agitation (Tray) | Intermittent Agitation† (Tank) |
|------------------|--------------------------------|-----------------------------------|
| Microdol* | 10 minutes | 12 minutes |
| D-76* | 10 minutes | 12 minutes |
| DK-50* | 5 minutes | 7 minutes |
| DK-60a* | 3½ minutes | 5 minutes |

* These developers are available in prepared powder form in several package sizes.

† Agitation at one minute intervals during development.

NOTE : Kodak Developer DK-20 and other developers containing silver halide solvents such as thiocyanates or thiosulphates should not be used as they may form a scum on the surface of the film.

LATITUDE—Extended latitude allows considerable over- or under-exposure and over- or under-development and yet still yields excellent prints.

SCALE—Incorporating improved tone reproduction similar to that in Kodak Royal Pan Film, this new film renders improved separation of shadow tones, with minimized highlight contrast. Excellent prints can be more easily obtained of a wide variety of subject matter.

IDENTIFICATION—An improved new-style backing paper provides greater visibility of the exposure numbers in the ruby window of the camera and also enables the film name to be printed just preceding each exposure number. This feature acts as a reminder as to the type of film in the camera each time you advance the film.

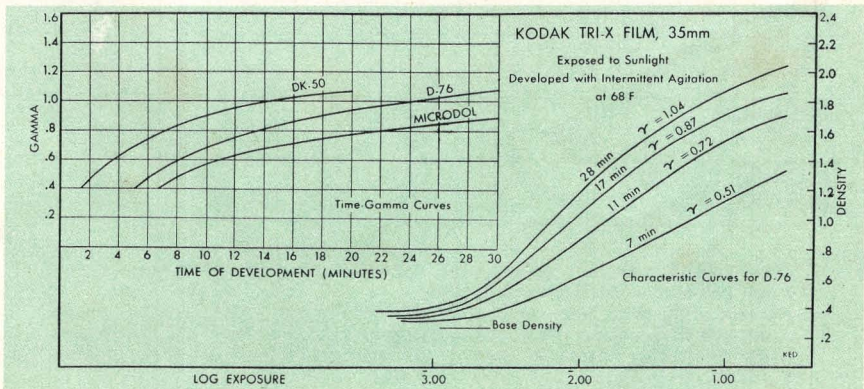
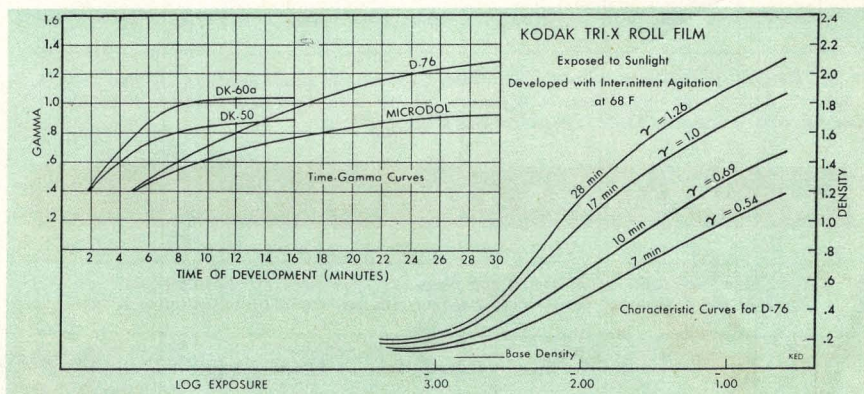
BOX CAMERAS

Used in a non-adjustable, simple camera, Kodak Tri-X film allows you to take pictures earlier and later in the day, back-



1/50 sec., f/8 Late afternoon

lighted subjects, and subjects in open shade or on dull days. Because of the very definite danger of over-exposure on bright sunny days when using Tri-X in such cameras, we suggest that box camera users reserve Tri-X film for use only in dull weather, daylight indoors, or with flash or flood lighting.



FLASH EXPOSURE GUIDE NUMBERS

For satin-finished reflectors use $\frac{1}{2}$ lens opening wider.

| SHUTTER SPEEDS | FLASH BULB TYPES | | | | | |
|----------------|--|--------|------------------------|-------------------------|---------------------|-------|
| | G.E.C. No. 1 P.F.1 G.E.C. No. 3 P.F.3 | P.F.14 | G.E.C. No. 5 P.F.25 | G.E.C. No. 22 P.F.60 | For Focal Plane Use | |
| 1/25 or open | 160 | 200 | 280 | 440 | | |
| 1/50 | 160 | 200 | 250 | 380 | PF.24 | PF.45 |
| 1/100 | 140 | 160 | 200 | 300 | 1/100 120 | 160 |
| 1/200 | 90 | 110 | 140 | 210 | 1/250 90 | 110 |
| 1/400 | 60 | 70 | 90 | 140 | 1/500 60 | 90 |

To determine the lens opening (f-number), divide the guide number by the lamp-to-subject distance in feet, taken to a point midway between nearest and farthest details of interest. In small, white rooms use one stop smaller.

DAYLIGHT EXPOSURE TABLE

*These exposures apply when the films are processed as recommended.
Use the f-numbers shown below with a shutter speed of 1/100 second.*

| | Bright Sun | Hazy Sun | Cloudy-Bright | Cloudy-Dull or Open Shade 4 |
|--------------------|------------|----------|---------------|-----------------------------------|
| LIGHT SUBJECTS 1 | f/32 | f/22 | f/16 | f/11 |
| AVERAGE SUBJECTS 2 | f/22 | f/16 | f/11 | f/8 |
| DARK SUBJECTS 3 | f/16 | f/11 | f/8 | f/5.6 |

1. **Light Subjects** : Distant scenery, near-by people in marine, beach, snow scenes. Light-coloured objects predominating.
2. **Average Subjects** : Near-by people, gardens, houses, scenes not in shade. Light and dark objects in about equal proportions. Use this class if in doubt.
3. **Dark Subjects** : People in dark clothing ; dark foliage, flowers, animals, buildings.