

Flash is Easy



$\frac{1}{100}$ sec. without flash. Scenery properly exposed figure too dark



$\frac{1}{200}$ sec. with electronic flash. Light balanced for figure and scenery

You can get fine pictures with your MINOX right around the clock, because, when daylight or room light is no longer sufficient, you can attach a flash unit to your camera. Even in daylight, you can penetrate deep shadows or lighten scenes by using flash.

The MINOX may be used with any type of flash source connected to the flash nipple of the camera. The shutter has built-in synchronization of the X-type (it "fires" the flash as soon as the shutter release of the camera is pressed).

Flash Source

Synchronized at shutter speeds:

Electronic Flash Units	$\frac{1}{2}$ second to $\frac{1}{500}$ second
Flash Bulbs: SM, SF	$\frac{1}{2}$ second to $\frac{1}{100}$ second
M-2, 5, 8, 25	$\frac{1}{2}$ second to $\frac{1}{20}$ second

A flash unit made by MINOX is expected to become available soon, very complete flash instructions will be issued at the same time.

It's a Colorful World

The 15 mm f/3.5 Complan lens of your MINOX is color-corrected, and has an anti-reflection coating – in other words it is ideally suited for Color Photography.

If you have never taken color pictures before, keep in mind the following suggestions which will help you get fine results from the outset:

Color Film yields the best results in bright or hazy sunlight; on overcast days, results are usually not satisfactory.

Morning and early afternoon hours are the best time for color pictures. At noon the light is usually bluish, resulting in very "cold" colors or an over-all bluish tinge. During the hours just after sunrise, or just before sunset, the light is more reddish, resulting in very "warm" colors.

Watch for the possibility of color reflections (which may not be visible to the eye): A white dress on a green lawn is never pure white, but faintly green.

Color Film does not have as much exposure latitude as black-and-white film. Therefore, use correct shutter speed! The MINOX photo-electric exposure meter is particularly valuable in Color Photography. Even slight deviations from the correct shutter speed may result in false color reproduction.

As a general rule, color pictures are best taken with the sun slightly to one side behind the photographer's back.

If you are seriously interested in all phases of Color Photography, you will find it worthwhile to read one of the many comprehensive books covering this field.

Copying

. . . of documents, drawings, books, etc. is easily done with your MINOX. By using a tripod, MINOX Repro Stand, MINOX Copying Arm, or other means of support, you can conveniently copy such matter, getting as close as 8 inches for largest possible reproduction. Use the special MINOX ASA 5 Micro Grain Copy Film, except when copying photographs or illustrations containing half-tones for which regular MINOX ASA 12 or ASA 25 film is recommended. (See tables showing area covered at various distances, on page 27.)

Changing the Film Type

Some day you may want to take color pictures just when your MINOX is loaded with black-and-white film – or vice versa. Thanks to the MINOX film cassette, it is very easy to “switch” from one film to another at any time.

When you want to change cassettes, “pump” camera once to transport the last-exposed film frame into the take-up end of the cassette. Then remove cassette in the usual manner (see page 10). Note number showing on Exposure Counter; write this number on cassette for future reference.

Before inserting fresh film, set exposure counter at red dot between 50 and 0 – as described on page 9 – and load in the usual manner.

When you re-load the “started” cassette: First set exposure counter three numbers **back** of the number which you noted when you removed the cassette; example: if you took the cassette out at “28”, set counter at “25”. Now insert cassette in the usual manner. Pump camera three times. This takes up any slack in the cassette and gets your MINOX ready for the next exposure.

Remember: Load and un-load only in subdued light, or in the shade.

Picture Series and Sequence Shots

Your MINOX – compact and instantly ready to “shoot” – makes it so easy to get spontaneous, un-posed pictures. Whenever possible take a whole series of pictures to tell a complete story. With a little practice, you can take an entire sequence of pictures within a few seconds; simply keep your MINOX at eye-level and “pump” the camera with your right hand to advance film and re-cock the shutter.

Tele-Photography with the MINOX

There are times when you cannot get close enough to a subject to get a large image on your MINOX film – or, in fact, you may want to remain at a distance on purpose. Your MINOX may be attached to any high-quality binocular with the MINOX Binocular Clamp; focusing and view-finding is done conveniently through one of the binocular eye-pieces while the MINOX is mounted to the other one. If you are interested in wildlife, mountaineering, etc. you will find the Binocular Clamp a valuable addition to your MINOX.

WHAT HAPPENED?

You will find it easy to get the "feel" of your MINOX within a short time, and to get fine results with every picture. If you should have a failure at one time or another, check it against these possible errors and learn to avoid a repetition:

... **IF the principal subject is not sharp**

The distance scale was not set correctly. Always set the distance carefully, especially for close-ups. Use the measuring chain for extreme close-ups.

... **IF pictures look muddy and out of focus**

The lens window probably has a fingerprint or other smudge on it. Clean with soft linen cloth wrapped around a match.

... **IF there are blurred or double outlines**

The camera moved during exposure; (hold camera steady or use tripod for longer exposures), OR subject moved (use faster shutter speed for moving subjects).

... IF a picture is partly blank

One of your fingers covered the lens window. Be sure to keep fingers clear of lens window during exposure – check your “hold”; see page 3.

... IF your film shows irregular spacing or overlapping

Either you forgot to set the exposure counter at the red dot when you started the film, or you did not pull and push the camera ALL THE WAY between exposures.

... IF some of your negatives are very thin, others almost black

Determine correct shutter setting for each picture situation. Use an exposure guide or, better still, the MINOX photo-electric exposure meter.

... IF some prints show more “grain” than others from the same film

Badly over-exposed pictures have coarser grain. Over-exposure is as undesirable as under-exposure. Use an exposure guide or MINOX exposure meter to get correct shutter speed every time.

... IF film has thin horizontal scratches (telephone wires)

Dust is the enemy of your MINOX films. Never keep a film cassette in your pocket without a wrapper. Before loading the camera, blow out any dust particles which may have lodged in the film chambers.

... IF film cassette will not easily drop into camera when loading

The film gate **must be open** when the film is dropped into the camera; be sure to push the camera (with open cover) together about $1/8''$ to open gate. (See page 9.)

... IF the cassette cannot be removed from camera, or if cassette lid lifts out, but the film and container remain in camera

See previous explanation. Film gate must be open when loading or un-loading cassette. Never use force to remove film. Accidentally opened film may be partly saved if it is immediately wrapped in black paper.

- ... IF film cassette does not lie flush in both film chambers, so that back cover of camera cannot be closed

This may happen on rare occasions when the film take-up core rests on the teeth of the transport wheel in the film chamber. Simply lift out cassette, pull camera open all the way, and close again until the film gate opens. Re-insert cassette. Close cover.

- ... IF film shows dark areas along edges at intervals

Either the cassette was handled in very bright light or the film was advanced beyond the red dot before un-loading which may result in light entering through the film slit of the cassette.

Subject/Field Size and Depth of Field Tables.

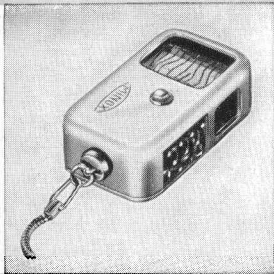
Distance Focused On	Subject/Field Size – inch.	Depth of Field
∞ Infinity	—	12' 8" to ∞
12'	105 x 77	6' 1 1/2" to ∞
6'	53 x 38	4' to 11' 4"
4'	35 x 25 1/2	3' 1/2" to 5' 11"
3'	26 x 19	2' 5 7/8" to 3' 9 1/2"
2' 4 7/8"	20 3/4 x 15	1' 11 7/8" to 2' 11 1/4"
2'	17 1/8 x 12 1/2	1' 8 3/4" to 2' 4 1/2"
1' 8 3/4"	14 7/8 x 10 7/8	1' 6 3/8" to 2'
1' 6"	12 3/4 x 9 3/4	1' 4 1/8" to 1' 8 1/2"
1' 2 3/8"	10 1/2 x 7 1/8	1' 1 1/8" to 1' 3 7/8"
1'	8 7/8 x 6	11 1/8" to 1' 1"
10 7/8"	7 1/2 x 5 3/8	10 1/8" to 11 3/4"
10"	6 3/4 x 4 7/8	9 1/4" to 10 3/4"
8 7/8"	6 x 4 3/8	8 3/8" to 9 1/2"
8"	5 3/8 x 3 7/8	7 5/8" to 8 1/2"

Distances are measured from the **front** of the camera.

Figures in light type apply when distance scale of camera is set exactly half-way between two adjacent engraved distance markings.

For convenient measuring of close distances, the MINOX chain is equipped with beads at 8" – 10" – 12" – 18".

The Exposure Meter



. . . tells you the correct shutter setting for any picture at a glance—and “remembers” the setting until you make the next exposure reading.

What's more, a built-in viewfinder lets you pre-view the picture just as your MINOX camera will see it; thus, you can select the best possible angle every time.

Correct shutter setting means better pictures – pictures with fine highlights, good shadow detail, and every subtle tone of the original scene. Color film, particularly, requires correct exposure to assure proper color values.

Even smaller than the MINOX camera, the MINOX Exposure Meter is a precision built photo-electric meter with a honeycomb light gathering lens for readings over a wide range of light conditions. It has jewel bearings and is shock resistant.

Supplied with a leather case to match your camera case, and with a chrome chain, the MINOX Exposure Meter is the perfect companion for your MINOX camera. It may also be used with other cameras.

Slide Projector Model 30

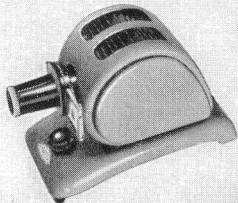
There is no greater thrill than seeing your fine MINOX Color Transparencies projected on the screen. All the subtleties of color are brought out in projection.

The MINOX Slide Projector is especially designed for your MINOX slides. It has an efficient light system, with a 100 Watt projection bulb, silvered concave glass reflector, and aspherical condenser lens; a special adjusting lamp socket permits critical alignment of the filament for even illumination over the entire picture area. Triple-wall construction of the all-metal housing assures free air circulation for complete ventilation of the lighting system. A heat absorbing filter gives added protection to the transparencies during projection.

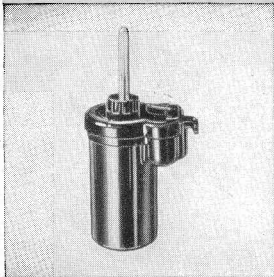
The MINOSTAR f/2.9 35 mm projection lens, in focusing mount, produces brilliant, critically sharp screen images. The MINOX Slide Projector has an attractive, practical, gray instrument crackle finish. Built-in front elevating micrometer screw permits height adjustment to center the projected image on the screen. The projector is supplied complete with an all-metal slide carrier.

MINOX color transparencies for projection in the MINOX Slide Projector should be mounted in MINOX 30 x 30 mm Transparency Mounts; the MINOX Transparency Cutter is a convenient accessory for cutting individual transparencies out of film strips.

The MINOX Projector may also be used with other ultraminiature transparency sizes down to 15 x 15 mm.



Developing Tank



The developing of MINOX black-and-white films becomes a simple and convenient matter with the MINOX Developing Tank.

You need no darkroom. You place the film cassette into the "light lock" of the tank, and twist the tank core to unwind the film inside – that's all. The MINOX Tank Thermometer and your watch are the only other equipment you need.

Pre-measured quantities of MINOX dry chemicals for micro-grain development are available in handy packets, ready for solution in water.

Ask your Dealer to show you the simple operation of the MINOX Daylight-Loading Developing Tank.

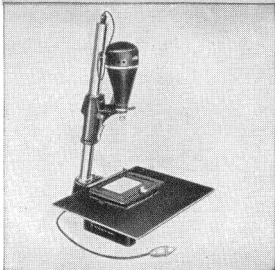
The Enlarger-Copying Stand

While commercial MINOX processing services can give you excellent enlargements from your films, you will get even greater satisfaction and pleasure from your MINOX if you make enlargements yourself. Then you can obtain precisely the results you desire, compose each picture perfectly, and use the paper surface and contrast that best suits the individual subject.

The MINOX Enlarger-Copying Stand is equipped with a light source, condenser unit, and lens system specifically designed for ultra-miniature film; as in the MINOX camera, the film is held in a curved position and the highly corrected 15 mm. f/3.5 lens yields prints of critical sharpness. Enlargements up to 11 x 14 inches can be made on the baseboard, while even greater enlargements are possible by means of an accessory reflex mirror.

With the lamp house removed, the upright becomes the support for a Copying Arm to hold the MINOX, or other cameras, for photographing documents or small objects at close range.

Accessory film carriers permit using the MINOX Enlarger for 8 mm, 16 mm or 10 x 10 mm film sizes.



Shutter guide for outdoor pictures

This simple guide will give you good results from two hours after sunrise until two hours before sunset. For accurate and convenient determination of shutter speeds for all possible conditions, the MINOX Exposure Meter is recommended.

Use the shutter speed shown opposite the **type of subject**, under the prevailing **light conditions**.

Subjects are:

AVERAGE – Nearby people, gardens, houses

LIGHT – People in beach, sea, snow scenes, distant scenery

DARK – People in dark clothing, dark flowers, streets, houses

When in doubt use **AVERAGE** setting.

Light Conditions are:

BRIGHT Sun – Clear Sky strong shadows

HAZY Sun – Soft shadows

CLOUDY Bright – No sun, no shadows

CLOUDY Dull – No sun, dark sky

	Bright Sun	Hazy Sun	Cloudy Bright	Cloudy Dull
ASA 12 Film (Green Label)				
AVERAGE	100	50	20	10
LIGHT	200	100	50	20
DARK	50	20	10	5
ASA 25 Film (Yellow Label)				
AVERAGE	200	100	50	20
LIGHT	500	200	100	50
DARK	100	50	20	10

	Bright Sun	Hazy Sun	Cloudy Bright	Cloudy Dull
ASA 50 Film (Blue Label)				
AVERAGE	500	200	100	50
LIGHT	1000	500	200	100
DARK	200	100	50	20
ASA 100 Film (Red Label)				
AVERAGE	1000	500	200	100
LIGHT	*1000	1000	500	200
DARK	500	200	100	50

* Note: Use green filter

For shutter settings when using Green or Orange Filter, see page 17.

