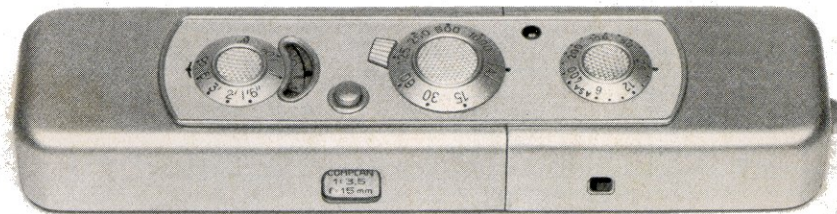


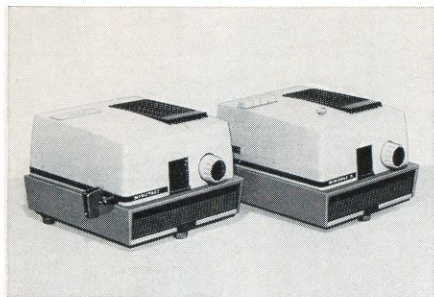
MINOX C Owner's Manual

Before you start reading the Manual, please fold out this, and the last page, so that you can see at a glance which particular dial, window or other part of your MINOX C is being mentioned in the text.



Price 50 cents





For Projection:

MINOTACT: Semi-automatic projector for MINOX 30 x 30 mm slides.

MINOMAT N: Automatic slide projector for MINOX 30 x 30 mm slides.

Other Slide Accessories: MINOX 30 x 30 mm slide mounts; MINOX slide magazines; MINOX transparency viewer/magnifier with film cutter; MINOX projector cases.



For the Home Darkroom

MINOX Daylight Developing Tank: For convenient development of black-and-white films without a darkroom; simple operation. See picture, next to enlarger.

MINOX Enlarger Model II: Brings out the critical sharpness of MINOX black-and-white negatives.

Other Developing Aids: MINOX Ultra-Fine Grain Developer; MINOX Negative Wallets.

Congratulations

Your new MINOX C is a camera to be proud of, a marvel of the space age. Transistors and other solid state components built into its ultra-miniature design put at your command a degree of automation that was almost unthinkable only a short time ago: The combination of an electronic shutter and a highly sensitive CdS (cadmium sulfide) photo resistor cell to determine correct exposure. And all this in a camera which nestles comfortably in your pocket!

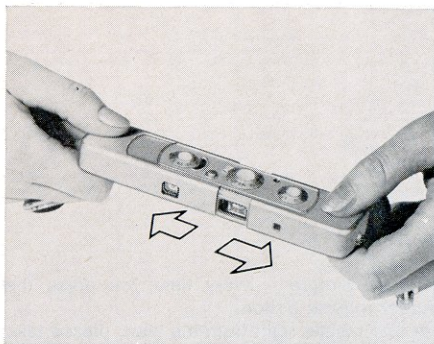
But – don't give a second thought to electronics. Your MINOX C lets you concentrate on the pleasure and excitement of picture-taking with greater ease and simplicity than you had ever imagined, to give you a correctly

exposed picture – every time you press the shutter release button.

For fine results right from the start, please take a few minutes to read the simple instructions on the following pages. The most important pointers are printed, briefly, in bold type; if you want to know more, simply read on.

And, before making any important pictures – of a trip or some special event – it is always a good idea to shoot a cartridge of film outdoors, and with flash indoors. This will give you practice in camera operation and provide a check on your outfit.

But NOW – why not get acquainted with the pleasure and ease of MINOX picture-taking?



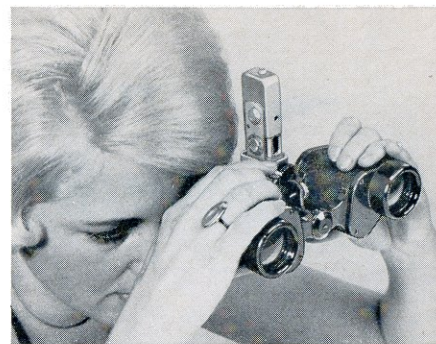
Opening the camera

For picture-taking pull the MINOX C open as far as it will go.

While the camera is closed, the viewfinder and lens windows are protected within the housing, and the shutter release is locked. If, after opening the camera and looking through the viewfinder, you decide not to take a picture, simply close the camera again. This "pre-view" feature of the MINOX C saves film: the film advance can operate only after you have pressed the shutter release button.

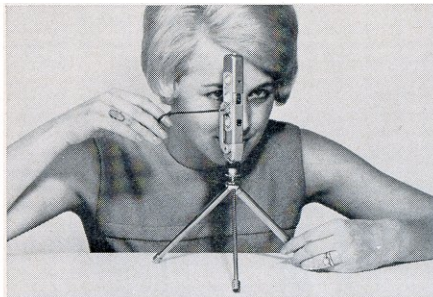
For Tele-Photography:

MINOX Binocular Attachment: Permits taking photographs of distant subjects through binoculars; fits all MINOX camera models.



For Copying:

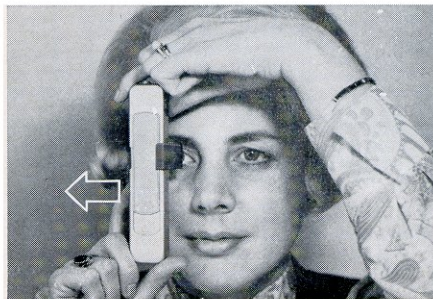
All MINOX models are excellently suited for the copying of letters, documents, sheet music and similar written or printed originals. The MINOX adjustable copy-stand and other accessories are available through your MINOX dealer. Please ask for special folder.



Tripod:

MINOX Camera Clamp: Attaches the MINOX (any model) to a tripod, such as the MINOX pocket tripod.

MINOX Pocket Tripod: Solid three-legged stand with adjustable swivel head and cable release. When not in use, the legs slide all into one for greatest compactness – slightly larger than a pencil.



Finder Attachment

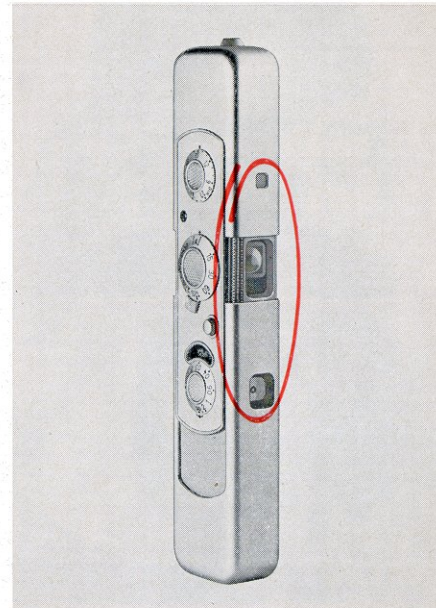
MINOX Right Angle Mirror C: For candid snapshots "around the corner". Fits all MINOX camera models. Mirrors for the MINOX B and III S do not fit the MINOX C.

The three "eyes"

The front of the MINOX C contains (top to bottom in the illustration) the exposure control, viewfinder and lens windows. These three windows must be unobstructed (watch your fingers!) when you take a picture.

If the exposure control window is covered, exposure will be incorrect.

Naturally, the lens window should always be spotlessly clean.



You can spot smudges on the lens window easily if you slide the gray filter (see page 13) into place as a dark background. If necessary, wipe the window gently with a clean (dry!) handkerchief or cotton swab on a stick. Silicon-treated eyeglass tissues are not suitable for this purpose.



Hold it steady

Hold your MINOX firmly, yet relaxed, with both hands. Keep both thumbs on the underside of the camera, other fingers on the dial side so that the exposure control and lens windows are unobstructed.

A steady and firm hold is the best assurance for good MINOX pictures. If the camera moves while you are taking a picture, you are bound to get blurred results.

These illustrations show the most practical way of holding your MINOX for horizontal and vertical shots. You have the best hold when both hands are steadied against your face and you let your fingers press down the camera ends against the thumbs – as if to bend the camera. Your MINOX C can, of course, remain in its eveready case for picture-taking. Simply fold the hinged section of the case all the way back. (See page 26).



MINOX-Accessories

Films

MINOX film is available in many different types for every purpose. The table on the opposite page gives you complete information about MINOX films. Your MINOX dealer will be glad to suggest the proper film for specific purposes.

Flash Units

MINOX C 4 Flash Unit: Extremely compact; for use with flash cubes. Fits the MINOX C and MINOX B, and connects automatically without external cable. See picture on page 24. The MINOX B/C flash unit for AG 1 B flash bulbs, (for MINOX B) and the Cube Flasher for MINOX B may also be used with the MINOX C.

MINOX ME 1 Electronic Flash Unit: Extremely compact electronic flash unit. Flash head plugs directly onto MINOX C or B. Small, slim power pack fits in coat pocket. Adjustable flash power; flash distance indicator. Rechargeable nickel-cadmium battery; up to 160 flashes per charge. See illustration on page 25.

Slip-On Filters

Your MINOX C has a built-in UV and neutral density (gray) filter. Other filters may be slipped on to the camera. The following MINOX C slip-on filters automatically adjust the electronic exposure of the MINOX C. See illustration on page 13.

MINOX C Skylight-Filter (R 3): Eliminates bluish cast in color slides under noonday sky. No exposure correction.

MINOX C Color Correcting Filter R 6: Eliminates bluish cast under blue sky in the shade. Exposure factor 1.5 x.

MINOX C Green Filter: For black-and-white outdoor pictures. Brings out clouds; lightens greens. Exposure factor 2 x.

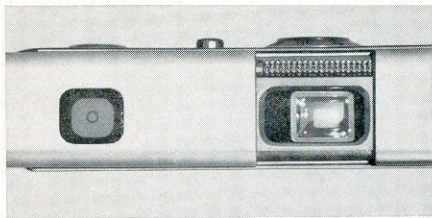
Filter Case: Plastic case for three MINOX C slip-on filters.

Filters for the MINOX B or III S may also be used on the MINOX C; however, the ASA Dial must be adjusted to compensate for the exposure factor.

Taking the picture

When you have framed your picture in the luminous rectangle of the viewfinder, hold the camera steady and squeeze the shutter release button gently.

The shutter release requires only very light pressure and, to avoid jarring the camera, place your index finger close to the release button even before taking the picture and "roll" it onto the button when you are ready to shoot, while holding your breath. Take the camera from your eye only after you've heard the soft click-click of the shutter. (Short exposures sound like a single click.)



Circle in lens window indicates that the MINOX is ready for the next picture

Telescopic rapid wind

After you have taken a picture, 'close' the camera. Then, for the next picture, you pull it open again. With this "push-pull", the film is advanced for the next picture, the shutter re-cocked and the exposure counter moved to the next number – all automatically! However, this occurs only if, before closing your MINOX C, you actually took a picture or otherwise released the shutter.

Just be sure to close and open the camera *all the way* every time.

The small circle in the lens window tells you that the shutter is wound ready for the next picture. The circle disappears after you have released the shutter: Your signal that you must 'push-pull' before taking the next picture.

If you don't want to take a picture after opening the camera, simply close it until the next picture opportunity comes along.

But, if you're in a hurry to take pictures in quick succession: One-two, One-two, One-two! Go ahead – your MINOX can take it.

Care of the MINOX C

Lens window: When reloading, check the lens for smudges or fingerprints and, if necessary, clean carefully.

Housing: Clean the outside of the camera housing occasionally with a soft rubber eraser – no liquids!

Film compartments: When reloading, blow out the empty film compartments; dust particles may scratch the film.

Should salt water ever get into the camera, it can corrode the mechanism. You may perhaps save the camera with this radical treatment: Open the camera and camera back and place in warm tap water; let it cool; remove, shake out water; dry the camera at once near a heater and rush it to our Service Department with the notation: Salt Water Damage.

Hot weather precautions

All films are sensitive to high temperatures before and after exposure. Do not store your MINOX films or your loaded MINOX C in the glove compartment or on the rear window shelf of your car, nor in other places where the film may be affected by excessive heat.



Clean lens window with cotton swab-or with a clean linen cloth wrapped around a match or wood stick.



Eveready case

Before inserting the camera, turn the locking disk on the outside of the case to vertical position. With the lens window to the front and dial side up, slide the camera into the case and, using the external ring in the manner of a screwdriver, turn the locking disk one-quarter turn to the right while holding the camera firmly against the inside of the lock. With the camera locked in, the slot of the locking disk is in horizontal position.

To unlock the camera, turn the locking disk one-quarter turn to the left.

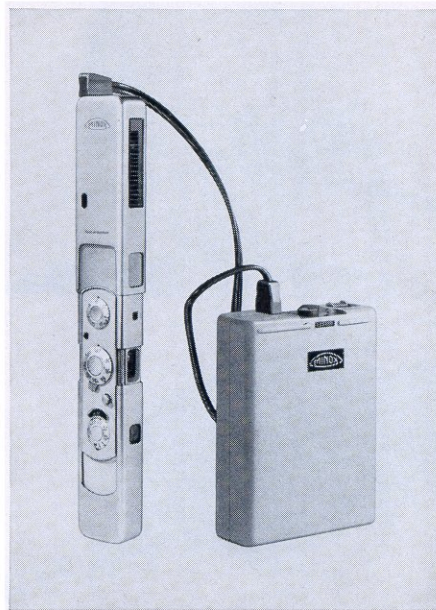
The flat spring clip of the chain snaps into the D-ring of the locking disk.

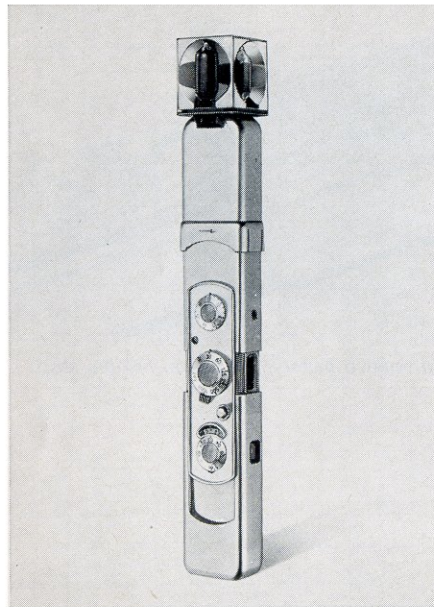
Attach the fastening ring of the measuring chain to a button, belt loop or buttonhole to protect your MINOX C against loss.





and a slim powerpack (only $3\frac{1}{8} \times 1 \times 4''$) which you can slip into any pocket or wear on your wrist or trouser belt; a thin flexible power cable connects the pack to the flash head. The built-in nickel cadmium batteries can be recharged from the nearest 117 volt AC outlet and give you up to 160 flashes without recharging. The flash power of the ME-1 is adjustable to cover a wide range of flash distances; convenient easy-to-read scales tell you the exact setting for different MINOX films. The ME-1 gives you thousands of flashes at minimum cost. Complete instructions are contained in the Owner's Manual accompanying each unit.





Flash pictures

The flash contact of the MINOX C is of the standard PC type, and you may use almost any kind of flash unit with your MINOX C. Just remember to set the shutter speed dial correctly:

For electronic flash – to 1/250 sec or slower;
For flash bulbs or cubes – to 1/30 sec or slower.
Ask your dealer for one of the highly efficient, compact MINOX flash units; their styling matches the camera and they fit snugly onto your MINOX C; they connect automatically.

If you already own a B/C flash unit, Cube Flasher or ME-1 Electronic Flash for the MINOX B, you can also use it with the MINOX C.

MINOX Cube Flasher C 4

This extremely small 1¹/₄ oz flash unit plugs right into your MINOX C and uses convenient 4-shot flash cubes. (See page 33). Complete instructions are supplied with the unit.

MINOX ME-1 Electronic Flash Unit

This unusually compact outfit consists of a tiny flash head which plugs onto your MINOX C,

Set the film speed

Turn the ASA dial to the speed (ASA number) of the film which you are using. The ASA number is shown on every package of MINOX film or on the film instruction sheet. The setting of the ASA dial takes care of correct exposure automation.

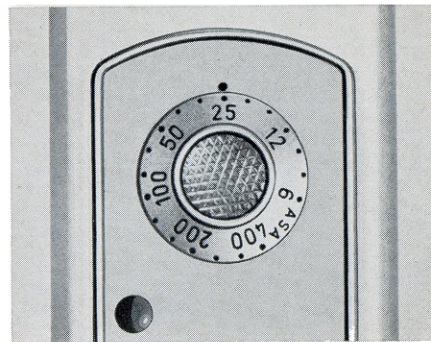
Films of moderate speed yield the best MINOX pictures: MINOX ASA 25 black-and-white film; ASA 20 Color Negative (CN 14) film for color prints; ASA 20 MINOCHROME film for color slides. Exposures with these films in sunny daylight are between 1/100 and 1/1000 sec.

You may also use the ASA dial to obtain intentionally longer or shorter exposures than would result from normal exposure automation. (See following page).

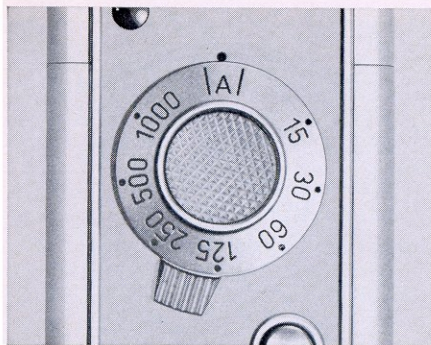
ASA dial settings

The ASA dial of your MINOX C shows the values listed below in bold type; the intermediate values are indicated by dots on the dial.

6	12	25	50	100	200
8	16	32	64	125	250
10	20	40	80	160	320
12	25	50	100	200	400



ASA film speed dial—set for ASA 25 film



Shutter speed dial set for Automatic Exposure

Exposure automation

Turn the shutter speed dial to "A" (Automatic Exposure). With this setting, your MINOX C automatically determines correct exposure and simultaneously adjusts the shutter for any speed from 1/1000 sec to about 7 seconds.

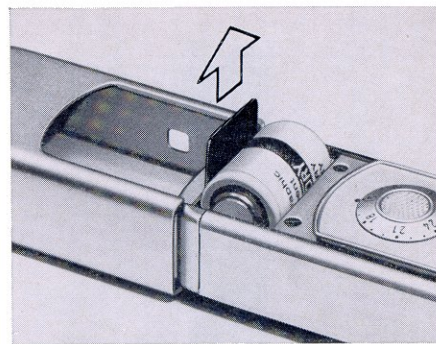
The exposure automation of your MINOX C is based on the combination of a highly sensitive CdS (cadmium sulfide) photo resistor cell with an electronic shutter; the system is stepless through a wide range of shutter speeds, extremely accurate and reliable.

If, for any reason, you want to obtain a longer or shorter exposure intentionally, you can do so by changing the ASA dial setting before taking a picture. To double the exposure time, turn the ASA dial three 'dots' lower (example: ASA 400 to ASA 200): to cut exposure time in half, turn the ASA dial three dots higher (example: ASA 100 to ASA 200). Doubling of the normal exposure time is, typically, advisable for pictures of people in dark clothing in snow pictures. After such a picture with "corrected" setting, always return the ASA dial to the actual ASA number of the film.

Battery

With normal use, the Mallory PX 27 battery of the MINOX C will last for a year. To replace battery: Open the camera, as for film-loading (see page 20); pull up on the flexible strip of the battery chamber and remove battery. Insert fresh Mallory PX 27 (or equivalent) battery, making sure that + and — poles of the battery are in the position indicated on flexible strip.

An occasional battery test — during a film change — is advisable: Set the shutter speed at 1/1000 and press the shutter release button. If the small circle in the lens window indicates that the shutter did not operate, the battery must be replaced. (It may still operate at slower speeds but the battery is close to exhaustion). The electronic circuitry of the MINOX C shutter assures that automatic exposures are correctly timed as long as the battery has sufficient power to actuate the shutter. Therefore, wrong exposures due to near-exhaustion of the battery cannot occur.



To remove battery, pull up on flexible strip.

Un-loading

Watch the exposure counter! After the final exposure, push-pull the camera twice (no more!) while holding down the shutter release button. (The exposure counter then stands at the red dot between 0 and 36.)

Open the camera back. With slight tapping of the camera, the cartridge will drop into your hand; or it may be lifted out by its bridge.

Place the exposed cartridge in a film box or wrap it in dark paper until it is developed.

As the exposure counter now stands at the (red dot) loading position for 36-exposure cartridges, you can insert a fresh 36-exposures film without further adjustments.

If the next film is in a 15-exposure cartridge, set the exposure counter to the red line between 20 and 15 before inserting the film. (see page 20).

Long exposures

Under unfavorable light conditions, you can determine *before* you take a picture if the necessary exposure would call for a tripod or other firm support, or the use of flash:

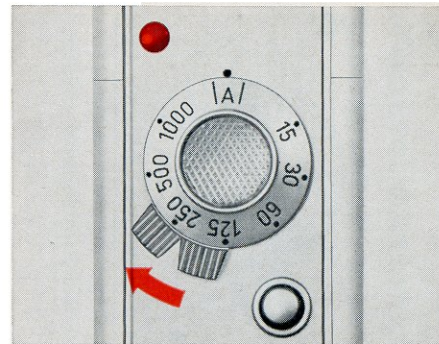
With the shutter speed dial set to A (Automatic Exposure) point the camera, at waist level, towards the scene or subject; push the ribbed check switch, at the shutter speed dial, all the way towards the back of the camera.

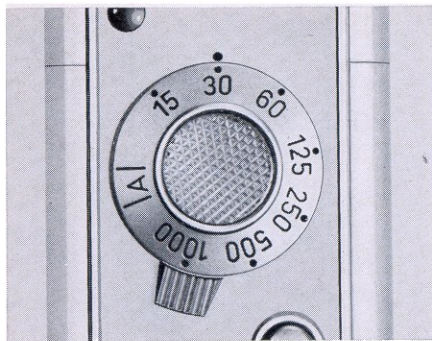
If the slow-speed signal lights up, the exposure will be longer than 1/30 sec.

For best results under unfavorable light conditions, use a MINOX tripod (page 30) or place the camera on any available firm support. In a pinch try holding your MINOX steady by leaning your elbows on a table or other firm surface, or against a wall. For indoor pictures, it is best to use flash (page 24).

To avoid unnecessary battery drain, switch on the slow-speed light signal only briefly.

You can check the signal light while the camera is closed or when it is open in "ready" condition; if the small circle is not in the lens window, close the camera before using the check switch.





Automatic Exposure switched off; shutter speed dial set at $1/30$ sec.

Manual exposure setting

To take pictures without automatic exposure, you can set your MINOX C manually for shutter speeds from $1/15$ sec to $1/1000$ sec: Simply turn the shutter speed dial to the desired speed. The engraved figures are fractions of a second ($30 = 1/30$ sec.).

Be sure to return the shutter speed dial to "A" when you want to use automatic exposure.

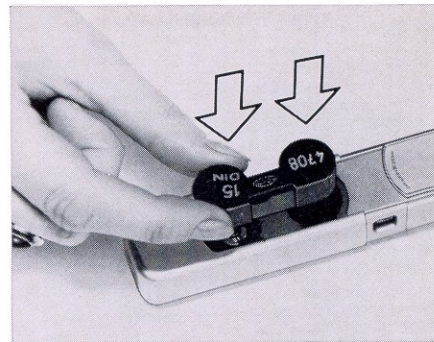
Manual speed settings are important for taking flash pictures. For flashing with AG-1 B flashbulbs or flash cubes, use $1/30$ or $1/15$ sec; for electronic flash units, $1/250$ or slower. More about flash on pages 24 and 25.

With manual settings, the shutter speed is still accurately timed by the electronic shutter; only the CdS cell is switched off.

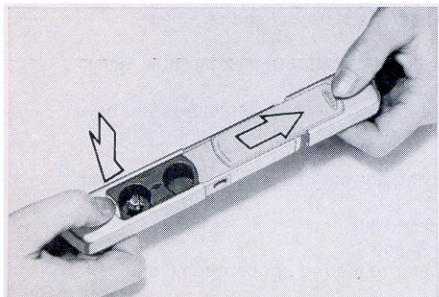
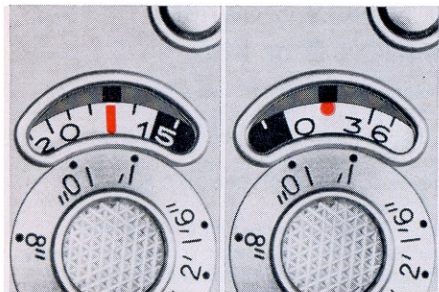
While exposure automation is stepless (exposure may be $1/280$ sec, for instance), manual settings are possible only for the exact, engraved, shutter speeds; intermediate values cannot be set. If the dial should accidentally be set between engraved values, the shutter will operate at the nearest adjacent speed.

The exposure counter now stands at '36' or '15' depending on the original film loading setting.

Set the ASA dial for the correct film speed.



On very rare occasions the film cartridge may not drop flush into the camera so that the back cover cannot be closed. (This is not your fault nor a defect.) It may occur if the take-up core of the film cartridge happens to rest exactly on the teeth of the transport wheel in the film compartment of the camera. Remedy: Lift out the film cartridge and, with your fingertip, turn the triple-tooth transport wheel in the camera film compartment slightly further clockwise; then re-insert the film and close the camera back cover.



Loading with film

Always load – or unload – the MINOX in subdued light, or in the shade; if there is no other shade, turn your back towards the sun.

Set counter to “loading” position: While holding down the shutter release button, ‘push-pull’ the camera until the exposure counter is set for loading position.

For 36-exposure cartridges: set to red dot between 0 and 36. (illustration at near left).

For 15-exposure cartridges: set to red line between 20 and 15. (illustration at far left).

Open camera back: Pull camera ‘out’. Press down on crescent-shaped snaplock on underside of camera and slide open the back cover all the way until both film compartments are free. (illustration 3).

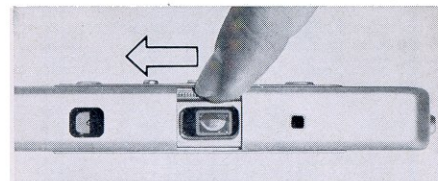
Insert cartridge: Drop the cartridge into film compartments and close the back cover until it snaps shut. Hold down the shutter release button while you ‘push-pull’ twice.

Filters

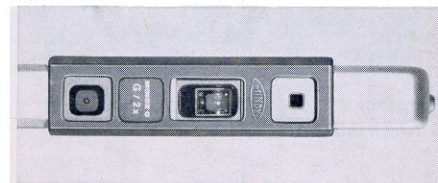
For very bright scenes (beach in brilliant sun, glaciers, snow in high mountain areas, etc) or for faster films (ASA 50 or more), even 1/1000 sec may produce over-exposed pictures. Under such conditions, simply push the ridged filter slide above the viewfinder all the way towards the lens window.

The gray filter increases the required exposure by about 4 to 6 times. A possible 1/4000 sec – which is beyond the MINOX speed scale – thus becomes approximately 1/800 to 1/1000 sec; the shutter automation compensates for this factor, and requires no further adjustments. Without having to think about it, you are using a second filter with every exposure in your MINOX C: The lens window is a UV (ultra-violet) filter which requires no exposure correction.

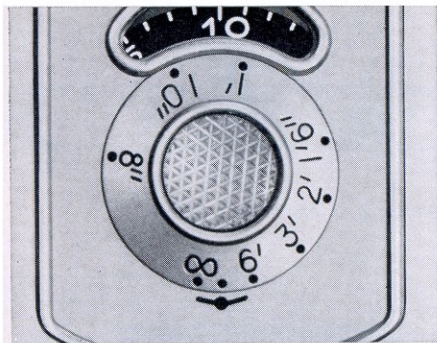
For special effects with black-and-white films and for color correction with color films, you may use special MINOX C slip-on filters, (Illustration at right; complete list on page 28), which also correct the exposure automation when in use.



Sliding gray filter into position



MINOX C slip-on filter



Snapshot setting; range of sharpness from 6 ft to Infinity ∞

Distance setting

The distance scale is calibrated from infinity (∞) to 8 inches. To set, rotate the dial until the desired distance is at the black dot in the middle of the small bracket. The bracket indicates the range of sharpness at each setting. Example: With the scale set at the red dot (12 ft.) you have a universal snapshot setting with sharpness from infinity (∞) to 6 ft.

For landscapes with no important foreground closer than 12 ft., use the infinity (∞) setting. The following "standard" settings are also useful: With scale set at 6 ft., you get sharpness from 4 ft. to 11½ ft. – With scale set midway between 3 ft. and 6 ft., sharpness extends from 3–6 ft., fine for medium close-ups of people. For subjects closer than 2 feet, always use the measuring chain (see following page).

Important information for MINOX C owners accustomed to using a MINOX B or III S

In addition to electronic exposure automation, your MINOX C has a number of other new features for easier operation. Please note particularly:

Automatic film gate opening. When you change films, you no longer need to 'close' the camera 1/8" to open the film gate.

For loading or unloading, simply slide the back cover of the MINOX C open all the way – and the film gate is opened automatically.

"Free-wheeling". In the MINOX C a "push-pull" operates the film advance and exposure counter only if the shutter was released. (Advantage: You don't lose any film if you change your mind after looking through the viewfinder and decide not to take a picture.) However, you must hold down the shutter release button while you "push-pull"

- for the two "blank" film advances at the start and end of a film;
- to set the exposure counter.

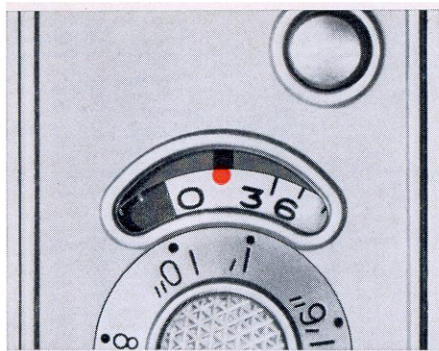
"Count-down" exposure counter. You no longer need to remember how many exposures you can get on the film which is in the camera:

The MINOX C exposure counter does not indicate how many pictures you have already taken, but how many more you can still take. With the counter at 0, the film is used up.

You merely set the exposure counter for the correct film length **when you load the film** into the camera:

- 36 exposures: red dot between 0 and 36;
- 15 exposures: red line between 20 and 15.

The film is always removed with the counter at the red dot between 0 and 36.



The exposure counter

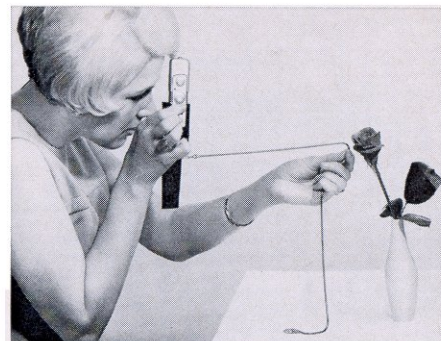
The numbers and scale lines of the MINOX C exposure counter indicate how many more exposures you can still make on the film. Before you insert a new film cartridge, the counter must be set to a definite loading position. (see page 20).

All MINOX films are available in 36-exposure cartridges, some also in 15-exposure cartridges. 15-exposure cartridges are used only within the dark counter scale with white numerals.

Extreme close-ups – Measuring Chain

At distances of 2 feet or less, the range of sharpness becomes small; close distances must be set carefully on the distance scale. Use your MINOX camera chain for measuring: With the chain in the camera socket held taut and at right angles from camera to subject, the chain beads indicate distances of 8, 10, 12 and 18 inches; the full length chain measures 24 inches.

After measuring, set the distance on the distance dial of camera. To take the picture, hold the chain at the appropriate bead and extend it once more to the subject to re-establish the correct distance; then S-T-A-Y at that distance, lower the chain and release the shutter. When using a measuring tape or rule instead of the chain, measure the distance from the front of the camera.



No F-stop setting

The aperture (f-stop) of the highly corrected MINOX 15 mm f/3.5 Complan lens always operates "wide open" – there is no f-stop scale.

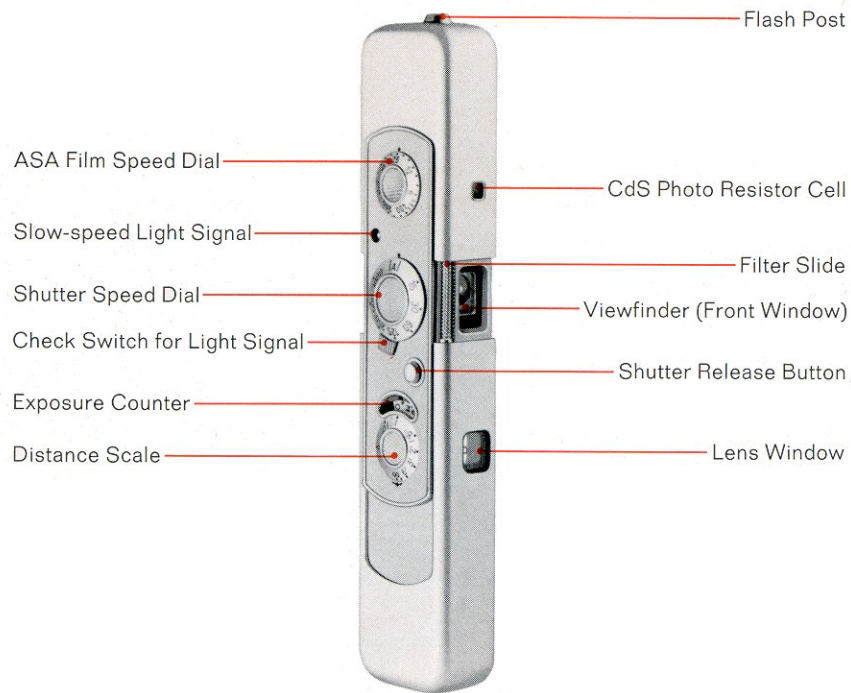
This is another great MINOX advantage: The lens of your MINOX C has a great range of sharpness (see Distance Setting) and always works at its full f/3.5 opening! Exposure is controlled solely by the shutter speeds which – because of the large lens opening – are always relatively short.

Viewfinder

The bright luminous frame within the viewfinder shows you the exact picture area that will appear on your film.

The viewfinder image is automatically corrected, at all distances, to be identical with the film image. (Parallax Compensation). At extremely close distance (8–10 in.), the film image is slightly smaller than the viewfinder image – by about one frame-line width on all sides within the luminous rectangle.





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Technical Information

MINOX C Ultra Miniature Camera

MINOX C Models:

171-017 MINOX C, chrome finish

171-018 MINOX C "Private Eye" - black finish

Negative size: 8x11 mm

Film: MINOX films in daylight loading 15-exposure or 36-exposure cartridges.

Film advance: By telescopic (push-pull) rapid wind, coupled with shutter cocking. Film advance operates only after shutter has been released.

Film pressure plate: 750 grams pressure. Film gate opens during film advance and when camera back is opened.

Shutter: Electronic sliding double-blade shutter with two electro magnets, four transistors and two diodes. Automatic exposure range: 1/1000 sec. to approx. 7 seconds.

Manual exposure range: 1/1000 sec. to 1/15 sec.

Battery: One Mallory PX 27 (5.6 Volt) battery for exposure automation, electronic shutter and slow-speed signal light.

Exposure automation: Cadmium sulfide (CdS) photo resistor cell controls the electronic shutter during exposure. Slow-speed signal for exposure longer than 1/30 sec. Filter factors are automatically compensated. Film speed range: ASA 6 to AS 400.

Lens: 15 mm f/3.5 4-element objective; coated; always at fully-opened aperture. Focusing range: 8 inches to infinity (∞).

Filters: UV filter used as lens window. Built-in neutral density (gray) filter, movable. Other filters available as slip-on filters.

Sun shade: Built-in.

Viewfinder: Luminous frame finder with automatic parallax compensation.

Exposure counter: Counts down from 36 to 0.

Distinctive, dark scale from 15 to 0 for short films.

Flash contact: Standard PC type.

Flash synchronization: X for all speeds up to 1/250 sec. with electronic flash units; up to 1/30 sec. with flash bulbs and cubes.

Length (closed): 4 $\frac{3}{4}$ "

Length (open): 5 $\frac{1}{8}$ "

Width: 1 $\frac{1}{8}$ "

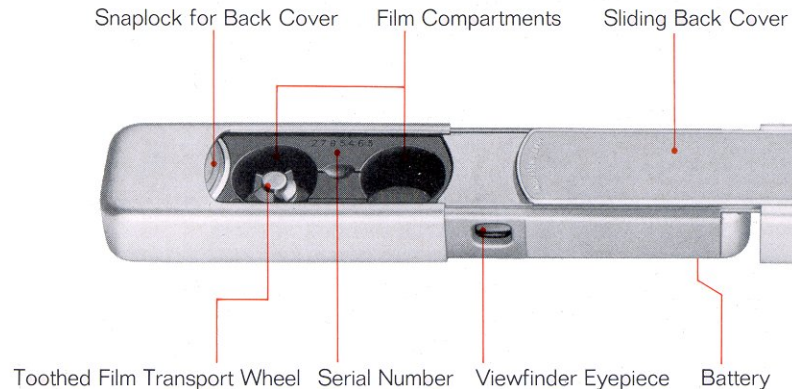
Height: $\frac{5}{8}$ "

Weight: Camera only, 3 $\frac{1}{2}$ oz.

Camera with battery and film, 4 oz.

Service: The MINOX C is guaranteed to the original registered owner as shown on the guarantee card supplied with each new camera.

If it should be necessary to send your MINOX for adjustment or repair, wrap it carefully and mail it, together with your guarantee card and a note explaining the trouble encountered, to: MINOX Department, Photo-Tech Repair Service Inc., 78 East 13th Street, New York, N.Y. 10003.



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