

MINOX 110 S Instructions

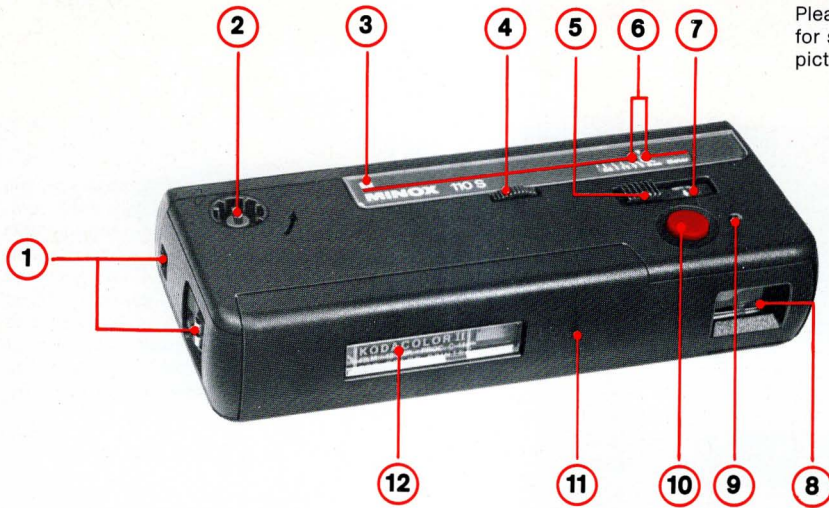


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Regardless of what page you are reading you will always have the reference pictures with their reference numbers (as they are used throughout this booklet) in front of you. On pages 4 and 5 you find "the most important points in brief". If you have any questions while reading these two pages, or if you would like to know more about the features and functions, or the photographic possibilities of your Minox 110 S, please read the detailed instructions which also contain detailed reference pictures. They start on page 6.



Please fold out page 27
for second reference
picture.



- 1 Connection for Minox electronic flash unit F 110
- 2 Flash cube socket (coupled to film advance)
- 3 Aperture window

- 4 Aperture setting wheel
- 5 Focusing slider
- 6 Automatic depth of field indicator on distance scale
- 7 Distance scale selector for meter/feet indication

- 8 Viewfinder eyepiece
- 9 Cable release socket
- 10 Shutter release button
- 11 Camera back
- 12 Film identification window

The most important points in short

The following instructions assume that the batteries are inserted correctly and that they check out satisfactorily. (For battery test see page 7).

Protective front covers

The camera functions only after the protective front covers are fully opened. To open: slide release lever (21) to front of camera; to close: slide it backwards.

Film loading and unloading

Loading: operate camera back release (19) and open camera back (11). Drop in film cartridge. Close camera back. Press shutter release button. Advance rapid winder (18) several times until film stops at picture No. 1.

Unloading: after the last exposure advance rapid winder several times until it comes to a stop. Open camera back (11) and take out film cartridge.

Film advance

After each exposure advance rapid winder (18) completely twice.

The most important points in short

Daylight pictures

Exposure: set aperture wheel (4) to the desired aperture. The selected aperture is visible in a aperture window (3) on top of the camera and in the viewfinder (8). After depressing the shutter release button slightly an arrow may light up in the viewfinder, in that case, turn the aperture wheel in the direction of the arrow until the arrow disappears. If the bright yellow arrow stays on at full opening, f/2.8, it means that exposure time is too long to take hand held pictures. A tripod or flash should be used.

The correct exposure time is set automatically including time exposures at full aperture.

Distance: Move focus slider (5) until the principle subject in the picture can be seen without double images in the center of the viewfinder or move focusing slider (5) to such a position that the two red lines in the automatic depth of field indicator (6) cover the desired range of sharpness.

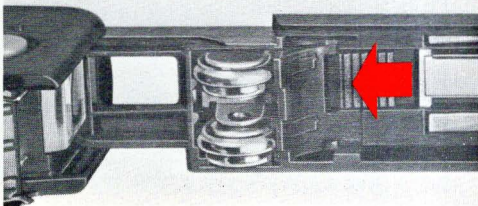
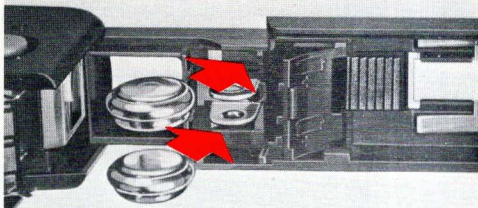
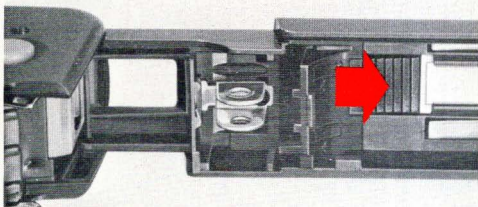
Flash pictures

Rotate aperture wheel (4) beyond the click stop at f/2.8 until it reaches the flash symbol. Insert Magi-cube into the flash socket (2) or attach Minox Electronic Flash unit F 110 to the connections (1) on the left side of the camera.

Maximum distance for Magi-cubes is approximately 25 feet and for the F 110 flash unit about 15 feet.

If possible, focus on the most important subject in the picture (no double images). The aperture is set automatically for the distance focused and for the flash unit used (Magi-cube or F 110).

Note: The release button cannot be depressed when all sides of a flash cube are used and the flash cube is still in the flash socket. The Magi-cube cannot be inserted if the aperture wheel has not been rotated to flash symbol.



Batteries

The shutter and the illuminated indicators (long exposure time warning or overexposure warning) work only if two batteries of the correct type are inserted correctly in the battery chamber. Used batteries, or batteries that have been stored for an excessively long time do not work.

Recommended battery: Mallory MN625, Varta 7203, Varta 246

Insertion of batteries

Open camera back by pressing slider (19) to the right against its spring tension. The camera back opens to a position which is approximately at right angles to the camera. Open battery chamber by sliding battery chamber slide lever (on the inside of the camera back) towards the long narrow film window. Clean both round sides of the battery with a piece of rough cloth (sleeve of jacket, etc.). Insert batteries into chamber, one above the two metal contacts and one below. The battery side marked with "+" (positive contact) has to point towards the bottom of the camera for both batteries. Correct positioning of "+" and "-" sides is also indicated on the battery chamber slide lever. Move lever back towards batteries and close camera back.

Battery test

The clicking noise when releasing the shutter does not necessarily indicate that the shutter is functioning correctly. It is, therefore, very important that the batteries are tested before film is put into the camera.

The protective front covers must be closed and the film transport must be advanced before the batteries can be tested. (see also pages 8 and 11.)

Push front cover release slider (21) against spring tension in the direction of the tripod socket (20). Batteries are sufficiently strong and have good contact inside the camera if the battery test light in window (23) lights up and stays lit even when the slider is held in that position for a few seconds.

Weak batteries should be removed from the camera immediately. (Slide battery chamber slider towards film window and let batteries drop into your hand.) This procedure should be followed even if no new batteries are available and fresh batteries have to be inserted later. Even new batteries should be removed from the camera if the camera is not to be used for a long time.

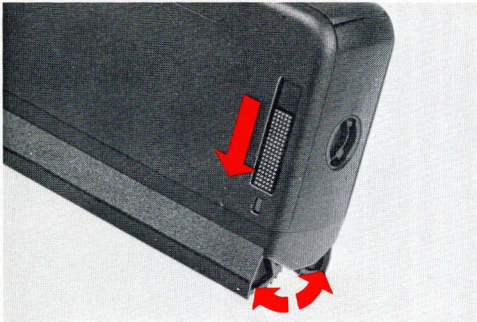
The battery test does not indicate how long the battery will last. We, therefore, recommend that both batteries be replaced with new ones at least once a year even if the battery test shows that the bat-



teries are still strong. Both batteries should be replaced at the same time.

With batteries inserted the camera is fully operational even without film. You should use this feature to familiarize yourself with the camera functions before you put in your first film.

Opening and closing of front covers



Slide lever to front: front covers open

When the front covers are closed they protect the lens, CdS cell, viewfinder and rangefinder windows against dust and finger prints. They should only be opened when taking pictures.

When the front covers are closed you can test the batteries, you can advance the film, and you can set aperture and distance, however, all other functions are locked. You can release the shutter only when the front covers are fully opened.

To open front cover: slide lever (21), located on the right side under the camera, toward the front of the camera.

To close front covers: slide lever (21) back towards the back of the camera.

It is not harmful to the camera if you close the covers without using the lever (21).

Viewfinder

The brightline frame in the viewfinder indicates the picture area. The viewfinder features automatic parallax correction. The brightline frame which is coupled to the rangefinder shows you the correct picture area even for close ups.

The selected f-stop is not only visible in the aperture window on top of the camera but also appears in the viewfinder below the brightline frame. Three f-stop values are represented by dots in order to make the scale less crowded, they are 2.8 between flash symbol and 4; 5.6 between 4 and 8; and 11 between 8 and 16.

Under certain light conditions a red arrow appears to the left of the f-stop indication in the viewfinder. It warns against overexposure (page 15). A yellow arrow may appear to the right of the f-stop indication. It indicates the need for longer exposures that can be hand-held (page 16). In the center of the viewfinder you can see the bright measuring area of the rangefinder (page 12).



Your picture will show whatever is within the outline of the brightline finder at the time of exposure. In the picture above the selected aperture is 5.6 (dot between 4 and 8). The bright area in the center is the measuring patch of the rangefinder.

Correct holding of camera

Hold the camera tight and securely. To compensate for the pressure of tripping the shutter release, button, press your thumb against the bottom of the camera. This will reduce the possibility of a blurred picture.

Be careful while taking a picture that your fingers are not obstructing the lens or meter cell.

Releasing the shutter

After selecting your picture area with the help of the brightline frame, depress the red release button until you feel a slight resistance and then gently increase the pressure of your index finger until you hear the clicking of the shutter. Let go of the release button only after the exposure is completed.

If an arrow appears in the viewfinder when the initial pressure point is reached there is a danger of overexposure (page 15) or of blurring a picture when taking it hand-held (page 16).

When using longer exposure times (for example when the camera is placed on a sturdy support or on a tripod) wait for the second "click" (which indicates the automatic closing of the shutter) before you let go of the release button. Removing your finger pressure from the release button too early means that the exposure will be terminated too early.

The exposure button is locked:

- When the protective front covers are closed (no picture in viewfinder)
- When the film has not been advanced
- When all exposures on the film have been taken
- When a flash cube is inserted but the bulb in the ready position has already been fired.

Film advance

Wind the rapid winder (left on front of camera) twice after each exposure.

If you inadvertently do not complete one of the two strokes you may complete the film advance by partially winding a third time.

On the right side of the long and narrow film window in the back of the camera, you can see the number of the picture you just took or are about to take.

The appearance of the next number in the film window does not necessarily indicate that the film advance has been completed. Always advance until the winding lever comes to a stop.

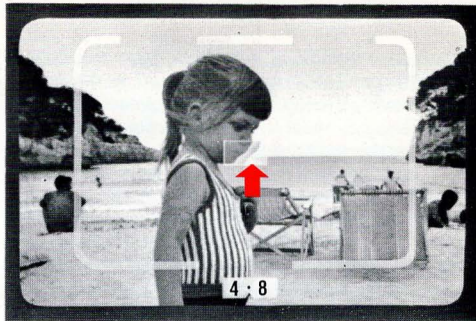
Before the first exposure and after the last one continue advancing the film until you come to an automatic stop even if it takes more than two winding strokes.

When trying out your camera (without film) you need to advance the rapid winder only once rather than twice in order to release the shutter.



Distance scale

The Minox 110 S features two distance scales, one calibrated in meters and one calibrated in feet. However, only one scale is visible at a time. To switch from one scale to the other: move focusing slider to the left (indicator points to infinity) then insert fingernail, tip of ball point pen, or similar tool into indentation at foot of arrow and move sliding insert up or down depending on the direction indicated by the arrow.



Focusing

Focusing range: 2' to infinity. The correct distance is set with the focusing slider which is located behind the distance scale. The white triangle in front of the distance scale serves as an index mark.

You will probably seldom use this as your Minox 110 S has a built-in rangefinder plus an automatic depth of field indicator.

Rangefinder

Split images of your principle subject in the bright rectangle in the center of your viewfinder indicate that the camera is not focused on that subject. Move focusing lever until both images merge into one.

Focusing is easiest on an edge which separates a very light area from a very dark area. Depending on the shape of the light/dark edge you may find it easier to hold your camera perpendicular to it while focusing.

Depth of field

The gap in the red line above the distance scale automatically indicates the depth of field for the aperture selected.

Example: the aperture selected is $f/8$. Move focusing slider until the right side of the gap coincides with the infinity mark on the distance scale. The left side of the gap now points to about 7'. This indicates that the zone of sharpness stretches from about 7' to infinity. (see illustration on top)

It is not recommended to use the above method when photographing landscapes because the main subject is optically located at infinity. For pictures of landscapes set the white triangle at the infinity mark. The left side of the gap indicates the distance at which the area of sharpness begins. Example: At $f/11$ and with white triangle pointing to the infinity mark the depth of field starts at 10'. (see illustration on bottom)

The automatic depth of field indicator is also operative when you use flash, even though the aperture is not set manually but automatically by the flash. (see page 19)



TOP: Setting for maximum depth of field

BOTTOM: Infinity setting for landscapes

Automatic exposure

The electronic shutter automatically sets the correct exposure time for all exposures without flash depending on the brightness of the subject and depending on the aperture selected. The automatic exposure system takes also into consideration future films with higher ASA ratings (approximately 27 DIN/ASA 400).

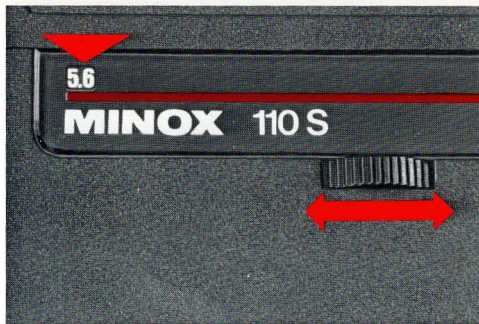
Exposure times are continuously variable from 1/1000 of a second to about 4 seconds.

Aperture setting

For daylight exposures without flash you can set apertures from 2.8 to 16. Just rotate the aperture setting wheel, located on the top of the camera, until the desired aperture is visible in the aperture window above the letter «M» of the Minox name. The same aperture is also visible on the bottom of the viewfinder image (f stops 2.8, 5.6, and 11 are represented by dots).

A small aperture (for example 11 or 16) results in a greater depth of field range than a larger aperture (such as 2.8 or 4), but it also necessitates a longer exposure time.

The most convenient method of taking pictures in bright daylight is as follows: select a medium aperture – 5.6 or 8 – and leave the rest to the automatic exposure system.



Aperture selection

You need to change the selected aperture only, when the automatically indicated depth of field range is too small (switch to smaller aperture),

when you need the shortest exposure time possible for a moving object (switch to larger aperture),

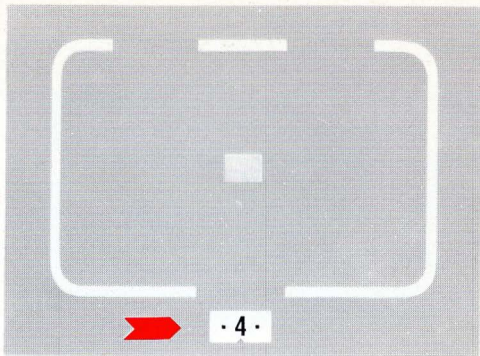
when an arrow lights up while you are depressing the release button which means that a different aperture is recommended.

If you use the depth of field indicator instead of the rangefinder remember that any change in aperture causes the depth of field range to change (keep an eye on the automatic depth of field indicator).

Lighted arrows in the viewfinder

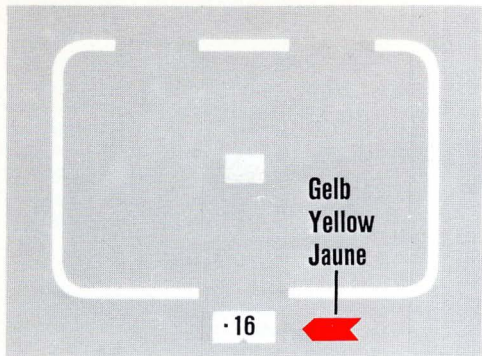
When observing your subject through the viewfinder and while depressing the red shutter release button to the initial pressure point, a red arrow may light up to the left of the f-stop number on the bottom of the viewfinder image, or a yellow arrow may light up to the right of that number. The appearance of an arrow indicates that the selected aperture is not favorable under the existing light conditions. In such a case turn the aperture wheel in the direction indicated by that arrow until the arrow disappears.

Please note that an arrow will only appear if the camera is ready to shoot, that is, when the front covers are fully opened and when the film has been properly advanced.



Overexposure warning

Light red arrow (see picture above) indicates that even the shortest automatic shutter speed (1/1000th of a second) would be too long for the aperture selected. Do not release the shutter as the picture would be overexposed. Simple remedy: use smaller aperture (rotate aperture wheel in direction of arrow).



Long exposure warning

Yellow arrow on right side (see picture above): The necessary exposure time is longer than 1/30th of a second. There is the danger of blurring the picture if the camera is hand-held without flash.

Use a larger aperture by rotating the aperture wheel in the direction of the arrow until the arrow disappears. If the yellow arrow does not disappear at the

largest aperture (2.8) light conditions are such that hand-held exposures at 1/30th of a second or shorter without flash are not sufficient. However that does not mean that you cannot take a picture. You have two choices:

1. **You can use flash:** A Magi-cube or the Minox electronic flash unit F 110. To use flash, rotate the aperture wheel beyond the click stop at f/2.8 to the flash symbol. More about flash on page 19.

2. **Expose longer than 1/30th of a second.** The automatic exposure control chooses correct exposure times up to 4 seconds. Correct exposure, therefore, is no problem. You just have to make sure that the camera does not move during the exposure by putting it on a tripod (page 22), on the edge of a table, or by holding it against a door jamb or tree. Take your finger off the shutter release button only after you have heard the second «click». Normally long exposures are only used when static subjects are photographed.

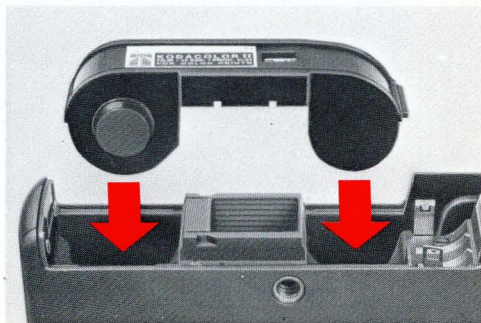
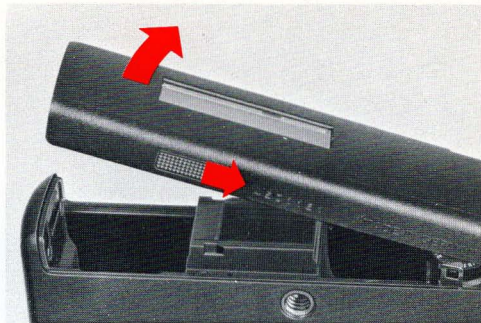
Film loading

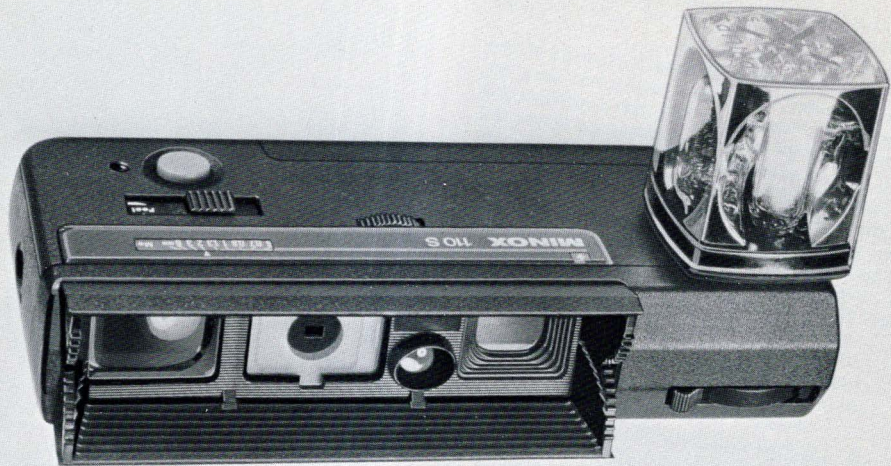
The Minox 110 S takes all film cartridges with the format designation 110. Most 110 films are available in 12 or 20 exposure cartridges.

Slide the camera back release against its spring tension and swing the camera back open. Drop the cartridge into the camera. This can only be done correctly. It does not fit any other way. Close the camera back. It snaps closed by itself. If the shutter is cocked (rapid winder cannot be advanced) press the shutter release button. Then advance the rapid winder several times until it stops. You can now see exposure number 1 in the film window on the back of the camera. The camera is now ready for action.

Film unloading

If you advance the rapid winder twice, as usual, after the last exposure on your film you will find that the shutter release is locked. Arrows in the film window tell you to advance the film to its end where the rapid winder stops automatically. At this point nothing is visible in the film window (no numbers, arrows, etc.). Open the camera back, and take out the film cartridge.





Flash pictures

For flash pictures with the Minox 110 S you have two choices: X-cubes or the Minox electronic flash unit F 110. The Minox 110 S is automated to a high degree for flash pictures. When you turn the aperture wheel beyond 2.8 to the flash symbol you turn your Minox 110 S into a special flash camera: the shutter is set to a 1/40th of a second, the aperture is selected automatically for the type of flash used and for the distance focused (flash/aperture automatic), the aperture range (for daylight 2.8-16) is increased to f/22 for flash pictures.

Only after turning the aperture wheel to the flash symbol can you insert an X-cube. When using the normal daylight automatic setting, the X-cube socket is locked and an X-cube cannot be inserted so that you cannot inadvertently use an automatic daylight exposure which might be wrong in combination with a flash cube.

The flash cube is automatically advanced (rotated) when you advance the film.

The shutter release is locked if a used section of the flash cube is advanced into firing position so that you cannot waste an exposure.

When the Minox electronic flash unit F 110 is connected to the camera it will only function when the aperture wheel is turned to the flash symbol. It will not function when you switch back to daylight automatic.

The automatic depth of field indication is also operative with flash. Do not be surprised when the gap in the red line becomes larger or smaller as you focus different distances. This is so, because with flash automatic aperture selection depends on the distance focused and the aperture in turn controls the depth of field range. (flash/aperture automatic)

Flash with X cube (Magi-cubes)

Use X-cubes only. Do not use cubes which need a battery. Flash range from 3' to 25'.

First switch camera to flash (turn aperture wheel beyond $f/2.8$ to the flash symbol) then insert X cube into flash cube socket. Focus on main subject by using the built-in rangefinder (page 12). Aperture and automatic depth of field indicator are set automatically. One flash cube is good for four flashes. In case you forget to remove the cube after all four flashes are used, you cannot release the shutter for your next picture. Never rotate cube in the camera by hand.

The arrow on top of the camera next to the flash cube socket indicates the rotation of the cube. When using up a partially used cube advance film first and then insert cube with an unused section in firing position

Flash with Minox electronic flash unit F 110

Only the special Minox electronic flash unit F 110 can be used with the Minox 110 S because only this unit guarantees that the flash/aperture automatic functions properly. The Minox 110 S does not have a hot shoe since other flash units with guide numbers which are not adjusted to the camera might result in wrong exposures.

Flash range for the Minox electronic unit F 110 is 2' to 15'. Connect the Minox electronic flash unit F 110 to the left side of the camera by first hooking it in to the smaller opening in front and then swinging it back until it snaps into position in the larger socket. The flash unit is automatically turned on when you set the camera to flash. Release the shutter only after the ready light on the back of the flash unit has come on to indicate that the flash is now ready. Aperture and depth of field indicator work automatically when you focus on the main subject as usual (use rangefinder for focusing).

Note: The Minox Electronic Flash unit F 110 will be available sometime after the introduction of the Minox 110 S camera. Please ask your photo dealer.

Flash ranges

The indicated flash ranges (flash cube approximately 3' to 25'; Minox F 110 approximately 2' to 15') are calculated for rooms with normal reflection from walls and ceiling. The flash ranges will be unchanged for future films of high speed (approximately 27 DIN/ASA 400). If you use such films in your Minox 110 S the filter is automatically moved in front of the lens to compensate for the difference in film speed.

Negative films for printed pictures can take certain amounts of overexposure without noticeable loss in quality. When using these films you may, therefore, get closer to your subject than the 3' limit for flash cubes. If necessary you may flash as close as 2'. (this is not recommended for color slide film.)

Extender for flash cubes

When you photograph people with wide open pupils (normally in dark rooms) it can happen that the interior back of the eye of a person who is looking at the camera will be fully illuminated. The normally black pupil will then appear red on a color photo. You can avoid this "red eye" effect when you put a flash cube extender (not available from Minox) between the camera and the flash cube. It increases the distance between the flash cube and lens. No "red eye" is caused by the Minox electronic flash unit F 110 since the distance between light source and lens is greater than with the flash cubes.



Minox 110 S camera on Minox pocket tripod. Use spacer as shown between camera and ball and socket head.

Tripod exposures

A tripod socket is located on the bottom of the camera. Exposures on a tripod should only be made with the help of a cable release. Screw the cable release into the cable release socket of the right of the red shutter release button on the top of the camera.

A very practical miniature tripod is the Minox pocket tripod (see illustration). It can be used as a table tripod, chest tripod or wall tripod. Ball and socket head and cable release are built in. Still, the tripod in its unassembled form is hardly bigger than a pencil. In order to swing your Minox 110 S camera also into vertical position you need a small spacer in addition to the Minox pocket tripod.

Self-timer. The cable release socket will also accept a self-timer. Please do not use any self-timer of the hydraulic oil pressure type but only a timer with mechanical spring mechanism. If you use a self-timer which features an adjustable stroke the release pin try the smallest stroke first. Increase stroke slowly until it is long enough to release the shutter. Do not increase stroke beyond that point.

Wrist chain

Attach chain as follows: insert lock into bayonet socket of camera and secure by turning it 90° to the right. To remove chain: turn 90° to the left.



Leather case

Minox offers an elegant and handy case made of very fine dark red leather. A hinged double bracket spring lock lets you take the camera out in a second and also put it back just as quickly. The camera is protected on all sides in the closed case. With the camera inside the case you can still carry it by the wrist chain.



Technical data

Type: Minox 110 S

Negative format: 13mm x 17 mm

Film: 110 cartridge

Shutter: automatic electronic control special shutter, speed range from 1/1000 of a second to approximately 4 seconds. Automatic switching of film speed 19 DIN/ASA 64 to 27 DIN/ASA 400 when 400 ASA cartridge is inserted. Constant shutter speed of 1/40th of a second with "flash setting".

Shutter Release: The shutter release button is locked when a used flash cube is in the firing position.

Cable Release Socket: On top of camera

Warning lights: Over exposure and long exposure warning lights appear in viewfinder

Aperture: Manual operation for f/2.8 thru f/16 for daylight exposures without flash. With flash setting: automatic flash/aperture adjustment from f/2.8 to f/22 depending on guide number of flash cubes. Flash range is unchanged when films of higher speed (27 DIN/ASA 400) are used. This is accomplished through automatic positioning of a filter in front of the lens.

Lens: 4 element f/2.8 25mm lens

Focusing: 2' to infinity. Interchangeable scales for meter and feet calibration.

Rangefinder: Superimposed image, rectangular measuring patch in center of viewfinder.

Depth of Field: Automatic depth of field indicator coupled with distance scale.

Viewfinder: Brightline telescope viewfinder with automatic parallax compensation. Aperture setting and warning arrows visible in viewfinder.

Batteries: Two cells Varta 7203, Varta 246 or Mal-lory MN625.

Battery test: Battery tester with glow light indicator

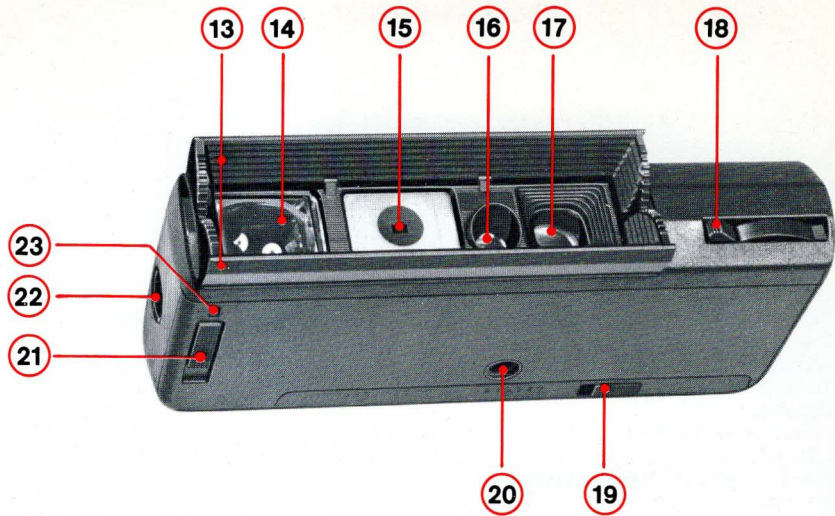
Flash Synchronization: Built-in socket for X-cubes with automatic cube rotation. Connections for special Minox electronic flash unit F 110.

Tripod socket: 1/4" (20)

Measurements: w.h.d. 13.1cm x 2.6cm x 5.4cm (5" x 1" x 2")

Weight: (with batteries, without film) 130 grams (5 oz.)

Country of manufacture: West Germany



13 protective front cover (open)
 14 viewfinder window
 15 rangefinder
 16 CdS metering cell

17 lens
 18 rapid winder
 19 camera back release
 20 tripod socket

21 front cover release lever
 (doubles as battery tester)
 22 bayonet connection for wrist chain
 23 battery test light

For camera illustration,
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