INSTRUCTION MANUAL

Foreword

The Nikomat ELW is Nikon's new 35 mm SLR with automatic exposure control, which is thorough-going in its accuracy, durability and is easy to operate. This new camera has made automatic film winding possible with use of the Auto Winder AW-1, a new exclusive accessory.

To take pictures of good quality, it is most important that you fully understand the functions of a camera, and learn to operate the controls with ease and confidence. If you are a beginner, please read the section on basic operations of this instruction manual. Keep this manual handy for ready reference. The time you spend familiarizing yourself with the camera will guarantee you the best results and increase your picture-taking enjoyment many times over.

About the Nikon Warranty

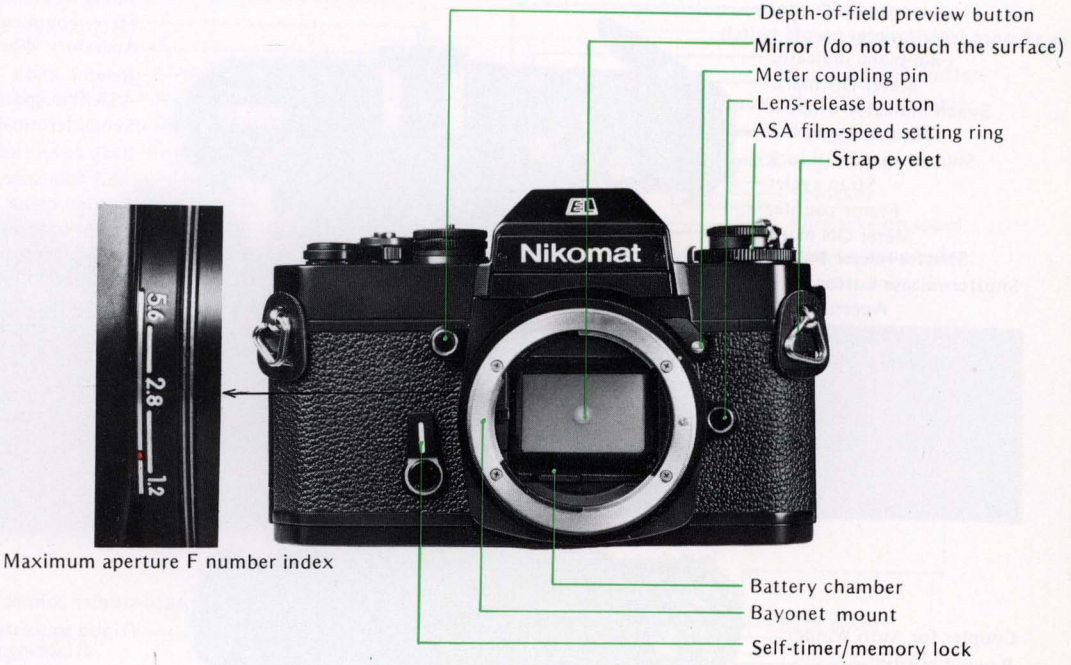
The Nikon Worldwide Service Warranty Registration Card, which identifies your Nikomat ELW by its serial number, is your guarantee that the camera you buy is a new one. When you return this card to a Nikon distributor you will receive your Nikon Worldwide Service Warranty Certificate, which entitles you to a one-year warranty anywhere throughout the world, subject to the conditions listed in the certificate.

Only an authorized Nikon dealer can provide you with a Nikon Warranty Registration Card. We cannot guarantee any camera or lens sold to you by an unauthorized dealer without a Warranty Registration Card, since it may be second-hand equipment.

CONTENTS

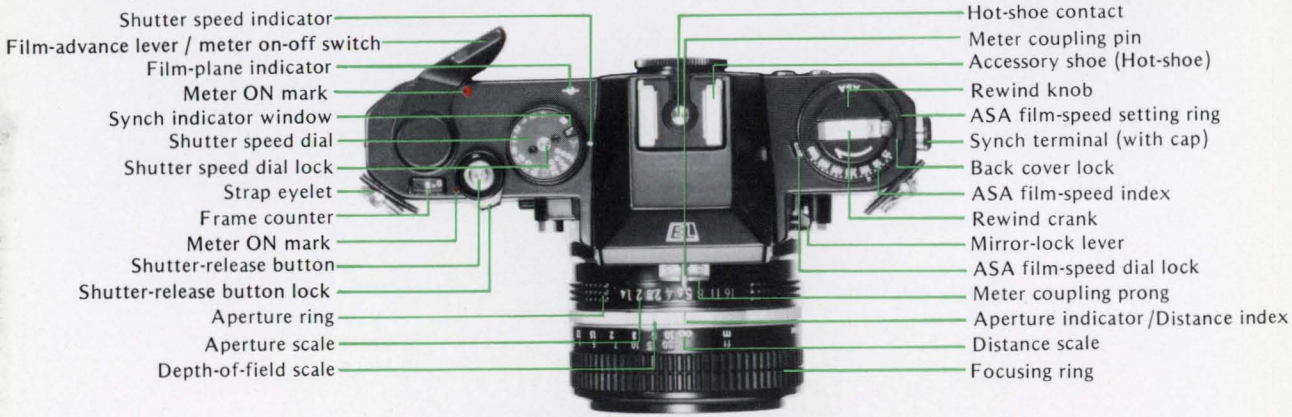
NOMENCLATURE

Front (ELW body only)



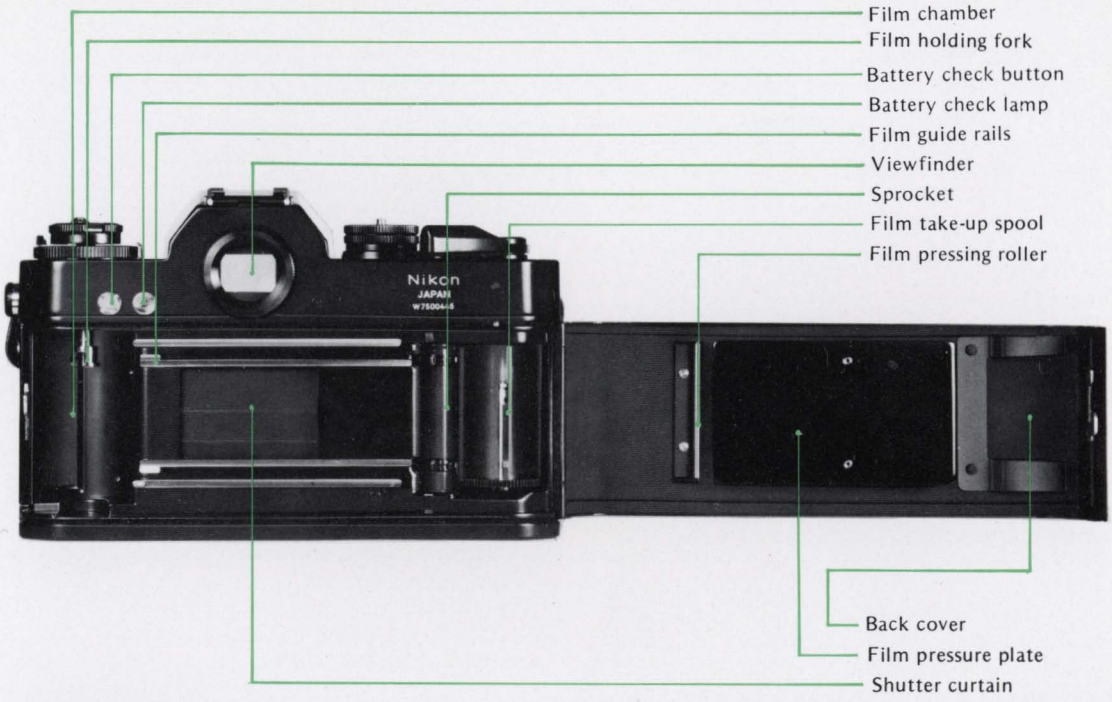
NOMENCLATURE

Top (With 50 mm F1.4 lens installed)

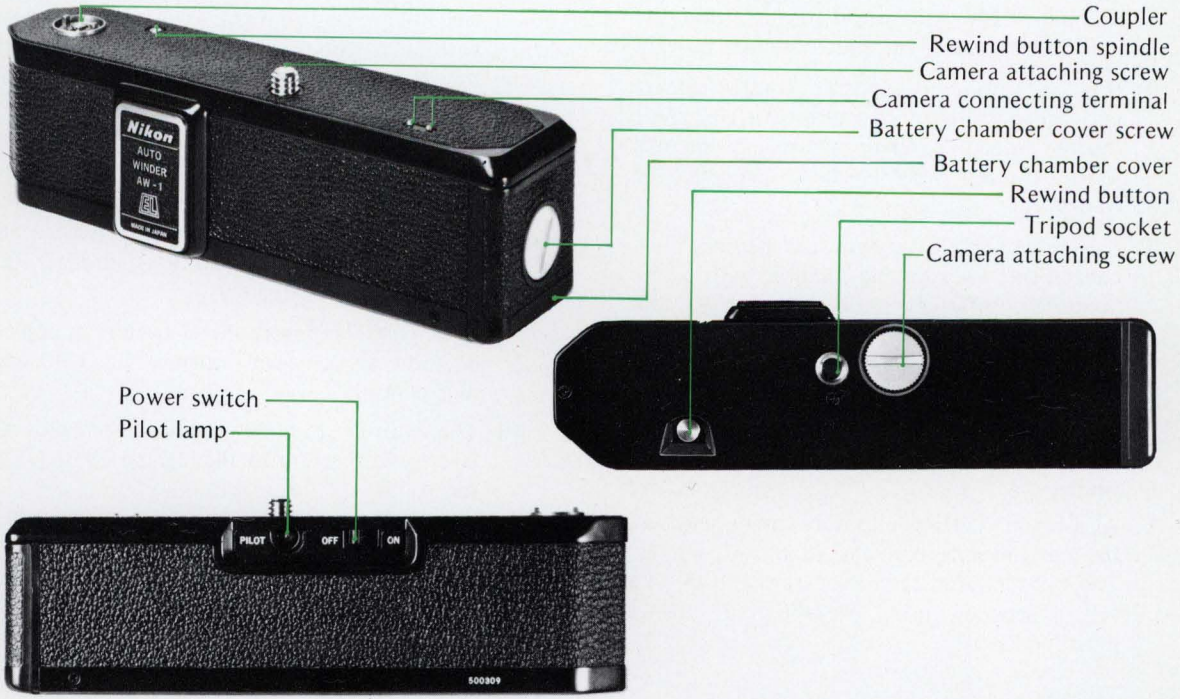


Bottom (Camera body only)

Back


Film chamber
Film holding fork
Battery check button
Battery check lamp
Film guide rails
Viewfinder
Sprocket
Film take-up spool
Film pressing roller
Nikon
JAPAN
Back cover
Film pressure plate
Shutter curtain

NIKON AUTO WINDER AW-1



FEATURES

1. When used with the Auto Winder AW-1, the Nikomat ELW will automatically wind the film after releasing the shutter-release button.
2. It is an automatic exposure control camera with an aperture-priority automatic electronic shutter speed control system. A manual shutter-speed-priority system can also be employed.
3. It is equipped with an exposure memory lock, convenient when taking pictures with severe brightness differences between subject and background.
4. At the automatic setting, the shutter speed can be set from 1/1000 to a full 4 seconds, and all speeds in between, and the shutter speed can be visually confirmed in the viewfinder.
5. At a manual setting, exposure can be set using the match needle manual system.
   The shutter speed can be set from 1/1000 to a full 4 seconds, using precalibrated settings plus B.
6. The Nikomat ELW has a built-in TTL center-weighted exposure meter. The meter, coupled with any Nikkor interchangeable lens with the Nikon bayonet mounting system, can perform not only at full aperture but also stop-down measurement as well, using the depth-of-field preview button.
7. The reliability of the meter is insured by the adoption of monolithic Integrated Circuit and Functional Resistance Element(FRE) in its electronic circuitry.
8. Even if the exposure meter battery is depleted, the shutter will operate at 1/90 sec. mechanically.
9. The shutter can be synchronized with an electronic flash up to the high speed of 1/125 sec.

10. To avoid accidental or improper operation, the following safety locks have been provided: Refer to the nomenclature page for the location of each of these items.

    (1) To lock the shutter-release button and the exposure meter power source, set the shutter-release button lock and the film-advance lever at their locked position (flush against the camera).

    (2) The shutter speed dial locks when it has been set on automatic (A). For manual exposure control, release the lock by pressing the silver button at the center of the shutter speed dial, and set the dial to the desired speed.

    (3) The rewind crank cannot be raised unless you slide back the back cover lock. This prevents accidental opening of the back cover.

    (4) The ASA setting ring cannot be turned without pressing the ASA dial release lock.

11. All parts, including the built-in battery checker, hot shoe, synch terminal with screw connector, etc., have been designed with convenience in mind.

SPECIFICATIONS

Type	35 mm Single lens Reflex Camera
Picture area	24 mm x 36 mm
Film used	Various types of 35 mm film
Lens mount	Nikon F bayonet mount
Viewfinder	Eye-level pentaprism type
Viewfinder screen	Split micro system (K type) Central portion—split system (3 mm in diameter) Outer ring—microprism system (1 mm width)
Viewfinder frame coverage	Approx. 92% of final picture area
Mirror	Quick return type with mirror lock system
Shutter	Electromagnetic-controlled focal-plane shutter with downward-vertical movement
Shutter speed	* Stepless speed variations from 4 ~ 1/1000 sec. on auto control * Speed variations same on manual control plus B, except that they are stepped In either case, the shutter speed can be confirmed by the indicator needle inside the viewfinder * When power source exhausted, speed mechanically fixed at 1/90 sec.
Exposure meter	* TTL CdS meter with center-weighted metering at full aperture with Nikkor auto lenses. * Maximum aperture range: f/1.2 ~ f/5.6 * ASA range: 25 ~ 1600 (19 settings)

	* Metering range: EV1 ~ EV18 with ASA 100 and F1.4 lens (e.g., f/1.4, 1 sec. ~ f/16, 1/1000 sec. at ASA 100 with 50 mm F1.4 lens)
Full aperture F number scale	1.2 – 2.8 – 5.6
Film winding	A single stroke with the film-advance lever winds film 135°, clearance angle 30° Automatic winding of approx. 2 frames/sec. is possible by the use of the Nikon Auto Winder AW-1
Frame counter	Additive, automatic resetting
Self-timer	Can be set for 8- to 10-sec. delay. Also serves as memory lock
Film rewind	Crank system. Rewind button returns automatically
Accessory shoe	Contains hot-shoe contact
Synch terminal	Inner thread accepts Nikon synch cords for positive connection
Synch contact	Flash lamp (mark) and electronic flash (mark) switch-over system The electronic units can be synchronized up to 1/125 sec.
Battery	One 6 V silver-oxide battery
Battery checker	Glows to indicate battery is good
Dimensions	145 mm (width) x 54.5 mm (depth) x 93.5 mm (height) (body only)
Weight	Approx. 790 grams (body only)

BASIC OPERATIONS

The Nikomat ELW is an aperture-priority electronic automatic exposure camera, and its handling is very easy. Before using this camera, read this section on "Basic Operations" carefully and familiarize yourself thoroughly with the camera. This will insure you obtain the best results.

For more detailed explanations on manual exposure, special picture-taking methods, etc., please refer to the section entitled "Applied Operations", starting on page 33.

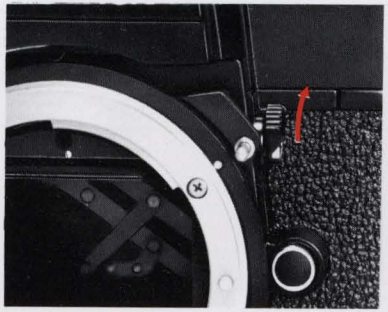
Installing the battery

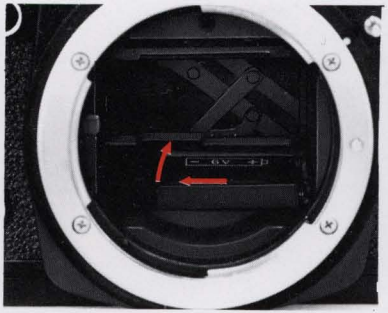
Either a 6-volt silver-oxide or alkaline-manganese battery is used to power both the exposure meter and the electromagnetic shutter-speed controlling circuits. The battery chamber is in the mirror box.

1. To install the battery, first remove the lens from the camera (see page 17) and lock the mirror in the up position by turning the milled mirror-lock lever upward to gain access to the battery chamber in the mirror box.
2. Then with a finger, press the battery chamber lid to the left at the indent and lift it up.
3. When inserting the battery, be sure to align the positive and negative (+ and −) terminals correctly as shown underneath the battery chamber lid.

   To close the lid, press down. Remember to return the mirror to its original focusing and viewing position.

Caution: If the battery is installed in the opposite alignment, its energy will be depleted within a matter of minutes.
Also be careful not to touch the shutter curtain and the mirror surface.





Battery test

The battery should be checked when:

* A new battery is installed.
* A camera is about to be used after a long period of storage.
* It is suspected that the battery has been depleted after a long period of use.

Press the battery check button on the back of the camera.

A built-in battery checker lets you check the condition of the battery. Depress the white button and the signal lamp will glow with a bright orange light, indicating that the battery has been properly inserted and its power is adequate.

The battery can be tested regardless of the position of film-advance lever and shutter-release button lock.

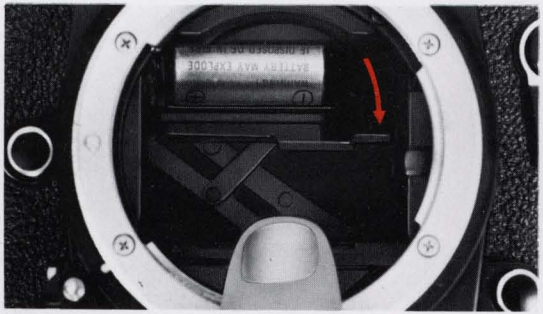
Replacing the battery

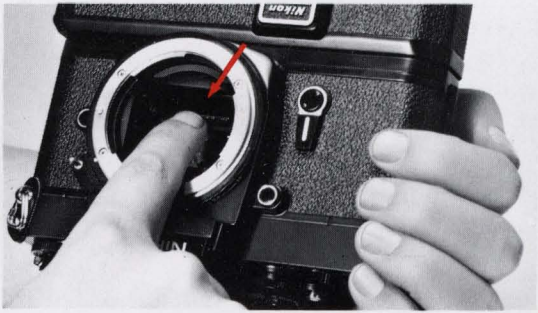
When the battery check lamp does not glow when pressing the battery check button, replace the battery with a new one.

(1) Remove the lens, and lock the mirror in the up position.

(2) Open the battery chamber lid.

(3) Hold the camera upside down, and push the battery chamber lid. The battery will roll out of the chamber.





Notes on Battery Care

Preventing unnecessary discharge

To prevent unnecessary discharge, set the film-advance lever and the shutter-release button lock in the off position, except when taking pictures.

Cold resistability of battery

Although both the silver-oxide battery and alkaline-manganese battery are excellent in low temperature performance, there is a marked tendency for battery performance to deteriorate below 0°C (32°F). Therefore, it is recommended that a new battery be used and the camera itself be protected from low temperatures when taking pictures below 0°C (32°F).

A battery which temporarily deteriorates due to low temperature can continue to be used, as its capacity recovers when the temperature rises back to normal.

* Wipe both battery terminals with a soft and dry cloth or paper before inserting it into the camera.
* The battery may conduct poorly due to the leakage of battery fluid, etc. when it is kept inside the battery chamber for a long time. When such leakage occurs, clean the battery chamber and replace the poor battery with a new one.
* When the camera is not in use for a long time, remove the battery and store it separately.
* Do not disassemble, short-circuit, or burn batteries.

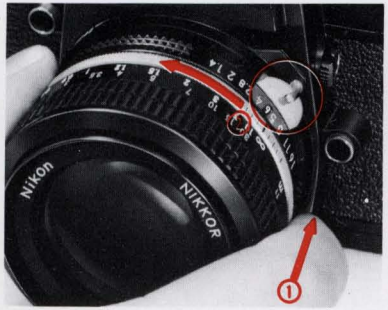
MOUNTING THE LENS

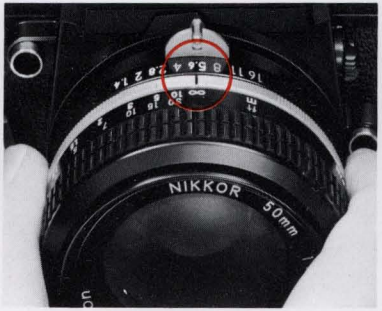
To mount a lens, first push the camera's meter coupling pin to the right as far as it will go. Set the lens diaphragm at f/5.6 and insert the lens into the bayonet mount, making sure that the coupling pin fits into the slotted prong on the lens. Twist the lens counterclockwise until it locks into place with a sharp click.

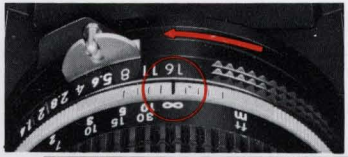
In lenses having no slotted prong, mounting is done at a position where its aperture indicator aligns with the coupling pin of the camera.

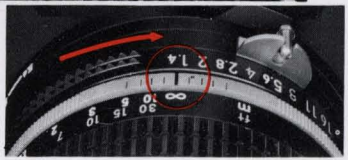
Maximum aperture indicator

In order to measure light at full aperture with lenses of different maximum apertures, the Nikomat ELW's meter must be adjusted for the maximum aperture of the lens in use. This must be done each time a lens is mounted. Turn the aperture ring all the way to the minimum aperture setting (largest f/number), then all the way in the opposite direction. This step automatically adjusts the meter to the maximum aperture of the lens.







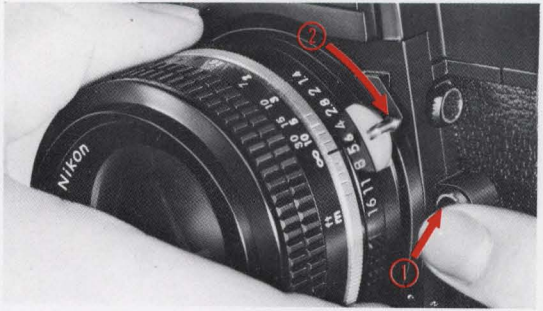


Maximum aperture scale

The above adjustment can be confirmed by looking at the maximum aperture scale on the ring with the coupling pin. The scale has a range of f/1.2 to f/5.6. For example, if the 50 mm F1.4 lens is mounted on the camera, the red index mark should fall opposite the 1.4.

To remove the lens from the camera, press the lens-release button and twist the lens to the right as far as it will go. The lens will come loose and can be lifted out.

* Please do not try to remount the lens while in the process of removal. The slotted prong of the lens must be disconnected from the coupling pin of the camera once, and the coupling pin turned to the right as far as it will go, before the lens can be remounted.

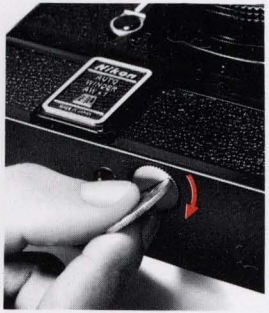


ATTACHING & REMOVING THE NIKON AUTO WINDER AW-1

To attach the AW-1

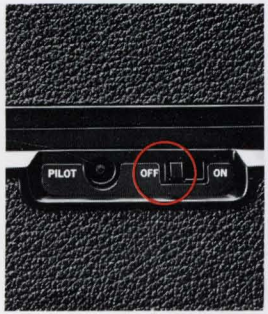
Align the spindle of the coupling portion of the Auto Winder AW-1 with the slot of the coupling portion on the bottom of the ELW, and turn the camera attaching screw of the AW-1 clockwise with a coin, and tighten securely. For details consult the manual for the AW-1.

* Be careful not to leave a gap between the ELW and AW-1. Such a gap may disturb the proper operation of the automatic winding system and could be the cause of trouble.



To remove the AW-1

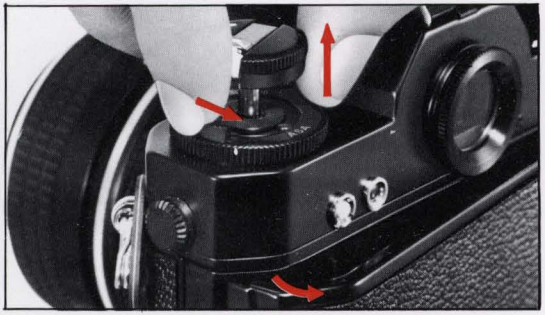
Before removing the Auto Winder AW-1, be sure to turn the power switch off first. Then, remove the AW-1 from the Camera by turning the camera attaching screw counterclockwise.



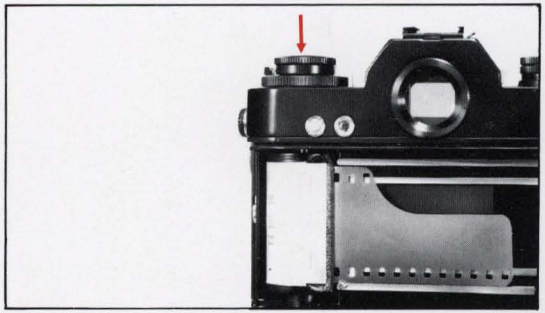
GENERAL STEPS OF PICTURE-TAKING

Loading a film

(1) To open the camera back, slide the safety lock backward and lift up the film rewind knob as far as it goes, and the hinged camera back will pop open.

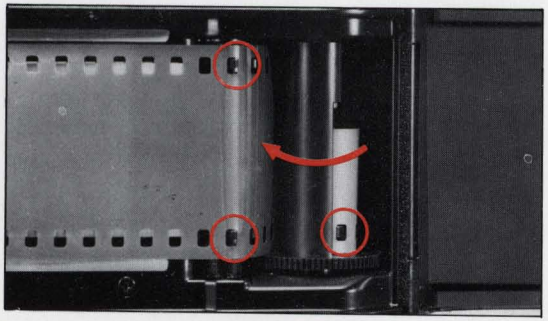


(2) Drop a film magazine into the film chamber with the film leader pointing toward the take-up spool. Push the rewind knob down to hold the cartridge in place and insert the end of the film leader into any one of the three slots in the take-up spool. Stroke the film-advance lever (or turn the take-up spool clockwise) slowly to make sure that the film perforations mesh with the sprockets and that the edges of the film run parallel to the film guide rails. Close the camera by pressing the back until it snaps into place.
Fold out the rewind crank on the film rewind



knob and turn it gently in the direction of the arrow until you feel a slight resistance. This takes up any slack in the film cartridge. Then fold back the rewind crank.

* Do not load the camera in bright sunlight. If no other shade is available, shade the camera from the sun with your body while loading. This will reduce any chance of spoiling your first exposures due to fogging.



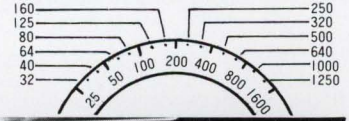
Make two blank exposures to dispose of the first few inches of film which were exposed during loading. When advancing the film, make sure that the rewind knob rotates in the direction opposite the arrow. This indicates that the film has been loaded correctly and is being advanced. The frame counter should now indicate "0" exposure. Advance the film one more frame and you are ready to take the first picture.

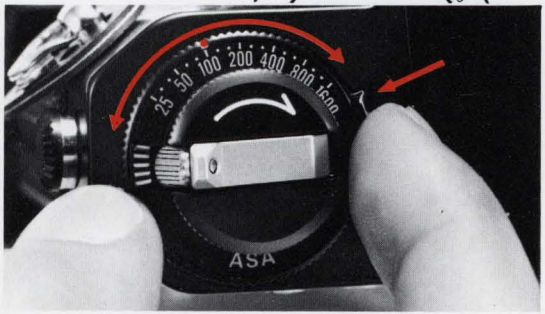
*At the end of a film, the film-winding may stop half-way between frames. The AW-1 may not function furthermore. In such a case, turn the AW-1 power switch off. Take the film out and load a new film. Advance the film manually one frame. The AW-1 should then function normally.

On "blank exposure", refer to Page 24 for detailed information.

Setting the ASA film speed

The ASA film-speed dial has a scale calibrated from ASA 25 to 1600 with two dots between numbers to indicate intermediate settings, such as 32 and 40. Press the film-speed dial lock inward and turn the milled ring around the film-speed scale until the red dot appears opposite the speed of the loaded film, and the exposure control system automatically adjusts itself to match the selected film speed.

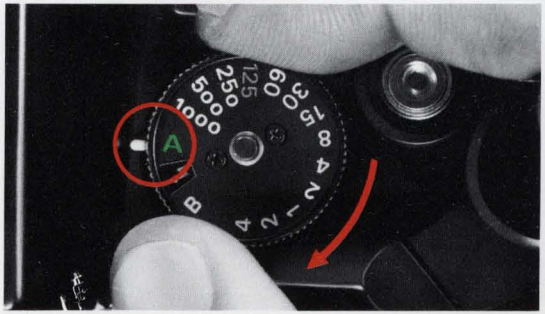




Setting shutter-speed dial at A (Auto)

The shutter-speed dial sets the Nikomat ELW for either automatic or manual exposure control. To set the dial at A (Auto), turn the shutter-speed dial clockwise until the "A" is opposite the dot. The automatic exposure control locks the shutter-speed dial to prevent accidental shifting of the setting.

For shooting under manual exposure control, please refer to page 41.



Winding the film

When advancing the film manually, keep the film-advance lever pulled out at a 30° clearance angle so that the red dot is visible while pictures are being taken. This turns the exposure meter on.
The shutter button lock should be set at its locked position. (Where the red dot cannot be seen.)
Apply the right thumb to the film advance lever and swing it clockwise to the right until it stops. This advances the film one frame and cocks the shutter. Always swing the lever with one stroke, otherwise it may spring back to its original position without fully advancing the film.

* When the roll of film has been exposed and the film-advance lever resists, do not attempt to force the advance lever. It will tear the film out of the magazine.

When the film is being advanced automatically by the AW-1, turn the shutter button lock to the left (counterclockwise) until it comes to a stop so the red dot is visible. This turns the exposure meter on.
In this case, set the film-advance lever at its locked position, flush against the camera body.
After that, the film is automatically advanced by one frame everytime the shutter is released.

Blank exposure

The blank exposure is to release the shutter disposing of the first few inches of film which were exposed during loading, not to take pictures.

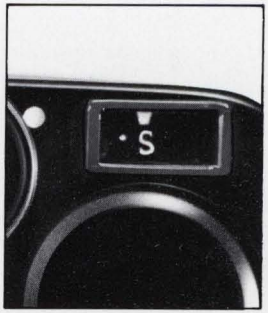
After loading the film, make two blank exposures and the frame counter indicates "0". Stroke the film-advance lever once more, and you are ready to shoot.

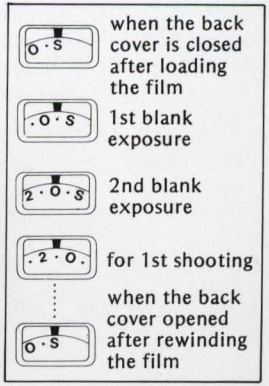
When making the blank exposures to intercept the light, better use the shutter speed of 1/1000 sec. Keep pressing the shutter-speed dial lock and turn the shutter-speed dial from A (Auto) to the 1000 (1/1000 sec.). Make the blank exposures, and return the shutter speed to A.

When making the blank exposures at A (Auto) to intercept the light, the shutter will be kept open. In such a case, return both the shutter-button lock and the film-advance lever to the locked position flush against the camera. The shutter will be released and ready for normal operation.

Frame counter

The 36-frame counter automatically shows how many frames have been exposed. It is calibrated in even numbers, with the figures 0, 20 and 36 in red, and odd numbers by dots. The counter stops just past the 36-frame mark and resets itself automatically to "S" (start), two frames before 0, when the camera back is opened for reloading.





Setting the aperture ring

When shooting with the camera set at A(Auto), once the film speed (ASA) dial is set, the only exposure control you must do is set the lens aperture.

Turn the aperture ring on the lens barrel until the desired f/number is opposite the black line (aperture indicator). The aperture diaphragm can be set at intermediate openings between click-stop settings for more precise exposures.

Guide to aperture setting using automatic exposure control
(Outdoor picture taking in daytime)

	Sunny	Cloudy	Heavy overcast
ASA 25	f/8	f/2.8	f/2
ASA 80	f/11	f/5.6	f/4
ASA100	f/11	f/5.6	f/4
ASA400	f/22†	f/11†	f/8†

The available shutter speed is approx. 1/125 sec.
†The available shutter speed is approx. 1/250 sec.

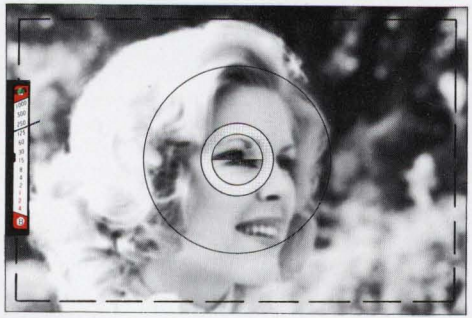
Holding the camera

Steady camera holding is important since even the slightest camera shake at the moment of exposure can result in an appreciable loss of sharpness, especially at slow shutter speeds. Wrap the fingers of the right hand around the camera body so that the index finger rests comfortably on the shutter-release button and the thumb fits between the body and film-advance lever, and press the camera against your forehead. This way when winding the film manually you can stroke the film-advance lever without removing your eye from the viewfinder. Cradle the camera in the left hand for additional support, with the left thumb and index finger grasping the focusing ring. The camera may be switched from the horizontal to the vertical format in this position.

Focusing

Focusing is always done at full aperture with Nikkor lenses (auto). This gives the brightest possible image on the focusing screen and also minimizes the depth of field so that the image snaps in or out of focus distinctly. The Nikomat ELW's focusing screen consists of a matte Fresnel field with a central 3mmϕ split-image range-finder spot surrounded by a doughnut-shaped 1mm-wide microprism. It makes for fast, accurate focusing. Look through the viewfinder and turn the focusing ring until the two halves of the central rangefinder image coincide to form a single, sharp image—or until the image in the microprism appears sharp and crisp. The focusing screen is suitable for subjects with straight outlines or ill-defined contours. In close-up photography, the rangefinder spot is likely to darken. This is also true when you're using a lens with a maximum aperture smaller than f/4.5. You should then focus on the surrounding matte field.

out of focus



The range surrounded by the broken line is the approximate frame area seen through the viewfinder, and the outer area is the actual printed picture.

in focus

Prefocusing

The lens can also be prefocused using the distance scale engraved in both feet and meters on the lens barrel. Line up the black indicator line on top of the lens opposite the camera-to-subject distance as measured or estimated. This technique is useful for candid shots of elusive subjects when time does not permit through-the-lens focusing.

The ⊖ mark on the top deck shows the exact position of the film plane. This is an aid when measuring the film-to-subject distance in close-ups and macrophotography.

Viewfinder frame coverage

The ratio of the area seen through the viewfinder to the actual area of the printed picture (viewfinder frame coverage) is approx. 92%. In planning a shot, you can include more than actually appears in the viewfinder.

Eyepiece correction lenses

Nikon eyepiece correction lenses are available for near-sighted and far-sighted users to assist in sharper focusing. Refer to Page 57.

Releasing the shutter

When the shutter button is released, an exposure is made on the film. It is important when snapping the shutter not to cause the camera to shake. Press gently with the finger tip. When the shutter is released while looking through the viewfinder, the field of view is momentarily blocked since the mirror is raised.

At shutter speeds slower than 1/30 sec., the camera tends to shake if it is hand held. In such a situation, it is best to secure the camera on a tripod, or against a solid surface.

The soft shutter release AR-1 is available for your delicate shutter releasing operation.

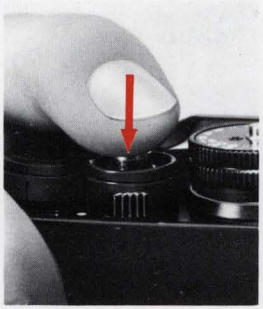
The shutter cannot be tripped in the following cases:

(1) When the film is not advanced.

(2) When both the film-advance lever and shutter button lock are placed at their locked positions. (Of course, the shutter can be released if the shutter button lock is set so that the red dot is visible, even if the film-advance lever is locked. This is how the AW-1 is operated.)

Cautions:

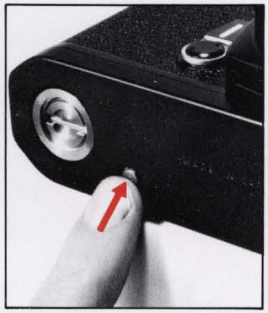
1. When using a tripod, a cable release should be used. The cable release should be pressed gently.
2. When mounting the camera on a tripod, do not over-screw the tripod thread into the camera tripod socket or use a tripod screw longer than the depth of the socket, as it may damage the camera baseplate. The depth of the tripod socket of Nikomat ELW is 5.7 mm.

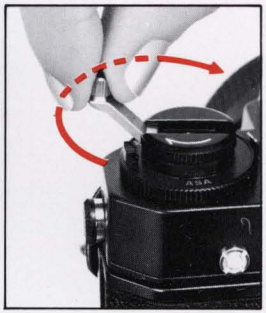


Rewinding and unloading film

When the frame counter indicates that the last exposure has been made or when the film-advance lever can no longer be stroked*, the roll of film has been completely exposed and should be removed. Press the rewind button on the camera baseplate, and the film is ready for rewinding into the magazine.

Press the rewind button securely on the bottom of the Auto Winder AW-1 when it is used. The button will spring back after it is pressed, but this is normal.





Unfold the rewind crank and turn it with a constant, gentle pressure in the direction of the arrow until you feel an increased tension. Give it a few more turns until the tension has gone and the crank turns freely. The film has now left the take-up spool and the camera may be opened.

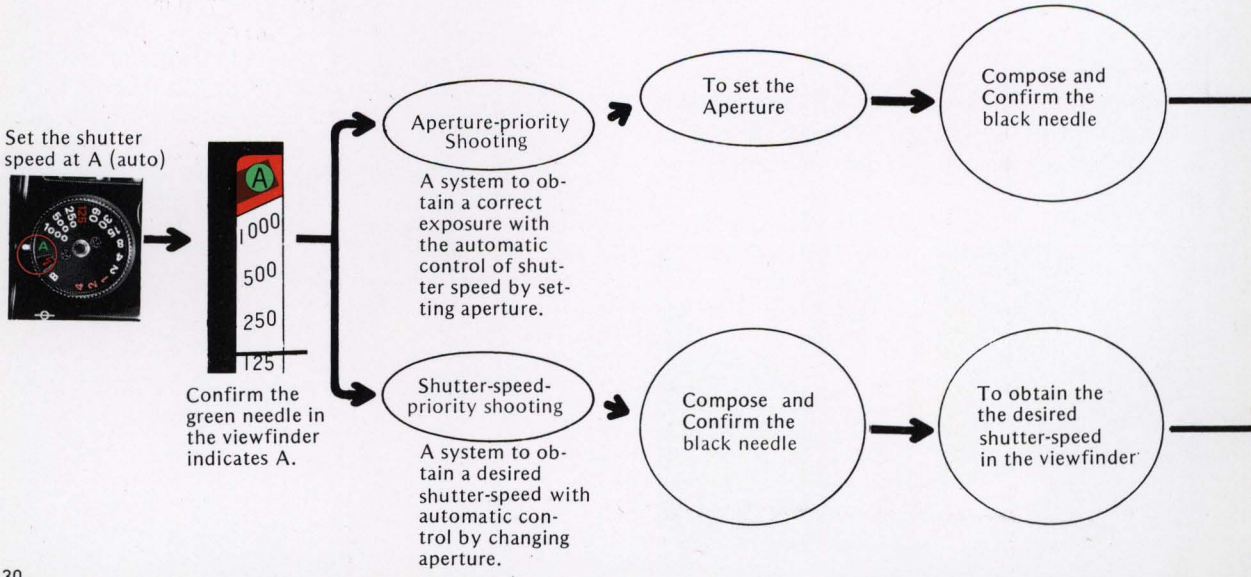
Slide the back cover lock backward and pull the rewind knob as far as it will go. The comera back will pop open and the film magazine may be removed.

When the film-advance lever is stroked, the rewind button will pop out and the film-advance mechanism will be re-engaged.

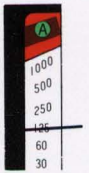
* Caution: Do not attempt to force the film advance lever-this action will result in tearing the film out of the cartridge.

Photography with Automatic Exposure Control

The flow chart below shows the basic picture-taking of automatic exposure control with the Nikomat ELW.



Appropriate Aperture



You can obtain a picture of correct exposure by simply snapping the shutter.

Almost Appropriate Aperture

You can obtain a picture of correct exposure; only that the shutter speed is slow, you are advised to obtain a faster shutter speed by changing the aperture or to secure the camera with a tripod or something solid.

Unappropriate Aperture

You will obtain a picture of incorrect exposure; to obtain a picture of correct exposure, change the aperture to keep away the black needle in the viewfinder from the warning zone of either A or B side.

Reset the Aperture ring

Snap the shutter when the black needle indicates your desired shutter-speed.

REMINDER CHECKLIST

Before you start shooting, double-check to make sure you have done the following:

1) Installed the battery in the battery chamber correctly.
2) Checked the battery checker to see that the lamp glows with a bright orange light.
3) Returned the mirror to the original viewing position.
4) Loaded the film and made two blank exposures while watching the rewind knob to see if the film is loaded correctly.
5) Set the ASA film-speed dial for the correct speed of the film loaded in the camera.
6) Mounted the lens correctly and adjusted the meter for the maximum aperture of the lens (check the maximum aperture indicator).
7) Set the shutter speed dial to A (in case of automatic exposure control).
8) When using the AW-1, both the shutter button lock of the ELW and the power switch of the AW-1 must be turned to the ON position. The film-advance lever should be in locked position.

APPLIED OPERATIONS

It is hoped that you have understood the basic operations of the Nikkormat ELW for taking pictures with automatic exposure control in the foregoing section. This second section should be studied to expand your knowledge on applied operations of photography.

TTL EXPOSURE METER

Center-weighted exposure meter

The exposure meter adopts the TTL center-weighted light metering system.
The meter reads light over the entire focusing screen, but its light sensitivity is concentrated in the center, which corresponds to the central 12mm diameter spot of the screen. For best results, always place the main subject in this central area when metering. The meter takes advantage of the automatic diaphragm feature of the Nikkor lenses (auto) to measure light at the maximum aperture of the lens. This insures the brightest possible image on the focusing screen for viewing and focusing and minimizes the influence of light entering through the finder eyepiece.

To turn on exposure meter

When the film is manually advanced, the exposure meter is turned on by pulling the film-advance lever out to uncover the red dot (an angle of about 30°). In this case, the shutter button lock is to be placed in its locked position.
When using the Auto Winder AW-1, the exposure meter is turned on by turning the shutter button lock so as to uncover the red dot. In this case, the film-advance lever is to be placed in its locked position, flush against the camera body.
In automatic exposure control, it is sufficient to simply release the shutter after setting the lens aperture and focusing the subject. However, it is recommended that the position of the exposure meter needle (shutter speed value in the finder) be confirmed without fail before taking pictures.
Since photographs may be blurred if the camera is held by hand at speeds of 1/30 sec. or slower, adjust the lens aperture to obtain a shutter speed faster than 1/60 sec. When you wish to use slower shutter speeds stabilize the camera by means of a tripod or something solid.

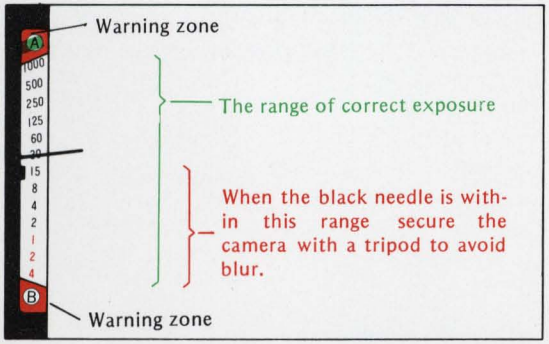
Caution:

To prevent battery drain, keep both the film-advance lever and the shutter-release button in the locked position to switch off the meter whenever the camera is not in use.

Confirm the shutter speed indicator

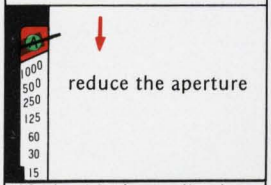
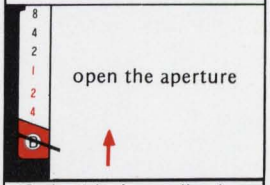
Under the automatic exposure control, confirm the black needle (indicating the shutter speed) in the viewfinder if it is indicating the proper shutter speed.

With shutter speeds slower than 1/30 sec., secure the camera with a tripod to avoid blurred pictures.



Also note that if the black needle indicates A or B (the warning zones) - i.e. the subject is too bright or too dark, change the aperture to keep away the black needle from A or B.

When the black needle is out of the range of the correct exposure with the first set aperture

Subject is too bright	Subject is too dark
	
If the black needle does not come in the range even with the minimum (smallest) aperture, use ND filters, etc. to reduce the luminosity.	If the black needle does not come in the range even with the maximum (full) aperture, use flash lights, etc. to increase the luminosity.

Extreme-high or low light situations

If the black needle remains in "A" or "B" after all possible aperture settings have been tried, then the available light is too bright or too dim to cover the meter's EV range. Switch to a new film that matches the available light or mount a neutral density (ND) filter onto the lens to cut down on the amount of light or use artificial light to increase luminosity, whichever is appropriate.

Operable shutter speed

The camera's meter may be used only within the shutter speed range covered by the exposure value (EV) range of the meter, which varies with the aperture and ASA setting.

The chart on page 39 shows the relationships between the f-stop, shutter speed and film speed, indicating the slowest functioning shutter speed (for metering purposes) with any film speed/f-stop combination.

Careful attention to the following instructions will assure precise exposure, automatically, over the complete exposure control and meter range capability of your Nikomat ELW.

■ **Auto exposure control at full aperture**

For example, with an f/1.4 lens and ASA 100 film, the ELW's automatic shutter will function down to one second with the lens set at 1.4, and proportionately slower as the aperture is closed.

Using a standard of ASA 25 film, you may be assured of at least a four second speed regardless of the aperture of the lens used as long as the lens is set at full aperture (refer to Table).

Using ASA 400 at f/1.4, the slowest speed is 1/4 second; however, as the aperture is closed, the functioning shutter speed becomes progressively slower until we reach f/5.6 when the slowest speed of four seconds is functioning.

■ **Auto exposure control with stop-down metering**

When using a bellows or other extension equipment, which disengages the meter coupling device, it is necessary to revert to stop-down metering. Certain limitations are imposed in this mode.

As lens-to-film distance is increased, the metering range (EV range) changes proportionately. For example, when an f/2 lens is used at 2:1 reproduction (twice life-size) the effective f/number is f/5.6. When used at f/8, the effective f/number is f/22.

When pictures are taken under minimal light levels, it is desirable to use a high-speed film (ASA 160 or higher). Using Tri-X at film speed 400 with stop-down metering, with an effective f/number of f/8, the shutter speed range would be from 1/4 second to 1/1000. Should the light level drop below EV6, it would be out of the shutter speed range of the meter.

Table Slowest shutter speed at full aperture with any lens

ASA speed	Slowest shutter speed (sec.)
1600	1/15
800	1/8
400	1/4
200 (160)	1/2
100 (80)	1
50 (64)	2
25	4

■ **How to read the EV range chart**

The chart indicates the EV (for ASA 100) vs. shutter speed range.

To determine the shutter speed range, note that the bars in section A indicate the responsive range of the ELW's photosensitive CdS element (i.e., f/8 covers EV6-22, f/16 covers EV8-22) for the f-stop in use.

In Section B, note the f-stop being used on the appropriate ASA scale. For example, at ASA 25 with the lens set at f/8, we follow the line diagonally and find that it intersects EV6 at four seconds, and at EV18 runs off the scale at 1/1000 second. ASA 100 at f/8 runs from EV4 at four seconds to EV 16 at 1/1000 second.

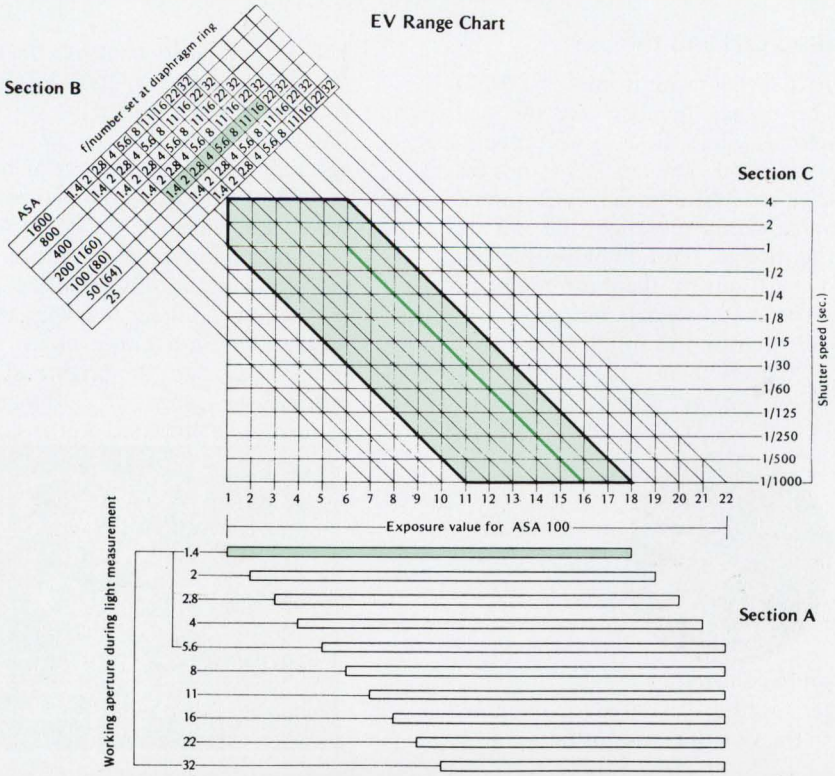
In any case, it is generally the low end which requires a careful check. The wide exposure (EV) range of the Nikomat ELW will encompass most lighting situations. It is only under dim-light or rare bright-light situations that any special attention need be paid.

Full-aperture metering

The metering range is determined by the bars (Section A), f/number range in appropriate ASA scale (Section B) and shutter speed (4—1/1000 sec., Section C). For example, the green area encompassed by the heavy lines demonstrate a combination of an f/1.4 lens and ASA 100 film.

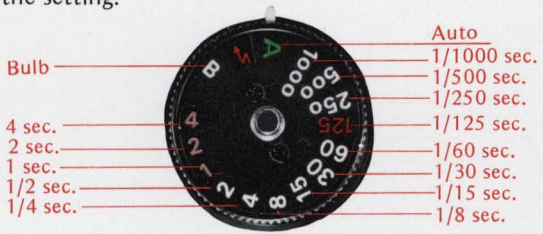
Stop-down metering

The metering range is determined by the bars (Section A), f/number in appropriate ASA scale (Section B) which corresponds to the stopped-down aperture in operation, and shutter speed (4—1/1000 sec., Section C). The green line demonstrates stop-down measurement in the case of an f/8 lens combined with ASA 100 film, indicating a range from 1 sec. to 1/1000 sec.


EV Range Chart
Section B
f/number set at diaphragm ring
ASA
1600
800
400
200 (160)
100 (80)
50 (64)
25
Section C
4
2
1
1/2
1/4
1/8
1/15
1/30
1/60
1/125
1/250
1/500
1/1000
Shutter speed (sec.)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Exposure value for ASA 100
Section A
Working aperture during light measurement
1.4
2
2.8
4
5.6
8
11
16
22
32

The shutter speed dial and the use

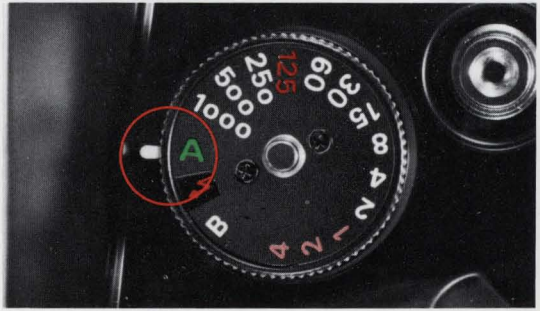
The manual shutter speeds range from 4 to 1/1000 sec., plus B. The orange numbers on the dial represent full seconds while those in white represent fractions of a second. The red 125 stands for 1/125 sec., the highest shutter speed which can be used to synchronize with a speedlight. Do not set the dial at an intermediate position between click-stop settings. At the B setting, the shutter remains open as long as the shutter-release button is held down. If you have forgotten to install the battery or in the event of battery failure, the shutter gives a mechanically fixed 1/90 sec. speed regardless of the setting.



Automatic exposure control

When the shutter speed dial is set at A, the green shutter needle in the viewfinder is positioned at A. This automatically controlls the shutter speed, and the black needle (exposure metering needle) in the viewfinder will indicate the correct shutter speed. The shutter speed varies in response to the lens aperture and the brightness of the subject, as long as ASA of the loaded film has been set.

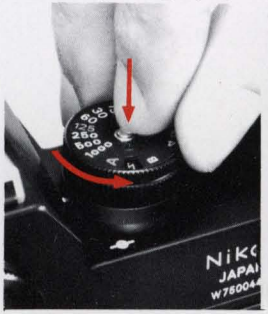
When the camera is set on A (auto), the camera operates at intermediate shutter speeds when the needle is at an intermediate position between graduations on the scale. When the exposure meter needle falls into either upper or lower warning zones in orange, the brightness of the subject is outside the range of automatic shutter speed control to be indicated on the scale.

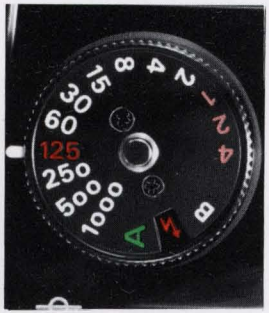


Manual exposure control

Manual exposure is used in the following situations:

1. When a photograph is to be taken at a certain shutter speed, regardless of the exposure meter needle indication.
2. When the shutter speed is set by making a stop-down measurement.
3. When Bulb(B) exposure is being used for time exposures.
4. When a flashlight is used.
5. When a special photographic technique is to be employed, such as repro-copy photography and macrophotography.





To make manual control, press the shutter speed dial lock in the center of the shutter speed dial, and turn the dial and align the desired shutter speed graduation to the indicator mark. In manual exposure control, intermediate speeds between graduations cannot be used.

Be sure to set the dial at click-stopped positions. At this time, the green shutter needle in the viewfinder indicates the set shutter speed, and the shutter operates at the indicated shutter speed when released.

In case of manual exposure control, the black needle in the viewfinder, indicates the shutter speed which results in the correct exposure in relation to the aperture setting at the time. Thus, when the two needles meet by adjusting either the aperture ring or the shutter speed, a correct exposure will be obtained.

Lens aperture diaphragm

The Nikomat ELW can be used with any Nikkor interchangeable lens with a Nikon F bayonet mount. Except the reflex lens, these lenses are equipped with aperture diaphragms, and graduated with a stop by stop scale from full aperture to the minimum stop number.

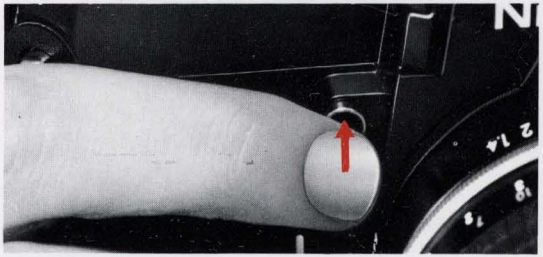
When a Nikkor lens is mounted on to the camera, it is designed to stay open at full aperture even when the aperture ring is turned down. The aperture diaphragm is set only when the shutter button is snapped and the shutter curtain is opened. This is called the automatic diaphragm mechanism. The diaphragm regulates the amount of light reaching the film, while stopping down the aperture by one graduation (from F5.6 to F8), cuts the amount of available light in half. Diaphragm openings also have a direct bearing on the depth of field. (Refer to page 47.)

Depth-of-field preview button

The depth-of-field preview button lets you check the depth of field before shooting to make any desired adjustments. Press the button and the lens stops down to the preselected aperture to allow you to see how much background or foreground is in or out of focus.

* In full-aperture measurement, if the shutter is released while simultaneously pressing the depth-of-field preview button, the correct exposure will not be obtained. Also, do not operate the film advance lever while pressing the button.
* When using the Auto Winder AW-1 do not snap the shutter while pressing this button. If you do so by accident, switch the AW-1 power off and then on again to restore normal operation.

For detailed operation, refer to page 47.



Stop-down exposure measurement

Full-aperture exposure measurement is not possible with the following lenses and accessories, either because the lenses have no auto diaphragms or because the diaphragms will not couple with the meter. Therefore, the stop-down method of measuring exposure with the lens aperture diaphragm manually stopped down to the taking aperture must be used. First, push the coupling pin as far to the right as it will go. Mount a lens or lens/accessory setup to the camera and switch on the meter.

Auto lenses without coupling prong

With automatic exposure control: Use the depth-of-field preview button to stop down the lens and turn the aperture ring until the black needle is in the shutter-speed scale (Take note of the meter's EV range).

With manual override: Use the same procedure as above. Then turn the shutter-speed dial until the green needle matches the black one. At manual setting, pressure on the depth-of-field preview button is no longer necessary since the correct exposure is set mechanically.

Caution: Never advance the film with the depth-of-field preview button in the depressed position.

Micro-Nikkor 55 mm f/3.5 with M2 ring

Use the same procedures as the auto lenses without coupling prong.

Preset lenses (e.g. PC-Nikkor 28 mm)

Set the shutter-speed dial at "A" and turn the aperture ring until the black needle swings to an appropriate shutter speed.

Bellows focusing attachments, extension rings and focusing units

Using the same procedure as that for lenses with preset diaphragms.

Reflex-Nikkor lenses

The Reflex-Nikkor 500 mm f/8, 1000 mm f/11 and 2000 mm f/11 lenses have no aperture diaphragm. Set the shutter-speed dial at "A" and the black needle gives the shutter speed.

COMPENSATION OF EXPOSURE

Due to special lighting conditions, or in situations of high contrast such as occur in repro-copying, it may not be desirable to take the picture as is.

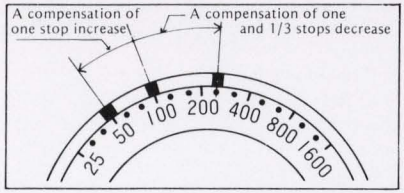
The amount of exposure the film receives is determined by a combination of the lens aperture and the shutter speed. Since the two are interrelated, different combinations will give the same amount of exposure. The best combination depends on the results desired. Use fast shutter speeds to freeze motion or slow ones to create deliberate blur. Small apertures give greater depth of field; large ones let the subject stand out against an out-of-focus background.

Just as with automatic operation, care must be taken to be sure the ASA/f-stop/shutter speed combinations are within the EV range of the meter.

To compensate exposures, the following three methods are used:

1. Compensation by manual exposure control (Manual override)

   If you want deliberate underexposure or overexposure, reset the green needle to a number higher or lower than the number indicated by the black needle in the shutter-speed scale.



2. Resetting the ASA dial temporarily

   The picture is taken after resetting the ASA dial by the amount of compensation, with other factors left unchanged.

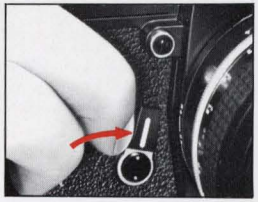
   For instance, when a film of ASA 100 is used: And a compensation by one stop increase is desired, adjust the index to 50.

   And a compensation by one and 1/3 stops decrease is desired, adjust the index to the dot following 200.

   Remember to return the ASA dial to its original position upon completion of picture-taking under the adjusted setting.

3. Using the exposure memory lock

   When there are severe brightness differences between the subject and the background, you will often obtain better results using the ELW's center-weighted metering system and memory lock, which is integrated into the self-timer.

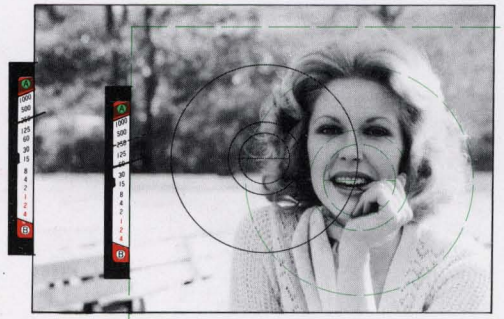


How to Use Memory Lock

First place the subject in the central part of the viewfinder, or better still, if the subject is accessible, move in on it to make a close-up reading of that particular portion you wish to emphasize. Then press the self-timer/memory lock to the left; the light based on the main subject is now frozen. With the memory lock lever still pressed to the left, move back to get your desired composition and shoot. The shutter has been released at the speed on the memorized reading. The memory "hold" disconnects upon releasing the finger from the memory lock.

For landscapes including an expanse of sky, tilt the camera downward during measurement and lock the reading to prevent underexposure caused by the brightness of the sky. For backlit subjects, move up close and include dark areas of the subject and freeze the reading with the memory lock. Even when the lever has locked the memory system, the black needle inside the viewfinder continues to deflect according to the brightness of the scene, providing a convenient reference for contrast ratios.

Compose



Place the subject in the center of the viewfinder and lock the reading and re-compose, and shoot.

Repro-copying, slide-copying and photomicrography

Some exposure compensation may be necessary depending on the type of film and the subject, or the original slide. The numbers in the table below show the exposure compensations in shutter-speed steps. Readjust the shutter speed according to the numbers indicated or reset the film speed. Three marks on the film-speed dial are equivalent to one step.

Original / Type of film	Repro-copying & slide-copying			Photo-micrography
	B&W or color photo	Letters or figures on light background	Letters or figures on dark background	
Panchromatic film for general use	No compensation necessary	$+1\frac{1}{2}$ steps	$-\frac{1}{2}$ step	+1 step

Example 1. If the automatic shutter-speed setting is 1/125 sec. and the table indicates a one-step increase, reset the shutter-speed dial at 1/60 sec.

Example 2. If the automatic shutter-speed setting is 1/125 sec. and the table indicates a one-step increase, move the camera until the black needle of the shutter-speed scale swings to 1/60 sec. Depress the memory-lock lever to the left, and the exposure reading will be frozen while the camera is moved back for shooting.

Example 3. If a film of ASA 100 rating is loaded in the camera and the table indicates a one-step increase, reset the film-speed dial so that the red dot appears opposite 50.

DEPTH OF FIELD

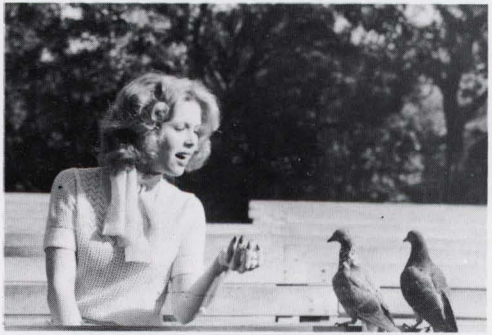
Depth of field refers to a zone within which blur (or lack of definition) will be negligible and everything can be accepted as being in sharp focus. Depth of field extends a greater distance behind the subject in focus than in front. It depends on two factors—reproduction ratio and aperture. The smaller the aperture and the greater the reproduction ratio, the greater the depth of field. By carefully considering the desired perspective and reproduction ratio, as well as available f-stops, full control of the depth of field is achievable.

Depth-of-field scale

The depth of field can be read from the color-coded scale engraved on the lens. The pairs of colored lines correspond to f/numbers of the same color. To find the depth of field at a particular aperture, first focus on the subject. Then check the numbers on the distance scale opposite the colored lines which correspond to the color of aperture to find the depth of field at that aperture.

For example, f/16 on the aperture ring of the 50 mm f/1.4 lens is blue. With the lens prefocused at 17 feet (5 m) the numbers on the distance scale opposite the blue lines show that the depth of field extends from 9 feet to infinity (∞).

Remember that smaller apertures, although rendering a greater depth of field, require slower shutter speeds. Consider both factors carefully before shooting, and always focus accurately.



Lens at f/2 small depth of field

Lens at f/11 larger depth of field

SELF-TIMER

The built-in self-timer, usable for both automatic and manual-override shutter-speed settings, allows delayed exposures of approximately 10 sec. It activates when the lever is turned downward (counterclockwise) as far as it will go. When the shutter-release button is pressed, the timer starts. Independent of the shutter mechanism, the timer can be set either before or after the shutter is wound. Do not use at "B" setting.

* Do not operate the self-timer when making a time exposure.

The exposure meter measures the brightness of the subject immediately before the shutter is released. When the shutter is released with the viewfinder eyepiece uncovered, light may enter through it, and the correct exposure may not be obtained. Therefore, when the self-timer is being used with automatic exposure control, it is recommended that the eyepiece be covered. When the shutter is released while standing in front of the camera, the exposure meter measures only the portion of one's body in front of the camera.

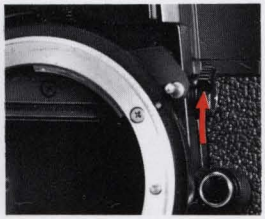
Be careful to avoid such erroneous exposures.

It is not necessary to give consideration to the above matters when taking pictures at manual control. First, confirm the proper shutter speed with the camera set at automatic, then set the shutter speed manually, then trip the shutter.

MIRROR LOCK

The reflex mirror must be locked in the up position when the battery is replaced, or during microscopic photography, where even the minutest shake must be prevented. The mirror must also be locked when using the Fisheye-Nikkor 6 mm f/5.6 or the OP Fisheye-Nikkor 10 mm f/5.6 lenses since their rear elements protrude into the camera body and interfere with mirror movement. To lock the mirror, turn the milled mirror-lock lever upward. The mirror will remain locked in the up position until the lever is returned to its original position.

Caution: When releasing the shutter with the mirror in the locked up position, use the self-timer instead of the shutter release button. This will give adequate time for the lens diaphragm to respond. Failure to observe this precaution may result in incorrect exposure, although there is no danger of camera damage.

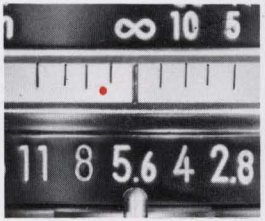


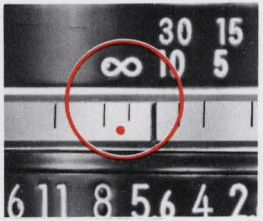
INFRARED PHOTOGRAPHY

In infrared photography, the plane of focus is slightly farther than the one produced by visible light and seen by the naked eye through the view-finder. To compensate for the shift in focus, Nikkor lenses have a red dot or line on the lens barrel near the depth-of-field index scale.

After focusing the image sharply, turn the focusing ring to the left until the red dot lines up with the prefocused distance.

In the example below, a 50 mm f/1.4 lens has been focused at infinity (∞). The focusing ring is turned to the left so that the mark (∞) appears in line with the red dot. When lenses having a focal length of 50 mm or less are stopped down to f/8 or smaller, no adjustment is necessary. For the lenses without red dot (e.g. ED lenses and Reflex Nikkor lenses), no adjustment is necessary.

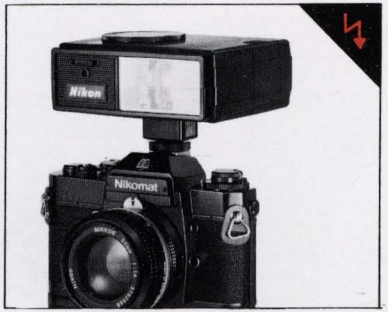


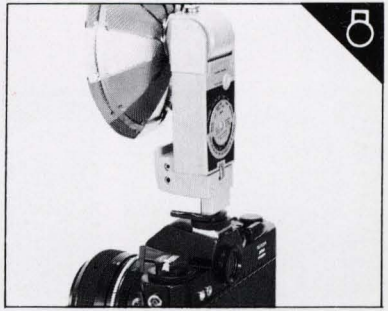


FLASH SYNCHRONIZATION

The Nikomat ELW is designed to synchronize with various types of flashbulbs at almost all shutter speeds and with the speedlights at speeds up to 1/125 sec.

Either a bulb or speedlight flash unit slides over the accessory shoe on top of the pentaprism housing. For units with a hot shoe, the accessory shoe has a hot-shoe contact which eliminates the need for a synch cord. For flash units without a hot shoe, use a synch cord and connect the synch terminal on the side of the camera with the synch socket on the flash unit. The synch terminal on the camera is threaded for positive connection. To prevent an accidental electric shock, the accessory shoe turns on only when the flash unit is in place. Nikon speedlight units SB-3 and SB-4 can be directly attached to the Nikomat ELW. For mounting the Nikon speedlight unit SB-2 or flash unit BC-7, use of the flash unit coupler AS-2 is necessary. To use the Nikon Speedlight SB-5 (Grip type), connect the synch cord SC-5 attached with the SB-5 to the synch terminal of the camera. For details, refer to the instruction manual provided with each unit.



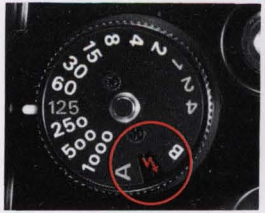


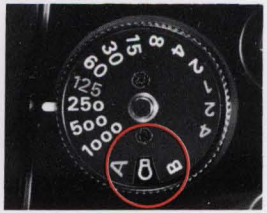
Remember that the camera's auto exposure control works only with constant light sources such as sunlight or photo floods and not with an instantaneous source such as a flashbulb or an electronic flash.

Setting the synch selector

To set the camera for flashbulb, lift up the milled synch selector ring around the shutter-speed dial and turn it until the bulb symbol appears in the selector window. For speedlight, follow the same procedure until the lightning-bolt symbol appears. The table below shows which shutter speeds are acceptable with different types of flashbulbs and speedlights.

Caution: Flash units without a hot shoe may fire accidentally when being slipped into place or when a flashbulb is inserted. Although not recommended, accidental firing may be prevented by covering the hot-shoe contact on the camera body with electrical tape.





Flashbulb	Symbol	Shutter speed (sec.)													
		1/1000	1/500	1/250	1/125	1/60	1/30	1/15	1/8	1/4	1/2	1	2	4	B
M															
FP															
MF															
X (Speedlight)															

= Synchronized = Cannot be used

ACCESSORIES

NIKON AUTO WINDER AW-1

The Auto Winder AW-1 is installed on the Nikomat ELW and makes possible the automatic film winding by one frame, of which speed is approx. 0.5 sec./frame, by pressing the shutter button alone.

This accessory, which is small in size and weight, is convenient for repeated shooting, since it allows you to take pictures without moving your eye from the viewfinder.

FILTERS

Nikkor lenses and Nikon filters are compatible with each other, Therefore, for best results, use Nikon filters, which are made of optical glass, ground and polished so that both surfaces are optically flat and parallel. They are available in both screw-in and series mounts, depending on the lens.

No exposure compensation for filters is necessary with the Nikomat ELW, except the R-60, which is used for infrared photography. The built-in exposure meter reads only the light passing through the lens and therefore compensates for the loss of light.

If you want to use a filter to protect the front of your lens without any overt effect on your pictures, use the L-37 UV haze filter.

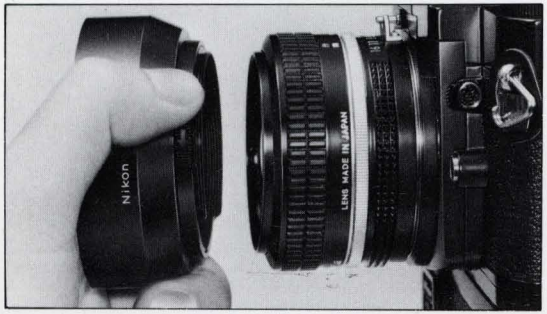
Film	Type	Code	Screw-in mount attachment size (mmφ)					Series mount
			39	52	72	95	122	IX
for both B/W and color films	skylight	L1B	○					
		L1BC		○	○			
	ultra-violet	L37			○			
		L37C	○	○				
		L39		○	○	○	○	○
for B/W films	light yellow	Y44		○				○
	medium yellow	Y48		○	○	○	○	○
	dark yellow	Y52	○	○				○
	orange	O56	○	○	○	○	○	○
	red	R60	○	○	○	○	○	○
	light green	X0		○				
	dark green	X1		○				
for both B/W and color films	polarized light	Polar		○	○			
	neutral density	ND 2X	○					
		ND 4X	○	○	○			
		ND 8X	○	○				
for color films	light amber	A2	○	○				
	dark amber	A12	○	○				
	light blue	B2	○	○				
	medium blue	B8	○	○				
	dark blue	B12	○	○				

* Filters marked "○" are available ones.

LENS HOOD

The use of a lens hood is recommended at all times to prevent extraneous light from striking the lens surface and causing flare or ghost, and also to protect the lens against damage. Nikon lens hoods come in four types depending on the lens: screw-in, snap-on, slip-in and built-in. They are calculated precisely for each focal-length Nikkor lens to provide maximum protection against stray light.

For example, to attach or remove the snap-on lens hood, simply depress the button on either side of the hood. The hood will also fit directly over a screw-in filter so both can be used on a lens at the same time. Use of more than one filter inconjunction with a lens hood may cause vignetting. When not in use, the snap-on hood can be reversed for storage on the lens, and the lens and its hood can be stored together in the eveready case.



OTHER ACCESSORIES

Eyepiece correction lenses

The nine eyepiece correction lenses are designed to permit nearsighted or farsighted users to view and focus without their glasses. Available in −5, −4, −3, −2, 0 +0.5, +1, +2 and +3 diopters, each representing the combined dioptry of the lens and the finder.

These lenses are screwed into the place from where the eyepiece window has been removed.

Finder eyecup

For the following situations, a finder eyecup is recommended:

- When the camera is in the sunlight and the subject is in the shade.
- When the stop-down method is used at small apertures.
- When a shaft of sunlight falls between the eye and the eyepiece.

This is used to prevent light from entering through the eyepiece, making it easy to view the image, and reduces errors in making light measurements. The viewfinder eyepiece is removed, and this eyecup is fitted on to the eyepiece frame. The combined unit is then screwed into the original position for use.

Right angle viewing attachment

With the use of this unit, the field of view of the finder can be seen from above, and copying, close-up picture taking, photomicrography, etc, can be done in more comfortable positions.

Remove the viewfinder eyepiece, and install this attachment where the eyepiece was.

Flash unit coupler AS-2

Flash unit BC-7 can be installed without a cord.

Speedlight SB-3 SB-4

These use the light sensor system and can be installed without a synch cord.

Cable release AR-3

Camera cases

* for Nikomat ELW only
CH-3 Hard Case
CH-8 Hard Case (stored with Zoom-Nikkor 43 ~ 86 mm F3.5 mounted)

* for Nikomat ELW attached with Nikon Auto Winder AW-1
CH-9 Hard Case
CH-10 (stored with Zoom-Nikkor 43 ~ 86 mm F3.5 mounted)

In addition to these accessories, most of the accessory group for the Nikon F2 are available for your Nikomat ELW.

CAMERA CARE CAUTIONS

Good camera care is common-sense care. Treat your Nikomat ELW as you would any valuable precision instrument. Although ruggedly constructed to stand the rigors of normal use, it may still be damaged by shock, heat, water or misuse. Here are some basic tips for keeping your camera in top condition:

Extreme temperature changes

The Nikomat ELW functions faultlessly in a temperature range of 55° to −15°C. Even within this range however, avoid suddenly exposing the camera to temperature extremes—i.e., taking it from the cold outdoors to the warm indoors or vice versa. The sudden, extreme temperature change is apt to form deposits of atmospheric moisture such as sweat beads or frost on the surfaces of the camera body (much like pipes sweating on a hot summer day or winter frost accumulating on the inside of a window during the dead of winter) which will develop into rust and damage the camera's tiny components and electrical contacts. A good precautionary measure is to pack the camera in a moisture-proof bag or a polyethylene bag, along with a silica gel dessicator—and unpack only when the temperature inside the bag has risen or fallen to the ambient level.

Storage

Keep the camera in an eveready or compartment case when not in use to protect it from dust.

Avoid storing the camera in excessively hot, cold or damp places. Always attach a body cap when the camera body is stored separately. Do not leave film in the camera for a long period of time. Never leave the shutter or self-timer cocked if the camera is to be stored overnight or longer.

Camera body

Clean the inside of the camera periodically using a soft brush. Do not exert pressure on the shutter curtain as this may damage the curtain. Keep the mirror free from fingerprints and dust; it should be cleaned only by a qualified serviceman. Special care must also be taken when changing batteries to avoid damaging the battery chamber and other parts of the mirror box.

Keep the camera away from water

Avoid excessive moisture. When using the camera near water, guard against splashes, especially salt-water spray.

Never oil any part of the camera

Lubrication should be left to an authorized serviceman.

NIPPON KOGAKU K.K.

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