INSTRUCTIONS

Nikon

S4

Changing Lenses

To remove a standard lens:

1. Set the distance scale at **infinity**.
2. Depress the spring catch (figure 9) with the left thumb.
3. Turn the lens barrel clockwise with the right hand until the red dot on the barrel meets the red dot on the camera body.

To mount a standard lens:

1. Set the distance scale at **infinity**;
2. Line up the red dot on the lens barrel and the red dot on the camera body.
3. Turn counter-clockwise until the lens clicks into position.

To mount wide angle and telephoto lenses:

1. Set the distance scales of both camera and lens at **infinity**.

2. Line up the red dots on the camera and lens (figure 10), and place the lens over the focusing sleeve of the camera.
3. Turn the lens counter-clockwise till it clicks into position and the safety catch on the lens sets in position.

To remove a wide angle or telephoto lens:

Depressing the safety catch, turn the lens barrel clockwise until the 2 red dots meet.
Then gently lift the lens from the camera body.
Note that telephoto lenses should be focused by turning the

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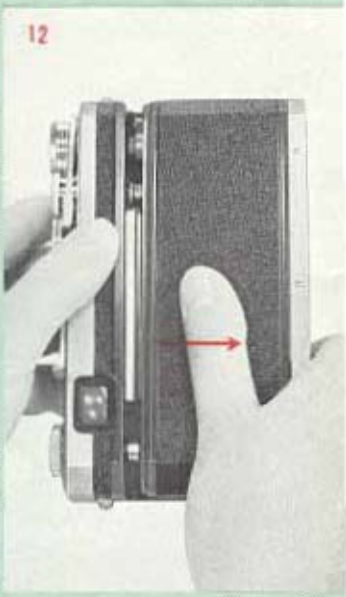
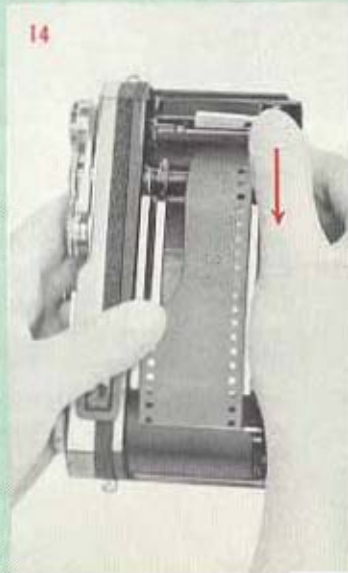
knurled ring on the lens barrel rather than by the focusing wheel on the camera.

When a lens is removed the opening in the camera body should not be exposed to bright light—especially if the camera is loaded. Caution should be taken to keep out dust. A camera body cap is available on order which can be used to protect the inside of the camera, when carried with the lens removed.

To protect the standard Nikkor lens from damage and dust when it is carried separately from the camera, a case and a rear lens cap should be used. Both case and cap are available on order.

Loading the Camera





Turn the semi-circular lock on the camera bottom to the "Open" position (figure 11). The camera back is then unlocked and may be completely removed by sliding it off with the thumb (figure 12).

You will notice that the take-up spool is fixed, assuring more uniform film take-up.

Place a film cartridge or loaded cassette in the left chamber, so that the projection or the outer end of the cassette or cartridge fits into the guide notch.

Insert the end of the leader of the film into the slot on the take-up spool (figure 13) so that the projection in the take-up slot catches the perforation of the film (figure 14).

Rotate the spool in the direction of the film cartridge so that the film passes under the spool and the emulsion side is wound face out.

Replace the camera back and lock it. Turn the collar ring (figure 15) on the shutter release button to "A" (Advance) position*, and shoot one or two "blank" exposures which will dispose of the portion of the film exposed during loading procedure. While doing this, note that the Rewinding Knob rotates in the direction opposite the arrow on the knob, indicating that the film is correctly loaded and is being advanced. If it does not move as indicated after the first blank exposure, gently wind in the direction of the arrow to take up the film slack in the cartridge.

*It is important that the A-R ring on the shutter release button be turned to "A" before the "blank" shots are made.

Exposure Counter

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After loading the camera, shoot two "blank" shots described under "Loading the Camera" p. 12).
Set the exposure counter (Fig. 16) at zero, by turn clockwise the two small lugs on its face. The counter will indicate the number of pictures taken.

Film-Type Reminder Dial

The Film-Type Reminder Dial (figure 17) on the bottom of the camera serves as a reminder of the type of film (expressed in ASA speed) with which the camera is loaded. It can be set for either color or black and white film.
"E" represents "Empty" and may be used to indicate that the camera has been unloaded.


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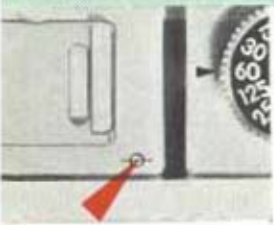
Film Plane Indicator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The marking ⊕ to be found (figure 18) near the accessory shoe of the camera indicates the exact position of the film. It is used when photographing extreme close-ups.
Measuremens from camera to subject should be tckon from this point.

Unloading the Camera

The exposed film must be rewound back into its original cartridge or film magazine.
To rewind the film, turn the A-R ring on the shutter release button to the "R" (rewind) position, lift up the rapid rewind (figure 19) from its position on the rewinding knob and turn it in the direction of the arrow.
As the film is being rewound, a slight resistance will be felt, and the red dot on the shutter release button will revolve.
Keep on winding it until the resistance stops and the dot stops its motion. The film is now completely in the magazine and the camera back may be opened to remove the film from the camera.


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Double Exposure

When a double exposure is intentionally desired, after making the first exposure, set the A-R ring around the shutter release button to "R". Turn the rewinding knob in the direction of the arrow, until the shutter release button makes one complete rotation or slightly over, which can be seen by the travel of the red dot.
Then set the ring back to "A" and wind the shutter for the second exposure. It is not necessary to use the same shutter speed as before.
Note: The double exposure also operates the exposure counter, so the result is that the indication number will become one in excess compared with the actual frame number exposed.

Flash Synchronization

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The connecting cord of the Nikon BC-3 flash unit should be plugged into the synchro-socket (figure 20) on the Nikon camera. (This socket is also used for electronic flash.)

The Nikon BC-5 flash unit fits on the accessory shoe of the Nikon, making instantaneous connection with the flash terminal located in front of the shoe (figure 21), eliminating the need for connecting cord.

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For positive synchronization, set the synchro-selector according to the bulb and shutter speed used. **Lift up** the toothed selector ring (around the shutter speed dial—figure 22), and turn it until the desired colored dots and/or figures, as shown on the following table, appear in the selector aperture (figure 22) adjacent to the dial, then drop the ring into place. By clockwise rotation of the selector ring the above markings come into view in the following sequence :

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Flash Bulb					Shutter Speed
Class	Make				1000 500 250 125 60 30 15 8 4 2 1 s
	G. E. Westing house	Sylvania	Mazda	West	
FP	PH/6	FP/6	No. 6 No. 6Z	No. 6 No. 6Z	
F	PH/SM	Type SF	F 1 F 3 F 5	SM SF SS	
M			Press	P 5	
	PH/5 PH/8	Press 25	No. 0 No. 3 Z 5	No. 0 No. 3	
	PH/M2	Type M2	M 2	M 2	
X	Electronic, instantaneous firing				
	Electronic, with firing delay				

Small FP, M or F class bulbs are recommended for use with the Nikon.

When the Small FP or M bulb is used, select the dot of the color that matches the colored numbers on the shutter speed dial. For example, a shutter speed shown in green color will match with the green dot.

When using F class bulbs, the color of the "F" figure must coincide with the color of the shutter speed being used.

For setting the correct lens aperture, find out the "Guide-numbers" by use of the exposure calculator on your flash unit.

In color photography use of FP or F class bulb is recommended.

Electronic Flash

Most electronic flash units are instantaneous, and have no firing delay. With electronic flash units of this type, set the speed dial at 60 (or slower) and the synchro-selector at FX, as shown on the above table. For units which have a firing delay, the shutter should be set at 30 or slower.

Making the Picture

First, determine and then set the combination of shutter speed and lens aperture you want.

With your left hand, hold and balance the camera. Now, using your right hand, place your thumb along side of the film advance lever ; middle finger on the focusing wheel and the forefinger on the shutter release (see figure 23 and 24).

DON'T FORGET TO REMOVE LENS CAP!

To remove the cap, depress the buttons protruded on either side of it.

With a single stroke of the advance lever (figure 25), the film is advanced, the shutter is wound, and the film counter operates.

When the winding lever has not been wound completely, the shutter cannot be depressed. Wind it up once more, this time fully, then the shutter will operate correctly.

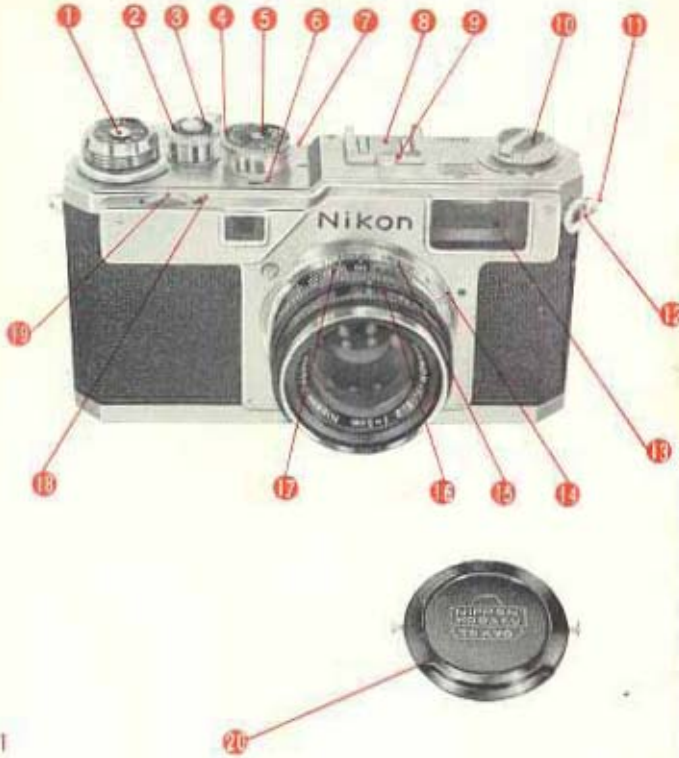
Now, focus by rotating the focusing wheel with your center finger, compose your picture in the view finder, and then shoot by gently depressing the shutter release.

For speeds slower than 1/30 second a tripod or some other support and a cable release should be used, to avoid any possibility of jarring the camera.

When the advance lever is released it will not swing back completely into position but will leave a small clearance for greater convenience in advancing the film for the next exposure.

Note: There is a black dot in the center of the shutter speed dial. When the shutter is wound, this dot lines up with the arrow on the outside of the dial. This serves as a convenient indicator to show that the shutter has been wound.

Note: An automatic shutter release lock prevents accidental firing of flash before the shutter is wound. Once the film has been advanced and the shutter release fired, the shutter release cannot be depressed again until the film has been advanced and the shutter wound.



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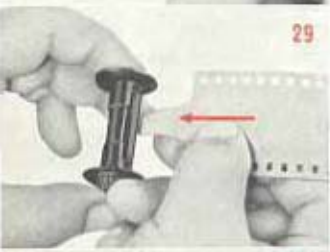
Rear View

21. Eyepiece for combined view-and-range-finder
22. Film type (ASA speed) reminder dial
23. Tripod socket
24. Lock for removing and replacing camera back

Film Cassette

The Nikon camera will accept any standard daylight loading cartridge containing a ready-cut length of 35mm film. The Nikon cassette (or magazine) can be loaded with a ready-cut film length or fed from a stock of 35mm.

The cassette (figure 26) consists of outer and inner shells and a spool. The figures on the bottom of the outer shell are ASA speed and are used as an indicator of the speed of the film in the cassette. The white dot on the edge is the index. The black figures are for black and white film, and the red for color film. When the film has been exposed, the red dot index should replace the white.



To Open the Cassette

Hold the cassette in your left hand, with bottom showing the the ASA speeds, away from you. Depress small button with a right hand finger, and turn the inner shell of the cassette clockwise (figure 27) until the side openings of both the shells meet and the inner shell simultaneously pops out slightly, ready to be pulled out (figure 28).

To Load the Cassette

(In the dark room)

Trim the end of the film so as to form a tongue to be fed into the spool. This must not be made too wide for it has to be pulled out at the other side of the spool slit when the film has been exposed and cut away. To load the spool, first hold it in your left hand with the projecting end toward you. Thread the film tongue with the right hand (figure 29), emulsion surface downward, through the larger opening of the slot in the spool. When the teeth inside grip the film, wind the film on the spool (emulsion surface in).

Insert the loaded spool into the inner shell, so that the projecting end fits the opening at the opposite end. Then hold the outer shell in your left hand and slide it over the inner shell. Be sure the film end extends out of the outer shell (figure 30).

Push the top of the inner shell until it seats. Then, turn it counter-clockwise within the outer shell until you hear two clicks. The cassette has now been loaded, and is perfectly light tight, and is ready to be placed in the film chamber of the camera.

To Unload the Cassette

(In the dark room)

The loaded cassette should be opened as described above, the spool taken out, the film unrolled and cut off at the spool (figure 31).

The film end remaining in the slot should be pulled out in the opposite direction from which it was inserted.

Exposure Meter

Coupled with the Shutter Speed Selector of the Nikon S4

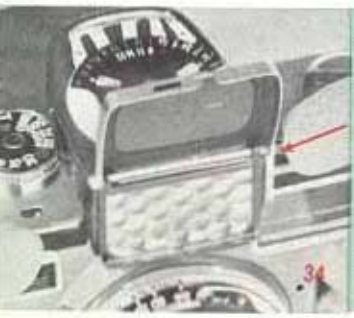
A photoelectric exposure meter is available which couples with the shutter speed selector dial of the Nikon S4 and permits instant setting of the correct time of exposure, when the meter is adjusted for the prevailing light conditions and for the aperture setting of the lens.

Insert the Nikon exposure meter into the camera accessory shoe from the front and slide it in as far as it will go. Once in position, push the exposure meter slightly to the left (figure 32), so that it disengages from the gear around the shutter speed selector. Hold it in this position and set the speed dial of the meter at 1000, and turn the camera shutter selector until the same shutter speed (in this case 1000) is brought opposite the index mark, found above the toothed wheel on the side of the meter. In this position, put the selector into gear with the wheel.

Set the type (speed) of the film being used by turning the ASA disc on the top of the exposure meter.

Turn your camera towards the subject to be photographed and by revolving the camera shutter speed selector (figure 33) set the F-number scale on the meter to the needle pointer according to the lens aperture selected. The shutter speed selector of the camera has now been set at the correct exposure time, ready for photographing that scene.

On the other hand, if a particular shutter speed is set on the shutter speed selector of the camera, the suitable F-number can be read opposite the pointer of the exposure meter.
In bright light the hinged light-shield with a small slit should be lowered, and the black F-number scale used.
In dim light, the shield should be raised by depressing the red colored button at the left end of the shield hinge (figure 34), and the F-number scale in red used.
In extremely dim light conditions, sensitivity of the exposure meter can be increased by inserting the booster (amplifier) cell (figure 35) into the clip on the side of the meter. In this case the red F-number scale is also used. However, resetting of the shutter speed selector must be done in the following way: Read the shutter speed figure opposite the supplementary index, which is indicated by a small square marking ▫, and shift that figure to the principal index ▼ by turning the speed selector of the camera.
When the exposure time required is longer than one second the shutter speed selector will stop at B and the F-number on the meter should be set by turning the speed dial on the meter. Take the reading of the correct exposure time on this dial. Now, release the shutter at the B setting for the time interval indicated.
While the Nikon exposure meter has been designed primarily to measure reflected light it can be used for incident light readings. When used for incident light readings the opal plate (s) furnished should be inserted in front of the meter (and the booster).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Infra-Red Pictures

When infra-red picture is taken, the distance setting obtained by means of double image coincidence through the combined view-and range-finder has to be rectified before shooting. This is done by moving out the lens slightly, until the focused point on the distance scale comes to the position as indicated in the following table, according to the lens being used.

Standard 50mm lenses	F : 2	Up to 2.8	scale line on the right hand side (the lens toward you) of the depth of field scale of the camera (see below)
	F : 1.4	Up to 4	
	F : 1.1	Up to 5.6	
Interchangeable other lenses		Up to R marked red dots or lines on the lens barrels	

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Here are shown (figure 36) by the arrows, for the focused point 20 feet (for example), the amounts and the direction to be revolved of the lenses 50mm F : 2, F : 1.4 and F : 1.1, when taking infra-red picture.

Nikon Filters

Filter Mount

Nikon filters are available either in screw-in mount or in series type rated after American Standard Series System. Screw-in filters are used with snap-on Nikon lens hoods and with snap-on Nikon caps. Series type filters should be used with screw mount Nikon lens hoods or their adapter ring inserts.

Size of Filter

Choose the filter of correct size for your Nikkor lens consulting the right-hand table, as satisfactory results may not always be ensured with other makes, e. g. unsuitable filter be liable to vignette the picture corners, scratch the lens surface, etc.

Filter		Nikkor Lenses in Nikon Mount
Series Type	Screw in Type	
VII	—	25mm F: 4
VI	43	28mm F: 3.5
—	43	35mm F: 1.8
VII	43	35mm F: 2.5
VII	43	35mm F: 3.5
—	62	50mm F: 1.1
VII	43	50mm F: 1.4
VI	40.5	50mm F: 2
VII	—	85mm F: 1.5
VII	48	85mm F: 2
VII	52	105mm F: 2.5
VII	43	135mm F: 3.5
IX	—	180mm F: 2.5
IX	—	250mm F: 4
110mm	—	500mm F: 5

Filter Factor

Correct filter factors depend upon color of light and color sensitivity of film used, but the figures indicated here are accurate enough for normal purposes when using a standard medium speed panchromatic film.

Color and Shade		Denomination engraved on the filter	Filter Factors	
			Daylight	Artificial Light (Tungsten)
Yellow	Light	Y43, Y44, Y45	1.5	1
	Medium	Y47, Y48, Y49	1.7	1.2
	Dark	Y51, Y52, Y53	2	1.5
Orange		O55, O56, O57	3	2.5
Red		R59, R60, R61	6	
Green	Light	X0	2	1.7
	Dark	X1		2
Ultra-Violet		L38, L39, L40	1	1
Neutral	ND4X	ND4X	4	
	ND8X	ND8X	8	

View Finders

The Nikon camera S4 is equipped with a built-in view finder in which the exact view fields for normal 50mm, wide angle 35mm and telephoto 105mm lenses are indicated.

When using a Nikkor lens of other focal length than the above lenses, the special view finder to suit the lens or a universal view finder becomes necessary which can be attached on top of camera.

Individual View Finder

Each for 25mm*, 28mm, 85mm or 135mm lens (figure 37) is attached on the accessory shoe of the Nikon camera. Parallax correction is provided for the telephoto finder.

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*The individual finder for 25mm lens is supplied with the lens as a unit.

Universal View Finder

While an individual view finder is good for some one type of focal length only, an universal view finder is designed for universal duty for all of the types of lens from 28mm through 135mm.

There are two types of universal finder, the one is of varifocal type and the other of variframe type.

When 28mm lens is used, put an attachment lens on the finder front, the indicator being set at 3.5. The attachment lens is available on order.

Varifocal View Finder

This universal finder (figure 39) maintains a fixed picture frame and varies the size and area of the image within it. Slip the finder with its eyepiece toward the back of the camera onto the accessory shoe. Set the scale located near the front of the finder barrel according to the focal length of the lens being used. Focus the lens and then set the parallax adjusting ring near the rear end of the finder barrel (figure 38), in conformity with the focused distance shown on the camera lens.

Use the red indicator for distance of 5 feet or less and the black indicator for distances over 5 feet. Use of the red indicator is in order to adjust a slight difference in view angle of camera lens for nearer subjects as against that for farther subjects.

There are two graduations without figures in the scaling, which indicate the points where the visual image magnification is 1× and 0.5× respectively.

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Variframe View Finder

This type of universal finder (figure 39) varies the picture frame area to conform to the field of view of the lens being used. The size of the image shown in the finder remains unchanged.

The handling of this type of view finder is the same as the varifocal type previously described. Only the difference is that the variframe type has no graduation indicating 1× and 0.5× image magnification, at the magnification of image doesn't vary as in the case with the varifocal finder.

Lens Hoods

A lens hood should be used even when the lens is not turned toward the light or there is no stray light present. Two types of Nikon lens hoods are available :


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The snap-on lens hood* is attached and detached by depressing the buttons on either side of the hood figure 40). It can also be fitted directly over the screw-in filter (except for 35mm F : 1.8 lens) when the latter is used together with the hood.

The hood can also be attached to the lens in the reverse position (figure 41) for storage in the ever-ready leather case for Nikon camera.


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The screw-on lens hood is supplied complete with adapter ring and adapter ring insert. The series filter is held between the adapter ring and the lens hood. When the hood is not used, the filter can be held between the adapter ring and the adapter ring insert.

When the hood only is to be used, an adapter ring insert is not required.

* Not available for Nikkor 50mm F : 1.1 lens.

Care of the Nikon

The outside parts of the camera body should be cleaned with a piece of soft linen.

To clean the inside of the camera body, use a soft hair brush or a handblower with care, but not a fraying cloth. Keep the film pressuse plate clean.

To clean lens surface, first, remove dust with a feather or handblower, and then use tissue paper or soft washed-out linen.

When removing the lens from the camera, be extremely careful not to scratch the lens surface.

Alcohol should be used sparingly, as an excess of it may find its way to the balsam layer and impair the quality of the lens.

Do not try to dismantle the lens. If there is any question concerning the lens, refer to your dealer or to the manufacturer.

Don't oil the mechanism. The factory is using a special oil which does not permit to be mixed with ordinary oil.

Lens Characteristics

High grade optical glass may sometimes contain small bubbles. These bubbles present in a lens do not interfere with lens quality and have no bad effect on the pictures.

Coated lens surfaces may sometimes show slight "slicks" when viewed by reflected light. These "slicks" have no effect on transmitted light and will not affect picture quality. A careful cleaning will usually remove them.

Front View

1. Exposure counter
2. Single stroke film advance lever
3. Shutter release button (with screw thread for attaching cable release)
4. A-R ring, for setting film advance (A) and film rewind (R)
5. Shutter speed selector dial
6. Synchro indicator for flash synchronization
7. Synchro selector for flash synchronization control
8. Accessory shoe
9. Electric contact for cordless flash gun
10. Film rewinding crank
11. Eyelet for neck strap
12. Terminal for flash and electronic flash
13. Combined view-and-range-finder window
14. Depth of field scale
15. Spring catch for lens
16. Lens aperture (f-number) set ring
17. Distance scale
18. Infinity lock for focusing wheel
19. Focusing wheel
20. Snap-on lens cap

Nikon Eveready Case

After putting the camera in the case (figure 42), fasten the locking screw nut found on the bottom.

This nut is also threaded so it can be attached to a tripod without removing the camera from the case.

The eveready case permits the use of camera by simply detaching its snap-on front only.

To detach the front (figure 43) use your thumb to pry up the snap-on either end. Do not try to remove the front by simply pulling.

To attach, reverse the above procedure. Do not press down on the snap-on buttons but slip the snaps on the bottom of the case into the sockets on the removable front, slantwise, and then, press down (figure 44).

Caution!

- When the camera is carried in the eveready case, be sure to fasten the locking nut screw fitted on the bottom of the case, so that the camera will not drop out.

- The lens must not be turned against the sun at any time. The shutter curtain may be scorched by the focused image of the sun.

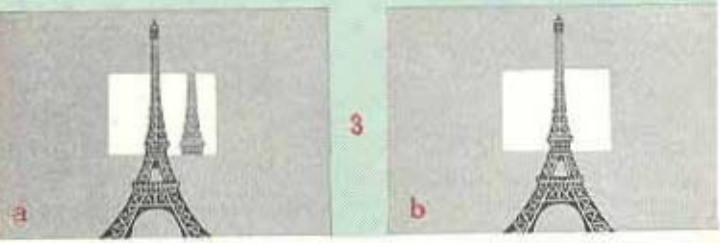
- When camera is not in use, the lens focusing wheel should be located at the infinity position. The shutter and self-timer should not be kept in a wound position for any length of time.

- Do not lose the guarantee card which bears the serial numbers of the camera and lens. It is also advisable to keep a record of these serial numbers in the event that you lose the camera or lens.

NIPPON KOGAKU K. K.

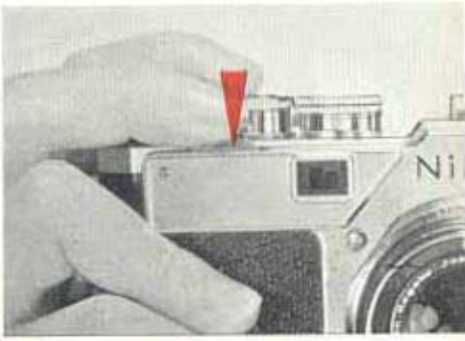
Contents

Focusing



If you look through the combined view-and-range-finder eyepiece (figure 1), you will see a light-tinted rectangle in the center of the window. This is the rangefinder portion of the view-finder.

When out of focus, the subjects are seen as a double image (figure 3a). A subject in sharp focus appears as a single image in the rectangle (figure 3b).



To bring your subject into sharp focus:

a) Press the infinity lock on the focusing wheel (figure 4) and rotate the wheel slightly.

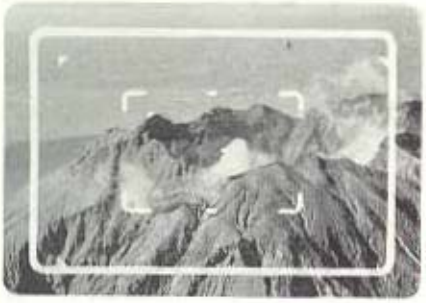
b) Continue to rotate the focusing wheel until the double image in the rangefinder window merges into a single image (figure 3b).

For faster, sure focusing: when holding the camera horizontally, focus on vertical lines on the subject; when holding the camera vertically, focus on horizontal lines.

Your subject is now in focus. If you should want to know the exact distance from camera to subject, merely look at the figure on the distance scale, opposite the index mark on the focusing mount.

Composing

Look through the combined view-and-range-finder eyepiece. You will see two bright frames, one inside another, (figure 5), the outer one indicating the exact field of view for 50mm normal lenses and the inner one for 105mm telephoto lenses.



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Note that the viewing image is life-size and that the parallax* for each of the two different viewing fields is indicated by the subsidary corner marks, which should be used as the frame lines when viewing a subject at the closer distance than 7 ft., so that the actual pictures will not be chopped off at top and side.

* Parallax means a slight difference in the view field coverage between that obtained through the view finder and that through the camera lens and this discrepancy becomes more pronounced as the subject gets closer to the camera.

Shutter Settings

All 13 click-stop shutter speed settings are on a single selector dial (figure 6), which can be set before or after the shutter is wound. Speeds are: 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/125, 1/250, 1/500, 1/1000, B and T.

The dial turns a full 360° in either direction and can be set from fastest to slowest speeds without obstruction.

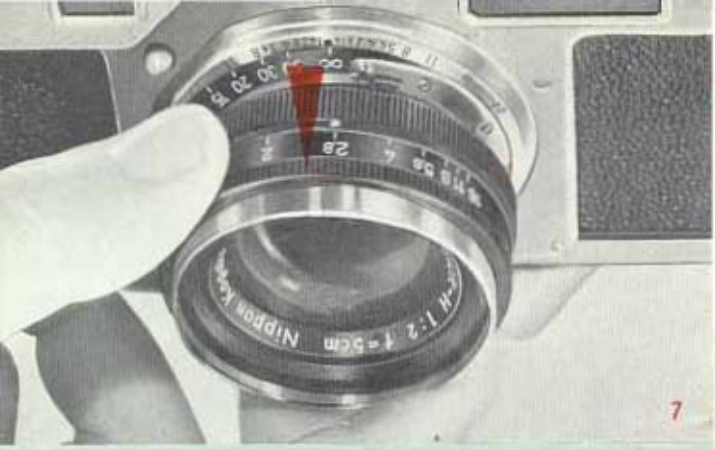
Numbers on the Speed Selector Dial represent the actual shutter speed. For example, 125 on the dial represents 1/125 second.

Bulb Exposure: When the dial is set at "B", it will remain open for as long as the shutter release button is held depressed.

Time Exposure: When the shutter button is once pressed at "T" exposure, the shutter will remain open even if pressure is removed. To close the shutter, turn the dial right or left until the B or 1000 mark passes the index.

For greater convenience when using flash, the dial is color coded to coincide with the color coding of the Synch Control (see "Flash Synchronization" p. 15 for details).

The circumference of the shutter speed dial is toothed for direct coupling to the Nikon Exposure Meter.



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Lens Aperture Settings

To set the lens opening (expressed as an "F" number), turn the diaphragm ring (figure 7) so that the desired F-number is opposite the dot on the milled ring of the lens barrel.

F-number markings on Nikkor lenses are arranged so that each consecutive marking, starting at the widest opening, halves the speed of the lens. Shutter speeds on the Nikon camera are similarly arranged. As a result, once a correct exposure has been determined, any combination of correct lens stops and shutter speeds can be easily selected.

For example, if the correct exposure for a given setting is a F : 2 lens opening at 1/500 th of a second shutter speed, F : 2.8 opening at 1/250 th of a second speed will give the same exposure on the film; and so on for the rest of the table. The following table may be of some assistance in visualizing the relation between F-numbers and shutter speeds, as explained above.

F-number	1.4	2	2.8	4	5.6	8	11	16
Exposure time (Shutter speed) in ratio	1/1000	1/500	1/250	1/125	1/60	1/30	1/15	1/8

Depth of Field

Depth of Field is the range of distances between the nearest and the farthest limits of a subject within which acceptable image sharpness is attained. The sharpest image is at the point at which the lens is focused.

Depth of Field varies with the lens opening (F-number) and with the distance. The larger the F-number used, the greater the Depth of Field; in reverse, the smaller the F-number, the smaller the Depth of Field.

Depth of Field also increases with the distance from camera to subject. In the Nikon camera, there is a depth of field scale (figure 8) engraved directly on the camera itself, eliminating the need to use separate tables.

For Example :

Set the 20 foot marking on the distance scale to the index dot (see figure 8). You will note that each F-number is indicated on the scale, once to the right and once to the left of the index dot. When you are taking a picture with an F : 8 opening, the distance indicated by the number "8" on either side of the index dot will be 12 feet and about 50 feet. This means that a picture taken at F : 8, with a lens focused at 20 feet, will show a range of acceptable sharpness between 12 and 50 feet. The sharpest point will be at the 20 foot distance.

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