

***Nikon***

**INSTRUCTIONS**



## FRONT VIEW

1. Automatic exposure counter
2. Film load reminder
3. Single stroke film advance lever
4. Shutter release button (with screw thread for attaching cable release)
5. A-R ring for setting film advance (A) and film rewind (R)
6. Shutter speed selector dial
7. Synchro selector ring for flash synchronization control
8. Synchro indicator for flash synchronization
9. Eye-level penta-prism viewfinder
10. Accessory shoe
11. Film rewind crank
12. Terminal for flash and electronic flash
13. Lens aperture (F-number) pre-select ring
14. Aperture indicator dot
15. Distance indicator with depth of field scale

16. Release button for removing lens
17. Lens focusing ring with distance scale
18. Mirror-lock knob
19. Calibrated, dual purpose self-timer
20. Depth-of-field preview control button
21. Diaphragm slot for coupling diaphragm to exposure meter

## REAR VIEW

22. Release button for detaching the view finder
23. Finder eyepiece window
24. Film speed (ASA speed) reminder dial
25. Tripod socket
26. Lock for removing and replacing camera back

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**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.
- Don't exert any force against the shutter curtain of the camera, which is made of extremely thin titanium foils, as it may damage the curtain.
- When the camera is not in use, the shutter and self-timer should not be kept in a wound position for a long period.
- 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.

Item	No.

## CARE OF CAMERA AND LENS

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

To clean the inside, use a soft hair brush or a handblower with care. Do not use frayed cloth. Keep the film pressure plate clean.

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

When cleaning the mirror surface, be careful not to apply too much pressure. Alcohol should be used sparingly for cleaning the lens surfaces, as an excess of it may reach the balsam layer and impair the quality of the lens.

As the finder screen is made of synthetic glass, handle it with special care so as not to scratch its surface.

Don't oil the camera mechanism. The Factory used special oil which can not be mixed with ordinary oil.

Do not try to dismantle the lens. If there is any question concerning your equipment, refer to your Dealer or to the Manufacturer.

## LENS CHARACTERISTICS

High grade optical glass may sometimes contain small bubbles. These bubbles in a lens do not interfere with lens quality nor do they affect picture quality.

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.



## EVEREADY CASE

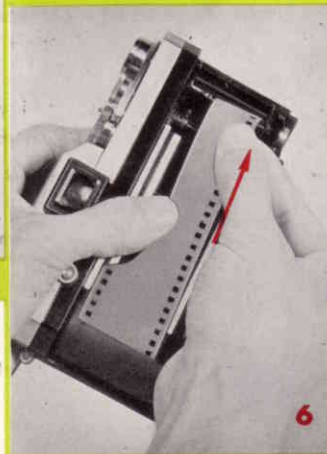
After putting the camera in the case fasten the locking screw nut found on the bottom.

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

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

A soft leather case is also available.

## LOADING THE CAMERA



Turn the lock on the camera bottom to the "Open" position (Fig. 4). The camera back is then unlocked and may be completely removed by sliding it off with the thumb (Fig. 5).

The take-up spool is fixed and cannot be taken out, assuring more uniform film take-up and easier film loading.

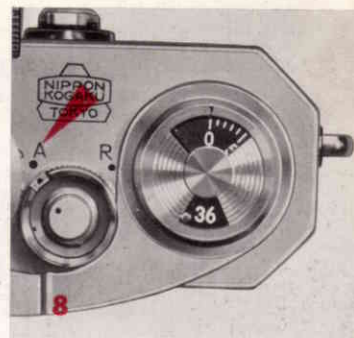
Place a film cartridge or loaded cassette (See p. 28) in the left chamber, so that the projection of the cassette fits into the guide notch.

Insert the end of the leader of the film into the slot on the take-up spool (Fig. 6), so that the projection in the take-up slot catches the perforation of the film (Fig. 7).

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 A-R ring (Fig. 8) 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. While doing this, note that the rewinding knob rotates in the direction opposite to 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 it in the direction of the arrow to take up the film slack in the cartridge.

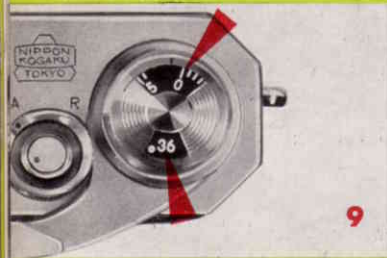
\* It is important that the A-R ring on the shutter release button be turned to "A" before the "blank" shots are made.



## AUTOMATIC EXPOSURE COUNTER

The Exposure Counter (Fig. 9) on the camera automatically returns to one or two spaces before zero when the camera back is removed.

After loading the camera, shoot two or three "blank" shots, until the counter registers 1. The camera is now ready for the first shot. Thereafter, the counter will automatically advance consecutively up to 36.



## FILM LOAD REMINDER

This feature indicates whether you have loaded a 20 or 36 exposure magazine. Move the indicator pin located to the left of "36" (Fig. 9) to change the indicator to "20".

## FILM-TYPE REMINDER DIAL

The Film-Type Reminder Dial (Fig. 10) 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 is not loaded.



## PRE-SELECTING LENS APERTURE

To pre-set the aperture, turn the aperture ring on the lens barrel until the desired F-number is opposite the black indicator dot on the milled ring (Fig. 11). The diaphragm can be pre-set for intermediate openings—between markings—and will still function automatically without disturbing the setting.

Interchangeable Nikkor-Auto from 28mm through 135mm (except 105mm F: 4 lens) and Telephoto-Zoom lenses are designed so that the diaphragm automatically closes down to the preselected aperture when the shutter button is depressed. The diaphragm automatically reopens to full aperture immediately after the shutter has been fired. Consequently, the finder image is seen bright and clear at all times except for the instant the shutter is released.

A button (Depth-of-Field Preview Control) is provided on the front of the camera to permit closing down the diaphragm manually to the preselected aperture. When this button is released, the diaphragm automatically opens to full aperture (See page 17).

When interchanging lenses, no attention need be paid as to whether the shutter was previously wound. The diaphragm is automatic and foolproof.



## SHUTTER SETTING

All 13 click-stop shutter speed settings are on a single selector dial (Fig. 12), 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 shutter speed setting desired is made by aligning the speed wanted with the black dot on the camera body.

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 1/125th second.

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

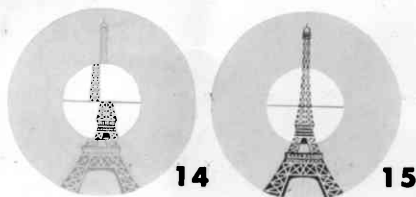
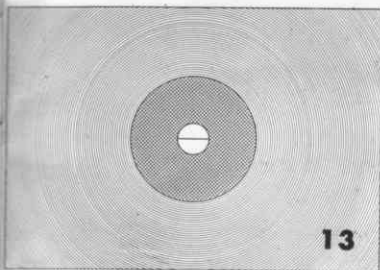
**Time exposure:** When the dial is set at "T" the shutter will remain open even after your finger is removed from the shutter release button. To close the shutter, turn the dial to the right or to the left.

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. 22 for details).

Note that there is a pin on the top of the shutter speed selector dial to permit direct coupling of speed dial to exposure meter.



## FOCUSING



If you look through the eyepiece of the Eye-Level Viewfinder, you will see a brilliant finder image reflected in the Fresnel-type screen. In the center of the finder field is a circular, split-image range finder section (Fig. 13).

When out of focus, the subjects are seen as a split-image (Fig. 14) in the center and at the same time are blurred in the remaining area of the finder screen. If a subject is in sharp focus, the split-image in the center becomes complete and continuous (Fig. 15) and the image appears sharp in the remaining area.

To bring your subject into sharp focus, turn the focusing ring (Fig. 16) on the lens to the right or the left.

To determine the exact distance from the camera to the subject on which you have focused, look at the figure on the distance scale, opposite the black indicator line.

The Nikon F is designed so that its reflex mirror is in "position" at all times, permitting continuous, uninterrupted viewing and focusing (except for the instant shutter is released). The mirror returns to precise focusing-viewing position the instant the exposure is made, even with the camera held upside down.

## MAKING THE PICTURE



With a single stroke of the advance lever (Fig. 17), the film is advanced, the shutter is wound, and the film counter operates.

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

Now, focus by rotating the focusing ring, 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 black dot on the outside of the dial. This serves as a convenient indicator to show that the shutter has been wound.

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

## PICTURE COMPOSING

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

Place your left hand under the camera (Fig. 18), with your thumb and forefinger on the focusing ring of the lens. Grasp the camera with your right hand, cradling the lower right-hand corner of the camera in the palm of your hand. Use your thumb to advance the film and your forefinger for the shutter release button.

Since the "taking" lens of the single-lens reflex camera is also used as the viewieg lens, the finder shows the exact picture that will appear on your film. Regardless of focal length of the lens being used or the shooting distance, no accessory finder\* is required, even if the lens is changed; and no problem of parallax arises at whatever distance the picture is taken.

\* When the 21 mm super wide angle lens is used, the mirror must be raised because of the deep seating of the lens in the camera. Consequently an individual accessory view finder is available for use with this lens.



## DEPTH OF FIELD

Depth of Field is the range of distance 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 focused 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 as the distance from the camera to subject increases.

Nikkor lenses (from 21 mm through 135 mm) for the Nikon have a color-coded depth of field scale engraved on the lens barrel opposite to the distance scale, permitting easy reading of Depth of Field for the selected aperture. Each set of differently colored lines, one to the right and the other to the left of the middle black indicator line, represents a different F-number the color of which matches the colored F-number figure on the aperture scale.

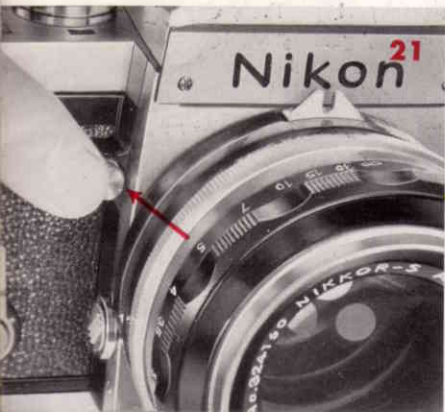
For example, when you are taking a picture using the 50mm F: 1.4 lens, with the distance scale set at 30 ft. and with F: 11 opening, (F: 11 is shown in yellow) the depth of field indicated by the yellow-colored lines on either side of the black indicator line will be between 15 ft. and  $\infty$  (Fig. 20). This means that a picture taken at F: 11, with a lens focused at 30 ft. will show a range of acceptable sharpness between 15 ft. and  $\infty$ . The sharpest point will be at the 30 ft.



## DEPTH OF FIELD PREVIEW CONTROL

The button located on the camera front (Fig. 21), is the instant-action preview control. Press the button and the diaphragm closes down to the aperture you selected. This permits you to see the depth of field (See Page 16) at "taking" aperture, or it permits you to select the "taking" aperture you want on the basis of depth of field. Release the button and the diaphragm instantly reopens. The preview control is independent of the shutter release and cannot cause accidental exposure.






When using the preview control note that the split-image portion of the finder will slightly darken if the preselected aperture is smaller than F: 4.5.



### Caution!

Do not release the shutter, while the Depth of Field Preview Button is being depressed. This will cause the inside reflex mirror to remain in the "up" position. If this should happen make a blank exposure, and the mirror will return to normal viewing position.

## INTERCHANGEABLE VIEWFINDER SCREENS

Type	Designation	Features
A	Split-image 	Fresnel lines with mat surface. Split-image rangefinder in the clear center spot permits rapid and accurate focusing. Good for general use.
B	Mat-Fresnel 	Same as Type A, but does not have split-image circle. For general use including close-ups. Especially recommended for Medical-Nikkor, Reflex-Nikkor 1000 mm F: 6.3 etc.
C	Cross-hair 	Plain mat; clear center spot with cross hair etc. Focusing is performed by checking parallax between cross hair and subject images. For use in photomicrography and astrophotography.
D	Plain-mat 	Plain mat. Fine for situation in which Fresnel lines are also inappropriate. Uninterrupted, uniform finder image. Not recommended for normal and wideangle lenses, because of image shading off at the corners.
E	Checker board 	Same as Type B, but with etched fine "checker board" vertical and horizontal lines. Particularly good with PC-Nikkor for architectural and interior photography, as well as for reproduction work.

Five types (A-E) of viewfinder are available which are exchanged with each other to suit your convenience, i. e. depending on what type of lens is used and what subject is to be photographed.

To change the screen, first remove the viewfinder by depressing the finder lock button on the camera back (see p. 19). Then, depressing the lock button again, gently turn the camera upside down. The screen will drop into your hand.

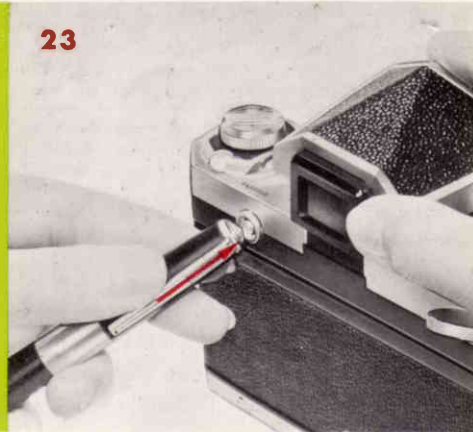
To replace the other screen, depressing the lock button, insert the screen into the camera, facing the flat mat surface of the screen downward and the two notches found on the upper edge of the screen frame toward the rewind knob end of the camera.

### Caution

- Keep the screen surfaces free from dirt, finger marks, etc.
- Except the glass-made types C and D, the screens are made of acryl resin. Handle them with special care so as not to give scratches or warps.

## CHANGING THE VIEWFINDER

The eye-level viewfinder with penta-prism can be interchanged with the waist-level finder (Fig. 22) or Photomic Finder (p. 27). To change the finders, depress with a pointed piece the lock button located on the back of the camera (Fig. 23), and then lift the finder. To replace a finder, put it back into position on the camera and then press down gently until a click is heard.



## CHANGING LENSES

To remove the lens, hold the camera as shown in Fig. 24; depress the lock button and turn the lens barrel clockwise until the black dot on the aperture indicator of the milled ring of the lens lines up with the black dot on the camera body.

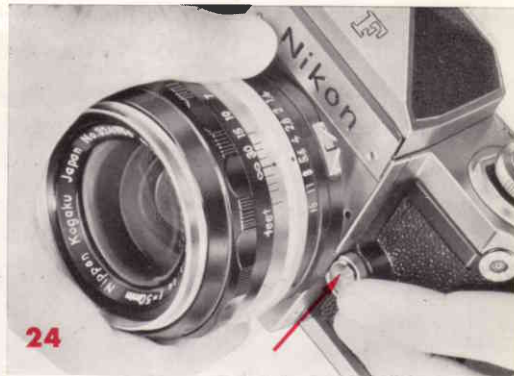
To mount a lens\*, line up the black dot on the lens with the black dot on the camera body, press in gently and turn the lens counterclockwise until the lens clicks into position.

### Caution :

When the lens is removed, the opening in the camera body, should not be exposed to the sun, especially if the camera is loaded. Protect the inside of the camera by using a body cap, whenever the camera is carried or kept with the lens removed.

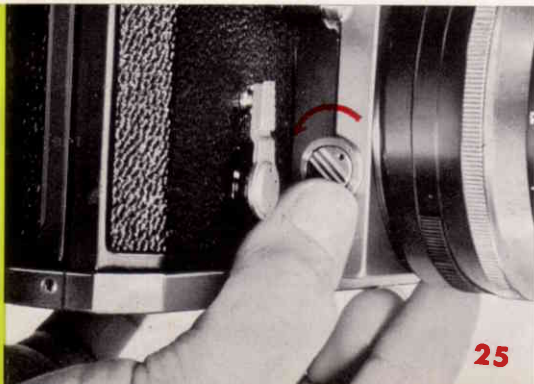
When the lens is carried separately, protect it against damage and dust by using a case and the front and rear caps.

\* When mounting the 21 mm F: 4 wide angle lens or Fish-Eye Nikkor (super wide angle) do not forget to lock the reflex mirror in the up position. To mount the lens, line up the black dot on the lens base ring with the white dot, and then the latter with the black dot on the camera. Turn the base ring with the black dot (instead of the whole lens barrel) until the lens clicks into position.



## LOCKING THE MIRROR UP

To lock the mirror in the "up" position turn the button (Fig. 25) upward until the black dot on the button meets the red dot on the camera body. Wind the shutter and then shoot (a blank exposure is made). The reflex mirror will move up, out of the way, and will not return to position after the shutter has operated. This is necessary when using the 21 mm (super wide angle) lens, or Fish-Eye Nikkor (super wide angle) because of its deep seated mount. (An accessory 21 mm finder which attaches to the camera accessory shoe, is available for use with this lens). The locking "up" of the mirror mechanism is also important for continuous shooting with the Nikon Electric Motor Drive, at 4 frames per second, or for a sequence of copying work or in photomicrography.



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To return the mirror to its original focusing and viewing position, turn the button (Fig. 23) downward until the black dot on the button meets the black dot on the camera body. This should be done after the shutter is released. Otherwise, the mirror will not return to position until the next exposure is made.

Note that if the knob is turned after the film advance lever is wound up, the mirror does not return until the shutter is released (a blank shot is made).

## FLASH SYNCHRONIZATION

The Nikon BC-5 flash unit is mounted on the accessory shoe of the Nikon F by means of an Adapter. Instantaneous connection is made with the flash terminal located on the adapter (Fig. 26), eliminating the need for a connecting cord.

On the front left side edge of the camera there is a synchro-socket (Fig. 27) which accepts a regular flash unit ("Nikon BC-6" is recommended) or an electronic flash, provided with a standard PC flash cord or the snap-in Nikon flash cords.

For positive synchronization, set the synchro-selector according to the bulb and shutter speed used. See table on page 23. Lift up the milled selector ring on the outer edge of the shutter speed dial (Fig. 28), and turn it until the desired colored dot and/or figure, appears in the selector window (Fig. 28) 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 :



28

27

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 color dot that matches the colored numbers on the shutter speed dial. For example, a shutter speed shown in green 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, determine the "Guide Number" by use of the exposure calculator on the flash unit.

Flash bulb					Shutter Speed											
Class	Make				1000	500	250	125	60	30	15	8	4	2	1	B
	G. E. Westing-house	Sylvania	Toshiba (Mazda)	National (West)												
FP	No. 6	Type FP/26	No. 6 No. 6Z	No. 6 No. 6Z		●			●							● F
F	No. SM	Type SF	F-1 F 2 F 3	SM SF SS					● F							● F X
			Super Press	M 5		●			●							● F
M	No. 5 No. 8 M 5	Press-25 M 25	Super 3	No. 3 Z-Press			●		●							● F
	M 2	Type M2	Super 0 Super 2M	No. 0 MX-0												● F
	AG 1	AG 1	US1													● F
X	Electronic, instantaneous firing															● F X
	Electronic, with firing delay															● F X

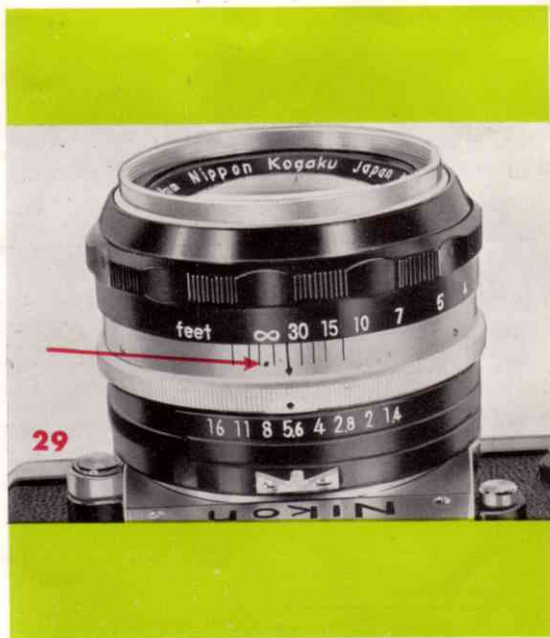
## Electronic Flash

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

The table is applicable to the bulbs with additional mark B, which are used for color film of daylight type, for example, AG 1 B.

## INFRA-RED PICTURES

When taking [infra-red pictures the distance obtained by focusing on the screen has to be adjusted before shooting. This is done by rotating the lens slightly, until the focused point on the distance scale is changed to align with the red dot on the lens barrel. For example in Fig. 29 the 50 mm F: 1.4 lens—in this case focused at infinity—has been rotated slightly so that the infinity marking  $\infty$  is now aligned with the red dot.



## SELF-TIMER

The calibrated, dual-purpose Self-Timer allows you to trip the shutter in approximately 3, 6, or 10 seconds, or any intermediate time delay. It can be set before or after winding the shutter.

To set the Self-Timer, push the lever down (Fig. 30)\*. To start the timer, depress the release button beneath the lever. When the predetermined time delay has elapsed, the shutter is automatically released. Setting the indicator line to the nearest white dot will give approximately a 3 second delay; the next dot, approximately a 6 second delay; and setting the lever to the third dot gives approximately a 10 second delay. Note that the timer does not operate unless the lever is set to the first dot (or any position beyond this dot).

The Self-Timer is also an ingenious aid for hand-held exposure at slow shutter speed. Wind the shutter. Set the Self-Timer for 3 seconds. Press the release button, and then use the delay to steady the camera with both hands.

The Self-Timer should not be used for B or T setting.

If you decide not to use the Self-Timer after it has been wound, take the picture at the speed you want, using the shutter button. Now depress the release button of the Self-Timer and let it "run off".

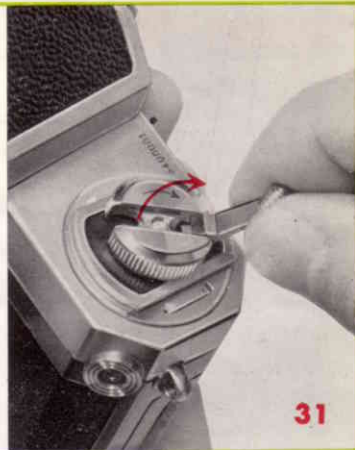
\* Once the lever has been set, it can be moved backward with no restraint.



## 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 crank (Fig. 31) from its position on the rewind knob and turn it in the direction of the arrow.

As the film is rewound, a slight resistance will be felt, and the black dot on the shutter release button will revolve. Keep on winding 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.



## DOUBLE EXPOSURE

Here is the procedure to be followed in making an intentional double exposure. Make the first exposure. Then set the A-R ring around the shutter release button to "R".

Turn the rewind knob in the direction of the arrow, until the shutter release button makes one complete rotation (or slightly more). This can be determined by the rotation of the black dot on the shutter button. 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 procedure also operates the automatic exposure counter, with the result that the counter number will read one or two more than the actual number of frames exposed.

## EXPOSURE METER FOR NIKON F

The following models of exposure meter are available for the Nikon F camera.

### Model 3 (Fig. 32)

Designed to be attached onto the top of the camera and couples to both the camera's shutter speed and aperture diaphragm of lens (Nikkor Auto). Correct exposure setting is obtained by bringing two pointer needles into coincidence with each other. With wide measuring range. Booster and incident light opal plate are provided.

### Photomic Finder (Fig. 33)

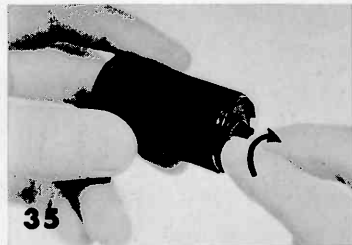
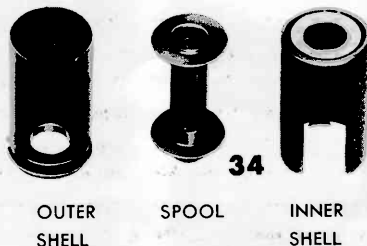
Designed to be attached in place of the interchangeable viewfinder of the camera and couples to both the camera's shutter speed and aperture diaphragm of lens, permitting correct exposure setting by centering the pointer needle which appears in the viewfinder and on the outside top of the Photomic Finder. With the widest measuring range. Light acceptance converter tube and incident light opal plate are provided.



## FILM CASSETTE

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

The cassette (Fig. 34) consists of outer and inner shells and a spool. The figures on the bottom of the outer shell show ASA speeds and are used to indicate 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.

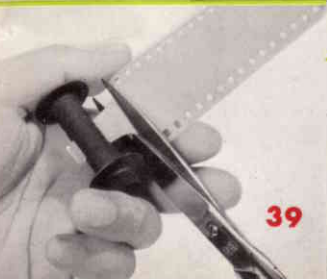
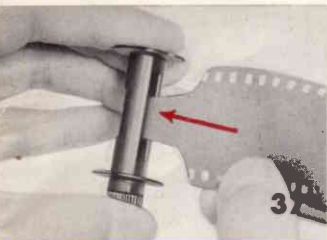


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### To Open the Cassette

Hold the cassette in your left hand, with the bottom showing the ASA speeds away from you. Depress the small button with a right hand finger, and turn the inner shell of the cassette clockwise (Fig. 35) until the side openings of both shells meet and the inner shell simultaneously pops out slightly, ready to be pulled out (Fig. 36).

## 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 (Fig. 37), emulsion surface downward, through the large 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 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 that the film end extends out of the outer shell (Fig. 38).

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 (Fig. 39).

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

## LENS HOODS

The use of lens hood is recommended at all times even when the lens is not turned toward the light, or where there is no stray light present. Two types of lens hoods are available for Nikkor lenses—(See page 32)—snap-on and screw-in.

### Snap-on lens hood

Snap-on lens hoods combine "Slip-on" speed and "Screw-in" security. By depressing the button (one located on either side of the hood—Fig. 40), the hood is attached or detached. The hood will also fit directly over a screw-in filter, permitting use of both units with the lens at a time. The hood can also be "stored" in reverse position on the lens (Fig. 41).

### Screw-in lens hood

Screw-in hoods can be used with screw-in filters.



## NIKON FILTERS FOR BLACK-AND-WHITE FILM

Nikon filters are precisely ground, polished optical flats, hard coated on both sides.

### Filter mount

They are supplied either in screw-in or Series type mount. Screw-in filters are used with the lenses from 21 mm through 135 mm. Series filters are used with lenses from 180 through 350 mm, which are furnished with screw-in type lens hoods. When the hood is not used, the filter can be attached to these lenses by means of the adapter ring and adapter ring insert.

### Filter size

Choose the correct size Nikon filter for your lens consulting the interchangeable lens table on p. 32. The use of Nikon filters is recommended as satisfactory results may not always be obtained with other makes of filters. (Possible vignetting, scratching of lens surface, etc.)

### Filter factor

Filters reduce the amount of light transmitted, therefore an increase in exposure is necessary when using them. This increase is expressed as a factor. Thus, a filter with a factor 2 means that double the normal exposure is required; e. g. use 1/30 instead of 1/60 second, or alternatively change the aperture from, say, F: 8 to F: 5.6. Correct filter factors also depend upon color of lighting and color sensitivity of the film in use.

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
Sky light		L1A	1	1
Neutral Density		ND8 ×	8	8
Polarizing		Polar	2~4	2~4

## INTERCHANGEABLE LENSES

The following interchangeable lenses are available for Nikon F camera.

Telephoto lenses are furnished with their own hoods.

180, 250, 350 or 1000 mm lens requires use of the intermediate adapter collar (N-F).

\* Exclusively designed for each lens.

† Individual finder included.

‡ Speed is adjusted with an attachable (for 500 mm) or 3 built-in (for 1000 mm) neutral density filters.

◇ With close-up supplementary lens.

Type	Focal length	Aperture range	Picture angle	Closest focus distance	Aperture diaphragm	Exposure meter	Filter		Hood type
							Screw-in	Series	
Wide angle	21 mm †	F/4-F/16	92°	90 cm or 3 ft			52 mm		Screw-in*
	28 mm	F/3.5 ~ F/16	74°	60 cm or 2 ft	Auto	Couples	52 mm		Screw-in*
	35 mm	F/2.8 ~ F/16	62°	30 cm or 1 ft	Auto	Couples	52 mm		Screw-in*
Normal	50 mm	F/2-F/16	46°	60 cm or 2 ft	Auto	Couples	52 mm		Snap-on
	50 mm	F/1.4 ~ F/16	46°	60 cm or 2 ft	Auto	Couples	52 mm		Snap-on
Telephoto	105 mm	F/2.5 ~ F/22	23° 20'	1.2 m or 4 ft	Auto	Couples	52 mm		Snap-on
	105 mm	F/4-F/22	23° 20'	80 cm or 2.75 ft	Preset		34.5 mm		Snap-on
	135 mm	F/3.5 ~ F/22	18°	1.5 m or 5 ft	Auto	Couples	52 mm		Snap-on
	180 mm	F/2.5 ~ F/32	13° 30'	2.1 m or 7 ft	Preset			IX	Screw-in
	200 mm	F/4-F/22	12° 20'	3 m or 10 ft	Auto	Couples	52 mm		Built-in
	250 mm	F/4-F/32	10°	3 m and 10 ft	Preset			IX	Screw-in
Reflex	350 mm	F/4.5 ~ F/22	7°	4 m and 13 ft	Semi-Auto			IX	Screw-in
	500 mm	F/5 †	5°	15 m and 50 ft			39 mm		Screw-in
Zoom	1000 mm	F/6.3 †	2° 30'	30 m and 100 ft			52 mm		Slip-on
	43 ~ 86 mm	F/3.5 ~ F/22	53° ~ 28° 30'	1.2 m and 4 ft	Auto	Couples	52 mm		Screw-in
Telephoto Zoom	85 ~ 250 mm	F/4 ~ F/16	28° 30' ~ 10°	4 m or 13 ft (2.2 m or 7.5 ft)	Auto	Couples		IX	Screw-in
	200 ~ 600 mm	F/9.5 ~ F/32	12° 20' ~ 4° 10'	4 m or 13 ft (2.3 m or 7.5 ft)	Auto			IX	Screw-in

## " SPECIAL EFFECTS " LENSES

The following lenses have highly individualized characteristics and advantages. They were developed to further broaden the range of versatile Nikon photography.

Type	Focal length	Aperture range	Picture angle	Aperture diaphragm	Focusing or reprv. ratio range	Screw-in filter	Use
Nikkor	135mm	F/4 - F/22	18°	Preset	$\infty \sim 1 \times$ (life size)	43 mm	Used on the Bellows Focusing Attachment with B1 ring for continuous focusing from infinity up to 1x magnification.
PC-Nikkor	35 mm	F/3.5 - F/32	62° (76°)	Preset	$\infty \sim 30 \text{ m}$ or 1 ft.	52 mm	With a device for shifting the lens axis around the picture center, enables avoiding the image convergence produced by unparallelism of lens to subject. Specifically designed for architectural photography, etc.
Fish-eye Nikkor	8mm	F/8 - F/22	180°		Fixed focus	Built-in	Covering extraordinarily wide picture angle, suitable for meteorological study and other special effects. Circular picture of 24 mm in dia.
Micro-Nikkor Auto	55mm	F/3.5 - F/32	43°	Auto	$\infty \sim 1 \times$ (life size)	52 mm	Permits continuous focusing from infinity up to 1/2 reproduction ratio. M-ring inserted, focusing up to 1x magnification is possible.
Medical Nikkor Auto	200mm	F/5.6 - F/45	12° 20'	Auto	1/15 ~ 3 ×		Speed light and focusing illumination are built-in. 11 different magnifications obtained by selecting 6 auxiliary lenses.

## NIKON ACCESSORIES

When you buy a Nikon F, you buy a camera system.

Nikon accessories, as listed on the opposite page, can be teamed up for any type of shooting in the outdoors, in the laboratory or operating room—in the world of photojournalism, science, industry or just plain "Sunday photography".

Close-up work, macrophotography (magnifications above life size) and microphotography are the areas in which Nikon single lens reflex camera excels.

Only Nikon lens lets you see the exact picture you're about to take. Finder field covers 100% of the frame area. And, of course, there's absolutely no parallax—no matter how short the working distance. Another thing: you actually see your depth of field, compose and focus through the same optical system that takes the pictures.

## LIST OF ACCESSORIES FOR NIKON F

- Electric Motor Drive Model F-36
- Electric Motor Drive Model F-250
- Battery case for Nikon Motor Drive
- Relay box for use with Nikon Motor Drive
- Wireless control for Nikon Motor Drive
- Flash unit BC-5
- Flash unit BC-6
- Flash gun coupler
- Electronic flash unit for Nikon Motor Drive
- Nikon bellows focusing attachment
- Slide copying adapter for the above
- Nikon extension rings
- Close-up attachment lenses
- Microscope adapter
- Microflex for taking photomicrograph
- Telescope adapter
- Repro kit model PF
- Panorama head
- Bubble level
- Focusing adapter for 135 mm lens in Nikon S or screw mount
- Lens front cap
- Camera body cap
- Battery checker
- Bulk film loader
- Pistol grip
- Electrical switch unit
- Eveready cases
- Nikon compartment cases
- Eye-level viewfinder
- Waist-level viewfinder
- Photomic finder
- Interchangeable viewfinder screens
  - A. Split-image Fresnel
  - B. Mat Fresnel
  - C. Cross hair mat
  - D. Plain mat
  - E. Fresnel mat with checker-board lines
- N-F adapter tube for using Nikkor long focus lenses on the Nikon F camera
- BR-1 ring for use Nikkor 135 mm F:4 in short mount on the Bellows
- BR-2 ring for using the lens in the reverse position on the Bellows
- Filters
- Lens hoods
- Film cassette
- Cable release
- Finder eyepiece correction lenses