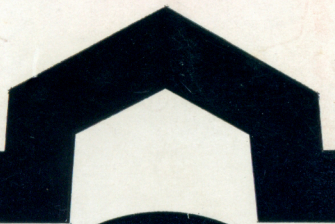
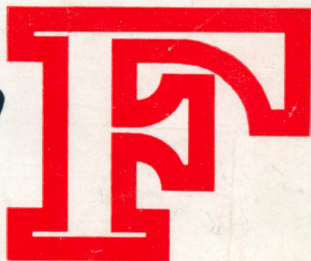
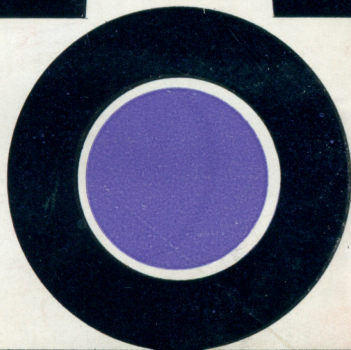


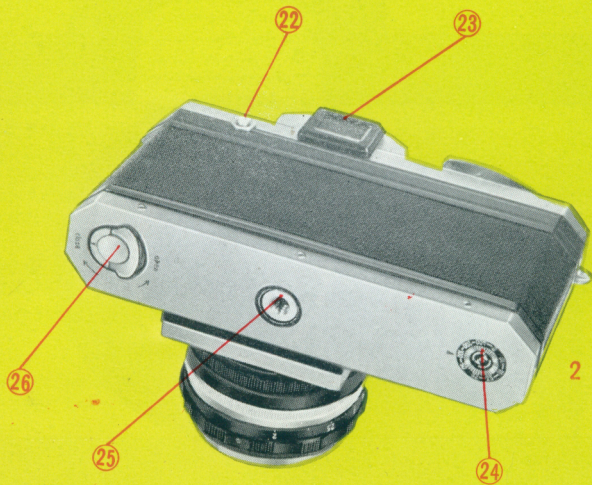
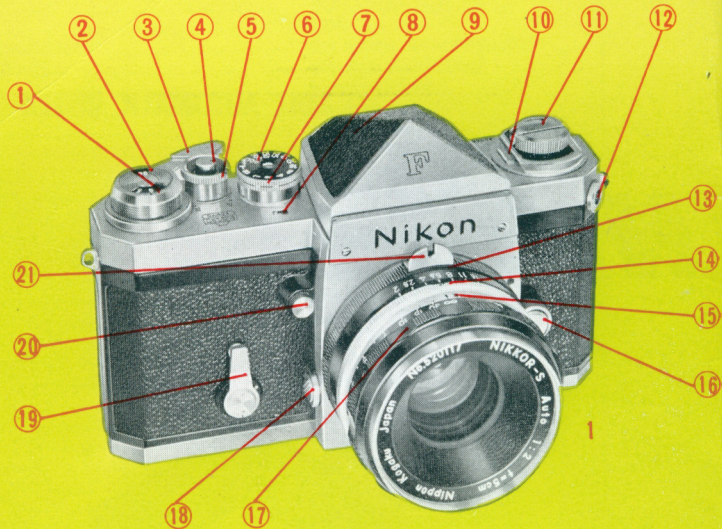
FULL AUTOMATIC REFLEX

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 for flash synchronization control
8. Synchro indicator for flash synchronization
9. Eye-level view finder
10. Accessory shoe
11. Film rewinding knob with lifting up crank
12. Terminal for flash and electric flash
13. Lens aperture (F-number) pre-select ring
14. Aperture index dot
15. Distance index with depth of field scale
16. Lens detaching button
17. Focusing ring of lens with distance scale
18. Mirror locking knob
19. Self-timer
20. Depth-of-field preview control
21. Diaphragm nail to be coupled to exposure meter

Rear View

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

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Care of Camera and Lens

The outer parts of the camera body should be cleaned with a piece of a 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 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.

Especially when cleaning the mirror surface, be careful not to apply undue pressure.

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

As the finder screen is made of synthetic glass, pay special attention in cleaning this, so as not to scratch its surface.

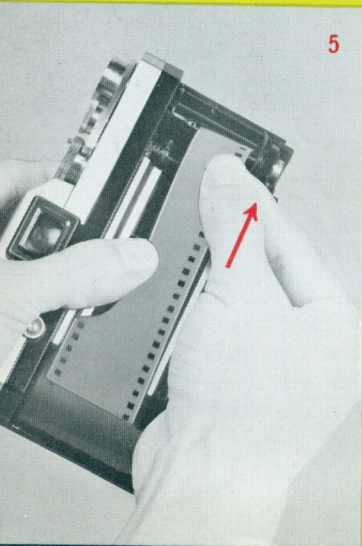
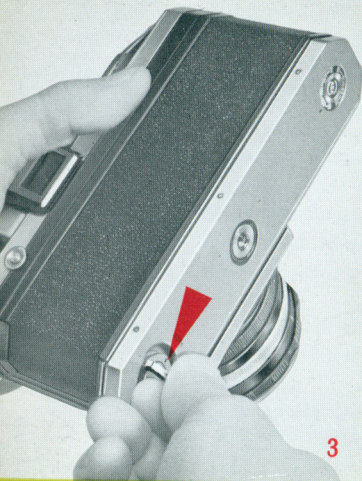
Don't oil the camera mechanism. The factory is using a special oil which does not permit to be mixed with ordinary oil.

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

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.



Loading the Camera

Turn the lock on the camera bottom to the "Open" position (Fig. 3). The camera back is then unlocked and may be completely removed by sliding it off with the thumb (Fig. 4).

You will notice that the take up spool cannot be taken out, assuring more uniform film take-up.

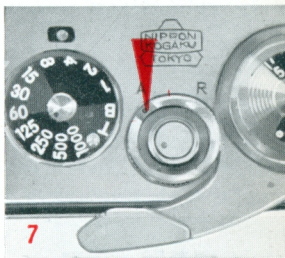
Place a film cartridge or loaded cassette (See p. 35) in the left chamber, so that the projection of the cassette fits into the guide notch.

Insert the end of the leader of the film into the slot on the take-up spool (Fig. 5), so that the projection in the take-up slot catches the perforation of the film (Fig. 6).

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. 7) 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.

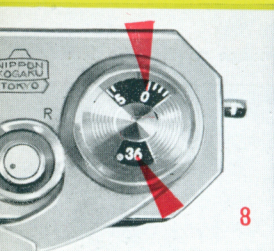
* It is important that the A-R ring on the shutter release button be turned to "A" before the "Blank" shots are made.



Automatic Exposure Counter

The Exposure Counter (Fig. 8) on the Nikon F always automatically returns to one or two spaces before zero when the camera back is removed. After loading the camera, shoot one or two "blank" shots, until the counter registers 1. The camera is now ready for the first shot. Thereafter, the counter will advance consecutively up to 36.

Film Load Reminder

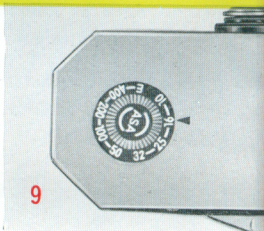


This feature indicates whether you have loaded 20 or 36 exposure magazine. Move the indicator pin to change the figures (Fig. 8).

Film-Type Reminder Dial

The Film-Type Reminder Dial (Fig. 9) 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.





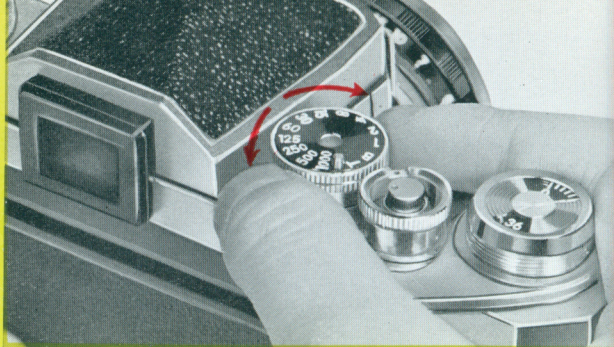
Lens Aperture Pre-selecting

For pre-setting the aperture, turn the aperture ring on the lens barrel so that the desired F-number is opposite the black index dot on the milled ring (Fig. 10).

In the interchangeable lenses Nikkor-Auto from 28mm through 135mm the aperture diaphragm is so designed that it closes automatically down to the pre-selected aperture when the shutter button is depressed, and the mirror is raised to the shutter releasing position, but it reopens to full aperture immediately after the shutter has been released.

Consequently, the view finder image can be seen in its maximum brightness at all times except for the moment of shutter releasing.

However, a button (Depth-of-Field Preview Control) is provided on the camera front which serves for closing the diaphragm down to the pre-selected aperture for as long as it is depressed, independently from the shutter (See p. 16).



Shutter Setting

All click-stop shutter speed settings are on a single selector dial (Fig. 11), 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 th 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 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.

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. 19 for details).

The shutter speed selector dial has a pin on the dial surface for direct coupling to the Nikon-F Exposure Meter.

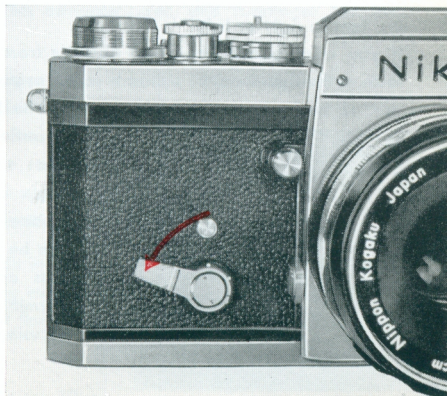
The Self-Timer

The calibrated, built-in 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 wind the Self-Timer, push the lever down (Fig. 12). To start the timer, depress the release button beneath the lever. When the pre-determined time delay has elapsed, the shutter is automatically released. Setting the index line to the nearest 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 pushed down up to the first dot.

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 in "run off".

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.



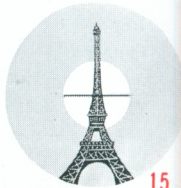
Focusing



13



14



15

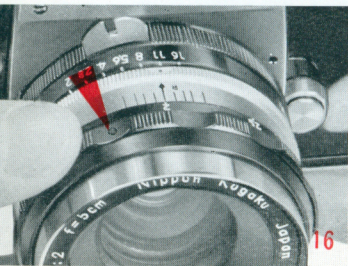
If you look through the eyepiece of the Eye-Level View Finder, you will see the finder image reflected in the Fresnel-type focusing screen and a circular-split-image portion in the center of the finder field (Fig. 13).

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

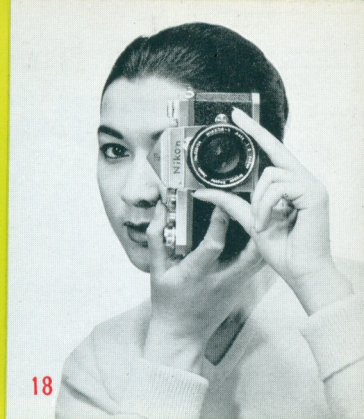
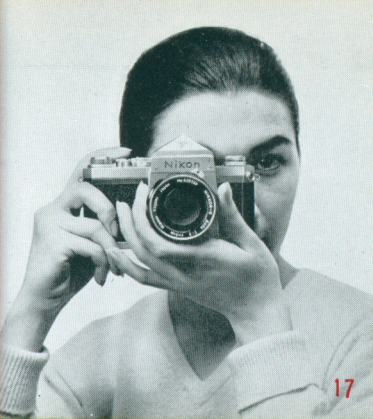
To bring your subject into sharp focus, turn the focusing ring (Fig. 16) on the lens to right or left.

If you want to know the exact distance from camera to subject focused, look at the figure on the distance scale, opposite the black index line.

As the Nikon F is so designed that its reflex mirror is lowered at all times to its viewing and focusing angle except for the moment of shutter releasing, the finder image can be seen in its maximum brightness and minimum depth of focus, permitting most exact and easy focusing an composing.



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Picture Composing

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

Hold the camera with your right hand, placing your left hand thumb and forefinger on the focusing ring of the lens (Fig. 17). Use your right hand thumb for manipulating the film advance lever, and forefinger for the shutter release button.

Since the single-lens reflex camera has a shooting lens which itself is also used as a finder lens, the finder indicates exactly the same field as that of the picture actually taken, irrespective of focal length of the lens being used or shooting distance, with the result that 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 21mm super wide angle lens is used, the mirror should be flipped up on account of deep sitting mount of the lens, and as a consequence an individual accessory view finder for this lens is to be used.

Making the Picture



With a single stroke of the advance lever (Fig. 19), 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 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 advanced 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.

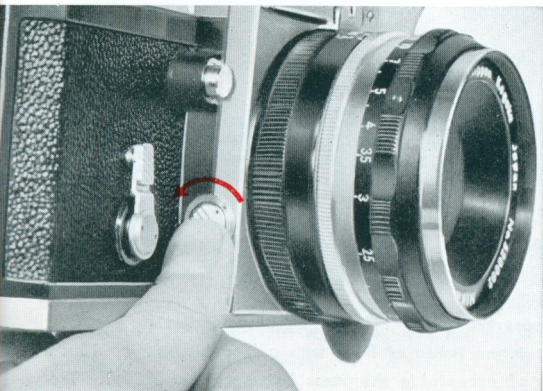
An automatic shutter release lock prevents accidental firing of flash before the shutter is wound. Once the shutter release fired, the shutter release cannot be depressed again until the film has been advanced and the shutter wound.

Locking the Mirror Up

If the knob (Fig. 20) is turned upwards, until the black dot on the knob meets the red dot on the camera body, and shutter is wound up and released (a blank shot is made), the reflex mirror flies up and kept out of the way. This is necessary when the 21mm lens (super wide angle) is used, because of its deep sitting mount. Use the attachable accessory view finder in this case. The tripping of mirror mechanism is also useful, when focusing is unnecessary to make such as in continuous shooting by the Nikon Electric Motor Drive, a sequence of copying work or photomicrography, etc.

To return the mirror to its original focusing and viewing angle, after the shutter is released, turn the knob downwards until the black dot on the knob meets the black dot on the camera body.

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.



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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 with the focused distance from the camera to subject.

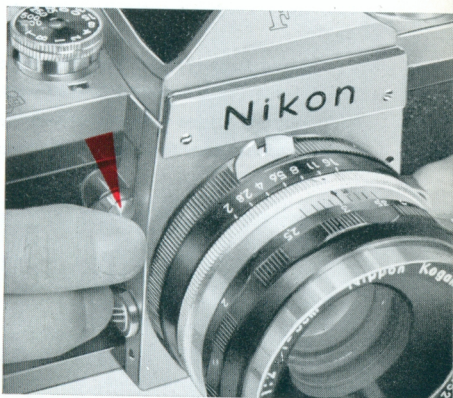
In the Nikkor lenses from 21mm through 135mm for Nikon F, there is a color-coded depth of field scale engraved on the lens barrel opposite to the distance scale, permitting easy reading of Depth of Field for the selected aperture. Each differently colored line, once to the right and once to the left of the middle black index line, represents a different F-number of the color that matches the colored F-number figure on the aperture scale.

Thus, for example, when you are taking a picture with the 50mm F:2 lens, setting the distance scale at 15 ft. marking and with an F:8 opening, the figure of which is identified by pink color, the distance read by the pink colored lines on either side of the black index line will be 11ft. and 30ft. approximately (Fig. 21). This means that a picture taken at F:8, with a lens focused at 15 ft. will show a range of acceptable sharpness between 11 and 30 ft. The sharpest point will be at the 15 ft. distance.



Depth of Field Preview Control

The button, located on the camera front (Fig. 22), serves for closing the aperture diaphragm down to the pre-selected aperture, for as long as it is depressed, thus enabling the photographer to realize, on the view finder screen, the Depth of Field (see p. 15) to be obtained by the pre-selected aperture (F-number). Note that in the closed state, the split-image portion in the center is slightly darkened if the pre-selected aperture has been smaller than that corresponding to F:4.



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Caution !

Do not release the shutter, while the Depth of Focus Preview button is being depressed, as by this mishap the inside reflex mirror may remain in up-position and doesn't return to its focusing position. In this case, make a blank exposure, and the regular original state of the mirror will be regained.

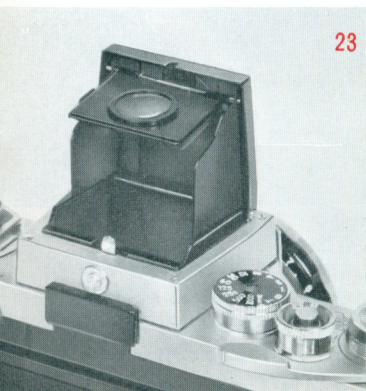
Changing the View Finder and Focusing Screen

If desired, the eye-level view finder with the penta-prism can be replaced by a waist-level finder (Fig. 23) which allows viewing the focusing screen vertically from above. To replace, remove the finder by lifting up, while depressing the lock button located on the back of the camera (Fig. 24).

Furthermore, if desired, the focusing screen with split-image range finder can be removed and replaced with other type screens. To remove the screen, depressing the same lock button, gently turn the camera upside down.

The following three types of the screen are available :

- A. Fresnel screen with split-image prism.
- B. Fresnel screen with mat surface over the whole area.
- C. Mat screen with a cross in the transparent center.



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. 25) 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 black 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.



Double Exposure

When a double exposure is intentionally desired, after making the first exposure, set the A-R ring around the shutter releasing 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 black dot on the button.

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 automatic exposure counter, so the result is that the indication number will become one or two in excess compared with the actual frame number exposed.

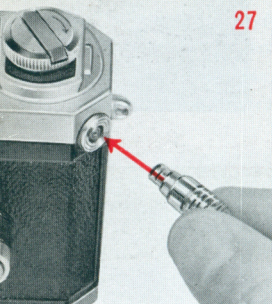
Flash Synchronization

26



The Nikon BC-4 or BC-5 flash unit is mounted on the accessory shoe of the Nikon F by means of the coupler furnished with the flash unit, making instantaneous connection with the flash terminal located on the coupler (Fig. 26), eliminating the need for connecting cord.

27



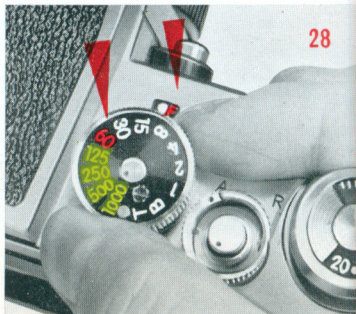
On the front left side edge of the camera there is a synchro-socket (Fig. 27) which accepts a regular flash unit ("Nikon BC-3" is recommended) or an electronic flash, provided with a standard PC flash cord or the snap-in Nikon flash cords.

For positive synchronization, set the synchro-selector according to the bulb and shutter speed used. Lift up the milled selector ring around the shutter speed dial (Fig. 28), and turn it until the desired colored dot and/or figure, as shown on the following table, appear in the selector aperture (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 :



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Flash Bulb					Shutter Speed												
Class	Make				1000	500	250	125	60	30	15	8	4	2	1	B	
	G. E. Westing-house	Sylvania	Mazda	West													
FP	PH/6	Type FP/26	No. 6 No. 6Z	No. 6 No. 6Z		●			●								● F
F	PH/SM	Type SF	F 1 F 3 F 5	SM SF SS	—	—	—	—	● F								F X
M			Press	M 5	—	●			●								● F
	PH/5 PH/8 M 5	Press-25 M 25	No. 3 No. 5 Z 5	No. 3 Z-Press	—	—	●		●								● F
	PH/M2	Type M2	No. 0 2-M	No. 0 MX-0	—	—	—	—	—								● F
X	Electronic, instantaneous firing				—	—	—	—	—								F X
	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 Number" by use of the exposure calculator on the flash unit.

Electronic Flash

Most electronic flash unit 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 above table. For units which have a firing delay, the shutter should be set at 30 or slower.



Changing Lenses

To remove the lens, holding the camera as shown in the above figure and depressing the lock button, turn the lens barrel clockwise until the black dot aperture index on the milled ring of the lens up with the black dot on the camera body.

To mount a lens*, line up the black dot on the lens barrel to the black dot on the camera body, and turn the lens counter-clockwise until the lens clicks into position.

Caution !

When a 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 with the body cap, when the camera is carried or kept with the lens removed.

When the lens is carried separately from the camera, protect the lens from damage and dust by use of a case or the front and rear caps.

* When mounting the 21mm F:4 wide angle lens, do not forget to hold reflex-mirror in 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 and turn the base ring with the black dot instead of the whole lens barrel until the lens clicks into position.

Interchangeable Lenses

The following interchangeable lenses are available for the Nikon F camera :

type	Focal length	Aperture range	Picture angle	Closest focus distance	Apert. diaphragm	Exposure meter	Filter size		Hood type
							Screw-in	Series	
Wide angle	21mm	F/4 - F/16	92°	90cm or 3 ft.			52mm	VII	Screw-in*
	28mm	F/3.5 - F/16	74°	60cm or 2 ft.	Auto	Couples	52mm	VII	Screw-in*
	35mm	F/2.8 - F/16	62°	30cm or 1 ft.	Auto	Couples	52mm	VII	Screw-in*
Normal	50mm	F/2 - F/16	46°	60cm or 2 ft.	Auto	Couples	52mm	VII	Snap-on
Telephoto	105mm	F/2.5 - F/22	23°20'	1.2m or 4 ft.	Auto	Couples	52mm	VII	Snap-on
	135mm	F/3.5 - F/22	18°	1.5m or 5 ft.	Auto	Couples	52mm	VII	Snap-on
	180mm	F/2.5 - F/32	15°30'	2m or 7 ft.	Preset			IX	Screw-in
	250mm	F/4 - F/32	10°	3m or 10 ft.	Preset			IX	Screw-in
	350mm	F/4.5 - F/22	7°	4m or 13 ft.	Semi-Auto			IX	Screw-in
	500mm	F/5 - F/45	5°	8m or 25 ft.	Preset			110	Screw-in

Telephoto lenses are furnished with their own hoods.

180, 250, 350 or 500mm lenses require use of the intermediate collar.

* Exclusively designed for each lens.



Exposure Meter for Nikon F

A photoelectric exposure meter is available which is attached to the Nikon Model F and permits instant automatic setting to the correct exposure.

Turn your camera towards the subject to be photographed and by revolving the camera speed dial and/or the lens aperture diaphragm (Fig. 30), bring the follow-pointer needles into coincidence. Setting at the correct exposure is now accomplished and the camera is ready for photographing that scene.

The Exposure Meter has automatic change-over golden and silver colored needles in accordance with dim or bright light conditions.

In extremely dim light conditions, sensitivity of the meter can be increased by inserting the booster (an auxiliary photo-cell) on the side of the meter.

While the Exposure Meter has been designed primarily to measure reflected light, it can be used for incident light reading for which purpose the opal plate is furnished which is to be inserted in front of the meter.

The Exposure Meter couples to every lens from 28mm through 135mm, enabling interchange of the lens without detaching the meter from the camera.

Infra-red Pictures

When infra-red picture is taken, the distance setting obtained by means of split-image coincidence in the range finder has to be rectified before shooting. This is done by turning out the lens slightly, until the focused point on the distance scale comes to the position as indicated by a red dot marked "R" on the lens barrel.

Here is shown (Fig. 31) an example for 50mm F:2 lens, where the focused point ∞ has been revolved to the red dot R when taking infra-red picture.



Lens Hoods

Use of lens hood is also recommendable even when the lens is not turned toward the light or where there is no stray light present. Two types of lens hoods, snap-on or screw-in are available for the Nikkor lenses (See p. 22).

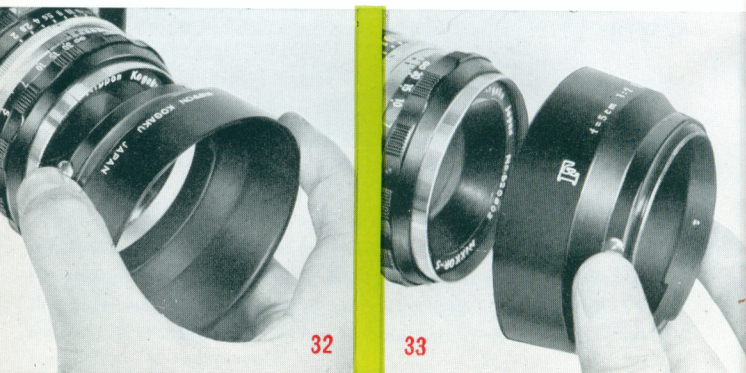
Snap-on type lens hood

The snap-on lens hood is attached and detached by depressing the button on either side of the hood (Fig. 32). It can also be fitted directly over the screw-in filter when the latter is used together with the hood. The hood can also be attached to the lens in the reversed position (Fig. 33).

Screw-in type lens hood

The screw-in hood can also be fitted over the screw-in filter which is attached to the lens.

The hood permits attaching a Series filter too; however, it may not ensure satisfactory results when used with the wide angle lenses from 21mm to 35mm, because it may give rise to vignetting of the picture corners.



Nikon Filters for Black-and-White Film

Filter mount

Nikon filters are supplied either in screw-in mount or in Series type mount. Screw-in filters are used with the lenses from 21mm through 135mm. Series filters are used with the lenses from 180 through 500mm, furnished with the 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 filter of correct size for your lens consulting the interchangeable lens table on p. 22, as satisfactory results may not always be ensured with other makes (unsuitable filters be liable to vignette the picture corners, scratch the lens surface, etc.).

Filter factor

Filters cut out certain parts of light and so 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 film used. Polarizing filter are also available.

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	

Motor Drive for Nikon F



The Motor Drive attachment adapts the Nikon F for automatic sequence exposures at the variable rates from 1.8 up to 3.6 frames per second as long as the release is depressed until the pre-set number of exposures, on the motor counter, has been reached. Single frame shooting with automatic winding of film and shutter and remote control operation are also possible.

Power is supplied from 8 "C" batteries, 1.5V each (standard dry cell e. g. "Eveready" 's 1C cell type 835, "Mallory" 's Zinc C cell type PF 933) in a compact accessory vinyl case designed to be carried conveniently even while the camera is hand held.

Supplied complete with the battery case and 3.3' (1m) cord.

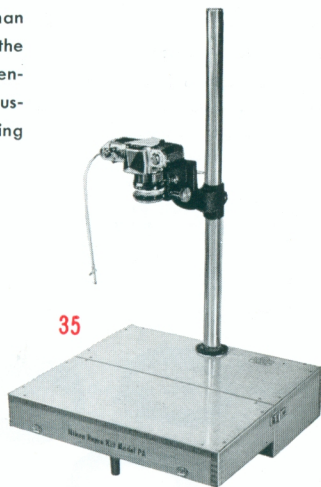
The Motor Drive attachment fits the Nikon F especially adapted for this purpose and replaces the regular camera back.

Repro Kit Model PF

The Kit Model PF is intended for copying manuscripts, photographs, reference materials, small objects, etc., using the Nikon camera model F. It consists of a working platform serving as a carrying case (Fig. 35) and a vertical post which carries a bracket for supporting the camera. When photographing large objects, the arm may be swung out 180 degrees and the kit placed at the edge of a table or the upright post can be screwed and attached to the edge of a table by means of table clamp, available on order. The Repro Kit Model PF is also available with a base board which the upright post may be set up, instead of the carrying case above described.

When photographing wall mounted copy, the focusing head may be rotated 90 degrees by loosening the rear thumb screw. A positioning pin maintain alignment in either position.

Focusing at distances closer than the nearest focusing distance of the lens can be made by using Extension Tubes and/or the Bellows Focusing Attachment for Nikon F according to the reproduction ratio desired.



Extension Tubes for Nikon F

The Extension Tubes (Fig. 36) are fitted between a Nikkor lens for F and the Nikon F camera body for taking close-ups. The following 5 types of the Rings are available :

Type	Extension Length
A	5.8mm
B1	5mm
B2	5.8mm
C	10mm
D	20mm

Close-up data to be obtained by selection and fitting together of the tubes on the Nikkor Auto 50mm normal lens at closest focus distance are given below :

Extension tubes		Reproduction	Area
Attach to lens	Attach to camera	ratio	photographed
No tube	used	1 : 8.9	214 × 320
A		1 : 4.4	107 × 160
B2 + B1		1 : 3.1	75 × 112
B2 + B1 + A		1 : 2.3	55 × 83
B2 + C + B1		1 : 1.9	46 × 70
B2 + C + B1 + A		1 : 1.6	38 × 57
B2 + D + B1		1 : 1.4	33 × 50
B2 + D + B1 + A		1 : 1.2	29 × 43
B2 + D + C + B1		1 : 1.1	26 × 39
B2 + D + C + B1 + A		1 : 1	24 × 36



Bellows Focusing Attachment For Nikon Model F

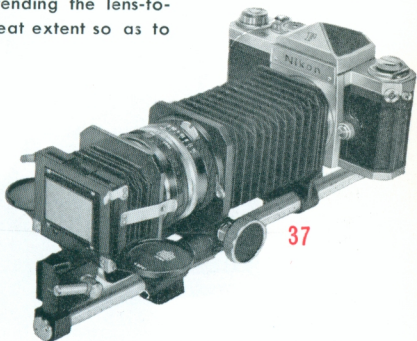
This attachment, in conjunction with the Nikon F camera (Fig. 37), allows of extending the lens-to-film distance continuously to great extent so as to take magnified pictures of small objects.

All the lenses for Nikon F can be attached to the Bellows attachment, reproduction ratios being different according to the focal length of the lens being used. When using the Nikkor Auto 50mm F:2, magnification ratios cover the range between 1:1 (life size) and 3.5X.

When using the Nikkor 135mm F:4 in short mount for photographing from infinity up to life size (1:1), an adapter is required.

Changing of the bellows extension and clamping is made by means of the knobs on the guide rail along which reproduction ratios and exposure factors are engraved for the above two lenses.

The Bellows Attachment, when used with the Extension Tubes allows for greater extended lens-to-film distance.

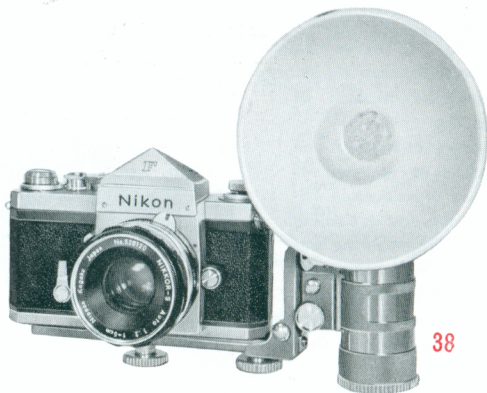


Slide-Copying Adapter

This device provides great convenience in making duplicates of 35mm color or black-and-white transparency in the film strip or mounted on 2"X2" frame at the reproduction ratios between 1:1 and 2:1 approximately.

The device is mounted and clamped on the bellows focusing attachment for Nikon F (Fig. 37) with its own bellows connected light-tight with the lens to be used.

Nikon Flash Unit BC-3



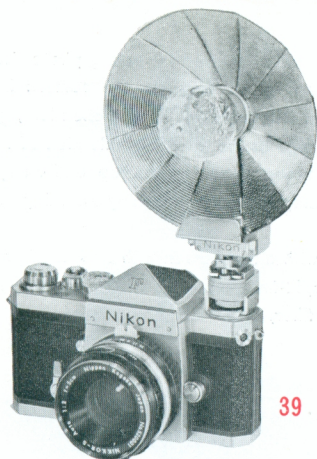
The BC-3 flash unit (Fig. 38) is a heavy duty unit designed for use with the S-line Nikon and F Model Nikon cameras. It includes: battery case with capacitor; $4\frac{3}{4}$ " (12cm) reflector; folding camera bracket; a built-in test bulbs for checking camera circuit continuity and battery-capacitor charge; bulb ejector; extension outlet; 13cm long connecting cord; convenient flash bulb exposure guide. Furnished complete with a vinyl carrying case.

Bulbs used are regular bayonet base type, and the battery voltage is 22.5V. hearing aid type.

Extension Reflector

The extension reflector with a side clip is used with Flash Unit BC-3 for extension flash. The 5" (12.7cm) reflector is adjustable on ball and socket joint. Supplied with 16' (5m) long cord.

Nikon Flash Unit BC-5



Rugged and compact, the flash unit (Fig. 39) is mounted on the accessory shoe of the Nikon F by means of the coupler, making instantaneous connection with the flash terminal located on the coupler, eliminating the need for connecting cord. It includes: battery case with capacitor, 4 $\frac{3}{4}$ " (12cm) collapsible fan-fold type reflector; built-in test bulb for checking of camera circuit continuity and battery capacitor charge; bulb ejector; convenient flash bulb exposure guide.

The reflector tilts backward through a maximum range of 135 degrees for bounce flash. It can be fixed at any angle.

Bulbs used are regular midget bayonet base type and pinless miniatures M2, M5 and M25. Battery is a 22.5V hearing aid type.

Supplied with leather case.

Microscope Adapter

The Nikon Camera Model F is used for taking photomicrograph simple by adding this adapter (Fig. 40) between the camera body and a microscope. The adapter incorporating a projection lens, gives a microscope image one half as large as the total magnification of the microscope.

It has a camera bayonet mount on the top and an eyepiece tube at the bottom with a clamping screw for fastening the adapter to the microscope draw tube.

Supplied complete with a mat screen with an etched cross which should be exchange for the split-image screen in the camera, and with a green, yellow and orange filter, in a fitted leather case.





Telescope Adapter

This adapter (Fig. 41) permits photography of the moon and other objects at great distance in conjunction with Nippon Kogaku's 2 inch ($f=750\text{mm}$) or $2\frac{1}{2}$ inch ($f=980\text{mm}$) telescope, the eyepiece being removed. Supplied complete with the following 6 filters in fitted leather case.

Ultra-violet

Orange

Red

Deep yellow

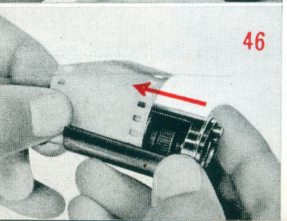
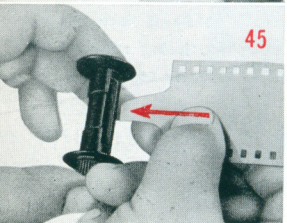
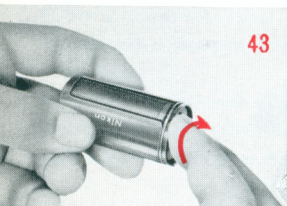
Neutral ND 8 X

Neutral ND 400 X

In focusing with the adapter, it is recommended to use the Fresnel mat viewing screen which is supplied and can replace the split-image screen normally used in the camera.

Film Cassette

The Nikon F 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.



OUTER SHELL



SPOOL



INNER SHELL

42

The cassette (Fig. 42) 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 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. 43) until the side openings of both the shells meet and the inner shell simultaneously pops out slightly, ready to be pulled out (Fig. 44).

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. 35), 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 the film end extends out of the outer shell (Fig. 46).

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. 47).

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



Eveready Case

For Nikon F with Exposure Meter



After putting the camera in the case (Fig. 48), 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.

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, made of extremely thin titanium foils, for fear of being wrinkled or broken.
- When camera is not in use, the shutter and self-time 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.

Item	No.



NIPPON KOGAKU K. K.