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On the other hand, certain subjects are difficult for automatic multi-pattern metering to handle. For example:

## **Sunrises and sunsets**

Here, you should change to centerweighted metering, especially when you want to emphasize the sun and clouds. With automatic multi-pattern metering, the sky comes out too light. Similarly, whenever you want to make the light source the subject of the picture, such as when shooting neon signs at night, you should select centerweighted metering.

## **Sunrise**



Automatic multi-pattern



Centerweighted

### Indoor backlit subjects

If the main subject is indoors in front of a bright window, under-exposure may occur *even if* the subject occupies a large portion of the picture area, because the difference in contrast between subject and background is too great for the camera to handle. And even with centerweighted metering, the results may not be acceptable when shooting on automatic. The best solution is to switch to the manual mode (in which centerweighted metering is always in operation) and make manual exposure compensation as explained on page 52. As an alternative, use an electronic flash to obtain correct exposure for the main subject.



With electronic flash

### Indoor backlit subject



Automatic multi-pattern



Centerweighted

# TECHNICAL INFORMATION/ PHOTOGRAPHIC TECHNIQUES—continued—

## RELATIONSHIP BETWEEN SHUTTER SPEED AND APERTURE

Shutter speed (sec.)	1/4000	1/2000	1/1000	1/500	1/250	1/125	1/60	1/30
Aperture (f-number)	1.4	2	2.8	4	5.6	8	11	16

The amount of light reaching the film plane is determined by a combination of shutter speed and lens aperture. A shutter speed of 1/125sec. lets in twice as much light as a setting of 1/250sec. and only half as much light as 1/60sec. An aperture setting of f/11 lets in twice as much light as f/16, half as much as f/8. Thus, if the correct exposure for a particular picture-taking situation is 1/500 at f/4, then 1/250 at f/5.6 or 1/125 at f/8 will give the same exposure.

The table above is one example showing the interrelationship between shutter speed and aperture. Each combination produces correct exposure but the effects of the pictures are quite different. The best combination will depend on the results you want. Fast shutter speeds freeze motion while slow speeds produce a deliberate blur. Also, small apertures give greater depth of field, while large apertures restrict the zone of sharp focus to the main subject. (Refer to page 48 for details on depth of field.)

A good rule to follow in preventing camera shake is to select a shutter speed which is never slower than the reciprocal of the focal length of the lens in use. For example, when using a normal 50mm lens, select a speed no slower than 1/60sec. (the closest number to 1/50). For a 200mm super-telephoto, use no less than 1/250sec., and so forth.

If a slow shutter speed is necessary or the camera selects one in the automatic exposure modes, attach the camera to a tripod. As an alternative, use an electronic flash or change to faster film.



A fast shutter speed of  $1/4000$  sec.  
stops the water in midair.



At a slow  $1/30$  sec.,  
the water comes out a blur.

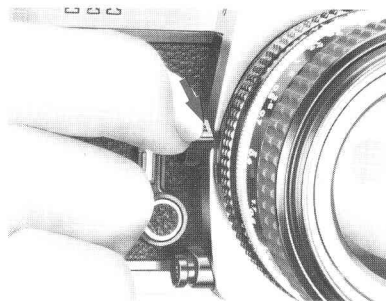
## DEPTH OF FIELD

When you shoot at a certain aperture and focusing distance, you will find that not only the main subject but also objects within a certain range in front of and behind it will be sharp in the final photograph. This “in-focus zone” is known as depth of field. Objects beyond this range become increasingly out of focus. When the zone of sharpness is large, depth of field is deep; when it is small, depth of field is shallow.

The following is true of depth of field:

- 1) The smaller the shooting aperture (i.e., the larger the numerical f-number), the deeper the depth of field; the larger the aperture, the shallower the depth of field.
- 2) The farther away the subject is from the lens, the deeper the depth of field becomes; the closer to the lens, the shallower the depth of field.
- 3) The longer the focal length of a lens, the shallower the depth of field at each f/stop; the shorter the focal length, the deeper the depth of field.
- 4) There is greater depth of field behind the main subject than in front of it.

The depth of field at each aperture is indicated on the lens by a set of color-coded lines ⑥② (corresponding to the colors of the f-numbers on the aperture ring ⑥⑤) which are used in conjunction with the distance scale ⑥③ on the focusing ring ④⑤. The range is indicated by the distance between the lines.



When a lens with an automatic diaphragm is used, the image in the viewfinder is viewed with the lens at maximum aperture. However, when the depth-of-field preview lever ⑤ is pushed down, the lens will be stopped down to the aperture set, enabling you to examine depth of field before shooting. The image in the viewfinder darkens according to the selected f-number: the smaller the aperture, the darker the image. Portions of the picture that appear in focus when the lever is pushed down will be in the zone of sharp focus.

Note that the lever should be depressed all the way. This lever is also used for stop-down exposure measurement (refer to page 54.)

- Certain Zoom-, Reflex-, and PC-Nikkor lenses do not have a depth-of-field scale.
- Pushing the lever automatically changes the metering method from automatic multi-pattern to centerweighted.
- Depth of field can be previewed only in the A and M modes.



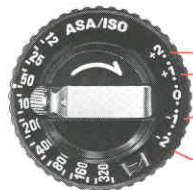
Lens set at f/2



Lens set at f/16

## EXPOSURE COMPENSATION

### Suggested Applications for Exposure Compensation



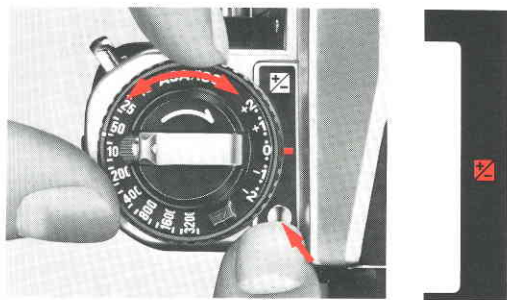
- +2 White background, snow scene
- +1 White background occupying half of viewing area
- 1 Spotlit subject, black background occupying half of viewing area
- 2 Black background

### In Automatic Exposure Modes

If you elect to use centerweighted metering in any of the automatic exposure modes, you can use the exposure compensation dial to obtain the correct exposure for the types of picture-taking situations listed above. Also under normal conditions, you can create special “high-key” or “low-key” effects by intentionally over- or underexposing the shot. Note that before using the exposure compensation dial, you must switch to center-weighted metering. In automatic multi-pattern metering, you cannot obtain the necessary amount of compensation.

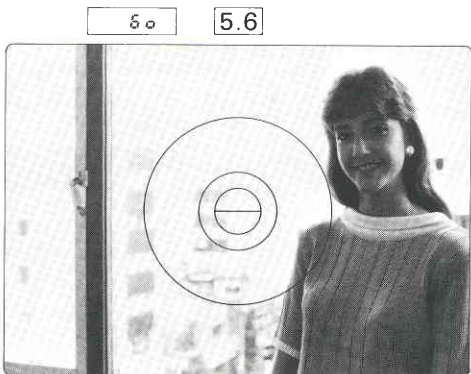
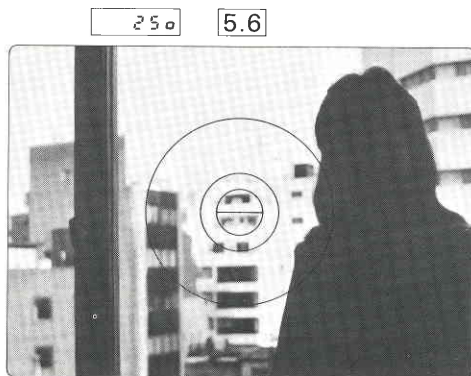
The exposure compensation dial is graduated in one-third stop increments; -1 and -2 indicate one and two stops less exposure, whereas +1 and +2 indicate one and two stops additional exposure. At ASA/ISO 4000, the compensation extends to only -1; at ASA/ISO 12, up to +1.





To operate, press the locking button (59) and turn the dial until the desired compensation value is opposite the red index (51). As a reminder, a red LED exposure compensation mark (+/-) appears on the right side of the viewfinder as soon as the exposure meter is turned on.

After use, make sure you reset the dial so that 0 is opposite the index.

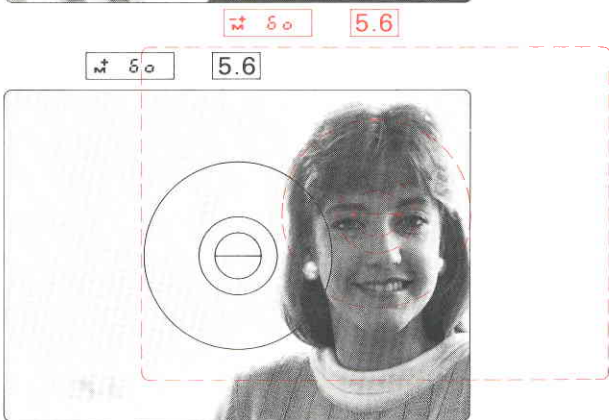
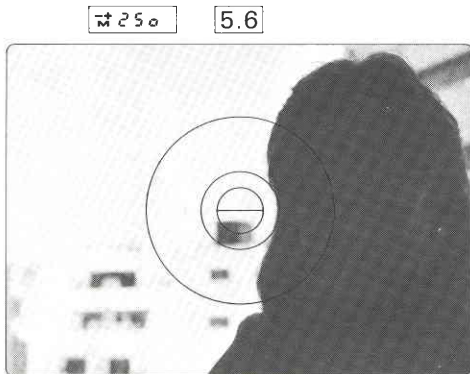


## In the Manual Mode

There are two situations where it is difficult to get the correct exposure on automatic with centerweighted metering. They are (1) a front-lit scene with the main subject off-center and (2) an indoor backlit subject with the main subject either in the center or off-center. Therefore, to get the correct exposure, switch to the manual mode and follow this procedure:

- 1) For front-lit subjects, just center the main subject. For backlit ones, you should move in close until it fills up the frame. (When taking a close-up meter reading, be careful not to cast a shadow with your own body or the camera.)
- 2) Depress the shutter release button halfway to turn on the meter and adjust the shutter speed and/or aperture for correct exposure.

3) Recompose the scene as you like and take the picture. Remember that in the manual mode, the exposure compensation dial does not operate, so the only way to make exposure compensation is by centering the main subject in the viewfinder and, if necessary, taking a close-up meter reading.



## Duplication Work and Photomicrography

In copy work, slide duplication, and photomicrography, you must make exposure compensation with centerweighted metering, because these types of photography represent unusual contrast situations. Some lenses automatically switch the metering method to centerweighted. The table below shows the relationship between specific types of photos and proper exposure. Since this is meant to be only a guide, in practice you should make further compensation by experimentation until you achieve the proper results.

- The exposure compensation values listed below are reference data obtained when general-purpose film was used. With color reversal film or microfilm for duplication work, it is advisable to take additional shots with  $\pm$  one-stop exposure compensation as these films have very small exposure latitude.
- To avoid vibration, you can make the exposure by turning the illumination on and off.
- It is advisable to use a cable release to eliminate camera vibration.

	Subject	Method of exposure measurement	Exposure compensation	Required accessories	Remarks
Copy work	Photographs and pictures with continuous gradation	Full-aperture or stop-down	Compensation not necessary	Micro-Nikkor 55mm f/2.8; Cable release	For high-contrast subjects, use of an 18% reflectance gray card in determining exposure is recommended. With the card, no exposure compensation is required regardless of whether the background is black or white.
	Documents and drawings of high contrast		Approx. +1 to +2 stops for black letters on white background; approx. - 1/2 to - 1 stop for white letters on black background.		
Slide duplication	Slide with continuous gradation	Stop-down	Approx. +1 to +2 stops	Micro-Nikkor 55mm f/2.8; Nikon Slide Copying Adapter PS-6; Nikon Bellows Focusing Attachment PB-6; Cable release	When using Nikon Slide Copying Adapter PS-6, set the flood lamp 30cm away from its opal plate.
	Slide of documents and drawings photographed		Approx. + 1-1/2 to + 2-1/2 stops for black letters on white background		
			0 to approx. - 1/2 stop for white letters on black background		
Photomicrography	Prepared specimen	Stop-down	Approx. +1 stop	Microflex PFX	Generally, results come out better with more exposure in photomicrography. The compensation value on the left is only a guide; determine the compensation value by test shooting.

+ : more exposure - : less exposure

# TECHNICAL INFORMATION/PHOTOGRAPHIC TECHNIQUES—continued—

## STOP-DOWN EXPOSURE MEASUREMENT

Stop-down exposure measurement must be made whenever the aperture ring of the lens doesn't couple with the meter coupling lever ⑬ of the camera. After focusing and switching on the meter, follow these procedures:

### For Lenses with Automatic Diaphragms

**In P, S, or A mode:** Push the depth-of-field preview lever all the way down, manually stop the lens down or open it up to your desired f-number, and trip the shutter while holding the lever. Note that, with the lever depressed, metering is automatically switched to centerweighted.

**In M mode:** Hold down the preview lever and turn the shutter speed dial and/or lens aperture ring until the LCD shows —+, indicating correct exposure on manual. Release the preview lever and take the shot.

• *If the depth-of-field lever is pushed down in the P or S mode, the shooting mode is automatically switched to the A mode; also the LCD shows the shutter speed selected by the camera for the aperture in use. In the S mode, the shutter speed indication showing the shutter speed set on the dial does not disappear.*

### For Lenses or Accessories Without Automatic Diaphragms

**In A mode only:** P and S modes should not be used. Stop the lens down manually until the desired shutter speed appears in the viewfinder. Then take the picture.

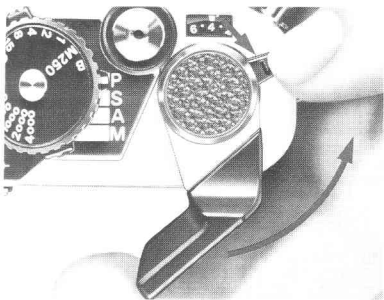
**In M mode:** Adjust the shutter speed or aperture until the —+ indication appears above M.

### For Fixed-Aperture Lenses, Photomicrography, or Astrophotography

**In P, S, or A mode:** No adjustment of aperture and shutter speed is necessary; just take the picture.

**In M mode:** Adjust the shutter speed dial until the LCD shows —+, indicating correct exposure on manual. If correct exposure is unobtainable, use an ND (neutral density) filter or electronic flash unit. As a last resort, change to a faster or slower film.

## MULTIPLE EXPOSURE PHOTOGRAPHY



A multiple exposure is created by taking more than one shot on the same frame of film. Follow this procedure:

- 1) **Take the first shot.**
- 2) **Push the multiple exposure lever  $\nearrow$  in the direction of the arrow** as you wind the film advance lever  $\curvearrowright$  fully. The film and frame counter  $\curvearrowleft$  will not advance; only the shutter is cocked. Although your finger will naturally slip off the lever as the film advance lever is wound, multiple exposure operation will have been performed correctly.
- 3) **Take the second shot** after winding the film advance lever fully.

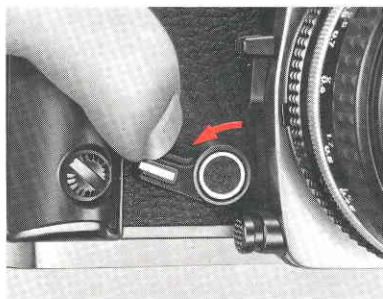
To make three or more exposures on the same frame, just repeat the same procedure for each additional exposure.



## UNMANNED PHOTOGRAPHY

To include yourself in your pictures, you can mount the FA on a tripod and use the self-timer to trip the shutter.

Or by attaching a motor drive, you can control the FA from a distance with optional remote control accessories or an intervalometer.

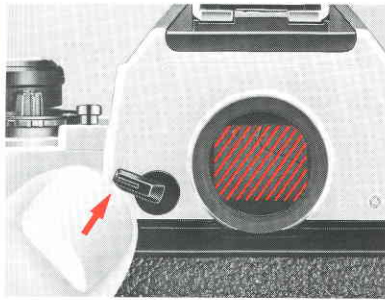


### Self-Timer

To set the self-timer, push the self-timer lever ⑧ down as far as it will go. This can be done either before or after the film is advanced. After the self-timer has been set, press the shutter release button ⑩.

Immediately the reflex mirror ⑪ will rise and the self-timer will start to operate; the shutter is then released approx. 10 sec. later. If you want to cancel self-timer operation after the lever has been set, move it back to its original position. You can then take pictures in the normal way. However, returning the self-timer lever to its original position after self-timer operation has begun will immediately trip the shutter. The self-timer can be used at any shutter speed dial setting except B.

## INFRARED PHOTOGRAPHY



### Eyepiece Shutter

When unmanned photography is performed with the FA in one of its automatic exposure modes, stray light entering the eyepiece will affect the meter reading. To prevent this, use the eyepiece shutter. Just push the lever up to close the shutter. As a visual reminder that it is in use, the shutter blind is painted red.



To create other-worldly effects, in which vegetation comes out light in tone and blue skies very dark, try shooting with black-and-white infrared film. In black and white infrared photography, you must use a red filter (R60) and refocus the lens to compensate for the fact that infrared light rays focus at a point slightly in front of visible light. For this purpose, most lenses have an infrared focusing index ④ (a red dot or line) beside the distance index ④.

Follow this procedure:

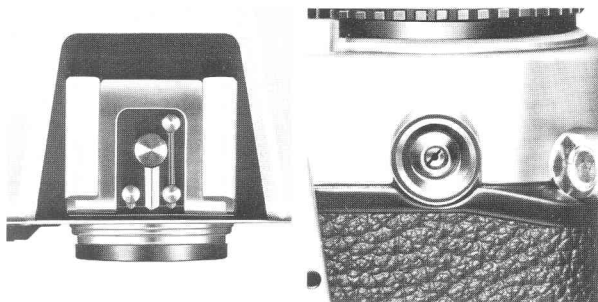
- 1) Without the red filter in place, look into the viewfinder and focus on your subject.
- 2) Look at the lens and take note of the focused distance.
- 3) Reset the focusing ring so that the desired distance is aligned with the infrared focusing index.
- 4) Attach the red filter and take the shot.

## FLASH PHOTOGRAPHY

An electronic flash unit is convenient not only for night and dim-light shooting but also as a supplementary light to fill in the shadows in daylight. Daylight fill-in flash is especially effective when shooting outdoor subjects which are backlit or in motion. With a Nikon dedicated flash, such as the SB-15 or 16B, the FA offers fully automatic through-the-lens (TTL) control of the flash exposure. This means that while the shutter is open, a special silicon photodiode (SPD), located at the bottom of the mirror box, reads the light reflected directly off the film and determines the timing to cut off the flash output, ensuring correct exposure.







## Accessory Shoe <sup>78</sup> and Sync Terminal <sup>14</sup>

The accessory shoe of the FA allows direct mounting of the Nikon Speedlight SB-15 or 16B or other electronic flash with an ISO-type mounting foot. Other flash units may be mounted with a flash unit coupler (see table on next page). Four electrical contacts <sup>50</sup> <sup>60</sup> <sup>61</sup> <sup>62</sup> in the shoe provide the following: proper synchronization of the flash unit, automatic flash output stop, identification of a TTL flash unit, and both ready-light indication in the camera's viewfinder (via an LED) and autoswitching to the proper sync speed of 1/250sec. with Nikon dedicated flash units.

To use flashbulbs or an electronic flash unit without a hot-shoe contact, use the camera's sync terminal. The FA's sync terminal with a protective screw-in cover, accepts all standard plug-in PC cords. It is also threaded for use with a Nikon screw-in PC cord.

The FA features an X-sync contact only, allowing electronic flash units to be synchronized at a speed of 1/250sec. or slower. To prevent mistakes, the camera also offers automatic switch-over of the shutter speed for proper synchronization with the SB-15, SB-16B, etc., as shown in the table on the next page. For creative fill-in flash effects, you can set the speed manually to 1/250sec. or below and the shutter fires at the speed set with the speed in use displayed in the viewfinder.

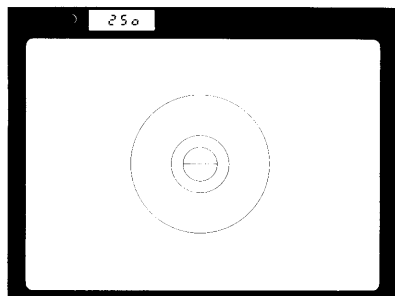
Flashbulbs can also be used at the following shutter speed sync ranges.

Shutter speed (sec.)	1/4000	1/2000	1/1000	1/500	1/250	1/125	1/60	1/30-1	M250	B
Speedlight										
M, FP and MF Flashbulbs										

☐ Synchronized

☐ Cannot be used

- *The use of other manufacturers' flash units, even with the same ISO-type mounting foot, may cause abnormalities to the IC circuitry. Units having a high voltage synchro circuit may also affect shutter speed precision.*
- *When using a special electronic flash unit that has provision for time lag, adjust the shutter speed down to 1/125 sec. or slower according to the time lag.*



## Ready-Light Indication in the Viewfinder

When the Nikon FA is used with Nikon Speedlights SB-15, SB-16B, SB-E, etc., the FA's ready-light LED in the viewfinder lights up when the flash is recycled. This way, you're easily informed of flash readiness without having to take your eye away from the viewfinder. The same LED blinks to warn of insufficient flash output. In TTL automatic flash output control with the SB-15 or SB-16B, the LED also blinks to warn of incorrect setting of the FA's ASA/ISO film speed dial (over ASA/ISO 400) and/or the shutter speed dial (at M250 and B).

## Relationship Between Camera's Meter, Ready-Light Indication and Shutter Speed

Shooting mode selector	Shutter speed dial setting	Camera's exposure meter				
		On			Off	
		Ready-light indication	LCD indication	Actual shutter speed (sec.)	Ready-light indication	Actual shutter speed
P, S, A*	All except M250 and B	lights up	250	1/250	does not light up	—
M	1/4000-1/500 sec.	lights up	M250**	1/250	does not light up	—
	1/250-1 sec.	lights up	as set	as set	does not light up	—
P, S, A, M	M250, B	—	—	—	lights up	as set

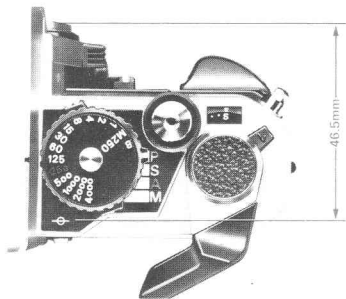
\*Because automatic exposure modes are cancelled as soon as the flash unit is turned on, you should determine the proper aperture beforehand.

\*\* + and/or — indication on M disappears as soon as the flash unit is turned on.

## Nikon FA/Speedlight Combination Chart

Speedlight	Connection	Camera's ready-light operates	Shutter speed auto changeover	Usable flash modes
SB-15	Direct	Yes	Yes	TTL, auto, manual, MD
SB-16B	Direct	Yes	Yes	TTL, auto, manual, MD
SB-16A	Via AS-6 coupler	Yes	Yes	Auto, manual, MD
SB-E	Direct	Yes	Yes	Auto
SB-11/14	Via SC-11 sync cord	No	No	Auto, manual
	Via SC-13 sensor cord	Yes	Yes	Auto, manual
SB-17	Via AS-6 coupler	Yes	Yes	Auto, manual, MD
SB-12	Via AS-6 coupler	Yes	Yes	Manual
SB-10	Direct	Yes	Yes	Auto, manual
SB-7E	Via AS-2 coupler	No	No	Auto, manual
SB-6	Via SC-6 sync cord with AS-3 coupler	No	No	Manual
	Via SC-9 sync cord (with SU-1)	No	No	Auto, manual

## CLOSE-UP PHOTOGRAPHY



For shooting subjects which are located closer than the closest possible focusing distance of the lens, Nikon offers a wide variety of close-up equipment as shown below.

In close-up photography, depth of field is usually quite shallow. Thus, you should stop the lens down as much as possible when photographing a subject having great depth.

To focus in close-up photography, use the matte portion of the screen. Or replace the standard Type K2 focusing screen with the Type B2 or E2 screen. (For details about interchangeable focusing screens, refer to page 66.)

To measure the exact distance between the subject and film plane, use the film plane indicator ⑦⑥ which indicates the exact position of the film plane inside the camera. The distance between the film plane and the lens mounting flange is exactly 46.5mm.

### Close-Up Equipment

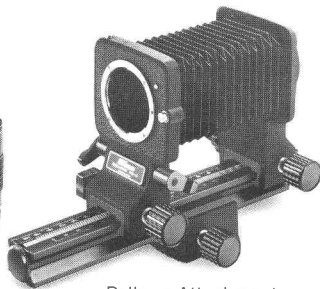
#### • Close-Up Attachment Lenses Nos. 0, 1, 2, 3T, 4T, 5T, 6T.

These lenses screw into the front of the lens just like filters to magnify the image. Exposure metering can still be done at full aperture without compensation.

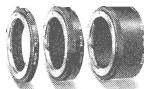
- **Auto Extension Rings PK-11, PK-12, PK-13.** These fit between the lens and camera body. Used singly or in combination, exposure determination is done at full aperture with all AI-type lenses.
- **Bellows Attachment PB-6.** The PB-6 is also attached between the lens and camera body. Exposure is determined by the stop-down method with centerweighted metering. The beauty of this accessory is that you can change magnifications continuously by extending the bellows.
- **Micro-Nikkor 55 mm f/2.8, 105 mm f/4, 200 mm f/4 IF lenses.** These specially designed lenses for close-up photography offer continuous focusing from infinity down to 1/2X lifesize.



Micro-Nikkors



Bellows Attachment



Auto Extension Rings



Close-Up Lenses

# ACCESSORIES

## ELECTRONIC FLASH UNITS

### Speedlight SB-15

The Nikon SB-15 is a direct-mounting electronic flash featuring automatic TTL flash output control. With the camera in one of the automatic exposure modes (P, S and A), or manually set at 1/500sec. or faster, the proper synchronization speed of 1/250sec. is automatically set. With a guide number of 25 (ASA/ISO 100 and meters) or 41 (ASA/ISO 25 and feet), the SB-15 Speedlight provides just the right amount of light for subjects located between 0.6m and 15m (2ft and 49ft). As soon as the flash is recycled and ready to fire, an LED ready-light inside the finder comes on. The same LED blinks to let you know when the light is insufficient for proper exposure. Other features include a tilting flashtube module for bounce-flash.



SB-15

### Speedlight SB-16B

The Nikon Speedlight SB-16B mounts directly on the camera's accessory shoe to provide fully automatic TTL flash output control. It features four zoom settings for 28, 35, 50 and 85mm lenses with a guide number of 32 (ASA/ISO 100 and meters) or 52 (ASA/ISO 25 and feet) for the 35mm setting. For truly creative bounce flash, it has two flash heads: the main head not only tilts back 90° but rotates 270°, while the smaller, secondary head faces straight ahead to fill in the shadows in the eye sockets and provide a catchlight for the eyes. Other features include an MD (motor drive) setting for rapid flash recycling up to 4 flashes per second for a total of 8 consecutive frames.



SB-16B

## ACCESSORIES—continued

### MOTOR DRIVES

#### Motor Drive MD-15

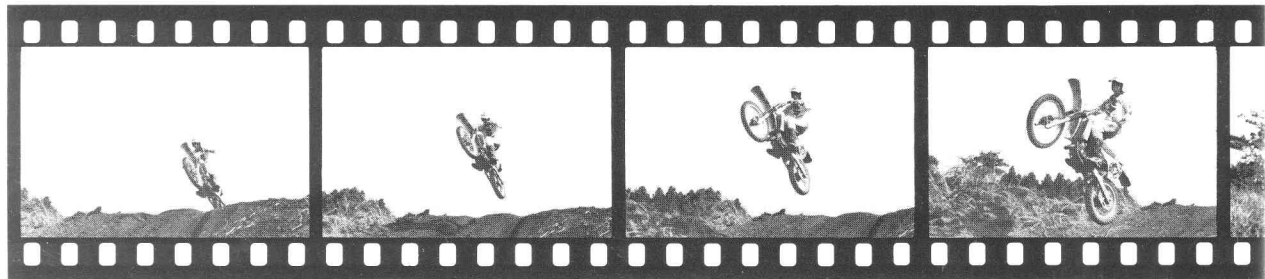
The use of the Motor Drive MD-15 with the FA enables automatic film advance when the unit's trigger button is pressed. In addition to single frame shooting, continuous firing at the maximum rate of 3.2 frames per second is possible (at 1/125 sec. or faster). The MD-15 is very convenient when shooting fast-moving subjects since the photographer does not have to wind film manually or take his eye off the subject.

To attach, remove the FA's handgrip and engage the tripod socket of the camera with the mounting screw of the motor drive.

With the MD-15 attached, the FA is powered by batteries inside the motor drive.

#### Motor Drive MD-12

The FA also accepts the Motor Drive MD-12 for approx. 2.7 frames per second shooting (at 1/125 sec. or faster). Compared with the MD-15, it takes slightly longer for the shutter to be released after you depress the MD-12's trigger button.



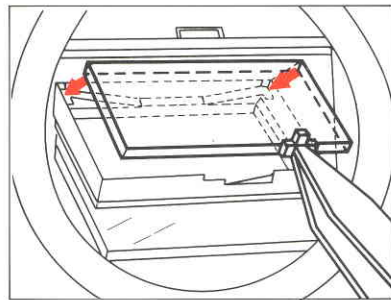
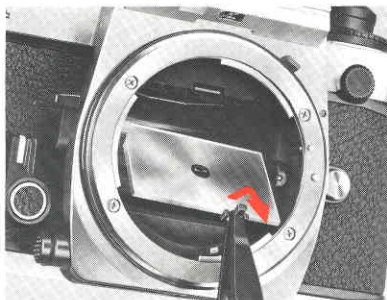
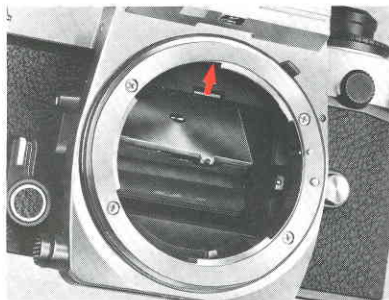
## MISCELLANEOUS

### Data Back MF-16

To keep track of when photos were taken, the FA accepts the slim, lightweight Data Back MF-16. This back attaches in place of the FA's regular camera back with no sync cord required. Three imprinting modes are provided: year/month/day (up to the year 2100), day/hour/minute, or picture counting (up to 2000); each mode is displayed on the data back in clear LCD numerals and printed by LED's, on the photo in unobtrusive red numerals. Serving as a handy clock, a quartz timer with alarm is incorporated.

- The Nikon FA also accepts Data Back MF-12. In this case, use the cord provided with the data back to connect the socket contact of the MF-12 to the sync terminal of the camera.





### Interchangeable Focusing Screens

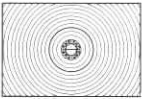
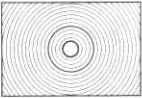
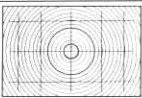
Three different types of focusing screens are usable with the Nikon FA. The Type K2 screen comes with the camera as a standard accessory. Two optional focusing screens, Type B2 (matte/Fresnel with focusing spot) and Type E2 (matte/Fresnel with focusing spot and etched grid lines) are also available for the FA to match your particular requirements.

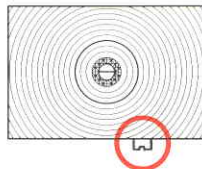
#### To change focusing screens, follow this procedure:

1. Remove the lens from the camera body.
  2. Slip the small tip of the special tweezers (that come with the optional screens) under the focusing screen release latch (4) at the top front of the mirror box casting and pull outward to spring open the holder.
  3. Take the screen out by grasping the small tab with the tweezers.
  4. Carefully position another screen in place with the flat side facing down and the side with the tab facing up.
  5. Then push the front edge of the holder upward with the tweezers until it clicks into position.
- To avoid getting smudges or fingerprints on the screen's optical surface, do not handle the screen with your fingers.

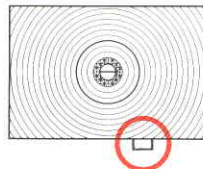


## Focusing Screen Selection Guide

Type	Name/style	Features
 K2	Split-image range-finder/microprism system	Suitable for general photography. Has microprism collar around the central split-image rangefinder spot. With PC-Nikkor or lenses having a maximum aperture slower than f/4.5, the split-image rangefinder or microprism collar is dim. In this case, focus on the surrounding matte area.
 B2	Matte system	Works well for general photography, close-up photography and duplication work. Especially useful for people who prefer to focus on the matte focusing spot at the center of the screen, or when it is inconvenient to use the split-image rangefinder for focusing, as is the case with telephoto lenses.
 E2	Horizontal and vertical line etched system	Extremely useful in pictorial composition. Consists of Type B matte field with etched horizontal and vertical lines. Also useful with PC-Nikkor lenses.



FA/FE2 type clear-matte screen  
(K2 type)



FE/FM2 type screen  
(K type)

**Caution:** FA/FE2 type focusing screens have a notched tab. The FE/FM type screens cannot be used in the FA or FE2 camera.

- If an FA/FE2 type screen is used in the FE or FM2, set the exposure compensation dial in the FE to +1/2; since the FM2 doesn't have an exposure compensation dial, set the ASA/ISO film speed dial to 1/3 less (e.g., from ASA/ISO 100 to 80).

## Filters

Nikon filters allow you to balance the light to match your film or to create interesting artistic effects. Nikon filters are divided into the screw-in, drop-in, and bayonet type. With the Nikon FA, the filter factor can be ignored except in the case of the R60. When using the R60 in tungsten lighting, set the aperture one f/stop wider than the figure indicated by the exposure meter.

- For lens protection, the L39 or L37C is recommended.
- When shooting a backlit subject or if there's a bright light source in the frame, a ghost image is likely to result from the use of a filter. In this case, you should take the picture without a filter.

## Lens Hoods

Recommended to prevent extraneous light from striking the lens, Nikon's lens hoods come in four styles: screw-in, slip-on, snap-on, and collapsible-rubber.

Type			Filter Designation	Filter Factor		Screw-in Type (mm)						Drop-in Type	Bayonet Type
				Daylight	Tungsten Light	39	52	62	72	95	122		
For Both Color and Black-and-White Film	Skylight	L18C	1										
		L37C	1										
	Ultraviolet	L39	1										
		Light	Y44	1.5 (1/2)	1								
For Black-and-White Film	Yellow	Medium	Y48	1.7 (2/3)	1.2 (2/3)								
	Deep	Y52	2 (1)	1.4 (1/2)									
	Orange	O56	3.5 (1 5/8)	2 (1)									
	Red	R60	8 (3)	5 (2 1/2)									
	Green	Light	X0	2 (1)	1.7 (2/3)								
	Deep	X1	5 (2 1/4)	3.5 (1 1/4)									
For Both Color and Black-and-White Film	Polarizing	Polar	2 ~ 4 (1 ~ 2)										
	Soft filters	No. 1	1										
		No. 2	1										
		ND2X	2 (1)										
		ND4X	4 (2)										
		ND8X	8 (3)										
		ND400X	400 (8.3)										
For Color Film	Amber	Light	A2	1.2 (1/3)									
	Deep	A12	2 (1)										
		Light	B2	1.2 (1/3)									
	Blue	Medium	B8	1.6 (1/4)									
	Deep	B12	2.2 (1/4)										

( ) indicates increase in f/stop.

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### **Anti-Cold Battery Pack DB-2**

In cold weather, use the Anti-Cold Battery Pack DB-2, which accepts two AA-type batteries, as an alternative power supply to the batteries inside the camera body. Simply connect the DB-2 to the camera body, then slip the assembly inside your pocket or coat to keep it warm. This assures that the camera's metering system will function even in very cold temperatures.

### **Cable Release AR-3**

The screw-type AR-3 makes for vibration-free shutter release.

### **Right-Angle Viewing Attachment DR-3**

Screws onto the viewfinder eyepiece to provide a viewfinder image at a 90° angle to the camera's optical axis. Very helpful for close-up photography, duplication work, and photomicrography.

### **Eyepiece Magnifier DG-2**

Attached to the viewfinder eyepiece, this accessory enlarges the image at the center of the viewfinder to assure ever precise focusing in close-up photography, duplication work, and telephotography.

### **Rubber Eyecup**

Attached to the finder eyepiece, this eyecup excludes stray light and helps prevent eye fatigue.

### **Eyepiece Correction Lenses**

Accessory lenses that screw onto the viewfinder eyepiece ②3 to enable near- and farsighted photographers to take pictures without having to wear eyeglasses. Nine models are available, offering a choice of the following diopters: -5, -4, -3, -2, 0, +0.5, +1, +2 and +3.

### **Camera Case**

The CF-30, a semi-soft case, accommodates the FA mounted with a 50mm f/1.4 lens or smaller. The CF-28A, a front flap, is also available for use with all lenses up to the Nikkor 35-70mm f/3.5.

### **Neckstraps**

Available are the leather neckstrap AN-1 (black), webbed nylon neckstraps AN-4Y (yellow) and AN-4B (black), and wider webbed nylon neckstraps AN-6Y (yellow) and AN-6W (wine-red).

# EV RANGE OF THE CAMERA

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## What is EV?

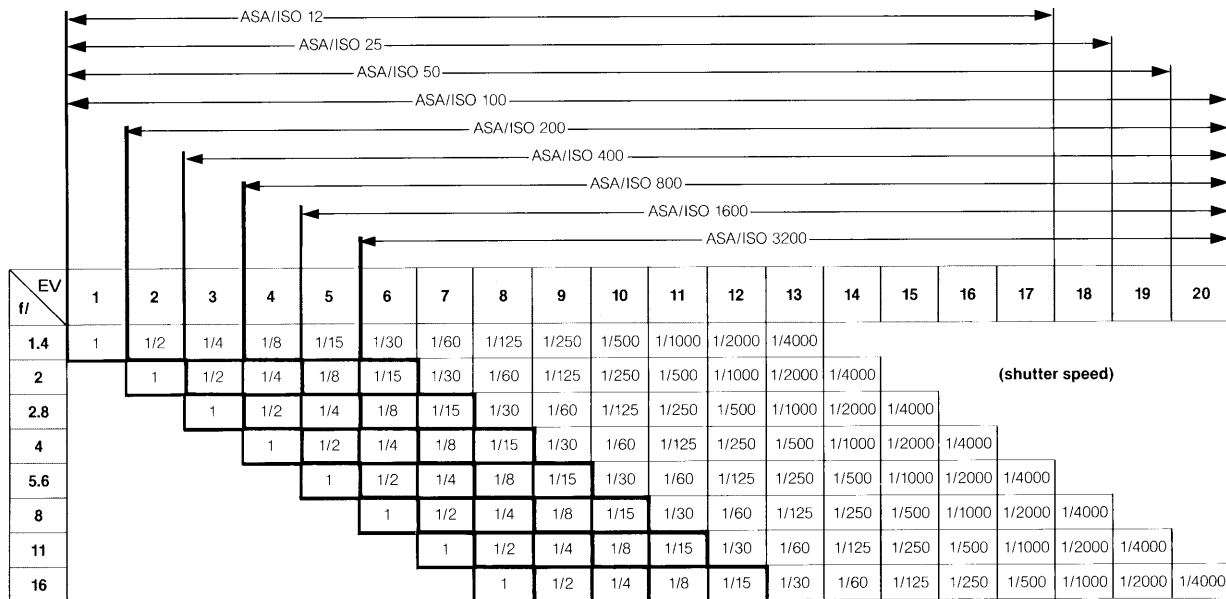
Exposure value (EV) is a number representing the available combinations of shutter speed and aperture that give the same exposure effect when the scene brightness and ASA/ISO remain the same.

At ASA/ISO 100, the combination of a one-second shutter speed and an aperture of f/1.4 is defined as EV 1. If the aperture is stopped down by one full f/stop or the shutter speed is one step faster, the EV increases by one; if the aperture is opened up by one full f/stop or the shutter speed is one step slower, EV decreases by one. Using ASA/ISO 100 as an example, 1 sec. at f/2 represents EV 2, 1 sec. at f/5.6 represents EV 5, while 1/125 sec. at f/5.6 represents EV 12. As the exposure is the same, 1/30 sec. at f/11 and 1/1000 sec. at f/2 are also EV 12.

## EV Chart

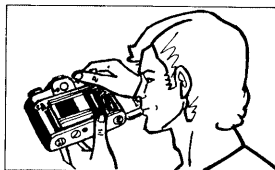
The Nikon FA's meter can only be used within the meter's EV range. The chart shows the relationship between the shutter speed, f/stop, and film speed. Careful attention to this chart will assure precise exposure, automatically, over the entire usable range of the FA. Depending on film speed, EV range determines the following: in the P mode, the usable combinations of aperture and shutter speed; in the S mode, the usable apertures to match the shutter speed set on the dial; and in the A mode, the possible shutter speeds to match the aperture set on the lens. With ASA/ISO 100 film and a 50mm f/1.4 lens, the usable EV range is 1 to 20. As you can see from the chart, any shutter speed from 1 to 1/4000 sec. can be used within this range. However, when using ASA/ISO 200 film, the EV range is reduced to 2 to 20, whereas with ASA/ISO 400 film, it becomes 3 to 20. Therefore, with ASA/ISO 200 film, the slowest usable shutter speed is 1/2 sec., whereas 1/4 sec. is the slowest speed usable with ASA/ISO 400 film. This information is reflected in the LCD inside the camera's viewfinder. For example, with ASA/ISO 200, if you set the mode selector to P or A, **1** will never appear, but as the light gets dim, **Lo** appears immediately after **2**. Likewise, with ASA/ISO 200 in the S mode, if you set 1 sec. on the shutter speed dial, **1** will not appear, but in its place either a faster shutter speed is displayed (if the shutter speed is shifted to a higher one when the scene is bright) or **Lo** appears (when the scene is too dark). With ASA/ISO 400 film, **1** and **2** never appear, indicating that 1 and 1/2 sec. are unusable shutter speeds.

# EV chart with 50 mm f/1.4 lens

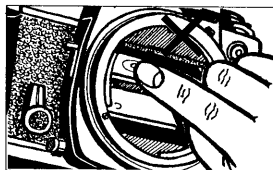


# TIPS ON CAMERA CARE

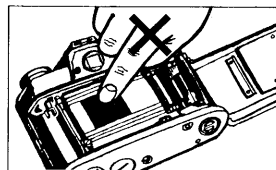
Although the FA is a tough and durable camera, bear in mind that it is a precision optical instrument, and that careless or rough handling may damage it. Observe the following tips, and the FA will always work as perfectly as the day you bought it.



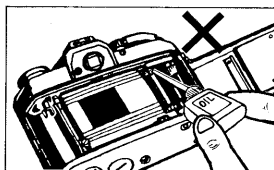
- Before using the camera, it is a good practice to check it thoroughly first.



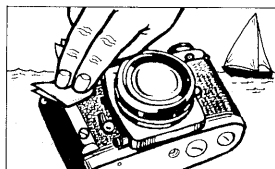
- Never touch the reflex mirror or the focusing screen, to prevent them from becoming scratched. Remove dust with a blower brush.



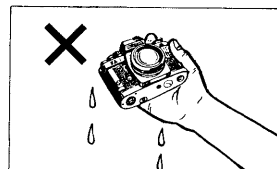
- Do not touch the shutter curtains.



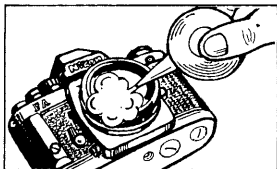
- Generally, the camera does not need lubrication.



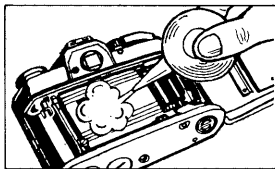
- If the camera body is exposed to rain or mist, wipe moisture gently with a soft cloth and dry the camera. After using the camera near salt water, wipe it with a cloth moistened with pure water to remove possible traces of salt.



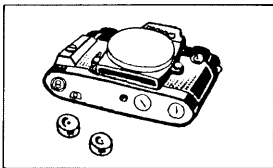
- If the inside of the camera body accidentally gets wet, its internal precision parts may get rusty. Take the camera right away to the nearest authorized Nikon dealer for a checkup, which may require repair payment.



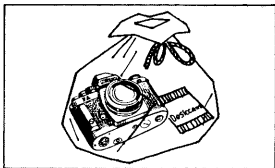
- Clean glass surfaces such as the lens or the finder eyepiece with a blower brush; avoid using lens tissue as much as possible. Gently wipe dirt, smudges, or fingerprints with soft cotton moistened with a small amount of absolute alcohol, using a spiral motion from center to periphery. Make sure you leave no wiping traces.



- Clean metallic parts with a blower brush or with a soft dry cloth.



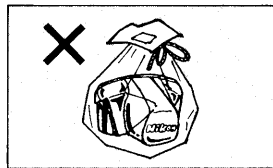
- When not using the camera for a long time, take out the batteries and store the camera away from high temperature, high humidity, naphthalene, or camphor.



- In a humid environment, it is best to store the camera in a vinyl bag with a desiccant to keep away dust, moisture and salt.

### Caution

Please note that the use of a spray-gun type blower to clean the lens may cause possible damage to the glass (especially when ED glass is used for the front lens element), by suddenly lowering the temperature on the lens surface. To avoid damage, hold the blower upright, keep its nozzle more than 30cm away from the lens surface and move the nozzle around so that the stream of air is not concentrated in one spot.



- Note that storing leather cases in a vinyl bag may cause the leather to deteriorate, so exercise due care.

## TIPS ON BATTERY USE

- Battery power falls off in extremely cold temperatures and this may cause the camera to cease to operate. In this situation, use new batteries and protect the camera body from the cold. Note that battery power will be recovered as soon as the temperature becomes normal.
- When not using the camera for a long period of time, take the batteries out and store them in a cool (below 20°C), dry place. Should the batteries be left in the battery chamber for a long period of time, insufficient contact may occur due to battery contamination. Thus, it is good practice to periodically clean the batteries and the contact section in the battery chamber with a soft cloth. If the battery chamber is stained by a leaking battery, remove the batteries at once and clean the chamber.
- Never mix new and old batteries or batteries of different makes.
- Always check battery power before every shooting session. It is a good idea to have spare batteries on hand during a lengthy shooting assignment.
- Keep batteries away from infants and small children. In case a battery is accidentally swallowed, call a doctor immediately as the material inside the batteries may be fatal.
- Never disassemble batteries or dispose of them by burning.

## ABOUT THE LIQUID CRYSTAL DISPLAY (LCD)

To keep the LCD in top working order, note the following:

- At high temperatures (over approx. 60°C); the whole surface turns black so that the exposure information cannot be read. However, this situation will return to normal when the temperature drops.
- Avoid storing the camera in excessively hot places, such as in a car parked in direct sunlight or inside the trunk. You may shorten the LCD's life by doing so.
- When the temperature goes below freezing, the response time decreases as the liquid crystal becomes more viscous.



# SPECIFICATIONS

<b>Type of camera</b>	35 mm single-lens reflex	<b>Exposure meter switch</b>	Meter turned on when shutter release button is depressed half-way; meter stays on for approx. 16 sec. after finger is lifted off button
<b>Picture format</b>	24 mm × 36 mm (standard 35 mm film format)	<b>Metering range</b>	EV1 to EV20 at ASA/ISO 100 with f/1.4 lens
<b>Lens mount</b>	Nikon bayonet mount	<b>Exposure control range</b>	<b>Automatic multi-pattern metering:</b> EV1 to EV16-1/3 at ASA/ISO 100 with 50 mm f/1.4 lens
<b>Lenses</b>	More than 60 Nikkor and Nikon Series E lenses available		<b>Centerweighted metering:</b> EV1 to EV20 at ASA/ISO 100 with 50 mm f/1.4 lens
<b>Viewfinder</b>	Fixed eyelevel pentaprism type; 0.8X magnification with 50 mm lens set at infinity; 93% frame coverage; eyepiece shutter provided	<b>Exposure control</b>	Three automatic exposure modes: P (programmed), S (shutter-priority) and A (aperture-priority); M (manual) exposure mode also provided
<b>Focusing screen</b>	Matte/Fresnel focusing screen with central split-image rangefinder spot and micropism collar (Nikon Type K2 screen); two other types of screens available optionally (Type B2 and E2)		<b>P mode:</b> Shutter speed and aperture are both set automatically and steplessly; normal program operative with all AI-type lenses; high-speed program operative with AI-S Nikkor and Nikon Series E lens of 135 mm or longer
<b>Exposure metering</b>	TTL full-aperture exposure measurement; employs two silicon photo diodes (SPD's) with automatic multi-pattern and center-weighted metering methods; selection of metering method via metering control button		<b>S mode:</b> Shutter speed set manually while aperture is set automatically and steplessly; shutter speed automatically corrected for correct exposure in case shutter speed you set is improper
	<b>Automatic multi-pattern metering:</b> Light is individually measured from five separate areas of focusing screen, providing correct automatic exposure, even in difficult lighting situations		
	<b>Centerweighted metering:</b> Major portion of meter's sensitivity concentrated in 12 mm dia. center spot of focusing screen		

## SPECIFICATIONS—continued

### Exposure information

**A mode:** Aperture set manually while shutter speed is set automatically and steplessly

**M mode:** Both aperture and shutter speed set manually

**P mode:** Viewfinder LCD shows discrete shutter speed closest to automatically selected speed; LCD also shows **HI** or **Lo** indication to warn of over- or underexposure or **FEE** to warn of aperture missetting

**S mode:** LCD shows discrete f-number closest to automatically selected aperture or discrete shutter speed closest to automatically selected speed when manually set shutter speed is improper; LCD also shows **HI** or **Lo** to warn of over- or underexposure or **FEE** to warn of aperture missetting; manually set shutter speed always shown via shutter speed indication

**A mode:** LCD shows discrete shutter speed closest to automatically selected speed; LCD also shows **HI** or **Lo** to warn of over- or underexposure; manually set aperture always shown via ADR window

### Exposure compensation

### Film speed range Shutter

### Shutter speeds

### Film advance lever

### Automatic film advance

### Frame counter

**M mode:** LCD shows manually set shutter speed preceded by M;  $-\pm$  indicates correct exposure with  $+$  or  $-$  indicating over- or underexposure; manually set aperture always shown via ADR window  $\pm 2$  EV compensation (in one-third increments) possible via dial; red LED exposure compensation mark visible in viewfinder when meter is on

ASA/ISO 12 to 4000

Electromagnetically controlled vertical-travel, metal focal plane shutter with titanium curtains

Stepless speed from 1 to 1/4000 sec. in automatic exposure modes (except S mode); ceramic-oscillator-controlled discrete speeds from 1 to 1/4000 sec. in S and M modes; mechanically controlled, 1/250 sec. at M250 setting and long exposure at B setting available Wound in single stroke with 30° stand-off angle and 135° winding angle; doubles as shutter release button lock

Possible with optional Motor Drive MD-15 or MD-12

Additive type, self-resetting; for blank exposures before frame 1, shutter fires at 1/250 sec. at any shutter speed dial setting except B

<b>Film rewind</b>	Via folding crank and rewind button in baseplate	<b>Flash synchronization</b>	Speeds of 1/250 sec. or slower with electronic flash; with Nikon dedicated flash unit, flash sync automatically set to 1/250 sec. when camera is set at any automatic exposure mode or when shutter speed dial is set at 1/500 or higher in manual mode; at slower speed on manual, shutter fires at speed set
<b>Self-timer</b>	10-sec. delayed exposure		Viewfinder LED lights up when Nikon dedicated flash unit is completely recycled; blinks to warn of insufficient light output or improper shutter speed dial or film speed setting
<b>Eyepiece shutter</b>	Prevents stray light from entering viewfinder during unmanned operation	<b>Flash ready-light</b>	One 3V lithium battery, two 1.55V silver-oxide batteries or two 1.5V alkaline-manganese batteries
<b>Depth-of-field preview lever</b>	Provides visual verification of depth of field; with lever depressed, centerweighted metering only available		Approx. 142.5mm(W)×92mm(H)×64.5mm(D)
<b>Reflex mirror</b>	Automatic instant-return type	<b>Batteries</b>	Approx. 625g
<b>Multiple exposures</b>	Possible via lever	<b>Dimensions</b>	
<b>Camera back</b>	Hinged interchangeable type with memo holder; interchangeable with Data Back MF-16 or MF-12	<b>Weight (body only)</b>	
<b>Data back contacts</b>	Two contacts are provided for the Data Back MF-16		
<b>Handgrip</b>	Detachable type provides comfortable shooting; must be detached when attaching motor drive		
<b>Accessory shoe</b>	Standard ISO-type contains hot-shoe contact, ready-light contact, TTL flash auto-stop signal contact and monitor contact; accepts Nikon SB-15 or SB-16B for TTL direct flash output control using camera's SPD metering cell		
<b>Sync terminal</b>	Threaded type provided for off-camera or multiple flash photography		