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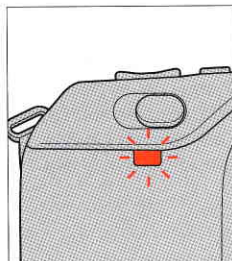
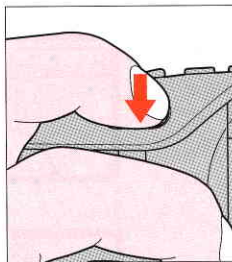
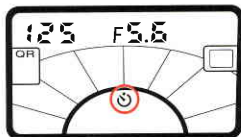
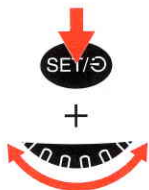
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[back to my "Orphancameras" manuals /flash and light meter site](#)

Only one "donation" needed per manual, not per multiple section of a manual !

The large manuals are split only for easy download size.



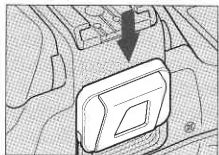
1 Press self-timer (SET/⌚) button and confirm that ⌚ starts blinking in LCD panel. While pressing SET/⌚ button, rotate command dial one click so that ⌚ stops blinking. Then remove finger from SET/⌚ button.

- To cancel self-timer, press SET/⌚ button and rotate command dial so that ⌚ disappears.

2 Look through the viewfinder, lightly press shutter release button, and confirm focus and exposure.

3 Fully depress shutter release button. The self-timer LED starts blinking. The shutter will release after 10 seconds. The self-timer LED blinks for eight seconds, then stops blinking to tell you get ready for the shot.

To cancel self-timer operation before shooting: Turn the camera's power off.



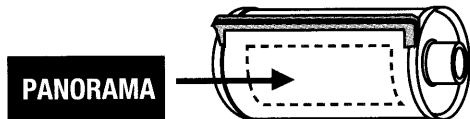
- When using any Auto exposure mode, attach the eyepiece cover (provided) to the viewfinder eyepiece before setting self-timer. The eyepiece cover prevents stray light from entering viewfinder and affecting exposure.
- In Single Servo AF mode, self-timer operates only when in-focus indicator (●) appears inside viewfinder.
- Regardless of film advance mode setting, continuous shooting is not performed.
- At **b u l b** setting, shutter will release at around 1/30 sec.

IMPORTANT NOTES ON PANORAMA PICTURES

In some cases, your local film processing lab may not be able to handle the printing of panorama-size pictures. For details, consult your local photo shop or camera dealer. Also, before you have your film processed, ask your local photo shop about possible options for processing panorama pictures. Note that panorama pictures are more expensive and require a longer processing time than regular-size pictures.

For easy identification, attach the appropriate adhesive label (supplied with your F70D), **"PANORAMA"**, **"NORMAL & PANORAMA MIXED"** or **"DEVELOP ONLY"** to the film cartridge when you bring the film to a photo shop for processing.

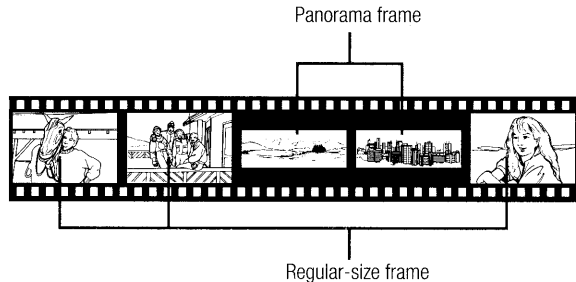
- 1) If an entire roll consists of panorama-size pictures, be sure to specify panorama processing, explain that your film consists entirely of panorama pictures, and attach a **"PANORAMA"** label on the film cartridge.
- 2) When you have a mix of panorama and regular pictures on a single roll, you should have your film processed according to one of the following conditions.
If your local photo shop has photo processing machinery equipped to process a single roll of film that contains a mix of both panorama- and regular-size pictures:
 - a) Explain that your film consists of a mix of panorama- and regular-size pictures when you have your film processed and attach a **"NORMAL & PANORAMA MIXED"** label to the film cartridge.



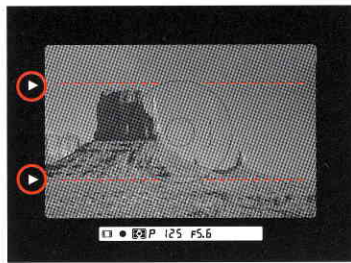
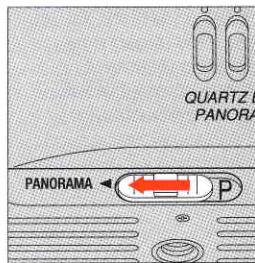
If your photo shop can only process either panorama- or regular-size pictures per roll:

- b) Ask for development only, so you can review the negative film before printing, and later specify separate printing of panorama- and regular-size frames. Attach a **"DEVELOP ONLY"** label to the film cartridge.
- c) Print all of the pictures in regular-size prints first, then later specify the panorama-size frames on the film and have them printed again in panorama-size prints. Note that when panorama pictures are printed as regular-size pictures, the top and bottom of each picture are blacked out.

In a panorama picture, only the middle portion of each regular-size film frame is exposed. There is no difference, however, in the number of pictures you can take with a roll, whether they be panorama, regular-size, or a mix of both.



TAKING PANORAMA PICTURES



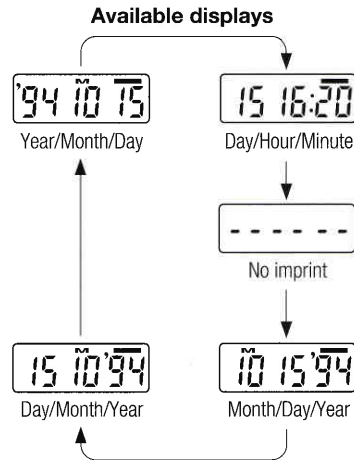
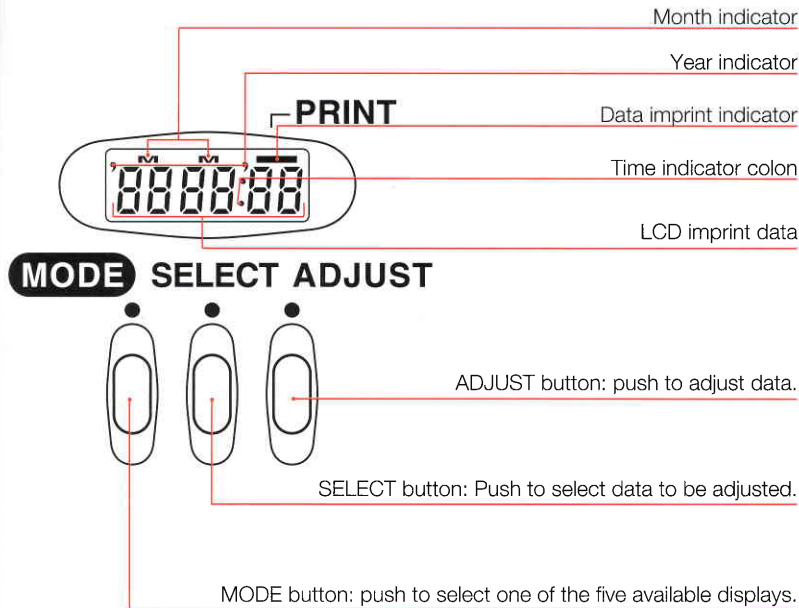
Panorama picture

Slide the panorama switch in the direction of the arrow until it clicks. Panorama-size shot indicators appear inside viewfinder. Compose so that your subject/scene is well within the panorama frame marks.

- The frame of printed panorama pictures is slightly smaller than the frame exposed on film.
- With a scene containing the sun, do not use a shutter speed of 1/15 sec. or slower. With a shutter speed of 1/15 sec. or slower, sunlight entering from the lens may damage the shutter curtains.

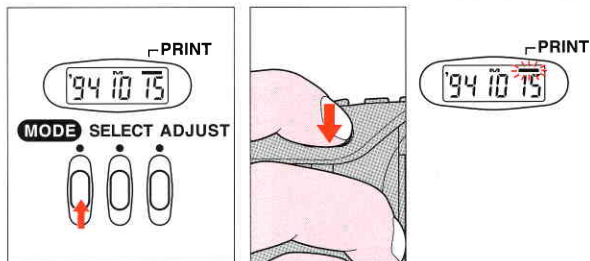
IMPRINTING DATE/TIME (for use with F70D only)

You can imprint Year/Month/Day, Day/Hour/Minute, Month/Day/Year or Day/Month/Year on your picture. To select display and/or adjust date/time, use buttons on the camera back.



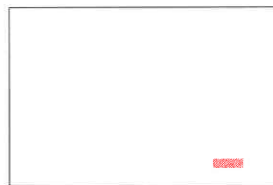
- Usable film speed range for data imprint function is ISO 32 to ISO 3200.
- When the LCD becomes faint, replace lithium battery for the data imprint function (see page 92).

TAKING PICTURE WITH IMPRINTED DATE/TIME

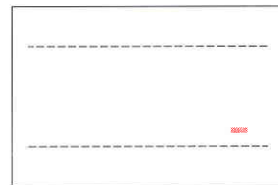


- 1 Push MODE button to select desired display—Year/Month/Day, Day/Hour/Minute, Month/Day/Year or Day/Month/Year. Confirm date and time are correctly set.
 - 2 Fully depress shutter release button to take picture with imprinted date/time.
- Data imprint indicator — blinks for approx. two seconds immediately after the shutter is released.

Position of imprinted date/time



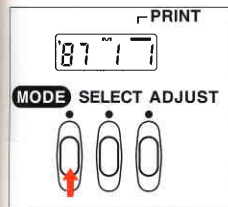
Regular-size frame



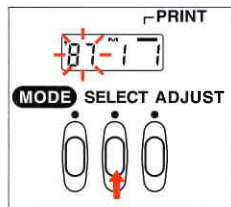
Panorama frame

Imprinted date/time may be difficult to read against bright colours such as white or reddish colours.

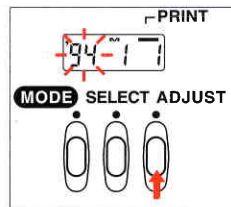
ADJUSTING DATE AND TIME



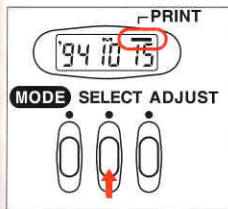
1 Push MODE button to choose desired display. To set date, choose display other than Day/Hour/Minute. With Day/Hour/Minute display, only time can be set.



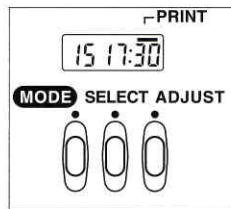
2 Push SELECT button so year section starts blinking indicating that it can be adjusted.



Push ADJUST button to set the year. To change numerical indication rapidly, hold the ADJUST button down.

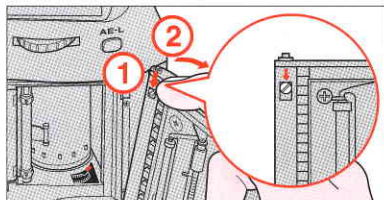


3 Set the month and day in the same manner as for year. To complete setting, push SELECT button while the day display is blinking. The newly adjusted date and the imprint indicator — appear without blinking.

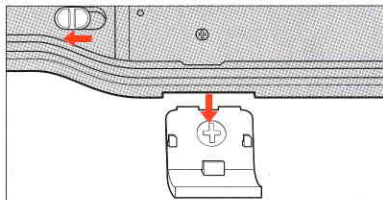


4 To set time, select Day/Hour/Minute display and set the hour and the minute.

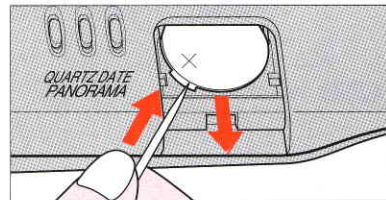
REPLACING BATTERY FOR IMPRINTING FUNCTION



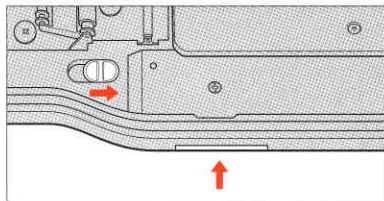
1 Make sure that film is not loaded and open camera back. Push the camera back's locking catch on the hinge to remove the back.



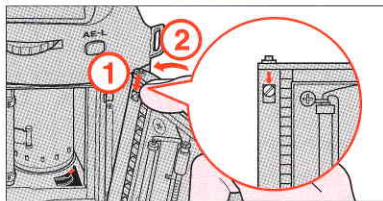
2 Slide battery chamber cover lock lever to left and remove battery chamber cover.



3 Remove used battery and insert new one with "+" terminal facing upward.



4 Attach battery chamber cover and slide the lock lever to the right to lock the cover.



5 Attach camera back.

When replacing battery for imprinting function, always adjust date and time (see previous page).

FLASH PHOTOGRAPHY

Flash can be used not only in dim light, but also in bright conditions to fill in shadows with extra light. This technique is called "fill-flash."

With the F70/F70D's built-in flash or any dedicated Nikon Speedlight, you can perform advanced fill-flash technique, Automatic Balanced Fill-Flash with TTL Multi-Sensor. This assures a correct and well-balanced exposure of both the main subject and the background. Make fill-flash a standard part of your photography. You can make better flash pictures than ever before.



When subject brightness is insufficient, the flash-recommended light (green ⚡) lights up inside the viewfinder when you lightly press shutter release button to activate the exposure meter.

You can use the built-in flash anytime, regardless of ambient lighting. For example, if your subject is backlit, you can use the built-in flash to illuminate your subject and fill in shadows.

AUTOMATIC BALANCED FILL-FLASH WITH TTL MULTI SENSOR—3D MULTI-SENSOR BALANCED FILL-FLASH AND MULTI-SENSOR BALANCED FILL-FLASH

Combined with a D-type AF Nikkor lens, in automatic exposure mode, the F70/F70D's built-in flash performs 3D Multi-Sensor Balanced Fill-Flash. In 3D Multi-Sensor Balanced Fill-Flash operation, just after you depress shutter release button and before the shutter is activated, the built-in flash will fire a series of weak pre-flashes (Monitor Pre-flashes) that are detected by the camera's TTL Multi Sensor, then analyzed for brightness and contrast. Additionally, Distance Information from the D-type AF Nikkor lens in use, along with other exposure control information, is integrated, thus automatically compensating flash output level so that flash output and ambient light are balanced. The Monitor Pre-flashes enable 3D Multi-Sensor Balanced Fill-Flash to ensure correct exposure even in difficult situations, including scenes with a very reflective object such as a mirror or a white wall, and scenes with a very dark backgrounds.

3D Multi-Sensor Fill-Flash is performed with all the meters—Matrix, Centre-Weighted and Spot.

When the camera and the built-in flash are used with a non-D-type AF Nikkor lens, Multi-Sensor Balanced Fill-Flash, which offers the same flash output control system but without Distance Information, is performed.

CENTRE-WEIGHTED/SPOT FILL-FLASH

If you are using a lens without CPU (a lens other than AF Nikkor and AI-P-Nikkor), in automatic exposure mode, Centre-Weighted Fill-Flash with Centre-Weighted Metering and Spot Fill-Flash with Spot Metering are performed as Automatic Balanced Fill-Flash. Flash output is properly compensated to produce a natural fill-flash effect.

STANDARD TTL FLASH

In Manual exposure mode, standard TTL Flash will be performed, regardless of metering system and lens in use. To cancel Monitor Pre-flashes, perform Standard TTL Flash by setting exposure mode to Manual.

Using 3D Multi-Sensor Balanced Fill-Flash with two subjects at greatly different distances.

If you first focus on one subject and then, with the focus locked, recompose the shot on another subject, it may result in an incorrect exposure. This is because the focusing distance for the first subject only was sent to the camera's computer. To correct this, refocus on the second subject or cancel the 3D Multi-Sensor Balanced Fill-Flash to activate the Standard TTL Flash.

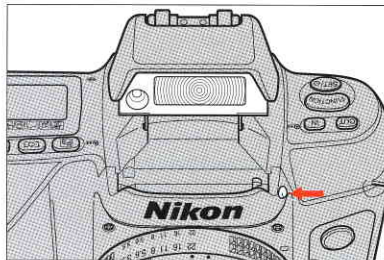
Important!

- Do not touch the flash when it is firing; normal operation can cause it to heat up.
- Never fire the flash more than 20 consecutive times at intervals of 5 sec. or shorter. This may impair flash performance. If you fire the flash 20 consecutive times at intervals of 5 sec. or shorter, let the flash rest at least 10 minutes before firing again.
When you continuously fire the flash, the camera's handgrip may become hot; this is normal. Continuous firing will result in a longer interval before the ready-light lights up because it takes longer for the flash to recharge automatically.
- When the built-in flash is activated, an accessory Speedlight will not fire. When using a Speedlight, keep the built-in flash in the locked down position.
- For usable lenses with built-in flash, see page 104.

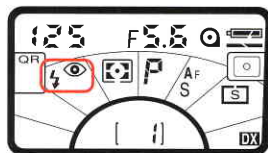
Built-in flash specifications

Usable film speed: ISO 25 to ISO 800
Guide number: 14 (m) at ISO 100 at 20°C
Angle or coverage: 28mm or longer lens

BUILT-IN FLASH OPERATION



- 1** Press the flash lock-release to release and activate the built-in flash.
- If continuous shooting (H or C) is set on the camera, it automatically switches over to single-frame shooting (S) when the built-in flash pops up. In this case, H or C blinks in LCD panel.
- If Wide Area focus is set on the camera, it automatically switches over to Spot Area focus when the built-in flash pops up. In this case, A blinks in LCD panel, and A appears inside the viewfinder.



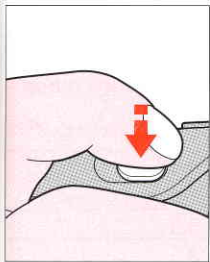
- 2** Set metering system to Matrix (M) and set exposure mode as desired. Then set flash sync mode as desired. (See page 68). In the example illustration, Red-Eye Reduction mode is set.
- 3** Set shutter speed and aperture. (See table on page 99).

For Slow Sync

- Set exposure mode to Programmed Auto (P) or Aperture-Priority Auto (A).
- Slow Sync is automatically set with Night Scene Program and Motion Effect Program.
- Use a tripod to prevent camera shake.

For Rear-Curtain Sync

- Since Rear-Curtain Sync is especially effective at a slow shutter speed, Slow Sync is automatically set at the same time that Rear-Curtain Sync is set in Programmed or Aperture-Priority Auto exposure mode.
- When selecting a slower shutter speed, use a tripod to prevent camera shake.



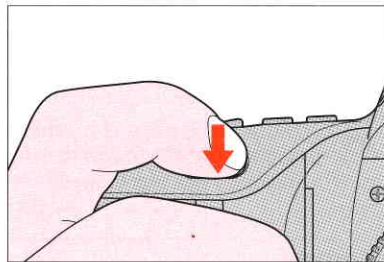
4 Compose and lightly press shutter release button. Confirm that ready-light (red ) lights up.

- If electronic analog display is shown in Shutter-Priority, Aperture-Priority Auto or Manual exposure mode, background may be underexposed. To obtain correct exposure for background:

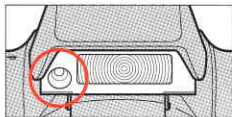
In Shutter-Priority Auto exposure mode: Set a slower shutter speed.

In Aperture-Priority Auto exposure mode: Set flash sync mode to Slow Sync to extend the automatically controlled shutter speed range, or set a wider aperture.

In Manual exposure mode: Set a slower shutter speed and/or a wider aperture.



5 Make sure the subject is within the flash shooting distance range (page 90), then fully depress shutter release button to take a shot with flash. After shooting, check ready-light again. If it blinks for a few seconds after shooting, the light might have been insufficient. Confirm shooting distance and if necessary, move closer to the subject or select a wider aperture.



With Red-Eye Reduction

Before shutter release, the red-eye reduction lamp lights up for approx. one second to make the subject's eye pupils become smaller, thus reducing the appearance of red-eye.

FLASH SHOOTING DISTANCE RANGE

ISO film speed	25	50	100	200	400	800	Flash shooting distance range (m)
Guide number (m)	7	9.9	14	19.8	28	39.6	
Aperture	—	—	1.4	2	2.8	4	2.0 – 9.9
	—	1.4	2	2.8	4	5.6	1.4 – 7.0
	1.4	2	2.8	4	5.6	8	1.0 – 5.0
	2	2.8	4	5.6	8	11	0.7 – 3.5
	2.8	4	5.6	8	11	16	0.6 – 2.5
	4	5.6	8	11	16	22	0.6 – 1.8
	5.6	8	11	16	22	32	0.6 – 1.3
	8	11	16	22	32	—	0.6 – 0.9

SHUTTER SPEED/APERTURE FOR EACH EXPOSURE MODE

When setting shutter speed and aperture, refer to the following table.

Camera's exposure mode	Shutter speed	Aperture
Programmed Auto (P, P _s)	Automatically controlled from 1/125 sec. to 1/60 sec.* ¹	Set lens to its minimum aperture. Aperture is automatically controlled between f/2.8 and lens minimum aperture.
Shutter-Priority Auto (S)	Manually set as desired from 1/125 sec. to 30 sec.* ²	
Aperture-Priority Auto (A)	Automatically controlled from 1/125 sec. to 1/60 sec.* ¹	Manually set as desired.
Manual (M)	Manually set as desired from 1/125 sec. to 30 sec.* ²	

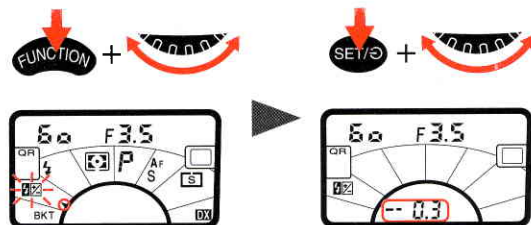
*¹ With Slow Sync or Rear-Curtain Sync, automatically controlled shutter speed range is extended down to 30 sec.


*² If you set shutter speed at 1/250 sec., or faster, camera automatically shifts to 1/125 sec., as soon as Speedlight is turned on. In this case, blinking shutter speed indication in LCD panel shows manually set shutter speed while shutter speed indication inside viewfinder shows 1/25.

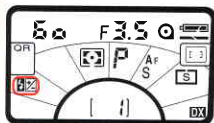
FLASH OUTPUT LEVEL COMPENSATION— TO MAKE FLASH-ILLUMINATED SUBJECT BRIGHTER OR DARKER



To manually adjust the flash light output level, use Flash Output Level Compensation. You can adjust the light output level from -3 EV to +1 EV in 1/3 steps.

- Flash Output Level Compensation can be set only when the built-in flash is activated or when attached Nikon Speedlight is turned on.



- 1 Activate the built-in flash or turn on the attached Nikon Speedlight.
- 2 Hold FUNCTION button and rotate command dial until the Function Area indicator indicates blinking  in the Compensation Area. Then hold SET/OK button and rotate command dial until desired compensation value appears in place of frame counter on LCD panel.
(In the example above, -1/3 compensation is set.)



3 To complete setting, remove your finger from SET/⏏ button. Once set, Flash Output Level Compensation remains fixed until reset. Although  stays on to indicate that Flash Output Level Compensation is set, the compensation value disappears from LCD readout when you remove your finger from SET/⏏ button. Inside the viewfinder,  appears.



4 After shooting, be sure to reset amount of compensation to "0" to resume normal operation.

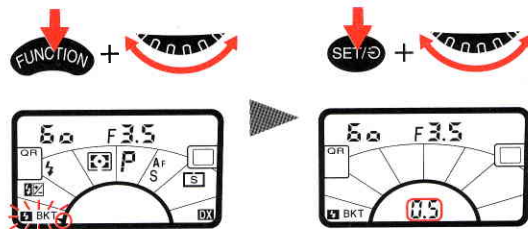
If you store the built-in flash in the down position or turn off the attached Speedlight, compensation value is automatically reset to "0".

FLASH EXPOSURE BRACKETING

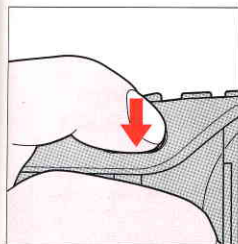
To bracket exposure in flash photography, use Flash Exposure Bracketing function. You can shoot the same subject at three different flash light output level, with a varying flash output level compensation degree of 0.3 EV, 0.5 EV, 0.7 EV or 1 EV.

If you set a compensation degree of 0.5 EV, for example, you will take three pictures, the first shot having a -0.5 EV compensation, the second shot having no compensation and the third shot with a compensation of +0.5 EV.

- Flash Exposure Bracketing can be set only when the built-in flash is activated or when attached Nikon Speedlight is turned on.
- When using Flash Exposure Bracketing with Exposure Compensation function, the compensated value will be added. For example, if exposure has been compensated at +1 EV and you set Flash Exposure Bracketing with 0.5 EV degree, the first shot will be taken with +0.5 EV compensation, the second shot with +1 EV compensation and the third shot with +1.5 EV compensation.



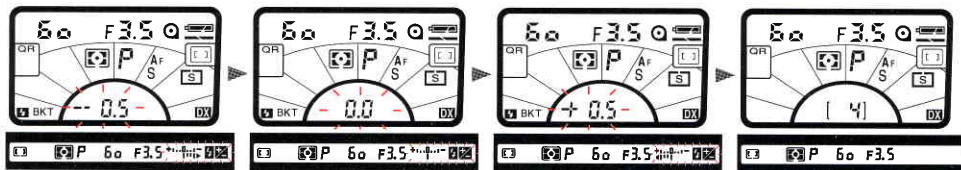
- 1 Activate the built-in flash or turn on the attached Nikon Speedlight.
 - With the accessory Nikon Speedlight, set the flash exposure mode to TTL auto.
- 2 Hold FUNCTION button and rotate command dial until the Function Area indicator indicates blinking **BKT** in the Bracketing Area. Then hold SET/OK button and rotate command dial until your desired compensation degree appears in place of frame counter.
 - If All Mode Exposure Bracketing has already been set, setting Flash Exposure Bracketing cancels All Mode Exposure Bracketing.



First shot is taken.

Second shot is taken.

Third shot is taken.



3 Remove your finger from SET/OK button to complete setting.

4 Compose picture, lightly press shutter release button, confirm focus and exposure, and confirm the ready-light comes on.

Inside the viewfinder, and the electronic analog display showing direction of compensation blink.

5 Regardless of the film advance mode setting, fully depress shutter release button three times to take the three shots.

- If film reaches end of roll during shooting, rewind film, load a new roll of film, fully depress shutter release button to advance film to frame 1, then fully depress shutter release button again to resume operation.
- Turning the camera's power off, storing the built-in flash to down position or turning off the attached Speedlight cancels Flash Exposure Bracketing.

6 After three shots are taken, Flash Exposure Bracketing is automatically canceled. If you want to take one more set of exposure bracketing shooting with the same degree of compensation, press FUNCTION button then SET/OK button.

- If you set self-timer immediately after setting Flash Exposure Bracketing, you can perform self-timer shooting without bracketing. After self-timer shooting, fully depress shutter release button to perform Flash Exposure Bracketing.

USABLE LENSES WITH BUILT-IN FLASH

Usable AF Nikkor lenses (including D-type lenses)

- 28mm to 300mm non-zoom AF Nikkor lenses (AF Nikkor 28mm f/1.4 cannot be used when shooting a subject within 0.7m; AF Nikkor 300mm f/2.8 cannot be used when shooting a subject within 3.2m)
- AF 20-35mm f/2.8 at 35mm focal length*¹
- AF 24-50mm f/3.3-4.5 at 28mm or longer focal length
- AF 24-120mm f/3.5-5.6 at 35mm or longer focal length*²
- AF 28-70mm f/3.5-4.5
- AF 28-80mm f/3.5-5.6
- AF 28-85mm f/3.5-4.5 at 35mm or longer focal length
- AF 28-200mm f/3.5-5.6D IF*³
- AF 35-70mm f/2.8*⁴
- AF 35-70mm f/3.3-4.5
- AF 35-80mm f/4-5.6
- AF 35-105mm f/3.5-4.5
- AF 35-135mm f/3.5-4.5
- AF Micro 70-180mm f/4.5-5.6 ED*⁵
- AF 70-210mm f/4-5.6
- AF 70-300mm f/4-5.6D ED
- AF 75-300mm f/4.5-5.6
- AF 80-200mm f/2.8
- AF 80-200mm f/4.5-5.6

*¹ Cannot be used when shooting a subject within 0.8m.

*² Cannot be used when shooting a subject within 0.8m at 35mm focal length.

*³ Cannot be used when shooting a subject within 2m at 28mm focal length.

*⁴ Cannot be used when shooting a subject within 1m at 35mm focal length.

*⁵ Cannot be used when shooting a subject within 0.8m at 85mm or less focal length.

*⁶ Cannot be used when shooting a subject within 1m at 28mm focal length.

Usable non-AF Nikkor lenses

- AI-type (including AI-S and AI-modified) 28mm to 200mm non-zoom lenses except 200mm f/2
- AI or AI-S 25-50mm f/4 at 40mm or longer focal length*¹
- AI-S 28-85mm f/3.5-4.5 at 35mm or longer focal length
- AI 28-45mm f/4.5*⁶
- AI 35-70mm f/3.5*⁴
- AI-S or AI 50-300mm f/4.5 at 135mm or longer focal length
- AI-modified 50-300mm f/4.5 at 200mm or longer focal length
- AI 80-200mm f/2.8 at 105mm or longer focal length
- AI-modified 85-250mm f/4 at 135mm or longer focal length

- Do not use a lens hood; it could cause slight vignetting.
- With zoom lenses, do not shoot within the macro range (indicated by the orange line on the lens).

USING ACCESSORY NIKON SPEEDLIGHTS

SPEEDLIGHT COMPATIBILITY

The table below shows the available flash modes for each Nikon Speedlight.

Speedlight	Connection	Available flash mode		
		TTL auto ^{*1}	Non-TTL Auto ^{*2}	Manual ^{*2}
SB-28, SB-27, SB-26, SB-25, SB-24, SB-22, SB-21B ^{*3} , SB-20, SB-16B and SB-15	Direct	Yes	Yes	Yes
SB-23	Direct	Yes	No	Yes
SB-21A and SB-16A ^{*3}	Via Flash Unit Coupler AS-6	No	Yes	Yes
SB-11, SB-14 and SB-140 ^{*4}	Via TTL Remote Cord SC-23	Yes	Yes	Yes
	Via Sensor Remote Cord SC-13 with sensor unit or Sync Cord (SC-11/SC-15) with AS-15 coupled	No	Yes	Yes

^{*1} In TTL auto flash mode, F70/F70D camera performs Automatic Balanced Fill-Flash or Standard TTL Flash.

For details, see pp. 98-99. For TTL auto flash mode, usable film speed range is ISO 25 to ISO 1000.

^{*2} Set the camera's exposure mode to Aperture-Priority Auto or Manual.

^{*3} The difference between SB-21A and SB-21B, or between SB-16A and SB-16B, is the type of controller attached. (For details, see specific Speedlight's manual).

^{*4} Ultraviolet and infrared photography can be performed in manual flash mode only.

When using Programmed Auto exposure mode



Only TTL auto flash mode can be used. If a flash mode other than TTL auto is set on the Speedlight, turning on the Speedlight locks the shutter. In this case **FE** and exposure mode indicator (**P** or **P_s**) blink in LCD panel, warning that the flash mode should be set to TTL auto.

TYPE OF TTL AUTO FLASH



With the Nikon Speedlight set for TTL auto flash (see chart on page 105 for compatibility), Automatic Balanced Fill-Flash (including 3D Multi-Sensor Balanced Fill-Flash, Multi-Sensor Balanced Fill-Flash and Centre-Weighted Fill-Flash/Spot Fill-Flash) or Standard TTL Flash is performed.

Speedlight	Lens	Camera exposure mode			
		Programmed Auto	Shutter-Priority Auto	Aperture-Priority Auto	Manual
SB-28, SB-27, SB-26 or SB-25 ¹	D-type AF Nikkor lens	3D Multi-Sensor Balanced Fill-Flash			
	Non-D-type AF Nikkor lens (except AF-Nikkor lens for F3AF)/AI-P-Nikkor lens	Multi-Sensor Balanced Fill-Flash			
	Other lenses (or with accessories)	—		Centre-Weighted Fill-Flash/ Spot Fill-Flash	
SB-24 ²	AF Nikkor lens (except AF-Nikkor lens for F3AF)/AI-P-Nikkor lens	Multi-Sensor Balanced Fill-Flash			
	Other lenses (or with accessories)	—		Centre-Weighted Fill-Flash/ Spot Fill-Flash	
SB-23, SB-22 , SB-20, SB-21B ³ , SB-16B , SB-15, SB-14 ⁴ , SB-11 ⁴ or SB-140 ⁴	AF Nikkor lens (except AF-Nikkor lens for F3AF)/AI-P-Nikkor lens	Multi-Sensor Balanced Fill-Flash			Standard TTL Flash
	Other lenses (or with accessories)	—		Centre-Weighted Fill-Flash/ Spot Fill-Flash	

*1 In the Speedlight's LCD readout,  and  appear for 3D Multi-Sensor Balanced Fill-Flash/Multi-Sensor Balanced Fill-Flash, or  and  appear for Centre-Weighted/Spot Fill-Flash.

By pressing the Speedlight's M button (or MODE button with the SB-28), you can cancel Automatic Balanced Fill-Flash control to perform Standard TTL Flash operation. For Standard TTL Flash, the Speedlight's LCD panel shows  without . For details, see instruction manual of SB-28/SB-27/SB-26/SB-25.

*2 In the Speedlight's LCD readout,  and  appears for Multi-Sensor Balanced Fill-Flash or Centre-Weighted/Spot Fill-Flash.

By pressing the Speedlight's M button, you can cancel Automatic Balanced Fill-Flash control to perform Standard TTL Flash operation. For Standard TTL Flash, the Speedlight's LCD panel shows  without . For details, see SB-24's instruction manual

*3 Although possible with SB-21B, Automatic Balanced Fill-Flash is not recommended.

*4 Via TTL Remote Cord SC-23

WHAT YOU CAN DO WITH NIKON SPEEDLIGHTS

The main features and functions are listed below.

Speedlight	Slow Sync ^{*1}	Rear-Curtain Sync ^{*2}	Repeating Flash ^{*3}	Flash Output Level Compensation ^{*4}	Flash Exposure Bracketing ^{*5}	Red-Eye Reduction ^{*6}
SB-28	Yes ^{*7}	Yes ^{*7}	Yes	Yes	Yes ^{*8}	Yes
SB-27	Yes ^{*7}	Yes ^{*7}	No	Yes	Yes ^{*8}	Yes
SB-26	Yes ^{*7}	Yes	Yes	Yes	Yes ^{*8}	Yes
SB-25	Yes ^{*7}	Yes	Yes	Yes	Yes ^{*8}	No
SB-24	Yes ^{*7}	Yes	Yes	Yes	Yes ^{*8}	No
SB-23, SB-22 and SB-20	Yes ^{*7}	Yes ^{*7}	No	No	Yes ^{*8}	No
SB-16B, SB-15, SB-11, SB-14 or SB-140	Yes ^{*7}	Yes ^{*7}	No	No	Yes ^{*8}	No
SB-21B	Yes ^{*7}	Yes ^{*7}	No	No	No	No

^{*1} See p.68.

^{*2} See p.68. With SB-28, SB-27, SB-26, SB-25 or SB-24, set the Speedlight's sync mode selector to **REAR**. Normal Sync/Rear-Curtain Sync set on the camera is ignored.

^{*3} See Speedlight manual.

^{*4} See Speedlight manual..

^{*5} See p.102.

^{*6} See p.68.

^{*7} Set on the camera side.

^{*8} Set on the camera side; in TTL auto flash exposure mode only.

NOTES ON FLASH PHOTOGRAPHY

- Use only Nikon Speedlights. Other units may damage the camera's electrical circuits due to incompatible voltage requirements*, electric contact alignment or switch phase.
* Not compatible with 250V or higher.
- When using a special Speedlight such as a studio strobe system, with a time-lag provision or one with a long flash duration (i.e., Medical-Nikkor 120mm f/4), adjust shutter speed down to 1/100 sec. or slower.
- Available maximum aperture for each film speed in Auto-Multi Program is:

ISO film speed						
25	50	100	200	400	800	1000
2.8	3.3	4	4.8	5.6	6.7	7.1

If you are using a lens with a maximum aperture smaller than listed, of course, the automatically controlled aperture range is from the lens maximum aperture to its minimum aperture(i.e., its entire range.)

- For multiple flash photography using the F70/F70D, if the electric current in the synchro circuit exceeds a certain level, you may not be able to take a second shot after taking the first shot. Take care that the combined total of the coefficient (numbers shown in parentheses below) for all Speedlights used at any one time does not exceed 20 at 20°C/68°F or 13 at 40°C/104°F.

SB-28 (1)	SB-27 (1)	SB-26 (1)	SB-25 (1)
SB-24 (1)	SB-23 (4)	SB-22 (6)	SB-21 (4)
SB-20 (9)	SB-19 (2)	SB-18 (16)	SB-17 (4)
SB-16 (4)	SB-15 (4)	SB-14 (1)	SB-12 (1)
SB-11 (1)			

If you are unable to take a second shot, disconnect the master Speedlight from the camera, or turn each of the Speedlights off and on at once. This resets the circuits so you can resume shooting.

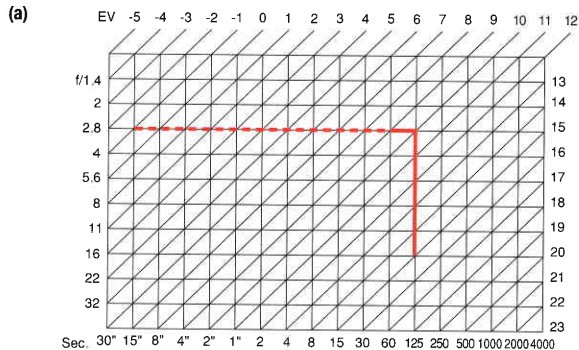
This also applies when using any non-Nikon studio speedlight system.

For your reference, the following charts show shutter speed/aperture combination at each EV in flash photography with built-in flash:

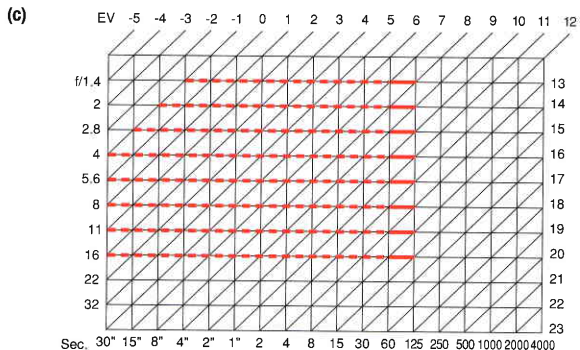
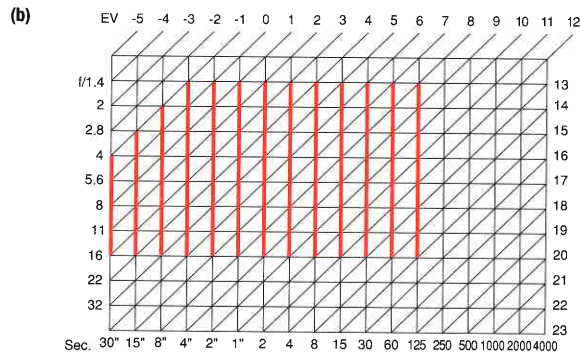
(a) Auto-Multi Program

(b) Shutter-Priority Auto

(c) Aperture-Priority Auto



----- Slow Sync



----- Slow Sync

MISCELLANEOUS

The Nikon F70/F70D is a high-performance, precision instrument, designed to give you superior pictures. You'll want to take good care of your camera to ensure the best performance. Take time to review this section thoroughly, and you will add to the pleasure of taking pictures.

We've also included information about Nikkor lenses and a detailed section with technical specifications. Please read them carefully.

LENS COMPATIBILITY CHART

The Nikon F70/F70D is designed for autofocus photography with AF Nikkor lenses (except AF-Nikkor lenses for F3AF). However, most other Nikon lenses can be used for standard photography according to the conditions listed in the following chart.

Lens Accessory	Focusing			Exposure mode				Metering system		
	Autofocus	Manual with Electronic Rangefinder	Manual with matte field	Programmed Auto	Shutter-Priority Auto	Aperture-Priority Auto	Manual	Matrix	Center-Weighted	Spot
AF Nikkor including D-type AF Nikkor (except AF Nikkor for F3AF)	○	○	○	○	○	○	○	○*1	○	○
AF-S/AF-I Nikkor	○	○	○	○	○	○	○	○	○	○
AF-I Teleconverter	○	○*2	○	○	○	○	○	○	○	○
AI-P-type Nikkor	×	○*3	○	○	○	○	○	○	○	○
AI- or AI-S type Nikkor	×	○*3	○	×	×	○	○	×	○	○
AI-modified Nikkor*4	×	○*3	○	×	×	○	○	×	○	○
Medical-Nikkor 120mm f/4	×	○	○	×	×	×	○*5	×	×	×
Reflex-Nikkor*7	×	×	○	×	×	○*8	○*8	×	○	○
PC-Nikkor*7	×	×	○	×	×	○*9	○*10	×	○	○
AI- or AI-S type Teleconverters (except for TC-16A)	×	○*2	○	×	×	○	○	×	○	○
Bellows Focusing Attachment PB-6	×	○*2	○	×	×	○*11	○*11	×	○	○
K Ring Set (K1, K3, K4 and K5)*12	×	○*2	○	×	×	○*13	○*13	×	○	○
Auto Extension Rings (PK-11A, PK-12, PK-13 and PN-11)*14	×	○*2	○	×	×	○	○	×	○	○

- Compatible
 × Incompatible

- *1 *3D Matrix Metering is selected with D-type AF Nikkor lenses and Advanced Matrix Metering is selected with non-D-type lenses.*
- *2 *With maximum effective aperture of f/5.6 or faster.*
- *3 *With maximum aperture of f/5.6 or faster.*
- *4 *AI-modification is no longer available.*
- *5 *Set shutter speed to 1/100 sec. or slower.*
- *6 *Because the diaphragm is coupled to the focusing ring, determining exposure is independent from camera's metering system.*
- *7 *Some lenses cannot be attached to the F70/F70b camera. (See page 114).*
- *8 *Aperture cannot be selected.*
- *9 *Set preset ring, then use AE-lock lever before shifting.*
- *10 *Set preset ring, then determine exposure before shifting.*
- *11 *Shutter should be released after exposure is measured by stopping down PB-6.*
- *12 *K1 Ring cannot be attached to AF Nikkor lenses. The ring may damage CPU contacts. Use PK-11A or BR-6 instead.*
- *13 *Stop-down exposure measurement will be performed.*
- *14 *PK-1, PK-2, PK-3 and PN-1 Rings cannot be attached to the F70/F70b camera. PK-11 Ring cannot be attached to AF Nikkor lenses. Those rings may damage CPU contacts. Use PK-11A for AF Nikkor lenses instead of PK-11.*

● **The following Nikkor lenses cannot be attached to the F70/F70D (camera body or lens may be damaged):**

- Non-AI lenses
- Fisheye 6mm f/5.6
- Fisheye OP 10mm f/5.6
- 200-600mm f/9.5 (Factory Serial No. 300490 or smaller)
- ED 180-600mm f/8 (No. 174166 or smaller)
- ED 360-1200mm f/11 (No. 174087 or smaller)
- 400mm f/4.5 and 600mm f/5.6 with Focusing Unit AU-1
- PC 28mm f/4 (No. 180900 or smaller)*
- PC 35mm f/2.8 (No. 906200 or smaller)*
- Reflex 1000mm f/11 (No. 142361 to 143000)*
- Reflex 2000mm f/11 (No. 200310 or smaller)*
- AF Teleconverter TC-16A

* Can be modified, at nominal charge, for use with the F70/F70D. Contact an authorised Nikon dealer or service facility.

● **The following teleconverters and lenses cannot be used with the F70/F70D (correct exposure is unobtainable):**

- AF Nikkor 80mm f/2.8
- AF Nikkor 200mm f/3.5 IF
- AF Teleconverter TC-16

About D-type AF Nikkor lenses

D-type AF Nikkor lenses enable you to maximise the F70/F70D's performance. They send information on lens focusing distance (e.g., Distance Information) to the F70/F70D's microcomputer for inclusion in the computations for 3D Matrix Metering. If built-in flash or Nikon Speedlight SB-28/SB-27/SB-26/SB-25 is used, this information will also contribute to 3D Multi-Sensor Balanced Fill-Flash. D-type AF Nikkor lenses are identified by the letter "D" which follows information on maximum aperture (e.g., AF Zoom-Nikkor 28-70mm f/3.5-4.5 D). All AF-S/AF-I Nikkor lenses are D-type.

ACCESSORY COMPATIBILITY

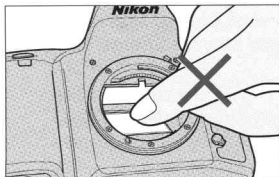
The following accessories cannot be used with the Nikon F70/F70D camera:

PK-1, PK-2, PK-3, PN-1, K2 BR-2 Rings

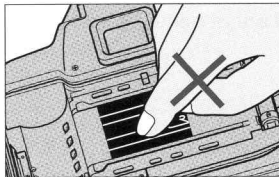
Body Cap BF-1

Eyepiece Accessories for F3HP/F3T

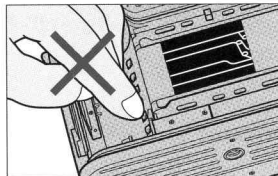
- PK-1, PK-11, BR-4 and K1 Rings cannot be mounted directly on AF Nikkor lenses.
- The advanced Nikon Matrix meter evaluates scene brightness and contrast using an eight-segment sensor. Since coloured filters and neutral density filters which have a high exposure factor will also significantly affect a scene's contrast rendition, they may cause the meter to incorrectly identify the scene's actual contrast/brightness condition. The blue (B12), orange (O56) and red (R60) filters are examples of such coloured filters.
- Linear polarizing filters are not compatible with the viewing system used in Nikon autofocus cameras. For the best results and to maintain autofocus and exposure operation, we recommend using a circular polariser, which is fully compatible with the Nikon system. Using a linear polariser, however, will not damage the Nikon system, and it may be used for fully manual focusing and exposure settings made without using the built-in meter or Electronic Rangefinder.
- Special filters, such as soft focus filters, cannot be used for autofocus or for manual focus with Electronic Rangefinder.



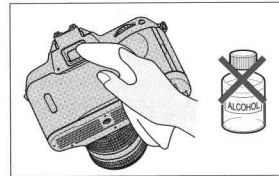
1. **Do not** touch the camera's reflex mirror or focusing screen. Remove dust with a blower brush.



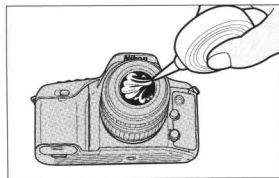
2. **Do not** touch the shutter curtains.



3. **Do not** touch the DX contacts. Keep them clean with a blower brush.



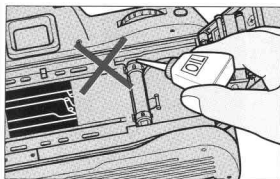
4. Clean the viewfinder eyepiece with a soft, clean cloth. **Do not** use alcohol.



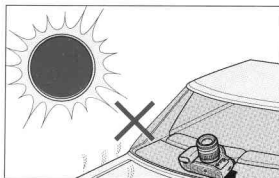
5. Clean lens surface with a blower brush. To remove dirt and smudges, use a soft, clean cotton cloth or lens tissue moistened with ethanol (alcohol) or lens cleaner. Wipe in a circular motion from centre to outer edge, taking care not to leave traces and not to touch the other lens parts.

Caution!

A spray gun-type blower may damage the optical glass if used to clean the lens, especially if ED glass is used for the front lens element. To avoid damage, hold the blower upright with its nozzle more than 30cm from the lens surface, and keep the nozzle moving so the stream of air is not concentrated in one spot.



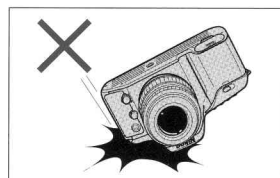
6. Do not lubricate the camera.



7. Do not leave the camera in an excessively hot place.



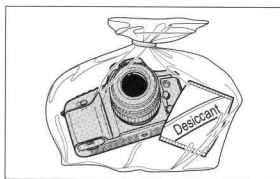
8. Keep the camera away from water or moisture. When using the camera near water, guard against splashes, especially salt water spray.



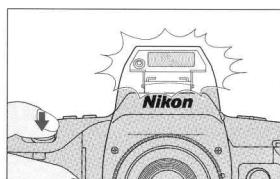
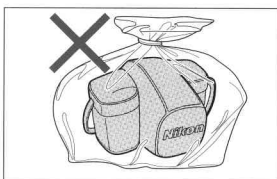
9. Make sure not to drop or bump the camera body/lens against a hard surface. Strong shock may cause malfunction.



10. If the camera malfunctions, take it immediately to an authorised Nikon dealer or service centre.



11. Store the camera in a cool, dry place away from naphthalene or camphor (moth repellent). In a humid environment, store the camera inside a vinyl bag with a desiccant to keep out dust, moisture and salt. Note, however, that storing leather cases in vinyl bags may cause the leather to deteriorate.



12. To maintain the built-in flash condenser in peak condition, fire the flash a few times every month. Thereby you can use the flash for many years.

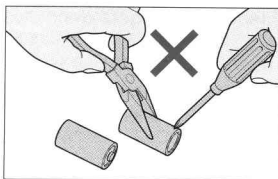
In certain cases, due to static electricity or poorly loaded batteries, the F70/F70D camera's microcomputer may turn the camera off, even with fresh properly installed batteries. For the same reason, film may not advance properly. In each of these cases, to resume operation, simply turn the power off, then turn it on again, or remove batteries and install them again.

Nikon cannot be held responsible for any malfunction resulting from the use of the camera other than as specified in this manual.

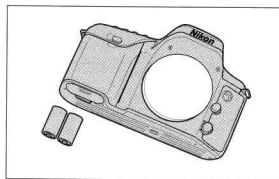
NOTES ON BATTERIES



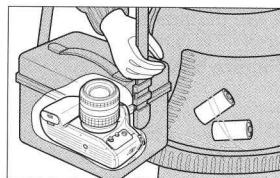
1. Keep batteries out of children's reach. If someone accidentally swallows batteries, call a doctor immediately.



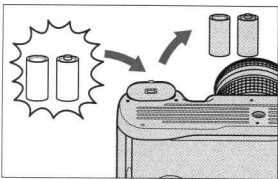
2. **Do not** disassemble, short circuit or heat batteries. **Do not** charge dry cells.



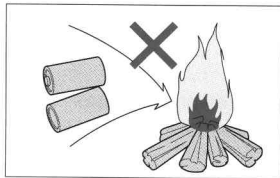
3. If you do not intend to use the camera for a long time, remove the batteries.



4. Battery power diminishes at extremely low temperatures—make sure the batteries you buy are new, and wrap the camera body in something warm.



5. When replacing batteries, be sure to replace **all** batteries at the same time. Always use fresh batteries of the **same** brand.



6. **Do not** throw used batteries into a fire.



7. If the battery chamber is contaminated by battery leakage, take the camera to an authorised Nikon dealer.

Type of camera	Integral-motor autofocus 35mm single-lens reflex	Electronic rangefinder	Available in Manual focus mode with AF Nikkor and other AI-type Nikkor lens with a maximum aperture of f/5.6 or faster
Picture format	24mm x 36mm (standard 35mm film format) Panorama (for F70D only): 13mm x 36mm	Exposure metering	Three built-in exposure meters —Matrix, Centre-Weighted and Spot
Lens mount	Nikon F mount	Metering range (at ISO 100 with f/1.4 lens)	EV -1 to EV 20 for Matrix and Centre-Weighted metering; EV 3 to EV 20 for Spot metering
Lens	Nikkor and Nikon lenses having Nikon F mount* <i>* With limitation; see chart on p. 112</i>	Exposure meter	Activated by lightly pressing shutter release button; stays on for 8 sec., after finger leaves button
Focus modes	Autofocus, and Manual with Electronic Rangefinder	Exposure modes	Programmed Auto (Auto-Multi Program and Vari-Program), Shutter-Priority Auto, Aperture-Priority Auto and Manual
Autofocus area	Wide and Spot selectable	Programmed Auto exposure control	Camera sets both shutter speed and lens aperture automatically; Flexible Program possible in increments of 1/3 EV
Autofocus modes	Single Servo AF and Continuous Servo AF	Shutter-priority Auto exposure control	Aperture automatically selected to match manually set shutter speed
Focus Tracking	Automatically activated when subject moves		
Autofocus detection system	Nikon CAM274 autofocus module		
Autofocus detection range	Approx. EV -1 to EV 19 (at ISO 100)		
Autofocus lock	Possible once stationary subject is in focus in Single Servo AF		

Aperture-priority Auto exposure control
Manual exposure control
Vari-Program

Shutter speed automatically selected to match manually set aperture
Both aperture and shutter speed are set manually
Eight kinds built-in: Portrait Program, Hyperfocal Program, Landscape Program, Close-Up Program, Sport Program, Silhouette Program, Night Scene Program, and Motion Effect Program; each has its own program line

Quick Recall function

By QR button the original or favorite camera settings can be recalled; up to three settings can be memorised
With exposure compensation button; ± 5 EV range, in 1/3 steps

Exposure compensation
Auto exposure lock

By pressing AE-L (auto exposure lock) button while exposure meter is activated

Shutter

Electromagnetically controlled vertical-travel focal-plane shutter

Shutter release
Shutter speeds

By motor trigger
Lithium niobate oscillator-controlled speeds from 1/4000 to 30 sec in 1/3 EV steps; electromagnetically controlled bulb setting is provided

Viewfinder

Eyepoint
Focusing screen

Viewfinder information

Fixed eyelevel pentaprism high-eyepoint type; 0.77X magnification with 50mm lens set at infinity; approx. 92% frame coverage
Approx. 18mm
New Nikon advanced B-type BriteView screen III; fixed
Focus area, focus indications, exposure metering system, exposure mode, Flexible Program, shutter speed, aperture, electronic analog display, exposure compensation and flash output compensation are all shown in LCD readout; also shows flash recommended light and ready light LED

LCD panel information

Shutter speed, aperture, QR, focus area, film speed setting mode, film advance mode, focus mode, exposure mode, exposure metering system, flash sync mode, exposure compensation/flash output compensation, All Mode Exposure Bracketing/Flash Exposure Bracketing and frame counter/compensation value, film loading, film rewind, self-timer and battery power

Viewfinder illumination	Automatically activates when exposure meter is on	Film rewind	By pressing IN and Ps button; fast rewind or silent rewind is selectable; for fast rewind, rewind speed is approx. 12 sec. with 36-exposure film or approx. 9 sec. with 24-exposure film, and for silent rewind approx. 22 sec. with 36-exposure film or approx. 18 sec. with 24-exposure film
Film speed range	ISO 25 to 5000 for DX-coded film; ISO 6 to 6400 can be manually set	Frame counter	Additive type; counts back while film is being rewound
Film speed setting	At DX position, automatically set to ISO speed of DX-coded film used; manual setting possible	Self-timer	Electronically controlled; blinking LED indicates self-timer operation; cancelable
Film loading	Film automatically advances to first frame when shutter release button is depressed once	Reflex mirror	Automatic, instant-return type
Film advance	In single-frame and single-frame silent rewind mode, film automatically advances one frame when shutter is released; in continuous high or continuous low shooting mode, shots are taken as long as shutter release button is depressed; in continuous high mode, shooting speed is approx. 3.7 fps*, and in continuous low approx. 2.0 fps*; in Focus Tracking, approx. 3.1 fps for Continuous Servo AF	Camera back	Hinged back; unchangeable
	<i>* At shutter speeds of 1/250 sec. or higher in the Manual exposure and Manual focus modes.</i>	Accessory shoe	Standard ISO-type hot-shoe contact; ready-light contact, TTL flash contact, monitor contact; Mount receptacle for SB-28/SB-27/SB-26/SB-25's Posi-Mount System is provided
		Built-in TTL flash	Guide number: 14m (at ISO 100); flash coverage: 28mm or longer lens; Red-Eye Reduction, TTL flash control including 3D Multi-Sensor Balanced Fill-Flash, Slow Sync and Rear-Curtain Sync are possible Up to 1/125 sec.
		Flash synchronisation	Five-segment multi sensor used for TTL auto flash control
		TTL Multi Sensor	

**Automatic Balanced
Fill-Flash with TTL
Multi Sensor**

Monitor Pre-flash

**Flash recommended
light**

Flash ready-light

**Number of 36-exposure (24-exposure) film rolls per set of
fresh batteries**

Possible when AF Nikkor or AI-P
Nikkor lens is used with built-in flash
or Nikon Speedlight SB-28, SB-27,
SB-26, SB-25, SB-24, SB-23,
SB-22, SB-20, etc.

Built-in flash or Nikon Speedlight
SB-28/SB-27/SB-26/SB-25 fires
Monitor Pre-flash(es) for TTL multi
sensor when AF Nikkor or AI-P
Nikkor lens is used

Lights up when flash is
recommended

Lights up when flash is ready

**Power source
Battery power
confirmation**

**Date/time imprint
function
(For F70D only)**

Two CR123A-type lithium batteries
☐ for sufficient power; blinking
☐ indicates batteries are nearing
exhaustion; ☐ indicates batteries
are just about exhausted; no
indication/symbol appears when
batteries are completely exhausted
or improperly installed
Display mode: Year/Month/Day, Day/
Hour/Minute, No Imprint, Month/
Day/Year and Day/Month/Year
Built-in clock: 24-hour type with
timing accuracy within ± 90 seconds
a month; leap year adjustment until
2019

Usable film: ISO 32 to 3200 DX-
coded film

Power source: One 3V lithium
battery (CR2025 type)

Battery life: Approx. 3 years*

* May vary depending on extent of imprint
use, film speed in use, etc.

Dimensions (WxHxD)

**Weight
(without batteries)**

F70: Approx. 151 x 103 x 70mm

F70D: Approx. 151 x 103 x 71mm

F70: Approx. 585 g






F70D: Approx. 600 g

*All specifications apply when fresh CR123A-type batteries are used, at
normal temperature (20°C).*


Specifications and design are subject to change without notice.

	At 20°C	At -10°C
Without flash	Approx. 115 (150)	Approx. 80 (100)
With flash for half of all exposures	Approx. 25 (30)	Approx. 20 (25)

* For autofocus operation using AF Zoom-Nikkor 28-70mm f/3.5-4.5 D lens
covering the full range from infinity (∞) to the closest distance and back to
infinity (∞) before each shot, in Continuous Servo AF mode with film advance
mode at CH and a shutter speed of 1/125 sec. or faster.

LCD Panel/Viewfinder	Shutter	Cause and Remedy
 blinks in the LCD panel.	Can be released.	Batteries are nearing exhaustion. Have a fresh one ready.
 blinks in the LCD panel (with or without blinking Err in the LCD panel and viewfinder).	Locked.	Batteries are just about exhausted. Turn the power off and replace battery with new one.
Err and  _ blink in the LCD panel.*	Locked.	Film is not correctly positioned. Reload film.
Err DX and ISO blink in the LCD panel.*	Locked.	Non-DX-coded film or film with unacceptable DX code is loaded although auto film speed setting mode is activated. Set film speed manually.
Err and  _ blink in the LCD panel.*	Locked.	Camera back is opened during film rewind and film rewind will stop at mid-roll. To restart film rewind, press the IN button and Ps button.
 blinks in the LCD panel.	Locked.	An exposed DX-coded film left in the film cartridge chamber. Remove film cartridge.



* "Err" also blinks in the viewfinder.

LCD Panel/Viewfinder	Shutter	Cause and Remedy
<p> blinks in the LCD panel.</p>	<p>Can be released.</p>	<p>Matrix meter is set even though lens attached has no CPU; camera automatically resets metering system to Centre-Weighted metering.</p>
<p>P or S blinks and F-- appears in the LCD panel.</p>	<p>Can be released.</p>	<p>Auto-Multi Program or Shutter-Priority Auto exposure mode is set even though lens attached has no CPU. Camera automatically resets exposure mode to Aperture-Priority Auto.</p>
<p>P_s blinks and F-- appears in the LCD panel.</p>	<p>Locked.</p>	<p>Vari-Program is set even though lens attached has no CPU.</p>
<p>FEE blinks in the LCD panel in Programmed Auto or Shutter-Priority Auto exposure mode.*</p>	<p>Locked.</p>	<p>Lens is not set to the smallest aperture setting. Set lens to the smallest aperture.</p>
<p>FEE and Programmed Auto exposure indicator (P or P_s) blink in the LCD panel* when accessory Nikon Speedlight is used.</p>	<p>Locked.</p>	<p>Attached Speedlight is not set at TTL Auto flash. Set the Speedlight flash mode to TTL, or set the camera's exposure to a mode other than Programmed Auto.</p>

* "Err" also blinks in the viewfinder.

LCD Panel/Viewfinder	Shutter	Cause and Remedy
AF-S or AF-C blinks.	Locked.	Focus mode selector is set at AF even though a non-AF Nikkor lens is attached. Set focus mode selector to M .
▶ ◀ blinks in the viewfinder.	Depends on AF mode. Locked in Single Servo AF or can be released in Continuous Servo AF.	Autofocus is impossible with the subject. Set focus mode selector to M and focus manually using clear matte field.
◀ stays in the viewfinder in AF mode.	Depends on AF mode. Locked in Single Servo AF or can be released in Continuous Servo AF.	Subject is located closer than the closest focusing distance of the lens. Move away from subject and refocus.
H I blinks in Auto exposure mode.	Can be released.	Overexposure possible.
L O blinks in Auto exposure mode.	Can be released.	Underexposure possible.

LCD Panel/Viewfinder	Shutter	Cause and Remedy
<p>bulb blinks.</p>	<p>Locked.</p>	<p>a) "Bulb" is set in the Shutter-Priority Auto exposure mode. Set exposure mode to Manual or set another shutter speed.</p> <p>b) You set All Mode Exposure Bracketing with a shutter speed set at "Bulb". To use All Mode Exposure Bracketing, select another shutter speed setting.</p>
<p>Shutter speed indication blinks inside viewfinder in Programmed Auto or Aperture-Priority Auto Exposure mode.</p>	<p>Can be released.</p>	<p>Automatically selected shutter speed is 1/50 sec. or slower and picture blur may occur due to camera shake. To reduce possibility of blur, hold camera very steady, use a tripod or use the built-in flash or an accessory Nikon Speedlight. Selecting a wider aperture (smaller f-number) results in a faster shutter speed.</p>
<p>Shutter speed indication in the LCD panel and viewfinder blinks.</p>	<p>Can be released.</p>	<p>You are performing All Mode Exposure Bracketing in Manual exposure mode.</p>

LCD Panel/Viewfinder	Shutter	Cause and Remedy
Shutter speed indication in the LCD panel blinks and 1/25 is indicated inside viewfinder in flash photography.	Can be released.	You set shutter speed faster than 1/125 sec. and shutter speed automatically shifts to 1/125 sec.
[Flash icon] or [Flash icon] blinks in the LCD panel.	Can be released.	Built-in flash or accessory Nikon Speedlight is turned on with film advance mode set for continuous shooting. Camera automatically resets film advance mode to single-frame shooting ([S]).
[Flash icon] blinks in LCD panel and [Flash icon] appears inside the viewfinder.	Can be released.	Built-in flash or accessory Nikon Speedlight is turned on with Wide Area focus. Camera automatically resets focus area to Spot.
Green  lights up inside the viewfinder.	Can be released.	Your subject is too dark. Use built-in flash or Nikon Speedlight.
Red  blinks inside the viewfinder after flash shooting.	Can be released.	Light might have been insufficient. Confirm shooting distance and, if necessary, move closer to the subject or select a wider aperture.

LCD Panel/Viewfinder	Shutter	Cause and Remedy
<p>⚡ and 👁 blink in the LCD panel.</p>	<p>Can be released.</p>	<p>Red-Eye Reduction is set with Speedlight other than the Nikon SB-27/SB-26. Camera automatically switches flash sync mode to Normal Sync.</p>
<p>⚡, 👁 and SLOW blink in the LCD panel.</p>	<p>Can be released.</p>	<ul style="list-style-type: none"> • Red-Eye Reduction with Slow Sync is set with Speedlight other than the Nikon SB-27/SB-26. Slow Sync will be performed without Red-Eye Reduction. • When Night Scene Program or Motion Effect Program is selected, you try to set Red-Eye Reduction with Speedlight other than SB-27/SB-26. Slow Sync will be performed without Red-Eye Reduction.

ABOUT LCD

- The F70/F70p uses a Liquid Crystal Display (LCD) of the highest quality which, under conditions of normal use, should provide several years of reliable operation. After this period, contrast may deteriorate and display information may start to fade. You can have the LCD replaced at a nominal charge by contacting an authorised Nikon dealer or service facility.
- At high temperatures of 60°C or above, the display turns black, making it impossible to read. It returns to normal when the temperature drops to 20°C.
- At temperatures below freezing, the LCD's response time slows down; it goes back to normal when the temperature rises.

AE (Automatic Exposure) lock

Used to hold an automatically controlled shutter speed and/or aperture. Recommended when the photographer wants to control an exposure based on a scene's particular brightness area with Centre-Weighted or Spot Metering.

All Mode Exposure Bracketing

All Mode Exposure Bracketing performs automatic exposure bracketing with varied shutter speed and/or aperture in all exposure modes. (See "Exposure bracketing".)

Automatic Balanced Fill-Flash

A type of TTL auto flash operation which uses the camera's exposure meter to control ambient light exposure settings, integrated with flash exposure control. That is, flash output level is automatically compensated to balance with ambient light, resulting in a better exposure for both subject and background. Nikon's Automatic Balanced Fill-Flash system includes: 3D Multi-Sensor Balanced Fill-Flash, Multi-Sensor Balanced Fill-Flash, Matrix Balanced Fill-Flash*, Centre-Weighted Fill-Flash and Spot Fill-Flash. 3D Multi-Sensor Balanced Fill-Flash and Multi-Sensor Balanced Fill-Flash together comprise Automatic Balanced Fill-Flash with TTL Multi-Sensor (p. 94). Performance varies with the combination of camera body, Speedlight and lens used

With the built-in flash or dedicated Nikon Speedlight, the F70/F70D performs Automatic Balanced Fill-Flash with TTL Multi-Sensor for a built-in flash or compatible Nikon TTL Speedlight (p. 106).

Auto-Multi Program

With Auto-Multi Program, more than two combinations of shutter speed/aperture are applied. When lens focal length in use is shifted, shutter speed/aperture combination shifts while maintaining correct exposure.

Balanced fill-flash operation

A technique in flash photography in which flash illumination is controlled to balance it with the ambient light on the scene.

Continuous Servo AF

Focus detection continues for as long as the shutter release button is lightly pressed and the reflex mirror is in the viewing position. Useful when camera-to-subject distance is likely to change.

CPU

Central Processing Unit. The electronic component which controls an electronic product's functions. AF Nikkor (including D-type AF Nikkor) and AI-P-Nikkor lenses have built-in CPUs.

* Not available with F70/F70D camera.

Depth of field

The zone of sharpest focus in front of, behind and around the subject on which the lens is focused. When this zone of sharpness is large, the depth of field is said to be deep; when it is small, the depth of field is said to be shallow. Depth of field varies according to numerous factors such as focal length, aperture, shooting distance, etc.

D-type AF Nikkor lenses

AF Nikkor lenses that send to the F70/F70D's microcomputer the Distance Information used for 3D Matrix Metering or 3D Multi-Sensor Balanced Fill-Flash (with Nikon SB-28/SB-27/SB-26/SB-25 Speedlight).

Identified by the letter "D" which follows information on maximum aperture (e.g., AF Zoom-Nikkor 35-80mm f/4-5.6D). All AF-S/AF-I Nikkor lenses are D-type.

DX code

Film information code printed on film cartridge. The F70/F70D, when set to automatic film speed setting mode, senses the film speed (ISO 25 to 5000) of DX-coded film when it is loaded.

EV

Exposure Value: A number representing the available combinations of shutter speeds and apertures that give the same exposure effect under conditions of similar scene brightness and ISO.

At ISO 100, the combination of a one-second shutter speed and an aperture of f/1.4 is defined as EV 1.

The camera may be used only within the EV range of the exposure meter. For example, with the F70/F70D, the exposure metering range is from EV -1 to EV 20 for Matrix metering and Centre-Weighted metering, at ISO 100 with an f/1.4 lens.

Exposure bracketing

Shooting the same subject at a range of different exposures. The F70/F70D camera provides All Mode Exposure Bracketing and Flash Exposure Bracketing.

Exposure compensation

Exposure compensation for available light is activated by changing shutter speed and/or lens aperture— by Auto exposure lock button, by exposure compensation function or by exposure bracketing.

In flash photography with a Nikon-dedicated TTL Speedlight, exposure compensation can also be performed by varying the amount of flash output. (See "Flash Output Level Compensation.")

Exposure control

Programmed Auto: Camera sets both shutter speed and aperture for correct exposure. F70/F70D camera applies two Programmed Auto Exposure Control, Auto-Multi Program and Vari-Program.

Shutter-Priority Auto: User selects shutter speed and camera sets matching lens aperture for correct exposure.

Aperture-Priority Auto: User selects aperture and camera sets matching shutter speed for correct exposure.

Manual: User selects both shutter speed and aperture, following or ignoring the meter's recommendations (by LCD readout) to achieve the desired exposure.

Fill-flash

A method of flash photography which combines flash illumination and ambient light, but does not necessarily attempt to balance these two types of illumination.

Flash Exposure Bracketing

Enables a photographer to automatically bracket exposures at varied flash output levels, in TTL auto flash shooting, without changing the shutter speed and/or aperture. (See "Exposure bracketing".)

Flash Output Level Compensation

A control used to adjust a TTL auto flash operation, enabling an increase or decrease of flash output to lighten or darken the flash effect.

Flash shooting distance range

The distance range over which a flash can effectively provide light. Flash shooting distance range is controlled by the amount of flash output available. Each automatic Speedlight's flash output varies from maximum duration to minimum duration. Close-up subjects will require lower (to minimum) output, while more distant subjects will require more light up to the maximum output.

The flash shooting distance range varies with the aperture, film speed, etc.

Flash sync speed

Shutter speed at which the entire film frame to be open when the flash is fired in flash shooting. The F70/F70D's flash sync speed is 1/125 sec. or slower.

Flexible Program

Flexible Program function temporarily shifts an automatically selected shutter speed/aperture combination while maintaining correct exposure. That is, a desired shutter speed or aperture can be selected in Programmed Auto exposure mode.

Focus Tracking

Enables the camera to analyze the speed of the moving subject according to the focus data detected, and to obtain correct focus by anticipating the subject's position—and driving the lens to that position—at the exact moment of exposure.

f-number

The numbers on the lens aperture ring and on the camera's LCD which indicate the relative size of the lens aperture opening. The f-number series is a geometric progression based on changes in the size of the lens aperture, as it is opened and closed. As the scale rises, each number is multiplied by the factor 1.4. The standard numbers for calibration are 1.0, 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, 22, 32, etc., and each change results in a doubling or halving of the amount of light transmitted by the lens.

Focal length

The distance from the principal point to the focal point. In 35mm-format cameras, lenses with a focal length of approx. 50mm are called normal or standard lenses. Lenses with a focal length less than approx. 35mm are called wideangle lenses, and lenses with a focal length more than approx. 85mm are called telephoto lenses. Lenses which allow the user to continuously vary the focal length without changing focus are called zoom lenses.

Front-Curtain Sync

The flash fires an instant after the front curtain of a focal plane shutter has completed its travel across the film plane. This is the way the F70/F70D operates with the flash sync mode at Normal Sync. (See "Rear-Curtain Sync".)

Guide number

The guide number indicates the power of a flash in relation to ISO film speed. Guide numbers are quoted in either meters or feet. Guide numbers are used to calculate the f/stop for correct exposure as follows:

$$f/\text{stop} = \frac{\text{guide number}}{\text{flash-to-subject distance}}$$

Using a selected aperture, we can calculate the required flash-to-subject distance with the formula:

$$\text{flash-to-subject distance} = \frac{\text{guide number}}{f/\text{stop}}$$

Useful for determining the maximum flash-to-subject distance for flash photography.

Hyperfocal distance

The closest point a photographer can focus on where the depth of field includes infinity. When the lens is focused for hyperfocal distance, the deepest depth of field, covering from 1/2 the hyperfocal distance to infinity, can be obtained at each f/stop. The longer the focal length, the longer the hyperfocal distance; the smaller the aperture (the larger the f/number), the shorter the hyperfocal distance.

ISO film speed

The international standard for representing film sensitivity. The higher the number, the greater the sensitivity, and vice versa. A film speed of ISO 200 is twice as sensitive as ISO 100, and half that of ISO 400 film.

Matrix metering system

An advanced camera light metering system using a multi-segment sensor and computer. When F70/F70D camera is used with D-type AF Nikkor lenses, 3D Matrix Metering will be performed.

Monitor Pre-flash(es)

When performing Automatic Balanced Fill-Flash with TTL Multi Sensor, the F70/F70D's built-in flash/dedicated Nikon Speedlight fires a series of scarcely visible preflashes to enable the camera's computer to pre-analyze the scene. The TTL Multi Sensor inside the camera body reads the amount of reflected light, then the camera's microcomputer determines the area of the TTL sensor to be used for flash output control and adjusts the flash output level. The Monitor Pre-flashes are

visible but not recognizable.

Rear-Curtain Sync

Flash fires an instant before the second (rear) curtain of the focal plane shutter begins to move. When slow shutter speeds are used, this feature can create a blur effect from the ambient light, i.e., a flowing-light patterns following a moving subject with subject movement frozen at the end of the light flow. (See "Front-Curtain Sync".)

Single Servo AF

Once the subject is in focus, focus is locked. Useful for recomposing the picture.

Slow Sync

A flash technique for using the flash at a slow shutter speed. Flash shooting in dim light or at night at a fast shutter speed often results in a flash-illuminated subject against a dark background. Using a slower shutter speed with the flash brings out the background details in the picture. Use of a slow shutter speed with Rear-Curtain Sync is particularly effective for illustrating the movement of a stream of light.

The F70/F70D's Slow Sync mode extends the automatically controlled shutter speed range (in Programmed Auto and Aperture-Priority Auto) down to 30 sec.

Standard TTL Flash

A type of TTL auto flash that does not apply any automatic flash output level compensation. Flash output is controlled independently from the ambient light exposure measurement and, in most cases, illuminates a subject somewhat more strongly than with Automatic Balanced Fill-Flash, making the subject stand out distinctly from the background.

TTL auto flash

The camera's light sensor measures flash illumination, as reflected by the subject on the film and shuts off the flash when measurement indicates correct exposure. Because the sensor that controls the flash receives light through the lens, TTL auto flash can be used for bounce flash photography, fill-flash, multiple flash photography, etc. An additional advantage of TTL auto flash is that you can use a wide range of aperture settings, while ensuring correct exposure.

With built-in flash or dedicated Nikon TTL Speedlight, the F70/F70D camera performs Automatic Balanced Fill-Flash and Standard TTL Flash.

Vari-Program

Provides variable Programs for specific picture-taking situations. Eight Programs are available with the F70/F70D camera. (See pp. 61-67.)

Vignetting

Progressively diminished illumination on the film from the centre to the corners. There are two kinds of vignetting—natural vignetting caused by the lens, and vignetting that is caused by improper use of accessories such as a lens hood or filter.