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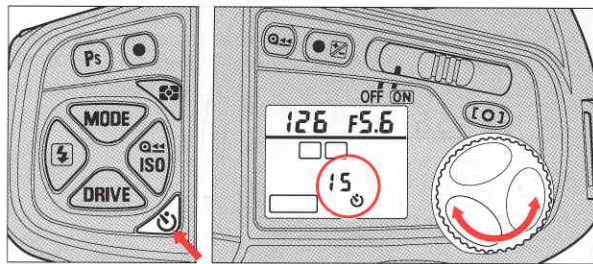




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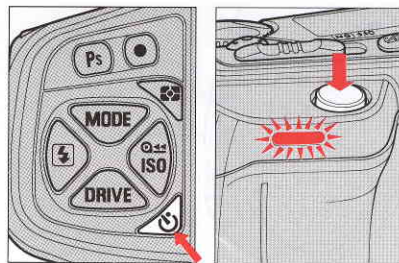
**Only one "donation" needed per manual, not per multiple section of a manual !**




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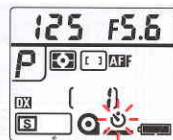
# SELF-TIMER OPERATION

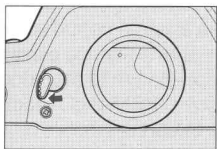


1. While pressing  button, rotate command dial until desired timer duration with  symbol appears in LCD panel. Timer duration can be varied from 2 to 30 seconds in one-second increments.
2. Compose picture, lightly press shutter release button, and confirm focus and exposure.



3. While pressing  button, fully depress shutter release button. Self-timer LED starts blinking and  symbol in LCD panel blinks. During the final two seconds, LED lights up, warning you to get ready for the shot.
- To cancel self-timer, press  button at any time.





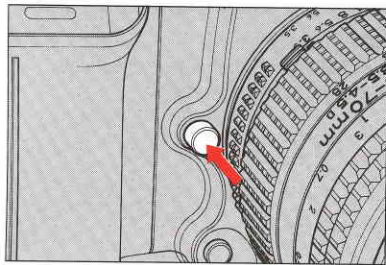
When using any auto exposure mode, use eyepiece shutter before setting self-timer to prevent stray light from entering viewfinder and affecting exposure.

- Regardless of film advance mode setting, continuous shooting is not performed.
- Long time exposure at **bulb** setting cannot be used for self-timer operation.

## Data Link System Users

The AC-2E card's User Custom Option lets you activate the electronic beeper for self-timer operation.

## TO CONFIRM SHARPNESS BEFORE SHOOTING—DEPTH-OF-FIELD PREVIEW BUTTON



Note that when you're using a lens with an automatic diaphragm, which is what most Nikkor lenses have, the viewfinder image you see is one with the lens fully open (i.e., lens at maximum aperture). This enables you to view the depth of field before you take the picture, with the F90X's Aperture-Priority auto or Manual exposure mode.

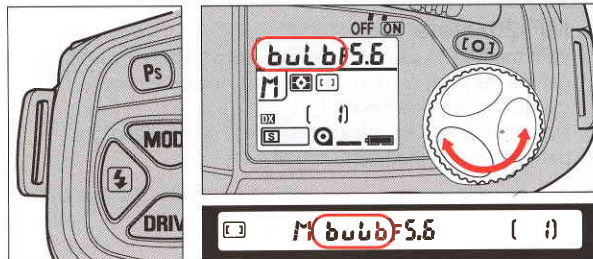
Depress the depth-of-field preview button to stop the lens down to the aperture set. The image viewed becomes progressively darker as the aperture gets smaller. Portions of the picture that appear in focus when the button is pushed down are within the depth of field.

While the depth-of-field preview button is depressed, shutter speed indication disappears and **F -** appears in the LCD aperture readouts; also, the shutter is locked.

## LONG TIME EXPOSURE—USING *bulb* SETTING

At *bulb* setting, shutter remains open as long as shutter release button remains depressed.

To avoid camera shake, which may cause picture blur, use a tripod. Use of remote control accessories such as Nikon Remote Cord MC-20, Modulite Remote Control Set ML-3, etc. is also recommended to avoid camera shake.



1. Press **MODE** button and rotate command dial to select **M** for Manual exposure mode.
2. Without pressing **MODE** button, rotate command dial clockwise until *bulb* appears in LCD panel and viewfinder.
3. Fully depress the shutter release button and hold it as long as desired.

### **MF-26 users**

With the MF-26's Long Time Exposure function, you can set the F90X for a time exposure as long as 99 hours, 59 minutes and 59 seconds.

Note that exposure duration depends on the life of the batteries inside the F90X.

### **Data Link System users**

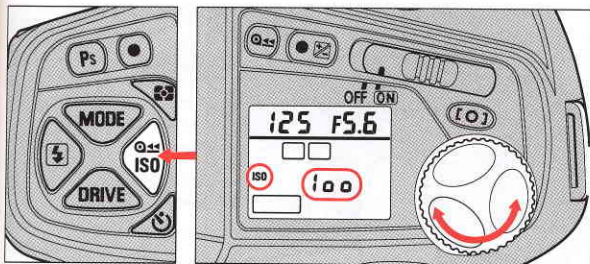
You can use "Time" instead of "Bulb" for long time exposure. For details, see AC-2E card instruction manual.

### **MC-20 users**

You can perform long time exposures of preset duration up to 9 hours 59 minutes 59 seconds.

Note that exposure duration depends on the life of the batteries inside the F90X.

## TO USE NON-DX-CODED FILM

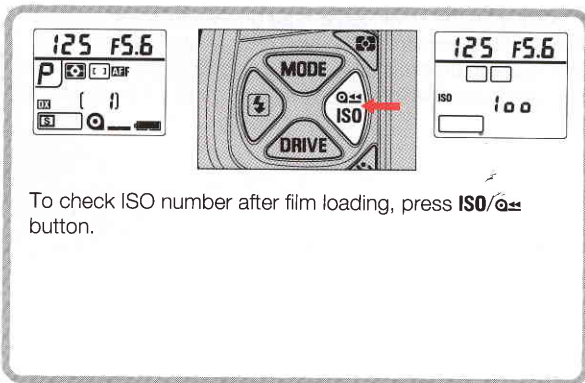


The usable range for manual film speed setting is ISO 6 to 6400.

While pressing **ISO/** button, rotate command dial to set film's ISO number.

Film speed setting display changes as follows:

**DX** 6 8 10 12 16 20 25 32 40 50 64 80 100 125 160  
200 250 320 400 500 640 800 1000 1250 1600 2000  
2500 3200 4000 5000 6400



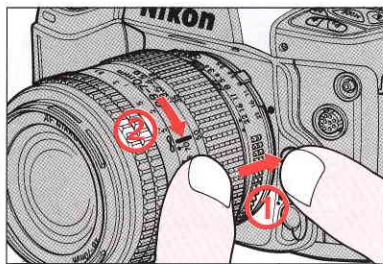
To check ISO number after film loading, press **ISO/** button.

- If non-DX-coded film or film with an unacceptable DX code is loaded, the **Err**, **ISO** and **DX** marks blink in LCD panel, beeper sounds, and shutter is locked. You set ISO manually.
- You can manually set film speed for a DX-coded film, and the camera will automatically recognise the ISO number set, whether it is the higher, lower or actual ISO number.\*

\* With the Data Link System, you can set the camera to DX-Priority.

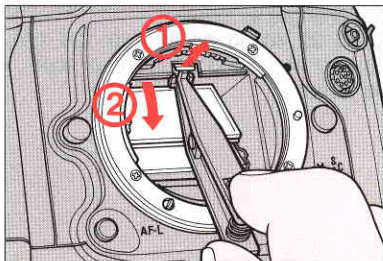
# INTERCHANGING FOCUSING SCREENS

In addition to the advanced B-type BriteView screen supplied with the F90X camera, the E-type clear Matte/Fresnel screen with focusing brackets and grid is available as an option. Type E screen is suitable for copying and architectural photography.



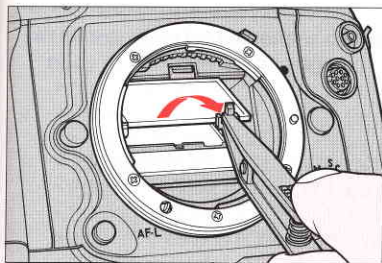
1. Remove the lens.

Be sure not to touch the focusing screen or reflex mirror with your fingers.

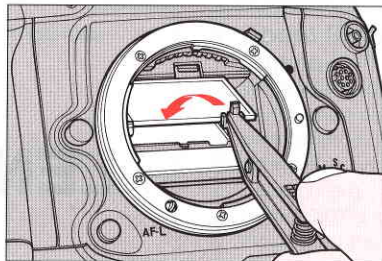


2. Slip the tip of the special tweezers (provided with each screen) under the focusing screen release latch and pull outward to spring open the holder.

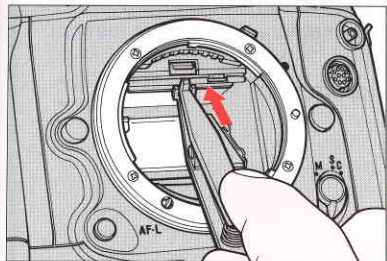




3. Remove the screen by grasping the small tab with the tweezers.



4. Carefully position the replacement screen in place, making sure the flash side is facing down.



5. Using the tweezers, push the front edge of the holder upward until it clicks into place. An improperly placed focusing screen results in unreliable focus information, so always make sure the screen is in its proper place.

# LENSES

Your Nikon F90X uses Nikon's respected, long-established triple-claw F-mount for rugged and reliable performance. Crafted from stainless steel, the camera's mount works perfectly with the chromed brass bayonet of each Nikkor lens. For full performance, always use Nikon lenses.

Note: Medical-Nikkor 120mm f/4 IF lens is not available in EU countries.

● **The following Nikkor lenses cannot be attached to the F90X (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)

● **The following teleconverters and lenses cannot be used with the F90X (correct exposure is unobtainable):**

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

## **About D-type AF Nikkor lenses**

D-type AF Nikkor lenses enable you to maximise the F90X's performance. They send information on lens focusing distance (e.g., Distance Information) to the F90X's microcomputer for inclusion in the computations for 3D Matrix Metering. If Nikon Speedlight SB-28, SB-27, SB-26 or 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-f/4.5 D). All AF-I/AF-S Nikkor lenses are D-type.

# LENS COMPATIBILITY CHART

The Nikon F90X is designed for autofocus photography with AF Nikkor lenses (except AF-Nikkor lenses for F3 AF). 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	Centre-Weighted	Spot
AF Nikkor including D-type AF Nikkor and AF-I/AF-S Nikkor lenses (except AF Nikkor for F3AF)	○	○	○	○	○	○	○	○*1	○	○
AI-P-type Nikkor lenses	○*3	○*4	○	○	○	○	○	○	○	○
AI- or AI-S-type Nikkor lenses	○*3	○*4	○	×	×	○	○	×	○	○
AI-modified Nikkor lenses*4	×	○*3	○	×	×	○	○	×	○	○
Medical-Nikkor 120mm f/4 IF	×	○	○	×	×	×	○*5	×	×	×
Reflex Nikkor lenses*7	×	×	○	×	×	○*8	○*8	×	○	○
PC-Nikkor lenses*7	×	×	○	×	×	○*9	○*10	×	○	○
Teleconverter TC-16A	○*11	×	×	×	×	○	○	×	○	○
AI- or AI-S-type Teleconverters (except TC-16A)	×	○*12	○	×	×	○	○	×	○	○
Bellows Focusing attachment PB-6	×	○*12	○	×	×	○*15	○*15	×	○	○
K Ring Set (K1, K3, K4 and K5)*13	×	○*12	○	×	×	○*16	○*16	×	○	○
Auto Extension Rings (11A, 12, 13 and PN-11)*14	×	○*12	○	×	×	○	○	×	○	○

○ 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 when using the TC-16A Autofocus Converter. (See page 35).
- \*3 With maximum aperture of f/5.6 or faster.
- \*4 AI-modification is no longer available.
- \*5 Set shutter speed to 1/125 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 F90X cameras. (See page 103).
- \*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 With AI- or AI-S-type Nikkor lenses having maximum aperture of f/3.5 or faster. However, some lenses cannot be used with the TC-16A (p.35).
- \*12 With maximum effective aperture of f/5.6 or faster.
- \*13 K1 Ring cannot be attached to AF Nikkor lenses. The ring may damage CPU contacts. Use PK-11A or BR-6 instead.
- \*14 PK-1, PK-2, PK-3 and PN-1 Rings cannot be attached to the F90X cameras. 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.
- \*15 Shutter should be released after exposure is measured by stopping down PB-6.
- \*16 Stop-down exposure measurement will be performed.

# FLASH PHOTOGRAPHY

You can enjoy the excitement of the Nikon F90X camera's advanced flash technology by using Nikon's advanced SB-28 AF Speedlight. With the F90X System you'll discover the benefits of flash for more picture-taking situations than ever. Make fill-flash a standard part of your photography. Brighten dull scenes and erase harsh shadows for beautiful portraits. With the F90X system's automatic operation, you can make better flash pictures than ever before. There's no other system like it in the world.

Note: Nikon Speedlight SB-21 (SB-21A or SB-21B) is not available in EU countries.

# NIKON SPEEDLIGHT COMPATIBILITY

## FLASH MODES AVAILABLE WITH NIKON SPEEDLIGHTS

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

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

\*<sup>1</sup> In TTL auto flash mode, F90X camera performs Automatic Balanced Fill-Flash or Standard TTL Flash. For details, see pp. 109-112.

\*<sup>2</sup> Set the F90X's exposure mode to Aperture-Priority Auto or Manual.

\*<sup>3</sup> 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).

\*<sup>4</sup> Ultraviolet and infrared photography can be performed in manual flash mode only.

■ : Automatic Balanced Fill-Flash possible.

### 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<sub>s</sub>**) blink in the LCD panel, warning that the flash mode should be set to TTL auto.

## WHAT YOU CAN DO WITH YOUR NIKON SPEEDLIGHT

Nikon Speedlights, combined with the F90X camera, offer various features and functions. The main features and functions are listed below.

<b>Speedlight</b>	<b>Autofocus using AF assist illuminator*<sup>1</sup></b>	<b>Slow Sync*<sup>2</sup></b>	<b>Rear-Curtain Sync*<sup>3</sup></b>	<b>Repeating Flash*<sup>4</sup></b>	<b>Manual flash output level compensation*<sup>5</sup></b>	<b>FP High-Speed Sync*<sup>6</sup></b>	<b>Red-Eye Reduction*<sup>7</sup></b>
SB-28	Yes	Yes* <sup>8</sup>	Yes	Yes	Yes	Yes	Yes
SB-26	Yes	Yes* <sup>8</sup>	Yes	Yes	Yes	Yes	Yes
SB-25	Yes	Yes* <sup>8</sup>	Yes	Yes	Yes	Yes	No
SB-24	Yes	Yes* <sup>8</sup>	Yes	Yes	Yes	No	No
SB-27	Yes	Yes* <sup>8</sup>	Yes* <sup>8</sup>	No	Yes	No	Yes
SB-23, SB-22 and SB-20	Yes	Yes* <sup>8</sup>	Yes* <sup>8</sup>	No	No	No	No
SB-16B, SB-15, SB-11, SB-14 or SB-140	No	Yes* <sup>8</sup>	Yes* <sup>8</sup>	No	No	No	No
SB-21B	No	Yes* <sup>8</sup>	Yes* <sup>8</sup>	No	No	No	No

\*<sup>1</sup> See *Speedlight manual*.

\*<sup>2</sup> See pp. 118-119.

\*<sup>3</sup> See pp. 120-121.

\*<sup>4</sup> See *Speedlight manual*.

\*<sup>5</sup> See *Speedlight manual*.

\*<sup>6</sup> See *Speedlight manual*.

\*<sup>7</sup> See pp. 122-123

\*<sup>8</sup> Set on the camera side.



### TYPE OF TTL AUTO FLASH

TTL auto is recommended for most common flash shooting situations. With the Nikon Speedlight set for TTL auto flash (see chart on page 107 for compatibility), Automatic Balanced Fill-Flash or Standard TTL Flash is performed.

Using Standard TTL Flash control, a Speedlight tends to give more illumination than needed on the main subject, resulting in an unnaturally bright subject with a dark background. With Automatic Balanced Fill-Flash, flash output is automatically compensated to balance with ambient light, resulting in a better exposure for both subject and background.

The type of TTL auto flash performed by the F90X depends on the speedlight and lens combination in use, as well as on the metering system and exposure mode you are selected.







## With SB-28/SB-27/SB-26/SB-25

Lens	Metering system	Exposure mode	
		Programmed and Shutter-Priority Auto	Aperture-Priority Auto and Manual
AF Nikkor lens (except for AF Nikkor for F3 AF) and AI-P-Nikkor lens	Matrix, Centre-Weighted and Spot	Automatic Balanced Fill-Flash with TTL Multi Sensor—3D Multi-Sensor Balanced Fill-Flash with D-type AF Nikkor lens or Multi-Sensor Balanced Fill-Flash with non-D-type AF Nikkor lens and AI-P-Nikkor lens	
Other lenses (or with accessories)	Matrix	Centre-Weighted Fill-Flash*1	Centre-Weighted Fill-Flash*2
	Centre-Weighted	Centre-Weighted Fill-Flash*3	Centre-Weighted Fill-Flash
	Spot	Spot Fill-Flash*3	Spot Fill-Flash

\*1 Metering system and exposure mode automatically switch to Centre-Weighted and Aperture-Priority, respectively.

\*2 Metering system automatically switches to Centre-Weighted.

\*3 Exposure mode automatically switches to Aperture-Priority.

- In the Speedlight's LCD readout,  and  appears for Automatic Balanced Fill-Flash with TTL Multi Sensor, or  and  appears for Centre-Weighted/Spot Fill-Flash.
- Unless Programmed Auto exposure is selected, 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 the Speedlight manual.

## When using Vari-Program

- Vari-Program can be used only with AF Nikkor including D-type AF Nikkor lenses and AI-P-Nikkor lenses. When other lenses are used, the shutter is locked.
- In the Close-Up Program, the Speedlight does not fire the Monitor Pre-flashes for 3D Multi-Sensor Fill-Flash or Multi-Sensor Fill-Flash.





## With SB-24

Lens	Metering system	Exposure mode	
		Programmed and Shutter-Priority Auto	Aperture-Priority Auto and Manual
D-type AF Nikkor lens, non-D-type AF Nikkor lens (except for AF Nikkor for F3AF) and AI-P-Nikkor lens	Matrix, Centre-Weighted and Spot	Multi-Sensor Balanced Fill-Flash	
Other lenses (or with accessories)	Matrix	Centre-Weighted Fill-Flash*1	Centre-Weighted Fill-Flash*2
	Centre-Weighted	Centre-Weighted Fill-Flash*3	Centre-Weighted Fill-Flash
	Spot	Spot Fill-Flash*3	Spot Fill-Flash

\*1 Metering system and exposure mode automatically switch to Centre-Weighted and Aperture-Priority, respectively.

\*2 Metering system automatically switches to Centre-Weighted.

\*3 Exposure mode automatically switches to Aperture-Priority.

- In all the cases listed above,  and  for Automatic Balanced Fill-Flash appear in the SB-24's LCD panel.
- By pressing the SB-24's M button, you can cancel Automatic Balanced Fill-Flash control to perform standard TTL flash operation. For standard TTL flash, the SB-24's LCD panel shows  and blinking . For details, see the SB-24 manual.

## When using Vari-Program

- Vari-Program can be used only with AF Nikkor including D-type AF Nikkor lenses and AI-P-Nikkor lenses. With other lenses, shutter is locked.

**With SB-23, SB-22 , SB-20, SB-21B\*1, SB-16B , SB-15, SB-14\*2, SB-11\*2 or SB-140\*2**

Lens	Metering system	Exposure mode		
		Programmed and Shutter-Priority Auto	Aperture-Priority Auto	Manual
D-type AF Nikkor lens, non-D-type AF Nikkor lens (except for AF Nikkor for F3AF) and AI-P-Nikkor lens	Matrix, Centre-Weighted and Spot	Multi-Sensor Balanced Fill-Flash		Standard TTL Flash
Other lenses (or with accessories)	Matrix	Centre-Weighted Fill-Flash*3	Centre-Weighted Fill-Flash*4	
	Centre-Weighted	Centre-Weighted Fill-Flash*5	Centre-Weighted Fill-Flash	
	Spot	Spot Fill-Flash*5	Spot Fill-Flash	

\*1 Although possible with SB-21B, Automatic Balanced Fill-Flash is not recommended.

\*2 Via TTL Remote Cord SC-23

\*3 Metering system and exposure mode automatically switch to Centre-Weighted and Aperture-Priority, respectively.

\*4 Metering system automatically switches to Centre-Weighted.

\*5 Exposure mode automatically switches to Aperture-Priority.

### When using Vari-Program

- Vari-Program can be used only with AF Nikkor including D-type AF Nikkor lenses and AI-P-Nikkor lenses.

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

3D Multi-Sensor Balanced Fill-Flash is possible only with the combination of the F90X, a D-type AF Nikkor lens and the Nikon SB-28/SB-27/SB-26/SB-25 AF Speedlight. In this flash mode, just after you depress the shutter release button and before the shutter is activated, the SB-28/SB-27/SB-26/SB-25 will fire a series of scarcely visible pre-flashes (Monitor Pre-flashes) that are detected by the F90X's TTL Multi Sensor, then analysed 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 F90X camera and SB-28/SB-27/SB-26/SB-25 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.

Multi-Sensor Balanced Fill-Flash can also be performed with the SB-24 and other dedicated Speedlights (shown on page 112) that do not have the Monitor Pre-flash feature.

## **CENTRE-WEIGHTED/SPOT FILL-FLASH**

If you are using a lens without CPU (a lens other than AF Nikkor and AI-P-Nikkor), Centre-Weighted Fill-Flash and Spot Fill-Flash are performed as Automatic Balanced Fill-Flash. Although the TTL Multi-Sensor is not used, flash output is properly compensated to produce a natural fill-flash\* effect.

## **STANDARD TTL FLASH**

In Standard TTL Flash, automatic flash output level compensation is not available. This means that, although the main subject is correctly exposed, the background may not be. With SB-28, SB-27, SB-26, SB-25 or SB-24, Standard TTL allows you manual selection of flash output level compensation instead of having the computer do it automatically. So, with SB-28, SB-27, SB-26, SB-25 or SB-24, you can intentionally cancel Automatic Balanced Fill-Flash by pressing the Speedlight's M button (or MODE button with the SB-28).

## SHUTTER SPEED/APERTURE FOR EACH EXPOSURE MODE IN TTL AUTO FLASH

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

Camera's exposure mode	Shutter speed	Aperture
Programmed Auto (P, P <sub>L</sub> )	1/250 sec. to 1/60 sec.* <sup>1</sup>	Set lens to its minimum aperture. Aperture is automatically controlled between f/2.8 and lens minimum aperture* <sup>2</sup>
Shutter-Priority Auto (S)	Manually set as desired from 1/250 sec. to 30 sec.* <sup>3</sup>	
Aperture-Priority Auto (A)	1/250 sec. to 1/60 sec.* <sup>1</sup>	Manually set as desired
Manual (M)	Manually set as desired from 1/250 sec. to 30 sec.* <sup>3</sup>	

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

\*<sup>2</sup> Available maximum aperture depends on film speed in use. See chart on next page.

\*<sup>3</sup> If you set shutter speed at 1/500 sec. or faster, camera automatically shifts to 1/250 sec. as soon as Speedlight is turned on. The manually set shutter speed indication blinks in the LCD panel, while the viewfinder shows 250.

**Reference: Available maximum aperture for each film speed**

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

*As film speed increases by one step, available maximum aperture is stopped down by 1/2 f/stop. 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).*

### Data Link System Users

The AC-2E card's User Custom Option lets you set the slowest shutter speed for the Speedlight, as desired: 1/250 sec., 1/125 sec., 1/60 sec., 1/30 sec., 1/15 sec., 1/8 sec., 1/4 sec., 1/2 sec., or 1 sec. For details, see Nikon AC-2E card instruction manual.

### Note for selecting aperture



- Make sure your subject is within flash shooting distance range.
- The larger the aperture (the smaller the f-number) you select, the farther the maximum shooting distance, whereas the smaller the aperture (the larger the f-number), the smaller the maximum shooting distance.
- If subject distance remains the same, the larger aperture you select, the less depth of field; however, Speedlight recycling time is shorter. On the other hand, the smaller the aperture, the greater the depth of field, but recycling time is longer.

### Note for selecting shutter speed

With a slower shutter speed, a smaller aperture is automatically selected, resulting in a shorter shooting distance range.

## TTL AUTO FLASH OPERATION

The difference between Automatic Balanced Fill-Flash and Standard TTL Flash is in whether the flash output level is automatically compensated or not. Operation is the same.

1. Set camera's metering system and exposure mode, referring to previous table.
2. Turn Speedlight on.  
If Wide-Area focus is set on the camera, it automatically switches over to Spot Area focus when the Speedlight connected to the camera is turned on. In this case,  blinks in the LCD panel, and  appears inside the viewfinder.
  - If Speedlight is not set at TTL auto flash mode, in Programmed Auto exposure mode, **FE** blinks to alert that Programmed Auto exposure can be used only for TTL auto flash.
3. Set Speedlight's mode selector to TTL.
  - With SB-23, setting mode selector to TTL simultaneously turns Speedlight on.
4. Look through the viewfinder, compose picture and lightly press shutter release button, while confirming exposure indication in the LCD readout. In autofocus operation, also confirm that in-focus indicator (●) or Focus Tracking indicator (▶ ◀) appears.
  - For exposure alert, see next page.
  - In Programmed or Shutter-Priority Auto exposure mode, if you fail to have set the lens to minimum aperture, **FE** blinks and shutter is locked.

5. Confirm exposure and shooting distance.  
Refer to shooting distance bars of SB-28, SB-27, SB-26, SB-25 or SB-24, or flash shooting distance range table of SB-23, SB-22 or SB-20. For details, see Speedlight's manual.
6. Confirm that ready-light is on, then fully depress shutter release button to take a picture.

### If ready-light blinks for a few seconds after shooting:

Flash has fired at maximum output, but the light might have been insufficient for correct exposure of subject. Confirm shooting distance and, if necessary, move closer to subject, or select wider aperture.



### **In Auto Multi-Program mode**

If **H I** appears, background may be overexposed. To give the background a correct exposure, reset to an exposure mode that lets you choose a faster shutter speed and/or a smaller aperture.

If shutter speed indicator shows **50**, background may be underexposed. To extend the automatically controlled shutter speed range, set the camera to the Slow Sync mode (p.119), or switch to another exposure mode that lets you choose a slower shutter speed and/or a wider aperture. In the Slow Sync or Rear-Curtain Sync mode, **L0** may appear in the LCD readout to signal that the background may come out underexposed.

### **In Shutter-Priority Auto exposure mode**

If **H I** appears, background may be overexposed. To give the background a correct exposure, set a higher shutter speed. If **H I** remains with a shutter speed of 1/250 sec., background will be overexposed without automatic flash output level compensation.

If electronic analog display indicates "**- (minus)**" value, background may be underexposed. To give the background a correct exposure, set a slower shutter speed. If electronic analog display remains with a shutter speed of 30 sec., the background will be underexposed unless flash output level is compensated.

### **In Aperture-Priority Auto exposure mode**

If **H I** appears, background may be overexposed. To give the background a correct exposure, set a smaller aperture. If **H I** remains with the lens set to minimum aperture, background will be overexposed unless flash output level is compensated.

If electronic analog display indicates "**- (minus)**" value, background may be underexposed. To give the background a correct exposure, set a wider aperture or set Slow Sync to extend the automatically controlled shutter speed range. If the electronic analog display remains with the lens set to maximum aperture, the background will come out underexposed unless flash output level is compensated. In the Slow Sync or Rear-Curtain Sync mode, **L0** may appear in the LCD readout to signal that the background may come out underexposed.

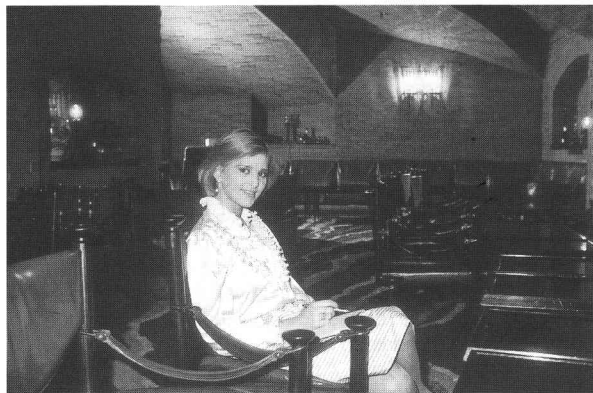
### **In Manual exposure mode**

If electronic analog display indicates "**+ (plus)**" or "**- (minus)**" values, background may be over- or underexposed. To give the background a correct exposure, adjust shutter speed/aperture.

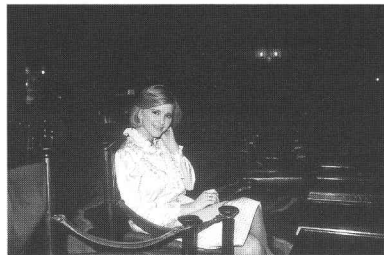
If electronic analog display indicating "**-**" value remains with the lens set to maximum aperture, the background will be underexposed unless flash output level is compensated.

## TO MAKE NIGHT BACKGROUND MORE VISIBLE—SLOW SYNC OPERATION

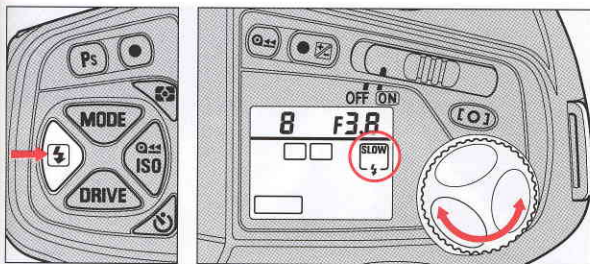
When flash pictures are taken at high shutter speeds in dim light, the background may come out dark. To improve background exposure, use Slow Sync to extend the automatically controlled shutter speed range down to 30 sec. Without Slow Sync, the automatically controlled shutter speed is controlled between 1/250 sec. and 1/60 sec. or 1/(focal length) sec. When flash pictures are taken with this rather narrow shutter speed range in dim light, the subject will appear bright and well exposed, but the background may come out very dark, almost black. Setting Slow Sync extends the automatic controlled shutter speed range down to 30 sec., enabling background details to come out.




Slow Sync



Normal Sync



www.orphancameras.com

1. Set camera's exposure mode to **P** for Auto Multi-Program or **A** for Aperture-Priority Auto.
2. While pressing the camera's lightning bolt button, rotate command dial until  appears in camera's LCD panel.

Then follow steps 2-6 of TTL AUTO FLASH OPERATION, on p. 116. *Use a tripod to prevent camera shake.*

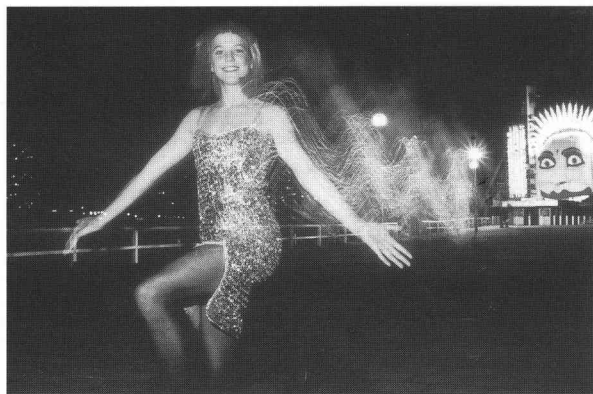
# TO CREATE NATURAL-LOOKING STREAM OF LIGHT—REAR-CURTAIN SYNC

Normally in flash synchronisation, the Speedlight fires at the beginning of the exposure. When the shutter speed is low, the result is an unnatural light pattern.

When Rear-Curtain Sync is set, the Speedlight fires at the end of the exposure, turning available light into a stream of light that follows the flash-illuminated moving subject.

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 the Auto Multi-Program or Aperture-Priority Auto exposure mode. However, to set a desired shutter speed, set the F90X to Shutter-Priority Auto or Manual exposure mode.

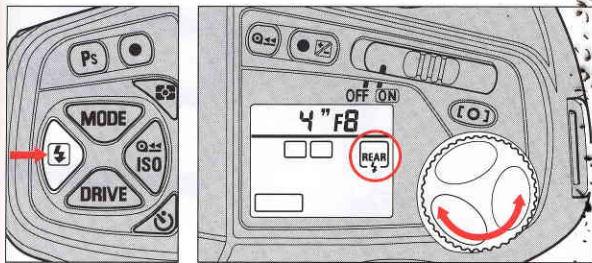
- When the SB-26, SB-25 or SB-24 is used, note that the Rear-Curtain Sync setting on the camera body is ignored. So you have to set the speedlight unit itself for Rear-Curtain Sync.
- Rear-Curtain Sync cannot be set with Vari-Program
- Rear-Curtain Sync cannot be set if Red-Eye Reduction (p. 122) has been set.



Rear-Curtain Sync with low shutter speed



Front-Curtain Sync with low shutter speed



1. Set camera's exposure mode to **S** for Shutter-Priority Auto or **M** for Manual exposure mode.
2. Set Rear-Curtain Sync.

**For Speedlight other than SB-26, SB-25 or SB-24:** While pressing the camera's button, rotate the command dial until appears in the camera's LCD panel.

**For SB-26, SB-25 or SB-24 users:** Set the Speedlight's sync mode selector to **REAR** position. (See your Speedlight's instruction manual). Rear-Sync setting on camera is ignored.

Then follow steps 2-6 of TTL AUTO FLASH OPERATION, on p. 116. When using a low shutter speed, mount the F90X on a tripod to prevent camera shake.

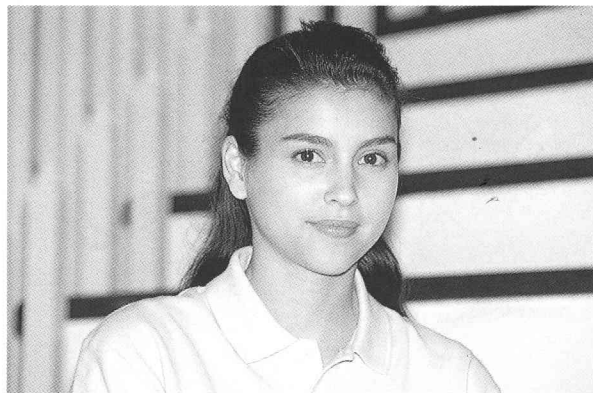
You can use Rear-Curtain Sync in non-TTL auto or manual flash mode. For non-TTL auto or manual flash mode, refer to your Speedlight manual. Note that in either flash mode, you must use Aperture-Priority Auto or Manual exposure mode.

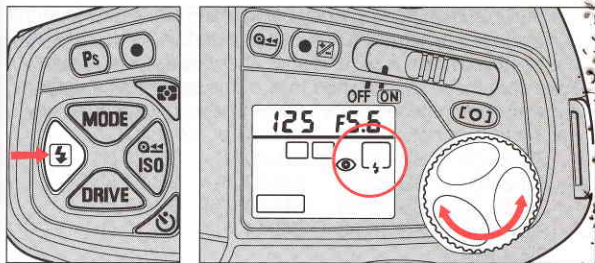
## RED-EYE REDUCTION (for use with SB-28/SB-27/SB-26 only)

When shooting people or animals in dim light using a flash, the subject's eye may sometimes appear red in colour pictures or white in B&W pictures. The Red-Eye Reduction function reduces the possibility of "red-eye".

With this function, before the shutter is released the SB-28/SB-27/SB-26's red-eye reduction lamp illuminates to make the subject's eye pupils become smaller, thus reducing the appearance of red-eye.

Red-Eye Reduction can be set in any exposure mode. In the Portrait Program with Red-Eye Reduction (P<sub>s</sub> with **RE**), the Red-Eye Reduction function is automatically set. With other Vari-Program options, Red-Eye Reduction *cannot* be set.





While pressing the camera's ⚡ button, rotate the command dial until [ ] and 👁 appears in camera's LCD readout. Then follow steps 2-6 of TTL Auto Flash Operation, on p116.

### To further reduce red-eye

- Have the subject look away from the lens, toward a bright light.
- When shooting indoors, make the room as bright as possible.

*Note that red-eye tends to be more pronounced with children and cannot be as effectively reduced.*

# 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.
- 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 1/125 sec. or slower.

\* Not compatible with 250V or higher.

\*\* Not available in EU countries.

- For multiple flash photography using the F90X, if the electric current in the syncro 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 or 13 at 40°C.

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.

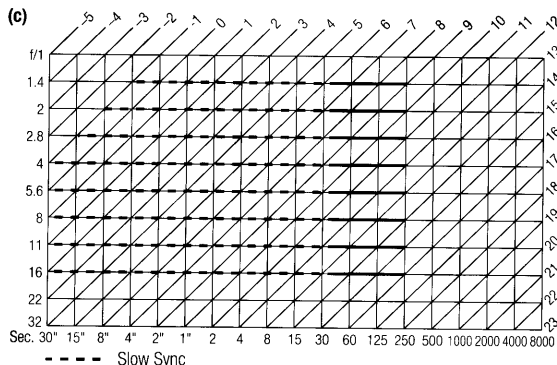
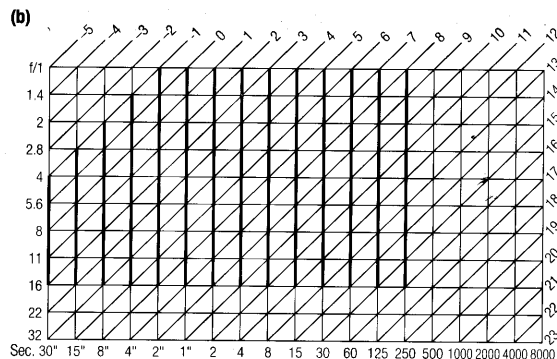
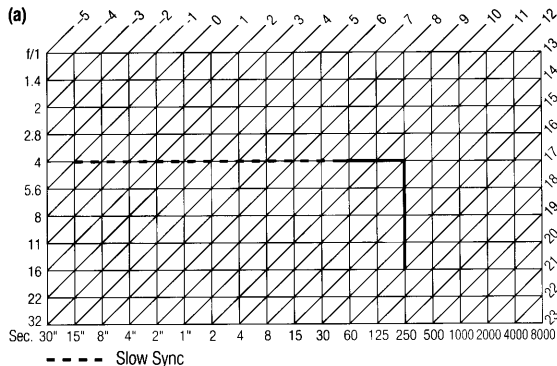
This also applies when using any non-Nikon studio speedlight system.



# EV CHARTS FOR FLASH PHOTOGRAPHY

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

- (a) Auto Multi-Program
- (b) Shutter-Priority Auto
- (c) Aperture-Priority Auto



# MISCELLANEOUS

The Nikon F90X 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 a detailed section with technical specifications and a glossary of terms that will help you understand the F90X system more fully. Please read them carefully.

# ACCESSORY COMPATIBILITY

The following accessories cannot be used with the Nikon F90X camera:

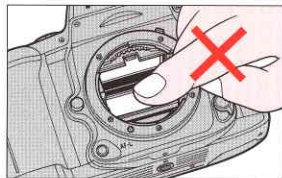
PK-1, PK-2, PK-3, PN-1, K2 BR-2 Rings

Body Cap BF-1

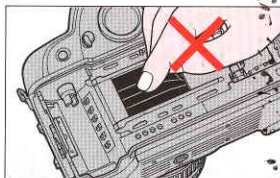
Eyepiece Accessories for F3HP/F3T.

- 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 polarising 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.

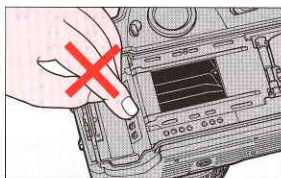
# CAMERA CARE TIPS



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



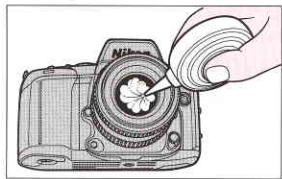
2. **Do not** touch the shutter curtains.



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



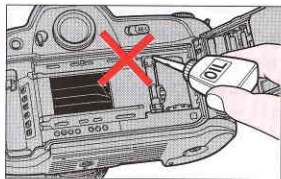
4. Clean the viewfinder eyepiece with a soft, clean cloth. **Do not** use alcohol.



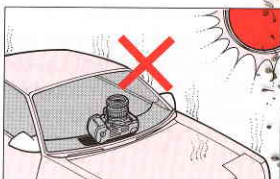
5. Clean lens surface with a blower brush. To remove dirt and smudges, use a soft, clean cotton cloth or lens tissue moistened with ethanol (alcohol) or lens cleaner. Wipe in a circular motion from centre to outer edge, taking care not to leave traces and not to touch the other lens parts.

## Caution!

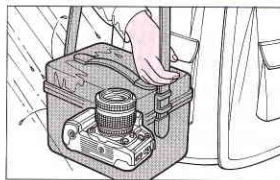
A spray gun-type blower may damage the optical glass if used to clean the lens, especially if ED glass is used for the front lens element. To avoid damage, hold the blower upright with its nozzle more than 30cm (approx. 12 inches) from the lens surface, and keep the nozzle moving so the stream of air 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.



## NOTES ON BATTERIES

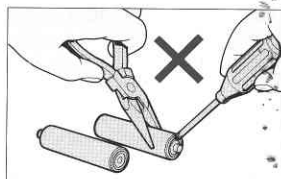
In certain cases, due to static electricity or poorly loaded batteries, the F90X camera's microcomputer may turn the camera off, even with fresh properly installed batteries. For the same reason, film may not advance properly. In each of these cases, to resume operation, simply turn the power off, then turn it on again, or remove batteries and install them again.

Compared with regular batteries, NiCd batteries provide greater efficiency at low temperatures. Before charging NiCd batteries, thoroughly read the instructions for batteries and the battery charger.

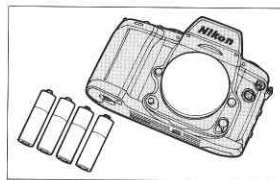
Nikon cannot be held responsible for any malfunction resulting from the use of the camera other than as specified in this manual.



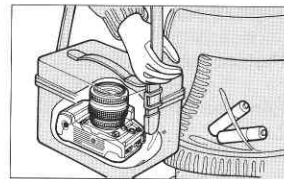
1. Keep batteries out of children's reach. If someone accidentally swallows batteries, call a doctor immediately.



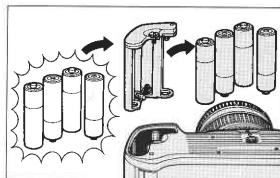
2. **Do not** disassemble, short circuit or heat batteries. **Do not** charge dry cells.



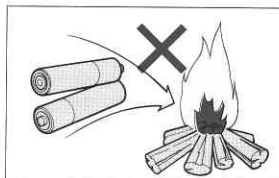
3. If you do not intend to use the camera for a long time, remove the batteries.



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.

# SPECIFICATIONS

<b>Type of camera</b>	Integral-motor autofocus 35mm single-lens reflex	<b>Electronic rangefinder</b>	Available in Manual focus mode with AF Nikkor and other AI-type Nikkor lenses with a maximum aperture of f/5.6 or faster
<b>Picture format</b>	24mm x 36mm (standard 35mm film format)	<b>Exposure metering</b>	Three built-in exposure meters —Matrix, Centre-Weighted and Spot
<b>Lens mount</b>	Nikon F mount	<b>Metering range</b> (at ISO 100 with f/1.4 lens)	EV-1 to EV 21 for Matrix and Centre-Weighted metering; EV 3 to EV 21 for Spot metering
<b>Lens</b>	Nikkor and Nikon lenses having Nikon F mount* <i>* With limitation; see chart on p. 104</i>	<b>Exposure meter</b>	Activated by lightly pressing shutter release button; stays on for 8 sec., after finger leaves button
<b>Focus modes</b>	Autofocus, and Manual with Electronic Rangefinder	<b>Exposure modes</b>	Programmed Auto (Auto Multi-Program and Vari-Program), Shutter-Priority Auto, Aperture-Priority Auto and Manual
<b>Autofocus area</b>	Wide and Spot selectable	<b>Programmed auto exposure control</b>	Camera sets both shutter speed and lens aperture automatically; Flexible Program possible in increments of $\frac{1}{3}$ EV
<b>Autofocus mode</b>	Single Servo AF with Focus-Priority and Continuous Servo AF with Release-Priority	<b>Shutter-priority auto exposure control</b>	Aperture automatically selected to match manually set shutter speed
<b>Focus Tracking</b>	Automatically activated when subject moves		
<b>Autofocus detection system</b>	Nikon CAM 246 autofocus module		
<b>Autofocus detection range</b>	Approx. EV -1 to EV 19 (at ISO 100)		
<b>Autofocus lock</b>	Possible once stationary subject is in focus in Single Servo autofocus; in Continuous Servo autofocus, focus can be locked with AF-L (autofocus lock) button		



**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  
Seven kinds built-in: Portrait Program, Portrait Program with red-eye reduction, Hyperfocal Program, Landscape Program, Silhouette Program, Sport Program, and Close-Up Program; each has its own program line, and specific camera settings such as metering system, focus area, etc., are automatically selected

**Exposure compensation**  
**Auto exposure lock**

With exposure compensation button;  $\pm 5$  EV range, in 1/3 EV steps  
By sliding AE lock lever while meter is on

**Shutter**

Electromagnetically controlled vertical-travel focal-plane shutter

**Shutter release**  
**Shutter speeds**

By motor trigger  
Lithium niobate oscillator-controlled speeds from 1/8000 to 30 sec (in 1/3 step); electromagnetically controlled Bulb setting is provided

**Viewfinder**

**Eyepoint**  
**Eyepiece shutter**  
**Focusing screen**

Fixed eyelevel pentaprism high-eyepoint type; 0.78X magnification with 50mm lens set at infinity; approx. 92% frame coverage  
Approx. 19mm  
Provided







**Viewfinder information**

Nikon advanced B-type BriteView screen; interchangeable with E-type screen

LCD shows focus area, focus indications, exposure mode, shutter speed, second mark for shutter speed slower than one second, aperture, electronic analog display, frame counter/exposure compensation value/Vari-Program, Flexible Program mark and exposure compensation mark; flash recommended/ready light LED is also shown

**LCD panel information**

Shutter speed, aperture, exposure mode, metering system, focus area, autofocus mark with focus-/release-priority indication, Flexible Program mark, flash sync, film speed, DX mark, exposure compensation mark, frame counter/Vari-Program/exposure compensation value, Custom mark, film advance mode, film loading, film rewind, self-timer, battery power

<b>Viewfinder/LCD panel illumination</b>	Viewfinder and LCD panel illuminated by pressing button	<b>Self-timer</b>	Electronically controlled; timer duration selectable from 2 to 30 seconds in one-sec. increments; blinking LED indicates self-timer operation; cancelable
<b>Film speed range</b>	ISO 25 to 5000 for DX-coded film; ISO 6 to 6400 can be manually set	<b>Depth-of-field preview button</b>	Provides visual verification of depth of field; can be previewed in Aperture-Priority Auto or Manual exposure mode
<b>Film speed setting</b>	At DX position, automatically set to ISO speed of DX-coded film used; manual setting possible	<b>Reflex mirror Camera back</b>	Automatic, instant-return type Hinged back; interchangeable with Nikon Multi-Control Back MF-26 or World Time Data Back MF-25
<b>Film loading</b>	Film automatically advances to first frame when shutter release button is depressed once	<b>Accessory shoe</b>	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
<b>Film advance</b>	In single-frame  shooting 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  mode, shooting speed is approx. 4.3 fps, and in  , approx. 2.0 fps.; in Focus Tracking, shooting speed is approx. 4.1 fps in  mode		
<b>Frame counter</b>	Additive type; counts back while film is being rewound		

**Flash sync control****Flash synchronisation****TTL Multi Sensor****Automatic Balanced  
Fill-Flash with TTL  
Multi Sensor****Monitor Preflash**

Slow Sync, Rear-Curtain Sync and Red-Eye Reduction functions built-in. In Programmed Auto or Aperture-Priority Auto, shutter operates from 1/250 to 1/60 sec. in normal sync, or 1/250 to 30 sec. in slow sync; in Shutter-Priority Auto or Manual exposure mode, shutter operates at speed set, and when set from 1/250 to 1/8000 sec., shutter is automatically set to 1/250 sec.

Five-segment multi-sensor used for TTL auto flash control

Possible when AF Nikkor lens is used with Nikon Speedlight SB-28, SB-27, SB-26, SB-25, SB-24, SB-23, SB-22, SB-20, etc.

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

**Flash recommended/  
ready light**

No speedlight attached: Lights up in green when flash is recommended  
Speedlight attached: Lights up in red when Nikon dedicated Speedlight is ready to fire, or blinks to warn of insufficient light for correct exposure

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




*For autofocus operation using AF Zoom-Nikkor 28-70mm f/3.5-f/4.5 D lens covering the full range from infinity ( $\infty$ ) to the closest distance and back to infinity ( $\infty$ ) before each shot, in Continuous Servo AF mode with film advance mode at CH and a shutter speed of 1/250 sec. or faster.*

	At 20°C	At -10°C
AA-type alkaline (LR-06)*	50	9
AA-type Manganese*	14	0
AA-type NiCd (KR-AA)*	40	16
CR123A-type lithium** (inside optional Nikon Multi-Power Vertical Grip MB-10)	90	25

\* F90X body only or when using MB-10 with standard MS-10 battery holder.

\*\* When using MB-10 with optional MS-11 battery holder. Lithium batteries are useful especially when shooting at lower temperatures, however film advance speed may slow down.

**Power source**  
**Battery power**  
**confirmation**

Four AA-type batteries  
 for sufficient power;  indicates batteries are nearing exhaustion; blinking  indicates batteries are just about exhausted; no indication/mark appears when batteries are completely exhausted or improperly installed

**Dimensions (WxHxD)**  
**Weight**  
**(without batteries)**

Approx. 154 x 106 x 69mm  
Approx. 755g

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

*Specifications and design are subject to change without notice.*

## 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. The F90X uses an Automatic Balanced Fill-Flash System with TTL Multi-Sensor for this automatic operation with a compatible Nikon TTL Speedlight.

## 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.

## Depth of field

The zone of sharpest focus in front of, behind and around the subject on which the lens is focused; can be previewed in the F90X and some other Nikon cameras

## D-type AF Nikkor lenses

AF Nikkor lenses that send to the F90X'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).

## DX code

Film information code printed on film cartridge. The F90X, 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 EV1.

The camera may be used only within the EV range of the exposure meter. For example, with the F90X, the exposure metering range is from EV -1 to EV21 for Matrix metering and Centre-Weighted metering, at ISO 100 with an f/1.4 lens.

## Exposure compensation

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

Camera-originated exposure compensation affects both foreground subject and background; variations in flash output amount only affect foreground.

## **Exposure control**

**Programmed Auto:** Camera sets both shutter speed and aperture for correct exposure.

**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.

## **Focus-Priority for autofocus**

Shutter cannot be released until subject is in focus. Suitable when in-focus subject is important.

With F90X camera body, Focus-Priority is given to Single Servo AF mode while Release-Priority is given to Continuous Servo AF. However, the Electronic Organizer can change priority to perform Release-Priority Single Servo AF or Focus-Priority Continuous Servo AF.

## **Flash synchronisation**

The timing of the flash so it fires coincident with the operation of the camera's shutter. There are two types of synchronisation: Normal Sync which fires the flash at the start of the exposure, and Rear Sync which fires the flash at the end of the 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.

## **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.

## LCD

Liquid Crystal Display. The F90X has two: the panel on top of the camera body and inside the viewfinder.

## Manual flash

Flash output is controlled manually in the manual flash mode, while flash output power varies automatically according to the selected aperture in the auto flash mode. Some Speedlights including the Nikon SB-28, SB-27, SB-26, SB-25, SB-24 and SB-20 provide selectable manual outputs (full, 1/2, 1/4, 1/8, 1/16, etc.), while others provide full manual output only.

## Matrix metering system

An advanced camera light metering system using a multi-segment sensor and computer; available in the F90X and other Nikon SLRs such as the Nikon F90X/N90s, F90-series/N90, F-601/N6006, F-601M/N6000, F-401x/N5005, F4-series and F-801s/N8008s cameras.

## Release-Priority for autofocus

Shutter can be released anytime (i.e., even when subject is not in focus). Convenient so you do not miss an opportunity to take a picture and are not concerned with absolute focusing precision.

With F90X camera body, Release-Priority is given to Continuous Servo AF while Focus-Priority is given to Single Servo AF. However, the Electronic Organizer can change the priority to perform Focus-Priority Continuous Servo AF or Release-Priority Single Servo AF.

## Single Servo AF

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

## SLR

Single Lens Reflex. A type of camera in which you look through the camera's lens as you view through the camera's viewfinder. Other camera functions, such as light metering and flash control, also operate through the camera's lens.

## TTL

Through-the-Lens. Most SLR cameras have built-in meters which measure light after it has passed through the lens, a feature that enables exposure readings to be taken from the actual image about to be recorded on film, whatever the lens angle of view and regardless of whether a filter is used or not.

## **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.

## **Wide-Area AF**






Cross-shaped Wide-Area Sensor (7mm horizontal, 3mm vertical) with no dead zone results in sharp focus for most subjects, including those without vertical lines.



# LCD PANEL/VIEWFINDER INDICATIONS

LCD panel/Viewfinder	Shutter	Cause and remedy
No indication appears when camera is turned on.	Locked.	Batteries are completely exhausted or improperly installed. Slide power switch to OFF and replace batteries.
 blinks on LCD panel.	Can be released.	Batteries are just about exhausted. Slide power switch to OFF and replace batteries with a fresh set.
<b>P</b> or <b>S</b> blinks and <b>F--</b> appears	Can be released.	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.
<b>P<sub>s</sub></b> blinks and <b>F--</b> appears*	Locked	Vari-Program is set even though lens attached has no CPU.
<b>fEE</b> blinks in Programmed Auto or Shutter-Priority Auto exposure mode*	Locked	Lens is not set to the smallest aperture setting. Set lens to the smallest aperture.

\* An alert signal sounds if "Beep for Exposure Alert" is set with the Nikon Data Link System.

LCD panel/Viewfinder	Shutter	Cause and remedy
 blinks on LCD panel.	Can be released	Matrix meter is set even though lens attached has no CPU; camera automatically resets meter to Center-Weighted metering.
<b>Err</b> , <b>ISO</b> and  marks blink on LCD panel and <b>Err</b> blinks inside viewfinder.*	Locked.	Non-DX-coded film or film with unacceptable DX code is loaded. Set manually to correct film speed.
 blink on LCD panel.*	Locked.	Film is not correctly positioned. Reload film.
<b>End</b> and  blink on LCD panel.*	Locked.	Film has reached end of roll. Rewind film.
<b>E</b> and  blink on LCD panel.*	Locked.	Film rewind has been completed. Remove film cartridge.




\* An alert signal sounds if "Beep for Film Operation Alert" is set with the Nikon Data Link System.

LCD panel/Viewfinder	Shutter	Cause and remedy
▶ ◀ blinks inside viewfinder.	Locks at <b>S</b> or can be released at <b>C</b> and <b>M</b> .	Autofocus is impossible with the subject. Set focus mode selector to <b>M</b> and focus manually using clear matte field.
<b>H</b> appears in auto exposure mode*	Can be released	Overexposure possible
<b>L</b> appears in auto exposure mode*	Can be released	Underexposure possible
◀ appears inside viewfinder.	Can be released	Subject is located closer than the closest focused distance of the lens.. Move back from the subject and refocus.
▶ appears inside viewfinder (when TC-16A is used).	Can be released	The lens focusing ring is not set at infinity ( $\infty$ ). Set focus mode selector to <b>M</b> , set lens focusing ring to $\infty$ , set focus mode selector to <b>S</b> or <b>C</b> again, then refocus.

\* An alert signal sounds if "Beep for Exposure Alert" is set with the Nikon Data Link System.

LCD panel/Viewfinder	Shutter	Cause and remedy
<b>bulb</b> blinks.	Locked.	<b>bulb</b> is set in the Shutter-Priority Auto exposure mode. Set exposure mode to Manual or set another shutter speed.
Electronic analog display blinks inside viewfinder.	Can be released.	Shutter speed/aperture set on the camera is beyond the metering range of the F90X. If "+" value is indicated, use ND filter. If "-" value is indicated, use a Nikon Speedlight.
⚡ lights up in green inside viewfinder.	Can be released.	Use Nikon Speedlight
⚡ blinks in red inside viewfinder after flash shooting.	Can be released.	Light might be insufficient. Confirm shooting distance and, if necessary, move closer to the subject or select a wider aperture.
<b>FE</b> and Programmed Auto exposure indication ( <b>P</b> or <b>P<sub>s</sub></b> ) blink*	Locked	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.

\* An alert signal sounds if "Beep for Exposure Alert" is set with the Nikon Data Link System.

LCD panel/Viewfinder	Shutter	Cause and remedy
<p> blinks on LCD panel and  appears inside viewfinder.</p>	<p>Can be released.</p>	<p>Attached Nikon Speedlight is turned on with Wide Area focus. Camera automatically resets focus area to Spot.</p>
<p> blinks on LCD panel.</p>	<p>Can be released.</p>	<p>Portrait Program with Red-Eye Reduction is set with a Speedlight other than the Nikon SB-28/SB-27/SB-26. Set another Program, set another exposure mode, or use the Nikon SB-28/SB-27/SB-26.</p>
<p>5L blinks inside viewfinder.</p>	<p>Can be released.</p>	<p>Attached Nikon Speedlight is turned on with Silhouette Program. To make Silhouette Program effective, turn off the Speedlight.</p>

### **ABOUT LCD**

- The F90X 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.