Nikon

DIGITAL CAMERA

D700

User's Manual

En

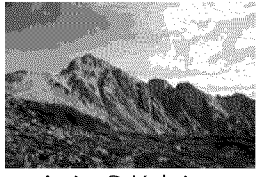
Active D-Lighting

Active D-Lighting preserves details in highlights and shadows, creating photographs with natural contrast. Use for high contrast scenes, for example when photographing brightly lit outdoor scenery through a door or window or taking pictures of shaded subjects on a sunny day.

Active D-Lighting off

Active D-Lighting: Auto

Active D-Lighting off

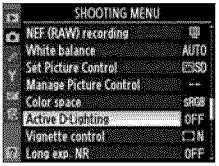


Active D-Lighting: High

To use active D-Lighting:

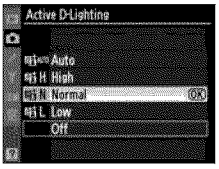
1 Select **Active D-Lighting.**

In the shooting menu (pg. 268), highlight **Active D-lighting** and press ▶.



2 Choose an option.

Highlight **Auto**, **Off**, **Low**, **Normal**, or **High** and press OK. Choose **Auto** to let the camera adjust D-Lighting automatically according to shooting conditions.



☑ Active D-Lighting

When Active D-Lighting is on, additional time will be required to record images and the capacity of the memory buffer will drop (pg. 424). Use matrix metering (pg. 112). Noise (grains, banding, mottling) may appear in photographs taken with Active D-Lighting at high ISO sensitivities. Active D-Lighting can not be used at ISO sensitivities of Hi 0.3 or above. The **Brightness** and **Contrast** Picture Control settings (pg. 165) can not be adjusted while active D-Lighting is in effect. In exposure mode M, an Active D-Lighting setting of **Auto** is equivalent to **Normal**.

☑ "Active D-Lighting" versus "D-Lighting"

The **Active D-Lighting** option in the shooting menu adjusts exposure before shooting to optimize the dynamic range, while the **D-Lighting** option in the retouch menu optimizes dynamic range in images after shooting.

The Shooting Information Display

Active D-Lighting can also be adjusted from the shooting information display (pg. 15).

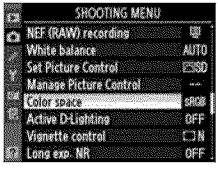
Color Space

The color space determines the gamut of colors available for color reproduction. Choose a color space according to how photographs will be processed on leaving the camera.

Option	Description
sRGB **sRGB** (default)	Choose for photographs that will be printed or used "as is," with no further modification.
Adobe **Adobe RGB**	This color space is capable of expressing a wider gamut of colors than sRGB, making it the preferred choice for images that will be extensively processed or retouched.

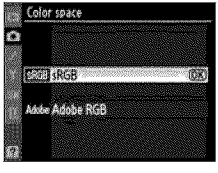
1 Select **Color space.**

Highlight **Color space** in the shooting menu (pg. 268) and press ▶.



2 Select a color space.

Highlight the desired option and press ⊛.



The Shooting Information Display

The color space can also be selected in the shooting information display (pg. 15).

Color Space

Color spaces define the correspondence between colors and the numeric values that represent them in a digital image file. The sRGB color space is widely used, while the Adobe RGB color space is typically used in publishing and commercial printing. sRGB is recommended when taking photographs that will be printed without modification or viewed in applications that do not support color management, or when taking photographs that will be printed with ExifPrint, the direct printing option on some household printers, or kiosk printing or other commercial print services. Adobe RGB photographs can also be printed using these options, but colors will not be as vivid.

JPEG photographs taken in the Adobe RGB color space are Exif 2.21 and DCF 2.0 compliant; applications and printers that support Exif 2.21 and DCF 2.0 will select the correct color space automatically. If the application or device does not support Exif 2.21 and DCF 2.0, select the appropriate color space manually. An ICC color profile is embedded in TIFF photographs taken in the Adobe RGB color space, allowing applications that support color management to automatically select the correct color space. For more information, see the documentation provided with the application or device.

Nikon Software

ViewNX (supplied) and Capture NX 2 (available separately) automatically select the correct color space when opening photographs created with the D700.

Flash Photography

– *Using the Built-in Flash*

This chapter describes how to use the built-in flash.

The Built-in Flash

The built-in flash has a Guide Number (GN) 17/56 (m/ft, ISO 200, 20 °C/68 °F) and can cover the field of view of a 24mm lens, or a 16mm lens in DX format. It supports i-TTL balanced fill-flash for digital SLR, which uses monitor pre-flashes to adjust flash output for balanced lighting not only when natural lighting is inadequate but when filling in shadows and backlit subjects or adding a catch light to the subject's eyes. The following types of i-TTL flash control are supported:

i-TTL balanced fill-flash for digital SLR: Speedlight emits series of nearly invisible preflashes (monitor preflashes) immediately before main flash. Preflashes reflected from objects in all areas of frame are picked up by 1,005-segment RGB sensor and are analyzed in combination with range information from matrix metering system to adjust flash output for natural balance between main subject and ambient background lighting. If type G or D lens is used, distance information is included when calculating flash output. Precision of calculation can be increased for non-CPU lenses by providing lens data (focal length and maximum aperture; see pg. 210). Not available when spot metering is used.

Standard i-TTL flash for digital SLR: Flash output adjusted to bring lighting in frame to standard level; brightness of background is not taken into account. Recommended for shots in which main subject is emphasized at expense of background details, or when exposure compensation is used. Standard i-TTL flash for digital SLR is activated automatically when spot metering is selected.

ISO Sensitivity

i-TTL flash control can be used at ISO sensitivities between 200 and 6400. At values over 6400 or under 200, the desired results may not be achieved at some ranges or aperture settings.

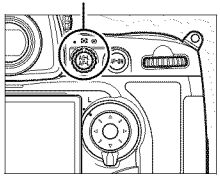
Using the Built-in Flash

Follow these steps when using the built-in flash.

1 Choose a metering method (pg. 112).

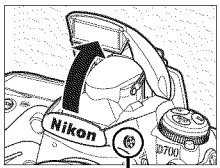
Select matrix or center-weighted metering to activate i-TTL balanced fill-flash for digital SLR. Standard i-TTL flash for digital SLR is activated automatically when spot metering is selected.

Metering selector



2 Press the flash pop-up button.

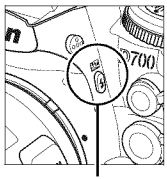
The built-in flash will pop up and begin charging. When the flash is fully charged, the flash-ready indicator (ϟ) will light.



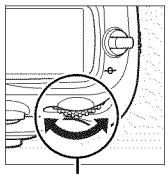
Flash pop-up button

3 Choose a flash mode.

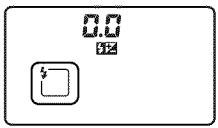
Press the ϟ button and rotate the main command dial until the desired flash mode icon is displayed in the control panel (pg. 188).



ϟ button



Main command dial



Control panel

4 Check exposure (shutter speed and aperture).

Press the shutter-release button halfway and check shutter speed and aperture. The settings available when the built-in flash is raised are listed below.

Mode	Shutter speed	Aperture	See page
P	Set automatically by camera (1/250 s–1/60 s) [1, 2]	Set automatically by camera	116
S	Value selected by user (1/250 s–30 s) [2]		118
A	Set automatically by camera (1/250 s–1/60 s) [1, 2]	Value selected by user [3]	119
M	Value selected by user (1/250 s–30 s) [2]		121

1 Shutter speed may be set as slow as 30 s in slow sync, slow rear-curtain sync, and slow sync with red-eye reduction flash modes.

2 The built-in flash supports speeds of up to 1/320 s when **1/320 s (Auto FP)** is selected for Custom Setting e1 (**Flash sync speed**, pp. 305–306). Optional SB-900, SB-800 and SB-600 flash units support speeds of up to 1/8,000 s at settings of **1/320 s (Auto FP)** or **1/250 s (Auto FP)**.

3 Flash range varies with aperture and ISO sensitivity. Consult table of flash ranges (pg. 427) when setting aperture in A and M modes.

At default settings, the effects of the flash can be previewed by pressing the depth-of-field preview button to emit a modeling preflash (pg. 315).

5 Take the picture.

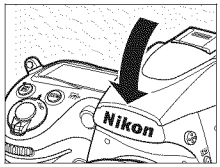
Compose the photograph, focus, and shoot. If the flash-ready indicator (⚡) blinks for about three seconds after the photograph is taken, the flash has fired at full output and the photograph may be underexposed. Check the results in the monitor. If the photograph is underexposed, adjust settings and try again.

See Also

See page 306 for information on **1/320 s (Auto FP)**.

Lowering the Built-in Flash

To save power when the flash is not in use, press it gently downward until the latch clicks into place.



The Built-in Flash

Use with lenses with focal lengths of 24–300 mm in FX format (pg. 374). Remove lens hoods to prevent shadows. The flash has a minimum range of 60 cm (2 ft.) and can not be used in the macro range of macro zoom lenses.

If the flash fires in continuous release mode (pg. 86), only one picture will be taken each time the shutter-release button is pressed.

The shutter release may be briefly disabled to protect the flash after it has been used for several consecutive shots. The flash can be used again after a short pause.

See Also

See page 192 for information on locking flash value (FV) for a metered subject before recomposing a photograph.

For information on choosing a flash sync speed, see Custom Setting e1 (**Flash sync speed**, pg. 305). For information on choosing the slowest shutter speed available when using the flash, see Custom Setting e2 (**Flash shutter speed**, pg. 308). For information on using the built-in flash in commander mode, see Custom Setting e3 (**Flash cntrl for built-in flash**, pg. 309).

See page 377 for information on using optional flash units. For information on the range of the built-in flash, see page 427.

Flash Modes

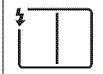
The camera supports the following flash modes:

Flash mode	Description
 Front-curtain sync	This mode is recommended for most situations. In programmed auto and aperture-priority auto modes, shutter speed will automatically be set to values between 1/250 and 1/60 s (1/8,000 to 1/60 s when an optional flash unit is used with Auto FP High-Speed Sync) (pg. 377).
 Red-eye reduction	Red-eye reduction lamp lights for approximately one second before main flash. Pupils in subject's eyes to contract, reducing "red-eye" effect sometimes caused by flash. Owing to one-second shutter-release delay, this mode is not recommended with moving subjects or in other situations in which quick shutter response is required. Avoid moving camera while red-eye reduction lamp is lit.
 Red-eye reduction with slow sync	Combines red-eye reduction with slow sync. Use for portraits taken against a backdrop of night scenery. Available only in programmed auto and aperture-priority auto exposure modes. Use of a tripod is recommended to prevent blurring caused by camera shake.
 Slow sync	Flash is combined with shutter speeds as slow as 30 s to capture both subject and background at night or under dim light. This mode is only available in programmed auto and aperture-priority auto exposure modes. Use of tripod is recommended to prevent blurring caused by camera shake.

Flash mode	Description
 Rear-curtain sync  Slow rear-curtain sync	In shutter-priority auto or manual exposure mode, flash fires just before the shutter closes. Use to create effect of a stream of light behind moving objects. In programmed auto and aperture-priority auto, slow rear-curtain sync is used to capture both subject and background. Use of tripod is recommended to prevent blurring caused by camera shake.

Flash Control Mode

The shooting information display shows the flash control mode for the built-in flash (**Built-in**) and for optional flash units attached to the camera accessory shoe (**Optional**) as follows:

	i-TTL		Auto aperture (AA) [1]		Manual	
	Built-in	Optional	Built-in	Optional	Built-in	Optional
TTL [2]			—			
Auto FP (pg. 306)	—		—		—	
Repeating flash [2]	—	—	—	—		
Commander mode [2]			—			

1 Available with SB-900 and SB-800 only.

2 Flash control mode for built-in flash can be selected using Custom Setting e3 (**Flash cntrl for built-in flash**, pg. 309).

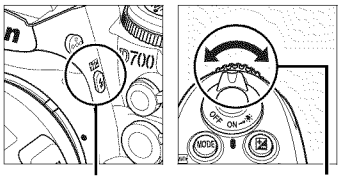
See Also

See Custom Setting e1 (**Flash sync speed**, pg. 305) for information on flash sync speeds as fast as $^{1}/_{320}$ s.

Flash Compensation

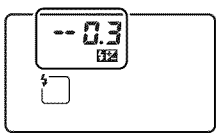
Flash compensation is used to alter flash output by from –3 EV to +1 EV in increments of 1/3 EV, changing the brightness of the main subject relative to the background. Flash output can be increased to make the main subject appear brighter, or reduced to prevent unwanted highlights or reflections.

Press the ⚡± button and rotate the sub-command dial until the desired value is displayed in the control panel. In general, choose positive values to make the main subject brighter, negative values to make it darker.



⚡ button Sub-command dial

At values other than ±0, a ⚡± icon will be displayed in the control panel and viewfinder after you release the ⚡± button. The current value for flash compensation can be confirmed by pressing the ⚡± button.



±0 EV (⚡± button pressed)

–0.3 EV

+1.0 EV

Normal flash output can be restored by setting flash compensation to ±0.0. Flash compensation is not reset when the camera is turned off.

Optional Flash Units

Flash compensation is also available with optional SB-900, SB-800, SB-600, SB-400, and SB-R200 flash units.

See Also

For information on choosing the size of the increments available when setting flash compensation, see Custom Setting b3 (**Exp comp/fine tune**, pg. 292).

FV Lock

This feature is used to lock flash output, allowing photographs to be recomposed without changing the flash level and ensuring that flash output is appropriate to the subject even when the subject is not positioned in the center of the frame. Flash output is adjusted automatically for any changes in ISO sensitivity and aperture.

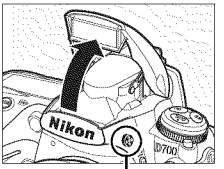
To use FV lock:

1 Assign FV lock to the Fn button.

Select **FV lock** for Custom Setting f5 (**Assign FUNC. button** > **FUNC. button press**, pg. 320).

2 Press the flash pop-up button.

The built-in flash will pop up and begin charging.



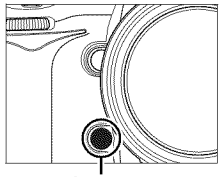
Flash pop-up button

3 Focus.

Position the subject in the center of the frame and press the shutter-release button halfway to focus.

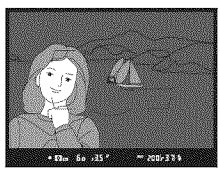
4 Lock flash level.

After confirming that the flash ready indicator (ϟ) is displayed in the viewfinder, press the **Fn** button. The flash will emit a monitor preflash to determine the appropriate flash level. Flash output will be locked at this level and FV lock icon (FL) will appear in the viewfinder.



Fn button

5 Recompose the photograph.



6 Take the photograph.

Press the shutter-release button the rest of the way down to shoot. If desired, additional pictures can be taken without releasing FV lock.

7 Release FV lock.

Press the **Fn** button to release FV lock. Confirm that the FV lock icon (FL) is no longer displayed in the viewfinder.

Using FV Lock with the Built-in Flash

FV lock is only available with the built-in flash when **TTL** (the default option) is selected for Custom Setting e3 (**Flash cntrl for built-in flash**, pg. 309).

Using FV Lock with Optional Flash Units

FV lock is also available with SB-900, SB-800, SB-600, SB-400, and SB-R200 flash units (available separately). Set the optional flash to TTL mode (the SB-900 and SB-800 can also be used in AA mode; see the flash manual for details). While FV lock is in effect, flash output will automatically be adjusted for changes in flash zoom head position.

When Commander mode is selected for Custom Setting e3 (**Flash cntrl for built-in flash**, pg. 309), FV lock can be used with remote SB-900, SB-800, SB-600, or SB-R200 flash units if (a) any of the built-in flash, flash group A, or flash group B is in TTL mode, or (b) a flash group is composed entirely of SB-900 and SB-800 flash units in TTL or AA mode.

Metering

The metering areas for FV lock when using optional speedlight are as follows:

Speedlight	Flash mode	Metered area
Stand-alone flash unit	i-TTL	5-mm circle in center of frame
	AA	Area metered by flash exposure meter
Used with other flash units (Advanced Wireless Lighting)	i-TTL	Entire frame
	AA	Area metered by flash exposure meter
	A (master flash)	

See Also

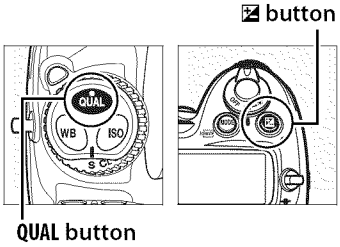
For information on using the depth-of-field preview or **AE-L/AF-L** button for FV lock, see Custom Setting f6 (**Assign preview button**, pg. 324) or Custom Setting f7 (**Assign AE-L/AF-L button**, pg. 325).

Other Shooting Options

This chapter covers restoring default settings, making multiple exposures, interval timer photography, and using GPS units and non-CPU lenses.

Two-Button Reset: Restoring Default Settings

The camera settings listed below can be restored to default values by holding the **QUAL** and ⊠ buttons down together for more than two seconds (these buttons are marked by a green dot). The control panel turns off briefly while settings are reset.



Option	Default
Focus point	Center
Exposure mode	Programmed auto
Flexible program	Off
Exposure compensation	Off
AE hold	Off [1]

Option	Default
Bracketing	Off [2]
Flash mode	Front-curtain sync
Flash compensation	Off
FV lock	Off
Multiple exposure	Off

1 Custom Setting f7 (**Assign AE-L/AF-L button**, pg. 325) is unaffected.
2 Number of shots is reset to zero. Bracketing increment is reset to 1EV (exposure/flash bracketing) or 1 (white balance bracketing).

The following shooting-menu options will also be reset. Only settings in the bank currently selected using the **Shooting menu bank** option will be reset (pg. 269). Settings in the remaining banks are unaffected.

Option	Default	Option	Default
Image quality	JPEG Normal	White balance	Auto*
Image size	Large	ISO sensitivity	200

* Fine-tuning off.

If the current Picture Control has been modified, existing settings for the Picture Control will also be restored.

See Also

See page 418 for a list of default settings.

Multiple Exposure

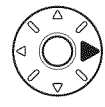
Follow the steps below to record a series of two to ten exposures in a single photograph. Multiple exposures can be recorded at any image quality setting, and produce results with colors noticeably better than photographs combined in an imaging application because they make use of RAW data from the camera image sensor.

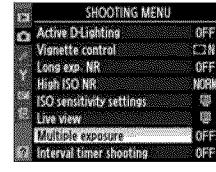
■■ *Creating a Multiple Exposure*

Note that at default settings, shooting will end and a multiple exposure will be recorded automatically if no operations are performed for 30 s.

1 Select **Multiple exposure.**

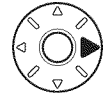
Highlight **Multiple exposure** in the shooting menu and press ▶.

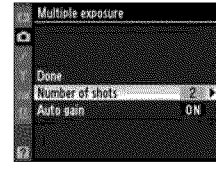




2 Select **Number of shots.**

Highlight **Number of shots** and press ▶.



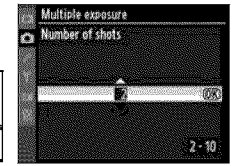


Extended Recording Times

For an interval between exposures of more than 30 s, select **On** for the **Image review** (pg. 265) option in the playback menu and extend the monitor-off delay for image review using Custom Setting c4 (**Monitor off delay**, pg. 297). The maximum interval between exposures is 30 s longer than the option selected for Custom Setting c4.

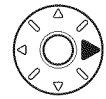
3 Select the number of shots.

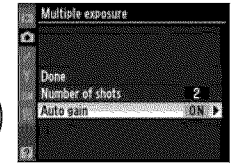
Press ▲ or ▼ to choose the number of exposures that will be combined to form a single photograph and press ⊛.



4 Select **Auto gain**.

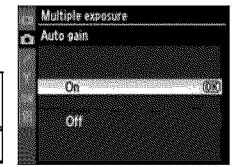
Highlight **Auto gain** and press ▶.





5 Set gain.

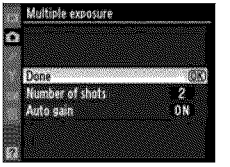
Highlight one of the following options and press ⊛.

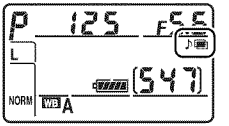


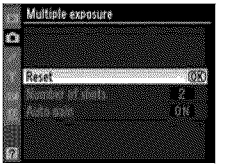
Option	Description
On (default)	Gain adjusted according to number of exposures actually recorded (gain for each exposure is set to $^1/_2$ for 2 exposures, $^1/_3$ for 3 exposures, etc.).
Off	Gain is not adjusted when recording multiple exposure. Recommended if background is dark.

6 Select **Done.**

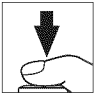
Highlight **Done** and press ⊛. A ▬ icon will be displayed in the control panel. To exit without taking a multiple exposure, select **Multiple exposure** > **Reset** in the shooting menu.





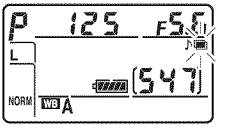


7 Frame a photograph, focus, and shoot.



In continuous high-speed and continuous low-speed release modes (pg. 84), the camera records all exposures in a single burst. In single-frame release mode, one photograph will be taken each time the shutter-release button is pressed; continue shooting until all exposures have been recorded (for information on interrupting a multiple exposure before all photographs are recorded, see page 202).

The ▬ icon will blink until shooting ends. When shooting ends, multiple exposure mode will end and the ▬ icon will no longer be displayed. Repeat steps 1–7 to take additional multiple exposures.



Multiple Exposure

Do not remove or replace the memory card while recording a multiple exposure.

Live view (pg. 89) can not be used to record multiple exposures.

The information listed in the playback photo information display (including date of recording and camera orientation) is for the first shot in the multiple exposure.

If no operations are performed for 30 s after the monitor has turned off during playback or menu operations, shooting will end and a multiple exposure will be created from the exposures that have been recorded to that point.

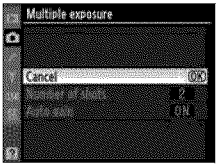
Interval Timer Photography

If interval timer photography is activated before the first exposure is taken, the camera will record exposures at the selected interval until the number of exposures specified in the multiple exposure menu have been taken (the number of shots listed in the interval timer shooting menu is ignored). These exposures will then be recorded as a single photograph and multiple exposure mode and interval timer shooting will end. Cancelling multiple exposure cancels interval timer shooting.

Other Settings

While multiple exposure mode is in effect, memory cards can not be formatted and the following can not be changed: bracketing and shooting menu options other than **White balance** and **Interval timer shooting** (note that **Interval timer shooting** can only be adjusted before the first exposure is taken). The **Lock mirror up for cleaning** and **Dust off ref photo** options in the setup menu can not used.

■■ *Interrupting Multiple Exposures*



Selecting **Multiple exposure** in the shooting menu while a multiple exposure is being recorded displays the options shown at right. To interrupt a multiple exposure before the specified number of exposures have been taken, highlight **Cancel** and press ⊛. If shooting ends before the specified number of exposures have been taken, a multiple exposure will be created from the exposures that have been recorded to that point. If **Auto gain** is on, gain will be adjusted to reflect the number of exposures actually recorded. Note that shooting will end automatically if:

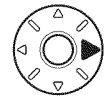
- A two-button reset is performed (pg. 196)
- The camera is turned off
- The battery is exhausted
- Pictures are deleted

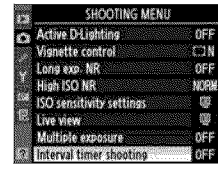
Interval Timer Photography

The camera is equipped to take photographs automatically at preset intervals.

1 Select **Interval timer shooting.**

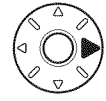
Highlight **Interval timer shooting** in the shooting menu (pg. 268) and press ▶.





2 Select a starting trigger.

Highlight one of the following **Choose start time** options and press ▶.



- **Now**: Shooting begins about 3 s after settings are completed (proceed to Step 4).
- **Start time**: Choose a start time (see Step 3).

☑ Before Shooting

Choose single-frame (**S**), continuous low speed (**CL**), or continuous high speed (**CH**) release mode when using the interval timer. Before beginning interval timer photography, take a test shot at current settings and view the results in the monitor. Remember that the camera will focus before each shot—no shots will be taken if the camera is unable to focus in single-servo AF.

Before choosing a starting time, select **World time** in the setup menu and make sure that the camera clock is set to the correct time and date (pg. 38).

Use of a tripod is recommended. Mount the camera on a tripod before shooting begins.

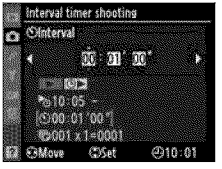
To ensure that shooting is not interrupted, be sure the battery is fully charged.

3 Choose a start time.

Press ◀ or ▶ to highlight hours or minutes; press ▲ or ▼ to change. The starting time is not displayed if **Now** is selected for **Choose start time**.

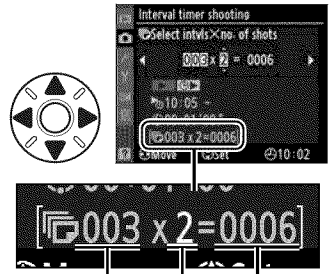
4 Choose an interval.

Press ◀ or ▶ to highlight hours, minutes, or seconds; press ▲ or ▼ to change. Note that the camera will not be able to take photographs at the specified interval if it is shorter than the shutter speed or the time required to record images.



5 Choose the number of intervals and number of shots per interval.

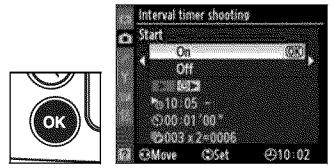
Press ◀ or ▶ to highlight number of intervals or number of shots; press ▲ or ▼ to change. The total number of shots that will be taken is displayed to the right.



Number of intervals | Number of shots/ interval | Total number of shots

6 Start shooting.

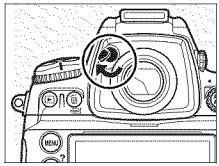
Highlight **Start** > **On** and press ⓞⓚ (to return to the shooting menu without starting the interval timer, highlight **Start** > **Off** and press ⓞⓚ). The first series of shots will be taken at the specified starting time. Shooting will continue at the selected interval until all shots have been taken.



A message will be displayed in the monitor one minute before each series of shots is taken. If shooting can not proceed at current settings (for example, if a shutter speed of bulb is currently selected in manual exposure mode or the start time is in less than a minute), a warning will be displayed in the monitor.

Close the Viewfinder Eyepiece Shutter

Close the viewfinder eyepiece shutter after focusing. This prevents light entering via the viewfinder from interfering with exposure when shooting with your eye away from the viewfinder.



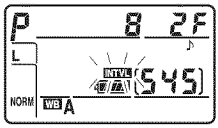
Out of Memory

If the memory card is full, the interval timer will remain active but no pictures will be taken. Resume shooting (pg. 207) after deleting some pictures or turning the camera off and inserting another memory card.

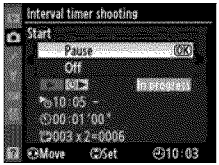
Bracketing

Adjust bracketing settings before starting interval timer photography. If exposure and/or flash bracketing is active while interval timer photography is in effect, the camera will take the number of shots in the bracketing program at each interval, regardless of the number of shots specified in the interval timer menu. If white balance bracketing is active while interval timer photography is in effect, the camera will take one shot at each interval and process it to create the number of copies specified in the bracketing program.

During Shooting



During interval timer photography, the INTVL icon in the control panel will blink. Immediately before the next shooting interval begins, the shutter speed display will show the number of intervals remaining, and the aperture display will show the number of shots remaining in the current interval. At other times, the number of intervals remaining and the number of shots in each interval can be viewed by pressing the shutter-release button halfway (once the button is released, the shutter speed and aperture will be displayed until the exposure meters turn off).



To view current interval timer settings, select **Interval timer shooting** between shots. While interval timer photography is in progress, the interval timer menu will show the starting time, the current time, and the number of intervals and shots remaining. None of these items can be changed while interval timer photography is in progress.

■■ *Pausing Interval Timer Photography*

Interval time photography can be paused by:

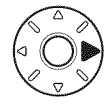
- Pressing the ⓞⓚ button between intervals
- Highlighting **Start** > **Pause** in the interval timer menu and pressing ⓞⓚ
- Turning the camera off and then on again (if desired, the memory card can be replaced while the camera is off)
- Selecting live view (Ⓛⓥ), self-timer (⏲), or mirror-up (**MUP**) release modes

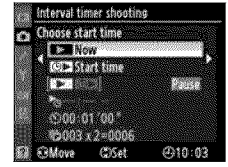
To resume shooting:

---

1 Choose a new starting trigger.

Choose a new starting trigger and start time as described on page 203.





---

2 Resume shooting.

Highlight **Start** > **Restart** and press ⓞⓚ. Note that if interval timer photography was paused during shooting, any shots remaining in the current interval will be canceled.

■■ *Interrupting Interval Timer Photography*

Interval timer shooting will end automatically if the battery is exhausted. Interval timer photography can also be ended by:

- Selecting **Start** > **Off** in the interval timer menu
- Performing a two button reset (pg. 196)
- Selecting **Reset shooting menu** in the shooting menu (pg. 271)
- Changing bracketing settings (pg. 130)

Normal shooting will resume when interval timer photography ends.

■■ *No Photograph*

Photographs will not be taken if the previous photograph has yet to be taken, the memory buffer or memory card is full, or the camera is unable to focus in single-servo AF (note that the camera focuses again before each shot).

Release Mode

Regardless of the release mode selected, the camera will take the specified number of shots at each interval. In **CH** (continuous high speed) mode, photographs will be taken at a rate of up to 5 shots per second. In **S** (single frame) and **CL** (continuous low-speed) modes, photographs will be taken at the rate chosen for Custom Setting d4 (**CL mode shooting speed**, pg. 299).

Using the Monitor

Pictures can be played back and shooting and menu settings can be adjusted freely while interval timer photography is in progress. The monitor will turn off automatically about four seconds before each interval.

Shooting Menu Banks

Changes to interval timer settings apply to all shooting menu banks (pg. 269). If shooting menu settings are reset using the **Reset shooting menu** item in the shooting menu (pg. 271), interval timer settings will be reset as follows:

- Choose start time: Now
- Interval: 00:01':00"
- Number of intervals: 1
- Number of shots: 1
- Start shooting: Off

Non-CPU Lenses

By specifying lens data (lens focal length and maximum aperture), the user can gain access to a variety of CPU lens functions when using a non-CPU lens. If the focal length of the lens is known:

- Automatic power zoom can be used with SB-900, SB-800, and SB-600 Speedlights (available separately)
- Lens focal length is listed (with an asterisk) in the playback photo info display

When the maximum aperture of the lens is known:

- The aperture value is displayed in the control panel and viewfinder
- Flash level is adjusted for changes in aperture
- Aperture is listed (with an asterisk) in the playback photo info display

Specifying both the focal length and maximum aperture of the lens:

- Enables color matrix metering (note that it may be necessary to use center-weighted or spot metering to achieve accurate results with some lenses, including Reflex-Nikkor lenses)
- Improves the precision of center-weighted and spot metering and i-TTL balanced fill-flash for digital SLR

Focal Length Not Listed

If the correct focal length is not listed, choose the closest value greater than the actual focal length of the lens.

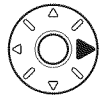
Zoom Lenses

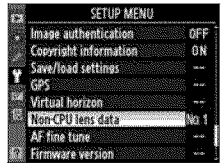
Lens data are not adjusted when non-CPU lenses are zoomed in or out. After changing the zoom position, select new values for lens focal length and maximum aperture.

■■ *The Non-CPU Lens Data Menu*

1 Select **Non-CPU lens data.**

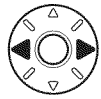
Highlight **Non-CPU lens data** in the setup menu (pg. 331) and press ▶.

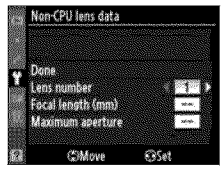




2 Select a lens number.

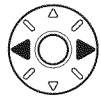
Highlight **Lens number** and press ◀ or ▶ to choose a lens number between 1 and 9.

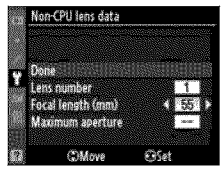




3 Select a focal length.

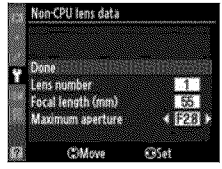
Highlight **Focal length (mm)** and press ◀ or ▶ to choose a focal length between 6 and 4,000 mm.



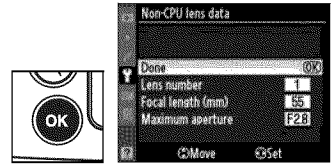


4 Select a maximum aperture.

Highlight **Maximum aperture** and press ◀ or ▶ to choose a maximum aperture between f/1.2 and f/22. The maximum aperture for teleconverters is the combined maximum aperture of the teleconverter and lens.



5 Select **Done.**



Highlight **Done** and press ⊛. The specified focal length and aperture will be stored under the chosen lens number. This combination of focal length and aperture can be recalled at any time by selecting the lens number using camera controls as described below.

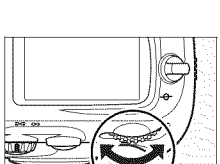
■ *Choosing a Lens Number Using Camera Controls*

1 Assign non-CPU lens number selection to a camera control.

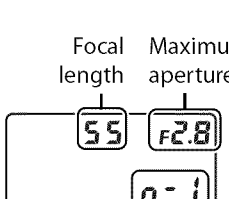
Select **Choose non-CPU lens number** as the "+command dials" option for a camera control in the Custom Settings menu. Non-CPU lens number selection can be assigned to the **Fn** button (Custom Setting f5, **Assign FUNC. button**, pg. 320), the depth-of-field preview button (Custom Setting f6, **Assign preview button**, pg. 324), or the **AE-L/AF-L** button (Custom Setting f7, **Assign AE-L/AF-L button**, pg. 325).

2 Use the selected control to choose a lens number.

Press the selected button and rotate the main command dial until the desired lens number is displayed in the control panel.



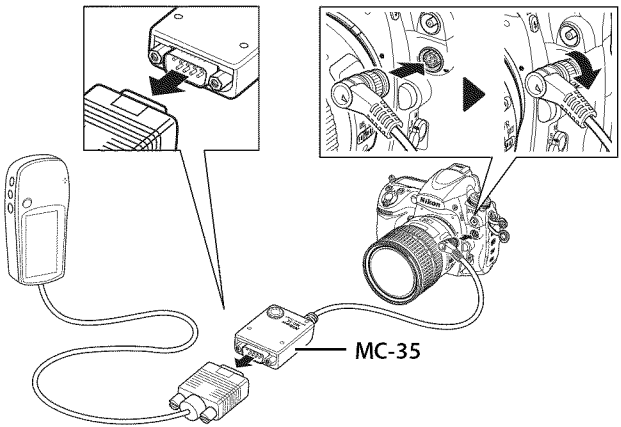
Main command dial



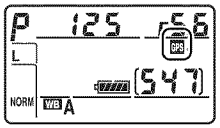
Lens number

Using a GPS Unit

Optional Garmin GPS units that conform to version 2.01 or 3.01 of the National Marine Electronics Association NMEA0183 data format can be connected to the camera's ten-pin remote terminal using an MC-35 GPS adapter cord (available separately; pg. 389), allowing information on the camera's current position to be recorded when photographs are taken. Operation has been confirmed with Garmin eTrex and Garmin geko series devices equipped with a PC interface cable connector. These devices connect to the MC-35 using a cable with a D-sub 9-pin connector provided by the manufacturer of the GPS device. See the MC-35 instruction manual for details. Before turning the camera on, set the GPS device to NMEA mode (4800 baud).

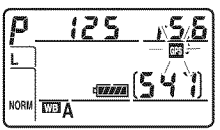


When the camera establishes communication with a GPS device, a GPS icon will be displayed in the control panel. Photo information for pictures taken while the GPS icon is displayed will include an additional page (pg. 229) recording the current latitude, longitude, altitude, Coordinated Universal Time (UTC), and heading. If no data are received from the GPS unit for two seconds, the GPS icon will clear from the display and the camera will stop recording GPS information.



GPS Data

GPS data are only recorded when the GPS icon is displayed. Confirm that the GPS icon is displayed in the control panel before shooting. A flashing GPS icon indicates that the GPS device is searching for a signal; pictures taken while the GPS icon is flashing will not include GPS data.



■■ *Setup Menu Options*

The **GPS** item in the setup menu contains the options listed below.

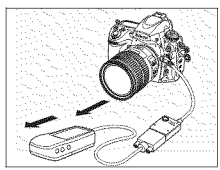
- **Auto meter off**: Choose whether or not the exposure meters will turn off automatically when a GPS unit is attached.

Option	Description
Enable (default)	Exposure meters will turn off automatically if no operations are performed for the period specified in Custom Setting c2 (**Auto meter-off delay**). This reduces the drain on the battery but may prevent GPS data from being recorded if the shutter-release button is pressed all the way down without pausing.
Disable	Exposure meters will not turn off while a GPS unit is connected; GPS data will always be recorded.

- **Position**: This item is only available if a GPS device is connected, when it displays the current latitude, longitude, altitude, Coordinated Universal Time (UTC), and heading as reported by the GPS device.

Heading

The heading is only recorded if the GPS device is equipped with a digital compass. Keep the GPS device pointing in the same direction as the lens and at least 20cm (8in.) from the camera.



Coordinated Universal Time (UTC)

UTC data is provided by the GPS device and is independent of the camera clock.

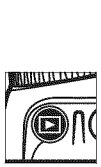
More About Playback

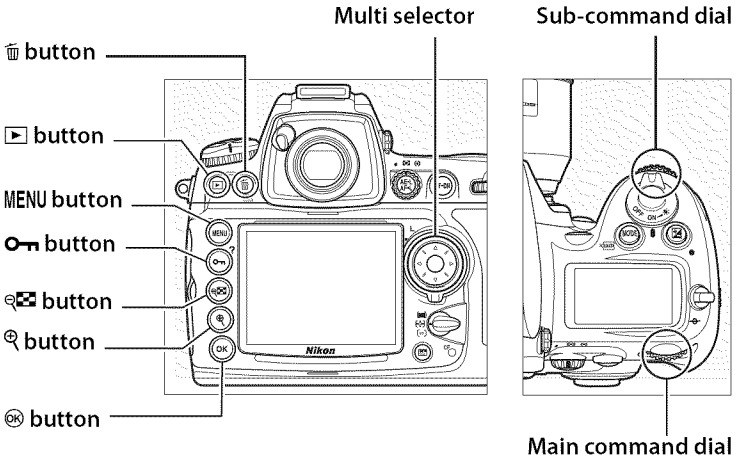
– *Playback Options*

This chapter describes how to play back photographs and details the operations that can be performed during playback.

Full-Frame Playback

To play photographs back, press the ▶ button. The most recent photograph will be displayed in the monitor.





Rotate Tall

To display "tall" (portrait-orientation) photographs in tall orientation, select **On** for the **Rotate tall** option in the playback menu (pg. 265). Note that because the camera itself is already in the appropriate orientation during shooting, images are not rotated automatically during image review (pg. 219).

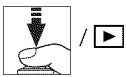
To	Use	Description
View additional photographs		Press ▶ to view photographs in order recorded, ◀ to view photographs in reverse order.
View photo information		Press ▲ or ▼ to view information about current photograph (pg. 220).
View thumbnails		See page 232 for more information on the thumbnail display.
Zoom in on photograph		See page 234 for more information on playback zoom.
Delete images		Confirmation dialog will be displayed. Press 🗑 again to delete photo.
Change protect status		To protect image, or to remove protection from protected image, press button (pg. 235).
Return to shooting mode		Monitor will turn off. Photographs can be taken immediately.
Display menus	MENU	See page 259 for more information.

Image Review

When **On** is selected for **Image review** in the playback menu (pg. 265), photographs are automatically displayed in the monitor for about 4 s (the default setting) after shooting. In single-frame, self-timer, and mirror-up release modes, photographs are displayed one at a time as they are taken. In continuous release mode, display begins when shooting ends, with the first photograph in the current series displayed.

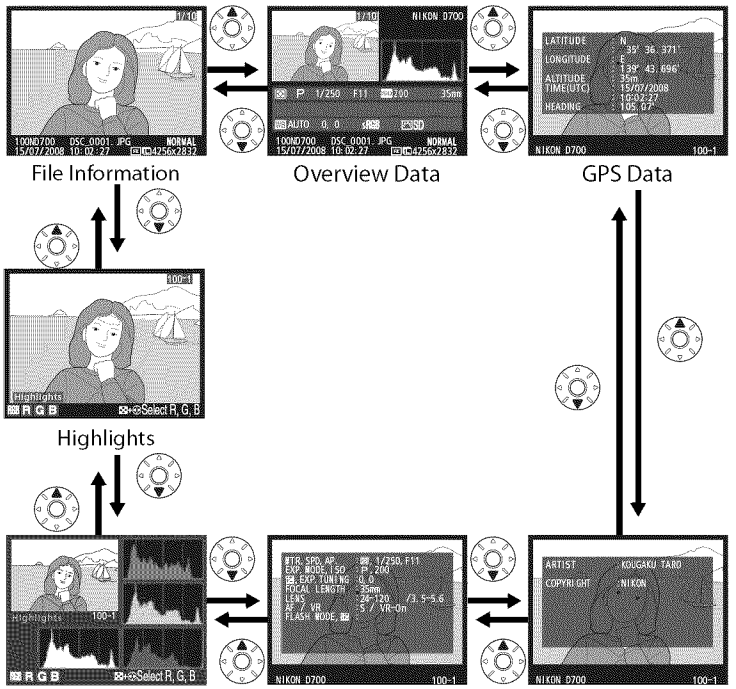
See Also

For information on choosing how long the monitor will remain on when no operations are performed, see Custom Setting c4 (**Monitor off delay**, pg. 297).

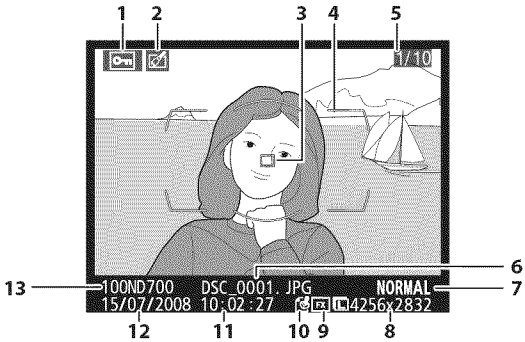
The roles of the multi selector buttons can be reversed, so that the ▲ and ▼ buttons display other images and the ◀ and ▶ buttons control photo information. See Custom Setting f4 (**Photo info/playback**, pg. 320) for details.

Photo Information

Photo information is superimposed on images displayed in full-frame playback. There are up to 9 pages of information for each photo. Press ▲ or ▼ to cycle through photo information as shown below. Note that shooting data, RGB histograms, and highlights are only displayed if corresponding option is selected for **Display mode** (pg. 264; shooting data page 4 is only displayed if copyright information was recorded with the photograph as described on page 343). GPS data are only displayed if a GPS device was used when the photo was taken.



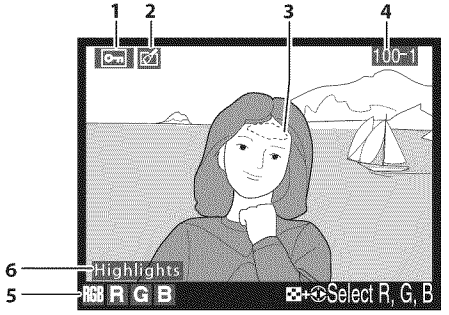
File Information



1 Protect status 235
2 Retouch indicator 349
3 Focus point [1] 264
4 AF area brackets 45, 94
5 Frame number/ total number of frames
6 File name 274
7 Image quality 64
8 Image size 69
9 Image area [2] 58
10 Image authentication 342
11 Time of recording 38
12 Date of recording 38
13 Folder name 272

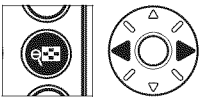
1 Display only if **Focus point** is selected for **Display mode** (pg. 264).
2 FX is displayed if **FX format (36 × 24)** was selected for the **Image area** option in the shooting menu. If **DX format (24 × 16)** was selected, DX will be displayed in yellow.

■■ Highlights [1]



1 Protect status 235
2 Retouch indicator 349
3 Image highlights [2] 264
4 Folder number–frame number [3] 272
5 Current channel [2]
6 Highlight display indicator 264

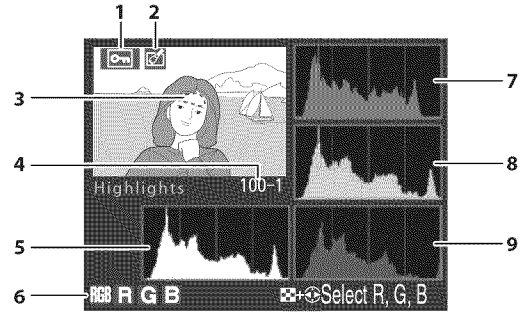
1 Displayed only if **Highlights** is selected for **Display mode** (pg. 264).
2 Blinking areas indicate highlights for current channel. Press ◀ or ▶ while pressing ⊡ button to cycle through channels as follows:



RGB (all channels) ⟷ R (red) ⟷ G (green) ⟷ B (blue)

3 Displayed in yellow if picture was taken with **DX format (24 × 16)** selected for the **Image area** option in the shooting menu.

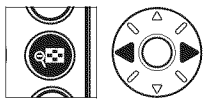
■■ RGB Histogram [1]

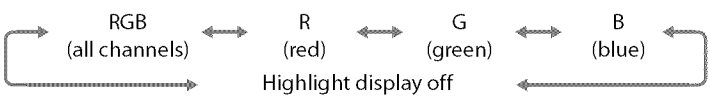


1 Protect status 235
2 Retouch indicator 349
3 Image highlights [2]
4 Folder number–frame number [3] 272
5 Histogram (RGB channel) [4]. In all histograms, horizontal axis gives pixel brightness, vertical axis number of pixels.
6 Current channel [2]
7 Histogram (red channel) [4]
8 Histogram (green channel) [4]
9 Histogram (blue channel) [4]

1 Displayed only if **RGB histogram** is selected for **Display mode** (pg. 264).

2 Blinking areas indicate highlights for current channel. Press ◀ or ▶ while pressing ⊖ button to cycle through channels as follows:

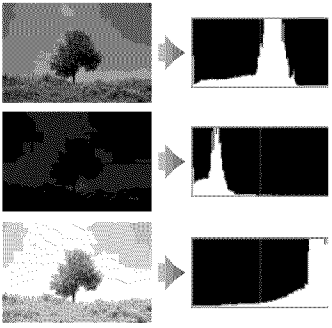




3 Displayed in yellow if picture was taken with **DX format (24 × 16)** selected for the **Image area** option in the shooting menu.

4 Some sample histograms are shown below:

- If the image contains objects with a wide range of brightnesses, the distribution of tones will be relatively even.
- If the image is dark, tone distribution will be shifted to the left.
- If the image is bright, tone distribution will be shifted to the right.

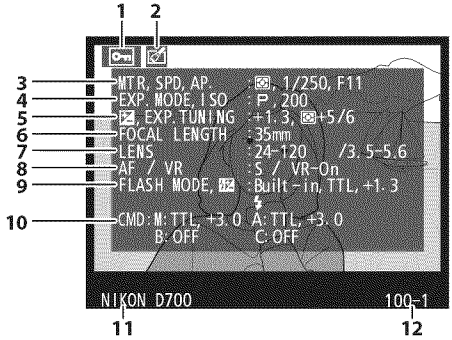


Increasing exposure compensation shifts the distribution of tones to the right, while decreasing exposure compensation shifts the distribution to the left. Histograms can provide a rough idea of overall exposure when bright ambient lighting makes it difficult to see photographs in the monitor.

Histograms

Camera histograms are intended as a guide only and may differ from those displayed in imaging applications.

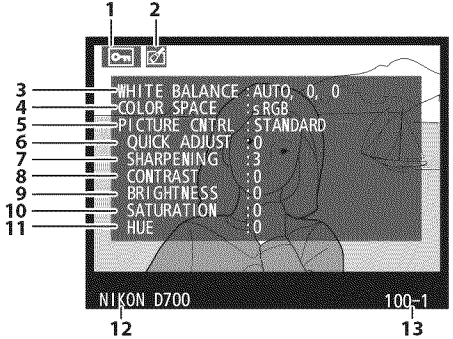
■■ *Shooting Data Page 1*[1]



1 Protect status 235
2 Retouch indicator 349
3 Metering method 112
Shutter speed 118, 121
Aperture 119, 121
4 Exposure mode 114
ISO sensitivity[2] 106
5 Exposure compensation 128
Optimal exposure tuning[3] 294
6 Focal length 376
7 Lens data 210
8 Focus mode 72
Lens VR
(vibration reduction)[4] 37
9 Flash mode 185
Flash compensation 190
10 Commander mode/group name/flash control mode/flash compensation 311
11 Camera name
12 Folder number–frame number[5] 272

1 Displayed only if **Data** is selected for **Display mode** (pg. 264).
2 Displayed in red if photo was taken with ISO sensitivity auto control on.
3 Displayed if Custom Setting b6 (**Fine tune optimal exposure**, pg. 294) has been set to a value other than zero for any metering method.
4 Displayed only if VR lens is attached.
5 Displayed in yellow if picture was taken with **DX format (24 × 16)** selected for the **Image area** option in the shooting menu.

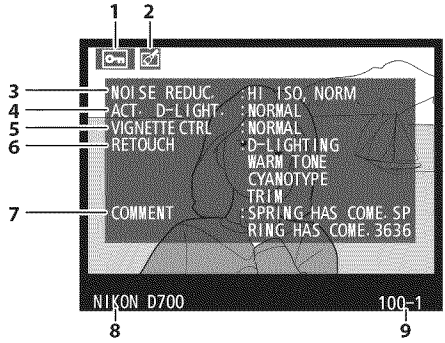
■■ *Shooting Data Page 2* [1]



1 Protect status 235
2 Retouch indicator 349
3 White balance 139
Color temperature 147
White balance fine-tuning 143
Preset manual 148
4 Color space 181
5 Picture Control 162
6 Quick adjust [2] 165
Original Picture Control [3] 162
7 Sharpening 165
8 Contrast 165
9 Brightness 165
10 Saturation [4] 165
Filter effects [5] 165
11 Hue [4] 165
Toning [5] 165
12 Camera name
13 Folder number–
frame number [6] 272

1 Displayed only if **Data** is selected for **Display mode** (pg. 264).
2 **Standard** and **Vivid** Picture Controls only.
3 **Neutral**, **Monochrome**, and custom Picture Controls.
4 Not displayed with monochrome Picture Controls.
5 Monochrome Picture Controls only.
6 Displayed in yellow if picture was taken with **DX format (24 × 16)** selected for the **Image area** option in the shooting menu.

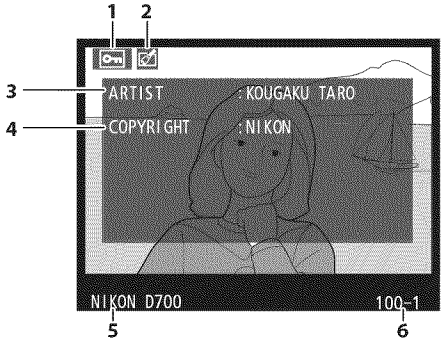
■■ *Shooting Data Page 3* [1]



1 Protect status 235
2 Retouch indicator 349
3 High ISO noise reduction 278
Long exposure noise reduction 277
4 Active D-Lighting 179
5 Vignette control 276
6 Retouch history 349
7 Image comment 335
8 Camera name
9 Folder number–frame number [2] 272

1 Displayed only if **Data** is selected for **Display mode** (pg. 264).
2 Displayed in yellow if picture was taken with **DX format (24 × 16)** selected for the **Image area** option in the shooting menu.

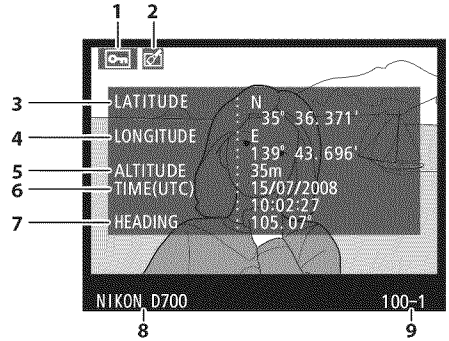
■■ Shooting Data Page 4[1]



1 Protect status 235
2 Retouch indicator 349
3 Name of photographer 343
4 Copyright holder 343
5 Camera name
6 Folder number–frame number[2] 272

1 Displayed only if **Data** is selected for **Display mode** (pg. 264) and copyright information was appended to photograph (pg. 343).
2 Displayed in yellow if picture was taken with **DX format (24 × 16)** selected for the **Image area** option in the shooting menu.

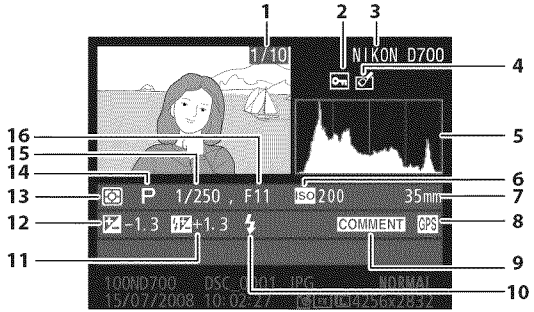
■■ GPS Data[1]



1 Protect status 235
2 Retouch indicator 349
3 Latitude
4 Longitude
5 Altitude
6 Coordinated Universal Time (UTC)
7 Heading[2]
8 Camera name
9 Folder number–frame number[3] 272

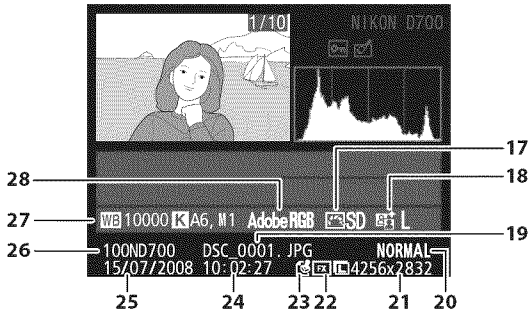
1 Displayed only if GPS device was used when photo was taken (pg. 213).
2 Displayed only if GPS device is equipped with electronic compass.
3 Displayed in yellow if picture was taken with **DX format (24 × 16)** selected for the **Image area** option in the shooting menu.

Overview Data



1 Frame number/ total number of frames
2 Protect status 235
3 Camera name
4 Retouch indicator 349
5 Histogram showing the distribution of tones in the image (pg. 224). Horizontal axis corresponds to pixel brightness, vertical axis shows number of pixels of each brightness in image.
6 ISO sensitivity [1] 106
7 Focal length 376
8 GPS data indicator 213
9 Image comment indicator 335
10 Flash mode 185
11 Flash compensation 190
12 Exposure compensation 128
13 Metering method 112
14 Exposure mode 114
15 Shutter speed 118, 121
16 Aperture 119, 121

1 Displayed in red if photo was taken with ISO sensitivity auto control on.

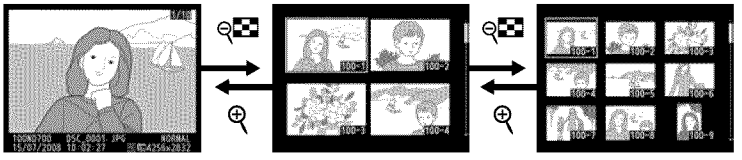


17 Picture Control 162
18 Active D-Lighting 180
19 File name 274
20 Image quality 64
21 Image size 69
22 Image area [2] 58
23 Image authentication indicator 342
24 Time of recording 38
25 Date of recording 38
26 Folder name 272
27 White balance 139
Color temperature 147
White balance fine-tuning 143
Preset manual 148
28 Color space 181

2 FX is displayed if **FX format (36 × 24)** was selected for the **Image area** option in the shooting menu. If **DX format (24 × 16)** was selected, DX will be displayed in yellow.

Viewing Multiple Images: Thumbnail Playback

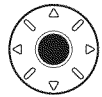
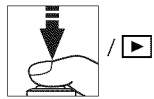
To display images in "contact sheets" of four or nine images, press the button.



Full-frame playback

Thumbnail playback

The following operations can be performed while thumbnails are displayed:

To	Use	Description
Display more images		Press button to "zoom out" from one to four images per page. Press again to display nine images per page.
Display fewer images		Press button to "zoom in" from nine to four images per page. Press again to display highlighted image full frame.
Toggle full frame playback		Press center of multi selector to switch back and forth between full frame and thumbnail playback.
Highlight images		Use multi selector to highlight images for full-frame playback, playback zoom (pg. 234), or deletion (pg. 236).
Delete highlighted photo		See page 236 for more information.
Change protect status of highlighted photo		See page 235 for more information.
Return to shooting mode		Monitor will turn off. Photographs can be taken immediately.
Display menus	MENU	See page 259 for more information.

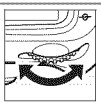
See Also

For information on choosing the role played by the center of the multi selector, see Custom Setting f2 (**Multi selector center button**, pg. 318).

Taking a Closer Look: Playback Zoom

Press the 🔍 button to zoom in on the image displayed in full-frame playback or on the image currently highlighted in thumbnail playback.

The following operations can be performed while zoom is in effect:

To	Use	Description
Zoom in or out	🔍/🔍	Press 🔍 to zoom in to maximum of approximately 27 × (large images), 20 × (medium images) or 13 × (small images). Press 🔍 to zoom out. While photo is zoomed in, use multi selector to view areas of image not visible in monitor. Keep multi selector pressed to scroll rapidly to other areas of frame. Navigation window is displayed when zoom ratio is altered; area currently visible in monitor is indicated by yellow border. 
View other areas of image		
View other images		Rotate main command dial to view same location in other images at current zoom ratio.
Change protect status	🔑	See page 235 for more information.
Return to shooting mode	 / ▶	Monitor will turn off. Photographs can be taken immediately.
Display menus	MENU	See page 259 for more information.

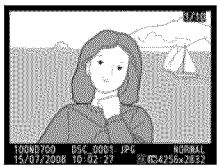
Protecting Photographs from Deletion

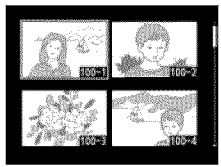
In full-frame, zoom, and thumbnail playback, the button can be used to protect photographs from accidental deletion. Protected files can not be deleted using the button or the **Delete** option in the playback menu. Note that protected images *will* be deleted when the memory card is formatted (pp. 43, 332).

To protect a photograph:

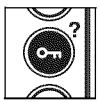
1 Select an image.

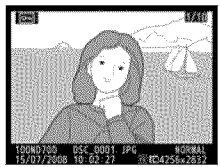
Display the image in full-frame playback or playback zoom or highlight it in the thumbnail list.





2 Press the button.





The photograph will be marked with a icon. To remove protection from the photograph so that it can be deleted, display the photograph or highlight it in the thumbnail list and then press the button.

Removing Protection from All Images

To remove protection from all images in the folder or folders currently selected in the **Playback folder** menu, press the and buttons together for about two seconds.

Deleting Individual Photographs

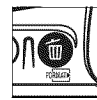
To delete the photograph displayed in full-frame playback or the photograph highlighted in the thumbnail list, press the 🗑 button. Once deleted, photographs can not be recovered.

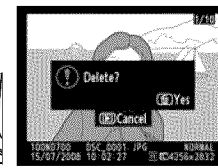
1 Select an image.

Display the image or highlight it in the thumbnail list.

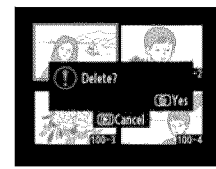
2 Press the 🗑 button.

A confirmation dialog will be displayed.





Full-Frame Playback



Thumbnail Playback

To delete the photograph, press the 🗑 button again. To exit without deleting the photograph, press the ▶ button.

See Also

To delete multiple images, use the **Delete** option in the playback menu (pg. 262). The **After delete** option in the playback menu determines whether the next image or the previous image is displayed after an image is deleted (pg. 265).

Connections

– *Connecting to External Devices*

This chapter describes how to copy photographs to a computer, how to print pictures, and how to view them on a television set.

Connecting to a Computer

This section describes how to use the supplied UC-E4 USB cable to connect the camera to a computer. Before connecting the camera, install Nikon Transfer and ViewNX from the supplied Software Suite CD (see the *Install Guide* for more information). Nikon Transfer starts automatically when the camera is connected and is used to copy photographs to the computer, where they can be viewed using ViewNX (Nikon Transfer can also be used to back up photographs and embed information in photographs as they are transferred, while ViewNX can be used to sort photographs, convert images to different file formats, and perform simple editing on NEF (RAW) photographs). To ensure that data transfer is not interrupted, be sure the camera battery is fully charged. If in doubt, charge the battery before use or use an EH-5a or EH-5 AC adapter (available separately).

■■ *Supported Operating Systems*

The camera can be connected to computers running the following operating systems:

- **Windows**: Windows Vista Service Pack 1 (32-bit Home Basic/Home Premium/Business/Enterprise/Ultimate) and Windows XP Service Pack 2 (Home Edition/Professional)
- **Macintosh**: Mac OS X (version 10.3.9, 10.4.11, or 10.5.2)

See the websites listed on page xxiv for the latest information on supported operating systems.

Connecting Cables

Be sure the camera is off when connecting or disconnecting interface cables. Do not use force or attempt to insert the connectors at an angle.

Camera Control Pro 2

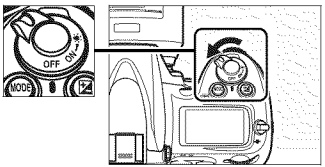
Camera Control Pro 2 (available separately; pg. 388) can be used to control the camera from a computer. When Camera Control Pro 2 is running, "PC" will be displayed in the control panel.

Direct USB Connection

Connect the camera using the supplied UC-E4 USB cable.

1 Turn the camera off.

Power switch

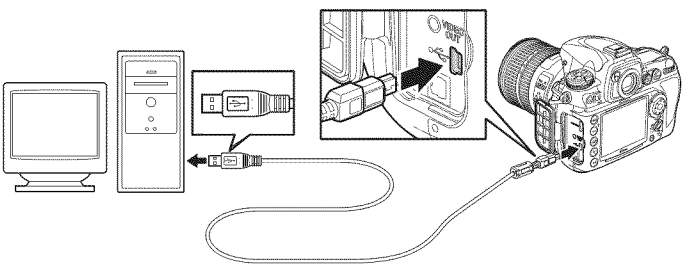


2 Turn the computer on.

Turn the computer on and wait for it to start up.

3 Connect the USB cable.

Connect the USB cable as shown. Do not use force or attempt to insert the connectors at an angle.

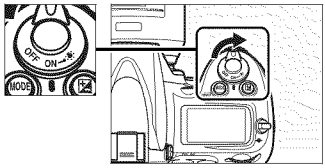


USB Hubs

Connect the camera directly to the computer; do not connect the cable via a USB hub or keyboard.

4 Turn the camera on.

Power switch



5 Transfer photographs.

Start Transfer button

Nikon Transfer will start automatically; click the **Start Transfer** button to transfer photographs (for more information on using Nikon Transfer, select **Nikon Transfer help** from the Nikon Transfer **Help** menu).

6 Turn the camera off.

Turn the camera off and disconnect the USB cable when transfer is complete.

During Transfer

Do not turn the camera off or disconnect the USB cable while transfer is in progress.

Wireless and Ethernet Networks

If the optional WT-4 wireless transmitter (pg. 385) is attached, photographs can be transferred or printed over wireless or Ethernet networks and the camera can also be controlled from network computers running Camera Control Pro 2 (available separately). The WT-4 can be used in any of the following modes:

Mode	Function
Transfer mode	Upload new or existing photographs to computer or ftp server.
Thumbnail select mode	Preview photographs on computer monitor before upload.
PC mode	Control camera from computer using Camera Control Pro 2 (available separately).
Print mode	Print JPEG photographs on printer connected to network computer.

For more information, see the WT-4 user's manual. Be sure to update to the latest versions of the WT-4 firmware and supplied software.

Transfer Mode

When **Wireless transmitter** > **Mode** > **Transfer mode** is selected in the camera setup menu, the OK button is used during playback to select pictures for upload, preventing it from being used to select pictures for other operations, such as side-by-side comparison (pg. 362). To restore normal operation, select another option for **Wireless transmitter** > **Mode**.

WT-4A/B/C/D/E

The principal difference between the WT-4 and WT-4A/B/C/D/E is in the number of channels supported; unless otherwise stated, all references to the WT-4 also apply to the WT-4A/B/C/D/E.

Printing Photographs

Photographs can be printed by any of the following methods:

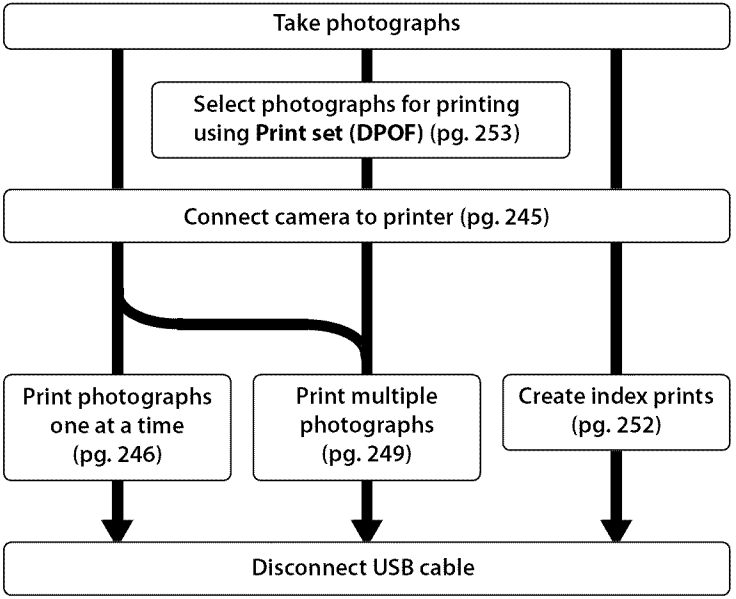
- Connect the camera to a printer and print JPEG photographs directly from the camera (pg. 244).
- Insert the camera memory card in a printer equipped with a card slot (see the printer manual for details). If the printer supports DPOF (pg. 435), photographs can be selected for printing using **Print set (DPOF)** (pg. 253).
- Take the camera memory card to a developer or digital printer center. If the center supports DPOF (pg. 435), photographs can be selected for printing using **Print set (DPOF)** (pg. 253).
- Print JPEG photographs on a printer connected to a network computer using the WT-4 wireless transmitter (available separately; see the WT-4 user's manual for details).
- Transfer pictures (pg. 238) and print them from a computer using ViewNX (supplied; pg. 238) or Capture NX 2 (available separately; pg. 388). Note that this is the only method available for printing RAW (NEF) pictures.

TIFF Photographs

TIFF photographs can be printed from a computer. Some digital print services may also support TIFF; check with the service before ordering.

Direct USB Connection

If the camera is connected to a PictBridge printer via the supplied USB cable, selected JPEG pictures can be printed directly from the camera.



USB Hubs

Connect the camera directly to the computer; do not connect the cable via a USB hub or keyboard.

Printing Via Direct USB Connection

Be sure the battery is fully charged or use an optional EH-5a or EH-5 AC adapter. When taking photographs to be printed via direct USB connection, set **Color space** to **sRGB** (pg. 181).

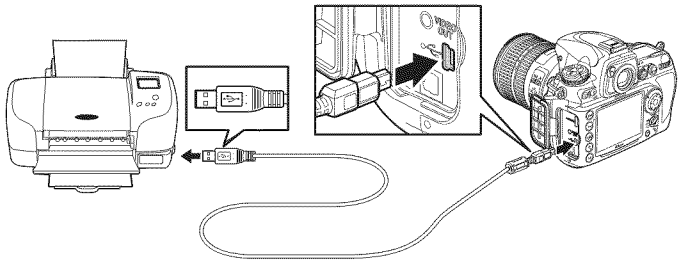
■■ *Connecting the Printer*

Connect the camera using the supplied UC-E4 USB cable.

1 Turn the camera off.

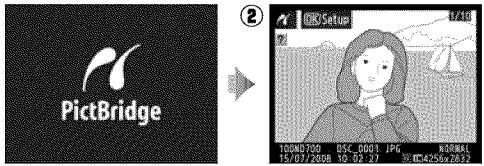
2 Connect the USB cable.

Turn the printer on and connect the USB cable as shown. Do not use force or attempt to insert the connectors at an angle.



3 Turn the camera on.

A welcome screen will be displayed in the monitor, followed by a PictBridge playback display.

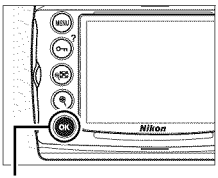


1 Select a picture.

Press ◀ or ▶ to view additional pictures, or press the 🔍 button to zoom in on the current frame (pg. 234). To view six pictures at a time, press the 🔍 button. Use the multi selector to highlight pictures, or press 🔍 to display the highlighted picture full frame.

2 Display printing options.

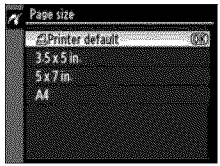
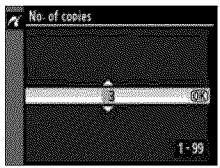
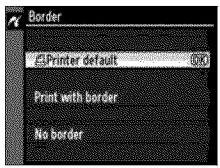
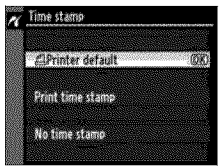
Press ⓞⓚ to display PictBridge printing options.



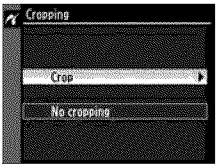
ⓞⓚ button

3 Adjust printing options.

Press ▲ or ▼ to highlight an option and press ▶ to select.

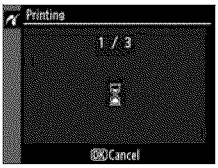
Option	Description
Page size	Menu shown at right will be displayed. Press ▲ or ▼ to choose page size (to print at default page size for current printer, select **Printer default**), then press OK to select and return to previous menu. 
No. of copies	Menu shown at right will be displayed. Press ▲ or ▼ to choose number of copies (maximum 99), then press OK to select and return to previous menu. 
Border	Menu shown at right will be displayed. Press ▲ or ▼ to choose print style from **Printer default** (default for current printer), **Print with border** (print photo with white border), or **No border**, then press OK to select and return to previous menu. 
Time stamp	Menu shown at right will be displayed. Press ▲ or ▼ to choose **Printer default** (default for current printer), **Print time stamp** (print time and date of recording on photo), or **No time stamp**, then press OK to select and return to previous menu. 

Option	Description
Cropping	Menu shown at right will be displayed. To exit without cropping picture, highlight **No cropping** and press ⊛. To crop picture, highlight **Crop** and press ▶. If **Crop** is selected, dialog shown at right will be displayed. Press 🔍 to increase size of crop, 🔍 to decrease. Choose position of crop using multi selector and press ⊛.



4 Start printing.

Select **Start printing** and press ⊛ to start printing. To cancel before all copies have been printed, press ⊛.



Selecting Photographs for Printing

Images created at image quality settings of NEF (RAW) or TIFF (RGB) (pg. 64) can not be selected for printing.

See Also

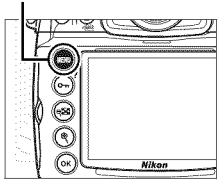
See page 415 for information on what to do if an error occurs during printing.

Printing Multiple Pictures

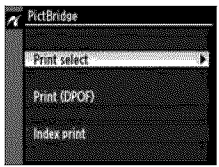
1 Display the PictBridge menu.

Press the MENU button in the PictBridge playback display (see Step 3 on page 245).

MENU button



2 Choose **Print select** or **Print (DPOF)**.

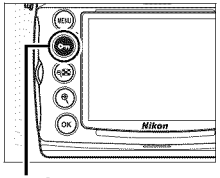


Highlight one of the following options and press ▶.

- **Print select**: Select pictures for printing.
- **Print (DPOF)**: Print an existing print order created with the **Print set (DPOF)** option in the playback menu (pg. 253). The current print order will be displayed in Step 3.

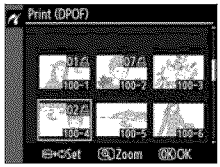
To create an index print of all JPEG pictures on the memory card, select **Index print**. See page 252 for more information.

3 Select pictures.



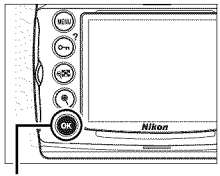
button

Use the multi selector to scroll through the pictures on the memory card. To display the current picture full screen, press 🔍 button. To select the current picture for printing, press the button and press ▲. The picture will be marked with a icon and the number of prints will be set to 1. Keeping the button pressed, press ▲ or ▼ to specify the number of prints (up to 99; to deselect the picture, press ▼ when the number of prints is 1). Continue until all the desired pictures have been selected.

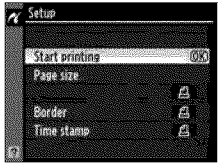


4 Display printing options.

Press OK to display PictBridge printing options.

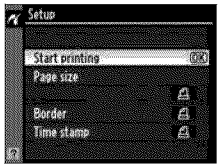


OK button



5 Adjust printing options.

Press ▲ or ▼ to highlight an option and press ▶ to select.



Option	Description
Page size	Menu of page size options will be displayed (pg. 247). Press ▲ or ▼ to choose page size (to print at default page size for current printer, select **Printer default**), then press ⓞ to select and return to previous menu.
Border	Menu of border options will be displayed (pg. 247). Press ▲ or ▼ to choose print style from **Printer default** (default for current printer), **Print with border** (print photo with white border), or **No border**, then press ⓞ to select and return to previous menu.
Time stamp	Menu of time stamp options will be displayed (pg. 247). Press ▲ or ▼ to choose **Printer default** (default for current printer), **Print time stamp** (print time and date of recording on photo), or **No time stamp**, then press ⓞ to select and return to previous menu.

6 Start printing.

Select **Start printing** and press ⓞ to start printing. To cancel before all copies have been printed, press ⓞ.

Page Size, Border, Time Stamp, and Cropping

Choose printer default to print at current printer settings. Only options supported by the current printer can be selected. Note that print quality may drop if small crops are printed at large sizes.

See Also

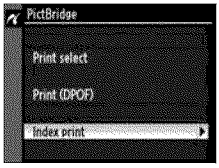
See page 415 for information on what to do if an error occurs during printing.

■■ *Creating Index Prints*

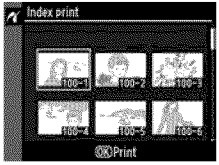
To create an index print of all JPEG pictures on the memory card, select **Index print** in Step 2 of "Printing Multiple Pictures" (pg. 249). Note that if the memory card contains more than 256 pictures, only the first 256 images will be printed.

1 Select **Index print.**

Highlight **Index print** in the PictBridge menu (pg. 249) and press ▶.



The confirmation dialog shown at right will be displayed.

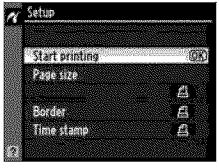


2 Display printing options.

Press ⊛ to display PictBridge printing options.

3 Adjust printing options.

Choose page size, border, and time stamp options as described on page 251 (a warning will be displayed if the selected page size is too small).



4 Start printing.

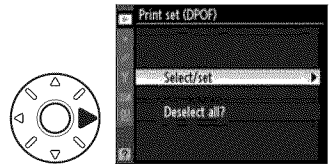
Highlight **Start printing** and press ⊛ to start printing. To cancel before printing is complete, press ⊛.

■■ *Creating a DPOF Print Order: Print Set*

The **Print set (DPOF)** option in the playback menu is used to create digital "print orders" for PictBridge-compatible printers and devices that support DPOF. Selecting **Print set (DPOF)** from the playback menu displays the menu shown in Step 1.

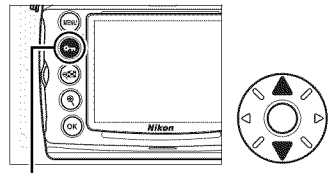
1 Choose Select/set.

Highlight **Select/set** and press ▶.

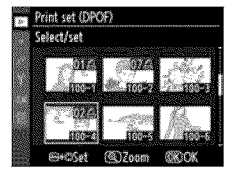


2 Select pictures.

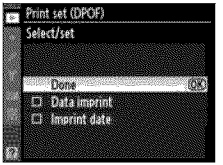
Use the multi selector to scroll through the pictures on the memory card. To display the current picture in full screen, press 🔍 button. To select the current picture for printing, press the 🔑 button and press ▲. The picture will be marked with a 🖨 icon and the number of prints will be set to 1. Keeping the 🔑 button pressed, press ▲ or ▼ to specify the number of prints (up to 99; to deselect the picture, press ▼ when the number of prints is 1). Press OK when all the desired pictures have been selected (to exit to the playback menu without changing the print order, press MENU).



🔑 button



3 Select imprint options.

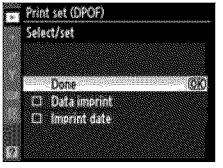


Highlight the following options and press ▶ to toggle the highlighted option on or off (to complete the print order without including this information, proceed to Step 4).

- **Data imprint**: Print shutter speed and aperture on all pictures in print order.
- **Imprint date**: Print date of recording on all pictures in print order.

4 Complete the print order.

Highlight **Done** and press ⊛ to complete the print order.



Print Set

To print the current print order when the camera is connected to a PictBridge printer, select **Print (DPOF)** in the PictBridge menu and follow the steps in "Printing Multiple Pictures" to modify and print the current order (pg. 249). DPOF date and data imprint options are not supported when printing via direct USB connection; to print the date of recording on photographs in the current print order, use the PictBridge **Time stamp** option.

The Print Set option can not be used if there is not enough space on the memory card to store the print order.

Images created at image quality settings of NEF (RAW; pg. 64) can not be selected for printing using this option.

Print orders may not print correctly if images are deleted using a computer or other device after the print order is created.

Viewing Photographs on TV

The supplied EG-D100 video cable can be used to connect the camera to a television or VCR for playback or recording. A type C mini-pin **H**igh-**D**efinition **M**ultimedia **I**nterface (HDMI) cable (available separately from commercial sources) can be used to connect the camera to high-definition video devices.

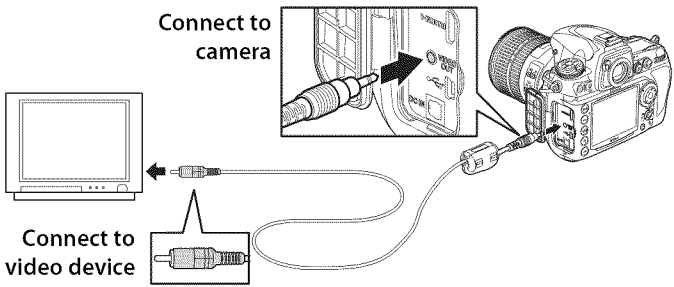
Standard Definition Devices

To connect the camera to a standard television:

1 Turn the camera off.

Always turn the camera off before connecting or disconnecting the video cable.

2 Connect the supplied video cable as shown.



3 Tune the television to the video channel.

4 Turn the camera on and press ▶ button.

During playback, images will be displayed both on the television screen or recorded to video tape and the camera monitor.

Video Mode (pg. 333)

Be sure that the video standard matches the standard used in the video device. Note that resolution will drop when images are output on a PAL device.

Television Playback

Use of an EH-5a or EH-5 AC adapter (available separately) is recommended for extended playback. When the EH-5a or EH-5 is connected, the camera monitor-off delay will be fixed at ten minutes and the exposure meters will no longer turn off automatically. Note that the edges may not be visible when photographs are viewed on a television screen.

Slide Shows

The **Slide show** option in the playback menu can be used for automated playback (pg. 266).

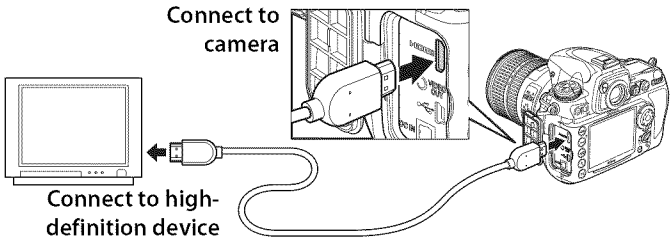
High-Definition Devices

The camera can be connected to HDMI devices using a type C mini-pin HDMI cable (available separately from commercial sources).

1 Turn the camera off.

Always turn the camera off before connecting or disconnecting an HDMI cable.

2 Connect the HDMI cable as shown.



3 Tune the device to the HDMI channel.

4 Turn the camera on and press ▶ button.

During playback, images will be displayed on the high-definition television or monitor screen; the camera monitor will remain off.

HDMI (pg. 333)

At the default setting of **Auto**, the camera automatically selects the appropriate HDMI format for the high-definition device. The HDMI format can be chosen using the **HDMI** option in the setup menu (pg. 333).

Menu Guide

This chapter describes the options available in the camera menus.

The Playback Menu: Managing Images

The playback menu contains the options listed below. To display the playback menu, press MENU and press ◀ to highlight the tab for current menu, then press ▲ or ▼ to highlight the playback menu tab; for more information, see page 26.

Option	See page
Delete	262
Playback folder	263
Hide image	263
Display mode	264
Image review	265
After delete	265
Rotate tall	265
Slide show	266
Print set (DPOF)	253

Selecting Multiple Pictures

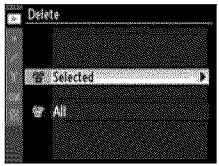
Follow the steps below to select multiple pictures for **Delete** (pg. 262), **Hide image** (pg. 263), or **Print set (DPOF)** (pg. 267). Multiple pictures can also be selected for direct printing (pg. 249).

1 Display the menu.

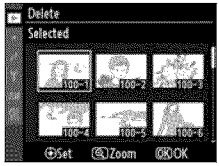
Press the MENU button, select the playback menu tab, and select the desired item in the playback menu.

2 Display thumbnails.

To select pictures from a list of thumbnails, choose the "Selected", "Select/set", or "Print (DPOF)" option.



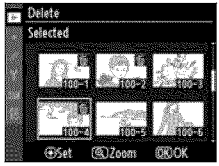
3 Highlight a picture.



To view the highlighted picture full screen, press and hold the 🔍 button.

4 Press the center of the multi selector to select the highlighted picture.

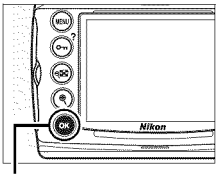
Selected pictures are marked by an icon. When selecting pictures for printing, press the ⊶ button and press ▲ or ▼ to choose the number of copies.



5 Repeat steps 1 and 2 to select additional pictures.

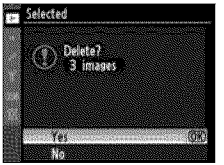
To deselect a picture, highlight it and press center of multi selector.

6 Press ⓞⓚ to complete the operation.



ⓞⓚ button

A confirmation dialog will be displayed; highlight **Yes** and press ⓞⓚ.



Delete

Select this option to delete pictures. Protected and hidden images will not be deleted.

Option	Description
Selected	Delete selected pictures.
All	Delete all pictures in the folder currently selected for playback (pg. 263).

Playback Folder

Choose a folder for playback.

Option	Description
ND700 (default)	Pictures in all folders created with the D700 will be visible during playback.
All	Pictures in all folders will be visible during playback.
Current	Only pictures in the current folder will be visible during playback.

Hide Image

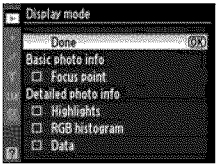
Hide or reveal selected pictures. Hidden pictures are visible only in the **Hide image** menu and can only be deleted by formatting the memory card.

Option	Description
Select/set	Hide or reveal selected pictures.
Deselect all?	Reveal all pictures.

Protected and Hidden Images

Revealing a protected image will also remove protection from the image.

Display Mode



Choose the information available in the playback photo information display (pg. 220). Press ▲ or ▼ to highlight an option, then press ▶ to select the option for the photo information display. A ✔ appears next to selected items; to deselect, highlight and press ▶. To return to the playback menu, highlight **Done** and press ▶.

Option	Description
Basic photo info	
Focus point	Active focus point (or, in single-servo AF, focus point where focus first locked) is shown in red in photo information display. No focus point is displayed if camera was unable to focus using continuous-servo autofocus or if continuous-servo autofocus was used with auto-area AF.
Detailed photo info	
Highlights	Highlights for master RGB channel and for individual red, green, and blue channels are shown in photo information display. Very bright areas blink on and off.
RGB histogram	Red, green, and blue histograms are displayed in photo information display.
Data	Shooting data pages (including camera name, metering, exposure, focal length, white balance, and image options) appear in photo information display.

Image Review

Choose whether pictures are automatically displayed in the monitor immediately after shooting.

Option	Description
On	Pictures are automatically displayed in the monitor after shooting.
Off (default)	Pictures can only be displayed by pressing ▶ button.

After Delete

Choose the picture displayed after an image is deleted.

Option	Description
 **Show next** (default)	Display following picture. If deleted picture was last frame, previous picture will be displayed.
 **Show previous**	Display previous picture. If deleted picture was first frame, following picture will be displayed.
 **Continue as before**	If user was scrolling through pictures in order recorded, following picture will be displayed as described for **Show next**. If user was scrolling through pictures in reverse order, previous picture will be displayed as described for **Show previous**.

Rotate Tall

Choose whether to rotate "tall" (portrait-orientation) pictures for display during playback. Note that because the camera itself is already in the appropriate orientation during shooting, images are not rotated automatically during image review (pg. 219).

Option	Description
On	"Tall" (portrait-orientation) pictures are automatically rotated for display in the camera monitor. Pictures taken with **Off** selected for **Auto image rotation** (pg. 336) will be displayed in "wide" (landscape) orientation.
Off (default)	"Tall" (portrait-orientation) pictures are displayed in "wide" (landscape) orientation.

Slide Show

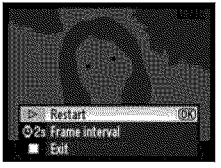
Create a slide show of the pictures in the current playback folder (pg. 263). Hidden images (pg. 263) are not displayed.

Option	Description
Start	Start slide show.
Frame interval	Choose how long each picture will be displayed.

To start the slide show, highlight **Start** and press ⊛. The following operations can be performed while the slide show is in progress:

To	Press	Description
Skip back/skip ahead		Press ◀ to return to previous frame, ▶ to skip to next frame.
View additional photo info		Change photo info displayed (pg. 220).
Pause slide show	⊛	Pause slide show (see below).
Exit to playback menu	MENU	End slide show and return to playback menu.
Exit to playback mode	▶	End slide show and exit to full-frame (pg. 218) or thumbnail playback (pg. 232).
Exit to shooting mode		Press shutter-release button halfway to return to shooting mode.

A dialog shown at right is displayed when the show ends or when the ⊛ button is pressed to pause playback. Select **Restart** to restart (if the slide was paused, the show will resume from the next slide) or **Exit** to return to the playback menu.



Print Set (DPOF)

Choose **Select/set** to select pictures for printing on a DPOF-compatible device (pg. 253). Choose **Deselect all?** to remove all pictures from the current print order.

The Shooting Menu: Shooting Options

The shooting menu contains the options listed below. To display the shooting menu, press MENU and press ◀ to highlight the tab for current menu, then press ▲ or ▼ to highlight the shooting menu tab; for more information, see page 26.

Option	See page
Shooting menu bank	269
Reset shooting menu	271
Active folder	272
File naming	274
Image quality	64
Image size	69
Image area	58
JPEG compression	67
NEF (RAW) recording	67
White balance	140
Set Picture Control	160
Manage Picture Control	168
Color space	181
Active D-Lighting	180
Vignette control	276
Long exp. NR	277
High ISO NR	278
ISO sensitivity settings	106
Live view	90
Multiple exposure	198
Interval timer shooting	203

Shooting Menu Bank

Shooting menu options are stored in one of four banks. With the exceptions of **Multiple exposure**, **Interval timer shooting**, and modifications to Picture Controls (quick adjust and other manual adjustments), changes to settings in one bank have no effect on the others. To store a particular combination of frequently-used settings, select one of the four banks and set the camera to these settings. The new settings will be stored in the bank even when the camera is turned off, and will be restored the next time the bank is selected. Different combinations of settings can be stored in the other banks, allowing the user to switch instantly from one combination to another by selecting the appropriate bank from the bank menu.

The default names for the four shooting menu banks are A, B, C, and D. A descriptive caption can be added using the **Rename** option as described below.

Shooting Menu Bank

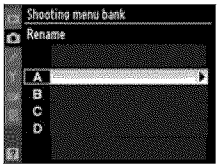
The current shooting menu bank is shown in the shooting information display, which can be viewed by pressing the INFO button. The shooting menu bank can also be selected from the shooting information display (pg. 15).

■ *Renaming Shooting Menu Banks*

Selecting **Rename** in the **Shooting menu bank** menu displays the list of shooting menu banks shown in Step 1.

1 Select a bank.

Highlight the desired bank and press ▶.



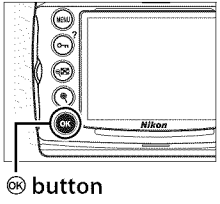
2 Enter a name.

To move the cursor in the name area, press the ⊡ button and press ◀ or ▶. To enter a new letter at the current cursor position, use the multi selector to highlight the desired character in the keyboard area and press the center of the multi selector. To delete the character at the current cursor position, press the 🗑 button. To return to the shooting menu without changing the bank name, press the MENU button.

Bank names can be up to twenty characters long. Any characters after the twentieth will be deleted.

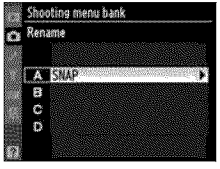
3 Save changes and exit.

After editing the name, press ⊛ to save changes and exit.



⊛ button

The **Shooting menu bank** menu will be displayed.



Reset Shooting Menu

Choose whether to restore default settings for the current shooting menu bank. See page 419 for a list of default settings. With the exceptions of image quality, image size, white balance, and ISO sensitivity, shooting menu settings are not reset when a two-button reset (pg. 196) is performed.

Option	Description
Yes	Restore defaults for the current shooting menu bank.
No (default)	Exit without changing shooting menu settings.

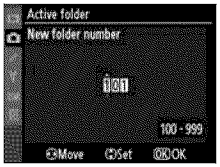
Active Folder

Select the folder in which subsequent images will be stored.

■■ *New Folder Number*

1 **Select New folder number.**

Highlight **New folder number** and press ▶.



2 **Choose a folder number.**

Press ◀ or ▶ to highlight a digit, press ▲ or ▼ to change. If a folder with the selected number already exists, a 🗀, 🗁, or 🗁 icon will be displayed to the left of the folder number:

- 🗀 : Folder is empty.
- 🗁 : Folder is partially full.
- 🗁 : Folder contains 999 pictures or a picture numbered 9999. No further pictures can be stored in this folder; folder will not be selected when OK button is pressed.

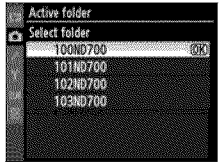
3 **Save changes and exit.**

Press OK to complete the operation and return to the shooting menu (to exit without changing the active folder, press the MENU button). If a folder with the specified number does not already exist, a new folder will be created. Subsequent photographs will be stored in the selected folder unless it is already full.

■■ *Select Folder*

1 Choose **Select folder.**

Highlight **Select folder** and press ▶.



2 Highlight a folder.

Press ▲ or ▼ to highlight a folder.

3 Select the highlighted folder.

Press ⊛ to select the highlighted folder and return to the shooting menu (to exit without changing the active folder, press the MENU button). Subsequent photographs will be stored in the selected folder.

Folder and File Numbers

If the current folder is numbered 999 and contains 999 pictures or a picture numbered 9999, the shutter-release will be disabled and no further photographs can be taken. To continue shooting, create a folder with a number less than 999, or select an existing folder with a number less than 999 and less than 999 images.

Number of Folders

Additional time may be required for camera startup if the memory card contains a very large number of folders.

File Naming

Photographs are saved using file names consisting of "DSC_" or, in the case of images that use the Adobe RGB color space, "_DSC", followed by a four-digit number and a three-letter extension (e.g., "DSC_0001.JPG"). The **File naming** option is used to select three letters to replace the "DSC" portion of the file name. For information on editing file names, see steps 2 and 3 of "Renaming Shooting Menu Banks" (pg. 270). Note that the portion of the name that can be edited is a maximum of three characters long.

Extensions

The following extensions are used: ".NEF" for NEF (RAW) images, ".TIF" for TIFF (RGB) images, ".JPG" for JPEG images, and ".NDF" for dust off reference data.

Image Quality

Choose image quality (pg. 64).

Image Size

Choose the size at which pictures are recorded (pg. 69).

Image Area

Although the D700 can record photographs with the same diagonal picture angle as a 35mm format camera using a 3 : 2 aspect ratio, it can also be used to record photographs with the smaller DX picture angle (pg. 58).

JPEG Compression

Choose whether to compress JPEG images to a fixed size or to vary file size for improved image quality (pg. 67).

NEF (RAW) Recording

Choose compression and bit-depth options for NEF (RAW) images (pg. 67).

White Balance

Adjust white balance settings (pg. 140).

Set Picture Control

Select from the Picture Controls provided with the camera to instantly adjust image processing settings (pg. 160).

Manage Picture Control

Save and modify custom Picture Control combinations, or copy custom Picture Controls to or from the memory card (pg. 168).

Color Space

Choose from sRGB and Adobe RGB color spaces (pg. 181).

Active D-Lighting

This option can be used to prevent loss of detail in highlights and shadows (pg. 179). Choose from **Auto**, **High**, **Normal**, **Low**, and **Off** (the default setting).

Vignette Control

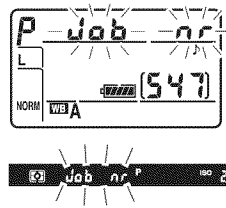
"Vignetting" is a drop in brightness at the edges of a photograph. Its effects vary from lens to lens and are most noticeable at maximum aperture. **Vignette control** reduces vignetting for type G and D lenses (DX and PC lenses excluded). Choose from **High**, **Normal** (the default setting), **Low**, and **Off**.

Vignette Control

Depending on the scene, shooting conditions, and type of lens, TIFF and JPEG images may exhibit unevenness or variations in peripheral brightness, while custom Picture Controls and Nikon Picture Controls that have been modified from default settings may not produce the desired effect. Take test shots and view the results in the monitor. Vignette control does not apply to multiple exposures (pg. 198), DX-format images (pg. 58), or images created with **Image overlay** (pg. 361). The effects of vignette control can not be previewed in live view (pg. 89).

Long Exp. NR (Long Exposure Noise Reduction)

Choose whether to reduce noise in pictures taken at slow shutter speeds.

Option	Description
On	Photographs taken at shutter speeds slower than 1 s are processed to reduce noise. While photographs are being processed, the capacity of the memory buffer will drop. "Job nr" will blink in the shutter speed/aperture displays for a period of time approximately equal to the current shutter speed. In continuous release mode, frame rates will slow and while photographs are being processed, the capacity of the memory buffer will drop. Photographs can not be taken until processing is complete and "Job nr" has cleared from the displays. Noise reduction will not be performed if the camera is turned off before processing is complete. 
Off (default)	Long exposure noise reduction off.

The Shooting Information Display

Long exposure noise reduction can be adjusted from the shooting information display (pg. 15).

High ISO NR

Photographs taken at high ISO sensitivities can be processed to reduce "noise."

Option	Description
HIGH **High**	Noise reduction is performed at ISO sensitivities of ISO 2000 and higher. While photographs are being processed, the capacity of the memory buffer will drop. Choose the amount of noise reduction performed from **High**, **Normal**, and **Low**.
NORM **Normal** (default)	
LOW **Low**	
Off	Noise reduction is only performed at sensitivities of Hi 0.3 and higher. The amount of noise reduction is less than the amount performed when **Low** is selected for **High ISO NR**.

The Shooting Information Display

High ISO noise reduction can be adjusted from the shooting information display (pg. 15).

ISO Sensitivity Settings

Adjust ISO sensitivity and ISO sensitivity auto control settings (pp. 106, 108).

Live View

Choose a live view mode and the release mode that will be used when the camera is in live view mode (pg. 90).

Multiple Exposure

Create a single photograph from two to ten exposures (pg. 198).

Interval Timer Shooting

Take photographs automatically at pre-selected intervals. Use for time-lapse movies of such subjects as flowers opening or butterflies emerging from cocoons (pg. 203).

Nikon

NIKON CORPORATION
Fuji Bldg., 2-3 Marunouchi 3-chome,
Chiyoda-ku,Tokyo 100-8331, Japan

CE

Printed in Japan
SB8G04(11)
6MB02311-04