Nikon

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Nikon

NIKONOS RS AF

Instruction Manual

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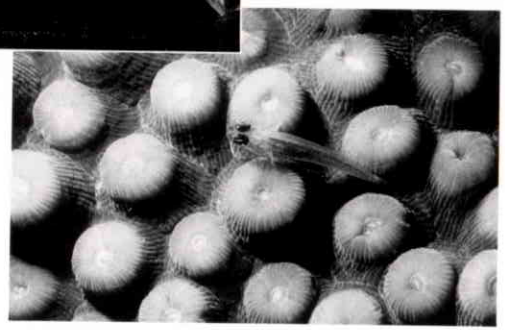
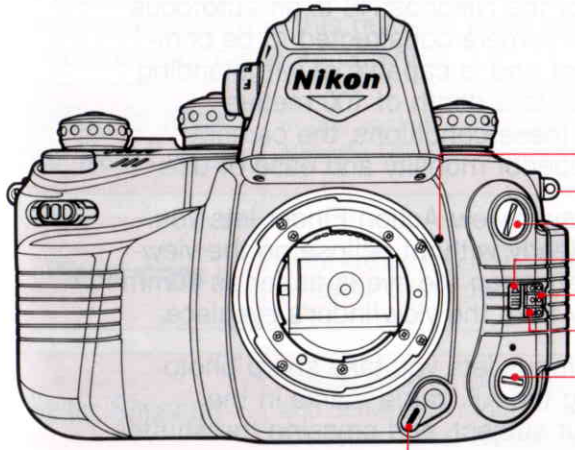
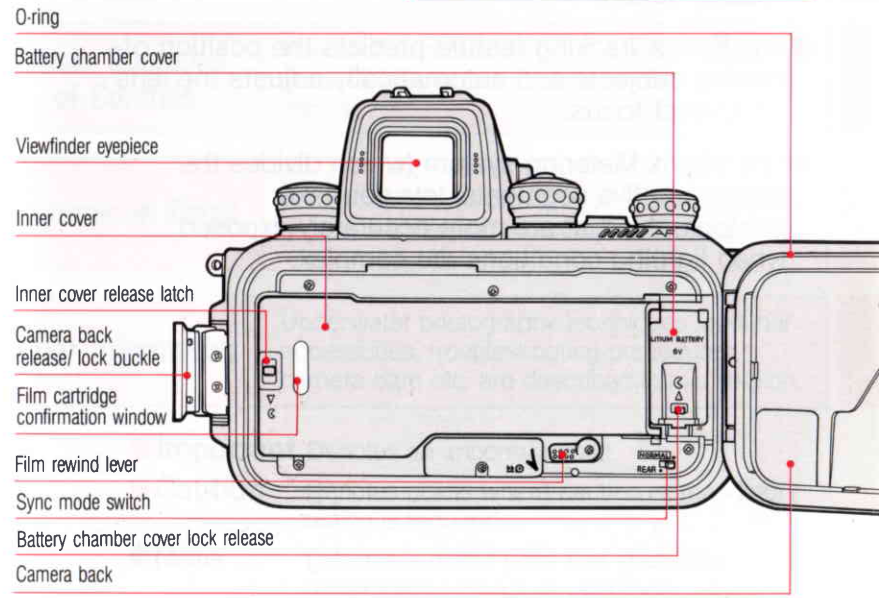
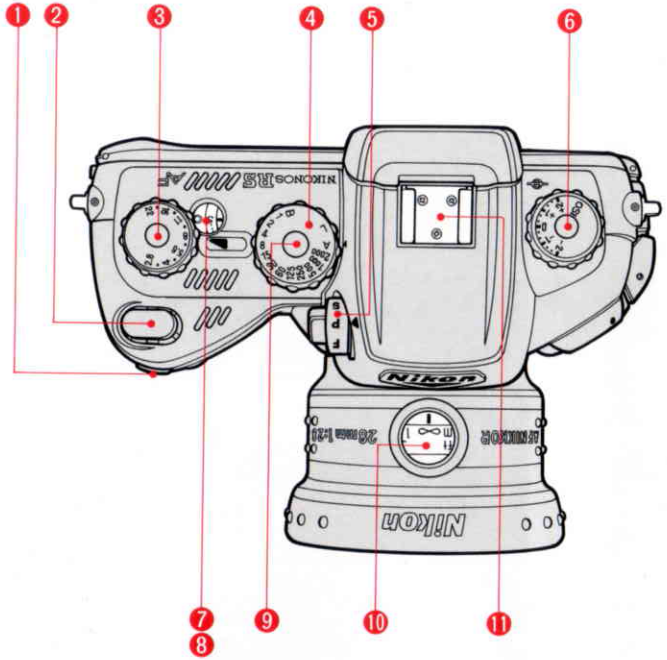
FOREWORD

Thank you for purchasing the Nikonos RS. This camera is an autofocus single lens reflex type. The Nikonos RS is suited not only for general underwater photography, but also for a wide range of commercial or research activities such as surveys of the ocean floor or the bottoms of vessels.

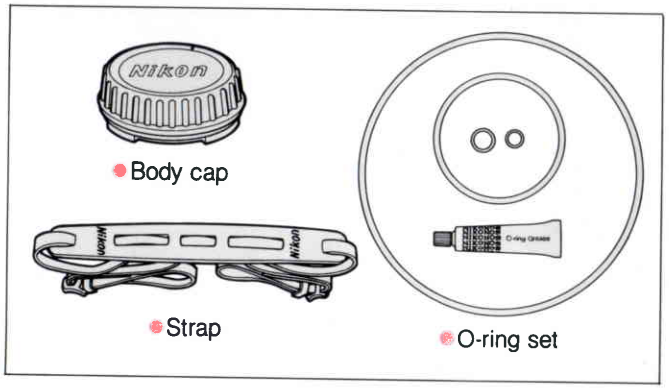








Accessories



1. **Power Manual Focus Control** (See pages 57 ~ 58.)
When the focus mode is set to "F" (freeze focus), or "P" (power manual focus), the focus can be adjusted manually by using the Power Manual Focus control.

2. **Shutter Release Button** (See page 25.)
The Shutter Release Button connects with the power switch when depressed slightly. When the Shutter Dial is set to a position other than "L," slightly pressing the shutter release button activates the autofocus and exposure metering functions, and when pressed further, the shutter is released.

3. **Aperture Dial** (See page 39.)
The Aperture Dial is used to set the f/stop of the lens opening (aperture) in half stop increments.

4. **Shutter Speed Dial** (See page 51.)
The Shutter Speed Dial also serves as the main switch. When the dial is set to "L," the power is off, and when it is set to any other position, the power will turn on when the shutter release button is depressed slightly (about halfway down). In "A" setting, the Aperture-Priority Auto Exposure mode is selected. When the dial is set to any other position, the shutter speed is set manually.

5. **Focus Mode Switching Control** (See pages 52 ~ 59.)
Use this dial to select from the four focusing modes; (S) Single Servo Autofocus, (C) Continuous Servo Autofocus, (P) Power Manual Focus, and (F) Freeze Focus.

6. **Exposure Compensation Dial** (See pages 30 ~ 32, 65 ~ 66.)
The Exposure Compensation Dial is used to set exposure compensation in 1/3 EV deviations in exposure control from the ISO standard, and to set the film speed.

7. **Frame Counter LED (red) Warning Indicator**

8. **Frame Counter LED (green) Indicator**

9. **Dial Lock Release Button**

10. **Distance Scale Window (with illumination)**

11. **Accessory Shoe**

Main Features

- The main body of the Nikonos RS is an autofocus single lens reflex camera constructed to be completely water-proof and is capable of withstanding water pressure up to a depth of 100 meters (328 feet). Under these conditions, the camera demonstrates superior mobility and ease of use.
- The camera's easy-to-view Action Finder lets you see the image clearly without eclipse on the viewfinder screen even when the eye is as far as 60mm (2.4 inches) away from the viewfinder's eyepiece.
- The built-in autofocus lets you take sharp photographs by aiming the AF frame marks in the viewfinder at your subject, and pressing the shutter release button.
- The Focus Tracking feature predicts the position of moving subjects and automatically adjusts the lens for correct focus.
- The Matrix Metering system (which divides the scene into five segments) lets you take photographs that are more accurately exposed when lighting conditions are complex.

About this Manual

This Instruction Manual has been organized as follows for easy reference. Use this guide to learn how to make the most of your camera's potential.

Getting to Know Your New Camera	In this section we explain the features of the Nikonos RS, how to use it for best results.
Preparations	Here we explain how to get the Nikonos RS ready for taking pictures.
Basic Shooting	The procedures for taking pictures in the simple and convenient mode — Aperture-Priority Auto Exposure — are explained in this section.
Basic Operation of Controls	This section explains how to operate specific parts of the camera in order to obtain certain results.
Controls in Detail	In this section we provide some useful information on a variety of photographic techniques.
Other Information	Underwater photography techniques, optional accessories, troubleshooting procedures, camera care etc. are described in this section.

■Important Denotes an important point.

●Caution Denotes points where caution or mandatory action is required.

◆Note Denotes a useful point that should be remembered for future reference.

CONTENTS

Matrix Balanced Fill-Flash Operation
A method of flash photography which combines flash illumination and ambient light, and keeps flash brightness in balance with the ambient light. Matrix balanced fill-flash operation is possible with the Nikonos RS in Aperture-Priority Auto Exposure (A) mode and Speedlight SB-104, 103, or 102.

Matrix Metering
The matrix metering sensor determines exposure by dividing the scene into five segments. The camera's computer evaluates the brightness from these five segments to determine the correct exposure for the main subject in virtually any lighting condition without requiring manual exposure compensation.

Center-Weighted Metering (75%/25%)
The center-weighted metering method concentrates 75% of its sensitivity on the center of the viewfinder outlined by a 12mm circle. This metering, recommended for selective exposure control, is useful for taking special photographs where correct control of exposure is based on a center-dominated subject.

Exposure Compensation
Exposure compensation refers to an adjustment that intentionally deviates from normal exposure settings.

Power Manual Focus
Power Manual Focus allows manual focusing by moving the power manual focusing control to the left or right, moving the lens forward or backward, to obtain correct focusing.

Single Servo Autofocus (S) mode
One of the autofocus modes which works when pressing the shutter button slightly to achieve correct focusing automatically. In this mode, once the subject is in focus, the focus is locked for as long as the shutter button is pressed slightly.

Continuous Servo Autofocus (C) mode
Focus detection and autofocus servo remain working as long as the shutter release button is lightly pressed.

Autofocus Lock function
In the "S" mode, the focus can be locked once the subject is in focus. Autofocus Lock is convenient for keeping a subject in focus when it is not positioned in the center of the viewfinder.

Freeze Focus function
In this mode, the shutter can be released the instant a subject appears within a prefocused range.

Focus Tracking
Focus Tracking predicts, through a series of computer calculations, where the subject will be when the shutter is released, to obtain correct focusing (in Continuous Servo Autofocus (C) and Single Servo Autofocus (S) modes).

ISO
The international standard for representing film sensitivity (the speed at which it reacts to light). The ISO film speed scale is geometrical: a film speed of ISO 200 is twice as fast as ISO 100 and half the speed of ISO 400 film.

DX code
Film speed information code printed on the film cartridge. The Nikonos RS automatically senses the film speed (ISO 25 to 5000) of DX-coded film the instant the film is loaded.

Aperture-Priority Auto Exposure (A) mode
After you have manually selected the lens aperture, the camera's computer will automatically control the shutter speed for precise exposure. As you can select any aperture, this mode is ideal for controlling the depth of field. The result is overall uniform sharpness or a softening of the background so that the main subject of the photograph stands out.

Manual Exposure mode
This mode allows you to make both aperture and shutter speed settings to suit your creative purposes. You can take pictures with special effects or under special conditions.

Getting to Know Your New Camera...

Tips on Camera Care

Be sure to take trial shots first...

When taking important photographs, be sure to take one or more trial shots first to be sure the camera works properly.

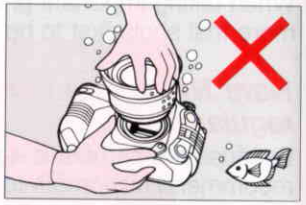
Have Nikon clean and check your camera regularly...

Because the camera is a precision instrument, we recommend customers to have their camera serviced annually.

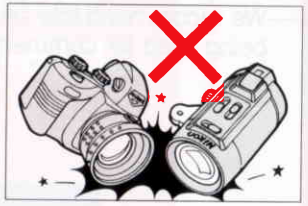
—We recommend this service especially when the camera is being used for commercial applications.

Notes of caution

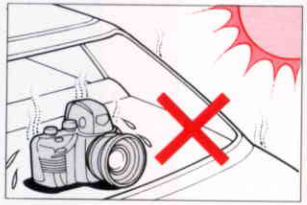
Do not change lenses or film under water.
When getting your camera ready for taking pictures, never attempt to change the lens, load film, or connect the speedlight underwater. It is best to carry out these activities indoors to avoid exposure to direct sunlight, wind, sand or other potentially harmful elements.



Do not subject your camera to vibrations or shock.
Because the camera is a precision instrument, do not subject it to strong vibrations or shock. When carrying the camera and speedlight in a car or boat, for instance, pack each unit in a protective case so that they do not bump against each other.



Keep your camera away from direct sunlight for prolonged periods.
Avoid leaving your camera for prolonged periods of time in direct sunlight or inside an enclosed place, such as a car, that is subject to sunlight and high temperatures.



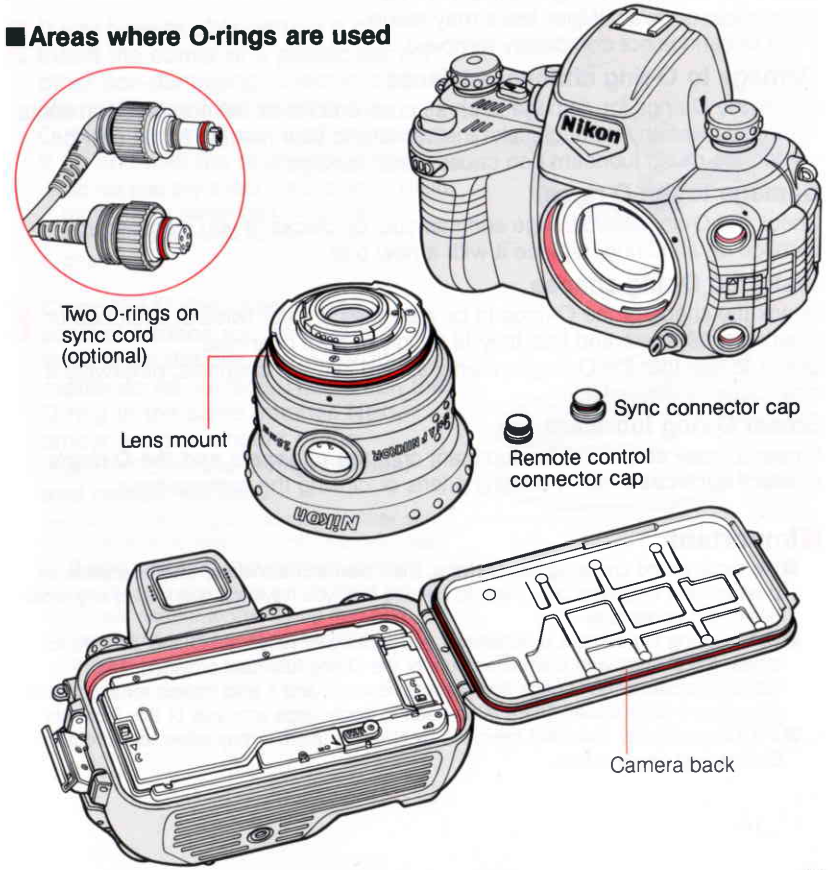
Do not jump into the water while holding your camera.
When entering the water from a boat, first enter yourself and then have someone hand the camera to you, or lower the camera with a rope and then enter the water yourself. Damage may be caused by the shock of the camera hitting the water if you jump into it holding the camera.

Do not disassemble the camera.
Never disassemble or remodel the camera if damaged.

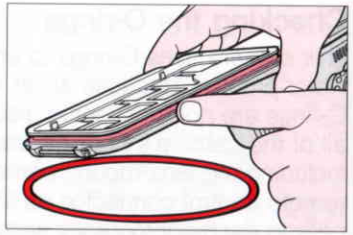
Checking the O-rings

This camera uses O-rings to ensure that it is well sealed and water-proofed. Because water will leak into the camera if the O-rings are not functioning properly, it is important to check all of the camera's **O-rings and their contact surfaces,** including the lens mount, camera back, sync connector and remote control connector, as shown in the illustration below, prior to each photography session.

■Areas where O-rings are used



Checking the O-Rings



Dirt and sand on the O-rings and in the channels

If there is any dirt, sand, hair or other foreign matter on the O-rings or inside the channels where they are installed, these areas must be cleaned. Soak the O-ring in fresh water and wipe it dry with a clean, soft cloth. Wipe the O-ring channels with a damp cloth or swab. Water leaks may result if dirt or sand is not completely removed.

Damage to O-ring channel surfaces

Check the O-rings for damage such as cuts, cracks, or flat compression spots. If you discover any damage, take the camera to your nearest Nikon service center. Too much lubricant can cause water leakage.

Damage to the O-rings

Check the O-rings for damage such as cuts or cracks. If you discover any damage on an O-ring, replace it with a new one.

Distorted O-ring shapes

Check the shape of the O-rings to be sure they are not twisted, stretched or otherwise distorted, and that they fit snugly in their channels.
Check to see that the O-ring is evenly seated into the channels, otherwise it may cause water leakage.

Smear O-ring lubricant

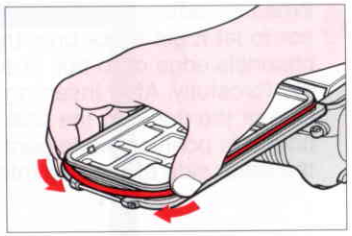
Smear a small amount of the lubricant onto ***the channels and the O-ring's contact surfaces*** when mounting a lens or closing the camera back.

■Important

- ■We recommend checking **the O-rings, their contact surfaces and channels** by passing your fingertips over them to be sure that you have not overlooked any small bits of dirt or damage.
- ■Before using the camera or whenever you remove or reseat an O-ring, be sure to smear the O-rings with a small amount of the O-ring lubricant provided. This lubricant protects the O-rings from excessive wear, and it also makes removing and reseating O-rings easier. There is no need to apply large amounts of this lubricant.
- ■If a lubricant other than that specified by Nikon is used, it may adversely affect the O-rings and cause a leak.

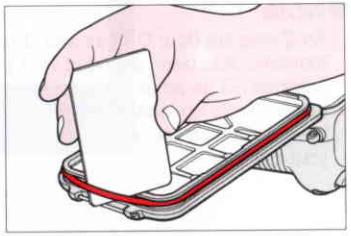
Removing and Reseating O-rings

1 Squeeze the O-ring on both sides between your thumb and index finger to produce some slack in the ring. Then remove it with your other hand.



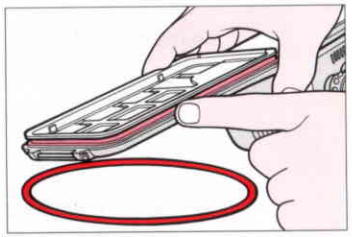
2 If you have trouble getting it off, insert the corner of a plastic card or other non-damaging object into the channel behind the slack in the O-ring and gently pull it off by raising it up and over the channel's edge.

—Do not use any sharp metal objects when removing or reseating O-rings, as this can cause damage to the O-ring or its channel.

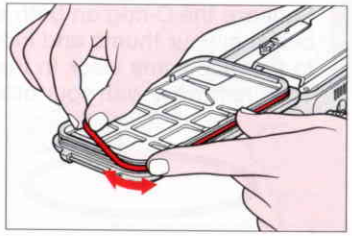


3 Clean ***the O-ring channel and contact surface*** and be sure that there is no dirt, sand or other foreign matter on its surface. Then clean the O-ring in the same manner. Next, smear a small amount of the lubricant onto ***the O-ring, channel and contact surface.***

—Use a clean finger, sponge, or other soft material to smear the lubricant onto ***the O-ring, channel and contact surface***. Avoid using materials which shed lint as lint will adhere to the O-ring and may cause imperfect sealing, resulting in a leak.

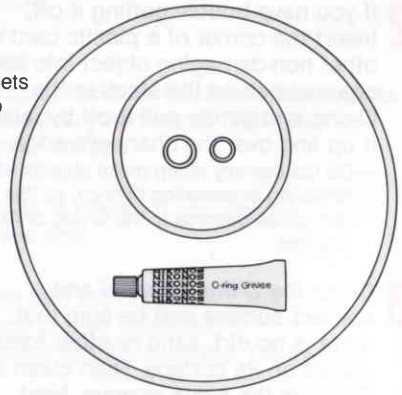


4 When reseating the O-ring, take care not to let it get stuck onto the channels edge or to pull or twist it too forcefully. After inserting one side of the ring into the channel, hold it in position while gently rolling the other side of the ring into place.

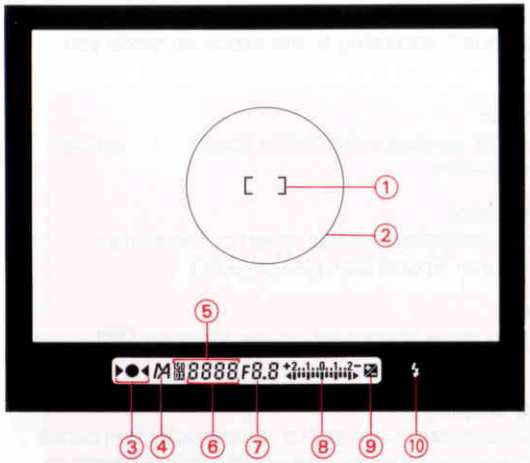


◆Note

An O-ring set (four O-rings and O-ring lubricant) has been provided with the Nikonos RS as an accessory. Additional sets are available optionally. Be sure always to have a set with you when you go out with your camera.



Viewfinder Indications



① **Focus Brackets**
In autofocus mode, position the subject within the focus brackets in the viewfinder and shoot the photograph.

② **12mm-dia. reference circle**
For center-weighted metering

③ **Focus Indicators**

- ● **In-focus indicator** Appears when the stationary subject is in focus, and blinks when not in focus. (See pages 53 ~ 57.)
- ▶ ◀ **Focus Tracking indicator** Appears when the camera detects that the subject is moving and activates the Focus Tracking mechanism. (See pages 53 ~ 57.)
- ▶ **Focus-to-right arrow (front focus)** Appears when the subject is out of focus and the area in front of the subject is in focus. (See page 57.)
- ◀ **Focus-to-left arrow (rear focus)** Appears when the subject is out of focus and the area behind the subject is in focus. (See page 57.)

④ **Exposure Mode Indicator**
Displays "A" or "Manual" according to the exposure mode you set. (See page 60.)

⑤ **Film Speed Indicator**
Displays the ISO or DX symbol and the film speed (ISO number) you set. (See pages 29 ~ 32.)

⑥ **Shutter Speed Indicator**
Displays the camera-controlled shutter speed or the shutter speed set on the Shutter Speed Dial. (See page 51.)

⑦ **Aperture Indicator**
Displays the aperture value (f/stop) set on the Aperture Dial. (See page 39.)

⑧ **Electronic Analog Display**
Appears when "Hi" (overexposure) or "Lo" (underexposure) blinks in Auto Exposure mode, and always appears in Manual Exposure mode. (See page 64.)

⑨ **Exposure Compensation Indicator**
Appears when exposure compensation has been set. (See pages 65 ~ 66.)

⑩ **Ready-Light**
Appears when the speedlight has been recharged, and blinks when flash is fired at full output. (See page 66.)

Preparations

Installing the Battery

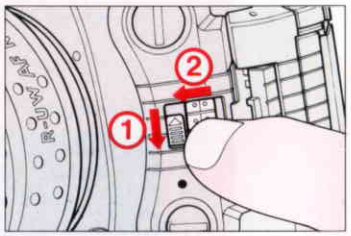
■ Important

The Nikonos RS uses the following battery:
6V lithium battery pack
(DL223A or CR-P2 type)
See pages 93 ~ 94 for more details on the battery.

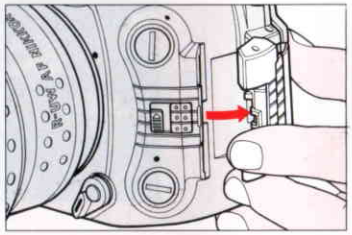
● Caution

When installing a battery, be sure first to turn OFF the power switch and ensure that the contact terminals (+ / –) are correctly oriented as marked on the battery chamber.

1 Holding down the lock knob ① to the white mark, slide the lock lever ② in the direction of the arrow to remove the lock release.



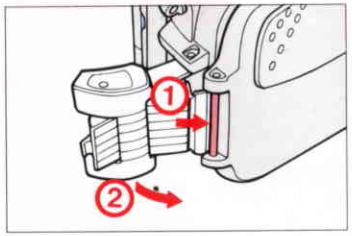
2 Raise the lock release in the direction of the arrow and open the camera back release/lock buckle.



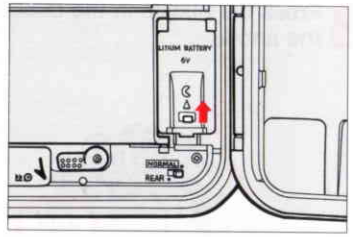
● Caution

When opening the camera back, be sure to wipe moisture off the camera or your hands.

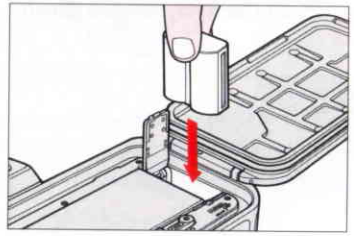
3 Release the camera back release/lock buckle from its hinge. Next push the release/lock buckle in the direction of the arrow to open the camera back.



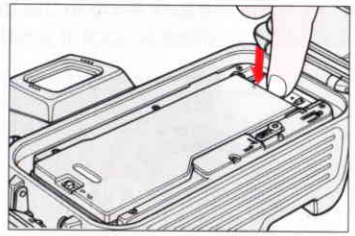
4 Slide the battery chamber release/lock knob in the direction of the arrow and open the battery chamber cover.



5 Install a new battery into the battery chamber, making sure that the contact terminals (+ / –) are correctly oriented as marked on the battery chamber.



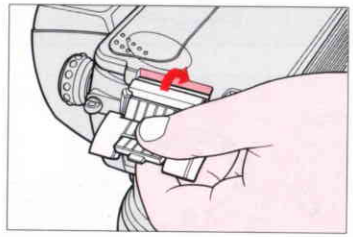
6 Close the battery chamber and push it down until it clicks shut.



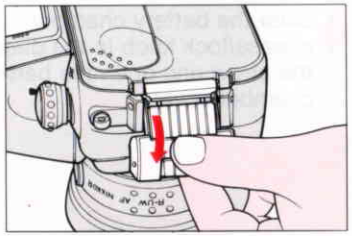
● Caution

While opening the camera back, do not try to lift the camera by the camera back.

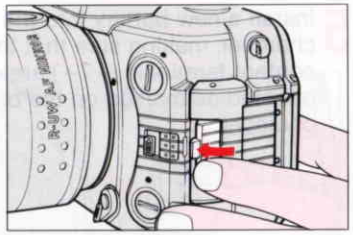
7 Check to be sure that **the O-ring is not pinched** when closing the camera back. Fasten the hook of the camera back release/lock buckle.



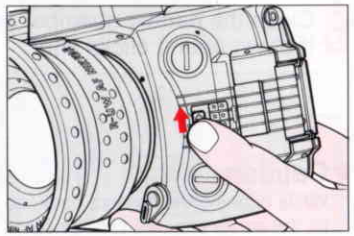
8 Press the buckle in the direction of the arrow.



9 Push the lock release down.



10 Slide the lock knob in the direction of the arrow to lock it securely.



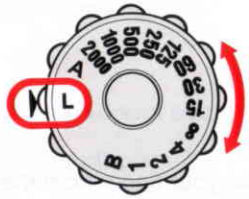
Checking Battery Power

Be sure to check the battery power of the camera after installing a fresh battery or prior to a photography session in order to avoid inadvertent failures.

■Important

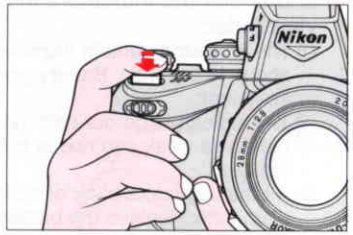
■Main switch

The Shutter Speed Dial on the Nikonos RS is also the main power switch. When the dial is set to any position other than "L," power is on; when it is set to "L," power is off.

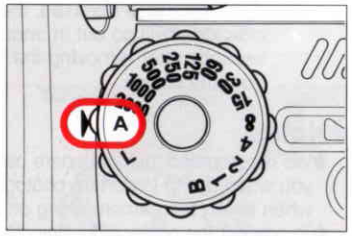


■Halfway switch

When the shutter release button is pressed slightly (about halfway down), power is supplied to the autofocus, exposure meter, and other functions.

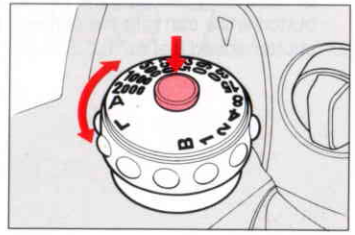


1 Set the Shutter Speed Dial to any position other than "L".

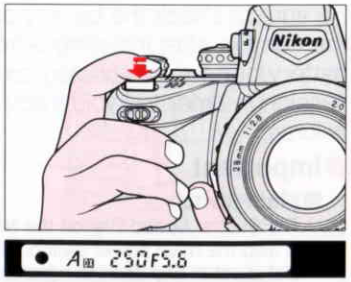


●Caution

At the "L" or "A" setting, the Shutter Speed Dial is locked and cannot be turned. To unlock the dial, hold down the lock release button while turning it.



2 Press the shutter release button slightly to illuminate the indicators inside the viewfinder.



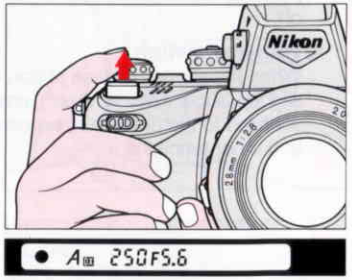
3 Remove your finger from the button and check the indicators inside the viewfinder:

(1) The indicators remain illuminated for about 16 seconds: Battery power is sufficient;

(2) The indicators go out quickly: The battery is weak and needs to be replaced.

(3) All the indicators blink or no indicators illuminate: Replace the battery with a fresh one.

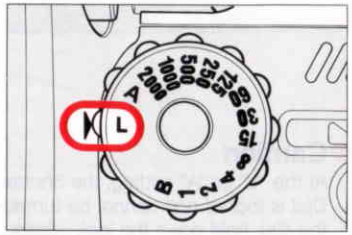
—If the shutter is released, the indicators will go out in about four seconds after removing the finger from the button.



◆Notes

◆We recommend taking a spare battery with you when taking important photographs or when taking the camera along on a trip.

◆To prevent the power from being turned on by accidently bumping the shutter release button while carrying the camera, set the shutter speed dial to "L."



■Important

The following lenses can be mounted onto the Nikonos RS:

R-UW AF Nikkor 28mm f/2.8
R-UW AF Micro-Nikkor 50mm f/2.8
R-UW AF Zoom-Nikkor 20-35mm f/2.8

These are the only lenses that can be used with the Nikonos RS.

●Caution

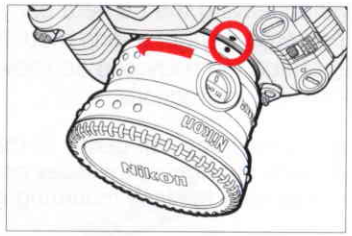
- Do not change lenses in direct sunlight.
- Before mounting a lens, apply a small amount of O-ring lubricant around the O-ring section of the lens. (See pages 15 ~ 18.)
- Be sure not to damage the O-ring of the lens when mounting or releasing it.

Mounting the Lens

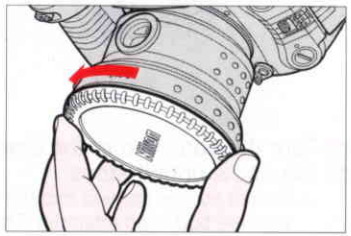
1 Align the lens mounting index to the index on the camera body, insert the lens gently into the body, and turn it in the direction of the arrow until it clicks stop.

—Turn the lens until the lens distance index line comes uppermost.

—Be sure to mount the lens while keeping the lens to be at a right angle to the body.

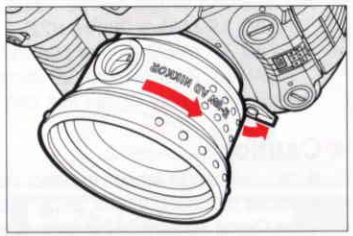


2 The lens cap is removed by turning it counter-clockwise.



Releasing the Lens

1 **Press the lens release lever all the way in the direction of the arrow until it stops. Then turn the lens in the direction of the arrow and gently pull it out of the body.**



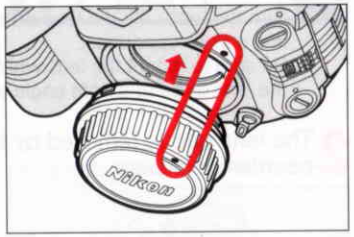
● Caution

Be sure to wipe the water off the camera and lens. When releasing the lens, point the lens down to prevent water from getting inside the camera.

Mounting the body cap

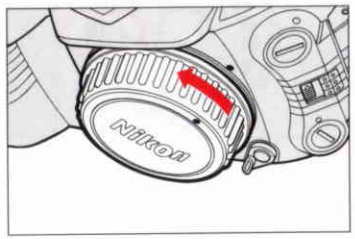
When leaving the camera body for a long time without a lens mounted onto it, attach the body cap as shown in the following instructions.

1 **Fit the body cap gently to the camera body by aligning the index on the body cap with the lens mounting index.**



2 **Turn the body cap in the direction of the arrow until it stops.**

—Do not put the camera into the water with the body cap attached. The body cap is not waterproof.



Setting Film Speeds (DX/Manual)

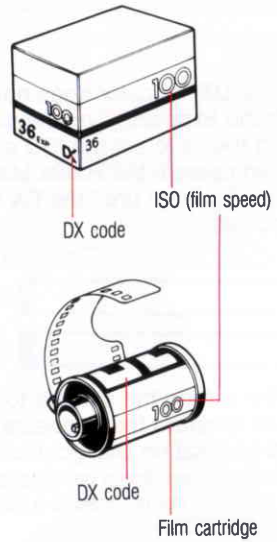
When DX-coded film is used, the camera can automatically set the film speed. However, if non-DX-coded film is used, the film speed must be set manually. If the film speed is not correctly set, the proper exposure will not be obtained.

■ Important

The following film speeds can be used on the Nikonos RS:
(1) DX-coded film: ISO 25 — 5000
(2) Non-DX-coded film: ISO 6 — 6400

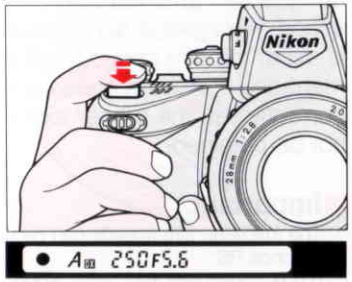
◆ Note

DX codes and film speeds are marked on the outside of the film box.

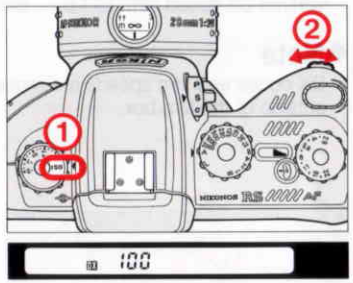


Setting the Film Speed (When loading DX-coded film)

1 Depress the shutter release button slightly. If the DX indicator is visible inside the viewfinder, the film speed has been set automatically.



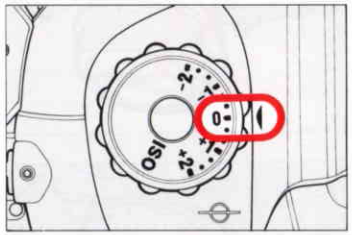
2 If the DX indicator does not appear, lift the Exposure Compensation Dial and turn it to set the ISO settings. Then operate the Power Manual Focus control until the DX indicator appears.



3 After setting the camera to "DX," be sure to return the Exposure Compensation Dial position to zero.

—The shutter cannot be released if the setting is not returned to a position other than "ISO."

—When using this dial to compensate exposure, set it to the desired compensation position. (See pages 65 ~ 66.)

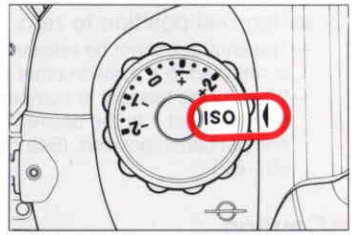


●Caution

If the non-DX-coded film is loaded in DX mode, the camera will not operate even when the shutter release button is pressed after blank exposures. Viewfinder indications (DX/ISO and "Err") inside the viewfinder will also blink to alert you.

Loading non-DX-coded film

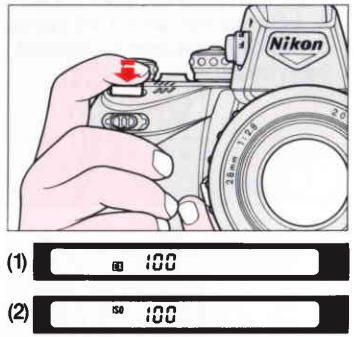
1 Lift the Exposure Compensation Dial and turn it to set the ISO mark to the index.



2 Depress the shutter release button slightly and check the indicator inside the viewfinder:

(1) If the film speed indicator shows the DX mark, the camera is set to DX. (If no film is loaded, only the DX mark will appear.)

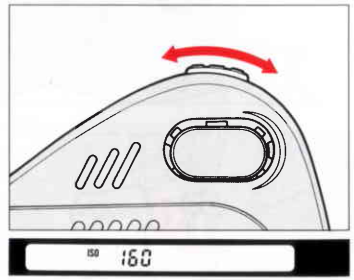
(2) If the ISO mark and the value set for the film speed appear, the camera is set for non-DX film.



3 Move the Power Manual Focus control left or right to set the film speed value:

—The value increases when the control is moved to the left, and decreases when it is moved to the right.

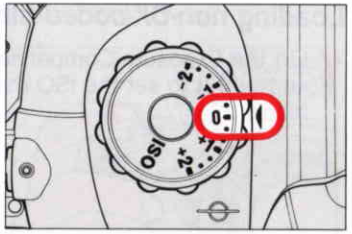
—The film speed can be set to any value from 6 to 6400.



4 **After the film speed has been set, be sure to return the Exposure Compensation Dial position to zero.**

—The shutter cannot be released unless it is returned to a position other than "ISO."

—When using this dial to compensate exposure, set it to the desired compensation position. (See pages 65 ~ 66.)



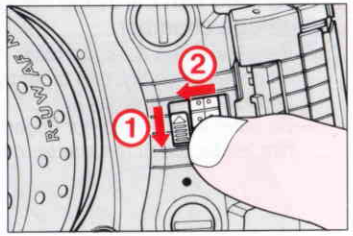
● Caution

If the film speed has been set manually, keep in mind that the camera will operate according to this ISO value even if DX-coded film has been loaded.

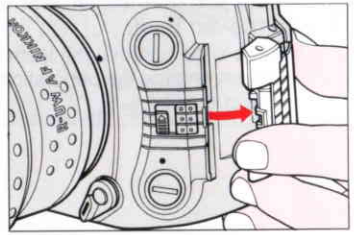
● Caution

- When opening the camera back, be sure to wipe moisture off the camera or your hands.
- When opening the camera back, keep the camera flat or point the lens upward to prevent drops of water from getting inside the camera body.
- Be sure to prevent water from your wet suit or hair from entering the camera body.
- Do not load or unload film in direct sunlight.

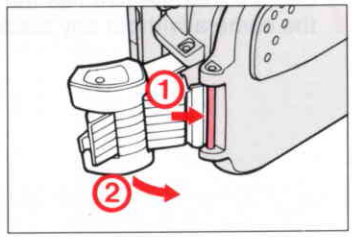
1 **Holding down the lock knob ① to the white mark, slide the lock lever ② in the direction of the arrow to remove the lock release.**



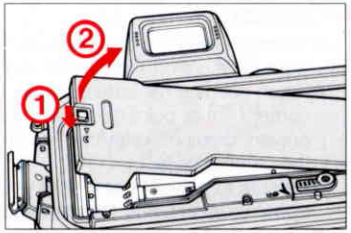
2 **Raise the lock release in the direction of the arrow and open the camera back release/lock buckle.**



3 **Remove the camera back release/lock buckle from its hinge. Next open the buckle in the direction of the arrow and open the camera back.**



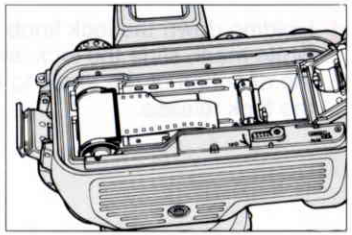
4 Slide the inner cover release latch, and open the inner cover in the direction of the arrow.



5 Insert the film cartridge into the film cartridge chamber.

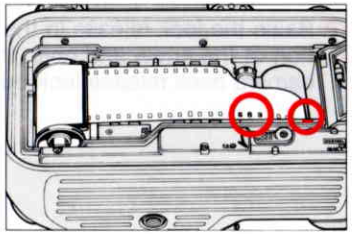
—If the cartridge does not enter the chamber smoothly, turn it gently back and forth until it slides in.

—Be careful not to let your fingertips or the film leader touch the shutter curtain.

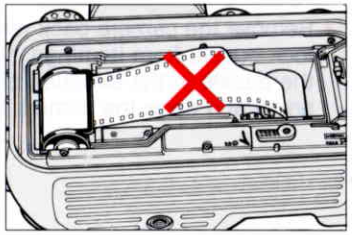


6 Pull out the film leader and align it with the red mark.

—Check to be sure that the teeth on the sprocket engage the perforations on both sides of the film.

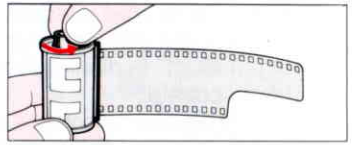


7 Be sure that the film lies flat against the camera without any slack.

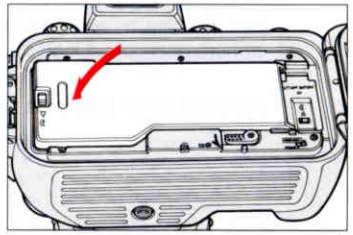


◆Note

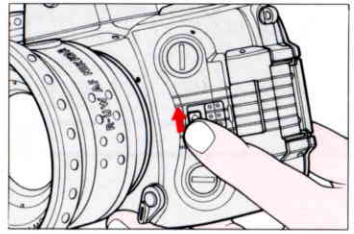
If too much film has been pulled out of the cartridge, rewind the film as far as shown in the illustration to adjust it.



8 Close the inner cover and push it down until it clicks shut.



9 Close the camera back, lock the camera back release/lock buckle, and lock the lock knob securely.



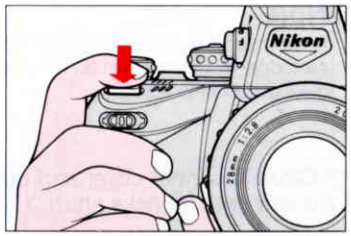
●Caution

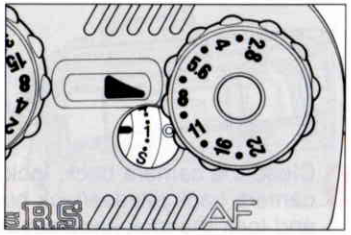
- When closing the camera back, check to be sure that the O-ring is evenly fit into the channels, and that there is neither dirt on or damage to the O-ring, and that the O-ring is not pinched. Smear a small amount of the O-ring lubricant onto the channels.
- After closing the camera back, check once again to be sure that it is securely locked.

10 When the shutter release button is pressed, the camera advances the film until "1" is displayed on the frame counter.

—If the film was not correctly loaded, an "Err" message will blink inside the viewfinder and a frame counter LED (red) will blink to alert you. Open the camera back and reload the film.

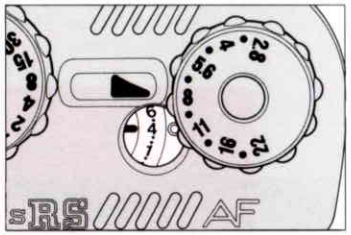
—See page 37 for details on the frame counter.

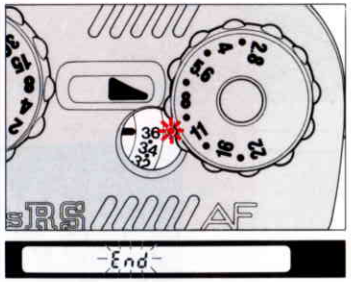




Picture Frame Counter

- The picture frame counter starts with "S" and continues with numbers and periods, from 1 to 36 (except 2). A period ("•") indicates odd-numbered frames.
- Each time the shutter is released, the frame counter automatically advances to the next frame number whether or not any film has been loaded.
  —The frame counter automatically returns to "S" when the inner cover of the camera is opened.
- When the film has been used up, an "End" message in the viewfinder and a frame counter LED (red) blink to alert you.
- The frame counter counts down from 36 to 1 during film rewind, and displays "S" when the film is completely rewound.

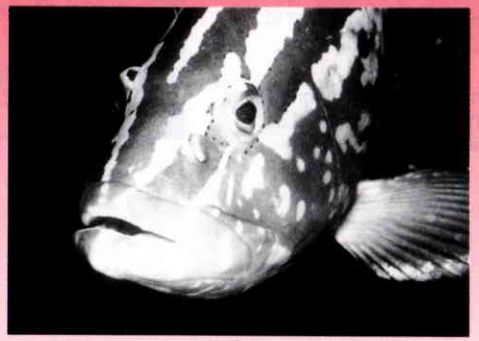




◆Note

If you press the shutter release button slightly without loading film, a frame counter LED (green) blinks to alert you.

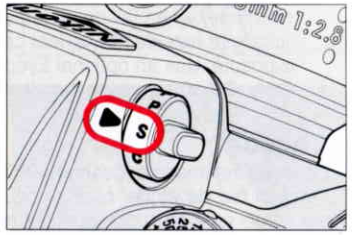
Basic Shooting



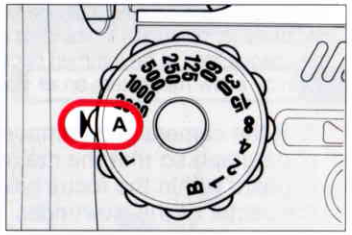
Aperture-Priority Auto Exposure (A) Mode

Aperture-Priority Auto Exposure (A) is the simplest photography program of the Nikonos RS. (See pages 43~45 for details on flash photography using a speedlight.)

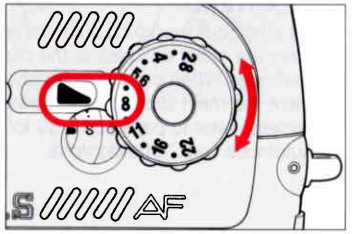
1 Set the Focus Mode Selector dial to "S."
—For details on focusing, see pages 52~59.



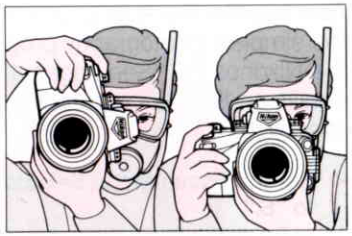
2 Set the Shutter Dial to "A."
—The camera is now in the Aperture-Priority Auto Exposure mode, and the camera will automatically control the shutter speed according to the aperture value that was last set.
—For details on the Exposure mode, see page 60.



3 Set the Aperture Dial to the desired f/stop value.
—Turn the Aperture Dial until the desired f/stop value aligns with the index mark. The dots between the values shown on the Aperture Dial represent the values halfway (1/2 stop) between the values on either side.



4 Hold up the camera and look through the viewfinder.



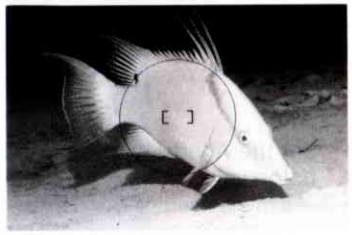
—If the camera is not held properly, it may move while the photograph is being taken and produce an overall blurred image. Be sure to hold the camera steady.

—Keep your eye as close as possible to the viewfinder when taking pictures, as the light from outside may affect correct exposure. Use an optional Eyepiece Cover DK-100 to cover the viewfinder.

● Caution

Because the image appearing within the frame of the viewfinder covers about 92% of the actual area photographed, the resulting image will be slightly larger. However, when photographs are commercially printed from negatives (or reversals) in standard print sizes, the images tend to be trimmed back down again by a few millimeters on all sides.

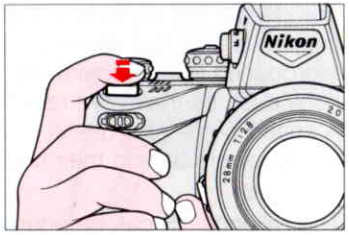
5 Aim the camera and compose your photograph so that the main subject appears within the focus brackets at the center of the viewfinder.



■ Important

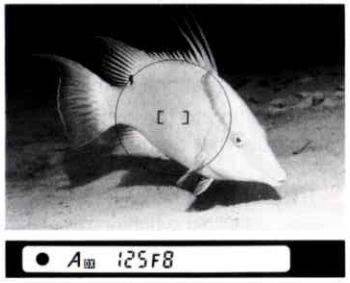
The autofocus works on subjects appearing within the focus brackets at the center of the viewfinder. When composing a photograph where the main subject is not within the focus brackets, refer to pages 54～55 for taking "Autofocus Lock" photographs.

6 Depress the shutter release button slightly.



—When the shutter release button is depressed slightly, autofocus is activated and automatically focuses the lens on the subject.

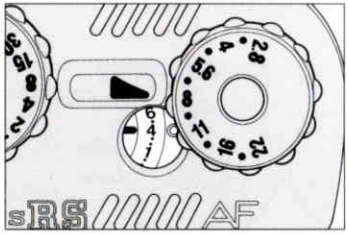
7 Release the shutter when the (•) in-focus indicator appears.



—The shutter cannot be released when the (•) indicator blinks.

—If an alert such as a blinking "•," "Hi," "Lo," or a shutter speed indicator appears, see page 63 for instructions on how to solve the problem.

8 The film automatically advances to the next frame whenever the shutter is released.



—If an abnormality occurs in advancing the film, an "Err" message in the viewfinder and a frame counter LED (red) will blink to alert you.

The deeper the camera is submerged in water and the farther the subject is from the camera, the more difficult it is for the subject to be reproduced in true colors. For underwater photography under conditions such as these, we recommend using a speedlight.
A speedlight is also useful when taking photographs of subjects inside caves, divers behind their masks, or other subjects appearing in shadows.

The Nikonos RS can be equipped with the Speedlight SB-104 (optional) that is specially designed for matrix balanced fill-flash operation, letting you enjoy easy flash photography underwater.

—Nikon Speedlights SB-101, SB-102 and SB-103 can also be used. The explanations in this manual are based on the SB-104.

—In addition to the explanations that follow, please also read the instruction manual that came with your Nikon speedlight unit.

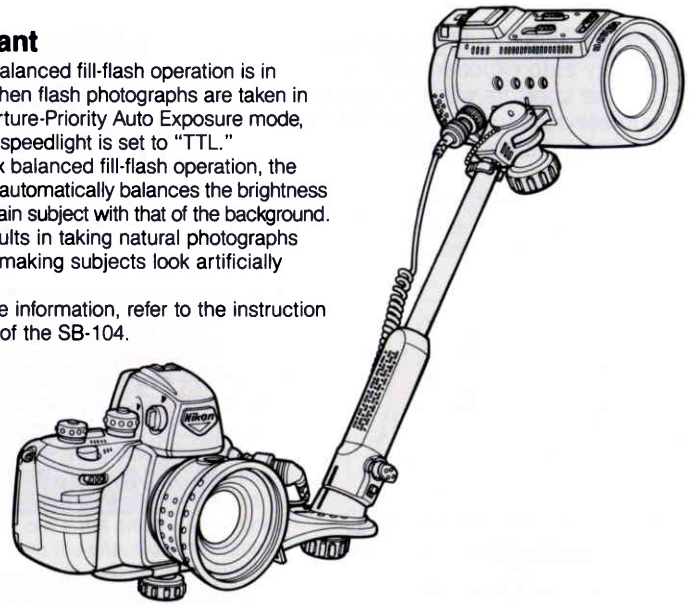
■ Important

The speedlight synchronizes at the shutter speed of 1/125 second or slower.

(matrix balanced fill-flash)

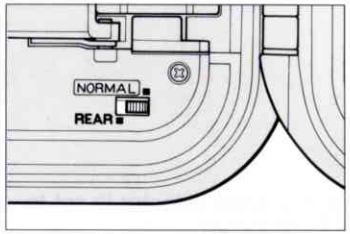
■ Important

- Matrix balanced fill-flash operation is in effect when flash photographs are taken in the Aperture-Priority Auto Exposure mode, and the speedlight is set to "TTL."
- In matrix balanced fill-flash operation, the camera automatically balances the brightness of the main subject with that of the background. This results in taking natural photographs without making subjects look artificially bright.
- For more information, refer to the instruction manual of the SB-104.

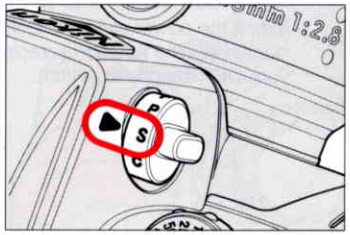


Nikonos RS settings

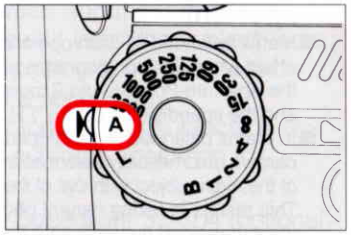
1 Set sync mode to any desired mode. When the sync mode switch is set to "Normal," the shutter speed is controlled between 1/125 and 1/30 second. When it is set to "Rear", the shutter speed is controlled between 1/125 and 1 second.

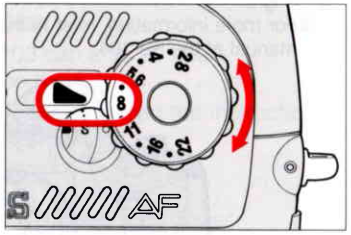


2 Set focus mode to "S" or "C". All focus modes can be used. However, Nikon recommends using "S" (single servo autofocus) or "C" (continuous servo autofocus) mode.



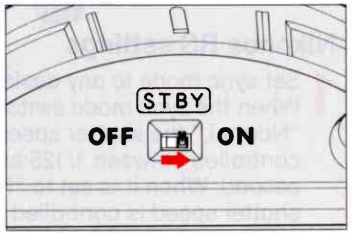
3 Set exposure mode to aperture-priority auto exposure (A).
Set the aperture value so that the subject distance is within the flash shooting distance range.



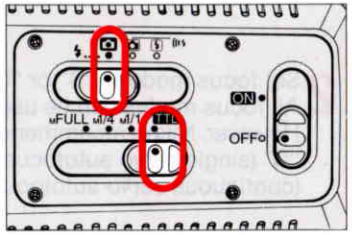


SB-104 settings

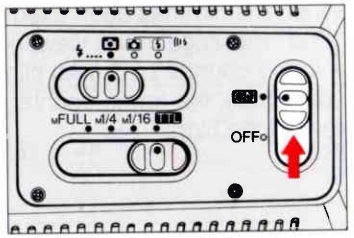
4 Standby switch is ON.



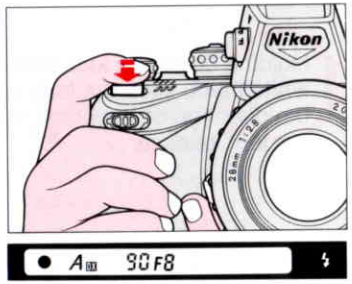
5 Function selector is set to "Standard."
Flash mode selector is set to TTL.
—When the power switch is ON, you cannot set the function selector switch. Turn OFF the power switch.



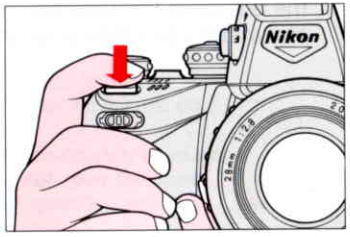
6 Power switch is ON.



7 Pressing the shutter release button slightly.
Check the flash shooting distance range and be sure the ready-light and the (•) in-focus indicator are lit up.
—If the electronic analog display appears, the operation is controlled by center-weighted TTL flash. In this case, the main subject is taken at the correct exposure, but if the electronic analog display is on the plus side, the background exposure will be too bright (over-exposed), or if it is on the minus side, the background exposure will be too dark (under-exposed). If no special background effects are needed, the photograph can be taken as is with correct exposure.
For matrix balanced fill-flash operation, reset the aperture dial on the camera so that the overexposure or underexposure indicator goes out. Using the exposure calculation chart (see page 81), be sure the aperture value set is within the shooting distance range.

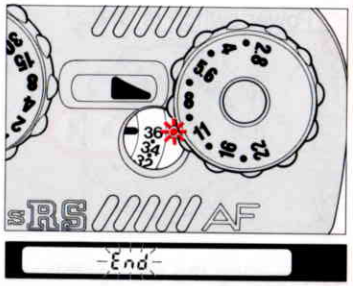


8 Shooting
If both viewfinder ready-light and SB-104 ready-light blink for about three seconds after shooting, the flash has operated at maximum power.
—In this case, either reduce the object distance, or select a smaller f-number.

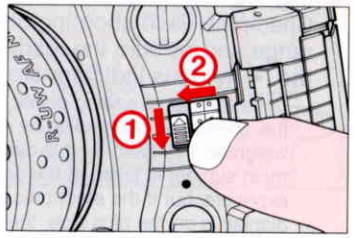


Rewinding the Film

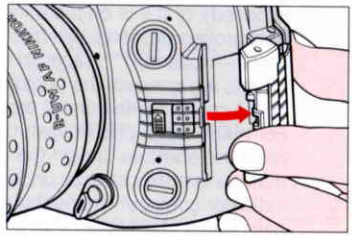
When the film has been used up, an "End" message in the viewfinder and a frame counter LED (red) blink to alert you. Check the frame counter and rewind the film.



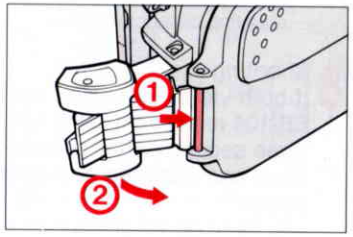
1 Holding down the lock knob ① to the white mark, slide the lock lever ② in the direction of the arrow to remove the lock release.



2 Raise the lock release in the direction of the arrow and open the camera back release/lock buckle.

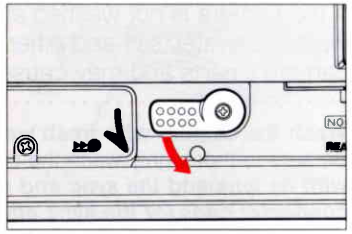


3 Remove the camera back release/ lock buckle from its hinge. Next open the buckle in the direction of the arrow and open the camera back.

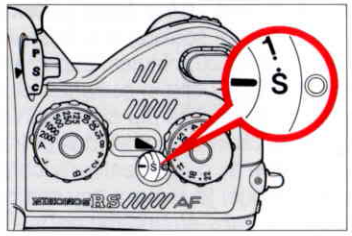


4 Turn the Film Rewind Lever in the direction of the arrow and the camera will automatically start to rewind the film.

—Frame counter LED (red) lights up during film rewind.



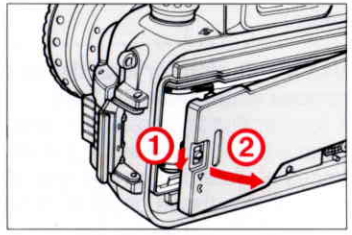
5 When the film has been completely rewound, the frame counter returns to "S" and the frame counter LED (red) goes out.



6 Slide the inner cover release latch, open the inner cover in the direction of the arrow, and remove the film cartridge.

—If a cartridge of rewound film is still in the camera in DX mode, the shutter cannot be released. Frame counter LED (green) blinks.

—Do not remove the film cartridge in direct sunlight.

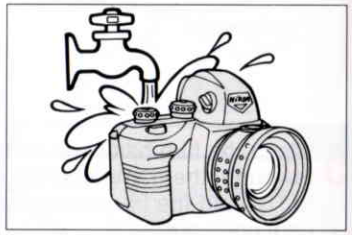


● Caution

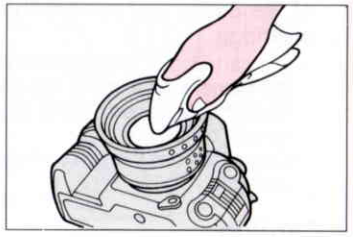
- Never rewind the film while the camera is under water.
- When rewinding the film, be sure to wipe the water off the camera body. Open the camera back by keeping the camera flat or pointing the lens slightly upward to prevent drops of water from getting inside the camera body.
- Be sure to wipe any water off the surface of the O-rings and their contact areas when opening the camera back. Quickly wipe water off if drops of water should fall inside the camera body.
- **Never open the inner cover until the film has been completely rewound.**
- ***If the motor stops while rewinding the film, do not open the inner cover. Replace the battery and start the rewind operation again.***

If the camera is not washed after having been used under water, seawater, salt and other elements will remain on the camera's parts and may cause them to stick or corrode.

Wash the camera with fresh water.
Be sure to thoroughly wash the camera, ***with its lens and the sync and remote connector caps (or the sync and remote cords) still attached and the camera back closed, using fresh water.*** Nikon recommends soaking it in fresh water for a minimum of 30 minutes. Especially if the camera was used in seawater or muddy places, submerge the camera in a sink or other suitable vessel filled with fresh water and move all control parts (such as dials and buttons) to remove any salt or dirt from the gaps around the parts. (It is also a good idea to rinse it under running water.)

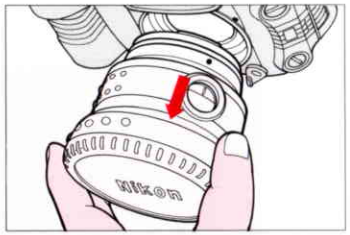


Use a soft cloth or lens tissue paper to remove water from the lens.
If the camera is stored as is after it has been washed and dried, there still may be traces of water left on the lens. Use a soft cloth or lens tissue paper to remove any water remaining on the lens.
When mounting the front lens cap, completely dry the cap after washing it with water.

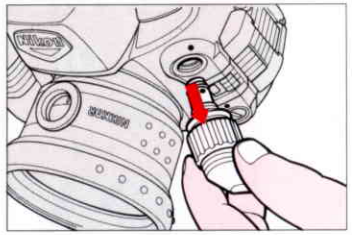


Rust on the stainless steel parts
Light rust might gather on the surface of the stainless steel parts used in the camera body and lens unit after having been used underwater. But the rust appears only on the surface and won't eat away the inside of the products. You can get the rust off with a soft cloth or you can wash it off with water.

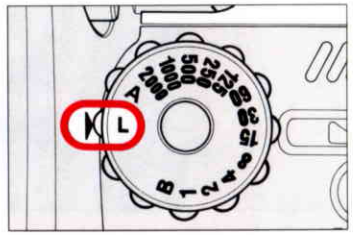
Be careful of water from your body.
When changing lenses or loading film, take care that drops of water do not fall inside the camera body from your hair, mask, wetsuit, etc. Quickly wipe water off if drops of water should fall inside the camera body.



Remove the connector.
If the camera is stored with the speedlight connector attached, it may stick on the camera due to salt or other elements. Remove this connector after washing and drying the camera, and remove any salt that might be left on the connector. (It is also a good idea to apply a small amount of the O-ring lubricant to the screw threads.)



Turn off the power.
To prevent the power from being turned on by accidently bumping the shutter release button while carrying the camera, set the shutter dial to "L."



When drying the camera . . .
Dry with a soft cloth and store in a cool, safe place.

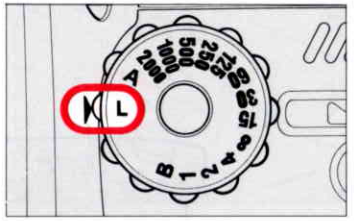
Smear the O-ring lubricant
After washing the camera, remove O-rings and wipe and clean each O-ring channel and contact surface with a clean, soft cloth. Smear a small amount of the O-ring lubricant onto the channels, O-rings and their contact surfaces. Also remove water from the speedlight and remote connector screws and smear the O-ring lubricant onto them.

Basic Operation of Controls

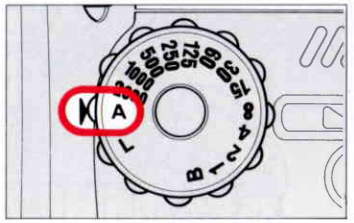
Shutter Speed Dial

The Shutter Speed Dial has the following functions:

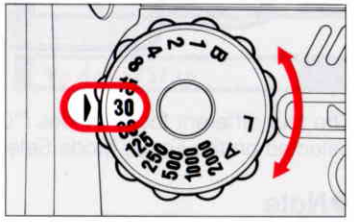
"L" Setting
The "L" setting functions as the camera's power switch. When set to a position other than "L," the power will turn ON when the shutter release button is pressed slightly, and when set to "L," the power will turn OFF.



"A" Setting
At the "A" setting, the Aperture-Priority Auto Exposure mode is in effect. When the sync mode is set to front-curtain operation, the shutter speed is controlled between 1/125 and 1/30 second. When it is set to rear-curtain operation, the shutter speed is controlled between 1/125 and 1 second.

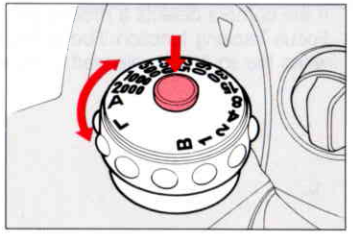


"1/2000 to 1 sec" and "B" Settings
In manual photography, the shutter speed can be set by you. When an exposure time of more than 1 second is required and the Shutter Speed Dial is set to "B," the shutter remains open for as long as the shutter release button is held down.

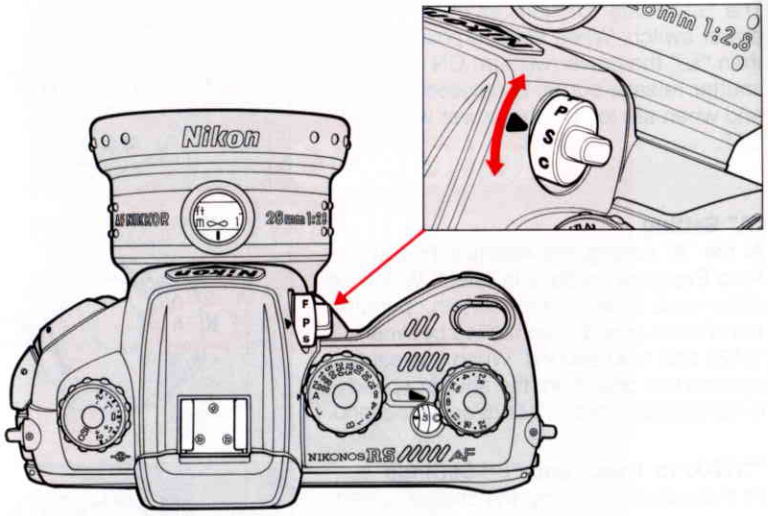


Caution

- The Shutter Speed Dial is locked and cannot be turned when it is set to "A" or "L."
  —To release the lock, hold down the dial lock release button while you turn the dial to another setting.
- When setting the Shutter Speed Dial, be sure that the dial clicks down at the desired shutter speed setting.
  —The camera will not work if the dial is set in the space between clicks.



The Nikonos RS can focus in four different ways.



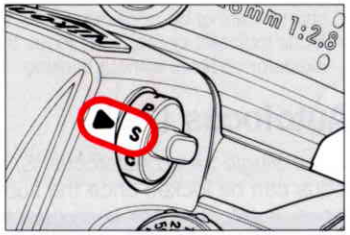
The four different focus modes ("C," "S," "P," and "F") can be selected on the Focus Mode Selector dial.

◆Note

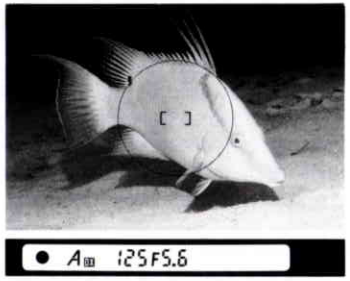
Focus Tracking (in "S" and "C" modes)
If the camera detects a moving subject, it automatically activates the Focus Tracking function. Focus Tracking predicts where the subject will be when the shutter is released to obtain the correct focus.

(1) Single Servo Autofocus (S)

Press the shutter release button slightly to start autofocus. In this mode, the focus indicators will appear in the viewfinder as shown below:

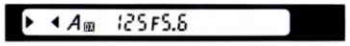


The (•) in-focus indicator (lit up)
This indicator lights up when the camera is in focus. The focus is locked in this position for as long as the shutter release button is held down.
—If the subject moves, remove your finger from the shutter release button, then press it slightly again to re-activate autofocus.



The (•) in-focus indicator (blinking)
This indicator blinks when autofocus is not possible.
—The shutter cannot be released in this condition. Refer to page 62 for further instructions.

The (▶ ◀) focus tracking indicator
Focus tracking is automatically activated if the camera determines that the subject is moving while the shutter release button is being pressed lightly.
While Focus Tracking is active, the (▶◀) focus tracking indicator appears in the viewfinder to predict the position of moving subjects and automatically adjust the lens for correct focus.

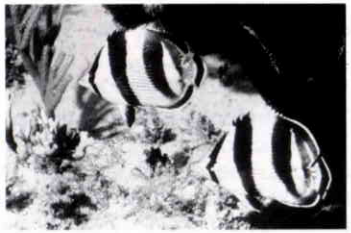


Important

In the Single Servo Autofocus (S) mode, the shutter cannot be released unless the (•) in-focus indicator or the (▶◀) focus tracking indicator appears without blinking.

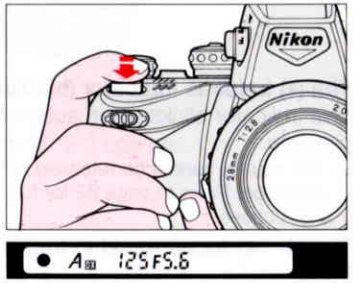
Autofocus Lock

In the Single Servo Autofocus (S) mode, the focus can be locked once the subject is in focus. Autofocus Lock is an effective method of focusing when taking pictures where the main subject is off-center (outside the focus brackets).
In the photograph shown here, for example, the camera would normally focus on the background area between the subjects, and the subjects themselves would become blurred. To shoot this photograph, use the Autofocus Lock function.

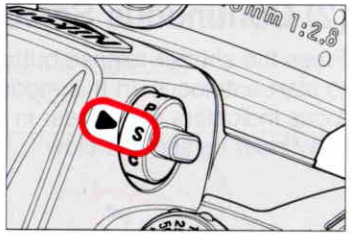


Important

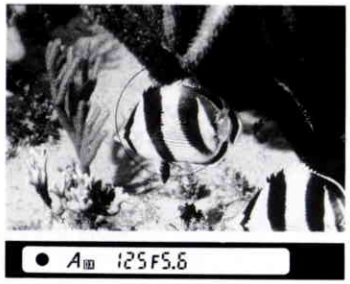
How the Autofocus Lock feature works.
When the focus mode is set to "S" and the shutter release button is pressed slightly, focus is locked once the subject is centered and in focus. The (•) in-focus indicator appears in the viewfinder while the shutter release button is held down slightly.



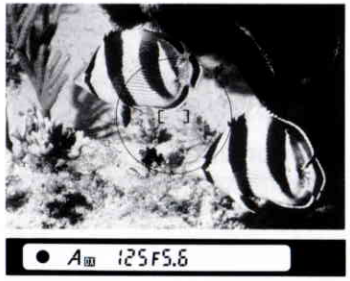
1 Set the focus mode to Single Servo Autofocus (S).
—The exposure mode can be set to any position.



2 **Aim the camera so that the main subject appears inside the focus brackets. Then press the shutter release button slightly.**
—The (•) in-focus indicator will appear in the viewfinder if autofocus was successful. The camera will retain this focus reading in its memory for as long as the shutter release button is held down slightly.
—Do not change the distance between the camera and the subject once the (•) in-focus indicator has appeared.



3 **When the (•) in-focus indicator lights up, hold the shutter release button slightly, recompose the photograph, then press the shutter release button completely.**

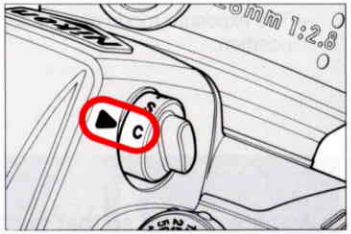


♦Note

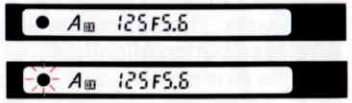
The camera will retain the focus reading in memory and the shutter can be released at any time for as long as the shutter release button is held down slightly.

(2) Continuous Servo Autofocus (C)

Press the shutter release button slightly to start autofocus. In this mode, the focus indicators will appear in the viewfinder as shown below:



The (•) in-focus indicator
This indicator lights up when the camera is in focus. The focus is not locked, but the camera continues focusing for as long as you keep the shutter release button lightly pressed.



The (▶◀) focus tracking indicator
This indicator lights up if the camera detects a moving subject. Focus Tracking is activated automatically.
While Focus Tracking is active, the (▶◀) focus tracking indicator appears in the viewfinder to predict the position of moving subjects and automatically adjust the lens to obtain the correct focus.

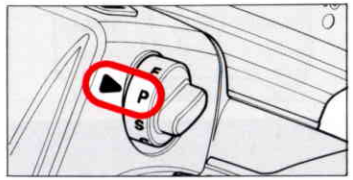
Important

In Continuous Servo Autofocus (C) mode, the shutter can be released at any time regardless of the focus indicators shown in the viewfinder.

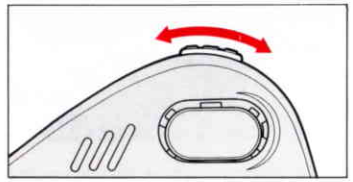
(3) Power Manual Focus (P)

The Power Manual Focus mode is convenient if subject is difficult to focus in autofocus ("S" or "C") mode.

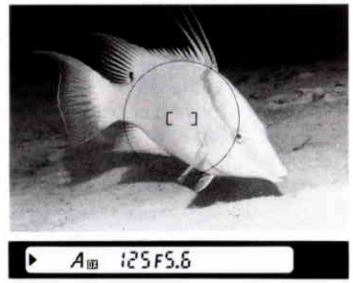
1 Set the Focus Mode Selector dial to "P."



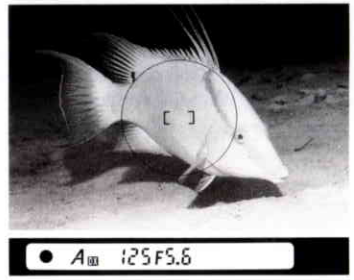
2 Moving the lens forward or backward
—When the Power Manual Focus control is moved to the left or the right, the lens moves forward or backward, respectively.
—The speed at which the lens moves is linked to the amount of adjustment made on the Power Manual Focus control.



3 Adjusting the focus
—Adjust the Power Manual Focus control until a crisp image appears on the matte field of the viewfinder screen.
—Adjust the control to the right when a (▶) focus-to-right arrow appears in the viewfinder, or to the left when a (◀) focus-to-left arrow appears.

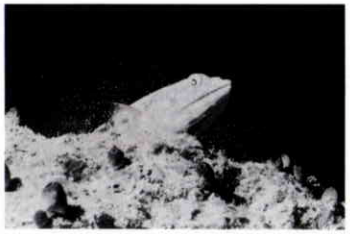


4 Be sure the (•) in-focus indicator appears.
—When the subject in the focus brackets is in focus, the (•) in-focus indicator appears in the viewfinder.
—A clearly-focused picture can be taken when the shutter is released at this time.
—The shutter can be released even when the (•) in-focus indicator does not appear in the viewfinder.

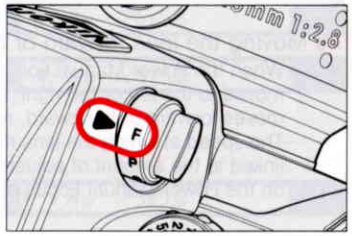


(4) Freeze Focus (Focus-Priority) (F)

In Freeze Focus mode, the shutter can be released the instant a subject appears within the preset focus range.



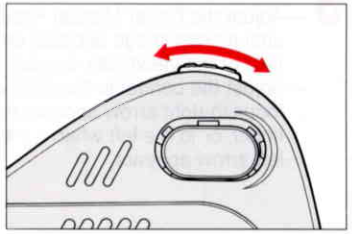
1 Set the Focus Mode Selector dial to "F."



2 Moving the lens forward or backward

—When the Power Manual Focus control is moved to the left or the right, the lens moves forward or backward, respectively.

—The speed at which the lens moves is linked to the amount of adjustment made on the Power Manual Focus control.

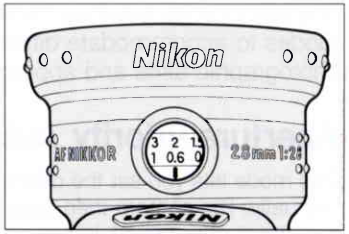


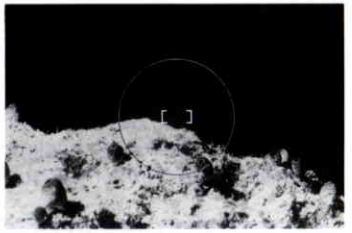
● Caution

When taking a close up of your subject, a clearly-focused picture may not be possible, if the subject or the camera moves even slightly when releasing the shutter.

3 Presetting the focus range

—Set the lens to the desired distance while monitoring the distance scale window.



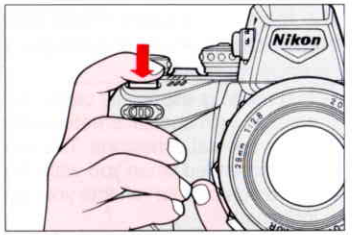


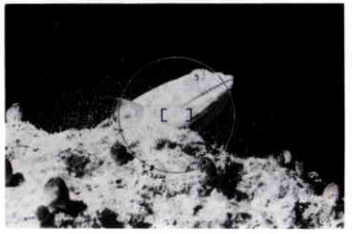
4 Pressing the shutter release button

—Press the shutter release button once when you are satisfied with the composition for your photograph.

—The shutter will be released when the subject appears within the preset focus range (or object distance).

—If the subject is moving too fast, the camera may not be able to focus properly.

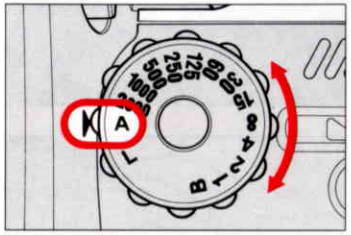




The Nikonos RS provides two exposure modes to accommodate different photographic aims and applications.

Aperture-Priority Auto Exposure (A)

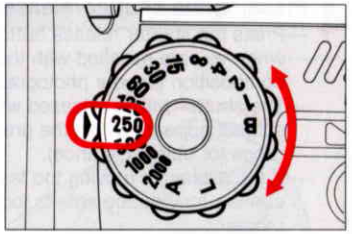
This mode lets you set the desired aperture manually. The camera then automatically sets the shutter speed, based on the brightness of the subject, to suit the aperture value you have set. This mode lets you easily take correctly-exposed photographs. This mode is ideal for controlling the depth of field by creating overall uniform sharpness, or by softening the background to place emphasis on the main subject.



Manual Exposure Control

The Manual Exposure mode allows you to make both aperture and shutter speed settings manually.

—This mode is especially useful for taking pictures with special creative effects or under special conditions. This mode is recommended when you want to create a photograph that reflects your own imagination.



Setting the Exposure mode

Set the Shutter Dial to "A" to set the camera in the Aperture-Priority Auto Exposure mode. When it is set to any other position, the camera will be in the Manual Exposure mode.

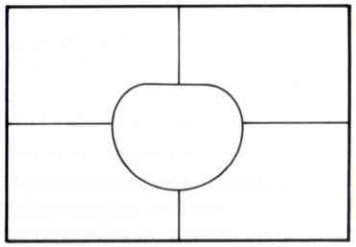
Important

The aperture setting is always made on the Aperture Dial of the camera.

The Nikonos RS provides two exposure metering systems — Matrix Metering and Center-Weighted Metering. These systems determine the exposure by measuring the amount of light coming into the camera through the lens (TTL open-aperture exposure metering).

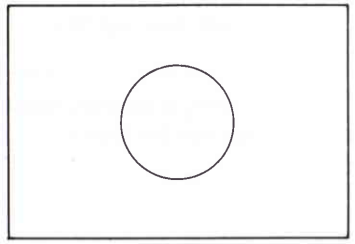
Matrix Metering

The Matrix Metering sensor determines scene brightness by dividing the scene into five segments, then analyzes each section for brightness. This metering provides the correct exposure for the main subject in virtually any lighting situation without requiring manual exposure compensation.



Center-Weighted Metering (75%/25%)

The Center-Weighted meter concentrates 75% of its sensitivity on the center of the viewfinder outlined by a 12mm circle. This metering, recommended for selective exposure control for a centrally located subject, is useful for taking photographs where personal control of exposure is desired.



Important

The exposure metering system automatically switches to:

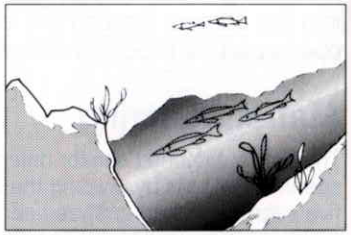
(1) Matrix Metering when the shutter speed dial is set to Aperture-Priority Auto Exposure (A) mode, and

(2) Center-Weighted Metering when the shutter speed dial is set to Manual mode.

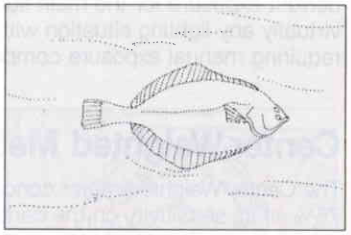
Special Focusing Situations

Due to the nature of the autofocus, it may not always be possible to focus on a subject in the situations given below. In these cases, the (•) in-focus indicator in the viewfinder will blink to alert you:

If the subject is very dark...
—Brighten the subject using an underwater hand light.



If the subject is in low contrast...
—Focus on another subject with more contrast located at the same distance and use Focus Lock. Then move the camera back to the original subject and shoot the photograph. (See pages 54 ~ 55.)
—Focus the camera in the Power Manual Focus mode. (See page 57.)



When shooting a strongly backlit subject, a clearly-focused picture may not be taken.

Viewfinder Warning Indications

Aperture-Priority Auto Exposure (A) mode, and Manual Exposure mode

Indication	Problem	Solution	Reference
(•) in-focus indicator blinks.	Auto focusing not possible.	Set the focus mode selector dial to "P" and focus.	Page 57
"Hi" blinks.*	Overexposure	Set a smaller aperture (a larger f-number).	Page 68
"Lo" blinks.*	Underexposure	Set a larger aperture (a smaller f-number). If "Lo" still blinks in full aperture, use a speedlight.	Page 68
Ready-light (ϟ) blinks.	Speedlight illumination may not be strong enough.	Check object distance and flash shooting distance range.	Page 81

*In Aperture-Priority Auto Exposure (A) mode only.
Electronic Analog Display appears when "Hi" or "Lo" indicator blinks in aperture-priority auto exposure (A) mode.

Electronic Analog Display

The Nikonos RS electronic analog display appears in the following cases:

- They always appear when Exposure mode is set to "Manual."
- Electronic Analog Display appears when "Hi" or "Lo" indicator blinks in aperture-priority auto exposure (A) mode. (No "Hi" or "Lo" indicator blinks when Speedlight is mounted.)

Examples of Electronic Analog Display

(1) Correct exposure

(2) Underexposure by 1/3 EV step

(3) Overexposure by 1 EV step or more

Obtaining the Correct Exposure

- If the exposure mode is set to "Manual," correct exposure state (as shown above (1)) can be controlled by both aperture and shutter speed settings.
- If the exposure mode is set to "A," correct exposure state (as shown above (1)) can be controlled by the aperture setting.
  —In this case, the exposure indicator goes out as soon as the correct exposure has been obtained.

Exposure Compensation

When shooting a strongly backlit subject or when the main subject contrasts sharply with the background, the correct exposure may not be obtained; exposure compensation is recommended.

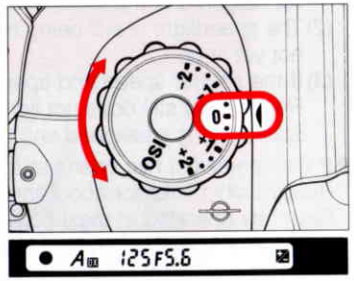
Important

There are often instances in underwater photography, depending on shooting situations, where it is difficult to determine the correct exposure. In these cases, we recommend shooting several frames of exposure-compensated photographs in both the over- and underexposed areas of the viewfinder.

In Aperture-Priority Auto Exposure (A) mode

In Aperture-Priority Auto Exposure (A) mode, turn the Exposure Compensation Dial to compensate the exposure from +2EV to −2EV in increments of 1/3 EV step.

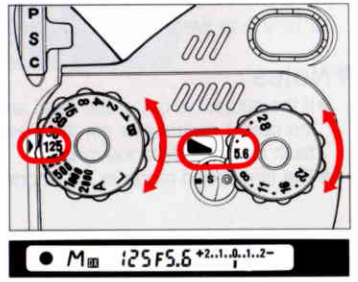
—Lift the Exposure Compensation Dial up slightly while turning it.
—A [+/−] exposure compensation mark illuminates in the viewfinder during compensation. (See page 20.)



In Manual Exposure mode

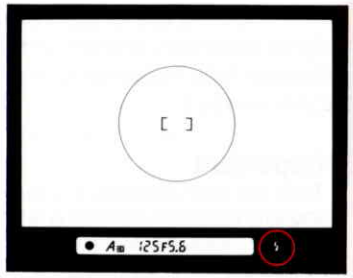
In Manual Exposure mode, the desired exposure value can be freely set by changing the aperture or shutter speed.

—Set the aperture or shutter speed while pressing the shutter release button slightly and monitoring the exposure indicator inside the viewfinder.



Flash Ready-Light

The Ready-Light appears at the right side of the viewfinder. When a Nikon Speedlight SB-104 has been attached to the camera, the recharging status and flash firing condition can be checked while looking through the viewfinder. (This is also possible with the SB-102/SB-103.)



Functions of the Ready-Light

- When the speedlight power has been turned on and the shutter release button is pressed slightly . . .
  (1) The Ready-Light illuminates when the speedlight has been recharged and the flash is ready to fire.
  (2) The speedlight is still being recharged if the Ready-Light has not yet lit up.
  (3) If the shutter speed and aperture value are visible but the Ready-Light still does not light up, the battery of the speedlight is weakened and needs to be replaced.
- If the speedlight has been set to TTL flash mode and the Ready-Light blinks for about three seconds after shooting, the flash has operated at maximum power. Check again the object distance and flash shooting distance range.
- Except for cases in which the speedlight is being used for continuous shooting (repeated firing), if the speedlight takes more than time specified for each speedlight to recycle, the battery has weakened and needs to be recharged or replaced.

◆Notes

◆If the subject is out of the flash shooting distance range, either adjust the object distance or set the Aperture Dial to a value within the flash shooting distance range.
◆The film speed range in TTL mode is from ISO 25 to 1000.

Controls in Detail

Shutter Speed and Aperture

Exposure (the amount of light reaching the film) is controlled by the combination of a shutter speed and an aperture setting. For example, the amount of light at 1/250 second is one half that at 1/125 second, and the amount of light at 1/60 second is twice that at 1/125 second. Likewise, the amount of light at f/8 is one half that at f/5.6, and the amount of light at f/4 is twice that at f/5.6.
Thus, if you obtain the correct exposure with the combination of 1/125 second and f/5.6, you also obtain the correct exposure with the combinations of shutter speed and aperture as shown in the table below. All combinations give the same exposure.

Shutter speed/aperture combinations that give the same exposure

Shutter speed (sec.)	1/2000	1/1000	1/500	1/250	1/125	1/60	1/30	1/15	1/8
Aperture (f-number)	1.4	2	2.8	4	5.6	8	11	16	22

Once you understand these combinations, you will be able to enjoy a greater degree of creativity in taking photographs.

Depth of Field

When focusing on a subject, a certain range in the front and behind the subject will be sharp (in focus); the farther away from the subject, the more blurred these areas will appear. This in-focus zone is known as Depth of Field. When the zone of sharpness is large, the depth of field is "deep," and when it is small, the depth of field is "shallow."

◆Notes

The depth of field works in the following ways:

When a lens of the same focal length is used...

(1) The smaller the aperture (the larger the f-number), the deeper the depth of field; the larger the aperture (the smaller the f-number), the shallower the depth of field.
(2) The depth of field becomes deeper the farther the subject is from the lens; it becomes shallower the closer the subject is to the lens.
(3) The depth of field is deeper behind the subject and shallower in front of the subject (1/3 in front and 2/3 behind at normal distances).

When the same aperture values are used and subject distances remain the same...

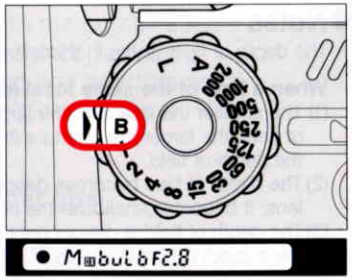
(4) The shorter the focal length, the deeper the depth of field; the longer the focal length, the shallower the depth of field.

You can control the depth of field in your photographs to produce a result where only the main subject is in focus, or where the foreground and background are also in focus.

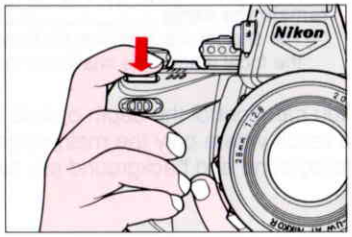
Long-Time Exposure (Bulb) Photography

Long-Time Exposure "B" (Bulb) photography is useful when you wish to expose a frame for one second or longer. In this mode, the shutter curtain remains open for as long as the shutter release button is held down.

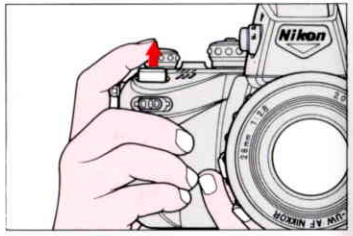
1 Set the Shutter Speed Dial to "B."
—When shutter speed dial is set to "B," "M bulb" and the aperture value are displayed inside the viewfinder.



2 **Set the desired aperture and press the shutter release button (holding it down).**
—The shutter curtain will remain open for as long as the shutter release button is held down.



3 To end exposure, release your finger from the shutter release button.



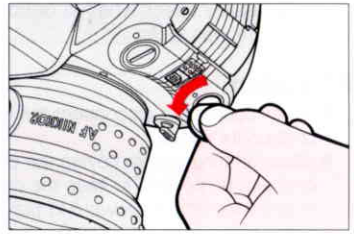
● Caution

The length of time that Long-Time Exposure (Bulb) Photography remains possible depends on the life of the battery in the camera.
—When a new lithium battery is used, the length of time will be approximately 7 hours (at a temperature of 20°C).
—Since the battery's performance drops when the temperature falls below the freezing point (0°C), the time of continuous shooting will be less.

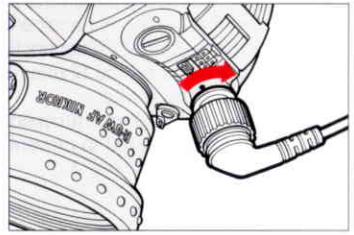
Remote Control Photography

An optional remote cord (MC-100) can be connected to the Nikonos RS enabling the shutter to be released from a distance.
(Refer to the latest brochure.)

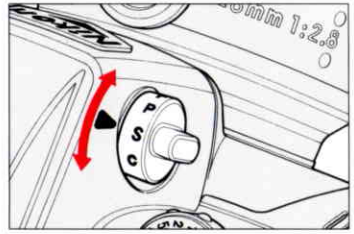
1 **Turn the remote (optional) cap in the direction of the arrow using a coin or similar object to remove it.**



2 Insert the **remote cord and fasten it** securely.
—Be sure to smear the lubricant onto the O-ring when mounting the remote cord.

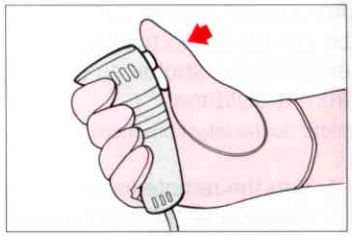


3 Set the focus mode to "C," "S," "P," or "F," and select the exposure mode.



4 Press the release button on the cord to take the photograph.

—Press the release button slightly to activate autofocus.
—Press the button slowly and steadily.
—When the shutter is released, the LED on the remote grip illuminates so that you can easily check whether or not the picture was taken.

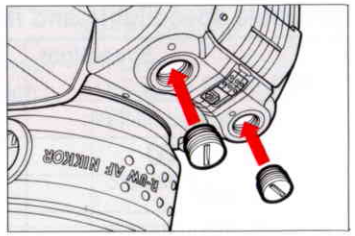


●Caution

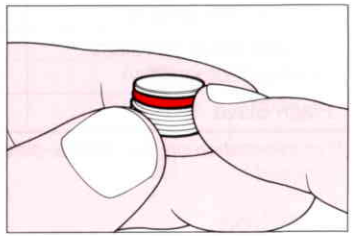
- ●Never connect or disconnect the remote cord under water.
- ●When attaching or removing the control connectors, be sure to keep the camera flat or point the lens downward to prevent water from getting inside the camera body.
- ●Be sure to wipe moisture off the inner parts.
- ●To ensure that you do not accidentally release the shutter while connecting the remote cord, first set the Shutter Speed Dial to "L" to lock the shutter.
- ●Cover the viewfinder with an optional Eyepiece Cover DK-100 to prevent the light from entering.

Caps for Remote Terminal and Sync Terminal

The caps for the remote and sync terminals are used to prevent water from getting into the terminals. Be sure that they are securely attached when you are not using the remote cord or the speedlight.



When attaching or removing the caps, do not forget to check the O-rings, channels and their contact surfaces, and to lubricate them.



If water should enter into the connector terminals or light rust should gather on the contacts of the connector terminals, take the camera to your nearest Nikon service center as soon as possible.

Available speedlights and flash modes

Flash mode \ Speedlight	SB-104	SB-102	SB103
Matrix balanced fill-flash	○	○	○
TTL auto	○	○	○
Non-TTL auto	×	○	×
Non-TTL manual	○	○	○
Rear-curtain sync	○	○	○
Camera Slave (cordless remote photography)	○	×	×
Flash Slave	○	○	×

*For information on speedlights, please refer to the instruction manual provided.

● Caution

Concerning speedlights produced by other manufacturers
If speedlights of other manufacturers requiring 250 volts or more are used on the X contact of this camera, not only will the camera not function properly, the circuitry of the camera and the sync circuitry for the speedlight may also be damaged.

Possible shooting modes	Nikonos RS settings		SB-104 settings		
	Sync mode (*2)	Exposure mode (*3)	Standby switch	Function selector (*1)	Flash mode selector
Matrix balanced fill-flash (*4)	Desired mode	Aperture-priority auto	ON	Standard	TTL
Center-weighted TTL flash (*6)	Desired mode	Manual	ON	Standard	TTL
Rear-curtain sync	Rear-curtain sync	Desired mode	ON	Standard	Desired mode
Manual (*5)	Desired mode	Desired mode	ON	Standard	M Full M 1/4 M 1/16

*1 Set the function selector to "Standard" for operations other than Camera Slave or Flash Slave.

*2 When the sync mode is set to "Normal" in aperture-priority auto exposure mode (A), the shutter speed is controlled between 1/125 and 1/30 second. (When it is set to "Rear", the shutter speed is controlled between 1/125 and 1 second.)

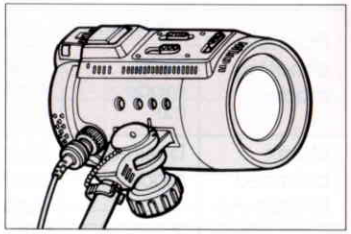
*3 In manual exposure mode, the shutter speed can be set at 1/125 second to 1 second, or B (bulb). (When shutter speed is set to 1/2000 to 1/250 second, it is automatically controlled at 1/125 second).

*4 In matrix balanced fill-flash operation, set the aperture dial so that the electronic analog display in the viewfinder goes out. If the photograph is taken while the electronic analog display appears, the operation is automatically controlled by center-weighted TTL flash. (In this case the main subject is taken at the correct exposure but with no background exposure adjustment.) Refer to "Matrix Balanced Fill-Flash" on page 10.

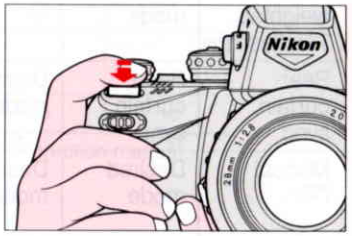
*5 When setting the flash mode selector in manual shooting mode, select a guide number (MFull, M1/4, or M1/16) so that the actual shooting distance corresponds to that of the exposure calculation chart.
Manual Flash Exposure mode
The flash output that falls on the foreground subject is directly related to the selected power setting on the SB-104 and the distance from the Speedlight to the subject.

*6 Center-Weighted TTL Auto Exposure
The flash output that falls on the foreground subject is automatically controlled by the camera as a result of measuring the amount of light which passes through the lens and strikes the film. It has no affect on the background ambient light, which is controlled manually by the photographers shutter speed and aperture settings.

1 Select a possible shooting mode, and set the Nikonos RS and the SB-104.



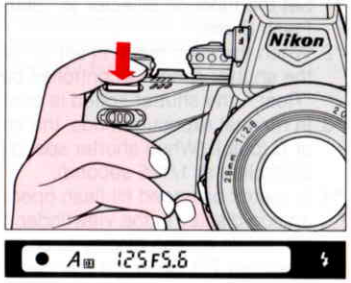
2 Press the shutter release button slightly.



3 Confirm the flash shooting distance range and check to be sure that the ready-light and the (•) in-focus indicator are lit up to shoot.

—If both viewfinder ready-light and SB-104 ready-light blink for about three seconds after shooting, the flash has operated at maximum power.

—In this case, either reduce the object distance, or select a smaller f-number.



◆Note

For details on the method of connection, checking the flash shooting distance range, Camera Slave (cordless remote photography), Flash Slave photography, see the Instruction Manual provided with the speedlight being used.

Using the Nikonos RS with the Speedlights SB-102 and SB-103.

Possible shooting modes	Nikonos RS settings		SB-102, SB-103 settings
	Sync mode (*1)	Exposure mode (*2)	Flash mode selector
Matrix balanced fill-flash (*3)	Desired mode	Aperture-priority auto	TTL
Center-weighted TTL flash (*4)	Desired mode	Manual	TTL
Rear-curtain sync	Rear-curtain sync	Desired mode	Desired mode
Manual	Desired mode	Desired mode	M Full M 1/4 M 1/16

*1 When the sync mode is set to "Normal" in aperture-priority auto exposure mode (A), the shutter speed is controlled between 1/125 and 1/30 second. (When it is set to "Rear", the shutter speed is controlled between 1/125 and 1 second.)

*2 In manual exposure mode, the shutter speed can be set at 1/125 second to 1 second, or B (bulb). (When shutter speed is set to 1/2000 to 1/250 second, it is automatically controlled at 1/125 second)

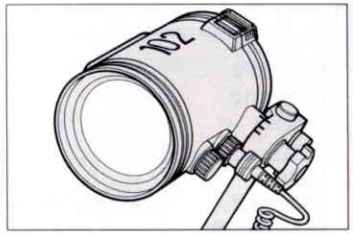
*3 In matrix balanced fill-flash operation, set the aperture dial so that the electronic analog display in the viewfinder goes out. If the photograph is taken while the electronic analog display appears, the operation is automatically controlled by center-weighted TTL flash. (In this case the main subject is taken at the correct exposure but with no background exposure adjustment.) Refer to "Matrix Balanced Fill-Flash" on page 10.

*4 Center-Weighted TTL Auto Exposure
The flash output that falls on the foreground subject is automatically controlled by the camera as a result of measuring the amount of light which passes through the lens and strikes the film. It has no affect on the background ambient light, which is controlled manually by the photographers shutter speed and aperture settings.

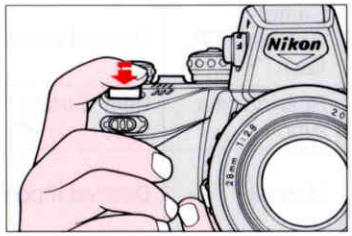
●Caution

●Speedlights SB-102 and SB-103 are designed to withstand water pressure up to a depth of 50 meters (164 feet).

1 Select a possible shooting mode, and set the speedlight (SB-102 or SB-103) and the camera.



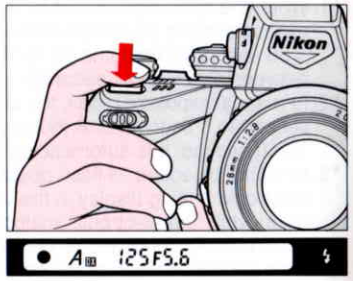
2 Press the shutter release button slightly.



3 Confirm the flash shooting distance range and check to be sure that the ready-light and the (•) in-focus indicator are lit up to shoot.

—If both viewfinder ready-light and speedlight (SB-102 or SB-103) ready-light blink for about three seconds after shooting, the flash has operated at maximum power.

—In this case, either reduce the object distance, or select a smaller f-number.

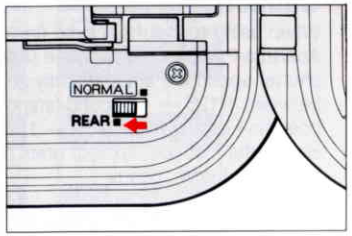


Rear-Curtain Sync Photography

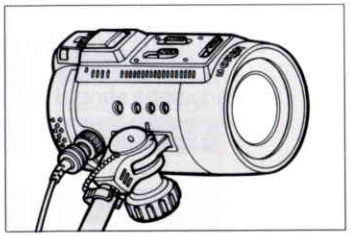
Rear-curtain sync photography is effective when light conditions are poor and one wishes to highlight the movement of subjects at a slow shutter speed. The movement of the subject is represented by a natural stream of light following behind it.

1 Set the sync mode switch to "Rear."

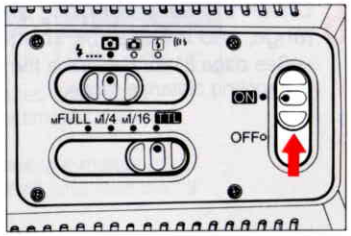
—Before entering the water, open the camera back, set the camera's sync mode switch in the direction of the arrow, and close the camera back.



2 Set the Speedlight.

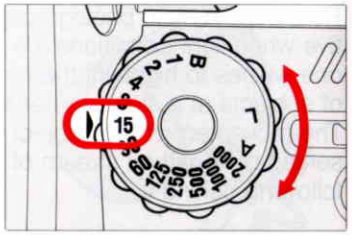


3 Turn ON the speedlight's power switch and check to be sure the ready-light is ON.



4 Set the f/stop and shutter speed on the camera.

—The Shutter Speed Dial can be set to either "A," 1/125 — 1 second, or "B," but a shutter speed of 1/60 second or slower is most effective for rear-curtain sync photography.
—Set the Focus mode to any desired position.

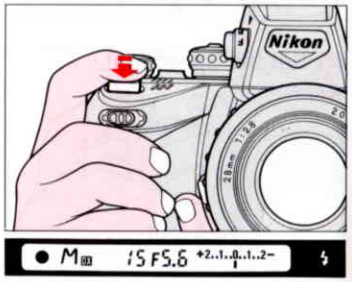


● Caution

When using rear-curtain sync flash in Aperture-Priority Auto Exposue (A) mode, the shutter speed will automatically set itself to between 1/125 — 1 second (standard operation is between 1/125 — 1/30 second). Be careful that your subject does not become blurred at these speeds.

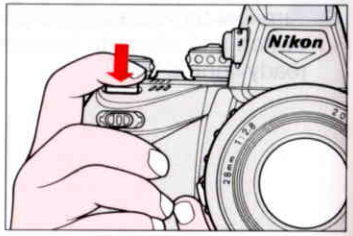
5 Press the shutter release button slightly and check the viewfinder indicator:

* The (•) in-focus indicator should be lit.
* The ready-light should be lit.



6 Check the flash shooting distance range, and release the shutter.

—See page 81 for details on the flash shooting distance range.



Reading the Exposure Calculation Chart (SB-104 only)

Objects underwater appear closer than they actually are.
For instance, if the estimated camera-to-subject distance underwater is 1 meter (3.3 feet), the actual distance is 1.33 meters (4.3 feet).
The distance scales on the exposure calculation chart and lenses are marked by estimated distances underwater. When you estimate the distance, read the flash shooting distance range from the chart directly.

In TTL flash mode

Read the flash shooting distance range in the "M Full" column on the left of the scale.
For example, when shooting a subject underwater at estimated 0.5 meter (1.6 feet) using ISO 100 film, set the aperture to f/22 or larger (smaller f-number) to get the correct exposure.

ISO100

m	M FULL	M 1/4	M 1/16
0.3	22 1/2	11 1/2	5.6 1/2
0.5	22	11	5.6
0.7	16	8	4
1	16	8	4
1.5	11	5.6	2.8
2	8	4	–
3	5.6	2.8	–

In manual flash mode

The scales from the left indicate "M Full," "M 1/4," and "M 1/16."
For example, when shooting a subject underwater at an estimated 0.5 meter (1.6 feet) using ISO 100 film, the appropriate f/stop at "M Full" is f/22, at "M1/4" is f/11, and at "M1/16" is f/5.6.

ISO100

m	M FULL	M 1/4	M 1/16
0.3	22 1/2	11 1/2	5.6 1/2
0.5	22	11	5.6
0.7	16	8	4
1	16	8	4
1.5	11	5.6	2.8
2	8	4	–
3	5.6	2.8	–

■ Important

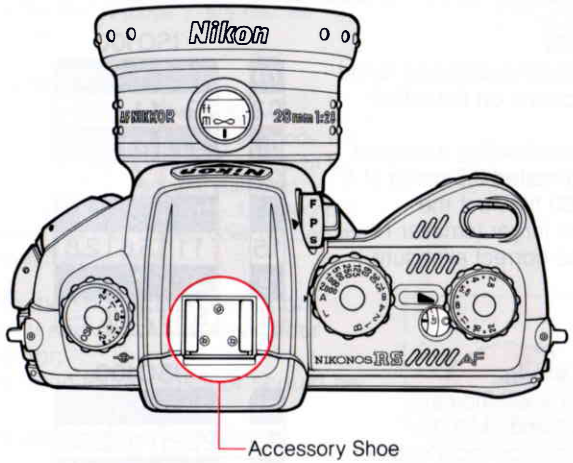
If the camera-to-subject distance is actually measured underwater, multiply the measured distance by 3/4 to get the estimated distance underwater.
For example, if the actual camera-to-subject distance is 4 meters (13.1 feet), set the lens distance scale to 3 meters (9.8 feet), and read the "3 meters" column on the exposure calculation chart.

◆ Note

For further details on the speedlights (SB-102 and SB-103), see the Instruction Manual provided with each speedlight.

Accessory Shoe

A sensor unit (SU-101) or other accessories can be mounted directly on the Nikonos RS's Accessory Shoe. When attaching an accessory to this shoe, be sure to insert it all the way into the shoe until it stops. Also be sure to insert the ring sufficiently when attaching accessories equipped with lock rings.



● Caution

The Nikonos RS accessory shoe is not a "hot" shoe; no electric current passes between the shoe and the accessory attached to it.

Other Information

Color changes under water

Light absorption is a constant occurrence under water. Water especially tends to absorb colors with a high red content. Water absorbs light from all directions, not only from above but also horizontally and diagonally. It is thus necessary to use a speedlight in order to more faithfully reproduce the color of underwater subjects.

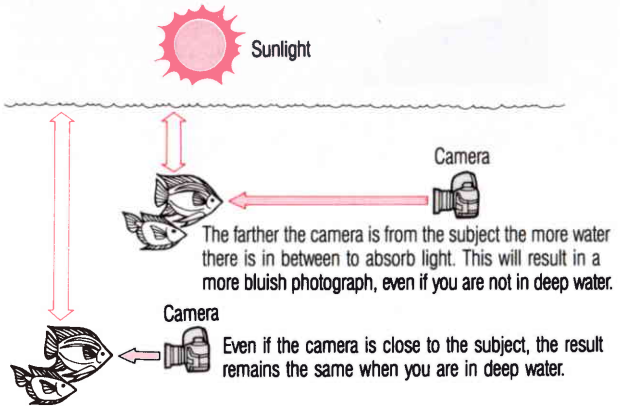
Color Absorption Underwater

Depth \ Color	Violet	Blue	Green	Yellow	Orange	Red
Water surface						
1m (3.3 ft)						
5m (16 ft)						
10m (33 ft)						
15m (49 ft)						
20m (65.6 ft)						
30m (98 ft)						
50m (164 ft)						

The deeper the camera is from the surface of the water, the more water absorbs light and reduces the amount of light.
= color is absorbed

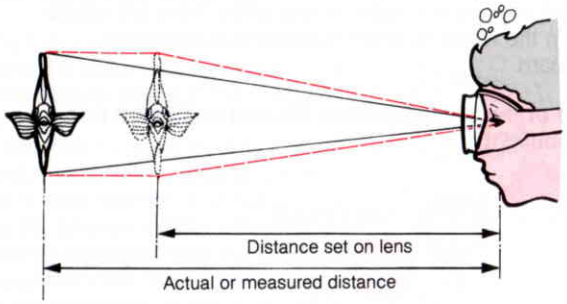
Underwater light and color variations by distance

The farther the camera is from the subject, the more the water absorbs light, resulting in a bluish photographs.



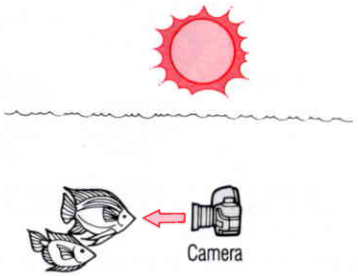
Objects appear larger under water

Light under water refracts about 30% more than it does in the air, and when you wear an underwater mask as well, objects appear about 25% closer than they actually are. Objects under water thus appear about 1.33 times larger than their actual size.
Since the camera lens views an object in the same way the human eye does, the angle at which it takes a photograph is shallower under water than it is on land.



Shooting photographs with vivid contrast

Since plankton and other small particles floating in seawater scatter light and reduce the transparency of the water, the contrast of the subject deteriorates. Even in seas that enjoy generally good conditions, clear pictures can be difficult to take when the subject is more than 5 meters (16.4 feet) away. It is therefore a good idea to get as close as possible to the subject in order to obtain the clearest photograph.

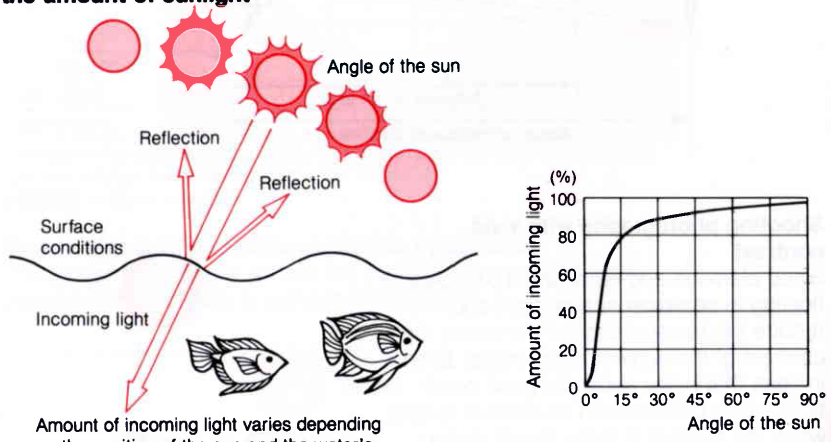


When the camera is not very deep underwater, try to stay close to your subject to take a colorful photograph.

Utilizing sunlight

The amount of sunlight entering the water varies considerably depending on the position of the sun, as some of the rays are reflected off the surface of the water. As shown in the diagram, when the sun is higher than a 45° angle in the sky, more than 90% of the sunlight penetrates into the water. Between 10 a.m. and 2 p.m. on a clear day is thus the best time to do underwater photography, especially in the auto exposure mode. However, the amount of sunlight entering the water is less when there are waves and undulations in the water, or when movement of the water produces white foam.

The relationship of the angle between the sun and water and the amount of sunlight



Amount of incoming light varies depending on the position of the sun and the water's surface conditions.

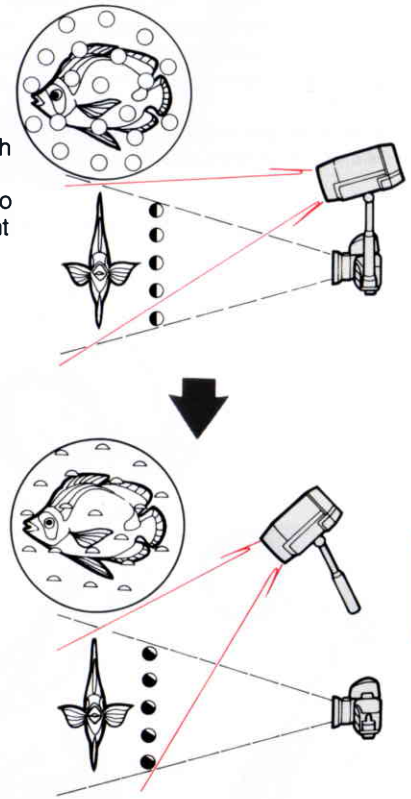
Light under water enters via the water surface. Shooting at a slightly upward angle allows the sunlight to enter the background and creates a pleasant contrast.
However, if it is aimed up toward the surface, you will be taking photographs against the light. Aiming the camera parallel to the surface (horizontally) will be partially against the light, producing a photograph of good contrast, though parts of the subject may be in shadow and come out dark. This problem can be alleviated to some degree by using exposure compensation or a speedlight.
(See pages 65~66, 74~78.)

Using the speedlight

The deeper one goes underwater and the farther the shooting distance, the more the red content of colors is absorbed, rendering them increasingly bluer. Nikon therefore recommends using a speedlight when taking photographs under water.
A speedlight is also effective when you want to take photographs inside caves, of divers faces behind their masks, or in any other situation where parts of the subject are in shadow.

When there is a large volume of floating particles in the water and transparency is poor, if the flash is aimed at the subject from the front, the light of the speedlight reflects onto the particles floating in front of the lens, resulting in a photograph which looks like it were taken in a snowstorm. To minimize the amount of light reflecting onto these floating particles, hold the speedlight as far away from the camera as possible and aim the speedlight at the subject diagonally.

If sand or other matter has temporarily been stirred up from the ocean floor, wait for some time for the cloudiness to settle down again before taking the photograph.



Holding the camera correctly

In most cases, a poorly focused photograph is the result of unsteady handling of the camera. Special care needs to be taken in holding the camera steady when taking photographs under water in order to produce a sharp picture.

When taking pictures underwater, take special care not to damage marine life on rocks, such as coral. Try not to touch coral or other marine life by keeping yourself afloat in the water.

Since underwater photography always presents a problem of stability, set the camera in autofocus mode and choose a higher shutter speed to prevent the subject from becoming blurred. Also try to stop your body movement at the moment when releasing the shutter.

Illustrations and editorial supervision supplied by Akira Tateishi, Marine Art Center, Co., Ltd.

Speedlights

SB-104

The speedlight SB-104 is an underwater speedlight designed especially for use with the Nikonos RS. This electronic flash unit features a high-power output with guide number 32 (105 in feet) (ISO 100, on land).

- The SB-104 features automatic through-the-lens (TTL) flash exposure control which offers a matrix balanced fill-flash operation, providing correct exposure for both the main subject and the background, plus manual flash exposure control.
- The SB-104 also features a flash signal function to indicate your floating position and a Flash Slave function whereby the SB-104 fires simultaneously with another speedlight over a cordless link.
- Alert lights will blink to alert you when the flash unit is firing at full output, when there are water leaks, or when the unit is overheating or malfunctioning.
- *The SB-104 in combination with the Nikonos RS is designed to withstand water pressure up to a depth of 100 meters (328 feet).*

SB-102 and SB-103

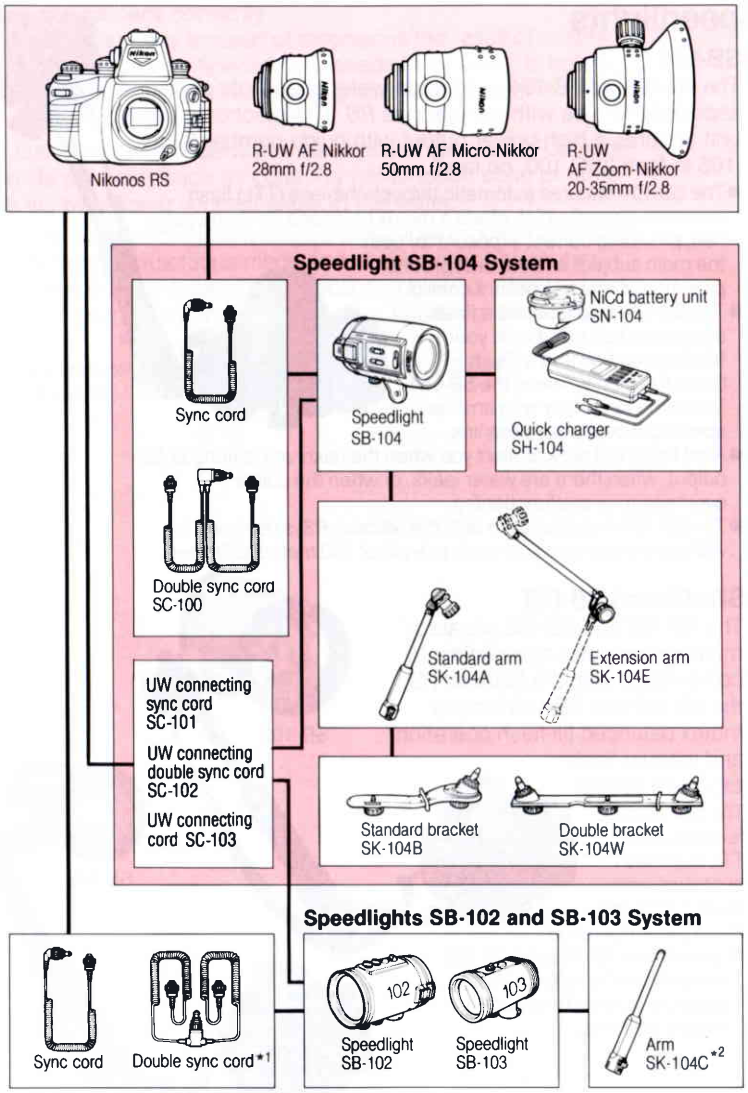
The SB-102 and SB-103 are automatic, underwater speedlights. In combination with the Nikonos RS, the SB-102 and SB-103 feature matrix balanced fill-flash operation and manual flash exposure control. The SB-102 also features non-TTL auto flash exposure (with the SU-101) and Flash Slave operation.

SB-102

SB-103

- *Speedlights SB-102 and SB-103 are designed to withstand water pressure up to a depth of 50 meters (164 feet).*

Speedlight System Diagram



*1 Not usable with R-UW AF Zoom-Nikkor 20-35mm f/2.8 lens.
*2 Use the bracket SK-104B or SK-104W designed for the SB-104 system.

R-UW AF Nikkor Lenses

The R-UW AF Nikkor lenses are underwater autofocus lenses specially designed for use with the Nikonos RS.

R-UW AF Nikkor 28mm f/2.8 (standard lens)

R-UW AF Zoom-Nikkor 20-35mm f/2.8 (zoom lens)

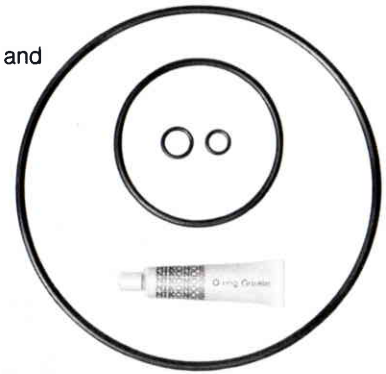
R-UW AF Micro-Nikkor 50mm f/2.8 (micro lens)

● Caution

Never put the lens into the water by itself even with the rear lens cap attached, as the rear lens cap is not waterproof.

O-ring set

A set of spare O-rings and O-ring lubricant.



Remote Cord, Camera Case, etc.

Remote cord (MC-100)
(for Nikonos RS only)
Connect the remote cord to remote connector on the Nikonos RS to release the shutter from a distance.

System case CT-N1
Accepts the Nikonos RS, three R-UW AF Nikkor lenses and the SB-104 standard set.

Eyepiece Cover DK-100
Use this eyepiece cover to cover the viewfinder eyepiece to prevent external light from entering the camera through the viewfinder in aperture-priority auto exposure mode.

UW connecting sync cord SC-101
UW connecting double sync cord SC-102
UW connecting cord SC-103
Use these cords to exchange cameras and speedlights underwater without having to surface.

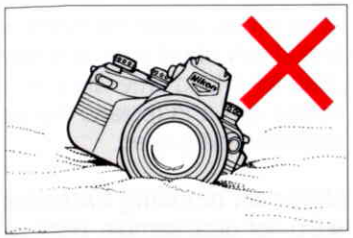
Notes on Batteries

Generally speaking, battery power weakens as the temperature drops, power recovers when batteries are not used for a relatively short time, and power drains off slowly when not used for a long time. Be sure to check the battery power before use, and replace the battery with a fresh one before it becomes exhausted.

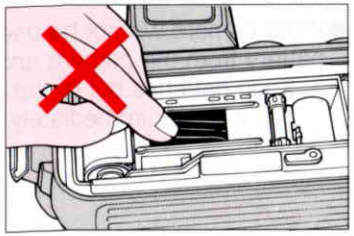
Notes on handling batteries

- Do not disassemble, heat, short-circuit, or throw batteries into a fire, as explosions may result.
- If the camera will not be used for a long time, remove the battery from the camera and store it in a cool place (20°C).
  —Keep batteries out of the reach of children. If swallowed, call a doctor immediately.

Problems with sand, dirt, and other foreign matter
Take care to ensure that dirt, mud, sand, dust, water, salt, or other foreign matter do not enter the camera as they can cause damage. The warranty on your camera does not always cover damage of this type.



Do not touch the shutter curtain
The shutter curtain is made of extremely thin material. To preserve its shape and protect it from damage, take extra care not to push against it, pierce it, or even let it be subject to winds, such as that from a blower.

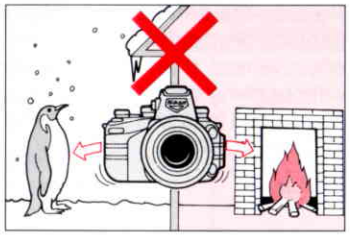


Taking care of your camera body
Use a blower to remove dust from the camera body and wipe it with soft tissue or cloth lightly. After use, remove any salt attached on the body with a soft tissue or cloth moistened with fresh water, then wipe it with dry cloth lightly. Do not use thinner, benzine, or other active agents.

Cleaning your camera lens and mirror
Use only lens tissue to remove dust from the lens, viewfinder eyepiece, or mirror inside the camera. Never use cleaning agents on these parts.

Do not put the camera in sandy places.

Avoid extreme changes in temperature
Extreme changes in temperature may cause small droplets of moisture to condense both inside and outside the camera. When carrying the camera from the cold outdoors to a warm indoors (or vice versa), or when putting the camera into a bag whose temperature inside is vastly different from the outside, be sure to allow the camera to adjust itself gradually to temperature changes so that moisture condensation is avoided.



Safekeeping your camera
When the camera is not to be used for a long period of time, first remove the battery before storing it. Leaving the battery in the camera will subject it to damage should the batteries start to leak, as they often do over long periods. It is a good idea to place the camera inside a case that will protect it from moisture and to include a moisture-absorbing agent in the case. Remove O-ring from camera body when storing camera to prevent flat spots from occurring due to constant pressure on the O-ring. Always use a body cap on the camera's lens opening when storing.

Storing location
Store the camera in a cool, dry place to prevent mold from growing on it. Do not leave the camera inside an enclosed location, such as a car, that is subject to sunlight and high temperatures. Also avoid humid areas or places subject to chemicals such as camphor or naphthalene (moth balls).

Release the shutter from time to time.
Replace desiccating agents from time to time to keep their effectiveness. If the camera is stored over a long period of time without being operated, mold may accumulate and cause damage. It is a good idea to take the camera out of storage from time to time and simply release the shutter.

Shutter Troubleshooting

Check the following items if the shutter cannot be released.

Warning Indicator	Cause	Action to be taken	Reference
———	Shutter speed dial is set to "L."	Set the shutter speed dial to another position.	Page 51
[ISO/DX], "Err" in viewfinder blink.	Film speed is set to "DX" while a non-DX film is loaded.	Set the film speed manually.	Page 31
"Err" in viewfinder and frame counter LED (red) blink.	Film (of DX type) is advanced while not correctly loaded.	Open the camera back and reset the film.	Pages 33~36
"End" in viewfinder and frame counter LED (red) blink.	Film has been used up.	Rewind the film.	Pages 46~47
Frame counter LED (green) blinks.	Film cartridge of rewound film is still in the camera.	Remove the film cartridge.	Page 47
(•) in-focus indicator in viewfinder goes out.	Subject is not in focus.	Retry focusing, or focus in Power Manual Focus mode.	Page 57
(•) in-focus indicator in viewfinder blinks.	Autofocus is not possible.	Retry focusing in Power Manual Focus mode.	Page 57
All indicators in viewfinder blink or go out.	Battery has weakened.	Replace the battery.	Pages 22~24

If the shutter still cannot be released properly after following the procedures above, take the camera to your nearest Nikon service center.

In certain cases, due to static electricity or poorly loaded battery, the Nikonos RS's microcomputer may turn the camera off, even with fresh, properly installed battery. For the same reason, film may not advance properly. In each of these cases, to resume operation, simply turn the power OFF and turn ON again, or remove battery and install again.

Specifications

Type of camera	Integral-motor autofocus, 35mm single-lens reflex underwater camera
Picture format	24mm × 36mm (standard 35mm film format)
Lens mount	Nikonos R-UW mount
Lenses	AF Nikkor lenses for Nikonos RS underwater camera: R-UW AF Nikkor 28mm f/2.8 (standard) R-UW AF Micro-Nikkor 50mm f/2.8 R-UW AF Zoom-Nikkor 20-35mm f/2.8
Viewfinder	High-eyepoint action finder
Eyepoint	Approx 60mm (2.4 inches)
Focusing screen	Nikon advanced B-type BrightView Screen
Field of view	Approx 92% (at infinity)
Magnification	Approx 0.39x (underwater with 28mm f/2.8 lens at infinity setting)
Diopter	−0.75 dpt
Viewfinder indications (Continuous display with illuminator while pressing shutter button slightly)	Focus indicators, exposure mode, shutter speed, aperture value, film speed, film speed setting mode (DX/ISO), unacceptable film loading alert (ISO mark blinks), electronic analog display indicator, exposure compensation, overexposure or underexposure (Hi/Lo) alert, ready-light LED
Reflex mirror	Automatic instant-return type
Autofocus detection system	TTL phase detection system using Nikon's advanced AM 200 autofocus sensor module (activated by pressing shutter button slightly). —Focus tracking can be automatically activated once camera detects a moving subject.
Autofocus detection range	EV −1 to EV +19 (at ISO 100)
Autofocus modes	Single Servo Autofocus (S) mode, Continuous Servo Autofocus (C) mode, Power Manual Focus (P) mode, Freeze Focus (F) mode
Autofocus lock	Possible in Single Servo Autofocus mode using shutter button
Exposure metering systems	Matrix metering system (5 segments) in Aperture-Priority Auto Exposure mode Center-Weighted metering in Manual Exposure mode.
Metering range	EV +3 to EV +20 (at ISO 100)
Exposure modes	Aperture-Priority Auto Exposure (A) mode, Manual Exposure mode
Exposure compensation	Possible using exposure compensation dial within EV ±2 range in 1/3 EV step (exposure compensation indicator blinks)
Aperture control	Aperture coupling lever control from body (from f/2.8 to f/22)
Film speed setting	Automatic for DX-coded films; manual setting possible (manual setting priority)

Film speed range	ISO 25 to 5000 for DX-coded film; ISO 6 to 6400 for manual setting
Film loading	Film automatically advances to first frame when shutter button is pressed once after loading. If no film is loaded, frame counter LED (green) blinks when shutter release button is pressed slightly. If non-DX film is loaded while film speed is set to "DX," shutter button is locked and ISO/DX and "Err" indicators blink.
Film advance	Film automatically advances one frame when shutter is released.
Frame counter	Additive type, automatically reset when camera back is opened
Film rewind	Automatic rewind by sliding film rewind lever; approx 25 sec. per 36-exposure film, stops automatically when film is completely rewound and the frame counter LED (red) blinks.
Number of film rolls per fresh 6V lithium battery	36-exposure film: approx 70 rolls (For autofocus operation with R-UW Nikkor 28mm f/2.8 lens covering the full range from infinity (∞) to the closest distance and back to infinity (∞) before each shot, at shutter speed of 1/125 sec. or faster, using a fresh 6V lithium battery pack (DL223A or CR-P2 type))
Shutter	Electromagnetically controlled vertical-travel focal-plane shutter
Shutter speed	From 1/2000 to 1 sec., "B" setting
Warning indications	● "Err" indicator in viewfinder and frame counter LED (red) blink: Film is not loaded correctly, film does not advance correctly. ● DX/ISO display and "Err" indicator blink: Non-DX film is loaded while film speed is set to "DX" ● "End" indicator in viewfinder and frame counter LED (red) blink: End of roll. ● Frame counter LED (red) blinks: Film is rewound completely. ● "Hi" or "Lo" indicator in viewfinder blinks: Overexposure or underexposure in auto exposure (A) mode ● All viewfinder indicators blink: Weak battery, needs replacement ● Ready-light in viewfinder blinks: Flash is fired at full output.

Flash synchronization	●Shutter speed is automatically set to 1/125 sec. if it is set to 1/250 sec. or faster. ●TTL flash is possible when speedlight is mounted. ●Film speed range: ISO 25 to 1000 (for TTL flash) ●Flash mode: Matrix balanced fill-flash is possible using matrix metering (1/30 to 1/125 sec. when sync mode is set to "Normal."). ●Shutter speed is controlled between 1 sec. and 1/125 sec. when it is set to rear-curtain sync. ●TTL flash is possible using center-weighted metering. ●Flash sync control: Interchangeable front- and rear-curtain sync (at body).
Flash ready-light	Viewfinder "Ready-light" LED illuminates when a Nikon Speedlight (SB-104, 103 or 102) is fully recharged and ready to fire; blinks to alert that flash is fired at full output.
Accessory shoe	For mounting Nikon SU-101 sensor unit
Sync socket	Nikonos V sync socket
Remote control socket	4-core socket
Camera back	Hinged double camera back with inner back (detachable) containing film cartridge confirmation window
Power source	6V lithium battery pack (DL223A or CR-P2 type)
Power switch	Power is turned on by setting shutter sheed dial to a position other than "L" and pressing shutter button slightly. (Power is turned off approx 16 sec. after finger is removed from shutter button.)
Checking battery power	Battery power is sufficient if shutter speed and aperture indicators remain on for approx. 16 sec. after finger is removed from shutter button while the shutter speed dial is set to a position other than "L." Battery power is insufficient if these indicators turn off immediately after finger is removed from shutter button. Battery has weakened if all indicators blink; it is dead if they do not illuminate at all.
Tripod socket	1/4 inch
Durability against underwater pressure	100 meters (328 feet)
Dimensions (W × D × H)	196 × 151 × 85mm, (7.7 × 5.9 × 3.3 in.)

Weight	
On land	Approx. 2,130g (4.7 lbs.) (Nikonos RS only) Approx. 2,680g (5.9 lbs.) (with R-UW AF Nikkor 28mm f/2.8 lens)
Underwater	Approx. 970g (2.1 lbs.) (with R-UW AF Nikkor 28mm f/2.8 lens)

All specifications apply when using a fresh lithium battery pack (DL223A) at ordinary temperature (20°C).
Specifications and design are subject to change without notice.

"This digital apparatus does not exceed the (Class B) limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications."

This product is a strategic product subject to COCOM regulations. It should not be exported without authorization from the appropriate governmental authorities.

NIKON CORPORATION

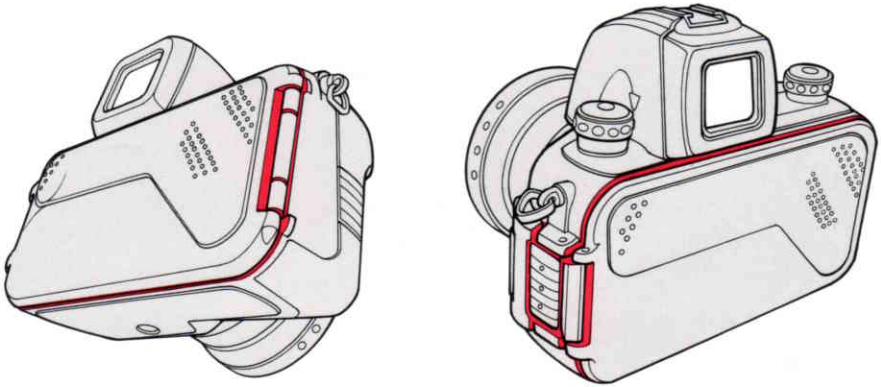
Caution!

Take special care when opening the camera back, releasing the lens or removing the remote and/or sync cords after use.

Water drops might remain around the outside of O-ring of rear door and its opposite side of camera body. It may accidentally fall inside camera body.

Be sure to wipe off not only water on the camera body but also any water drops that accidentally got inside the camera. If you use the camera with any trace of water inside, or if it is stored without thorough drying, this can cause the camera to malfunction. Observe the following instructions on how to wipe water off.

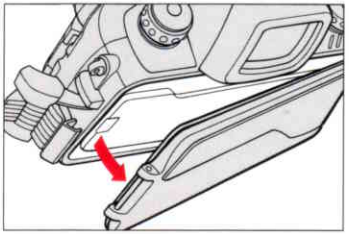
Be sure to wipe water off the camera and your hands after use.



- Use a dry towel or cloth to wipe water off, particularly from joints and crevices as shown in red in the above figures. Dab the towel or cloth down lightly to absorb the water.

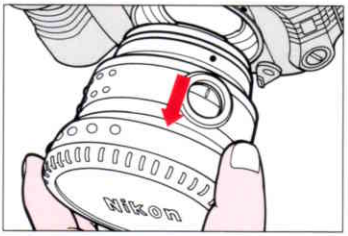
Point the camera parts downward, as shown below, to prevent water from getting inside the camera body :

When opening the camera back,



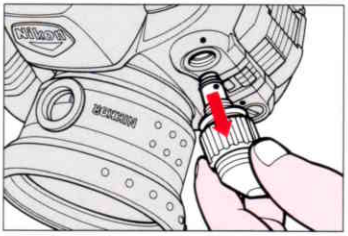
Point the camera back downward.

When releasing the lens,



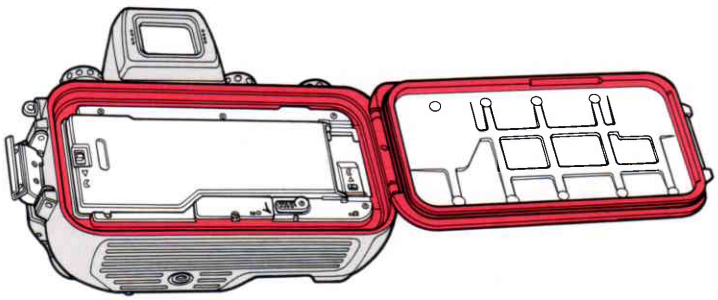
Point the lens downward.

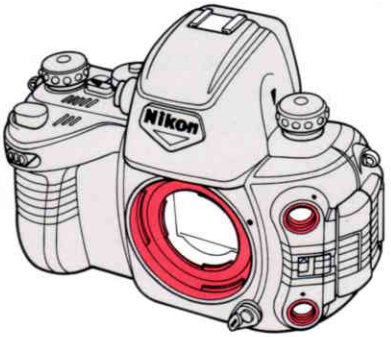
When removing the remote and/or sync cords,



Point the connector terminals downward and remove the cords carefully.

When opening the camera back, releasing the lens or removing the remote and/or sync cords after use, be sure to wipe off any trace of water on the camera that may accidentally fall into the camera openings.





- Completely wipe water off such places where water might remain as shown in red in the above figures.
- Be sure to prevent water from your wet suit or hair from entering the camera body.

For more information on checking O-rings and taking care of your camera, refer to the instruction manual.

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