

TECHNICAL GUIDE



The Nikon F4.

The camera designed for professionals.

THE PROFESSIONALS' CHOICE. ALWAYS.

Nikon has been at the service of professional photographers for more than 30 years. Professionals who use 35mm cameras use Nikon cameras more than any other brand, to record the most important events of the day. The Nikon System, SLR photography's unmatched collection of camera accessories and attachments, is designed to meet the needs of professionals.

Why Nikon? Maybe it's because of Nikon's strong commitment to photography. In developing a professional camera, Nikon is not given to making compromises. This is the reason why we have consistently defied the obsolescence that has been the fate of many other systems. The legendary Nikon F lens mount, for example, has been around for nearly 30 years and will continue in the future. Think of what this means to the more than 10 million Nikon lenses bought to date, by Nikon owners.

Nikon announced the Nikon F in 1959, Nikon F2 in 1971 and Nikon F3 in 1980. We continue to update camera

technology. Because professional demands have diversified. Because commercial photographers are always looking for new images. Because sports photographers demand quicker response. Because photojournalists require fast handling. Because technical/scientific photographers demand greater applications versatility. And all pros need reliable performance.

And now we bring you the Nikon F4. An evolution to meet diversifying professional demands, more than ever. Based on our decades of experience dealing with professional photographers around the world, Nikon has incorporated a selection of the most professionally desired features into the Nikon F4.

Reliability, dependability, ergonomic design, durability. The latest camera innovations including Matrix Metering, Electronic Rangefinder, autofocus and 1/8000-sec. shutter speed. Plus Nikon lens and system compatibility. And more.



CONTENTS

MAJOR FEATURES OF THE NIKON F4	3	CONSTRUCTION	10	MICROELECTRONICS	18
NOMENCLATURE	4	BODY/LENS INTERFACE	12	FOCUSING	20
MANUFACTURING	6	SHUTTER UNIT	14	METERING	22
TESTING	8	MOTORS	16	EXPOSURE	24



MAJOR FEATURES OF THE NIKON F4

- Virtually all F-mount Nikon lenses usable – non-AI, modified-AI, AI, AI-S, Series E, Nikon F3AF autofocus lenses, TC-16A Autofocus Converter, and all Nikkor lenses with built-in microcomputers including AF Nikkors.
- Choice of three exposure metering systems – Matrix Metering, Center-Weighted Metering and Spot Metering.
- Bright viewfinder system with virtually 100% coverage and full information including ADR (Aperture Direct Readout) and frame counter.
- Precise manual focusing with Electronic Rangefinder for focusing in light as low as EV minus 1.
- Fast and responsive automatic focusing with Focus Tracking capability.
- Top shutter speed of 1/8000 sec. and top flash sync of 1/250 sec.
- Low-vibration shutter operation thanks to tungsten-alloy shutter balancer.
- Built-in motor with fast film advance speed of 5.7 frames per second.
- Extremely quiet film advance capability – quieter than conventional lever-type film advance of professional cameras.
- Five exposure modes selectable – M (Manual), P (Program), PH (High-Speed Program), S (Shutter-Priority) and A (Aperture-Priority).
- Simultaneous lock of autofocus and auto exposure by one button.
- Multiple Exposure lever, Depth-of-field Preview button and Mirror Lockup lever provided.
- Matrix Balanced Fill-Flash with Cybernetic Sync available.
- Interchangeable viewfinders and focusing screens.
- Interchangeable battery packs and power sources.
- Interchangeable camera backs including 250-Exp. Multi-Control Back.

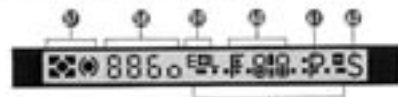
For F4 series cameras, Nikon offers two versions – Nikon F4s with High Speed Battery Pack MB-21 containing six AA-type batteries, and Nikon F4 with Battery Pack MB-20 containing four AA-type batteries.

FLASH	26	VIEWFINDERS	32	ACCESSORY COMPATIBILITY	36
CONTROLS	28	FOCUSING SCREENS	33	LENS COMPATIBILITY	38
SPEEDLIGHTS	30	POWER SOURCES	34		
CAMERA BACKS	31	OTHER ACCESSORIES	34		

NOMENCLATURE



- | | | | |
|---------------------------------------|------------------------------|---------------------------------|---|
| ① Self-timer indicator LED | ⑩ Meter coupling lever | ⑰ Film rewind lever (R) | ⑲ Finder release lever |
| ② AF-L button | ⑪ Reflex mirror | ⑱ Shutter speed dial | ⑳ Diopter adjustment knob |
| ③ AF-L/AE-L simultaneous lock lever | ⑫ Lens release button | ⑲ Finder contacts | ㉑ Metering system selector |
| ④ Depth-of-field preview button | ⑬ Focus mode selector | ㉑ Alert LED | ㉒ Compensation value scale window |
| ⑤ Mirror lockup lever | ⑭ AE-L button | ㉒ Film rewind knob | ㉓ MB-21's shutter release button |
| ⑥ CPU contacts | ⑮ Remote terminal | ㉒ Film rewind crank | ㉔ Accessory shoe |
| ⑦ LCD illumination window (body side) | ⑯ Exposure mode selector | ㉒ Film speed dial | ㉔ LCD illumination window (finder side) |
| ⑧ Sync terminal | ⑰ Multiple exposure lever | ㉒ Shutter release button | |
| | ⑱ Exposure compensation dial | ㉒ Film advance mode selector | |
| | | ㉒ Viewfinder illuminator switch | |



- ① Film rewind lever (R2)
- ② Eyepiece shutter lever
- ③ Viewfinder eyepiece
- ④ Release terminal
- ⑤ DX contacts
- ⑥ Data back contacts
- ⑦ Release lever
- ⑧ Tripod socket
- ⑨ Guide hole
- ⑩ Camera back hinge release

- ⑪ Exposure compensation value
- ⑫ Frame counter
- ⑬ ADR (Aperture Direct-Readout)
- ⑭ Focus indicators
- ⑮ Exposure compensation indicator
- ⑯ Flash ready-light signal
- ⑰ Body side display
- ⑱ Focus brackets

- ⑲ 12mm-dia. reference circle
- ⑳ 5mm-dia. reference circle
- ㉑ Finder side display
- ㉒ Metering system
- ㉓ Shutter speed
- ㉔ AE-lock indicator
- ㉕ Aperture (P/S) A (A) No indication (M)

- ⑳ P (P) No indication (S/A/M)
- ㉑ S (S) No indication (P/A/M)
- ㉒ Electronic analog display (M) No indication (P/S/A)

MANUFACTURING



THE PARTS

The Nikon F4 camera body (body, standard viewfinder and battery pack) is made up of about 1,750 parts. The Multi-Meter Finder itself consists of 200 parts and the shutter unit, 200 parts. Each part is strictly checked according to Nikon-set standards.



MODULE ASSEMBLIES

Each part module is assembled by specialized Nikon factories. The shutter units are assembled at the Nikon Ohi Plant in Tokyo, production site of the legendary Nikon F, F2 and F3. The pentaprisms for the viewfinder are manufactured at the Nikon Tochigi Plant, north of Tokyo, where Nikkor lenses are also manufactured. The FPC boards are assembled, using a highly advanced laser trimming system and other advanced equipment, at the Nikon Sendai Plant in northern Japan. This production system ensures that each module of the Nikon F4 is made by highly specialized experts.

Each module is carefully examined at the end of each assembly. And only modules free of imperfections are sent to the main assembly site. Each shutter unit, for example, undergoes at least 1,000 shutter releases for accuracy adjustments and tests before being sent out to the next stage of manufacture. The number of shutter releases may sound like a lot – and maybe it is – but to guarantee the Nikon standard for each unit, Nikon has to do it more than the norm. These strict accuracy adjustments and tests at each

production stage contribute to the high quality and durability standards of each final product.

PUTTING THEM TOGETHER

All assembled modules and other major parts are sent to the Nikon Mito Plant near Tokyo, for final assembly. This plant is the Nikon F4's major assembly plant.

At the plant's assembly line, highly skilled technicians work with the highest standards of quality control. Soldering, just to name one technique, is perfected through the plant's special training program. A professional camera should be manufactured by professionals – and so it is with the Nikon F4.

In addition to human skill and ingenuity, the Nikon F4's manufacture also relies on computers. A number of testing devices and computers are strategically positioned along the assembly line. At every stage of assembly, the camera is subjected to severe tests. If a defect is detected, even though it may be virtually negligible to others, the camera is sent back for further, intensive checking. This assures that any camera that reaches the end of the assembly line is as close to perfection as it can get.

● Shutter unit assembly at Nikon Ohi Plant

● Assembly line at Nikon Mito Plant

HOW THE NIKON F4 IS MADE

1

The assembly line starts with the bare body die-cast.



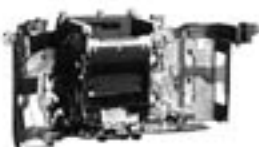
2

The back cover connecting part, shutter unit, FPC boards, and winding unit are then incorporated.



3

The mirror box is installed. At this stage, approx. 80% of internal assembly is completed.



4

The rear body and front body are combined, and the autofocus module is installed.



5

The body covering and rubberized surface are incorporated.



6

The viewfinder unit is manufactured incorporating FPC boards and sensor parts.



7

The completed Nikon F4s camera body with standard Multi-Meter Finder and High Speed Battery Pack MB-21 attached.



8

Final product for shipment.

[CHECKING BY COMPUTER]

[CHECKING OF OPERATIONS BY
COMPUTER]

[ADJUSTMENT AND CHECKING OF
FOCUS DETECTION BY NIKON'S
"LARK V" SYSTEM]
[ADJUSTMENT AND CHECKING OF
TTL SENSOR, SPOT SENSOR AND
SHUTTER OPERATION BY NIKON'S
"IBIS" SYSTEM]

[ADJUSTMENT AND CHECKING OF
OPTICAL ACCURACY]

[ADJUSTMENT AND CHECKING OF
NIKON'S "V-AMP" SYSTEM]

[SEVERAL TYPES OF STRICT PER-
FORMANCE TESTS BY SAMPLING]

TESTING

Inside the Nikon F4 you'll find an extensive mechanical and electronic system controlled with advanced software. That's why the scale of tests the F4 undergoes is the greatest for a 35mm SLR camera. The number of operation combinations alone exceed 42 million different types per camera, but Nikon engineers have managed to find the most efficient way of checking these combinations. A great number of tests are conducted throughout the course of manufacturing and even after production. Test items are carefully programmed to cover the most critical operation tests.

Because of the growing sophistication of a camera's mechanism and electronics, performing every test and check goes definitely beyond human capability. That's why Nikon also depends on computers and exclusively designed checking machines to test complex performance to a highly accurate level.

HIGH-TECH ADJUSTMENT AND CHECKING

Like the product itself, the F4's manufacturing line is state of the art. As the Nikon F4 camera is one of a kind, the line is also one of a kind, designed exclusively for the F4. All computer test software have been exclusively developed by Nikon engineers for the F4's manufacture. Also, many of the adjustment/checking systems for the F4 are Nikon-designed and Nikon-manufactured.



Nikon LARK V AF Adjustment System

Don't be surprised if you've never heard of a Nikon product called the LARK V because there's only one in the world. A similar system has been used in the production of previous Nikon autofocus camera models, but because of differences in specifications and the Nikon F4's stricter accuracy requirement, Nikon built a separate autofocus adjustment system for the F4: the LARK V.

The LARK V adjusts the position of the Advanced AM200 autofocus module by monitoring the optical path reaching the CCD line sensor elements. Even a slight difference of angle may affect focus detection greatly, so the adjustment of the module's optical block is very critical.



Nikon IBIS AE Adjustment System
Like the LARK V, the IBIS system has also been made exclusively for the F4's assembly line. The system checks and adjusts automatic exposure operations including the performance of the TTL sensor and the Spot sensor, as well as shutter operation.

Thanks to Nikon's extensive experience in the design and manufacture of advanced semiconductor-related equipment and measuring instruments for the high-technology industry, such equipment customizing was not difficult. Thus, a special project team composed of Nikon designers, manufacturing engineers, R&D specialists and machining engineers succeeded in creating IBIS, which remains one of the secrets behind the excellence of the Nikon F4.

- Strict performance check
- Nikon LARK V AF adjustment system
- Nikon IBIS AE adjustment system

ENVIRONMENTAL TESTS



Nikon V-AMP Finder Adjustment System

This system checks the accuracy of the Multi-Meter Finder's sensor by comparing the sensitivity level of each five segment output. The Nikon F4's Multi-Meter Finder is attached to a specially designed, test camera body, whose lens mount is exposed to a certain level of brightness. By varying the brightness level, the performance of the sensor is carefully examined.

Against Extreme Noise

Microelectronics are sometimes apt to malfunction due to severe electrical noise. But this should never happen with a professional camera. That's why we carefully selected the Nikon F4's microcomputers, integrated circuits and diodes, making sure they performed with consistent accuracy under the harshest environmental conditions. Thus, the F4 has been tested in environments characterized by extreme electronic noise such as near an airport's runway, under a bridge while a train is speeding by, etc. In all instances, Nikon engineers confirmed that the microelectronics incorporated were not affected by the noise.



Against Extreme Temperatures

The Nikon F4 has also been subjected to extremes of heat and cold. In a special room simulating tropical and arctic conditions, the F4 has been heated up to +70°C (+158°F) and frozen at -40°C (-32°F). The results show that the F4's performance is not affected when the temperature remains at +70° (+158°F) for over 20 hours, after which the camera is cooled down at normal room temperature for approx. 20 hours before testing. In the same way, the F4 can withstand -40°C (-32°F) temperature for over 20 hours.

Performance tests are also conducted at a temperature of +40°C (+104°F) and -20°C (-4°F).

The Nikon F4 has likewise been exposed to varying-temperature tests, repeating an 8-hour cycle of changing temperatures between -20°C (-4°F) and +60°C (+140°F) for a total of 64 hours.

Against Extreme Humidity

In this test, the Nikon F4 is placed in a room with a humidity of 90% at 40°C (104°F) for over 20 hours. Twenty hours after retrieval, the camera is checked as to whether it functions properly or not. The result: the F4 can endure extreme humidity.

Against Extreme Dryness

The Nikon F4 is placed in a room with virtually no humidity for over 20 hours.

Another 20 hours after retrieval, the camera's performance is tested. The F4 does it again!

Against Vibrations

The Nikon F4 packed in their regular packages are vibrated vertically and horizontally for one hour. This test shows the Nikon F4 can withstand the vibration encountered on various types of transportation vehicles.



Against Extreme Light

The Nikon F4 is loaded with ISO 400 film and subjected to high-intensity illumination for a period of twenty minutes. Result: the F4 remains extremely light-tight.

- Nikon V-AMP finder adjustment system
- Performance test at -20°C (-4°F)
- Light-leak test

PLEASE NOTE THAT THESE ARE ONLY A FEW EXAMPLES OF THE RIGOROUS TESTS THE NIKON F4 IS SUBJECTED TO.

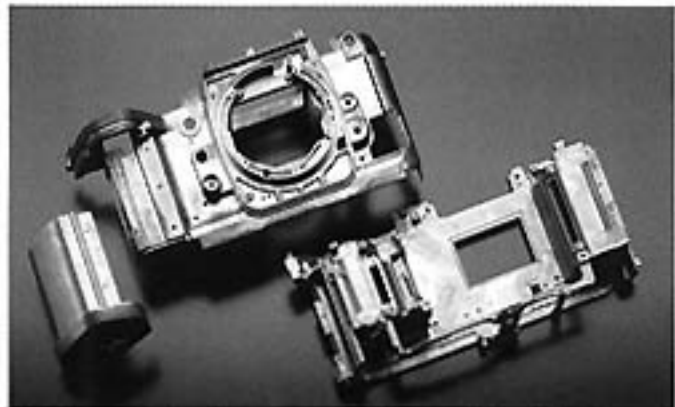
CONSTRUCTION

HIGHLIGHTS

- Large-scale microelectronics and mechanical parts packed intensively in a compact body.
- Die-cast body serves as camera's backbone, assuring maximum rigidity.
- Mounting section of standard finder and hand grip are also die-cast.
- Feeling of weight perfectly balances with rock-solid stability.
- Rubber-compound body surface serves as shock absorber.
- Smooth rounded body surface and contour dials engineered for ergonomic handling.
- Levers and dials designed to resist intrusion by moisture or dust.
- Semiconductor switch protects flash contacts from electrical shocks.

CONDENSED INSIDE

How can 1,750 parts be crammed inside such a compact body? *In addition* to batteries and four motors, too. If conventional technology had tried to integrate all these parts, the size of the Nikon F4 would be at least 50% larger than the current F3. Small miracle – Nikon engineers did it. They packed them all by trying, changing and repeating the procedure many times until they found the solution. Every inch of space inside the F4's body has been effectively used.



SOLID DIE-CAST BODY

A solid aluminum-alloy die-cast is used for superb strength, rigidity and resistance to corrosion. The die-cast body consists of a front body, rear body, finder mounting section and hand grip.

To ensure stability when changing numerous accessories, including lenses, finders and focusing screens, the Nikon F4's body has to be rugged, yet manufactured to exact tolerances. Therefore, Nikon selected a special alloy of copper silumin aluminum, which is less susceptible to blowholes

during manufacture. This alloy, the same as that used with the Nikon F3, has a high tensile strength of approx. 33.5kg/mm² (475.5 lb/in²). The average thickness of the casting wall is 1.3mm for the front die-cast and 1.2mm for the rear die-cast. The box-shaped construction with bridges and the hollowed wall design increase strength against shocks.

The microelectronics of the standard Multi-Meter Finder's pentaprism are protected by special double-reinforced plastic covers.

Lever and dial



DIAL CONSTRUCTION

Every lever and dial of the Nikon F4 has been designed to resist intrusion by moisture or dust. Virtually every dial axis uses a ring or rubber bellows to seal the mechanical junctions. The microelectronics and mechanical movement are thus protected securely. The surfaces of the dials and levers are also roundly contoured for easier handling.

Flash contacts



SEMICONDUCTOR SWITCH

The Nikon F4 finder's flash contacts incorporate a semiconductor switch that prevents damage due to the frequent use of the flash unit.

EXTERNAL DESIGN

The Nikon F4 has been designed to be functional through and through. The external ergonomic handling for the F4, designed by Giugiaro, was realized through the use of advanced computer-aided techniques to determine

every curve of the smooth, rounded surfaces. The contoured dials and buttons are as pleasing to the eye, as they are easy to manipulate.

To enhance the "Nikon feel," we employed a tough rubber compound as the basic outer surface material. This makes for a comfortable, secure interface between camera and photographer. The rubber compound is manufactured separately to perfectly fit the rounded camera body shape, which requires a very high level of manufacturing expertise.

In case of shock, the very firm yet resilient material used is instantly "transformed," then instantly "regains" its original shape. That means less possibility of external damage and, of course, minimum internal shocks.



BODY/LENS INTERFACE

HIGHLIGHTS

- Accepts three different communication systems – one for Nikon lenses with built-in microcomputer (AF and AI-P Nikkor lenses), one for Nikon autofocus lenses with built-in motors (Nikon F3AF autofocus lenses) and one for lenses without electronic contacts (AI-S, AI, non-AI, modified AI and Series E).
- Nikon F4's Electronic Rangefinder works with most F-mount lenses.
- Autofocus operation available with current AF-Nikkor lenses and also with Nikon F3AF autofocus lenses and a wide variety of Nikon lenses via the TC-16A autofocus teleconverter.
- Matrix Metering available with Nikkor lenses with built-in microcomputers, and also with AI-S and AI Nikkor lenses.
- Lens aperture visible in the viewfinder's ADR (Aperture Direct Readout) window.

INFORMATION EXCHANGE

BETWEEN CAMERA AND LENS

As 35mm SLR cameras become increasingly sophisticated, with the incorporation of advanced microelectronics, information exchanged between lens and camera have increased dramatically.

Since 1981 when several innovations were included in the design of Nikkor lenses (i.e., introduction of AI-S-type Nikkor lenses), a number of data have

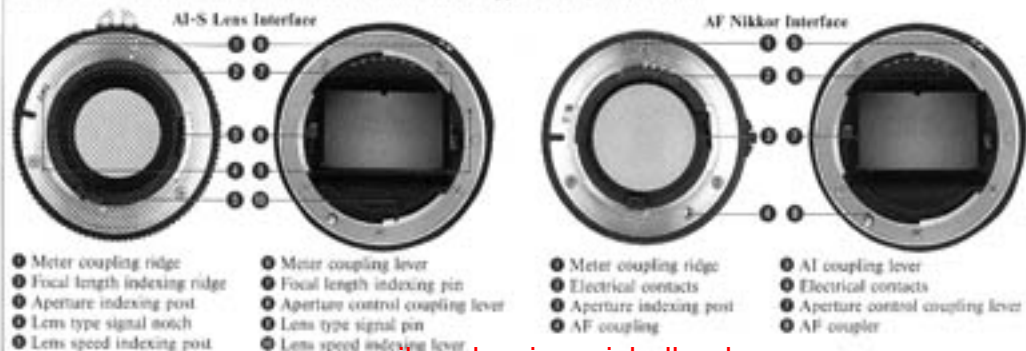


been relayed through the lens mount via mechanical contacts, pins and levers. These data include focal length, lens type (AI or AI-S) and lens speed. AI coupling and automatic aperture lever had already been incorporated with the introduction of AI lenses. AI-S-type lenses are easily recognizable through the orange-painted maximum f-number on the lens aperture ring. In terms of camera/lens interface, Nikon Series E lenses are identical to AI-S lenses.

Soon after the introduction of AI-S lenses, the autofocus AF-Nikkor lenses for the Nikon F3AF came out. In addition to the mechanical contacts found in AI-S-type lenses, these AF

Nikkor lenses incorporate electrical contacts for motor operation during autofocus.

Nikon then introduced the new line of AF Nikkor lenses for Nikon cameras which have autofocus motors built into the body. These lenses feature built-in microcomputers and more integrated electrical contacts. Almost all commands and information, excluding meter coupling, aperture control coupling and AF motor coupling, are relayed through these contacts. These contacts transfer various lens data, as well as commands regarding aperture control and focusing.



LENS COMPATIBILITY CHART

	Focusing			Exposure mode			Metering system		
	Auto-focus	Manual w/electronic rangefinder	Program-mod. Auto	Shutter-Priority Auto	Aperture-Priority Auto	Manual	Matrix Metering	Center-Weighted	Spot Metering
AF Nikkor lenses	○	○	○	○	○	○	○	○	○
AF Nikkor lenses for Nikon F3AF	○	△ ¹	×	×	○	○	○	○	○
AI-type Nikkor lens 500mm f/4 P	△ ²	△ ²	○	○	○	○	○	○	○
AI-type Nikkor lenses (including AI-S)	△ ³	△ ³	×	×	○	○	○	○	○
AI-modified Nikkor lenses	×	△ ³	×	×	○	○	×	○	△ ⁴
Non-AI-type Nikkor lenses	×	△ ³	×	×	△ ⁵	△ ⁵	×	△ ⁶	×
Medical-Nikkor 120mm f/4	×	○	×	×	×	△ ⁷	×	△ ⁸	×
Reflex Nikkor lenses	×	×	×	×	△ ⁹	△ ⁹	×	△ ¹⁰	×
PC-Nikkor lenses	×	×	×	×	△ ⁹	△ ⁹	×	△ ¹⁰	×
AF Teleconverter TC-16A	△ ¹¹	×	×	×	○	○	○	○	○
AF Teleconverter TC-16*	△ ¹¹	×	×	×	○	○	○	○	○
AI-S-type teleconverter	×	△ ³	×	×	○	○	○	○	○
AI-type teleconverter	×	△ ³	×	×	○	○	×	○	×
Bellows Focusing Attachment PB-6	×	△ ³	×	×	△ ¹	△ ¹	×	△ ¹¹	△ ¹²
FK Series Rings	×	△ ³	×	×	△ ⁹	△ ¹¹	×	△ ¹³	△ ¹⁴
K Ring Set	×	△ ³	×	×	△ ⁹	△ ¹¹	×	△ ¹³	△ ¹⁴

○ Compatible △ Compatible as per conditions × Incompatible * Cannot be used with the MB-21.

- With maximum aperture faster than f/5.5, use TC-16A Autofocus Converter. Incompatible with maximum aperture of f/5.5 or slower.
- With maximum aperture faster than f/5.6.
- With maximum effective aperture faster than f/5.6.
- With shutter speed set to 1/125 sec. or slower. Flash necessary.
- Aperture cannot be selected.
- Exposure determined by presetting lens aperture. Exposure must also be determined before shifting. In A mode, use AE-L button before shifting.
- Shutter should be released, after exposure measurement, by stopping down PB-6.
- Use stop-down measurement with Type B, T, K, J, or P focusing screen.
- Use full-aperture measurement with maximum aperture of f/1.8 to f/2.8.
- In Single Servo autofocus mode with lens A/M switch set at M, shutter is not released unless in-focus indicator lights up inside viewfinder.
- Focus lock button on TC-16 cannot be used.
- Stop-down measurement possible. With aperture of f/5.6 or slower, set exposure compensation dial (or focusing screen exposure compensation dial for flash photography) to -1. With 40mm f/5.6 lens, compensate exposure to -1 when the lens aperture is set at f/8 or slower.
- In full-aperture measurement, set exposure compensation dial for focusing screen exposure compensation dial for flash photography) to -1.
- In full-aperture measurement, set exposure compensation dial to +1.
- In stop-down measurement, set exposure compensation dial for focusing screen exposure compensation dial for flash photography) to +1.
- In stop-down measurement, set exposure compensation dial to +1.
- Exposure compensation necessary. (See focusing screen's instruction sheet).
- Exposure compensation necessary for full-aperture measurement. (See footnote 13 or 14).
- Exposure compensation necessary for stop-down measurement. (See footnote 13 or 14).

OPERATION BY LENSES

Focusing

The AF coupler works with AF Nikkor lenses when the focus mode selector is set on S (Single Servo Autofocus) or C (Continuous Servo Autofocus). The coupler does not work when F3AF AF Nikkor and non-autofocus lenses are used.

Although the autofocus motor doesn't work with non-autofocus lenses, the Electronic Rangefinder detects focusing and shows focus status information in the viewfinder LED display. The Electronic Rangefinder works with virtually all lenses with a maximum aperture of f/5.6 or faster.

Used with the TC-16A autofocus

teleconverter, most Nikkor AI-S, AI and modified AI lenses can be used for autofocus operation as long as the combined aperture is f/5.6 or faster.

Exposure Metering

Center-Weighted Metering can be used with virtually all Nikon lenses. Spot and Matrix Metering is available with Nikkor lenses which have built-in microcomputers, F3AF AF Nikkors, AI-S Nikkor and with AI lenses. Matrix Metering works with the TC-16A autofocus teleconverter and with other AI-S teleconverters.

Exposure Control

Virtually all lenses can be used for Aperture-Priority auto and Manual exposure modes. Lenses usable for Programmed and Shutter-Priority auto exposure modes include AF Nikkor and Nikkor lenses with built-in microcomputers. When the automatic diaphragm ring does not couple with the meter coupling lever of the Nikon F4, such as when a PC-Nikkor or bellows attachment is used, focusing is done with the lens wide open, while exposure measurement and shooting are done with the lens stopped down. With PC-Nikkors, exposure must be determined before shifting.

SHUTTER UNIT

HIGHLIGHTS

- Electromagnetically controlled vertical-travel focal-plane shutter.
- Dual multi-bladed curtains assure light does not slip past the curtain blades into film plane – especially critical during mirror-up shooting.
- Super-fast 1/8000 sec. and 1/250 sec. flash sync capability with confidence and reliability.
- Four of eight shutter blades employ special epoxy plates with carbon fibers to maximize strength while reducing weight; others are made of tough aluminum alloy.
- Special tungsten-alloy shutter balancer absorbs vibration due to the shutter curtain travel.
- Shutter braking system protects against shutter bounce.
- Reliability tested for up to 150,000 cycles.



DUAL-CURTAIN VERTICAL FOCAL-PLANE SHUTTER

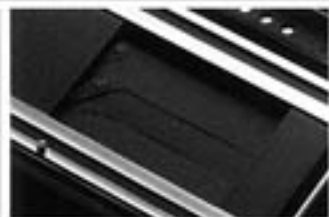
Vertical travel focal-plane shutter is made using multiple-blade assemblies. The newest high-speed shutters are made using strong, but thin material. With such shutters, there is the possibility of light leaking past the edges of the shutter blades, if exposed to very strong light for very long periods of time. Because of this, cameras with this type of shutter do not usually have a mirror lock-up mechanism.

To permit the Nikon F4 to have a mirror lock-up, and to ensure that there is virtually no chance of such light leaks, Nikon designed a unique shutter with a dual-curtain system.

NEW MATERIAL USED FOR SHUTTER BLADES

The new Nikon F4's shutter blades are made using two different materials. Four of the blades are made using a special epoxy material which has carbon fiber reinforcement. The four other blades are made with aluminum alloy.

When operated, some blades must travel a longer distance than the other blades (for both curtain sets). With this in mind, Nikon chose to use the carbon fiber material for the blades that travel the longer distance. The



Epoxy plate with reinforced carbon fiber

carbon fiber is extremely strong, yet lighter in weight than the aluminum alloy. They are 0.09mm thick, and have a low specific gravity and a very small moment of inertia! This means they are able to travel a longer distance, compared to the heavier aluminum-alloy blades, without excessive stress-causing factors.

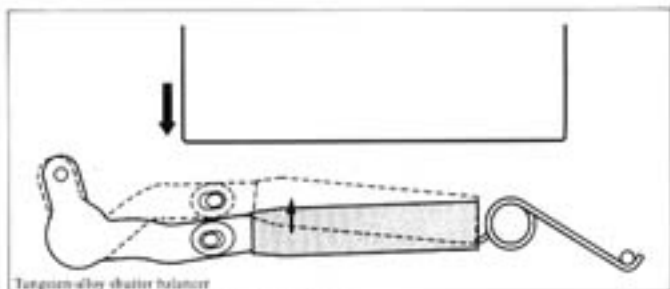
The Nikon F4's shutter curtains have achieved a very high traveling speed, without sacrificing durability, as a result of their special construction. The width of the slit, between the front and rear curtains is kept consistently accurate, and provides precise exposure accuracy, even with the top speed of 1/8000 second.

The thin carbon fiber shutter blades are an example of Nikon technology and Nikon's concern and attention to detail.

TUNGSTEN-ALLOY SHUTTER BALANCER

Even when a camera is held securely on a tripod, vibration occurs because of shutter curtain travel; this becomes critical, especially within the shutter speed range between 1/250 sec. and 1/15 sec. With higher shutter speeds, the vibration may not affect the end result. And with slower shutter speeds, the vibration becomes almost negligible.

To avoid the effects of shutter vibration, Nikon has incorporated a special tungsten-alloy shutter balancer in the Nikon F4's shutter. Why tungsten-alloy? Because of its high specific gravity of approx. 18.5. The balancer rises slightly when the shutter curtains operate. The anti-directional move-

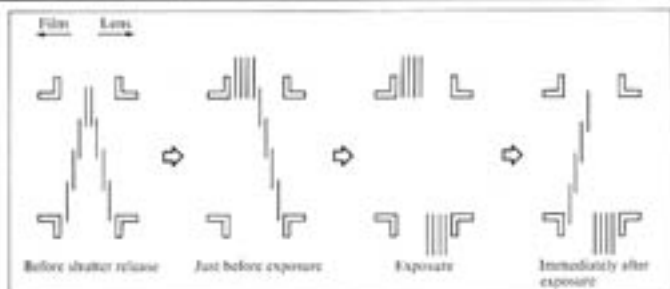


ment of the balancer absorbs vibration due to the shutter curtain travel. The balancer is designed for high density and minimum drive, so it does not need much power to control.

Additionally, an efficient shutter braking system protects against shutter bounce.

HOW SHUTTER CURTAINS MOVE

1. Normally, the film plane is covered by the dual multi-bladed shutter curtains—front and rear curtains. This unique dual-curtain system prevents the film plane from being exposed to light leaking past the blades.
2. The moment the shutter release button is fully depressed, the mirror moves up; at the same time, the rear curtain goes up.
3. The instant the mirror is completely at the up position, the front curtain starts traveling downward and the film plane is exposed to the light coming directly from the lens.
4. As the front curtain travels down, the rear curtain follows the front curtain downward until the film plane is completely covered. When

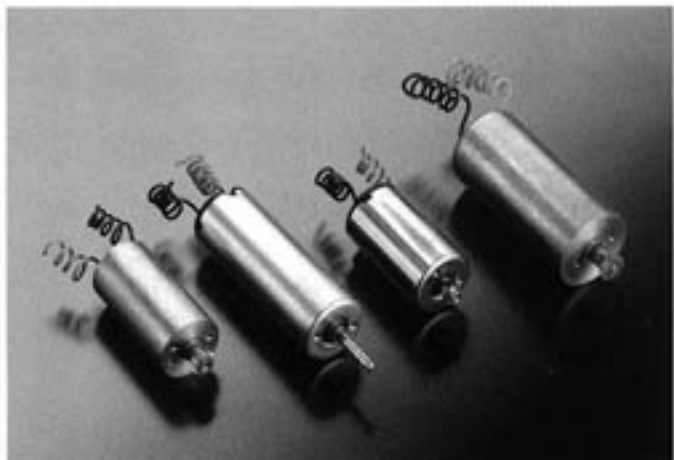


- the shutter speed is very fast, e.g., 1/8000 sec., the rear curtain starts traveling immediately after the front curtain.
5. As the film is automatically advanced to the next frame, the shutter resumes its original dual-curtain formation.

MOTORS

HIGHLIGHTS

- Four coreless motors used: one each for film advance, shutter charging control, film rewind and autofocus operation.
 - Four film advance modes selectable: C_H (Continuous high speed), C_L (Continuous low speed), C_S (Continuous silent*) and S (Single film advance).
 - High-speed 5.7 fps film advance at C_H mode.
 - Very quiet film advance (quieter than conventional lever-type film advance of professional cameras) at C_S mode.
 - Spool drive system applied to make film advance operation efficient.
- *Silent refers to the environmental conditions, not the camera sound level.



CORELESS MOTOR

All of the four motors built into the Nikon F4 camera body are the coreless type. Unlike the cored motor in which the coiled axis with large inertia rotates, only the cylindrical coil with smaller inertia rotates with the coreless motor – resulting in quick response for efficient drive. Despite the autofocus motor's compact size, it is powerful enough to drive all the camera functions and even large telephoto autofocus lenses.

Shutter Charging Motor

Placed beside the sprocket, the shutter charging motor takes care of mirror down operation. Approx. 20% of one motor rotation is dedicated to mirror control, aperture, shutter magnet resetting and release magnet resetting; the rest takes care of charging the shutter curtains.

Spool Motor

Located inside the film spool, the spool motor is in charge of advancing film. The sprockets function as a film perforation counter and not as the film advancer of conventional cameras. However, when the 250-Exp. Multi-Control Back is in use, the sprockets do help drive the film.

Rewind Motor

Located at the lower side of the film cartridge chamber, the motor rewinds the film. The motor also changes the filter of the Advanced AM200 autofocus module.

TWO-MOTOR PARTNERSHIP

The shutter charging motor and film advance motor work simultaneously to achieve high-speed film advance (Parallel Control); when such high speed is not required, the sequence motor and the film advance motor are driven sequentially (Series Control).

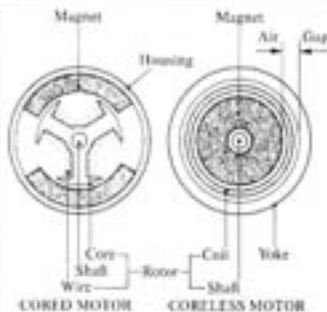
Film advance	C _H	C _L	C _S	S
Focus mode				
Continuous				
Servo AF	Parallel	Parallel	Parallel	Series
Single Servo AF	Parallel	Series	Parallel	Series
M	Parallel	Series	Parallel	Series

MOTOR MOVEMENT AT C_S MODE

When the film advance mode is set to C_S, the motor is driven with pulse electricity. The power repeats ON-OFF operation; this makes the motor repeat the sequence of fast and slow movement.



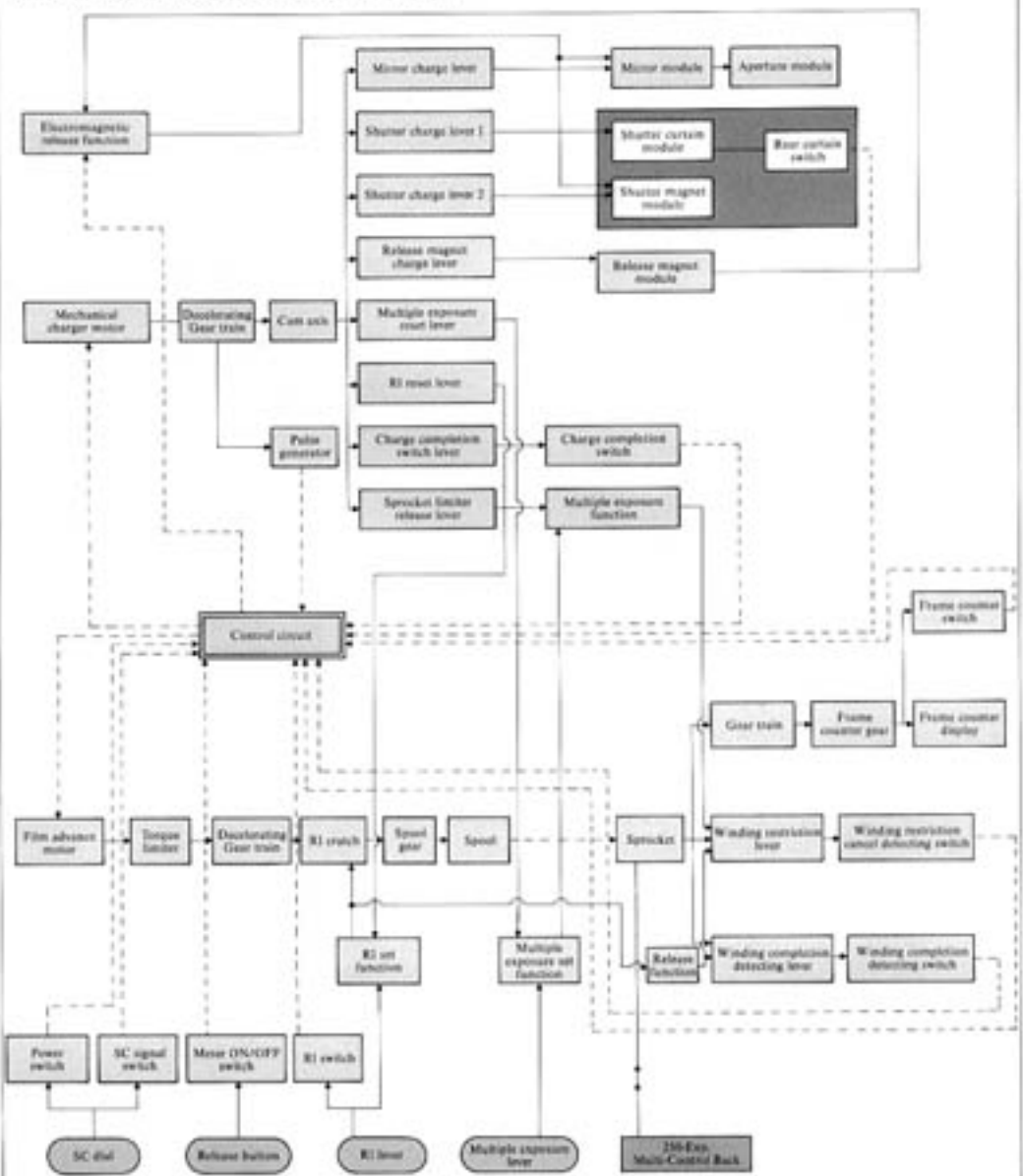
CORELESS MOTOR



CORED MOTOR

CORELESS MOTOR

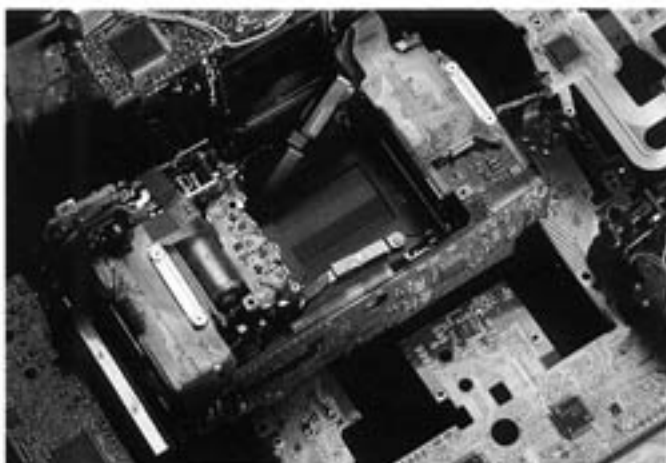
MOTOR DRIVE SEQUENCE BLOCK DIAGRAM



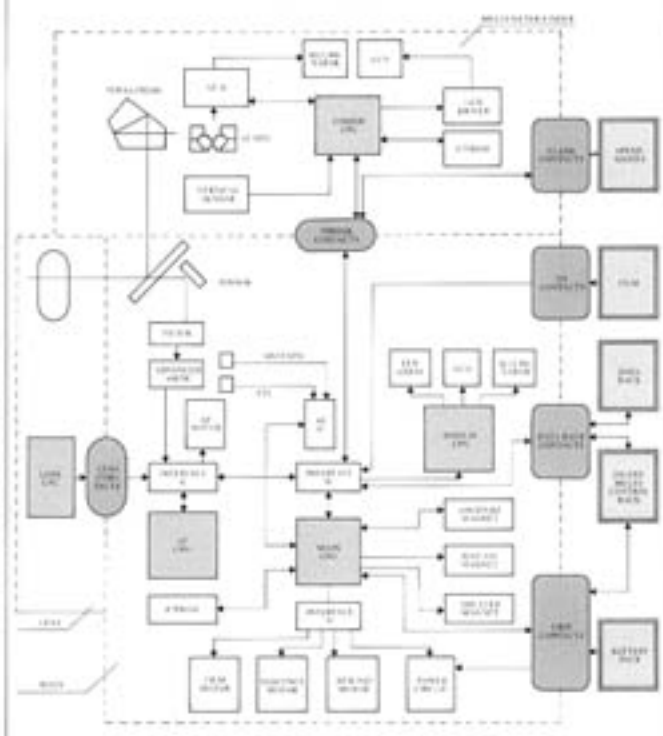
MICROELECTRONICS

HIGHLIGHTS

- Largest computer system ever built into a 35mm SLR camera.
- Nikon F4 body has nine ICs including two 8-bit microcomputes and one 4-bit microcomputer.
- Viewfinder has four ICs including one 8-bit microcomputer.
- 200 high-sensitivity CCDs (Charge Coupled Devices) are used for auto-focus detection.
- A pair of Multi-Meter sensors detects scene brightness by dividing the scene into five segments.
- Special Spot Meter sensor incorporated adjacent to Advanced AM200 optical block.
- TTL sensor monitors the flash light exposure on the film, and the flash exposure level is automatically adjusted in Matrix Balanced Fill-Flash.



CAMERA OPERATION BLOCK DIAGRAM



COMPUTER NETWORK INSIDE CAMERA

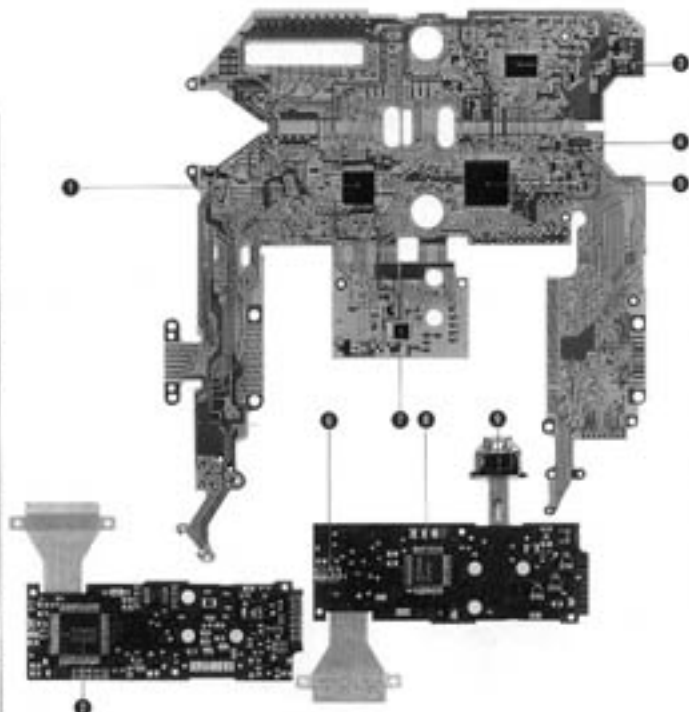
The Nikon F4's *professional* computer network processes various data pertaining to exposure metering, focus detection and mechanical parts control to provide results professionals expect. Nikon engineers spent several years in developing software that simulates a professional's know-how. That's why the Nikon F4 has incorporated such a large computer system inside the camera.

MULTI-METER SENSORS

A pair of Multi-Meter SPD (Silicon Photo Diode) sensors located beside the viewfinder eyepiece lens detects scene brightness. Each sensor is segmented into three, with the center segment monitored by both sensors. In Matrix Metering, data obtained from the five-segment cells are used for computation; in Center-Weighted Metering, only the center-segment data is used to meter exposure.

HYBRID MULTI-LAYER PRINTED CIRCUIT BOARD

Under the mirror box is a hard circuit board consisting of several layers of epoxy glass; printed circuits are sandwiched between these layers. The hard circuit board is routinely used in computers and other home electronics products, but the Nikon F4 marks the first time it has been incorporated into a 35mm camera. This contributes to a very high reliability.



Body

- ❶ **Interface IC**
IC in charge of motor drive and power control circuits.
- ❷ **AF Microcomputer Unit**
This 8-bit microcomputer with 8K-byte ROM and 256-byte RAM processes autofocus information while communicating with the lens microcomputer.
- ❸ **AE IC**
IC in charge of Spot Metering and TTL flash control.
- ❹ **Multiplexer 1**
Controls film advance motor and electrical power.
- ❺ **Main Microcomputer Unit**
This 8-bit main microcomputer unit with 8K-byte ROM (Read Only Memory) and 384-byte RAM (Random Access Memory) is in charge of sequence and exposure control, as well as of data communication with other body microcomputers and with attached accessories such as a Nikon spotlight and data back.
- ❻ **Multiplexer 2**
Controls various data communications and command inputs via switches.
- ❼ **EEPROM**
Memorizes adjusted data.
- ❽ **AF Interface IC**
Transfers focus information obtained from 200 CCDs to other circuits and controls autofocus motor.
- ❾ **CCD Line Sensor**
Detects subject brightness distribution for focus detection.



Viewfinder (Multi-Meter Finder)

- ❶ **Finder CPL**
8-bit microcomputer with 4K-byte ROM and 192-byte RAM processes Matrix Metering algorithms. Communicates with camera body's main microcomputer CPU.
- ❷ **EEPROM**
Memorizes adjusted data.
- ❸ **AE IC**
Controls Matrix Metering and Center-Weighted Metering data.
- ❹ **LCD Driver**
Controls viewfinder LCD.

FOCUSING

HIGHLIGHTS

- Manual Focus (M) with Electronic Rangefinder.
- Choice of Single-Servo Autofocus (S) and Continuous-Servo Autofocus (C).
- Ultra-fast, ultra-responsive autofocus; operates in light as dim as EV minus 1 (under Nikon inspection conditions).
- Autofocus works at an incredibly high speed thanks to integration of AF sensors, high-speed microcomputer computation and super-responsive "coreless" autofocus motor.
- Two switchable filters ensure accurate autofocusing in every shooting situation.
- Focus Tracking function enables accurate autofocus of moving subjects by measuring the moving speed.
- Simultaneous AF and AE lock.
- "Freeze Focus" – automatic shutter release when subject enters a pre-focused distance – available with Nikon MF-23 Multi-Control Back.

FOCUS MODE SELECTION

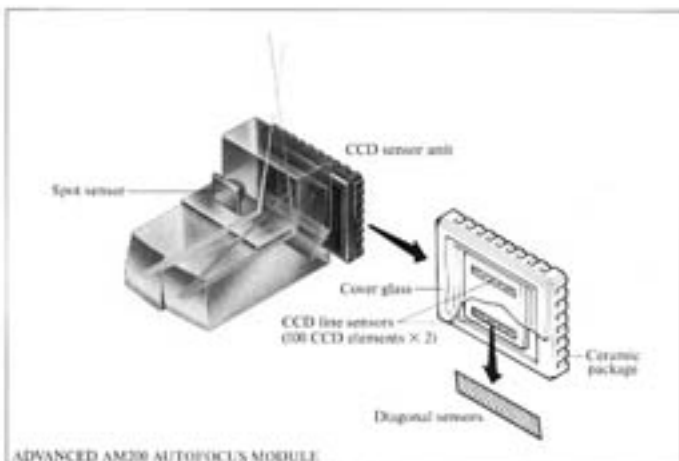


Three focus modes are available through the focus mode selector provided on the camera body.

Manual Focus (M) with Electronic Rangefinder

For manual control of the lens focus ring, the focus mode selector is set to the "M" position; this prevents the autofocus coupler on the lens mount from rotating. Focus status (see illustration) is indicated by the viewfinder LED, so the user knows which way to turn the lens focus ring. With Nikon lenses other than AF Nikkors, the autofocus coupler will not move whichever focus mode is selected. Focus status is indicated also by the viewfinder LED.

**Lenses with a maximum aperture smaller than f/3.5 are unsuitable for operation with the Electronic Rangefinder.*



ADVANCED AM200 AUTOFOCUS MODULE

LED Focus Status

●	In focus
○	: Front focus
○	: Rear focus
○	: Focus not possible

Single Servo Autofocus (S)

In Single Servo Autofocus mode, the shutter cannot be released until the subject is in focus; once the subject is in focus, the focus stays locked for as long as the shutter release button is lightly pressed up until the moment of exposure.

Continuous Servo Autofocus (C)

The camera continues focusing for as long as you keep the shutter release button lightly pressed. The shutter release button can be fully depressed anytime, regardless of focus status, except when film advance mode selector is set to C.

AUTOFOCUS SYSTEM

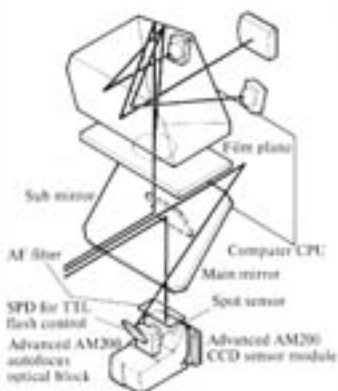
The advantages of the Nikon F4's autofocus system include:

1. *Ultrahigh-speed focus response*
 2. *Focus detection capability even in light as low as EV minus 1 (under Nikon inspection conditions)*
 3. *Low-contrast scenes and minute subject details can be detected*
- Autofocus works at an incredibly high speed thanks to the integration of

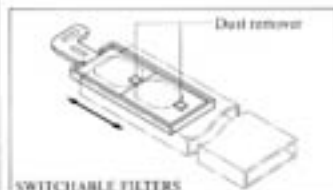
autofocus sensor module with high-sensitivity CCD sensors, high-speed 8-bit microcomputer and super-responsive "coreless" autofocus motor.

Optical Path

The main mirror passes approximately 30% of the light rays coming through the picture-taking lens. The light passing through the main mirror reflects off the sub-mirror and is directed down to the Advanced AM200 autofocus module, which consists of an optical block and CCD line sensor package.



OPTICAL PATH



Switchable Filters

Two filters are incorporated at the base of the mirror box which switch automatically according to the shooting situation. In normal shooting, a filter that cuts infrared light is employed to prevent erroneous focus detection due to the chromatic aberrations of the lens in use. The other filter, which transmits infrared light, is employed when shooting with the infrared light-emitting AF illuminator. The presence of these two filters improves autofocus accuracy in every shooting situation. Dust removers are provided to remove dust from the surface of filters. "Advanced AM200" Autofocus Module Nikon's advanced AM200 autofocus module is a one-piece optical block with 200 high-sensitivity CCD (Charge-Coupled Device) sensors. By comparing the electronic output of two line sensors, the system detects the amount and direction of deviation. The sensitivity characteristics of CCD sensors can quickly store sufficient brightness data even in dim light conditions or with low contrast scenes. These CCD sensors offer excellent signal-to-noise ratio and full discharge, assuring correct focus detection without interference from outside sources.

High-Speed Computers

The built-in 8-bit microcomputer unit uses special autofocus software that quickly processes all the focus information obtained by the 200 CCD sensors. Three computers in all – two in the camera body and one in the AF Nikkor lens – work together using specially designed, exclusive Nikon software. They process all autofocus

data precisely to ensure fast, responsive AF operation.

Coreless Motor

Despite the motor's compact size, it is powerful enough to drive any AF Nikkor lens, including the large telephotos. Superfast and precise autofocus is available with higher torque, quicker acceleration and higher efficiency. See page 16.

Compared with the F-801's coreless motor, the Nikon F4's coreless motor has been improved in torque and rotation speed by 15%.

FOCUS TRACKING FUNCTION

"Focus Tracking" is the new autofocus software that enables accurate autofocus of moving subjects by measuring their speed in the picture frame. Normally, an AF SLR, when taking a picture of a subject moving toward or away from the camera, detects the distance from camera to subject, moves the lens until correct focus is obtained, and then releases the shutter. However, during the period between focus detection and exposure, the subject may move closer or farther away from the camera and will thus be out of focus.

With "Focus Tracking," focus is detected at least twice before the exposure. The camera measures the difference between the first and second focus detections to ascertain the subject's moving speed in picture frame. With this information the camera then compensates for the time required for lens movement and drives the lens into the proper position until the exposure to obtain correct focus, resulting in consecutive focused images.

To utilize this function, set the

focus mode to Continuous Servo and film advance mode to Low-Speed Continuous (CL). This function automatically reverts to normal operation when the subject changes direction or moves erratically.

AUTOFOCUS WITH AF ILLUMINATOR

Where existing light contrast or subject detail is insufficient for autofocus operation, the use of a Nikon Autofocus Speedlight (SB-24, SB-23, SB-22 or SB-20) is recommended. Each of these speedlights enables autofocus operation even in total darkness, by emitting an infrared patterned beam of light onto the subject. Note that AF illumination works only with the Nikon F4 set in the Single Servo Autofocus mode.

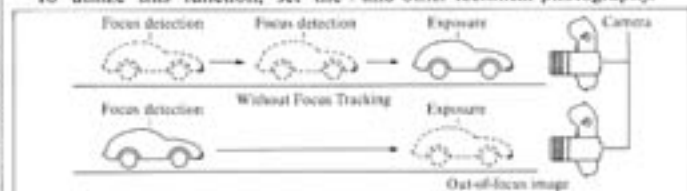
AUTOFOCUS LOCK



Pressing the AF-L (Autofocus Lock) button enables the Nikon F4 to lock the focus. Simultaneous lock of AF-L and AE-L is possible.

"FREEZE FOCUS"

In combination with the optional Nikon Multi-Control Back MF-23 or 250-Exp. Multi-Control Back MF-24, the Nikon F4 offers a "freeze focus" function – i.e., with the shutter button fully depressed, the shutter is automatically fired when a subject comes into a preset manually focused position. This function is recommended for sports races because the racing course is usually known beforehand. It also works well in wildlife remote-control photography, scientific, forensic and other technical photography.



METERING

HIGHLIGHTS

- Three types of metering systems are available – Matrix, Center-Weighted and Spot Metering.
- Nikon's exclusive Matrix Metering evaluates light, thus assuring an optimum exposure every time.
- Scene evaluation is performed instantly and precisely, thanks to the built-in microcomputer unit and specially designed Nikon software.
- Optimum results are obtained in complex lighting conditions – e.g., window-side, backlit, harshly lit, and night landscape – even with the subject off-center.
- Matrix vertical sensor ensures perfect performance of five-segment Matrix sensors, even when the camera is held vertically.
- Center-Weighted Metering system for user-creative control.
- Spot Metering features an approx. 5mm-dia. circle metering area for precise measurement of a special portion.

METERING SYSTEM SELECTION

When the Multi-Meter Finder DP-20, the Nikon F4's supplied standard finder, is used, you can select either of three metering systems by setting the finder's selector to  for Matrix,  for Center-Weighted and  for Spot; the mark for the system selected appears in the viewfinder LCD. See page 12 for lenses usable with each metering system.

Three metering systems are provided for maximum capability over the widest range of lighting conditions. Matrix Metering provides the most efficient operation for automatic exposure control, and is ideal for quick-changing and complex light conditions, remote-control photography and for fill-flash operation. Matrix Meter operation is not dependent upon the



subject's location in the finder.

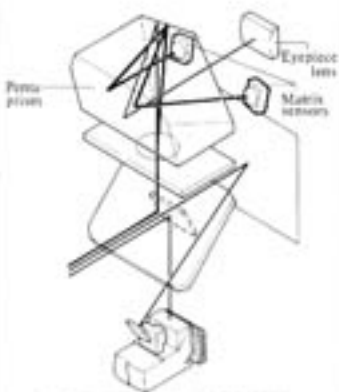
Center-Weighted Metering allows more user control and should be selected when you decide to emphasize the exposure for a subject centered in the finder. It also operates with fill-flash operation. The 60/40 weighted balance was chosen (rather than the 75/25 used with the N8008) because the Nikon F4 also has a Spot Metering for more selective metering.

Spot Metering is the most demanding for user control, and requires informed and careful operation. It has the most selective sensor and can detect subject brightness in small areas, about 2.5% of the finder area.

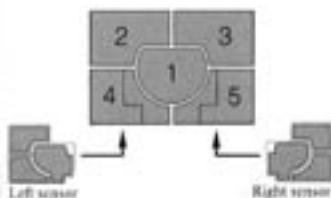
MATRIX METERING

The Nikon F4's Matrix Metering system is the result of many years of laboratory research and field tests, conducted after the pioneering Automatic Multi-Pattern Metering (AMP) system of the Nikon FA which was introduced in 1983.

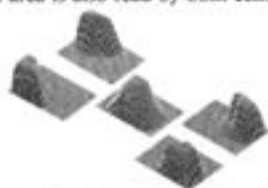
In Matrix Metering, the meter automatically provides correct exposure for the main subject in any lighting situation, without having to use manual exposure compensation. The Nikon F4 has two sensors which are located on the sides of the eyepiece lens.



LOCATION OF MATRIX SENSORS



A pair of SPD sensors divides the picture-taking scene into five segments. In five-segment reading, the three-element SPD cells on the left sensor read scene areas 1, 2 and 4. The cells on the right sensor read 1, 3 and 5. The central area 1 is read by both cells. In Center-Weighted Metering, the central area is also read by both cells.



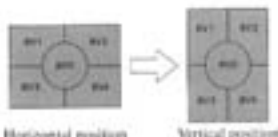
A pair of SPD sensors, corresponding to the five segments, individually senses the light coming through the

lens. The sensitivity of each segment is as shown.

Matrix Metering Algorithm Pattern

An algorithm is a step-by-step procedure for evaluating and completing a job. And a computer's ability to handle detailed intensive exposure control calculations makes it perfect for evaluating complicated and fast-changing lighting patterns. The Nikon F4's high-capacity computer uses Nikon-designed software which employs a comprehensive Matrix (series of algorithms) to evaluate brightness and contrast.

The Nikon F4's computer divides the scene into 25 Matrix boxes, each of which has one or more algorithms. Upon analyzing scene light patterns, it determines the appropriate computation method – Low-Brightness Weighted, High-Brightness Weighted, Average or Center Segment – to obtain the best possible exposure, even for an off-centered subject. The system is also programmed to factor out extremes of brightness and darkness, just as you would if you were personally evaluating the scene.

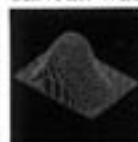


Matrix Vertical Sensor

The Matrix vertical sensor is incorporated on both sides of the eyepiece lens of the Multi-Meter Finder. When the camera is turned from the horizontal to the vertical position, the mercury switch enclosed in each of the two sensors is automatically activated, thus detecting the vertical position.

When the sensor detects the vertical position of the camera, the metering output assignment of the five segments changes as shown.

CENTER-WEIGHTED METERING



Choose Center-Weighted Metering when you want to base exposure on either Auto or Manual Exposure control for a centrally located subject. Selecting Center-Weighted Metering overrides Matrix Metering and concentrates 60% of the meter's sensitivity into the center of the viewfinder which is outlined by a 12mm circle.

This metering system is available with the Nikon F4's supplied standard Multi-Meter Finder DP-20 and the optional AE Action Finder DA-20.

SPOT METERING



For selective metering of tiny subjects or for advanced manual metering techniques, use Spot Metering.

The area metered is represented by the approx. 5mm-diameter circle in the center of the viewfinder. This metering system is effective when precise measurement of a special portion of the subject is required. The spot metering sensor is incorporated in the Nikon F4's body, so Spot Metering is available with any of the Nikon F4's interchangeable viewfinders.

	CW Center Segment	H High-brightness weighted	M Average	L Low-brightness weighted	
Max. brightness					
Dark, night scenes					
Twilight on indoor scenes					
Outdoor scenes					
Outdoor scenes in fine weather					
Scenes containing the sun					
Contrast					
Very low					
Low					
Normal					
High					
Very high					

EXPOSURE

HIGHLIGHTS

- Five exposure modes are available—Manual (M), High-Speed Program (PH), Normal Program (P), Shutter-Priority (S) and Aperture-Priority (A).
- High-Speed Program mode is especially effective when a telephoto lens is used or for shooting a fast-moving subject.
- Shutter speed is controlled virtually steplessly from 30 to 1/8000 second and indicated in 1/2 EV steps in the PH, P and A modes.
- Exposure compensation within ± 2 EV in 1/3 EV steps via dial; compensation value is displayed in the viewfinder.
- Auto bracketing with optional Multi-Control Back MF-23 or 250-Exp. Multi-Control Back MF-24.
- AE-L (Auto Exposure Lock) button is provided; simultaneous use with Autofocus Lock function is possible via lever.

MANUAL EXPOSURE MODE



In the Manual Exposure mode, both shutter speed and aperture can be set manually to achieve the desired effect. Use fast shutter speeds to stop the action, slower speeds to create motion effects or fuzzy outlines. Manually setting the exposure mode also lets you control depth of field, either by softening the background so the main subject of the picture stands out, or by creating overall uniform sharpness.

Viewfinder Display in M Mode

Set any of the click-stopped calibrated shutter speeds on the shutter speed dial (4 sec. to 1/8000 sec.); the lens aperture ring may be continuously adjusted (i.e., intermediate *f*/stops are usable).

Adjust aperture and/or shutter speed referring to the Electronic Analog Display in the viewfinder LCD. The Elec-



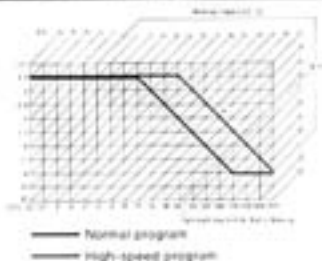
tronic Analog Display range is +2EV to -2EV, in increments of 1/3EV.



PROGRAMMED AUTO EXPOSURE MODES (PH, P)

Programmed auto operation is ideal for quick operation and is the simplest method for exposure control. Together with Matrix Metering, it is very reliable.

Programmed Auto Exposure modes can only be used with lenses having a built-in CPU such as AF Nikkor lenses and the Nikkor 500mm *f*/4 P. For lenses without a CPU, exposure mode is automatically set to Aperture-Priority Auto (A). Setting the exposure mode to PH (high-speed program) or P (normal program) lets you choose the program.

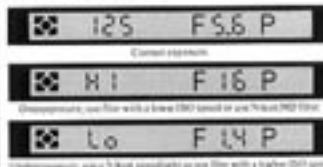


Dual Program Chart (e.g., 50mm *f*/1.4, ISO)

The EV (Exposure Value) chart demonstrates the difference between the Nikon F4's normal and high-speed programs. Follow either line to where it intersects a diagonal line. This shows the combination of aperture (vertical line) and shutter speed (horizontal line).

Viewfinder Display in P Modes

Shutter speed is controlled virtually steplessly from 30 to 1/8000 second. Controlled aperture value and shutter speed are virtually steplessly selected, and indicated in the viewfinder LCD in 1/2 EV steps.



SHUTTER-PRIORITY AUTO EXPOSURE MODE (S)

This mode lets you choose shutter speeds manually. Use a fast shutter speed to stop action, or create motion effects by choosing slower shutter speeds. The Nikon F4's microcomputer automatically selects the correct aperture to match the selected shutter speed.

This mode is available with lenses having a built-in CPU such as AF Nikkors and the 500mm f/4 P.

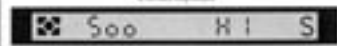
Viewfinder Display in S Mode

Rotate shutter speed dial to select desired shutter speed within the range of 4 to 1/8000 sec. in 1 EV steps.

Aperture is controlled steplessly within the aperture range of the lens and indicated in 1/2 EV steps.



Correct exposure



Overexposure; select higher shutter speed or use Nikon ND filter



Underexposure; select slower shutter speed or use a Nikon speedlight

Alert Display in P/S Modes

The display shown appears if the lens is not set to the smallest aperture setting. Set lens to smallest aperture.



Underexposure; select larger aperture setting or use a Nikon speedlight

If a non-CPU lens is used, exposure mode is automatically shifted to A mode and display appears as such:



Non-CPU lens is used; automatically shifts to A mode

APERTURE-PRIORITY AUTO EXPOSURE MODE (A)

This mode operates with virtually all Nikon lenses. When used with any optical system such as a reflex lens, microscope, telescope, bellows, etc., the Nikon F4's microcomputer automatically selects the correct shutter speed to match the aperture you set. This is the recommended mode when depth of field is your prime consideration. For less distinct backgrounds, as in portraiture, use larger apertures to obtain a shallow depth of field. For overall sharp, clear pictures, as in scenic photography, use smaller apertures.

Viewfinder Display in A Mode

Set lens to desired f-number by rotating lens aperture ring.

Shutter speed is controlled virtually steplessly from 30 to 1/8000 second and indicated in 1/2 EV steps.



Correct exposure



Overexposure; select smaller aperture setting (larger f number) or use Nikon ND filter



Underexposure; select larger aperture setting or use a Nikon speedlight

AE-L (AUTO EXPOSURE LOCK)

This function memorizes the metered exposure value. Great for situations where you want to change composition or if you want to put creative emphasis on a specific part of the picture. While exposure is locked, "EL" appears in the viewfinder.

Auto exposure and autofocus can be locked at the same time by simply turning the simultaneous lock lever and pressing the AF-L button.



EXPOSURE COMPENSATION DIAL



Using the exposure compensation dial, you can compensate exposure within the range of $\pm 2\text{EV}$ in 1/3 EV increments.

While sliding the lock release, rotate the exposure compensation dial to set the desired compensation value. The dial is graduated in one-third stop increments. -1 and -2 indicate one and two stops underexposure, respectively; $+1$ and $+2$ indicate one and two stops overexposure.

Because the exposure compensation mark and value appear in the viewfinder when the shutter release button is lightly pressed, you can set the compensation value with your eye on your subject through the viewfinder.



Compensation value

Exposure-compensation mark

AUTO EXPOSURE BRACKETING

By attaching the optional Nikon Multi-Control Back MF-23 or 250-Exp. Multi-Control Back MF-24 to the Nikon F4, you can take advantage of auto exposure bracketing to produce a variety of exposures of the same subject, each one suiting specific needs and/or tastes. This feature lets you shoot up to 19 continuous frames, each with a different exposure. For details, see the MF-23 or MF-24 instruction manual.

FLASH

HIGHLIGHTS

- Cybernetic Sync automatically adjusts the camera's shutter and lens aperture to exposure requirements.
- Matrix Balanced Fill-Flash enables balanced, correct exposure for both foreground subject and background without any manual compensation.
- Matrix Balanced Fill-Flash with Cybernetic Sync works with all exposure modes.
- Center-Weighted Fill-Flash automatically compensates the TTL flash exposure level within a controlled shutter speed/aperture range.
- TTL flash exposure level can be manually compensated with the Nikon SB-24 Speedlight.
- With the Nikon SB-24 Speedlight, various advanced photographic techniques such as rear-curtain sync and repeating flash become available.



CYBERNETIC SYNC FLASH

Nikon dedicated electronic speedlights, including SB-24, SB-23, SB-22, SB-20, SB-18, SB-16B and SB-15, take full advantage of the Nikon F4's finetuned cybernetic controls, which automatically synchronize the camera's shutter speed and lens aperture to provide precisely controlled exposures. This means you can perform Cybernetic Sync Flash in TTL mode in every flash shooting situation, for beautiful, naturally balanced exposure for foregrounds and backgrounds.

Using Cybernetic control, the Nikon F4 together with a Nikon speedlight allows the photographer a choice of different flash techniques, such as Matrix Balanced Fill-Flash and Center-Weighted Fill-Flash.

	Speedlight setting	SB-24 at TTL	SB-23/22/20/18/16B/15 at TTL	SB-24 at TTL
Metering system	Exposure mode			
Matrix Metering	Pv/P/S/A	Matrix Balanced Fill-Flash		Matrix TTL-Flash
	M			
Center-Weighted Metering	Pv/P/S/A	Center-Weighted Fill-Flash		Center-Weighted TTL-Flash
	M			
Spot Metering	Pv/P/S/A/M		Spot TTL-Flash	

In Matrix TTL-Flash, Center-Weighted TTL-Flash or Spot TTL-Flash, standard TTL-Flash is selected. In this flash mode, although exposure for the background is metered by each metering system, flash output level is not determined

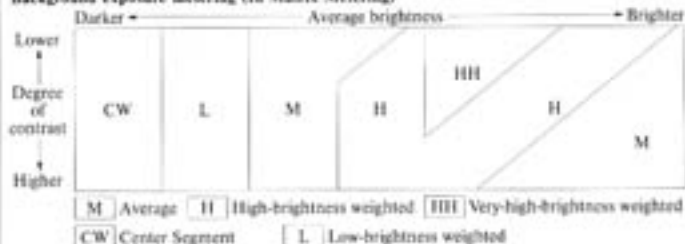
automatically. However, you can manually select flash output compensation (on the SB-24) at levels from +1 to -3 EV, for greater personal creativity.

MATRIX BALANCED FILL-FLASH

With the system set to Matrix, Matrix Balanced Fill-Flash is available. Based on a combination of general scene brightness and contrast, the exposure value for the background is

determined by one of five computation methods: Low-Brightness Weighted, Center-Segment, Average, High-Brightness Weighted, or Very-High-Brightness Weighted.

Background exposure metering (In Matrix Metering)



Together with the background exposure metering, the Nikon F4's microcomputer automatically chooses from five flash output levels determined by a combination of brightness and degree of contrast. The result is a balanced combination of ambient light and flash illumination that produces a natural-looking and pleasing effect.

Matrix Balanced Fill-Flash in Each Exposure Mode

In *Programmed Auto (Ps, P)* modes, the sync speed of 1/250 sec. has priority, but when the aperture reaches its largest limit (variable according to ISO film speed), the program line fixes the shutter speed at 1/60 second. Aperture is controlled between f/4 (at ISO 100) and the smallest available lens aperture.

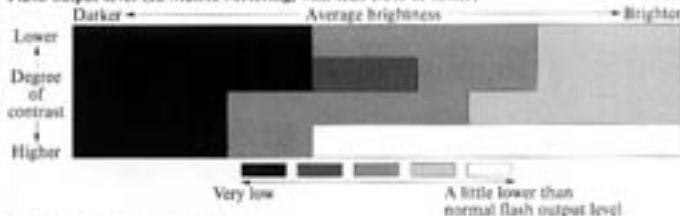
In *Shutter-Priority Auto (S)* mode, you can choose sync speeds from 1/250 to 4 sec., enabling you to shoot, for example, a cityscape of night lights, with automatic flash exposure for foreground subjects. Aperture is controlled between the largest and smallest apertures of the lens.

In *Aperture-Priority Auto (A)* mode, you select aperture and the camera selects a suitable sync speed, within a range of 1/60 to 1/250 sec. (at any ISO film speed).

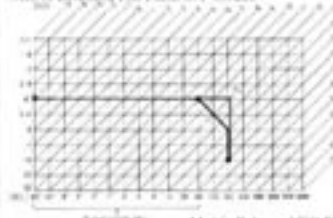
With *Manual (M)*, you control both aperture and shutter speed while the flash exposure is determined by scene brightness and contrast, with Matrix Balanced Fill-Flash control throughout.

CENTER-WEIGHTED FILL-FLASH
For regular TTL flash photography, or to emphasize detailed background areas, use Center-Weighted Fill-Flash. In this mode, when the value measured by the center segment is within the controlled shutter speed/aperture range, flash output compensation is automatically set, for natural-looking fill-flash photography. (If the value is less than that of the controlled range, standard TTL flash without compen-

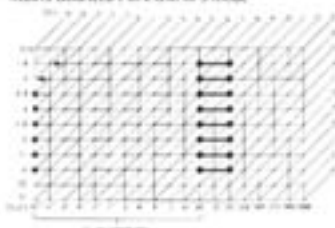
Flash output level (In Matrix Metering, with lens f/5.6 or faster)



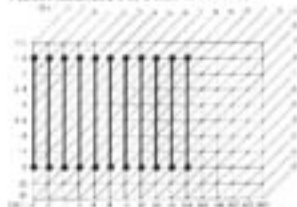
Matrix Balanced Fill-Flash in P modes



Matrix Balanced Fill-Flash in S mode



Matrix Balanced Fill-Flash in A mode



- Although the slowest possible shutter speed for front-curtain sync flash photography in TTL mode (with camera in Ps, P or A) is only 1/60 second, with rear-curtain sync flash photography, the shutter will operate as slowly as 30 seconds, depending on the background brightness.
- In the S and M modes, when you select a shutter speed faster than 1/250 sec. and then turn the flash unit ON, the Nikon F4 automatically shifts to 1/250 sec.

REAR-CURTAIN SYNC

When using the Nikon SB-24, you can synchronize the flash to the instant just before the rear (second) curtain starts moving. Set the SB-24's flash sync mode selector to "REAR." This lets you turn available light into a stream of light that follows the flash illuminated subject. Rear-curtain sync flash photography is especially effective at slower shutter speeds.

In Ps, P or A mode, the shutter will operate as slowly as 30 seconds, depending on background brightness.

REPEATING FLASH

The repeating flash technique is also available with the Nikon SB-24 Speedlight. In this case the SB-24 emits a certain level of flash output consecutively. The user then picks the desired length of interval between flashes, number of flashes (up to 8) per second and flash output amount.

CONTROLS

SHUTTER SPEED DIAL



For Manual and Shutter-Priority Auto Exposure, you can set any of 16 different shutter speeds from 4 sec. to 1/8000 sec. Intermediate shutter speeds can not be set. Three other settings – B, T and X – are possible. For P modes and A mode, the shutter operates virtually steplessly from 30 sec. to 1/8000 sec.

B Setting

At the "Bulb" setting, the shutter remains open as long as the shutter release button remains depressed. This setting should be used only in the Manual Exposure mode. Set shutter speed dial to B.

T Setting

On "T," the shutter stays open until the shutter speed dial is rotated to another setting, making the setting ideal for really long time exposures. Exposure mode is automatically set to Manual. If exposure is longer than 32 sec., "T" will not cause battery drain regardless of how long the shutter remains open.

X Setting

"X" setting provides a top flash sync speed of 1/250 sec. with Nikon speedlights. For assurance during flash shooting, set the shutter speed dial to "X." To unlock, while pressing the lock release button, shift the shutter speed dial to another setting.

Speedlight synchronization is also possible for dial-selected speeds from 1/250. and slower.



FILM ADVANCE MODES



The Nikon F4 has four automatic film advance modes. In S (for single-frame shooting), fully depressing the shutter release button takes one picture then automatically advances the film by one frame. In C (for continuous shooting), pictures are taken continuously as long as the shutter release button is depressed. Choose C₁ (Continuous high speed), C₂ (Continuous lower speed) or C_s (Continuous silent). Continuous silent is for times when conditions require a minimum of operating noise. Film advance operation noise in C_s mode is quieter than conventional lever-type film advance of professional cameras.

The table below shows film advance speed in each Continuous mode:

	With High Speed Battery Pack MB-21	With Battery Pack MB-20
C ₁	5.7 frames per second	4.0 fps
C ₂	3.4 fps*	3.3 fps*
C _s	1.0 fps	0.8 fps

Framing rates are for Continuous Servo Autofocus, with AF Zoom-Nikkor 35-70mm f/3.3-4.5 lens, new AA-type alkaline-manganese batteries, a shutter speed of 1/250 sec. or faster, at normal temperature.

*Depends on brightness of available light.

*Except when focus tracking function is activated.

DEPTH-OF-FIELD PREVIEW BUTTON



When a lens with an automatic diaphragm is used, the viewfinder image is viewed with the lens at maximum aperture. The depth-of-field preview button lets the user stop the lens down to the aperture set, enabling him or her to examine the zone of sharpest focus before shooting.

METER COUPLING LEVER



Before mounting a non-AI Nikkor lens, be sure to push the meter coupling lever release button and lift the meter coupling lever to the "up" position. Then perform stop-down exposure metering.

MIRROR LOCKUP LEVER



A highly efficient, tungsten-alloy shutter balancer is incorporated in the shutter unit. The balancer operates during shutter operation to overcome vibration normally caused by shutter curtain movement in other cameras.

When using super-telephoto lenses or doing photomicrography, it is necessary to reduce camera vibration to the absolute minimum. To lock the reflex viewing mirror in the "up" position, push in the depth-of-field preview button and rotate the mirror lockup lever counterclockwise until it stops. (In this case, exposure meter cannot be used.)

Thanks to a unique dual-curtain system, the Nikon F4 is the only SLR camera with vertical-travel focal-plane shutter that has a mirror-lockup capability.

MULTIPLE EXPOSURE LEVER

Taking multiple exposures precisely on the same frame is easy. Pull the multiple exposure lever toward you before releasing the shutter. This will not advance the film after releasing the shutter. Depress the shutter release button again to take the second shot. For more than two shots on the same frame, pull the lever before each additional exposure. Note that in multiple exposure operation, exposure compensation is required depending on subject brightness, background brightness and number of exposures. You must determine the necessary exposure compensation and make the adjustment.

ALTERNATIVE SHUTTER RELEASE BUTTON

A shutter release button is provided at the bottom of the High Speed Battery Pack MB-21. This is convenient for vertical-format shooting. The button can be locked to prevent inadvertent shutter release.

SYNC TERMINAL



A separate sync terminal is provided on the Nikon F4. It accepts all standard PC-type plug-in sync cords, and is threaded for use with a Nikon screw-in sync cord. Use this terminal to attach flash units which do not have the standard ISO hot shoe.

VIEWFINDER ILLUMINATOR SWITCH



When it's dark, use the viewfinder illuminator to light up all viewfinder information. Turn the switch on, and lightly press the shutter release button to illuminate the display. The illuminator automatically switches off as the viewfinder display disappears; it also momentarily switches off during exposure.

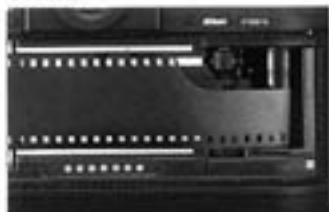
FILM SPEED SETTING



The Nikon F4 offers two ways to set film speed, depending on the film in use. When using DX-coded film, set the film speed dial to DX. The camera automatically senses the film speed of installed DX-coded film. You can also set the film speed manually for DX-coded film or non-DX-coded film. The scale on the dial has numbered settings for film speeds. Two dots between each pair of ISO numbers stand for intermediate settings. If DX-coded film is loaded, but the film speed is set manually, the camera gives priority to the manually set ISO number.

Film speed range is ISO 25 to 5000 for DX-coded film, and ISO 6 to 6400 in 1/3 EV steps for manual setting.

OTHERS



Auto Film Loading

The user simply pulls the film leader to the mark, closes the camera back then presses the shutter release button – and the camera automatically advances the film to frame #1. During the "blank" shots, the shutter remains closed.



Film Rewind

Automatic or manual film rewind selectable – automatic by turning film rewind levers (R1) and (R2), or manual by using film rewind crank after turning film rewind lever R1.



Self-Timer

Self-timer provides a delay of 10 seconds.

SPEEDLIGHTS



SB-24



SB-23



SB-22



SB-20



SB-16B

NIKON TTL CONTROL AND FLASH COMPATIBILITY

All Nikon speedlights are usable with the Nikon F4. Speedlights with TTL control can operate with the Nikon F4's various fill-flash functions, including both Matrix and Center-Weighted types.

NIKON SB-24 SPEEDLIGHT

The SB-24 offers maximum flexibility and performance with the Nikon F4, including built-in autofocus illuminator and a choice of various fill-flash functions, such as Matrix Balanced Fill-Flash and Center-Weighted Fill-Flash.

- The zoom head automatically adjusts to provide an angle of coverage that matches the focal length of the lens in use.
- Flash output level can also be compensated on the SB-24.
- Repeating-flash mode lets you shoot a subject two or more times consecutively on the same frame. You can select number of flashes, frequency and either 1/8 or 1/16 light output.
- With rear-curtain sync flash, you can synchronize the flash with the instant the rear curtain starts moving. This turns available light into a stream of light that follows the flash-illuminated subject.
- All basic information is shown in the SB-24's own LCD display.

NIKON SPEEDLIGHTS

SB-23/SB-22/SB-20

Each unit is equipped with an illuminator that enables autofocus even in total darkness. Various types of balanced fill-flash photography and other operations are possible.

NIKON TTL MULTIPLE-FLASH SYSTEM

Nikon Speedlights SB-24, SB-23, SB-22, SB-20, SB-16B or SB-15 can be used for TTL multiple-flash photography, each linked (up to five units) to the Nikon F4 via Nikon TTL remote or TTL multi-flash sync cord. To ensure optimum results, a combination

of the same speedlights is recommended. The camera body's built-in sensor automatically measures and controls the light from all units.

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

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

If you are unable to take a second picture, disconnect master speedlight from the F4, or turn each of the speedlights off and on once.

SB-24 Specifications

Guide number: Approx. 50 at 85mm, 42 at 50mm, 36 at 35mm, 30 at 24mm (m, ISO 100)
No. of flashes (with fresh alkaline-manganese batteries at full output): 100

Special functions: Power zoom (24mm, 28mm, 35mm, 50mm, 70mm, 85mm), rear-curtain sync capability, repeating flash with choice of 2-8 flashes, adjustable flash intervals and output power, flash exposure compensation, auto power off, AF illuminator provided

Power source: Four 1.5V AA-type penlight batteries; external battery usable
Dimensions (W×H×D): 80×130×90mm (3.1×5.2×3.5 in.)

Weight (without batteries): 390g (13.8 oz.)

SB-23 Specifications

Guide number: Approx. 20 (m, ISO 100)

No. of flashes (with fresh alkaline-manganese batteries at full output): 300

Special functions: Auto power off, AF illuminator provided

Power source: Four 1.5V AA-type penlight batteries

Dimensions (W×H×D): 64×67×34mm (2.5×2.6×1.3 in.)

Weight (without batteries): 140g (4.9 oz.)

CAMERA BACKS

NIKON MULTI-CONTROL BACK MF-23

The Multi-Control Back MF-23 enables the imprinting of any of the following data: date, time, frame number, serial upcount number, fixed number, shutter speed or aperture and exposure compensation value. Choice of imprint location – in the picture, or between frames, or combination of both. In addition, the MF-23 enables the camera to function in more advanced ways –

MF-23



- *Interval-Timer* – commencement time, interval time, number of shots taken and number of intervals can be input.
- *Exposure Delay* – remaining time before exposure and number of shots taken can be set.
- *Long Time Exposure* – you can choose any duration from one second up to 999 hours, 999 minutes and 999 seconds.
- *Auto Bracketing* – you can shoot up to 19 continuous frames, each with a different exposure.
- *Freeze Focus* – shutter is automatically released the moment the subject is in focus.
- Daily alarm, film alarm, film stop, and more.

Some of these functions work in combination, thus enlarging the Nikon F4's scope of applications.

NIKON 250-EXP. MULTI-CONTROL BACK MF-24

Especially recommended for sports or scientific/industrial applications. The MF-24 allows uninterrupted shooting of up to 250 exposures without changing film. Used with two Nikon 250-Exposure MZ-1 Magazines for loading up to 10m of bulk film. Also, the MF-24 offers the same data back and other various functions as the MF-23. Power sources for the MF-24 are Nikon High Speed Battery Pack MB-21 or External Power Regulator MB-22.

MF-23/24 Specifications

Usable film speed: ISO 25-3200

Imprint data: Day/Month/Year; Month/Day/Year; Year/Month/Day; Day/Hour Minute; Hour/Minute/Second; frame number; serial upcount number (6 digits); fixed number (6 digits); shutter speed/aperture; no imprint

Imprint location: In frame, between frames, or both

Other functions: Interval-Timer, Exposure Delay, Auto Bracketing, Long Time Exposure, Freeze Focus, daily alarm, film alarm, film stop

Power source: Two CR2025 batteries

Dimensions (W×H×D): 160×56×30mm (6.3×2.2×1.2 in.)

Weight (without batteries): 120g (4.2 oz.)



MF-22



NIKON DATA BACK MF-22

A compact alternative to the MF-23. It will either imprint the data desired – year/month/day, day/hour/minute (24-hour clock), month/day/year or day/month/year—or leave the film as it is, with no imprint.

MF-22 Specifications

Usable film speed: ISO 32-3200

Imprint data: Day/Month/Year; Month/Day/Year; Year/Month/Day; Day/Hour Minute; no imprint

Power source: One CR2025 battery

Dimensions (W×H×D): 160×56×22mm (6.3×2.2×0.9 in.)

Weight (without batteries): 100g (3.5 oz.)

VIEWFINDERS

MULTI-METER FINDER DP-20

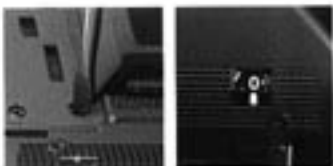
The Multi-Meter Finder DP-20 is the Nikon F4's standard finder. It offers eyepoint of 22mm and virtually 100% frame coverage. To remove the finder, push the viewfinder release lever towards the finder and, at the same time, slide out, away from the lens. To attach the finder, slide the finder in until it clicks into place. In addition to the metering system selector, the following functional parts are incorporated.

Dioptric Adjustment Knob

This knob enables near- or far-sighted photographers to adjust eyepiece diopter within a continuous range of from -3 to $+1$. Pull the knob and rotate it to either direction until focused image appears sharp, then push back. For diopters beyond this range, Nikon eyepiece correction lenses for F3HP are recommended.

Eyepiece Shutter Lever

During self-timer operation, in automatic exposure modes, use the eyepiece shutter which prevents light from entering the eyepiece and adversely affecting the automatic exposure meter reading. Just turn the lever to the left to close the shutter. The eyepiece shutter is painted red to provide a visual reminder that it's in use.



Exposure Compensation Dial for Interchangeable Focusing Screens

Because the light metering system is incorporated in the finder, it may be necessary to compensate the measured value when using certain interchangeable focusing screens. Compensation is within the range from -2 to $+0.5$ EV in 0.5 EV steps. To adjust, remove the finder from the camera body and rotate the screw-like dial with the screwdriver provided, while referring to the compensation value scale window and the instruction manual for the screen concerned.

Accessory Shoe

Located at the top of the Multi-Meter Finder DP-20, the ISO-type hot shoe allows direct mounting of a wide range of Nikon dedicated electronic speedlights, including the SB-24, SB-23, SB-22, SB-20, SB-18, SB-16B and SB-15. Other Nikon speedlights may be mounted with a compatible Nikon flash unit coupler. Four electrical contacts in the shoe provide the following when used with a compatible Nikon speedlight: proper synchronization of the flash unit, automatic flash output stop, identification of a TTL flash unit, and both viewfinder ready-light indication and automatic switching to the proper sync speeds with Nikon dedicated speedlight units.



DP-20



DP-20



DP-20



DP-20



FOCUSING SCREENS

INTERCHANGEABLE VIEWFINDERS

In addition to the standard Multi-Meter Finder DP-20, the Nikon F4 accepts three other interchangeable viewfinders.

The chart below shows the combination of viewfinders and metering systems operative.

Finder	Metering system	Matrix	Center-Weighted	Spot
Multi-Meter Finder DP-20	○	○	○	○
AE Action Finder DA-20	×	○	○	○
6X High-Magnification Finder DW-21	×	×	○	○
Waist-Level Finder DW-20	×	×	○	○

AE Action Finder DA-20

Perfect for situations where normal viewing is difficult or impossible, such as when wearing a helmet or goggles, or with the camera encased in a special housing for underwater photography. Rubber hood and rubber eyepiece cover are provided.

6X High-Magnification Finder DW-21

For critical high-magnification close-up work and photomicrography. Sophisticated optical system provides clear, sharp view of the entire image at full approx. 6X magnification. Fitted with -5 to +3 diopter adjustment for individual eyesight correction. Rubber eyecup and rubber eyepiece cover included.

Waist-Level Finder DW-20

For use when the Nikon F4 is used at a low angle or on a copystand. Fold-up-type viewing hood provided. The built-in flip-up magnifier provides an approx. 5X magnification at the center of the image for accurate focusing.

Nikon offers you a choice of 13 interchangeable focusing screens. The advanced B-type BriteView screen is supplied with the Nikon F4 as standard equipment. Following is a chart listing all interchangeable screens.

To remove the focusing screen, first remove the finder, then insert your fingernail under the rear edge of the screen and lift it out.

To install a screen, simply insert the front edge under the central ridge, and push the rear edge down into place.



Type B



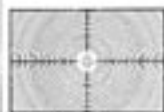
Type U



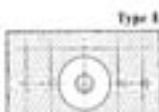
Type C



Type M



Type E



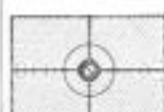
Type J



Type K



Type P



Type G



Type G

Focusing Screen Selector Guide

Type B: Matte/Fresnel field with 5mm-dia. and 12mm-dia. reference circles and AF brackets. Good for general photography.

Type U: Matte/Fresnel field with 5mm-dia. and 12mm-dia. reference circles and AF brackets. Suitable with telephoto lenses longer than 200mm.

Type F: Matte/Fresnel field with 5mm-dia. and 12mm-dia. reference circles and AF brackets. Suitable with reflex lenses.

Type C: Fine-ground matte field with 5mm-dia. clear spot and cross hair. For photomicrography, astrophotography and other high-magnification applications using parallax focusing on aerial images.

Type M: Fine-ground Fresnel field with 5mm-dia. clear spot and cross hair for use in parallax focusing on aerial images, plus millimeter scales for calculation of individual magnification of objects or for measuring objects. Brilliant image in dim light. Suitable for close-ups, photomicrography and other high-magnification applications.

Type E: Matte/Fresnel field with 5mm-dia. and 12mm-dia. reference circles and AF brackets, and etched horizontal and vertical lines. Ideal for architectural photography.

Type J: Matte/Fresnel field with central 5mm-dia. microprism focusing spot and 12mm-dia. circle. Good for general photography.

Type K: Matte/Fresnel field with 3mm-dia. BriteView split-image rangefinder spot surrounded by 1mm-wide microprism doughnut. Rapid and accurate focusing for subjects with both straight lines and ill-defined contours. Suitable for general photography.

Type P: Same as Type K but with BriteView split-image rangefinder line at a 45° angle and etched horizontal and vertical lines as an aid to composition. Rapid and accurate focusing for subjects with horizontal or vertical lines or ill-defined contours. Suitable for general photography.

Type G: Clear Fresnel field with extra-bright 12mm-dia. microprism focusing spot for viewing and focusing in poor light. Four models (G1, G2, G3, G4) available correspond to lenses with different focal lengths. Depth-of-field preview not available.

POWER SOURCES



NIKON HIGH SPEED BATTERY PACK MB-21

The MB-21 consists of a base with battery holder and a grip unit, each of which contains three AA-type alkaline-manganese or Ni-Cd batteries. Shutter release button with lock function is provided at the bottom of the grip—convenient when shooting with the camera held vertically. Also included are battery checker LEDs and a remote terminal.

NIKON BATTERY PACK MB-20

The MB-20, powered by four AA-type alkaline-manganese batteries, also serves as the Nikon F4's grip.

NIKON EXTERNAL POWER REGULATOR MB-22

The MB-22 consists of a grip, in common with the MB-21, and a main unit. The terminal enables connection with Nikon AC/DC Converter MA-4 via Nikon External Power Cord MC-11. A regulator, which converts the 15V current of the MA-4 to 8.2V, and a remote terminal are provided.

NIKON AC/DC CONVERTER MA-4 AND EXTERNAL POWER CORD MC-11

Especially recommended when shooting with the Nikon F4 in extended studio application. Supplies constant 15V DC current to the MB-22. The MC-11 Cord plugs into the external power terminal of the Nikon External Power Regulator MB-22.

VIEWING ACCESSORIES

The Nikon F4's standard supplied Multi-Meter Finder DP-20 accepts the following accessories.

Nikon Eyepiece Correction Lenses

Five lenses for Nikon F4HP -3, -2, 0, +1 and +2 diopters - are available. When used with the diopter adjustment dial of the Multi-Meter Finder DP-20, the combined adjustment range becomes -5 to +4 diopters.

Nikon Rubber Eyecup DK-2

The eyecup prevents stray light from entering the viewfinder from the rear and allows eyeglass wearers to use the Nikon F4 without fear of scratching glasses.

Nikon Right-Angle Viewing Attachment DR-3

Excellent for copy work, the DR-3 provides an upright, unreversed image for right-angle viewing with the DK-7. Individual eyesight adjustments are possible.

Nikon Eyepiece Magnifier DG-2

Provides 2X magnification of the central portion of the finder image with Eyepiece Adapter DK-1. Eyesight adjustment provided. Useful for critical focusing in close-up photography.

Nikon Eyepiece Adapter DK-7

Lets you attach the DR-3 or DG-2 to the Multi-Meter Finder DP-20's eyepiece.

CLOSE-UP ACCESSORIES

Nikon Close-up Attachment Lenses

The easiest, simplest way to get into close-up photography. Available models are 6, 1, 2, 3E, 4E, 5E and 6E. Lenses with "T" are for use with telephoto lenses, and feature 2-element construction.

Nikon Auto Extension Rings

Compact and lightweight, Nikon Auto Extension Rings slide on and off your camera in seconds for a wide range of reproduction ratios. Models include the PK-11A, 12 and 13. The exposure is determined by TTL full-aperture metering.

Nikon Bellows Attachment PB-6

Mounts between the Nikon F4 and the lens for close-up and macro photography. At the twist of a knob, you can vary lens extension at will, producing reproduction ratios from 1:1.1 up to 4:1 with a 50mm lens mounted normally. The lens can also be mounted in reverse to maintain aberration correction in the extreme close-up range. The PB-6 has a stop-down lever so you can use stop-down metering. Optional accessories include PB-6E Extension Bellows, PB-6M Macro Copy Stand and PS-6 Slide Copying Adapter.

Nikon Repro-Copy Outfit PF-4

Enables you to make high-quality photographic copies of photographs, illustrations, drawings or diagrams.

OTHER ACCESSORIES

*With Nikon High Speed Battery Pack MB-21, use of Nikon Camera Holder Adapter PA-4 is required.

Nikon Macro Adapter Ring BR-2A

Fits between the camera and lens to enable lenses to be mounted in reverse; an inexpensive means of obtaining a relatively high reproduction ratio. The BR-2A also increases the working distance for normal or wideangle lenses.

Nikon Focusing Stage PG-2

Simplifies close-up focusing when using a tripod-mounted Nikon F4.

REMOTE CONTROL ACCESSORIES

The following accessories except AR-3 and AR-7 can be used with Nikon High Speed Battery Pack MB-21 or External Power Regulator MB-22.

Nikon Remote Cord with Button Release MC-12A

For remote-control photography up to 3m (9.8 ft) away, the MC-12A has a handgrip, trigger release button and trigger lock lever that

make operation convenient. Depressing the MC-12A halfway turns on the camera's exposure meter; depressing fully releases the shutter. Trigger lock lever provided also enables time exposure with ease.

Nikon Remote Cord MC-4A

The plug on one end of the MC-4A connects to the MB-21 or MB-22's remote-control socket; the other end has both plus and minus banana-type plugs. Used to fire several cameras almost simultaneously.

Nikon Radio Control Set MW-2

Provides interference-free remote control up to 700m (2295 ft). Three separate channels allow three cameras to be operated automatically. Easy to handle.

Nikon Intervalometer MT-2

For unmanned time-lapse photography or work sampling. Quartz-controlled MT-2 provides either 2 sec. or 16 sec. delay shutter release, allowing time for focusing or flash recycling. It can also be used with other remote-control devices.

Nikon Cable Release AR-3 and Double Cable Releases AR-7 and AR-10

Essential for slow shutter speeds, these cable releases ensure one-handed shutter release opera-

tion. The AR-3 and AR-7 plug into the release terminal of the camera body. The AR-10 plugs into the remote terminal of the Nikon High Speed Battery Pack MB-21 or Nikon External Power Regulator MB-22.

Nikon Pistol Grip Model 2 and Connecting Cord MC-3A

Nikon's special pistol grip can be screwed into either the camera's tripod socket or the tripod mounting collar of a super-telephoto lens to provide more stable handheld shooting. The MC-3A cord plugs into the remote terminal of the Nikon High Speed Battery Pack MB-21 or Nikon External Power Regulator MB-22.

Nikon Connecting Cords MC-17 and MC-17S

Either the MC-17 or MC-17S can be used to fire two cameras almost simultaneously. The MC-17 is approx. 3m (9.8 ft) long; the MC-17S, approx. 0.4m (1.3 ft). (The 250-Exp. Multi-Control Back MF-24 must be attached to the master camera.)



LENS COMPATIBILITY

Lens List

Lens	Focusing		Exposure mode				Metering system		
	Autofocus	Manual w/electronic rangefinder	Programmed Auto	Shutter Priority Auto	Aperture Priority Auto	Manual	Matrix Metering	Center-Weighted	Spot Metering
AF NIKKOR									
AF 24-50mm D3.3-4.5	●	●	●	●	●	●	●	●	●
AF 28-85mm D3.5-4.5	●	●	●	●	●	●	●	●	●
AF 35-70mm D2.8	●	●	●	●	●	●	●	●	●
AF 35-70mm D3.3-4.5	●	●	●	●	●	●	●	●	●
AF 35-105mm D3.5-4.5	●	●	●	●	●	●	●	●	●
AF 35-135mm D3.5-4.5	●	●	●	●	●	●	●	●	●
AF 36-210mm D4-5.6	●	●	●	●	●	●	●	●	●
AF 80-200mm D2.8 ED	●	●	●	●	●	●	●	●	●
AF 28mm D2.8	●	●	●	●	●	●	●	●	●
AF 28mm D2.8	●	●	●	●	●	●	●	●	●
AF 35mm D1.8	●	●	●	●	●	●	●	●	●
AF 50mm D2.8 IF-ED	●	●	●	●	●	●	●	●	●
AF 50mm D2.8 IF-ED	●	●	●	●	●	●	●	●	●
AF 50mm D4 IF-ED	●	●	●	●	●	●	●	●	●
AF 50mm D1.4	●	●	●	●	●	●	●	●	●
AF 50mm D1.8	●	●	●	●	●	●	●	●	●
AF Micro 55mm D2.8	●	●	●	●	●	●	●	●	●
ZOOM									
28-85mm D3.3-4.5		●			●	●	●	●	●
35-70mm D3.3-4.5		●			●	●	●	●	●
35-70mm D3.3		●			●	●	●	●	●
35-105mm D3.5-4.5		●			●	●	●	●	●
35-135mm D3.5-4.5		●			●	●	●	●	●
35-200mm D3.5-4.5		●			●	●	●	●	●
80-200mm D4		●			●	●	●	●	●
50-300mm D4.5 ED		●			●	●	●	●	●
100-300mm D3.6		●			●	●	●	●	●
180-400mm D8 ED					●	●	●	●	●
WIDEANGLE									
35mm D5.6		●			●	●	●	●	●
15mm D3.5	▲	●			●	●	●	●	●
18mm D3.5	▲	●			●	●	●	●	●
20mm D2.8	▲	●			●	●	●	●	●
24mm D2	▲	●			●	●	●	●	●
24mm D2.8	▲	●			●	●	●	●	●
28mm D2	▲	●			●	●	●	●	●
28mm D2.8	▲	●			●	●	●	●	●
35mm D1.4	▲	●			●	●	●	●	●
35mm D2	▲	●			●	●	●	●	●
35mm D2.8	▲	●			●	●	●	●	●
NORMAL									
50mm D1.2	▲	●			●	●	●	●	●
50mm D1.4	▲	●			●	●	●	●	●
50mm D1.8	▲	●			●	●	●	●	●

Lens	Focusing			Exposure mode			Metering system		
	Autofocus	Manual w/ultrasonic rangefinder	Programmed Auto	Shutter-Priority Auto	Aperture-Priority Auto	Manual	Matrix Metering	Center-Weighted	Spot Metering
TELEPHOTO									
AF 80mm f/2.8 (For F3AF)	▲ ¹	▲ ²			●	●	●	●	●
85mm f/1.4	▲ ¹	●			●	●	●	●	●
85mm f/2	▲ ¹	●			●	●	●	●	●
105mm f/1.8	▲ ¹	●			●	●	●	●	●
105mm f/2.5	▲ ¹	●			●	●	●	●	●
135mm f/2	▲ ¹	●			●	●	●	●	●
135mm f/2.8	▲ ¹	●			●	●	●	●	●
180mm f/2.8 ED	▲ ¹	●			●	●	●	●	●
200mm f/2 IF-ED	▲ ¹	●			●	●	●	●	●
AF 200mm f/3.5 IF-ED (For F3AF)	▲ ¹	▲ ²			●	●	●	●	●
200mm f/4		●			●	●	●	●	●
200mm f/2.8 IF-ED	▲ ¹	●			●	●	●	●	●
200mm f/4.5		●			●	●	●	●	●
200mm f/4.5 IF-ED		●			●	●	●	●	●
400mm f/2.8 IF-ED		●			●	●	●	●	●
400mm f/3.5 IF-ED		●			●	●	●	●	●
400mm f/5.6 IF-ED		●			●	●	●	●	●
600mm f/4 IF-ED P	▲ ¹	●	●	●	●	●	●	●	●
600mm f/4 IF-ED		●			●	●	●	●	●
600mm f/5.6 IF-ED		●			●	●	●	●	●
800mm f/5.6 IF-ED		●			●	●	●	●	●
REFLEX									
300mm f/8					● ¹	● ¹		▲ ¹	
1000mm f/11					● ¹	● ¹		▲ ¹	
2000mm f/11					● ¹	● ¹		▲ ¹	
FISHEYE									
8mm f/2.8	▲ ¹	●			●	●	●	●	●
16mm f/2.8	▲ ¹	●			●	●	●	●	●
16mm f/2.8	▲ ¹	●			●	●	●	●	●
SPECIAL PURPOSE									
PC 28mm f/3.5					▲ ¹	▲ ¹		▲ ¹	
PC 35mm f/2.8					▲ ¹	▲ ¹		▲ ¹	
Micro 35mm f/2.8	▲ ¹	●			●	●	●	●	●
Noct 58mm f/1.2	▲ ¹	●			●	●	●	●	●
Micro 105mm f/2.8	▲ ¹	●			●	●	●	●	●
Micro 200mm f/4 IF		●			●	●	●	●	●
Medical 120mm f/4 IF		●			▲ ¹	▲ ¹		▲ ¹	
UV 105mm f/4.5		●			●	●	●	●	●
NIKON SERIES E									
28mm f/2.8	▲ ¹	●			●	●	●	●	●
135mm f/2.8	▲ ¹	●			●	●	●	●	●

- ▲¹ With the TC-16A Autofocus Converter with some exception (modified AI lenses cannot be used with TC-16A).
 ▲¹ In Single Servo autofocus mode with lens A-M switch set at M, shutter is not released unless in-focus indicator lights up inside viewfinder.
 ● Aperture cannot be selected.
 ▲² Exposure compensation necessary. (See focusing screen's instruction sheet).

- ▲¹ Exposure determined by presetting lens aperture. Exposure must also be determined before shifting in A mode, use AE-L button before shifting.
 ▲² Stop-down measurement possible. With apertures of f/5.6 or slower, set exposure compensation dial for focusing screen exposure compensation dial for flash photography] to -1. With 400mm f/5.6 lens, compensate exposure to -1 when the lens aperture is set at f/8 or slower.
 ▲³ With shutter speed set to 1/125 sec. or slower. Flash necessary.

Nikon

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