

# FIM SALES MANUAL







# General Introduction

Here, at last, is Nikon's own version of the compact 35mm single-lens reflex (SLR) camera: the Nikon FM. Considerably lighter and smaller than other Nikon SLR's, the FM does virtually everything these and other top-rated cameras do; in addition, it offers the enterprising photographer a few advances of its own.

From its very inception, the FM was designed by Nikon's engineers as a **system camera**. The camera body incorporates all the controls, terminals, circuits and coupling devices necessary for accommodating, systematically and naturally, the vast array of accessories available from Nikon for every type of photography. These include attachments for flash, close-up and motor-drive photography, as well as for remote-controlled shooting. The FM even has its own, equally compact and lightweight motor drive unit, the MD-11, which was developed along with it. This handsomely designed unit forms the core of the FM's motor-drive system.

But whichever type of photography the FM user decides he wants to do, he is assured that his camera will deliver the same precision and unfailing dependability that the world's foremost photographers have come to expect of a Nikon. Because the FM is built the way every Nikon camera is: exceptionally rugged, enduringly reliable, uncompromisingly precise. And because it is both lighter and smaller, but with all the controls shaped and placed for touch-and-go operation, there is the added advantage of positive, easier handling. This combination of the right shape, size, weight and feel gives the photographer the assurance that the FM is the camera that will transform his ideas into

fine photographs — from the moment he first holds it in his hands.

Exposure control itself is as precise as it is fast. With the FM, the proven accuracy of Nikon's through the lens (TTL) center-weighted metering system is enhanced by quick and easy exposure readout via a sophisticated LED (light emitting diode) display which works even in low available light. All the more is the photographer able to concentrate on the creative aspects of his photography. Nikkor lenses, which have consistently been in the forefront of 35mm SLR photography, are a major strength of every Nikon camera. The Nikon FM, adopting Nikon's bayonet mount which has remained unchanged since its introduction, works with all Nikkor lens models past and present, including those dating back to ten years ago and others yet to come. The only exceptions are the 6mm f/5.6 and 10mm f/5.6 Fisheye-Nikkors. The camera body incorporates a meter coupling lever for full-aperture metering with Nikkor lenses that have the AI facility; when other Nikkor lens models are used, this lever is simply raised and locked up out of the way for stop-down metering.

In sum, the Nikon FM is the only compact SLR camera on the market with all the advances and advantages that come with being a Nikon.

3

## Contents

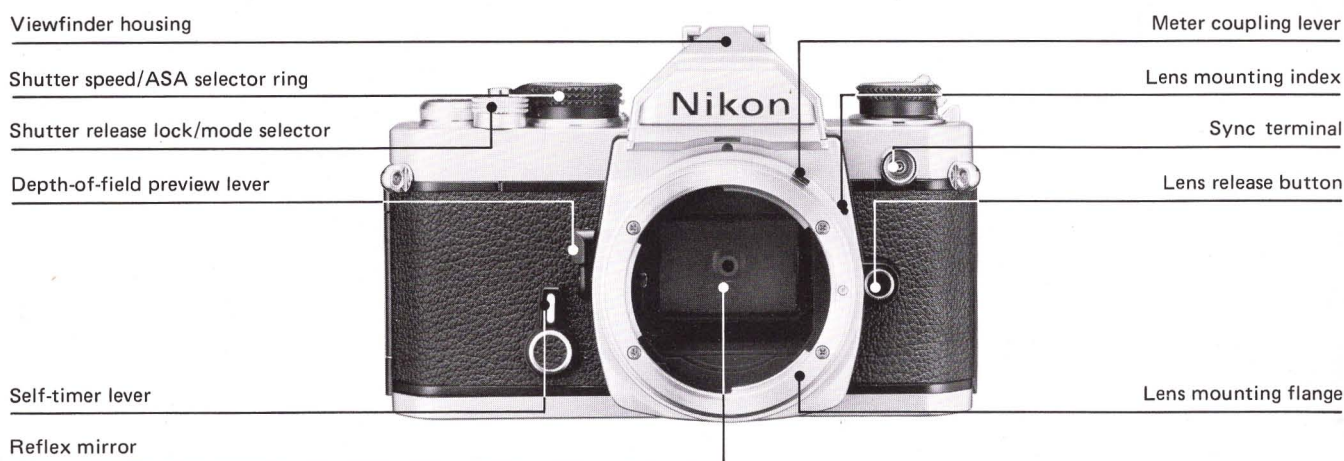
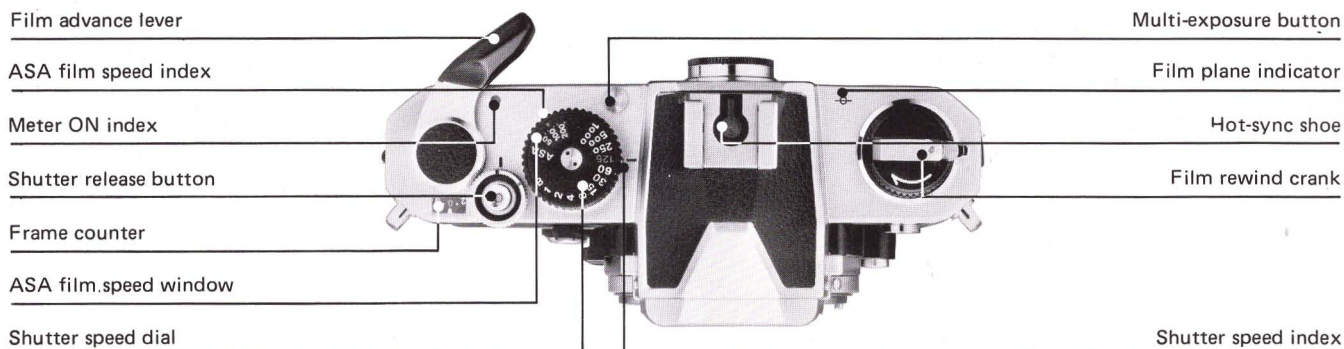
General Introduction.....	3
Nomenclature/Specifications .....	4
Dimensions .....	7
Basic Picture-Taking Steps.....	10
Viewing.....	12
Metering .....	14
Film Transport .....	16
Shutter Mechanism .....	18
Motor Drive.....	20
Preparations for Motor Drive Operation .....	22
Accessories for Motor Drive Operation .....	24
Reference for Ordering .....	25

### Other features at a glance

- Bright viewfinder screen with three-way focusing
- Easy-to-operate depth-of-field preview control
- Extra-large, well-positioned reflex mirror
- Full-information viewfinder
- Specially developed GPD (Gallium photo-diode) photo sensors for meter
- Nikon's unique FRE and monolithic IC
- Widest ASA film speed range among compact 35mm SLR's
- Precise film transport system
- Precision shutter mechanism
- Multiple-function, short-stroke film advance lever
- Unique, precise-registration multiple-exposure facility
- Unique, "cancellable" self-timer
- Built-in hot-sync shoe
- Fast electronic flash sync of up to 1/125 sec.
- Threaded sync terminal for off-camera or multiple-flash operation
- AI facility for quick and sure lens attachment
- Hinged, removable camera back with memo holder
- Safety-locks for shutter release button, ASA dial and camera back



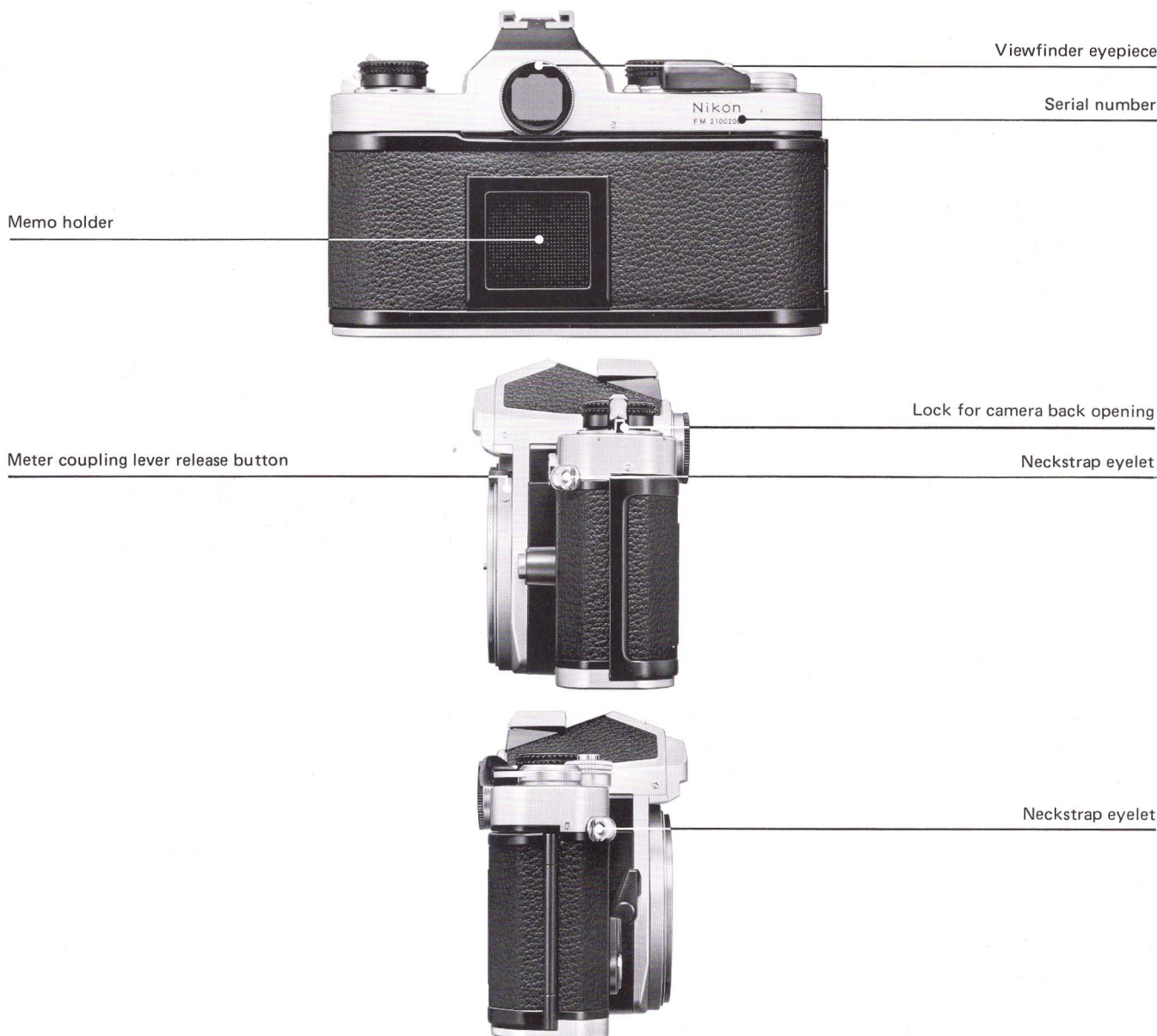
# Nomenclature



## Specifications

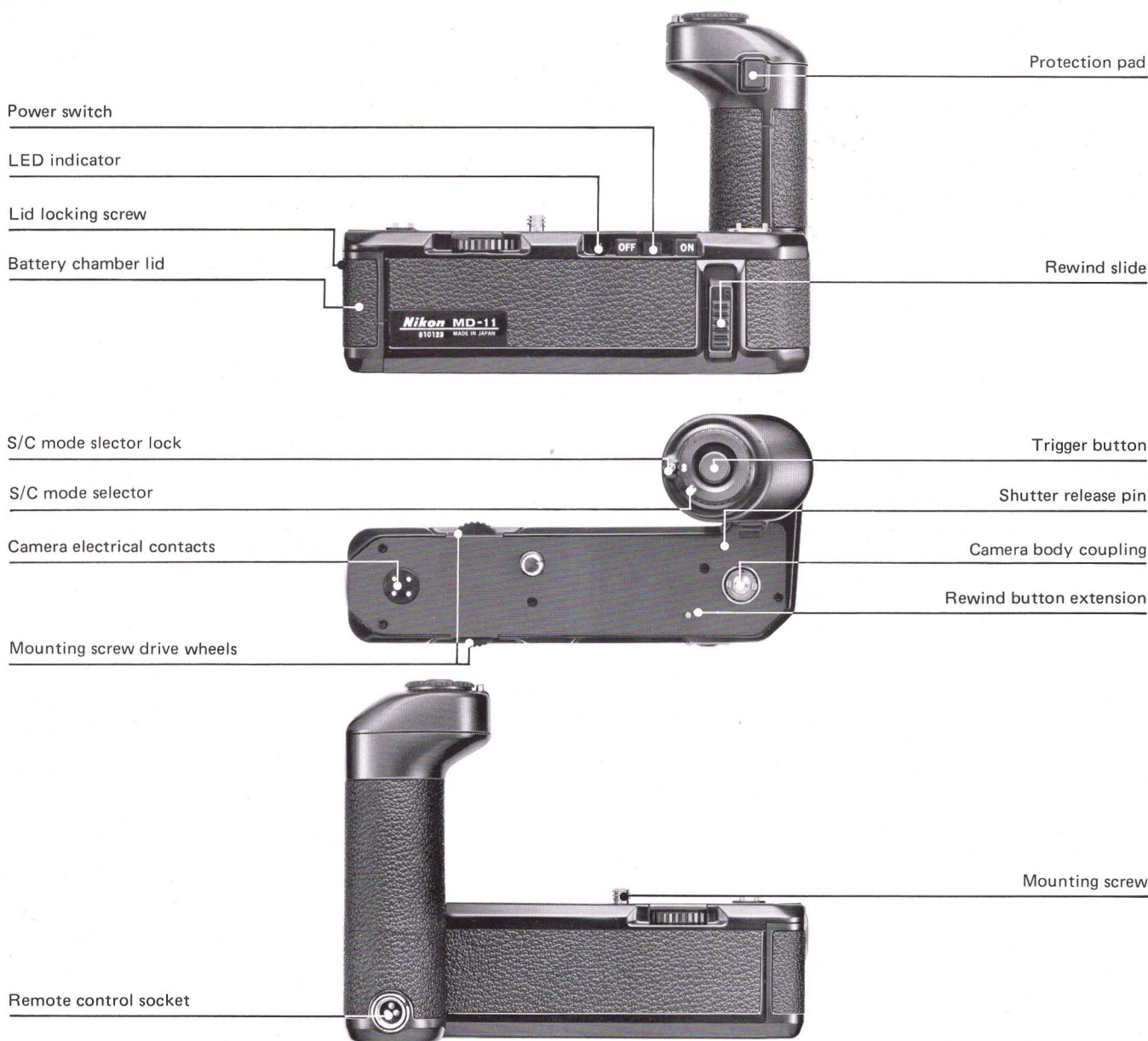
Type:	35mm single-lens reflex
Picture format:	24mm x 36mm (35mm film format)
Lens mount:	Nikon bayonet mount
Lenses available:	Nikkor 50mm f/1.4, f/2 or 55mm f/1.2 as standard; more than 55 Nikkor lenses in all
Shutter:	Vertical-travel, metal focal-plane shutter with speeds from 1 to 1/1000 sec., plus "B"
Shutter release:	Via shutter release button, with mode selector set to black index line position
Viewfinder:	Fixed eye-level pentaprism type with built-in through-the-lens (TTL) exposure meter; shutter speed indicated in the viewfinder; lens aperture setting indicated in the viewfinder when lens in use is fitted with an aperture-direct-readout (ADR) lens aperture scale; LED display indicates five exposure graduations through combinations of three symbols (+, o, —); finder coverage, approx. 93% of the picture field; viewfinder magnification, 0.86X with 50mm lens set at infinity
Focusing screen:	Matte Fresnel field with central split-image range-finder surrounded by micro prism ring; 12mm-diameter reference circle defines area of meter center-weighting; similar to Nikon Type K screen
Reflex mirror:	Automatic instant-return type; non-lockable type





<b>Exposure meter:</b>	Through-the-lens, center-weighted metering; full-aperture exposure measurement with AI Nikkor lenses fitted with meter coupling ridge; stop-down exposure measurement for other lenses; two gallium photo-diodes (GPD) employed for fast and accurate response to a full range of light levels, positioned either side of the eyepiece	<b>Film winding:</b>	flash operation Via single-stroke lever with 135° winding angle and 30° stand-off angle; lever also serves as meter ON/OFF switch and shutter release lock; powered film advance with optional MD-11 Motor Drive
<b>Metering range:</b>	EV 1 to EV 18 (i.e., f/1.4, 1 sec. to f/16, 1/1000 sec., with 50mm f/1.4 lens at ASA 100)	<b>Frame counter:</b>	Shows number of frames exposed (additive type); automatically resets to "S" (two frames before "0") when camera back is opened
<b>Battery:</b>	Two 1.5V silver oxide batteries power metering system; LED display lights up to indicate power availability when film advance lever is pulled out to stand-off position	<b>Film rewinding:</b>	Manual via film rewind button and crank
<b>Film speed scale:</b>	Settings provided for ASA 12–3200	<b>Multiple exposure:</b>	Possible via multi-exposure button (either manual or with MD-11)
<b>Lens diaphragm coupling:</b>	Built-in meter coupling lever for Nikkor lenses with automatic-maximum-aperture facility with maximum aperture of from f/1.2 to f/5.6; meter/diaphragm coupling of from f/1.2 to f/32 provided	<b>Motor drive coupling:</b>	Electrical contacts built-in for operation with MD-11
<b>Flash synchronization:</b>	Built-in ISO-type hot-shoe contact with safety switch for synchronization with electronic flash units at speeds up to 1/125 sec.; one threaded sync terminal provided for off-camera or multiple	<b>Depth-of-field preview:</b>	Lever provided
		<b>Self timer:</b>	Lever provided on front of camera; can be set for up to approx. 10-sec. delay; setting "cancellable"
		<b>Camera back:</b>	Hinged, swing-open type; detachable; memo holder provided
		<b>Body finish:</b>	Chrome or black
		<b>Dimensions:</b>	142mm (W) x 60.5mm (D) x 89.5mm (H)
		<b>Weight:</b>	590g (body only)

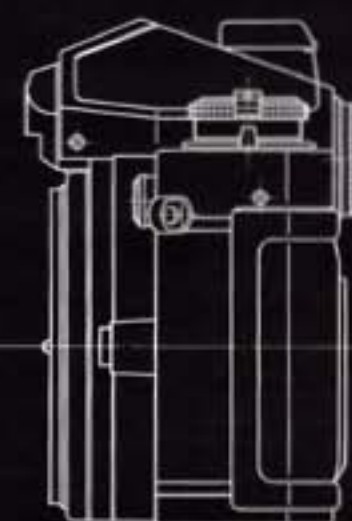
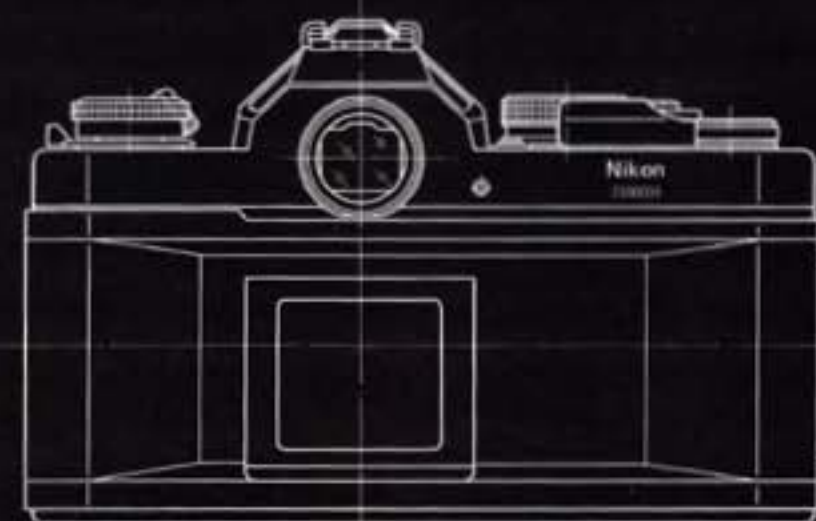
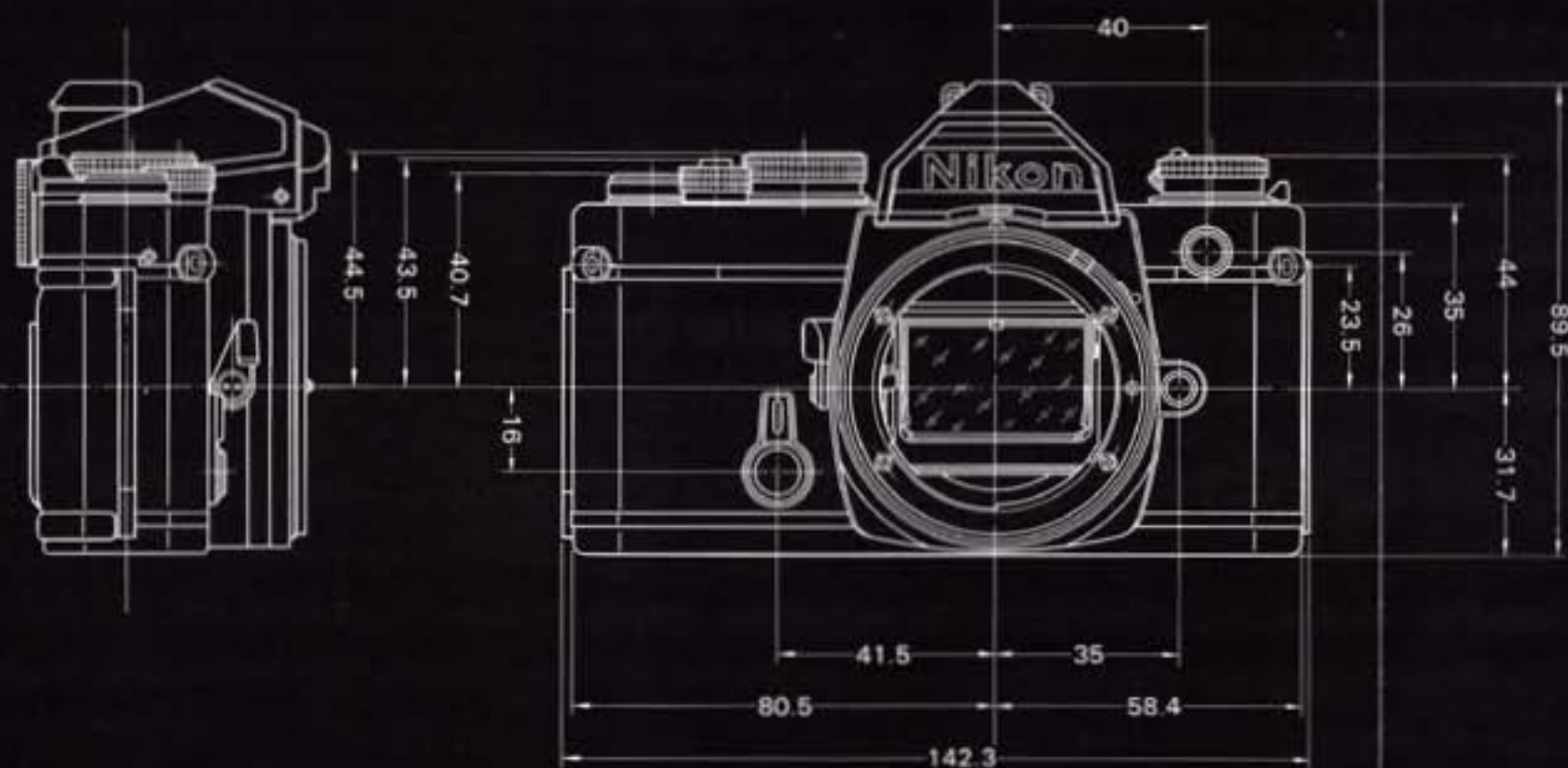
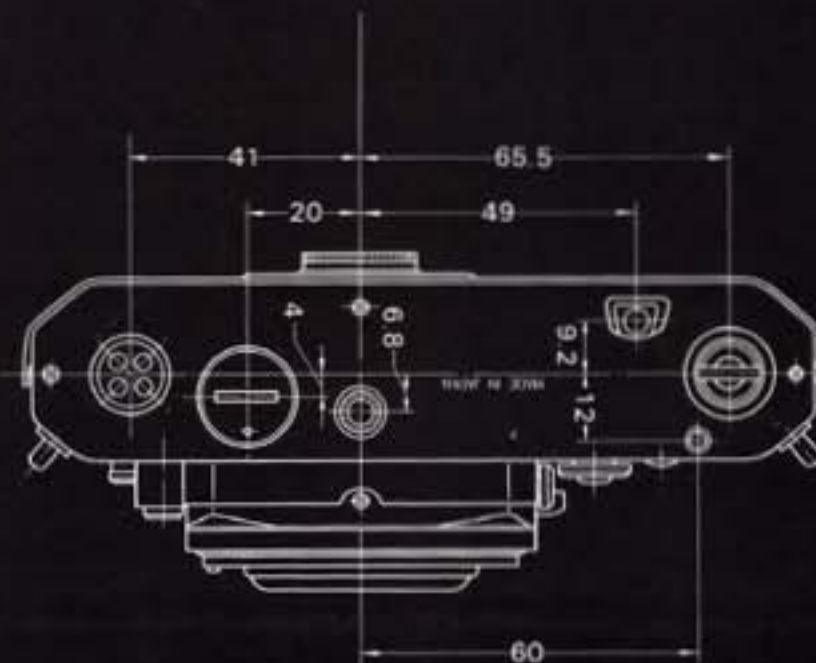
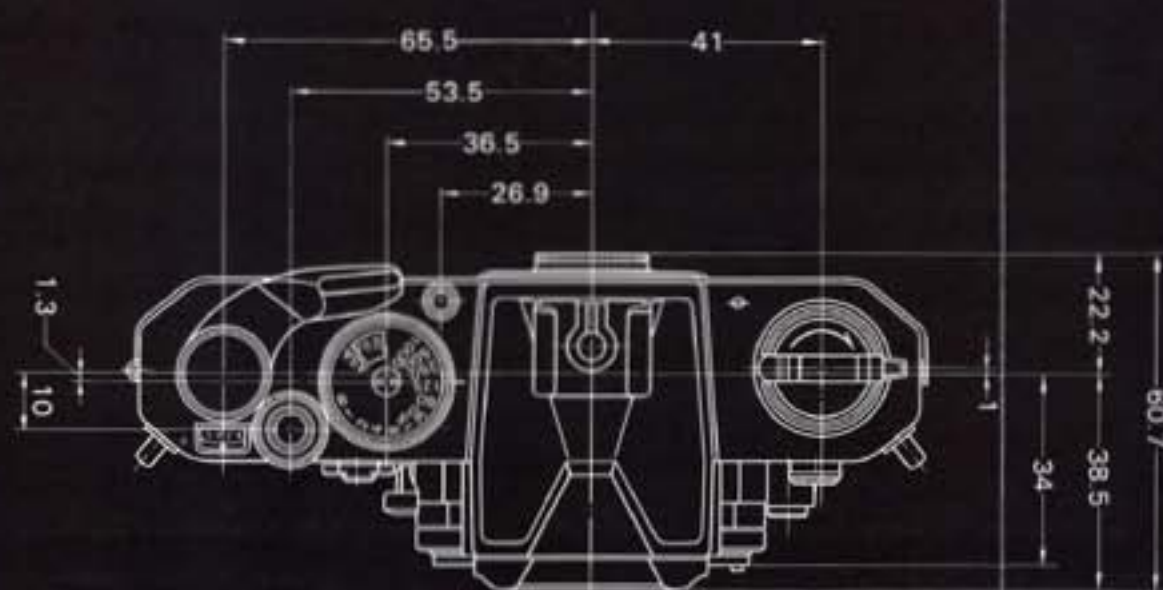




## MD-11 Motor Drive

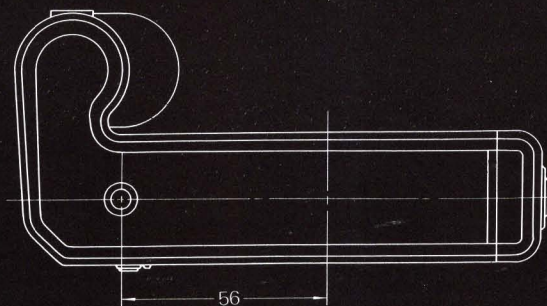
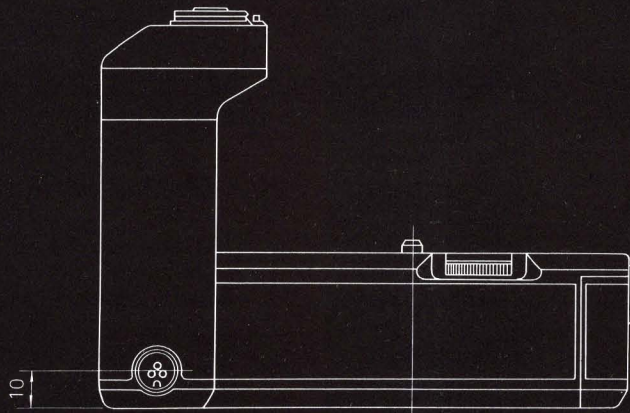
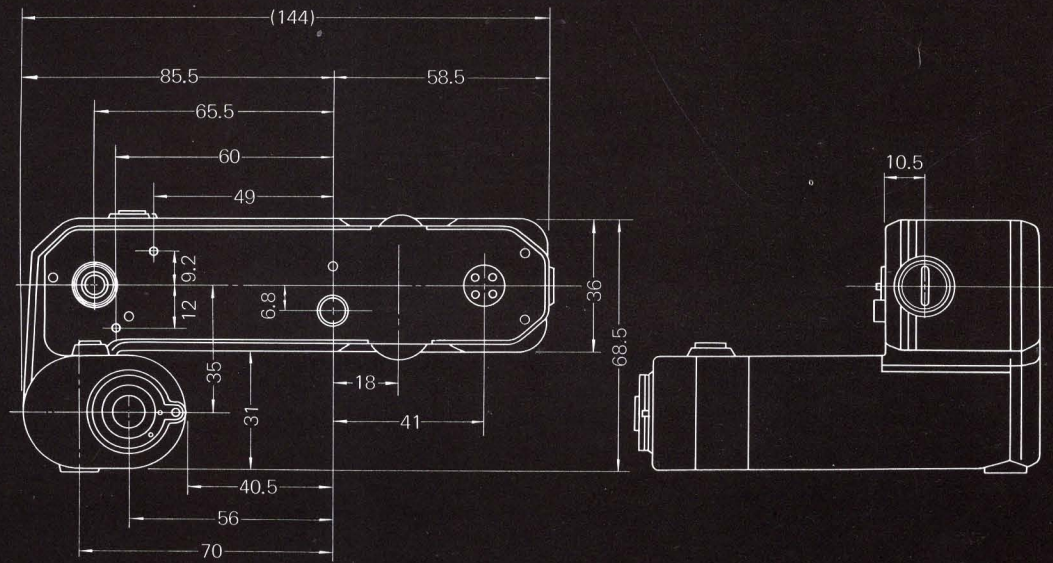
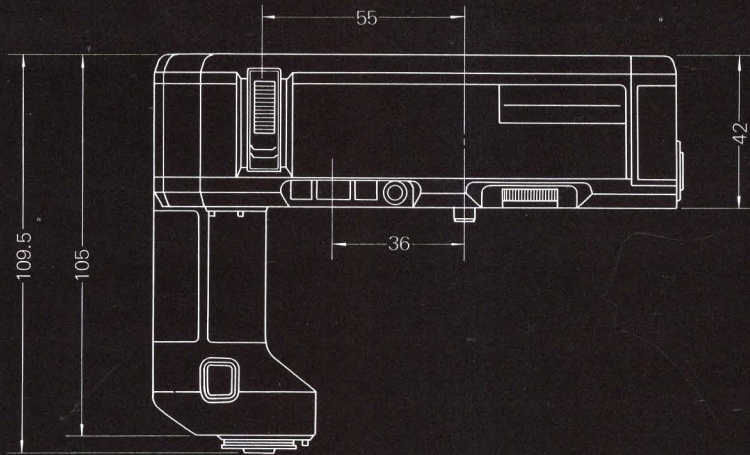
Camera fitting:	Nikon FM; screw-on type connection
Shooting speed:	Up to approx. 3.5 frames per second (fps) at a shutter speed of 1/125 sec. or faster; progressively lower rates at slower shutter speeds
Shutter release:	Via trigger button, with camera's mode selector set to red index line position
Shooting modes:	Continuous (C setting) or single (S setting)
Usable shutter speeds:	1/2 to 1/1000 sec. for C setting; 1 to 1/1000 sec. for S setting
Power source:	8 AA-type 1.5V penlight batteries housed in integral battery chamber; fresh set of alkaline batteries will last for approx. 100 36-exposure rolls of film (C setting; normal temperature)
Pilot lamp:	Built-in LED type; lights up intermittently during operation to indicate powered film wind; glows continuously when film is exhausted
Power switch:	ON/OFF switch provided; also functions as camera meter switch
Remote control operation:	Terminal provided for optional accessories
Dimensions:	144mm (W) x 68.5mm (D) x 109.5mm (H)
Weight:	410g (without batteries)







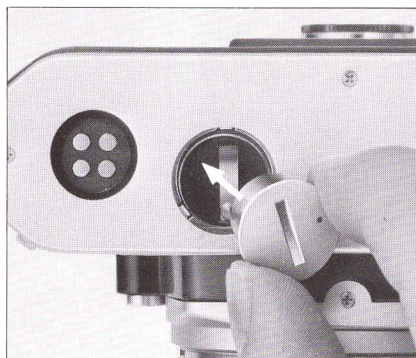
# MD-11 Motor Drive Unit





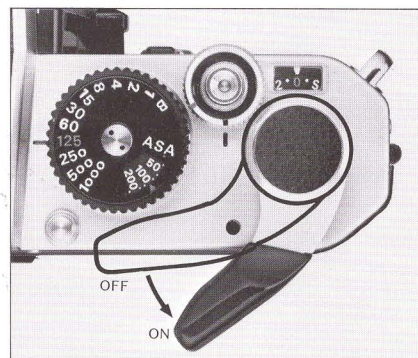
# Basic Picture-Taking Steps

To effectively dramatize the sales points of the Nikon FM, you should, of course, know how to use the camera. Study these basic steps until you have mastered them well enough to be able to explain to your customers **how easy and smooth it is to handle the FM.**



## 1. Install the batteries.

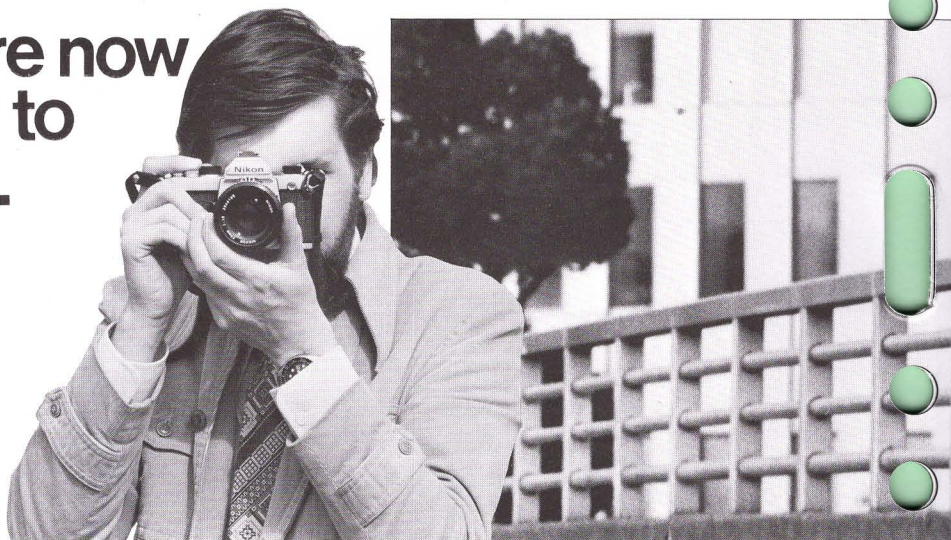
Mount two fresh button-cell type 1.5V silver-oxide batteries onto the detachable (with a coin or something similar) battery clip in the camera baseplate's battery chamber. Make sure the batteries' terminals are aligned correctly with the plus (+) and minus (–) indications in the clip, then secure the clip with the coin into place again.



## 2. Check battery power.

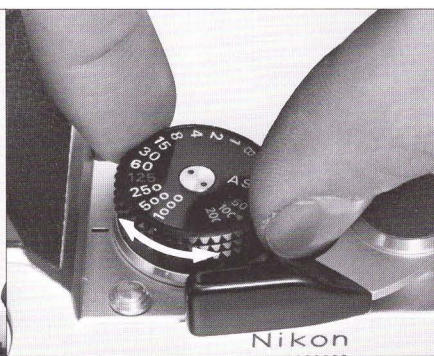
Move the film advance lever to its 30° stand-off position (a red dot normally concealed by the lever, when the camera is not in use, will be uncovered by this action), and confirm that at least one of the LED indicators inside the camera's viewfinder lights up.

**You are now ready to shoot.**

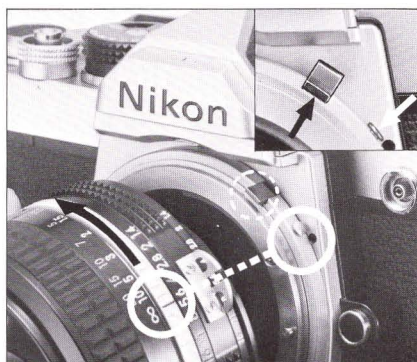


**10. Set shutter speed and/or lens aperture, or vice versa,** until the LED indicator for correct exposure lights up. The shutter speed selected by turning the camera's shutter speed dial will appear on the left-hand side of the viewfinder image for your reference; the aperture selected by turning the lens aperture ring will appear on the

upper portion. This step pre-supposes that the lens mounted on the camera has the AI facility. If the lens used does not have the AI facility: Press and hold the depth-of-field preview lever, then set shutter speed and/or lens aperture until the LED indicator for correct exposure lights up.







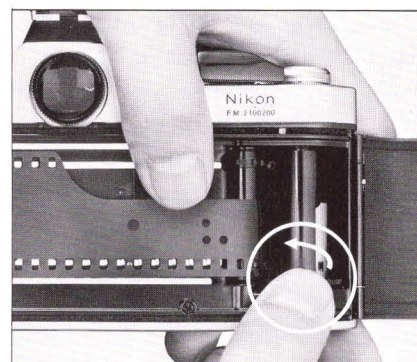
**3. Mount the lens onto the camera body,** making sure the meter coupling lever is properly positioned. To mount a lens that has AI facility: Seat the lens in the camera's mount with the lens mounting index aligned with the corresponding index on the camera body, then twist the lens counter-clockwise until it clicks and locks into



place. To mount a lens that does not have the AI facility: Lock the lever up out of the way by pushing the coupling lever release and manually raising the lever, then mount the lens.

**4. Open the camera back.**

Slide the safety lock to the rear, and lift the film rewind knob until the camera back swings open.



**5. Load the film.**

Position the cassette in the film chamber, and secure it by depressing the film rewind knob back into place. Pull the film leader out slowly, and insert its end into one of the film takeup spool's three slots. Rotate the spool (towards the film cassette), making sure the film's perforations mesh with the sprockets. Then, close the camera back by applying pressure on it until it snaps into place.

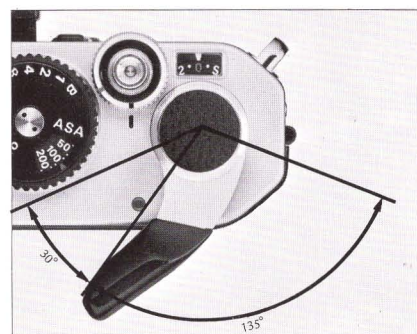
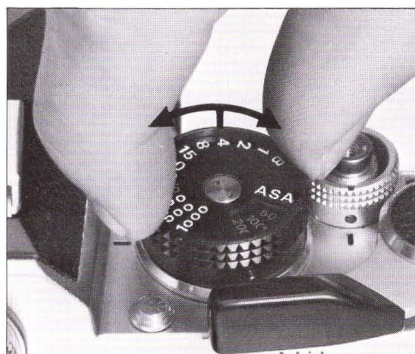


**9. Compose the picture and secure focus,** looking through the viewfinder. To focus with the split-image range-finder spot, turn the focusing ring of the lens until the two halves of the spot coincide perfectly. To focus with the micro prism grid or the matte out-field, turn the ring until the portion of the image appearing in the area appear sharp.



**8. Set the ASA film speed.**

Lift the knurled ASA film speed ring, and turn it until the triangular red index is aligned with the ASA value of the film loaded in the camera.



**6. Advance the film** by stroking the film advance lever, and make two blank exposures by covering the lens with your hand or its front cap; this will dispose of the initial portion of the film exposed during loading and take the exposure counter to frame 0. As you stroke the lever, confirm that the film rewind knob turns in the direction opposite the arrow engraved; this will indicate that the film has been loaded properly and is being advanced.



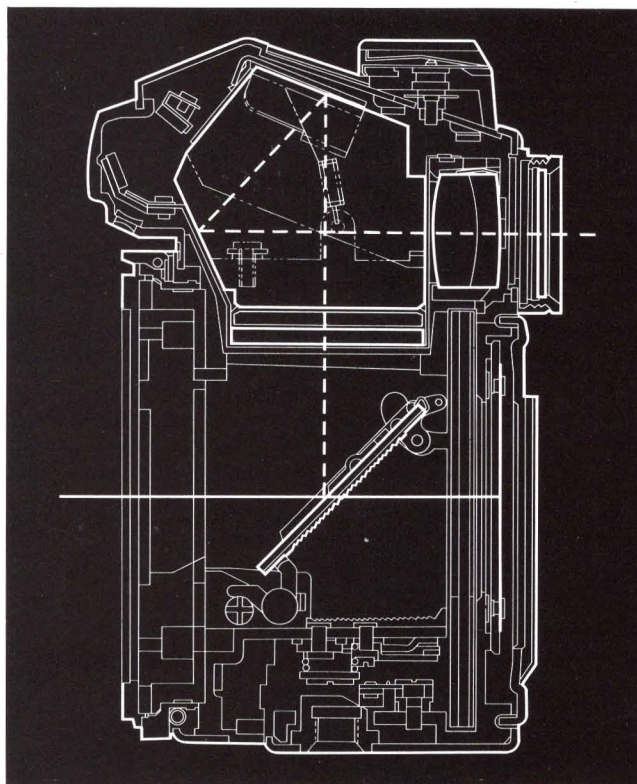
**7. Insert the film box tab into the camera back memo holder.**

This will serve as a useful reminder of the type of film loaded in the camera.



# Viewing

The Nikon FM utilizes a through-the-lens or TTL viewing system. This simply means that the image the photographer sees through the lens, through the viewfinder eyepiece, is the image that will be recorded on the film. Accordingly, the image changes everytime the lens is angled differently and, indeed, everytime a lens with a different focal length is used with the camera. The image itself appears erect and unreversed through the FM's fixed eye-level pentaprism viewfinder; the picture area covered is approximately 93%, which corresponds to that of a mounted transparency. Image brightness is enhanced by the use of silver coating on the viewfinder's pentaprism and the special treatment Nikon's engineers have applied on the viewfinder screen to make the most of TTL viewing at full aperture.

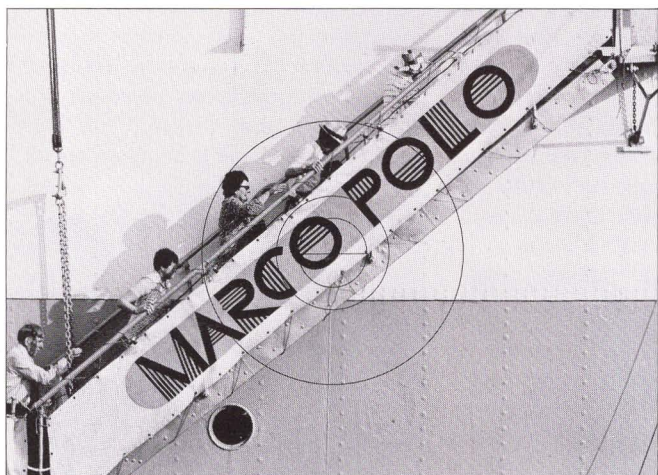


## Viewfinder screen

12 This is similar to the Type K which is the standard screen for the F2 Nikons. There are three focusing "aids" available: (1) a split-image rangefinder spot with a diameter of 3mm, (2) a 1mm-wide annular microprism grid, and (3) a fine, matte Fresnel outfield. You will note that the main focusing "aids"—the spot and the grid—are placed centrally in the screen, which is often where the main subject is positioned. This makes focusing considerably fast and easy for the vast majority of subjects. The split-image rangefinder spot

is especially invaluable for precise, pinpoint focusing. All that is required is to turn the focusing ring of the lens until the two halves of the portion of the image framed by the spot coincide perfectly to form a single, "unbroken" image. The microprism grid, on the other hand, is best for focusing rapidly on subject outlines, such as in sports or fast-action photography; image break-up is quickly noticeable even when the subject is only fractionally out of focus. In this case, the focusing ring is turned until the portion of the

image seen through the microprism pattern appears crisp. As for the fine matte outfield, it is particularly useful when shooting with telephoto lenses that have small aperture, or when doing closeup or macro photography. Although the focusing screen has no condenser, the special treatment Nikon has applied on the matte Fresnel outfield assures the brightness of the entire viewfield. In sum, the FM's viewfinder screen makes for fast, simple, focusing, which is essential to fine photography.



● In focus

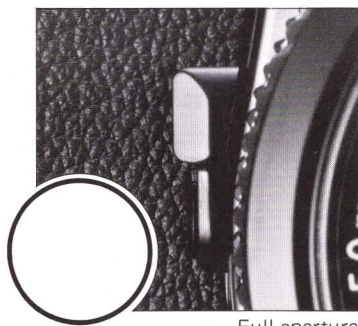


● Out of focus

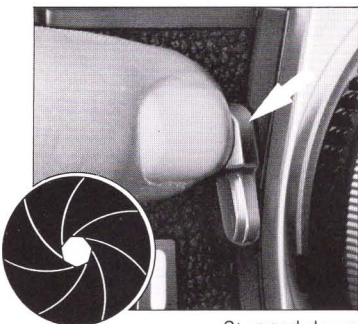


## Depth-of-field preview

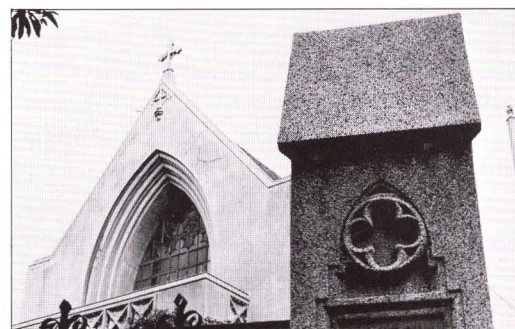
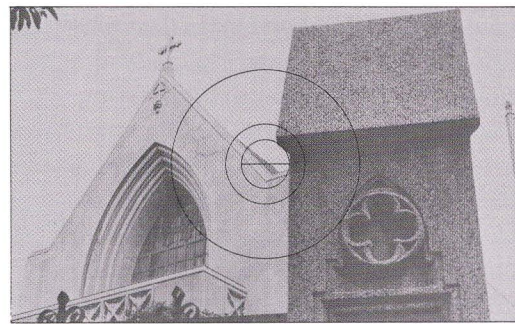
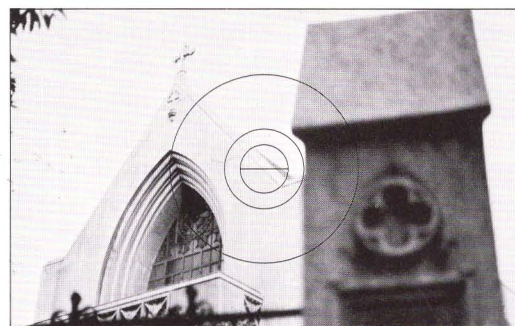
Conveniently shaped in the form of a lever and positioned for easy, coordinated actuation by either the right index or middle finger, this control, when pressed, "stops down" the lens to its taking aperture. The photographer can then see exactly which elements of the picture will appear in sharp focus in the actual photograph, even though some of them may have appeared otherwise prior to pressing the lever. While the lever is kept pressed, the lens iris is not wide open (unless, of course, the photographer has set the lens to its maximum aperture); naturally, the image in the viewfinder appears "dark" and will become even more so as smaller apertures (i.e., bigger f/numbers) are set. Note that you get more depth of field with smaller apertures. It should be mentioned that the selective use of depth of field through lens aperture manipulation, in accordance with any given picture-taking situation, is a significant camera operation since it is often closely connected with the creative effects that will be found in the actual picture. The FM's depth-of-field preview control has another function. It is used for stop-down (i.e., not at full aperture) exposure measurement with Nikkor lenses that do not have the AI facility.



Full aperture



Stopped down



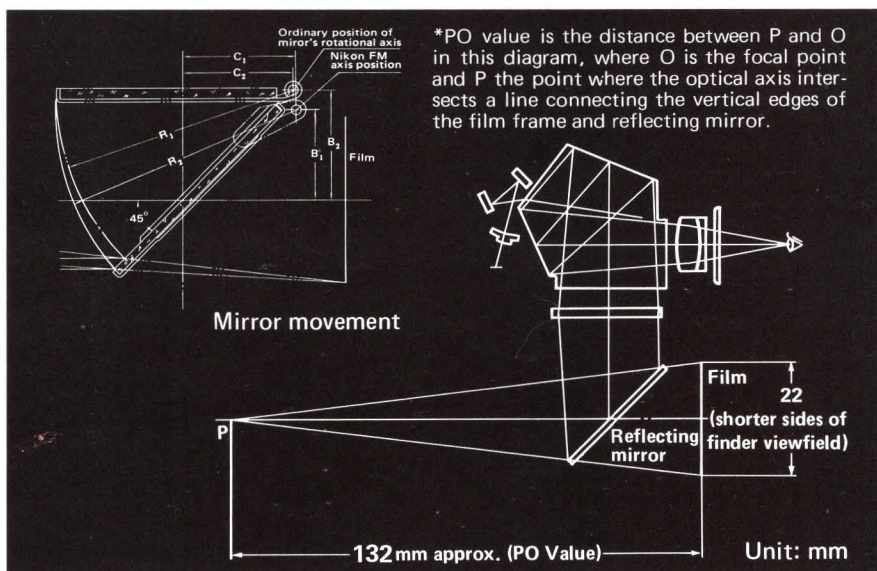
Actual picture

## Reflex mirror

Nikon's search for compactness has not been at the expense of camera components that should be kept large. A prime example of this seemingly contradictory statement is the reflex mirror around which the compact FM is designed. Employing a unique Nikon-developed retraction system, the mirror's hinge mechanism moves back, then up, as the mirror itself flips out of the optical path when a picture is taken. This system, which was originally proven on the F2, has made it possible for the FM to employ a reflex mirror with a PO value\* that is substantially larger than what one would expect in such a compact camera. The advantage of this extra-large size is that there is no image cutoff when the photographer uses a super-telephoto lens as long as 800mm or such close-up accessories as bellows and extension tubes. Noise and shock during the mirror's movement are minimized by the use of an air-damper in the mirror box. The mirror's back itself is specially treated to prevent flare-forming reflections off the back when the mirror

is in the 'up' position. It should likewise be pointed out, too, that in motor-drive photography, it is the mirror mechanism that takes most of the punishment of the pounding motor drive. The FM's mirror mechanism, which is based on that of the proven F2, is more than tough enough to take

the demands of motorized photography of up to 3.5 frames per second. Note that since a mirror lock up mechanism is not incorporated into the FM, the 6mm f/5.6 and 10mm f/5.6 fisheye-Nikkors cannot be mounted onto the camera body.

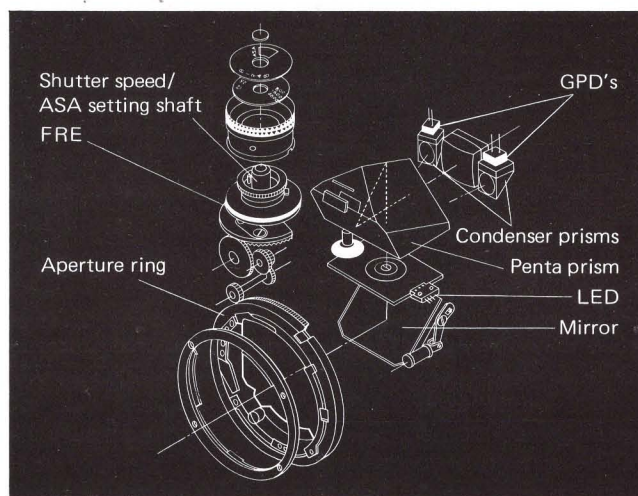




# Metering

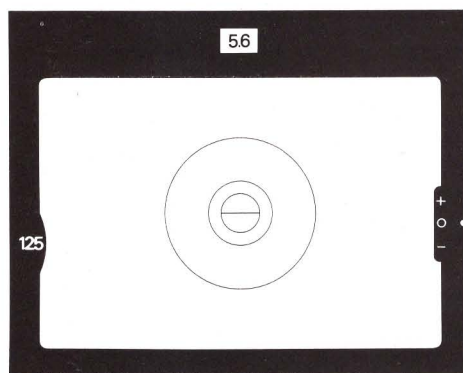
The logical extension of TTL viewing is TTL metering. Not only does it free the photographer from the burden of having to make complicated exposure calculations—with the exposure indicators readily visible inside the viewfinder, the photographer knows, too, exactly which type of exposure he is going to get, while he's taking the picture. To the convenience of TTL metering, the Nikon FM adds accuracy and responsiveness. The camera's built-in meter, which operates on the proven principle of Nikon center-weighted exposure measurement, couples with Nikkor lenses that have the AI facility for full-aperture metering, as well as with those that do not for stop-down metering. Powered by two silver-oxide batteries, the meter reads the intensity of the light coming through the lens over the entire viewfinder screen, but its sensitivity is concentrated, or "weighted", on the central area outlined on the screen. This method of exposure measurements, which has won a reputation of precision for all Nikon SLR's, has shown itself to be the most effective for achieving correct exposures in everyday picture-taking situations while still offering the selectivity required for special lighting conditions or advanced photographic techniques. It is complemented by the adoption of such advanced solid-state devices as GPD photo sensors, Nikon's Functional Resistance Element (FRE) and a monolithic IC, all of which contribute to the FM's compactness and reduced weight, as well as guarantee

the meter's unfailing accuracy over a wide range of light levels from EV 1 to EV18. Also, regardless of whether metering is at full aperture or stopped-down, the photographer has all the exposure information he needs right there inside the viewfinder. The exposure indicators are in the form of a five-combination LED display which lights up to indicate the precise degree of overexposure or underexposure, or correct exposure. The selected shutter speed is also indicated, as is the set aperture (in the case of Nikkor lenses with the AI facility). The meter can be switched on by moving the film advance lever, an action that will uncover a red dot; it can be switched off by pressing the lever all the way back into place.



## LED display and ADR facility

The main advantage of the FM's exposure readout facility—the five-combination LED display—is that it enables clear and easy readings even in extra-dim or extra-bright light, something the more conventional needle-centering or matching-needles will find hard put to equal. Inside the viewfinder are three exposure indicators — + for overexposure, O for correct exposure and — for underexposure—with corresponding LED's, at least one of which lights up when the meter is switched on. Without taking his eye off the viewfinder, the photographer simply adjusts shutter speed or lens aperture until the desired LED combination lights up—and he is ready to shoot. The shutter speed set is indicated to the left of the screen. With Nikkor lenses that have the AI facility, the selected aperture is also indicated through the FM's aperture-direct-readout or ADR window; it appears just above the screen.



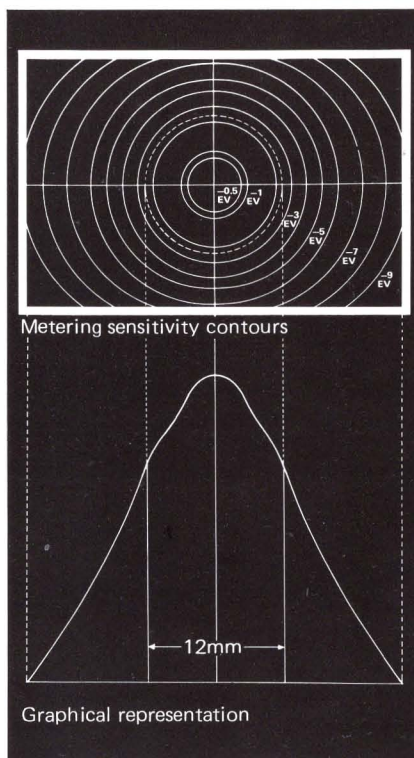
### LED readout

+ ●	Overexposure by more than 1 step
+ ○ ●	Overexposure by 1/5 to 1 step
+ ○ ○	Correct exposure
+ ○ ●	Underexposure by 1/5 to 1 step
+ ○ ○	Underexposure by more than 1 step



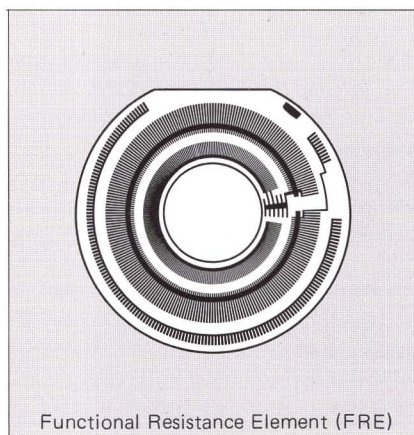
### Center-weighted metering

With its adoption of Nikon's center-weighted metering system, the FM assures the photographer of reliable TTL exposure control. In this system, the viewfinder screen's central 12mm-diameter area is given a weight of approximately 60% in the reading, with 40% going to the surrounding area. In other words, the meter observes the brightness of the entire viewfield but concentrates its sensitivity on the center of the screen, since this is where the main subject of the vast majority of photographs is usually positioned. This special design minimizes the possibility of the meter being misled by markedly brighter or darker areas elsewhere in the picture. The result is balanced exposures, regardless of how close or how far the subject is and whether the camera is held vertically or horizontally. One other advantage: Nikon's center-weighted metering system always gives out accurate information with lenses of any focal length.



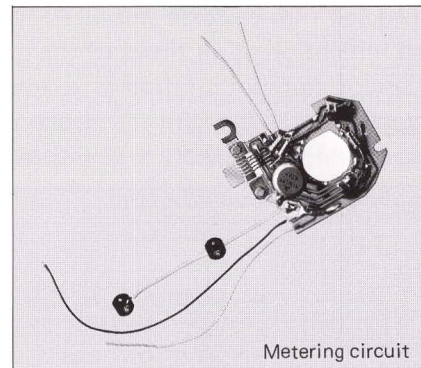
### FRE and monolithic IC

The Functional Resistance Element incorporated into the FM's metering system is Nikon's own development. Consisting of an ultra-precise, metallic thin-film resistor on a hard glass baseplate, it transmits to the meter the precise information on the ASA film speed set for the film loaded in the camera, the lens aperture selected and the shutter speed in use. Virtually impervious to changes in temperature and humidity, this important component has been made extra-durable by the use of gold alloy and other precious metals in its connecting taps and noise-free brushes. Like FRE, the IC (integrated circuit) used in the metering system is also Nikon-developed. It is no bigger than the head of a match, a mere 2mm x 3mm area, yet contains some 170 electronic components, including a bipolar transistor and a MOS FET (metal-oxidized semiconductor field-effect transistor). Along with GPD and FRE, this IC, which has a monolithic construction, contributes to making the FM a compact, light, but truly high-performance camera;



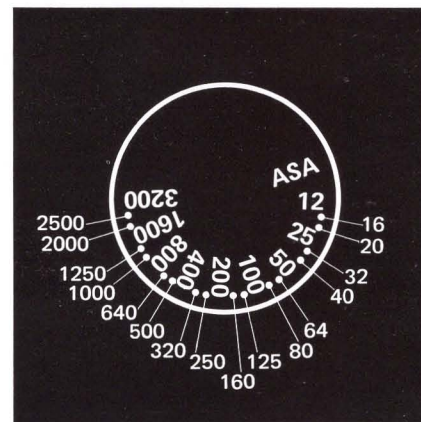
### GPD photo sensors

The FM's metering system uses two GPD's, which are virtually insensitive to infrared rays and whose spectral sensitivity closely parallels that of the human eye, as its light sensors. The use of these elements enable the FM's meter to respond instantly to changing light levels of from EV 1 to EV 18. Thus, the photographer can shift from bright to dim-light shooting, or anywhere in-between, then back again—and be sure of correct exposures throughout.



### ASA film speed

The ASA film speed selector is conveniently positioned coaxial with the shutter speed dial. The ASA range itself of 12 to 3200 is the widest among compact 35mm SLR's. For added convenience, the ASA dial has markings for intermediate ASA settings such as 64, 80, 125 and 160. The selector, on the other hand, is knurled for slip-free manipulation; a safety-lock is provided to prevent inadvertent changes in the ASA setting.





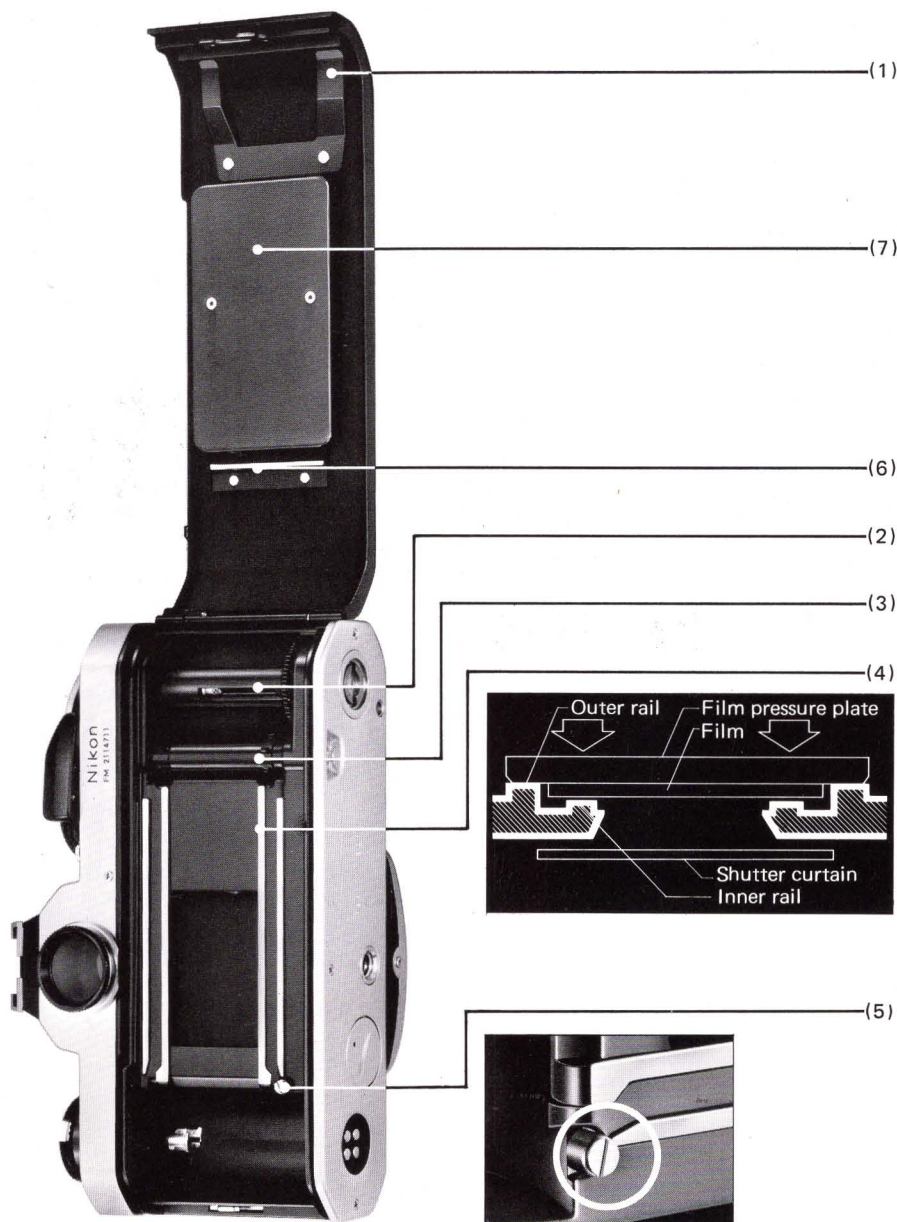
# Film Transport

To appreciate the full import of a 35mm SLR's film transport system's design, one only has to realize that most of such a camera's components—including the back, which is the single largest component—are built around it. The fact is, along with the mirror mechanism, it is the SLR's film transport system that bears the brunt of photography. Not only does it have the function of advancing the film precisely by one frame at a time from the film cassette to the film takeup spool—it must also transport all the exposed frames back into the film cassette smoothly, as well as provide an indication at all times of the exact amount of film or number of frames exposed. When you consider that the film transport mechanism has to do all this, repeatedly and without fail—in fact, throughout the very life of the camera—you begin

to appreciate why the film transport system has to be designed and built durable and unerringly precise. With the Nikon FM, you have a film transport system that will not only take on the demands of manual film advance but also withstand the punishment of motorized shooting of up to 3.5 frames per second—as well as provide for intentional, accurate-registration double—or multiple-exposure operation in either mode. Complementing all this are the FM's foolproof system for film flatness and positive film travel, the precisely positioned film plane indicator, the film-advance-mechanism-coupled frame counter, the smooth-action film rewind mechanism and a unique provision for double—or multiple-exposure operation.

## Seven-point system for film flatness and positive film travel

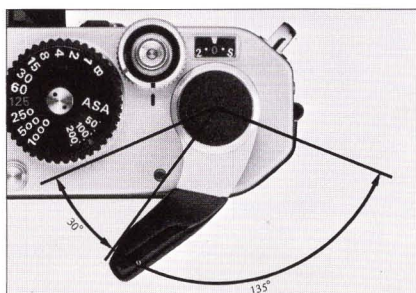
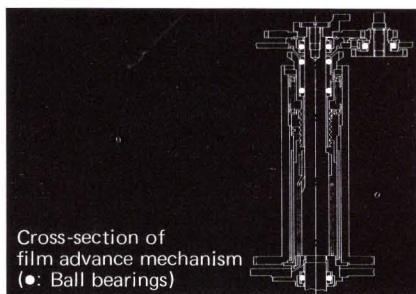
Both absolute film flatness and positive, sure film travel are essential to picture sharpness; to ensure these, the FM has adopted a special seven-point system. The **film cassette stabilizer** (1) on the reverse side of the camera back prevents the cassette from wobbling, ensuring correct film positioning. The film leader can then be pulled out and fed into the **film takeup spool** (2), while **two sets of sprocket gears** (3) which are made of durable material engage the sprocket holes, or perforations, on either side of the film. The takeup spool itself has three slots, any of which can be used for easy film leader insertion; it winds the film emulsion-side-out to effectively negate its natural tendency to curl in on the emulsion side. As the film is advanced, it moves on a **pair of precisely ground rails** (4) that keep it perfectly straight; smooth running is assured by the **roller-type film guide pin** (5) which rotates to eliminate any damage to the film that may be caused by friction as it travels, and by the camera back's **film roller** (6). Finally, the **large film pressure plate** (7), also on the reverse side of the camera back, keep the film perfectly flat in the crucial area across the film gate.





## Film advance lever

The cornerstone of the FM's film transport system is its film advance mechanism which is operated by the film advance lever. Like the FM's reflex mirror, this is another camera component in which Nikon's engineers did not cut corners to keep the FM compact; for the camera's size, the lever is extra-large—with its tip contoured in non-temperature-conductive plastic—for maximum convenience of manipulation by the right-hand thumb.



Strategically positioned ball bearings, in combination with a double-shaft winding mechanism, give the lever extra-low torque for constant and smooth operation—from the 30° stand-off position to the completed stroke of 135° and from the first frame to the last. The lever is so constructed the photographer has a sure feel when it is pulled out to the stand-off position. This position uncovers a red dot to indicate that the camera's meter is on; when the lever is pressed back into place, the meter is automatically

switched off. In other words, the film advance lever also doubles as the FM's meter on/off switch. The completed stroke of 135° itself, which is the shortest among compact 35mm SLR cameras, simultaneously cocks the shutter mechanism, advances the frame counter by precisely one frame, and frees the camera's shutter release, thus readying the camera for the next exposure.

## Film plane indicator

In critical picture-taking situations, such as close-up photography or copy reproduction, the exact subject-to-film-plane distance must often be measured to determine the exact reproduction ratio. Accordingly, the FM is provided with a film plane indicator; the indicator's ⊕ mark, which is on the bottom right-hand side of the film rewind knob, is positioned exactly in the film plane: 46.5mm from the front surface of the lens mounting flange.

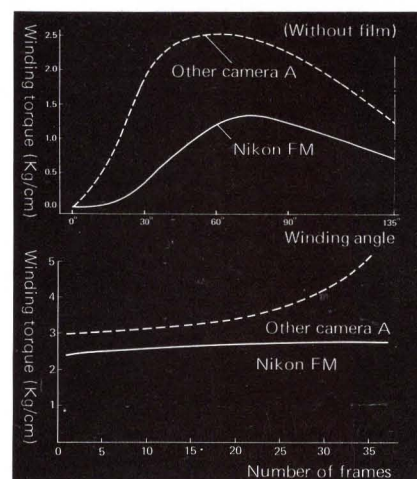
## Film rewind (1), (2), (3)

The same careful attention paid by Nikon's engineers to the FM's film advance mechanism and all other functions or components of the camera's film transport system has been given to the FM's film rewind mechanism. Depressing the rewind button on the baseplate of the camera body will disengage the film advance mechanism to allow the film to be rewound via the rewind knob's foldable crank which is extra-long for extra-smooth, rapid film rewind. The direction of rotation is shown by the white arrow engraved on the knob. Note that the rewind knob has another function; its adjacent safety lock is turned counterclockwise to allow the knob to be pulled up and the camera back opened. The camera back itself is the hinged, swing-open type which can easily be detached from the body when the occasion calls for it.



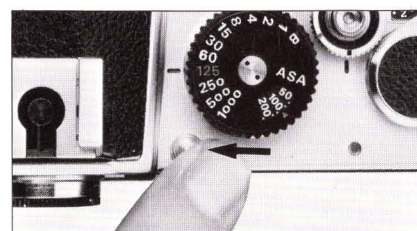
## Frame counter

This is the additive type and is directly coupled to the film advance mechanism. With each stroke of the film advance lever, the counter advances one graduation to show the exact number of frames exposed. Numbers are provided at every second frame from 0 to 36 with 0, 20 and 36, appearing in red. The counter does not operate during rewind operation and automatically resets to S (two frames before 0) when the hinged camera back is opened by lifting the film rewind knob. (Note that the counter's numerical indication will not change during double- or multiple-exposure operation, a convenient reference point for the photographer engaged in this type of photography.)



## Multiple-exposure operation

The Nikon FM does the other Nikon cameras (and most other 35mm SLR cameras) one better in the area of double- or multiple-exposure operation. Its multi-exposure button is uniquely positioned on top of the camera body, right next to the relevant controls, for easier, more convenient and integrated operation. The multiple-exposure mechanism itself has an improved design which assures that there will be absolutely no frame shift, no matter how many exposures are made on any one frame. By pressing the button towards the camera's pentaprism housing the photographer can go into double- or multiple-exposure photography, with or without a motor drive, and achieve 100% accurate registration.

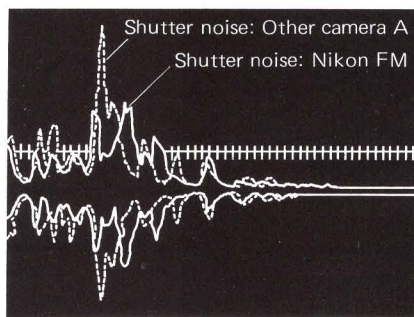
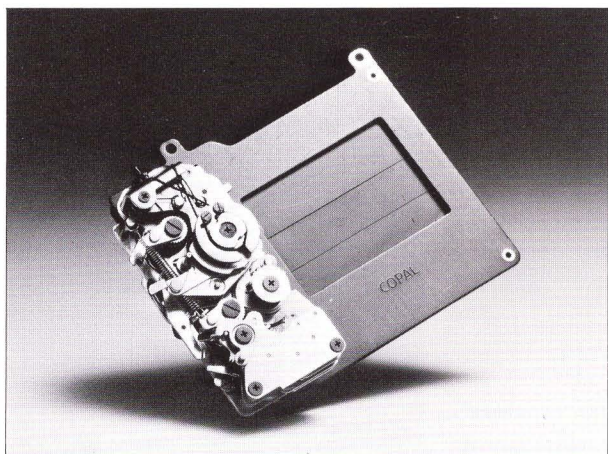




# Shutter Mechanism

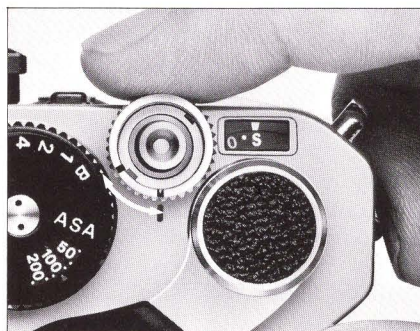
The core of the Nikon FM's shutter mechanism is the compact, all-metal Copal Square S focal-plane shutter which is not only well known for reliability and durability but also perfectly matches the stringent standards to which the FM is engineered. The shutter curtains (five blades in front, three at the back) traverse the film gate vertically, rather than horizontally (as is the case with conventional focal-plane shutters), and cover a distance of only 24mm instead of 36mm. Shutter travel time is thus held to approximately 7 milliseconds only, thus enabling the FM to fully synchronize with electronic flash at speeds of up to 1/125 sec., the

fastest in 35mm SLR photography. This makes the camera able to take on the demands of synchro-sunlight shooting, with practically no risk of ghost images caused by high ambient lighting. The use of metal ensures lasting, dependable shutter operation in both the regular and motor-drive modes. On the other hand, noise and shock are all but eliminated by the incorporation into the shutter mechanism of Nikon's own braking system and the use of an air-damped reflex mirror. All told, there are 11 shutter speeds available from 1 to 1/1000 sec.; B setting is provided for extra-long exposures.

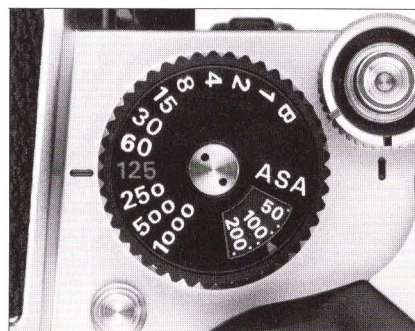


## Shutter release operation

Two modes are available: **regular** via the camera body's shutter release button and film advance lever, and **motor-drive** via the triggering button of the MD-11 Motor Drive Unit. The FM's shutter release button itself is positioned for natural and unstrained finger contact, as well as coordinated operation with the film advance lever. The total shutter release stroke is 2.7mm, including a safety margin of 0.9mm, which is effectively assured by the shutter release fingerguard; this helps prevent accidental triggering. Triggering action is smooth and precise, giving the photographer full control of the exact moment of exposure. Also, the button is threaded to accept both Nikon and ISO-type cable releases, including the AR-2 and AR-3, which are especially useful for critical shooting. Built coaxial to the shutter release button is the FM's shutter release mode selector which doubles as a finger-



guard. This click-stopped, safety-locked selector is knurled for positive and rapid changeover from regular to motor-drive operation, and vice versa; it is color-coded (black index for regular operation, red for motor drive) for added convenience. Note that in the motor-drive position, the selector effectively locks regular shutter release operation and can be used for this purpose when a motor drive unit is not attached to the camera.



## Shutter speed selection

The FM's shutter speed selector is click-stopped and knurled for sure and easy manipulation. The dial's face is engraved with the 11 shutter speed settings provided: **1** for one second; **2, 4, 8, 15, 30, 60, 125, 250, 500 and 1000** for fractional values of from 1/2 to 1/1000 sec.; **B** is also engraved. All these indications appear in white, except for **125** which is in red and indicates the maximum speed available for flash synchronization.



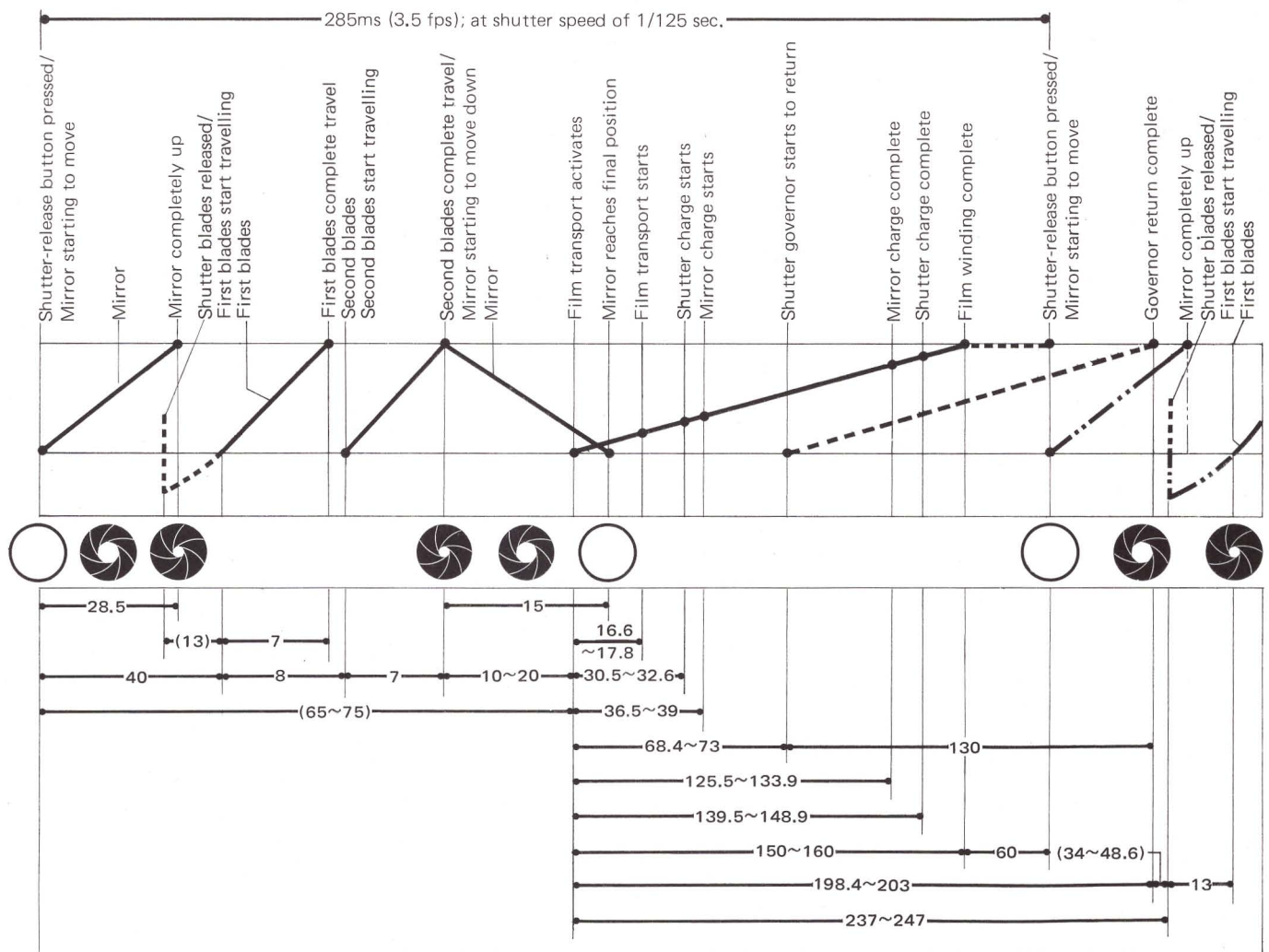
## Self-timer

This is in the shape of a lever and can be used to trip the shutter after an intentional delay of up to approximately 10 seconds. To use the self-timer, advance the film, determine correct exposure by setting the aperture and shutter speed controls, then cock the self-timer lever by turning it away from the depth-of-field preview lever as far as it will go. The self-timer will start the moment the shutter release button is depressed. A unique feature of the lever is that its setting is "cancellable" two ways. If the lever is cocked and the shutter release button has not yet been depressed, it can be turned back, if desired, and normal triggering oper-

ation can then be resumed. On the other hand, if the shutter release button has already been depressed, the self-timer's setting can still be cancelled by simply turning it back; this action will complete shutter release. In addition to its usual role, too, of enabling the photographer to take self-portraits or join group shots, the self-timer has one other merit: the moment it is cocked, the mirror goes up immediately, thus ensuring that any possible camera vibration will have died out before the shutter fires approximately 10 seconds later. This is an especially valuable feature for close-up photography.



## Action and time-lapse sequence in the coordination of mirror, diaphragm, and shutter operation.



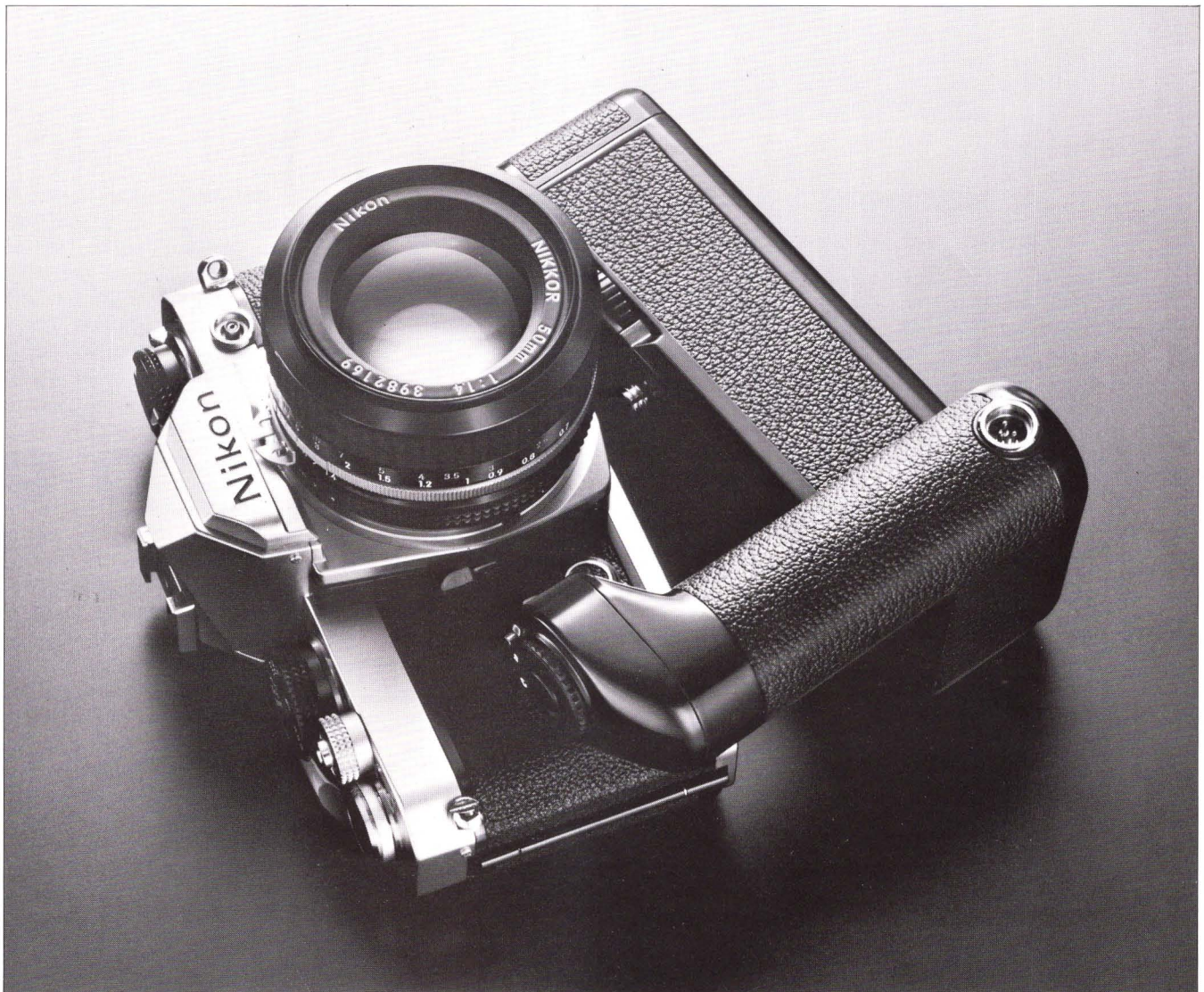


# Motor Drive

Since Nikon's introduction of the first motor drive unit in 1957, motor-drive photography has won a vast following. The powered film advance offered by a motor drive has not only made it unlikely for the photographer to miss a shot, simply because the film wasn't wound or couldn't be wound fast enough—with a motor drive attached to the camera, sequential shooting becomes a matter of pressing just one button, once. The photographer can literally follow the action without the distraction and loss of time involved in manual film advance. With the right accessories, too, even remote-controlled shooting becomes possible. Also, with the Nikon FM and its companion MD-11 Motor Drive Unit, "power-driven" photography advances one step farther in convenience and precision. Since there is none of the bulk or excessive weight and complicated controls usually associated with a motor-drive-equipped 35mm SLR, the photographer is able to concentrate his full attention on his subject without literally being

bogged down. The fact is that an MD-11-equipped FM has virtually the same weight and size that a conventional-size 35mm SLR camera has. Aside from the on/off switch, the MD-11's only other controls are the shooting mode selector, trigger button and rewind slide—making motor-drive photography simple and easy even for the absolute beginner.

The MD-11 itself is a compact, solid unit. It is made of sturdy, highly durable metal for constantly precise, reliable operation even under the most rugged conditions, just like the FM camera body. Handsomely finished in black to match the camera's finish, the MD-11 can be attached to the camera—regardless of whether or not it is loaded with film—in seconds. A simple turn of the screw, and the two are ready to go. The incorporation of a hybrid IC in the MD-11's circuitry further boosts reliability, as well as makes remote-controlled shooting from extended distances possible.





## Powered film advance of up to 3.5 fps

Two shooting modes are available: single frame (S) and continuous (C); accordingly, the MD-11 is provided with an S/C mode selector that is safety-locked for positive changeover, as well as knurled for slip-free manipulation. When the shooting mode is set to **C** and the shutter speed to 1/125 sec. or faster, powered film advance is approximately 3.5 frames per second (fps), which is more than fast enough to cover any action-type photography; at slower shutter speeds, down to 1/2 sec., the firing speed automatically adjusts to the specific speed selected—the principle being the slower the speed, the lower the firing rate. At **S**, single-frame shooting is possible from 1 to 1/1000 sec.

## Human-engineered design

The MD-11 mounts perfectly flush with the camera body to form a perfectly integrated assembly. The grip is so contoured it feels like a natural extension of the photographer's right hand. The controls are simple enough for even a beginner to master. Once the FM's shutter release operation mode selector is set for motor-drive operation, the MD-11's power switched on, and the shooting mode set, all the photographer has to do is press the trigger button.

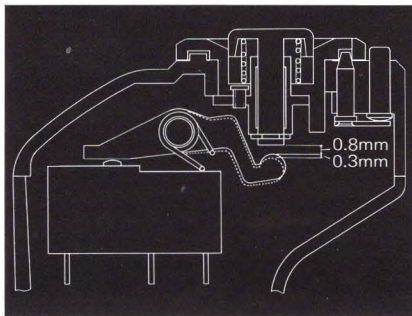


## 100 rolls of 36-exposure film

The MD-11 is powered by 8 penlight batteries, all accommodated in the built-in battery clip. Winding torque is approximately 5 kg/cm, assuring stable and constant operation all the way to the peak 3.5 fps firing speed. As many as 100 rolls of 36-exposure film can be exposed without requiring a change of batteries.

## Triggering action with safety margin

The MD-11's trigger button, which is recessed to "cradle" the tip of the finger, has a total release stroke of 1.1 mm, including a safety margin of 0.8 mm; the latter is effectively assured by the S/C shooting mode selector knob which doubles as a fingerguard, and helps prevent accidental triggering. The trigger button itself is positioned for natural and unstrained contact with the index finger of the right hand; this makes even one-hand operation possible.



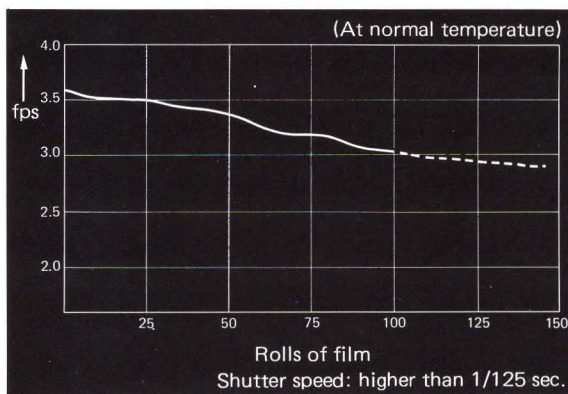
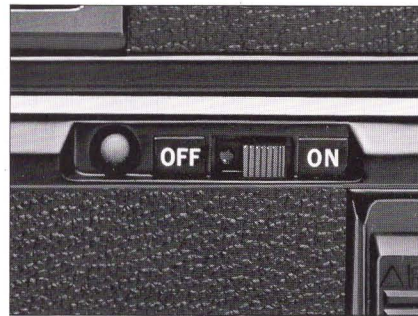
## Remote-controlled shooting

The MD-11 has a built-in terminal for accommodating the required cord. In fact, it is designed so that it can use most of the accessories for other motor drive units for remote-controlled shooting. These include the MT-1 Intervalometer, ML-1 Modulite Control Set and MW-1 Radio Control Unit.



## LED indicator

Like the on/off switch, the MD-11's red pilot lamp is positioned at the back of the unit for convenient reference. Incorporating a light emitting diode, the lamp lights up intermittently to indicate that operation is in progress; it lights up continuously to indicate that the roll of film loaded in the camera has been fully exhausted.

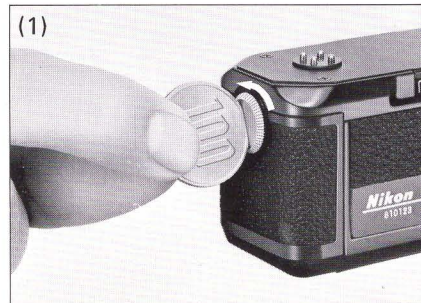




# Preparations for Motor Drive Operation

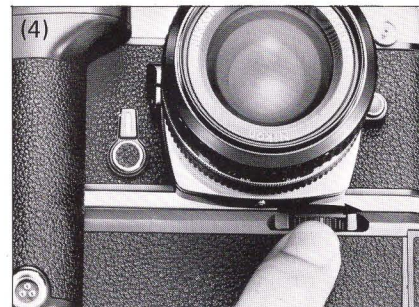
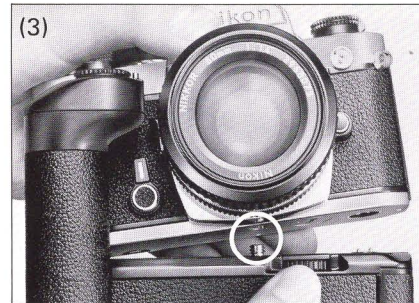
## 1. Load the MD-11 with the required batteries (1), (2)

The MD-11 is powered by eight 1.5V penlight batteries. To load the batteries, first remove the unit's built-in battery clip by turning the coin-slotted locking screw counterclockwise with a coin or something similar until the clip comes loose. Refer to the diagrams provided in the clip, and seat the batteries accordingly. After ensuring that the terminals of the batteries (both + and -) are properly oriented, put the battery clip back into place. Then secure the assembly by retightening the locking screw.



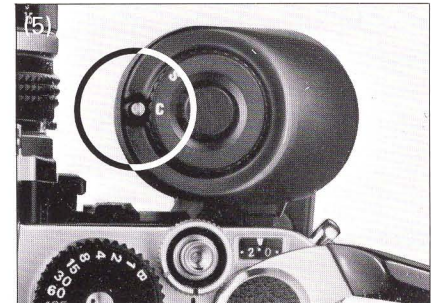
## 2. Attach the motor drive to the camera (3), (4)

Make sure that the MD-11's power switch is turned off. Then seat the camera flush with the motor drive, ensuring that the motor drive's mounting screw directly comes into contact with the camera baseplate's tripod socket. Turn the MD-11's mounting screw drive wheel until the screw is securely locked into the tripod socket and there is no gap between the motor drive and the camera body.



## 3. Set the camera to motor-drive operation (5), (6)

Turn the camera's shutter release operation mode selector to motor-drive operation by aligning the red line on the selector with the corresponding line on the camera body. Then turn on the motor drive's power switch. Lock through the camera's viewfinder; if any of the LED exposure indicators lights up, the camera and motor drive assembly is ready for operation. All that is required now is to set the MD-11's shooting mode selector to either **S** or **C**, determine correct exposure by setting shutter speed and/or lens aperture,

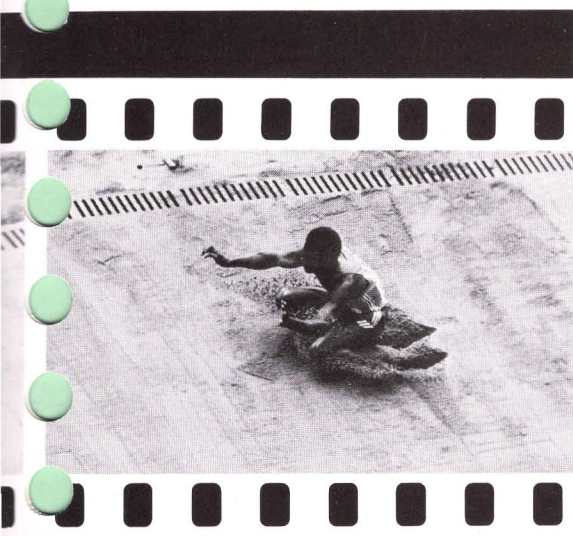
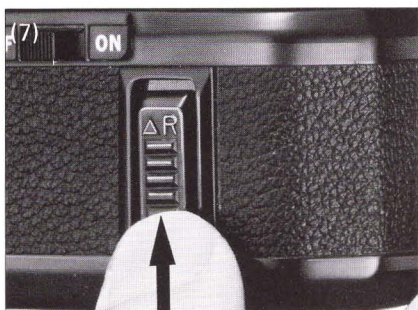




then shoot by pressing the motor drive's trigger button. Note that on **C** the motor drive will keep on firing while the button is pressed.

#### 4. Film rewind (7), (8)

When the roll of film in the camera has been exposed, the MD-11's motor will automatically stop, releasing film tension, with the pilot lamp remaining lit. Turn the power switch off to prevent unnecessary battery drain. Then, push the rewind slide on the motor drive up. Film rewind is manual and can be done even with the MD-11 attached to the FM.





# Accessories for Motor Drive Operation

## Pistol Grip Model 2

Screw into the tripod socket of the MD-11 (or the lens mounted on the camera) to serve both as a means of support and as a means of motorized triggering when working with long telephoto lenses; MC-3 required for electrical connection.

## MC-3 Connecting Cord

Provides electrical connection between the trigger button of the Pistol Grip Model 2 and the remote-control socket of the MD-11.



## MC-4 Remote Cord

For connecting remote-control triggering circuits to the MD-11. One end of the cord is fitted with the standard plug for the remote-control socket of Nikon motor drives; the other end has two "banana" plugs for connection to triggering circuits of your own device. The cable can be extended to any length, provided that circuit resistance does not exceed 1 kilo-ohm.



## MW-1 Radio Control Set

Provides the photographer with a wireless, remote-control triggering capability for an MD-11-equipped FM. The set can operate up to three cameras, either simultaneously or individually, at ranges of up to 0.7km. Battery powered, the MW-1 is compact and lightweight, making it ideal for field use. It connects to the remote control socket on the MD-11 via the MC-5 cord supplied with the set.

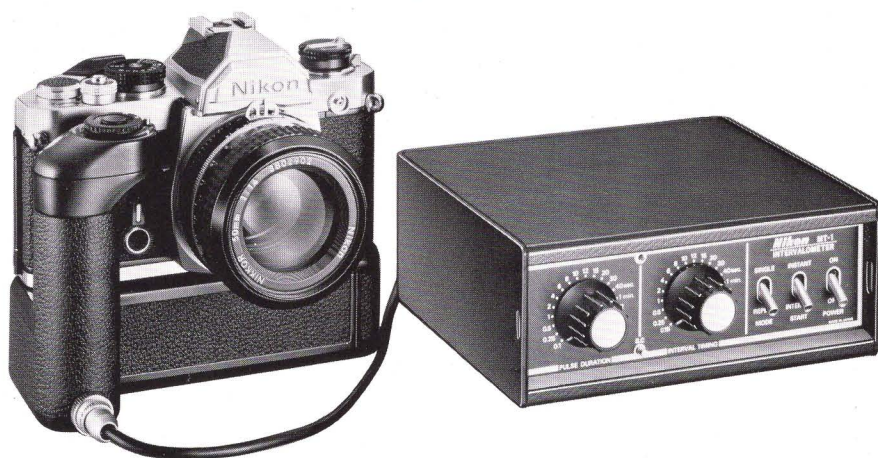
(Please note that in some countries this equipment may not be usable owing to differences in operable frequency.)





### ML-1 Modulite Remote Control Set

Can be used to trigger an MD-11-equipped FM by remote control at distances of up to 60 meters. Using Nikon's modulated light system, the ML-1 set assures you of trouble-free remote control operation over moderate distances. The set's light weight and compact size, plus its use of just one 9V laminated dry battery, make it ideal for field or studio use. Connection to the motor drive's remote control socket is by the MC-8 connecting cord which comes with the set.



### MT-1 Intervalometer

Nikon's precision digital timing unit for slow sequence shooting of experiments or work study programs. Fully solid-state, the unit requires only four AA size penlight batteries to power it, making it compact enough for on-location use. MC-5 cord supplied for connection with MD-11-equipped FM. Exposure intervals of up to eight minutes can be set on the MT-1's control panel.

25

## Reference for Ordering

ITEM	CODE NO.	REMARKS
Nikon FM Camera Body Chrome	100-32-002	
Nikon FM Camera Body Black	100-32-042	
1.5V Silver Oxide Battery	100-08-202	
Tripod Adapter for Nikon FM	100-32-502	
MD-11 Motor Drive	100-32-500	
CF-7 Semi-soft Leatherette Camera Case	100-32-800	
CF-8 Semi-soft Leatherette Camera Case	100-32-801	
CF-9 Semi-soft Leatherette Camera Case	100-32-802	



## Lenses & Accessories



The Nikon FM. Another system camera in the Nikon System.

Specifications and designs shown herein are subject to change without notice.



**NIPPON KOGAKU K.K.**

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