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Nikon 250 Exposure Magazine Back

MF-4

INSTRUCTION MANUAL

E

NOMENCLATURE

Frame counter reset ring
Open/close knob index
(takeup side)

Frame counters
Open/close knob
(for takeup cassette)
Shutter release button
lock ring

Shutter release button

Camera holder

Camera clamp lever
Open/close knob index
(supply side)
Open/close knob
(for supply cassette)

Camera clamp

Neckstrap eyelet

Tripod socket

Film pressure plate

Camera clamp lock
release button

Neckstrap eyelet

Tripod socket

Power cord

External Signal Connecting
Cord MC-14

Cassette ejector lever
(for supply cassette)
Cassette spindle knob
(for supply cassette)

Cassette ejector lever
(for takeup cassette)
Cassette spindle knob
(for takeup cassette)



Supply cassette compartment

Film sprocket

Rear cover latch

Rear cover hinge

Latches

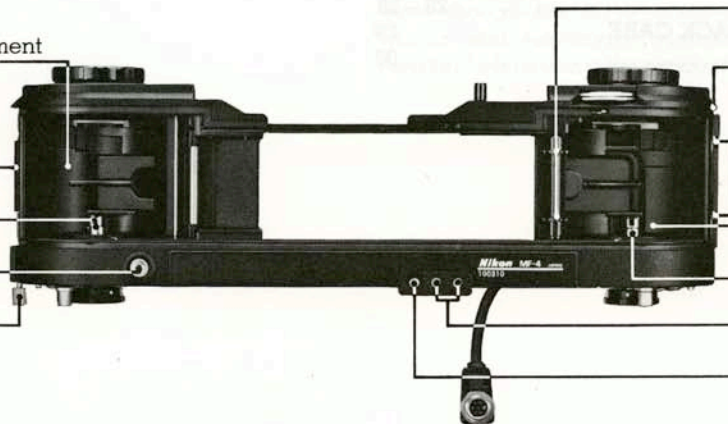
Cassette spindle
Frame counter
signal terminal

Takeup cassette
compartment

Rear cover support pin
knob

Cassette spindle
Battery check indicator
windows

Battery check button



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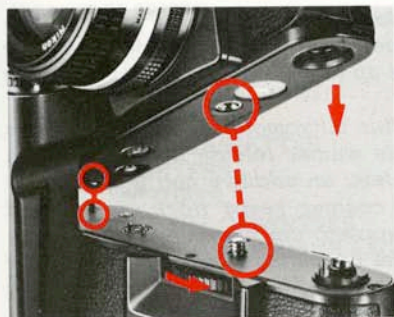
FOREWORD

By replacing the standard camera back of a motor-driven Nikon F3-series camera with the Magazine Back MF-4, you can shoot up to 250 frames without changing film.

The MF-4 has a built-in micromotor to drive the takeup magazine, a separate shutter release button, and two kinds of frame counters: an additive and a subtractive type. The additive counter keeps track of the total number of frames exposed; the subtractive one, on the other hand, shows the remaining number of unexposed frames and can be set to any desired number. When the subtractive counter reaches "0," the motor drive automatically stops firing.

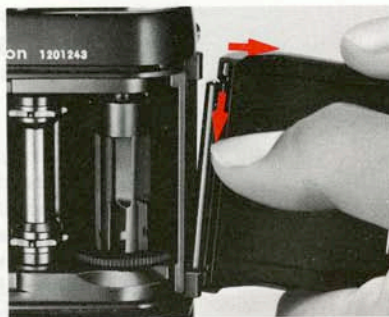
Even though the MF-4 is extremely easy to use, you should still familiarize yourself with this instruction manual before using the product.

SETTING UP



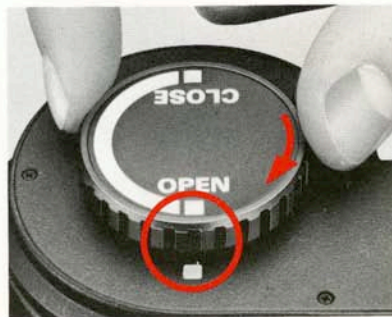
1. Attach the motor drive to the camera body.

First, make sure that the S-C mode selector of the Motor Drive MD-4 is set to the L (lock) position and attach the motor drive to the camera body. For details, refer to the MD-4's instruction manual.



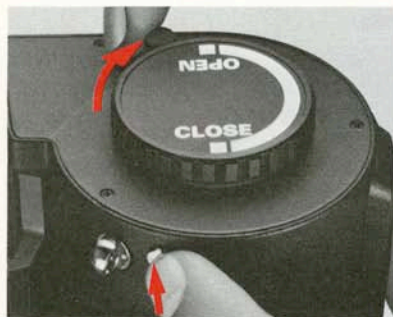
2. Remove the camera's back.

Open the back of the camera and remove it by depressing the locking catch on the hinge.



3. Set the open/close knob to the "OPEN" position.

Turn the MF-4's open/close knob on the supply side to the "OPEN" position until it clicks in place and the word "OPEN" is aligned with the open/close knob index (an orange square).



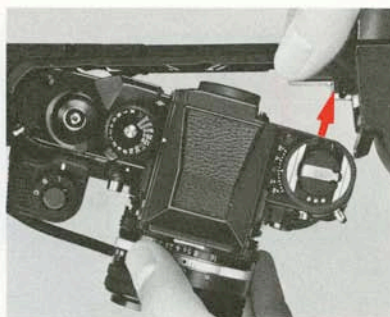
4. Release the camera clamp.

While applying pressure to the camera clamp lock release button, turn the camera clamp lever clockwise to release the clamp.



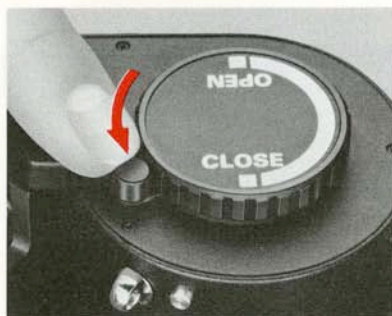
5. Attach the magazine back to the camera body.

Line up claw (A) at the bottom of the camera holder with space (B) between the motor drive's grip and the camera body.



Then while using this claw as a guide, fit the magazine back carefully into place.

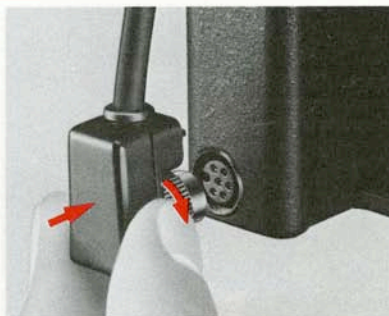
Caution: When attaching the magazine back to the camera, be sure to keep both the camera's right and left neckstrap eyelets up so that they will not get caught between the camera and the magazine back.



6. Lock the magazine back.

While pushing the magazine back's supply side and the end of the camera body together, turn the camera clamp lever counterclockwise until it stops. Be sure to turn the camera clamp lever until the camera clamp lock release button clicks.

Caution: When the temperature goes down to approx. -20°C , the camera clamp lever becomes more difficult to turn due to the hardening of the rubber which clamps onto the camera. Therefore, be sure to turn the lever as far as it will go.

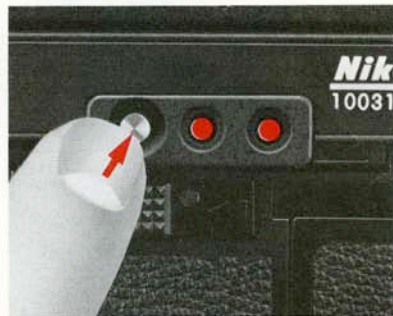


7. Connect the magazine back to the motor drive.

Plug the cord into the magazine back terminal located at the base of the motor drive's grip. While applying pressure, turn the locking ring of the plug until it stops.

Note: Store the magazine back terminal's cover in a safe place for future use.

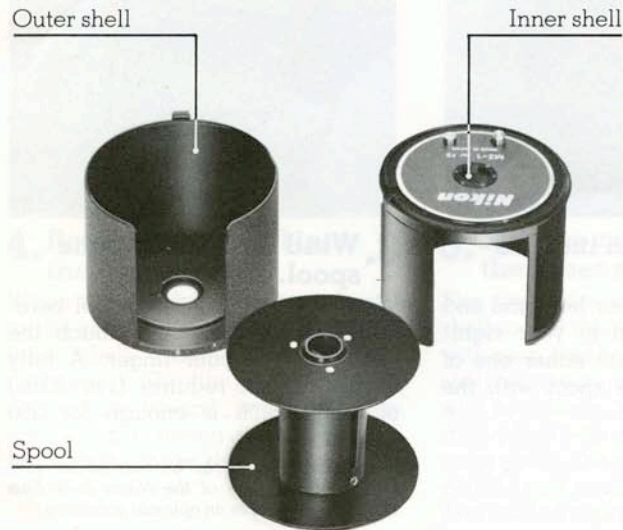
Caution: Do not remove the magazine back from the camera with the cord plugged into the terminal.



8. Check the battery power.

Depress the battery check button on the back and the motor drive's LED indicators will light up to indicate the condition of the battery. When the magazine back is used, power is consumed faster. Therefore, always make sure the batteries in use are powerful enough, so that both LEDs light up when the battery check button is depressed. If only one LED glows, the batteries should be replaced with a fresh set. For details on the power supply, refer to page 24.

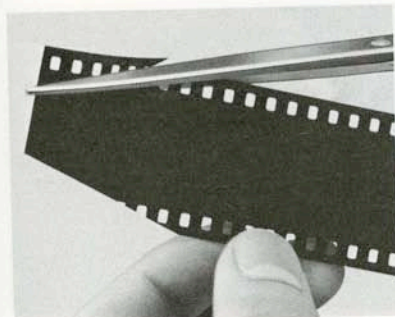
FILM CASSETTES (OPTIONAL)



The MF-4 uses two reloadable Nikon 250-Exp. Film Cassette MZ-1's at one time: one loaded with film, as the supply spool, and one empty, as the takeup spool. They are the same cassettes that are used for the Motor Drive F250 for the Nikon F-series camera and the 250 Magazine Back MF-1 for the Nikon F2-series. (You can purchase any number of cassettes desired.) The cassette consists of an outer shell, inner shell and spool.

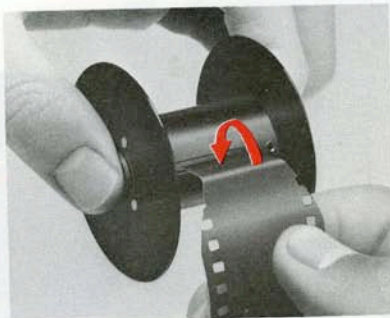
To open the cassette, hold it with the "Nikon" name facing up and the cutout of the outer shell facing you. While depressing the release pin on top, turn the inner shell. When the outer shell's cut-out coincides with that of the inner shell, the inner shell slips free, enabling the removal of the spool.

LOADING FILM



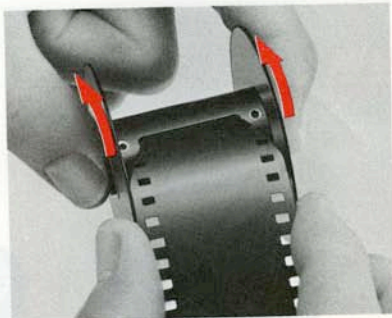
1. Cut the film.

Trim the end of a length of bulk film to form a leader about 3cm (1.2 in.) long by 2cm (0.8 in.) wide. Then near the top of the leader, bend the film so that the emulsion side of the film (the inner side of the roll) is facing inward.



2. Insert the film into the spool.

Hold the spool in your left hand and the end of the film in your right. Insert the leader into either one of the two slits of the spool with the emulsion side down.



3. Wind the film onto the spool.

Wind the film onto the spool carefully. Be careful not to touch the emulsion with your finger. A fully loaded cassette requires 11m (33ft.) of film, which is enough for 250 exposures.

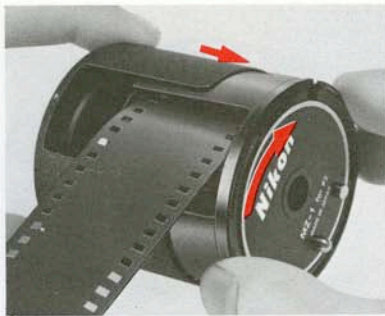
Note: Film loading can be carried out very easily with the use of the Nikon Bulk Film Loader, available as an optional accessory.

Be sure to load the film cassettes in a darkroom or use a changing bag.



4. Replace the spool into the inner shell.

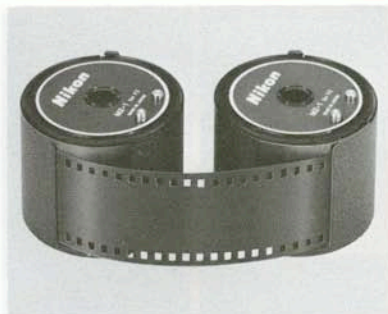
When the film has been transferred to the spool, slip the spool into the inner shell, leaving the film end protruding. The film end should be protruding toward you (with the emulsion side facing down) if you are holding the inner shell in your right hand.



5. Slip the outer shell onto the inner shell.

Slip the outer shell onto the inner shell so that their cutouts are aligned with each other. Then twist the inner shell clockwise gently until it stops with two clicks. Now the catch of the inner shell falls into the recess of the outer shell, closing the cassette completely and sealing it against light. The loaded supply cassette can now be taken out into the light.

Note: The film end should protrude approximately 10cm (3.9 in.).

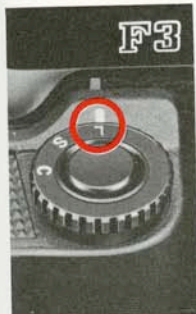


6. Wind the film onto the other cassette.

Take out the spool from the second cassette. Cut a leader at the film end protruding from the supply cassette and insert it into one of the slits in the spool. With the emulsion side down, wind the film around the spool two or three times. Slip the spool into the inner shell in such a way as to make it symmetrical with the supply cassette. Then slip on the outer shell and turn the inner shell counter-clockwise until the catch falls into position.

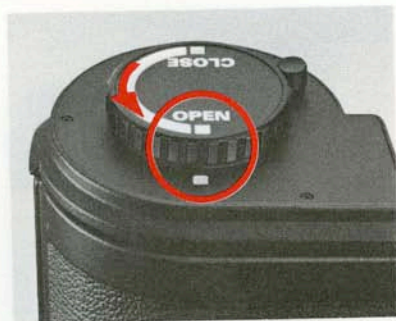
Note: Winding of the film end onto the takeup cassette can also be done after the supply cassette has been loaded into the magazine back.

LOADING THE CASSETTES



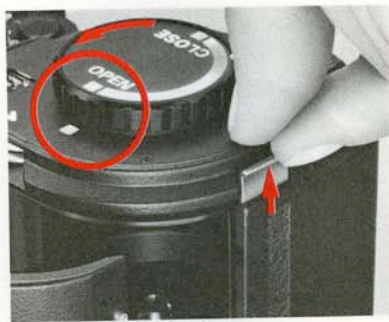
1. Make sure the shutter release button is locked.

Make sure that the lock ring around the shutter release button of the magazine back is set to the "L" position. Also confirm that the motor drive's S-C mode selector is set to "L."



2. Open the rear cover of the magazine back.

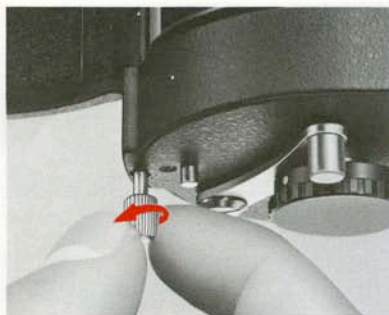
Set the magazine back's takeup and supply open/close knobs to the "OPEN" position; pull up the rear cover latch and the cover will pop open.



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Caution:
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close



3. Unscrew the rear cover support pin.

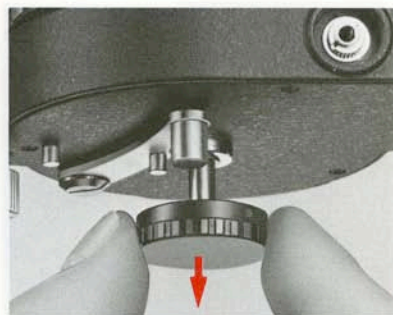
Turn the rear cover support pin knob counterclockwise until it stops (the knob will unscrew approximately 4 mm).

Caution: Make sure not to screw out the rear cover support pin when the rear cover is closed.



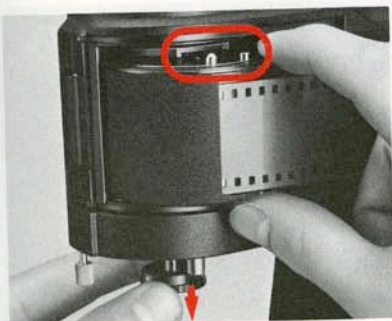
4. Remove the rear cover.

Push the left end of the rear cover forward with moderate force to remove it.



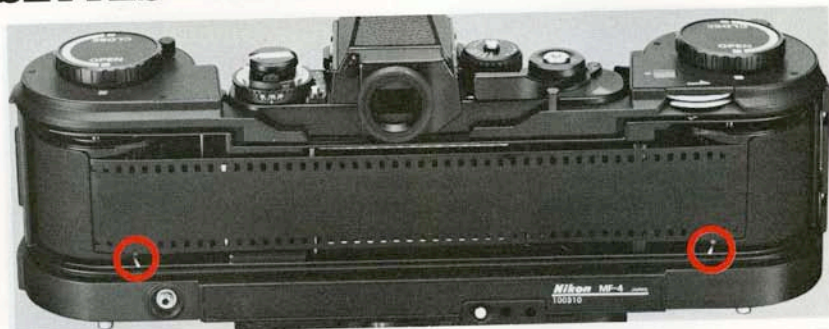
5. Pull out the cassette spindle knob at the bottom of the cassette chambers on the supply side.

LOADING THE CASSETTES — continued



6. Load the supply cassette.

Load the first cassette by making sure that the two pins on top of the cassette slide into the cutout inside the cassette chamber. As the cassette spindle knob returns to its original position by spring force, keep pulling it up until the cassette is fully seated into place. Now repeat steps 5 and 6 for the cassette on the takeup side.

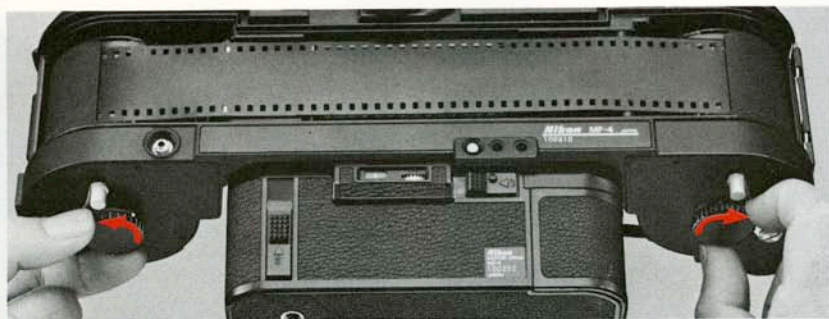


7. Confirm the cassettes' positions.

When the cassettes are loaded in their correct positions, the red dots on the lower part of the outer shells of the cassettes will line up with the white lines on the cassette chambers.

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8. Take up slack of the film.

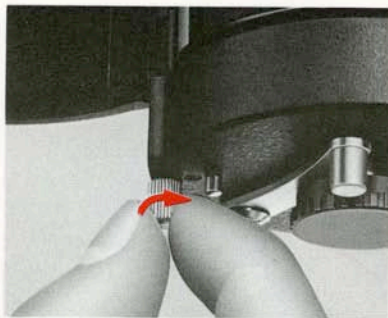
Rotate the cassette spindle knobs in the direction of the arrows to take up any slack of the film. At this time, check to make sure that the film sprockets engage the perforations on the edges of the film.



9. Replace the rear cover.

To replace the rear cover, first insert the cover's hinge shaft into the hinge.

LOADING THE CASSETTES — continued

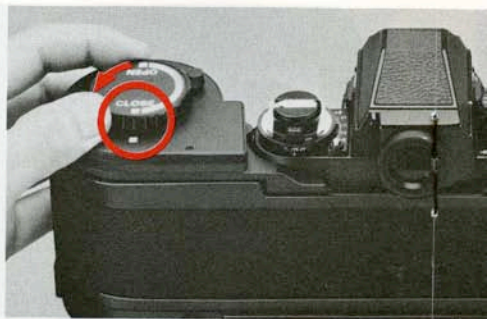


10. Turn the rear cover support pin knob clockwise until it stops.



11. Close the cover.

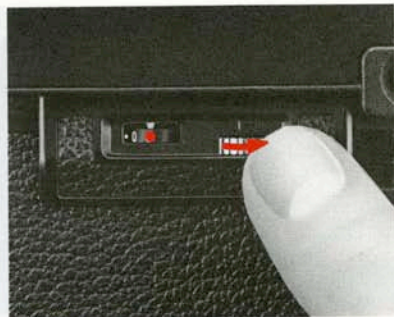
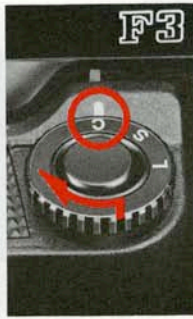
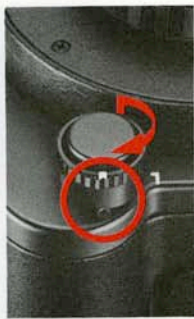
Push the cover down forcefully until it clicks.



12. Set the open/close knobs to the "CLOSE" position.

Turn both open/close knobs to the "CLOSE" position. This makes film transport smooth.

Rotate the cassette spindle knobs once again to take up any slack of the film inside the cassettes.



13. Unlock the shutter release buttons on the magazine back and the motor drive.

Lift up and turn the shutter release button locking ring on the magazine back to set the white index line at the red dot, unlocking the shutter release button. Pull up and set the motor drive's S-C mode selector to either "S" or "C."

14. Set the motor drive's frame counter to the orange dot.



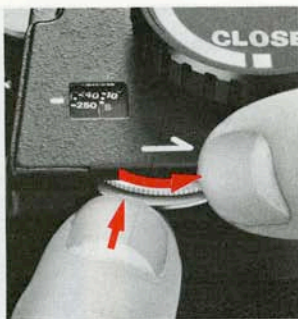
15. Make five blank exposures.

By depressing the shutter release button on the magazine back, make five blank exposures. While making blank exposures, make sure that the white dots on the cassette spindle knobs rotate in the same direction (toward the takeup side). This indicates that the film is being transported correctly.

Notes:

- 1) When you make blank exposures with the motor drive's S-C mode selector at the "C" position, be careful not to waste film by making too many blank exposures.
- 2) You are advised to set the camera's shutter speed dial manually to a high shutter speed for making the blank exposures rapidly. If the shutter speed dial is set at the "A" position and the blank exposures are made with the lens cap on, the shutter will stay open for a long time as soon as the camera's frame counter reads "1."
- 3) The camera's film advance lever cannot be used to advance the film when the magazine back is mounted on the camera.

FRAME COUNTERS



After making the blank exposures, set the MF-4's frame counters. The magazine back is equipped with two frame counters, a subtractive type and an additive type. Each graduation on the frame counters represents five frames. When film is not loaded, the counters will not operate.

Subtractive Frame Counter

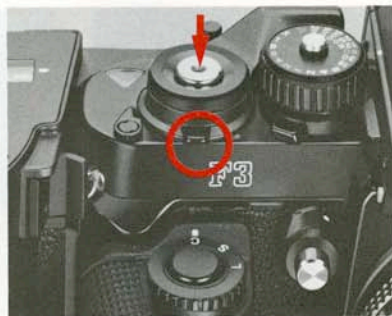
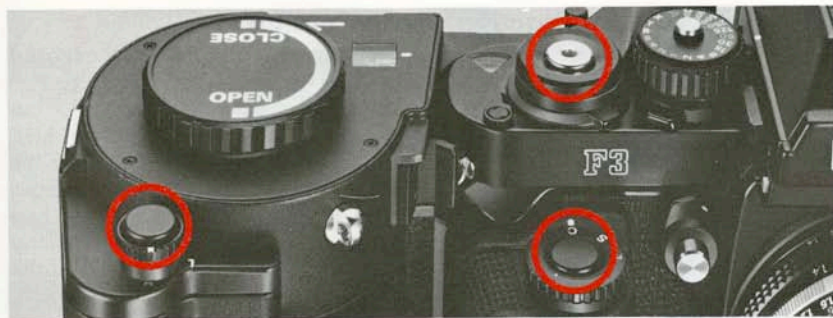
The subtractive counter shows the number of unexposed frames left. It is on the left side within the frame counter window. When the subtractive counter shows "0," the motor drive stops automatically. To reset the counter, turn the counter reset ring in the direction indicated by the white arrow so that it shows either the number of frames of the loaded film or any desired number of frames. While turning the reset ring, the knob under the reset ring should be pushed to prevent it from being rotated. If the knob is rotated, the scale of the additive counter will also be moved.

Additive Frame Counter

The additive frame counter on the right side within the frame counter window shows the number of exposures made. The reading automatically returns to "S" (for start) when the rear cover is opened.

Note: "S" on the additive frame counter coincides with the index (the white line) before making the blank exposures after the film is loaded. After the five blank exposures are made, the counter shows "0" (the line above "S").

TAKING PICTURES

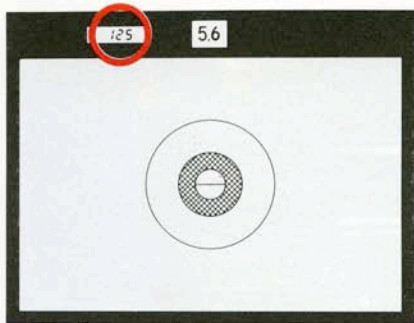


Shutter Release Buttons

Three shutter release buttons, one on the magazine back, one on the motor drive and another one on the camera body, can all be used. When you use the shutter release button on either the magazine back or motor drive, the selection between the single frame and continuous shooting modes should be made with the S-C mode selector on the motor drive.

Note: When the camera's shutter release button is used, depressing the button releases the shutter and releasing the finger from the button advances the film in the single frame mode even if the S-C mode selector is set at the "C" position.

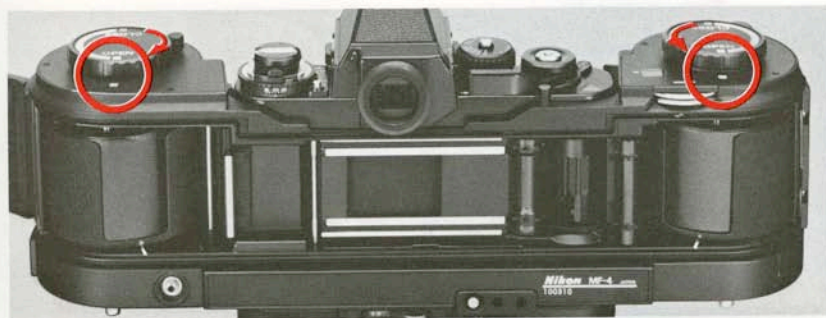
When the subtractive counter comes to show "0," the motor drive stops automatically and you cannot release the shutter by depressing the shutter release button of either the magazine back or the motor drive. But you can do so as many times as desired by using the shutter release button on the camera. In this case, the camera's power switch should be turned on.



Exposure Meter in the Camera

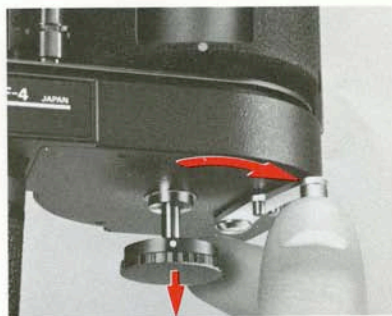
By halfway depressing the shutter release button on the magazine back, like that of the motor drive and camera, you activate the light metering circuit and an exposure reading is displayed in the camera's viewfinder. Depress the button further to release the shutter. Even if you release your finger from the button after activating the light measuring circuit, the circuit will stay on for approximately 16 seconds for confirmation of the exposure display.

UNLOADING THE CASSETTES



When a roll of film is completely exposed and the subtractive frame counter reads "0," the motor drive stops automatically. However, because the last exposed frame is at the center of the camera, do not open the camera back immediately, but make more than five blank exposures.

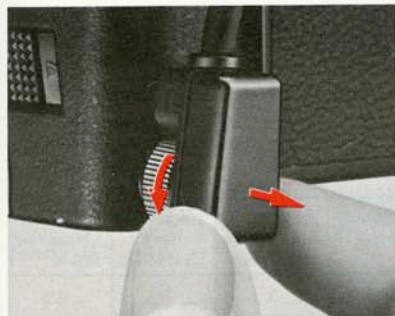
To make blank exposures, set the subtractive counter to a reading of more than five frames or depress the camera's shutter release button more than five times.



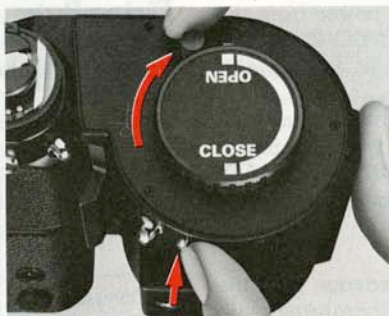
When the supply cassette runs out of film, the cassette spindle knob on the supply side ceases to rotate. Set the open/close knobs on both the supply and takeup sides to the "OPEN" position and open the rear cover. Pull out the cassette spindle on each cassette chamber and press the cassette ejector lever to lift the cassette up far enough to grip easily; then lift out each cassette. (Keep pulling on the cassette spindle until each cassette is removed from the chambers.)

Note: When the film end will not come out of the supply cassette, the motor drive detects the tension in the film and stops automatically. Because the last exposed frame is near the center of the camera in this case, open the rear cover in a darkroom to wind the film onto the takeup cassette.

DETACHING THE MAGAZINE BACK



To detach the magazine back, first pull out the plug connected to the magazine back terminal on the motor drive.



Then set the open/close knob on the supply cassette side of the magazine back to the "OPEN" position and turn the camera clamp lever clockwise while pressing the camera clamp lock release button.

POWER SOURCE

Though the magazine back operates on power from the batteries inside the motor drive, the AC/DC Converter MA-4, as an external power supply, is also available as an option.

As the performance of dry cells deteriorates at low temperatures, you are advised to use a fixed-voltage power source, such as the NiCd Battery Unit MN-2 or the AC/DC Converter MA-4, for shooting at low temperatures.

Battery Life

Life of the power source varies in accordance with the type of batteries you use. At normal temperatures, with manganese batteries you can shoot about 12 cassettes of film at approx. the guaranteed firing rate; with alkaline-manganese batteries, about 20 cassettes; and with the NiCd Battery Unit MN-2, about 10 cassettes. If slightly slower firing rates are acceptable, you can shoot about 14 cassettes of film with manganese batteries and about 25 cassettes with alkaline-manganese batteries.

Table 1

Manganese batteries	12 14
Alkaline-manganese batteries	20 25
NiCd Battery Unit MN-2	10

■ : The range of guaranteed firing rate.

□ : The range within operative battery power but without guarantee of the specified firing rates.

Firing Rate

The maximum firing rate in continuous shooting varies according to the power source in use, as shown in the table below.

Table 2

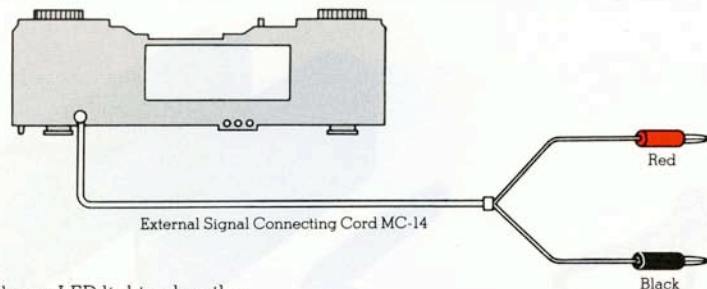
Shutter speed	Maximum firing rate (fps)			
	Manganese batteries	Alkaline-manganese batteries	NiCd Battery Unit MN-2	AC/DC Converter MA-4
1/125~1/2000	3.3	3.3	5.5	4.5
With mirror locked up, 1/125~1/2000	3.5	3.5	6.0	4.8

EXTERNAL SIGNAL CONNECTING CORD MC-14

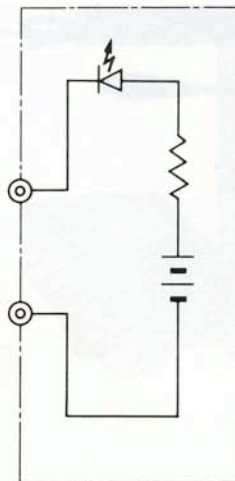
During remote control operation with the Magazine Back MF-4, it might be useful to know when the film is at an end or when you have taken the desired number of shots you set on the frame counter. The External Signal Connecting Cord MC-14 is supplied for this purpose. By plugging one end of this cord into the MF-4's frame counter signal terminal and then rigging a suitable display system to the other end using the banana plugs, you can tell from afar when the subtractive frame counter reads "0."

Caution:

- 1) The terminal can control a display system of up to DC 20 V/200 mA. Make sure not to apply more power than that amount to the terminal.
- 2) Always use DC power for circuits to be controlled by the terminal.
- 3) In connecting the External Signal Connecting Cord MC-14, make sure to connect the cord's black banana plug to the minus side of the power supply.



In this example, an LED lights when the subtractive frame counter indicates "0."



ACCESSORIES

Remote Control Accessories

Remote Cord MC-12 with Button Release

For remote control up to 3 meters away, the MC-12 has a handgrip and trigger release button for convenient operation. Depressing the button halfway turns on the camera's exposure meter; depressing it further releases the shutter. After finger pressure is removed, the meter stays on for 16 sec., automatically turning itself off to conserve battery power.



Remote Cord MC-4

With plus and minus banana plugs, the MC-4 cord can be used to fire up to three motor-driven F3-series cameras simultaneously. For more details, please refer to the MD-4's instruction manual.



Radio Control Set MW-1

Provides interference-free remote control up to 0.7km away. Three separate channels allow three motor-driven cameras to be operated automatically.



Modulite Remote Control Set ML-1

Utilizes modulated light to control up to two motor-driven cameras automatically. Compact and easy to handle. Can be used up to 60 meters away.



ACCESSORIES — continued

Time Lag Shooting Accessory

Intervalometer MT-2

Designed especially for unmanned time-lapse photography, work sampling, and lengthy time exposures, the MT-2 is a quartz-controlled solid-state timer of utmost accuracy. A special delay switch is provided to activate the camera's exposure meter (and the autofocus function if an F3AF is used) either 2 sec. or 16 sec. prior to shutter release.



Convenient Accessory

250-Exposure Data Back MF-17

Designed exclusively for use with the 250-Exposure Magazine Back MF-4, the MF-17 allows imprinting of various data, such as year/month/day, hour/minute/second, or a handwritten memo on the film. Compatible with any F3-series camera and requires a Types S focusing screen.



TIPS ON MAGAZINE BACK CARE

- 1) Do not use the multiple exposure lever on the camera; when it is set to multiple exposures, pictures will be overlapped irregularly. When the lever is erroneously set to the multiple exposure position, simply return it to the original position before releasing the shutter to take normal pictures.
- 2) With the magazine back attached, do not use the rewind slides on the motor drive. If you do, the intervals between frames might vary.
- 3) Do not use cassettes which have been deformed or damaged through long use. They will cause malfunctions (such as varying frame intervals or overlapping of frames).
- 4) Because the rear cover is adjusted to each magazine back, take care not to deform the cover when you open, detach or replace it.
- 5) After loading cassettes, be sure to take up any slack in film to prevent overlapping of frames or inadequate film advance.
- 6) When the motor drive is used at temperatures of -20°C or lower, film perforations might tear due to fast winding speed, making it impossible to advance film. Do not expose film (cassettes) to low temperatures for long periods; load the cassettes in the magazine back immediately before shooting.

SPECIFICATIONS

Usable cameras: Nikon F3-series
Usable motor drive: Nikon MD-4
Film cassettes: 2 Nikon Film Cassette MZ-1's
Shooting modes: Choice of single-frame (S) or continuous (C) firing via the motor drive's S-C mode selector
Firing rate: Up to approx. 6 fps (with the mirror locked up, at a shutter speed of 1/125sec. or faster using the NiCd Battery Unit MN-2)
Usable shutter speeds: 8 to 1/2000sec., A (Auto), X (1/80), T and B
Automatic film rewind stop: Film advance stops automatically when the subtractive frame counter reads "0." When the film end fails to come out of the spool of the supply cassette, the Motor Drive MD-4 detects the film's tension and stops automatically

Battery check: When 2 LED indicators light: battery power is full. When only one LED indicator lights: power is getting weak. When no LED indicator lights: batteries must be exchanged
Power source: 8 AA-type penlight batteries in the motor drive's Battery Holder MS-3; NiCd Battery Unit MN-2 (16.8V); DC 9V~18V
Remote control: Possible via the Remote Cord MC-12 or MC-4, the Radio Control Set MW-1, Modulite Remote Control Set ML-1 or Intervalometer MT-2
Dimensions: 303.2(W) × 98.5(H) × 84(D)mm
Weight: Approx. 1.1 kg (MF-4 only without film cassettes)

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

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SPECIFICATIONS

Model number: N1000
Maximum shutter speed: 1/1000 sec.
Focal length: 28mm
Shutter type: Leaf

Viewfinder: Optical
Magnification: 0.7x
Field of view: 54°

Weight: 210g
Dimensions: 110 x 65 x 40mm
Accessories: Battery, strap, lens cap



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