

This manual is for reference and historical purposes, all rights reserved.

This page is copyright© by M. Butkus, NJ.

This page may not be sold or distributed without the expressed permission of the producer

I have no connection with any camera company

On-line camera manual library

This is the full text and images from the manual. This may take 3 full minutes for the PDF file to download.

If you find this manual useful, how about a donation of \$3 to: M. Butkus, 29 Lake Ave., High Bridge, NJ 08829-1701 and send your e-mail address so I can thank you. Most other places would charge you \$7.50 for a electronic copy or \$18.00 for a hard to read Xerox copy.

This will allow me to continue to buy new manuals and pay their shipping costs.

It'll make you feel better, won't it?

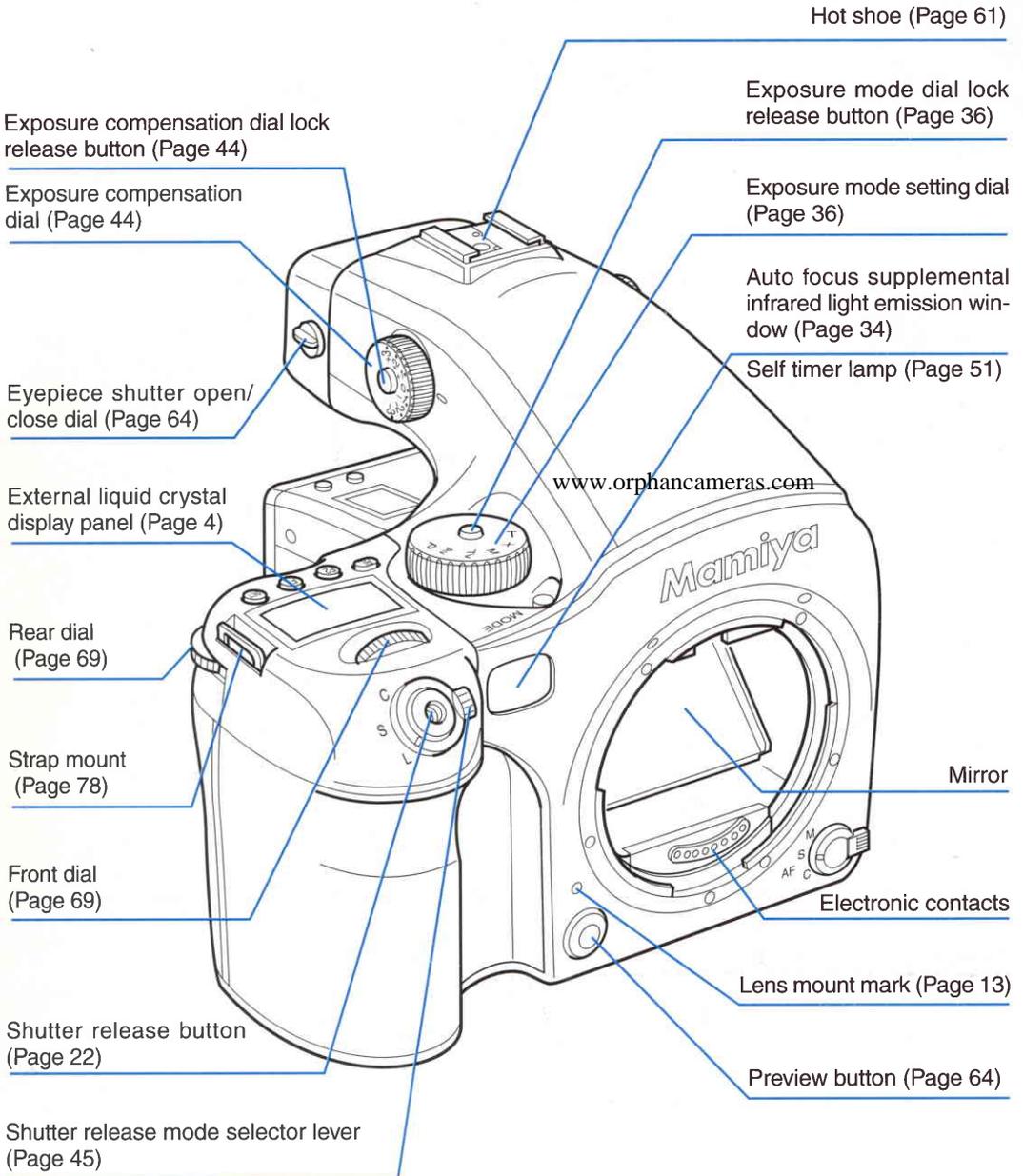
**If you use Pay Pal or wish to use your credit card,
click on the secure site on my main page.**



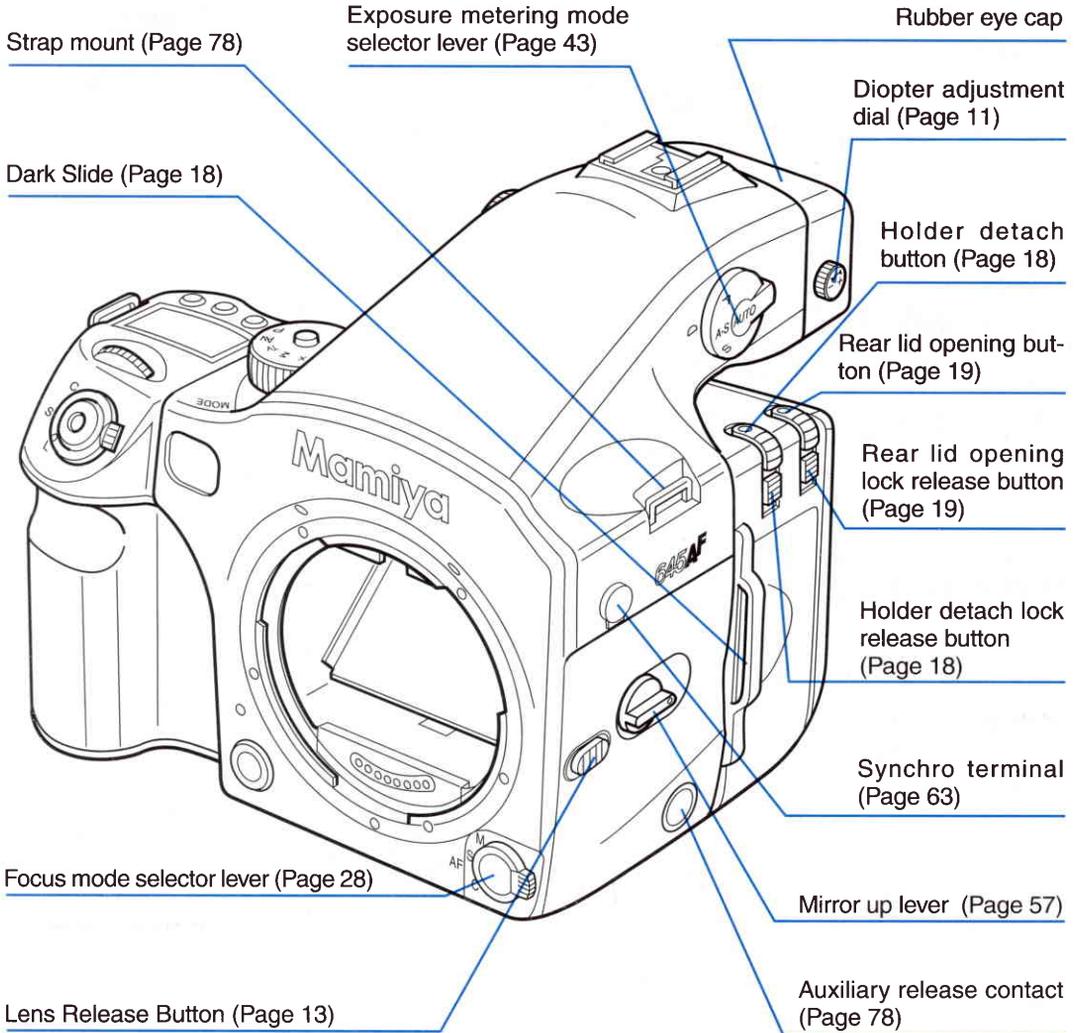
Mamiya
645AF

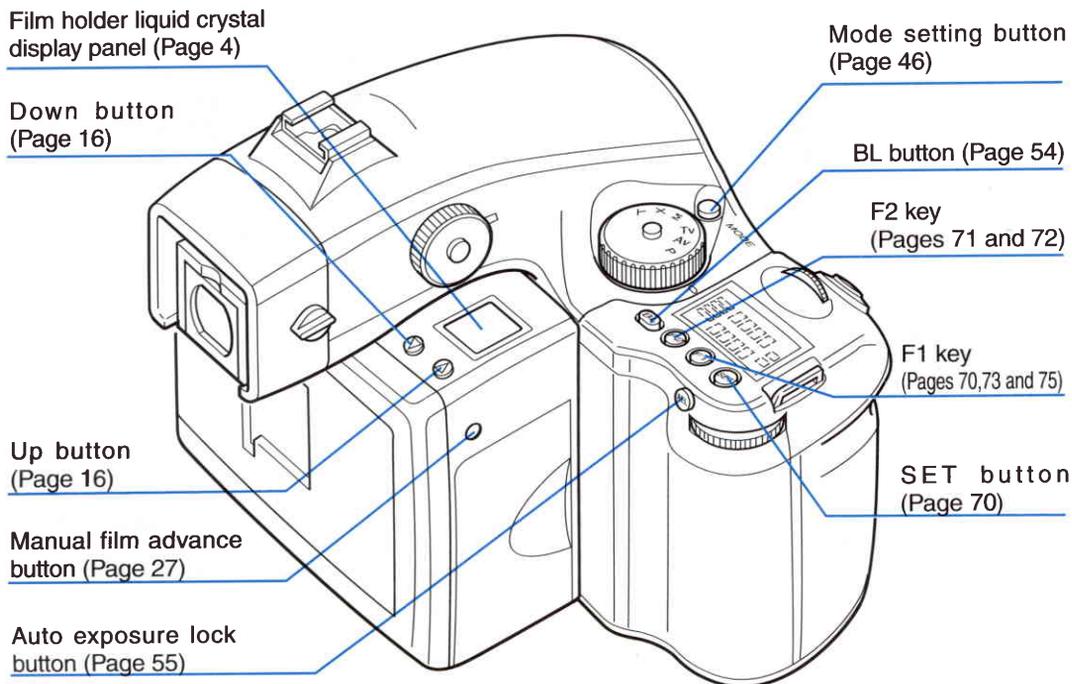
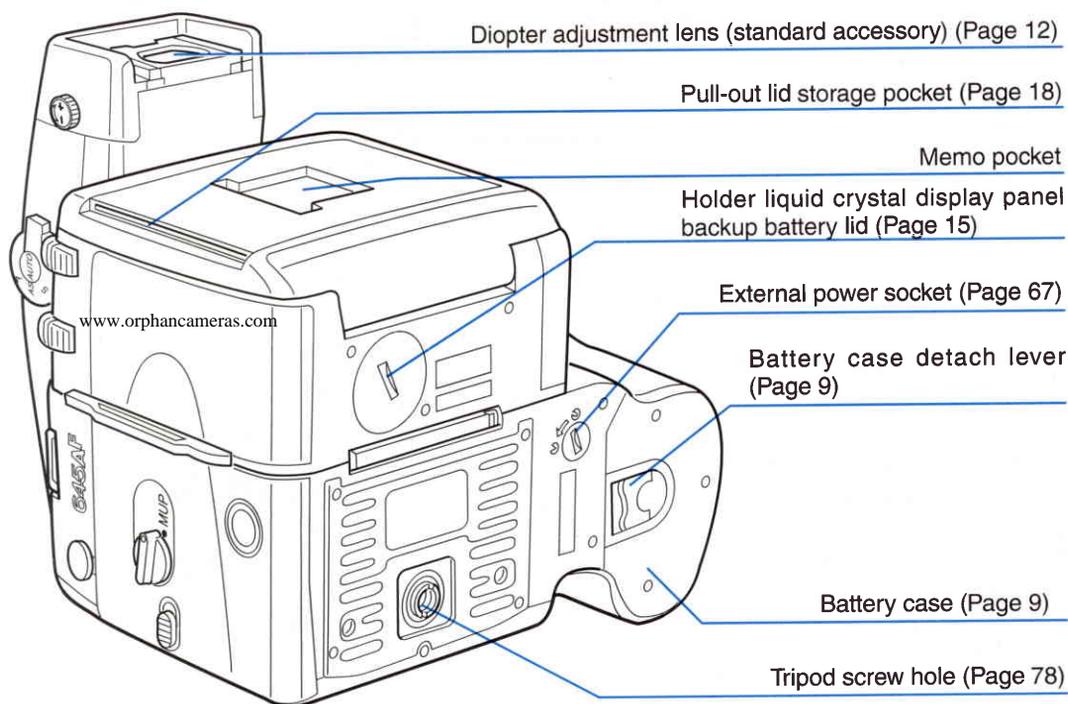
Instructions

Names of Parts



Congratulations on your purchase of the Mamiya 645AF and welcome to the world-wide family of happy Mamiya camera owners!





External Liquid Crystal Display Panel

Superimpose mode shooting data (Page 73)

Superimpose mode calendar and index number (Page 71)

Index mode (Page 72)

Manual focus mode (Page 30)

Program mode (Page 36)

Shutter time (seconds) (Page 38)

Self timer mode mark (Page 51)

Multiple exposure mode mark (Page 49)

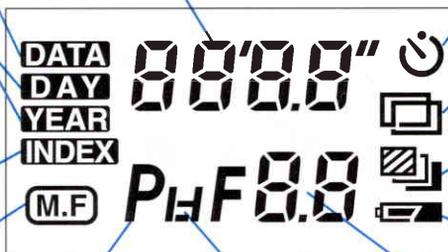
Auto bracketing mode mark (Page 47)

Battery power indicator (Page 10)

Aperture (Page 37)

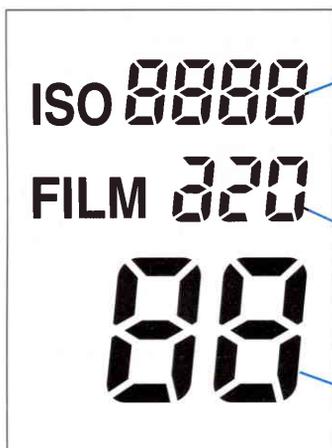
Program shift indicator (Page 36)

Dial lock indicator (Page 70)



This diagram is for explanatory purposes. The actual display may differ.

Film Holder Liquid Crystal Display Panel



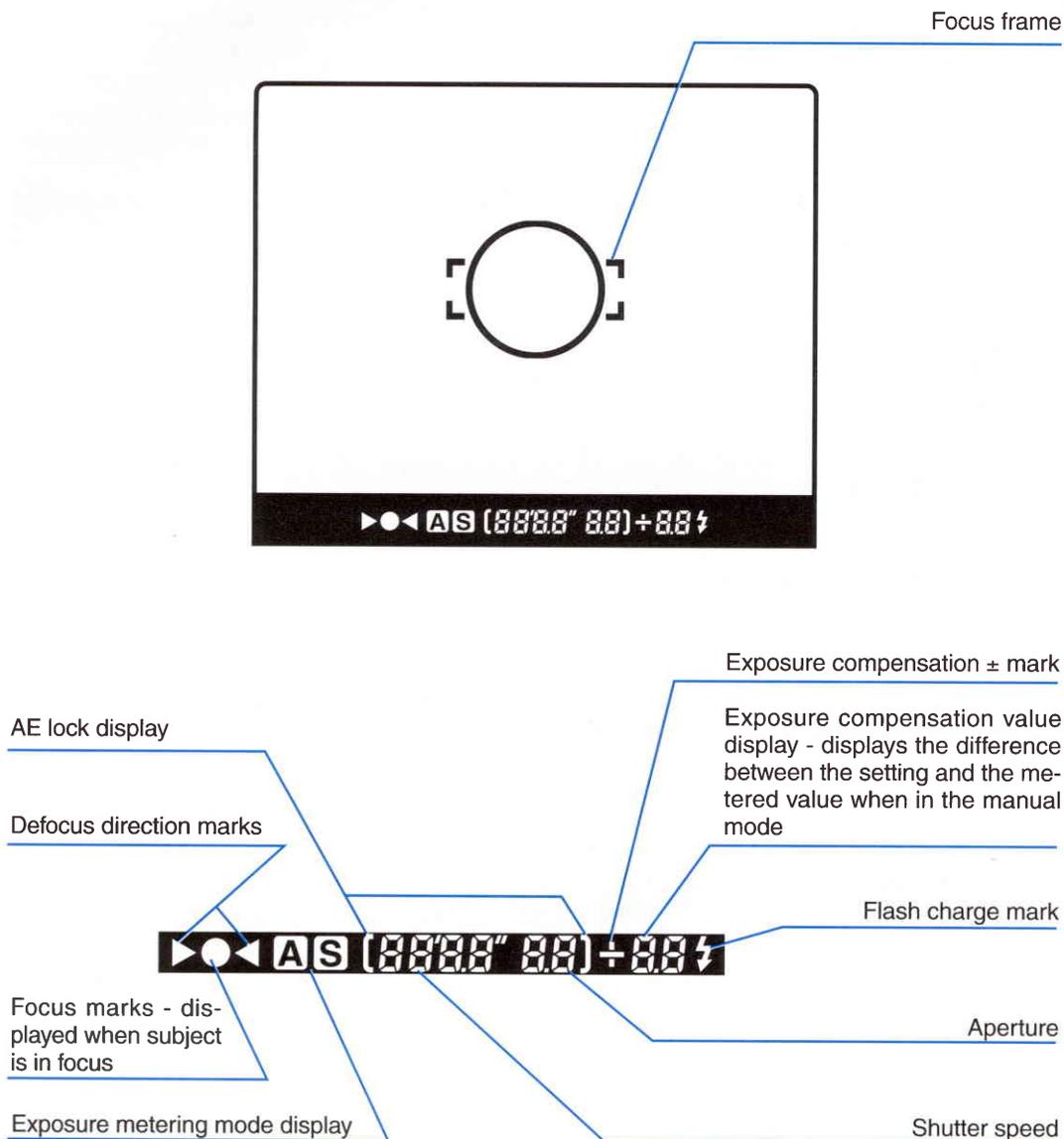
Film sensitivity - ISO 25 to 6400

Film type display - 120 or 220

Number of photos display

This diagram is for explanatory purposes. The actual display may differ.

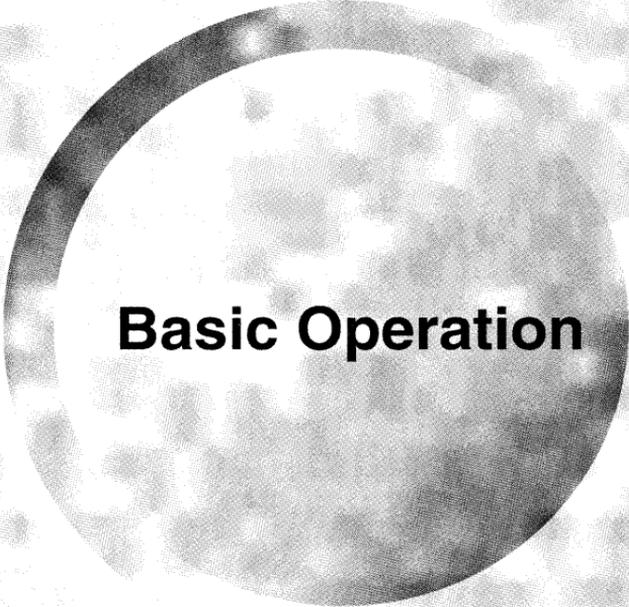
Viewfinder Liquid Crystal Display Panel



This diagram is for explanatory purposes. The actual display may differ.

Names of Parts	1~3
External Liquid Crystal Display Panel	4
Film Holder Liquid Crystal Display Panel	4
Viewfinder Liquid Crystal Display Panel	5
Basic Operation	8~27
Loding the Batteries	9
Checking the Battery Power	10
Diopter Adjustment	11
Replacing the diopter corrected lens	12
Attaching / Removing the Lens onto / from the Camera	13~14
Installing the Battery in the Roll-Film Holder	15
Setting the Film Speed	16
Attaching / Detaching the Roll-Film Holder	17~18
Loading the Film in the Roll-Film Holder	19~21
Shutter Release Button / Holding the Camera	22
Taking Photos in the Full Automatic Mode	23~26
Removing the film during shooting / Camera Operation Test	27
Auto Focus Function	28~34
Single Focus Mode	29
Continuous Focus Mode	29
Manual Focus Mode	30
Focusing using the focus mark	31
Subjects With Which Auto Focusing May Not Work	32
Using the Focus Lock Function	33
AF Supplemental Infrared Light	34
Exposure Modes	35~40
Program AE	36
Shifting the Program	36
Aperture Priority AE	37
Shutter Priority AE	38
Manual Mode	39~40
Exposure Metering Modes	42~45
Average Exposure Metering Mode	43
Spot Exposure Metering Mode	43
Average / Spot Auto Switching Exposure Metering Mode	43
Exposure Compensation	44
Single-Frame Mode / Continuous Mode	45

Other Shooting Modes	46~51
Auto Bracketing Mode	47~48
Multiple Exposure Mode	49~50
Self Timer Mode	51
Applied Photography	52~67
Extended Exposure Modes	53~54
AE Lock Mode	55~56
Taking Photos with the Mirror Up	57~58
Subject Depth	59
Infrared Photography	60
Flash Photography	61~62
Metz Flash SCA3951 System Functions	62
Flash Photography with Frashes other than Mecablitz Flashes	63
Preview Function / Eyepiece Shutter	64
Changing The Focusing Screen	65
Using the M645 Lenses	66
External Power Supply	67
Others	68~75
Electronic Dial Operations	69
Front / Rear Dial Lock Mechanisms	70
Superimposing Data	71~74
Setting the Date and Time	71
Setting the Index Number	72
Selecting the Data to be Superimposed	73
Data superimpose modes	73
Checking the data to be superimposed	74
Changing the Viewfinder Display in the Manual Mode "M"	75
Error Messages	76
If the shutter cannot be released	77
Strap / Using a Tripod / Auxiliary Release Contact	78
Specifications of 645AF	79~80
Common Sense Camera Care and Practice	81~82
Specific Suggestions	81
The Importance of Proper Maintenance	82
Batteries Care	82
After-Sale Servicing	83
Liquid Crystal Display	84

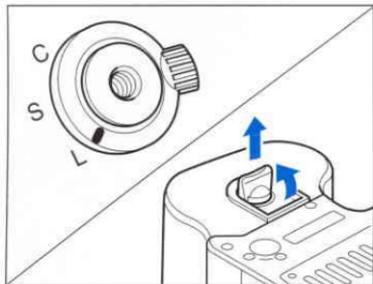


Basic Operation

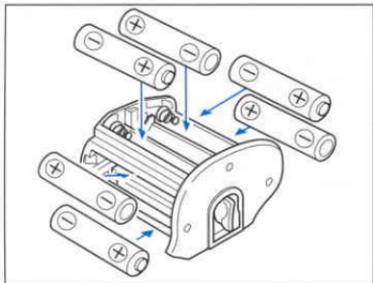
This section describes basic camera operations, how to load film and basic full automatic photography.

Loading the Batteries (The camera will not operate unless batteries are loaded.)

Set the shutter release mode selector lever to "L" (to turn the power off).
Use six SUM3 alkali or lithium batteries.

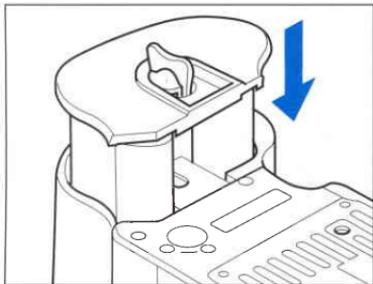


1. Raise the battery case detach lever, turn it in the direction of the arrow towards the "OPEN" side and pull off the battery case.



2. Load the batteries in the directions indicated by the "⊕" and "⊖" marks on the battery case.

■ **Be sure to set the batteries in the proper "⊕" and "⊖" directions.**



3. Attach the battery case to the camera, then turn the battery case detach lever towards the "⊖" side. Be sure the battery case is firmly attached.

Checking the Battery Power

Set the shutter release mode selector lever to "S" (to turn the power on).
Use the battery power indicator on the external liquid crystal display panel to check the remaining battery power.



The batteries are sufficiently charged.



There is little power remaining. Have new batteries on hand.
Pictures can still be taken.



Flashing

There is very little power remaining. Pictures cannot be taken.

★ Set the shutter release mode selector lever to "L" (to turn the power off) and replace the batteries with new ones.



Flashing

★ When the batteries are spent, "batt" flashes on the external liquid crystal display panel and the viewfinder's liquid crystal display panel when the shutter release button is pressed.

■ When replacing the batteries, be sure to use six new batteries of the same type.
Do not mix different types of batteries or old batteries with new ones.

Number of films that can be taken with one set of batteries

At normal temperature (20°C), using new batteries, 120 roll film and under normal usage.

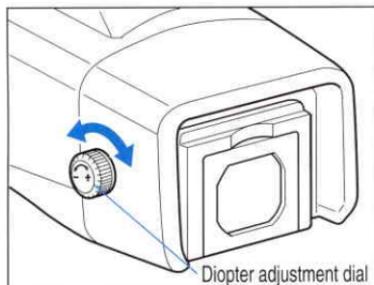
Alkaline batteries : 150 rolls

Lithium batteries : 350 rolls

Diopter Adjustment

Look into the viewfinder and turn the diopter adjustment dial so that the focus frame can be seen clearly.

Turn in the “-” direction if you are farsighted, in the “+” direction if you are nearsighted. If the focus frame cannot be seen clearly even using the diopter adjustment dial, use a separately sold diopter corrected lens (DE402 if you are nearsighted, DE403 if you are farsighted).

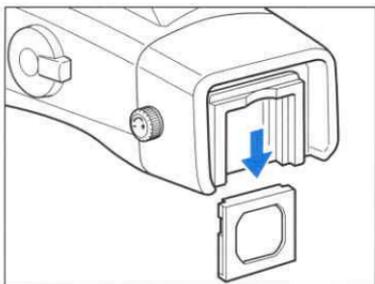


★ Point the camera at a bright, plain object such as a white wall when making this adjustment.

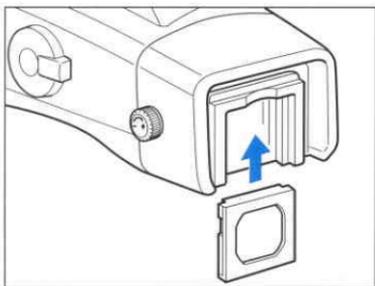
Range of adjustment of diopter corrected lenses (separately sold)

Diopter corrected lens	Range of adjustment
DE401 (standard)	-2.5 ~ +0.5
DE402 (for nearsighted users)	-0.5 ~ -2.0
DE403 (for farsighted users)	0 ~ +3.0

Replacing the diopter corrected lens



1. Remove the diopter corrected lens (DE401) from the camera.
Pull the diopter corrected lens downward to remove it.

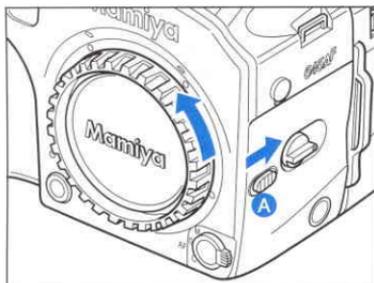


2. Push the replacement diopter corrected lens upward into the viewfinder's eyepiece frame to mount it.

- ★ If there is dirt or dust on the lens surface, remove it with a blower or sweep it off gently with a lens brush.
- ★ If there are fingerprints or dirt on the lens surface, wipe it off with a piece of clean, soft gauze.
- ★ Using solvents could discolor the diopter corrected lens frame.

Attaching/Removing the Lens onto/from the Camera

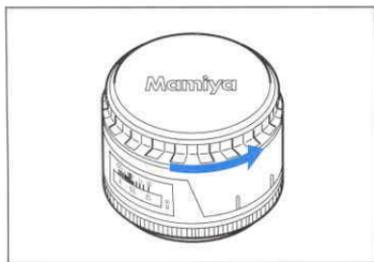
Attaching



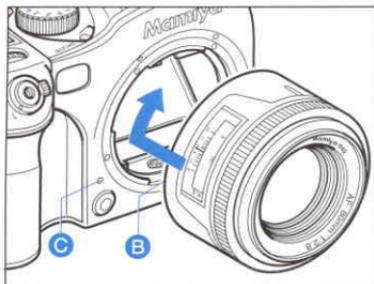
1. Remove the camera's body caps using Lens Release Button **A** (see opposite page) and the lens's front/rear caps.



Grasp the lens front cap ring and remove.



Turn the lens rear cap in the direction of the arrow and remove.

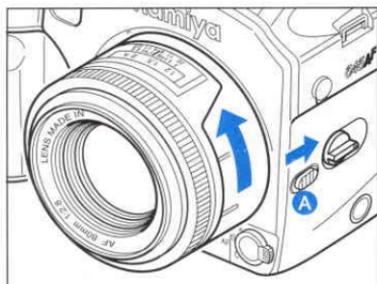


2. Mount the lens.

Align the lens's alignment dot **B** with the camera's alignment dot **C**, fit the lens into the camera and rotate the lens in the direction of the arrow until it stops. When a click sound is generated, the lens is mounted onto the camera.

★ Do not touch the distance ring or other rotating parts during the auto focus operation.

Removing

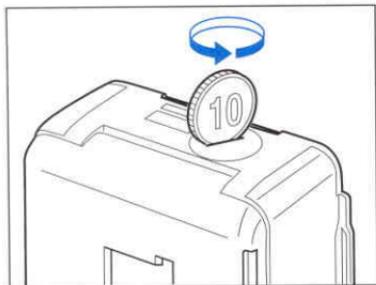


While holding down the lens release button **A**, rotate the lens in the direction of the arrow until it stops, and release the lens from the camera.

- ★ After removing the lens from the camera body, protect them by attaching the caps.
- ★ Oil, dust, fingerprints or water on the electronic contacts could result in malfunction or corrosion. Wipe such substances off with a clean piece of cloth.

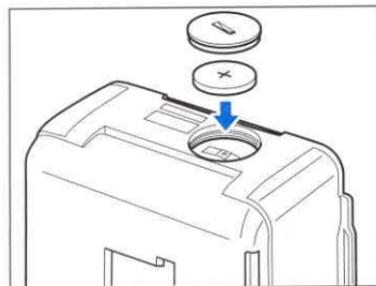
Installing the Battery in the Roll-Film Holder

The battery is used to supply power to the LCD panel when the roll-film holder is used alone. When the roll-film holder is attached to the camera body, the power is supplied from the camera body.



1. Remove the battery cover.

Insert a coin or a similar object into the slot on the film holder's memory battery cover and open it by turning in the direction of the arrow.



2. Load a battery.

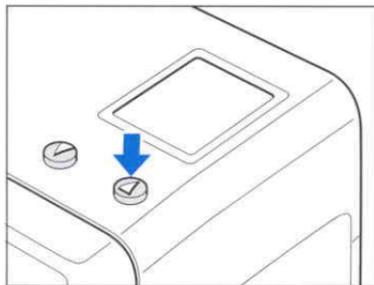
Insert the battery according to the polarity indication \oplus in the battery compartment, and close the battery cover.

Battery used: CR2032

■ Insert the battery in the proper " \oplus " and " \ominus " directions.

★ When the battery has run out, remove it immediately and replace with a new battery. Otherwise accidental battery fluid leakage may damage the contacts.

The film speed (ISO sensitivity value) is the reference for all exposure and must be set correctly. If the set value differs from the actual value of the film in use, under- or over-exposure may occur.



1. Press the ▲ (up) button.

When the LCD panel displays information, press and hold the ▲ (up) button on the bottom part of the LCD display for more than 1 second. The ISO indicator will blink.



2. Set the film speed.

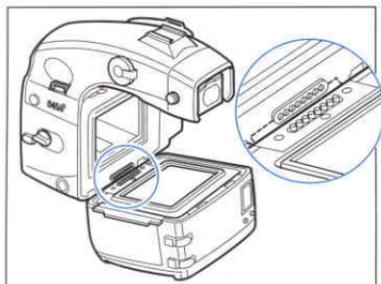
Set the film speed of the film by pressing the ▲ (up) or ▼ (down) button. To finally set the speed, press and hold the two buttons simultaneously for more than one second; the film speed will be written in memory in 5 seconds.

- ★ The setting is not complete while the ISO indicator is blinking.
- ★ The information on the film in use, such as the type, ISO sensitivity value and number of exposures is stored in the back-up memory. However, when the battery capacity has dropped during stand-alone use of the roll-film holder, the information may not be shown by the LCD panel.
- ★ The information on the film (type, ISO sensitivity and number of photos) is stored in the memory, but when the battery power is low this information may be displayed erroneously. Be sure to replace the batteries with new ones.

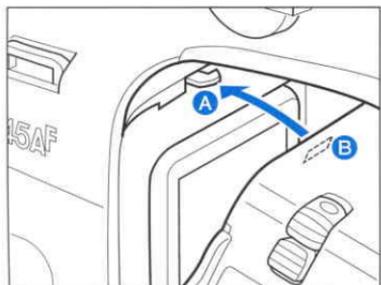
Attaching/Detaching the Roll-Film Holder

When the camera is not loaded with batteries, the shutter protection mechanism of the camera is active (during this, the shutter is kept open to protect the shutter) so the dark slide shield cannot be pulled out even after the roll-film holder is attached to the camera. The film winding and shutter release operations are also locked during this period.

Attaching



1. Remove the camera's rear body cap and the roll-film holder's protection cap.



2. Fit the body coupler at the bottom of the roll-film holder into the slot on the film holder mounting bracket (bottom) of the camera body **A**.
3. Push the roll-film holder against the camera body, fit the film holder mounting bracket (top) of the camera body **B** into the slot of the roll-film holder and lock them.

Automatic shutter opener/closer

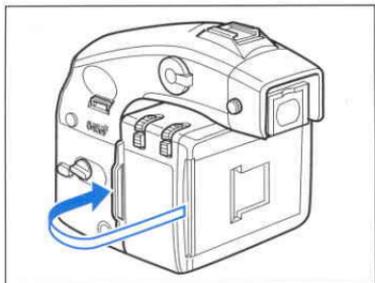
In order to protect the shutter membrane, when the roll film holder is removed the shutter is locked in the open position.

When the roll film holder is mounted (and the batteries are charged), the shutter closes and is unlocked.

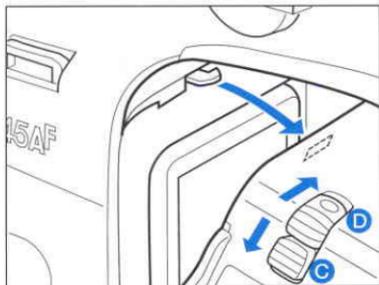
Easy loading mechanism

There is no need to line up the film's leader paper start mark. The roll film holder automatically detects the first frame of the film, regardless of the position.

Detaching



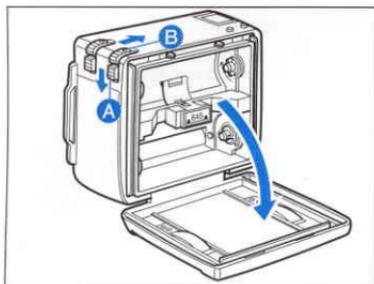
1. Insert the dark slide into the roll-film holder.



2. While holding down the roll-film holder's film holder detaching lock release button **C** in the direction of the arrow, push the film holder detaching button **D** inward to remove the lock film holder.

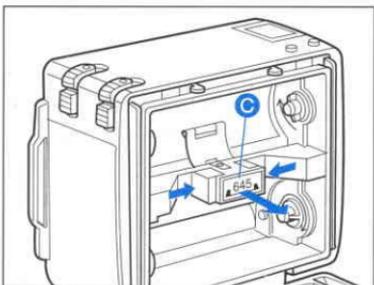
★ When the roll-film holder is removed, the shutter is kept open to protect the shutter and the film winding and shutter release are also locked.

The roll film holder cannot be attached to or detached from the camera body unless the dark slide is inserted in the roll-film holder.



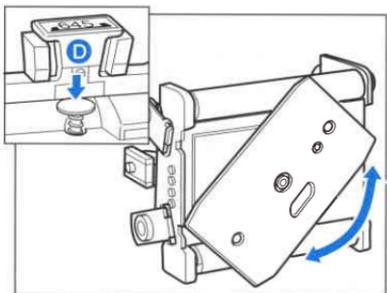
1. Open the back cover of the roll-film holder.

While holding down the roll-film holder's back cover lock release button **A**, push the back cover button **B** in the direction of the arrow to open the back cover.



2. Take out the roll-film insert.

While holding the roll-film insert's release latches **C** with two sides with your fingers, pull out the roll-film insert.



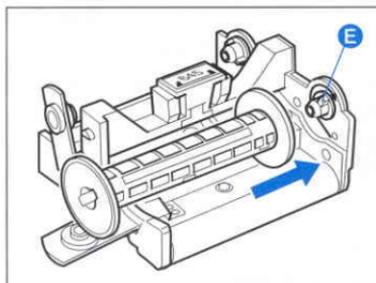
3. Set the film type (120 or 220).

While pushing the roll-film insert's 120/220 pressure button **D** switching shaft, set the type of the film used by lifting and turning the pressure plate.

★ Be sure to align the lock pins with the holes on the pressure plate. The film type should be displayed when the film is loaded on the roll-film holder.

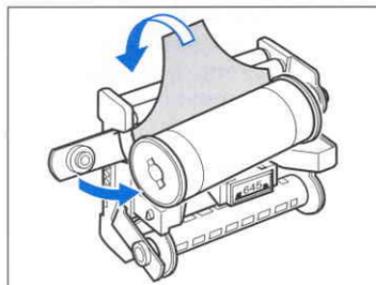
When the pressure plate (120/220) is set erroneously:

Plate Setting	Loaded Film	Result
120	220 type	<ul style="list-style-type: none"> •Inaccurate focusing. •Film winding after 16 exposures.
220	120 type	<ul style="list-style-type: none"> •Inaccurate focusing. •After the 16th exposure has been made, the shutter is released a few times until the film's leader paper has run out. Hereafter, the exposure counter in the LCD panel turns off and the shutter cannot be released any more. •The film's seal or the end of the leader paper could damage the shutter membrane.



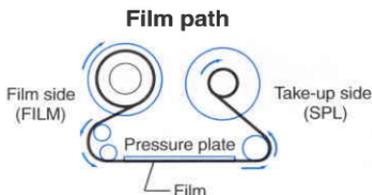
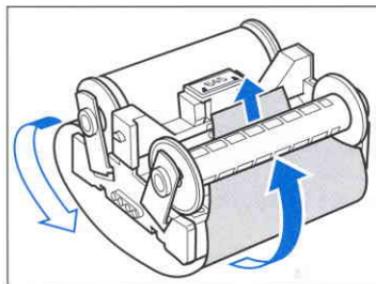
4. Attach an empty spool to the roll-film insert.

Flip the roll-film insert's lower spool clip "SPL" away from the spool, fit an empty spool between take-up spool studs **E**, and return the spool clip "SPL" to the original position.



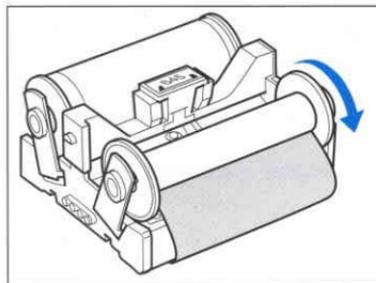
5. Set the film.

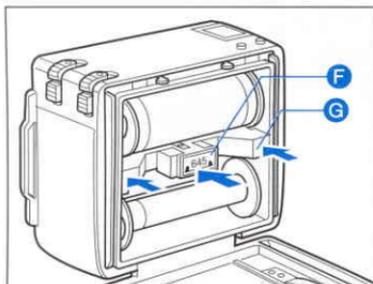
Flip the roll-film insert's upper spool clip "FILM" away from the spool, fit a roll of film as shown in the illustration, and return the spool clip "FILM" to the original position.



6. Attach the leader paper of the film to the empty spool.

Gently pull out some of the leader paper, insert the tip of the leader paper into the take-up slot of the empty spool, and rotate the spool a few times to wrap the leader tape around it.

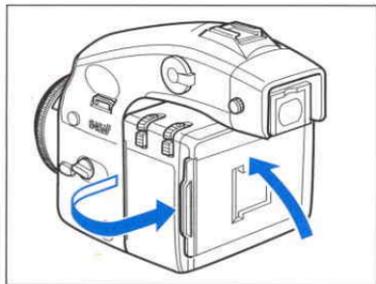




7. Attach the roll-film insert with the film onto the roll-film holder

While holding the roll-film insert's release latches **F** from the left and right with your fingers, fit the roll-film insert into the film chamber of the camera body as shown in the illustration. Then push in the sections indicated by the arrows on the both sides; the claws on the two sides are opened, and two click sounds will be generated to indicate that the roll-film insert is locked.

- ★ **Make sure that the claws on the two sides of the roll-film insert are engaged tightly with the roll-film insert. If one of them is not engaged, shake the roll-film holder while pushing down the projection **G** on the non-engaged claw until a click sound is generated to indicate correct locking of the roll-film insert.**



8. Close the back cover.

Push in the upper part of the back cover firmly to close it.

9. After attaching the roll-film holder onto the camera body, pull out the dark slide and press the shutter button halfway; this will feed the film automatically to frame No. 1.

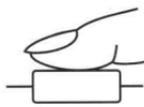
- ★ **It is not required to align the film start mark, for the roll-film holder will automatically detect film frame No. 1 from any position.**
- ★ **When the roll-film holder is mounted on the camera body, the mirror and shutter which has been freed will be set in position.**
- ★ **Do not wrap too much film around the empty spool. Otherwise the film section may be exposed to light.**
- ★ **When the roll-film holder is separated from the camera, the power save mode is activated in 5 seconds after the start of stand-alone operation and the LCD panel turns off. To release the power save mode and turn on the LCD panel, press the **▲** (up) button.**
- ★ **To prevent accidental film exposure, do not pull out the leader paper too much or load/unload film under direct sunlight.**
- ★ **When the film is not wound properly, the counter display disappears and the "- -" mark appears.**

Shutter Release Button/Holding the Camera

Shutter Release Button

The shutter release button has a two-step action, having more tension after it is pressed in part way. When pressed lightly it stops at a certain point. In this manual this position is called the “half-press” position.

When half-pressed, the power turns on and the camera becomes functional.



Half-press



Release position

Holding the Camera



Horizontal



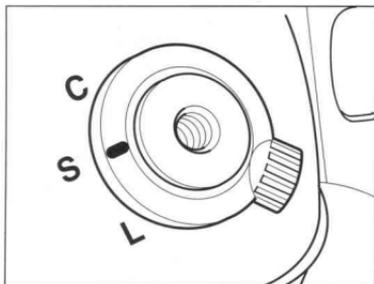
Vertical

Grasp the camera firmly when taking photos. If the camera moves the moment the shutter is released, the picture will be out of focus.

- ★ Grasp the grip firmly, tuck in both elbows and support the bottom of the camera with your left hand.
- ★ When the shutter speed is slow and when using the self timer, it is best to use a tripod and cable release or electromagnetic cable release (sold separately).

Taking Photos in the Full Automatic Mode

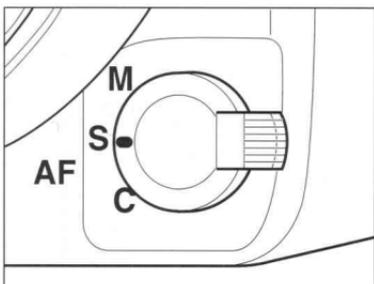
1. Set the shutter release mode selector lever to “S” (single-frame advance mode).



There are two shutter release modes: “S” (single-frame advance mode) and “C” (continuous advance mode). (See page 45.)

When set to “L”, the power turns off.

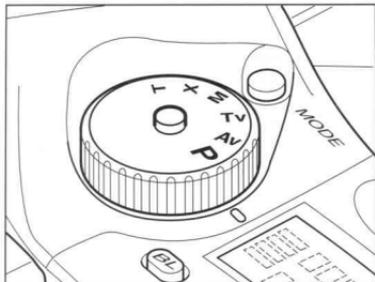
2. Set the focus mode selector lever to “S” (single focus mode).



There are three focus modes: “S” (single focus mode), “C” (continuous focus mode) and “M” (manual focus mode).

Focus mode		Focusing
S	Single focus mode	Half-press the shutter release button to focus. When the focus mark lights, the focus is fixed and the shutter can be released. (See page 29.)
C	Continuous focus mode	Focusing is performed continuously while the shutter release button is half-pressed. The shutter can be released regardless of whether or not the focus mark is lit. (See page 29.)
M	Manual focus mode	Focus manually. (See page 30.)

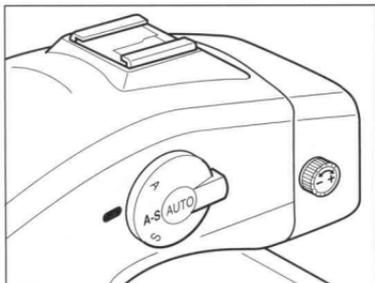
3. Set the exposure mode setting dial to “P” (program auto exposure).



There are four exposure modes: “P” (program AE), “Av” (aperture priority AE), “Tv” (shutter priority AE) and “M” (manual mode).

Exposure mode		Features
P	Program AE	The aperture and shutter speed are determined automatically according to the shooting conditions. This mode is best suited for general photography, since it allows you to concentrate on the shooting. The ± 1.0 EV shutter speed can be adjusted by shifting the program. (See page 36.)
Av	Aperture priority AE	Set the desired aperture and the camera selects the optimum shutter speed accordingly. Use this to create effects using the aperture, for example when taking portraits or landscapes. (See page 37.)
Tv	Shutter priority AE	Set the desired shutter speed and the camera selects the optimum aperture accordingly. Use this to create effects using the shutter speed, for example when shooting sporting events. (See page 38.)
M	Manual mode	Set this mode when you want to use special combinations of the aperture and shutter speed. (See page 39.)

4. Set the exposure metering mode selector lever to “A-S” (average/spot auto switching).



There are three exposure metering modes: “A” in which the average light of the entire picture is measured with emphasis on the center of the picture, “S” in which the light in a spot at the center of the picture is measured, and “A-S” which combines these two to automatically switch the mode according to the extent of difference between the brightness of the light metered in the two modes and sets the distribution ratio of the exposure metering modes within an intermediate range. (See page 43.)

5. Focus.

1. Position the camera so that the subject is within the focus frame []:



2. Half-press the shutter release button.
The focus is adjusted automatically.



Focus mark ● Lit……The picture is focused.

3. When ● lights, press the shutter release button to start shooting.

Defocusing Marks

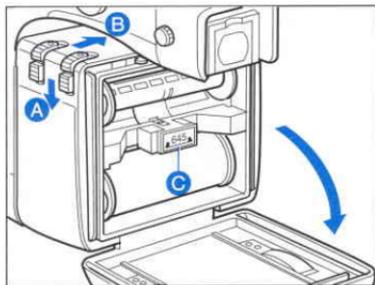


Flashing: The picture is not focused and the shutter cannot be released.

Either press the shutter release button again to adjust the focus or move the camera to change the position of the focus frame.

6. Unloading the Film After Exposure

When the fixed number of exposures have been taken, the camera automatically takes up the film till the end and stops. The LCD panel on the roll-film holder should display End now.



1. Open the back cover.

While holding down the roll-film holder's back cover lock release button **A**, push the back cover release button **B** to open the back cover.

2. Remove the roll-film insert.

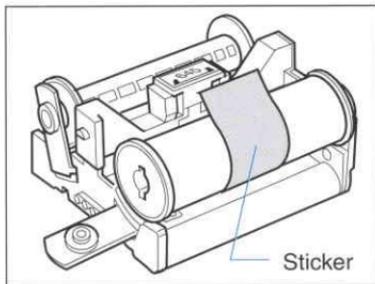
Hold the release latches **C** of the roll-film insert in the film chamber from the left and right with your fingers, take the roll-film insert out.

3. Unload the film.

Flip the roll-film clip's spool clip "SPL" away from the spool, and take out the film roll.

4. Fasten the film with a sticker.

After unloading the film roll, attach the provided sticker onto it to prevent slacking.



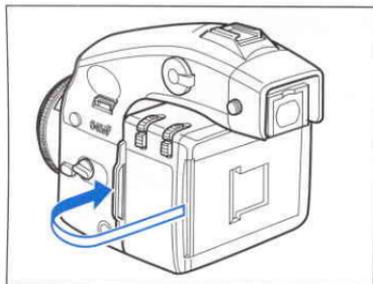
★ Move the empty spool from the top to the lower (take-up) compartment, ready for loading the next film roll.

Precautions for Film Unloading

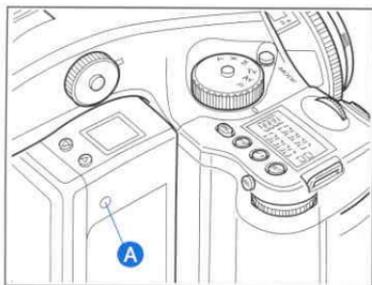
- Do not unload an exposed film in direct sunlight.
- The exposed film should promptly be put in a light-insulating bag or box and sent to the development process as soon as possible.
- Never remove the roll-film holder from the camera body in the middle of film winding. Otherwise malfunction will result.

Removing the film during shooting/Camera Operation Test

Removing the film during shooting

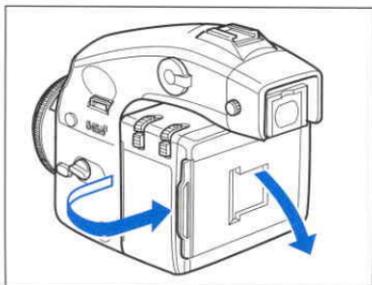


To remove the film roll before the end of film, insert the dark slide in the roll-film holder and press the shutter button and force film advance button simultaneously. This causes the film to be taken up till the end and the LCD panel shows "End".

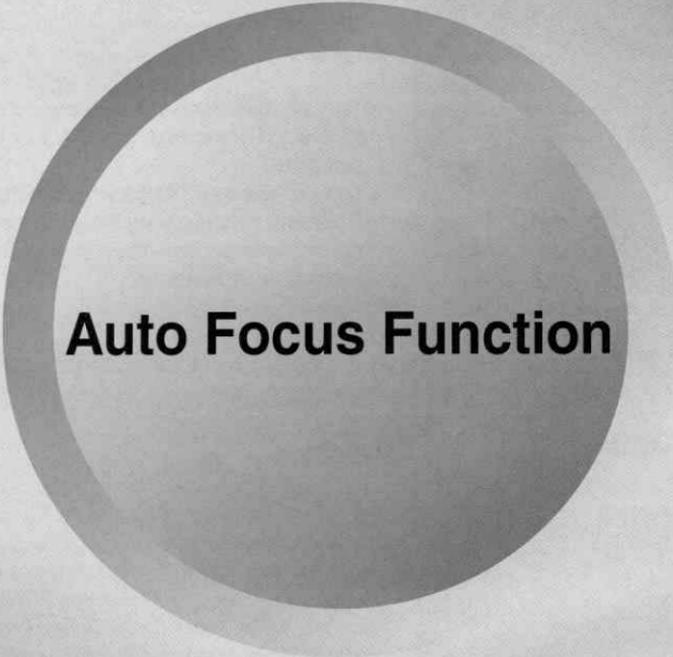


Camera Operation Test

The operation of the camera can be tested with no film loaded.



1. Remove the Dark Slide from the roll-film holder.
2. Open the roll film holder's rear lid.
3. Set the shutter release mode selector lever to "S" and release the shutter.



Auto Focus Function

This camera is equipped with a TTL phase difference detection type auto focus function. When the brightness or contrast is low and it is difficult to focus, a supplemental infrared light is emitted automatically. Set the focus mode selector lever to "S" (single focus mode) or "C" (continuous focus mode).

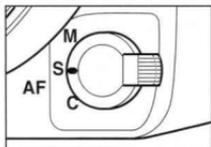
Single Focus Mode (S)



This mode uses the focus priority mechanism. The shutter can be released when the focus mark in the viewfinder is lit. This mode is suited for still subjects. The focus is locked when the ● focus mark lights on the viewfinder's liquid crystal display panel.

★The shutter cannot be released if the subject is not in focus (if the ● focus mark does not light).

★To take another photo with a different composition, release your finger from the shutter release button then press the shutter release button again.



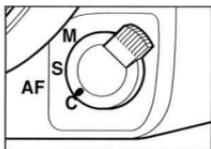
Continuous Focus Mode (C)



This mode uses the release priority mechanism. The shutter can be released regardless of whether the ● focus mark on the viewfinder's liquid crystal display panel is lit. The focus is adjusted continuously while the shutter release button is half-pressed. This mode is suited for moving subjects.

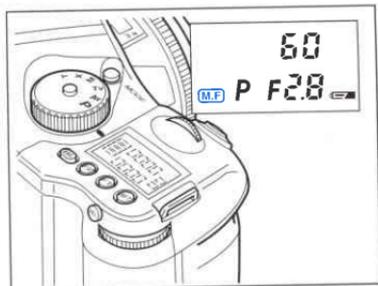
★The focus is not locked even if the ● focus mark is lit.

★The shutter can be released even if the ● focus mark is not lit.



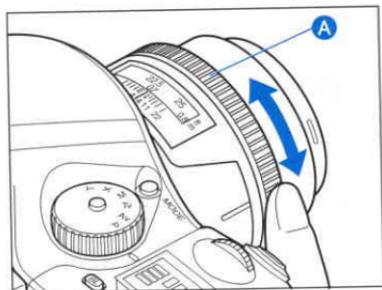
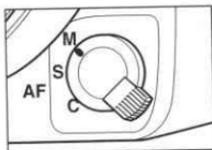
Manual Focus Mode (M)

The auto focus function can be turned off so the focus can be adjusted manually.



1. Set the focus mode selector lever to "M" (manual focus mode).

Turn the focus mode selector lever and set it to "M" (manual focus mode). **M.F** appears on the external liquid crystal display panel.



2. Adjust the focus.

Turn the lens distance ring **A** and adjust the focus to the subject. When the subject is in focus, the ● focus mark lights on the viewfinder's liquid crystal display panel.

Focusing using the focus mark

With this camera, a focus mark ● lights on the viewfinder's liquid crystal display panel when the picture is in focus. With the shutter release button half-pressed, turn the lens distance ring to focus on the subject. When the subject is in focus, the ● focus mark lights on the viewfinder's liquid crystal display panel.

If ► is lit on the viewfinder's liquid crystal display panel, the camera is focused on a point behind the object. If ◀ is lit, the camera is focused on a point in front of the object.



In focus



Turn the lens distance ring clockwise.

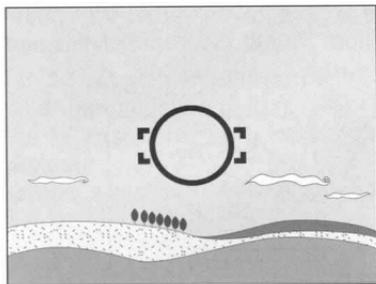


Turn the lens distance ring counterclockwise.

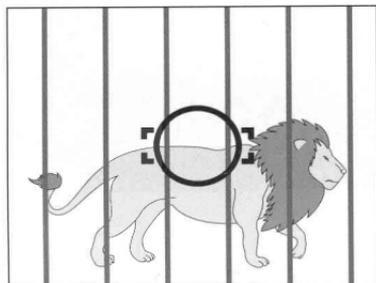
★ Use this procedure when shooting in the manual focus mode and when using the M645 lenses. This procedure can be used when the lens brightness is F5.6 or brighter.

Subjects With Which Auto Focusing May Not Work

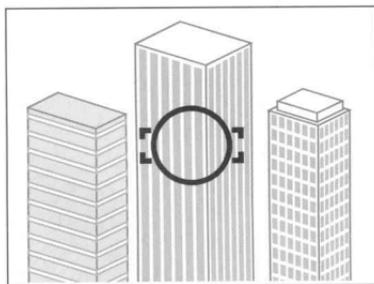
The auto focus function uses the subject's contrasts. Auto focusing may not be possible with the types of subjects described below. If this is the case, either switch to the manual focus mode and focus manually or point the camera at an object the same distance as the object you want to photograph, lock the focus using the focus lock mechanism, then take the picture.



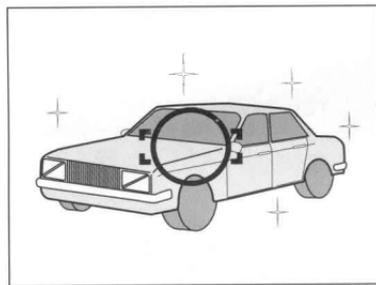
- ① When differences between light and shade are not clear (blue skies, white walls and other objects with no contrast)



- ② When there are two or more objects at different distances within the focus frame [] (animals in cages, etc.)



- ③ Subjects with continuous repeated patterns (building exteriors, blinds, etc.)



- ④ Brightly shining subjects like the sun or light sources or objects in which these are reflected (car bodies, water surfaces, etc.)

- ⑤ When the object on which you want to focus is far smaller than the focus frame

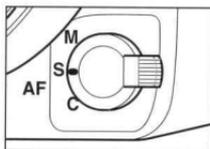
Using the Focus Lock Function

If the object on which you want to focus is not in the focus frame [], the camera focuses on the background at the middle. In such cases use the focus lock mechanism to lock the focus before taking the picture.



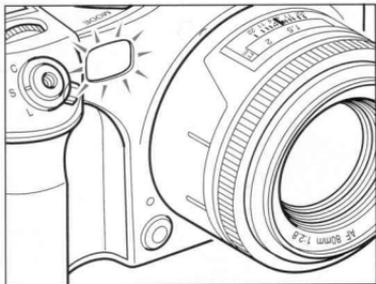
1. Set the focus mode selector lever to "S".

Put the object on which you want to focus in the focus frame [] and half-press the shutter release button. The ● focus mark lights and the focus is locked.



2. Change the composition.

With the shutter release button half-pressed, move the camera to achieve the desired composition, then release the shutter.



When the subject is dark or the contrast is low and the camera is having trouble focusing automatically, a red lamp may light on the front of the camera when the shutter release button is half-pressed. This is a supplemental light that assists the camera's auto focus function.

- ★The AF supplemental infrared light is only emitted when the focus mode is set to "S" (single focus mode).
- ★The AF supplemental infrared light's reach is limited. It does not reach distant subjects.
Range: 9 meters (when using an 80mm f/2.8 lens)