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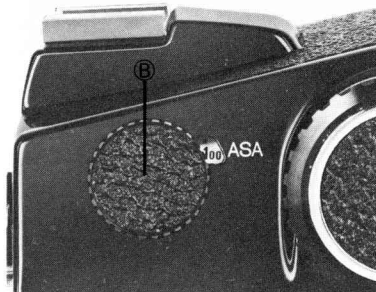
Using the PD Prism Finder S (2)



2. Attach the PD Prism Finder to the camera body.

3. Turn the aperture ring of the lens so that the exposure meter coupler (33) of the lens and the aperture ring coupling pin (A) of the PD Finder engage.

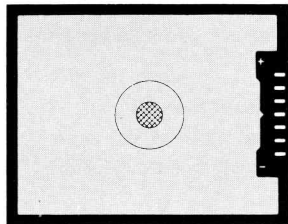
★ **Be sure to check for proper coupling.**
If the aperture ring coupling pin (A) is not properly seated in the fork of the exposure meter coupler (33), use a pen (or similar device) to push the aperture ring coupling pin into its proper position into the fork.



4. Pull out and turn the ASA dial (B) until the appropriate ASA number appears in the window.

★ **Always set the AM Lever on the lens to "A", otherwise correct metered exposure cannot be obtained.**

ASA	DIN
6400	(39)
(5000)	• (38)
(4000)	• (37)
3200	(36)
(2500)	• (35)
(2000)	• (34)
1600	(33)
(1250)	• (32)
(1000)	• (31)
800	(30)
(650)	• (29)
(500)	• (28)
400	(27)
(320)	• (26)
(250)	• (25)
200	(24)
(160)	• (23)
(125)	• (22)
100	(21)
(80)	• (20)
(64)	• (19)
50	(18)
(40)	• (17)
(32)	• (16)
25	(15)



5. Push in and release the meter switch (C) to turn on the meter. With the meter on and while looking through the viewfinder, adjust the aperture ring (32) or shutter speed dial (D) until the central (green) LED in the right-hand side LED panel illuminates, indicating correct exposure.

The meter circuit remains on as long as the meter switch is depressed. After releasing your finger from the switch, it will stay on approximately 15 seconds longer, then the meter will automatically turn off to conserve electrical consumption.

★ If two LED's illuminate simultaneously, make fine adjustments with the aperture ring until the central green LED appears the brightest.

★ With the PD Prism Finder normally attached to the camera body and metering system turned on for each exposure, battery life will be approximately 5,000 exposures.

★ Remember to adjust the shutter speed with the PD finder shutter speed dial and to keep the camera body shutter speed dial set to ☉.

★ The shutter speed dial has click-stops at full one speed intervals and cannot be used at intermediate positions. Although the aperture ring has click-stops at one stop intervals, intermediate positions may also be used.

★ This camera can be used at up to its maximum shutter speed of 1/500 sec. Although the PD Prism Finder dial can be set to 1/1000 sec., this shutter speed does not exist in this camera. To avoid error, the shutter speed dial of the PD Prism Finder has a strong click stop at the 1/1000 sec. position to enable the user to tell by touch alone, without any need to remove his eye from the viewfinder, when he is changing from the adjacent 1/500 sec. or 8 sec. shutter speeds to 1/1000 sec.

Using the PD Prism Finder S (3)

● Exposure Compensation

The LED Panel incorporated into the PD Prism Finder simplifies exposure compensation, assuring perfect exposures everytime. Each LED represents a full stop increment and plus and minus signs are indicated within the viewfinder to assist in compensating.

The uppermost LED represents three or more stops overexposure, and the lowermost LED represents three or more stops underexposure.

● Compensation Hints

1. For strongly back-lit subjects outdoors, set the exposure to +1 (the red LED directly above the green one).
2. To photograph a person indoors, seated next to a window and strongly back-lit, set exposure to +2.
3. When photographing interiors, to compensate for the bright interior lights, set exposure to +1 or +2.
4. When copying white documents, set exposure to +2. If a standard gray card is used to determine exposure, no correction is necessary.

5. When photographing a brightly lit subject against a dark background, such as a night club performer, set exposure to -1 or -2.

6. Brightly lit night scenes, such as city streets, are usually rendered most naturally with the correct exposure (green LED).

7. When photographing extremely dark subjects (e.g. close-up of a black cat), set exposure to -1.

★ The exposure compensation or LED panel can also be used to increase the ASA range to 3 — 51200. For example, with the ASA dial set to 25, instead of using the green LED for correct exposure, use the +3 LED when using ASA 3 film.

★ Since the upper and lowermost LED's represent 3 or more stops difference from the central (green) LED, whenever compensating by 3 stops, first adjust the aperture or shutter speed for 2 stops of compensation and then move the aperture ring or shutter speed dial one more click stop for 3 stops of compensation.

★ In order to obtain more accurate exposures, observe the same cautions as with the AE Prism Finder. Refer to page 41, "Correct Exposure Measurement."

Using the CdS Prism Finder (1)

● Special Features

1. The CdS Prism Finder is an eye-level finder with a built-in CdS exposure meter for accurate exposure measurement.
2. It couples to the aperture when attached to the camera.
3. An exposure meter indicator needle is visible in the viewfinder to indicate correct exposure.

● Specifications

Viewfinder: Unreversed, laterally correct image; 0.74 x magnification with standard 80mm lens at infinity; built-in hot-shoe and equipped with an eyecup.

Metering System: Center-weight TTL full-aperture, zero-method via indicator needle.

Meter Coupling Range: (with f/1.9 lens and 100 ASA film)
EV 2.85 – 17
(f/1.9, 1/2 sec. – f/16, 1/500 sec.)
(with f/2.8 lens and 100 ASA film)
EV 4 – 18
(f/2.8, 1/2 sec. – f/22, 1/500 sec.)

Shutter Speed Range: 1/1000 – 1 sec.

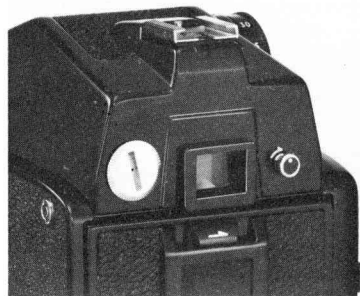
ASA Range: 25 – 6400

(aperture coupling in the entire range)

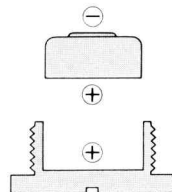
Power Source: One 1.5 V silver oxide battery

When attached to the Mamiya M645J, the 1/1000 sec. position of this finder cannot be used.

● Inserting the Battery



This finder utilizes a 1.5 V silver oxide battery (Eveready S-76, Mallory MS-76 or equivalent) as the power source.



Using the CdS Prism Finder (2)

1. Remove the battery chamber cover by rotating it counterclockwise with the aid of a coin.

2. The underside of the battery chamber cover bears a + mark. Be sure to have the + marks of battery and chamber cover face each other as the battery is inserted. Then securely retighten battery chamber cover.

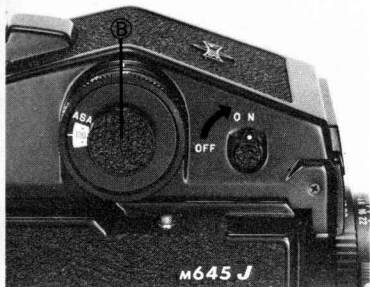
★ Wipe battery with a soft cloth before inserting into battery chamber, as a soiled battery may fail to make, or maintain, proper contact.

★ When the finder is not used for a long period of time, remove the battery and store it in a cool, dry place.

★ Never throw used batteries into a fire, or attempt to charge a battery.

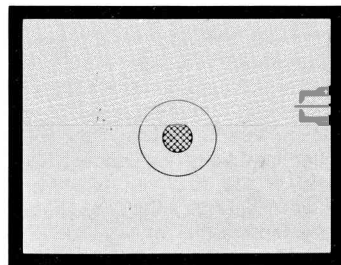
● Method of Use





3. Set the meter of the CdS Prism Finder to the correct ASA. To do so, pull out and rotate the ASA dial (B) so that the appropriate ASA number appears in the window, aligned with the index mark.

4. Turn the exposure meter switch to ON.



5. Set the shutter speed dial on the camera body to the desired speed, **and then set the shutter speed dial of the CdS Prism Finder to the same speed.**

(Examples of recommended shutter speeds to use with 100 ASA film would be 1/250, or 1/125 sec. outdoors on a sunny day, 1/125 or 1/60 sec. outdoors on a cloudy day, and 1/30 sec. when working indoors.)

6. To set the correct exposure, rotate the aperture ring until the exposure meter indicator needle visible in the viewfinder is centered between the two brackets visible on the right-hand side of the focusing screen.

Using the CdS Prism Finder (3)

If the indicator needle cannot be centered even after rotating the aperture ring as far as it will go, the exposure must be adjusted by rotating the CdS Prism Finder shutter speed dial. If the indicator needle is too high, set the shutter speed dial to a shorter ("faster") speed; it too low, set to a longer ("slower") speed. After adjusting the shutter speed dial of the CdS Prism Finder, if the indicator needle is slightly off-center, make final adjustments with the aperture ring.

Whenever changing the setting of the shutter speed dial of the CdS Prism Finder to adjust for exposure, do not forget to set the shutter speed dial of the camera body to the same setting.

7. After the above steps have been completed (centering of the indicator needle), exposure setting should be correct, and the picture may be taken.

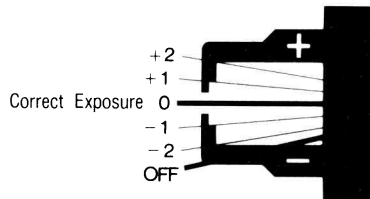
● Aperture Priority Method

1. When desiring to set the aperture first, set the aperture ring to the desired f/stop, and then adjust for exposure by rotating the shutter speed dial of the finder until the indicator needle is centered between the brackets.

2. Check the setting of the finder shutter speed dial, and **set the same setting on the shutter speed dial of the camera.**

★ When adjusting for exposure with the CdS Prism Finder shutter speed dial, do not use any intermediate positions, but always set the dial to a click-stop. If the indicator needle cannot be perfectly centered with the shutter speed dial at a click-stop position, make final adjustments with the aperture ring.

The brackets visible in the viewfinder not only indicate correct exposure, but are also notched to indicate ± 2 f/stops (see diagram) to simplify exposure compensation for unusual lighting. When the exposure meter switch is set to OFF, the indicator needle rests at the bottom position.



● Meter Coupling Range

The range of usable shutter speeds varies in accordance with the film speed (ASA). As the shutter speeds shown in the shaded area of the diagram below are beyond the range of the meter, the shutter speed dial is provided with a safety lock to prevent one from entering the non-usable zone. For example, it can be seen from the diagram that 1/8 sec. is in the non-usable zone when using film rated at 800 ASA (or higher); consequently, when the ASA dial of the CdS Finder is set to 800, the shutter speed dial cannot be set to 1/8 sec.

★Do not meter with the CdS Prism Finder dial set at 1/1000 sec. because the shutter speed dial of this camera goes only to 1/500 sec.

★To conserve battery power, keep the exposure meter switch set to OFF whenever the meter is not in use. Even when forgetting to set the switch to OFF, whenever the CdS Prism Finder is removed from the camera, the exposure meter is automatically switched off because of the small safety switch built into the bottom of the finder.

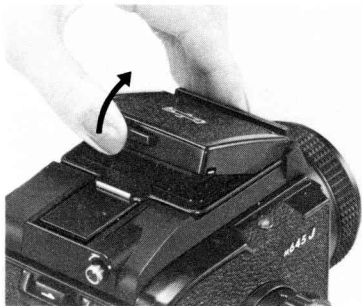
★To obtain optimum results, follow the same precautions outlined for the AE Prism Finder (see "Correct Exposure Measurement", p.41).

Usable Shutter Speeds (unshaded area)

ASA	Shutter Speeds (sec.)										
	1	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{15}$	$\frac{1}{30}$	$\frac{1}{60}$	$\frac{1}{125}$	$\frac{1}{250}$	$\frac{1}{500}$	$\frac{1}{1000}$
25											
50											
100											
200											
400											
800											
1600											
3200											
6400											

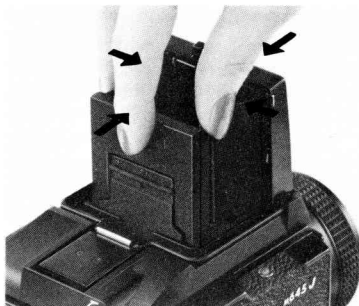
Using the Waist-level Finder S (1)

● Opening the Finder Hood



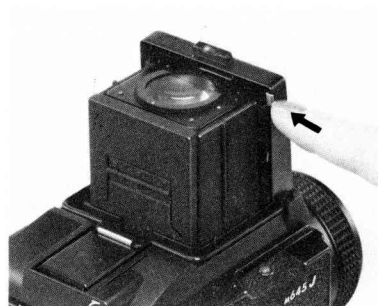
Pull up on the finder hood opening flange to open the finder.

● Closing the Finder Hood



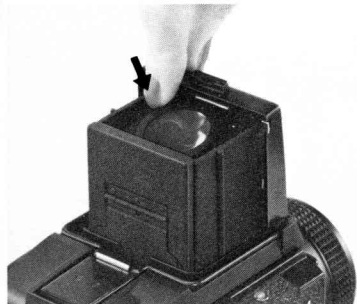
First, push in on the sides; next, push the front cover and back together to fold the finder.

● Raising the Magnifier



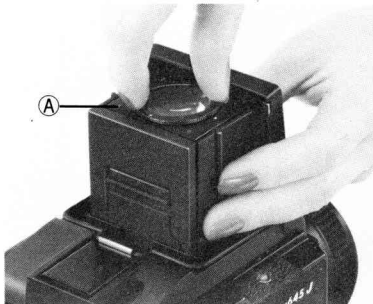
Push in on the magnifier release button to raise the magnifier.

● Lowering the Magnifier



To lower, push down on the edge of the magnifier board until it locks into place.

● Interchanging Magnifiers



Removing the Magnifier

While holding the finder side panels with the left hand so that the magnifier board (A) is not lowered, grasp the edge of the magnifier with the fingers of the right hand and twist counterclockwise to remove.

Attaching a Magnifier

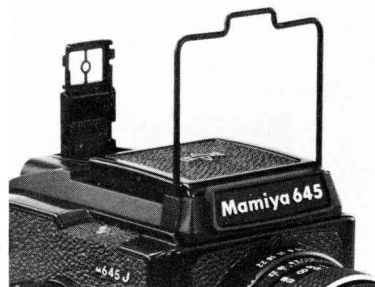
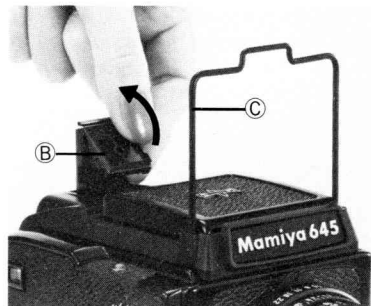
Align the white dots of the magnifier and magnifier board; drop magnifier into magnifier board, and twist clockwise until magnifier clicks and locks into place.

★ In addition to the standard magnifier (-1.5 diopters), magnifiers of $+2$, $+1$, 0 , -2 , and -3 diopters are available for near and farsighted users.

The standard -1.5 diopter magnifier is designed for users, whether eyeglass wearers or not, that have no trouble seeing a subject 2.5 ft. (70cm) away clearly. For those who have difficulty seeing clearly at such a distance, or for those who wish to remove their eyeglasses in order to see the entire focusing screen field, please use a diopter lens which is available as an optional accessory. However, before making a purchase, try the diopter lens at your Mamiya dealer to make sure it matches your eye.

Using the Waist-level Finder S (2)

● Using the Sports Finder

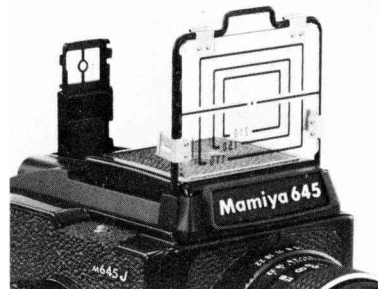


With Waist-Level Finder S in the closed position, first raise the sports finder eyepiece (B) to a vertical position. The eyepiece sight folds into the eyepiece base; when lifted out of the base, the eyepiece sight will stay in a vertical position because of the eyepiece spring. Next, lift the wire-frame (C) of the sports finder.

As the Waist-Level Finder Hood can be opened even with the sports finder mask raised, focusing can be quickly and easily checked. (However, if the finder hood is first opened, the sports finder wire-frame cannot be raised.)

The wire-frame of the sports finder indicates the field for the 80mm lenses. When desiring to use the 110, 150, or 210mm lens, the auxiliary mask must be attached to the wire-frame. When desiring to open the Waist-Level Finder Hood, while the auxiliary mask is attached to the raised frame, first pull the bottom of the auxiliary mask out to the second notch, in order to prevent the auxiliary mask from blocking the finder hood.

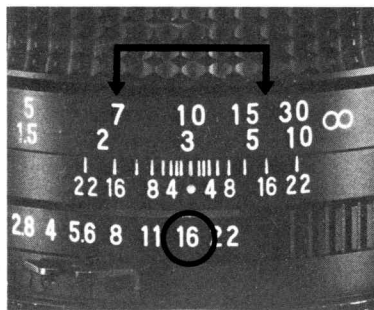
● Using the Auxiliary Mask



Setting the auxiliary mask to the second notch has no adverse effects on the accuracy of the indicated fields; therefore, it is perfectly acceptable to use the sports finder in this condition. Additionally, when the auxiliary mask is set to the second notch, it is also possible to lower it over the closed finder hood, although it is recommended to remove the auxiliary mask before lowering the wire-frame in order to minimize scratches on the surface of the plastic mask.

In order to meet every photographic need, the Mamiya M645 is embellished with a host of features. Mastery of these features will not only lead to better pictures, but will open up the doors to new photographic possibilities as well.

Depth-of-Field



Depth-of-field refers to the total area (foreground and background) which will appear in focus (sharp). The area of sharpness (depth-of-field) depends upon the distance the lens is focused at, the f/stop (or aperture) being used, and the focal length of the lens. The area that will appear sharp can be determined in two ways:

1. Firstly, by setting the AM lever to the M (Manual) position, the depth-of-field for the aperture set on the lens can be inspected (previewed) by looking through the finder. After examination of the depth-of-field, return the AM lever to the A (Automatic) position to return the finder to its original brightness.
2. The depth-of-field can also be determined by referring to the depth-of-field scale engraved on the lens and which lies directly above the aperture ring. The f/stop numbers are engraved on both the right and left-hand sides of the center reference mark. Simply locate the f/stop (aperture) you are using and read the figures which appear above the f/stop number on the distance scale of the lens. The figure on the right-hand side of the center reference mark denotes the area farthest from the camera which will appear sharp and the left-hand figure denotes the area closest to the camera which will appear sharp.

For example, with the 80mm f/2.8 lens focused at 10ft. (3m) and the aperture ring set to f/16, the depth-of-field scale reveals that everything from about 7ft. (2m) to about 20ft. (6m) will appear sharp (see photograph).

Using Flash



Precaution when Using Flash

When using the X-sync terminal of the camera body, be sure to insert the plastic safety cover into the hot-shoe, and when using the hot-shoe, be sure to insert the appropriate safety cover into the X-sync terminal. This procedure will prevent the possibility of receiving an electric shock while an electronic flash is attached and accidentally touching the terminal not being used.

1. Flash units can be attached to the camera's tripod socket or to the accessory shoe of the hand grip.

2. The Mamiya M645J has X sync terminal which are used in the following way:

(1) When using an electronic flash with a bracket, plug the synchronization cord into the X terminal and set the shutter speed dial to 1/60 sec. or longer (1/30 - 1 sec.).

(2) For MF and M bulbs, use the same terminal and set the shutter speed dial to 1/30 sec. or longer for MF bulbs, and 1/15 sec. or longer for M-type bulbs.

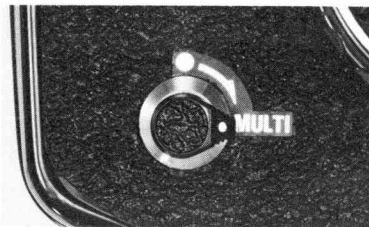
★ All of the finders, excepting the waist-level finder, are equipped with a hot-shoe. When a cordless flash unit is attached to this hot-shoe it is automatically connected to the X-sync terminal.

★ If the flash duration of an electronic flash is longer than 1/1000 sec. (e.g. 1/600 sec.) set the shutter speed dial to 1/30 sec. (not 1/60 sec.) or longer.

★ When using flash, carefully read the instructions packed with the flashbulbs or flash unit to avoid making errors.

Flash Synchronization Chart

Sync Terminal	Shutter Speeds									
	1/500	1/250	1/125	1/60	1/30	1/15	1/8	1/4	1/2	1
X				Electronic flash						
					MF Class					
						M, FP Classes				

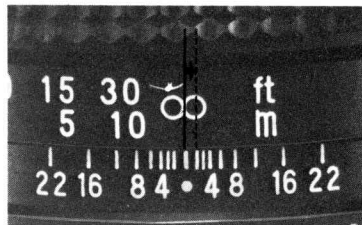


When the white dot of the multiple-exposure lever (23) is aligned with MULTI, the double-exposure prevention mechanism is disengaged, so that the shutter can be cocked with the film advance knob without moving the film, making multiple-exposures possible. (When making multiple-exposures, the exposure counter does not advance.)

When desiring to make a multiple-exposure, set the multiple-exposure lever to MULTI. (It can be set to MULTI either before or after the initial exposure of the multiple-exposure.) After making the initial exposure, recock the shutter with the film advance knob and then make the second (double) exposure, repeating as often as desired.

Remember to return the multiple-exposure lever to its original position upon completion of the multiple-exposure.

★ To release the shutter when there is no film in the camera, set the multiple-exposure lever to "MULTI".



When using infrared film it is necessary to make a focusing adjustment in order to achieve accurate focus. This focusing adjustment is particularly important when:

- a) using non-wide-angle lenses
- b) taking close-ups
- c) shooting at wide apertures

Focusing Adjustment Procedure

1. The red dot or line on the right side of the center reference line (also red) is the infrared mark.
2. After focusing in the usual manner, check the distance on the distance scale that is aligned with the center reference mark of the lens, and then make the focusing adjustment by turning the focusing ring slightly in the direction indicated by the arrow in the accompanying photograph so that the distance just observed is aligned with the infrared mark.

★ For information regarding the proper filter and exposure, refer to the data sheet packed with the film.



As a general rule of thumb for optimum sharpness, we recommend using 1/125 sec. as the minimum shutter speed for hand-held shooting. For longer exposures (1/60 sec. — 1 sec.), attach the camera to a sturdy tripod.

When using a tripod, select one with a U 1/4" thread.

★ When attached to the accessory Revolving Tripod Adapter, the Mamiya M645 can be instantly rotated to change from vertical to horizontal format, or vice versa.

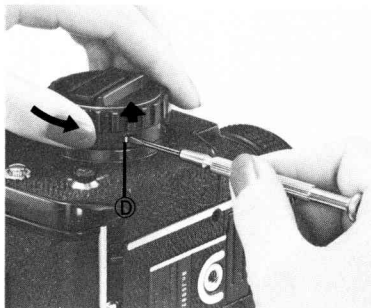
There are two methods of taking time exposures with the Mamiya M645.

1. By setting the shutter speed dial to B and using a cable release with lock provision.
2. By removing the battery from the battery chamber.
 - (a) Remove battery.
 - (b) Set the shutter speed dial to any position.
 - (c) Release the shutter and it will lock in the open position.
 - (d) Depress battery check button as far as it will go to close shutter.

Interchanging the Film Advance Knob

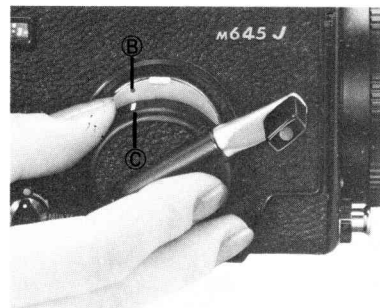
The film advance knob is interchangeable with the film advance crank which is available as an optional accessory.

● Removing the knob



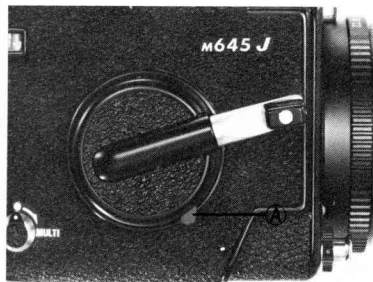
1. Rotate film advance knob until it stops.
2. While holding the release lever (D) of the knob in the up position with a small screwdriver, or suitable tool, rotate knob counterclockwise and it will disengage from camera body.

● Attaching the crank or knob



1. Rotate the film advance knob receptor of the camera body clockwise as far as it will go (the red dot (B) will then be facing upward).
 2. Align the red dot (B) of the camera body with the index line (C) on the film advance crank or knob.
 3. With the red dot and the index line aligned, push the film advance crank or knob into the receptor, then twist it approximately 20° clockwise until it locks into place.
- When attaching the film advance crank, push in on the release lever (A) as you twist the crank.

● Removing the crank



★When desiring to exchange the film advance crank or knob, first rotate it until it stops and the shutter is cocked. If this is not done, the camera body receptor [and red dot (B)] will freely rotate, making replacement difficult.

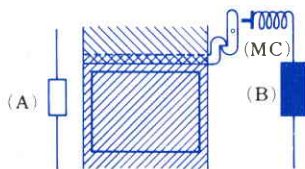
1. Rotate the film advance crank until it stops.
2. Then, rotate it counterclockwise approximately 20° while simultaneously pushing in on the release lever (A), and it will detach.

The Mamiya Moving Coil Electronic Shutter

The electrical consumption of Mamiya's newly developed Moving Coil Electronic Shutter is merely 1/10 that of the electro-magnetic system currently in wide use. Moreover, the consumption remains constant regardless of shutter speed with Mamiya's M. C. Shutter. Therefore, Mamiya has been able to greatly increase battery life. At normal temperatures, as many as 100,000 exposures are possible with a single 6V silver-oxide battery.

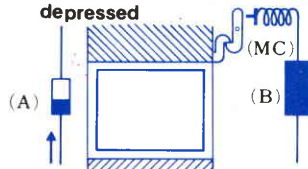
Furthermore, battery performance is maintained at a high level, as indicated in the accompanying diagrams, as the moving coil condenser is normally charged keeping the battery at peak voltage. Thus, the battery is protected from drops in voltage, as when the switch is on.

1. The shutter is closed



The moving coil energizing condenser (B) is normally charged. (At this time current is not flowing.)

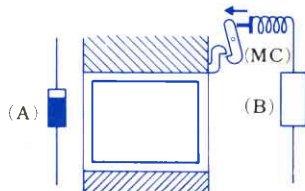
2. First blind moves, opening the shutter when release button is depressed



When the first blind moves, the exposure time control condenser (A) begins to charge. (The right-hand latch is holding back the second shutter blind.)

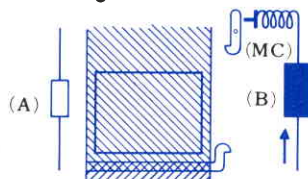
The charge-time of condenser (A) is determined by the shutter speed.

3. The instant of exposure



When condenser (A) reaches the determined voltage, condenser (B) discharges, energizing the moving coil which in turn moves the second shutter blind release latch.

4. Second shutter blind moves, closing shutter



Condenser (B) charges. (The charge-time is extremely short and accomplished by very little electric power.)

Trouble-Shooting

If your camera appears to be malfunctioning, check the list below to see whether or not you have forgotten something.

1. The shutter release button will not move.

- A) Did you unlock the shutter release button? (p.31)
- B) Did you wind the film advance knob until it stops? (p.31)

2. The mirror is locked in the up position.

(Cannot see anything through the finder.)

A) Did you release the shutter without a battery in the camera? Has the battery been correctly inserted into the camera, or is it backwards? Is the correct battery type inserted into the camera?

Press the battery check button, as far as it will go, to lower mirror. (p.23)

B) Did you release the shutter with the shutter speed dial set to the ☉ position?

If so, move the shutter speed dial to B or 1/500 sec. (p.29)

3. The developed roll of film has 1 or 2 frames less than it should have.

A) Did you align the start marks with the film advance knob after placing the roll-film insert into the camera?

The film should always be set to the start mark before placing the film insert into the camera. (p.26)

B) Did you properly align the start marks of the film and roll-film insert?

Check the instructions once again. (p.26)

4. The PD Prism Finder's LED's do not illuminate when pressing the meter switch.

Did you set the camera's shutter speed dial to the ☉ position? If not, there will be no electrical connection. (p.42)

5. You may receive an electric shock when an electronic flash is connected to the X-sync terminal and you touch the hot-shoe. Also, you may receive an electric shock when an electronic flash is attached to the hot-shoe and you touch the X-sync terminal.


As a precaution against possible shock, always keep the safety cover on the terminal when not in use (see p.56)


Precautions

Releasing the shutter with no film in the camera

The film transport mechanism has a built-in safety lock which prevents the shutter from being released after the last exposure on a roll of film, or when there is no film in the camera. Thus, when the shutter release button locks under such circumstances, do not force it. To release the shutter, merely set the multiple-exposure lever to "MULTI".

The position on the Shutter Speed Dial

If the shutter is released with the shutter speed dial set to the  position, the mirror will lock in the up position and the film advance knob will not move. If the camera is left in this condition, the battery will lose its power within several hours.

Set the dial to the  mark only when using the AE Prism Finder or PD Prism Finder.

Photographing at Low Temperatures

When photographing at low temperatures, be careful of the following points to maintain camera performance.

1. Be sure to use a fresh battery.
2. When using electronic flash, set the shutter speed dial to 1/30 sec. or longer.
3. Place the camera in the outside air only during the moment of exposure.

★ A battery that malfunctions at low temperatures will become usable again when it is returned to normal temperature. However, the battery should not be subjected to rapid and extreme changes of temperature, lest it grow unreliable.

Mamiya-Sekor C Lenses

Mamiya-Sekor Lenses have long been established as a standard for lenses of professional calibre. Whether you are using a wide, standard, or telephoto lens, the name "Mamiya-Sekor" is your assurance that your camera is using optics foremost in quality. In order to make the most of the intrinsic contrast, high resolution, rich color saturation, and clear definition of Mamiya-Sekor lenses, all the lenses for your camera have been multi-coated. Not only has the quality been enhanced, but flare and ghost images have been reduced to a minimal level, even when shooting under highly unfavorable lighting.

For shooting in cramped quarters, for extensive depth-of-field, dynamic perspective, and exciting panoramics, you will enjoy the wide-angle lenses.

For flattering portraiture, shallow depth-of-field, sports, and candid photography, the telephoto lenses are ideal.

As each lens alters perspective, a choice of lenses offers you a choice in the manner of expression. Mamiya-Sekor C lenses are your tools for creative photography.

Because the Mamiya-Sekor C 35mm f/3.5 and 45mm f/2.8 lenses incorporate a Floating System in which some of the lens elements automatically move forward or backward as the lens is focused, high resolution, including the very edges of the field, is assured even at the minimum (closest) focusing distances.

The 70mm f/2.8 lens has a built-in between-the-lens shutter which makes it possible to synchronize electronic flash at all speeds up to 1/500 sec. (1/500 — 1/30 sec.). Moreover, the between-the-lens shutter of the lens can be by-passed at any time, allowing the focal plane shutter of the camera to be used in its place.

The Fisheye 24mm f/4 Lens is designed so that the distance from the picture center to any point is always proportional to the angle from the optical axis to that point (equidistance projection type). Angle of view is 180° measured on the diagonal of the image and it produces a full frame (56 × 41.5mm) image. Four filters are built-in: LB-A (81C), SL-1B, Y48 (Y2) and O56 (O2).

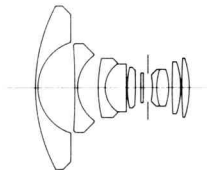
The Macro 80mm f/4 Lens has a built-in floating element system that automatically corrects close-distance aberration to ensure sharp resolution to the very edges of the picture in close-ups, copying and other short-distance work. Use possible as an ordinary lens from 1/2 life-size to infinity. And by using the optional Auto Macro Spacer, close-ups can be made with magnification ratios from 1/2 to life-size.

The 145mm f/4 SFC Lens is a high quality soft-focus lens designed with major stress placed on modeling. The soft-focus effect can be varied continuously by rotating the Softness Control Ring and Aperture Ring. Use is also possible as an ordinary lens for sharp images by stopping down to f/8 or smaller aperture.

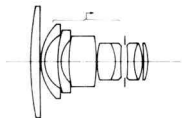
The Zoom 105-210mm f/4.5 Lens is suitable for both portraits and distant scenes. The zoom function can also be used for easy, accurate focusing. First, turn the Zoom Ring to the maximum focal length of 210mm; the subject now appears large in the viewfinder and depth-of-field is shallow, so accurate focusing is easy. After focusing, again rotate the Zoom Ring to the desired focal length. Of course, the lens can also be focused at the desired focal length from the very beginning.

Mamiya-Sekor C Lenses

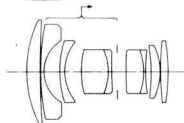
**Fisheye
24mm f/4**



35mm f/3.5



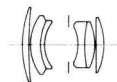
45mm f/2.8



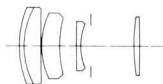
55mm f/2.8



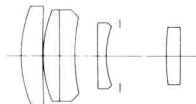
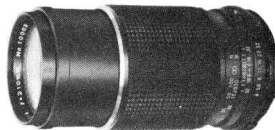
**70mm f/2.8
(lens-shutter type)**



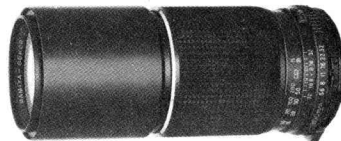
150mm f/4



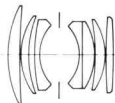
210mm f/4



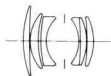
300mm f/5.6



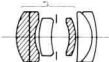
80mm f/1.9



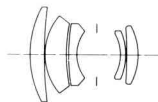
80mm f/2.8



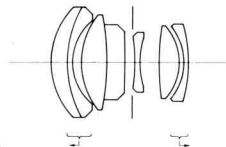
**Macro
80mm f/4**



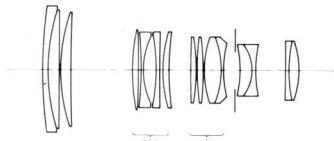
110mm f/2.8



**SF (Soft Focus)
145mm f/4**



Zoom 105—210mm f/3.5



500mm f/5.6



Mamiya-Sekor C Lenses

Lens	Optical construction	Angle of view	Minimum aperture	Diaphragm	Minimum focusing distance	Filter size	Lens hood	Weight
Fisheye 24mm f/4	10 elements, 8 groups	180°	22	Automatic	1ft. or 0.3m	Built-in	None required	27.7oz. (785g)
35mm f/3.5	9 elements, 7 groups	90°	22	Automatic	1.5ft. or 0.45m	77mm	None required	15.7 oz. (445g)
45mm f/2.8	9 elements, 7 groups	76°	22	Automatic	1.75ft. or 0.5m	77mm	Slip-on	19.0 oz. (540g)
55mm f/2.8	9 elements, 6 groups	65°	22	Automatic	1.75ft. or 0.55m	58mm	Screw-in	13.9 oz. (395g)
70mm f/2.8 (lens-shutter type)	6 elements, 4 groups	53°	22	Automatic	2.75ft. or 0.8m	58mm	Screw-in	13.9 oz. (395g)
80mm f/1.9	7 elements, 6 groups	47°	22	Automatic	2.25ft. or 0.7m	67mm	Screw-in	14.8 oz. (420g)
80mm f/2.8	6 elements, 5 groups	47°	22	Automatic	2.25ft. or 0.7m	58mm	Screw-in	8.8 oz. (250g)
Macro 80mm f/4	6 elements, 4 groups	47°	22	Automatic	1.25ft. or 0.375m	67mm	None required	20.6 oz. (585g)
110mm f/2.8	5 elements, 5 groups	35°	22	Automatic	4ft. or 1.2m	58mm	Screw-in	13.8 oz. (390g)
Soft Focus 145mm f/4	7 elements, 5 groups	27°	32	Automatic	5ft. or 1.5m	77mm	Screw-in	31.7 oz. (900g)
150mm f/4	5 elements, 4 groups	26°	32	Automatic	5ft. or 1.5m	58mm	Built-on	15.5 oz. (440g)
210mm f/4	5 elements, 4 groups	19°	32	Automatic	8ft. or 2.5m	58mm	Built-on	25.2 oz. (715g)
300mm f/5.6	6 elements, 5 groups	13°	32	Automatic	15ft. or 4m	58mm	Built-on	25.0 oz. (710g)
500mm f/5.6	6 elements, 5 groups	8°	45	Automatic	30ft. or 9m	105mm	Built-on	80.4 oz. (2280g)
Zoom 105-210mm f/4.5	15 elements, 11 groups	36°-19°	32	Automatic	8ft or 2.5m	77mm	Screw-in	43.0 oz. (1220g)

Accessories

● Filters

Filters are available in 58, 67, 77, and 105mm sizes and come in the following five types: SY48 (Y2), SQ56 (O2), SL39 (UV), YG, SL-1B (skylight). The correct filter sizes are indicated on pages 67.

● Lens Hoods

An important accessory to eliminate the detrimental effects of stray light entering the lens.

The lens hood for the 45mm lens is of the square, slip-on type. Attach so that the sides are parallel with the sides of the camera body. Can also be used with the 65mm lens for the RB67.

Special hoods are required for the 55mm, 70mm, 80mm f/1.9, 145mm SFC and Zoom 105-210mm lenses. Even though the diameters are the same, the use of a lens hood designed for a long focal length lens with a short focal length lens will result in vignetting of the picture edges. The lens hood for the 145mm SFC lens can also be used with the 127mm lens for the RB67.

The 80mm f/2.8 and 110mm lenses share the same lens hood.

Telephoto lenses are equipped with their own built-on lens hoods which should be fully extended when in use.

● Bellows Lens Hood

The length of the Bellows Lens Hood can be freely adjusted with the rack and pinion for use with any lens from 55mm to 300mm focal length. The RT-58 and RT-67 adapter rings are included for attachment to lenses with 58mm or 67mm diameter filter threads. A very useful feature of the Bellows Lens Hood is the gelatin filter slot directly in front of the lens which accepts standard 3 in. (7.6cm) gelatin filters. By combining the Bellows Lens Hood with the Auto Bellows and Slide Copy Attachment for the M645, any slide from 35mm to 6×7cm can be copied.

● Focusing Handle

The focusing handle is a grip that attaches to the focusing ring and makes rapid focusing possible. Ideal for sports, news, and action photography. The focusing handle can be used on all lenses from 55mm to 300mm which use 58mm diameter filters, excepting the 70mm f/2.8.



Accessories

● **Focusing Screens** Five interchangeable focusing screens are available to meet various photographic needs.

No.1 Microprism

Entirely matted, with a Fresnel lens and a central microprism spot. It is ideal for general purpose photography. The microprism assures rapid and accurate focusing and the matte surface makes the entire screen suitable for focusing.

No.2 Matte

All matte with Fresnel lens. Ideal for close-up photography, checking the depth-of-field, and slow lenses such as the 500mm f/5.6 since there is no microprism or rangefinder central spot. Focusing aids such as microprisms and rangefinders grow dark when the lens is stopped down and may prove distracting. The No.2 focusing screen is designed to eliminate this problem.

No.3 Checker

All matte with Fresnel lens and engraved lines. The engraved lines are a useful aid in determining composition. The intersections also prove useful as reference points when making multiple-exposures where perfect registration of the images is called for.

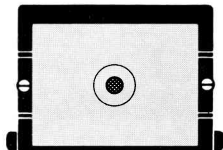
No.4 Rangefinder Spot

All matte, with Fresnel lens and central rangefinder spot. Assures accurate focus even with wide-angle lenses which are usually more difficult to focus because of the extensive depth-of-field. Also suitable for general purpose photography.

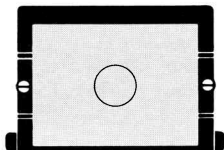
No.5 Rangefinder Spot 45°/Microprism

A highly versatile screen which offers three-way focusing for ultimate focusing accuracy. A central split-image rangefinder spot has a diagonal wedge (45°) which makes pinpoint focusing possible with either horizontal or vertical lines. A microprism collar surrounds the rangefinder spot, serving as a useful focusing aid with any subject. Finally, a fine ground glass ring encircles the microprism collar, for easier focusing even at relatively small apertures. The remainder of the screen is all matte and has a Fresnel lens for corner-to-corner brightness.

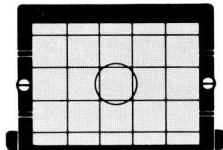
No. 1



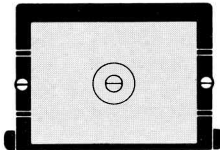
No. 2



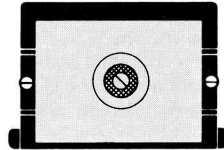
No. 3



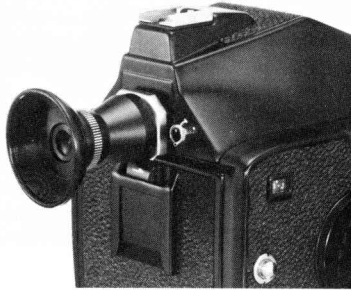
No. 4



No. 5

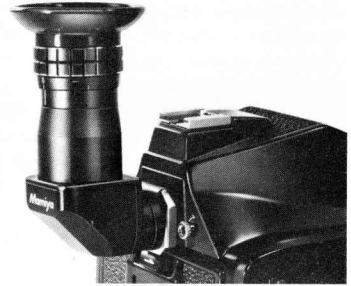


● Magnifier



For precise focusing. Magnifies the central portion of the focusing screen. Magnification of 2X and built-in -5 to $+5$ diopter correction.

● Angle Finder Model 2



Useful for low angles and copy work. More versatile than waist-level finder because if the camera is held vertically, the image appears upside down in the waist-level finder, but rightside up in the angle finder. Thus visualizing composition is faster and easier. The angle finder has click stops and built-in diopter corrections of -4 to $+4$.

Accessories

● Diopter Correction Lenses

Diopter Correction Lenses for prism finders are available in six strengths: -3, -2, -1, +1, +2, and +3 diopters.

Merely unscrew (counterclockwise) the diopter correction lens retainer ring from the eyecup, insert the necessary correction lens, and replace the retainer ring. Then slide the eyecup on the eyepiece of the prism finder for easier focusing.

Before actually purchasing a Diopter Correction Lens at your Mamiya Dealer, be sure to attach it to the camera and try viewing through it to assure correct matching with your eyesight.



● Diopter Lenses

(Interchangeable diopter correction magnifiers)

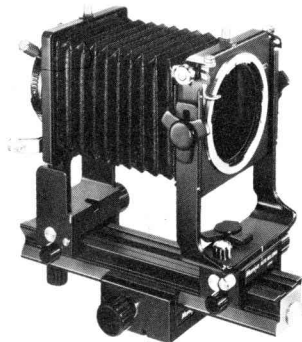
For the waist-level finder. In addition to the standard -1.5 diopter magnifier, there are five more magnifiers available: -3, -2, 0, +1, +2 diopters.

The method of changing magnifiers is explained on page 52.

● Auto Bellows

The Auto Bellows represents the ultimate tool for macrophotography. The special features of this high performance instrument are indicated below.

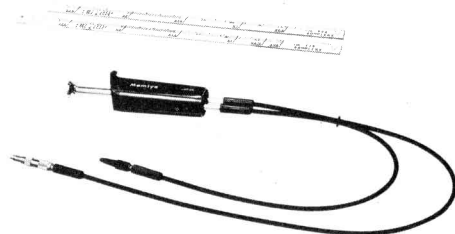
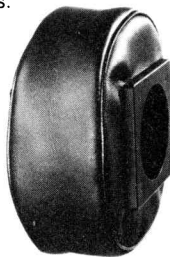
1. Accepts a double cable release for diaphragm automation.
2. Has shifts and tilts for depth-of-field and perspective control.
3. Has a revolving mount which makes it possible to instantly rotate the camera from horizontal to vertical format, or vice versa.
4. In addition to standard front focusing, the focusing rail allows moving the



entire camera and bellows combination back and forth for fine focusing control.

● Balloon Bellows

The Balloon Bellows is available for easily making shifts and tilts which are difficult with the Auto Bellows at short extensions.



● Reverse Rings RS-58, RS-67

Reverse rings are used to mount the lens in reverse position for improved performance when photographing at larger than life-size. Reverse rings are available to fit either 58mm or 67mm diameter filter threads.



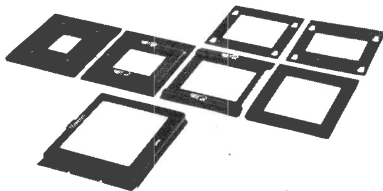
● Connecting Rings CN-58, CN-67

CN Rings are used to attach the Bellows Lens Hood when copying 35mm format slides. An RS Ring is essential to mount the lens in the reverse position, because the magnification ratio is larger than life-size. The CN Rings are available for 58mm and 67mm diameter filter threads.



● Slide Copy Attachment Set

Use in conjunction with the Auto Bellows and Bellows Lens Hood. The lens is first mounted on the Auto Bellows, and the Bellows Lens Hood is then attached to the lens. Finally, the Slide Copy Attachment is attached to the front of the Bellows Lens Hood, which then functions as a slide copier. Five sizes of slides can be copied: 35mm, 4 × 4, 6 × 4.5, 6 × 6 and 6 × 7. Film strips can also be copied.



● Auto Macro Spacer

Used with the 80mm f/4 Macro Lens, this spacer allows close-up photography from one-half to life-size. Diaphragm automation and meter coupling make operation the same as for normal camera usage.



Accessories

● Auto Extension Rings

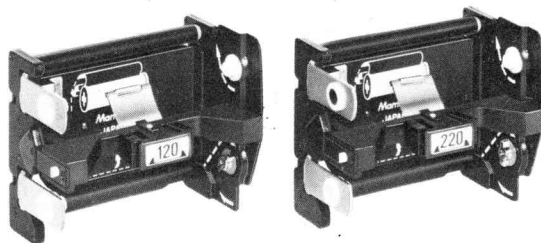
A set of three auto extension rings (designated No.1, No.2, No.3-S) are designed for use with the 80mm f/1.9 and 80mm f/2.8 lenses. Diaphragm automation and meter coupling are retained to simplify the exciting world of close-up photography. The following chart indicates magnification as well as the size of the subject it is possible to photograph.

Rings	Magnification	Subject size
No.1	0.15 — 0.30	11-1/8"×1'3" — 5-1/2"×7-1/4"
No.2	0.29 — 0.44	5-9/16"×7-1/2" — 3-11/16"×4-15/16"
No.3-S	0.44 — 0.59	3-11/16"×5" — 2-3/4"×3-3/4"
* No.1+No.3-S	0.59 — 0.74	2-3/4"×3-3/4" — 2-3/16"×3"
* No.2+No.3-S	0.74 — 0.89	2-3/16"×3" — 1-7/8"×2-1/2"
* No.1+No.2+No.3-S	0.88 — 1.03	1-7/8"×2-1/2" — 1-9/16"×2-1/8"

* When combinations of more than two auto extension rings are used with the f/1.9 lens, the No.3-S ring should be closest to the camera body. No.3 rings which do not have the designation, "S" were designed for the f/2.8 lens and should not be used with the f/1.9 lens as they may cause vignetting. When purchasing an auto extension ring for an f/1.9 lens, be sure the No.3 ring has the "S" designation.



● Roll-Film Inserts



Roll-film inserts for 120 and 220 film are available. The inserts come in cases so that they can be safely stored. With several preloaded film inserts, it will be possible to change film almost instantly and to take a large number of photographs without wasting time loading film.

● 6 × 4.5 Slide Mounts

Sets of 50 to a box are available.

● Power Drive



The Power Winder increases speed by automatically winding the film. When the finger is removed from the shutter release after the shutter has been released, the film is automatically advanced and the shutter cocked so action can be followed continuously as there is no need to remove the eye from the viewfinder.

Power source is 6 ordinary penlight (AA) or Nicad batteries. Winding time is approximately 1 second per frame.

● Pistol Grip



Attaches securely to the bottom of the camera and couples to the shutter release button.

● Deluxe L-Grip Holder



Deluxe grip which couples to the shutter release button. Optional accessory shoe unit has provision for bounce flash.

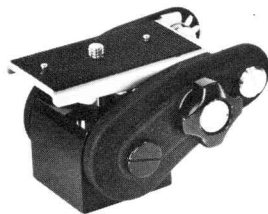
Accessories

● Grip Holder



Lightweight, compact unit. Complete with accessory shoe.

● Revolving Tripod Adapter



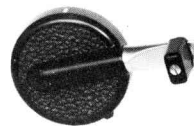
Allows instant change in format from horizontal to vertical, or vice versa, when working with the camera mounted on a tripod.

● Quick-shoe Model 2



A two piece set in which one piece is attached to the camera and the other to the tripod. When this is done, the camera can instantly be mounted to, or removed from, a tripod without the need to fumble with screws.

● Film Advance Crank



Interchangeable with the standard film advance knob, and an ideal choice for those who favor film advance crank.

● Hand Strap

Extremely convenient as it allows the camera to freely hang from the hand while carrying.



● Compartment Case

Large case which accepts camera mounted on hand grip, several lenses and accessories.



Accessories

● Aluminum Custom Case

A rugged, trunk-shaped case ideal for carrying, storing, or shipping your Mamiya M645 set. The sponge lining offers ample protection for your camera equipment.

Dimensions are 18-3/8"×13-7/8"×6-3/4" (47×35×17cm) and weight is 8 lbs. 2-1/2 oz. (3.7 kg).



Care of the Camera

When the camera is not used for a long period of time, remove the battery and any film from the camera. Do not store the camera at temperatures exceeding 100°F (40°C), or at temperatures less than 15°F (-10°C). Also avoid storing the camera for prolonged periods of time in a damp or salty atmosphere.

Do not store in places where naphthalene or formalin gases are generated as this may adversely affect the camera mechanism or film.

(Color film should be stored at the manufacture's recommended temperatures.)

As cameras are precision instruments, avoid shocks and rough handling.

When the camera is stored for a long time, periodically remove the camera and release the shutter several times to keep the camera in good condition.

Cleaning

Never touch the lens or mirror surfaces. Keeping a Mamiya UV or SL filter on the lens will protect it from dust, fingerprints, and so on. If a lens needs cleaning, blow away the dust particles with a blower, and clean the lens surface with lens cleaning tissue and lens cleaner. Merely blowing dust particles off the mirror surface is sufficient — never touch it.

Carefully clean camera and lens after photographing at the beach or other places where there is salt in the air.

Periodic Check

Periodically check the camera to make sure it is in working order. This is especially so before an important photographic assignment. Check the battery, flash synchronization, mirror and shutter movement, film wind, diaphragm automation and so on. If the camera is malfunctioning, take it to the nearest authorized Mamiya Service Center for repairs.

Handled with reasonable care, your Mamiya M645J should provide you with years of pleasure.