mamiya/sekor MSX 500

owners
operating manual

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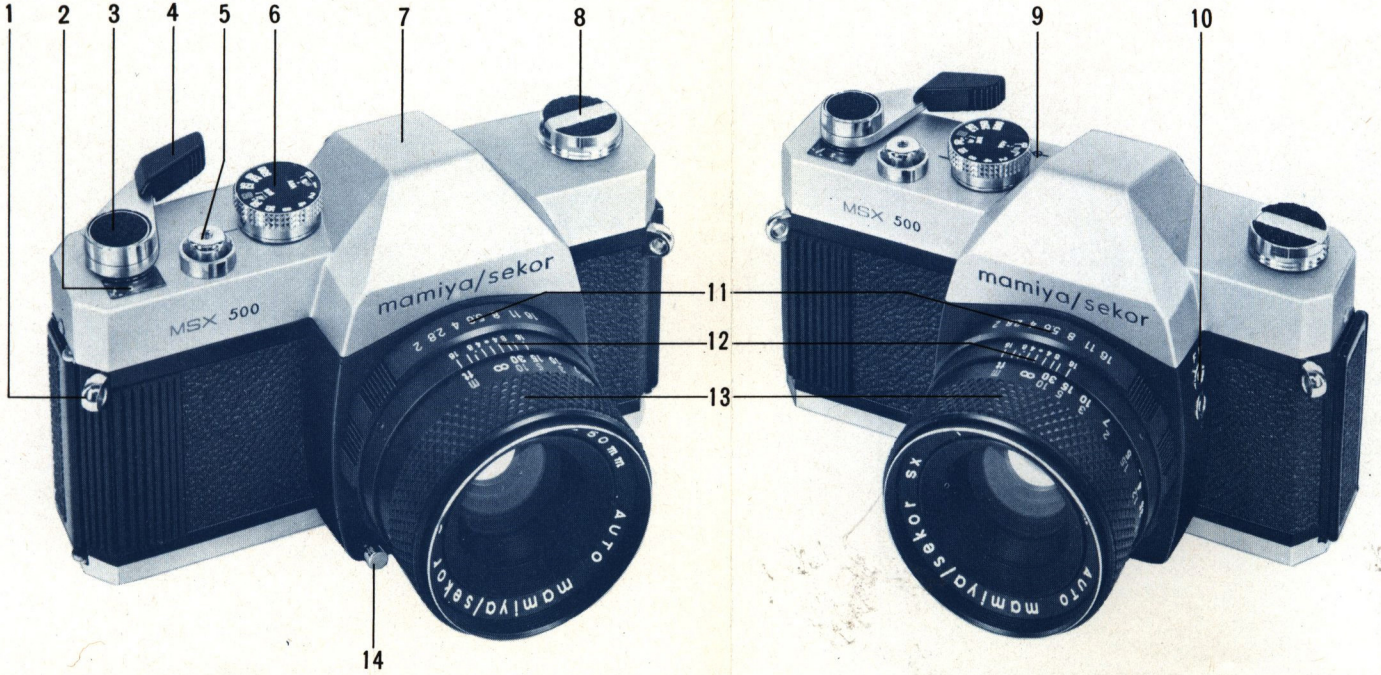
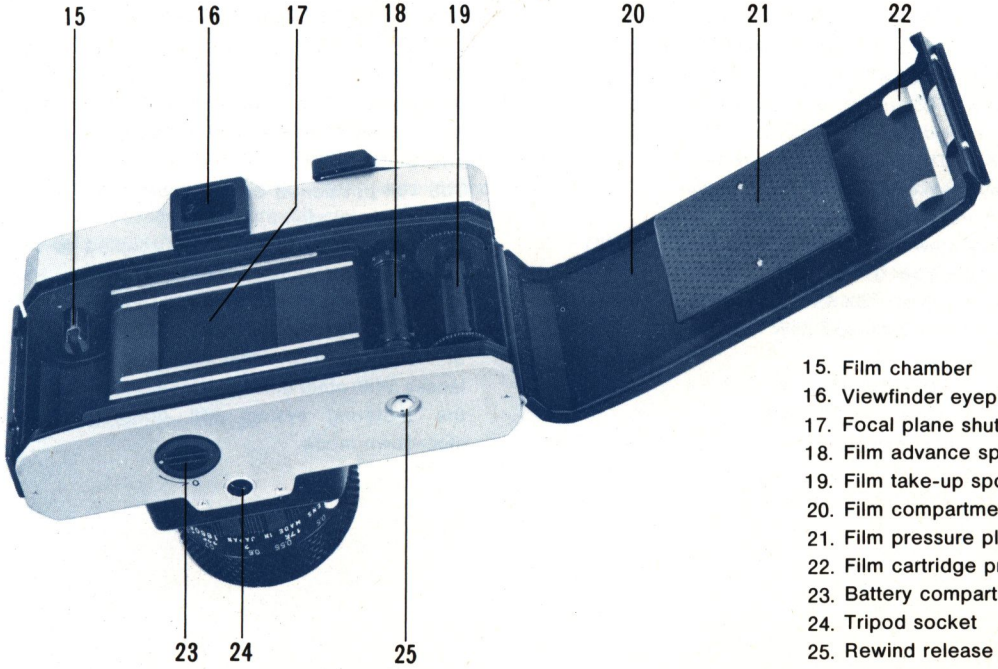
DESCRIPTION OF PARTS



1. Neck strap eyelet
2. Exposure counter
3. Lever retracting button
4. Film advance lever
5. Shutter release button
6. Shutter speed dial and ASA/DIN window
7. Pentaprism housing
8. Rewind knob and film compartment door release
9. Film plane reference mark
10. FP & X flash terminals
11. Aperture ring
12. Depth-of-field scale
13. Focusing ring
14. Lens release button



15. Film chamber
16. Viewfinder eyepiece
17. Focal plane shutter
18. Film advance sprockets
19. Film take-up spool
20. Film compartment door
21. Film pressure plate
22. Film cartridge pressure plate
23. Battery compartment cover
24. Tripod socket
25. Rewind release button

SPECIFICATIONS: mamiya/sekor MSX 500

CAMERA TYPE:

35mm Single Lens Reflex with behind-the-lens, spot readings, full aperture metering system.

FILM SIZE AND CAPACITY:

Perforated 35mm film in standard 20 or 36 exposure cartridges.

STANDARD AUTOMATIC LENSES:

mamiya/sekor SX 55mm f/1.4
7 elements in 5 groups
Angle of view: 43°
Accessory size: 52mm

mamiya/sekor SX 55mm f/1.8
6 elements in 5 groups
Angle of view: 43°
Accessory size: 52mm

mamiya/sekor SX 50mm f/2
6 elements in 4 groups
Angle of view: 47°
Accessory size: 52mm

LENS MOUNT:

Universal thread mount (42mm) with locking pin.

SHUTTER:

Focal plane with speeds from 1 to 1/500 second and B for time exposures.

EXPOSURE CONTROL:

CdS cell positioned on the back of the reflex mirror (spot system).

The metering system is cross coupled to the shutter speed control, film speed dial, and diaphragm mechanism on all automatic SX lenses. This system accurately measures light at full aperture with mamiya/sekor SX lenses. With other universal thread mount lenses, the metering system will operate in the stop-down mode.

METER SENSITIVITY:

ASA 25 to 3200 DIN 15 to 36

VIEWFINDER:

Pentaprism type with micro-diaprism center spot on Fresnel screen for rapid focusing. Brackets visible in finder indicate location of spot meter reading area (10% of field).

Exposure needle and reference points indicate necessary exposure adjustments.

FLASH SYNCHRONIZATION:

Two separate flash contacts are provided, marked "FP" and "X". Proper selection of terminals allows correct synchronization for all types of flash pictures.

REFLEX MIRROR:

Instant return type

FILM ADVANCE:

Ratchet type film advance lever transports film, cocks shutter, and advances exposure counter in a single stroke (160°) or by a number of shorter strokes.

EXPOSURE COUNTER:

Progressive type, reads from "S" (start) to 36. Counter automatically resets to "S" when film compartment door is opened.

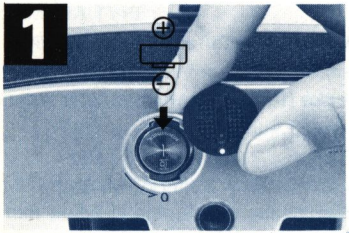
DIMENSIONS:

Width : 5 31/32 in. (151.5mm)
Height : 3 3/4 in. (95 mm)
Thickness: With 55mm f/1.4 lens 3 61/64 in. (100.5mm)
With 55mm f/1.8 lens 3 25/32 in. (96mm)
With 50mm f/2 lens: 3 3/4 in. (95mm)

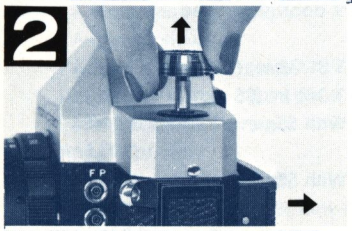
WEIGHT:

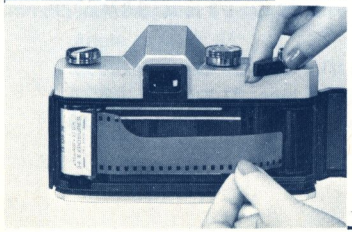
With 55mm f/1.4 lens: 33 oz. (935g)
With 55mm f/1.8 lens: 31 3/16 oz. (885g)
With 50mm f/2 lens: 30 5/16 oz. (860g)

SHORT COURSE OF INSTRUCTIONS



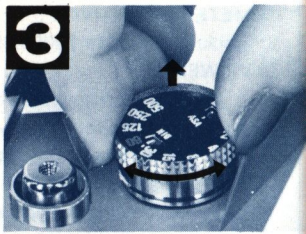
Insert an Eveready S-76 silver oxide battery (or equivalent)

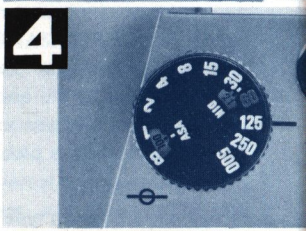




Load the film.

Pull up the rewind knob to open the film compartment door, drop in the film cartridge and push down the knob, turning it until it drops into place. Insert the end of the film leader into the film take-up spool, making sure the perforations along the film edge are hooked onto the teeth of the sprocket. Close the film compartment door and advance the film and press the shutter button repeatedly until the number "1" appears in the Exposure Counter Window.





Set the film speed.

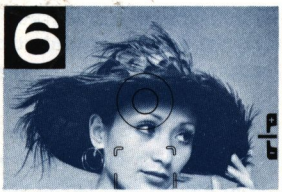
Pull up the outer ring of the film speed dial and turn it until the ASA/DIN number (or representative reference mark) of the film you are using appears in the window opposite the white index mark.

Set the shutter speed.

When outdoors in bright or hazy sunlight, 1/125 second is generally suitable for most photographs. When indoors in a well lit room 1/60 second should be sufficient to capture your subject, depending upon the film you are using.

Focus on your subject

by rotating the focusing ring until the image in the center of the viewfinder screen appears sharp.



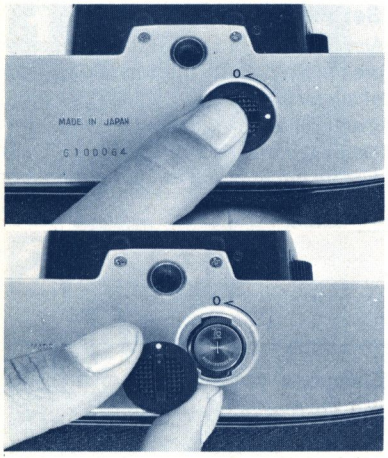
Set the exposure.

Aim the camera so that the bracketed area falls upon the most important part of the picture.

Center the exposure meter needle between the brackets in the viewfinder by turning the Aperture Ring or the Shutter Speed Dial.

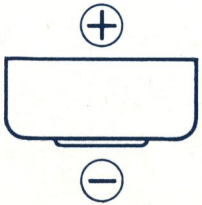
Compose your picture and press the shutter release button.

1 INSERTING THE BATTERY



Open the battery compartment door on the base of the camera by turning the cover counterclockwise with your thumb until the white dot aligns with the letter "O" (open).

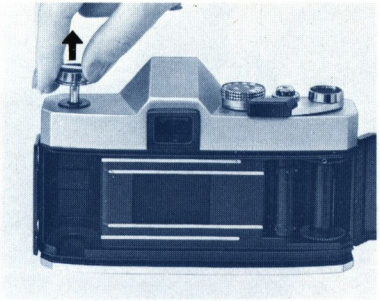
Clean the battery contacts with a clean, dry cloth to assure they are free of oil or dust which may interfere with making positive contact. With the (+) sign facing you, insert the battery and replace the cover, tightening it with the thumb, turning it a one-quarter turn in the opposite direction of the arrow.



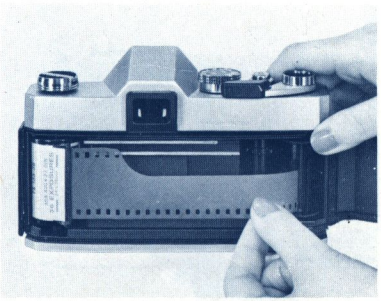
TURNING ON THE METER

To activate the cameras metering system, pull the Film Advance Lever away from the camera body approximately 1/2 inch until it clicks into position. To prevent unnecessary drain on the battery, lock the meter in the "OFF" position when the camera is not in use. Press the "OFF" button on top of the Film Advance Lever and the lever will retract towards the body.

2 LOADING THE FILM

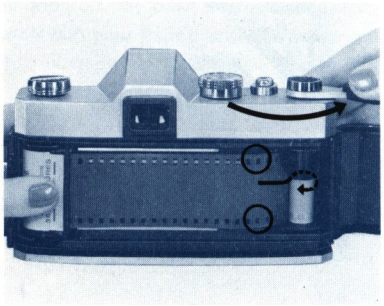


A. Open the film compartment door by pulling up the Rewind Knob. Drop the film cartridge into the compartment and rotate the Rewind Knob until it drops down and locks the cartridge in place.



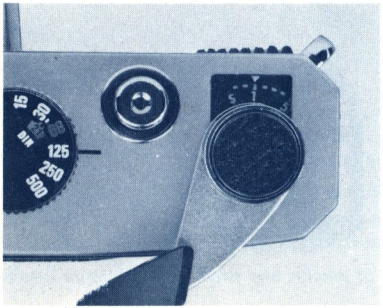
B. Insert the film leader into one of the slots in the Take-up Spool.

C. Slowly advance the film by stroking the Film Advance Lever as far to the right as it will go. If the lever stops midway, press the Shutter Release Button to free it for another stroke. Be sure that the holes on both sides of the film are caught by the teeth on the Film Transport Sprockets.
NOTE: The film must pass **under** the Take-up Spool when advanced.



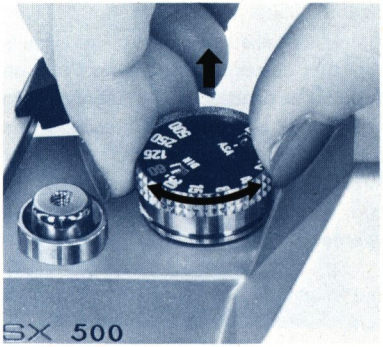
D. Gently turn the Rewind Knob clockwise to take up the slack in the film.

E. Close the Film Compartment Door and advance the film several times until the number "1" appears in the Exposure Counter Window. As the film is advanced through the camera the knob will turn in a counterclockwise direction, indicating the film is advancing properly. As the film is advanced the shutter will be cocked automatically. Your camera is now loaded and ready to go.



NOTE: AVOID DIRECT LIGHT WHEN LOADING AND UNLOADING THE FILM.

3 SETTING THE FILM SPEED



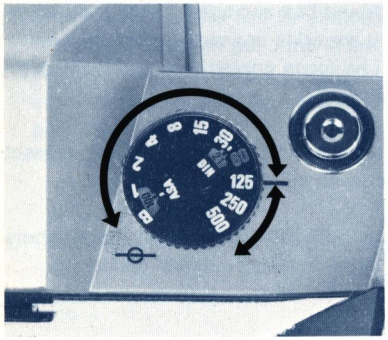
Lift the outer ring of the Shutter Speed Dial and turn it in either direction until the ASA rating of the film you are using appears opposite the index mark. Your films ASA rating can be found printed on the film cartridge or in the instruction sheet packed with it.

To use the DIN rating, turn the Shutter Speed Dial until the correct number appears in the DIN window on the dial.

Below is a table of the available ASA/DIN ratings with the numbers represented by the dots shown in parentheses beneath them.

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

4 SELECTING THE SHUTTER SPEED

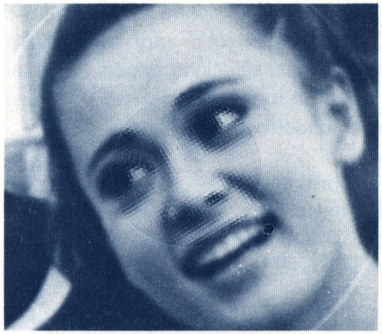


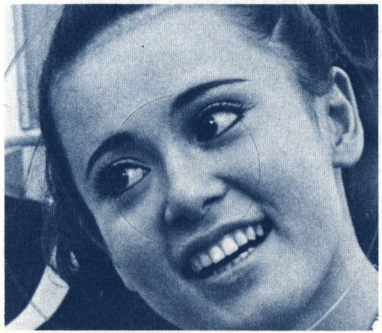
The shutter controls the length of time light is allowed to strike the film. The speed at which the two shutter curtains pass across the film is measured in fractions of a second that correspond to the numbers on the Shutter Speed Dial. (250 is 1/250 second, 2 is 1/2 second, etc.) The number "1" on the dial represents one full second exposure. When set on the "B" setting, the shutter will remain open as long as the Shutter Release Button is depressed. When using the "B" setting, and for exposures longer than 1/30 second, a cable release and tripod should be used to minimize camera movement.

To select a shutter speed, turn the Shutter Speed Dial until the desired speed lines up with the index mark.

NOTE: Shutter speeds may be set before or after the film is advanced, but be careful not to pull up on the Shutter Speed Dial. You may inadvertently change the film speed setting.

5 FOCUSING AND VIEWING





The **mamiya/sekor** MSX is an SLR camera. That means that the image you see in the viewfinder is the same image you will see in the final photograph.

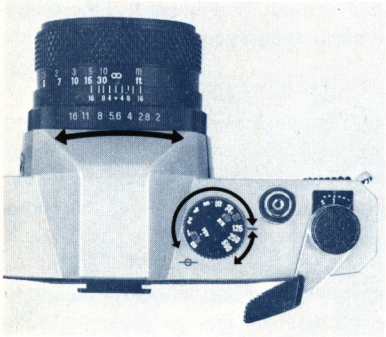
Focusing the MSX is made easier by the micro diaprism focusing grid in the viewfinder. This small, round area in the center of the viewfinder exaggerates the difference between the "in focus" and "out of focus" image. By rotating the focusing ring on the lens barrel until the micro diaprism disappears, the image is brought into focus.

For subjects with irregular outlines, like wooded hillsides, the entire ground glass surrounding the micro diaprism may be easier to focus with, turning the Focusing Ring until the image appears sharp.

INFRA-RED PHOTOGRAPHY

Infra-red light waves focus on a plane slightly behind that of visible light. When using infra-red film you can compensate for this difference by focusing slightly behind your subject. First focus normally until your subject is sharp. Note the position of the Footage Index Mark on the Distance Scale. Rotate the Focusing Ring until the small red dot moves into this position and your lens will be focused for infra-red photography.

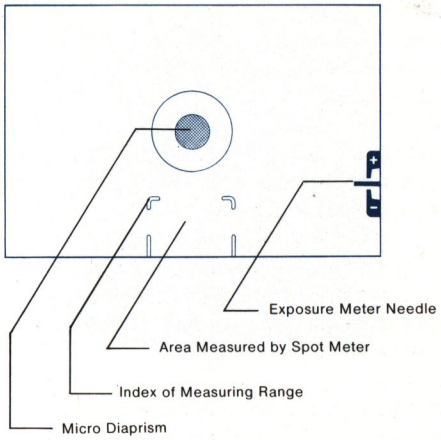
6 SETTING THE EXPOSURE



1. Turn the Shutter Speed Dial until the shutter speed you wish to use lines up with the index mark. Outdoors in bright or hazy sunlight 1/125 second should be fast enough for most situations, depending upon the film you use. Indoors in a well lit room, 1/60 second or slower should be sufficient under most conditions.

2. Look through the viewfinder and aim the camera so the brackets fall on the most important part of the picture. For the most accurate reading be sure the bracketed area doesn't include objects much lighter or darker than the area you want to measure.

3. Rotate the Aperture Ring on the lens until the needle to the right of the finder is centered between the open ends of the index mark. When the needle centers, the exposure will be correct. If the meter needle does not come to the center no matter what aperture you choose, change shutter speeds. When the needle is on the (+) side, the picture is overexposed and you need to select a faster shutter speed. When the needle is on the (−) side, the picture is underexposed and a slower speed should be chosen.

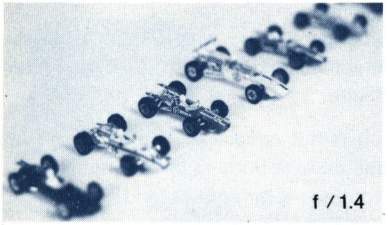


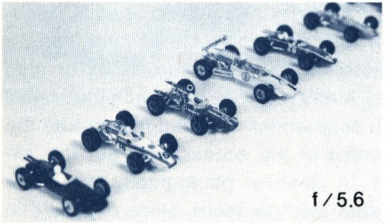
NOTE:
You may reverse the procedure if you wish to use a certain aperture. In this case, select the aperture and center the meter needle by rotating the Shutter Speed Dial.

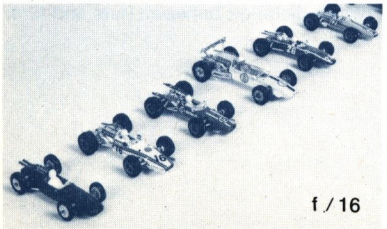
When using SX lenses it is not necessary to push the Film Advance Lever toward the camera body to take a meter reading. This action is taken only to view depth-of-field.

In general photography the meter requires no special calculations or compensation to obtain correct exposures even if filters or close-up accessories such as auto-bellows or auto extension tubes are used. Meter readings taken with the normal lens alone and then with accessories attached may not be the same due to the properties of the accessories, but the exposures will be correct. In close-up photography the meter reading must be taken after the final focus, since exposure in this instance is affected by the distance between lens and film.

7 DEPTH OF FIELD







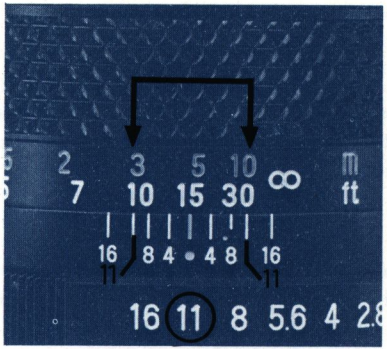
When the camera is focused on an object, an area in front of and behind the object will also be in acceptably sharp focus.
The distance between the nearest and farthest objects in focus is called **Depth-of-Field.**

Each time the aperture is changed, depth-of-field changes also. As the lens is stopped down towards f/16, depth-of-field increases, and as the lens is opened towards f/2, it decreases.

Knowing how to use depth-of-field allows the photographer to use the principles of "selective focus" to eliminate unwanted foreground and background objects from his photographs, and could mean the difference between a snapshot and a successful photograph.

To view the depth-of-field in your photograph with the MSX, bring your subject into sharpest focus and press the Film Advance Lever in towards the camera body. This causes the lens diaphragm to "stop down" (become smaller). The exposure meter needle may deviate from the center of the index mark, but do not readjust the exposure setting. The lens is now at the aperture at which the picture will be taken.

NOTE: When taking exposure meter readings with SX lenses, DO NOT press the Film Advance Lever for meter reading.



The depth-of-field will appear in the viewfinder exactly as it will appear in the finished picture. By changing the focus while the lens diaphragm is stopped down you can select the area of sharpness in your photograph. When using preset or non-automatic lenses the diaphragm must be set manually, but the same results are achieved.

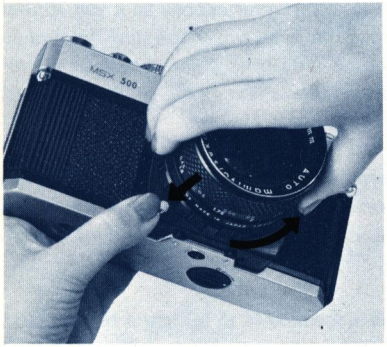
You may also determine the depth-of-field by checking the scale on the lens barrel. Numbers representing lens apertures appear at the near and far limits of depth for any given focus distance and lens opening.

For example, if the standard lens is focused at 15 feet, one of the marks representing f/11 appears at the 10 foot mark and the other at the 30 foot mark. This means that in a photograph focused at 15 feet and the diaphragm set at f/11, everything between 10 and 30 feet will be in acceptably sharp focus.

THE AUTOMATIC LENS

The mamiya/sekor standard lens features an automatic diaphragm to let you view the scene at the lens maximum aperture. When you press the Shutter Release Button the lens will automatically "stop down" to the aperture you selected and re-open immediately.

8 CHANGING LENSES



CAUTION: PLEASE READ THIS SECTION CAREFULLY BEFORE ATTEMPTING TO REMOVE OR INSTALL A LENS.

To remove an automatic lens from your camera, first press the lever retracting button. Hold the camera securely with one hand and **press the Lens Release Button.** With the other hand, firmly grasp the lens and rotate it counterclockwise until all the threads have been disengaged.

To mount the lens, screw the lens threads into the lens mount on the camera body, rotating the lens clockwise until it stops and locks into place with a sharp click. While mounting the lens, never press the lens release button.

Always be sure the film advance lever is retracted and that the threads are properly engaged. If the lens is difficult to screw in, remove it and inspect the threads for dirt or other foreign matter.

Do not touch the reflex mirror in the camera body after removing the lens. Dust particles can be removed with a blower or soft camels hair brush.

IMPORTANT:
Protect your camera body and lens by using lens and body caps.

9 HOLDING THE CAMERA

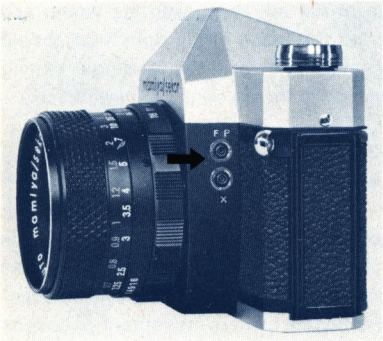
Support the camera in the palm of the left hand, with the thumb and forefinger gripping the focusing ring. The palm of the right hand should fit against the right side of the camera body with the forefinger resting near the Shutter Release Button and the thumb on the camera back.

Look through the viewfinder with the camera resting against the forehead to help steady it, and the left elbow held in against the body.

As a general rule, the camera should not be hand held at shutter speeds slower than 1/60 second. This becomes particularly important when using lenses of longer than normal focal length, where it may be necessary to use even faster speeds to eliminate camera movement. At speeds slower than 1/60, a tripod is a must for the sharpest photographs.

IMPORTANT: When attaching the camera to a tripod that has a long attachment screw, adjust the screw to less than 1/4 inch (6.35mm) to prevent damage to the interior of the camera body.

10 FLASH PHOTOGRAPHY



The flash terminals, marked FP and X (10), allow for a choice of flash synchronizations. The selection of a terminal depends upon the type of flash used, as well as shutter speed. The following table shows the correct combinations to be used in various flash situations. These combinations must be observed to insure correct synchronization.

Shaded areas indicate the shutter speeds at which listed bulbs are to be used, with the cord attached to the correct terminal position.

Flash Synchronization Chart

FLASH TERMINAL	SHUTTER SPEEDS									
	1/500	1/250	1/125	1/60	1/30	1/15	1/8	1/4	1/2	1
FP	FP Class									
					M Class					
X				Electronic Flash						
						M Class				
					FP Class · F Class					

EXPOSURE FOR FLASH PHOTOGRAPHY

In flash photography, exposure is determined by the guide number of the flash bulb or electronic flash unit. The guide number represents a relationship between the power of the flash and the speed of the film. Flashbulb guide numbers can be found on the package they came in. Guide numbers for electronic flash units are found in the manufacturers specifications.

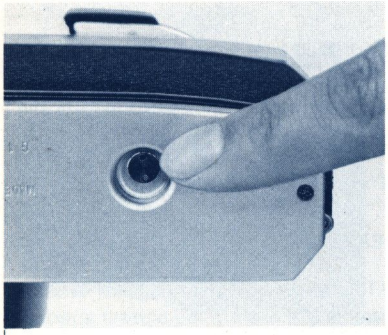
Once you've found the correct shutter speed for your type of flash, (see Flash Synchronization Chart), you can compute the correct lens opening by this formula:

GUIDE NUMBER ÷ LENS-TO-SUBJECT DISTANCE = APERTURE

If the flash you are using has a guide number of 56, for example, and if, after focusing, you determine from the lens barrel Distance Scale that the subject is 7 feet away, divide 56 by 7. The answer is 8; therefore the correct aperture is f/8.

Not only is flash the most effective light source for indoor snapshots and shooting in dark places, but it's also an effective tool for backlighting portraits and filling in shadows. Remember that when flash is used as a supplemental light source, exposure must be based on the light from the main light source (such as the sun).

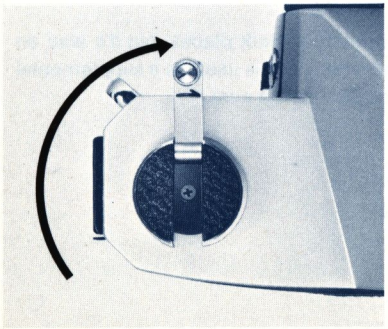
11 REWINDING THE FILM



After a roll of film has been exposed, it must be rewound into its cartridge before being removed from the camera.

Push the rewind button on the camera bottom and slowly turn the rewind knob clockwise until the film pulls free of the take-up spool.

While the film is being rewound, a click can be heard each time a frame is rewound. When the clicking stops the film has been rewound, but if for some reason you're not sure, hold the rewind crank and advance the film lever 3 or 4 strokes. If there is no tension on the rewind crank the film has been completely rewound. Open the camera back, pull up the rewind knob, and remove the film cartridge.

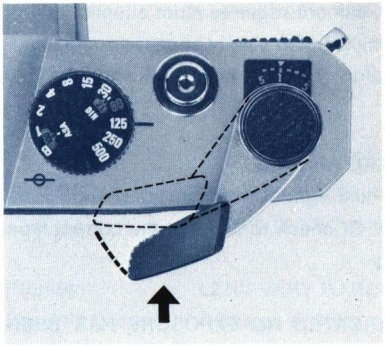


MULTIPLE EXPOSURES

Your new **mamiya/sekor** MSX camera is protected from accidental double exposure under normal picture taking situations since you cannot take a picture until you advance the film and recock the shutter. However, to make double exposures for special effects:

1. Take your first picture in the usual manner.
2. Press the film rewind button on the base of the camera and slowly turn the film rewind knob clockwise until you hear a click. Stop. The click means that you have rewound the film one full frame. Next, advance the film twice. This cocks the shutter and repositions the original frame for the second shot or double exposure.

12 STOPPED DOWN APERTURE OPERATION



Your mamiya/sekor MSX is designed to operate automatically at full aperture with the complete range of SX lenses. However, in some cases exposure must be determined by the "stopped down" method.

A. When using lenses with universal thread mounts, such as those designed for use with the mamiya/sekor TL and DTL series. (With lenses that have an "Automatic/Manual" selector switch, set the switch on "Automatic").

B. When using the SX (or TL/DTL) preset lenses.

C. When photographing with the SX (or TL/DTL) lens separate from the camera body, as when using the SX lenses on accessories like the auto-bellows extension and auto-extension tubes.

To use the "stopped-down" method, press the Film Advance Lever in towards the camera body as far as it will go. Rotate the Aperture Ring or Shutter Speed Dial until the meter needle is centered between the open ends of the index mark.

13 TROUBLE SHOOTING YOUR CAMERA

The proper operation of a precision instrument like the mamiya/sekor MSX camera requires strict attention to the correct manipulation of controls. In many cases, the camera may appear to malfunction simply because some small detail was overlooked, or the operations were not in the proper sequence. Before you decide the camera is broken, there are some things you can look for.

Problem: EXPOSURE METER NEEDLE WILL NOT MOVE TO TAKE READING.

Possible cause: Improper shutter speed/aperture combination for film and light conditions. Try changing the shutter speed/aperture combination until needle reacts. Or check to see that the correct type of battery is being used and has been inserted correctly.

Problem: FILM COMPLETELY BLANK WHEN PROCESSED, INDICATED NO EXPOSURE HAS BEEN MADE

Possible cause: Improper loading. Review the section on film loading and be sure you are loading the camera correctly with the film being securely attached to the take-up spool and winding in the CORRECT DIRECTION, that is UNDER the take-up spool. Film may not have gone through camera at all.

Problem: FLASH PICTURES BLANK OR PARTIALLY EXPOSED.

Possible cause: Improper shutter speed for the type of flash used, or improper cord receptacle used for the type of bulb or shutter speed. Check Flash Synchronization Table carefully.

Problem: LENS VERY HARD TO REMOVE FROM CAMERA. STOP IMMEDIATELY!

Possible cause: Pressure on Film Advance Lever causing automatic diaphragm actuating plate to press against pin on back of lens. THIS CAN CAUSE SERIOUS DAMAGE TO YOUR LENS. DO NOT FORCE THE LENS! Check to be sure the film advance lever is retracted.

Problem: SHUTTER WILL NOT RELEASE.

Possible cause: Film Advance Lever not advanced far enough. A full stroke is necessary to cock the shutter. However, a ratchet incorporated within the film advance mechanism will allow you to accomplish a full wind in a series of short strokes.

If the problems above cannot be solved in the manners suggested, do not attempt to repair the camera yourself. Take it to the nearest service center. A minor problem could be aggravated by tampering.

14 LENS COMPARISON CHART

Description	Construction		Angle of view	Minimum aperture	Operating modes	Closest focus distance	Filter size	Lens hood	Weight
	Groups	Elements							
21mm f/4	8	9	91°	16	Auto	1.5ft or 0.45m	58mm	None required	7 12/16 oz. (220g)
28mm f/2.8	7	7	75°	16	Auto	1ft. or 0.3m	58mm	Slip-on	7 12/16 oz. (220g)
35mm f/2.8	4	7	63°	16	Auto	1.5ft. or 0.4m	52mm	Slip-on	7 6/16 oz. (210g)
50mm f/2	4	6	47°	16	Auto	1.5ft. or 0.45m	52mm	Screw-in	6 8/16 oz. (185g)
55mm f/1.4	5	7	43°	16	Auto	1.5ft. or 0.45m	52mm	Screw-in	8 13/16 oz. (250g)
55mm f/1.8	5	6	43°	16	Auto	1.5ft. or 0.45m	52mm	Screw-in	6 14/16 oz. (195g)
85mm f/2.8	4	4	28°	16	Auto	2.75ft or 0.85m	52mm	Built-in	8 10/16 oz. (245g)
105mm f/2.8	4	4	23°	16	Auto	4ft or 1.2m	52mm	Built-in	9 11/16 oz. (274g)
135mm f/2.8	4	4	18°	22	Auto	5ft. or 1.5m	52mm	Built-in	1 lb. 2 5/16 oz. (520g)
200mm f/3.5	4	4	12°	22	Auto	7.5ft or 2.3m	58mm	Built-in	1 lb. 4 13/16 oz. (590g)
600mm f/8	3	3	4°	32	Preset	33ft or 10m	41.27mm Drop-in Ser. VI	Screw-in	4 lbs. 4 13/16 oz. (1950g)
800mm f/8	4	4	3°	32	Preset	60ft or 18m	41.27mm Drop-in Ser. VI	Screw-in	5 lbs. 6 7/16 oz. (2450g)
Zoom 90—230mm f/4.5	6	11	27°–10°	16	Auto	8ft or 2.5m	58mm	Built-in	2 lbs. 3 4/16 oz. (1000g)
Macro 60mm f/2.8	4	5	40°	22	Preset	9¼in. or 0.235m	58mm	None required	13 6/16 oz. (380g)

A variety of interchangeable lenses are available to add to the versatility of your mamiya/sekor MSX. You can add telephoto lenses to get in closer to those far away scenes, or a wide angle lens so you can get in close and still get everything into your picture.

THE AUTOMATIC LENS

The mamiya/sekor standard lens features an automatic diaphragm to let you view the scene at the lens maximum aperture. When you press the Shutter Release Button the lens will automatically "stop down" to the aperture you selected and re-open immediately.

PRESET LENSES

Preset lenses have 2 parallel rings controlling the aperture setting. One, the **preset ring** has click-stops at the numbered aperture positions. The other, the **diaphragm control ring,** turns freely, without click-stops. Using the stop-down metering method, turn the preset ring until the needle in the viewfinder lines up correctly. Then open the lens to maximum aperture with the **diaphragm control ring,** for focusing. After focusing, close the diaphragm down to the preset position by turning the **diaphragm control ring** in the opposite direction. It will stop at the preset aperture.

15 ACCESSORIES

Filters:

Five different mamiya/sekor filters, (Y2, YG, O2, UV, and SL) are available for each size mentioned in the lens comparison chart.

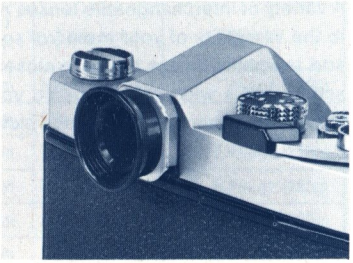
Lens Hood:

Refer to the lens comparison chart. A lens hood is a necessary accessory to keep unwanted light from striking the lens and causing flare.

Diopter Correction Lenses:

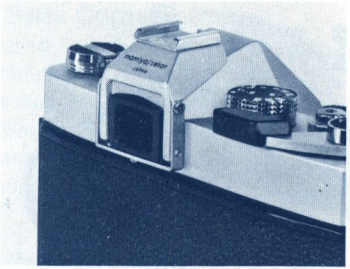
Many near and far-sighted persons have difficulty looking through a camera viewfinder while wearing glasses, but they could not focus accurately without them. This common problem can be corrected by using a diopter correction lens that mounts easily over the viewfinder eyepiece. Diopter correction lenses are available in strengths +3, +2, +1, −1, −2, and −3.

The diopter correction lens is attached using the rubber eye-cup with adapter.



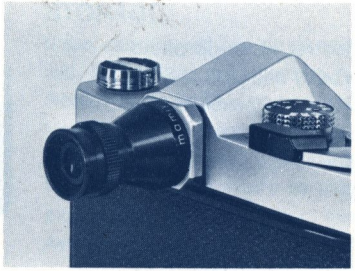
Rubber Eye-cup with Adapter:

The rubber eye-cup helps eliminate unwanted light from entering the viewfinder from the back and sides while viewing.



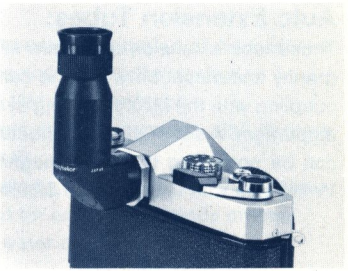
Accessory Shoe model 2:

The accessory shoe permits a clip-on type flash unit to be attached to the camera.



The Magnifier:

The magnifier is a useful aid for critical focusing required in copy work, close-up photography, etc. Only the center portion of the finder image is visible through the magnifier, and the size of the image is doubled. The magnifier provides for a diopter adjustment of +5 to −5.

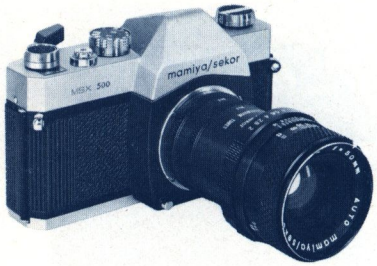


Angle Finder:

The angle finder, useful for waist level or right angle viewing, can be rotated in any direction for more convenient viewing, particularly in close-up and microphotography. The angle finder provides the same magnification as the viewfinder and allows for a diopter adjustment of from +2 to −2. A rubber eye-cup is provided to eliminate unwanted light from entering the viewfinder.

Auto Extension Tubes:

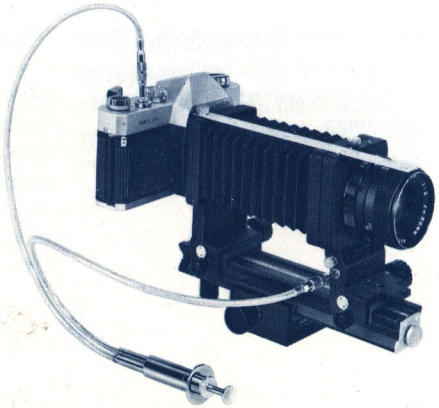
These lens extension tubes are intended for close-up photography and mount between the camera body and lens, directly coupling with the MSX metering system and the lens automatic diaphragm. A set of three connecting tubes of different lengths can be combined to give a magnification range from 0.17 × to 1× life size with the standard 55mm lens.



Auto Bellows:

This is a bellows type unit similar in function to the auto extension tube set, but allowing more flexibility and a greater degree of magnification. Mounted with the 55 mm lens the bellows unit is able to achieve 3.3 × magnification. The prime lens can also be turned around and mounted in the reverse position for optimum corner-to-corner resolution at close distances.

The lens automatic diaphragm is operated by a dual cable release with the bellows attached, and the entire unit can be focused without losing magnification when the focusing rail accessory is used.



Slide Copier:

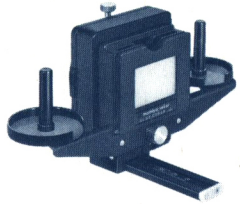
Used with the bellows unit, the slide copying attachment is mounted in front of the lens to allow the photographer to copy slides and film strips. It has a slide stage that moves in any direction to make it easy to crop slides for better composition and a removeable film tray to facilitate copying long rolls of 35 mm film.

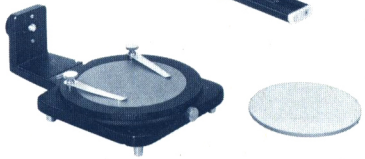
Bellows Stand:

The bellows stand is actually a stage for photographing small objects. The platform rotates to allow for the best positioning of the subject with small clips to hold it in place. The surface of the stage itself has a reflectance of approximately 18%, ideal for exposure measurements. A clear glass stage is provided to allow for backlighting and incident light measurement.

Microscope Adapter:

The microscope adapter permits the MSX camera to be mounted to the eyepieces of a microscope. The cameras built-in exposure metering system provides an accurate light measuring guide for photomicrography.





Portable Copy Stand:

The unit is a light, portable, four legged copy stand used to insure that the cameras film plane is held parallel with the copy material for maximum sharpness. Using a 55 mm lens, flat objects sized from 8-1/4 × 11-3/4 inches (21.0 × 29.7 cm) to 4-1/8 × 5-7/8 inches (10.5 × 14.8 cm) can easily be copied. The stand comes complete with a handy carrying case.

Chest Pod:

This one-legged portable support helps prevent movement when hand-holding your camera or when a larger tripod would be impractical. It proves quite effective in high angle and sports photography where stability and mobility are important.

HELPFUL HINTS

STORAGE:

If the camera will not be used for an extended period of time, store it with the shutter uncocked to relieve tension on the spring.
Remove the battery and retract the film advance lever.
Never store in areas where the temperature exceeds 100 degrees F, or go below freezing (32 degrees F).
Protect against moisture by using silica gel or other desiccant. Never expose the camera to direct sunlight for extended periods of time.
Avoid areas where exposure to salt water or salt air is heavy.

CARE AND CLEANING:

Use a blower or camel hair brush to clean the entire film compartment before loading film into the camera. Never use your breath to blow dust or dirt from the compartment, the moisture can corrode the precision working parts.
To clean the lens surface, rub VERY GENTLY in a circular motion with a high quality lens tissue. In severe cases you can use a very small amount of lens cleaning solution, again wiping in a circular motion. NEVER RUB THE LENS TO REMOVE DIRT OR GRIT! If the dirt will not come loose with a brush or blower, take the camera to a factory approved service technician. Never touch the lens or the reflex mirror with your fingers or any material other than a lens tissue. Dirt on the reflex mirror will not affect your photograph.

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