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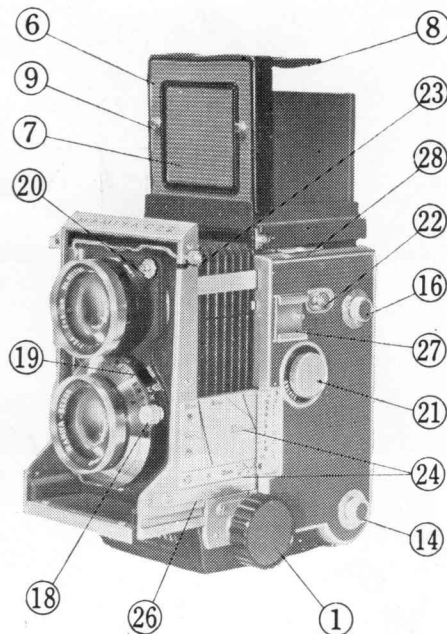
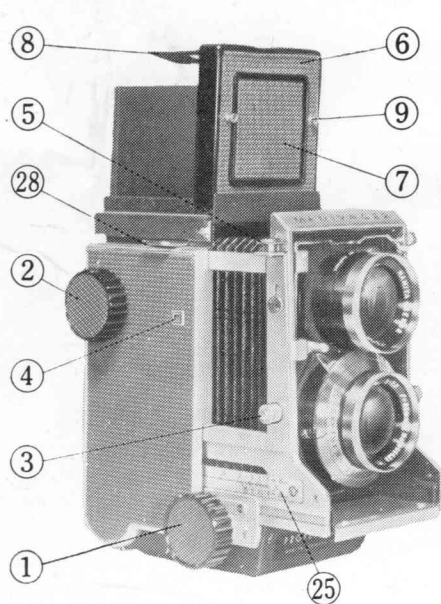
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# **MAMIYA**

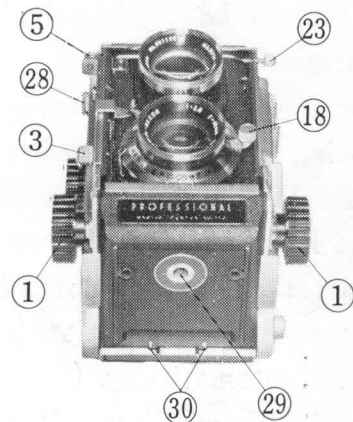
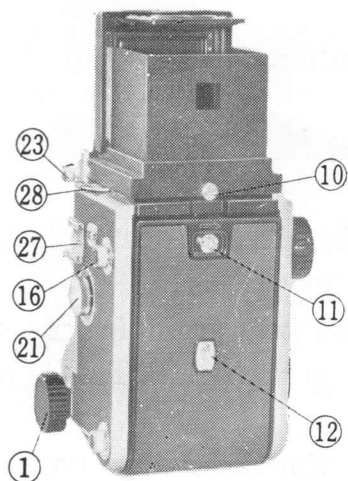
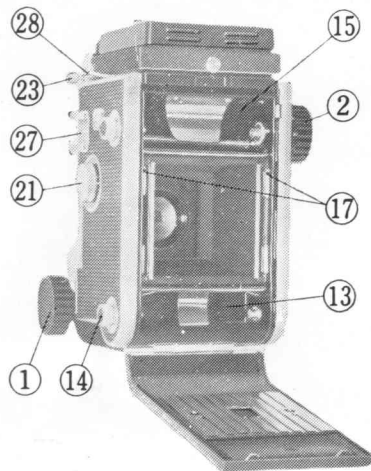
## **C 22**

**OWNER'S  
MANUAL**

# Name of Operating Points



1. Focusing Knobs  
(right and left)
2. Film Advance Knob
3. Shutter Release
4. Exposure Counter
5. Cable Release Socket
6. Focusing Hood
7. Direct Viewfinder Lid
8. Critical Focus Magnifier
9. Auxiliary Mask Studs
10. Focusing Hood Lock
11. Backcover Lock
12. Red Window Slide
13. Film Chamber
14. Film Spool Knob



- 15. Take-up Spool Chamber
- 16. Take-up Spool Knob
- 17. Start Marks (right and left)
- 18. Shutter Cocking Lever
- 19. Synchroflash M-X Selector
- 20. Flash Terminal
- 21. Lens Assembly Changing Knob
- 22. Lens Assembly Lock

- 23. Lens Locking Device
- 24. Distance Scale (left)
- 25. Distance Scale (right)
- 26. Exposure Correction Scale
- 27. Accessory Shoe
- 28. Strap Eyelets
- 29. Tripod Socket
- 30. Backcover Hinge Release

## FOCUSING HOOD

1. When the hood⑥is raised, it will automatically snap into upright position.
2. By pressing lid⑦inward, the critical focus magnifier ⑧ will spring into proper position.
3. Pressing down lid⑦, until secured by catch on the bottom of the hood, creates a direct (eye-level) viewfinder.
4. To return lid⑦to normal position: slightly press in and release the hood side plate (on the take-up knob side). The lid will close automatically. (See Fig. 1)
5. To fold hood: first, close the direct viewfinder lid; then press down the magnifier; fold the left and right side plates and then the back plate and while holding these, collapse front.

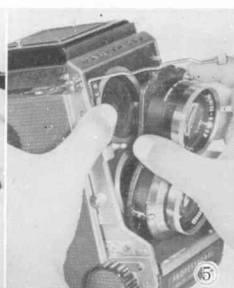


## FOCUSING

1. The method of focusing is exactly the same as for any ordinary twin-lens reflex camera. A focusing knob①is provided on both sides of the camera. Use the one most convenient.
2. When using the direct viewfinder in conjunction with the 80mm lens, remove the auxiliary mask attached to the front of the focusing hood⑥.
3. When 65mm, 105mm, 135mm or 180mm lens is used, place the appropriate mask on the mask studs⑨.

# LENS CHANGING

1. Before changing lens assembly it is imperative that the lens mount be fully retracted into the camera body. Do this by using focusing knob①.
2. Next, turn the lens changing knob②to "UNLOCK" position. (Fig. 2)
3. Push the lens assembly lock②toward camera front. (Fig. 3)
4. Then while pulling the knurled head of the locking device②release the catch lock. The lens can now be removed. (Figs. 4 and 5)
5. Carefully mount the lens to be used, return the locking device②to its former position and turn knob②to "LOCK." The lens assembly-lock②automatically returns to "LOCK" position.(Fig.6)
6. If changing knob②is not returned to "LOCK" position, a red warning signal appears on the focusing screen indicating that light cannot strike film surface. No picture will register on film until knob②is in "LOCK" position.



# LOADING OR UNLOADING OF FILM



1. To open camera back turn red dot of lock button⑪ from left 90° to the top position, then push to the right in direction of arrow. The backcover can now be opened. Opening the backcover automatically returns exposure counter ④ to "0".

2. Loading and unloading film is done in the same manner as other twin-lens cameras.

3. After loading film, turn the film advance knob②until start symbol on the film backing is aligned with marks ⑰ of the camera. (Fig. 7) Secure both sides of the backcover firmly by applying pressure to the right side of the backcover lock ⑪. (Fig. 8) Turn red dot back to former position.

4. Turn film advance knob②clockwise until it stops. The first



frame is now in position and the exposure counter ④ will indicate 1. Cock shutter and release for picture taking.

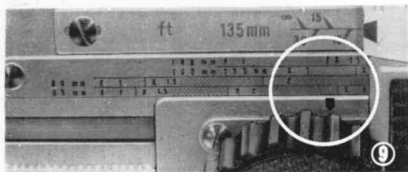
5. Subsequent film advances are made in the same manner. Be sure to cock shutter ⑱ before each shot.
6. The yellow pointer (turned by the rotation of the take-up knob) located on right side of take-up chamber ⑲ simplifies the unloading of exposed film. Set this pointer on the white mark on the camera body, pull out take-up spool knob ⑳. The exposed film can be removed easily.

### **Precautions**

1. In picture taking, the shutter release ③ is sometimes accidentally pressed without first cocking the shutter, in which case the shutter cannot operate. Cock the shutter and avoid undue pressure on the mechanism.
2. The red window slide ⑫ is used to check whether or not the camera is loaded with film.



# PICTURE TAKING



## Precautions in close-up photography

As the distance between the lens and film increases, it is necessary to increase the exposure time. For this reason, before exposure, constantly note the exposure correction scale<sup>(26)</sup> and remember to adjust the shutter speed or aperture according to the brightness of the subject. In close-up photography this precaution is especially important. (Fig. 9)

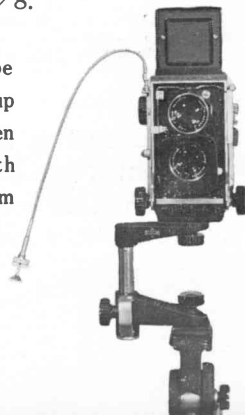
Suppose you are using an 80-mm lens and have focused the camera on a subject

and the indication of the exposure correction scale is as shown in the photograph. The reading of the scale indicates that it is necessary to double the exposure much in the same way as when a filter of x2 rating is being used.

If the brightness of the subject, as measured by an exposure meter, calls for  $1/60$  second at  $F/8$ , it is necessary to adjust the settings to  $1/60$  second at  $F/5.6$  or  $1/30$  second at  $F/8$ .

## Precautions on parallax

1. In addition, attention must be paid to parallax in close-up photography...especially when using such short focal length lenses as 65mm and 80mm lens assemblies.
2. When taking pictures with the camera hand held, use the correction scale on the ground glass for

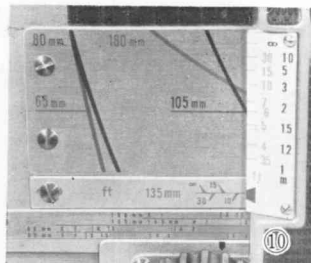


focusing. With 80mm lens, if the subject is in a range which requires a  $\times 1.5$  exposure, on the focusing screen, the section above the 1.5 line (first line from the lens side) is marked off: as the subject approaches the camera, the parallax increases; as it reaches  $\times 2$  exposure, the section above the second line on the ground glass is not considered. When the subject is at an intermediate position, the decision is optional. When it is in the range of  $\times 3$  exposure, the upper half of the ground glass is not used. This relationship is exactly the same when other assemblies are used. For the lens assemblies with focal length longer than 105mm and at a position where the lens is fully extended, the section above the second line is not used.

3. When a tripod or stand is used, the parallax compensation mount (Paramender) will permit you to sight and focus without any parallax.

### **Distance and Depth of Field Problems**

1. The curves and scale above the exposure correction scale ②⑥ make up the distance scale ②④.



The point at which the curve for each lens and the edge of the scale intersect is the distance indication. However, for 135mm lens, a separate scale is provided; in this case, the distance is read directly on the scale. (Fig. 10)

2. Use the distance scale ②⑤ on the right side when a grip holder is attached to camera and reading of distance scale is necessary. This scale is for 65mm and 80mm lenses.

3. When it is necessary to check the depth of field, use the distance scale or actual measurement from the subject to the film plane and then refer to the depth of field table.

## CHANGING FOCUSING HOOD



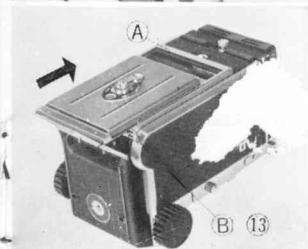
1. Loosen the focusing hood lock ⑩ and lift the rear of the hood to remove. (Fig. 11)
2. To mount, after inserting the pin into the D-groove, fit the hood lock ⑩ in the rear U-groove and tighten.

## SINGLE EXPOSURE PHOTOGRAPHY

1. Remove backcover by pushing inward the backcover hinge release ③⑩, lock pivots by turning up into the slots, and finally unlock and release backcover lock. The backcover will come off completely. (Fig. 12)
2. Next, be sure to remove the spool from the camera and attach the special single-exposure



backcover ①. Insert a frame loaded with a slide plate or cut film into the groove of the backcover and lock with the catch ②. (Figs. 13, 14) You are now ready for single exposure photography.



## FLASH PHOTOGRAPHY

1. Attach flash unit to accessory shoe and connect cord to flash terminal ②. Either of the incorporated viewfinders can be used conveniently, or the accessory PORROFLEX.
2. M or X contact can be selected with lever ③. Selection can be made before or after the shutter has been cocked.
3. With M contact, use M class bulbs (with time lag of approximately 20 milli-seconds). Perfect synchronization is assured up to and including 1/500.
4. X contact is for the electronic flash for all shutterspeeds, or with ordinary flashbulbs at shutterspeeds not exceeding 1/30 second.
5. When synchroflash is not being used, turn the selector lever ③ to "X."

# INTERCHANGEABLE LENS ASSEMBLIES

(MAMIYA-SEKOR lens with SEIKOSHA-S shutter)

## **Wide Angle** (F 3.5, 65mm, 63° picture angle)

A 6-element, 5-group, of retrofocus construction which is unsurpassed for brilliance, sharpness and color fidelity. When used in press and candid photography in which wide picture angle is important, this lens exhibits its abilities most effectively. This lens can also be used in close-up photography focusing to about 4 inches, making it suitable for copying and other close-range work.

## **Standard Lens** (F 2.8, 80mm, 50°40' picture angle)

5-element, 3-group composition. Extra close-up photography (up to approximately 7 inches between lens and subject) is possible; it is suitable for copying documents and other reference material because of its high resolution.

## **Long Focal Length Lens** (F 3.5, 105mm, 41° picture angle)

This is a general purpose lens of 4-element, 3-group composition; for landscapes, portraits, copying or for color, etc., this lens gives most natural pictures.

## **Long Focal Length Lens** (F 4.5, 135mm, 33° picture angle)

Ingeniously designed 4-element, 3-group, fully corrected anastigmat, this lens gives reproductions of extreme naturalness and depth, which cannot be obtained with conventional twin-lens reflex cameras using lenses of 75mm focal length or thereabouts. This fully corrected anastigmat is ideal for portraiture, commercial art photography, scientific and industrial documentation.

### **Telephoto Lens** (F 4.5, 180mm, 24°30' picture angle)

A 4-element, 3-group, fully corrected, and unique lens, because of its telephoto design and construction, it does not differ much in physical length from the 135mm assembly, and is particularly suitable for stage action photography, portraiture, and candid shots in situations where the subject cannot be easily approached.

### **CLOSE-RANGE PHOTOGRAPHY TABLE**

Type of Lens	Minimum Distance from Film to Subject	Subject Coverage at Minimum Distance
65-mm	$10\frac{9}{16}"$	$2\frac{3}{8}" \times 2\frac{3}{8}"$
80-mm	1' $1\frac{1}{2}"$	$3\frac{1}{8}" \times 3\frac{1}{8}"$
105-mm	1' $10\frac{13}{16}"$	$7\frac{1}{16}" \times 7\frac{1}{16}"$
135-mm	2' $8\frac{7}{16}"$	$9" \times 9"$
180-mm	3' $10\frac{13}{16}"$	$9\frac{1}{4}" \times 9\frac{1}{4}"$



# ACCESSORIES

**Lens Hoods :** Four types are available



for 65mm



for 80mm and 105mm



for 135mm



for 180mm

**Caution:** When attaching the hoods for the 135mm and 180mm lenses, the securing screw side should be fitted to the picture-taking (not viewfinding) lens. Otherwise the dividing partition will obstruct picture-taking.

## **Filters** (by Toshiba)

Filters are available in three sizes: 40.5mm, screw-in, for 80mm and 105mm lenses; 40mm, crew-in, for 135mm lens and 49mm, screw-in, for 65mm and 180mm lenses. (Y1), (Y2), (O2), (YG) color filters, (UV) ultraviolet filter and (SL) Sunlite for color film are available.

**Caution:** When attaching filter to 180mm telephoto lens, remove the guard ring (thin chrome plated ring) by turning it counterclockwise before screwing on the filter. Always replace the guard ring when filter is not being used. When purchasing filter, be sure to specify

MAMIYA C. The filters of other makes may not fit even though the diameter is identical.

### **Paramender** (Parallax Corrector)

An accessory used between the camera and tripod or other mount, the PARAMENDER permits the lowering of the viewfinding lens of the picture taking position for elimination of parallax during focusing and composing. Before releasing the shutter raise the camera until it stops. The picture-taking lens comes into the position of the viewfinding lens and parallax is thus completely eliminated.

### **Single-exposure Attachment**

By using this device single exposures are possible. Results can be checked immediately by developing and printing.

### **Porroflex**

This mirror reflex attachment permits eye-level photography in which the image is properly oriented. Used in place of the standard focusing hood the PORROFLEX is indispensable for snap and newspaper photography.

### **Grip Holder**

This accessory is especially handy in carrying and steadying the camera. It also provides a mount for the flash unit.

### **Special Gadget Bag**

For carrying the camera, interchangeable lenses, etc.





# DEPTH OF FIELD TABLE

**MAMIYA-SEKOR 6.5 CM, F 3.5** (Circle of Confusion 3.1/1,000 inch)

Aperture	Distance (in Feet)												
	$\infty$	30	15	7	5	3	2.5	2.25	1.75	1.5	1.25	1	0.9
3.5	50' 2 $\frac{3}{4}$ "	18' 11 $\frac{1}{4}$ "	11' 8"	6' 2 $\frac{1}{2}$ "	4' 7 $\frac{1}{4}$ "	2' 10 $\frac{1}{2}$ "	2' 5"	2' 2 $\frac{1}{4}$ "	1' 8 $\frac{9}{16}$ "	1' 5 $\frac{1}{16}$ "	1' 2 $\frac{13}{16}$ "	11 $\frac{3}{32}$ "	10 $\frac{3}{4}$ "
	$\infty$	73' 1 $\frac{1}{4}$ "	21' 1"	8' $\frac{1}{4}$ "	5' 5 $\frac{3}{4}$ "	3' 1 $\frac{3}{4}$ "	2' 7 $\frac{1}{4}$ "	2' 4"	1' 9 $\frac{15}{32}$ "	1' 6 $\frac{5}{16}$ "	1' 3 $\frac{3}{16}$ "	1' $\frac{3}{32}$ "	10 $\frac{3}{32}$ "
4	43' 11 $\frac{1}{2}$ "	17' 11 $\frac{3}{4}$ "	11' 3 $\frac{3}{4}$ "	6' 1 $\frac{1}{2}$ "	4' 6 $\frac{1}{2}$ "	2' 10 $\frac{1}{4}$ "	2' 4 $\frac{3}{4}$ "	2' 2"	1' 8 $\frac{1}{2}$ "	1' 5 $\frac{3}{32}$ "	1' 2 $\frac{1}{16}$ "	11 $\frac{3}{32}$ "	10 $\frac{3}{4}$ "
	$\infty$	92' 1 $\frac{1}{4}$ "	22' 4 $\frac{1}{2}$ "	8' 2 $\frac{1}{4}$ "	5' 6 $\frac{3}{4}$ "	3' 2"	2' 7 $\frac{1}{4}$ "	2' 4"	1' 9 $\frac{1}{2}$ "	1' 6 $\frac{1}{32}$ "	1' 3 $\frac{3}{32}$ "	1' $\frac{3}{32}$ "	10 $\frac{3}{32}$ "
5.6	31' 5 $\frac{1}{2}$ "	15' 6 $\frac{1}{4}$ "	10' 3 $\frac{1}{2}$ "	5' 9 $\frac{3}{4}$ "	4' 4 $\frac{3}{4}$ "	2' 9 $\frac{1}{2}$ "	2' 4 $\frac{1}{4}$ "	2' 1 $\frac{3}{4}$ "	1' 8 $\frac{9}{32}$ "	1' 5 $\frac{3}{32}$ "	1' 2 $\frac{23}{32}$ "	11 $\frac{7}{8}$ "	10 $\frac{23}{32}$ "
	$\infty$	55' 9"	27' 11"	8' 9 $\frac{3}{4}$ "	5' 9 $\frac{3}{4}$ "	3' 3"	2' 8"	2' 4 $\frac{1}{2}$ "	1' 9 $\frac{25}{32}$ "	1' 6 $\frac{1}{2}$ "	1' 3 $\frac{3}{32}$ "	1' $\frac{1}{8}$ "	10 $\frac{7}{8}$ "
8	22' 1"	12' 10 $\frac{1}{2}$ "	9' 1"	5' 5 $\frac{1}{4}$ "	4' 2"	2' 8 $\frac{1}{2}$ "	2' 3 $\frac{3}{4}$ "	2' 1 $\frac{1}{4}$ "	1' 8"	1' 5 $\frac{1}{32}$ "	1' 2 $\frac{19}{32}$ "	11 $\frac{13}{16}$ "	10 $\frac{13}{16}$ "
	$\infty$	$\infty$	44' 5 $\frac{3}{4}$ "	9' 11"	6' 3"	3' 4 $\frac{1}{2}$ "	2' 8 $\frac{3}{4}$ "	2' 5 $\frac{1}{4}$ "	1' 10 $\frac{1}{8}$ "	1' 6 $\frac{3}{4}$ "	1' 3 $\frac{1}{16}$ "	1' $\frac{3}{16}$ "	10 $\frac{23}{32}$ "
11	16' 1 $\frac{1}{2}$ "	10' 7 $\frac{1}{2}$ "	7' 11 $\frac{1}{4}$ "	5' $\frac{1}{4}$ "	3' 11 $\frac{1}{4}$ "	2' 7 $\frac{1}{2}$ "	2' 3"	2' $\frac{1}{2}$ "	1' 7 $\frac{21}{32}$ "	1' 5 $\frac{3}{32}$ "	1' 2 $\frac{15}{32}$ "	11 $\frac{3}{4}$ "	10 $\frac{23}{32}$ "
	$\infty$	$\infty$	175' 8"	11' 9 $\frac{1}{4}$ "	6' 11"	3' 6 $\frac{1}{4}$ "	2' 10"	2' 6"	1' 10 $\frac{19}{32}$ "	1' 7 $\frac{1}{32}$ "	1' 3 $\frac{19}{32}$ "	1' $\frac{1}{4}$ "	10 $\frac{13}{16}$ "
16	11' 1 $\frac{3}{4}$ "	8' 3"	6' 6 $\frac{3}{4}$ "	4' 5 $\frac{1}{2}$ "	3' 7 $\frac{1}{4}$ "	2' 5 $\frac{3}{4}$ "	2' 1 $\frac{3}{4}$ "	1' 11 $\frac{1}{2}$ "	1' 7 $\frac{7}{32}$ "	1' 4 $\frac{3}{32}$ "	1' 2 $\frac{1}{4}$ "	11 $\frac{21}{32}$ "	10 $\frac{13}{32}$ "
	$\infty$	$\infty$	$\infty$	17' 2 $\frac{1}{4}$ "	8' 5"	3' 10 $\frac{1}{4}$ "	3' $\frac{1}{4}$ "	2' 7 $\frac{3}{4}$ "	1' 11 $\frac{11}{32}$ "	1' 7 $\frac{1}{16}$ "	1' 3 $\frac{3}{8}$ "	1' $\frac{3}{8}$ "	11"
22	8' 2"	6' 6 $\frac{1}{4}$ "	5' 5 $\frac{1}{4}$ "	3' 11 $\frac{1}{4}$ "	3' 3"	2' 4"	2' $\frac{1}{2}$ "	1' 10 $\frac{1}{2}$ "	1' 6 $\frac{1}{2}$ "	1' 4 $\frac{3}{32}$ "	1' 1 $\frac{3}{32}$ "	11 $\frac{17}{32}$ "	10 $\frac{17}{32}$ "
	$\infty$	$\infty$	$\infty$	39' $\frac{3}{4}$ "	11' 5"	4' 3 $\frac{3}{4}$ "	3' 3 $\frac{1}{2}$ "	2' 10"	2' $\frac{15}{32}$ "	1' 8 $\frac{1}{4}$ "	1' 4 $\frac{1}{4}$ "	1' $\frac{17}{32}$ "	11 $\frac{3}{32}$ "
32	5' 8 $\frac{1}{4}$ "	4' 10 $\frac{1}{4}$ "	4' 3"	3' 3 $\frac{1}{2}$ "	2' 10"	2' 1 $\frac{1}{2}$ "	1' 10 $\frac{1}{2}$ "	1' 9"	1' 5 $\frac{5}{16}$ "	1' 3 $\frac{3}{8}$ "	1' 1 $\frac{1}{16}$ "	11 $\frac{15}{32}$ "	10 $\frac{15}{32}$ "
	$\infty$	$\infty$	$\infty$	$\infty$	29' $\frac{3}{4}$ "	5' 5 $\frac{1}{4}$ "	3' 10 $\frac{1}{4}$ "	3' 2 $\frac{3}{4}$ "	2' 2 $\frac{1}{16}$ "	1' 9 $\frac{1}{32}$ "	1' 4 $\frac{3}{32}$ "	1' $\frac{5}{32}$ "	11 $\frac{1}{4}$ "

# DEPTH OF FIELD TABLE

MAMIYA-SEKOR 10.5 CM, F 3.5 (Circle of Confusion 3.1/1,000 inch)

Aperture	Distance (in feet)									
	$\infty$	30	15	10	7	5	4.5	4	3	2
3.5	131' $5\frac{1}{4}"$ $\infty$	24' 7" 38' $6\frac{1}{2}"$	13' $6\frac{3}{4}"$ 16' $9\frac{1}{2}"$	9' $4\frac{1}{4}"$ 10' $8\frac{3}{4}"$	6' $8\frac{1}{4}"$ 7' 4"	4' $10\frac{1}{4}"$ 5' 2"	4' $4\frac{1}{2}"$ 4' $7\frac{1}{2}"$	3' 11" 4' 1"	2' $11\frac{13}{32}"$ 3' $\frac{9}{16}"$	1' $11\frac{27}{32}"$ 2' $\frac{3}{16}"$
4	115' $\frac{1}{2}"$ $\infty$	23' $11\frac{1}{2}"$ 40' 2"	13' $4\frac{1}{2}"$ 17' 1"	9' $3\frac{1}{4}"$ 10' $10\frac{1}{4}"$	6' $7\frac{3}{4}"$ 7' $4\frac{1}{2}"$	4' 10" 5' $2\frac{1}{4}"$	4' $4\frac{1}{2}"$ 4' $7\frac{3}{4}"$	3' $10\frac{3}{4}"$ 4' $1\frac{1}{4}"$	2' $11\frac{13}{32}"$ 3' $\frac{5}{8}"$	1' $11\frac{13}{16}"$ 2' $\frac{3}{16}"$
5.6	82' $3\frac{1}{4}"$ $\infty$	22' $2\frac{1}{4}"$ 46' $6\frac{1}{4}"$	12' $9\frac{3}{4}"$ 18' $1\frac{1}{4}"$	9' $\frac{1}{4}"$ 11' $2\frac{3}{4}"$	6' $6\frac{1}{4}"$ 7' $6\frac{3}{4}"$	4' $9\frac{1}{4}"$ 5' 3"	4' $3\frac{3}{4}"$ 4' $8\frac{1}{2}"$	3' $10\frac{1}{4}"$ 4' $1\frac{3}{4}"$	2' $11\frac{5}{16}"$ 3' $\frac{7}{8}"$	1' $11\frac{23}{32}"$ 2' $\frac{9}{32}"$
8	57' $8\frac{1}{4}"$ $\infty$	19' $11\frac{3}{4}"$ 60' $11\frac{3}{4}"$	12' 1" 19' $10\frac{1}{2}"$	8' $7\frac{3}{4}"$ 11' $10\frac{1}{2}"$	6' 4" 7' $9\frac{1}{4}"$	4' $8\frac{1}{4}"$ 5' $4\frac{1}{2}"$	4' 3" 4' $9\frac{1}{2}"$	3' $9\frac{3}{4}"$ 4' $2\frac{3}{4}"$	2' $10\frac{13}{16}"$ 3' 1' $\frac{9}{32}"$	1' $11\frac{5}{8}"$ 2' $\frac{13}{32}"$
11	42' $\frac{1}{2}"$ $\infty$	17' $9\frac{1}{4}"$ 100' $\frac{1}{2}"$	11' 3" 22' $7\frac{3}{4}"$	8' 3" 12' $9\frac{1}{4}"$	6' $1\frac{1}{2}"$ 8' $2\frac{1}{4}"$	4' $6\frac{3}{4}"$ 5' $6\frac{1}{4}"$	4' 2" 4' 11"	3' $8\frac{3}{4}"$ 4' $3\frac{3}{4}"$	2' $10\frac{13}{32}"$ 3' $1\frac{25}{32}"$	1' $11\frac{15}{32}"$ 2' $\frac{9}{16}"$
16	28' $11\frac{1}{2}"$ $\infty$	15' $\infty$	10' $1\frac{1}{2}"$ 29' 7"	7' $7\frac{3}{4}"$ 14' $7\frac{1}{2}"$	5' $9\frac{3}{4}"$ 8' $10\frac{1}{2}"$	4' $4\frac{3}{4}"$ 5' $9\frac{3}{4}"$	4' $\frac{1}{4}"$ 5' $1\frac{1}{2}"$	3' $7\frac{1}{2}"$ 4' $5\frac{1}{2}"$	2' $9\frac{23}{32}"$ 3' $2\frac{11}{16}"$	1' $11\frac{1}{4}"$ 2' $\frac{13}{16}"$
22	21' $2\frac{1}{4}"$ $\infty$	12' 8" $\infty$	9' $\frac{1}{2}"$ 38' $6\frac{1}{2}"$	7' $\frac{1}{4}"$ 17' 9"	5' $5\frac{1}{2}"$ 9' $10\frac{1}{2}"$	4' $2\frac{1}{2}"$ 6' $2\frac{1}{4}"$	3' $10\frac{1}{2}"$ 5' 5"	3' 6" 4' 8"	2' $8\frac{15}{16}"$ 3' $3\frac{25}{32}"$	1' $10\frac{31}{32}"$ 2' $1\frac{5}{32}"$
32	14' 8" $\infty$	10' 1" $\infty$	7' $8\frac{1}{4}"$ 5180' $3\frac{1}{4}"$	6' $2\frac{1}{2}"$ 27' $9\frac{1}{4}"$	4' $11\frac{3}{4}"$ 12' $2\frac{1}{4}"$	3' $11\frac{1}{4}"$ 6' $11\frac{3}{4}"$	3' $7\frac{3}{4}"$ 5' $11\frac{3}{4}"$	3' 4" 5' $\frac{3}{4}"$	2' $7\frac{3}{4}"$ 3' $5\frac{23}{32}"$	1' $10\frac{1}{2}"$ 2' $1\frac{23}{32}"$

# MAMIYA-SEKOR 8.0 CM, F 2.8 (Circle of Confusion 3.1/1,000 inch)

Aperture	Distance (in feet)										
	$\infty$	30	15	10	7	5	4	3	1.5	1.15	1.1
2.8	102' 7"	23' 4 $\frac{1}{4}$ "	13' 2"	9' 2"	6' 7 $\frac{1}{4}$ "	4' 9 $\frac{3}{4}$ "	3' 10 $\frac{1}{2}$ "	2' 11 $\frac{1}{4}$ "	1' 5 $\frac{7}{8}$ "	1' 1 $\frac{3}{4}$ "	1' 1 $\frac{3}{16}$ "
	$\infty$	42' 1 $\frac{1}{4}$ "	17' 5"	11'	7' 5 $\frac{1}{2}$ "	5' 2 $\frac{1}{2}$ "	4' 1 $\frac{1}{2}$ "	3' 3 $\frac{3}{4}$ "	1' 6 $\frac{1}{4}$ "	1' 1 $\frac{37}{32}$ "	1' 1 $\frac{7}{32}$ "
4	71' 10 $\frac{1}{2}$ "	21' 4"	12' 6 $\frac{1}{4}$ "	8' 10 $\frac{1}{2}$ "	6' 5 $\frac{1}{4}$ "	4' 8 $\frac{3}{4}$ "	3' 10"	2' 11"	1' 5 $\frac{21}{32}$ "	1' 1 $\frac{3}{4}$ "	1' 1 $\frac{5}{32}$ "
	$\infty$	50' 9 $\frac{1}{4}$ "	18' 8 $\frac{3}{4}$ "	11' 5 $\frac{3}{4}$ "	7' 8"	5' 3 $\frac{3}{4}$ "	4' 2 $\frac{1}{4}$ "	3' 1 $\frac{1}{4}$ "	1' 6 $\frac{5}{32}$ "	1' 1 $\frac{27}{32}$ "	1' 1 $\frac{7}{32}$ "
5.6	51' 5"	19' 1 $\frac{1}{2}$ "	11' 9"	8' 5 $\frac{3}{4}$ "	6' 3"	4' 7 $\frac{1}{2}$ "	3' 9 $\frac{1}{4}$ "	2' 10 $\frac{1}{2}$ "	1' 5 $\frac{25}{32}$ "	1' 1 $\frac{23}{32}$ "	1' 1 $\frac{5}{32}$ "
	$\infty$	70' 4"	20' 9 $\frac{1}{2}$ "	12' 2 $\frac{1}{2}$ "	7' 11 $\frac{3}{4}$ "	5' 5 $\frac{1}{2}$ "	4' 3 $\frac{1}{4}$ "	3' 1 $\frac{1}{2}$ "	1' 6 $\frac{1}{4}$ "	1' 1 $\frac{7}{8}$ "	1' 1 $\frac{1}{4}$ "
8	36' 3 $\frac{3}{4}$ "	16' 7"	10' 9 $\frac{1}{4}$ "	7' 11 $\frac{1}{2}$ "	5' 11 $\frac{3}{4}$ "	4' 5 $\frac{3}{4}$ "	3' 8"	2' 10"	1' 5 $\frac{21}{32}$ "	1' 1 $\frac{11}{16}$ "	1' 1 $\frac{5}{32}$ "
	$\infty$	167' 5 $\frac{3}{4}$ "	24' 11 $\frac{1}{2}$ "	13' 5 $\frac{3}{4}$ "	8' 5 $\frac{3}{4}$ "	5' 8"	4' 4 $\frac{3}{4}$ "	3' 2 $\frac{1}{4}$ "	1' 6 $\frac{11}{32}$ "	1' 1 $\frac{23}{32}$ "	1' 1 $\frac{1}{4}$ "
11	26' 3 $\frac{1}{2}$ "	14' 2 $\frac{1}{2}$ "	9' 8 $\frac{3}{4}$ "	7' 5"	5' 8"	4' 3 $\frac{3}{4}$ "	3' 6 $\frac{3}{4}$ "	2' 9 $\frac{1}{4}$ "	1' 5 $\frac{9}{16}$ "	1' 1 $\frac{21}{32}$ "	1' 1 $\frac{1}{4}$ "
	$\infty$	$\infty$	33' 3 $\frac{3}{4}$ "	15' 6 $\frac{1}{2}$ "	9' 2 $\frac{1}{2}$ "	5' 11 $\frac{3}{4}$ "	4' 6 $\frac{3}{4}$ "	3' 3 $\frac{1}{4}$ "	1' 6 $\frac{15}{32}$ "	1' 1 $\frac{15}{16}$ "	1' 1 $\frac{5}{32}$ "
16	18' 1 $\frac{3}{4}$ "	11' 6"	8' 5"	6' 7 $\frac{1}{2}$ "	5' 2 $\frac{1}{2}$ "	4' 3 $\frac{1}{4}$ "	3' 4 $\frac{3}{4}$ "	2' 8"	1' 5 $\frac{11}{32}$ "	1' 1 $\frac{13}{32}$ "	1' 1 $\frac{3}{32}$ "
	$\infty$	$\infty$	76' 3 $\frac{1}{4}$ "	20' 10 $\frac{1}{4}$ "	10' 9 $\frac{1}{2}$ "	6' 6 $\frac{3}{4}$ "	4' 10 $\frac{1}{2}$ "	3' 5"	1' 6 $\frac{23}{32}$ "	1' 2"	1' 1 $\frac{5}{16}$ "
22	13' 3 $\frac{1}{4}$ "	9' 4 $\frac{1}{2}$ "	7' 3"	5' 10 $\frac{3}{4}$ "	4' 9 $\frac{1}{4}$ "	3' 9 $\frac{1}{2}$ "	3' 2 $\frac{3}{4}$ "	2' 7"	1' 5 $\frac{1}{8}$ "	1' 1 $\frac{17}{32}$ "	1' 1 $\frac{1}{32}$ "
	$\infty$	$\infty$	$\infty$	35' 8"	13' 7"	7' 5 $\frac{1}{4}$ "	5' 4"	3' 7 $\frac{1}{2}$ "	1' 7"	1' 2 $\frac{3}{32}$ "	1' 1 $\frac{3}{8}$ "
32	9' 2 $\frac{1}{4}$ "	7' 2 $\frac{1}{4}$ "	5' 10 $\frac{3}{4}$ "	5'	4' 2 $\frac{1}{4}$ "	3' 5 $\frac{1}{4}$ "	2' 11 $\frac{1}{2}$ "	2' 5"	1' 4 $\frac{25}{32}$ "	1' 1 $\frac{13}{32}$ "	1' 3 $\frac{1}{32}$ "
	$\infty$	$\infty$	$\infty$	$\infty$	24' 2 $\frac{1}{4}$ "	9' 7 $\frac{3}{4}$ "	6' 3 $\frac{1}{4}$ "	4'	1' 7 $\frac{1}{2}$ "	1' 2 $\frac{7}{32}$ "	1' 1 $\frac{1}{16}$ "

# MAMIYA-SEKOR 13.5 CM, F 4.5 (Circle of Confusion 3.1/1,000 inch)

Aperture	Distance (in feet)								
	$\infty$	30	15	10	7	6	4	3.5	3
4.5	159' $3\frac{1}{2}''$ $\infty$	25' $4\frac{3}{4}''$ 36' 8"	13' $9\frac{1}{2}''$ 16' $5\frac{1}{4}''$	9' $5\frac{3}{4}''$ 10' 7"	6' 9" 7' $3\frac{1}{4}''$	5' 10" 6' $2\frac{1}{4}''$	3' $11\frac{1}{4}''$ 4' $\frac{3}{4}''$	3' $5\frac{1}{2}''$ 3' $6\frac{1}{2}''$	2' $11\frac{1}{2}''$ 3' $\frac{1}{2}''$
5.6	128' $\frac{3}{4}''$ $\infty$	24' $5\frac{3}{4}''$ 38' $9\frac{1}{4}''$	13' $6\frac{1}{2}''$ 16' 10"	9' $4\frac{1}{4}''$ 10' 9"	6' $8\frac{1}{4}''$ 7' 4"	5' $9\frac{1}{2}''$ 6' $2\frac{3}{4}''$	3' 11" 4' 1"	3' $5\frac{1}{4}''$ 3' $6\frac{3}{4}''$	2' $11\frac{1}{2}''$ 3' $\frac{1}{2}''$
8	89' $8\frac{3}{4}''$ $\infty$	22' $8\frac{1}{2}''$ 44' $4\frac{1}{4}''$	13' 17' 9"	9' $1\frac{1}{4}''$ 11' $1\frac{1}{4}''$	6' 7" 7' $5\frac{3}{4}''$	5' $8\frac{1}{4}''$ 6' 4"	3' $10\frac{1}{2}''$ 4' $1\frac{1}{2}''$	3' 5" 3' 7"	2' $11\frac{1}{4}''$ 3' $\frac{3}{4}''$
11	65' 4" $\infty$	20' $9\frac{3}{4}''$ 54' $1\frac{1}{4}''$	12' $4\frac{1}{2}''$ 19' 1"	8' $9\frac{3}{4}''$ 11' 9"	6' $5\frac{1}{4}''$ 7' $8\frac{1}{4}''$	5' 7" 6' $5\frac{3}{4}''$	3' 10" 4' $2\frac{1}{4}''$	3' $4\frac{1}{2}''$ 3' $7\frac{1}{2}''$	2' 11" 3' 1"
16	45' $\frac{1}{4}''$ $\infty$	18' $3\frac{1}{2}''$ 85' $6\frac{3}{4}''$	11' $5\frac{3}{4}''$ 21' $9\frac{1}{2}''$	8' $4\frac{1}{4}''$ 12' $5\frac{3}{4}''$	6' $2\frac{1}{2}''$ 8' $\frac{3}{4}''$	5' 5" 6' $8\frac{3}{4}''$	3' $9\frac{1}{4}''$ 4' $3\frac{1}{4}''$	3' 4" 3' $8\frac{1}{4}''$	2' $10\frac{3}{4}''$ 3' $1\frac{1}{2}''$
22	32' 10" $\infty$	15' $11\frac{3}{4}''$ 286' $2\frac{1}{4}''$	10' $6\frac{3}{4}''$ 26' $3\frac{1}{2}''$	7' $10\frac{1}{2}''$ 13' $9\frac{1}{4}''$	5' $11\frac{1}{4}''$ 8' $6\frac{1}{2}''$	5' $2\frac{3}{4}''$ 7' $\frac{3}{4}''$	3' $8\frac{1}{4}''$ 4' $4\frac{1}{2}''$	3' $3\frac{1}{4}''$ 3' $9\frac{1}{4}''$	2' $10\frac{1}{4}''$ 3' 2"
32	22' 8" $\infty$	13' $2\frac{1}{2}''$ $\infty$	9' $3\frac{3}{4}''$ 40' $2\frac{3}{4}''$	7' $2\frac{1}{4}''$ 16' 8"	5' $6\frac{3}{4}''$ 9' 6"	4' $11\frac{1}{4}''$ 7' 8"	3' $6\frac{3}{4}''$ 4' 7"	3' $2\frac{1}{4}''$ 3' $10\frac{3}{4}''$	2' $9\frac{1}{4}''$ 3' $3\frac{1}{4}''$
45	16' $2\frac{1}{2}''$ $\infty$	10' $9\frac{1}{2}''$ $\infty$	8' 1" 132' 8"	6' $5\frac{3}{4}''$ 23' $\frac{1}{2}''$	5' $1\frac{3}{4}''$ 11' 2"	4' $7\frac{1}{2}''$ 8' $8\frac{1}{4}''$	3' 5" 4' $10\frac{1}{2}''$	3' $\frac{3}{4}''$ 4' $3\frac{3}{4}''$	2' $8\frac{1}{2}''$ 3' $4\frac{3}{4}''$

# MAMIYA-SEKOR 18.0 CM, F 4.5 (Circle of Confusion 3.1/1,000 inch)

Aperture	Distance (in feet)												
	$\infty$	60	30	20	15	12	10	8	7	6	5	4.5	4
4.5	299' $\infty$	50' 2" 74' 8"	27' 4 1/2" 33' 2 1/4"	18' 10" 21' 4"	14' 4 1/4" 15' 8 1/2"	11' 7" 12' 5 1/4"	9' 8 3/4" 10' 3 1/2"	7' 10" 8' 2 1/4"	6' 10 1/2" 7' 1 1/4"	5' 11" 6' 1"	4' 11 1/4" 5' 3/4"	4' 5 1/2" 4' 6 1/2"	3' 11 1/2" 4' 1/2"
5.6	240' $\infty$	48' 3" 79' 5"	26' 9 3/4" 34' 3/4"	18' 6 3/4" 21' 8 1/4"	14' 2 1/2" 15' 10 1/4"	11' 6" 12' 6 1/2"	9' 8" 10' 4 1/2"	7' 9 1/2" 8' 2 1/4"	6' 10" 7' 2"	5' 10 3/4" 6' 1 1/4"	4' 11 1/4" 5' 1"	4' 5 1/4" 4' 6 3/4"	3' 11 1/4" 4' 1/2"
8	168' $\infty$	44' 6" 92' 3"	25' 7 1/4" 36' 2"	18' 1 1/4" 22' 5 3/4"	13' 10 1/2" 16' 3 3/4"	11' 3 1/2" 12' 9 1/4"	9' 6 1/4" 10' 6 1/2"	7' 8 1/2" 8' 3 3/4"	6' 9 1/4" 7' 2 3/4"	5' 10 1/4" 6' 2"	4' 10 3/4" 5' 1 1/4"	4' 5" 4' 7"	3' 11 1/4" 4' 3/4"
11	122' $\infty$	40' 7" 115' 7"	24' 4" 39' 2 1/4"	17' 4 1/2" 23' 7"	13' 6" 16' 10 1/2"	11' 1 1/2" 13' 1 1/2"	9' 4 1/4" 10' 9"	7' 7 1/4" 8' 5 1/2"	6' 1 1/2" 7' 4"	5' 9 1/4" 6' 2 3/4"	4' 10 1/4" 5' 1 1/4"	4' 4 3/4" 4' 7 1/4"	3' 11" 4' 1"
16	84' 2" $\infty$	35' 5" 200'	22' 4 3/4" 45' 6 1/2"	16' 4 3/4" 25' 8 1/4"	12' 11" 17' 10 1/4"	10' 8" 13' 8 3/4"	9' 1" 11' 1 1/2"	7' 5" 8' 8"	6' 6 3/4" 7' 6"	5' 8 1/4" 6' 4"	4' 9 3/4" 5' 2 1/2"	4' 4 1/4" 4' 8"	3' 10 3/4" 4' 1 3/4"
22	61' 3" $\infty$	30' 8" 1664'	20' 5 1/2" 56' 7"	15' 4 1/4" 28' 9 1/2"	12' 3 1/2" 19' 3 1/2"	10' 3" 14' 6 1/4"	8' 9 1/4" 11' 7 1/2"	7' 2 3/4" 8' 11 1/4"	6' 5" 7' 8 1/4"	5' 7" 6' 5 3/4"	4' 8 3/4" 5' 3 1/2"	4' 3 1/2" 4' 8 3/4"	3' 10 1/4" 4' 2"
32	42' 3" $\infty$	25' 2" $\infty$	17' 10 3/4" 95' 2"	13' 10 3/4" 36' 1 1/4"	11' 4 1/4" 22' 2 1/2"	9' 7 1/4" 16' 1 1/2"	8' 3 3/4" 12' 6 3/4"	6' 11 1/4" 9' 5 3/4"	6' 2 1/4" 8' 3/4"	5' 5" 6' 8 3/4"	4' 7 1/2" 5' 5 1/2"	4' 2 1/2" 4' 10"	3' 9 1/2" 4' 3"
45	30' 1" $\infty$	20' 4" $\infty$	15' 4 3/4" 874'	12' 4 1/2" 53' 8"	10' 4 1/4" 27' 8"	8' 10 3/4" 18' 7 1/2"	7' 9 1/4" 14' 1 1/4"	6' 7" 10' 3"	5' 11" 8' 7 1/4"	5' 2 3/4" 7' 3/4"	4' 5 3/4" 5' 8"	4' 1 1/4" 5'	3' 8 1/4" 4' 4 1/4"