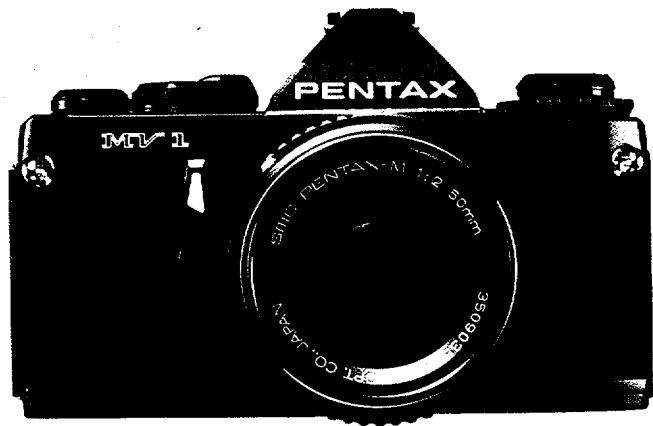


**PENTAX**

**MM1**



## **IMPORTANT**

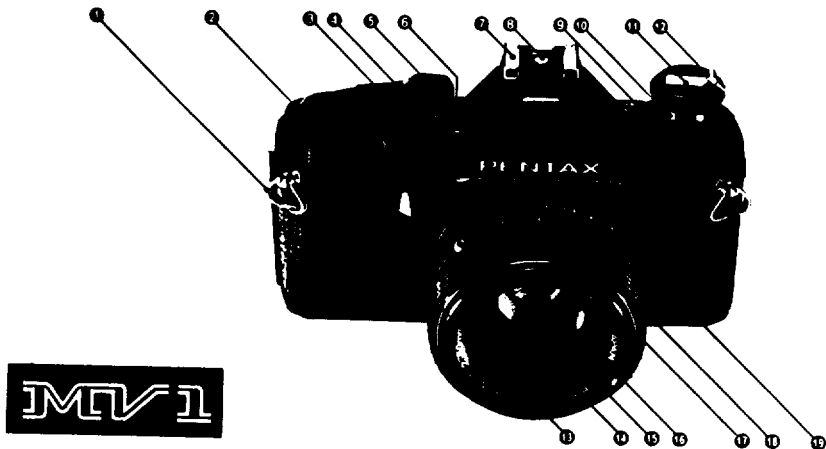
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SMC Pentax lenses and Pentax accessories are engineered and produced meticulously to precise Asahi Pentax specifications. Lenses and accessories from other manufacturers are not produced to these precise specifications and, therefore, may cause difficulties with – or actual damage to – a Pentax camera. Asahi Pentax cannot assume any responsibility or liability for difficulties resulting from the use of any other brand of lenses or accessories with an Asahi Pentax camera.

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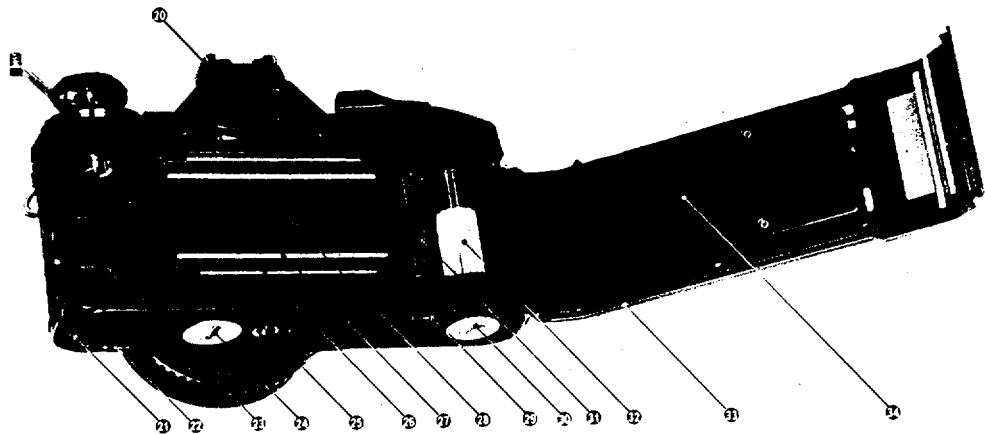
## DESCRIPTION OF PARTS



- ❶ Neck strap ring
- ❷ Exposure counter
- ❸ Shutter release button
- ❹ Exposure mode dial
- ❺ Rapid-wind lever
- ❻ Exposure modes

- ❼ Hot shoe
- ❽ Auto flash contact
- ❾ ASA film speed ring
- ❿ Exposure-compensation-indicator dial
- ⓫ Film rewind crank

- ⓬ Film rewind knob/back cover release
- ⓭ Lens release lever
- ⓮ Self-timer lever
- ⓯ Lens alignment node
- ⓰ Focusing ring



- ① Depth-of-field scale
- ② Aperture/distance index
- ③ Aperture ring
- ④ Viewfinder eyepiece
- ⑤ Guide pin channel
- ⑥ Winder direct contact

- ⑦ Film chamber
- ⑧ Battery chamber
- ⑨ Winder/Tripod receptacle
- ⑩ Film guide rail
- ⑪ Film rail
- ⑫ Shutter blades

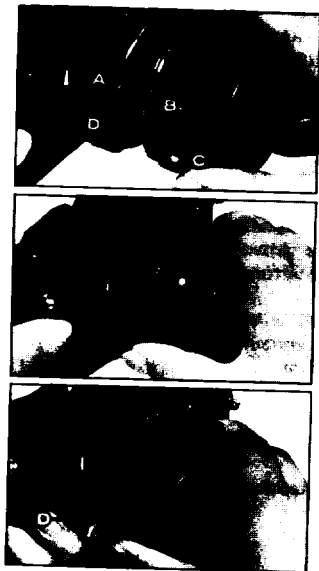
- ⑬ Film rewind button
- ⑭ Film transport coupler
- ⑮ Sprocket wheel
- ⑯ Film take-up spool
- ⑰ Back cover
- ⑱ Film pressure plate





## SPECIFICATIONS


<b>Type:</b>	35mm full-frame SLR camera with aperture-preferred automatic exposure, auto flash synch (with AF 200S Auto Flash).
<b>Mount:</b>	Pentax Bayonet Mount
<b>Standard lenses:</b>	SMC Pentax-M 50mm f/2, SMC Pentax 50mm f/1.2 SMC Pentax-M 50mm f/1.4 SMC Pentax-M 50mm f/1.7 SMC Pentax-M 40mm f/2.8
<b>Shutter:</b>	Seiko MFC vertical-run metal focal-plane shutter; shutter speeds automatically varied between 1 sec. and 1/1000 sec.; mechanical settings of "100X" and "B" provided (operates without batteries at manual settings).
<b>Self-timer:</b>	Delays shutter release 4~10 seconds.
<b>Exposure metering:</b>	Open aperture, center-weighted through-the-lens light metering via SPD cell. Exposure range from EV 3 (ASA 100 1/4 sec. at f/1.4, 1 sec. at f/2.8) to EV 19 (ASA 100, 1/1000 sec. at f/22). Film Speed Range: ASA 25 to ASA 1600 (Exposure Compensation via ASA film speed dial. LED "Stop/Go" exposure readout in finder.)
<b>Auto flash synch:</b>	Synchronizes automatically for AF 200S Auto Flash Unit at 1/100 sec. via hotshoe with shutter dial set to Auto; hotshoe contact also provided for flash ready indicator in viewfinder.
<b>Manual flash synch:</b>	At "100X" (1/100 sec.) flash-synch setting of exposure mode dial (hotshoe synch only).

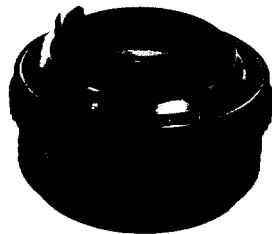
<b>Viewfinder:</b>	Aluminum-coated pentaprism finder with split-image/microprism focusing screen; shows 92% of the picture area, 0.85X magnification with 50mm lens; -1.0 diopter eyepiece.
<b>Viewfinder indications:</b>	Three LED Stop/Go indicator system. <b>Red:</b> overexposure; <b>Green:</b> Adequate exposure for handheld shooting (1/1000 – 1/30 sec.) <b>Yellow:</b> Slow Exposure Warning (below 1/30 sec., inadequate for handheld shooting) <b>"X":</b> AF 200S flash ready indicator.
<b>Mirror and diaphragm:</b>	Instant-return mirror and automatic diaphragm.
<b>Film wind and rewind:</b>	Single-stroke rapid wind lever; plastic tipped for winding comfort, 135° advance with 30° rest setting. Rapid rewind crank for speedy film rewind.
<b>Automatic winder:</b>	MV 1 camera body accepts Winder ME with both single-frame and consecutive automatic film winding capability; winding speed: 1.5 frames-per-sec. in consecutive mode.
<b>Film loading:</b>	Magic-needle quick/sure loading.
<b>Exposure counter:</b>	Automatic reset, additive type.
<b>Battery:</b>	Two 1.5V Alkaline (LR44) or Silver-oxide (G13) batteries; LEDs double as battery check lamp.
<b>Back cover:</b>	Standard back with memo holder, interchangeable with Dial Data ME for data recording on film.
<b>Body size:</b>	132mm x 84mm x 49.5mm
<b>Body weight:</b>	425 grams (15 ozs.)

## LENS MOUNTING



- 1 Remove the rear lens and body mount covers
- 2 Match the red dot  on the camera body with the red dot  on the lens. Insert the lens into the body and turn it clockwise until the lens locks with a click.
- 3 In the dark, when the red dots are difficult to see, align the raised white node  on the lens barrel with the lens release lever  by touch. Then turn and lock as above.

- 4 To detach, hold the camera with your left hand. Depress the lens release lever  while turning the lens counter-clockwise with your right hand.



### NOTE

If you have to put the lens down without the rear lens cap, place it only front-element-down, never front-element-up.

When changing lenses outdoors with film in the camera, avoid direct sunlight.



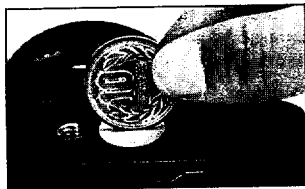
## INSERTING BATTERIES

Two Alkaline batteries are packed separately. Be sure to insert them into the battery chamber before operating the camera.

### CAUTION

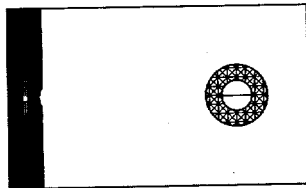
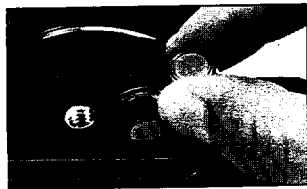
The battery is like a phonograph record. It can be damaged by skin acids. Handle by the edges with a dry cloth before insertion into the camera. Also be especially sure to wipe off the batteries with a cloth when they are salted.

The battery is not rechargeable. Do not throw a dead battery into a fire, as it may explode. Also, keep it beyond the reach of small children.



**Insertion** Open the battery chamber cover with a coin. Insert the two batteries into the battery chamber of the camera as shown above, each with plus mark (+) facing down. For replacement, use Eveready S76E or Mallory MS76H or equivalent.

**Check** If batteries are active, one of the LED indicators will light when you depress the shutter button partway **with the exposure mode dial set to AUTO**. When batteries are dead or inserted improperly, the LEDs will not light.



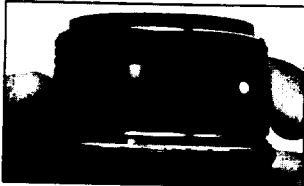
## BASIC OPERATING INSTRUCTIONS



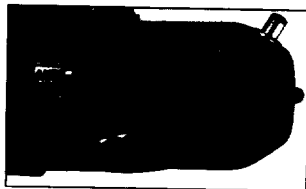
1. Load the film into your camera and advance it to the first exposure. (Page 10)



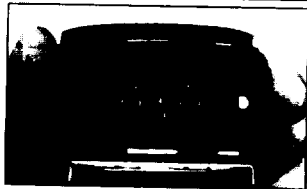
2. Set the ASA film speed. (Page 11)



3. Preselect the aperture. (Page 13)



4. Set the exposure mode dial to AUTO. (Page 14).



5. Focus and compose the picture by turning the focusing ring while sighting through the viewfinder. (Page 17).



6. Slightly depress the shutter button. One of the three LED indicators will light in the left side of the viewfinder. **If the green LED lights:** go ahead and shoot. **If the red LED lights:** Set the aperture ring to a smaller aperture by turning it clockwise until the green light comes on (i.e.,  $f/8$  to  $f/11$ ,  $f/16$ , etc. See Page 14). **If the yellow LED comes on:** ① use a wider lens aperture ( $f/4$  to  $f/2.8$ , etc.).

If the LED still does not change to green, ② mount the camera on a tripod etc., or ③ switch to flash photography (Page 20–21).

- When you depress the shutter button completely on AUTO, the shutter speed will be selected automatically in relation to lighting conditions and the aperture in use.

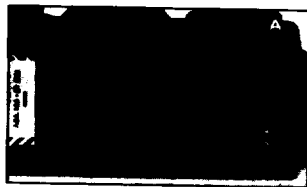
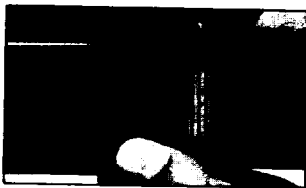
**Green**  
Go ahead and shoot

**Red**  
use a smaller aperture

**Yellow**  
① use a wider aperture if possible, or  
② use a tripod etc., or  
③ use a flash unit

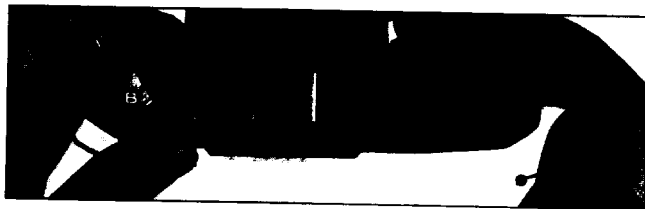
## FILM LOADING AND WINDING

**Avoid direct light when loading your film.**



1. Before loading and winding the film, set the exposure mode dial to 100X. Leave it at this setting until after the film has been wound to the first exposure.


Note: You may also advance the film to the first exposure with the exposure mode dial set to AUTO. But, in this case, after closing the back cover, you must remove the lens cap and point the camera toward the light. If film advance is performed on AUTO without




removing the lens cap, inordinately long exposures will result, hindering film advance.

2. Open the camera back by pulling up the film rewind knob until the back opens.

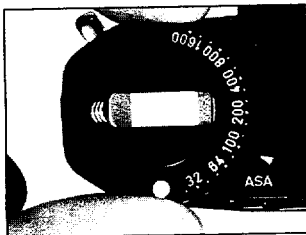
3. Place the film cartridge in the film chamber, and push down the rewind knob. Insert the film leader between any of the white pins surrounding the film take-up spool.

Advance the film by alternately advancing the rapid-wind lever and depressing the shutter button until both top and bottom sprockets engage the film perforations . Close the back by pressing it firmly.

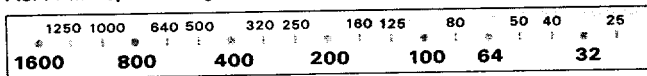
› Advance the rapid-wind lever and confirm that the film rewind knob  turns counterclockwise, indicating


## SETTING ASA FILM SPEED/MEMO HOLDER

that the film is properly loaded and is moving from the cartridge to the take-up spool. Then, trip the shutter and advance the film alternately until the exposure counter turns to "1", indicating that the first picture is ready to be taken. **Reset the shutter dial to AUTO.**



ASA Film Speed Range



The ASA film speed rating of all 35mm films is given in the data sheet packed with each roll of film. The higher the ASA number, the more sensitive the film is to light. To set the index, lift up the ASA dial  and turn it until the ASA number of your film is opposite the orange index mark.

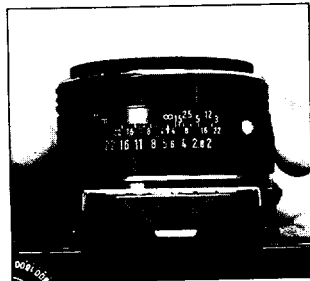
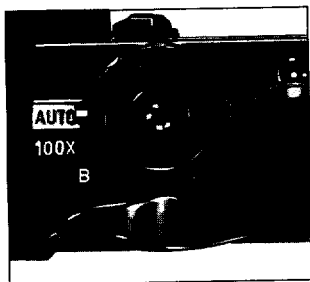


### MEMO HOLDER

As a reminder of the type of film in your camera, tear off the top of film box and insert it into the Memo Holder on the back cover of the camera.



## APERTURE SETTING



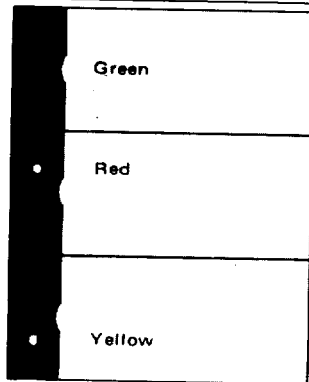
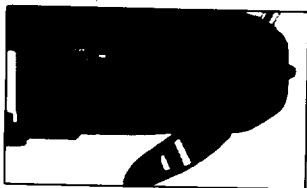
Keep the exposure mode dial set at AUTO. Rotate the aperture ring of the lens and preselect the lens aperture (also called f-number) in accordance with shooting conditions as follows.

Fine weather .....	f/8 ~ f/11
Cloudy weather .....	f/4 ~ f/5.6
Indoors .....	f/1.2 ~ f/2.8

The above is a rough guide that is highly useful for most shooting situations such as for snapshots and scenery. These apertures will give satisfactory exposure as long as the green LED in the viewfinder lights. If other LEDs should light, reset the aperture in accordance with the instructions given on the following page.

Although the above is all you need to know to obtain better results than you have perhaps ever obtained before with most of your photographs, as you gain more experience you may want to vary the lens aperture for special effects, such as highlighting your subject by throwing the background and foreground out of focus by using wider apertures, etc. If you are interested in learning these special aperture control techniques, refer to the section entitled "Shooting Pointers," (page 22).

## SHOOTING ON AUTO



Your Pentax MV 1 is designed for use on AUTO. After the film is loaded and the exposure mode dial is set to AUTO it need not be taken off, even for flash photography if the accessory AF 200S Auto Flash is used. The only occasions when you would use the other settings are for flash synch at "100X" for flash units other than the AF 200S, and for long exposures at the "B" (Bulb) setting. The 100X setting may also be used for battery failure and film wind on. Otherwise, keep the shutter dial set to AUTO.

**Exposure Check:** After you have set the ASA film speed, preset the aperture and focused, you are ready to check the exposure. Simply, press the shutter button slightly until one of three LEDs in the viewfinder lights. If the green LED lights, go ahead and shoot.

**Overexposure Warning:** If the red LED indicator lights on pressing the shutter button partway, the photo will be overexposed. To prevent this, you will have to reset the aperture ring to a smaller aperture by turning it clockwise until the green LED comes on (for example, f/8 to f/11 or f/16, etc.).

**Slow Exposure/Camera Shake Warning:** If the Yellow LED lights, it indicates that the camera has selected a shutter speed below 1/30 sec. in relation to your preset aperture. This does not necessarily indicate that the photo will be underexposed, but there is a tendency for the picture to blur with such slow exposures. Usually, however, blur also can be prevented by resetting the aperture ring. Only, in this



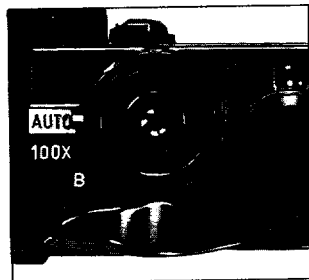
instance, you set the aperture ring to a **wider** aperture (smaller f-number value) by turning it counterclockwise until the green LED lights. For example, if it is set at f/5.6, turn it to f/4, f/2, etc. If the green LED does not come on, even after you have set the lens to the widest aperture, do either of the following.

**Use a tripod** — Page 35 **Switch to flash photography** — Page 20, 21  
Because the MV 1 auto exposure system selects the shutter speed for you steplessly between 1/1000 and 1 sec. in relation to the aperture setting, the above is all you need to know about exposure control for satisfactory results with most subjects. However, for better results in difficult lighting, shooting against the light, with fast moving subjects, etc., refer to the section "Shooting Pointers" (Page 22) when you feel you are ready to master special techniques to use in such situations.

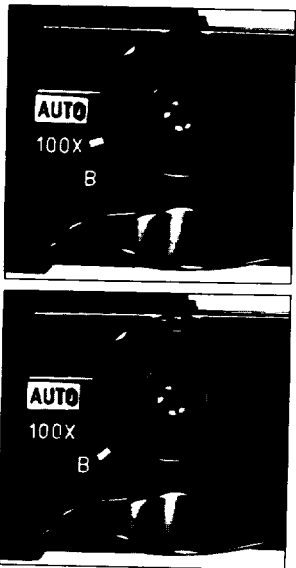
### CAUTION

If you should happen to press the shutter button while the shutter dial is set on AUTO with the lens cap on, or in very poor lighting conditions, the mirror may lock up, resulting in abnormally long exposure. To correct this, the shutter can be quickly closed by turning the shutter dial to 100X. After closing the shutter, be sure to reset the shutter dial to AUTO.

If you use a tripod or make an exposure at any time without your eye to the viewfinder eyepiece, cover the eyepiece with the accessory Finder Cap; otherwise light entering from the rear of the camera may adversely affect the exposure.



## THE "100X" AND "B" SETTINGS



While the MV 1 is designed almost totally for use on AUTO, two other settings are provided on the exposure mode dial for special shooting situations.

**"100X"**: This manual shutter speed setting really need not be used at all if you use the Pentax AF 200S Auto Flash and keep spare batteries on hand. It is provided for manual flash synchronization with flash units other than the AF 200S (see page 21). In addition, it may also be used in emergencies when batteries fail and you do not have spare batteries on hand. For emergency exposures without batteries, merely set the exposure mode dial to "100X" and select the aperture according to the brightness of your subject (refer to the exposure guidelines accompanying the film). The 100X setting is also convenient for film wind on (Page 10).

**"B" (Bulb)**: This setting is used when desiring to make "Time" exposures longer than 1 second. To use, first mount the camera on a tripod, then, attach a cable release to the camera's shutter release button. The shutter will open when the plunger of the cable release is depressed and remain open as long as pressure is maintained. For ultra long exposures such as several minutes or hours, use a cable release with a locking device. Also, cover the viewfinder eyepiece with the accessory eyepiece cover to prevent excess light from entering through the rear of the camera.

## FOCUSING AND COMPOSING



The focusing screen inside the viewfinder of your MV 1 is a split-image type surrounded by a microprism collar. For precise focus, turn the focusing ring of the lens until the two images in the split-image circle at the center align as one. If you find focusing with the split-image circle difficult, focus with the microprism collar by turning the focusing ring until the glitter disappears from inside the collar. In addition, the field surrounding the center spots may also be used for quick focusing: merely turning the ring until the image comes in clear in the overall viewfinder field. The surrounding field also gives better results than the center spot when using telephoto lenses having a small maximum aperture.

## HOLDING THE CAMERA

As a general rule, your camera can be held more firmly in the left hand, which does not release the shutter. If you hold your camera with the right hand — the hand that releases the shutter — this may cause camera movement. Often, blurred pictures are due to camera movement.

### **Horizontal position A.**

Hold the camera firmly with your left hand, and draw your arms close to your body.



### **Vertical position B.**

Hold your camera tightly to your forehead with your left hand, and draw your right arm close to your body.




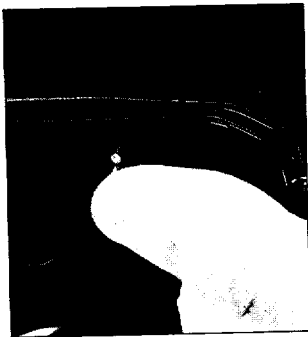
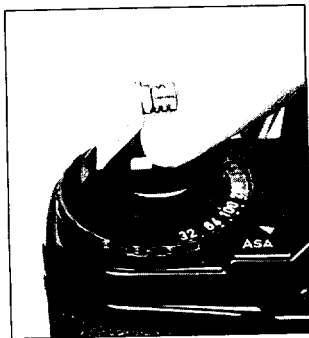
### **Vertical position C.**

Hold your camera tightly to your forehead with your left hand, raise your right arm and draw your left arm to your body.

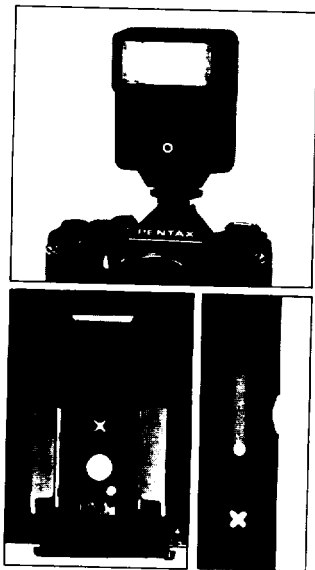


## UNLOADING FILM

After the last picture on the roll has been taken, the rapid-wind lever will not advance any further indicating that the film must be rewound. (Caution: do not try to force the lever any further.) Fold out the rewind crank. Depress the film rewind button  and turn the rewind crank as indicated to rewind the film into its cartridge. Rewind until the tension on the crank lessens, indicating that the leader end of the film has been released from the take-up spool. Pull out the film rewind knob (the back will open automatically), and remove the film cartridge. **AVOID DIRECT LIGHT WHEN UNLOADING THE FILM.**



## AUTO FLASH PHOTOGRAPHY WITH THE AF 200S



To accompany its unprecedentedly easy auto exposure system, the MV 1 features automatic flash synch with the AF 200S Auto Flash. When this dedicated flash unit is used, flash photography is as simple as normal exposure on Auto. Moreover, the AF 200S couples with a special "X" LED indicator inside the viewfinder that enables you to know when it is ready to fire, without even taking your eye from the viewfinder. To mount the AF 200S, simply slide the flash-shoe mount all the way into the camera's hotshoe and tighten the thumb screw. The camera's exposure mode dial may be kept at AUTO because the MV 1 synchronizes automatically at 1/100 sec. when the unit charges via a special auto flash synch contact inside the hotshoe.

After mounting the AF 200S, set the auto flash mode and lens aperture according to the instructions accompanying the unit.

**NOTE:** When the auto flash charges and the viewfinder "X" LED flash ready indicator lights, the red, green or yellow LED indicators will light as usual, but, as the auto flash system overrides these indications, they should be disregarded for flash photography.

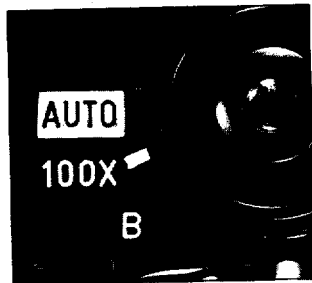
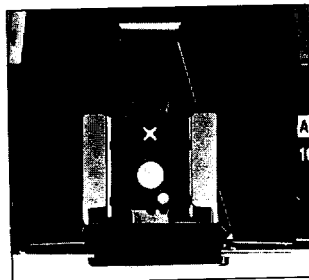
## OTHER FLASH UNITS (CORDLESS TYPE)

The MV 1 may also be used with other flash units besides the AF 200S, provided they are the cordless type. These mount by sliding into the hotshoe on top of the camera in the same manner as the AF 200S.

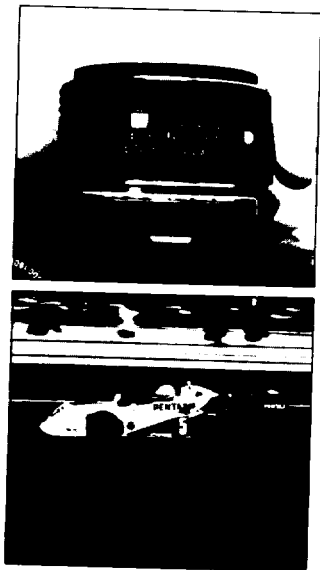
**Flash Synch:** Unlike the AF 200S, however, other flash units do not synchronize automatically with the MV 1.

Synchronize them manually by turning the exposure mode dial to "100X." Also note that the viewfinder LED flash ready indication is not provided with other flash units.

As flash operating instructions vary depending upon the type of flash unit you are using, refer to the instructions accompanying your flash unit for flash mode setting, aperture setting, and other operating instructions.



## SHOOTING POINTERS



The basic instructions for shooting on auto are all you need to know to obtain successful results for most all non-critical photography. However, the MV 1 is a sophisticated single-lens-reflex camera and, as such, is capable of a wide variety of techniques which enable you to obtain better results in difficult lighting situations, produce special focusing effects, stop the action, and so forth. If you would like to expand your skills as a photographer and have your friends marvel at most all your photographs, then mastering these few simple techniques is well worth your while.

### Optimum Apertures

The aperture guide listed on page 13 is sufficient for most shooting purposes and correct exposure will be obtained as long as the green LED lights. However, with certain subjects and to obtain certain special effects, it is better to vary from the norm. Any aperture setting may be used as long as the green LED continues to light.

**Stopping the Action:** With fast moving subjects such as bicycles, automobiles, horses, children at play, birds in flight, etc., a fast shutter speed is necessary to stop the action and prevent the subject from blurring. Although the MV 1 does not feature a shutter speed dial, you can easily stop the action by using a wide lens aperture where the red LED does not come on. (for example,  $f/2.8$ ,  $f/1.7$  etc.). As the camera automatically chooses the fastest shutter speed it can for the given exposure, it will freeze the subject

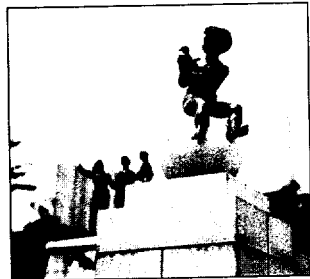


in daylight or in brightly lit arenas and stadiums if you use a wide maximum aperture. (This technique does not work in low-lighting, as low lighting necessitates a slow shutter speed.)

**Depth-of-Field Control:** Depending upon the aperture in use, different areas in front of and behind your subject will be in focus. This is known as depth of field and its effect can be varied by changing lens apertures. If you need to know the critical depth of fields refer to the depth-of-field scale and tables on pages 26 and 27. Often, however, you can get by if you remember the following.

**Maximum Depth of Field:** The depth of field becomes progressively deeper as the lens is stop down to smaller apertures and is greatest at minimum aperture. Thus, if you desire both your subject and background to be in focus, use a small aperture such as  $f/11$  and  $f/16$  (if the yellow LED Lights, take precautions against camera shake). Small apertures are also useful for critical close-up work, but for this, refer to a close-up photography guide.

**Out-of-focus highlights:** The depth of field becomes progressively shallower at wide lens apertures, and is shallowest at  $f/2$ ,  $f/1.7$  or  $f/1.4$ , depending upon which is the maximum aperture of your lens. A shallow depth of field produces an out-of-focus effect which highlights your subject. Provided the green LED remains lit, you can obtain this effect by using a wide maximum aperture, even on a sunny day.



## EXPOSURE COMPENSATION

When shooting in difficult lighting situations such as when the subject is situated against the light (direct sun, snow, a bright window) or when spotlighted on stage, etc., either additional or less exposure is required to override the influence of the strong backlighting and bring out the details of the subject. Such problems are easily corrected by temporarily altering the setting of the ASA film speed dial for the shot requiring exposure compensation.

**Backlit Subjects:** For subjects with the sun behind them, standing against the light, bright snow, etc, compensate by lowering the ASA film speed value to half or four times the ASA film speed. For example:

**With ASA 100 film in the camera:** reset the dial to ASA 50 or ASA 25 (this gives 2X and 4X compensation, respectively).

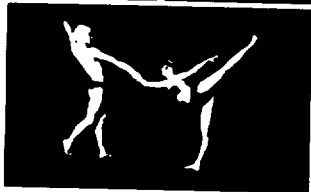
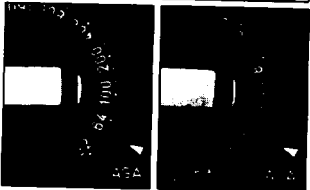
**With ASA 400 film:** reset the ASA dial to ASA 200 (2X) or ASA 100 (4X).

**Spotlighted Subjects:** For subjects on spotlighted stage, etc., decrease your exposure by doubling or quadrupling the ASA film speed value. For example:

**With ASA 100 film:** reset the dial to ASA 200 (1/2X) or ASA 400 (1/4X).

**With ASA 400 film:** reset the dial to ASA 800 (1/2X) or ASA 1600 (1/4X)

**Always reset the ASA dial to its original setting after employing exposure compensation.**



**Exposure-Compensation-Indicator Dial:** You may also use the exposure-compensation-indicator dial located under the film rewind crank as a guide for exposure compensation. **To Use:** Fold out the film rewind crank as if to rewind the film and lift the knob **slightly** to expose the exposure-compensation-indicator dial. (CAUTION: BE VERY CAREFUL NOT TO PULL HARD AS THE BACK COVER WILL SPRING OPEN, EXPOSING YOUR FILM.) Next, turn the top of the dial with your finger until the index mark of the exposure compensation dial aligns with the ASA index mark and the ASA number of the film loaded in the camera (Illust. A). When properly aligned, lift the ASA dial and reset it as follows for exposure compensation.

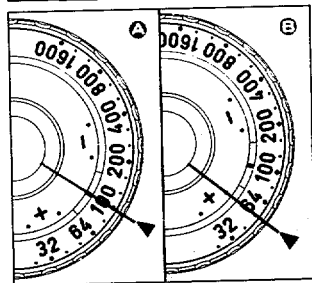
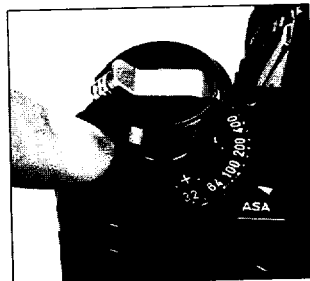
**For 2X compensation:** To the first dot on the indicator's plus side (Illust. B).

**For 4X compensation:** Second dot on the plus side.

**For 1/2X compensation:** First dot on the minus side.

**For 1/4X compensation:** Second dot on the minus side.

After setting the compensation, push the film rewind crank shaft back in place and take the picture. **BE SURE TO RESET THE ASA FILM SPEED DIAL TO AGREE WITH THE FILM LOADED IN THE CAMERA WHEN COMPENSATION IS NO LONGER REQUIRED.**

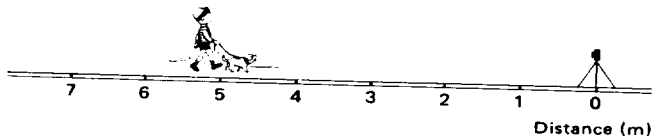
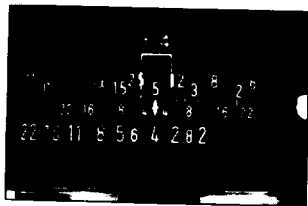


## DEPTH-OF-FIELD SCALE

Depth of field is the range between the nearest and farthest distances which are in focus at a given lens aperture.

If you want to know how great the depth of field is at a certain aperture, focus on the subject and look at the depth-of-field scale on the lens. In the photograph below the distance scale is set at 5 meters; that is, the lens is focused on a subject 5 meters away. The calibrations on each side of the distance index correspond to the diaphragm setting and indicate the range of in-focus distance for different lens aperture.

For example, if a lens opening of  $f/4$  is to be used, the range on the distance scale ring covered within the figure 4 on the depth-of-field scale indicates the area in focus at that lens opening. You will note from the depth-of-field scale in the photograph that the range from approximately 4 to 7m is in focus. Note that as the lens apertures change, the effective depth of field also changes. For the depth of field at different apertures and distances, refer to the next page.



# DEPTH-OF-FIELD TABLE: SMC PENTAX-M 50mm LENS

Distance scale	0.45m	0.6m	1m	1.6m	2m	3m	5m	15m	∞
f/1.4	~ 0.447 ~ 0.453	0.595 ~ 0.605	~ 0.984 ~ 1.017	1.557 ~ 1.645	1.932 ~ 2.073	2.846 ~ 3.172	4.579 ~ 5.506	11.712 ~ 20.868	52.938 ~ ∞
f/2	~ 0.446 ~ 0.454	0.593 ~ 0.608	~ 0.977 ~ 1.024	1.539 ~ 1.666	1.904 ~ 2.106	2.785 ~ 3.252	4.420 ~ 5.757	10.707 ~ 25.077	37.070 ~ ∞
f/2.8	~ 0.445 ~ 0.455	0.590 ~ 0.611	~ 0.969 ~ 1.034	1.516 ~ 1.694	1.869 ~ 2.152	2.708 ~ 3.365	4.225 ~ 6.128	9.609 ~ 34.313	26.491 ~ ∞
f/4	~ 0.443 ~ 0.458	0.586 ~ 0.615	~ 0.956 ~ 1.049	1.483 ~ 1.737	1.818 ~ 2.224	2.599 ~ 3.550	3.962 ~ 6.786	8.329 ~ 76.783	18.557 ~ ∞
f/5.6	~ 0.440 ~ 0.461	0.580 ~ 0.622	~ 0.939 ~ 1.070	1.441 ~ 1.799	1.754 ~ 2.329	2.468 ~ 3.832	3.659 ~ 7.922	7.075 ~ ∞	13.268 ~ ∞
f/8	~ 0.436 ~ 0.466	0.572 ~ 0.631	~ 0.915 ~ 1.103	1.383 ~ 1.901	1.687 ~ 2.506	2.294 ~ 4.351	3.284 ~ 10.585	5.774 ~ ∞	9.300 ~ ∞
f/11	~ 0.430 ~ 0.472	0.562 ~ 0.644	~ 0.887 ~ 1.148	1.316 ~ 2.047	1.569 ~ 2.771	2.109 ~ 5.242	2.911 ~ 18.301	4.697 ~ ∞	6.776 ~ ∞
f/16	~ 0.422 ~ 0.482	0.546 ~ 0.667	~ 0.844 ~ 1.231	1.219 ~ 2.348	1.430 ~ 3.366	1.861 ~ 7.978	2.450 ~ ∞	3.588 ~ ∞	4.672 ~ ∞
f/22	~ 0.413 ~ 0.496	0.529 ~ 0.696	~ 0.798 ~ 1.349	1.120 ~ 2.855	1.294 ~ 4.545	1.631 ~ 21.588	2.061 ~ ∞	2.799 ~ ∞	3.410 ~ ∞

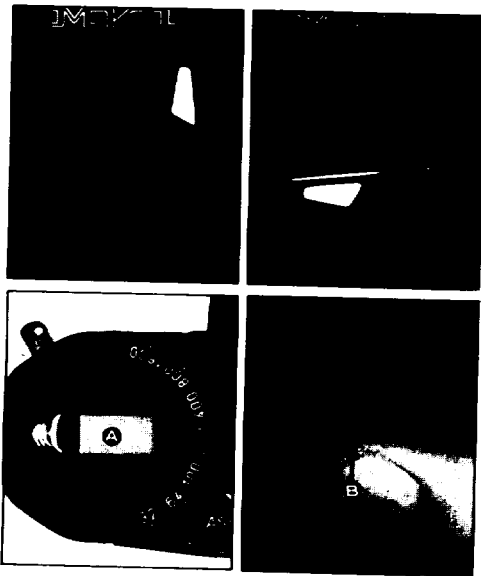
  

Distance scale	1.55'	1.9'	2.5'	3'	6'	8'	12'	25'	∞
f/1.4	~ 1.540' ~ 1.560'	1.884' ~ 1.916'	~ 2.471' ~ 2.530'	2.957' ~ 3.045'	5.814' ~ 6.198'	7.667' ~ 8.364'	~ 11.252' ~ 12.856'	21.905' ~ 29.122'	173.686' ~ ∞
f/2	~ 1.536' ~ 1.564'	1.878' ~ 1.923'	~ 2.459' ~ 2.543'	2.939' ~ 3.064'	5.738' ~ 6.287'	7.533' ~ 8.530'	~ 10.960' ~ 13.262'	20.802' ~ 31.339'	121.623' ~ ∞
f/2.8	~ 1.531' ~ 1.570'	1.869' ~ 1.932'	~ 2.443' ~ 2.560'	2.915' ~ 3.091'	5.640' ~ 6.410'	7.361' ~ 8.763'	~ 10.593' ~ 13.845'	19.495' ~ 34.884'	86.915' ~ ∞
f/4	~ 1.522' ~ 1.573'	1.856' ~ 1.946'	~ 2.419' ~ 2.587'	2.880' ~ 3.131'	5.499' ~ 6.604'	7.118' ~ 9.137'	~ 10.087' ~ 14.824'	17.817' ~ 42.020'	60.884' ~ ∞
f/5.6	~ 1.512' ~ 1.590'	1.839' ~ 1.965'	~ 2.388' ~ 2.624'	2.835' ~ 3.187'	5.322' ~ 6.882'	6.818' ~ 9.690'	~ 9.485' ~ 16.370'	15.986' ~ 57.817'	43.530' ~ ∞
f/8	~ 1.497' ~ 1.608'	1.815' ~ 1.995'	~ 2.343' ~ 2.681'	2.769' ~ 3.275'	5.078' ~ 7.347'	6.414' ~ 10.660'	~ 8.706' ~ 19.414'	~ 13.855' ~ 132.990'	30.514' ~ ∞
f/11	~ 1.478' ~ 1.631'	1.785' ~ 2.033'	~ 2.290' ~ 2.756'	2.692' ~ 3.393'	4.802' ~ 8.027'	5.973' ~ 12.190'	~ 7.898' ~ 25.319'	~ 11.882' ~ ∞	~ 22.231' ~ ∞
f/16	~ 1.447' ~ 1.670'	1.705' ~ 1.737'	~ 2.206' ~ 2.892'	2.573' ~ 3.609'	4.406' ~ 9.500'	5.361' ~ 16.047'	~ 6.845' ~ 51.597'	~ 9.611' ~ ∞	~ 15.329' ~ ∞
f/22	~ 1.413' ~ 1.721'	1.684' ~ 2.188'	~ 2.114' ~ 3.075'	2.445' ~ 3.911'	4.012' ~ 12.205'	4.778' ~ 25.969'	~ 5.906' ~ ∞	~ 7.827' ~ ∞	~ 11.188' ~ ∞

## SELF-TIMER/MULTIPLE EXPOSURE

The self-timer delays release of the shutter 4~10 seconds, depending upon how far the self-timer lever is advanced. To operate the self-timer, push the lever counterclockwise until it stops. To start, push up slightly on the self-timer lever.

For deliberate multiple exposures, make the first exposure in the normal way. Then tighten the film by turning the rewind knob **A**, and keep hold of the rewind knob. Depress the film rewind button **B** and advance the rapid-wind lever. This cocks the shutter without advancing the film. Finally, release the shutter to make the second exposure. Then make one blank exposure, before taking the next picture, to avoid overlapping. As the exposure counter continues to function each time the shutter is cocked, a double exposure will be counted as two frames.

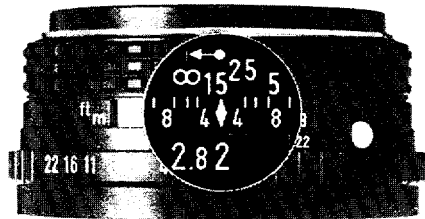
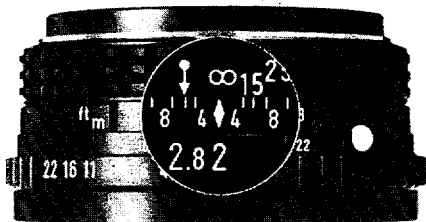


## INFRA-RED PHOTOGRAPHY

If you intend to take infra-red photographs, remember to use the infra-red mark indicated with an orange line on the depth-of-field scale. First, bring your subject into sharp focus. Then determine the subject-to-camera distance from the distance scale on the lens. Then match your subject-to-camera distance to the infra-red mark

by turning the focusing ring accordingly. For instance, if your subject is in focus at infinity, turn the focusing ring and move the infinity ( $\infty$ ) mark to the infra-red mark.

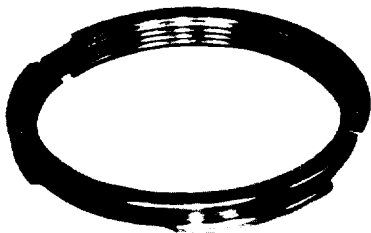
• NOTE: An infra-red focusing adjustment is not required when working with infra-red color film.



## USING SCREW-MOUNT TAKUMAR LENSES

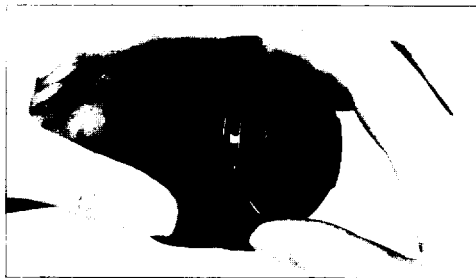
Conventional screw-mount Takumar lenses (both Super-Takumar and SMC Takumar) can be easily mounted onto your camera by attaching them first to a Mount Adaptor K. However, when Adaptor K is used, the following is true.

- 1 Due to the difference in coupling systems, the automatic diaphragm will not function.
- 2 Full-aperture metering lenses will function as stop-down metering lenses.

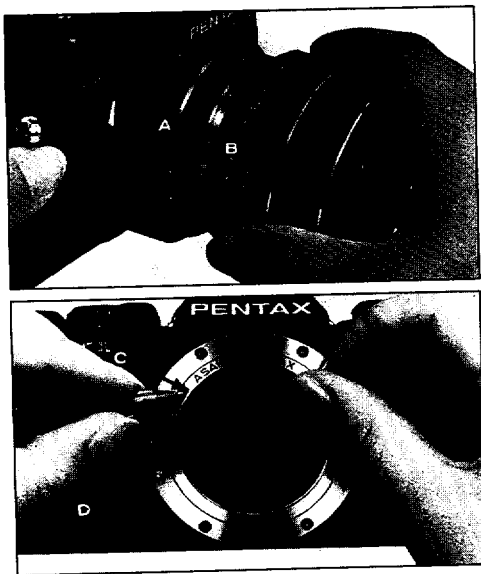


### How to Use Mount Adaptor K

1. Screw the conventional Takumar lens into the Mount Adaptor K.
2. Attach the Adapter/lens unit to the camera body by aligning the red dots **A** and **B**, and turning the lens clockwise until it locks with a click. (This takes slightly less than a quarter of a revolution.)
3. To remove the lens, leaving the Mount Adapter K attached to the camera body, simply unscrew the lens counterclockwise. Other screw-





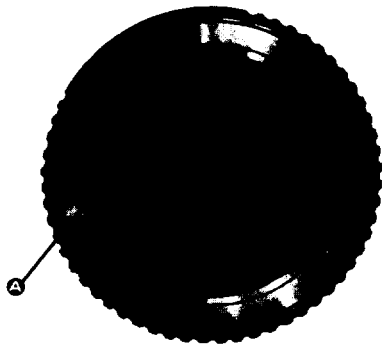


mount Takumar lenses can then be attached in the normal way.

1. To remove the Mount Adaptor K from the camera body, first remove the screw-mount lens. Then press, with your thumbnail or a pointed object such as a ballpoint pen, against the spring pin **C**.
2. Turn the Mount Adaptor K counterclockwise until you feel it release, and take it out.
3. Since the mechanism for locking in the Mount Adapter K is totally different from that which locks in an SMC Pentax bayonet-mount lens, the lens release lever **D** on the camera body plays no part at all.

## OPEN-APERTURE AND STOP-DOWN METERING LENSES

Open-aperture SMC Pentax lenses have a diaphragm coupling lever **A** on the back of the lens which couples with the camera body to permit open-aperture metering. The ultra telephotos do not have a diaphragm coupler, so they must be used with the stop-down metering system. Use of the Auto-Extension Tube Set K permits open-aperture metering. Use of other K Series accessories — standard Extension Tube Set K, Helicoid Extension Tube K, Auto-Bellows M and Bellows Unit III requires stop-down metering. Whenever any one of these is used between the camera body and an SMC Pentax lens, the stop-down metering system must be used.



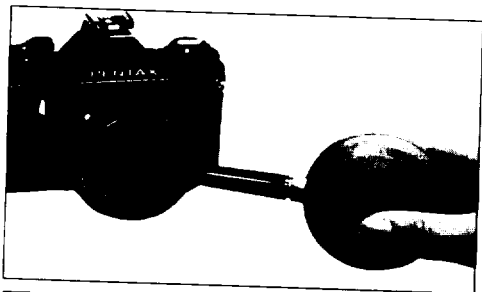
## RESISTANCE TO TEMPERATURE EXTREMES AND CHANGES

The temperature range at which your camera will continue to function properly stretches from 50°C to -20°C. However, resistance to cold could be hampered by oil which has become dirty. Therefore, if the camera is to operate at full efficiency in very cold conditions, it must be overhauled and all oil must be replaced. Sudden changes in temperature will often cause moisture to condense inside or outside your camera. This is a possible source of rust, which may be extremely damaging to the mechanism. Furthermore, if the camera goes from a warm temperature to a sub-freezing one, and if tiny drops of moisture freeze, further damage may be done by their expansion.

Thus, sudden temperature changes should be avoided as much as possible. As a guide, a temperature change of 10°C should be allowed to take place gradually over a period of at least 30 minutes. If this is not possible, keeping the camera in its case or bag will help somewhat in minimizing the effects of a rapid temperature change.

Extremely low temperature reduces the efficiency of the battery. Therefore, the camera should be protected against low temperature. Put the batteries into the camera right before shooting. For extremely low temperature, use new batteries.

## CAMERA MAINTENANCE



Always keep the viewfinder eyepiece, lens and filters as clean as possible. To remove loose dust and dirt, first use the blower and then the brush of a lens brush. Do not try to wipe off granular dirt or dust — it's an excellent way of scratching the glass.

Smudges, such as fingerprints, should be carefully wiped away with either lens tissue or a clean, soft cloth. Clean, plain cotton handkerchiefs that have already been washed a few times are particularly good for this. Breathing on the lens before wiping is effective; but be sure to wipe away all moisture completely. Commercial lens cleaners are also effective.

Never touch the mirror or the shutter leaves. Minor dirt or spots on the mirror will not affect the clarity of your pictures.

Take care not to drop the camera or knock it against anything solid. Accidents or rough handling can easily damage the internal mechanism, even though externally nothing seems to have been damaged.

Your camera is *not* waterproof. There are several places where water can get inside and do a great deal of damage. Take care to protect both body and lens from rain or splashing water. If your camera should get wet, dry it off immediately with a clean, soft cloth.

Once a camera has become completely soaked, there is often nothing that can be done to make it right again. However, in such a case, take your camera as soon as possible to an authorized Asahi Pentax Service Center.

Where to keep your camera while you are not using it is an important point. The best storage place is cool, dry, clean and well-ventilated. Because of the possible build up of humidity, it is risky to store your camera in a cabinet or closet. It's also a good idea to keep your camera in its bag or case while you are not using it.

When mounting your camera on a tripod, be sure the tripod screw is no longer than 5.5mm. This is the depth of the tripod socket on your camera. If you use a longer screw, you will

probably puncture the bottom of the socket, after which the camera will not function properly.

7. In order to prevent large diameter lenses from interfering with proper mounting of the camera to the tripod, attach the Spacer Ring (packed with the camera) between camera and tripod.



## WARRANTY POLICY

All Pentax cameras purchased through authorized bona fide photographic distribution channels are guaranteed against defects of material or workmanship for a period of twelve months from date of purchase. Service will be rendered and defective parts will be replaced without cost to you within that period, provided the equipment has not been abused, altered, or operated contrary to instruction. Because the tolerances, quality, and design compatibility of lenses other than Pentax lenses are beyond our control, damage caused by use of such lenses will not be covered by this warranty policy. The manufacturer or its authorized representatives shall not be liable for any repair or alterations except those made with its written consent and shall not be liable for damages from delay or loss of use or from other indirect or consequential damages of any kind, whether caused by defective material or workmanship or otherwise; and it is expressly agreed that the liability of the manufacturer or its representatives under all guarantees or warranties, whether expressed or implied, is strictly limited

to the replacement of parts as hereinbefore provided.

### **Procedure During 12-month Warranty Period**

Any Pentax which proves defective during the 12-month warranty period should be returned to the dealer from whom you purchased the equipment or to the manufacturer. If there is no representative of the manufacturer in your country, send the equipment to the manufacturer, with postage prepaid. In this case, it will take a considerable length of time before the equipment can be returned to you owing to the complicated customs procedures required in Japan in importing and re-exporting photographic equipment. If the equipment is covered by warranty, repairs will be made and parts replaced free of charge, and the equipment will be returned to you upon completion of servicing. If the equipment is not covered by warranty, regular charges of the manufacturer or of its representatives will apply. Shipping charges are to be borne by the owner. If your Pentax was purchased outside of the country where you wish

to have serviced during the warranty period, regular handling and servicing fees may be charged by the manufacturer's representatives in that country. Notwithstanding this, your Pentax returned to the manufacturer will be serviced free of charge according to this procedure and warranty policy. In any case, however, shipping charges and customs clearance fees are to be borne by the sender. To prove the date of your purchase when required, please keep the receipts or bills covering the purchase of your equipment for at least a year. Before sending your equipment for servicing, please make sure that you are sending it to the manufacturer's authorized representatives or their accredited repair shops, unless you are sending it directly to the manufacturer. Always obtain a quotation of the service charge, and only after you accept the quoted service charge, instruct the service station to proceed with the servicing.

**This warranty policy does not apply to Pentax products purchased in the U.S.A., U.K., or Canada. The local warranty policies available from Pentax distributors in those countries supersede this warranty policy.**



**Asahi Optical Co., Ltd.** C.P.O. 895, Tokyo 100-91, JAPAN

**Asahi Optical Europe N.V.** Weiveldlaan 3-5, 1930 Zaventem Zuid-7, BELGIUM

**Pentax Handelsgesellschaft mbH.** 2000 Hamburg 54 (Lokstedt), Grandweg 64, WEST GERMANY

**Pentax Corporation** 35 Inverness Drive East, Englewood, Colorado 80112, U.S.A.

**Pentax Canada Inc.** 1760 West 3rd Avenue, Vancouver, B.C. V6J 1K5, CANADA

**Pentax U.K. Limited** Pentax House, South Hill Avenue, South Harrow, Middlesex HA2 0LT, U.K.

**Asahi Optical Brasileira Ind. e Com. Ltda.** Rua Estados Unidos, 1053, São Paulo-SP, BRASIL