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THE PENTAX AUTO 110 SYSTEM

Pentax Auto 110 is an automatic-exposure SLR (single-lens-reflex) camera that uses 110 cartridge film. As such, it offers both the pocketability and easy loading of the 110 format and the advantages of an SLR system.

The Pentax Auto 110 accepts interchangeable lenses, auto flash units, a winder, close-up attachments, filters, and lens hoods.

PENTAX

auto 110 SYSTEM



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AUTO 110 SPECIFICATIONS

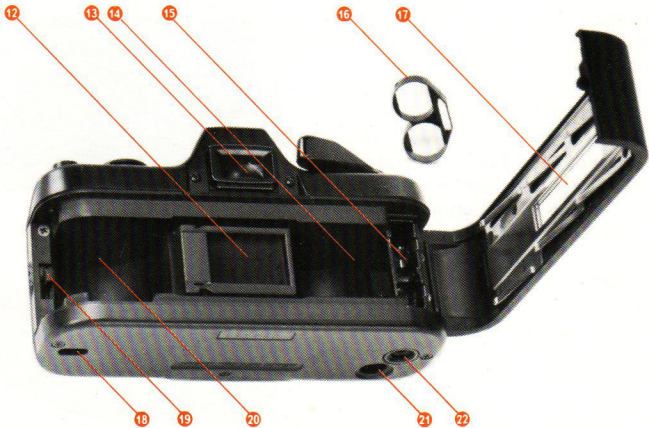
- Type** — TTL metering 110 SLR camera with bayonet mount for interchangeable lenses.
- Film Type** — Cartridge-loading 110 film.
- Negative Format** — 13mm x 17mm.
- Lens** — Pentax-110 24mm f/2.8; 47-degree angle of view; 25.5mm filter threads. Focusing Range: 0.35m—∞.
- Lens Mount** — 110 bayonet mount; 80-degree setting angle; features shutter lock provision.
- Viewfinder** — Eye-level pentaprism finder with quick-return mirror.
- Focusing** — Central split-image focusing spot surrounded by matte field.
- Viewfinder Information** — Green LED indicates adequate shutter speed (minimum of 1/30 sec. at f/2.8); yellow LED indicates slow shutter speed (less than 1/30 sec.) requiring use of tripod or auto flash to avoid camera shake. Magnification: 0.75X showing 87% of the picture area.
- Battery Check** — Viewfinder LEDs fail to light on depressing shutter button when batteries are low.
- Exposure Metering** — Center-weighted, TTL metering at full aperture via SPD cell. EV Range: 3 - 17 (24mm f/2.8 lens; ASA 100).

Film Speed Setting	Automatic set for available 110 films.
Shutter	Programmed electronic behind-the-lens shutter.
Shutter-Speed/ Aperture Range	1/750 sec. at f/13.5 - 1 sec. at f/2.8.
Film Advance	Two 145-degree strokes of film advance lever advance film a single frame; 60-degree pre-advance setting.
Exposure Counter	Frame number appears in back cover window.
Other Features	Sync terminal for automatic flash synch with AF 130P or AF 100P auto flash unit at 1/30 sec. (f/2.8); tripod socket, lens release button, wrist strap hook, battery holder tray; winder capability.
Power Source	Two 1.5V Alkaline (LR44) or Silver-oxide (G13) batteries.
Size	With Standard Lens: 56mm x 99mm x 45mm (2.2" x 3.9" x 1.8") Body Without Lens: 56mm x 99mm x 32mm (2.2" x 3.9" x 1.3")
Weight	With Lens: 172 grams (6.1 ozs.) Body Only: 159 grams (5.6 ozs.)

AUTO 110 NAMES OF PARTS



1. 110-Bayonet Mount
2. Aperture diaphragm
3. Shutter release button
4. Film advance lever
5. Lens release button
6. Flash synch-shoe
7. Flash contact pin
8. Wrist strap hook
9. Lens distance scale
10. Distance scale index
11. Focusing ring
12. Shutter/mirror box module
13. Viewfinder eyepiece
14. Film cartridge chamber
15. Battery chamber
16. Battery holder tray
17. Back cover window
18. Winder contact terminals
19. Back cover lock
20. Film cartridge chamber
21. Film drive coupler
22. Tripod socket



BASIC OPERATING INSTRUCTIONS

For details, refer to the appropriate section of this manual.

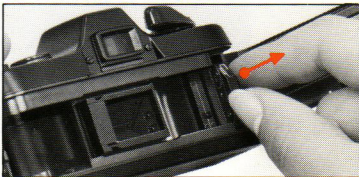
CAUTION:

- Be sure to insert two batteries in the camera.
- To advance film, turn the film advance lever TWO full strokes.
- If neither the green or yellow light appears in the viewfinder when you depress the shutter release button halfway, the batteries are dead or have been inserted improperly and you cannot take a photograph even if the shutter is released. Reread the instructions carefully and correct the problem.

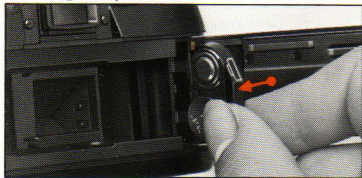
1. Open back cover.



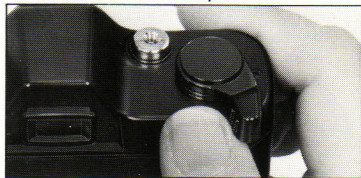
2. Remove battery case.



3. Insert batteries and return case to original position.



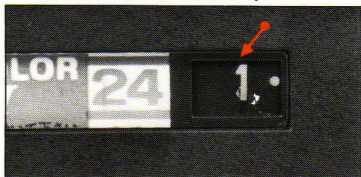
5. Turn film advance lever approx. 7 strokes until it stops.



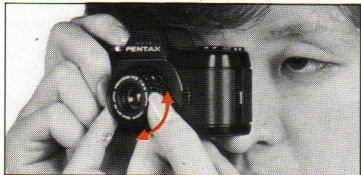
4. Insert film (110 cartridge).



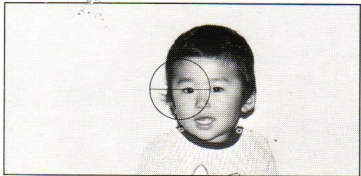
6. The number "1" will appear in the back cover window.



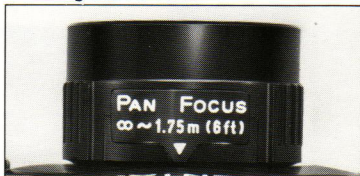
7. Turn focusing ring.



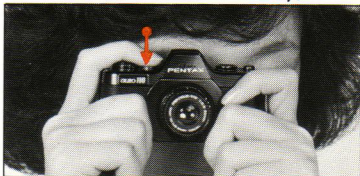
8. Focus



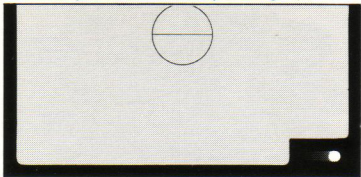
9. Steps 7 & 8 do not apply when using the PF lens.



10. If a green light appears in the viewfinder when you depress the shutter release halfway.



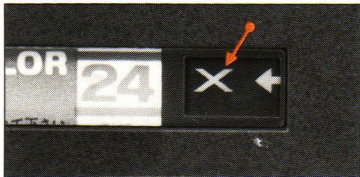
11. Gently press the button all the way and take the photograph.




12. Turn film advance lever 2 strokes for next exposure.



13. The end of the roll has been reached when an "X" appears in the back cover window.

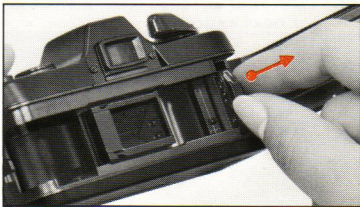
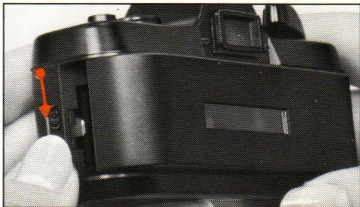


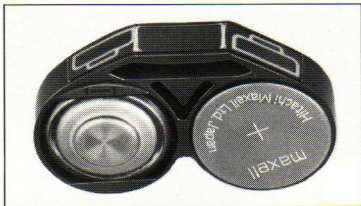
14. Turn the film advance lever until  appears, then remove the film cartridge.



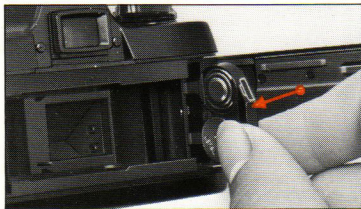
BATTERY LOADING

1. Push down the back cover lock, open the back cover and remove the battery holder tray from inside the battery chamber.
2. Insert the (-) side of one of the batteries into the opened side of the tray. Then, turn the tray over and do the same with the other battery. The (-) side of both batteries will correspond with the (-) indication on top of the tray when inserted properly.



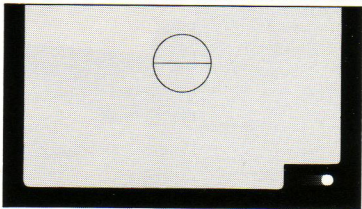
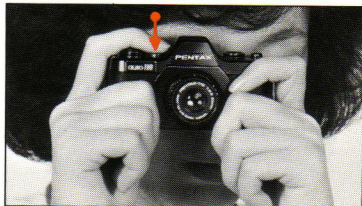


3. Insert the loaded tray — curved-side first—back into the battery chamber. Proper contact will be made no matter which battery is on top as long as batteries have been inserted into the tray properly.



BATTERY LIFE

Under normal usage, one set of Alkaline batteries will last several months. If batteries are inserted improperly, or if they have become worn, the LED indicator lamps in the viewfinder will fail to light when you depress the shutter release halfway. Should batteries require replacement, replace **BOTH** at the same time with equivalent 1.5V Alkaline or Silver-oxide batteries.



BATTERY PRECAUTIONS

Remove the batteries from the camera if you will not be using it for a long time.

Do not take apart or charge a dead battery, or throw it into a fire, as it may explode.

N.B.: If the batteries go dead while there is film in the camera, point the lens downward and open the back cover in a shaded location, then remove the battery case and replace the batteries, taking care not to move the film cartridge.

FILM LOADING

1. Insert the film cartridge as shown.
2. Close the back cover.

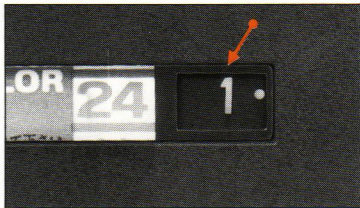
The 110 cartridge film automatically adjusts the camera to the correct ASA speed (ASA 64/100 or ASA 400) upon loading. No manual film speed setting is required.

ASA 400 film is appropriate for photographing dark subjects or when you desire a fast shutter speed. Otherwise, we recommend ASA 64 or 100.

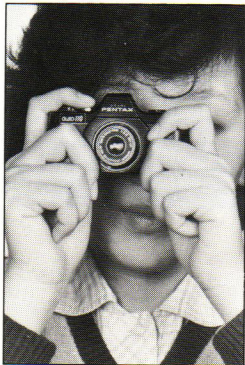


ADVANCING THE FILM

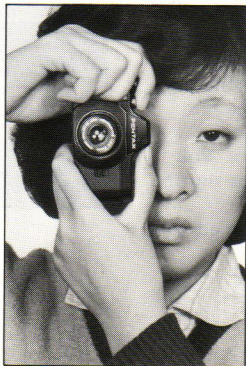
Turn the film advance lever about 7 times until the numeral "1" appears in the back cover window. You are now ready to take your first picture. After each exposure, turn the film advance lever **twice** to cock the shutter for the next exposure. You will not be able to release the shutter after only one turn. You may also use a winder to advance the film (see page 31).



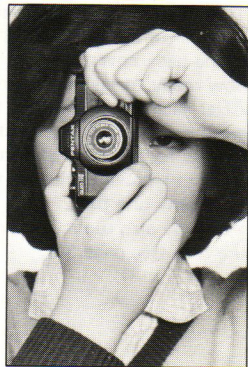
HOLDING THE CAMERA



1. Horizontal position



2. Vertical position
(shutter release button
on top)



3. Vertical position
(shutter release button
at bottom)

It is important to hold the camera properly in order to take blur-free photos. Practice holding and operating the camera before inserting your first film cartridge.

The photos show the basic holding positions. No matter which position you use, be sure to grip the camera steadily with both hands, hold the camera gently against the face in a fixed position, and relax the rest of your body in a secure posture. Brace the elbow of the arm supporting the camera against your body. You may also use a tree or building, etc., as support. Always push the shutter release button gently.

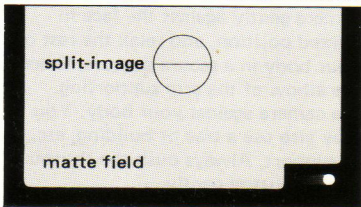
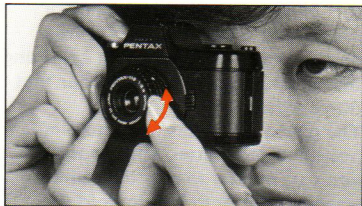
CAUTION: Do not touch the flash hot shoe with your finger when holding the camera. If you do, the shutter speed will be automatically set at 1/30 sec., and an over-exposure may result.

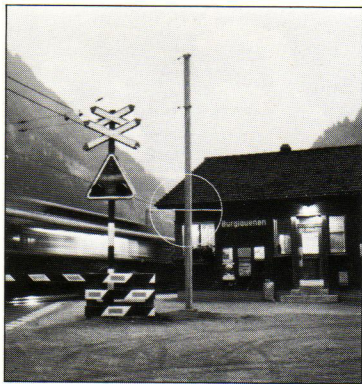


FOCUSING

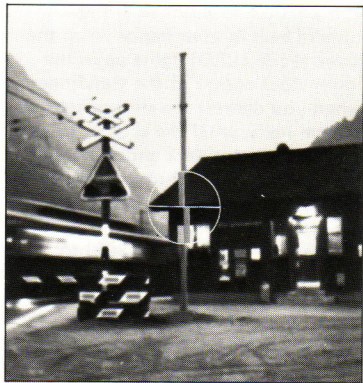
Look through the eyepiece and turn the focusing ring of the lens. Reasonably sharp focus can be obtained by focusing on any part of the screen. To be assured of pinpoint focusing, however, check your focus against the spot in the center of the screen. If the image is completely intact, focus is precise. If the image is split, turn the focusing ring further until both halves of the image fit together perfectly.

For those who find focusing difficult because of poor eyesight, corrective eyepieces are available (see page 32).





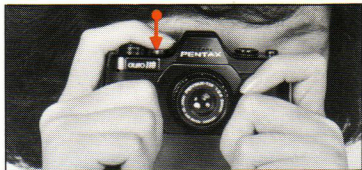
in focus



out of focus

EXPOSURE CHECK

It is possible to shoot with the camera held in your hands when the green diode (LED) lights up in the lower right corner of the viewfinder when you depress the shutter release button halfway. If the subject to be photographed is dark and the orange LED lights up, the shutter speed will be $1/30$ sec. or slower, so you should use either a tripod or one of the Auto Flashes (AF100P or AF130P) to prevent blurring.



USING A TRIPOD

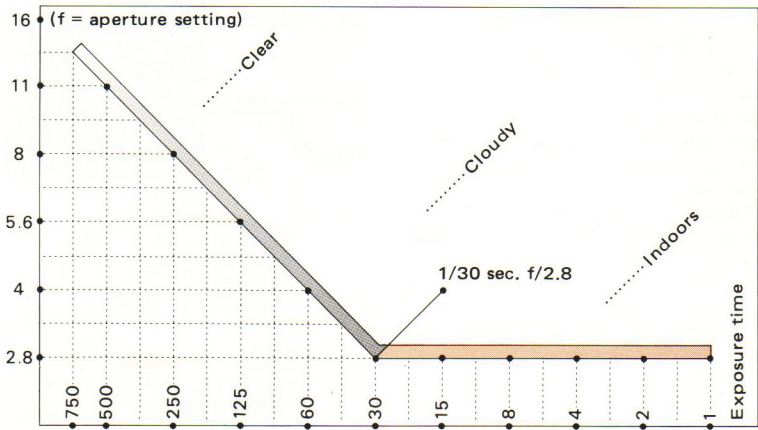
A tripod can be screwed into the tripod socket. When using the 50mm or 70mm telephoto lens or the 20–40mm zoom lens, the lens will hit the tripod mount. To correct this, screw the accessory tripod spacer onto the tripod mount before affixing the camera.



APERTURE AND SHUTTER SPEED RELATIONSHIP



The Auto 110's automatic exposure system is based on a program that has apertures and shutter speeds paired off in preset combinations.

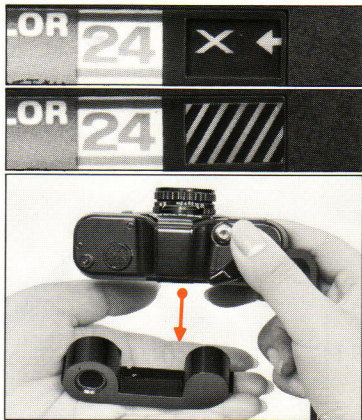
Neither aperture or shutter speed is displayed on the camera. However, when the green LED lights up in the viewfinder the speed is 1/30 second or faster, and the aperture is f/2.8 or smaller. If the yellow LED is visible, the aperture is f/2.8 and the shutter speed is 1/30 sec. or slower.



AT THE END OF THE ROLL

When nearing the end of the film roll (12 or 24 exposures), be sure to check the film window. An "X" will appear when you advance the film after using the last exposure on the roll. After that, although the shutter can be released, no photograph will be taken.

Advance the film approximately 3 exposures' worth past "X," until  or  appears and the film stops. Do not attempt to force the film to advance any further. Open the back cover and remove the film for processing.



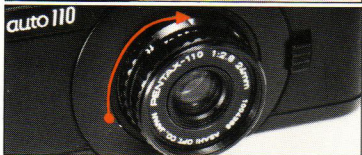
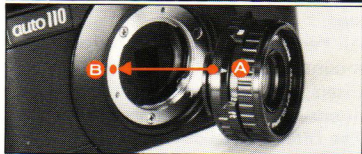
CHANGING LENSES

Lens removal

Push upwards on the lens release lever and turn the lens approximately 90 degrees to the left until the lens slips out of the mount.

Lens mounting

1. Match up the red distance scale index of the lens **A** with the red dot on the camera body **B** and insert the lens into the body.
2. Turn the lens to the right until it locks in place, with the red distance scale index positioned at the top.



LENSES AVAILABLE

A total of six lenses are available — the standard 24mm lens, an 18mm wide-angle lens, 50mm and 70mm telephoto lenses, the PF18mm fixed-focus lens, and a 20–40mm zoom lens.

All Pentax 110 lenses are bayonet-mounted, and all of them accept filters, close-up attachments, and lens hoods. (see pg. 31 "Accessories") The filter thread diameter of the 70mm telephoto and the 20–40mm

zoom lenses is 49mm, so lens accessories made for 35mm format cameras can be screwed in.



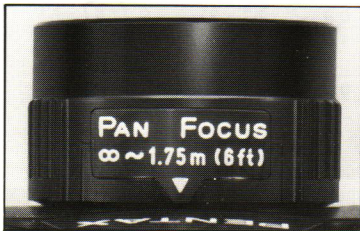
● Type	● Focal length	● Lens construction (Groups—Elements)	● Angle of view (Degrees)	● Minimum focusing (m)	● Diameter & length (mm)	● Filter size (mm)	● Weight (gr.)
Standard	24mm	5-6	47	0.35	30 x 13	25.5	13
Wide-angle	18mm	6-6	61.5	0.25	34 x 21	30.5	27
Telephoto	50mm	5-5	24	0.9	43 x 27	37.5	57
Telephoto	70mm	5-6	17.2	1.5	51 x 50.5	49	160
PF	18mm	6-6	61.5	—	34 x 21	30.5	29
Zoom	20-40mm	8-8	57.5-31	0.7	54 x 45.2-65.4	49	174

Note: ● PF is a fixed-focus lens.

- There are no aperture settings on Pentax-110 lenses. The aperture is set automatically by the diaphragm mechanism of the camera's programmed shutter system. The aperture range is f/2.8 – f/13.5.

USING THE PF (PAN FOCUS) LENS

The pan-focus lens allows you to take photos without focusing. Simply look through the viewfinder, frame your subject and then press the shutter release. Depending on the distance to the subject, there may be a slight split in the center circle in the viewfinder,



but if the subject is at least 1.75m away, the entire photo will always be in focus because of the deep range of focus of this lens.

There will be some variation in the actual effective range of focus, depending on the brightness of the subject, as follows:

Conditions	Effective Range
Outdoors Clear	approx. 1m ~ ∞
Outdoors Cloudy	approx. 1.5m ~ ∞

When the yellow light (LED) shows in the viewfinder, take precautions against camera movement.

Using the Close-up attachment

You can take extreme close-up photographs by screwing on a Close-up Attachment W21 (optional) into the filter thread. Because this is a fixed-focus lens, you can take photographs only at a preset distance of approx. 25cm between the subject and the film plane, i.e., when the focusing image is aligned. Extreme close-up photos cannot be taken at other distances.

Magnification: 1/11.3 times.

Size of framed target area:

14.7 x 19.2mm.

The PF lens accepts filters and a lens hood with a 30.5mm diameter.

Using an auto flash unit

When using an Auto Flash with the PF lens, refer to the chart below for effective flash range.

Film	Auto Flash	Effective Range
ASA 100	AF100P	approx. 2m ~ 3.5m
	AF130P	approx. 2m ~ 4.6m
ASA 400	AF100P	approx. 1.4m ~ 3.5m
	AF130P	approx. 1.4m ~ 4.6m

AUTO FLASH UNITS

Auto Flash units are available in two models — AF130P and AF100P.

When using ASA 100 400 film, you may photograph subjects at the following distances by simply focusing — a subject between 0.8 ~ 4.6 meters from the camera using the AF130P Auto Flash, and a subject 0.8 ~ 3.5 meters away using the AF100P Auto Flash.

However, the flash cannot be used if the green LED is lit up in the viewfinder, as when the room is very bright.

AF100P



AF130P



110 WINDER

This convenient winder automatically advances the film to Exposure 1 and continues advancing the film at the rate of 1 frame per second until the roll is finished.



OTHER ACCESSORIES

110 Close-up attachments

S31, S16 (for use with 24mm lens)

W21 (for 18mm lens)

T86, T43 (for 50mm lens)

110 Filters (UV, skylight)

25.5mm (for use with 24mm lens)

30.5mm (for 18mm lens)

37.5mm (for 50mm lens)

Hoods

There is a specially-designed hood for each 110 lens.

N.B.: As the filter thread of the 70mm and 20–40mm zoom lenses is 49mm in diameter, 49mm filters, close-up attachments, and lens hoods made for 35mm format cameras can be used.

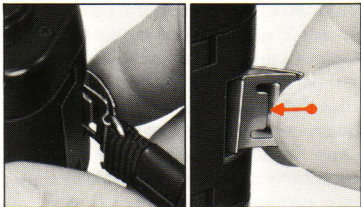
CORRECTIVE EYEPIECES

Corrective eyepieces can be mounted on the viewfinder window by inserting over the accessory grooves. These are available in the following diopters: -5, -4, -3, -2, -1, +1, +2 and +3. When purchasing a corrective eyepiece, make certain it is the right one by testing it on a camera.



USING THE HANDSTRAP AND SOFT CASE

1. Attach the handstrap by pushing the clip towards you from its front.
2. To remove, push the clip in the direction of the arrow imprinted on it while wiggling it right and left.
3. You may use the handstrap by letting it hang outside the soft case through the hole on the left.



HANDLING PRECAUTIONS

Take care not to drop the camera or knock it against anything solid.

Do not store it in a place with high temperature and humidity. Be aware that the inside of an automobile often becomes extremely hot. Do not store the camera in a drawer with mothballs or similar products as they may damage the camera or film.

Do not wipe the camera or lens with solvents such as paint thinner or alcohol to clean.

Use a blower to blow away dust from the lens and other glass surfaces, and then clean with a lens brush.

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 alternations 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 equip-

ment 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.





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