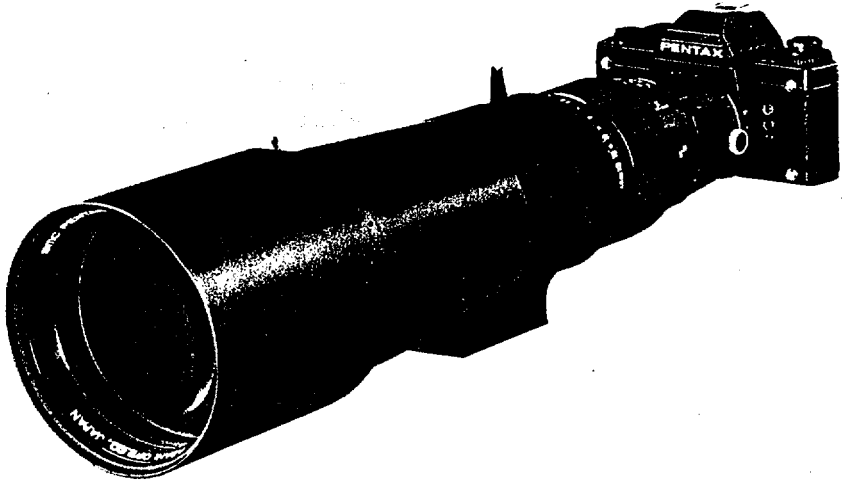
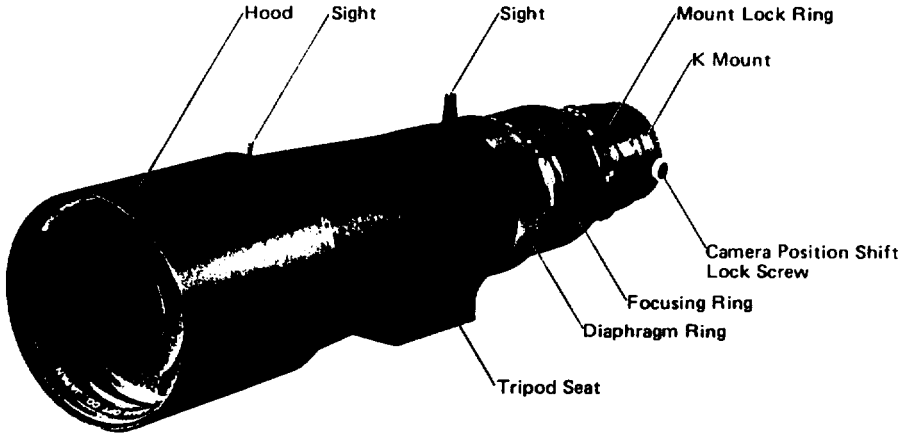
PENTAX®

SMC PENTAX 500mm f/4.5
SMC PENTAX 1000mm f/8
SMC PENTAX REFLEX 1000mm f/11
SMC PENTAX REFLEX 2000mm f/13.5
SMC PENTAX ZOOM 135—600mm f/6.7



NAMES OF WORKING PARTS



The operations are almost common to all the lenses described in this booklet. Therefore, the photos of the 500mm f/4.5 lens are used here for illustration. As for the Reflex 1000mm f/11 and 200mm f/13.5 lenses, refer to pages 6 and 7 in particular.

SPECIFICATIONS

• Lens	• Maximum Aperture	• Lens Construction (Groups-Elements)	• Diaphragm	• Angle of View (Degree)	• Metering	• Minimum Focusing Distance (m)	• Minimum Aperture (f)	• Maximum Diameter & Length (ϕmm x mm)	• Weight (kg/lb)	• Filter Size (mm)
SMC Pentax 500mm	f/4.6	4-4	M	5	Stop-down	10	45	126.5x400	3.37/7.4	52
SMC Pentax 1000mm	f/8	5-5	M	2.5	Stop-down	30	45	143x738	5.29/11.7	52
SMC Pentax Reflex 1000mm	f/11	4-6	ND	2.5	Stop-down	8	11	119x248	2.3/5.1	6 filters built-in
SMC Pentax Reflex 2000mm	f/13.5	4-6	ND	1.2	Stop-down	20	13.5	180x530	8/17.6	6 filters built-in
SMC Pentax 135–600mm	f/6.7	12-15	M	18-4.1	Stop-down	6	45	105x589	4.07/9	52

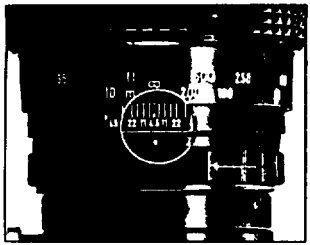
M = Manual
ND = Controlled by ND filter

The ultra-telephoto lenses are, as you know, a must in shooting an object so distant your naked eye cannot see clearly. What with the "effect of overlapping the objects" and with "effect of drawing the objects near" they can provide, the creation of powerful and impressive photographs is made possible. It is also possible to record the close-up of the sun on film, and also wild birds, animals and sports events which are too far away or dangerous for a photographer to draw near.

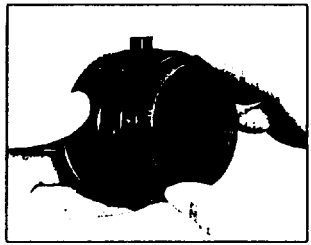
The mounts of the 500mm and 1000mm lenses are interchangeable, and so are those of the Reflex 1000mm, 2000mm and Zoom 135–600mm lenses. However, using the mount of the Reflex 2000mm or Zoom 135–600mm lens with the Reflex 2000mm lens is not recommended, as it causes some difficulty in operation.

FILTER

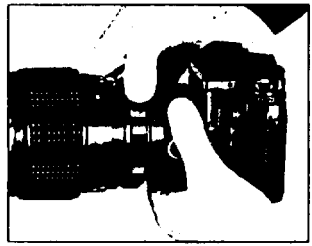
1



2



3



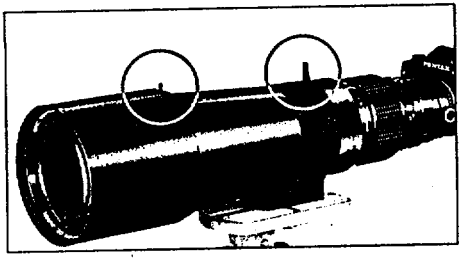
1. To remove the mount, turn the mount lock ring to the left until the white dot aligns with the index.

2. After screwing a 52mm filter into the inside of the mount, return the mount into the rearmost part of the lens and fix it in place by turning the mount lock ring to the right.

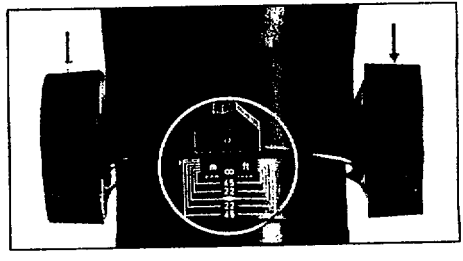
3. When changing filters with the camera mounted on the lens, be sure to do it while holding the camera firmly.

*Always start using the lens after making sure the mount lock ring is in place.

FOCUSING

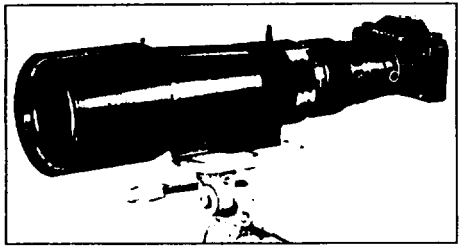


The angle of view of the ultra-telephoto lens is so narrow, it is very difficult to spot your subject through the viewfinder of your camera. To avoid such difficulty, the 500mm and 1000mm lenses are equipped with two sights, front and back, so that you may capture the subject on the extended line of the two sights, then focus on it while viewing through the viewfinder.
(The Reflex 1000mm and 2000mm lenses have the front sight only.)
When putting the 500mm lens into the case, turn the tripod seat of the lens 180° to prevent the sight from being damaged.

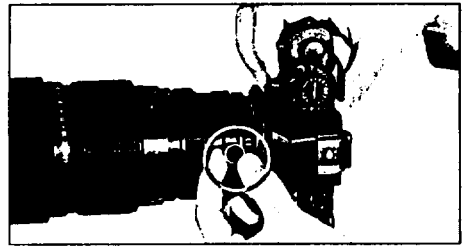


To focus with the 1000mm lens, turn the focus adjusting knob indicated by the arrow. Although the distance ring stops with ∞ (infinity) mark in the distance scale slightly beyond the index, this is because temperature change causes shift in focus, resulting in the shift of the ∞ position. Even when shooting at infinity, focus through the viewfinder. Similarly, the Reflex 1000mm and 2000mm lenses have the shift of the ∞ position.

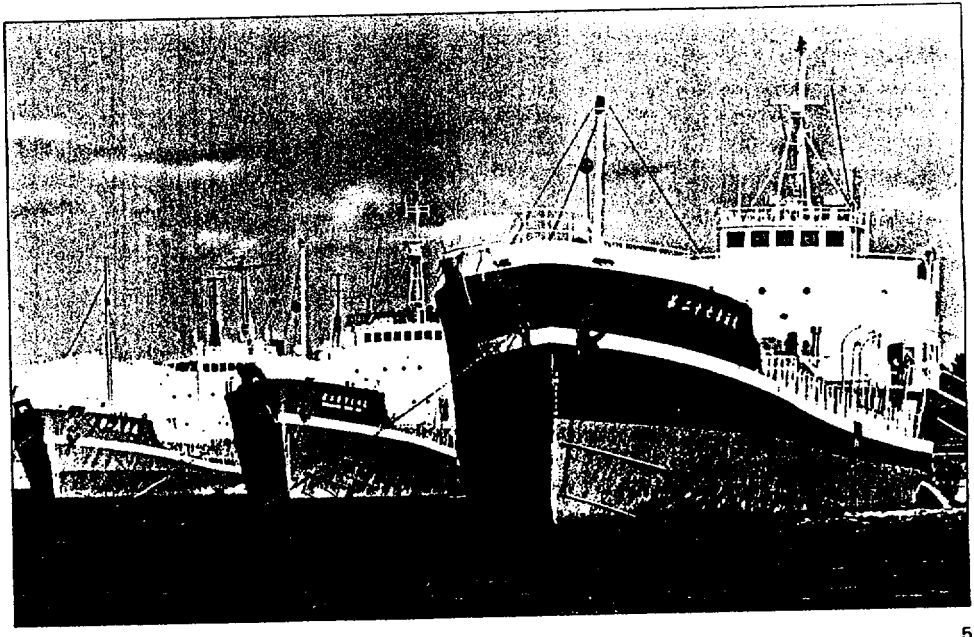
TRIPOD SEAT; CAMERA POSITIONING



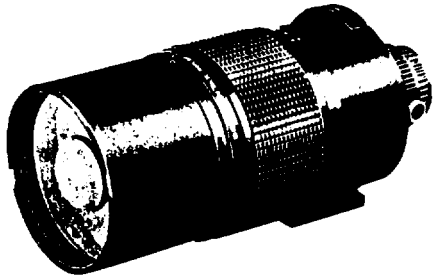
As illustrated above, all the ultra-telephoto lenses have a tripod seat, onto which a tripod can be mounted. Use a sturdy tripod.

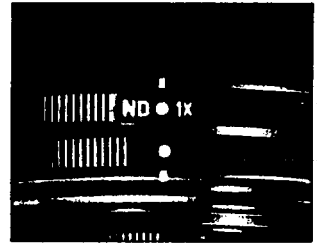


You can easily change the position of your camera, vertically or horizontally, without changing the position of the lens barrel. Loosen the lock screw on the mount and turn the camera to your desired direction until it "click-stops" at 90°.



REFLEX 1000mm f/11 AND 2000mm f/13.5 LENSES



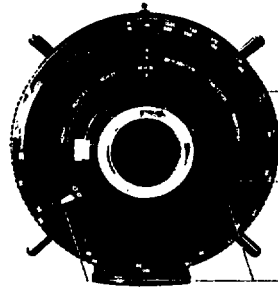


1000mm f/11

— ND-filter ring

— Filter ring

The mirror-reflex design dramatically decreases the size and weight of these ultra-telephoto lenses. Because the beam coming in through these lenses is ring-shaped, the pictures they produce usually show many ring-like patterns in the foreground and background of a focused subject.
Since these lenses have just one aperture, you cannot control the depth of field.

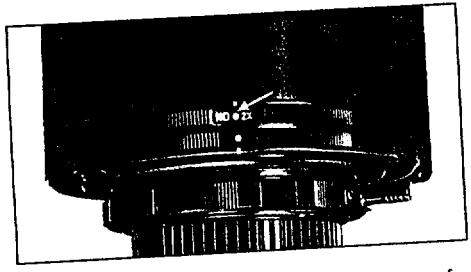


2000mm F/13.5

— Filter ring

— ND-filter ring

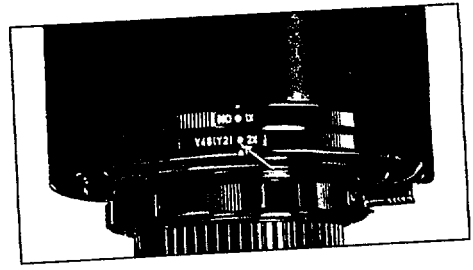
— Turning knob



ND filters must be used to control the amount of light reaching the film, instead of an aperture control. Turn the ND filter ring until the desired ND filter aligns with the index.

ND filter	1X	2X	2.8X	4X
1000mm f/11 Corresponding f/number	f/11	f/16	f/19	f/22
2000mm f/13.5 Corresponding f/number	f/13.5	f/19	f/22	f/26

• ND 1X filter is a colorless, transparent glass.



Each of these two lenses has three filters built-in: Skylight, Y2 and R2.
The white dot indicates neutral (transparent glass); you can use this setting when no filter is required. Turn the filter ring until your desired filter aligns with the index.

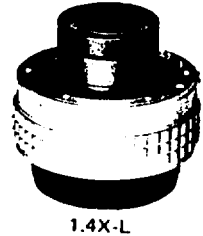
• If you want to use any filter other than the built-in filters, you can attach a 52mm one to the mount of the lens. Refer to page 2.

REAR CONVERTER A

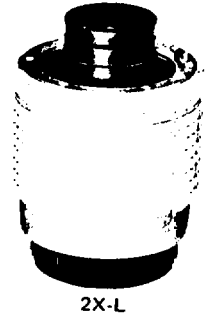
Lens \ R. Converter	A·1.4X-L	A·2X-L	A·1.4X-S	A·2X-S
500mm f/4.5	O	O	△	O
1000mm f/8	O	O	△	O
Reflex 1000mm f/11	X	X	△	O
Reflex 2000mm f/13.5	X	X	△	O
135mm–600mm f/6.7	X	O	△	O

The above table shows the compatibility between the ultra-telephoto lenses and Rear Converter A's.
O = Compatible
△ = Causes underexposure at the corners of the picture.
X = Incompatible

- The combination marked X may cause damage.
- The combination of the Rear Converter T6-2X and each of the above lenses is O (Compatible).



1.4X-L



2X-L

COMPATIBILITY BETWEEN LENSES AND FOCUSING SCREENS

(1) LX Focusing Screens

Lens \ For LX	SA-26	SA-37	SC-26	SE-25	SA-21	SA-23	SB-21	SC-21	SD-21	SE-20	SG-20	SI-20
500mm f/4.5	◎	◎	◎	◎	▲	▲	▲	▲	△	△	△	△
1000mm f/8	◎	◎	◎	◎	▲	▲	▲	▲	△	△	△	△
Reflex 1000mm f/11	▲	◎	▲	◎	▲	▲	▲	▲	△	△	△	△
Reflex 2000mm f/13.5	▲	◎	▲	◎	▲	▲	▲	▲	△	△	△	△
135–600mm f/6.7	○	◎	○	○	▲	▲	▲	▲	△	△	△	△

(2) When used with Rear Converter A's

R. Converter \ For LX	SA-26	SA-37	SC-26	SE-25	SA-21	SA-23	SB-21	SC-21	SD-21	SE-20	SG-20	SI-20
A·1.4×-L	8	○	8	◎	4	2.8	4	4	△	△	△	△
A· 2 ×-L	5.6	○	5.6	◎	2.8	▲	2.8	2.8	△	△	△	△
A·1.4×-S	8	○	8	○	4	2.8	4	4	○	○	○	○
A· 2 ×-S	5.6	○	5.6	○	2.8	▲	2.8	2.8	○	○	○	○

(1) With MX Focusing Screens, the combination with SD-1, SE, SG or SI is marked ○, while the combination with the other is ▲. For these marks, refer to the explanations at right.

(2) When the MX Focusing Screens and the Rear Converter A's are combined, SA-1 serves as SA-21, SA-3 does SA-23, SB-1 does SB-21, SC-1 does SC-21, as shown in the above table. The other combinations are marked ○.

◎ = Especially compatible
○ = Compatible
△ = Slightly darkens the matte field.
▲ = Darkens the split-image and microprism.

(2) The figures such as 8, 5.6 in this table indicate the maximum aperture of the master lens. Using a slower master lens will darken the split-image and microprism.

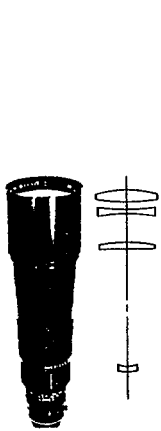
Distance scale set at 135mm (Unit = m)

f \ dist.	6m	7m	8m	10m	15m	20m	30m	50m	100m	∞
F6.7	5.7 ~ 6.3	6.5 ~ 7.5	7.5 ~ 8.7	9.1 ~ 11.2	12.9 ~ 18	16.3 ~ 26	22 ~ 47	31 ~ 135	45 ~ ∞	79 ~ ∞
F8	5.7 ~ 6.4	6.5 ~ 7.6	7.4 ~ 8.8	9.0 ~ 11.4	12.6 ~ 18.8	15.8 ~ 28	21 ~ 53	29 ~ 203	41 ~ ∞	67 ~ ∞
F11	5.6 ~ 6.5	6.4 ~ 7.8	7.3 ~ 9.0	8.8 ~ 12	11.9 ~ 21	14.7 ~ 33	19 ~ ∞	26 ~ ∞	33 ~ ∞	49 ~ ∞
F16	5.4 ~ 6.7	6.2 ~ 8.1	6.9 ~ 9.4	8.1 ~ 13.1	11 ~ 26	13 ~ 47	16.5 ~ 801	21 ~ ∞	25 ~ ∞	31 ~ ∞
F22	5.2 ~ 6.9	5.9 ~ 8.4	6.5 ~ 10.0	7.6 ~ 15.5	10 ~ 36	11.7 ~ 109	14 ~ ∞	17 ~ ∞	20.6 ~ ∞	25 ~ ∞
F32	4.9 ~ 8.3	5.5 ~ 10.5	6.0 ~ 13.3	7.0 ~ 21.5	8.7 ~ 171	10 ~ ∞	11.9 ~ ∞	13.6 ~ ∞	15.9 ~ ∞	18 ~ ∞
F45	4.6 ~ 9.8	5.1 ~ 13.7	5.6 ~ 19.1	6.4 ~ 47	7.6 ~ ∞	8.5 ~ ∞	9.7 ~ ∞	10.9 ~ ∞	11.9 ~ ∞	13.3 ~ ∞

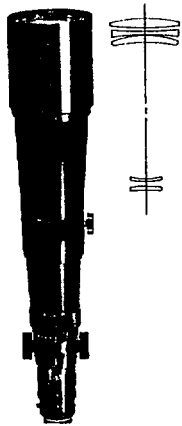
Distance scale set at 600mm (Unit = m)

f \ dist.	6m	7m	8m	10m	15m	20m	30m	50m	100m	∞
F6.7	5.98 ~ 6.02	6.98 ~ 7.02	7.97 ~ 8.03	9.96 ~ 10.1	14.9 ~ 15.1	19.8 ~ 20.2	29.4 ~ 30.6	48.4 ~ 51.7	93.7 ~ 107	1460 ~ ∞
F8	5.98 ~ 6.02	6.97 ~ 7.03	7.96 ~ 8.04	9.94 ~ 10.07	14.84 ~ 15.16	19.7 ~ 20.3	29.3 ~ 30.7	48 ~ 52	92.5 ~ 109	1223 ~ ∞
F11	5.97 ~ 6.03	6.96 ~ 7.04	7.95 ~ 8.05	9.91 ~ 10.09	14.79 ~ 15.22	19.6 ~ 20.4	29.1 ~ 31	47.5 ~ 52.9	90.1 ~ 112	890 ~ ∞
F16	5.96 ~ 6.04	6.95 ~ 7.06	7.92 ~ 8.08	9.87 ~ 10.13	14.69 ~ 15.3	19.4 ~ 20.6	28.7 ~ 31.4	46.4 ~ 54.2	86 ~ 119	512 ~ ∞
F22	5.95 ~ 6.05	6.92 ~ 7.08	7.90 ~ 8.11	9.83 ~ 10.18	14.58 ~ 15.4	19.2 ~ 20.8	28.2 ~ 32	45 ~ 56	82 ~ 128	445 ~ ∞
F32	5.93 ~ 6.07	6.89 ~ 7.11	7.86 ~ 8.16	9.75 ~ 10.3	14.4 ~ 15.7	18.9 ~ 21	27.5 ~ 33	43 ~ 59	76 ~ 147	307 ~ ∞
F45	5.90 ~ 6.11	6.85 ~ 7.16	7.79 ~ 8.22	9.65 ~ 10.4	14.2 ~ 16	18.5 ~ 22	26.6 ~ 34.4	41 ~ 64	69 ~ 183	218 ~ ∞

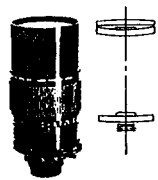
APPEARANCES AND CONSTRUCTIONS OF LENSES



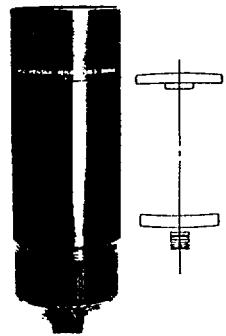
500mm f/4.5



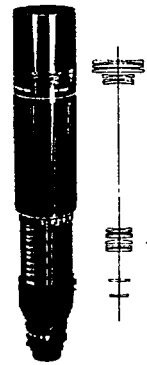
1000mm f/8



Reflex
1000mm f/11



Reflex
2000mm f/13.5



Zoom
135–600mm f/6.7

WARRANTY POLICY

All Pentax lenses 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. The manufacturer or its authorized representatives shall not be liable for any repair of 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 lens 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 lens 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 camera or lens 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 owner. 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
Pentax Europe n.v. Weiveldlaan 3-5, 1930 Zaventem Zuid-7, BELGIUM
Pentax Handelsgesellschaft mbH Postfach 54 0169, 2000 Hamburg 54, WEST GERMANY
Pentax U.K. Limited (Pentax House, South Hill Avenue, South Harrow, Middlesex HA2 0LT, U.K.
Pentax France S.A.Z.I. d'Argenteuil N2, Rue Ambroise-Croizat 95100 Argenteuil, FRANCE
Pentax (Schweiz) AG Industriestrasse 2, 8305 Dietlikon ZH, SWITZERLAND
Pentax Sweden AB Box 860, S-751 27 Uppsala, SWEDEN
Pentax Nederland Schieveld 28, 4815 HR Breda, THE NETHERLANDS
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
Asahi Optical Brasileira Ind. e Com. Ltda. Rua Capitão Antonio Rosa 376, Sala 121 Ed. PBK, São Paulo BRASIL

Specifications are subject to change without notice.

08096 ENG

1/85 Printed in Japan