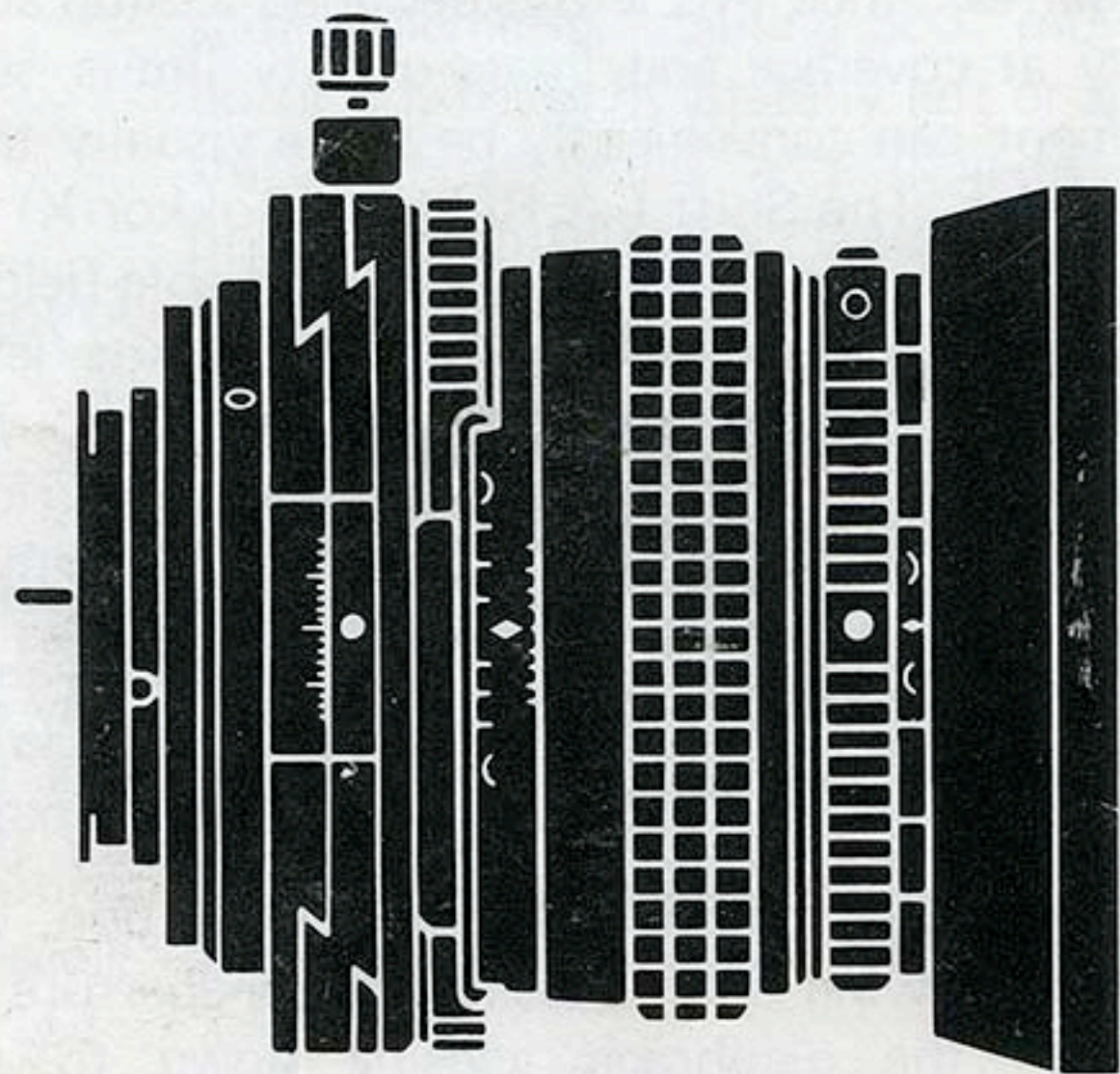


MINOLTA

35MM F2.8 SHIFT CA ROKKOR
ROKKOR-X



OWNER'S MANUAL



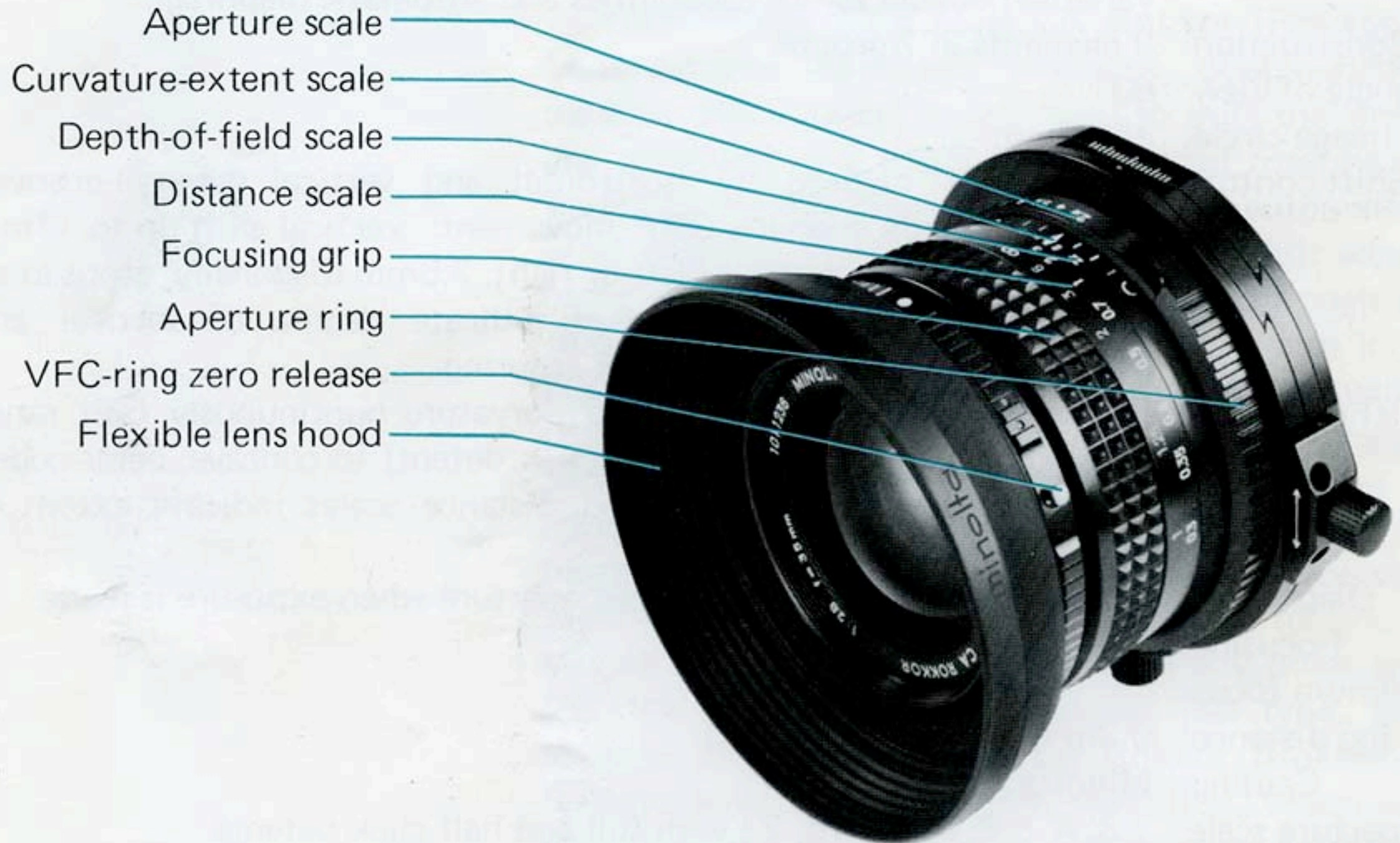
Your 35mm f/2.8 Shift CA Rokkor (Rokkor-X) Lens utilizes Minolta's exclusive double-shifting method which makes it very easy to shift the lens in any direction over a full circle without rotating the barrel. Since this lens is designed to stop automatically at coverage and image-quality limits, shift adjustment can conveniently be made visually through the finder. The Shift CA Rokkor (Rokkor-X) also incorporates Minolta's exclusive variable-field-curvature control, which enables you to curve its field of sharp focus continuously from convex through flat to concave by simply turning the VFC ring on the barrel. Shift and VFC functions can further be used together in a wide variety of combinations for unique effects that cannot be obtained with any other lens. For the first time with a lens of this type, your Minolta 35mm f/2.8 Shift CA Rokkor (Rokkor-X) features automatic diaphragm operation, which enables viewing and focusing at full-aperture brightness with the diaphragm closing down to the preset f-number only at the moment of exposure.

TECHNICAL DETAILS

1

- Type: Inverted-telephoto-type medium-wideangle lens with shifting and variable-field-curvature capabilities and automatic diaphragm
- Construction: 9 elements in 7 groups
- Angle of view: 63°
- Image circle: ϕ 58.8mm
- Shift control: Double-shift method by horizontal and vertical dovetail-grooved sliding elements enabling 360° movement: vertical shift up to 11mm up or down, 8mm laterally left or right, 7.5mm diagonally; stops at all shift limits; scales and indexes indicate degree of vertical and horizontal shift; screw clamps for securing
- VFC control: Ring for manually varying field curvature continuously over range from convex through flat (with click detent) to concave; color-coded graduations on field-control and distance scales indicate extent of curvature.
- Diaphragm: Automatic, closes down to preset aperture when exposure is made
- Focusing: Minolta "floating" system
- Minimum focusing distance: 0.3m (approx. 1 ft.)
- Coating: Minolta Achromatic
- Aperture scale: 2.8, 4, 5.6, 8, 11, 16, 22 with full and half click detents
- Filter thread diameter: 55mm
- Dimensions: ϕ 83.5 x 71.5mm (ϕ 3-5/16 x 2-13/16 in.)
- Weight: 560g (19-3/4 oz.)

NAMES OF PARTS





VFC scale

VFC control ring

Lateral-shift scale

Mounting-index bead

Vertical-shift scale

Vertical-shift clamp

Diaphragm-control pin

Lateral-shift clamp

4 ATTACHING AND REMOVING

Like all Minolta SLR interchangeable lenses, the 35mm f/2.8 Shift CA Rokkor (Rokkor-X) is attached to the camera by aligning the red mounting bead on the lens with the red mounting index on the camera body, inserting the bayonet into

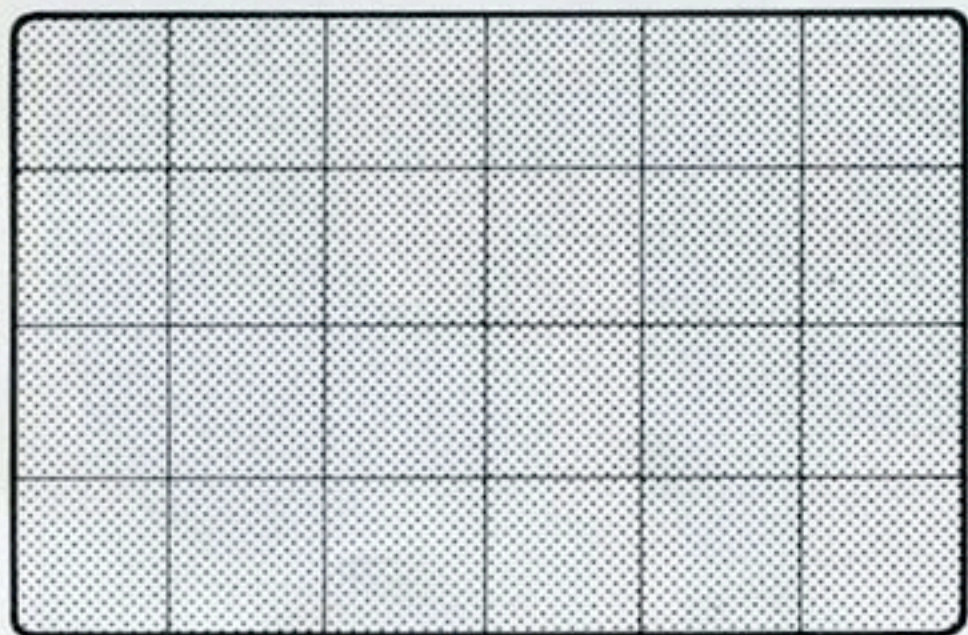
the socket, and turning the lens clockwise until it locks with a click.

Removal is by pushing the lens-release button, turning the lens counterclockwise until the bead and index are aligned again, and lifting it out of the socket.



Recommended focusing screen

Though any Minolta single-lens-reflex camera and focusing screen can be used with your Shift CA Rokkor (Rokkor-X), the combination that will provide greatest ease of use, especially in shift work, is the XM (XK) or XM (XK) Motor camera with the Type L focusing screen. This special-use screen has a mat Fresnel field with a grid of fine horizontal and vertical lines etches at 6mm intervals. These facilitate architectural or other work requiring accurate composition or subject alignment.



**Type L
screen**

Flexible lens hood

The rubber lens hood should be kept extended whenever the lens is in use to help shield it from direct light and protect the front surface. It may be folded back for storage.



Use of tripod

Mounting the camera on a sturdy tripod, perhaps with a leveling device, will facilitate using most of the special functions of your Shift CA Rokkor (Rokkor-X).



Non-shift flat-field use

With vertical and lateral shift elements secured at their central indexes (p. 9) and the VFC-ring index locked at the central white diamond on the VFC scale (p. 12), your 35mm f/2.8 Shift CA Rokkor (Rokkor-X) can be used as a conventional auto-diaphragm medium-wideangle lens. Operation, indications, and results in this case are the same as with the 35mm f/2.8 MC W Rokkor (Rokkor-X), except that metering must be done by the stop-down method as described on p. 8 since the Shift CA Rokkor (Rokkor-X) is not meter-coupled.

FOCUSING

Like all focusing MC Rokkor (Rokkor-X) lenses, your Shift CA Rokkor (Rokkor-X) is focused by turning the waffle-textured focusing grip on the barrel.

Distance-scale indications apply throughout the field in flat-field conventional or shift use, at the lens axis in curved-field use, with or without shift.



Infrared index

For proper focus when making pictures with infrared radiation, first focus your subject with visual light in the usual way, then turn the focusing ring to the right to align the point of proper focus on the distance scale with the index designated by the small red "R" in the depth-of-field scale.



METERING AND OPERATION

Metering with your Shift CA Rokkor (Rokkor-X) is not by the usual full-aperture method but by the stop-down method as follows:

With Minolta SR Series cameras

e.g., SR-T 101b (SR-T 201), etc.,

using manual exposure control

1. Set the f-number with the aperture ring.
2. Push stop-down button to set the diaphragm at the taking aperture.
3. Match the follower with the indicator needle in the finder.
4. Push stop-down button again to set the diaphragm at full aperture.
5. Focus; release the shutter.

With Minolta X Series cameras

e.g., XM (XK), XE-1 (XE-7) etc.,

using automatic exposure control

1. Set the f-number with the aperture ring; focus.
2. Push the stop-down button on the body to set the diaphragm at the taking aperture.
3. Release the shutter.

NOTE

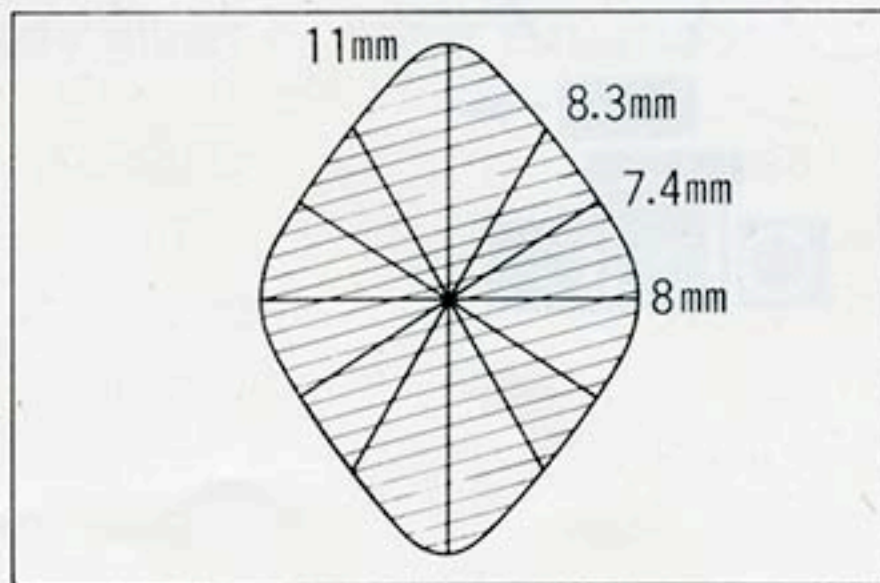
- Type AP, C₁, C₂, and C₃ focusing screens will not yield proper metering with this lens.
- For shift pictures with reversal-type color film, a slight increase over normal exposure may be desirable depending on the degree of shift. (An increase of half a stop, +0.5 EV, may serve as a good basis for adjustment.)
- With automatic exposure control, be sure to close the eyepiece is not being normally shielded by your head.

SHIFTING

By moving one or both of your Shift CA Rokkor's (Rokkor-X's) vertically and horizontally sliding elements, its axis can be shifted over the range indicated in the diagram below without rotating the lens itself.

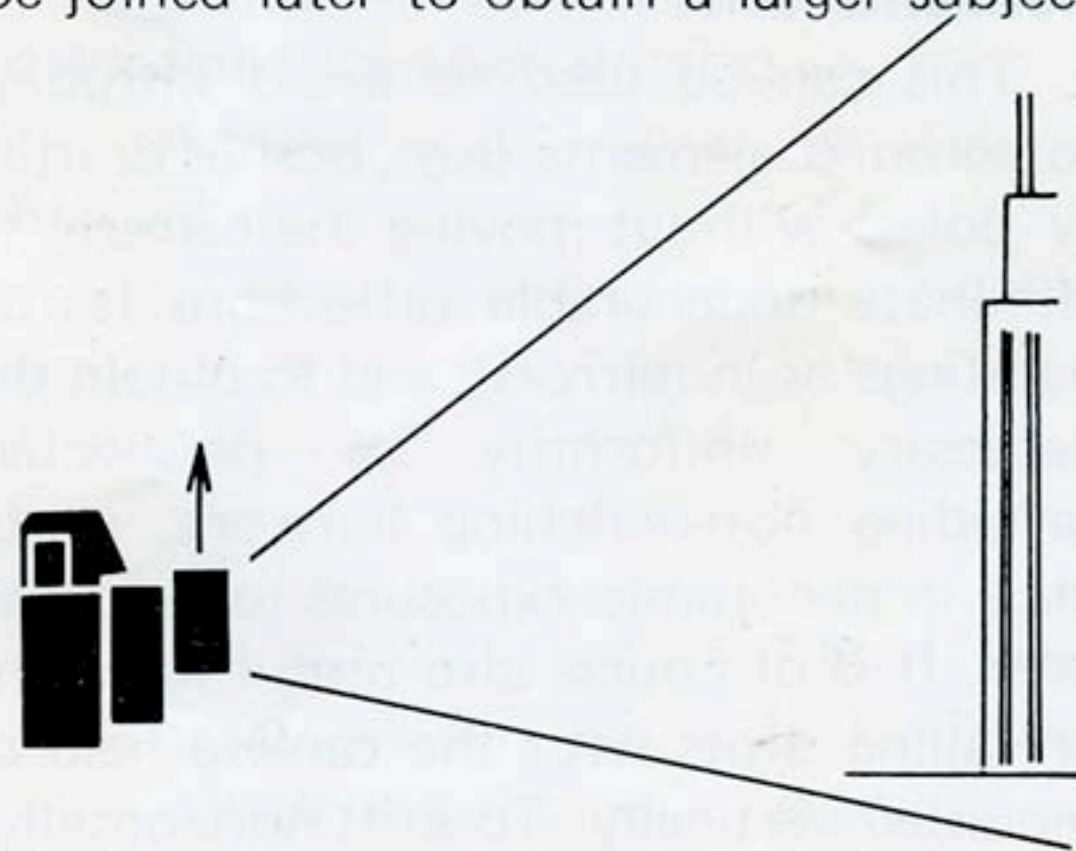
Since the lens cannot be shifted outside the area of adequate coverage and image quality, shift adjustment can be made visually through the finder without watching scales to avoid exceeding shift limits.

Film frame



Vertical shift

This can be used to take in more or all of a subject (e.g., a building) above or below camera level without pointing the camera up or down, thus avoiding converging subject lines (e.g., that make buildings look as if they are falling over backward). It is also useful for making upper and lower overlapping exposures to be joined later to obtain a larger subject-

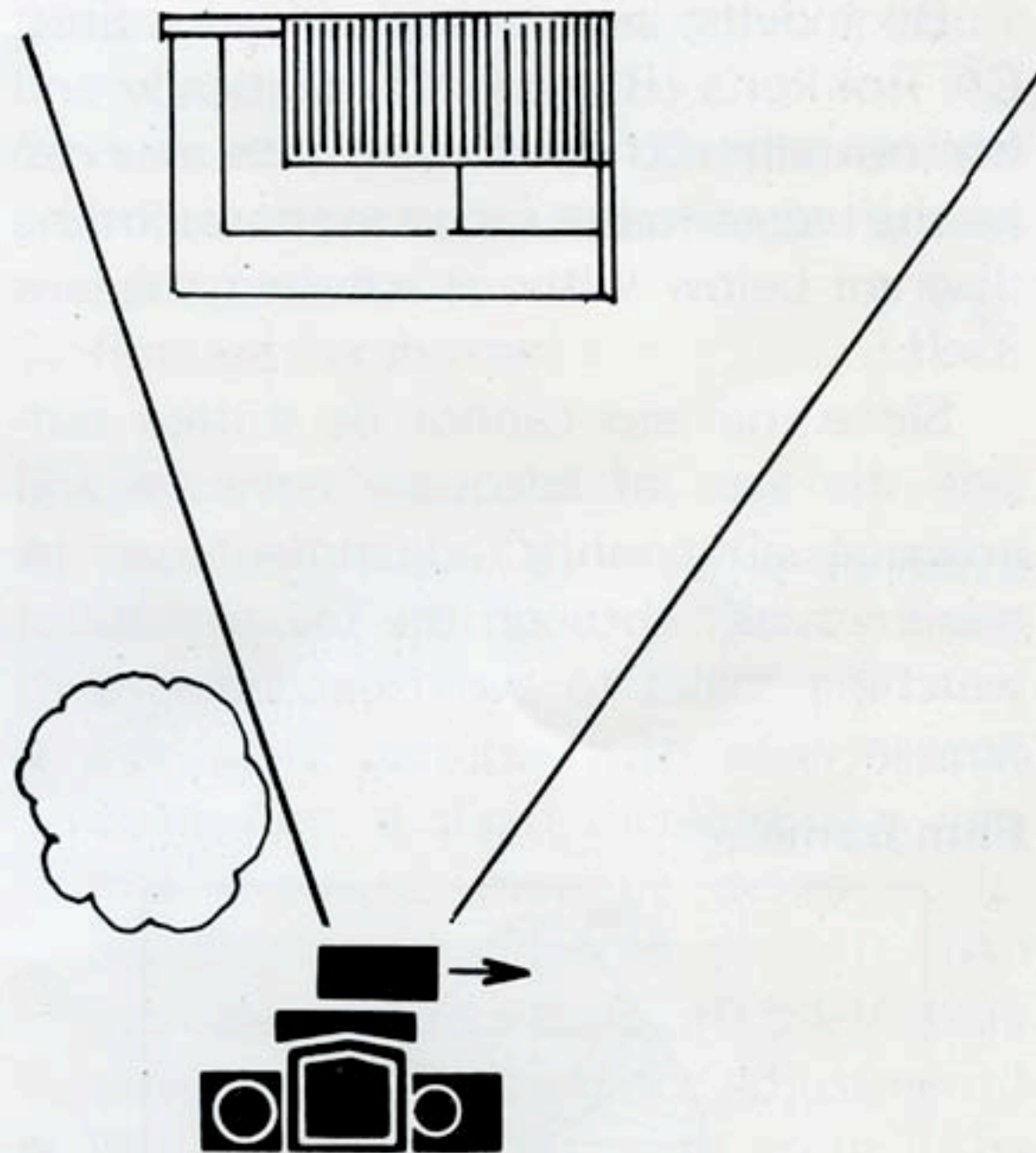


field area. To shift vertically:

1. Loosen the vertical shift clamp by turning it counterclockwise.
2. Look through the camera viewfinder and shift the lens up or down to obtain the desired effect.
3. Secure the lens in position by tightening the clamp.

Horizontal shift

This can be used to avoid intruding foreground elements (e.g., bushes or utility poles) without moving the camera; to eliminate undesirable reflections (as on paintings or in mirrors); and to obtain the necessary uniformity of perspective (avoiding non-matching horizons, roofs, etc.) in panoramic exposures to be joined later. It is of course also useful for rising or falling shots with the camera held or mounted vertically. To shift horizontally:



1. Loosen the horizontal shift clamp by turning it counterclockwise.
2. Look through the camera viewfinder and shift the lens left or right to obtain the effect desired.
3. Secure the lens in position by tightening the clamp.

Diagonal shift

By combining the two movements as indicated above, the lens can be moved in any oblique direction for combination effects as applicable to the examples already given or other situations.

NOTE

- The direction and amount in millimeters of vertical and/or horizontal shift can be noted from the respective scales opposite the clamps if desired; this facilitates duplicating the same effect again.
- Unless curved field is also desired, make sure that the index VFC control ring is locked at the central diamond for flat field when shifting.

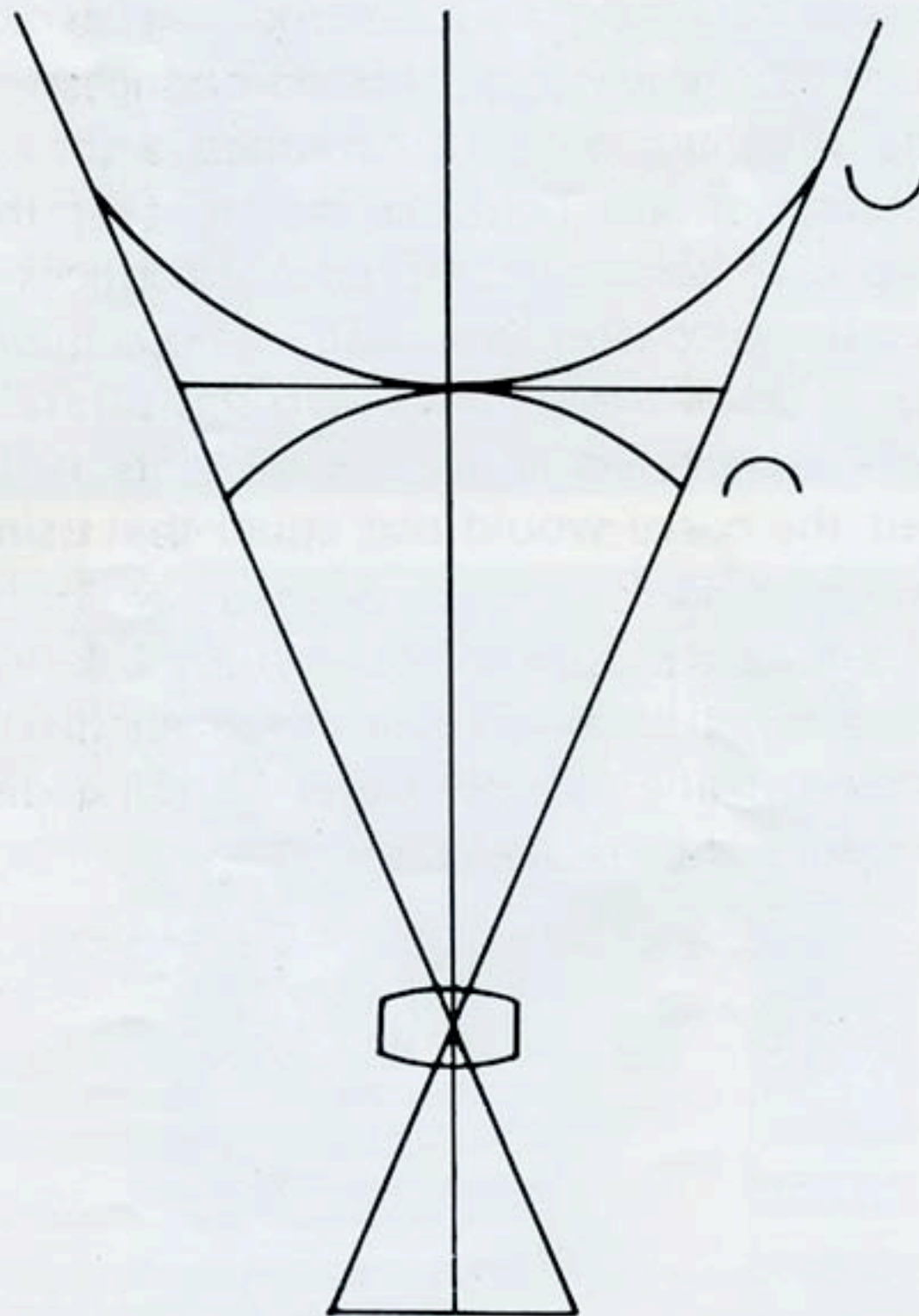
VARIABLE-FIELD CONTROL

Turning the VFC control ring to the left* of the central diamond changes the focus field from flat to concave (bowl-shaped).* Turning it to the right of the diamond on the other hand, produces a convex (dome-shaped) field. These curvatures can be used to obtain sharp rendition of three-dimensional subjects (e.g., the surface of a ball, people sitting around a table, etc.) even when depth of flat field is insufficient to do so. Curving field in this way may be particularly effective at relatively close focusing distances and large apertures.

* (from the photographer's viewpoint behind the lens)

Curvature extends from the focused distance at the center of the frame to a point at the corners that is either nearer or farther from the film plane than the focused distance, depending upon whether the VFC control-ring index is set respectively left or right of the flat-field setting. The curvature grows continuously deeper as the ring is turned away from the central diamond. There are three colored reference marks on left and right for convenient reference, but the index dot can be set at any point within the left and right limits.

The effect of curvature may be observed visually through the camera viewfinder or approximated from the marks behind* the depth-of-field scale. For example, with the lens focused at 0.7m (70cm or 2 ft. 3-1/2 in.) and the VFC control-ring dot set to the left red mark, the corresponding left yellow mark on the curvature-extent scale is opposite a point of the distance scale slightly to the right of "0.5." This indicates that the field of sharp focus would curve from 70cm at the center to about 52cm (1 ft. 8 in.) at the corners of the frame. This would



enable rendering a subject of this approximate curvature (e.g., an alcove wall painting) all sharp even at maximum aperture. (Depth of flat field, as indicated by the depth-of-field-scale, would not cover this depth unless the lens were stopped down to f/16 with distance setting adjusted appropriately, and image quality throughout the curve would not equal that using curved field.)

As a further example, turning the ring to the right red mark at the same 0.7m focus setting on the other hand, would produce a field, as indicated by the right

red scale mark on the curvature-extent scale, that curves from 70cm (2 ft. 3-1/2 in.) at the center away* to 2 meters (6-1/2 ft.) at the corners. This would allow sharply rendering both a close, centered subject and background objects at the edges a considerable distance from the camera even at full aperture.

Similar results are possible with groups, building surfaces, and other subjects that are nearer or farther away in various curves. Field of sharpness deepens along the curve as the lens is stopped down.

* (from the photographer's viewpoint behind the lens)



Flat field

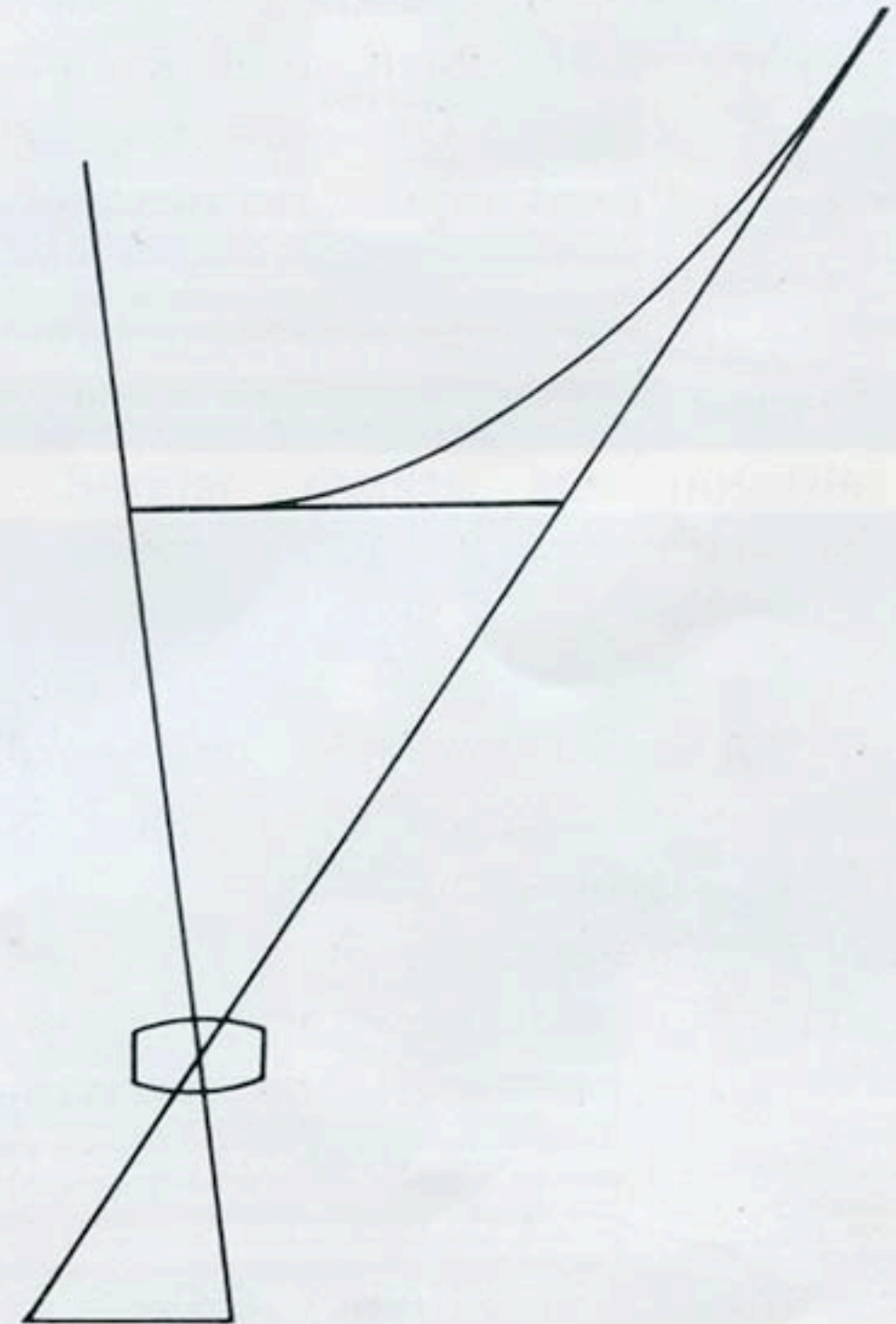


Concave field

COMBINED SHIFT PLUS VFC

You can use shift movements (pp. 9-11) and VFC control (pp. 12-15) in any combination desired to control the field or sharpness in accordance with the subject and effect desired. The combined movements can be useful for sharp rendering of surfaces or objects at an angle to the film plane (e.g., a table top, a row of columns, the front of an appliance, a wall or fence, etc.) or other effects similar to those with a tilting lens, though incorporating a curve in one direction or the other. On the other hand, curve-tilt function can be used to blur certain parts of the scene for complex controlled selective-focus effects.

Shifting the axis of the lens with its field other than flat brings a different, more extreme part of the field curve into the frame. The principle and result of combining shift and VFC is sketched in



the diagram, though the exact location and extent of the three-dimensional curve of the field will of course be determined by the amount of vertical and/or horizontal shift and the direction and degree of field curvature being employed. Considering the individual movements possible, the available range of effects is very great. As with usual VFC, field deepens along the curve as the lens is stopped down.

To use the combined functions of your Shift CA Rokkor (Rokkor-X), look through the finder with the lens at full aperture, and move the shift and VFC controls (pp. 9-11 and 12-15, respectively) to obtain the effect desired. Leave the VFC ring in the same position and secure the shift elements (p. 8) for exposure. The stop-down button may be used to approximate the final result at an f-number other than maximum aperture.



DEPTH-OF-FIELD TABLE

Unit: Meters

F No. Dist. (m)	2.8	4	5.6	8	11	16	22
∞	∞ 13	∞ 9.4	∞ 6.6	∞ 4.7	∞ 3.4	∞ 2.39	∞ 1.71
5	8.0 3.6	10 3.3	19 2.9	∞ 2.47	∞ 2.05	∞ 1.66	∞ 1.31
2	2.33 1.75	2.49 1.67	2.78 1.57	3.30 1.44	4.60 1.30	10 1.13	∞ 0.97
1	1.07 0.94	1.10 0.92	1.15 0.89	1.22 0.85	1.35 0.80	1.58 0.74	2.10 0.67
0.7	0.73 0.67	0.74 0.66	0.76 0.65	0.79 0.63	0.84 0.60	0.91 0.57	1.05 0.53
0.5	0.51 0.49	0.52 0.48	0.53 0.48	0.54 0.47	0.56 0.46	0.59 0.44	0.63 0.42
0.4	0.41 0.39	0.41 0.40	0.42 0.39	0.42 0.38	0.43 0.37	0.45 0.36	0.47 0.35
0.35	0.36 0.35	0.36 0.34	0.36 0.34	0.37 0.34	0.37 0.33	0.38 0.33	0.40 0.32
0.3	0.30 0.30	0.31 0.30	0.31 0.29	0.31 0.29	0.31 0.29	0.32 0.28	0.33 0.28

Unit: Feet

F No. Dist. (ft.)	2.8	4	5.6	8	11	16	22
∞	∞ 42' 6 ⁷ / ₈ "	∞ 30' 8 ⁹ / ₁₆ "	∞ 21' 9 ⁷ / ₁₆ "	∞ 15' 5 ¹¹ / ₁₆ "	∞ 11' 3 ³ / ₁₆ "	∞ 7' 10 ¹ / ₂ "	∞ 5' 7 ⁷ / ₁₆ "
6	6' 10 ⁵ / ₈ " 5' 3 ¹³ / ₁₆ "	7' 3 ¹¹ / ₁₆ " 5' 1 ³ / ₁₆ "	8' 1 ¹ / ₂ " 4' 9 ⁵ / ₈ "	9' 4 ¹¹ / ₁₆ " 4' 5 ¹ / ₄ "	12' 4 ¹ / ₁₆ " 4' 3 ³ / ₁₆ "	22' 5 ⁷ / ₈ " 3' 6 ⁹ / ₁₆ "	∞ 3' 9 ⁹ / ₁₆ "
3	3' 2 ³ / ₁₆ " 2' 10"	3' 3 ¹ / ₈ " 2' 9 ⁵ / ₁₆ "	3' 4 ⁵ / ₈ " 2' 8 ³ / ₈ "	3' 6 ¹⁵ / ₁₆ " 2' 7 ¹ / ₁₆ "	3' 10 ³ / ₄ " 2' 5 ⁷ / ₁₆ "	4' 5 ⁹ / ₁₆ " 2' 3 ⁷ / ₁₆ "	5' 7 ⁷ / ₈ " 2' 1 ¹ / ₁₆ "
2	2' 1 ³ / ₁₆ " 1' 11 ³ / ₁₆ "	2' 1 ³ / ₁₆ " 1' 10 ⁷ / ₈ "	2' 1 ¹¹ / ₁₆ " 1' 10 ¹ / ₂ "	2' 2 ¹ / ₂ " 1' 9 ¹⁵ / ₁₆ "	2' 3 ³ / ₄ " 1' 9 ³ / ₁₆ "	2' 5 ³ / ₄ " 1' 8 ¹ / ₂ "	2' 9 ³ / ₁₆ " 1' 7 ¹ / ₁₆ "
1.5	1' 6 ³ / ₈ " 1' 5 ⁹ / ₁₆ "	1' 6 ⁹ / ₁₆ " 1' 5 ⁷ / ₁₆ "	1' 6 ¹³ / ₁₆ " 1' 5 ³ / ₁₆ "	1' 7 ³ / ₁₆ " 1' 4 ¹⁵ / ₁₆ "	1' 7 ³ / ₄ " 1' 4 ⁹ / ₁₆ "	1' 8 ⁵ / ₈ " 1' 4"	1' 10" 1' 3 ³ / ₈ "
1.25	1' 3 ¹ / ₄ " 1' 2 ³ / ₄ "	1' 3 ⁵ / ₁₆ " 1' 2 ⁵ / ₈ "	1' 3 ¹ / ₂ " 1' 2 ¹ / ₂ "	1' 3 ¹¹ / ₁₆ " 1' 2 ⁵ / ₁₆ "	1' 4 ¹ / ₁₆ " 1' 2 ¹ / ₁₆ "	1' 4 ⁹ / ₁₆ " 1' 1 ³ / ₄ "	1' 5 ⁵ / ₁₆ " 1' 1 ¹ / ₂ "
1	1' 1 ¹ / ₈ " 11 ¹³ / ₁₆ "	1' 3 ³ / ₁₆ " 11 ¹³ / ₁₆ "	1' 1 ¹ / ₄ " 11 ¹¹ / ₁₆ "	1' 3 ³ / ₈ " 11 ⁵ / ₈ "	1' 1 ¹ / ₂ " 11 ¹ / ₂ "	1' 3 ¹ / ₄ " 11 ⁵ / ₁₆ "	1' 1 ¹ / ₈ " 11 ¹ / ₁₆ "

CARE AND STORAGE

Never touch a glass lens surface with the fingers. Should one become dirty, gently whisk loose, dry matter off it with a bellows lens brush. If necessary, the glass surface may then be wiped gently with a circular motion from the center outward with a soft, clean cotton cloth or special photographic lens tissue. Liquid lens cleaner should be used only when fingerprints or other matter cannot be removed with a dry cloth or lens tissue.

Never drop lens-cleaning fluid directly on lens surfaces. Instead, apply ***only one drop*** of fluid to the cloth or tissue and wipe the glass surface gently from center to edge.

The lens barrel and other metal parts may be wiped with a silicone-treated cloth. Do not lubricate any part of the lens. For all service and repairs, contact your authorized Minolta repair facility.

When not in use, glass surfaces should be protected by attaching front and rear caps and the lens stored in its case.

Do not store where temperature or humidity is high or near corrosive chemicals or gases.

If lens is to be stored for an extended period, it is best to place it in its case in an airtight container (such as a heavy or double plastic bag) along with a small bag of a drying agent (such as silica gel).