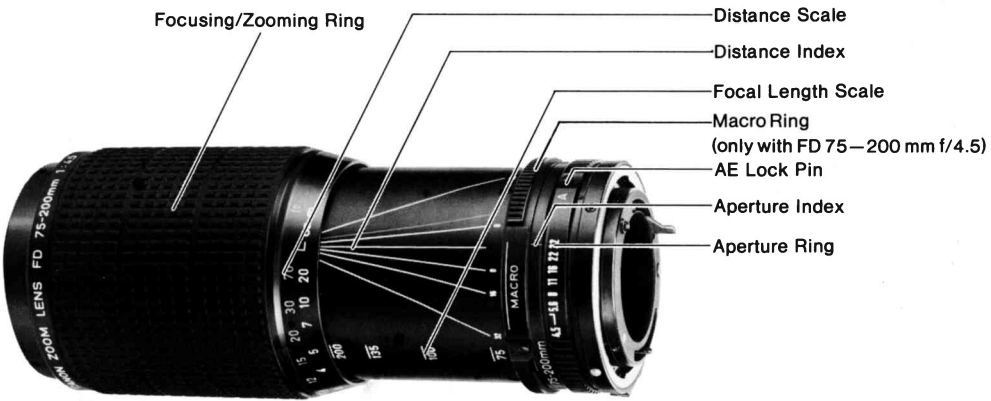
Canon

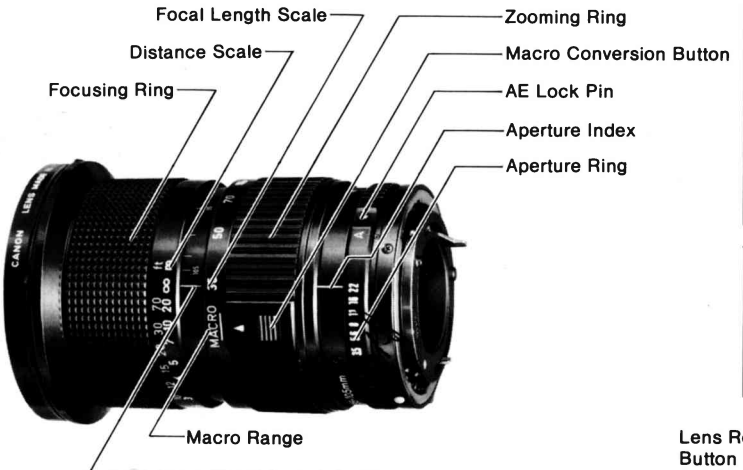
FD Zoom Lenses Instructions

Objectifs zoom FD Notice d'emploi

FD-Vario-Objektive Bedienungsanleitung

Objetivos zoom FD Instrucciones


Focusing/Zooming Ring
Distance Scale
Distance Index
Focal Length Scale
Macro Ring
(only with FD 75—200 mm f/4.5)
AE Lock Pin
Aperture Index
Aperture Ring
MACRO



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INTRODUCTION

This instruction booklet describes the operation and handling of Canon's FD zoom lenses. They are all multi-layer coated for images virtually free of ghost and flare.

For a clear understanding of the FD zoom lenses, please read this instruction booklet carefully.

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HANDLING THE LENS

Lens Cap and Rear Dust Cap

The lens is provided with protective caps for both front and rear. Both should always be attached when the lens is dismounted. For protection when the lens is mounted but not in use, please make sure that the front cap is attached.

Most lenses come with a clip-on lens cap which is easily attached and removed by pressing in the tabs on both sides of the cap. This type of cap can also be attached to a double-screw type filter screwed into the lens. A few lenses come with a screw-in cap or a lid-type cap. The lid-type simply slips over the front of the lens and can be simply pulled off. Unscrew a screw-in cap by turning it counterclockwise.

The rear dust cap is identical for every lens. It must be removed before mounting the lens. To remove it, either turn the lens clockwise or the cap itself counterclockwise until it stops and pull the cap out (photo 1). To replace the rear dust cap, first align the arrow on its top with the red dot at the rear of the lens. Then, applying slight pressure, turn the cap clockwise until it is tight.
The rear lens cap specified for these lenses has serrated edges. Do not use a rear lens cap which lacks the serrated edges.

Mounting onto the Camera

1. Remove the lens' rear dust cap and the camera's body cap.
2. Align the red mount positioning point on the lens with the red dot above the camera mount (photo 2).
3. In that position, apply slight pressure to the lens and rotate it clockwise until it stops and the lens release button pops out with a click.

Do not press the lens release button while mounting the lens. Only when the lens release button pops out can you be sure that the lens is completely locked on and that it will function properly. In low temperatures, the click sound may not be audible; visually confirm that the lens release button has popped out.

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As a rule, the lens and camera body should be perfectly aligned for mounting. However, on rare occasions, such as when it is very dark or when you are in a great hurry, perfect alignment can be difficult. For easier mounting under these circumstances, Canon has given the mount positioning point a rounded design. Simply find the point with your finger and align it as closely as possible with the red dot on the camera. Then turn the lens only slightly back and forth until it drops into position and, applying slight pressure to the lens, continue to turn it to the right until you hear the click that indicates that the lens release button has popped out. This imprecise procedure is possible when mounting FD lenses onto most cameras and accessories. However, when mounting the lens onto the Canon Pellix or automatic accessories, such as Extension Tubes FL and FD-U or Extender FD2x-A, FD2x-B or FD1.4x-A, perfect alignment is required. In any case, excessive sloppiness will make mounting impossible; please be as accurate as possible.

Please note that, if the aperture ring of the lens is set to "A" before mounting, mounting may be impossible on certain non-AE cameras and accessories.

For further details, please see p.11.

Dismounting

To dismount the lens, turn it counterclockwise, while pressing the lens release button, until it stops. Then pull the lens out (photo 3).

When changing lenses, take special care not to damage the protruding pins and levers on the rear. Always put a zoom lens down with the rear facing up and attach the rear dust cap immediately. When the lens is dismounted, the diaphragm blades are locked in a half-closed position and will not move even if you turn the aperture ring.

Hood

There are three types of hoods for Canon zoom lenses. Some have a built-in, retractable hood which is simply pulled out when needed. For others, a clamp-on hood or a bayonet hood is optionally available. Of these hoods, please use only that which is specified for the lens. The clamp-on hood is attached by slipping it over the front of the lens and tightening the clamp screw. The bayonet hood fits into the mount at the front of the lens and is fixed by turning.

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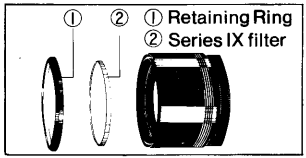
Filter

Most Canon zoom lenses have a filter thread at the front of the lens for screw-in filters. With some zoom lenses, such as the FD 35—70mm f/2.8—3.5 lens, the lens recesses far into the lens body when focused at infinity and zoomed to the longest focal length. For easy access to the filter thread in these cases, it is better to set the zooming ring to the shortest focal length and the focusing ring to the closest distance.

Those lenses which take a 52mm filter, except for the FD 35—70mm f/3.5—4.5 and FD 28—55mm f/3.5—4.5 lenses, may also be fitted with a 55 mm screw-in filter by placing a 52—55 Step-up Ring (optional) between the filter and lens (photo 10). Please note, however, that this combination makes extending a built-in lens hood impossible.

As a rule, only one screw-in filter should be used at a time. The use of two or more filters may cause vignetting around the edges at focal lengths shorter than 35mm. This problem can be overcome by attaching the Canon Holder for Gelatin Filters, which is optionally available, to the front of the lens. Adapters are available for attaching this holder to most lenses, and it can hold up to three gelatin filters at a time.

The FD 85-300mm f/4.5 lens accepts series IX filters. To attach the filter, first remove the front retaining ring by turning it counterclockwise. Then holding the filter by the edges of the frame, place it over the front lens. And to secure the filter, screw the front retaining ring into the thread at the front of the lens.



Some filters other than Canon filters may touch the lens surface when used with the FD 20—35 mm f/3.5 L or the FD 35—105 mm f/3.5. If this should occur, avoid usage of these filters to prevent damaging the lens surface.

OPERATION

Setting the Lens for AE Photography

If, according to the instructions for a Canon AE SLR, the lens aperture ring must be set to "A" for AE photography, this can be done by turning the aperture ring from the minimum aperture to "A" while pressing the AE lock pin (4). Follow the reverse procedure to remove the lens from "A". Use of "A" setting is restricted to the following Canon cameras when used for AE photography which requires the "A" setting; the F-1, A-1, AE-1 PROGRAM, AE-1, T70, T50, EF and F-1 (old type). The aperture ring should always be off "A" when the lens is used with any other cameras or accessories—including while mounting and dismounting. It is simply impossible to mount the lens onto certain cameras and accessories, such as early AT-1 models and M Extension Tubes, when it is set to "A".

The FD zoom lenses have all the usual FD signals. For further information concerning the use of an FD lens on your particular Canon SLR, please refer to the camera's instructions.

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Focusing and Zooming

Most zoom lenses have separate rings for focusing and zooming. Focusing and zooming are done separately by rotating the respective rings (photo 6). Some lenses, such as the FD 75—200 mm f/4.5 zoom, have only one ring for both operations. With this type of lens, focus by rotating the ring and zoom by extending and retracting the same ring (photo 5). The focal length of this type of lens can be read from the focal length indicator on the lens barrel (photo 7). Intermediate as well as the longest and shortest focal lengths are indicated. Of those zoom lenses which have separate rings for focusing and zooming, the focal length scale is on the zooming ring (photo 8).

With any zoom lens, it is advisable to focus the lens after zooming.

Single-ring Zoom Lenses	FD 50—135 mm f/3.5 FD 70—210 mm f/4 FD 75—200 mm f/4.5 FD 100—200 mm f/5.6 FD 100—300 mm f/5.6 FD 150—600 mm f/5.6 L
Two-ring Zoom Lenses	FD 20—35mm f/3.5 L FD 28—55mm f/3.5—4.5 FD 28—85mm f/4 FD 35—70 mm f/2.8—3.5 FD 35—70 mm f/3.5—4.5 FD 35—105mm f/3.5 FD 50—300mm f/4.5 L FD 80—200mm f/4 FD 85—300mm f/4.5

When using a telephoto zoom lens in extreme temperatures, focusing shifts may occur which will invalidate the distance scale. Due to the focusing shifts, these lenses have an allowance for focusing past infinity. Under these conditions, and even when shooting a far-distant subject,

it is especially important to focus through the viewfinder rather than estimating the shooting distance by eye.

With black-and-white infrared film, it is necessary to make a slight adjustment in focus using the infrared index. Several infrared indices, corresponding to various focal lengths, are engraved on the lens barrel (photo 9). After focusing through the viewfinder, make the correction by turning the focusing ring to align the focused distance with the appropriate infrared index depending on the focal length being used.

* The lens' infrared index is indicated in red. Its position is based on the use of film with a peak sensitivity of 800nm and a red filter (such as Wratten 87). Use of black and white infrared film with a different sensitivity may require a slightly different setting. In such cases, it is recommended to take trial shots with the focusing ring set a bit to the left and then right of the appropriate index to find the best position.

Macro Mechanism

Eight Canon zoom lenses, the FD 28—55mm f/3.5—4.5, the FD 28—85mm f/4, the FD 35—70mm f/2.8—3.5, the FD 35—70mm f/3.5—4.5, the FD 35—105mm f/3.5, the FD 50—135mm f/3.5, the FD 70—210mm f/4 and the FD 75—200mm f/4.5, are equipped with a macro mechanism for low close-up magnifications.

To set the FD 35—70mm f/2.8—3.5 or the FD 35—105mm f/3.5 lens for close-up shooting, rotate the zooming ring into the macro range while pushing the macro conversion button on the zooming ring in the direction of the arrow (photo 11.) The macro range is defined by either a yellow line under a yellow "M" or the word "MACRO" to the left of the shortest focal length on the scale. Once the lens is set for macro shooting, it is locked in this yellow range.

Focusing in macro shooting should be done by turning the zooming ring within the limits of the macro range. The focusing ring should be used only for making fine adjust-

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ments. The magnification obtained depends on the settings of both the focusing ring and the zooming ring as described in the table below. Shooting distances in the table stand for the distance between the subject and the film plane.

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Lens	Distance Scale	Shooting Dist. Range (cm)	Field of View (mm) (max. to min.)	Magnification
FD35—70mm f/2.8—3.5	∞ 1m	120—40 60—30	342×513 to 122×182	1:14.3 to 1:5
FD35—105mm* f/3.5	∞	64—30	365×562 to 138×215	1:14.9 to 1:5.6
FD50—135mm f/3.5	MACRO Range	150—60	578×867 to 238×356	1:24.1 to 1:9.9
FD70—210mm f/4	MACRO Range	120—44	299×450 to 97×145	1:12.4 to 1:4

* When using the FD 35—105mm f/3.5 in the macro range, set the focusing ring to infinity (∞).

To set the FD 50—135mm f/3.5 or the FD 70—210mm f/4 for close-up shooting, extend the focusing/zooming ring to the shortest focal length and rotate it to the macro range. Once in this range, the focusing/zooming ring is locked and zooming cannot be performed. Focusing in macro shooting is done by turning the focusing/zooming ring within the limits of the macro range. To return from the macro range to normal photography, turn the focusing/zooming ring in the reverse direction. Please note that a slight click can be felt when the ring is moved to or from the macro range.

The low magnifications permitted by the macro mechanism of these zoom lenses are very convenient for shooting three-dimensional subjects, such as insects and flowers. These lenses are not intended for copying; the specially-corrected Canon macro lenses are recommended for copying documents, drawings, etc.

To set the FD 75—200mm f/4.5* for macro shooting, draw the focusing/ zooming ring to the shortest focal length (75 mm).

Set the macro ring to the macro range by pressing the macro conversion button. Once in this range, the focusing/zooming ring is locked and zooming cannot be performed. To focus the subject, rotate the macro ring within the limits of the macro range, indicated by a yellow line and the yellow letters "MACRO".

*1. It is recommended to use the macro ring to focus the subject. Although it is also possible to focus with the zooming/focusing ring, in that case, it is much more difficult to find the exact point of focus (photo 13).

2. Field of view in the macro range is 120 × 180 mm and the shooting distance from the film plane is 553 mm.

There is a separate instruction booklet for the FD 28—55mm f/3.5—4.5, the FD 28—85mm f/4 and the FD 35—70mm f/3.5—4.5 lenses. Please refer to it for more complete instructions.

Depth-of-Field Scale of FD 70—210 mm f/4 Lens.

A dual purpose index, the infrared index curve also serves as a depth-of-field curve for f/16. Therefore, to find the far limit of good focus at an aperture of f/16, use the infrared index curve.

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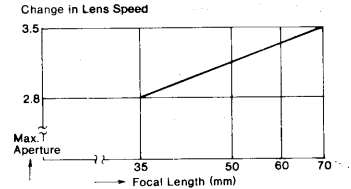
Depth-of-Field Scale of FD 100—300mm f/5.6 Lens

This lens' depth-of-field scale may be used normally at focal lengths from 100mm to 170mm. Beyond 170mm, the right-hand depth-of-field curve for f/32 coincides with the infrared index curve. Therefore, to find the far limit of good focus at an aperture of f/32 when the lens is zoomed to a focal length longer than 170mm, use the infrared index curve.

Maximum Aperture of FD 35—70mm f/2.8—3.5 Lens

The maximum aperture of this lens changes according to focal length as indicated in the graph on the right. Starting at f/2.8 in the 35mm range, it gradually becomes smaller as the focal length increases, reaching a minimum of f/3.5 at 70mm. This does not require any special operation with a camera which has a through-the-lens meter. When using a separate exposure meter, however, the effective aperture index changes according to focal length. Use the blue aperture index at 35mm, the pink aperture index at 70mm and read or set the aperture between these two indices at 50mm.



Since the height of the full aperture signal pin is set for f/2.8, exposure information (including the underexposure warning indicator) will be indicated differently according to the camera with which this lens is used.

1. The underexposure warning indicators of the F-1, A-1, AE-1 PROGRAM, and AE-1 may not be indicated correctly when the lens is zoomed to 70mm, even if illumi-

nation is insufficient for f/3.5.

2. With the F-1 and A-1, an aperture of f/2.8 will be indicated at 70mm even though the maximum aperture is f/3.5.
3. During programmed AE photography with the A-1 and AE-1 PROGRAM, the shutter speed will be controlled on the basis of an f/2.8 aperture at 70mm, even though the maximum aperture is f/3.5.

LENS ACCESSORY

Extenders

Each Canon extender is an accessory which has five signals. When using extender FD 2x or FD 1.4x, the focal length of the prime lens increases 2x or 1.4x respectively. With extenders FD 2x and FD 1.4x, the effective aperture of the prime lens changes so that each f/stop on the lens aperture scale actually stands for an aperture which is two f/stops and one f/stop smaller respectively.

- FD 2x Type A is for FD telephoto lenses whose focal lengths are 300mm or longer. It can be used with an FD zoom lens which has 300mm within its focal length range. However, if using an FD 200mm f/4 Macro lens with a Canon extender, it is recommended to use the FD2x Type A.
- FD 2x Type B is for any FD lens whose focal length is less than 300mm, including any FD zoom lens whose maximum focal length does not reach 300mm. However, if using an FD 300mm f/2.8L with an FD Extender 2x, it is recommended to use the type B.
- FD 1.4x Type A is for any fixed focal length FD lens whose focal length is 300mm or longer.

Since they do not affect the minimum focusing distance of the prime lens, it is possible to focus closer and magnify the subject more than would be possible with a fixed focal

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length lens equal in focal length to the prime lens/extender combination.

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CARE AND STORAGE OF THE LENS

The first thing to keep in mind is to avoid touching the lens surface. Even with this precaution, the lens should be cleaned regularly. Especially when used outdoors, it is possible for dust and other foreign particles to adhere to the lens surface without your noticing it. Obtain cleaning materials manufactured especially for camera lenses, such as a blower brush and lens-cleaning tissue and fluid. Never use a handkerchief, eyeglass tissue, facial tissue or any other cloth which might permanently scratch the lens, and never use a cloth treated with a chemical which might totally ruin the lens coating.

The first step in cleaning the glass surface of the lens is to blow off dust particles with a blower brush. It is not advisable to use a cloth for this purpose since it is very liable to scratch the lens. Then, if you have accidentally smudged the lens with fingerprints or whatever, put only one or two drops of the lens-cleaning fluid on the lens tissue, not the lens!, and, starting at the center of the lens, lightly wipe it while working towards the outer edges in a circular motion. To clean the lens body, first blow off dust with a second blower brush. You may use a silicone cloth or chamois leather, if necessary, to wipe off smudges. Never use a silicone cloth or chamois leather on the glass surface of the lens!

The lens should be cleaned particularly well immediately after using it on the beach. Nothing can harm a lens more than sand and salt water, and even salt water on the breeze may have an effect.

For best performance, it is best to use the lens regularly. If, for some reason, it is necessary to store the lens for quite a long period, first remove it from any soft case or camera bag. Then wrap it in a clean, soft cloth and store it in a cool, dry, dust-free place. It is also very important to keep the lens away from great heat; storing it in the rear window shelf or glove compartment of an automobile is absolutely taboo.

After storing a lens for a long time, mount it on the camera and take several blank shots to make sure everything is in working order.

With these few precautions, Canon's FD lenses will serve you long and well. Should you have any problems, please refer them to the nearest authorized Canon service facility.

Subject to change without notice.