

# Select Canon Interchangeable Lenses for Your Camera



**Canon**

English Edition

# Canon

## Why Canon Interchangeable Lenses Are Superior

Canon's interchangeable lens superiority begins long before a lens is ever fabricated. It begins with Canon's high standards—exacting standards for precision and quality. Canon insists that every lens made be as high as possible in resolution power and possess superior reproductive power.

Canon's entire lens-making process is guided by these standards. From the research department where the most advanced optical knowledge and lens-making techniques are developed for practical application—to the modern production facilities where highly trained employees skillfully transform quality raw materials into interchangeable lenses of unequalled precision and quality.

These standards are responsible for Canon producing the world's brightest lenses, and are responsible for the superior reproductive power they possess in both black and white and color photography—qualities that have won the approval of professional photographers all over the world.

Mount a Canon interchangeable lens to your camera and discover a whole new world of photographic flexibility and enjoyment.

## The Wide Range of Canon Interchangeable Lenses

Two types of interchangeable lenses are made by Canon. One type is for rangefinder type cameras, and one for Single Lens Reflex type cameras.

Canon makes 17 different lenses for the rangefinder cameras. They vary from 19mm to 1000mm. Since rangefinder cameras are designed primarily for fast and easy operation, Canon's rangefinder type lenses are designed with the camera's characteristics in mind. These lenses are lightweight, compact, and easy to focus. Incidentally, the standard lenses that come with Canon's rangefinder cameras range from the F0.95—the world's brightest lens—to F1.2, F1.4 and F1.8.

There are also 19 interchangeable Canon lenses for Single Lens Reflex cameras. As in the case of the rangefinder type, the SLR type lenses also vary from 19mm to 1000mm. These lenses are designed to match the operation of SLR cameras. For instance, the lenses not only are compact and lightweight in design, but also have an automatic aperture setting feature. To take full advantage of the SLR camera's through-the-lens viewing feature, Canon has two zoom lenses among the 19 in this category. Canon's amazing 19mm F3.5 wide angle lens, the world's first for SLR cameras, is still another lens available in this line.

## The Many Uses of Interchangeable Lenses

The human eye has an extensive viewing range of 140° horizontally, and 110° vertically. However, what the eye sees in clear focus in this wide area is limited. For instance, in reading this pamphlet your eye clearly sees

only an area of about  $20^\circ$ , or an area limited to the colored letters. Anything outside this area is discernable, but not distinguishable.

A camera, however, clearly reproduces everything that comes into the lens, but at the same time, the field-of-view that can be photographed is limited by the lens type. For example, when you use a camera with a standard lens, you are forced to move away from a subject if you want a wider scene, and nearer your subject if you want to narrow the scene. One big advantage in using interchangeable lenses is that you can stay in a stationary place and get the same or even better results.

Here are a few things to keep in mind when reading the following pages:

Canon's wide angle, standard, telephoto, and ultra-telephoto lenses all employ the principle of the longer the lens focal length, the larger the image but narrower the field-of-view, and conversely, the shorter the lens focal length, the smaller the image and wider the field-of-view. All Canon lenses are categorized by their brightness (F value) and focal length for easy identity. So when you read about a 35mm lens, you can immediately assume that it will give a smaller image but larger field-of-view than say, a 200mm lens. Another thing to keep in mind is that Canon's 36 interchangeable lenses—from 19mm to 1000mm—represent the widest range of lenses by any camera manufacturer in the world.

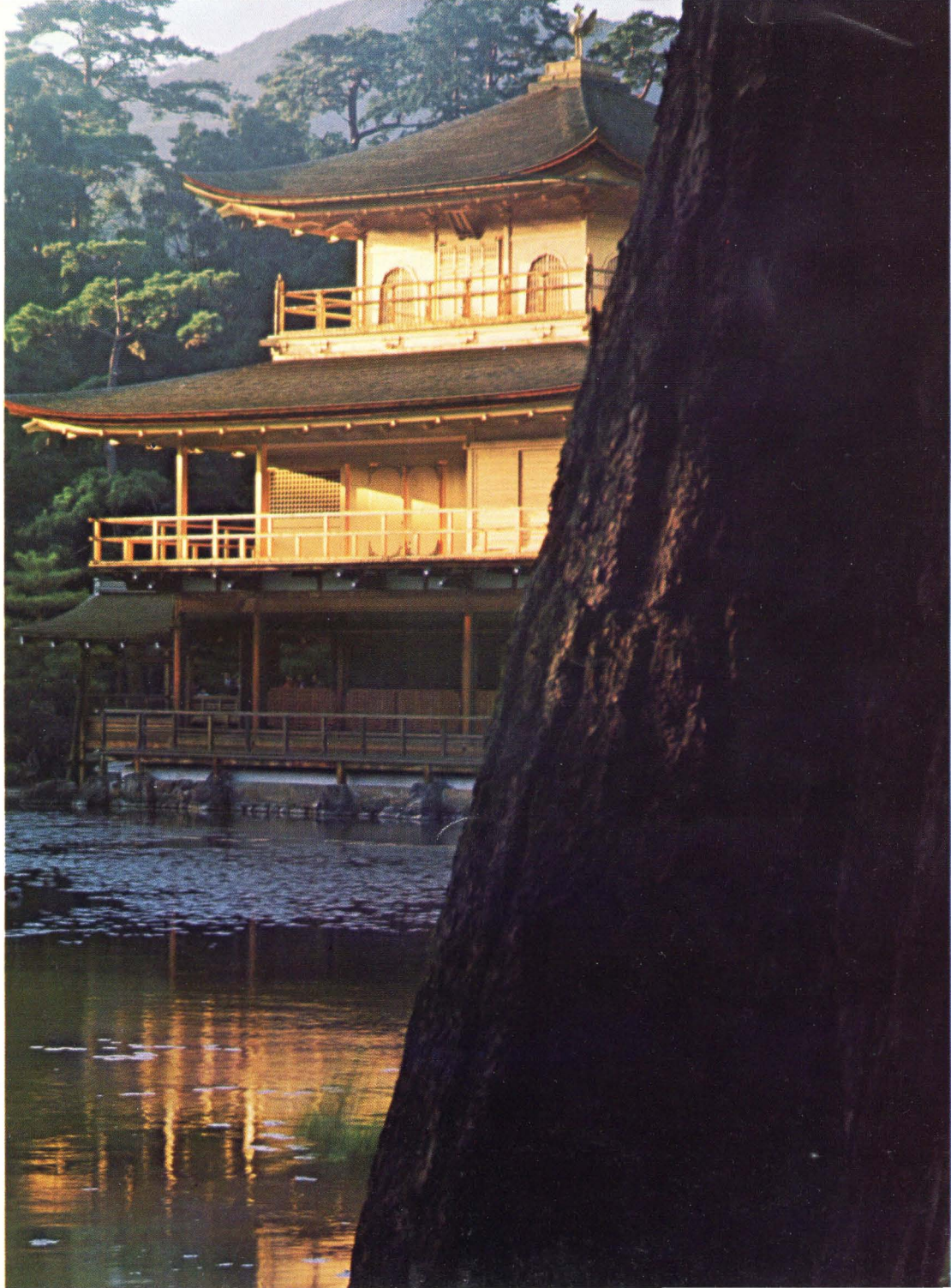
### **Choosing Interchangeable Lenses for Your Specific Needs**

Remember the  $20^\circ$  clear focus area of the human eye? In collecting interchangeable lenses it is best to start with lenses that have approximately the same field-of-view as the eye. Canon has three lenses in this category—an 85mm ( $29^\circ$ ), a 100mm ( $24^\circ$ ), and a 135mm ( $18^\circ$ ). All three are incomparably fast and guarantee true color reproduction. In addition, all lenses in the FL series have fully automatic aperture setting capabilities (as do all Canon telephoto lenses to 200mm), or can be set manually.

Next, you're ready for a 35mm wide angle lens. This one has a field-of-view of  $64^\circ$  and is so easy to use that many photographers prefer to use it as their standard lens. With a 35mm wide angle lens mounted, and your camera set at a high aperture number (making the opening small to widen the depth of field), you are as ready as you'll ever be for those sudden snaps, the kind that have won so many awards for cameramen who have used this combination.

By this time you'll want a 200mm lens. This lens narrows the field-of-view, but is more than compensated for by its ability to magnify distant objects with on-the-spot clarity.

The lenses just listed—the 200mm telephoto, the 35mm wide angle, and one of the three approximating the human eye—are the least you, as a serious camera fan, should own besides 50mm standard lens. With them your photographic range is widened and your enjoyment is greatly enhanced.



## Wide Angle Lenses

Canon's 19mm F3.5 lens—the world's first ultra wide angle lens—enables you to shoot pictures with an angle of 96°. This lens and related wide angle lenses should be used on subjects that are very close, subjects at infinity, or for extreme distance special effects. Professionals like the 25mm F3.5, and often use the 35mm F1.5, 35mm F2, and FL 35mm F2.5 as their standard camera lenses. All are quite simple to use and are excellent for color reproduction.

## Standard Lenses

As an owner of a Canon camera you do not need an introduction to Canon's 50mm all-purpose lenses. These lenses are by far the best general photography lenses you can buy. They include the bright F0.95, F1.2, F1.4, and F1.8 for rangefinder type cameras, and F1.2 F1.4, F1.8 and F3.5 for Canon Single Lens Reflex type cameras.

FL 19mm F3.5

### S Lenses (For Canon 7 and 7S)



19mm F3.5  
(with Finder)



25mm F3.5  
(with Viewfinder)



28mm F2.8  
(with Viewfinder)



35mm F1.5



35mm F2



50mm F0.95



50mm F1.2



50mm F1.4



50mm F1.8

### FL Lenses (For Canon Pellix, FX, FP and RM)



FL 19mm F3.5  
(with Finder)



FL 19mm F3.5 R  
(Retrofocus type)



FL 35mm F2.5



FLP 38mm F2.8



FL 50mm F1.4



FL 50mm F1.8



FL 50mm F3.5  
(with Adapter)  
(Macro Lens)



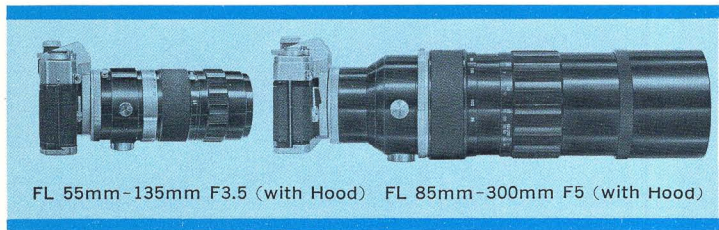
FL 58mm F1.2



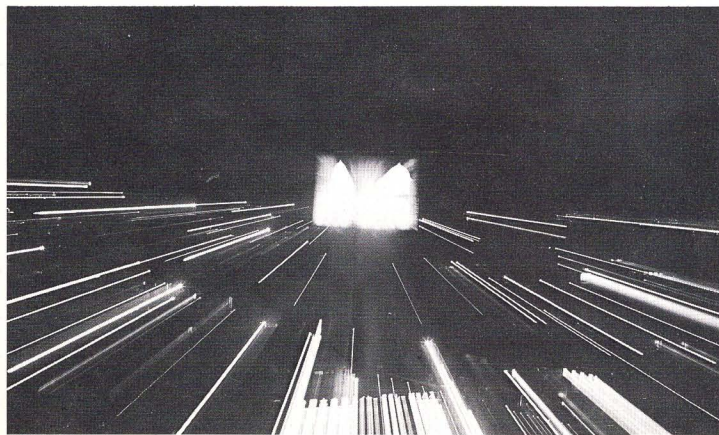
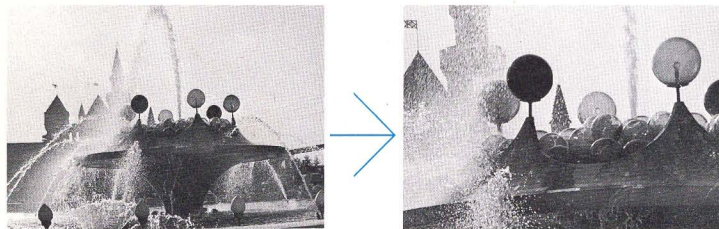
## Zoom Lenses

A single zoom lens does the work of a number of stationary lenses. Utilizing a variety of focal lengths, the number of uses that are being found for this lens is growing rapidly. Mechanically, the zoom lens is made up of moving parts that change its focal length.

Using a zoom lens from a stationary position you can compose your picture exactly as you want it. And by utilizing your camera's time exposure feature while zooming the full range, you can create a dynamic effect in your pictures which cannot be accomplished with other lenses. Canon FL 55mm-135mm F3.5 zoom lens possesses excellent reproductive powers, is lightweight, and has a fully automatic aperture setting mechanism. It is an ideal lens for everyday use. Canon FL 85-300mm F5 zoom lens is best for bringing distant objects close. Dynamic pictures that cannot be obtained by other lenses are possible with this zoom lens.

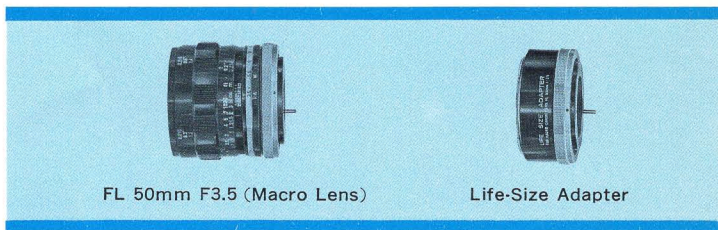


FL 55mm-135mm F3.5 (with Hood) FL 85mm-300mm F5 (with Hood)



## Macro Lens

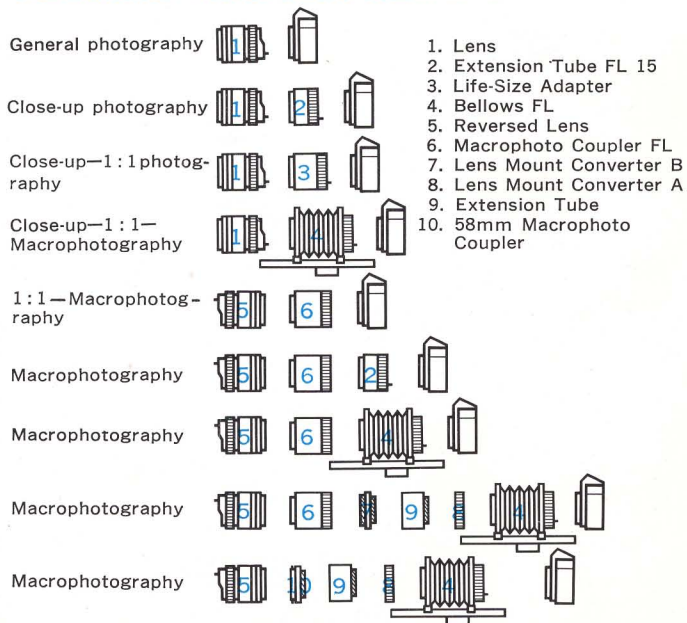
The Macro Canon Lens FL 50mm F3.5 is a standout even among the Canon family of lenses. This lens, in addition to being an all-purpose general photography lens, can be utilized for 1:1 photography, or macrophotography, i. e., greater than 1:1 photography. The uses for this lens are nearly unlimited—from general snapshots, to record copying, to magnification of minute creature life. Its outstanding features are its high resolution power, its light and compact size, and its built-in automatic aperture setting and exposure correction mechanism. With this lens mounted to your camera the exciting world of macrophotography becomes yours to explore and fully enjoy.



FL 50mm F3.5 (Macro Lens)

Life-Size Adapter

### Fundamental Uses of Macro Canon Lens FL 50mm F3.5





## Telephoto Lenses

Canon lenses in this classification include the 85mm F1.8, 100mm F2 and F3.5, 135mm F2.5 and F3.5, M135mm F2.5, 200mm F3.5, and M200mm F3.5.

The 85mm F1.8 lens' large diameter is ideal for obtaining out of focus portrait effects and for recording relative distance or perspective accurately. Canon 100mm F2 and F3.5 lenses are com-

### S Lenses (For Canon 7 and 7S)



85mm F1.8



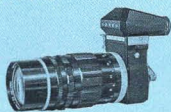
100mm F2



100mm F3.5



135mm F3.5



M135mm F2.5  
(Complete Set)  
M200mm F3.5  
(Complete Set)

### FL Lenses (For Canon Pellix, FX, FP and RM)



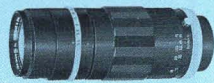
FL 85mm F1.8  
(with Hood)



FL135mm F2.5  
(with Hood)



FL 100mm F3.5 (with Hood)



FL200mm F3.5 (with Hood)

pactly designed to give you sharp and clear images as well as convenient operating, whether you are shooting indoor portraits or outdoor general snapshots. Both lenses guarantee clear reproduction with striking contrasts.

Among professionals, Canon 135mm F2.5 and F3.5 lenses enjoy a wide audience of users. Both are excellent for portraits, close-ups, and commercial photography in general.

The Canon 200mm F3.5 lens was designed with your needs as a photographer in mind. Its lengthy barrel is made of a durable light alloy for convenient operation in spite of its size. In fact, until Canon developed the light alloy housing, this lens could only be used with a tripod. This lens can be most effectively used by the imaginative photographer. Remember also that the 200mm lens is one of the three interchangeable lenses that a serious camera fan should own.

## Ultra-Telephoto Lenses

Canon lenses that fall into this group are the 300mm, 400mm, 600mm, 800mm, and 1000mm. The field-of-view possible with these lenses is narrow—from 8° to 2.4°, but magnification is more than 6 times that possible with standard lenses. The 800mm F8 and 1000mm F11 lenses have especially had a strong impact on modern photo-journalism.

### S Set Lenses

(For Canon 7 and 7S)



400mm F4.5  
(Complete Set)



600mm F5.6  
(Complete Set)



800mm F8  
(Complete Set)



1000mm F11  
(Complete Set)

### R Set Lenses

(For Canon Pellix, FX, FP and RM)



R 300mm F4  
(Complete Set)



R 400mm F4.5  
(Complete Set)



R 600mm F5.6  
(Complete Set)

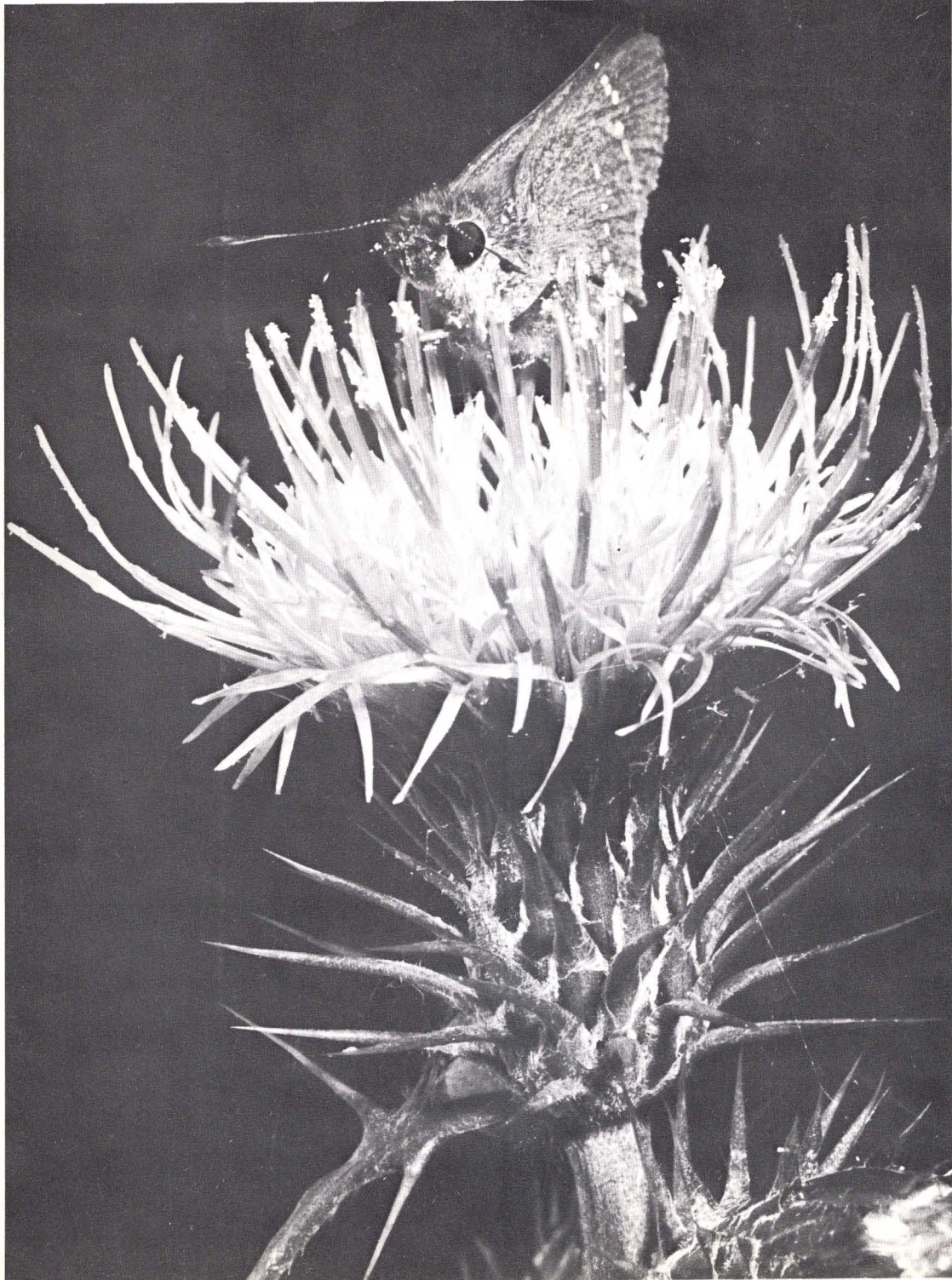


R 800mm F8  
(Complete Set)



R 1000mm F11  
(Complete Set)





## Chart of Interchangeable Lenses

All of the lens features explained in this brochure are listed in chart form below. A glance at the chart will quickly tell you each lens' capabilities—the area each can cover, the size of its photo image, as well as other main features. Filter sizes have also been included. Use this handy guide to best advantage when using Canon Interchangeable Lenses.

Note : FL19mm F3.5 is for use with FX and FP.

FLP38mm F2.8 is for use with Pellix.

For lenses longer than 300mm, there are no distance scales.

The shortest focusing distance is listed in the chart for reference.

Lens	Type	Angle of View	Magnification Based upon 50mm Lens	Number of Elements	Minimum Aperture	Distance Scale		Attachment Size (mm)		Weight (grams)
						in feet	in meters	Cap Size	Filter Size	
FL 19mm F 3.5	Super-wide-angle	96°	0.38x	9	16	1.75-20 ∞	0.5 - 7 ∞	60(58)	58	150
FL 19mm F 3.5R	Super-wide-angle	96°	0.38x	11	16	1.75-20 ∞	0.5 - 7 ∞	80	Series #9	500
FL 35mm F 2.5	Wide-angle	64°	0.7x	7	16	1.5 - 10 ∞	0.4 - 3 ∞	60		58
FLP38mm F 2.8	Wide-angle	59°	0.76x	4	16	3 - 30 ∞	0.8 - 8 ∞	60	48	200
FL 50mm F 1.4	Standard	46°	1x	6	16	2 - 30 ∞	0.6-10 ∞	60	58	285
FL 50mm F 1.8	Standard	46°	1x	6	16	2 - 30 ∞	0.6-10 ∞	50	48	228
FL 50mm F 3.5	Standard (Macro)	46°	1x	4	22	9.2(in.)-20∞	0.234-5 ∞	60	58	290
FL 58mm F 1.2	Standard	41°	1.2x	7	16	2 - 30 ∞	0.6-10 ∞	60	58	410
FL 85mm F 1.8	Long-focus	29°	1.7x	5	16	3.5 - 60 ∞	1 - 20 ∞	60	58	445
FL100mm F 3.5	Telephoto	24°	2x	5	22	3.5 - 30 ∞	1 - 10 ∞	50	48	278
FL135mm F 2.5	Telephoto	18°	2.7x	6	16	5 - 100 ∞	1.5-30 ∞	60	58	645
FL200mm F 3.5	Telephoto	12°	4x	7	22	8 - 100 ∞	3 - 50 ∞	60	58	680
FL55-135mm F 3.5	Zoom	43°-18°	1.1-2.7x	13	22	7 - 100 ∞	2 - 30 ∞	60	58	790
FL85-300mm F 5	Zoom	29°- 8°	1.7-6x	15	22	12 - 200 ∞	4 - 50 ∞	75	72	1,840
R 300mm F 4	Long-telephoto	8°	6x	5	22	5	1.5	Special	48	1,200
R 400mm F 4.5	Long-telephoto	6°	8x	5	22	10.2	3.1	Special	48	1,700
R 600mm F 5.6	Extra-long-telephoto	4°	12x	2	32	20	6.4	Special	48	1,800
R 800mm F 8	Extra-long-telephoto	3°	16x	2	32	44.3	13.5	Special	48	1,900
R1000mm F11	Extra-long-telephoto	2.4°	20x	2	32	69	21	Special	48	1,800

↑ For Single Lens Reflex Type Cameras

↓ For Rangefinder Type Cameras

Lens	Type	Angle of View	Magnification Based upon 50mm Lens	Number of Elements	Minimum Aperture	Distance Scale		Attachment Size (mm)		Weight (grams)
						in feet	in meters	Cap Size	Filter Size	
19mm F 3.5	Super-wide-angle	96°	0.38x	9	16	1.75-20 ∞	0.5 - 7 ∞	57	55	200
25mm F 3.5	Super-wide-angle	82°	0.5x	5	22	3.5 - 50 ∞	1 - 20 ∞	42	40	145
28mm F 2.8	Super-wide-angle	75°	0.56x	6	22	3.5 - 50 ∞	1 - 20 ∞	42	40	160
35mm F 1.5	Wide-angle	64°	0.7x	8	22	3.5 - 50 ∞	1 - 10 ∞	50	48	185
35mm F 2	Wide-angle	64°	0.7x	7	22	3.5 - 50 ∞	1 - 10 ∞	42	40	107
50mm F 0.95	Standard	46°	1x	7	16	3.5 - 50 ∞	1 - 20 ∞	75	72	605
50mm F 1.2	Standard	46°	1x	7	22	3.5 - 50 ∞	1 - 20 ∞	57	55	322
50mm F 1.4	Standard	46°	1x	6	22	3.5 - 60 ∞	1 - 20 ∞	50	48	246
50mm F 1.8	Standard	46°	1x	6	22	3.5 - 50 ∞	1 - 20 ∞	42	40	188
85mm F 1.8	Long-focus	29°	1.7x	5	22	3.5 - 60 ∞	1 - 20 ∞	60	58	470
100mm F 2	Telephoto	24°	2x	6	22	3.5-100 ∞	1 - 30 ∞	60	40	515
100mm F 3.5	Telephoto	24°	2x	5	22	3.5-100 ∞	1 - 20 ∞	42	58	220
M135mm F 2.5	Telephoto	18°	2.7x	6	22	5 - 100 ∞	1.5-30 ∞	60	58	500
135mm F 3.5	Telephoto	18°	2.7x	4	22	5 - 100 ∞	1.5-30 ∞	50	48	424
M200mm F 3.5	Telephoto	12°	4x	7	22	8 - 150 ∞	2.5-50 ∞	60	58	610
400mm F 4.5	Long-telephoto	6°	8x	5	22	8	2.6	Special	48	1,700
600mm F 5.6	Extra-long-telephoto	4°	12x	2	32	16	5.1	Special	48	2,100
800mm F 8	Extra-long-telephoto	3°	16x	2	32	31	11	Special	48	1,900
1000mm F11	Extra-long-telephoto	2.4°	20x	2	32	45	15	Special	48	1,800

Specifications are subject to change without notice.

## Distance From Subject and Depth of Field

When you focus on a subject, the surrounding area that is also sharp and clear is called depth-of-field. A complete understanding of depth-of-field allows you to use it effectively to create superb photos.

Three easy-to-remember principles are:

1. The further your camera is from the subject, the wider the depth of field.
2. The more you close the aperture (set it on higher numbers), the wider the depth of field.
3. The shorter the focal length of the lens, the wider the depth of field.

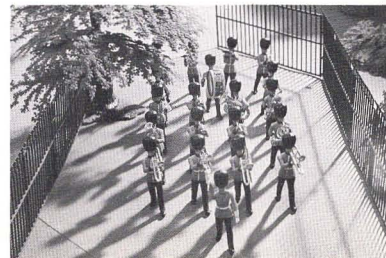
Of course, to get a desired hazy or out-of-focus effect, the opposite of these three principles should be employed. With this knowledge you are able to focus on everything in the picture, blur part of the picture, eliminate the background, or create the hazy portrait-like effect around the subject. While all Canon lenses come with a convenient depth-of-field scale for quick reference, users of the Canon Single Lens Reflex cameras have the advantage of being able to check their depth of field through the camera's viewfinder without aid of the scale.

Lens		0.6m / 2ft.			10m / 33ft.					∞
19mm	F 3.5									
	F 11									
35mm	F 1.5									
	F 22									
85mm	F 1.8									
	F 22									
100mm	F 2									
	F 22									
135mm	F 2.5									
	F 22									
200mm	F 3.5									
	F 22									



F 8

50mm Lens  
Depth of Field 2.3-4.3m  
Focused at 3m



F 16

50mm Lens  
Depth of Field 1.9-7.6m  
Focused at 3m

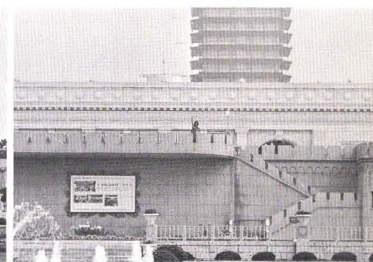
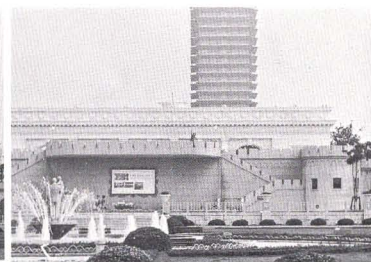
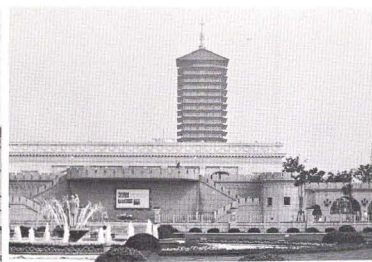


## How to Use Lenses for Special Effects

## Field-of-View Change

When you change your lens the size and field-of-view surrounding the subject changes because you're using a lens with a different focal length. Look at this series of pictures and compare them. All were taken of the same subject from the same spot using various Canon lenses. Notice that the shorter the focal length of the lens, the wider the field-of-view and smaller the image; the longer the focal length, the narrower the field-of-view and larger the image. Taking advantage of the special features of each is what makes a good cameraman.

From the above you can immediately see how wide angle lenses are best for situations like shooting a subject in a minimum amount of space, large buildings, and wide scenes. For getting those distant objects or a subject you cannot approach, the long focal length telephoto lens is best.



85mm



29°

100mm



24°

135mm



18°

200mm

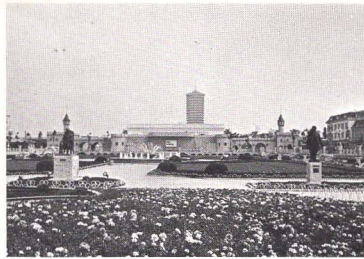
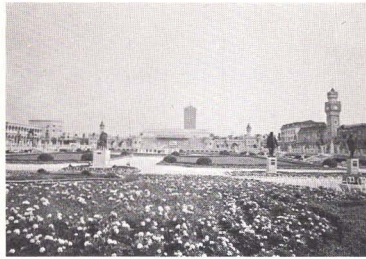


12°

## Perspective

To change the depth of field or field-of-view above, the photographer remained stationary and changed lenses. The easiest way to illustrate changes in perspective is by changing lenses but keeping the subject the same size in each situation. The only way this is possible is by the photographer moving to or from his subject to compensate for the varying focal lengths. The basic rule here is the longer the lens focal length, the further from the subject the photographer must stand.

Look at the series of pictures employing this rule. Notice that in each case the human figure remains the same size, but the depth perception, or perspective, differs with each lens. In using shorter focal length lenses, distances in relation to the subject are more extreme, i. e., close looks very close, and far looks very far. The longer focal length lenses eliminate the extreme effect. In this case, far does not look so far. As you can see it is possible to use perspective to get many special effects. The out of focus background in these pictures is a desirable effect in many types of photography. Canon interchangeable lenses will help you create your own background effects.



19mm



96°

25mm



82°

35mm



64°

50mm



46°



400mm



6°

600mm



4°

1000mm



2.4°



35mm

50mm

100mm

200mm

## Canon Filters

Various types of 40, 48, 55, 58, and 72mm screw-in type filters are available for special effects in both color and black and white photography.

Series #9 filters for exclusive use with Canon's FL 19mm F3.5 R lens are also available. The external diameter of the Series #9 filters is 72mm, and an exclusive filter holder must be used to match 77mm thread diameter of the lens.

Exposure Factor	Type	Effectiveness of Filters
1	UV (SL 39 · 3C) For monochrome and color	Absorbs only ultra-violet rays. Especially effective at seaside or in high mountains. Recommended for use in color photography.
1.5	Y1 (SY 44 · 2C) For monochrome	Increases contrast of monochrome film.
2	Y3 (SY 50 · 2C) For monochrome	Slightly brightens red and yellow.
3	O1 (SO 56 · 2C) For monochrome	Good for contrasts, especially in distant landscapes.
6	R1 (SR 60 · 2C) For monochrome	Makes strong contrasts. May also be used with infrared film.
3	G1 (MG 55C) For monochrome	Prevents red from turning radically into white. Lightens faces and sky appropriately, and reflects the brightness of fresh greenery as seen with the naked eye.
1	Skylight For monochrome and color	Acts to harmonize the blue sky and shade.
4 8	ND 4 ND 8 For monochrome and color	ND 4 reduces light volume by 1/4, ND 8 by 1/8. Has absolutely no effect on the reproduction of colors on color film.
2	Color Conversion A For color	Color film filter for conversion of color temperature when photographing tungsten type film under sunlight.
3	Color Conversion B For color	Color temperature conversion filter for use with daylight type color film under tungsten light.

72mm screw-in type and Series #9 filters: UV, Y3, R1, Skylight, CCA, and CCB only.

Without Filter



With Y1 Filter



With R1 Filter



With G1 Filter



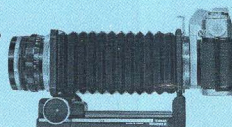
## Accessories For Close-up, Copy, and Macrophotography



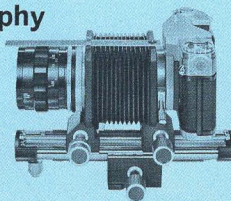
Lens Mount Converter A



Lens Mount Converter P



Bellows R



Bellows FL



Extension Tube FL 15



Macrophoto Coupler FL



Extension Tubes



Lens Mount Converter B



Lens Mount Converter E





**CANON CAMERA CO., INC.**

312 Shimomaruko-cho, Ohta-ku, Tokyo, Japan

**CANON U.S. BRANCH**

554 Fifth Avenue, New York, N. Y. 10036, U.S.A.

**CANON S.A. GENEVE**

1 Rue de Hesse, Geneva, Switzerland

**CANON LATIN AMERICA**

Apartado 7022, Panama 5, Republic of Panama

**WESTERN CAMERA & HI FI  
3800 E. ANAHEIM ST.  
LONG BEACH, CALIF. 90804**