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The Total Light Electronic Brain System

Canon EF

English Edition

The Age of Automatic Exposure...

Lighting the Way To Better Pictures

Every great photograph is a reflection of its maker. Of the way the photographer interprets or sees the subject. But, of course, great photographs are seldom the product of vision alone. Usually there are two other essentials —camera technique and timing.
The way a photographer sees a picture is deeply personal; it's something the builder of the finest camera cannot readily influence. But a perceptive camera manufacturer like Canon is able to assist photographers around the world with the other two elements that contribute to greatness in pictures. Throughout the history of the art, perhaps the most frustrating obstacle to precise yet care-free photographic expression has been the light barrier. In other words, light metering. It has deterred the timid, baffled the beginner, perplexed the weekend enthusiast and hampered the professional.

All that, however, was before the marvels of modern technology. Before the exciting new AE age—the age of Automatic Exposure. Now legions of photographers, amateur and professional, are looking to a new breed of camera, the 35mm single lens reflex (SLR) through-the-lens (TTL) Automatic Exposure (AE) camera, to light the way to better pictures. Because the AE SLR camera takes the worry out of metering. Such a camera is the new Total Light Electronic Brain Canon EF. Born of electronic genius and many years of experience, it saves loads of time and trouble and thus frees mind and body for more important things.
The part of the sophisticated Electronic Brain that gives the EF its most exciting advantages is the Silicon Photocell circuit used for AE metering. Silicon Photocell metering gives not only improved accuracy but greater reliability, quicker response and broader metering range.

The Canon EF has been a long time coming. But for three good reasons. First, it had to satisfy as far as was practical the insatiable demands of top professionals. Second, it had to be able to bring fascinating, creative results within easy reach of the average amateur. And third, it had to meet Canon's own exceptionally rigorous standards of design and operation.

Other features that help make the EF a one-of-a-kind camera system:
1) Variable Aperture AE (Automatic Exposure). Simply select a shutter speed and the aperture is set for you automatically.
2) Extremely wide range of shutter speeds using an Electro-Mechanical Shutter. Accurate electronic control from one second down to a full 30 seconds; foolproof mechanical control from one-half second to 1/1000 second (including B) even if the batteries fail.
3) **Incredible meter sensitivity** and rapid response to changing light levels by using a Silicon Photocell. At ASA 100, EV –2 (8 sec. at f/1.4) to EV 18 (1/1000 sec. at f/1.6).

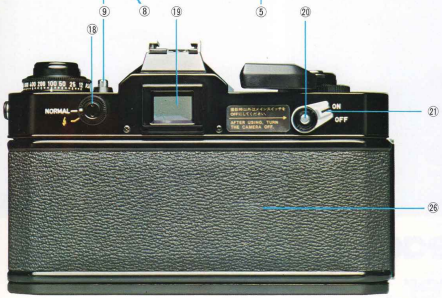
4) Wide range of FD lenses from 15mm full-frame fish-eye to 300mm telephoto for AE photography. Other Canon lenses available from 7.5mm circular fish-eye to 1200mm super-telephoto. 2000mm and 5200mm mirror lenses available by special order.
5) Multiple exposures possible simply by pushing a button while operating the winding lever. Exact registration is possible, and the frame counter does not advance during the procedure.
6) Full-information viewfinder displaying large scales for both shutter speeds and f/stops.

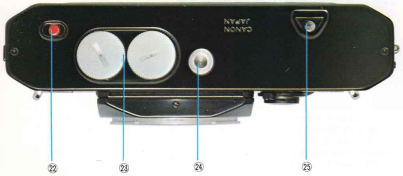
7) Automatic electronic flash CAT system. When using the Canon Speedlite 133D and a Flash-Auto Ring, the aperture is set automatically according to the focused distance of the lens with synchronization at 1/125 sec.
8) Easy and inexpensive battery replacement.

The pages that follow are a brief introduction to the easy operation of Canon EF, the "Total Light Electronic Brain" camera that offers more than you ever imagined. When you've read it all, be fair to yourself: put the Canon EF to the test. It will help you conquer new worlds.

Canon EF Story in Parts

1. Frame Counter
2. Shutter Button
3. Shutter Speed Dial
4. Shutter Speed Index Mark
5. Winding Lever
6. Flash Hot Shoe
7. Eye-Level Pentaprism
8. Film Plane Indicator
9. AE Memory Lock Button
10. Light Emitting Diode (LED)
11. Film Rewind Knob with Crank
12. ASA Ring
13. Sync. Terminal with Cover
14. Self-Timer Lock Button
15. Multi-Purpose Lever (Self-Timer/ Depth-of-Field Preview/Stopped-Down Metering Lever)
16. L-M Lever
17. Neckstrap Eyelet
18. CAT Switch
19. Eyepiece
20. Multiple Exposure Button
21. ON/OFF Switch
22. Battery Check Button
23. Battery Compartments with Covers
24. Tripod Socket
25. Film Rewind Button
26. Back Cover
27. Canon FD 50mm f/1.4 S.S.C Lens





FD100~200mm Zoom f/5.6 S.C. 1/15 Sec. AE

Always Ready for Action–With Fast Shutter and Rapid Film Advance

The new Canon EF is ideal for all types of action and candid photography. A speeding car. An athlete at full stretch. Children at play. That one-in-a-lifetime "grab-shot". Because it's a Variable Aperture Automatic Exposure (AE) Camera. That means the photographer can pre-select an appropriate shutter speed—let's say 1/1000 or 1/500 sec. on a bright day—and wait for the action. No awkward hand metering or lens aperture setting because the EF 'reads' the light through the lens (TTL) and adjusts the diaphragm accordingly. Automatically.

The Variable Aperture AE control system all but eliminates the risk of blur that is prevalent in EE cameras where the photographer sets the aperture and the camera selects the shutter speed. In such cameras the AE mechanism may choose a speed too slow to stop the subject movement.

The Canon EF has another advantage in action photography—an ultra-short throw 120-degree Winding Lever. A flick of the thumb and it's ready to shoot again. No need to take eye off the subject even when changing shutter speeds. Because both shutter speed and lens aperture are clearly visible in the viewfinder.

In the unhappy event of battery failure, action and candid photographers can go right on working—without AE, of course—because the Canon EF shutter is mechanically controlled at all speeds from 1/1000 to 1/2 second. A picture-saving point in an emergency!

The shutter of the EF is mechanically controlled at faster speeds (1/1000 sec. to 1/2 sec.) because a mechanical governor is highly reliable at those speeds. However, at exposures of 1 sec. to 30 sec., the shutter is electronically controlled because at slow speeds an electronic shutter is much more stable and precise. Using electronics throughout the shutter speed range would also have resulted in an unnecessarily heavy drain on the mercury batteries.

The Silicon Photocell is a whizz-kid of advanced electronics. It is a highly-accurate and ultra-stable light measuring cell that is several times faster in its response than the conventional CdS cell. In fact, for all practical purposes, it reacts instantly.

For an advanced camera like the Canon EF, Silicon Photocell metering was an obvious choice. With the camera set for the correct ASA film speed and for Automatic Exposure (AE)—the photographer simply clicks the Shutter Speed Dial. Then, when the Shutter Release is pressed, the lens diaphragm closes just enough to give precisely the exposure determined by the Silicon Photocell. Aperture adjustments are in infinitesimal fractions of f/stops to correspond with every subtle change in light.

Ideal for candid photography, where a fleeting moment is often the difference between a great shot and a dud.

The Canon EF has a bright-image Full-Information Viewfinder incorporating a Central Emphasis Metering system. In other words, the light measurement is made with emphasis on the central microprism area, since this is generally the most important part of the picture. Central Emphasis Metering is the best available method for even light photography and for tricky high contrast situations. A man under a sombrero at midday, for example. Or a black dog darting about a sun-dappled garden. Under most circumstances, this ensures good exposure of a dark subject without washing out the rest of the picture. And good exposure of a bright main subject without surrendering everything else to underexposure. With Canon FD lenses, metering is done with the aperture wide open; with Canon FL lenses stopped-down metering is used.

The Canon EF may well be the action photographer's dream. But the EF Electronic Brain also comes up with winners long after sundown. What other Automatic Exposure SLR offers precisely graduated time exposures of 2, 4, 8, 15 and 30 seconds on the Shutter Speed Dial? And in the viewfinder?

Such long exposures on the dial would be worthless without a metering system able to give accurate readings in extremely dim light. Which highlights another advantage of Silicon Photocell metering. Whereas CdS cells have a maximum 15-stop metering range, the Silicon Photocell goes from EV 18 all the way down to EV-2. What this means is that with 100 ASA film, a time exposure as long as 8 seconds at f/1.4 (or 15 seconds at f/2 or 30 seconds at f/2.8) can be made using the camera's electronically-controlled AE mechanism. Just mount the Canon EF on a rigid tripod and press the Shutter Button—preferably by means of a Cable Release. The camera and its Silicon Photocell will do the rest. It's so easy even a beginner could hardly go wrong.

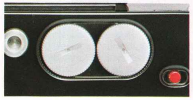
For non-automatic exposures longer than 30 seconds, the B (for Bulb) setting may be used.

Extra-Long Shutter Speeds Called For Color Coding

Putting exposures of 2 to 30 seconds on the Shutter Speed Dial posed a unique if minor problem for designers of the Canon EF. There was, for the first time, a real risk of confusing the figures 2, 4, 8, 15 and 30—indicating exposure in seconds—with identical figures which, in the customary manner, indicated fractions of a second. The answer lay in color coding the Shutter Speed Dial. So exposures from 2 to 30 seconds are in yellow and the usual shorter exposures and B setting are in white. The 1/125 sec. electronic flash synchronization setting is a distinctive orange.

Mercury Batteries

Another advantage of the Canon EF metering system is that it requires very little current to work perfectly. This allows use of two inexpensive 1.3v mercury batteries that are readily obtainable worldwide.

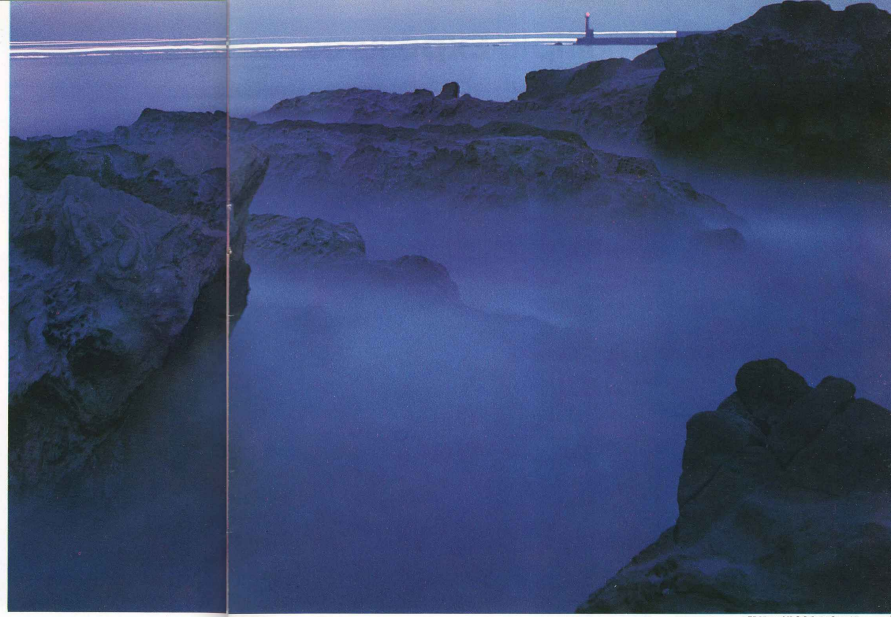


Light Emitting Diode (LED)

The LED near the Rewind Knob serves a double purpose. It will flash on and off during time exposures from 1 to 30 seconds (i.e. when the camera is being electronically operated) to signal that the shutter is still open. The LED also functions as a battery check lamp.

ASA Range

Film can be rated from a slow ASA 12 to an ultra-fast ASA 3200 for use with the camera's AE system.



FD35mm f/2 S.S.C. 30 Sec. AE

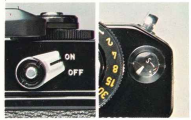
When Going S-l-o-w Produces Winners

Fascinating Multiple Exposures Couldn't Be Simpler

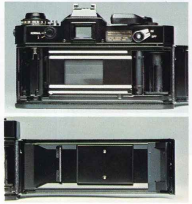
Push-Button Operation; Film Stays Perfectly in Register

With the new Canon EF this eye-catching kind of pictorial construction is dramatically simplified so that anyone with imagination, patience and a modicum of skill can share in its fascination.
It's important to remember that when multiple images overlap on a single frame, some exposure adjustment is necessary. A good guide is to multiply the ASA rating by the number of exposures to be put on the frame. For a quadruple exposure on ASA 100 film, use ASA 400 (i.e. 100 multiplied by 4).

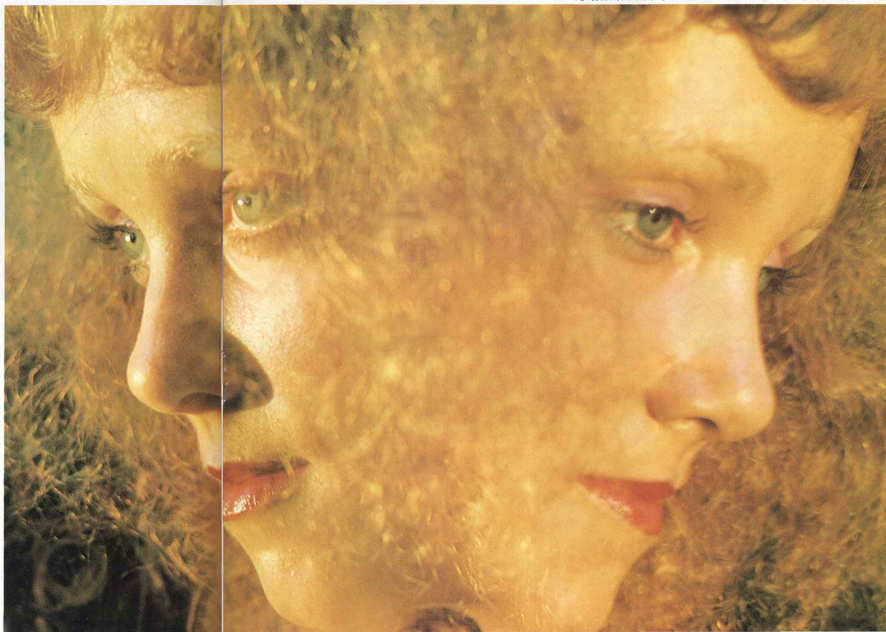
Recording two or more images on a single frame is extremely simple with the Canon EF. Merely take a picture, then stroke the Winding Lever while depressing the Multiple Exposure Button in the center of the main On-Off Switch. This cocks the shutter without advancing the film. Simply repeat the procedure before each shot.



When the Multiple Exposure Button is pressed, the Film Counter is disengaged and does not advance. Thus confusion as to the number of frames used is avoided. Also multiple exposures will be in perfect register, because the film does not move at all.



FD100mm f/2.8 S.S.C. 1/125 Sec. AE + FD200mm f/4 S.S.C. 1/250 Sec. AE



Maximum Lens Handling Ease From Fish-Eye to Macro to Zoom to Telephoto... A Fabulous Range of Canon FD Optics

A fabulous range of optics like the Canon FD and FL lens system has the answer to virtually every photographic challenge. It can photograph the eye of a fly so it can be blown up bigger than a football. And probe craters on the moon. It can record a camel caravan plodding the searing Sahara. And a pride of Emperor Penguins basking on an Antarctic ice floe. With 7.5mm Fish-Eye or 1200mm super-telephoto.

Like all previous Canon SLR lenses, the FD's are breech-lock mount lenses that can be mounted in about a third of the time it takes to attach a screw-on lens. Breech-lock mount lenses are particularly appreciated by busy professionals who cannot afford to waste time—or miss a crucial shot. The more than 40 lenses that make up the FD and FL lines can all be used with the new Canon EF to give consistently superb image quality. They are the result of years of unrivalled, computer-aided research, design and manufacture.

Canon lenses are designed to meet the most critical requirements in terms of interchangeability, versatility, compactness, sharpness, brightness, contrast, color balance and freedom from aberration and reflection.

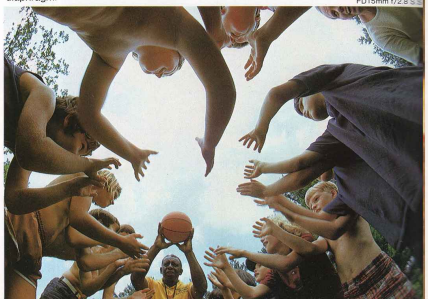
All FD lenses are either S.S.C. (Super Spectra Coated) or S.C. (Spectra Coated). Spectra Coating is a unique single-layer coating developed by Canon to give the same anti-reflection results as ordinary multi-layer coating —but superior light transmission and color balance. Super Spectra Coating is Canon's superb multi-layer coating which is now applied to most FD lenses.

Greater compactness—a significant consideration for users of three or more lenses—has been made possible by Canon's exceptionally short back focus and by the development of more sophisticated lens-making materials.

FISH-EYE AND SUPER-WIDE-ANGLES

An astonishingly compact lens is the specialist Canon 7.5mm Fish-Eye f/5.6 S.S.C. This advanced equidistant projection Fish-Eye gives a 180-degree image in a 23mm diameter circle on the standard 24mm x 36mm frame. It can be used without locking the mirror up so the spherical field of view can be seen directly through the viewfinder. Ideal for astronomical and special-effect photography. Manual diaphragm.

An even more compact Fish-Eye—the world's smallest, in fact—is the Canon FD 15mm f/2.8 S.S.C. It covers 180 degrees diagonally and, like the 7.5mm Fish-Eye, is a retrofocus type allowing through-the-view-finder framing with the mirror in its usual position. It is an extremely bright lens with maximum compensation for aberration. Automatic diaphragm.



FD15mm f/2.8 S.S

The extraordinary Canon FD 17mm f/4 S.S.C. is a 104-degree super-wide-angle lens embodying an extraordinary degree of distortion compensation. This retrofocus type lens has tended to suffer particularly from spherical aberration in close-focusing situations. Canon overcame the problem with a Floating System in which the distance between the front and rear lens elements adjusts with focusing to nullify the aberration. Proof of the effectiveness of the Floating System is the high quality of close-up and copy work being done by top professionals with this lens.

Like the 20mm lens, the Canon FD 24mm f/2.8 S.S.C. lens is a fast retrofocus type with built-in Floating System for minimum aberration at closest focusing distance. The Canon FD 28mm f/3.5mm S.C., although a reversed telephoto type, is a mere 43mm long. Good brightness EDGE TO EDGE.

Few lenses of comparable focal length can rival the Canon FD 20mm f/2.8 S.S.C. retrofocus wide-angle for brightness. The exceptionally wide maximum aperture transmits plenty of light to the viewfinder via the mirror. Ideal for dim-light situations where a 94-degree view or extreme wide-angle "impact" are required.

FD24mm f/2.8 S.S.C.

WIDE-ANGLE LENSES

The Canon FD 35mm f/2 S.S.C. is the fastest of the FD wide-angles, yet incorporates all the high-resolution, aberration-correction characteristics of the others. Its moderate angle of view makes it the first choice of many professionals as a standard lens. Because it is a moderate wide-angle with greater depth of field than a 50mm lens, it is ideal for available light candid photography. Also it has a distance coupling pin for use with the Canon Auto Tuning (CAT) auto-flash system and 133D Speedlite. Though slower than the f/2, the Canon FD 35mm f/3.5 S.C. is one of the most compact, easy-to-use wide-angles. It gives crisp images of good contrast throughout the focusing range. Also has a CAT distance coupling pin.

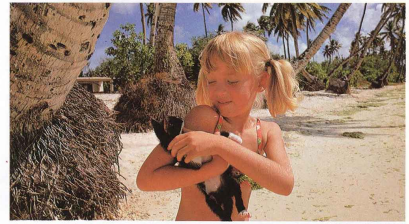
Tilt and shift adjustments are possible with the Canon TS 35mm f/2.8 S.S.C. lens. Tilting cants the lens to increase depth of field, and is most useful in photographing books, walls or trains from an oblique angle. Shifting moves the optical axis of the lens to correct distorted perspective and is especially valuable when shooting up or down at tall buildings.

STANDARD LENSES

Fastest lenses in the FD range—and therefore unsurpassed for dim-light, hand-held situations where great depth of field is unnecessary—are the FD 55mm f/1.2 S.S.C. and the FD 55mm f/1.2 AL S.S.C. The AL (for Aspherical Lens) is Canon's pride. It is not only remarkably sharp at f/1.2 but is distortion-free at its closest focusing distance of 2 feet (0.6m), thanks to application of the Floating System.

There are four standard lenses in the Canon FD range. The FD 50mm f/1.8 S.C. and FD 50mm f/1.4 S.S.C. are both outstanding performers under all conditions. Both give superior image contrast and edge-to-edge sharpness. The f/1.4 also has a CAT auto-flash distance coupling pin.

The Macro FD 50mm f/3.5 S.S.C. supersedes the FL 50mm f/3.5 and is fully usable with the Automatic Exposure system of the new Canon EF. It is a standard lens specially designed for close-up photography and gives razor-sharp images from infinity down to 1:1 reproduction ratio. It is also ideal for all types of copy work.



FD50mm f/1.4 S.S.C.

FD50mm f/3.5 Macro S.S.C.

TELEPHOTO LENSES

Canon has succeeded in developing five ultra-compact lenses in the 100mm—200mm range, thus facilitating hand-held pictures of subjects that are difficult to approach.

Most compact—it's only 2¼ in. long—is the Canon FD 100mm f/2.8 S.S.C. This lens, which is lighter than many standard lenses, is perfect for indoor and outdoor portraiture.
The Canon FLM 100mm f/4 lens is to be used exclusively with a Bellows unit and extends the capabilities of the Canon EF to macro-photography, or larger-than-life images. The 100mm focal length ensures natural perspective from infinity to ultra-close macro distances.
Next in line are two 135mm lenses—the super-light 3¾ in. long Canon FD 135mm f/3.5 S.C. and the fastest of the telephotos, the FD 135mm f/2.5 S.C. The f/3.5 is a versatile lens that can be kept on the camera or in the gadget bag at all times. Useful for portraits, sports and scenics. The f/2.5 is heavier and longer but gives a full f/stop more lens speed. A great lens for indoor action, such as the stage or the circus.
The Canon FD 200mm f/4 S.S.C. is a sensational little beauty. A mere 5¾ in. long, it is physically one of the shortest 200mm f/4 lenses around. And it weighs in at less than 1½ lb. It adds a new dimension to the term "candid photography," and can even be used hand-held.
Smallest of the "big guns" in the FD range is the FD 300mm f/5.6 S.C. Again, the key word is compact, because this telephoto is about the same length as other 200mm lenses. The lens also has its own tripod mount and retractable lens hood.
Three special tele lenses, the ultra-fast Canon FL-F 300mm f/2.8 S.S.C., the FL-F 300mm f/5.6 and FL-F 500mm f/5.6, offer performance characteristics impossible in normal telephoto lenses. These lenses contain artificial fluorite that eliminates chromatic aberration and secondary spectrum entirely. They also have an apochromatic quality that gives images of great clarity, contrast and color fidelity. Furthermore, their length has been trimmed for easier portability. Canon's FL-F lenses offer dramatic improvements in telephoto quality.

FD100mm f/2.8 S.S.C.

FD300mm f/5.6 S.C.

SUPER-TELEPHOTO LENSES

In the super-telephoto category are a cluster of FL lenses that can readily be used with the Canon EF using stopped-down metering. They are the FL 400mm f/5.6, FL 600mm f/5.6, FL 800mm f/8 and FL 1200mm f/11 S.S.C.
Because they are front convertible lenses with the Canon Focusing Unit, they are extremely short and light for lenses of such great focal length. Chromatic aberration has been completely eliminated.

FD100—200mm Zoom f/5.6 S.C.

ZOOM LENSES

In action photography, particularly sports and wild-life, a zoom lens with adjustable focal length can be invaluable. Many professionals and skilled amateurs also use these versatile lenses for special effects, such as blurring to create a feeling of movement or speed. Canon has three top-quality zooms FD 35—70mm f/2.8—3.5 S.S.C., FD 100—200mm f/5.6 S.C. and FD 85—300mm f/4.5 S.S.C. All are corrected for distortion and give good sharpness and contrast throughout the zooming range. The 85—300mm zoom is an incredibly short 9⅝ in.!

Table of Interchangeable Lenses

Lens	Type	Angle of View	Aperture System
Fish-eye 7.5mm f/5.6 S.S.C.	Special	180°	Manual
Fish-eye FD16mm f/2.8 S.S.C.	Special	180°	Automatic
FD 17mm f/4 S.S.C.	Super-wide-angle	104°	Automatic
FD 20mm f/2.8 S.S.C.	Super-wide-angle	94°	Automatic
FD 24mm f/2.8 S.S.C.	Super-wide-angle	83°	Automatic
FD 28mm f/2.8 S.C.	Super-wide-angle	75°	Automatic
* FD 28mm f/3.5 S.C.	Wide-angle	75°	Automatic
TS 35mm f/2.8 S.S.C.	Special (Tilt-Shift)	64°—79°	Manual
* FD 35mm f/2 S.S.C.	Wide-angle	64°	Automatic
FD 50mm f/3.5 S.S.C.	Macro	46°	Automatic
* FD 50mm f/1.8 S.C.	Standard	46°	Automatic
* FD 50mm f/1.4 S.S.C.	Standard	46°	Automatic
FD 55mm f/1.2 S.S.C.	Standard	43°	Automatic
FD 55mm f/1.2AL S.S.C.	Standard	43°	Automatic
FD 85mm f/1.8 S.C.	Telephoto	29°	Automatic
FLM 100mm f/4	Macro	24°	Manual
FD 100mm f/2.8 S.S.C.	Telephoto	24°	Automatic
FD 135mm f/3.5 S.C.	Telephoto	18°	Automatic
FD 135mm f/2.5 S.C.	Telephoto	18°	Automatic
FD 200mm f/4 S.S.C.	Telephoto	12°	Automatic
FD 300mm f/5.6 S.C.	Telephoto	8°	Automatic
FD 35—70mm f/2.8—3.5 S.S.C.	Zoom	64°—34°	Automatic
FD 100—200mm f/5.6 S.C.	Zoom	24°—12°	Automatic
FD 85—300mm f/4.5 S.S.C.	Zoom	29°—8°	Automatic
FL-F 300mm f/2.8	Telephoto	8°	Automatic
FL-F 500mm f/5.6	Telephoto	5°	Automatic
** FL 400mm f/5.6	Super-telephoto	6.2°	Automatic
** FL 600mm f/5.6	Super-telephoto	4.1°	Automatic
** FL 800mm f/8	Super-telephoto	3.1°	Automatic
** FL 1200mm f/11 S.S.C.	Super-telephoto	2.1°	Manual

* Equipped with a coupling pin for the Canon Automatic Tuning System.
** Front component interchangeable type. Focusing Unit (2 elements, 1 group. FL automatic diaphragm, with A-M ring.)

☐ The Canon FL-F 300mm f/2.8 with Extender 2X is available by special order.

Canon's Famous CAT System Solves Flash Problems– AUTOMATICALLY

FD50mm f/1.4 S.S.C. Speedlite 133D 1/125 Sec. AE

The Canon Auto Tuning—or CAT—system does away with complicated guide-number calculations in electronic flash photography. By fitting the Canon Speedlite 133D to the camera Flash Hot Shoe and a Flash Auto Ring to the lens, correct flash exposure is easily obtained.

The focused distance of the lens and the charging level of the 133D are sent as electrical signals to the camera's Variable Aperture AE control, which then adjusts the diaphragm automatically to produce well-exposed shots. Therefore, the CAT System of electronic flash photography is as easy as normal AE photography.

At present four lenses are usable with CAT: FD 50mm S.S.C. f/1.4, FD 50mm f/1.8 S.C., FD 35mm f/2 S.S.C. and FD 35mm f/3.5 S.C.

Care should be taken to switch the 133D to Auto and to switch on the camera power source and set the CAT switch to (⚡) on the rear of the camera.

The Canon EF Electronic Brain synchronizes electronic flash at a fast 1/125 sec.

Conventional flash photography is also possible via the Flash Hot Shoe or the Sync Terminal that has a nifty little electric shock-cum-dust-cum-moisture prevention cover. This spring-loaded cover has met with immediate acclaim from professionals whose livelihood depends largely on flash reliability.

The handy 10-second self-timer makes taking self-portraits easy. It also doubles in place of a cable release for slow shutter speed shooting.

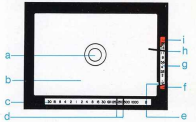
FD300mm f/5.6 S.C. 1/500 Sec. AE

Complete Information at a Glance–The Full-Information Viewfinder

All important control functions have been conveniently consolidated in the bright Full-Information Viewfinder. Focusing is quick and easy with the center spot microprism rangefinder. The center spot microprism appears to vanish when the image is in focus. Also the entire ground glass area may be utilized.

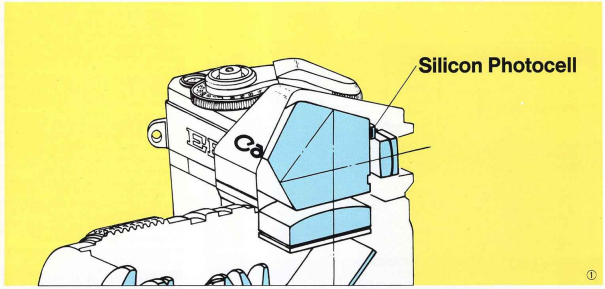
The Full-Information Viewfinder lets you compose, focus, adjust and shoot a lot faster than it takes to read about it. A whole lot faster!
Across the bottom of the viewfinder, your setting is automatically indicated on a broad shutter speed scale. Up along the right side are the aperture scale and exposure meter needle. At either end of the scale are red warning marks (at the bottom to indicate underexposure and at the top for overexposure). Only Canon offers you 17 click-stop shutter speed settings. You are able to insure that every picture is captured on film exactly as you want it. Even the most complicated special effects shots.
For stopped-down shooting, align the meter needle with the Stopped-Down Metering Index Mark. Push the Multi-Purpose Lever in toward the lens while manually adjusting the Aperture Ring or Shutter Speed Dial.

VIEWFINDER INFORMATION



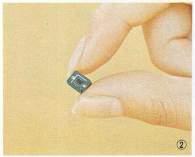
a. Center Spot Microprism Rangefinder
b. Ground Glass with Fresnel Screen
c. Shutter Speed Scale
d. Shutter Speed Indicator
e. Stopped-Down Metering Index Mark
f. Underexposure Warning Mark (maximum lens aperture is automatically set)
g. Aperture Scale
h. Meter Needle
i. Overexposure Warning Mark

Canon Adopts the High-Performance Silicon Photocell



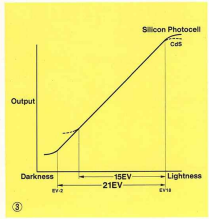
①

Today's wide range of shooting situations demand a broad shutter speed selection and a super-sensitive light receptive element. To satisfy these requirements, Canon engineers developed an advanced electronic circuit utilizing a Silicon Photocell. (Fig. 1 & 2)
It gives the sophisticated EF a performance edge in any shooting situation. The Silicon Photocell is the light receptive element of the future. Already, it is fast replacing the old conventional CdS metering system.



②

Comparison of Silicon Photocell with CdS



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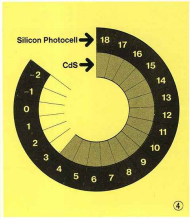
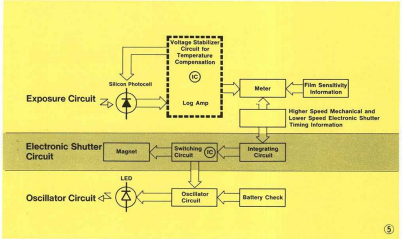


④

The Silicon Photocell provides a wider metering range, greater accuracy and faster response. Straight-line changes between brightness and output account for the wide measuring capability. A high standard of accuracy is possible under all light conditions. (Fig. 3)
The conventional CdS exposure meter has a metering range of 15 stops. The Silicon Photocell has a 21-stop metering range, permitting AE photography under virtually all light conditions. (Fig. 4)
Even in dim light the meter will operate to EV-2, the minimum brightness necessary to focus through the viewfinder. This is equivalent to a timed exposure of 30 sec. at f/1.4 with ASA 25 Kodachrome II Film.
Fast response in EV-2 light conditions permits metering to be done in five seconds. Conventional light meters require about 30 seconds—more than five times longer than Canon's Silicon Photocell System.
Of course for normal shooting, the EF's meter response is instantaneous. The advantages of the Silicon Photocell have long been recognized but because of the low electrical output, application to an electronic camera had been considered out of the question. Canon broke through this barrier to give the EF an ultra-modern metering system.

AE Exposure Circuit of Canon EF



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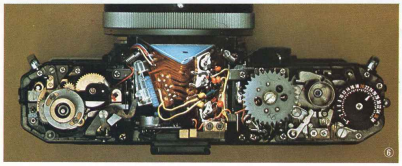
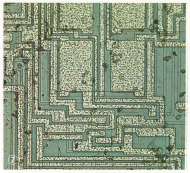


⑥

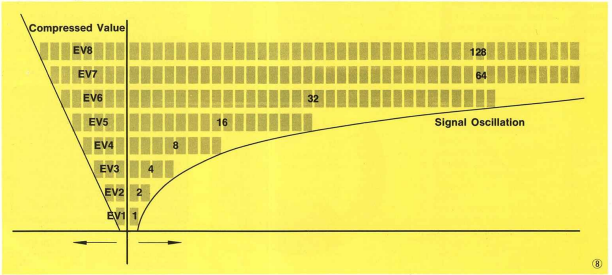
Canon's revolutionary new system consists of three main sections. An exposure circuit, electronic shutter circuit and oscillator. The circuit's overall function is to extract the full potential of the Silicon Photocell. (Fig. 5)

The exposure circuit is constructed around a Log-Amp having a unique MOS-IC structure. This Log-Amp lies at the very heart of the EF's circuitry because it separates the signal amplification and logarithmic compression functions. The very latest electronic technology has been employed to combine this Log-Amp with the voltage stabilizer—producing a single Monolithic IC. (Fig. 6,7 & 10)

This MOS-IC detects the extremely weak Silicon Photocell signal, amplifies it and activates the meter. Canon's technical expertise in IC circuitry made the major achievement in camera systems possible. (Fig. 8)



Variation of Signal Oscillation with Light Intensity on Silicon Photocell



⑧

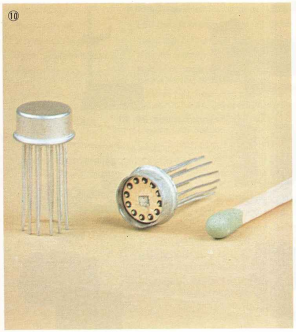
The Log-Amp amplifies the weak Silicon Photocell signal ten million times to operate the meter. Logarithmic compression is one more Log-Amp function. When light strikes the Silicon Photocell, the signal fluctuates rapidly. The signal is unsuited for precise meter operation. Thus, the Log Diode converts the signal to a more suitable one with regular pulsations.

A common weakness of electronic shutter cameras is the fluctuations caused by temperature changes. The Canon EF continues to function perfectly in both extreme heat and cold. It has a built-in voltage stabilizer to insure meter precision. Accurate automatic exposures are obtained under severe temperature conditions ranging from −20°C to +60°C (−4°F to +140°F). (Fig. 9)

The oscillator serves a dual function. Besides causing the Light Emitting Diode to blink as a battery check, it signals (via the LED) during exposures over one second. (Fig. 11)

Canon's EF is truly the AE Age pacesetter. The fruits of integrated electronics technology have been combined to create the camera others said was impossible to make. Canon met the challenge.

⑨



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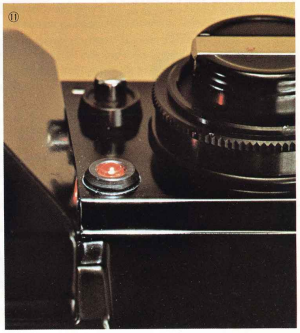

⑪

All the Accessories to Give Precisely What You Want

Eyecup
As a rule, cameras come with an eyecup attached to the eyepiece. The eyecup is easily taken off by pulling it slightly.

Angle Finder A2.B
The Angle Finder is a viewfinder attachment to permit photography from low camera angles or in copy work. Depending on the subject, it can be rotated, so that the camera can be used vertically or horizontally. It can be attached to the eyepiece of the Eye-Level. Pentaprism.

Magnifier S
This is an attachable magnifier which serves for precision focusing in close-up photography, copying, and wide-angle photography. With this magnifier, the center of the field of view can be seen with a magnification of 2.5X. It can be fixed on the eyepiece.

Speedlite 133D and Auto Ring A_2/B_2
Automatic electronic flash unit.

Filter

Lens Hood BS 55

Microphoto Hood

Photomicro Unit F

Macrophoto Coupler FL 55, 58

Bellows FL

Bellows M

Extension Tube M 5, M 10. M 20 x 2

Slide Duplicator Attachment

Slide Duplicator

Flash V-3

55mm Close-up Lens 240, 450

58mm Close-up Lens 240, 450

Dioptric Adjustment Lenses

Handy Stand F

Copy Stand 4

Rerease 30, 50

Camera Holder F2

Gadget Bag G1, 4

Specifications

Type:	35mm single-lens-reflex AE (Automatic Exposure) camera with focal plane shutter.
Format:	24 × 36mm.
Standard Lens:	Canon FD 50mm, f/1.4, S.S.C., Canon FD 55mm, f/1.2, S.S.C., or Canon FD 50mm, f/1.8, S.C.
Interchangeable Lenses:	FD series for AE photography; FL series for stopped-down metering.
Viewfinder:	Fixed eye-level pentaprism.
Viewfinder Information:	Aperture scale with meter needle, over and underexposure warning marks, stopped-down metering index mark, shutter speed scale and indicator.
Focusing Screen:	Center spot microprism'surrounded by plain ground glass ring, and ground glass with Fresnel screen.
Field of View:	92% vertical and 93% horizontal coverage of picture area.
Magnification:	0.82x at infinity with the standard 50mm lens.
Eyepiece Accessories:	Angle finders, magnifier, 4 strengths of eyesight correction lenses, and an eye-cup can be attached.
Mirror:	Instant-return type.
Electro-Mechanical Shutter:	Vertically moving metal focal plane shutter. 1/2 sec.—1/1,000 sec. and B in 11 steps (mechanically controlled); 30—1 sec. in 6 steps (electronically controlled).
Shutter Speed Dial:	B,1—1/1,000 sec. . . . . white marking 1/125 sec. (X sync) . . . . . orange marking 30—2 sec. . . . . yellow marking
Slow Shutter Speed Indicator:	Light Emitting Diode (LED) flashes when shutter speeds from 1—30 sec. are used.
Self-Timer:	The built-in self-timer is activated by the shutter button with a time lag of approximately 10 sec. A self-timer lock button prevents unintentional operation.
Exposure Adjustment:	Variable Aperture AE with FD series lenses. The aperture is adjusted automatically after shutter speed and ASA are set. Central Emphasis Metering gives an average reading of the screen brightness with more emphasis on the center portion utilizing a wide range Silicon Photocell. Stopped-down metering is possible with FL lenses.
Exposure Meter Coupling Range:	EV—2 to EV 18 at ASA 100 with FD 50mm f/1.4 lens: 8 sec. at f/1.4 to 1/1,000 sec. at f/16. At ASA 25, 30 sec. at f/1.4 to 1/1,000 sec. at f/8.
Film Speed Range:	ASA 12—ASA 3200
Power Source:	Two 1.3 volt mercury batteries (Mallory PX625, Eveready EPX625).
Battery Check:	LED flashes when battery check button is depressed if power is sufficient.
AE Memory Lock:	The f/stop set by the Variable Aperture AE control may be locked-in by pressing a button.
Flash Synchronization:	X synchronization at 1/125 sec. and below; M, MF, and FP bulb synchronization at 1/15 sec. and below.
Flash:	Built-in hot shoe has direct contacts (for Canon Auto Tuning System). The sync terminal with a built-in cover is on the left end of the camera body.
Canon Auto Tuning (CAT) System:	Possible by combination of the Flash Auto-Ring A_2 or B_2 and the Speedlite 133D. According to the ASA and focused distance, the aperture is adjusted automatically with the selected f/stop indicated in the viewfinder.
Multiple Exposures:	Possible by depressing the multiple exposure button while operating the winding lever. Operation may be repeated any number of times. The frame counter is stopped during multiple exposures.
Lens Mount:	Canon Breech-Lock: FD, FL and R lenses can be used.
Depth-of-Field Preview:	Possible by pressing the multi-purpose lever after manually setting the aperture ring and cocking the shutter.
Automatic Blank Shot Mechanism:	Film may be advanced to frame No. 1 simply by using the winding lever. Use of the shutter button is not needed when making blank shots.
Film Loading:	Performed by pulling up the rewind crank to open the back cover. Easy film loading with multi-slot take-up spool.
Winding Lever:	Single stroke 120° throw. 15° stand-off. The lever moves to the stand-off position when the camera is turned on.
Film Rewinding:	Performed by the rewind button and crank.
Frame Counter:	S-1-38, automatically resets when back cover is opened.
Dimensions:	Body Only—151 × 96 × 48 ($5^{1}\frac{5}{16}$" × 3⅞" × 1⅞") With FD 50mm f/1.4 Lens—151 × 96 × 100mm ($5^{1}\frac{5}{16}$" × 3⅞" × $3^{15}\frac{}{16}$")
Weight:	Body Only—740gr (1 lb., 10 ozs.) With FD 50mm f/1.4 Lens—1,045gr (2 lb., 5 ozs.)

Subject to change without notice.