● In shooting fireworks, the recommended way to record multiple bursts on the same frame is not by using the multiple exposure button, but by mounting the camera on a tripod, setting the shutter speed dial at "B" and holding the shutter open with a cable release. Set the aperture ring manually to the appropriate f/stop, using the following table:

ASA	25	50	100	200	400
f/stop	5.6	8	11	16	22

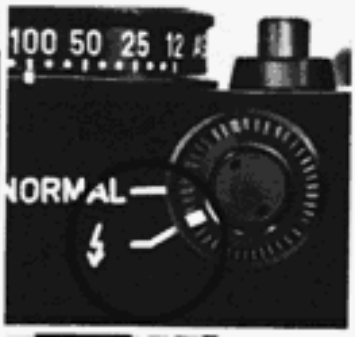
● Interesting motion studies can be made by mounting the camera on a tripod, using color film, and making a triple exposure through a red, a green and blue filter respectively. Select a scene having both stationary and moving parts, such as a seascape with rocks and surf, a crowded street with many moving cars and people, or a tree whose leaves are rustling in the breeze. Set the camera on a sturdy tripod, focus and compose in the normal way. Multiply the film's normal ASA by 3 and set this higher rating on the camera's ASA ring. Put a red filter (R1) over the lens and make the first exposure in the AE mode of operation. Press the multiple exposure button, and operate the winding lever. Replace the red filter with a green filter (G1), making certain not to move the camera at all. Make the second exposure, and again operate the multiple exposure button and winding lever. Replace the green filter with a blue one (CCB12) and make the third exposure. This sounds like an unduly complex method of taking photographs, but the results are well worth the extra effort. The stationary objects in the scene remain motionless and are rendered in their natural colors, whereas the moving objects become a "rainbow" of separate red, green and blue images. In the above method you might have to experiment with manual exposures through the three filters to get perfectly exposed slides. Use the filter factor for each filter in your exposure calculations. Consult your local camera dealer for additional advice.

Notice:

If exact registration is required, multiple exposures should not be made on the first few frames of a roll. Film characteristics can cause slight misregistration (about 0.05mm).

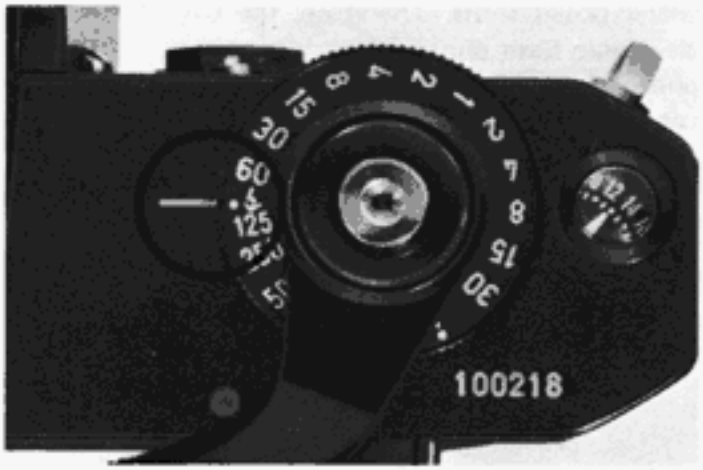
well-exposed shots. Therefore, the CAT System of electronic flash photography is as easy as normal AE photography. For electronic flash units requiring the use of an external PC cord, a sync terminal with a spring-loaded plastic cover is provided on the left end of the camera. When using flash bulbs, a reflector-type holder, such as the folding Canon Flash V3, can be mounted into the flash hot shoe. M, MF, and FP flash bulbs synchronize at 1/15 sec. and below.

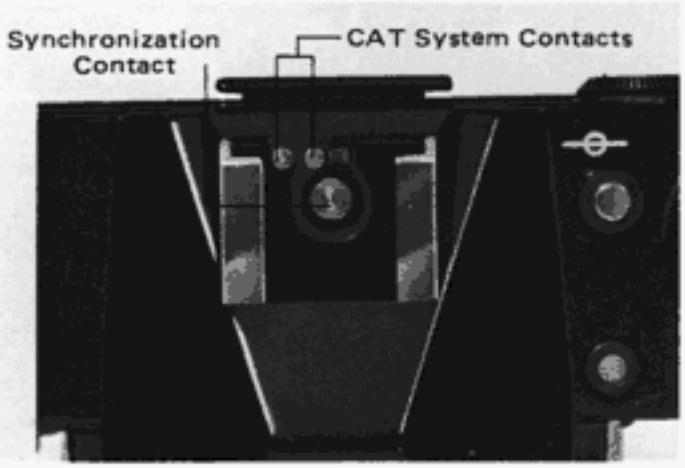
CAT SYSTEM



Taking Pictures by Flash

Even though the Canon EF can take pictures by candlelight, there are certain situations which require using an external light source. In dim light, when you want to stop fast action or take crystal clear snapshots full of vivid colors and fine details, you need flash. If you want to avoid harsh shadows when shooting in bright sunlight, flash can be used as fill-in light. At night, a nearby subject can be illuminated with flash. Since the Canon EF uses a vertically moving metal focal plane shutter, synchronization with electronic flash is possible at all speeds up to and including 1/125 sec. With a flash hot shoe built into the top of the pentaprism, the EF can easily accept any direct mounting electronic flash unit, including the specially-designed Canon Speedlite 133D. This flash unit (with the Flash-Auto Ring A_2 or B_2 attached to the front bayonet of the lens) employs the Canon Auto Tuning (CAT) System to determine the proper exposure in flash photography. 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





Left: Canon FD 35mm f/2 S.S.C., B at f/16, ASA 400.
Right: Canon FD 100–200mm f/5.6 S.C., Double Exposure, each shot at 1/30 sec., AE, ASA 400.

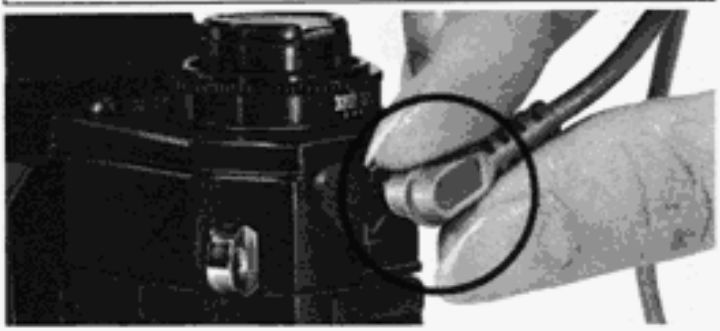
● When using the CAT System with the EF camera, the shutter speed dial **must** be set at "125," the CAT switch set to the " ↯ " position, and the aperture ring set at the 'A' mark. With all other types of flash, the switch may be left at its "NORMAL" position, but the aperture ring has to be set manually.

● At present, the CAT System may be used with four Canon lenses: two standard 50mm lenses, the f/1.4 and f/1.8 and two 35mm wide-angle lenses, the f/2 and f/3.5.

● Normal AE photography may be performed at any time when using the CAT System by returning the CAT switch to the "NORMAL" position.

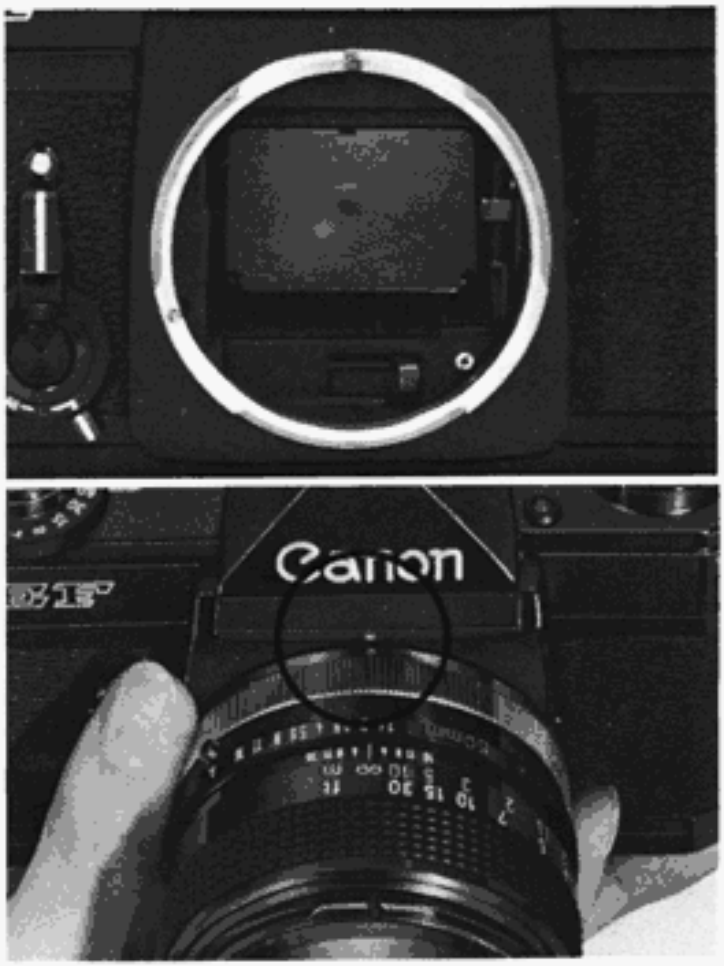
● Two electronic flash units, one direct-mounting type inserted in the flash hot shoe and another using a PC cord plugged into the sync terminal, cannot be used simultaneously on the EF. When a PC cord is plugged into the sync terminal, the flash hot shoe is automatically disconnected.

● After using the CAT System for flash photography, turn the camera off and return the CAT switch to the "NORMAL" position. If you leave the switch set to the ↯ position and turn the camera back on, the automatic exposure setting for your next flash shots will be incorrect.



M Changing Lenses

One of the nice features of an SLR is its lens interchangeability. An SLR is not really a **SINGLE LENS** reflex at all, because it can use many lenses of various focal lengths. In the design of an SLR, the type of lens mount and its construction are very important factors. The EF camera uses the Canon Breech-Lock Mount first developed in 1959. This unique mount combines the virtures of sturdiness, rugged dependability and fast operation. The mount holds the lens securely in place with absolutely no wobble or play and insures that the lens is always exactly the same distance from the film plane. Changing lenses is a rapid procedure requiring a little more than one-eight of a turn of the breech-lock ring on the back of the lens. To remove the lens from the camera, turn the breech-lock ring counterclockwise until it stops and pull the lens away from the camera body. Mounting another lens on the camera body is a simply procedure. Just align the red dot on the breech-lock ring of the lens with the red dot located under the name "Canon" engraved on the front of the camera's pentaprism. Push the back of the lens into the camera body and turn the breech-lock ring clockwise until it is tight.



- When the camera body and lens are stored separately, a rear lens cap attached to the back of the lens and a body cap on the camera are recommended.
- Avoid direct sunlight when changing lenses.
- On Canon FD lenses without an AE lock pin and on all FL and R lenses, make sure the breech-lock ring is turned to its full counterclockwise position (the red dot on the ring is opposite the focusing index mark) before mounting the lens.

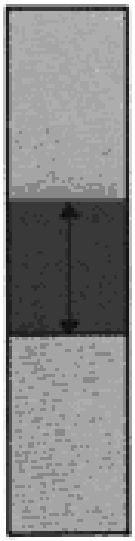
Canon FD 24mm f/2.8 S.S.C., 1/1000 sec., AE, ASA 400.

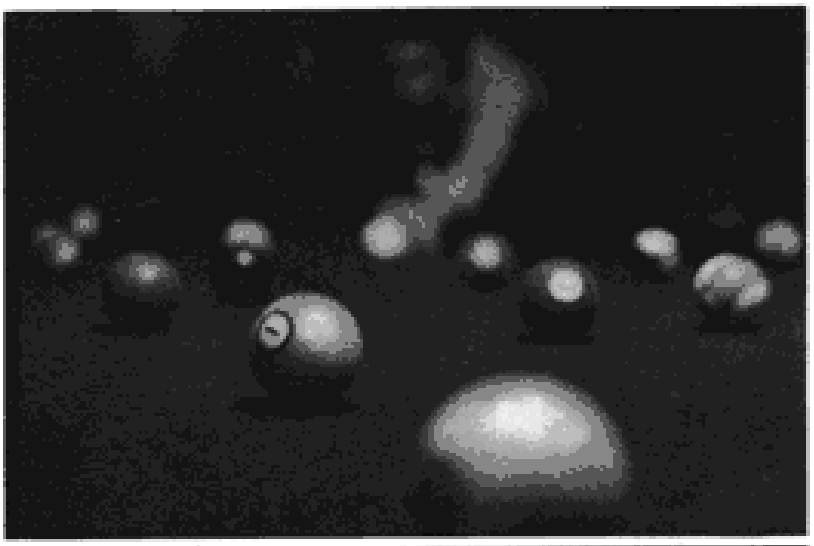
N Using the Self-Timer

The self-timer on the EF provides a delay of approximately 10 sec. from the time the shutter button is pressed until the picture is actually taken. The self-timer can be used in place of a cable release to gently and smoothly release the shutter when slow speeds are used. Also, it allows the photographer to include himself in his own pictures. Depress the self-timer lock button, located on the front right side of the camera, while turning the multi-purpose lever counterclockwise to unlock it. Cock the lever by continuing to turn it counterclockwise until it stops. Activate the self-timer by pressing the shutter button.

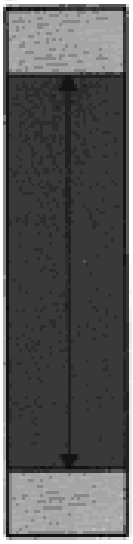
- The camera is usually placed on a tripod or other sturdy support when using the self-timer.
- When taking a self-portrait, the exposure is automatically determined at the instant the shutter button is pressed and not when the picture is actually taken. Therefore, do not stand directly in front of the lens, as the Variable Aperture AE control might be fooled into producing an improper exposure. To prevent stray light from entering the viewfinder from the rear and possibly affecting the meter reading, it is a good idea to cover the eyepiece with your hand just before pressing the shutter button. Or you can take off the rubber eyecup and close off the viewfinder complelely by slipping the plastic eyepiece/hot shoe cover over the eyepiece.
- After using the self-timer, the multi-purpose lever should be reset to its vertical, locked position.

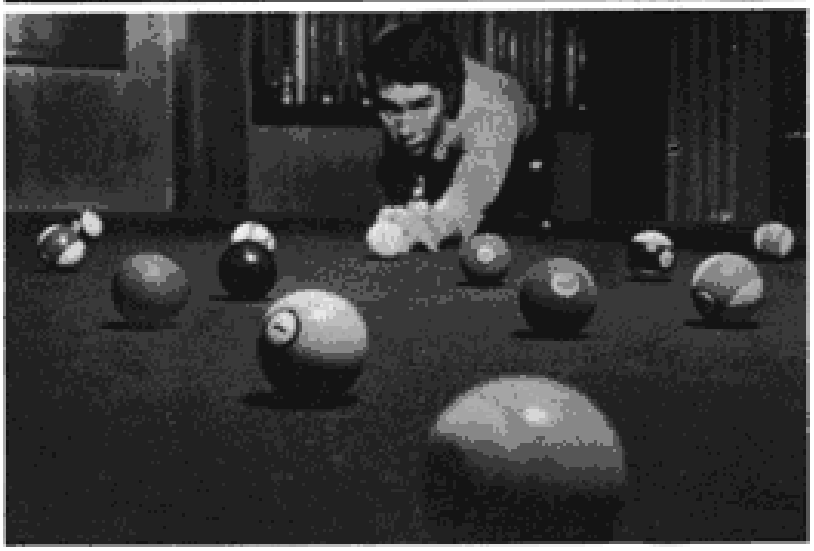
f/4





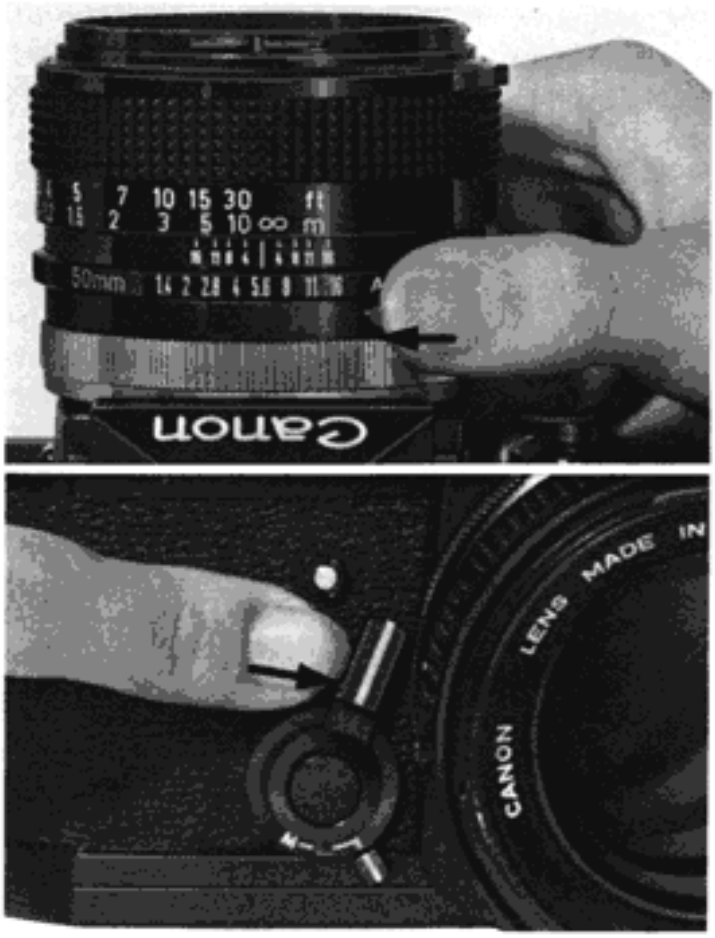
f/16





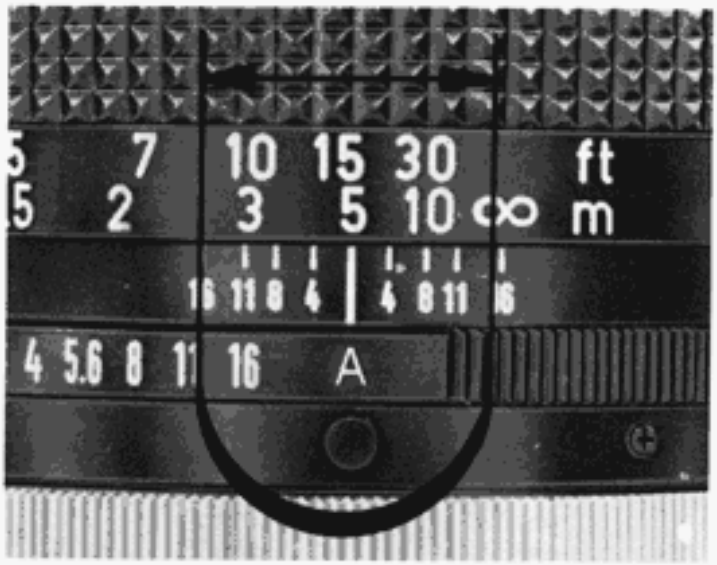
Previewing Depth-of-Field

If you focus on a particular subject and take a picture, some objects in front of and behind the main subject will be "in focus" in the final photograph. The distance between the nearest and farthest objects, which appear sharp, is called "depth-of-field." Three factors influence depth-of-field: the f/stop at which the picture is taken, the focal length of the lens, and the focused distance between the camera and subject. Depth-of-field decreases as the lens is opened-up. At f/1.4, the maximum aperture of the standard 50mm lens, depth-of-field is very shallow permitting quick and easy focusing on the main subject. At the same f/stop and focused distance, lenses with short focal length (wide-angle lenses) have inherently greater depth-of-field than long lenses in the telephoto range. Also, at very close distances between the camera and subject, any lens has shallow depth-of-field. To preview depth-of-field in the viewfinder of the EF, follow this procedure: First operate the winding lever to cock the shutter. After you have focused and composed your picture in the normal way, check the aperture scale in the viewfinder and note the f/stop selected by the camera. Unlock the aperture ring and manually set it at this f/stop. Push the multi-purpose lever in toward



the lens until it stops. The viewfinder screen will darken offering you a visual preview of the depth-of-field. Another way of determining the depth-of-field is to check the depth-of-field scale engraved on the lens barrel. The f-numbers appear at both sides of the focusing index mark indicating the near and far limits of depth for any given focused distance and lens opening. For example, with the standard 50mm lens focused at 15ft. (5m), depth-of-field at f/16 extends from 8ft. (2.5m) to infinity (∞). This method is particularly useful at small f/stops, when a visual preview of the depth-of-field becomes difficult, because the viewfinder screen gets too dark.

● Selective focus is a creative technique used by many photographers to throw a distracting or unimportant background (or foreground) out of focus. Try using a slow film (ASA 100 or below) and a normal or telephoto lens. Focus on a subject close to the camera. Then choose a fast shutter speed which will permit the camera's AE control to select a large f/stop, such as f/1.4 – 4.



● For those shots which demand almost unlimited depth-of-field, where every object in the photograph appears sharp, use your standard 50mm lens (or better yet, a wide-angle) and focus about half-way in-between the nearest and farthest object. Adjust the shutter speed dial until the meter needle in the viewfinder points to f/16. If necessary, mount the camera on a tripod when slow shutter speeds are required.

VII INTERCHANGEABLE LENSES

INTERCHANGEABLE LENSES

FD SERIES (FOR AE OPERATION)

	Lens	Angle of View	Minimum Aperture	Closest Focusing Distance (m)	(ft.)	Filter Size (mm)	Hood	Length (mm)	(ins.)	Weight (g)	(lbs.)	(ozs.)
Full-Frame Fish-Eye	Fish-Eye FD 15mm f/2.8 S.S.C.	180°	f/16	.3	1	Four Built-in	Built-in	60.5	2-3/8	485	1	1 1/8
Super Wide-Angle	FD 17mm f/4 S.S.C.	104°	f/22	.25	.9	72	None	56	2 3/16	450	1	0
	FD 20mm f/2.8 S.S.C.	94°	f/22	.25	.9	72	None	58	2 1/4	345		12
	FD 24mm f/1.4 S.S.C. ASPHERICAL	84°	f/16	.3	1	72	–	68	2-11/16	500	1	10
	FD 24mm f/2.8 S.S.C.	84°	f/16	.3	1	55	+BW-55B	52.5	2-1/16	330		11-1/2
Wide-Angle	FD 28mm f/2 S.S.C.	75°	f/22	.3	1	55	+BW-55B	61	2-3/16	343		12-1/8
	FD 28mm f/2.8 S.C.	75°	f/22	.3	1	55	BPW-55B	49	1-15/16	280		10
	*FD 35mm f/2 S.S.C.	64°	f/16	.3	1	55	+BW-55A	60	2-3/8	370		13
	*FD 35mm f/3.5 S.C.	63°	f/22	.4	1.5	55	+BW-55A	49	1-15/16	238		8-1/3
Standard	*FD 50mm f/1.4 S.S.C.	46°	f/16	.45	1.5	55	+BS-55	49	1-15/16	305		11
	*FD 50mm f/1.8 S.C.	46°	f/16	.6	2	55	+BS-55	44.5	1-3/4	255		9
	FD 55mm f/1.2 S.S.C.	43°	f/16	.6	2	58	+BS-58	52.5	2-1/16	510	1	2
	FD 55mm f/1.2 S.S.C. ASPHERICAL	43°	f/16	.6	2	58	+BS-58	55	2-3/16	575	1	4
Macro	FD 50mm f/3.5 S.S.C. Macro with Life Size Adapter	46°	f/22	20.5 (cm)	8.4 (ins.)	55	None Necessary	50.5	2-5/16	310		11
	FD 100mm f/4 S.C. Macro with Extension Tube FD 50	24°	f/22	45	1.5	55	–	112	4-7/16	530	1	3
Short Telephoto	FD 85mm f/1.2 S.S.C. ASPHERICAL	28°30'	f/16	3.3	1	72	–	71	2-13/16	756	1	11
	FD 85mm f/1.8 S.S.C.	29°	f/16	.9	3	55	+BT-55	57	2-1/4	430		15
	FD 100mm f/2.8 S.S.C.	24°	f/22	1	3.5	55	+BT-55	57	2-1/4	360		12-1/2
Telephoto	FD 135mm f/2.5 S.C.	18°	f/22	1.5	5	58	Built-in	91	3-9/16	630	1	6
	FD 135mm f/3.5 S.C.	18°	f/22	1.5	5	55	+BT-55	83	3 1/4	465	1	0
	FD 200mm f/2.8 S.S.C.	12°	f/22	1.8	6	72	Built-in	140.5	5-1/2	700	1	8
	FD 200mm f/4 S.S.C.	12°	f/22	2.5	8	55	Built-in	133	5-1/4	675	1	7
	FD 300mm f/2.8 S.S.C FLUORITE with Extender 2X	8°15'	f/22	3.5	11.5	Exclusive	Built-in	230	9-1/16	1900	3	4
	FD 300mm f/5.6 S.C.	8°	f/22	4	13	58	Built-in	133	6-13/16	1125	2	7-1/2
	FD 400mm f/4.5	6°30'	f/22	4	13.2	Exclusive	Built-in	282	11-1/8	1300	2	14

Zoom	FD 35–70mm f/2.8–3.5 S.S.C.	64°–35°	f/22	+++ 1	3.5	58	Exclusive	120	4-3/4	575	1	4
	FD 80–300mm f/4.5 S.S.C.	28°–8°	f/22	2.5	8	Series IX	Built-in	243.5	9-9/16	1695	3	7-1/2
	FD 100–200mm f/5.6 S.C.	24°–12°	f/22	2.5	8	55	Built-in	173	6-13/16	765	1	11

FL AND MANUAL SERIES (FOR STOPPED-DOWN METERING)

Type	Lens	Angle of View	Minimum Aperture	Closest Focusing Distance (m)	(ft.)	Filter Size (mm)	Hood	Length (mm)	(ins.)	Weight (g)	(lbs.)	(ozs.)
Circular Fish-Eye	Fish-Eye 7.5mm f/5.6 S.S.C.	180°	f/22	Fixed Focus		Six Built-in	None	62	2-7/16	380		13-1/2
Tilt and Shift	TS 35mm f/2.8 S.S.C.	64°/78°	f/22	.3	1	58	Exclusive	74.5	2-15/16	545	1	3
Super Telephoto	**FL 400mm f/5.6	6.2°	f/32	4.5	15	++48	Exclusive	338	1-15/16	3,600	8	9
	**FL 600mm f/5.6	4.1°	f/32	10	35	++48	Built-in	448	5-5/8	5,000	11	0
	**FL 800mm f/8	3.1°	f/32	18	60	++48	Built-in	506	8	5,390	11	13
	** FL 1200mm f/11 S.S.C.	2.1°	f/64	40	130	++48	Built-in	853	9.0/16	6,200	13	11
Artificial Fluorite Telephoto	FL 300mm f/5.6 FLUORITE	8°	f/22	4	13	58	Built-in	168	6-11/16	850	1	14
	FL 500mm f/5.6 FLUORITE	5°	f/22	10	33	95	Built-in	300	11-13/16	2,100	5	15

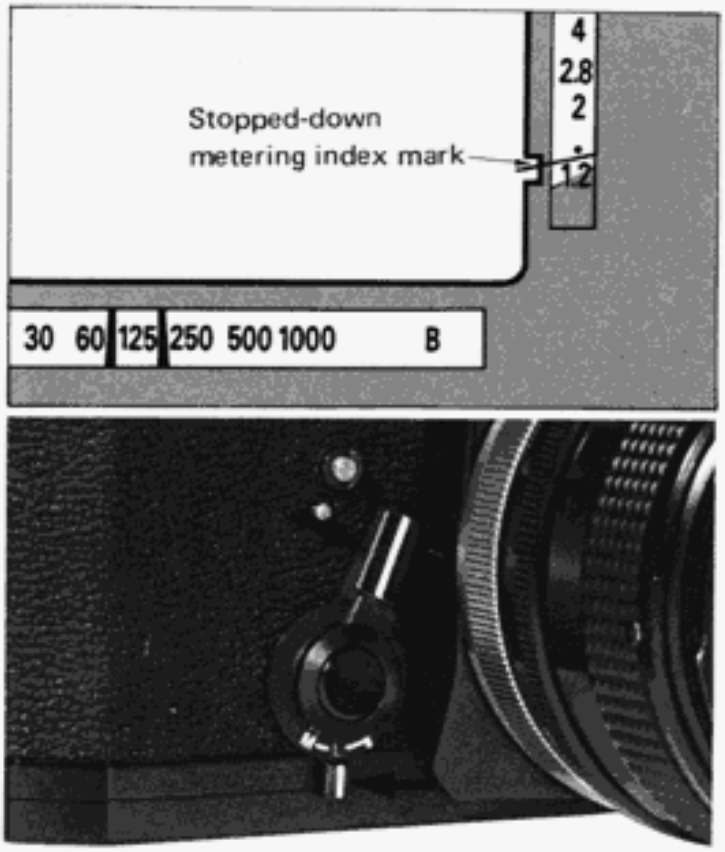
* Equipped with a coupling pin for Canon Automatic Tuning System.
** Front component interchangeable type. Focusing adapter (2 elements, 1 group, FL automatic diaphragm, with A-M ring)
+ FD lens hoods are of bayonet mount.
++ Filter is of insertion type with holder.
+++ Macro focusing capability to .3m (11in.) from the film plane.

Subject to change without notice.

Taking a Stopped-Down Meter Reading

When you use Canon FL lenses or interpose bellows units, extension tubes etc. between the lens (either FL or FD lens) and the camera, it is necessary to take a stopped-down meter reading. First, operate the winding lever to cock the shutter. Unlock the aperture ring from the 'A' mark and push the multi-purpose lever in toward the lens until it stops. The method then is not to check that the needle on the right of the viewfinder screen is in the white part of the scale, but to bring the needle, by operation of the aperture and/or shutter speed control to the center of the index mark in the viewfinder. Release the multi-purpose lever and press the shutter button to take a perfectly exposed photograph.

- During stopped-down metering at small apertures, it is very difficult to focus properly, because depth-of-field is very deep, and the viewfinder screen is dark. Therefore, focus first before taking a stopped-down reading.
- Stopped-down metering should not be used with FD lenses (except in the case of interposing accessories such as bellows units between the lens and the camera) since the Canon EF and its FD lenses are designed for automatic exposure with light measurement done at the maximum aperture.



The above photo shows the lever locked to stopped-down position for your convenience.

- On manual lenses and accessories, it is not necessary to push the multi-purpose lever in toward the lens. Simply adjust the f/stop or shutter speed until the meter needle is aligned with the stopped-down metering index mark. When using manual accessories between the camera body and an FD lens, lock the automatic/manual aperture lever in the manual position before installing the lens. On all FD lens except one, this is accomplished simply by pushing the largest lever on the back of the lens counterclockwise until it stops and locks into place. On the FD 50mm f/1.8 S.C. lens, the lever must be held in place by moving the manual lock lever to the "L" position.
- You cannot make a meter reading with the 7.5mm fish-eye lens mounted on the EF, because the aperture scale is not visible. Use a hand-held meter instead.

FD 50mm f/1.4 S.S.C.

Automatic/Manual
Aperture Lever

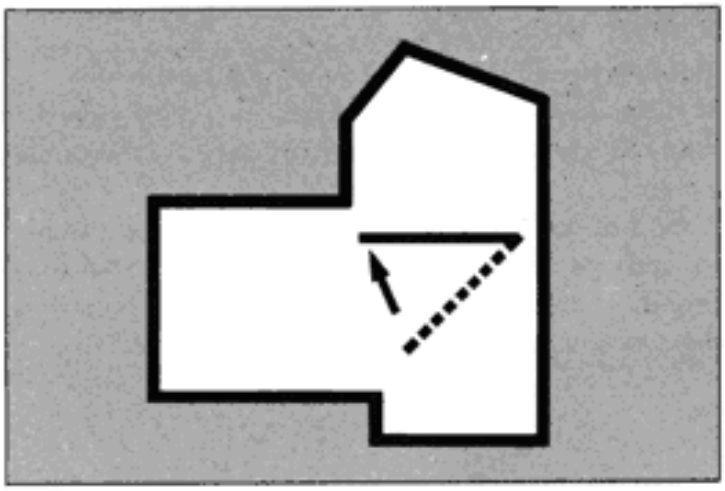
FD 50mm f/1.8 S.C.

Automatic/Manual
Aperture Lever

Manual Lock Lever

Q Locking the Mirror Upward

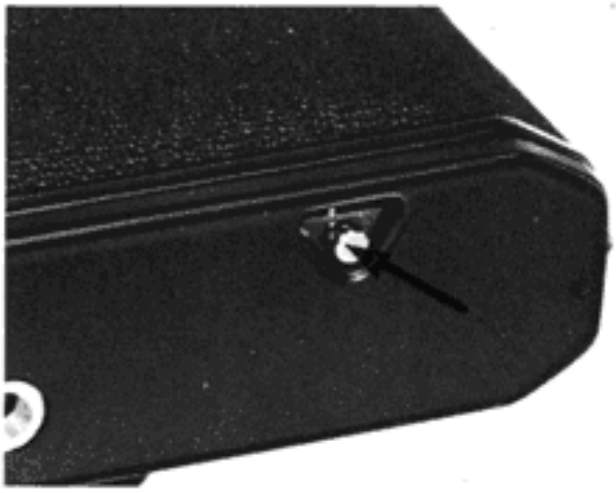
Whenever it is imperative to completely eliminate all camera movement, you can lock the mirror in the "up" position before taking a picture. This is particularly necessary when the EF is mounted on a microscope or a bellows unit, where the slightest vibration of the camera is magnified many times in the final photograph. After you have focused, lock the multi-purpose lever in its stopped-down position and take a meter reading. Then, turn the L-M lock lever to the orange "M" position, which will flip the mirror up and lock it there. Take the shot by using a cable release to trip the shutter.

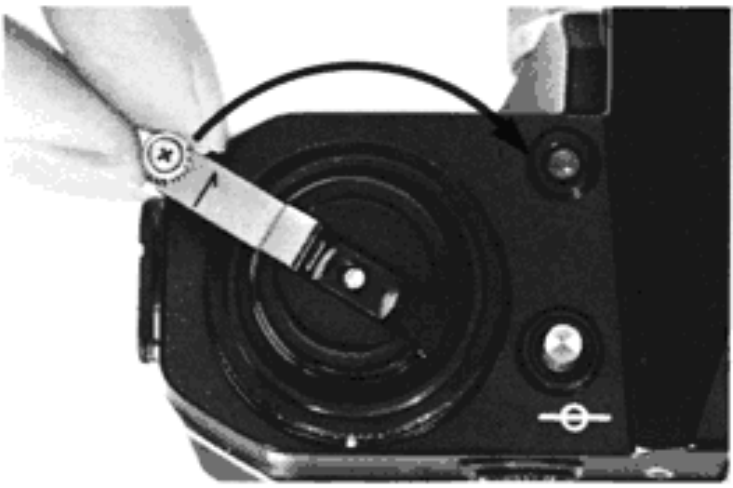


R Rewinding the Film

The winding lever will stop suddenly before the end of its stroke when you have reached the end of the roll of film. Don't try to complete the stroke, as the film sprocket holes may be torn. To rewind the film, push in the rewind button located on the bottom of the camera. Next, fold out the crank from the rewind knob and turn it in the direction of the small arrow until you feel the tension in the film lessen. This indicates that the film has left the multi-slot take-up spool. Turn the rewind crank one or two more revolutions to completely rewind the tip of the film leader back into the cartridge. Then, pull up the rewind knob to open the camera back and lift out the cartridge.

- Avoid direct sunlight when unloading the film.
- Keep your exposed cartridges in a cool, dry and shady place and have them processed as soon as possible.
- Do not leave the same roll of film in your camera for months on end, since black and white film may become fogged, and color film may experience a definite color-shift.

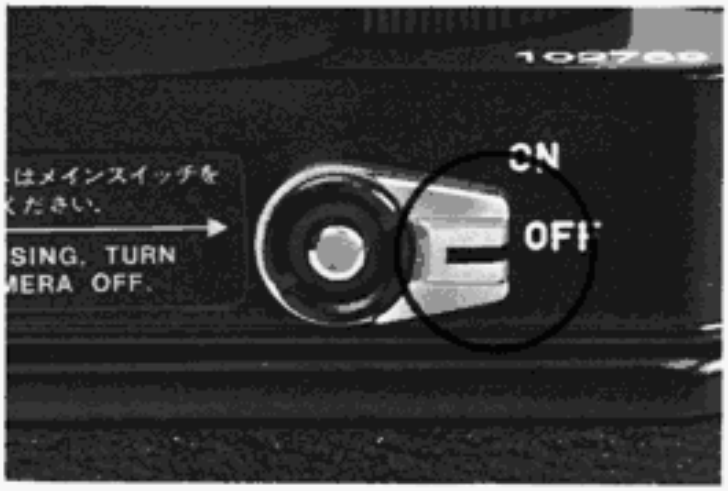




Turning the Camera Off

After you finish using the Canon EF, you should turn off the battery current flowing to the camera's electrical circuits. Move the ON/OFF switch to the "OFF" position, and push the winding lever from its stand-off position back in toward the body to its locked position.

Reminder: To prevent unnecessary current drain from the batteries, be sure to turn the camera off after you are finished taking pictures.



IX SPECIFICATIONS

Type: 35mm single-lens-reflex AE (Automatic Exposure) camera with focal plane shutter.

Format: 24 x 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: Split-image/microprism surrounded by ground glass with Fresnel screen.

Field of View: 92% vertical and 93% horizontal coverage of actual 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. —1/1000 sec. and B in 11 steps (mechanically controlled); 30 —1 sec. in 6 steps (electronically controlled).

Shutter Speed Dial:

B, 1—1/1000 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 1/1000 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.

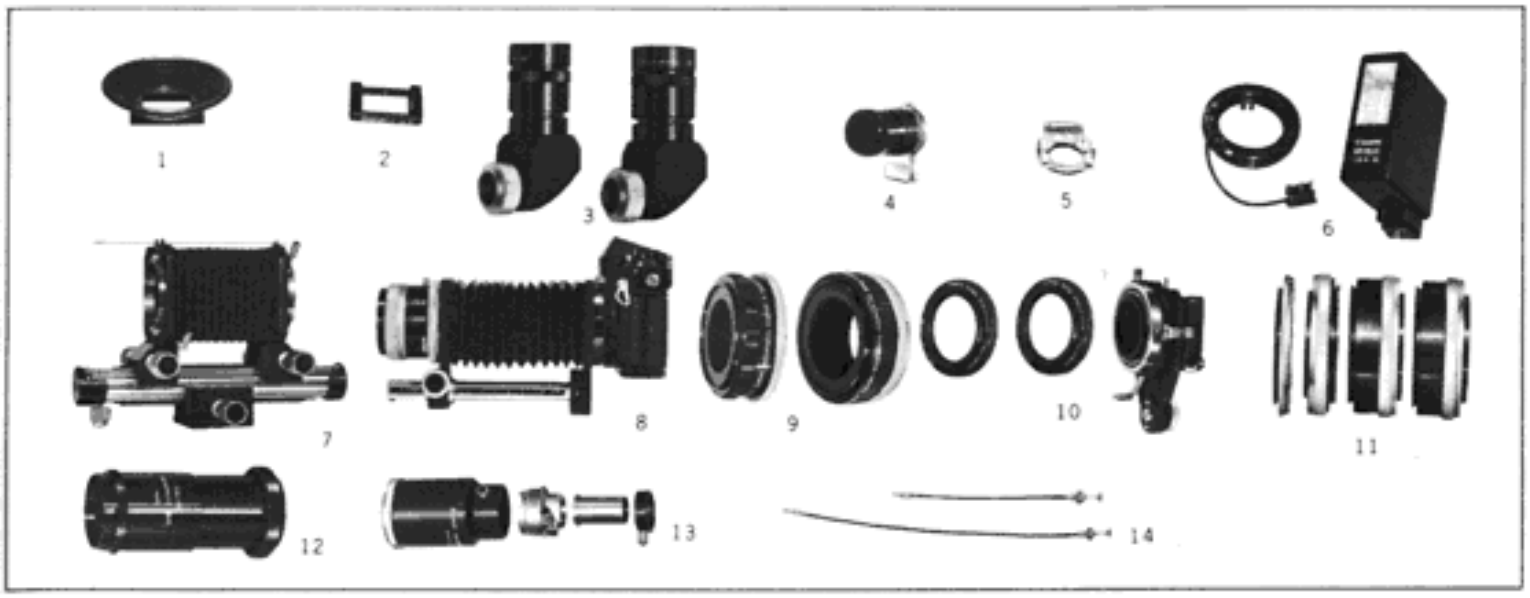
Dimensions: Body Only — 151 x 96 x 48mm. (5-15/16" x 3-3/4" x 1-7/8").
With f/1.4 Lens—151 x 96 x 100mm. (5-15/16" x 3-3/4" x 3-15/16").

Weight: Body Only—740gm (1 lb., 10 ozs.).
With f/1.4 Lens— 1045gm (2 lbs., 5 ozs.).

Subject to change without notice.

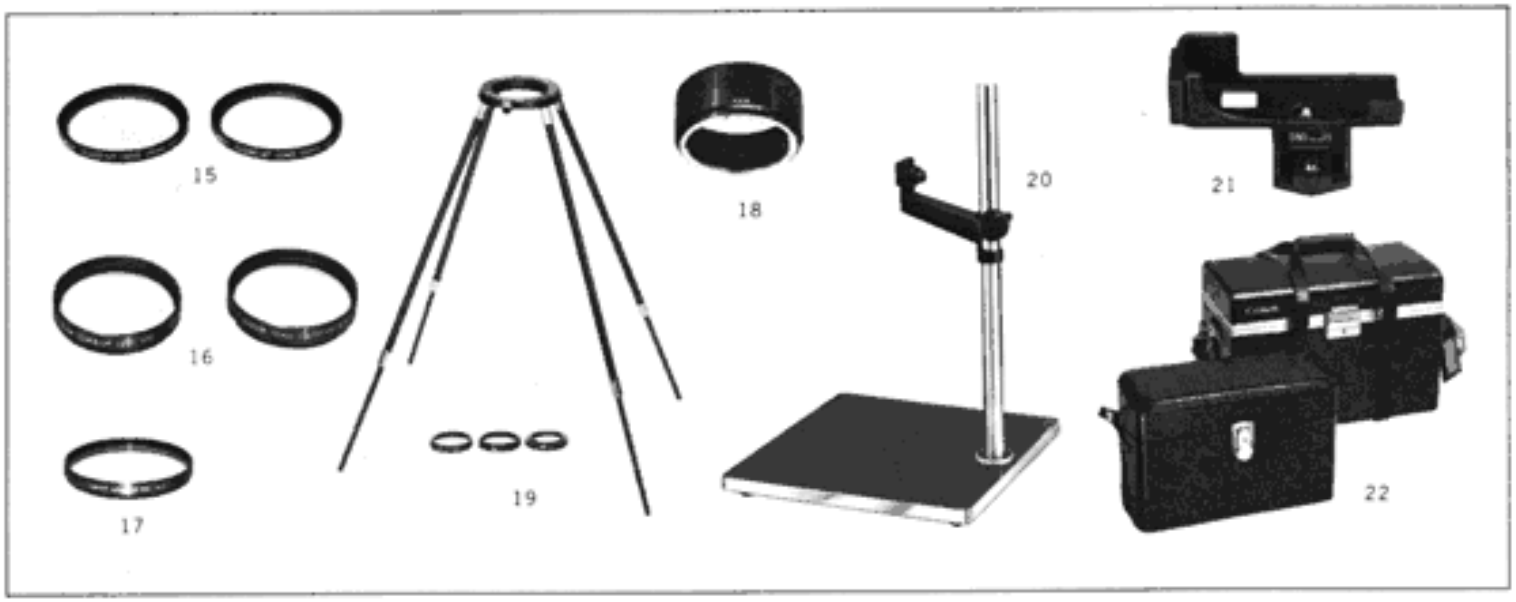
VIII ACCESSORIES

Practically anything you can conceive, your Canon EF can photograph. With a comprehensive line of accessories to choose from, you can take pictures of crystal structures by attaching the camera directly to a microscope via the Photomicro Unit F. Use the Magnifier S (plus Adapter S) over the eyepiece to enlarge the center microprism for critical focusing. You can duplicate your favorite color slides by using the Bellows FL, the FD 50mm f/3.5 S.S.C. Macro lens, and the Slide Duplicator. Or you can easily copy pages from books or magazines with the camera securely mounted on either of Canon's two copy stands — the larger Copy Stand 4, or the less expensive Handy Stand F. The Angle Finder A2 or B can be attached to the camera's eyepiece for convenient viewing when the camera is not at eye level. Close-up focusing may be accomplished in a number of ways, either by using a macro lens, by using Canon Close-up Lenses, by using the Extension Tubes FL 15 or FL 25, by using the Bellows FL or Bellows M, or by using the standard 50mm lens in the reverse position with the aid of the Macrophoto Coupler FL55. If you wear eyeglasses, there are four strengths of Dioptric Adjustment Lenses for eyesight correction. Canon also makes its own electronic flash units, cable releases, scores of filters and two gadget bags.



1. Eyecup
2. Dioptric Adjustment Lens
3. Angle Finders A2 and B
4. Magnifier S
5. Magnifier Adapter S
6. Canon Speedlite 133D and Flash-Auto Ring A_2 or B_2
7. Bellows FL
8. Bellows M
9. Macrophoto Coupler FL 55 and FL 58
10. Slide Duplicator
11. Extension Tube M Set
12. Microphoto Hood
13. Photomicro Unit F
14. Canon Release 30 and 50

ACCESSORIES



15. 58mm Close-up Lenses
16. 55mm Close-up Lenses
17. 55mm/58mm Filter
18. Lens Hood
19. Handy Stand F
20. Copy Stand 4
21. Camera Holder F2
22. Gadget Bag 4 and G-1

X PROPER CARE OF THE CAMERA

A Cleaning the Camera and Lens

Use a camel hair or blower brush to clean the film cartridge chamber and the area around the multi-slot take-up spool before loading film into the camera. Also, use the brush to whisk away dirt and dust from the eyepiece and the front and rear surfaces of the lens. If salt water spray or fingerprints inadvertently get on the lens, they should be cleaned off as soon as possible using commercially-available cleaning tissue and a good quality lens cleaning liquid. Put one or two drops of cleaning liquid on the tissue, and lightly wipe the lens in a circular motion from the center toward the outer edges. Do not use a handkerchief or other cloth, as the lens elements may be permanently scratched. If you cannot remove dust particles from the surface of the instant-return mirror simply by brushing, you should not attempt to clean the mirror yourself with tissue and cleaning liquid. Only an authorized serviceman should undertake this delicate task. Actually dirt on the mirror has absolutely no effect on the quality of your photographs.

B Storing the Camera

If the camera will not be used for an extended length of time, leave the shutter uncocked and remove the mercury batteries. Take the camera out of its eveready case and wrap it up in a clean, soft towel together with silica gel or some other desiccant to keep it dry.

C Using the Camera in Extremely Cold Conditions

In severely cold weather (down to -20°C or -4°F), you should keep the Canon EF inside your coat and expose it to the outer air only when you are ready to take a picture. This procedure is necessary primarily to keep the mercury batteries warm. Since the film gets brittle at low temperatures, perform film winding and rewinding as slowly as possible.

D Having the Camera Serviced

You should never attempt to disassemble or repair the Canon EF yourself! If the camera ceases to function properly, it should be serviced by an authorized Canon repair facility. See your local camera dealer for further details.

Fold out both front and back nomenclature pages for easy reference when reading the instructions.

FILTERS

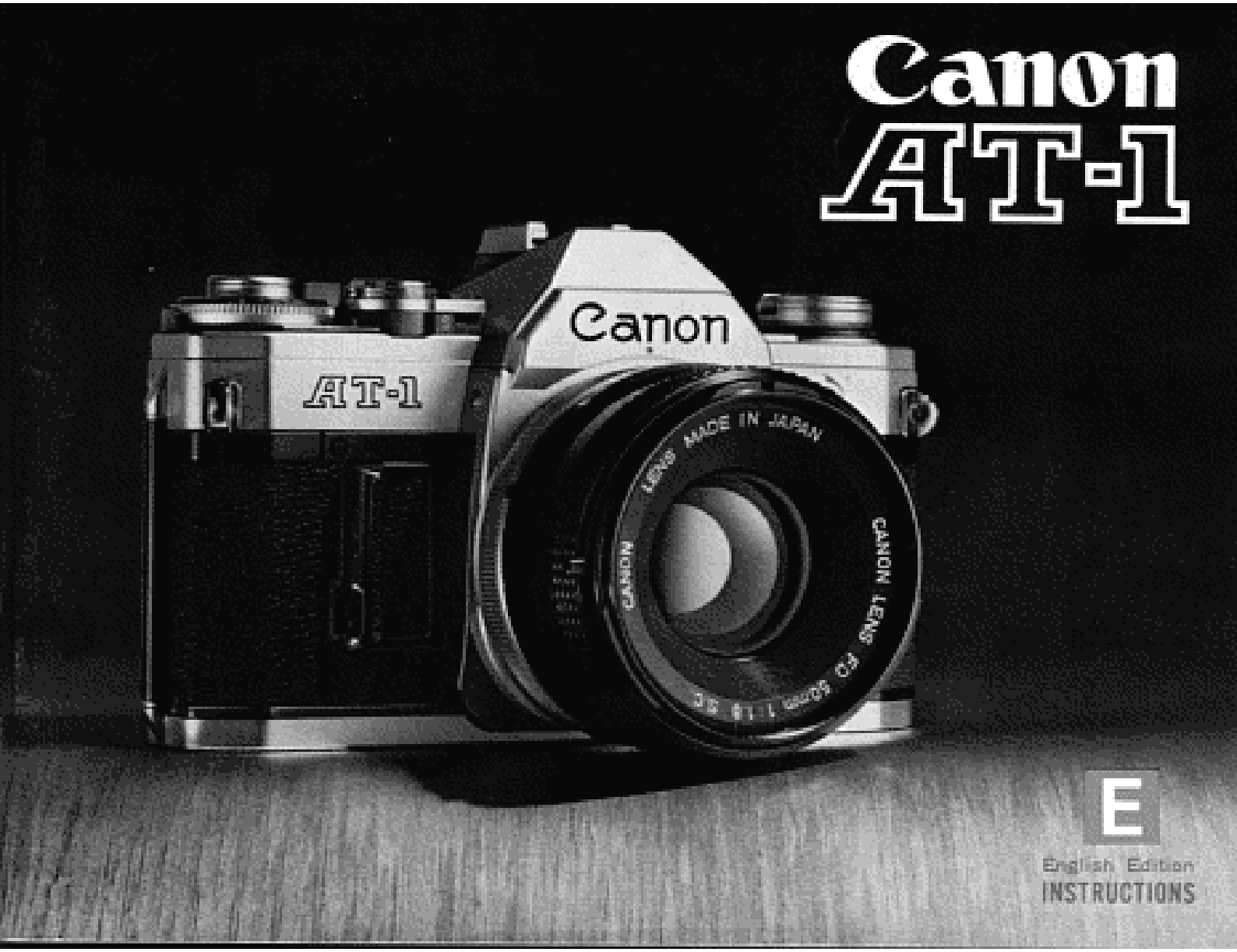
CANON FILTERS (Screw-in type)

For Black and White Film			For Color Film		
Type	Factor	Use and Effect	Type	Factor	Use and Effect
*UV	1X	Recommended especially for high mountain areas and where ultra-violet rays are strong.	Sky-light	1X	For distant snow or mountain scenes on an overcast day and for open shade photos under a clear sky to reduce excessive bluish results.
Y1	1.5X	For landscapes and portraits with low sun. Darkens the blue of the sea and sky and brings out the whiteness of the clouds.	CCA4 (Amber)	1.5X	Used with daylight type film for shooting in cloudy, or rainy weather or in the shade. Eliminates bluish tinge.
**Y3	2X	For landscapes and still-life. This filter is similar to the Y1, but the effects are stronger.	CCA8 (Amber)	2X	Used with daylight type film for shooting in cloudy or rainy weather or in the shade. Used with tungsten type film for shooting in the morning or evening.
G1	2X	For portraits against the sky. Natural reproduction of foliage.	CCA12 (Amber)	2X	Used with tungsten type film for shooting in sunlight to obtain normal color tones.
**01	3X	For haze penetration, contrast in marine scenes, distant landscapes, aerial photography and sky/cloud contrast.	CCB4 (Blue)	1.5X	Used with daylight type film for shooting in the morning or evening to eliminate reddish tinge.
***R1	6X	For distant landscapes. Exaggerated sky/cloud contrast with a very dark sky. Gives dramatic and interesting effects.	CCB8 (Blue)	2X	Used with daylight type film for shooting at night or indoors with clear flash bulbs.
*ND-4	4X	Neutral density filters are used only to control exposure and have no effect on colors.	CCB12 (Blue)	3X	Used with daylight type film for shooting under artificial lighting to obtain normal color rendition.
*ND-8	8X	Especially used with high speed black and white film in bright daylight.			

* Also can be used with color film
** For color infrared film.
*** For black and white infrared film.

CONTENTS

Canon AT-1



E

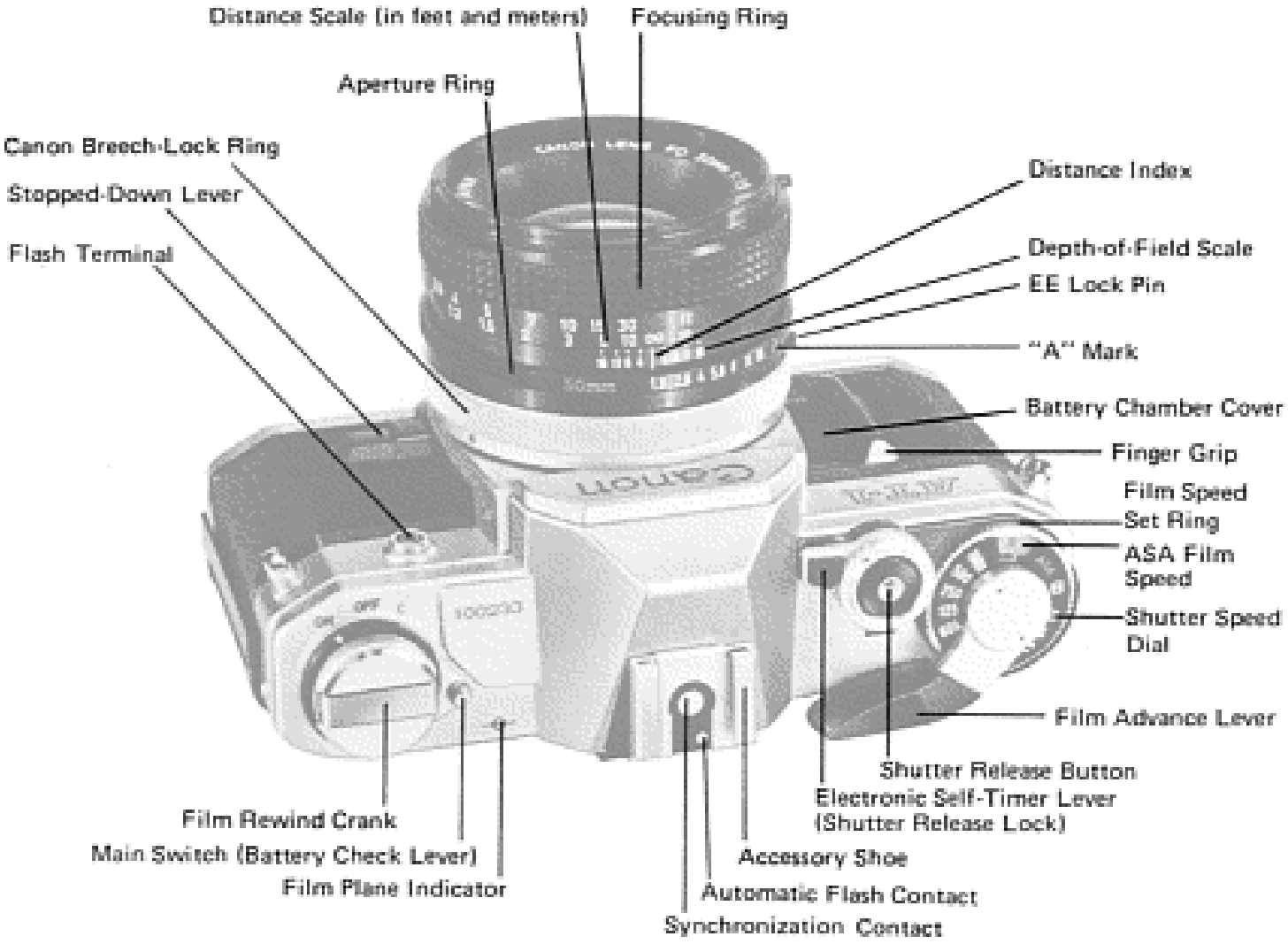
English Edition

INSTRUCTIONS

Congratulations upon the purchase of your new Canon AT-1, a remarkably advanced camera that reflects the latest trends in SLR photography. As a flawless product of Canon technology, its vast potential as a rewarding means of expression is assured for years to come by an incomparable system of fine lenses and accessories.

At an extremely reasonable price, the Canon AT-1 offers you TTL Central Emphasis Metering plus many of the superb advantages enjoyed by users of its all-electronic counterpart, the Canon AE-1. Its fabulous electronic system consisting of the Power Winder A for continuous rapid-fire shooting, the Speedlite 155A for perfectly synchronized flash shooting and the Data Back A for automatic data imprinting give the AT-1 unsurpassably versatile performance. Similarly, you have the entire system of superior FD interchangeable lenses at your disposal which enable metering at full aperture. But perhaps most conspicuous is the absence of mechanical noise that is characteristic of conventional SLRs. The AT-1 incorporates a wonderfully silent electromagnetic release, in addition to a 10-second electronic self-timer, for perfectly vibrationless operation. Moreover, you will surely find the Canon AT-1, with its extremely compact and lightweight body to be one of the easiest to operate cameras ever.

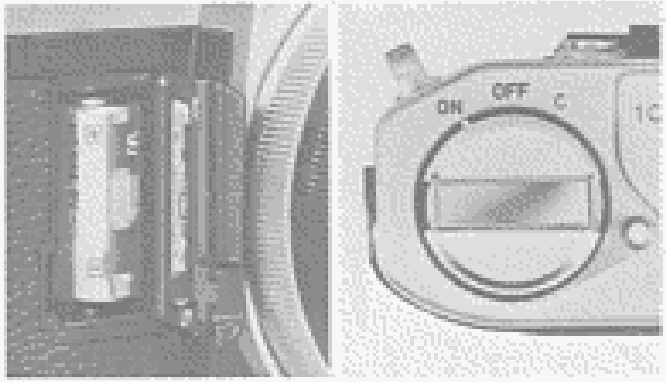
In order to derive full benefit from the many features the AT-1 affords, please take the time to read and understand the following instructions. Canon remains always ready to lend you its support in the future with a system of lenses and accessories unequaled the world over.



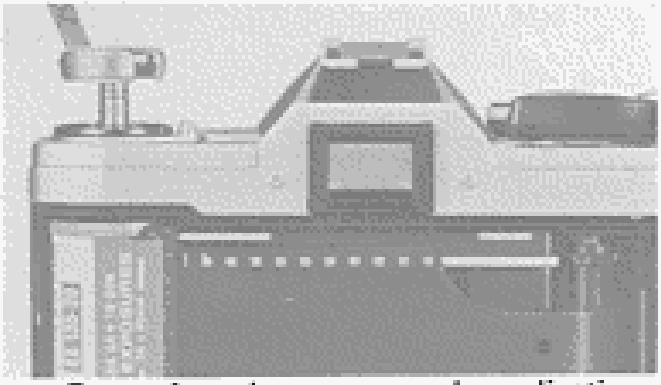
While reading the instruction booklet, unfold this flap and the flap on the back cover to facilitate your understanding of the instructions.

PICTORIAL OUTLINE FOR USING THE CAMERA

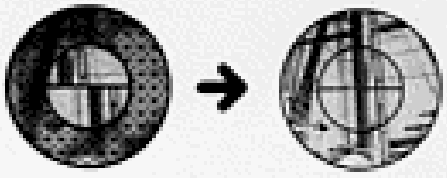
1 Load the battery.
Turn the main switch on.



2 Load the film.

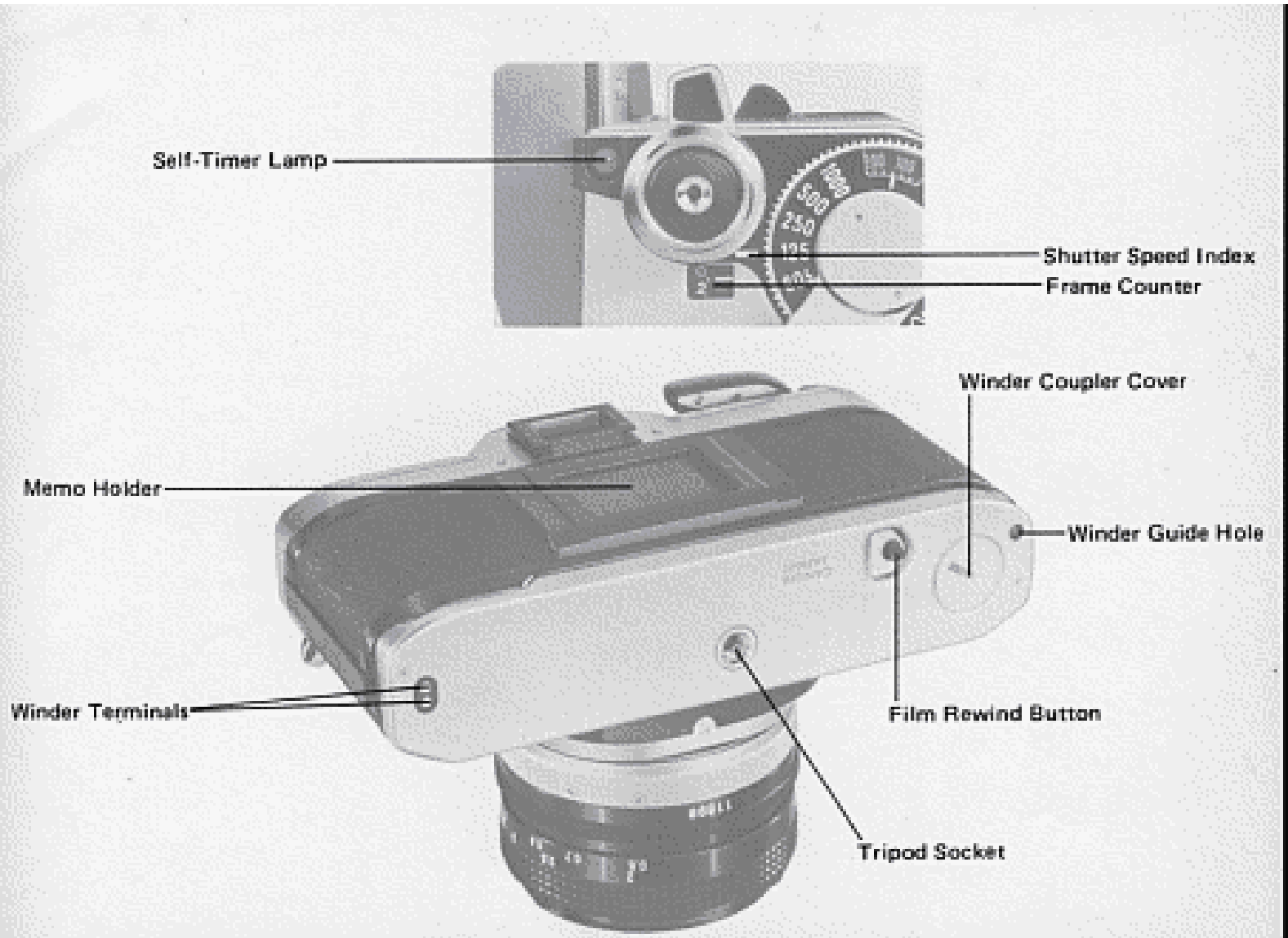


5 Look into the viewfinder.
Compose the picture and focus.

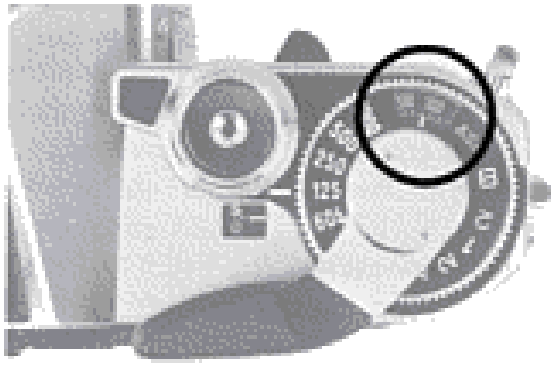


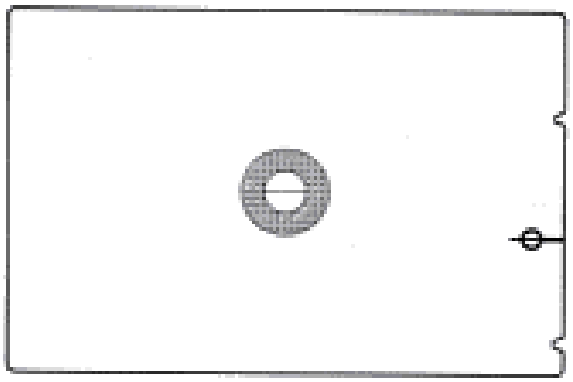
Out of Focus → In Focus

6 Determine the exposure by adjusting the shutter speed dial and the aperture ring.

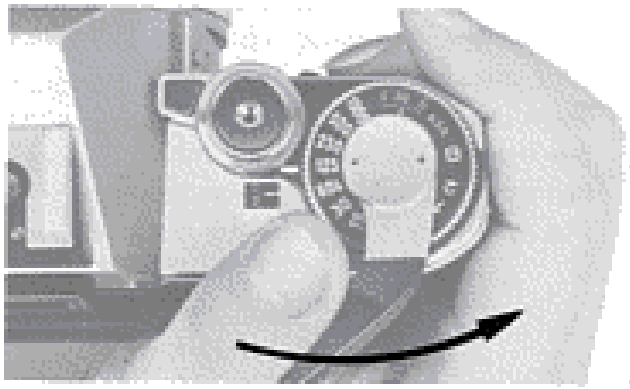

Self-Timer Lamp
Shutter Speed Index
Frame Counter
Winder Coupler Cover
Memo Holder
Winder Guide Hole
Winder Terminals
Film Rewind Button
Tripod Socket

3 Set the ASA film speed.





4 Advance the film.



7 Press the shutter button.

f/stop, and the amount of light is automatically controlled for correct flash exposure, adjusting the shutter speed to 1/60 of a second automatically.

Back Cover: The camera's back cover has a memo holder for your convenience. The cover can be removed for attaching the Canon Data Back A.

Film Loading: Performed by pulling up the rewind crank to open the back cover. Easy film loading with multi-slot take-up spool.

Film Advance Lever: Single stroke with 120° throw and 30° stand-off. The film can be wound with several short strokes. The Canon Power Winder A can be mounted for automatic winding of the film.

Frame Counter: Additive type. Automatically resets when the back cover is opened. While rewinding film, it counts back the frame numbers.

Film Rewinding: Performed by pressing the rewind button on the bottom and by using the rewing crank on the top. The rewind button is automatically reset when the film is advanced with the film advance lever.

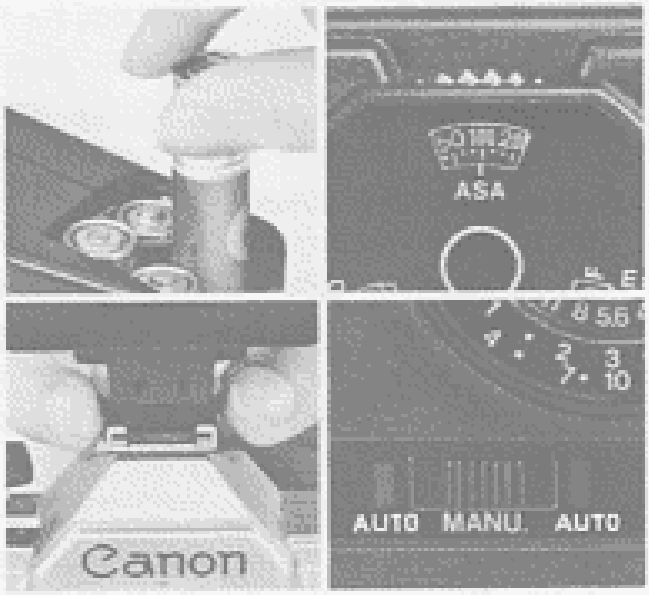
Size: 141 x 87 x 47.5mm (5-9/16" x -3-7/16" x 1-7/8") body only.

Weight: 590g (20-13/16 ozs.) body only.
790g (27-7/8 ozs.) with the 50mm f/1.8 S.C. lens.
895g (31-9/16 ozs.) with the 50mm f/1.4 S.S.C. lens.
1,100g (38-13/16 ozs.) with the 55mm f/1.2 S.S.C. lens.

Subject to change without notice.

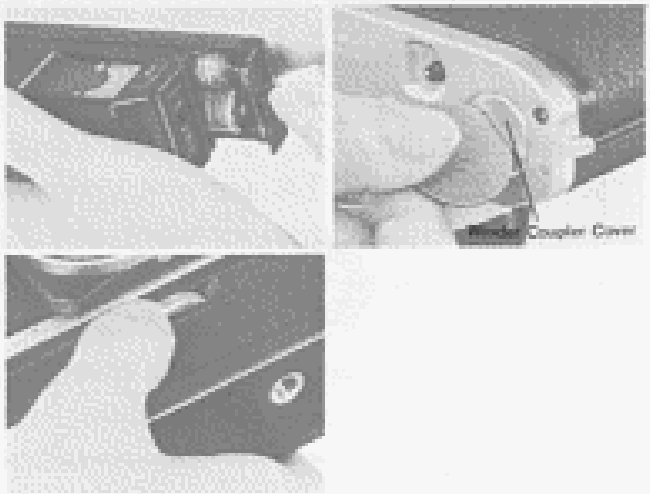
Photography with the Canon Speedlite 155A

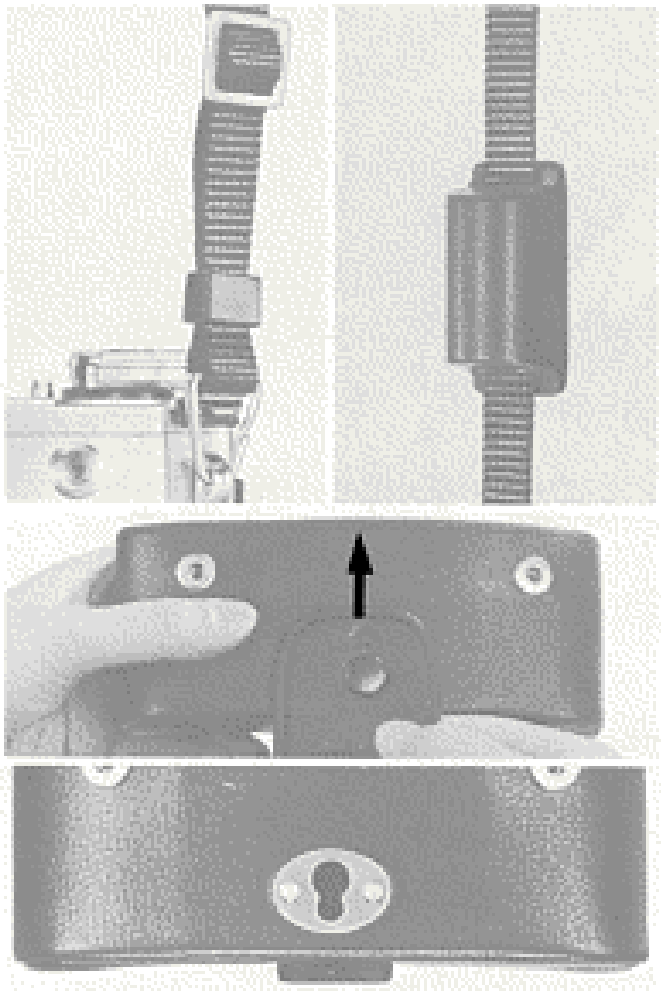
1. Take off the battery chamber cover and load the batteries.
2. Set the ASA film speed of the 155A.
3. Mount the Speedlite 155A on the accessory shoe of the camera.
4. Turn the main switch on.
5. Set the AUTO/MANU. switch.
6. Set the prescribed f/stop on the lens.
7. Focus and press the shutter button.



Photography with the Canon Power Winder A

1. Remove the Battery Pack A.
2. Load the batteries into the Battery Pack A.
3. Attach the Battery Pack A to the Power Winder A.
4. Take off the winder coupler cover on the bottom of the camera body and put it in the winder coupler's cover holder.
5. Attach the Power Winder A to the camera.
6. Turn the main switch on.
7. Focus and press the shutter button.



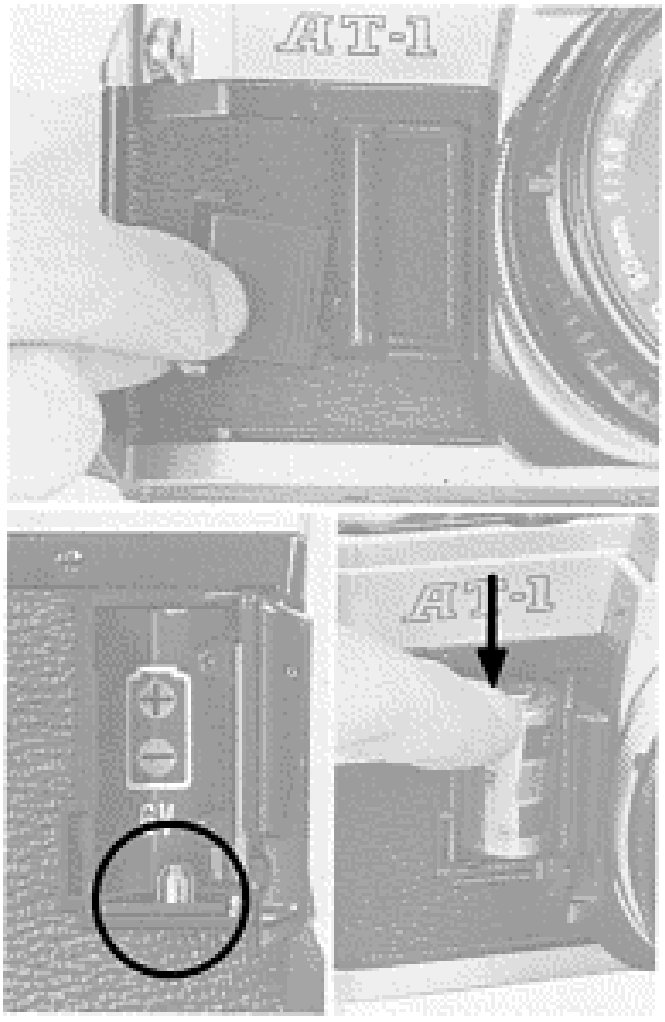


PRELIMINARY PREPARATION

Neckstrap and Case

Slide the scratch prevention ring and spare battery case which houses a spare battery onto the Canon AT-1's neckstrap, then thread the neckstrap through the rings. Adjust the neckstrap to a length most suitable for you.

Firmly attach the case to the camera by turning the screw on the bottom of the case. When you wish to take off the top cover of the soft case, turn the top cover to the bottom then slide it straight up in the direction of the arrow and pull it out as indicated in the photo.



Loading the Battery

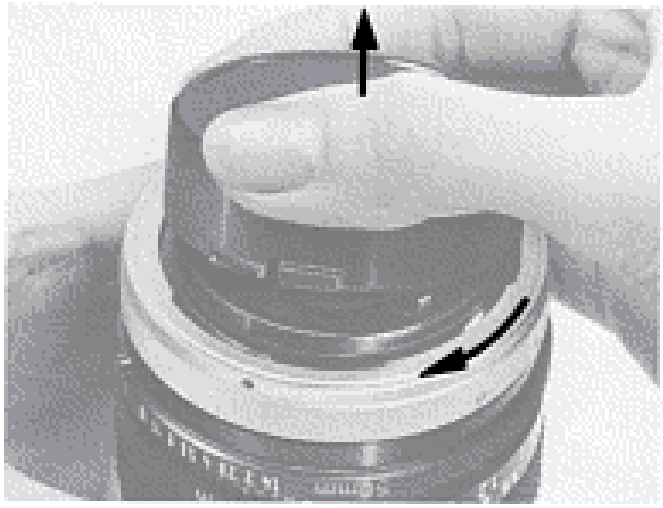
The camera will function only when the battery is loaded and the main switch is turned on. Use a silver oxide battery for the power source. The battery chamber cover can be opened more easily by using the viewfinder cover that is inserted into the accessory shoe.

Be careful to load the battery correctly with the "+" side up following the diagram on the inside of the battery chamber. If the battery is incorrectly loaded so the polarities are facing the wrong direction, the camera will not function. Load the battery by inserting the "—" contact first while holding down the battery in the bottom of the battery chamber. When loading or removing the battery, make cartain that the main switch is set at OFF.

■ Only a silver oxide battery can be used and other types cannot be used. In general use, the battery will last one year.

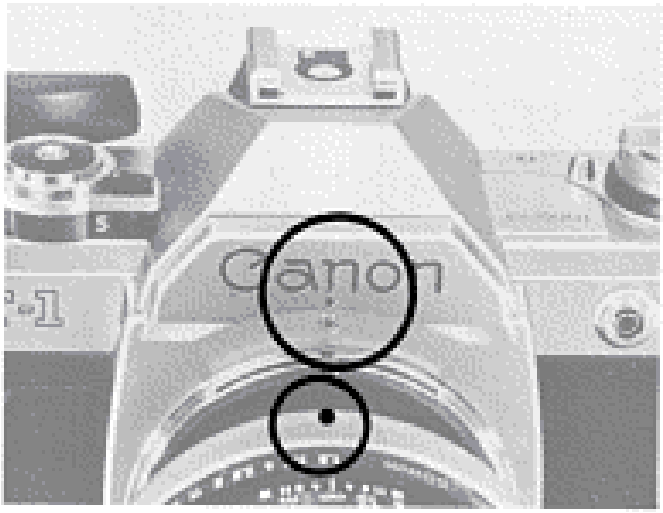
Handling the Lens Cap

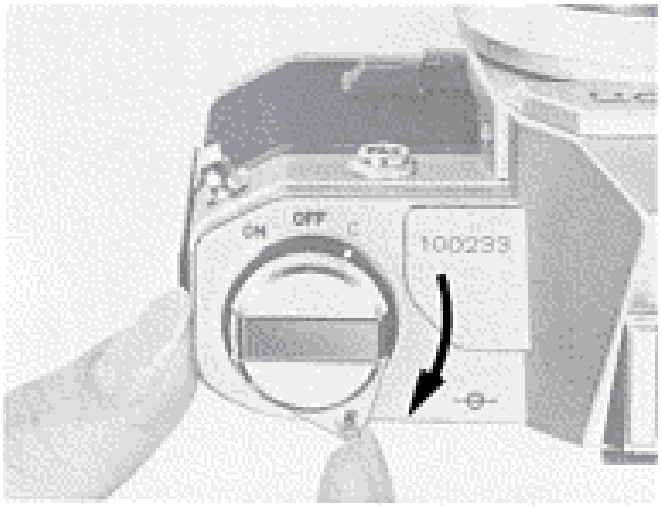
The lens cap can be removed from the front of the lens after pressing in the tabs on both sides of the cap. The rear dust cover can be removed by turning the Canon Breech-Lock ring in the direction of the arrow. To attach the dust cover, align its slot with the positioning pin below the red dot of the Breech-Lock ring, and press it in. When the dust cover is removed, the Breech-Lock ring is locked.

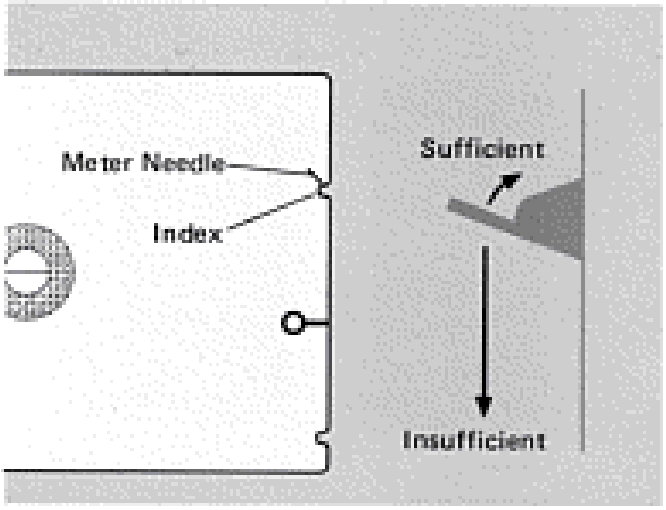


Mounting the Lens

Remove the body cap. Make sure that the aperture ring is not set to the "A" mark before mounting the lens. Release the aperture ring from the "A" mark by pushing the EE lock pin and turn the ring. Then, mount the lens by aligning the red dot of the body with the red dot of the bayonet ring, and then turning the Breech-Lock ring clockwise, pressing gently until it locks into position. Reverse the procedure to dismount the lens.







Checking the Battery

The main switch is also used for checking the battery. To see if the battery power level is sufficient, turn the main switch/ battery check lever to the "C" index on the outer rim of the film rewind crank while looking into the viewfinder. If the meter needle rests above the battery check index mark or coincides with the index as shown in the illustration, the power level of the battery is sufficient. If the needle does not rise to the index, the battery must be changed.

- If the meter needle fails to stabilize within about three seconds, the battery is near exhaustion and should be changed.

Main Switch

The main switch turns on or off the electric circuits of the camera. Therefore, when taking photographs, set the main switch to the "ON" position. The camera will not function unless it is set to "ON".

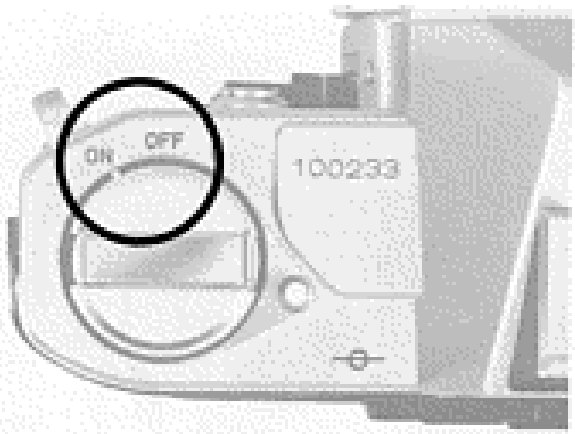
■ When not in use, turn the main switch to "OFF" to guard against needless consumption of the battery.

Usable Batteries	
Silver Oxide Battery(6V)	Eveready(UCAR) No.544 JIS 4G13, Mallory PX28

Perform a battery check in the following situations:

1. When a battery is loaded.
2. If the shutter does not function.
3. When a great number of photographs have been taken.
4. When the camera is used after it has been stored for a long period without use.
5. When the camera is used in extremely cold conditions.

As the AT-1 is an electronically controlled camera, the shutter will not function without sufficient battery power.

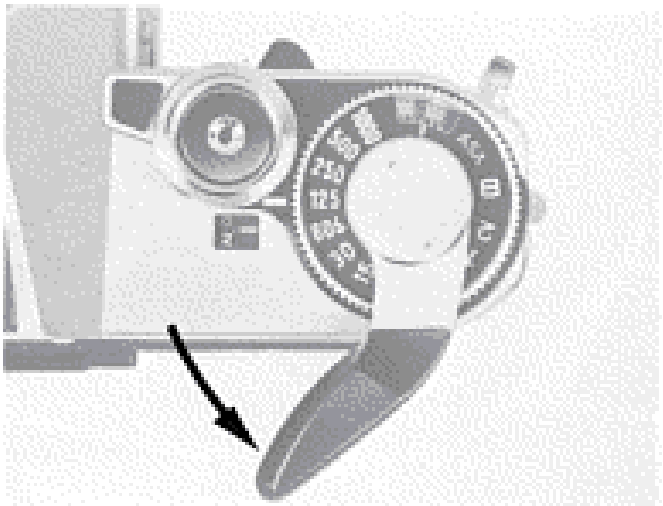


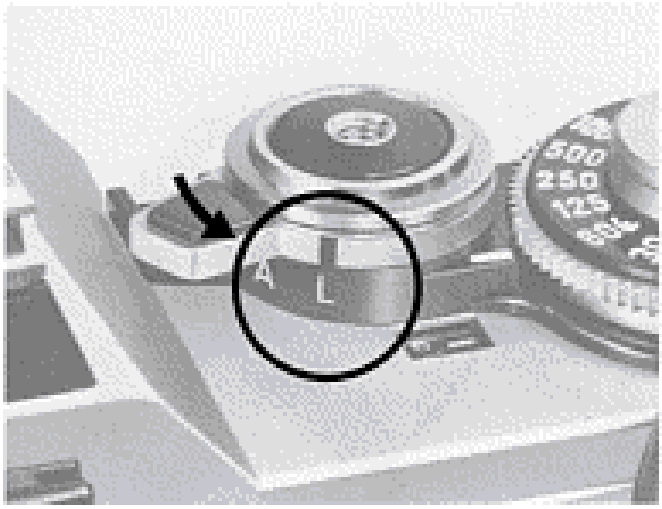
Film Advance and Shutter Release

Turn the film advance lever until it stops, so the film will advance one frame all in one motion. The shutter will cock, and the diaphragm and mirror will be ready for the next shutter release, while the frame counter advances simultaneously to the next number. By pushing the film advance lever lightly with the tip of your thumb, it will open to its 30° stand-off position away from the camera body for easy film advance.

While the film is advancing, the shutter will not be released. Film winding can also be accomplished by advancing the lever in short strokes.

Canon has developed the Power Winder A to be used with the AT-1 for automatic film winding. It greatly increases the speed and mobility of the AT-1. (See page 62.)





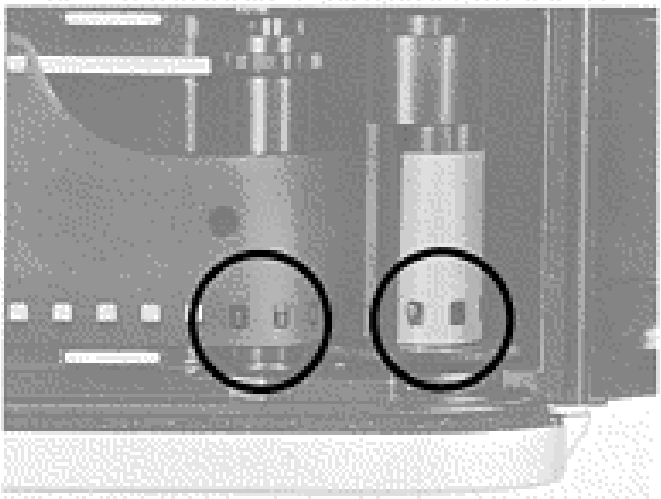
Shutter Button and Shutter Lock

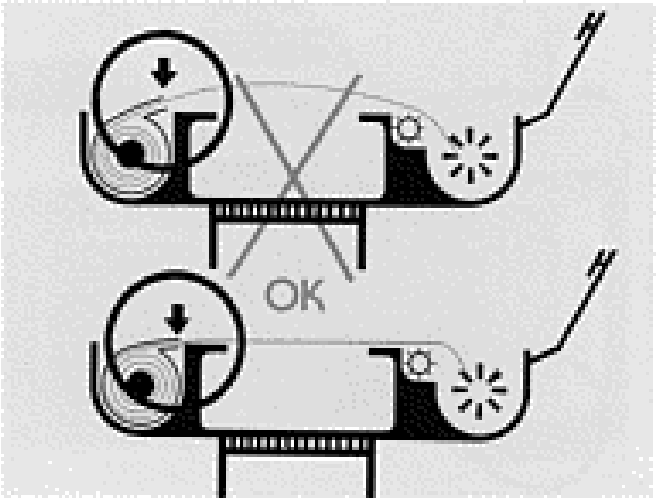
The magnetic release shutter button enables smoother shutter release than the mechanical release method does. There is also less chance for camera shake.

When the shutter lock lever around the shutter release button is turned to the "L" position, the shutter button will be locked to prevent unintentional shutter release. Keep the shutter release button locked while carrying the camera to prevent film waste.

When the power level of the battery is insufficient, a safety mechanism will keep the shutter from being released.

■ At temperatures under −20 degrees C, there may be an occurrence when the shutter will not be released depending on the batteries, even if the battery power is sufficient. In that cold condition, the battery's power is reduced so some 10 seconds should be allowed after the battery is checked before taking a picture.





take-up spool making sure that the perforations of the film are engaged in the teeth of the film transport sprocket.

Then, make sure that there is no film slack. In case there is, gently turn the film rewind crank in the direction of the arrow to obtain proper film tautness and the film advance lever to ensure that the leader is wound fully on to the take-up spool before the camera back is closed.

When loading the film into the camera, do not touch the shutter curtain, the film rails or the pressure plate.

Closing the Back Cover

Close the back cover until it snaps shut. Gently turn the film rewind crank clockwise in the direction of the arrow to take up the film slack. Then, advance the film a couple of times pressing the shutter button until the first exposure appears in the frame counter.

Loading the Film

The Canon AT-1 uses color or black and white film in standard 35mm cartridges.

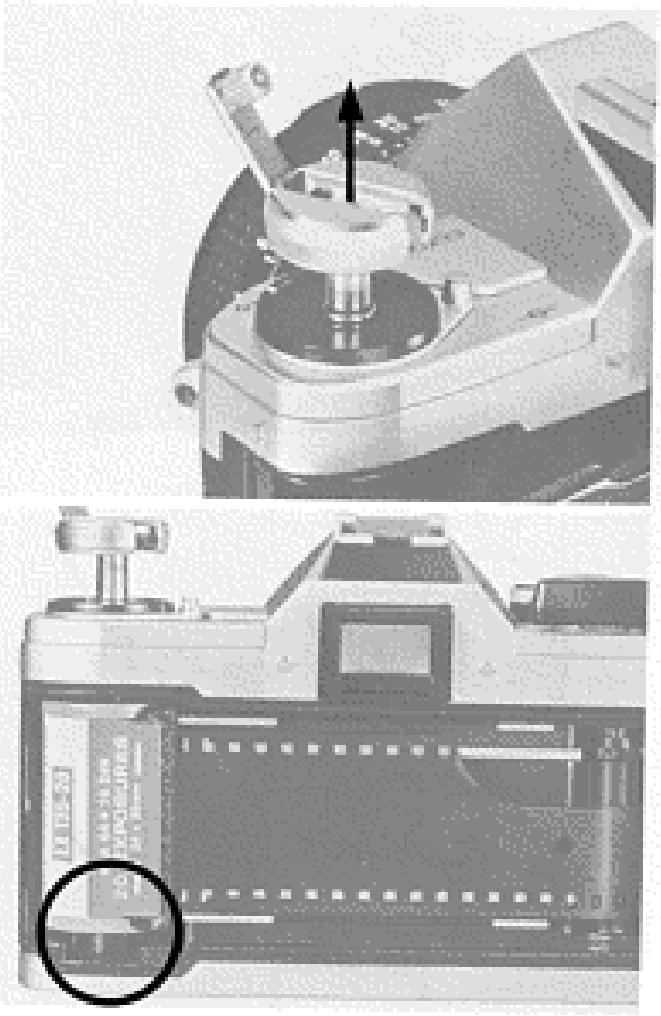
Opening the Back Cover

To load a cartridge of film into the camera, first open the camera's back cover. Pull up the rewind crank and the back cover will pop open. The back cover can be securely closed simply by pressing it until it locks. Avoid direct sunlight when loading or unloading the film.

The Canon Data Back A, an accessory for imprinting data such as the day, month and year, can be attached to the AT-1 in place of the back cover. (See page 63.)

How to Load the Film

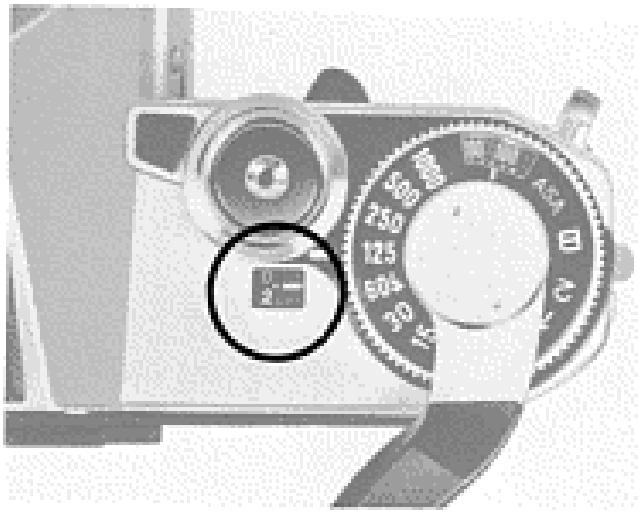
Put the cartridge into the film cartridge chamber and press down while rotating the rewind knob until it drops securely into position. The protruding part of the cartridge should be on the bottom. Pull the film leader across and insert the end into one slot of the multi-slot take-up spool. Turn the film advance lever and wind the film around the

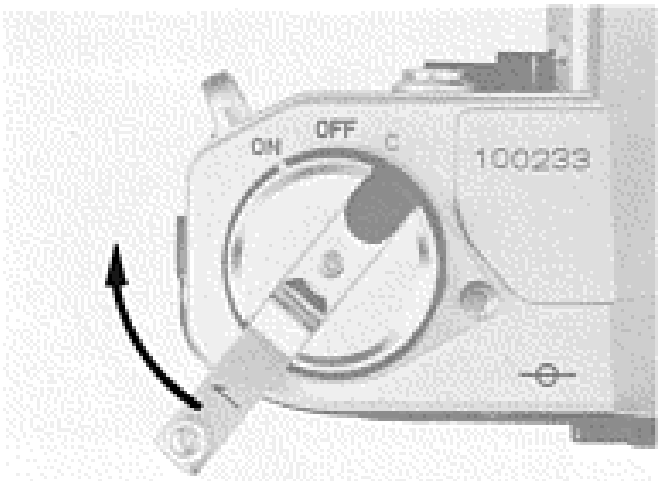


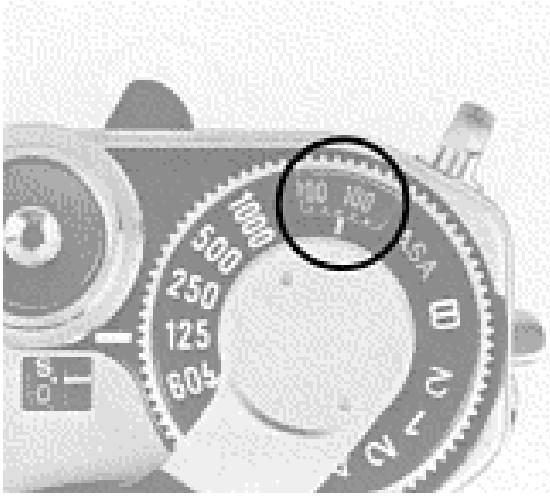
Frame Counter

The frame counter is an additive type which counts one frame every time the film advance lever winds the film. When the camera's back cover is opened, the frame counter automatically resets itself to the "S" position.

While rewinding film, the frame counter counts back the frame numbers. The starting position "S", 0, and the even numbers 2 to 38 are displayed by the counter. Numbers 20 and 36 are marked in orange to call your attention to the end of commercially available film cartridges. The frame counter cannot count higher than 38.







Checking Film Winding

Operate the film advance lever while watching the film rewind knob. If it rotates, the film is properly loaded. If the rewind knob does not rotate, open the back cover and load the film again from the start.

Setting the ASA Film Speed

After loading the film, set the ASA film speed according to the ASA speed of the film in use. To set the ASA, first push the film advance lever out to its 30° stand-off position away from the camera body, then gently lift up the ASA ring around the shutter dial and rotate it in either direction until the proper number is aligned with the green index mark. ASA is a numerical rating of a film's sensitivity to light. A higher ASA number indicates a faster film which is more sensitive to light. On the other hand, a lower ASA number indicates a slower film which is less sensitive to light. The ASA rating recommended by the manufacturer is printed on the film box, e.g., ASA 100.

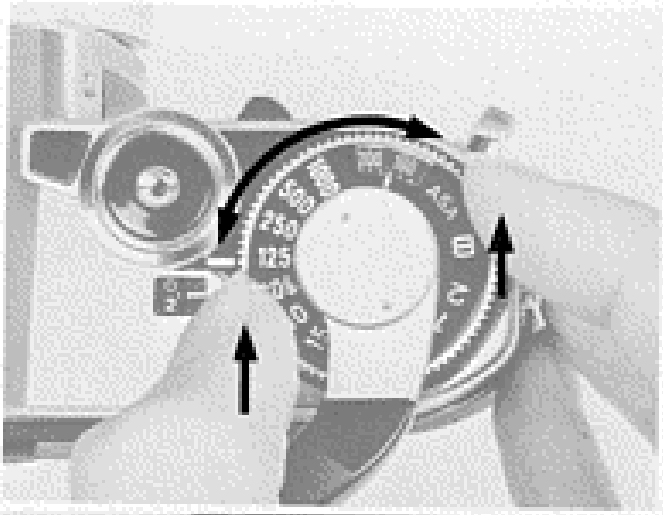
The following ASA ratings can be set on the camera. Figures in parentheses indicate intermediate film speeds.

ASA25 (32) (40) 50 (64) (80) 100 (125) (160) 200 (250) (320) 400

(500) (640) 800 (1000) (1250) 1600 (2000) (2500) 3200

Use of the Memo Holder

The memo holder on the camera's back cover is useful for keeping data like film speed, location, shooting. For example, after tearing off the part of the film box which specifies the type of the film being used, it can be inserted into the memo holder as a constant reminder.



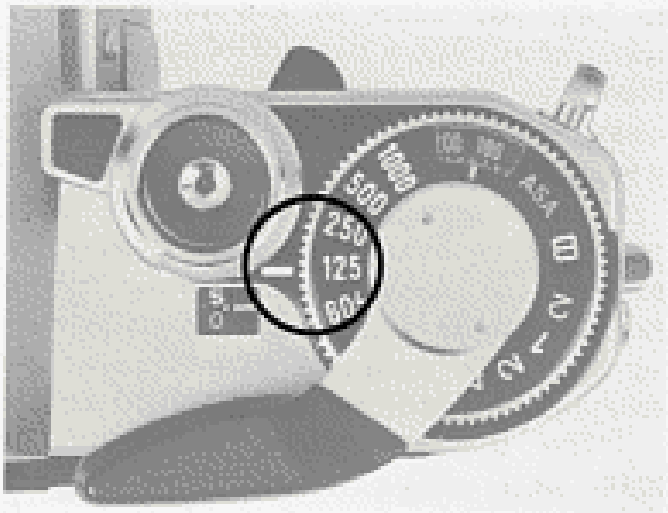
Shutter and Aperture

The opening of the shutter letting light in on the film is called an exposure. The amount of light striking the film is controlled by the lens aperture, while the length of time that light is allowed to strike the film is controlled by the shutter.

Shutter Speed Dial

The shutter dial is used to adjust the shutter speed. It allows for speed settings in the range of 2 seconds to 1/1000 of a second. When the shutter speed is advanced to the next larger number, the exposure time is cut in half. The shutter speeds on the dial are typically the reciprocals of the true shutter speeds. For example, 125 and 250 on the dial represent shutter speeds of 1/125 and 1/250 of a second. Only in the case of the orange "2" is the shutter speed actually as indicated on the dial, i.e., 2 seconds. The "B" (Bulb) setting is used for long exposures where as long as the shutter button is pressed down, the shutter will remain open.

■ The shutter speed dial cannot be set to an intermediate position.



Brightness	Shutter Speed (Seconds)
Indoors	1/30 to 1/60
Outdoors	1/125 to 1/250
Mid-summer Beach or Snow-covered Mountains	1/500 to 1/1000

Selecting the Shutter Speed

Shutter speed is determined in accordance with the brightness of the scene and the speed with which the main subject is moving. You can use the above table as a general guide

to help you select an appropriate shutter speed when using a standard 50mm lens. For indoor photography, with no special illumination, choose 1/30 of a second and 1/60 of a second in a brightly lit room.

For outdoor photography, select 1/125 second when cloudy and 1/250 second in sunshine. To take pictures in particularly bright sunshine such as at a beach in midsummer or in snow-covered mountains, use shutter speeds of 1/500 sec. or 1/1000 sec.

The above mentioned shutter speeds apply when using a standard 50mm lens, but it is necessary to choose faster shutter speeds when using lenses of longer focal lengths because they are more difficult to hold steady. It is generally said that the shutter speed figure should be greater than 1 divided by the focal length of the lens in order to obtain sharp images.

For example, when using a 200mm telephoto lens, shutter speed should be faster than 1/200 second. Therefore, the shutter speed in this particular case should be set at 1/250 sec. Image blur can also arise if the camera is not properly held. See page 37.

Lens Aperture

The adjustment of the aperture is used with the shutter speed to get the correct exposure. The amount of light reaching the film is controlled by the aperture's size.

On the aperture ring are a series of markings which indicate the proportion of the light allowed to pass through the lens, which are known as f/numbers. When the aperture ring is set to the next larger f/number on the scale of the ring, the amount of light passing through the lens is decreased by 1/2. The lens's brightness is based on the smallest numerical aperture value for the lens.
With a f/2 serving as the standard, the comparative brightness at each f/stop will be as indicated below.

Brightness (f/stop)	1.2	1.4	2	2.8	4	5.6	8	11	16
Ratio	3	2	1	1/2	1/4	1/8	1/16	1/22	1/64

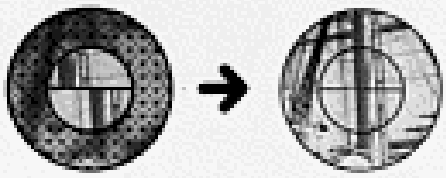
The aperture ring can be set at positions between the settings on the scale.

Viewing and Focusing

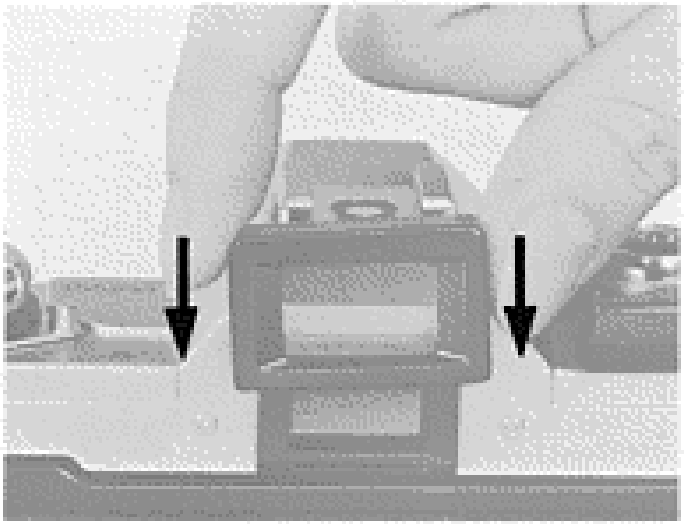
Focusing is performed in the small round area in the center of the viewfinder. The smaller central circle is a split-image focusing screen and around it is the microprism ring. The split-image rangefinder ascertains that the image is "in focus" when the image divided horizontally in half merges and becomes one complete image.

The microprism rangefinder presents a clear and steady image when in focus. The microprism conveys a broken, shimmering image when not accurately in focus. It is also possible to focus with the matte screen outside the smaller central area. You can focus with any of these focusing aids as you like, depending on the subject and your preference.

Accessories such as an eyecup, dioptric adjustment lenses, angle finders, and magnifier can be attached to the viewfinder eyepiece.



Out of Focus In Focus



Dioptric Adjustment Lens S

Dioptric adjustment lenses can be attached by inserting them from above into the grooves in the viewfinder eyepiece to compensate for the individual eyesight. With them, near-sighted or far-sighted persons can perform photography without glasses.

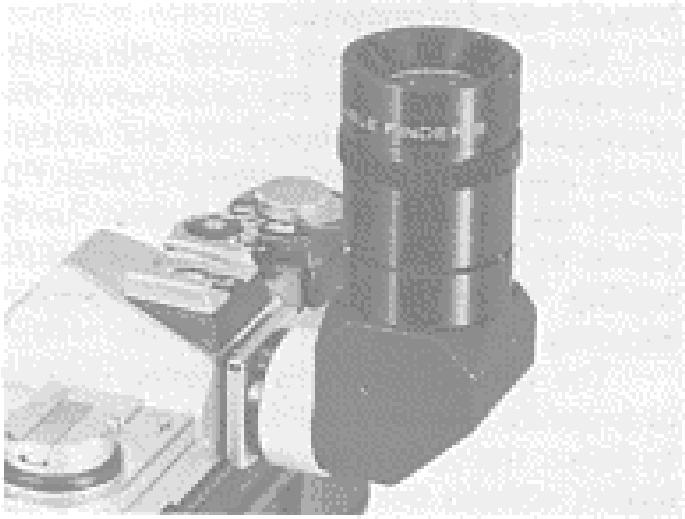
The built-in eyepiece lens of the AT-1 has −1 diopter. The following 10 kinds of dioptric adjustment lenses are optional accessories: +3, +2, +1.5, +1, +0.5, 0, −0.5, −2, −3 and −4 (diopters).

One way of selecting the correct dioptric adjustment lens for you is to select the one that is the closest to your glasses in regard to number of diopters. But, we propose that, to select the most appropriate dioptric adjustment lens, you actually look through the viewfinder after placing it over the eyepiece.

Because the camera itself has −1 diopter, the diopters of the lenses are recorded as the real power when attached to the camera, thus reflecting the power of the camera's viewfinder.

Angle Finder A2 and B

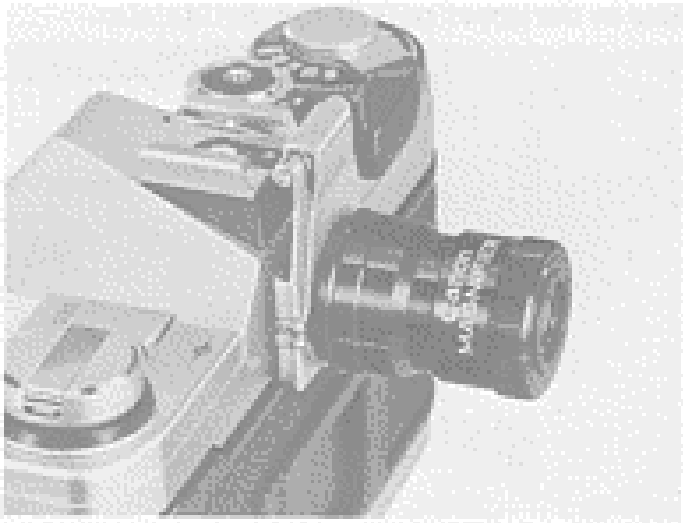
The angle finder is a magnifying glass which can be attached from above into the grooves of the viewfinder eyepiece. It rotates 90 degrees so that the image on the viewfinder can be viewed directly from the side or above whenever it is inconvenient or impossible to look directly through the eyepiece. This is very helpful in copying, close-ups, macro-photography, and photomicrography. There are two types, the A2 whose image is reversed as in a mirror, and the more advanced Angle Finder B which gives a correct image.



Magnifier S

The Canon Magnifier S gives 2.5X magnification of the viewfinder center for precision focusing in close-up work. The power can be adjusted to your eyesight within the range of +4 to —4 diopters.

The Magnifier S combined with its adapter can be inserted into the grooves of the viewfinder eyepiece. The adapter of the Magnifier S is hinged to allow the magnifier to swing upward from the eyepiece leaving the whole screen image visible after focusing.

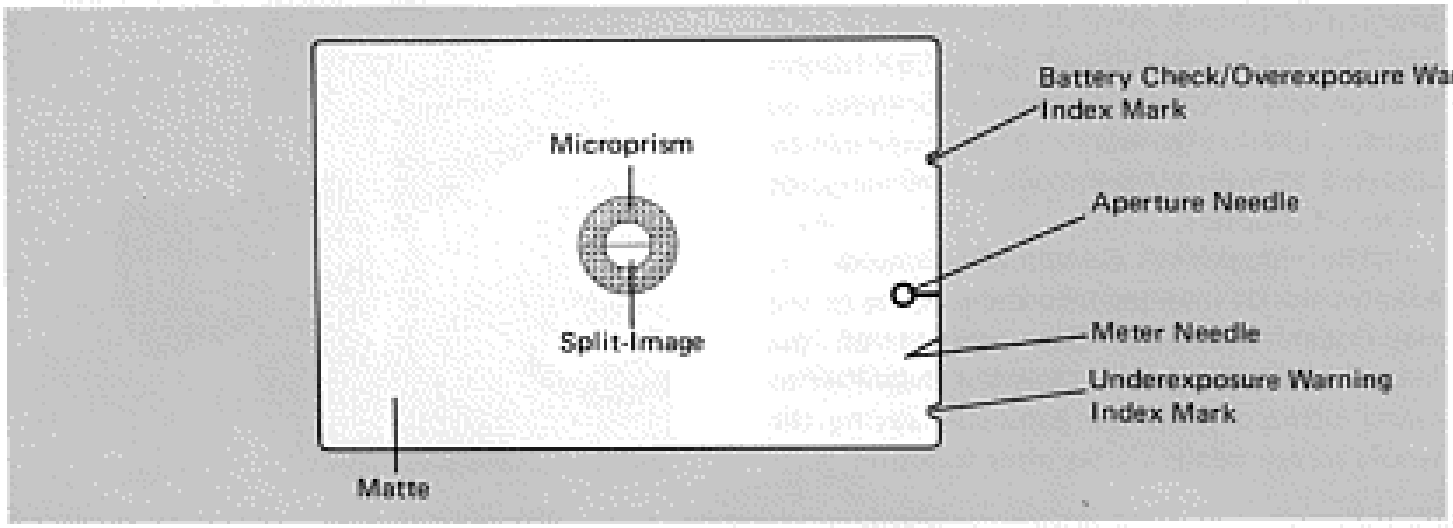


Viewfinder Information

The Canon AT-1 is a camera offering full aperture metering with FD lenses where the aperture needle is coupled to the shutter speed, aperture and film's sensitivity when FD lenses are used. Furthermore, when using Canon FL lenses on the AT-1, the exposure reading is performed with stopped-down metering.

The Central Emphasis Metering method of exposure measurement is used in the AT-1 to deliver the optimum exposure to the main subject without being affected by the bright sky in the upper part of the picture area.

In the center of the viewfinder is a range-finder while the meter needle and the aperture needle (circular) are found to the right. The exposure metering range index marks are in the upper and lower right. The exposure metering range index mark in the upper right is also used as the battery check index mark. The exposure metering range extends from EV 3 (f/1.4, 1/4 of a second) to EV 17 (f/16, 1/500 of a second) at ASA 100 film with FD 50mm f/1.4 S.S.C. lens.

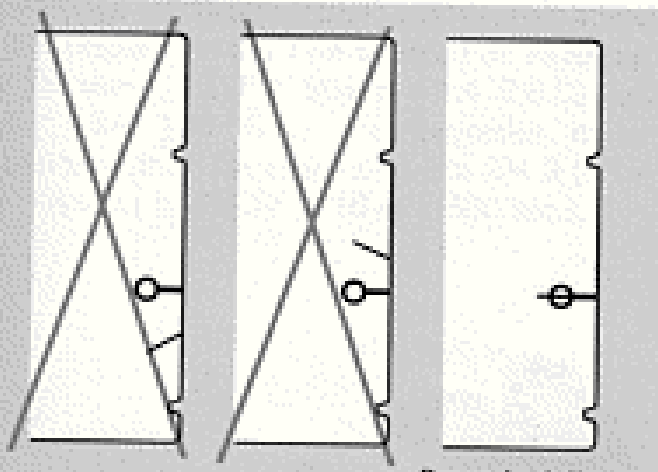


Determining the Exposure

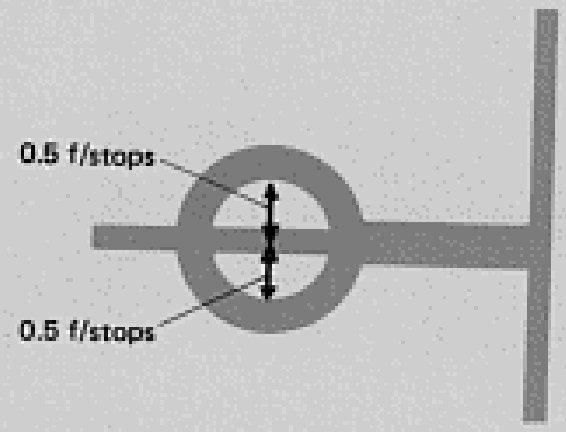
Turn the camera toward the subject and look into the viewfinder to insure that the meter needle swings and rests still somewhere between the upper and lower exposure metering index marks. Then, turn the shutter speed dial and/or the aperture ring until the circular aperture needle bisects the meter needle. These are the steps for getting the correct exposure. On most occasions, it is more convenient to predetermine the shutter speed then turn the aperture ring.

The upper and lower halves each express half an f/stop gradation; the full width of the aperture needle is equivalent to one f/stop. Thus, the setting of the meter needle and aperture needle can be precisely controlled inside the viewfinder enabling finer adjustment of the exposure.

■ Exposure determination (matching needles) should not be performed while the shutter button is depressed. It will cause a slight, variable error depending on the condition of the battery.



Properly Adjusted



Operation of Shutter Priority

1. Turn the main switch on.
2. Set the shutter speed.
3. Look into the viewfinder and focus.
4. Turn the aperture ring and align the meter needle with the aperture needle.
5. Depress the shutter button.

Exposure Metering With FL Lenses

When Canon FL lenses are used on the AT-1, it is necessary to take a stopped-down meter reading. After pressing in the stopped-down lever until it locks, adjust the aperture ring and/or shutter speed dial until the meter needle inside the viewfinder is aligned with the aperture needle to obtain the correct exposure. After determining the correct exposure, release the stopped-down lever and compose and focus at maximum aperture.

Meter Coupling Range

If the circular aperture needle does not align with the meter needle by turning the aperture ring, it means that the shutter speed is not properly set. If this is the case, reset shutter speed dial so that two needles can be aligned with each other. And when these two needles cannot be aligned with each other by turning the shutter speed dial, change the aperture. When the shutter speed is set at a slow speed outside the meter coupling range, metering cannot be performed even if the aperture is changed.

The built-in exposure meter couples to the range of the aperture and shutter speed with respect to the film speed. For example, when using the FD 50mm f/1.4 S.S.C. lens and ASA 100 film, the exposure meter couples within the range of from EV 3 (f/1.4 at 1/4 sec.) to EV 17 (f/16 at 1/500 sec.).

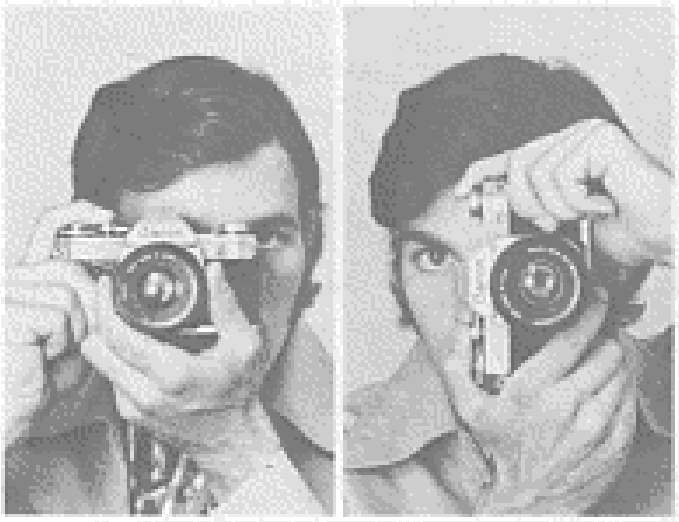
Film Speed	Shutter Speed										
ASA 25	1	1/2	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500	1/1000
ASA 50	1/2	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500	1/1000	...
ASA 100	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500	1/1000	...	...
ASA 200	1/8	1/15	1/30	1/60	1/125	1/250	1/500	1/1000	...	...	...
ASA 400	1/15	1/30	1/60	1/125	1/250	1/500	1/1000	...	...	...	...
ASA 800	1/30	1/60	1/125	1/250	1/500	1/1000	...	...	...	...	...
ASA 1600	1/60	1/125	1/250	1/500	1/1000	...	...	...	...	...	...
ASA 3200	1/125	1/250	1/500	1/1000							
Minimum f/stop	f/22	f/22	f/22	f/22	f/22	f/22	f/22	f/16	f/11	f/8	f/5.6

Holding the Camera

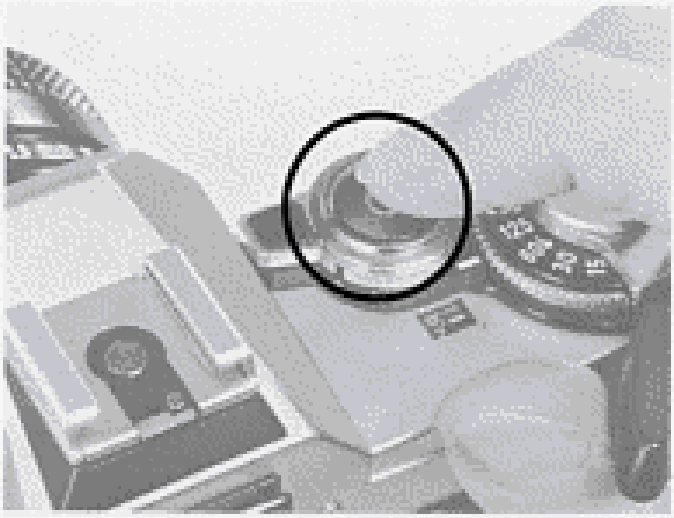
The electromagnetic shutter release button has a short, soft touch. The shutter can be released by lightly depressing the shutter button to help prevent camera shake. But, unsteady holding of the camera will cause camera shake in spite of the electromagnetic shutter release system.

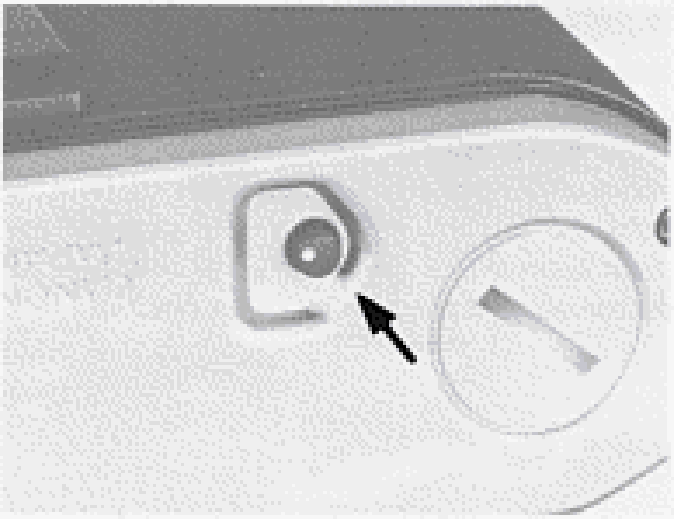
Therefore, be sure to hold the camera firmly. Rest the camera on your left palm and grasp the lower part of the lens focusing ring between your thumb and forefinger or middle finger. Hold the right end of the camera firmly, with your right thumb behind the tip of the film advance lever and your right forefinger on the shutter button, while the other fingers hold the camera's finger grip.

To reduce camera shake, press your left elbow strongly against your body and look into the viewfinder steadying the camera against the forehead. The right arm should be relaxed while holding the camera.



When you use comparatively slow shutter speeds or when you use telephoto lenses, it is advisable to lean against a wall, a tree trunk or some fixed object for a steadier grip. The above describes the fundamentals of how to hold the camera. You may find yourself the most appropriate grip for you and get accustomed to it through constant practice.





Releasing the Shutter

When you press the shutter button, try to squeeze the shutter button gently with your finger. Avoid hitting or pressing the shutter button suddenly particularly when using slow shutter speeds, otherwise blur may result.

At the moment of shooting, you should exhale slowly while the shutter button is being pressed.

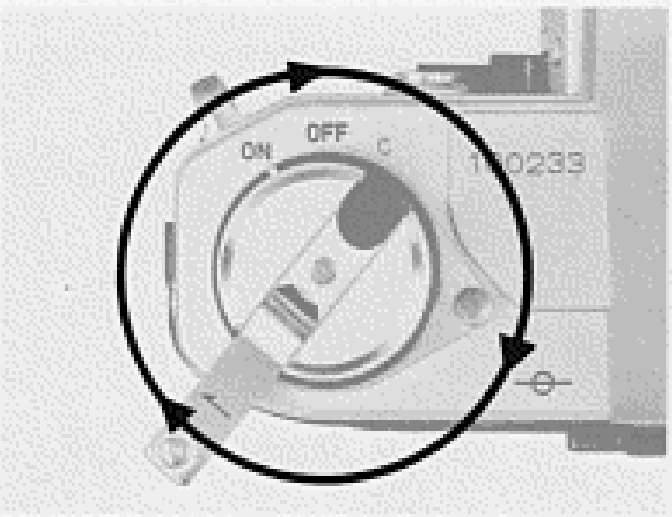
Rewinding the Film

When the film advance lever cannot travel all the way to the end of its stroke, the frame counter tells you that you have reached the end of the film. You have to rewind the film in its protective cartridge, before you can remove it from the camera. Since it is not protected, any exposure to light will "fog" the film and cause a drastic color shift and loss of image.

To rewind the film, press in the small rewind button on the bottom of the camera,

unfold the rewind crank and turn it in the direction of the arrow on the rewind crank. When the frame counter has reached the "S" mark, you should stop rewinding. Then pull up the rewind knob to open the camera back and lift the cartridge out.

If you stop rewinding the moment the frame counter has reached the "S" mark, the film will not be completely rewound into the cartridge and the film leader will still be outside the cartridge.



Concerning the Exposure (Shutter Speed and Aperture Coupling)

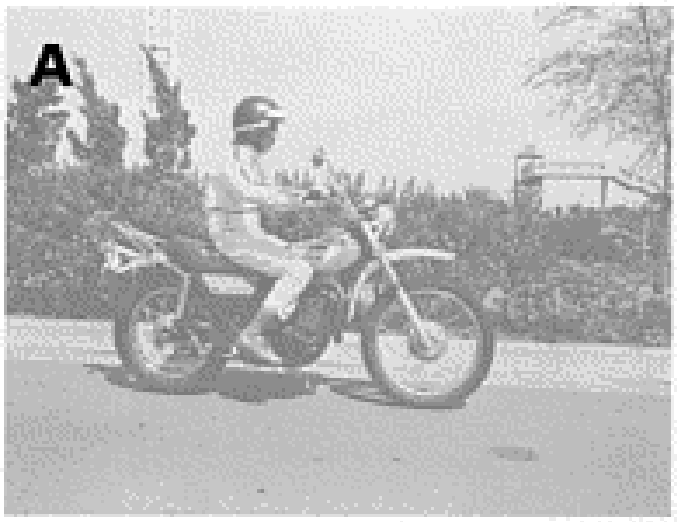
In order to obtain the correct exposure, it is necessary to correctly match the shutter speed with the aperture. The shutter speed and the aperture are the main factors in controlling the amount of light which is allowed to strike the film, and when they change, the quality of the image upon the film also changes.

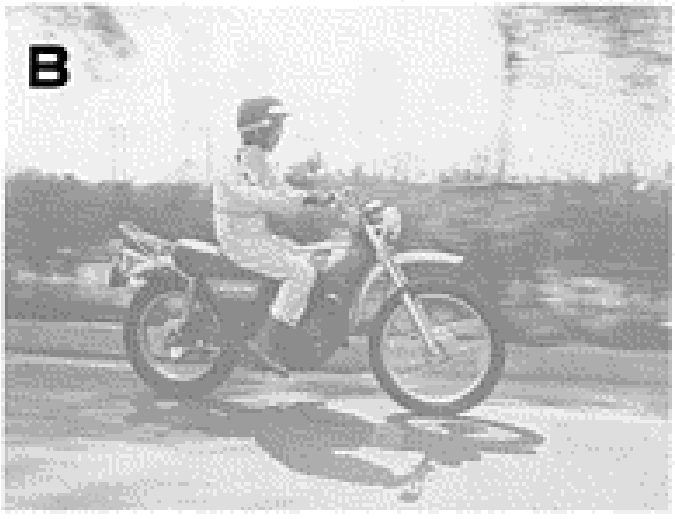
Effects of Changing the Shutter Speed

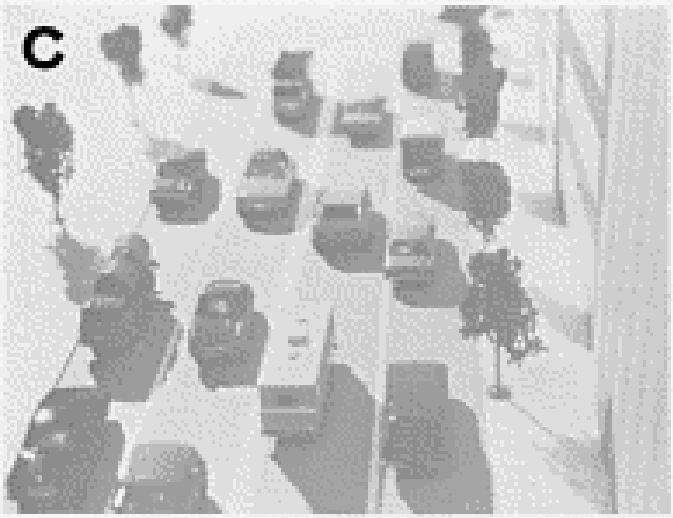
The explanations below are pertinent to photography with fast moving subjects or when it is intended to produce impressionistic pictures of movement. Depending on the selection of the shutter speed, you can freely control the expression of movement.

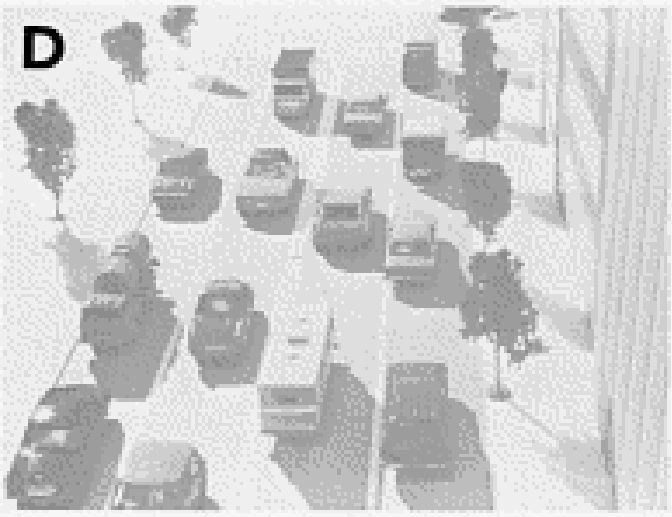
If, as in example A, the photo is taken at a shutter speed of 1/1000 sec., the movement will be frozen. If, as in example B, with the same subject, the photo is taken at a shutter speed of 1/60 sec. with a panning technique, the movement is well expressed.

Panning is really quite a simple technique. Hold the camera firmly and continue twisting the upper part of your body while following









the moving main subject in the viewfinder. You then release the shutter while still twisting. When you use this technique, the main subject should be sharp even at slow shutter speeds and the image of the background is blurred according to the speed of the panning movement. This hightens the feeling of motion in the picture.

Effects of Changing the Aperture

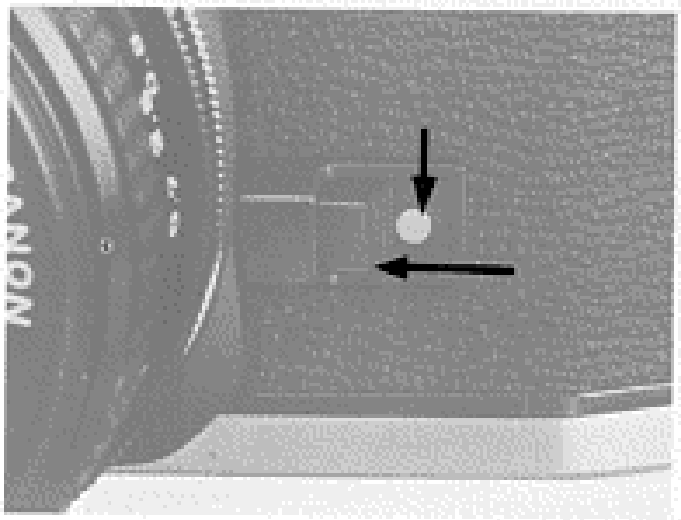
The lens aperture does not only control exposure but it also has an effect on the photograph as follows:

In example C, the aperture was set at f/5.6 with the shutter speed dial adjusted before shooting. In example D, a f/16 setting was used to clearly demonstrate the difference. In C, the miniature cars in the back and front are blurred and only the miniature cars in the central area are in focus. In D, most of the miniature cars are sharp and clear. Thus, the lens aperture has a marked effect on how much of the picture is reproduced sharply.

Depth-of-Field

When a certain subject is brought into focus, there is only a limited range in the foreground and background of the subject which can be kept clearly in focus. This zone of sharpness is the depth-of-field.

There are two methods of confirming the extent of the depth of the field: by stopping down the lens diaphragm or by reading the depth-of-field scale on the lens.



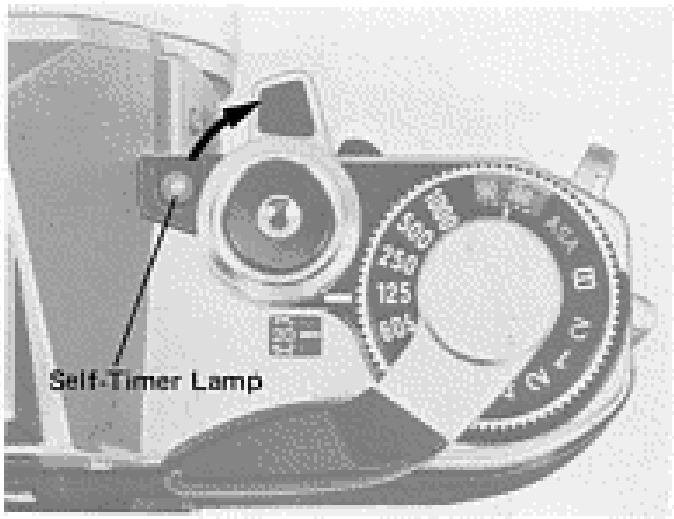
Confirming the Depth-of-Field by Stopping-Down the Lens Diaphragm

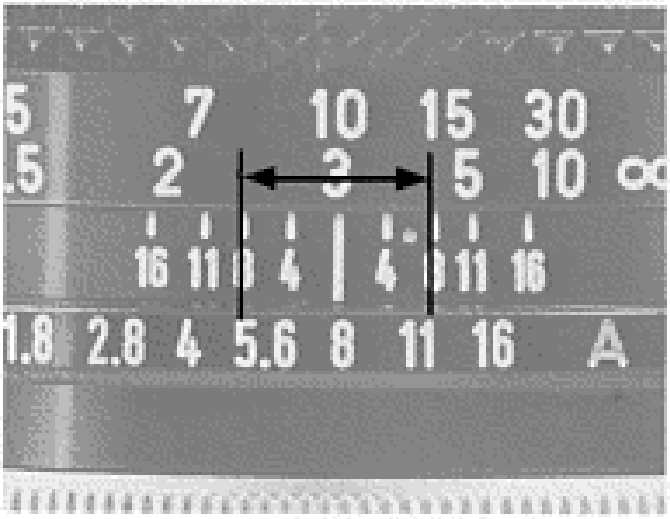
Press the stopped-down lever until it locks. Once locked, the depth-of-field can be checked by looking into the viewfinder. Thus, the extent of the depth-of-field can be seen as the zone of sharpness in the subject field observed on the screen. When the stopped-down lever's release button is pressed, full aperture metering will be restored.

Using the Self-Timer

Obvious uses for the self-timer are self-portraits and the inclusion of the photographer in a souvenir picture. The self-timer can also be used in place of a cable release to release the shutter gently and smoothly in close range work like photomicrography or copying.

Push the electronic self-timer lever forward, then press the shutter button, and the shutter will be released 10 seconds later. While the self-timer is in operation, the self-timer lamp flashes on and off. After you finish taking a picture, the self-timer lever should be reset to its original position. Otherwise, it will function again the next time you press the shutter button.





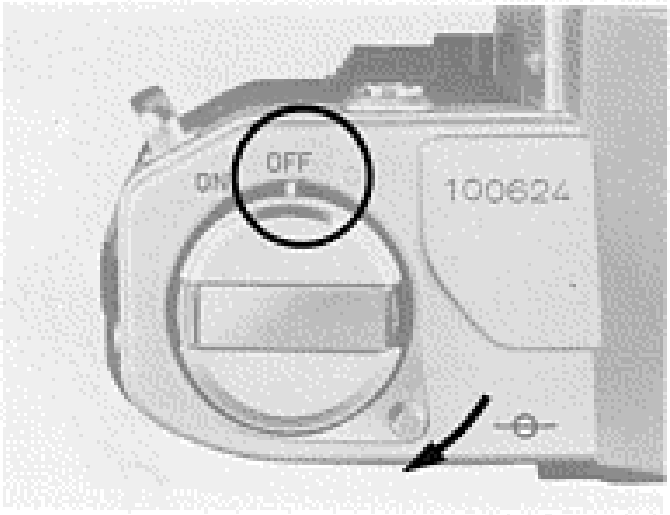
Generally, the depth-of-field will become deeper as the aperture becomes smaller, and shallower as the aperture becomes larger. A shorter focal length as well as a greater camera-to-subject distance will also deepen the depth-of-field.

Comparing a 28mm lens with a standard 50mm lens set at the same f/stop, the 28mm lens's depth-of-field will be greater. And when the photographic distance changes, the depth-of-field changes, too. For example, if the same subject is photographed from three and then from seven meters away, the sharp foreground and background of the subject will be deeper at the greater distance.

Depth-of-Field Scale on the Lens

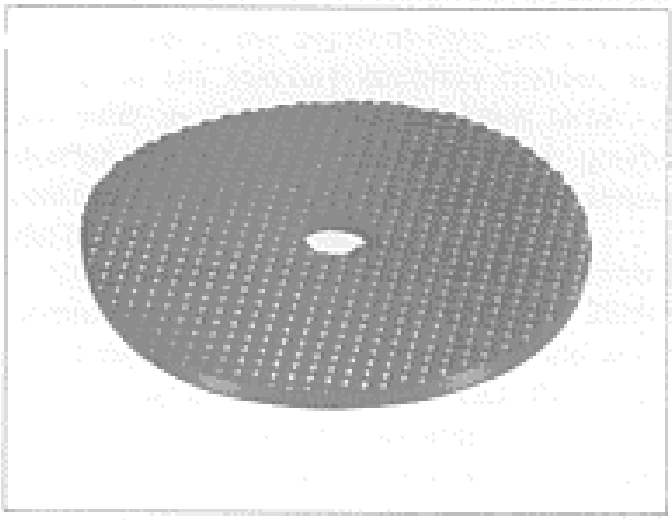
A depth-of-field scale is engraved on the lens barrel, shown as a series of f/numbers on each side of the distance index mark opposite the distance scale. Focusing and depth-of-field are so closely interrelated that the depth-of-field scale is engraved together with the distance scale.

You can tell the extent of depth-of-field from the distance scale. For example, if you use the camera with a standard 50mm lens that is focused on a subject at medium distance, say 3m with the aperture set at f/8, the depth-of-field extends from 2.4m to 4.5m. This tells you that with the 50mm lens focused at 3m and the subject between 2.4m and 4.5m the film image will be reasonably sharp.



Cancelling the Self-Timer Operation

If you should want to cancel the self-timer operation after having pressed the shutter button, set the main switch to OFF on the top side of the camera. Then, the self-timer lamp stops blinking and the self-timer operation will be cancelled. If the main switch is not set to OFF and the self-timer lever is returned to its original position, the shutter will be released.



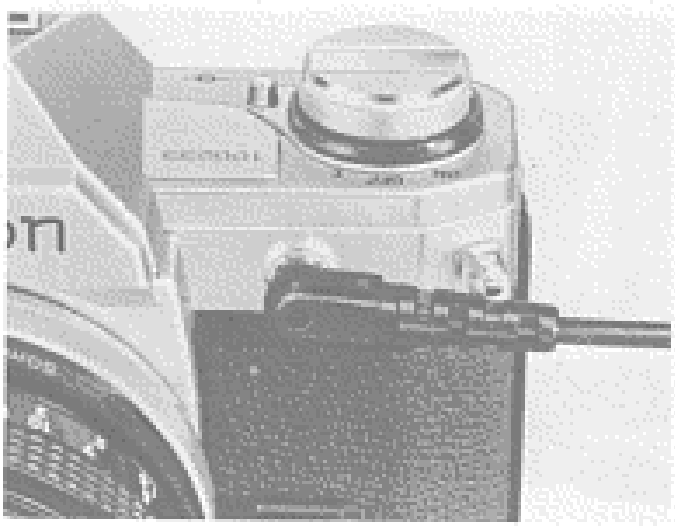
Adapter A for Tripod

When using a great diameter lens, depending on the tripod being used, it may be difficult to hold the adjustment in the case of accidental bumping of the lens. In such cases, the rubber Adapter A for Tripod may be placed between the tripod head and the camera.

Flash Photography with the AT-1

The Canon AT-1 can be used with two different type of flash units; a directly coupled contact type and a synchronization cord type. Use the Canon Speedlite 155A of a directly coupled contact type for exceptional flash photography. (See page 61 concerning the 155A.)

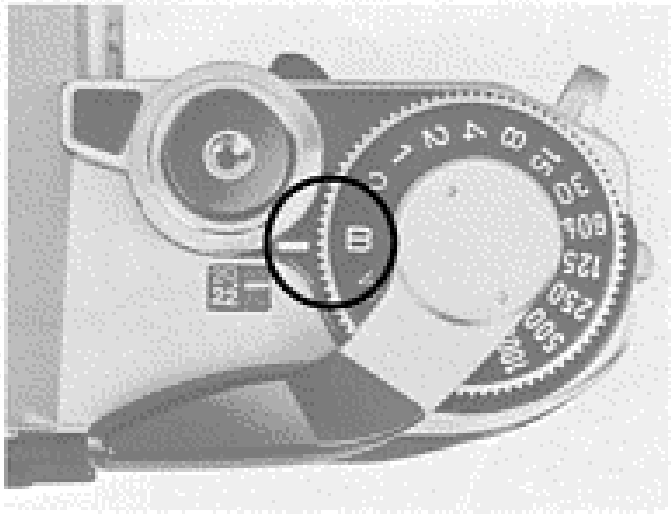
When using an electronic flash other than the Speedlite 155A or a flash bulb, you can select the appropriate shutter speed in reference to the table of "Flash Synchronization Range" indicated below.



Flash Synchronization Range

Type \ Synchronized Shutter Speed		1/1000	1/500	1/250	1/125	1/60	1/30	1/15	1/8	1/4	1/2	1	2	B
Flash Bulbs	FP Class						△	○	○	○	○	○	○	○
	M and MF Class						△	○	○	○	○	○	○	○
Electronic Flash						○	○	○	○	○	○	○	○	○

(△ mark indicates possible unevenness in the picture depending on the flash bulb.)



Long Exposures and "B" (Bulb) Setting

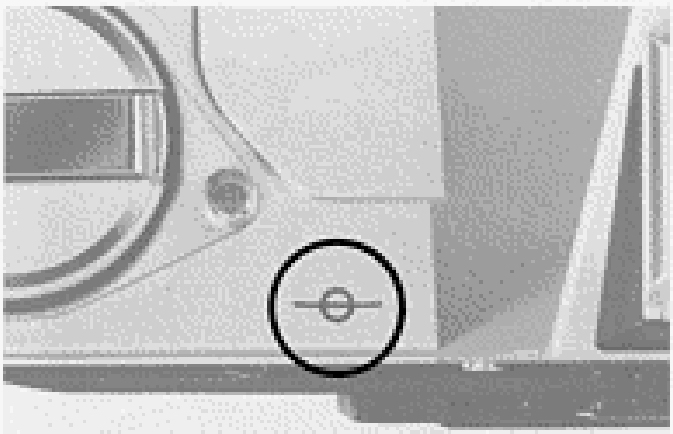
When you need shutter speeds slower than two seconds such as for shooting night scenes or fireworks, set the shutter speed dial at "B". Then, the shutter will remain open as long as the shutter button is pressed. In long exposures, it becomes essential to mount the camera on a tripod and use a cable release preferably with a lock to prevent camera shake and attain best results.

A cable release with a locking device can keep the shutter open even though the operator leaves the cable release unattended. Unlock the cable release to close the shutter.

Photography using the "B" setting will accelerate battery consumption since it requires continuous battery power. When necessary, the battery should be replaced with a new one having a full charge.

Film Plane Indicator

This mark is engraved on the top of the camera beside the film rewind crank, just to the left of the pentaprism, to indicate the exact position of the film plane. The distance scale on the lens shows subject distances measured from the film plane indicator. This mark is not used in general photography, but in close-ups and macrophotography it can be used to obtain the exact film-to-subject distance.



mirror, this stopped-down coupling lever becomes visible, as does the red mark in the case described above.

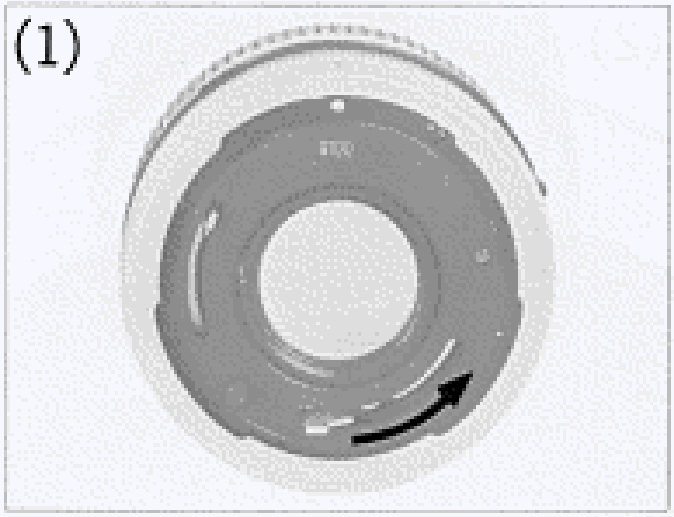
The Extension Tube FD 25 and FD 50 especially designed each for the FD 50mm and FD 100mm macro lenses should be used with full aperture metering. In this case, depth of the field can be assured in the viewfinder by pressing in the stopped-down lever.

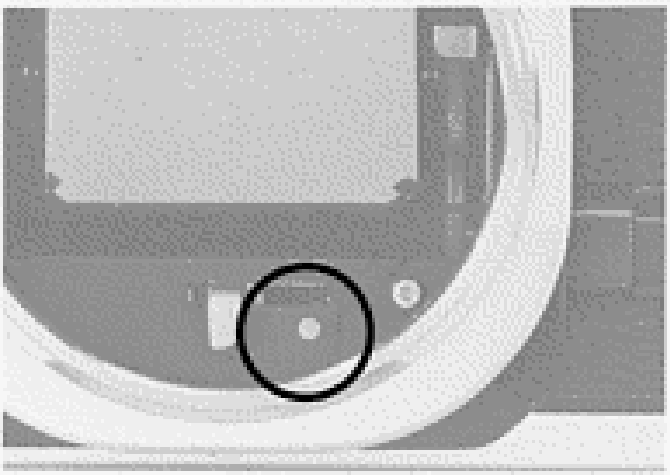
Manual Aperture Control

When accessories requiring manual aperture control are used between the camera body and a lens, lock the lens automatic aperture lever in the manual position before mounting the lens.

Lock for Manual Aperture Control (1)

For manual aperture control, push the automatic aperture lever counterclockwise until it stops and locks. When accessories such as extension tubes are attached to a lens that has been set for manual control, the diaphragm blades of the lens open or close as the aperture ring is turned. To revert from manual control, reset the automatic aperture lever to its original position.



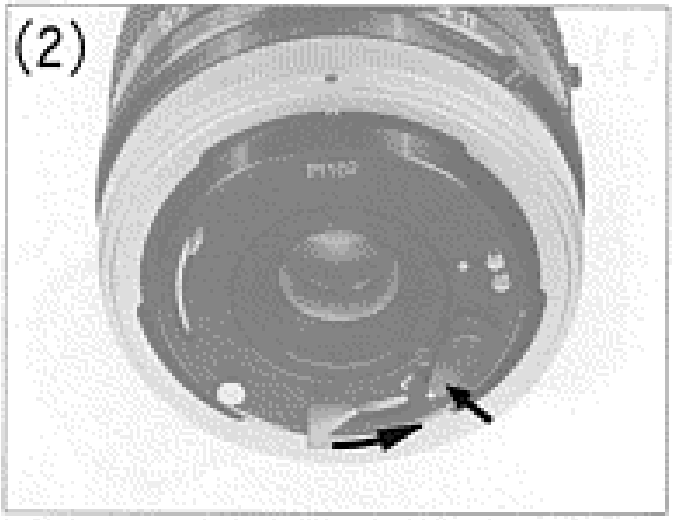


Stopped-Down Metering

When the AT-1 is used with Canon FD lenses, photography can be performed with match needle type full aperture metering. Even when the lens automatic aperture lever is locked in the manual position, FD lenses should not be used on the AT-1 with stopped-down metering. This will cause improper meter readings.

In spite of this, in those cases of the Canon FL lenses and most accessories such as bellows, extension tubes, or a microscope adapter, you must take a stopped-down meter reading. Stopped-down metering is performed by pushing the stopped-down lever until it locks with the main switch at ON, and adjusting the shutter dial and/or the aperture ring until the meter needle is aligned with the aperture needle. Press the shutter button and the photograph will be prefectly exposed.

If the lens should be mounted on the camera with the stopped-down lever locked, correct exposure will not be obtained. In this case, a red warning mark by the stopped-down coupling lever inside the camera body is visible. After removing the lens, on the lower part of the camera body, just below the



Lock for Manual Aperture Control (2)

There are some FD lenses with the manual lock lever requiring a different procedure for manual control setting. With these particular lenses, the automatic aperture lever must be turned fully counterclockwise while the manual lock lever is brought to the "L" position. Once this has been done, when the lens is mounted on the camera, the diaphragm blades will open or close by turning the aperture ring. To revert from manual aperture control, reset the manual lock lever at the position of the white dot.

Lock for Manual Aperture Control When Using the Macrophoto Coupler (3)

In close-up photography of high magnification with a lens reversed on the Macrophoto Coupler, the automatic diaphragm mechanism is not coupled. you must, therefore, remember to close down the diaphragm manually after having locked the automatic aperture lever in the manual position as explained above in (1) and (2). Then, fix the Macrophoto Hood on the lens mount by turning the bayonet ring.

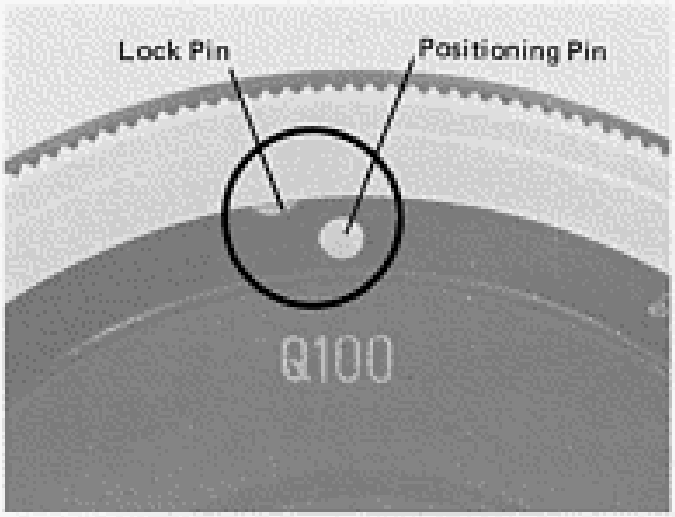
Changing the Lens

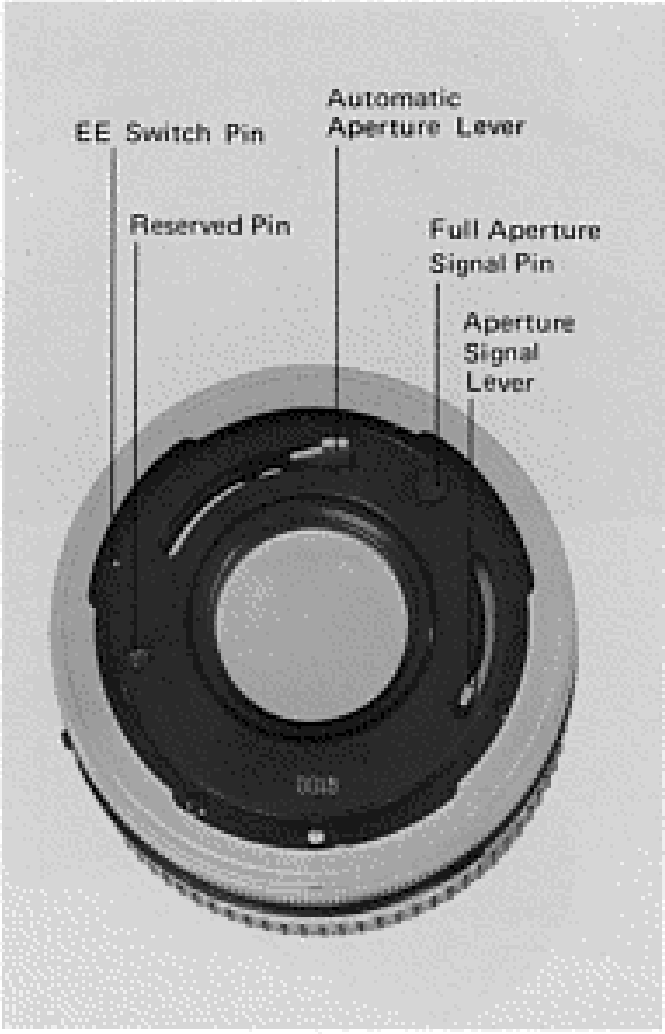
FD lenses incorporate a safety mechanism to prevent the Breech-Lock ring and the diaphragm blades from moving when the lens is not mounted on the camera. To bypass this safety mechanism, press the lock pin in the top recess of the breech-Lock mount while turning the Breech-Lock ring. Once this safety mechanism has thus been cancelled, you can see the diaphragm blades move when activated by the automatic aperture lever.

Since FD lenses have signal pins and levers which couple with the camera body, special care must be taken not to damage them. One basic precaution is to always put the lens down facing down whenever you must change lenses.

Take notice that the following lenses cannot be used on the AT-1 due to interference with the body signal pins. Using these lenses will cause improper meter readings and may cause damage to the camera.

FL	19mm	f/3.5	R	50mm	f/1.8
FL	50mm	f/1.8	R	58mm	f/1.2
FL	58mm	f/1.2	R	100mm	f/2
R	35mm	f/2.5	R	100mm	f/3.5





Lens Signal Coupling

Aperture Signal Lever

This lever transmits the actual f/stop to the exposure meter. It is coupled to the aperture ring.

Full Aperture Signal Pin

This pin transmits a signal indicating the maximum aperture of the lens.

Automatic Aperture Lever

This lever closes down the aperture. It couples with the stopped-down coupling lever.

EE Switch Pin

This pin protrudes when the aperture ring is set at the "A" mark. In this position, it transmits a signal for AE photography. When the aperture ring is set at the "A" mark, the lens can be attached only to the Canon EF, AE-1, and the F-1 equipped with the Servo EE Finder. If the lens is attached to the AT-1, it cannot be set at the "A" mark.

Reserved Pin

This pin is designed for use with accessories that may be developed in the future.

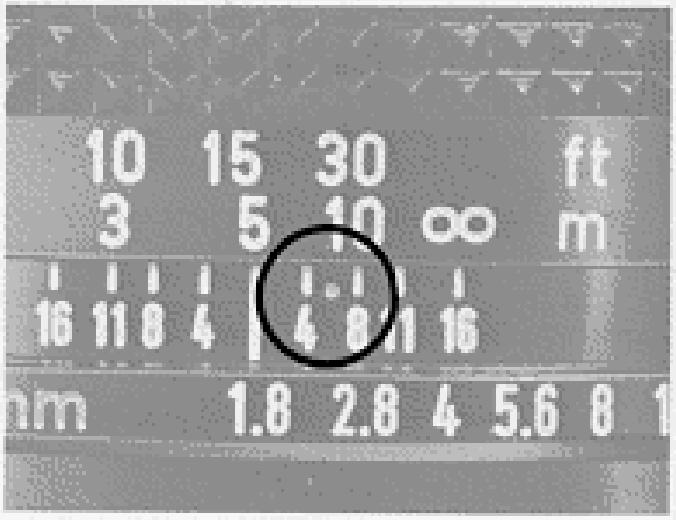
Distance Scale

The distance scale is for distances measured from the film plane. This scale is not generally used except for confirming the depth-of-field, performing guide number calculations in flash photography, or photographing with infrared film.

Read one-digit distances in the middle of the number marked on the scale. Two-digit distances should be read at the point in the middle of the two digits.

Depth-of-Field Scale

You can determine the depth-of-field by checking the depth-of-field scale and the distance scale on the lens barrel. Both are closely interrelated.



Infrared Index Mark

The red dot infrared index mark engraved on the lens barrel is a focusing correction index mark for infrared film. Because infrared light rays have longer wavelengths, they focus on a plane slightly behind that of ordinary visible light rays. Therefore, it is necessary to slightlly modify the normal method of focusing the lens. After focusing the same as usual, note the tiny red dot engraved on the lens barrel just to the right of the distance index and turn the focusing ring slightly to align the focused distance with this red dot. For

instance normally, when the focus is adjusted at 5m on the distance scale, you turn the focusing ring slightly so that the 5 on the distance scale matches the red dot infrared index mark.

When photographing with infrared black and white film, visible light rays must be kept out by means of a deep red filter (R1) over the lens. The position of the infrared index mark is fixed for infrared film most sensitive to the 800mμ wavelength and use of a red filter. For example, the Kodak Film IR 135 and the Wratten Filter 87.

When performing infrared color photography, follow the directions of the specific instructions of the film manufacturer.

Canon Speedlite 155A

When the Speedlite 155A is used with the AT-1, it is not necessary to set the shutter speed on the camera as is the case with ordinary electronic flash units. At any shutter speed except "B", the shutter speed is automatically adjusted to the X synchronization speed of 1/60 sec. at the time the 155A is charged. To perform automatic flash photography, set the prescribed f/stops on the lens manually.

This flash employs a unique light sensing system, so excessive reflection from the central area is reduced giving better overall exposure.

Canon Power Winder A

The Canon Power Winder A is an automatic film winder. It can be attached to any Canon AT-1 directly, without any other accessory or attachment. When you attach the Power Winder A to the Canon AT-1 and press the shutter button, the film will be immediately wound after being exposed. Furthermore, with the Power Winder A you can catch subjects' movements and changing expressions because you are able to take continuous or single frame photography at your pleasure. Continuous photography at up to two frames per second is performed just by keeping the camera's shutter button depressed. Shutter speeds from 1/60 to 1/1000 seconds couple in continuous photography. While in single frame photography, any shutter speed can be used. This is simply done by lifting your finger off the camera's shutter button.

The Canon AT-1 and Power Winder A form a compact, lightweight package that is as portable as a manual advance camera, and much more convenient.

Data Back A

This is an interchangeable back cover with a built-in data imprinting mechanism. It can imprint the day, month and year on the lower right hand corner of the photograph at the moment of the shutter's release, as well as other data to identify or classify the pictures you take. It imprints letters of the alphabet and Roman numerals for greater versatility and convenience.

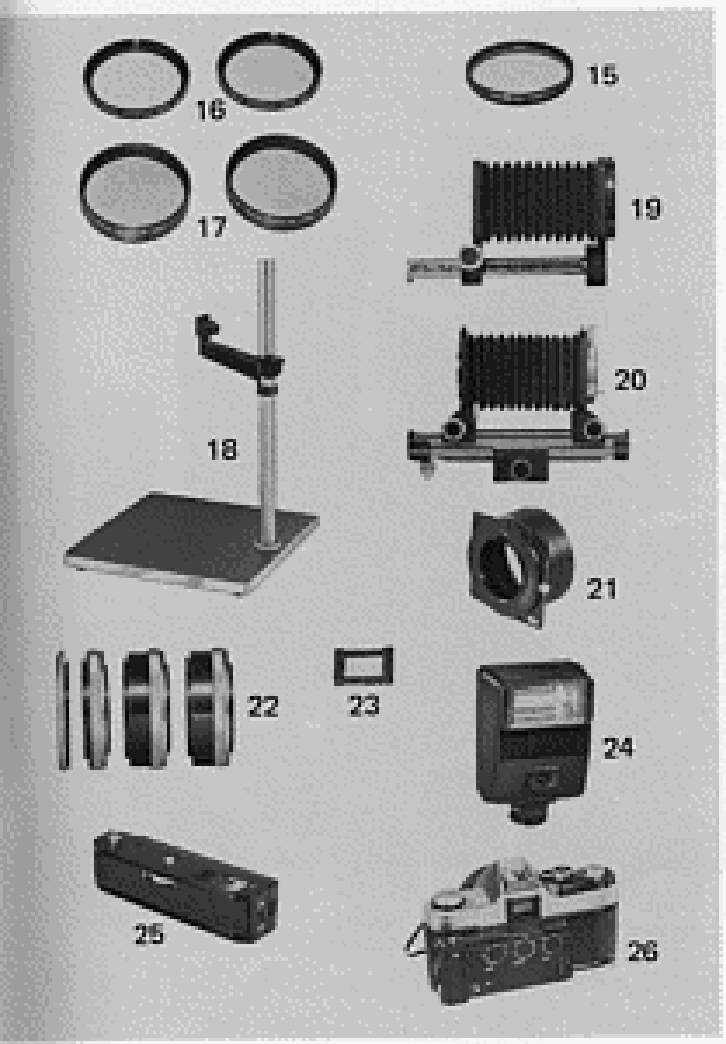
Canon Bellows FL

This is an adjustable bellows for high-magnification photography. Magnification is adjustable within the range of about 0.7 to 3 times the size of the subject when the bellows is used in combination with a standard lens.

The built-in semi-automatic aperture mechanism automatically closes the diaphragm at the time of shooting and makes the Bellows FL almost as easy to use as a fully automatic lens. Focusing is performed with a bright field of view. This has a built-in strut to prevent blur. The Slide Duplicator FL for duplicating slides can be attached to the end of the Bellows. The use of a macro lens especially corrected for close-ups is recommended for photography with the bellows.

Accessories

1. Angle Finders A2 and B
2. Eyecup 4S
3. Magnifier S
4. Camera Holder F3
5. Macrophoto Coupler FL55, 58
6. Lens Hood BS-55
7. Microphoto Hood
8. Photomicro Unit F
9. Slide Duplicator
10. Handy Stand F
11. Gadget Bag 4-type
12. Gadget Bag- G-1
13. Canon Release 30
14. Canon Release 50
15. 55mm filters
    58mm filters
16. 58mm Close-up Lenses (240, 450, 1800)
17. 55mm Close-up Lenses (240, 450)
18. Copy Stand 4
19. Bellows M
20. Bellows FL
21. Holder for Gelatin Filter with Filter Holder Adapter and Hoods



22. Extension Tube M Set
23. Dioptric Adjustment Lens S for Eyesight Compensation (10 kinds)
24. Speedlite 155A
25. Power Winder A
26. Data Back A

When the camera is used in very cold conditions.

Battery performance is usually affected by temperatures below zero C. It is always necessary to use a new battery for photography in such extreme cold. Moreover, an extra battery should be taken along and kept warm by placing it next to your body.

The battery may not function well at low temperatures but it may well work perfectly under normal conditions, so don't throw it away.

In sudden changes of temperature from cold to hot, the viewfinder or the lens may get moist and fog. Therefore, the camera should be exposed to the temperature change gradually. The camera has to be kept in a plastic bag completely sealed and then taken out once it has been adjusted to the outside temperature little by little.

Care and Storage of the Camera

No matter how exceptional the camera may be, it will not give you all it can unless it is taken care of properly. Please make sure to keep the camera clean all the time. Acquire a blower brush, cleaning liquid, cleaning paper, silicone cloth, etc.

Care of the Camera

Dust on the lens or the viewfinder should first be blown off with a blower brush. Use lens tissue or a clean, soft cloth to remove fingerprints or smudges with a gentle circular motion, if necessary after breathing on the surface. It is best to wipe the surface with lens tissue impregnated with one or two drops of cleaning liquid. After the camera has been used on a beach or near the sea, clean it well because salt can affect its mechanisms. A blower brush should also be used to clean the mirror box inside the camera body. If it should require wiping, by all means, please take the camera to a Canon authorized distributor.

The film compartment has to be cleaned with a blower because it easily collects film dust. If the dust contains sand, the film is easily scratched. When cleaning the rail surface or the pressure plate, please use cleaning paper and cleaning liquid. Be careful not to touch the shutter curtain when doing so.

Maintenance

Keep the camera in a place with low humidity and no dust. After removing the camera from the case, take the battery out. When you are going to store the camera for a long time without using it, the shutter release button must be activated now and then, to prevent mold and mechanical trouble.

Please avoid storing the camera in places such as mentioned below.

1. Inside the trunk or rear window of a car in the direct sun because the temperature can rise to an extremely high degree and this may give rise to trouble in the camera.
2. Places such as laboratories where chemicals are around may cause rust or corrosion.

To safeguard the durability of the camera, please take it to the closest Canon authorized distributor once every three years at least. If the camera is not in use for a long time, please use it only after closely checking each and every part of it.

SPECIFICATIONS

Type: 35mm SLR (Single-Lens-Reflex) Camera with focal plane shutter.

Picture Size: 24 x 36mm

Interchangeable lenses: Canon FD series lenses for full aperture metering. Canon FL series lenses for stopped-down metering.

Standard Lenses: Canon FD 55mm f/1.2 S.S.C.
Canon FD 50mm f/1.4 S.S.C.
Canon FD 50mm f/1.8 S.C.

Lens Mount: Canon Breech-Lock Mount.
Canon FD, FL, and R lenses can be mounted for use.

Viewfinder: Fixed eye-level pentaprism.

Field of View: 93.5% vertical and 96.3% horizontal coverage of the actual picture area.

Magnification: 1:0.82 at infinity with a standard 50mm lens.

Dioptric Adjustment Lens S: Standard −1 diopter.
Interchangeable with +3, +2, +1.5, +1, +0.5, 0, −0.5, −2, −3, and −4 diopters.

Focusing Screen: Split-image/microprism rangefinder surrounded by matte screen

Viewfinder Information: Meter needle and aperture needle (circular index) are seen on the right hand side of the viewfinder. On the upper right hand is an over-exposure/battery check index mark and on the lower right hand is a metering limit index mark on the underexposure side.

Viewfinder Attachments: Angle Finder A2 and B, Magnifier S, Dioptric Adjustment Lens S (10 kinds), and Eyecup 4S.

Mirror: Instant-return, large reflector mirror with shock absorbing mechanism.

Exposure Meter: Built-in. Using CdS photo-cell. Coupled to shutter speeds, film speeds, and f/stops. Match needle type, TTL full aperture metering mechanism.

Light Metering System: TTL (Through-The-Lens) Central Emphasis Metering method

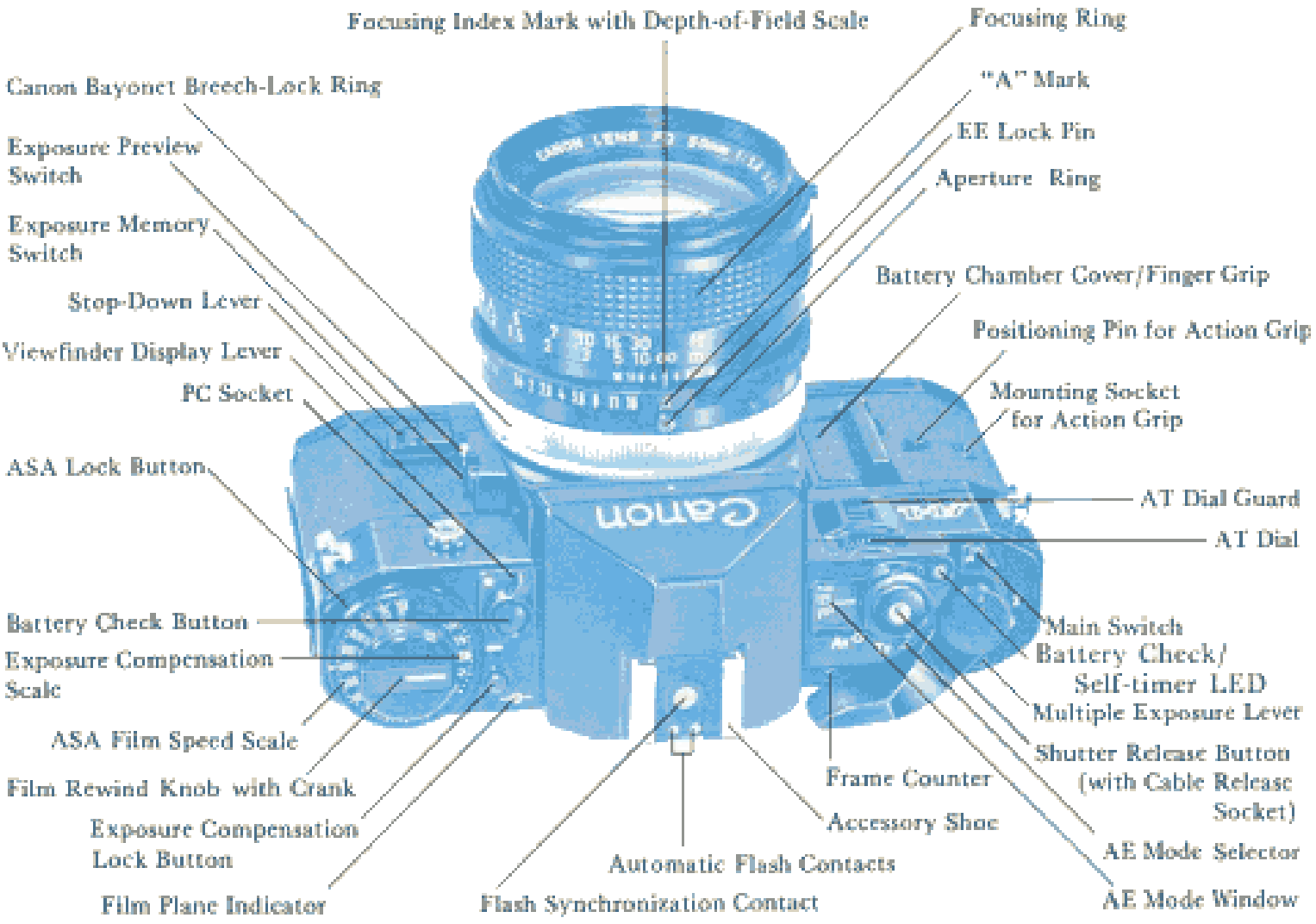
Exposure Meter Coupling Range: EV 3 (f/1.4 at 1/4 sec.) to EV 17 (f/16 at 1/500 sec.) at ASA 100 film with FD 50mm f/1.4 S.S.C. Lens.

Film Speed Range: ASA 25 to ASA 3200

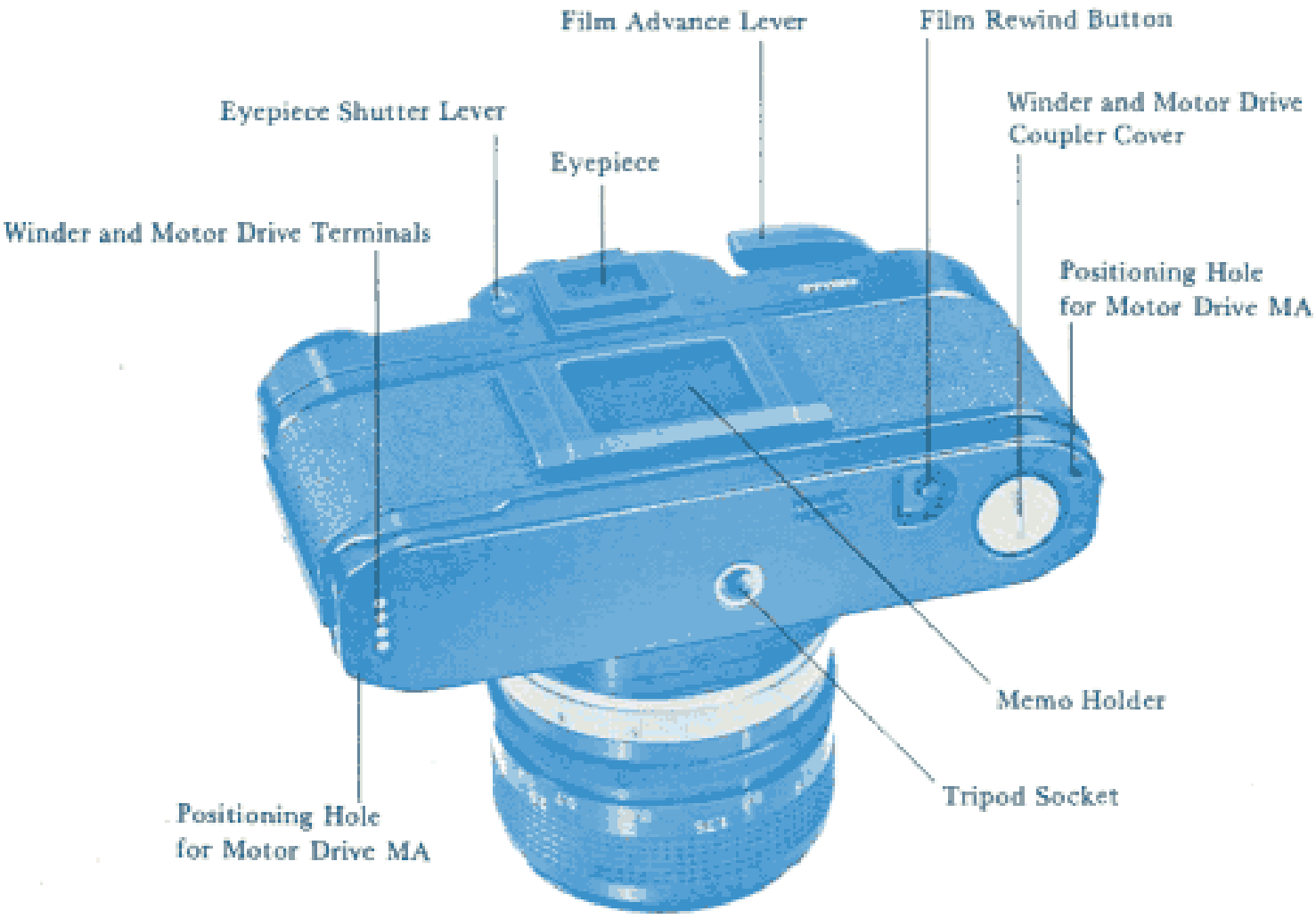
INTRODUCTION

Congratulations! You are now the owner of the most exciting and advanced camera on the market. Canon has good reason to have unbounded confidence and pride in the A-1. Embodied in this camera are the qualities of the finest SLR cameras and into it went the most sophisticated electronics technology available in the world today. Incorporating at least 20 novel technologies never before used in a camera, your A-1 is capable of operating in five distinct AE modes--all with an incredibly high degree of precision, reliability and ease of operation. A simple flick of a single switch will put you in any one of the AE modes. Simple manual operation is also possible. With its many AE functions, the A-1 is not only the perfect tool in the hands of a professional but easy enough to operate even for novices. Even the A-1's system accessories are integrated into its pulse-controlled, digital computer system so that you can enjoy AE flash and motorized AE photography. In the A-1, Canon finally offers you a multifunctional AE camera that actually gives you more creative freedom through more control.

You will find that your A-1 has many unusual features. For the fullest understanding of and benefit from your A-1, please read this instruction booklet carefully as you familiarize yourself with the camera. For the convenience of non-experts, we have included as many photographic hints and facts as space allowed. We at Canon hope your new A-1 will open to you a whole new world of photography, whether as profession or avocation.



Fold out both front and back nomenclature pages for easy reference while reading the instructions.


Film Advance Lever
Film Rewind Button
Eyepiece Shutter Lever
Winder and Motor Drive Coupler Cover
Eyepiece
Winder and Motor Drive Terminals
Positioning Hole for Motor Drive MA
Memo Holder
Tripod Socket
Positioning Hole for Motor Drive MA


Canon
A-1
1000 5.6
500 5.5
250 5.4
125 5.3
60 5.2
CANON LENS FD 50mm 1:1.4 S.S.C.
CANON
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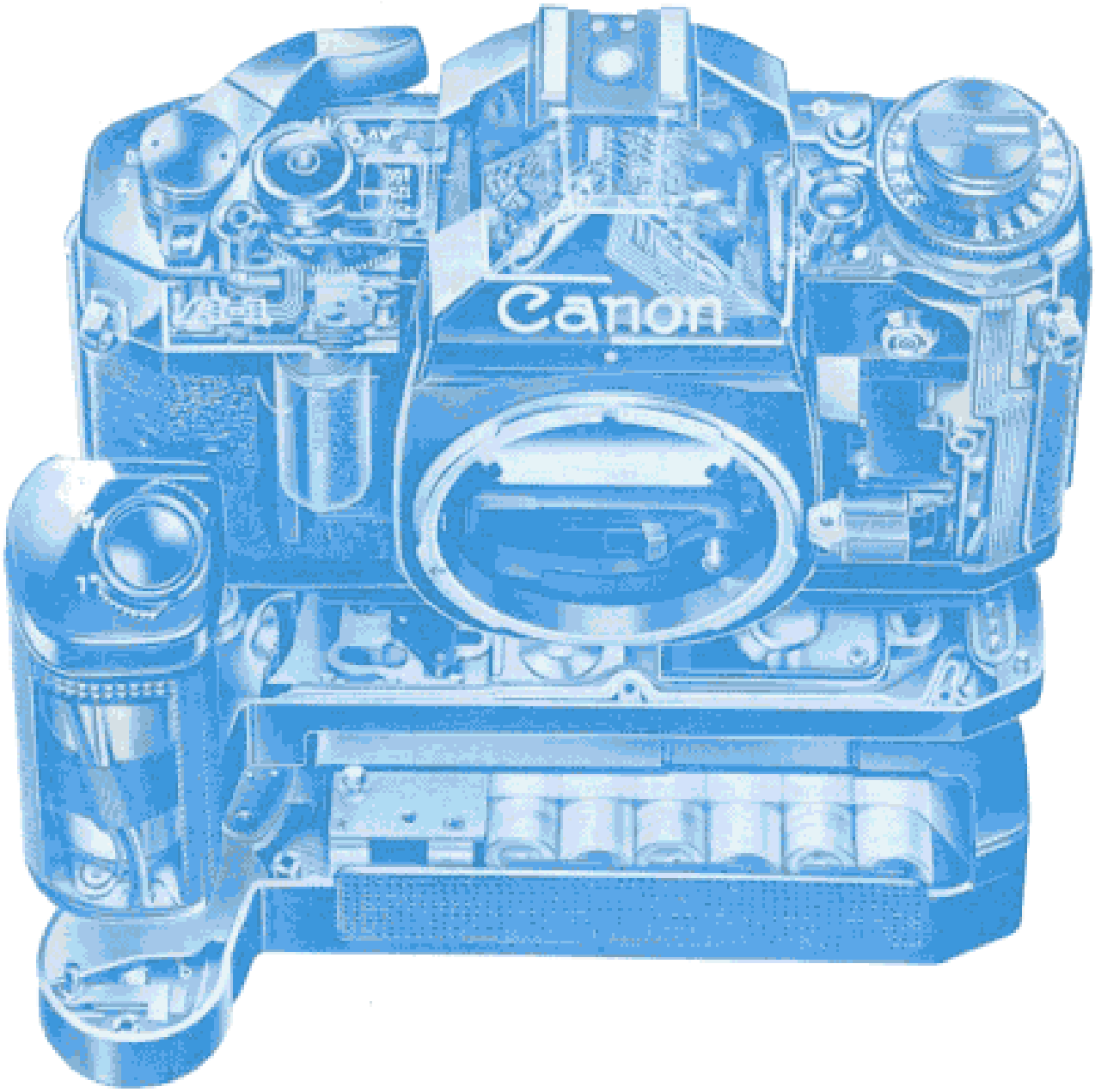

Canon

MAIN FEATURES

Quality from the Inside Out

The extraordinary qualities of the A-1 start with its design. It is the first camera in the world in which all information, both input and output, is in the form of pulse signals, enabling it to be the first camera with a digital, rather than an analog, computer. It is the first camera to have a Pure-Integrated Injection Logic (Pure-I^{2}L), the most advanced type of logic circuitry yet produced by the electronics industry, which is so highly integrated that it is capable of processing many times the information possible with simple IC's. It is also the first camera in the world to have a program unit with programmable logic array (PLA) which makes sure that the camera receives all information and in correct order. In practical terms, all of this complex electronics circuitry boils down to the first camera which is capable of extremely precise and reliable automatic exposure in five different modes but which remains remarkably compact and easy to operate.

The use of such advanced technology is not limited to design alone. Building on the special production technology system it established with the design of the AE-1, Canon has extended its use of computers and automation from automatic production of the main parts to at least partial automation in all facets of production including processing, assembly and inspection. In this contribution to a new system of camera manufacture, Canon is able to offer greater precision at less expense.

Other benefits deriving from the design concept of the A-1 include greatly improved stability against great temperature changes and remarkably improved meter response. The A-1 will set AE exposure only a split second before shutter release.

Despite all of this electronic circuitry which would reasonably require a great deal of power, the A-1 requires only one small battery which normally lasts about one year. Every part of the A-1, from its sequence circuitry, where the power is sequentially switched on and off, to its Pure-I^{2}L and combination magnet, is designed to conserve power.

Five AE Modes and Manual Override

Besides five AE modes which cover all forms of photography, easy override of the A-1's

Wide Metering Range

With its extensive film sensitivity range (ASA 6-12800) and 16 shutter speeds (1/1000-30 sec.), the A-1 offers a wide AE metering range from EV18 (f/16, 1/1000 sec.) all the way down to EV-2 (f/1.4, 8 sec.) with ASA 100 film and an f/1.4 speed lens.
Provided that you can even focus your subject in the viewfinder in a very dark situation, it is most likely that you will be able to meter it as well, even in an AE mode. This is especially advantageous in such dimly-lit situations as those in night scenes and photomacrography.

Other Special Features

Add to these features the A-1's single-lever multiple exposure operation and its two-interval self-timer with an LED warning. Switching one small lever before winding the film sets the A-1 for a multiple exposure. The film and even the frame counter remain stationary for unlimited multiple exposures. You can set the self-timer for a time-lag of either two or ten seconds during which an easily visible LED flashes. Flashing frequency increases as a warning prior to shutter release.
Finally, seemingly small features, but big advantages in photography, include the A-1's detachable action grip, its 120°-stroke film advance lever with a 30° stand-off, its eyepiece shutter and its shutter button lock (main switch).

The System

Beginning with accessories which are integral parts of the A-1 system, Canon offers the Speedlite 199A and the Motor Drive MA. Either the more powerful Speedlite 199A or the Speedlite 155A can be mounted on the A-1 for AE flash photography with automatic setting of shutter speed and aperture. With the Motor Drive MA, continuous shooting at up to five frames per second is possible, and the A-1 also accepts the Power Winder A. Like the AE-1, the A-1 can also use the Data Back A, a date imprinting mechanism that will couple to both power winder and Speedlite.
Plus, you have your choice of accessories from Canon's extensive SLR system. From its famous, high resolution FD lenses to its complete line of systemized accessories for close-ups, photomacrography and photomicrography, Canon offers high-quality equipment for all photographic fields.

AE functions is also possible.
Shutter-speed priority AE is especially useful in action photography, aperture priority AE in still photography. The programmed AE mode, in which the camera controls both aperture and shutter speed for correct exposure, is good for general use and is the easiest mode for beginners. These three AE modes along with exclusive flash AE, are performed with an FD lens set at "A" for all the benefits of full aperture metering. Stopped-down AE, in which the shutter speed is automatically set, allows automatic exposure with non-FD lenses and accessories and is a big advantage in close-ups and photomicrography. And since all AE inputs have been consolidated into the AE mode selector and the AT dial, the operation of only these two controls suffices to set the camera for any one of the five AE modes.

For complete control for exposure correction or special effects, manual operation is a simple matter of moving the FD lens aperture ring from the "A" mark while the shutter speed is set on the AT dial. The A-1 will even provide you with an exposure readout as a basis for your exposure adjustment.

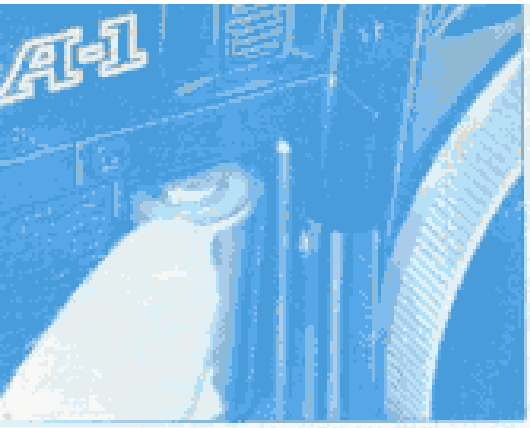
Exposure Compensation

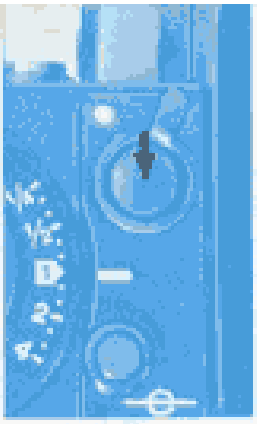
Along with the wide selection of AE modes, the A-1 has two controls for wide-range exposure compensation. These are the exposure compensation dial for stepped exposure correction between ±2 f/stops and an exposure memory switch for temporary correction. For special techniques such as low- and high-key shots, contre-jour photography, multiple exposures and flash photography, you pros will find quick response in the A-1. Even in AE, you have complete control over the image results.

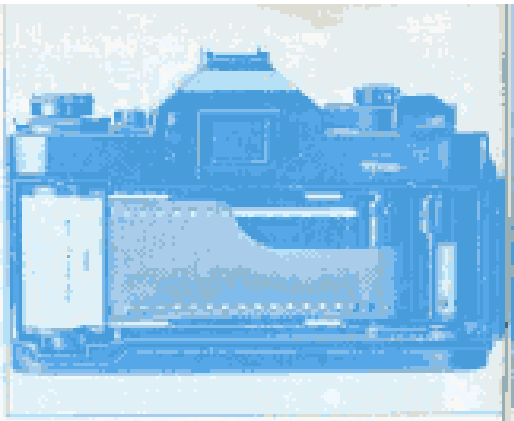
Field-of-view-only Viewfinder

This viewfinder is one of the A-1's most unusual features. In the classic sense of the word, this bright viewfinder shows only the field of view for easiest focusing and composing.

Using any one of three ways to take an exposure preview, you will activate a compact LED digital readout which clearly conveys shutter speed, aperture, flash and manual operation signals, a bulb indication, improper exposure warnings and a malfunction warning. The viewfinder readout is below and out of the way of the field of view, and the LED's are clearly legible with no need for extra illumination even in very bad light.







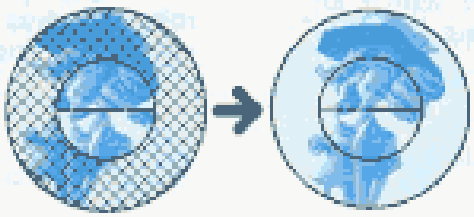
1 Load the battery.

2 Turn the main switch to the "A" position and check the power level.

3 Load the film and advance it to the first frame.

PICTORIAL OUTLINE FOR GENERAL USE OF THE CAMERA

7 Look into the viewfinder. Compose the picture and focus.

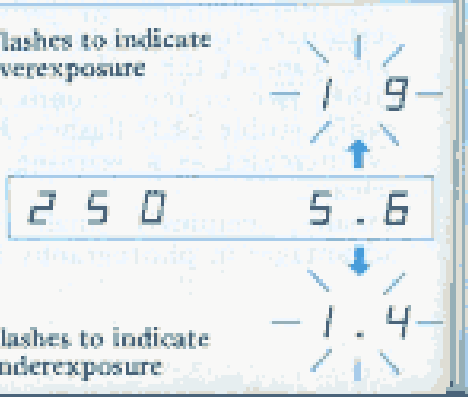


Out of Focus

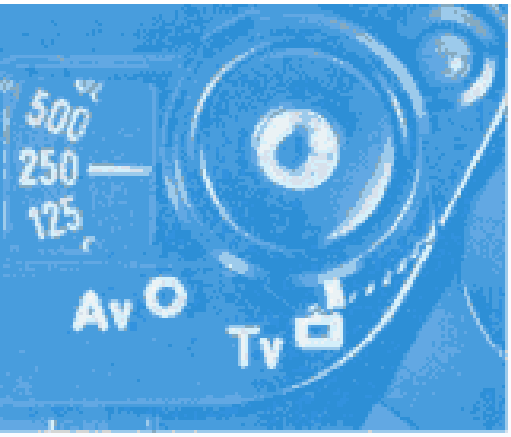
In Focus

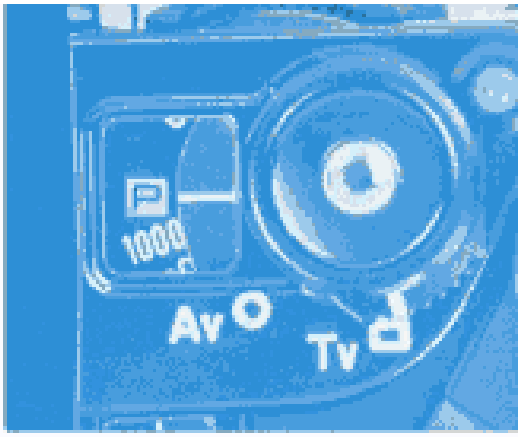
8 Check the exposure.

Flashes to indicate overexposure



Flashes to indicate underexposure





SETTING THE CAMERA FOR THE FIVE AE MODES AND MANUAL OVERRIDE

Shutter-speed Priority AE

1. Make sure the lens aperture ring is set to the "A" mark.
2. Switch the AE mode selector to Tv.
3. Select a shutter speed by turning the AT dial.

See pp. 34-36 for detailed explanation.

Aperture Priority AE

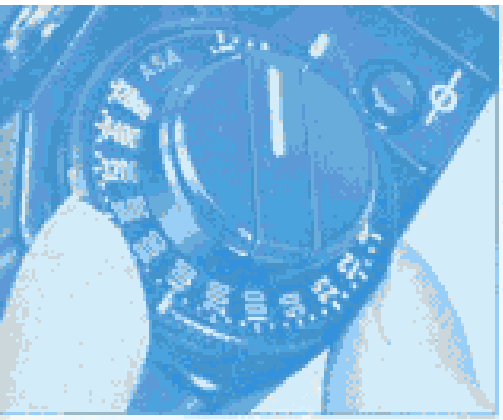
1. Make sure the aperture ring of the lens is set to the "A" mark.
2. Switch the AE mode selector to Av.
3. Select an aperture by turning the AT dial.

See pp. 34-37 for detailed explanation.

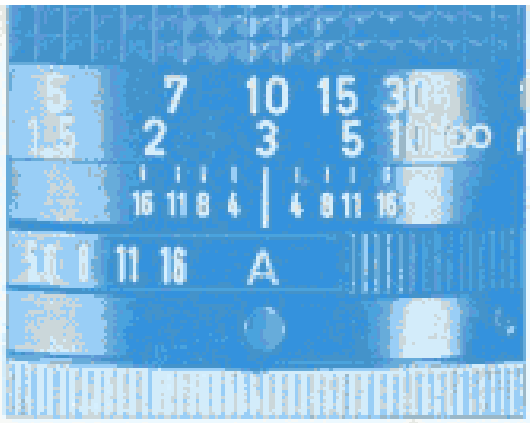
Programmed AE

1. Make sure the aperture ring of the lens is set to the "A" mark.
2. Switch the AE mode selector to Tv.
3. Turn the AT dial to "P" at the upper limit of the shutter speed scale.

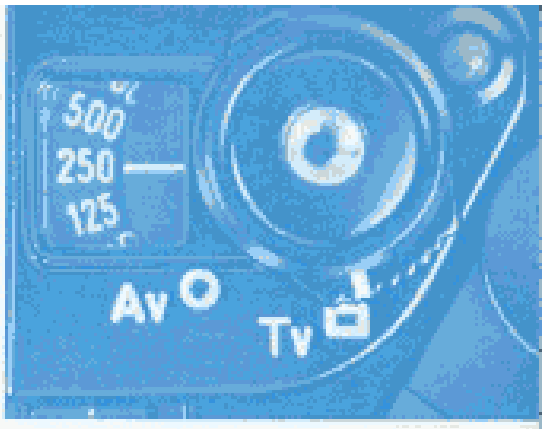
See p. 45 for detailed explanation.



4 Set the ASA film speed.

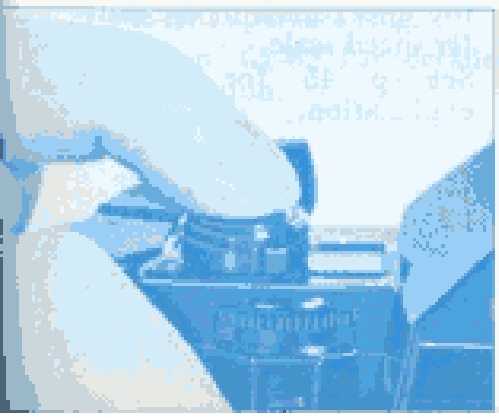


5 Set the aperture ring of the lens to the "A" mark (for AE photography).

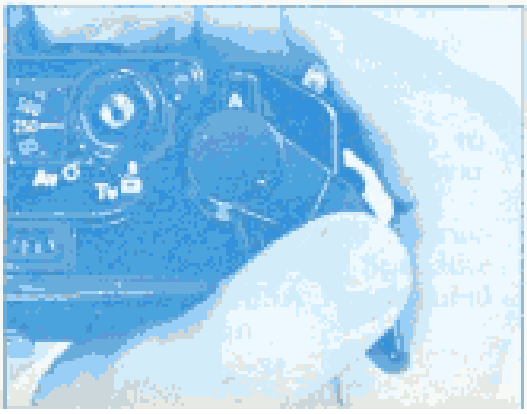


6 Select the AE mode. (Turn the AT dial).

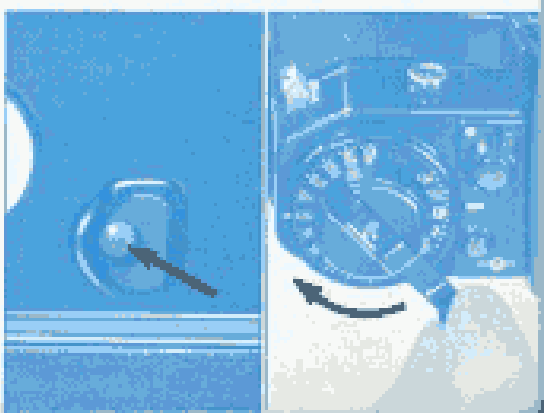
9 Press the shutter button gently.

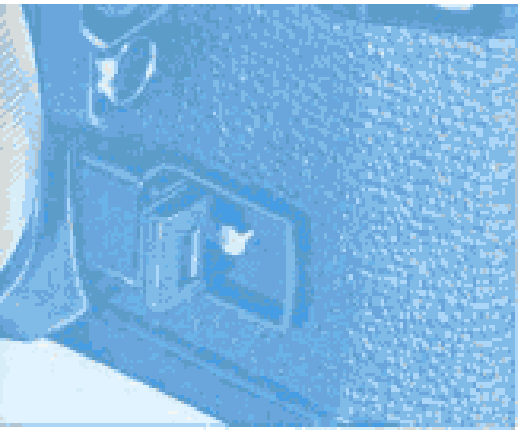


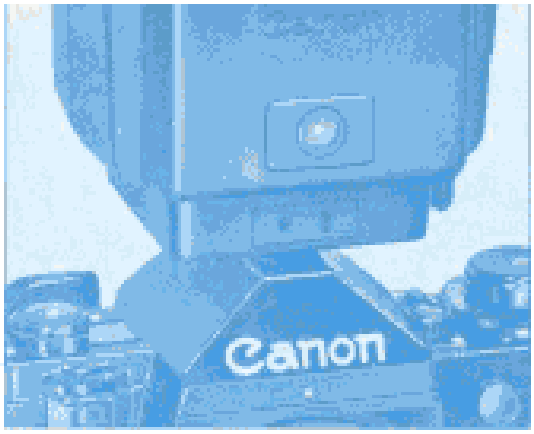
10 Advance the film to the next frame.

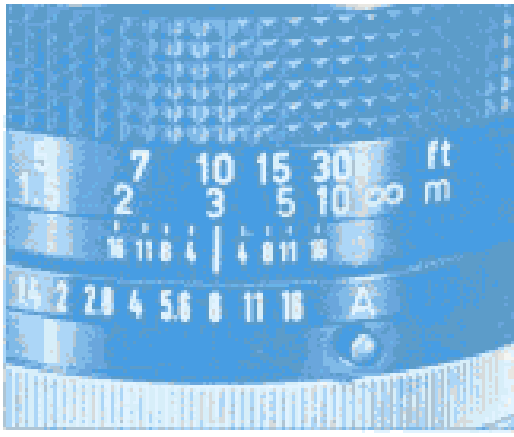


11 Rewind the film after all frames are exposed.









Stopped-down AE

1. Disengage the lens aperture ring from the "A" mark (necessary only on FD lens).
2. Fold and push in the stop-down lever.
3. Set the aperture by turning the lens aperture ring.

See pp. 61-62 for detailed explanation.

AE Flash

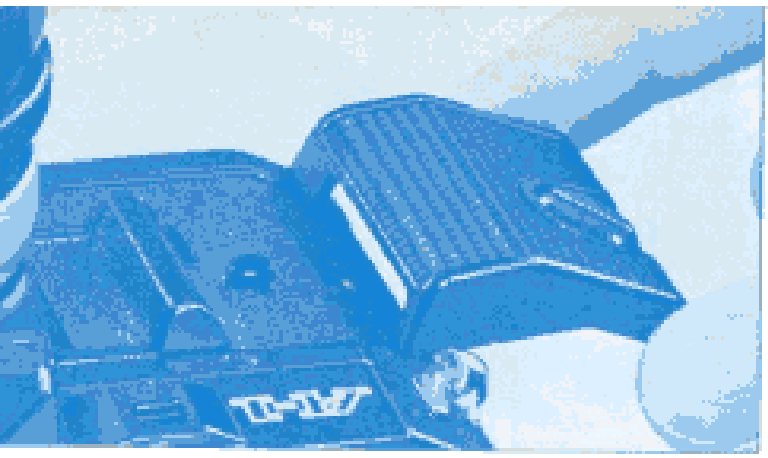
1. Insert the Speedlite 199A or 155A into the A-1's accessory shoe.
2. Set the ASA film speed on the flash.
3. Make sure the lens aperture ring is set to "A".
4. Set the auto working aperture on the flash.
5. Switch the flash on.
6. Wait for the pilot lamp to light up and "F" to appear in the viewfinder.

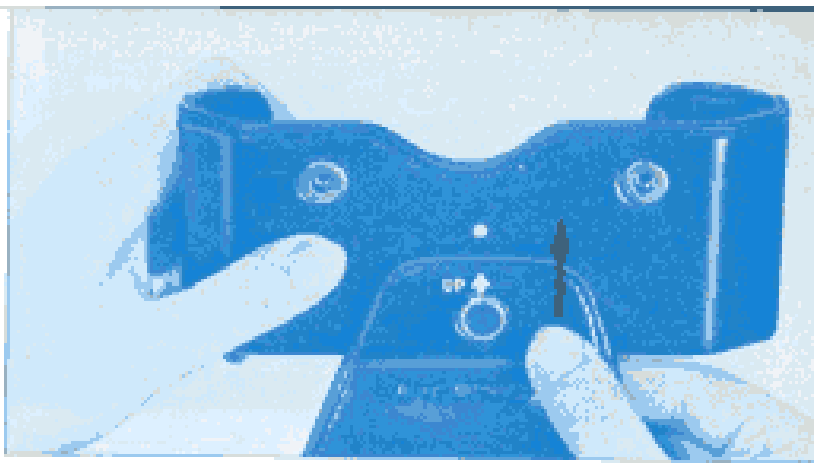
See pp. 83-85 and instruction booklet for Speedlite 199A or 155A for detailed explanation.

Manual Override

1. Disengage the lens aperture ring from the "A" mark (necessary only on FD lens).
2. Switch the AE mode selector to Tv.
3. Select a shutter speed by turning the AT dial.
4. Select an aperture by turning the lens aperture ring (using the camera-selected aperture in the digital readout as a basis if so desired).

See p. 65 for detailed explanation.



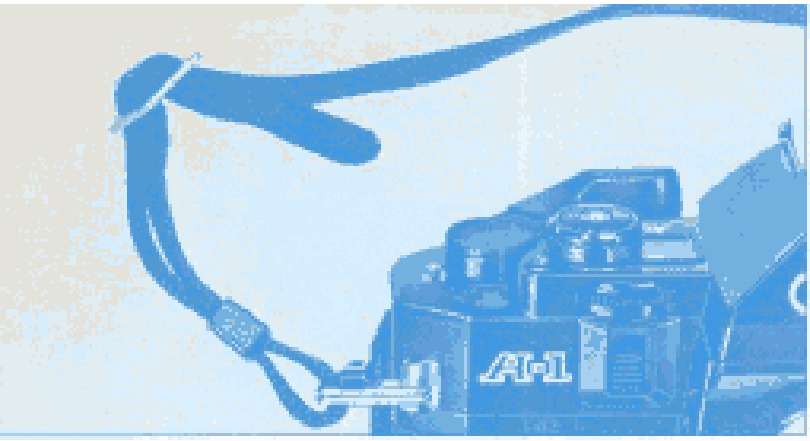


Action Grip

The A-1 has a handy, built-in finger grip, but to make camera holding all the easier, it comes with a detachable action grip as well. Before attaching the grip, load the battery into the camera. Then, using a coin, screw the grip into the action grip mounting socket guided by the positioning pin on the front of the camera body.

Semi-hard Case

To protect the camera, particularly when carrying it, insert it into its semi-hard case. The screw in the bottom of the case screws into the camera's tripod socket. You can easily shoot pictures even with the camera in the semi-hard case by removing the top cover. To do this, turn the top cover to the bottom, slide it straight up in the direction of the arrow and pull it out as indicated in the photo.

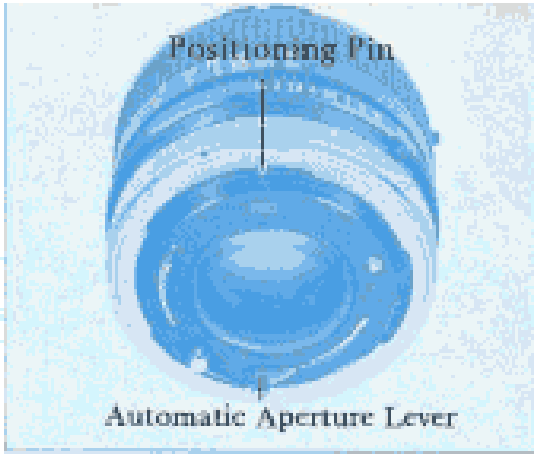


PRELIMINARY PREPARATIONS

Neckstrap
Thread the tips of the strap through the rings. Adjust the neckstrap to the length most comfortable for you.

Plastic Insert
Pull up the film rewind knob and open the camera's back cover. Remove the plastic insert which is designed to protect a new camera while in transport and snap the back cover shut. The insert is no longer necessary and may be thrown away.

Eyecup 4S
This is an accessory eyecup which snaps into the eyepiece grooves. Its use is not mandatory, but viewing with it may be more comfortable, and it helps block extraneous light from entering the viewfinder.



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 not in use.

To remove the rear dust cap, rotate the bayonet ring clockwise until it stops. The red dot on the bayonet ring will be aligned with the positioning pin at the rear of the lens. When the rear dust cap is removed, the bayonet ring is locked as a safety measure and cannot be turned in either direction. The rear dust cap can be re-mounted by aligning its slot with the positioning pin and, pressing gently on the cap, turning the bayonet ring counter-clockwise.

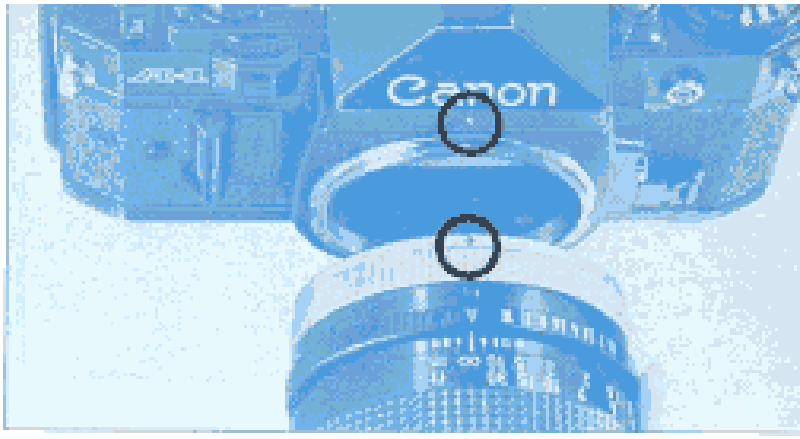
The front lens cap hooks into the lens filter threads. It can also be attached to a double-screw type filter screwed into the lens. It is easily attached and removed by pressing in the tabs on both sides of the cap. As a precautionary measure, please keep the lens capped when not shooting. If the camera were to be placed lens-up with the lens uncapped in direct sunlight, for instance, the film might fog and the shutter curtain could be burned.

Hood

The lens hood is an optional accessory which is very useful in preventing ghost images and flare. To mount a hood, fit it into the bayonet mount at the front of the lens and turn it until it is tight. When not in use, the hood can be mounted in reverse on a standard or some wide-angle lenses, which enables both lens and hood to fit perfectly into the camera's soft case.

Mounting Procedure

First make sure that the camera's stop-down lever is not locked in (if locked in, a red dot



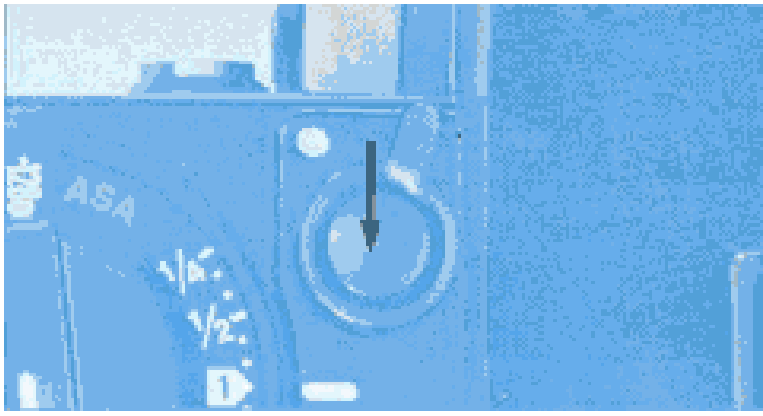
will appear beside the coupling lever inside the camera mount). Check that the automatic aperture lever at the rear of the lens is in its unlocked, automatic position (see p.80). Do not mount an FD lens when the film is only partially advanced.

1. Pull the bodycap off the front of the camera.
2. Remove the lens' rear dust cap.
3. **Make sure the bayonet ring is properly locked into position with the red dot on the ring aligned with the positioning pin at the rear of the lens. It will not mount onto the camera otherwise.**
4. Align the red dot of the bayonet ring with the red dot on the front of the camera body just below the manufacturer's signature on the pentaprism.
5. In this position, fit the rear of the lens into the camera body and turn the bayonet ring clockwise until it is tight.
6. To dismount the lens, turn the bayonet ring counterclockwise until it stops and pull the lens out from the camera body.

When changing lenses, you should take special care not to damage the protruding levers and pins on the rear. With the exception of the Fish-eye 7.5mm lens, always put down a lens with the rear facing up.

Whenever you mount an FD lens on the A-1, its maximum aperture is automatically transmitted to the camera's AE circuit. Even if you switch to an FD lens of a different maximum aperture, the mounting procedure is the same as that described above and requires no adjustment.

All five AE modes are possible with an FD lens. See SETTING THE LENS FOR AE PHOTOGRAPHY. Of the five AE modes, only stopped-down AE is possible with an FL lens.



Checking the Battery

Life of the battery in normal use is approximately one year. Using the camera frequently at low shutter speeds, at the "B" setting or in extremely cold conditions takes more battery power and requires replacing the battery more often.

The battery requires checking under the following circumstances:

1. When a new battery is loaded.
2. If the shutter will not function when the main switch is at "A".
3. When long exposures are frequently made.
4. When the camera is used very frequently.
5. When the camera is used after it has been stored for an excessively long period of time.
6. When the camera is used in extremely cold conditions.

To check the power level of the battery, first set the main switch to the "A" position. It cannot be checked in the "L" position. Then press the battery check button on the top of the camera for two to three seconds. If, while pressing the battery check button, the LED on the top of the camera blinks on and off rapidly, battery power is sufficient. If it blinks only slowly, twice per second, for instance, or not at all, the power level is insufficient and the battery should be replaced. It should also be replaced if the flashing frequency changes during the few seconds the check button is depressed, indicating the battery is near exhaustion.

It is a good idea to carry a spare battery when you expect to use the camera continuously for a long time, such as on a vacation, when you plan to take a number of time exposures on bulb, or when the camera is to be used in very cold conditions.