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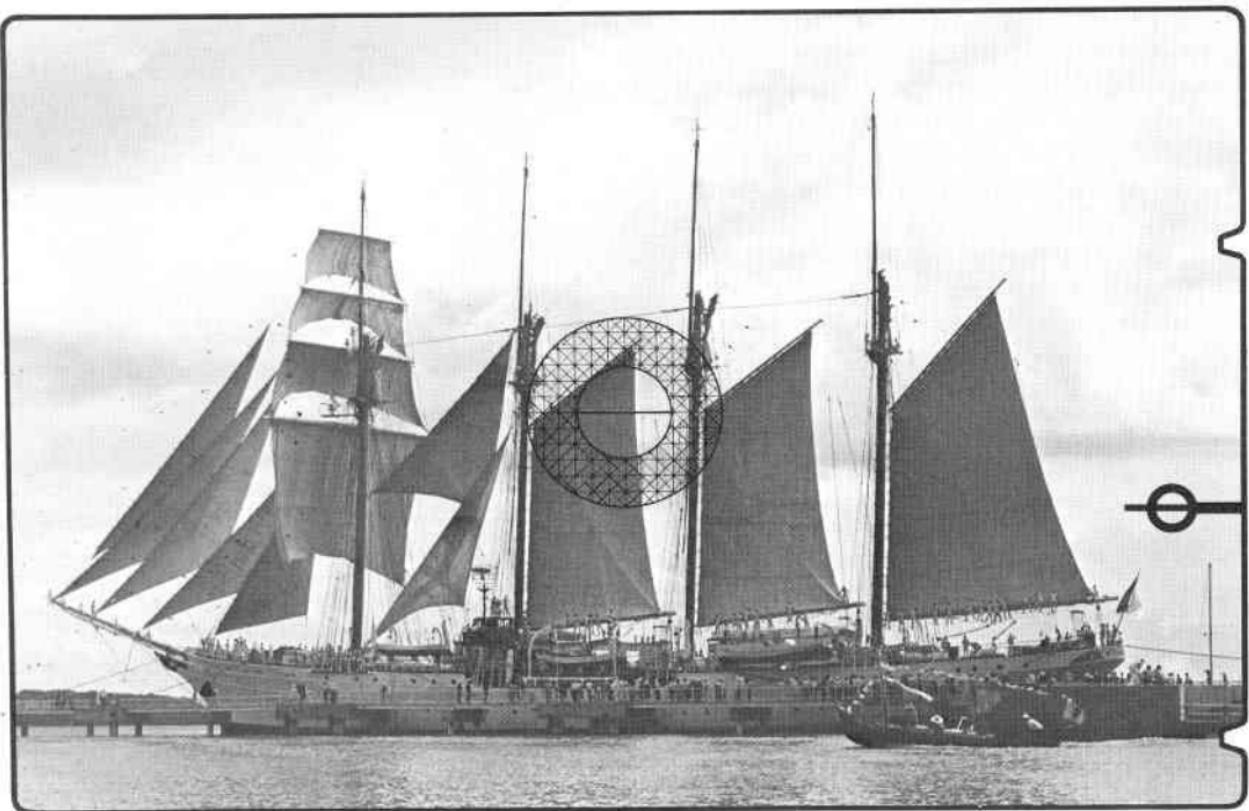
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Detailed Operation of the AT-1



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



C

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 heightens 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.

D

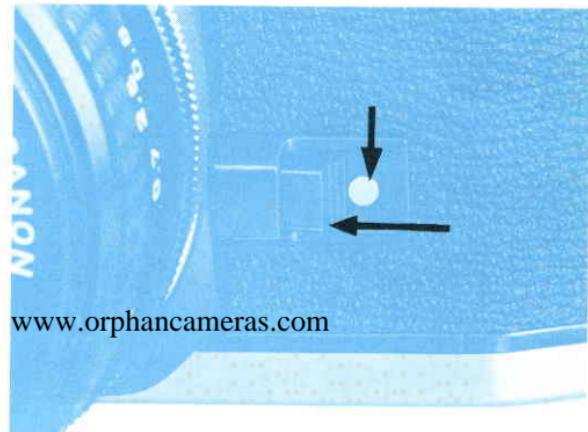
Depth-of-Field

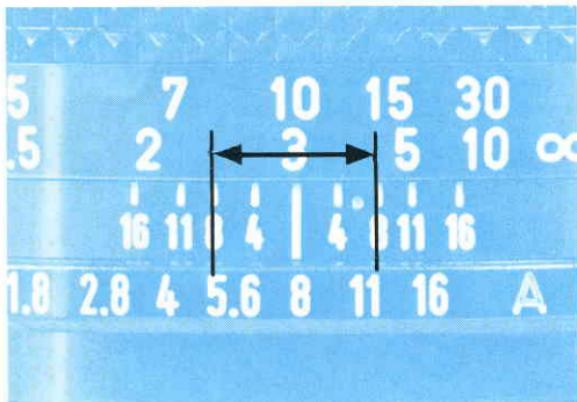
When a certain subject is brought into focus, there is only a limited range in the foreground and background of the subject which can be kept clearly in focus. This zone of sharpness is the depth-of-field.

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.





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

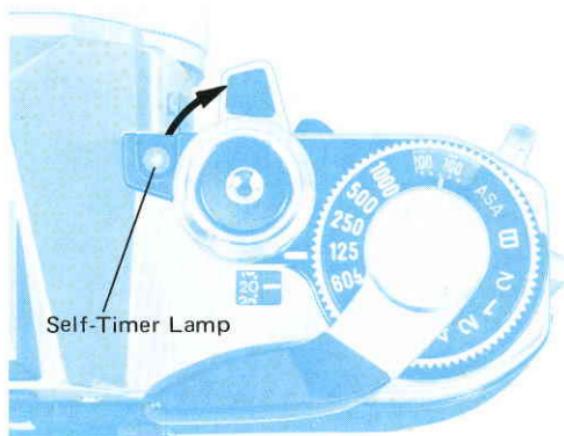
A depth-of-field scale is engraved on the lens barrel, shown as a series of f/numbers on each side of the distance index mark opposite the distance scale. Focusing and depth-of-field are so closely interrelated that the depth-of-field scale is engraved together with the distance scale.

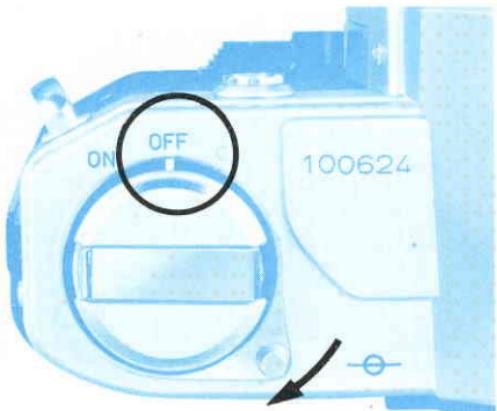
You can tell the extent of depth-of-field from the distance scale. For example, if you use the camera with a standard 50mm lens that is focused on a subject at medium distance, say 3m with the aperture set at f/8, the depth-of-field extends from 2.4m to 4.5m. This tells you that with the 50mm lens focused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

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.





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 or 199A of a directly coupled contact type for exceptional flash photography.

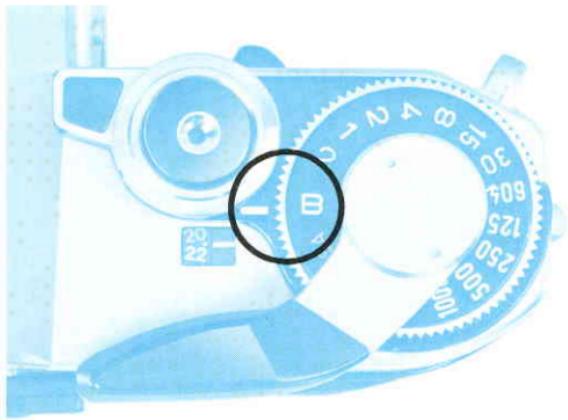
When using a flash bulb or an electronic flash other than the Speedlite 155A and 199A, you can select the appropriate shutter speed in reference to the table of "Flash Synchronization Range" indicated below.



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

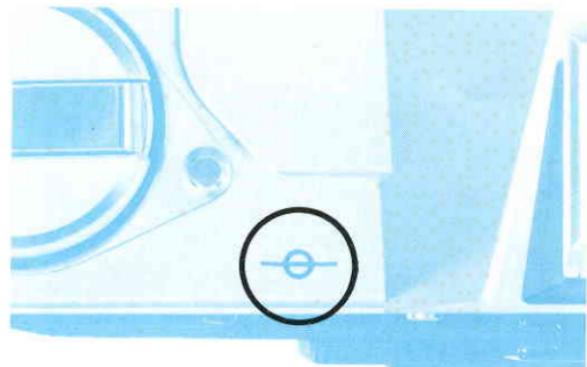
When you need shutter speeds slower than two seconds such as for shooting night scenes or fireworks, set the shutter speed dial at "B". Then, the shutter will remain open as long as the shutter button is pressed. In long exposures, it becomes essential to mount the camera on a tripod and use a cable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

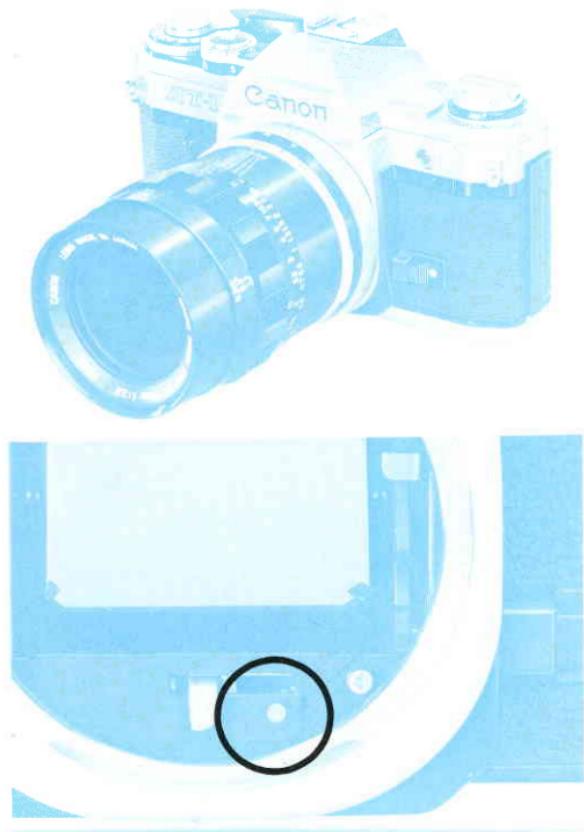
A cable release with a locking device can keep the shutter open even though the operator leaves the cable release unattended. Unlock the cable release to close the shutter.

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.





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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 perfectly 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

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 Diaphragm Control

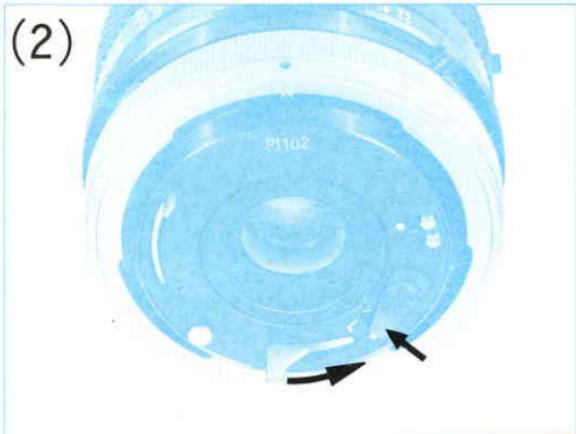
When accessories requiring manual diaphragm control are used between the camera body and a lens, lock the lens automatic aperture lever in the manual position before mounting the lens.

Lock for Manual Diaphragm Control (1)

For manual diaphragm 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.



(2)



Lock for Manual Diaphragm 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 diaphragm control, reset the manual lock lever at the position of the white dot.

(3)



Lock for Manual Diaphragm 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.

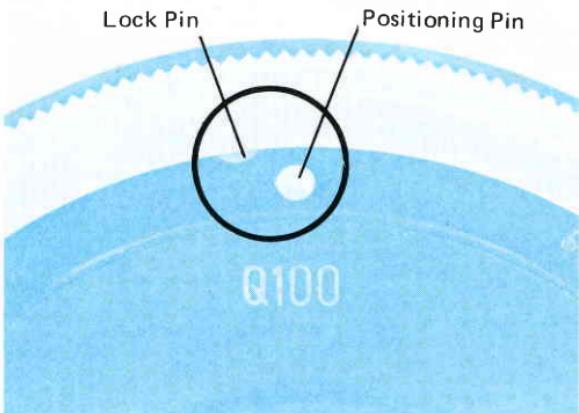
Changing the Lens

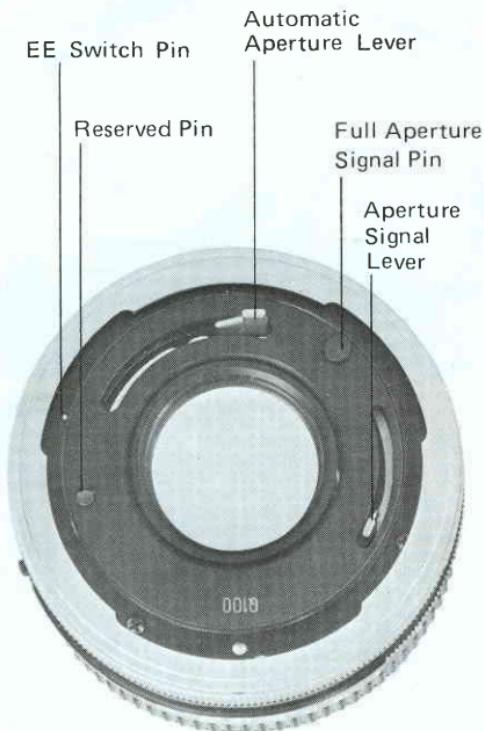
FD lenses incorporate a safety mechanism to prevent the Breech-Lock ring and the diaphragm blades from moving when the lens is not mounted on the camera. To bypass this safety mechanism, press the lock pin in the top recess of the Breech-Lock mount while turning the Breech-Lock ring. Once this safety 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.

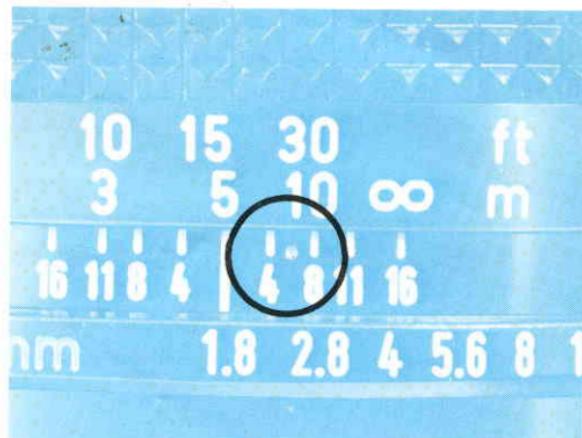
Distance Scale

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 slightly 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 $800\mu\mu$ 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.

Accessories, Care of the Camera, Maintenance and Miscellanea



Canon Speedlite 155A and 199A

When the Speedlite 155A or 199A 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 flash is charged. To perform automatic flash photography, set the prescribed f/stops on the lens manually.

The Speedlite 199A is a powerful flash unit with a guide number of 30 (meters, with ASA 100 film). To control depth of field, you can choose between three auto working apertures which are automatically controlled to provide a right exposure to the main subject. The 199A also has bounce flash capability and, when used with the wide angle adapter, covers a 24mm lens field.

Both of flashes employ 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.

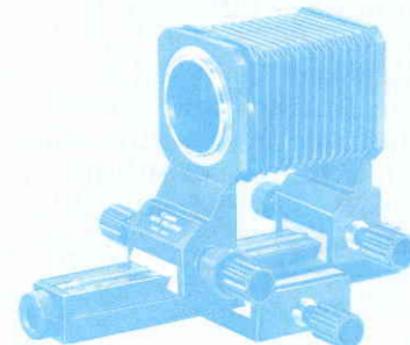
Data Back A

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.



Auto Bellows

The Canon Auto Bellows is a sophisticated bellows for use with any Canon single-lens reflex camera. Automatic diaphragm coupling is possible with the Auto Bellows when the Canon Double Cable Release is jointly used. The Auto Bellows is considered the true center of Canon photomacrographic system which includes accessories for every application in high-magnification photography.



Accessories

1. Angle Finder A2 and B
2. Eyecup 4S
3. Magnifier S
4. Camera Holder F3
5. Macrophoto Coupler FL55 and FL58
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)
17. 55mm Close-up Lenses (240, 450)
18. Macrophoto Lens 20mm f/3.5
19. Macrophoto Lens 35mm f/2.8
20. Duplicator 8
21. Duplicator 16
22. Duplicator 35
23. Focusing Rail
24. Macro Stage





- 25. Roll Film Stage
- 26. Double Cable Release
- 27. Copy Stand 5
- 28. Copy Stand 4
- 29. Auto Bellows
- 30. Bellows M
- 31. Bellows FL
- 32. Extension Tube M Set
- 33. Dioptric Adjustment Lenses (10 kinds)
- 34. Speedlite 155A
- 35. Speedlite 199A
- 36. Power Winder A
- 37. Data Back A
- 38. Action Case A
- 39. Holder for Gelatin Filter with Filter Holder Adapter and Hoods