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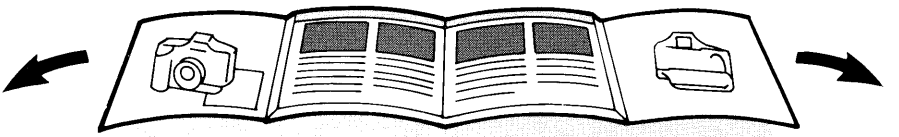
INTRODUCTION

Thank you for purchasing the Canon T90. This camera is designed as a comprehensive package of the most advanced and innovative technologies available in the world today, balancing your photographic desires with automatic features — a state-of-the-art camera.

Your photographic range is heightened by 1) the built-in motor drive capable of winding film at a maximum of 4.5 frames per second with merely four size-AA batteries, 2) the high-speed PMS shutter permitting 1/4000 sec shutter speed and 1/250 sec flash synchronization, 3) the three switchable metering distribution patterns, and 4) a wide range of AE shooting modes responding to your photographic needs. Meanwhile, complete automation in areas such as film transportation and film speed setting makes "multiple functions and simple operation" finally and fully compatible.

Your shooting options are further expanded by optional accessories like the Speedlite 300TL, the Macro Ring Lite ML-2, the Data Memory Back 90 and the Command Back 90.

For a full understanding of the T90, please read this instruction booklet carefully before using the camera.



While reading these instructions unfold the front and back flaps of this booklet for easy reference to the camera's parts.

Nomenclature

LCD Display Panel
Red Dot
Spot Metering Button
Electronic Input Dial
Shutter Button
Grip
Self-timer Operation Indicator (LED)
Remote Control Socket Cover
AE Lock Pin
Distance Index
Bayonet for Hood
Lens Release Button

Accessory Shoe
Illumination Window
Film Plane Indicator
Metering Mode Selector
Shooting Mode Selector
Neckstrap Ring
Back Cover Lock Button
Back Cover Latch
Mount Positioning Point
Focusing Ring
Stop-down Lever

Inside the Palm Wing

Battery Check Button
Film Winding Mode/ Self-timer Button
Viewfinder Display Selector
Manual Rewind Button
Film Winding Mode/ Self-timer Selector

Contents

1. BUILT-IN MOTOR DRIVE

A high film winding speed requires a high power-source voltage, which in the past has meant a lot of batteries. Unfortunately a lot of batteries make a camera heavy and very inconvenient to carry. The "realization of both low voltage and high film winding speed" has therefore long been a dream of camera makers. But Canon challenged the inconsistency of a low voltage (i.e., a few batteries), high film winding speed camera, and came up with the *3-motor system of the T90. This camera has a built-in motor drive capable of a maximum of 4.5 frames/sec, using only 4 size-AA batteries.

There are three possible film winding speeds; HIGH (4.5 f.p.s.), LOW (2 f.p.s.), and SINGLE. Also, the automatic film winding speed change-over function will change the film winding speed from HIGH to LOW mode when battery power drops below a prescribed voltage, so more pictures can be taken with the same batteries.

* There are three motors, for mechanism charge, film transport system and film rewind, respectively, inside the camera. Each motor is designed to best serve its specific function, and the overall efficiency of camera operation has thus been improved.

2. COMPLETE AUTOMATION OF FILM TRANSPORT SYSTEM

An efficient film transport system (film load, wind and rewind) is indispensable, but has little to do with the photographer's final purpose. With the T90, the complete automation of the film transport system is based on the concept: "the operation which does not relate to the photographer's objectives should be automated completely".

a. Auto Load
   As soon as the back cover is closed after the film has been loaded, the camera advances the film to the first usable frame (approx. 2 secs).
b. Auto Wind
   The film is advanced to the next frame after exposure so you can always be looking through the viewfinder and never miss a shot.
c. Auto rewind
   At the end of the roll, the camera rewinds the film and then stops (approx. 8 secs using 24-exp. film).

3. AUTOMATIC FILM SPEED SETTING (DX CODE)

When using a film with a DX code, the film speed is automatically set according to the DX code standard determined (ISO 25—5000). When using a film without a DX code, a manual film speed setting is also possible, from a winder range of ISO 6—6400.

4. VERSATILE SHOOTING MODES

The T90 has various shooting modes to meet the photographer's needs. The shooting modes of the T90 are 1) shutter-priority AE, 2) aperture-priority AE, 3) standard program AE, 4) variable-shift program AE (select from seven kinds), 5) manual override, 6) stopped-down AE and 7) stopped-down fixed index metering.

5. VERSATILE METERING MODES

The T90 is the world's first camera to have all three metering distribution patterns, i.e. center-weighted average metering, partial metering, and spot metering, built into one camera and used by switching among the three patterns. Multi-spot metering is also possible with a special button. In addition, the spot metering mode has a memory function (approx. 30 secs) and the AE lock mechanism comes on in both the partial and spot metering modes when the shutter button is pressed down halfway. Exposure compensation includes two methods: the exposure compensation index, which increments by 1/3-steps, and the H/S control by 1/2-step increments. H/S control helps reproduce black and white faithfully.

6. PMS SHUTTER

Canon developed the PMS (permanent magnet shutter), permitting complete electronic control between 1/4000 and 30 secs, effective for fill-in flash photography. This shutter is more stable and durable thanks to four front shutter blades, and four in the back, made of specially-coated superduralmin. Another feature of this shutter is that 1/2-step shutter speed settings such as 1/3000 or 1/750 are possible for the fastest shutter speed which applies to any situation.

7. LARGE LCD PANEL AND VIEWFINDER INFORMATION

A lot of shooting information: film transport, shooting mode, metering mode, shutter speed and aperture value, is displayed on the large liquid crystal display panel and in the viewfinder. Reading the information, however, is fuss-free because only the information required at the time will be displayed. In addition, an illumination function for the LCD panel is provided and the viewfinder information can be completely turned off, if unnecessary.

8. SUPERB BALANCE AND HANDLING

Based on in-depth studies, the shutter button is at the position where your finger naturally rests. The smooth and concentrated camera operation can be performed by the pushbuttons and the electronic input dial which can be handled while holding the camera grip. The big grip is one of the user-friendly designs of the T90 and its material was carefully chosen to prevent your hand from slipping. Switches such as the self-timer and the battery check, which are indispensable for the camera but not used so often, are put inside the palm wing on the side of the camera to assure you of handling-ease.

9. ELECTRONIC CIRCUITRY AND ENERGY-SAVING DESIGN

The backbone of the T90's micro-circuitry is the dual CPU composed of the main CPU and the sub-CPU. It operates the camera's whole sequence. Its circuitry scale is approx. 7.5 times larger than that of the T70, and approx. 30 times larger than that of the A-1. The shooting capacity, however, suffices using only four size-AA batteries, because of the high efficiency of the film transport mechanism and the energy-saving design of the circuitry.

10. TRENDSETTING ELEGANT APPEARANCE

Canon's philosophy underlying the elegant curvilinear appearance of the T90 is "a camera is a photographic tool, so it must fit the natural shape of the hand during holding and operation." The camera has been formed curved following ergonomic design, and so the appearance results in improved operation-ease. Previously it was believed that mass production of a product with a round keynote shape is difficult, but the highly advanced production technology Canon has accumulated from years of experience makes it possible.

11. COMPLETE COMPATIBILITY WITH THE FD LENS

An SLR camera must not be limited by which lenses it can use. The Canon T90 can make the most of all the FD series lenses (more than 50, ranging from a 7.5 mm fish-eye to a 800 mm super telephoto lens) all renown for their outstanding color balance and high resolution.

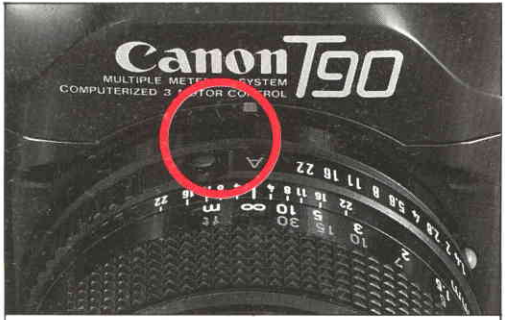
12. SPECIAL ACCESSORIES

The complete range of special accessories such as 1) the advanced Speedlite 300TL which has solved the problem both with TTL and external flash systems, 2) the Macro Ring Lite ML-2 using TTL control system which is most effective for close-up shooting, 3) the Data Memory Back 90 which can store shooting data, 4) the Command Back 90 which can automatically imprint several data and command camera operation, 5) the Wireless Controller LC-2 making remote control photography possible with near-infrared rays, and 6) interchangeable focusing screens, are all optionally available.

Operation Summary

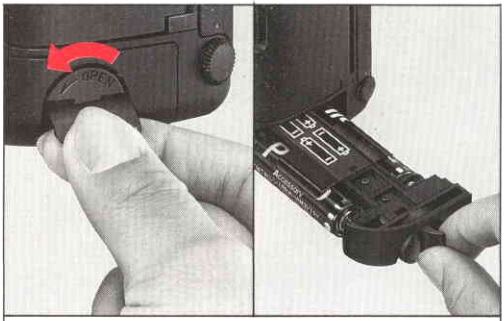
Here is the operation summary of the camera explained. We hope you will get used to the general use of the T90 before you go into details on the camera.

In this instruction booklet, the LCD panel display is simplified for your easy reference.



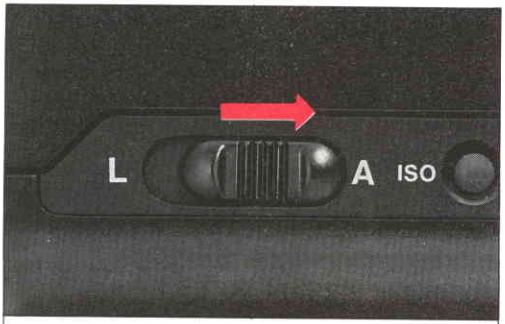
1. Set the lens to the "A" mark.

While pressing in the AE lock pin, turn the aperture ring until the "A" mark click-stops at the distance index.



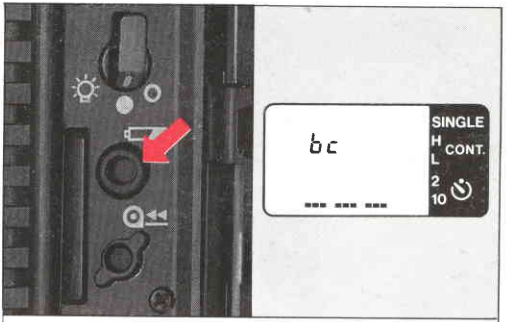
2. Load the batteries.

1) Pull the battery magazine latch out and turn it in the direction of "OPEN" to pull the battery magazine out of the camera.
2) Load the batteries so that their terminals face in the directions indicated on the battery magazine.



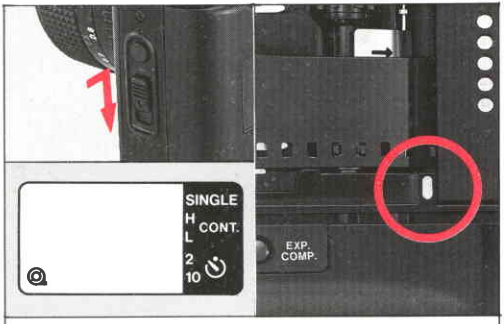
3. Turn on the camera.

Slide the main switch to "A" to activate the camera. The display will come on at this time.



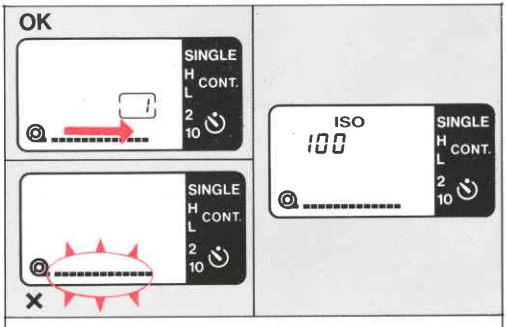
4. Check the batteries.

1) Open the palm wing and press the battery check button (▭) in it.
2) If two or more battery check marks appear on the display panel, battery power is sufficient.



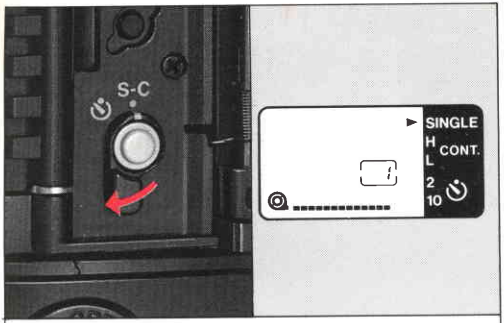
5. Load the film.

1) Push the back cover latch down, while pressing the back cover lock button.
2) Place the film cartridge in the film chamber. The film-load check mark (◎) will then appear on the display panel.
3) Pull the film leader across the back of the camera until its tip is aligned with the orange index.



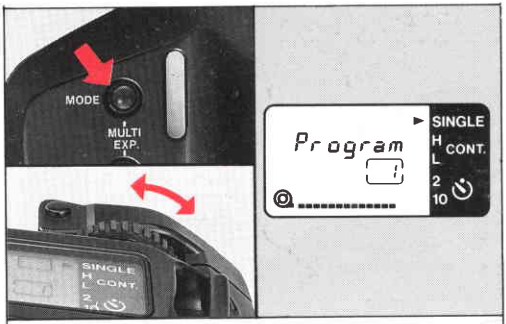
6. The camera sets the first usable frame automatically.

1) As soon as the back cover is closed, the camera will advance the film automatically until the frame counter on the display panel indicates "1". (If the film has not been correctly advanced, the whole film transport bars blink to warn you.)
2) When using DX-coded film, the film speed is automatically set and it appears on the display panel while the camera is advancing the film.



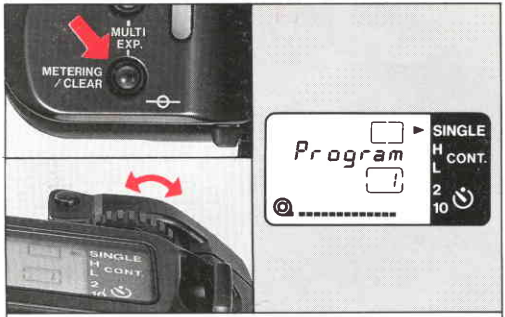
7. Set the film winding mode.

1) Open the palm wing and set the film winding mode/self-timer selector to "S-C".
2) Press and release the film winding mode select button to set the single-frame mode on the display panel.



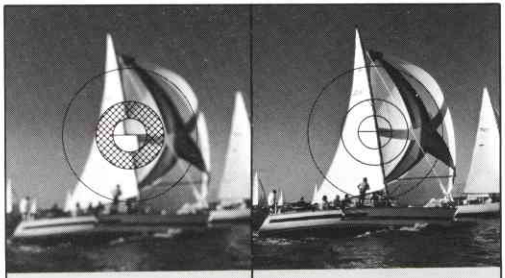
8. Set the shooting mode.

While pressing the shooting mode selector, turn the electronic input dial until "Program" is indicated on the display panel.



9. Set the metering mode.

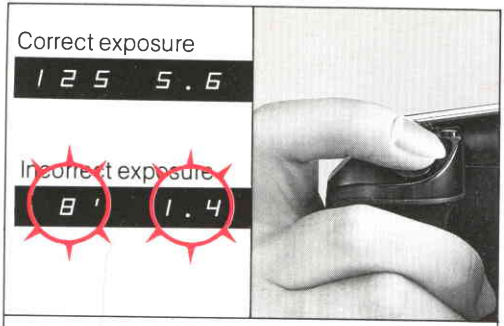
While pressing the metering mode selector, turn the electronic input dial until "▭" (center-weighted average metering) is indicated on the display panel.



(Out of focus) (In focus)

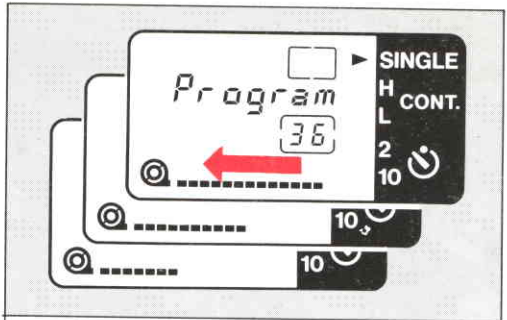
10. Focus the subject.

Turn the focusing ring until the main subject looks sharp.



11. Confirm the viewfinder information and shoot.

1) Press the shutter button halfway to check the exposure. Exposure will be correct unless the shutter speed display and/or the aperture value display start blinking in the viewfinder.
2) Press the shutter button all the way to take the picture. The film is automatically advanced to the next frame.



12. The camera rewinds the film automatically.

1) When the film reaches its end, the camera will start rewinding the film automatically.
2) When the roll is completely rewound, film rewind stops automatically.
3) When the film-load check mark ( ) starts blinking on the display panel, open the back cover to remove the film cartridge.

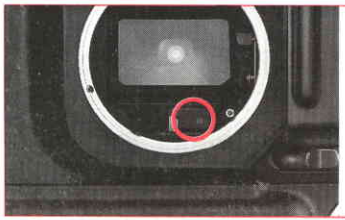
Preliminary Preparations

1. Attaching the Lens

1) Turn the rear lens cap in the direction of the arrow until it stops, and pull it off the lens.
   - To attach the rear lens cap, align its arrow with the red dot on the lens. Then lightly push it in and turn it clockwise until it stops.

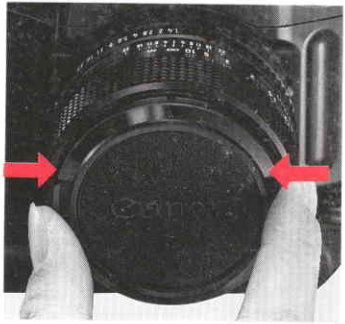
2) Turn the body cap counter-clockwise and pull it off.
   - To attach the body cap, first align its red positioning point with the red dot above the camera mount, then turn the cap clockwise.

3) To mount the lens, first align the lens' mount positioning point with the camera's red dot.



Do not mount the lens if the red dot inside the camera mount is showing; correct exposure is impossible if you do. In this case, push in the stop-down lever so that it locks in the normal position and this warning mark can no longer be seen.

4) Then turn the lens clockwise until it stops and the lens release button pops out with a click.
   - To remove the lens, turn it counterclockwise while pressing the lens release button.

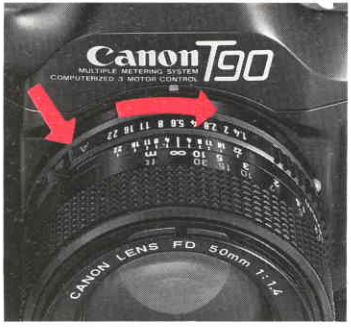


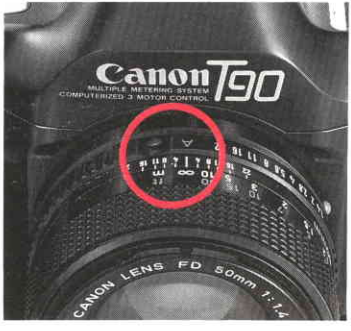
5) Remove the front lens cap.

Be sure to place the lens with its front end down to avoid damaging the protruding pins.

Lenses which cannot be mounted on the T90:
FL 19 mm f/3.5
FL 58 mm f/1.2
Lenses which cannot be used with the T90's meter for mechanical reasons:
FL 19 mm f/3.5 Retro-focus
FL 35 mm f/2.5
FL 50 mm f/1.8-I
FL 58 mm f/1.2-II
(Use of an independent exposure meter is recommended.)

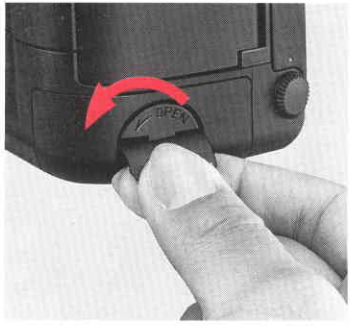
2. Setting the Lens for AE Photography



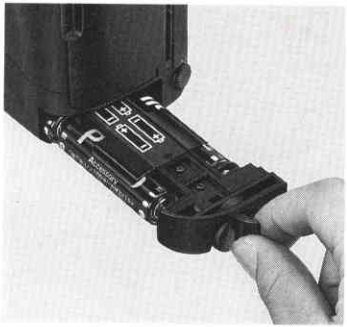


While pressing in the AE lock pin, turn the aperture ring in the direction of the arrow until the "A" mark click-stops at the distance index.

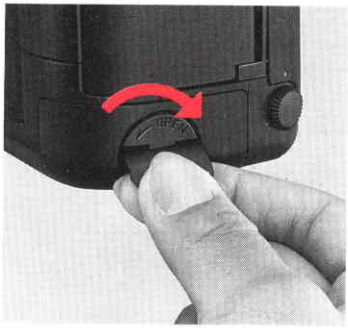
3. Loading the



1) As shown in photo, pull the battery magazine latch out first and then turn it in the direction of the arrow (OPEN). Pull the battery magazine out of the camera.



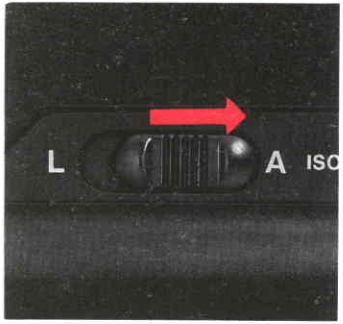
2) Load four new size-AA alkaline-manganese batteries (LR6) so that their terminals face in the directions indicated on the battery magazine. The camera will not function if the batteries are loaded incorrectly.



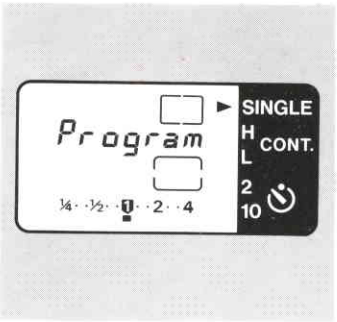
3) Insert the loaded battery magazine back in the camera. While pressing the latch firmly, turn it in the reverse direction to lock it.

When you replace the batteries with the camera mounted on a tripod, loosen the tripod screw slightly before replacing the batteries.

4. Turning on the Camera

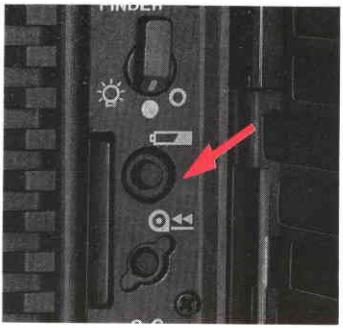


Slide the main switch to "A". The display will come on at this time. If the display does not appear, confirm that the batteries are loaded correctly.

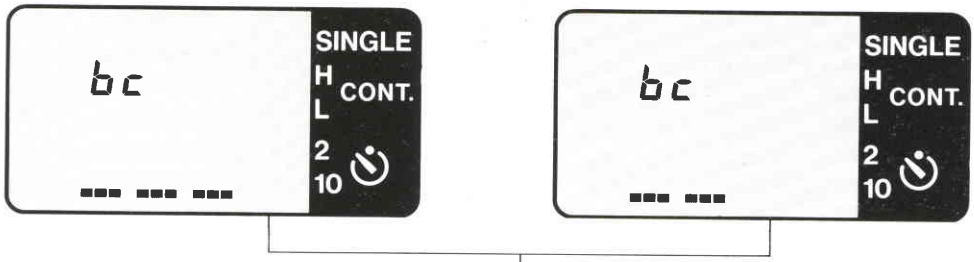


(example)

5. Checking the

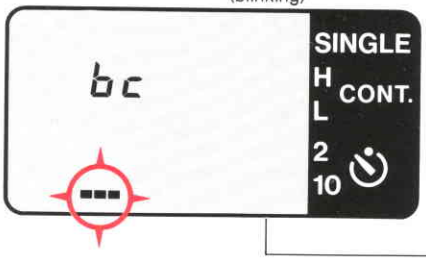


1) Open the palm wing on the side of the camera and press the battery check button ( ). Battery voltage is then shown on the display panel.

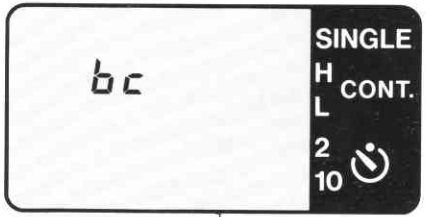


Battery power is sufficient.

(blinking)



(no battery check marks)



Replace the batteries with new ones.

- Even if one blinking bar mark or no bar mark appears on the display panel while checking the batteries, exposure will be correct as long as the shutter releases. (→ p.109)

<Batteries>

This camera will not operate without batteries. Try to make a habit of checking the batteries at the following times.

- After loading new batteries.
- After storing the camera for a long time.
- If the shutter does not release.
- When you are using the camera in low temperatures.
- Before shooting important events.

Use a new set of batteries as specified below or equivalent batteries of another brand.

1. Four AA size 1.5 V alkaline batteries LR6 (AM-3)
2. Four AA size 1.5 V carbon-zinc batteries R6 (SUM-3)
3. Four AA size 1.2 V Ni-Cd batteries

Notes

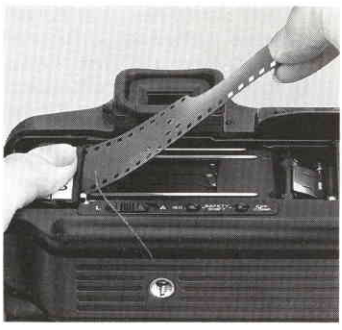
- Always use four new batteries of the same brand and replace them both at the same time.
- Wipe the battery terminals and the camera contacts with a clean, dry cloth before loading, to ensure proper contact.
- Remove the batteries if you do not expect to use the camera for about three weeks or longer.
- When shooting in temperatures below 0°C (32°F), keep your camera and spare batteries close to your body or in a pocket to keep them warm until you are ready to take a picture. You can also use a set of Ni-Cd batteries which function well in low temperatures. — approx. 15 rolls in the HIGH mode and 45 rolls in the LOW mode at −20°C (−4°F) with 24-exp. film. (→ p.34)

- When using Ni-Cd batteries, please note that different brands have different types of terminals. Be sure to use a type which is suitable for the camera.
- Refer to the manufacturer's instructions for recharging Ni-Cd batteries.
- Three bars (—) may not appear on the display panel during the battery check, even if using fully charged Ni-Cd batteries, because of their low nominal voltage.
- The battery naturally discharges even when not in use, so try to check the batteries regularly.

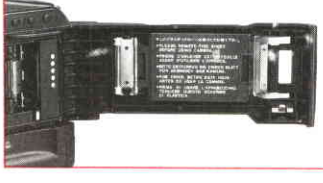
6. Loading the Film

1) To open the back cover, push the back cover latch down, while pressing the back cover lock button.

2) Insert the upper flat end of the film cartridge into the film chamber first, then lower the other end. The film-load check mark (◎) will then appear on the display to indicate that film is loaded.



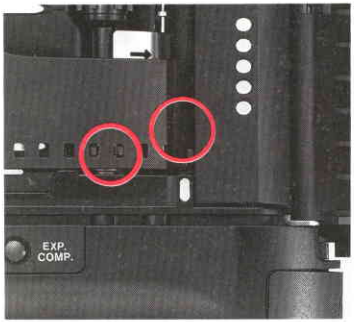
3) Pull the film leader across the back of the camera until its tip is aligned with the orange index.



CAUTION

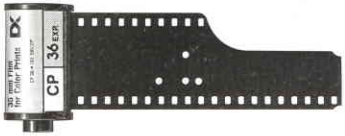
- Before loading the first film cartridge, remove the plastic insert and throw it away.
- NEVER touch the shutter curtain. It is sensitive to pressure due to its high precision design.
- Be careful that the film leader does not touch the shutter curtain, either.

4) Make sure that the film has no slack and that its perforations are properly engaged with the sprocket teeth.

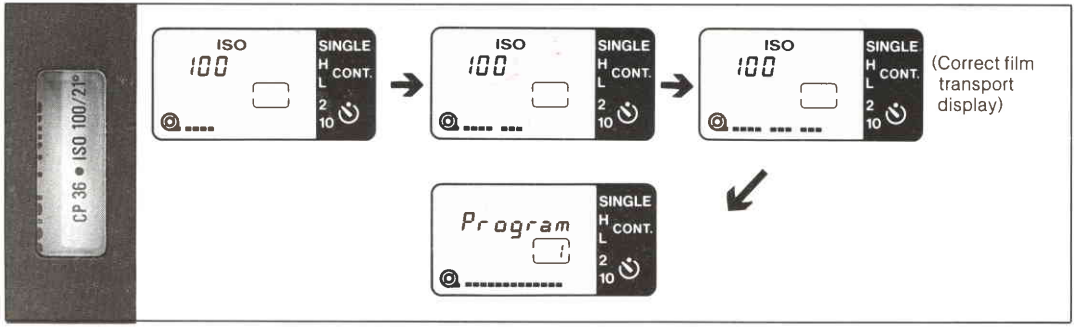


5) Close the back cover. The camera will advance the film automatically and stop when "1" appears in the frame counter brackets on the display panel.

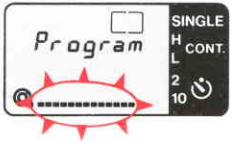
If the film leader extends past the orange index, take out the film cartridge and manually wind the excess film back into the cartridge.



When the humidity is high, film becomes soft and is easily torn. Keep the film stored in its canister until just before you load it to keep it from tearing.



- While the camera is advancing the film, the film transport bars (also serve as the battery check marks) will appear at the bottom of the display panel moving in sequence from left to right. If the film has not been correctly advanced, however, the bars blink after the camera has stopped. In that case, reload the film.



<Automatic Setting of the Film Speed>

The T90 is designed to automatically set film speed by sensing the DX code marked on the film cassette.

1 When using a film with DX code, you do not have to set the film speed. (ISO 25—5000)

- The film speed automatically set according to the DX code will appear on the display panel while the camera is advancing the film toward the first usable frame. (Refer to the left page.)

2 When using a film without DX code, set the film speed manually.

1) While pressing the film speed button, turn the electronic input dial until the film speed (indicated by ISO) of your film appears on the display panel. (ISO 6—6400)
2) Remove your finger from the film speed button.
   - The preset film speed will appear and blink on the display panel to warn you if the film speed is not set. Always be sure to set the film speed correctly. (Once the film speed is set, the warning stops.)

Film passing through X-ray examinations at airports, even when loaded in a camera, may be exposed and ruined. To avoid accidental exposure, tell the inspector you want your camera and film hand checked.

Shooting with the Lens Set on "A" Mark (Basic Operation)

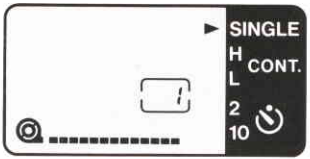
Shooting Capacity (with 24-exp. film)

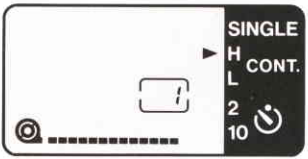
Temperature \ Battery	Film winding mode	Alkaline (LR6/AM-3)	Carbon-zinc (R6/SUM-3)
Normal (20°C/68°F)	HIGH	75	10
	LOW	150	30
Low (−10°C/14°F)	HIGH	—	—
	LOW	7	3
Low (−20°C/−4°F)	HIGH	—	—
	LOW	1	—

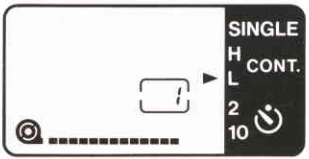
(based on Canon's standard test method)

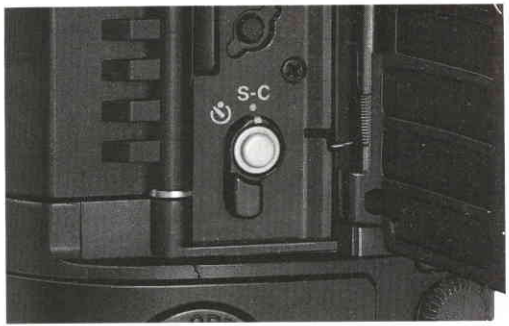
C (CONTINUOUS)
- H (HIGH): max. 4.5 frames per second
- L (LOW): max. 2 frames per second

S (SINGLE): single frame









1) Open the palm wing and set the film winding mode/self-timer selector to "S-C".
   S-C : film winding mode setting
   ⏲ : self-timer setting (→ p.84)

2) Press and release the film winding mode button (also serves as the self-timer button) to set the desired film winding mode on the display panel.

Automatic Film Winding Speed Changeover Function

The Canon T90 has an automatic film winding speed changeover function which will change the film winding speed from HIGH to LOW mode when battery power drops below a prescribed voltage. This saves battery energy and extends battery life, so more pictures can be taken with the same batteries.
When the winding speed is automatically switched to the LOW from HIGH, the "▶" mark pointing at the HIGH on the display panel starts blinking to warn you.
In this case:

1 If you wish to drive the camera in the HIGH mode, replace the batteries with new ones.
2 If you want to make the blinking "▶" stop, though you continue to shoot in the LOW mode, press the film winding mode button to set the "▶" mark to LOW mode on the display panel.

2. Setting the Shooting Mode

<Shooting Modes of the T90>

The Canon T90 has various shooting modes to meet your needs and what you want your picture to portray. The following is an explanation of the shooting modes in which the FD lens must be set to the "A" mark. (AE photography is possible only with FD lenses.)

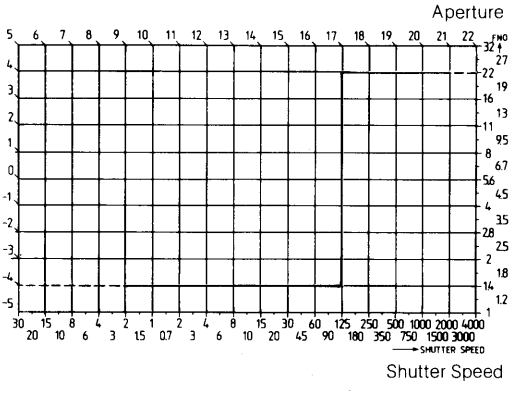
1. Shutter-priority AE (with safety shift function)

You set the shutter speed and the camera automatically chooses the correct aperture for the lighting conditions. This mode is useful for taking pictures of moving subjects and for normal snap shots. By controlling the shutter speed, you can also control the subject's movement. Faster shutter speeds freeze subject motion while slower shutter speeds can provide artistic blur effects.

<Shutter-priority safety shift function (ON/OFF possible)>

If the selected shutter speed is too slow or too fast for the light conditions, the T90 automatically switches the shutter speed to a higher or a lower one to avoid under- or overexposure.

Shutter-priority AE with safety shift function
(when the shutter speed is set to 1/125 sec and the FD 50 mm f/1.4 lens is used)



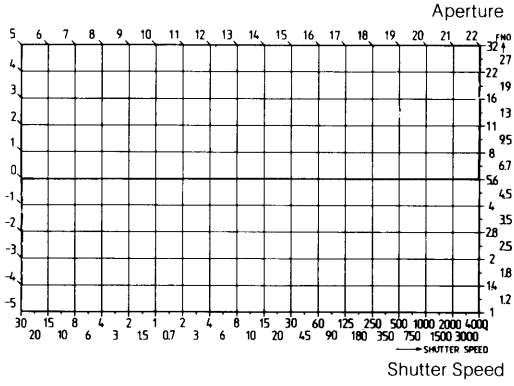
2. Aperture-priority AE (with safety shift function)

You set the aperture and the camera automatically chooses the correct shutter speed for the lighting conditions. This mode is useful for portraits, landscapes and still life photography in which depth of field, i.e. the range of in-focus images is an important factor.

<Aperture-priority safety shift function (ON/OFF possible)>

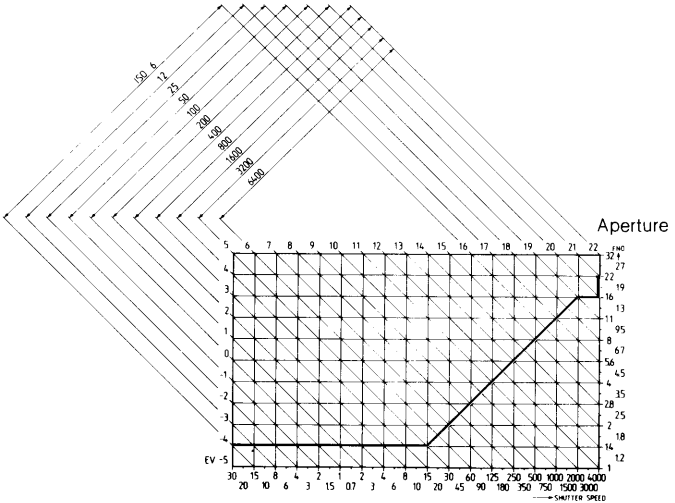
If the selected aperture is too large or too small for the lighting conditions, the T90 automatically switches the aperture to a smaller or larger one to avoid incorrect exposure.

Aperture-priority AE with safety shift function
(when the aperture is set to f/5.6 and the FD 50 mm f/1.4 lens is used)



3. Standard program AE (Program)

Both the shutter speed and the aperture are automatically set according to the brightness of the subject and a programmed shutter speed/aperture combination. The standard program AE is the most popular programmed AE because it emphasizes neither the shutter speed nor the aperture size. The program AE mode is convenient for those who are taking pictures with an SLR for the first time, those who do not like to worry about complicated operation, those who would simply like to concentrate on picture composition, or daily snap shots.



Shutter Speed
(when the FD 50 mm f/1.4 lens is used)

4. Variable-shift program AE

This is also the program AE mode as mentioned above, but there are 7 types of programmed characteristics in this mode. Choose any one of them according to your shooting objectives and the focal lengh of your lens.

1 Standard program AE (P)

This has all the same programmed characteristics as No. 3, but is displayed in "P" on the display panel while the No. 3 is displayed in "Program". This mode is basically oriented toward the tele programs and the wide programs when using the electronic input dial.