Canon T90


Canon T90
MULTIPLE METERING SYSTEM
COMPUTERIZED 3 MOTOR CONTROL
CANON LENS FD 50mm 1:1.4
LENS MADE IN JAPAN CANON

INNOVATION:
THE SOUL OF THE PHOTOGRAPHER, THE HEART OF THE CANON T90.

The creation of the T90 was very much like the creative process of photography itself. Like any good photographer, Canon looked on its task as a relentless pursuit of innovation, a search for new and striking images, a fresh way of seeing.

Canon looked for innovative new solutions to many of the old problems and limitations of SLR photography—and found them. Entirely new systems were designed for exposure, metering, film transport, information input and display, flash photography, and microcircuitry.

The result of Canon's effort is a remarkably versatile photographic tool. Never has a camera been more closely tuned to the experienced photographer's needs, or more helpful in surpassing the photographer's own limitations.

And never has a camera been designed to so completely satisfy the photographers feel for quality, or eye for beauty.

The Canon T90: the photographer's vision is now a reality.

FEATURES THAT STRETCH THE LIMITS OF THE PHOTOGRAPHICALLY POSSIBLE

TRENDSETTING BODY DESIGN

Superb balance and handling
Shutter release positioned for maximum comfort
Large, non-slip grip
Logical, uncluttered control layout
Elegant, rounded design fits into the photographer's hands

BUILT-IN AUTOMATIC FILM TRANSPORT SYSTEM

Powerful built-in motor drive with only four size-AA batteries
Maximum 4.5 fps, 2 fps, and single-frame film transport
Automatic 4.5-to-2 fps low-power speed changeover
Automatic film loading (ready to shoot in approx. 2 sec.)
Automatic film rewinding (approx. 8 sec. for 24-exposure roll)
Preset multiple exposures

THREE BUILT-IN METERING SYSTEMS

Center-weighted average metering
Partial metering with AE lock
Spot metering, with 30-sec. memory and AE Lock
Multi-spot metering for up to 8 readings
8-step variable Highlight/Shadow controls

HIGH-SPEED SHUTTER

1/4000 sec. maximum shutter speed
1/250 sec. maximum flash sync

MULTIPLE AE MODES

Variable-shift Program AE with 7 program settings
Standard Program AE
Aperture-priority AE (with switchable Safety Shift function)
Shutter-priority AE (half-step shutter-speed settings with switchable Safety Shift function)
Stopped-down AE, manual and bulb modes
1/3-step exposure compensation system

COMPREHENSIVE INFORMATION INPUT AND DISPLAY

Electronic Input Dial inputs 121 items of information
LCD Display Panel displays 226 items of information
Complete viewfinder information display including multi-spot metering scale
Automatic DX film speed and film length setting
Only necessary items are displayed to eliminate information clutter

A-TTL SPEEDLITE 300TL

A-TTL control system for automatic flash in Program, Aperture-priority and Shutter-priority AE modes
FE Lock TTL control system for accurate exposure of off-center subjects
FE Lock flash operation with spot metering and Highlight/Shadow controls
Second-curtain flash sync

TTL MACRO RING LITE ML-2

For accurate and automatic close-up flash photography

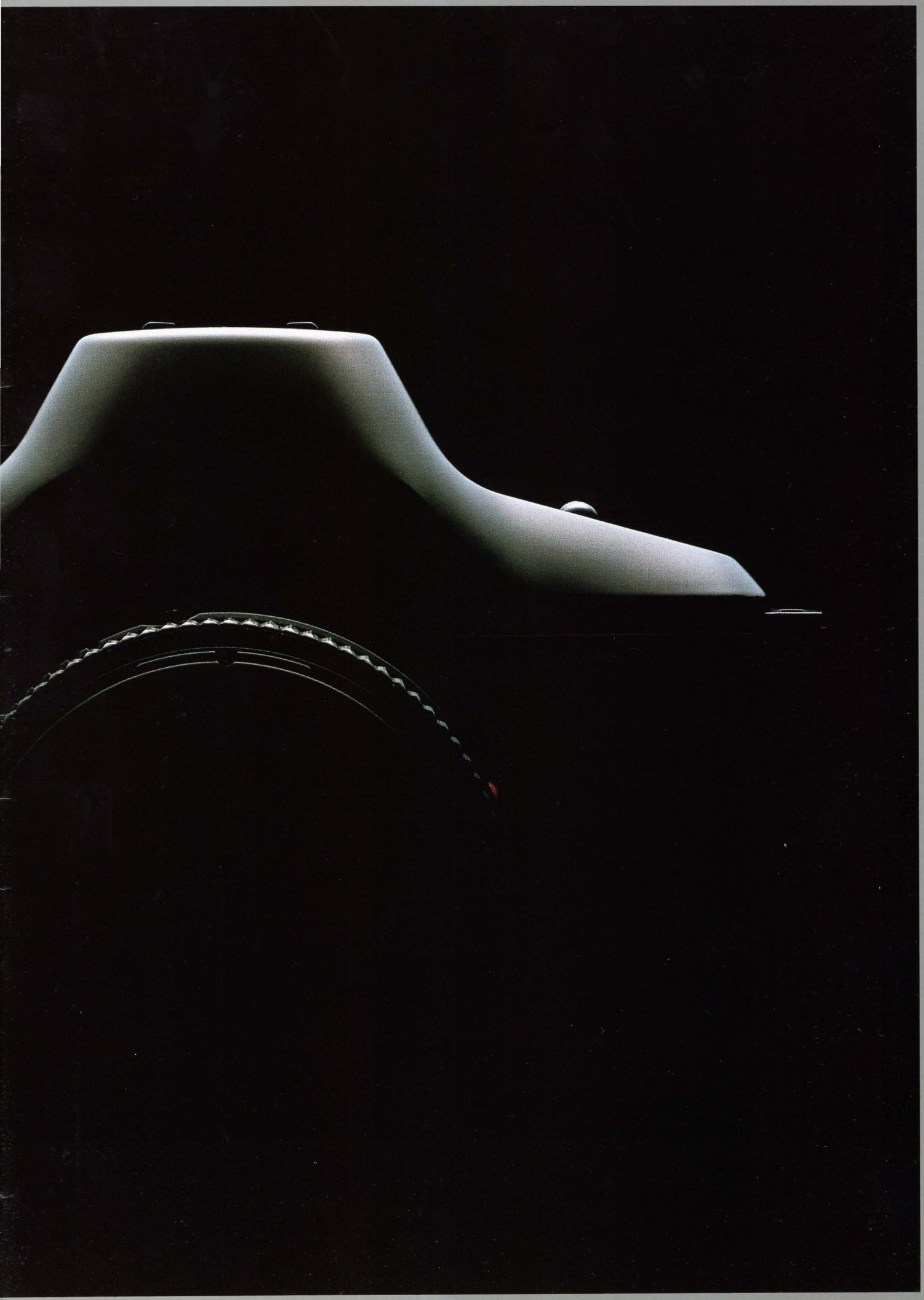
EXPERIENCE A RARE MASTERPIECE OF CAMERA DESIGN.

Canon now invites you to experience the most striking new direction in SLR body design in many years.

Take a few minutes to give the T90 a careful looking over. Notice the clean surfaces and sleek, sensual lines, the uncluttered layout, the superb balance and proportion. The tool of the creative photographer has itself become a work of art.

Hold the T90, and discover instantly how sophisticated outward appearance reflects its inner quality. The T90 rests in the hands naturally, comfortably—like no other camera. It has the unmistakable feel of solid quality. Its controls are unobtrusive, but absolutely accessible.

Experience complete unity of form and function in a rare masterpiece of design: the Canon T90.




MODE
MULTI EXP.
METERING /CLEAR


T90

ADVANCED CAPABILITIES TO SERVE THE NEEDS OF THE SERIOUS PHOTOGRAPHER.

The T90 was designed entirely from the photographer's point of view. So it is perhaps sensible to talk not about what the camera does, but rather about what the photographer can do with the camera.

The photographer can do so much with the T90: Shoot at shutter speeds up to a lightning-fast 1/4000 sec. or flash sync up to 1/250 sec. Determine light values with one of three different metering systems, including sophisticated multi-spot metering. Decide exposure according to an incredible variety of AE modes, including seven different program modes and an array of exposure compensation features.

The T90 collects and processes an enormous amount of information, yet it does so without clutter and confusion. There is nothing to come between the photographer and the image he seeks.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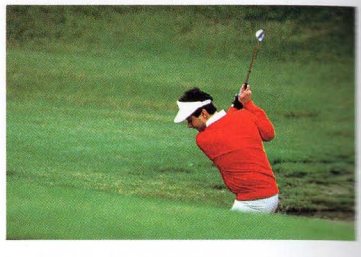
MAXIMUM 4.5 FRAMES-PER-SECOND SHOOTING WITH BUILT-IN MOTOR DRIVE

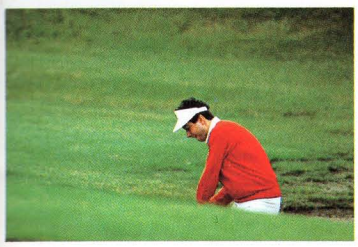
A high-speed motor drive is more a necessity than a luxury for sports photography or just keeping track of the action. That's why a two-speed film transport is designed as an integral part of the compact T90 body—and why it is designed to operate on just four size-AA batteries. There's no bulky additional motor drive to get in the way when speed and agility are essential.

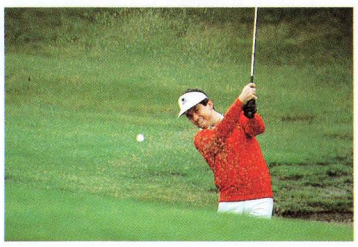
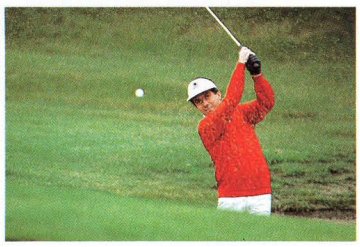


BUILT FOR THE ULTIMATE IN HIGH-SPEED PHOTOGRAPHY

1/4000 SECOND SHUTTER SPEED

The T90's ultra-fast shutter allows the photographer mastery over subjects far too fast for the eye to catch. The briefest instant is frozen in time. The 1/4000-sec. shutter speed, combined with the built-in motor drive, makes the T90 an incomparable tool for action photography.

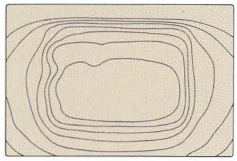


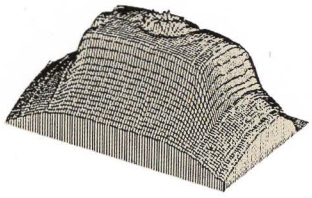



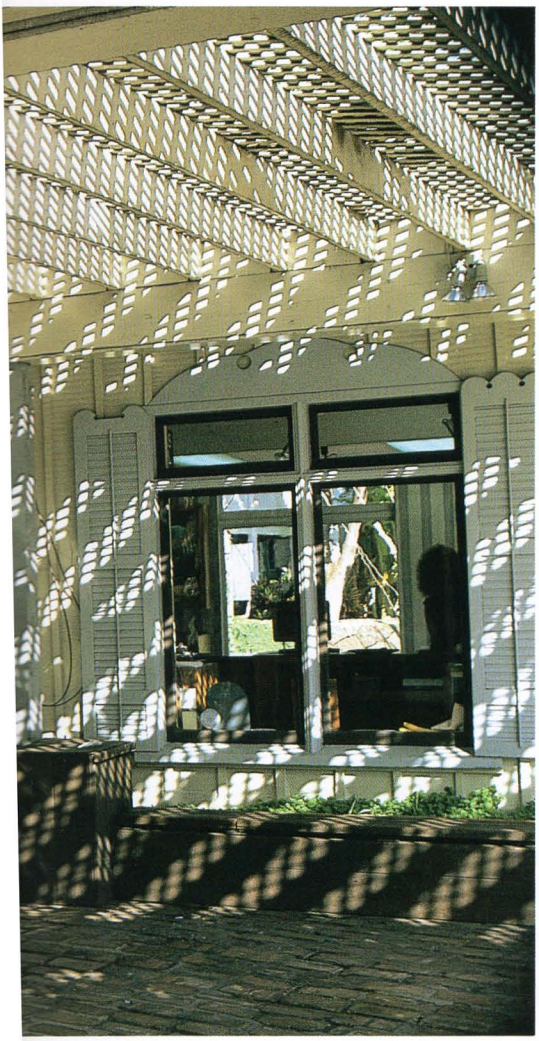
THE WORLD'S FIRST METERING SYSTEM WITH THREE SWITCHABLE METERING DISTRIBUTION PATTERNS

CENTER-WEIGHTED AVERAGE METERING

Average metering means simply that light values over the whole picture area—with some emphasis on the center—are averaged for an overall reading. If light is evenly distributed over the picture, or if there is an overall balance of light and dark areas, as in this photograph, this metering mode is easiest to use and yields best results.

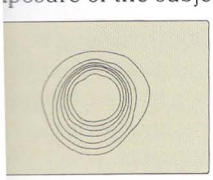


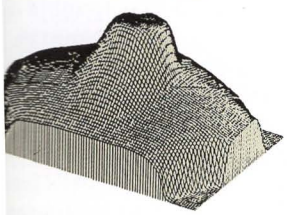




ARTIAL METERING

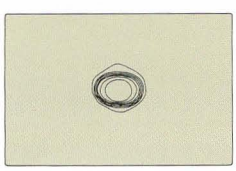
artial metering measures mainly the enter area of the picture, about 13 % of ıe total, for excellent results when a ıbject is surrounded by an especially ght or dark background. Metering the ıbject alone—in this case the model's ce—ensures a correct exposure no ıatter what the background is (the T90 as an AE lock feature for off-center ıbjects). If average metering had been sed for this photo, the bright back-ghting would have caused under-tposure of the subject.

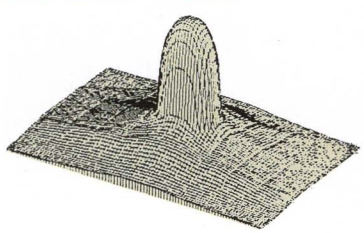




SPOT METERING

The spot metering pattern measures only about 2.7 % of the picture area, allowing the photographer extremely precise exposure control. In this difficult photograph, the main subject is a strongly backlit glass with transmitted light visible through the liquid. Average metering, or even partial metering, would over-emphasize the bright background. But a single spot reading on the glass gives a correct exposure easily. Sophisticated multi-spot metering and Highlight/Shadow compensation are also possible in the spot metering mode (*see next page*).





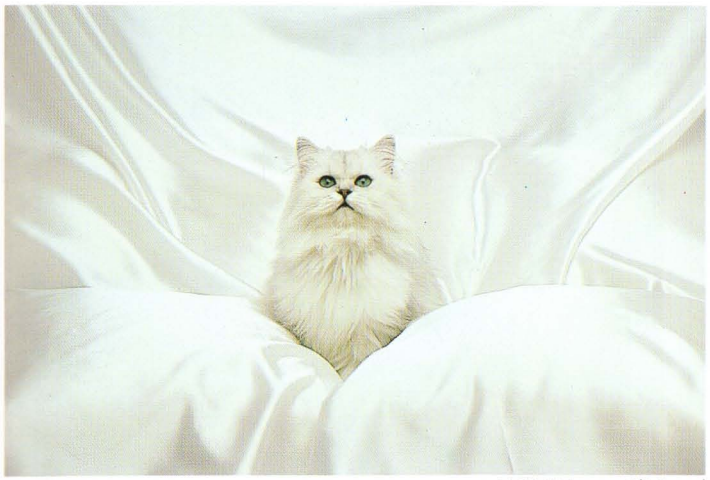
SOPHISTICATED EXPOSURE CONTROL WITH MULTI-SPOT METERING AND HIGHLIGHT/SHADOW CONTROLS

with average metering

with multi-spot metering

MULTI-SPOT METERING

The T90 offers multi-spot metering for those pictures which demand a delicate balance among several picture elements. The photographer takes spot meter readings of up to eight points, which are averaged by the camera to determine a final exposure setting. An easy-to-read viewfinder display shows each reading. In this example, three spot readings were taken: one on the trees in the background and two separate readings—for extra emphasis—on the model's face. The result is a well-balanced photograph with the main subject correctly exposed. With average metering (*small photo*), the model is underexposed.



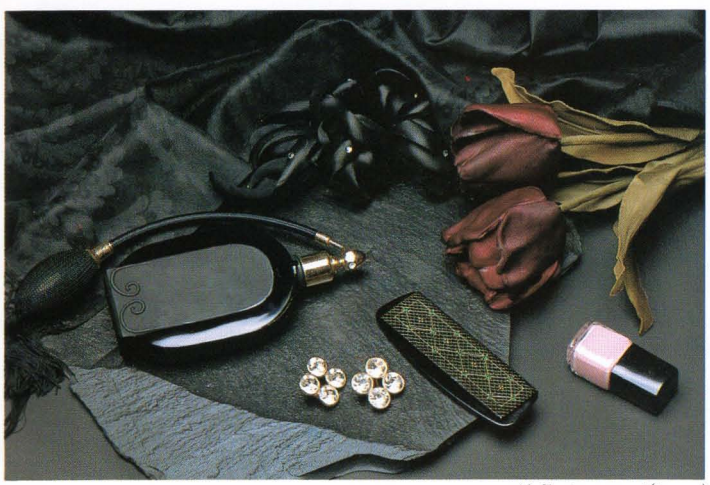
with Highlight control (2.5 steps)

with Highlight control (2 steps)

HIGHLIGHT CONTROL

All cameras tend to reproduce predominantly white scenes with a dull gray cast. The T90's variable Highlight control uses spot metering to let the camera see whites as they really are. And unlike other H/S controls, the T90 system allows the photographer to compensate for different levels of brightness by adjusting Highlight compensation up to 4EV in half steps. Two "good" exposures are shown in this example: one with 2.5 steps of Highlight compensation (*above left*) and another with 2 steps (*above right*). Both examples bring out the brilliant whites of the subject and background. Without Highlight compensation (*right*), the result is a dull gray tone overall.

without Highlight control



with Shadow control (2 steps)

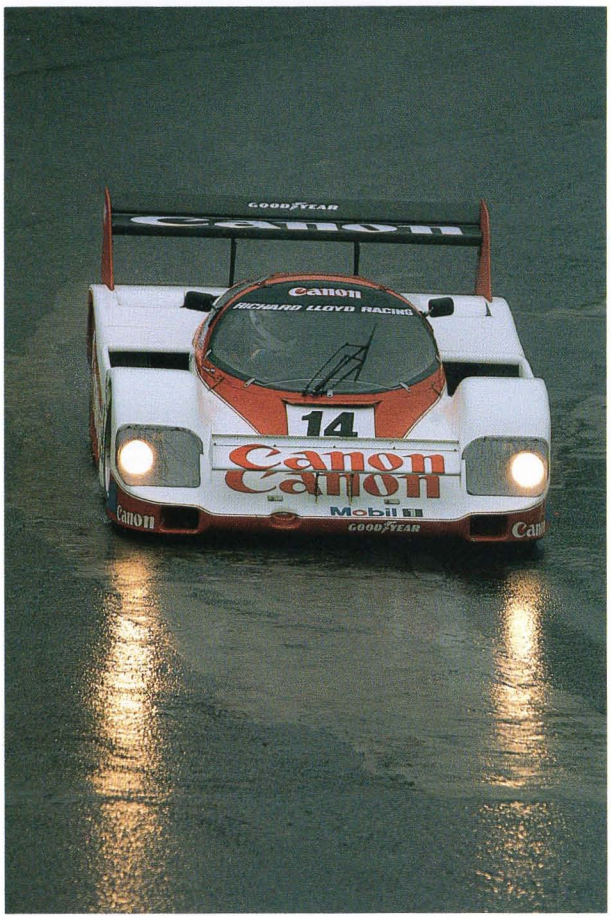
with Shadow control (1 step)

SHADOW CONTROL

The Shadow control works like the Highlight control to keep blacks dark—the way they appear to the human eye. And, like the Highlight control, compensation can be adjusted according to how dark the subject is. Again, variable compensation has been used for two versions of the subject, both with attractive, deep, dark tones. Which is the "better" image is simply a matter of personal preference. In the first photo (*above left*), 2 steps of compensation were used, and in the second photo (*above right*), 1 step. Without Shadow compensation (*right*), black tones are weak and washed out.

without Shadow control

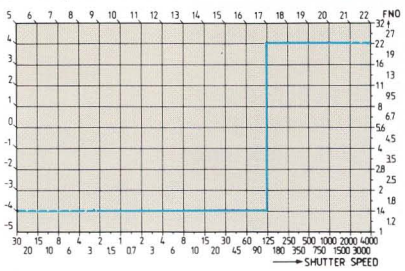
VERSATILE AE MODES

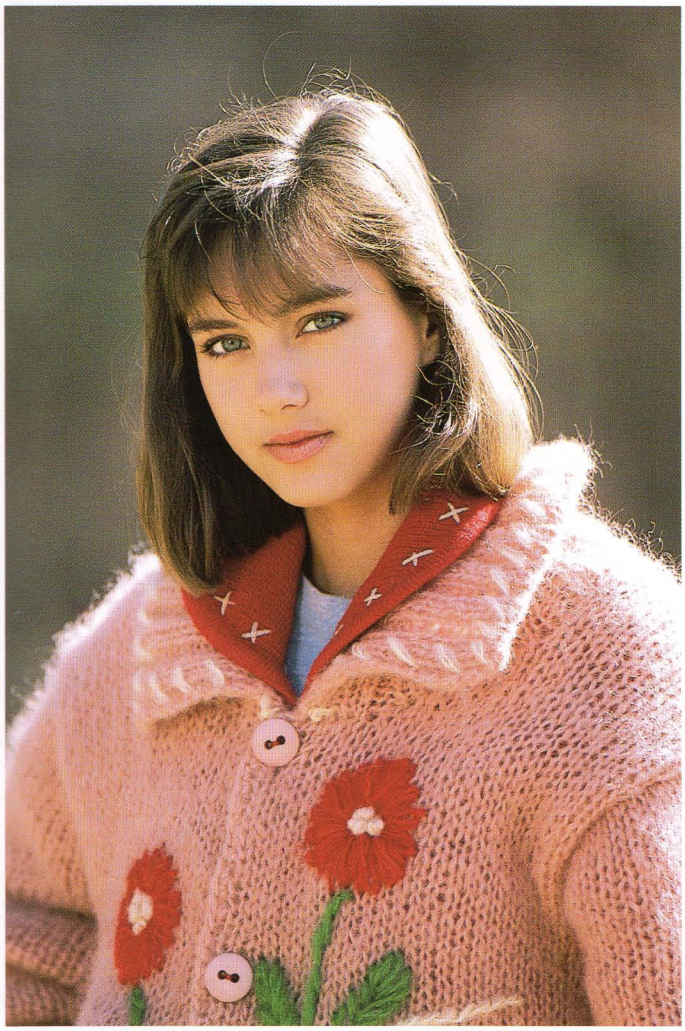


SHUTTER-PRIORITY AE

In the Shutter-priority AE mode, the photographer sets the shutter speed at any point between 1/4000 and 30 sec., including half-step settings, for an unprecedented 36 shutter-speed settings in all. The camera sets the aperture automatically. This extraordinarily fine degree of control has long been in demand by sports photographers and other professionals. The T90's Safety Shift can be switched on to automatically to override the set shutter speed to avoid over- or underexposure. In the first example (*above*), the photographer chose just the right shutter speed to stop the action without freezing each droplet of water—a difficult and highly successful balancing act. In the second photo (*left*), the photographer chose to stop the speeding car with a faster shutter speed.

Shutter-Priority AE with Safety Shift
(shutter speed set at 1/125 sec. with FD 50mm f/1.4 lens).

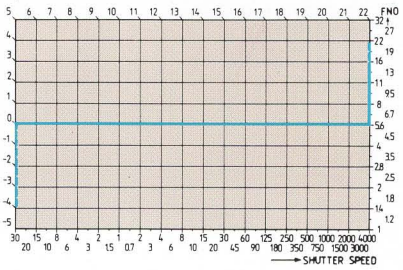




APERTURE-PRIORITY AE

The T90's Aperture-priority AE mode provides the photographer with easy and complete control over depth-of-field. The aperture is set using the T90's exclusive Electronic Input Dial and clearly displayed both on the LCD Display Panel and in the viewfinder—there is no need to adjust the aperture ring on the lens. Shutter speed is set automatically. With Safety Shift switched on, aperture is automatically adjusted to prevent over- or underexposure. In the first photo (*left*), a larger aperture was chosen to isolate the subject from the background, a useful effect in portrait photography. In the second photo (*below*), the photographer selected a relatively small aperture to keep the entire field of view in sharp focus.

Aperture-Priority AE with Safety Shift (aperture set at f/5.6 with FD 50mm f/1.4 lens).



PROGRAM AE

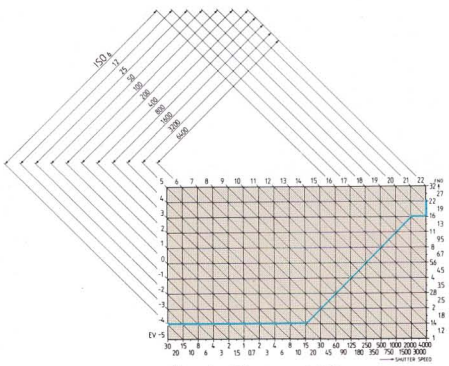
The T90's Program AE mode allows the photographer to react swiftly enough to capture momentary images before they disappear forever. The camera makes all exposure adjustments according to a standard program suitable for general photography where there are no special exposure problems.

VARIABLE-SHIFT PROGRAM AE

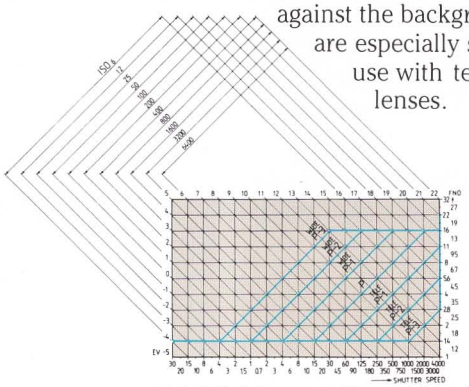
For the photographer who demands both a high level of creative control *and* the speed of Program AE shooting, the T90 offers Variable-Shift Program AE. The photographer chooses from among seven exposure programs: three small-aperture-priority "Wide" programs, Standard Program and three high-shutter-speed-priority "Tele" programs.

The "Wide" programs can be used to blur fast action or maintain maximum depth-of-field, and are most often appropriate for use with wide-angle lenses.

"Tele" programs freeze the subject in time and isolate the subject against the background. They are especially suited for use with telephoto lenses.

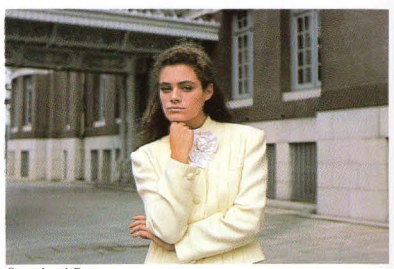


Standard Program AE Characteristics (with FD 50mm f/1.4 lens).

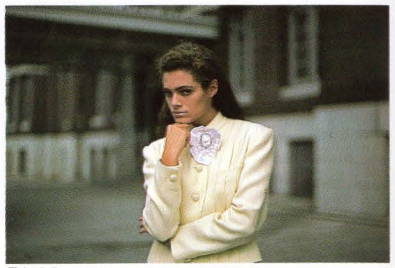


Variable-Shift Program AE Characteristics (with FD 50mm f/1.4 lens).

Wide-3 Program



Standard Program



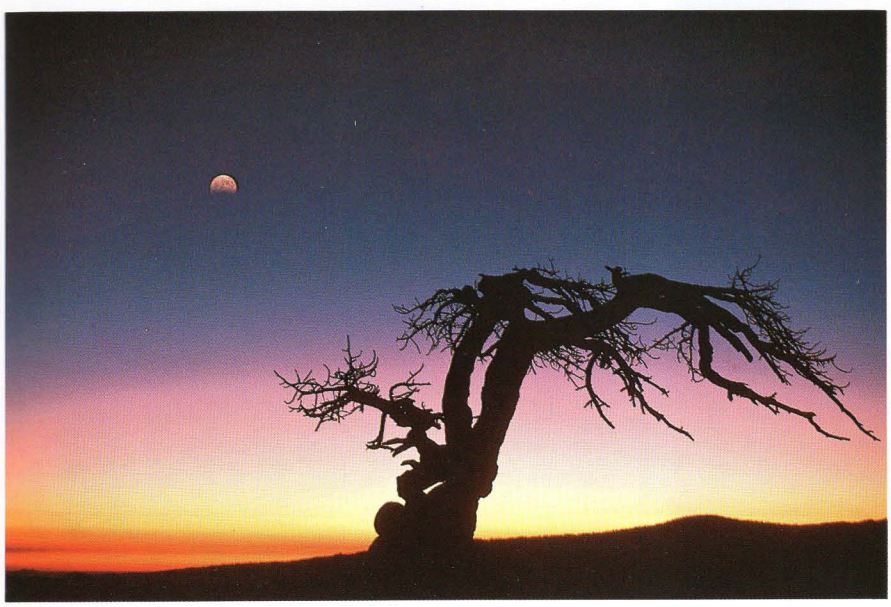
Tele-3 Program

MULTIPLE EXPOSURE

Shooting multiple exposures with the T90 requires no complicated manipulation of film transport mechanisms and does not confuse the camera's frame counter. Simply use the Electronic Input Dial to set the T90 to shoot from two to nine exposures on a single frame. The number of multi-exposures left to shoot is displayed on the camera's LCD Display Panel.

STOPPED-DOWN AE

The T90 has a Stopped-down AE mode for use with close-up accessories such as bellows or extension tubes. Automatic stopped-down shooting can be done while visually confirming the depth-of-field. In this mode, lens aperture is set manually using the lens aperture ring.
This photo was shot with the Canon Reflex Lens using the Stopped-down AE mode.



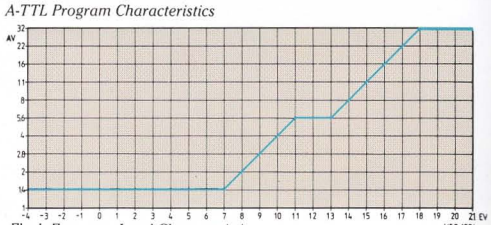
MANUAL OVERRIDE

For situations that call for full creative control of exposure by the photographer, simply set the T90 to the Shutter-priority AE mode and move the lens off of the "A" mark. Shutter speed is set on the camera and aperture is set using the lens aperture ring, referring to the metered aperture value displayed in the viewfinder. In the example shown here, the photographer deliberately "overexposed" the shot to bring out the light on the horizon.

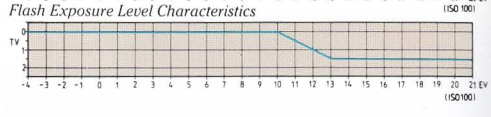
THE ULTIMATE IN FLASH SOPHISTICATION

When used with the 300TL dedicated flash unit, the T90 is capable of taking flash photos impossible with any other camera. New features like A-TTL (Advanced TTL), FE Lock (Flash Exposure Lock), and second-curtain sync combine with the T90's 1/250 sec. flash sync speed to make a great variety of complex flash effects as simple as ordinary available-light photography.

A-TTL Program Characteristics



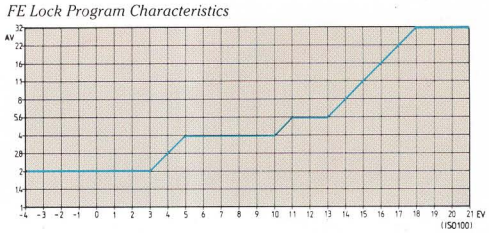
Flash Exposure Level Characteristics



MAXIMUM 1/250 SEC. SYNC SPEED WITH A-TTL

High-speed flash sync speed opens up a new world of faster flash photography. With the flash unit attached, the T90's shutter speed can be set manually or automatically anywhere between 1/250 and 30 sec., giving the photographer great control over subject movement, depth-of-field and ambient light. Canon's new A-TTL system balances exposure of the background and subject for superb flash results in daylight and at night. In this fill-in flash situation, the T90 reduced the flash emission level automatically to prevent unnatural lighting of the subject, while accurately exposing the background.

FE Lock Program Characteristics

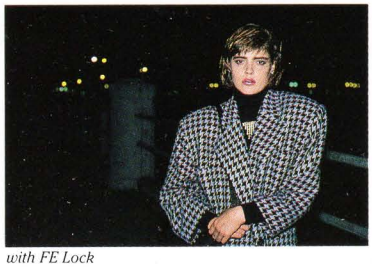


CANON'S EXCLUSIVE FE LOCK

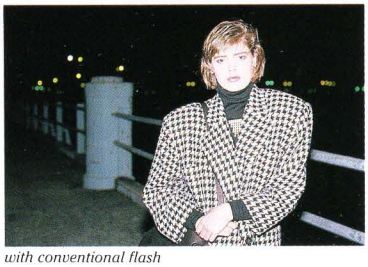
The 300TL's FE Lock mode employs spot metering and the principle of AE lock to provide accurate flash exposure of the subject in any situation. In this example (*large photo below*), the model was spot metered by means of a 1/20 strength pre-flash. With that reading locked in, the photographer was then free to reframe the shot. The result was an excellent exposure, totally unaffected by the position of the subject or the reflectivity of the background. With conventional flash (*bottom right*), a bright background causes underexposure of the subject.

In a nighttime flash situation (*bottom left*), FE Lock exposes the model correctly, even though she is positioned off center. Without FE Lock (*bottom center*), the flash overexposes the model as it attempts to illuminate the background in the center of the picture.

with FE Lock



with FE Lock



with conventional flash

with conventional flash

FE LOCK AND H/S CONTROLS FOR IDEAL BALANCE OF SUBJECT AND BACKGROUND

The Speedlite 300TL's FE Lock mode can be used with the T90's Highlight/Shadow controls for independent control of exposure for subject and background. Once the subject is metered and locked in with FE Lock, the viewfinder display shows how bright or dark the background is in relation to the correctly exposed subject. The H/S controls can then be used to bring the background into balance with the subject. This has been done in the above example with excellent results.

FE LOCK AND H/S CONTROLS FOR INDEPENDENT EXPOSURE OF SUBJECT AND BACKGROUND

The H/S controls can also be used to vary the background according to the photographer's intentions, as in the three versions of the same subject shown on the right. In the first photo (*top*), no H/S controls were used, leaving the background underexposed. In the second photo (center), the background level was set at −1 step, so that the neon lights are clearly visible. In the third photo (*bottom*), the background exposure was brought up to the level of the subject, so that the building is clearly visible. In all three examples, FE Lock ensures that the model is properly exposed.

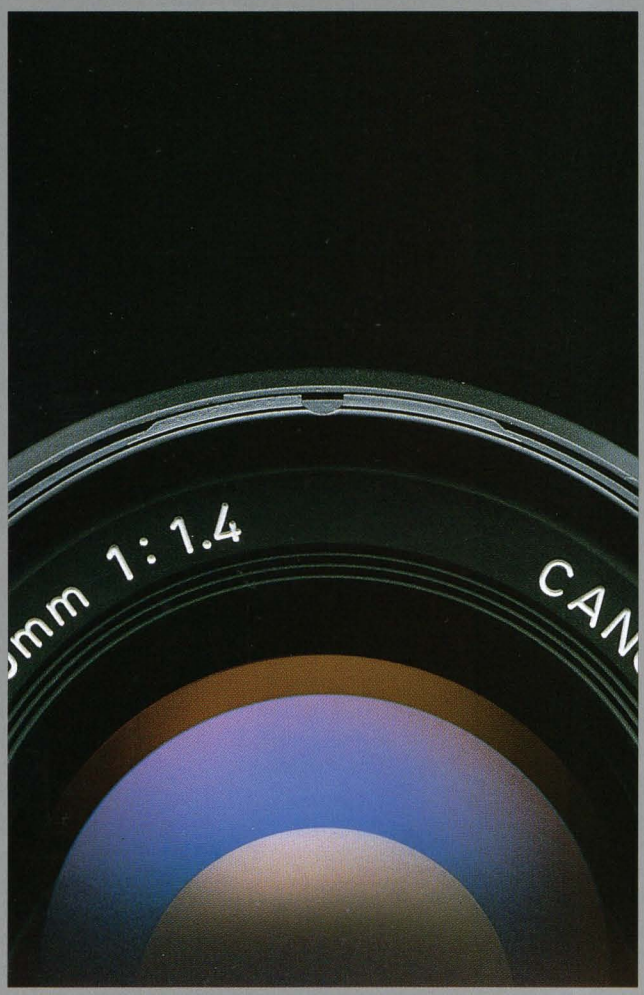
FIRST-CURTAIN SYNC

With the T90 and Speedlite 300TL, it is also possible to make long flash exposures with traditional first curtain sync. In this case, the flow of light does not describe the subject's movement up to that point.

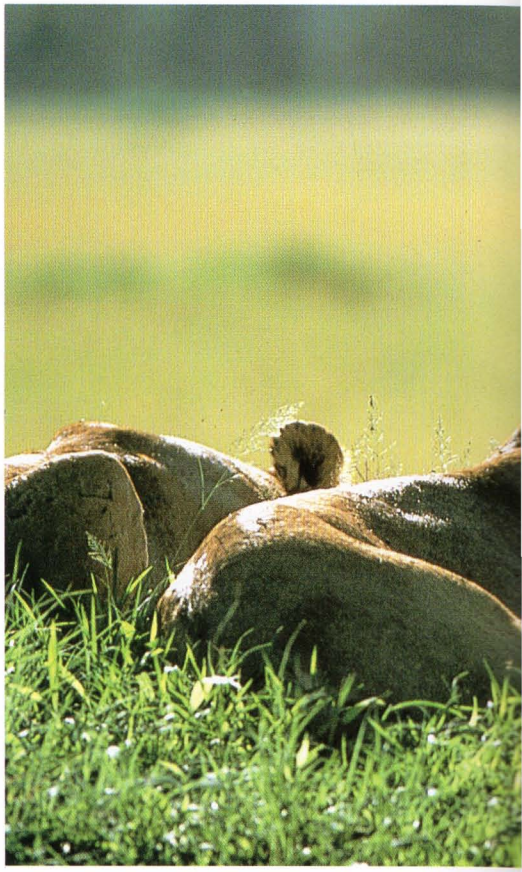
SECOND-CURTAIN SYNC

Until now, flash synchronization has always been timed for when the first shutter curtain is fully open. Now, the T90 and Speedlite 300TL offer the alternative of flash output just before the second shutter curtain begins running. In this example, the flash discharge comes at the very end of a rather long exposure, so that the lights trace the movement of the car—a fascinating flash effect never before possible.

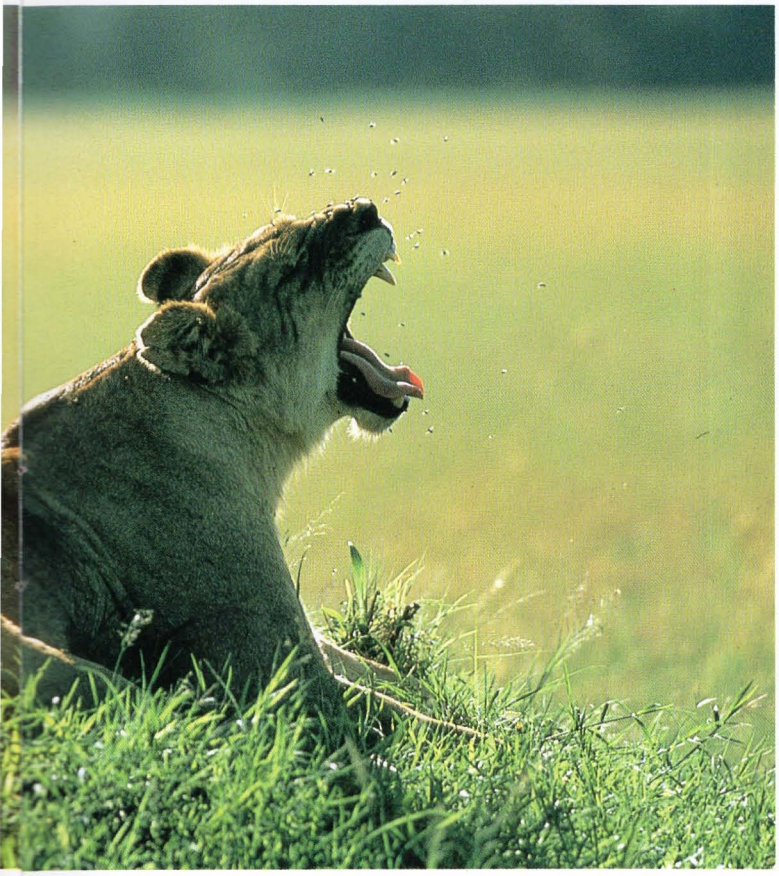
A TIMELESS LENS SYSTEM FOR THE CAMERA OF THE FUTURE



The Canon FD lens system is an ideal complement to the T90 camera system. Both offer outstanding quality, easy handling, and extraordinary creative flexibility. Choose from Canon's complete line of wide-angle, fish-eye, telephoto, super-telephoto, macro, zoom and standard lenses. There is a Canon lens for virtually any photographic application.



FISH-EYE LENSES SEE THE WORLD
Canon's fish-eye lenses put the whole world before the photographer's eye. These are a unique means of creative photographic expression as well as useful tools for aerial photography and other special applications.



TELEPHOTO LENSES GO THE DISTANCE

Telephoto lenses help bridge the distance between photographer and subject, often isolating the subject with a narrow angle of view and shallow depth-of-field. They are especially useful for sports, wildlife and portrait photography. Special features in some of Canon's telephoto lenses include the Rear-Group Focusing System, Vari-pitch Cam and extra-lightweight design.

TAKE A CLOSER LOOK WITH MACRO LENSES

Canon produces a number of lenses especially for macrophotography work. To ensure the finest photographic results, these lenses have been optimally corrected for edge-to-edge sharpness at extremely close shooting distances. Macro lenses can be combined with extension tubes or bellows for extreme close-ups in the T90's Stopped-down AE mode.

CANON LENSES: THE PROFESSIONAL CHOICE

Canon FD lenses have been chosen by thousands of professional photographers for their incredible sharpness, superb color balance, compact design and light weight. And now the peerless line of Canon lenses can be combined with the outstanding capabilities of the T90 camera. Every Canon lens is precision crafted. Lens glass is chosen with particular care and decolored if necessary. To prevent aberrations, ghost images and flare, and to ensure accurate color rendition, most FD lenses receive Canon's renowned Super Spectra Coating (SSC).

The FD system also includes a number of "L" lenses designed to meet the ultra-high standards of professional photographers. These lenses feature aspherical lenses, artificial fluorite and/or ultra-low dispersion (UD) glass for high image contrast and resolution and extra-low refraction index and dispersion characteristics.

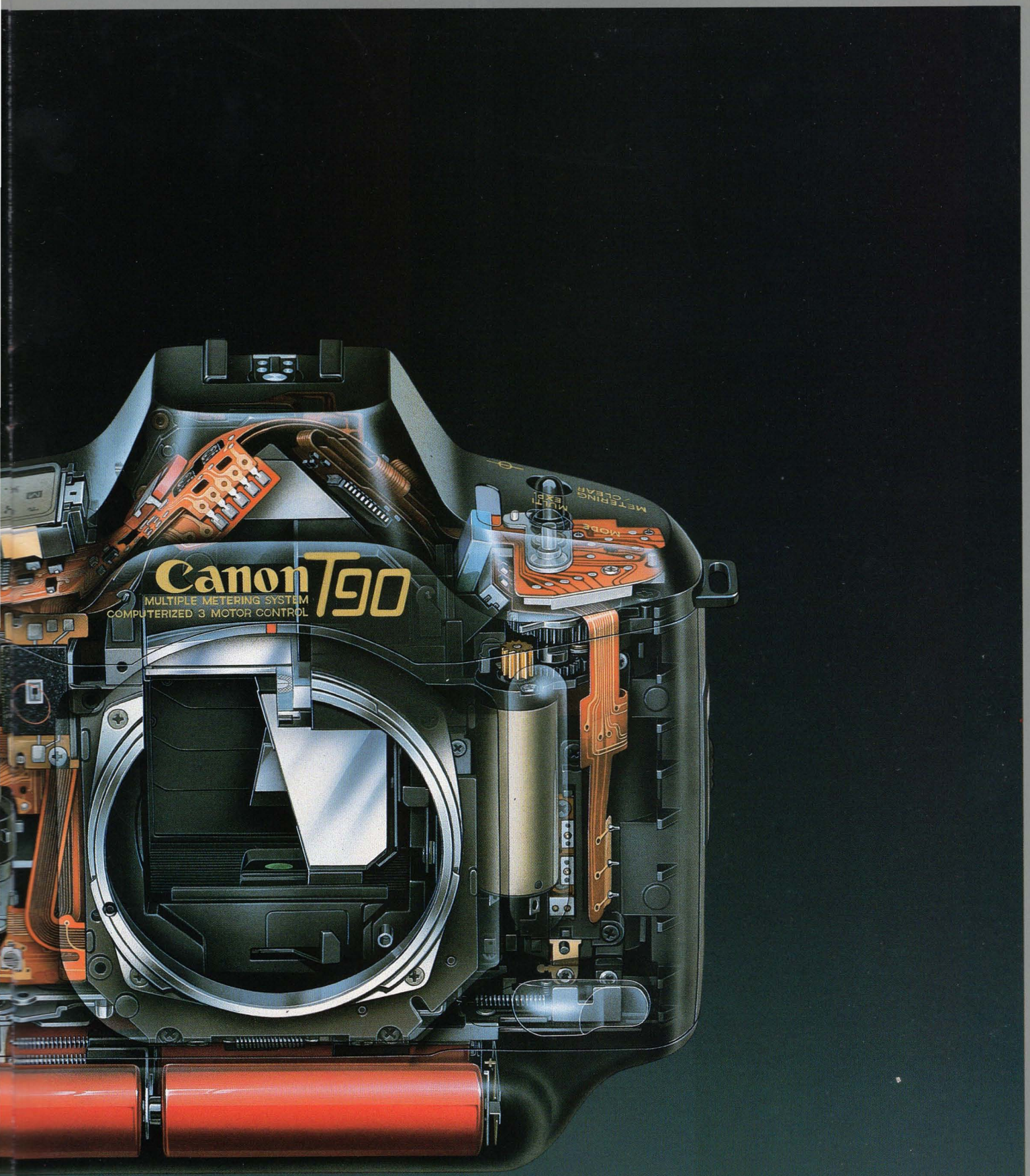
Computer-assisted design techniques help Canon produce lenses that are startlingly light and compact, and which feature optical and mechanical systems that are more refined than ever. The Canon Mount assures precise signal coupling and eliminates mount surface wear. And, of course, Canon lenses all are subjected to rigorous quality control testing to ensure uncompromised quality and absolute uniformity from lens to lens. When you buy a Canon lens, you are also buying into the Canon system, a timeless collection of modern masterpieces that complement any Canon camera. From the 7.5 mm fish-eye to 800 mm super telephoto lenses and zoom lenses of various zoom ratios, there is a lens in the FD line for every situation the T90 may encounter.

NEW TECHNOLOGIES THAT EXTEND YOUR PHOTOGRAPHIC REACH

Canon's goal in creating the T90 was to put at the photographer's disposal the widest possible range of photographic tools. To do this, Canon had to stretch the limits of the technically possible, searching out new solutions to some of photography's most basic functions.

The search for innovation took many directions and yielded far-reaching results. Canon took a new look at the way data is input by the photographer and improved information readout. And much more: Canon developed its own high-speed electronic shutter. Revolutionized automatic film transport. Set new standards of sophistication in micro-circuitry. Found startling ways to use less power to do more work.

The T90 is an unprecedented technological achievement. And with the T90, every contribution to the science of camera engineering is also a contribution to the art of photography.


Canon T90
MULTIPLE METERING SYSTEM
COMPUTERIZED 3 MOTOR CONTROL
MODE
METERING
MULTI
EXP.
CLEAR

EXTRAORDINARY INNOVATIONS AT THE CRUCIAL INTERFACE BETWEEN CAMERA AND PHOTOGRAPHER

One of Canon's most important design objectives for the T90 was to make the camera's many high-performance functions and technologies instantly accessible to the photographer. This was a fascinating challenge; never before had so many sophisticated features been built into a body so sleek and compact.

Canon met the challenge with an impressive range of innovations in camera control engineering. The most extraordinary new idea is the versatile Electronic Input Dial—the centerpiece of the camera's intelligent control system. In addition, the T90 features a superb display system—both on the T90's display panel and in the viewfinder—that keeps the photographer constantly updated on all relevant camera functions. The result is a camera that is totally responsive to even the slightest demands.

THE T90'S MASTER CONTROL: THE NEW ELECTRONIC INPUT DIAL

The Electronic Input Dial is one of those rare design concepts that transcend existing technical limits. It inputs an incredible volume and variety of information with amazing speed and simplicity. It serves the function of numerous separate controls, thus keeping the layout of the T90 simple and clean.

To achieve this, Canon took the two most common camera control mechanisms—the mechanical dial and electronic pushbuttons—and combined them into an ideal hybrid that offers the advantages of both.

The Electronic Input Dial operates something like a mechanical shutter speed dial. The user can move it quickly from the top of the scale to the bottom in less than a second. But unlike a purely mechanical system, the Electronic Input Dial is not limited by how many settings can be legibly printed on the control.

The technology of the Electronic Input Dial is totally electronic. Since information is input electronically, it can be used for multiple functions with almost any number of settings for each function. But it does not force the user to move slowly, one step at a time, from one setting to another as with electronic pushbuttons.

The Electronic Input Dial is used together with several other controls to input the following:

The Electronic Input Dial: Information Input

Function/mode	Number of items input
AE modes	10
Shutter speeds (in half steps)	36
Aperture settings	20
Metering sensitivity patterns	3
Manual ISO film speed settings	31
Exposure compensation settings	12
Multiple exposure settings	9

That adds up to seven functions and a total of 121 separate items of information—all input simply and without confusion using the Electronic Input Dial.

A RATIONAL ARRAY OF CAMERA CONTROLS

All of the T90's controls are designed for maximum ease and speed of operation. For the most frequently used controls, the photographer need not move his hands from the standard shooting position. Other controls are placed out of the way, but accessibly, along the bottom edge of the camera back.

Important, but less frequently used, controls are set into the right side of the camera, tucked away behind the hinged palm wing.

Shutter Button

Based on in-depth ergonomic studies, the T90 shutter release is positioned at the point where the right index finger rests naturally. The large handgrip also facilitates shooting.

Spot Metering Button

For one-point spot metering, simply center the spot metering mark on the subject and press the Spot Metering Button. The spot meter reading is stored in the camera's memory for 30 seconds. For multi-spot metering, press the button repeatedly for up to eight spot readings. Multi-spot readings are averaged for a final exposure value.

Shooting Mode Selector

The Shooting Mode Selector is located on the top of the T90. Press it while moving the Electronic Input Dial to select any of 10 AE shooting modes.

Metering Mode Selector

Press the Metering Mode Selector, located just behind the Shooting Mode Selector, while moving the Electronic Input Dial to set one of T90's three metering modes.

Multiple Exposure Selection

When shooting multiple exposures, press both the Shooting Mode Selector and Metering Mode Selector while moving the Electronic Input Dial to set the T90 for up to nine exposures on the same frame.

Shadow Control Button

Located on the back of the camera, within easy reach of the photographer's right thumb, is the Shadow Control Button. To emphasize deep shadows and dark areas to the desired degree, select a dark area of the composition with the Spot Metering Button, then press the Shadow Control Button from one to eight times to correct exposure up to 4 EV in half steps.

Highlight Control Button
The Highlight Control, located beside the Shadow Control, works just like the Shadow Control to keep highlights bright. Highlight compensation is also adjustable up to 4 EV in half steps.

Exposure Preview Button
Press the Exposure Preview Button, located beside the Highlight Control Button, to activate the viewfinder information display.

Main Switch
To turn the T90 on, move the Main Switch, located along the lower edge of the camera back, from L (lock) to A (advance). The T90 is now ready to shoot.

Film Speed Button
The ISO film speed is set automatically by the camera when DX-coded film is used. To set the correct ISO film speed for non-DX film, press the Film Speed Button, located beside the Main Switch, while moving the Electronic Input Dial.

Exposure Compensation Button
To set the exposure compensation level, press the Exposure Compensation Button, located beside the Film Speed Button, while moving the Electronic Input Dial. Exposure can be corrected to ±2EV in 1/3 steps.

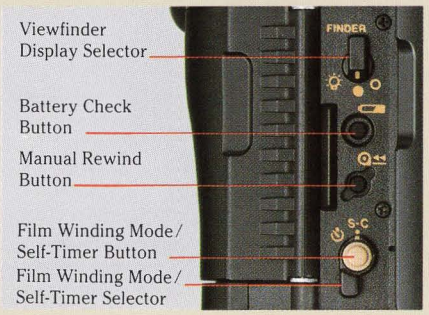
Stop-Down Lever
Depress the Stop-Down Lever, located to the left of the lens, for stopped-down photography.

Viewfinder Display Selector
The Viewfinder Display Selector, located inside the palm wing, has three settings: viewfinder information display off, viewfinder information display on, illumination of LCD Display Panel and Viewfinder LCD Display on.

Battery Check Button
Also inside the palm wing is the Battery Check Button, which activates the battery charge level display on the LCD Display Panel.

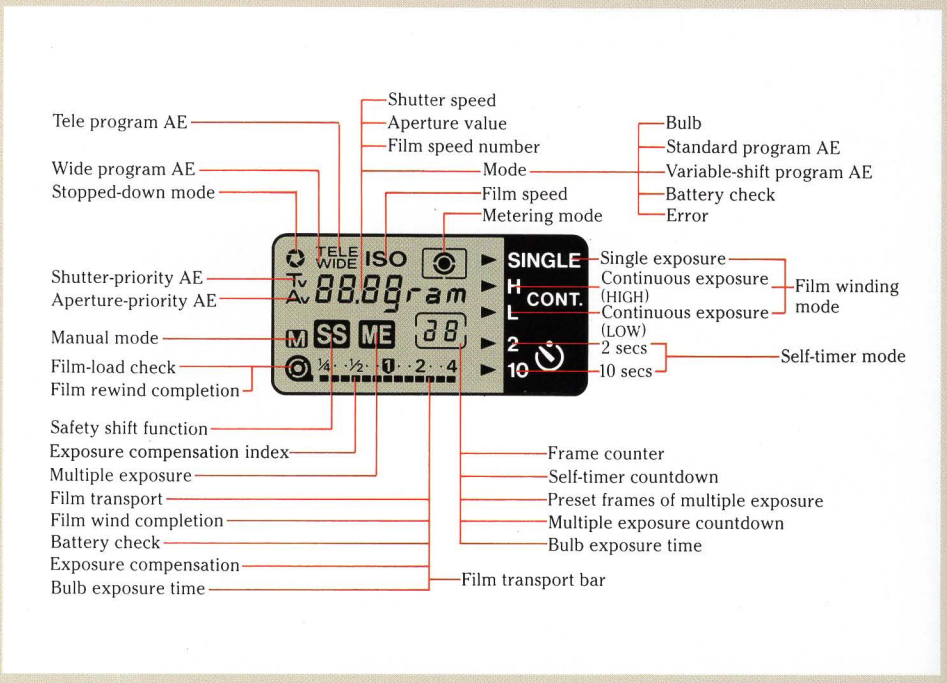
Manual Rewind Button
By pressing the Manual Rewind Button, located inside the palm wing, the film can be rewound immediately from any point on the film.

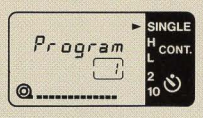
Film Winding Mode / Self-Timer Selector
With the selector set to S-C, press the Film Winding Mode Button to choose from among three available winding modes. The same button changes Self-Timer timing when the selector is moved to the Self-Timer (⏲) position.



THE T90 LCD PANEL: INFORMATION AT A GLANCE

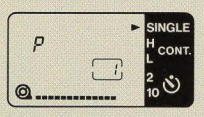
The T90's "communications center" is a large, easy-to-read LCD Panel on the top of the camera body. This ingenious information display system solves the problem of clear, straightforward presentation of a large volume of data. The LCD panel displays a total of 226 items for 25 different camera functions. But data is displayed only when it is needed. The LCD panel always remains clutter-free, and the photographer has instant access to any information needed to make a decision.





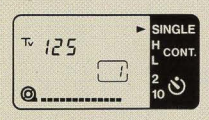
AE Mode Selection

Using the Electronic Input Dial and the Shooting Mode Selector, move to the desired AE mode, as displayed on the LCD Panel. Choose from among: PROGRAM (Standard Program), P (Variable-shift Program), Tv (Shutter-priority AE), Av (Aperture-priority AE), and BULB.



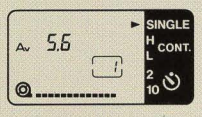
Variable-shift Program Selection

In the Variable-shift Program mode, use the Electronic Input Dial to move to any of the seven available programs: TELE P-3, TELE P-2, TELE P-1, P, WIDE P-1, WIDE P-2, WIDE P-3. Choose the most suitable program to suit the lens being used or the photographic effect desired.



Shutter Speed Selection

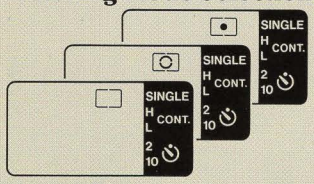
In the Tv mode, use the Electronic Input Dial to move to any shutter speed from 1/4000 to 30 sec. in half steps, for a total of 36 settings.



Aperture Selection

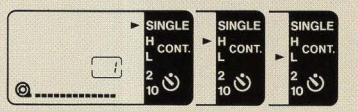
In the Av mode, use the Electronic Input Dial to move to any of 20 aperture settings, from f/1.2 to f/32.

Metering Mode Selection



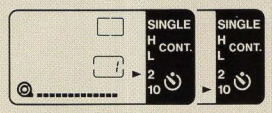
Use the Electronic Input Dial and the Metering Mode Selector to set one of the three metering modes, as displayed in the LCD panel. Choose from among "▭" (center-weighted average metering), "◎" (partial metering), and "•" (spot metering).

Film Winding Mode Selection

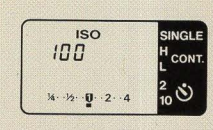


Use the Film Winding Mode button to move the arrow on the LCD panel to one of three film winding modes: SINGLE, H (high-speed continuous 4.5 fps mode), and L (continuous 2 fps mode).

Self-Timer Selection

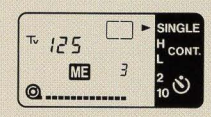


Use the Self-Timer Button to move the arrow on the LCD panel to either 2 (2-second self-timer) or 10 (10-second self-timer). While the self-timer is operating, the LCD Display Panel counts down the seconds and the Self-Timer Operation indicator on the front of the camera blinks.



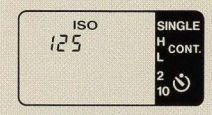
Exposure Compensation Selection

When the Exposure Compensation Button is pressed, the exposure compensation index appears along the bottom of the LCD Panel. Hold the button down while using the Electronic Input Dial to move the dot (▪) to the desired exposure correction setting.



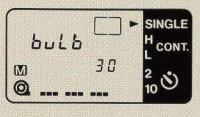
Multiple Exposure Selection

Use the Electronic Input Dial with the Shooting Mode Selector and Metering Mode Selector to select the desired number of exposures on the current film frame. The ME symbol appears on the LCD Panel along with the number of exposures selected.



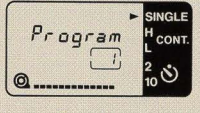
ISO Film Speed Selection

ISO film speed is set automatically (from ISO 25 to 5000—the entire DX-coded range) when DX-coded film is used. To set ISO film speed manually, press the Film Speed Button and use the Electronic Input Dial to select from among 31 ISO values (from ISO 6 to 6400) appearing on the LCD Panel. The ISO symbol also appears on the LCD Panel.



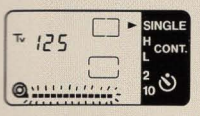
Bulb Display

In the bulb mode, the LCD Panel counts elapsed time, with numeric display up to 30 seconds, and bar displays for up to three further 30-second increments (maximum time counted: 120 sec.).



Frame Counter Display

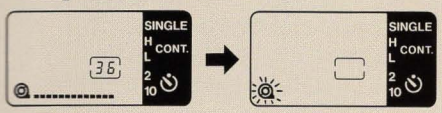
The LCD Panel displays the frame number for the next frame to be exposed. (Number of remaining frames appears in the viewfinder.)



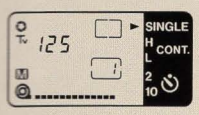
Incorrect Auto-loading Warning Display

When a mistake is made in the auto-loading procedure, the film transport bars along the bottom of the LCD Panel flash.

Film Load Check and Film Rewind Completion Indicator

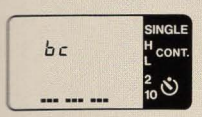


The film cartridge symbol on the LCD Panel appears when film is being loaded, and when loading is correctly completed, the film transport bars are displayed. On completion of film rewind, the film cartridge symbol flashes.



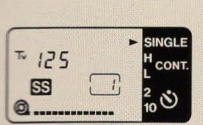
Manual Mode and Stopped-Down Indicators

The M (manual mode) indicator appears when the lens aperture ring is moved off the "A" setting. If the stopped-down lever is depressed, the " ◘ " (stopped-down) symbol appears. The error warning ("EEE") is displayed if stopped-down operation is attempted with the lens aperture ring still in the "A" position.



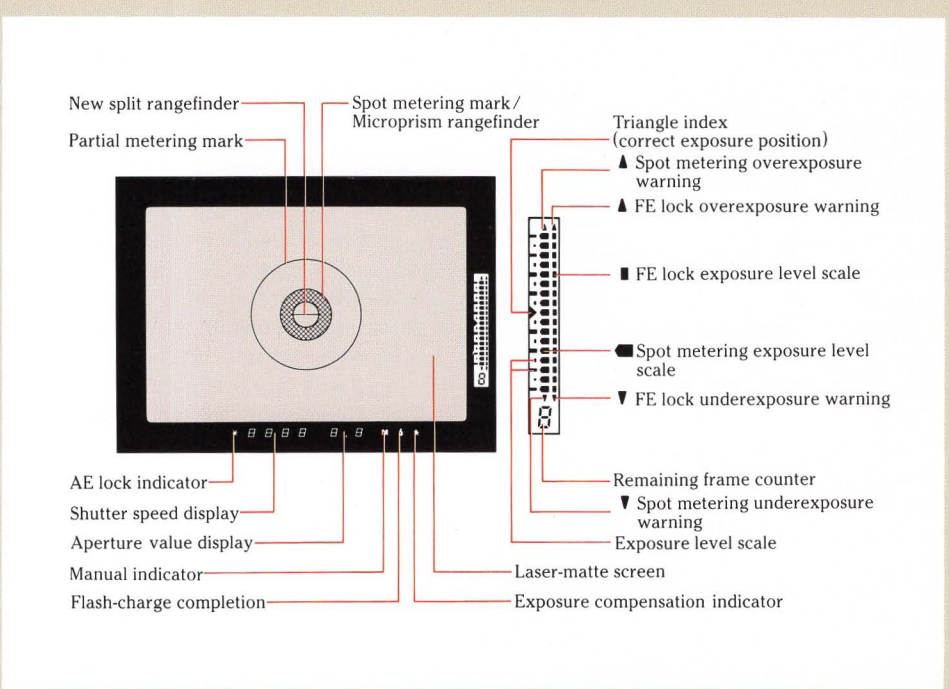
Battery Check Display

When the Battery Check Button is pressed, the "bc" symbol appears on the LCD Panel, along with a three-bar display for battery strength (three bars for fresh batteries down to no bars for exhausted batteries).



Safety Shift Indicator

To set the Safety Shift function, hold the Film Speed Button and Exposure Compensation Button down at the same time (for about one second). The SS (Safety Shift) symbol appears on the LCD Panel.



VIEWFINDER DISPLAY FOR ON-THE-SPOT INFORMATION

The T90's viewfinder displays important information that the photographer needs during the act of photo composition. All information is displayed outside the field of view, in bright LEDs or LCD indicators.

AE Lock Indicator

An LED asterisk indicates that the AE lock is in place. AE Lock can be used in the Partial and Spot Metering modes.

Shutter Speed Display

The shutter speed set by either camera or photographer is displayed in LED numerals.

Aperture Display

The f/number is also displayed in LED numerals. In manual operation, the LED shows the ideal aperture setting, which must be set manually.

Manual Indicator

An LED "M" appears in the viewfinder to indicate manual override.

Flash Charge-Completion Indicator

A red LED lightning bolt symbol (ϟ) appears to show that the flash is charged and ready to shoot.

Exposure Compensation Indicator

An LED plus/minus symbol (+ / −) appears to indicate exposure compensation has been selected.

Spot Metering Display

An LCD scale to the right of the picture frame indicates spot metering. In one-point spot metering, a dot (▬) appears at the center position on the scale. In multi-spot metering, reference spot readings appear first as free dots (▬) on the scale. When the Spot Metering Button is pressed, free dots are fixed and all spot readings in the memory are averaged around the center point. Over- or underexposure of more than 4.5 steps is indicated by an arrow (▲ ▼) at either end of the scale. Highlight and Shadow compensation is indicated by the spot metering dot array moving up or down the scale.

Analog/Digital Frame Counter

The same LCD scale is also used as a frame counter to show how many frames are left on the roll (DX film only). When more than 9 frames are left, the number of usable frames is displayed on an analog bar graph. The display switches to digital to count down the last 9 frames. This feature is easy to read, and extremely useful when shooting with continuous high-speed motor drive.

BASIC TECHNOLOGIES THAT OPEN UP A NEW WORLD OF POSSIBILITIES

An impressive range of basic technologies lies behind the extraordinary functions and capabilities of the T90. Behind the incredibly efficient built-in film transport is a completely new drive system using three motors. Behind the ultra-fast shutter speed is a new type of shutter developed by Canon engineers exclusively for the T90. And behind the T90's exposure capabilities are a new system of data handling and a metering system of unprecedented versatility.

CANON CHALLENGES ACCEPTED THINKING ABOUT MOTOR DRIVES

Until Canon developed a solution in the T90, building a high-speed, professional motor drive into a compact SLR body was considered technically impossible. Too-high voltage levels—and therefore too many bulky batteries—were required to drive a high-speed film transport while also powering a high-speed shutter, film rewind and a modern camera's entire range of electronic functions. Motor drives have until now remained an expensive accessory.

Canon's revolutionary Three-Motor System

Like most creative breakthroughs, Canon's solution to the problems of high-speed film-transport mechanics is elegantly simple. Just use three highly specialized coreless motors instead of a single multi-purpose motor.

The T90 has one motor for automatic forward film transport, a second for charging the shutter, AE mechanism, and quick-return mirror, and a third for automatic rewind. There are several obvious energy-saving advantages to the Three Motor System.

First, each motor can be designed for maximum efficiency in its individual function. For instance, the film can be advanced quickly during auto-loading without activating the mirror.

Then, each motor can be independently controlled, for greater flexibility and a more efficient distribution of the work burden.

Finally, each motor can be placed closer to the mechanism it drives, to improve transmission efficiency. In the case of the forward film-transport motor, Canon was even able to design the world's first two-speed automatic changeover function for motor drive.

Two-speed changeover function

The T90 motor drive features an innovative automatic changeover function that automatically switches speed from the top speed of 4.5 fps to 2 fps whenever the battery voltage drops below a prescribed level. This saves battery energy and extends battery life, so more pictures can be taken with the same batteries.

Convenient one-second auto loading

The T90's automatic film loading system takes only about two seconds. Simply drop in the film cartridge, extend the leader to the orange mark and close the camera back. The film is automatically advanced up to the first frame at top speed.

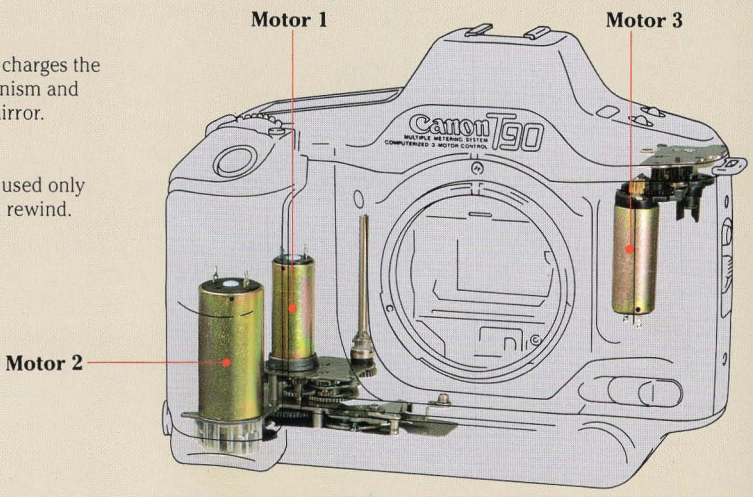
Fast auto-rewind

With a coreless motor designed exclusively for film rewind, the T90 offers an exceptionally fast rewind speed—only about eight seconds for a 24-exposure roll. Rewind begins automatically after the last frame is exposed and stops automatically when the film is completely rewound.

Motor 1
The first motor is used exclusively for forward film transport. It features a unique two-speed low-voltage changeover function

Motor 2
The second motor charges the shutter, AE mechanism and the quick-return mirror.

Motor 3
The third motor is used only for high-speed film rewind.



CANON'S NEW CONCEPT IN HIGH-SPEED SHUTTERS

The T90's exclusive Permanent Magnet Shutter (PMS) was Canon engineers' original solution to the problem of achieving stable, durable, high-speed shutter operation at relatively low power levels. A few other cameras offer the same top 1/4000-second speed, but only the T90 powers both a high-speed shutter and high-speed motor drive on just four size-AA batteries. And no other shutter matches the T90's for accurate, reliable performance.

The PMS shutter was made possible by an ingenious combination of five important innovations in shutter mechanics.

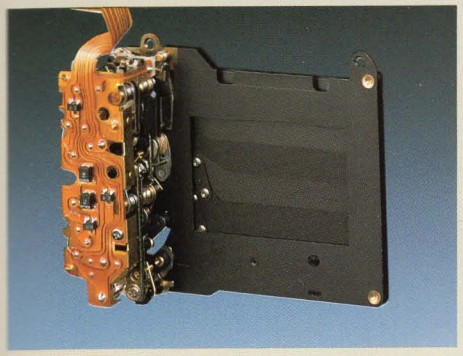
First, Canon used strong, lightweight, specially coated superduralumin shutter blades—four in front and four in back. They were designed strong enough to withstand the shock of high-speed operation but light enough to move with maximum speed and minimum power.

Second, a high-precision boost spring mechanism, acting like an automobile's turbo-charger, supplies an additional burst of power to the shutter blades exactly when needed.

Third, two quick-return magnets, one for the back shutter blades and one for the front, achieve instantaneous release of the armature. This newly-developed component ensures top speed and accuracy.

Fourth, the T90 shutter achieves a faster response speed by using an exceptionally high-voltage (15V) drive. Power is boosted by a special DC/DC converter.

Fifth, an exclusive two-step shutter brake combines soft braking and hard braking mechanisms to absorb the powerful inertial force of the shutter blades completely and quickly.



A MAJOR STEP FORWARD IN CAMERA ELECTRONICS

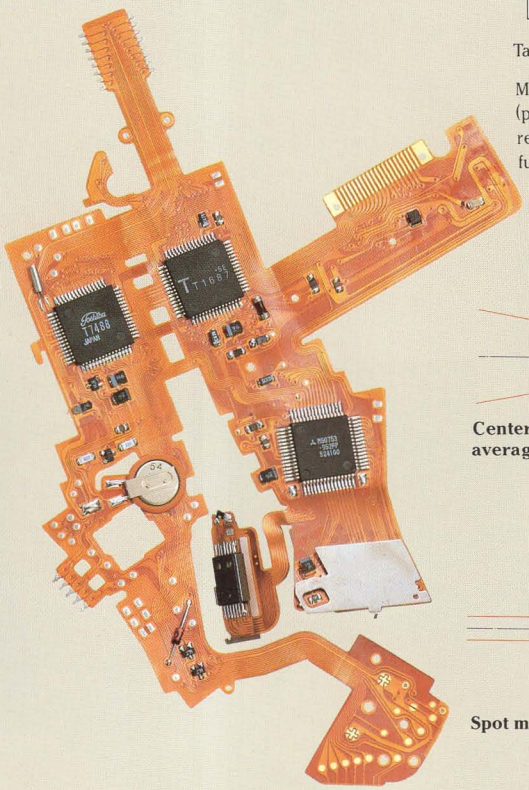
To operate and control the T90's enormous range of functions, Canon has created a completely new microcircuitry system that combines unprecedented computing power with extraordinary energy efficiency.

The backbone of the system is a dual CPU, with a main CPU to handle overall sequence control and the LCD panel, and a sub-CPU to control high-speed data-processing functions needed for exposure calculations, digital displays and motor sequence control. The two CPUs keep in touch by means of a high-speed serial digital I/O interface LSI.

The main CPU, which must be kept operating continuously to respond to various input signals, operates at low power, and handles relatively small amounts of data.

The workhorse is the sub-CPU, which processes massive amounts of data, but operates only when needed—micro-seconds at a time. The sub-CPU alone has a ROM capacity of 6,144 words, a RAM capacity of 192 bytes, and runs 96 levels of sub-routines with command execution times as fast as two micro-seconds.

In addition, the T90 microcircuitry system contains six LSIs, four ICs, and a quartz oscillator.

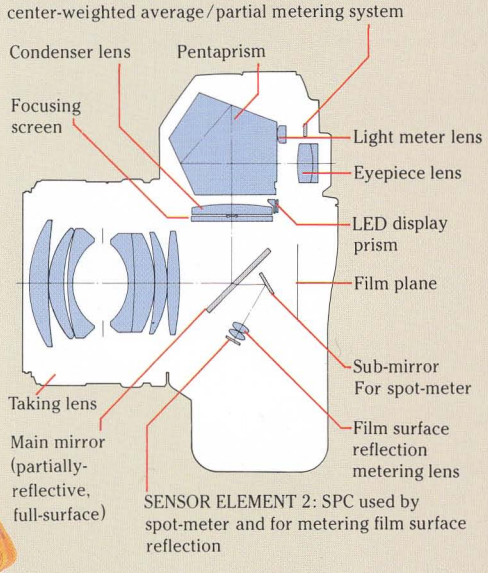


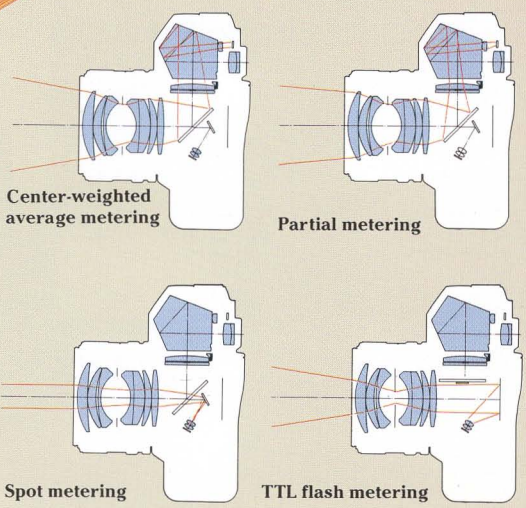
A VERSATILE METERING SYSTEM

As we have seen, the T90 features the world's most versatile built-in metering system, with three metering distribution patterns. Two of these—center-weighted average metering and partial metering—are measured by a double-area sensitivity silicon photo cell placed above the viewfinder eyepiece.

The third metering pattern—spot metering—is measured by another silicon photocell placed in the lower part of the mirror box. During spot metering, light coming through the lens is intercepted by a sub-mirror placed behind the main mirror, functioning as a half-mirror. From here, it is directed to the spot metering cell, where the center portion of the field of view is measured, providing the basis for spot metering exposure calculations. This silicon metering cell is also used for A-TTL and TTL flash metering with the 300TL and ML-2 flash units.

OPTICAL SYSTEM FOR FINDER LIGHT METERING SYSTEM





THE T90 SYSTEM: VERSATILE ACCESSORIES FOR THE MOST DEMANDING PHOTOGRAPHERS

The T90 system includes a complete range accessories to extend the photographic reach of the advanced photographer. The two dedicated flash systems in the T90 system—the Speedlite 300TL and Macro Ring Lite ML-2—combine with the T90's metering and exposure systems to provide automatic flash capabilities never before available in any SLR system.

For computerized information handling, Command Back 90 and Data Memory Back 90 offer a variety of advanced capabilities, including recording of important exposure data.

Wireless Controller LC-2 provides valuable remote control capabilities without the inconvenience of extension cords.

And for a complete range of specialty applications with all types of lenses, the T90 system includes eight interchangeable focusing screens.

A REVOLUTIONARY FLASH SYSTEM

The Speedlite 300TL flash unit solves the problems of both conventional TTL and external flash systems.

A-TTL: the most advanced SLR flash meter system

In the 300TL's A-TTL mode, light is measured by the T90's sensor as it comes through the lens and reflects off the film surface. Exposure is determined using software based on optimum flash algorithms obtained from actual photographs combined with distance and exposure calculations derived from analysis of a near-infrared pre-flash. In difficult situations such as fill-in flash photography, A-TTL balances the exposure level between the main subject and the background to prevent unnatural effects.

New capabilities with FE Lock

In its FE Lock mode, the 300TL is the first flash unit ever to use spot metering and the AE lock principle in flash photography. At last, flash can be used for off-center subjects. The 300TL uses a 1/20 strength pre-flash from the main flash head and TTL metering to calculate the correct flash exposure for the subject. By using FE Lock with the T90's Highlight and Shadow controls, it is possible to expose subject and background independently. With FE Lock, the TTL meter measures and stores light values from the pre-flash—it does not measure light reflecting off the film surface during exposure. So, for the first time, exposure is not affected by the reflectivity of the film in use or the reflectivity of the background.

Second curtain synchronization

With the 300TL, it is possible to synchronize the flash either for the first shutter curtain opening, or just before the second curtain begins running. This allows automatic flash effects impossible with any other dedicated flash unit.

High and Low manual modes

The 300TL can be set for manual flash photography in two modes: MHi for manual flash with a guide number of 30 (ISO 100•m) or 98 (ISO 100•ft), and MLo for manual flash with a guide number of 7.5 (ISO 100•m) or 24.5 (ISO 100•ft).

Zoom mechanism covers 24 mm field of view

The 300TL is the first GN30-class clip-on flash with a zoom mechanism on the flash head covering fields of view of lenses from 24 mm wide angle to 85 mm telephoto without using a wide panel.

FULLY AUTOMATIC CLOSE-UP PHOTOGRAPHY

The Macro Ring Lite ML-2 is a two-flash-tube ring-type TTL electronic flash designed for exceptionally simple close-up photography.

Two flash tubes can operate separately or together

The ML-2 is the first ring-flash that can be used with either ring segment separately or both together. This allows special lighting effects, such as a strong three-dimensional effect with side lighting.

Convenient focusing lamp

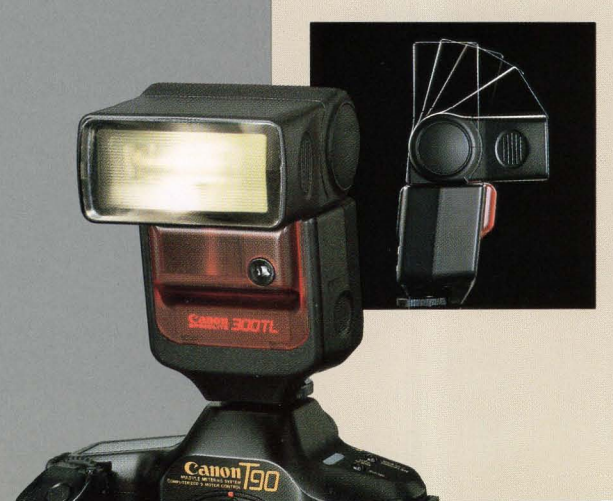
The ML-2 features a low-intensity focus lamp for easy focusing in dark, close places—a common problem with close-up photography. The focus lamp cuts off automatically after 30 seconds.

Versatile modeling light

The ML-2 also has a modeling light that lets the photographer check where shadows will fall during the final exposure. The modeling light can be used with both tubes or each tube separately.

Convenient, foolproof operation

TTL metering and automatic exposure control eliminate troublesome exposure compensation calculations for more reliable results.



MULTIPLE FLASH ACCESSORIES

With the T90's multiple flash accessories, automatic multiple TTL flash photography is possible with up to four flash units (Speedlite 300TL, Macro Ring Lite ML-2, or any combination of the two). The accessories include the TTL Hot Shoe Adapter, TTL Distributor, Off-camera Shoe Adapter, and Connecting Cords 60 and 300.

COMMAND BACK 90 FOR DATA IMPRINTING AND TIMING

The T90's Command Back 90 interchanges easily with the camera's standard back to give the photographer a host of data imprinting and timer control features. Data and timer functions can be used at the same time.

Data printing functions

- Date automatic up through the year 2029
- Day/Hour/Minute in 24-hour format
- Any preset 6-digit number plus letters A through F
- Frame counter number up to four digits

Timer functions

- Self-timer (1 second to 23 hours, 59 min., 59 sec.)
- Interval timer
- Long release timer
- Frame counter setting (camera stops after set number of exposures)

DATA MEMORY BACK 90

Data Memory Back 90 is a high-tech option available only with the T90. It allows the photographer to record 16 types of important exposure control data and store them in the unit's memory. The data can then be read out on the unit's LCD monitor panel.

Data recording functions

1. Shutter speed
2. Aperture
3. Metering mode
4. Shooting mode
5. Use of flash (or not)
6. Stopped-down aperture (or not)
7. Spot metering data*
8. FE Lock data*
9. Use of exposure compensation (or not)
10. Amount of exposure compensation*
11. Number of exposures made
12. ISO film speed data
13. Use of manual exposure (or not)
14. Auto calendar
15. Auto frame counter
16. Type of lens used

Two types of data storage are available: standard mode for all 16 types of data, or a reduced mode which stores only items 1, 2, 6, 11, 13 and 15. In reduced mode, data can be stored for 338 exposures or nine rolls of 36-exposure film. The standard mode has a capacity of 156 exposures or four rolls of 36-exposure film.

Data printing functions

The Data Memory Back 90 can also print the following data directly on the photograph:

- Auto date up through the year 2099
- Day/Hour/Minute in 24-hour format
- Frame counter number (four-digits)

Notes:

1. With Interface Unit D.M.B., all data can be checked on the screen of an MSX personal computer. Items marked with an asterisk (*) can be displayed only on the MSX computer screen.
2. Data Memory Back 90, Interface Unit D.M.B. and MSX computer are not available in North America and some other areas.

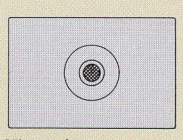
REMOTE CONTROL SHOOTING WITH WIRELESS CONTROLLER LC-2

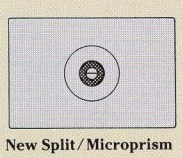
The Canon infrared Wireless Controller LC-2 takes advantage of the T90's built-in motor drive to allow remote control of the camera shutter from up to five meters (16.4 ft.) away. The system consists of a hand-held transmitter and a receiver. The transmitter broadcasts on two channels, so it can be used to operate two remote cameras.

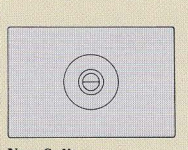
The LC-2 system operates in three different modes. The standard mode operates immediately when the transmission switch is pressed, the delay mode operates two seconds after pressing the switch, and the auto-sensing mode operates only when some object blocks the path of light between the transmitter and receiver.

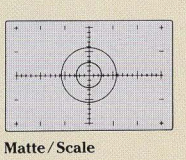
INTERCHANGEABLE FOCUSING SCREENS

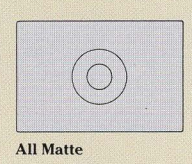
A complete range of eight focusing screens is available with the T90 system, for a variety of general and specialty applications. Choose from among the following:

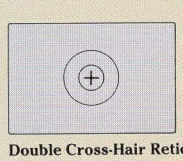

Microprism

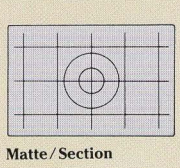

New Split/Microprism

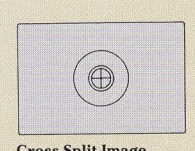

New Split


Matte/Scale


All Matte


Double Cross-Hair Reticle


Matte/Section


Cross Split-Image

NOMENCLATURE


Spot Metering Button
Shutter Button
Flash Sync Contact
Illumination Window
Shooting Mode Selector
Electronic Input Dial
Neckstrap Ring
Neckstrap Ring
Metering Mode Selector
Film Plane Indicator
Automatic Flash Contacts
LCD Display Panel
Accessory Shoe
MODE
MULTI EXP.
METERING /CLEAR
SINGLE
H
CONT.
L
2
10
M


Back Cover Lock Button
Viewfinder Display Selector
Battery Check Button
Manual Rewind Button
Film Winding Mode/
Self-timer Button
Film Winding Mode/
Self-timer Selector
Back Cover Latch
Battery Magazine Latch
Remote Control Socket Cover
FINDER
S-C

SPECIFICATIONS

T90 Camera

Type: 35 mm single lens reflex (SLR) camera with electronically controlled automatic exposure (AE), focal-plane shutter, and built-in motor drive.
Format: 24 × 36 mm
Usable Lenses: Canon FD lenses (full aperture metering and stopped-down metering) and non-FD lenses. (stopped-down metering)
Standard Lens: FD 50 mm f/1.4
Lens Mount: Canon Mount
Viewfinder: Fixed eye-level pentaprism. Gives 94 % vertical and horizontal coverage of actual picture area, and 0.77X magnification at infinity with a standard 50 mm lens.
Dioptric Adjustment: Built-in eyepiece is adjusted to standard −1 diopter. (eyepoint: 19.3 mm)
Focusing Screen: Standard split-image/micro-prism rangefinder. Seven other types of interchangeable screens are available optionally.
Mirror: Quick return type half-mirror with shock and noise absorber.
Viewfinder Information: Displayed to the right and at the bottom of viewing area.
Bottom area:
(1) 7-segment LED digit display
1 Shutter speed (red)—flashes at 4 Hz to give out-of-metering range warning.
2 Aperture (red)—flashes at 4 Hz to give out-of-metering range warning.
3 All hyphens (red)—data imprint confirmation; displayed only when special accessories are attached.
(2) 7-segment LED character display
1 EEEE EE (red)—error warning; displayed when the lens is set to "A" during stopped-down operation.
2 HELP (red)—camera malfunction or operational error warning.
(3) 3-segment LED display
1 ✱ (red)—AE lock indicator in partial area metering and spot area metering.
(4) LED mask lighting display
1 M (red)—manual indicator.
2 ϟ (green)—flash charge-completion indicator.
3 +/− (red)—exposure compensation indicator.
Right area:
(1) Dot and 7-segment digit transparent LCD display
1 ▀ (white on blue background)—multi-spot metering indicator, H/S control indicator, and remaining frame display.
2 ▮ (white on blue background)—FE lock indicator when the Speedlite 300TL is used with the camera in the FE lock mode.
Light Metering System: Through-the-lens (TTL) full aperture metering for FD lenses, using silicon photocell (SPC). Three selectable metering patterns; center-weighted average metering, partial area metering, and spot area metering. When using lenses or accessories without FD signal pins, only stopped-down metering may be used.
Exposure Modes:
1 Shutter-priority AE with selectable Safety Shift function (ON/OFF possible)
2 Aperture-priority AE with selectable Safety Shift function (ON/OFF possible)
3 Standard program AE
4 Variable-shift program AE (selectable out of 7 programs)
5 Manual
6 Stopped-down AE
7 Stopped-down (fixed index) metering
8 Flash AE (possible with specified Canon Speedlites)
Meter Coupling Range: EV 0 ~ 20 (with ISO 100 film and a 50 mm f/1.4 lens)
Film Speed: ISO 6 ~ 6400. (ISO25 ~ 5000 is automatically set by 1/3 step according to DX code standard) Also can be set manually.
Exposure Compensation:
1 Exposure compensation index— ± 2 steps by 1/3 increment
2 H/S control— ± 4 steps by 1/2 increment (can only be used during the spot area metering, and in the FE lock mode with the Speedlite 300TL)
Shutter: Vertical-travel metal type focal-plane shutter. All speeds electronically controlled. Front and back curtains controlled by separate quick-return permanent magnets.
Shutter Speeds: 1/4000 ~ 30 sec. and bulb. (X-sync = 1/250 sec.) Can also be set in 1/2 step.
Self-Timer: Electronically controlled, with a delay of either approx. 10 sec. or approx. 2 sec. Indicated by blinking red LED of the operation confirmation lamp.
Film Loading: Automatic. After the film has been positioned and the back cover closed, the film is automatically advanced to the 1st usable frame and then automatically stopped. (approx. 2 sec.) The frame counter display then reads "1".
Film Wind: Automatic using the built-in coreless motor exclusively used for film transport. Continuous shooting is possible. Confirmation by the film transport bar marks on the LCD display panel.
Film Winding Mode: Three selectable modes; S (single exposure), H (max. 4.5 fps), and L (max. 2 fps). When operating in H mode, automatically switches to L mode when battery power drops below prescribed voltage to make shooting capacity longer.
Film Rewind: Automatic using the built-in coreless motor exclusively used for film rewind. Automatically starts when the end of the film is reached and then automatically stops (approx. 8 sec. with 24-exp. film). Manual film rewind is also possible by pressing the manual rewind button.
Flash Contact: Coupled directly to the camera by means of the X-sync contact on the accessory shoe. When using the Speedlite 300TL, either the first shutter curtain synchronization or the second shutter curtain synchronization can be set.
Automatic Flash:
When the Speedlite 300TL is used and the camera is set to a program AE mode:
1. A-TTL flash-auto: Using A-TTL program of the camera and the near-infrared preflash of the Speedlite, the correct aperture value is automatically set according to the shooting distance and subject reflectivity. X-sync speed is also automatically set between 1/60 ~ 1/250 sec. upon flash charge-completion. TTL control system which meters the light reflected from the film surface. Automatic fill-in flash is possible.
2. FE lock TTL flash-auto: The camera's FE lock program automatically sets the aperture. The main flash tube produces preflash and the reflection from the subject is measured by TTL spot metering and is entered into memory. X-sync speed is also automatically set between 1/60 ~ 1/250 sec. upon flash charge-completion. Automatic fill-in flash is possible.

Remote Control: Possible. With three-terminal contact for remote control. Remote Switch 60T3 is required.
Multiple Exposure: By pressing both the shooting mode selector and the metering mode selector at the same time. Continuous multiple exposure is possible. Reset/clear during shooting and preset up to 9 exposures are also possible. Automatically cleared upon completion of preset exposures.
Eyepiece Shutter: Provided.
Exposure Preview Button: Provided.
Finder Display Selector: All LCD/LED displays can be turned ON or OFF, LCD display to the right of the viewfinder and the display panel can be illuminated by the built-in illumination lamp.
LCD Display Panel: Displays only the information required at the time, e.g. shooting mode, metering mode, film winding mode, shutter speed, aperture, film speed, frame counter (additive type), self-timer operation time, bulb operation time, battery check, etc.
Power Source:
1 Main power source—four AA-size batteries. Alkaline-manganese batteries are standard but carbon-zinc and Ni-Cd batteries may also be used.
2 Memory back-up—built-in lithium battery (BR-1225 or CR-1220), battery life is approx. 5 years.
Battery Check: By pressing the battery check button. Three energy levels are shown by the battery check bar marks on the display panel.
Back Cover: Removable. Opened by sliding the latch with safety lock. Command Back 90 and Data Memory Back 90 can be attached.
Dimensions: 153.1 (W) × 121 (H) × 69.4 (D) mm (6-1/4″ × 4-3/4″ × 2-3/4″)
Weight: 800 g (28-3/16 oz.) body only.

Subject to change without notice.

Speedlite 300TL

Type: Energy-saving, automatic electronic flash unit with pre-flash function. TTL metering function measuring light reflected from the film surface, and an automatic flash output control function using spot metering. Exclusive use for the T90 camera. Clip-on type with directly coupled contacts.

Guide number:

	Flash head position			
	24 mm	35 mm	50 mm	85 mm
M Hi	25 (ISO 100 • m)	30 (ISO 100 • m)	35 (ISO 100 • m)	40 (ISO 100 • m)
	82 (ISO 100 • ft)	98 (ISO 100 • ft)	114 (ISO 100 • ft)	131 (ISO 100 • ft)
M Lo	6.2 (ISO 100 • m)	7.5 (ISO 100 • m)	8.7 (ISO 100 • m)	10 (ISO 100 • m)
	20.5 (ISO 100 • ft)	24.5 (ISO 100 • ft)	29 (ISO 100 • ft)	32.7 (ISO 100 • ft)

The above figures are at full charge, i.e. 30 sec. after pilot lamp glows with new alkaline or fully charged Ni-Cd batteries.

Flash Coverage Angle: Covers more than the fields of view of 24 mm, 35 mm, 50 mm and 85 mm lenses.

Recycling Time: Alkaline-manganese batteries: Auto: approx. 0.2 to 13 sec. M Hi: approx. 13 sec. Ni-Cd batteries: Auto: approx. 0.2 to 6 sec. M Hi: approx. 6 sec. (Interval between firing of the flash and relighting of pilot lamp with new alkaline or fully charged Ni-Cd batteries.)

Number of flashes: Alkaline-manganese batteries: approx. 100 ~ 700 times. Ni-Cd batteries: approx. 45 ~ 300 times. (Counted when flash is fired in 30 sec. intervals with new alkaline or fully charged Ni-Cd batteries.)

Flash duration: Approx. 1/700 ~ 1/20000 sec.

Flash Control System: TTL series control system with pre-flash function. Automatic flash operation in A-TTL and FE-Lock modes.

For Both the A-TTL and FEL Modes

	Shutter speed	Aperture value
Shutter-priority AE	Set between 30 and 1/250 sec.	Automatic setting (between the maximum and minimum aperture of the lens)
Aperture-priority AE	Automatic setting (30 ~ 1/250 sec.)	Set between the maximum and minimum aperture.
Program AE	Automatic setting (1/60 ~ 1/250 sec.)	Automatic setting* (between the maximum and minimum aperture of the lens)

*In the FEL Mode, between either f/2 or the maximum and minimum settings of the lens.

Flash Exposure Level Control: A maximum of 1.5 BV steps in the A-TTL or FEL mode when subject illuminance is more than BV5 according to the center-weighted average metering system of the T90.

Automatic Shooting Distance Range: (in program mode at ISO 100)

Zoom head:

at 24 mm: 0.5 ~ 12.5 m (1.6 ~ 41 ft.)
at 35 mm: 0.5 ~ 15 m (1.6 ~ 49 ft.)
at 50 mm: 0.5 ~ 17.5 m (1.6 ~ 57.4 ft.)
at 85 mm: 0.5 ~ 20 m (1.6 ~ 65 ft.)

Film speed setting: Automatically set by the camera

Bounce angle: Upward: 0 ~ 90° (click stop positions: 0, 60, 75, 90).

Left side: 0 ~ 180° (click stop position: 0, 60, 75, 90, 120, 150, 180).

Right side: 0 ~ 90° (click stop position: 0, 60, 75, 90).

Power Source: Four size-AA (LR6) alkaline-manganese or Ni-Cd batteries. SE (Save-Energy) mechanism: Power is automatically turned off after 5 minutes of non-use when the main switch is left on.

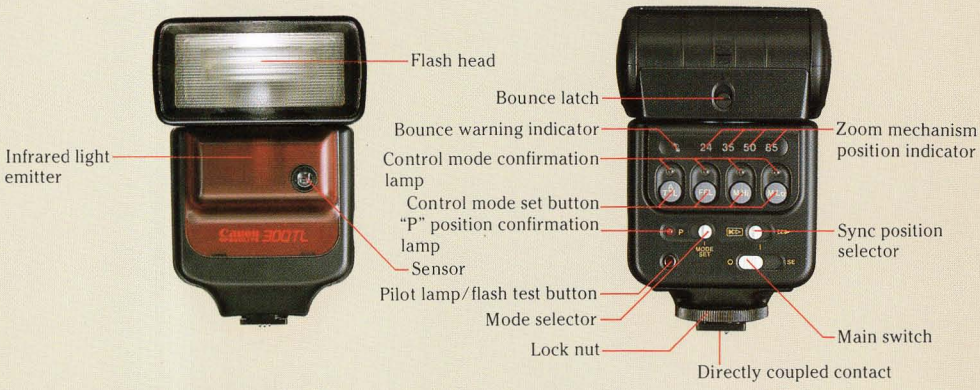
Pilot Lamp: Lights when the flash is ready for use and automatically switches to flash photography. Also used as a test button.

Size: 81 (W) × 119.4 (H) × 94 (D) mm. (3-3/16″ × 4-11/16″ × 3-11/16″)

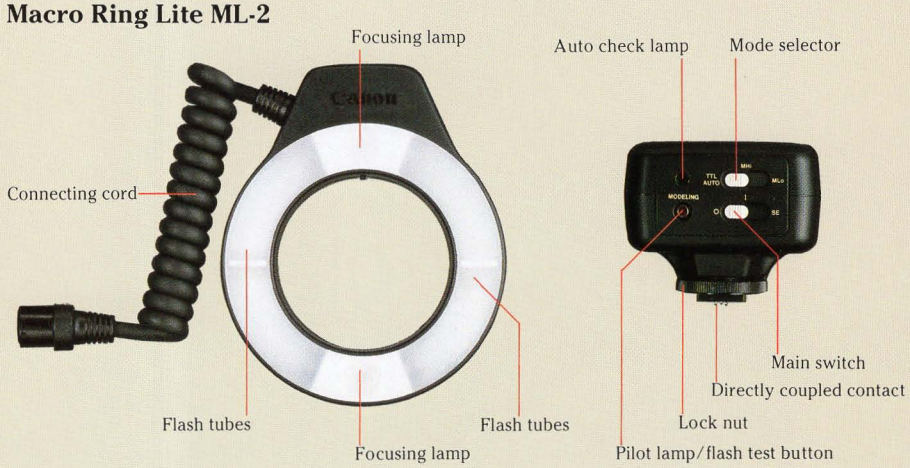
Weight: 395 g (13-15/16 oz.) body only.

Subject to change without notice.

Speedlite 300TL



Macro Ring Lite ML-2



Macro Ring Lite ML-2

Type: Energy-saving flash unit with TTL series control circuit, Clip-on type with direct contacts and lock.

Guide number: 11 (ISO 100 • m)/36 (ISO 100 • ft.) in Manual Hi mode, 5.6 (ISO 100 • m)/18 (ISO 100 • ft.) in Manual Lo mode. (The above figures are at full charge, i.e. after pilot lamp blinks with new alkaline or fully charged Ni-Cd batteries.)

Flash Coverage Angle: More than 80° vertically and horizontally.

Recycling Time:

	both flash heads	one flash head
alkaline batteries	0.2 ~ 13 sec.	0.2 ~ 13 sec.
Ni-Cd batteries	0.2 ~ 6 sec.	0.2 ~ 6 sec.

(in Manual Hi mode)

(Interval between firing flash and pilot lamp relighting, with new alkaline or fully charged Ni-Cd batteries.)

Number of Flashes:

	both flash heads	one flash head
alkaline batteries ●	more than 100 times	more than 100 times
Ni-Cd batteries	more than 45 times	more than 45 times

(in Manual Hi mode)

(Counted when flash is fired in 30 sec. intervals, with new alkaline or fully charged Ni-Cd batteries.)

Flash Duration: 1/500 ~ 1/10000 sec.

Flash Control System: TTL control system: i.e, the sensor inside the camera body measures the light which passes through the lens and which is reflected from the film plane. When the subject has received the proper amount of light, the flash output is automatically cut off. Fill-in flash is possible.

Pilot Lamp (red): Glows when flash is sufficiently charged. As soon as it glows, the camera automatically switches to flash circuit. Starts blinking when flash is fully charged. Also serves as the modeling light.

Auto Check Lamp (green): Glows for approx. 2 sec. after actual firing of flash when subject is correctly exposed in the TTL AUTO mode.

Focusing Lamp: By pressing the focusing lamp, two small lamps between the two main flash tubes light up for approx. 30 sec.

Modeling Light: By pressing the pilot lamp, the two main flash tubes flash on and off for approx. 5 sec. Only one tube can be flashed on and off by illumination changeover switch.

Flash Head: Two main flash tubes are used on left and right sides. One tube flash is possible by illumination changeover switch. Attached to lens by lens filter thread or through exclusive adapters.

Save-Energy Function: Operates by setting the main switch to "SE" position. When the main switch is left ON and the flash is not used for approx. 5 minutes, power to the flash unit is automatically cut off.

Film Speed: Film speed set on the T90 is automaticaly transmitted to flash.

Power Source: Four size-AA alkaline-manganese (LR6) or four size-AA Ni-Cd batteries.

Dimensions:

Control unit—74 (W) × 60.5 (H) × 106.5 (D) mm (2-15/16″ × 2-3/8″ × 4-3/16″)
Flash unit—101 (W) × 120.5 (H) × 20.6 (D) mm (4″ × 4-3/4″ × 13/16″)

Weight:

Control unit—235 g (8-5/16 oz.) body only
Flash unit—115 g (4-9/16 oz.) body only

Subject to change without noti

Canon

CANON INC. 7-1, Nishi-Shinjuku 2-Chome, Shinjuku-ku, Tokyo 163, Japan
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