KEPPLER'S

SLR Notebook

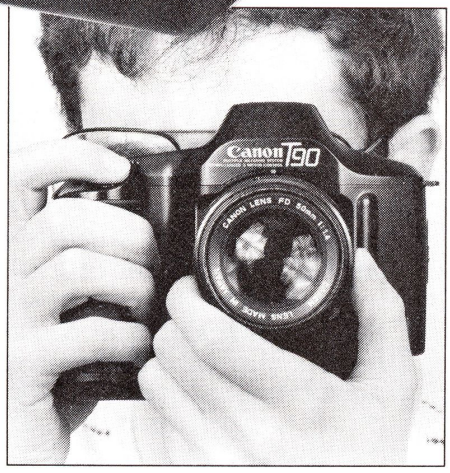
Canon T90's family relationship to other T series cameras is obvious, but sharp prism corners have been smoothed; size is considerably larger. In features it goes far beyond any Canon 35.

Canon Tops The T With T90 Super SLR

When in 1981 Canon began to retire its mechanical engineers who had created the A series of cameras in the late 1970s—the fabulously successful AE-1, AE-1 Program and A-1—and replace them with electronic engineers, we knew something was afoot.

What was afoot became Canon's new electronified T line of cameras starting with the T50 of 1983 followed by the T70 of 1984 and the T80 autofocus camera of 1985. Would they exist concurrently with their older, all metal body casting relatives in the A line or was the T series the successor to the A?

With the advent of the T90, a camera obviously designed for the sophisticated amateur or pro, we can surmise Canon's master plan. For the Canon AE-1, we have the Canon T50; the Canon T70 more than equals the AE-1 Program and the famous A-1 multi-mode camera has met its match and been far surpassed by the Canon T90, to be available in February at a price approximately equal to the Canon A-1 with motor. This incredibly versatile, multi-functional SLR, using virtually the same basic hybrid glass fibre reinforced polycarbonate and bonded metal focal plane-body as the T50, 70 and 80, goes far beyond anything Canon (or anyone else) has offered before. The A series required the usual amount of mechanical preparation for making a picture, but Canon created the T series to make preparation as easy as possible by automating it and allowing the photographer to concentrate primarily on image making.

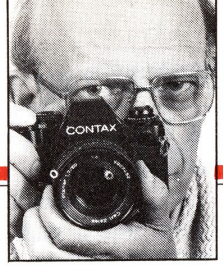


Ergonometric handling: T90 is highly grippable; contoured hand grip, shutter release, fall where you want 'em.

The contours of the T90 are not, surprisingly, similar to the other T cameras: rounded corners and edges, no attempt to disguise plastic as metal, right handed grip, built-in auto load and wind, infrared autoflash sensing.

Like the T70, pictographs on the top LCD panel indicate proper film loading and rewinding, two dual silicon photo diode metering cells in the prism finder read both center-weighted and selected central picture area. The camera has auto rewind (in only 12 sec. for 36 exposures), multi-program modes and LCD information panels. But then it really takes off, leaving the T50 and T70 far, far behind.

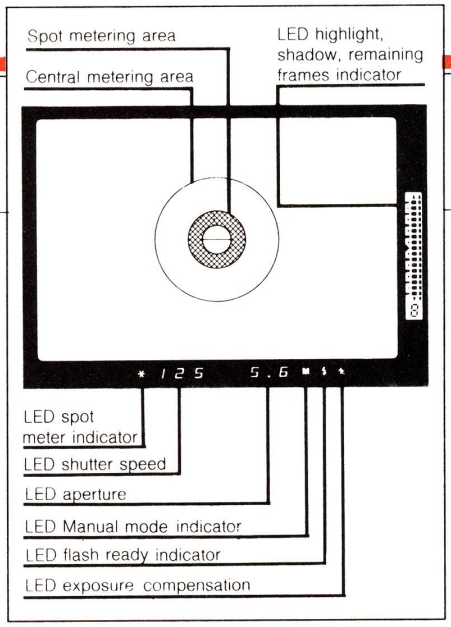
Fingertip controls: Left fingers operate metering and shooting mode selectors, mulitple exposure control. Right forefinger turns electronic input dial, can push small spot reading button, larger shutter release. Thumb can easily reach rear highlight, shadow, exposure-preview buttons. Note giant LCD info panel, new 5-pin TTL flash hot shoe, rubberized eyecup. Once sorted out, controls are easy to use.



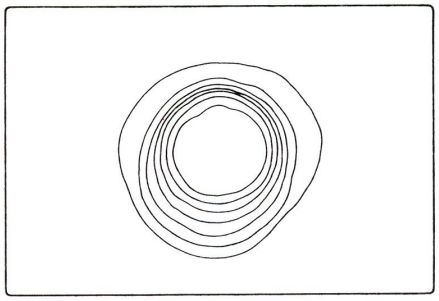
HERBERT KEPPLER

The T90 has a larger camera body, some 6 ¼ x 4 ¾ x 2 ¾ in. weighing 28¾ oz. without lens or its four AA cell batteries. Why four AA cells rather than the two AA which were sufficient for the T50 and 70? All the better to power the three built-in micromotors which wind the film, activate the 8-duraluminum-bladed, Canon designed and made PMS (for Permanent Magnet Shutter) and rewind, driving the camera forward at 4½ frames per second (2 fps and single frame also available). Its battery check measures three different levels of battery health.

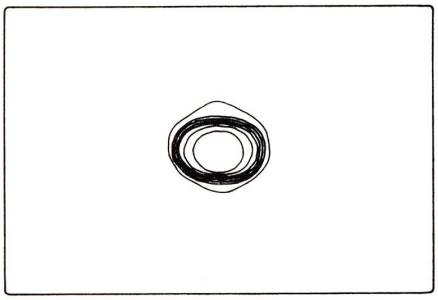
Probably more important, the T90 offers a choice of shutter-speed preferred, aperture-preferred, program auto exposure (with three different programs for wide angle and three for tele lenses) speeds from 30 sec. to 1/4000 sec., metered manual control, depth-of-field preview, instantly switchable center-weighted, center selective and spot metering (progressively averaging up to 8 spots if you wish) and through-the-lens autoflash control (to 1/250 sec. top sync speed with automatic existing light, plus flash balancing and pre-exposure flash information. You can make multiple exposures, do stop down metering and provide both shutter-speed preferred and aperture-preferred auto exposure (when you want) with a Safety Shift setting which automatically shifts either control when you run out of available readings with the other.



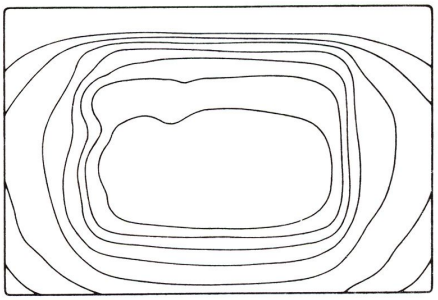
All you need to know while shooting pictures can be seen right in the viewfinder.



Central metering covers 13% picture area



Spot metering covers 2.7% picture area



Center-weighted meter for general use

Highlight and shadow exposure buttons? Sure but you needn't accept Canon's settings for these. You can program them yourself shifting up to four f/stops and use these controls to change balance of autoflash-existing light ratios.

Just how all this operates, occupies an excellent 127 page instruction manual but let's see how many essentials we can cram in right here.

After inserting the tray of four AA nicads or alkalines (the latter capable of driving the T90 through a claimed 100 rolls of 36-exposures due to the advanced micromotor technology), you can load film. As soon as the camera back is shut, film will automatically be advanced to frame 1 (shown on the top LCD panel, which is about 40 percent

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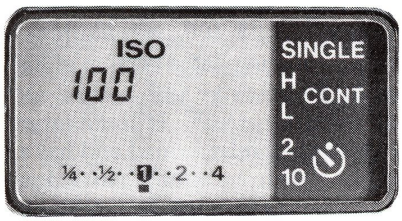
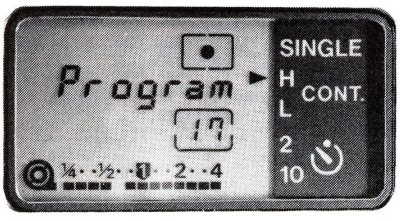
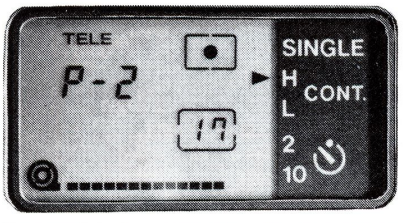
What You Don't See In The Finder, You Sure Do On LCD Panel



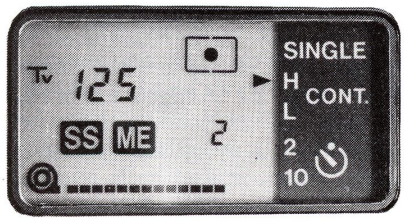
ISO/ASA set to 100, auto-exposure compensation dial at normal 1 position.



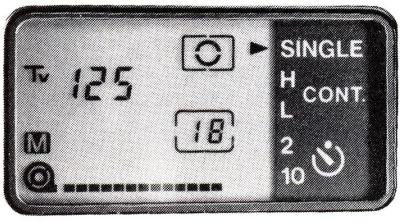
Program exposure, spot meter, high speed drive, frame 17, -⅔ stop comp.



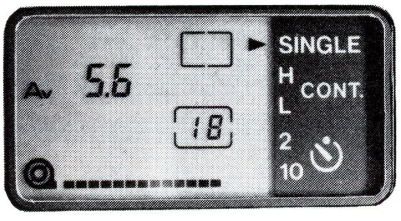
Second tele program, no exposure comp. Pictogram indicates film loaded.



Shutter-speed preferred, 1/125 safety shift on, 2 multiple exposures.



Shutter at 1/125 but manual, central metering, single exposure.



Aperture-preferred f/5.6, center-weight meter. Note 2, 10 sec. self-timer.

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larger than the one on the T70) within 2 sec. If the film is DX coded, the ISO/ASA will be set (from 25 to 5000) on the LCD panel and a vertical LCD scale within the viewfinder to the right of the picture will indicate the number of exposures yet to shoot (see chart page 96). A rear DX window shows the film cassette and information printed on it. With non-DX film, the ISO/ASA index numeral on the LCD panel will blink indicating that you should set your own film speed manually (which you can also do even with DX coded film if you wish) from 6 to 6400.

The easiest mode to use (and certainly the one for tyros who can indeed operate this camera) is plain "Program" with regular center-weighted metering. With the rear camera switch turned on, you push the top left mode selection button and turn the right electronic input wheel (Canon calls it a dial) until the word "Program" appears on the LCD panel. Now you can select the metering by pushing the metering/clear button and again turning the input wheel which offers a plain rectangle on the LCD panel for center-weighted metering, a circular ring for the 13 percent selected central area and finally a black dot for the 2.7 percent center spot.

The basic method of changing settings involves pushing buttons, usually one, but occasionally two, to bring up the control you wish to shift and then using the control wheel to shift it—a logical procedure which can be learned quickly, but a far cry from the simple, mechanical controls of single dials, levers and rings.

Once set, slight pressure on the shutter button turns on the bright and very-easy-to-see red LED digital numbers familiar to anyone who has used the Canon A-1. (However, should you fear you might set off the shutter button inadvertently, you can push the rear exposure preview button instead and see the lighted display.) The digital numbers indicate both the shutter speed and the aperture being used in half stop intervals and mid-shutter speeds. Should light be too dim or too bright for picture taking (unlikely with the incredible EV 0-20 metering range), one, the other, or both shutter speed and/or aperture LEDs will blink in the finder.

If you decide that you would rather have faster shutter speeds to prevent camera movement when using tele lenses or smaller apertures for wide angles, you can select a plain "P" program mode which in its turn allows you to set P-1, P-2 or P-3 programs for either tele or wide angle. Each program provides slightly more of either speed or depth as you wish. (However, you'll have to refer to the charts in the instruction book to preview the total programs although the actual shutter speed and aperture to be set ill appear as digital LEDs).

Should the camera select both shutter speeds and apertures not to your liking (even though there are 6 programs), you can set either Tv (for shutter-speed preferred) or Av (for aperture-preferred) auto exposure. In Tv, you have a choice of full stop or in between shutter speeds. Now you select the shutter speed or aperture you want and the SPD cells select the opposite ingredient.

Want to make sure you don't inadvertently run out of exposure? Push two back bottom buttons on the T90 and a white-on-black SS appears on the panel

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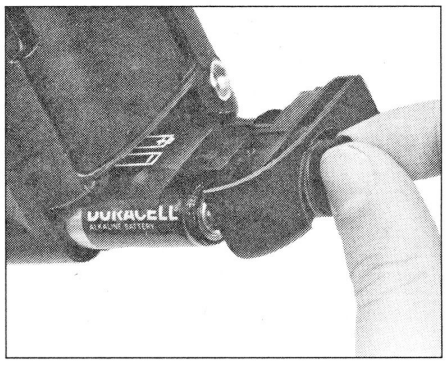
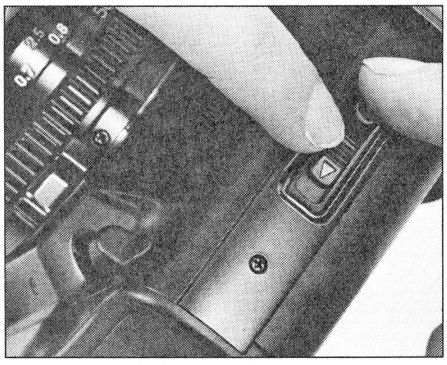
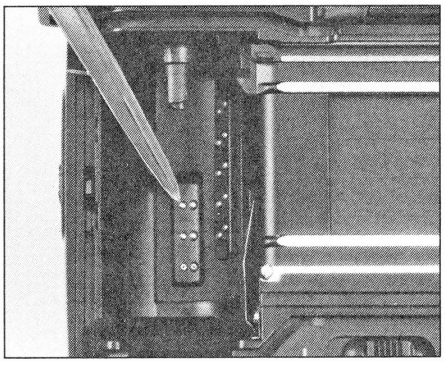


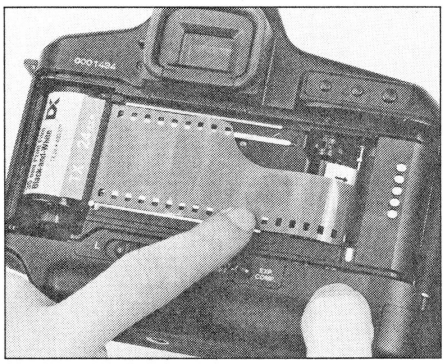
Few batteries, much power: Four AA cells in bottom chamber power T90 for as much as 100 rolls of 36 exposures.



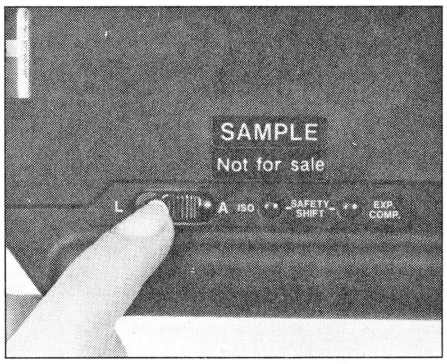
Double safety opening: Push button, press lever as per arrow. Back opens. Note depth-of-field lever, bottom left.



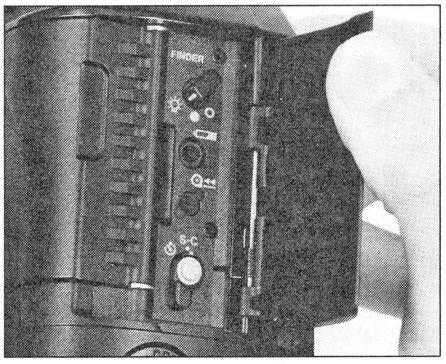
DX film speed coding and more: Pins in film chamber not only relay film speed but also tell how many frames on roll.



Autowind, wind and rewind: Pull leader across film plane, close door. Film winds to first exposure, rewinds after last.



More controls at bottom of back: On/off, auto exposure shift switch, exposure compensation within easy reach.



Behind the door: Finder on/ off, LCD light illuminating switch, manual motorized rewind; single, sequence shooting, self-timer.

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(for safety shift).The camera will then automatically shift the necessary shutter speed or aperture when you run out of one or the other.

What other modes are available? Bulb with the camera counting seconds on the LCD panel; stop down metered exposure, and measurement with the LED within the finder showing your selected exposure and indicating the proper one.

By pushing the two left side buttons, an "ME" shows up on the LCD screen. You can now make two or more multiple exposures on the same film. You can set the number of multiple exposures to be made if you wish and the continuous motor drive will automatically make the right number of predetermined exposures and then stop.

Auto exposure compensation? A lower right button on the back lets you choose from $\frac{1}{4}$ to 4X in $\frac{1}{3}$ stops using the scale on the LCD. (A red +/- appears at the right of the finder LED readout to warn you.)

Spot meter reading uses an entirely different SPD cell. It gets its light through the partially silvered rapid return mirror with secondary hinged mirror beneath, to direct light to the rear facing SPD cell in the mirror chamber floor. (For proper exposure with polarizing filters you'll need a circular polarizer because of this partially silvered mirror). A button next to the shutter button provides spot readings when pressed. A red asterisk appears to the left of the LED information to warn you that a spot reading is being made. If you make more than one reading and up to eight, the camera averages the readings and displays them and the average on the vertical LCD panel at the right of the finder image. Making the picture, pushing the meter clear button or removing your finger from the shutter release button cancels the spot reading.

You can also use the spot readings to make your own highlight or shadow reading determination. Take a reading and then push either the up or down button at the back of the camera to advance or lower the highlight or shadow

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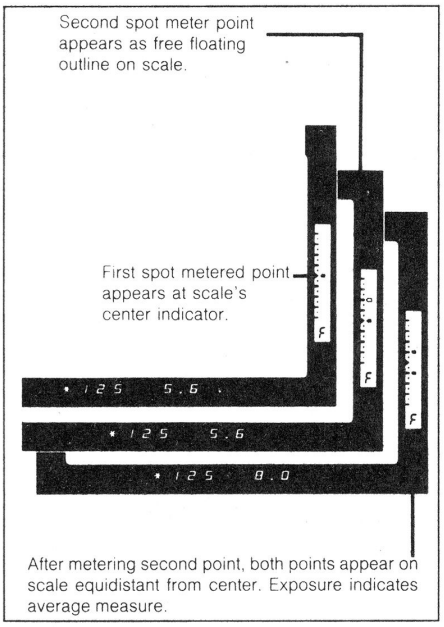
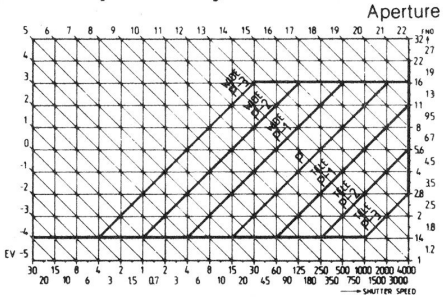
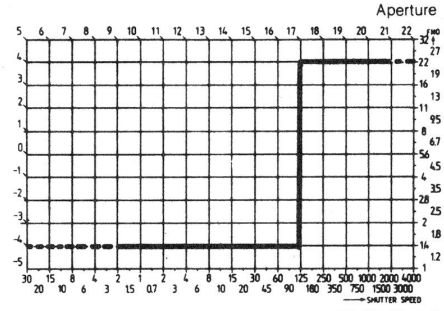


Spot metering: You can make up to 8 spot readings, camera will average them.

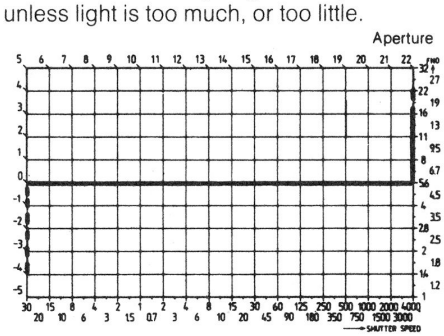
How Exposure Systems Work



Seven programs available: Center diagonal shows normal program; others indicate user choice wide angle, tele alternatives.

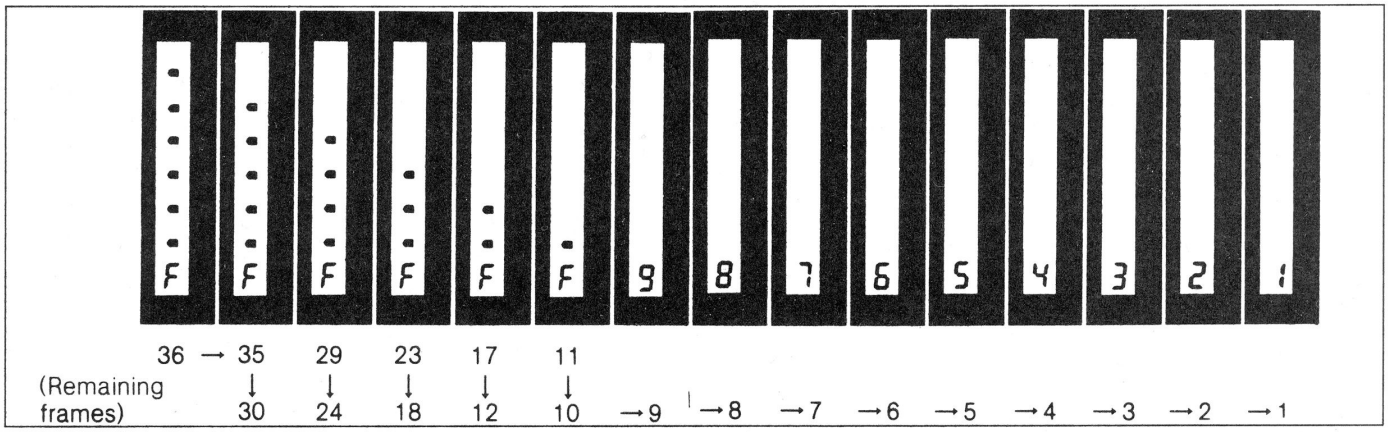


Shutter priority with safety shift: If you choose 1/125 sec. you get that speed unless light is too much, or too little.



Aperture priority with safety shift: T90 remains at f/5.6 (if you choose it) but shifts if light is too much, too little.

Remaining Frames Counter



You can easily see how many shots you have left on your DX coded film by looking at LCD scale in finder. Just match finder display with numerals shown above. If film isn't DX coded, there is no numeral indication; only an F appears at bottom of LCD panel. Frames remaining isn't visible, however, when you're making spot readings or operating highlight, shadow buttons.

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T90 really big? A-1 with eight AA cell 4 fps motor dwarfs T90 with higher speed 4½ fps, four AA cell powered motor. T90 is handier, more holdable, although you can't detach motor as with A-1.

reading by whatever amount you wish, up to four stops, in half stop intervals. Should you press the shutter release only to make a spot reading, the reading will be "locked" in memory as long as you hold your finger on the release. If you push the spot reading button you can remove your finger but the reading will remain and the LED will remain lit for about 30 sec.

By now you may have figured out how the T 90's settings and displays are organized. Essential exposure information appears as lighted LEDs in the finder, additional settings show up on the top or finder LCD, major mode change buttons are on the top left of the camera, exposure shift is on the right, and less often used controls at the camera back.

We now come to some controls you use even less often. An easily opened door at the right side of the camera reveals a compartment with buttons for the self timer operation (2 or 10 sec.) in coordination with a blinking front LED, choice of single shot, continuous high speed 4.5 fps or low speed 2 fps motor drive plus three different viewfinder built-in illumination options—none, viewfinder LCD and LED only or viewfinder LCD, LED and top of camera LCD combined. When pressure remains on the release, the spot meter reading button or exposure preview button, the

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lighting remains on. It goes off as soon as you remove finger pressure (except for LEDs when you've pushed the spot reading button).

We haven't yet mentioned the excellent split-image rangefinder which remains useable without blackout to f/8 and beyond, the super-bright finder, user interchangeable (from inside the mirror chamber) screen, the increased eye relief so eyeglass wearers can see the whole finder screen area, and the comfortable soft rubber eyecup. The exterior of the T90, although large, has been well sculptured with excellent front and contoured back thumb and palm grips. Controls fall just where they ought to.

Super sophisticated flash: Speedlite 300TL provides TTL flash, pre-exposure infrared exposure setting, spot metering.

Flash? And how. While many flash units, including the older T-series units, can and do work in a limited manner, it's only with Canon 300TL that you get all the T90's benefits—including through-lens-flash metering, the first ever on a Canon SLR.

The four AA cell rotating, bounce and manual zoom unit (24mm, 35mm, 50mm and 85mm click settings), like others in the T series has an infrared pre-exposure light emitter which produces a subdued reddish beam when the shutter release is pressed slightly. In program, aperture-preferred and shutter- speed preferred modes the sensor on the front of the flash measures the pre-exposure illumination reflected from the subject and sets the proper aperture and shutter speed (to 1/250 sec.) for the combination of existing illumination and flash-to-come. This exposure information appears as red LEDS in the finder. If the subject is beyond the flash range, the shutter speed and/or aperture will blink indicating you must move closer to the subject, use a larger aperture (in aperture-preferred exposure) or

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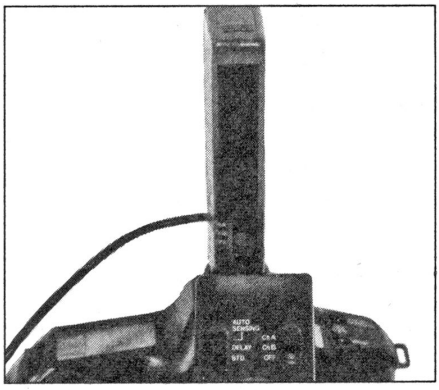
a slower shutter speed (in shutter-speed preferred mode).

If all is well and no blinking occurs, you press the shutter release down fully and the SPD cell within the mirror chamber will read the amount of light from the film surface itself and halt the flash when sufficient illumination (both existing and flash) has reached the film.

When the flash is set to Program mode, it overrides any other exposure mode to which the T90 camera may be set. However, you can set the flash to use it with either shutter speed or aperture-preferred auto exposure as mentioned. But here too, the infrared preflash and subsequent off-the-film flash measurement make certain you get pre-exposure information and correct flash-plus-existing- light exposures. The camera will not operate automatically at the 1/250 sec. top flash speed except in bright light when it would be called for to prevent ghost images and would be needed for proper exposure balance.

Bounce flash measurement is equally effective, but now the flash head itself



Wireless release, tripper: LC-2 not only has two channel wireless infrared release, but acts as animal trip release.

takes over the preflash function emitting a more powerful 1/20th maximum power beam to ensure it's strong enough to be read from the bounced surface.

The T90 with T300 flash is the only combination for any camera offering automatic flash measurement with spot reading. This allows you to make a reading from a subject which is not centrally located, then hold that reading (up to 30 sec.), re-compose your picture and shoot. For spot readings, the mirror chamber SPD cell reads the 1/20th power pre-flash through the lens and main mirror reflected from the hinged secondary mirror.

The T300, which uses an energy saving circuit, provides high and low output manual flash, has a special setting which automatically puts the flash into a rest mode if it isn't used within 5 min.

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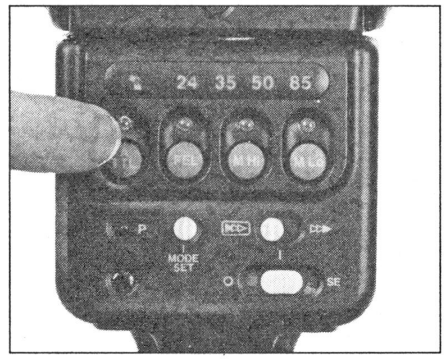
and offers the most unusual ability of synchronizing with either the first shutter curtain (as with most flashes) or second shutter curtain (allowing moving subjects to appear with the combined natural light and flash exposure at the end of the exposure).

We've emphasized that the camera and flash usually operate to give you a perfect balance between flash and any existing light if possible. If you want another ratio, use the highlight or shadow control buttons.

While the flash (and T90 camera too) must await a full MODERN test to evaluate it completely, power output specifications were impressive. With ISO/ASA 100 film, a range of 41 ft. is claimed for the T300 with the flash head at 24mm position; 57.4 ft. with 50mm and 65 ft. with the 85mm position.

Shall we tell you now about the new multiple head and connecting cord autoflash possibilities, the auto Macro Ringlite ML-20 with separate firing left and right flash tubes plus modeling light, the Wireless Controller LC-2 which can also set off the camera if an animal passes between the camera and hand control, the Command Back which imprints data on film and acts as an interval timer plus long exposure controller? I think not. Enough's enough.

Is the T90 perfect? We've never found a camera that is. We would have liked an eyepiece with built-in diopter correction and a PC terminal for non-automatic studio flash use. The camera, when set



Buttoning flash down: Buttons control program, TTL, spot, high and low manual settings. Zooming head covers 24mm!

improperly, can get hung up like a computer and needs to be reset (full information in the instructions). The superspeed, built-in motor drive requires 4 AA cells to be lugged around even when you don't need such a motor. And for those breathing hot and heavy for autofocus, it does not have it.

What it has is awesome. When a production model arrives we can test thoroughly we'll see if our awe holds out.