

# Canon EOS *Speedlite System*



Make the most of every lighting condition with advanced,  
easy-to-use Canon Speedlites



# *An Introduction To Light Control*

The art of photography begins with the craft of understanding and managing light. And one of the most essential skills necessary for doing high-quality photography is the ability to recognize lighting conditions and compensate for problems. Very dim light, strong shadows and intense backlighting all require sophisticated flash techniques to produce truly successful photographs. Today, technologically advanced Canon EOS Speedlites can take the guesswork out of flash photography, thanks to intelligent circuitry that works in harmony with EOS cameras and EF lenses.

Remarkably easy to use, EOS Speedlites deliver superlative image quality in a wide range of shooting conditions.

## *Fill-in Flash*

*Shooting outdoors doesn't mean you should leave your flash at home. For one thing, outdoor lighting conditions are often less than ideal. By using a flash, you can "fill-in" light where you need it. For instance, when photographing people on a cloudy day, they don't squint, and the light behind them can often be beautiful. The problem is that the light may be too dim to bring out the true colors in the scene. Fill-in flash is the answer. Canon's advanced through-the-lens exposure control system provides just the right amount of foreground illumination while making sure that the background is perfectly exposed. The result is a more beautiful overall image.*





# Choose the best Canon Speedlite for your needs

## Knowing the options helps you make the right choice

EOS is a total system offering a wide selection of photographic equipment that will help you get the most out of photography. Sophisticated microprocessor-controlled electronic components combine camera body, lens and flash into a single, fully integrated unit. EOS Speedlites work together with your camera and lens to make flash photography easy and fun!

All EOS cameras accept the full range of powerful Canon Speedlites to help expand your photographic potential. Each Speedlite has its own strong points, but all Speedlites share common characteristics such as fully automatic TTL exposure capability, a built-in AF auxiliary light for easy operation in low light, and proven Canon quality.

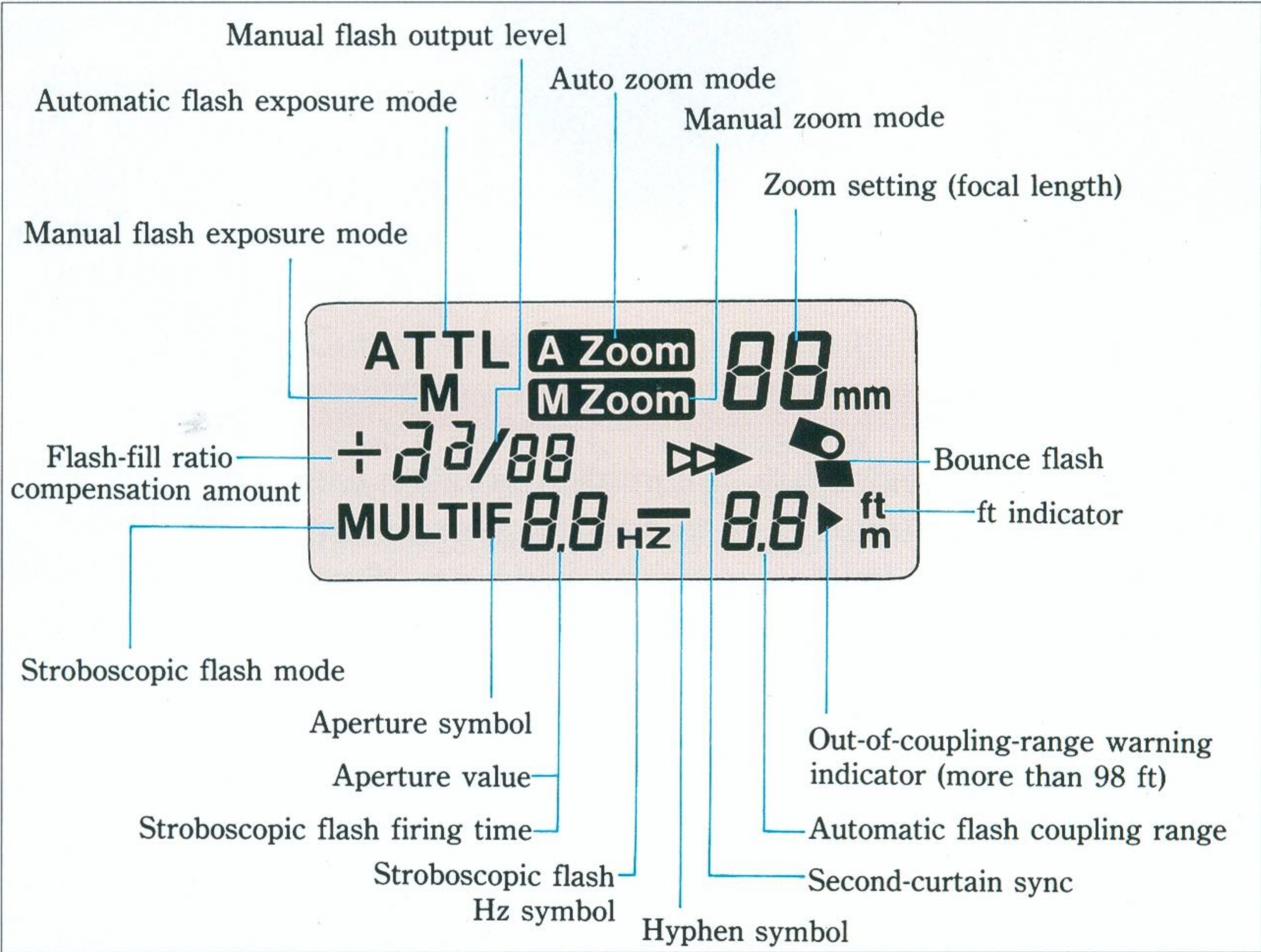
When choosing a Canon Speedlite, consider your needs. The type of flash pictures you plan to take can determine a great deal. The Speedlites 200E and 300EZ are wonderful for quick snapshots, but they're also useful for specialized applications such as off-camera flash photos with the appropriate accessories. The Speedlite 430EZ is the best choice for bounce flash, and also offers more sophisticated features such as flash exposure compensation and external power capability. The 480 EG is strongly recommended for tough conditions when high output and durability are needed. If you're interested in close-up flash photography, be sure to take a look at the Macro Ring Lite ML-3. Whether you prefer light weight and low cost, high power and maximum flexibility, or even specialized lighting for close-ups, there's a Canon EOS Speedlite that's just right for you!



## Speedlite 430EZ

This powerful, high-output Speedlite features Canon's original A-TTL automatic flash exposure control for a balance between the main subject and background. The 430EZ can be connected to a high-performance external power supply for extended, quick-response flash operation in demanding shooting situations. Total control lets you compensate the flash-fill ratio independently from the available light exposure up to  $\pm 3$  steps in  $1/3$  step increments in both the A-TTL and TTL modes.\* A broad range of built-in creative options includes bounce flash, automatic flash coverage with manual override from 24mm to 80mm via an internal motorized zoom mechanism, rapid-fire flash, stroboscopic flash, variable power manual flash and second curtain sync.

Maximum guide number: 43/141 in meters/feet at ISO 100  
Dimensions: 75 × 122 × 106mm/ $2\frac{15}{16}$ " ×  $4\frac{13}{16}$ " ×  $4\frac{3}{16}$ " (W × D × H)  
Weight: 365 grams/12.7 ounces (without batteries)



\* Flash exposure compensation is not possible with the EOS 620, 650, 700, 750 & 850.





## Speedlite 300EZ

Easy to use in any situation, the Speedlite 300EZ couples to all EOS cameras for fully automatic control. Features include A-TTL and TTL flash exposure modes, internal automatic zoom from 28mm to 70mm, rapid-fire flash and second curtain sync.

Maximum guide number: 30/98 in meters/feet at ISO 100

Dimensions: 66 × 100.5 × 89mm/2-9/16" × 3-15/16" × 3-1/2" (W × D × H)

Weight: 220 grams/7.8 ounces (without batteries)



## Speedlite 200E

This compact, economical flash provides fully automatic operation with any EOS camera. Main features include TTL automatic flash exposure, flash coverage angle sufficient for focal lengths as wide as 35mm (28mm with optionally available Wide Adapter 200E).

Guide number: 20/66 in meters/feet at ISO 100

Dimensions: 64 × 41 × 104mm/2-1/2" × 1-5/8" × 4-1/8" (W × D × H)

Weight: 130 grams/4.6 ounces (without batteries)



## Macro Ring Lite ML-3

Close-up flash for use with the EF 50mm f/2.5 Compact Macro and EF 100mm f/2.8 Macro lenses. Features include TTL automatic flash exposure control with exposure confirmation signal. Ring type flash unit contains two flash tubes. Each tube can be switched on or off for creative shadow control. Also features 2 built-in miniature lamps as a focusing aid. Recommended for EOS cameras with aperture-priority AE and manual exposure control.

Guide number: 11/36

in meters/feet at ISO 100

Dimensions:

(Control Unit)

74 × 106.5 × 60.5mm/

2-15/16" × 4-3/16" × 2-3/8" (W × D × H)

(Flash Unit)

106 × 24.5 × 123mm/

4-3/16" × 1-5/16" × 4-7/8" (W × D × H)

Weight:

(Control Unit)

225 grams/7.9 ounces

(without batteries)

(Flash Unit)

140 grams/4.9 ounces





## Speedlite 480 EG

With a guide number of 48/160 (ISO 100, m/ft), Speedlite 480 EG takes the lead as Canon's most powerful electronic flash. This versatile grip-type unit is designed with emphasis on durability and simple operation. Its classic clamp-and-bracket design ensures secure attachment to the camera while maintaining maximum ease of use even during the most demanding shooting conditions.

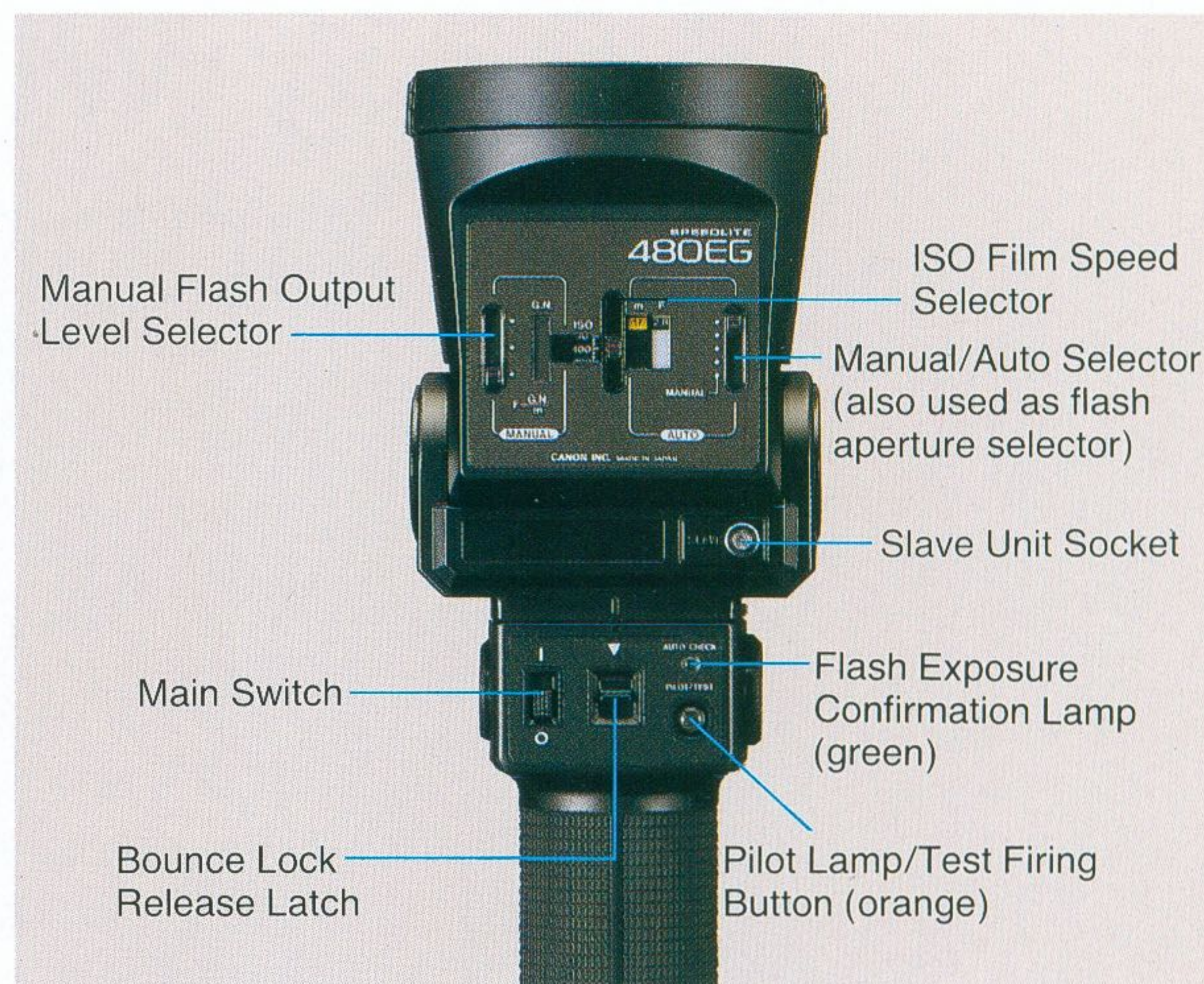
Speedlite 480 EG boasts a wide range of exposure control options, including both TTL and external automatic flash exposure control as well as variable power manual flash. With TTL automatic flash control, you can control the 480 EG's output from your EOS or T90 camera, taking full advantage of such powerful features as Program AE, Shutter-priority AE, Aperture-priority AE and Manual mode. By comparison, external automatic flash exposure utilizes a sensor built into on the 480 EG to automatically shut off the flash when the appropriate brightness level has been reached. With both TTL and external automatic flash exposure control, the Speedlite 480 EG provides an exposure confirmation signal after the flash for added confidence. You can also select variable ratio manual flash control, directly controlling the flash output level to add a

touch of personal style.

This powerful Speedlite comes with Canon Wide Panel EG-20 and Tele Panel EG-135. The Wide Panel EG-20 dramatically broadens the angle of coverage for beautifully lit wide angle shots with lenses as wide as 20 mm, while the Tele Panel EG-135 reduces the coverage angle to match lenses with focal lengths of 135 mm or more.

Other features include bounce flash, off-camera flash, multiple flash capability and slave unit compatibility. The 480 EG's flash head can be tilted up to 90° and rotated up to 295°. Off-camera flash is possible by simply detaching the 480 EG's clamp from its bracket. Canon's modular TTL flash accessories provide multiple flash capability with TTL exposure control, while wireless synchronization is possible by attaching the optional Canon Slave Unit E.

Speedlite 480 EG requires an external battery pack, which must be purchased separately. For best results, we recommend Canon Transistor Pack E, available with a choice of Battery Magazine TP or Ni-Cd Pack TP (please refer to page 18).



Guide number: 48/160  
in meters/feet at ISO 100

Dimensions:

Flash unit

98 × 256.5 × 114.3mm/  
3-7/8" × 10-1/8" × 4-1/2" (W × H × D)

Weight: 715 grams/25 ounces  
(without batteries)

With clamp and bracket

291 × 256.5 × 114.3mm/  
11-7/16" × 10-1/8" × 4-1/2" (W × H × D)

Weight: 1065 grams/37.3 ounces  
(without batteries)



# Quality flash photography is easy with the Canon EOS system!

## Program Flash AE

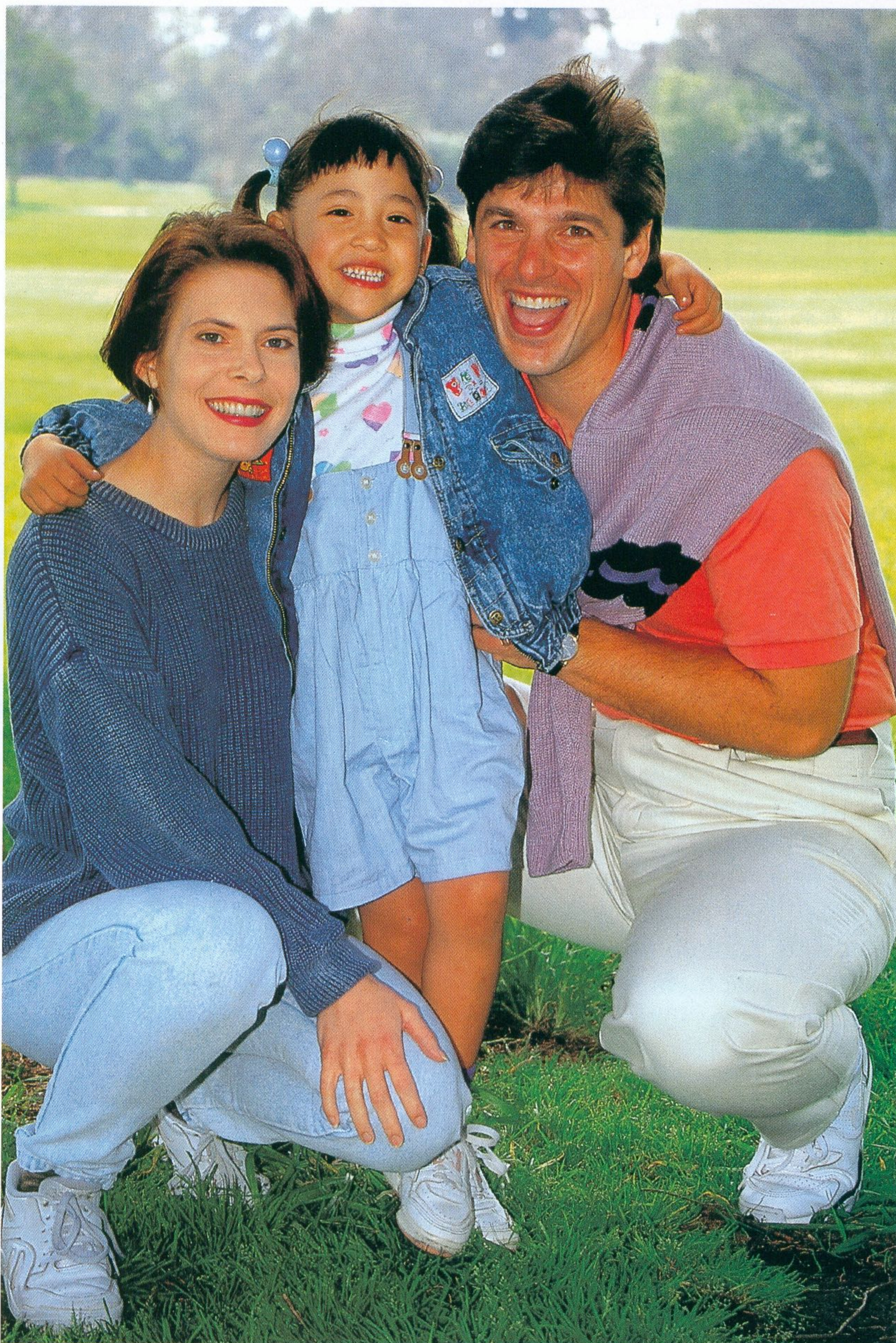
Easy operation is an EOS system advantage. By setting the camera to Full Auto Mode (Green Zone) or "P", your EOS and Speedlite will work together automatically while you concentrate on just shooting

pictures. No more worries about setting the best combination of shutter speed and aperture; your EOS camera evaluates the shooting conditions as soon as you press the shutter release halfway. When it's bright, the background is always exposed correctly and the Speedlite emits

just the right amount of fill-in illumination. When you're shooting indoors or at night, the shutter speed remains high enough for hand-held photography, and the Speedlite becomes the main light source. Under any condition, all you have to do is point and shoot.

## A-TTL Mode

A-TTL, the standard flash exposure mode for the Speedlites 430EZ and 300EZ, stands for "Advanced Through-the-Lens" exposure control. That it's "through-the-lens" means that the light value of flash illumination actually reaching the film through the lens is what determines the exposure. Every EOS camera contains a dedicated sensor aimed at the film plane for this purpose. The term "advanced" refers to a unique pre-exposure flash burst that is automatically emitted to measure the flash-to-subject distance. In the Full Auto and Program modes, the EOS microprocessor compares the aperture value required for correct background exposure to an aperture value based on flash-to-subject distance as revealed by the A-TTL preflash. By choosing the smaller aperture between the two, correct exposure is guaranteed up to the maximum range of the Speedlite, regardless of the lighting conditions. One valuable advantage of the A-TTL system is that it selects progressively smaller apertures in dark conditions as flash-to-subject distance is reduced, thus providing more depth of field when you need it most.



- EOS-1
- EF 28-80mm f/2.8-4L USM
- 430EZ
- ISO 50
- Program AE
- 1/250 @ f/5.6



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## A-TTL Automatic Flash Output Level Control in Program AE

A. Aperture value according to the detected flash-to-subject distance.

*A'. Aperture value and shutter speed setting based on the camera's built-in ATTL Program according to the metered ambient light amount (EV level) using SPC 1 by peripheral or center-weighted average metering\*.*

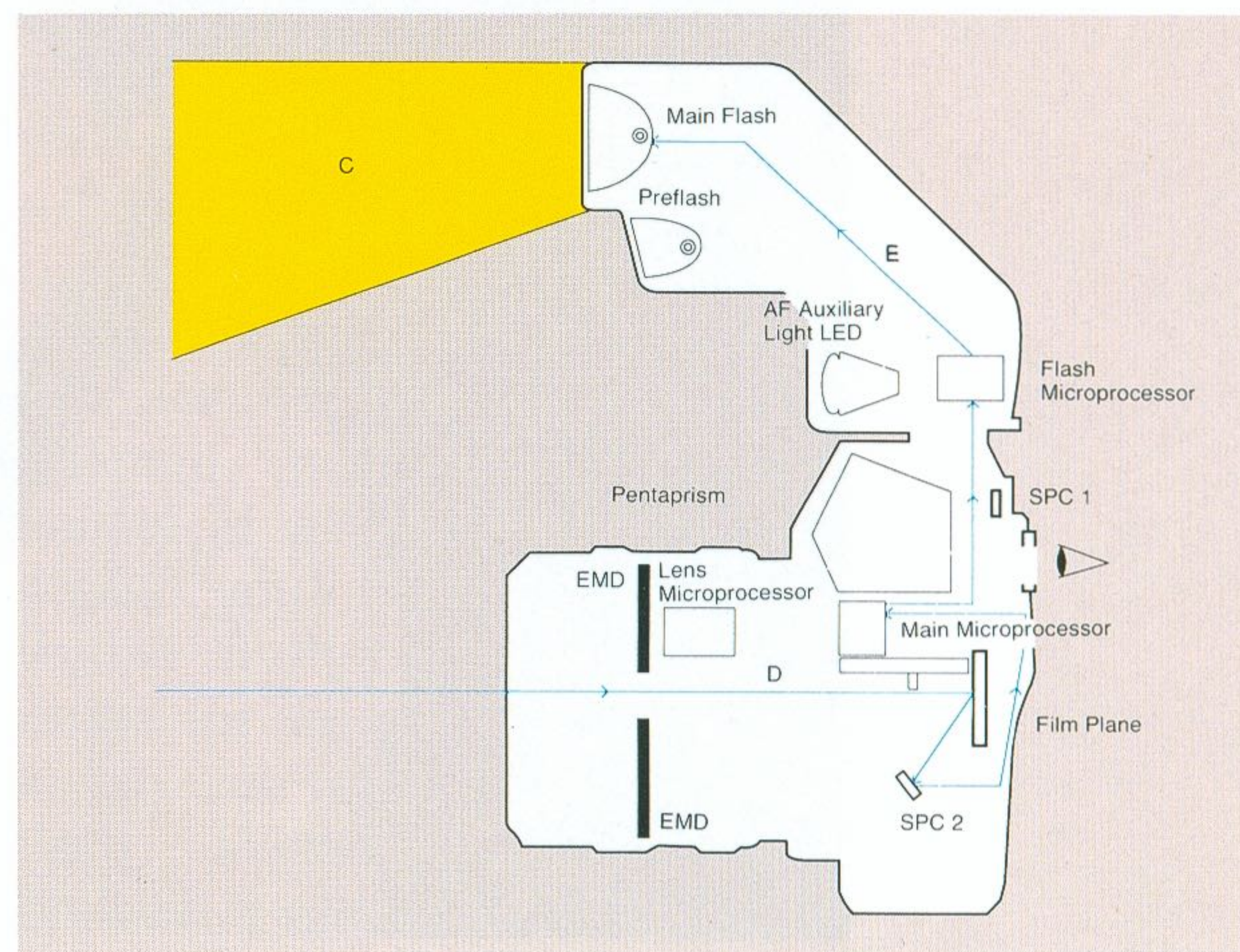
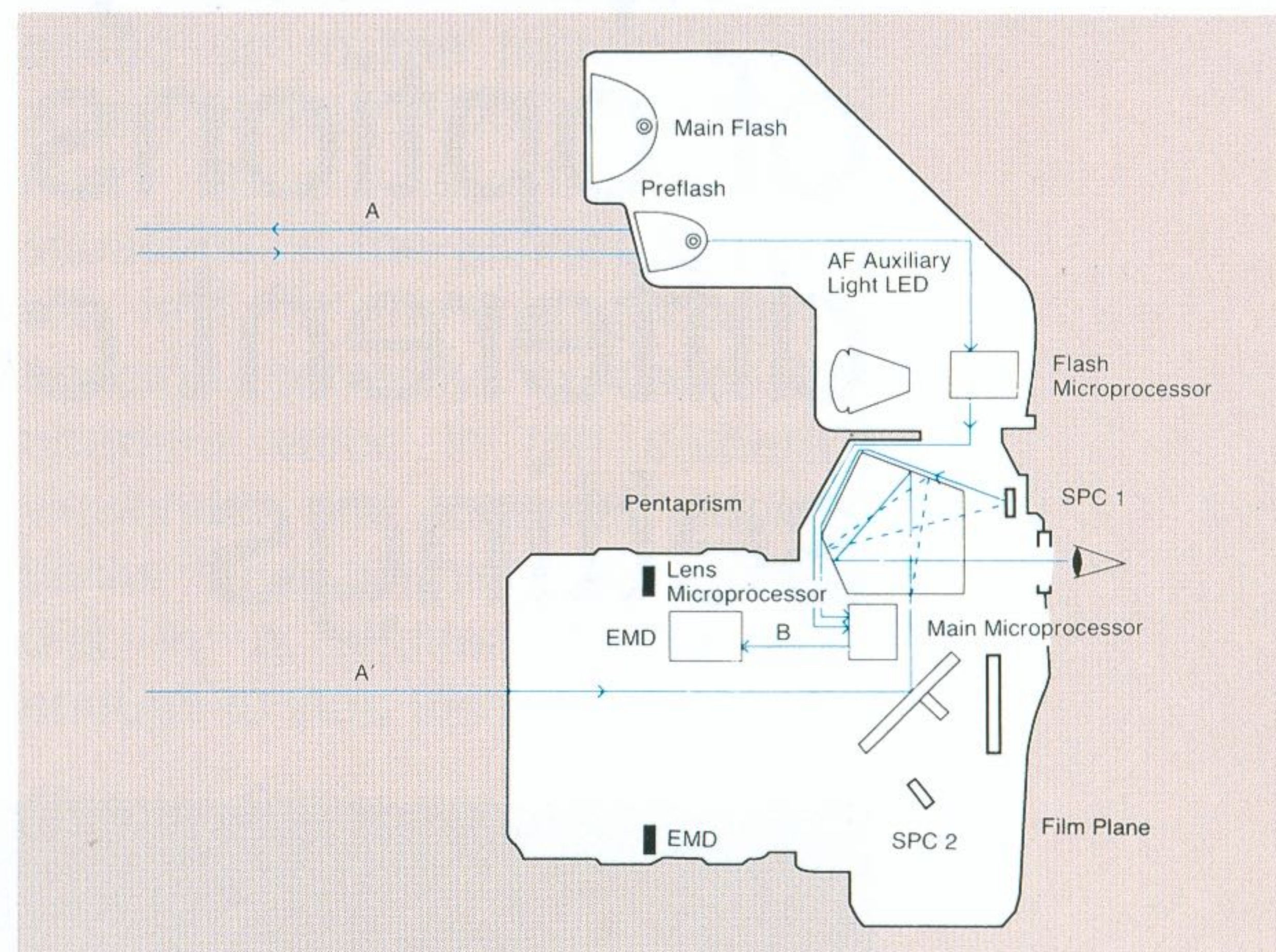
*B. Between A and A', the smaller aperture value is selected, insuring correct background exposure in bright situations, and also providing improved depth of field in dark situations.*

*C. Diaphragm stops down according to  $B$  and the flash starts firing.*

*D. SPC 2 built into camera monitors the reflection of flash illumination from the film plane during exposure.*

*E. Data of flash “light-out” timing for optimum exposure, based on the data from D is transmitted.*

\*Differs according to EOS model.







EOS-1•EF 100mm f/2 USM•430EZ•A-TTL•ISO 100•Shutter-priority AE•1/30 @ f/2

# Expand your range of options by trying different camera settings



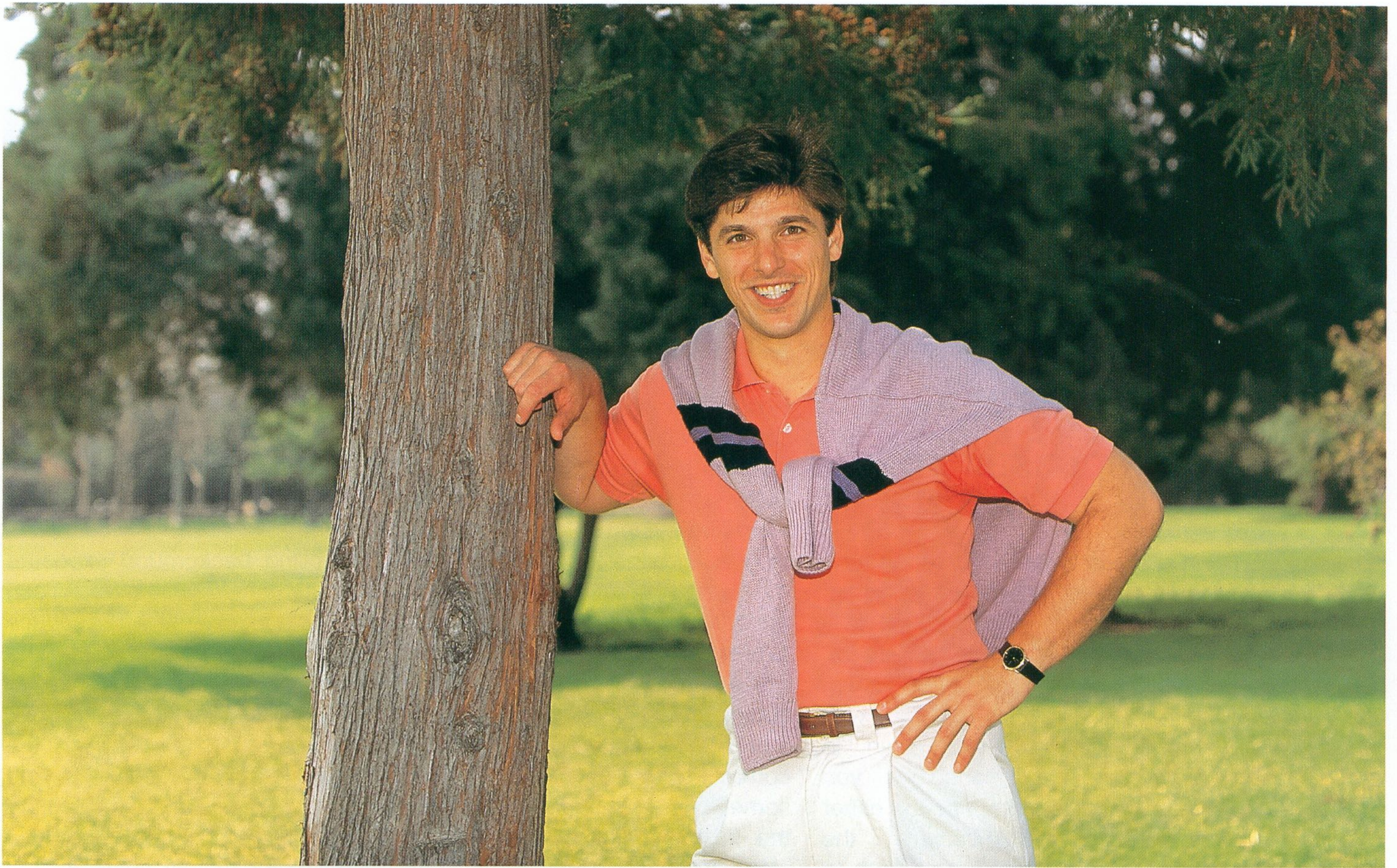
EOS-1•EF 100mm f/2 USM•430EZ•A-TTL•ISO 100•Program AE•1/60 @ f/5.6

## Other Shooting Modes

Flash photography in the EOS system is not limited to Program mode. You can also use other camera modes such as Shutter-Priority AE, Aperture-Priority AE, and Manual for a wide variety of effects. Whereas Program mode is fully automatic, the other modes enable more control over specific aspects of the photographic process.

Both Aperture-Priority AE and Shutter-Priority AE are fill-in flash modes with the EOS Speedlite system. You'll notice when you use these modes the camera's shutter speed and aperture settings are often the same whether the flash is on or off. In other words, Shutter-Priority AE and Aperture-Priority AE automatically provide correct exposure of the available light and use the flash to fill-in, or balance the illumination of the main subject.





EOS-1•EF 28-80mm f/2.8-4L USM•430EZ•A-TTL•ISO 50•Aperture-priority AE•1/250 @ f/5.6

This technique is very effective in eliminating the dark backgrounds often encountered in conventional indoor flash pictures.

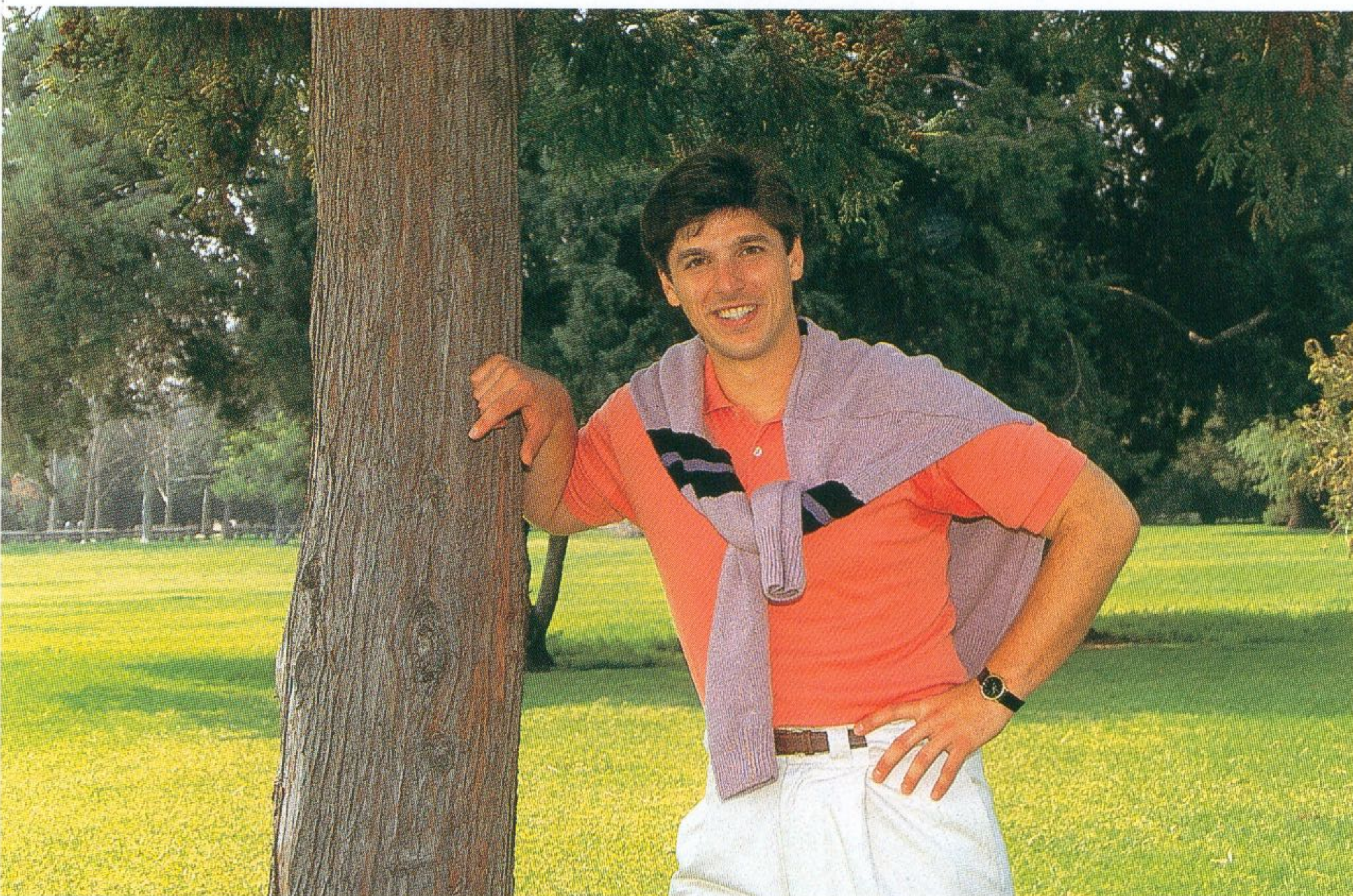
**Aperture-Priority AE** gives you maximum control over depth of field (the picture's zone of sharp focus). You select the aperture, and the camera sets the shutter speed automatically. In bright light, the camera's viewfinder and external displays blink to warn you if the aperture is unusable for

existing light conditions. You just dial in a small enough aperture to stop the blinking. The camera will select very slow shutter speeds in dim light in order to be sure the background is sufficiently exposed. Mounting the camera on a tripod to avoid blur is often essential.

**Shutter-Priority AE** is the reverse of Aperture-Priority AE. You pick the shutter speed and the camera selects the aperture required for

correct background exposure. In bright light, you can set any shutter speed up to the fastest X-sync speed of your EOS camera (see chart on p. 19). In low light situations, if the shutter speed is too fast for the background to become correctly exposed, the aperture value in the camera's viewfinder and external displays blinks as a warning. You simply dial in a shutter speed slow enough to stop the blinking.

**Manual Exposure** combined with TTL automatic flash gives you complete control over shutter speed as well as aperture. This mode is very useful in dim light if you're not concerned about exposing the background correctly but wish to maintain control over depth of field. You can experiment with various shutter speed and aperture combinations for a variety of effects. If you own a 430EZ, you'll be able to read the usable flash-to-subject distance range for the aperture and focal length you've selected in direct flash situations. The A-TTL preflash is eliminated.



EOS-1•EF 28-80mm f/2.8-4L USM•430EZ•A-TTL•ISO 50  
Aperture-priority AE•1/60 @ f/11



# Sophisticated effects are now easier to achieve, thanks to the EOS Speedlite System

## Exposure Compensation

In addition to ease of use, another great strength of the EOS system is choice. You can go with fully automatic programs and leave the “thinking” to the camera and flash, or you can experiment with creative ideas of your own. In certain shooting conditions, you may need to compensate either the flash illumination, the background exposure, or both to get the results you want. Learning how to take advantage of your options is one key to successful flash photography. Fortunately, advanced EOS technology provides plenty of assistance along the way!

## Adjusting Flash Illumination

One way to control the relationship between flash output and ambient light is through independent adjustment of flash illumination, without changing the background exposure level. In both the A-TTL and TTL systems, the EOS camera automatically sets the ratio of flash exposure to background exposure. In dark conditions, the flash exposure is set to a standard level. But as the level of existing light increases, a program built into the camera progressively reduces the ratio of flash exposure to existing light, to a maximum reduction of  $-1.5$  steps. This automatic ratio control provides just the right amount of flash illumination for most fill-in flash situations.

However, manual flash exposure compensation is important if unusual shooting situations seem likely to “fool” the automatic exposure system. For example, if the background is very dark and the subject is relatively small, then the flash may emit too much light, overexposing the main subject. The same problem can occur if the subject is extremely dark, such as a person wearing dark clothing. To correct this condition, it is sometimes necessary to reduce the flash illumination by 1 or 2 steps from the normal level. On the other hand, if a small or distant subject is placed against a bright white background, the flash may not emit enough light and thus underexpose the main subject. In this case, adding  $+1$  or  $+2$  steps will help. Once again, the amount of compensation is up to you. It's wise to experiment with a few test exposures at different compensation settings while you're learning.

The EOS system offers three ways of setting flash exposure compensation. The Speedlite 430EZ has built-in flash exposure compensation control that is compatible with all current EOS cameras. Flash illumination can be adjusted up to  $\pm 3$  steps in  $1/3$  step increments, simply by pressing the “+” and “-” buttons on the back of the flash. The built-in flash of the EOS 100/Elan and the EOS 5/A2 • A2E can be similarly adjusted, up to  $\pm 2$  steps in  $1/2$  step increments. Same range of flash exposure compensation is available with every EOS Speedlite when combined with the EOS 5/A2 • A2E.

## Background Exposure Control

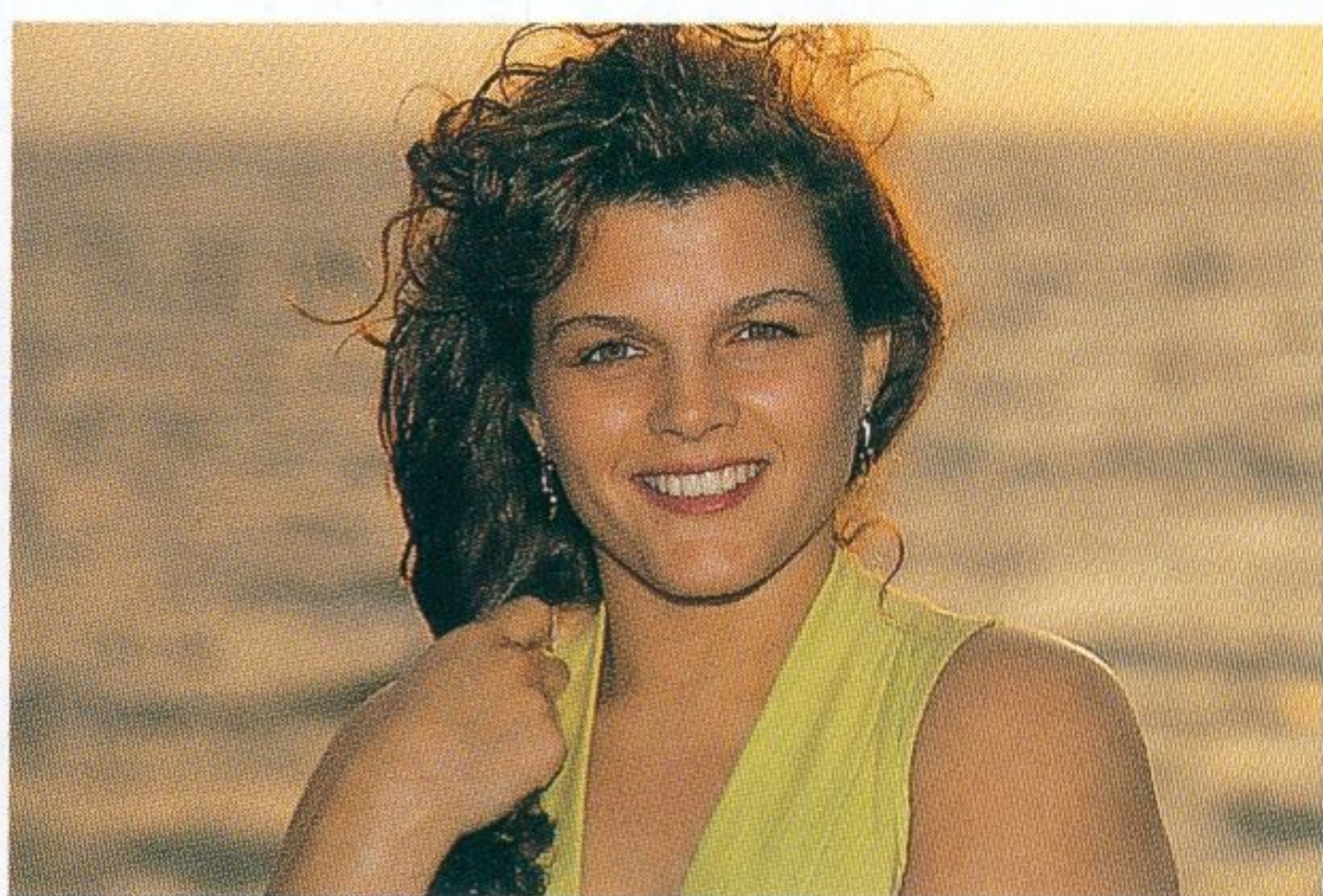
Controlling background exposure without changing the level of flash illumination can often produce spectacular photographs. The easiest way to accomplish this in the EOS system is to use TTL automatic flash exposure in the camera's manual mode. If you want to create a dark background in outdoor flash photos, start by selecting the fastest X-sync speed on your camera. In the case of the EOS-1, that will be  $1/250$  of a second, while with many other EOS cameras it will be  $1/125$  (or in the case of the EOS 1000/Rebel,  $1/90$ ). Then, use the camera's exposure meter to set an aperture that will underexpose the background. Let's say for the sake of discussion that the aperture value required for correct background exposure is  $f/5.6$ . You could then underexpose the background one stop by manually selecting an aperture of  $f/8$ . The decision of how much to underexpose the background is up to you, but when you're learning this technique, it's a good idea to experiment with a few aperture settings to see what you feel comfortable with.

Be sure to stay within the maximum range of the flash for the aperture you've selected. For direct flash, the Speedlite 430EZ displays this information on its LCD panel when the camera is set for manual exposure. With other Speedlites, you can do the calculations yourself using the guide number formula (see page 19).





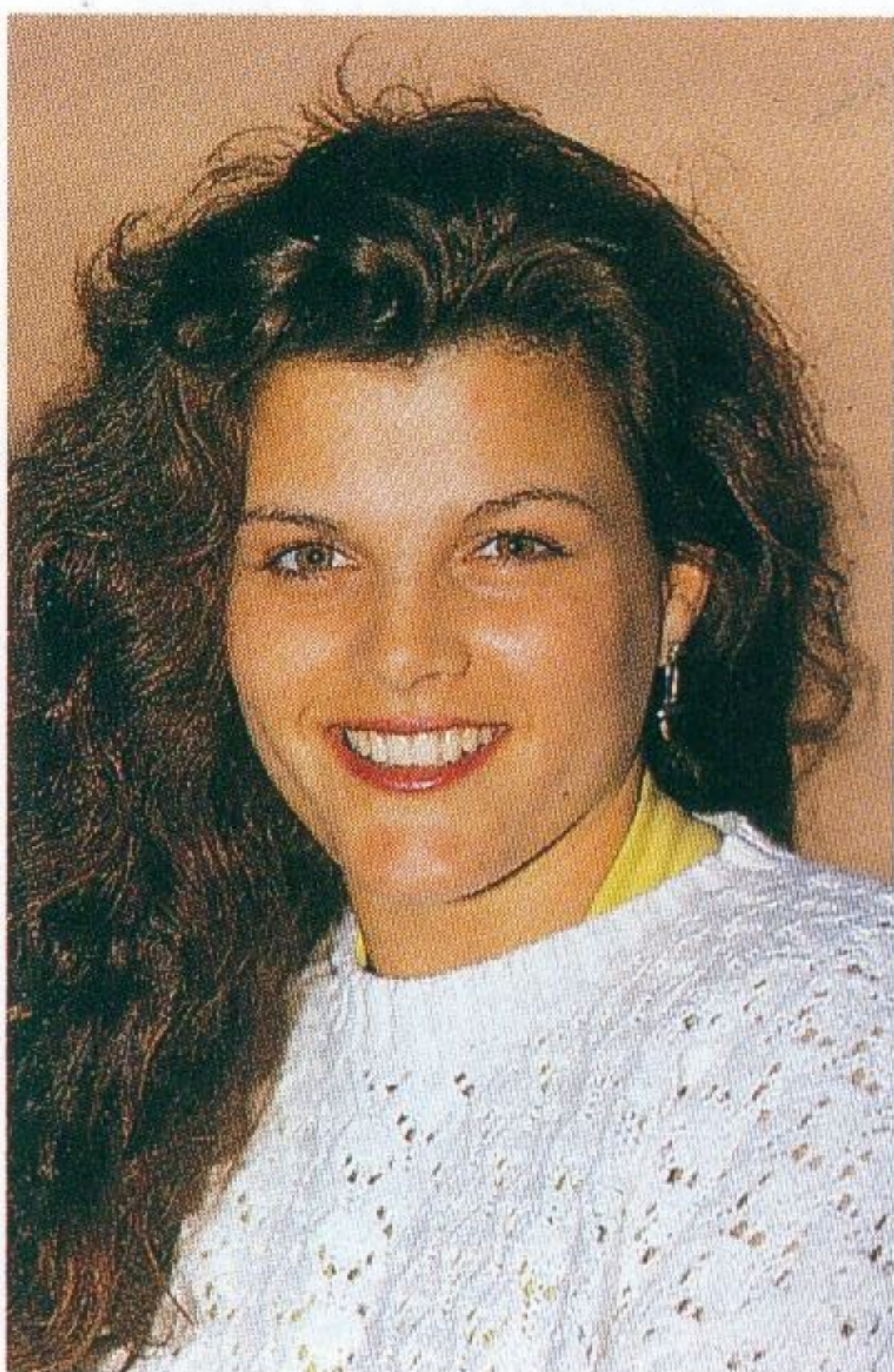
ATTTL A Zoom 80mm  
- 1  
F 5.6



ATTTL A Zoom 80mm  
F 5.6



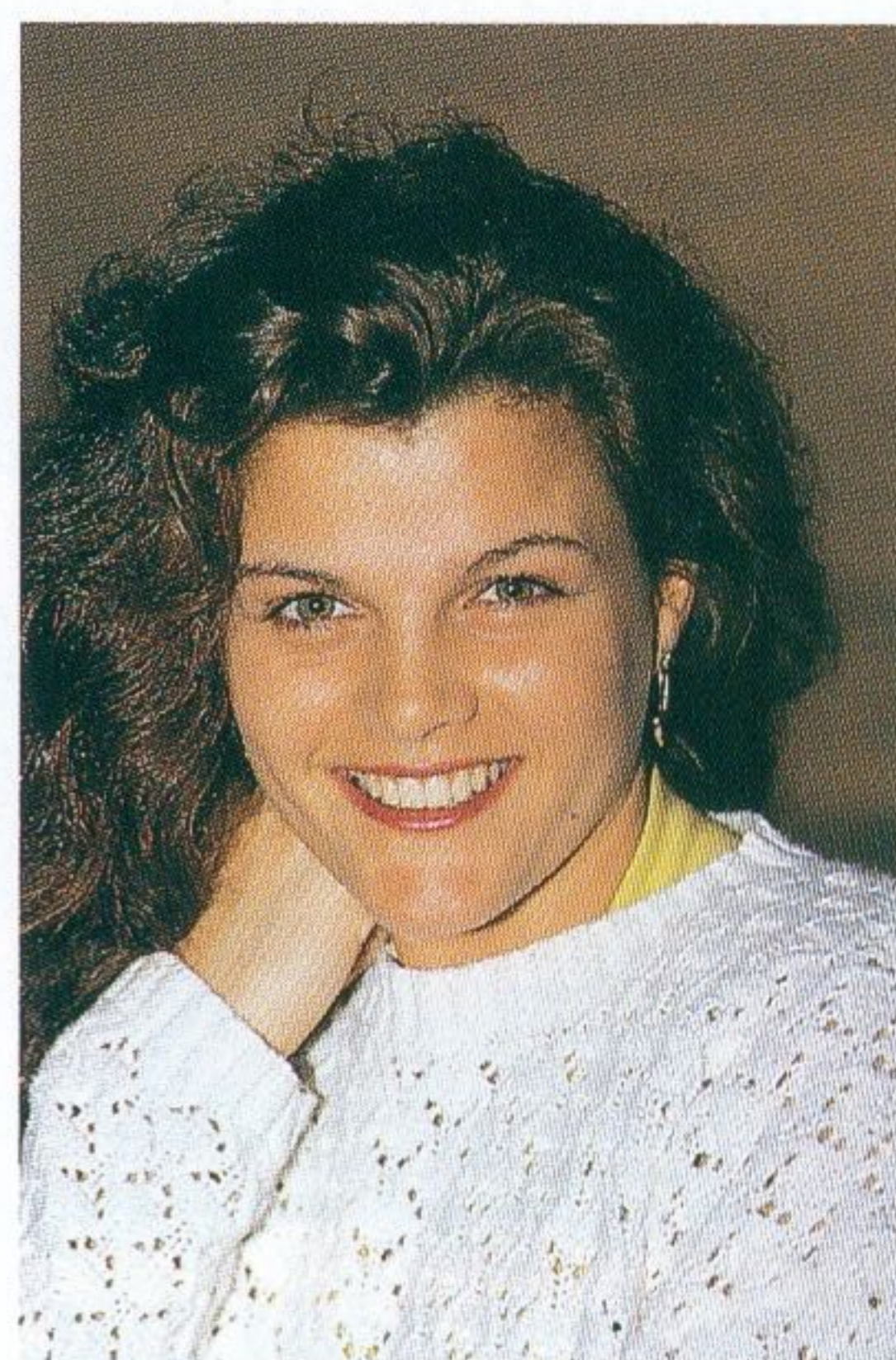
ATTTL A Zoom 80mm  
+ 1  
F 5.6



M 250 ONESHOT  
4.0  
1 S



M 250 ONESHOT  
5.6  
2 S



M 250 ONESHOT  
8.0  
3 S

(Display examples with EOS-1)

## Manual Flash Exposure

There are certain shooting situations in which automatic flash exposure, with or without compensation, just isn't a very good idea. As mentioned above, small subjects against unusually dark or bright backgrounds can cause problems. Additionally, because the TTL flashmetering pattern is usually center-weighted\* an off-center subject can cause

incorrect exposure. When you can anticipate these problems, or when you are working at a fixed flash-to-subject distance, manual flash exposure can be the best setting to use. With the 480EG, you can manually set three flash power levels: full, 1/4 power and 1/16 power. The Speedlite 430EZ offers a complete range of manual flash settings, including 1/1 (full power) as well as 1/2, 1/4, 1/8, 1/16 & 1/32 power. As an aid to selecting the correct power setting, the 430EZ's display panel shows the

correct flash-to-subject distance for the aperture, film speed and zoom setting you select, when you press the camera's shutter release halfway.

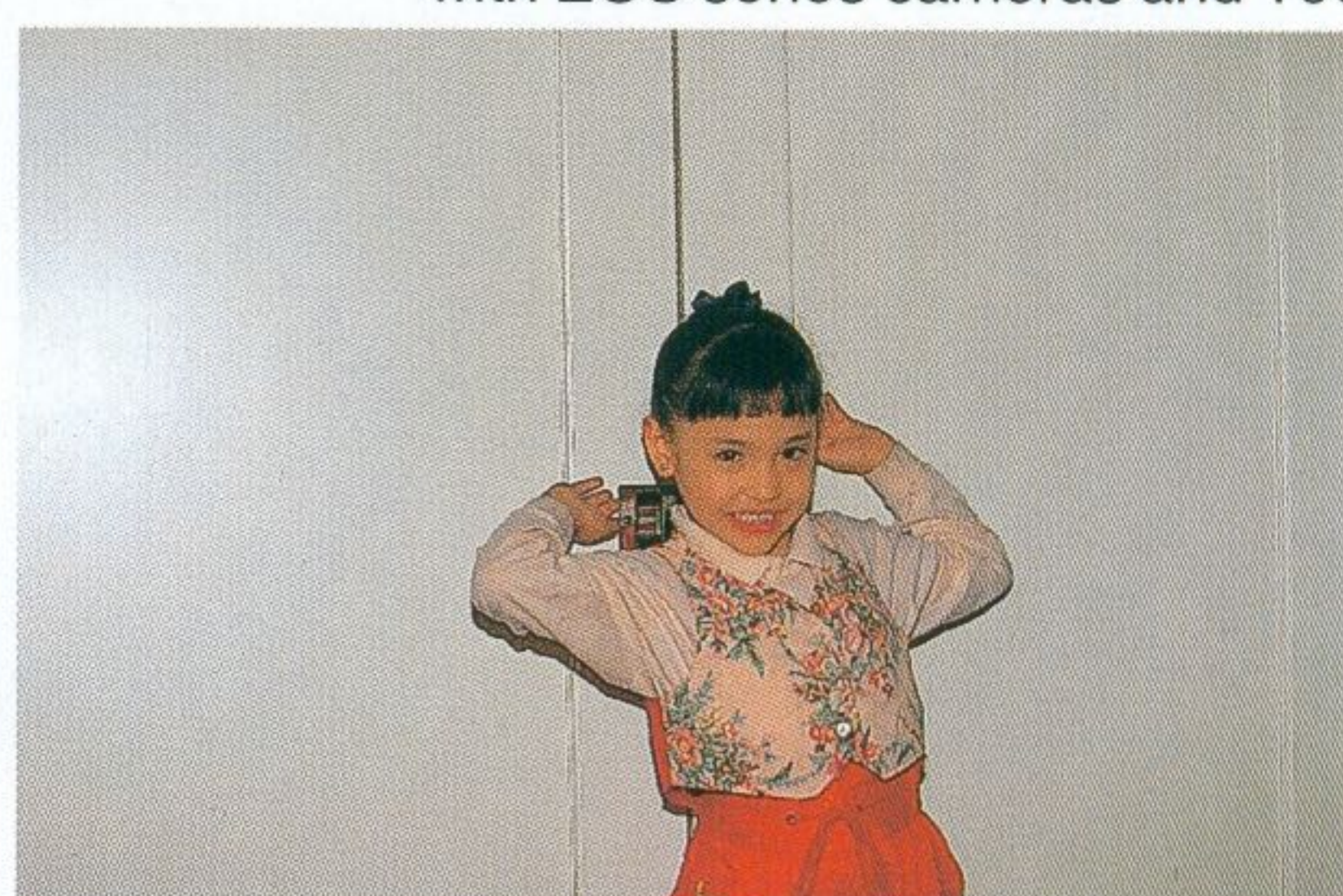
It's important to remember that the camera's manual exposure mode and the 480EG or 430EZ's manual flash exposure mode are two distinct and separate settings. When you use the camera's manual exposure mode, it is possible to select either TTL automatic or manual flash exposure on the 480EG\*\* and the 430EZ.

\*\* TTL automatic is available only with EOS series cameras and T90



M A Zoom 35mm  
1/2  
F 11 1.9 m

ATTTL A Zoom 35mm  
F 11



\*The EOS 10/10s and the EOS 5/A2 · A2E use a 3-segment and a 5-segment TTL flash sensor respectively that give emphasis to the focusing point in use.



# Changing the placement of the flash head can solve some frustrating problems

## Bounce Flash

Sometimes, shooting straight on with a flash results in a correctly exposed picture that nevertheless seems harshly lit. Angled light or diffused light creates a softer effect, which is why pros use sophisticated studio lighting set-ups with reflector umbrellas or highly reflective panels. Direct lighting with a camera-mounted flash is what most of us do, but by using the Speedlite 430EZ or 480EG, the “too direct” lighting problem can be easily solved. Both Speedlites feature an adjustable flash head that can be swiveled to “bounce” the light off a ceiling or side wall. The effect is very similar to having studio lighting, with harshness reduced because the indirect, “bounced” light tends to produce a more attractive image. Shooting on A-TTL\* or TTL within the maximum range of the 430EZ will ensure that exposure is correct, since the camera measures only the light reaching the film plane through the lens. When the 430EZ is set for bounce flash and the camera is set for Program, Shutter-Priority or Aperture-Priority, the main flash head will emit the A-TTL preflash to evaluate the shooting conditions

\* not available with the 480EG.

before the exposure. In Program mode, the aperture value will be automatically set according to the preflash information. In Shutter-Priority and Aperture-Priority, some EOS cameras such as the EOS-1 can warn you if you are out of range for the settings you have selected. In the camera’s manual mode, TTL automatic flash exposure can be used, and no preflash will be emitted.

\* *Keep in mind that you really are bouncing light. The surface you are bouncing it from should be white or very light-colored and close enough to you and your subject that you don’t exceed your Speedlite’s maximum light output level. Fast film (ISO 400, for example) helps to extend the usable distance range.*

## Off-Camera Flash

Another way of solving the problem of too-harsh direct lighting is by moving the flash off-camera. You can do this with any Speedlite simply by using Canon’s Off-Camera Shoe Cord 2.\* All on-camera flash functions are fully maintained. Since your EOS camera is autofocus, it’s possible to hold the camera with one hand and the flash with the other. If this seems too awkward, mounting the

flash on a bracket is an option that adds stability. With the Speedlite off-camera, you can set the exact lighting angle you want, enabling you to control shadows effectively. Unlike bounce flash, off-camera flash retains the full power of direct flash. This results in greater usable distance range and quicker recycling times. Given the moderate cost of the Off-Camera Shoe Cord, you’ll be pleased with the major improvements you can achieve in the quality of your flash photography. With the 480EG, off-camera flash is possible by simply detaching the clamp from the bracket.

## Red-eye Control

One problem that occasionally happens with flash photography is “red-eye.” The centers of a person’s or animal’s eyes become bright red (or some other unusual color) when flash illumination is reflected from the retina. With direct flash mounted on the camera, the likelihood of red-eye increases according to subject distance. One way of eliminating red-eye is through bounce flash. Another way is to move the flash off-camera. With light from the flash coming at a slightly different angle than that of the photograph being made, the eyes maintain their normal coloring.

\* See page 19 for compatibility information.

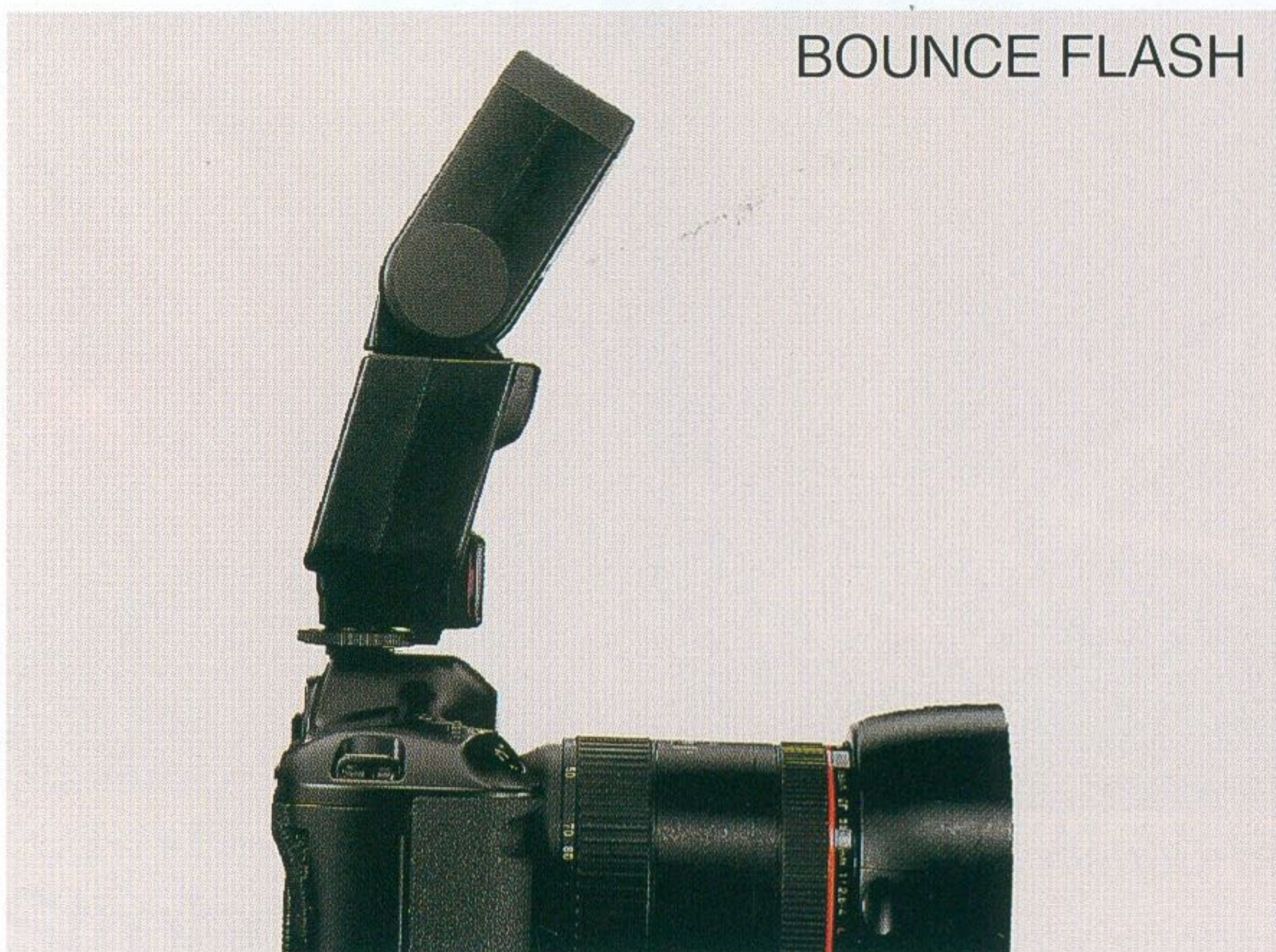




DIRECT FLASH



BOUNCE FLASH



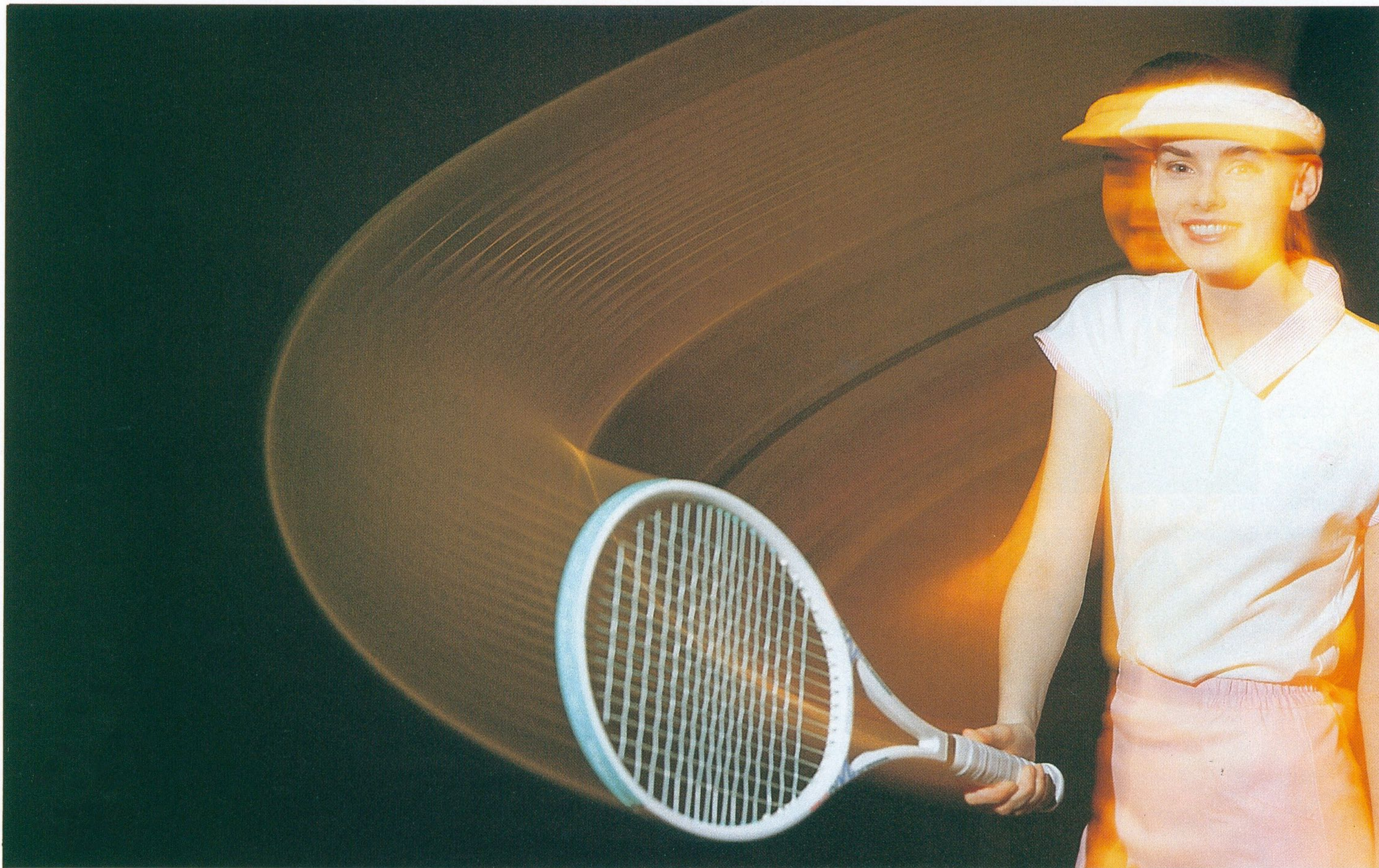
OFF-CAMERA FLASH



\* The EOS 100/Elan and the EOS 5/A2 • A2E have a built-in pop-up flash that features a special Red-eye Reduction function. The subject is illuminated by an incandescent lamp for 1.5 seconds before the flash fires. Unlike other systems that use flash bursts before the exposure, the EOS 100/Elan and the EOS 5/A2 • A2E's red-eye reduction lamp is easy on the subject's eyes and less likely to cause blinking. By looking into the lamp, the subject's irises contract, reducing the red-eye effect.







EOS-1•EF 50mm f/1.8•430EZ•TTL•ISO 100•Manual•1.6 seconds @ f/3.5•Second-Curtain Sync

# Exploring creative effects can result in some spectacular images

## Second-curtain Sync

Advanced EOS flash techniques let you explore the world in new ways. When shooting a moving subject at a very slow shutter speed, “trails” of light appear. The result can be a fascinating photograph, but if you shoot it with a conventional flash that fires the instant the first shutter curtain is opened, the subject is illuminated at the beginning of its motion and the trails of light appear to precede it unnaturally. A special feature on the Speedlites 430EZ and 300EZ, as well as the EOS 100/Elan’s built-in flash, lets you choose second-curtain sync. With this option, the flash fires at the instant just before the second shutter curtain begins to close. The trails of light are recorded during the exposure **before** the flash fires, so they appear to follow behind the moving subject. The result is a much more natural lighting effect.



First-Curtain Sync





EOS-1 • EF 20-35mm f/2.8L • 430EZ • Multi 1/16, 3 Hz • ISO 100 • Manual • 2 seconds @ f/5.6

## Stroboscopic Flash

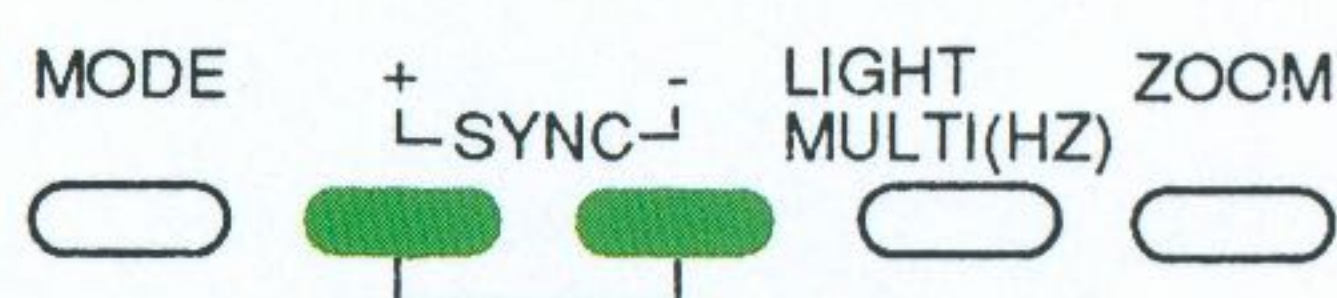
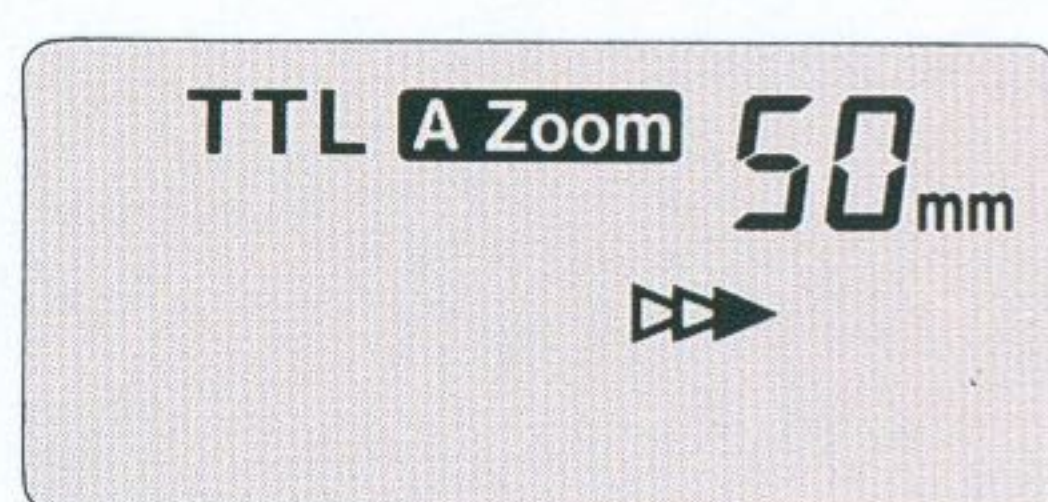
The 430EZ offers another special function you will enjoy experimenting with. The flash firing rate can be set from one to ten times per second. This means you can take multiple exposure flash photographs that provide a graphic indication of a series of movements. For example, you can analyze a process like a golf swing or tennis stroke, or just enjoy other interesting photographic possibilities. For good results with

stroboscopic flash, it's best to shoot at a slow shutter speed to allow sufficient time for subject movement. Be sure to keep the background as simple as possible — a bright, colorful subject against a dark background works very well. Once you've established the range of movement you want to record, try a few "dry runs" to ensure that your framing and composition are optimum.

Since stroboscopic flash is a form of manual flash, we recommend setting the camera for manual

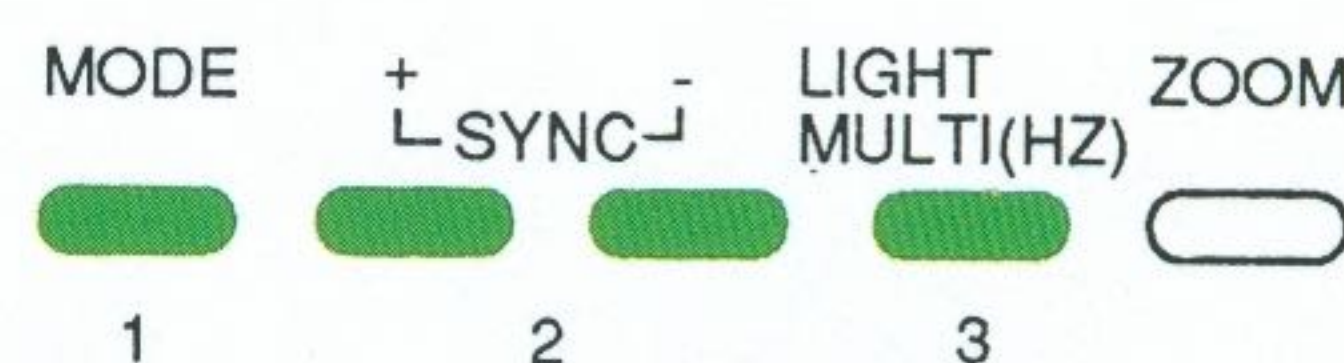
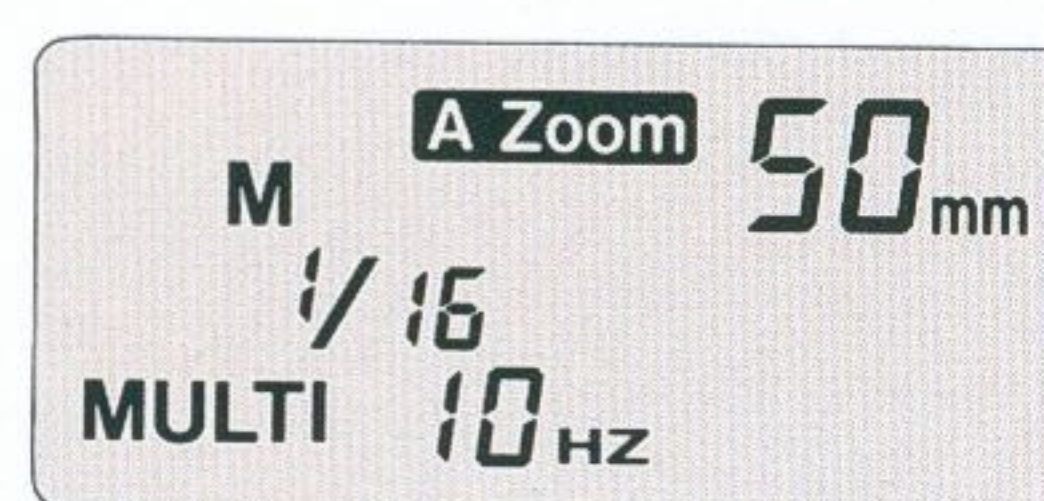
exposure mode, to provide you with complete control of aperture and shutter speed. You can use the 430EZ data panel to adjust the number of flashes per second and use the EOS camera to set the best aperture for the flash-to-subject distance. You can control the background exposure level by adjusting the camera's shutter speed setting. Also, reducing the 430EZ's power setting to 1/16 or 1/32 will produce the maximum number of flash bursts per shot.

### Second-Curtain Sync



To set Second-Curtain Sync on the Speedlite 430EZ, simultaneously press and hold the "SYNC" buttons until the symbol shown above appears. Repeat this procedure to select First-Curtain Sync.

### Stroboscopic Flash



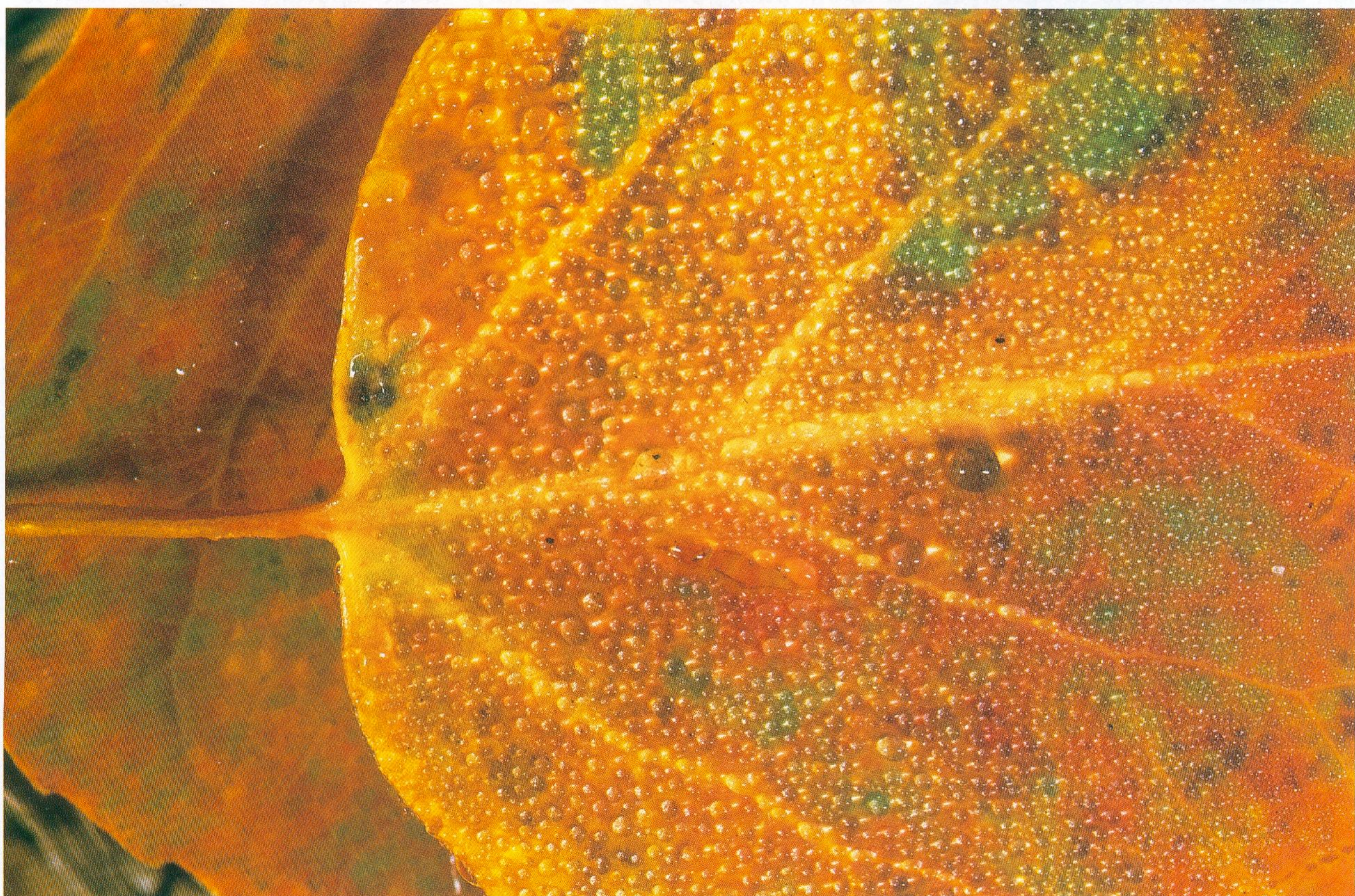
To set Stroboscopic Flash on the Speedlite 430EZ, first press the MODE button twice until the MULTI symbol appears in the LCD panel. Adjust the flash intensity by pressing either the "+" or "-" buttons. Then adjust the number of flashes per second (Hz) by pressing the MULTI (Hz) button.



# Special situations require special EOS Speedlite techniques



EOS-1•EF 100-300mm f/5.6L•multiple flash•TTL  
ISO 100•Shutter-priority AE•1/60 @ f/8



EOS-1•EF 100mm f/2.8 Macro•Macro Ring Lite ML-3•TTL•ISO 50•Manual•1/125 @ f/11



## Multiple Flash Photography

The EOS Speedlite system permits the use of multiple flash units connected to the camera with optional adapters. Pros use multiple flash set-ups for optimum lighting control and to eliminate the unflattering shadows that can occur when only one light source is used. The EOS system can support up to four Canon Speedlites, with full TTL exposure control. Individual Speedlites are mounted on Off-Camera Shoe Adapters and connected to a TTL Distributor and a TTL Hot Shoe Adapter 3 mounted on the camera via connecting cords. There are two cord lengths available: the coiled 60 cm/2 ft. Connecting Cord 60 and the straight 3 m/9.8 ft. Connecting Cord 300. When you want to use the 480EG for additional lighting, wireless synchronisation is possible by simply attaching the Slave Unit E on it. Multiple flash configurations are very useful for a variety of subjects, such as macro and portraiture, among others. In portraiture, for example, you can position one Speedlite as a main light, a second one as a fill light, and place a third unit to add attractive highlights to your subject's hairstyle.

## Handling Multiple Flash Configurations

There are a few differences in camera and flash operation when using Canon multiple flash accessories. For example, A-TTL mode is disabled since the preflash and AF auxiliary light distance information would be contradictory from more than one flash. Other disabled features are second-curtain sync, automatic zooming of the flash head (manual override of the zoom is possible with the 430EZ), and distance readouts in the 430EZ's TTL and manual flash modes.

One question that often arises when using multiple flash is how to adjust lighting ratios between flash units. In the Canon Speedlite system, there is no specific lighting ratio control in the TTL automatic flash exposure mode. All Speedlites in a TTL multiple-flash set-up will fire and cease firing at the same time. Nevertheless, there are several ways to control lighting ratios in a TTL multiple flash set-up:

\* *If you alter the relative flash-to-subject distances, the closest flash will provide the most light, and the furthest flash will provide the least.*

\* *When using 430EZ's, the 80mm zoom setting puts out 1.5 steps more illumination than the 24mm setting. As long as you can compose your subject within the coverage angle of each flash, the zoom setting can be used as a ratio control.*

\* *You can also adjust lighting ratios by using one or more flash units as direct lighting and placing diffusers or neutral density filters over the others, or by using bounce flash.*

\* *If you are willing to use manual flash exposure, the 430EZ permits ratio controls of 1/1 (full power), 1/2, 1/4, 1/8, 1/16 & 1/32 power (1/1, 1/4 and 1/16 with the 480EG). This is a form of direct lighting ratio control.*

The best thing you can do while you're learning is to experiment. With just a few rolls of film, you can try a wide variety of different set-ups. As in all types of photography, the more techniques you master, the more flexible you can be in handling any given situation.

## Macro Ring Lite ML-3

Close-up photography often requires special lenses and lighting because the subject is so near the camera. The EOS Speedlite system takes this into account by offering two macro lenses (the EF 50mm f/2.5 Compact Macro and the EF 100mm f/2.8 Macro) as well as a special Macro Ring Lite specifically designed for them.

The Macro Ring Lite ML-3 has twin flash tubes formed in a donut-like ring that is mounted directly onto the end of the macro lens barrel. The ring rotates, so the flash tubes can be positioned in any configuration to the subject. Both tubes can be fired at once or each tube can be fired separately. Firing both tubes results in perfectly even illumination, but with a sense of depth that cannot be duplicated with conventional ringlights. Firing either flash tube individually can add shadowing to bring out interesting details in the subject.





# You can configure the EOS Speedlite system to meet your particular needs

### Transistor Pack E

For long shooting sessions and faster recycling between shots, the Transistor Pack E is available for the Speedlites 430EZ and 480EG. This accessory can be used with a choice of power supplies, including the Battery Magazine TP and the NiCd Pack TP.




### Compact Battery Pack E

Canon's Compact Battery Pack E offers portability along with professional performance. This accessory offers faster flash recycling as well as longer shooting sessions. For exclusive use with the Speedlite 430EZ, the Compact Battery Pack E is powered by 6 AA Batteries.




### Off-Camera Shoe Cord 2


This useful accessory maintains all on-camera flash functions for one Canon Speedlite used off-camera, at distances up to 60 cm/2 ft. Moving the Speedlite off-camera results in better control over lighting angle. The Off-Camera Shoe Cord 2 is not compatible with the EOS 630 or RT. Although fully functional with all other EOS models, radio interference emitted by this product may exceed the specified limits in the United States (FCC), Canada (DOC), and Germany (FTZ) when used with cameras other than the EOS-1, EOS 620 and EOS 650.




### Modular Off-Camera TTL Flash Accessories




**1 TTL Hot Shoe Adapter 3**  
Placed in the EOS camera's accessory shoe, this device controls up to 4 off-camera Speedlites.




**2 Off-Camera Shoe Adapter**  
Off-camera Speedlites are placed in this accessory, which accepts one connecting cord.



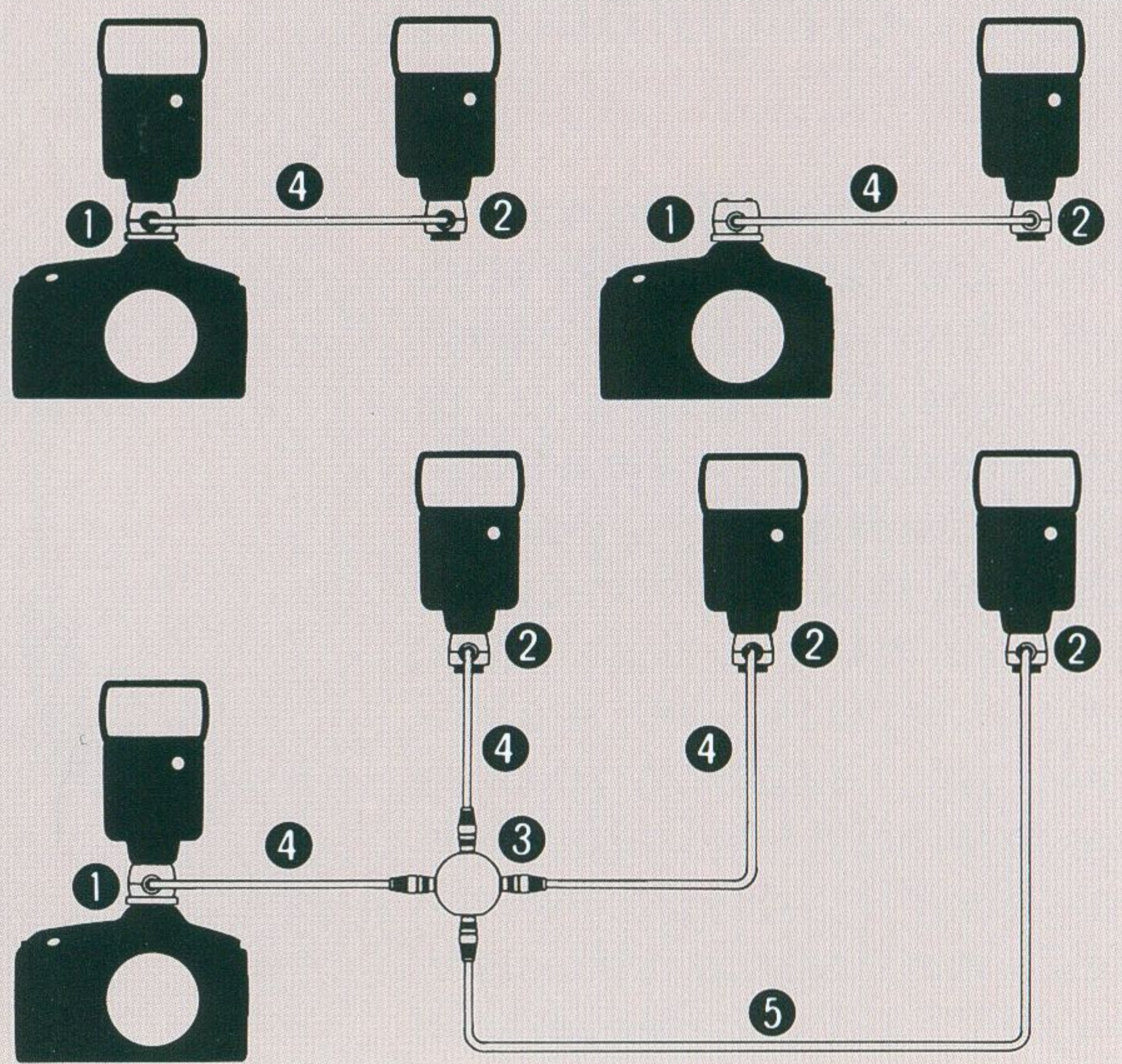
**3 TTL Distributor**  
System connector, accepts up to 4 connecting cords.



**4 Connecting Cord 60**  
60 cm/2 ft. coiled cord, with connections on both ends.



**5 Connecting Cord 300**  
3 m/9.8 ft. straight cord, with connections on both ends.





# EOS Speedlite Specification Chart

Speedlite	480 EG	430EZ	300EZ	200E	ML-3
Type	Grip Type Direct, Bounce or Swivel	Direct, Bounce or Swivel	Direct Only	Direct Only	Twin tube ringlight
Flash Exposure Modes	TTL, External, Manual	A-TTL, TTL, Variable Power Manual, Stroboscopic, Second-curtain Sync	A-TTL, TTL Second-curtain Sync	TTL	TTL
Focal Length Coverage	35mm (standard) 20mm (w/Wide Panel EG-20) 135mm (w/Tele Panel EG-135)	24mm—80mm via internal auto zoom (manual override)	28mm—70mm via internal auto zoom (no override)	35mm (28mm w/Wide Adapter 200E)	50mm & 100mm EF Macro Lenses
Guide numbers* (ISO 100, meters/feet)	35mm: 48/160 (standard) 20mm: 24/80 (w/ Wide Panel EG-20) 135mm: 68/223 (w/ Tele Panel EG-135)	24mm: 25/82 28mm: 27/89 35mm: 30/100 50mm: 35/116 70mm: 40/132 80mm: 43/141	28mm: 22/72 35mm: 25/82 50mm: 28/92 70mm: 30/100	28mm: 14/45* 35mm: 20/66 * 28mm coverage requires Wide Adapter 200E	50mm & 100mm: 11/36
Power Sources	Optional Transistor Pack E with 4 — C cells or Ni-Cd Pack TP	4 — AA cells, optional Transistor Pack E or Compact Battery Pack E	4 — AA cells, Alkaline or NiCd	4 — AA cells, Alkaline or NiCd	4 — AA cells, Alkaline or NiCd
Shooting Capacity	C Alkaline: 100 Ni-Cd Pack TP: 90	AA Alkaline: 100-700 AA NiCd: 45-300 Transistor Pack E NiCd Set: 300-2000 Compact Battery Pack E: 100-400	AA Alkaline: 200-2000 AA NiCd: 65-650	AA Alkaline: 400-4000 AA NiCd: 150-1500	AA Alkaline: 100-700 AA NiCd: 45-300
Recycling Time	C Alkaline 17 seconds, Ni-Cd Pack TP 6 seconds	AA Alkaline 0.2—13 seconds, AA NiCd 0.2—6.5 seconds, Transistor Pack E NiCd Set 0.2—2 seconds Compact Battery Pack E: 0.2—5 seconds	AA Alkaline 0.3—8 seconds, AA NiCd 0.3—6 seconds	AA Alkaline 0.5—4 seconds, AA NiCd 0.5—3 seconds	AA Alkaline 0.2—13 seconds, AA NiCd 0.2—6.5 seconds

## Guide Number Formulas

Guide Number/Aperture = Flash-to-subject distance	Guide Number/Flash-to-subject distance = Aperture
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Guide numbers (GN) index flash output level to film speed. They can be used to calculate either the aperture or the flash-to-subject distance required for correct exposure. Two useful guide number formulas are expressed above. These formulas are correct for direct flash photography with a single Speedlite.

## EOS System Shutter Speed Specifications

Camera Model	Fastest Shutter Speed	Slowest Shutter Speed	Maximum X-Sync Shutter Speed
EOS-1	1/8000	30 seconds	1/250
EOS 5/A2/A2E	1/8000	30 seconds	1/200
EOS 10/10s	1/4000	30 seconds	1/125
EOS 100/Elan	1/4000	30 seconds	1/125
EOS 1000N/Rebel II 1000FN/Rebel S II 500/Rebel X	1/2000	30 seconds	1/90
EOS 1000/Rebel 1000F/Rebel S	1/1000	30 seconds	1/90
EOS 620	1/4000	30 seconds	1/250
EOS 600/630/650/RT	1/2000	30 seconds	1/125
EOS 700/750/850	1/2000	2 seconds	1/125





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