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March 1996



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## Creative Camcorder

**ES2000 CAMCORDER.** From Canon U.S.A., Inc., One Canon Plaza, Lake Success, NY 11042; Tel. 516-488-6700. Price: \$1599.

A simple, feature-stripped camcorder can be an excellent choice for home videographers who are more interested in getting something on tape than the process of shooting videos. They want taped mementos, but they don't see videography as a fun hobby. However, videographers who want to make good-looking, interesting, creative videos need the proper tools.

Canon's newest top-of-the-line compact Hi8 camcorder, the *ES2000*, is an ideal tool for the creative videographer. It has a slew of convenience features and an extra helping of quality built in.

The first feature worth noting is the unit's 20× power zoom lens—to date, the industry's longest. True, you might see a camcorder offering a greater zoom range, but it won't be an *optical* zoom. Instead, many camcorders offer a combination of optical and digital zoom—for example, an optical 10× zoom lens with a 2× digital zoom. Unfortunately, digital zooming inherently reduces the picture's resolution because it works by magnifying the image on the camcorder's CCD image sensor. The result is a picture that is composed of fewer pixels. As the magnification increases, the image's resolution decreases.

The ES2000's zoom lens is controlled by a small lever conveniently located near the index finger. Seven zoom speeds are provided, and depend on how far the zoom

lever is pushed or pulled. The variable speeds allow the full zoom to be traveled in as little as 4, or as much as 20 seconds.

As you might imagine, it is difficult to hold the camera steady enough to get a good picture at maximum zoom. Fortunately, the ES2000 offers an image-stabilization system. Again, Canon chose to go with an optical system, instead of an electronic one, so as not to degrade picture quality.

The image-stabilization system is based on Canon's Vari-Angle Prism (VAP) technology. The prism is made up of two glass elements that are joined by a flexible plastic material. The space between the elements is filled with a special, transparent, silicon-based oil.

Motion sensors detect horizontal or vertical movement and relay information to a microprocessor that controls prism actuators. The prism, like all other prisms, bends or refracts light. The motion of the prism compensates for camera shake by keeping the image centered on the CCD.

The camcorder is able to compensate for different kinds of motion caused by various shooting situations. For example, a stationary videographer holding the camcorder in his hand will produce completely different motions from one who is walking or riding in a car. The ES2000's system can adapt to them all. The camcorder's image-stabilization system is controlled by several compensation programs, each of which corrects for a certain range of motion frequencies. Canon rates its system as providing a more than 90% uniform compensation between 3 and 17 Hz. It is capable of responding to vibration frequencies as high as 20 Hz. The system is also dependent on the zoom level. It offers

about five times more compensation at the telephoto end than at wide angle.

The image stabilization is not subtle. Without it, the camcorder would be practically unusable at maximum zoom without a tripod. With it, the smooth images it delivers are remarkable—even when tapping from a moving car.

Technically speaking, the lens and optical image-stabilization systems are definitely the most impressive features of the ES2000. From a videographer's creative and convenience standpoint, however, Canon's FlexiZone AF/AE is the camcorder's highlight.

Other camcorders base their auto-focus (AF) and auto-exposure (AE) settings on what is happening in the center of the frame. Although that's sensible, it is rather limiting. What do you do if you want your subject in the lower left corner of the frame, and you want the background to fade away into a soft blur?

With other camcorders, you must enter the manual-focus mode, and then focus on your subject. If the background is much darker or brighter than your subject, you must manually adjust the exposure settings as well. Experienced videographers don't find that too much of a hardship, but beginners or infrequent users do. Plus, there's no denying that adjusting the settings takes time—time that can make you lose the shot that you were looking for.

FlexiZone AF/AE makes it much easier for everyone. With the FlexiZone feature turned on, the viewfinder shows a small frame that indicates the desired area of focus. The default area is the center of the frame. However, the frame can be moved using a joystick-like thumb controller on the back panel of the camcorder.

With the push of a button, the exposure can also be determined by the area inside the frame. The exposure settings remain locked until the button is pushed again, or until the FlexiZone mode is turned off.

One of the things we liked best about FlexiZone was the ability to focus shift. Let's say your family is taking a mule trek down the Grand Canyon. You want to start a scene by focusing on your wife's expression of exhilaration, perched on a mule whose hooves are precariously close to the trail edge. Next you want to change the focus to capture the spectacular canyon view, as the mule train fades into a blur.

Traditional camcorders would require either that you adjust the focus manually, or that you move the camcorder so that the area of interest appeared in the middle of the viewfinder. FlexiZone, however, allows you to hold the camcorder perfectly still—so that the composition of the scene remains constant—and just move the FlexiZone frame over the area of interest. It's not quite automatic, but we can't imagine it being more so.

The advanced features of the ES2000 do not make it a difficult camcorder to use. A full-auto mode lets the camcorder make all of the exposure and focus decisions. Four other auto-exposure modes are available to compensate for special recording environments: Sports, Portrait, Spotlight, and Sand & Snow. An auto-exposure control wheel on the left side of the camcorder is used to select the appropriate setting. In the Sports mode, the camcorder chooses the highest shutter speed possible for the lighting conditions. That produces clearer images that can be analyzed frame-by-frame during slow or still playback—but not on the ES2000, which doesn't support frame-by-frame playback.

The Portrait mode reduces the camcorder's depth of field so that the intended subject stands out from a softened foreground and background. The Spotlight mode is designed for recording scenes in which the subject alone is brightly lit, such as a piano recital. The Sand & Snow mode is intended for recording when the background is so bright that the subject would normally be underexposed, as the sun glares off the snow or water.

A backlight-compensation button is provided to manually brighten the exposure for scenes that have strong backlighting. Shutter speeds can also be set manually. The seven settings range from  $\frac{1}{100}$  second to  $\frac{1}{10,000}$  second.

All of the technology that is crammed into the ES2000 does not make it a large or unwieldy camera. New manufacturing technologies were used to reduce the size and weight of the lens, image-stabilization, and signal-processing sections. The camcorder measures about  $4 \times 4 \times 8$  inches and weighs slightly over two pounds when loaded with a battery and cassette.

The controls are clearly marked and sensibly placed. The right hand controls the record button with the thumb; the index finger operates the zoom and FlexiZone AF controls.

The thumb of the left hand can operate the FlexiZone frame joystick and the manual shutter-speed button. The auto-exposure wheel is on the left side of the camcorder. Above that are two buttons; one is for backlight compensation, the other initiates fade to or from black. Below the exposure wheel is an autofocus on/off button. Behind the button is a wheel for manually changing focus.

The top of the camcorder has a row of buttons for standard VCR playback functions. They do double duty when the camcorder is in the camera mode and become DATE, TITLE, STABILIZATION ON/OFF, and RECORD SEARCH/REVIEW buttons. Also on top of the camcorder are counter-reset and cassette-eject buttons.

There are no buttons located behind hid-

den panels. However, two are located behind the swiveling viewfinder. One changes the video/audio jacks from outputs to inputs for recording. The other turns the tally lamp (a blinking LED that indicates that the camcorder is recording) and the remote sensor on and off. An infrared remote control is supplied with the camcorder.

A small flip-open panel on the back panel covers the audio and video (composite and S-video) connectors as well as the LANC jack that allows the camcorder to be remotely controlled by editing equipment. A microphone input and headphone output are provided on the camcorder's front, right side.

The ES2000's viewfinder provides several important pieces of information and includes a zoom meter as well as icons to indicate the exposure and focusing modes, and whether the high-speed shutter and image-stabilization are on and off. A recording reminder advises users to record each scene for at least 10 seconds for easier editing. The viewfinder is a 0.55-inch color LCD. Normally, we don't like color viewfinders because of their lower resolution. We have no complaints about the ES2000's. It's the first color viewfinder we've used that we prefer over black-and-white.

Titles can be added easily. Up to two lines, each of 16 characters, can be stored in memory. When in the title mode, the FlexiZone is used to scroll through the lines and also through the characters. Either the time, date, or both can also be used as titles.

If you are an experienced videographer looking to move beyond the ordinary, the ES2000 offers the tools to bring out the artistic side of you and uncompromised Hi8 performance. ■

## SANYO CAMCORDER

*(Continued from page 7)*

conditions. The automatic balance corrects color for different lighting situations by analyzing picture information from 64 image areas. The VM-PS12 also features automatic backlight compensation.

There's no doubt about it—the VM-PS12 is quite a departure from any other camcorder we've ever seen. Although it's missing some features that we previously could not have imagined doing without, it made us appreciate that, sometimes, simple can be better. For example, we had come to consider power zoom lenses and automatic focus to be indispensable features. But the VM-PS12's manual zoom lever let us frame the shots quicker than any power zoom we've used. The fixed-focus lens ensured that we got the shots we

wanted and that the camcorder was never fooled by the situations that tend to trip up auto-focus mechanisms.

Lately, we've found ourselves torn between black-and-white and lower-resolution color viewfinders. Without question, the simple optical viewfinder of the VM-PS12 is the sharpest, most realistic that we've ever seen in a camcorder. Of course, it can't do some of the things that conventional camcorder viewfinders do so well—such as showing the length of a scene, or how much tape and battery life is remaining. But people who use their camcorders only on special occasions and tend to get confused with some of the more subtle indicators will probably appreciate that.

The VM-PS12 is not just a special-occasion camcorder. Because it's as easy to use as a point-and-shoot still camera, we found ourselves pulling it out and taping things on a fairly regular basis—our friends' children dressed for Halloween, the roof being torn off our neighbor's house to add a second story, the baby, anytime he did anything remotely cute.

The bottom line? We've never seen a camcorder that was as simple to use or better suited for technophobes. If you want a camcorder that can capture memories without taxing yours, Sanyo's VM-PS12 is it. ■

## RCA VCR

*(Continued from page 6)*

action to ensure that no one messes up your programmed timer recordings. Once the recording is set up, you press and hold the POWER button on the remote for at least six seconds, until "lock" appears in the front-panel display. At that point, the VCR and remote are "locked"—the controls are deactivated. To unlock the unit, you must press and hold the VCR1 (or VCR2.LD) button on the remote control until "hello" appears in the display.

The VR678HF's remote control can operate most major brands of televisions (although not every function on every brand) and cable boxes; a second Thomson (GE, RCA, or ProScan) VCR or laserdisc player; an auxiliary RCA-brand component (radio, CD player, tape player); and an RCA Digital Satellite System receiver. Many of the buttons on the remote play dual roles, depending upon which component has been selected. Despite its multifunctionality, we found ourselves using the remote less often than usual, thanks to the Commercial-Advance feature.

So, have we cut down on our consumer spending since we began using the Commercial-Advance VCR? Definitely not—now we want to go out and buy our own Commercial-Advance VCR! ■