

Exclusive Hands-on Tests of 10 TOP CAMCORDERES

All of the specifications sound great, but how do camcorders work in real life? We take some of the most popular models and put them through their paces.

By Cliff Roth

PANASONIC PV-460 Full Size VHS

Home movies shot with camcorders tend to suffer from excessive camera shake. In professional movies, like *Raising Arizona*, a device called a "steadicam" has allowed Hollywood to get point-of-view shots in all sorts of cramped quarters where crane mounted cameras couldn't travel, such as narrow stairways. It's a supporting brace which suspends the camera to minimize vibrations.

Now Panasonic has brought a similar idea to home video. The new PV-460 camcorder incorporates an "electronic image stabilization" system—EIS—to reduce jitter. The camera's lens is suspended within the camcorder housing—and this unit is thus a bit larger, in the front, and heavier—than most.

In our hands-on tests, we found that the EIS system performed more or less as promised: it stabilized a lot of the shake that's usually associated with hand-held camera work, especially when the lens is zoomed in towards the telephoto range. But the system also had some drawbacks: first and most obvious is the extra bulk. This is one of the largest and heaviest camcorders on the market. It's so large, in fact, that we'd recommend using a tripod—but that would defeat the whole point of the thing.

Second, the EIS created a weird time lag feeling: You move the camera by panning to a particular subject, and after you've stopped moving the camcorder, you find that the image in the viewfinder is still moving. It takes about three seconds for the system to catch up with you—that is, three seconds after your panning motion stops, the image in the viewfinder stops.

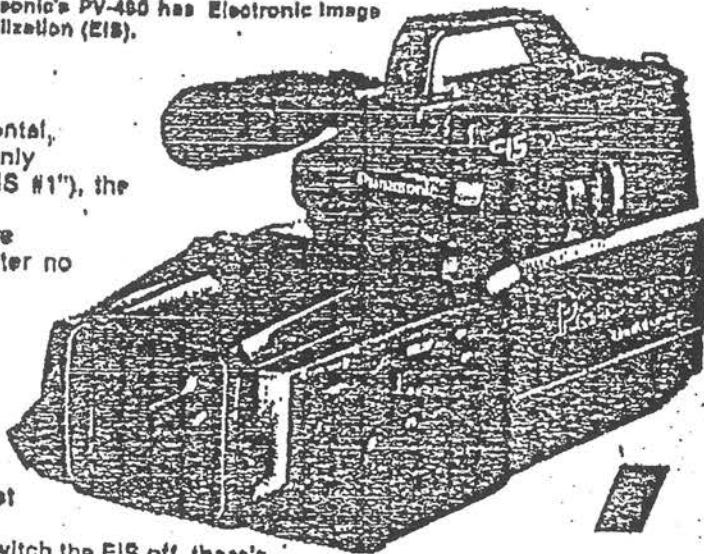
To get around this problem, Panasonic incorporates two levels of EIS operation: vertical only, and full verti-

cal and horizontal. With vertical-only operation ("EIS #1"), the above panning procedure would encounter no time lag, because the system only stabilizes up and down vibrations. We found this position to be the most useful.

When you switch the EIS off, there's a real noticeable "snap" in the image—as if the camera got knocked. To avoid this, another button, called "EIS lock," lets you temporarily disengage EIS by locking it into whatever position it's in at the moment. It works great, but it requires some sophistication for users to figure out how to optimally take advantage of these controls.

In other respects, this is an excellent VHS format camcorder. It's designed with the enthusiast in mind, and incorporates several versatile features for the low-budget video producer: a flying erase head for perfect edits, video dubbing capability to insert new images while keeping the old sound, audio dubbing (to do the opposite), and lap time counter that tells you how long the tape has actually been running (rather than arbitrary "index" numbers). The auto white balance system is excellent. We especially liked the zone focusing, which lets you specify a smaller area within the viewfinder for the autofocus to pay attention to. When the autofocus circuitry gets confused (such as when pointed at a flat surface) the white

Panasonic's PV-460 has Electronic Image Stabilization (EIS).



frame of the zone "box" flashes in the viewfinder, to warn you that manual adjustment may be needed. The manual focus control is a bit unusual—you turn a knob on the camcorder's side, rather than the usual focus ring. The stop/start button is also a bit unusual—it's on top of the grip, behind the zoom control. The PV-460 also has a 10:1 zoom lens, a high speed shutter, and the ability to record VHS Index Search System marker points, for later use in cueing up specific segments.

Overall, EIS is a very innovative new feature, and we expect to see refinements in future versions. For now, the PV-460 is probably of interest to serious video hobbyists who don't mind the added bulk, and can use the feature wisely. It's great for point-of-view shots—for example, you can carry it down low, by the handle, and show the world what a romp through your living room looks like from your dog's point of view. Similarly, it's great for shooting out of a car window. If it didn't make the camcorder bigger and costlier, we recommend it for everyone.