



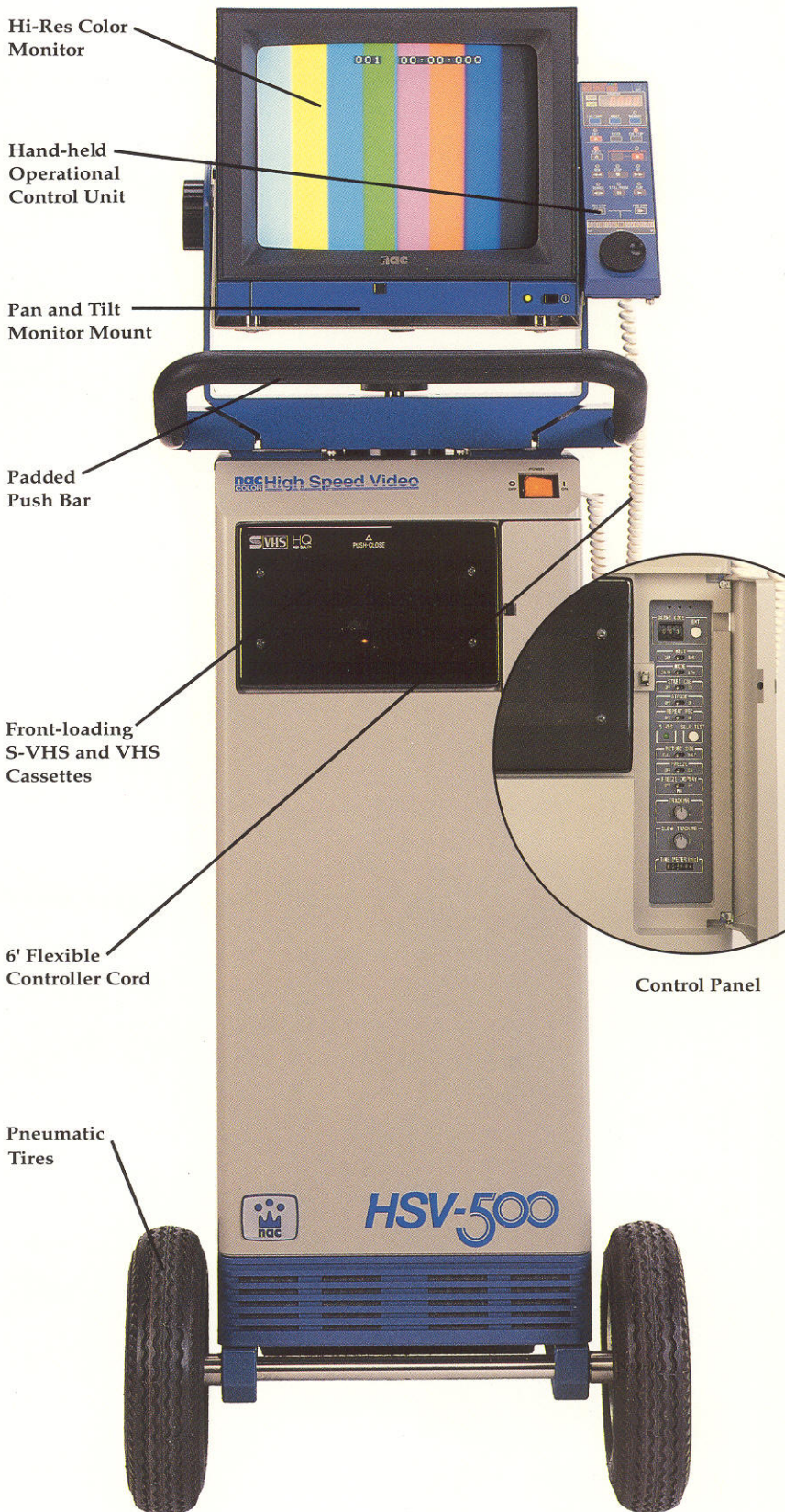
Controlling camera and VTR doesn't get any faster or easier.

Simplicity is the key to increasing productivity. With that in mind, NAC has engineered the HSV-500 to be the easiest and most versatile system of its kind. We know that in the world of fast moving events, time is of the essence. That's why we've designed controls for the camera and VTR within the hand held controller—to save you time when you want to record, to save you time during playback and analysis, and finally to get the problem solved with a minimum of downtime.

A full function motion analysis workstation on wheels.

The HSV-500 portable workstation is a marvel of compact operating efficiency. Everything you need to speed the troubleshooting process along is contained within the VTR workstation.

Swing open the side door and you'll see a complete functional set of toggle switches and control knobs. Each with a specific purpose and all of them critical to getting the most out of motion analysis. There's a freeze frame toggle for superimposing one image over another for comparative studies of the effects of movement. The HSV-500 gives you an actual sequence of real images in motion, not just a symbolic or mathematical representation of movement. In addition, there are individual controls for record, play, stop enter, edit, reset, memory and more. (See back of brochure for X-Y data reduction capabilities).



1,290,000 pictures on a single \$10.00 cassette.

Unlike other high speed video systems that require a time consuming method of downloading from electronic memory to tape before storing, the HSV-500 records directly on standard or S-VHS cassettes. This allows for immediate on-site analysis of recorded information on the VTR workstation. Or you can load the cassette into any suitable VCR for playback at another time. Best of all, by using standard media your costs are minimized. A cassette capable of holding 1,290,000 pictures will typically cost you less than \$10 in any retail outlet.

43 continuous minutes of recording.

The HSV-500, with an unprecedented continuous recording time of 43 minutes, without interruption, is the longest of any high speed video system. In general, the operating simplicity of the HSV-500 allows you to set up the system within minutes and immediately start recording and analyzing. For complex applications, where more sophisticated control of the recording is critical, special triggering devices are provided.

In addition, what's recorded is safe from power interruption and can be played back for analysis a day or a year later, on the same recorder. Other VTR's for playback are not required.

Typical applications and industries.

The HSV-500 answers the specific needs of manufacturing environments where production rates are moving in the range of 200 to 500 events per minute. Typical applications include troubleshooting and monitoring the performance of labeling machines, bottling, canning, food packaging, printing and electronic parts assembly. Beyond that, it is ideal for a wide range of research, product design, testing and quality control procedures. The applications stretch as far as your imagination can envision.

About NAC. The worldwide leader in high speed film and video technology.

Since 1958, NAC has been on the cutting edge of image engineering. As a result of continuous dedicated commitment to the development of advanced, state-of-the-art film and video technology, NAC is today the world's leading manufacturer of high speed film and video equipment.

NAC equipment can be found on-board the space shuttle and on the shop floor of the world's largest manufacturing companies. NAC high speed film cameras and video systems, ranging in speeds from 200 to 20,000,000 pictures per second,

have become the technology of choice for a wide array of industries including aerospace, automotive, paper, electronics, packaging, printing, robotics, bio-mechanics and more.

Just as important as the power of NAC products is the performance of its people. That's why we stand behind every system with a full staff of sales engineers and technical support specialists. Each is trained to provide you with guidance on the best equipment and best approach to ensure success in your unique requirements.

Specifications

VTR	
Recording Speeds	500 or 250 pictures per second
Recording Format	Super VHS or VHS switchable
Output	VBS and Y/C, NTSC or PAL
Playback	Forward/Reverse, Still, Step, Job Search, Variable
Freeze Frame	Built-in picture memory (one picture)
Cassette Tape	S-VHS or VHS
Recording Time	43 minutes with ST-180 cassette
Resolution	350+ lines horizontal resolution
Power	90-132 VAC or 198-250 VAC 50/60Hz 190W without monitor
Weight	97 lbs. without monitor
Size	34.3"H X 18.5"W X 19.7"D without monitor
Temperature	Operation: 0 to +40° C, Storage: -10 to +60° C
Humidity	Operation: non-condensing RH Storage: 0 to 80% RH
Monitor	450 + lines horizontal resolution

CAMERA	
Sensors	MOS 2/3 inch
Shutter	1/250, 1/500, 1/1250, 1/2500, 1/5000, 1/10000
Resolution	400+ lines, video resolution
Lens Mount	C Mount
Pixel Count	649 X 491
Cable Length	7m standard, 25m, 50m and 100m optional
Weight	10 lbs. without lens
Gain	-6 dB, 0 dB, +6 dB switchable
Size	Approx. 7"H X 5.2"W X 12.7" L without lens

Bringing high speed video within your reach.

Because of today's blindingly fast rates of manufacturing and production, more and more companies are finding that, in order to fix something, you must first be able to see it. That is just one reason why high speed motion analysis is gaining rapid acceptance among a broad range of industries looking for new ways to achieve a competitive edge. Now thanks to the new HSV-500, there's an imaging system that can increase operating efficiencies and improve productivity in ways you never envisioned before.

With the HSV-500, NAC takes affordable high speed color video technology to a new, higher level. This remarkable productivity tool provides a compact, flexible, feature-rich system for motion analysis with unparalleled convenience.

True Hi-Res color or black & white.

There are many performance enhancements that differentiate the HSV-500 from any other high speed motion analyzer on the market. For instance, its exceptional ability to record and playback images in crystal clear, true high resolution color or razor sharp black and white. The newly designed solid state camera and the use of S-VHS recording media deliver significantly better image quality allowing users to analyze fast moving phenomena in greater detail and with the clarity that only real world color can provide.

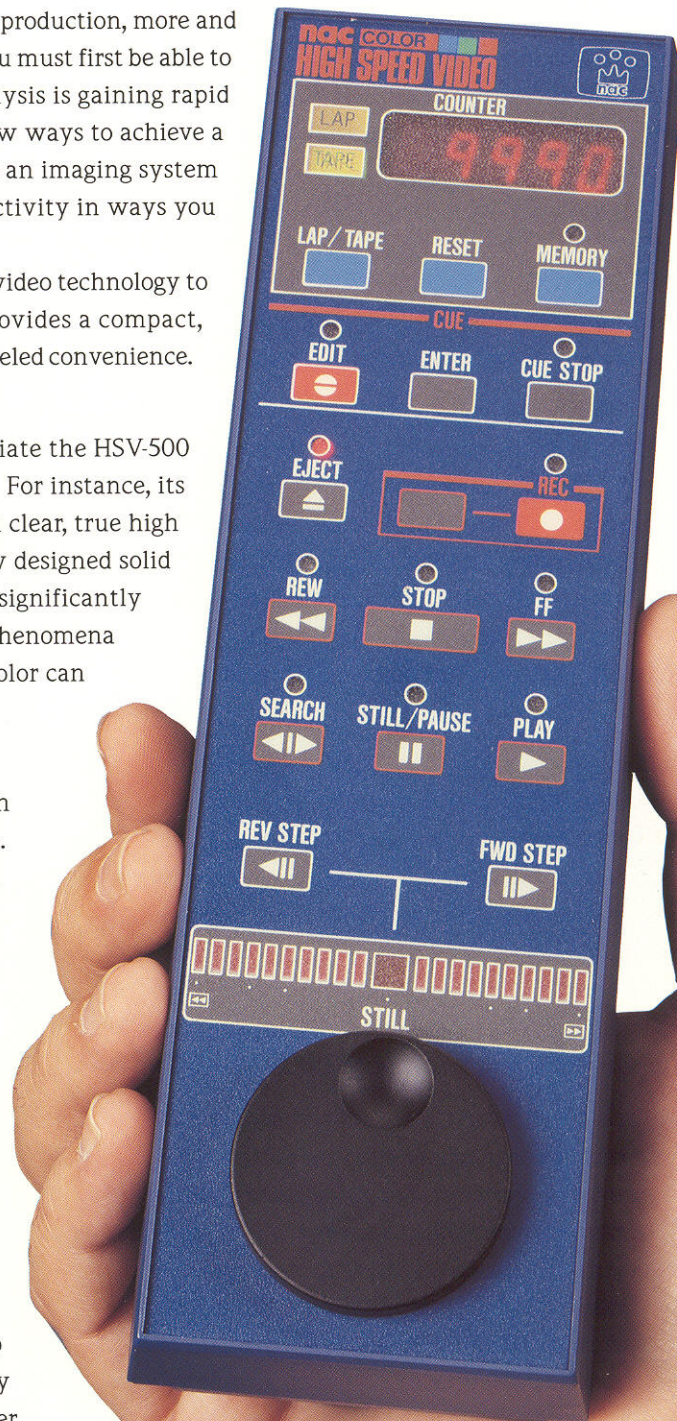
250/500 pictures per second.

The HSV-500 operates at 500 pictures per second in half high images or 250 pictures per second in the full frame mode. Compare this with a mere 60 pictures per second of standard video and you can quickly see that without high speed video you could be missing the big picture when it comes to spotting and solving motion analysis problems. What's more, with the HSV-500 you can move back and forth from 250 to 500 pictures per second at the flick of a switch.

Hand-held remote controller.

Overall operational versatility is ensured via a simple to use remote control unit. With a 6' spring cord that connects the remote controller to the VTR, you don't have to be at the camera to record and analyze the action.

This user-friendly hand held unit contains its own LED display, as well as all operational functions critical to recording or viewing the process of dynamic motion. By rotating the unique Speed Dial at the bottom of the controller you can review any scene at any frame rate you choose—forward or reverse, from freeze frame to real time, and any increment in-between.



Dual Camera Capability

Data Reduction Program

Electro/Mechanical Correlator



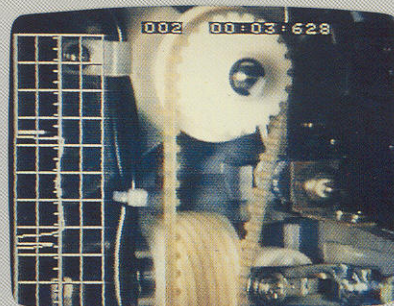
Dual Camera Operations

Sometimes capturing the right information requires recording the same event from two different perspectives at the same time. With a second camera and a Dual Camera Wipe Unit, two views can be recorded simultaneously. The operator can adjust the percentage of either camera position displayed on the screen during recording. This can greatly enhance your capabilities by providing a view of the event from two different angles.



X-Y Coordinator

Data reduction is made possible with an X-Y Coordinator. Utilizing an electronic digitizing tablet, the operator identifies and selects key positions on the screen and sends their X-Y coordinate information to an IBM compatible personal computer where data reduction is carried out. Values of acceleration, displacement, position, velocity, power, force, angle and many others are provided. The resulting information can be printed out or plotted for engineering solutions.



Wave Inserter

The Wave Inserter records an analog or digital signal simultaneously with the video recording. Using the Wave Inserter the operator can see on the monitor the electrical response as well as the physical reaction of an event. Operating much like an oscilloscope the Wave Inserter ties electrical and mechanical data into one picture, providing a powerful analysis tool on the spot.

ACCESSORIES

To maximize the capabilities of the HSV-500, a complete line of accessories are also available. Brief descriptions of some optional items are provided below. Separate specification sheets are available upon request for most of the accessories.

Viewfinder Monitor. A black and white monitor mounting on the top of the camera for viewing from the camera position. All information on the main monitor is also displayed in the viewfinder.

Camera Cables. Camera cables are available in 25, 50 and 100 meters.

Remote Operation. Complete external record on command, playback, fast forward, rewind, etc. via switch closure device or computer.

Irig Time. An Irig unit is available for recording Irig-B time and phasing pictures to Irig.

Lenses. A complete selection of close-up, wide angle and zoom lenses are available including fiber scopes.

Shipping Cases. Custom designed interlocking shipping cases are available to ship your HSV in a protective environment from location to location.

Lighting. There are a wide variety of lights available to assist you in your high speed recordings.

Hard Copy printers. For an instant hard copy of a video image, high resolution color Hard Copy Printers are available

Other accessories to match your particular application are available. Give us a call.