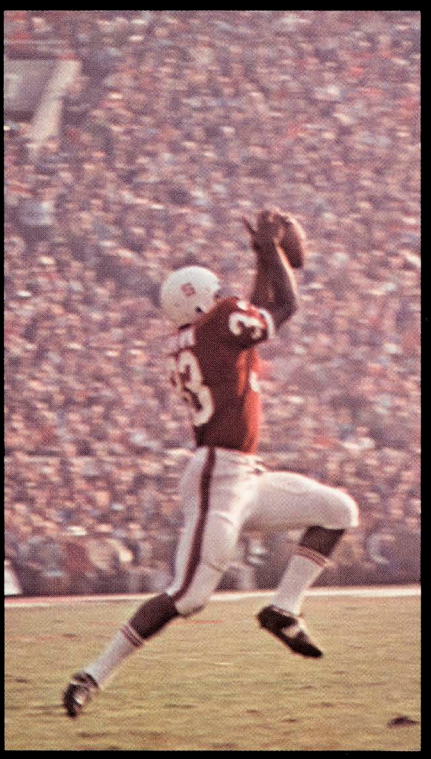
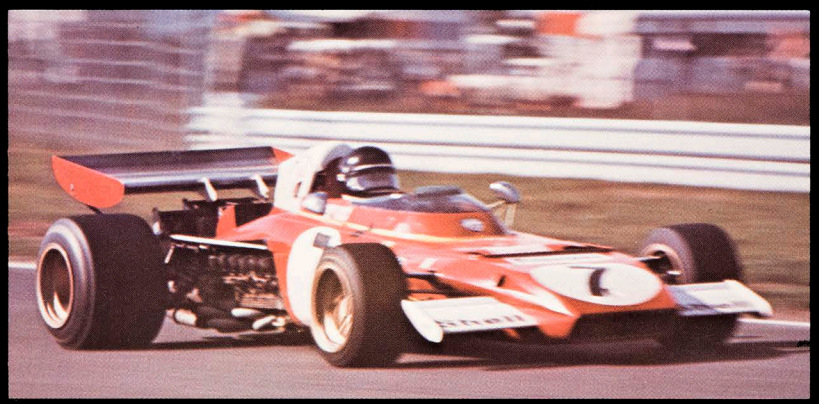
AMPEX

HS-100C





SLOW-MOTION DISC RECORDER/REPRODUCER

Newest, most advanced version of the machine that made "slo-mo" a household word among broadcasters.

Television sports broadcasting without slow motion replay would be unthinkable today. In the few years since its introduction, this feature of broadcasting has come to be so universally appreciated that it is now indispensable. Not only is it taken for granted in sports broadcasting, but the special effects it makes possible (for example, freeze frame and reverse motion) are commonly used in feature programs and spot commercials as well.

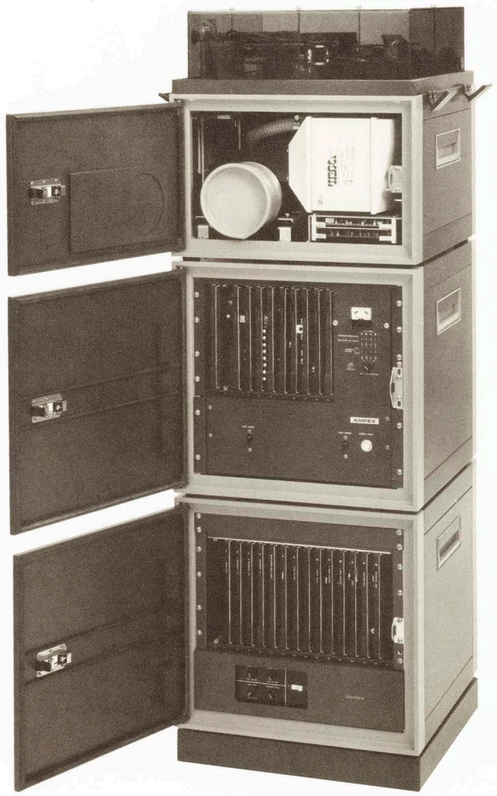
The Ampex HS-100C is a state-of-the-art machine, offering the unique capabilities of a disc recorder, plus features such as:

- Superb signal system performance
- Digital Time Base Corrector
- Automatic Head Lifters
- Integral clean air system
- Automatic/manual unfreeze circuit
- Modular, mobile, rugged design

A NEW DIMENSION IN BROADCAST VERSATILITY

The HS-100C continuously records and stores the last 30 seconds of action for playback on command. Replay can be at any speed, continuously variable from freeze frame to 30 frames per second normal speed, in both forward and reverse. The operator can stop the action, back it up, move it ahead, gradually slow it down, even speed it up to twice normal speed. Using the fast search capability, the operator can find and get on the air with any recorded segment in just four seconds.

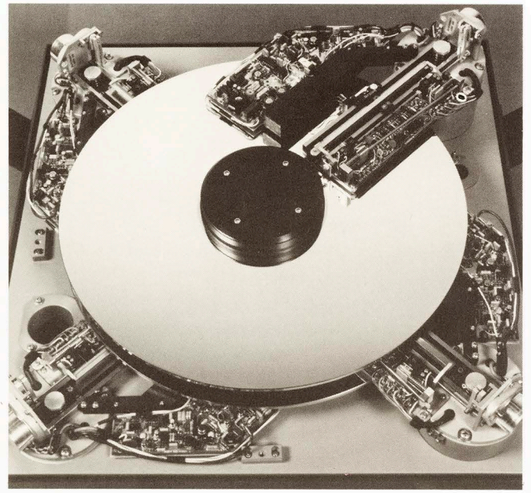
Up to 1800 fields NTSC (1496 PAL) can be stored by the HS-100C. These fields are recorded as concentric tracks on the four surfaces of two rotating metal discs. The heads are mounted in four steppers, which are moved over the surfaces of the rotating discs. Automatic record current and playback equalization compensates for the difference in writing speeds between inner and outer tracks.

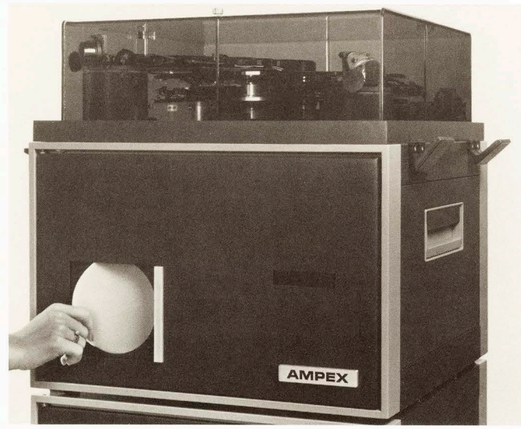


A compact table-top control unit is the nerve center of this highly versatile replay device. It offers three slow motion modes, all of which operate in both forward and reverse. Position number 1 provides a 2:1 speed reduction, number 2 a 5:1 speed reduction, and number 3 activates the variable speed control lever, which allows the operator to vary the speed from Normal to Freeze.

In the Freeze mode a single frame is continuously repeated. While in Freeze the operator can push the Frame Advance button and move along one frame at a time, forward or backward.

The control unit also has a time indicator clock, with cue pointer, and is calibrated from 0 to 30 seconds. This unit is used by the operator to cue and locate specific events for playback.





HS-100C — UP-TO-THE-MINUTE IN EVERY RESPECT

HS-100C design uses technology that is typical of the latest Ampex videotape recorders. For example, the signal electronics are very similar to those of the AVR-2, which has been proven in worldwide use. An integral digital time base corrector is standard on the HS-100C.

Special attention has been given to disc and head design. Automatic head lifters lift the heads free of the discs before rotation is stopped, to prevent any possibility of a "footprint" on the disc surfaces. Similarly, when the disc power is turned on, the head lifters keep the heads free until disc rotation approaches operating speed.

An integral Clean Air system is standard equipment, also, and provides three important benefits: 1) no contamination of the disc surfaces, 2) positive air pressure, which causes the heads to aerodynamically "fly" over the disc surfaces, and 3) temperature stability.

For added insurance against head or disc damage, a power down switch is provided. It automatically sequences proper shutdown, assuring that the heads are automatically lifted from the disc surfaces before the discs stop rotating. A similar safety feature is activated if the head cover is opened; disc power automatically goes into power down mode.

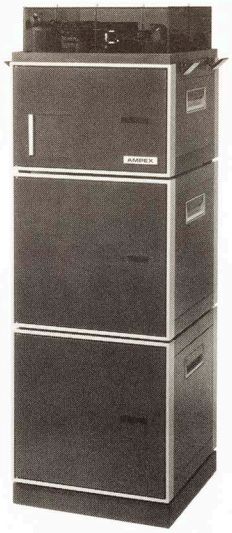
To guard against inadvertent disc damage in the freeze-frame mode, there is an automatic/manual unfreeze circuit. After ten seconds in freeze-frame, a flashing light in the control switch alerts the operator that the heads should be stepped. After 15 seconds in freeze, the heads will be automatically stepped unless the operator actuates the manual override switch. (This feature can be defeated if desired.)

SIMPLIFIED MAINTENANCE

Maintenance of the HS-100C is simplified by a number of features such as: state-of-the-art circuit design; end stop adjustments that can be performed quickly by only one person; a field-replaceable disc drive motor; and an easily replaceable clean-air filter.

Like its predecessors, the HS-100C is ruggedly built to withstand frequent shipping. It will arrive on location ready to deliver the replays that give a new and unique dimension to broadcasting.

HS 100C Specifications



PHYSICAL CHARACTERISTICS

Dimensions

	Control Unit	Disc Servo Unit	Electronics Unit	Output Proc. Unit
Height	11″ (279mm)	21″ (533mm)	21″ (533mm)	21″ (533mm)
Width	8″ (203mm)	22″ (559mm)	22″ (559mm)	22″ (559mm)
Depth	16″ (406mm)	23″ (584mm)	23″ (584mm)	23″ (584mm)
Weight	15 lb. (6.80 kg)	177 lb. (80.29 kg)	175 lb. (79.38 kg)	145 lb. (65.77 kg)

Temperature and Humidity Temperature: 0°C to 36°C
Humidity: 10% to 80% relative humidity

Power Requirements

Input Power: 117V ± 10%, 50/60 Hz, 20A
(taps at 105, 115, 125V).
(230V, 50/60Hz, 10A for PAL and SECAM systems.)

Signal Requirements

Reference Video Composite Signal: 0.5 to 1.5V p-p (1.0V nominal) composite, sync negative, 75Ω unbalanced.

OPERATING CHARACTERISTICS

Disc Rotation: 60 r/s
50 r/s (PAL and SECAM systems only)

Storage Capacity: 1800 fields (30 seconds)
1600 fields (32 seconds) (PAL and SECAM only)

Playback Speeds: Normal, 1/2 speed, 1/5 speed, variable speed, freeze, frame advance; forward or reverse.

Search Speed: 4.5 × normal speed.

Stability (before time-base correction)
Jitter (i.e., disturbance rates greater than 1 Hz): ± 0.075 μs.
Drift (i.e., disturbance rates less than 1 Hz): ± 3.0 μs.

Standards
Standards Available: 525 line, 60 fields/second, monochrome
525 line, 60 fields/second, NTSC color
625 line, 50 fields/second, monochrome
625 line, 50 fields/second, PAL color
625 line, 50 fields/second, SECAM color

NOMINAL VIDEO RESPONSE CHARACTERISTICS (for normal-speed playback)

Monochrome Systems	525 Line	625 Line
Bandwidth	Flat to 4.5 MHz; −3 dB at 5.0 MHz; tolerance ± 0.5 dB	Flat to 5.5 MHz; −3 dB at 6.0 MHz; tolerance ± 0.5 dB
Signal-to-Noise Ratio	40 dB, p-p video to rms noise	37 dB, p-p video to rms noise
Transient Response (Utilizing 2T Sine² Pulse)	Maximum K-factor 1%	Maximum K-factor 1%
Low Frequency Linearity	2%, Blanking to White (maximum)	2%, Blanking to White (maximum)
Rise Time (0.02 μs or less rise time on Input Pulse)	0.10 μs maximum	0.10 μs maximum

Color Systems	525 Line	625 Line
Signal-to-Noise Ratio	40 dB, p-p video to rms noise	37 dB, p-p video to rms noise
Differential Gain	Less than 4% Blanking to White	Less than 4% Blanking to White
Differential Phase	Less than 4° at 3.58 MHz	Less than 4° at 4.2 MHz
Moiré (color bars 75% amplitude)	−40 dB maximum	−28 dB maximum

*Specifications and characteristics are subject to change without notice.

AMPEX

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