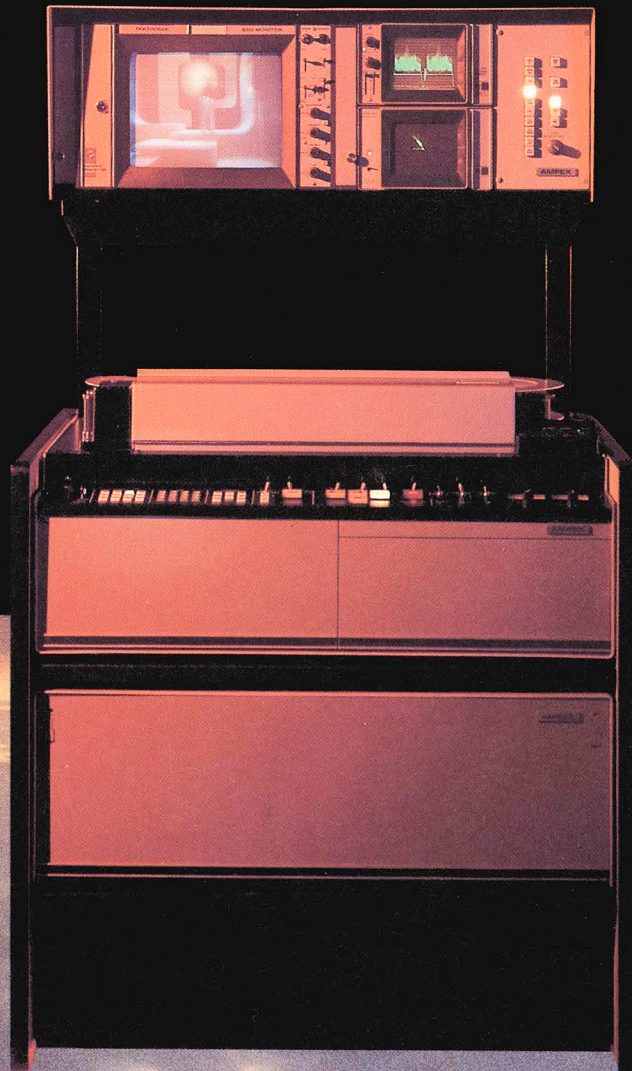


AMPEX

# AVR-2

VIDEO RECORDER/  
REPRODUCER





# AVR-2

**Meeting  
a Particular  
Price/Performance  
Need**

The story of the AVR-2 is one of flexible reliability. It's a rugged, proven design that suits a broad range of applications with picture quality demanded of the finest studio recorders. It's also the most affordable quad answer to nearly every broadcast and teleproduction application.

Well over fourteen hundred AVR-2s are on the job throughout the world in over 100 countries. Any one of these can accommodate any of the options now available for the long list of jobs that AVR-2s perform.

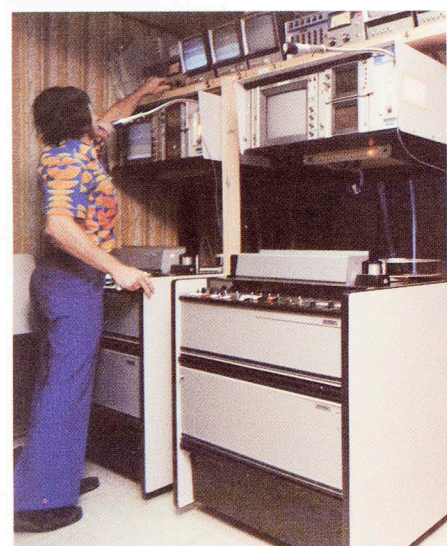
Today, the standard AVR-2 features can be augmented with capabilities such as Super High Band/Pilot, three different editor options, dual audio, search-to-zero, and others. The AVR-2 is a state-of-the-art quad VTR, but at the same time, it is still a compact transportable machine with great operating simplicity. Without question, it offers users a wider array of choices for more applications than any other quad VTR available.







Photo courtesy of Compact Video Systems, Inc.



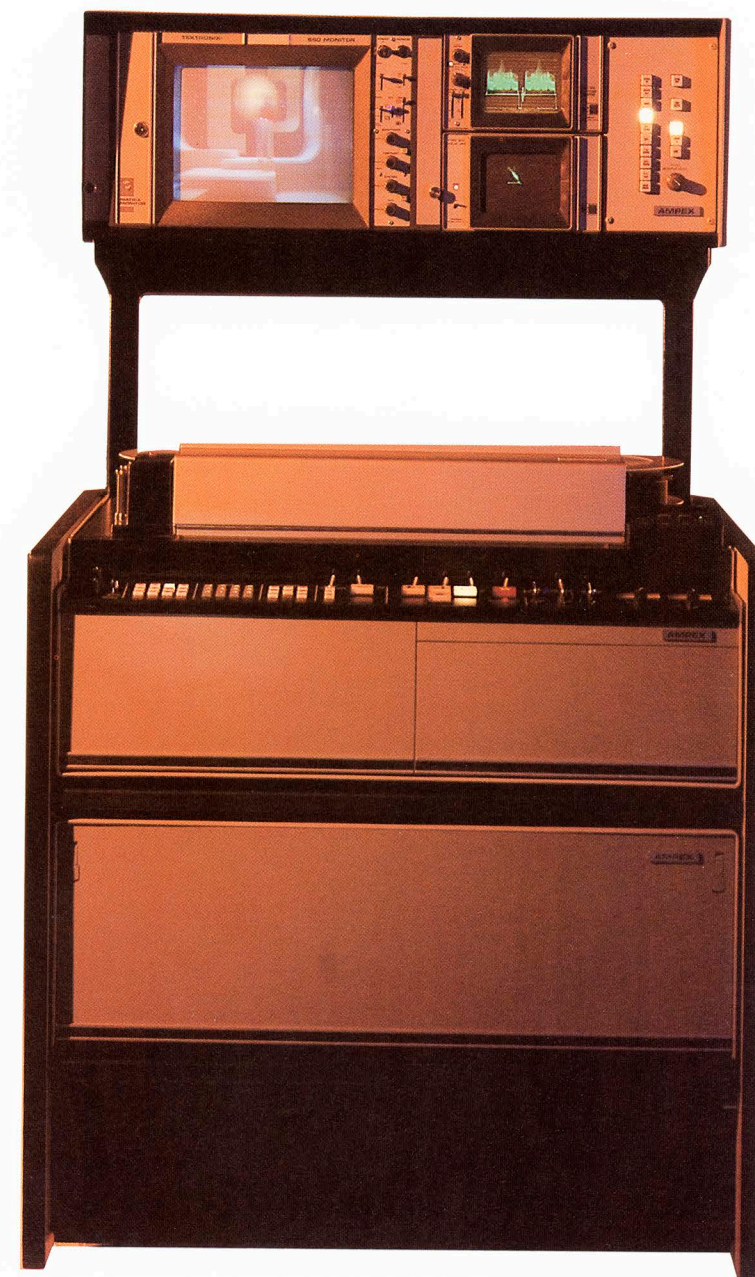
## AVR-2: a workhorse VTR with a thoroughbred heritage

Any Ampex VTR has a superb reputation to live up to. The AVR-2's picture and audio quality, as well as its mechanical excellence and overall reliability, are perpetuating that reputation. With optional Super High Band/Pilot (SHBP) a new combination of recording frequencies provide continuous error correction and consistently high video fidelity. Luminance, chrominance and velocity errors are automatically fine-tuned out for inherent peak video performance.

In Record, SHBP or High Band is selected by a switch on the front of the module. In playback, the system automatically selects SHBP only when the pilot control frequency is detected. Indicator lights on the control panel display the machine's operational band.

Optionally, two separate audio tracks are at your disposal without the use of the cue track. This capability offers creative potential in voiceovers, bridging music, effects, stereo or recording a second language. The potential is open to your creative imagination.

The AVR-2 offers a choice of line and power standards: NTSC, PAL, SECAM, PAL-M. (If required, the standard may be changed simply by substituting certain printed circuit modules.)





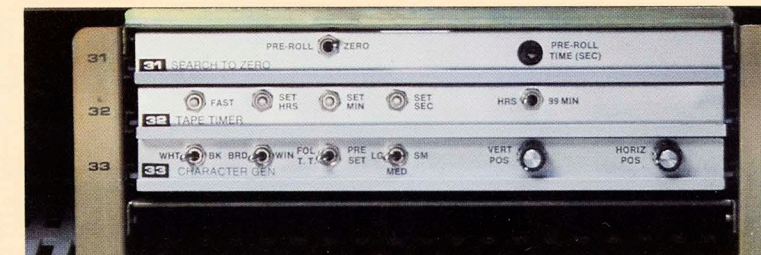
# HIGH PERFORMANCE: technical excellence that returns the investment



In the AVR-2 an extended range digital time base corrector eliminates drift, offers a wide correction window of one horizontal line and contributes to fast lockup time—one second in NTSC and two seconds in PAL/SECAM. Credit this speed to the digital time base corrector, the direct-coupled printed circuit capstan drive, the extremely fast-start Mark XV video head and the fast response digital servo systems. *Most importantly, these features allow AVR-2 users to play back—without adjustment—many tapes that cannot be reproduced to on-air quality with other VTRs.*

An advanced electronic tape timer is standard and features two totally independent counters, a large 8-digit readout, display freeze and negative display ahead of zero. For more versatility, you can add options such as Search-to-Zero with pre-roll for both counters, a video character generator, and a new micro-processor-based time code generator/reader. Tape time or SMPTE/EBU time code may be selected at the tape timer display.

Simplified “stand-alone” operation is permitted by an integral sync generator. It will Gen-lock to any composite color or black burst signal. One cable is all that is needed.





# “SINGLE-LEVEL” SIMPLICITY: emphasizes operational ease

Whatever way you view it, the AVR-2 is a machine designed for human efficiency. The number of controls is reduced to a minimum. Single function controls mean greater operator confidence, especially under pressure. Logic and convenience dictate their groupings. Secondary controls are quickly accessible on the module fronts.

An example: Playback equalization and differential gain controls—necessary in highly critical editing operations—are located conveniently on a tilt-out panel to allow for quick playback set-up. Video head optimizing takes less than a minute on the AVR-2. It's a simple one-hand operation, as easy as tuning a home receiver.

Set-up controls afford instant visibility and acces-

sibility on the AVR-2's printed wiring modules. Everything is clearly marked. There are no confusing, unmarked boards or flashing lights. You can operate most AVR-2 set-up controls in unity (fixed position) with the module access door closed, for normal operation or inexperienced operators. Open the door and quickly switch into variable operation to adjust for any unusual condition. Switches are locking toggle types, so a knee-bump can't change their position.

Dimly lit environments are not a handicap, since the primary and maintenance controls are illuminated. The tape timer, the reels and the inside of the head cover are lighted as well.

Motion and reel size, sensing and dynamic braking allow smooth transitions from one transport mode to another, even without using the “stop” control. High speed shuttling can be done with complete confidence.





# MODULARITY:

## design your own solution to the space problem but maintenance headaches are designed out

Anywhere you go, studio or remote and on the road between, the flexibility of the AVR-2's modular design will allow a versatile solution to your equipment placement needs.

The transport weighs 150 lbs; the electronics 190 lbs. Each is a two-person load when it's time to move. The sections may be placed in any arrangement that suits the need and the available space. In the studio, mounted in a console with the monitor bridge, the AVR-2 makes a complete and compact roll-around package that will pass through a standard 36" doorway with ease.

## The best machines make maintenance easy.

When the time comes, the AVR-2 affords wide open accessibility. Everything swings out or up, meaning reduced time for maintenance. The control panel opens, the top plate lifts and the undersides of both areas are illuminated as well. In the electronics section, all modules are "plug in." The hinged rear connector panel swings down, allowing the power supply to be lifted free and set down behind the unit, exposing all inter-connect electronics. The AVR-2's ease of maintenance means time and money saved at all times.

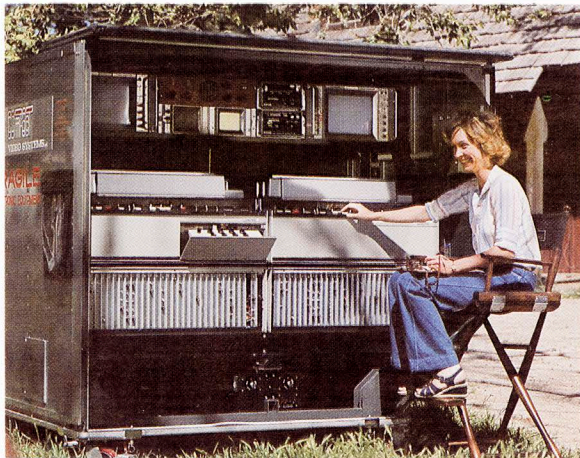
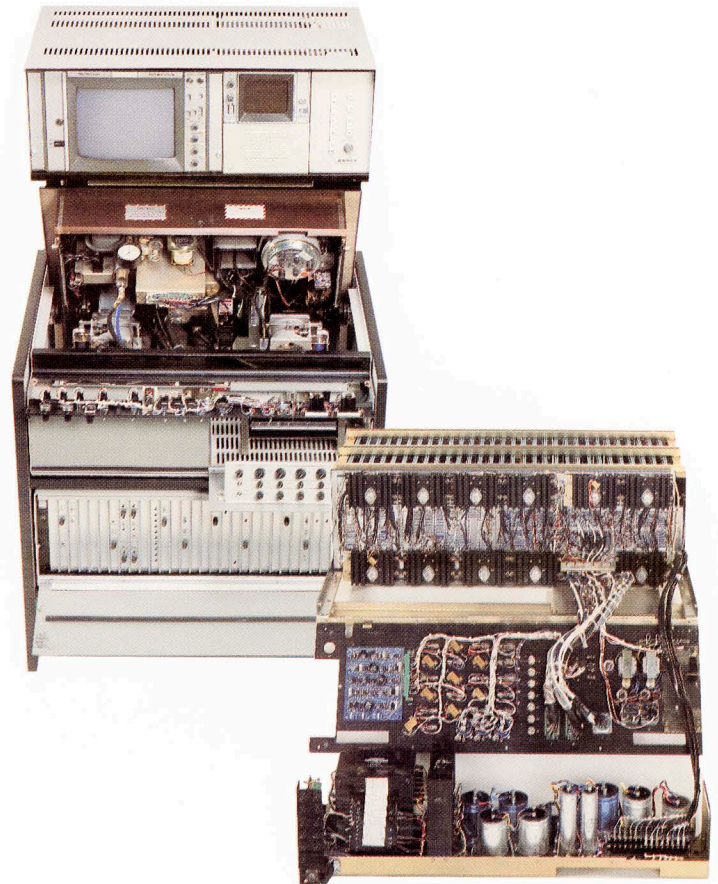
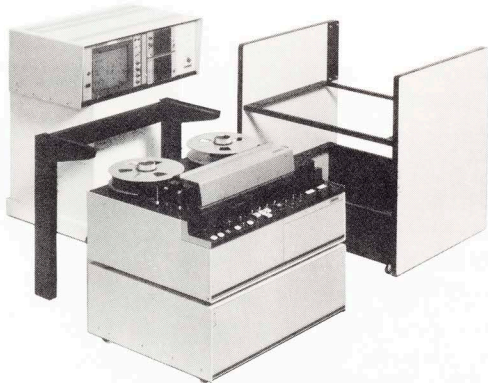


Photo courtesy of Compact Video Systems, Inc.



# POST PRODUCTION EDITING: new features subtract effort and add greater creative potential

Three editing options are available with the AVR-2. First is the proven and reliable Editec, which provides all normal editor functions at low cost. For more demanding applications, Ampex now offers two ways to achieve greater editing sophistication and convenience with AVR-2s. They're called the EC-2 Edit Controller and RES-1 Remote Editing System. Both of these products allow you to progressively build greater operational flexibility and convenience into the AVR-2 video recorder system. Whether it's sophisticated stand-up editing or economical and powerful sit-down editing, Ampex has it.

The EC-2 Edit Controller is the heart of the system. It provides frame accurate edits using either time code or tape timer information. With EC-2s installed, you can slave up to 7 AVR-2s to a master for dubbing, or producing multiple masters. Editing time is reduced by such benefits as staggered starts with A, B, C roll sequences from any combination of addresses. You can pick the exact

machine function desired for multiple VTR work, using the machine assignment control. Microprocessor circuitry makes multiple machine assignment control possible, and also provides computer editing system interface. As one of the most advanced stand-up editing systems in the world, features that are optional on other systems are standard with the EC-2.

The character generator feature of the EC-2 and RES-1 helps the operator keep track of details. As an integral part of both editing systems, it combines the display of operational data, plus error notification and directional cues to keep the operator fully informed at all times.

All functional controls are clearly marked, and the entire working situation is always displayed on a two line readout on the picture monitor. One line shows the current tape status and the other line displays stored information plus keyboard input. Verification, timing, everything you need is in alphanumeric...so you can concentrate on what you're doing, rather than how it's done.

Added benefits include an audio/video split capability, permitting independent or combined editing of video and audio tracks. A "Next Scene" control allows rapid, automatic flip-flop of exit and entry points and controlled increment animation.

Perhaps best of all is the potential for greater convenience that's designed into these AVR-2 editing systems. When you want sit-down editing, the RES-1 Remote Editing System is available. It will provide remote control of up to 8 EC-2 equipped AVR-2s...four of them individually in Record or Play and four specifically in the slave record mode.

With the RES-1, you have all this control from one tabletop editing keyboard. It is capable of entering more information in a shorter time with fewer operational controls. Quite simply, you have fewer keyboard controls doing more work, as a demonstration will clearly show. The beauty of the RES-1 is that it takes your editing sophistication a step further, offering a low-cost sit-down remote console for use with EC-2 electronics. As a team, the AVR-2 with EC-2 Edit Controller and RES-1 Remote Editing System provide the most affordable, versatile editing systems available.





# ACCESSORIES: add them as you need them for matchless performance

A complete line of recording, playback and editing accessories is available to increase the capabilities of the basic AVR-2. You can adapt your configuration for changing needs simply by plugging them in.

**Monitor Bridge.** The AVR-2 monitor bridge provides space for a color monitor or a monochrome monitor; a waveform monitor, vector display, a monitor control selector panel, and an audio speaker. The bridge may be adjusted to any of four positions for comfortable working and viewing—and to fit in any space.

**Automatic Tracking Control.** Eliminates the need for manual tracking adjustment, and simplifies playback operations. Works with any tape with a control track.

**Color Dropout Compensator.** Replaces dropouts with correctly matched picture information, both monochrome and color.

**Auto-Chroma/Pilot Processor/Velocity Compensation.** A fully automatic Ampex velocity compensator is combined with a Super High Band/Pilot and Auto-Chroma system in a single accessory. The Pilot Processor controls both the Auto-Chroma and Velocity Compensator when optional SHBP is used.

The Velocity Compensator permits greater interchangeability of color tapes, and is essential for the multiple generation duplication of color tapes. The Auto-Chroma system provides quicker, tighter chroma control, significant reduction in chroma noise effects, and reduced head banding in playback.

**Editec\*** The Editec accessory permits faultless editing by providing normal editor functions such as single frame insert capability, the use of cue tones, and a rehearse mode to improve accuracy. The Editec also provides for movement and verification of cue tone placement prior to editing. Entrance and exit cues can be shifted as much as one half second ahead or back. The cues may be erased either singly or all at once, at the operator's option.

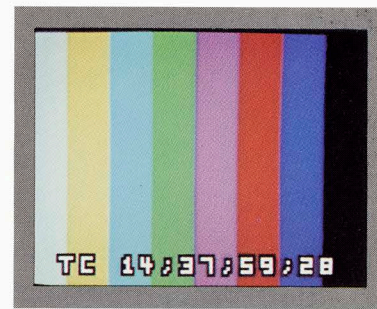
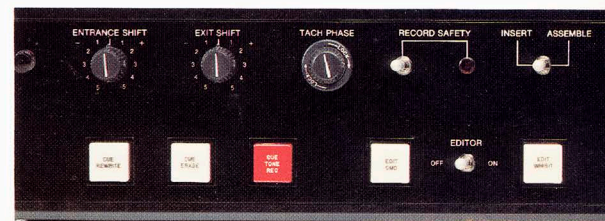
**EC-2 Edit Controller.** Sophisticated, state-of-the-art stand-up editing, featuring a new level of operating simplicity and broadly extended capa-

bilities. Gives users complete control over the creative abilities of the AVR-2.

**Time Code Generator/Reader (TCG/R).** Generates and records, or reads, SMPTE/EBU code on cue track. Generator will slave to Reader for start-stop recording.

**Character Generator.** Permits either SMPTE/EBU code from the TCG/R or tape time to be displayed on the video monitor.

**Other accessories include:** Search-to-zero, compressor, stabilized sync standard, and maintenance tool kit.





# AVR-2 specifications

VIDEO PERFORMANCE	525/60 NTSC HB OR SHBP	625/50 PAL/SECAM HB	625/50 PAL/SECAM SHBP
Bandwidth: Tolerance to $\pm 0.5$ dB	Flat to 4.2 MHz; -3 dB at 4.85 MHz	Flat to 5.5 MHz; -3 dB at 5.85 MHz	Flat to 5.5 MHz; -3 dB at 5.85 MHz
Signal-to-Noise Ratio: (Rohde & Schwarz unweighted)	15 ips 46 dB peak-to-peak video to rms noise on interchange basis  7.5 ips 43 dB peak-to-peak video to rms noise on interchange basis	39.7 cm/s 43 dB min. peak-to-peak video to rms noise on interchange basis  19.85 cm/s 40 dB peak-to-peak video to rms noise on interchange basis	45 dB min. peak-to-peak video to rms interchange basis  43 dB peak-to-peak video to rms noise on interchange basis
Low Frequency Linearity:	2% Blanking to White (max.)	2% Blanking to White (max.)	2% Blanking to White (max.)
Differential Gain:	4% max. Blanking to White	4% max. Blanking to White	4% max. Blanking to White
Differential Phase:	4° max. at 3.58 MHz off tape	4° max. at 4.43 MHz off tape	4° max. at 4.43 MHz off tape
Chrominance to Luminance Delay:	25 nsec max.	30 nsec max.	30 nsec max.
Transient Response: Utilizing (2T sine <sup>2</sup> Pulse)	Maximum K-factor 1%	Maximum K-factor 1%	Maximum K-factor 1%
Moire: (Color bars 75% amplitude)	-40 dB (3.58 MHz Subcarrier)	-36 dB (without set-up) (4.43 MHz Subcarrier)	-40 dB (without set-up) (4.43 MHz Subcarrier)

AUDIO PERFORMANCE	STANDARD AUDIO TRACK		DUAL AUDIO (Optional) (as measured on either track)*	
Frequency Response: (400 Hz Reference)	15 ips 7.5 ips	$\pm 2$ dB, 50 to 15,000 Hz $\pm 2$ dB, 50 to 15,000 Hz	15 ips 7.5 ips	$\pm 2$ dB, 50 to 15,000 Hz $\pm 2$ dB, 50 to 15,000 Hz
Signal-to-Noise Ratio:	15 ips 7.5 ips	Down 53 dB from peak operating level Down 53 dB from peak operating level	15 or 7.5 ips	Down 46 dB from peak operating level (Down 50 dB from peak operating level of 175 nWb/Meter of Track Width)
Distortion: (Measured at 1 kHz)	Operating level less than 1% rms		Operating level less than 1% rms	
Flux Density:	110 nWb/Meter of Track Width		110 nWb/Meter of Track Width	
Crosstalk	(Not Applicable)		-45 dB @ 1 kHz	
Flutter & Wow:	15 ips 7.5 ips	0.10% rms, NAB unweighted (.6 to 250 Hz) 0.15% rms, NAB unweighted (.6 to 250 Hz)	39.7 cm/s 0.08% DIN weighted 19.85 cm/s 0.1% DIN weighted	

## CUE TRACK

Frequency Response: (400 Hz Reference)	15 ips 7.5 ips	$\pm 2$ dB, 60 to 10,000 Hz $\pm 2$ dB, 60 to 8,000 Hz A 30 dB notch filter is provided at the control track frequency
Distortion: (Measured at 1 kHz)	Operating level 5% rms max.	

All performance measured using Ampex 175 Video Tape or equivalent.

## PHYSICAL DIMENSIONS:

	TRANSPORT PKG.	ELECTRONICS PKG.	LOWBOY CONSOLE	MONITOR BRIDGE	COMPLETE SYSTEM W/CONSOLE & MONITORING
Height	17 in. (432 mm)	15 in. (381 mm)	43 in. (1092 mm)	12¼ in. (311 mm)	65¼ min. (1657 mm) 71¼ max. (1810 mm)
Width	34 in. (864 mm)	34 in. (864 mm)	37 in. (940 mm)	34 in. (864 mm)	37 min. (940 mm)
Depth	27 in. (686 mm)	27 in. (686 mm)	32 in. (813 mm)	21 in. (533 mm)	32 min. (813 mm) 36 max. (914 mm)
Weight	155 lbs. (70 kg)	190 lbs. (86 kg)	475 lbs. (216 kg)	128 lbs. (58 kg)	638 lbs. (290 kg)

## TEMPERATURE & HUMIDITY

Temperature: 0°C to 45°C  
Relative Humidity: 10% to 90%  
(non-condensing)

## POWER INPUT

Prime Power Frequency: 50 Hz and  
60 Hz single  
phase  
Input Voltages: 105, 110, 115, 120, 127,  
210, 220, 230, 240, 254  
Input Current: (without Monitor Bridge)  
Max. Nominal  
115 V 10 amps 7 amps  
230 V 5 amps 3.5 amps

## AIR INPUT

1 SCFM @ 45 PSI

## RECORD TIME—7200 FT. REEL

7.5 ips 192 min.  
19.85 cm/s 184 min.  
15.0 ips 96 min.  
39.7 cm/s 92 min.

## STARTING TIME

From Ready Mode: 1.0 sec. (525/60)  
2.0 sec. (625/50)

## OPERATION

Tape Speed:  
60 Hz 7½ ips or 15 ips  
50 Hz 19.85 cm/s or 39.7 cm/s

## VIDEO SIGNAL INPUT

(75 ohms impedance)  
Composite Video: 0.7 to 1.8 V p-p

## REFERENCE INPUT

(75 ohms impedance)  
Composite Color Signal: 0.7 to 1.8 V p-p

## VIDEO SIGNAL OUTPUT

(75 ohms impedance)  
Composite Video Signal: 1.0 V p-p  
Non-Composite:  
0.7 (625),  
0.714 volts (525)

## AUDIO INPUT SIGNAL

Impedance:  
50K ohms balanced or  
unbalanced bridging  
input  
Amplitude: -24 dBm to +16 dBm  
Source: Line

## AUDIO OUTPUT SIGNAL

Output Impedance: 10Ω or 600Ω  
Peak Output Level: +27 dBm  
Nominal Output  
at 0 VU on level meter: +8 dBm  
Playback Equalization:  
ANSI: 2000/35 microsec.

## CUE INPUT SIGNAL

Impedance,  
Line: 50K ohms balanced or  
unbalanced bridging input  
MIC: 200Ω, -55 dBm  
Amplitude: -24 dBm to +16 dBm  
Source: Line, microphone, cue tone  
oscillator (built in for  
editing use)

## CUE OUTPUT SIGNAL

Impedance: 10Ω to 600Ω  
Peak Output Level: +27 dBm  
Nominal Output  
at 0 VU on level meter: +8 dBm  
Playback Equalization:  
ANSI: 2000/35 microsec.

Specifications subject to change without notice.

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