

AMPEX

Color Video
Production
Recorder

WPB-79000 / 79003

VPR-7900/7903



When creativity demands top performance

AMPEX PRESENTS THE WORLD'S MOST ADVANCED ONE-INCH VIDEOTAPE TELEPRODUCTION RECORDER

- Six exclusive advantages:
 - VHC (Very High Carrier) Mode
 - Time Base stability of 0.5 μ sec is standard—the most accurate of any helical-scan recorder. When used with the Ampex TBC-790 Time Base Correction system, the recorder produces a signal which meets FCC/CCIR Color broadcast requirements.
 - Three-track insert and assemble editing capability
 - 12.5 Hz control track
 - Digital tension servo system
 - Split capstan
- Internal reference system
- Vertical interval editing
- Flying erase head
- Hot-Pressed Ferrite video head
- Five printed circuit motors
- Full remote controls available as an option

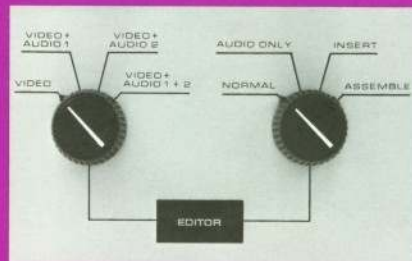
The VPR-7900/7903* is a teleproduction recorder which stands alone—the finest, most sophisticated, most versatile and reliable one-inch videotape recorder in the industry.

As a self-sufficient recorder, it produces results which transcend the standards of its class. Pictures are of true, professional quality, crisp and sparkling with remarkable clarity, in both color and

monochrome. Multi-generation picture fidelity is the best produced by any one-inch teleproduction recorder.

Link the recorder with an Ampex TBC-790/793 Time Base Correction system, and its performance meets color broadcast requirements.

Standard operational features of the recorder offer the special advantages of the exclusive Ampex recording format to provide a fully professional insert and assemble editing capability. No other recorder of its class offers so much.



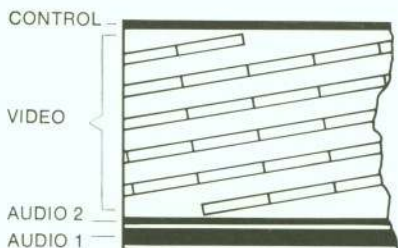
For special applications, optional accessories for the VPR-7900/7903 can improve performance even further. An NTSC-type color system, and plug-in modules for PAL or SECAM standards are included among options.

*VPR-7900 designates the 525/60 model; VPR-7903 is the 625/50 version.

PROFESSIONAL INSERT AND ASSEMBLE EDITING CAPABILITY

The VPR-7900/7903 is the only one-inch videotape recorder which provides three-track video/audio editing versatility, an advantage made possible by the recording format developed by Ampex.

This format permits the video track and each of two audio tracks to be recorded or rerecorded independently of each other, or in any combination. Professional insert editing may therefore be accomplished as easily as simple assemble editing, and the creative effects made possible are limited only by the user's imagination.



THREE INDEPENDENT TRACKS

The Video track, Audio 1 and Audio 2 may be recorded or rerecorded independently, or in any combination. Video may be recorded first, then audio added later, or vice versa. The Audio 2 track is ideal for recording cueing directions. This track may be monitored later while recording program material on the Audio 1 track, the Video track, or while making post-production edits.

You can use the VPR-7900/7903 to make edits from any video signal source, including television cameras, other videotape recorders, film chains, or television receivers.

VERTICAL INTERVAL SWITCHING AND FRAMING

All editing transitions in the VPR-7900/7903 occur as timed functions within the vertical interval. Every edit takes place in the proper field sequence. The result

is a consistently clean, professional quality splice for every edit.

FLYING ERASE HEAD

When video edits are made, the flying erase head erases the video track of any previously recorded material. This contributes to the superior quality of color edits by eliminating spurious interference.

REMOTE CONTROL

Full remote control of the VPR-7900/7903 is available for all transport functions.

TENSION MEMORY

This unit automatically compensates for any variation in tape tension between an original recording and subsequent editing. The edit input is adjusted to that of the original signal in spite of tension variation due to tape storage temperature and humidity changes.

NOTE: The Color System, Processing Amplifier and Dropout Compensator accessories are not necessary when the VPR-7900/7903 is linked with the TBC-790/793 Time Base Correction system.

ADVANCED FEATURES

The superlative performance of the VPR-7900/7903 results from the most advanced electronic and operational features ever incorporated into a one-inch videotape recorder. Following are highlights of the recorder's varied advantages. Items marked by a bullet are an Ampex exclusive for one-inch recording systems:

- **VHC (VERY HIGH CARRIER) MODE**—The VHC 7-10 MHz carrier standard is the same as that of high-performance quadruplex broadcast recorders. Combined with the high writing speed of the VPR-7900/7903, VHC pays off in the

highest quality multi-generation duplicates.

- **HIGHEST TIME BASE STABILITY**—The maximum time base error of the recorder is less than 0.5 microsecond. Edit transition stability is ± 1.0 microsecond, which affords the exclusive capability to play back edited color material through a time base corrector.

- **AMPEX RECORDING FORMAT**—In addition to permitting the editing capability of the recorder, the Ampex recording format also improves signal performance, signal-to-noise ratio, vertical stability, and audio record capability.

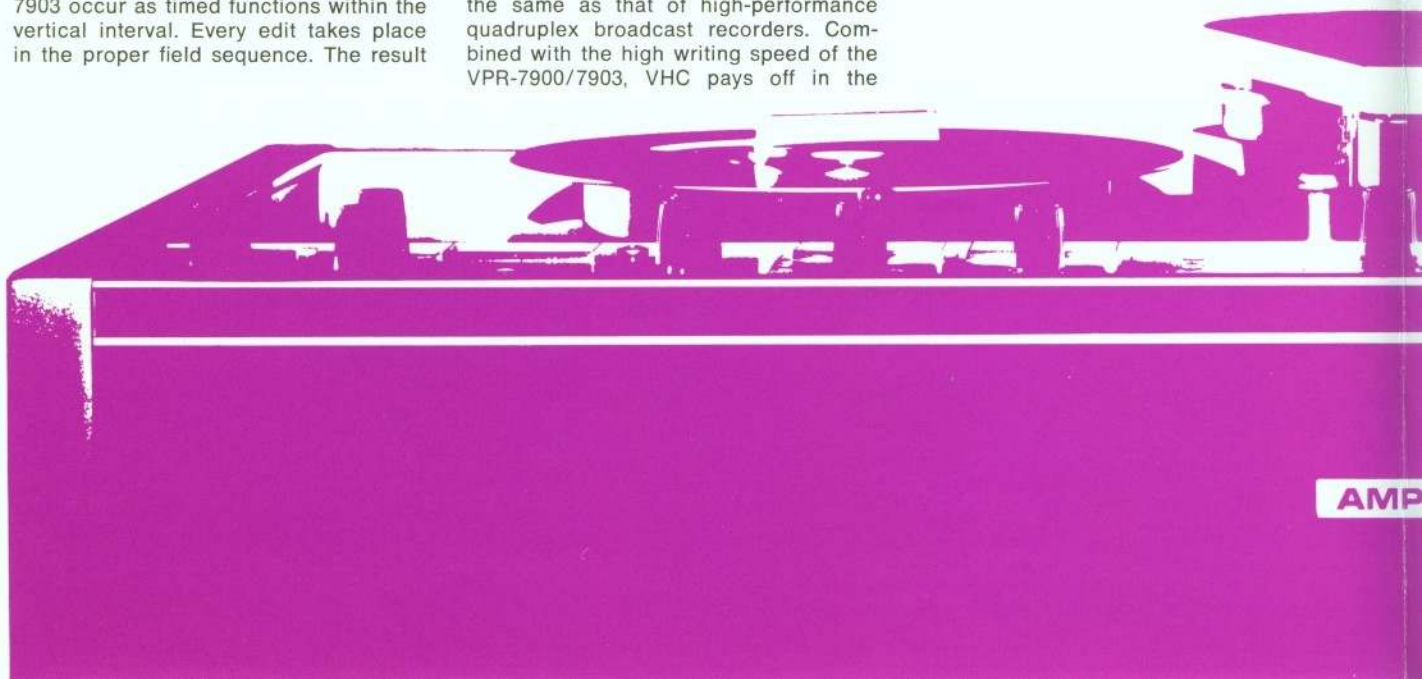
- **12.5 Hz CONTROL TRACK**—This permits a one-in-four field identification in record and playback for proper phasing in PAL operation; improves phase relationship between the control track and video, and improves servo coupling between the control track head and the capstan by moving the control track head to the exit point instead of the entrance point.

- **DIGITAL TENSION SERVO SYSTEM**—In combination with the split capstan, the unique digital tension servo system affords the greatest range of tension-error correction of any one-inch video recorder.

- **SPLIT CAPSTAN**—The top half of the split capstan is driven under servo control. The bottom half is viscously coupled. The effect is greatly improved tape handling.

INTERNAL REFERENCE SYSTEM

The VPR-7900/7903 includes its own internal reference system which provides digitally timed intervals for servo systems, editing and control functions, and eliminates drift over long-term operation.



TBC-790/793 TIME BASE CORRECTION SYSTEM FOR THE VPR-7900/7903

HOT-PRESSED FERRITE VIDEO HEAD

The high-efficiency Hot-Pressed Ferrite record/reproduce head is guaranteed for 1000 hours or 90 days, whichever occurs first, and is contained in a unique modular assembly for easy replacement.

PRINTED CIRCUIT MOTORS

The 7900/7903 employs five printed circuit motors to assure maximum accuracy of tape control, and improved performance in all operating modes.

ACCESSORIES

COLOR SYSTEM

The optional color system provides color record and playback capability for the VPR-7900 and all other Ampex one-inch color recorders. Two versions are available to provide a burst-locked heterodyne system that produces either an NTSC-type or PAL color signal.

PROCESSING AMPLIFIER

The video processing amplifier is a solid state unit which provides a composite video signal that meets FCC/CCIR transmission standards. It is integrally packaged in the VPR-7900/7903. Versions of this accessory are available for PAL, SECAM and NTSC.

COLOR DROPOUT COMPENSATOR

Color compensator eliminates or greatly reduces the effects of dropouts in recorded color or monochrome video signals. It is compatible with all versions of the VPR-7900 operating under the 525/60 standard.

The high performance of the VPR-7900/7903 can be even further improved by linking the recorder with the TBC-790/793 Time Base Correction system. The TBC corrects the total timing error of the recorder to produce the most stable signal ever achieved by a one-inch videotape recorder. The corrected signal meets FCC or CCIR broadcast requirements, and may be used as a camera signal for fades, lap dissolves, special effects, dubs to other videotape recorders, or transfers to film. The extremely high quality of the signal makes the VPR-7900/7903 unusually effective for multi-generation dubbing.

THE BASIC UNIT

The TBC includes a processing amplifier which provides a composite video output, and controls video level, sync level, setup level, burst phase and chroma phase. Delay lines of appropriate lengths are switched into the signal path for coarse correction of time base errors. A vernier delay line then makes the final correction. This reduces monochrome output jitter to ± 30 nanoseconds.

ACCESSORIES

The capability of the TBC-790/793 can be further improved by adding one or more of the following accessories:

DIRECT COLOR SYSTEM

The color sensing modules process the burst information in the recorder's output signal so that it can be compared to the station subcarrier reference by the basic unit. This reduces color output jitter to ± 2.5 nanoseconds which meets



FCC/CCIR broadcast requirements. Plug-in modules for PAL standards are available.

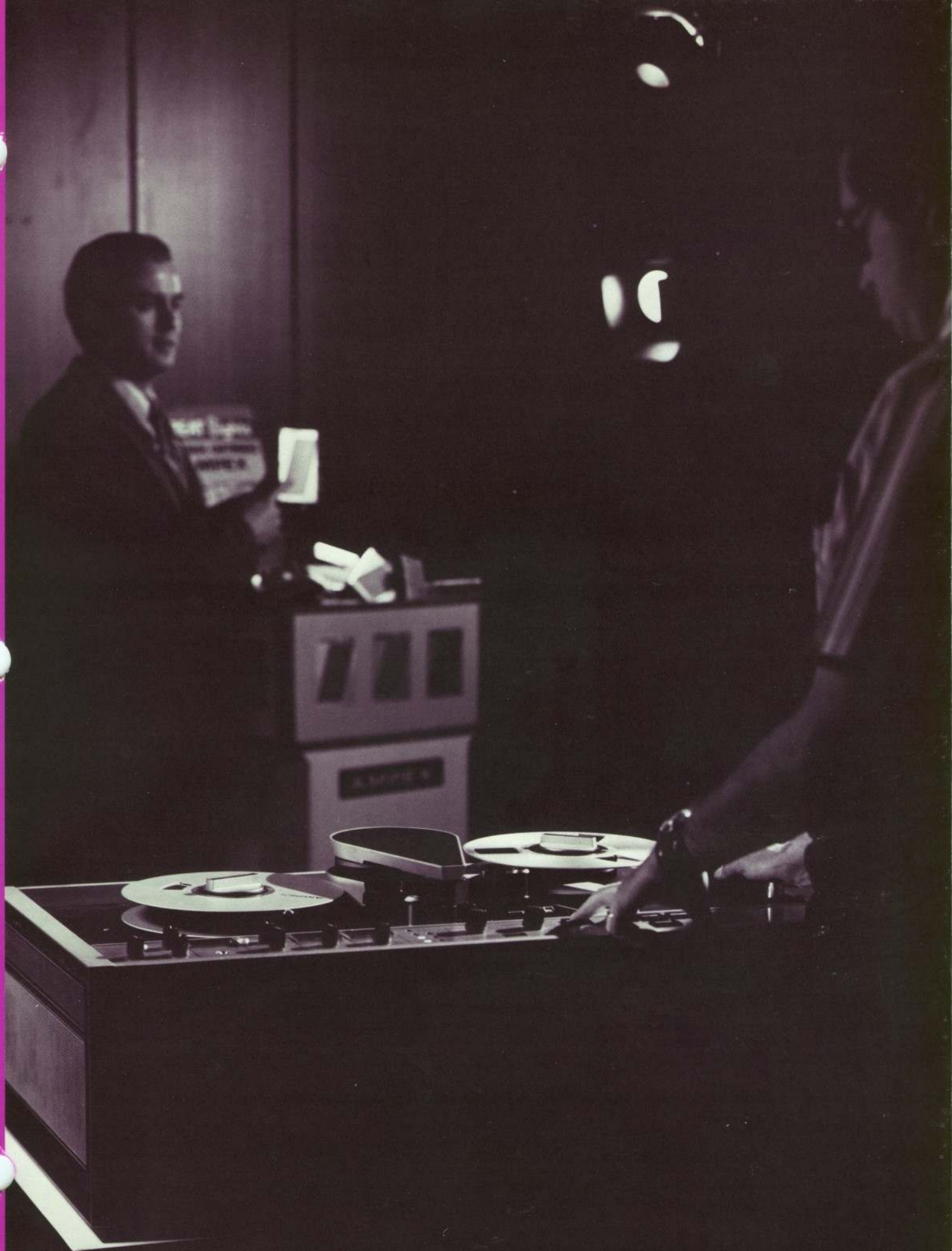
DROPOUT COMPENSATOR

The Dropout Compensator (DOC) eliminates the effects of dropouts in taped color video signals. When a dropout occurs, video and chroma information from the delayed signal is re-routed through the system replacing the missing line, with saturation and hue correctly matched to the line in which the dropout occurs. The DOC also functions with monochrome signals.

VELOCITY COMPENSATOR

Minute differences in mechanical tolerances between recorders can result in playback timing errors. To correct these errors, the Velocity Compensator compares the burst phase of each video line on the tape with the burst phase of the next line, then sends a correction signal back to the vernier corrector. This further improves the capability of producing color dubs of excellent quality through several generations.





SPECIFICATIONS

VPR-7900

VPR-7903

GENERAL

Tape Speed:	9.6 ips	9.45 ips
Video Writing Speed:	1000 ips	833 ips
Carrier Mode:	Very High — 7.06-10.0 MHz	Very High — 7.16-9.3 MHz
Input Power:	117 V or 234 V, 50/60 Hz, 5 amps @ 117 V	117 V or 234 V, 50/60 Hz, 2.5 amps @ 234 V
Size:	38 $\frac{1}{8}$ " long x 18 $\frac{5}{16}$ " wide x 12 $\frac{1}{16}$ " high	97 cm long x 46 cm wide x 32 cm high
Weight:	150 lb.	67 Kg.

VIDEO

Bandwidth:	± 1 dB, 30 Hz to 4.2 MHz < -3 dB @ 5.0 MHz	± 1 dB, 25 Hz to 5 MHz < -3 dB @ 5.2 MHz
Signal-to-Noise Ratio:	-45 dB p-p video to rms noise -48 dB p-p signal to rms noise	-38 dB p-p video to rms noise -41 dB p-p signal to rms noise
Differential Gain:	5%	5%
Differential Phase:	5°	5°
Horizontal & Vertical Tilt:	5% Max.	5% Max.
Transient Response: (K-factor)	2%, 2T pulse	2%, 2T pulse
Moire: (75% amplitude) (color bars)	-35 dB or greater	-30 dB or greater
Lock-up Time:	8 sec max. (H-Lock)	10 sec max. (H-Lock)
Time Base Stability:	.5 μ sec	.5 μ sec

AUDIO

Frequency Response:		
Audio 1:	+2, -3 dB, 50 Hz to 15 kHz	+2, -3 dB, 50 Hz to 15 kHz
Audio 2:	± 3 dB, 50 Hz to 12 kHz	± 3 dB, 50 Hz to 12 kHz
Signal-to-Noise Ratio:		
Audio 1:	-50 dB @ 3%, 3rd Harmonic Distortion	-50 dB @ 3%, 3rd Harmonic Distortion
Audio 2:	-40 dB @ 3%, 3rd Harmonic Distortion	-40 dB @ 3%, 3rd Harmonic Distortion
Wow & Flutter:	.15%	.15%

TBC-790

TBC-793

GENERAL

Input Power:	117 V or 234 V, 50/60 Hz, 3 amps @ 117 V	117 V or 234 V, 50/60 Hz, 1.5 amps @ 234 V
Size:	38 $\frac{1}{8}$ " long x 18 $\frac{5}{16}$ " wide x 12 $\frac{1}{4}$ " high (25 $\frac{1}{4}$ " high with VPR-7900)	97 cm long x 46 cm wide x 32 cm high (64 cm high with VPR-7903)
Weight:	120 lb.	54 Kg.

VPR-7900/TBC-790

VPR-7903/TBC-793

VIDEO

Bandwidth:	± 1 dB, 30 Hz to 4.2 MHz < -3 dB @ 5.0 MHz	± 1 dB, 25 Hz to 5 MHz < -3 dB @ 5.2 MHz
Signal-to-Noise Ratio:	-45 dB p-p video to rms noise -48 dB p-p signal to rms noise	-38 dB p-p video to rms noise -41 dB p-p signal to rms noise
Differential Gain:	< 6%	< 6%
Differential Phase:	< 6°	< 6°
Horizontal & Vertical Tilt:	5% Max.	5% Max.
Transient Response:	2%, 2T pulse	2%, 2T pulse
Moire: (75% amplitude) (color bars)	-35 dB or greater	-30 dB or greater
Lock-up Time:	8 sec max. (H-Lock)	10 sec max. (H-Lock)
Time Base Stability:	± 2.5 nsec color	± 2.5 nsec color

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