TBC-7 EXTENDED PERFORMANCE TIME BASE CORRECTOR

General

The TBC-7 Extended Performance Time Base Corrector provides significant enhancements in the quality and functionality of any Ampex Type C studio VTR.

The Emmy-award winning Zeus™ Advanced Video Processor from Ampex first eliminated picture bounce and periodic defocusing effects associated with the time compression/expansion, slow-motion editing and variable speed playback functions of conventional TBCs. Now, Ampex has successfully brought that capability to a simpler, more affordable time base corrector, the TBC-7.

The key to the TBC-7's superb non-real time performance is an adaptive digital comb filter decoder that preserves high frequency picture detail, while line-by-line digital interpolation of both luminance and chrominance eliminates picture bounce and defocusing effects.

Velocity error correction capabilities significantly exceed those of "2nd order" implementations. This is achieved by comparing symmetrical information, before and after the line to be corrected, resulting in the virtual elimination of velocity errors. The TBC-7's digital implementation eliminates drift and associated adjustment, yielding consistently superior performance and operation.

Another invaluable TBC-7 feature — also inherited from the Zeus advanced video processor — is the Decode mode. This feature corrects off-tape ScH inversions of non-color-framed edits, thus eliminating non-color framed edit picture shifts.

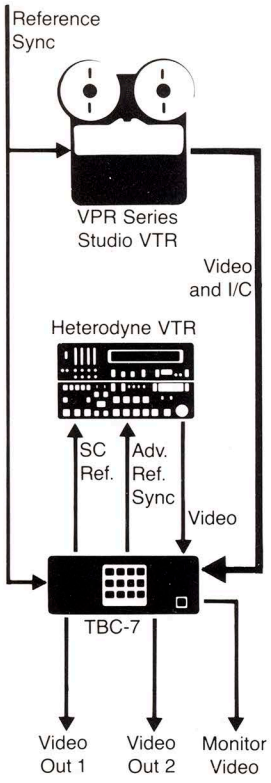
The TBC-7's standard time-share and heterodyne processing capabilities allow it to meet the needs of a wide variety of interformat operational environments.

Historically, Ampex has protected its customers' investments by offering upgrades and enhancements that expand and extend the useful life of its products. In line with that policy, the superior performance and transparent operation of the TBC-7 will support any Ampex Type C studio VTR, including the thousands of VPR-2s and VPR-2Bs in use worldwide, every day.

Features and Benefits

- ☐ No-bounce, no-blur, time compression/expansion and variable speed playback from −1 to +3 times play speed.
- ☐ Digital velocity compensation, drift- and adjustment-free
- ☐ Digital dropout compensation
- ☐ Decode mode allows replay of non-color-framed edits with no picture shift
- ☐ Edit Ready function insures consistent picture positioning
- ☐ 4Fsc, 8-bit sampling
- ☐ 28-line correction window
- ☐ Recognizable picture in shuttle to 50 times play speed
- ☐ Dual, time-share, video inputs
- ☐ One- or two-wire heterodyne operation
- ☐ ScH phased design
- ☐ Full complement of video processor controls
- ☐ Available full-function remote control panels
- ☐ Compatibility with any Ampex Type C studio VTR

Time-share Function Block Diagram



TBC-7 Specifications

	NTSC (525/60)	PAL (625/50)
GENERAL		
Digital Sampling Frequency:	4Fsc (14.3 MHz)	4Fsc (17.7 MHz)
Quantizing Levels:	256 (8 bits)	
Size:	19.7″ (500 mm) W x 5.25″ (133 mm) H x 21.6″ (549 mm) D (May be mounted in 19″ (483 mm) rack)	
Weight:	45 lbs (20.5 kg.)	
Power Requirements:	<240 watts 90-140 VAC or 190-250 VAC, 50 to 60 Hz	
Operating Environment:		
Temperature	0° to 45° C (32° to 113° F)	
Humidity	10 to 90% RH (non-condensing)	
VIDEO SIGNAL PERFORMANCE		
Bandwidth:	Flat to 4.2 MHz (±.2 dB)	Flat to 5.5 MHz (±.2 dB)
Signal-to-Noise Ratio[2]:	Better than 56 dB	Better than 56 dB
Differential Gain[3]:	≤2%	≤3%
Differential Phase[3]:	≤2%	≤3%
Transient Response (2T Pulse)	≤1% K Factor	≤1% K Factor
TIME BASE PERFORMANCE		
Correction Range (Window):	28 television lines	
Digital Memory Size:	32 television lines	
Output Jitter[4]:	≤±2.5 nsec (color) ≤±10 nsec (mono.)	≤±3 nsec (color) ≤±20 nsec (monochrome)
Slow Motion Range:	−1 to +3 times play speed (VTR model dependent)	
Shuttle Range:	Up to 50 times play speed (VTR model dependent)	
INPUT SIGNALS[1]		
Tape Input Video (A & B):	1V, p-p, ±2 dB Composite Video	
Reference Video:	1V, p-p, ±2 dB Composite Video (loop through)	
Dropout R.F.	1 to 2V p-p R.F. from VTR or TTL Dropout Pulse (low for dropout)	
OUTPUT SIGNALS[1]		
Video Output (1):	1V, p-p Composite Video	
(2):	1V, p-p Composite, or Non-Composite Video	
Monitor Video Output:	1V, p-p Composite Video	
VTR Advanced Reference:	Standard level Black-Burst signal or 4V, p-p Composite Sync or Vertical Drive	
Sync-Coherent S.C.:	1V, p-p S.C. sinewave	

Ampex reserves the right to improve products and change specifications without notice.

Note 1: Video levels presume 75 ohm termination.

Note 2: System signal-to-noise is determined from the degradation to input signal-to-noise ratio. That is, 47 dB VTR S/N = 46.5 at TBC output. This reflects a TBC-7 signal-to-noise ratio of 56 dB.

Note 3: Measured using a non-synchronous subcarrier modulated ramp with subcarrier amplitude equal to that of burst.

Note 4: Residual output error is directly dependent on the S/N of the input signal. Specification based on an input S/N of 47 dB.

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