DCT 1700d

General

The Ampex DCT 1700d tape drive is a digital component video tape drive specifically designed for the demanding applications that are typical of modern post production. It accepts three sizes of DCT® tape cartridges for a maximum record time in excess of three hours.

Description

The DCT 1700d tape drive shares the same robust, durable, field-proven 19mm transport as our second generation DST® drives. This rugged tape drive has been designed to meet the demands of the critical need for data integrity, assuring long term interchangeability. The tape drive accelerates to full shuttle speed in less than a second, making the DCT 1700d drive the fastest editing digital component tape drive in the industry. A clean, functional control panel with a large interactive status display and soft keys contributes to efficient operation. Full featured editing capabilities include Animation Mode.

- **Creative freedom**

  The Ampex DCT 1700d tape drive offers more creative freedom that you have ever had. Because the DCT drive is digital component, there is no limit on the number of generations that can be used in a production to satisfy the client. The drive's fast acceleration, along with gentle tape handling, offers remarkable speed not seen before in the edit suite. You will think you are editing from a disk!

  Unparalleled image integrity, a product of our world class design and manufacturing, assures that your client gets the best pictures possible. Other features that allow the DCT 1700d tape drive to contribute to your creative freedom are:

  —Digital component equipment:
  provides the environment most producers want to work in but few could afford until now.

  —Auto Edit Optimize:
  guarantees perfect audio and video edits every time by automatically performing the normal tracking (capstan phase) adjustment and the very critical scanner tachometer phase adjustment during the pre-roll to every edit.

  —Slow-motion picture processing:
  Award winning Zeus™ style processing provides no bounce, no blur slow-motion forward/reverse play and still frame modes resulting in flawless images during variable play.

- **No generational limit**

  In the past, with either analog or composite recording, the reduction in quality during multiple generations forced an artificial limit on the creative "depth" that could be used to produce a piece to the client's satisfaction. With a digital component system, that limit is removed—as many layers and as many generations may be used as needed for the creative requirements at hand. Contributing to the multi-gen performance, the error correction capability of the DCT format exceeds all other digital video formats by at least an order of magnitude. In fact, the methods used are borrowed from Ampex DST drives, where the applications demand essentially perfect data storage and recall.

  This high reliance on error correction rather than error concealment will play an important factor in providing error free signals to the highly compressed images on the "Information Superhighway".

- **Remarkable speed**

  Most video tape recorders impose a series of significant delays in the visual creative process due to their slow speed and acceleration. Often, creative options are not explored because of the frustrating waiting time required. The DCT 1700d drive has the fastest tape transport available—it is "almost as fast as a disk" according to some users. The excellent tape drive ballistics allows a 30-second spot to be re-cued in less than 1.5 seconds.

- **Unparalleled image integrity**

  Because the DCT system is component video it maintains the same video quality level that comes out of the camera or telecine; encoding and decoding losses are eliminated. Because the DCT system is digital video there is no loss from generation to generation. Every clone is identical to the original. Once the image is stored on tape, the DCT 1700d drive provides master tape protection due to its gentle tape handling. Air-lubricated guides provide a gentle, smooth, low friction environment.

- **A good investment**

  The DCT 1700d tape drive is switchable between 525/60 and 625/50. This eliminates the duplicate capital investment for multiple systems in multiple line standards.

  The new, improved scanner increases reliability and reduces noise. This improvement in reliability has increased the warranty on the scanner to two full years or 2,000 hours.

  As in all Ampex helical recorders, the DCT 1700d tape drive has individually replaceable heads. Video head replacement takes only minutes. This procedure does not require any special tooling to accomplish. There is no need to replace the entire upper drum or the entire head wheel, reducing costly downtime due to required alignment. In addition, flying erase heads were incorporated to provide improved margin during editing operations, especially audio.

- **Designed for long term interchange**

  The new transport design ensures that masters will have interchange compatibility for years to come.

- **Environmentally friendly**

  Mechanical improvement to transport and scanner have dramatically reduced the noise level of the drive.

AMPEX

DCT®

DCT 1700d

Comprehensive menus for flexible user configuration. Reduces the complexity of machine setup and operation while providing increased status feedback information.

DCT meter. Provides "at a glance" confidence of signal quality and error margin.

Full frame storage. Provides the ability to freeze an image off tape with the option of showing field one, field two, or a full frame.

Built-in 3.5" floppy disk drive. Provides a simple and easy method of software updates and an excellent vehicle for future expansion. Allows storage of USER SETUPS to disk for simple system setup of multiple drives. Aids in the diagnostic procedure by storing transport diagnostics to disk for later analysis.

Switchable between 525/60 and 625/50. Eliminates the capital investment for multiple systems in multiple line standards.

One button "Black stripe". Pre-striping tape is now one button simple. The time code generator will be loaded with the correct time. The test generator will be turned on. The tape will be rewound. Color bars with audio tone will be laid down for the appropriate time at the front of the tape and the remainder will be stripped with black.

Error concealment log. In addition to the most powerful error correction system in the industry, the DCT 1700d drive has an error concealment log to ensure that not only can errors be detected, but now they can be repaired. For the first time flawless masters are now possible.

Three cartridge sizes - small, medium, and large. Provides eight choices, up to a maximum of more than three hours, of record time. Anything from a commercial spot to a full length feature film can be recorded, duplicated, stored, or played back on a single cartridge.

Real-time diagnostics. Provides constant monitoring of drive and signal system performance to ensure optimum operational parameters while at the same time assisting in preventive maintenance. The software always stores the last 256 actions of the transport mechanics to assist in analysis, and with the layered signal system architecture, the diagnostic system provides quick and easy identification of video or audio system faults.

Multi-point search to cue. Provides one hundred cue points for tape screening applications.

Animation Mode, with 1-second cycle time. Provides a perfect storage device for computer graphics and film transfer systems requiring frame-by-frame, or field-by-field animation.

SMPTE time code. Both vertical interval and longitudinal capabilities are provided as standard equipment. In addition, the built-in tape timer is accurate to one field for those times when time code was not recorded.

Audio SEL-SYNC™ capability. Enables the operator to play back any combination of digital audio tracks and record to a specific track while maintaining the necessary synchronism between these signals.

Audio channel mix to cue channel. Allows all or any of the four digital audio inputs to be mixed to the cue channel enabling the operator to monitor all channels simultaneously from a single source.

Built-in analog audio interface. Provides a simple solution for connecting to existing analog audio equipment. Eighteen bit, 48 kHz sampling analog to digital converters provide superior audio quality.

Parallel digital video interface with embedded audio. Provides one input and two output connectors as an alternative to serial for systems configured as self-contained islands.

Serial digital interface, with embedded audio. Allows ease of signal distribution by means of a single coax carrying the digital video information along with four channels of embedded digital audio and SMPTE time code. One input (active loop through) and three outputs are available.

AES digital audio interface. Ensures compatibility with industry standard digital audio equipment.

Embedded audio on both the parallel and serial digital video interfaces provide for easy, one cable, tape cloning and signal routing within a facility.

Four channels of high quality digital audio. Twenty bit, 48 kHz sampling provides "better than CD" audio record and reproduce quality.

Four remote control protocols:

—**Ampex ACE-SMPTE** mode, for the most intelligent editor interface in the video industry.

—**D-1 (Sony) emulation** mode, for those edit controllers that cannot take advantage of the ACE-SMPTE protocol.

—**Beta Chase** mode, slaves an additional Betacam playback machine, with a matte reel, without using additional editor resources.

—**GPI** contact closures for simple, straight-forward remote control needs.

**Three serial remote ports.** Selectable from the front panel, these connectors offer edit system flexibility.

Optional component analog interface. Provides direct connection to component analog (either YUV or RGB) equipment.

Composite analog output. Provides a high quality, encoded output for final dubs to analog composite formats such as "Type C". This output automatically switches between NTSC and PAL when the drive is switched between 525/60 and 625/50. Other applications include:

—**burnt-in time code.** Enables the user to create window dubs without the expense and trouble of external hardware.

—**burnt-in DCT quality and audio level meters.** Allows for economical picture and audio level monitoring of every tape drive in the edit suite.

Low power consumption and low noise generation. This innovative design features temperature controlled fans to allow drives to be placed in edit suite for ease of operation and reduced labor costs.
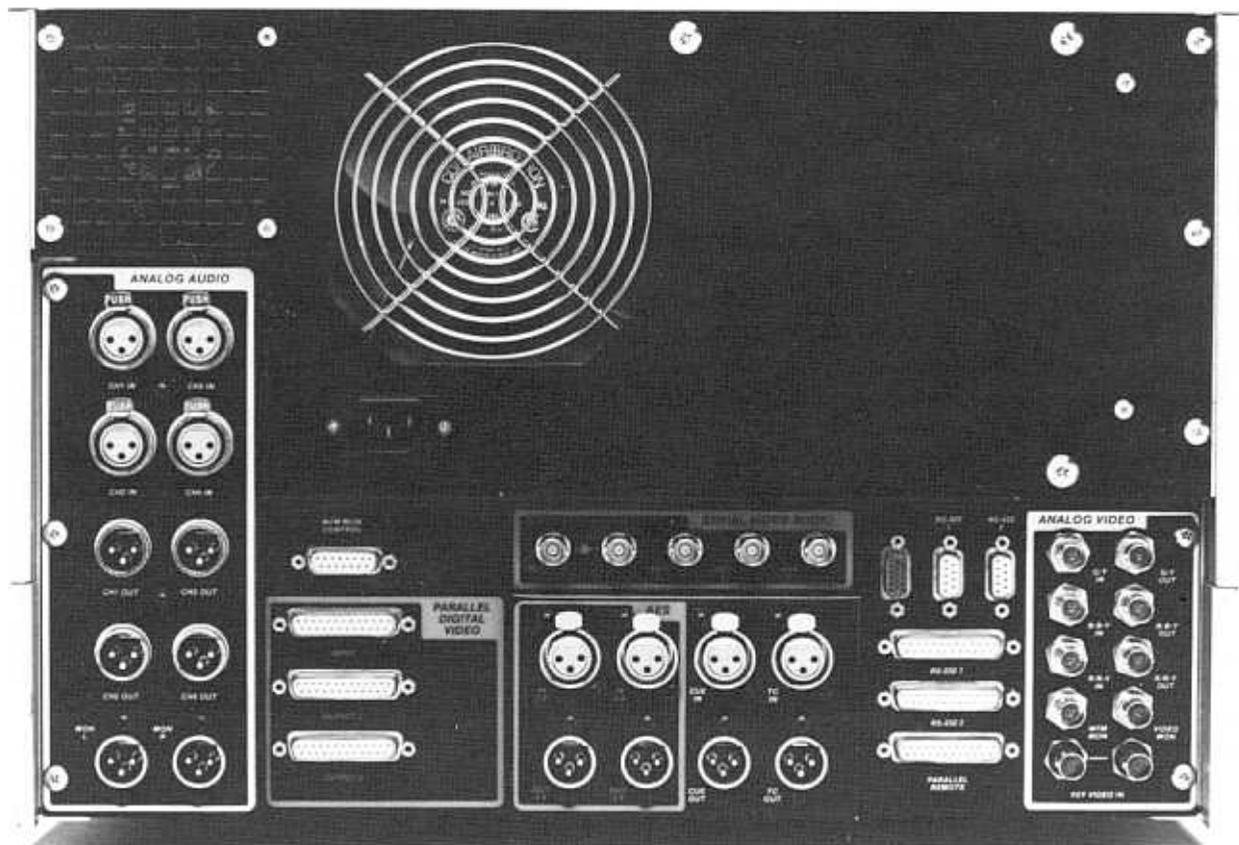
DCT 1700d

Digital Component Tape Drive

Technical Specifications

General

Power Requirements	90 to 264 volts, 47 to 63 Hz
	500 watts nominal, power factor corrected
Operating environment	
Temperature	5°C to 40°C
Humidity	10% to 90% noncondensing
Size	17½"W × 12¼"H × 28⅜"D
	(44.5cm W × 31.1cm H × 72cm D)
Weight	145 lbs (67 kg)

Recording Format

	Ampex DCT digital component		
	TV format 525/60, 625/50 switchable		
Recording time	Small	Medium	Large
525/60	32 min.	94 min.	208 min.
625/50	28 min.	84 min.	187 min.
Cartridge type	DCT series small, medium, large		
Recommended tape	Ampex DCT 700t Series		

Transport Characteristics

Shuttle speed (maximum)	7.9m/sec (60 times play speed)
Acceleration (maximum)	7.9m/sec^2 small and medium
	3.0m/sec^2 large
Variable play range	–1 to +3 times play speed
Fast forward/Rewind time	34 sec. for small cartridge
	96 sec. for medium cartridge
	214 sec. for large cartridge
Servo lock times	20 millisec. with ready on
	1 sec. with ready off
Tape timer accuracy	±1 frame (with continuous control track)
Edit accuracy	±0 frame

Signal Inputs

Digital Video	CCIR-656 parallel, 25-pin (1) subminiature D (conforms to CCIR-601) (Optional) proposed SMPTE T14.224, 75Ω serial (with active loop-through output)
Component Analog Video	(Optional) RGB, –Y, Cr, Cb, 75Ω BNC
Reference	Analog composite video, black burst or monochrome signal (high impedance bridging), 75Ω BNC
Digital Audio	CCIR-647-1 (2) AES/EBU serial format, XLR-3-31 (optional) serial embedded with video (BNC) proposed SMPTE T14.224, 75Ω serial (with active loop-through output)
Analog Audio	Max +28 dBm, 50k Ω, XLR-3-31
Cue	Max +14 dBm, 50k Ω, XLR-3-31
Timecode	2.4 V ± 1.4 V p-p, 10k Ω, XLR-3-31

Signal Outputs

Digital Video	CCIR-656 parallel, 25-pin (2) subminiature D (conforms to CCIR-601) (optional) proposed SMPTE T14.224, (3) 75 Ω serial
Component Analog Video	(Optional) RGB, –Y, Cr, Cb, 75 Ω BNC
Digital Audio	CCIR-647-1 (2) AES/EBU serial format, XLR-3-32 (optional) serial embedded with video (BNC)
Analog Audio	(4) Max +28 dBm, balanced, XLR-3-32
Cue	Max +14 dBm, balanced, XLR-3-32
Timecode	2.4 volt p-p, <300 ohms, XLR-3-32
Composite Analog Video	NTSC or PAL composite 1.0 volt p-p, 75 Ω BNC with character generator inserted
Waveform monitor	1.0 volt p-p, 75 Ω BNC
Headphone	300 milliwatt, 150 Ω, phone jack
Remotes	
RS-422	(2) 9-pin subminiature D
RS-232	(2) 25-pin subminiature D
GPI	(1) 25-pin subminiature D

Analog Audio

Quantization	D/A: 20 bits/sample
	A/D: 18 bits/sample
Frequency response	20 Hz to 20 kHz ±0.5 dB
Cross talk	Less than –80 dB (1 kHz, any 2 channels) Full codec basis, A/D to D/A Ref input +28 dBm
Noise + distortion	More than –100 dB, emphasis off, any operating level, A-weighted, 1 kHz, measurement BW: 22 Hz to 22 kHz as measured on audio precision Ref: +28 dBm Full codec basis, A/D to D/A
Headroom	20 dB
Sampling frequency	48 kHz
Operating level	+8, +4, 0 dBm adjustable ±5 dB of preset (line in/out) Factory set to +8 dBm
Wow and flutter	Below measurable limits

Cue

Frequency response	300 Hz to 10 kHz ±3 dB
S/N ratio	Better than 40 dB, 500 Hz to 10 kHz
Operating level	–8 dBm to +8 dBm (1 dB increments)

Specifications subject to change without notice or obligation.