

# TANDBERG

## SERIES TD 50 PROFESSIONAL TAPE RECORDERS

Tandberg's new TD 50 is the first series of professional tape recorders from one of Europe's oldest and most respected electronics manufacturers (established 1933).

Famous the world over for tape recorders, audio electronics, as well as the full range of electronic educational equipment. Years of experience, development and research have been invested in the new series TD 50 professional tape recorders.

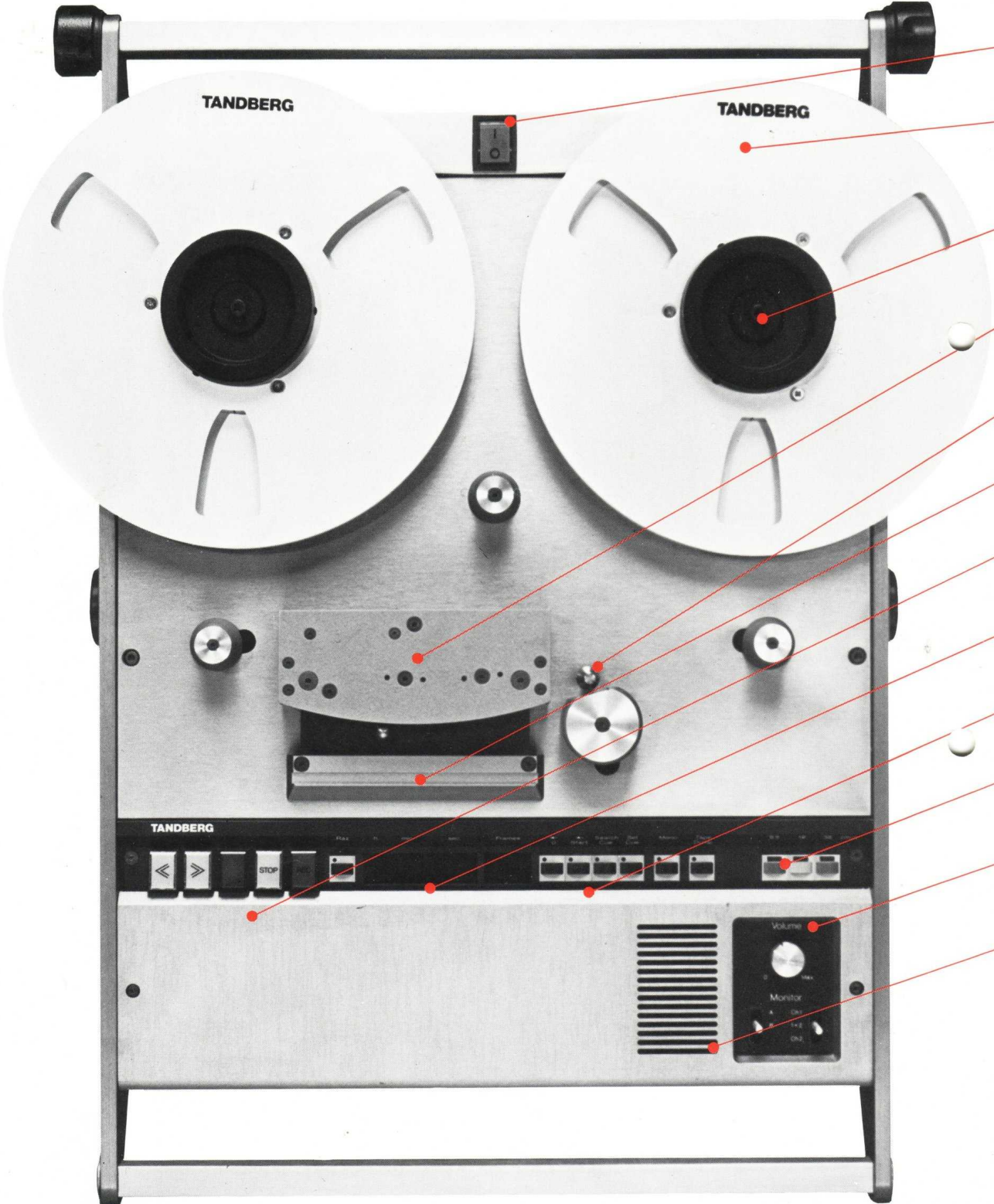
The TD 50 has been created with the close help of broadcast and studio engineers.

The culmination of this cooperation and research is a design which solves the problems and satisfies the requirements of the professional user today.

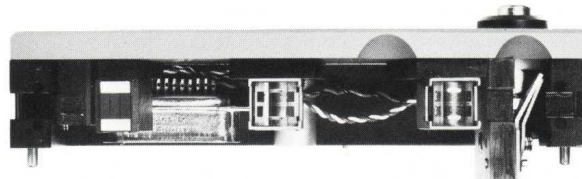


The TD 50 tape transport is based on exclusive licence agreement from Mondial Electronique S.A. France.

# TOP PANEL



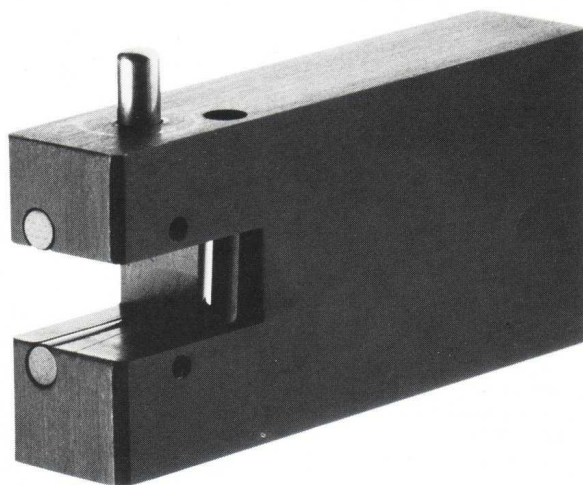
- MAINS SWITCH
- 10½ INCH REELS, OR  
12 INCH PANCAKES
- NAB, CINÈ AND  
DIN ADAPTERS
- INSTANTLY  
REPLACEABLE  
HEADBLOCK
- 3 SPEED CAPSTAN  
MOTOR DRIVE
- EDITING BLOCK
- TAPE TRANSPORT  
CONTROL
- REAL TIME  
COUNTER
- FUNCTION  
SELECTORS
- TAPE SPEED  
CONTROL
- MONITOR CONTROL  
PANEL
- MONITOR  
LOUDSPEAKER



#### Head Block.

The TD 50 Head Block Module is instantly replaceable with the removal of a single screw and includes three locating pins. All head block components are mounted to a 8 mm thick plate of Alcoa Plus alloy.

Tape path and guide geometry has been computer optimized for minimum modulation noise and tape stress. A built-in push button tape cutter set to industry accepted standards facilitates editing. Head blocks are available in all standard ¼ inch tape track configurations.



#### Tape transport.

TD 50 series machines are built with a new and unique design. All mechanical components are mounted directly to a 10 mm thick plate of Alcoa Alca Plus Aluminum. This direct mounting design offers the ultimate in ease of service and maintenance. Alcoa Plus alloy has unique properties.

- It can be produced perfectly flat to extreme tolerance through a special moulding process.
- It has the ability to return to its original shape should deformation occur from extreme stress or temperature change.

The 3-speed direct drive capstan motor is controlled by a quartz reference oscillator and includes pitch control. Microprocessors and optoelectronic sensors regulate spool motors in terms of direction, speed and torque for precise tape handling.

#### Tape Guides.

One of the most important aspects of transport and headblock design are the tape guides. These guides must position the tape with critical accuracy for optimum performance. Under constant studio use tape guides are subject to unusually high wear and abuse.

Our patented solution is to utilize two precise machined locating blocks. The tape guides themselves are highly polished, solid ruby cylinders. These cylinders are held to a tolerance of +0-20 microns. Since ruby has grade 9 on the Mohs hardness scale (diamond is 10), wear becomes a meaningless factor. Tandberg uses only two tape guides to prevent tape curl at the head contact point.



A partial list of microprocessor control functions will include:

- Continuously variable wind/rewind speed with audible cue
- Return to zero
- Return to start
- Set cue/Search cue
- Fader start
- 5 digit real time counter (HRS., MINS., SECS.)
- Time code (optional)
- Frame sync. (optional)
- RS-232 computer interface (optional)

Tandberg's Custom Software Control Package allows for custom design of other functions.

# ELECTRONIC ENGINEERING

## Audio circuits.

Tandberg engineers use the same principles of design in TD 50 as in our state of the art audio separates, series 3000 A. Audio circuits are comprised of only discrete components (no IC's). Optimum compensation provides clean square-wave response. Open loop bandwidth has been kept as wide as possible and a minimum of capacitors are in the signal path.

The audio circuitry as well as all other electronic circuitry is located on easily accessible modular plug-in circuit boards.

Bias, level, EQ, and mono/stereo switching are controlled by the microprocessor via a serial data buss. Also included is a built-in monitoring speaker and amplifier.

## Editing.

With Tandberg's 8 bit microprocessor and 64 K of EPROM memory, editing control is simple and precise. Multiple search and cue functions combined with our real time counter means rapid location of desired tape sections. The built-in tape cutter is used in conjunction with 4 locating marks on the left tape tension roller. This enables accurate positioning of the tape for cutting.

The Editing headblock contains a special tape cutter which flips out in front of the tape head for extreme accuracy.

Tape dumping is easily achieved by touching the button marked «TAPE DUMP». Further control is available by disengaging power to either spooling motor, or both, while the capstan is active.

## Service and maintenance.

A major design criteria of any professional tape unit is, of course, ease of service and maintenance. The TD 50 transport can swing through a 120° arc to allow access to all transport mechanics and power electronics. All mechanical assemblies are positioned and mounted to enable removal of any component without having to disturb other assemblies. In fact, any single mechanical assembly can be replaced in under 10 minutes. Simple removal of the lower front panel gains access to all audio electronic adjustments.

## VU/CONTROL CONSOLE

Included on this console are VU meters, all record/reproduce electronic controls, peak LED's, individual channel record lock out, Track Sync. Monitor amplifier/speaker can be located in Control Console.



## VARIATIONS

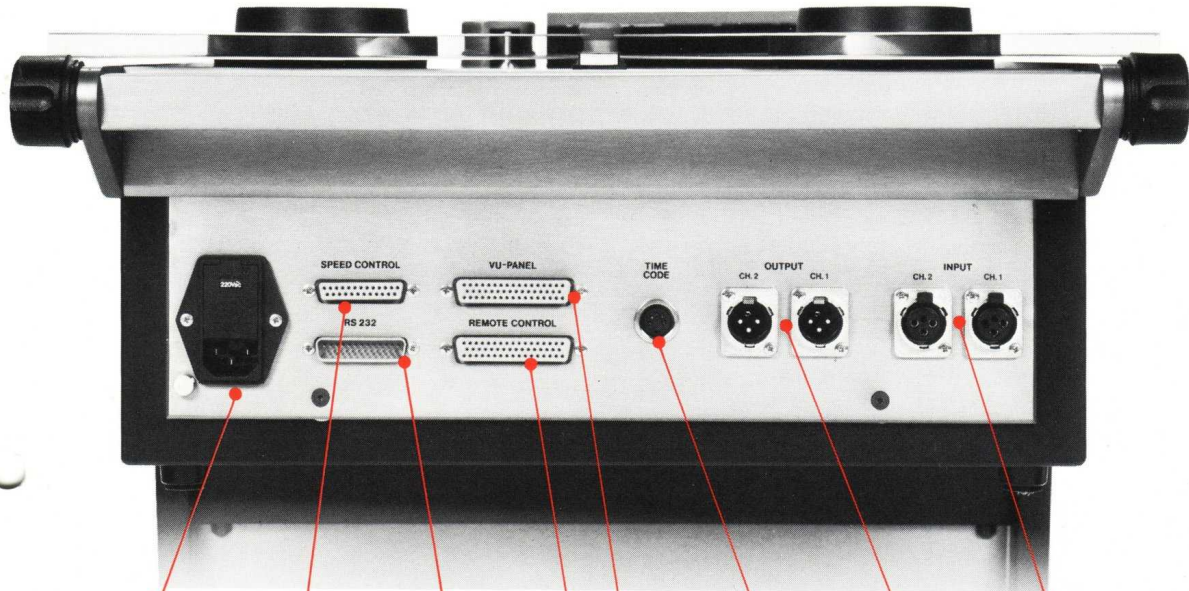
TD 50 series will consist of three models:

- **TD 50 E (Editing).** Standard TD 50 transport with reproduce only electronics and monitor amplifier/speaker. The headblock consists of reproduce head only with special flip out cutter.
- **TD 50 B (Broadcast).** Standard TD 50 transport with complete record and reproduce electronics. Monitor amplifier/speaker are also included. Headblock consists of a dual gap erase head, and any standard 1/4 inch tape track format ordered.
- **TD 50 SM (Studio Master).** Standard TD 50 transport with record/reproduce electronics and head configurations as in TD 50 B. Separate VU Control Console mounts above transport.

### Options and Accessories.

- RS 232 computer interface
- VU/Control Console
- Time Code System (SMPTE, EBU.)
- Transformer Coupled Line input and output
- Transportable floor stand
- Head Blocks with all 1/4 inch tape track standards
- 19" Rack mount kit
- Integrated handles
- Multiple installation deck separation unit.
- Tape/bookshelf

# REAR PANEL – CONNECTIONS



SWITCHABLE  
230V/115V  
POWER INPUT

RS 232 COMPUTER  
INTERFACE

TIME CODE INPUT

BALANCED AUDIO  
INPUTS

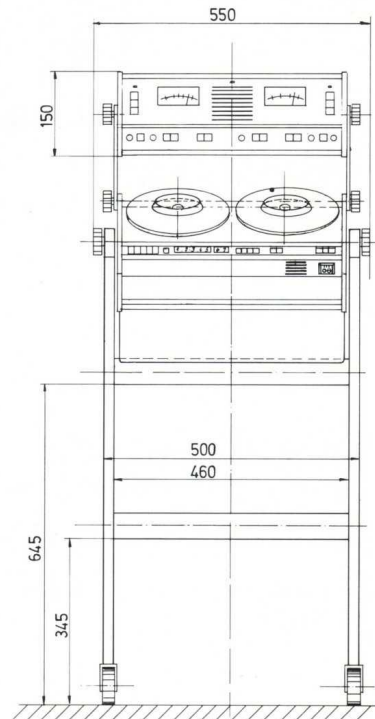
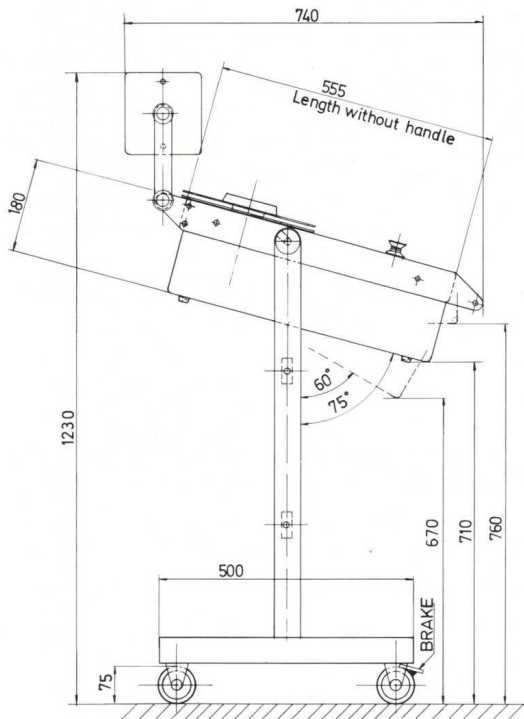
TAPE SPEED CONTROL

REMOTE CONTROL

VU/ CONTROL CONSOLE

BALANCED AUDIO  
OUTPUTS

# DIMENSIONS



# SPECIFICATION

Power requirements	115V ± 10%, 60 Hz or 230V ± 10%, 50 Hz	
Power consumption	150 W	
Operating temperature	50–115° F / 10–45° C ambient.	
Track configuration	2 × 2,75 mm + 0,75 mm	
Stereo	2 × 2 mm + 2 mm	
Mono	full track	
Tape	10½" reel or «PAN CAKE» up to 12"	
Adapters	Ciné, NAB and DIN.	
Tape Speeds	38 cm/s, 19 cm/s and 9,5 cm/s (15 IPS, 7½ IPS and 3¾ IPS)	
Start-time	≤ 0,5s for W&F within double of specified value.	
Wow & Flutter (DIN 45507)	38 cm/s	≅ 0,04% p
	19 cm/s	≅ 0,05% p
	9,5 cm/s	≅ 0,1 % p
Counter	Real time in all speeds	
	hours	1 digit
	minutes	2 digits
	seconds	2 digits
Wind/rewind-time	≅ 120s for 750 m tape (10½" reel)	
Stop-time	≅ 5s from wind/rewind	
Tape-tension	0,9 N ± 10% in play or record Max. 6 N at start, stop and change of wind direction	
Motors	Wind/rewind AC (direct-drive)	
	Capstan DC (direct-drive)	
End stop	Automatic	

Frequency response	± 1 dB		± 3 dB
	38 cm/s	40–18000Hz	30–22000Hz
	19 cm/s	40–15000Hz	30–20000Hz
	9,5 cm/s	40–12000Hz	30–16000Hz
Signal to noise ratio	CCIR		NAB ref. to + 6dB
weighted/unweighted	468-2 peak		
	ref. 510nWb/m		rel 185 nWb/m
	38 cm/s	56 dB/56 dB	57 dB/57 dB
	19 cm/s	53 dB/53 dB	57 dB/57 dB
	9,5 cm/s	50 dB/50 dB	55 dB/55 dB
Distortion	185 nWb/m	320 nWb/m	510 nWb/m
	38 cm/s	1%	2%
	19 cm/s	1%	2%
	9,5 cm/s	1,5%	3%
Equalizer	IEC/CCIR and NAB.		
Erasure	≅ 80 dB at 1 kHz		
Crosstalk (60 – 12000 Hz)	≅ 40 dB		
Bias frequency	200 KHz (chrysal controlled)		
Erase frequency	66% KHz (chrysal controlled)		
Inputs			
	Input level	0, + 6 or + 12 dBu adjustable ± 6 dB	
	Maximum input level	≅ 22 dBu	
	Input impedance	≅ 10 Kohms	
Outputs			
	Output level	0, + 6 or + 12 dBu adjustable ± 6 dB	
	Maximum output level	≅ 22 dBu	
		in 200 ohms	

Specification subject to change without notice.

## SUBSIDIARIES:

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# TANDBERG

## YOUR AUTHORIZED TANDBERG REPRESENTATIVE