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.
MAINS SWITCH

10½ INCH REELS, OR 12 INCH PANCAKES

NAB, CINÉ 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

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Tape transport.
The 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. Alca Plus alloy has unique properties:
- It can be produced perfectly flat to extreme tolerances 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 speed motors in terms of direction, speed and torque for precise tape handling.

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 Alca 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.

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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 start
- Set cue/Search cue
- Fader start
- 5 digit real time counter (HRS., MINS., SECS.)
- Frame code (optional)
- Frame sync. (optional)
- RS-232 computer interface (optional)

Tandberg’s Custom Software Control Package allows for custom design of other functions.
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 monostereo switching are controlled by the microprocessor via a serial data bus. 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 floats 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 complete record and reproduce electronics. Monitor amplifier/speaker are also included. Headblock consists of a dual gap erase head, and any standard ¼ inch tape track format ordered.
- TD 50 B (Broadcast). Standard TD 50 transport with record/reproduce electronics and head configurations as in TD 50 B. Separate VU Control Console mounts above transport.
- TD 50 SM (Studio Master). Standard TD 50 transport solid state 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 ¼ 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
Stereo: 2 x 2,75 mm + 0,75 mm
Mono: 2 x 2 mm + 2 mm

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 3½ IPS)

Start-time
≥ 0.5s for W&F within double of specified value.

Wow & Flutter
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

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<table>
<thead>
<tr>
<th>Frequency response</th>
<th>± 1 dB</th>
<th>± 3 dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>38 cm/s</td>
<td>40–18000Hz</td>
<td>30–22000Hz</td>
</tr>
<tr>
<td>19 cm/s</td>
<td>40–15000Hz</td>
<td>30–20000Hz</td>
</tr>
<tr>
<td>9,5 cm/s</td>
<td>40–12000Hz</td>
<td>30–16000Hz</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Signal to noise ratio</th>
<th>CCIR</th>
<th>NAB ref. to</th>
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</thead>
<tbody>
<tr>
<td>weighted/unweighted</td>
<td>468-2 peak</td>
<td>+6dB</td>
</tr>
<tr>
<td>38 cm/s</td>
<td>56 dB/56 dB</td>
<td>57 dB/57 dB</td>
</tr>
<tr>
<td>19 cm/s</td>
<td>53 dB/53 dB</td>
<td>57 dB/57 dB</td>
</tr>
<tr>
<td>9,5 cm/s</td>
<td>50 dB/50 dB</td>
<td>55 dB/55 dB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distortion</th>
<th>185 NWh/m</th>
<th>320 NWh/m</th>
<th>510 NWh/m</th>
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<tbody>
<tr>
<td>38 cm/s</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>19 cm/s</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>9,5 cm/s</td>
<td>1,5%</td>
<td>2%</td>
<td>3%</td>
</tr>
</tbody>
</table>

| Equalizer | IEC/CCIR and NAB. |

<table>
<thead>
<tr>
<th>Erasure</th>
<th>≤ 80 dB at 1 kHz</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Crosstalk (60 – 12000 Hz)</th>
<th>≤ 40 dB</th>
</tr>
</thead>
</table>

Bias frequency
200 KHz (crystal controlled)

Erase frequency
66½ KHz (crystal controlled)

Inputs
Input level
0, +6 or +12 dB adjustable ± 6 dB
Maximum input level
≥ 22 dB
Input impedance
≥ 10 Kohms

Outputs
Output level
0, +6 or +12 dB adjustable ± 6 dB
Maximum output level
≤ 22 dB in 200 ohms

Specification subject to change without notice.

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SUBSIDIARIES:

Tandberg of America, Inc.
1 Labyrinth Court
Amarillo
N.Y. 10004
U.S.A.

Tandberg Radio Deutschland GmbH
Heinrich Hertz Strasse 24
4006 Erkrath 1
W. Germany

Tandberg Ltd
Reve Road
Eland Road
Leeds LS 11 JUG
West Yorkshire
England

Tandberg Audio AB
P.O. Box 210104
16 120 Bromma
Sweden

WORLD HEADQUARTERS:

Tandberg A/S
Falvelen 1
Keller- Norrey
Postal address
P.O. Box 53
N-2007 Keller
Telephone
(47) 71 63 20
Telegram
71866 tand n
Cables
TANRA-OSLO

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