

TANDBERG®



THE QUEST CONTINUES . . .

Tandberg's quest for musical perfection is a fifty year reality.

In 1933, Vebjørn Tandberg founded the company with his own commitment to the outstanding reproduction of music. And he transmitted that commitment to the engineers, technicians and other employees who design and build Tandberg products.

The result of Vebjørn Tandberg's quest is a reputation for quality and exceptional performance that has always been associated with Tandberg components.

Today, the quest continues with Tandberg's new Series 3000A . . . a full line of high quality, high performance components designed to bring music reproduction that much closer to the reality of the original.



Creative Dissatisfaction

. . . created the new Tandberg Series 3000A

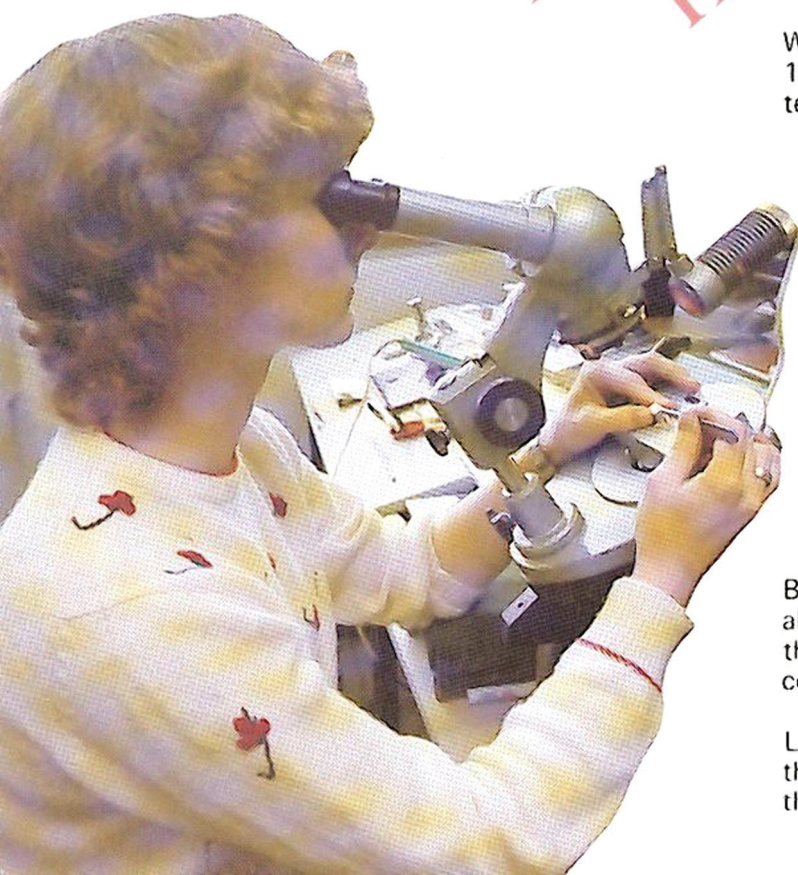
When the Tandberg Series 3000 was introduced in 1980, it represented a significant advance in the technology of sound reproduction.

"Stereo Review" called the TPT 3001 Programmable FM Tuner "one of the most advanced stereo components we have seen", "Hi-Fi Buyers Guide" gave the TCA 3002 Control Amplifier and the TPA 3003 Power Amplifier their highest 5-star rating for merit.

With such outstanding evaluations and with performance specifications above competing equipment, it would have been easy for Tandberg engineers to rest on their laurels.

But our engineers are not driven by specifications alone. They share the "creative dissatisfaction" that inspired Vebjørn Tandberg to found the company.

Like Mr. Tandberg, they will not be satisfied until the equipment they design matches the reality of the original musical source.



The TIA 3012 Breakthrough

It would have been difficult to improve the performance specifications of the Series 3000. Yet Tandberg engineers continually strive to improve the immeasurable.

That's why the research and development team of the TIA 3012 Integrated Amplifier devoted its time and expertise to the exploration of each individual part that makes up the overall design in terms of its sonic contributions.

The result of their intensive efforts is an engineering philosophy that produces intangible sonic differences . . . differences which do not appear on specification sheets yet are immediately apparent to the listener.

For example, research showed that electrolytic capacitors used by most manufacturers have high dielectric absorption rates. These units tend to "memorize" a signal passing through and impress it on following signals. This characteristic memory produces audible distortion in the lower mid-range and bass frequencies.

Further research showed that polystyrene and polypropylene capacitors have minimal absorption rates and produce audibly improved sound. These more expensive capacitors are used in all critical audio circuits of the TIA 3012 with most impressive results.

Also, ceramic capacitors widely used in today's audio circuits exhibit voltage-dependent capacitance value variations. This causes variable phase shift in the high frequencies leading directly to "hard and brittle" sound.

Again, polystyrene and polypropylene capacitors have no such voltage-sensitive properties in the high frequencies. They reproduce a much smoother and more natural high frequency sound quality.

Tandberg's newly patented Thermic Servo Loop eliminates DC voltage at the amplifier output through the use of temperature-sensing devices. This system eliminates the need for electrolytic capacitors used by other manufacturers to block DC output.

Tandberg's research and development team created an incredibly fast amplifier through the use of MOSFET transistors in the output stages. This means that transients are passed through the unit virtually unchanged resulting in amazingly life-like sound reproduction.

Finally, the TIA 3012 is ready for the most demanding of tomorrow's source materials with the addition of a specially designed Digital Disc input.

Was this intensive commitment to perfection worth it?

Ask Tandberg's engineers. They'll tell you that the TIA 3012 comes the closest to satisfying their "creative dissatisfaction" of any other component available today.

Except for the Series 3000A of course.





3001A

Programmable FM Tuner

The TPT 3001A offers extremely low distortion, an unprecedented signal-to-noise ratio of 95 dB in mono and 92 dB in stereo, and overall performance specifications far above competing tuners.

The TPT 3001A has an electronic memory for 8 preset FM stations with 12 bit processor; IF bandwidth for wide, normal, and narrow; and a signal strength tuning meter with auto-ranging.

An 8 gang electronic front-end translates into incredible sensitivity. This combined with superb selectivity and capture ratio insure the finest FM performance available in the world today.

The TPT 3001A uses a discrete MPX decoder, not integrated circuits, to eliminate beat notes and increase audio quality. This multiplex decoder is more sophisticated than most complete tuners and alone achieves in excess of 80 dB separation at 1000 Hz.

The TPT 3001A Features Servo Lock Tuning, discrete components rather than integrated circuits in all signal carrying stages, variable muting, switchable FM de-emphasis.

With the TPT 3001A, FM finally comes of age as a viable high fidelity source.

Specifications:

50 dB quieting sensitivity:	
Mono	0.9 μ V
	10.3 dBf
Stereo	11.0 μ V
	32.1 dBf
With noise filter ANC:	
10 dB channel separation	5.0 μ V
	25.2 dBf
Signal to noise ratio:	
Mono	95 dB
Stereo at 65 dBf (0.5 mV)	82 dB
Stereo at 85 dBf (5 mV)	92 dB
Selectivity $\pm$ 400 kHz:	90 dB
AM suppression ratio:	> 70 dB
Dimensions (cm):	width 43.5
	height 8.3
	depth 35.0



3002A

Control Amplifier

The TCA 3002A, the control module of the Series 3000A, provides immediate response and pin point control.

The TCA 3002A is comprehensively equipped with digital inputs allowing more than 20 volts of signal without input overload for use with the most demanding of tomorrow's source materials. TCA 3002A is also equipped with inputs for both moving magnet and moving coil cartridges. These have three main parts: a linear buffer stage, a passive equalization network for the high frequencies, and an amplifying stage with equalization for the lower frequencies. Maximum deviation from the RIAA-curve is within $\pm$ 0.2 dB.

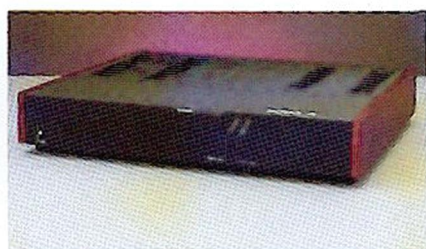
The TCA 3002A also has inputs for two tape decks with provisions for dubbing, and for headphone output with independent volume control.

The TCA 3002A makes no technical compromises. It features 116 transistors, 26 amplifier stages, an extremely high slew rate, calibrated volume controls designed to add minimum noise to both low and high frequencies, tone controls with low output impedance, high current capacity, and minimum negative feedback loops for all amplifier stages requiring such feedback.

The result is a control amplifier with a superb balance of flexibility and sonic excellence.

Specifications:

Frequency Response, 20-20,000 Hz:	
Phono	$\pm$ 0.2 dB
Tape 1, 2, Tuner, Digital	+0/-0.1 dB
Input Sensitivity - Ref. 0.5 V output:	
Phono MM	1 mV
Phono MC	80 μ V
Tape 1, 2, Tuner, Digital	70 mV
A-weighted signal to noise ratio:	
Phono MM	80 dB
Phono MC	74 dB
Tape 1, 2, Tuner, Digital	97 dB
Input Impedance:	
Phono MM	33/47/100 kohms
Phono MC	150 ohms
Dimensions (cm):	width 43.5
	height 8.3
	depth 35.0



3003A

Power Amplifier

The TPA 3003A delivers a full 150 watts per channel with an SMPTE and IHF intermodulation distortion of less than 0.02%.

The TPA 3003A features a toroidal transformer with very low height, high efficiency, and very low stray magnetic field to prevent any radiation of hum or noise to other sensitive components.

The power supply offers 30,000 μ F of capacitance and a 25 amp surge capability. This amplifier is specifically designed to withstand extreme load conditions.

The TPA 3003 has 4 discrete output devices per channel; high current design; chimney-type heat sinks; stability into all speaker loads; and 5 electronic protection circuits which do not deteriorate sound quality.

The TPA 3003A provides stable power and protects your speakers at the same time.

Specifications:

Continuous average power output (8 ohms, 20-20,000 Hz, THD < 0.02%):	2 x 150 W
SMPTE intermodulation distortion:	< 0.02%
IHF intermodulation distortion:	< 0.02%
Frequency response:	20-20,000 Hz
	+0/-0.2 dB
Sensitivity:	1 V
A-weighted signal to noise ratio:	
Ref. 1 W/8 ohms	98 dB
Ref. 150 W/8 ohms	120 dB
Dimensions (cm):	width 43.5
	height 8.3
	depth 35.0



3011A

Programmable FM Tuner

Now, budget-conscious audiophiles can enjoy Tandberg quality with the TPT 3011A which benefits from the same sonic improvements made in the TPT 3001A.

The TPT 3011A has an electronic memory for 8 preset FM stations and a pre-tuning system with 12 bit processor.

It features a 5 gang electronic diode front-end that insures high sensitivity.

Like the TPT 3001A, it features Servo Lock Tuning, discrete components in all audio circuits, variable muting, switchable FM de-emphasis, and switchable voltage.

These features and more provide audibly improved sound performance at a most reasonable price.

And like the TPT 3001A, its high quality, machined extruded aluminum construction offers a combination of strength and beauty.

Specifications:

50 dB sensitivity:	
Mono	1.5 μ V
	14.8 dBf
Stereo	20.0 μ V
	37.3 dBf
Signal to noise ratio at 65 dBf:	
Mono	78 dB
Stereo	75 dB
Distortion at 50 dB quieting:	
Mono	0.3%
Stereo	0.3%
Alternate channel selectivity $\pm$ 400 kHz:	> 100 dB
Spurious response ratio:	> 70 dB
AM suppression ratio:	> 70 dB
Dimensions (cm):	width 43.5
	height 8.3
	depth 35.0



3012

Integrated Amplifier

The Tandberg TIA 3012 Integrated Amplifier is tomorrow's hi-fidelity component ready for your enjoyment today.

The control amplifier stage of the TIA 3012 has digital inputs allowing more than 20 volts of signal without input overload for use with the most demanding of tomorrow's source material.

The TIA 3012 also features inputs for moving magnet and moving coil cartridges, two tape decks, and tuner plus independent record and listen select switches for total flexibility.

Tone control circuits are passive, consisting of 1% calibrated resistors with switchable turnovers and tone defeat.

DC output voltages are eliminated by Tandberg's patented "Thermic Servo Loop".

A combination of high current power supply design, distributed ground on all circuit boards, and MOSFET output devices produces an incredibly fast slew rate for virtually perfect transient response.

Once again, Tandberg sets the standard for quality conscious audiophiles.

Specifications:

Continuous average power output (8 ohms, 20-20,000 Hz, THD < 0.015%):	2 x 100 W
Sensitivity (Ref. 1 w/8 ohms):	
Phono MM	0.19 mV
Phono MC	15.0 μ V
Phono digital disc, AUX	15.0 mV
Tape, Tuner	15.0 mV
A-weighted signal to noise ratio:	
Phono MM	78 dB
Phono MC	73 dB
Phono digital disc, AUX	84 dB
Tape, Tuner	84 dB
Dimensions (cm):	width 43.5
	height 8.3
	depth 35.0



3014

Cassette Deck

The electronics of the TCD 3014 Cassette Deck have been designed with the same engineering concepts and philosophies included in the Series 3000A.

The TCD 3014 also has exceptional tape handling and transport features. Four servo controlled motors insure precise control and gentle tape handling. A 5 mm thick aluminum baseplate rolled under 40 tons of pressure eliminates stress and greatly increases strength. Azimuth alignment of the discrete, 3-head system means that the deck makes superior recordings on every tape.

Dyneq and Actilinear II, Tandberg's extraordinary contribution to quality cassette recording and reproduction, increase recording headroom by more than 20 dB while reducing noise and high frequency overload to a minimum.

The TCD 3014 introduces one of the most technologically advanced control systems available today. Included is an 8 bit microprocessor and a 32 k EPROM programmed by Tandberg with its own custom software.

The combination of handling mechanisms, microprocessor controls, and the sonic improvements integrated into all Series 3000A components make the TCD 3014 the logical choice for exceptional music reproduction and professional control over all recording and playback functions.

Specifications:

Frequency Response:	
Metal IV	18 Hz - 23 kHz
(- 20 dB)	$\pm$ 1.5 dB
With Dolby C*	$\pm$ 3.0 dB
Signal to noise ratio (Dolby C):	
Metal IV	> 74 dB
Erasure (1 kHz):	
Metal IV	> 80 dB
Wow and Flutter:	
WRMS (PLAY)	0.06%
WRMS (REC-PLAY)	0.09%
DIN - IEC	0.12%
Dimensions:	width 43.5
	height 16.6
	depth 35.0

* (Trade Mark Dolby Labs., Inc.)



TD 20A

Tape Deck

Much of Tandberg's reputation for quality is based on the unmatched performance of its tape decks. The TD 20A is a direct descendant of the products that made Tandberg a leader in the audio market.

The TD 20A features a four motor transport for superb tape handling, Programmed Read Only Memory operating system, four input mike/line mixing, and Track Sync for a very professional-type recording system.

The four, servo controlled motors in the transport system insure precise control and gentle tape handling. A 5 mm thick aluminum baseplate rolled under 40 tons of pressure in a unique "honeycomb" design eliminates stress and greatly increases strength.

The computerized operating system enables direct and responsive access to all transport operations including flying start record/editing, high speed cue and review, and eliminates the possibility of tape mishandling or damage at the same time.

Tandberg's patented Actilinear recording system provides a tremendous breakthrough in tape recording capabilities by adding up to 20 dB of increased record amplifier headroom while reducing noise and high frequency overload to a minimum.

The TD 20A is the perfect choice for audiophiles who want the proven advantages of an open reel tape deck.

Specifications:

Frequency range ± 2 dB 20-30,000 Hz
THD distortion at 0 dB rec. level: < 2%
Tracks: 2
Tape speed: 15 - 7 1/2 ips
Speed variations (wow and flutter):
WRMS R/P 15 ips 0.03%
7 1/2 ips 0.05%
Speed tolerance: $\pm 0.5\%$
Signal to tape noise ratio:
IEC A-curve Max. 72 dB
IEC linear RMS 60 dB
Cross talk at 1000 Hz min.:
Mono 64 dB
Stereo 54 dB
Dimensions: width 43.5
height 45.0
depth 19.5



TD 20A SE

Tape Deck

A four motor transport system, microprocessor control operating system, Dyneq and Actilinear, Special Equalization, four input mike/line mixing, and Track Sync all combine to make the TD 20A SE the ultimate recording system for home or semi-professional use.

Tandberg's unique Special Equalization takes advantage of new, high output/low noise tapes by reducing the playback boost, thus diminishing tape hiss significantly and allowing up to 80 dB signal to noise without noise reduction circuits.

The Dyneq headroom extension system automatically adjusts high frequency amplification of the musical signals to avoid overload of the tape. Possible distortion is prevented and signal strength may be increased dramatically without tape saturation, resulting in substantial increase in maximum record level.

Tandberg's patented Actilinear recording system allows headroom extension for the record circuit electronics to provide up to 20 dB of increased record amplifier headroom.

The microprocessor enables direct, precise, and responsive access to all transport operations including flying start record/editing, high speed cue and review, and also eliminates the possibility of tape damage or mishandling.

Specifications:

Frequency range ± 2 dB 20-30,000 Hz
THD distortion at 0 dB rec. level: < 2%
Tracks: 2
Tape speed: 15 - 7 1/2 ips
Speed variations (wow and flutter):
WRMS R/P 15 ips 0.03%
7 1/2 ips 0.05%
Speed tolerance: $\pm 0.5\%$
Signal to tape noise ratio:
IEC A-curve Max. 80 dB
IEC linear RMS 70 dB
Cross talk at 1000 Hz min.:
Mono 64 dB
Stereo 54 dB
Dimensions: width 43.5
height 45.0
depth 19.5

THE AUDIBLE DIFFERENCE

Tandberg's Series 3000A integrates the sonic improvements of the TIA 3012 into an already outstanding line of components.

Consider the innovations and advanced design concepts available in the Series 3000A.

- Direct Digital input in the TCA 3002A Control Amplifier allows more than 20 volts of signal without input overload.

- Microprocessor controls in the TPT 3001A, TPT 3011A, TCD 3014, and TD 20A SE give users the ideal combination of sophistication and simplicity.

- Dyneq and Actilinear II headroom extension systems combined with dual process Dolby B and C noise reduction (Trade Mark Dolby Labs., Inc.).

- Selected polystyrene and polypropylene capacitors in all critical audio circuits throughout the product line eliminate sonic distortion.

- Four motor tape transport in the TCD 3014, TD 20A, and TD 20A SE insure ideal tape handling in all drive modes and reliability over years of sustained use.

- Peak reading equalized meters in the TCD 3014, TD 20A, and TD 20A SE show the true record signal after record EQ has been applied and indicate even the most subtle variations.

The result is a musical experience that until now has been available to only a select few.

THE VISIBLE DIFFERENCE

Components with the outstanding performance of the Series 3000A usually involve compromises in styling, flexibility, or simplicity that limit their appeal to hi-fidelity buyers.

Not so with Tandberg. Each component of the Series 3000A offers a simplicity that means quick, logical response to user commands and provides unmatched ease of operation. Optional remote controls for the

cassette and tape decks offer even greater control simplicity for the user.

The design flexibility of the Series 3000A adapts to any lifestyle. Each unit related harmoniously to its environment and other components regardless of manufacturer.

Finally, the Series 3000A components offer strikingly beautiful, classic styling in quality machined extruded aluminum cabinets well-suited to the

elegance of any home decor. Attractive, optional rosewood side panels and a final touch of class.

With Tandberg's Series 3000A, compromise becomes a problem of the past.

Tandberg's Series 3000A offers an ideal balance of performance, simplicity, flexibility, and styling unavailable from any other manufacturer.





TANDBERG'S 50 YEARS OF EXCELLENCE

The Tandberg company was first established as "Tandbergs Radio-fabrikk A/S" in Oslo in 1933 by electronics engineer Vebjørn Tandberg and so in 1983, the company marks its 50th Anniversary as specialist audio equipment designers and manufacturers.

In this half century, the company has achieved many remarkable technical innovations and world "first", some principal milestones of which are as follows:

1933

The first products to be released were the battery-powered radio "Tommeliten" ("Tomthumb") and the mains-powered radio "Corona".

1934

"Huldra 1" radio was put into production, designed on a new principle with long and medium waves in one band.

1950

The company started its export activities.

1952

Tandberg's tape recorder, Model 1, was introduced. This was the world's first tape recorder with equalized peak-reading indicator ("magic eye").

1956

Tape recorder Model 5 was released. The first 1/4 track stereo recorder on the world market.

1961

The company produced and delivered its first language laboratory.

1964

The world's first tape recorder with "dual-gap" erase head was produced by Tandberg.

1966

Model TB 64X tape recorder with crossfield biasing system was introduced. The world's first tape recorder with frequency range to 15 kHz at the low speed of 9.5 cm/s.

1968

Tandberg's TP 41 portable radio was adjudged "best in the world" by leading trade magazines in the U.S.A.

1971

Tandberg's first digital tape transport was introduced.

1972

Tandberg absorbed "Radionette", a competing Norwegian consumer electronics company.

The same year TCD 300, the company's first cassette deck was introduced. This was the world's first 3 motor, dual capstan, closed loop, solenoid operated cassette deck and also first with complete servo control of wind and rewind.

1975

TCD 330 - the world's first 3 head, 3 motor cassette deck with full electronic logic control was introduced.

1976

Tandberg established a high technology research, development and sales company for data equipment in San Diego, U.S.A.

1977

Tandberg introduced the world's first microprocessor controlled learning laboratory, IS 9.

1978

TD 20A, reel-to-reel tape deck was introduced, which was the first to use the "Actilinear" recording system. TCD 340AM was the first cassette deck capable of recording and playing back metal tapes.

1979

TCD 440A was the first cassette deck to incorporate Tandberg's revolutionary dynamic record equalization system "Dyneq".

1980

Tandberg's Series 3000 was first launched. It was a new series of separate components, among which the tuner TPT 3001 was the world's first to have a signal-to-noise ratio better than 90 dB in stereo, and TCD 3004, a cassette deck with professional quality.

1982

TD 20A SE reel-to-reel tape deck with special equalization was introduced and was the world's first to reach 80 dB S/N on 1/4" tape without noise reduction systems.

The first product in the second generation of the Series 3000 - TIA 3012 Integrated Amplifier - was introduced.

1983

Tandberg designed and produced a special cassette deck for the visually handicapped - the TCR 555.

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