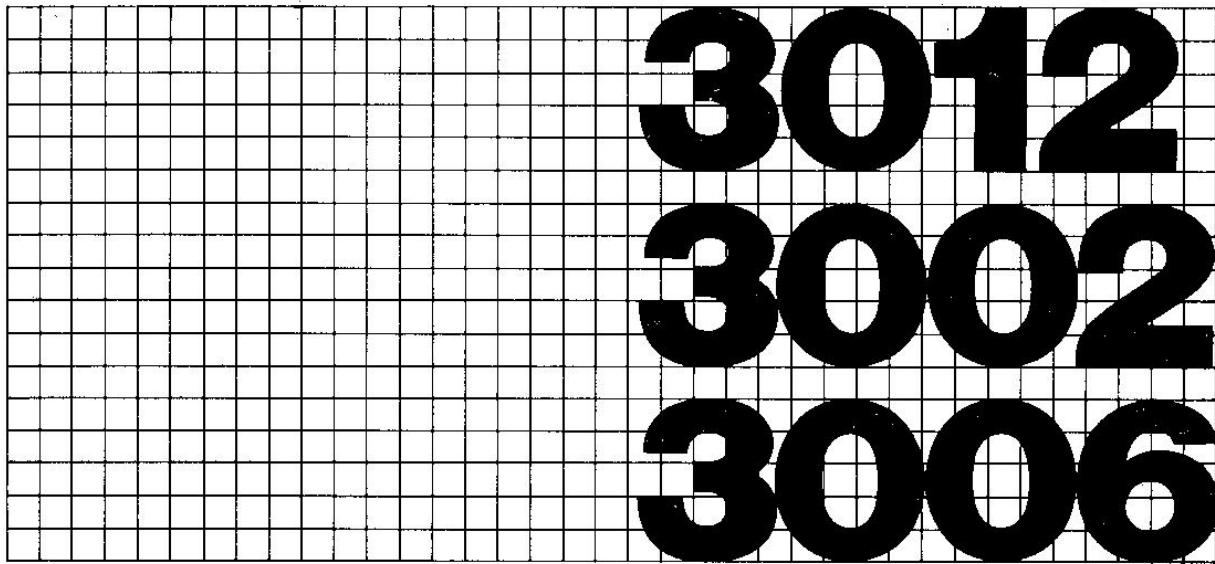


TANDBERG



16

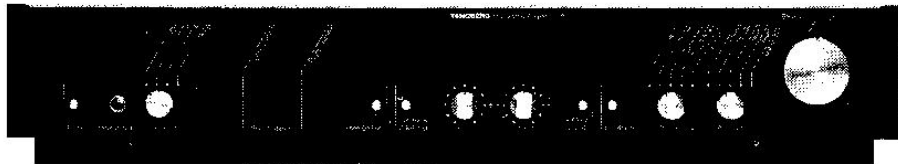
AMPLIFIERS

Tandberg's amplifier designs are state of the art technology packaged with flexibility of control and beautiful Scandi-

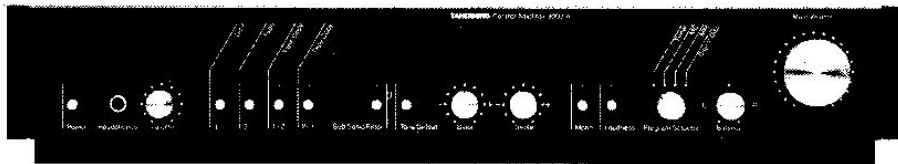
navian design. The amplifiers share a common heritage of musical accuracy based on superior engineering.

Their overall design philosophy is based on:

**TIA 3012
INTEGRATED
AMPLIFIER**



**TCA 3002A
CONTROL
AMPLIFIER**



**TPA 3006A
POWER
AMPLIFIER**



**Component
selection**

1. All audio stages are comprised exclusively of polyester capacitors and metal film

resistors. These components have been chosen for several reasons.

**Dielectric
losses**

a) Commonly used electrolytic capacitors exhibit 5 % or more dielectric absorption. This refers to the capacitor's tendency to «hang on» to the

signal passing through it and thus superimpose its characteristics on the following signal. This causes a subtle sonic «blurring» and loss of inner

detail. Polyester capacitors exhibit 0.01 % dielectric absorption, an improvement on the order of 500 times.

**Capacitance
change**

b) Ceramic capacitors suffer from an allied problem. They tend to be voltage sensitive and their rated capacitance changes as the signal voltage

swings through its normal range. The high frequency phase shift that results is the elusive cause of a harsh, metallic sound character.

Again, the solution was to replace the ceramic with highly stable polyester types.

Discrete components

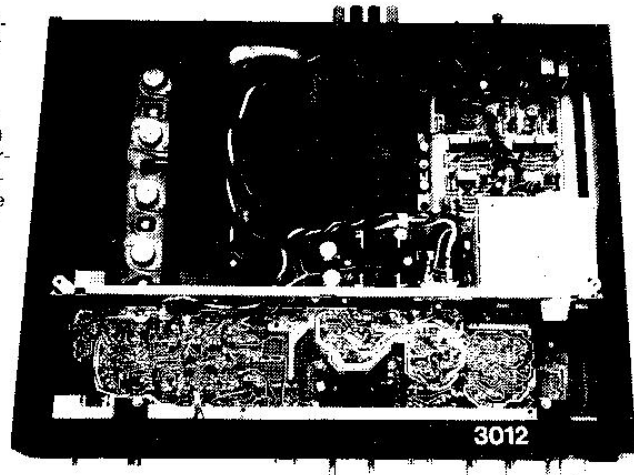
c) Component selection also includes all discrete audio circuitry (no IC's) for minimum

distortion and optimum signal-to-noise. All critical stages are comprised of 1 % tolerance

devices. This insures accurate performance and unit to unit consistency.

High current capability

2. High current amplifier design with fully regulated power supply. Both TIA-3012 and TPA-3006A feature toroidal power transformers for maximum efficiency and minimum hum generation. The high current design guarantees superior performance under all the most dynamic signal conditions, no matter what type of loudspeaker is used.



Digital Disc

3. Digital Disc input on TCA 3002A and TIA 3012 offers an overload rating in excess of 20

volts. No matter how dynamic the source it will not overload the input.

RIAA

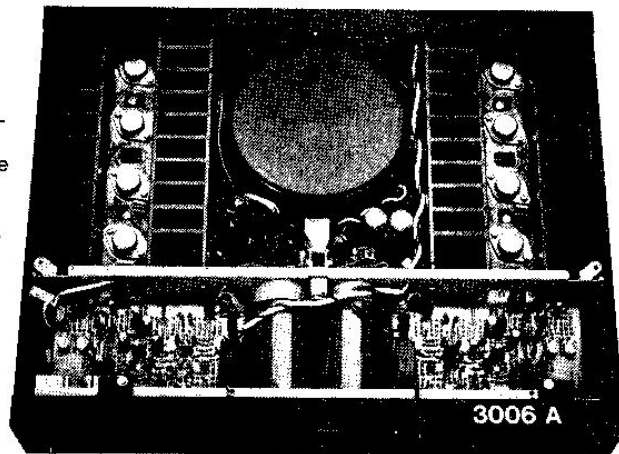
4. Passive/Active Phono EQ. Both phono sections, MC/MM, are split into passive H. F. and

active L. F. sections. This eliminates the need for negative feedback in the high end with

its resultant sonic degradation.

MOSFET Output stages

5. Both TIA 3012 and TPA 3006A feature MOSFET output stages. These output devices require no voltage or current limiting protection circuits. They are also much faster than commonly used Bi-Polar transistors and are more frequency linear when driven by Tandberg's exclusive constant impedance driver stage.



Negative feedback

6. Negative feedback must be properly applied in order to minimize distortion and not cause its own sound deterioration. In TCA 3002A and TIA 3012 negative feedback is applied in minimal amounts

with individual loops, only to those amplifier stages which require it. TPA 3006A has, in fact, no feedback at all. This revolutionary amplifier maintains low distortion by use of our Voltage Comparator Cir-

cuit. This proprietary system maintains constant low distortion and stability without any of the detrimental effects of negative feedback.

Thermic Servo Loop

7. Both TIA 3012 and TPA 3006A maintain 0. D. C. volt potential at the outputs by use

of a Thermic Servo Loop. This system works without any connection to the signal path,

which translates into better, more natural sound with absolute safety for the loudspeaker.

Technical Data
Tandberg Integrated
Amplifier TIA 3012

Power requirements:	115/230 V ± 10 %, 50/60 Hz
Power consumption:	56 W – 600 W
AC-outlets:	Unswitched 1 Switched 1
Dimensions:	Width 17 1/8" (43.6 cm) Height 3 1/4" (8.3 cm) Depth 13 3/4" (35.0 cm) Weight 22 lbs (9.7 kg)

Technical Data according to
IHF-A-202, 1978

Continuous Average Power Output:	(8 ohms, 20 – 20,000 Hz, THD < 0.02 % \times 100 W)
Dynamic Headroom:	0,35 dB
Frequency response:	
Linear inputs	5 – 100,000 Hz \pm 0/- 3 dB
Phono MC and MM inputs	20 – 20,000 Hz \pm 0.2 dB
Sensitivity	
Phono MC	15 μ V
Phono MM	190 μ V
Tuner, Tape 1, and Tape 2	15 mV
Digital	15 mV
A-weighted Signal-to-noise Ratio:	
Phono MC	73 dB
Phono MM	78 dB
Tuner, Tape 1, and Tape 2	87 dB
Digital	87 dB
Maximum Input Signal:	
Phono MC	20 mV
Phono MM	250 mV
Tuner, Tape 1, and Tape 2	5 V
Digital	> 20 V
Input Impedance:	
Phono MC	150 ohms
Phono MM	47 kohms
Tuner, Tape 1, and Tape 2	100 kohms
Digital	13 kohms

Technical Data
Tandberg Control Amplifier
TCA 3002A

Power requirements:	115/230 V \pm 10%, 50/60 Hz
Power consumption:	30 W max.
AC-outlets:	Unswitched 1 Switched 3
Dimensions:	Width 17 1/8" (43.5 cm) Depth 13 3/4" (35.0 cm) Height 3 1/4" (8.3 cm) Weight 12.5 lbs (5,7 kg)

Technical Data according to
IHF-A-202, 1978

Frequency response:	
Phono MM:	20 – 20,000 Hz + 0.2 dB
Phono MC:	20 – 20,000 Hz - 0.2 dB
Tape 1, Tape 2:	20 – 20,000 Hz -0/-0.1 dB
Tuner, Digital:	20 – 20,000 Hz +0/-0.1 dB
Maximum Voltage Output:	
Preamp output:	5 V at THD = 0.004 %
Preamp output:	10 V at clipping level
Tape 1, Tape 2:	7,5 V
Headphone output:	20 V unloaded
Total Harmonic Distortion (20 Hz – 20,000 Hz):	
Phono MM:	< 0.004 %
Phono MC:	< 0.004 %
Tape 1, Tape 2:	< 0.004 %
Tuner, Digital:	< 0.004 %
Input Sensitivity – Ref. 0.5 V output voltage:	
Phono MM:	1 mV
Phono MC:	80 μ V
Tape 1, Tape 2:	70 mV
Tuner, Digital:	70 mV
A-weighted Signal-to-Noise Ratio:	
Phono MM:	80 dB
Phono MC:	74 dB
Tape 1, Tape 2:	95 dB
Tuner, Digital:	95 dB
Maximum Input Voltage (1 kHz):	
Phono MM:	290 mV
Phono MC:	22 mV
Tape 1, Tape 2:	11 V
Tuner:	11 V
Digital:	20 V