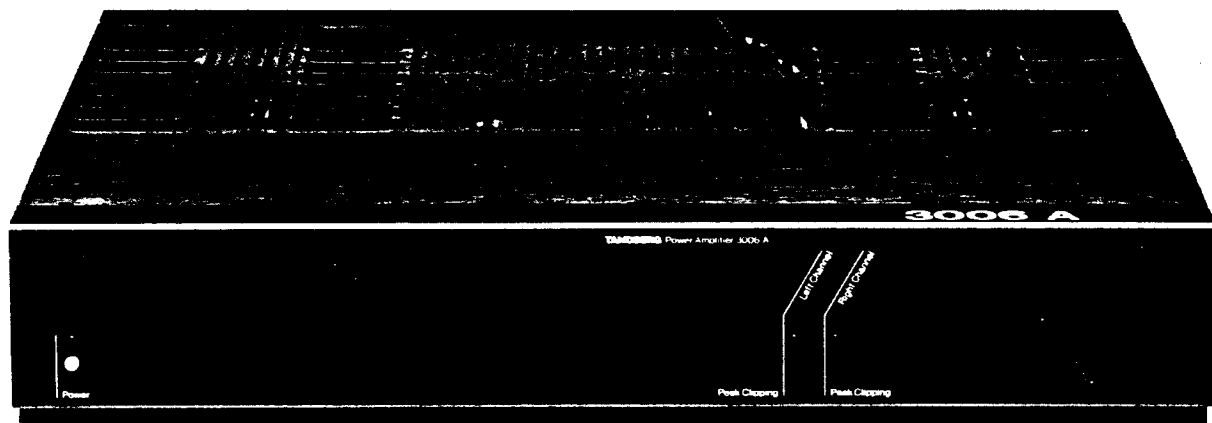
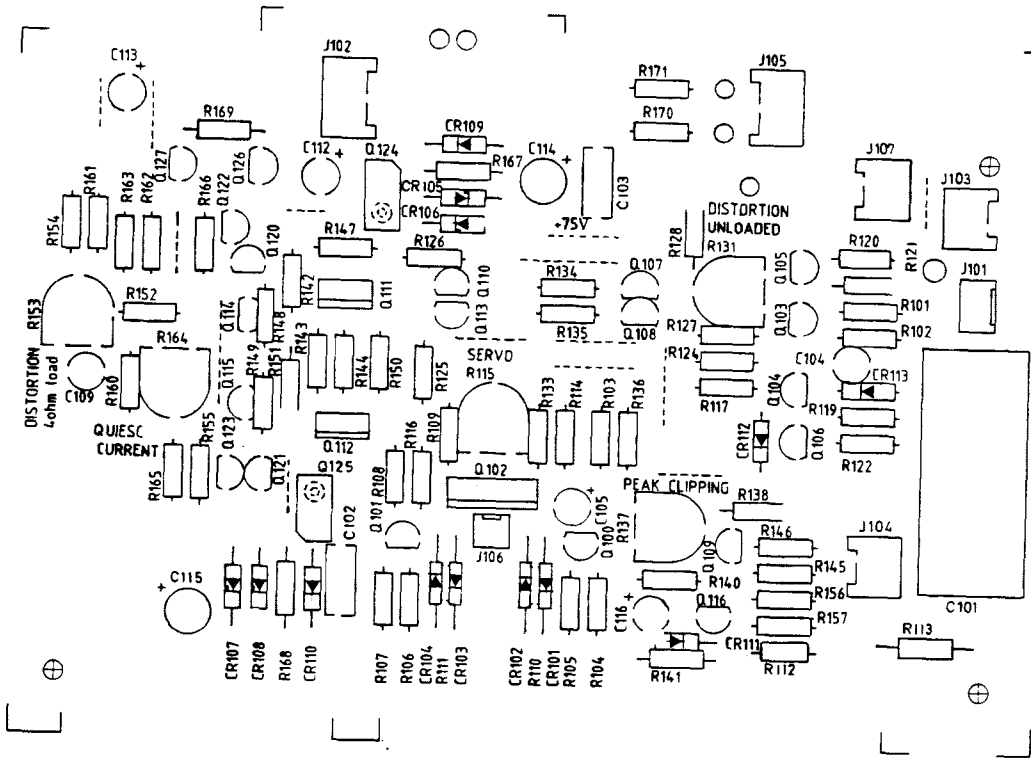

TANDBERG® TPA 3006A

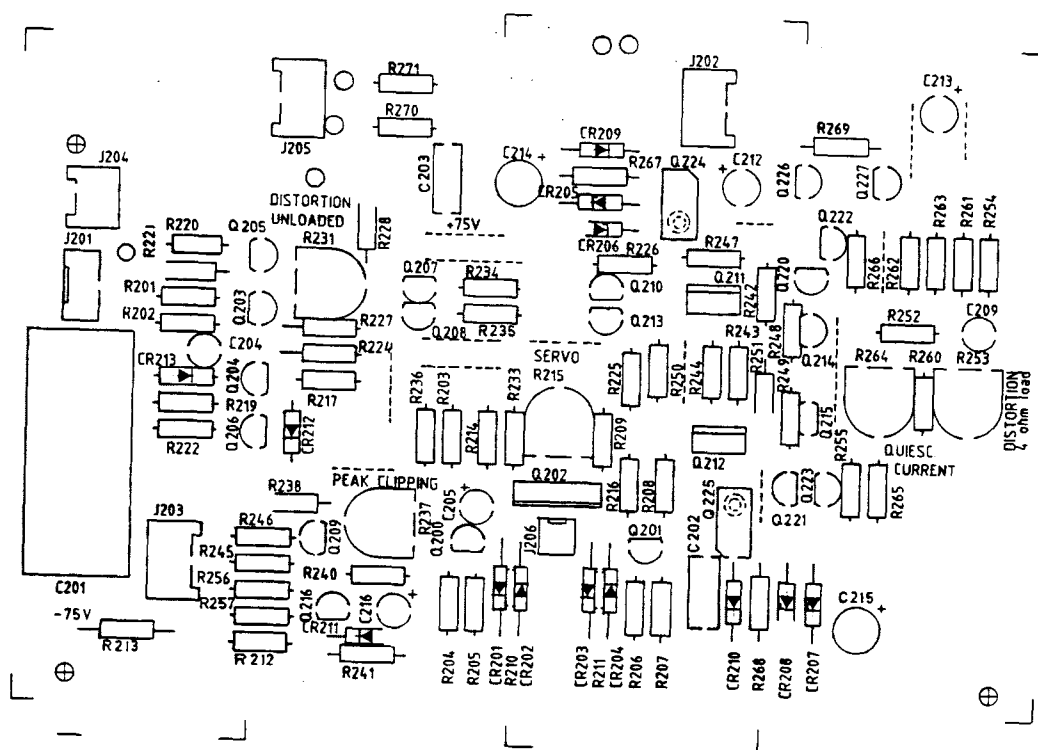
Circuit Diagram and Alignment Instructions



From serial No. 0970
(Zero feedback version)



Power amplifier board, left channel, component side



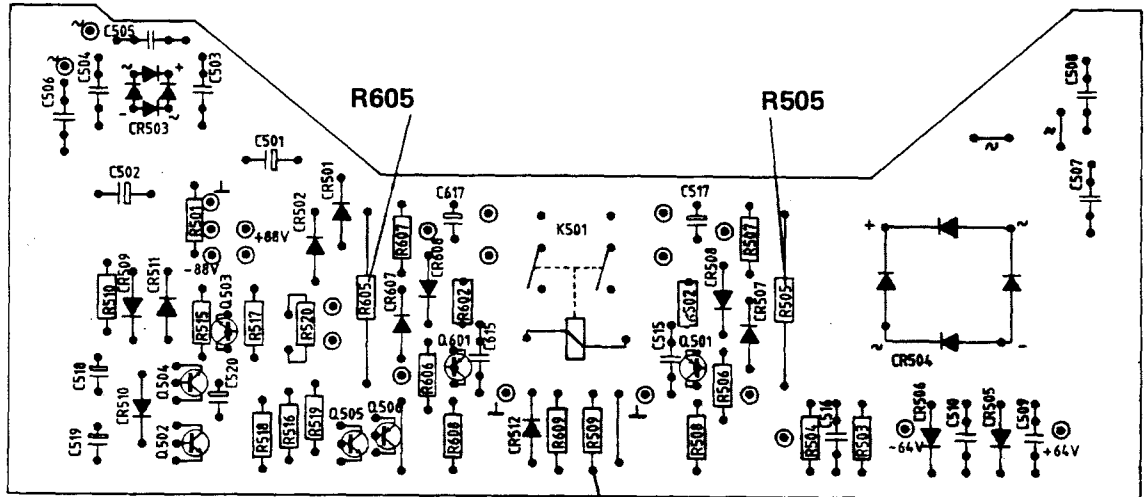
Power amplifier board, right channel, component side

Checking the speaker protection relay

- Disconnect speaker load.
- Apply 6 to 8 V d.c. with 220 kohm in series (+ and - alternately) to R508/R509. The relay should then open.

Peak clipping

Adjust R137/R237 to minimum light in LED at slight dipping.



The power supply board seen from the solder side

220 kohm

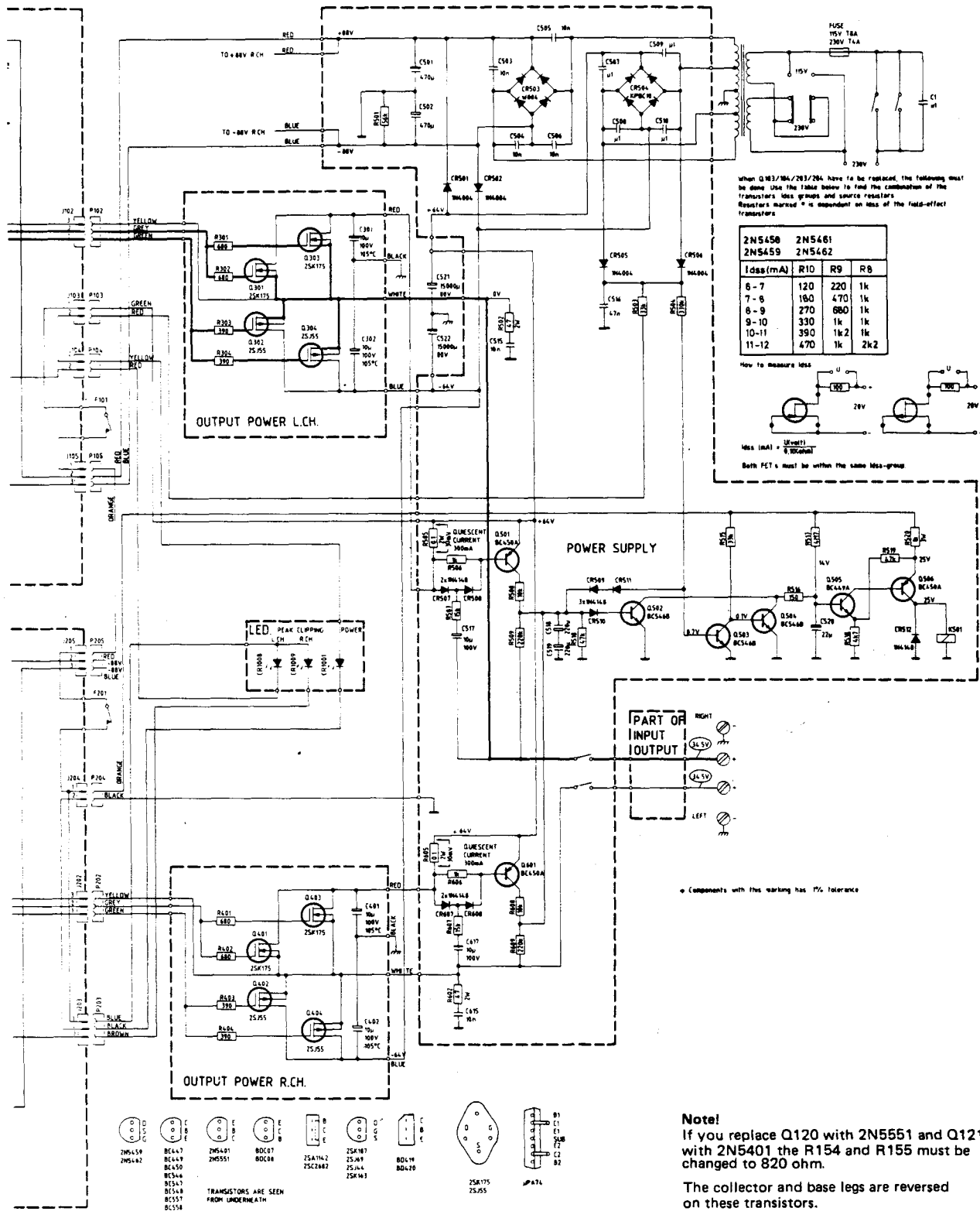
+ or - 8 V

NOTE!

Input FET's Q103/Q104 and Q203/Q204 are matched pairs, and should be replaced with the same group. Each matched pair of transistors needs a specific value of source resistors (written by hand on the pc board). After replacing the FET's, check for correct current.

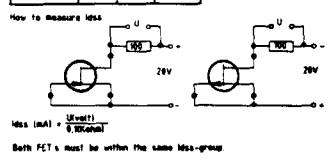
The voltage across R147/R247 should be $2.2 \text{ V} \pm 0.2 \text{ V}$.

All measurements in the amplifier must be made with a probe having minimum 5 kohms.



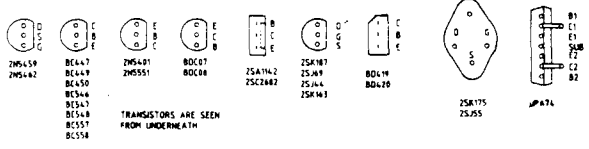
When Q103/Q104/203/204 have to be replaced, the following must be done. Use the table below to find the combination of the transistors less groups and source resistors. Resistor marked * is dependent on loss of the field-effect transistors.

2N5450 2N5459	2N5461 2N5462	R10	R9	R8
6-7	120	220	1k	
7-8	150	470	1k	
8-9	270	680	1k	
9-10	330	1k	1k	
10-11	390	1k2	1k	
11-12	470	1k	2k2	



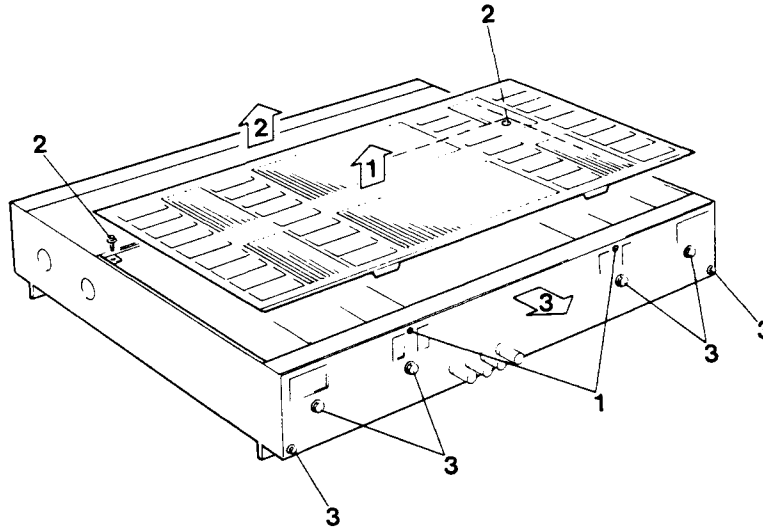
* Components with this marking has 1% tolerance

Note!
If you replace Q120 with 2N5551 and Q121 with 2N5401 the R154 and R155 must be changed to 820 ohm.
The collector and base legs are reversed on these transistors.

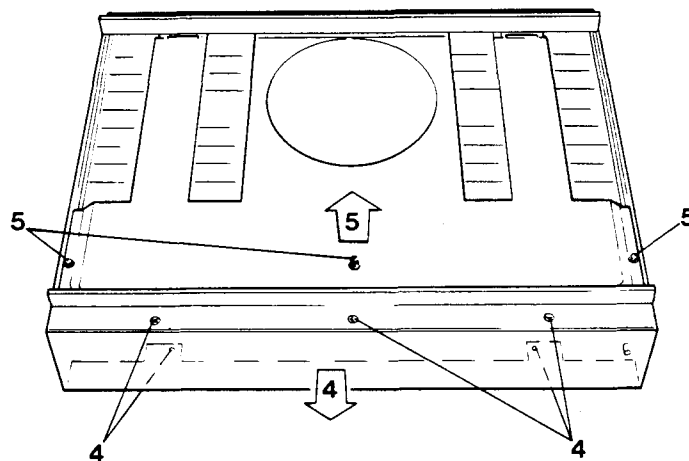


Dismantling

- Top cover, rear (1)
- Top cover, front (2)
- Rear panel (3)
- Front panel (4)
- Bottom cover (5)



Dismantling the rear and top covers.



Dismantling the front and bottom covers.

Adjustments

Test conditions

Approx. 30 minutes warming up time without signal applied. The top and bottom cover should not be removed, otherwise the unit must be covered.

Distortion, unloaded

Adjust R131/R231 to minimum distortion, at 12 V output, 1 kHz, and no load. The distortion should be less than 0.004%.

D.c. offset adjustment

- Solder two LED's (light emitting diodes) with opposite polarity together in parallel and connect them to the contacts J106 (left) and J206 (right) on the power amplifier boards (collectors on Q102 left and Q202 right).
- Adjust R115 (left) and R215 (right) until both LED's are switched off.

- Remove the LED's and measure the d.c. voltage on the output terminals. The d.c. voltage should be less than ± 35 mV.

Quiescent current

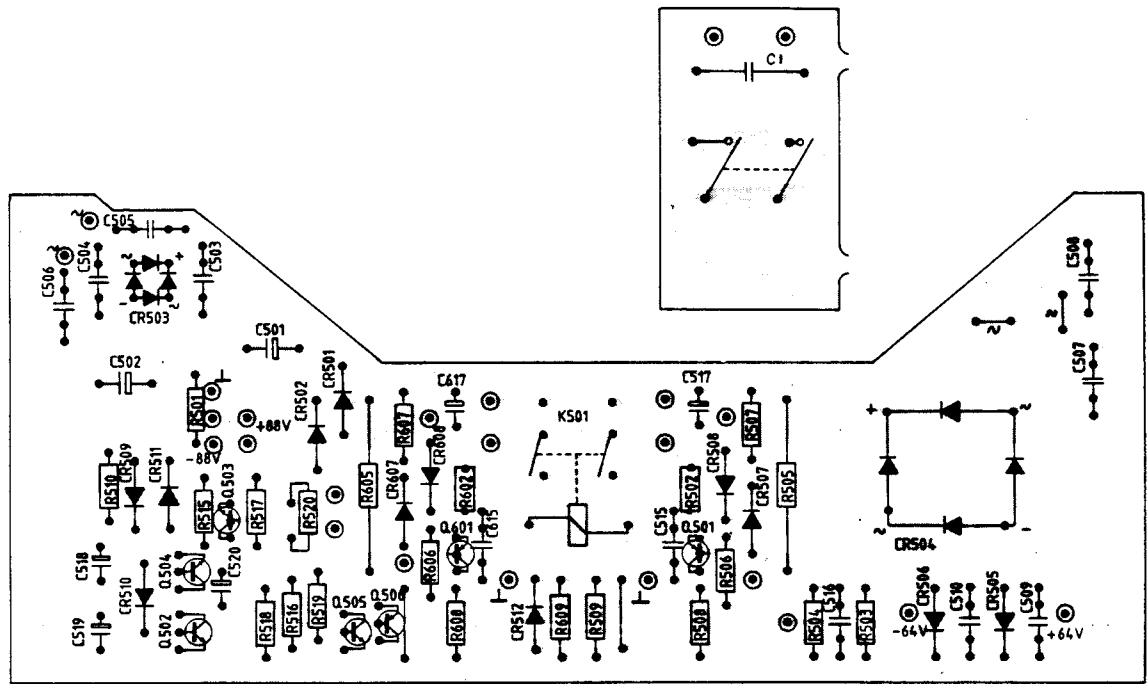
The quiescent current should be adjusted without load and no signal applied at the input terminals.

- Adjust R164 (left) and R264 (right) on the output amplifier boards to 35 mV across R505 (left) and R605 (right) on the power supply board.

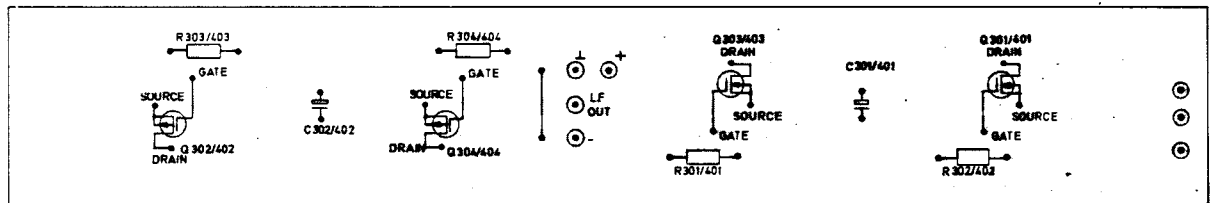
Distortion, loaded

Apply a signal of 1 kHz and drive the amplifier to 12 V on the output terminals when the load is 4 ohms.

- Adjust R131 (left) and R231 (right) to minimum distortion. The distortion should be less than 0.005%.



Power supply board, solder side



Output power amplifier board, solder side

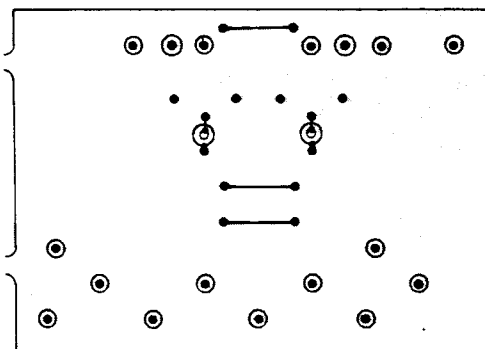
+ CR1009
+ CR1008

+ CR1007
+ CR1006

+ CR1005
+ CR1004
+ CR1003
+ CR1002

+ CR1001

LED board, solder side



Input board, solder side

Tandberg Power Amplifier TPA 3006 A

Technical Data

Power requirements:	115/230 V \pm 10%, 50/60 Hz
Power consumption:	50 – 770 W
Dimensions:	Width: 17 1/8" (43.5 cm) Depth: 13 3/4" (35.0 cm) Height: 3 3/4" (8.3 cm) Weight: 25 lbs (11.3 kg)

Technical Data according to IHF-A-202, 1978

Continuous Average Power Output: (8 ohms, 20 – 20.000 Hz, THD < 0.05%)	2 x 150 W
Frequency Response:	20 – 20.000 Hz, + 0/– 0.1 dB
Sensitivity:	80 mV
A-weighted Signal-to-Noise Ratio: (Ref. 1 W/8 ohms)	94 dB

Secondary Disclosures

Output Impedance (20 – 20.000 Hz):	0.04 ohms
Wideband Damping Factor:	200
SMPTE Intermodulation Distortion:	0.05%
IHF Intermodulation Distortion:	0.05%
Transient Overload Recovery Time:	Immeasurable
Reactive Load Factor:	1.7
Reactive Load Rating:	2.3 dB
Separation:	> 75 dB
Difference of Frequency Response:	< 0.1 dB

Other Technical Data

Frequency Response:	0.15 Hz – 1.5 MHz + 0/– 3 dB
Output Impedance (20 – 20.000 Hz):	0.04 ohms
Slew rate:	250 V/ μ S
A-weighted Signal-to-Noise Ratio: (Ref. 150 W/8 ohms)	117 dB
Rise time:	0.9 μ S

o Specifications are subject to change for further improvement without notice.

Tandberg A/S

Fetveien 1, P.O. Box 53

N-2007 Kjeller, Norway