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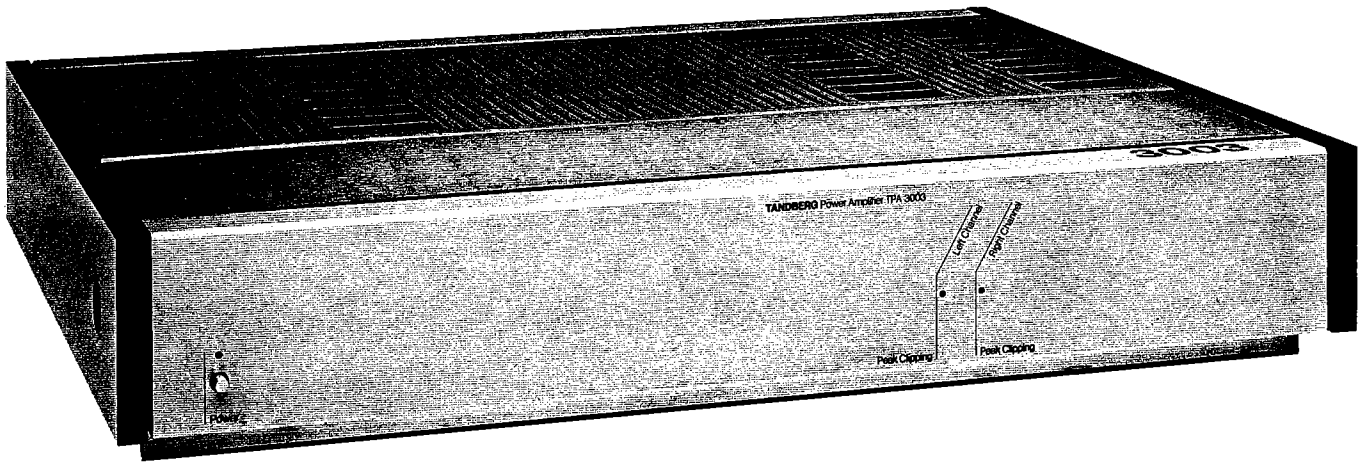
TANDBERG

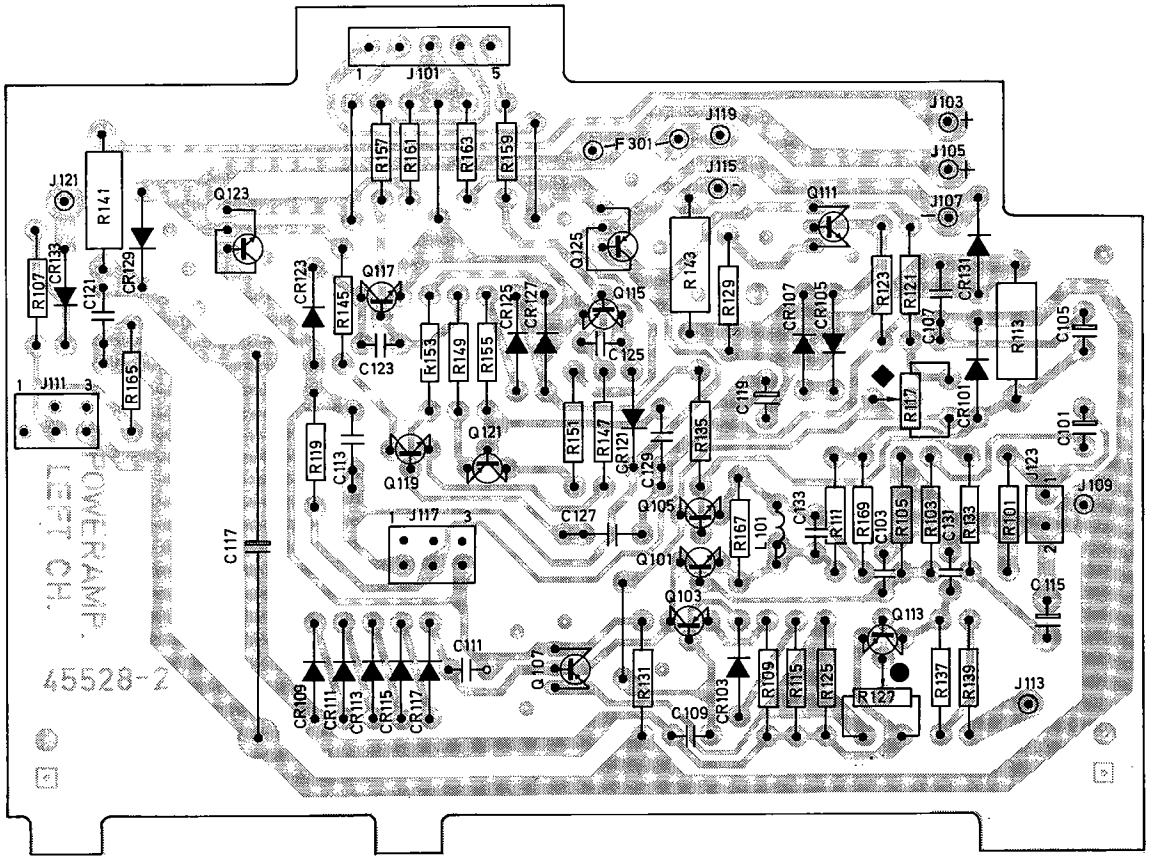
Power Amplifier 3003

Circuit Diagram and Alignment Instructions

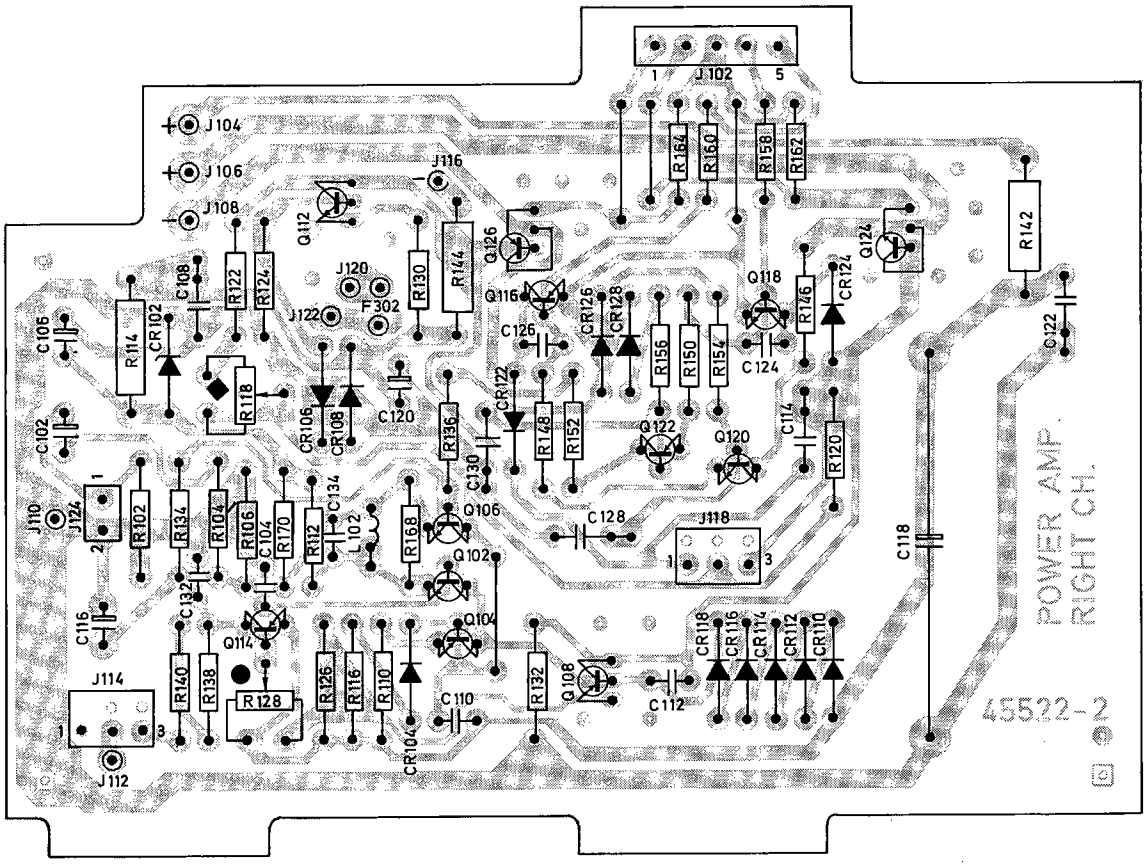


TANDBERG — The European Alternative

ALL BOARDS ARE SEEN FROM THE SOLDER SIDE



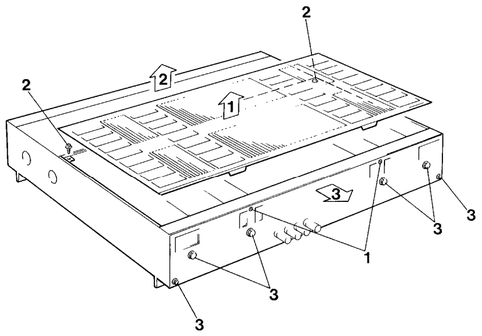
Power amplifier board, left channel



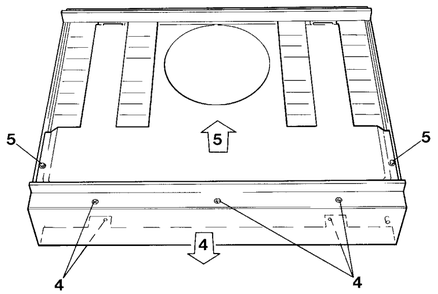
Power amplifier board, right channel

Dismantling

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



Dismantling the rear and top covers.

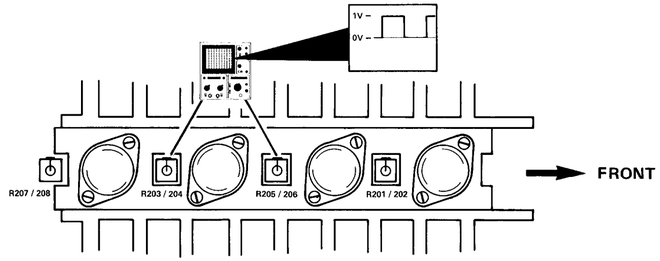


Dismantling the front and bottom covers.

Service hints

Checking the shortcircuiting protection circuit

- Connect an oscilloscope across R203/R204 for left/right channels respectively, i.e. between the top terminals of R203 and R205/R204 and R206 see figure.
- Shortcircuit the output terminals (+ to –).
- Apply a signal of 0.1 V to the input terminals.
- The oscilloscope should then show the following picture:



Checking the shortcircuiting protection circuit.

Checking the speaker protection relay

If some fault occurs in the output power circuits, causing d.c.-voltages at the speaker outputs the relay should disconnect the speakers to prevent damage.

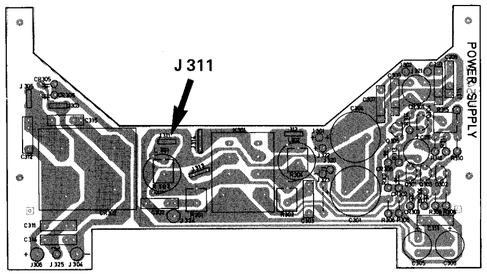
- Disconnect white wire from the output transistors at terminal J311, see figure.
- Disconnect speaker load.
- Apply 6 to 8 V d.c. (+ and – alternately) to J311. The relay should then open.

What to check after replacement of power transistors

After having replaced a defective power transistor the following components should be checked with an ohmmeter and replaced if necessary.

The component numbers refer to the left channel.

R157/159	Q109
R161/163	Q123/125/115/117
R209/211/213/215	CR109–117
R201/203/205/207	CR121/123

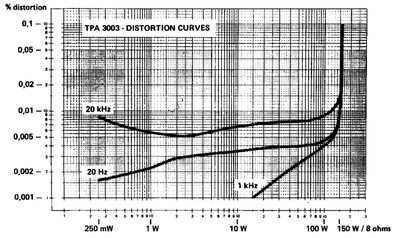


The power supply board seen from the component side.

Tandberg Power Amplifier TPA 3003

Technical Data

Power requirements:	115/230 V ± 10%, 50/60 Hz
Power consumption:	50 – 770 W
Dimensions:	Width: 17 1/8" (43.5 cm) Depth: 13 ¾" (35.0 cm) Height: 3 ¾" (8.3 cm) Weight: 25 lbs (11.3 kg)



Total harmonic distortion versus output power

Technical Data according to IHF-A-202, 1978

Continuous Average Power Output: (8 ohms, 20 – 20,000 Hz, THD < 0.02%)	2 x 150 W
Dynamic Headroom:	0.35 dB
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

Secondary Disclosures

Clipping Headroom:	1.05
Output Impedance (20 - 20,000 Hz):	0.08 ohms
Wideband Damping Factor:	100
Low Frequency Damping Factor:	200
SMPTE Intermodulation Distortion:	0.02%
IHF Intermodulation Distortion:	0.02%
Transient Overload Recovery Time:	Immeasurable
Reactive Load Factor:	1.2
Reactive Load Rating:	0.8 dB
Separation:	> 75 dB
Difference of Frequency Response:	< 0.1 dB

Other Technical Data

Frequency Response:	5 – 100,000 Hz, + 0/–1.5 dB
Output Impedance (20 – 1000 Hz):	0.04 ohms
Slew rate:	> 70 V/us
A-weighted Signal-to-Noise Ratio: (Ref. 150 W/8 ohms)	120 dB

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

Optional Extras

– Black acrylic side walls for freestanding units.
– Attachment sets for installation in 19 inch racks.

TANDBERG
The European Alternative

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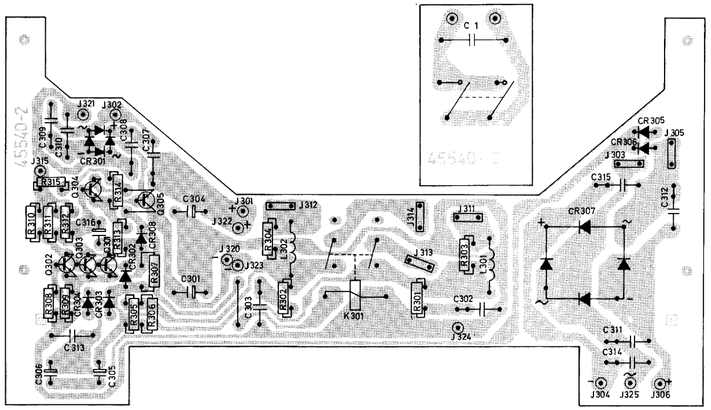
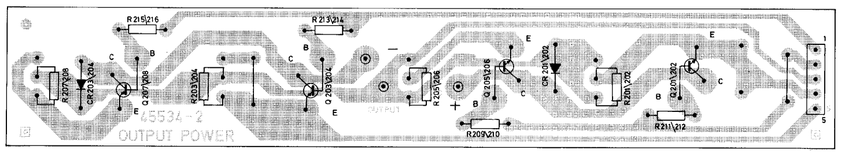


Power supply board



Output power amplifier board

Adjustments

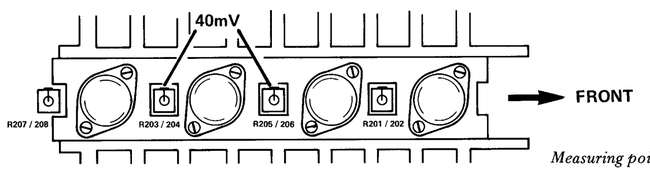
Quiescent current

Test condition:
Approx. 10 min. warming up time from *cold* condition without signal applied.

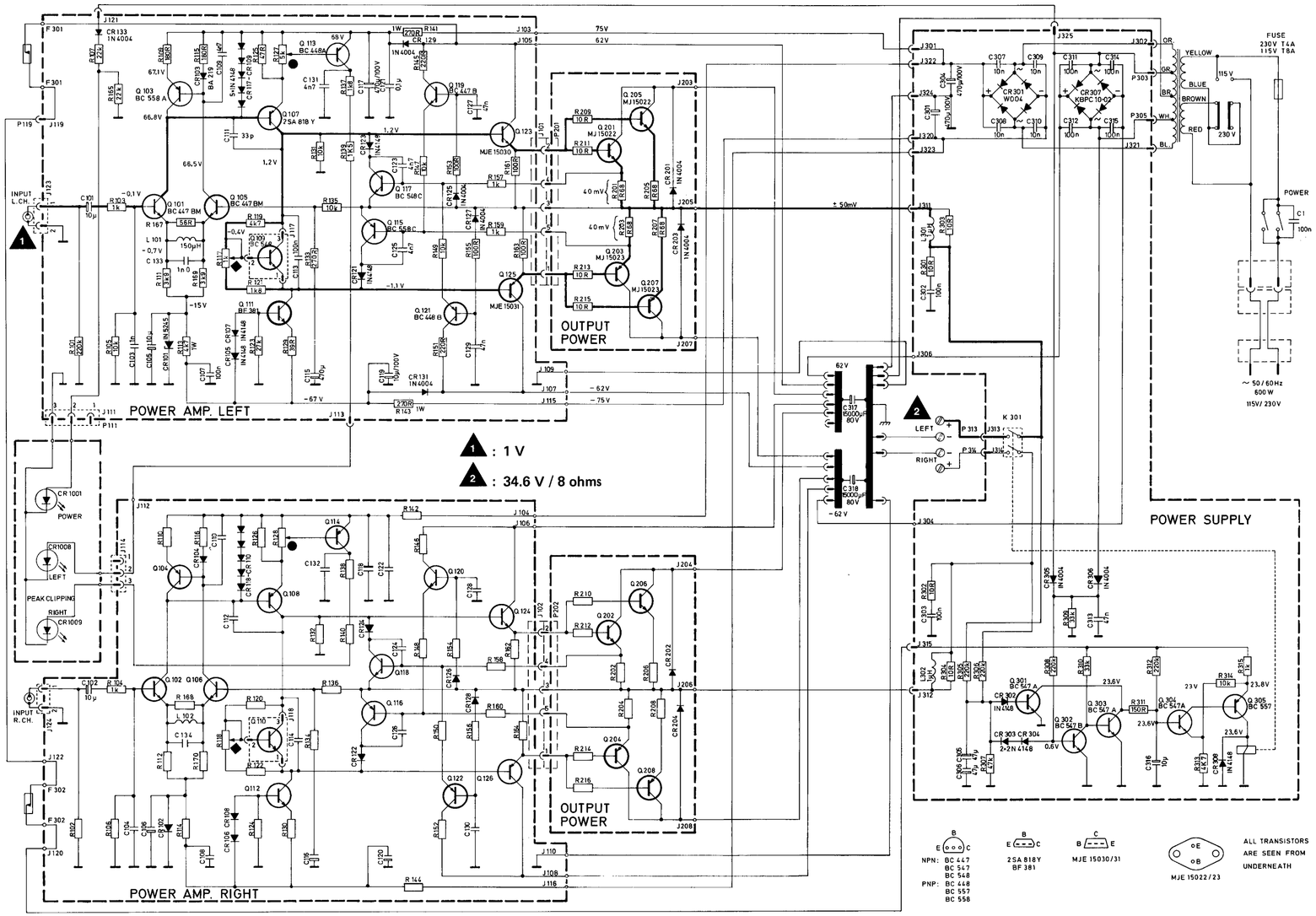
- Connect a VTVM across R203/R204 for left/right channels respectively, i.e. between the top terminals of R203 and R205/R204 and R206, see figure.
- Adjust R117/R118 (◆) for 40 mV reading on the VTVM.

Peak clipping

- Connect an oscilloscope to left/right speaker output across 8 ohms load.
- Apply a 1 kHz signal and drive the amplifier to just below clipping point.
- Adjust R127/R128 (●) so that the Peak Clipping indicators on the front lights up. Then fine adjust the potentiometers down until the lights just goes off.



Measuring point, quiescent current.



Circuit diagram ◆ Quiescent current ● Peak clipping

23 9365/68
15022 3947/388