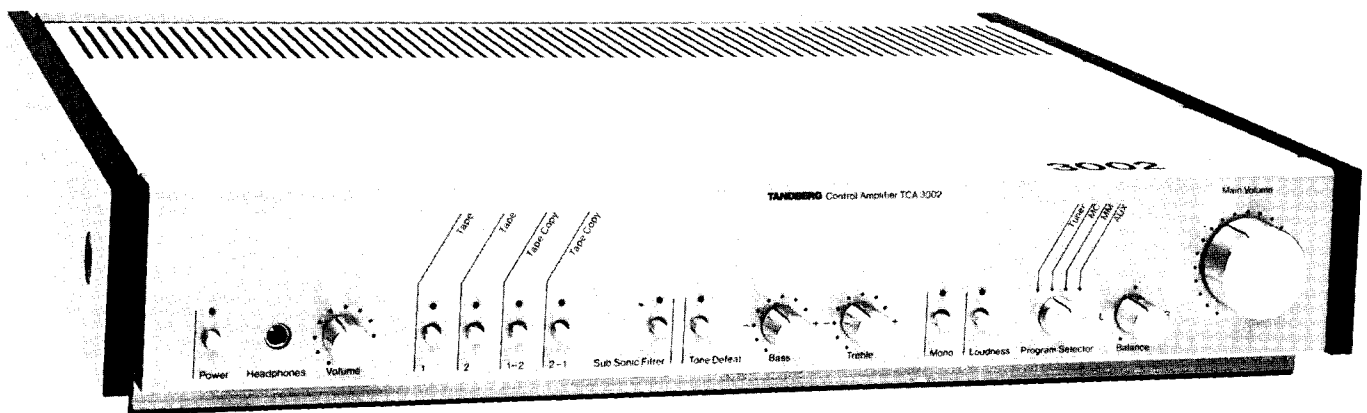


TANDBERG®

Control Amplifier 3002

Circuit Diagrams and Alignment Instructions



Dismantling

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

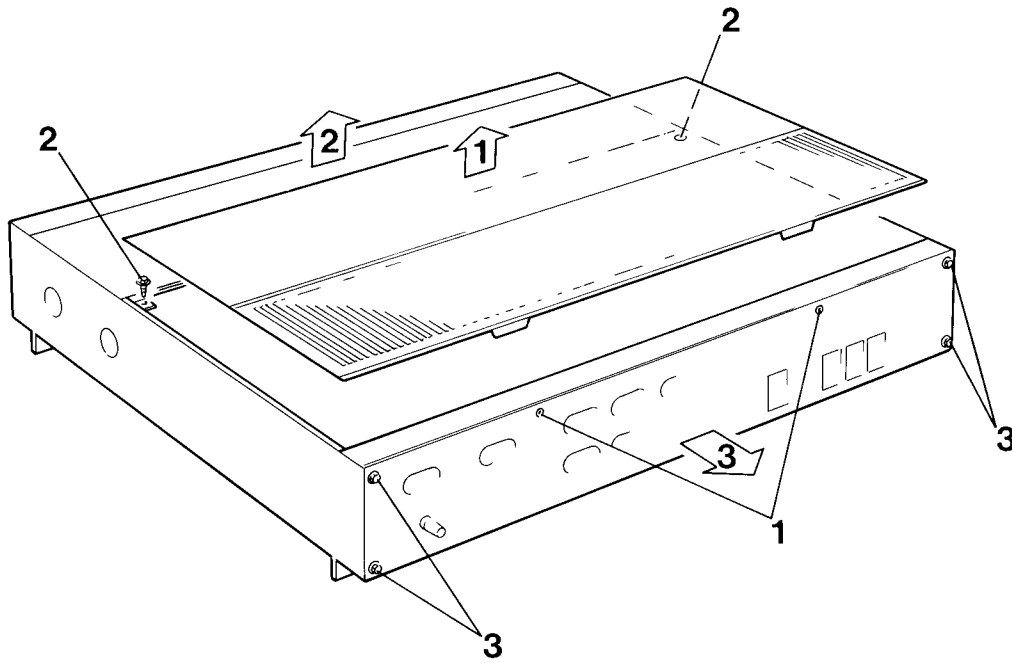


Figure 1 Dismantling the rear and top covers

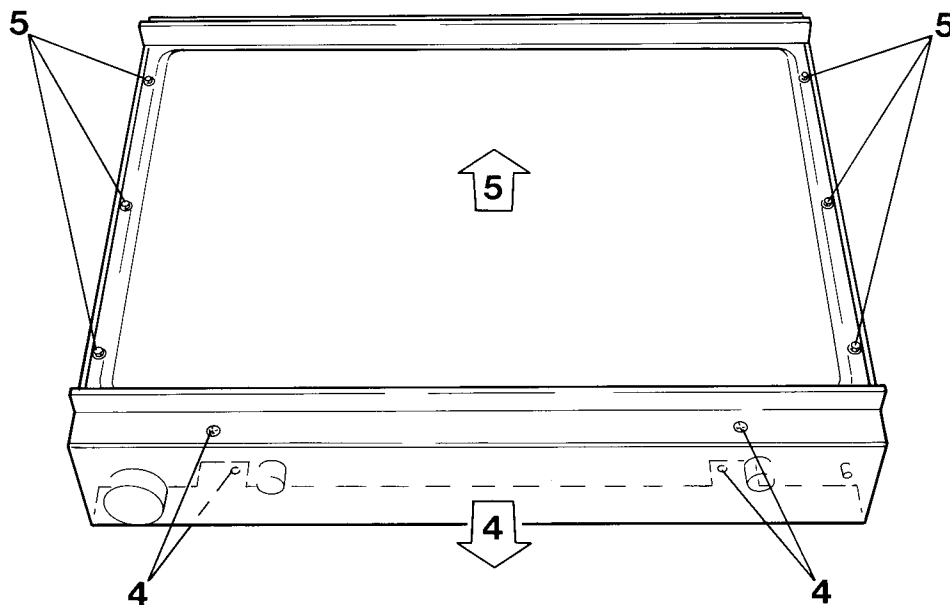


Figure 2 Dismantling the front and bottom covers

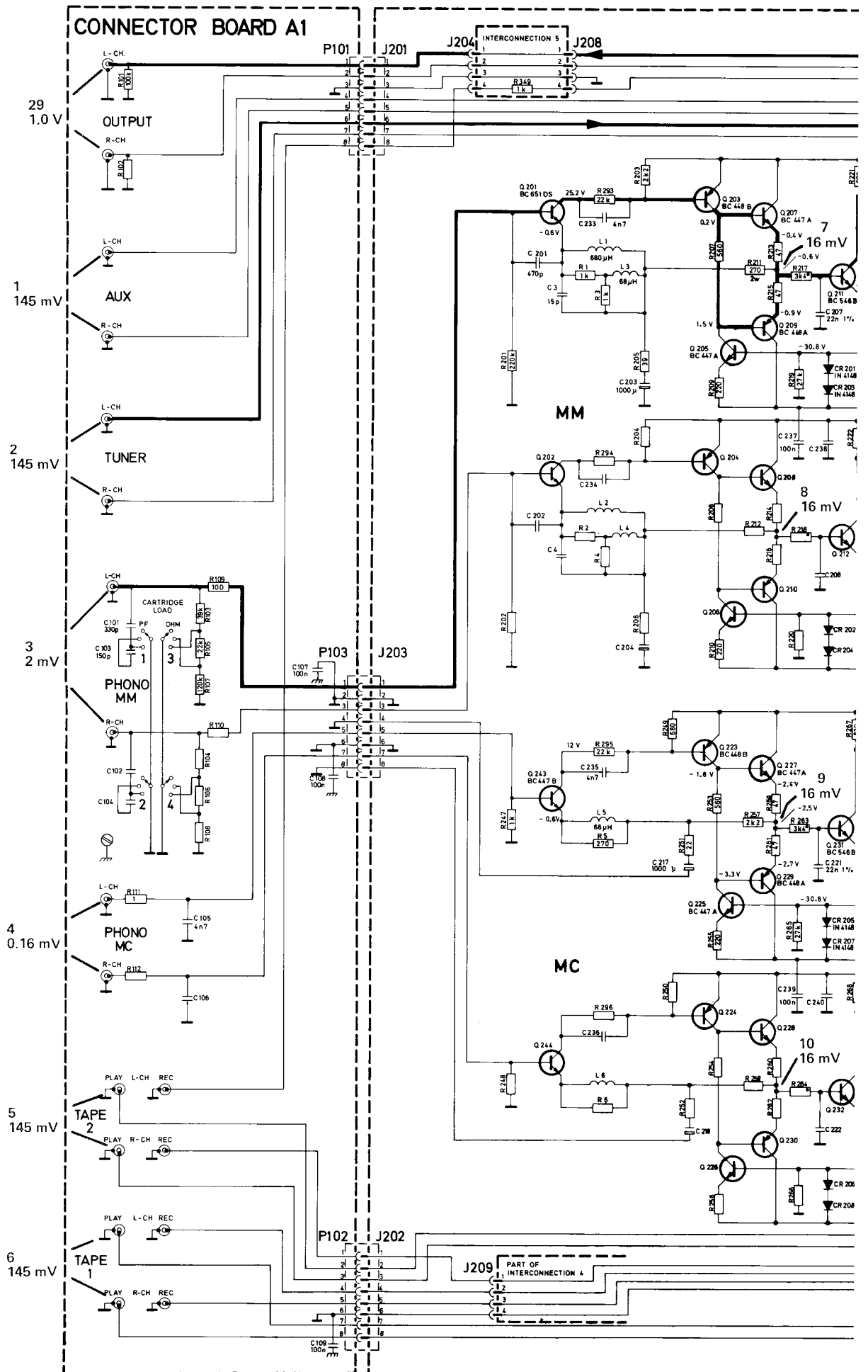


Figure 5. Circuit diagram, input amplifiers.

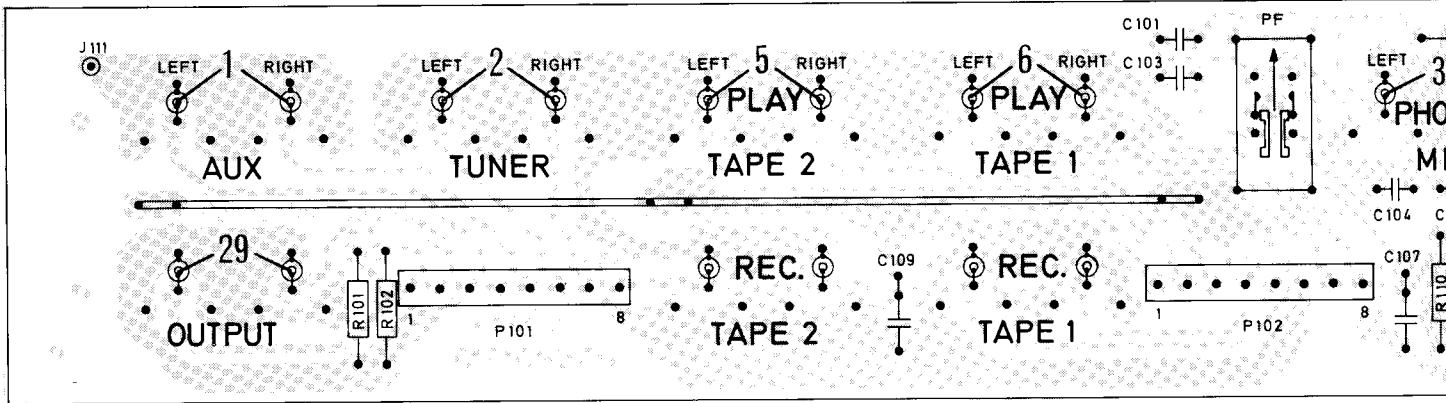


Figure 3 Connector board

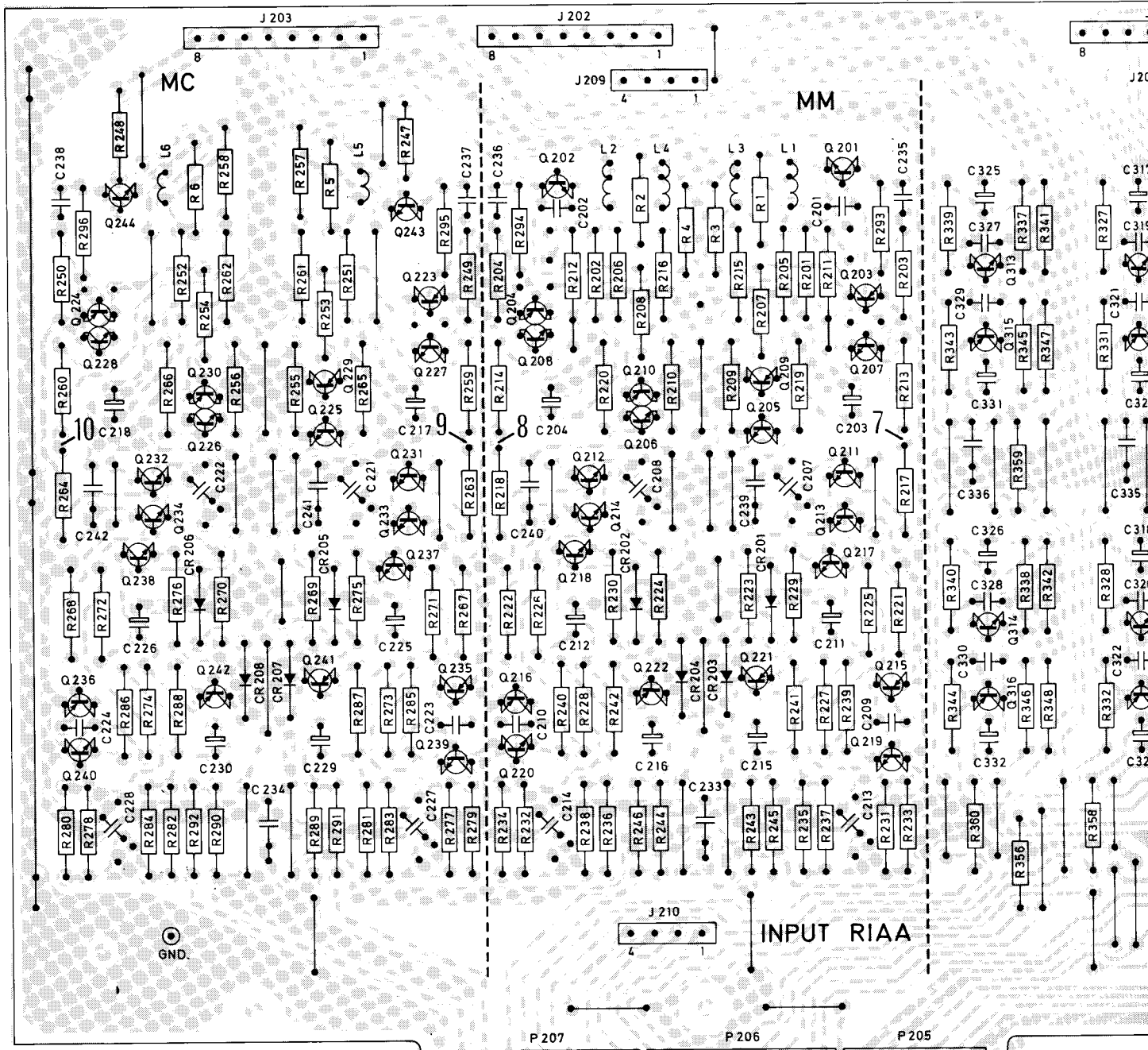
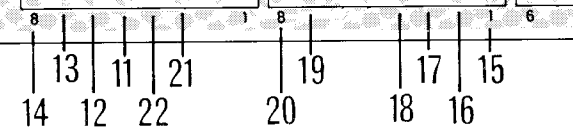
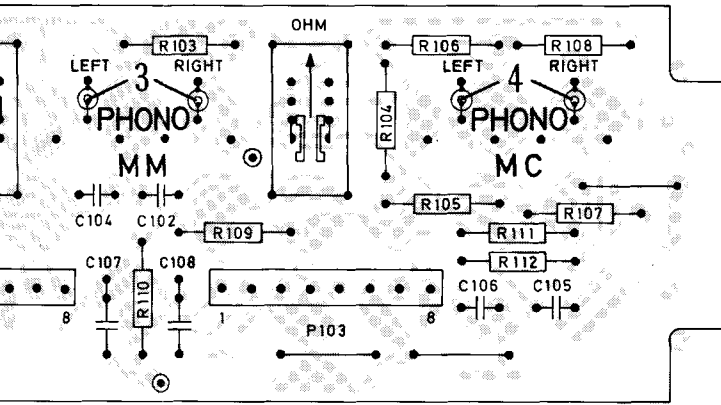
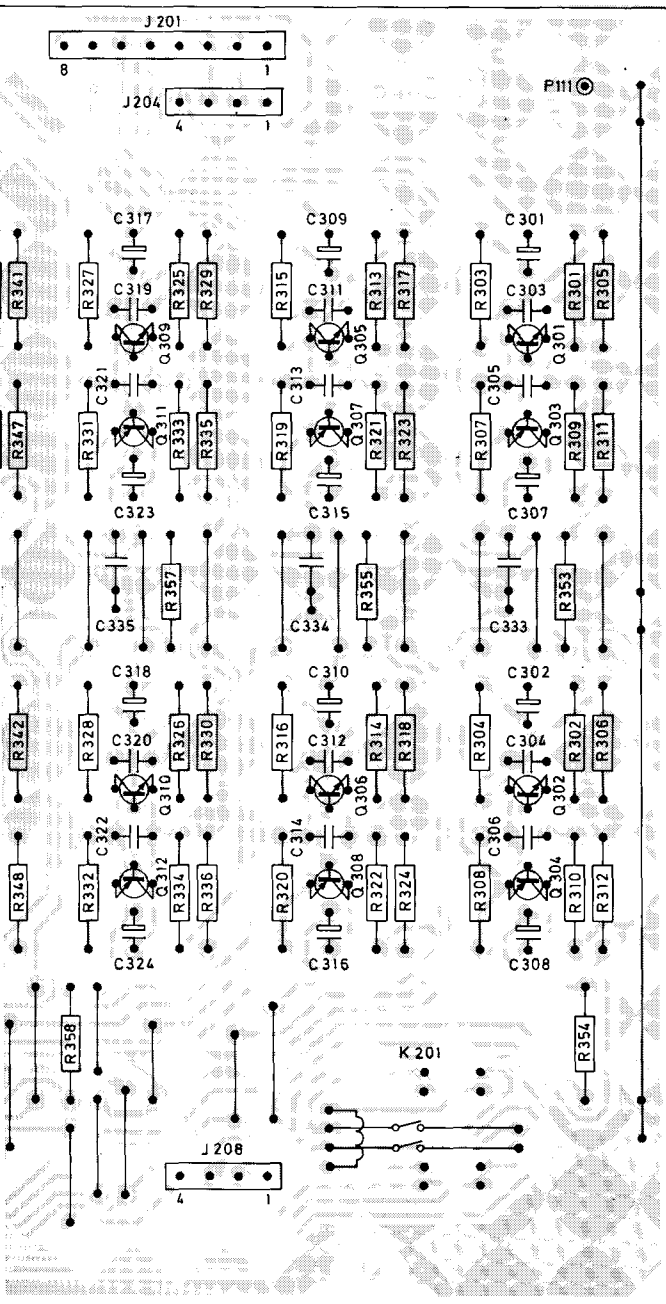


Figure 4 Input RIAA board





ALL BOARDS ARE SEEN FROM THE SOLDER SIDE.
TEST POINTS FOR AC-VOLTAGES IN COLOUR.



AC voltages

The table below gives AC voltages for the test points in Figures 3 and 4.

Test conditions

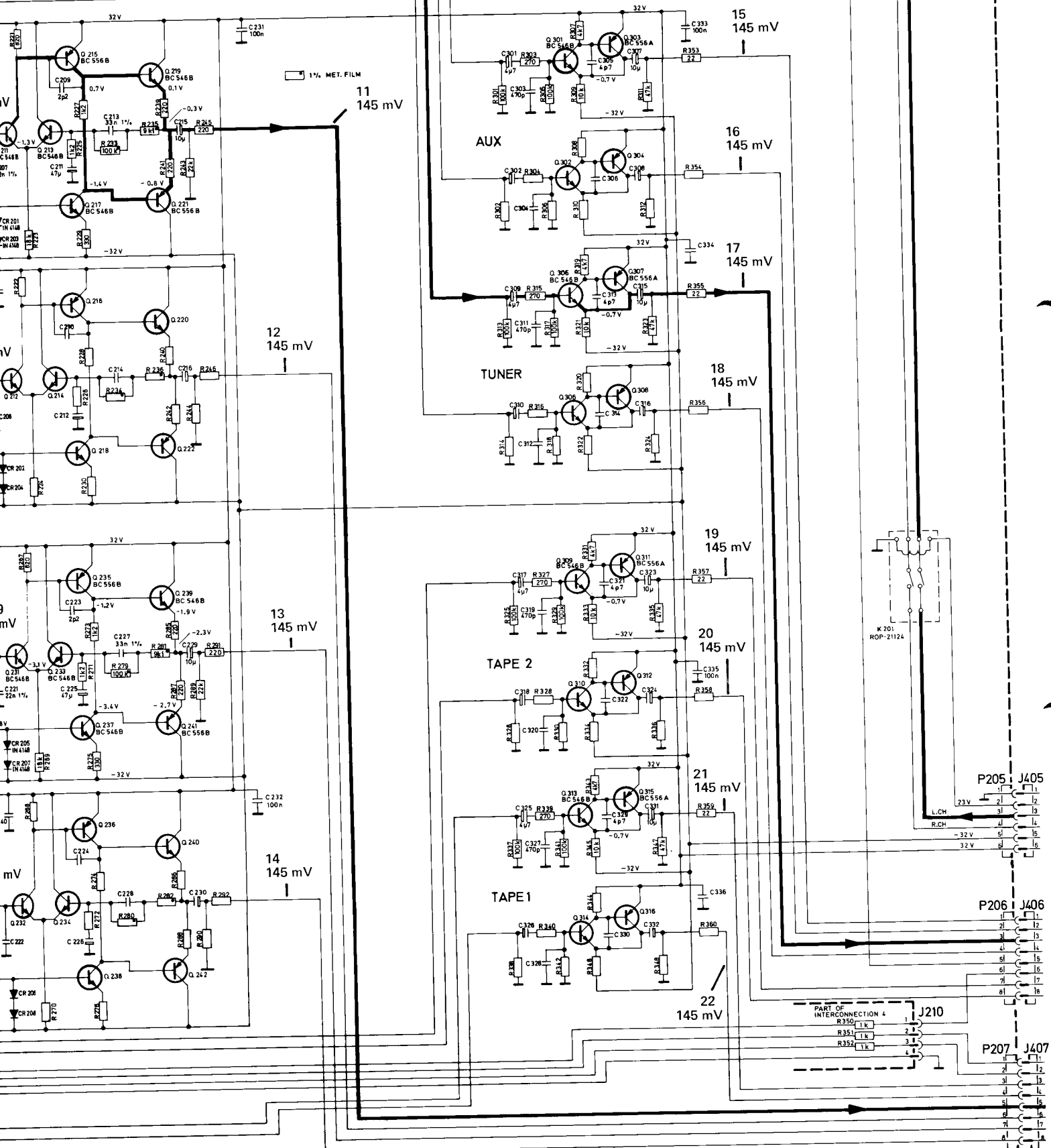
Signal: 1000 Hz.
Volume controls: Max. position.
Tone controls: Mid. position.
Balance control: Mid. position.

		Test points with input signal voltages		
		1 - 2 - 5 - 6 145 mV	3 2 mV	4 0.16 mV
Test points with signal voltages	7 - 8		16 mV	
	9 - 10			16 mV
	11 - 12		145 mV	
	13 - 14			145 mV
	15 - 16	145 mV (1)*		
	17 - 18	145 mV (2)*		
	19 - 20	145 mV (5)*		
	21 - 22	145 mV (6)*		
	29	1.0 V	1.0 V	1.0 V

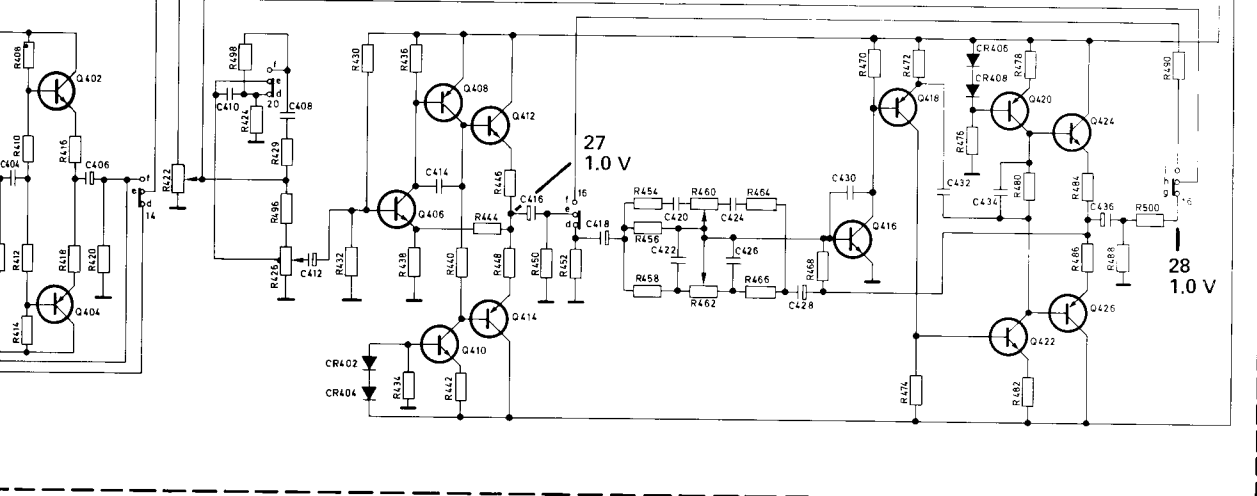
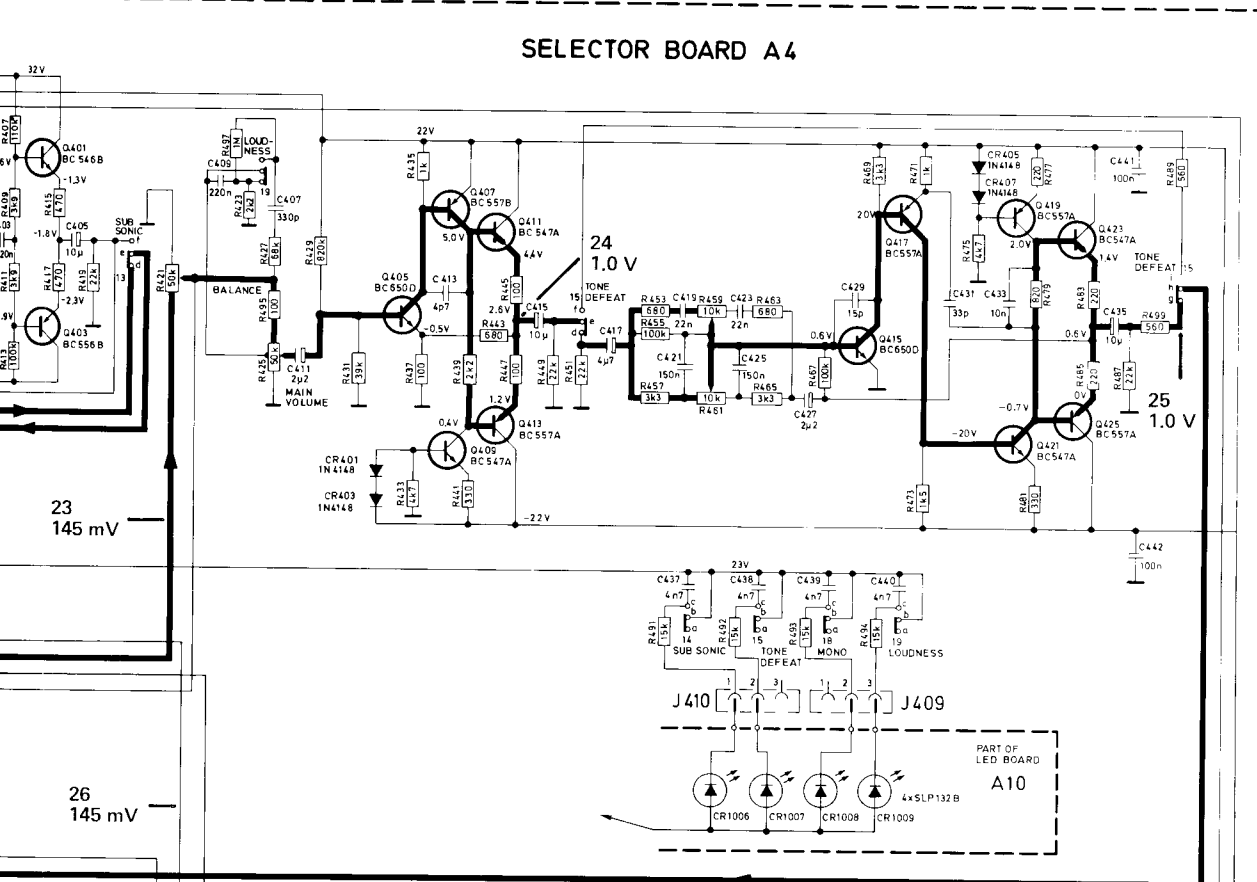
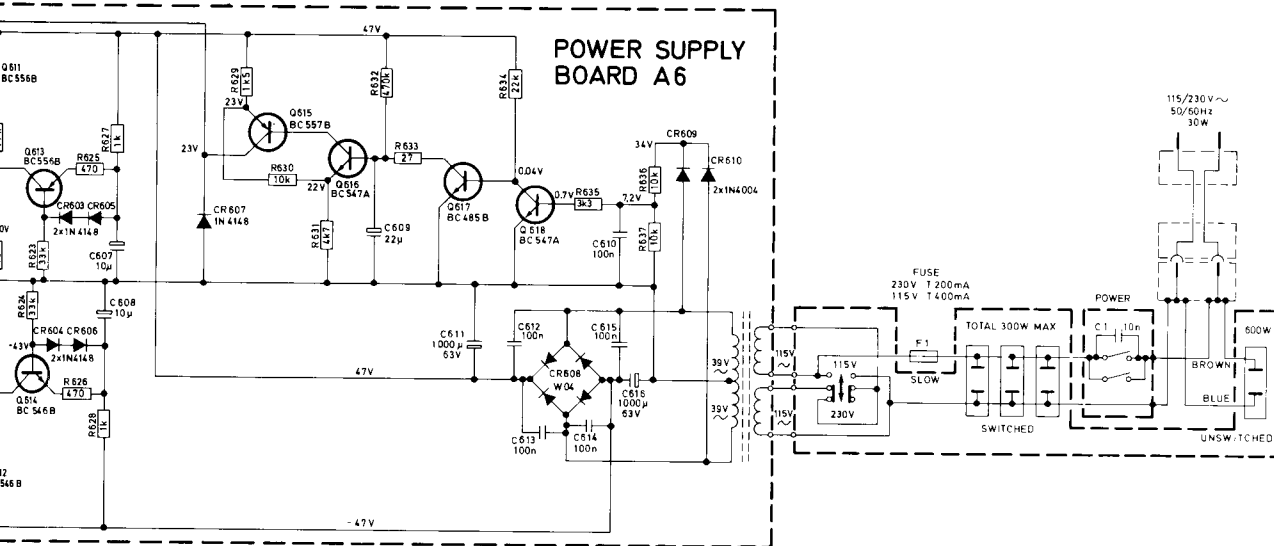
* The numbers in parantheses indicate the corresponding input test points.

Test points with AC voltages are also given in the diagrams on pages 4 and 5.

INPUT RIAA BOARD A2



TEST POINTS WITH AC - VOLTAGES IN COLOUR



TEST POINTS WITH AC VOLTAGES IN COLOUR

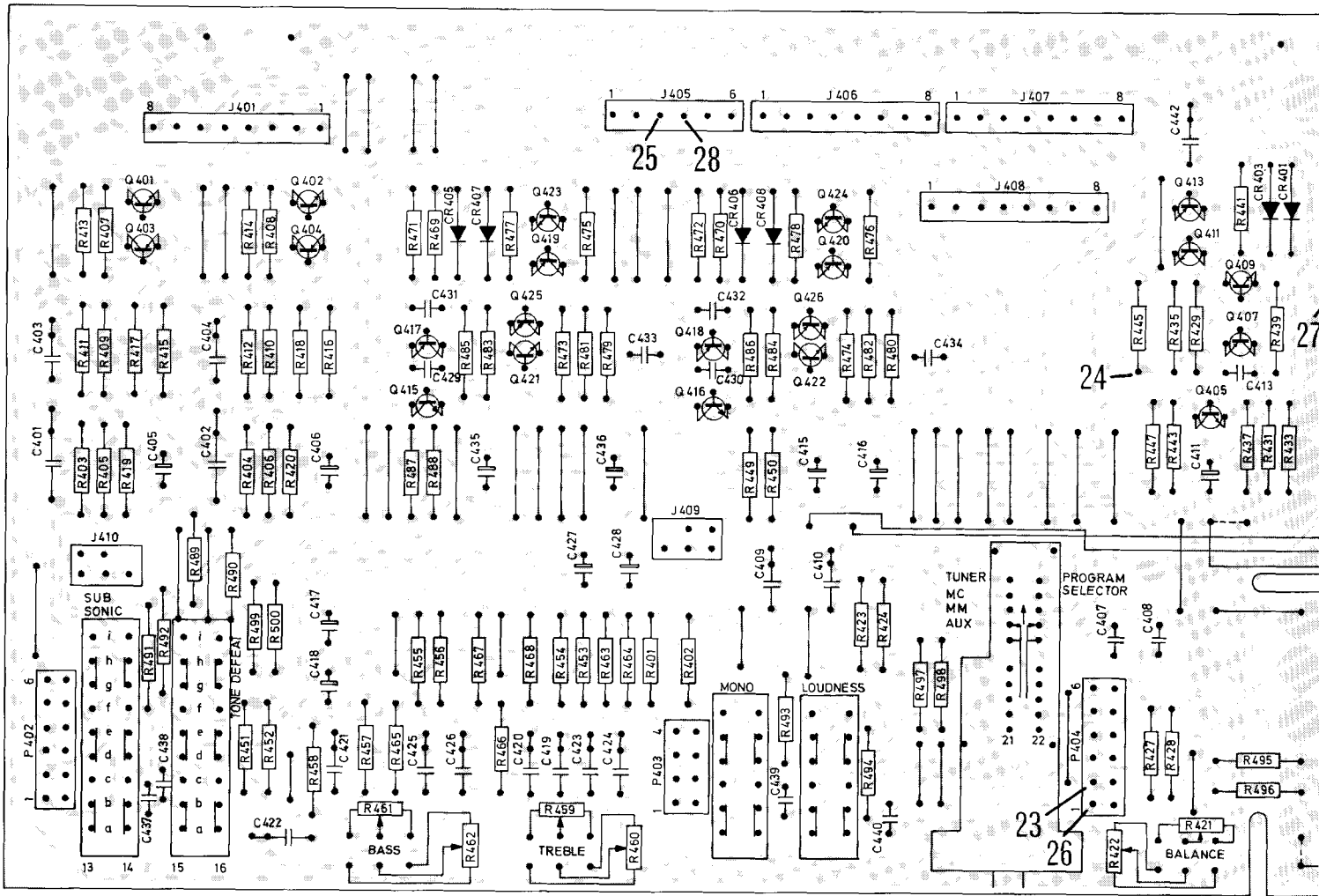


Figure 7 Selector board

AC voltages

The table below gives AC voltages for test points in Figures 7 and 8.

		Test points with input signal voltages		
		1 - 2 - 5 - 6 145 mV	3 2 mV	4 0.16 mV
Test points with signal voltages	23			
	24 - 25			
	26			
	27 - 28			
	30			
	31			
	32			
33	12 V unloaded			

Test conditions

Signal: 1000 Hz.
 Volume controls: Max. position.
 Tone controls: Mid. position.
 Balance control: Mid. position.

Test points with AC voltages are also given in the diagrams on pages 4 and 5.

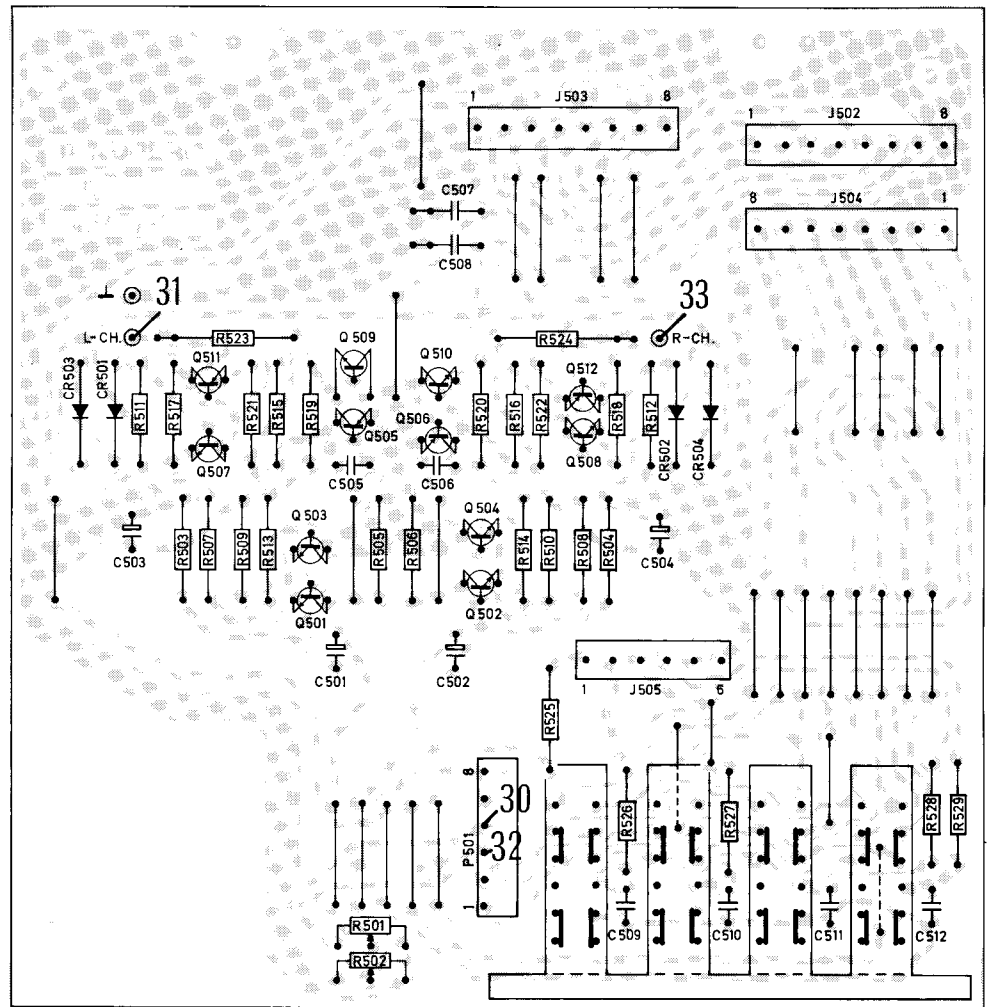
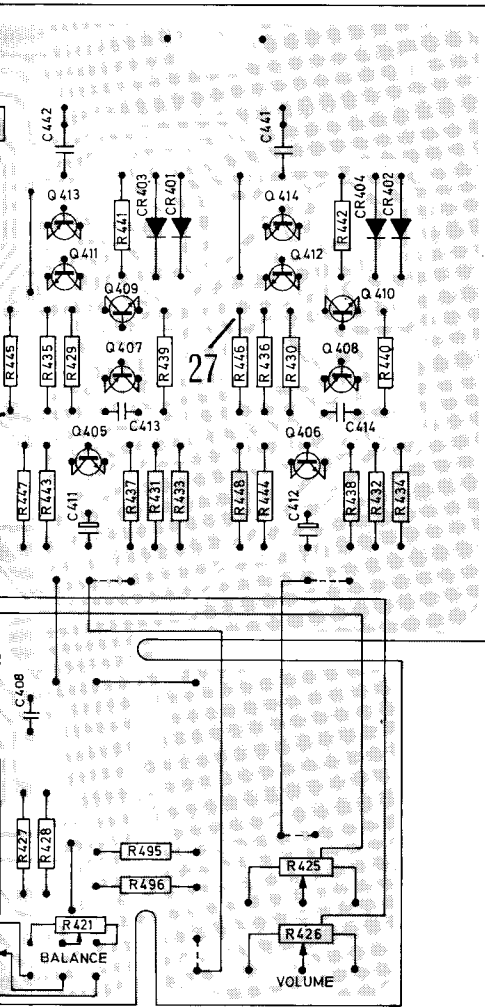


Figure 8 Headphones amplifier board

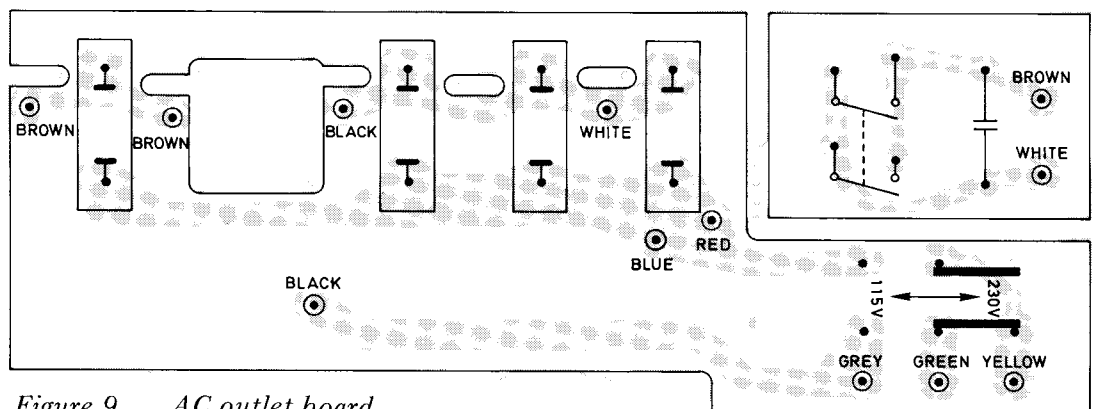


Figure 9 AC outlet board

on.
on.
on.

re also given in the

ALL BOARDS ARE SEEN FROM THE SOLDER SIDE.
TEST POINTS FOR AC-VOLTAGES IN COLOUR.

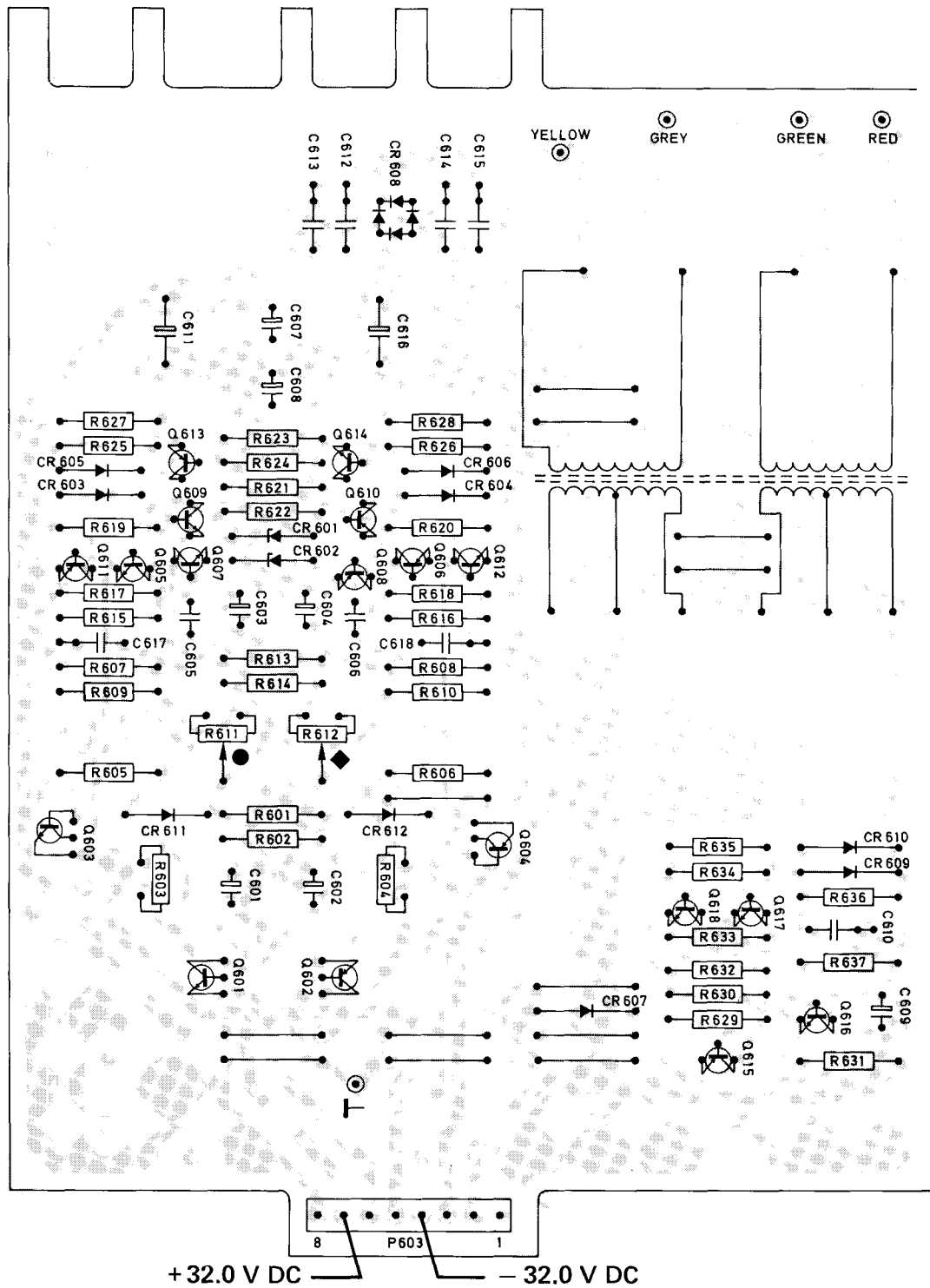


Figure 10 Power supply board

Adjusting the supply power (± 32 V)

- Adjust R611 for + 32.0 V at pin 7, J503 (Figure 10).
- ◆ Adjust R612 for - 32.0 V at pin 4, J503 (Figure 10).

Tandberg Control Amplifier TCA 3002

Technical data

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 \pm 0.2 dB
Phono MC: 20 – 20,000 Hz \pm 0.2 dB
Tape 1, Tape 2: 20 – 20,000 Hz + 0/– 0.1 dB
Tuner, AUX: 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, AUX: < 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, AUX: 70 mV

A-weighted Signal-to-Noise Ratio

Phono MM: 80 dB
Phono MC: 74 dB
Tape 1, Tape 2: 95 dB
Tuner, AUX: 95 dB

Maximum Input Voltage (1 kHz)

Phono MM: 290 mV
Phono MC: 22 mV
Tape 1, Tape 2: 11 V
Tuner, AUX: 11 V

Input Impedance

Phono MM: 33 / 47 / 100 kohms
Phono MC: 1 kohm
Tape 1, Tape 2: 47 kohms
Tuner, AUX: 47 kohms

Secondary Disclosures

Output Impedance

Preamp: 560 ohms + 10 μ F in series
Headphones: 470 ohms
Headphones (min. load): 4 ohms

Tone-control Response

Bass: \pm 10 dB at 50 Hz
Treble: \pm 10 dB at 10,000 Hz
Loudness: Max. 7 dB at 50 Hz
Max. 3 dB at 10,000 Hz

Filter

Sub Sonic: – 12 dB/oct., – 3 dB at 15 Hz

Crosstalk (100 Hz – 10 kHz)

Phono MM: To any of the other sources > 70 dB
Phono MC: To any of the other sources > 70 dB
Tape 1, Tape 2: To any of the other sources > 70 dB
Tuner, AUX: To any of the other sources > 70 dB

Separation (100 Hz – 10 kHz)

Phono MM: > 53 dB
Phono MC: > 53 dB
Tape 1, Tape 2: > 58 dB
Tuner, AUX: > 58 dB

Transient intermodulation

All inputs: Immeasurable

Other Technical Data

Frequency Response

Tape 1, Tape 2: 5 – 130,000 Hz, + 0/– 1.5 dB
Tuner, AUX: 5 – 130,000 Hz, + 0/– 1.5 dB

Phase shift (20 Hz – 20,000 Hz)

Tape 1, Tape 2: + 9.5°/– 2.5°
Tuner, AUX: + 9.5°/– 2.5°

- 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

Tandberg A/S, Post Office Box 53, 2007 Kjeller, Norway