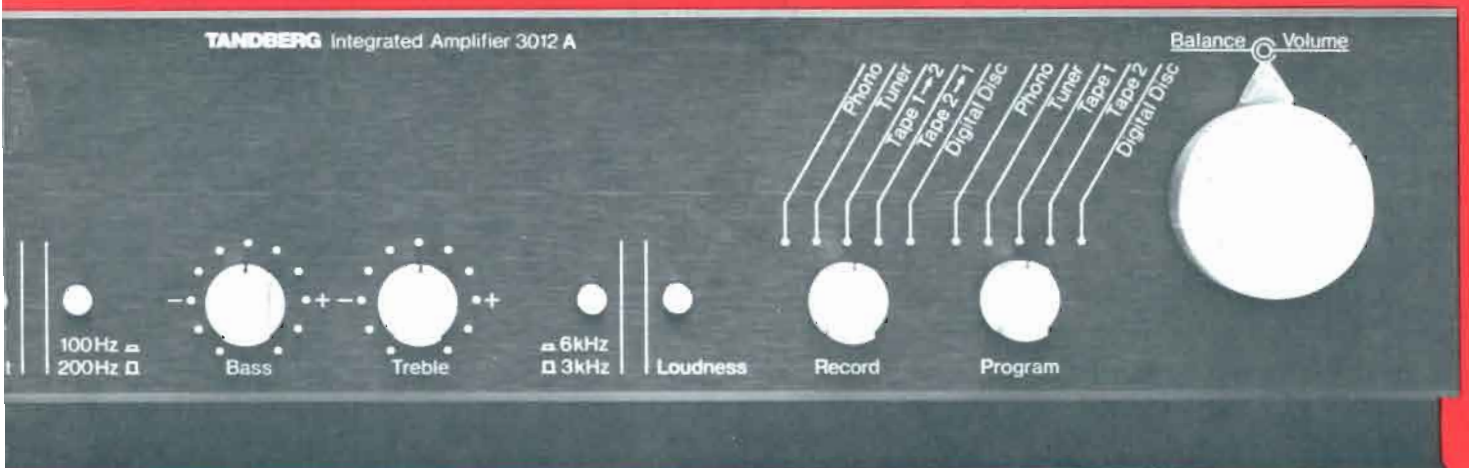


TANDBERG® TIA 3012 A

Service Manual and Illustrated Parts List



Contents

	Page
Dismantling	2
Electrical adjustments	3
Technical data	7
Parts list	8

Dismantling

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

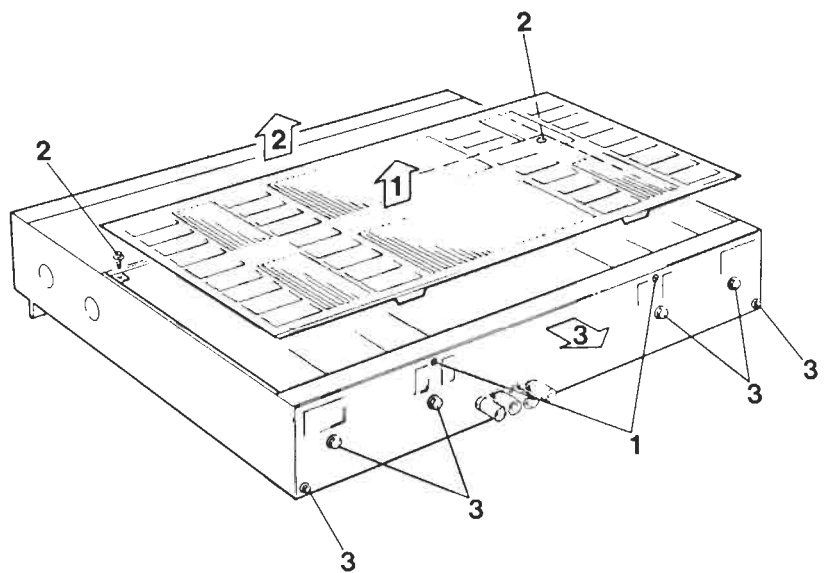


Figure 1, Dismantling the rear and top covers

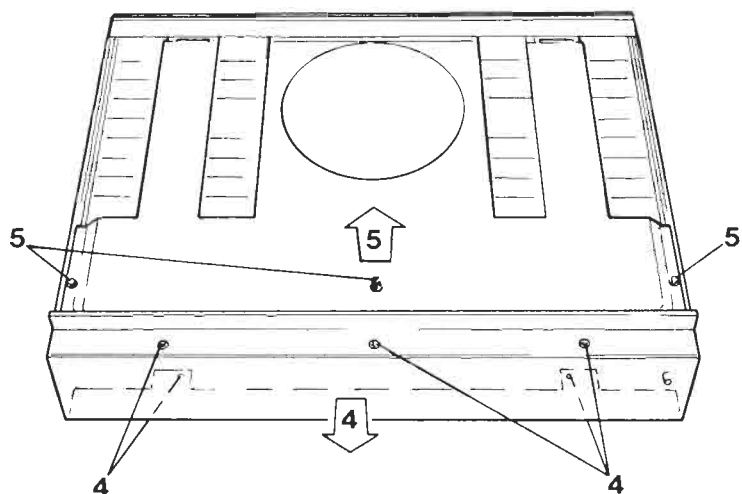


Figure 2, Dismantling the front and bottom covers

Electrical adjustments

General

IMPORTANT! Switch on the unit at least 30 minutes before adjustments. The top and bottom cover should not be removed, otherwise the unit must be covered.

The output transistors can be removed without soldering. Remove the two screws and lift out the transistor.

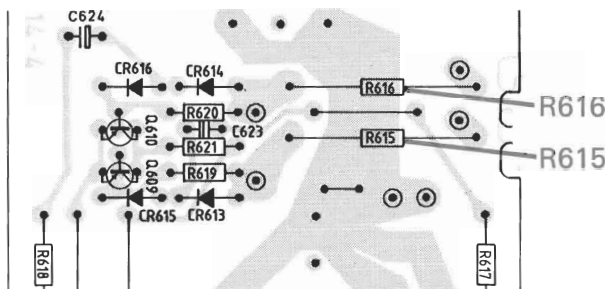
NOTE! The washers must have heat-sink compound on both sides.

The output power (100 W) should be measured with a mains voltage of at least 240 V (voltage selector switch in 230 V) or 120 V (voltage selector switch in 115 V).

Quiescent current

The quiescent current should be adjusted without load and the volume control must be set to minimum.

- Adjust R475 (left) and R476 (right) to 20 mV across R615 (left) and R616 (right).



Part of the Power supply board, solder side

Power amplifier – d.c. offset adjustment

- Solder two LED's (light emitting diodes) with opposite polarity together in parallel and connect them to the collectors on Q415/Q417 (left) and Q416/ Q418 (right), see figure 4.

- Adjust R409 (left) and R410 (right) until both diodes are switched off.

Remove the LED's and measure the d.c. voltage on the output sockets. The d.c. voltage should be less than 40 mV.

RIAA/Line amplifier – d.c. offset adjustments

- Insert two phonoplugs each with 100 ohms to ground into the phono MC sockets.

- Connect a d.c. meter to M101 (left) and M102 (right), see figure 3.

Use a probe or at least 10 kohms in serial with the instrument.

- Adjust R123 (left) and R124 (right) to 0 V ± 100 mV.

- Remove the phonoplugs from the MC sockets.

- Insert two phonoplugs each with 1 kohm to ground into the phono MM sockets.

The d.c. voltage in M101 and M102 should be 0 V ± 1 V.

- Connect a d.c. meter to M103 (left) and M104 (right), see figure 3.

- Adjust R163 (left) and R164 (right) to 0 V ± 100 mV.

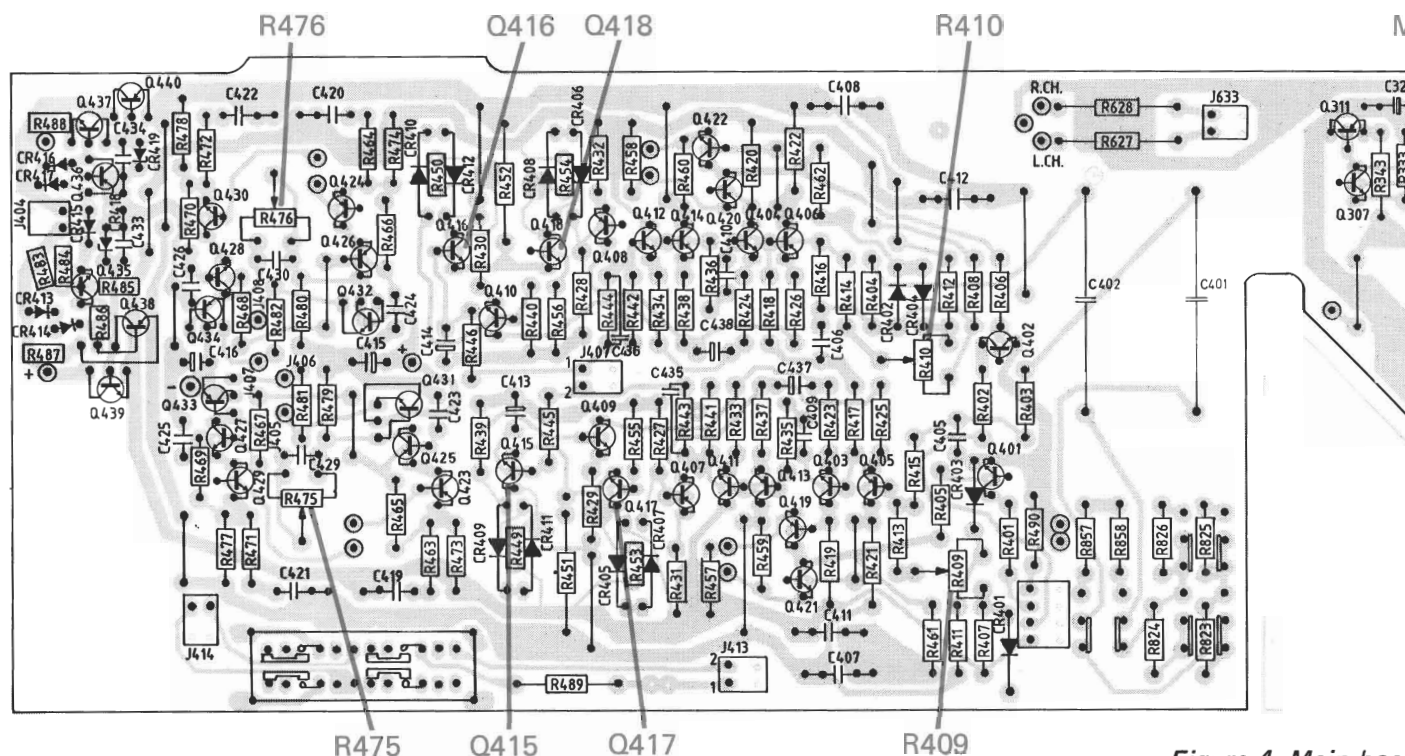


Figure 4, Main board

Tone control amplifier – d.c. offset adjustment

- Set the volume control to 9 o'clock position.
- Connect the d.c. meter to M301 (left) and M302 (right), see figure 4.
- Adjust R319 (left) and R320 (right) to $0\text{ V} \pm 5\text{ mV}$.

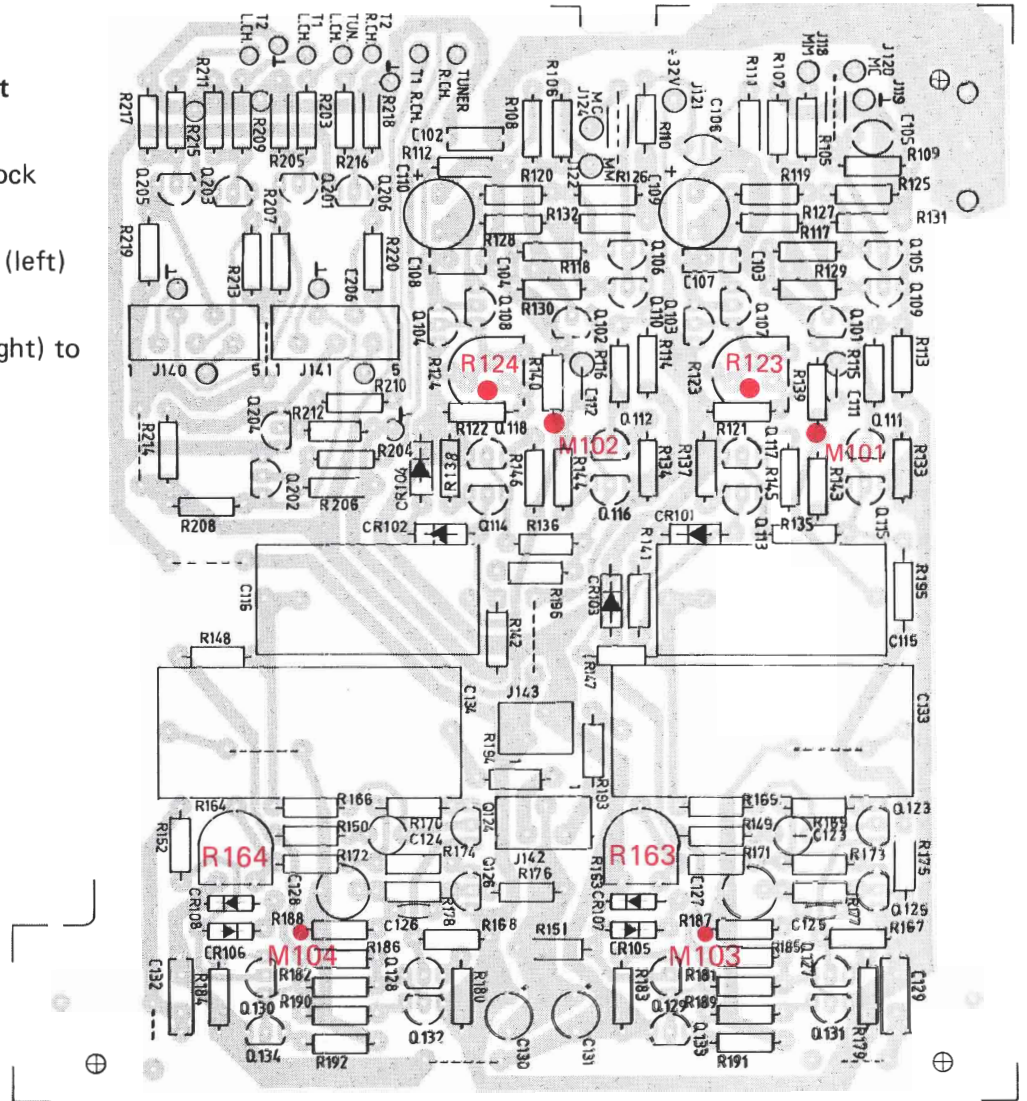
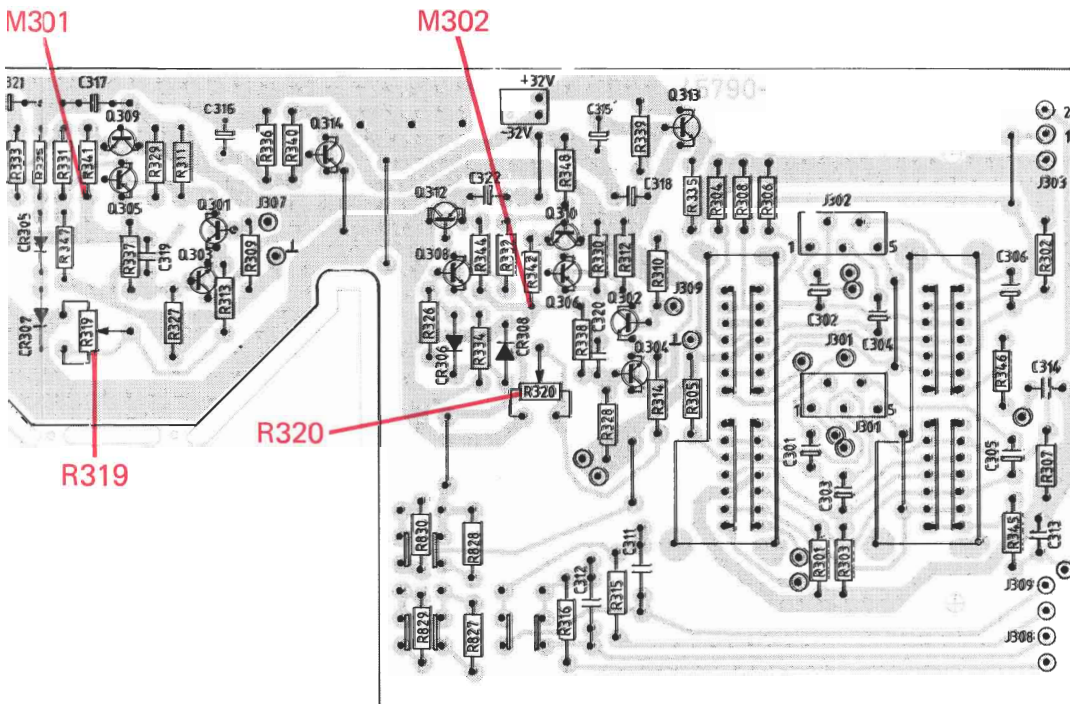


Figure 3, RIAA/Line board, component side



rd, solder side

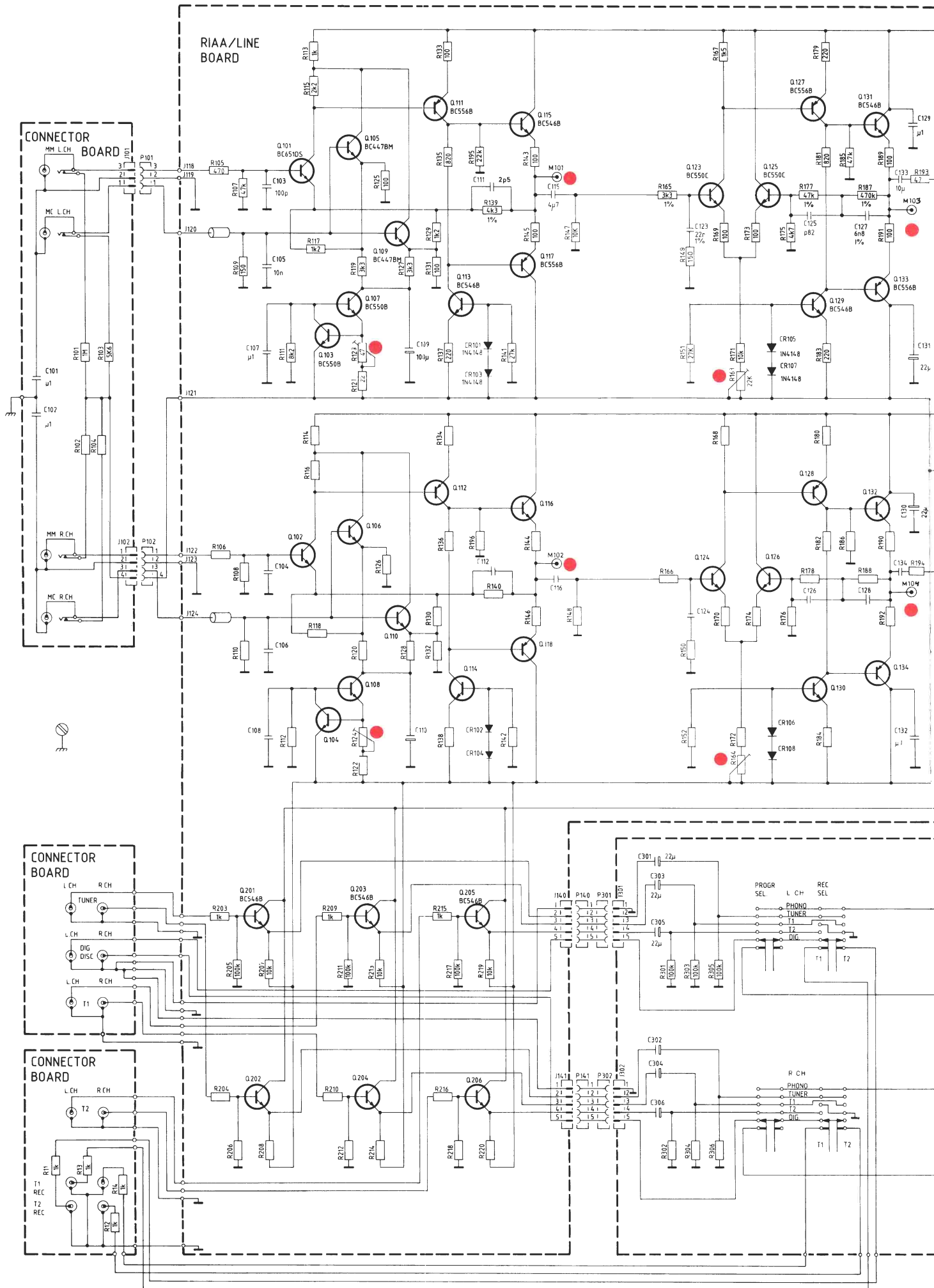
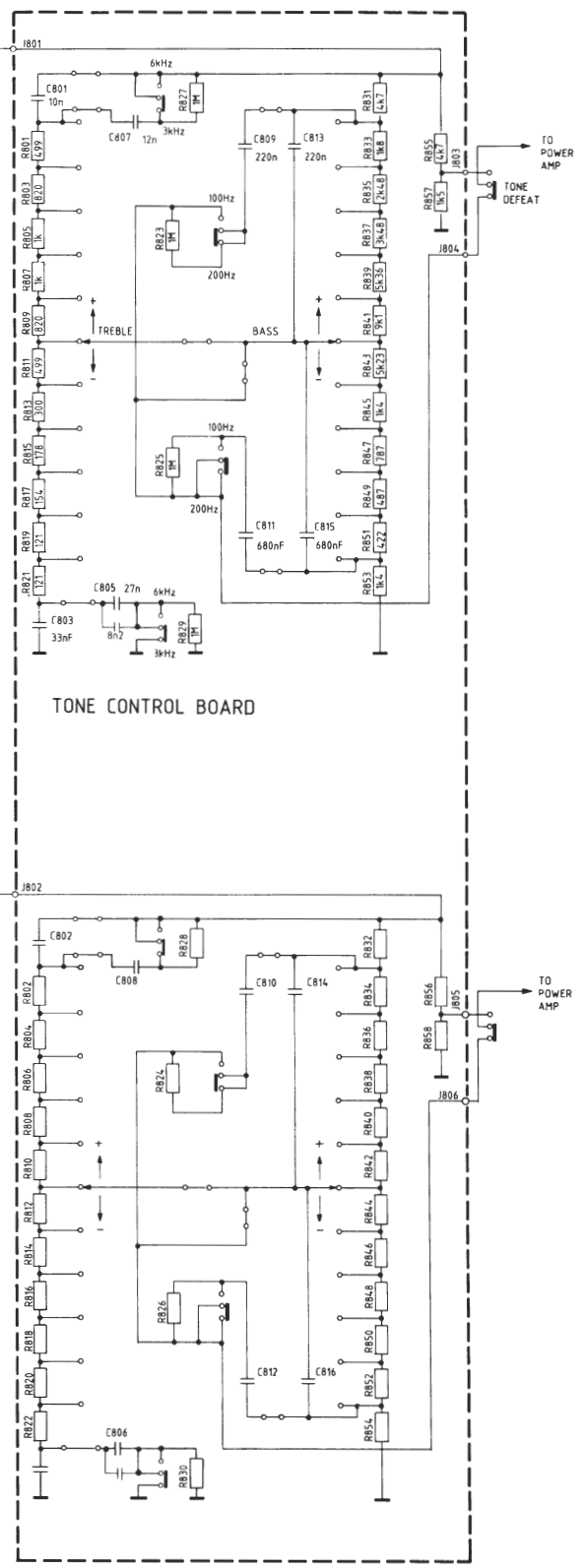
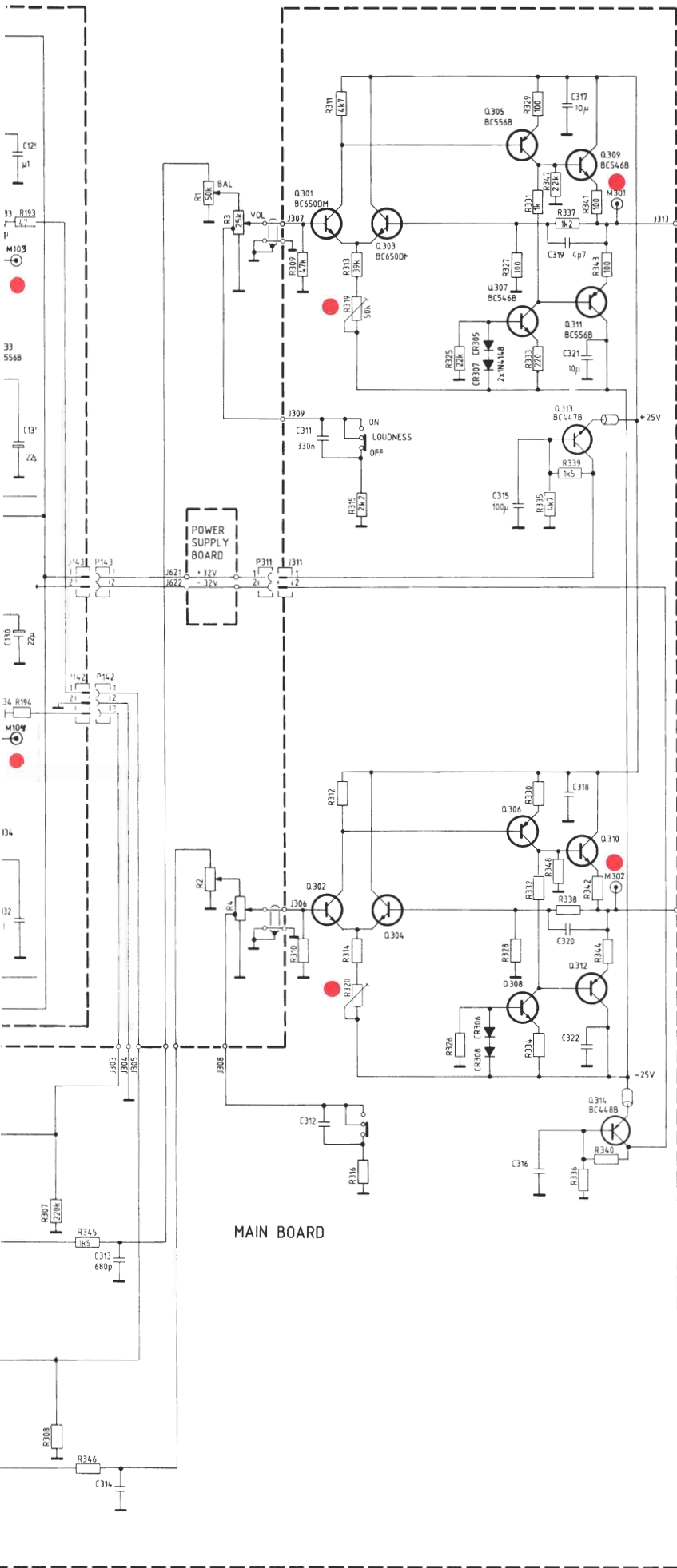


Figure 5, Circuit diagram, input- and tone control amplifiers



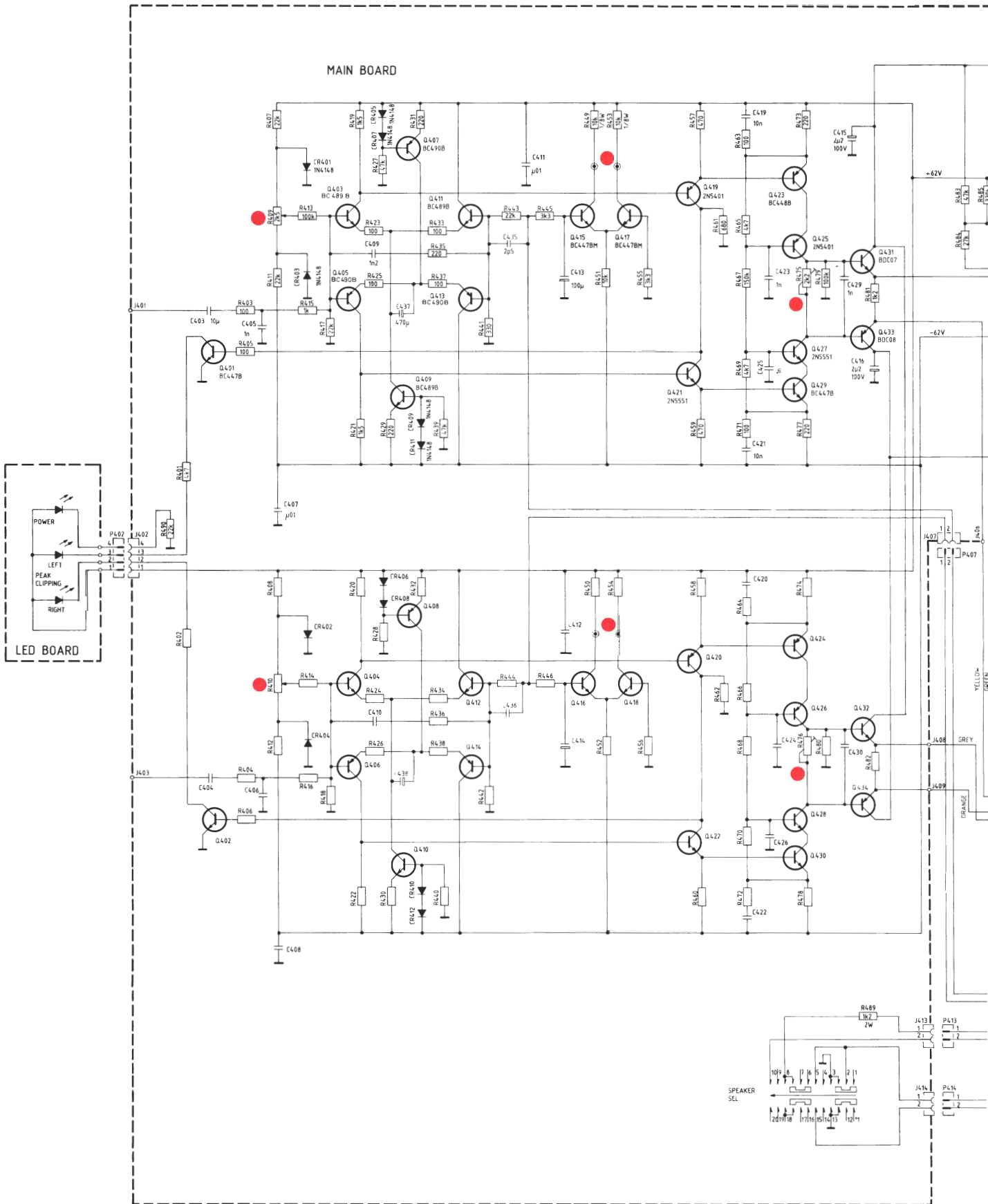
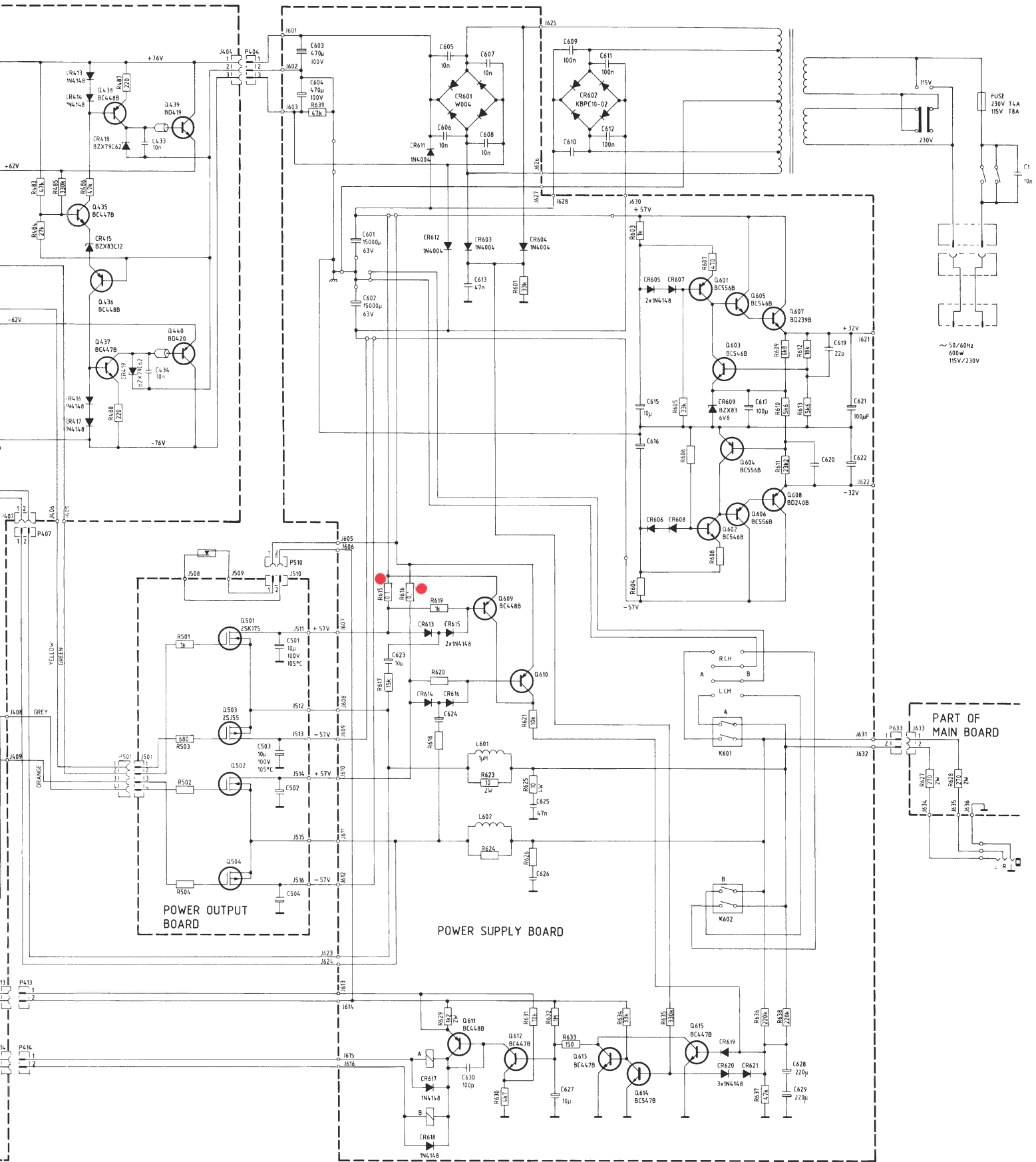


Figure 6, Circuit diagram, output amplifiers, power supplies and DC offset protection circuit.



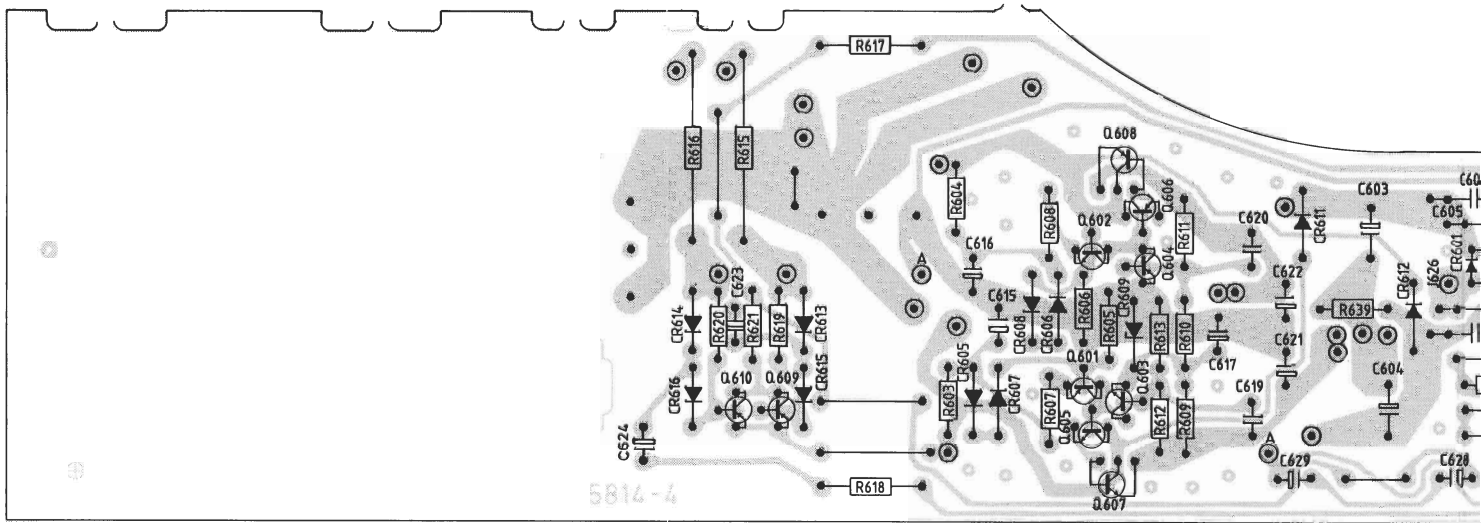


Figure 7, Power supply board, solder side

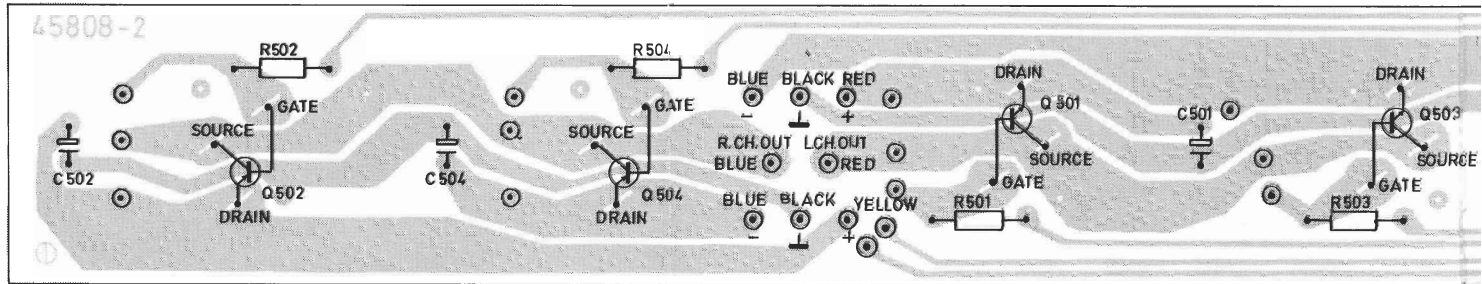


Figure 8, Power output board, solder side

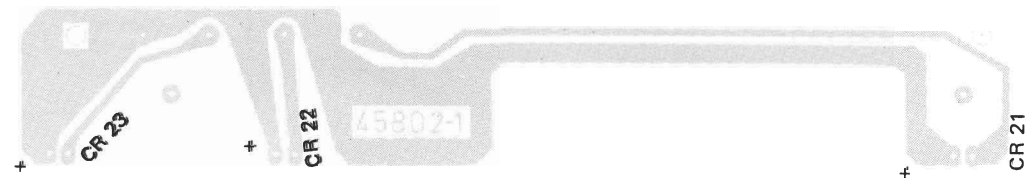


Figure 9, LED board, solder side.

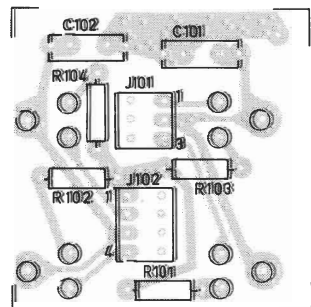


Figure 10, Connector board, component side

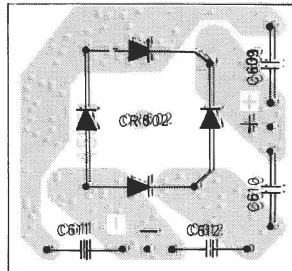


Figure 11, Rectifier board, solder side

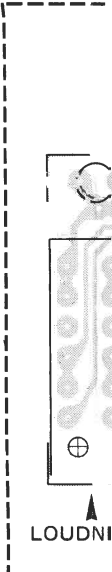


Figure 12, Loudspeaker board, solder side

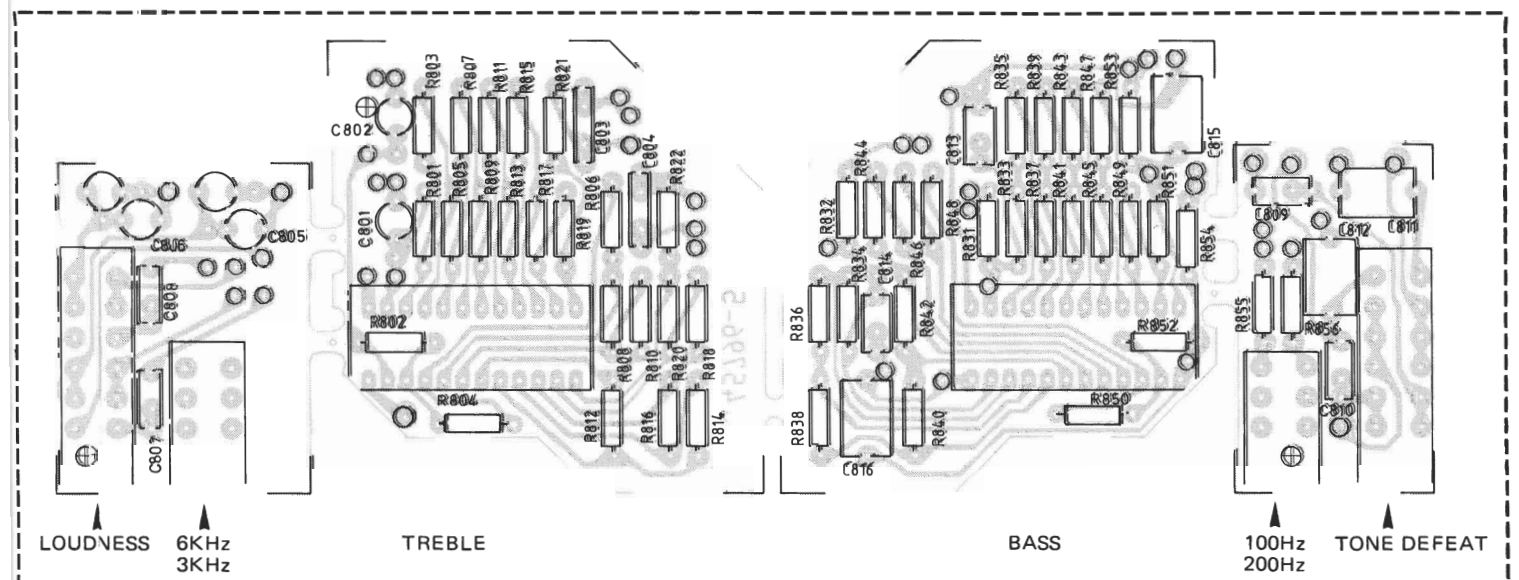
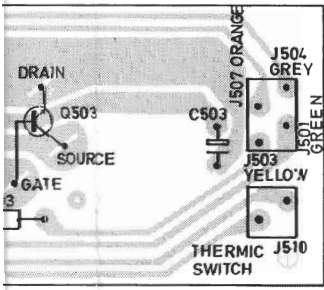
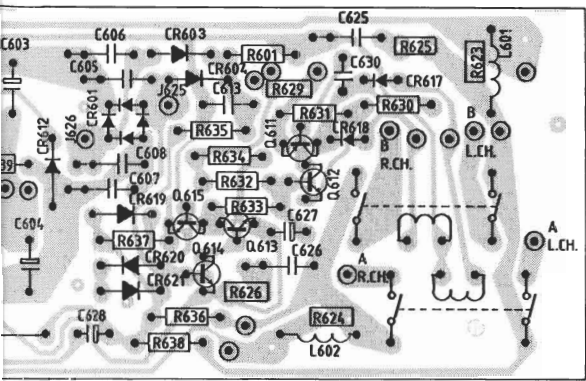


Figure 12, Tone control boards, component side

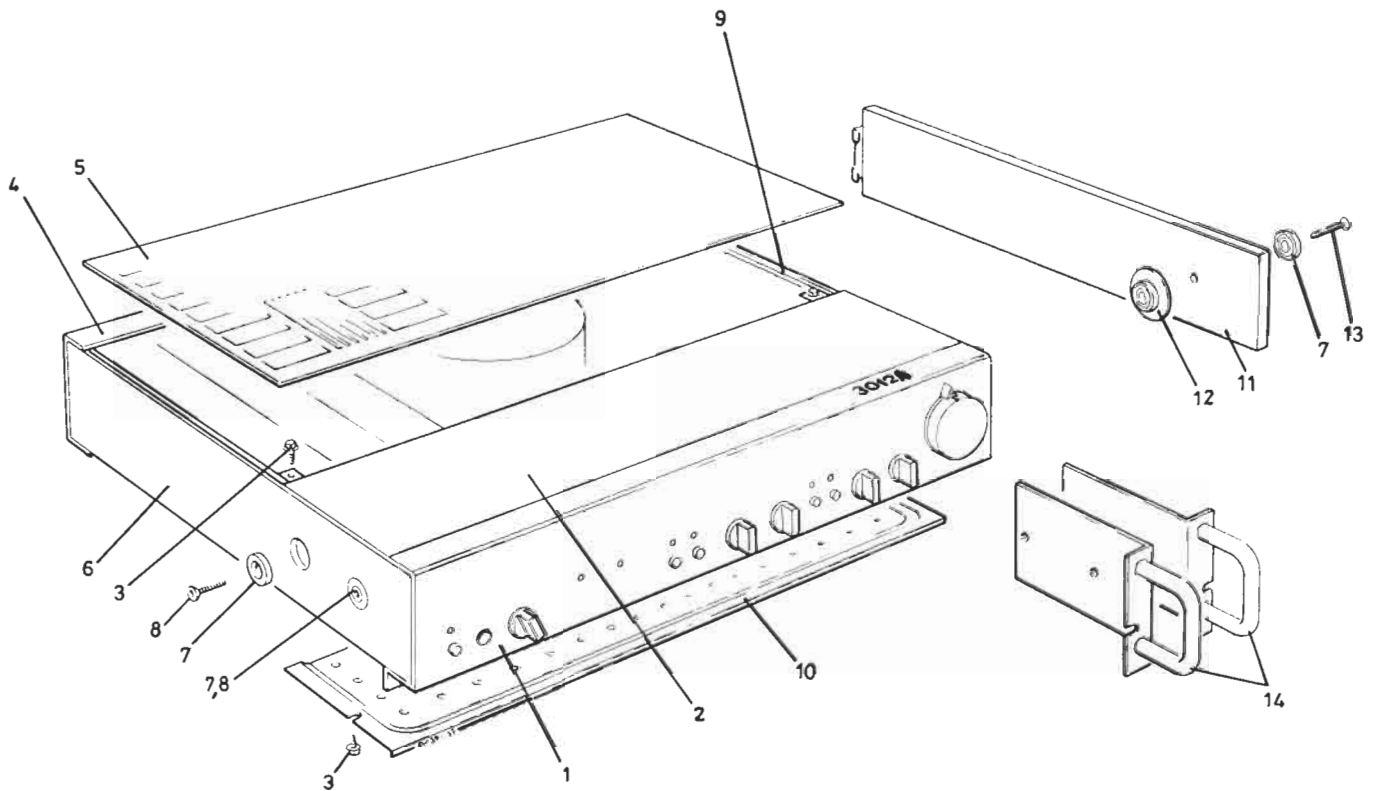
Technical data according to IHF-A-202, 1978

Continuous Average Power Output (8 ohms, 20 – 20,000 Hz, THD < 0.02%)	2 x 100 W
Dynamic Headroom	0.35 dB
Frequency Response Linear inputs Phono MC and MM inputs	5 – 100,000 Hz + 0/– 3 dB 20 – 20,000 Hz ± 0.2 dB
Sensitivity Phono MC Phono MM D.D., Aux. Tuner, Tape 1, Tape 2	15 µV 190 µV 15 mV 15 mV
A-weighted Signal-to-Noise Ratio Phono MC Phono MM D.D., Aux. Tuner, Tape 1, Tape 2	73 dB 78 dB 87 dB 87 dB
Maximum Input Signal Phono MC Phono MM D.D., Aux. Tuner, Tape 1, Tape 2	20 mV 250 mV > 20 V 5 V
Input Impedance Phono MC Phono MM D.D., Aux. Tuner, Tape 1, Tape 2	150 ohms 47 kohms 13 kohms 100 kohms
Dimensions Width Height Depth	17 1/8" (43.5 cm) 3 1/4" (8.3 cm) 13 3/4" (35.0 cm)
Weight	22 lbs. (9.7 kg)

- Specifications subject to change without notice.

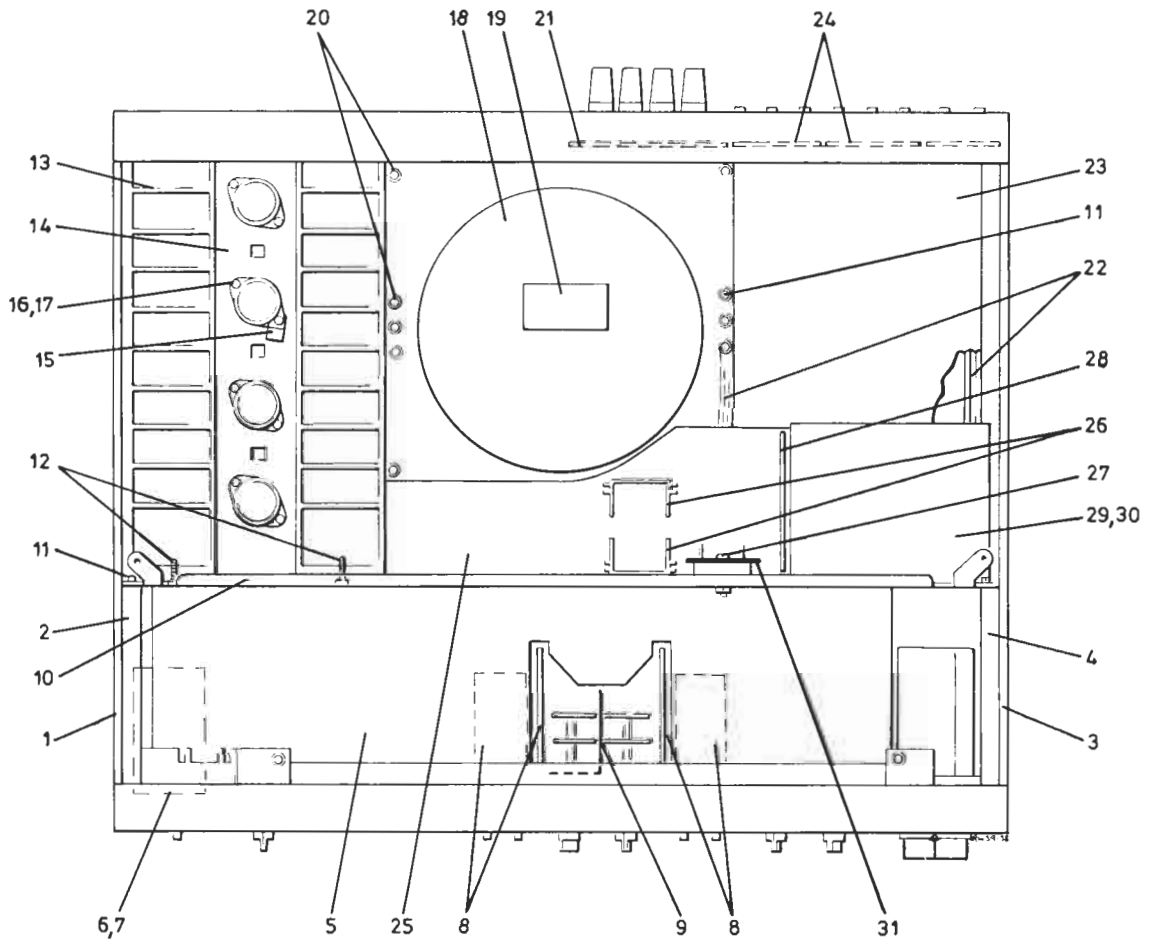
Parts list

Cabinet assembly



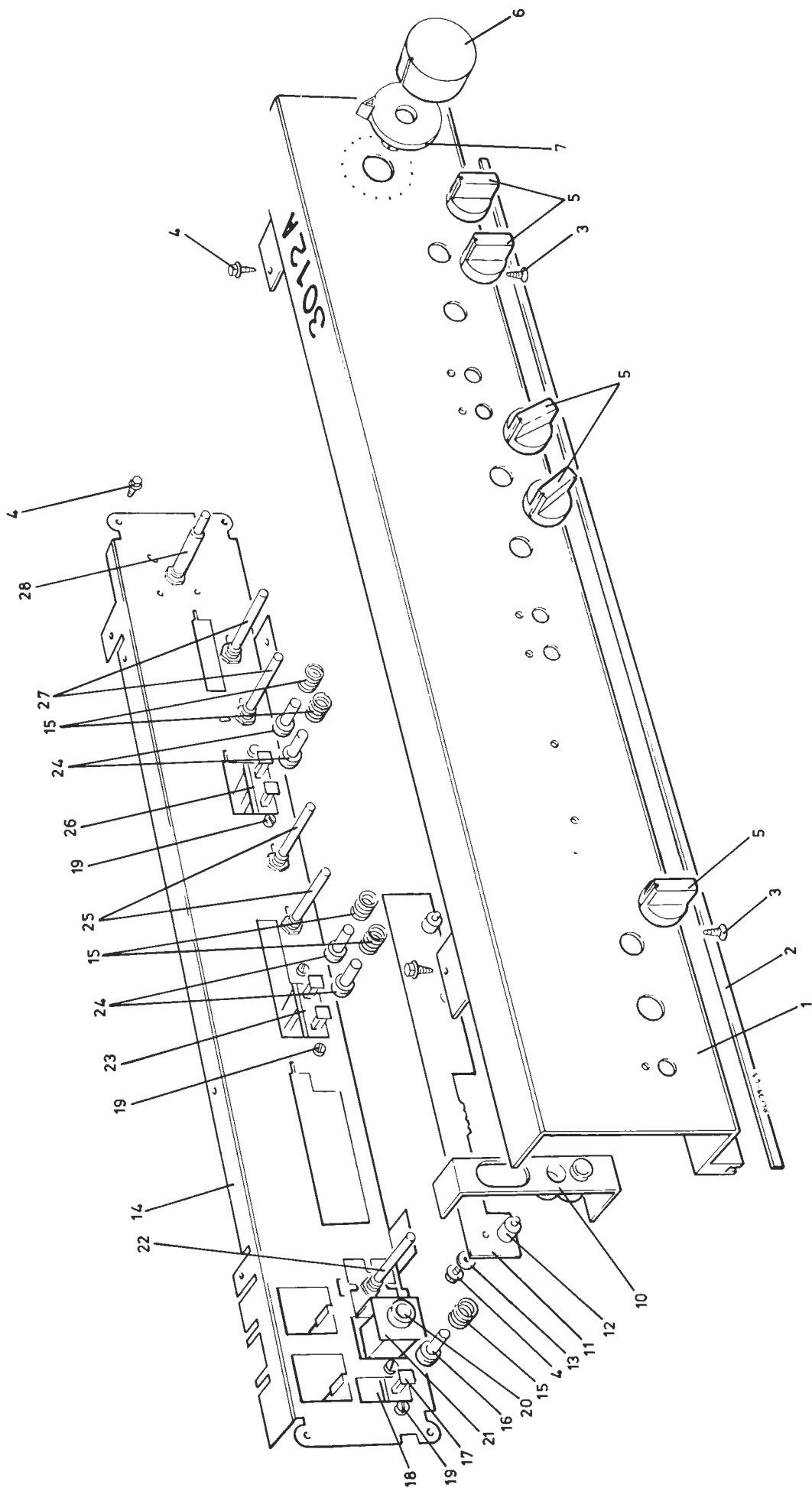
SPECIFY THIS WHEN ORDERING				
Index	Order No.	Beskrivelse	Description (notes)	Reference
1	600004	Kabinett-enhet	Cabinet assembly	
2	412581	Skinne	Plate, front, black	
		Plate	Plate, top-front, black	
3	346854	Skrue	Screw, M 3.5 x 6.3 hex hd, with collar	
4	600007	Skinne	Panel, back, black	
5	417173	Plate	Plate, top, black	
6	375969	Skinne	Plate, side, left	
7	400602	Hylse	Spacer, black plastic	
8	401105	Skrue	Screw, M 4 x 16 csk hd, black	
9	406816	Skinne	Plate, side, right	
10	412205	Plate	Plate, bottom	
11	006968	Plate	Panel, side, pair, rosewood	
	996468	Plate	Panel, side, pair, black	
		(lev. m/index 12,13)		
12	400480	Avstandsstykke	Spacer, black plastic	
13	402786	Skrue	Screw, M 4 x 25 csk hd, black	
14	996467	Håndtak	Rack mount kit, 19"	

Chassis assembly – top view



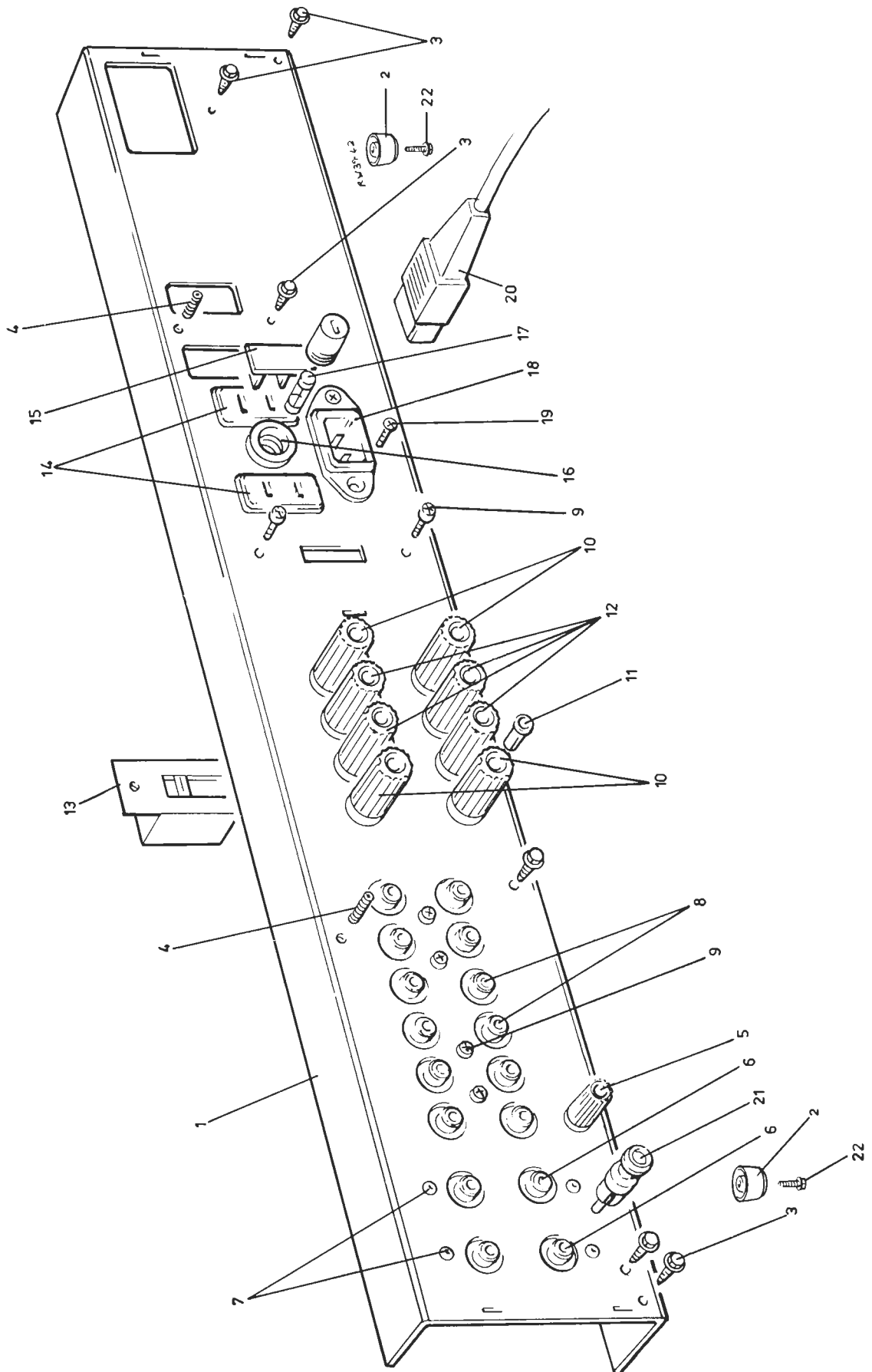
SPECIFY THIS WHEN ORDERING		Beskrivelse	Description (notes)	Reference
Index	Order No.			
1	375969	Sjassis-enhet	Chassis assembly, top view	
2	417178	Skinne	Plate, side, left	
3	406816	Skinne	Plate, chassis, side, left, black	
4	417175	Skinne	Plate, side, right	
5	413905	Kort (lev. m/index 8)	Plate, chassis, side, right, black Board, main (supplied with index 8)	
6	996920	Kort	Board, power switch	
7	419319	Plate	Plate, isolation, plastic	
8	417024	Kort	Board, tone control, set of four	Bass/Treble
9	417836	Plate	Plate, insulating	
10	414061A	Plate	Plate, chassis	
11	346854	Skrue	Screw, M 3.5 x 6.3 hex hd, with collar	
12	345389	Skrue	Screw, M 3.5 x 9.5 hex hd, with collar	
13	405272	Kjøleribbe	Heatsink	
14	413892	Kort	Board, output power (not supplied with transistors)	
15	376207	Fjær	Clamp, spring	
16	213918	Skrue	Screw, M 3 x 15 ch hd	
17	218609	Fjærskive	Washer, M 3.2	
18	414311	Transformator	Transformer	
19	347134	Etikett	Label, CAUTION	
20	409891	Skrue	Screw, plate, 1/4" No. 8 hex hd	
21	997302	Kort	Board, speaker connection (not supplied with connectors)	
22	412431	Skinne	Rail, chassis	
23	413900	Kort	Board, input RIAA (supplied with two index 24)	
24		Kort	Board, phono socket	
25	413897	Kort	Board, relay/rectifier (not supplied with index 30)	
26	377011	Kjøleribbe	Heatsink	
27	204875	Skrue	Screw, M 4 x 18 ch hd	
28	997303	Kort	Board, capacitor (not supplied with index 30)	
29	417986	Plate	Plate, shield	
30	413801	Elko	Capacitor, electrolytic, 15000 uF 63 V	C601, C602
31	424677	Kort	Rectifier	

Front panel



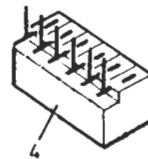
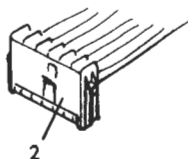
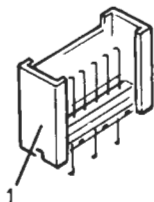
SPECIFY THIS WHEN ORDERING				
Index	Order No.	Beskrivelse	Description (notes)	Reference
1	600004	Frontskinne	Front panel	
2	379030B	Skinne	Plate, front, black	
		List	Strip, rubber	
3	338830	Skrue	Screw, plate, 3/8" No. 6 csk hd	
4	346854	Skrue	Screw, M 3.5 x 6.3 hex hd, with collar	
5	408828	Knapp	Knob	SPEAKERS, BASS, TREBLE RECORD, PROGRAM
6	376673	Knapp	Knob	VOLUME
7	421352	Spak	Knob	BALANCE
10	376048A	Hylse	Guide, push button knob	
11	413910	Kort	Board, LED (not supplied with index 12)	
12	374425	Diode	Diode, SLP-132B, light emitting, red	POWER, PEAK CLIPPING
13	201980	Skive	Washer, 8 x 3.2 x 1 mm, bakelite	
14	414065	Sjassi	Plate, chassis	
15	408023	Fjær	Spring	
16	376896A	Knapp	Knob, push button	POWER
17	370992	Bryter	Switch	POWER
18	996920	Kort	Board, power switch	
19	212237	Skrue	Screw, M 3 x 6 ch hd	
20	372823	Kontakt	Socket, jack, 3 pole, 1/4"	HEADPHONES
21	376587	Holder	Bracket, headphone socket	
22	416984	Vender	Switch, rotary	SPEAKERS
23	416975	Vender	Switch, push	TONE DEFEAT, 100Hz/200Hz
24	378706A	Knapp	Knob, push button	TONE DEFEAT, 100Hz/200Hz, 6kHz/3kHz, LOUDNESS
25	416972	Vender	Switch, rotary	BASS, TREBLE
26	416978	Vender	Switch, push	6kHz/3kHz, LOUDNESS
27	416957	Vender	Switch, rotary	RECORD, PROGRAM
28	421654	Potensiometer	Potentiometer, 2 x 50 kohm	VOLUME, BALANCE
	997304	Kort	Board, Potentiometer 2 x 50	Volume, Balance

Back panel









SPECIFY THIS WHEN ORDERING				
Index	Order No.	Beskrivelse	Description (notes)	Reference
1	600007	Bakskinne	Back panel	
2	352421	Skinne Fot	Plate, back, black (supplied with index 6) Bumper No. TL-6, 23 x 14	
3	360755	Skrue	Screw, M 3.5 x 7.9 hex hd, with collar	
4	400753	Skrue	Screw, set, M 4 x 18	
5	379267	Kontakt	Terminal	
6	416947	Kontakt	Socket, phono, double	PHONO
7	417829	Nagle	Rivet, pop	
8	412664	Kontakt	Socket, phono, x 6	TUNER, DD/AUX, TAPE PLAY, TAPE REC
9	338082	Skrue	Screw, plate, 3/8" No. 4 pan hd	
10	379554	Kontakt	Socket, 4 mm, red	SPEAKERS
11	375403	Hylse	Sleeve, black plastic	
12	375840	Kontakt	Socket, 4 mm, black	SPEAKERS
13	374152	Vender	Switch, voltage selector	
14	374504	Kontakt	Socket, power, 2 pole	
15	379016	Plugg	Cover, power socket	
16	363909	Holder	Holder, fuse	
17	281165	Sikring	Fuse, 4 A, 5 x 20 mm, slow	Europe/230 V
	377241	Sikring	Fuse, 8 A, 5 x 20 mm, slow	USA/115 V
18	374081	Kontakt	Socket, power, black	
19	262876	Skrue	Screw, plate, 1/4" No. 4 csk hd	
20	379906	Ledning	Cable, power, European	
	377873	Ledning	Cable, power, USA	
21	400394	Plugg	Plug, phono, short-circuit	
22	350402A	Skrue	Screw, 3.5 x 13 mm	

Connectors



SPECIFY THIS WHEN ORDERING				
Index	Order No.	Beskrivelse	Description (notes)	Reference
1	411728	Plint	Connector, 2 pole	AMP. MT 0-826715-2
	411721	Plint	Connector, 2 pole	AMP. MT 0-826718-3
	411738	Plint	Connector, 2 pole	AMP. MT 0-826379-5
2	411714	Kontakt	Connector, 2 pole	MTO-826 371 AMP
	411712	Kontakt	Connector, 3 pole	MTO-826 371 AMP
	411708	Kontakt	Connector, 5 pole	MTO-826 371 AMP
3	417898	Kontakthus	Housing, 2 pole	CIS 163 AMP
	282961	Kontakthus	Housing, 3 pole	CIS 163 AMP
	417735	Kontakthus	Housing, 4 pole	CIS 163 AMP
4	417910	Kontakt	Connector, 2 pole	CIS 163 AMP
	417583	Kontakt	Connector, 3 pole	CIS 163 AMP
	417915	Kontakt	Connector, 4 pole	CIS 163 AMP
5	318320	Holder	Q607 - Q608	4038-1 16 Molex
	372615	Holder	Output transistor socket	SA3915 SMK.
	416975	Vender	Bass/Tone Defeat switch	SUF22 E464 AIPS
	416978	Vender	Treble/Loudness switch	SUF22 E464 AIPS
	416984	Vender	Loudspeaker switch	SRI R044,E AIPS
	374152	Vender	Power switch	IS-5040 SMK.
	416957	Vender	Record, Program switch	SRS03-45B Noble
416972	Vender	Bass, Treble switch	GSP-serie 45707 Eklöw	

Index	SPECIFY THIS WHEN ORDERING		Description (notes)	Reference
	Order No.	Beskrivelse		
	374505 372745 370791	Transistor Transistor Transistor	Transistor, BC 447B Transistor, BC 447BM Transistor, BC 448B	
	342579 344167 344145	Transistor Transistor Transistor	Transistor, BC 489B Transistor, BC 490B Transistor, BC 546B	
	230291 373721 413722	Transistor Transistor Transistor	Transistor, BC 547B Transistor, BC 550B Transistor, BC 550C	
	370467 413780 413785	Transistor Transistor Transistor	Transistor, BC 556B Transistor, 2N5401 Transistor, 2N5551	
	370359	Transistor	Transistor, BC 651DS	
	371336 373017	Transistor Transistor	Transistor, BD 239B Transistor, BD 240B	
	422672 422696	Transistor Transistor	Transistor, BDC 07 Transistor, BDC 08	
	370007 364353	Transistor Transistor	Transistor, BD 419 Transistor, BD 420	
	413792 413787	Transistor Transistor	Transistor, 2 SJ 55 Transistor, 2 SK 175	 TRANSISTORS ARE SEEN FROM UNDERNEATH

Index	SPECIFY THIS WHEN ORDERING		Description (notes)	Reference
	Order No.	Beskrivelse		
CR21 CR22 CR23	374425 374425 374425	Diode Diode Diode	Diode, SLP-132BG Diode, SLP-132BG Diode, SLP-132BG	LED LED LED
CR415 CR418 CR419	267136 417845 417845	Diode Diode Diode	Diode, BZX 83C12 Diode, BZX 79C62 Diode, BZX 79C62	12 V Zener 62 V Zener 62 V Zener
CR609	269169 247007 286058	Diode Diode Diode	Diode, BZX 83C6V8 Diode, 1N4148 Diode, 1N4004	6,8 V Zener
K301 K302	401910 401910	Relé Relé	Relay, G22-222P Relay, G22-222P	
L601 L602	980260 980260	Spole Spole	Coil, 27260-1 Coil, 27260-1	
CR601 CR602	358507 372400	Likeretter Likeretter	Rectifier, W04 400 V Rectifier, NBPC 25-02	

SPECIFY THIS WHEN ORDERING				
Index	Order No.	Beskrivelse	Description (notes)	Reference
C1	411155	Kondensator	Capacitor, 0.01 uF, 20%, 250 V	Paper/Metal
C10	288115	Kondensator	Capacitor, 0.1 uF, 20%, 250 V	Foil
C103	294722	Kondensator	Capacitor, 100 pF, 2.5%, 63 V	Polystyrene
C104	294722	Kondensator	Capacitor, 100 pF, 2.5%, 63 V	Polystyrene
C105	372967	Kondensator	Capacitor, 0.1 uF, 2.5%	Polypropylene
C106	372967	Kondensator	Capacitor, 0.1 uF, 2.5%	Polypropylene
C109	343075	Kondensator	Capacitor, 100 uF, 35 V	Elko
C110	343075	Kondensator	Capacitor, 100 uF, 35 V	Elko
C111	424508	Kondensator	Capacitor, 2.5 pF, +/- 1 pF	Polypropylene
C112	424508	Kondensator	Capacitor, 2.5 pF, +/- 1 pF	Polypropylene
C115	429690	Kondensator	Capacitor, 4.7 uF, 20%	Polypropylene
C116	429690	Kondensator	Capacitor, 4.7 uF, 20%	Polypropylene
C123	373613	Kondensator	Capacitor, 0.022 uF, 1%	Polypropylene
C124	373613	Kondensator	Capacitor, 0.022 uF, 1%	Polypropylene
C125	406852	Kondensator	Capacitor, 0.82 pF	Ceramic 1
C126	406852	Kondensator	Capacitor, 0.82 pF	Ceramic 1
C127	371286	Kondensator	Capacitor, 6800 pF, 2.5%	Polypropylene
C128	371286	Kondensator	Capacitor, 6800 pF, 2.5%	Polypropylene
C133	429692	Kondensator	Capacitor, 10 uF, 20%, 160 V	Polypropylene
C134	429692	Kondensator	Capacitor, 10 uF, 20%, 160 V	Polypropylene
C311	287991	Kondensator	Capacitor, 0.33 uF, 5%	Polycarbonate
C312	287991	Kondensator	Capacitor, 0.33 uF, 5%	Polycarbonate
C313	372342	Kondensator	Capacitor, 680 pF, 2.5%	Polypropylene
C314	372342	Kondensator	Capacitor, 680 pF, 2.5%	Polypropylene
C315	343075	Kondensator	Capacitor, 100 uF, 35 V	Elko
C316	343075	Kondensator	Capacitor, 100 uF, 35 V	Elko
C317	343779	Kondensator	Capacitor, 10 uF, 50 V	Elko
C318	343779	Kondensator	Capacitor, 10 uF, 50 V	Elko
C319	417864	Kondensator	Capacitor, 4.7 pF, 1%	Polypropylene
C320	417864	Kondensator	Capacitor, 4.7 pF, 1%	Polypropylene
C321	343779	Kondensator	Capacitor, 10 uF, 50 V	Elko
C322	343779	Kondensator	Capacitor, 10 uF, 50 V	Elko
C401	429694	Kondensator	Capacitor, 10 uF, 10%, 63 V	Polycarbonate
C402	429694	Kondensator	Capacitor, 10 uF, 10%, 63 V	Polycarbonate
C409	379978	Kondensator	Capacitor, 1200 pF, 2.5%	Polypropylene
C410	379978	Kondensator	Capacitor, 1200 pF, 2.5%	Polypropylene
C413	341042	Kondensator	Capacitor, 100 uF, 10 V	Elko
C414	341042	Kondensator	Capacitor, 100 uF, 10 V	Elko
C415	413806	Kondensator	Capacitor, 2.2 uF, 100 V	Elko
C416	413806	Kondensator	Capacitor, 2.2 uF, 100 V	Elko
C433	201664	Kondensator	Capacitor, 0.01 uF, 20%, 100 V	Polyester/Metal
C434	201664	Kondensator	Capacitor, 0.01 uF, 20%, 100 V	Polyester/Metal
C435	424508	Kondensator	Capacitor, 2.5 pF +/- 1 pF	Polypropylene
C436	424508	Kondensator	Capacitor, 2.5 pF +/- 1 pF	Polypropylene
C437	340338	Kondensator	Capacitor, 470 uF, 6.3 V	Elko
C438	340338	Kondensator	Capacitor, 470 uF, 6.3 V	Elko
C501	417633	Kondensator	Capacitor, 10 uF, 100 V	Elko 105°C
C502	417633	Kondensator	Capacitor, 10 uF, 100 V	Elko 105°C
C503	417633	Kondensator	Capacitor, 10 uF, 100 V	Elko 105°C
C504	417633	Kondensator	Capacitor, 10 uF, 100 V	Elko 105°C
C601	413801	Kondensator	Capacitor, 15000 uF, 63 V	Elko
C602	413801	Kondensator	Capacitor, 15000 uF, 63 V	Elko
C603	378728	Kondensator	Capacitor, 470 uF, 100 V	Elko
C604	378728	Kondensator	Capacitor, 470 uF, 100 V	Elko
C605	277351	Kondensator	Capacitor, 0.01 uF, 10%, 100 V	Polyester
C606	277351	Kondensator	Capacitor, 0.01 uF, 10%, 100 V	Polyester
C607	277351	Kondensator	Capacitor, 0.01 uF, 10%, 100 V	Polyester
C608	277351	Kondensator	Capacitor, 0.01 uF, 10%, 100 V	Polyester
C609	208115	Kondensator	Capacitor, 0.1 uF, 20%, 250 V	Foil
C610	208115	Kondensator	Capacitor, 0.1 uF, 20%, 250 V	Foil
C611	208115	Kondensator	Capacitor, 0.1 uF, 20%, 250 V	Foil
C612	208115	Kondensator	Capacitor, 0.1 uF, 20%, 250 V	Foil
C613	281008	Kondensator	Capacitor, 0.047 uF, 5%	Foil
C615	379159	Kondensator	Capacitor, 10 uF, 100 V	Elko
C616	379159	Kondensator	Capacitor, 10 uF, 100 V	Elko
C617	341042	Kondensator	Capacitor, 100 uF, 10 V	Elko

SPECIFY THIS WHEN ORDERING				
Index	Order No.	Beskrivelse	Description (notes)	Reference
C619	419705	Kondensator	Capacitor, 22 pF, 5%	Polypropylene
C620	419705	Kondensator	Capacitor, 22 pF, 5%	Polypropylene
C621	413818	Kondensator	Capacitor, 100 uF, 50 V	Elko
C622	413818	Kondensator	Capacitor, 100 uF, 50 V	Elko
C623	379159	Kondensator	Capacitor, 10 uF, 100 V	Elko
C624	379159	Kondensator	Capacitor, 10 uF, 100 V	Elko
C625	281008	Kondensator	Capacitor, 0.047 uF, 5%	Foil
C626	281008	Kondensator	Capacitor, 0.047 uF, 5%	Foil
C627	418537	Kondensator	Capacitor, 10 uF, 50 V	Elko
C628	344404	Kondensator	Capacitor, 220 uF, 16 V	Elko
C629	344404	Kondensator	Capacitor, 220 uF, 16 V	Elko
C630	252955	Kondensator	Capacitor, 100 pF, 10%	Ceramic 2
C801	372967	Kondensator	Capacitor, 0.01 uF, 2.5%	Polypropylene
C802	372967	Kondensator	Capacitor, 0.01 uF, 2.5%	Polypropylene
C803	284722	Kondensator	Capacitor, 0.033 uF, 5%	Foil
C804	284722	Kondensator	Capacitor, 0.033 uF, 5%	Foil
C805	407542	Kondensator	Capacitor, 0.027 uF, 2.5%	Polypropylene
C806	407542	Kondensator	Capacitor, 0.027 uF, 2.5%	Polypropylene
C805A	418566	Kondensator	Capacitor, 8200 pF, 1%	Polypropylene
C806A	418566	Kondensator	Capacitor, 8200 pF, 1%	Polypropylene
C807	407020	Kondensator	Capacitor, 0.012 uF, 2.5%	Polypropylene
C808	407020	Kondensator	Capacitor, 0.012 uF, 2.5%	Polypropylene
C809	421304	Kondensator	Capacitor, 0.22 uF, 5%	Foil
C810	421304	Kondensator	Capacitor, 0.22 uF, 5%	Foil
C811	369705	Kondensator	Capacitor, 0.68 uF, 5%	Foil
C812	369705	Kondensator	Capacitor, 0.68 uF, 5%	Foil
C813	282337	Kondensator	Capacitor, 0.22 uF, 5%	Foil
C814	282337	Kondensator	Capacitor, 0.22 uF, 5%	Foil
C815	369705	Kondensator	Capacitor, 0.68 uF, 5%	Foil
C816	369705	Kondensator	Capacitor, 0.68 uF, 5%	Foil
	370309	Kondensator	Capacitor, 1000 pF, 2.5%	Polypropylene
	283393	Kondensator	Capacitor, 0.01 uF, 5%, 100 V	Foil
	284370	Kondensator	Capacitor, 0.1 uF, 5%, 100 V	Foil
	372673	Kondensator	Capacitor, 22 uF, 35 V	Elko

SPECIFY THIS WHEN ORDERING				
Index	Order No.	Beskrivelse	Description (notes)	Reference
R850	414958	Motstand	Resistor, 487 ohm, 1%	Metal film
R851	414961	Motstand	Resistor, 422 ohm, 1%	Metal film
R852	414961	Motstand	Resistor, 422 ohm, 1%	Metal film
R853	400207	Motstand	Resistor, 1.4 kohm, 1%	Metal film
R854	400207	Motstand	Resistor, 1.4 kohm, 1%	Metal film
R855	414900	Motstand	Resistor, 4.7 kohm, 1%	Metal film
R856	414900	Motstand	Resistor, 4.7 kohm, 1%	Metal film
R857	400207	Motstand	Resistor, 1.5 kohm, 1%	Metal film
R858	400207	Motstand	Resistor, 1.5 kohm, 1%	Metal film
	600031	Motstand	Resistor, 47 ohm, VA05	Potentiometer
	600076	Motstand	Resistor, 2.2 kohm, VA05	Potentiometer
	600085	Motstand	Resistor, 47 kohm, VA05	Potentiometer

SPECIFY THIS WHEN ORDERING				
Index	Order No.	Beskrivelse	Description (notes)	Reference
R139	407887	Motstand	Resistor, 4.3 kohm, 1%	Metal film
R140	407887	Motstand	Resistor, 4.3 kohm, 1%	Metal film
R165	318693	Motstand	Resistor, 3.3 kohm, 1%	Metal film
R166	318693	Motstand	Resistor, 3.3 kohm, 1%	Metal film
R177	408296	Motstand	Resistor, 47 kohm, 1%	Metal film
R178	408296	Motstand	Resistor, 47 kohm, 1%	Metal film
R187	417134	Motstand	Resistor, 470 kohm, 1%	Metal film
R188	417134	Motstand	Resistor, 470 kohm, 1%	Metal film
R449	417943	Motstand	Resistor, 10 kohm, 1/8 W, 5%	Metal film
R450	417943	Motstand	Resistor, 10 kohm, 1/8 W, 5%	Metal film
R453	417943	Motstand	Resistor, 10 kohm, 1/8 W, 5%	Metal film
R454	417943	Motstand	Resistor, 10 kohm, 1/8 W, 5%	Metal film
R451	419548	Motstand	Resistor, 10 kohm, 1 W, 5%	Metal oxide
R452	419548	Motstand	Resistor, 10 kohm, 1 W, 5%	Metal oxide
R489	418520	Motstand	Resistor, 1.2 kohm, 2 W, 5%	Metal oxide
R611	417651	Motstand	Resistor, 23.2 kohm, 5%	Metal film
R615	424950	Motstand	Resistor, 0.1 ohm, 3 W, 5%	Wire
R616	424950	Motstand	Resistor, 0.1 ohm, 3 W, 5%	Wire
R623	363484	Motstand	Resistor, 10 ohm, 1 W, 5%	Metal oxide
R624	363484	Motstand	Resistor, 10 ohm, 1 W, 5%	Metal oxide
R625	421345	Motstand	Resistor, 10 ohm, 4 W, 5%	Metal oxide
R626	421345	Motstand	Resistor, 10 ohm, 4 W, 5%	Metal oxide
R627	372909	Motstand	Resistor, 270 ohm, 2 W, 5%	Metal oxide
R628	372909	Motstand	Resistor, 270 ohm, 2 W, 5%	Metal oxide
R629	418520	Motstand	Resistor, 1.2 kohm, 2 W, 5%	Metal oxide
R801	414891	Motstand	Resistor, 499 ohm, 1%	Metal film
R802	414891	Motstand	Resistor, 499 ohm, 1%	Metal film
R803	417131	Motstand	Resistor, 820 ohm, 1%	Metal film
R804	417131	Motstand	Resistor, 820 ohm, 1%	Metal film
R805	400207	Motstand	Resistor, 1 kohm, 1%	Metal film
R806	400207	Motstand	Resistor, 1 kohm, 1%	Metal film
R807	400207	Motstand	Resistor, 1 kohm, 1%	Metal film
R808	400207	Motstand	Resistor, 1 kohm, 1%	Metal film
R809	417131	Motstand	Resistor, 820 ohm, 1%	Metal film
R810	417131	Motstand	Resistor, 820 ohm, 1%	Metal film
R811	414891	Motstand	Resistor, 499 ohm, 1%	Metal film
R812	414891	Motstand	Resistor, 499 ohm, 1%	Metal film
R813	407161	Motstand	Resistor, 300 ohm, 1%	Metal film
R814	407161	Motstand	Resistor, 300 ohm, 1%	Metal film
R815	600016	Motstand	Resistor, 178 ohm, 1%	Metal film
R816	600016	Motstand	Resistor, 178 ohm, 1%	Metal film
R817	414514	Motstand	Resistor, 154 ohm, 1%	Metal film
R818	414514	Motstand	Resistor, 154 ohm, 1%	Metal film
R819	600019	Motstand	Resistor, 121 ohm, 1%	Metal film
R820	600019	Motstand	Resistor, 121 ohm, 1%	Metal film
R821	600019	Motstand	Resistor, 121 ohm, 1%	Metal film
R822	600019	Motstand	Resistor, 121 ohm, 1%	Metal film
R831	317989	Motstand	Resistor, 4.7 kohm, 1%	Metal film
R832	317989	Motstand	Resistor, 4.7 kohm, 1%	Metal film
R833	318499	Motstand	Resistor, 1.8 kohm, 1%	Metal film
R834	318499	Motstand	Resistor, 1.8 kohm, 1%	Metal film
R835	414933	Motstand	Resistor, 2.48 kohm, 1%	Metal film
R836	414933	Motstand	Resistor, 2.48 kohm, 1%	Metal film
R837	414936	Motstand	Resistor, 3.48 kohm, 1%	Metal film
R838	414936	Motstand	Resistor, 3.48 kohm, 1%	Metal film
R839	414938	Motstand	Resistor, 5.36 kohm, 1%	Metal film
R840	414938	Motstand	Resistor, 5.36 kohm, 1%	Metal film
R841	401371	Motstand	Resistor, 9.1 kohm, 1%	Metal film
R842	401371	Motstand	Resistor, 9.1 kohm, 1%	Metal film
R843	414941	Motstand	Resistor, 5.23 kohm, 1%	Metal film
R844	414941	Motstand	Resistor, 5.23 kohm, 1%	Metal film
R845	414897	Motstand	Resistor, 1.4 kohm, 1%	Metal film
R846	414897	Motstand	Resistor, 1.4 kohm, 1%	Metal film
R847	414954	Motstand	Resistor, 787 ohm, 1%	Metal film
R848	414954	Motstand	Resistor, 787 ohm, 1%	Metal film
R849	414958	Motstand	Resistor, 487 ohm, 1%	Metal film

THE TABLE BELOW SHOWS RESISTORS OF TYPE:
 1/4W - 5% - METAL FILM

VALUE ohm	x1	x10	x100	x1k	x10k	x100k	x1M
1.0	421012	413064	413176	413270	413365	413458	413559
1.2		413070	413182	413275	413375	413467	413565
1.5		413094	413190	413281	413384	413471	413569
1.8		413101	413194	413290	413399	413478	413573
2.2	417347	413106	413200	413302	413407	413487	413587
2.7		413113	413213	413310	413412	413493	413593
3.3		413123	413219	413320	413418	413504	413602
3.9		413129	413228	413327	413425	413514	413608
4.7	413018	413139	413238	413335	413432	413519	413616
5.6	413027	413148	413245	413340	413439	413528	413622
6.8	413040	413159	413253	413352	413446	413533	413631
8.2	413054	413170	413259	413358	413453	413545	

SPECIFY WHEN ORDERING:

Example: 820 ohm

PART NO.	DESCRIPTION
413259	RESISTOR

Tandberg Audio A.s

Fetveien 1, P.O. Box 49

N-2007 Kjeller, Norway

Bestilling av deler

Ved alle henvendelser, vennligst oppgi apparatets type og serienummer.
Ved bestilling av deler, oppgi bestillingsnummer og beskrivelse.

Bestillingsadresse

Kontakt nærmeste Tandberg-kontor eller:
Norsk Elektronikk Service As
Postboks 125
N - 2007 KJELLER - Norge

Telefon: (02) 71 68 20
Telex: 18007 kurer n

Ordering of spare parts

For all enquiries, please state the set's type and serial number.
When ordering, give the part's order number and description.

Ordering address

Contact your nearest Tandberg office, or:
Norsk Elektronikk Service As
P.O. Box 125
N - 2007 KJELLER - Norway

Telephone: (02) 71 68 20
Telex: 18007 kurer n

