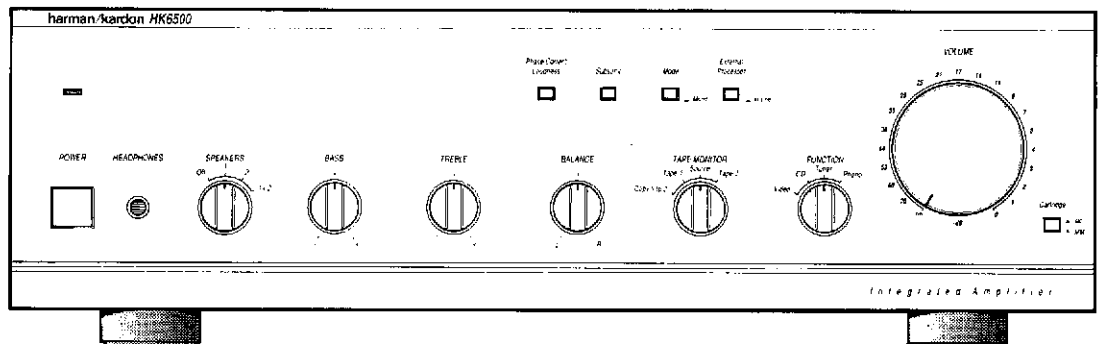


The Harman Kardon Model HK6500 INTEGRATED AMPLIFIER

Manual 147A

Technical Manual



The following marks found in the parts list of this manual identify the models as follows.

- **BK** : North America area model Black version
- **G** : German model
- **GB** : German model Black version
- **NB** : Japan model Black version
- **3B** : Australian model Black version
- **I** : International model
- **IB** : International model Black version

harman/kardon

240 Crossways Park West, Woodbury, N.Y. 11797
1112-3152147A0 P-088905 1500 Printed in Japan

SPECIFICATIONS

	Nominal	Limit
RMS Output Power		
8Ω, 1kHz THD 0.1%	78W	≧ 70W
4Ω, 1kHz THD 0.3%	78W	≧ 70W
High Instantaneous Current Capability (HCC)	44A	≧ 40A
Half Power Bandwidth	10Hz ~ 100kHz	
Frequency Response at -3dB	0.4Hz ~ 200kHz*	
Input Sensitivity		
Tuner, CD, Video	135mV ± 25mV	
Phono (MM)	2.2mV ± 0.2mV*	
Phono (MC)	120μV ± 20μV*	
Signal to Noise Ratio		
Tuner, CD, Video	79dB	≧ 74dB
Phono (MM)	78dB	≧ 73dB
Phono (MC)	75dB	≧ 70dB
Channel Separation at 10kHz		
CD	50dB	≧ 45dB
Phono (MM)	59dB	≧ 45dB
Phono (MC)	54dB	≧ 43dB
IM Distortion Ratio	0.06%	≧ 0.1%
Damping Factor at 1kHz	69	≧ 50
Tone Control Characteristics		
Bass at 50Hz		
Boost	10dB	± 2dB
Cut	10dB	± 2dB
Treble at 10kHz		
Boost	10dB	± 2dB
Cut	10dB	± 2dB
Filters		
Subsonic	15Hz,	6dB/Octave
Phase Correct Loudness at 50Hz	6dB	± 3dB

	Nominal	Limit
DC Output Voltage		
L channel	0mV	± 60mV
R channel	0mV	± 60mV
RIAA Equalization at Tape Out (20Hz/20kHz) (No load)	0.03dB ± 0.5dB / -0.15dB ± 0.5dB	
Phono Overload (No load) THD 0.1%		
Phono (MM)	138mV	≧ 100mV
Phono (MC)	7.5mV	≧ 5mV
Dimensions (W x H x D)	17-1/2" x 5-1/4" x 14-3/16"	(443 x 134 x 359mm)
Weight	20.3lbs.	(9.2kg)
Power Supplies		
North America area model	AC 120V,	60Hz
International model	AC 220/240V,	50/60Hz
Japan model	AC 100V,	50/60Hz
Power Consumption		
North America area model	280W	(340VA)
International model	210W	
Japan model	146W	
* International model Frequency Response	0.4Hz ~ 190kHz	

* Input Sensitivity for International model are 2.3mV ± 0.2mV (MM) and 130μV ± 20μV (MC).

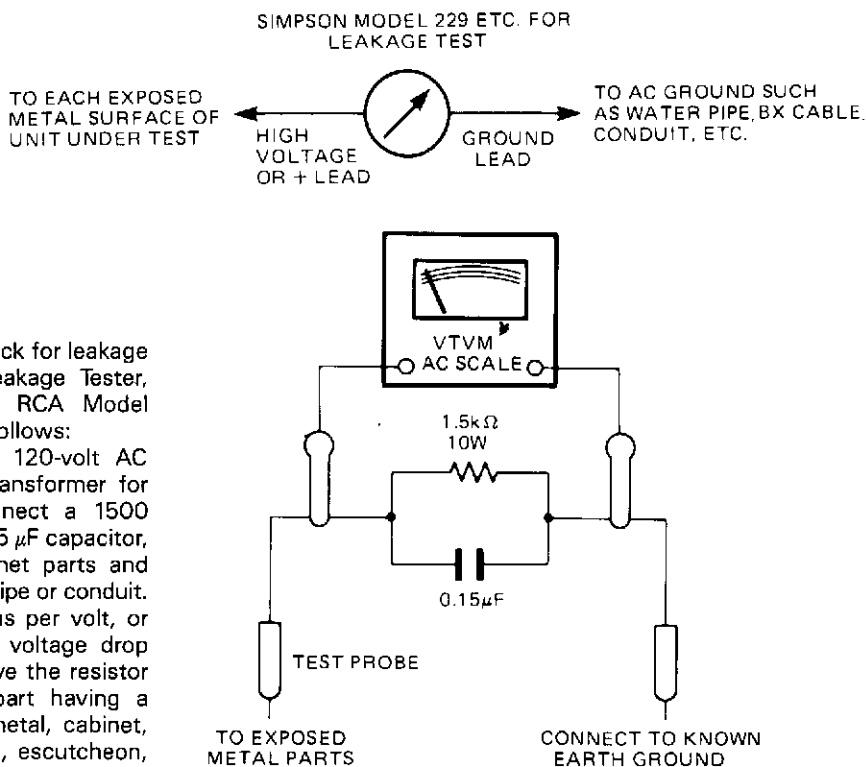
These specifications are service target specs.

Specifications and components subject to change without notice. Overall performance will be maintained or improved.

LEAKAGE TEST (FOR SERVICE ENGINEERS IN THE U.S.A.)

Before returning the unit to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc. which were removed for servicing are properly reinstalled.
3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows: Plug the power cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 Ohm, 10-watt resistor paralleled by a 0.15 μF capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 Ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See Diagram.) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal, cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the power switch in both the On and Off positions.)



A reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.

DISASSEMBLY PROCEDURES (REFER TO PAGE 5 AND 18)

1 CABINET TOP (131) REMOVAL

Remove 6 screws (A) and then remove the Cabinet Top (131).

2 FRONT PANEL ASS'Y (AA) REMOVAL

1. Remove the Cabinet Top (131), referring to the previous step 1.
2. Remove 5 screws (B) and then remove the Front Panel Ass'y (AA).

3 MAIN P.C. BOARD (PCB-1) REMOVAL

Remove 7 screws (C) and then remove the Main P.C. Board (PCB-1) with the Heat Sink (177). At this time unsolder the lead wires connected to the Main P.C. Board (PCB-1).

4 POWER SWITCH P.C. BOARD (PCB-8) REMOVAL

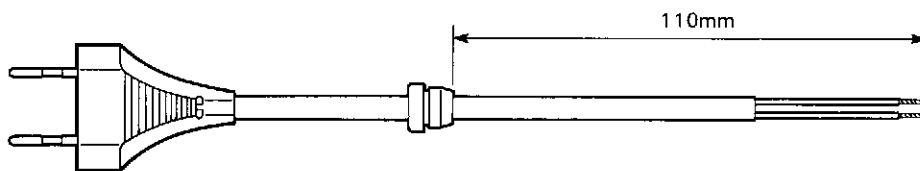
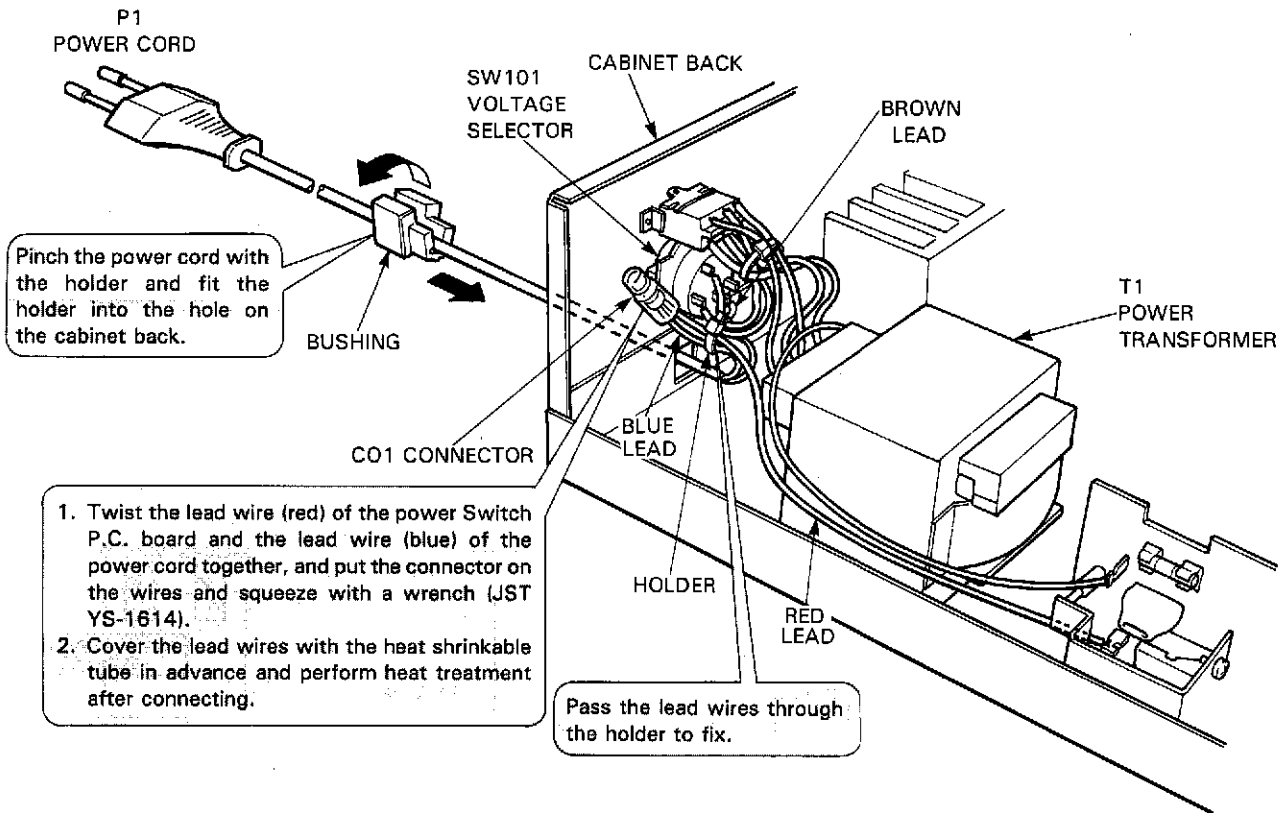
1. Remove the Front Panel Ass'y (AA), referring to the previous step 2.
2. Pull out the Push Button (146) and Lever (213).
3. Remove 1 screw (D), then remove the Power Switch P.C. Board (PCB-8) with Metal Fitting (168). If necessary unsolder the lead wires.

5 TONE CONTROL P.C. BOARD (PCB-9) REMOVAL

1. Remove the Front Panel Ass'y (AA), referring to the previous step 2.
2. Pull out the 3 Rotary knobs (152) and then remove 3 hexagon nuts (E), then remove the Tone Control P.C. Board (PCB-9). If necessary unsolder the lead wires.

POWER CORD REPLACEMENT (FOR SERVICE ENGINEERS OTHER THAN NOTRH AMERICA)

In order to prevent fire or shock hazard when replacing the power cord, follow the procedure below to replace the parts with the standard supply parts.



ALIGNMENT PROCEDURES (REFER TO PAGES 7, 8, 9 AND 17)

- Conditions:
 - Set the Function selector to the "CD" position.
 - Set the Volume control to minimum.
 - Set the Speaker selector to the "off" position.
 - Make the adjustment at a room temperature of 77°F (25°C).

■ **DC BALANCE ADJUSTMENT**

- Set the Speaker Operating Mode switch to the "8Ω" position.

Step	Connection Equipments	Adjustment	For
1	Connect the Digital Volt Meter to TP1 and TP2.	VR401	0 ± 10mV
2	Connect the Digital Volt Meter to TP3 and TP2.	VR402	0 ± 10mV

■ **IDLING CURRENT ADJUSTMENT**

Step	Connection Equipments	Adjustment	For
1	Connect the Digital Volt Meter to TP4 and TP5.	VR403	40mV
2	Connect the Digital Volt Meter to TP6 and TP7.	VR404	40mV

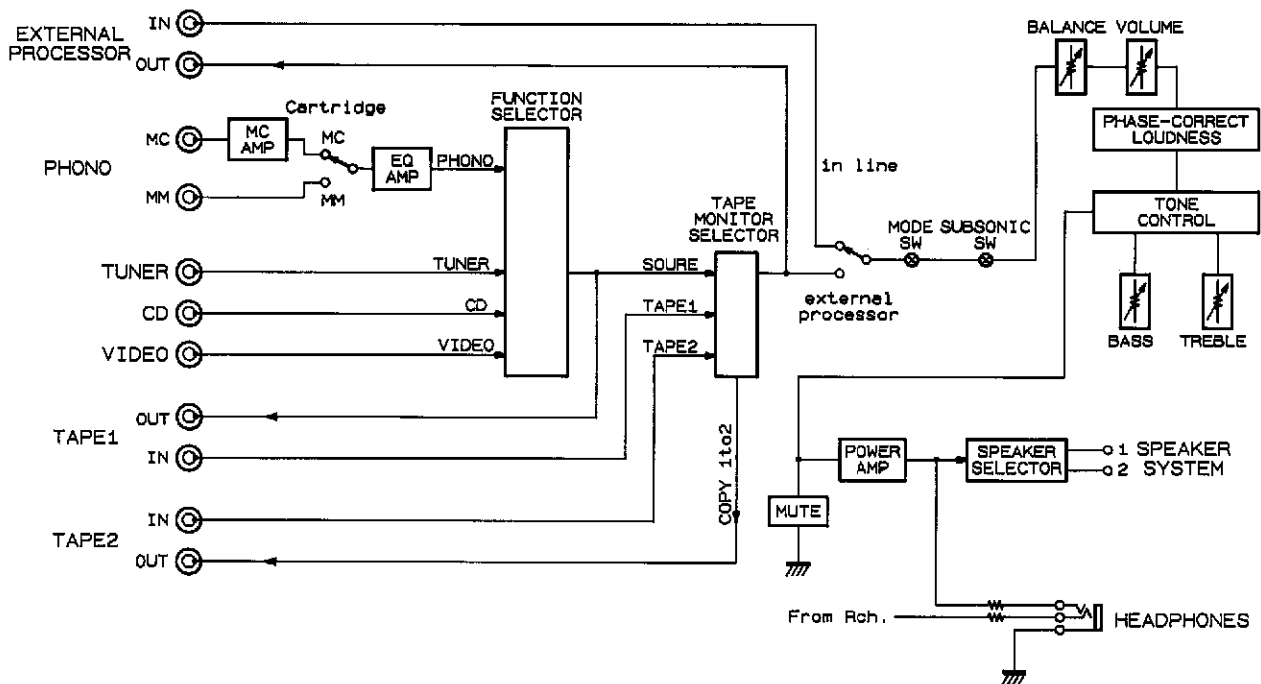
■ **DC BALANCE CONFIRMATION**

- Set the Speaker Operating Mode switch to the "4Ω" position.

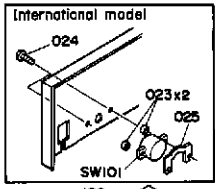
Step	Connection Equipments	For
1	Connect the Digital Volt Meter to TP1 and TP2.	0 ± 60mV
2	Connect the Digital Volt Meter to TP3 and TP2.	0 ± 60mV

- After the above adjustment, leave the unit with its power on for longer than 15 minutes and then repeat the same adjustment.

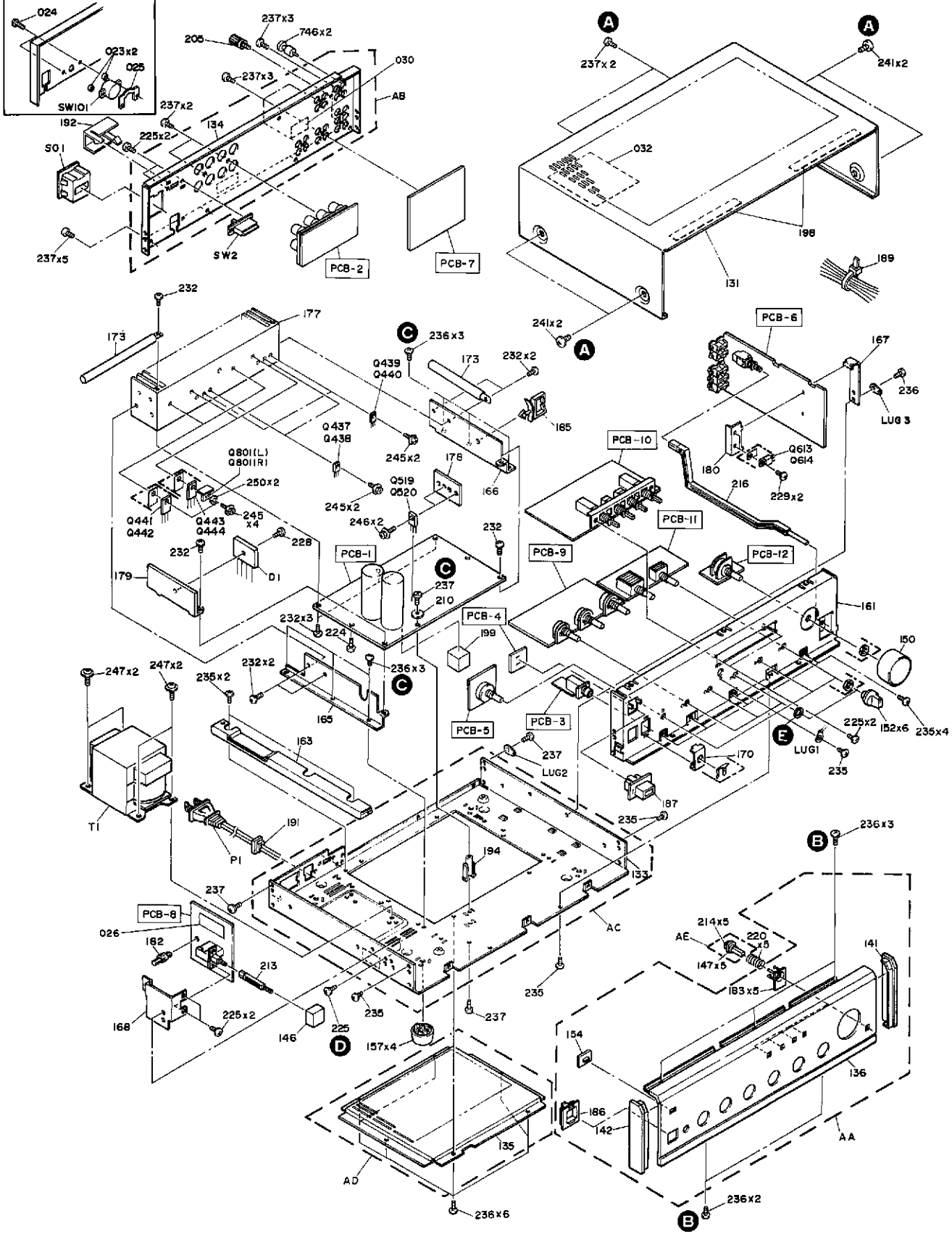
BLOCK DIAGRAM



GENERAL UNIT
EXPLODED VIEW



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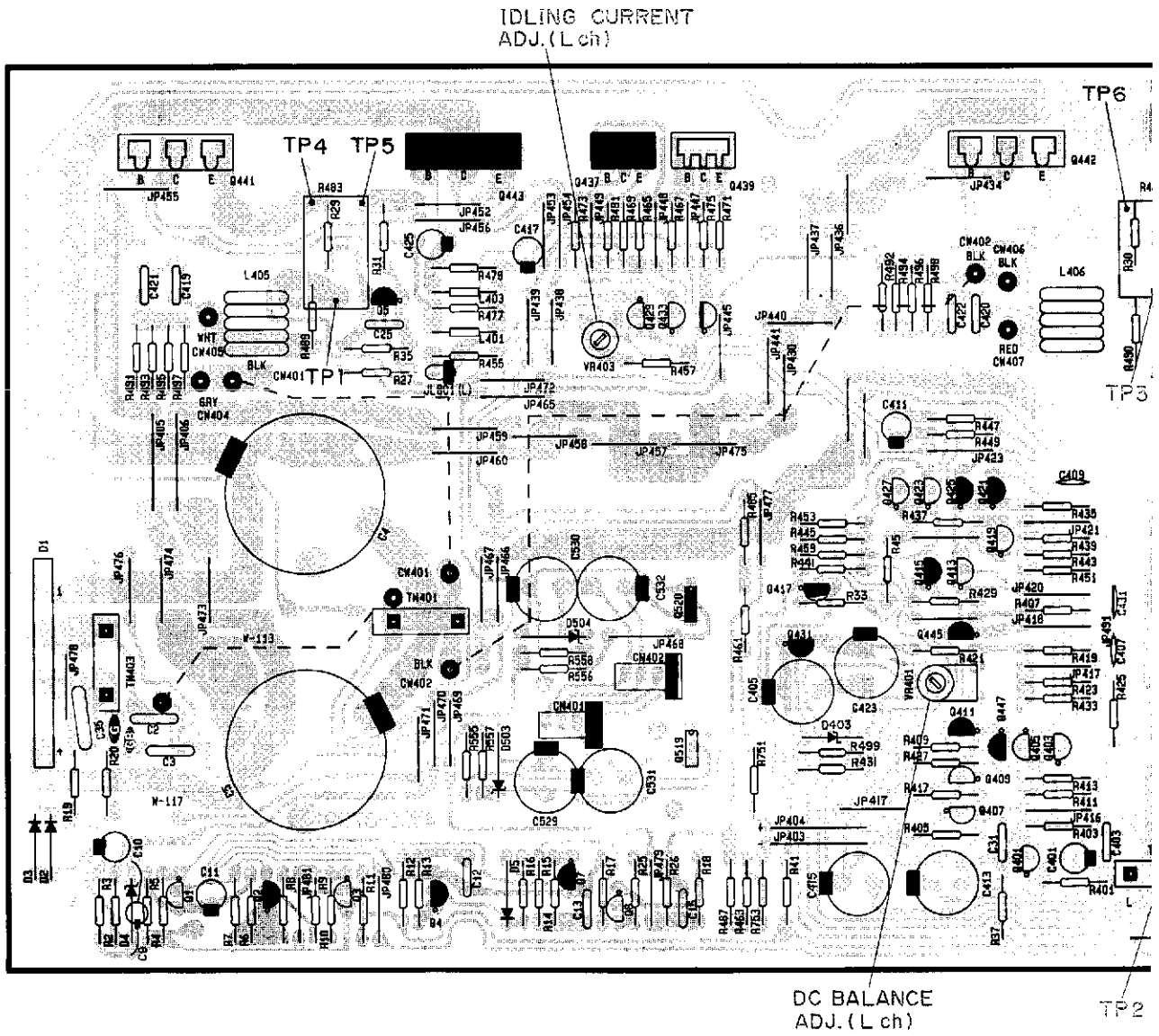


PARTS LIST

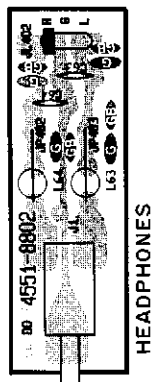
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
AA	A443-HK6500A	FRONT PANEL ASS'Y G I	173	2218-7011	BRACKET, FIX WIRING
AA	A443-HK6500B	FRONT PANEL ASS'Y BK	177	2222-7249	HEAT SINK, MAIN BK NB
AA	A443-HK6500C	FRONT PANEL ASS'Y GB	177	2222-7250	HEAT SINK, MAIN G GB BB I IB
AA	A443-HK6500D	FRONT PANEL ASS'Y NB	178	2222-7256	HEAT SINK, MAIN
AA	A443-HK6500E	FRONT PANEL ASS'Y BB	179	2222-7243	HEAT SINK
AA	A443-HK6500F	FRONT PANEL ASS'Y IB	180	2222-7240	HEAT SINK, EQ
AB	A424-HK6500A	CABI BACK ASS'Y BK	182	2240-7320	HOLDER, POWER
AB	A424-HK6500D	CABI BACK ASS'Y G	183	2240-7141	HOLDER G I
AB	A424-HK6500G	CABI BACK ASS'Y GB	183	2240-7202	HOLDER BK NB GB BB IB
AB	A424-HK6500K	CABI BACK ASS'Y NB	185	2240-7239	HOLDER, WIRING
AB	A424-HK6500N	CABI BACK ASS'Y BB	186	2240-7209	HOLDER, POWER
AB	A424-HK6500R	CABI BACK ASS'Y I	187	2240-7349	HOLDER, LED
AB	A424-HK6500U	CABI BACK ASS'Y IB	189	2240-R0101	HOLDER, WIRING BK NB
AC	A424-HK6500B	CABI BOTTOM ASS'Y BK	189	2240-7120	HOLDER, WIRING G GB BB I IB
AC	A424-HK6500E	CABI BOTTOM ASS'Y G	191	2240-364	HOLDER, AC
AC	A424-HK6500H	CABI BOTTOM ASS'Y GB	192	2240-7359	HOLDER, 4/B SW
AC	A424-HK6500L	CABI BOTTOM ASS'Y NB	194	2360-7015	BOSS, SPE MAIN
AC	A424-HK6500P	CABI BOTTOM ASS'Y BB	198	2111-11744	FELT, PANEL
AC	A424-HK6500S	CABI BOTTOM ASS'Y I	199	2112-11795	SPONGE
AC	A424-HK6500V	CABI BOTTOM ASS'Y IB	205	4214-168	TERMINAL (GND)
AD	A424-HK6500C	CABI BOTTOM COVER ASS'Y BK	210	2402-0374	WASHER, PLASTIC MAIN
AD	A424-HK6500F	CABI BOTTOM COVER ASS'Y G	213	2672-7018	LEVER
AD	A424-HK6500J	CABI BOTTOM COVER ASS'Y GB	214	2601-7077	SHAFT
AD	A424-HK6500M	CABI BOTTOM COVER ASS'Y NB	216	2601-7178	SHAFT, MC/MM
AD	A424-HK6500Q	CABI BOTTOM COVER ASS'Y BB	220	2651-210189	SPRING
AD	A424-HK6500T	CABI BOTTOM COVER ASS'Y I	224	2323-300829	SCREW, CSK+ (3X8mm)
AD	A424-HK6500W	CABI BOTTOM COVER ASS'Y IB	225	2327-R0130064	SCREW, BND+ (3X6mm)
AE	A662-HK6500A	PUSH BUTTON ASS'Y G I	228	2557-300829	SCREW, B SPW+ (3X8mm)
AE	A662-HK6500B	PUSH BUTTON ASS'Y BK	229	2327-R0130082	SCREW, BND+ (3X8mm)
AE	A662-HK6500C	PUSH BUTTON ASS'Y GB	232	2347-R0130082	SCREW, BND T+ (3X8mm)
AE	A662-HK6500D	PUSH BUTTON ASS'Y NB	235	2347-R0130062	SCREW, BND T+ (3X6mm)
AE	A662-HK6500E	PUSH BUTTON ASS'Y BB	236	2347-R0130062	SCREW, BND T+ (3X6mm)
AE	A662-HK6500F	PUSH BUTTON ASS'Y IB	237	2347-R0130084	SCREW, BND T+ (3X8mm)
023	2132-7116	SPACER G GB BB I IB	241	2347-R0140064	SCREW, BND T+ (4X6mm)
024	2327-R0130124	SCREW, BND+ (3X12mm) G GB BB I IB	245	2557-301429	SCREW, B SPW+ (3X14mm)
		I IB	246	2557-300829	SCREW, B SPW+ (3X8mm)
025	2440-7017	NUT, SPE G GB BB I IB	247	2592-400827	SCREW, BND T+ (4X8mm)
026	1756-01404	LABEL, FUSE I IB	250	2401-0373	WASHER, METAL
030	1756-19304	LABEL, DBP. NO. G GB	746	4442-14	PIN PLUG
032	2111-11770	FELT G GB BB I IB	△ P1	4161-71151	CORD W/PLUG BK NB
131	1414-13901	CABINET TOP G GB BB I IB	△ P1	4161-7256	CORD W/PLUG G GB I IB
131	1414-11601	CABINET TOP BK NB	△ P1	4161-04100	CORD W/PLUG BB
133	1424-25001	CABI BACK BOTTOM	△ T1	5584-S1408	XFORMER, POWER BK
134	1424-29201	CABI BACK REAR BK NB	△ T1	5584-S2509	XFORMER, POWER G GB BB I IB
134	1424-29203	CABI BACK REAR G GB BB I IB	△ T1	5584-S2510	XFORMER, POWER NB
135	1424-26101	CABI BACK, BOTTOM COVER	△ SO1	4474-157	SOCKET BK NB
136	1443-13301	PANEL FRONT G I	LUG1	4211-4	LUG
136	1443-13302	PANEL FRONT BK NB GB BB IB	LUG2,3	4211-4	LUG G GB
141	1562-07501	FRAME R-SIDE G I	△ SW2	4464-00101012	SWITCH, SLIDE BK NB
141	1562-07502	FRAME R-SIDE BK NB GB BB IB	△ SW2	4464-00102022	SWITCH, SLIDE G GB BB I IB
142	1562-07601	FRAME L-SIDE G I	△ SW101	4411-102729	SWITCH, ROTARY G GB BB I IB
142	1562-07602	FRAME L-SIDE BK NB GB BB IB	Q437	5611-1306(Y)	XISTOR, PNP R
146	1660-00401	PUSH BUTTON, POWER G I	Q438	5611-1306(Y)	XISTOR, PNP R
146	1660-00403	PUSH BUTTON, POWER BK NB GB BB IB	Q439	5613-3298(Y)	XISTOR, NPN R
			Q440	5613-3298(Y)	XISTOR, NPN R
147	1662-05701VN	PUSH BUTTON G I	Q441	5613-3281(O)	XISTOR, NPN R
147	1662-05702	PUSH BUTTON BK NB GB BB IB	Q442	5613-3281(O)	XISTOR, NPN R
150	1630-03901	ROTARY KNOB, VOLUME G I	Q443	5612-1302(O)	XISTOR, PNP R
150	1630-03902	ROTARY KNOB, VOLUME BK NB GB BB IB	Q444	5612-1302(O)	XISTOR, PNP R
			Q801(L)	5613-2682(Q)	XISTOR, NPN R
152	1632-16502	ROTARY KNOB G I	Q801(R)	5613-2682(Q)	XISTOR, NPN R
152	1632-16501	ROTARY KNOB BK NB GB BB IB	Q519	5614-1266(P)	XISTOR, NPN A
154	1732-05801	INDICATOR	Q520	5612-941(P)	XISTOR, PNP A
157	1319-02201	LEG, BOTTOM	Q613	5612-941(P)	XISTOR, PNP A
161	2211-7310	CHASSIS FRONT	Q614	5614-1266(P)	XISTOR, NPN A
163	2219-8212	METAL FITTING	△ D1	5685-D5S820	SILICON BRIDGE
165	2219-8210	METAL FITTING, L			
166	2219-8211	METAL FITTING, R			
167	2219-8237	METAL FITTING, EQ			
168	2219-8238	METAL FITTING, POWER			
170	2219-7879	METAL FITTING, H/P			

P. C. BOARDS

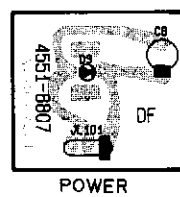
PCB-1 Main P. C. Board



PCB-3 Headphone P. C. Board



PCB-4 LED P. C. Board



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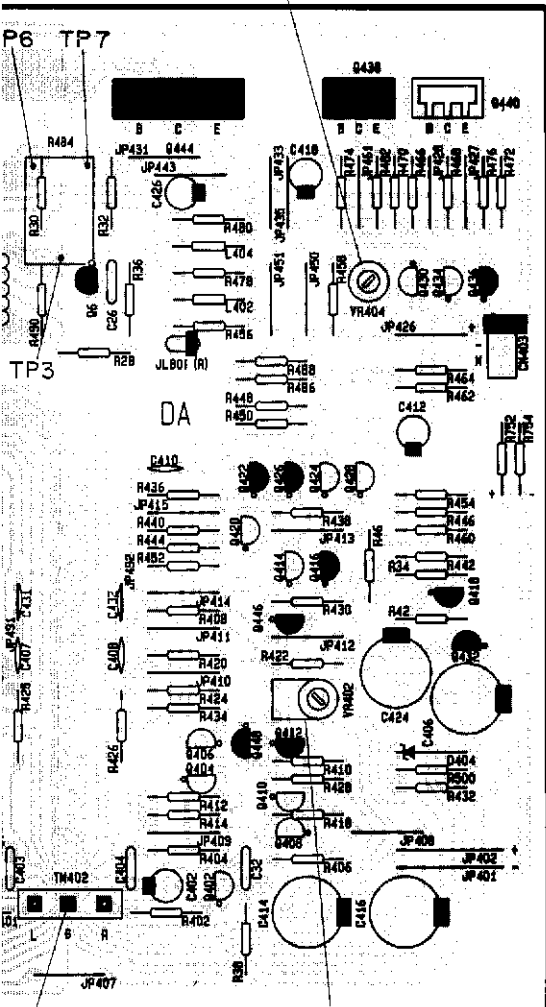
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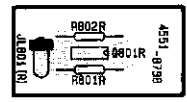
7

IDLING CURRENT
ADJ. (R ch)

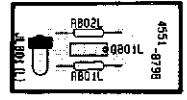


DC BALANCE
ADJ. (R ch)

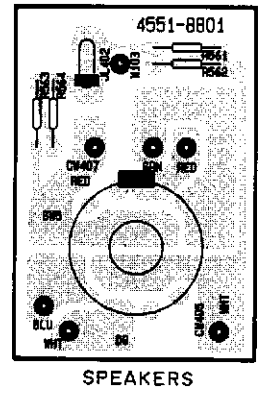
PCB-13 Bias P. C. Board (Lch)



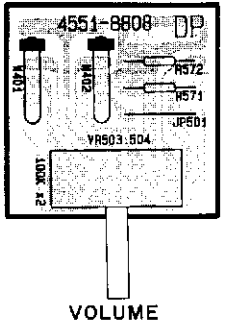
PCB-14 Bias P. C. Board (Rch)



PCB-5 Speaker Switch P. C. Board



PCB-12 Main Volume P. C. Board



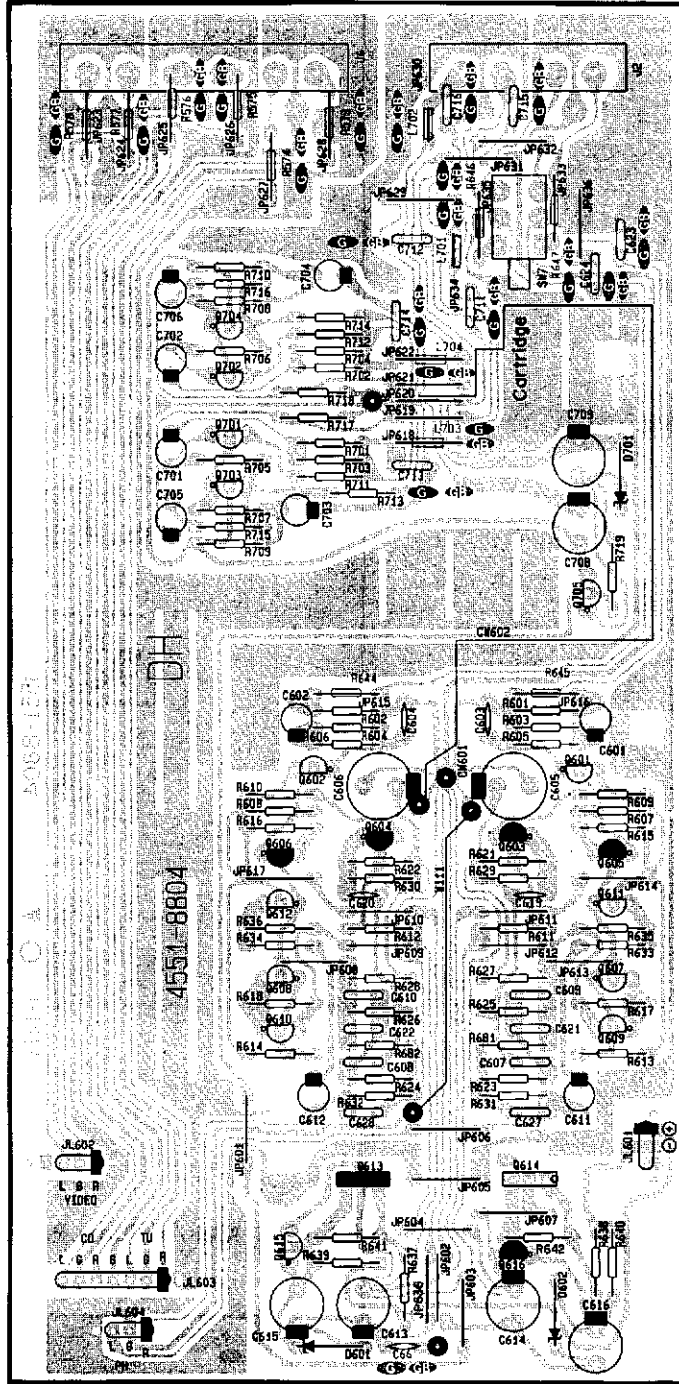
P. C. BOARDS

PCB-6 Equalizer P. C. Board

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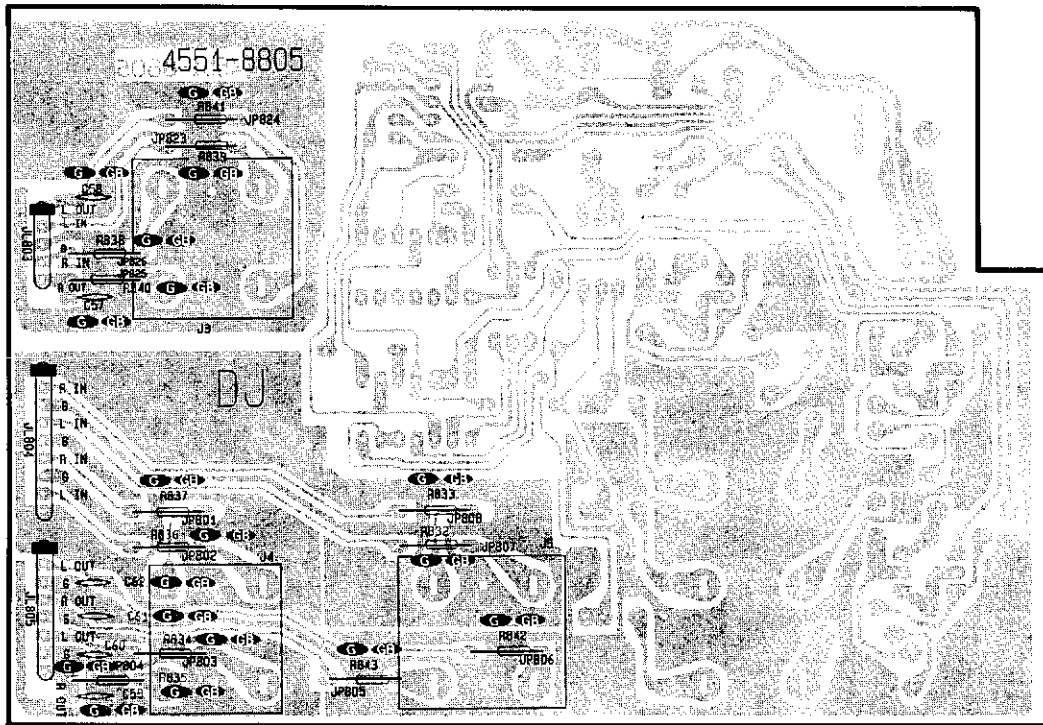
A B C D E

VIDEO CD TUNER MC PHONO MM



PCB-7 Pin Jack P. C. Board

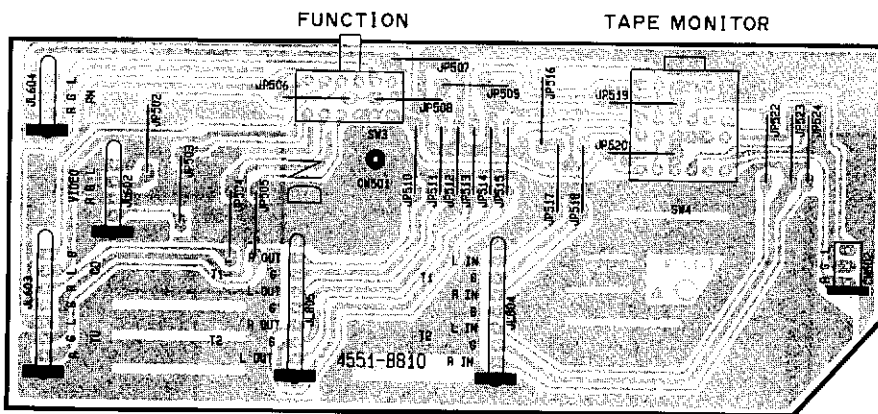
PRO.LOOP
 IN IN
 ⊕ ⊖
 OUT OUT



TAPE 1

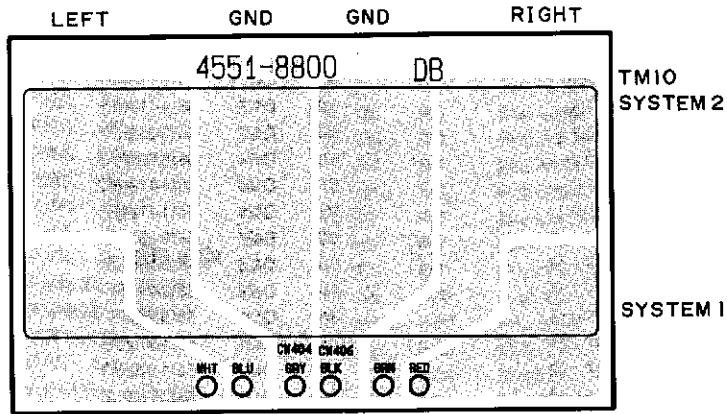
TAPE 2

PCB-11 Function P. C. Board

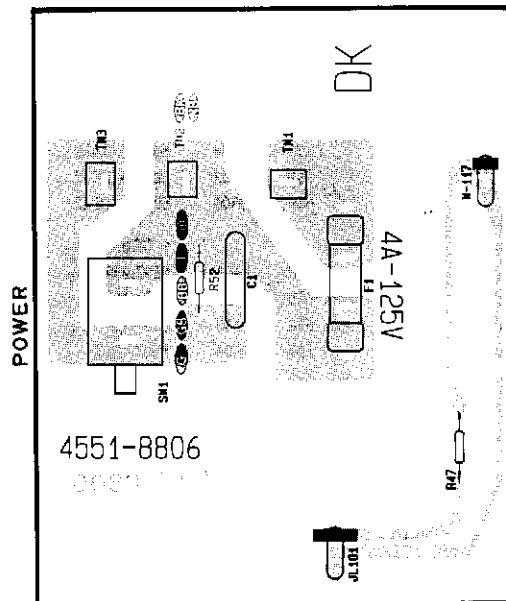


P. C. BOARDS

PCB-2 Speaker P. C. Board



PCB-8 Power Switch P. C. Board



F

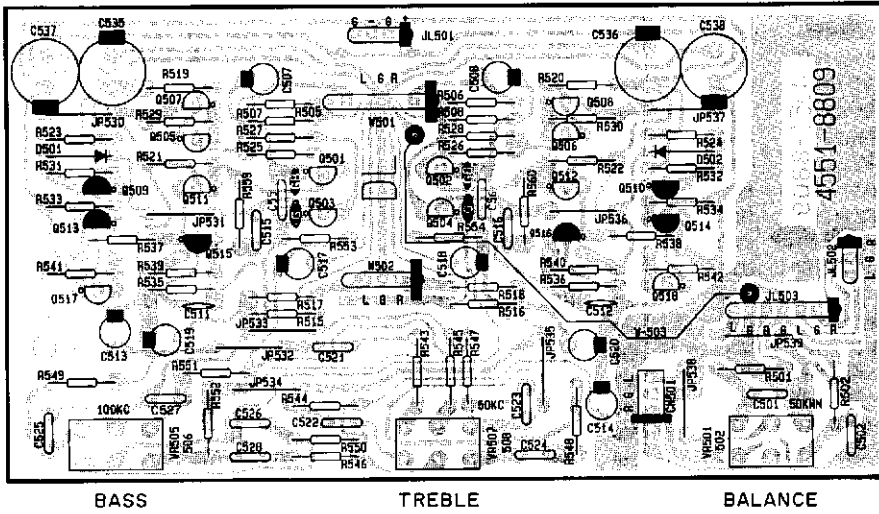
G

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PCB-9 Tone Control P. C. Board

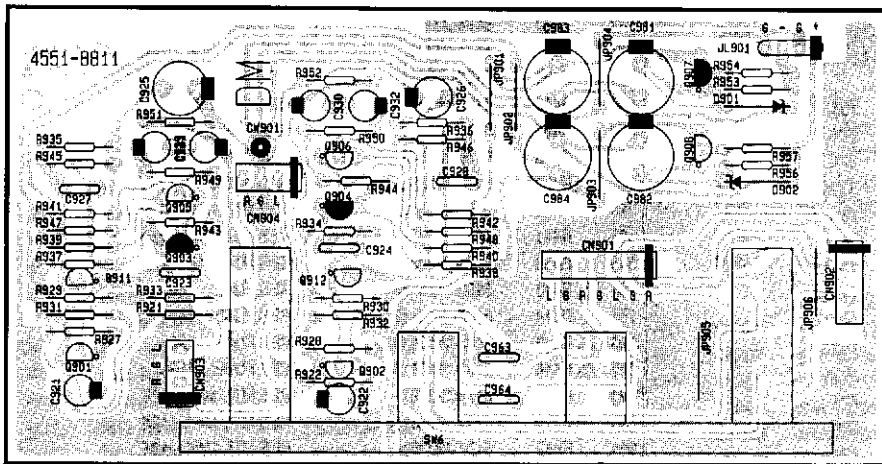


BASS

TREBLE

BALANCE

PCB-10 Basscon P. C. Board



PHASE
CORRECT
LOUDNESS

SUBSONIC

MODE

EXTERNAL
PROCESSOR

ELECTRICAL PARTS LIST

Ser.No	Ref. No.	Part No.	Description
POP-UP MAINS BOARD			

CAPACITORS

689	C2	5352-1041957	CAP,MTL .1μ
689	C3	5352-1041957	CAP,MTL .1μ
687	△ C4	5341-S10GM139	CAP,ELE 13000μ63V
687	△ C5	5341-S10GM139	CAP,ELE 13000μ63V
630	C9	5345-106C0951	CAP,MINI ELE 10μ/16V
631	C10	5345-475F0951	CAP,MINI ELE 4.7μ/50V
632	C11	5345-336C0951	CAP,MINI ELE 33μ/16V
633	C12	5354-334593	CAP,MYL .33μ
633	C13	5354-334593	CAP,MYL .33μ
636	C15	5354-223M1HM	CAP,MYL .022μ
635	C25	5354-663593	CAP,MYL .068μ
635	C26	5354-663593	CAP,MYL .068μ
634	C31	5354-224593	CAP,MYL .22μ
634	C32	5354-224593	CAP,MYL .22μ
057B	C35	5352-1041957	CAP,MTL .1μ G GB
561	C401	5345-107B0951	CAP,MINI ELE 100μ/10V
561	C402	5345-107B0951	CAP,MINI ELE 100μ/10V
566	C403	5359-6805851	CAP,PPP 68p
566	C404	5359-6805851	CAP,PPP 68p
563	C405	5345-227A0951	CAP,MINI ELE 220μ/6.3V
563	C406	5345-227A0951	CAP,MINI ELE 220μ/6.3V
570	C407	5353-050933	CAP,MCA 5p G GB BK
570	C408	5353-050933	CAP,MCA 5p G GB BK
571	C409	5353-680533	CAP,MCA 68p
571	C410	5353-680533	CAP,MCA 68p
562	C411	5345-106C0951	CAP,MINI ELE 10μ/16V
562	C412	5345-106C0951	CAP,MINI ELE 10μ/16V
564	△ C413	5345-337G0962	CAP,MINI ELE 330μ/63V
564	△ C414	5345-337G0962	CAP,MINI ELE 330μ/63V
564	△ C415	5345-337G0962	CAP,MINI ELE 330μ/63V
564	△ C416	5345-337G0962	CAP,MINI ELE 330μ/63V
562	C417	5345-106C0951	CAP,MINI ELE 10μ/16V
562	C418	5345-106C0951	CAP,MINI ELE 10μ/16V
568	C419	5354-104593	CAP,MYL .1μ
568	C420	5354-104593	CAP,MYL .1μ
568	C421	5354-104593	CAP,MYL .1μ
568	C422	5354-104593	CAP,MYL .1μ
563	C423	5345-227A0951	CAP,MINI ELE 220μ/6.3V
563	C424	5345-227A0951	CAP,MINI ELE 220μ/6.3V
562	C425	5345-106C0951	CAP,MINI ELE 10μ/16V
562	C426	5345-106C0951	CAP,MINI ELE 10μ/16V
066B	C431	5353-050933	CAP,MCA 5p G GB
066B	C432	5353-050933	CAP,MCA 5p G GB
659	C529	5345-337D041	CAP,MINI ELE 330μ/25V
659	C530	5345-337D041	CAP,MINI ELE 330μ/25V
659	C531	5345-337D041	CAP,MINI ELE 330μ/25V
659	C532	5345-337D041	CAP,MINI ELE 330μ/25V

RESISTORS

641	R2	5135-103522	RES,CBN 1/2P 10K
638	R3	5135-222522	RES,CBN 1/2P 2.2K
645	R4	5135-473522	RES,CBN 1/2P 47K
644	R5	5135-334522	RES,CBN 1/2P 330K
642	R6	5135-684522	RES,CBN 1/2P 680K
647	R7	5135-184522	RES,CBN 1/2P 180K
643	R8	5135-225522	RES,CBN 1/2P 2.2M
640	R9	5135-104522	RES,CBN 1/2P 100K
640	R10	5135-104522	RES,CBN 1/2P 100K
641	R11	5135-103522	RES,CBN 1/2P 10K
640	R12	5135-104522	RES,CBN 1/2P 100K
645	R13	5135-473522	RES,CBN 1/2P 47K
646	R14	5135-223522	RES,CBN 1/2P 22K
646	R15	5135-223522	RES,CBN 1/2P 22K
645	R16	5135-473522	RES,CBN 1/2P 47K
641	R17	5135-103522	RES,CBN 1/2P 10K
646	R18	5135-223522	RES,CBN 1/2P 22K
649	R19	5135-102522	RES,CBN 1/2P 1K
649	R20	5135-102522	RES,CBN 1/2P 1K

Ser.No	Ref. No.	Part No.	Description
650	R25	5135-152522	RES,CBN 1/2P 1.5K
645	R26	5135-473522	RES,CBN 1/2P 47K
648	R27	5135-472522	RES,CBN 1/2P 4.7K
648	R28	5135-472522	RES,CBN 1/2P 4.7K
648	R29	5135-472522	RES,CBN 1/2P 4.7K
648	R30	5135-472522	RES,CBN 1/2P 4.7K
648	R31	5135-472522	RES,CBN 1/2P 4.7K
648	R32	5135-472522	RES,CBN 1/2P 4.7K
646	R33	5135-223522	RES,CBN 1/2P 22K
646	R34	5135-223522	RES,CBN 1/2P 22K
637	R35	5135-751522	RES,CBN 1/2P 750
637	R36	5135-751522	RES,CBN 1/2P 750
639	R37	5135-105522	RES,CBN 1/2P 1M
639	R38	5135-105522	RES,CBN 1/2P 1M
646	R41	5135-223522	RES,CBN 1/2P 22K
646	R42	5135-223522	RES,CBN 1/2P 22K
646	R45	5135-223522	RES,CBN 1/2P 22K
646	R46	5135-223522	RES,CBN 1/2P 22K
662	R47	5135-471522	RES,CBN 1/2P 470
604	R401	5135-331522	RES,CBN 1/2P 330
604	R402	5135-331522	RES,CBN 1/2P 330
599	R403	5135-223522	RES,CBN 1/2P 22K
599	R404	5135-223522	RES,CBN 1/2P 22K
600	R405	5135-333522	RES,CBN 1/2P 33K
600	R406	5135-333522	RES,CBN 1/2P 33K
589	R407	5174-122381	RES,MTL 1/4P 1.2K
589	R408	5174-122381	RES,MTL 1/4P 1.2K
589	R409	5174-122381	RES,MTL 1/4P 1.2K
589	R410	5174-122381	RES,MTL 1/4P 1.2K
602	R411	5135-221522	RES,CBN 1/2P 220
602	R412	5135-221522	RES,CBN 1/2P 220
602	R413	5135-221522	RES,CBN 1/2P 220
602	R414	5135-221522	RES,CBN 1/2P 220
604	R417	5135-331522	RES,CBN 1/2P 330
604	R418	5135-331522	RES,CBN 1/2P 330
605	R419	5135-333522	RES,CBN 1/2P 33K
605	R420	5135-333522	RES,CBN 1/2P 33K
606	R421	5135-182522	RES,CBN 1/2P 1.8K
606	R422	5135-182522	RES,CBN 1/2P 1.8K
592	R423	5174-621381	RES,MTL 1/4P 620
592	R424	5174-621381	RES,MTL 1/4P 620
591	R425	5174-220381	RES,MTL 1/4P 22
591	R426	5174-220381	RES,MTL 1/4P 22
587	△ R427	5102-1224713	RES,FUSE 1.2K
587	△ R428	5102-1224713	RES,FUSE 1.2K
587	△ R429	5102-1224713	RES,FUSE 1.2K
587	△ R430	5102-1224713	RES,FUSE 1.2K
603	R431	5135-562522	RES,CBN 1/2P 5.6K
603	R432	5135-562522	RES,CBN 1/2P 5.6K
593	R433	5174-243381	RES,MTL 1/4P 24K
593	R434	5174-243381	RES,MTL 1/4P 24K
613	R435	5135-153522	RES,CBN 1/2P 15K
613	R436	5135-153522	RES,CBN 1/2P 15K
608	R437	5135-123522	RES,CBN 1/2P 12K
608	R438	5135-123522	RES,CBN 1/2P 12K
595	R439	5174-222381	RES,MTL 1/4P 2.2K
595	R440	5174-222381	RES,MTL 1/4P 2.2K
595	R441	5174-222381	RES,MTL 1/4P 2.2K
595	R442	5174-222381	RES,MTL 1/4P 2.2K
585	△ R443	5102-1515116	RES,FUSE 150
585	△ R444	5102-1515116	RES,FUSE 150
585	△ R445	5102-1515116	RES,FUSE 150
585	△ R446	5102-1515116	RES,FUSE 150
594	R447	5174-123381	RES,MTL 1/4P 12K
594	R448	5174-123381	RES,MTL 1/4P 12K
594	R449	5174-123381	RES,MTL 1/4P 12K
594	R450	5174-123381	RES,MTL 1/4P 12K
585	△ R451	5102-1515116	RES,FUSE 150
585	△ R452	5102-1515116	RES,FUSE 150
585	△ R453	5102-1515116	RES,FUSE 150
585	△ R454	5102-1515116	RES,FUSE 150

Ser.No	Ref. No.	Part No.	Description	Ser.No	Ref. No.	Part No.	Description
609	R455	5135-221522	RES,CBN 1/2P 220	535	Q409	5613-2320L(F)	XISTOR,NPN R
609	R456	5135-221522	RES,CBN 1/2P 220	535	Q410	5613-2320L(F)	XISTOR,NPN R
610	R457	5135-121522	RES,CBN 1/2P 120	538	Q411	5611-872(E)	XISTOR,PNP R
610	R458	5135-121522	RES,CBN 1/2P 120	538	Q412	5611-872(E)	XISTOR,PNP R
597	R459	5135-131522	RES,CBN 1/2P 130	534	Q413	5613-2320L(F)	XISTOR,NPN R
597	R460	5135-131522	RES,CBN 1/2P 130	534	Q414	5613-2320L(F)	XISTOR,NPN R
584	△ R461	5102-3R35116	RES,FUSE 3.3	532	Q415	5611-999L(F)	XISTOR,PNP R
584	△ R462	5102-3R35116	RES,FUSE 3.3	532	Q416	5611-999L(F)	XISTOR,PNP R
584	△ R463	5102-3R35116	RES,FUSE 3.3	533	Q417	5611-970(BL)	XISTOR,PNP R
584	△ R464	5102-3R35116	RES,FUSE 3.3	533	Q418	5611-970(BL)	XISTOR,PNP R
586	△ R465	5102-1015116	RES,FUSE 100	536	Q419	5613-2632(R)	XISTOR,NPN R
586	△ R466	5102-1015116	RES,FUSE 100	536	Q420	5613-2632(R)	XISTOR,NPN R
586	△ R467	5102-1015116	RES,FUSE 100	537	Q421	5611-1124(R)	XISTOR,PNP R
586	△ R468	5102-1015116	RES,FUSE 100	537	Q422	5611-1124(R)	XISTOR,PNP R
588	△ R469	5102-2R25116	RES,FUSE 2.2	536	Q423	5613-2632(R)	XISTOR,NPN R
588	△ R470	5102-2R25116	RES,FUSE 2.2	536	Q424	5613-2632(R)	XISTOR,NPN R
588	△ R471	5102-2R25116	RES,FUSE 2.2	537	Q425	5611-1124(R)	XISTOR,PNP R
588	△ R472	5102-2R25116	RES,FUSE 2.2	537	Q426	5611-1124(R)	XISTOR,PNP R
611	R473	5135-150522	RES,CBN 1/2P 15	536	Q427	5613-2632(R)	XISTOR,NPN R
611	R474	5135-150522	RES,CBN 1/2P 15	536	Q428	5613-2632(R)	XISTOR,NPN R
611	R475	5135-150522	RES,CBN 1/2P 15	540	Q429	5613-945(P)	XISTOR,NPN R
611	R476	5135-150522	RES,CBN 1/2P 15	540	Q430	5613-945(P)	XISTOR,NPN R
612	R477	5135-100522	RES,CBN 1/2P 10	542	Q431	5611-970(BL)	XISTOR,PNP R
612	R478	5135-100522	RES,CBN 1/2P 10	542	Q432	5611-970(BL)	XISTOR,PNP R
612	R479	5135-100522	RES,CBN 1/2P 10	546	Q433	5613-2632(S)	XISTOR,NPN R
612	R480	5135-100522	RES,CBN 1/2P 10	546	Q434	5613-2632(S)	XISTOR,NPN R
590	R481	5174-560381	RES,MTL 1/4P 56	545	Q435	5611-1124(S)	XISTOR,PNP R
590	R482	5174-560381	RES,MTL 1/4P 56	545	Q436	5611-1124(S)	XISTOR,PNP R
575	R483	5275-R27671	RES,CEM 5P .27	544	Q437	5611-1306(Y)	XISTOR,PNP R
575	R484	5275-R27671	RES,CEM 5P .27	544	Q438	5611-1306(Y)	XISTOR,PNP R
614	R485	5135-3R3522	RES,CBN 1/2P 3.3	541	Q439	5613-3298(Y)	XISTOR,NPN R
614	R486	5135-3R3522	RES,CBN 1/2P 3.3	541	Q440	5613-3298(Y)	XISTOR,NPN R
614	R487	5135-3R3522	RES,CBN 1/2P 3.3	547	Q441	5613-3281(O)	XISTOR,NPN R
614	R488	5135-3R3522	RES,CBN 1/2P 3.3	547	Q442	5613-3281(O)	XISTOR,NPN R
617	R489	5135-220522	RES,CBN 1/2P 22	549	Q443	5611-1302(O)	XISTOR,PNP R
617	R490	5135-220522	RES,CBN 1/2P 22	549	Q444	5611-1302(O)	XISTOR,PNP R
615	R491	5135-390522	RES,CBN 1/2P 39	538	Q445	5611-872(E)	XISTOR,PNP R
615	R492	5135-390522	RES,CBN 1/2P 39	538	Q446	5611-872(E)	XISTOR,PNP R
615	R493	5135-390522	RES,CBN 1/2P 39	538	Q447	5611-872(E)	XISTOR,PNP R
615	R494	5135-390522	RES,CBN 1/2P 39	538	Q448	5611-872(E)	XISTOR,PNP R
615	R495	5135-390522	RES,CBN 1/2P 39	655	Q519	5614-1268(P)	XISTOR,NPN A
615	R496	5135-390522	RES,CBN 1/2P 39	656	Q520	5612-941(P)	XISTOR,PNP A
615	R497	5135-390522	RES,CBN 1/2P 39				
615	R498	5135-390522	RES,CBN 1/2P 39				
616	R499	5135-273522	RES,CBN 1/2P 27K				
616	R500	5135-273522	RES,CBN 1/2P 27K				
660	△ R555	5102-1005116	RES,FUSE 10				
660	△ R556	5102-1005116	RES,FUSE 10				
661	R557	5135-562522	RES,CBN 1/2P 5.6K				
661	R558	5135-562522	RES,CBN 1/2P 5.6K				
614	R751	5135-3R3522	RES,CBN 1/2P 3.3				
614	R752	5135-3R3522	RES,CBN 1/2P 3.3				
614	R753	5135-3R3522	RES,CBN 1/2P 3.3				
614	R754	5135-3R3522	RES,CBN 1/2P 3.3				
		TRANSISTORS					
621	Q1	5613-1740S(S)	XISTOR,NPN R				
622	Q2	5611-933S(S)	XISTOR,PNP R				
621	Q3	5613-1740S(S)	XISTOR,NPN R				
622	Q4	5611-933S(S)	XISTOR,PNP R				
624	Q5	5611-970(BL)	XISTOR,PNP R				
624	Q6	5611-970(BL)	XISTOR,PNP R				
622	Q7	5611-933S(S)	XISTOR,PNP R				
623	Q8	5613-2240(BL)	XISTOR,NPN R				
625	Q401	5616-2SK364(V)	FET,N-CH				
625	Q402	5616-2SK364(V)	FET,N-CH				
531	Q403	5613-1775(F)	XISTOR,NPN R				
531	Q404	5613-1775(F)	XISTOR,NPN R				
531	Q405	5613-1775(F)	XISTOR,NPN R				
531	Q406	5613-1775(F)	XISTOR,NPN R				
535	Q407	5613-2320L(F)	XISTOR,NPN R				
535	Q408	5613-2320L(F)	XISTOR,NPN R				
						DIODES	
				681	△ D1	5685-D5S820	SILICON,BRIG
				628	△ D2	5636-1S2471	DIODE,SWITCH
				628	△ D3	5636-1S2471	DIODE,SWITCH
				627	D4	5635-HZ6A-2L	DIODE,ZENER
				629	D5	5631-1S2473	DIODE,DET
				553	D403	5635-HZ6A2L	DIODE,ZENER
				553	D404	5635-HZ6A2L	DIODE,ZENER
				657	D503	5635-HZ22-2L	DIODE,ZENER
				657	D504	5635-HZ22-2L	DIODE,ZENER
						COILS	
				558	L401	5597-45502	CORE,BEADS
				558	L402	5597-45502	CORE,BEADS
				558	L403	5597-45502	CORE,BEADS
				558	L404	5597-45502	CORE,BEADS
				557	L405	5991-7165	SPRING COIL
				557	L406	5991-7165	SPRING COIL
						MISCELLANEOUS	
				693	CN401	4443-040185	CONNECTOR
				693	CN402	4443-040185	CONNECTOR
				694	CN403	4443-030185	CONNECTOR
				747	CW401	4163-0120024	CONNECTOR W/W
				748	CW402	4163-0120024	CONNECTOR W/W
				749	CW404	4163-0140026	CONNECTOR W/W
				750	CW405	4163-0140027	CONNECTOR W/W
				751	CW406	4163-0140024	CONNECTOR W/W
				752	CW407	4163-0140025	CONNECTOR W/W
				757	JL801(L)	4132-R0202101	CORD,2C

Ser.No	Ref. No.	Part No.	Description
757	JL801(R)	4132-R0202101	CORD,2C
691	TM401	4214-11023	TERMINAL
692	TM402	4214-11031	TERMINAL
691	TM403	4214-11023	TERMINAL
581	VR401	5101-50271920	RES,SEMI FIX 5K
581	VR402	5101-50271920	RES,SEMI FIX 5K
582	VR403	5101-50101830	RES,SEMI FIX 500
582	VR404	5101-50101830	RES,SEMI FIX 500
758	W117	4132-R0202251	CORD,2C

PCB-2 SPEAKER P.C.BOARD

MISCELLANEOUS

763	JL401	4242-044305	JUMPER LEAD
743	TM10	4214-156	TERMINAL

PCB-3 HEADPHONE P.C.BOARD

CAPACITORS

070B	C63	5361-101KB	CAP,CER 100p G GB
070B	C64	5361-101KB	CAP,CER 100p G GB

COILS

071B	L63	5995-221J107	COIL W/CORE G GB
071B	L64	5995-221J107	COIL W/CORE G GB

MISCELLANEOUS

736	J1	4451-00159	JACK,1P
797	JL402	4242-R0103171	JUMPER LEAD

PCB-4 LED P.C.BOARD

CAPACITOR

688	C8	5345-106C0951	CAP,MINI ELE 10μ/16V
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DIODE

741	D9	5637-GL5EG41	LED
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PCB-5 SPEAKER SWITCH P.C.BOARD

RESISTORS

619	R561	5135-221522	RES,CBN 1/2P 220
619	R562	5135-221522	RES,CBN 1/2P 220
619	R563	5135-221522	RES,CBN 1/2P 220
619	R564	5135-221522	RES,CBN 1/2P 220

MISCELLANEOUS

729	SW5	4411-00301104	SWITCH,ROTARY
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PCB-6 EQUALIZER P.C.BOARD

CAPACITORS

072B	C65	5361-103ZF	CAP,CER .01μ G GB
060B	C66	5361-223ZF	CAP,CER .022μ G GB
419	C601	5345-475D0951	CAP,MINI ELE 4.7μ/25V
419	C602	5345-475D0951	CAP,MINI ELE 4.7μ/25V
423	C603	5359-1215851	CAP,PPP 120p
423	C604	5359-1215851	CAP,PPP 120p
420	C605	5345-227A0951	CAP,MINI ELE 220μ/6.3V
420	C606	5345-227A0951	CAP,MINI ELE 220μ/6.3V
424	C607	5359-5625851	CAP,PPP 5600p
424	C608	5359-5625851	CAP,PPP 5600p
423	C609	5359-1215851	CAP,PPP 120p
423	C610	5359-1215851	CAP,PPP 120p
421	C611	5345-106C0951	CAP,MINI ELE 10μ/16V
421	C612	5345-106C0951	CAP,MINI ELE 10μ/16V
456	C613	5345-227D041	CAP,MINI ELE 220μ/25V
456	C614	5345-227D041	CAP,MINI ELE 220μ/25V
456	C615	5345-227D041	CAP,MINI ELE 220μ/25V

Ser.No	Ref. No.	Part No.	Description
456	C616	5345-227D041	CAP,MINI ELE 220μ/25V
427	C619	5353-040933	CAP,MCA 4p
427	C620	5353-040933	CAP,MCA 4p
422	C621	5359-S010J182	CAP,PPP 1800p
422	C622	5359-S010J182	CAP,PPP 1800p
056B	C623	5353-820534	CAP,MCA 82p G GB
056B	C624	5353-820534	CAP,MCA 82p G GB
425	C627	5359-8215851	CAP,PPP 820p
425	C628	5359-8215851	CAP,PPP 820p
837	C701	5345-107B0951	CAP,MINI ELE 100μ/10V
837	C702	5345-107B0951	CAP,MINI ELE 100μ/10V
839	C703	5345-477C041	CAP,MINI ELE 470μ/16V
839	C704	5345-477C041	CAP,MINI ELE 470μ/16V
836	C705	5345-106C0951	CAP,MINI ELE 10μ/16V
836	C706	5345-106C0951	CAP,MINI ELE 10μ/16V
838	C708	5345-337D041	CAP,MINI ELE 330μ/25V
838	C709	5345-337D041	CAP,MINI ELE 330μ/25V
064B	C711	5359-S010J103	CAP,PPP .01μ G GB
064B	C712	5359-S010J103	CAP,PPP .01μ G GB
064B	C713	5359-S010J103	CAP,PPP .01μ G GB
064B	C714	5359-S010J103	CAP,PPP .01μ G GB
061B	C715	5359-1815851	CAP,PPP 180p G GB
061B	C716	5359-1815851	CAP,PPP 180p G GB

RESISTORS

055B	R573	5135-102522	RES,CBN 1/2P 1K G GB
055B	R574	5135-102522	RES,CBN 1/2P 1K G GB
055B	R575	5135-102522	RES,CBN 1/2P 1K G GB
055B	R576	5135-102522	RES,CBN 1/2P 1K G GB
055B	R577	5135-102522	RES,CBN 1/2P 1K G GB
055B	R578	5135-102522	RES,CBN 1/2P 1K G GB
429	R601	5135-823522	RES,CBN 1/2P 82K
429	R602	5135-823522	RES,CBN 1/2P 82K
430	R603	5135-124522	RES,CBN 1/2P 120K
430	R604	5135-124522	RES,CBN 1/2P 120K
431	R605	5135-221522	RES,CBN 1/2P 220
431	R606	5135-221522	RES,CBN 1/2P 220
432	R607	5135-122522	RES,CBN 1/2P 1.2K
432	R608	5135-122522	RES,CBN 1/2P 1.2K
433	R609	5135-220522	RES,CBN 1/2P 22
433	R610	5135-220522	RES,CBN 1/2P 22
432	R611	5135-122522	RES,CBN 1/2P 1.2K
432	R612	5135-122522	RES,CBN 1/2P 1.2K
434	R613	5135-223522	RES,CBN 1/2P 22K
434	R614	5135-223522	RES,CBN 1/2P 22K
435	R615	5135-820522	RES,CBN 1/2P 82
435	R616	5135-820522	RES,CBN 1/2P 82
436	R617	5135-121522	RES,CBN 1/2P 120
436	R618	5135-121522	RES,CBN 1/2P 120
428	R621	5135-821522	RES,CBN 1/2P 820
428	R622	5135-821522	RES,CBN 1/2P 820
438	R623	5135-393522	RES,CBN 1/2P 39K
438	R624	5135-393522	RES,CBN 1/2P 39K
439	R625	5135-564522	RES,CBN 1/2P 560K
439	R626	5135-564522	RES,CBN 1/2P 560K
440	R627	5135-334522	RES,CBN 1/2P 330K
440	R628	5135-334522	RES,CBN 1/2P 330K
441	R629	5135-102522	RES,CBN 1/2P 1K
441	R630	5135-102522	RES,CBN 1/2P 1K
443	R631	5135-104522	RES,CBN 1/2P 100K
443	R632	5135-104522	RES,CBN 1/2P 100K
441	R633	5135-102522	RES,CBN 1/2P 1K
441	R634	5135-102522	RES,CBN 1/2P 1K
442	R635	5135-222522	RES,CBN 1/2P 2.2K
442	R636	5135-222522	RES,CBN 1/2P 2.2K
452	△ R637	5102-4705116	RES,FUSE 47
452	△ R638	5102-4705116	RES,FUSE 47
454	R639	5135-103522	RES,CBN 1/2P 10K
454	R640	5135-103522	RES,CBN 1/2P 10K
453	R641	5135-331522	RES,CBN 1/2P 330
453	R642	5135-331522	RES,CBN 1/2P 330
055B	R644	5135-102522	RES,CBN 1/2P 1K G GB

Ser.No	Ref. No.	Part No.	Description
055B	R645	5135-102522	RES,CBN 1/2P 1K G GB
055B	R646	5135-102522	RES,CBN 1/2P 1K G GB
055B	R647	5135-102522	RES,CBN 1/2P 1K G GB
442	R681	5135-222522	RES,CBN 1/2P 2.2K
442	R682	5135-222522	RES,CBN 1/2P 2.2K
841	R701	5135-1R0522	RES,CBN 1/2P 1
841E	R701	5135-100522	RES,CBN 1/2P 10 G GB BB
841	R702	5135-1R0522	RES,CBN 1/2P 1
841E	R702	5135-100522	RES,CBN 1/2P 10 G GB BB
844	R703	5135-560522	RES,CBN 1/2P 56
844E	R703	5135-470522	RES,CBN 1/2P 47 G GB BB
844	R704	5135-560522	RES,CBN 1/2P 56
844E	R704	5135-470522	RES,CBN 1/2P 47 G GB BB
847	R705	5135-562522	RES,CBN 1/2P 5.6K
847	R706	5135-562522	RES,CBN 1/2P 5.6K
846	R707	5174-681381	RES,MTL 1/4P 680
846	R708	5174-681381	RES,MTL 1/4P 680
845	R709	5135-272522	RES,CBN 1/2P 2.7K
845	R710	5135-272522	RES,CBN 1/2P 2.7K
843	R711	5135-220522	RES,CBN 1/2P 22
843	R712	5135-220522	RES,CBN 1/2P 22
842	R713	5135-121522	RES,CBN 1/2P 120
842	R714	5135-121522	RES,CBN 1/2P 120
842	R715	5135-121522	RES,CBN 1/2P 120
842	R716	5135-121522	RES,CBN 1/2P 120
840	R717	5135-822522	RES,CBN 1/2P 8.2K
840	R718	5135-822522	RES,CBN 1/2P 8.2K
849	R719	5135-152522	RES,CBN 1/2P 1.5K

TRANSISTORS

411	Q601	5613-2320L(F)	XISTOR,NPN R
411	Q602	5613-2320L(F)	XISTOR,NPN R
414	Q603	5611-999L(F)	XISTOR,PNP R
414	Q604	5611-999L(F)	XISTOR,PNP R
414	Q605	5611-999L(F)	XISTOR,PNP R
414	Q606	5611-999L(F)	XISTOR,PNP R
411	Q607	5613-2320L(F)	XISTOR,NPN R
411	Q608	5613-2320L(F)	XISTOR,NPN R
411	Q609	5613-2320L(F)	XISTOR,NPN R
411	Q610	5613-2320L(F)	XISTOR,NPN R
411	Q611	5613-2320L(F)	XISTOR,NPN R
411	Q612	5613-2320L(F)	XISTOR,NPN R
448	Q613	5612-941(P)	XISTOR,PNP A
447	Q614	5614-1266(P)	XISTOR,NPN A
449	Q615	5613-1740S(S)	XISTOR,NPN R
450	Q616	5611-933S(S)	XISTOR,PNP R
832	Q701	5613-2855(E)	XISTOR,NPN R
832	Q702	5613-2855(E)	XISTOR,NPN R
832	Q703	5613-2855(E)	XISTOR,NPN R
832	Q704	5613-2855(E)	XISTOR,NPN R
833	Q705	5613-2320L(F)	XISTOR,NPN R

DIODES

451	D601	5635-HZ18-2L	DIODE,ZENER
451	D602	5635-HZ18-2L	DIODE,ZENER
834	D701	5635-HZ15-2L	DIODE,ZENER

COILS

065B	L701	5597-45502	CORE,BEADS G GB
065B	L702	5597-45502	CORE,BEADS G GB
065B	L703	5597-45502	CORE,BEADS G GB
065B	L704	5597-45502	CORE,BEADS G GB

MISCELLANEOUS

753	CW601	4163-0140039	CONNECTOR W/W
761	CW602	4163-0118024	CONNECTOR W/W
737	J2	4486-46	PIN JACK,4P
739	J6	4486-15	PIN JACK,6P
768	JL601	4242-R0403201	JUMPER LEAD
769	JL602	4242-R0304181	JUMPER LEAD
770	JL603	4242-R0307181	JUMPER LEAD
791	JL604	4242-R0303181	JUMPER LEAD
733	SW7	4431-S0302102	SWITCH,PUSH

PCB-7 PIN JACK P.C.BOARD

CAPACITORS

069B	C57	5359-1015851	CAP,PPP 100p G GB
069B	C58	5359-1015851	CAP,PPP 100p G GB
069B	C59	5359-1015851	CAP,PPP 100p G GB
069B	C60	5359-1015851	CAP,PPP 100p G GB
069B	C61	5359-1015851	CAP,PPP 100p G GB
069B	C62	5359-1015851	CAP,PPP 100p G GB

RESISTORS

058B	R832	5135-102522	RES,CBN 1/2P 1K G GB
058B	R833	5135-102522	RES,CBN 1/2P 1K G GB
058B	R834	5135-102522	RES,CBN 1/2P 1K G GB
058B	R835	5135-102522	RES,CBN 1/2P 1K G GB
058B	R836	5135-102522	RES,CBN 1/2P 1K G GB
058B	R837	5135-102522	RES,CBN 1/2P 1K G GB
058B	R838	5135-102522	RES,CBN 1/2P 1K G GB
058B	R839	5135-102522	RES,CBN 1/2P 1K G GB
058B	R840	5135-102522	RES,CBN 1/2P 1K G GB
058B	R841	5135-102522	RES,CBN 1/2P 1K G GB
058B	R842	5135-102522	RES,CBN 1/2P 1K G GB
058B	R843	5135-102522	RES,CBN 1/2P 1K G GB

MISCELLANEOUS

738	J3	4489-01001004	PIN JACK,MLT
738	J4	4489-01001004	PIN JACK,MLT
738	J5	4489-01001004	PIN JACK,MLT
766	JL803	4242-R0405401	JUMPER LEAD
767	JL804	4242-R0307401	JUMPER LEAD
767	JL805	4242-R0307401	JUMPER LEAD

PCB-8 POWER SWITCH P.C.BOARD

CAPACITORS

667	Δ C1	5352-S010M103	CAP,MTL .01 μ BK NB
667B	Δ C1	5352-1030958	CAP,MTL .01 μ G GB BB I IB

RESISTORS

662	R47	5135-471522	RES,CBN 1/2P 470
054B	Δ R52	5135-335522	RES,CBN 1/2P 3.3M G GB BB I IB

MISCELLANEOUS

684	Δ HF1	4472-0131	HOLDER,FUSE
684	Δ HF2	4472-0131	HOLDER,FUSE
796	JL101	4242-R0103141	JUMPER LEAD
732	Δ SW1	4433-00401	SWITCH,PUSH
675	TM1	4214-122	TERMINAL
675	TM2	4214-122	TERMINAL BK NB
675	TM3	4214-122	TERMINAL

PCB-9 TONE CONTROL P.C.BOARD

CAPACITORS

073B	C55	5359-1015851	CAP,PPP 100p G GB
073B	C56	5359-1015851	CAP,PPP 100p G GB
484	C501	5359-1015851	CAP,PPP 100p
484	C502	5359-1015851	CAP,PPP 100p
480	C507	5345-475D0951	CAP,MINI ELE 4.7 μ 25V
480	C508	5345-475D0951	CAP,MINI ELE 4.7 μ 25V
487	C511	5353-010933	CAP,MCA 1p
487	C512	5353-010933	CAP,MCA 1p
481	C513	5345-226B0951	CAP,MINI ELE 22 μ 10V
481	C514	5345-226B0951	CAP,MINI ELE 22 μ 10V
488	C515	5359-3315851	CAP,PPP 330p
488	C516	5359-3315851	CAP,PPP 330p
478	C517	5345-107B0951	CAP,MINI ELE 100 μ 10V
478	C518	5345-107B0951	CAP,MINI ELE 100 μ 10V
482	C519	5345-476C0951	CAP,MINI ELE 47 μ 16V
482	C520	5345-476C0951	CAP,MINI ELE 47 μ 16V

Ser.No	Ref. No.	Part No.	Description
497	C521	5354-682J1HM	CAP,MYL 6800p
497	C522	5354-682J1HM	CAP,MYL 6800p
498	C523	5354-393J1HM	CAP,MYL .039μ
498	C524	5354-393J1HM	CAP,MYL .039μ
499	C525	5354-273J1HM	CAP,MYL .027μ
499	C526	5354-273J1HM	CAP,MYL .027μ
491	C527	5354-154593	CAP,MYL .15μ
491	C528	5354-154593	CAP,MYL .15μ
479	C535	5345-227D041	CAP,MINI ELE 220μ/25V
479	C536	5345-227D041	CAP,MINI ELE 220μ/25V
479	C537	5345-227D041	CAP,MINI ELE 220μ/25V
479	C538	5345-227D041	CAP,MINI ELE 220μ/25V

RESISTORS

507	R501	5135-331522	RES,CBN 1/2P 330
507	R502	5135-331522	RES,CBN 1/2P 330
503	R505	5135-224522	RES,CBN 1/2P 220K
503	R506	5135-224522	RES,CBN 1/2P 220K
502	R507	5135-394522	RES,CBN 1/2P 390K
502	R508	5135-394522	RES,CBN 1/2P 390K
514	R515	5135-183522	RES,CBN 1/2P 18K
514	R516	5135-183522	RES,CBN 1/2P 18K
507	R517	5135-331522	RES,CBN 1/2P 330
507	R518	5135-331522	RES,CBN 1/2P 330
504	R519	5135-473522	RES,CBN 1/2P 47K
504	R520	5135-473522	RES,CBN 1/2P 47K
505	R521	5135-332522	RES,CBN 1/2P 3.3K
505	R522	5135-332522	RES,CBN 1/2P 3.3K
505	R523	5135-332522	RES,CBN 1/2P 3.3K
505	R524	5135-332522	RES,CBN 1/2P 3.3K
506	R525	5135-471522	RES,CBN 1/2P 470
506	R526	5135-471522	RES,CBN 1/2P 470
506	R527	5135-471522	RES,CBN 1/2P 470
506	R528	5135-471522	RES,CBN 1/2P 470
507	R529	5135-331522	RES,CBN 1/2P 330
507	R530	5135-331522	RES,CBN 1/2P 330
508	R531	5135-222522	RES,CBN 1/2P 2.2K
508	R532	5135-222522	RES,CBN 1/2P 2.2K
508	R533	5135-222522	RES,CBN 1/2P 2.2K
508	R534	5135-222522	RES,CBN 1/2P 2.2K
509	R535	5135-274522	RES,CBN 1/2P 270K
509	R536	5135-274522	RES,CBN 1/2P 270K
510	R537	5135-153522	RES,CBN 1/2P 15K
510	R538	5135-153522	RES,CBN 1/2P 15K
507	R539	5135-331522	RES,CBN 1/2P 330
507	R540	5135-331522	RES,CBN 1/2P 330
507	R541	5135-331522	RES,CBN 1/2P 330
507	R542	5135-331522	RES,CBN 1/2P 330
519	R543	5135-122522	RES,CBN 1/2P 1.2K
519	R544	5135-122522	RES,CBN 1/2P 1.2K
507	R545	5135-331522	RES,CBN 1/2P 330
507	R546	5135-331522	RES,CBN 1/2P 330
511	R547	5135-121522	RES,CBN 1/2P 120
511	R548	5135-121522	RES,CBN 1/2P 120
510	R549	5135-153522	RES,CBN 1/2P 15K
510	R550	5135-153522	RES,CBN 1/2P 15K
512	R551	5135-272522	RES,CBN 1/2P 2.7K
512	R552	5135-272522	RES,CBN 1/2P 2.7K
504	R553	5135-473522	RES,CBN 1/2P 47K
504	R554	5135-473522	RES,CBN 1/2P 47K
501	R559	5135-102522	RES,CBN 1/2P 1K
501	R560	5135-102522	RES,CBN 1/2P 1K

TRANSISTORS

471	Q501	5613-2320L(F)	XISTOR,NPN R
471	Q502	5613-2320L(F)	XISTOR,NPN R
471	Q503	5613-2320L(F)	XISTOR,NPN R
471	Q504	5613-2320L(F)	XISTOR,NPN R
471	Q505	5613-2320L(F)	XISTOR,NPN R
471	Q506	5613-2320L(F)	XISTOR,NPN R
471	Q507	5613-2320L(F)	XISTOR,NPN R
471	Q508	5613-2320L(F)	XISTOR,NPN R

Ser.No	Ref. No.	Part No.	Description
473	Q509	5611-999L(F)	XISTOR,PNP R
473	Q510	5611-999L(F)	XISTOR,PNP R
476	Q511	5613-2320L(F)	XISTOR,NPN R
476	Q512	5613-2320L(F)	XISTOR,NPN R
473	Q513	5611-999L(F)	XISTOR,PNP R
473	Q514	5611-999L(F)	XISTOR,PNP R
475	Q515	5612-646A(C)	XISTOR,PNP A
475	Q516	5612-646A(C)	XISTOR,PNP A
474	Q517	5614-666A(C)	XISTOR,NPN A
474	Q518	5614-666A(C)	XISTOR,NPN A

DIODES

477	D501	5631-1S2473	DIODE,DET
477	D502	5631-1S2473	DIODE,DET

CONTROLS

720	VR501/	5113-50399122	RES,V CBN 16 50K
	502		
714	VR505/	5113-10441122	RES,V CBN 16 100K
	506		
717	VR507/	5113-50342122	RES,V CBN 16 50K

MISCELLANEOUS

703	CN501	4443-030185	CONNECTOR
793	JL501	4242-R0404141	JUMPER LEAD
794	JL502	4242-R0203500	JUMPER LEAD
795	JL503	4242-R0207181	JUMPER LEAD



CAPACITORS

806	C921	5345-104F0951	CAP,MINI ELE .1μ/50V
806	C922	5345-104F0951	CAP,MINI ELE .1μ/50V
810	C923	5354-154593	CAP,MYL .15μ
810	C924	5354-154593	CAP,MYL .15μ
808	C925	5345-107D041	CAP,MINI ELE 100μ/25V
808	C926	5345-107D041	CAP,MINI ELE 100μ/25V
811	C927	5354-334593	CAP,MYL .33μ
811	C928	5354-334593	CAP,MYL .33μ
807	C929	5345-474F0951	CAP,MINI ELE .47μ/50V
807	C930	5345-474F0951	CAP,MINI ELE .47μ/50V
807	C931	5345-474F0951	CAP,MINI ELE .47μ/50V
807	C932	5345-474F0951	CAP,MINI ELE .47μ/50V
812	C963	5354-474593	CAP,MYL .47μ
812	C964	5354-474593	CAP,MYL .47μ
809	C981	5345-227D041	CAP,MINI ELE 220μ/25V
809	C982	5345-227D041	CAP,MINI ELE 220μ/25V
809	C983	5345-227D041	CAP,MINI ELE 220μ/25V
809	C984	5345-227D041	CAP,MINI ELE 220μ/25V

RESISTORS

814	R921	5135-471522	RES,CBN 1/2P 470
814	R922	5135-471522	RES,CBN 1/2P 470
816	R927	5135-104522	RES,CBN 1/2P 100K
816	R928	5135-104522	RES,CBN 1/2P 100K
817	R929	5135-332522	RES,CBN 1/2P 3.3K
817	R930	5135-332522	RES,CBN 1/2P 3.3K
817	R931	5135-332522	RES,CBN 1/2P 3.3K
817	R932	5135-332522	RES,CBN 1/2P 3.3K
818	R933	5135-183522	RES,CBN 1/2P 18K
818	R934	5135-183522	RES,CBN 1/2P 18K
819	R935	5135-472522	RES,CBN 1/2P 4.7K
819	R936	5135-472522	RES,CBN 1/2P 4.7K
820	R937	5135-562522	RES,CBN 1/2P 5.6K
820	R938	5135-562522	RES,CBN 1/2P 5.6K
817	R939	5135-332522	RES,CBN 1/2P 3.3K
817	R940	5135-332522	RES,CBN 1/2P 3.3K
817	R941	5135-332522	RES,CBN 1/2P 3.3K
817	R942	5135-332522	RES,CBN 1/2P 3.3K
825	R943	5135-472522	RES,CBN 1/2P 4.7K
825	R944	5135-472522	RES,CBN 1/2P 4.7K
821	R945	5135-331522	RES,CBN 1/2P 330

Ser.No	Ref. No.	Part No.	Description
821	R946	5135-331522	RES,CBN 1/2P 330
823	R947	5135-221522	RES,CBN 1/2P 220
823	R948	5135-221522	RES,CBN 1/2P 220
821	R949	5135-331522	RES,CBN 1/2P 330
821	R950	5135-331522	RES,CBN 1/2P 330
822	R951	5135-104522	RES,CBN 1/2P 100K
822	R952	5135-104522	RES,CBN 1/2P 100K
824	R953	5135-682522	RES,CBN 1/2P 6.8K
830	△R954	5102-8215116	RES,FUSE 820
824	R956	5135-682522	RES,CBN 1/2P 6.8K
830	△R957	5102-8215116	RES,FUSE 820

TRANSISTORS

801	Q801	5613-2240(BL)	XISTOR,NPN R
813	Q802	5613-2240(BL)	XISTOR,NPN R
802	Q803	5611-970(BL)	XISTOR,PNP R
802	Q804	5611-970(BL)	XISTOR,PNP R
801	Q805	5613-2240(BL)	XISTOR,NPN R
801	Q806	5613-2240(BL)	XISTOR,NPN R
804	Q807	5612-647(C)	XISTOR,PNP A
803	Q808	5614-667(C)	XISTOR,NPN A
828	Q811	5616-2SK246(Y)	FET,N-CH
828	Q812	5616-2SK246(Y)	FET,N-CH

DIODES

805	D901	5635-HZ12B2L	DIODE,ZENER
805	D902	5635-HZ12B2L	DIODE,ZENER

MISCELLANEOUS

699	CN901	4443-070185	CONNECTOR
700	CN902	4443-050185	CONNECTOR
701	CN903	4443-030185	CONNECTOR
701	CN904	4443-030185	CONNECTOR
755	CW901	4163-0118039	CONNECTOR W/W
792	JL901	4242-R0404301	JUMPER LEAD
731	SW6A/ B/C/D	4431-04127170	SWITCH,PUSH

MISCELLANEOUS

702	CN502	4443-030185	CONNECTOR
754	CW501	4163-0115039	CONNECTOR W/W
723	SW3	4411-00203104	SWITCH,ROTARY
726	SW4	4411-00204204	SWITCH,ROTARY

RESISTORS

523	R571	5135-472522	RES,CBN 1/2P 4.7K
523	R572	5135-472522	RES,CBN 1/2P 4.7K

CONTROLS

711	VR503/ 504	5113-10419122	RES,V CBN 16 100K
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RESISTORS

607	R801(L)	5135-222522	RES,CBN 1/2P 2.2K
601	R802(L)	5135-122522	RES,CBN 1/2P 1.2K

TRANSISTOR

551	Q801(L)	5613-2682(Q)	XISTOR,NPN R
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RESISTORS

607	R801(R)	5135-222522	RES,CBN 1/2P 2.2K
601	R802(R)	5135-122522	RES,CBN 1/2P 1.2K

TRANSISTOR

551	Q801(R)	5613-2682(Q)	XISTOR,NPN R
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SERIES MISCELLANEOUS

MISCELLANEOUS

052B	△CO1	4443-712	CONNECTOR G GB BB I IB
685	△F1	5732-402031	FUSE BK
685B	△F1	5732-202030	FUSE G GB BB I IB
685D	△F1	5732-502036	FUSE NB
745	△P1	4161-71151	CORD W/PLUG BK NB
745B	△P1	4161-7256	CORD W/PLUG G GB I IB
745E	△P1	4161-04100	CORD W/PLUG BB
744	△SO1	4474-157	SOCKET BK NB
734	△SW2	4464-00101012	SWITCH,SEESAW BK NB
734B	△SW2	4464-00102022	SWITCH,SEESAW G GB BB I IB
051B	△SW101	4411-102729	SWITCH,ROTARY G GB BB I IB
683	△T1	5584-S2508	XFORMER,POWER BK
683B	△T1	5584-S2509	XFORMER,POWER G GB BB I IB
683D	△T1	5584-S2510	XFORMER,POWER NB
053B		4150-8	TUBING,SPE G GB BB I IB
062B	LUG1	4211-4	LUG G GB
062B	LUG2,3	4211-4	LUG G GB
746		4442-14	PIN PLUG

OWNER GUIDES LIST

021		1756-06303	LABEL G GB BB I IB
021		1756-03113	LABEL NB
022		1241-PB	POLYETHYLENE BAG NB
022		1756-03124	LABEL, (G) G GB
022		1756-03111	LABEL BB
022		1756-03108	LABEL, (I) I IB
027		1119-0135	ATTACH SHEET FTZ G GB
031		1111-J30319	OWNER GUIDE, ADDENDUM BB
105		1111-J30313	OWNER GUIDE, OG BK BB
105		1111-J30314	OWNER GUIDE, OG G GB I IB
105		1111-J2051	OWNER GUIDE NB
106		1113-717004	OWNER GUIDE BK
106		1113-0C	OWNER GUIDE NB
107		1119-047	ATTACH SHEET, WARRANTY BK
107		1116-GC	GUARANT CARD NB
108		1119-0137	ATTACH SHEET BK
109		1119-01201	ATTACH SHEET, UL BK
121		1241-C12732	POLYETHYLENE BAG, OG
122		1241-C1491	POLYETHYLENE BAG, SET
124		1221-817167	CARTON BOX G I
124		1221-827167	CARTON BOX BK GB BB NB IB
125		1222-7331	CUSHION, L
126		1222-7332	CUSHION, R
127		1223-11729	SOFT SHEET

ABBREVIATIONS IN PARTS LIST

CAPACITORS

CAP, MINI ELE	: Electrolytic
CAP, CER	: Ceramic
CAP, PPP	: Polypropylene
CAP, MYL	: Mylar
CAP, MCA	: Mica
CAP, MINI BP	: Bipolar
CAP, ELE BP	: Electrolytic Bipolar
CAP, STY	: Polystyrene Film
CAP, SPE	: Special
CAP, TAN	: Tantalum
470μ	: 470μF
6800p	: 6800pF
.047μ	: 0.047μF

RESISTORS

RES, CBN 1/6P	: Carbon 1/6W
RES, FUSE	: Fuse
RES, CEM 5P	: Cement 5W
RES, MTL 1P	: Metal 1W
2.2K	: 2.2KΩ
220	: 220Ω


TRANSISTORS

XISTOR	: Transistor
FET	: Field Effect Transistor

CONTROLS

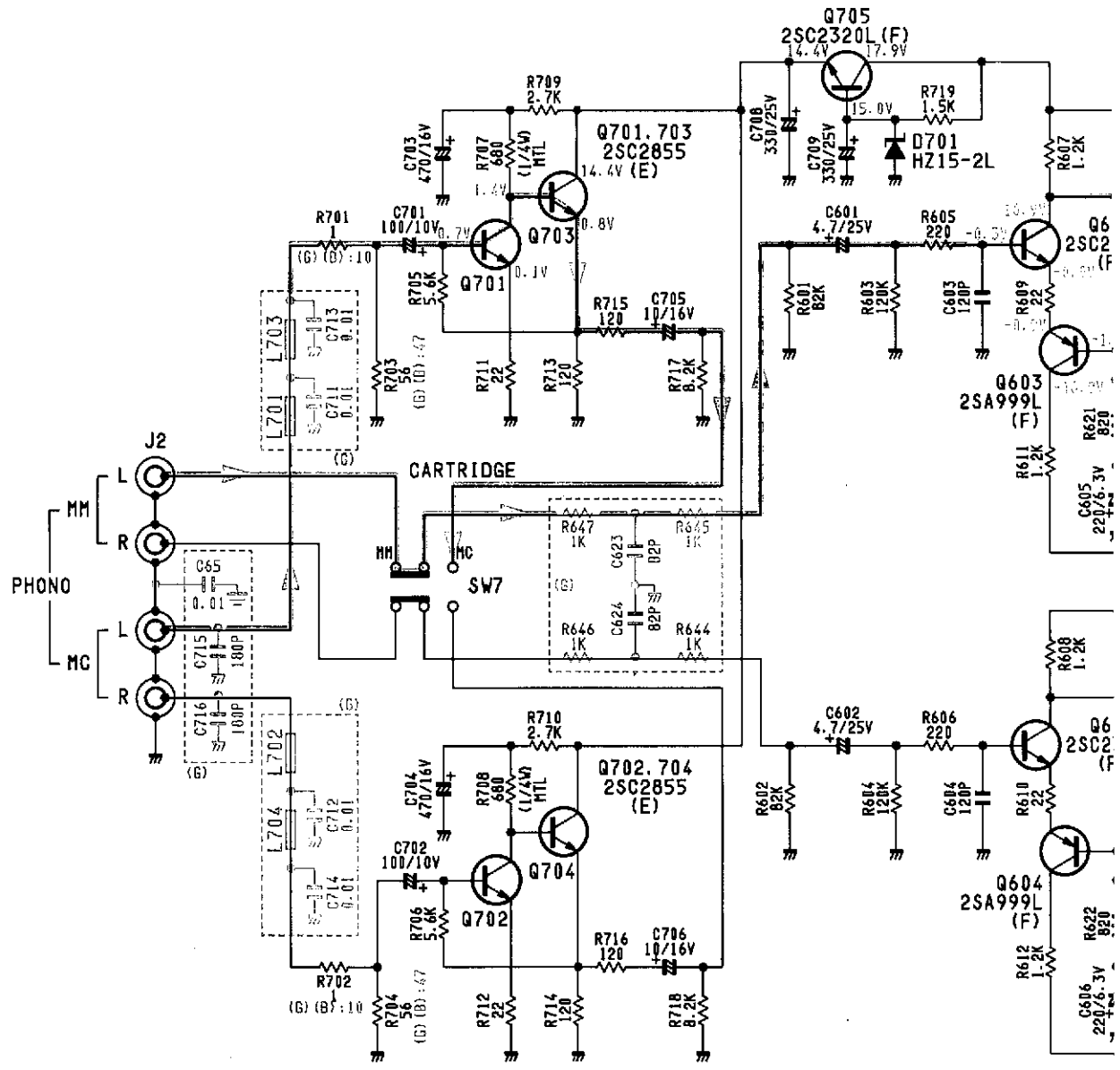
RES, V CBN	: Variable Carbon Resistor
RES, SEMI FIX	: Semi-fixed Resistor

NOTE

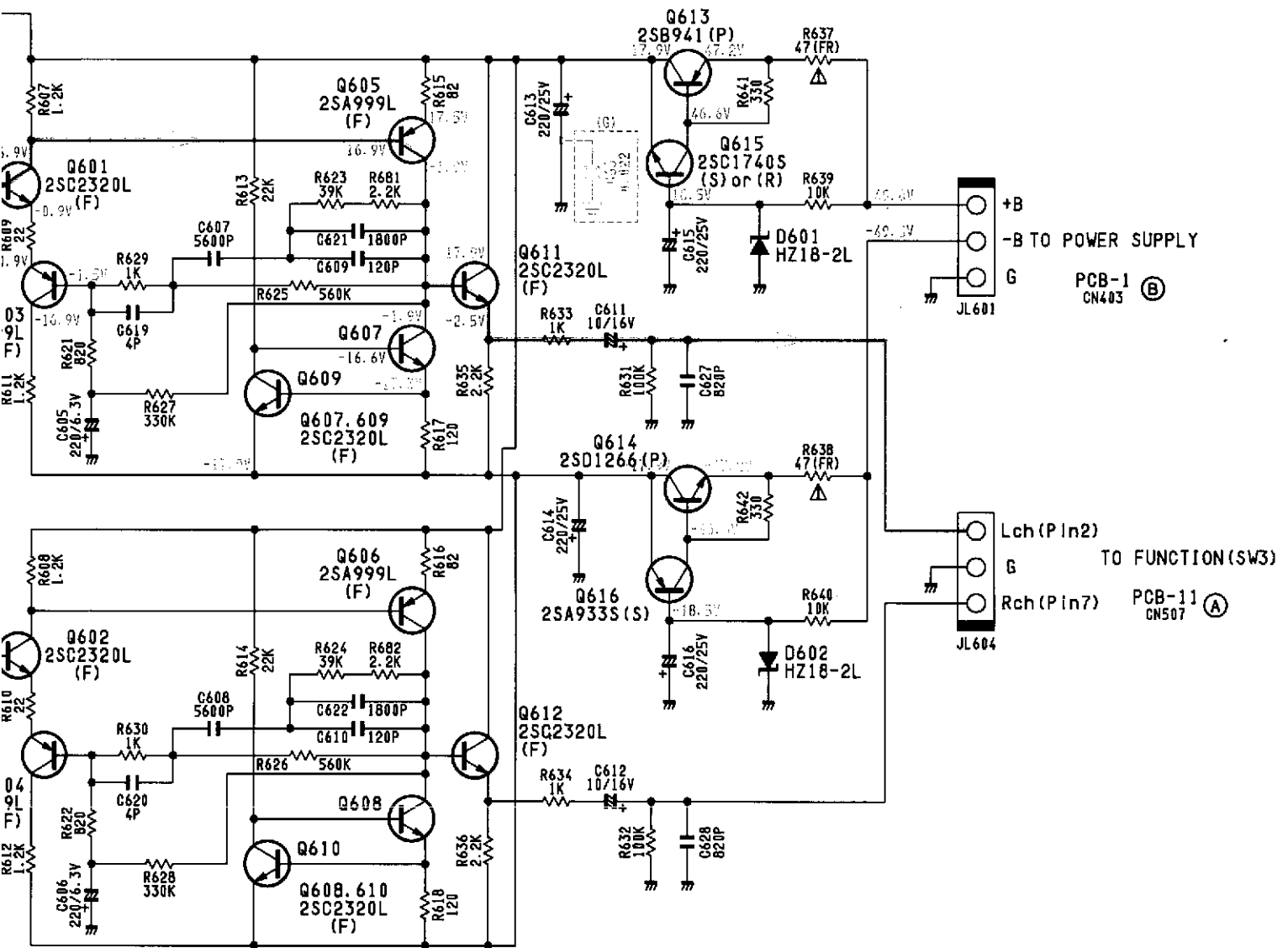
 SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

SCHEMATIC DIAGRAM (PHONO AMP SECTION)


1
2
3
4
5
6
7



(G) : German model
 (B) : Australian model

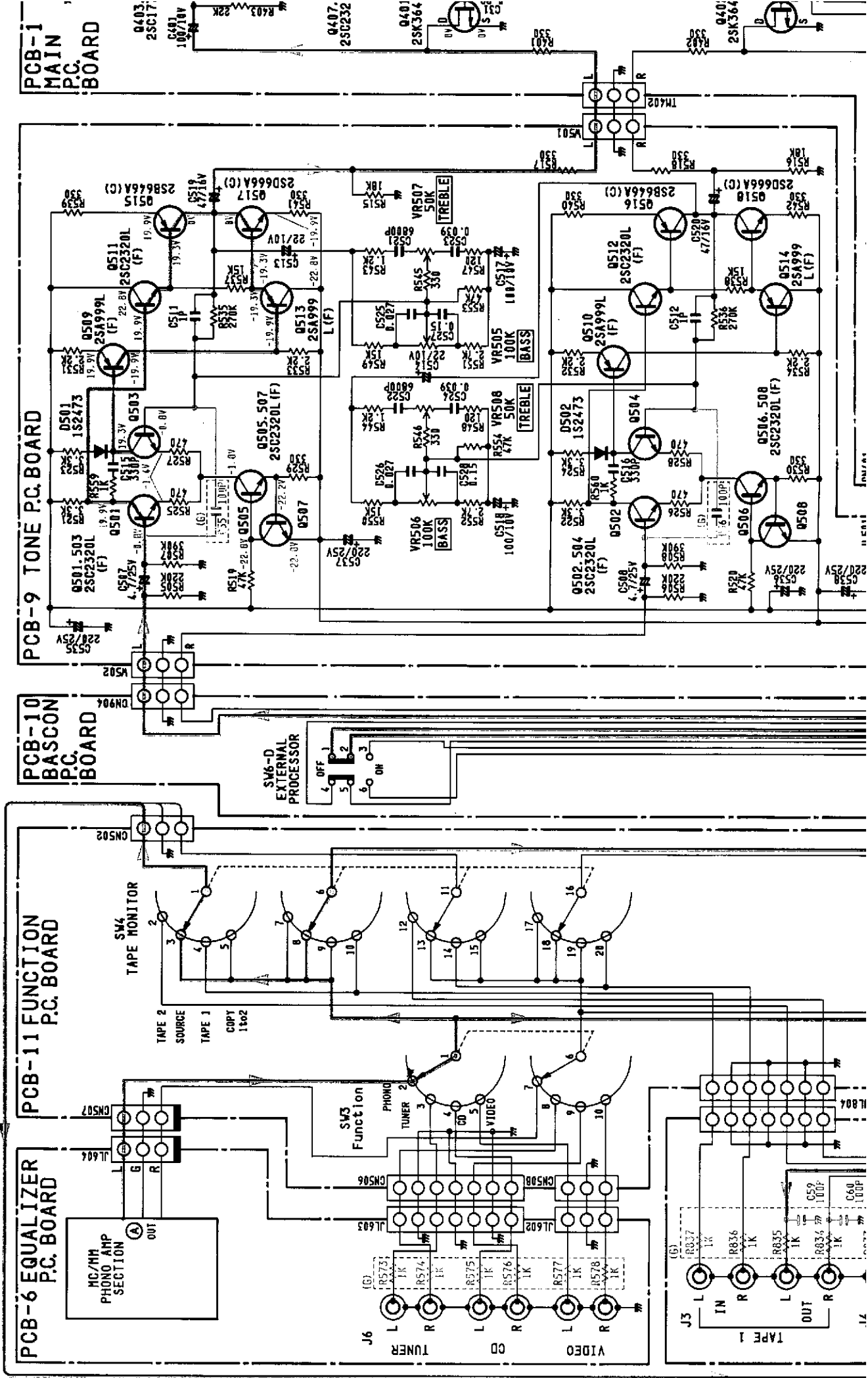


NOTE:

1. ALL RESISTANCES VALUES ARE IN Ω .
K Ω =1000 Ω , M Ω =1000K Ω .
2. THE WATTAGE OF RESISTORS IS 1/2W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUES ARE IN μ F UNLESS OTHERWISE NOTED. P= μ F.
4. ...V:DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
5.  SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

A B C D E F G

SCHEMATIC DIAGRAM



1

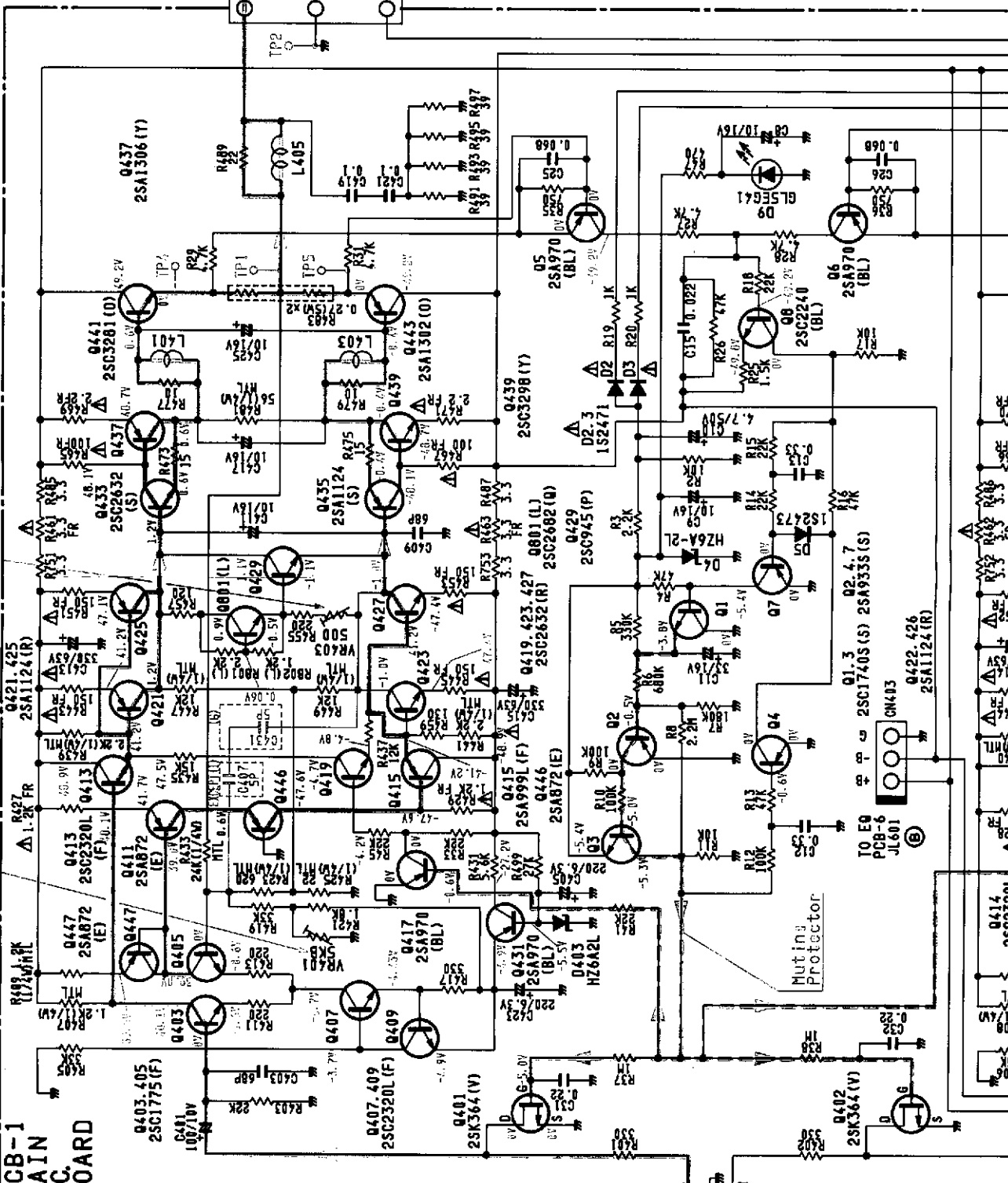
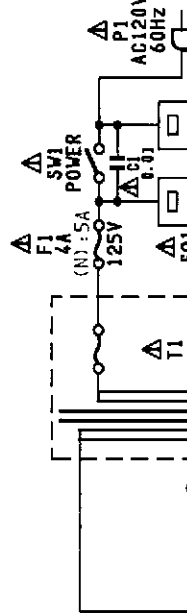
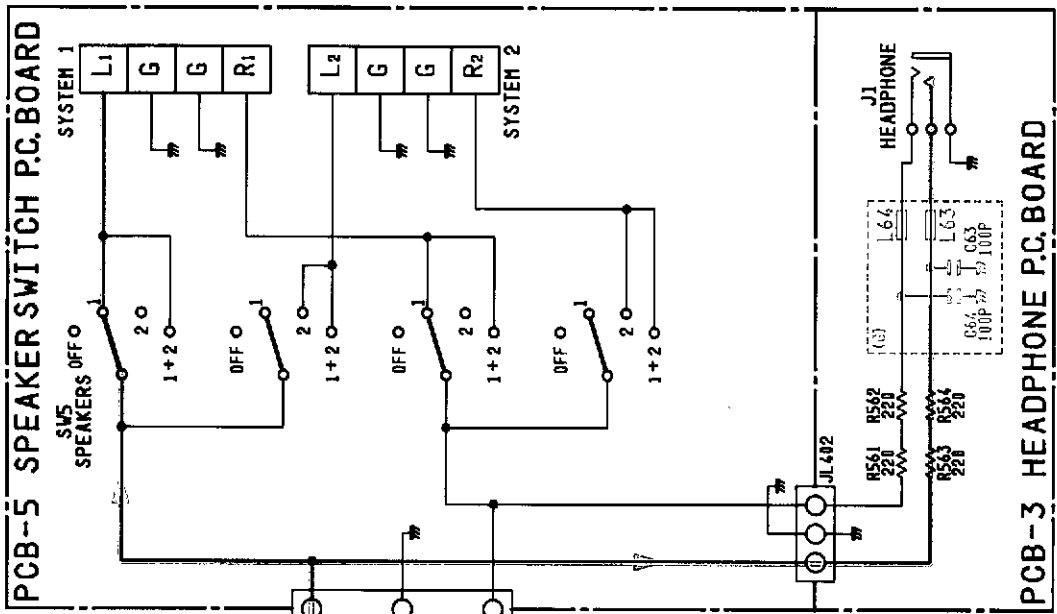
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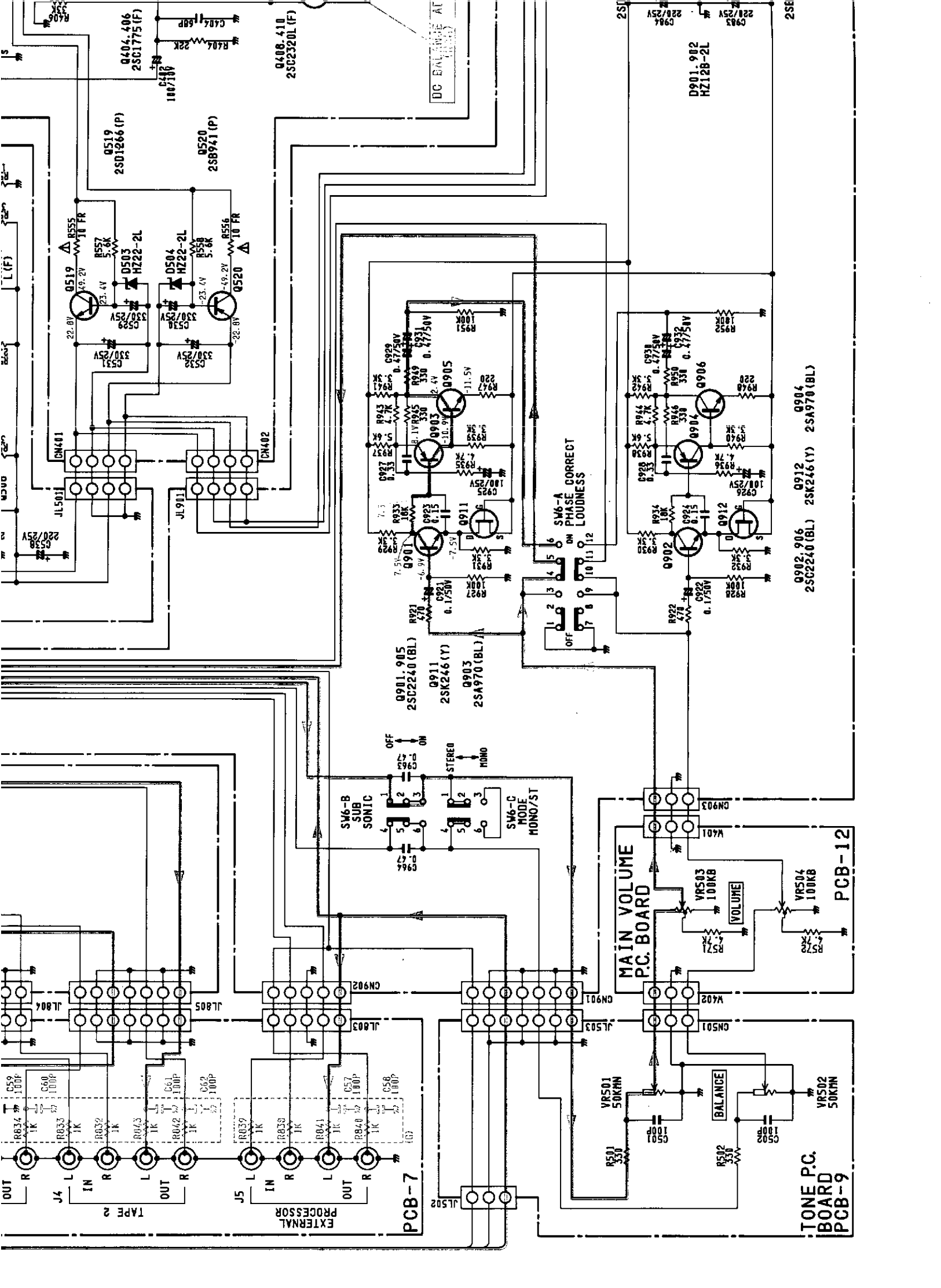
3

4

5

H I J K L M N O





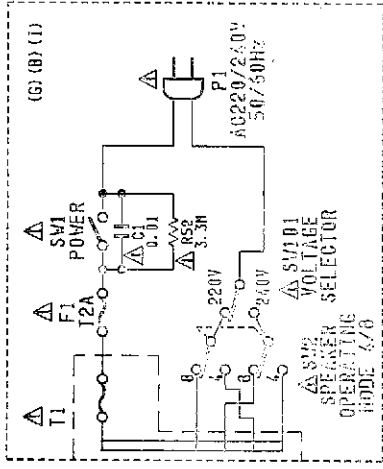
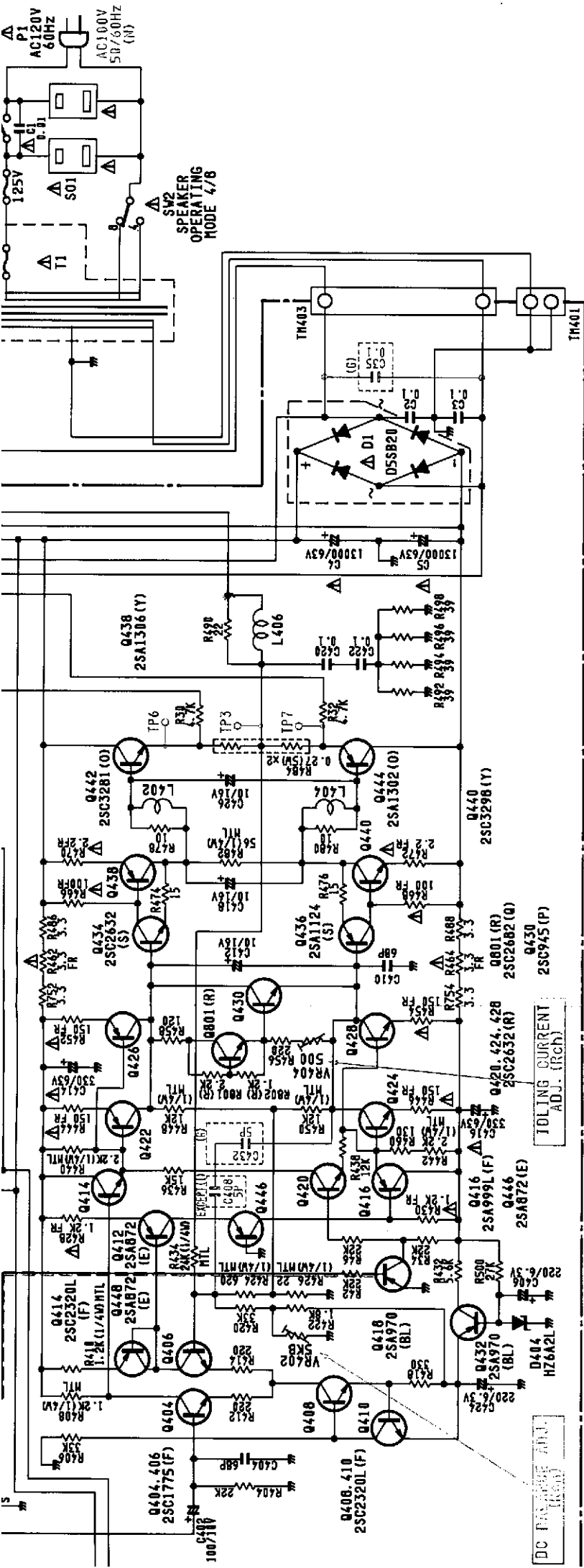
Q902, 906 25C2240 (BL)
Q912 25K246 (Y)
Q904 25A970 (BL)

MAIN VOLUME
P.C. BOARD
PCB-12

TONE P.C.
BOARD
PCB-9

EXTERNAL
PROCESSOR
PCB-7

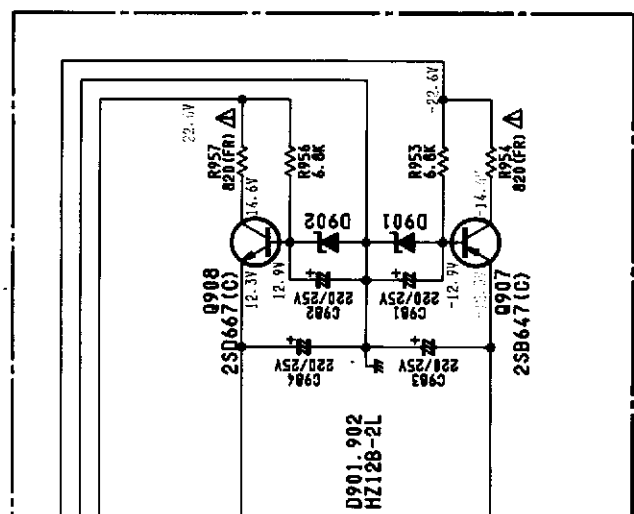
DC BALANCE AT
PCB-11



- (G) Bushman model
- (B) Australian model
- (I) International model
- (N) Japan model

NOTE:

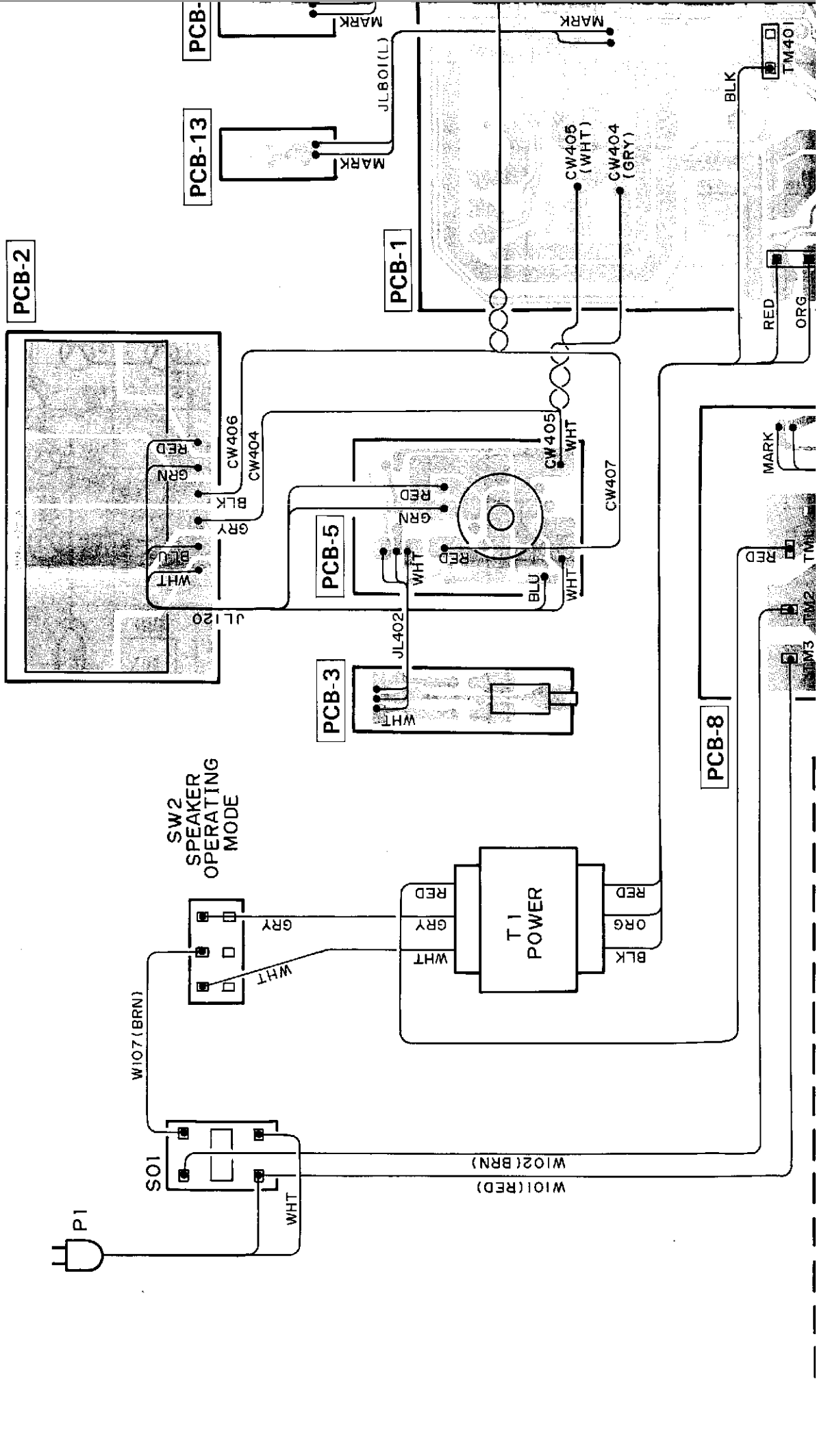
1. ALL RESISTANCE VALUES ARE IN Ω.
2. THE WATTAGE OF RESISTORS IS 1/2W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCE VALUES ARE IN μF UNLESS OTHERWISE NOTED.
4. ... V: DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
5. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

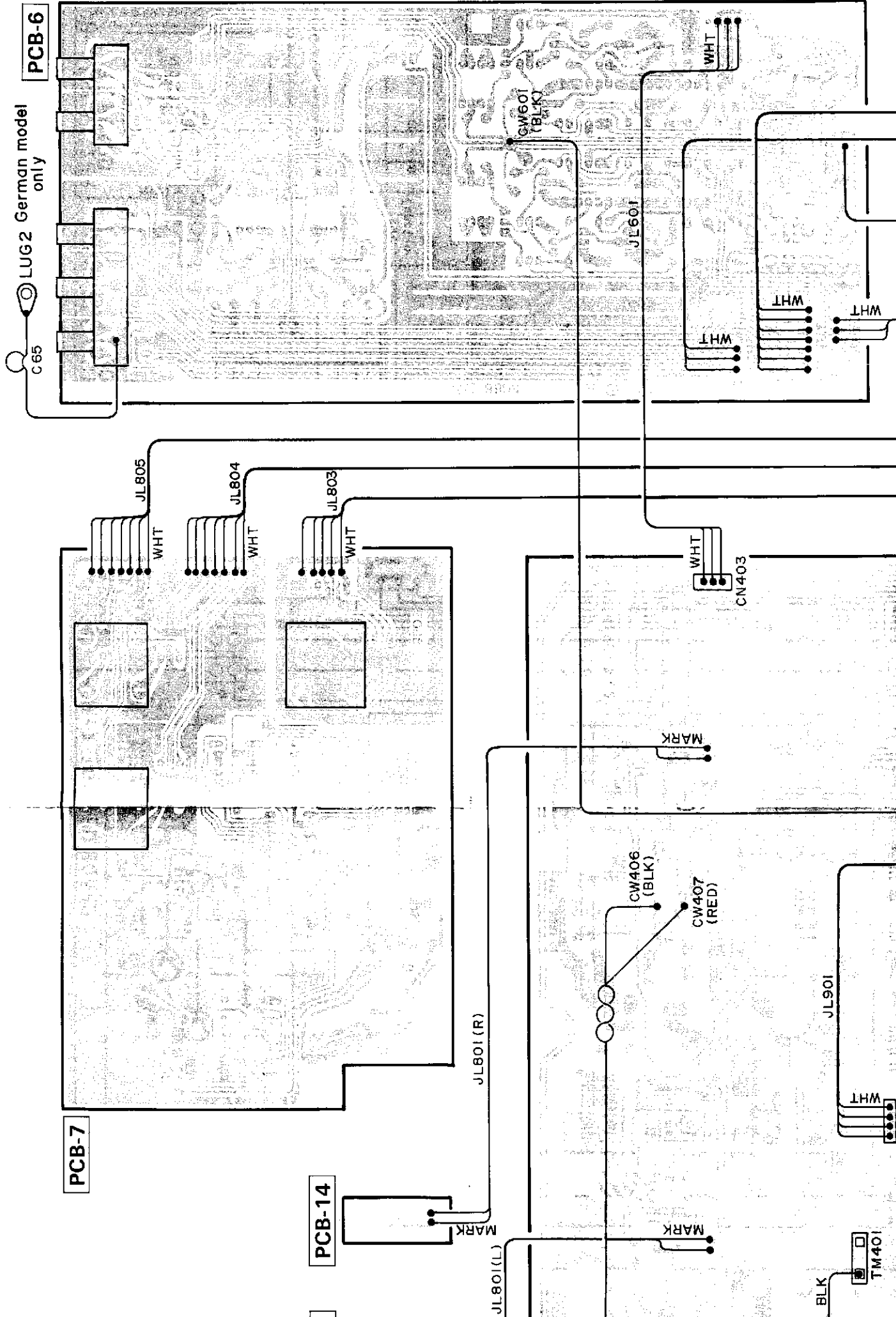


A B C D E F G

WIRING DIAGRAM

1 2 3 4 5





PCB-6

LUG2 German model only

C65

GW601 (BLK)

JL601

WHT

WHT

LHM

WHT

JL805

JL804

JL803

WHT

WHT

WHT

PCB-7

PCB-14

JL801 (R)

MARK

CW406 (BLK)

CW407 (RED)

JL901

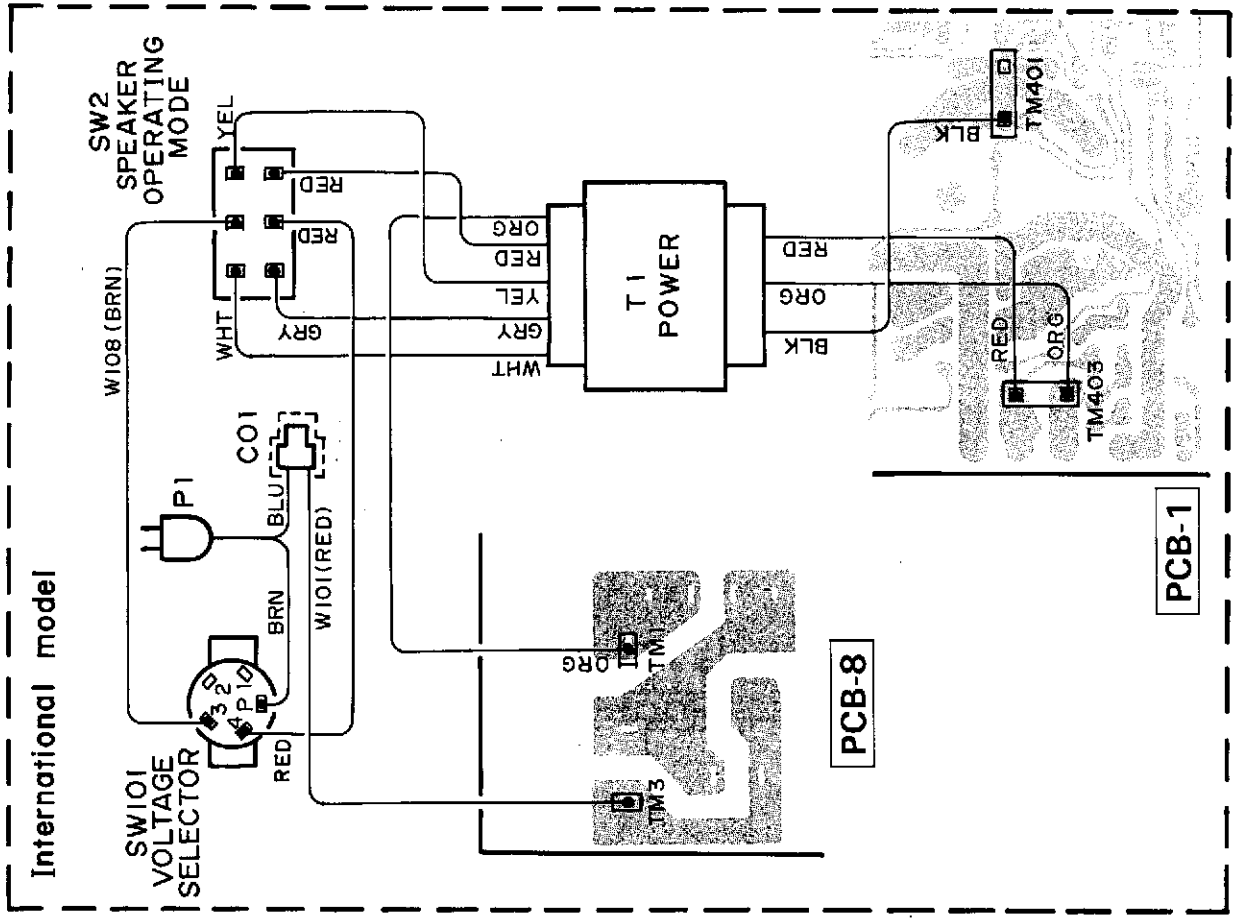
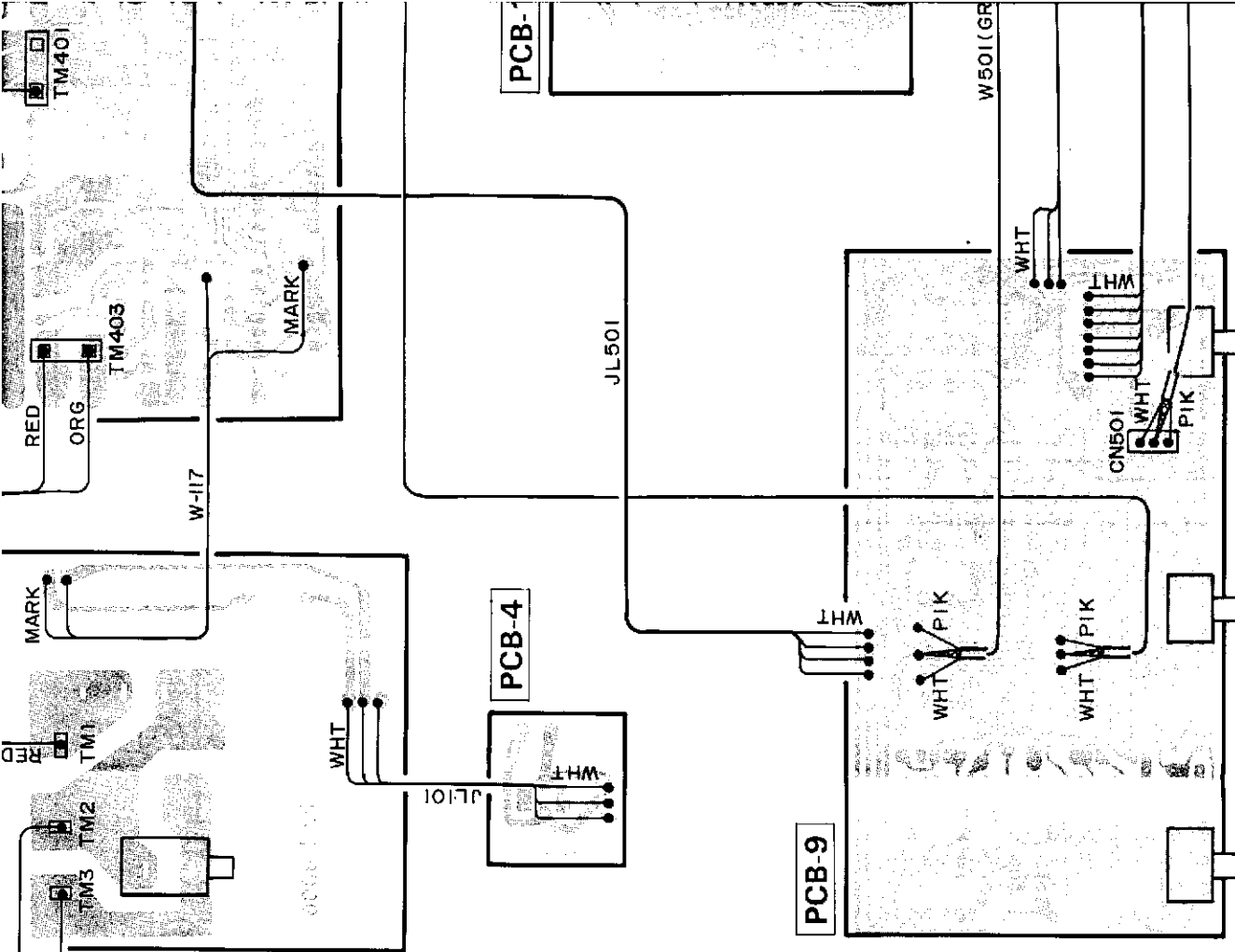
WHT

TM401

BLK

JL801(L)

MARK



- WIRE COLOR ABBREVIATIONS**
- | | | | |
|-----|----------|----------|----------|
| Red | : RED | : Yellow | |
| ORG | : Orange | PUR | : Purple |
| BLU | : Blue | PIK | : Pink |
| WHT | : White | GRY | : Gray |
| GRN | : Green | BRN | : Brown |
| BLK | : Black | | |

6

7

8

9

10

