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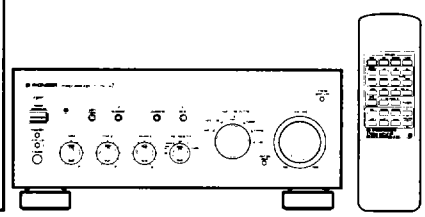
The Art of Entertainment

Service Manual



ORDER NO.
ARP2890

STEREO AMPLIFIER

A-604R

A-604R-G

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model		Power Requirement	Remarks
	A-604R	A-604R-G		
HE	○	—	AC 220V - 230V	AC 240V , *
HEZ	—	○	AC 220V - 230V	AC 240V , *
HEWZ	○	—	AC 220V - 230V	AC 240V , *
SD	○	—	AC 110,120V - 127V, 220V,240V	With the voltage selector

* : Alter the wiring of the Power-supply block at the primary winding of Power-transformer referring to the "Line Voltage Selection" described in Service Manual.

• **For the following: A-604R/HEWZ and SD; A-604R-G/HEZ, refer to page 32.**

CONTENTS

1. EXPLODED VIEWS, PACKING AND PARTS LIST 2
2. PCB PARTS LIST 5
3. SCHEMATIC AND PCB CONNECTION DIAGRAMS 9
4. ADJUSTMENTS 31
5. FOR A-604R/HEWZ,SD AND A-604R-G/HEZ ..32
6. PANEL FACILITIES 33
7. SPECIFICATIONS 36

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. PO Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 501 Orchard Road, #10-00 Lane Crawford Place, Singapore 0923

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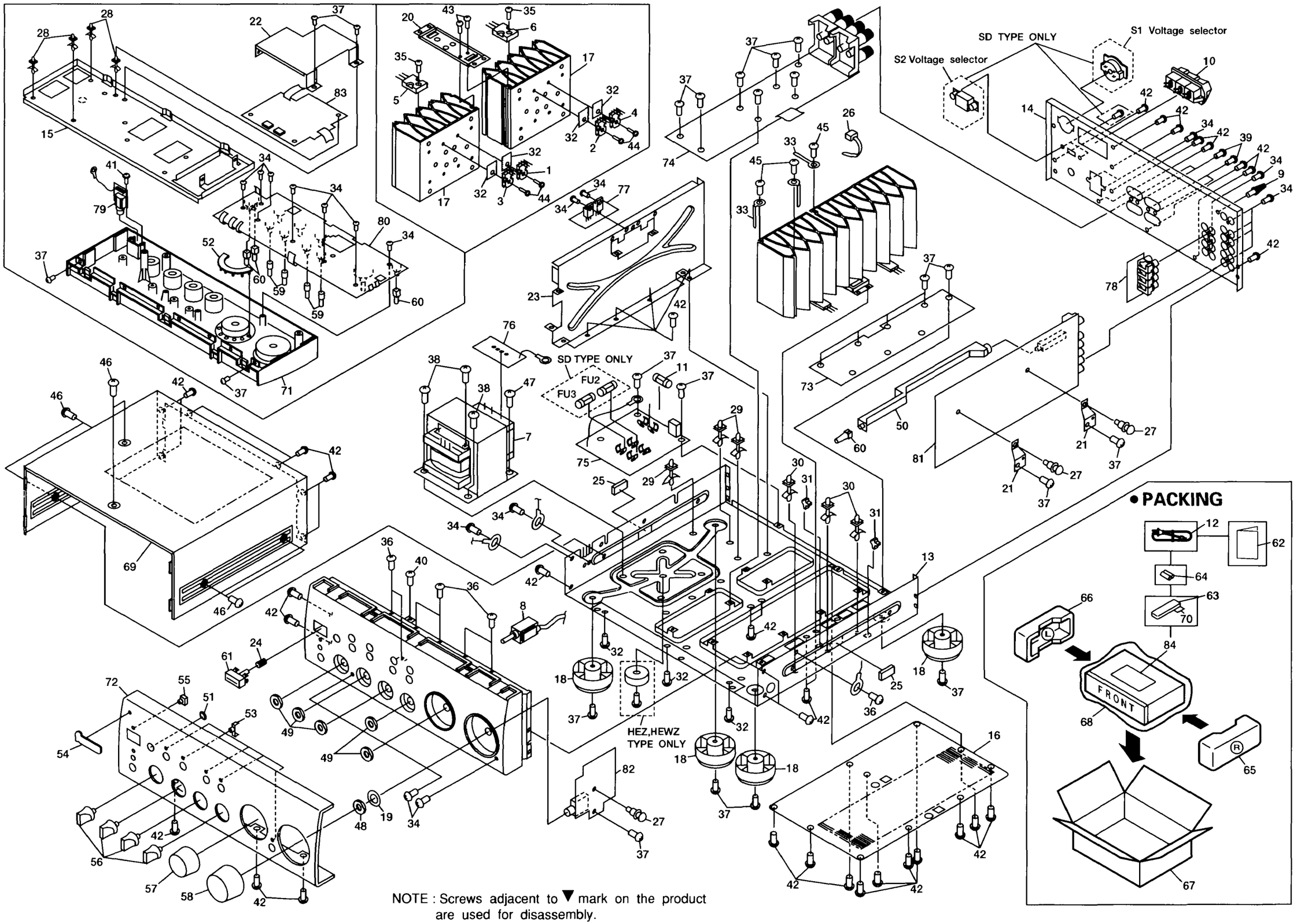
1. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ◉ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

1.1 PARTS LIST (for A-604R/HE)

Mark	No.	Description	Parts No.
⚠	1	Q3 TRANSISTOR	2SA1302
⚠	2	Q4 TRANSISTOR	2SA1302
⚠	3	Q1 TRANSISTOR	2SC3281
⚠	4	Q2 TRANSISTOR	2SC3281
⚠	5	Q231 TRANSISTOR	2SC4137
⚠	6	Q232 TRANSISTOR	2SC4137
⚠	7	T1 POWER TRANSFORMER	ATS1490
	8	S3 SWITCH	ASU1047
	9	TERMINAL SCREW	AKE-031
⚠	10	AC SOCKET 3-P	AKP-502
⚠	11	FU1 FUSE(2.5A)	AEK-512
⚠	12	AC POWER CORD	ADG1127
NSP	13	CHASSIS (MET)	ANA1214
	14	REAR PANEL (MET)	ANC7240
NSP	15	PANEL STAY (MET)	AND1057
NSP	16	BOTTOM PLATE (MET)	ANF1102
NSP	17	HEAT SINK (MET)	ANH1435
	18	FOOT	AMR2414
NSP	19	DAMPER	ABE1008
NSP	20	HEAT SINK HOLDER (MET)	ANG1825
NSP	21	PCB HOLDER (MET)	ANG1826
NSP	22	SHIELD PLATE A (MET)	ANK1244
NSP	23	SHIELD PLATE B (MET)	ANK1245
	24	SPRING (FE)	ABH1089
NSP	25	CUSHION (RUBBER)	AEB1074
	26	NYLON BINDER	AEC-093
	27	RIVET	AEC-441
NSP	28	PCB SUPPORT	AEC1006
NSP	29	PCB SPACER	AEC1084
NSP	30	PCB SUPPORT	AEC1231
	31	PCB HOLDER	AEC1520
	32	SHEET	AEE1014
NSP	33	BINDER	AEF1004
	34	SCREW	ABA-298
	35	SCREW (STEEL)	ABA1007
	36	SCREW (STEEL)	ABA1009
	37	SCREW (STEEL)	ABA1011
	38	SCREW (STEEL)	ABA1014
	39	SCREW (STEEL)	ABA1050
	40	SCREW	ABA1052
	41	SCREW (STEEL)	ABA1095
	42	SCREW (STEEL)	ABA1192
	43	SCREW (STEEL)	ABA1193
	44	SCREW (STEEL)	ABA1194
	45	SCREW	BPZ30P120FZK
	46	SCREW (STEEL)	FBT40P060FZK
	47	SCREW	FBT40P120FCU
	48	NUT	NK70FUC
	49	NUT	NK90FUC
	50	PUSH JOINT (PLS)	AMR2537
	51	REMOCON WINDOW(PLS)	AAK2457
	52	FUNCTION LENS (PLS)	AAK2458
	53	LED LENS (PLS)	AAK2459
	54	NAME PLATE (METAL)	AAM1058
	55	LED LENS (ABS)	PNW2019
	56	ROTARY KNOB S (PLS)	AAB1367
	57	ROTARY KNOB M	AAB1382
	58	ROTARY KNOB L	AAB1385
	59	PUSH BUTTON A (PLS)	AAD2430
	60	PUSH BUTTON B (PLS)	AAD2432
	61	POWER BUTTON (PLS)	AAD2434
	62	OPERATING INSTRUCTIONS (English, French, German, Italian, Dutch, Swedish, Spanish, Portuguese)	ARE7049
	63	REMO- CON (CU-A013)	AXD7053
NSP	64	BATTERY (R6P,AA)	AEX-010
	65	STYROL PROTECTOR R	AHA1599
	66	STYROL PROTECTOR L	AHA1600
	67	PACKING CASE	AHD7185
	68	PACKING SHEET	AHG1204
	69	BONNET CASE(MET)	ANE1418
	70	BATTERY COVER	AZN2249
	71	PANEL BASE (PLS)	AMB2136
	72	FRONT PANEL (MET)	ANB7018
	73	VOLTAGE AMP ASSY	AWZ4895
	74	POWER AMP ASSY	AWZ7706
	75	POWER SW ASSY	AWZ7707
	76	POWER TRANS ASSY	AWZ7759
NSP	77	DIODE ASSY	AWZ7763
	78	REC OUT ASSY	AWZ7842
	79	HEADPHONE ASSY	AWZ4885
	80	TONE ASSY	AWZ7766
	81	INPUT ASSY	AWZ7806
	82	VOLUME ASSY	AWZ7724
	83	MPU ASSY	AWZ7758
	84	LITERATURE BAG	AHG-117



NOTE : Screws adjacent to ▼ mark on the product are used for disassembly.

2. PCB PARTS LIST

(for A-604R/HE)

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ◉ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohms and 47k ohms (Tolerance is shown by J = 5%, and K =10%).

560Ω → 56 × 10¹ → 561 ---------- RD1/8PM 5 6 1 J
47kΩ → 47 × 10³ → 473 ---------- RD1/4PS 4 7 3 J
0.5Ω → 0R5 ---------- RN2H 0 R 5 K
1Ω → 010 ---------- RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ → 562 × 10¹ → 5621 ---------- RN1/4PC 5 6 2 1 F

Mark	No.	Description	Parts No.
LIST OF ASSEMBLIS			
NSP		AF ASSY	AWK7172
		├ VOLTAGE AMP ASSY	AWZ4895
		├ POWER AMP ASSY	AWZ7706
		├ POWER SW ASSY	AWZ7707
		├ POWER TRANS ASSY	AWZ7759
NSP		├ DIODE ASSY	AWZ7763
		└ REC OUT ASSY	AWZ7842
NSP		INPUT ASSY	AWK7180
		├ HEADPHONE ASSY	AWZ4885
		├ TONE ASSY	AWZ7766
		└ INPUT ASSY	AWZ7806
NSP		CONTROL COMPLEX ASSY	AWP7003
		├ VOLUME ASSY	AWZ7724
		└ MPU ASSY	AWZ7758
VOLTAGE AMP ASSY			
		SEMICONDUCTORS	
		Q213 ,Q214 ,Q221 ,Q222	2SA1048
		Q207 ,Q208 ,Q217 ,Q218	2SA1145
		Q237 ,Q238 ,Q249 ,Q250	2SA1145
		Q209 ,Q210	2SA1238
		Q215 ,Q216 ,Q223 ,Q224	2SC2458
		Q233 ,Q234	2SC2603
		Q205 ,Q206 ,Q219 ,Q220	2SC2705
		Q235 ,Q236 ,Q251 ,Q252	2SC2705
		Q245 -Q248	2SC2878
		Q211 ,Q212	2SC3065
		Q203 ,Q204	2SJ44
		Q201 ,Q202	2SK163
		D201 -D204	AEL1148
		D209 -D212	HSS104-02
		D213 -D216	RD10ESB
		D205 -D208	RD13ESB2
		CAPACITORS	
		C209 -C212	CCCSL070D500
		C201 ,C202	CCCSL101K500
		C213 ,C214	CEAS100M50
		C203 -C206	CEAS221M16
		C231 ,C232 ,C235 ,C236	CEAS331M63
		C237 -C240	CKCYB331K50
		C215 ,C216	CKCYB471K50
		C217 -C220	CCCSL470K500
		C245 ,C246	CKCYF103Z50
		C229 ,C230 ,C233 ,C234	CKCYF223Z50
		RESISTORS	
		R285 ,R286 ,R291 ,R292	RD1/2PM222J
		R267 -R270	RD1/2PM472J
		R205 -R208	RD1/4PM100J
		R217 -R220 ,R227 -R234	RD1/4PM101J
		R273 -R276	RD1/4PM101J
		R203 ,R204	RD1/4PM104J
		R293 ,R294	RD1/4PM112J
		R245 ,R246	RD1/4PM122J
		R271 ,R272	RD1/4PM221J
		R243 ,R244	RD1/4PM222J
		R225 ,R226	RD1/4PM224J
		R235 -R238	RD1/4PM225J
		R279 ,R280	RD1/4PM470J
		R221 -R224	RD1/4PM473J
		R239 -R242	RD1/4PM512J
⚠		R251 ,R252	RD1/4PMF561J
⚠		R213 -R216 ,R247 -R250	RFA1/4PS101J
⚠		R253 -R256	RFA1/4PS271J
⚠		R281 -R284	RFA1/4PS4R7J
		VR201 ,VR202 (100Ω)	ACP1037
		VR203 ,VR204 (47k)	ACP1045
		Other Resistors	RD1/8PM□□□J
		OTHERS	
		CN18 CONNECTOR(12P)	KPE12
POWER AMP ASSY			
		SEMICONDUCTORS	
		Q307	2SA1115
		Q403 ,Q404	2SA1306
		Q502	2SA992
		Q504	2SB1274
		Q301 ,Q302 ,Q501 ,Q506	2SC1845
		Q309	2SC2235
		Q303 -Q306 ,Q308	2SC2458
		Q401 ,Q402	2SC3298
		Q503 ,Q505	2SD1913
		D301 -D304 ,D504 -D506	HSS104-02
		D305	RD15ESB2
		D503	RD27ESB2
		D501 ,D502	RD30ESB2
		SWITCHES AND RELAYS	
		RY401 ,RY402	ASR-112
		RY403	ASR1005

Mark	No.	Description	Parts No.
	CAPACITORS		
	C1	(10000／56)	ACH1234
	C2	(10000／56)	ACH1235
	C417	-C420	CCCSL680K500
	C308	-C310	CEAS010M50
	C306		CEAS220M50
	C501	,C502	CEAS331M50
	C303	,C304	CEAS471M6
	C301	,C302	CEAS4R7M50
	C505		CEHAQ100M50
	C503	,C504 ,C506	CEHAQ101M50
	C401	-C404	CFTXA104J50
	C405	-C412	CFTXA223J50
	C305		CKCYF103Z50
	RESISTORS		
⚠	R409	,R410 (0.22／5W)	ACN1075
	R513	-R515	RD1/2PM102J
	R421	-R424	RD1/4PM100J
	R305	,R306 ,R310	RD1/4PM103J
	R303	,R304	RD1/4PM153J
	R507	-R509	RD1/4PM331J
	R311		RD1/4PM334J
	R312		RD1/4PM680J
	R505	,R506 ,R511	RD1/4PM821J
⚠	R413	,R414	RD1/4PMFL392J
⚠	R433	-R436 ,R441 ,R442	RFA1/4PS101J
⚠	R309		RFA1/4PS221J
⚠	R437	-R440	RFA1/4PS470J
⚠	R401	-R404 ,R443 ,R444	RFA1/4PS4R7J
⚠	R503	,R504 ,R512 ,R519 ,R520	RFA1/4PS4R7J
⚠	R431	,R432	RS1LMF681J
⚠	R419	,R420	RS2LMF100J
⚠	R429	,R430	RS2LMF331J
⚠	R510		RS2LMF392J
⚠	R501	,R502	RS2LMF472J
	Other Resistors		RD1/8PM□□□J
	OTHERS		
	SPEAKER TERMINAL 8-P		AKE1011
	HEAT SINK M		ANH-813
	HEAT SINK		ANH-880
	CN7 CONNECTOR(11P)		KPE11

POWER SW ASSY

	SEMICONDUCTORS		
	IC551		NJM78M56FAS
	Q551		2SD1913
	Q552		XDC143ES
	D557		HSS104-02
	D556	,D558	RD6.2ESB3
	D554		RD6.8ESB
	D551	-D553	S5688G
	COILS AND FILTERS		
⚠	L554	(1.0mH／250V)	ATF-163
	L553		LAU220K
	TRANSFORMERS		
⚠	T551		ATT1229
	SWITCHES AND RELAYS		
⚠	RY551		ASR1036
	CAPACITORS		
⚠	C551	,C552 ,C561 ,C562 (0.01／400V)	ACG1003
	C580	(0.01／150V)	ACG1005
	C560	(1／100V)	ACH1237
	C557	,C559	CEAS100M50
	C556		CEAS101M25
	C554		CEAS102M25
	C555	,C558	CEAS470M25
	C564	,C581	CKCYF103Z50
	RESISTORS		
	R556		RD1/4PM102J
	R553		RD1/4PM222J
	R557		RD1/4PM331J
⚠	R551		RFA1/4PS470J
⚠	R555		RFA1/4PS4R7J
⚠	R552		RS2LMF101J
	Other Resistors		RD1/8PM□□□J
	OTHERS		
	JACK		AKN-207
⚠	AC INLET(1P)		AKP1132
	FUSE CLIP		AKR1003
	CN2 CONNECTOR(7P)		KPE7

POWER TRANS ASSY

	SEMICONDUCTORS		
	D527		HSS104-02
	D525	,D526 ,D528	S5688G
	CAPACITORS		
	C528	,C529 (0.01／150V)	ACG1005
	C525	,C526 (1／100V)	ACH1237
	C524		CEAS101M63
	C527		CEAS2R2M50
	C523		CEEA221M63
	RESISTORS		
⚠	R523	-R525 ,R529	RS1LMF103J
	Other Resistors		RD1/4PM□□□J
	OTHERS		
	CN1 CONNECTOR(3P)		KPE3

DIODE ASSY

	SEMICONDUCTORS		
	D596		FMM-22R
	D595		FMM-22S

REC OUT ASSY

	CAPACITORS		
	C771	-C778	CCCSL221J50
	RESISTORS		
	Other Resistors		RD1/8PM□□□J
	OTHERS		
	PIN JACK(8P)		AKB7029
	CN12 CONNECTOR(15P)		KPE15

INPUT ASSY

No service part

HEADPHONE ASSY

	CAPACITORS		
	C491	,C492	CKCYB392K50

OTHERS

JACK	AKN1025
CONNECTOR (6P)	KPE6

TONE ASSY

SEMICONDUCTORS

IC601	M5220L
Q603 ,Q604	2SA992
Q605 ,Q606	2SC1845
Q609 ,Q610 ,Q620 ,Q623 ,Q624	2SC2458
Q601 ,Q602	2SK246
Q622 ,Q625 ,Q626	XDA124ES
Q612 -Q619	XDC143ES
D603 ,D604 ,D607 -D609	AEL1065
D605	AEL1084
D610 -D615	AEL1099
D601 ,D602 ,D606 ,D616 -D620	HSS104-02

SWITCHES AND RELAYS

S606	ASD1026
S602 ,S608	ASG1019
S607 ,S609	ASG1028
S604	ASG1029
S601 ,S603	ASG1030
S605	ASG1054

CAPACITORS

C623 ,C624	CCCSL121J50
C601 ,C602	CCCSL150J50
C627 ,C628	CCCSL390J50
C607 ,C608	CCCSL470J50
C609 -C612	CEANP101M10
C647 ,C648	CEANP2R2M50
C603 ,C604	CEANP4R7M50
C631 ,C632	CEAS010M50
C625 ,C626 ,C639	CEAS100M50
C621 ,C622	CEAS2R2M50
C629 ,C630	CEAS470M25
C641	CEASR22M50
C605 ,C606	CFTXA823J50
C645 ,C646	CKCYB102K50
C617 ,C618	CKCYB332K50
C643 ,C644	CKCYB391K50
C637 ,C638	CKCYF103Z50
C613 ,C614	CKCYX103M25
C651 ,C652	CKCYX223M25
C619 ,C620	CKCYX273M25
C649 ,C650	CKCYX333M25
C615 ,C616	CKCYX473M25

RESISTORS

R660	RD1/4PM131J
R658	RD1/4PM151J
R659	RD1/4PM271J
R611 -R614	RD1/4PM472J
VR602 ,VR603 (100k×2)	ACT1074
VR601 (100k×2)	ACT1075
Other Resistors	RD1/8PM□□□J

OTHERS

8205 CABLE HOLDER	AKT1007
8210 CABLE HOLDER	AKT1011
601 REMOTE RECEIVER UNIT	AXX1023

INPUT ASSY

SEMICONDUCTORS

IC101	M5220P
Q701 ,Q702	2SA992
Q103 -Q106 ,Q703 ,Q704	2SC1845
Q114	2SC2235
Q101 ,Q102	2SK389
D109	RD18ESB3

CILS AND FILTERS

L101 ,L102 (270mH)	ATH1010

SWITCHES AND RELAYS

S701	ASD1017
S101	ASG1053
S702	ASU1016

CAPACITORS

C105 ,C106	CCCSL151J50
C129 ,C701 -C710	CCCSL221J50
C109 ,C110	CCCSL271J50
C715 ,C716	CCCSL470K500
C111 ,C112	CEAS221M25
C119 ,C120	CEAS3R3M50
C123 ,C124	CEAS470M25
C729 -C732	CEEA100M50
C721 -C724	CEEA331M25
C717 -C720	CEEA470M25
C101 ,C102	CFTXA103J50
C113 ,C114	CFTXA123J50
C115 ,C116	CFTXA183J50
C117 ,C118	CFTXA333J50
C107 ,C108	CKCYB472K50
C127 ,C128 ,C130 ,C132 ,C133	CKCYF103Z50
C727 ,C733 ,C734	CKCYF103Z50
C125 ,C126	CQMA272J50
C121 ,C122	CQMA472J50

RESISTORS

R135 ,R136 ,R149 ,R150 ,R160	RD1/4PM100J
R103 ,R104 ,R723 ,R724	RD1/4PM101J
R737 ,R738	RD1/4PM101J
R721 ,R722 ,R725 ,R726	RD1/4PM104J
R109 ,R110	RD1/4PM151J
R119 ,R120	RD1/4PM153J
R115 ,R116	RD1/4PM182J
R747 -R750	RD1/4PM220J
R711 -R716	RD1/4PM221J
R121 ,R122	RD1/4PM225J
R141 ,R142	RD1/4PM331J
R111 -R114	RD1/4PM332J
R729 -R732	RD1/4PM470J
R105 ,R106	RD1/4PM471J
R727 ,R728 ,R733 ,R734	RD1/4PM472J
R107 ,R108 ,R139 ,R140	RD1/4PM473J
R735 ,R736	RD1/4PM473J
R154	RD1/4PM562J
R117 ,R118	RD1/4PM680J
R161 ,R162	RDR1/4PM102F
R123 ,R124	RDR1/4PM121F
R137 ,R138	RDR1/4PM391F
R129 ,R130	RDR1/4PM512F
R133 ,R134	RDR1/4PM560F
R131 ,R132	RDR1/4PM623F
R127 ,R128	RDR1/4PM8R2F
R125 ,R126	RDR1/4PM910F
Other Resistors	RD1/8PM□□□J

OTHERS

PIN JACK (6P)	AKB7012
PIN JACK (4P)	AKB7015
CN8105 PIN JACK (2P)	AKB7028
CN13 CONNECTOR (12P)	KPE12
CN10 CONNECTOR (15P)	KPE15

CONTROL COMPLEX ASSY

No service part

VOLUME ASSY

SEMICONDUCTORS

IC801	M5220P
Q802	2SA965
Q801	2SC2235
Q805 ,Q806	2SJ103
Q803 ,Q804	2SK246
D801 ,D802	RD24ESB3

CAPACITORS

C805 ,C806	CCCSL180K500
C807 ,C808	CCCSL271K500
C803 ,C804	CCCSL470K500
C819 ,C820	CEAS100M50
C815 ,C816	CEAS101M50
C801 ,C802	CEAS220M50
C817 ,C818	CEAS470M50
C809 ,C810	CEZA101M25
C813	CKCYF103Z50

RESISTORS

⚠	R821 ,R822	RFA1/4PS4R7J
⚠	R819 ,R820	RS1LMF821J
	VR801 (20K×2)	ACX1085
	Other Resistors	RD1/4PM□□□J

OTHERS

CN4 CONNECTOR (13P)	KPE13
CN21 CONNECTOR (3P)	KPE3
CN5 CONNECTOR (8P)	KPE8

MPU ASSY

SEMICONDUCTORS

IC901	PD5224A
IC902 ,IC903	TA8409S
Q902	2SA1048
Q903	2SC2458
Q906	XDA124ES
Q901 ,Q904 ,Q905	XDC124ES
D901 -D909 ,D911 -D913	HSS104-02
D915 ,D916	HSS104-02
D910	RD6.2ESB

COILS AND FILTERS

L901 ,L940 -L942	LAU220K

CAPACITORS

C904 (47mF/5.5)	ACH1246
C919	CCMSL101J50
C912	CEAS2R2M50
C901 ,C903 ,C915 ,C916	CEAS470M25
C902 ,C918 ,C920 -C922	CKCYF103Z50
C905 -C911 ,C913 ,C914 ,C917	CKMYB271K50

RESISTORS

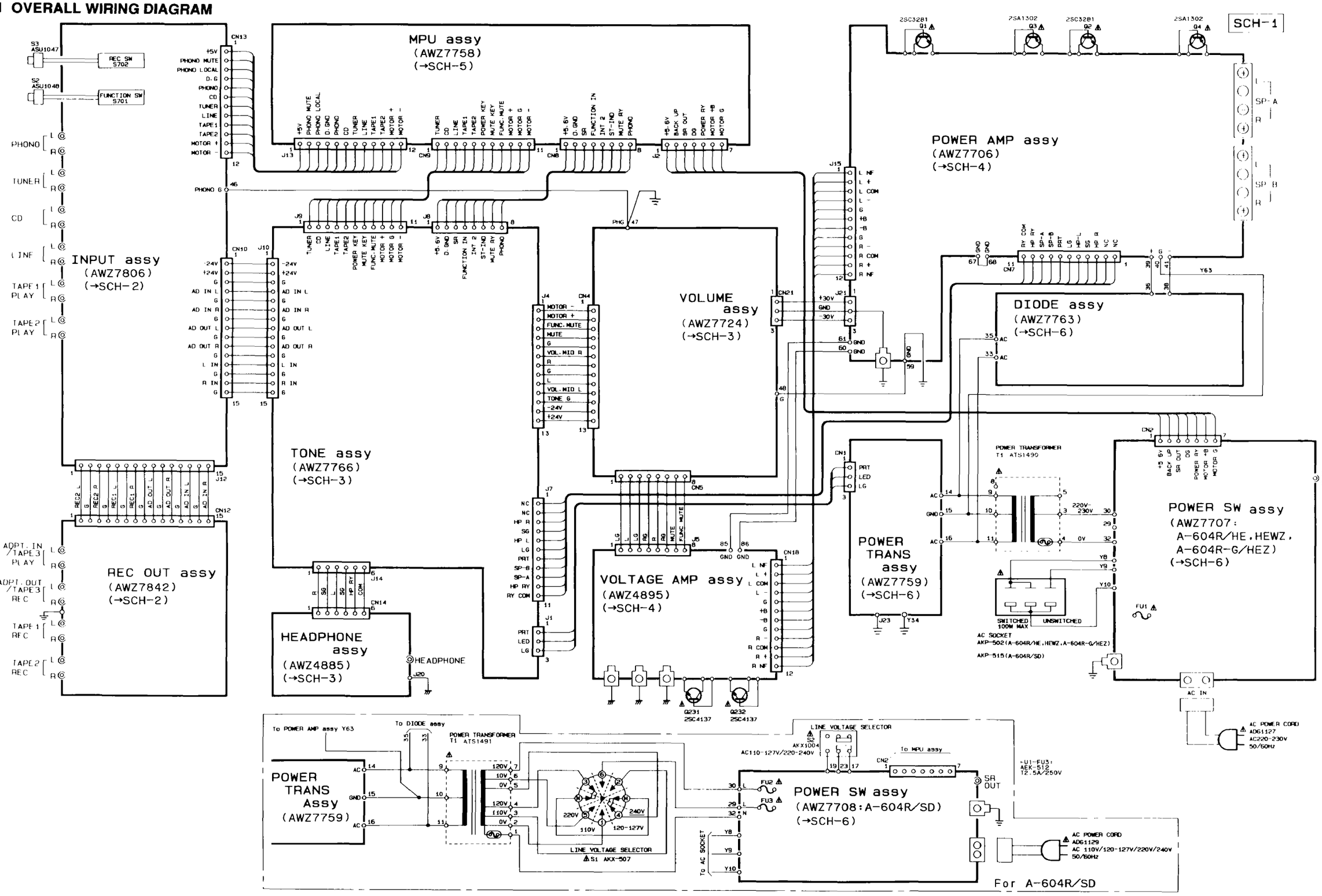
R901	RD1/4PM101J
Other Resistors	RD1/8PM□□□J

OTHERS

X901 CERAMIC RESONATOR(4.19MHz)	ASS1018
CN9 CONNECTOR (11P)	KPE11
CN8 CONNECTOR (8P)	KPE8

3. SCHEMATIC AND PCB CONNECTION DIAGRAMS

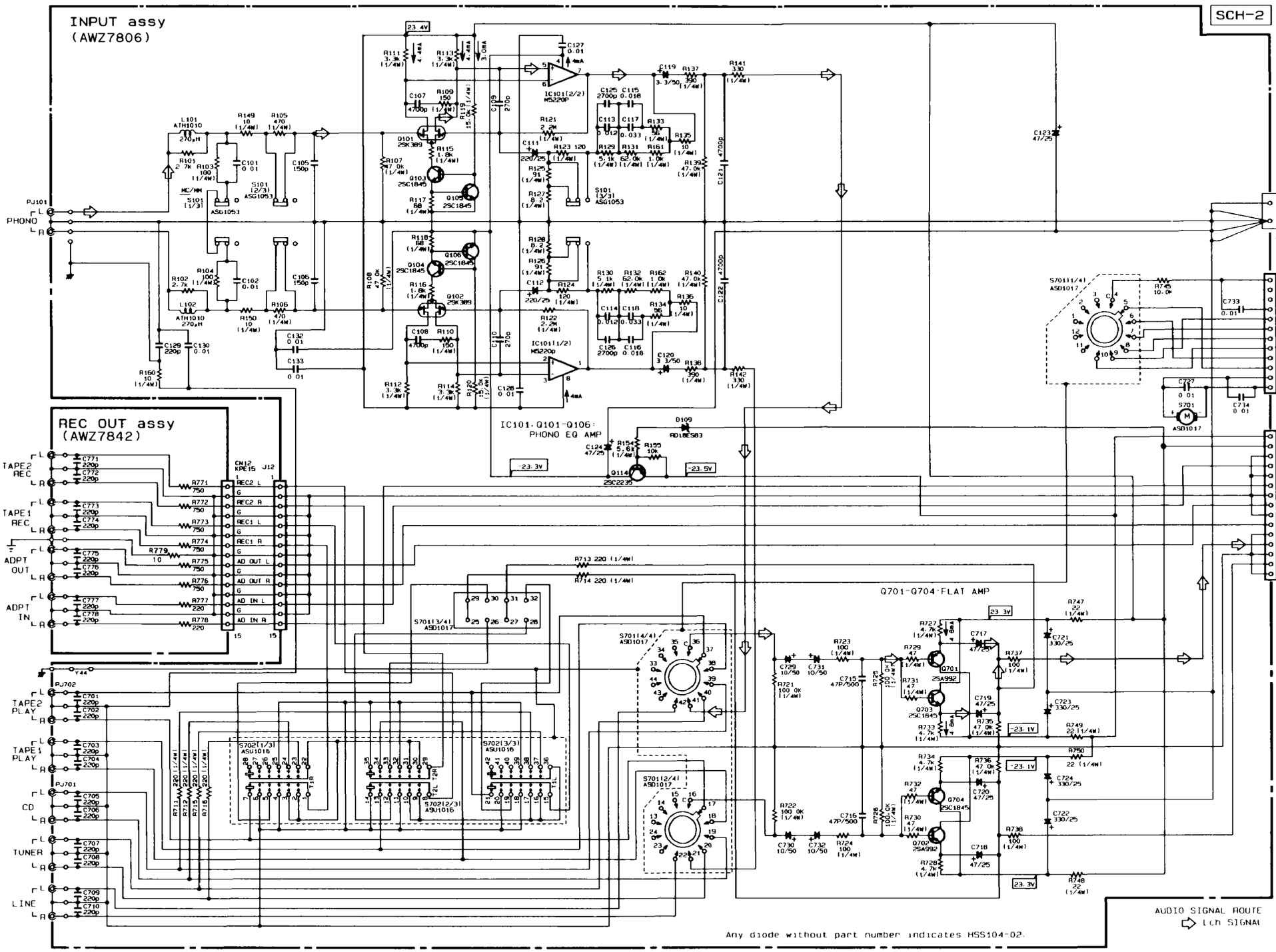
3.1 OVERALL WIRING DIAGRAM



SCH-1 OVERALL WIRING DIAGRAM

OVERALL WIRING DIAGRAM SCH-1

3.2 INPUT AND REC OUT ASSEMBLIES



NOTE FOR SCHEMATIC DIAGRAMS (Type 1A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k·kΩ, M·MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted
4. **CAPACITORS:**
   Unit: p.pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted
   Rated voltage: 50V except for electrolytic capacitors
5. **COILS:**
   Unit: m·mH or μH unless otherwise noted
6. **VOLTAGE AND CURRENT:**
   [V] : Signal voltage at rated output
   [ ] or · V :
   DC voltage (V) at no input signal unless otherwise noted
   Value in ( ) is DC voltage at rated power
   ⇨ mA or · mA ·
   DC current at no input signal unless otherwise noted
7. **OTHERS.**
   - ⇦ or ❷ : Adjusting point
   - ● : Measurement point.
   - The Ⓐ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation
8. **SCH-□ ON THE SCHEMATIC DIAGRAM·**
   - SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram)
9. **SWITCHES** (Underline indicates switch position):

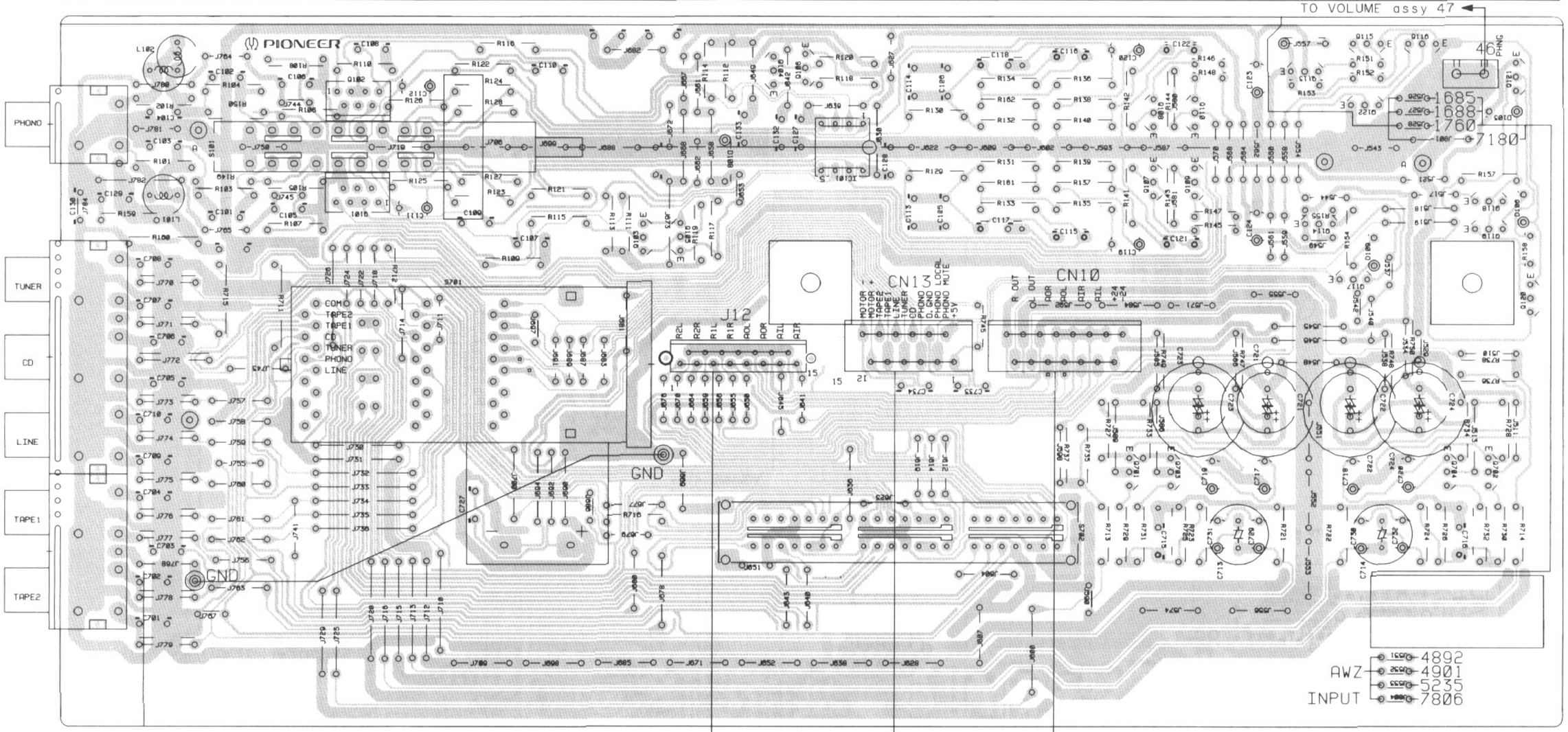
   TONE ASSY
   S601 : ADPT/TAPE3 ON/OFF
   S602 : SUBSONIC ON/OFF
   S603 : DIRECT ON/OFF
   S604 : POWER STANDBY/ON SW
   S605 : MUTING ON/OFF
   S606 : VOLUME
   S607 : SPEAKER A ON/OFF
   S608 : LOUDNESS ON/OFF
   S609 : SPEAKER B ON/OFF

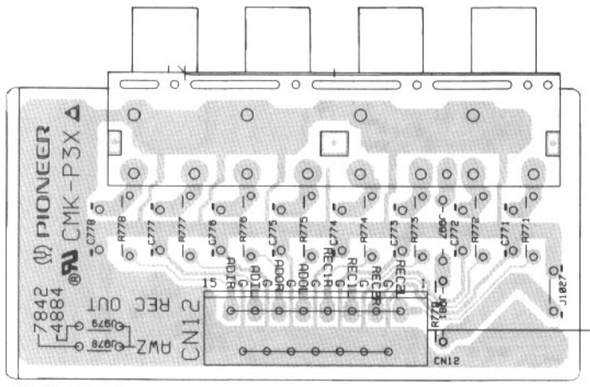
   INPUT ASSY
   S101 : PHONO MC/MM
   S701 : INPUT SELECTOR
   (LINE/PHONO/TUNER/CD/TAPE1/DAT/TAPE2)
   S702 : REC SELECTOR
   (TUNER/CD/OFF/SOURCE/TAPE1▶2/TAPE2▶1)

● This diagram is viewed from the mounted parts side.

INPUT assy

Q102 Q101 Q103 Q105 Q104 Q106 IC101 Q701 Q703 Q107—Q110 Q117 Q113—Q115 Q122 Q116 Q704 Q702 Q118—Q121





REC OUT assy ANP7078-A

NOTE FOR PCB DIAGRAMS:

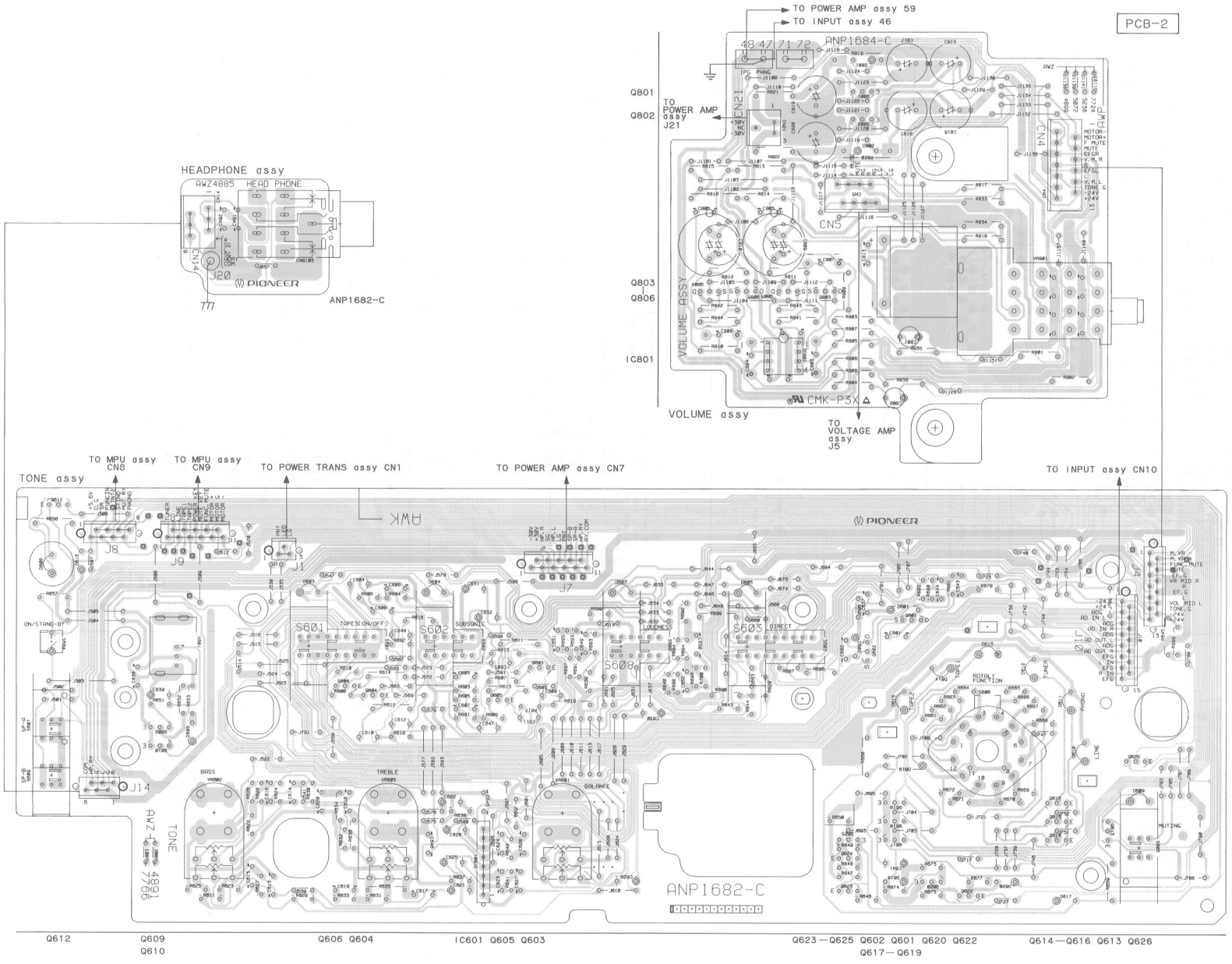
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

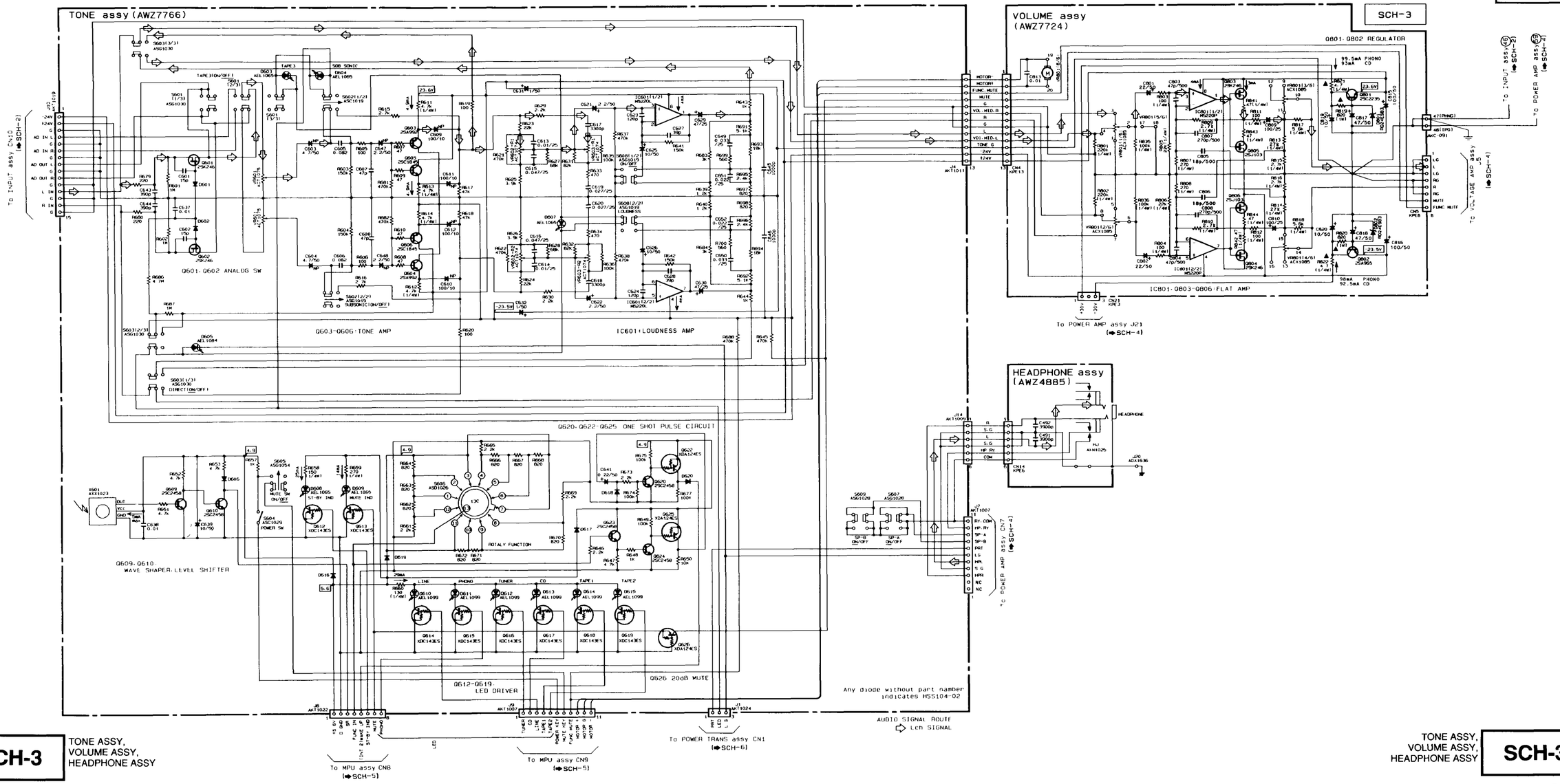
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
Q504 (E, B, C) Q504	Q504 Q504	Transistor
D203 D203	D203	Diode
C513 C513	C513	Capacitor (Polarized)

3. The transistor terminal marked with E or ⊏ shows the emitter.
4. The diode terminal marked with ⊙ or ⊃ shows cathode side.
5. The capacitor terminal marked with ⊙ or ⊏ shows negative terminal.
6. The parts mounted on each PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.

3.3 TONE, VOLUME AND HEADPHONE ASSEMBLIES

● This diagram is viewed from the mounted parts side.

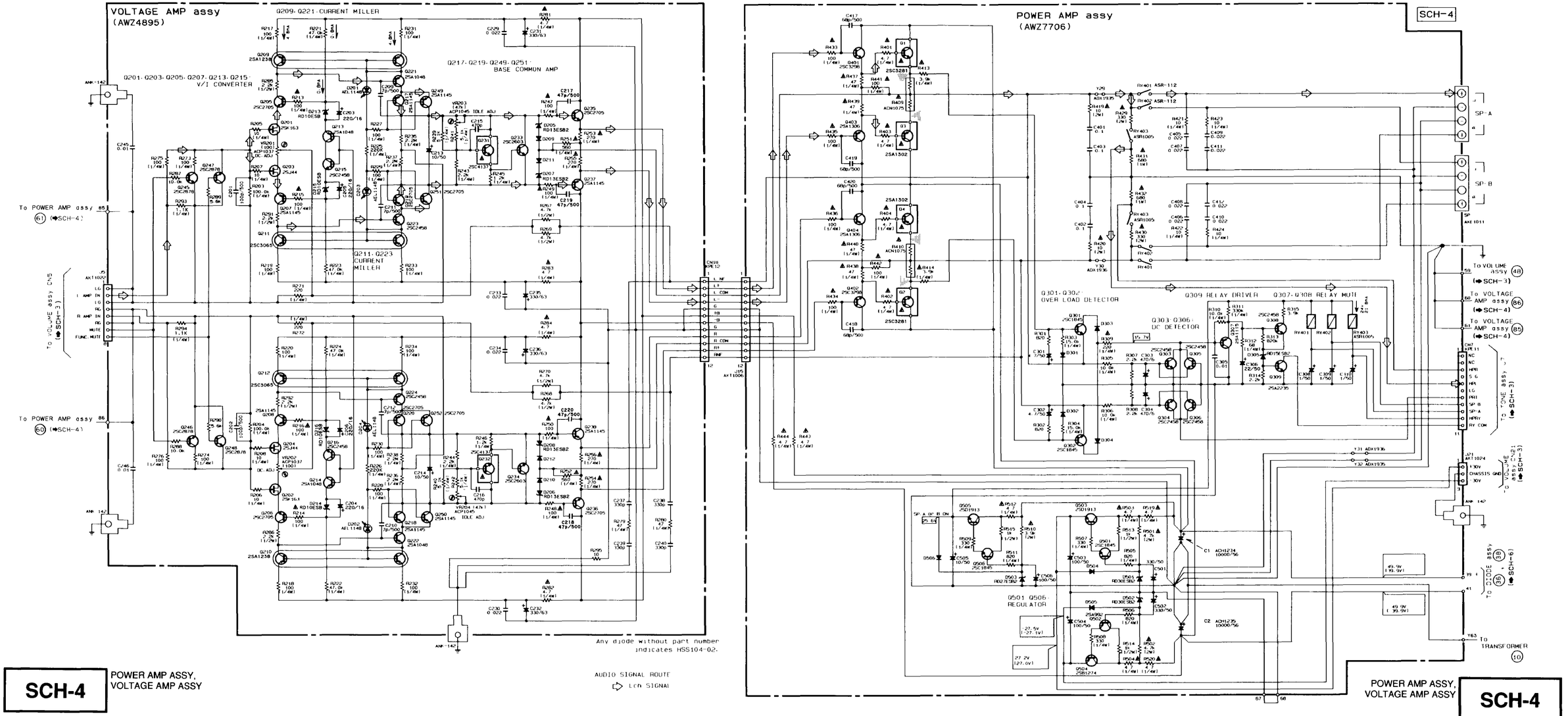




SCH-3 TONE ASSY, VOLUME ASSY, HEADPHONE ASSY

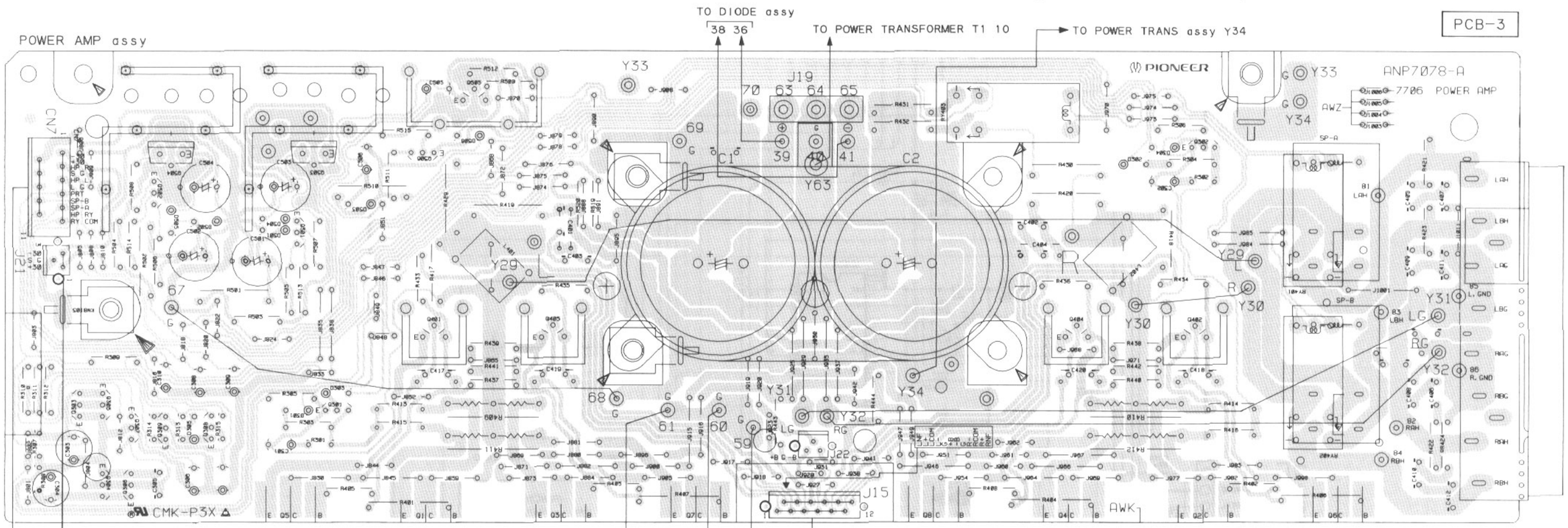
TONE ASSY, VOLUME ASSY, HEADPHONE ASSY **SCH-3**

3.4 POWER AMP AND VOLTAGE AMP ASSEMBLIES

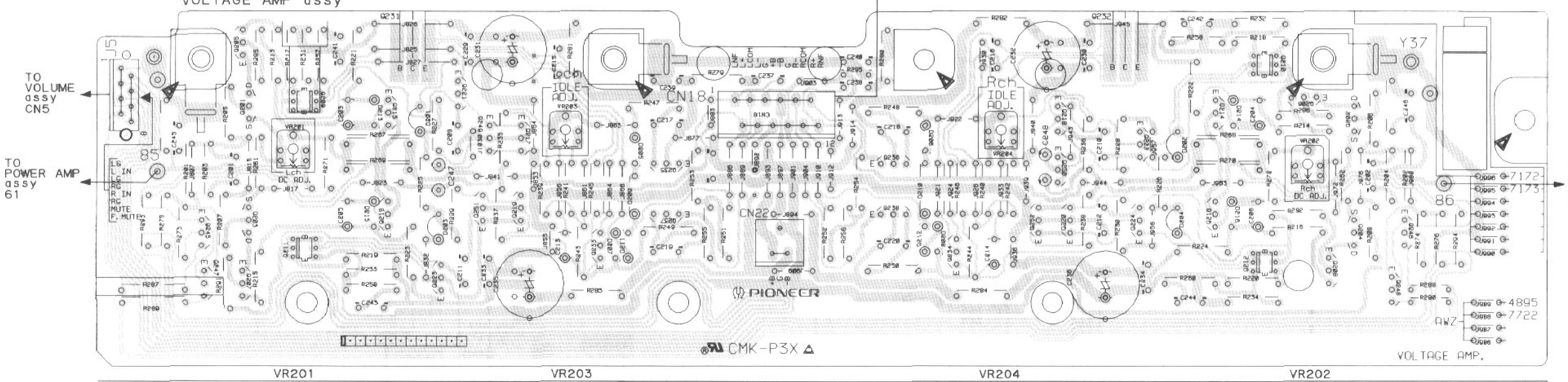


● This diagram is viewed from the mounted parts side.

PCB-3



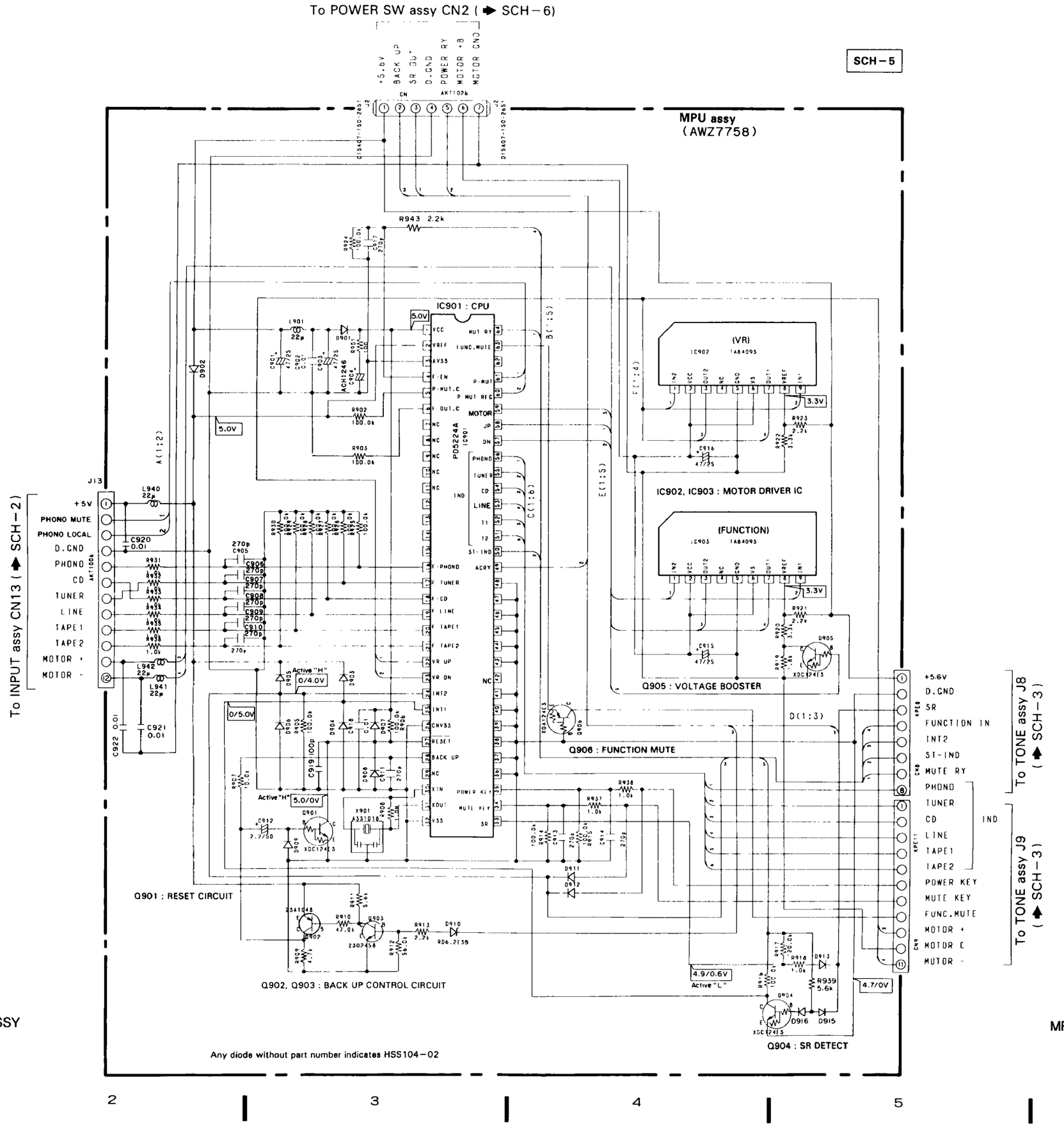
Q303 — Q307 Q504 Q308 Q502 Q309	Q503 Q301 Q501 Q5	Q506 Q505 Q401 Q1	Q403 Q3	Q7	Q8	Q404 Q4	Q302 Q402 Q2	Q6



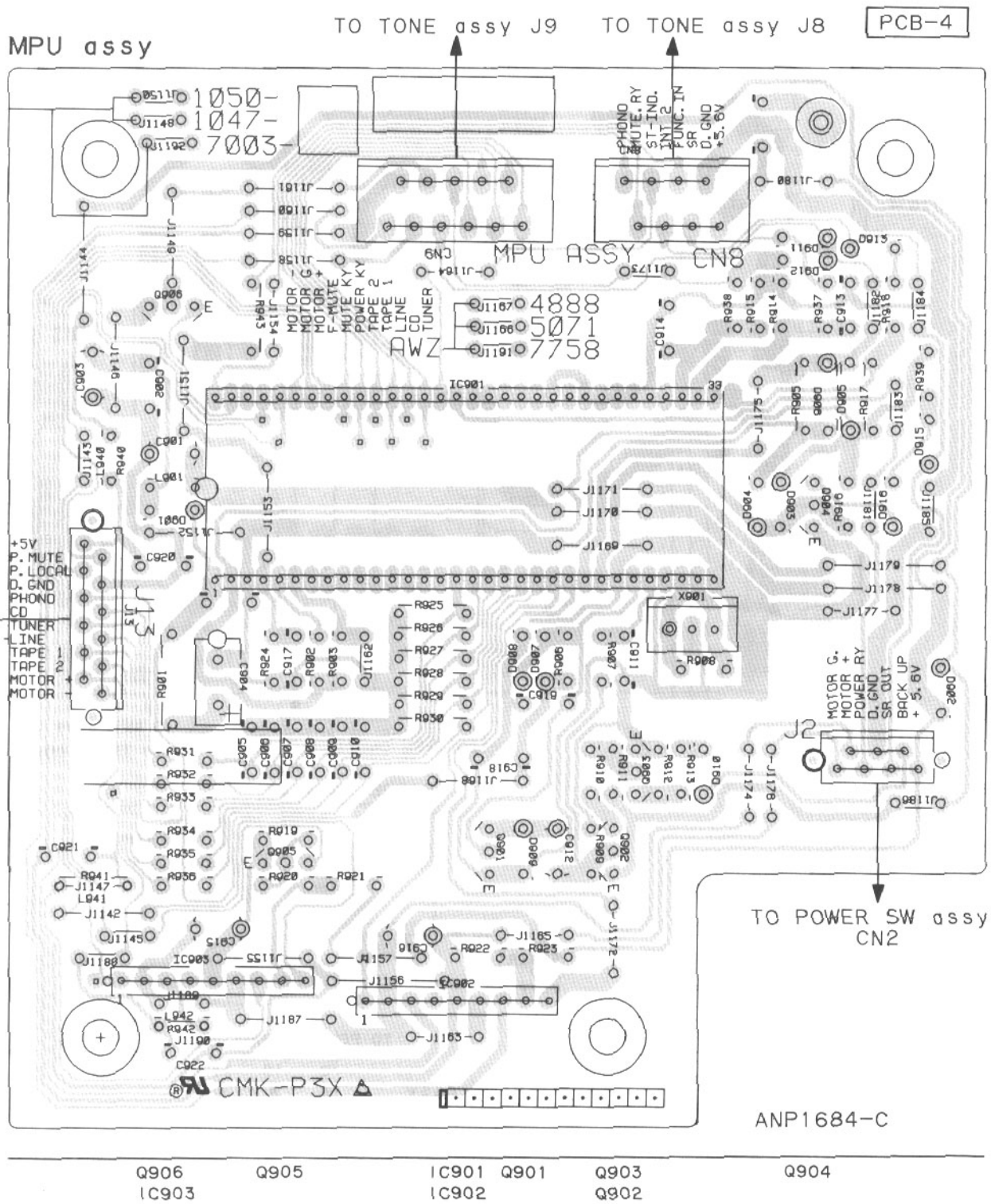
VR201	VR203		VR204		VR202	
Q245 Q205 Q209 Q247 Q201 Q211 Q203 Q207	Q231 Q221 Q249 Q217 Q213 Q223 Q251 Q219 Q215	Q233 Q235 Q237	Q236 Q234 Q238	Q252 Q218 Q232 Q222 Q250 Q224 Q220	Q214 Q210 Q206 Q202 Q246 Q216 Q212 Q208 Q204 Q248	

ANP7078-A

3.5 MPU ASSEMBLY

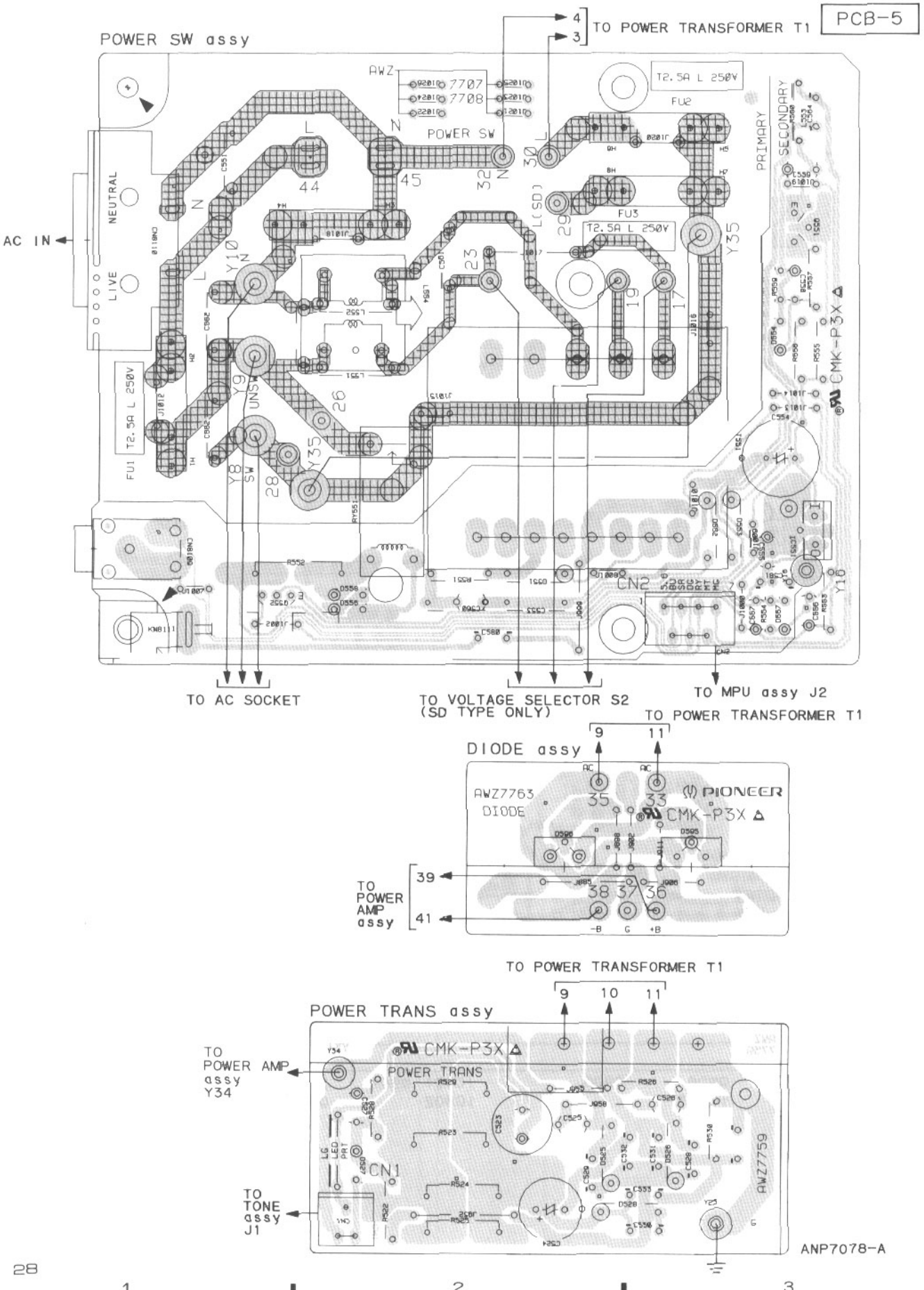


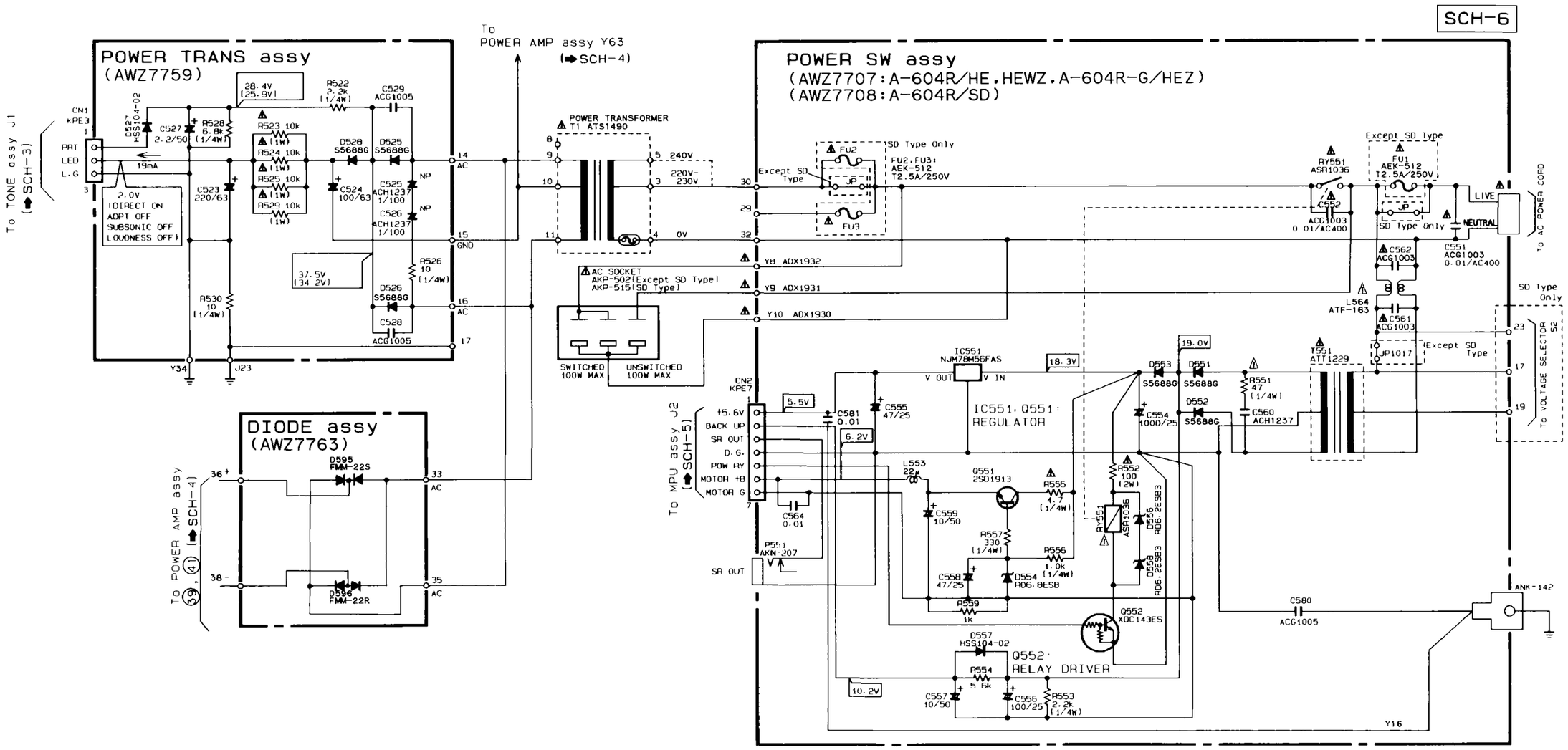
● This diagram is viewed from the mounted parts side.



3.6 POWER SW, POWER TRANS AND DIODE ASSEMBLIES

● This diagram is viewed from the mounted parts side.





Line Voltage Selection

Line Voltage can be changed with the following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection with the power transformer (T1) primary taps.
4. Stick the line voltage label on the rear panel.

Part No.	Description
AAX-193	220V label
AAX-192	240V label

4. ADJUSTMENTS

1) IDLE CURRENT ADJUSTMENT

1.Connect the measuring instrument as Fig. 4-1. (R409 or 410)
2.Set the VOLUME CONTROL to minimum.
3.Set the POWER switch to ON.
4.Adjust VR203 (VR204) so that the voltage between both sides of R409 (R410) becomes 16mV±3mV.

Note)
After turning on the power, wait at least 5 minutes before.
adjustment.

2) DC OFFSET ADJUSTMENT

1.Connect the measuring instrument as Fig. 4-1. (SP terminal)
2.Adjust VR201 (VR202) so that the voltage between speaker terminal becomes 0mV±20mV.

Note)
After turning on the power, wait at least 5 minutes before.
starting the adjustment and complete the adjustment within
10 minutes after turning on the power.

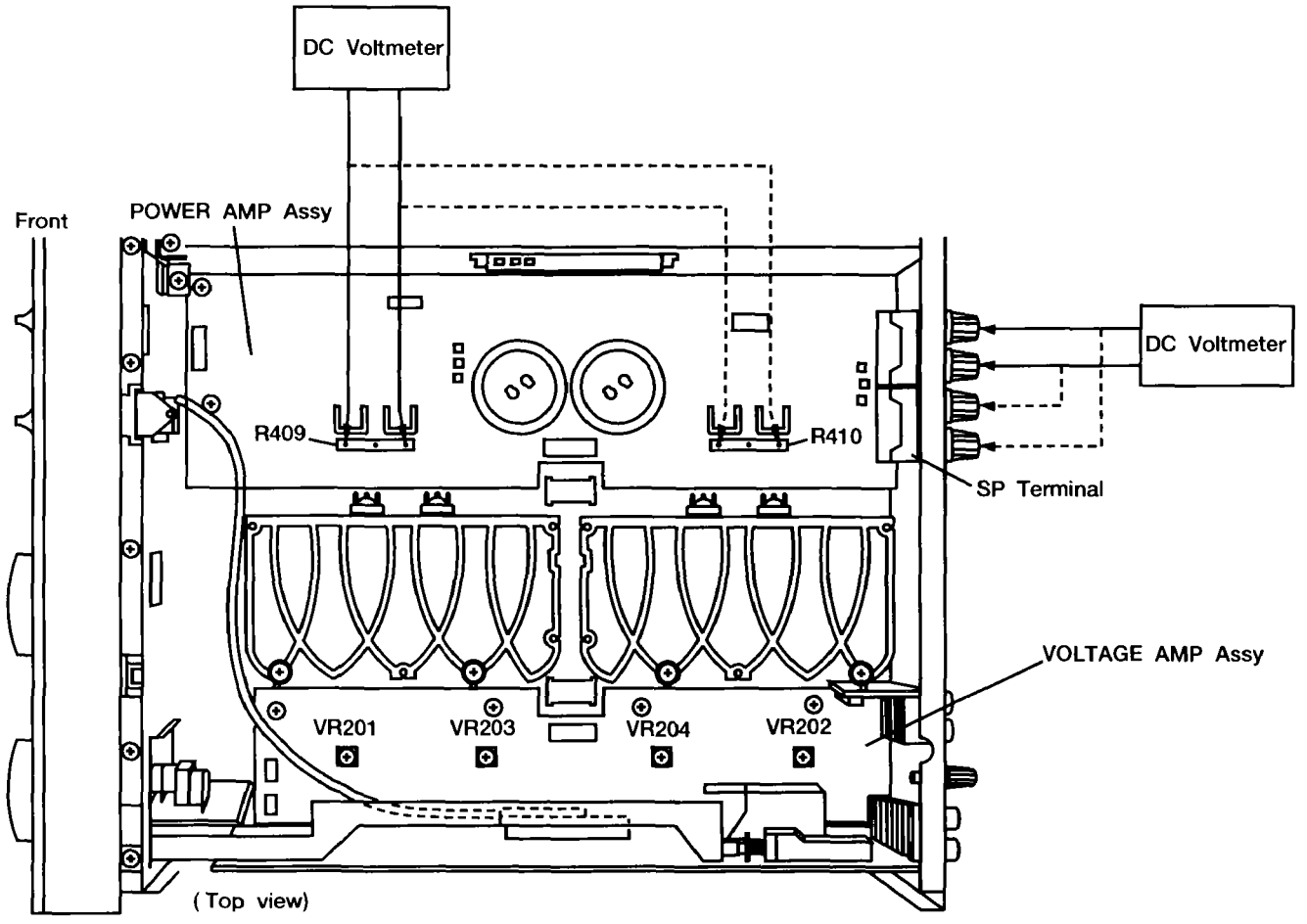


Fig. 4-1 Adjustment Method

5. FOR A-604R/ HEWZ , SD AND A-604R-G/HEZ

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ◉ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

CONTRAST OF MISCELLANEOUS PARTS
A-604R/HEWZ, SD, A-604R-G/HEZ and A-604R/HE have the same construction except for the following:

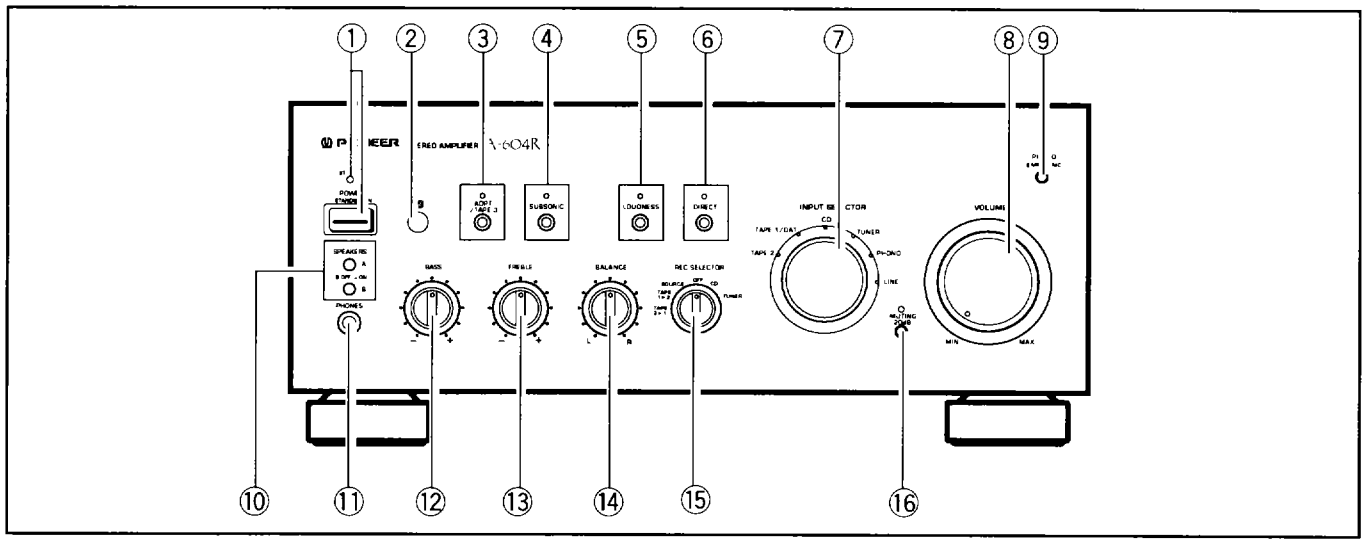
Mark	Symbol & Description	Part No.				Remarks
		A-604R			A-604R-G	
		HE	HEWZ	SD	HEZ	
NSP	AF assembly	AWK7172	AWK7172	AWK7173	AWK7172	
	POWER SW assembly	AWZ7707	AWZ7707	AWZ7708	AWZ7707	
⚠	S1 Voltage selector (AC110V/120-127V/220V/240V)	Not used	Not used	AKX-507	Not used	
⚠	S2 Voltage selector (AC110-127V/220-240V)	Not used	Not used	AKX1004	Not used	
⚠	T1 Power transformer (AC220-230V/240V)	ATS1490	ATS1490	Not used	ATS1490	
⚠	T1 Power transformer (AC110V/120-127V/220V/240V)	Not used	Not used	ATS1491	Not used	
⚠	AC outlet	AKP-502	AKP-502	AKP-515	AKP-502	
⚠	FU2 Fuse(2.5A)	Not used	Not used	AEK-512	Not used	
⚠	AC power cord	ADG1127	ADG1127	ADG1129	ADG1127	
	Screw	Not used	ABA1063	Not used	ABA1063	For insulator
	Rear panel (MET)	ANC7240	ANC7240	ANC2081	ANC7240	
	Insulator	Not used	AMR2622	Not used	AMR2622	
NSP	Cushion	AEB1074	AEB1074	Not used	AEB1074	
	Screw	FTB40P060FZK	FTB40P060FZK	FTB40P060FZK	FTB40P060FNI	For bonnet case
	Front panel (MET)	ANB7018	ANB7018	ANB7018	ANB7019	
	Paner base (PLS)	AMB2136	AMB2136	AMB2136	AMB2137	
	Badge (PIONEER)	AAM1058	AAM1058	AAM1058	VAM1051	
	Round knob S (PLS)	AAB1367	AAB1367	AAB1367	AAB1368	
	Round knob M (PLS)	AAB1382	AAB1382	AAB1382	AAB1384	
	Round knob L (PLS)	AAB1385	AAB1385	AAB1385	AAB1386	
	Push button A (PLS)	AAD2430	AAD2430	AAD2430	AAD2431	
	Push button B (PLS)	AAD2432	AAD2432	AAD2432	AAD2433	
	Power button (PLS)	AAD2434	AAD2434	AAD2434	AAD2435	
NSP	Bonnet case (MET)	ANE1418	ANE1418	ANE1418	ANE1419	
	Operating instructions (English / French / Geman/Italian / Swedish / Dutch / Spanish / Portguese)	ARE7049	Not used	ARE7050	ARE7049	
	Operating instructions (Geman)	Not used	ARE7073	Not used	Not used	
	Remote control (CU-A013)	AXD7053	AXD7053	AXD7053	Not used	
	Remote control (CU-A015)	Not used	Not used	Not used	AXD7054	
	Battery cover	AZN2249	AZN2249	AZN2249	AZN7225	
	Side PadA L	AHA1600	AHA1658	AHA1600	AHA1658	
	Packing case	AHD7185	AHD7185	AHD7186	AHD7187	

AF ASSEMBLY
Although AWK7173 and AWK7172 are different in part number, they have the same service parts.

POWER SW ASSEMBLY
Although AWZ7708 and AWZ7707 are different in part number, they have the same service parts.

6. PANEL FACILITIES

FRONT PANEL



① POWER STANDBY/ON switch/indicator

This is the switch for electric power.

ON : When set to the ON position, power is supplied and the unit becomes operational.

STANDBY : When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.
When the STANDBY indicator lights, the unit is in STANDBY.

NOTE:

When performing timer recording with this unit, be sure to set the POWER STANDBY/ON switch to ON.

② Remote control sensor window

③ ADPT (adaptor)/TAPE 3 button/indicator

Use this button to listen to tape playback, or to monitor a tape recording.

On: (Red illumination)

The indicator lights: Press when listening to the playback sound of the cassette deck or the adaptor connected to the ADPT/TAPE 3 IN/PLAY jacks, or to monitor the sound recorded on the cassette deck connected to the ADPT/TAPE 3 OUT/REC jacks.

Off:

The indicator goes off: Normally leave the button in this position.

NOTE:

When the DIRECT button is set to on, this function does not operate and no signal is output at the ADPT/TAPE 3 OUT/REC jacks.
When the DIRECT button is in the off position, only the source signal is output from the ADPT/TAPE 3 OUT/REC jack.

④ SUBSONIC filter button/indicator

Use this button, when playing records with coarse grooves.

On: (Red illumination)

The indicator lights: In this position, frequencies of 17 Hz and below are cut, eliminating super-low frequency noise caused by coarse record grooves and thus helping prevent sound distortion.

Off:

The indicator goes off: Leave in this position for normal playback.

NOTE:

This button does not operate when the DIRECT button is in the on position. This button operates when PHONO is selected by the INPUT SELECTOR switch (refer to 9 on page 34).

⑤ LOUDNESS button/indicator

Use when listening at low volume level.

On: (Red illumination)

The indicator lights: Boosts low and high frequencies to give added punch to playback even at low volume level.

Off:

The indicator goes off: Should normally be left in this position.

NOTE:

- *This button does not operate when the DIRECT button is in the on position.*
- *At volume levels below the 10 o'clock position, the LOUDNESS effect is obtained.*
- *At volume levels above the 10 o'clock position, the effect becomes increasingly weaker.*

⑥ DIRECT button/indicator

Use this button when you wish to bypass the various frequency adjusting circuits and adaptor jacks (ADPT/TAPE 3, SUBSONIC, BASS, TREBLE, BALANCE, LOUDNESS).

On: (Orange illumination)

When this button is in this position, the indicator lights and the signals input from the input jacks are reproduced without passing through the various frequency-adjusting circuits. This results in flat, pure sound which is a more faithful reproduction of the input source.

Off:

When the button is in this position the indicator goes out and the signal passes through the various frequency adjusting circuits.

⑦ INPUT SELECTOR switch

Use to select the playback source.The selected source's indicator lights. Even if you switch the power off, the last selected source is memorized.

LINE:
Set to this position when listening to a program from a component connected to the LINE jacks.

PHONO:
Set to this position when listening to record playback on a turntable.

TUNER:
Set to this position when listening to AM or FM broadcasts with a tuner.

CD:
Set to this position when listening to a compact disc playback with a CD player.

TAPE 1/DAT:
For playback with a cassette deck or digital audio tape deck connected to the TAPE 1/DAT jacks.

TAPE 2:
For playback with a cassette deck connected to TAPE 2 jacks.

⑧ VOLUME control

Use to adjust the volume level.

NOTE:
This unit is equipped with a circuit that attenuates LOUDNESS and tone effects as volume is turned up.

⑨ PHONO selector button

Set in accordance with the type of cartridge used in your turntable.

MM (—) Released position:
Set to this position when using a moving magnet cartridge, or a MC (moving coil) cartridge with high output of 1 mV or more.

MC (_) Depressed position:
Set to this position when using a moving coil cartridge.

⑩ SPEAKERS selector buttons

Use these buttons to listen to the speaker systems connected to SPEAKERS terminals.

OFF (—) Released position:
No sound is heard from the speaker systems. Set to this position when listening with headphones.

ON A (_) Depressed position:
For reproduction of sound with the speaker system connected to the SPEAKERS A terminals.

ON B (_) Depressed position:
For reproduction of sound with the speaker system connected to the SPEAKERS B terminals.

⑪ PHONES jack

When using headphones, insert the plug into this jack. (When you want to listen with headphones only, refer to ⑩.)

⑫ BASS tone control

Use to adjust the low-frequency tone at a low volume level. The center position is the flat (normal) position. When turned to the right, low-frequency tones are emphasized; when turned to the left, low-frequency tones are de-emphasized.

NOTES:
- *This function does not operate when the DIRECT button is in the on position.*
- *At volume levels below the 10 o'clock position, the set tone control effect is obtained.*
- *At volume levels above the 10 o'clock position, the effect becomes increasingly weaker.*

⑬ TREBLE tone control

Use to adjust the high-frequency tone at a low volume level. The center position is the flat (normal) position. When turned to the right, high-frequency tones are emphasized; when turned to the left, high-frequency tones are de-emphasized.

NOTES:
- *This function does not operate when the DIRECT button is in the on position.*
- *At volume levels below the 10 o'clock position, the set tone control effect is obtained.*
- *At volume levels above the 10 o'clock position, the effect becomes increasingly weaker.*

⑭ BALANCE control

Should normally be left in the center position. Adjust the balance if the sound is louder from one of the speakers. If the right side is louder, turn toward the L (left) position and if the left side is louder, turn toward the R (right) position.

NOTE:
This function does not operate when the DIRECT button is in the on position.

⑮ REC SELECTOR switch

Switch to select recording signal. When set at other positions than SOURCE or OFF, signals can be recorded during playback of the equipment selected.

TUNER:
To record from a TUNER.

CD:
To record from a CD player.

OFF:
In this position, nothing from the REC jacks of TAPE 1/DAT and TAPE 2 will be output. Select it when not recording; output to cassette decks will be disconnected, improving sound quality.

SOURCE:
To record the equipment selected.

TAPE:

1 3 2:
To record (copy) from the cassette deck of TAPE 1/DAT jacks, over to the cassette deck of TAPE 2 jacks.

2 3 1:
To record (copy) from the cassette deck of TAPE 2 jacks, over to the cassette deck of TAPE 1/DAT jacks.

NOTE:
The REC SELECTOR switch has no effect on the recording output of the ADPT/TAPE 3 jacks.

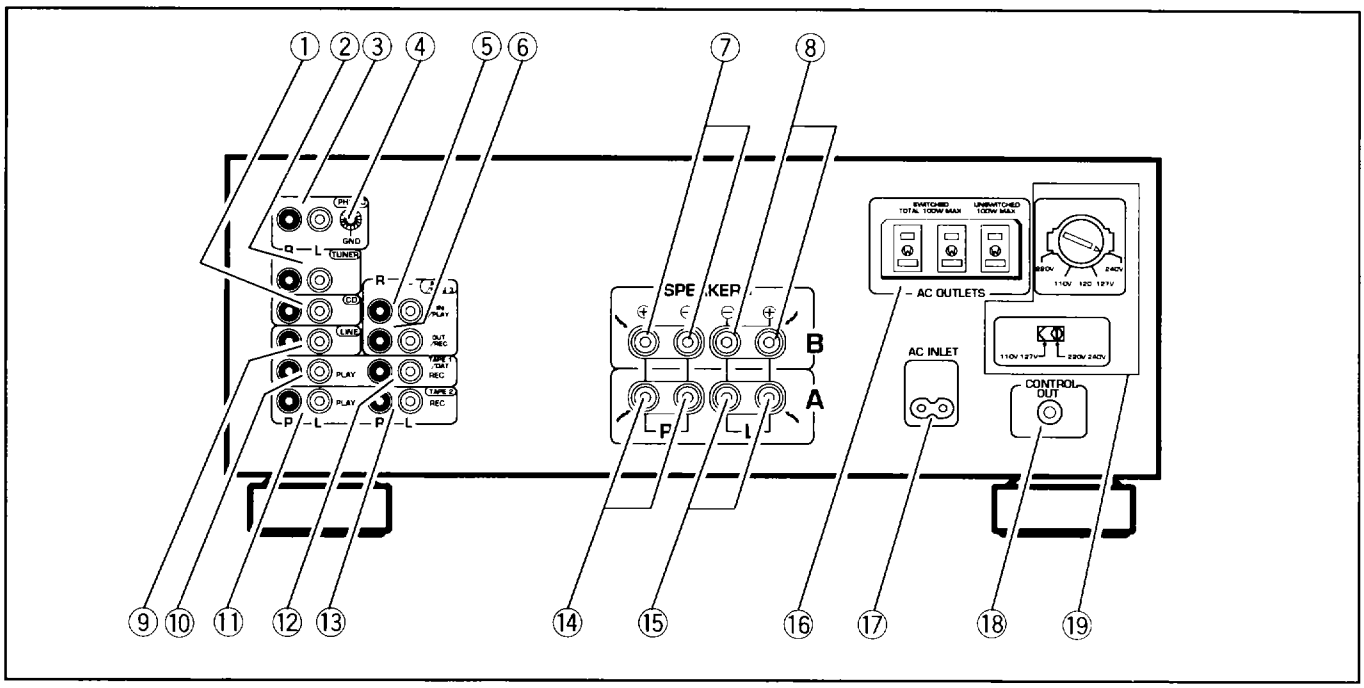
⑯ MUTING button/indicator

Use to temporarily cut sound volume.

On: (Red illumination)
The indicator lights: The sound volume will be reduced -20 dB.

Off:
The indicator goes off: The sound will return to its previous volume.

REAR PANEL



① **CD jacks**

② **TUNER jacks**

③ **PHONO jacks**

④ **GND (Turntable ground) terminal**

⑤ **ADPT/TAPE 3 IN/PLAY jacks**

⑥ **ADPT/TAPE 3 OUT/REC jacks**

⑦ **SPEAKERS B terminals (Right channel)**

⑧ **SPEAKERS B terminals (Left channel)**

⑨ **LINE jacks**

⑩ **TAPE 1/DAT PLAY jacks**

⑪ **TAPE 2 PLAY jacks**

⑫ **TAPE 1/DAT REC jacks**

⑬ **TAPE 2 REC jacks**

⑭ **SPEAKERS A terminals (Right channel)**

⑮ **SPEAKERS A terminals (Left channel)**

⑯ **AC OUTLETS**

⑰ **AC INLET jack**

Connect one end of the power cord to here and the other end to an AC wall socket, or the AC outlet of an audio timer. If you are going to be away from home for a long period of time, disconnect the unit from the wall socket.

⑱ **CONTROL OUT jack**

⑲ **VOLTAGE SELECTORS**

7. SPECIFICATIONS
(for A-604R/HE)

Amplifier Section

Continuous power output
(both channels driven at 20 Hz to 20 kHz)**
- T.H.D. 0.015 %, 8 Ω ..... 70 W + 70 W*
- T.H.D. 0.03 %, 4 Ω ..... 100 W + 100 W*

DIN Continuous power output (both channels driven at 1 kHz)
- T.H.D. 1.0 %, 8 Ω ..... 80 W + 80 W
- T.H.D. 1.0 %, 4 Ω ..... 120 W + 120 W

Power bandwidth
- 0.05 %, 8 Ω ..... 5 Hz - 80 kHz*

Damping factor
- (1 kHz/ 20 Hz to 20 kHz), 8Ω 160/ 140

Dynamic power output (on EIA dynamic test signal)
- 4 Ω/ 2 Ω ..... 150 W/ 200 W

Total harmonic distortion**
- 20 Hz to 20 kHz
- (continuous power output/ – 3 dB), 8 Ω ..... 0.009 %*

Inter-modulation distortion (at rated output) ..... 0.015 %*

• *Above specifications are for when power supply is 230V.*

Input sensitivity/ impedance
- PHONO (MM) ..... 2.8 mV/ 50 kΩ
- PHONO (MC) ..... 0.24 mV/ 100Ω
- CD, TUNER, LINE, TAPE ..... 200 mV/ 50 kΩ

PHONO overload level
- 1 kHz, T.H.D. 0.1 % (MM/ MC) ..... 200 mV/ 19 mV

Output level/ impedance
- TAPE REC, ADAPTOR OUTPUT ..... 200 mV/ 1 kΩ

Frequency response
- PHONO (MM) ..... 20 Hz to 20 kHz ±0.2 dB
- PHONO (MC) ..... 20 Hz to 20 kHz ±0.3 dB
- CD, TUNER, LINE, TAPE ..... 1 Hz to 150kHz $^{+0}_{-3}$ dB*

Tone control (volume control set at – 30 dB position)
- BASS ..... ±8 dB (100 Hz)
- TREBLE ..... ± 8 dB (10 kHz)

Loudness contour (volume control set at – 30 dB position)
- ..... + 5 dB (100 Hz)/ + 3 dB (10 kHz)

Filter (SUBSONIC) ..... 17 Hz (12 dB/ oct.)
Muting ..... – 20dB
Signal-to-Noise ratio (IHF short circuit, A network)
- PHONO (MM, 5 mV input/ MC, 0.5 mV input) ... 90 dB/ 76 dB*
- CD, TUNER, LINE, TAPE ..... 110 dB*

Signal-to-Noise ratio (DIN, continuous power/ 50 mW)
- PHONO (MM) ..... 74 dB/ 72 dB*
- CD, TUNER, LINE, TAPE ..... 95 dB/ 81 dB*

Power Supply/ Miscellaneous

Power Requirements ..... a.c. 220-230 Volts, 50/ 60 Hz
Power Consumption ..... 650 W
AC outlets
- Switched (× 2) ..... 100 W
- Unswitched (× 1) ..... 100 W

Dimensions ..... 420 (W) ×432 (D) × 161 (H) mm
Weight (without package) ..... 12.4 kg

Accessories

Remote control unit 1
Batteries (AA/R6P) 2
Operating instructions 1
Power cord 1

NOTE:
Specifications and design are subject to possible modification without notice, due to improvements.

* Measured with the DIRECT switch set to on.

** Measured by Audio Spectrum Analyzer.