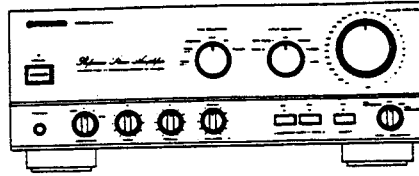


Service Manual

PIONEER
The future of sound and vision.



ORDER NO.
ARP1817

STEREO AMPLIFIER

A-656

A-656-S

MODELS A-656 AND A-656-S HAS FIVE VERSIONS:

Type	Applicable model		Power requirement	Export destination
	A-656	A-656-S		
HEZ	○	○	AC220V, 240V (switchable)*	West Germany
HE	○	—	AC220V, 240V (switchable)*	European continent
HB	○	—	AC220V, 240V (switchable)*	United Kingdom
KC	○	—	AC120V only	Canada
SD	○	—	AC110V, 120V-127V, 220V, 240V (switchable)*	Kingdom of Saudi Arabia and general market

*Change the primary wiring of the power transformer

- This manual is applicable to the A-656/HEZ, HE, HB and A-656-S/HEZ types.
- A-656-S is Silver version of A-656.
- For the other types, refer to additional service manual.

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1. EXPLODED VIEWS AND PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- The \triangle 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.

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
\triangle	1	2SA1302	TRANSISTOR Q 3	51	.....	.....	.....
\triangle	2	2SA1302	TRANSISTOR Q 4	52	ARC1146	.....	OPERATING INSTRUCTIONS
\triangle	3	2SC3281	TRANSISTOR Q 1	53	AHA1070	.....	STYROL PROTECTOR
\triangle	4	2SC3281	TRANSISTOR Q 2	54	AHD1633	.....	PACKING CASE
	5	RD1/4PM220J	CARBON FILM RESISTOR	55	ANE1075	.....	METAL BONNET
	6	RD1/4PM4R7J	CARBON FILM RESISTOR	56	.....	.....	.....
\triangle	7	ACH1043	ELECTROLYTIC CAPACITOR	57	.....	.....	SPEAKER SWITCH
	8	CKDYB472K50	CERAMIC CAPACITOR	58	AWZ2349	.....	tone AMP
\triangle	9	ATS1210	POWER TRANSFORMER T1	59	.....	.....	REC OUT
\triangle	10	ASG-552	SWITCH S1	60	AWZ2351	.....	INPUT SELECTOR
	11	ASU1024	SWITCH S3	61	.....	.....	.....
	12	ASU1025	SWITCH S2	62	.....	.....	HEAD PHONE
	13	ASU1026	SWITCH S4	63	AWZ2335	.....	POWER AMP
\triangle	14	AEK-403	FUSE (T2.5A) FU 1	64	AWZ2336	.....	POWER SUPPLY
\triangle	15	ADG1049	AC POWER CORD	65	AWZ2337	.....	SPEAKER TERM
	16	ANL1025	LONG SHAFT ASSY	66	AWZ2338	.....	PHONO AMP
	17	AMR1159	FOOT	67	.....	.....	SHIELD
	18	ABF1002	SPACER	68	.....	.....	TERMINAL SCREW
	19	ABF1017	WASHER	69	.....	.....	EARTH LEAD
	20	ABH1033	SPRING	70	.....	.....	TRANS FRAME
	21	ABH1034	SPRING	71	.....	.....	RIGHT FRAME
	22	AEC-882	STRAIN RELIEF	72	.....	.....	REAR PANEL
	23	AEE1014	SHEET	73	.....	.....	PANEL STAY
	24	AEH1005	ADHESIVE TAPE	74	.....	.....	BOTTOM PLATE
	25	ABA-298	SCREW	75	.....	.....	HEAT SINK
	26	ABA1004	SCREW (STEEL)	76	.....	.....	HEAT SINK
	27	ABA1009	SCREW (STEEL)	77	.....	.....	HEAT SINK HOLDER
	28	ABA1011	SCREW (STEEL)	78	.....	.....	VOLUME HOLDER
	29	ABA1014	SCREW (STEEL)	79	.....	.....	SHIELD CASE (SP)
	30	ABA1047	SCREW (STEEL)	80	.....	.....	SHIELD CASE B
	31	ABA1048	SCREW (STEEL)	81	.....	.....	DAMPER
	32	ABA1050	SCREW (STEEL)	82	.....	.....	CUSHION RUBBER C
	33	ABA1082	SCREW	83	.....	.....	CUSHION SPACER
	34	ABA1088	SCREW	84	.....	.....	CUSHION RUBBER
	35	ABN-048	FLANGE NUT M9	85	.....	.....	NYLON BINDER
	36	ABN-065	NUT	86	.....	.....	P.C.B HOLDER
	37	FBT40P080FZK	SCREW	87	.....	.....	NYLON RIBET
	38	NK90FCU	NUT	88	.....	.....	SPACER
	39	VMZ30P060FCU	SCREW	89	.....	.....	SPACER
	40	AMR1178	HOLDER	90	.....	.....	BINDER
	41	ANB1295	FRONT PANEL	91	.....	.....	CLAMPER
	42	AMB1200	BASE	92	.....	.....	.....
	43	AAM1029	NAME PLATE (METAL)	93	.....	.....	PUSH JOINT
	44	AMR1160	INDICATING LENS	94	.....	.....	.....
	45	AAB1107	ROTARY KNOB L	95	.....	.....	SHEET
	46	AAB1108	ROTARY KNOB M				
	47	AAB1109	ROTARY KNOB S				
	48	AAD1536	PUSH KNOB				
	49	AAD1560	DIRECT KNOB				
	50	AAD1561	POWER KNOB				

1

2

3

4

5

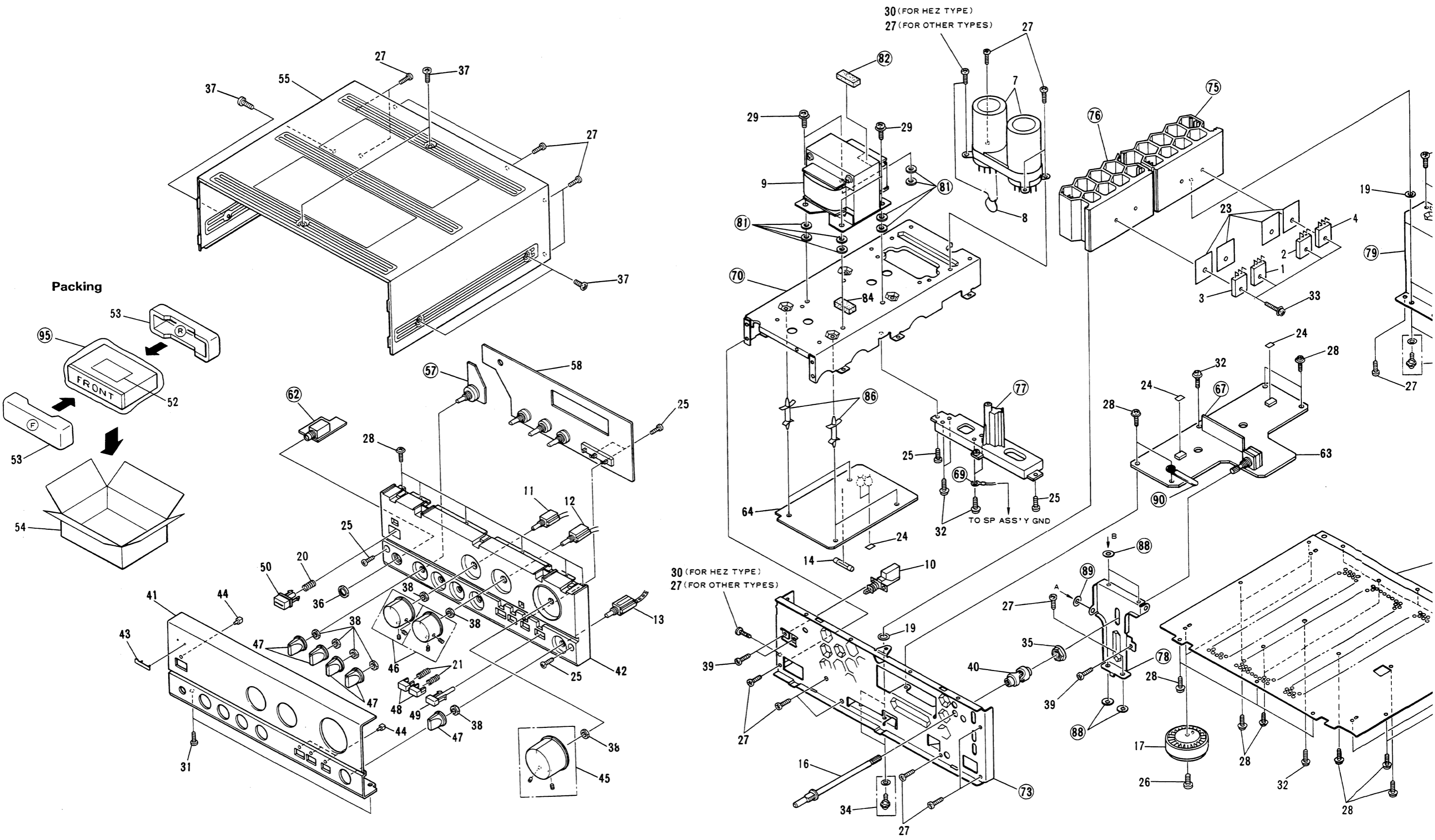
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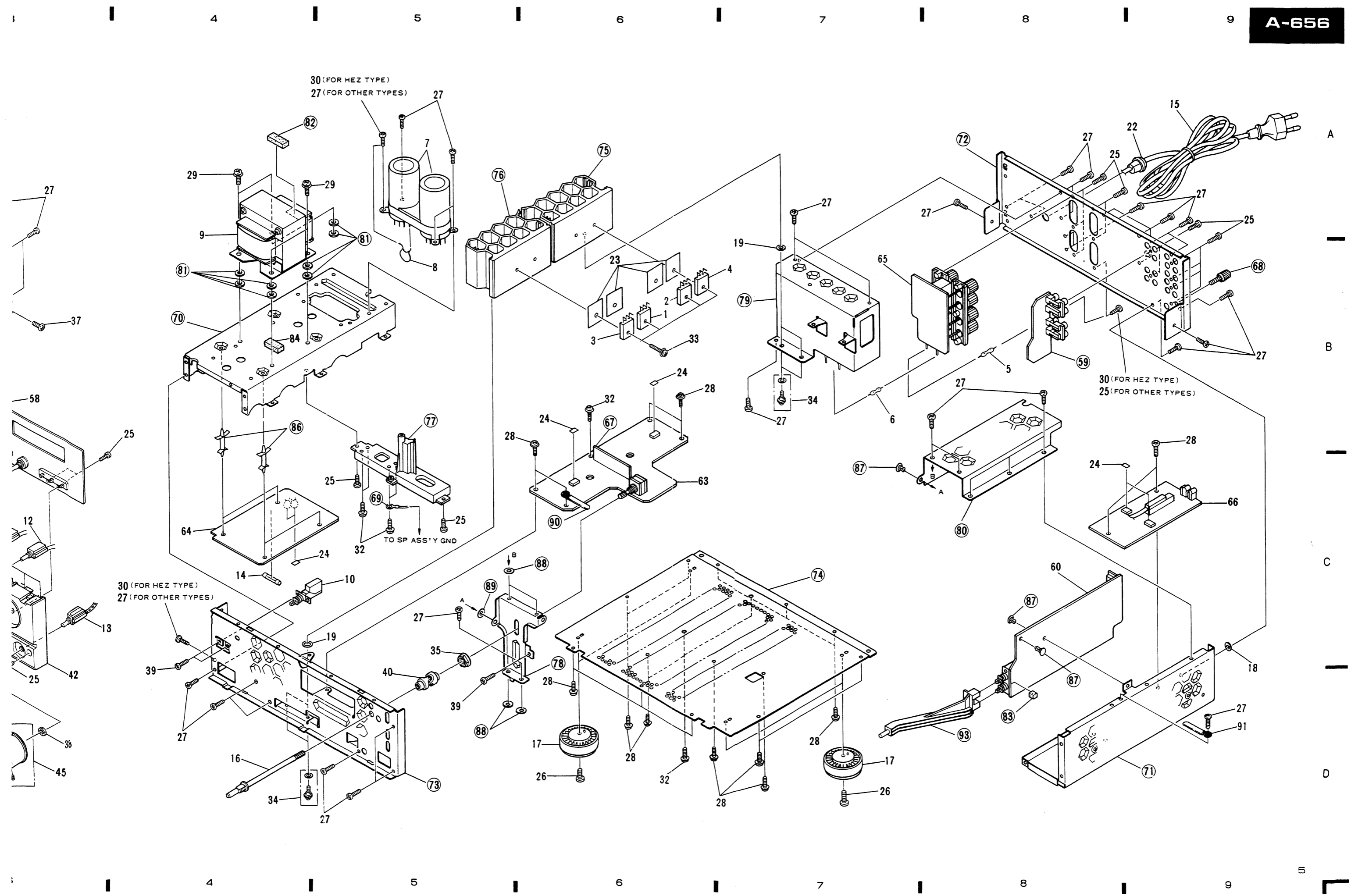
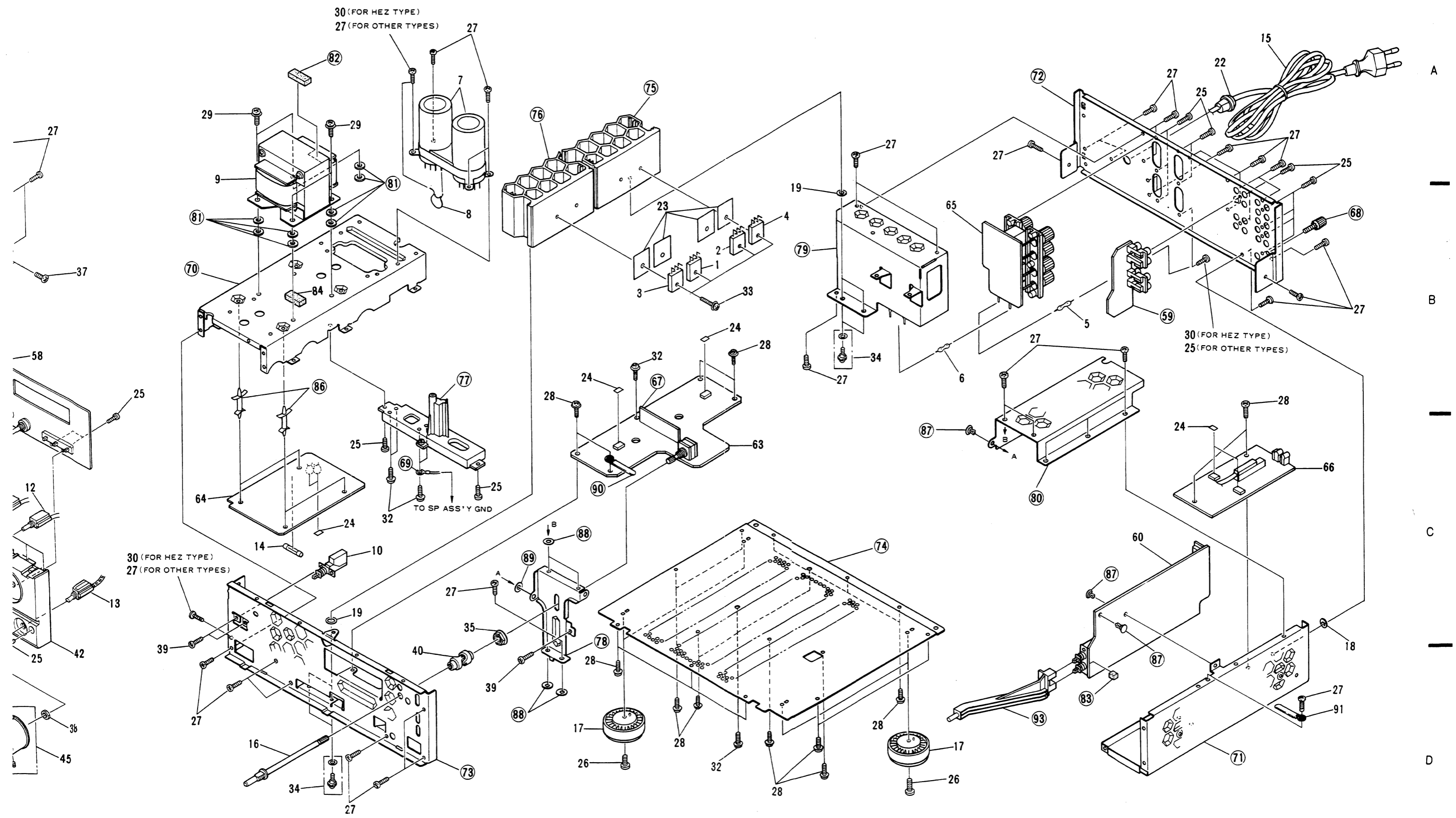
A

B

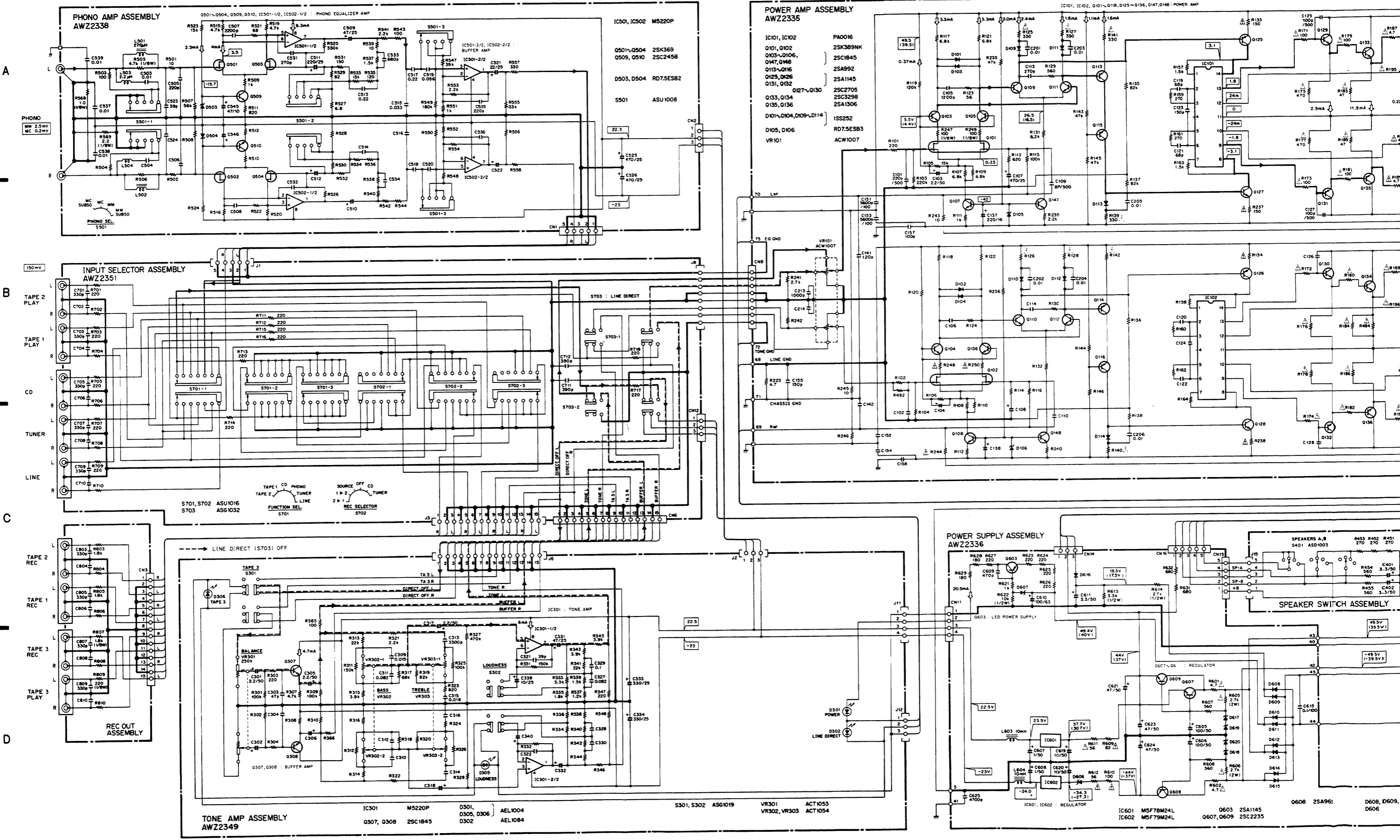
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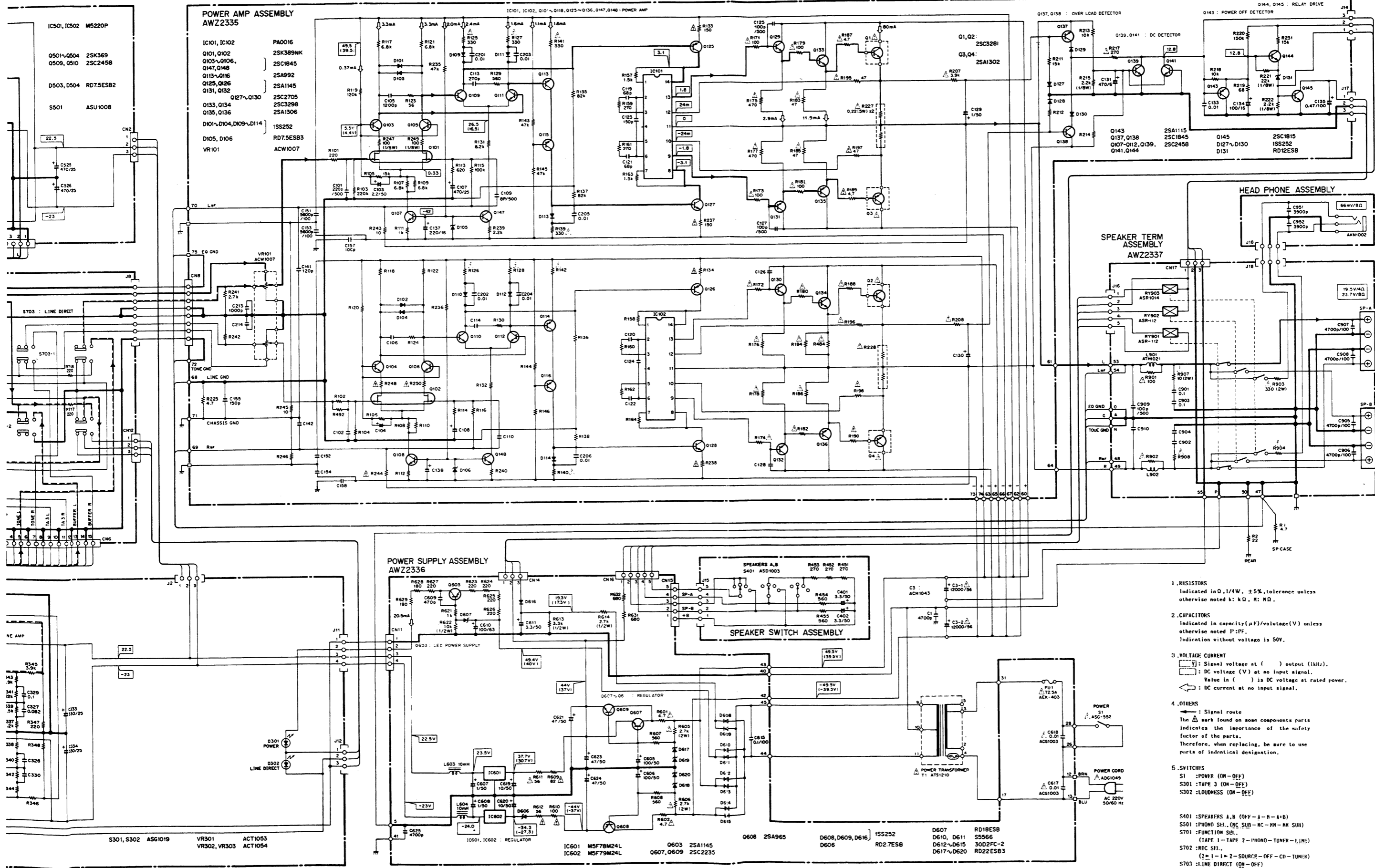
D





2. SCHEMATIC DIAGRAM





A

B

C

D

3. P.C.BOARDS CONNECTION DIAGRAM

NOTE

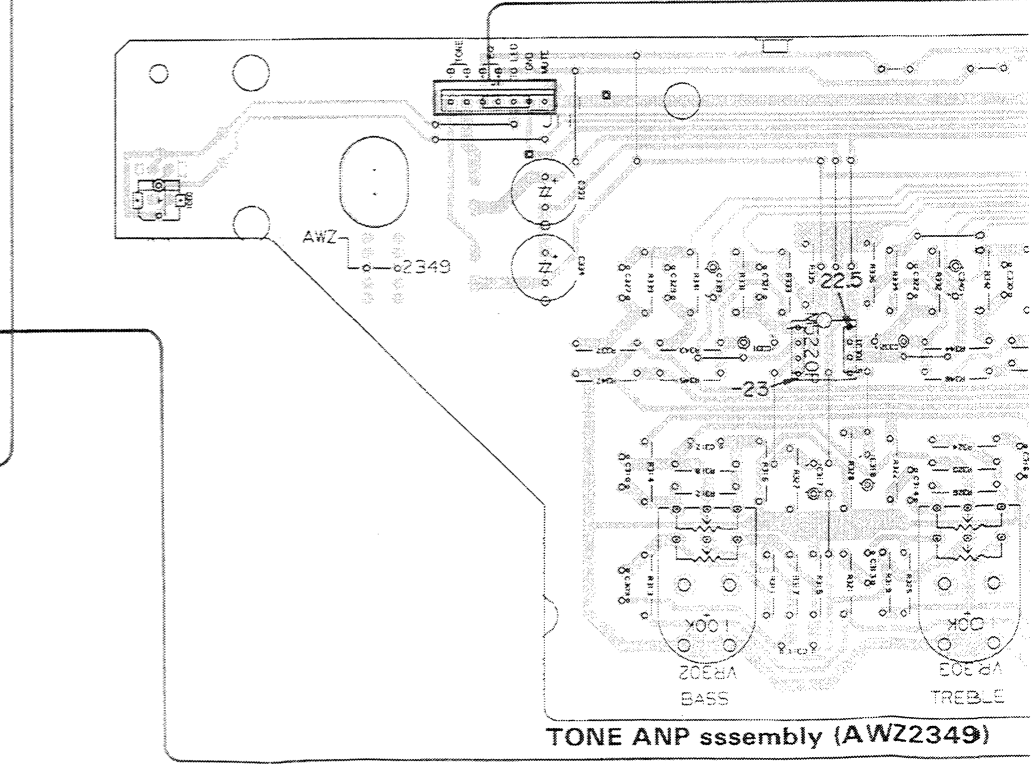
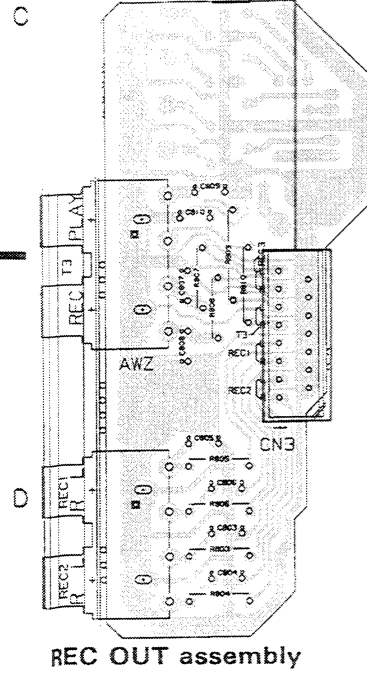
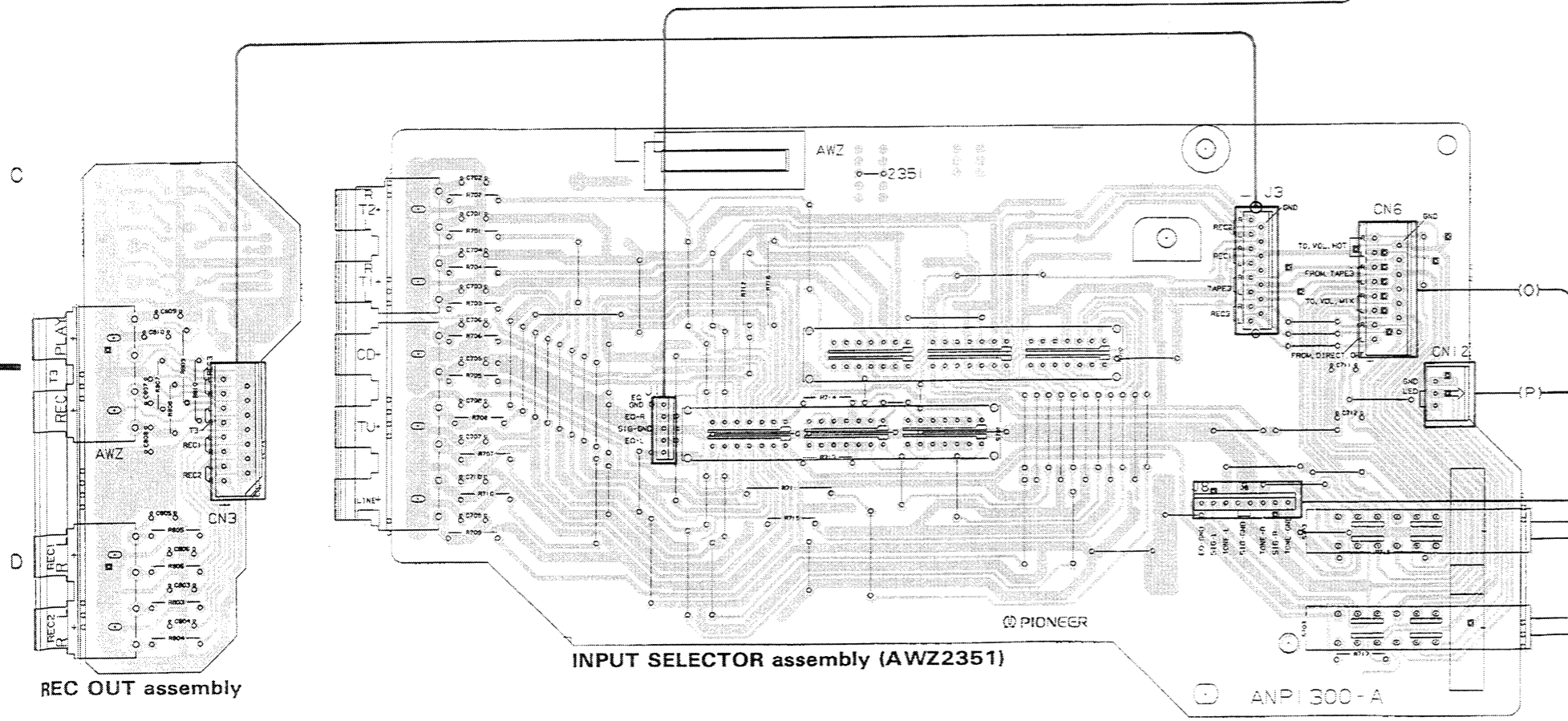
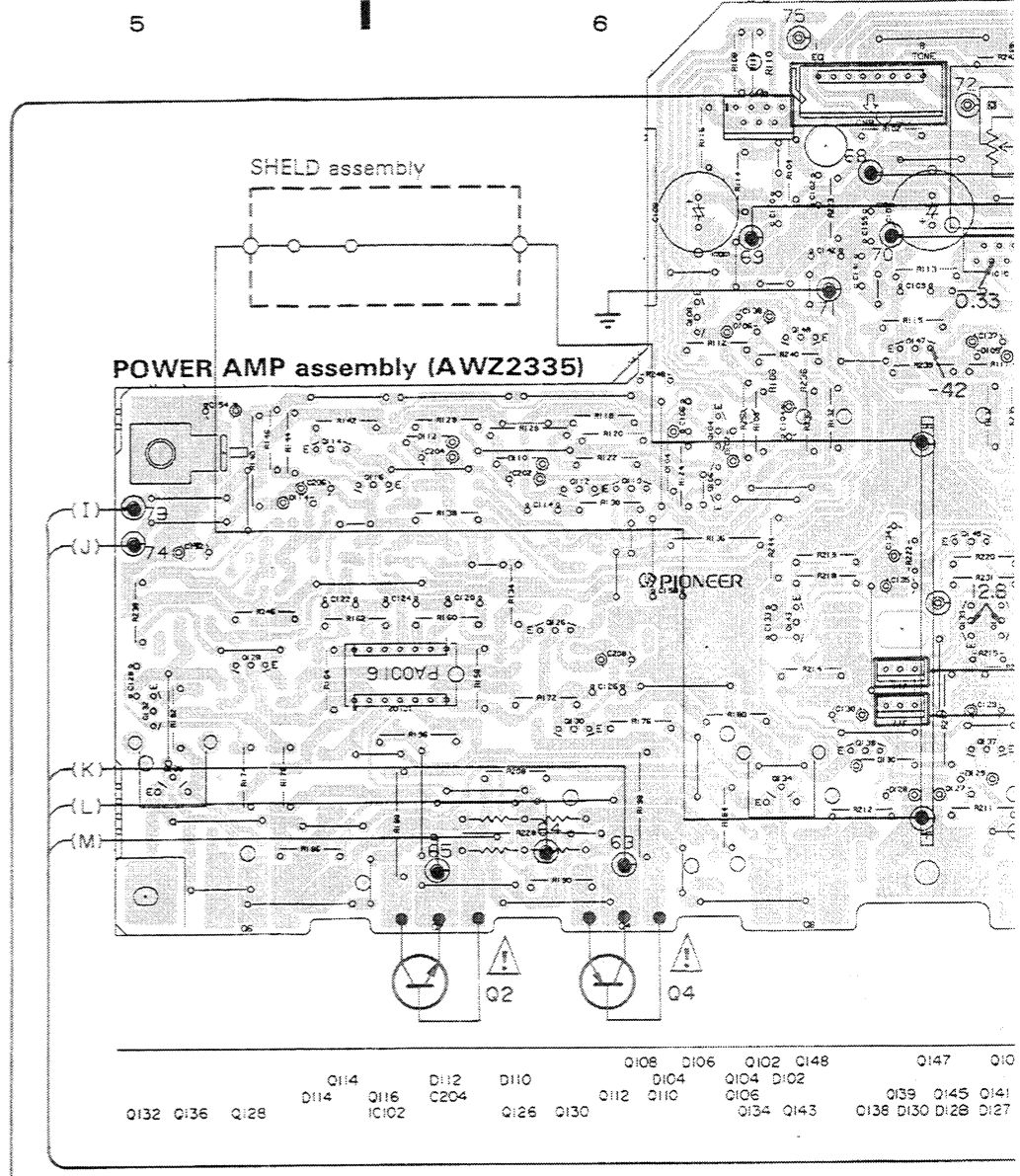
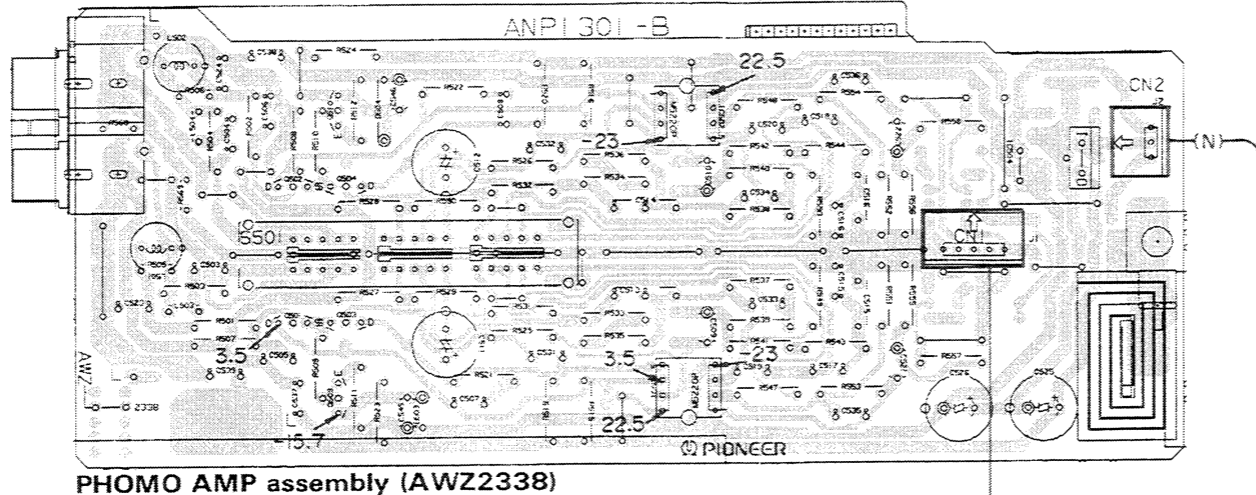
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

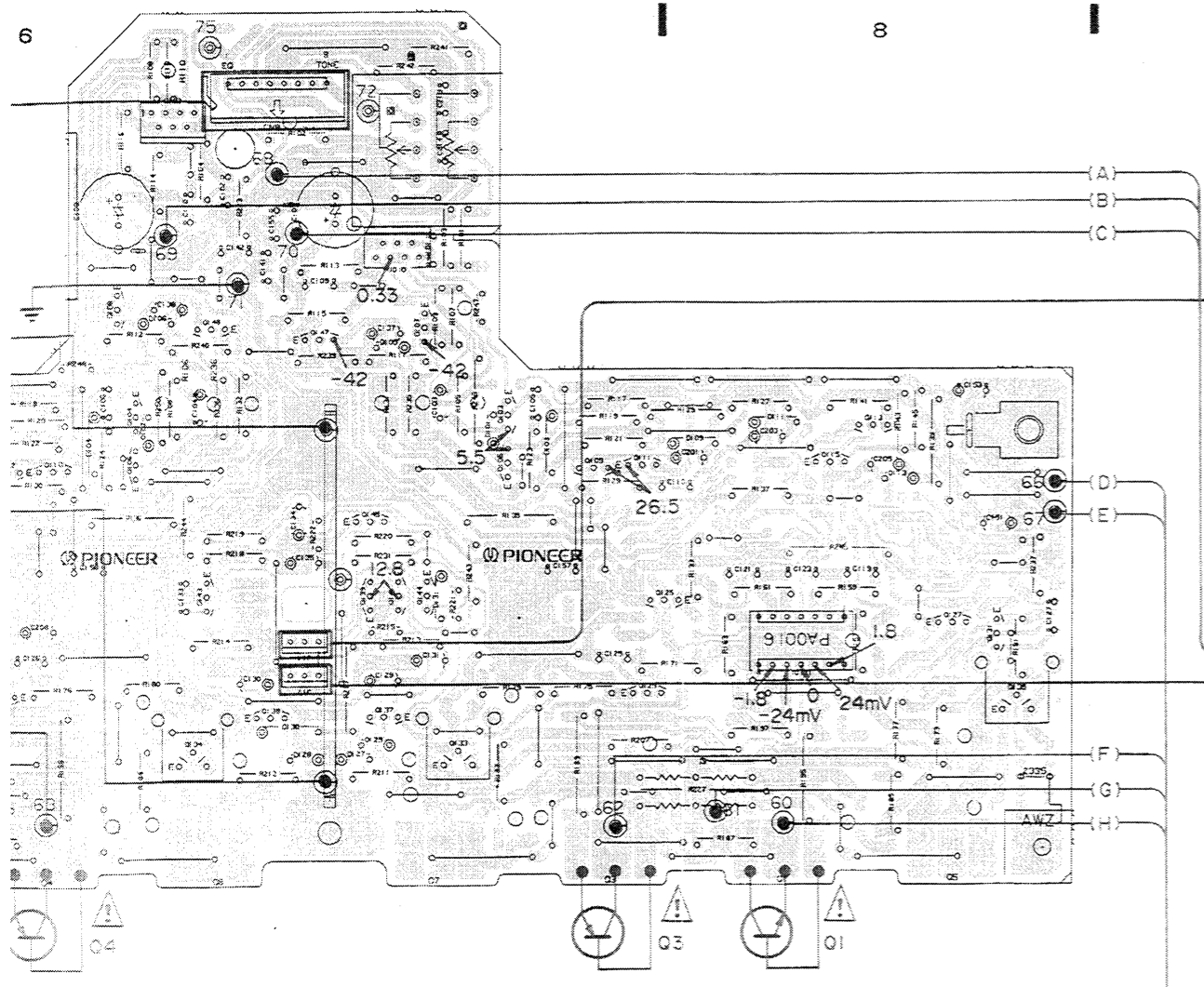
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

Others

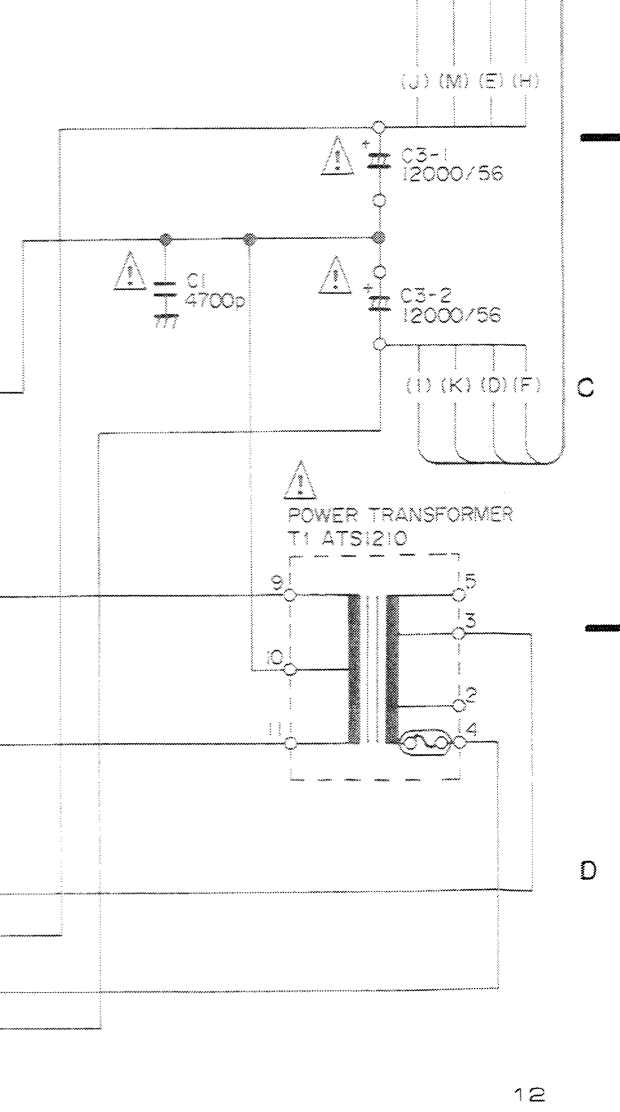
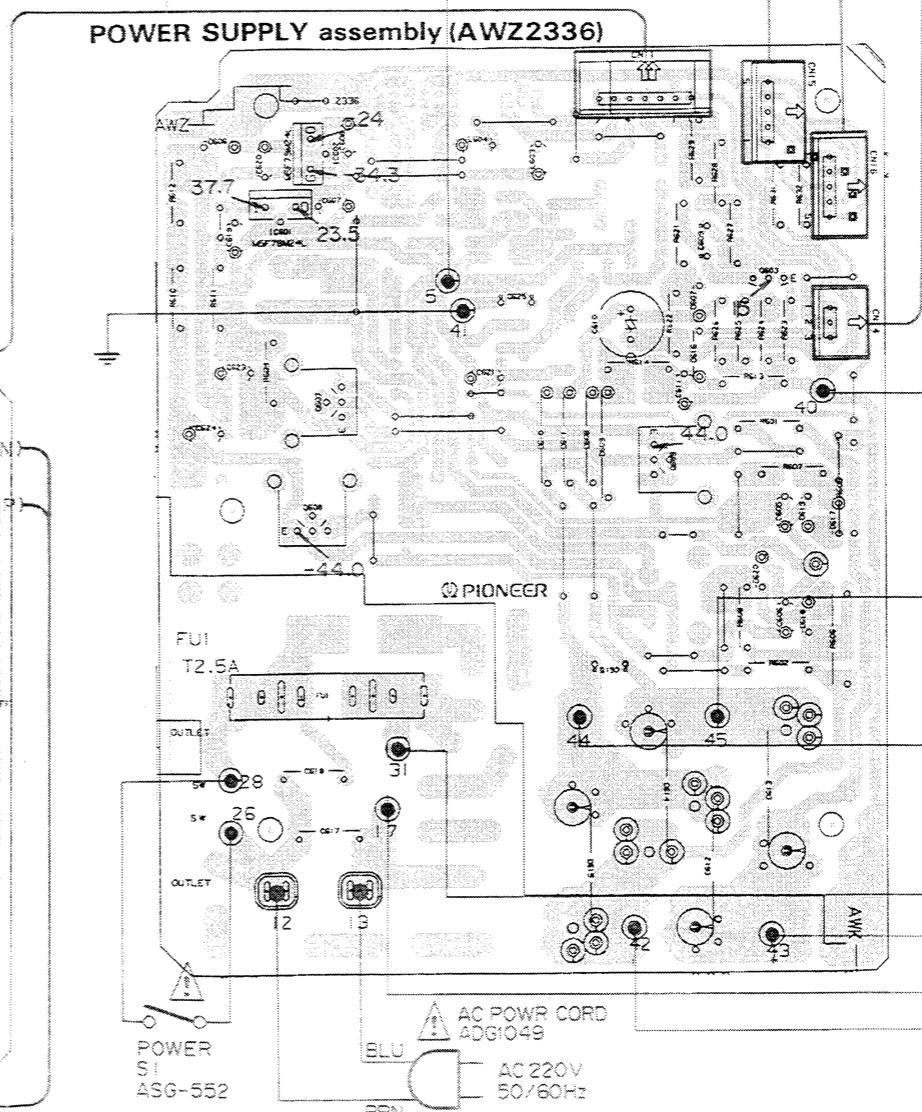
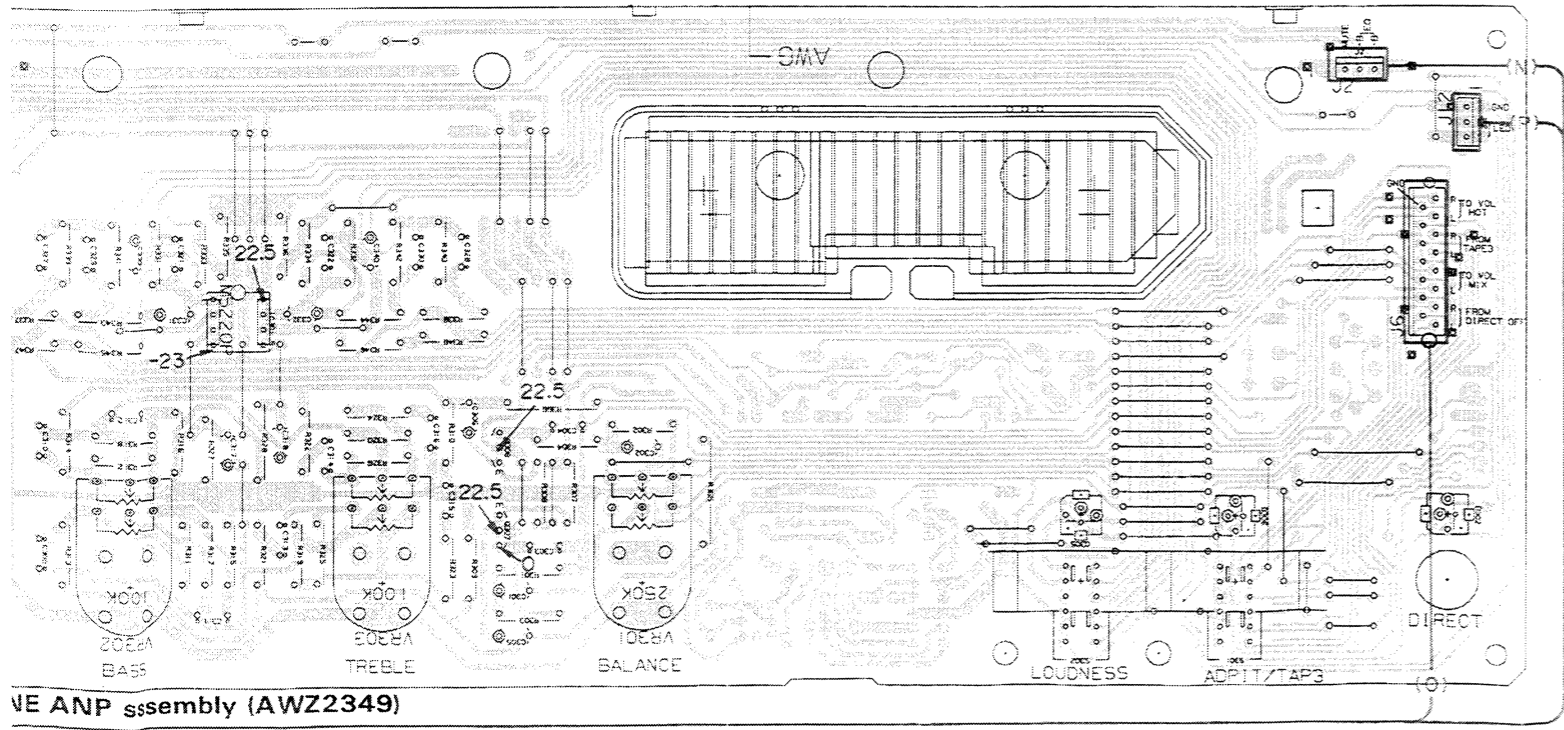
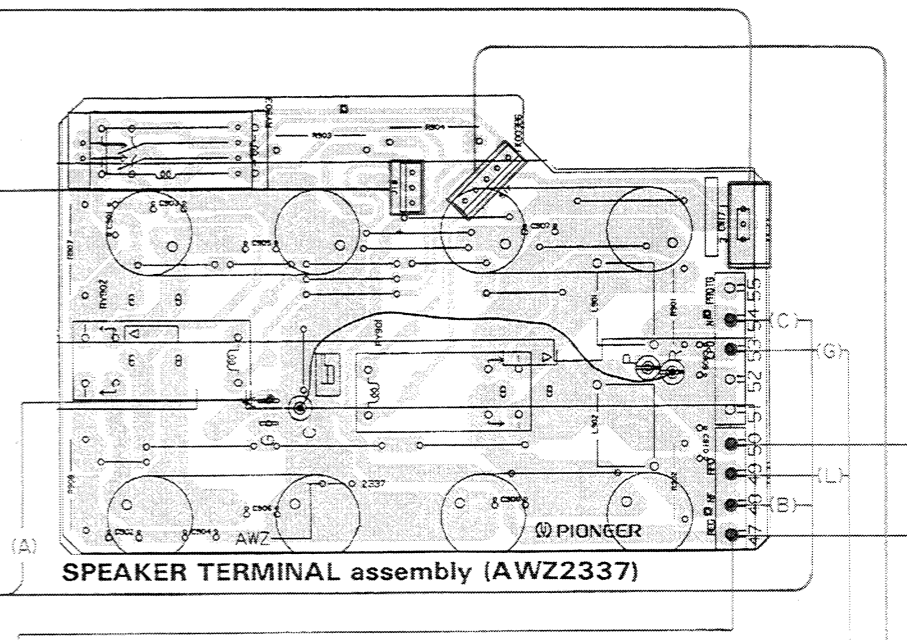
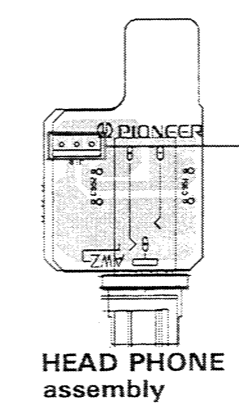
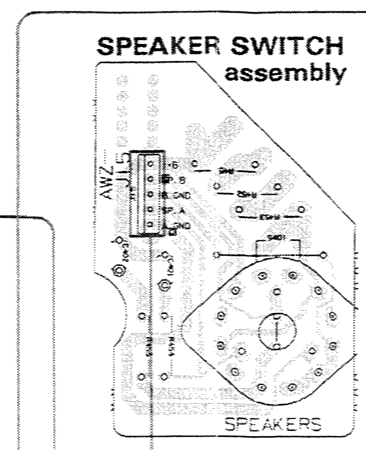
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

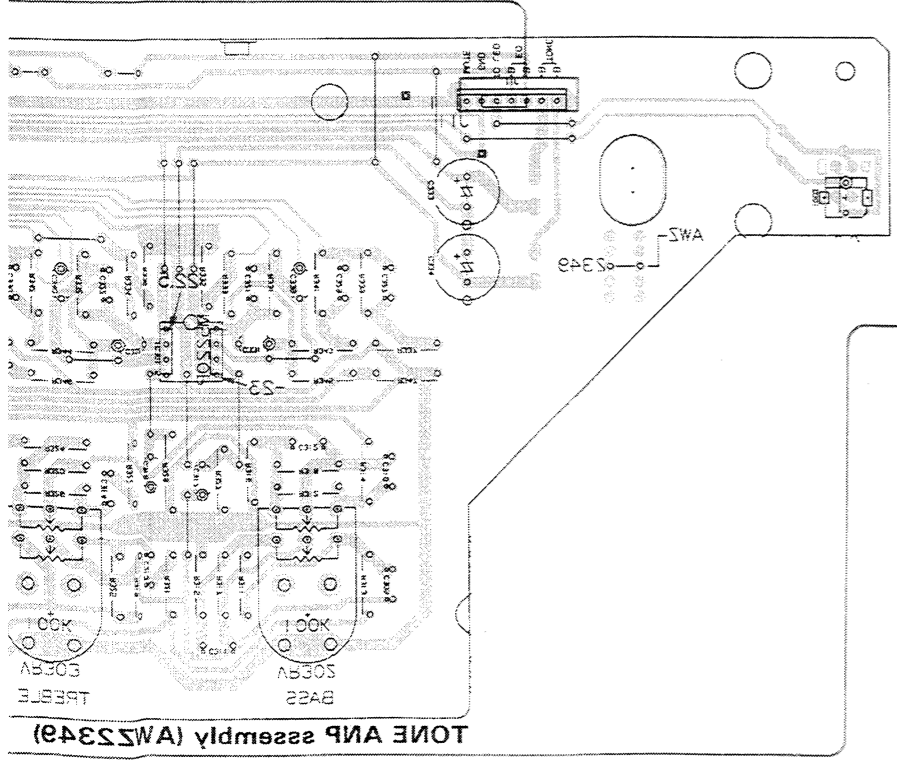
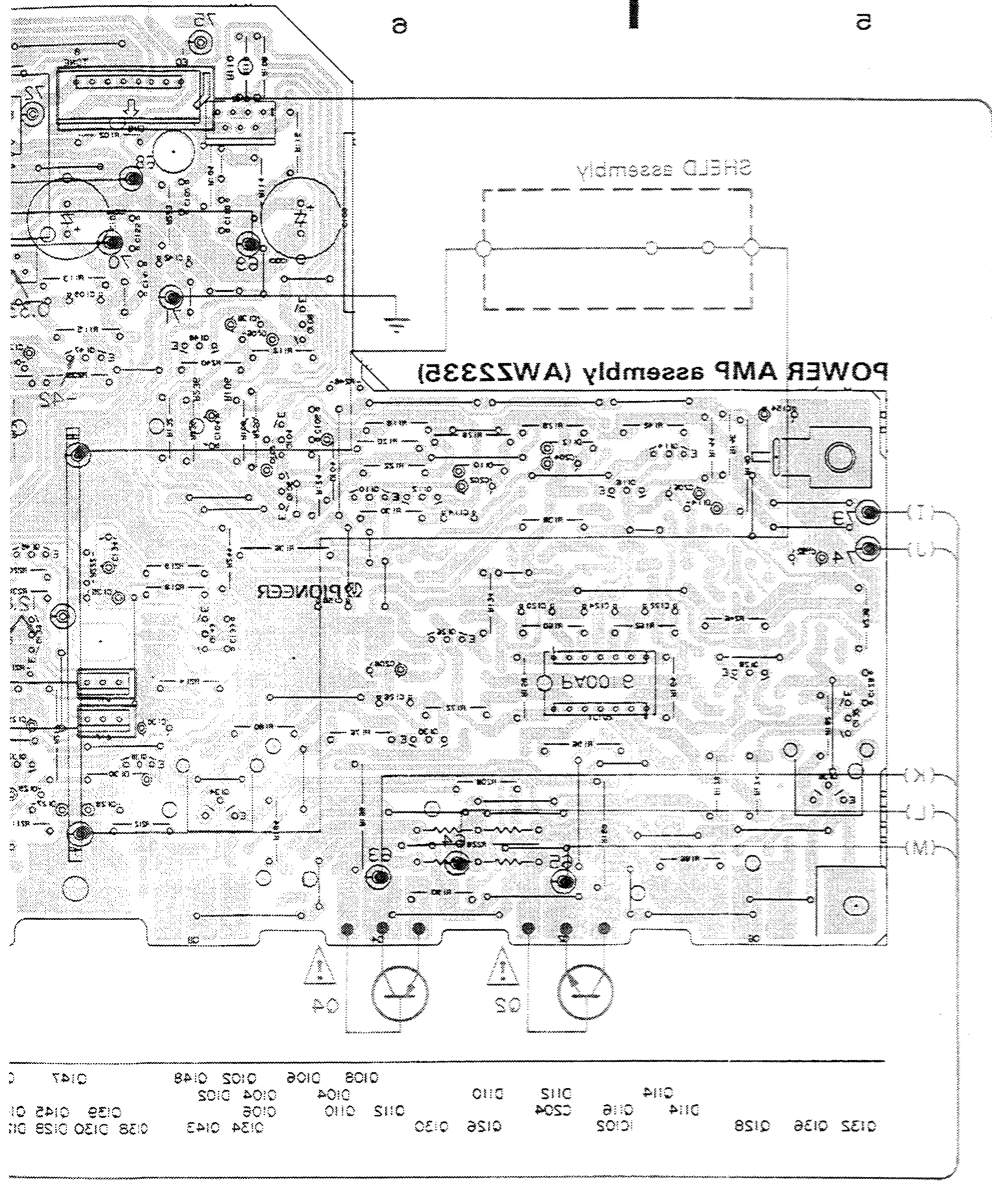
3. The capacitor terminal marked with ⊕ (double circles) shows negative terminal.
4. The diode terminal marked with ⊕ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.



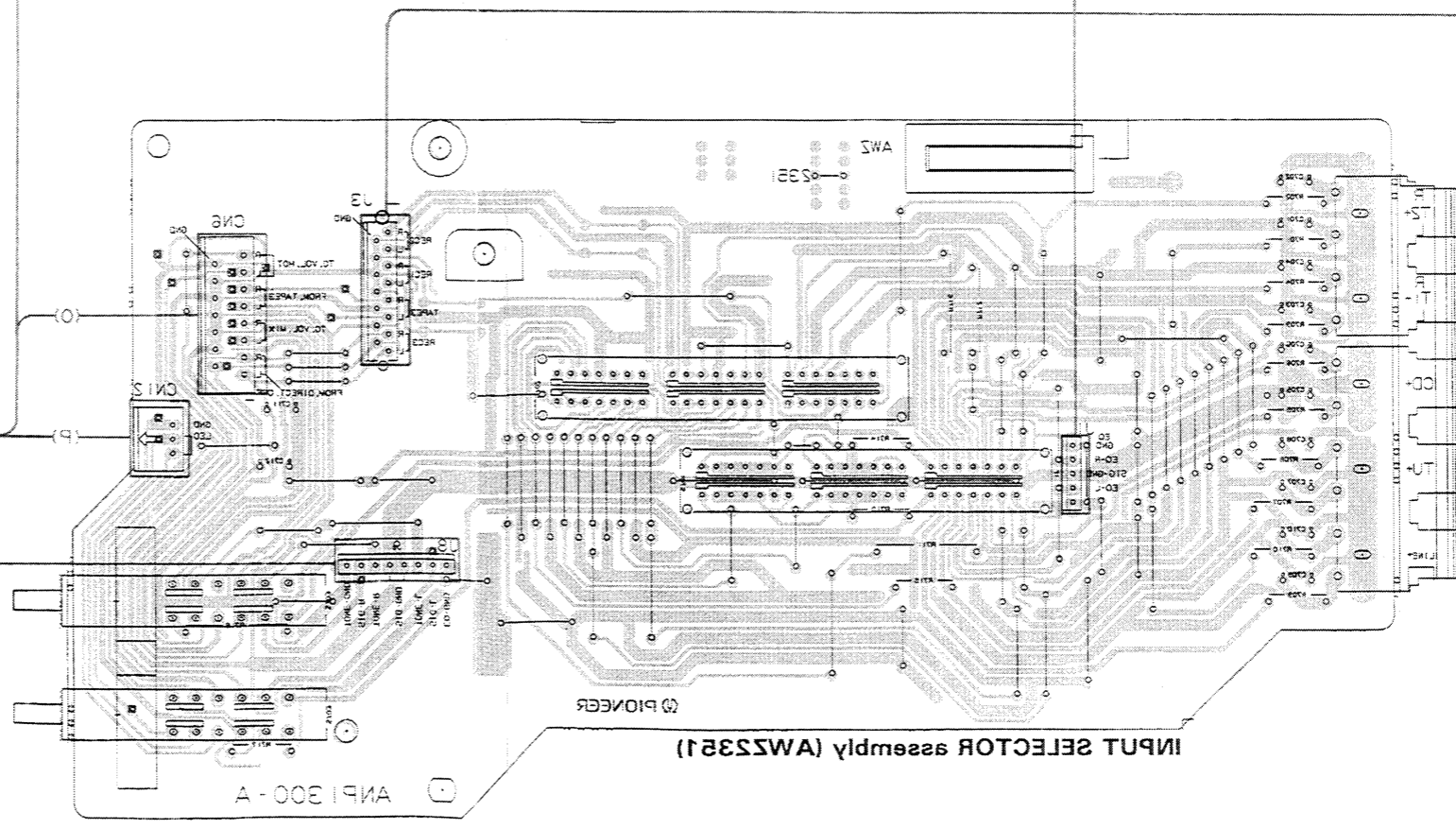
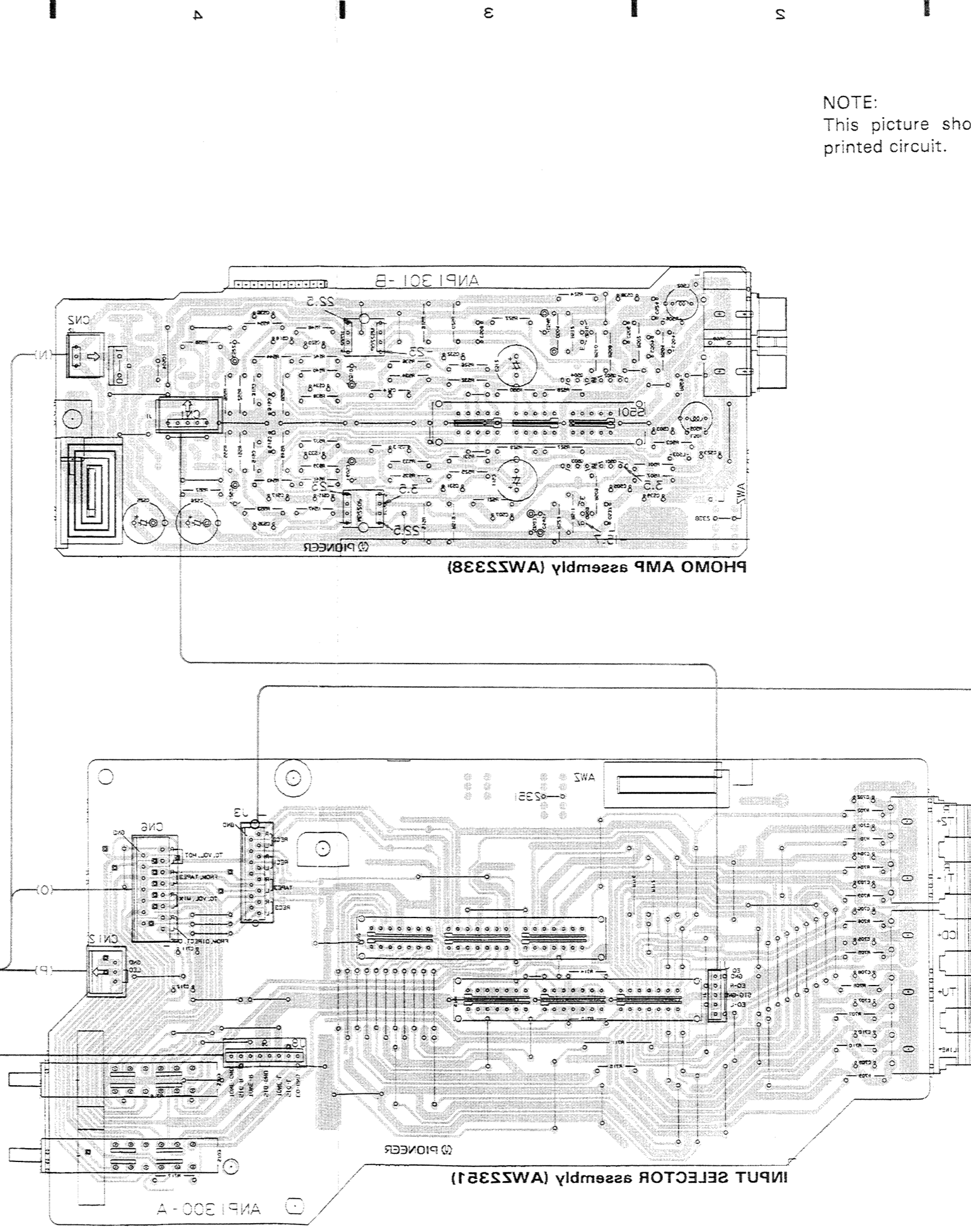


Q108	D106	Q102	Q148	Q147	Q101	Q105	Q107
Q104	Q104	D102			D101	Q103	
Q112	Q110	Q106	Q139	Q145	Q141	Q144	Q131
	Q134	Q143	Q138	D130	D128	D127	D129
			Q137	Q133	Q109	Q111	D109
					Q115	D113	
					IC101	Q127	Q131
						Q135	





0135 0136 0138
0139 0130 0143
0140 0141 0142
0143 0144 0145
0146 0147 0148
0149 0150 0151
0152 0153 0154
0155 0156 0157
0158 0159 0160
0161 0162 0163
0164 0165 0166
0167 0168 0169
0170 0171 0172
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0200 0201 0202
0203 0204 0205
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0215 0216 0217
0218 0219 0220
0221 0222 0223
0224 0225 0226
0227 0228 0229
0230 0231 0232
0233 0234 0235
0236 0237 0238
0239 0240 0241
0242 0243 0244
0245 0246 0247
0248 0249 0250
0251 0252 0253
0254 0255 0256
0257 0258 0259
0260 0261 0262
0263 0264 0265
0266 0267 0268
0269 0270 0271
0272 0273 0274
0275 0276 0277
0278 0279 0280
0281 0282 0283
0284 0285 0286
0287 0288 0289
0290 0291 0292
0293 0294 0295
0296 0297 0298
0299 0300 0301
0302 0303 0304
0305 0306 0307
0308 0309 0310
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0323 0324 0325
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0329 0330 0331
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0335 0336 0337
0338 0339 0340
0341 0342 0343
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0353 0354 0355
0356 0357 0358
0359 0360 0361
0362 0363 0364
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0368 0369 0370
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0374 0375 0376
0377 0378 0379
0380 0381 0382
0383 0384 0385
0386 0387 0388
0389 0390 0391
0392 0393 0394
0395 0396 0397
0398 0399 0400
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0758 0759 0760
0761 0762 0763
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0767 0768 0769
0770 0771 0772
0773 0774 0775
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0782 0783 0784
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0788 0789 0790
0791 0792 0793
0794 0795 0796
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0869 0870 0871
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0878 0879 0880
0881 0882 0883
0884 0885 0886
0887 0888 0889
0890 0891 0892
0893 0894 0895
0896 0897 0898
0899 0900 0901
0902 0903 0904
0905 0906 0907
0908 0909 0910
0911 0912 0913
0914 0915 0916
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0992 0993 0994
0995 0996 0997
0998 0999 1000



NOTE:
This picture shows the foil side of the printed circuit.

A
B
C
D

4. ELECTRICAL PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The Δ 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.
- 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 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560 Ω	56 $\times 10^1$	561.....	RD1/4PS	Δ	Δ	Δ	J
47k Ω	47 $\times 10^3$	473.....	RD1/4PS	Δ	Δ	Δ	J
0.5 Ω	0R5.....		RN2H	Δ	Δ	Δ	K
1 Ω	010.....		RS1P	Δ	Δ	Δ	K

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

5.62k Ω	562 $\times 10^1$	5621.....	RN1/4SR	Δ	Δ	Δ	F
----------------	-------------------	-----------	---------	----------	----------	----------	---

Miscellaneous parts

P.C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	SPEAKER SWITCH assembly	
	TONE AMP assembly	AWZ2349
	REC OUT assembly	
	INPUT SELECTOR assembly	AWZ2351
	HEAD PHONE assembly	
	POWER AMP assembly	AWZ2335
	POWER SUPPLY assembly	AWZ2336
	SPEAKER TERMINAL assembly	AWZ2337
	PHONO AMP assembly	AWZ2338
	SHELD assembly	

OTHERS

Mark	Symbol & Description	Part No.
Δ	Q3,Q4 Transistor	2SA1302
Δ	Q1,Q2 Transistor	2SC3281
Δ	FU1 Fuse (T2.5A/250V)	AEK-403
Δ	T1 Power transformer (AC220V/240V)	ATS1210
Δ	S1 Push switch (POWER)	ASG-552
	S3 Remote slide rotary switch	ASU1024
	S2 Remote slide rotaty switch	ASU1025
	S4 Remote slide rotary switch	ASU1026
Δ	C3 Electrolytic capacitor (12000 μ F/56)	ACH1043
	C1 Ceramic capacitor	CKDYB472K5C
	R2 Carbon film resistor	RD1/4PM220J
	R1 Carbon film resistor	RD1/4PM4R7J
Δ	AC Power cord	ADG1049
	Strain relief	AEC-882

SPEAKER SWITCH assembly SWITCH

Mark	Symbol & Description	Part No.
	S401 Rotary switch (SPEAKERS)	ASD1003

CAPACITORS

Mark	Symbol & Description	Part No.
	C401,C402	CEAS3R3M50

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/4PM $\square\square\square$ J

TONE ANP sssembly (AWZ2349)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC301	M5220P
	Q307,Q308	2SC1845
	D301,D305,D306 LED assembly	AEL1004
	D302 LED	AEL1084

SWITCHES

Mark	Symbol & Description	Part No.
	S301,S302 Push switch (TAPE 3, LOUDNESS)	ASG1019

CAPACITORS

Mark	Symbol & Description	Part No.
	C321,C322	CCCSL390J50
	C303,C304	CCCSL470J50
	C339,C340	CEAS100M25
	C333,C334	CEAS331M25
	C301,C302,C305,C306,C317	CEAS2R2M50
	C318	

Mark	Symbol & Description	Part No.
	C331,C332	CEAS470M25
	C329,C330	CFTXA104J50
	C309,C310	CFTXA153J50
	C315,C316	CFTXA183J50
	C311,C312,C327,C328	CFTXA823J50
	C313,C314	CQMA332K50

RESISTORS

Mark	Symbol & Description	Part No.
	VR301 (250k × 2)	ACT1053
	VR302,VR303 (100k × 2)	ACT1054
	Other resistors	RD1/4PM□□□J

**REC OUT assembly
CAPACITORS**

Mark	Symbol & Description	Part No.
	C803-C810	CKCYB331K50

RESISTORS

Mark	Symbol & Description	Part No.
	R803-R806	RD1/4PM182J
	R807-R810	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 4P (TAPE 1-3)	AKB1009

INPUT SELECTOR assembly (AWZ2351)

SWITCHES

Mark	Symbol & Description	Part No.
	S703 Push switch (LINE DIRECT)	ASG1032
	S701,S702 Remote slide switch (FUNCTION SEL., REC SEL)	ASU1016

CAPACITORS

Mark	Symbol & Description	Part No.
	C701-C710	CKCYB331K50
	C711,C712	CKCYB391K50

RESISTORS

Mark	Symbol & Description	Part No.
	R701-R718	RD1/4PM221J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 4P (TAPE 1, TAPE 2)	AKB1007
	Terminal 6P (CD, TUNER, LINE)	AKB1008

**HEAD PHONE assembly
CAPACITORS**

Mark	Symbol & Description	Part No.
	C951,C952	CKCYB392K50

OTHERS

Mark	Symbol & Description	Part No.
	Jack (HEAD PHONE)	AKN1002

**POWER AMP assembly (AWZ2335)
SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
	IC101,IC102	PA0016
	Q143	2SA1115
	Q125,Q126,Q131,Q132	2SA1145
	Q135,Q136	2SA1306
	Q113-Q116	2SA992
	Q145	2SC1815
	Q103-Q106,Q137,Q138,Q147, Q148	2SC1845
	Q107-Q112,Q139,Q141,Q144	2SC2458
	Q127-Q130	2SC2705
	Q133,Q134	2SC3298
	Q101,Q102	2SK389NK
	D131 Zener diode	RD12ESB
	D105,D106 Zener diode	RD7.5ESB3
	D101-D104,D109-D114	1SS252
	D127-D130	

CAPACITORS

Mark	Symbol & Description	Part No.
	C157,C158	CCCSL101 J50
	C125-C128	CCCSL101 K500
	C141,C142	CCCSL121 J50
	C123,C124,C155	CCCSL151 J50
	C101,C102	CCCSL221 J50
	C113,C114	CCCSL271 J50
	C119-C122	CCCSL680J50
	C135	CEASR47M100
	C129,C130	CEAS010M50
	C134	CEAS101M16
	C137,C138	CEAS221M16
	C131	CEAS471M6
	C103,C104	CEXA2R2M50
	C107,C108	CEYA471M25
	C105,C106	CKCYB122K50
	C133	CKCYF103Z50
	C213,C214	CKDYF102Z50
	C109,C110	CMA080J 500
	C151-C154	CQMXA162J100
	C201-C206	CKDYF103Z50

RESISTORS

Mark	Symbol & Description	Part No.
⚠	VR101	ACW1007
	R227,R228 (0.22 × 2)	ACN-146
	R243,R244	RDR1/4PM100J
	R247,R249	RD1/8PM101J
	R245	RD1/4PM100J
	R215,R221,R222,R248,R250	RD1/8PM□□□J
	R101-R104,R113-R116,R241, R242	RDR1/4PM□□□J
⚠	R171-R182,R187-R190,R207, R208,R217	RD1/4PMF□□□J
⚠	R125-R128,R133,R134, R139-R142,R183-R186, R195-R198,R237,R238	RFA1/4PS□□□J
	Other resistors	RD1/4PM□□□J

POWER SUPPLY assembly (AWZ2336)**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
	IC601	M5F78M24L
	IC602	M5F79M24L
	Q603	2SA1145
	Q608	2SA965
	Q607,Q609	2SC2235
	D607 Zener diode	RD18ESB
	D606 Zener diode	RD2.7ESB
	D617-D620 Zener diode	RD22ESB3
	D610,D611	S5566
	D608,D609,D616	1SS252
	D612-D615	30D2FC-2

COILS

Mark	Symbol & Description	Part No.
	L603,L604 Inductor (10mH)	LTA103J

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C617,C618 (0.01/400V)	ACG1003
	C607,C608	CEAS010M50
	C619,C620	CEAS100M50
	C605,C606	CEAS101M50
	C610	CEAS101M63
	C611	CEAS3R3M50
	C621,C623,C624	CEAS470M50
	C609	CKCYB471K50
	C625	CKCYB472K50
	C615	CQMXA104J100

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R612	RD1/4PMF560J
⚠	R611	RD1/4PMF560J
	R622,R614,R613	RD1/2PM□□□J
⚠	R609,R610	RFA1/4PS□□□J
⚠	R601,R602	RFA1/4PS4R7J
⚠	R605,R606	RS2LMF272J
	Other resistors	RD1/4PM□□□J

SPEAKER TERMINAL assembly (AWZ2337)**RELAYS**

Mark	Symbol & Description	Part No.
	RY901,RY902 Relay	ASR-112
	RY903 Relay	ASR1014

COILS

Mark	Symbol & Description	Part No.
	L901,L902 AF Choke coil (2.7μH)	ATH1021

CAPACITORS

Mark	Symbol & Description	Part No.
	C909,C910	CCDSL101K500
	C901-C904	CFTXA104J50
	C905-C908	CQMXA472J100

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R901,R902	RS1MF101J
⚠	R903,R904,R907,R908	RS2LMF□□□J

OTHER

Mark	Symbol & Description	Part No.
	Terminal 4P (SPEAKER)	AK11015

PHONO AMP assembly (AWZ2338)**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
	IC501,IC502	M5220P
	Q509,Q510	2SC2458
	Q501-Q504	2SK369
	D503,D504 Zener diode	RD1.5ESB2

SWITCH

Mark	Symbol & Description	Part No.
	S501 Remote slide switch (PHONO SEL.)	ASU1008

COILS

Mark	Symbol & Description	Part No.
	L501,L502 (270 μ H)	ATH1024
	L503,L504 Axial inductor (2.2 μ H)	LAU2R2M

CAPACITORS

Mark	Symbol & Description	Part No.
	C505,C506,C535,C536	CCCSL221J50
	C531,C532	CCCSL271J50
	C523,C524	CCCSL390J50
	C545,C546	CEAS470M10
	C525,C526	CEXA471M25
	C521,C522	CEXA220M25
	C511,C512	CEXA221M25
	C509,C510	CEXA470M25
	C503,C504	CFTXA103J50
	C513,C514,C517,C518	CFTXA224J50
	C515,C516	CFTXA333J50
	C519,C520	CFTXA563J50
	C507,C508	CKCYB222K50
	C533,C534	CKCYB681K50
	C537-C539	CKCYF103Z50

RESISTORS

Mark	Symbol & Description	Part No.
	R527-R530,R533,R534,R537, R538,R541,R542,R501-R504 R505,R506,R568,R569	RDR1/4PM□□□F RD1/8PM□□□J
	Other resistors	RD1/4PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 1P (PHONO L)	AKB1025
	Terminal 1P (PHONO R)	AKB1026

SHELD assembly

No parts are supplied with the SHELD assembly

Line Voltage Selection

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection of the power transformer primary pins.

Voltage	Power transformer PIN No.
220V	3
240V	5

4. Stick the line voltage label on the rear panel.

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

5. FOR HE, HB AND A-656-S/HEZ TYPES

5.1 CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts without part number cannot be supplied.
- The \triangle 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.

The A-656/HE, HB and A-656-S/HEZ types are the same as the A-656/HEZ type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		A-656/ HEZ type	A-656/ HE type	A-656/ HB type	A-656-S/ HEZ type	
	REC OUT assembly	Non supply	Non supply	Non supply	Non supply	
	INPUT SELECTOR assembly	AWZ2351	AWZ2459	AWZ2459	AWZ2351	
	HEAD PHONE assembly	Non supply	Non supply	Non supply	Non supply	
	POWER ANP assembly	AWZ2335	AWZ2454	AWZ2454	AWZ2335	
	POWER SUPPLY assembly	AWZ2336	AWZ2455	AWZ2455	AWZ2336	
	SPEAKER TERMINAL assembly	AWZ2337	AWZ2456	AWZ2456	AWZ2337	
	PHONO AMP assembly	AWZ2338	AWZ2457	AWZ2457	AWZ2338	
\triangle	FU1 Fuse (T2.5A/250V)	AEK-403	AEK-403	AEK-512	AEK-403	
	C1 Ceramic capacitor	CKDYB472K50	.....	.....	CKDYB472K50	
	R2 Carbon film resistor	RD1/4PM220J	.....	.....	RD1/4PM220J	
	R1 Carbon film resistor	RD1/4PM4R7J	.....	.....	RD1/4PM4R7J	
\triangle	AC Power cord	ADG1049	ADG1049	ADG1052	ADG1049	
	Earth screw	ABA1047	.....	.....	ABA1047	
	Operating instructions (German)	ARC1146	.....	.....	ARC1146	
	Operating instructions (English, French, Dutch, Italian, Nederlands, Svenska, Spanish, portuguese)	.....	ARE1126	.....	.....
	Operating instructions (English)	.....	.....	ARB1175	.....
	SCREW (BONNET)	FBT40P080FZK	FBT40P080FZK	FBT40P080FZK	FBT40P080FCR	
	Rotary knob L	AAB1107	AAB1107	AAB1107	AAB1110	
	Rotary knob M	AAB1108	AAB1108	AAB1108	AAB1112	
	Rotary knob S	AAB1109	AAB1109	AAB1109	AAB1111	
	Push knob	AAD1536	AAD1536	AAD1536	AAD1538	
	Direct knob	AAD1560	AAD1560	AAD1560	AAD1562	
	Power knob	AAD1561	AAD1561	AAD1561	AAD1563	
	Panel base	AMB1200	AMB1200	AMB1200	AMB1495	
	Front panel	ANB1295	ANB1295	ANB1295	ANB1296	
	Bonnet case	ANE1075	ANE1075	ANE1075	ANE1076	
	Pecking case	AHD1633	AHD1633	AHD1633	AHD1634	

REC OUT assembly

The REC OUT assembly (HE,HB types) is the same as the REC OUT assembly (HEZ type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HEZ type	HE, HB types	
	C803 - C810	CKCYB331K50	.....
	R803 - R806	RD1/4PM182J	RD1/4PM222J	
	R807, R808	RD1/8PM182J	RD1/8PM222J	
	R809, R810	RD1/8PM221J	.....

INPUT SELECTOR assembly (AWZ2459)

The INPUT SELECTOR assembly (AWZ2459) is the same as the INPUT SELECTOR assembly (AWZ2351) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2351	AWZ2459	
	C701 - C710	CKCYB331K50	.....
	R701 - R710	RD1/4PM221J	.....

HEAD PHONE assembly

The HEAD PHONE assembly (HE,HB types) is the same as the HEAD PHONE assembly (HEZ type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HEZ type	HE, HB types	
	C951, C952	CKCYB392K50	.....

POWER AMP assembly (AWZ2454)

The POWER AMP assembly (AWZ2454) is the same as the POWER AMP assembly (AWZ2335) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2335	AWZ2454	
	L101 - L104	.....	ATX1012	
	C105, C106	CKCYB122K50	CKCYB152K50	
	C109, C110	CMA080D500	CMA150J500	
	C111, C112	.....	CMA150J500	
	C141, C142	CCCSL121J50	.....
	C155	CCCSL151J50	.....
	C157, C158	CCCSL101J50	.....
	R123, R124	RD1/4PM560J	RD1/4PM101J	
	R245, R246	RD1/4PM100J	.....

POWER SUPPLY assembly (AWZ2455)

The POWER SUPPLY assembly (AWZ2455) is the same as the POWER SUPPLY assembly (AWZ2336) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2336	AWZ2455	
	C615 C625	CQMXA104J100 CKCYB472K50	ACG1005	

SPEAKER TERMINAL assembly (AWZ2456)

The SPEAKER TERMINAL assembly (AWZ2456) is the same as the SPEAKER TERMINAL assembly (AWZ2337) with the exception of the following sections.

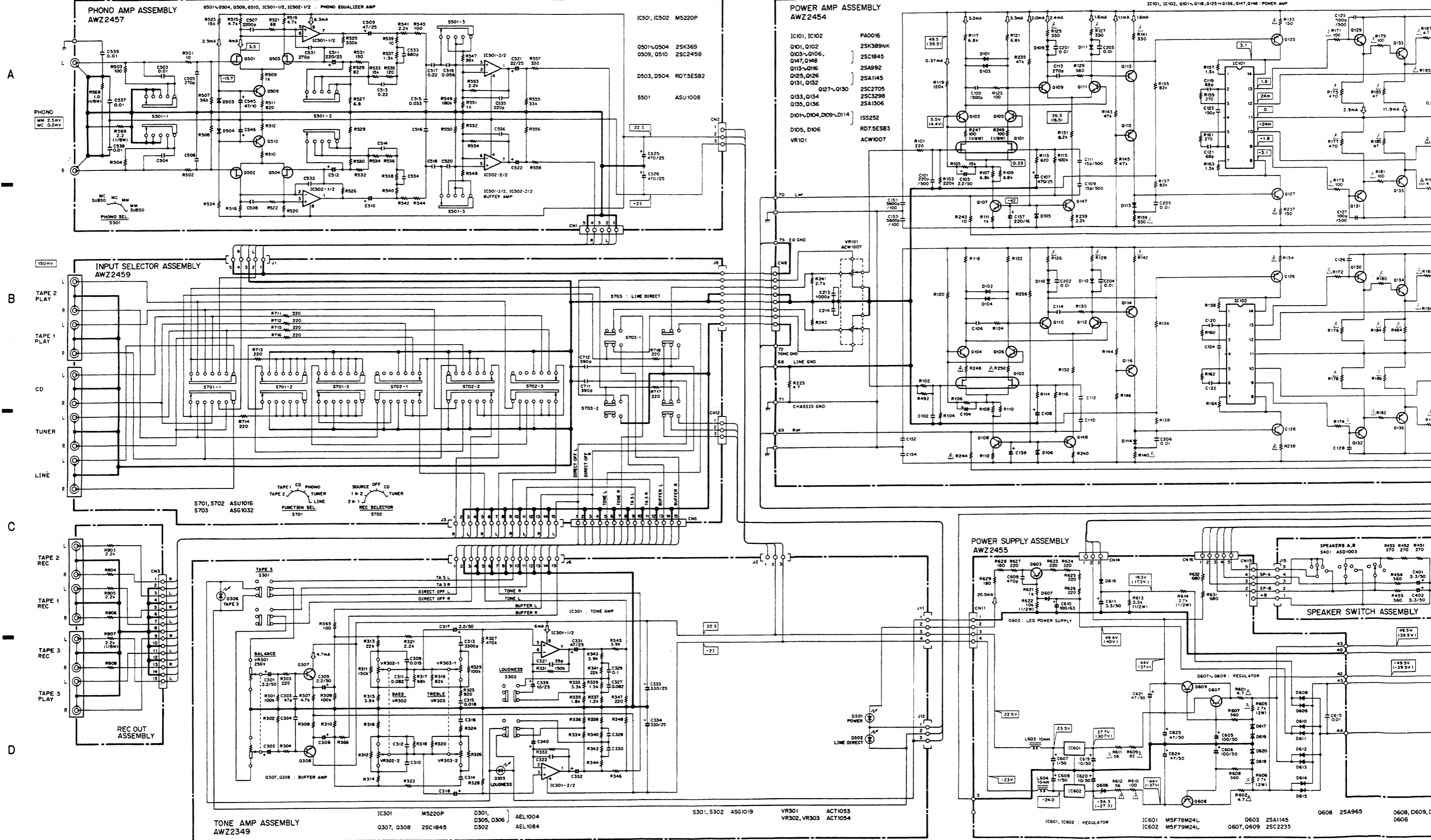
Mark	Symbol & Description	Part No.		Remarks
		AWZ2337	AWZ2456	
	C905 - C908 C909, C910 R901, R902 R905, R906	CQMXA472J100 CCDSL101K500 RS1LMF101J .....	..... ..... RS1LMF100J RS1PMF681J	

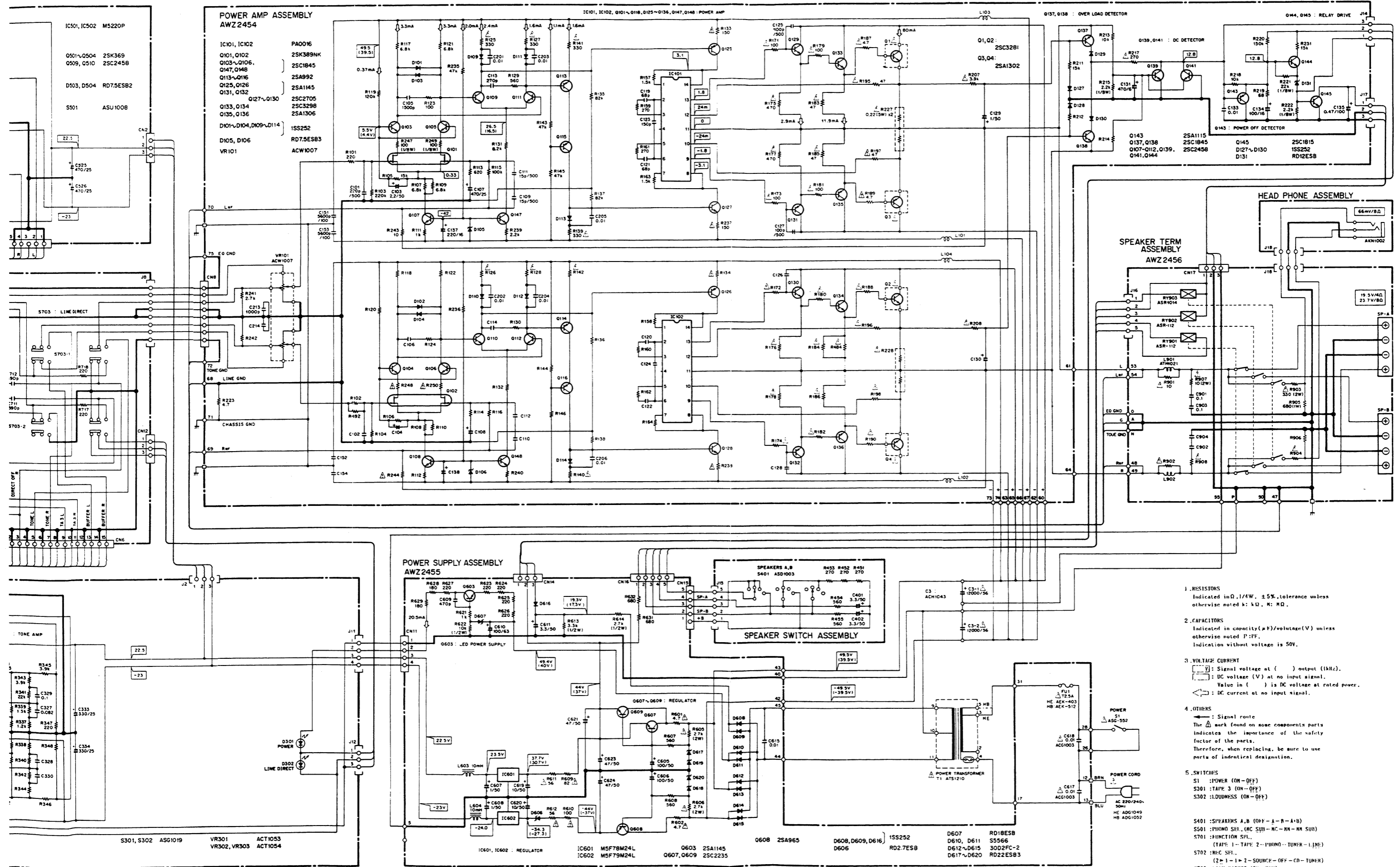
PHONO AMP assembly (AWZ2457)

The PHONO AMP assembly (AWZ2457) is the same as the PHONO AMP assembly (AWZ2338) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2338	AWZ2457	
	L501, L502 (560 μ H) L503, L504 (2.2 μ H) C505, C506 C523, C524 R505, R506	ATH1024 LAU2R2M CCCSSL221J50 CCCSSL390J50 RD1/8PM472J	..... ..... CCCSSL271J50	

5.2 SCHEMATIC DIAGRAM FOR HE AND HB TYPES





- IC501, IC502 M5220P
- Q501~Q504 25K369
- Q509, Q510 25C2458
- D503, D504 RD7.5ESB2
- S501 ASU100B

- IC101, IC102 PA0016
- Q101, Q102 25K389NK
- Q103~Q106 25C1845
- Q107, Q108 25A992
- Q115~Q116 25A1145
- Q125, Q126 25C2705
- Q131, Q132 25C3298
- Q133, Q134 25A1306
- Q135, Q136 1SS252
- D101~D104, D109~D114 RD7.5ESB3
- D105, D106 ACW1007
- VR101

- S301, S302 ASG1019
- VR301 ACT1053
- VR302, VR303 ACT1054

- IC601, IC602 : REGULATOR
- IC601 M5F78M24L
- IC602 M5F79M24L
- O603 25A1145
- O607, O609 25C2235
- O608 25A965
- D606, D609, D616 1SS252
- D607 RD18E58
- D610, D611 S5566
- D612~D615 30D2FC-2
- D617~D620 RD22E5B3

- RESISTORS**
Indicated in Ω, 1/W, 15% tolerance unless otherwise noted by kΩ, M, ΩD.
 - CAPACITORS**
Indicated in capacity (μF)/voltage (V) unless otherwise noted P:PF. Indication without voltage is 50V.
 - VOLTAGE CURRENT**
[Symbol] : Signal voltage at () output (kHz).
[Symbol] : DC voltage (V) at no input signal.
[Symbol] : Value in () is DC voltage at rated power.
[Symbol] : DC current at no input signal.
 - OTHERS**
[Symbol] : Signal route
[Symbol] : The mark found on some components parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
 - SWITCHES**
S1 : POWER (ON-OFF)
S301 : TUNE 3 (ON-OFF)
S302 : LOUDNESS (ON-OFF)
- S401 : SPEAKERS A, B (OFF - A - B - A + B)
S501 : PHONO SEL. (MC SUB - MC - MN - MN SUB)
S701 : FUNCTION SPL. (TUNE 1 - TUNE 2 - PHONO - TUNER - LINE)
S702 : MIC SEL. (2 - 1 - 2 - SOURCE - OFF - ON - TUNER)
S703 : LINE DIRECT (ON - OFF)

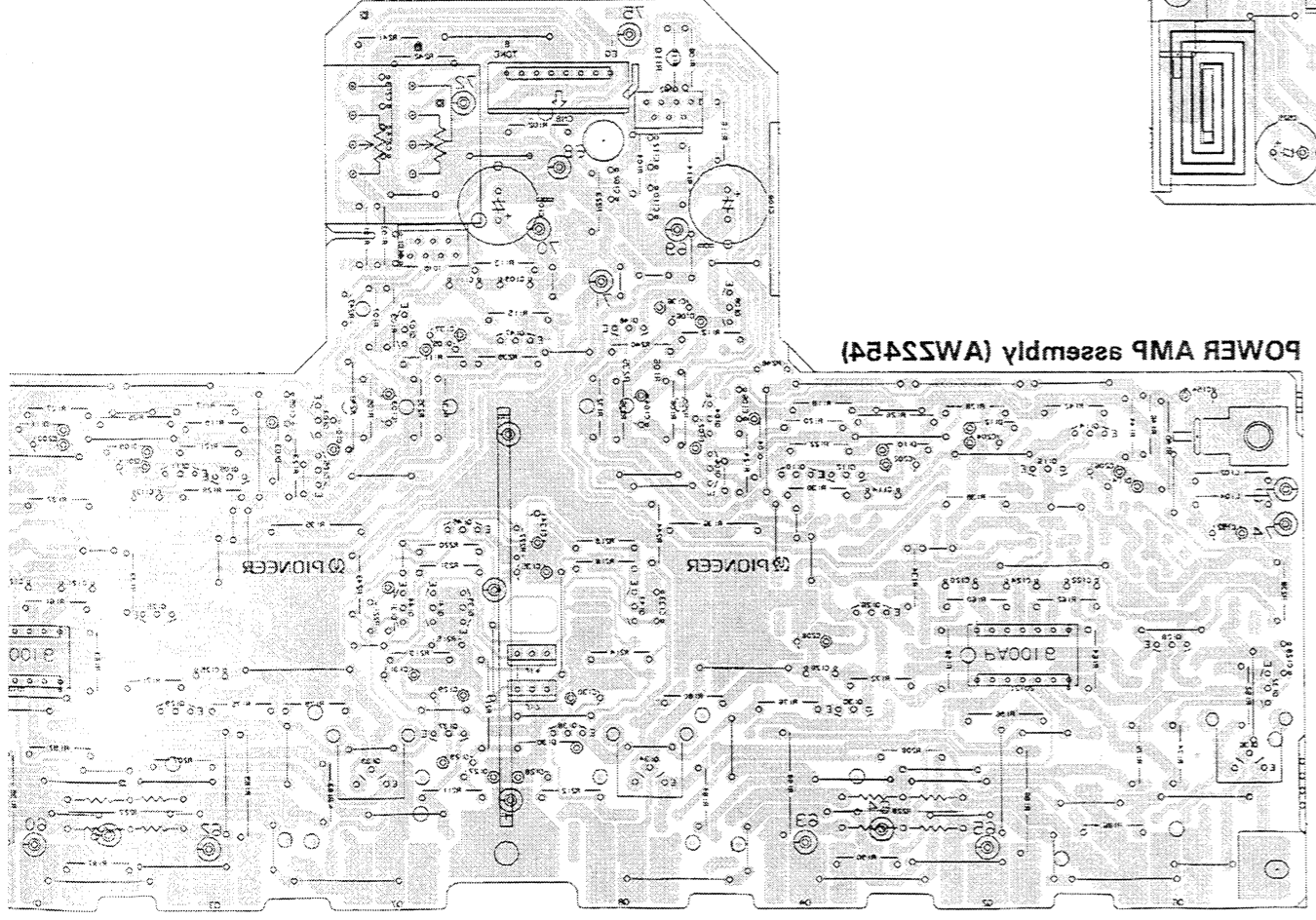
A

B

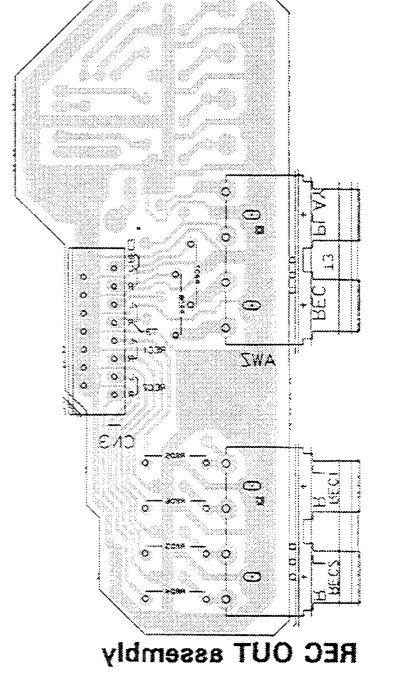
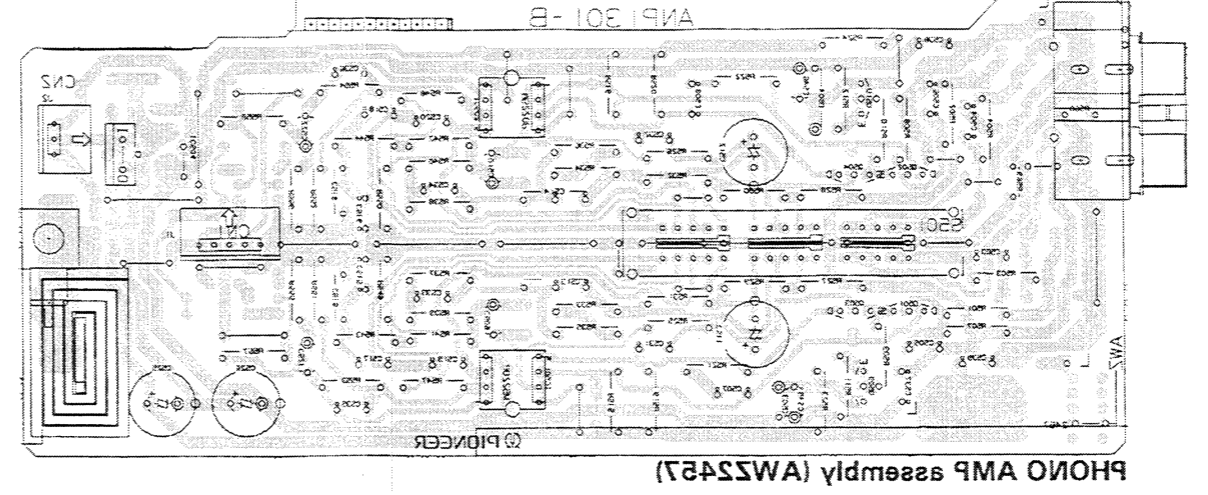
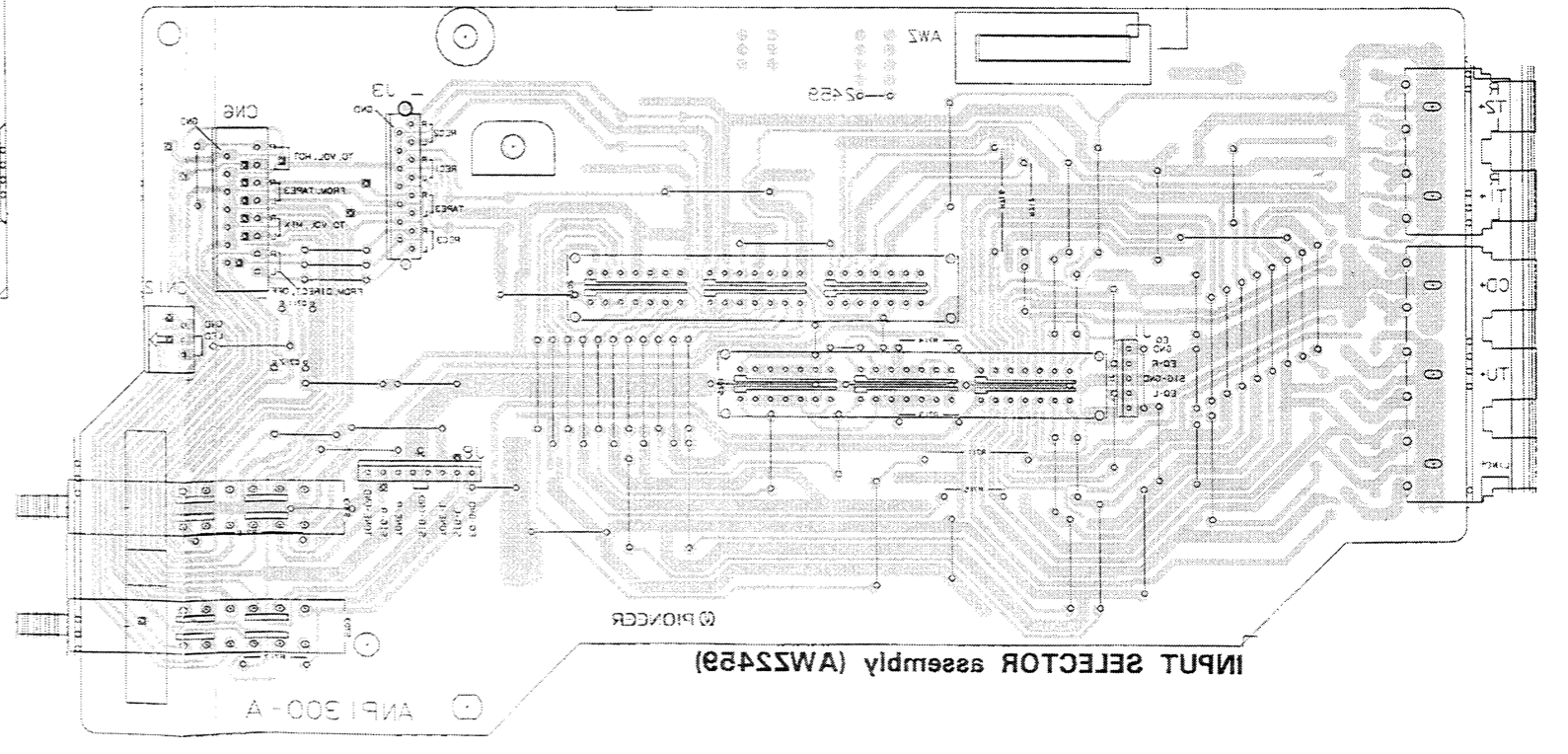
C

D

NOTE:
This picture shows the foil side of the printed circuit.



0135 0132 0158 0114 0118 0105 CS04 0115 0110 0108 0105 0148 0147 0101 0102 0107 0128 0130 0159 0151 0144 0121 0102 0103 0152 0153 0154 0155 0156 0157 0158 0159 0160 0161 0162 0163 0164 0165 0166 0167 0168 0169 0170 0171 0172 0173 0174 0175 0176 0177 0178 0179 0180 0181 0182 0183 0184 0185 0186 0187 0188 0189 0190 0191 0192 0193 0194 0195 0196 0197 0198 0199 0200



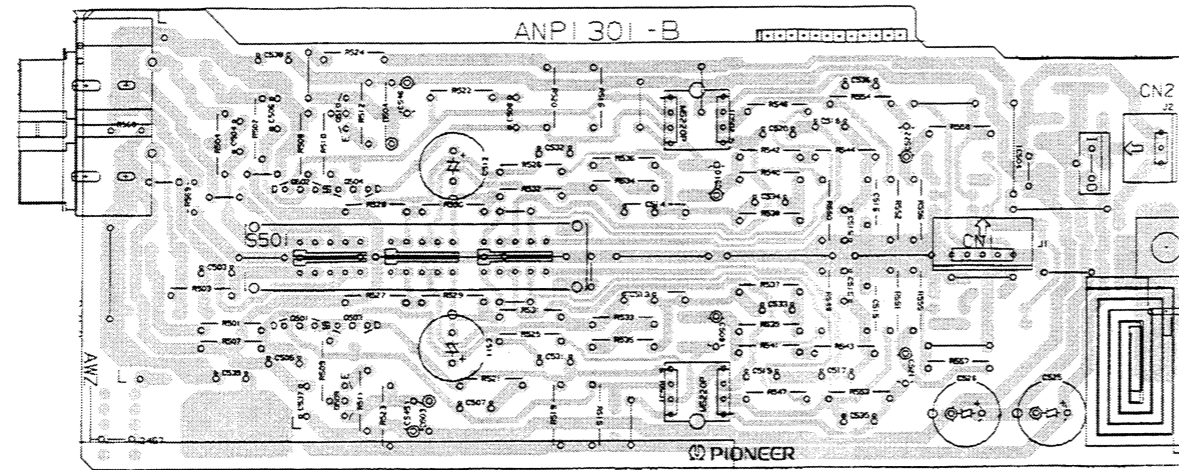
A
B
C
D

1
2
3
4
5
6

1
2
3
4
5
6

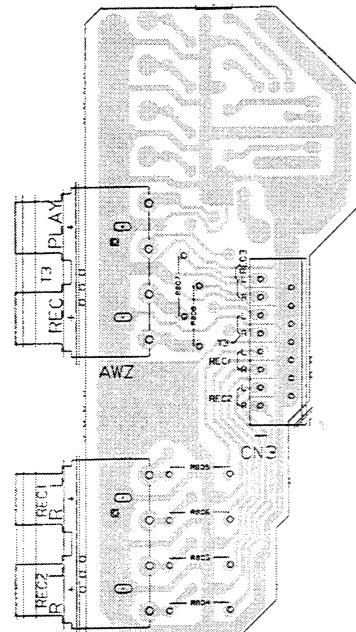
5.3 P.C.BOARD PATTERNS

A



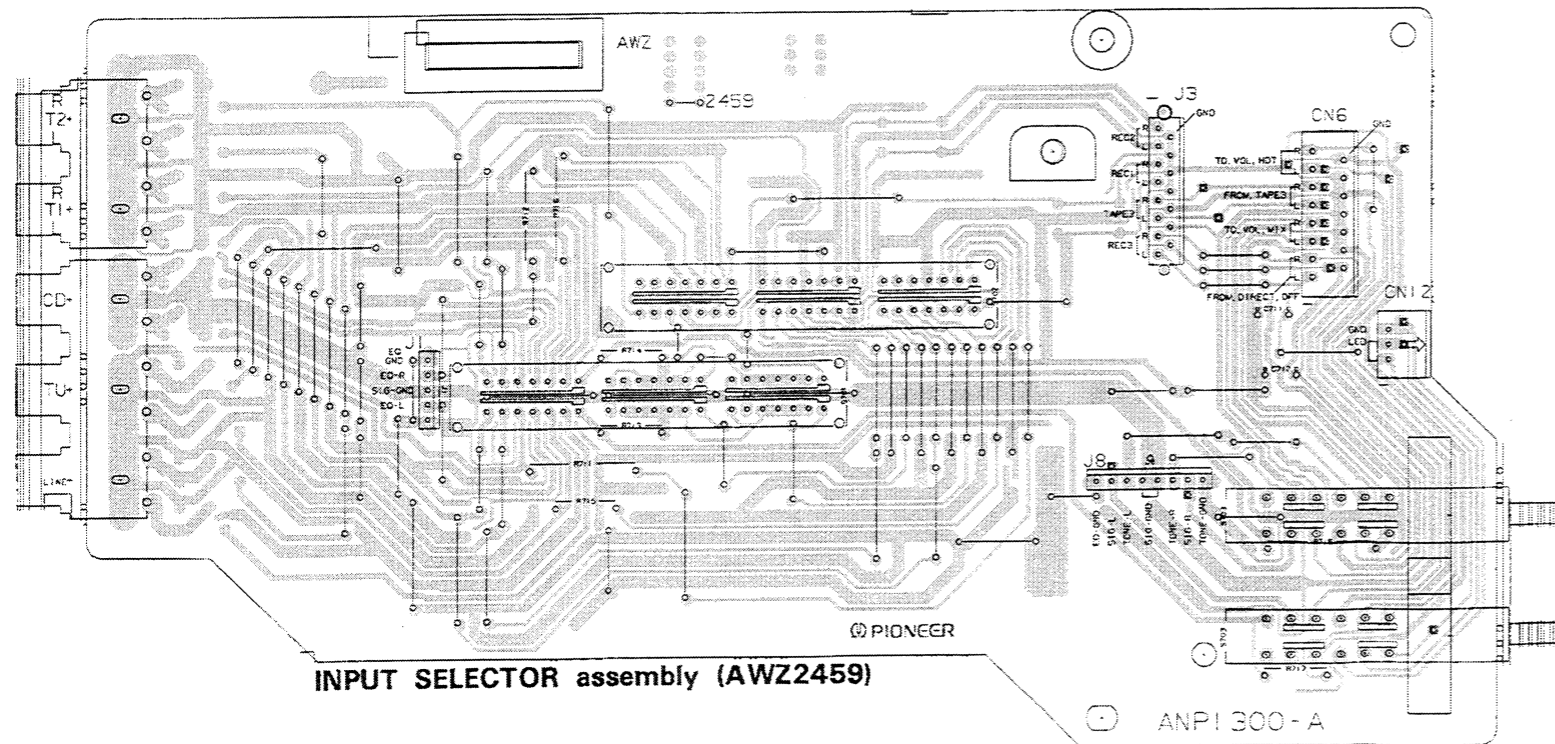
PHONO AMP assembly (AWZ2457)

B



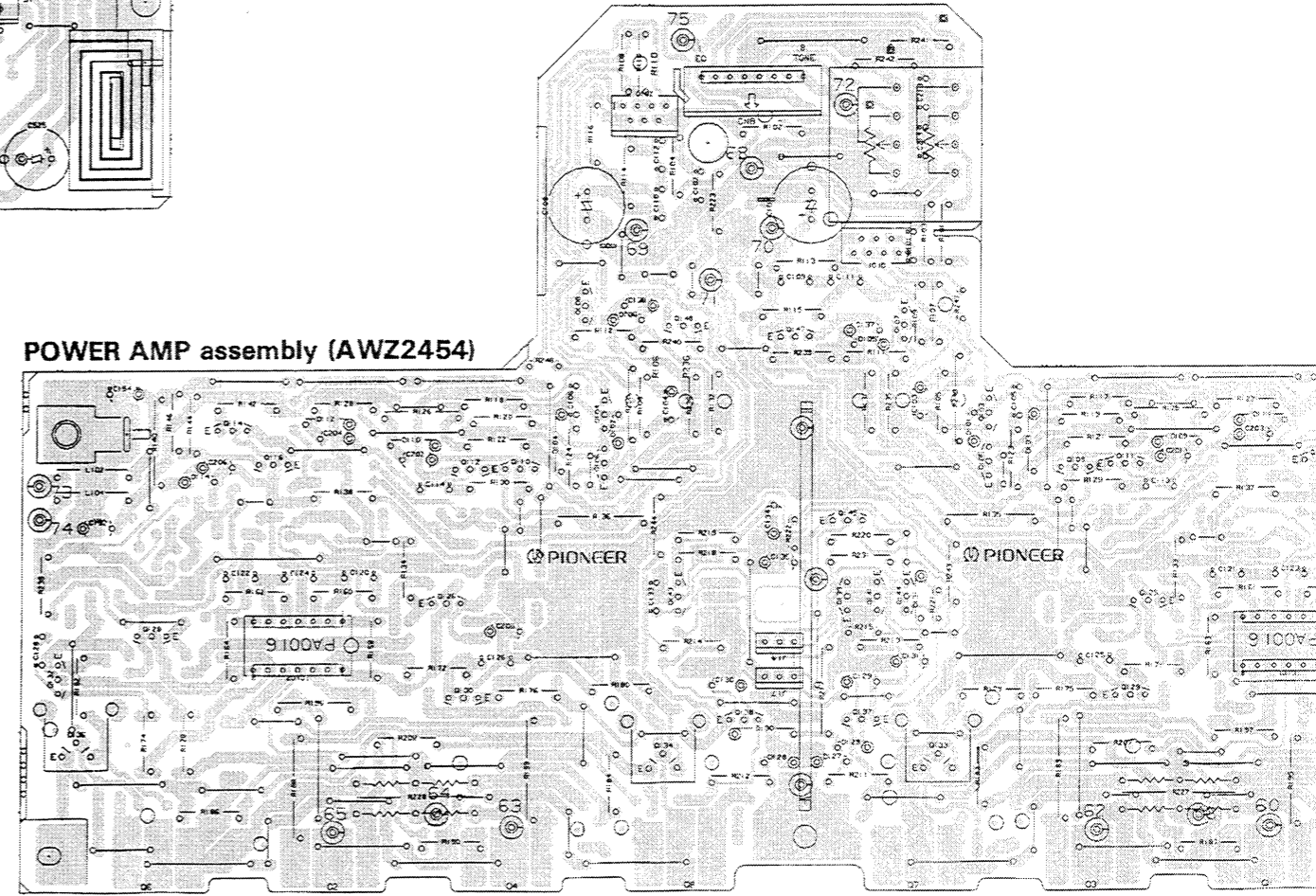
REC OUT assembly

C



INPUT SELECTOR assembly (AWZ2459)

POWER AMP assembly (AWZ2454)



Q132 Q136 Q126 Q114 Q116 IC102 Q112 Q110 Q126 Q130 Q108 Q106 Q104 Q102 Q104 Q102 Q108 Q106 Q102 Q148 Q147 Q101 Q105 Q107 Q101 Q103 Q105 Q103 Q109 Q111 Q109 Q138 Q130 Q128 Q127 Q129 Q137 Q133 Q134 Q143 Q139 Q145 Q141 Q144 Q131 Q129 Q125 Q111 Q1 IC101

D

1

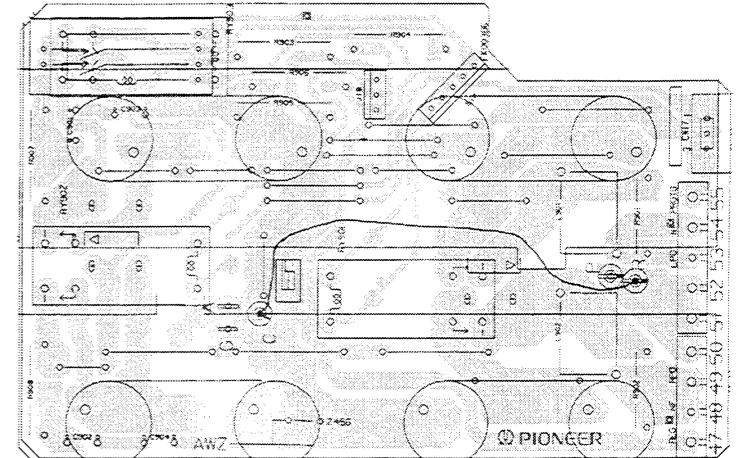
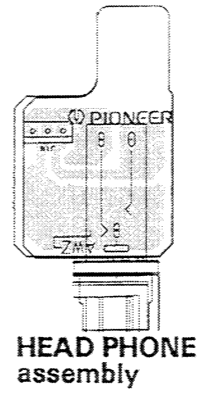
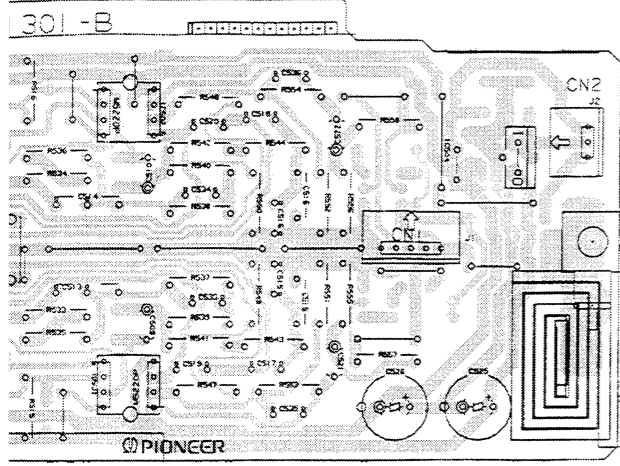
2

3

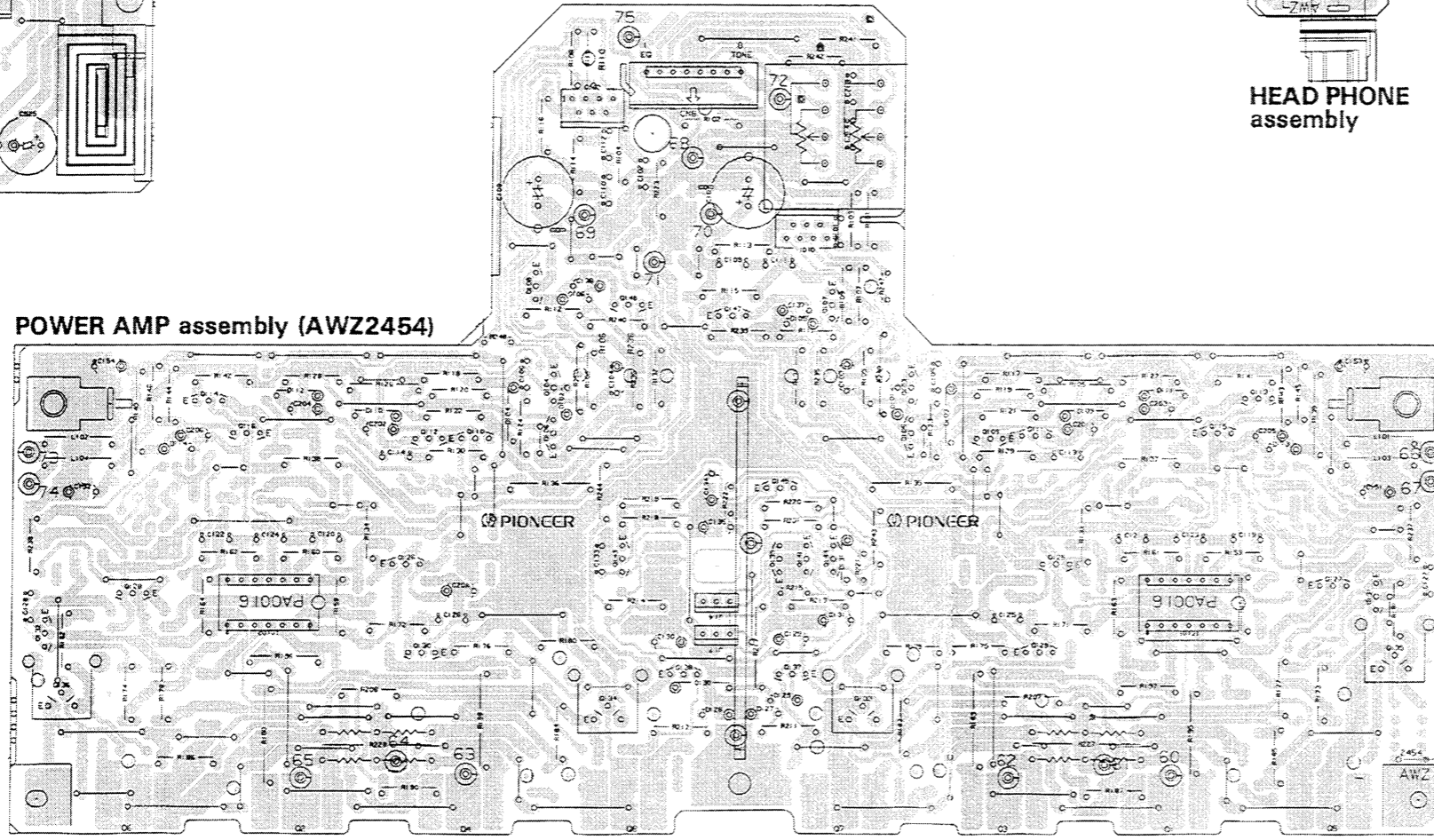
4

5

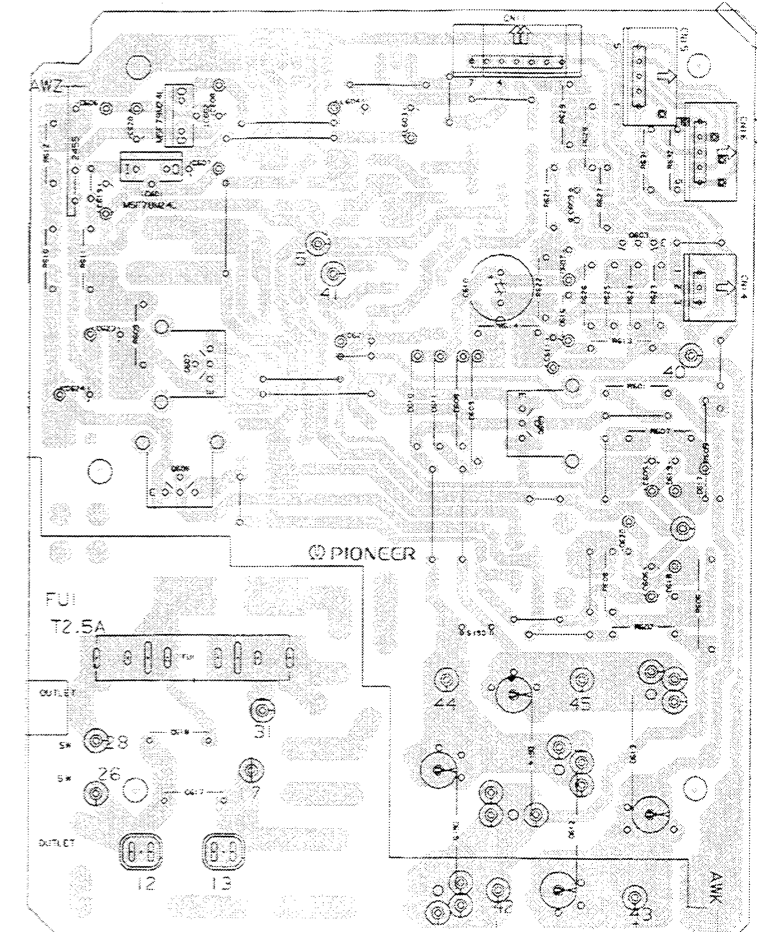
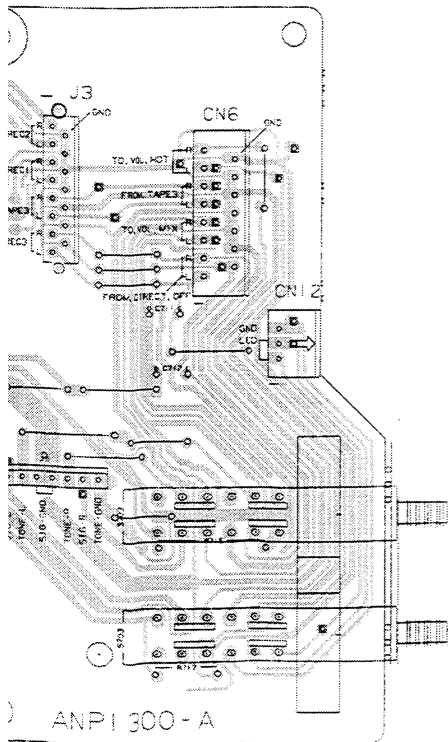
6



POWER AMP assembly (AWZ2454)



Q132	Q136	Q128	D114	Q116	D112	D110	Q108	D106	Q102	Q148	Q147	Q101	D105	Q107	D101	Q103	Q109	Q111	D109	D111	Q115	Q113	Q127	Q131	Q135
			C102		C204	Q126	Q112	Q110	Q106	Q143	Q139	Q145	Q141	Q144	Q131	Q105	D103	Q129	Q125		C101				



6. PANEL FACILITIES

The illustration shows model A-757.
Model A-656 is not equipped ⑦ and ⑬.

L'illustration montre le modèle A-757.
Le modèle A-656 n'est pas équipé des éléments ⑦ et ⑬.

Die Abbildung zeigt Modell A-757.
Modell A-656 ist nicht mit Bedienelementen ⑦ und ⑬
ausgestattet.

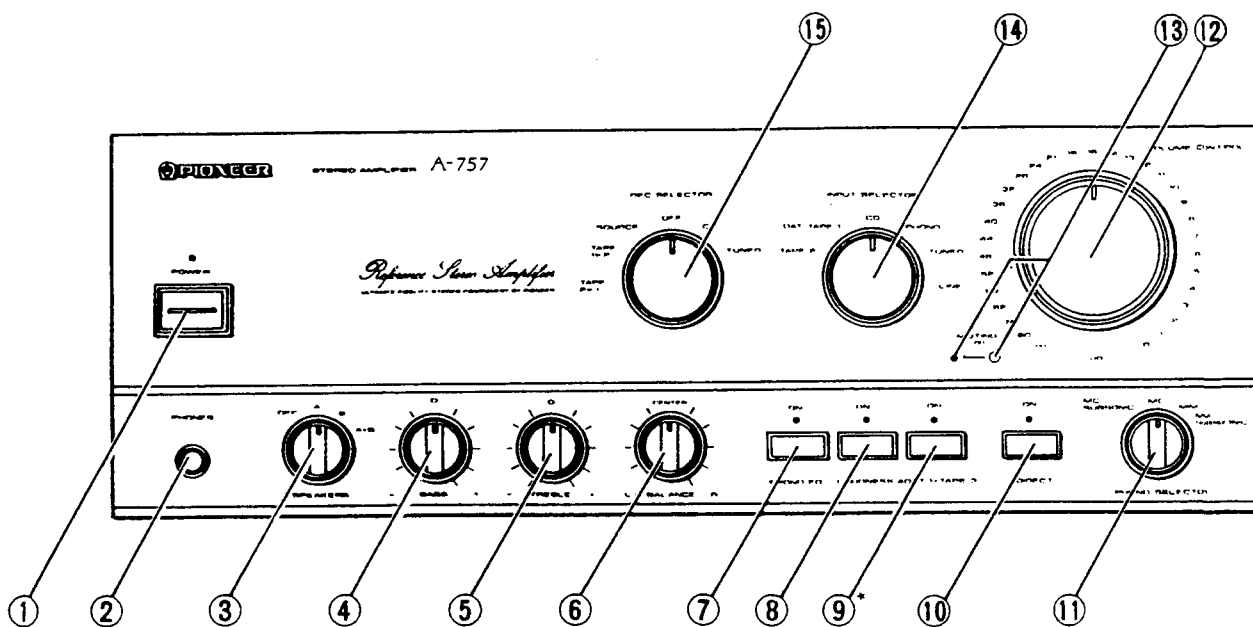
Il modello nell'illustrazione è l' A-757.
Il modello A-656 non possiede i No. ⑦ e ⑬.

De afbeelding toont model A-757.
Model A-656 is niet uitgerust met de bedieningsorganen
⑦ en ⑬.

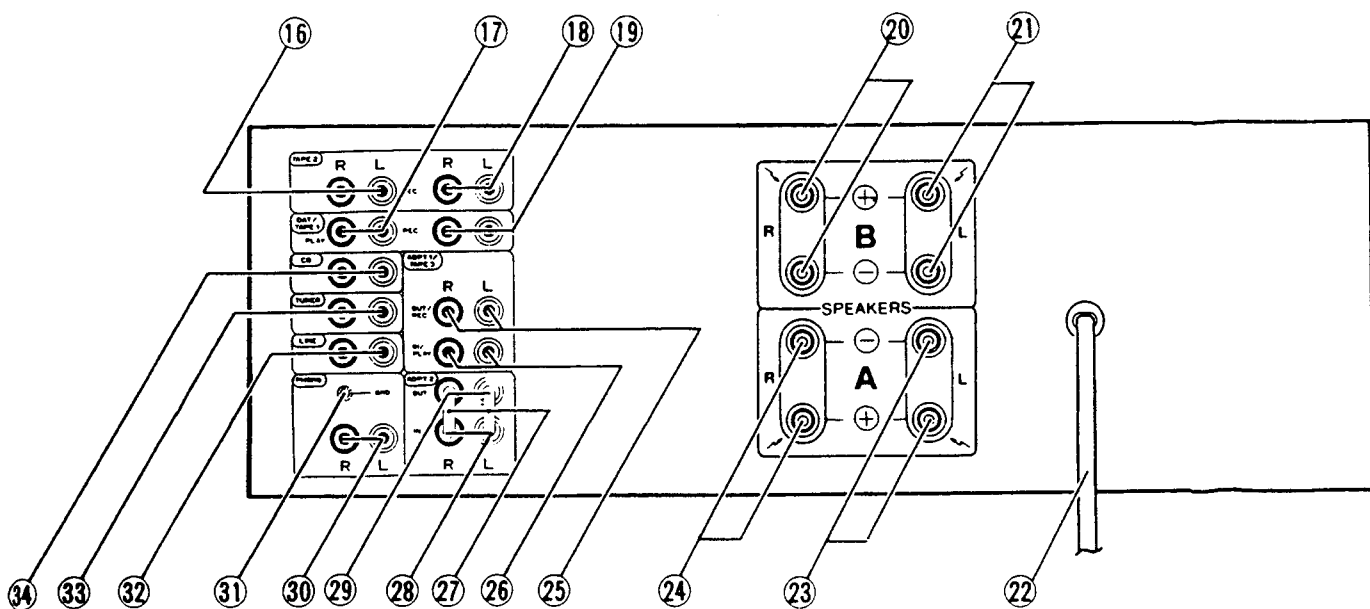
På bildeln visas modell A-757.
Modell A-656 saknar ⑦ och ⑬.

Il modello nell'illustrazione è l' A-757.
Il modello A-656 non possiede i No. ⑦ e ⑬.

Esta ilustração mostra o modelo A-757.
O modelo A-656 não possui os recursos ⑦ e ⑬.



* A-656 ...ADPT/TAPE 3
A-757 ...ADPT 1/TAPE 3



[FRONT PANEL]**① POWER switch/indicator**

Press to turn power to the unit ON and OFF.
When the power is ON, indicator lights.

② PHONES jack

When using headphones, insert the plug into this jack.

③ SPEAKERS selector switch

Use this switch to listen to the speaker systems connected to the SPEAKERS terminals.

OFF:

Released position: No sound is heard from the speaker system.
Set to this position when listening with headphones.

A:

For reproduction of sound with the speaker systems connected to the SPEAKERS A terminals.

B:

For reproduction of sound with the speaker systems connected to the SPEAKERS B terminals.

A + B:

For reproduction of sound with the speaker systems connected to SPEAKERS A and B terminals.

④ BASS tone control

Use to adjust the low-frequency tone at 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.

NOTE:

This function does not operate when the DIRECT switch is in the ON position.

⑤ TREBLE tone control

Use to adjust the high-frequency tone at 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.

NOTE:

This function does not operate when the DIRECT switch is in the ON position.

⑥ BALANCE control

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

NOTE:

This function does not operate when the DIRECT switch is in the ON position.

⑦ PHONO EQ switch/indicator (A-757 only)

When not using a phono input, turn the phono equalizer power circuit off in order to prevent it from collecting noise during playback of other sources.

ON:

The indicator lights: Always set to this position when using a phono input. Immediately after turning ON, audio signal will be muted for several seconds until circuit operation becomes stable.

OFF:

The indicator goes off: Set to this position when not using a phono input.

⑧ LOUDNESS switch/indicator

Use when listening at low volume levels.

ON:

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

OFF:

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

NOTE:

This switch does not operate when the DIRECT switch is in the ON position.

⑨ ADPT 1/TAPE 3 switch/indicator (ADPT/TAPE 3 switch in the A-656)

Use this switch to listen to tape playback, or to listen to the sounds being recorded during tape recording.

ON:

The indicator lights: Press when listening to the playback sound of the tape deck or the adaptor connected to the ADPT 1/TAPE 3 IN/PLAY terminals, or to monitor the sound being recorded on the tape deck connected to the ADPT 1/TAPE 3 OUT/REC terminals.

OFF:

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

NOTE:

When the DIRECT switch is set to ON, this function does not operate and no signal is output at the ADPT 1/TAPE 3 OUT/REC terminals.

⑩ DIRECT switch/indicator

Use this switch when you do not wish to pass the output from input terminal equipment through the various frequency adjusting circuits and adaptor terminals (ADPT 1/TAPE 3, ADPT 2, BASS, TREBLE, BALANCE, LOUDNESS).

ON:

When the switch is in this position, the indicator lights and the signals input from the input terminals 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 switch is in this position the indicator goes out and the signal passes through the various frequency adjusting circuits.

⑪ PHONO SELECTOR switch

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

MM:

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:

Set to this position when using a moving coil cartridge.

MM SUBSONIC/MC SUBSONIC:

Subsonic filter for moving coil or moving magnet cartridges to cut ultralow frequency noise less than 17 Hz generated when playing a warped record.

When using a high-output moving coil cartridge, set this switch to MM or MM SUBSONIC.

⑫ VOLUME CONTROL

Use to adjust volume level.

NOTE:

This unit is equipped with a circuit that attenuates the effect of tone and loudness controls at volume is turned up.

⑬ MUTING switch/indicator (A-757 only)

Use to temporarily cut sound volume.

ON:

The indicator lights. The sound volume will be cut off.

OFF:

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

⑭ INPUT SELECTOR switch

Use to select playback source.

LINE:

Set to this position when listening to the programs from a component connected to the LINE terminals.

TUNER:

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

PHONO:

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

CD:

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

DAT/TAPE 1:

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

TAPE 2:

For playback with a tape deck connected to the TAPE 2 terminals.

⑮ REC SELECTOR switch

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

TUNER:

To record from a TUNER.

CD:

To record from a CD player.

OFF:

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

SOURCE:

To record the equipment selected by INPUT SELECTOR switch.

TAPE:

1 ► 2

To record (copy) from the tape deck of DAT/TAPE 1 terminals, over to the tape deck of TAPE 2 terminals.

2 ► 1

To record (copy) from the tape deck of TAPE 2 terminals, over to the tape deck of DAT/TAPE 1 terminals.

NOTE:

The REC SELECTOR switch has no effect on the recording output of the ADPT 1/TAPE 3 terminals.

[REAR PANEL]

⑮ TAPE 2 PLAY terminals.

⑰ DAT/TAPE 1 PLAY terminals.

⑱ TAPE 2 REC terminals.

⑲ DAT/TAPE 1 REC terminals.

⑳ SPEAKERS B terminals (right channel).

㉑ SPEAKERS B terminals (left channel).

㉒ Power cord.

Connect this cord to an AC wall socket, or the AC outlet of an audio timer.

㉓ SPEAKERS A terminals (left channel).

㉔ SPEAKERS A terminals (right channel).

㉕ ADPT 1/TAPE 3 OUT/REC terminals.

ADPT/TAPE 3 OUT/REC terminals. (A-656 only).

㉖ ADPT 1/TAPE 3 IN/PLAY terminals.

ADPT/TAPE 3 IN/PLAY terminals. (A-656 only).

㉗ Shorting bars. (A-757 only).

㉘ ADPT 2 IN terminals. (A-757 only).

㉙ ADPT 2 OUT terminals. (A-757 only).

㉚ PHONO terminals.

㉛ Turntable ground terminal (GND).

㉜ LINE terminals.

㉝ TUNER terminals.

㉞ CD terminals.

7. SPECIFICASIONS

[A-656]

Continuous power output (both channels driven at 20 Hz to 20 kHz) **	
T.H.D. 0.005%, 8 Ω	70W + 70W *
T.H.D. 0.008%, 4 Ω	95W + 95W *
DIN continuous power output (both channels driven)	
1 kHz, T.H.D. 1%, 8 Ω	80W + 80W
1 kHz, T.H.D. 1%, 4 Ω	120W + 120W
Power bandwidth	
0.05%, 8 Ω	5 Hz – 80 kHz *
Damping factor	
(1 kHz/20 Hz to 20 kHz), 8 Ω	200/70
Dynamic power output (on EIA dynamic test signal)	
4 Ω / 2 Ω	150W/190W
Total harmonic distortion **	
20 Hz to 20 kHz, 70W, 8 Ω	0.005% *
20 Hz to 20 kHz, 95W, 4 Ω	0.008% *
Inter-modulation distortion (at rated output)	0.005% *
Input sensitivity/impedance	
PHONO (MM)	2.5 mV/50 k Ω
PHONO (MC)	0.2 mV/100 Ω
CD, TUNER, LINE, TAPE	150 mV/50 k Ω
PHONO overload level	
1 kHz, T.H.D. 0.008% (MM/MC)	200 mV/19 mV
Output level/impedance	
TAPE REC	150 mV/2.2 k Ω
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 150 kHz)	+0 -3 dB *

Tone control (volume control set at -40 dB position)	
BASS	± 8 dB (100 Hz)
TREBLE	± 8 dB (10 kHz)
Loudness contour (volume control set at -40 dB position)	
.....	+5 dB (100 Hz)/+3 dB (10 kHz)
Filter (SUBSONIC)	17 Hz (12 dB/oct.)
Signal-to-Noise ratio (IHF short circuit, A network)	
PHONO (MM, 5 mV input/MC, 0.5 mV input)	95 dB/77 dB *
CD, TUNER, LINE, TAPE	110 dB *
Signal-to-Noise ratio (DIN, continuous power/50 mW)	
PHONO (MM)	74 dB/65 dB *
CD, TUNER, LINE, TAPE	92 dB/68 dB *

Power Supply/Miscellaneous

Power requirements	a.c.220 Volts ~, 50/60 Hz
Power consumption	650W
Dimensions	420 (W) × 435 (D) × 162 (H) mm
Weight (without package)	13.5 kg

Accessories

Operating instructions	1
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NOTE:

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

* Measured with the DIRECT switch set to ON.

** Measured by Audio Spectrum Analyzer.