

# Service Manual

**PIONEER®**  
The Art of Entertainment

ORDER NO.  
ARP2215

STEREO AMPLIFIER

# A-449

# A-449-S

# A-339

# A-339-S

**A-449, A-449-S, A-339 AND A-339-S HAVE THE FOLLOWING :**

Type	Model				Power Requirement	Remarks
	A-449	A-449-S	A-339	A-339-S		
KU	—	—	○	—	AC120V only	
HE	○	—	○	—	AC220-230V, 240V(switchable)*	
HEWZ	○	○	○	○	AC220-230V, 240V(switchable)*	
SD	○	—	○	—	AC110V,120V-127V, 220V, 240V(switchable)	
KC	○	—	—	—	AC120V only	

\* Change the primary wiring.

- Refer to the service manual ARP2043, A-447/HE and A-337/HE.
- This manual is applicable to the A-449/HE, HEWZ, SD, KC, A-449-S/HEWZ, A-339/KU, HE, HEWZ, SD, and A-339-S/HEWZ types.
- The A-449-S is the same as the A-449 except for color.
- The A-339-S is the same as the A-339 except for color.

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# 1. FOR A-449/HE, HEWZ, SD, KC AND A-449-S/HEWZ TYPES

## 1.1 CONTRAST OF MISCELLANEOUS PARTS

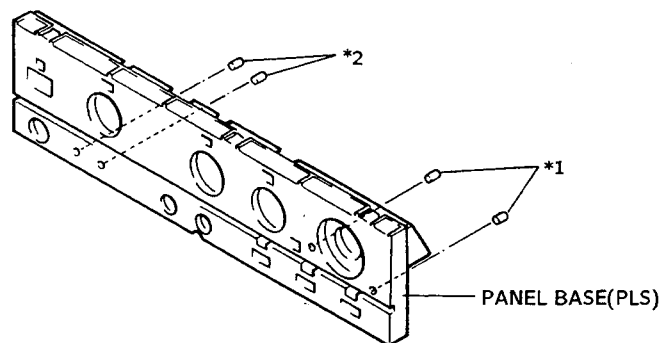
### NOTES:

- 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 △ 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.

The A-449/HE, HEWZ, SD, KC and A-449-S/HEWZ types are the same as the A-447/HE type with the exception of the following sections.

Mark	Symbol & Description	Part No.						Remarks
		A-447/HE	A-449/HE	A-449/SD	A-449/KC	A-449/HEWZ	A-449S/HEWZ	
⊙	AF COMPLEX assembly HEAD PHONE assembly POWER SW assembly	AWZ2861 Non supply Non supply	AWZ3628 Non supply Non supply	AWZ3628 Non supply Non supply	AWZ3628 Non supply Non supply	AWZ3627 Non supply Non supply	AWZ3627 Non supply Non supply	
△	AC power cord	ADG1049	ADG1049	ADG1051	ADG1058	ADG1049	ADG1049	
△	Fuse (FU1 T2.5A)	AEK-403	AEK-512	.....	.....	AEK-512	AEK-512	
△	Fuse (FU1 T5A)	.....	.....	.....	AEK-308	.....	.....	
△	Fuse (FU1, FU2 2.5A)	.....	.....	AEK-123	.....	.....	.....	
△	Power transformer(T1)	ATS1277	ATS1346	ATS1289	ATS1288	ATS1346	ATS1346	
	Resistors(R1, R2)	.....	.....	.....	.....	RD1/4PM100J	RD1/4PM100J	
	Resistor (R3)	.....	RD1/4PM010J	RD1/4PM010J	RD1/4PM010J	RD1/4PM010J	RD1/4PM010J	
△	AC socket(OUTLET 3P)	.....	.....	AKP-515	AKP-515	.....	.....	
△	Voltage selector (S3)	.....	.....	AKX-507	.....	.....	.....	
	Strain relief	AEC-882	AEC-882	AEC-882	AEP-113	AEC-882	AEC-882	
	Screw	BBT30P060FZK	BBT30P060FZK	BBT30P060FZK	BBT30P060FZK	BBT30P060FZK	ABA-274	
	Rotary knob S (PLS)	AAB1155	AAB1155	AAB1155	AAB1155	AAB1155	AAB1238	
	Rotary knob L (PLS)	AAB1160	AAB1160	AAB1160	AAB1160	AAB1160	AAB1161	
	Rotary knob R (PLS)	AAB1162	AAB1162	AAB1162	AAB1162	AAB1162	AAB1163	
	Rotary knob M (PLS)	AAB1164	AAB1164	AAB1164	AAB1164	AAB1164	AAB1167	
	Push knob C	AAD1366	AAD1366	AAD1366	AAD1366	AAD1366	AAD1367	*1
	Push knob C	AAD1803	AAD1366	AAD1366	AAD1366	AAD1366	AAD1367	*2
	Push knob	AAD1536	AAD1536	AAD1536	AAD1536	AAD1536	AAD1538	
	Knob (POWER)	AAD1535	AAD1984	AAD1984	AAD1984	AAD1984	AAD2040	
	Packing case	AHD1861	AHD2073	AHD2073	AHD2097	AHD2073	AHD2074	
	Insulator assembly	AMR2140	AMR2140	AMR2140	AMR2141	AMR2140	AMR2140	
	Front panel	ANB1395	ANB1458	ANB1458	ANB1458	ANB1458	ANB1459	
	Bonnet case	AZN1799	AZN1799	AZN1799	AZN1799	AZN1799	AZN1800	
	Panel base (PLS)	AMB1651	AMB1651	AMB1651	AMB1651	AMB1651	AMB1652	
	Operating instructions (English, French, German, Italian, Swedish, Dutch, Spanish, Portuguese)	ARE1162	ARE1196	.....	.....	.....	.....	
	Operating instructions (German)	.....	.....	ARC1271	.....	ARC1270	ARC1270	
	Operating instructions (English, French)	.....	.....	ARE1197	ARE1197	.....	.....	

\*1, \*2: Push knob C are assembled as shown below.



## 1.2 P.C.B's 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  $\Delta$  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 $\Omega$	56 $\times 10^1$	561	RD1/4PS	5	6	1	J
47k $\Omega$	47 $\times 10^3$	473	RD1/4PS	4	7	3	J
0.5 $\Omega$	0R5		RD2H	0	R	5	K
1 $\Omega$	010		RD1P	0	1	0	K

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

5.62k $\Omega$	562 $\times 10^1$	5621	RD1/4SR	5	6	2	1	F
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### 1.2.1 For A-449/HE, SD and KC types

Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
<b>HEADPHONE ASSEMBLY</b>			Q301,Q302	TRANSISTOR	2SC1845
<b>SWITCHES</b>			Q303,Q304	TRANSISTOR	2SC2458
	S801 PUSH SWITCH	SUL5L2B2S	Q305	TRANSISTOR	2SA1048
<b>RESISTORS</b>			Q306	TRANSISTOR	2SC1815
$\Delta$	R801,R802 METAL OXIDE RESISTOR	RS1PMF331J	Q307	TRANSISTOR	2SC2458
$\Delta$	R803 METAL OXIDE RESISTOR	RS1LMF681J	D101,D102	ZENER DIODE	RD7.5ESB2
<b>OTHERS</b>			D103	DIODE	1SS252
	JACK	AKN1002	D201,D202	ZENER DIODE	RD2.7ESB1
<b>POWER SW ASSEMBLY</b>			D209-D216	DIODE	1SS252
<b>SWITCHES</b>			D217-D220	ZENER DIODE	RD15ESB
	S501 PUSH SWITCH	ASG1035	D301-D306	DIODE	1SS252
<b>CAPACITORS</b>			D307	ZENER DIODE	RD22ESB
$\Delta$	C510,C511 CKA (0.01/AC400V)	ACG1002	D503,D504	ZENER DIODE	RD18ESB1
<b>●AF COMPLEX ASSEMBLY (AWZ3628)</b>			D505,D506	DIODE	11E2
<b>SEMICONDUCTORS</b>			D507	DIODE	D5SB20F
	IC101 IC	UPC4570C	<b>SWITCHES</b>		
Q101-Q104	N-FET	2SK369	S101	PUSH SWITCH	ASG1012
Q105,Q016	TRANSISTOR	2SC2458	S701	SWITCH	ASU1016
Q203-Q208	TRANSISTOR	2SA1048	S702	SWITCH	ASU1002
Q211,Q212	TRANSISTOR	2SC1845	S703	PUSH SWITCH	SULL6S
Q215-Q218	TRANSISTOR	2SA1048	<b>COIL</b>		
Q219,Q220	TRANSISTOR	2SC2705	L401,L402	COIL	ATH1009
Q221,Q222	TRANSISTOR	2SC3298	<b>CAPACITORS</b>		
Q223,Q224	TRANSISTOR	2SA1306	C101,C102	AUDIO FILM CAPACITOR	CFTXA103J50
Q225,Q226	TRANSISTOR	2SC2603	C103,C104	CERAMIC CAPACITOR	CCCSL221J50
Q227,Q228	TRANSISTOR	2SC1845	C105,C106	CERAMIC CAPACITOR	CKCYB472K50
Q229,Q230	TRANSISTOR	2SA992	C107,C108	ELECTROLYTIC CAPACIT	CEXA101M25
Q231,Q232	TRANSISTOR	2SA1145	C109,C110	AUDIO FILM CAPACITOR	CFTXA683J50
Q233,Q234	TRANSISTOR	2SA992	C111,C112	AUDIO FILM CAPACITOR	CFTXA183J50
Q237	TRANSISTOR	2SC1845	C113,C114	ELECTR.CAPACITOR	CEANP220M10
Q238	TRANSISTOR	2SA992	C117,C118	ELECTROLYTIC CAPACIT	CEXA221M25
Q291-Q294	TRANSISTOR	2SA992	C119,C120	CERAMIC CAPACITOR	CKCYF103Z50
			C121,C122	MYLOR FILM CAPACITOR	CQMA122J50

Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
	C135,C136 ELECTR.CAPACITOR	CEAS470M10	△	R239-R242 FUSIBLE RESISTOR	RFA1/4PS101J
	C143,C144 MYLOR FILM CAPACITOR	CQMA472K50	△	R243,R244 CARBON FILM RESISTOR	RD1/4PMF561J
	C201,C202 ELECTROLYTIC CAPACIT	CEEA2R2M50	△	R245-R248 FUSIBLE RESISTOR	RFA1/4PS101J
	C203,C204 CERAMIC CAPACITOR	CCCSL101K500		R249-R252 CARBON FILM RESISTOR	RD1/4PM□□□J
	C205,C206 CERAMIC CAPACITOR	CCCSL101J50		R255,R256 CARBON FILM RESISTOR	RD1/4PM561J
	C207,C208 CERAMIC CAPACITOR	CCCSL470J50	△	R257-R260 FUSIBLE RESISTOR	RFA1/4PS101J
	C209,C210 CERAMIC CAPACITOR	CCCSL181J50	△	R261-R264 FUSIBLE RESISTOR	RFA1/4PS470J
	C211,C212 ELECTROLYTIC CAPACIT	CEEA221M16	△	R265-R268 FUSIBLE RESISTOR	RFA1/4PS4R7J
	C213,C214 CERAMIC CAPACITOR	CCCSL120K500	△	R269,R270 RESISTOR (0.33, 5W)	ACN1063
	C215,C216 CERAMIC CAPACITOR	CCCSL120K500	△	R275-R278 CARBON FILM RESISTOR	RD1/4PM□□□J
	C217,C218 ELECTR.CAPACITOR	CEAS101M10	△	R281-R284 FUSIBLE RESISTOR	RFA1/4PS331J
	C219,C220 ELECTR.CAPACITOR	CEAS3R3M100	△	R285,R286 FUSIBLE RESISTOR	RFA1/4PS101J
	C221,C222 ELECTR.CAPACITOR	CEAS3R3M100	△	R287,R288 CARBON FILM RESISTOR	RD1/4PMF4R7J
	C225,C226 ELECTR.CAPACITOR	CEAS331M10	△	R289,R290 FUSIBLE RESISTOR	RFA1/4PS101J
	C227-C230 CERAMIC CAPACITOR	CCCSL330K500		R299 CARBON FILM RESISTOR	RD1/4PM100J
	C231,C232 CERAMIC CAPACITOR	CKCYB122K50	△	R301,R302 CARBON FILM RESISTOR	RD1/4PMF222J
	C233-C236 ELECTR.CAPACITOR	CEAS100M50	△	R308 CARBON FILM RESISTOR	RD1/4PMF101J
	C237,C238 ELECTR.CAPACITOR	CEAS101M50		R311-R315 CARBON FILM RESISTOR	RD1/4PM□□□J
	C247,C248 AUDIO FILM CAPACITOR	CFTXA103J50		R317-R327 CARBON FILM RESISTOR	RD1/4PM□□□J
	C251,C252 CERAMIC CAPACITOR	CCCSL330K500	△	R330 CARBON FILM RESISTOR	RD1/4PMF010J
	C253,C254 CERAMIC CAPACITOR	CCCSL330K500	△	R401,R402 CARBON FILM RESISTOR	RD1/4PMFL100J
	C255 CERAMIC CAPACITOR	CCCSL680J50	△	R403,R404 METAL OXIDE RESISTOR	RS1LMF331J
	C256 CERAMIC CAPACITOR	CCDSL470J50	△	R407,R408 CARBON FILM RESISTOR	RD1/4PMFL100J
	C301,C302 ELECTR.CAPACITOR	CEANP2R2M50	△	R501,R502 METAL OXIDE RESISTOR	RS1PMF121J
	C303 ELECTROLYTIC CAPACIT	CEAS471M6	△	R503,R504 METAL OXIDE RESISTOR	RS1LMF121J
	C304 CERAMIC CAPACITOR	CKCYF103Z50	△	R505,R506 METAL OXIDE RESISTOR	RS1PMF121J
	C305 ELECTR.CAPACITOR	CEAS101M25	△	R507,R508 CARBON FILM RESISTOR	RD1/4PMF010J
	C306-C308 ELECTR.CAPACITOR	CEASR47M50	△	R509,R510 METAL OXIDE RESISTOR	RS1LMF72J
	C401-C404 AUDIO FILM CAPACITOR	CFTXA104J50		R513-R515 CARBON FILM RESISTOR	RD1/4PM272J
	C501,C502 ELECTR.CAPACITOR	CEAS100M50		R516 CARBON FILM RESISTOR	RD1/4PMFL272J
	C503,C504 ELECTR.CAPACITOR	CEAS470M25	△	R517-R520 METAL OXIDE RESISTOR	RS1PMF010J
	C505 ELECTROLYTIC CAPACIT	ACH1196		R731,R732 CARBON FILM RESISTOR	RD1/4PM103J
	C506 ELECTROLYTIC CAPACIT	ACH1078		VR201,VR202 VR	ACP1045
	C508 ELECTR.CAPACITOR	CEAS470M50		VR701 VARIABLE(100K-20AX2)	ACT1062
	C509 ELECTR.CAPACITOR	CEAS220M50		Other resistors	RD1/8PM□□□J
	C719,C720 CERAMIC CAPACITOR	CKCYB331K50		<b>OTHERS</b>	
	C725,C731 CERAMIC CAPACITOR	CKCYF103Z50		PIN JACK(4P)	AKB1007
	C733,C734 CERAMIC CAPACITOR	CKDYF102Z50		PIN JACK(6P)	AKB1008
				PIN JACK(6P)	AKB1024
				SPEAKER TERMINAL 8-P	AKE1011
				CN4 CONNECTOR(15P)	KPE15
				CN9 JUMPER CONNECTOR	KPC8
				RY301,RY302 RELAY	ASR1037
				RY303 RELAY	ASR1038
<b>RESISTORS</b>					
	R101,R102 CARBON FILM RESISTOR	RDR1/6PU101J			
	R105-R108 CARBON FILM RESISTOR	RDR1/6PU□□□J			
	R119-R122 CARBON FILM RESISTOR	RDR1/4PM□□□J			
	R133,R134 CARBON FILM RESISTOR	RDR1/6PU391J			
	R143,R144 CARBON FILM RESISTOR	RD1/4PM560J			
	R201-R204 CARBON FILM RESISTOR	RDR1/4PM□□□J			
	R205-R214 CARBON FILM RESISTER	RD1/4PM□□□J			
	R215-R218 CARBON FILM RESISTOR	RDR1/4PM□□□J			
	R219-R234 CARBON FILM RESISTOR	RD1/4PM□□□J			
	R237,R238 CARBON FILM RESISTOR	RDR1/4PM224J			

### 1.2.2 For A-449/HEWZ and A-449-S/HEWZ types

Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
<b>POWER SW ASSEMBLY</b>			Q305	TRANSISTOR	2SA1048
			Q306	TRANSISTOR	2SC1815
			Q307	TRANSISTOR	2SC2458
<b>SWITCHES</b>					
△	S501 PUSH SWITCH	ASG1035	D101,D102	ZENER DIODE	RD7.5ESB2
			D103	DIODE	1SS252
			D201,D202	ZENER DIODE	RD2.7ESB1
			D209-D216	DIODE	1SS252
			D217-D220	ZENER DIODE	RD15ESB
<b>CAPACITORS</b>					
△	C510,C511 CKA (0.01/AC400V)	ACG1002	D301-D306	DIODE	1SS252
			D307	ZENER DIODE	RD22ESB
			D503,D504	ZENER DIODE	RD18ESB1
			D505,D506	DIODE	11E2
			D507	DIODE	D5SB20F
<b>HEADPHONE ASSEMBLY</b>					
<b>SWITCHES</b>			<b>SWITCHES</b>		
S801	PUSH SWITCH	SUL5L2B2S	S101	PUSH SWITCH	ASG1012
			S701	SWITCH	ASU1016
			S702	SWITCH	ASU1002
			S703	PUSH SWITCH	SULL6S
<b>CAPACITORS</b>					
C801,C802	CERAMIC CAPACITOR	CKCYB392K50	<b>COIL</b>		
			L101,L102	COIL	ATH1010
			L107,L108	AXIAL INDUCTOR	LAU3R3K
			L401,L402	COIL	ATH1009
<b>RESISTORS</b>			<b>CAPACITORS</b>		
△	R801,R802 METAL OXIDE RESISTOR	RS1PMF331J	C101,C102	AUDIO FILM CAPACITOR	CFTXA103J50
△	R803 METAL OXIDE RESISTOR	RS1LMF681J	C103,C104	CERAMIC CAPACITOR	CCCSL271J50
			C105,C106	CERAMIC CAPACITOR	CKCYB472K50
			C107,C108	ELECTROLYTIC CAPACIT	CEXA101M25
			C109,C110	AUDIO FILM CAPACITOR	CFTXA683J50
<b>OTHERS</b>					
JACK		AKN1002	C111,C112	AUDIO FILM CAPACITOR	CFTXA183J50
			C113,C114	ELECTR.CAPACITOR	CEANP220M10
			C115,C116	MYLOR FILM CAPACITOR	CQMA392K50
			C117,C118	ELECTROLYTIC CAPACIT	CEXA221M25
			C119,C120	CERAMIC CAPACITOR	CKCYF103Z50
			C121,C122	MYLOR FILM CAPACITOR	CQMA122J50
			C129	CERAMIC CAPACITOR	CKPYX103N25
			C135,C136	ELECTR.CAPACITOR	CEAS470M10
			C137,C138	CERAMIC CAPACITOR	CCCSL151J50
<b>SEMICONDUCTORS</b>					
IC101	IC	UPC4570C	C139,C140	CERAMIC CAPACITOR	CCCSL330J50
Q101-Q104	N-FET	2SK369	C141	CERAMIC CAPACITOR	CKCYF103Z50
Q105,Q106	TRANSISTOR	2SC2458	C201,C202	ELECTROLYTIC CAPACIT	CEEA2R2M50
Q203-Q208	TRANSISTOR	2SA1048	C203,C204	CERAMIC CAPACITOR	CCCSL101K500
Q211,Q212	TRANSISTOR	2SC1845	C205,C206	CERAMIC CAPACITOR	CCCSL101J50
Q215-Q218	TRANSISTOR	2SA1048	C207,C208	CERAMIC CAPACITOR	CCCSL470J50
Q219,Q220	TRANSISTOR	2SC2705	C209,C210	CERAMIC CAPACITOR	CCCSL181J50
Q221,Q222	TRANSISTOR	2SC3298	C211,C212	ELECTROLYTIC CAPACIT	CEEA221M16
Q223,Q224	TRANSISTOR	2SA1306	C213,C214	CERAMIC CAPACITOR	CCCSL060D500
Q225,Q226	TRANSISTOR	2SC2603	C217,C218	ELECTR.CAPACITOR	CEAS101M10
Q227,Q228	TRANSISTOR	2SC1845			
Q229,Q230	TRANSISTOR	2SA992			
Q231,Q232	TRANSISTOR	2SA1145			
Q233,Q234	TRANSISTOR	2SA992			
Q237	TRANSISTOR	2SC1845			
Q238	TRANSISTOR	2SA992			
Q291-Q294	TRANSISTOR	2SA992			
Q301,Q302	TRANSISTOR	2SC1845			
Q303,Q304	TRANSISTOR	2SC2458			

### ●AF COMPLEX ASSEMBLY (AWZ3627)

Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
	C219,C220 ELECTR.CAPACITOR	CEAS3R3M100	△	R257-R260 FUSIBLE RESISTOR	RFA1/4PS101J
	C221,C222 ELECTR.CAPACITOR	CEAS3R3M100	△	R261-R264 FUSIBLE RESISTOR	RFA1/4PS470J
	C225,C226 ELECTR.CAPACITOR	CEAS331M10	△	R265-R268 FUSIBLE RESISTOR	RFA1/4PS4R7J
	C227-C230 CERAMIC CAPACITOR	CCCSL330K500	△	R269,R270 RESISTOR (0.33, 5W)	ACN1063
	C231,C232 CERAMIC CAPACITOR	CKCYB122K50		R275-R278 CARBON FILM RESISTOR	RD1/4PM□□□J
	C233-C236 ELECTR.CAPACITOR	CEAS100M50	△	R281-R284 FUSIBLE RESISTOR	RFA1/4PS331J
	C237,C238 ELECTR.CAPACITOR	CEAS101M50	△	R285,R286 FUSIBLE RESISTOR	RFA1/4PS101J
	C239-C242 POLYESTER CAPACITOR	CQMXA472J100	△	R287,R288 CARBON FILM RESISTOR	RD1/4PMF4R7J
	C244 CERAMIC CAPACITOR	CKDYX104M25	△	R289,R290 FUSIBLE RESISTOR	RFA1/4PS101J
	C245,C246 CERAMIC CAPACITOR	CKCYB331K50		R299 CARBON FILM RESISTOR	RD1/4PM100J
	C247,C248 AUDIO FILM CAPACITOR	CFTXA103J50	△	R301,R302 CARBON FILM RESISTOR	RD1/4PMF222J
	C251-C254 CERAMIC CAPACITOR	CCCSL680K500	△	R308 CARBON FILM RESISTOR	RD1/4PMF101J
	C255 CERAMIC CAPACITOR	CCCSL680J50		R311-R315 CARBON FILM RESISTOR	RD1/4PM□□□J
	C256 CERAMIC CAPACITOR	CCDSL470J50		R317-R327 CARBON FILM RESISTOR	RD1/4PM221J
	C301,C302 ELECTR.CAPACITOR	CEAS2R2M50	△	R330 CARBON FILM RESISTOR	RD1/4PMF010J
	C303 ELECTROLYTIC CAPACIT	CEAS471M6	△	R401,R402 CARBON FILM RESISTOR	RD1/4PMFL101J
	C304 CERAMIC CAPACITOR	CKCYF103Z50	△	R403,R404 METAL OXIDE RESISTOR	RS1LMF331J
	C305 ELECTR.CAPACITOR	CEAS101M25	△	R407,R408 CARBON FILM RESISTOR	RD1/4PMFL100J
	C306-C308 ELECTR.CAPACITOR	CEASR47M50	△	R501,R502 METAL OXIDE RESISTOR	RS1PMF121J
	C401,C402 AUDIO FILM CAPACITOR	CFTXA473J50	△	R503,R504 METAL OXIDE RESISTOR	RS1LMF121J
	C501,C502 ELECTR.CAPACITOR	CEAS100M50	△	R505,R506 METAL OXIDE RESISTOR	RS1PMF121J
	C503,C504 ELECTR.CAPACITOR	CEAS470M25	△	R507,R508 CARBON FILM RESISTOR	RD1/4PMF010J
	C505 ELECTROLYTIC CAPACIT	ACH1196	△	R509,R510 METAL OXIDE RESISTOR	RS1LMF272J
	C506 ELECTROLYTIC CAPACIT	ACH1078		R513-R515 CARBON FILM RESISTOR	RD1/4PM272J
	C507 MYLOR FILM CAPACITOR	CQMA103K250		R516 CARBON FILM RESISTOR	RD1/4PMFL272J
	C508 ELECTR.CAPACITOR	CEAS470M50			
	C509 ELECTR.CAPACITOR	CEAS220M50	△	R517-R520 METAL OXIDE RESISTOR	RS1PMF101J
	C703-C708 CERAMIC CAPACITOR	CCCSL271J50		R731,R732 CARBON FILM RESISTOR	RD1/4PM103J
	C711,C712 CERAMIC CAPACITOR	CCCSL271J50		VR201,VR202 VR	ACP1045
	C715,C716 CERAMIC CAPACITOR	CCCSL271J50		VR701 VARIABLE(100K-20AX2)	ACT1062
	C719,C720 CERAMIC CAPACITOR	CCCSL271J50		Other resistors	RD1/8PM□□□J
	C725 CERAMIC CAPACITOR	CCDSL221J50			
	C726 CERAMIC CAPACITOR	CKCYF103Z50			
	C727,C728 CERAMIC CAPACITOR	CCCSL221J50			
	C731 CERAMIC CAPACITOR	CKCYF103Z50			
	C733,C734 CERAMIC CAPACITOR	CKDYF102Z50			
<b>RESISTORS</b>				<b>OTHERS</b>	
	R101,R102 CARBON FILM RESISTOR	RDR1/6PU101J		CN4 CONNECTOR(15P)	KPE15
	R107,R108 CARBON FILM RESISTOR	RDR1/6PU563J		CN9 JUMPER CONNECTOR	KPC8
	R119-R122 CARBON FILM RESISTOR	RDR1/4PM□□□J		RY301,RY302 RELAY	ASR1037
	R133,R134 CARBON FILM RESISTOR	RDR1/6PU391J		RY303 RELAY	ASR1038
	R143,R144 CARBON FILM RESISTOR	RD1/4PM560J		PIN JACK(4P)	AKB1007
	R201-R204 CARBON FILM RESISTOR	RDR1/4PM□□□J		PIN JACK(6P)	AKB1008
	R205-R214 CARBON FILM RESISTOR	RD1/4PM□□□J		PIN JACK(6P)	AKB1021
	R215-R218 CARBON FILM RESISTOR	RDR1/4PM□□□J		SPEAKER TERMINAL 8-P	AKE1011
	R219-R234 CARBON FILM RESISTOR	RD1/4PM□□□J			
	R237,R238 CARBON FILM RESISTOR	RDR1/4PM224J			
△	R239-R242 FUSIBLE RESISTOR	RFA1/4PS101J			
△	R243,R244 CARBON FILM RESISTOR	RD1/4PMF561J			
△	R245-R248 FUSIBLE RESISTOR	RFA1/4PS101J			
	R249-R252 CARBON FILM RESISTOR	RD1/4PM□□□J			
	R255,R256 CARBON FILM RESISTOR	RD1/4PM561J			

1.3 SCHEMATIC DIAGRAM

\* Marks are difference between two assemblies.

	A-449/HE,SD,KC	A-449/HEWZ, A-449-S/HEWZ
AF COMPLEX ASS'Y	AWZ3628	AWZ3627
L101,L102	VACANT(OPEN)	ATH1010
L107,L108	VACANT(SHORT)	LAU3R3K
C103,C104	CCCSL221J50	CCCSL271J50
C115,C116	VACANT(OPEN)	CQMA392K50
C129	VACANT(OPEN)	CKPYX103N25
C137,C138	VACANT(OPEN)	CCCSL151J50
C139,C140	VACANT(OPEN)	CCCSL330J50
C141	VACANT(OPEN)	CKCYF103Z50
C143,C144	VACANT(OPEN)	CQMA47K50
C213,C214	CCCSL120K500	CCCSL060D500
C215,C216	CCCSL120K500	VACANT(SHORT)
C239-C242	VACANT(OPEN)	CQMXA472J100
C244	VACANT(OPEN)	CKDYX104M25
C245,C246	VACANT(OPEN)	CKCYB331K50
C251-C254	CCCSL330K500	CCCSL680K500
C301,C302	CEANP2R2M50	CEAS2R2M50
C401,C402	CFTXA104J50	CFTXA473J50
C403,C404	CFTXA104J50	VACANT(SHORT)
C703-C708	VACANT(OPEN)	CCCSL271J50
C711,C712	VACANT(OPEN)	CCCSL271J50
C715,C716	VACANT(OPEN)	CCCSL271J50
C719,C720	CKCYB331K50	CCCSL271J50
C725	CKCYF103Z50	CCDSL221J50
C726	VACANT(OPEN)	CKCYF103Z50
C727,C728	VACANT(OPEN)	CCCSL221J50
R103	VACANT(OPEN)	RD1/8PM4R7J
R105,R106	VACANT(OPEN)	RDR1/6PU100J
R401,R402	VACANT(OPEN)	RD1/4PMFL100J
R719,R720	VACANT(SHORT)	RD1/8PM331J
R724	VACANT(OPEN)	RD1/8PM100J
HEAD PHONE ASS'Y	Non supply	Non supply
C801,C802	VACANT(OPEN)	CKCYB392K50
OTHERS		
R1, R2	VACANT(OPEN)	RD1/4PM100J

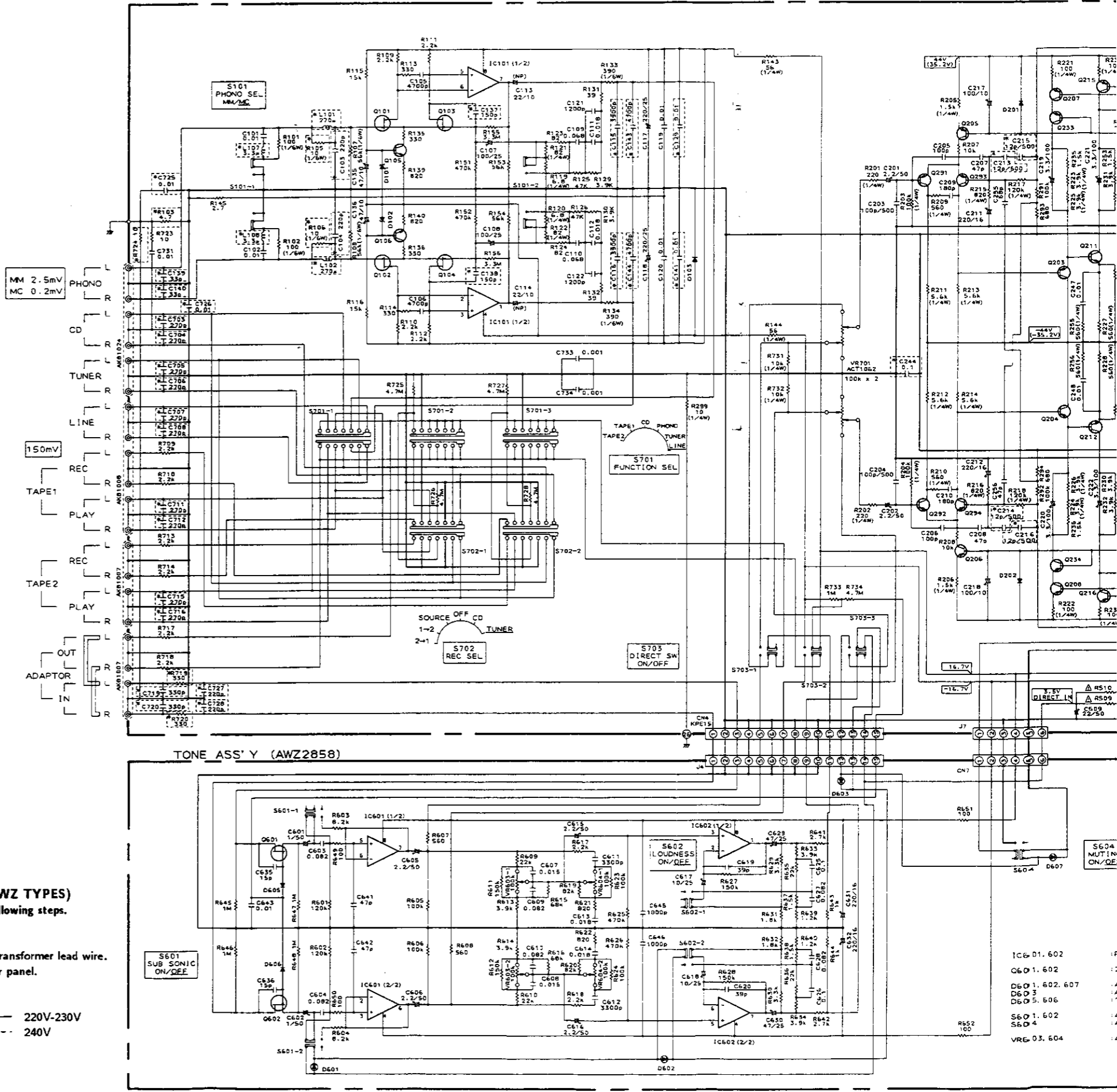
1. RESISTORS :  
Indicated in  $\Omega$ , 1/8, 1/6, 1/4W,  $\pm 5\%$  tolerance unless otherwise noted k; k $\Omega$ , M; M $\Omega$ , (F);  $\pm 1\%$ , (G);  $\pm 2\%$ , (K);  $\pm 10\%$ , (M);  $\pm 20\%$  tolerance.
2. CAPACITORS :  
Indicated in capacity ( $\mu$ F)/voltage(V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT :  
V : Signal voltage at 60W+60W, 8 $\Omega$ /80W+80W, 4 $\Omega$  output(1kHz).  
DC voltage (V) at no input signal.  
Value in ( ) is DC voltage at rated power.  
mA : DC current at no input signal.
4. OTHERS :  
⊙ : Adjusting point  
The  $\Delta$  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.  
\* marked capacitors and resistors have parts numbers.  
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.
5. SWITCHES : (The underline indicates the switch position)  
S601 : SUBSONIC(ON-OFF)  
S602 : LOUDNESS(ON-OFF)  
S604 : MUTING(ON-OFF)  
S101 : PHONO SEL(MM-MC)  
S701 : FUNCTION SEL(TAPE2-TAPE1-CD-PHONO-TUNER-LINE)  
S702 : REC SEL(2-1-1-2-SOURCE-OFF-CD-TUNER)  
S703 : DIRECT SW(ON-OFF)  
S801-1 : SPEAKERS-A(ON-OFF)  
S801-2 : SPEAKERS-A(ON-OFF)  
S501 : POWER SW(ON-OFF)

Line Voltage Selection (HE and HEWZ TYPES)

Line voltage can be changed with the following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection of the power transformer lead wire.
4. Stick the line voltage label on the rear panel.

Parts No.	Description	220V-230V	240V
AXX-193	220V label	——	----
AXX-192	240V label	----	——





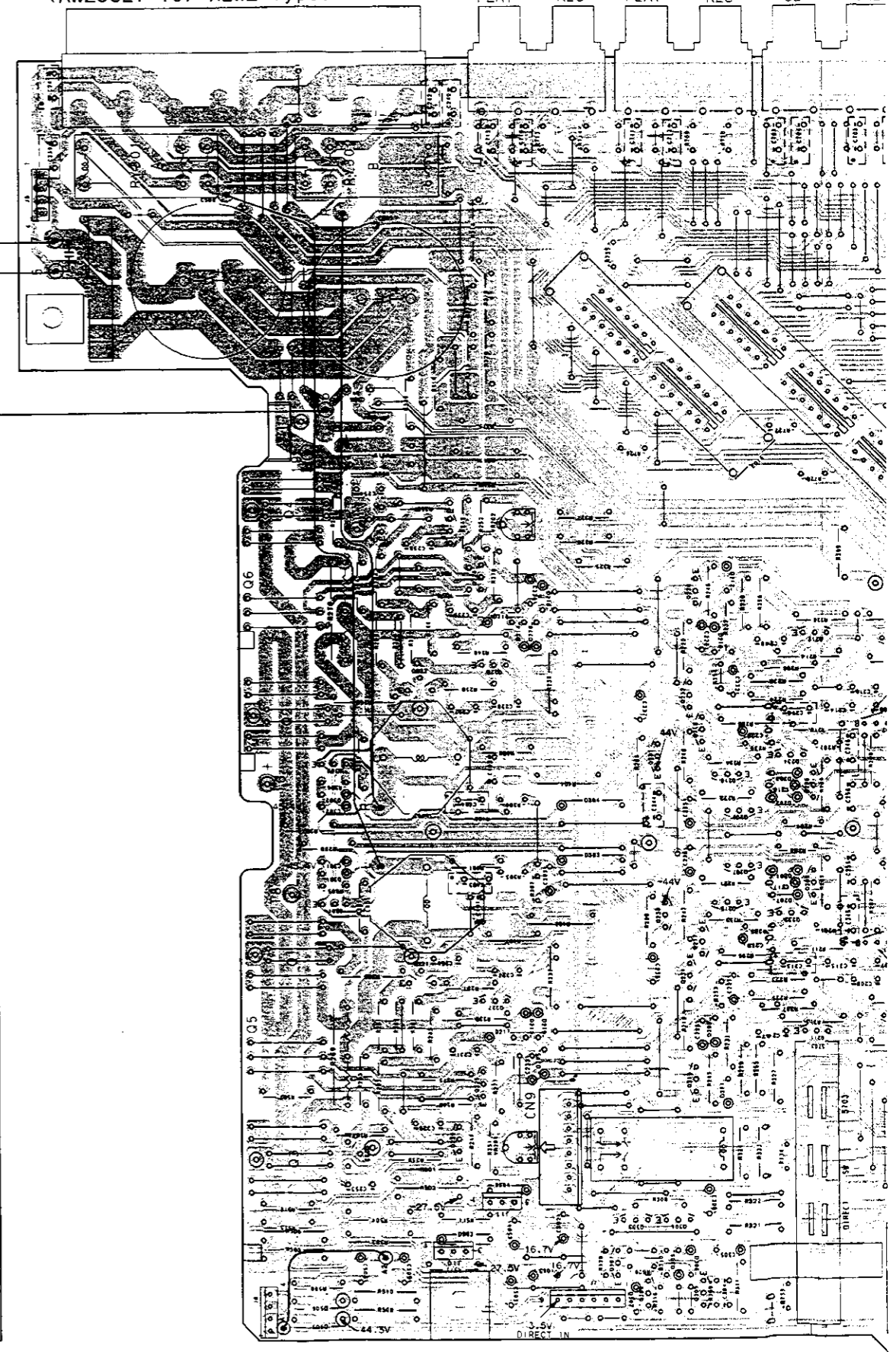
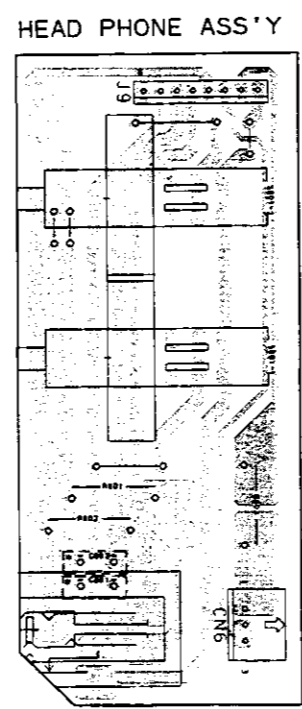
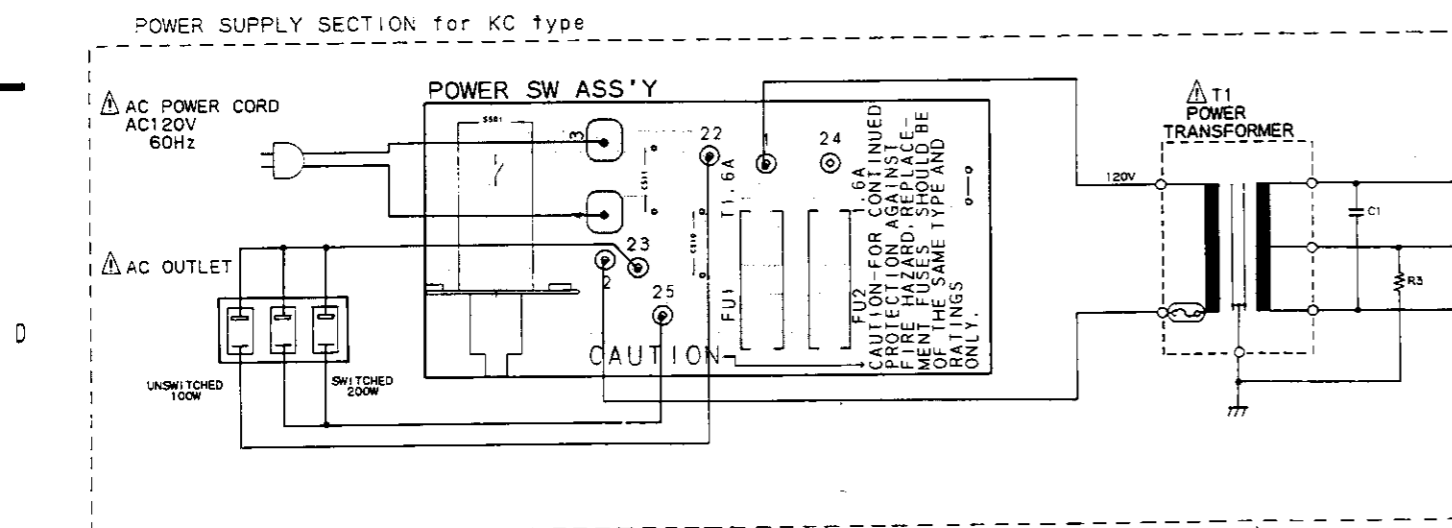
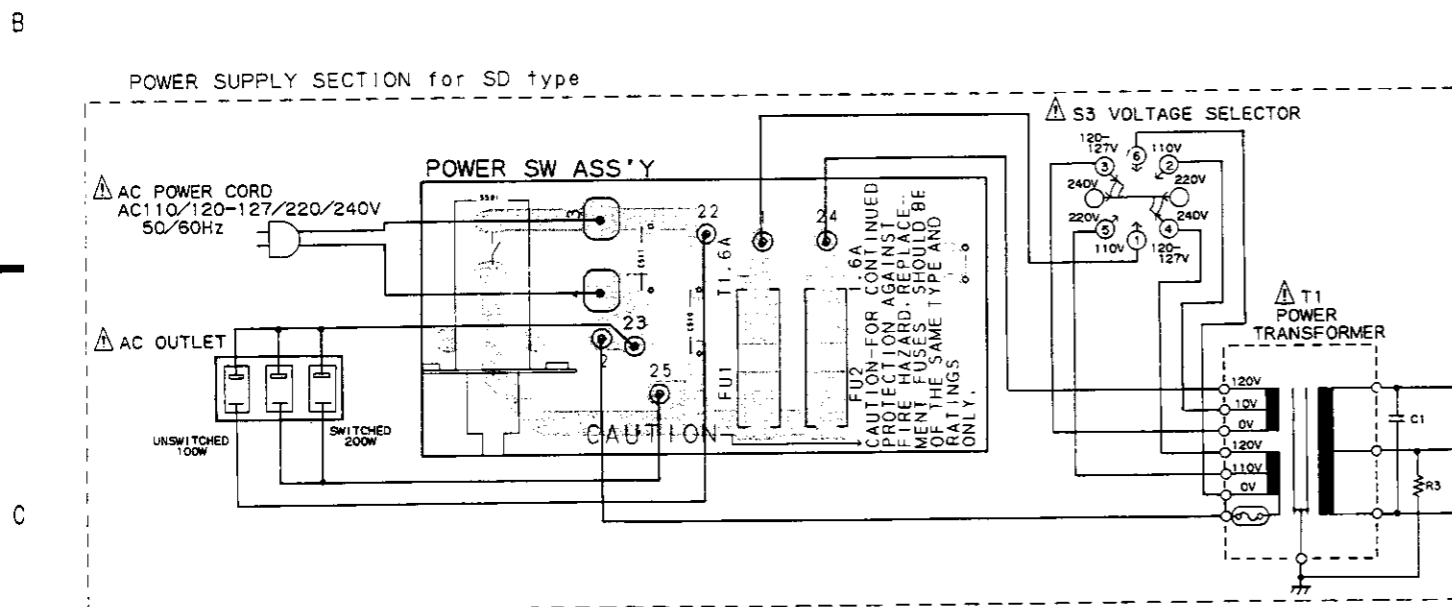
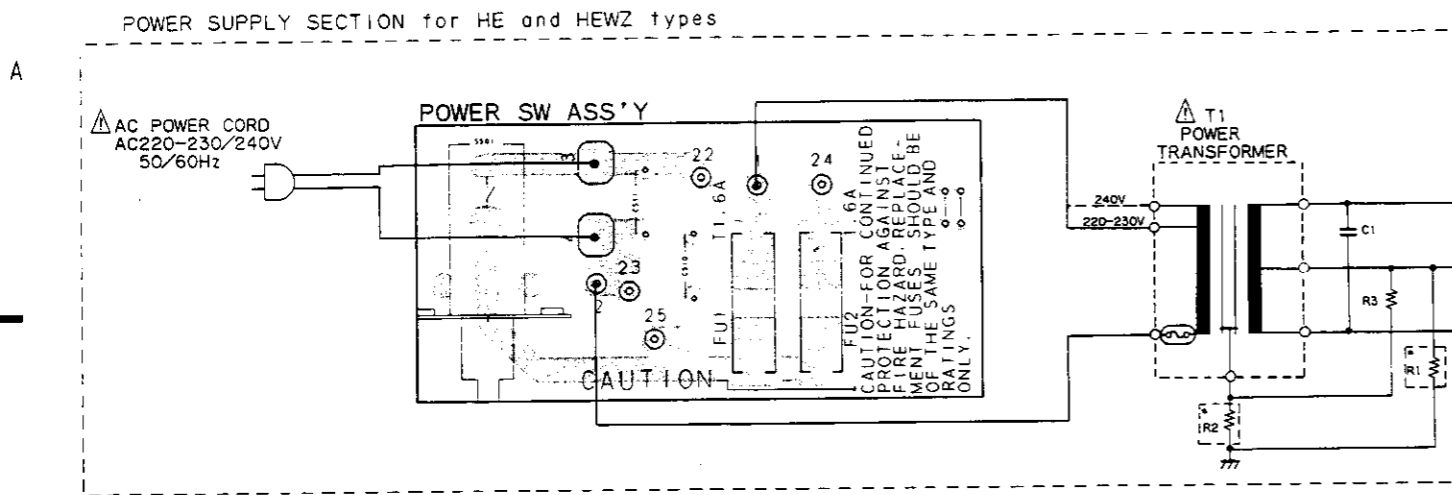


# 1.4 P.C.BOARDS CONNECTION DIAGRAM

Parts with an asterisk ( \* ) are different according to versions, HE, SD, KC or HEWZ. Refer to page 7 for details.

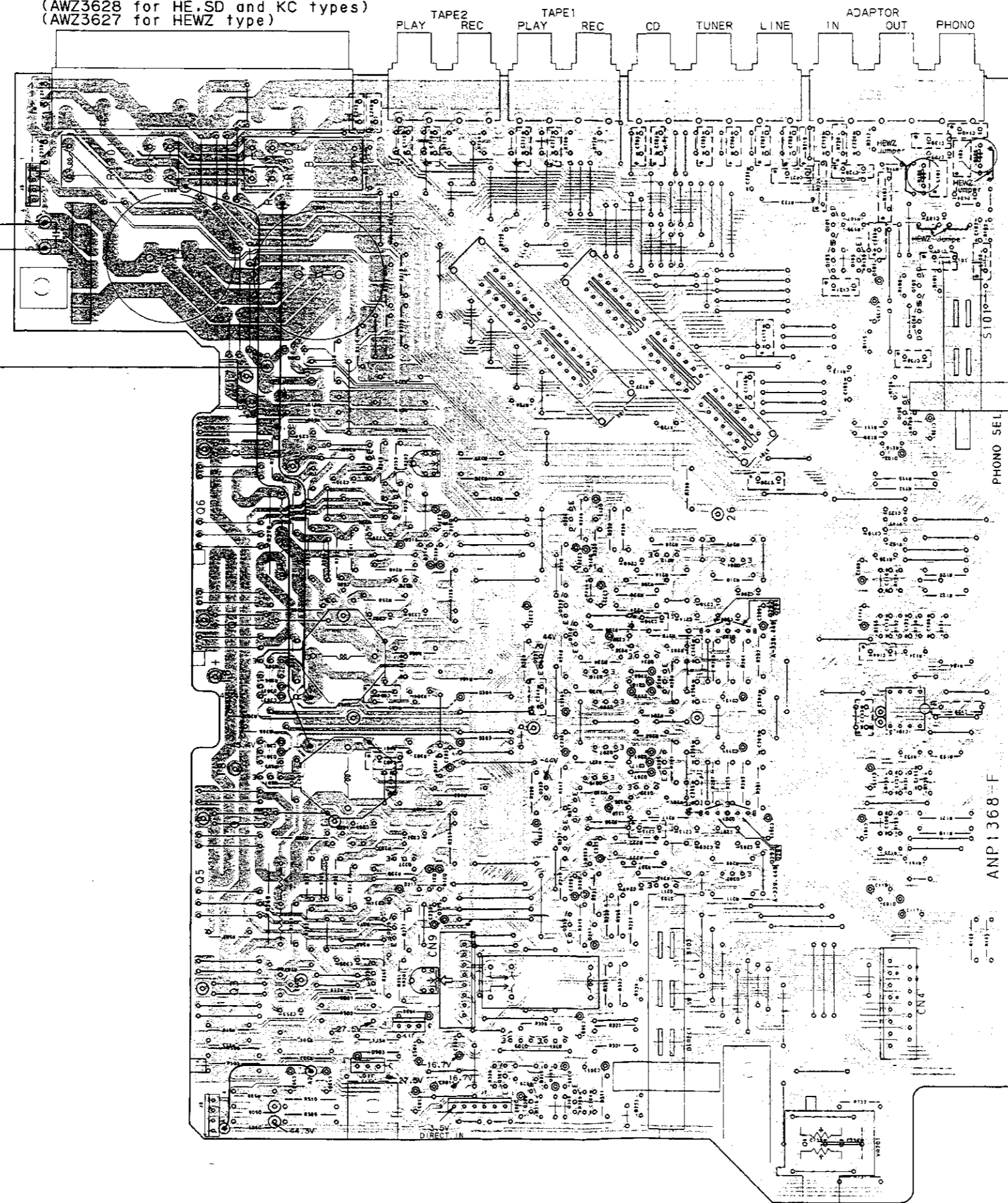
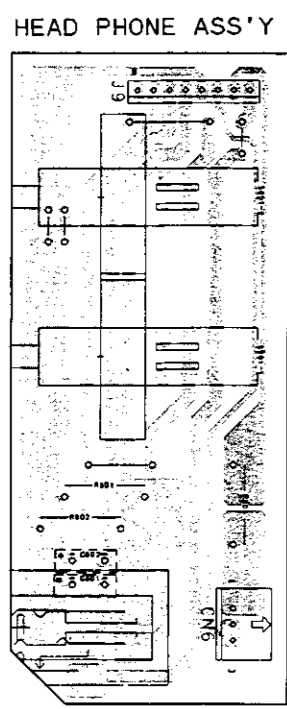
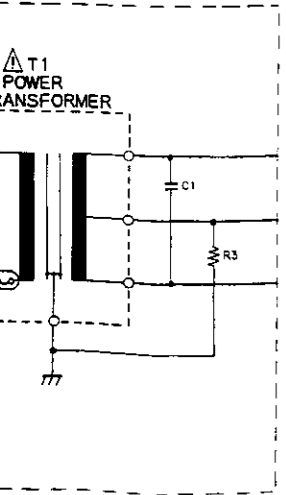
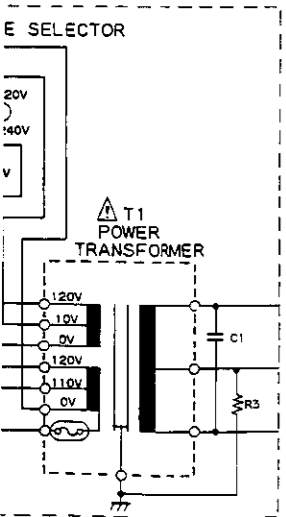
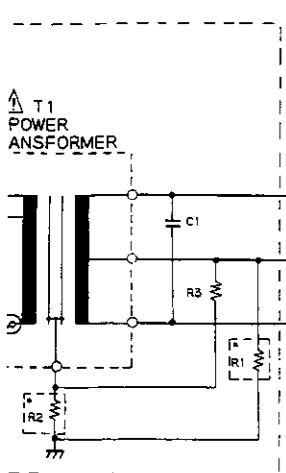
AF COMPLEX ASS'Y  
(AWZ3628 for HE,SD and KC types)  
(AWZ3627 for HEWZ type)

PLAY TAPE2 REC PLAY TAPE1 REC CD TUNEF



nt according to

AF COMPLEX ASS'Y  
(AWZ3628 for HE,SD and KC types)  
(AWZ3627 for HEWZ type)



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)

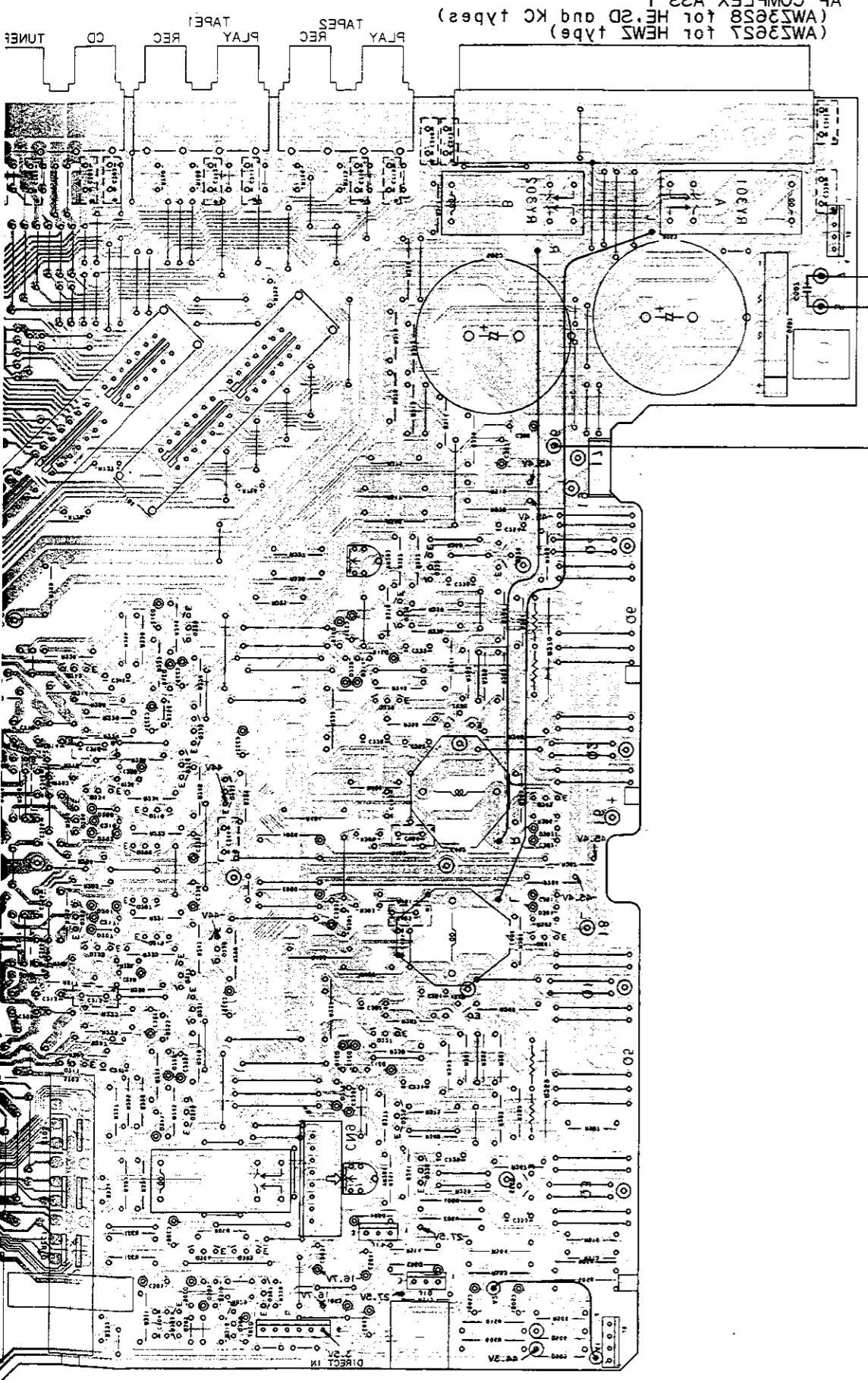
Others

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.

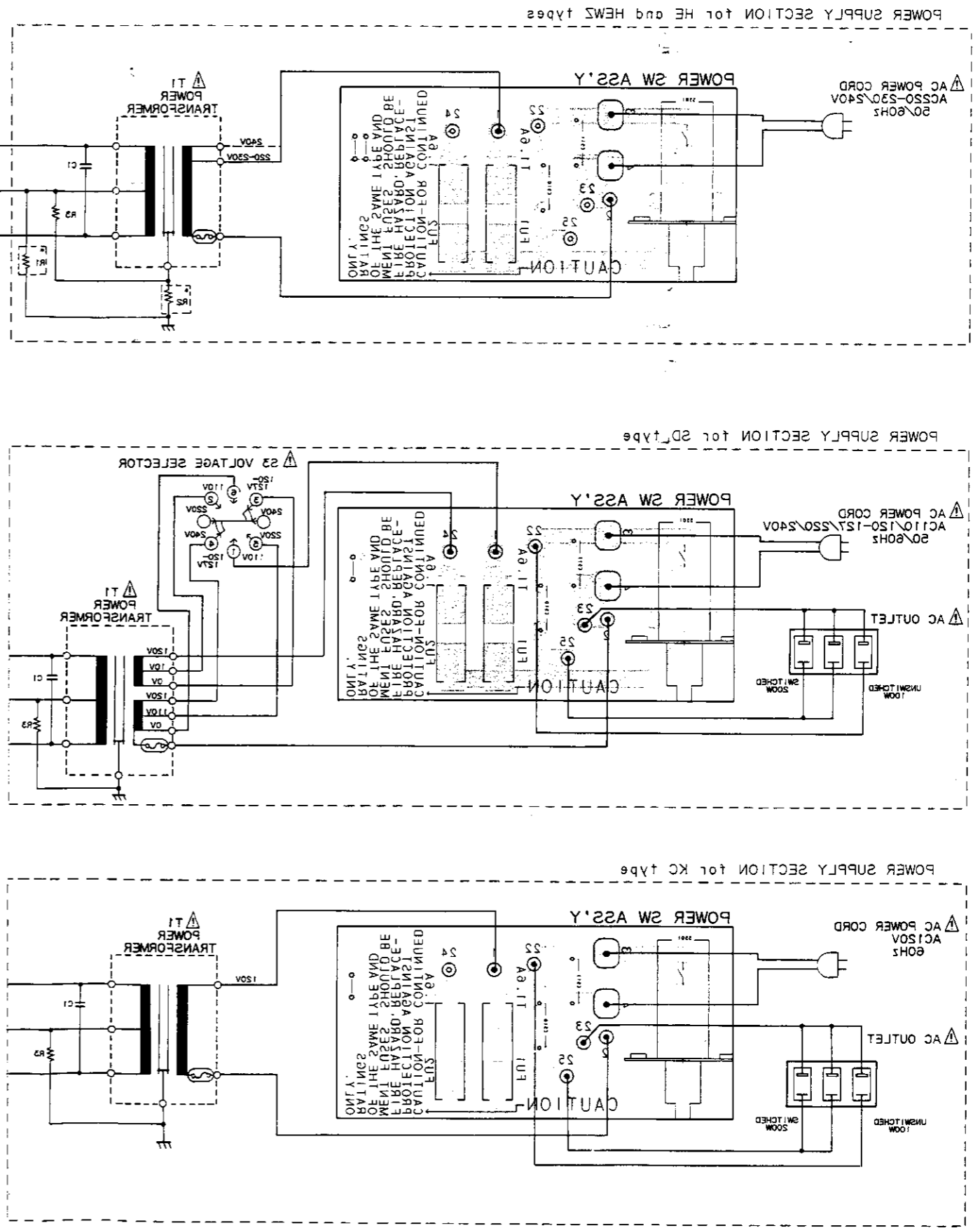
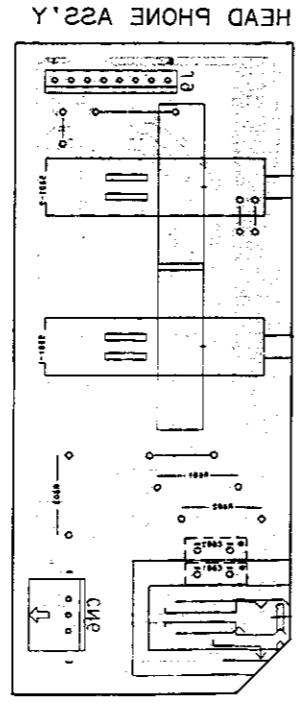
A  
B  
C  
D





AF COMPLEX ASSY  
(AW33628 for HE, SD and KC types)  
(AW33627 for HEWZ type)

This P.C.B. diagram is viewed from the foil side.



1.4 P.C. BOARDS CONNECTION DIAGRAM

versions, HE, SD, KC or HEWZ.  
Refer to page 7 for details.

\* Parts with an asterisk ( \* ) are different according to

8

9

2

4

3

5

1

9

2

4

3

5

1

A

B

C

D

## 2. FOR A-339/KU, HE, HEWZ, SD AND A-339-S/HEWZ TYPES

### 2.1 CONTRAST OF MISCELLANEOUS PARTS

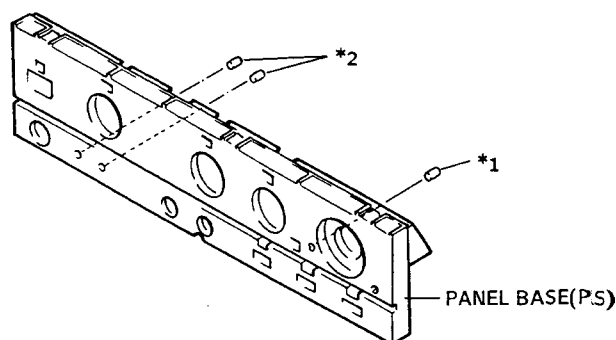
**NOTES:**

- 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  $\Delta$  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.

The A-339/KU, HE, HEWZ, SD and A-339-S/HEWZ types are the same as the A-337/HE type with the exception of the following sections.

Mark	Symbol & Description	Part No.						Remarks
		A-337/HE	A-339/KU	A-339/HE	A-339/SD	A-339/HEWZ	A-339S/HEWZ	
●	AF COMPLEX assembly HEADPHONE assembly POWER SW assembly	AWZ2867 Non supply Non supply	AWZ3483 Non supply Non supply	AWZ3483 Non supply Non supply	AWZ3483 Non supply Non supply	AWZ3482 Non supply Non supply	AWZ3482 Non supply Non supply	
$\Delta$	AC power cord	ADG1049	ADG1057	ADG1049	ADG1051	ADG1049	ADG1049	
$\Delta$	Fuse (FU1 T2A)	AEK-405	.....	AEK-511	.....	AEK-511	AEK-511	
$\Delta$	Fuse (FU1 T5A)	.....	AEK-308	.....	.....	.....	.....	
$\Delta$	Fuse (FU1, FU2 1.6A)	.....	.....	.....	AEK-122	.....	.....	
$\Delta$	Power transformer(T1)	ATS1278	ATS1343	ATS1345	ATS1344	ATS1345	ATS1345	
$\Delta$	Capacitor(C1)	CQMXA473J100	CQMXA473J100	CQMXA473J100	CQMXA473J100	CQMXA104J100	CQMXA104J100	
	Resistors(R1, R2)	.....	.....	.....	.....	RD1/4PM100J	RD1/4PM100J	
	Resistor (R3)	.....	RD1/4PM010J	RD1/4PM010J	RD1/4PM010J	RD1/4PM010J	RD1/4PM010J	
$\Delta$	AC socket(OUTLET 3P)	.....	AKP-515	.....	AKP-515	.....	.....	
$\Delta$	Voltage selector (S3)	.....	.....	.....	AKX-507	.....	.....	
	Strain relief	AEC-882	.....	AEC-882	AEC-882	AEC-882	AEC-882	
	Screw	BBT30P060FZK	BBT30P060FZK	BBT30P060FZK	BBT30P060FZK	BBT30P060FZK	ABA-274	
	Rotary knob S (PLS)	AAB1155	AAB1155	AAB1155	AAB1155	AAB1155	AAB1238	
	Rotary knob L (PLS)	AAB1160	AAB1160	AAB1160	AAB1160	AAB1160	AAB1161	
	Rotary knob R (PLS)	AAB1162	AAB1162	AAB1162	AAB1162	AAB1162	AAB1163	
	Rotary knob M (PLS)	AAB1166	AAB1166	AAB1166	AAB1166	AAB1166	AAB1167	
	Push knob C	AAD1366	AAD1366	AAD1366	AAD1366	AAD1366	AAD1367	*1
	Push knob C	AAD1803	AAD1366	AAD1366	AAD1366	AAD1366	AAD1367	*2
	Push knob	AAD1536	AAD1536	AAD1536	AAD1536	AAD1536	AAD1538	
	Knob (POWER)	AAD1535	AAD1984	AAD1984	AAD1984	AAD1984	AAD2040	
	Packing case	AHD1863	AHD2098	AHD2075	AHD2075	AHD2075	AHD2076	
	Insulator assembly	AMR2140	AMR2141	AMR2140	AMR2141	AMR2140	AMR2140	
	Front panel	ANB1397	ANB1460	ANB1460	ANB1460	ANB1460	ANB1461	
	Bonnet case	AZN1799	AZN1799	AZN1799	AZN1799	AZN1799	AZN1800	
	Panel base (PLS)	AMB1651	AMB1651	AMB1651	AMB1651	AMB1651	AMB1652	
	Operating instructions (English, French, German, Italian, Swedish, Dutch, Spanish, Portuguese)	ARE1162	.....	ARE1196	.....	.....	.....	
	Operating instructions (German)	.....	.....	.....	ARC1271	ARC1270	ARC1270	
	Operating instructions (English, French)	.....	ARE1197	.....	ARE1197	.....	.....	

\*1, \*2: Push knob C are assembled as shown below.



**2.2 P.C.B's 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  $\Delta$  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 $\Omega$	56	$\times 10^1$	561	.....	RD1/4PS	5	6	1	J
47k $\Omega$	47	$\times 10^3$	473	.....	RD1/4PS	4	7	3	J
0.5 $\Omega$	0R5			.....	RD2H	0	R	5	K
1 $\Omega$	010			.....	RD1P	0	1	0	K

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

5.62k $\Omega$	562	$\times 10^1$	5621	.....	RD1/4SR	5	6	2	1	F
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**2.2.1 For A-339/KU, HE, and SD types**

<u>Mark</u>	<u>Symbol &amp; Description</u>	<u>Part No.</u>	<u>Mark</u>	<u>Symbol &amp; Description</u>	<u>Part No.</u>
<b>HEADPHONE ASSEMBLY</b>			Q223,Q224	TRANSISTOR	2SA1306
			Q225,Q226	TRANSISTOR	2SC2603
			Q227,Q228	TRANSISTOR	2SC1845
			Q229,Q230	TRANSISTOR	2SA992
			Q231,Q232	TRANSISTOR	2SA1145
<b>SWITCHES</b>					
S801	PUSH SWITCH	SUL5L2B2S			
<b>RESISTORS</b>			Q233,Q234	TRANSISTOR	2SA992
$\Delta$ R801,R802	METAL OXIDE RESISTOR	RS1PMF331J	Q237	TRANSISTOR	2SC1845
$\Delta$ R803	METAL OXIDE RESISTOR	RS1LMP561J	Q238	TRANSISTOR	2SA992
			Q291-Q294	TRANSISTOR	2SA992
			Q301,Q302	TRANSISTOR	2SC1845
<b>OTHERS</b>					
JACK		AKN1002	Q303,Q304	TRANSISTOR	2SC2458
			Q305	TRANSISTOR	2SA1048
			Q306	TRANSISTOR	2SC1815
			Q307	TRANSISTOR	2SC2458
<b>POWER SW ASSEMBLY</b>					
<b>SWITCHES</b>			D201,D202	ZENER DIODE	RD2.7ESB1
$\Delta$ S501	PUSH SWITCH	ASG1035	D209-D216	DIODE	1SS252
			D217-D220	ZENER DIODE	RD8.2ESB1
			D301-D306	DIODE	1SS252
			D307	ZENER DIODE	RD15ESB
<b>CAPACITORS</b>					
$\Delta$ C510,C511	CKA (0.01/AC400V)	ACG1002	D503,D504	ZENER DIODE	RD16ESB3
			D505,D506	DIODE	11E2
			D507	DIODE	D5SB20F
<b>●AF COMPLEX ASSEMBLY (AWZ3483)</b>					
<b>SEMICONDUCTORS</b>			<b>SWITCHES</b>		
IC101	OP-AMP-IC	M5220P	S701	SWITCH	ASU1016
			S702	SWITCH	ASU1002
			S703	PUSH SWITCH	SULL6S
Q203-Q208	TRANSISTOR	2SA1048	<b>COIL</b>		
Q211,Q212	TRANSISTOR	2SC1845	L401,L402	COIL	ATH1009
Q215-Q218	TRANSISTOR	2SA1048			
Q219,Q220	TRANSISTOR	2SC2705			
Q221,Q222	TRANSISTOR	2SC3298			

Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
<b>CAPACITORS</b>				R215-R218 CARBON FILM RESISTOR	RDR1/4PM□□□J
	C103,C104 CERAMIC CAPACITOR	CCCSL221J50		R219-R234 CARBON FILM RESISTOR	RD1/4PM□□□J
	C107,C108 ELECTR.CAPACITOR	CEAS101M10		R237,R238 CARBON FILM RESISTOR	RDR1/4PM224J
	C109,C110 AUDIO FILM CAPACITOR	CFTXA683J50	△	R239-R242 FUSIBLE RESISTOR	RFA1/4PS101J
	C111,C112 AUDIO FILM CAPACITOR	CFTXA183J50	△	R243,R244 CARBON FILM RESISTOR	RD1/4PMF561J
	C113,C114 ELECTR.CAPACITOR	CEAS4R7M50			
	C117,C118 ELECTR.CAPACITOR	CEAS221M25	△	R245-R248 FUSIBLE RESISTOR	RFA1/4PS101J
	C119,C120 CERAMIC CAPACITOR	CKCYF103Z50	△	R249-R252 CARBON FILM RESISTOR	RD1/4PM□□□J
	C121,C122 MYLOR FILM CAPACITOR	CQMA122J50	△	R254 CARBONFILM RESISTOR	RD1/8PM122J
	C123,C124 ELECTR.CAPACITOR	CEAS100M50	△	R255,R256 CARBON FILM RESISTOR	RD1/4PM561J
	C143,C144 MYLOR FILM CAPACITOR	CQMA472K50	△	R257-R260 FUSIBLE RESISTOR	RFA1/4PS101J
	C201,C202 ELECTROLYTIC CAPACIT	CEEA2R2M50	△	R261-R264 FUSIBLE RESISTOR	RFA1/4PS470J
	C203,C204 CERAMIC CAPACITOR	CCCSL101K500	△	R265-R268 FUSIBLE RESISTOR	RFA1/4PS4R7J
	C205,C206 CERAMIC CAPACITOR	CCCSL101J50	△	R269,R270 RESISTOR (0.33, 5W)	ACN1063
	C207,C208 CERAMIC CAPACITOR	CCCSL470J50	△	R275-R278 CARBON FILM RESISTOR	RD1/4PM□□□J
	C209,C210 CERAMIC CAPACITOR	CCCSL181J50	△	R281-R284 FUSIBLE RESISTOR	RFA1/4PS331J
	C211,C212 ELECTROLYTIC CAPACIT	CEEA221M16	△	R285,R286 FUSIBLE RESISTOR	RFA1/4PS101J
	C213-C216 CERAMIC CAPACITOR	CCCSL120K500	△	R287,R288 FUSIBLE RESISTOR	RFA1/4PS4R7J
	C217,C218 ELECTR.CAPACITOR	CEAS101M10	△	R289,R290 FUSIBLE RESISTOR	RFA1/4PS101J
	C219-C222 ELECTR.CAPACITOR	CEAS3R3M100	△	R299 CARBON FILM RESISTOR	RD1/4PM100J
	C225,C226 ELECTR.CAPACITOR	CEAS331M10	△	R301,R302 CARBON FILM RESISTOR	RD1/4PMF222J
	C227-C230 CERAMIC CAPACITOR	CCCSL330K500	△	R308 CARBON FILM RESISTOR	RD1/4PMF101J
	C231,C232 CERAMIC CAPACITOR	CKCYB122K50		R311-R315 CARBON FILM RESISTOR	RD1/4PM□□□J
	C233-C236 ELECTR.CAPACITOR	CEAS100M50	△	R317-R327 CARBON FILM RESISTOR	RD1/4PM□□□J
	C237,C238 ELECTR.CAPACITOR	CEAS101M50	△	R330 CARBON FILM RESISTOR	RD1/4PMF010J
	C247,C248 AUDIO FILM CAPACITOR	CFTXA103J50	△	R401,R402 CARBON FILM RESISTOR	RD1/4PMFL101J
	C251-C254 CERAMIC CAPACITOR	CCCSL330K500	△	R403,R404 METAL OXIDE RESISTOR	RS1LMF331J
	C255 CERAMIC CAPACITOR	CCCSL680J50	△	R407,R408 CARBON FILM RESISTOR	RD1/4PMFL100J
	C256 CERAMIC CAPACITOR	CCDSL470J50	△	R501-R506 CARBON FILM RESISTOR	RD1/2PM□□□J
	C301,C302 ELECTR.CAPACITOR	CEANP2R2M50	△	R508 CARBON FILM RESISTOR	RD1/4PMF010J
	C303 ELECTROLYTIC CAPACIT	CEAS471M6	△	R509 METAL OXIDE RESISTOR	RS1LMF222J
	C304 CERAMIC CAPACITOR	CKCYF103Z50	△	R510 METAL OXIDE RESISTOR	RS1LMF272J
	C305 ELECTR.CAPACITOR	CEAS101M25		R517-R520 CARBONFILM RESISTOR	RD1/2PM221J
	C306-C308 ELECTR.CAPACITOR	CEASR47M50		R731,R732 CARBON FILM RESISTOR	RD1/4PM103J
	C401-C404 AUDIO FILM CAPACITOR	CFTXA104J50		VR201,VR202 VR	ACP1045
	C501,C502 ELECTR.CAPACITOR	CEAS470M25		VR701 VARIABLE(100K-20AX2)	ACT1062
	C505 ELECTROLYTIC CAPACIT	ACH1189			
	C506 ELECTROLYTIC CAPACIT	ACH1190		Other resistors	RD1/8PM□□□J
	C508 ELECTR.CAPACITOR	CEAS470M50			
	C509 ELECTR.CAPACITOR	CEAS220M50		<b>OTHERS</b>	
	C719,C720 CERAMIC CAPACITOR	CKCYB331K50		CN4 CONNECTOR(15P)	KPE15
	C725,C731 CERAMIC CAPACITOR	CKCYF103Z50		CN9 JUMPER CONNECTOR	KPC8
				RY301-RY303 RELAY	ASR1038
				PIN JACK(4P)	AKB1007
				PIN JACK(6P)	AKB1008
				PIN JACK(6P)	AKB1024
				SPEAKER TERMINAL 8-P	AKE1011
<b>RESISTORS</b>					
	R105,R106 CARBON FILM RESISTOR	RDR1/6PU100J			
	R121,R122 CARBON FILM RESISTOR	RDR1/4PM820J			
	R133,R134 CARBON FILM RESISTOR	RDR1/6PU471J			
	R141,R142 CARBON FILM RESISTOR	RDR1/6PU563J			
	R143,R144 CARBON FILM RESISTOR	RD1/4PM560J			
	R201-R204 CARBON FILM RESISTOR	RDR1/4PM□□□J			
	R205-R214 CARBON FILM RESISTER	RD1/4PM□□□J			

## 2.2.2 For A-339/HEWZ and A-339-S/HEWZ types

Mark	Symbol & Description	Part No.
------	----------------------	----------

### POWER SW ASSEMBLY

#### SWITCHES

△	S501 PUSH SWITCH	ASG1035
---	------------------	---------

#### CAPACITORS

△	C510,C511 CKA (0.01/AC400V)	ACG1002
---	-----------------------------	---------

### HEADPHONE ASSEMBLY

#### SWITCHES

	S801 PUSH SWITCH	SUL5L2B2S
--	------------------	-----------

#### CAPACITORS

	C801,C802 CERAMIC CAPACITOR	CKCYB392K50
--	-----------------------------	-------------

#### RESISTORS

△	R801,R802 METAL OXIDE RESISTOR	RS1PMF331J
△	R803 METAL OXIDE RESISTOR	RS1LMF561J

#### OTHERS

	JACK	AKN1002
--	------	---------

## ● AF COMPLEX ASSEMBLY (AWZ3482)

#### SEMICONDUCTORS

	IC101 OP-AMP-IC	M5220P
--	-----------------	--------

	Q203-Q208 TRANSISTOR	2SA1048
	Q211,Q212 TRANSISTOR	2SC1845
	Q215-Q218 TRANSISTOR	2SA1048
	Q219,Q220 TRANSISTOR	2SC2705
	Q221,Q222 TRANSISTOR	2SC3298

	Q223,Q224 TRANSISTOR	2SA1306
	Q225,Q226 TRANSISTOR	2SC2603
	Q227,Q228 TRANSISTOR	2SC1845
	Q229,Q230 TRANSISTOR	2SA992
	Q231,Q232 TRANSISTOR	2SA1145

	Q233,Q234 TRANSISTOR	2SA992
	Q237 TRANSISTOR	2SC1845
	Q238 TRANSISTOR	2SA992
	Q291-Q294 TRANSISTOR	2SA992
	Q301,Q302 TRANSISTOR	2SC1845

	Q303,Q304 TRANSISTOR	2SC2458
	Q305 TRANSISTOR	2SA1048
	Q306 TRANSISTOR	2SC1815
	Q307 TRANSISTOR	2SC2458

Mark	Symbol & Description	Part No.
------	----------------------	----------

	D201,D202 ZENER DIODE	RD2.7ESB1
	D209-D216 DIODE	1SS252
	D217-D220 ZENER DIODE	RD8.2ESB1
	D301-D306 DIODE	1SS252
	D307 ZENER DIODE	RD15ESB

	D503,D504 ZENER DIODE	RD16ESB3
	D505,D506 DIODE	11E2
	D507 DIODE	D5SB20F

#### SWITCHES

	S701 SWITCH	ASU1016
	S702 SWITCH	ASU1002
	S703 PUSH SWITCH	SULL6S

#### COIL

	L103-L106 AXIAL INDUCTOR	LAU221K
	L401,L402 COIL	ATH1009

#### CAPACITORS

	C103,C104 CERAMIC CAPACITOR	CCCSL330J50
	C107,C108 ELECTR.CAPACITOR	CEAS101M10
	C109,C110 AUDIO FILM CAPACITOR	CFTXA683J50
	C111,C112 AUDIO FILM CAPACITOR	CFTXA183J50
	C113,C114 ELECTR.CAPACITOR	CEAS4R7M50

	C115,C116 MYLOR FILM CAPACITOR	CQMA392K50
	C117,C118 ELECTR.CAPACITOR	CEAS221M25
	C119,C120 CERAMIC CAPACITOR	CKCYF103Z50
	C121,C122 MYLOR FILM CAPACITOR	CQMA122J50
	C123,C124 ELECTR.CAPACITOR	CEAS100M50

	C125,C126 CERAMIC CAPACITOR	CCCSL101J50
	C127,C128 CERAMIC CAPACITOR	CCDSL221J50
	C129 CERAMIC CAPACITOR	CKPYX103N25
	C139,C140 CERAMIC CAPACITOR	CCDSL330J50
	C141 CERAMIC CAPACITOR	CKCYF103Z50

	C201,C202 ELECTROLYTIC CAPACIT	CEEA2R2M50
	C203,C204 CERAMIC CAPACITOR	CCCSL101K500
	C205,C206 CERAMIC CAPACITOR	CCCSL101J50
	C207,C208 CERAMIC CAPACITOR	CCCSL470J50
	C209,C210 CERAMIC CAPACITOR	CCCSL181J50

	C211,C212 ELECTROLYTIC CAPACIT	CEEA221M16
	C213,C214 CERAMIC CAPACITOR	CCCSL060D500
	C217,C218 ELECTR.CAPACITOR	CEAS101M10
	C219-C222 ELECTR.CAPACITOR	CEAS3R3M100
	C225,C226 ELECTR.CAPACITOR	CEAS331M10

	C227-C230 CERAMIC CAPACITOR	CCCSL330K500
	C231,C232 CERAMIC CAPACITOR	CKCYB122K50
	C233-C236 ELECTR.CAPACITOR	CEAS100M50
	C237,C238 ELECTR.CAPACITOR	CEAS101M50
	C239-C242 POLYESTER CAPACITOR	CQMXA472J100



Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
	C244 CERAMIC CAPACITOR	CKDYX104M25	△	R308 CARBON FILM RESISTOR	RD1/4PMF101J
	C245,C246 CERAMIC CAPACITOR	CKCYB331K50		R311-R315 CARBON FILM RESISTOR	RD1/4PM□□□J
	C247,C248 AUDIO FILM CAPACITOR	CFTXA103J50		R317-R327 CARBON FILM RESISTOR	RD1/4PM□□□J
	C251-C254 CERAMIC CAPACITOR	CCCSL680K500	△	R330 CARBON FILM RESISTOR	RD1/4PMF010J
	C255 CERAMIC CAPACITOR	CCCSL680J50	△	R401,R402 CARBON FILM RESISTOR	RD1/4PMFL101J
	C256 CERAMIC CAPACITOR	CCDSL470J50	△	R403,R404 METAL OXIDE RESISTOR	RS1LMF331J
	C301,C302 ELECTR.CAPACITOR	CEAS2R2M50	△	R407,R408 CARBON FILM RESISTOR	RD1/4PMFL100J
	C303 ELECTROLYTIC CAPACIT	CEAS471M6		R501-R506 CARBON FILM RESISTOR	RD1/2PM□□□J
	C304 CERAMIC CAPACITOR	CKCYF103Z50	△	R508 CARBON FILM RESISTOR	RD1/4PMF010J
	C305 ELECTR.CAPACITOR	CEAS101M25	△	R509,R510 METAL OXIDE RESISTOR	RS1LMF□□□J
	C306-C308 ELECTR.CAPACITOR	CEASR47M50		R517-R520 CARBONFILM RESISTOR	RD1/2PM221J
	C401,C402 AUDIO FILM CAPACITOR	CFTXA473J50		R731,R732 CARBON FILM RESISTOR	RD1/4PM103J
	C501,C502 ELECTR.CAPACITOR	CEAS470M25		VR201,VR202 VR	ACP1045
	C505 ELECTROLYTIC CAPACIT	ACH1189		VR701 VARIABLE(100K-20AX2)	ACT1062
	C506 ELECTROLYTIC CAPACIT	ACH1190		Other resistors	RD1/8PM□□□J
	C508 ELECTR.CAPACITOR	CEAS470M50	<b>OTHERS</b>		
	C509 ELECTR.CAPACITOR	CEAS220M50		CN4 CONNECTOR(15P)	KPE15
	C703-C708 CERAMIC CAPACITOR	CCCSL271J50		CN9 JUMPER CONNECTOR	KPC8
	C711,C712 CERAMIC CAPACITOR	CCCSL271J50		RY301-RY303 RELAY	ASR1038
	C715,C716 CERAMIC CAPACITOR	CCCSL271J50		PIN JACK(4P)	AKB1007
				PIN JACK(6P)	AKB1008
	C719,C720 CERAMIC CAPACITOR	CCCSL271J50		PIN JACK(6P)	AKB1024
	C725 CERAMIC CAPACITOR	CCCSL221J50		SPEAKER TERMINAL 8-P	AKE1011
	C727,C728 CERAMIC CAPACITOR	CCCSL221J50			
	C731 CERAMIC CAPACITOR	CKCYF103Z50			

## RESISTORS

	R121,R122 CARBON FILM RESISTOR	RDR1/4PM820J
	R133,R134 CARBON FILM RESISTOR	RDR1/6PU471J
	R141,R142 CARBON FILM RESISTOR	RDR1/6PU563J
	R143,R144 CARBON FILM RESISTOR	RD1/4PM560J
	R201-R204 CARBON FILM RESISTOR	RDR1/4PM□□□J
	R205-R214 CARBON FILM RESISTOR	RD1/4PM□□□J
	R215-R218 CARBON FILM RESISTOR	RDR1/4PM□□□J
	R219-R234 CARBON FILM RESISTOR	RD1/4PM□□□J
	R237,R238 CARBON FILM RESISTOR	RDR1/4PM224J
△	R239-R242 FUSIBLE RESISTOR	RFA1/4PS101J
△	R243,R244 CARBON FILM RESISTOR	RD1/4PMF561J
△	R245-R248 FUSIBLE RESISTOR	RFA1/4PS101J
	R249-R252 CARBON FILM RESISTOR	RD1/4PM□□□J
	R255,R256 CARBON FILM RESISTOR	RD1/4PM561J
△	R257-R260 FUSIBLE RESISTOR	RFA1/4PS101J
△	R261-R264 FUSIBLE RESISTOR	RFA1/4PS470J
△	R265-R268 FUSIBLE RESISTOR	RFA1/4PS4R7J
△	R269,R270 RESISTOR (0.33, 5W)	ACN1063
	R275-R278 CARBON FILM RESISTOR	RD1/4PM□□□J
△	R281-R284 FUSIBLE RESISTOR	RFA1/4PS331J
△	R285,R286 FUSIBLE RESISTOR	RFA1/4PS101J
△	R287,R288 FUSIBLE RESISTOR	RFA1/4PS4R7J
△	R289,R290 FUSIBLE RESISTOR	RFA1/4PS101J
	R299 CARBON FILM RESISTOR	RD1/4PM100J
△	R301,R302 CARBON FILM RESISTOR	RD1/4PMF222J

**A-339**

2.3 SCHEMATIC DIAGRAM

\* Marks are difference between two assemblies.

	A-339/KU,HE,SD	A-339/HEWZ, A-339-S/HEWZ
AF COMPLEX ASS'Y	AWZ3483	AWZ3482
L103-L106	VACANT(OPEN)	LAU221K
C103,C104	CCCSL221J50	CCCSL330J50
C115,C116	VACANT(OPEN)	CQMA392K50
C125,C126	VACANT(OPEN)	CCCSL101J50
C127,C128	VACANT(OPEN)	CCDSL221J50
C129	VACANT(OPEN)	CKPYX103N25
C139,C140	VACANT(OPEN)	CCCSL330J50
C141	VACANT(OPEN)	CKCYF103Z50
C143,C144	VACANT(OPEN)	VACANT(OPEN)
C213,C214	CCCSL120K500	CCCSL060D500
C215,C216	CCCSL120K500	VACANT(SHORT)
C239-C242	VACANT(OPEN)	CQMXA472J100
C244	VACANT(OPEN)	CKDYX104M25
C245,C246	VACANT(OPEN)	CKCYB331K50
C251-C254	CCCSL330K500	CCCSL680K500
C301,C302	CEANP2R2M50	CEAS2R2M50
C401,C402	CFTXA104J50	CFTXA473J50
C403,C404	CFTXA104J50	VACANT(SHORT)
C703-C708	VACANT(OPEN)	CCCSL271J50
C711,C712	VACANT(OPEN)	CCCSL271J50
C715,C716	VACANT(OPEN)	CCCSL271J50
C719,C720	CKCYB331K50	CCCSL271J50
C725	CKCYF103Z50	CCDSL221J50
C727,C728	VACANT(OPEN)	CCCSL221J50
R103	VACANT(OPEN)	RD1/8PM4R7J
R105,R106	RDR1/6PU100J	RD1/8PM332J
R719,R720	VACANT(SHORT)	RD1/8PM331J
R724	VACANT(OPEN)	RD1/8PM100J
HEAD PHONE ASS'Y	Non supply	Non supply
C801,C802	VACANT(OPEN)	CKCYB392K50
OTHERS		
R1, R2	VACANT(OPEN)	RD1/4PM100J

1. RESISTORS :

Indicated in  $\Omega$ , 1/8, 1/6, 1/4W.,  $\pm 5\%$  tolerance unless otherwise noted k; k $\Omega$ , M; M $\Omega$ , (F);  $\pm 1\%$ , (G);  $\pm 2\%$ , (K);  $\pm 10\%$ , (M);  $\pm 20\%$  tolerance.

2. CAPACITORS :

Indicated in capacity ( $\mu F$ )/voltage(V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT :

$\square$  V : Signal voltage at 40W+40W, 8 $\Omega$ /50W+50W, 4 $\Omega$  output(1kHz).

$\square$  : DC voltage (V) at no input signal.

Value in ( ) is DC voltage at rated power.

$\leftarrow$  mA; DC current at no input signal.

4. OTHERS :

$\odot$  : Adjusting point

The  $\Delta$  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.

\* marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES : (The underline indicates the switch position)

S602 : LOUDNESS(ON-OFF)

S701 : FUNCTION SEL(TAPE2-TAPE1-CD-PHONO-TUNER-LINE)

S702 : REC SEL(2 $\rightarrow$ 1-1 $\rightarrow$ 2-SOURCE-OFF-CD-TUNER)

S703 : SULLES(ON-OFF)

S801-1 : SPEAKERS-A(ON-OFF)

S801-2 : SPEAKERS-B(ON-OFF)

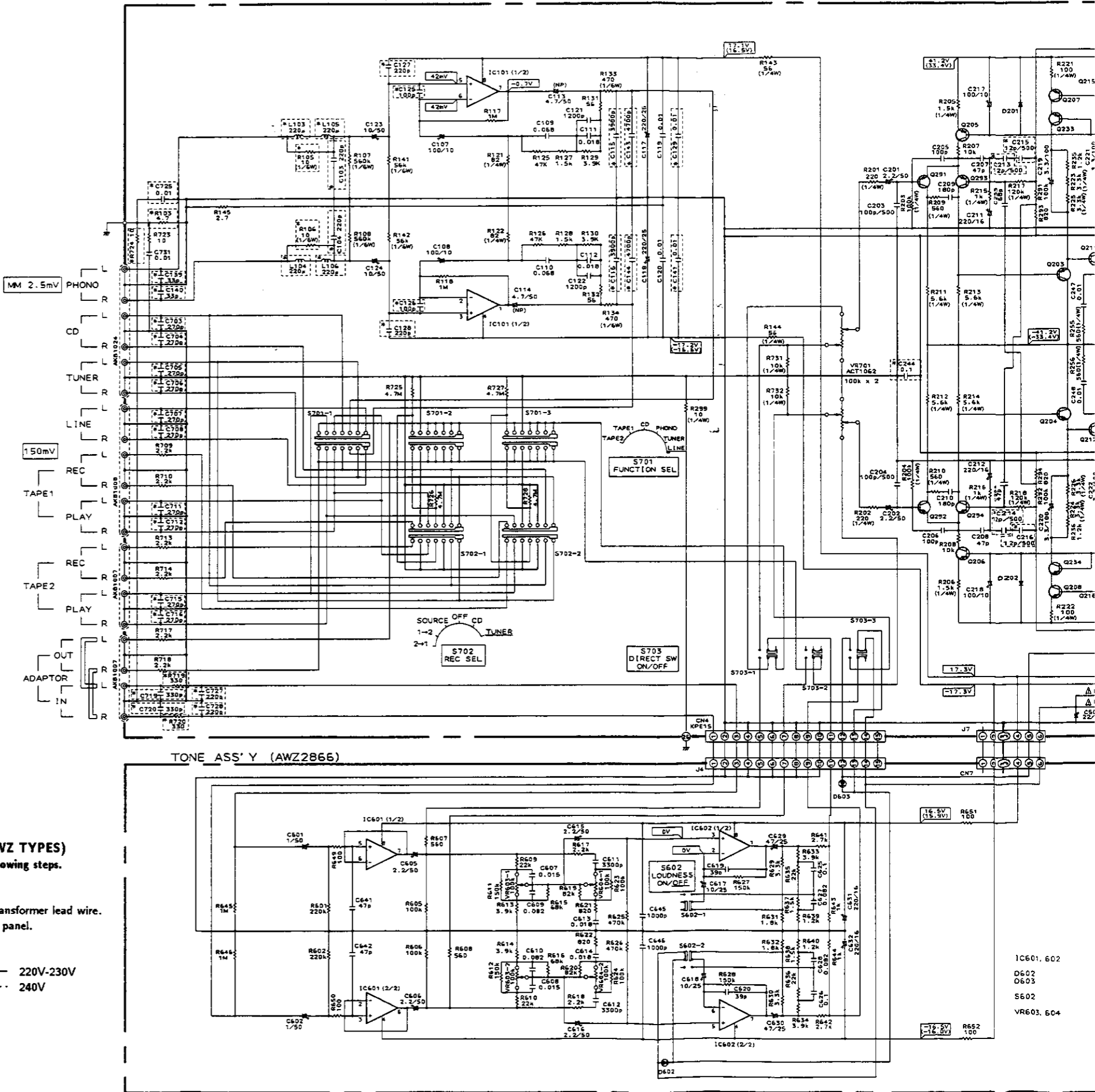
S501 : POWER SW(ON-OFF)

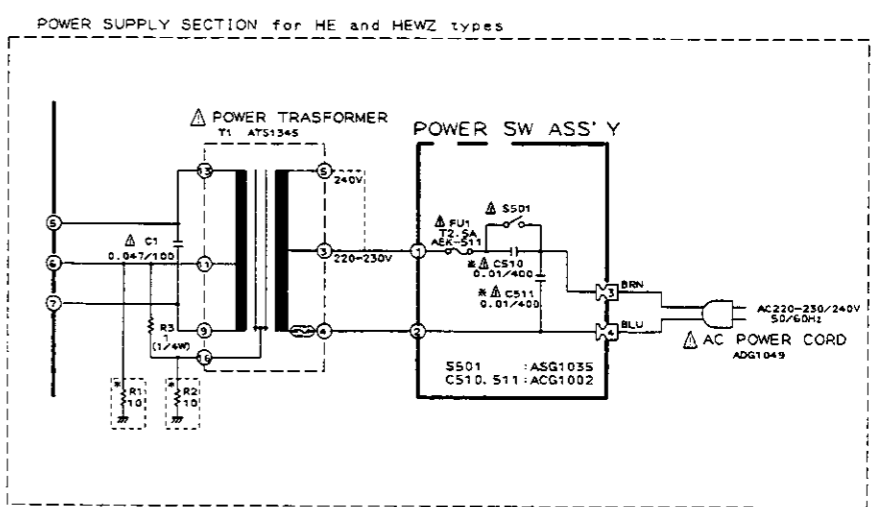
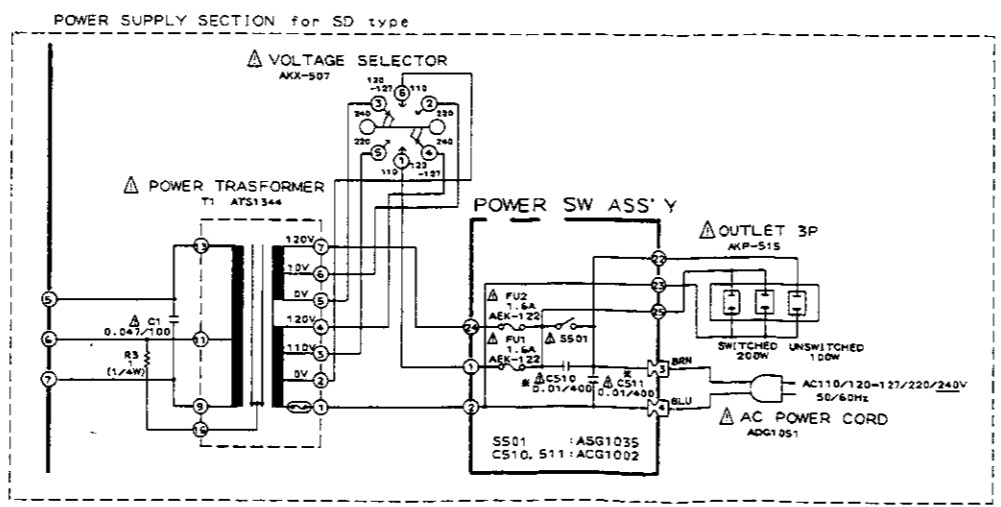
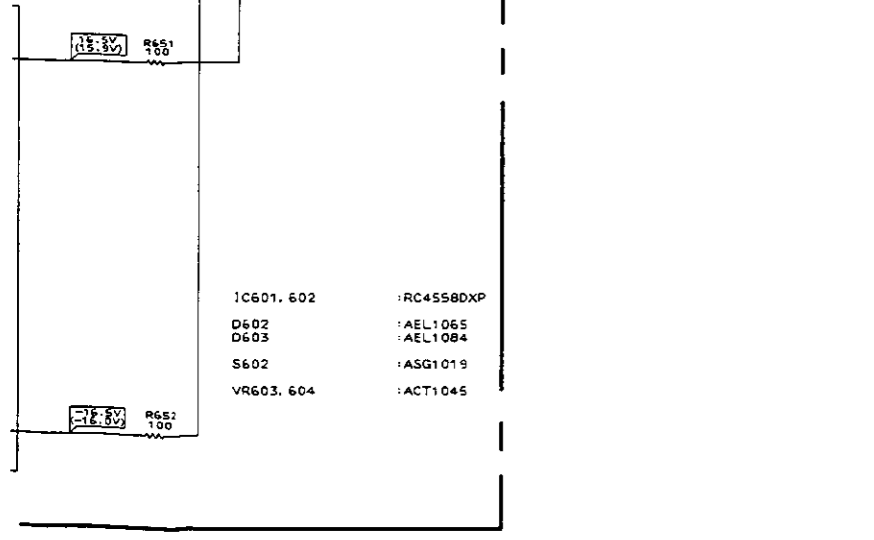
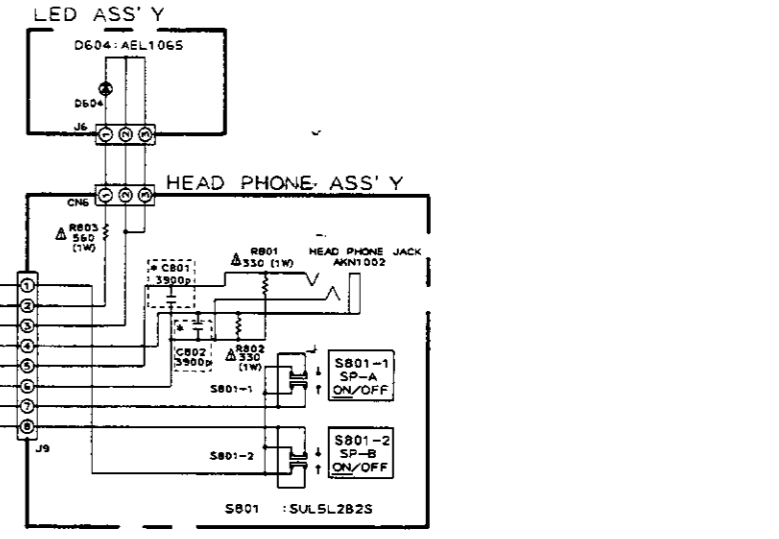
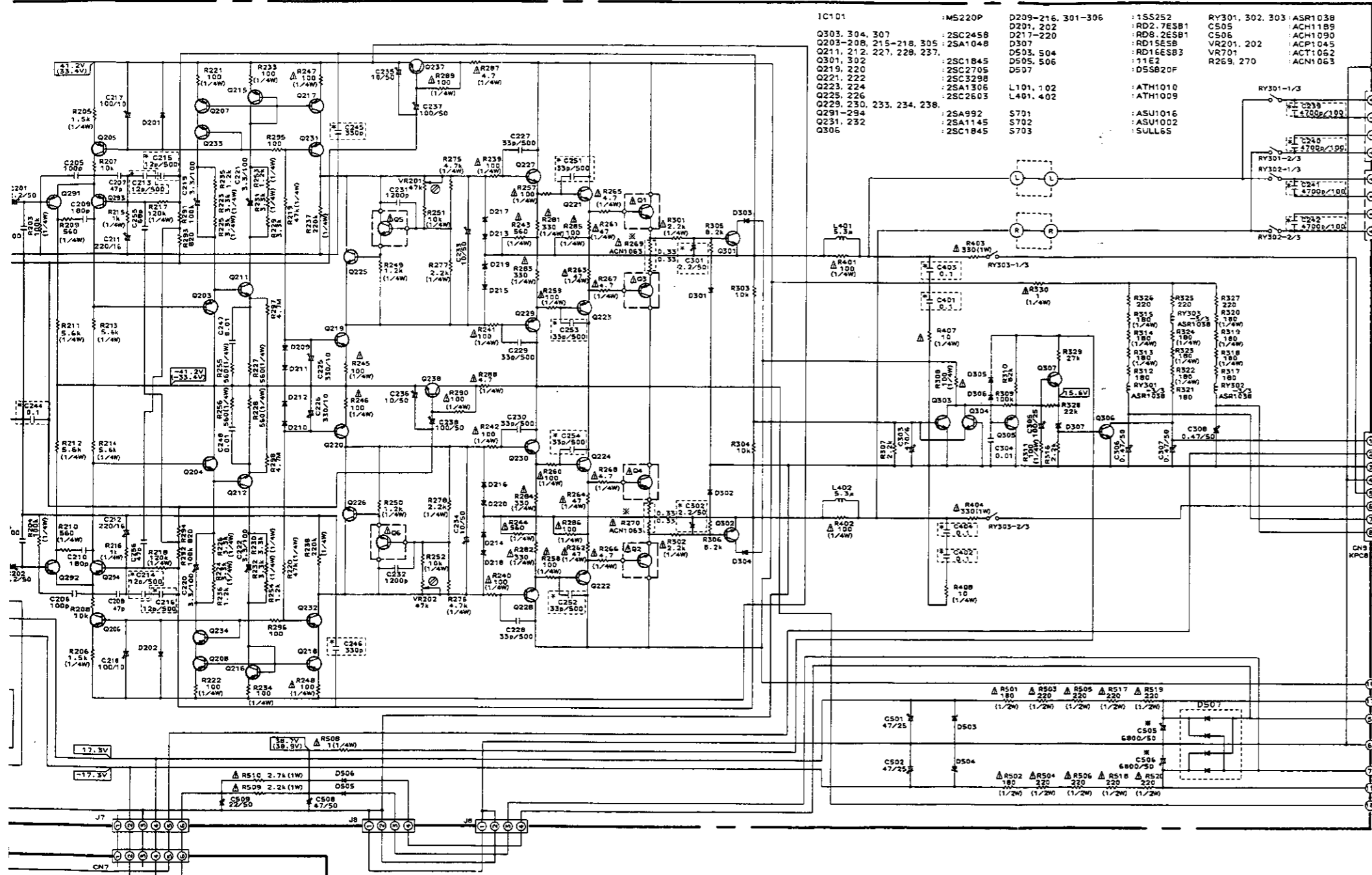
Line Voltage Selection (HE and HEWZ TYPES)

Line voltage can be changed with the following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection of the power transformer lead wire.
4. Stick the line voltage label on the rear panel.

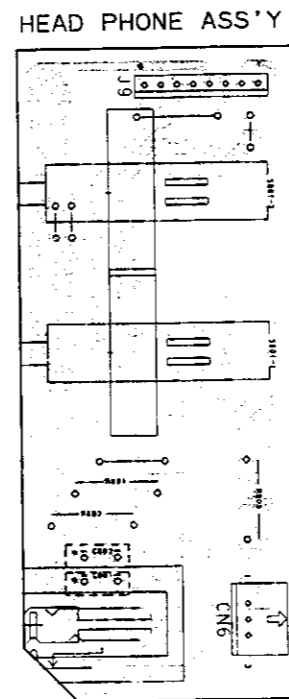
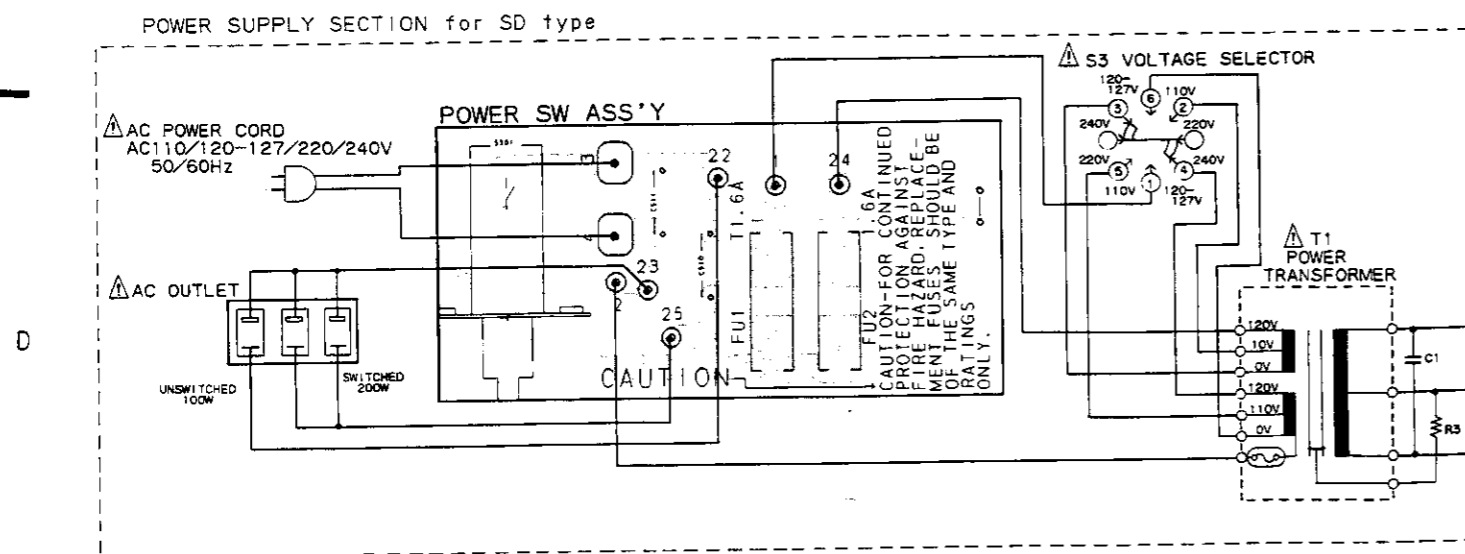
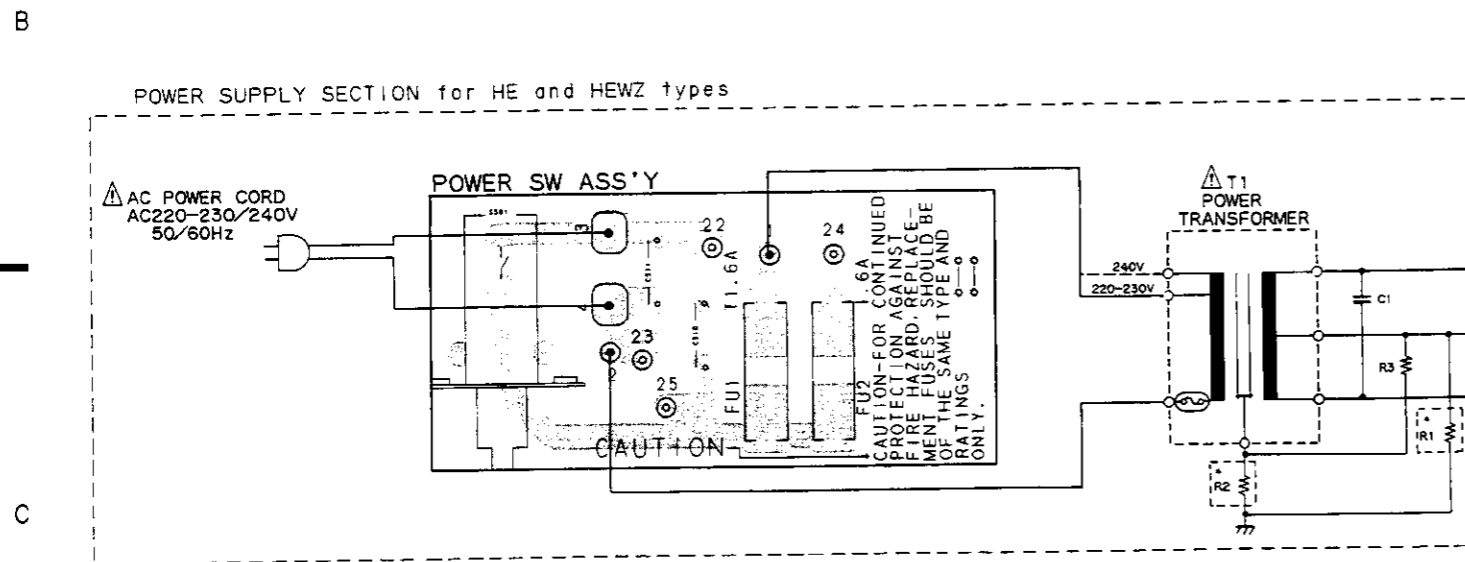
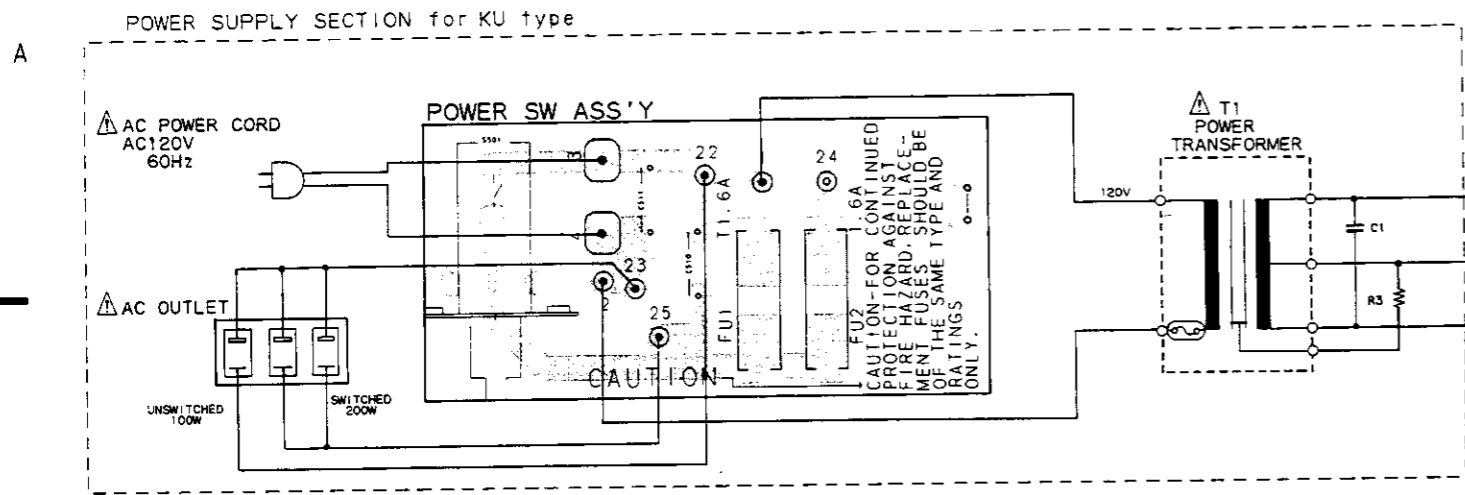
Parts No.	Description	
AXX-193	220V label	— 220V-230V
AXX-192	240V label	- - - - 240V



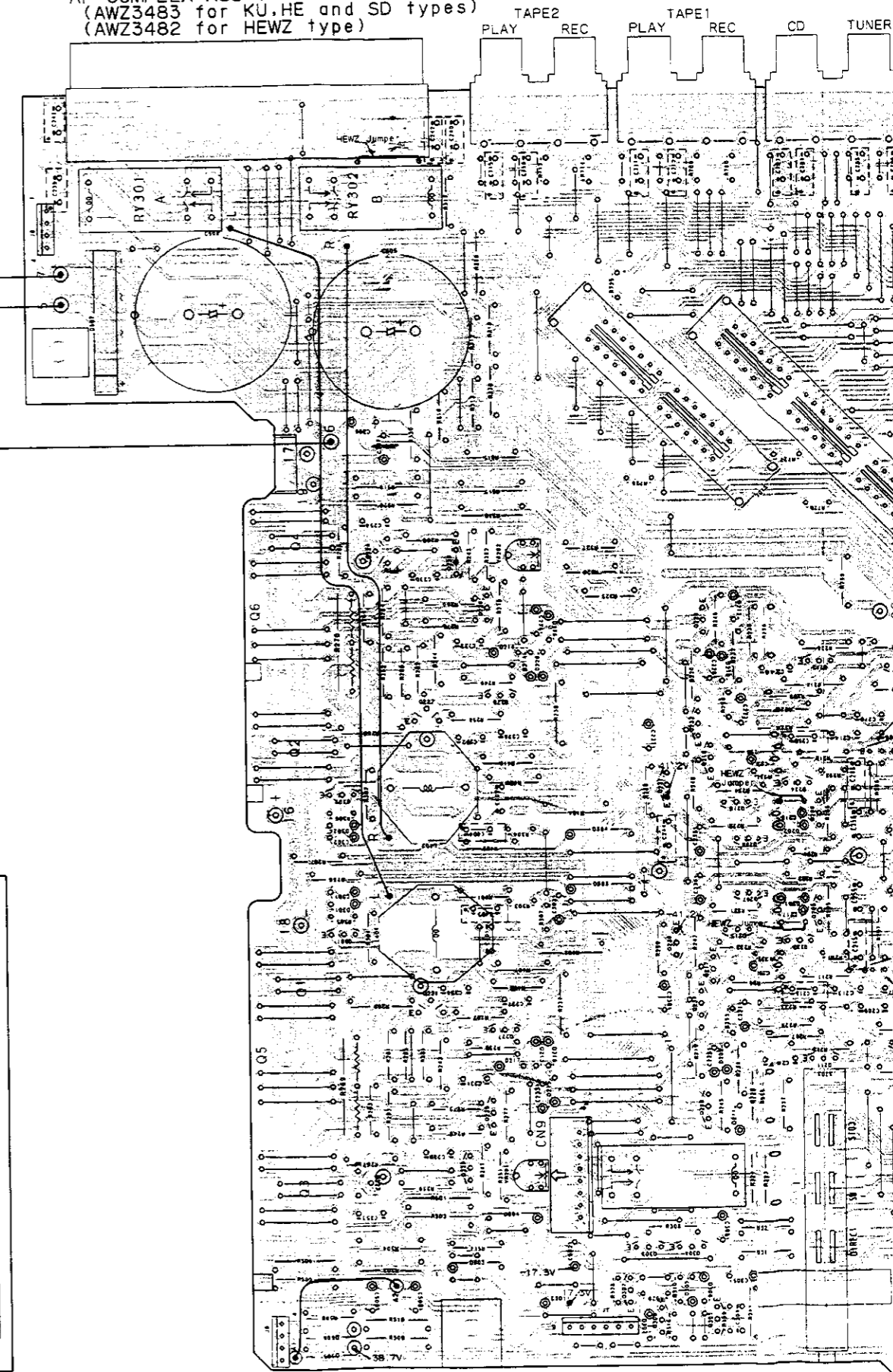


## 2.4 P.C.BOARDS CONNECTION DIAGRAM

Parts with an asterisk ( \* ) are different according to versions, KU, HE, SD or HEWZ. Refer to page 23 for details.

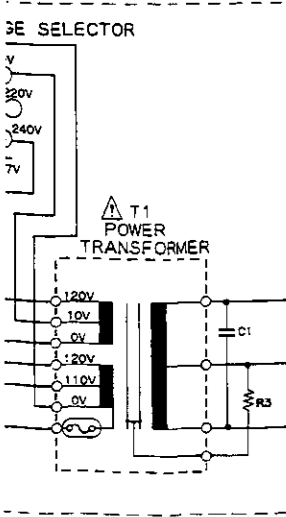
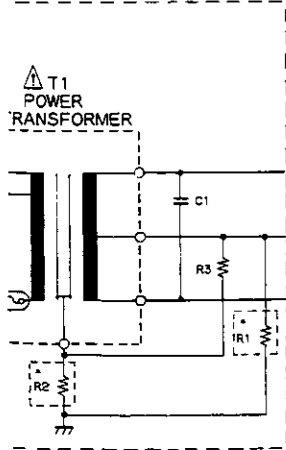
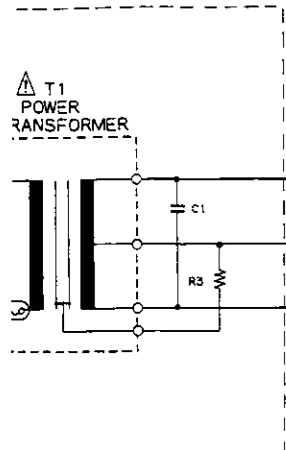
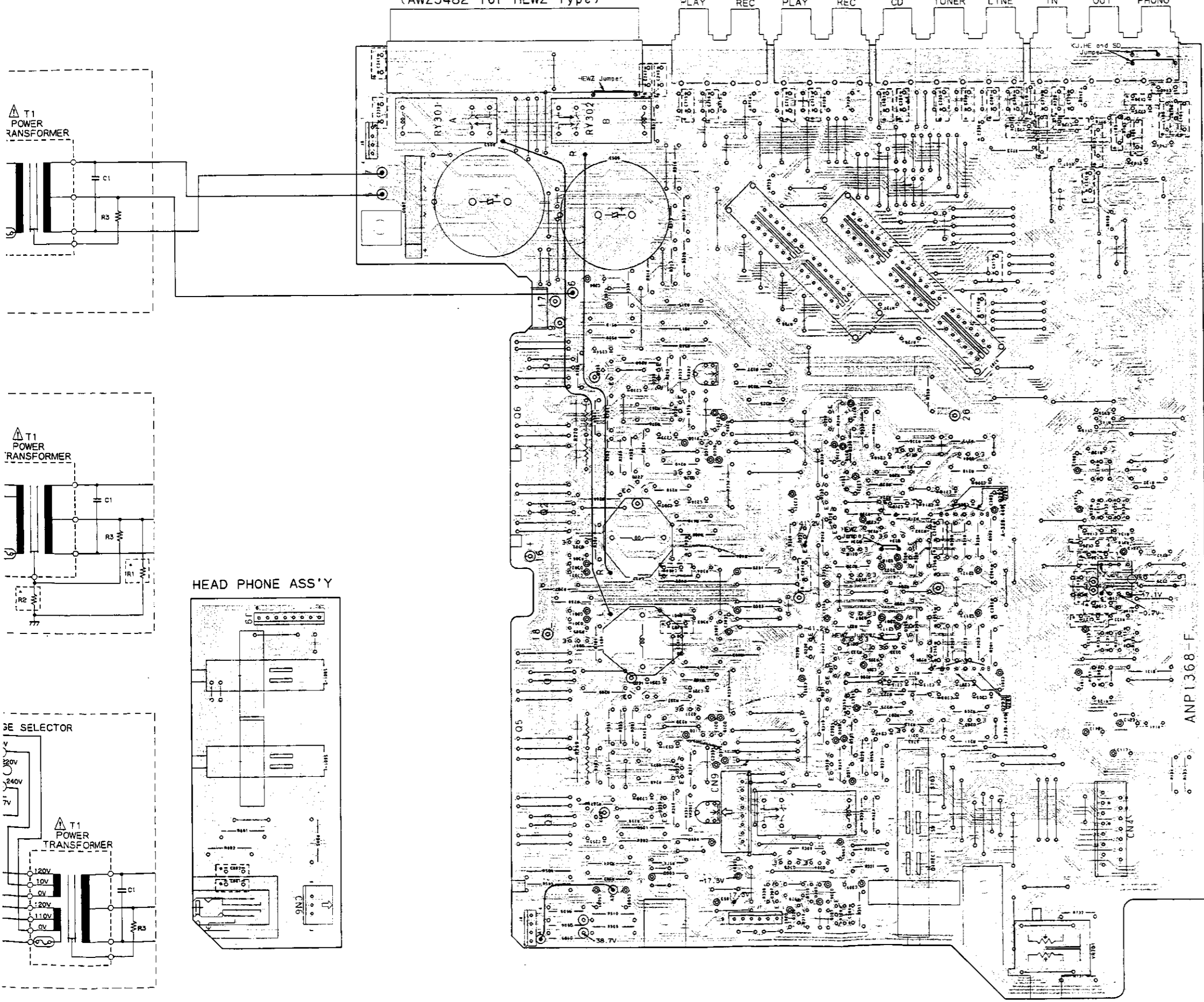


AF COMPLEX ASS'Y  
(AWZ3483 for KU, HE and SD types)  
(AWZ3482 for HEWZ type)

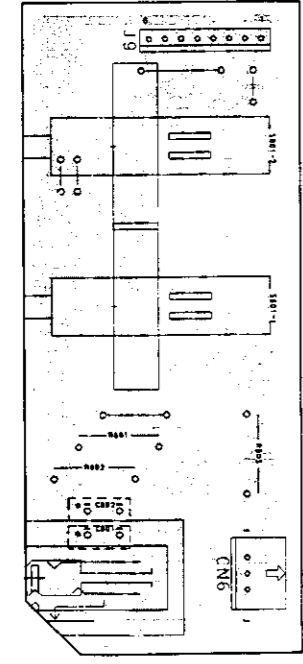


Mount according to

AF COMPLEX ASS'Y  
(AWZ3483 for KU,HE and SD types)  
(AWZ3482 for HEWZ type)



HEAD PHONE ASS'Y



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
Q504		Transistor
Q215		Radiator type transistor
D203		Diode
R237		Resistor
C513		Capacitor (Polarity)
C518		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.

VR202 Q224 Q230  
Q226 Q220  
Q212 Q204  
Q228 Q222  
Q232 Q294 Q292  
Q218 Q237 Q234  
Q302 Q216  
Q206  
Q208  
IC101  
Q207  
Q205  
Q301 Q215  
Q238 Q233  
Q217  
Q293 Q291  
Q221 Q231  
Q227  
Q203  
Q211  
Q225 Q219  
VR201 Q229 Q223  
Q303 Q304  
Q307  
Q306 Q305  
VR701

ANP1368-F

A

B

C

D

e

e

8

8

7

7

6

6

5

5

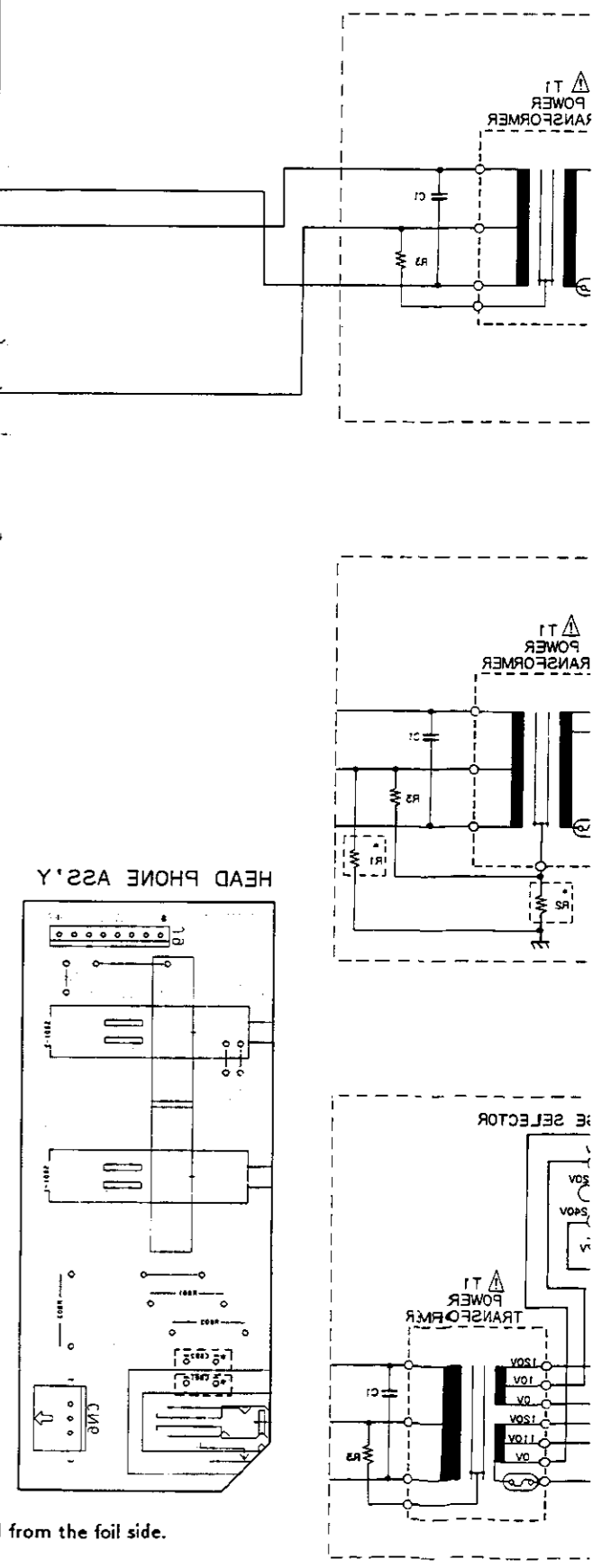
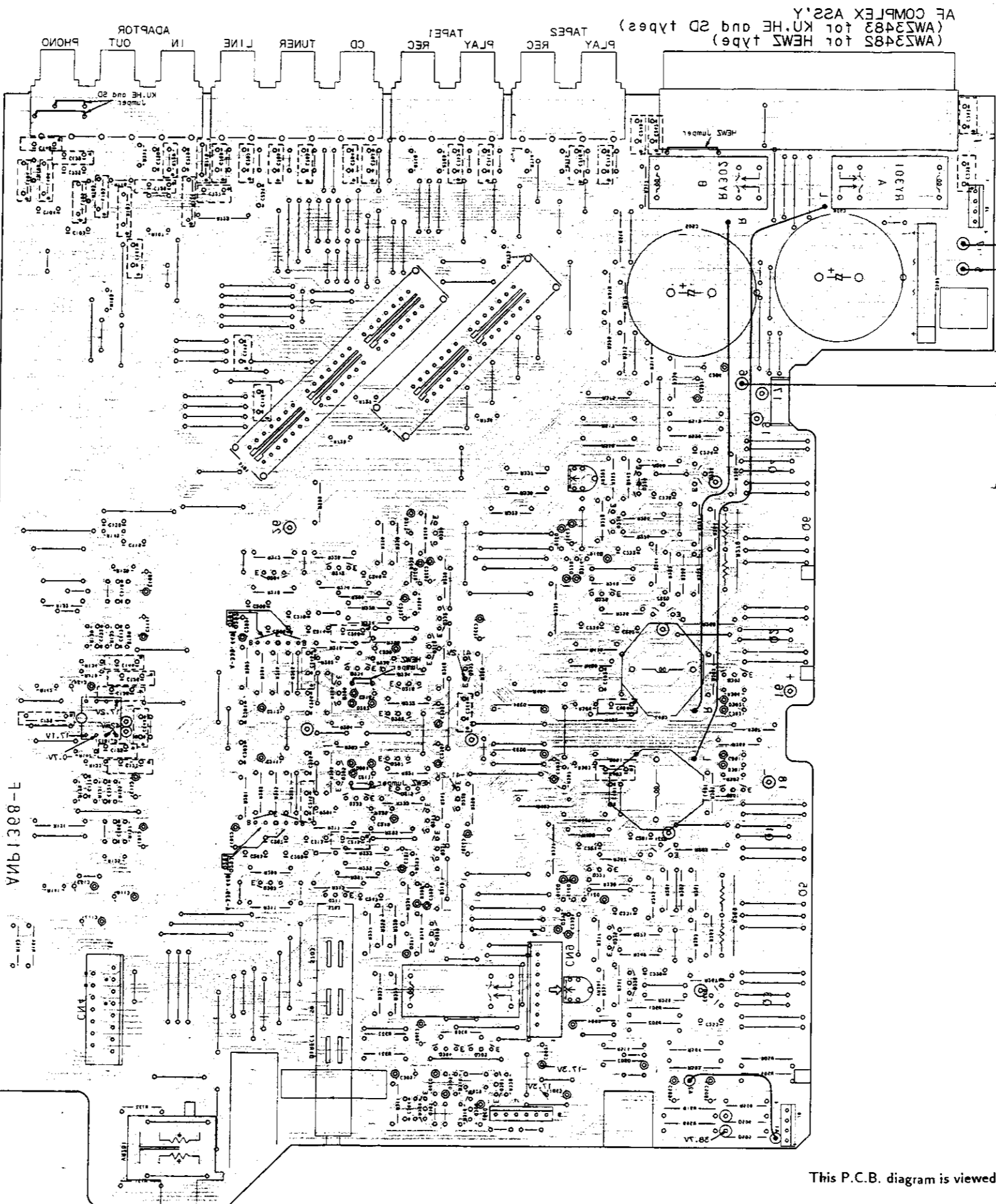
4

4

3

3

- RSOS Q534
- Q558
- Q515 Q504
- Q558
- Q525
- Q524 Q525
- Q518 Q524
- Q505 Q518
- Q508
- IC101
- Q507
- Q506
- Q301 Q512
- Q528 Q522
- Q511 Q521
- Q552 Q518
- RSO1 Q529
- Q303 Q304
- Q201
- Q306 Q302
- RS101



This P.C.B. diagram is viewed from the foil side.

not according to

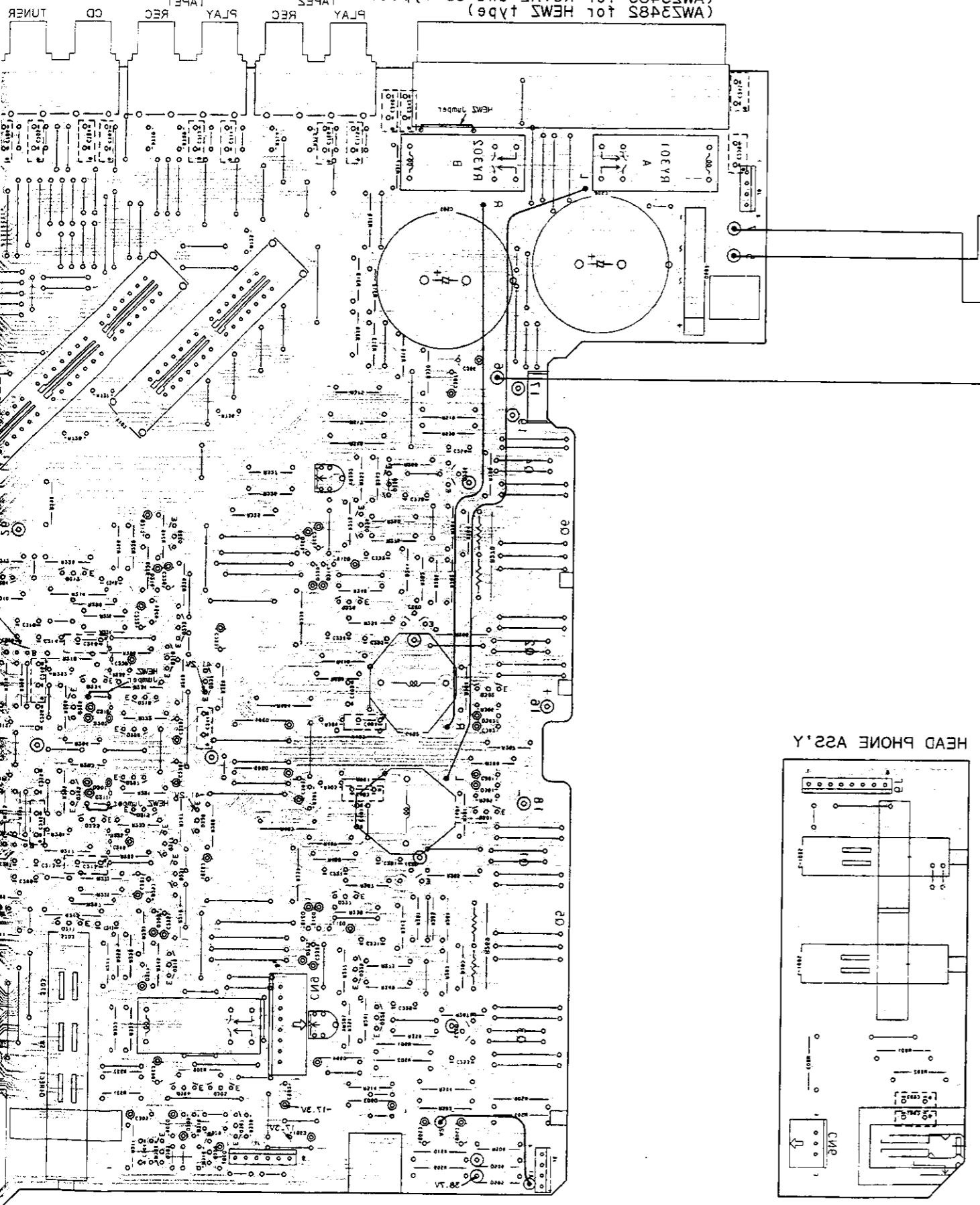
AF COMPLEX ASSY  
(AW3483 for KU, HE and SD types)  
(AW3482 for HEWZ type)

7-8338

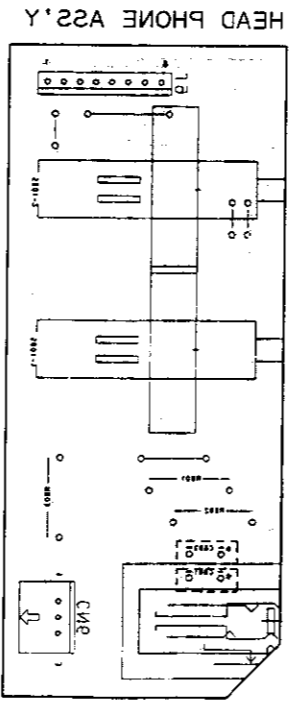
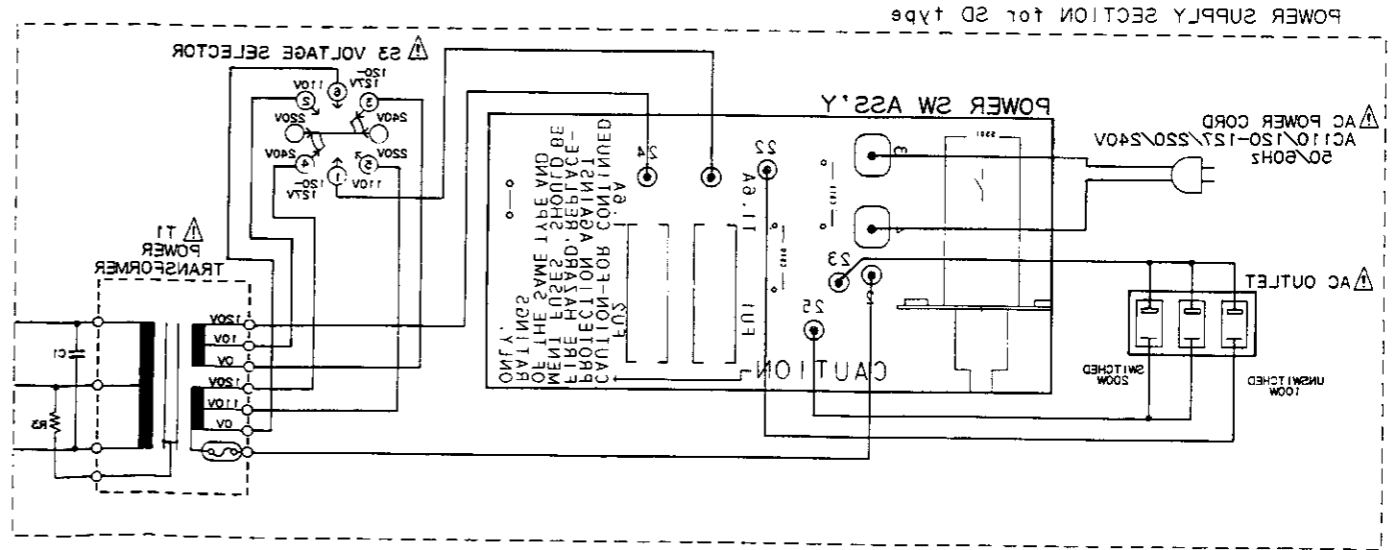
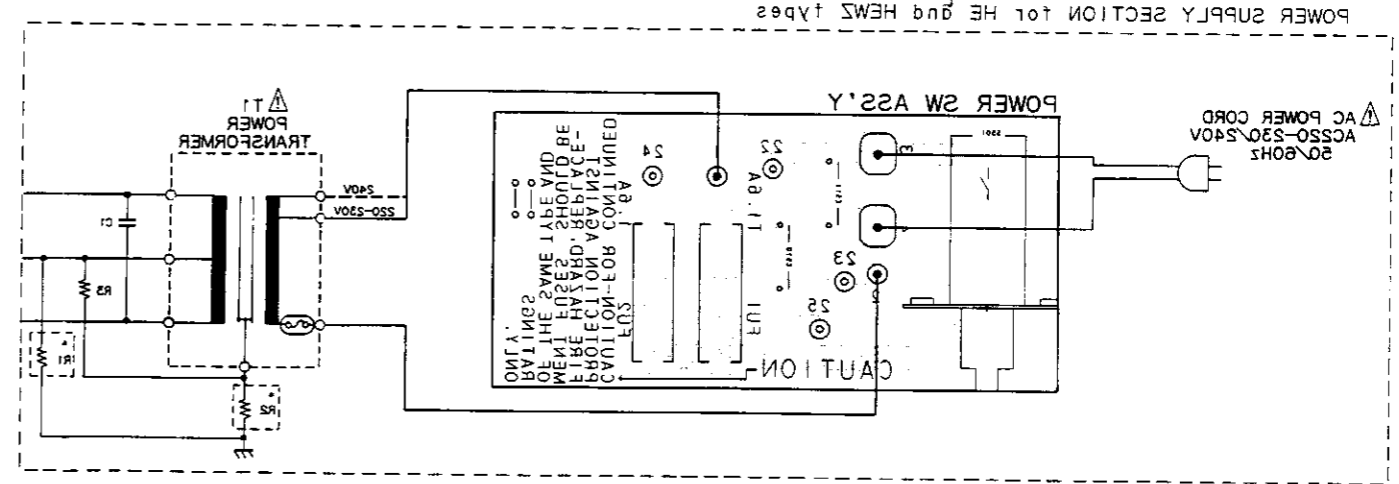
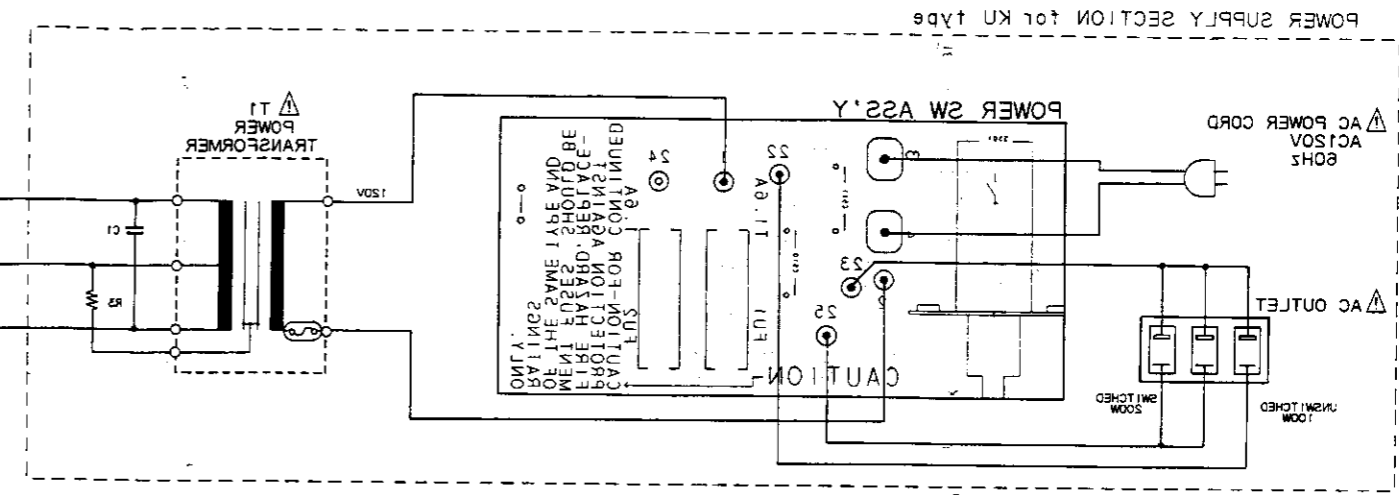
2.4 P.C. BOARDS CONNECTION DIAGRAM

Refer to page 23 for details.  
 Versions, KU, HE, 2D or HEWS.  
 \* Parts with an asterisk (\*) are different according to

AF COMPLEX ASS'Y  
 (AW3483 for KU, HE and 2D types)  
 (AW3482 for HEWS type)



This P.C.B. diagram is viewed from the foil side.



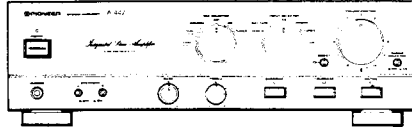
A  
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# Service Manual

**PIONEER**  
The future of sound and vision.



The illustration shows model A-447.  
L'illustration montre le modèle A-447.

ORDER NO.  
**ARP2043**

STEREO AMPLIFIER

# A-447

## A-447-S

## A-337

## A-337-S

MODEL A-447, A-447-S, A-337 AND A-337-S HAVE FOLLOWING VERSIONS:

Type	Applicable model				Power requirement	Export destination
	A-447	A-447-S	A-337	A-337-S		
HE	○	—	○	—	AC220V, 240V (switchable) *	European continent
HEWZ	○	○	○	○	AC220V, 240V (switchable) *	West Germany
SD	○	—	○	—	AC110V, 120-127V, 220V, 240V (switchable)	Kingdom of Saudi Arabia and General market
KUC	—	—	○	—	AC120V only	U.S.A. and Canada
KC	○	—	—	—	AC120V only	Canada

\* Change the primary wiring.

- This manual is applicable to the A-447/HE, HEWZ, A-447-S/HEWZ, A-337/HE, HEWZ and A-337-S/HEWZ types.
- As to the A-447/HEWZ and A-447-S/HEWZ types, refer to pages 34 - 36.
- The A-447-S is the same as the A-447 except for color.
- As to the A-337/HEWZ and A-337-S/HEWZ types, refer to pages 37 - 39.
- The A-337-S is the same as the A-337 except for color.
- Ce manuel pour le service comprend les explications de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

## CONTENTS

1. SAFETY INFORMATION .....	2	5. FOR A-447/HEWZ AND A-447-S/HEWZ TYPES	35
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3. FOR A-447/HE TYPE .....	7	7. PANEL FACILITIES .....	41
4. FOR A-337/HE TYPE .....	23	8. SPECIFICATIONS .....	44

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SEV MAY. 1990 Printed in Jap

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

**WARNING**

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

# 1. SAFETY INFORMATION

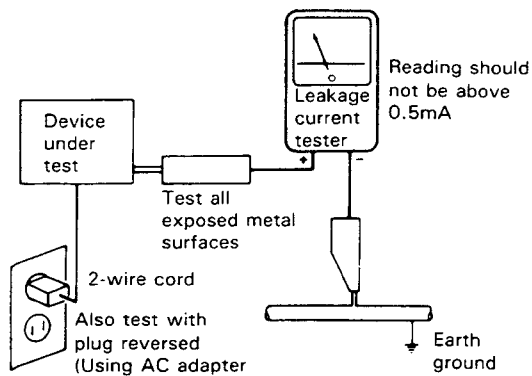
(FOR USA MODEL ONLY)

## 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

### LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.**

## 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  $\Delta$  on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

## 2. EXPLODED VIEWS, PACKING 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.

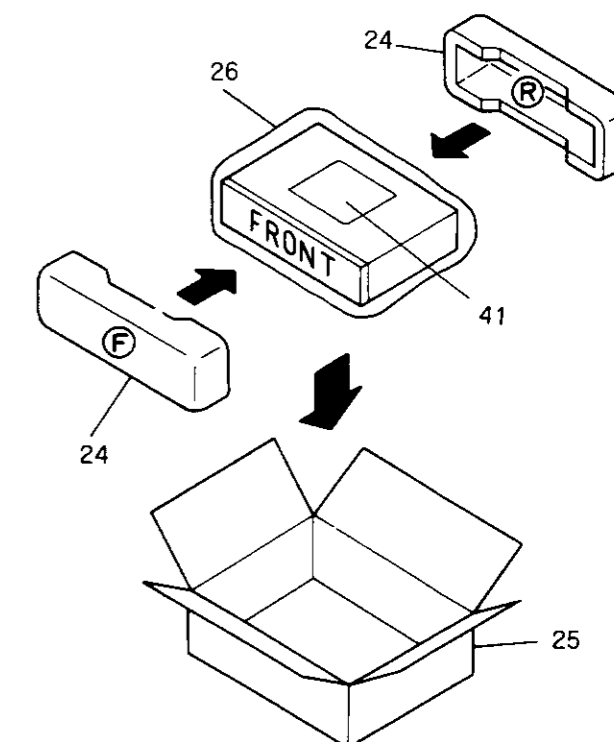
### 2.1 PARTS LIST OF A-447/HE

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	ROTARY KNOB S (PLS)	AAB1155		36	METAL BONNET	AZN1799
	2	ROTARY KNOB L (PLS)	AAB1160		37	BOTTOM PLATE	
	3	ROTARY KNOB R (PLS)	AAB1162		38	P.C.B HOLDER	
	4	ROTARY KNOB M (PLS)	AAB1164		39	HEAT SINK	
	5	PUSH KNOB C	AAD1366		40	ROD	ANR-879
	6	KNOB (POWER)	AAD1535		41	OPERATING INSTRUCTIONS	ARE1162
	7	PUSH KNOB	AAD1536		42	SCREW	BBT30P060FZK
	8	PUSH KNOB C	AAD1803		43	NUTS	NK90FZB
	9	NAME PLATE (METAL)	AAM1029		44	SCREW	VMZ30P060FCU
	10	SCREW	ABA-298	$\triangle$	45	C1 CAPACITOR	CQMXA104J100
	11	SCREW (STEEL)	ABA1009	$\triangle$	46	FU1 FUSE(T2.5A)	AEK-403
	12	SCREW (STEEL)	ABA1011	$\triangle$	47	Q1 TRANSISTOR	2SC3281
	13	SCREW (STEEL)	ABA1016	$\triangle$	48	Q2 TRANSISTOR	2SC3281
	14	SCREW (STEEL)	ABA1048	$\triangle$	49	Q3 TRANSISTOR	2SA1302
	15	SCREW (STEEL)	ABA1050	$\triangle$	50	Q4 TRANSISTOR	2SA1302
	16	SCREW 3X14	ABA1082	$\triangle$	51	Q5 TRANSISTOR	2SC4137
	17	SPRING B	ABH-052	$\triangle$	52	Q6 TRANSISTOR	2SC4137
	18	SPRING B	ABH1034		53	S1 SWITCH	ASU1035
	19	NUT	ABN-065		54	S2 SWITCH	ASU1036
$\triangle$	20	AC POWER CORD	ADG1049	$\triangle$	55	T1 POWER TRANSFORMER	ATS1277
	21	RIVET	AEC-441		56	TONE ASS'Y	AWZ2858
	22	STRAIN RELIEF	AEC-882		57	AF COMPLEX ASS'Y	AWZ2861
	23	SHEET	AEE1014		58	LED ASS'Y	
	24	STYROL PROTECTOR	AHA1335		59	SHIELD ASS'Y	
	25	PAKING CASE	AHD1861		60	HEADPHONE ASS'Y	
	26	COVER	AHG1016		61	POWER SW ASS'Y	
	27	TERMINAL SCREW			62	GND SCREW	ABA1047
	28	JUMPER PLUG	AKM1019		63	BINDER	
	29	PANEL BASE (PLS)	AMB1651		64	R1, R2 RESISTORS	RD1/4PM100J
	30	INDICATING LENS	AMR1160			(HEWZ type only)	
	31	INSULATOR ASS'Y	AMR2140				
	32	ARM	AMR2142				
	33	CHASSIS					
	34	FRONT PANEL	ANB1395				
	35	REAR PANEL					

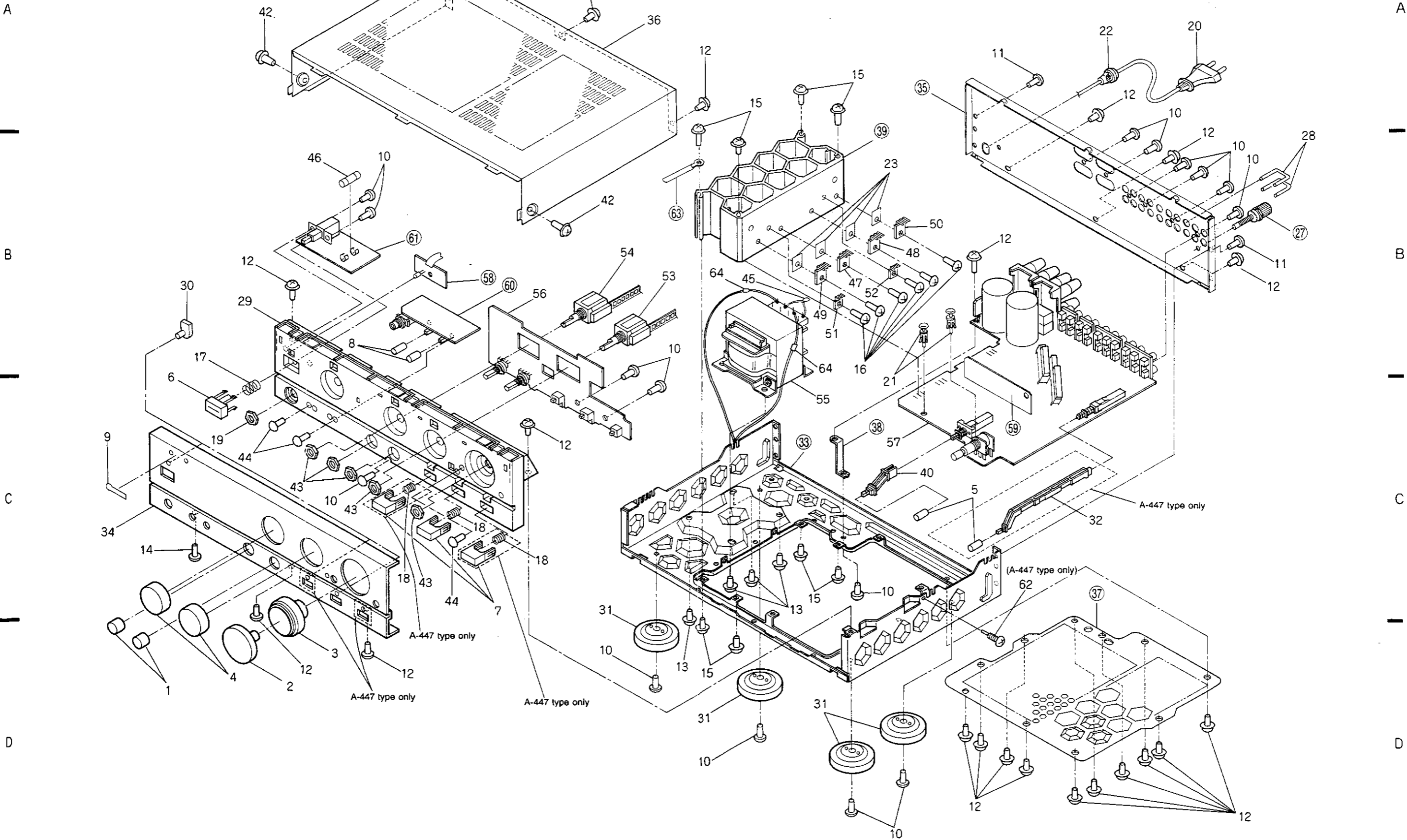
### 2.2 PARTS LIST OF A-337/HE

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	ROTARY KNOB S (PLS)	AAB1155	$\triangle$	46	FU1 FUSE (T1.6A)	AEK-405
	2	ROTARY KNOB L (PLS)	AAB1160	$\triangle$	47	Q1 TRANSISTOR	2SC3181N
	3	ROTARY KNOB R (PLS)	AAB1162	$\triangle$	48	Q2 TRANSISTOR	2SC3181N
	4	ROTARY KNOB M (PLS)	AAB1166	$\triangle$	49	Q3 TRANSISTOR	2SA1264N
	5	PUSH KNOB C	AAD1366	$\triangle$	50	Q4 TRANSISTOR	2SA1264N
	6	KNOB (POWER)	AAD1535	$\triangle$	51	Q5 TRANSISTOR	2SC4137
	7	PUSH KNOB	AAD1536	$\triangle$	52	Q6 TRANSISTOR	2SC4137
	8	PUSH KNOB C	AAD1803		53	S1 SWITCH	ASU1035
	9	NAME PLATE (METAL)	AAM1029		54	S2 SWITCH	ASU1036
	10	SCREW	ABA-298	$\triangle$	55	T1 POWER TRANSFORMER	ATS1278
	11	SCREW (STEEL)	ABA1009		56	TONE ASS'Y	AWZ2866
	12	SCREW (STEEL)	ABA1011		57	AF COMPLEX ASS'Y	AWZ2867
	13	SCREW (STEEL)	ABA1016		58	LED ASS'Y	
	14	SCREW (STEEL)	ABA1048		59	SHIELD ASS'Y	
	15	SCREW (STEEL)	ABA1050		60	HEADPHONE ASS'Y	
	16	SCREW 3X14	ABA1082		61	POWER SW ASS'Y	
	17	SPRING B	ABH-052		62	-----	
	18	SPRING B	ABH1034		63	BINDER	
	19	NUT	ABN-065		64	R1, R2 RESISTORS	RD1/4PM100J
$\triangle$	20	AC POWER CORD	ADG1049			(HEWZ type only)	
	21	RIVET	AEC-441				
	22	STRAIN RELIEF	AEC-882				
	23	SHEET	AEE1014				
	24	STYROL PROTECTOR	AHA1335				
	25	PACKING CASE	AHD1863				
	26	COVER SHEET	AHG1016				
	27	TERMINAL SCREW					
	28	JUMPER PLUG	AKM1019				
	29	PANEL BASE (PLS)	AMB1651				
	30	INDICATING LENS	AMR1160				
	31	INSULATOR ASS'Y	AMR2140				
	32	-----					
	33	CHASSIS					
	34	FRONT PANEL	ANB1397				
	35	REAR PANEL					
	36	METAL BONNET	AZN1799				
	37	BOTTOM PLATE					
	38	P.C.B HOLDER					
	39	HEAT SINK					
	40	ROD	ANR-879				
	41	OPERATING INSTRUCTIONS	ARE1162				
	42	SCREW	BBT30P060FZK				
	43	NUTS	NK90FZB				
	44	SCREW	VMZ30P060FCU				
$\triangle$	45	C1 CAPACITOR	CQMXA473J100				

### 2.3 PACKING

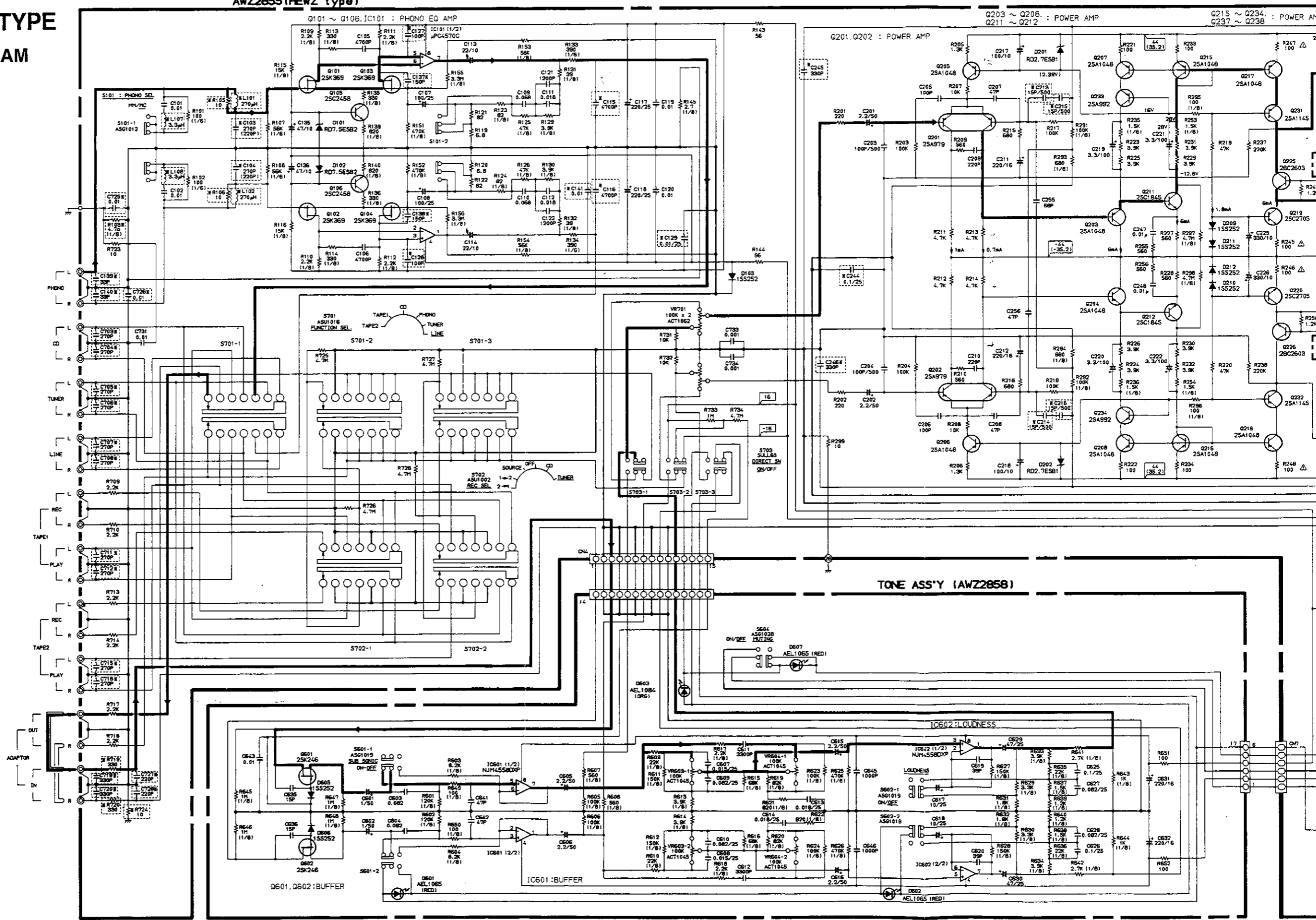


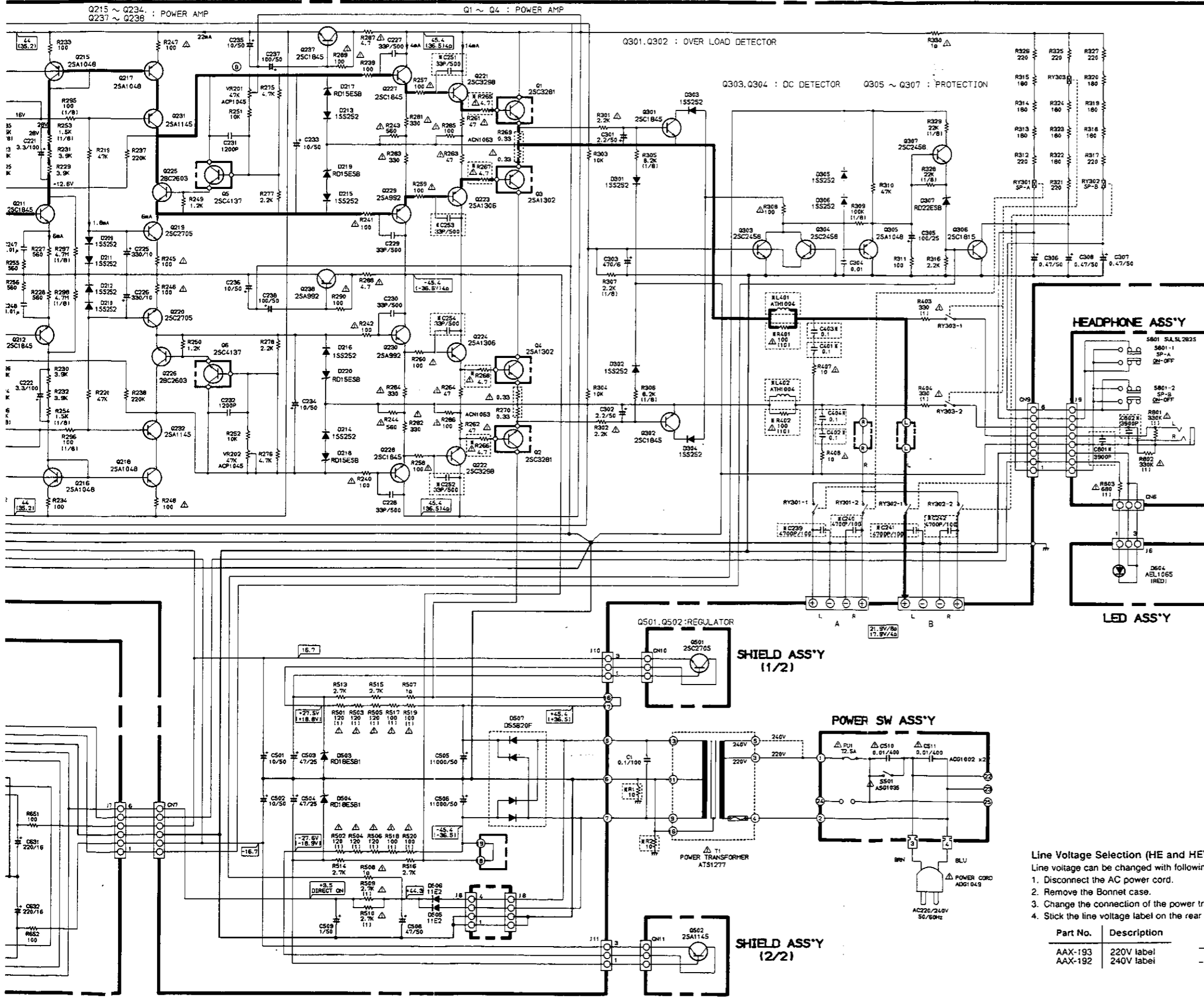
2.4 EXTERIOR



AF COMPLEX ASS'Y AWZ2861 (HE type)  
AWZ2855 (HEWZ type)

3. FOR A-447/HE TYPE  
3.1 SCHEMATIC DIAGRAM





- This circuit diagram is based on the HE version.
- Parts with an asterisk (\*) are different from this prepared for the HEWZ version.
- Refer to the comparison list.

Marks are difference between two assemblies.

	A-447/HE	A-447/HEW2, A-447-S/HEWZ
AF COMPLEX ASS'Y	AWZ2851	AWZ2855
L101, L102	VACANT (OPEN)	ATH1010
L107, L108	VACANT (JAMPER WIRE)	LAU3R3K
L401, L402	ATH1004	ATH1009
C103, C104	CCCSL271J50	CCCSL271J50
C115, C116	COMA472K50	COMA392K50
C127, C128	VACANT (OPEN)	CCCSL101J50
C129	VACANT (OPEN)	CKPYX103N25
C137, C138	VACANT (OPEN)	CCCSL151J50
C139, C140	VACANT (OPEN)	CCCSL330J50
C141	VACANT (OPEN)	CKCYF103Z50
C213, C214	CCCSL150K500	CCCSL080D500
C215, C216	CCCSL150K500	VACANT (JAMPER WIRE)
C239-C242	VACANT (OPEN)	COMXA472J100
C244	VACANT (OPEN)	CKDYX104M25
C245, C246	VACANT (OPEN)	CKCYB331K50
C251-C254	CCCSL330K500	CCCSL680K500
C401, C402	CFTXA104J50	CFTXA473J50
C403, C404	CFTXA104J50	VACANT (JAMPER WIRE)
C703-C708	VACANT (OPEN)	CCCSL271J50
C711, C712	VACANT (OPEN)	CCCSL271J50
C715, C716	VACANT (OPEN)	CCCSL271J50
C719, C720	CKCYB331K50	CCCSL271J50
C725	CKCYF103Z50	CCCSL221J50
C726	VACANT (OPEN)	CKCYF103Z50
C727, C728	VACANT (JAMPER WIRE)	CCCSL221J50
R103	VACANT (OPEN)	RD1/8PM4R7J
R105, R106	RDR1/8PU100J	RD1/8PM472J
R265-R268	RFA1/4PS4R7J	RFA1/4PS470J
R401, R402	RD1/4PMFL10J	RD1/4PMFL101J
R719, R720	VACANT (OPEN)	RD1/8PM331J
R724	VACANT (OPEN)	RD1/8PM100J
HEAD PHONE ASS'Y	AWZ2862	AWZ2857
C801, C802	VACANT (OPEN)	CKCYB392K50
OTHERS		
R1, R2	VACANT (OPEN)	RD1/4PM100J

- RESISTORS:**  
Indicated in  $\Omega$ , 1/8, 1/4W,  $\pm 5\%$  tolerance unless otherwise noted  
K; k $\Omega$ ; M; M $\Omega$ ; (F);  $\pm 1\%$ ; (G);  $\pm 2\%$ ; (K);  $\pm 10\%$ ; (M);  $\pm 20\%$  tolerance.
- CAPACITORS:**  
Indicated in capacity ( $\mu F$ ) / voltage (V) unless otherwise noted p; pF.  
Indication without voltage is 50V except electrolytic capacitor.
- VOLTAGE CURRENT:**  
  - v : Signal voltage at (60W + 60W/8 $\Omega$ , 80W + 80W/4 $\Omega$ ) output (1kHz).
  - V : DC voltage (V) at no input signal.
  - Value in ( ) is DC voltage at rated power.
  - mA : DC current at no input signal.
  - mV : Signal voltage at FM 400Hz  $\pm 75$ Hz DEV.

- OTHERS**
  - : Signal route.
  - ⊙ : Adjusting point.
  - The  $\Delta$  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.
  - \* marked capacitor and resistor have parts number.
  - This is the basic schematic diagram, but the actual circuit way vary due to improvements in design.

- SWITCHES (The underline indicates the switch position)**
  - S601 : SUBSONIC (ON-OFF)
  - S602 : LOUDNESS (ON-OFF)
  - S604 : MUTING (ON-OFF)
  - S101 : PHONO SEL (MM-MC)
  - S701 : FUNCTION SEL (TAPE 2 - TAPE 1 - CD - PHONO - TUNER - LINE)
  - S702 : REC SEL (2-1 - 1-2 - SOURCE - OFF - CD - TUNER)
  - S703 : DIRECT SW (ON - OFF)
  - S801-1 : SPEAKERS-A (ON-OFF)
  - S801-2 : SPEAKERS-B (ON-OFF)
  - S501 : POWER SW (ON - OFF)

**Line Voltage Selection (HE and HEWZ types)**

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the Bonnet case.
3. Change the connection of the power transformer lead wire.
4. Stick the line voltage label on the rear panel.

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

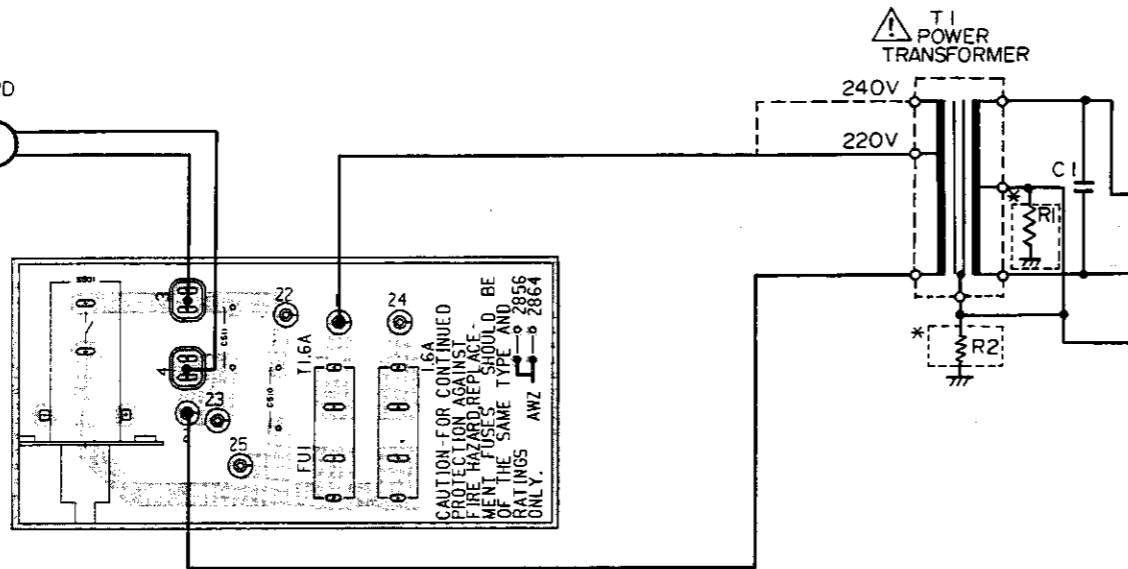
AF COMPLEX ASS'Y  
 AWZ2861 (HE type)  
 AWZ2855 (HEWZ type)

3.2 P.C. BOARDS CONNECTION DIAGRAM

- Parts with an asterisk (\*) are different according to versions, HE or HEWZ. Refer to page 10 for details.

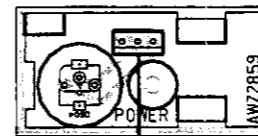
A

AC POWER CORD  
 AC220/240V  
 50/60Hz

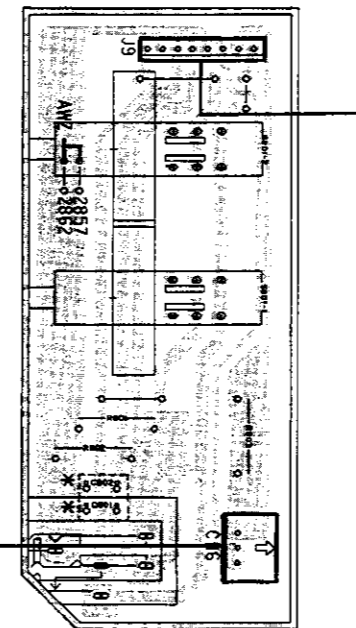


B

LED ASS'Y

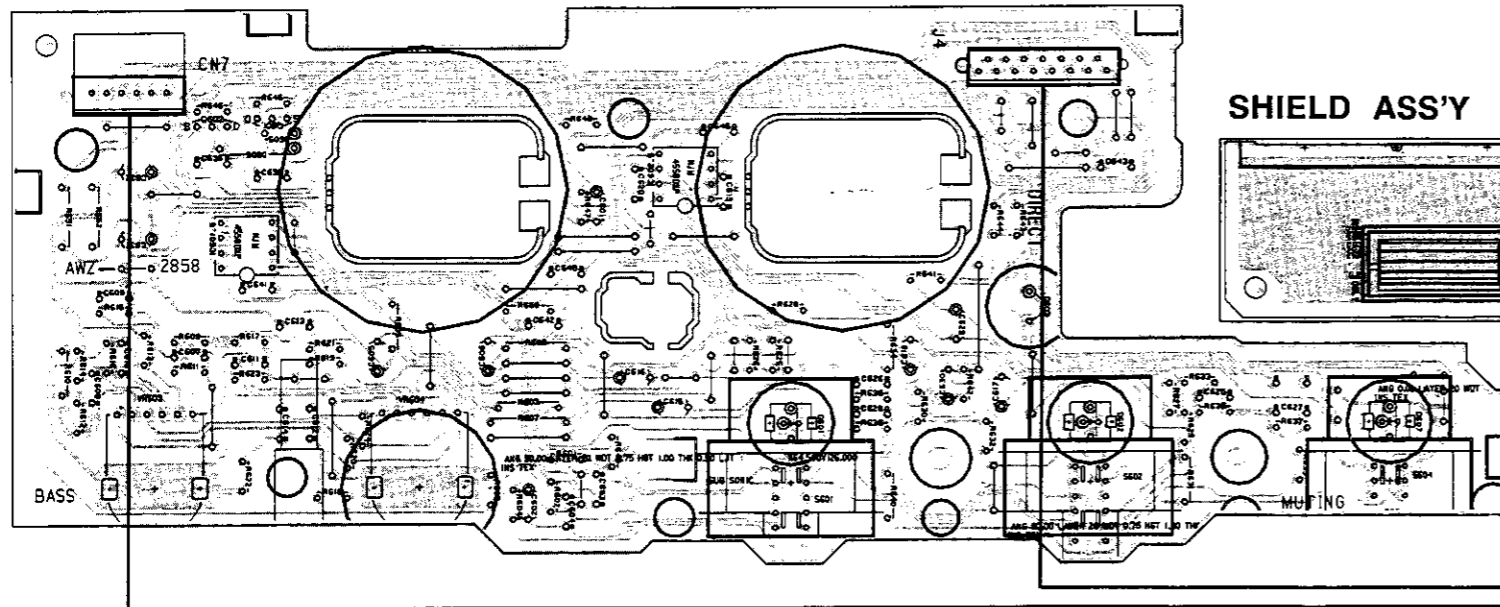


HEADPHONE ASS'Y



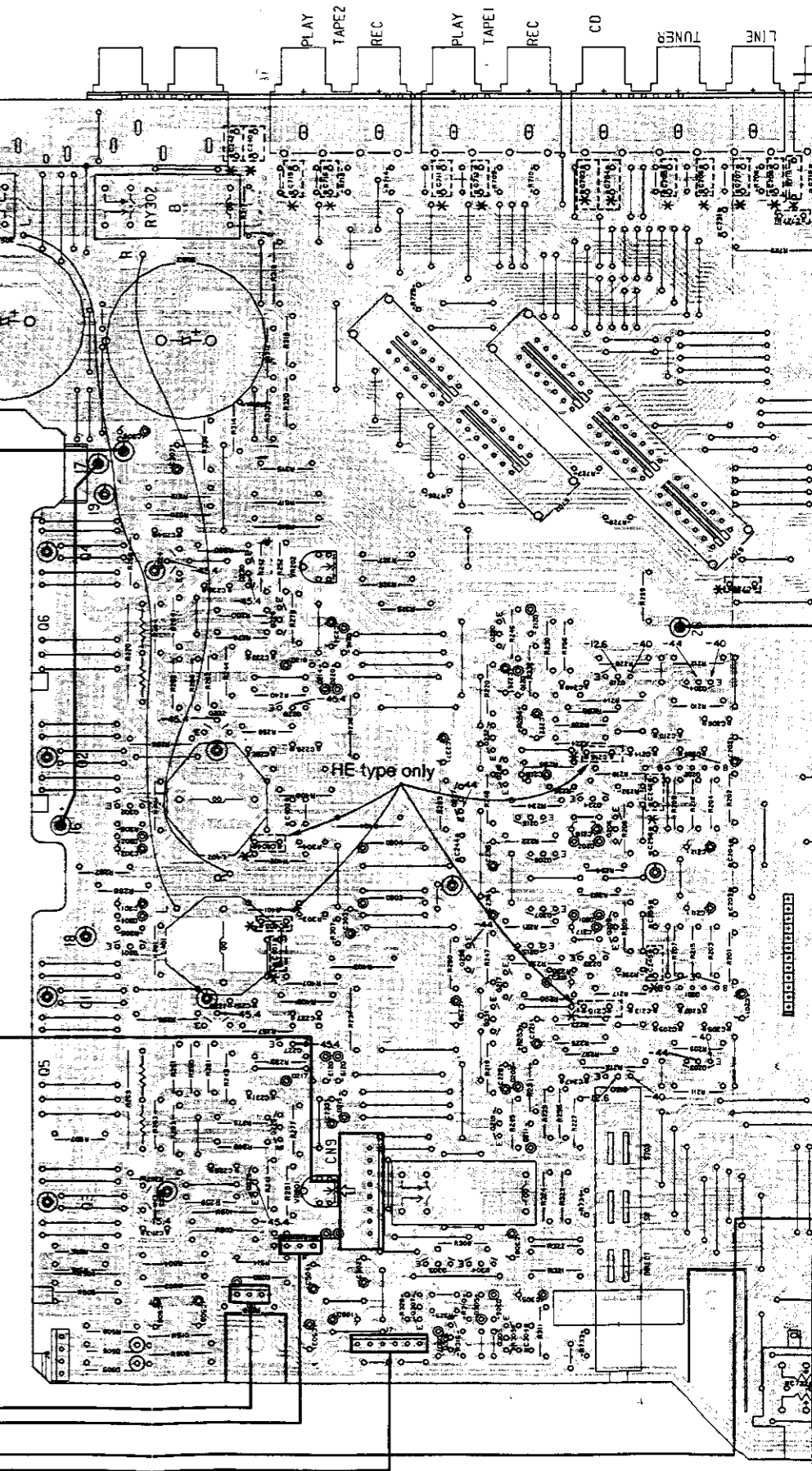
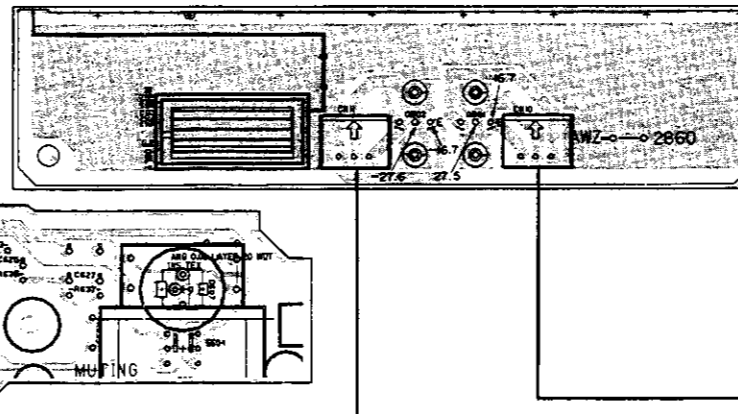
C

tone ASS'Y (AWZ2858)



D

SHIELD ASS'Y



1

2

3

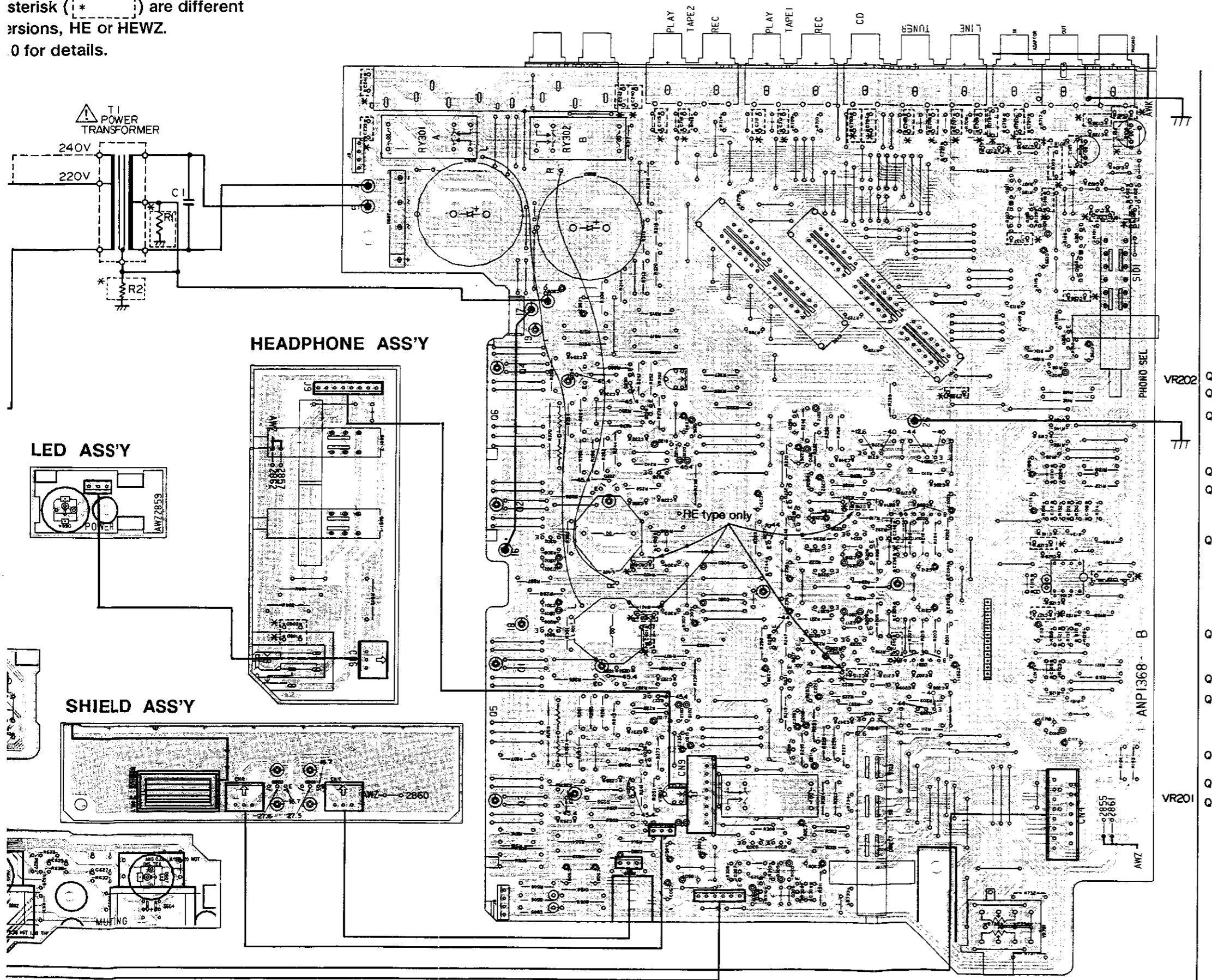
4

5

6

AF COMPLEX ASS'Y  
AWZ2861 (HE type)  
AWZ2855 (HEWZ type)

sterisk (\*) are different versions, HE or HEWZ. 0 for details.



- Q101
- Q103
- Q105
- Q102
- Q104
- Q106

- Q224
- Q230
- Q226
- Q220
- Q212
- Q204
- Q228
- Q232
- Q218
- Q202
- Q302
- Q237
- Q234
- Q216
- Q206
- Q208
- Q207
- Q205
- Q301
- Q238
- Q215
- Q233
- Q221
- Q201
- Q227
- Q231
- Q203

- This P.C.B connection diagram is seen from the parts mount side.
- The parts mounted on to the P.C.B can be replaced with those shown in the following correspondence table with wiring marks.

Indication of the P.C.B. pattern	Symbol of corresponding parts	Parts name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Condenser (Polar type)
		Condenser (Non-polar type)

Others

Wiring mark on the P.C.B pattern diagram	Parts list
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or semi-fixed resistor

- The condenser terminal marked with double circles (©) represents (-) terminal.
- The diode terminal marked with double circles (©) represents the cathode side.
- The transistor terminal marked with "E" represents an emitter.

- Q225
- Q219
- Q229
- Q223
- Q303
- Q304
- Q307
- Q306
- Q305



8 7 8 2 4 3

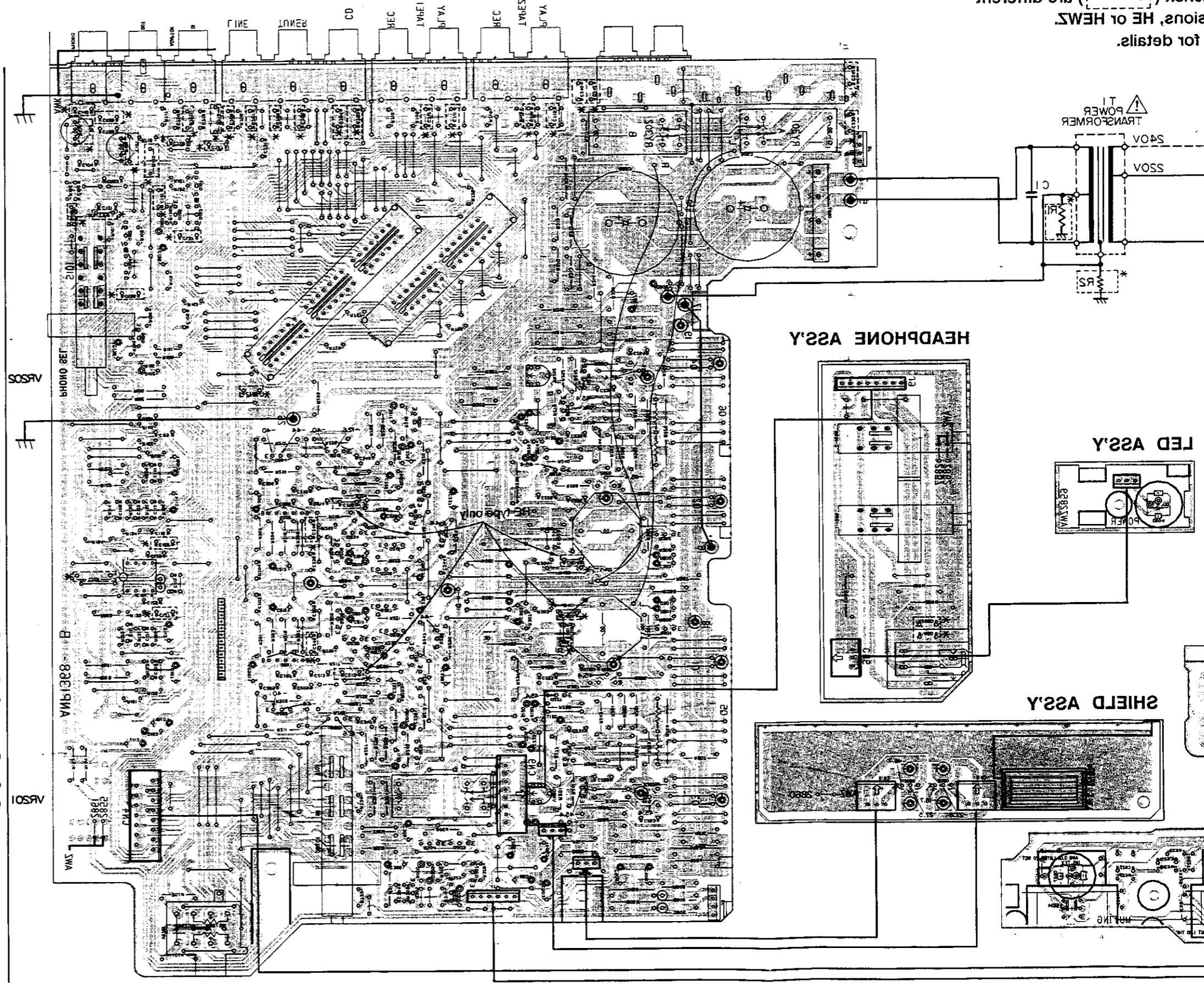
AW2585 (HEWS type)  
AW2581 (HE type)  
AF COMPLEX ASSY

0 for details.  
tions, HE or HEWS.  
sterisk (\*) are different

View from soldering side

This P.C.B. connection diagram is viewed from the foil side.

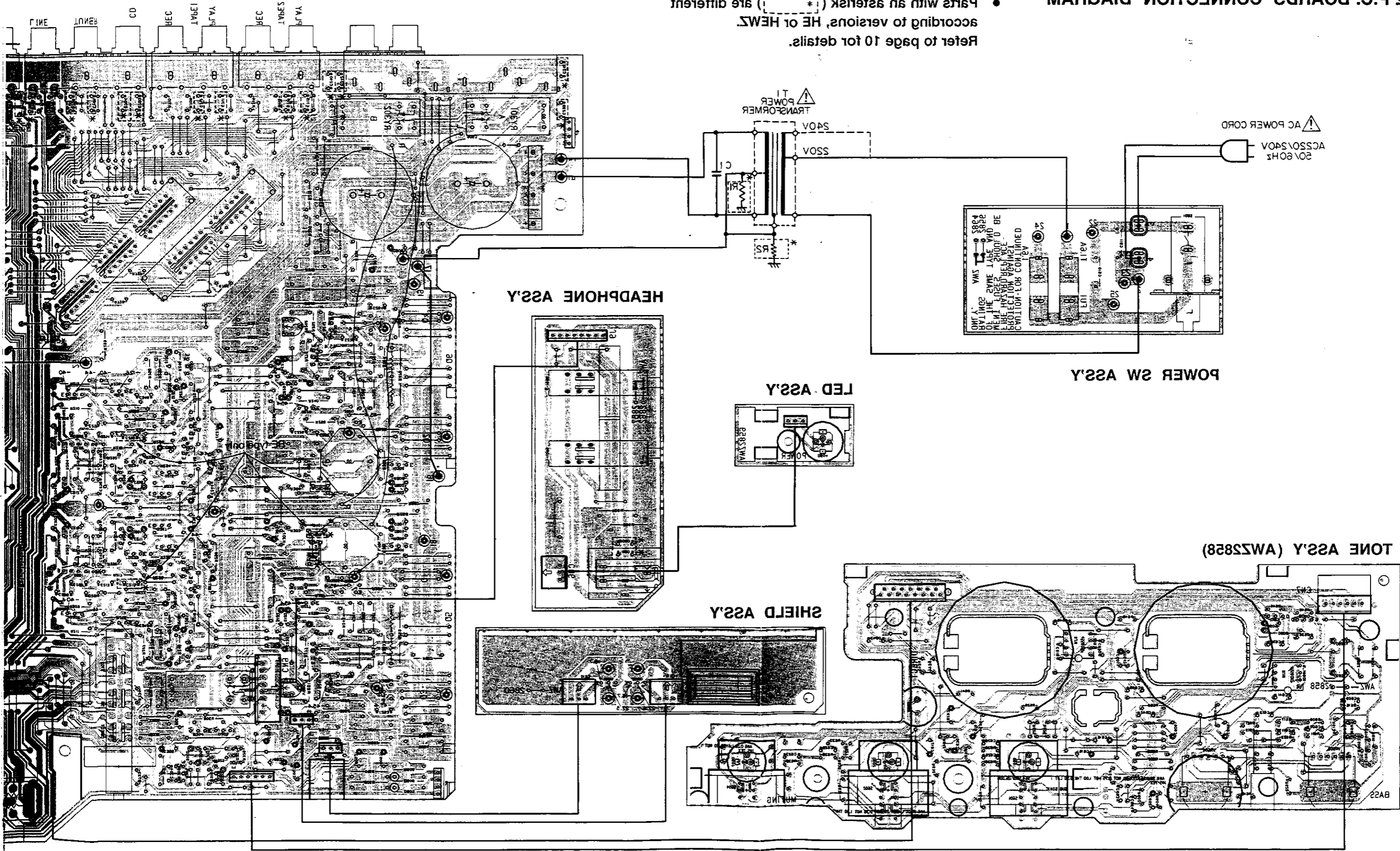
- 0101
- 0103
- 0102
- 0105
- 0104
- 0106
- 0554
- 0530
- 0558
- 0550
- 0515
- 0504
- 0555
- 0558
- 0518
- 0505
- 0531
- 0534
- 0516
- 0506
- 0508
- 0501
- 0502
- 0502
- 0538
- 0512
- 0533
- 0517
- 0501
- 0551
- 0531
- 0503
- 0552
- 0519
- 0558
- 0553
- 0303
- 0304
- 0307
- 0306
- 0302



8 7 8 2 4 3

### 3.2 P.C. BOARDS CONNECTION DIAGRAM

- Parts with an asterisk (\*) are different according to versions, HE or HEWS. Refer to page 10 for details.



A

B

C

D

6

2

4

3

5

1

6

2

4

3

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1

### 3.3 P.C.B's 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  $\Delta$  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 $\Omega$	56 × 10 <sup>1</sup>	561.....	RD1/4PS	Ⓜ	Ⓜ	Ⓜ	J
47k $\Omega$	47 × 10 <sup>3</sup>	473.....	RD1/4PS	Ⓜ	Ⓜ	Ⓜ	J
0.5 $\Omega$	0R5.....		RN2H	Ⓜ	Ⓜ	Ⓜ	K
1 $\Omega$	010.....		RS1P	Ⓜ	Ⓜ	Ⓜ	K

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

5.62k $\Omega$	562 × 10 <sup>1</sup>	5621.....	RN1/4SR	Ⓜ	Ⓜ	Ⓜ	F
----------------	-----------------------	-----------	---------	---	---	---	---

Mark	No.	Description	Parts No.
------	-----	-------------	-----------

**LED ASS'Y**

		SEMICONDUCTOR	
	D604	LED(RED)	AEL1065

**SHIELD ASS'Y**

		SEMICONDUCTORS	
	Q501	TRANSISTOR	2SC2705
	Q502	TRANSISTOR	2SA1145

**OTHERS**

	CN10,CN11	JUMPER CONNECTOR	KPC3
		3-P	

**HEADPHONE ASS'Y**

		RESISTORS	
$\Delta$	R801,R802	METAL OXIDE RESISTOR	RS1PMF331J
$\Delta$	R803	METAL OXIDE RESISTOR	RS1LMF681J

**SWITCH**

	S801	PUSH SWITCH	SUL5L2B2S
--	------	-------------	-----------

**OTHERS**

	CN6	JUMPER CONNECTOR 3-P	KPC3
		JACK	AKN1002

**POWER SW ASS'Y**

		CAPACITORS	
$\Delta$	C510,C511	CKA (0.01/AC400V)	ACG1002

**SWITCH**

$\Delta$	S501	PUSH SWITCH	ASG1035
----------	------	-------------	---------

**tone ASS'Y (AWZ2858)**

		SEMICONDUCTORS	
	IC601,IC602	IC	NJM4558DXP
	Q601,Q602	N-FET	2SK246
	D601,D602	LED(RED)	AEL1065
	D603	LED	AEL1084
	D605,D606	DIODE	1SS252
	D607	LED(RED)	AEL1065

Mark	No.	Description	Parts No.
------	-----	-------------	-----------

**CAPACITORS**

	C601,C602	ELECTR.CAPACITOR	CEAS010M50
	C603,C604	AUDIO FILM CAPACITOR	CFTXA823J50
	C605,C606	ELECTR. CAPACITOR	CEAS2R2M50
	C607,C608	CERAMIC CAPACITOR	CKDYX153M25
	C609,C610	CERAMIC CAPACITOR	CKDYX823M25

	C611,C612	CERAMIC CAPACITOR	CKCYB332K50
	C613,C614	CERAMIC CAPACITOR	CKDYX183M25
	C615,C616	ELECTR. CAPACITOR	CEAS2R2M50
	C617,C618	ELECTR. CAPACITOR	CEAS100M25
	C619,C620	CERAMIC CAPACITOR	CCDSL390J50

	C625,C626	CERAMIC CAPACITOR	CKDYX104M25
	C627,C628	CERAMIC CAPACITOR	CKDYX823M25
	C629,C630	ELECTR. CAPACITOR	CEAS470M25
	C631,C632	ELECTR. CAPACITOR	CEAS221M16
	C635,C636	CERAMIC CAPACITOR	CCDSL150J50

	C641,C642	CERAMIC CAPACITOR	CCCSL470J50
	C643	CERAMIC CAPACITOR	CKCYF103Z50
	C645,C646	CERAMIC CAPACITOR	CKCYB102K50

**RESISTORS**

	VR603,VR604	VARIABLE(100K-20AX2)	ACT1045
	R651,R652	CARBON FILM RESISTOR	RD1/4PM101J
		OTHER RESISTORS	RD1/8PM□□□□

**SWITCHES**

	S601,S602	PUSH SWITCH	ASG1019
	S604	PUSH SWITCH	ASG1028

**AF COMPLEX ASS'Y (AWZ2861)**

**SEMICONDUCTORS**

	IC101	IC	UPC4570C
	Q101-Q104	N-FET	2SK369
	Q105,Q106	TRANSISTOR	2SC2458
	Q201,Q202	TRANSISTOR	2SA979
	Q203-Q208	TRANSISTOR	2SA1048



<u>Mark</u>	<u>No.</u>	<u>Description</u>	<u>Parts No.</u>
△	R269,R270	RESISTOR (0.33, 5W)	ACN1063
	R275-R278	CARBON FILM RESISTOR	RD1/4PM□□□J
△	R281-R284	FUSIBLE RESISTOR	RFA1/4PS331J
△	R285,R286	FUSIBLE RESISTOR	RFA1/4PS101J
△	R287,R288	CARBON FILM RESISTOR	RD1/4PMF4R7J
△	R289,R290	FUSIBLE RESISTOR	RFA1/4PS101J
	R299	CARBON FILM RESISTOR	RD1/4PM100J
△	R301,R302	CARBON FILM RESISTOR	RD1/4PMF222J
△	R308	CARBON FILM RESISTOR	RD1/4PMF101J
	R311-R315	CARBON FILM RESISTOR	RD1/4PM□□□J
	R317-R327	CARBON FILM RESISTOR	RD1/4PM□□□J
△	R330	CARBON FILM RESISTOR	RD1/4PMF010J
△	R401,R402	CARBON FILM RESISTOR	RD1/4PMFL100J
△	R403,R404	METAL OXIDE RESISTOR	RS1LMF331J
△	R407,R408	CARBON FILM RESISTOR	RD1/4PMFL100J
△	R501,R502	METAL OXIDE RESISTOR	RS1PMF121J
△	R503,R504	METAL OXIDE RESISTOR	RS1LMF121J
△	R505,R506	METAL OXIDE RESISTOR	RS1PMF121J
△	R507,R508	CARBON FILM RESISTOR	RD1/4PMF010J
△	R509,R510	METAL OXIDE RESISTOR	RS1LMF272J
	R513-R516	CARBON FILM RESISTOR	RD1/4PM272J
△	R517-R520	METAL OXIDE RESISTOR	RS1PMF101J
	R731,R732	CARBON FILM RESISTOR	RD1/4PM103J
	OTHER RESISTORS		RD1/8PM□□□J
<b>SWITCHES</b>			
	S101	PUSH SWITCH	ASG1012
	S701	SWITCH	ASU1016
	S702	SWITCH	ASU1002
	S703	PUSH SWITCH	SULL6S
<b>OTHERS</b>			
	CN4	JUMPER CONNECTOR	KPE15
	CN9	JUMPER CONNECTOR	KPC8
	RY301,RY302	RELAY	ASR-112
	RY303	RELAY	ASR-111
		PHONO JACK 4-P	AKB1007
		PHONO JACK 6-P	AKB1008
		PHONO JACK 6-P	AKB1024
		SPEAKER TERMINAL 8-P	AKE1011

### 3.4 ADJUSTMENT

#### ADJUSTMENT OF IDLE CURRENT

1. Connect wire as shown in Fig. 3-1.
2. After power ON, aging lasts for 5 mins with no-load.
3. In the Lch VR201 should be adjusted so that both terminal voltages of R269 may attain to 20 mV ( $\pm 3$  mV).
4. In the Rch VR202 should be adjusted so that both terminal voltages may attain to 20 mV ( $\pm 3$  mV).

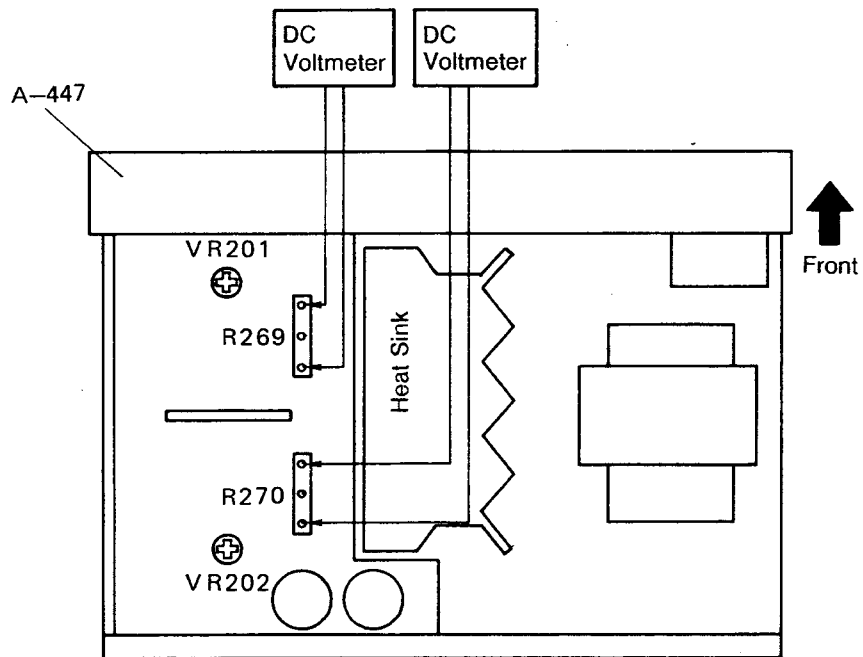


Fig. 3-1 Adjustment Drawing

## 3.4 RÉGLAGE

### RÉGLAGE DU COURANT DÉWATTÉ

1. Brancher les fils comme indiqué dans la fig. 3-1.
2. Après la mise sous tension, le moteur dure 5 minutes et n'introduire charge.
3. VR 201 sera réglé dans le canal gauche de manière que les deux tensions de bornes de R269 atteignent 20 mV ( $\pm 3$  mV).
4. VR 202 sera réglé dans le canal droit de manière que les deux tensions de bornes atteignent 20 mV ( $\pm 3$  mV).

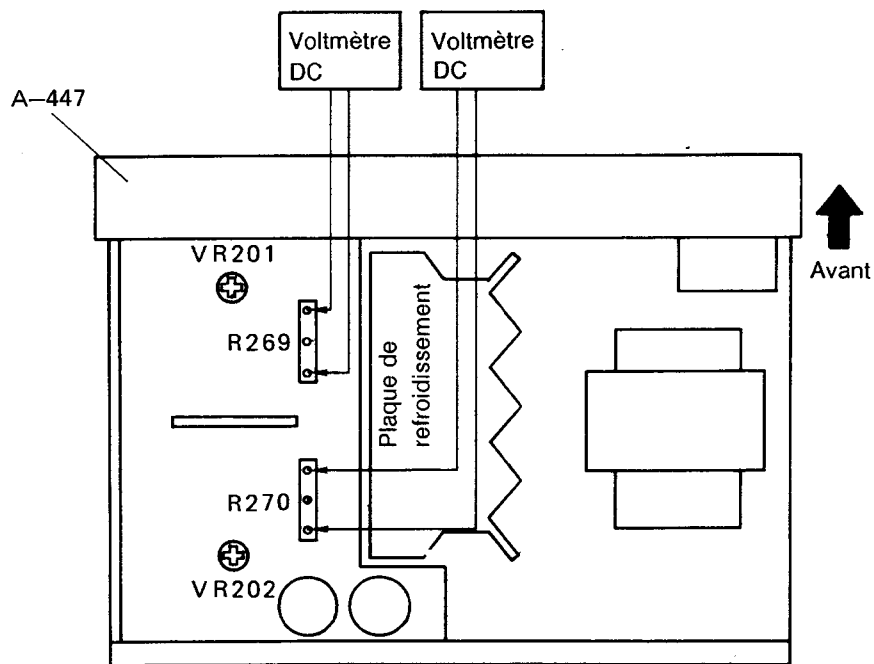


Fig. 3-1 Schéma du réglage

### 3.4 AJUSTE

#### AJUSTE DE LA CORRIENTE DEVIADA

1. Conecte el cable como lo ilustra la Fig. 3-1.
2. El motor funciona por 5 minutos después de encender la unidad, sin introduzca.
3. El VR201 del canal izquierdo debe ajustarse de modo que la tensión entre ambos bornes de R269 llegue a 20 mV ( $\pm 3$  mV).
4. El VR202 del canal derecho debe ajustarse de modo que la tensión entre ambos bornes llegue a 20 mV ( $\pm 3$  mV).

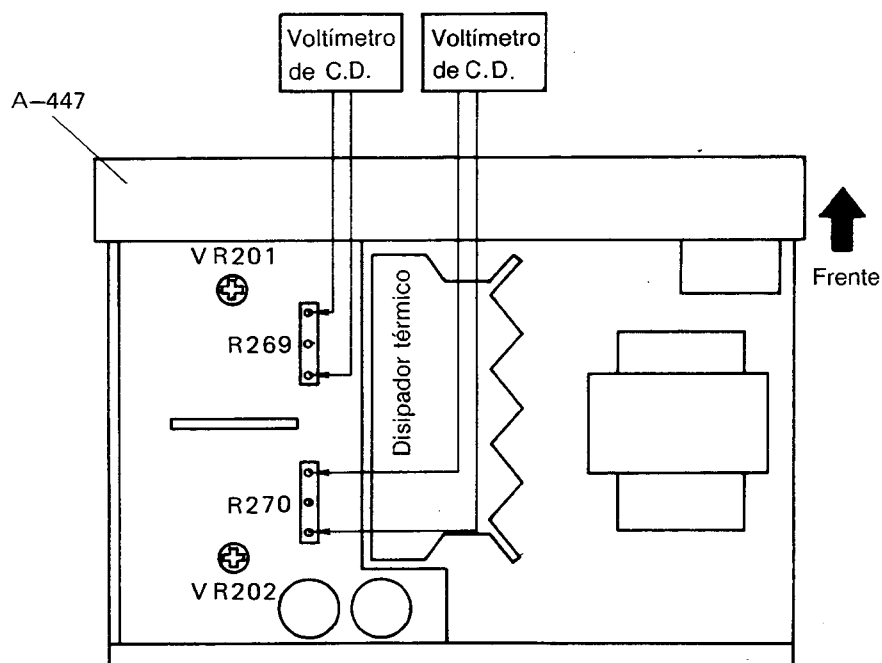
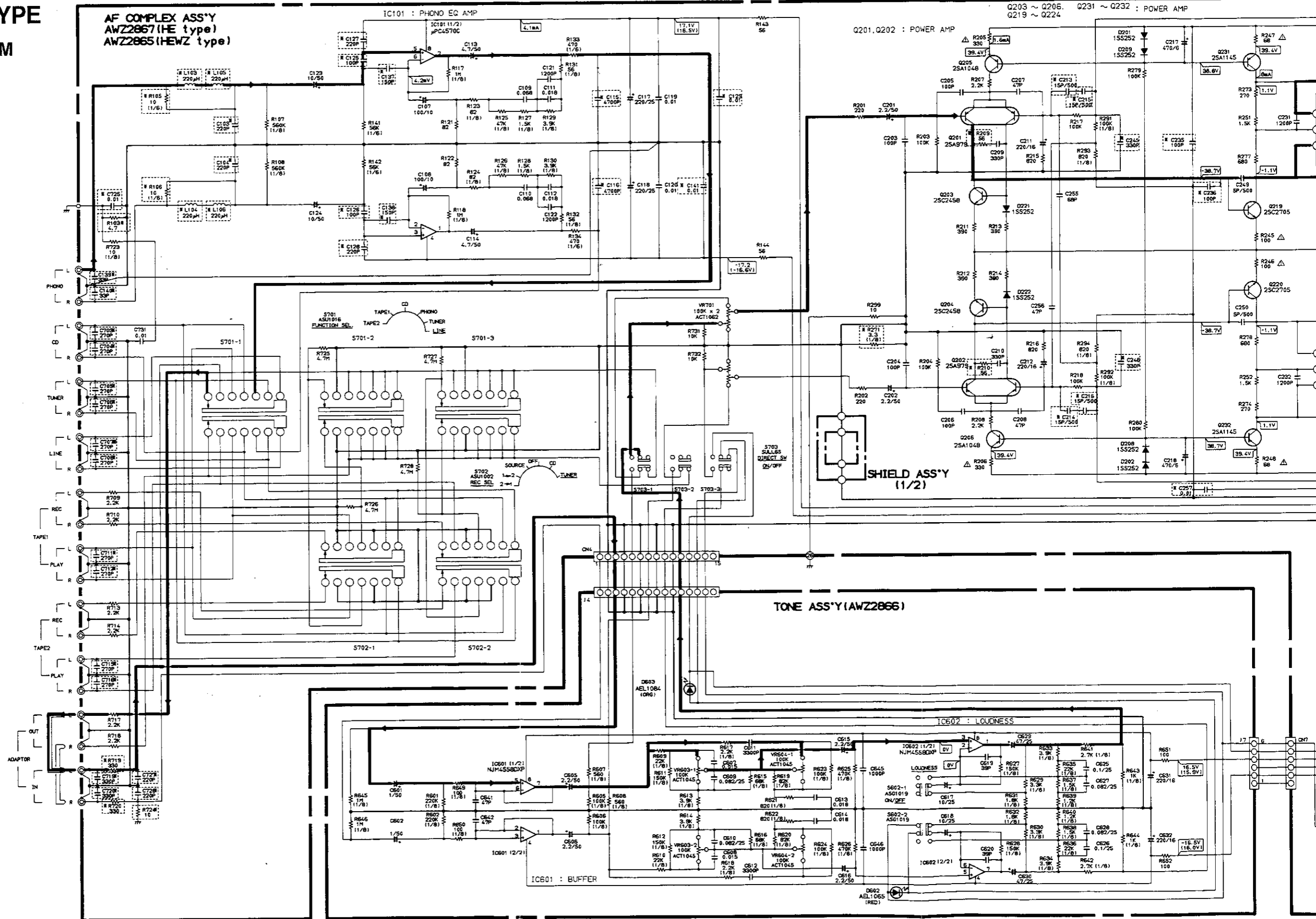


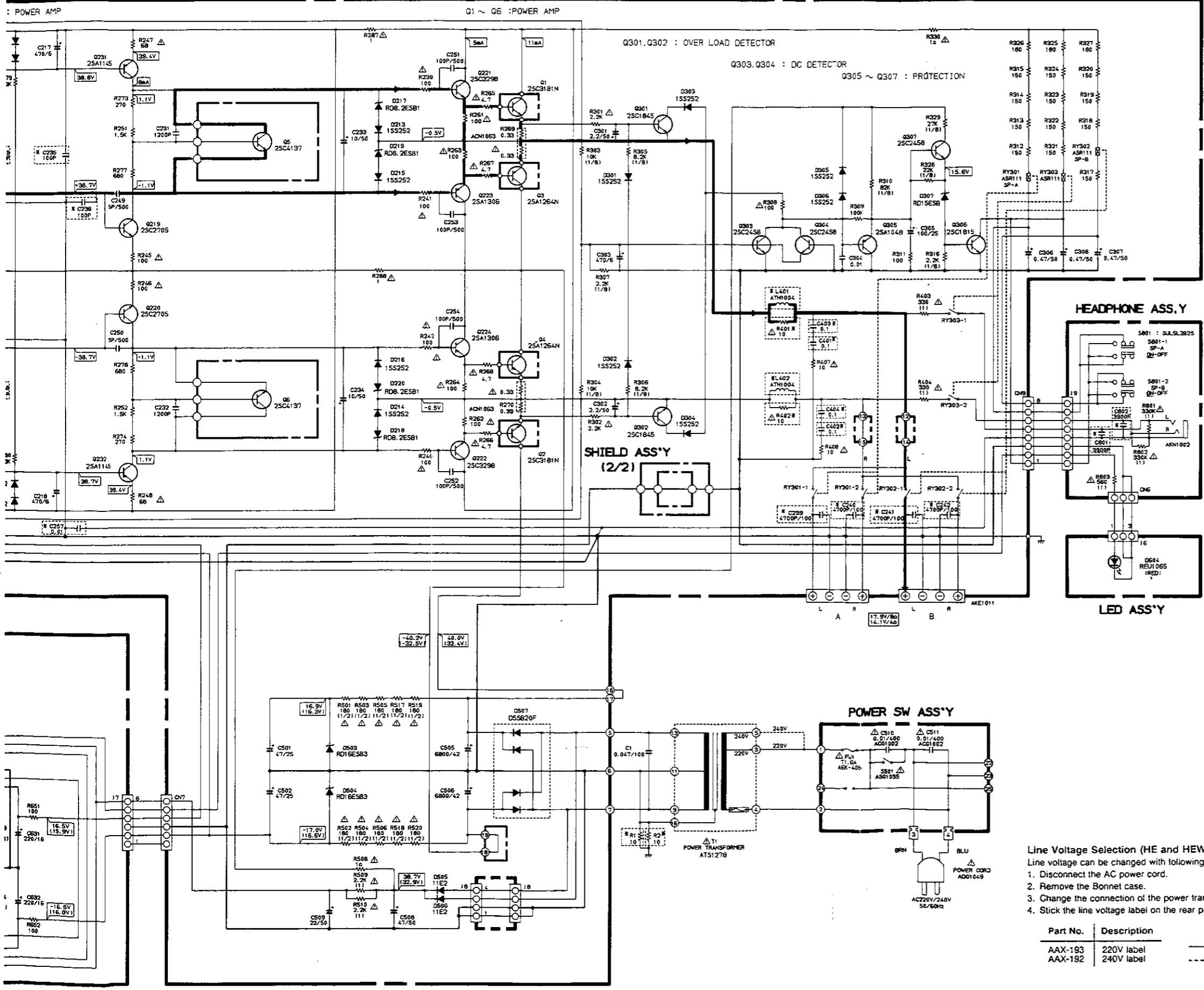
Fig. 3-1 Diagrama de ajuste



# 4. FOR A-337/HE TYPE

## 4.1 SCHEMATIC DIAGRAM





- This circuit diagram is based on the HE version.
- Parts with an asterisk (\*) are different from this prepared for the HEWZ version.
- Refer to the comparison list.

\* Marks are difference between two assemblies.

	A-337/HE AWZ2867	A-337/HEWZ AWZ2865
AF COMPLEX ASS'Y		
L103 -L106 L401, L402	VACANT (OPEN) ATH1004	LAU221K ATH100S
C103, C104 C115, C116 C125, C126 C127, C128 C129	CCCSL221J50 COMA472K50 VACANT (OPEN) VACANT (OPEN) VACANT (OPEN)	CCCSL330J50 COMA392K50 CCCSL101J50 CCCSL221J50 CKPYX103N25
C139, C140 C141	VACANT (OPEN) VACANT (OPEN)	CCDSL330J50 CKCYF103Z50
C213, C214 C215, C216 C235, C236	CCCSL150K500 CCCSL150K500 CCCSL101J50	CCCSL080D500 VACANT (OPEN) CEASOR1M50
C239-C242 C245, C246 C257	VACANT (OPEN) VACANT (OPEN) VACANT (OPEN)	COMXA472J100 CKCYB331K50 CKCYF103Z50
C401, C402 C403, C404	CFTXA104J50 CFTXA104J50	CFTXA473J50 VACANT (JAMPER WIRE)
C703-C708 C711, C712 C715, C716 C719, C720 C725	VACANT (OPEN) VACANT (OPEN) VACANT (OPEN) CKCYB331K50 CKCYF103Z50	CCCSL271J50 CCCSL271J50 CCCSL271J50 CCCSL271J50 CCDSL221J50
C727, C728 R103 R105, R106 R209, R210 R271	VACANT (OPEN) VACANT (OPEN) RDR1/6PU100J RD1/4PM332J VACANT (OPEN)	CCDSL221J50 RD1/8PM4R7J RD1/8PM332J RD1/4PM560J RD1/8PM3R3J
R401, R402 R719, R720 R724	RD1/4PMFL100J VACANT (JUMPER WIRE) VACANT (OPEN)	RD1/4PMFL101J RD1/8PM331J RD1/8PM100J
HEAD PHONE ASS'Y	AWZ2862	AWZ2867
C801, C802	VACANT (OPEN)	CKCYB392K50
OTHERS		
R1, R2	VACANT (OPEN)	RD1/4PM100J

- RESISTORS:**  
Indicated in Ω, 1/8, 1/4W, ±5% tolerance unless otherwise noted  
K; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance.
- CAPACITORS:**  
indicated in capacity (μF) / voltage (V) unless otherwise noted p; pF.  
Indication without voltage is 50V except electrolytic capacitor.
- VOLTAGE CURRENT:**  
  - V : Signal voltage at (40W + 40W/8Ω, 50W + 50W/4Ω) output (1kHz).
  - DC : DC voltage (V) at no input signal.
  - Value in ( ) is DC voltage at rated power.
  - mA : DC current at no input signal.
  - mV : Signal voltage at FM 400Hz ± 75Hz DEV.
- OTHERS**
  - : Signal route.
  - ⊙ : Adjusting point.
  - ⚠ : 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.
  - \* : marked capacitor and resistor have parts number.
  - This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.
- SWITCHES (The underline indicates the switch position)**
  - S501 : POWER SW (ON-OFF)
  - S602 : LOUDNESS (ON-OFF)
  - S701 : FUNCTION SEL (TAPE 2 - TAPE 1 - CD - PHONO - TUNER - LINE)
  - S702 : REC SEL (2-1 - 1-2 - SOURCE - OFF - CD - TUNER)
  - S703 : SULLES (ON - OFF)
  - S801-1 : SPEAKERS-A (ON-OFF)
  - S801-2 : SPEAKERS-B (ON-OFF)

**Line Voltage Selection (HE and HEWZ types)**  
Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the Bonnet case.
3. Change the connection of the power transformer lead wire.
4. Stick the line voltage label on the rear panel.

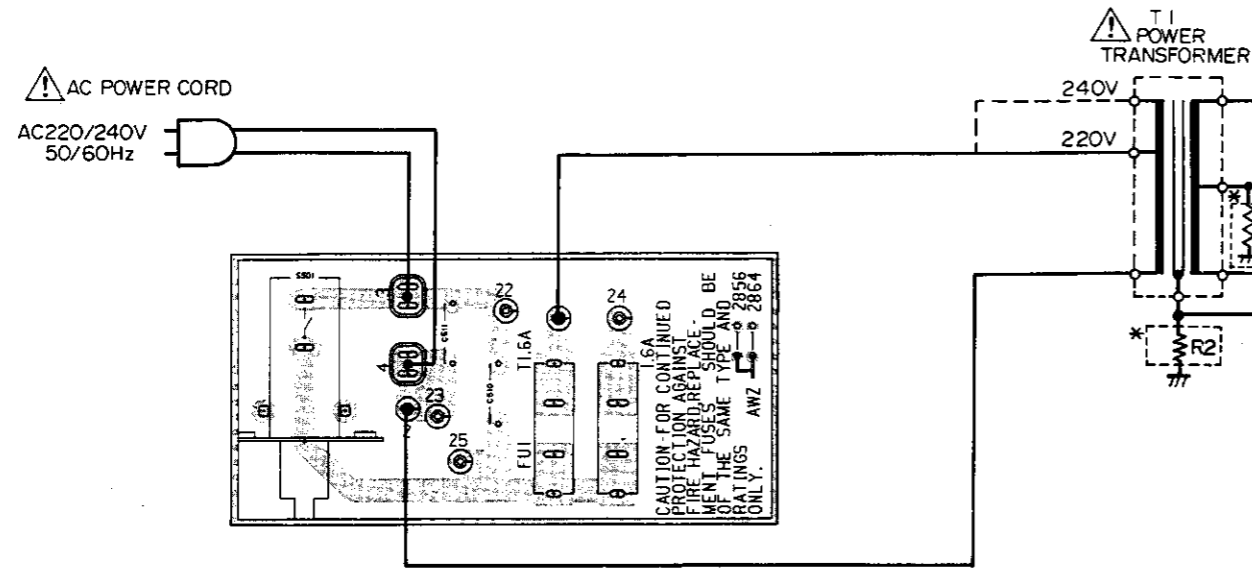
Part No.	Description	
AAX-193	220V label	—— 220V
AAX-192	240V label	----- 240V

AF COMPLEX ASS'Y  
 AWZ2867 (HE type)  
 AWZ2865 (HEWZ type)

4.2 P.C. BOARDS CONNECTION DIAGRAM

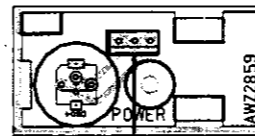
- Parts with an asterisk ( \* ) are different according to versions, HE or HEWZ. Refer to page 26 for details.

A

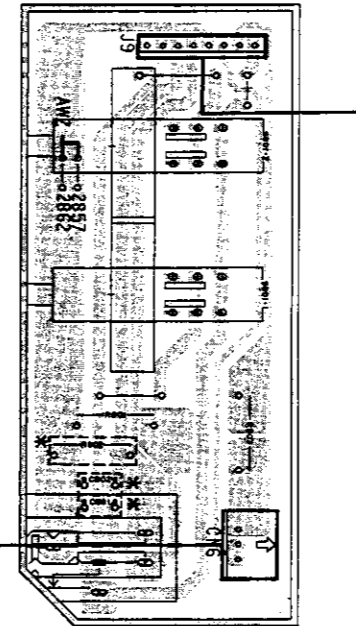


B

LED ASS'Y

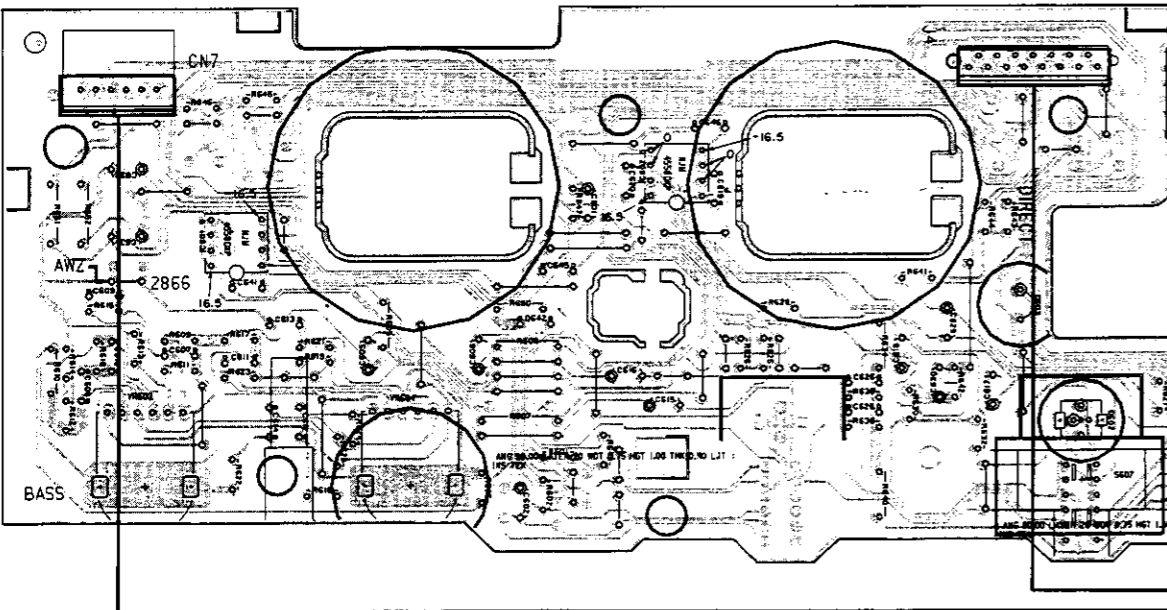


HEADPHONE ASS'Y



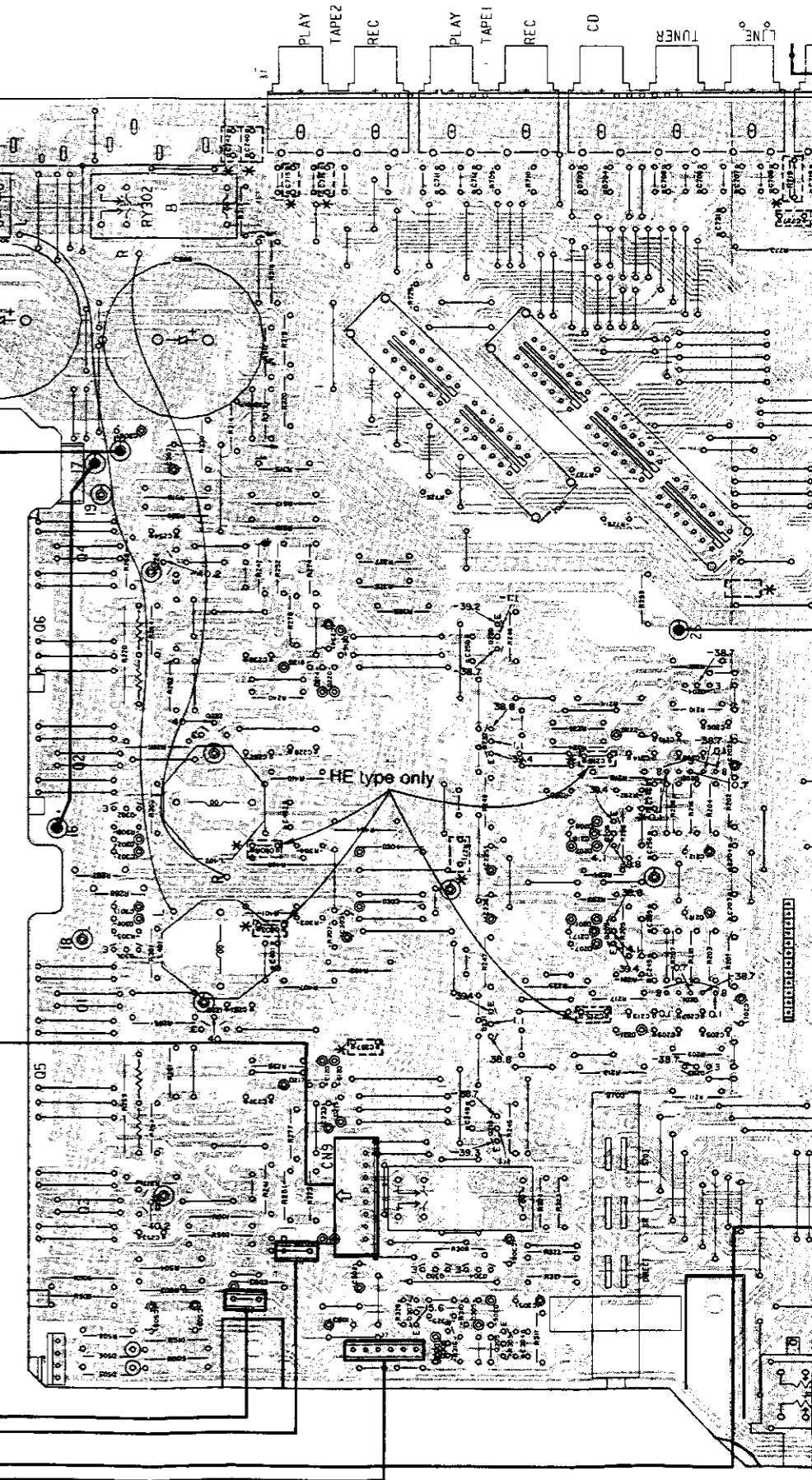
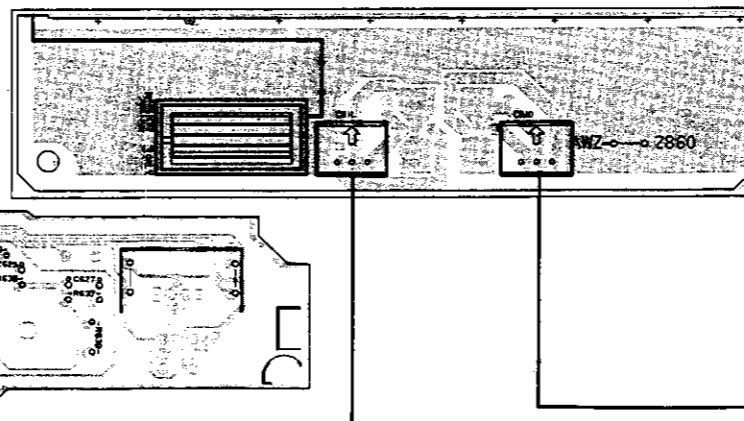
C

TONE ASS'Y (AWZ2866)



D

SHIELD ASS'Y



1

2

3

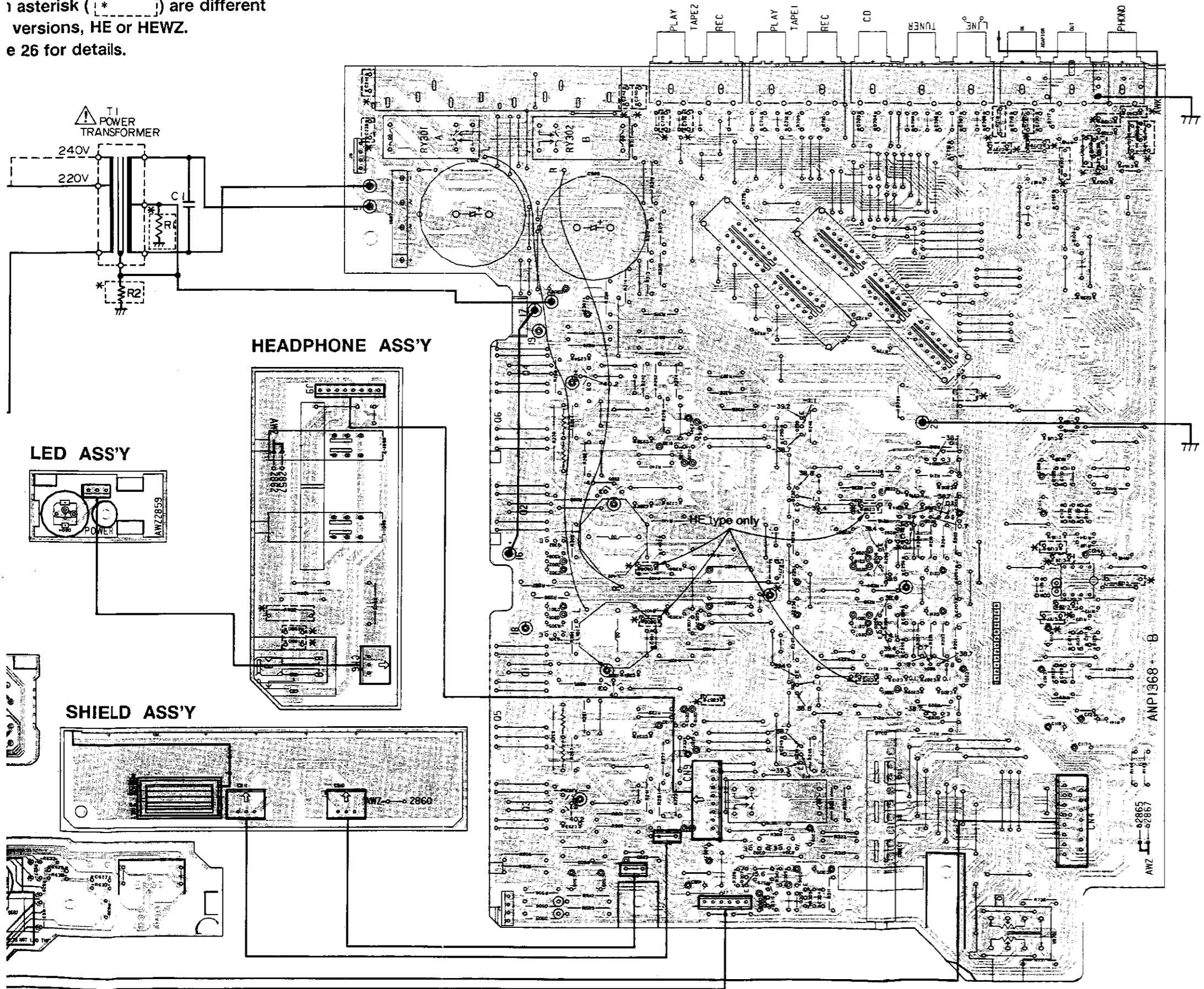
4

5

6

AF COMPLEX ASS'Y  
AWZ2867 (HE type)  
AWZ2865 (HEWZ type)

\* Asterisk (\*) are different versions, HE or HEWZ. See page 26 for details.



- Q224
- Q220
- Q222 Q204
- Q232
- Q202
- Q302 Q206
- IC101
- Q205
- Q301 Q201
- Q221 Q231
- Q203
- Q219
- Q223
- Q303
- Q304
- Q307
- Q306
- Q305

1. This P.C.B. connection diagram is seen from the parts mount side.  
2. The parts mounted on to the P.C.B. can be replaced with those shown in the following correspondence table with wiring marks.

Indication of the P.C.B. pattern	Symbol of corresponding parts	Parts name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Condenser (Polar type)
		Condenser (Non-polar type)

Others

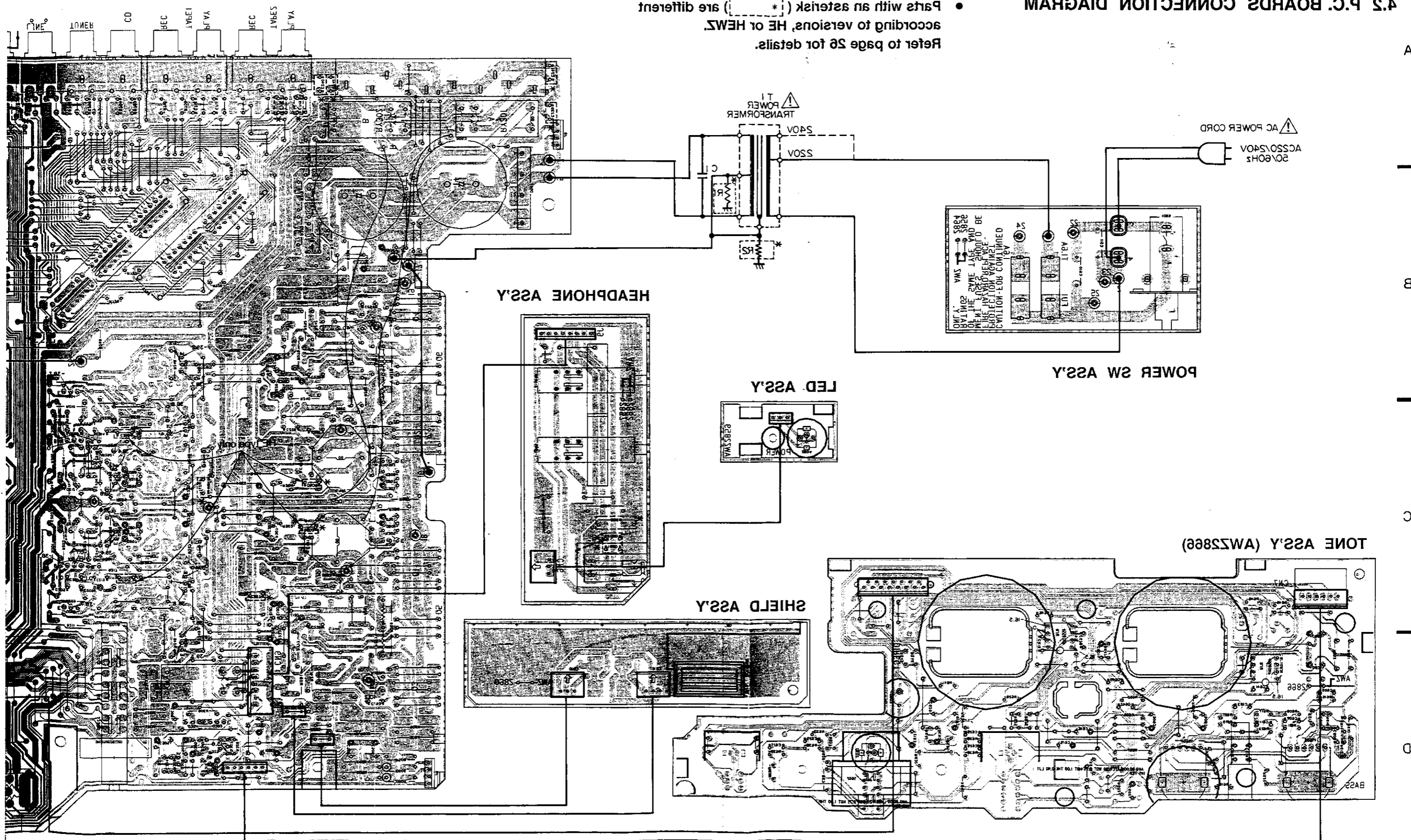
Wiring mark on the P.C.B. pattern diagram	Parts list
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or semi-fixed resistor

3. The condenser terminal marked with double circles (⊙) represents (-) terminal.  
4. The diode terminal marked with double circles (⊙) represents the cathode side.  
5. The transistor terminal marked with "E" represents an emitter.



**4.2 P.C. BOARDS CONNECTION DIAGRAM**

- Parts with an asterisk (\*) are different according to versions HE or HEWS. Refer to page 26 for details.



AW3386E (HEWS type)  
 AW3386E (HE type)  
 AF COMPLEX ASSY

A  
 B  
 C  
 D

6

2

4

3

5

1

6

2

4

3

5

1

### 4.3 P.C.B's 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%).

560Ω	56 × 10 <sup>1</sup>	561.....	RD1/4PS	5	6	1	J
47kΩ	47 × 10 <sup>3</sup>	473.....	RD1/4PS	4	7	3	J
0.5Ω	0R5.....		RN2H	0	5		K
1Ω	010.....		RSIP	0	1	0	K

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

5.62kΩ	562 × 10 <sup>1</sup>	5621.....	RN1/4SR	5	6	2	1	F
--------	-----------------------	-----------	---------	---	---	---	---	---

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.	
<b>LED ASS'Y</b>				C609,C610		CERAMIC CAPACITOR	CKDYX823M25	
SEMICONDUCTOR				C611,C612		CERAMIC CAPACITOR	CKCYB332K50	
	D604	LED(RED)	AEL1065	C613,C614		CERAMIC CAPACITOR	CKDYX183M25	
<b>SHIELD ASS'Y</b>				C615,C616		ELECTR. CAPACITOR	CEAS2R2M50	
No parts supplied with the SHIELD Ass'y.				C617,C618		ELECTR. CAPACITOR	CEAS100M25	
<b>HEADPHONE ASS'Y</b>				C619,C620		CERAMIC CAPACITOR	CCDSL390J50	
RESISTORS				C625,C626		CERAMIC CAPACITOR	CKDYX104M25	
Δ	R801,R802	METAL OXIDE RESISTOR	RS1PMF331J	C627,C628		CERAMIC CAPACITOR	CKDYX823M25	
Δ	R803	METAL OXIDE RESISTOR	RS1LMF561J	C629,C630		ELECTR. CAPACITOR	CEAS470M25	
SWITCH				C631,C632		ELECTR. CAPACITOR	CEAS221M16	
	S801	PUSH SWITCH	SUL5L2B2S	C641,C642		CERAMIC CAPACITOR	CCCSSL470J50	
OTHERS				C645,C646		CERAMIC CAPACITOR	CKCYB102K50	
		JACK	AKN1002	<b>RESISTORS</b>				
	CN6	JUMPER CONNECTOR 3-P	KPC3	VR603,VR604		VARIABLE(100K-20AX2)	ACT1045	
<b>POWER SW ASS'Y</b>				R651,R652		CARBON FILM RESISTOR	RD1/4PM101J	
CAPACITORS				OTHER RESISTORS				RD1/8PM□□□J
Δ	C510,C511	CKA (0.01/AC400V)	ACG1002	<b>SWITCH</b>				
SWITCH				S602		PUSH SWITCH	ASG1019	
Δ	S501	PUSH SWITCH	ASG1035	<b>AF COMPLEX ASS'Y (AWZ2867)</b>				
<b>AF COMPLEX ASS'Y (AWZ2867)</b>				SEMICONDUCTORS				
SEMICONDUCTORS				IC101		OP-AMP IC	M5220P	
	IC601,IC602	OP-AMP IC	NJM4558DXP	Q201,Q202		TRANSISTOR	2SA979	
	D505,D506	DIODE	11E2	Q203,Q204		TRANSISTOR	2SC2458	
	D602	LED(RED)	AEL1065	Q205,Q206		TRANSISTOR	2SA1048	
	D603	LED	AEL1084	Q219,Q220		TRANSISTOR	2SC2705	
CAPACITORS				Q221,Q222		TRANSISTOR	2SC3298	
C601,C602		ELECTR. CAPACITOR	CEAS010M50	Q223,Q224		TRANSISTOR	2SA1306	
C605,C606		ELECTR. CAPACITOR	CEAS2R2M50	Q231,Q232		TRANSISTOR	2SA1145	
C607,C608		CERAMIC CAPACITOR	CKDYX153M25	Q301,Q302		TRANSISTOR	2SC1845	
				Q303,Q304		TRANSISTOR	2SC2458	
				Q305		TRANSISTOR	2SA1048	
				Q306		TRANSISTOR	2SC1815	
				Q307		TRANSISTOR	2SC2458	
				D201,D202		DIODE	1SS252	
				D207,D208		DIODE	1SS252	

Mark	No.	Description	Parts No.
	D213-D216	DIODE	1SS252
	D217-D220	ZENER DIODE	RD8.2ESB1
	D221,D222	DIODE	1SS252
	D301-D306	DIODE	1SS252
	D307	ZENER DIODE	RD15ESB
	D503	ZENER DIODE	RD16ESB3
	D504	ZENER DIODE	RD16ESB3
	D507	DIODE	D5SB20F
<b>COILS &amp; FILTERS</b>			
	L401,L402	COIL	ATH1004
<b>CAPACITORS</b>			
	C103,C104	CERAMIC CAPACITOR	CCCSL221J50
	C107,C108	ELECTR. CAPACITOR	CEAS101M10
	C109,C110	AUDIO FILM CAPACITOR	CFTXA683J50
	C111,C112	AUDIO FILM CAPACITOR	CFTXA183J50
	C113,C114	ELECTR. CAPACITOR	CEAS4R7M50
	C115,C116	MYLOR FILM CAPACITOR	CQMA472K50
	C117,C118	ELECTR. CAPACITOR	CEAS221M25
	C119,C120	CERAMIC CAPACITOR	CKCYF103Z50
	C121,C122	MYLOR FILM CAPACITOR	CQMA122J50
	C123,C124	ELECTR. CAPACITOR	CEAS100M50
	C201,C202	ELECTR. CAPACITOR	CEEA2R2M50
	C203-C206	CERAMIC CAPACITOR	CCCSL101J50
	C207,C208	CERAMIC CAPACITOR	CCCSL470J50
	C209,C210	CERAMIC CAPACITOR	CKCYB331K50
	C211,C212	ELECTR. CAPACITOR	CEEA221M16
	C213-C216	CERAMIC CAPACITOR	CCCSL150K500
	C217,C218	ELECTR. CAPACITOR	CEAS471M6
	C231,C232	CERAMIC CAPACITOR	CKCYB122K50
	C233,C234	ELECTR. CAPACITOR	CEAS100M50
	C235,C236	CERAMIC CAPACITOR	CCCSL101J50
	C249,C250	CERAMIC CAPACITOR	CCCSL050C500
	C251-C254	CERAMIC CAPACITOR	CCCSL101K500
	C255	CERAMIC CAPACITOR	CCCSL680J50
	C256	CERAMIC CAPACITOR	CCDSL470J50
	C301,C302	ELECTR. CAPACITOR	CEAS2R2M50
	C303	ELECTR. CAPACITOR	CEAS471M6
	C304	CERAMIC CAPACITOR	CKCYF103Z50
	C305	ELECTR. CAPACITOR	CEAS101M25
	C306-C308	ELECTR. CAPACITOR	CEASR47M50
	C401-C404	AUDIO FILM CAPACITOR	CFTXA104J50
	C501,C502	ELECTR. CAPACITOR	CEAS470M25
	C505,C506	ELECTR. CAPACITOR (6800/42V)	ACH1077
	C508	ELECTR. CAPACITOR	CEAS470M50
	C509	ELECTR. CAPACITOR	CEAS220M50
	C719,C720	CERAMIC CAPACITOR	CKCYB331K50
	C725	CERAMIC CAPACITOR	CKCYF103Z50
	C731	CERAMIC CAPACITOR	CKCYF103Z50

Mark	No.	Description	Parts No.
<b>RESISTORS</b>			
	VR701	VARIABLE(100K-20AX2)	ACT1062
	R105,R106	CARBON FILM RESISTOR	RDR1/6PU100J
	R121,R122	CARBON FILM RESISTOR	RDR1/4PM820J
	R133,R134	CARBON FILM RESISTOR	RDR1/6PU471J
	R141,R142	CARBON FILM RESISTOR	RDR1/6PU563J
	R143,R144	CARBON FILM RESISTOR	RD1/4PM560J
	R201-R204	CARBON FILM RESISTOR	RDR1/4PM□□□J
△	R205,R206	CARBON FILM RESISTOR	RD1/4PMF331J
	R207-R214	CARBON FILM RESISTOR	RD1/4PM□□□J
	R215-R218	CARBON FILM RESISTOR	RDR1/4PM□□□J
△	R239-R242	FUSLIBLE RESISTOR	RFA1/4PS101J
△	R245,R246	FUSLIBLE RESISTOR	RFA1/4PS101J
△	R247,R248	CARBON FILM RESISTOR	RD1/4PMF680J
	R251,R252	METALFILM RESISTER	RN1/4PQ1501F
△	R261-R264	CARBON FILM RESISTOR	RD1/4PMF101J
△	R265-R268	FUSLIBLE RESISTOR	RFA1/4PS4R7J
△	R269,R270	RESISTOR (0.33, 5W)	ACN1063
	R273,R274	CARBON FILM RESISTOR	RD1/4PM271J
	R277-R280	CARBON FILM RESISTOR	RD1/4PM□□□J
△	R287,R288	CARBON FILM RESISTOR	RD1/4PMF010J
	R299	CARBON FILM RESISTOR	RD1/4PM100J
△	R301,R302	CARBON FILM RESISTOR	RD1/4PMF222J
△	R308	CARBON FILM RESISTOR	RD1/4PMF101J
	R311-R315	CARBON FILM RESISTOR	RD1/4PM□□□J
	R317-R327	CARBON FILM RESISTOR	RD1/4PM□□□J
△	R330	CARBON FILM RESISTOR	RD1/4PMF010J
△	R401,R402	CARBON FILM RESISTOR	RD1/4PMFL100J
△	R403,R404	METAL OXIDE RESISTOR	RS1LMF331J
△	R407,R408	CARBON FILM RESISTOR	RD1/4PMFL100J
	R501-R506	CARBON FILM RESISTOR	RD1/2PM181J
△	R508	CARBON FILM RESISTOR	RD1/4PMF010J
△	R509,R510	METAL OXIDE RESISTOR	RS1LMF222J
	R517-R520	CARBON FILM RESISTOR	RD1/2PM181J
	R731,R732	CARBON FILM RESISTOR	RD1/4PM103J
	OTHER RESISTORS		RD1/8PM□□□J
<b>SWITCHES</b>			
	S701	SWITCH	ASU1016
	S702	SWITCH	ASU1002
	S703	PUSH SWITCH	SULL6S
<b>OTHERS</b>			
	CN4	JUMPER CONNECTOR	KPE15
	CN9	JUMPER CONNECTOR	KPC8
	RY301-RY303	RELAY	ASR-111
		PHONO JACK 6-P	AKB1007
		PHONO JACK 6-P	AKB1008
		PHONO JACK 6-P	AKB1024
		SPEAKER TERMINAL 8-P	AKE1011



## 5. FOR A-447/HEWZ AND A-447-S/HEWZ TYPES

**NOTES:**

- Parts without part number cannot be supplied.
- The  $\Delta$  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.

### 5.1 Contrast of Miscellaneous Parts

The A-447/HEWZ and A-447-S/HEWZ types are the same as the A-447/HE type with the exception of the following sections.

Mark	Symbol & Description	Parts No.			Remarks
		A-447/HE type	A-447/HEWZ type	A-447-S/HEWZ type	
	AF COMPLEX ASS'Y	AWZ2861	AWZ2855	AWZ2855	
	HEADPHONE ASS'Y	Non supply	Non supply	Non supply	
	POWER SW ASS'Y	Non supply	Non supply	Non supply	
	ROTARY KNOB S (PLS)	AAB1155	AAB1155	AAB1156	
	ROTARY KNOB L (PLS)	AAB1160	AAB1160	AAB1161	
	ROTARY KNOB R (PLS)	AAB1162	AAB1162	AAB1163	
	ROTARY KNOB M (PLS)	AAB1164	AAB1164	AAB1165	
	PUSH KNOB C	AAD1366	AAD1366	AAD1367	
	KNOB (POWER)	AAD1535	AAD1535	AAD1537	
	PUSH KNOB	AAD1536	AAD1536	AAD1538	
	PUSH KNOB C	AAD1803	AAD1803	AAD1804	
	SCREW	BBT30P060FZK	BBT30P060FZK	ABA-274	
	PACKING CASE	AHD1861	AHD1861	AHD1862	
	PANEL BASE (PLS)	AMB1651	AMB1651	AMB1652	
	FRONT PANEL	AMB1395	AMB1395	AMB1396	
	BONNET CASE	AZN1799	AZN1799	AZN1800	
	OPERATING INSTRUCTIONS	ARE1162	-----	-----	
	OPERATING INSTRUCTIONS	-----	ARC1213	ARC1213	
	R1, R2	-----	RD1/4PM100J	RD1/4PM100J	

## 5.2 P.C.B's 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%).

560Ω	56 × 10 <sup>1</sup>	561.....	RD1/4PS	□	□	□	J
47kΩ	47 × 10 <sup>3</sup>	473.....	RD1/4PS	□	□	□	J
0.5Ω	0R5.....		RN2H	□	□	□	K
1Ω	010.....		RS1P	□	□	□	K

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

5.62kΩ	562 × 10 <sup>1</sup>	5621.....	RN1/4SR	□	□	□	F
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Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.	
<b>POWER SW ASS'Y</b>				Q237 TRANSISTOR				2SC1845
<b>CAPACITORS</b>				Q238 TRANSISTOR				2SA992
Δ	C510,C511	CKA (0.01/AC400V)	ACG1002	Q301,Q302 TRANSISTOR				2SC1845
<b>SWITCH</b>				Q303,Q304 TRANSISTOR				2SC2458
Δ	S501	PUSH SWITCH	ASG1035	Q305 TRANSISTOR				2SA1048
<b>HEADPHONE ASS'Y</b>				Q306 TRANSISTOR				2SC1815
<b>CAPACITORS</b>				Q307 TRANSISTOR				2SC2458
	C801,C802	CERAMIC CAPACITOR	CKCYB392K50	D101,D102 ZENER DIODE				RD7.5ESB2
<b>RESISTORS</b>				D103 DIODE				1SS252
Δ	R801,R802	METAL OXIDE RESISTOR	RS1PMF331J	D201,D202 ZENER DIODE				RD2.7ESB1
Δ	R803	METAL OXIDE RESISTOR	RS1LMF681J	D209-D216 DIODE				1SS252
<b>SWITCH</b>				D217-D220 ZENER DIODE				RD15ESB
	S801	PUSH SWITCH	SUL5L2B2S	D301-D306 DIODE				1SS252
<b>OTHERS</b>				D307 ZENER DIODE				RD22ESB
	CN6	JUMPER CONNECTOR 3-P JACK	KPC3 AKN1002	D503,D504 ZENER DIODE				RD18ESB1
<b>AF COMPLEX ASS'Y (AWZ2855)</b>				D505,D506 DIODE				11E2
<b>SEMICONDUCTORS</b>				D507 DIODE				D5SB20F
	IC101	IC	UPC4570C	<b>COILS &amp; FILTERS</b>				
	Q101-Q104	N-FET	2SK369	L101,L102 COIL(270μH)				ATH1010
	Q105,Q106	TRANSISTOR	2SC2458	L107,L108 COIL(270μH)				LAU3R3K
	Q201,Q202	TRANSISTOR	2SA979	L401,L402 COIL				ATH1009
	Q203-Q208	TRANSISTOR	2SA1048	<b>CAPACITORS</b>				
	Q211,Q212	TRANSISTOR	2SC1845	C101,C102 AUDIO FILM CAPACITOR				CFTXA103J50
	Q215-Q218	TRANSISTOR	2SA1048	C103,C104 CERAMIC CAPACITOR				CCCSL271J50
	Q219,Q220	TRANSISTOR	2SC2705	C105,C106 CERAMIC CAPACITOR				CKCYB472K50
	Q221,Q222	TRANSISTOR	2SC3298	C107,C108 ELECTR. CAPACITOR				CEXA101M25
	Q223,Q224	TRANSISTOR	2SA1306	C109,C110 AUDIO FILM CAPACITOR				CFTXA683J50
	Q225,Q226	TRANSISTOR	2SC2603	C111,C112 AUDIO FILM CAPACITOR				CFTXA183J50
	Q227,Q228	TRANSISTOR	2SC1845	C113,C114 ELECTR. CAPACITOR				CEANP220M10
	Q229,Q230	TRANSISTOR	2SA992	C115,C116 MYLOR FILM CAPACITOR				CQMA392K50
	Q231,Q232	TRANSISTOR	2SA1145	C117,C118 ELECTR. CAPACITOR				CEAS221M25
	Q233,Q234	TRANSISTOR	2SA992	C119,C120 CERAMIC CAPACITOR				CKCYF103Z50
				C121,C122 MYLOR FILM CAPACITOR				CQMA122J50
				C127,C128 CERAMIC CAPACITOR				CCDSL101J50
				C129 CERAMIC CAPACITOR				CKPYX103N25
				C135,C136 ELECTR. CAPACITOR				CEAS470M10
				C137,C138 CERAMIC CAPACITOR				CCCSL151J50

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
C139,C140		CERAMIC CAPACITOR	CCCSL330J50	R219-R234		CARBON FILM RESISTOR	RD1/4PM□□□J
C141		CERAMIC CAPACITOR	CKCYF103Z50	R237,R238		CARBON FILM RESISTOR	RDR1/4PM224J
C201,C202		ELECTR. CAPACITOR	CEEA2R2M50	△ R239-R242		FUSIBLE RESISTOR	RFA1/4PS101J
C203,C204		CERAMIC CAPACITOR	CCCSL101K500	△ R243,R244		CARBON FILM RESISTOR	RD1/4PMF561J
C205,C206		CERAMIC CAPACITOR	CCCSL101J50	△ R245-R248		FUSIBLE RESISTOR	RFA1/4PS101J
C207,C208		CERAMIC CAPACITOR	CCCSL470J50	R249-R252		CARBON FILM RESISTOR	RD1/4PM□□□J
C209,C210		CERAMIC CAPACITOR	CCCSL221J50	R255,R256		CARBON FILM RESISTOR	RD1/4PM561J
C211,C212		ELECTR. CAPACITOR	CEEA221M16	△ R257-R260		FUSIBLE RESISTOR	RFA1/4PS101J
C213,C214		CERAMIC CAPACITOR	CCCSL080D500	△ R261-R268		FUSIBLE RESISTOR	RFA1/4PS470J
C217,C218		ELECTR. CAPACITOR	CEAS101M10	△ R269,R270		RESISTOR (0.33, 5W)	ACN1063
C219-C222		ELECTR. CAPACITOR	CEAS3R3M100	R275-R278		CARBON FILM RESISTOR	RD1/4PM□□□J
C225,C226		ELECTR. CAPACITOR	CEAS331M10	△ R281-R284		FUSIBLE RESISTOR	RFA1/4PS331J
C227-C230		CERAMIC CAPACITOR	CCCSL330K500	△ R285,R286		FUSIBLE RESISTOR	RFA1/4PS101J
C231,C232		CERAMIC CAPACITOR	CKCYB122K50	△ R287,R288		CARBON FILM RESISTOR	RD1/4PMF4R7J
C233-C236		ELECTR. CAPACITOR	CEAS100M50	△ R289,R290		FUSIBLE RESISTOR	RFA1/4PS101J
C237,C238		ELECTR. CAPACITOR	CEAS101M50	R299		CARBON FILM RESISTOR	RD1/4PM100J
C239-C242		POLYESTER CAPACITOR	CQMXA472J100	△ R301,R302		CARBON FILM RESISTOR	RD1/4PMF222J
C244		CERAMIC CAPACITOR	CKDYX104M25	△ R308		CARBON FILM RESISTOR	RD1/4PMF101J
C245,C246		CERAMIC CAPACITOR	CKCYB331K50	R311-R315		CARBON FILM RESISTOR	RD1/4PM□□□J
C247,C248		AUDIO FILM CAPACITOR	CFTXA103J50	R317-R327		CARBON FILM RESISTOR	RD1/4PM□□□J
C251-C254		CERAMIC CAPACITOR	CCCSL680K500	△ R330		CARBON FILM RESISTOR	RD1/4PMF010J
C255		CERAMIC CAPACITOR	CCCSL680J50	△ R401,R402		CARBON FILM RESISTOR	RD1/4PMFL101J
C256		CERAMIC CAPACITOR	CCDSL470J50	△ R403,R404		METAL OXIDE RESISTOR	RS1LMF331J
C301,C302		ELECTR. CAPACITOR	CEAS2R2M50	△ R407,R408		CARBON FILM RESISTOR	RD1/4PMFL100J
C303		ELECTR. CAPACITOR	CEAS471M6	△ R501-R507		METAL OXIDE RESISTOR	RS1PMF121J
C304		CERAMIC CAPACITOR	CKCYF103Z50	△ R507,R508		CARBON FILM RESISTOR	RD1/4PMF010J
C305		ELECTR. CAPACITOR	CEAS101M25	△ R509,R510		METAL OXIDE RESISTOR	RS1LMF272J
C306-C308		ELECTR. CAPACITOR	CEASR47M50	R513-R516		CARBON FILM RESISTOR	RD1/4PM272J
C401,C402		AUDIO FILM CAPACITOR	CFTXA473J50	△ R517-R520		METAL OXIDE RESISTOR	RS1PMF101J
C501,C502		ELECTR. CAPACITOR	CEAS100M50	R731,R732		CARBON FILM RESISTOR	RD1/4PM103J
C503,C504		ELECTR. CAPACITOR	CEAS470M25	OTHER RESISTORS			RD1/8PM□□□J
C505,C506		ELECTR. CAPACITOR (16000/5V)	ACH1078	<b>SWITCHES</b>			
C508		ELECTR. CAPACITOR	CEAS470M50	S101		PUSH SWITCH	ASG1012
C509		ELECTR. CAPACITOR	CEAS010M50	S701		SWITCH	ASU1016
C703-C708		CERAMIC CAPACITOR	CCCSL271J50	S702		SWITCH	ASU1002
C711,C712		CERAMIC CAPACITOR	CCCSL271J50	S703		PUSH SWITCH	SULL6S
C715,C716		CERAMIC CAPACITOR	CCCSL271J50	<b>OTHERS</b>			
C725		CERAMIC CAPACITOR	CCDSL221J50	CN4		JUMPER CONNECTOR	KPE15
C726		CERAMIC CAPACITOR	CKCYF103Z50	CN9		JUMPER CONNECTOR	KPC8
C727,C728		CERAMIC CAPACITOR	CCCSL221J50	RY301,RY302		RELAY	ASR-112
C731		CERAMIC CAPACITOR	CKCYF103Z50	RY303		RELAY	ASR-111
C733,C734		CERAMIC CAPACITOR	CKDYF102Z50			PHONO JACK 6-P	AKB1007
<b>RESISTORS</b>						PHONO JACK 6-P	AKB1008
VR201,VR202		VR(47K)	ACP1045			PHONO JACK 6-P	AKB1024
VR701		VARIABLE(100K-20AX2)	ACT1062			SPEAKER TERMINAL 8-P	AKE1011
R101,R102		CARBON FILM RESISTOR	RDR1/6PU101J				
R107,R108		CARBON FILM RESISTOR	RDR1/6PU563J				
R119-R121		CARBON FILM RESISTOR	RDR1/4PM□□□J				
R133,R134		CARBON FILM RESISTOR	RDR1/6PU391J				
R143,R144		CARBON FILM RESISTOR	RD1/4PM560J				
R201-R204		CARBON FILM RESISTOR	RDR1/4PM□□□J				

## 6. FOR A-337/HEWZ AND A-337-S/HEWZ TYPES

**NOTES:**

- Parts without part number cannot be supplied.
- The  $\Delta$  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.

### 6.1 Contrast of Miscellaneous Parts

The A-337/HEWZ and A-337-S/HEWZ types are the same as the A-337/HE type with the exception of the following sections.

Mark	Symbol & Description	Parts No.			Remarks
		A-337/HE type	A-337/HEWZ type	A-337-S/HEWZ type	
	AF COMPLEX ASS'Y	AWZ2867	AWZ2865	AWZ2865	
	HEADPHONE ASS'Y	Non supply	Non supply	Non supply	
	POWER SW ASS'Y	Non supply	Non supply	Non supply	
	ROTARY KNOB S (PLS)	AAB1155	AAB1155	AAB1156	
	ROTARY KNOB L (PLS)	AAB1160	AAB1160	AAB1161	
	ROTARY KNOB R (PLS)	AAB1162	AAB1162	AAB1163	
	ROTARY KNOB M (PLS)	AAB1166	AAB1164	AAB1167	
	PUSH KNOB C	AAD1366	AAD1366	AAD1367	
	KNOB (POWER)	AAD1535	AAD1535	AAD1537	
	PUSH KNOB	AAD1536	AAD1536	AAD1538	
	PUSH KNOB C	AAD1803	AAD1803	AAD1804	
	SCREW	BBT30P060FZK	BBT30P060FZK	ABA-274	
	PACKING CASE	AHD1863	AHD1863	AHD1864	
	PANEL BASE (PLS)	AMB1651	AMB1651	AMB1652	
	FRONT PANEL	AMB1397	AMB1397	AMB1398	
	BONNET CASE	AZN1799	AZN1799	AZN1800	
	OPERATING INSTRUCTIONS	ARE1162	-----	-----	
	OPERATING INSTRUCTIONS	-----	ARC1213	ARC1213	
	R1, R2	-----	RD1/4PM100J	RD1/4PM100J	

## 6.2 P.C.B's 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  $\Delta$  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 $\Omega$	56 $\times 10^1$	561.....	RD1/4PS	5	6	1	J
47k $\Omega$	47 $\times 10^3$	473.....	RD1/4PS	4	7	3	J
0.5 $\Omega$	0R5.....		RN2H	0	5		K
1 $\Omega$	010.....		RS1P	0	1	0	K

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

5.62k $\Omega$	562 $\times 10^1$	5621.....	RN1/4SR	5	6	2	1	F
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Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
<b>POWER SW ASS'Y</b>				D213-D216	DIODE	1SS252	
<b>CAPACITORS</b>				D217-D220	ZENER DIODE	RD8.2ESB1	
$\Delta$	C510,C511	CKA (0.01/AC400V)	ACG1002	D221,D222	DIODE	1SS252	
				D301-D306	DIODE	1SS252	
				D307	ZENER DIODE,	RD15ESB	
<b>SWITCH</b>				D503,D504	ZENER DIODE	RD16ESB3	
$\Delta$	S501	PUSH SWITCH	ASG1035	D507	DIODE	D5SB20F	
<b>HEADPHONE ASS'Y</b>				<b>COILS &amp; FILTERS</b>			
<b>CAPACITORS</b>				L103-L106	AXIAL INDUCTOR	LAU221K	
	C801,C802	CERAMIC CAPACITOR	CKCYB392K50	L401,L402	COIL	ATH1009	
<b>RESISTORS</b>				<b>CAPACITORS</b>			
$\Delta$	R801,R802	METAL OXIDE RESISTOR	RS1PMF331J	C103,C104	CERAMIC CAPACITOR	CCCSL330J50	
$\Delta$	R803	METAL OXIDE RESISTOR	RS1LMF561J	C107,C108	ELECTR. CAPACITOR	CEAS101M10	
<b>SWITCH</b>				C109,C110	AUDIO FILM CAPACITOR	CFTXA683J50	
	S801	PUSH SWITCH	SUL5L2B2S	C111,C112	AUDIO FILM CAPACITOR	CFTXA183J50	
<b>OTHERS</b>				C113,C114	ELECTR. CAPACITOR	CEAS4R7M50	
	CN6	JUMPER CONNECTOR 3-P JACK	KPC3 AKN1002	C115,C116	MYLOR FILM CAPACITOR	CQMA392K50	
<b>AF COMPLEX ASS'Y (AWZ2865)</b>				C117,C118	ELECTR. CAPACITOR	CEAS221M25	
<b>SEMICONDUCTORS</b>				C119,C120	CERAMIC CAPACITOR	CKCYF103Z50	
	IC101	OP-AMP IC	M5220P	C121,C122	MYLOR FILM CAPACITOR	CQMA122J50	
	Q201,Q202	TRANSISTOR	2SA979	C123,C124	ELECTR. CAPACITOR	CEAS100M50	
	Q203,Q204	TRANSISTOR	2SC2458	C125,C126	CERAMIC CAPACITOR	CCCSL101J50	
	Q205,Q206	TRANSISTOR	2SA1048	C127,C128	CERAMIC CAPACITOR	CCDSL221J50	
	Q219,Q220	TRANSISTOR	2SC2705	C129	CERAMIC CAPACITOR	CKPYX103N25	
	Q221,Q222	TRANSISTOR	2SC3298	C139,C140	CERAMIC CAPACITOR	CCDSL330J50	
	Q223,Q224	TRANSISTOR	2SA1306	C141	CERAMIC CAPACITOR	CKCYF103Z50	
	Q231,Q232	TRANSISTOR	2SA1145	C201,C202	ELECTR. CAPACITOR	CEEA2R2M50	
	Q301,Q302	TRANSISTOR	2SC1845	C203,C206	CERAMIC CAPACITOR	CCCSL101J50	
	Q303,Q304	TRANSISTOR	2SC2458	C207,C208	CERAMIC CAPACITOR	CCCSL470J50	
	Q305	TRANSISTOR	2SA1048	C209,C210	CERAMIC CAPACITOR	CKCYB331K50	
	Q306	TRANSISTOR	2SC1815	C211,C212	ELECTR. CAPACITOR	CEEA221M16	
	Q307	TRANSISTOR	2SC2458	C213,C214	CERAMIC CAPACITOR	CCCSL080D500	
	D201,D202	DIODE	1SS252	C217,C218	ELECTR. CAPACITOR	CEAS471M6	
	D207,D708	DIODE	1SS252	C231,C232	CERAMIC CAPACITOR	CKCYB122K50	
				C233,C234	ELECTR. CAPACITOR	CEAS100M50	
				C235,C236	ELECTR. CAPACITOR	CEAS0R1M50	

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	C239-C242	POLYESTER CAPACITOR	CQMXA472J100	△	R403,R404	METAL OXIDE RESISTOR	RS1LMF331J
	C245,C246	CERAMIC CAPACITOR	CKCYB331K50	△	R407,R408	CARBON FILM RESISTOR	RD1/4PMFL100J
	C249,C250	CERAMIC CAPACITOR	CCCSL050C500		R501-R506	CARBON FILM RESISTOR	RD1/2PM181J
	C251-C254	CERAMIC CAPACITOR	CCCSL101K500	△	R508	CARBON FILM RESISTOR	RD1/4PMF010J
	C255	CERAMIC CAPACITOR	CCCSL680J50	△	R509,R510	METAL OXIDE RESISTOR	RS1LMF222J
	C256	CERAMIC CAPACITOR	CCDSL470J50		R517-R520	CARBON FILM RESISTOR	RD1/2PM181J
	C257	CERAMIC CAPACITOR	CKCYF103Z50		R731,R732	CARBON FILM RESISTOR	RD1/4PM103J
	C301,C302	ELECTR. CAPACITOR	CEAS2R2M50		OTHER RESISTORS		RD1/8PM□□□J
	C303	ELECTR. CAPACITOR	CEAS471M6		SWITCHES		
	C304	CERAMIC CAPACITOR	CKCYF103Z50		S701	SWITCH	ASU1016
	C305	ELECTR. CAPACITOR	CEAS101M25		S702	SWITCH	ASU1002
	C306-C308	ELECTR. CAPACITOR	CEASR47M50		S703	PUSH SWITCH	SULL6S
	C401,C402	AUDIO FILM CAPACITOR	CFTXA473J50		OTHERS		
	C501,C502	ELECTR. CAPACITOR	CEAS470M25		CN4	JUNPER CONNECTOR	KPE15
	C505,C506	ELECTR. CAPACITOR (6800/42V)	ACH1077		CN9	JUMPER CONNECTOR	KPC8
	C508	ELECTR. CAPACITOR	CEAS470M50		RY301-RY303	RELAY	ASR-111
	C509	ELECTR. CAPACITOR	CEAS220M50			PHONO JACK 4-P	AKB1007
	C703-C720	CERAMIC CAPACITOR	CCCSL271J50			PHONO JACK 6-P	AKB1008
	C725-C728	CERAMIC CAPACITOR	CCDSL221J50			PHONO JACK 6-P	AKB1024
	C731	CERAMIC CAPACITOR	CKCYF103Z50			SPEAKER TERMINAL 8-P	AKE1011

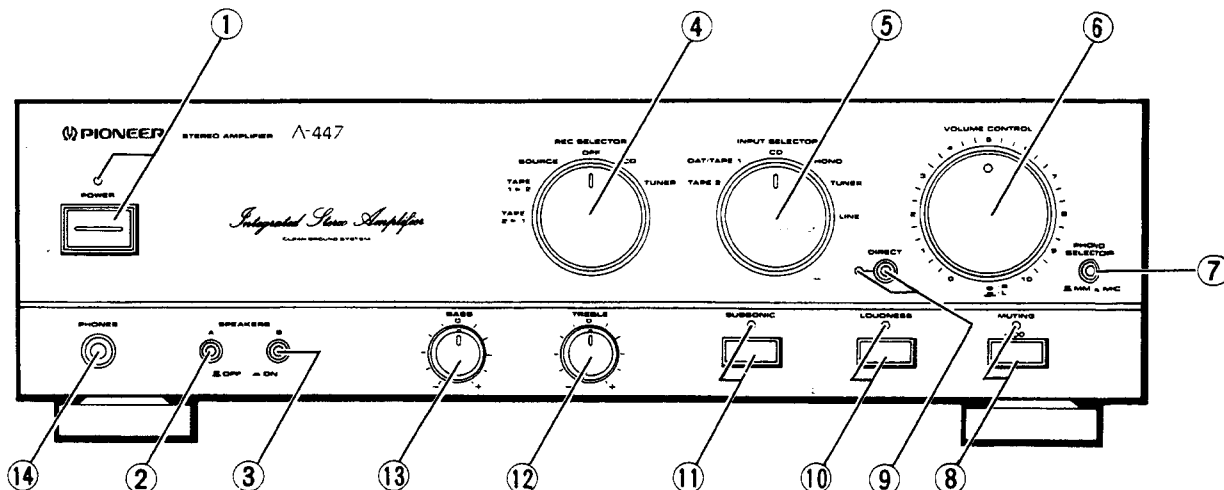
## RESISTORS

	VR701	VARIABLE(100K-20AX2)	ACT1062
	R121,R122	CARBON FILM RESISTOR	RDR1/4PM820J
	R133,R134	CARBON FILM RESISTOR	RDR1/6PU471J
	R141,R142	CARBON FILM RESISTOR	RDR1/6PU563J
	R143,R144	CARBON FILM RESISTOR	RD1/4PM560J
	R201-R204	CARBON FILM RESISTOR	RDR1/4PM□□□J
△	R205,R206	CARBON FILM RESISTOR	RD1/4PMF331J
	R207-R214	CARBON FILM RESISTOR	RD1/4PM□□□J
	R215-R218	CARBON FILM RESISTOR	RDR1/4PM□□□J
△	R239-R246	FUSLIBLE RESISTOR	RFA1/4PS101J
△	R247,R248	CARBON FILM RESISTOR	RD1/4PMF680J
	R251,R252	METALFILM RESISTER	RN1/4PQ1501F
△	R261-R264	CARBON FILM RESISTOR	RD1/4PMF101J
△	R265-R268	FUSLIBLE RESISTOR	RFA1/4PS4R7J
△	R269,R270	RESISTOR (0.33, 5W)	ACN1063
	R273,R274	CARBON FILM RESISTOR	RD1/4PM271J
	R277-R280	CARBON FILM RESISTOR	RD1/4PM□□□J
△	R287,R288	CARBON FILM RESISTOR	RD1/4PMF010J
	R299	CARBON FILM RESISTOR	RD1/4PM100J
△	R301,R302	CARBON FILM RESISTOR	RD1/4PMF222J
△	R308	CARBON FILM RESISTOR	RD1/4PMF101J
	R311-R315	CARBON FILM RESISTOR	RD1/4PM□□□J
	R317-R327	CARBON FILM RESISTOR	RD1/4PM□□□J
△	R330	CARBON FILM RESISTOR	RD1/4PMF010J
△	R401,R402	CARBON FILM RESISTOR	RD1/4PMFL101J

## 7. PANEL FACILITIES

### [FRONT PANEL]

The illustration shows model A-447.  
Model A-337 is not equipped ⑦, ⑧ and ⑩.



#### ① POWER switch/indicator

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

#### ② SPEAKERS A selector switch

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

##### ON (▲):

Depressed position: Sound is heard from the speaker systems.

##### OFF (■):

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

#### ③ SPEAKERS B selector switch

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

##### ON (▲):

Depressed position: Sound is heard from the speaker systems.

##### OFF (■):

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

#### ④ REC SELECTOR switch

When this switch is set to a position other than SOURCE or OFF, the equipment selected by REC SELECTOR switch can be recorded from, irrespective of the settings of INPUT SELECTOR and DIRECT switches.

##### TUNER:

To record from the equipment connected to TUNER terminals.

##### CD:

To record from the equipment connected to CD terminals.

##### OFF:

In this position, nothing from REC terminals of DAT/TAPE 1 and TAPE 2 is output. Set to this position when not recording; the cassette deck will be disconnected, improving sound quality.

##### SOURCE:

To record from the equipment selected by INPUT SELECTOR switch.

##### TAPE:

1 ► 2:

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

2 ► 1:

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

## ⑤ INPUT SELECTOR switch

Use to select the playback source.

### LINE:

For playback with a component connected to LINE terminal.

### TUNER:

For AM or FM broadcast reception with a tuner.

### PHONO:

For record playback with a turntable.

### NOTE:

- With the A-337, you can use an MM cartridge or a high-output MC cartridge (over 1 mV).
- According to the type of cartridge used with the A-447, you can select MM or MC with the PHONO SELECTOR switch.

### CD:

For compact disc playback with a CD player.

### DAT/TAPE 1:

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

### TAPE 2:

For playback with a cassette deck connected to TAPE 2 terminals.

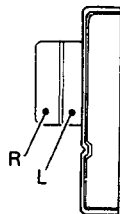
## ⑥ VOLUME CONTROL

Use to adjust the volume level.

This volume knob consists of two volume controls. Because you can adjust L (left) and R (right) channel volume levels independently, it also functions as a balance control.

### [Example]

To raise R (right) channel volume level, prevent the L knob from turning with one hand, and turn the R knob with the other hand.



### NOTE:

This unit is equipped with a circuit that attenuates LOUDNESS and TONE effect as volume is turned up.

## ⑦ PHONO SELECTOR switch (A-447 only)

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

### MM (■):

Set to this position when using a moving magnet cartridge, or a moving coil cartridge with a high output of 1 mV or more.

### MC (▲):

Set to this position when using a moving coil cartridge.

## ⑧ MUTING switch (A-447 only)

Use to temporarily cut sound volume.

**on:** The indicator lights.

The sound is cut off.

**off:** The indicator goes off.

The sound will return to its previous volume.

## ⑨ DIRECT switch/indicator

Use this switch/indicator when you do not wish to pass the output from input terminal equipment through the various frequency adjusting circuits (BASS, TREBLE, SUBSONIC, LOUDNESS) and adaptor terminals (ADAPTOR).

**on:**

The indicator lights: The signals input through 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:**

The indicator goes out: The signal passes through the various frequency adjusting circuits.

## ⑩ 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 levels.

**off:**

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

### NOTE:

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

## ⑪ SUBSONIC filter switch/indicator (A-447 only)

Use this switch when playing records with coarse grooves.

**on:**

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 switch does not operate when DIRECT switch is in the on position.

## ⑫ TREBLE tone control

Use to adjust the high-frequency tone. 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 control does not operate when DIRECT switch is in the on position.

- At volume levels lower than "4", the set tone control effect is obtained.

- At volume levels higher than "4", the effect becomes increasingly weaker.

## ⑬ BASS tone control

Use to adjust the low-frequency tone. 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 control does not operate when DIRECT switch is in the on position.

- At volume levels lower than "4", the set tone control effect is obtained.

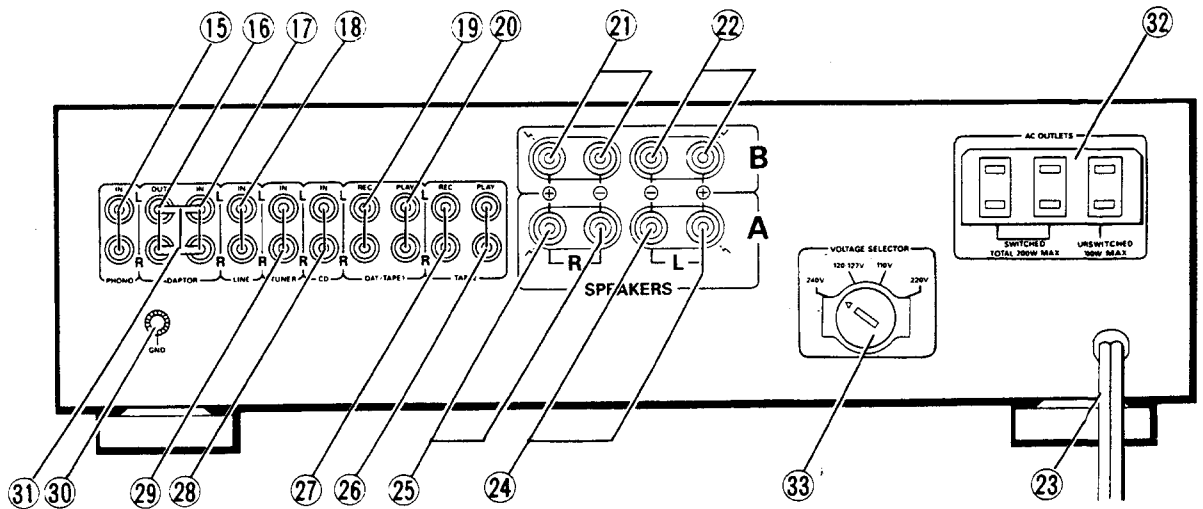
- At volume levels higher than "4", the effect becomes increasingly weaker.

## ⑭ PHONES jack

When using headphones, insert the plug into this jack.



**[REAR PANEL]**



- ①⑤ PHONO terminals
- ①⑥ ADAPTOR OUT terminals
- ①⑦ ADAPTOR IN terminals
- ①⑧ LINE terminals
- ①⑨ DAT/TAPE 1 REC terminals
- ①⑩ DAT/TAPE 1 PLAY terminals
- ①⑪ SPEAKERS B terminals (right channel)
- ①⑫ SPEAKERS B terminals (left channel)
- ①⑬ Power cord  
Connect this cord to an AC wall socket, or the AC outlet of an audio timer.
- ①⑭ Turntable ground terminal (GND)
- ①⑮ Shorting bars
- ①⑯ AC OUTLETS
- ①⑰ VOLTAGE SELECTOR (multi-voltage models)
- ②④ SPEAKERS A terminals (left channel)
- ②⑤ SPEAKERS A terminals (right channel)
- ②⑥ TAPE 2 PLAY terminals
- ②⑦ TAPE 2 REC terminals
- ②⑧ CD terminals
- ②⑨ TUNER terminals
- ③③ VOLTAGE SELECTOR (multi-voltage models)

## 8. SPECIFICATIONS

### [A-447]

#### Amplifier Section

Continuously Average Power Output is 60 Watts per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz, with no more than 0.009%\*\* total harmonic distortion.

Continuous power output (both channels driven at 20 Hz to 20 kHz)**	
T.H.D. 0.009 %, 8 Ω	60 W + 60 W*
T.H.D. 0.02 %, 4 Ω	80 W + 80 W*
Dynamic power output (on EIA dynamic test signal)	
8 Ω/4 Ω/2 Ω	75 W/110 W/150 W
Total harmonic distortion **	
20 Hz to 20 kHz, 60 W, 8 Ω	0.009 %*
20 Hz to 20 kHz, 80 W, 4 Ω	0.02 %*
Input sensitivity/impedance	
PHONO (MM)	2.5 mV/50 kΩ
PHONO (MC)	0.2 mV/100 Ω
CD, TUNER, LINE, TAPE	150 mV/40 kΩ
PHONO overload level	
1 kHz, T.H.D. 0.008 % (MM/MC)	150 mV/12 mV
Output level/impedance	
TAPE REC, ADAPTOR OUTPUT	150 mV/2.2 kΩ
Frequency response	
PHONO (MM)	20 Hz to 20 kHz ± 0.3 dB
PHONO (MC)	20 Hz to 20 kHz ± 0.5 dB
CD, TUNER, LINE, TAPE	5 Hz to 100 kHz ± 0.5 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.)
Signal-to-Noise ratio (IHF short circuit, A network)	
PHONO (MM, 5 mV input/MC, 0.5 mV input)	93 dB/74 dB*
CD, TUNER, LINE, TAPE	108 dB*
Muting	-∞

#### Power Supply/Miscellaneous

Power requirements	
Canadian model	AC 120 V, 60 Hz
Other destination models	AC 110 V/120-127 V/220 V, 240 V (Switchable), 50/60 Hz
Power Construction	
Canadian model	430 VA (CSA)
Other destination models	550 W
AC outlets	
switched (x 2)	200 W
unswitched (x 1)	100 W
Dimensions	420 (W) x 352 (D) x 126 (H) mm 16-9/16 (W) x 13-7/8 (D) x 5 (H) in
Weight (without package)	8.1 kg (17 lb 14 oz)

#### Accessories

Operating instructions	1
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#### NOTE:

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

\* Measured with DIRECT switch set to on.

\*\* Measured by Audio Spectrum Analyzer.

### [A-337]

#### Amplifier Section

Continuous Average Power Output is 40 watts\*\*\* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz, with no more than 0.02%\*\* total harmonic distortion.

Continuous power output (both channels driven at 20 Hz to 20 kHz)**	
T.H.D. 0.02 %, 8 Ω	40 W + 40 W*
T.H.D. 0.03 %, 4 Ω	50 W + 50 W*
Dynamic power output (on EIA dynamic test signal)	
8 Ω/4 Ω/2 Ω	55 W/90 W/100 W
Total harmonic distortion **	
20 Hz to 20 kHz, 40 W, 8 Ω	0.02 %*
20 Hz to 20 kHz, 50 W, 8 Ω	0.03 %*
Input sensitivity/impedance	
PHONO (MM)	2.5 mV/50 kΩ
CD, TUNER, LINE, TAPE	150 mV/40 kΩ
PHONO overload level	
1 kHz, T.H.D. 0.02 % (MM)	150 mV
Output level/impedance	
TAPE REC, ADAPTOR OUTPUT	150 mV/2.2 kΩ
Frequency response	
PHONO (MM)	20 Hz to 20 kHz ± 0.3 dB
CD, TUNER, LINE, TAPE	5 Hz to 100 kHz ± 0.5 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)
Signal-to-Noise ratio (IHF short circuit, A network)	
PHONO (MM, 5 mV input)	89 dB*
CD, TUNER, LINE, TAPE	108 dB*

#### Power Supply/Miscellaneous

Power requirements	
U.S., Canadian models	AC 120 V, 60 Hz
Other destination models	AC 110 V/120-127 V/220 V, 240 V (Switchable), 50/60 Hz
Power Construction	
U.S., Canadian model	260 W (UL), 330 VA (CSA)
Other destination models	410 W
AC outlets	
switched (x 2)	200 W
unswitched (x 1)	100 W
Dimensions	420 (W) x 352 (D) x 126 (H) mm 16-9/16 (W) x 13-7/8 (D) x 5 (H) in
Weight (without package)	6.9 kg (15 lb 3 oz)

#### Accessories

Operating instructions	1
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#### NOTE:

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

\* Measured with DIRECT switch set to on.

\*\* Measured by Audio Spectrum Analyzer.

\*\*\* Measured pursuant to the Federal Trade Commission's Trade Regulation rules on Power Output Claims for Amplifiers.