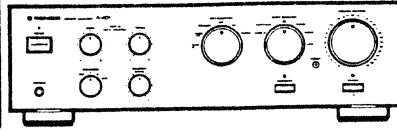


Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
ARP2480

STEREO AMPLIFIER **A-401**

A-401 HAS THE FOLLOWING :

Type	Power Requirement	Remarks
HE	AC220 - 230V, 230V - 240V (switchable)*	
HEWZ	AC220 - 230V, 240V (switchable)*	
KC	AC120V only	
SD	AC110V, 120 - 127V, 220V, 240V (switchable)	

* Change the connection of the power transformer's primary wiring

- This manual is applicable to HE, HEWZ, KC, and SD types.
- For HEWZ, KC AND SD types, refer to page 23.
- Ce manuel pour le service comprend les explications de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

STEREO AMPLIFIER

A-402

- Refer to the service manual ARP2480 for A-401.

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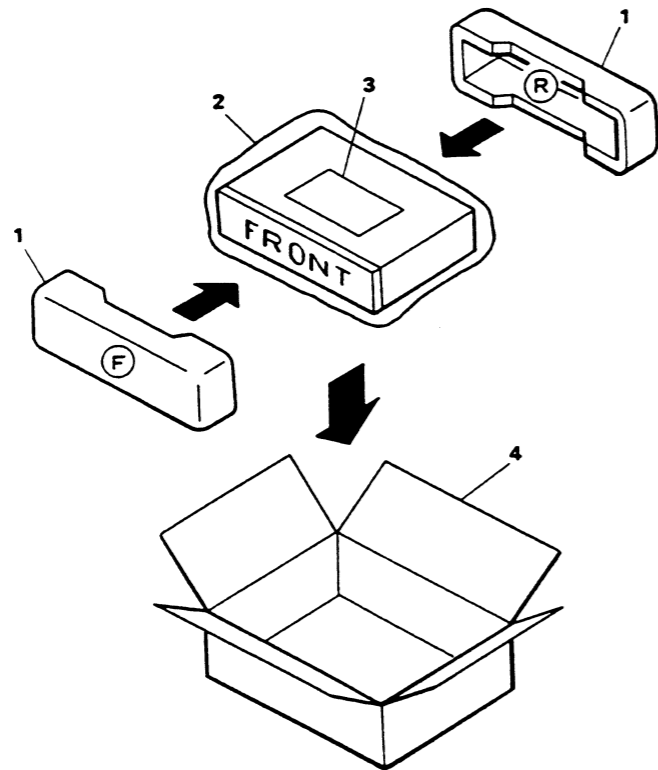
1. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

- The parts with an encircled number are generally unavailable because they are not in our Master Spare Parts List.
- 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.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

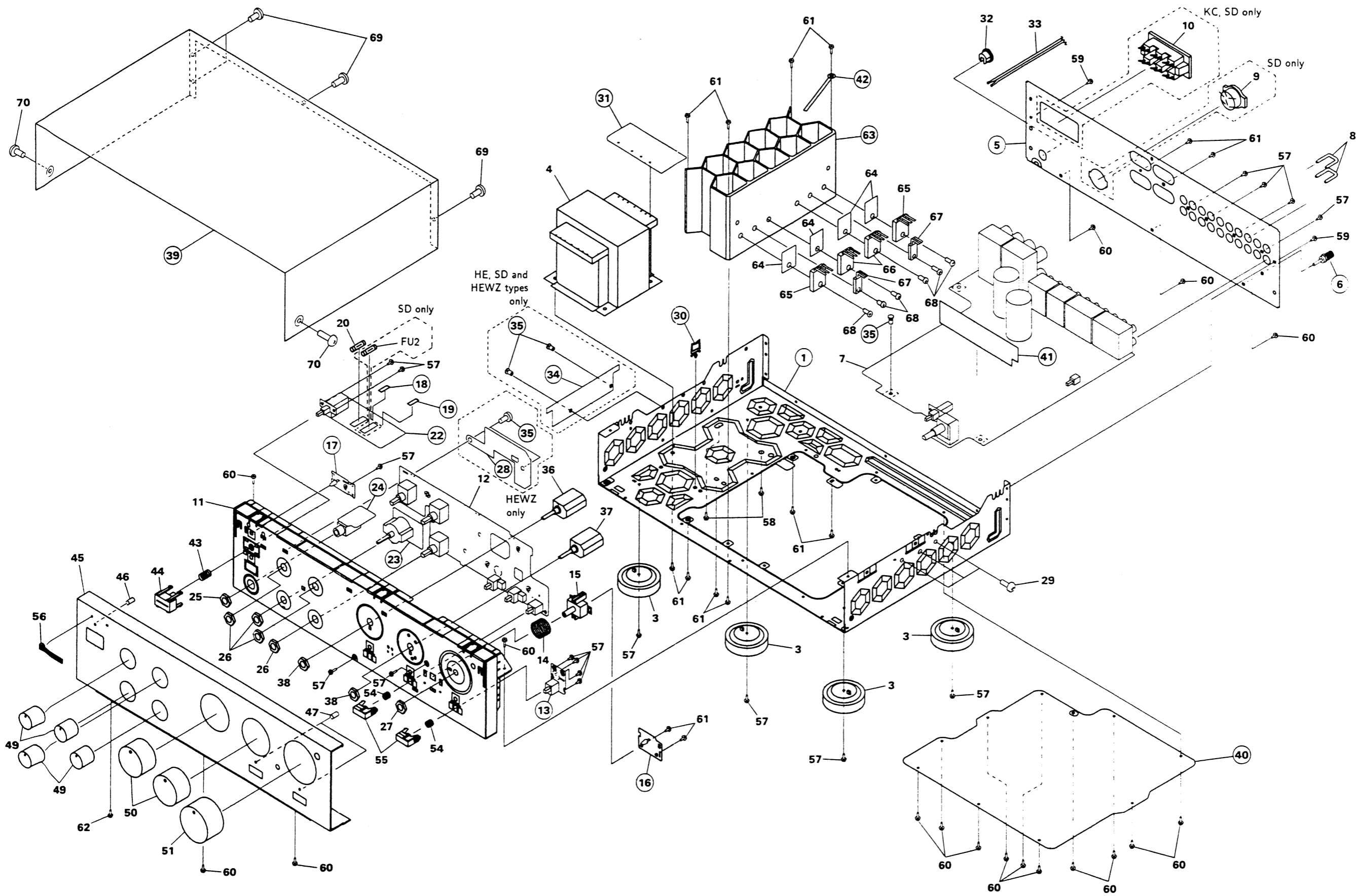
1.1 PACKING

Mark No.	Description	Parts No.
1	Front rear pad	AHA1335
2	Packing sheet	AHG1016
3	Operating instructions (English, French, German, Italian, Dutch, Swedish, Spanish, Portuguese)	ARE1227
4	Packing case	AHD2242



1.2 EXPLODED VIEWS

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	Chassis	ANA1065		36	Remote slide rotary switch	ASU1042
	2	.....			37	Remote slide rotary switch	ASU1043
	3	Insulator assembly	AMR2140		38	Nut	NK90FUC
Δ	4	Power transformer	ATS1346		39	Bonnet	ANE1147
	5	Rear panel	ANC1547		40	Bottom plate	ANF1085
	6	Earth terminal	AKE-031		41	SHIELD assembly	AWZ4034
⊙	7	AF COMPLEX assembly	AWZ4029		42	Binder	AEF1004
	8	Pin jack with plug	AKM1019		43	Coil spring B	ABH-052
Δ	9	Voltage selector(SD only)	AKX-507		44	Power knob	AAD1984
Δ	10	3P AC outlet (KC, SD)	AKP-515		45	Front panel	ANB1495
	11	Panel base	AMB1961		46	LED lens (ABS)	PNW2019
⊙	12	TONE assembly	AWZ4032		47	LED lens	AMR1160
	13	MUTE assembly	AWZ4037		48	.....
	14	Coil spring A	ABH1081		49	Rotary knob S	AAB1276
	15	Direct knob assembly	AAD2220		50	Rotary knob M	AAB1281
	16	Direct IND. assembly	AWZ4035		51	Rotary knob L	AAB1277
	17	LED assembly	AWZ4033		52	.....
	18	Fuse card	AAX1580		53	.....
	19	Fuse card	AAX-302		54	Coil spring B	ABH1082
Δ	20	FUSE (FU1, T2.5A)	AEK-512		55	Push knob	AAD2221
	21	.....			56	Name plate	AA M1029
	22	POWER SW assembly	AWZ4030		57	Bind B tyte	ABA-298
	23	SP. SELECT assembly	AWZ4036		58	Screw (4×16)	ABA1016
	24	HEAD PHONE assembly	AWZ4031		59	Screw	ABA1009
	25	Nut	ABN-065		60	Screw B tyte	ABA1011
	26	Nut	NK90FUC		61	Screw	ABA1050
	27	Nut	NK70FUC		62	Screw	ABA1048
	28	TONE SHIELD (HEWZ only)	ANK1212		63	Heat sink	ANH1259
	29	Nylon rivet	AEC1256		64	Mica sheet	AEE1014
	30	Wire clip	AEC1388	Δ	65	Transistor (Q3, Q4)	2A1302
	31	POWER TRANS assembly	AWZ4039	Δ	66	Transistor (Q1, Q2)	2C3281
Δ	32	AC cord stopper	AEC-882	Δ	67	Transistor (Q5, Q6)	2C4137
	33	AC power cord	ADG1049		68	Screw	ABA1082
	34	HEAT PROTECT assembly	AWZ4038		69	Screw	ABA1011
	35	Nylon rivet	AEC1160		70	Screw	B3T30P060FZK



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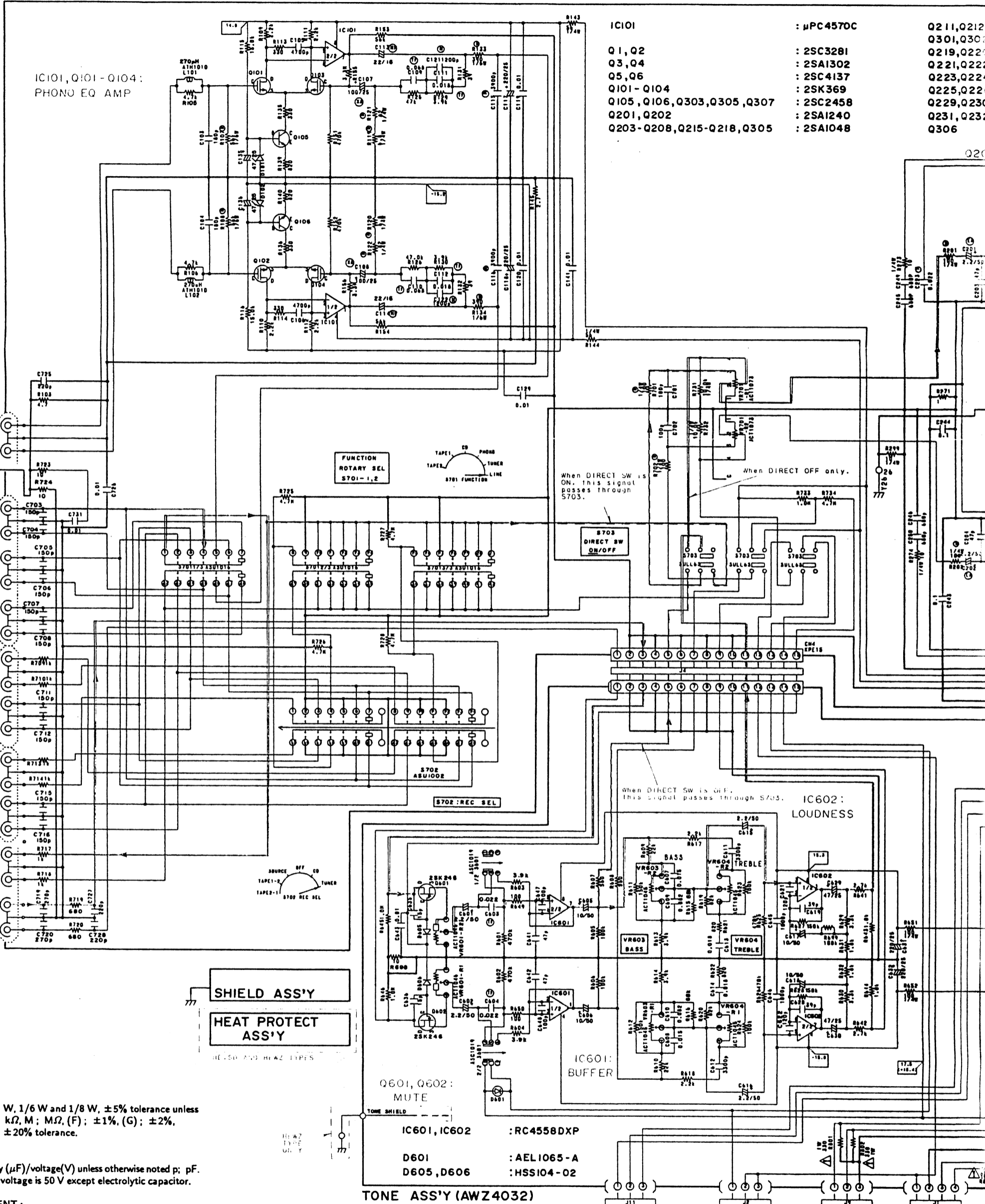
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2. SCHEMATIC DIAGRAMS

AF COMPLEX ASS'Y (AWZ4029)



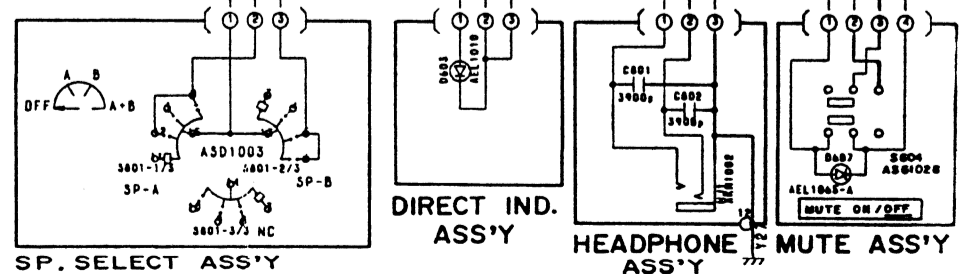
- RESISTORS:**
Indicated in Ω , 1/4 W, 1/6 W and 1/8 W, $\pm 5\%$ tolerance unless otherwise noted k; k Ω , M; M Ω , (F); $\pm 1\%$, (G); $\pm 2\%$, (K); $\pm 10\%$, (M); $\pm 20\%$ tolerance.
- CAPACITORS:**
Indicated in capacity (μ F)/voltage(V) unless otherwise noted p; pF. Indication without voltage is 50 V except electrolytic capacitor.
- VOLTAGE, CURRENT:**
 - V: Signal voltage at 40 W + 40 W, 8 Ω output (1 kHz).
 - DC voltage (V) at no input signal unless otherwise noted. Value in () is DC voltage at rated power.
 - mA: DC current at no input signal unless otherwise noted.

5. SWITCHES: (The underline indicates the switch position.)
S 501: ON-OFF

Line Voltage Selection
Line Voltage can be changed as follows:
1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the connection of the power transformer primary taps.
4. Stick the line voltage label on the rear panel.

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

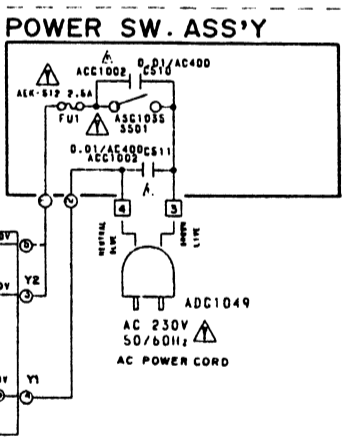
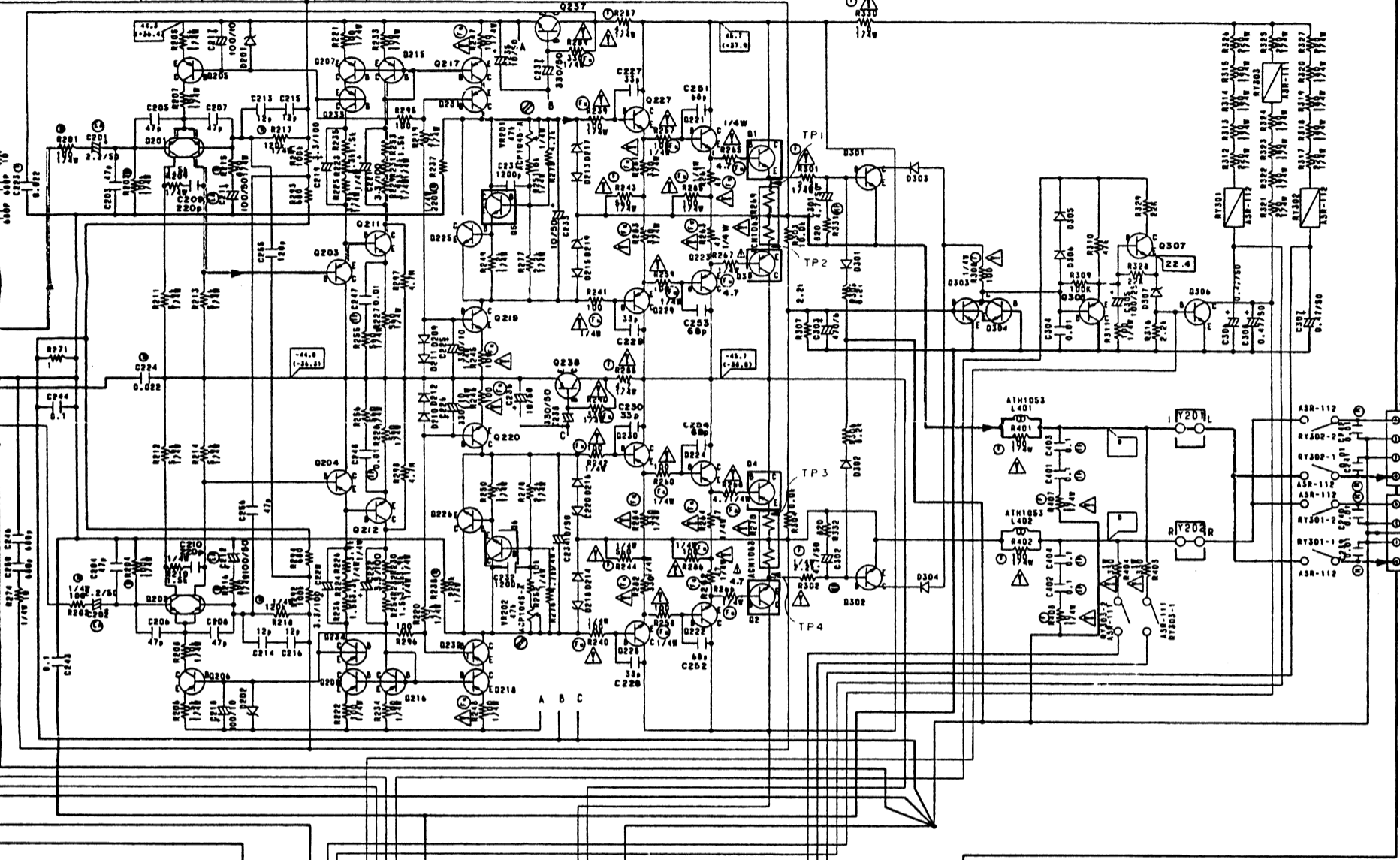
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.



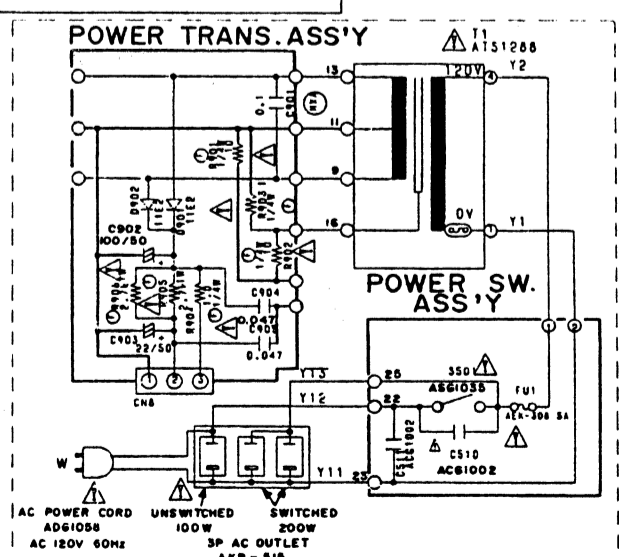
Q211, Q212, Q227, Q228, Q237,		D101, D102	: RD7.5ESB2
Q301, Q302	: 2SC1845	D201, D202	: RD2.7ESB1
Q219, Q220	: 2SC2705	D209 - D216, D301 - D306	: HSS104-02
Q221, Q222	: 2SC3298	D217 - D220	: RD15ESB
Q223, Q224	: 2SA1306	D307	: RD22ESB
Q225, Q226	: 2SC2603	D503, D504	: RD18ESB1
Q229, Q230, Q233, Q234, Q238	: 2SA992	D507	: D5SB20F
Q231, Q232	: 2SA1145		
Q306	: 2SC1815		

A
B
C
D
E
F

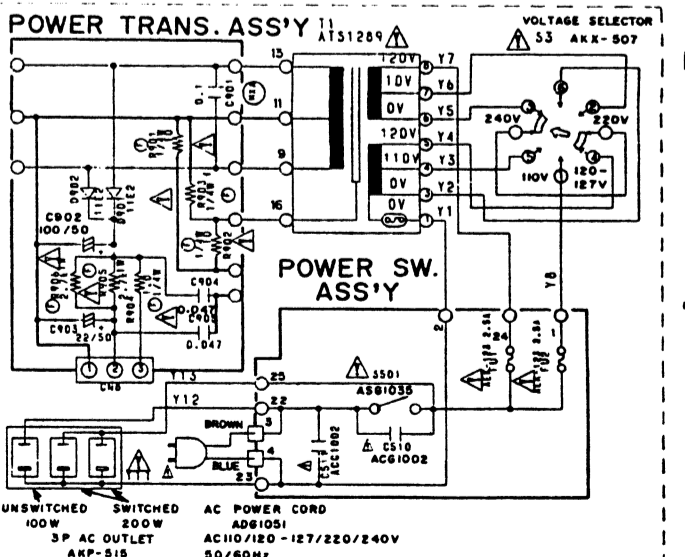
Q203, Q204, Q215 - Q218, Q231, Q232 : POWER AMP



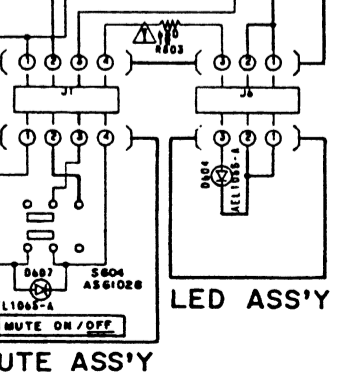
POWER SUPPLY SECTION FOR HE AND HEWZ TYPES



POWER SUPPLY SECTION FOR KC TYPE

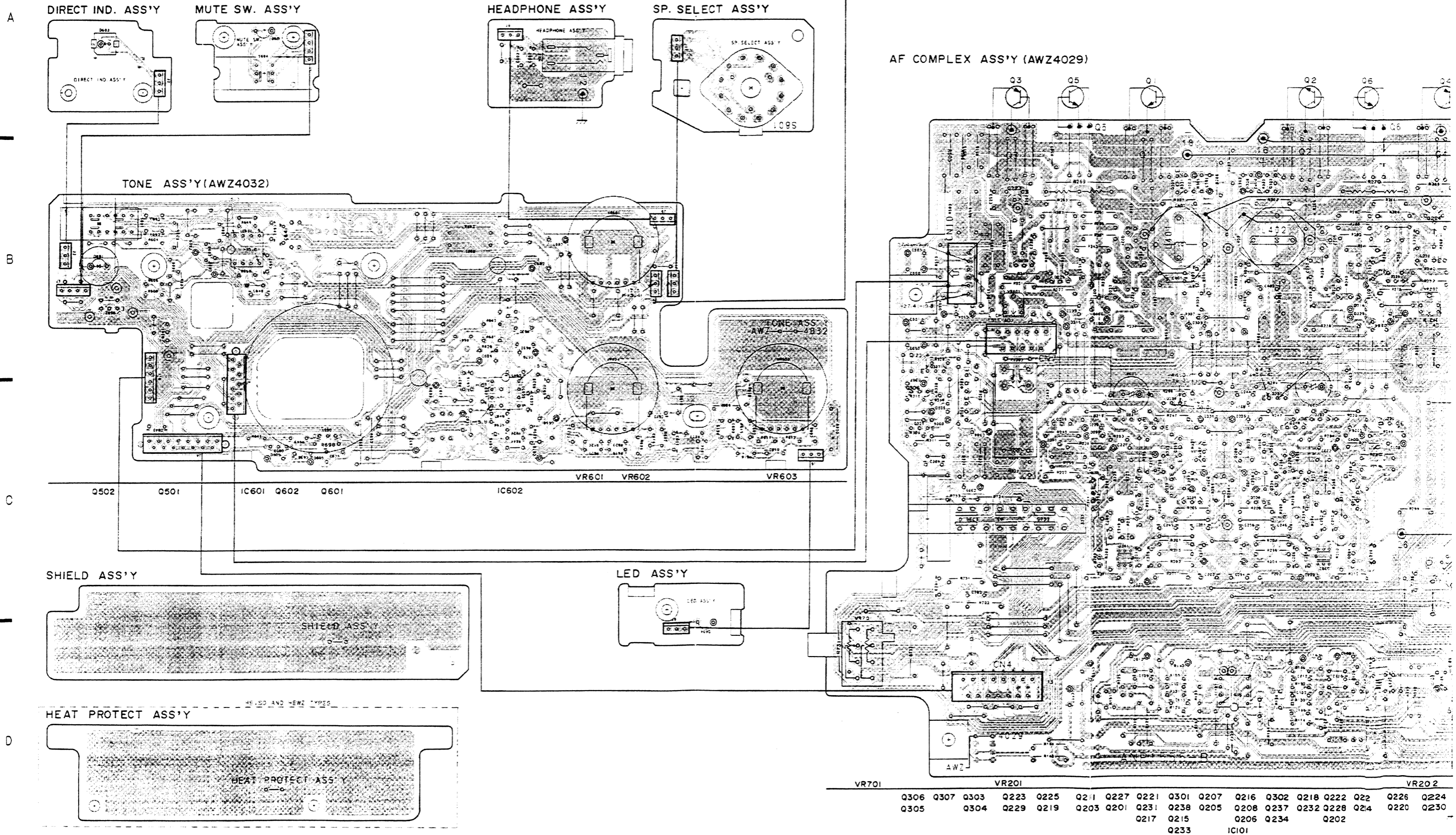


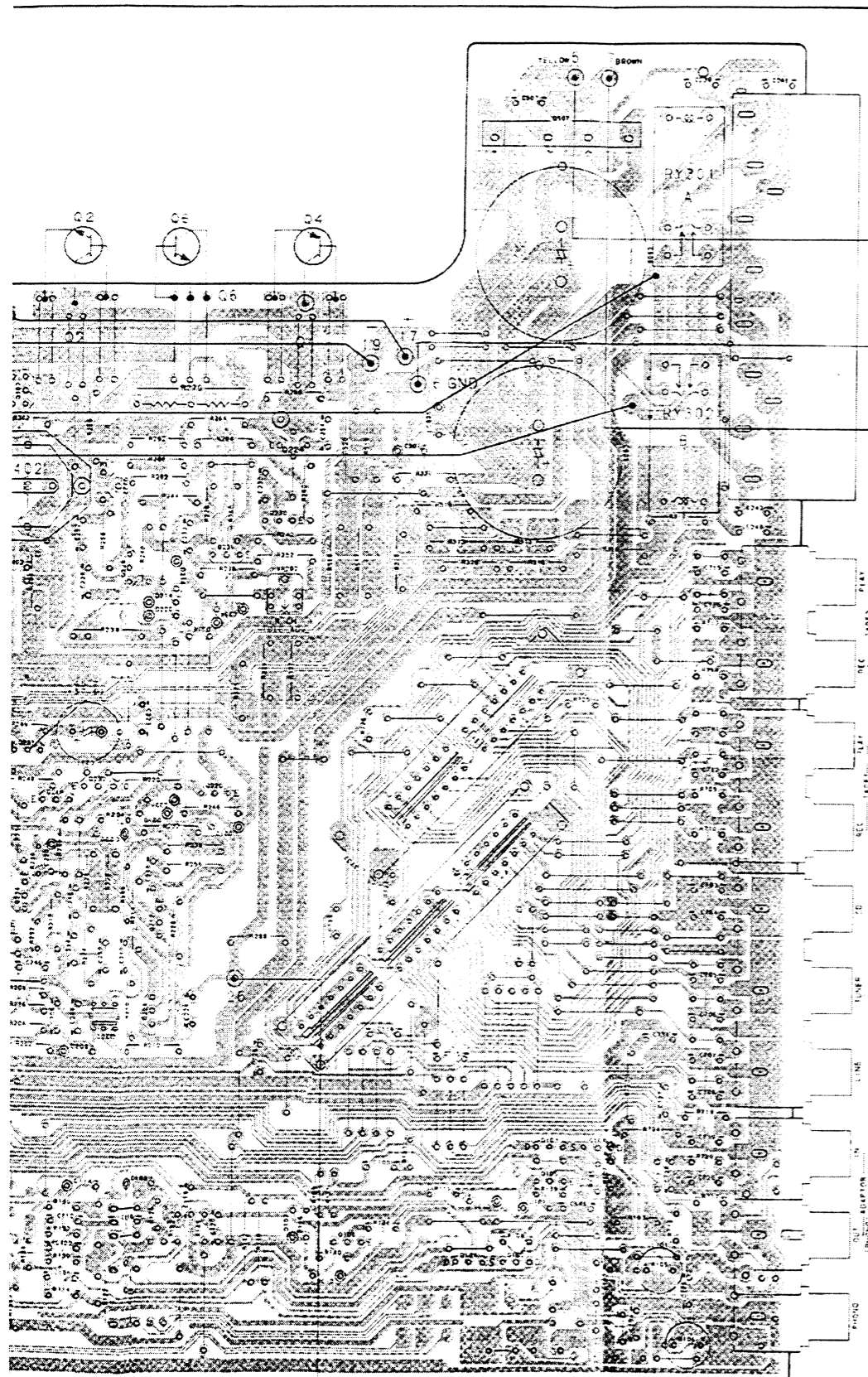
POWER SUPPLY SECTION FOR SD TYPE



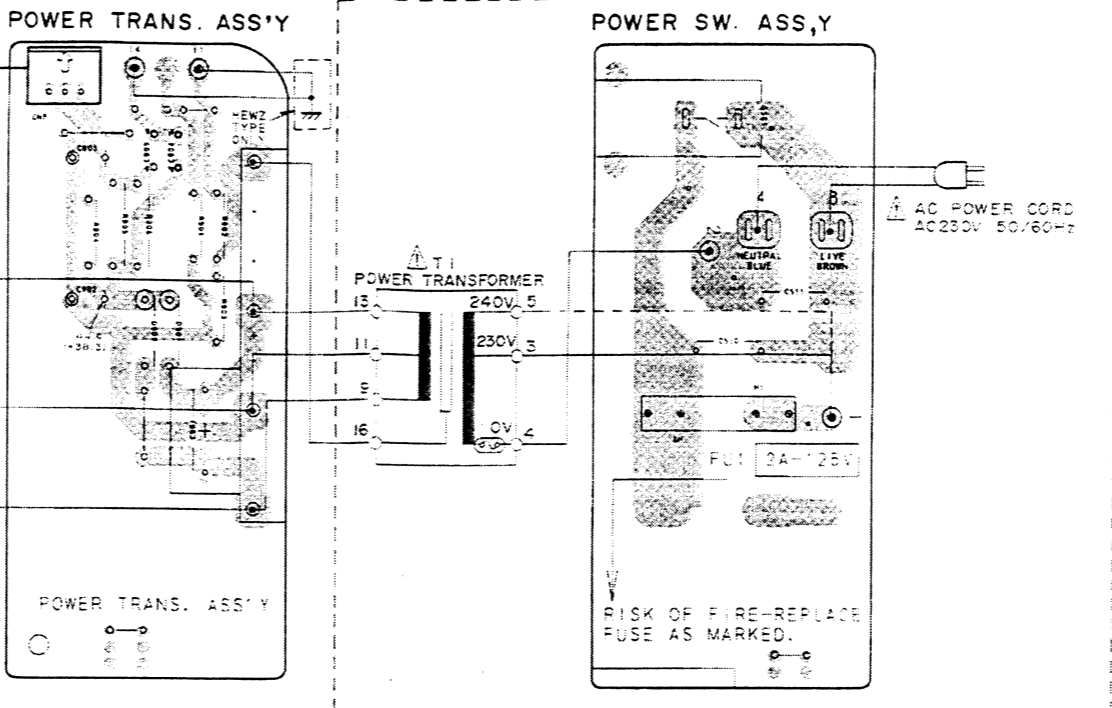
LED ASS'Y

3. PCB CONNECTIONS DIAGRAMS





POWER SUPPLY SECTION FOR HE AND HEWZ TYPES



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.
- 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.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504		Transistor
Q215		Radiator type transistor
D203		Diode
R237		Resistor
C513		Capacitor (Polarized)
C518		Capacitor (Non-polarized)

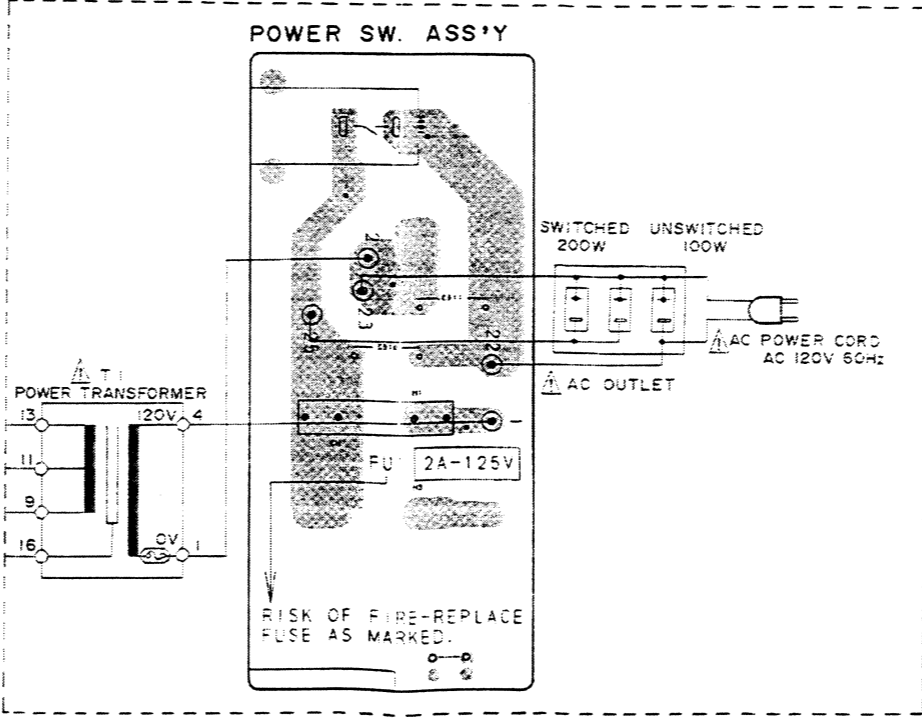
Others

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

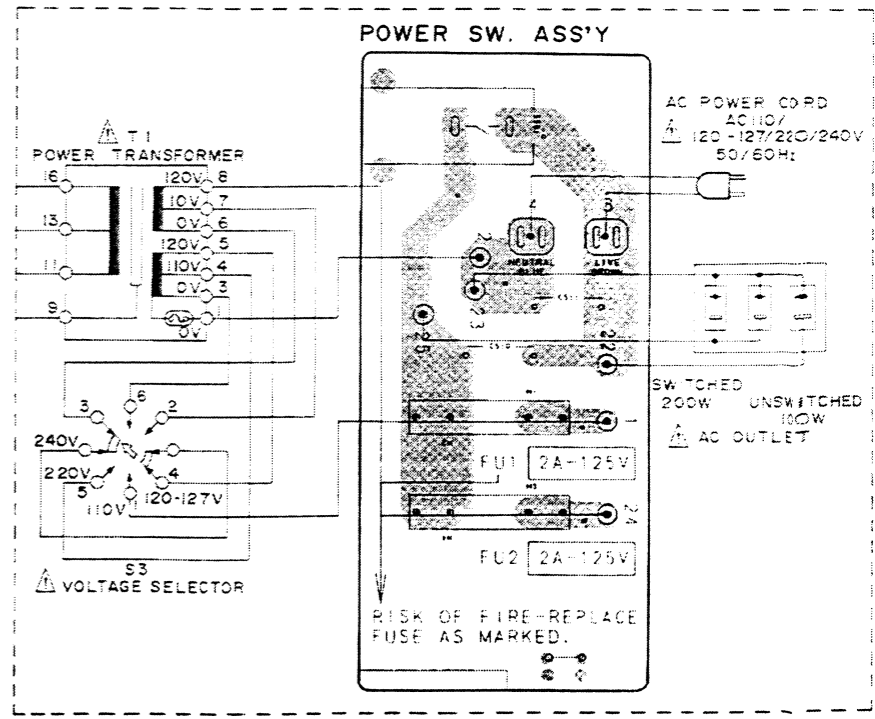
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on P.C.B. indicate that replacement parts must be of identical designation.

(POUR MODÈLE CANADIEN SEULEMENT)
Sur P.C.I., les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) indiquent que les pièces de remplacement doivent avoir la même désignation.

POWER SUPPLY SECTION FOR KC TYPE



POWER SUPPLY SECTION FOR SD TYPE

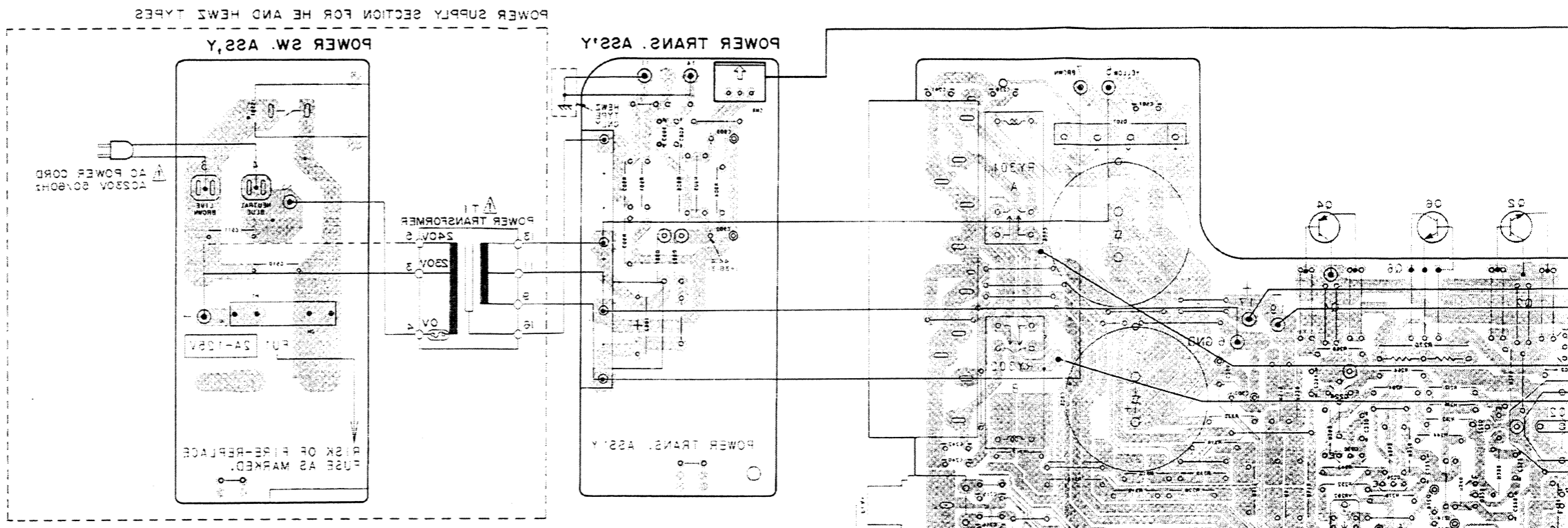


VR202

Q302	Q218	Q222	Q212	Q226	Q224	Q106	Q104	Q103	Q101
Q237	Q232	Q228	Q204	Q220	Q230		Q102	Q105	
Q234	Q202								

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

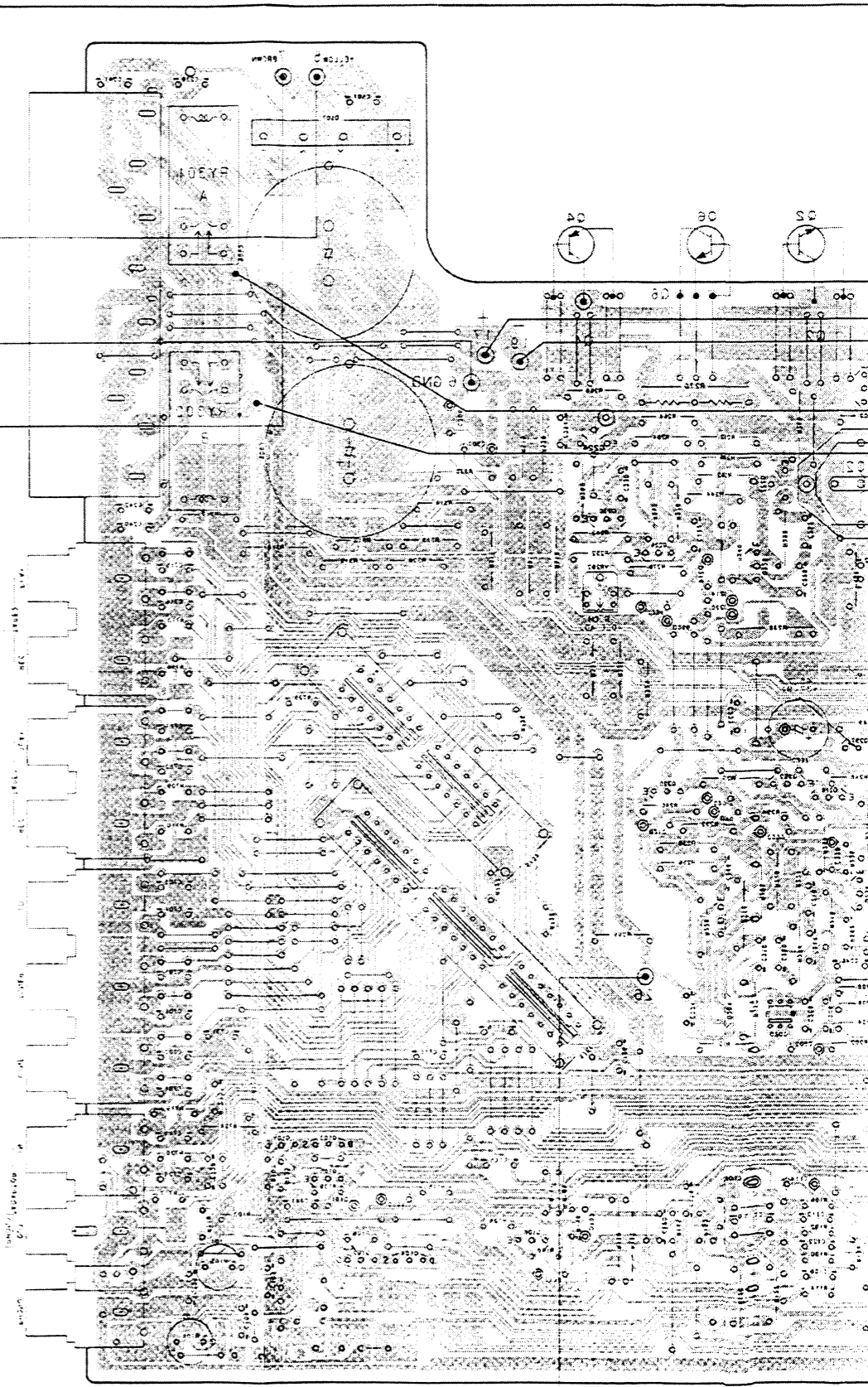
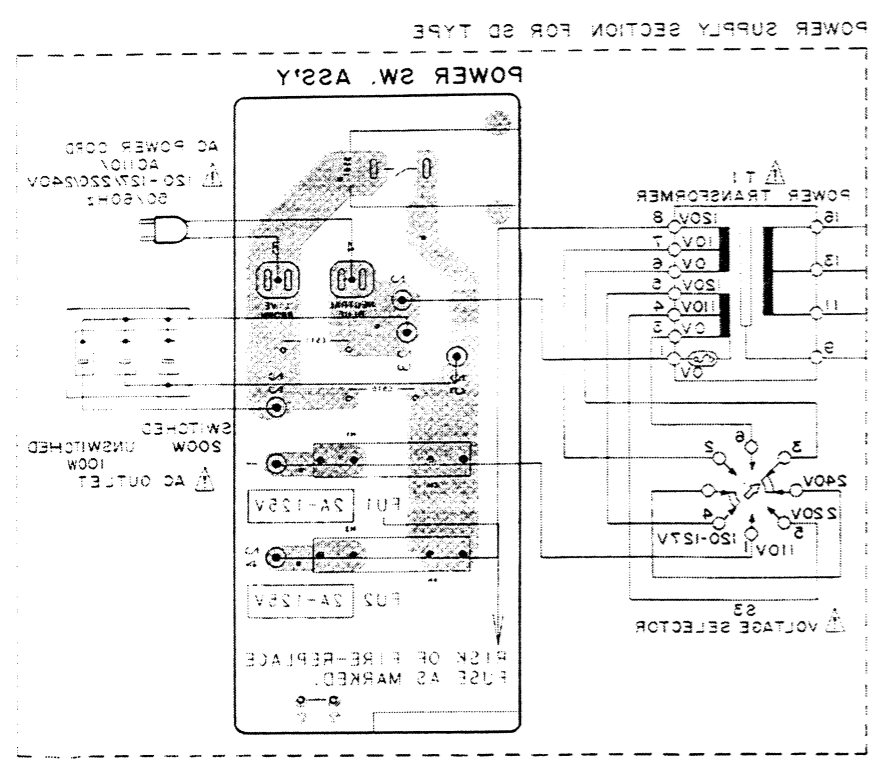
A



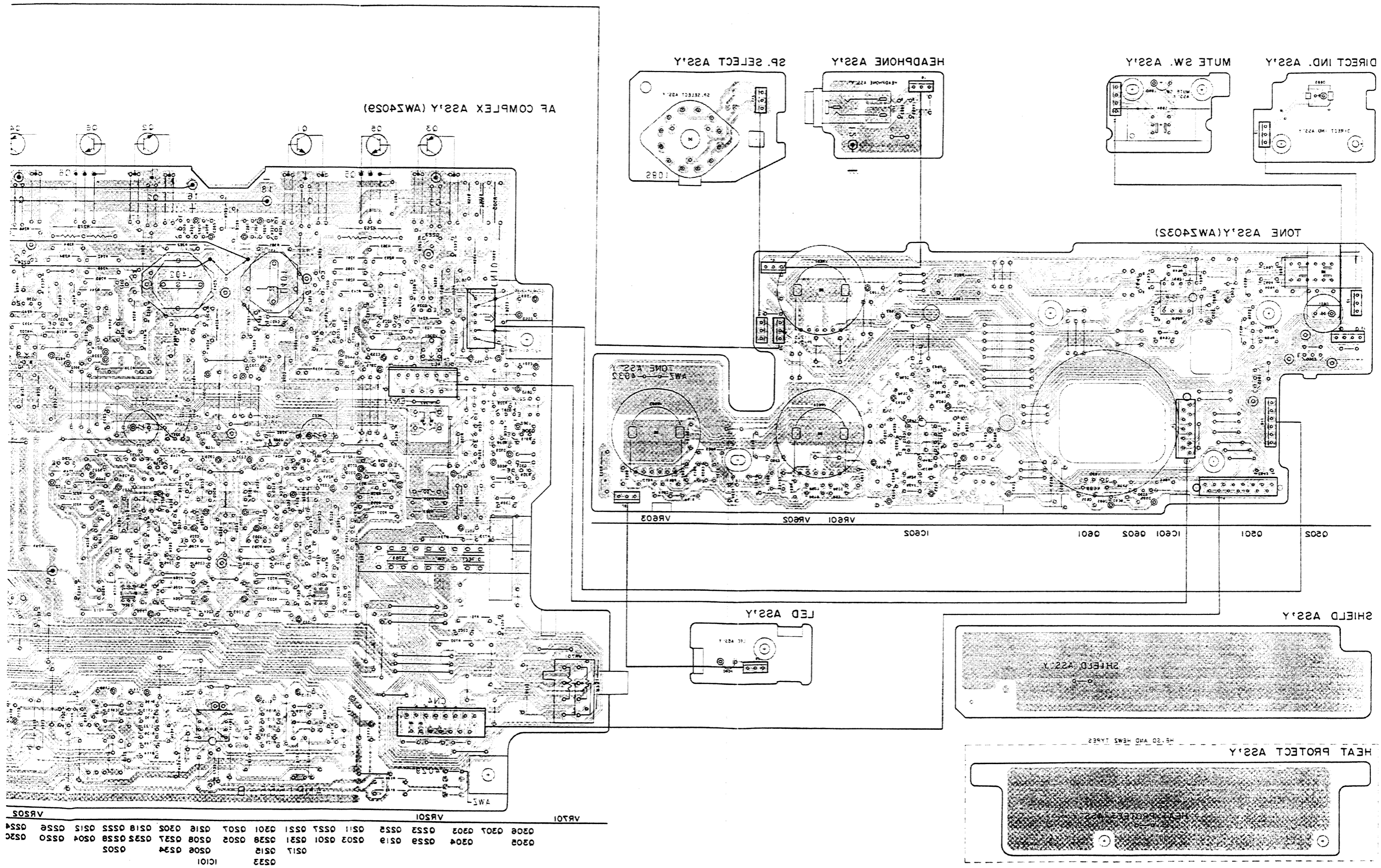
B

C

D



3. PCB CONNECTIONS DIAGRAMS



VR701	VR501	VR502	VR503	VR504	VR505	VR506	VR507	VR508	VR509	VR510	VR511	VR512	VR513	VR514	VR515	VR516	VR517	VR518	VR519	VR520	VR521	VR522	VR523	VR524	VR525	VR526	VR527	VR528	VR529	VR530	VR531	VR532	VR533	VR534	VR535	VR536	VR537	VR538	VR539	VR540	VR541	VR542	VR543	VR544	VR545	VR546	VR547	VR548	VR549	VR550	VR551	VR552	VR553	VR554	VR555	VR556	VR557	VR558	VR559	VR560	VR561	VR562	VR563	VR564	VR565	VR566	VR567	VR568	VR569	VR570	VR571	VR572	VR573	VR574	VR575	VR576	VR577	VR578	VR579	VR580	VR581	VR582	VR583	VR584	VR585	VR586	VR587	VR588	VR589	VR590	VR591	VR592	VR593	VR594	VR595	VR596	VR597	VR598	VR599	VR600	VR601	VR602	VR603	VR604	VR605	VR606	VR607	VR608	VR609	VR610	VR611	VR612	VR613	VR614	VR615	VR616	VR617	VR618	VR619	VR620	VR621	VR622	VR623	VR624	VR625	VR626	VR627	VR628	VR629	VR630	VR631	VR632	VR633	VR634	VR635	VR636	VR637	VR638	VR639	VR640	VR641	VR642	VR643	VR644	VR645	VR646	VR647	VR648	VR649	VR650	VR651	VR652	VR653	VR654	VR655	VR656	VR657	VR658	VR659	VR660	VR661	VR662	VR663	VR664	VR665	VR666	VR667	VR668	VR669	VR670	VR671	VR672	VR673	VR674	VR675	VR676	VR677	VR678	VR679	VR680	VR681	VR682	VR683	VR684	VR685	VR686	VR687	VR688	VR689	VR690	VR691	VR692	VR693	VR694	VR695	VR696	VR697	VR698	VR699	VR700
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4. PCB PARTS LIST

NOTES:

- Part 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 ⁰	561	RD1/8PM	<u>5</u> <u>6</u> <u>1</u> J
47kΩ	47 × 10 ³	473	RD1/4PS	<u>4</u> <u>7</u> <u>3</u> J
0.5Ω	0R5		RN2H	<u>0</u> <u>R</u> <u>5</u> K
1Ω	010		RS1P	<u>0</u> <u>1</u> <u>0</u> K

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

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

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
LIST OF ASSEMBLIES					
⊗ AF COMPLEX ASSY		AWZ4029	Q306	TRANSISTOR	2SC1815
POWER SW ASSY			Q307	TRANSISTOR	2SC2458
HEAD PHONE ASSY			D101,102	ZENER DIODE	RD7.5ESB2
			D201,202	ZENER DIODE	RD2.7ESB1
			D209 - 216	DIODE	HSS104 - 02
			D217 - 220	ZENER DIODE	RD15ESB
⊗ TONE ASSY		AWZ4032	D301 - 306	DIODE	HSS104 - 02
LED ASSY			D307	ZENER DIODE	RD22ESB
SHIELD ASSY			D503,504	ZENER DIODE	RD18ESB1
DIRECT IND. ASSY			D507	DIODE	D55B20F
SP. SELECT ASSY			SWITCHES		
MUTE ASSY			S701	SWITCH	ASU1016
			S702	SWITCH	ASU1002
HEAT PROTECT ASSY			S703	PUSH SWITCH	SULL6S
POWER TRANS ASSY			RELAYS		
			RY301,302	RELAY	ASR - 112
			RY303	RELAY	ASR - 111
⊗ AF COMPLEX ASSY(AWZ4029)			COILS, FILTERS		
SEMICONDUCTORS					
IC101	IC	UPC4570C	L101,102	COIL(270μH)	ATH1010
Q101 - 104	N - FET	2SK369	L401,402	COIL	ATH1053
Q105,106	TRANSISTOR	2SC2458	CAPACITORS		
Q201,202	DUAL TRANSISTOR	2SA1240	C103,104	CERAMIC CAPACITOR	CCCSL181J50
Q203 - 208	TRANSISTOR	2SA1048	C105,106	CERAMIC CAPACITOR	CKCYB472K50
Q211,212	TRANSISTOR	2SC1845	C107,108	ELECTROLYTIC CAPACIT	CEXA101M25
Q215 - 218	TRANSISTOR	2SA1048	C109,110	AUDIO FILM CAPACITOR	CFTXA683J50
Q219,220	TRANSISTOR	2SC2705	C111,112	AUDIO FILM CAPACITOR	CFTXA183J50
Q221,222	TRANSISTOR	2SC3298	C113,114	ELECTROLYTIC CAPACIT	CEANP220M16
Q223,224	TRANSISTOR	2SA1306	C115,116	MYLAR FILM CAPACITOR	QQMA392K50
Q225,226	TRANSISTOR	2SC2603	C117,118	ELECTROLYTIC CAPACIT	CEAS221M25
Q227,228	TRANSISTOR	2SC1845	C119,120	CERAMIC CAPACITOR	CKCYF103Z50
Q229,230	TRANSISTOR	2SA992	C121,122	MYLAR FILM CAPACITOR	QQMA122J50
Q231,232	TRANSISTOR	2SA1145	C129	CERAMIC CAPACITOR	CKPYX103N25
Q233,234	TRANSISTOR	2SA992	C135,136	ELECTR.CAPACITOR	CEAS470M25
Q237	TRANSISTOR	2SC1845	C141	CERAMIC CAPACITOR	CKCYF103Z50
Q238	TRANSISTOR	2SA992	C201,202	ELECTROLYTIC CAPACIT	CEXA2R2M50
Q301,302	TRANSISTOR	2SC1845	C203,204	CERAMIC CAPACITOR	CCCSL470K50
Q303,304	TRANSISTOR	2SC2458			
Q305	TRANSISTOR	2SA1048			

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
C205-208	CERAMIC CAPACITOR	CCCSL470J50	R227,228	CARBON FILM RESISTOR	RD1/4PM561J
C209,210	CERAMIC CAPACITOR	CCCSL221J50	R229,230	CARBON FILM RESISTOR	RD1/4PM392J
C211,212	ELECTROLYTIC CAPACIT	CEXA101M50	R231,232	CARBON FILM RESISTOR	RD1/4PM332J
C213-216	CERAMIC CAPACITOR	CCCSL120K500	R233,234	CARBON FILM RESISTOR	RD1/4PM101J
C217,218	ELECTR.CAPACITOR	CEAS101M10	R237,R238	CARBON FILM RESISTOR	RDR1/4PM224J
			R239-242	FUSIBLE RESISTOR	RFA1/4PS101J
C219-222	ELECTR.CAPACITOR	CEAS3R3M100	△ R243,244	CARBON FILM RESISTOR	RD1/4PMF561J
C223,224	MYLAR FILM CAPACITOR	CQMA223K250	△ R245-248	FUSIBLE RESISTOR	RFA1/4PS101J
C225,226	ELECTR.CAPACITOR	CEAS331M10	R249,250	CARBON FILM RESISTOR	RD1/4PM122J
C227-230	CERAMIC CAPACITOR	CCCSL330K500	R251,252	CARBON FILM RESISTOR	RD1/4PM103J
C231,232	CERAMIC CAPACITOR	CKCYB122K50	R255,256	CARBON FILM RESISTOR	RD1/4PM561J
C233-236	ELECTR. CAPACITOR	CEAS100M50	△ R257-260	FUSIBLE RESISTOR	RFA1/4PS101J
C237,238	ELECTROLYTIC CAPACIT	CEAS331M50	△ R261-264	FUSIBLE RESISTOR	RFA1/4PS470J
C239-242	MYLAR FILM CAPACITOR	CQMA103K250	△ R265-268	FUSIBLE RESISTOR	RFA1/4PS4R7J
C243,244	CERAMIC CAPACITOR	CKCYX104M25	△ R269,270	RESISTOR (0.33, 5W)	ACN1063
C245,246	CERAMIC CAPACITOR	CKCYB881K50	△ R273,274	CARBON FILM RESISTOR	RD1/4PM100J
C247,248	AUDIO FILM CAPACITOR	CFTXA103J50	R275,276	CARBON FILM RESISTOR	RD1/4PM472J
C249,250	CERAMIC CAPACITOR	CKCYB881K50	R277,278	CARBON FILM RESISTOR	RD1/4PM222J
C251-254	CERAMIC CAPACITOR	CCCSL680K500	△ R281-284	FUSIBLE RESISTOR	RFA1/4PS331J
C255	CERAMIC CAPACITOR	CCCSL121J50	△ R285,286	FUSIBLE RESISTOR	RFA1/4PS101J
C256	CERAMIC CAPACITOR	CCCSL470J50	△ R287,288	CARBON FILM RESISTOR	RD1/4PMF4R7J
C301,302	ELECTROLYTIC CAPACIT	CEANP4R7M50	△ R289,290	FUSIBLE RESISTOR	RFA1/4PS331J
C303	ELECTROLYTIC CAPACIT	CEAS471M6	R299	CARBON FILM RESISTOR	RD1/4PM100J
C304	CERAMIC CAPACITOR	CKCYF103Z50	R301,302	CARBON FILM RESISTOR	RD1/4PMF222J
C305	ELECTR. CAPACITOR	CEAS101M25	R308	CARBON FILM RESISTOR	RD1/4PMF101J
C306-308	ELECTR. CAPACITOR	CEASR47M50	R311	CARBON FILM RESISTOR	RD1/4PM101J
C401-404	AUDIO FILM CAPACITOR	CFTXA104J50	R312	CARBON FILM RESISTOR	RD1/4PM221J
C501,502	ELECTR. CAPACITOR	CEAS100M50	R313-315	CARBON FILM RESISTOR	RD1/4PM181J
C503,504	ELECTR. CAPACITOR	CEAS470M25	R317	CARBON FILM RESISTOR	RD1/4PM221J
C505	ELECTROLYTIC CAPACIT	ACH1196	R318-320	CARBON FILM RESISTOR	RD1/4PM181J
C506	ELECTROLYTIC CAPACIT	ACH1078	R321	CARBON FILM RESISTOR	RD1/4PM221J
C507	MYLAR FILM CAPACITOR	CQMA103K250	R322-324	CARBON FILM RESISTOR	RD1/4PM181J
C701,702	CERAMIC CAPACITOR	CCCSL101K500	R325-327	CARBON FILM RESISTOR	RD1/4PM221J
C703-708	CERAMIC CAPACITOR	CCCSL151J50	△ R330	CARBON FILM RESISTOR	RD1/4PMF010J
C711,712	CERAMIC CAPACITOR	CCCSL151J50	△ R401,402	CARBON FILM RESISTOR	RD1/4PMFL101J
C715,716	CERAMIC CAPACITOR	CCCSL151J50	△ R403,404	METAL OXIDE RESISTOR	RS1LMF331J
C719,720	CERAMIC CAPACITOR	CCCSL271J50	△ R407,408	CARBON FILM RESISTOR	RD1/4PMFL100J
C725	CERAMIC CAPACITOR	CCCSL221J50	△ R501,502	METAL OXIDE RESISTOR	RS1PMF121J
C726	CERAMIC CAPACITOR	CKCYF103Z50	△ R503,504	METAL OXIDE RESISTOR	RS1LMF121J
C727,728	CERAMIC CAPACITOR	CCCSL221J50	△ R505,506	METAL OXIDE RESISTOR	RS1PMF121J
C731	CERAMIC CAPACITOR	CKCYF103Z50	△ R507	CARBON FILM RESISTOR	RD1/4PMF010J
RESISTORS			R513-515	CARBON FILM RESISTOR	RD1/4PM272J
VR201,202	VR(47K)	ACP1045	R516	CARBON FILM RESISTOR	RD1/4PMFL272J
VR701	VR	ACT1073	△ R517-520	METAL OXIDE RESISTOR	RS1PMF101J
R107,108	CARBON FILM RESISTOR	RDR1/6PU563J	R701,702	CARBON FILM RESISTOR	RD1/4PM101J
R119,120	CARBON FILM RESISTOR	RDR1/4PM6R8J	R731,732	CARBON FILM RESISTOR	RD1/4PM103J
R121,122	CARBON FILM RESISTOR	RDR1/4PM820J		Other resistors	RD1/8PM□□□J
R133,134	CARBON FILM RESISTOR	RDR1/6PU391J			
R143,144	CARBON FILM RESISTOR	RD1/4PM560J			
R201,202	CARBON FILM RESISTOR	RD1/4PM101J	OTHERS		
R203,204	CARBON FILM RESISTOR	RD1/4PM104J	CN4	CONNECTOR(15P)	KPE15
R205,206	CARBON FILM RESISTOR	RD1/4PM152J	CN7	CONNECTOR(11P)	KPE11
R207,208	CARBON FILM RESISTOR	RD1/4PM103J	CN10	JUMPER CONNECTOR	KPC6
R209,210	CARBON FILM RESISTOR	RD1/4PM152J		PIN JACK(4P)	AKB1007
R211-214	CARBON FILM RESISTOR	RD1/4PM562J		PIN JACK(6P)	AKB1008
R215,216	CARBON FILM RESISTOR	RDR1/4PM821J		PIN JACK(6P)	AKB1024
R217,218	CARBON FILM RESISTOR	RDR1/4PM124J		SPEAKER TERMINAL 8-P	AKE1011
R219,220	CARBON FILM RESISTOR	RD1/4PM473J			
R221,222	CARBON FILM RESISTOR	RD1/4PM101J			
R223,224	CARBON FILM RESISTOR	RD1/4PM332J			
R225,226	CARBON FILM RESISTOR	RD1/4PM302J			

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
POWER SW ASSY			LED ASSY		
SWITCHES			SEMICONDUCTORS		
△ S501	PUSH SWITCH(ON/OFF)	ASG1035	D604	LED(RED)	AEL1065
CAPACITORS			SHIELD ASSY		
△ C510,511	CKA (0.01/AC400V)	ACG1002	Shield Assy has no service part.		
HEAD PHONE ASSY			DIRECT IND. ASSY		
CAPACITORS			SEMICONDUCTORS		
C801,802	CERAMIC CAPACITOR	CKCYB392K50	D603	LED	AEL1010
OTHERS			SP. SELECT ASSY		
	JACK	AKN1002	SWITCHES		
◎TONE ASSY(AWZ4032)			S801	SWITCH	ASD1003
SEMICONDUCTORS			MUTE ASSY		
IC801,802	OP-AMP IC	RC4558DXP	SEMICONDUCTORS		
Q501	TRANSISTOR	2SC2705	D607	LED(RED)	AEL1065
Q502	TRANSISTOR	2SA1145	SWITCHES		
Q601,602	N-FET	2SK246	S604	PUSH SWITCH	ASG1023
D601	LED(RED)	AEL1065	HEAT PROTECT ASSY		
D605,606	DIODE	HSS104-02	Heat protect Assy has no service part.		
SWITCHES			POWER TRANS ASSY		
S601	PUSH SWITCH	ASG1019	SEMICONDUCTORS		
CAPACITORS			SEMICONDUCTORS		
C601,602	ELECTR. CAPACITOR	CEAS2R2M50	D901	DIODE	11E2
C603,604	AUDIO FILM CAPACITOR	CFTXA223J50	D902	DIODE	11E2
C605,606	ELECTR. CAPACITOR	CEAS100M25	CAPACITORS		
C607,608	CERAMIC CAPACITOR	CKCYX153M25	C901	POLYESTER CAPACITOR	CQMXA104J100
C609,610	MYLAR FILM CAPACITOR	CQMA823J50	C902	ELECTR. CAPACITOR	CEAS101M50
C611,612	CERAMIC CAPACITOR	CKCYB332K50	C903	ELECTR. CAPACITOR	CEAS220M50
C613,614	CERAMIC CAPACITOR	CKCYX183M25	C904	POLYESTER CAPACITOR	CQMXA473J100
C615,616	ELECTR. CAPACITOR	CEAS2R2M50	C905	CERAMIC CAPACITOR	CKCYF473Z50
C617,618	ELECTR. CAPACITOR	CEAS100M25	RESISTORS		
C619,620	CERAMIC CAPACITOR	CCCSL390J50	△ R901,902	CARBON FILM RESISTOR	RD1/4PMF100J
C621,622	CERAMIC CAPACITOR	CCCSL121J50	△ R903,904	CARBON FILM RESISTOR	RD1/4PMF010J
C629,630	ELECTR. CAPACITOR	CEAS470M25	△ R905,906	METAL OXIDE RESISTOR	RS1LMF272J
C631,632	ELECTR. CAPACITOR	CEAS221M25			
C635,636	CERAMIC CAPACITOR	CCCSL150J50			
C641,642	CERAMIC CAPACITOR	CCCSL470J50			
C643	CERAMIC CAPACITOR	CKCYF103Z50			
C645,646	CERAMIC CAPACITOR	CKCYB102K50			
C647,648	CERAMIC CAPACITOR	CCCSL101J50			
RESISTORS					
VR601	VARIABLE(100K-BX2)	ACT1046			
VR603	VARIABLE(100K-20AX2)	ACT1045			
VR604	VARIABLE(100K-20AX2)	ACT1045			
R651,652	CARBON FILM RESISTOR	RD1/4PM101J			
△ R801,802	METAL OXIDE RESISTOR	RS1PMF331J			
△ R803	METAL OXIDE RESISTOR	RS1LMF681J			
	Other resistors	RD1/8PM□□□J			

5. ADJUSTMENTS

IDLE CURRENT ADJUSTMENT

1. Connect measuring instrument as Fig. 5-1.
2. Set the VOLUME CONTROL to minimum.
3. Set the POWER switch to ON.
4. Adjust VR201 (VR202) so that the voltage between TP1 (TP3) and TP2 (TP4) becomes $20\text{mV} \begin{matrix} +3\text{mV} \\ -15\text{mV} \end{matrix}$.

NOTE)

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

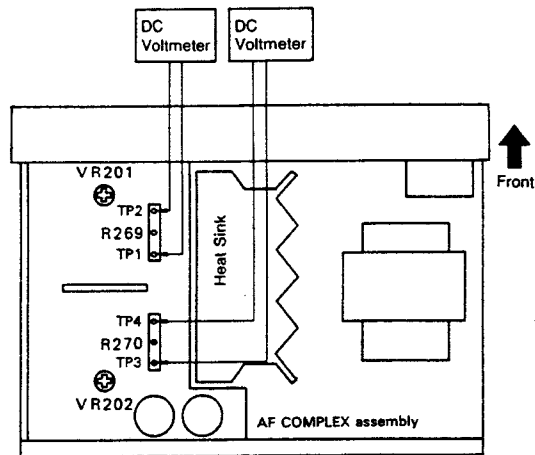


Fig. 5-1 Adjustment Method

5. REGLAGE

REGLAGE DU COURANT DEWATTE

1. Brancher les fils comme indiqué dans la fig. 5-1.
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 $20\text{ mV} \begin{matrix} +3\text{mV} \\ -15\text{mV} \end{matrix}$.
4. VR 202 sera réglé dans le canal droit de manière que les deux tensions de bornes atteignent $20\text{ mV} \begin{matrix} +3\text{mV} \\ -15\text{mV} \end{matrix}$.

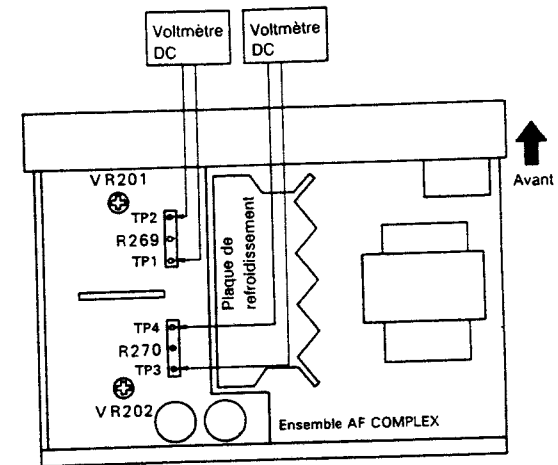


Fig. 5-1 Schéma du réglage

5. AJUSTE

AJUSTE DE LA CORRIENTE DEVIADA

1. Conecte el cable como lo ilustra la Fig. 5-1.
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 (+ 3mV / -15mV).
4. El VR202 del canal derecho debe ajustarse de modo que la tensión entre ambos bornes llegue a 20 mV (+ 3mV / -15mV).

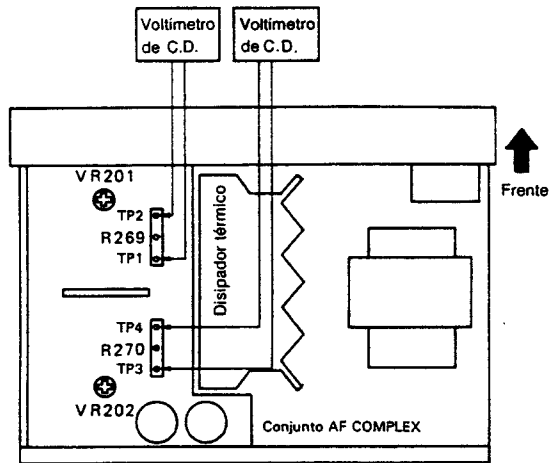


Fig. 5-1 Diagrama de ajuste

6. FOR HEWZ, KC AND SD TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Part without part number cannot be supplied.
- 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.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

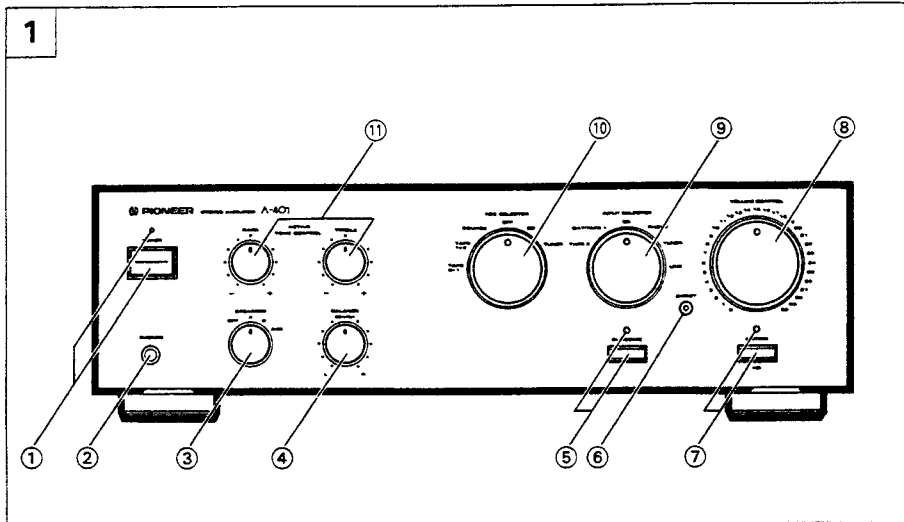
A-401/HEWZ, KC, SD and A-401/HE have the same construction except for the following :

Mark	Symbol & Description	Part No.				Remarks
		HE type	HEWZ type	KC type	SD type	
Δ	AC power cord	ADG1049	ADG1049	ADG1058	ADG1051	
Δ	AC cord stopper	AEC-882	AEC-882	AEP-113	AEC-882	
Δ	Fuse (FU1, T2.5A/250V)	AEK-512	AEK-512	.....	.....
Δ	Fuse (FU1, 5A)	.....	.....	AEK-308	.....
Δ	Fuse (FU1, FU2, 2.5A/125V)	.....	.....	.....	AEK-123	
Δ	3P AC outlet	.....	.....	AKP-515	AKP-515	
	Packing case	AHD2242	AHD2242	AHD2244	AHD2242	
	Insulator assembly	AMR2140	AMR2140	AMR2141	AMR2140	
Δ	Power Transformer	ATS1346	ATS1346	ATS1288	ATS1289	
Δ	Voltage selector (AC110/120-127/220/240V)	.....	.....	.....	AKX-507	
	HEAT PROTECT assembly	Non supply	Non supply	.....	Non supply	
	Operating instructions (English, French, German, Italian, Dutch, Swedish, Spanish, Portuguese)	ARE1227	.....	.....	.....
	Operating instructions (English, French)	.....	.....	ARE1228	ARE1228	
	Operating instructions (Spanish)	.....	.....	.....	ARC1335	
	Operating instructions (German)	.....	ARC1333	.....	.....

HEAT PROTECT ASSEMBLY

HEAT PROTECT assemblies of HEWZ, SD and HE types consist of the same components.

7. PANEL FACILITIES



FRONT PANEL

See Fig. 1

① POWER switch/indicator

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

② PHONES jack

When using headphones, insert the plug into this jack.

③ SPEAKERS selector switch

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

OFF:

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

A:

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

B:

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

A + B:

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

④ BALANCE control

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

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

⑤ SUBSONIC filter switch/indicator

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.

⑥ 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) 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 off: The signal passes through the various frequency adjusting circuits.

⑦ MUTING switch/indicator

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.

⑧ VOLUME CONTROL

Use to adjust the volume level.

⑨ 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.

CD:

For compact disc playback with a CD player.

DAT/TAPE 1:

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

TAPE 2:

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

⑩ 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.

⑪ ACTIVE TONE CONTROL

Ordinarily, the more the volume control is turned down, the more obvious the loudness characteristics become. Since the effects of this unit's tone control settings are increasingly emphasized as the volume is turned down, you can obtain the same kind of effect as loudness characteristics by using suitable tone control settings.

TREBLE tone control

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

NOTE:

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

• At volume levels lower than "B", the set tone control effect is obtained.

• At volume levels higher than "B", the effect becomes increasingly weaker.

BASS tone control

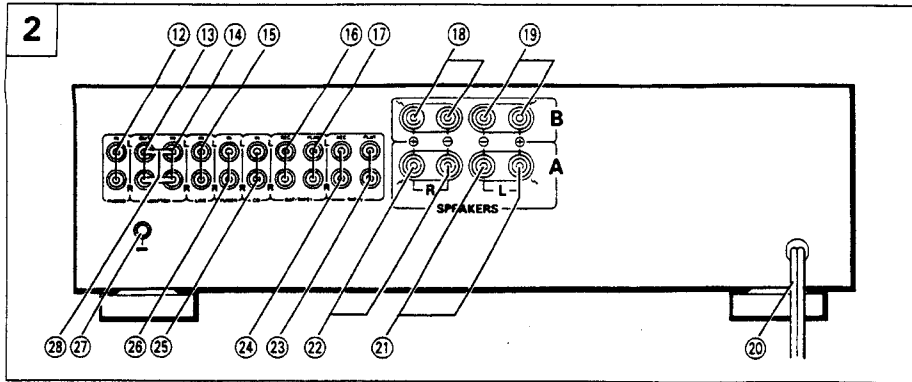
Use to adjust the low-frequency tone at low volume level. The center position is the flat (normal) position. When turned to the left, low-frequency tones are emphasized; when turned to the right, low-frequency tones are de-emphasized.

NOTE:

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

• At volume levels lower than "B", the set tone control effect is obtained.

• At volume levels higher than "B", the effect becomes increasingly weaker.



REAR PANEL

See Fig. 2

- | | |
|---|---|
| 12 PHONO terminals | 21 SPEAKERS A terminals (left channel) |
| 13 ADAPTOR OUT terminals | 22 SPEAKERS A terminals (right channel) |
| 14 ADAPTOR IN terminals | 23 TAPE 2 PLAY terminals |
| 15 LINE terminals | 24 TAPE 2 REC terminals |
| 16 DAT/TAPE 1 REC terminals | 25 CD terminals |
| 17 DAT/TAPE 1 PLAY terminals | 26 TUNER terminals |
| 18 SPEAKERS B terminals (right channel) | 27 Turntable ground terminal (GND) |
| 19 SPEAKERS B terminals (left channel) | 28 Shorting bars |

20 Power cord

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

8. SPECIFICATIONS

Amplifier Section

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*
 DIN Continuous power output (both channels driven at 1 kHz)
 T.H.D. 1.0 %, 8 Ω 70 W + 70 W
 T.H.D. 1.0 %, 4 Ω 100 W + 100 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 %*
 * Above specifications are applicable when power supply is 230 V.

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. 0.008 % (MM) 150 mV
 Output level/impedance
 TAPE REC, ADAPTOR OUTPUT 150 mV/1 kΩ
 Frequency response
 PHONO (MM) 20 Hz to 20 kHz ± 0.3 dB
 CD, TUNER, LINE, TAPE 5 Hz to 100 kHz ± 1 dB*
 Tone control (volume control set at -30 dB position)
 BASS ± 8 dB (100 Hz)
 TREBLE ± 8 dB (10 kHz)
 Filter (SUBSONIC) 17 Hz (12 dB/oct.)
 Signal-to-Noise ratio (IHF short circuit, A network)
 PHONO (MM, 5 mV input) 93 dB*
 CD, TUNER, LINE, TAPE 108 dB*
 Signal-to-Noise ratio (DIN, continuous power/50 mW)
 PHONO (MM) 74 dB/63 dB*
 CD, TUNER, LINE, TAPE 88 dB/65 dB*
 MUTING -∞

Power Supply/Miscellaneous

Power Requirements a.c. 220 - 230 Volts, 50/60 Hz
 Power Consumption 550 W
 Dimensions 420 (W) x 347 (D) x 126 (H) mm
 Weight (without package) 8.1 kg

Accessories

Operating instructions 1

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.

Service Manual

A-402

ORDER NO.
ARP2745

STEREO AMPLIFIER

A-402

● Refer to the service manual ARP2480 for A-401.

A-402 HAS THE FOLLOWING :

Type	Power Requirement	Remarks
SD	AC110V, 120 - 127V, 220V, 240V (switchable)	

● This manual is applicable to A-402/SD.

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- 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.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

A-402/SD and A-401/SD have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		A-401/SD	A-402/SD	
NSP	Name plate (METAL)	AAM1029	AAM1058	
	Front panel	ANB1495	ANB1570	
	Front rear pad	AHA1335	.....
	Pad (For front)	.....	AHA1596	
	Pad (For rear)	.....	AHA1597	
	Rear panel	ANC1549	ANC2104	
	Sub pad	AHB1099	.....
	Packing case	AHD2413	AHD2592	
	Operating instructions (English)	.....	ARB1433	
	Operating instructions (Spanish)	ARC1335	ARC1426	
	Operating instructions (English, French)	ARE1228	.....