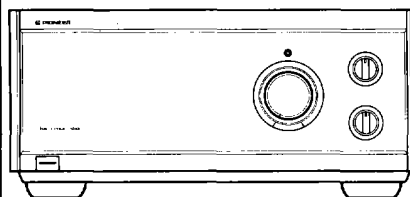


Service Manual



ORDER NO.
ARP2858

STEREO AMPLIFIER **A-09**

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

Type	Model	Power Requirement	Remarks
	A-09		
MEZ	○	AC220—230V	—

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O-FFS APR. 1994 Printed in Japan

1. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

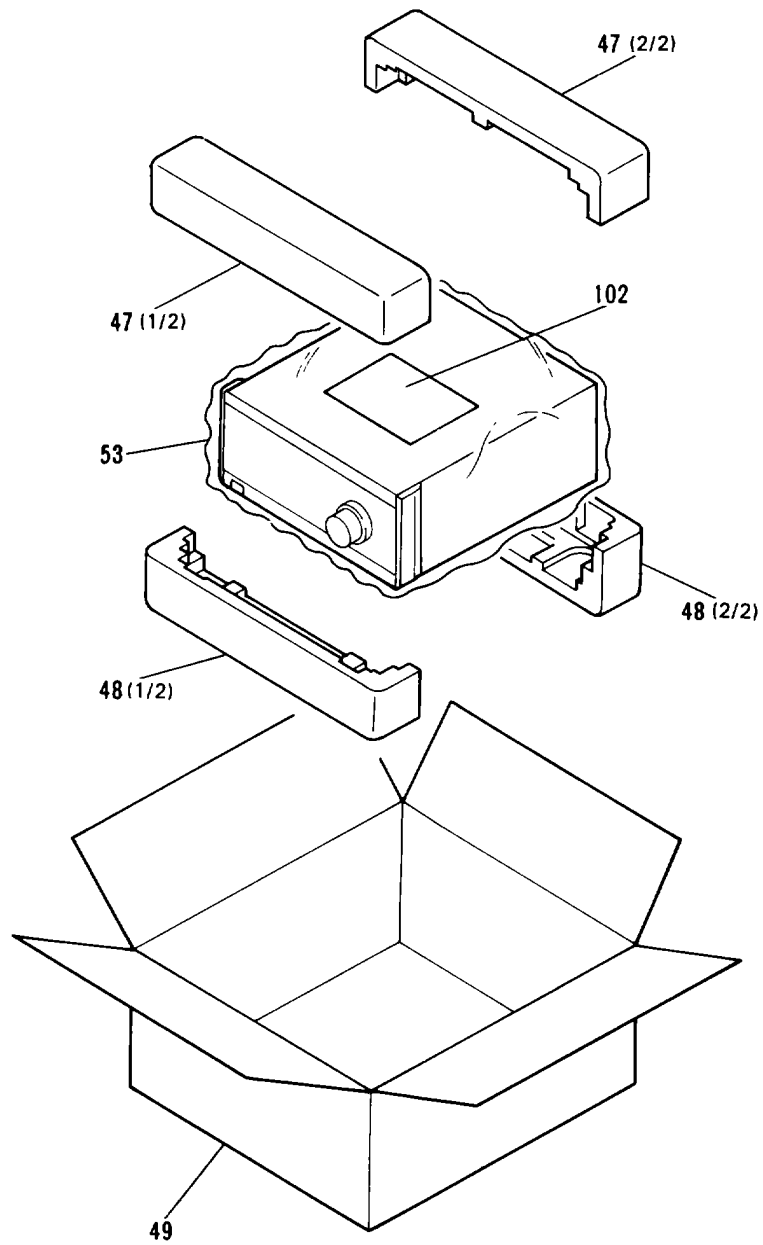
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●"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

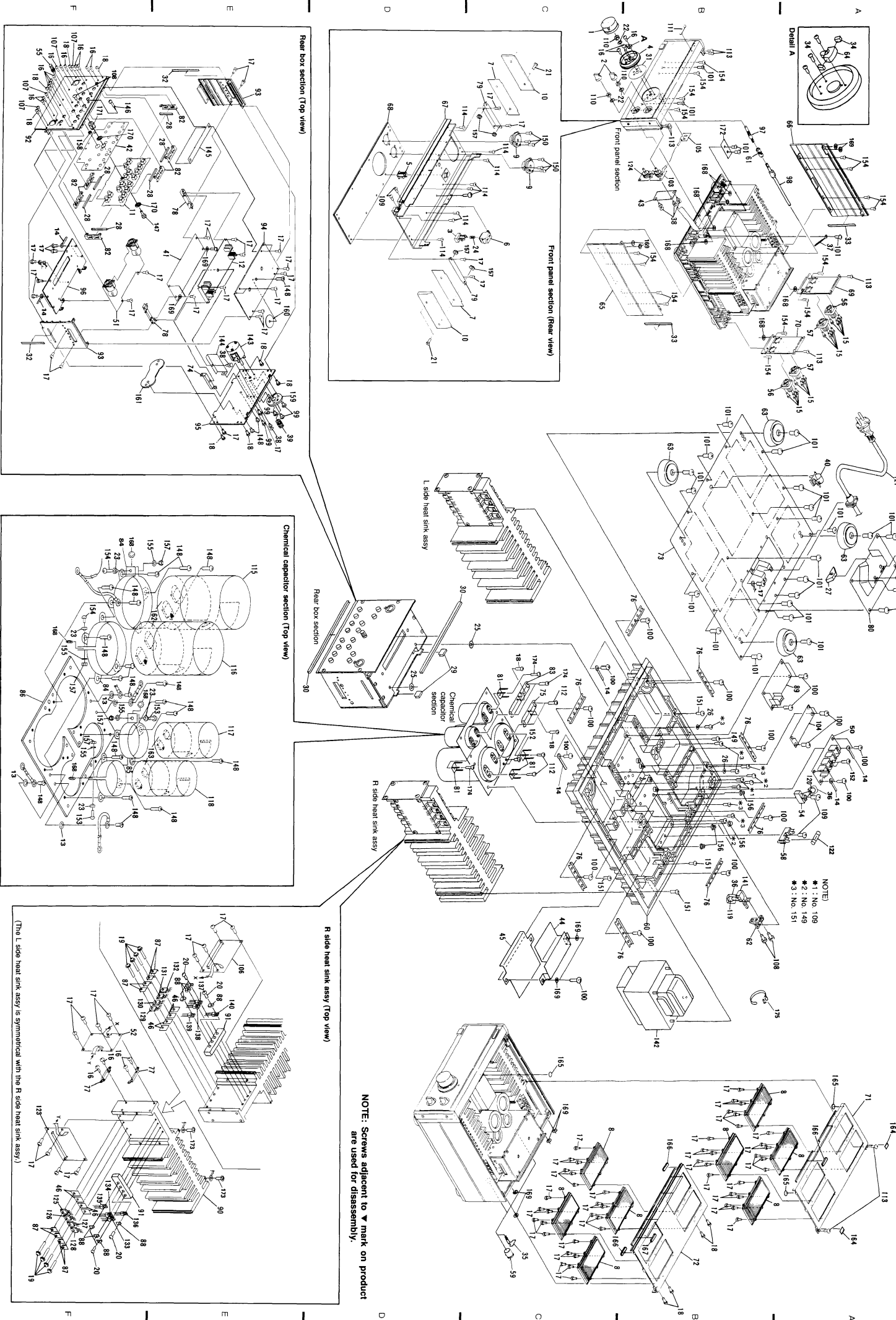
1.1 PARTS LIST

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	ROTARY KNOB L	AAB1285		46	SHEET	AEE1014
	2	ROTARY KNOB S	AAB1286		47	TOP PAD	AHA2031
	3	POWER KNOB ASSY	AAD2281		48	BOTTOM PAD	AHA2032
	4	ESCUTCHEON	AAH1059		49	PACKING CASE	AHD2757
	5	INDICATOR LENS	AAK2303		50	DIODE 1 ASSY	AWZ4863
	6	ESCUTCHEON	AAK2304		51	PHONO BALANCE ASSY	AWZ4864
	7	SASH SPACER	AAK2305	●	52	POWER R I/O ASSY	AWZ4250
	8	BONNET ESCUTCHEON	AAK2306	●		(POWER L I/O ASSY)	AWZ4249
	9	ESCUTCHEON S	AAK2317	NSP	53	VINYL POUCH	AHG1163
	10	AL PANEL	AAP1250	Δ	54	TERMINAL 2-P	AKC-071
	11	INPUT ASSY	AWZ4861	NSP	55	GROUND TERMINAL	AKE-046
	12	VOLTAGE AMP ASSY	AWZ4862		56	SPEAKER TERMINAL 1-P	AKE1046
	13	WASHER	WS40PKI		57	SPEAKER TERMINAL 1-P	AKE1047
	14	BINDER	AEP-215		58	FUSE HOLDER	AKR1005
	15	SCREW	ABA-298	NSP	59	DUST COVER	AKT1046
	16	SCREW (STEEL)	ABA1006	NSP	60	CHASSIS BASE	AMA1010
	17	SCREW (STEEL)	ABA1011		61	HOLDER	AMR1178
	18	SCREW (STEEL)	ABA1050	NSP	62	POWER SWITCH HOLDER	AMR2405
	19	SCREW	ABA1056	NSP	63	FOOT	AMR2468
	20	SCREW	ABA1022	NSP	64	VOLUME STOPPER	AMR2458
	21	SCREW	ABA1156	NSP	65	SIDE PANEL R	ANA1203
	22	WASHER (COPPER)	ABE1001	NSP	66	SIDE PANEL L	ANA1204
	23	BUSH	ABF1015		67	FRONT PANEL A	ANB1516
	24	COIL SPRING A	ABH1056		68	FRONT PANEL B	ANB1537
NSP	25	SPACER RING	AEB1080	NSP	69	REAR PANEL L (MTL)	ANC2236
NSP	26	RUBBER RING	AEB1185	NSP	70	REAR PANEL R (MTL)	ANC2237
NSP	27	AC CORD HOLDER	AEB1200		71	TOP PLATE A	ANE1358
NSP	28	DAMPER A	AEB1204		72	TOP PLATE B	ANE1359
NSP	29	DAMPER B	AEB1205	NSP	73	BOTTOM PLATE	ANF1089
NSP	30	DAMPER C	AEB1206	NSP	74	PCB HOLDER	ANG1745
NSP	31	VR DAMPER RUBBER	AEB1207	NSP	75	EARTH PLATE	ANG1664
NSP	32	RUBBER	AEB1210	NSP	76	CHASSIS HOLDER	ANG1665
NSP	33	RUBBER	AEB1211	NSP	77	PCB HOLDER C	ANG1667
NSP	34	RUBBER STOPPER	AEB1215	NSP	78	PCB HOLDER G	ANG1668
NSP	35	MOUNTING PLATE	AKF1021	NSP	79	SIDE SASH HOLDER	ANG1737
NSP	36	COVER	AEC-294	NSP	80	AC CORD COVER	ANG1672
	37	BINDER	AEC-826	NSP	81	CHEMICON METAL BAR	ANG1673
	38	NYLON RIVET	AEC1160	NSP	82	PCB HOLDER H(MTL)	ANG1675
	39	HOLDER	AEP-098	NSP	83	EARTH PLATE B	ANG1696
NSP	40	AC CORD CATCHER	AEC1397	NSP	84	CHEMICON BAND ASSY L	ANG1721
NSP	41	SHIELD PLATE ASSY	AEC1401	NSP	85	CHEMICON BAND M	ANG1722
NSP	42	PVC PANEL	AEC1409	NSP	86	CHEMICON PLATE	ANG1723
NSP	43	SHIELD PLATE ASSY	AEC1432		87	TRANSISTOR COVER L	ANG1724
NSP	44	SHIELD PLATE ASSY	AEC1458		88	TRANSISTOR COVER M	ANG1725
NSP	45	SHIELD PLATE ASSY	AEC1434	●	89	PROTECTION ASSY	AWZ4251

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
NSP	90	HEAT SINK R	ANH1382	△	138	Q26(Q25) TRANSISTOR	2SA1837
NSP		(HEAT SINK L)	ANH1380	△	139	Q30(Q29) TRANSISTOR	2SA1837
NSP	91	HEAT SINK(MTL)	ANH1385	△	140	Q18(Q17) TRANSISTOR	2SC4793
NSP	92	REAR BOX A(MTL)	ANK1486	△	141	S1 PUSH SWITCH	ASG-553
NSP	93	REAR BOX B	ANK1206	△	142	T1 POWER TRANSFORMER	ATSI487
NSP	94	REAR BOX C	ANK1207		143	VARIABLE RESISTOR	ACW-133
NSP	95	REAR BOX D	ANK1208	NSP	144	SHIELD PLATE ASSY	AEC1437
NSP	96	REAR BOX E	ANK1209	NSP	145	SHIELD PLATE ASSY	AEC1436
NSP	97	SHAFT ASSY	ANL1054		146	SCREW (STEEL)	ABA1047
NSP	98	LONG SHAFT ASSY	ANL1051		147	SCREW	ABA1114
	99	SCREW	BMZ30P140FCC		148	SCREW	ABZ35P080FCU
	100	SCREW	IPZ30P080FCC		149	SCREW	ABZ35P250FCU
	101	SCREW	IPZ30P120FCU		150	SCREW	AMZ30P050FCU
	102	INSTRUCTION MANUAL (English/French/German/Italian/ Swedish/Dutch/Spanish/ Portuguese)	ARE1321		151	SCREW	IBZ30P250FCU
					152	SCREW	PMZ30P050CAD
●	103	FUNCTION ASSY	AWZ4252		153	SCREW	PMB40P160FCU
●	104	DIODE 2 ASSY	AWZ4253		154	SCREW	PMB40P300FCU
●	105	LED ASSY	AWZ4274		155	WASHER	WB40FCU
●	106	POWER R NPN ASSY	AWZ4530		156	NUT	ABN-073
●		(POWER L NPN ASSY)	AWZ4528		157	NUT	NB40FCU
	107	SCREW	BMT30P080FCU		158	NUT	NK70FCU
	108	SCREW	BMZ30P080FCU	NSP	159	DAMP PLATE A	ANK1214
	109	SCREW	BPZ30P120FZK	NSP	160	DAMP PLATE B	ANK1215
	110	NUT	NK90FCU	NSP	161	DAMP PLATE C	ANK1216
	111	NAME PLATE	PAN1262	NSP	162	TAPE	AEH1020
	112	SCREW	PMZ40P060CAD	NSP	163	TAPE	AEH1021
	113	SCREW	BBZ40P120FCU	NSP	164	TAPE	AEH1022
	114	SCREW (STEEL)	ABA1009		165	RUBBER SHEET	AEB1012
	115	C1 ELECTR.CAPACITOR (33000μF/50V)	ACH1221	NSP	166	SPACER	AEB1216
				NSP	167	RUBBER	AEB1222
	116	C2 ELECTR.CAPACITOR (33000μF/50V)	ACH1221		168	WASHER	ABF1016
	117	C3 ELECTROLYTIC CAPACITOR (12000μF/56V)	ACH1222		169	WASHER	ABF1027
	118	C4 ELECTROLYTIC CAPACITOR (12000μF/56V)	ACH1223		170	WASHER	ABE-053
△	119	C5 CAPACITOR (0.01/AC400V)	ACG1003	NSP	171	PCB HOLDER	ANL1052
△	120	C6 CAPACITOR (0.01/AC400V)	ACG1003	NSP	172	SHIELD PLATE ASSY	AEC1455
△	121	AC POWER CORD	ADG1093		173	SCREW	ABA1054
△	122	FUSE I=T2.5A,V=250	AEK-512		174	SCREW	PMZ40P080FCU
●	123	POWER R PNP ASSY	AWZ4531		175	BINDER	AEC-093
●		(POWER L PNP ASSY)	AWZ4529	Note: The descriptions in parentheses for No. 52, 90, 106, 123, and 125-140 are for the L side heat sink assy.			
●	124	REC SEL. SW ASSY	AWZ4532				
△	125	Q4(Q3) TRANSISTOR	2SA1265N				
△	126	Q8(Q7) TRANSISTOR	2SA1265N				
△	127	Q12(Q11) TRANSISTOR	2SA1265N				
△	128	Q16(Q15) TRANSISTOR	2SA1265N				
△	129	Q2(Q1) TRANSISTOR	2SC3182N				
△	130	Q6(Q5) TRANSISTOR	2SC3182N				
△	131	Q10(Q9) TRANSISTOR	2SC3182N				
△	132	Q14(Q13) TRANSISTOR	2SC3182N				
△	133	Q24(Q23) TRANSISTOR	2SC4793				
△	134	Q28(Q27) TRANSISTOR	2SC4793				
△	135	Q32(Q31) TRANSISTOR	2SC4793				
△	136	Q20(Q19) TRANSISTOR	2SA1837				
△	137	Q22(Q21) TRANSISTOR	2SA1837				

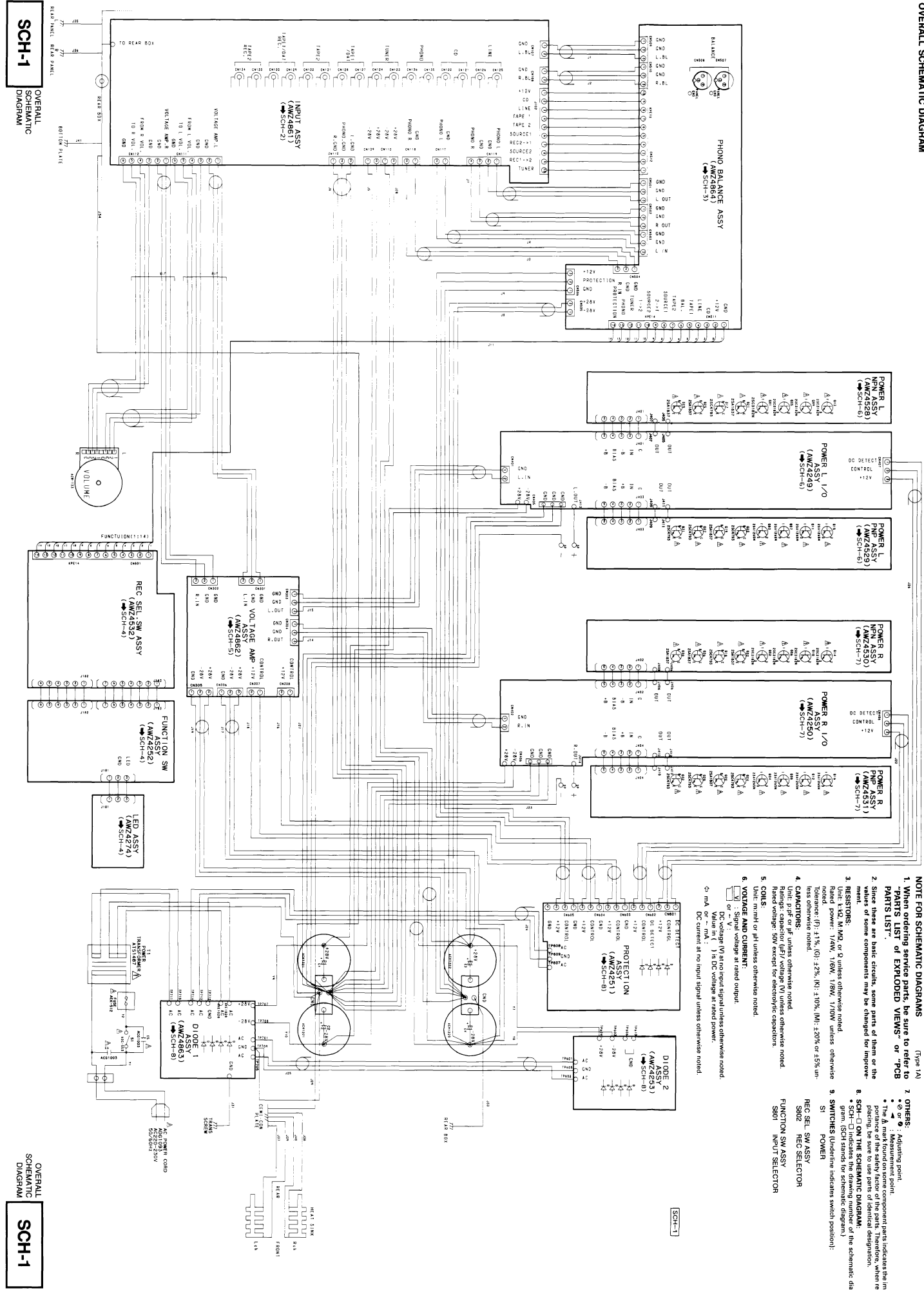
1.2 PACKING



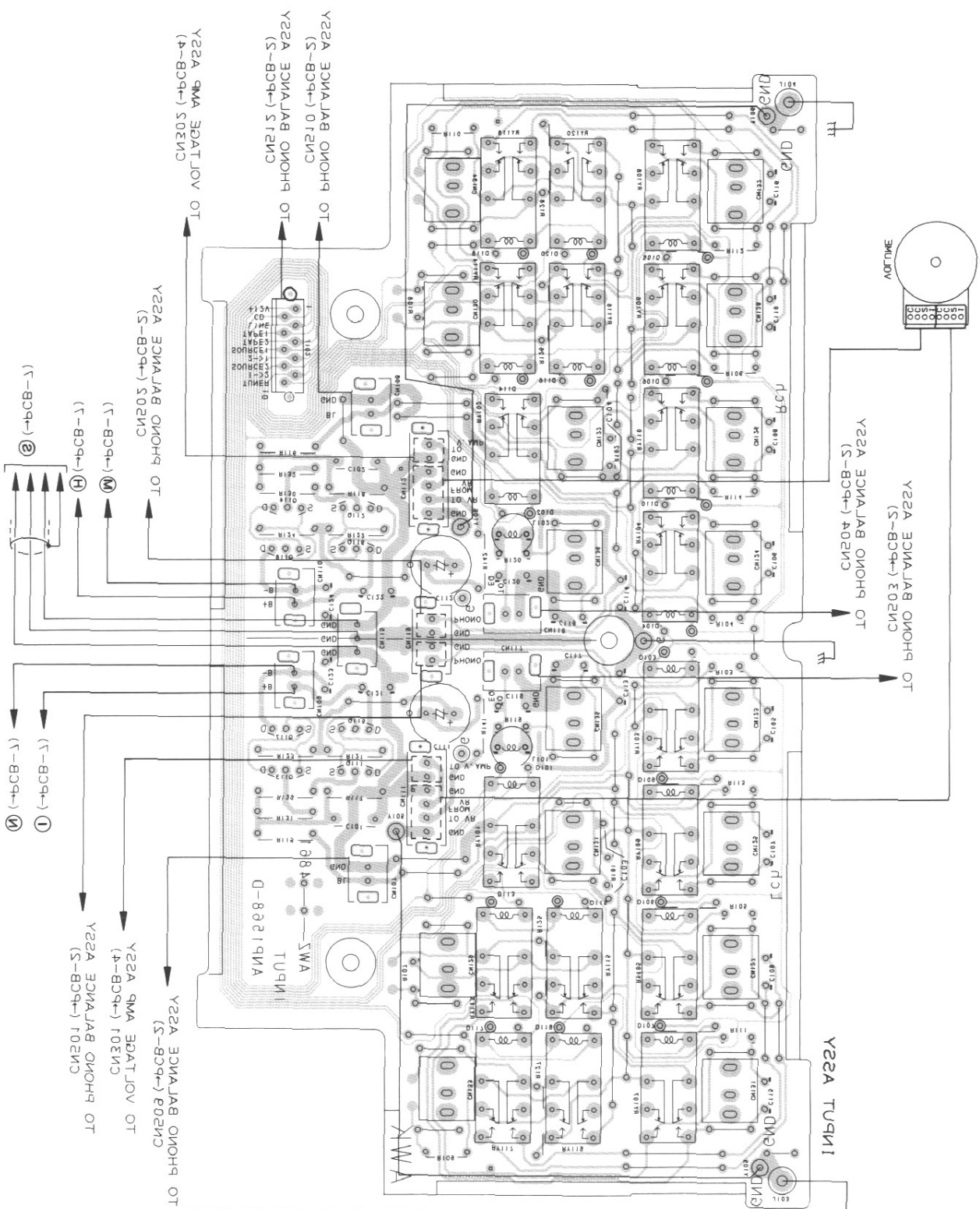


2. SCHEMATIC AND PCB CONNECTION DIAGRAMS

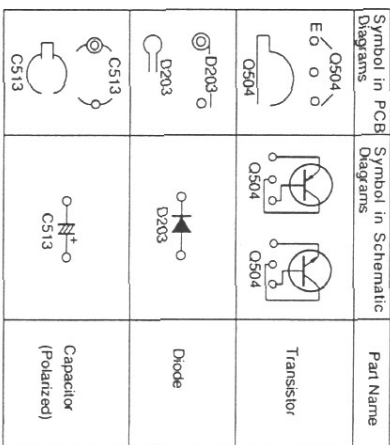
2.1 OVERALL SCHEMATIC DIAGRAM



BCB-1



1

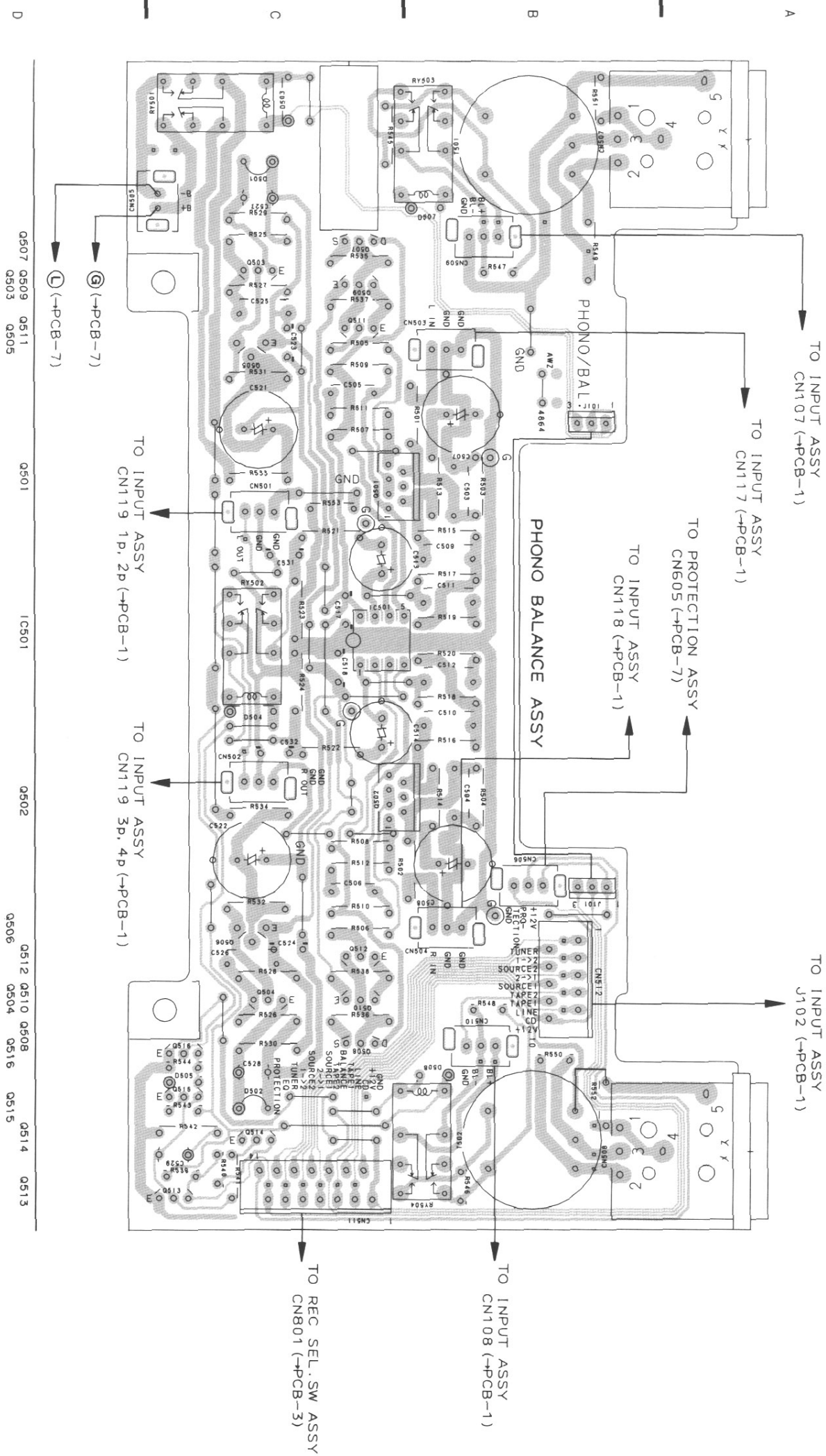


Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
------------------------	------------------------------	-----------

3. The transistor terminal marked with E or $\sqcup$ shows the emitter.
4. The diode terminal marked with $\oplus$ or $\circ$ shows cathode side.
5. The capacitor terminal marked with $\oplus$ or $\sqcup$ shows negative terminal.

SCH-3

• This diagram is viewed from the mounted parts side.



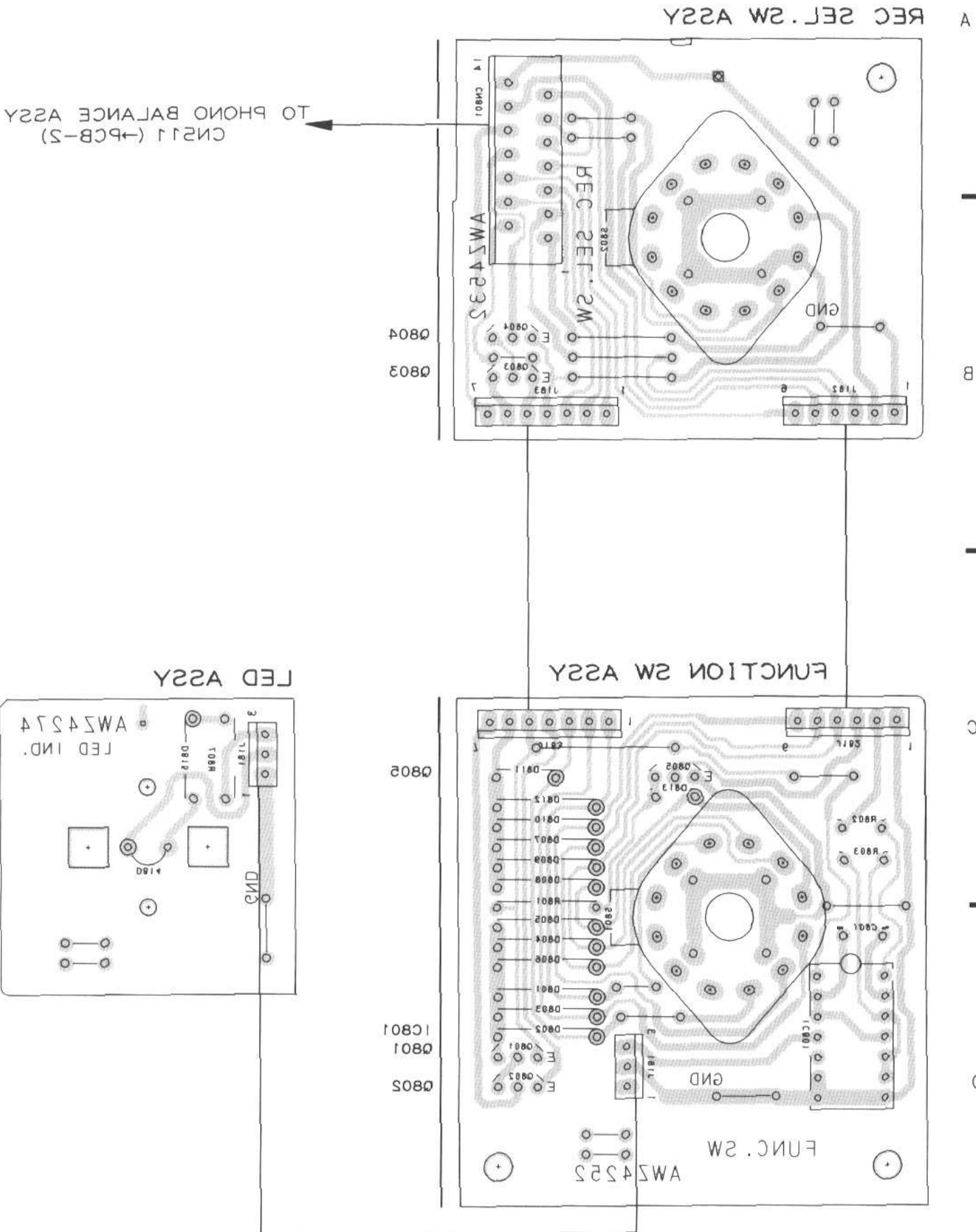
- This diagram is viewed from the foil side.



2.4 FUNCTION SW, LED AND REC SEL. SW ASSEMBLIES

● This diagram is viewed from the foil side.

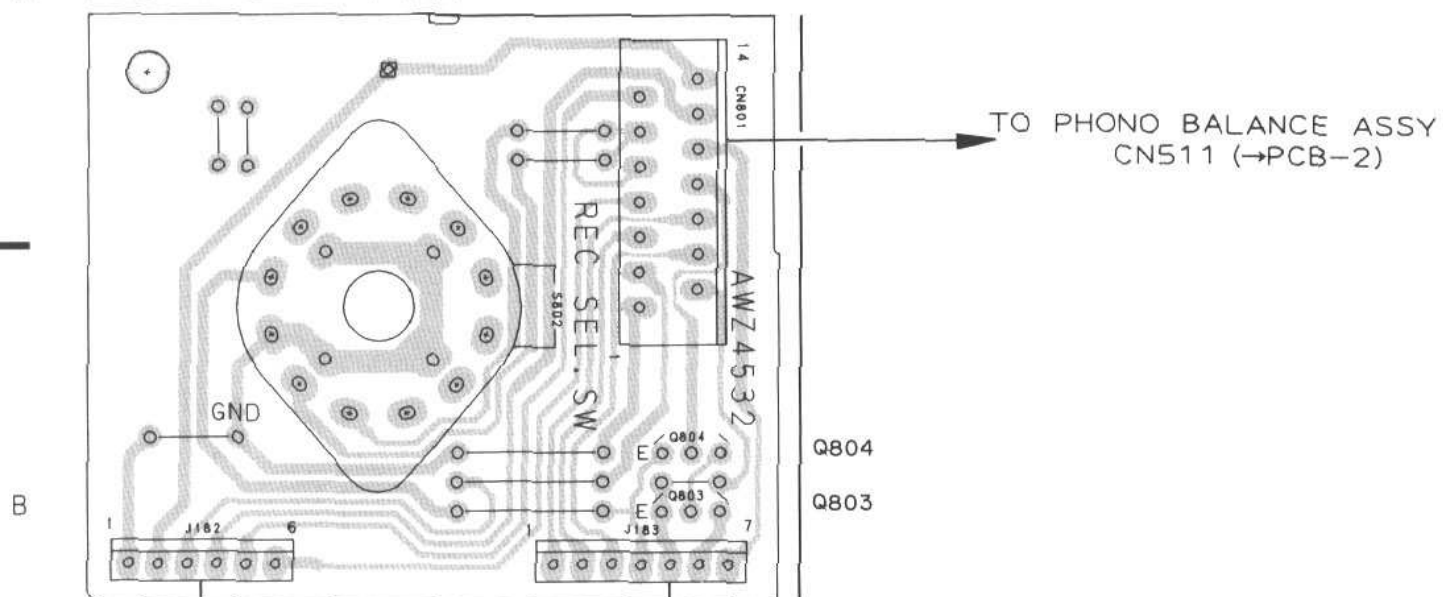
PCB-3



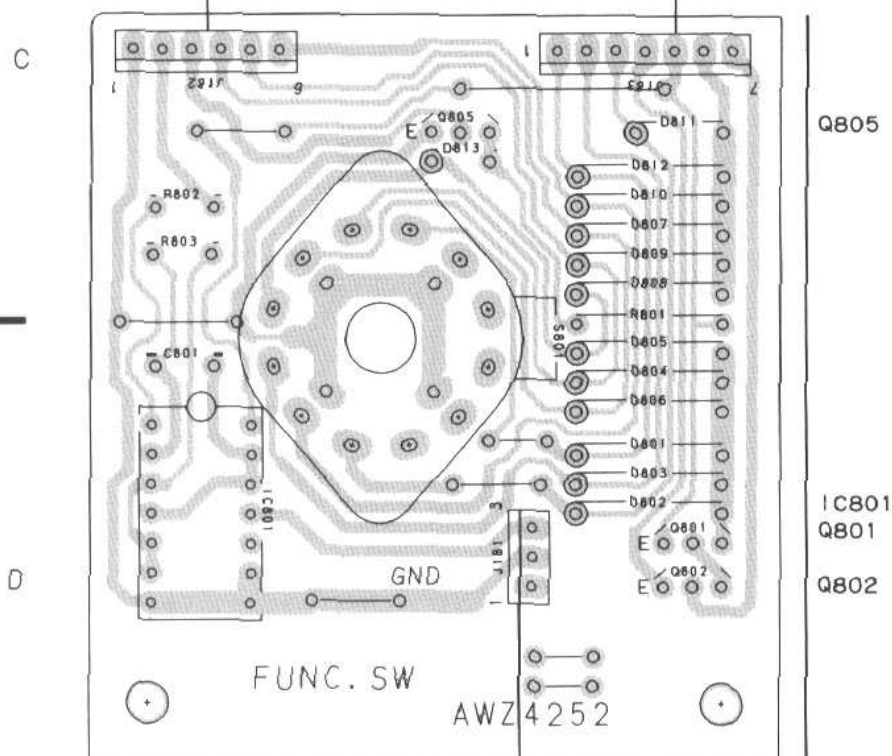
● This diagram is viewed from the mounted parts side.

PCB-3

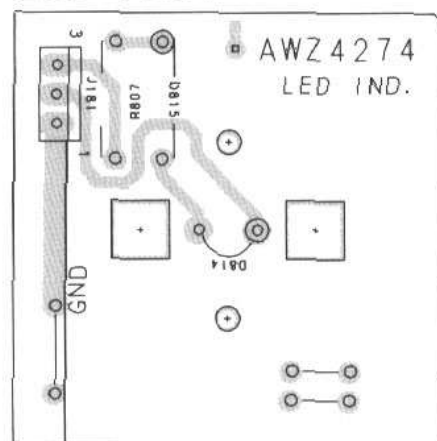
A REC SEL. SW ASSY



FUNCTION SW ASSY

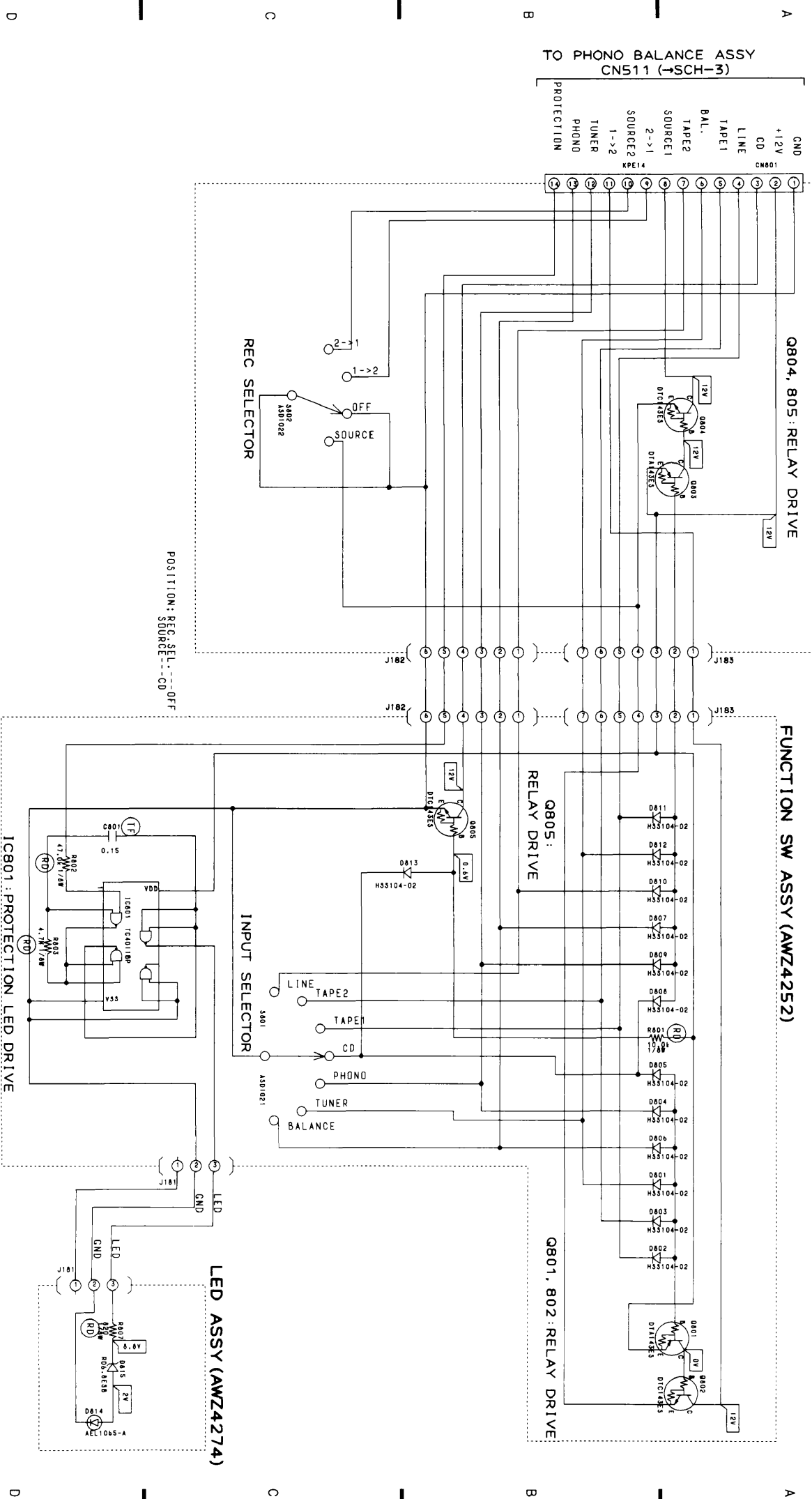


LED ASSY



REC SEL. SW ASSY (AMZ4532)

SCH-4



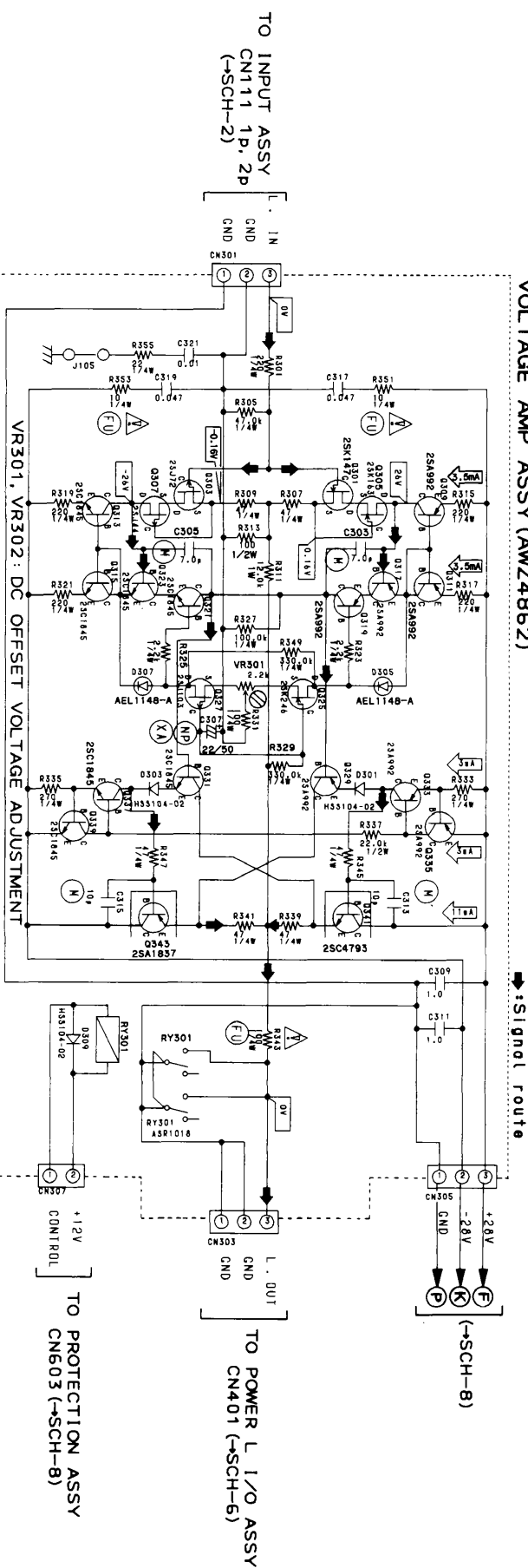
SCH-4

FUNCTION SW ASSY,
LED ASSY,
REC SEL. SW ASSYFUNCTION SW ASSY,
LED ASSY,
REC SEL. SW ASSY

SCH-4

VOLTAGE AMP ASSY (AWZ4862)

SCH-5



CURRENT MILLER

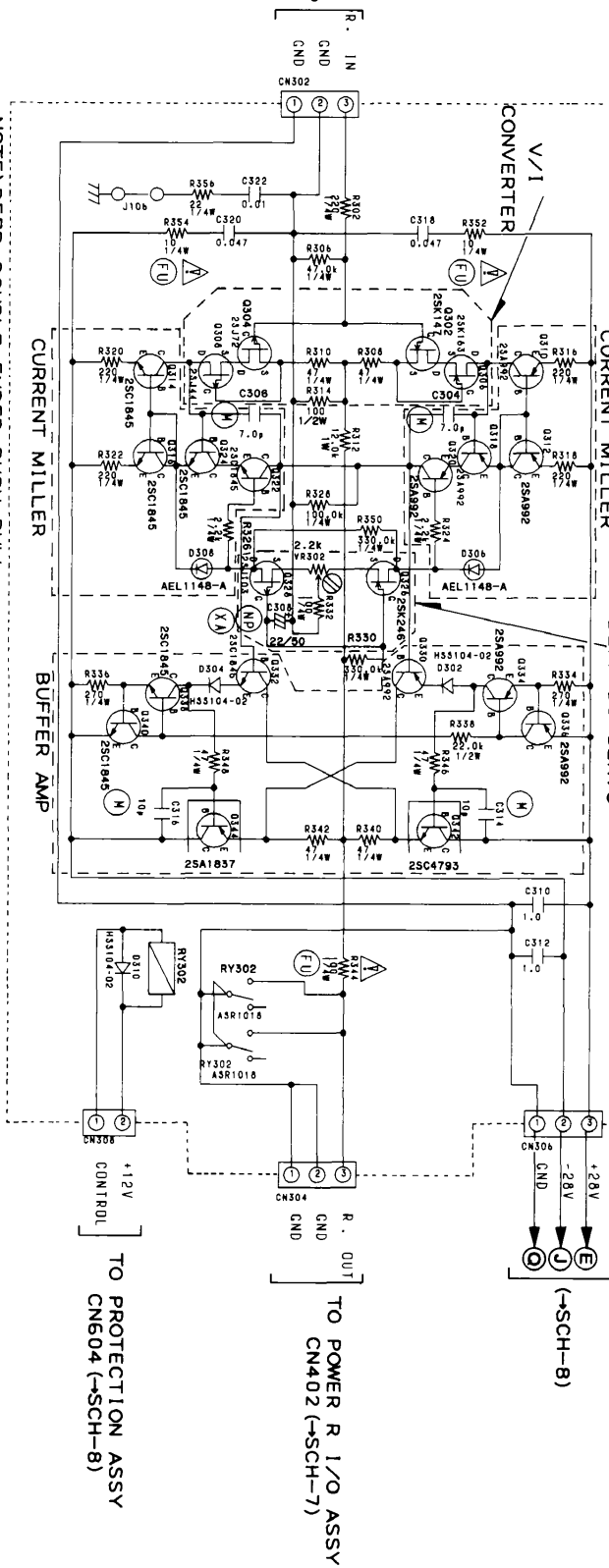
DEPP DC SERVO

VR301, VR302: DC OFFSET VOLTAGE ADJUSTMENT

CONVERTER

0334
25A992

TO INPUT ASSY
CN112 1p, 2p
(→SCH-2)



NOTE) DEPP : DOUBLE ENDED PUSH PULL

VOLTAGE AMP ASSY

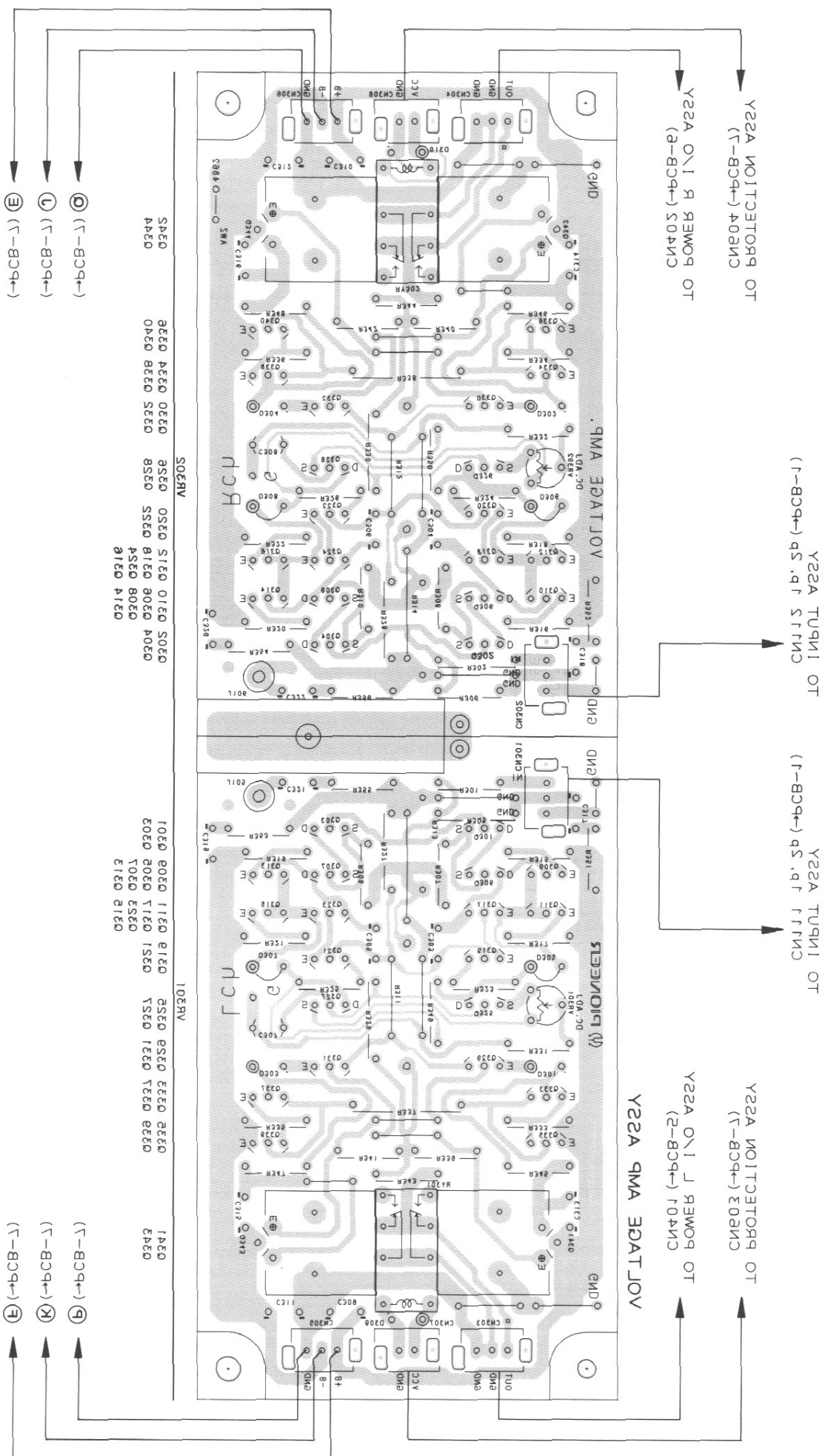
VOLTAGE AMP ASSY

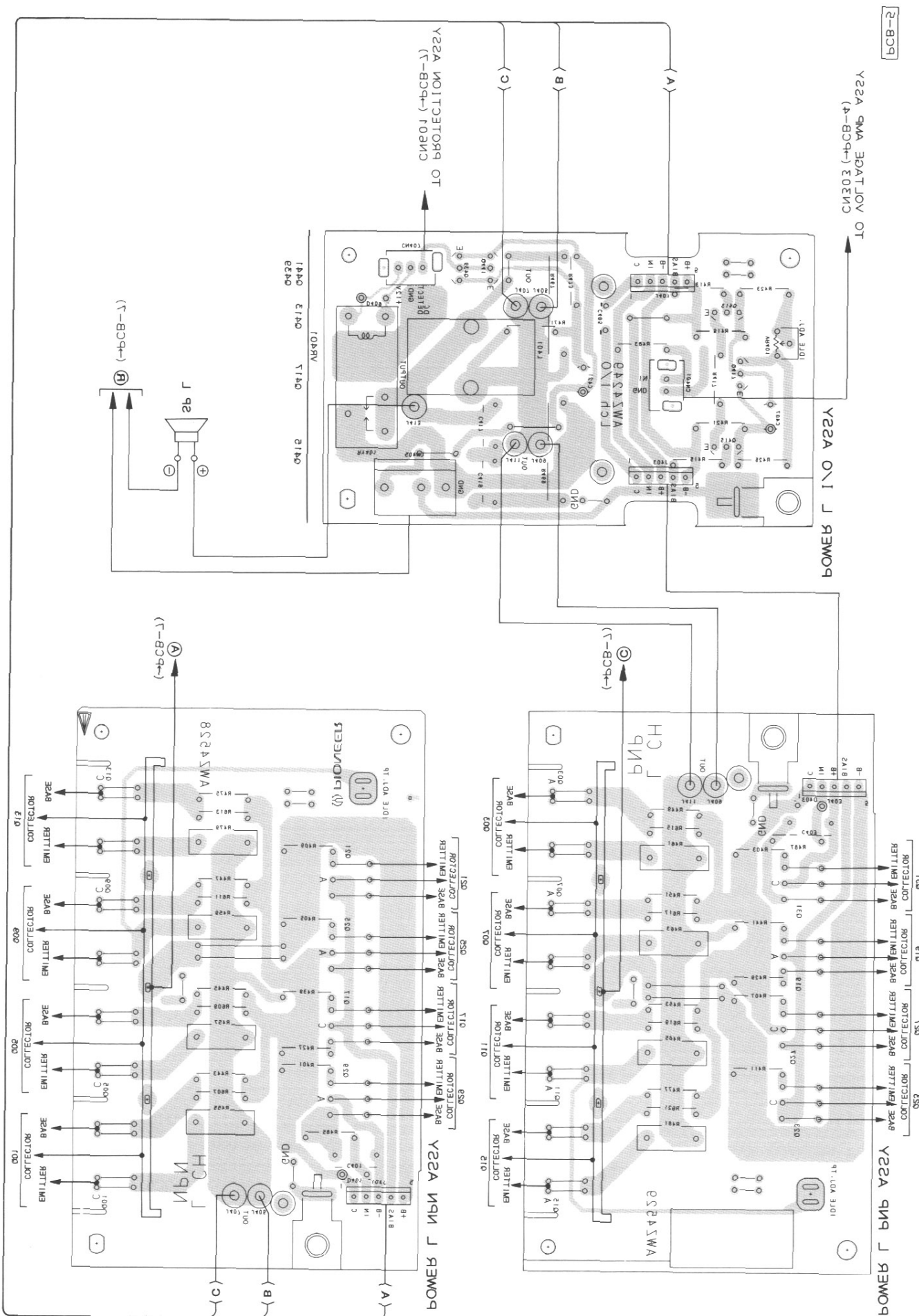
SCH-5

SCH-5

(→PCB-7) ⑤

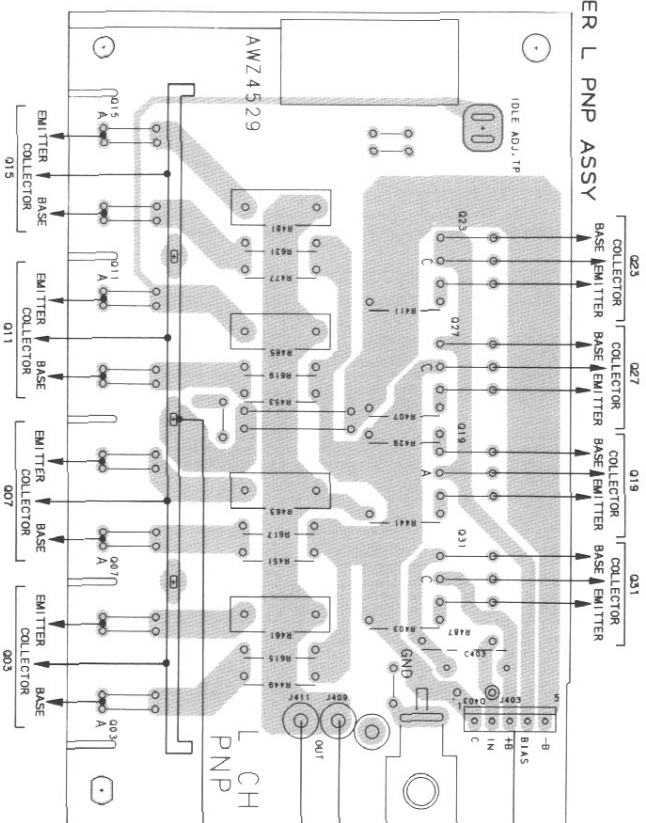
- This diagram is viewed from the foil side.





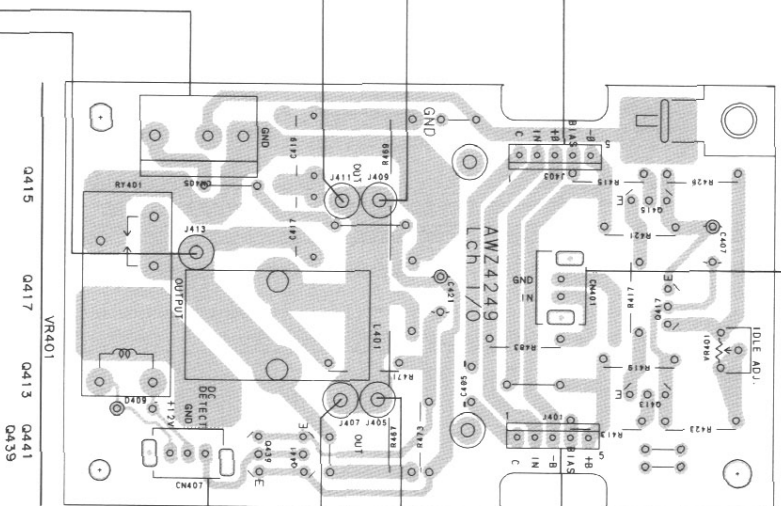
• This diagram is viewed from the mounted parts side.

POWER L PNP ASSY



(-PCB-7)

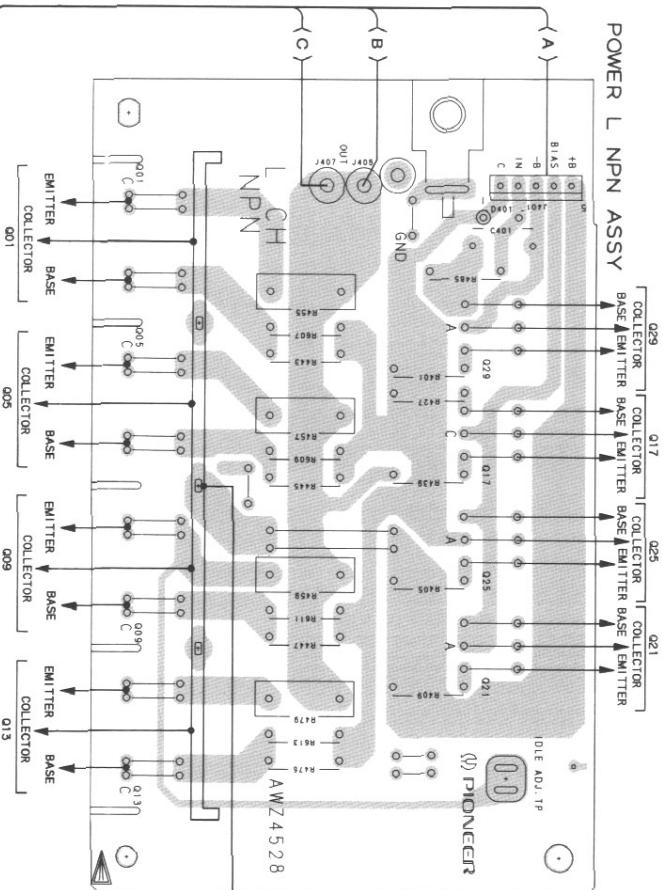
POWER L I/O ASSY



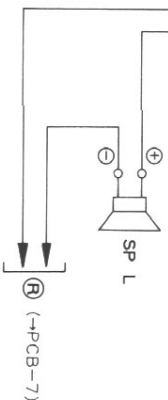
TO VOLTAGE AMP ASSY
CN303 (-PCB-4)

PCB-5

POWER L NPN ASSY



(-PCB-7)



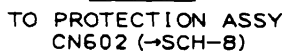
(-PCB-7)

TO PROTECTION ASSY
CN601 (-PCB-7)



POWER L I/O ASSY,
POWER L NPN ASSY,
POWER L PNP ASSY

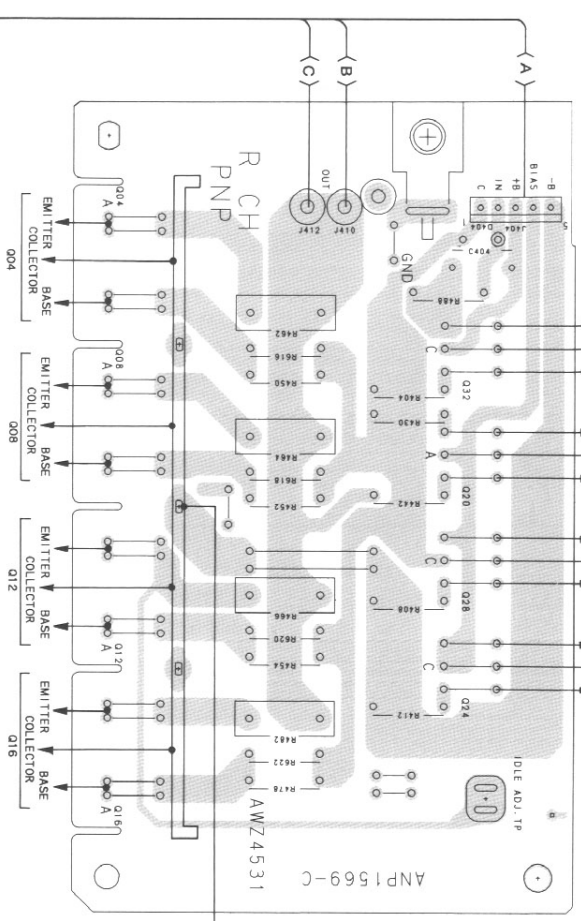
SCH-7



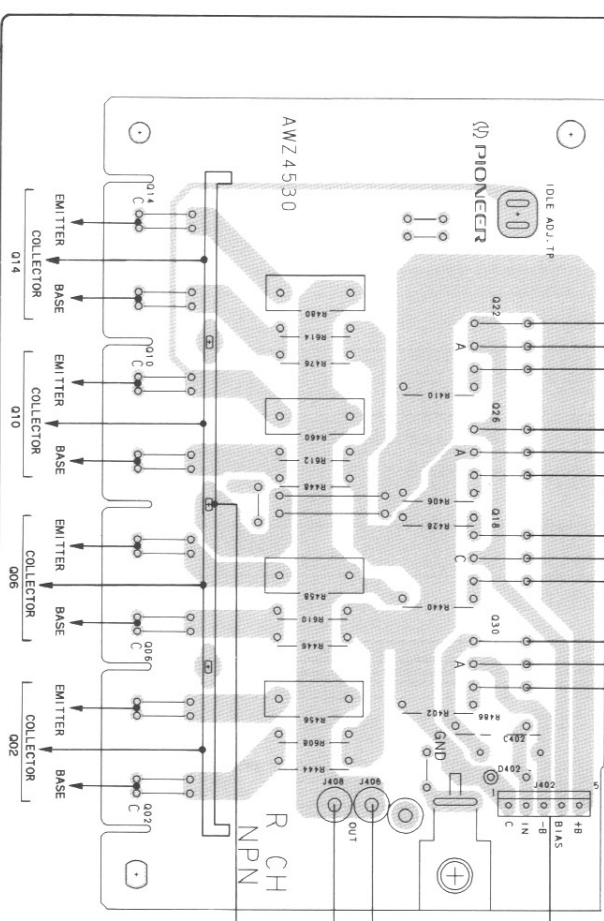
SCH-7

● This diagram is viewed from the mounted parts side.

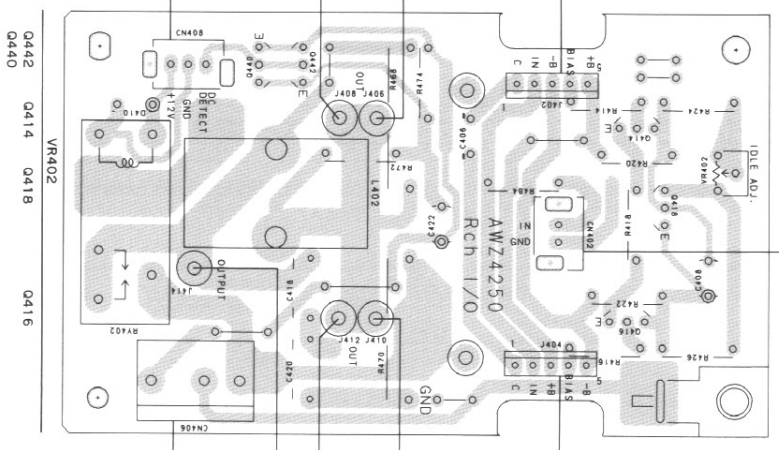
POWER R PNP ASSY



POWER R NPN ASSY

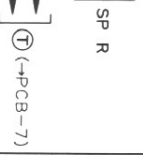


POWER R I/O ASSY



TO VOLTAGE AMP ASSY
CN304 (-PCB-4)

TO PROTECTION ASSY
CN602 (-PCB-7)



PCB-6

1

2

3

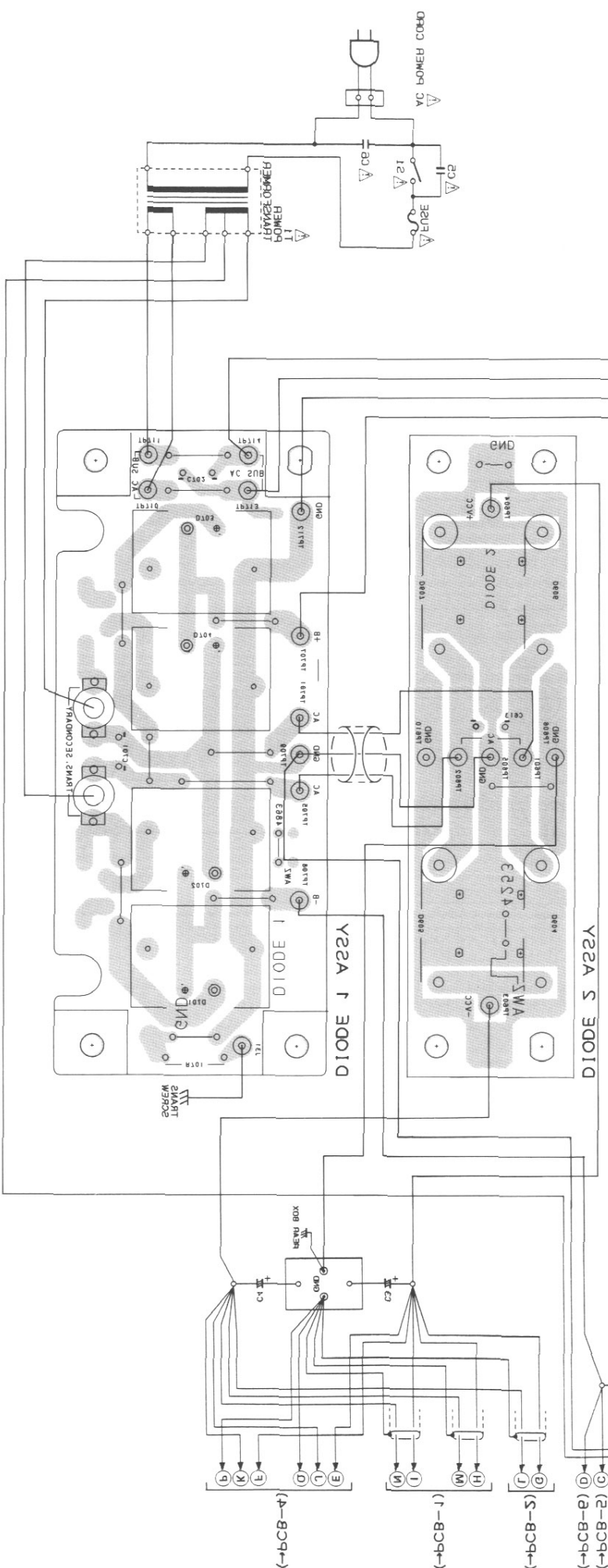
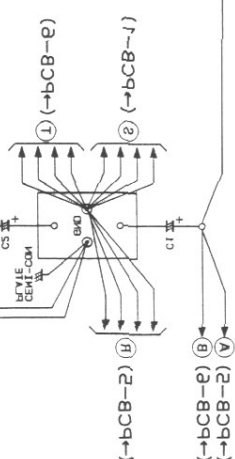
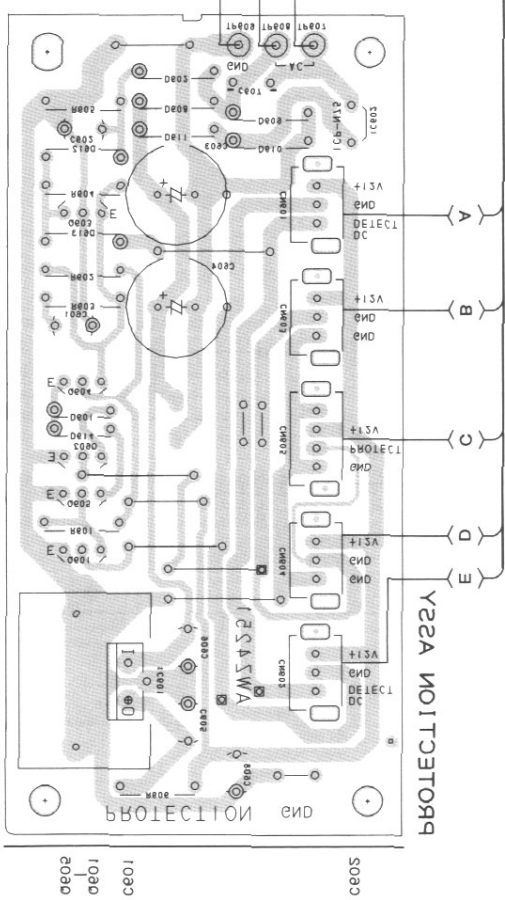
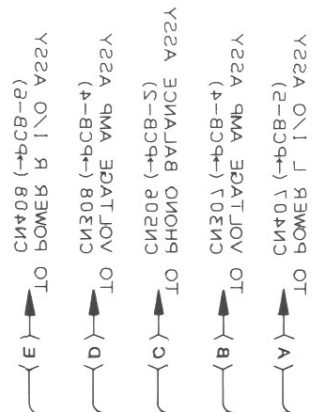
4

5

6

→

BCB-7



TO POWER L I/O ASSY
CN407 (+PCB-5)
(A) 
TO VOLTAGE AMP ASSY
CN307 (+PCB-4)
(B) 
TO PHONO BALANCE ASSY
CN506 (+PCB-2)
(C) 
TO VOLTAGE AMP ASSY
CN308 (+PCB-4)
(D) 
TO POWER R I/O ASSY
CN408 (+PCB-6)
(E) 



3. PCB PARTS LIST

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.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

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

560 Ω	$\rightarrow$	56×10^1	$\rightarrow$	561		RD1/8PM	5 6 1 J
47k Ω	$\rightarrow$	47×10^3	$\rightarrow$	473		RD1/4PS	4 7 3 J
0.5 Ω	$\rightarrow$	0R5				RN2H	0 R 5 K
1 Ω	$\rightarrow$	010				RSIP	0 1 0 K

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

5.62k Ω	$\rightarrow$	562×10^1	$\rightarrow$	5621		RN1/4PC	5 6 2 1 F
----------------	---------------	-------------------	---------------	------	-------	---------	---

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

LIST OF ASSEMBLIES

NSP	POWER AMP ASSY	AWH1033
●	POWER L I/O ASSY	AWZ4249
●	POWER R I/O ASSY	AWZ4250
●	PROTECTION ASSY	AWZ4251
●	FUNCTION SW ASSY	AWZ4252
●	DIODE 2 ASSY	AWZ4253
●	LED ASSY	AWZ4274
●	POWER L NPN ASSY	AWZ4528
●	POWER L PNP ASSY	AWZ4529
●	POWER R NPN ASSY	AWZ4530
●	POWER R PNP ASSY	AWZ4531
●	REC SEL. SW ASSY	AWZ4532

NSP	AF COMPLEX ASSY	AWK1863
	INPUT ASSY	AWZ4861
	VOLTAGE AMP ASSY	AWZ4862
	DIODE 1 ASSY	AWZ4863
	PHONO BALANCE ASSY	AWZ4864

POWER L I/O ASSY

SEMICONDUCTORS

Q415	2SA1145
Q439,Q441	2SC1845
Q413,Q417	2SC2705
D409	HSS104-02

COILS AND FILTERS

L401 (0.46UH)	ATH-066
---------------	---------

SWITCHES AND RELAYS

Δ RY401	ASR1027
----------------	---------

CAPACITORS

C417,C419 (0.1/DC100V)	ACE1019
C421	CEAS471M6
C407	CEXA101M25
C405	CFTXA104J50

RESISTORS

R413,R415,R425	RDR1/4PM102J
R471	RDR1/4PM103J
R419,R421	RDR1/4PM163J
R423	RDR1/4PM182J
R473	RDR1/4PM222J

R417	RDR1/4PM470J
R483	RDR1/4PM680J
Δ R467,R469	RS3LMF100J
VR401	VRTS6HS102

OTHERS

CN405 PLUG 3-P	AKM-058
----------------	---------

POWER R I/O ASSY

SEMICONDUCTORS

Q416	2SA1145
Q440,Q442	2SC1845
Q414,Q418	2SC2705
D410	HSS104-02

COILS AND FILTERS

L402 (0.46UH)	ATH-066
---------------	---------

SWITCHES AND RELAYS

Δ RY402	ASR1027
----------------	---------

CAPACITORS

C418,C420 (0.1/DC100V)	ACE1019
C422	CEAS471M6
C408	CEXA101M25
C406	CFTXA104J50

RESISTORS

R414,R416,R426	RDR1/4PM102J
R472	RDR1/4PM103J
R420,R422	RDR1/4PM163J
R424	RDR1/4PM182J
R474	RDR1/4PM222J

R418	RDR1/4PM470J
R484	RDR1/4PM680J

Δ R468,R470	RS3LMF100J
VR402	VRTS6HS102

OTHERS

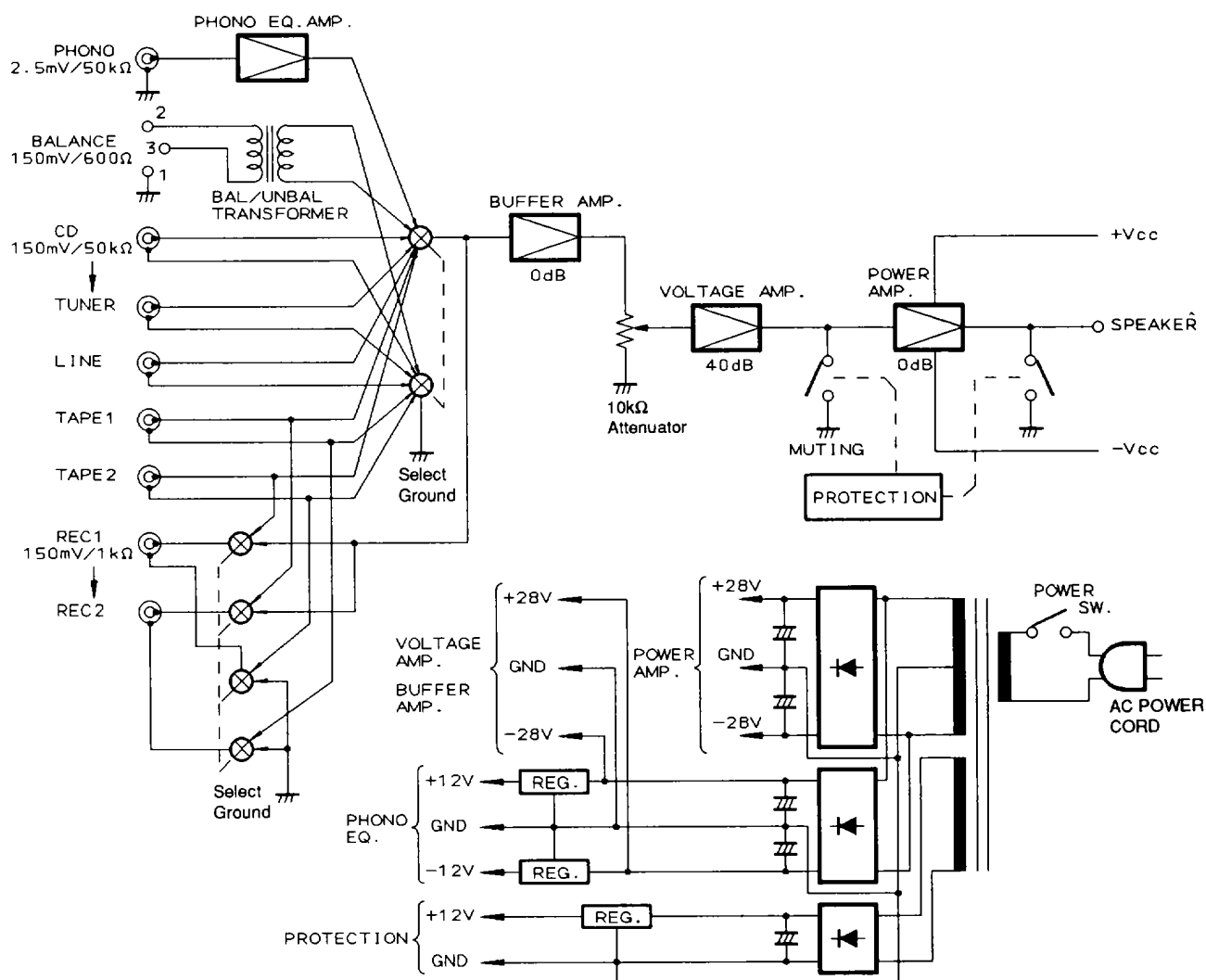
CN406 PLUG 3-P	AKM-058
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Mark	No.	Description	Parts No.	Mark	Mark	No.	Description	Parts No.	Mark
PROTECTION ASSY									
SEMICONDUCTORS									
△	IC602		ICP-N75		RESISTORS				
	IC601		UPC78M12AHF		△	R455,R457,R459,R479 (0.22/5W)		ACN1096	
	Q603		2SA1145			R427,R485		RDR1/4PM100J	
	Q604		2SC2458			R401		RDR1/4PM2R2J	
	Q601,Q602,Q605		DTC143ES			R439		RDR1/4PM3R9J	
						R443,R445,R447,R475,R607		RDR1/4PM4R7J	
	D612,D613		HSSI04-02		△	R609,R611,R613		RDR1/4PM4R7J	
	D614		RD4.7ESB2		△	R409		RFA1/4PS4R7J	
	D601		RD5.1ESB1		△	Other Resistors		RD1/4PM□□□J	
	D602,D608-D611		S5566		POWER L PNP ASSY				
CAPACITORS					SEMICONDUCTORS				
	C607		ACG1005			D403		HSSI04-02	
	C603,C604		CEAS102M25		CAPACITORS				
	C601		CEAS220M50			C403 (220P/DC100V)		ACE1014	
	C602		CEAS3R3M50		RESISTORS				
	C605,C606		CEHAQ100M50		△	R461,R463,R465,R481 (0.22/5W)		ACN1096	
	C608		CEXA100M50			R429,R487		RDR1/4PM100J	
RESISTORS						R403		RDR1/4PM2R2J	
	R606		RD1/2PM010J			R441		RDR1/4PM3R9J	
	Other Resistors		RD1/4PM□□□J			R449,R451,R453,R477,R615		RDR1/4PM4R7J	
OTHERS						R617,R619,R621		RDR1/4PM4R7J	
	SCREW		PMB30P100FCU		△	R411		RFA1/4PS4R7J	
FUNCTION SW ASSY						Other Resistors		RD1/4PM□□□J	
SEMICONDUCTORS					POWER R NPN ASSY				
	IC801		TC4011BP		SEMICONDUCTORS				
	Q801		DTA143ES			D402		HSSI04-02	
	Q802,Q805		DTC143ES		CAPACITORS				
	D801-D813		HSSI04-02			C402 (220P/DC100V)		ACE1014	
SWITCHES AND RELAYS					RESISTORS				
	S801		ASD1021		△	R456,R458,R460,R480 (0.22/5W)		ACN1096	
CAPACITORS						R428,R486		RDR1/4PM100J	
	C801		CFTXA154J50			R402		RDR1/4PM2R2J	
RESISTORS						R440		RDR1/4PM3R9J	
	All Resistors		RD1/8PM□□□J			R444,R446,R448,R476,R608		RDR1/4PM4R7J	
DIODE 2 ASSY						R610,R612,R614		RDR1/4PM4R7J	
SEMICONDUCTORS					△	R410		RFA1/4PS4R7J	
△	D604-D607		31DF2FC		△	Other Resistors		RD1/4PM□□□J	
CAPACITORS					POWER R PNP ASSY				
	C613		ACG1005		SEMICONDUCTORS				
LED ASSY						D404		HSSI04-02	
SEMICONDUCTORS					CAPACITORS				
	D814		AEL1065			C404 (220P/DC100V)		ACE1014	
	D815		RD6.8ESB		RESISTORS				
RESISTORS					△	R462,R464,R466,R482 (0.22/5W)		ACN1096	
	All Resistors		RD1/8PM□□□J			R430,R488		RDR1/4PM100J	
POWER L NPN ASSY						R404		RDR1/4PM2R2J	
SEMICONDUCTORS						R442		RDR1/4PM3R9J	
	D401		HSSI04-02			R450,R452,R454,R478,R616		RDR1/4PM4R7J	
CAPACITORS						R618,R620,R622		RDR1/4PM4R7J	
	C401 (220P/DC100V)		ACE1014		△	R412		RFA1/4PS4R7J	
					△	Other Resistors		RD1/4PM□□□J	

Mark	No.	Description	Parts No.	Mark	Mark	No.	Description	Parts No.	Mark
REC SEL. SW ASSY					SWITCHES AND RELAYS				
SEMICONDUCTORS					CAPACITORS				
	Q803		DTA143ES			C309—C312		ACG1045	
	Q804		DTC143ES			C307,C308		ACH1182	
SWITCHES AND RELAYS						C321,C322		CKCYF103Z50	
	S802		ASD1022			C317—C320		CKCYF473Z50	
OTHERS						C303—C306		CMA070D500	
	CN801	CONNECTOR(14P)	KPE14			C313—C316		CMA100D500	
INPUT ASSY					RESISTORS				
SEMICONDUCTORS						R313,R314		RDM1/2P101J	
	Q117,Q118		2SJ44			R311,R312		RDM1P123J	
	Q113,Q114		2SJ72			R337,R338		RDR1/2PM223J	
	Q111,Q112		2SK147			R331,R332		RDR1/4PM101J	
	Q115,Q116		2SK163			R327,R328		RDR1/4PM104J	
	D101—D110,D113—D120		HSS104—02			R355,R356		RDR1/4PM220J	
COILS AND FILTERS						R301,R302,R315—R322		RDR1/4PM221J	
	L101,L102 (270UH)		ATH1010			R323—R326		RDR1/4PM222J	
SWITCHES AND RELAYS						R333—R336		RDR1/4PM271J	
	RY101—RY110		ASR1018			R329,R330,R349,R350		RDR1/4PM334J	
	RY113—RY120		ASR1040			R307—R310,R339—R342		RDR1/4PM470J	
CAPACITORS						R345—R348		RDR1/4PM470J	
	C101,C102 (82P/DC100V)		ACE1025		△	R305,R306		RDR1/4PM473J	
	C111,C112		ACH1182		△	R351—R354		RFA1/4PS100J	
	C105—C110,C115,C116		CCCSL181K500			R343,R344		RFA1/4PS101J	
	C117—C120		CCCSL390J50			VR301,VR302		VRTS6VS222	
	C103,C104		CCDSL181J50		OTHERS				
	C121—C124		CFTYA103J50			8205	SCREW	PMB30P100FCU	
	C113,C114		CKCYF103Z50		DIODE 1 ASSY				
RESISTORS					SEMICONDUCTORS				
	R141,R142		RDR1/4PM101J		△	D701—D704		F10KF20	
	R115,R116,R129—R132		RDR1/4PM221J		CAPACITORS				
	R121—R124		RDR1/4PM470J			C701,C702		ACG1005	
	R117,R118		RDR1/4PM473J		RESISTORS				
	R107—R110		RDR1/6PU102J			All Resistors		RD1/4PM□□□J	
	R119,R120		RDR1/6PU272J		OTHERS				
	Other Resistors		RD1/8PM□□□J			8307	STAR TERMINAL A	AKE1028	
OTHERS						8310	SCREW	PMB30P100FCU	
	CN121—CN136 1P PINJACK		AKB1162		PHONO BALANCE ASSY				
VOLTAGE AMP ASSY					SEMICONDUCTORS				
SEMICONDUCTORS						IC501		CXA1297P	
	Q343,Q344		2SA1837			Q504		2SA992	
	Q309—Q312,Q317—Q320		2SA992			Q506		2SB1274	
	Q329,Q330,Q333—Q336		2SA992			Q503,Q509—Q512		2SC1845	
	Q313—Q316,Q321—Q324		2SC1845			Q515,Q516		2SC2458	
	Q331,Q332,Q337—Q340		2SC1845			Q505		2SD1913	
	Q341,Q342		2SC4793			Q507,Q508		2SK246	
	Q327,Q328		2SJ103			Q501,Q502		2SK389	
	Q307,Q308		2SJ44			Q514		DTA143ES	
	Q303,Q304		2SJ72			Q513		DTC143ES	
	Q301,Q302		2SK147			D501,D502		AEL1148	
	Q305,Q306		2SK163			D503,D504,D507,D508		HSS104—02	
	Q325,Q326		2SK246			D505		HZSSBLL	
	D305—D308		AEL1148		COILS AND FILTERS				
	D301—D304,D309,D310		HSS104—02			T501,T502		ATV1009	

Mark	No.	Description	Parts No.	Mark
SWITCHES AND RELAYS				
		RY501 — RY504	ASR1018	
CAPACITORS				
		C505, C506 (0.01/DC100V)	ACE1018	
		C503, C504, C525, C526 (82P/DC100V)	ACE1025	
		C509, C510 (0.015/DC100V)	ACE1030	
		C511, C512	ACE1049	
		C507, C508 (470/DC50V)	ACH1052	
		C513, C514	ACH1182	
		C529	CEAS101M16	
		C521, C522	CEAS102M35	
		C527, C528	CEYA100M50	
		C517, C518, C523, C524	CKCYF103Z50	
		C531, C532	CQMXA472J100	
RESISTORS				
		R542	RD1/4PM820J	
		R501, R502, R511, R512	RDR1/4PM100J	
		R535, R536	RDR1/4PM101J	
		R525, R526	RDR1/4PM102J	
		R523, R524	RDR1/4PM104J	
		R513, R514	RDR1/4PM121J	
		R507 — R510	RDR1/4PM122J	
		R531, R532	RDR1/4PM123J	
		R521, R522	RDR1/4PM391J	
		R527 — R530	RDR1/4PM472J	
		R503, R504	RDR1/4PM473J	
		R515, R516	RDR1/4PM512J	
		R519, R520	RDR1/4PM560J	
		R537, R538	RDR1/4PM620J	
		R517, R518	RDR1/4PM623J	
		R505, R506	RDR1/4PM681J	
		R545, R546	RDR1/6PU393J	
		R549, R550	RDR1/6PU681J	
△		R533, R534	RFA1/4PS181J	
		Other Resistors	RD1/8PM□□□J	
OTHERS				
	CN512	CONNECTOR(10P)	KPE10	
	CN511	CONNECTOR(14P)	KPE14	

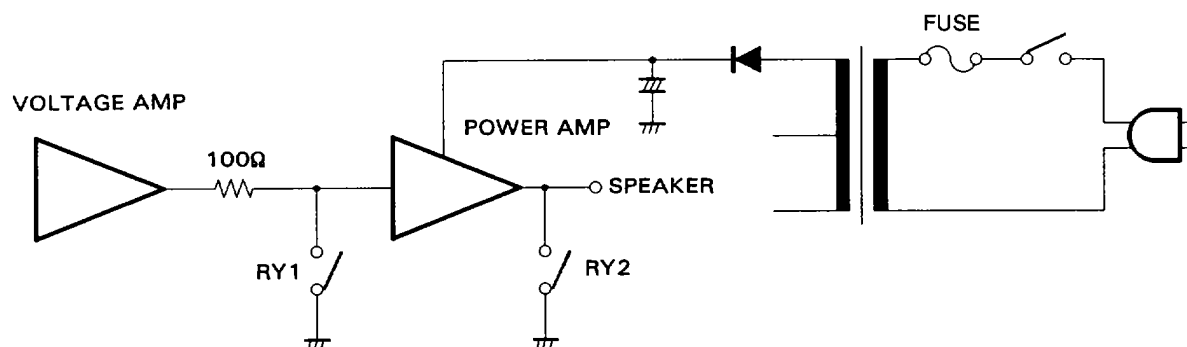
4. BLOCK DIAGRAM



5. CIRCUIT DESCRIPTION

■ PROTECTION CIRCUIT

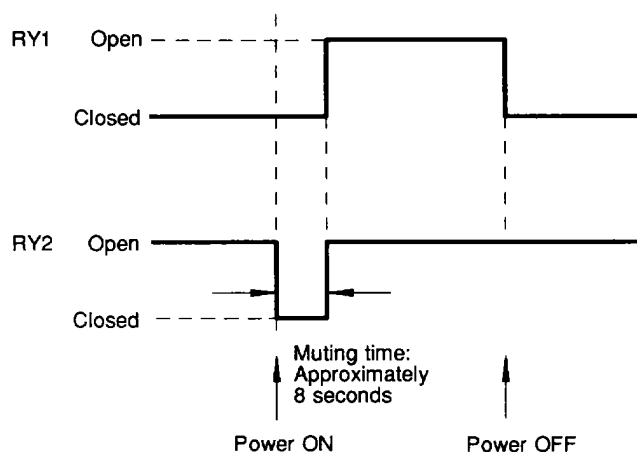
In the A-09, in order to avoid inferior sound quality due to the relay contact point, the relays that normally are serially inserted to the signal line have been eliminated.



● Sequence of RY1 and RY2 at the time of power ON/OFF

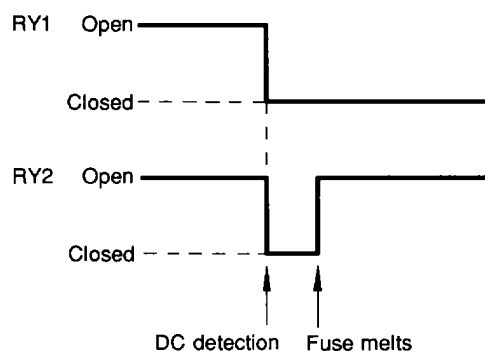
Both RY1 and RY2 are commonly closed approximately 8 seconds after turning ON the power, and pop noise of the voltage amplifier is muted by 100Ω and attenuation by RY1, the power amplifier's output impedance and the attenuation by RY2 by a total of approximately 100dB. When turning OFF the power, there is only a muting by 100Ω and RY1 (Approximately -80dB), but as the pop noise of the power supply of the voltage amplifier is very small when the power is turned OFF, there is no problem in practical use.

The upper and lower stages of the power amplifier are totally symmetrical, and as the input is grounded by RY1 at the time of power ON/OFF, there is no pop noise at all.



● Sequence of RY1 and RY2 at the time of DC detection

- Both RY1 and RY2 are commonly closed at the time of DC detection. If DC still appears at the speaker terminal in this condition, a current of the output voltage value divided by the contact resistance value of RY2 will flow, and the fuse (5A) on the primary side will melt.
- At the time of load short-circuit, RY1 and RY2 will not operate together, but due to the output level of the source equipment and the position of the attenuator of A-09, the signal level of the speaker terminal will become higher (when the load short-circuit current become higher) and the primary side fuse will melt.



6. ADJUSTMENTS

6.1 INITIAL ADJUSTMENT

6.1.1 Adjustment of DC Offset Voltage (Fig.1)

After having turned on the power, adjust VR301 and VR302 of VOLTAGE AMP assembly inside the rear box so that the voltage between the speaker terminals (+ and -) becomes within $\pm 10\text{mV}$.

6.1.2 Adjustment of the Idle Electric Current (Fig.2)

Adjust VR402 so that the voltage between the emitter resistors (R460, R466) of POWER R I/O assembly (between the idle check terminals) becomes 170mV .

Note : When on the left side, adjust VR401 of POWER L I/O assembly. Also reverse the polarity of the voltage meter.

6.2 AGING

After having adjusted the initialization, carry out aging for 5 minutes.

6.3 FINAL ADJUSTMENT

1. Adjust the DC offset voltage to within $\pm 10\text{mV}$ with VR301 and VR302.
2. After this, carry out idle current adjustment of the voltage value with VR401 and VR402 to $150\text{mV} \pm 5\text{mV}$.

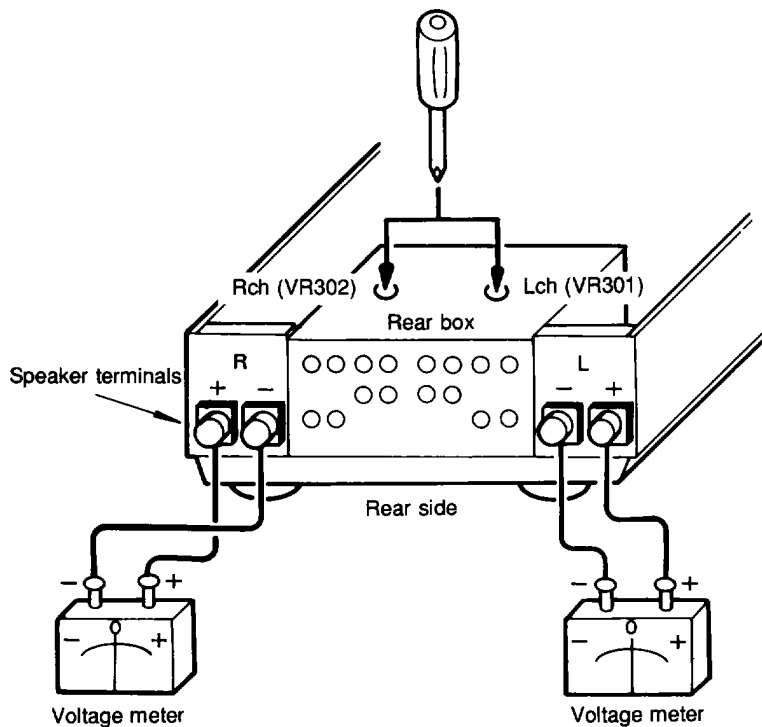


Fig. 1 DC offset voltage adjustment

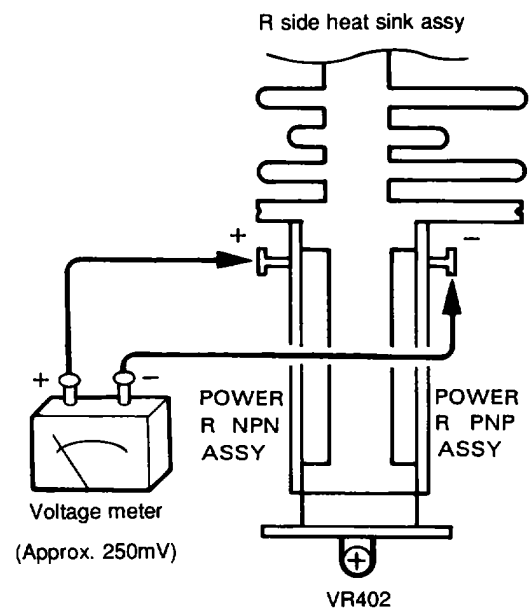
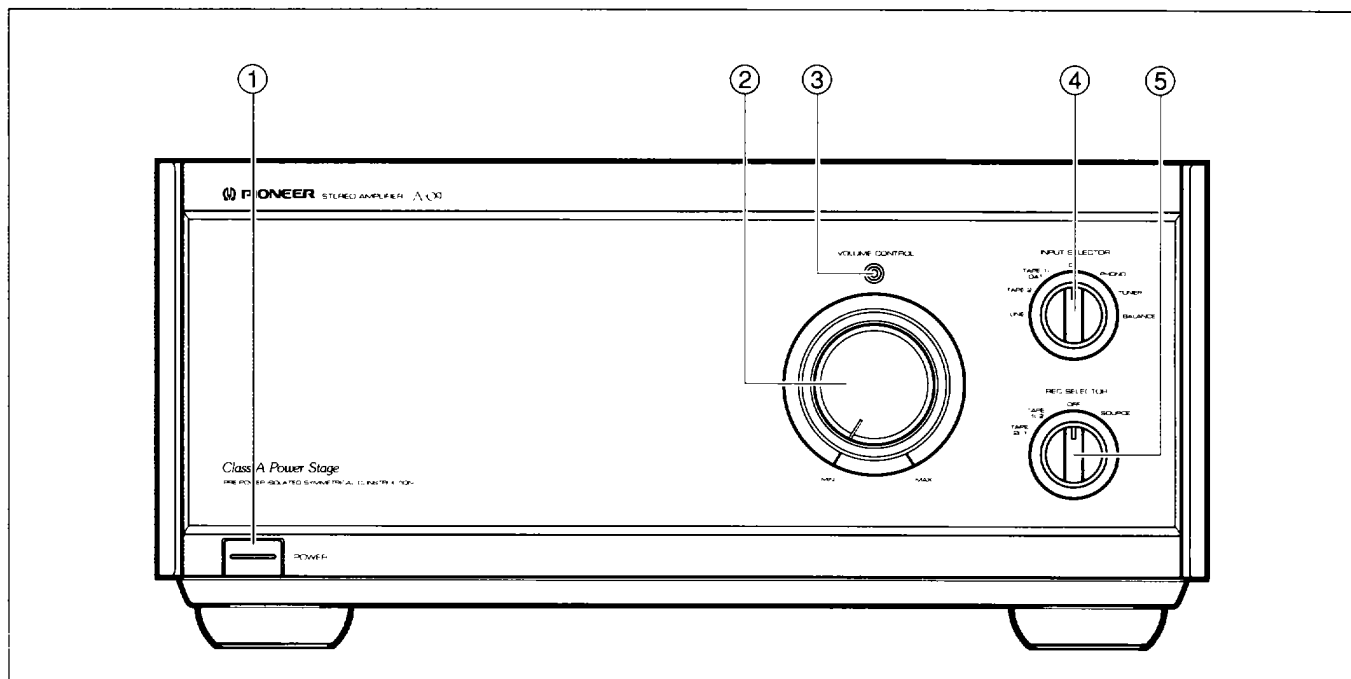


Fig. 2 Idle current adjustment

7. PANEL FACILITIES



FRONT PANEL

① POWER switch

Press to turn power to the unit ON and OFF.

② VOLUME CONTROL

This control is used to adjust the sound volume.

NOTE:

Since this control is an attenuator-type volume control, a clicking sound can be heard when adjusting the volume, in accordance with the signal level. This clicking sound is normal and not a malfunction.

③ VOLUME CONTROL indicator

This indicator flashes for about eight seconds whenever the power is first turned on. No sound is produced while the indicator is flashing.

④ INPUT SELECTOR

Use to select the playback source.

LINE: For playback with a component connected to LINE jacks.

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

TAPE 1/DAT:

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

CD: For compact disc playback with a CD player.

PHONO: For record playback with a turntable.

TUNER: For AM or FM broadcast reception with a tuner.

BALANCE:

For playback with a component connected to the BALANCE IN jacks.

⑤ REC SELECTOR (recording selector)

Use this control to switch between recording modes, including TAPE 2 ▷ 1, TAPE 1 ▷ 2, OFF, and SOURCE.

TAPE 2 ▷ 1: To record sounds from the TAPE 2 component to the component connected to the TAPE 1 / DAT jacks.

TAPE 1 ▷ 2: To record sounds from the TAPE 1/DAT component to the component connected to the TAPE 2 jacks.

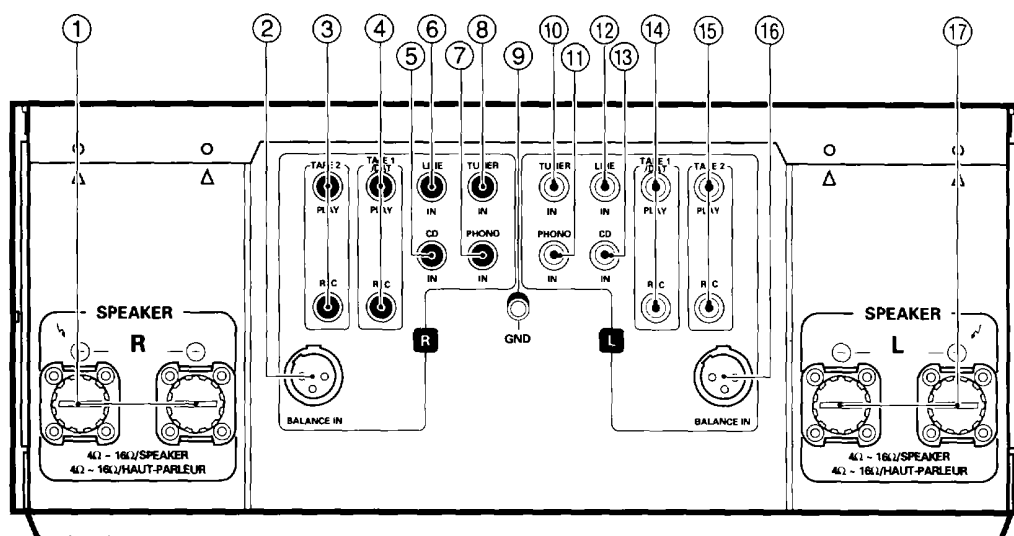
OFF: Set here when not recording any source.

SOURCE: To record sounds from the source selected with the INPUT SELECTOR. In this case, the selected source sounds are output to both the TAPE 1/DAT and TAPE 2 recording (REC) jacks.

NOTE:

Sound is not output to the TAPE 1/DAT and TAPE 2 recording (REC) jacks in the following cases:

- When the INPUT SELECTOR is set to TAPE 1/DAT, sound is not output to the TAPE 1/DAT jacks.
- When the INPUT SELECTOR is set to TAPE 2, sound is not output to the TAPE 2 jacks.



REAR PANEL

- | | |
|-------------------------------------|------------------------------------|
| ① SPEAKER terminals (right) | ⑩ TUNER IN jack (left) |
| ② BALANCE IN jack (right) | ⑪ PHONO IN jack (left) |
| ③ TAPE 2 PLAY/REC jacks (right) | ⑫ LINE IN jack (left) |
| ④ TAPE 1/DAT PLAY/REC jacks (right) | ⑬ CD IN jack (left) |
| ⑤ CD IN jack (right) | ⑭ TAPE 1/DAT PLAY/REC jacks (left) |
| ⑥ LINE IN jack (right) | ⑮ TAPE 2 PLAY/REC jacks (left) |
| ⑦ PHONO IN jack (right) | ⑯ BALANCE IN jack (left) |
| ⑧ TUNER IN jack (right) | ⑰ SPEAKER terminals (left) |
| ⑨ Turn table ground terminal (GND) | |

8. SPECIFICATIONS

Amplifier Section

Continuous power output

(both channels driven at 20 Hz to 20 kHz)*

T.H.D 0.05%, 8 Ω 35 W + 35 W

DIN Continuous power output (both channels driven at 1kHz)

T.H.D.1%, 8 Ω 45 W + 45 W

T.H.D 1%, 4 Ω 90 W + 90 W

Damping factor

(1 kHz/20 Hz to 20 kHz), 8 Ω 200/150

Total harmonic distortion*

20 Hz to 20 kHz, 35 W, 8 Ω 0.05%

20 Hz to 20 kHz, 70 W, 4 Ω 0.15%

● Above specifications are for when power supply is 230 V.

Input sensitivity/impedance

PHONO (MM) 2.5 mV/50 k Ω

CD, TUNER, TAPE 1/DAT, TAPE 2, LINE 150 mV/50 k Ω

BALANCE 150 mV/600 Ω

PHONO overload level

1 kHz, T.H.D. 0.05% (MM) 150 mV

Output level/impedance

TAPE REC output 150 mV/1 k Ω

Frequency response

PHONO (MM) 20 Hz to 20 kHz $\pm$ 0.2 dB

CD, TUNER, TAPE 1/DAT,

TAPE 2, LINE, BALANCE 1 Hz to 150 kHz $^{+0}_{-3}$ dB

Signal-to-Noise ratio (IHF short circuit, A network)

PHONO (MM, 5 mV input) 93 dB

CD, TUNER, TAPE 1/DAT,

TAPE 2, LINE, BALANCE 109 dB

Signal-to-Noise ratio (DIN, continuous power/50 mW)

PHONO (MM) 74 dB/69 dB

CD, TUNER, TAPE 1/DAT,

TAPE 2, LINE, BALANCE 96 dB/74 dB

Power Supply/Miscellaneous

Power requirements a.c. 220–230 Volts, 50/60 Hz

Power consumption 400 W

Dimensions 440 (W) x 480 (D) x 198 (H) mm

Weight (without package) 28.8 kg

Accessories

Operating instructions 1

Cushion spacer set 1

NOTE:

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

* Measured by Audio Spectrum Analyzer.