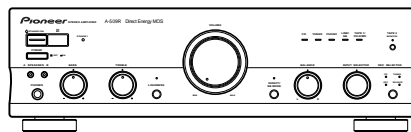


# Service Manual

**Pioneer**



ORDER NO.  
RRV2285

STEREO AMPLIFIER

# A-509R

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

Type	Model	Power Requirement	Remarks
	A-509R		
MY	○	AC220-230V	

## CONTENTS

1. SAFETY INFORMATION .....	2	7. GENERAL INFORMATION .....	25
2. EXPLODED VIEWS AND PARTS LIST .....	3	7.1 IC .....	25
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM .....	6	8. PANEL FACILITIES AND SPECIFICATIONS .....	26
4. PCB CONNECTION DIAGRAM .....	16		
5. PCB PARTS LIST .....	21		
6. ADJUSTMENT .....	24		

**PIONEER CORPORATION** 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan  
**PIONEER ELECTRONICS SERVICE, INC.** P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.  
**PIONEER EUROPE N.V.** Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium  
**PIONEER ELECTRONICS ASIACENTRE PTE. LTD.** 253 Alexandra Road, #04-01, Singapore 159936  
 © PIONEER CORPORATION 2000

# 1. SAFETY INFORMATION

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**

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65



**NOTICE**

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

**REMARQUE**

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

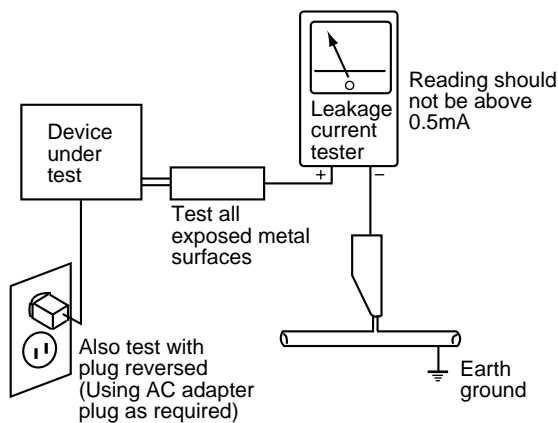
(FOR USA MODEL ONLY)

## 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.

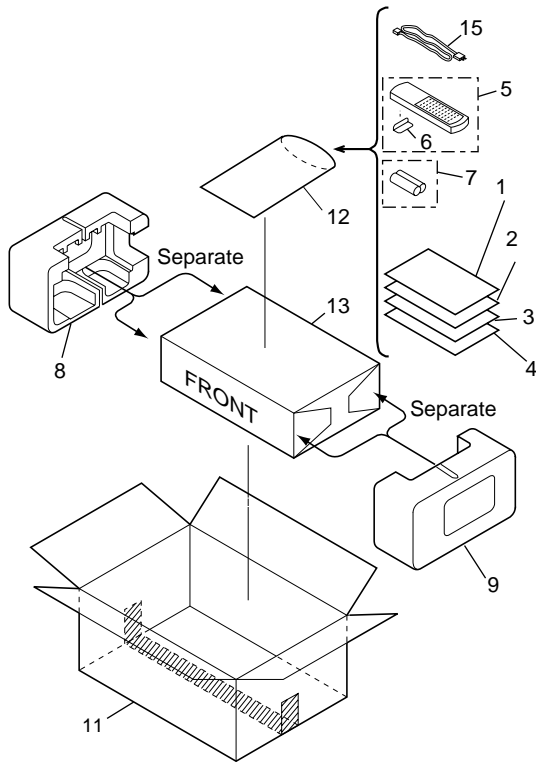
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

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 AND PARTS LIST

- NOTES:
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
  - 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.
  - Screws adjacent to  $\blacktriangledown$  mark on the product are used for disassembly.

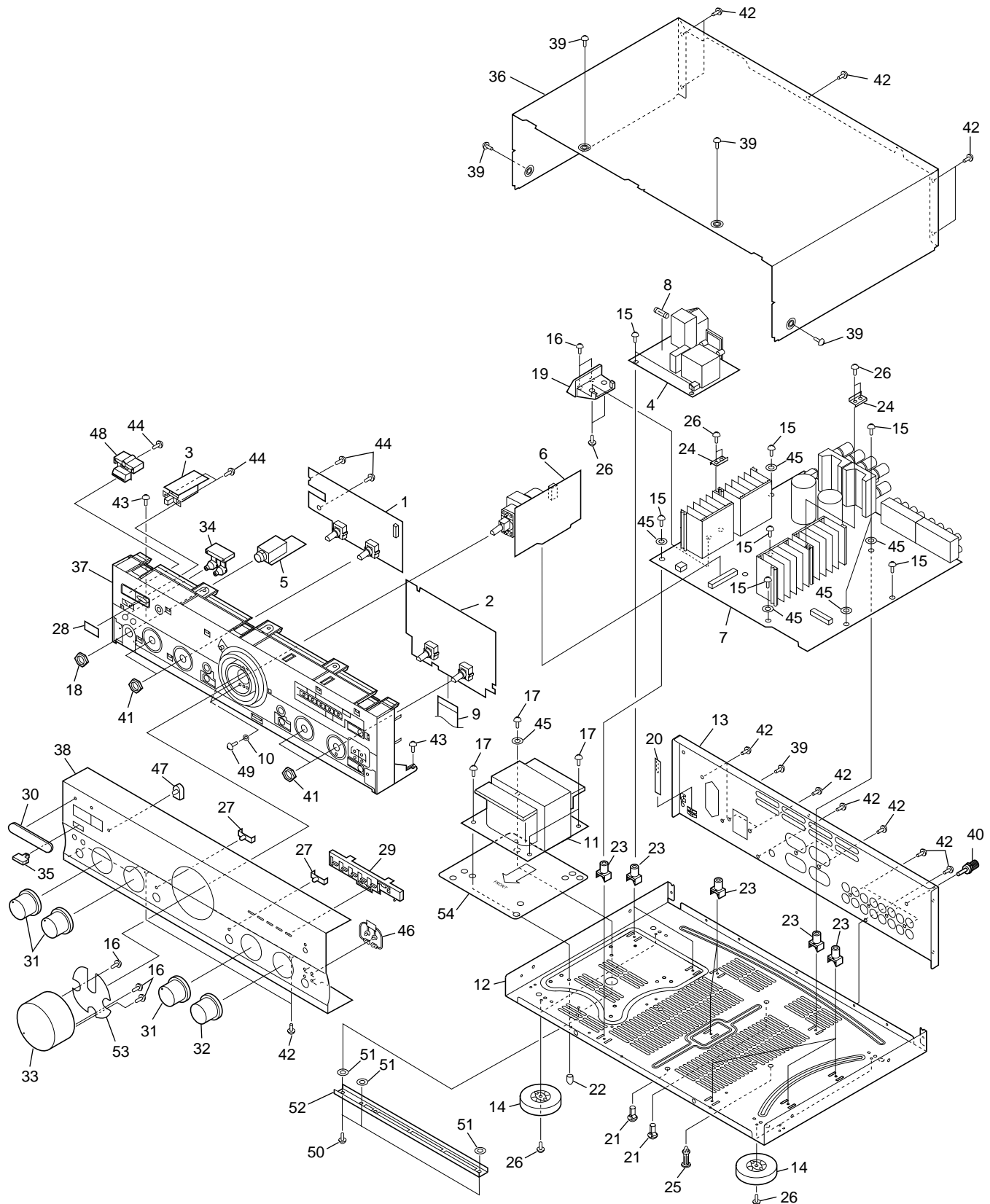
### 2.1 PACKING



### ● PACKING PARTS LIST

Mark	No.	Description	Part No.
	1	Operating Instructions (English)	ARB7238
	2	Operating Instructions (German)	ARC7326
	3	Operating Instructions (French/Italian/Dutch/Swedish/Spanish/Portuguese)	ARC7327
NSP	4	Warranty Card	ARY7022
	5	Remote Control Unit (CU-A018)	AXD7187
	6	Battery Cover	AZN2249
NSP	7	Dry Cell Battery (R6P,AA)	VEM-013
	8	Side Protector L	AHA7127
	9	Side Protector R	AHA7128
	10	●●●●●	
	11	Packing Case	AHD7898
NSP	12	Literature Bag	AHG-117
	13	Packing Sheet	AHG1016
	14	●●●●●	
$\Delta$	15	Power Cord	ADG1154

2.2 EXTERIOR

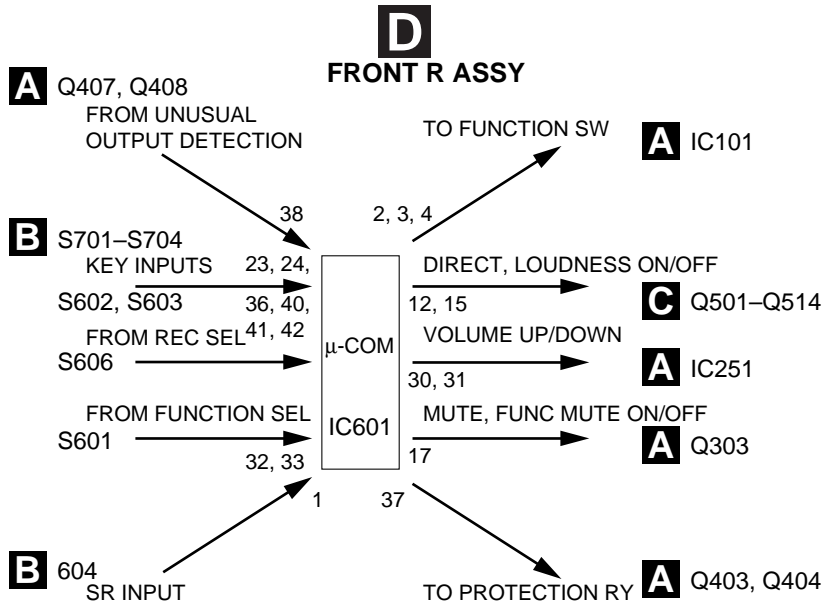
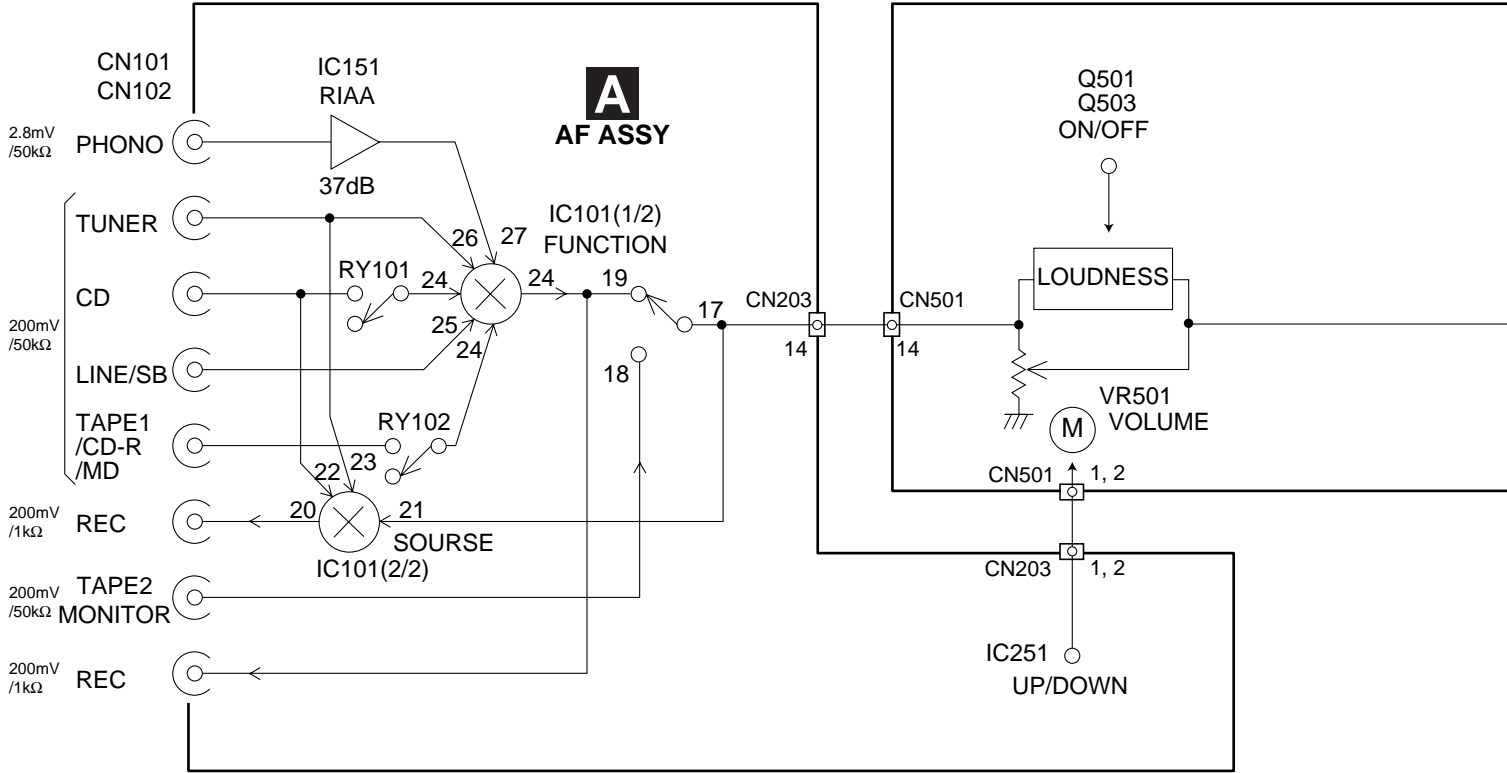


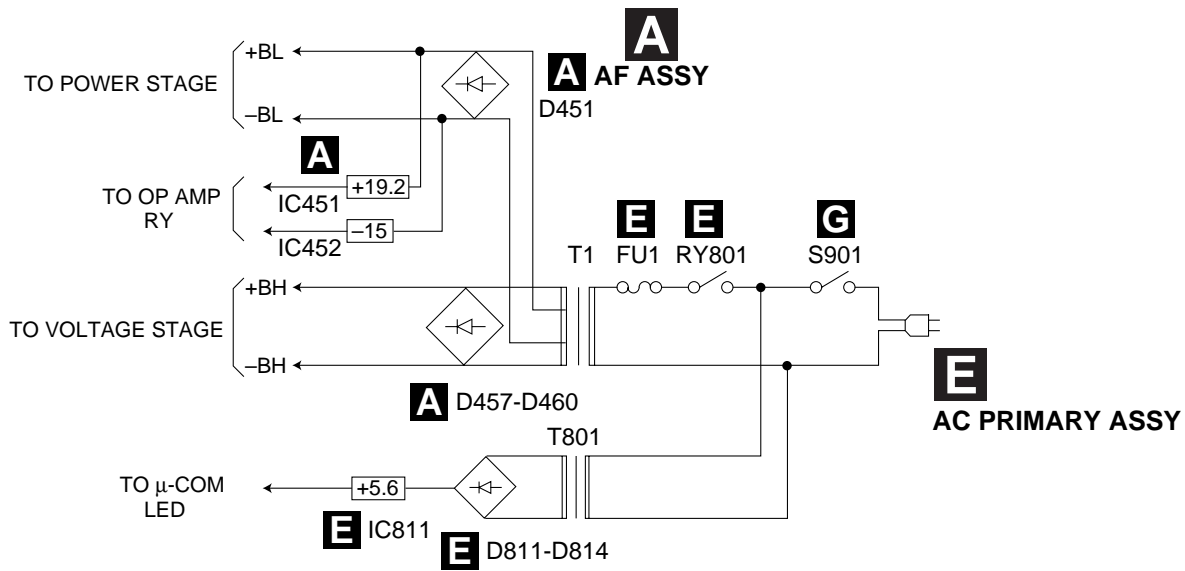
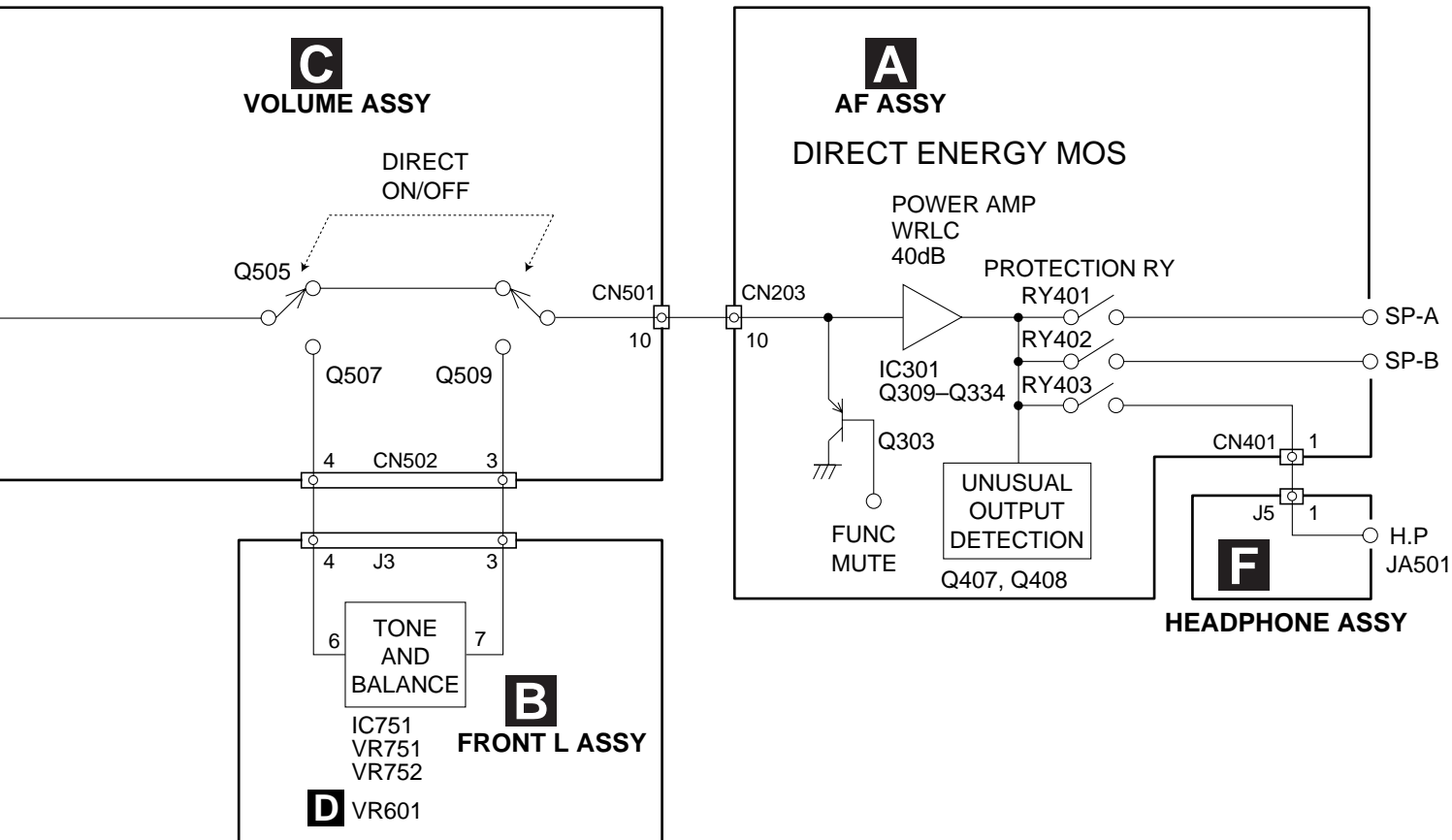
## ● EXTERIOR PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	FRONT L Assy	AWX7054		26	Screw	BBZ30P080FCC
	2	FRONT R Assy	AWX7718		27	LED Lens	AAK2459
	3	POWER SW Assy	AWX7057		28	IR Filter	AAK7532
	4	AC PRIMARY Assy	AWX7051		29	LED Lens T	AAK7544
NSP	5	HEADPHONE Assy	AWX7052		30	Name Plate B	PAN1376
	6	VOLUME Assy	AWX7055		31	Rotary Knob A	AAB7148
	7	AF Assy	AWX7631		32	Rotary Knob B	AAB7149
△	8	Fuse (FU1, T2A L250V)	AEK1057		33	Volume Knob	AAB7147
	9	Flexible Cable (J1, 21P) (AF CN202 - FRONT R CN601)	ADD1114		34	Speaker Button	AAD7435
	10	Washer	ABE1002		35	Main Power Button	AAD7437
△	11	Power Transformer (T1)	ATS7202		36	Bonnet Case	ANE7185
NSP	12	Chassis	ANA7048		37	Panel Base	AMB7484
	13	Rear Panel	ANC7960		38	Front Panel	ANB7242
	14	Insulator	PNW2766		39	Screw	BBT30P080FZK
	15	Screw	ABA1018		40	Terminal Screw	AKE-031
	16	Screw	ABA1050		41	Nut	NK90FUC
	17	Screw (4 × 12)	ABA1014		42	Screw	BBT30P080FCC
	18	Nut	ABN-065		43	Screw	BBZ30P060FCC
NSP	19	PCB Mold	AMR7222		44	Screw	BPZ30P080FMC
	20	Barrier	AEC7072		45	Washer	WG40FCC
NSP	21	PCB Holder	AEC7057		46	LED Lens B	AAK7538
	22	Stud Cover	AEC7096		47	LED Lens	PNW2019
NSP	23	PCB Mold	AMR1525		48	Power Button	AAD7436
NSP	24	Radiator Plate A	AMR7221		49	Screw	BMZ30P080FCU
	25	Locking Card Spacer	DEC1908		50	Screw	ABA1193
				NSP	51	Spacer	ABF7004
					52	Sub Flame	ANG7137
					53	Dump Plate	ANG7198
					54	Trans Plate	ANG7228

### 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

#### 3.1 BLOCK DIAGRAM





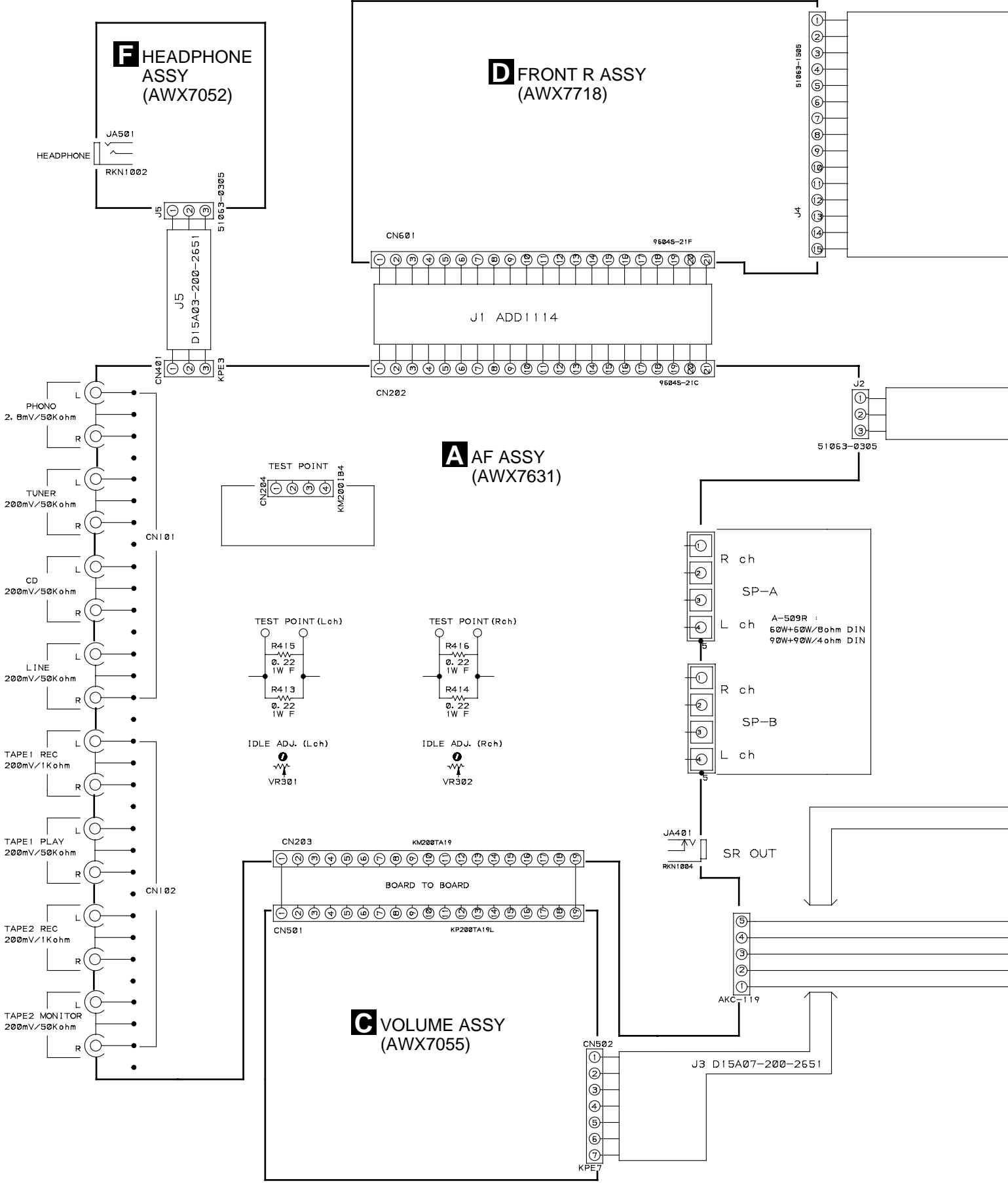
### 3.2 OVERALL CONNECTION DIAGRAM

A

B

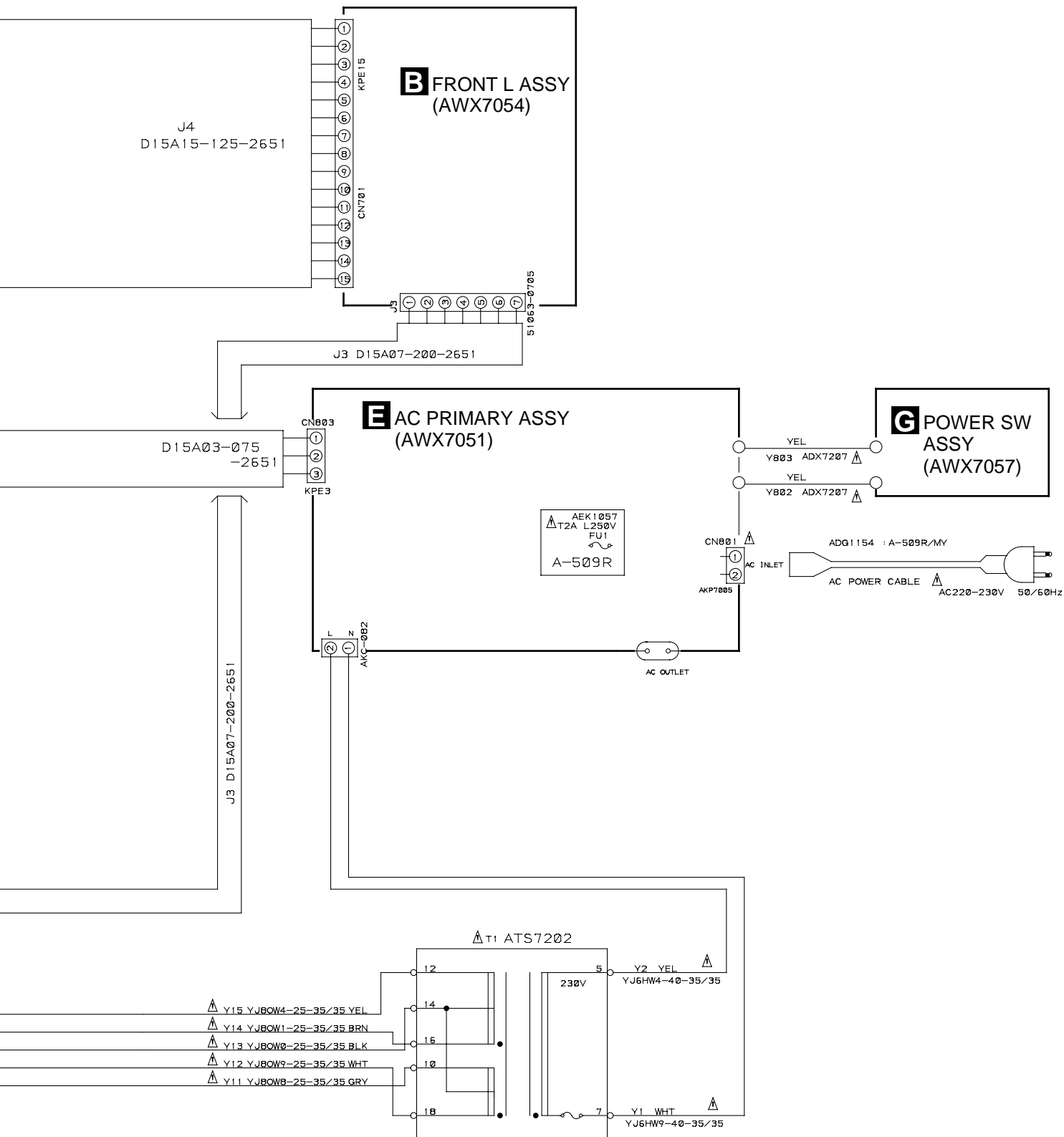
C

D





Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



A

B

C

D

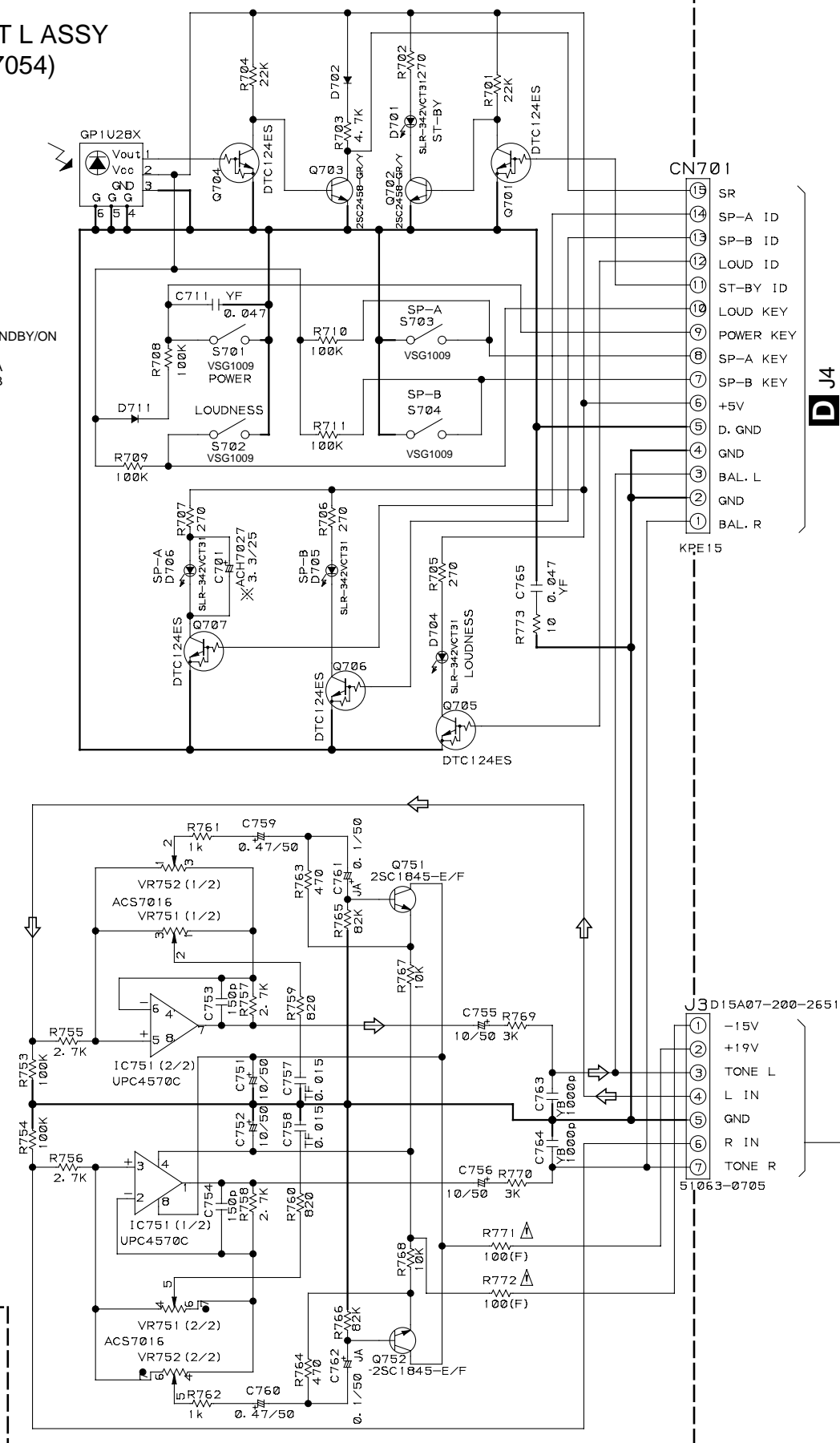




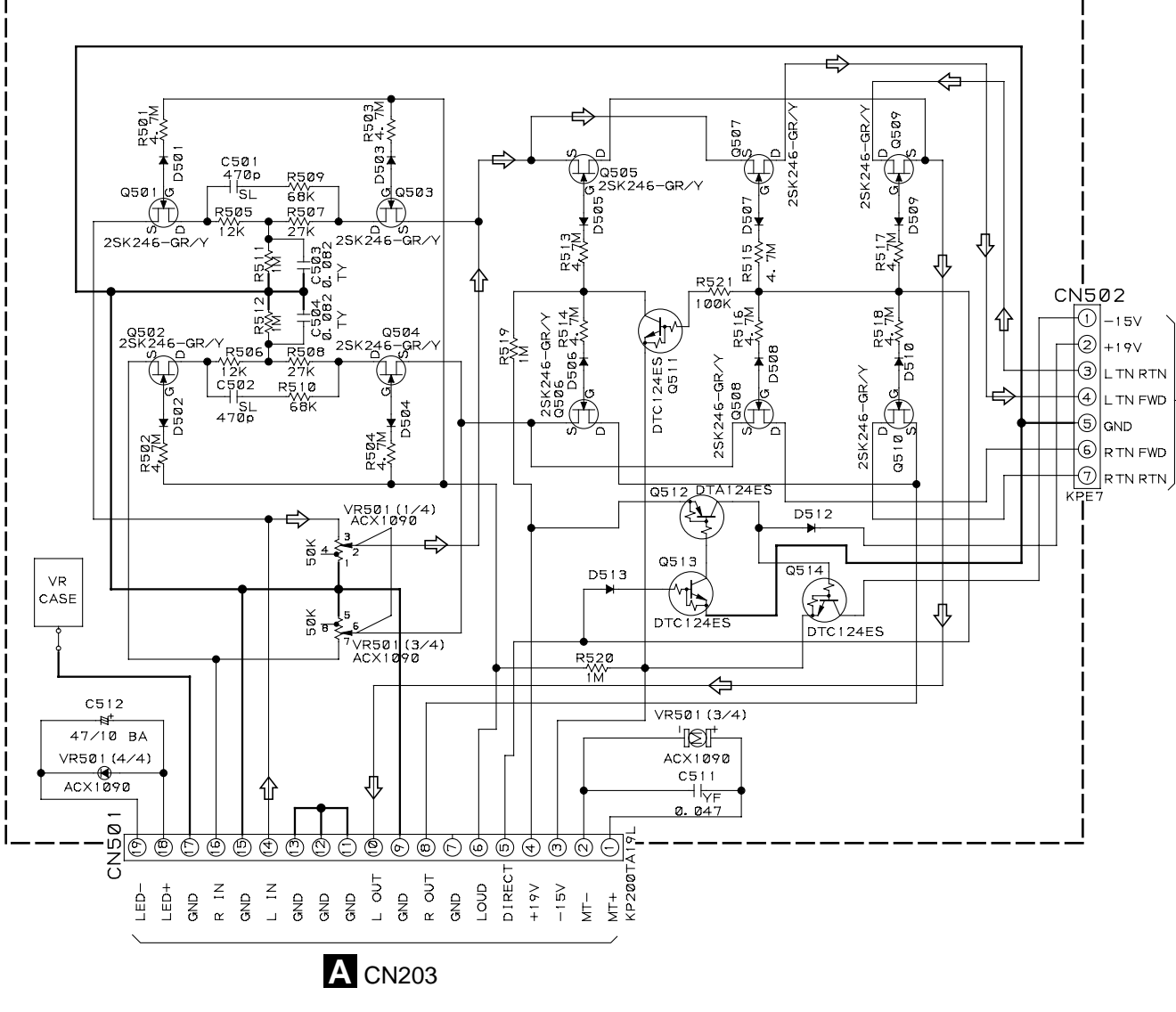
3.4 FRONT L and VOLUME ASSYS

**B** FRONT L ASSY (AWX7054)

FRONT L ASSY  
 S 701 : POWER STANDBY/ON  
 S 702 : LOUDNESS  
 S 703 : SPEAKERS A  
 S 704 : SPEAKERS B



# C VOLUME ASSY (AWX7055)



↗ : AUDIO SIGNAL ROUTE

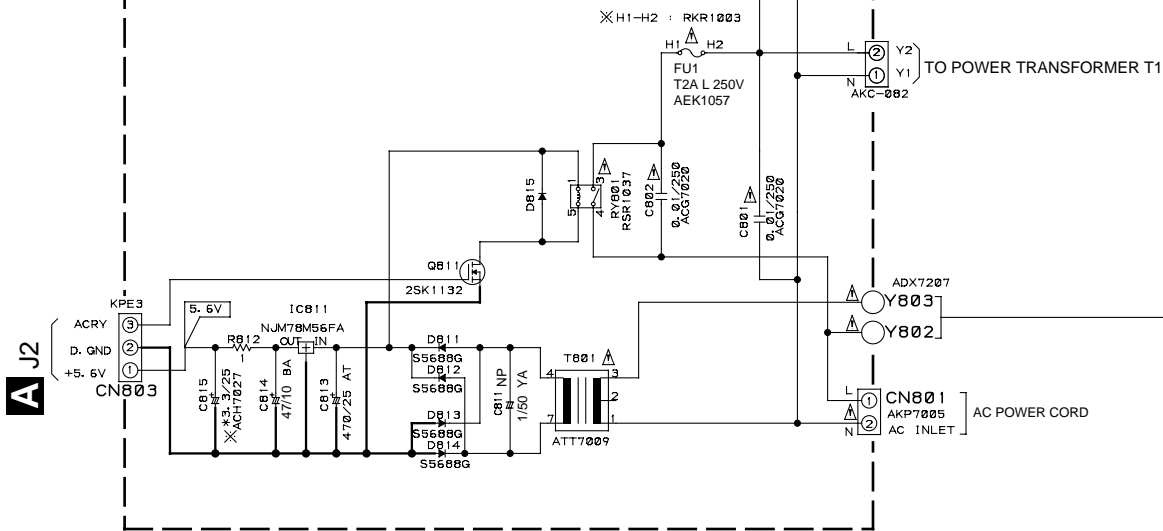
### NOTES

1. RESISTORS  
INDICATED IN Ohm 1/4W ± 5% TOLERANCE UNLESS OTHERWISE NOTED K: KOhm  
F, FL: NON-FRAGILE TYPE
2. CAPACITORS  
INDICATED IN CAPACITY (uF) / VOLTAGE (V) UNLESS OTHERWISE NOTED p: pF  
INDICATED WITHOUT VOLTAGE IS 50V EXCEPT ELECTROLYTIC CAPACITOR.  
TF: CFTLA TY: CFTYA  
JA: CEJA BA: CEBA
3. DIODES  
NO MARK DIODES ARE HSS104-02



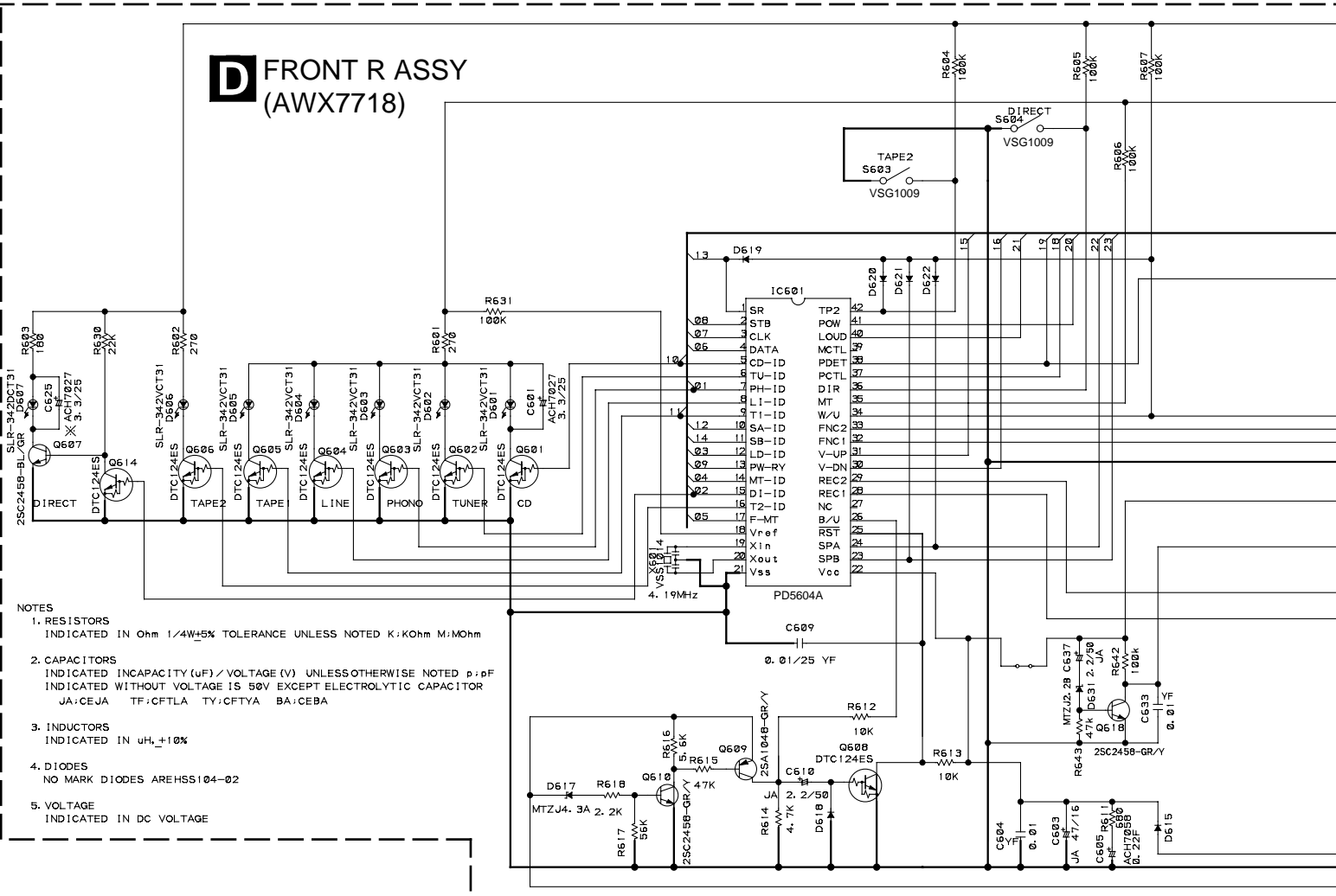
### 3.5 FRONT R, AC PRIMARY, HEADPHONE and POWER SW ASSYS

#### E AC PRIMARY ASSY (AWX7051)



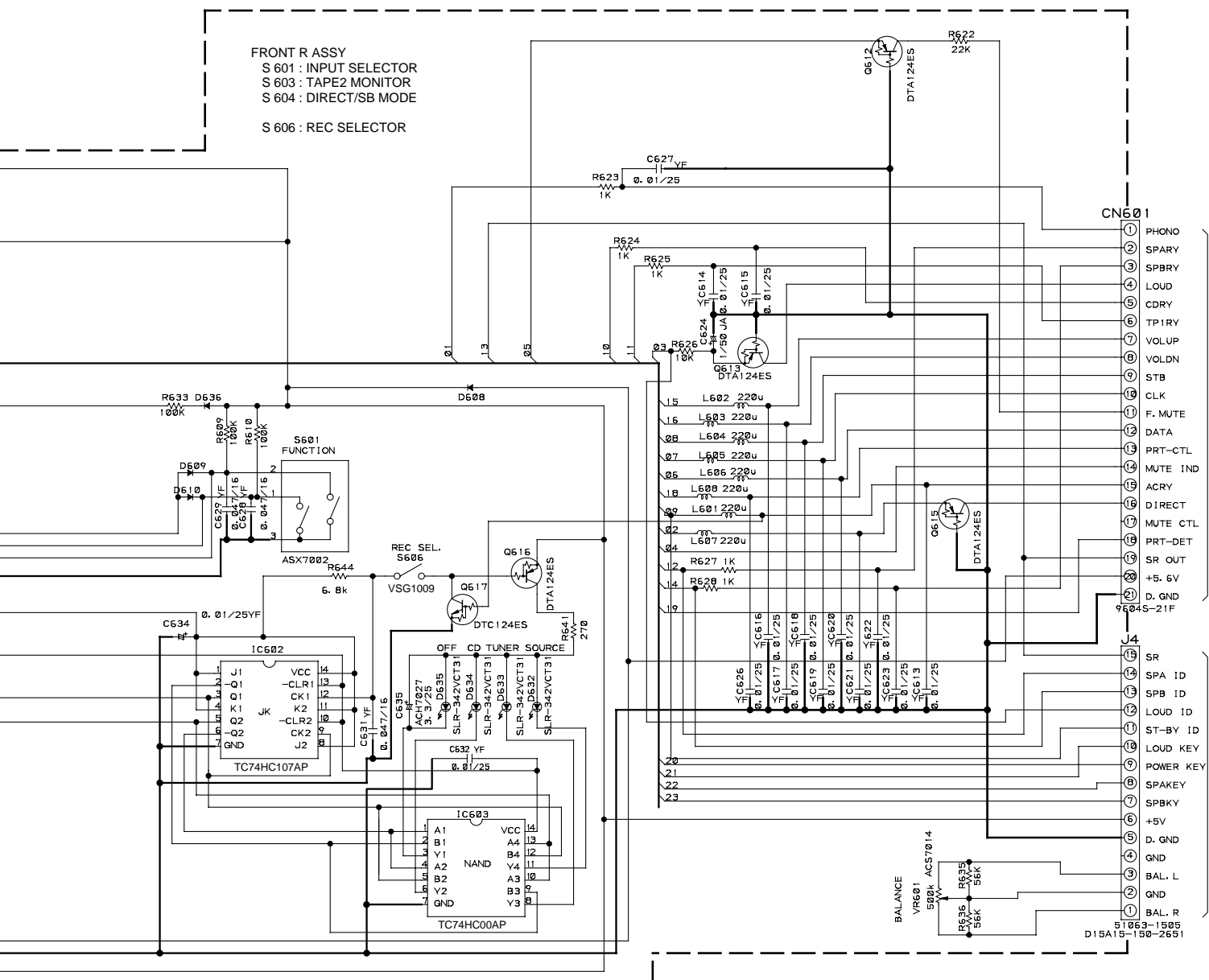
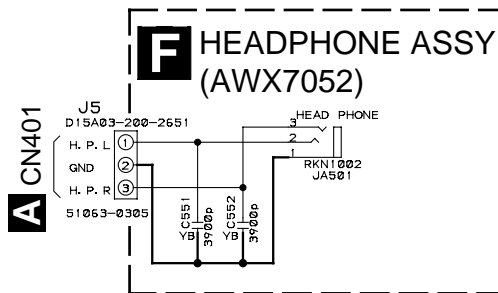
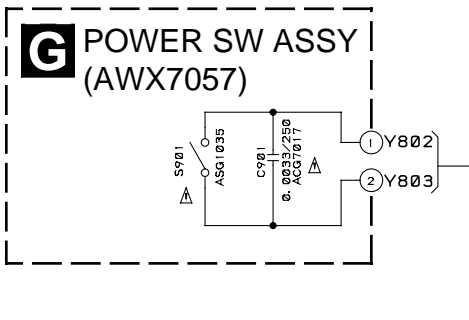
• NOTE FOR FUSE REPLACEMENT  
**CAUTION** -FOR CONTINUED PROTECTION AGAINST RISK OF FIRE,  
 REPLACE WITH SAME TYPE AND RATINGS ONLY.

#### D FRONT R ASSY (AWX7718)



- NOTES
1. RESISTORS  
INDICATED IN Ohm 1/4W±5% TOLERANCE UNLESS NOTED K:Kohm M: Mohm
  2. CAPACITORS  
INDICATED INCAPACITY (uF) / VOLTAGE (V) UNLESS OTHERWISE NOTED p: pF  
INDICATED WITHOUT VOLTAGE IS 50V EXCEPT ELECTROLYTIC CAPACITOR  
JA:CEJA TF:CFTLA TY:CFTYA BA:CEBA
  3. INDUCTORS  
INDICATED IN uH, ±10%
  4. DIODES  
NO MARK DIODES AREHSS104-02
  5. VOLTAGE  
INDICATED IN DC VOLTAGE





# 4. PCB CONNECTION DIAGRAM

## 4.1 AF ASSY

**A**  
AF ASSY

POWER TRANSFORMER T1

**E**  
CN803

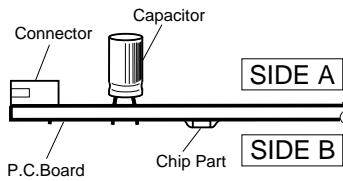
**NOTE FOR PCB DIAGRAMS:**

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

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		MOS Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destination.  
For further information for respective destinations, be sure to check with the schematic diagram.

4. Viewpoint of PCB diagrams

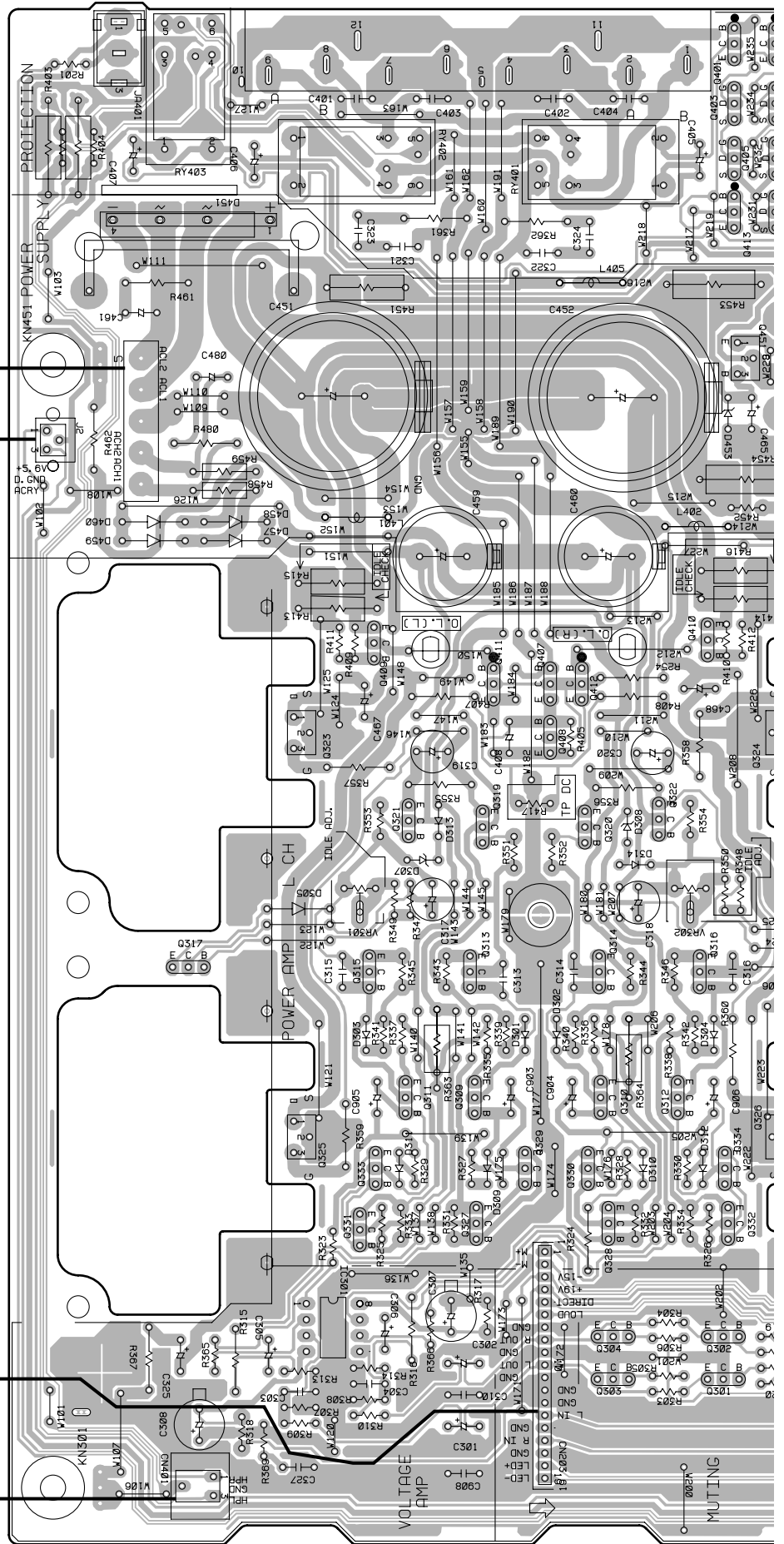


**SIDE A**

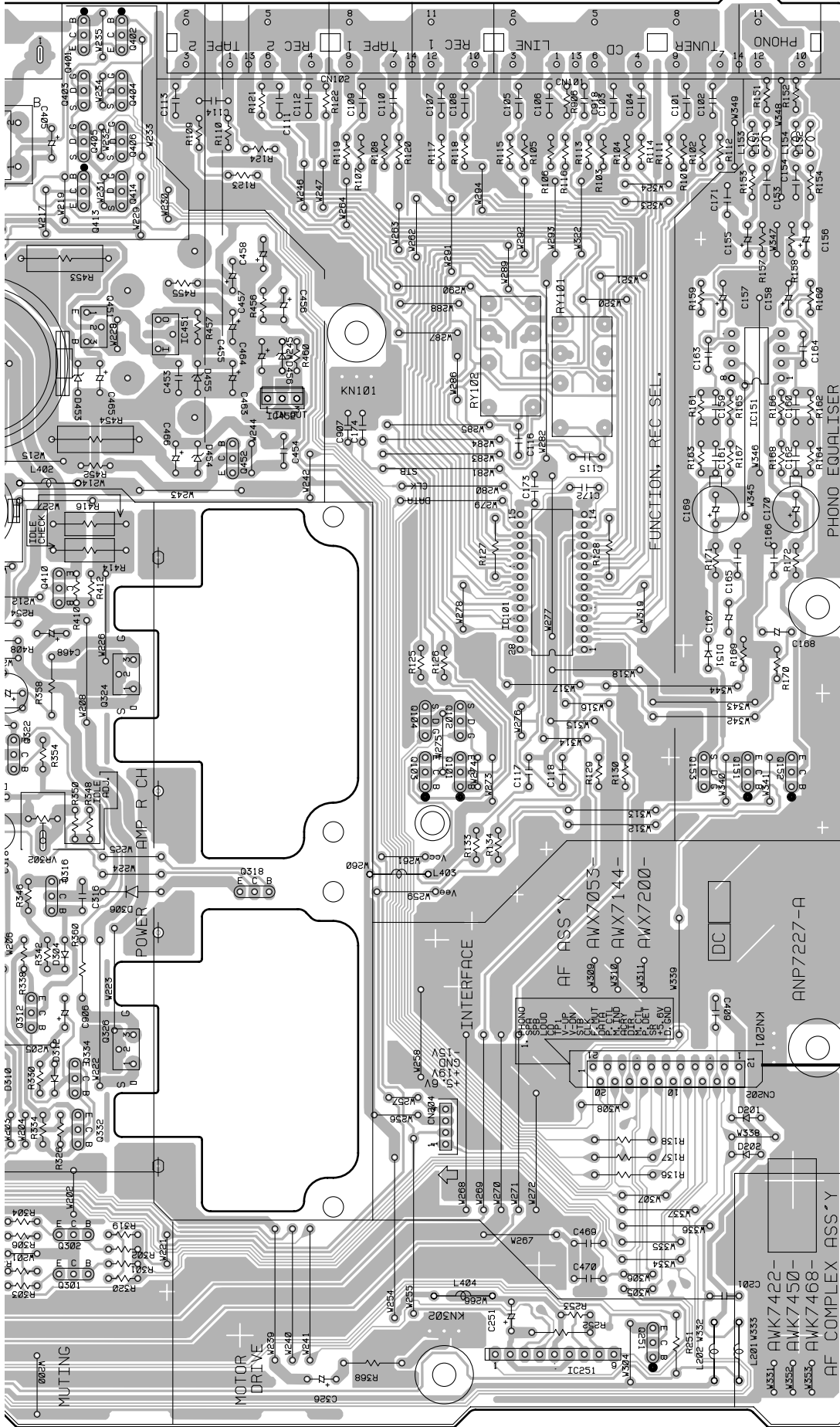
**C**  
CN501

**F**  
J5

**A**







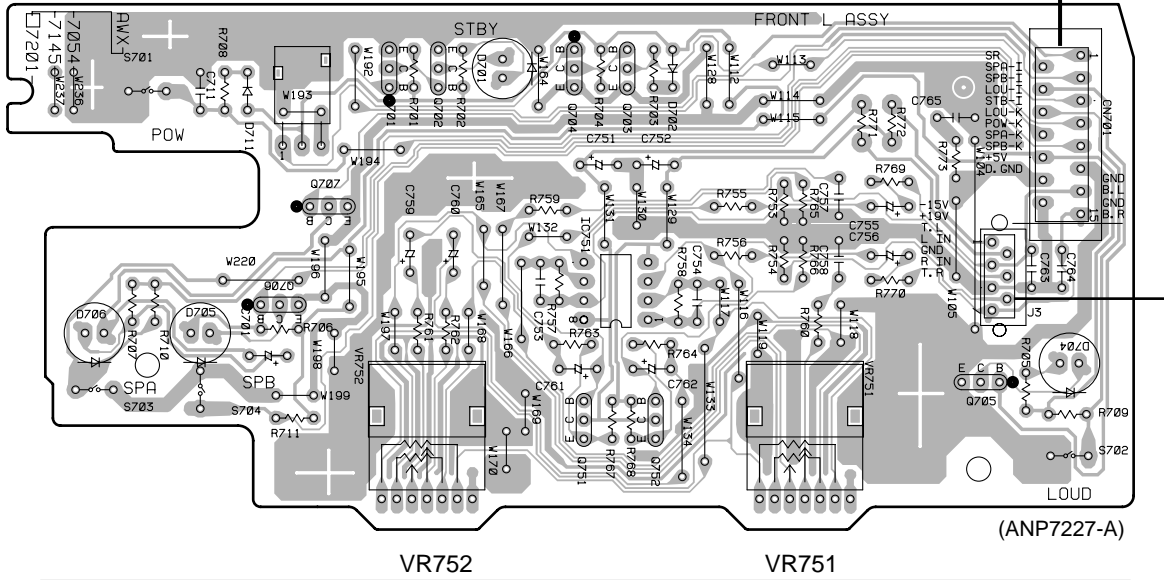
- Q401
- Q406
- Q413 Q414
- Q451 IC451 IC151 IC452
- Q452
- IC101
- Q409 Q410 Q411 Q407 Q412 Q323 Q408 Q324
- Q319 Q101 Q151 Q322 Q104 Q153
- VR301 VR302
- Q313 Q318
- D** CN601
- Q309 Q312 Q325
- Q334
- IC301 Q301 Q304
- IC251 Q251

(ANP7227-A)



4.2 FRONT L and VOLUME ASSYS

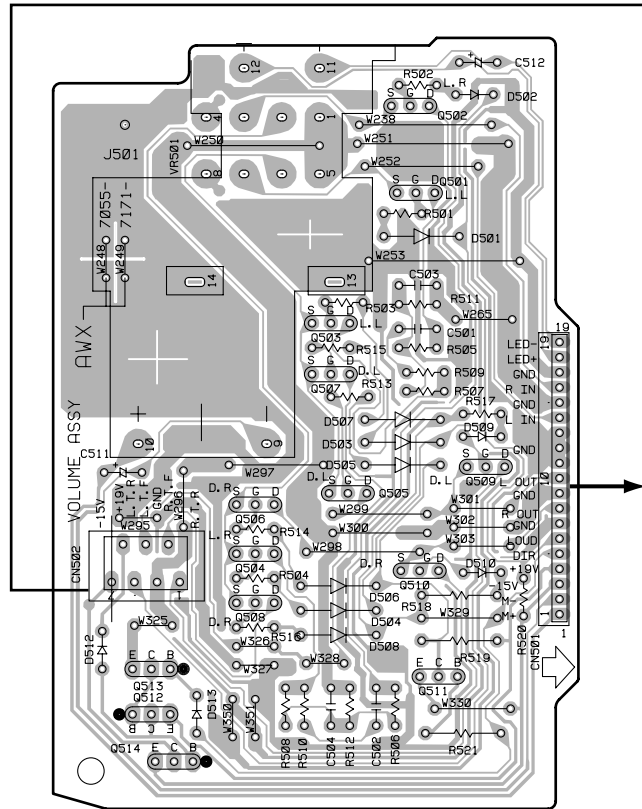
**B** FRONT L ASSY



Q707  
Q701 Q702 Q704 Q703  
IC751  
Q751 Q752  
Q705  
Q706

**SIDE A**

Q502  
Q501  
Q503  
Q507  
Q509  
Q506 Q505  
Q504  
Q510  
Q508  
Q513  
Q511  
Q512  
Q514

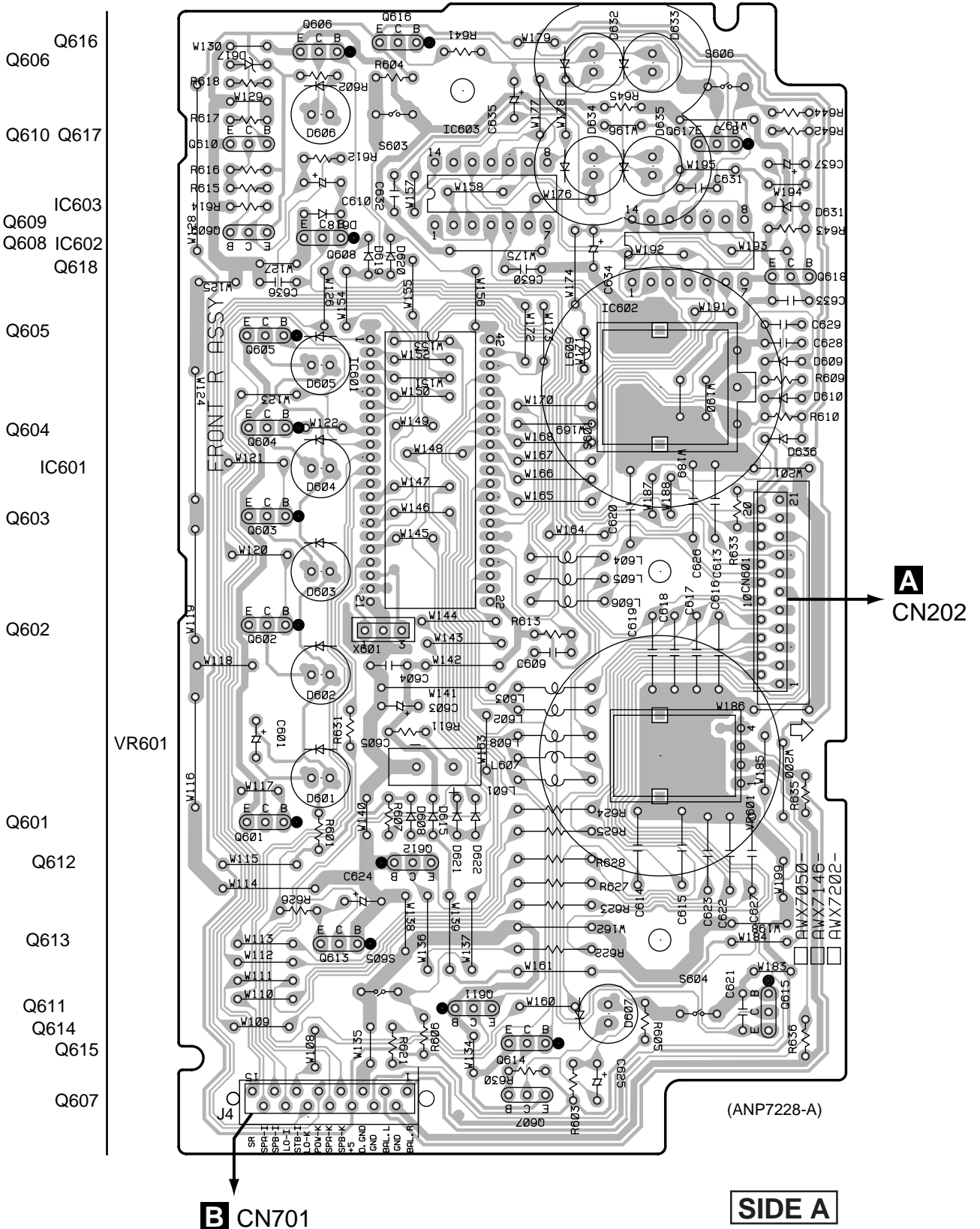


**C** VOLUME ASSY

(ANP7227-A)

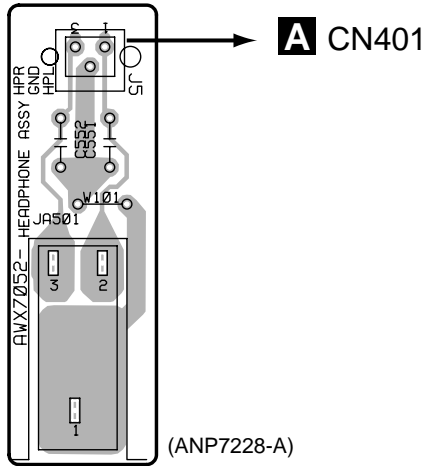
4.3 FRONT R ASSY

**D** FRONT R ASSY

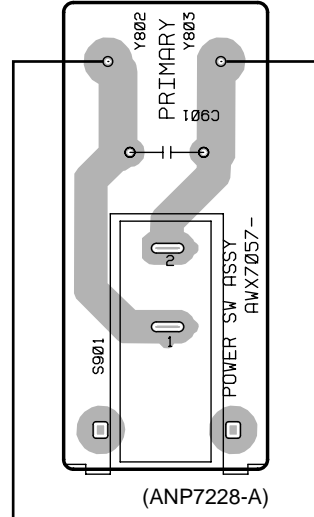


### 4.4 AC PRIMARY, HEADPHONE and POWER SW ASSYS

#### F HEADPHONE ASSY

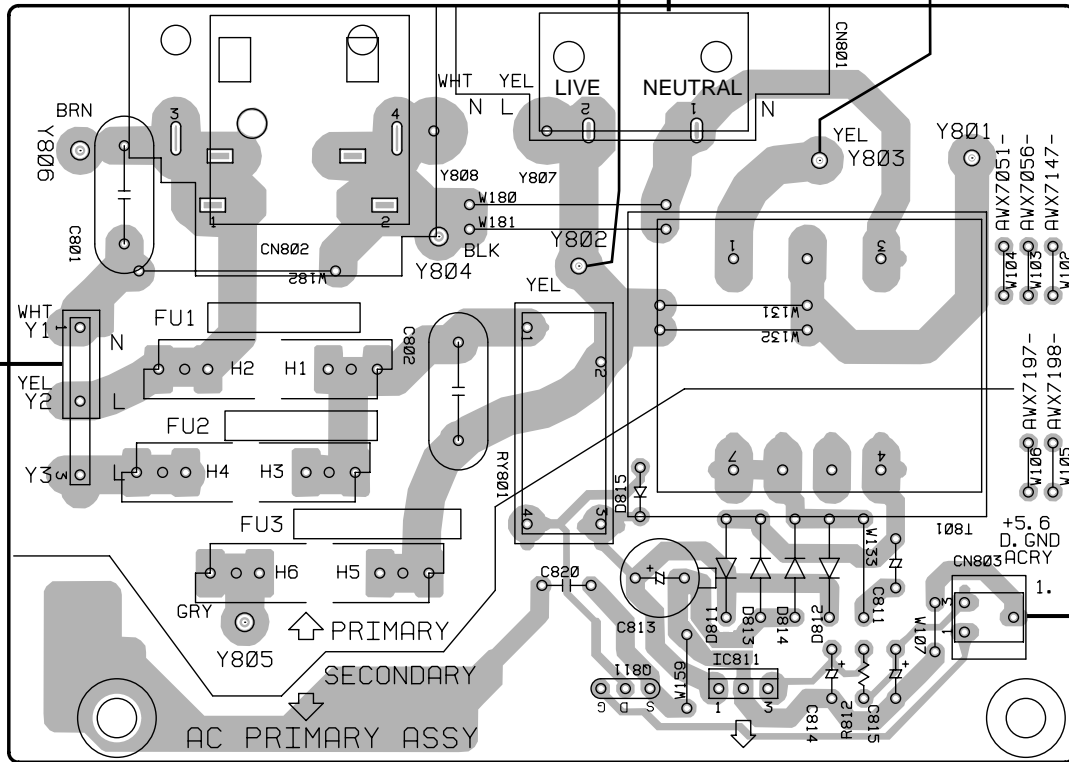


#### G POWER SW ASSY



POWER TRANSFORMER T1

AC POWER CORD



#### E AC PRIMARY ASSY

(ANP7228-A)

A J2

Q811 IC811

SIDE A

# 5. PCB PARTS LIST

- NOTES: ●Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.  
 ●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%).  
 $560 \Omega \rightarrow 56 \times 10^1 \rightarrow 561 \dots\dots\dots RD1/4PU \boxed{5} \boxed{6} \boxed{1} J$   
 $47k \Omega \rightarrow 47 \times 10^3 \rightarrow 473 \dots\dots\dots RD1/4PU \boxed{4} \boxed{7} \boxed{3} J$   
 $0.5 \Omega \rightarrow R50 \dots\dots\dots RN2H \boxed{R} \boxed{5} \boxed{0} K$   
 $1 \Omega \rightarrow 1R0 \dots\dots\dots RSIP \boxed{1} \boxed{R} \boxed{0} K$   
 Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).  
 $5.62k \Omega \rightarrow 562 \times 10^1 \rightarrow 5621 \dots\dots\dots RN1/4PC \boxed{5} \boxed{6} \boxed{2} \boxed{1} F$

Mark	No.	Description	Part No.
NSP	AF COMPLEX ASSY		AWK7625
	└ AF ASSY		AWX7631
	└ FRONT L ASSY		AWX7054
	└ VOLUME ASSY		AWX7055
NSP	CONTROL ASSY		AWG7022
	└ FRONT R ASSY		AWX7718
	└ AC PRIMARY ASSY		AWX7051
NSP	└ HEADPHONE ASSY		AWX7052
	└ POWER SW ASSY		AWX7057

Mark	No.	Description	Part No.
	D455		MTZJ4.7A
	D457-D460		S5688G
<b>COILS</b>			
	L201,L202,L401,L403,L405,L406		ATX1012
	BEADS FILTER		
<b>RELAYS</b>			
	RY401-RY403		ASR7014
	RY101,RY102		RSR1026

## **A** AF ASSY SEMICONDUCTORS

IC151	M5220P
IC451	NJM78M15FA
IC452	NJM79M05FA
IC251	TA8409S
IC101	TC9163AN
IC301	UPC4570C
Q327,Q328,Q409,Q410	2SA1048
Q321,Q322	2SA970
Q311-Q314,Q329,Q330	2SA992
Q309,Q310,Q315,Q316	2SC1845
Q333,Q334	2SC1845
Q319,Q320	2SC2240
Q317,Q318,Q331,Q332	2SC2458
Q407,Q408	2SC2458
Q303,Q304	2SC2878
Q451	2SC4793
Q102,Q104,Q153,Q403-Q406	2SK1132
Q414	2SK1132
Q401,Q402,Q413	DTA114ES
Q101,Q103,Q151	DTA124ES
Q152,Q251	DTC124ES
Q411,Q412	DTC143ES
Q323,Q324	IRF540A(S)
Q325,Q326	IRF9540A(S)
$\Delta$ D451	D5SBA20
D151,D201,D202,D301-D306	HSS104-02
D309-D314	HSS104-02
D307,D308	HZS9A1L
D456	MTZJ10C
D453	MTZJ36B

<b>CAPACITORS</b>		
C461 (1 $\mu$ F/100V)		ACH1237
C457,C458 (3.3 $\mu$ F/25V)		ACH7027
C451 (10000 $\mu$ F/43V)		ACH7085
C452 (10000 $\mu$ F/43V)		ACH7086
C153,C154		CCCSL221J50
C303,C304		CCCSL221K2H
C313-C316		CCCSL330K2H
C167,C168		CEANP1R0M50
C408		CEANP470M10
C155,C156,C465		CEAT100M50
C169,C170		CEAT101M25
C459,C460		CEAT102M63
C307,C308		CEAT221M25
C467,C468		CEAT2R2M2A
C251		CEAT470M25
C157,C158		CEAT471M6R3
C305,C306,C455,C456		CEBA100M50
C463,C464		CEBA100M50
C405-C407		CEBA2R2M50
C301,C302		CEBA3R3M50
C317,C318		CEBA470M50
C325,C326		CEBAR47M50
C319,C320		CECA470M50
C115,C116,C201,C321-C324		CFTYA224J50
C161,C162,C470		CFTYA823J50
C165,C166		CKCYB222K50
C117,C118,C171,C310,C327		CKCYF473Z50
C409,C453,C454		CKCYF473Z50
C172-C174		CKPUYB102K50
C159,C160		CQMA243J50



# A-509R

Mark	No.	Description	Part No.
<b>RESISTORS</b>			
△	R458,R459		RD1/4LMF2R2J
△	R133,R134,R171,R172		RD1/4MUF101J
△	R317,R318,R351-R354,R417		RD1/4MUF101J
△	R339-R346		RD1/4MUF221J
△	R331-R334		RD1/4MUF391J
△	R452		RD1/4MUF4R7J
△	R125,R126		RD1/4MUF821J
△	R367,R368		RD1/4PMF100J
△	R355,R356		RD1/4PMF222J
△	R461		RD1/4PMF470J
△	R361,R362		RD1/4PMF4R7J
△	R462		RD1/4PU100J
△	R460		RD1/4PU472J
△	R363,R364		RDR1/2PM152J
△	R315,R316		RDR1/4PM561J
△	R357-R360		RFA1/4PS101J
△	R349,R350		RN1/4PC3901F
△	R451		RS1LMF330J
△	R413-R416		RS1LMFR22J
△	R453		RS2LMF122J
△	R403,R404		RS2LMF331J
	VR301,VR302 (2.2kΩ)		VCP1123
	Other Resistors		RD1/4PU□□□J

## OTHERS

	CABLE HOLDER (3P)	51063-0305
CN202	21P FFC CONNECTOR	9604S-21C
	SCREW	ABA-298
	SCREW	ABA1007
	SCREW	ABA1052
CN101,CN102	PIN JACK(8P)	AKB7023
	SPEAKER TERMINAL 8-P	AKE1011
	HEAT SINK M	ANH-697
	HEAT SINK B	ANH1021
J2	JUMPER WIRE	D15A03-075-2651
CN204	4P PLUG	KM200IB4
CN203	19P PLUG	KM200TA19
CN401	CONNECTOR (3P)	KPE3
JA401	REMOTE CONTROL JACK	RKN1004
	PCB BINDER	VEF1040
KN101,KN201,KN301,KN302,KN451	EARTH METAL FITTING	VNF1084

## B FRONT L ASSY

### SEMICONDUCTORS

IC751	UPC4570C
Q751,Q752	2SC1845
Q702,Q703	2SC2458
Q701,Q704-Q707	DTC124ES
D702,D711	HSS104-02
D701,D704-D706	SLR-342VCT31

### SWITCHES

S701-S704	VSG1009
-----------	---------

Mark	No.	Description	Part No.
<b>CAPACITORS</b>			
	C701 (3.3μF/25V)		ACH7027
	C753,C754		CCCSL151J50
	C751,C752,C755,C756		CEAT100M50
	C759,C760		CEATR47M50
	C761,C762		CEJAR10M50
	C757,C758		CFTLA153J50
	C765		CKCYF473Z50
	C763,C764		CKPUYB102K50
	C711		CKPUYF473Z16

### RESISTORS

R771,R772	RD1/4MUF101J
VR751,VR752 (30kΩ)	ACS7016
Other Resistors	RD1/4PU□□□J

### OTHERS

	CABLE HOLDER (7P)	51063-0705
J3	JUMPER WIRE	D15A07-200-2651
CN701	CONNECTOR (15P)	KPE15
	REMOTE RECEIVER UNIT	GP1U28X

## C VOLUME ASSY

### SEMICONDUCTORS

Q501-Q510	2SK246
Q512	DTA124ES
Q511,Q513,Q514	DTC124ES
D501-D510,D512,D513	HSS104-02

### CAPACITORS

C501,C502	CCCSL471J50
C512	CEBA470M10
C503,C504	CFTYA823J50
C511	CKCYF473Z50

### RESISTORS

VR501 (50kΩ)	ACX1090
Other Resistors	RD1/4PU□□□J

### OTHERS

CN501 19P SOCKET	KP200TA19L
CN502 CONNECTOR (7P)	KPE7

## D FRONT R ASSY

### SEMICONDUCTORS

IC601	PD5604A
IC603	TC74HC00AP
IC602	TC74HC107AP
Q609	2SA1048
Q607,Q610,Q618	2SC2458
Q612,Q613,Q615,Q616	DTA124ES
Q601-Q606,Q608,Q614,Q617	DTC124ES
D608-D610,D615,D618-D622	HSS104-02
D636	HSS104-02
D631	MTZJ2.2B
D617	MTZJ4.3A
D607	SLR-342DCT31
D601-D606,D632-D635	SLR-342VCT31

Mark	No.	Description	Part No.
<b>COILS</b>			
	L601-L608		LAU221J
<b>SWITCHES</b>			
	S603,S604,S606 S601		VSG1009 ASX7002
<b>CAPACITORS</b>			
	C601,C625,C635 (3.3μF/25V) C605 (0.22F) C624 C610,C637 C603		ACH7027 ACH7058 CEJA1R0M50 CEJA2R2M50 CEJA470M16
	C604 C609,C613-C623,C626,C627 C632-C634 C628,C629,C631		CKCYF103Z50 CKPUYF103Z25 CKPUYF103Z25 CKPUYF473Z16
<b>RESISTORS</b>			
	VR601 (500KΩ) Other Resistors		ACS7014 RD1/4PU□□□J
<b>OTHERS</b>			
	X601 CERAMIC RESONATOR (4.19MHz) CABLE HOLDER (15P) CN601 21P FFC CONNECTOR J4 JUMPER WIRE		VSS1014 51063-1505 9604S-21F D15A15-125-2651
<b>E AC PRIMARY ASSY</b>			
<b>SEMICONDUCTORS</b>			
	IC811 Q811 D815 D811-D814		NJM78M56FA 2SK1132 HSS104-02 S5688G
<b>TRANSFORMER</b>			
△	T801		ATT7009
<b>RELAY</b>			
△	RY801		RSR1037
<b>CAPACITORS</b>			
△	C801,C802 (0.01μF/AC250V) C815 (3.3μF/25V) C813 C814 C811		ACG7020 ACH7027 CEAT471M25 CEBA470M10 CEYANP1R0M50
<b>RESISTORS</b>			
	All Resistors		RD1/4PU□□□J
<b>OTHERS</b>			
△	Y802,Y803 BOARDIN READ WIRE		ADX7207
△	CN802 AC SOCKET 1P		AKP1034
△	CN801 AC INLET		AKP7005
	CN803 CONNECTOR (3P)		KPE3
	H1,H2 FUSE HOLDER		RKR1003

Mark	No.	Description	Part No.
<b>F HEADPHONE ASSY</b>			
<b>CAPACITORS</b>			
	C551,C552		CKCYB392K50
<b>OTHERS</b>			
	J5 CABLE HOLDER (3P) JUMPER WIRE JA501 HEADPHONE JACK		51063-0305 D15A03-150-2651 RKN1002
<b>G POWER SW ASSY</b>			
<b>SWITCH</b>			
△	S901		ASG1035
<b>CAPACITOR</b>			
△	C901 (0.0033μF/AC250V)		ACG7017

## 6. ADJUSTMENTS

### 6.1 IDLE CURRENT ADJUSTMENT

- CAUTION : Heatsinks' (Q323–Q326) DC level is equal to +B or -B.  
Don't touch them or you will be electrically shocked.

1. Connect the measuring instrument as Fig.6-1. (R415 or R416)
2. Set the VOLUME CONTROL to minimum, BASS TONE CONTROL to center, TREBLE TONE CONTROL to center and BALANCE CONTROL to center. Set VR301 and VR302 to minimum.
3. Set the POWER switch to ON.
4. Adjust VR301 (VR302) so that the voltage between both sides of R415 (R416) becomes  $16\text{mV} \pm 1\text{mV}$ . (Within 10 seconds from when the relay is turned ON)
5. Ages for 7 minutes.
6. Adjust VR301 (VR302) so that the voltage between both sides of R415 (R416) becomes  $11\text{mV} \pm 1\text{mV}$ .

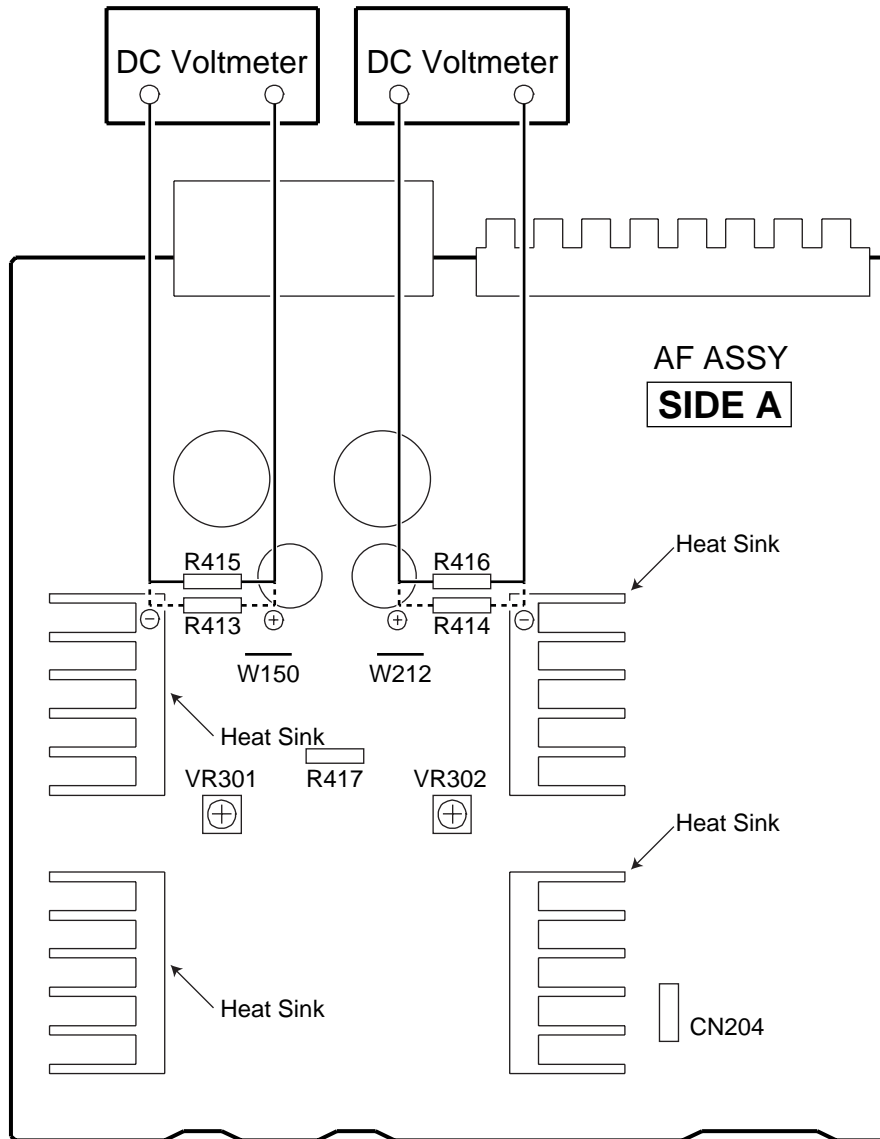


Fig.6-1 Adjustment Method



# 7. GENERAL INFORMATION

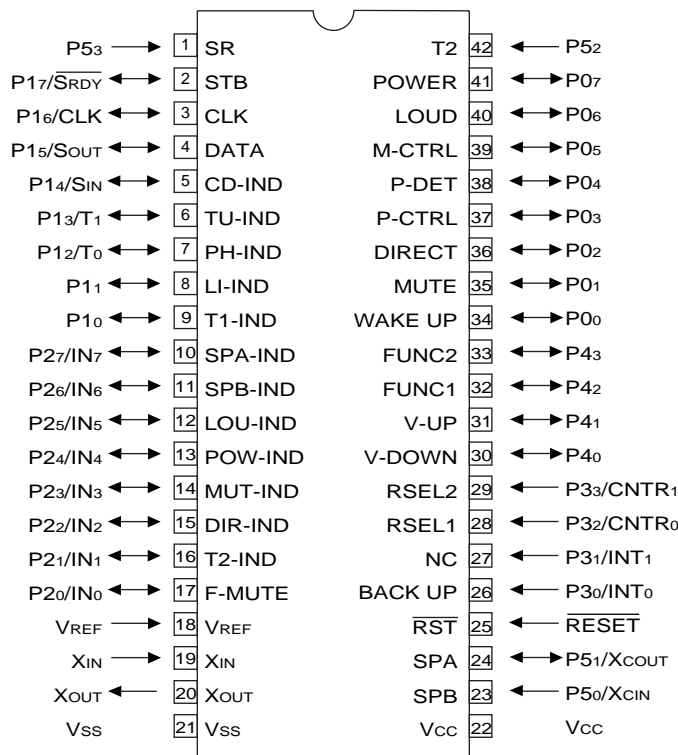
## 7.1 IC

### ■ PD5604A (FRONT R ASSY : IC601)

• REMOTE CONTROL AMP MICROCOMPUTER

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

• Pin Assignment (Top view)



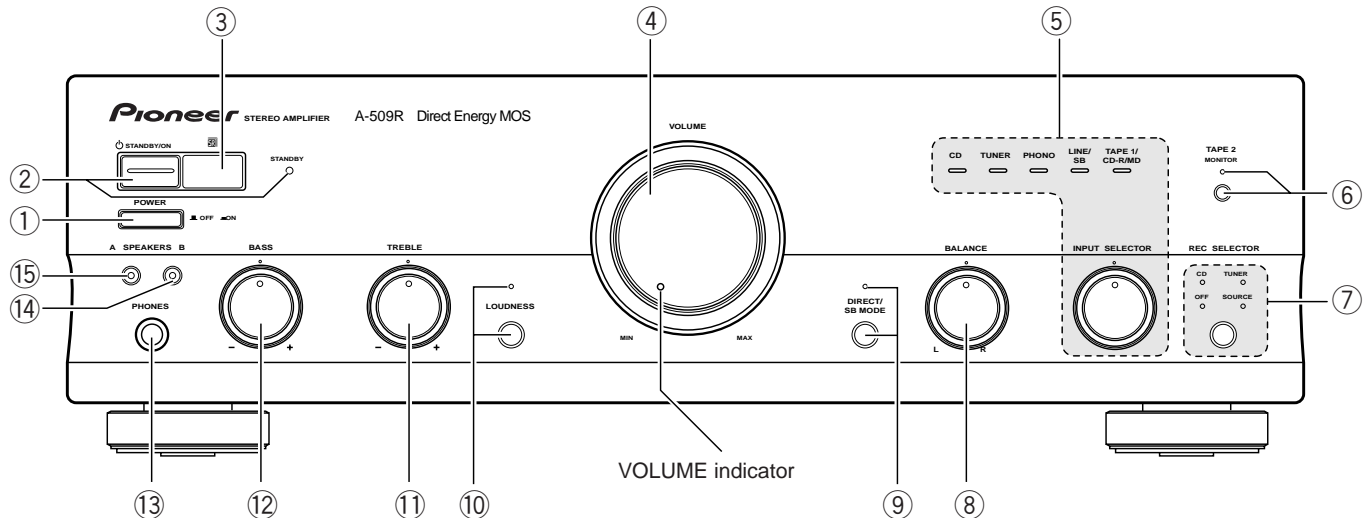
• Pin Function

No.	Pin name	I/O	Function
1	P5 <sub>3</sub>	I	Remote control signal input pin.
2	P1 <sub>7</sub> /S <sub>RDY</sub>	O	STB for TC9163N.
3	P1 <sub>6</sub> /CLK	O	CLOCK for TC9163N.
4	P1 <sub>5</sub> /S <sub>OUT</sub>	O	DATA for TC9163N.
5	P1 <sub>4</sub> /S <sub>IN</sub>	O	CD INDICATOR.
6	P1 <sub>3</sub> /T <sub>1</sub>	O	TUNER INDICATOR.
7	P1 <sub>2</sub> /T <sub>0</sub>	O	PHONO INDICATOR.
8	P1 <sub>1</sub>	O	LINE INDICATOR.
9	P1 <sub>0</sub>	O	TAPE1 INDICATOR.
10	P2 <sub>7</sub> /IN <sub>7</sub>	O	SPEAKER-A INDICATOR.
11	P2 <sub>6</sub> /IN <sub>6</sub>	O	SPEAKER-B INDICATOR.
12	P2 <sub>5</sub> /IN <sub>5</sub>	O	LOUDNESS INDICATOR.
13	P2 <sub>4</sub> /IN <sub>4</sub>	O	POWER (STAND-BY) INDICATOR.
14	P2 <sub>3</sub> /IN <sub>3</sub>	O	MUTE INDICATOR. MUTE ON : Repeats H and L every 1 second. Normal : "H"
15	P2 <sub>2</sub> /IN <sub>2</sub>	O	DIRECT INDICATOR.
16	P2 <sub>1</sub> /IN <sub>1</sub>	O	TAPE2 INDICATOR.
17	P2 <sub>0</sub> /IN <sub>0</sub>	O	FUNCTION switch MUTE.
18	V <sub>REF</sub>	I	Pulls up to 5V.
19	X <sub>IN</sub>	I	4.19MHz .
20	X <sub>OUT</sub>	O	Ceramic vibrating and connecting terminal.
21	V <sub>SS</sub>	-	Digital GND.
22	V <sub>CC</sub>	-	Power supply +5V.
23	P5 <sub>0</sub> /X <sub>CIN</sub>	I	SPEAKER-B KEY input.

No.	Pin name	I/O	Function
24	P5 <sub>1</sub> /X <sub>COUT</sub>	I	SPEAKER-A KEY input.
25	RESET	I	Reset pin.
26	P3 <sub>0</sub> /INT <sub>0</sub>	I	BACK UP detection pin. interrupt specification.
27	P3 <sub>1</sub> /INT <sub>1</sub>	O	Not used.
28	P3 <sub>2</sub> /CNTR <sub>0</sub>	I	REC selector input 1.
29	P3 <sub>3</sub> /CNTR <sub>1</sub>	I	REC selector input 2. interrupt specification.
30	P4 <sub>0</sub>	O	Volume DOWN data output.
31	P4 <sub>1</sub>	O	Volume UP data output.
32	P4 <sub>2</sub>	I	FUNCTION selector input 1.
33	P4 <sub>3</sub>	I	FUNCTION selector input 2.
34	P0 <sub>0</sub>	I	WAKE UP input. Key on wake up specification.
35	P0 <sub>1</sub>	I	MUTE KEY input. Key on wake up specification.
36	P0 <sub>2</sub>	I	DIRECT KEY input. Key on wake up specification.
37	P0 <sub>3</sub>	O	Protection control pin.
38	P0 <sub>4</sub>	I	Output error detection pin
39	P0 <sub>5</sub>	O	MUTING control pin.
40	P0 <sub>6</sub>	I	LOUDNESS KEY input. Key on wake up specification.
41	P0 <sub>7</sub>	I	POWER KEY input. Key on wake up specification.
42	P5 <sub>2</sub>	I	TAPE2 KEY input.

## 8. PANEL FACILITIES AND SPECIFICATIONS

### 8.1 FRONT PANEL



#### ① POWER (OFF/ON) switch

Press to turn power to the unit ON and OFF.

#### ② STANDBY/ON switch/indicator

This is the switch for electric power.

This switch does not function unless the POWER OFF/ON switch is set to ON.

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

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

#### NOTE:

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

#### ③ Remote control sensor window

#### ④ VOLUME control

Use to adjust the volume level.

#### NOTE:

The TONE effect functions regardless of volume levels.

#### ⑤ INPUT SELECTOR knob/indicators

Turn the knob clockwise or counterclockwise so that the indicator lights for your desired input source. Turning the knob clockwise causes the lit indicator to right. Turning counterclockwise causes it to left.

**CD** : For compact disc playback with a CD player.

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

**PHONO** : For record playback with a turntable.

**LINE/SB** : Set to this position when listening to a program from a component connected to the LINE/SURROUND BACK terminals.

**TAPE 1/CD-R/MD** : For playback with a cassette deck, CD recorder or MD recorder connected to the TAPE 1/CD-R/MD terminals.

#### ⑥ TAPE 2 MONITOR button/indicator

Use when there is an adaptor component (graphic equalizer, etc.) or cassette deck connected to the TAPE 2 MONITOR terminals.

**Off** : Indicator goes out when not in use.

**On** : Indicator lights when using the adaptor component or listening to the cassette deck.

#### NOTE:

When no connections are made to the TAPE 2 MONITOR terminals, or when they are not in use, be sure to set this switch to the off position. (No sound will be heard if it is set to the on position.)

### ⑦ REC SELECTOR switch /indicator(For TAPE 1/CD-R/MD terminals)

This switch is used to select the recording source component. The signal from the selected component is output at the TAPE1/CD-R/MD jacks for recording. To select a recording source component, press the REC SELECTOR switch so that the indicator of the desired source component lights up. When this switch is set to [TUNER] or [CD], the signal from the selected component can be recorded regardless of the input selector switch and TAPE2 MONITOR button settings.

**CD** : To record from the equipment connected to the CD terminals.

**TUNER** : To record from the equipment connected to the TUNER terminals.

**SOURCE** : To record from the equipment selected by the INPUT SELECTOR knob.

**OFF** : In this position, nothing from the REC terminals of TAPE 1/CD-R/MD is output. Set to this position when not recording; the cassette deck will be disconnected, improving sound quality.

#### NOTE:

The function selected using the INPUT SELECTOR knob will be recorded irrespective of the position of the REC SELECTOR switch (TAPE 2 MONITOR terminals).

### ⑧ BALANCE control

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

#### NOTE:

This control does not operate at DIRECT ON mode.

### ⑨ DIRECT/SB MODE button/indicator

Press and hold the button for more than 3 seconds to switch SB mode ON. (Volume indicator goes out)

Press and hold the button for more than 3 seconds again to switch SB mode OFF. (Volume indicator lights)

#### [DIRECT]

Use this button when you do not wish to pass the output from input terminal equipment through the various frequency adjusting circuits (BASS, TREBLE, BALANCE, LOUDNESS).

**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.

#### [SB MODE]

The SB mode is a special mode in which the amplifier does not accept remote control except power ON/OFF (But all of the facilities can be controlled by manual as same as SB mode OFF.). Fix the VOLUME control near the center position. In this mode, the set can be used as a power amplifier which amplifies the LINE/SURROUND BACK input (the function name is LINE/SB) with a input sensitivity of 1V.

For example, when the set is combined with one of Pioneer's Surround Back compatible receiver, the set can be used as the Surround Back amplifier.

(For details, please refer to the instruction manual of the receiver.)

### ⑩ LOUDNESS button/indicator

Use when listening at low volume level.

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

**Off** : The indicator goes out. Should normally be left in this position.

#### NOTE:

This button does not operate at DIRECT ON mode.

### ⑪ TREBLE tone control

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

#### NOTE:

This control does not operate at DIRECT ON mode.

### ⑫ BASS tone control

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

#### NOTE:

This control does not operate at DIRECT ON mode.

### ⑬ PHONES jack

When using headphones, insert the plug into this jack.

### ⑭ SPEAKERS B (ON/OFF) button/indicator

Use this button to listen to the speaker system connected to the SPEAKERS B terminals.

**On** : The indicator lights. Sound is heard from the speaker system.

**Off** : The indicator goes out. No sound is heard from the speaker system. Set to this position when listening with headphones.

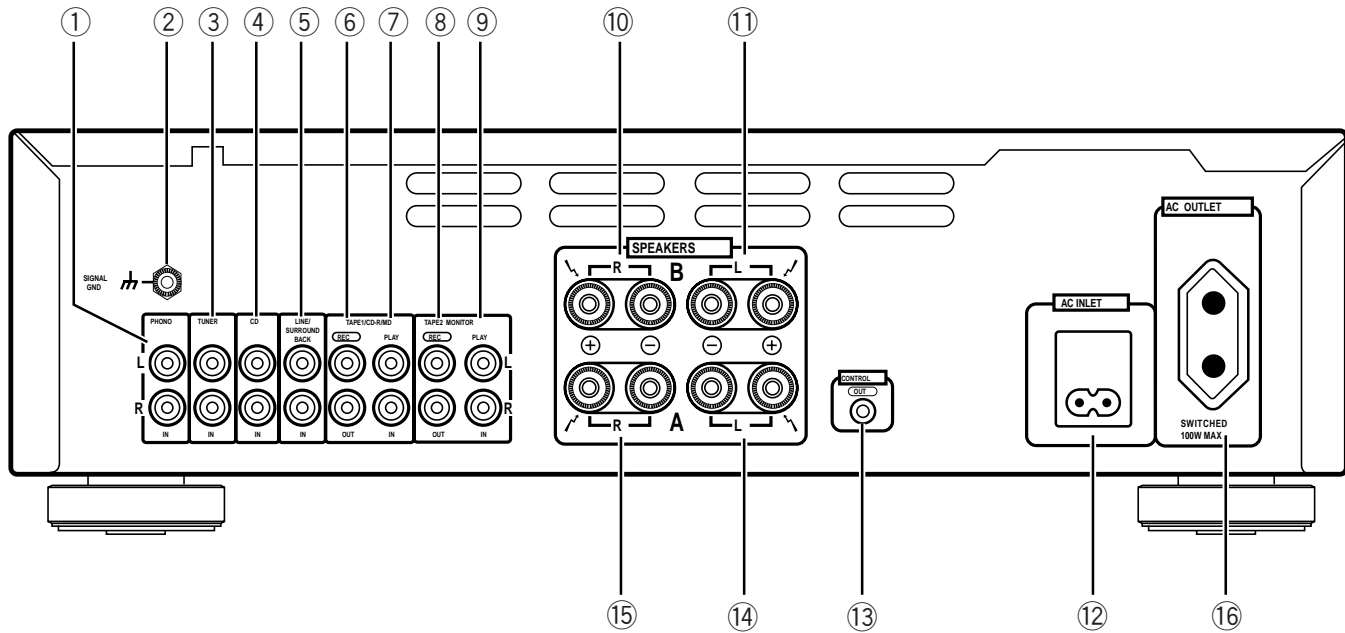
### ⑮ SPEAKERS A (ON/OFF) button/indicator

Use this button to listen to the speaker system connected to the SPEAKERS A terminals.

**On** : The indicator lights. Sound is heard from the speaker system.

**Off** : The indicator goes out. No sound is heard from the speaker system. Set to this position when listening with headphones.

## 8.2 REAR PANEL



① PHONO terminals

② SIGNAL GND (Turntable ground) terminal

③ TUNER terminals

④ CD terminals

⑤ LINE/SURROUND BACK terminals

⑥ TAPE 1/CD-R/MD REC (OUT) terminals

⑦ TAPE 1/CD-R/MD PLAY (IN) terminals

⑧ TAPE 2 MONITOR REC (OUT) terminals

⑨ TAPE 2 MONITOR PLAY (IN) terminals


⑩ SPEAKERS B terminals (Right channel)

⑪ SPEAKERS B terminals (Left channel)

⑫ AC INLET jack

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

⑬ CONTROL OUT jack

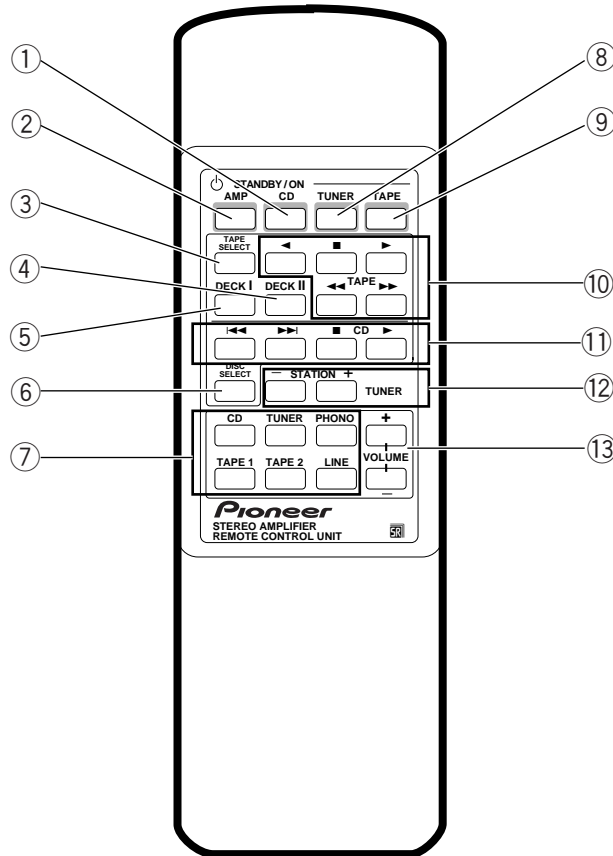
This jack is for outputting control signals when operating other components bearing the  mark with the amplifier's remote control unit.

⑭ SPEAKERS A terminals (Left channel)

⑮ SPEAKERS A terminals (Right channel)


⑯ AC OUTLET

### 8.3 REMOTE CONTROL



- ① **CD POWER button**  
Switches CD player power STANDBY/ON.
- ② **AMP POWER button**  
Switches the amplifier power STANDBY/ON.
- ③ **TAPE SELECT button**  
Selects the cassette No. (1 to 6) for a multi-cassette changer.
- ④ **DECK II button**  
To operate Deck II, press this button before pressing the operating buttons. Also, when using a single deck, press this button before pressing the operating buttons.
- ⑤ **DECK I button**  
To operate Deck I, press this button before pressing the operating buttons.
- ⑥ **DISC SELECT button**  
Press this to select discs on a multi or twin tray compact disc player.
- ⑦ **Input selector buttons**  
Use to select the playback source.  
**CD** : For compact disc playback with a CD player.  
**TUNER** : For AM or FM broadcast reception with a tuner.  
**PHONO** : For record playback with a turntable.  
**TAPE 1** : For playback with a cassette deck, CD recorder or MD recorder connected to the TAPE 1/CD-R/MD terminals.  
**TAPE 2** : For playback with a cassette deck or adaptor connected to the TAPE 2 MONITOR terminals.  
**LINE** : For playback with a component connected to the LINE/SURROUND BACK terminal.

- ⑧ **TUNER POWER button**  
Switches TUNER power STANDBY/ON.
- ⑨ **TAPE POWER button**  
Switches the cassette deck power STANDBY/ON.
- ⑩ **TAPE operation buttons**  
 ◀, ▶ : Playback in the direction of the arrows.  
 ■ : Stop  
 ⏪, ⏩ : Tape fast forward/reverse.
- ⑪ **CD player operation buttons**  
 ⏪ : Returns you to the start of the current track (Track search).  
 ⏩ : Takes you to the start of the next track (Track search).  
 ■ : Stop  
 ▶ : Play
- ⑫ **STATION +, - buttons (TUNER)**  
Calls each station number in sequence.
- ⑬ **VOLUME +, - buttons**  
 + ..... Increases the volume.  
 - ..... Decreases the volume.

**NOTE:**  
When the accessory remote control unit is used to operate other PIONEER components with the  mark, it cannot be used to operate functions which do not correspond to the functions listed on the remote control unit.

## 8.4 SPECIFICATIONS

### Amplifier Section

Continuous power output  
(both channels driven at 20 Hz to 20 kHz)\*\*

T.H.D. 0.06 %, 8 Ω	45 W + 45 W*
T.H.D. 0.09 %, 4 Ω	65 W + 65 W*

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

T.H.D. 1.0 %, 8 Ω	60 W + 60 W
T.H.D. 1.0 %, 4 Ω	90 W + 90 W

Total harmonic distortion\*\*

20 Hz to 20 kHz, 20 W, 8 Ω	0.05 %*
----------------------------	---------

• **Power output specification is for when power supply is 230V.**

Input sensitivity/ impedance

PHONO (MM)	2.8 mV/ 50 kΩ
CD, TUNER, LINE/SB, TAPE 1/CD-R/MD, TAPE 2 MONITOR	200 mV/ 50 kΩ

PHONO (MM) overload level

1 kHz, T.H.D. 0.1 %	150 mV
---------------------	--------

Output level/ impedance

TAPE 1/CD-R/MD, TAPE 2 MONITOR output	200 mV/ 1 kΩ
---------------------------------------	--------------

Frequency response

PHONO (MM)	20 Hz to 20 kHz ± 0.5 dB
CD, TUNER, LINE/SB, TAPE 1/CD-R/MD, TAPE 2 MONITOR	5 Hz to 100 kHz $\pm_{-3}^{+0}$ dB*

Tone control

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)	86 dB*
CD, TUNER, LINE/SB, TAPE 1/CD-R/MD, TAPE 2 MONITOR	106 dB*

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

PHONO (MM)	71 dB/ 67 dB*
CD, TUNER, LINE/SB, TAPE 1/CD-R/MD, TAPE 2 MONITOR	95 dB/ 71 dB*

### Power Supply/ Miscellaneous

Power requirements	AC 220 - 230 V, 50/ 60 Hz
Power consumption	160 W
Power consumption in standby mode	1 W
AC outlet	
Switched(x1)	100W
Dimensions (including knobs and other protruding parts)	420 (W) × 335 (D) × 128 (H) mm
Weight (without package)	6.9 kg

### Accessories

Remote control unit	1
Batteries (AA/R6P)	2
Operating instructions	1
Power cord(Rated current 2.5 A)	1
Warranty card	1

**NOTE:**

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

\* Measured with the DIRECT/SB MODE button set to on.  
(at DIRECT ON mode, SB OFF mode)

\*\* Measured by Audio Spectrum Analyzer.

## • ACCESSORIES

