

# Service Manual

ORDER NO.  
**CRT3560**

**BRIDGEABLE TWO-CHANNEL POWER AMPLIFIER**

# GM-5200T /XU/UC

## GM-5200T /XU/EW

## GM-5200T /XU/ES

## GM-5200T /XU/CN

This service manual should be used together with the following manual(s) listed below. For the parts numbers, adjustments, etc. which are not shown in this manual, refer to the following manual(s).

Model No.	Order No.	Mech. Module	Remarks
GM-520T/XU/UC	CRT3519		

# SAFETY INFORMATION

## 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

## EXPLODED VIEWS AND PARTS LIST PACKING(Page 6)

### PACKING SECTION PARTS LIST

\*:Non spare part

Mark	No.	Description	GM-520T/XU/UC	GM-5200T/XU/UC
	7	Carton	CHG5587	CHG5586
	8	Contain Box	CHL5587	CHL5586
	9-2	Owner's Manual	CRD4010	CRD4011
*	9-4	Caution Card	CRP1324	Not used

Mark	No.	Description	GM-520T/XU/UC	GM-5200T/XU/EW
	6	Polyethylene Bag	CEG1351	CEG1317
	7	Carton	CHG5587	CHG5588
	8	Contain Box	CHL5587	CHL5588
	9-2	Owner's Manual	CRD4010	CRD4009
*	9-3	Card	ARY1048	Not used
*	9-4	Caution Card	CRP1324	Not used
*	9-5	Warranty Card	Not used	CRY1157

Mark	No.	Description	GM-520T/XU/UC	GM-5200T/XU/ES
	6	Polyethylene Bag	CEG1351	CEG1317
	7	Carton	CHG5587	CHG5589
	8	Contain Box	CHL5587	CHL5589
	9-2	Owner's Manual	CRD4010	CRD4012
*	9-3	Card	ARY1048	Not used
*	9-4	Caution Card	CRP1324	Not used
	9-6	Owner's Manual	Not used	CRD4013

Mark	No.	Description	GM-520T/XU/UC	GM-5200T/XU/CN
	6	Polyethylene Bag	CEG1351	CEG1317
	7	Carton	CHG5587	CHG5590
	8	Contain Box	CHL5587	CHL5590
	9-2	Owner's Manual	CRD4010	CRB2106
*	9-3	Card	ARY1048	Not used
*	9-4	Caution Card	CRP1324	Not used
*	9-5	Warranty Card	Not used	ARY7046

**Owner's Manual**

Part No.	Language
CRD4011	English, French, Spanish
CRD4009	English, Spanish, German, French, Italian, Dutch, Russian
CRD4012	English, Spanish
CRD4013	Arabic, Portuguese(B)
CRB2106	Traditional Chinese

**EXTERIOR(Page 8)****EXTERIOR SECTION PARTS LIST**

Mark	No.	Description	GM-520T/XU/UC	GM-5200T/XU/UC GM-5200T/XU/ES GM-5200T/XU/CN
*	7	Panel	CNB3202	CNB3312
	9	Heat Sink	CNR1828	CNR1829
	12	Amp Unit	CWH1287	CWH1325
	34	Screw	BMZ40P200FTB	Not used
	35	Seal	CAN3984	Not used
	36	Holder	CNV8522	Not used
	37	Nut	NB40FTB	Not used
	38	Washer	WB40FTB	Not used

Mark	No.	Description	GM-520T/XU/UC	GM-5200T/XU/EW
*	7	Panel	CNB3202	CNB3312
	9	Heat Sink	CNR1828	CNR1827
	12	Amp Unit	CWH1287	CWH1325
	34	Screw	BMZ40P200FTB	Not used
	35	Seal	CAN3984	Not used
	36	Holder	CNV8522	Not used
	37	Nut	NB40FTB	Not used
	38	Washer	WB40FTB	Not used

**ELECTRICAL PARTS LIST(Page 20)****AMP UNIT**

Circuit Symbol and No.	Part Name	GM-520T/XU/UC	GM-5200T/XU/UC GM-5200T/XU/EW GM-5200T/XU/ES GM-5200T/XU/CN
R171		RS1/16S222J	RS1/16S153J
R172		RS1/16S222J	RS1/16S153J
R203		RS1/16S560J	RS1/16S331J
R204		RS1/16S560J	RS1/16S331J

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# Service Manual



GM-520T/XU/UC

ORDER NO.  
**CRT3519**

**BRIDGEABLE TWO-CHANNEL POWER AMPLIFIER**

# GM-520T /XU/UC



For details, refer to "Important Check Points for Good Servicing".

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K-ZZA. AUG. 2005 Printed in Japan

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# SAFETY INFORMATION

## CAUTION

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

### ● Service Precaution

You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

GM-520T/XU/UC

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## [Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol. Please be sure to confirm and follow these procedures.

### 1. Product safety



Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

- ① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

- ② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification (addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

- ③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris. Soldering should be finished with the proper quantity. (Refer to the example)

- ④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

- ⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

- ⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs. In addition, be sure that there are no pinched wires, etc.

- ⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

- ⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages. If you find a damaged power cord, please exchange it with a suitable one.

- ⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

- ⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries. Please pay attention to your surroundings and repair safely.

### 2. Adjustments



To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification. Adjustments should be performed in accordance with the procedures/instructions described in this manual.

### 3. Lubricants, Glues, and Replacement parts



Use grease and adhesives that are equal to the specified substance. Make sure the proper amount is applied.

### 4. Cleaning



For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

### 5. Shipping mode and Shipping screws



To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

1 2 3 4

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E


F

GM-520T/XU/UC

4 1 2 3 4

# 1. SPECIFICATIONS

Power source .....	14.4 V DC (10.8 — 15.1 V allowable)
Grounding system .....	Negative type
Current consumption .....	30.0 A (at continuous power, 4 Ω)
<b>Backup current</b> .....	<b>3 mA or less</b>
Average current drawn* .....	10.0 A (4 Ω for two channels) 19.0 A (4 Ω for one channel)
Fuse .....	30 A × 2
Dimensions .....	300 (W) × 61 (H) × 336 (D) mm [12 in. (W) × 2-3/8 in. (H) × 1ft. 1 in. (D)]
Weight .....	3.9 kg (8.6 lbs.) (Leads for wiring not included)
Maximum power output .....	250 W × 2 (4 Ω) / 760 W × 1 (4 Ω)
Continuous power output .....	125 W × 2 (at 14.4 V, 4 Ω, 20 Hz — 20 kHz 0.2% THD) 380 W × 1 (at 14.4 V, 4 Ω, 20 Hz — 20 kHz 0.8% THD) 190 W × 2 (at 14.4 V, 2 Ω, 20 Hz — 20 kHz 0.8% THD)
Load impedance .....	4 Ω (2 — 8 Ω allowable) (Bridge connection: 4 — 8 Ω allowable)
Frequency response .....	10 Hz — 50 kHz (+0 dB, -1 dB)
Signal-to-noise ratio .....	95 dB (IHF-A network)
Distortion .....	0.015 % (10 W, 1 kHz)
Separation .....	70 dB (1 kHz)
Low pass filter .....	Cut off frequency: 80 Hz Cut off slope: -12 dB/oct
Bass boost .....	Frequency: 50 Hz Level: 0/6/12 dB
Gain control .....	RCA: 200 mV — 6.5 V Speaker: 0.8 — 26 V
Maximum input level / impedance .....	RCA: 6.5 V / 22 kΩ Speaker: 26 V / 40 kΩ

Power output .....	125 W RMS × 2 channels (4 Ω and $\leq 1\%$ THD+N) 380 W RMS × 1 channel (4 Ω and $\leq 1\%$ THD+N) 190 W RMS × 2 channels (2 Ω and $\leq 1\%$ THD+N)	
Signal-to-noise ratio .....	75 dBA (Reference: 1 W into 4 Ω)	



**Note:**

- Specifications and the design are subject to possible modification without notice due to improvements.
- **\*Average current drawn**
- The average current drawn is nearly the maximum current drawn by this unit when an audio signal is input. Use this value when working out total current drawn by multiple power amplifiers.

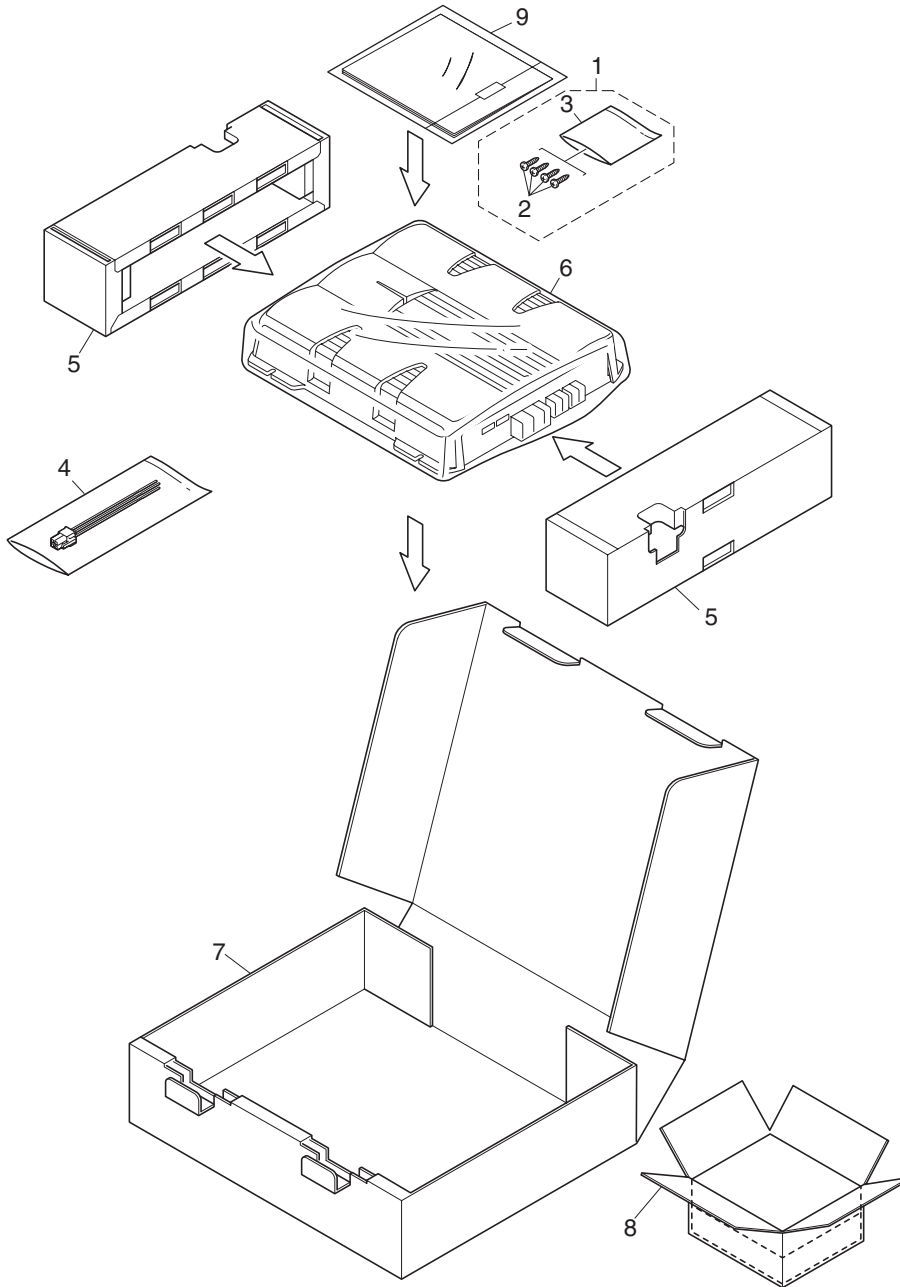


## 2. EXPLODED VIEWS AND PARTS LIST

NOTES : • Parts marked by " \* " are generally unavailable because they are not in our Master Spare Parts List.

- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Screw adjacent to  mark on the product are used for disassembly.
- For the applying amount of lubricants or glue, follow the instructions in this manual.  
(In the case of no amount instructions, apply as you think it appropriate.)

### 2.1 PACKING



**PACKING SECTION PARTS LIST**

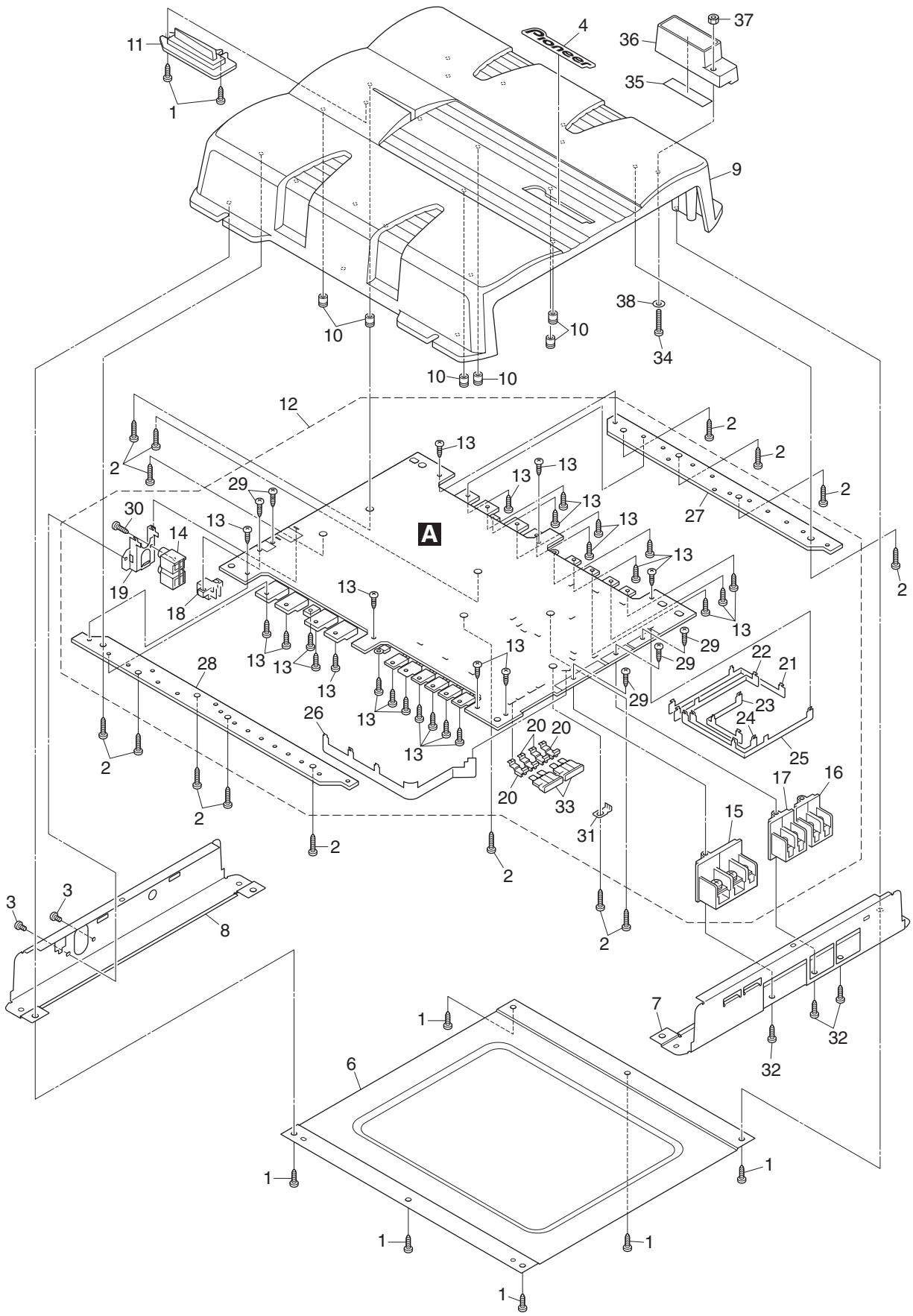
<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
1	Screw Assy	CEA5330	7	Carton	CHG5587
2	Screw	BYC40P180FTB	8	Contain Box	CHL5587
* 3	Polyethylene Sheet	CNM4338	9-1	Polyethylene Bag	CEG1116
4	Cord Assy	CDE7736	9-2	Owner's Manual	CRD4010
5	Protector	CHP3066	*	9-3 Card	ARY1048
6	Polyethylene Bag	CEG1351	*	9-4 Caution Card	CRP1324

**Owner's Manual**

<b>Part No.</b>	<b>Language</b>
CRD4010	English, French, Spanish

# 2.2 EXTERIOR

A  
B  
C  
D  
E  
F



8 1 2 3 4

## EXTERIOR SECTION PARTS LIST

<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	
1	Screw(M3x8)	CBA2011	
2	Screw(M3x12)	CBA2012	
3	Screw	BSZ30P050FTB	A
* 4	Badge	CAH1946	
5	.....		
6	Case	CNB3199	
7	Panel	CNB3202	
8	Panel	CNB3206	
9	Heat Sink	CNR1828	
10	Spacer	CNV8256	
11	Lighting Conductor	CNV8692	B
12	Amp Unit	CWH1287	
13	Screw(M3x8)	CBA2011	
14	Pin Jack (CN111)	CKB1068	
15	Terminal (CN853)	CKE1055	
16	Terminal (CN855)	CKE1057	
17	Terminal (CN856)	CKE1057	
18	Socket (CN801)	CKM1463	
19	Holder	CND2456	
20	Terminal	CND2458	C
21	Buss Bar	CND2467	
22	Buss Bar	CND2468	
23	Buss Bar	CND2469	
24	Buss Bar	CND2470	
25	Buss Bar	CND2472	
26	Buss Bar	CND2729	
27	Sub Heat Sink	CNR1808	
28	Sub Heat Sink	CNR1810	
29	Screw	PPZ30P100FSN	
30	Screw	PPZ30P100FTB	D
31	Terminal (CN850)	VNF1084	
32	Screw	PPZ30P100FTB	
⚠ 33	Fuse (FU100, FU101) (30A)	CEK1330	
34	Screw	BMZ40P200FTB	
* 35	Seal	CAN3984	
36	Holder	CNV8522	
37	Nut	NB40FTB	
38	Washer	WB40FTB	E

# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

## 3.1 SCHEMATIC DIAGRAM(GUIDE PAGE)

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

**A-a**

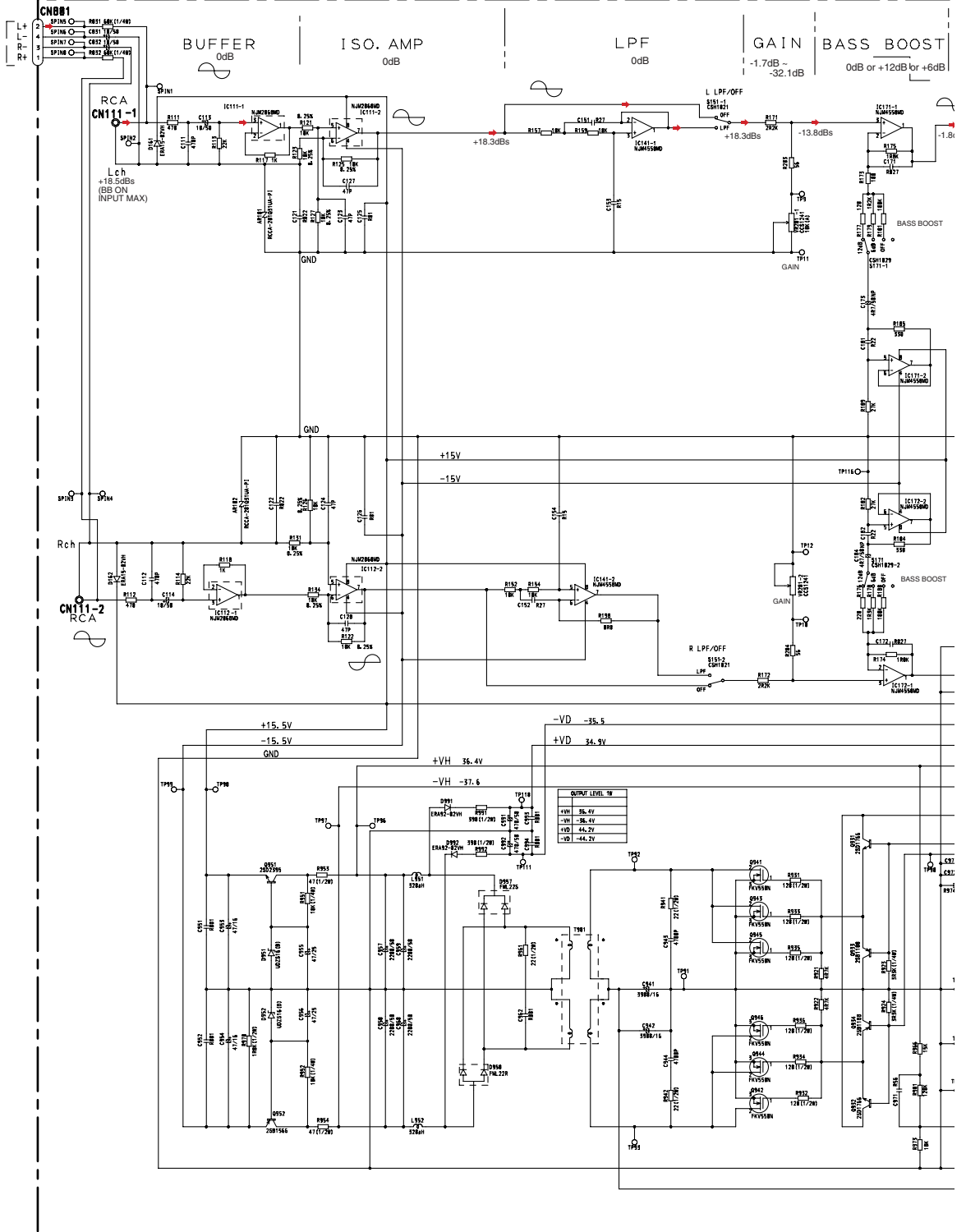
NOTE:

- Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.
- ⊖ Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:  
2.2 → 2R2  
0.022 → R022

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.

SPEAKER LEVEL INPUT



A  
B  
C  
D  
E  
F

**A**



A B C D E F

A-b

A-a



A-a

1

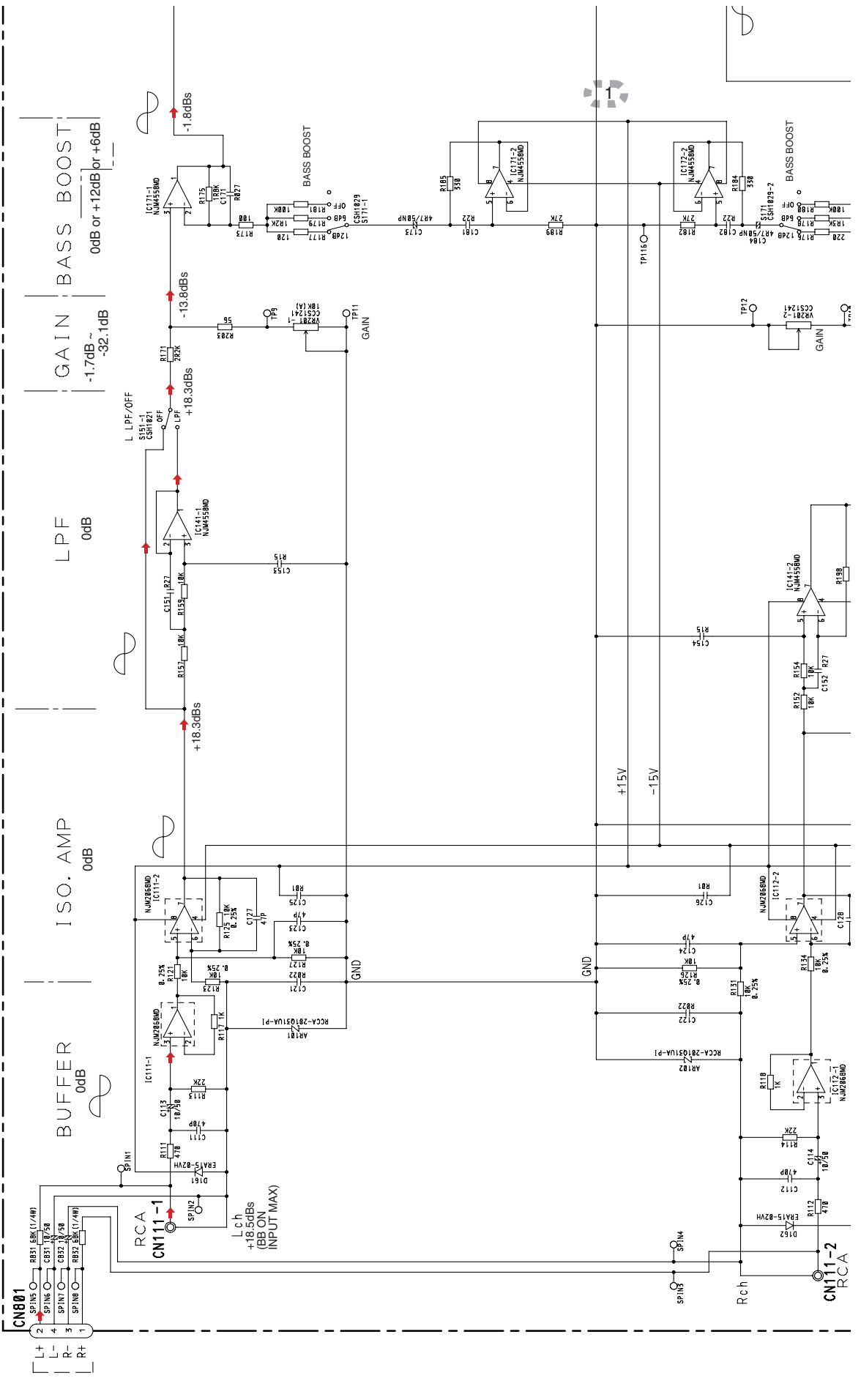
1

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.

Decimal points for resistor and capacitor fixed values are expressed as :  
2.2 → 2R2  
0.022 → R022

NOTE :  
 Symbol indicates a resistor.  
 No differentiation is made between chip resistors and discrete resistors.  
 Symbol indicates a capacitor.  
 No differentiation is made between chip capacitors and discrete capacitors.

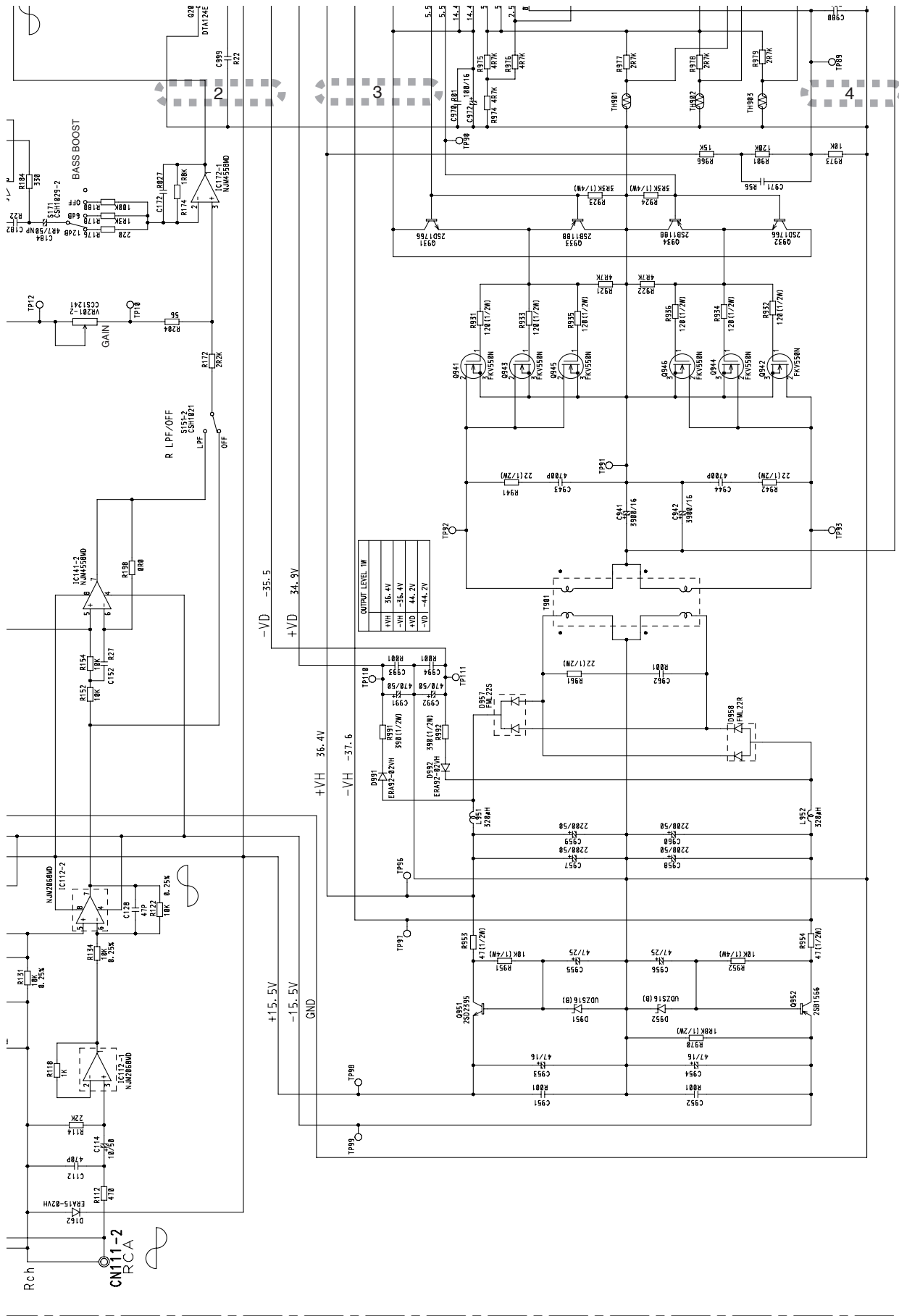
SPEAKER LEVEL INPUT



2

3

4



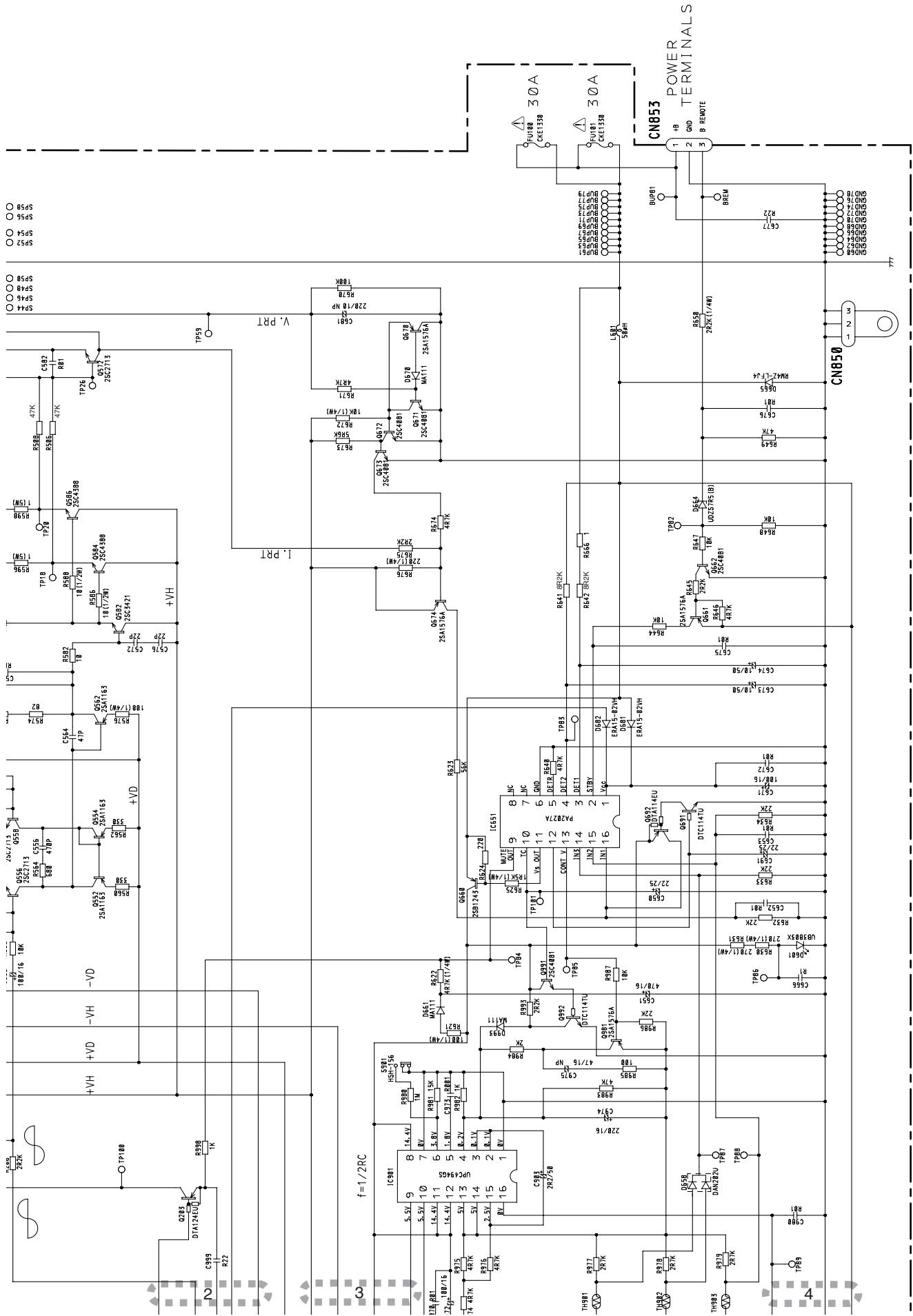
A-b

A-a

A-a







GM-520T/XU/UC

- S958
- S956
- S954
- S952

- S950
- S948
- S946
- S944

5

6

7

8

A B C D E F

A-b

A-b

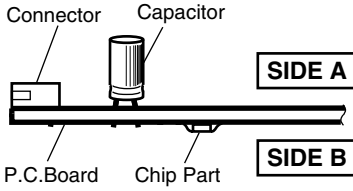
# 4. PCB CONNECTION DIAGRAM

## 4.1 AMP UNIT

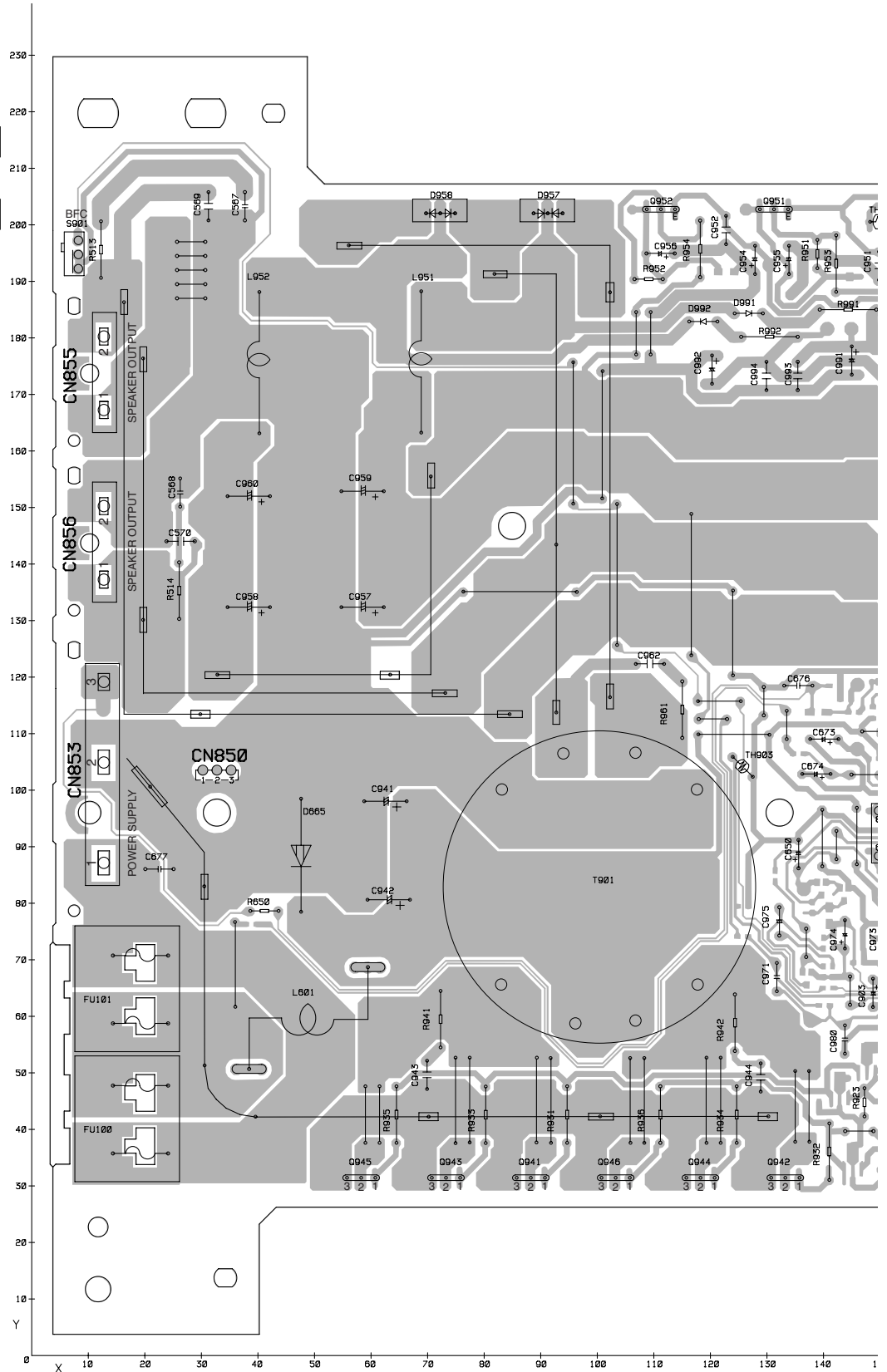
### NOTE FOR PCB DIAGRAMS

1. 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.

### 2. Viewpoint of PCB diagrams



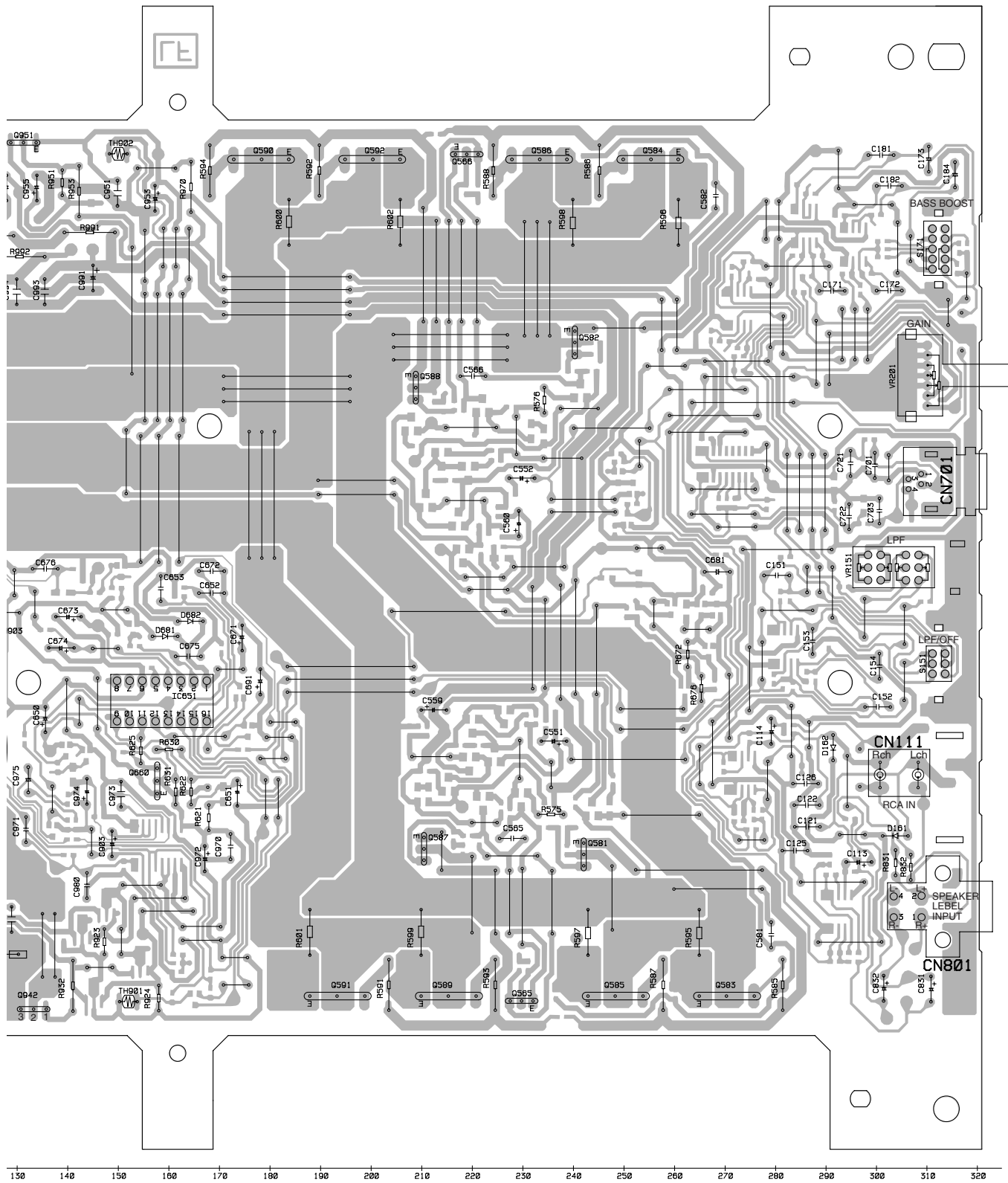
### A AMP UNIT



A

SIDE A

A  
B  
C  
D  
E  
F







# 5. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○○J,RS1/○○S○○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

- The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Meaning of the figures and others in the parentheses in the parts list.

Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.

IC 301 (A, 91, 111) IC NJM2068V

Circuit Symbol and No.

Part No.

Circuit Symbol and No.

Part No.

Q 586 (A,228,199) Transistor 2SC4388  
Q 587 (A,210,63) Transistor 2SA1358

Q 588 (A,209,154) Transistor 2SA1358  
Q 589 (A,221,34) Transistor 2SA1673  
Q 590 (A,173,199) Transistor 2SA1673  
Q 591 (A,199,34) Transistor 2SA1673  
Q 592 (A,195,199) Transistor 2SA1673

Q 660 (A,158,74) Transistor 2SB1243  
Q 661 (B,153,107) Transistor 2SA1576A  
Q 662 (B,151,118) Transistor 2SC4081  
Q 670 (B,268,110) Transistor 2SA1576A  
Q 671 (B,265,110) Transistor 2SC4081

Q 672 (B,267,102) Transistor 2SC4081  
Q 673 (B,259,111) Transistor 2SC4081  
Q 674 (B,262,94) Transistor 2SA1576A  
Q 691 (B,176,86) Transistor DTC114TU  
Q 692 (B,174,94) Transistor DTA114EU

Q 931 (B,148,52) Transistor 2SD1766  
Q 932 (B,154,41) Transistor 2SD1766  
Q 933 (B,143,47) Transistor 2SB1188  
Q 934 (B,145,35) Transistor 2SB1188  
Q 941 (A,91,31) Transistor FKV550N

Q 942 (A,136,31) Transistor FKV550N  
Q 943 (A,76,31) Transistor FKV550N  
Q 944 (A,121,31) Transistor FKV550N  
Q 945 (A,61,31) Transistor FKV550N  
Q 946 (A,106,31) Transistor FKV550N

Q 951 (A,129,203) Transistor 2SD2395  
Q 952 (A,109,203) Transistor 2SB1566  
Q 981 (B,137,67) Transistor 2SA1576A  
Q 991 (B,140,83) Transistor 2SC4081  
Q 992 (B,144,82) Transistor DTC114TU

D 161 (A,306,66) Diode ERA15-02VH  
D 162 (A,291,86) Diode ERA15-02VH  
D 553 (B,211,74) Diode MA111  
D 554 (B,232,146) Diode MA111  
D 555 (B,209,74) Diode MA111

D 556 (B,234,145) Diode MA111  
D 557 (B,247,71) Diode MA111  
D 558 (B,226,121) Diode MA111  
D 601 (B,247,117) LED FR1112H

**A**

Unit Number: CWH1287

Unit Name : Amp Unit

## MISCELLANEOUS

IC 111 (B,293,51) IC NJM2068MD  
IC 112 (B,274,78) IC NJM2068MD  
IC 141 (B,283,103) IC NJM4558MD  
IC 171 (B,286,186) IC NJM4558MD  
IC 172 (B,296,183) IC NJM4558MD

IC 651 (A,168,96) IC PA2027A  
IC 901 (B,158,64) IC UPC494GS  
Q 201 (B,249,137) Transistor DTC643TU  
Q 202 (B,252,134) Transistor DTC643TU  
Q 203 (B,251,128) Transistor DTA124EU

Q 551 (B,220,87) Transistor 2SA1163  
Q 552 (B,219,137) Transistor 2SA1163  
Q 553 (B,226,89) Transistor 2SA1163  
Q 554 (B,214,140) Transistor 2SA1163  
Q 555 (B,224,82) Transistor 2SC2713

Q 556 (B,217,128) Transistor 2SC2713  
Q 557 (B,220,80) Transistor 2SC2713  
Q 558 (B,211,132) Transistor 2SC2713  
Q 559 (B,215,76) Transistor 2SC2713  
Q 560 (B,208,147) Transistor 2SC2713

Q 561 (B,230,73) Transistor 2SA1163  
Q 562 (B,241,154) Transistor 2SA1163  
Q 563 (B,222,72) Transistor 2SC2713  
Q 564 (B,222,151) Transistor 2SC2713  
Q 565 (A,230,33) Transistor 2SD1684

Q 566 (A,219,200) Transistor 2SD1684  
Q 571 (B,244,71) Transistor 2SC2713  
Q 572 (B,218,121) Transistor 2SC2713  
Q 581 (A,242,62) Transistor 2SC3421  
Q 582 (A,240,163) Transistor 2SC3421

Q 583 (A,276,34) Transistor 2SC4388  
Q 584 (A,250,199) Transistor 2SC4388  
Q 585 (A,254,34) Transistor 2SC4388

<u>Circuit Symbol and No.</u>		<u>Part No.</u>	<u>Circuit Symbol and No.</u>		<u>Part No.</u>
D 658	(B,165,33) Diode	DAN202U	R 181	(B,318,182)	RS1/16S104J
			R 182	(B,293,188)	RS1/16S273J
D 661	(B,171,74) Diode	MA111			
D 664	(B,139,114) Diode	UDZS7R5(B)	R 184	(B,300,189)	RS1/16S331J
D 665	(A,48,99) Diode	RM4Z-LFJ4	R 185	(B,287,193)	RS1/16S331J
D 670	(B,262,110) Diode	MA111	R 189	(B,283,195)	RS1/16S273J
D 681	(A,157,105) Diode	ERA15-02VH	R 198	(B,280,97)	RS1/16S0R0J
			R 201	(B,249,140)	RS1/16S0R0J
D 682	(A,162,108) Diode	ERA15-02VH			
D 951	(B,145,192) Diode	UDZS16(B)	R 202	(B,252,131)	RS1/16S0R0J
D 952	(B,123,192) Diode	UDZS16(B)	R 203	(B,285,173)	RS1/16S560J
D 957	(A,89,202) Diode	FML22S	R 204	(B,297,174)	RS1/16S560J
D 958	(A,70,202) Diode	FML22R	R 206	(B,267,165)	RS1/16S222J
			R 207	(B,273,161)	RS1/16S222J
D 991	(A,124,184) Diode	ERA92-02VH			
D 992	(A,121,183) Diode	ERA92-02VH	R 505	(B,260,35)	RS1/16S473J
D 993	(B,141,78) Diode	MA111	R 506	(B,265,199)	RS1/16S473J
L 601	(A,59,69) Choke Coil 50μH	CTH1323	R 507	(B,237,35)	RS1/16S473J
L 951	(A,69,163) Choke Coil 320μH	CTH1326	R 508	(B,242,199)	RS1/16S473J
			R 509	(B,248,77)	RS1/16S564J
L 952	(A,40,163) Choke Coil 320μH	CTH1326			
T 901	(A,100,83) Transformer	CTT1122	R 510	(B,225,123)	RS1/16S564J
TH901	(A,150,33) Thermistor	CCX1065	R 511	(B,241,72)	RS1/16S473J
TH902	(A,148,201) Thermistor	CCX1065	R 512	(B,222,122)	RS1/16S473J
TH903	(A,128,102) Thermistor	CCX1064	R 513	(A,12,201)	RD1/2PM100J
			R 514	(A,26,140)	RD1/2PM100J
S 151	(A,314,98) Switch(LPF/OFF)	CSH1021			
S 171	(A,314,178) Switch(BASS BOOST)	CSH1029	R 551	(B,229,40)	RS1/16S182J
S 901	(A,8,197) Switch(BFC)	HSH-156	R 552	(B,221,194)	RS1/16S182J
VR201	(A,310,151) Volume 10kΩ(A)(GAIN)	CCS1241	R 555	(B,236,87)	RS1/16S103J
△FU100	(A,19,42) Fuse 30A	CEK1330	R 556	(B,228,133)	RS1/16S103J
			R 557	(B,236,89)	RS1/16S473J
△FU101	(A,19,65) Fuse 30A	CEK1330			
AR101	(B,315,78) Surge Protector	CSA30-201N	R 558	(B,225,130)	RS1/16S473J
AR102	(B,309,89) Surge Protector	CSA30-201N	R 559	(B,231,89)	RS1/16S331J
			R 560	(B,225,140)	RS1/16S331J
			R 561	(B,233,89)	RS1/16S331J
			R 562	(B,225,142)	RS1/16S331J
<b><u>RESISTORS</u></b>					
R 111	(B,295,69)	RS1/16S471J			
R 112	(B,283,88)	RS1/16S471J	R 563	(B,221,84)	RS1/16S681J
R 113	(B,295,59)	RS1/16S223J	R 564	(B,216,136)	RS1/16S681J
R 114	(B,275,85)	RS1/16S223J	R 565	(B,211,86)	RS1/16S361J
R 117	(B,291,58)	RS1/16S102J	R 566	(B,226,126)	RS1/16S361J
			R 567	(B,209,86)	RS1/16S433J
R 118	(B,270,79)	RS1/16S102J			
R 121	(B,296,43) 10kΩ	CCN1152	R 568	(B,222,126)	RS1/16S433J
R 122	(B,273,70) 10kΩ	CCN1152	R 569	(B,211,79)	RS1/16S681J
R 123	(B,295,41) 10kΩ	CCN1152	R 570	(B,209,143)	RS1/16S681J
R 125	(B,292,41) 10kΩ	CCN1152	R 571	(B,235,72)	RS1/16S223J
			R 572	(B,228,151)	RS1/16S223J
R 126	(B,286,80) 10kΩ	CCN1152			
R 127	(B,291,61) 10kΩ	CCN1152	R 573	(B,231,40)	RS1/16S390J
R 131	(B,275,67) 10kΩ	CCN1152	R 574	(B,219,194)	RS1/16S390J
R 134	(B,276,70) 10kΩ	CCN1152	R 575	(A,233,70)	RD1/4PU101J
R 152	(B,288,97)	RS1/16S103J	R 576	(A,234,154)	RD1/4PU101J
			R 577	(B,221,65)	RS1/16S681J
R 154	(B,286,97)	RS1/16S103J			
R 157	(B,283,113)	RS1/16S103J	R 578	(B,217,152)	RS1/16S681J
R 159	(B,281,113)	RS1/16S103J	R 579	(B,226,71)	RS1/16S181J
R 171	(B,284,181)	RS1/16S222J	R 580	(B,221,144)	RS1/16S181J
R 172	(B,294,177)	RS1/16S222J	R 581	(B,234,67)	RS1/16S100J
			R 582	(B,240,158)	RS1/16S100J
R 173	(B,286,176)	RS1/16S101J			
R 174	(B,298,177)	RS1/16S182J	R 583	(B,219,66)	RS1/16S100J
R 175	(B,288,181)	RS1/16S182J	R 584	(B,217,150)	RS1/16S100J
R 176	(B,301,180)	RS1/16S221J	R 585	(A,281,31)	RD1/2PM100J
R 177	(B,316,178)	RS1/16S121J	R 586	(A,245,202)	RD1/2PM100J
			R 587	(A,258,31)	RD1/2PM100J
R 178	(B,301,182)	RS1/16S132J			
R 179	(B,316,182)	RS1/16S122J	R 588	(A,224,202)	RD1/2PM100J
R 180	(B,301,183)	RS1/16S104J	R 589	(B,238,30)	RS1/16S221J
			R 590	(B,213,205)	RS1/16S221J



**Circuit Symbol and No.****Part No.****Circuit Symbol and No.****Part No.**

R 591 (A,204,31) RD1/2PM100J  
 R 592 (A,190,202) RD1/2PM100J

R 966 (B,126,74)  
 R 970 (A,164,199)

RS1/16S153J  
 RD1/2PM182J

A R 593 (A,225,31) RD1/2PM100J  
 R 594 (A,168,202) RD1/2PM100J  
 R 595 (A,265,51) 0.1Ω CCN1155  
 R 596 (A,261,192) 0.1Ω CCN1155  
 R 597 (A,243,51) 0.1Ω CCN1155

R 973 (B,151,60)  
 R 974 (B,162,39)  
 R 975 (B,162,42)  
 R 976 (B,162,41)  
 R 977 (B,161,34)

RS1/16S103J  
 RS1/16S472J  
 RS1/16S472J  
 RS1/16S472J  
 RS1/16S272J

R 598 (A,240,192) 0.1Ω CCN1155  
 R 599 (A,210,42) 0.1Ω CCN1155  
 R 600 (A,184,183) 0.1Ω CCN1155  
 R 601 (A,188,42) 0.1Ω CCN1155  
 R 602 (A,206,183) 0.1Ω CCN1155

R 978 (B,168,35)  
 R 979 (B,168,38)  
 R 980 (B,141,65)  
 R 981 (B,148,74)  
 R 982 (B,146,70)

RS1/16S272J  
 RS1/16S272J  
 RS1/16S105J  
 RS1/16S153J  
 RS1/16S102J

B R 621 (A,168,67) RD1/4PU101J  
 R 622 (A,164,72) RD1/4PU472J  
 R 623 (B,175,83) RS1/16S563J  
 R 624 (B,150,82) RS1/16S221J  
 R 625 (A,154,85) RD1/4PU152J

R 983 (B,142,73)  
 R 984 (B,140,73)  
 R 985 (B,142,68)  
 R 986 (B,140,68)  
 R 987 (B,132,85)

RS1/16S473J  
 RS1/16S202J  
 RS1/16S101J  
 RS1/16S223J  
 RS1/16S103J

R 630 (A,163,83) RD1/4PU271J  
 R 631 (A,161,77) RD1/4PU471J  
 R 632 (B,162,115) RS1/16S223J  
 R 633 (B,170,103) RS1/16S223J  
 R 634 (B,162,113) RS1/16S223J

R 991 (A,139,185)  
 R 992 (A,125,180)  
 R 993 (B,138,79)  
 R 998 (B,269,121)

RD1/2PM391J  
 RD1/2PM391J  
 RS1/16S222J  
 RS1/16S102J

**CAPACITORS**

R 640 (B,156,99) RS1/16S472J  
 R 641 (B,149,106) RS1/16S822J  
 R 642 (B,136,107) RS1/16S822J  
 R 644 (B,153,103) RS1/16S103J  
 R 645 (B,150,115) RS1/16S222J

C 111 (B,297,62) CKSRYB471K50  
 C 112 (B,283,86) CKSRYB471K50  
 C 113 (A,299,61) CEAT100M50  
 C 114 (A,279,89) CEAT100M50  
 C 121 (A,284,68) CFTNA223J50

R 646 (B,150,113) RS1/16S472J  
 R 647 (B,145,114) RS1/16S103J  
 R 648 (B,144,116) RS1/16S103J  
 R 649 (B,142,119) RS1/16S473J  
 R 650 (A,44,79) RD1/4PU222J

C 122 (A,284,72) CFTNA223J50  
 C 123 (B,289,61) CCSRCH470J50  
 C 124 (B,286,78) CCSRCH470J50  
 C 125 (A,286,63) CFTNA103J50  
 C 126 (A,283,76) CFTNA103J50

R 666 (B,39,76) RS1/16S1R0J  
 R 670 (B,270,115) RS1/16S104J  
 R 671 (B,267,114) RS1/16S472J  
 D R 672 (A,263,104) RD1/4PU103J  
 R 673 (B,268,96) RS1/16S562J

C 127 (B,292,43) CCSRCH470J50  
 C 128 (B,273,72) CCSRCH470J50  
 C 151 (A,283,117) CFTNA274J50  
 C 152 (A,303,91) CFTNA274J50  
 C 153 (A,287,102) CFTNA154J50

R 674 (B,253,110) RS1/16S472J  
 R 675 (B,251,110) RS1/16S222J  
 R 676 (A,265,97) RD1/4PU221J  
 R 831 (A,304,63) RD1/4PU683J  
 R 832 (A,307,62) RD1/4PU683J

C 154 (A,301,97) CFTNA154J50  
 C 171 (A,289,173) CFTNA273J50  
 C 172 (A,300,174) CFTNA273J50  
 C 173 (A,310,202) CEANP4R7M50  
 C 181 (A,298,200) CFTNA224J50

R 901 (B,140,62) RS1/16S124J  
 R 921 (B,139,46) RS1/16S472J  
 R 922 (B,139,42) RS1/16S472J  
 E R 923 (A,147,47) RD1/4PU332J  
 R 924 (A,158,31) RD1/4PU332J

C 182 (A,300,194) CFTNA224J50  
 C 184 (A,315,199) CEANP4R7M50  
 C 551 (A,239,84) CEAT101M16  
 C 552 (A,232,136) CEAT101M16  
 C 553 (B,236,90) CCSRCH680J50

R 931 (A,95,38) RD1/2PM121J  
 R 932 (A,141,31) RD1/2PM121J  
 R 933 (A,80,38) RD1/2PM121J  
 R 934 (A,125,38) RD1/2PM121J  
 R 935 (A,65,38) RD1/2PM121J

C 554 (B,227,130) CCSRCH680J50  
 C 555 (B,218,84) CKSRYB471K50  
 C 556 (B,212,136) CKSRYB471K50  
 C 559 (A,210,91) CEAT221M10  
 C 560 (A,229,125) CEAT221M10

R 936 (A,111,38) RD1/2PM121J  
 R 941 (A,72,65) RD1/2PM220J  
 R 942 (A,124,54) RD1/2PM220J  
 R 951 (A,139,197) RD1/4PU103J  
 F R 952 (A,112,190) RD1/4PU103J

C 561 (B,208,86) CCSRCH150J50  
 C 562 (B,222,127) CCSRCH150J50  
 C 563 (B,228,70) CCSRCH470J50  
 C 564 (B,244,158) CCSRCH470J50  
 C 565 (A,230,65) CFTNA223J50

R 953 (A,142,198) RD1/2PM470J  
 R 954 (A,118,201) RD1/2PM470J  
 R 961 (A,115,109) RD1/2PM220J

C 566 (A,218,157) CFTNA223J50

<u>Circuit Symbol and No.</u>		<u>Part No.</u>
C 567	(A,38,201)	CFTNA333J50
C 568	(A,26,155)	CFTNA333J50
C 569	(A,31,203)	CQHA102J2A
C 570	(A,26,144)	CQHA102J2A
C 571	(B,238,67)	CCSRCH220J50
C 572	(B,244,161)	CCSRCH220J50
C 573	(B,216,66)	CCSRCH220J50
C 574	(B,214,151)	CCSRCH220J50
C 575	(B,239,63)	CCSRCH220J50
C 576	(B,244,163)	CCSRCH220J50
C 577	(B,218,63)	CCSRCH220J50
C 578	(B,213,153)	CCSRCH220J50
C 581	(A,279,44)	CFTNA103J50
C 582	(A,268,195)	CFTNA103J50
C 650	(A,136,86)	CEAT220M25
C 651	(A,174,77)	CEAT471M16
C 652	(A,171,114)	CFTNA103J50
C 653	(A,158,117)	CFTNA103J50
C 671	(A,175,102)	CEAT101M16
C 672	(A,171,118)	CFTNA103J50
C 673	(A,143,109)	CEAT100M50
C 674	(A,141,103)	CEAT100M50
C 675	(A,166,101)	CFTNA103J50
C 676	(A,133,119)	CFTNA103J50
C 677	(A,25,86)	CFTNA224J50
C 681	(A,271,118)	CEANP221M10
C 691	(A,178,94)	CEAT220M25
C 831	(A,311,38)	CEAT100M50
C 832	(A,301,38)	CEAT100M50
C 903	(A,149,67)	CEAT2R2M50
C 941	(A,66,98) 3900µF/16V	CCH1644(P35)
C 942	(A,67,81) 3900µF/16V	CCH1644(P35)
C 943	(A,70,50)	CQHA472J2A
C 944	(A,129,49)	CQHA472J2A
C 951	(A,150,193)	CQHA102J2A
C 952	(A,123,199)	CQHA102J2A
C 953	(A,157,194)	CEAT470M16
C 954	(A,128,191)	CEAT470M16
C 955	(A,134,191)	CEAT470M25
C 956	(A,114,195)	CEAT470M25
C 957	(A,62,132) 2200µF/50V	CCH1647(P35)
C 958	(A,42,132) 2200µF/50V	CCH1647(P35)
C 959	(A,62,153) 2200µF/50V	CCH1647(P35)
C 960	(A,42,152) 2200µF/50V	CCH1647(P35)
C 962	(A,109,122)	CQHA102J2A
C 970	(A,172,61)	CFTNA103J50
C 971	(A,132,64)	CFTNA564J50
C 972	(A,167,64)	CEAT101M16
C 973	(A,151,74)	CQHA102J2A
C 974	(A,144,72)	CEAT221M16
C 975	(A,132,74)	CEANP470M16
C 980	(A,144,53)	CFTNA103J50
C 991	(A,145,179)	CEAT471M50(P45)
C 992	(A,120,177)	CEAT471M50(P45)
C 993	(A,135,173)	CQHA102J2A
C 994	(A,130,173)	CQHA102J2A
C 999	(B,248,126)	CKSRYB224K16

A

B

C

D

E

F

# 6. ADJUSTMENT

There is no information to be shown in this chapter.

A

B

C

D

E

F

5 6 7 8

# 7. GENERAL INFORMATION

## 7.1 DIAGNOSIS

### 7.1.1 DISASSEMBLY

● **Removing the Case (Fig.1)**

**1** Remove the six screws and then remove the Case.

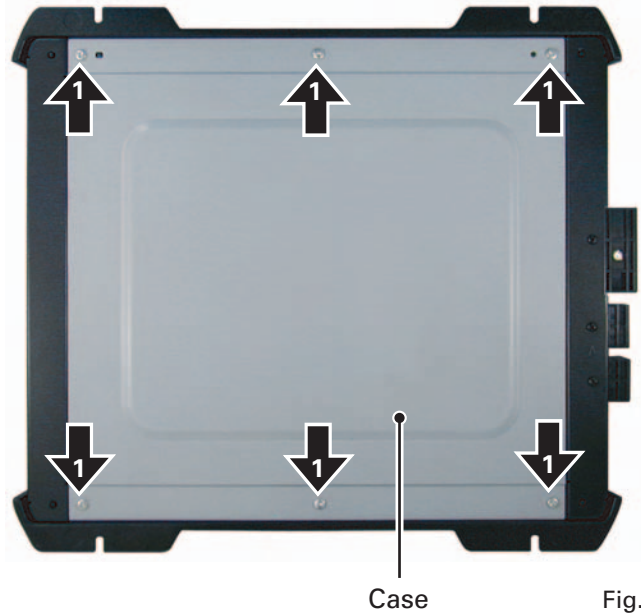


Fig.1

● **Removing the Amp Unit (Fig.2)**

**1** Remove the fifteen screws and then remove the Amp Unit.

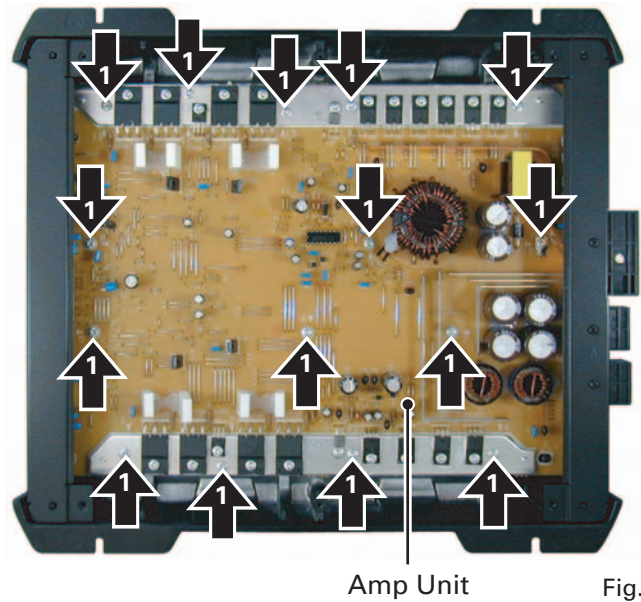
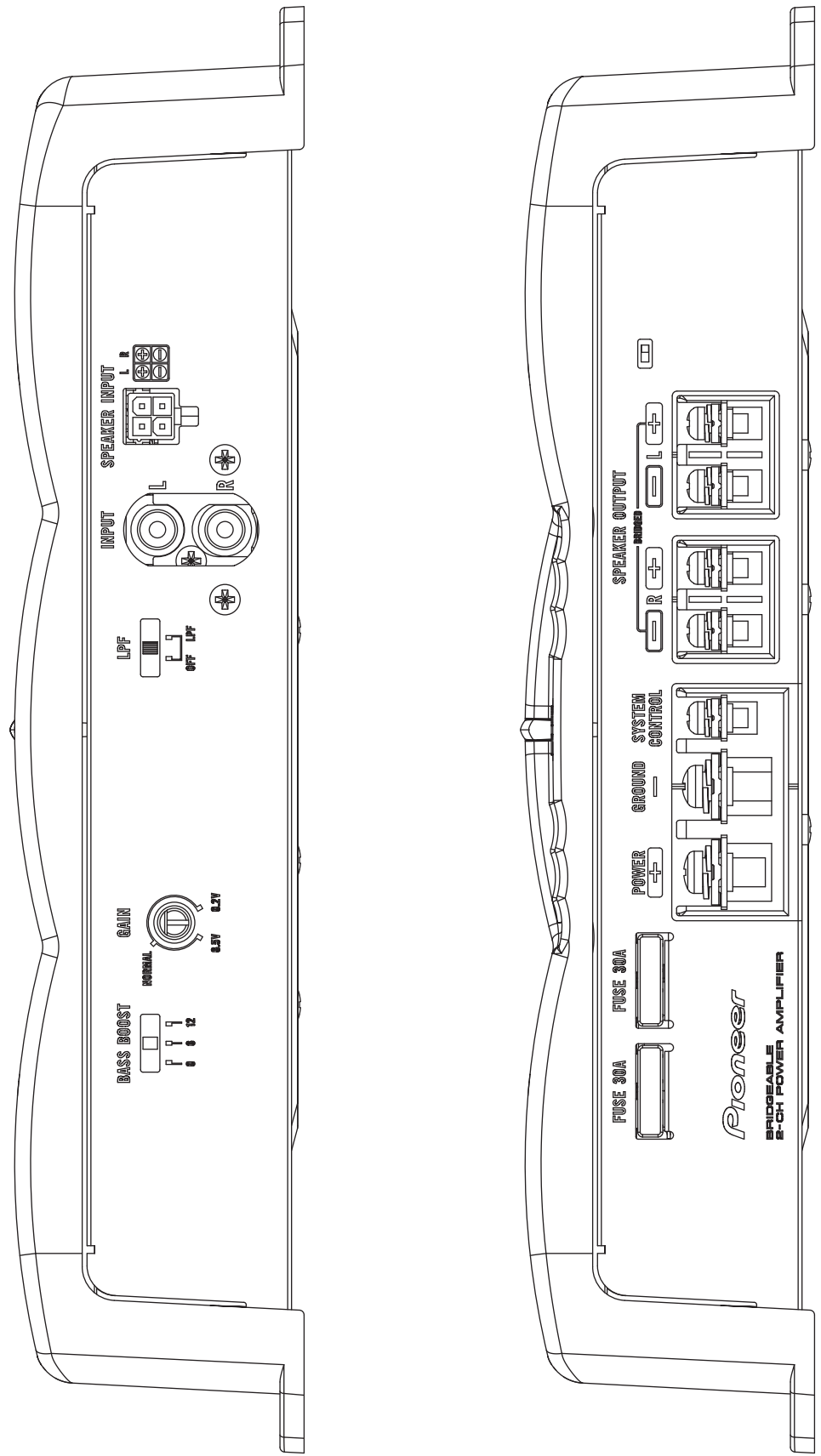


Fig.2

1 2 3 4

# 7.1.2 CONNECTOR FUNCTION DESCRIPTION

A  
B  
C  
D  
E  
F



# 8. OPERATIONS

**Power Indicator**  
The power indicator lights when the power is switched on.

**Gain Control**  
If the sound level is too low, even when the volume of the car stereo used along with this power amplifier is turned up, turn gain control on the front of the power amplifier clockwise. If the sound distorts when the volume is turned up, turn the gain control counter-clockwise.

- When using with an RCA equipped car stereo (standard output of 500 mV), set to the NORMAL position. When using with an RCA equipped Pioneer car stereo with max. output of 4 V or more, adjust level to match the car stereo output level.
- If you hear too much noise when using the speaker input terminals, turn the gain control counter-clockwise.

**Bass Boost Level Control Switch**  
Bass boost level control can boost the level around the frequency selected by the bass boost frequency control switch from 0, 6, and 12 dB.

**BFC (Beat Frequency Control) Switch**  
If you hear a beat while listening to an AM broadcast with your car stereo, change the BFC switch using a small standard tip screwdriver.

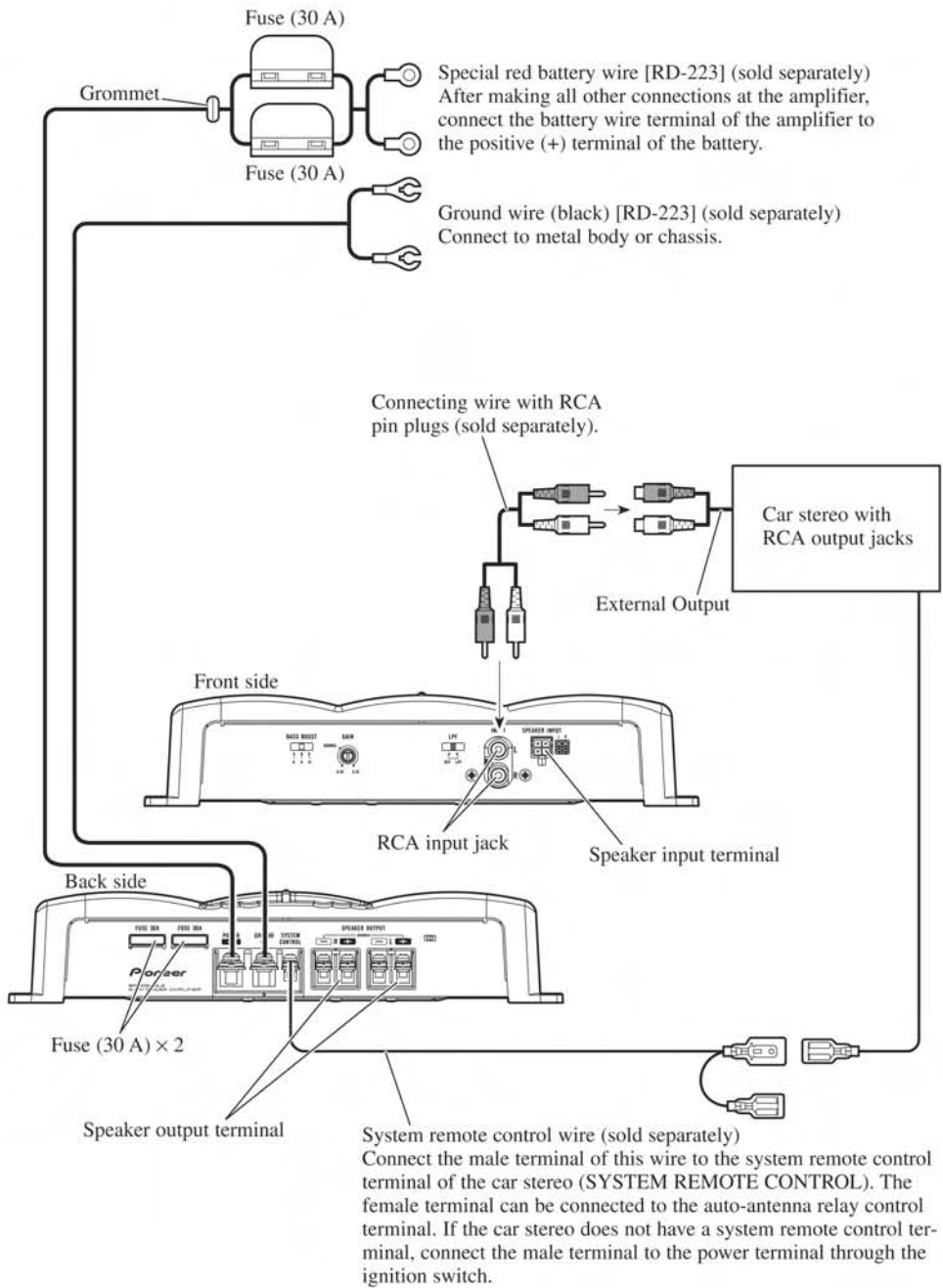


**LPF (Low-Pass Filter) Select Switch**  
Set the LPF select switch as follows according to the type of speaker that is connected to the speaker output connector and the car stereo system:

LPF Select Switch	Audio frequency range to be output	Speaker Type	Remarks
LPF (right)	Very Low Frequency range	Subwoofer	Connect a subwoofer.
OFF (left)	Full range	Full range	

# ● CONNECTION DIAGRAM

A  
B  
C  
D  
E  
F

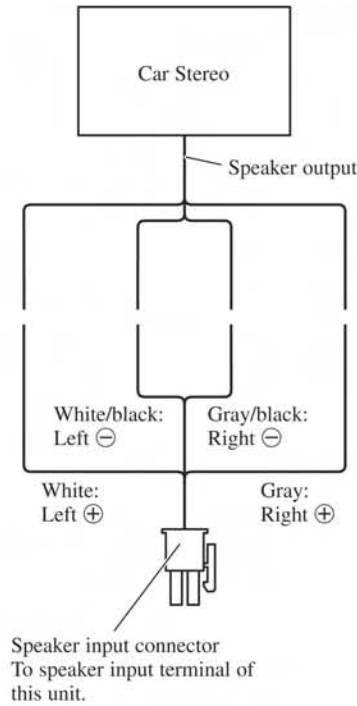


### Using the Speaker Input

Connect the car stereo speaker output wires to the amplifier using the supplied speaker input connector.

- Do not connect both the RCA input and the speaker input at the same time.

#### ■ Connections when using the speaker input



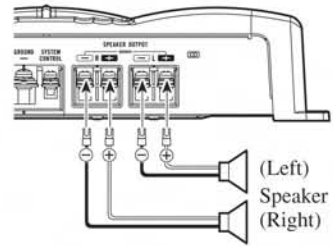
### Connecting the Speaker Wires

The speaker output mode can be two-channel (stereo) or one-channel (mono).

Connect the speaker leads to suit the mode according to the figures shown below.

- Do not connect both the RCA input and the speaker input at the same time.

#### Two-channel mode (stereo)



#### One-channel mode (mono)

