

Service Manual

Stereo Integrated Amplifier

Amplifier

SU-V660

Color

(K)...Black Type



SPECIFICATIONS

(DIN 45 500)

■ AMPLIFIER SECTION

20 Hz~20 kHz continuous power output
both channels driven $2 \times 90 \text{ W (8 } \Omega\text{)}$

1 kHz continuous power output
both channels driven (THD: 1%) $2 \times 100 \text{ W (8 } \Omega\text{)}$
 $2 \times 140 \text{ W (4 } \Omega\text{)}$

63 Hz~12.5 kHz continuous power output
both channels driven (0.7%) $2 \times 90 \text{ W (8 } \Omega\text{)}$
 $2 \times 125 \text{ W (4 } \Omega\text{)}$

Total harmonic distortion (Power Amp Direct Input)
rated power at 20 Hz~20 kHz 0.005 % (8 Ω)
rated power at 1 kHz 0.0009 % (8 Ω)
0.002 % (4 Ω)
half power at 20 Hz~20 kHz 0.005 % (8 Ω)
half power at 1 kHz 0.0009 % (8 Ω)
0.002 % (4 Ω)

Intermodulation distortion
rated power at 50 Hz: 7 kHz = 4:1, SMPTE, 8 Ω 0.007 %

Residual hum and noise 0.2 mV

Damping factor 60 (8 Ω), 30 (4 Ω)

Headphones output level and impedance 635 mV/330 Ω

Load Impedance

A or B $4 \Omega \sim 16 \Omega$

A and B $8 \Omega \sim 16 \Omega$

Input sensitivity and impedance

PHONO MM 2.5 mV/47 k Ω

PHONO MC 170 μ V/220 Ω

TUNER, CD, AUX, TAPE 1, TAPE 2/DAT 150 mV/22 k Ω

POWER AMP DIRECT 1 V/18 k Ω

Phono maximum input voltage (IHF '66, 1 kHz, RMS)

MM 170 mV

MC 12 mV

S/N

rated power (4 Ω)

PHONO MM 79 dB (IHF '66: 86 dB)

PHONO MC 67 dB (IHF '66: 68 dB, 250 μ V)

TUNER, CD, AUX, TAPE 1, TAPE 2/DAT

97 dB (IHF '66: 100 dB)

POWER AMP DIRECT 106 dB (IHF '66: 115 dB)

−26 dB power (4 Ω)

Area

Country Code	Area	Color
(E) (E5)	Continental Europe	(K)
(EB)	Great Britain	(K)
(EG)	F.R. Germany & Italy	(K)
(GC)	Saudi Arabia	(K)
(GN)	Oceania	(K)

PHONO MM 77 dB

PHONO MC 67 dB

TUNER, CD, AUX, TAPE 1, TAPE 2/DAT 84 dB

50 mW power (4 Ω)

PHONO MM 75 dB

PHONO MC 67 dB

TUNER, CD, AUX, TAPE 1, TAPE 2/DAT 78 dB

Frequency response

PHONO RIAA standard curve
 $\pm 0.8 \text{ dB (30 Hz} \sim 15 \text{ kHz)}$

TUNER, CD, AUX, TAPE 1, TAPE 2/DAT
3 Hz~100 kHz (−3 dB)

+0 dB, −0.2 dB (20 Hz~20 kHz)

POWER AMP DIRECT
2 Hz~120 kHz (−3 dB)

+0 dB, −0.2 dB (20 Hz~20 kHz)

Tone controls

BASS 50 Hz, +10 dB, −10 dB

TREBLE 20 kHz, +10 dB, −10 dB

Loudness control (volume at −30 dB) 50 Hz, +9 dB

Output voltage

TAPE 1, TAPE 2/DAT, REC OUT 150 mV

Channel balance, AUX 250 Hz~6,300 Hz $\pm 1 \text{ dB}$

Channel separation, AUX 1 kHz 50 dB

■ GENERAL

Power consumption 690 W

Power supply

For Great Britain and Oceania AC 50 Hz/60 Hz, 240 V

For Continental Europe AC 50 Hz/60 Hz, 220 V

For others AC 50 Hz/60 Hz, 110 V/127 V/220 V/240 V

Dimensions (W $\times$ H $\times$ D) 430 $\times$ 158 $\times$ 370 mm

(16-15/16" $\times$ 6-7/32" $\times$ 14-9/16")

Weight 11.5 kg (25.4 lb.)

Weight

Notes:

- Specifications are subject to change without notice.
Weight and dimensions are approximate.
- Total harmonic distortion is measured by the digital spectrum analyzer.

Technics

Matsushita Electric Industrial Co., Ltd.

Central P.O. Box 288, Osaka 530-91, Japan

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■ BEFORE REPAIR AND ADJUSTMENT

- (1) Turn off the power supply. Using a 10Ω, 10W resistor, shortcircuit both ends of power supply capacitors (C705,C706) in order to discharge the voltage.
- (2) Before turning on the power switch of the unit.
 - A. Connect the voltage controller to the primary side.
 - B. Connect the AC ampere meter to the primary side or connect the DC voltage meter to the "±B" circuit of the secondary side.
 - C. Turn the VR of ICQ (VR451 and VR452) to minimum (counterclockwise).
 - D. After setting the output to zero of the voltage controller, turn on the power switch of the unit.
And increase the output of voltage controller gradually.
Then, check carefully whether the current value of primary side become more than following value or whether the DC voltage of secondary side is increasing slowly.
 - E. If the value of current is increasing unusually or the DC voltage is not increasing, lower the output level of voltage controller immediately.
- The current value of the primary side at no signal. (Confirm the power supply voltage of each area and provided voltage of the unit.)

Power supply voltage		AC 110 V	AC 120 V	AC 220 V	AC 240 V
Consumed current	50 Hz	200~600 mA	180~550 mA	120~360 mA	100~300 mA
	60 Hz	180~550 mA	160~530 mA	110~330 mA	90~280 mA

■ PROTECTION CIRCUITRY

The protection circuitry of the amplifier may have operated if either of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlined below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again.

Note:

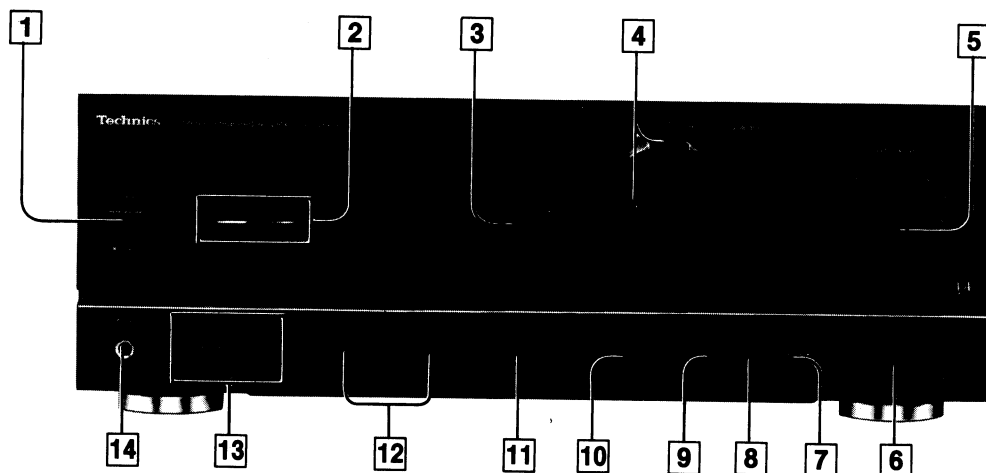
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ ACCESSORIES

- | | | | |
|------------------------------|-------------------------------|-------------------------|---------------------|
| ● AC power supply cord | 1 | ● AC plug adaptor | 1 |
| (SFDAC05E03) | For (E), (E5) and (EG) areas. | (SJP9215) | For (GC) area only. |
| (SJA193) | For (EB) area only. | | |
| (RJA0004) | For (GC) area only. | | |
| (SJA173) | For (GN) area only. | | |

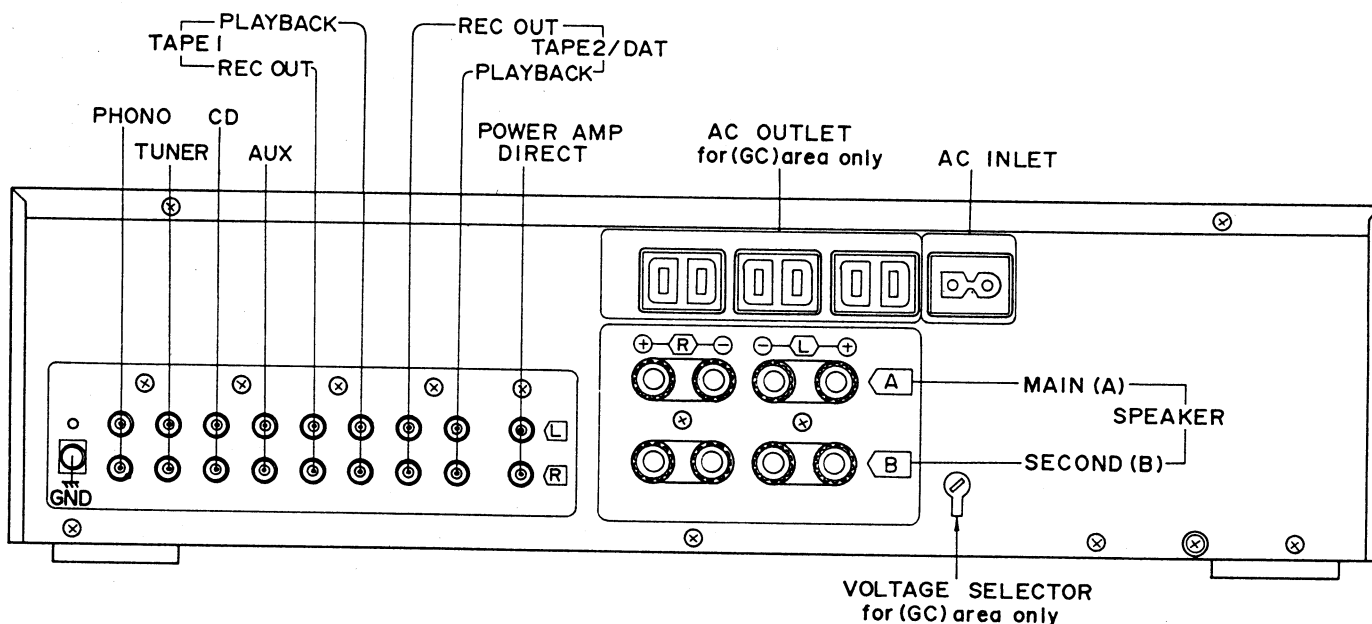
LOCATION OF CONTROLS

•Front Panel



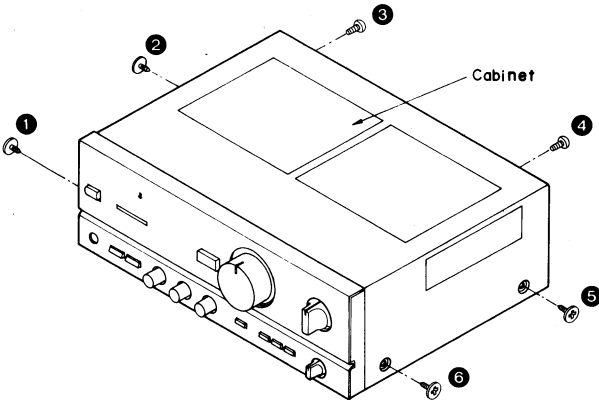
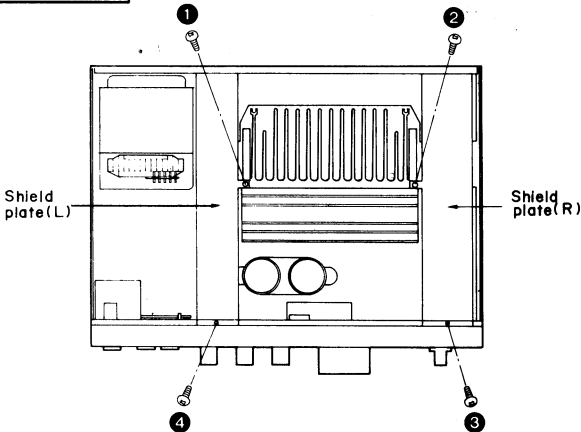
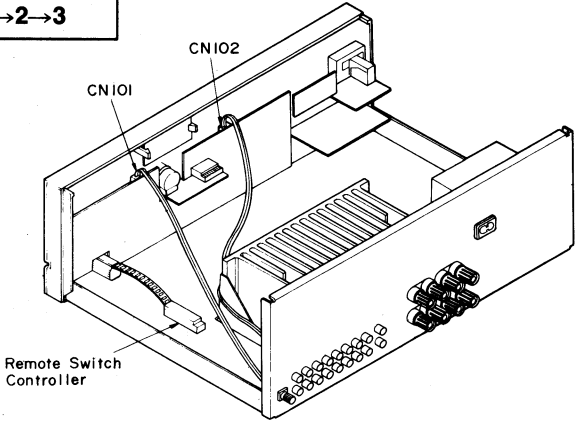
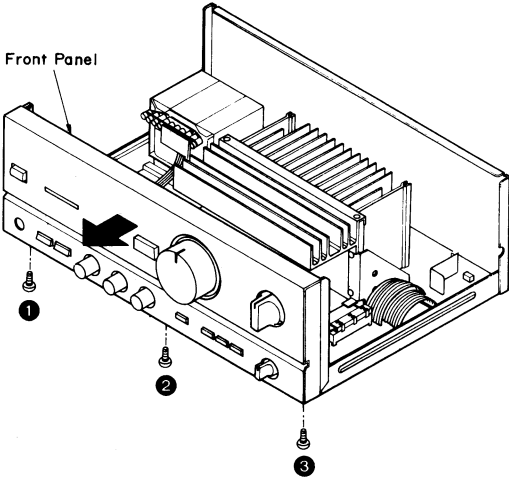
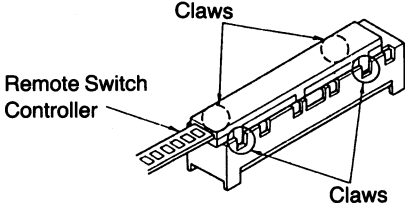
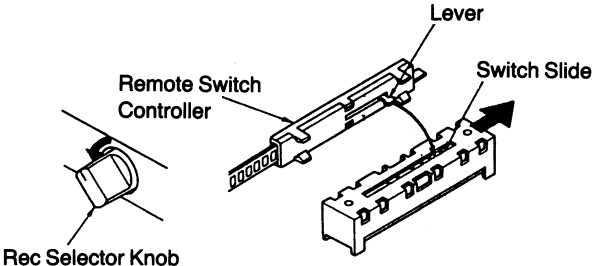
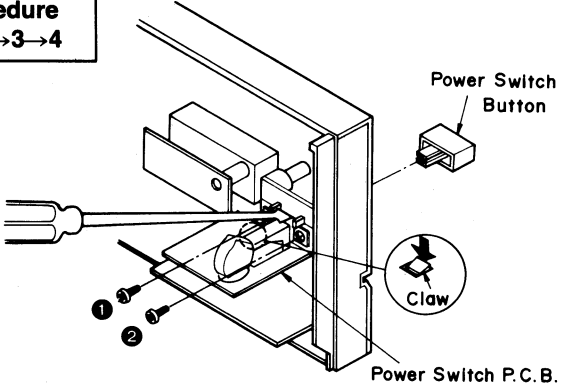
- | | |
|---|--|
| 1 Power switch (power) | 7 Phono cartridge selector (phono selector) |
| 2 Operation indicators (amplifier operation monitor) | 8 Mode selector (mode) |
| 3 Power amplifier direct switch (power amp direct) | 9 Loudness switch (loudness) |
| 4 Volume control/indicator (volume) | 10 Tone control switch (tone control) |
| 5 Input selector (input selector) | 11 Balance control (balance) |
| 6 Recording output selector (rec selector) | 12 Tone controls (bass/treble) |
| | 13 Speaker selectors (speakers) |
| | 14 Headphones jack (phones) |

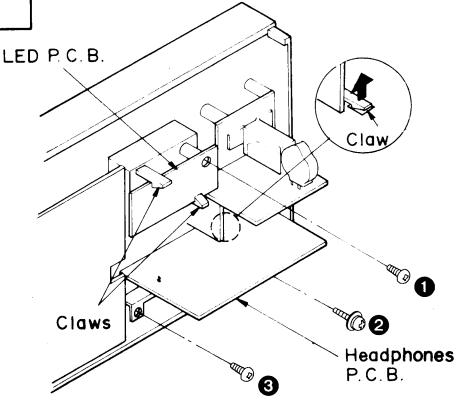
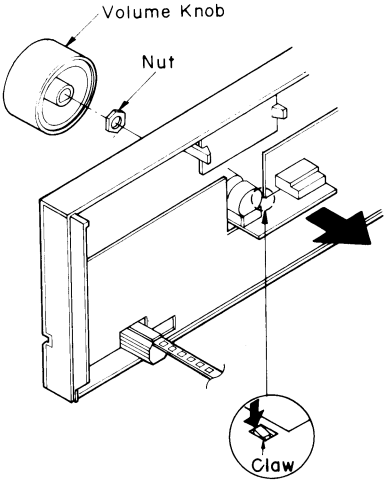
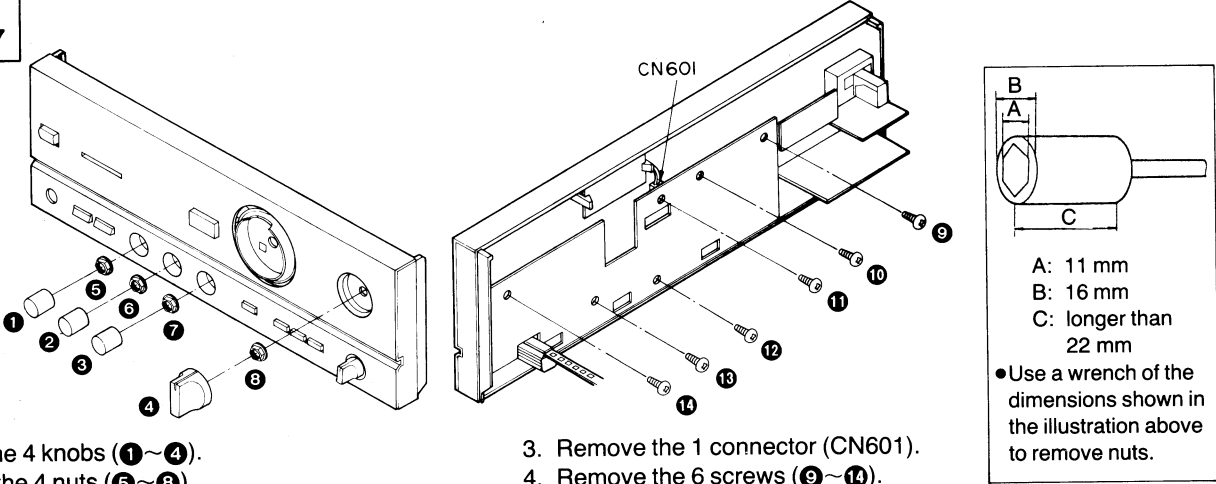
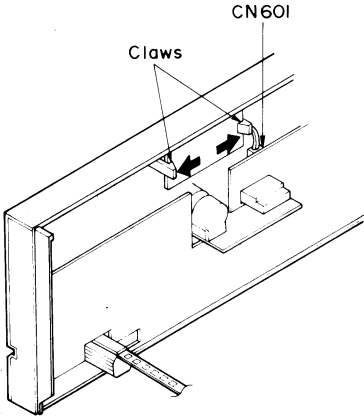
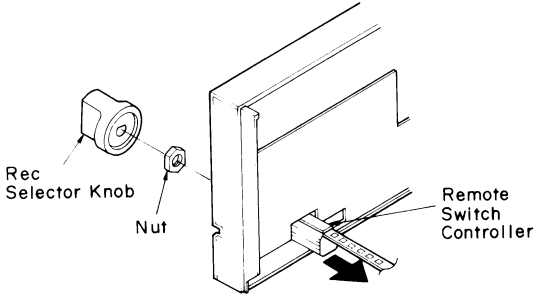
•Rear Panel



*Phono input capacitance is about 270 pF for EG area (about 100 pF for other areas).

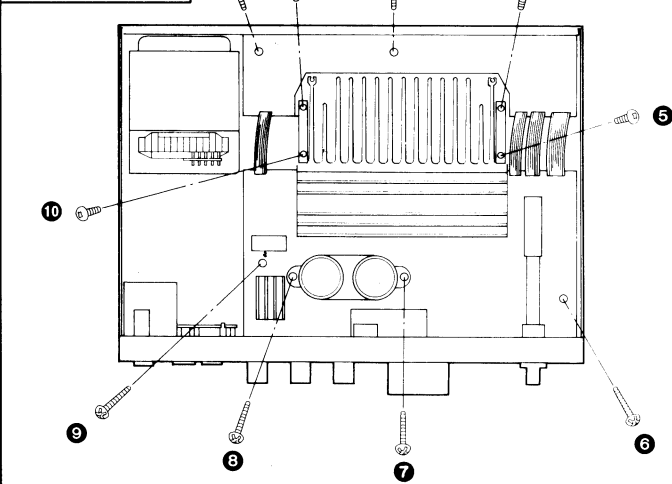
DISASSEMBLY INSTRUCTIONS

Ref. No. 1 Removal of the cabinet	Ref. No. 2 Removal of the shield plate (L) and shield plate (R)
Procedure 1  ●Remove the 6 screws (①~⑥).	Procedure 1→2  ●Remove the 4 screws (①~④).
Ref. No. 3 Removal of the front panel	3. Remove the 3 screws (①~③). 4. Remove the front panel in the direction of the arrow.
Procedure 1→2→3  1. Remove the 2 connectors (CN101, CN102). 2. Remove the remote switch controller.	 ■ Removal of the remote switch controller ●Remove the 4 claws.  ■ Replacing of the remote switch controller 1. Fully rotate the Recording Selector Control counterclockwise. 2. Push the Switch Slide in the direction of the arrow. 
Ref. No. 4 Removal of the power switch P.C.B.	
Procedure 1→2→3→4  1. Remove the 2 screws (①, ②). 2. Remove the power switch button by pushing it from behind the front panel. 3. Release the 1 claw.	

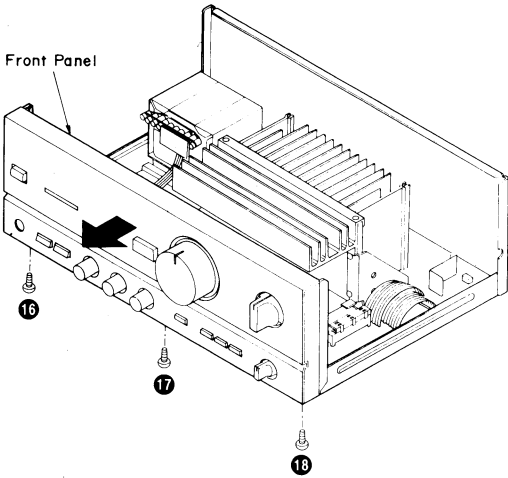
Ref. No. 5 Procedure 1→2→3→5	Removal of the LED P.C.B. and headphones P.C.B.	Ref. No. 6 Procedure 1→2→3→6	Removal of the volume P.C.B.
	 Removal of the LED P.C.B. 1. Remove the 1 screw (①). 2. Release the 2 claws. Removal of the headphones P.C.B. 1. Remove the 2 screws (②, ③). 2. Release the 1 claw.	 1. Pull out the volume knob. 2. Remove the nut. 3. Release the 1 claw.	
Ref. No. 7 Procedure 1→2→3→6→7	Removal of the operation P.C.B.	 1. Pull out the 4 knobs (①~④). 2. Remove the 4 nuts (⑤~⑧). 3. Remove the 1 connector (CN601). 4. Remove the 6 screws (⑨~⑭). A: 11 mm B: 16 mm C: longer than 22 mm • Use a wrench of the dimensions shown in the illustration above to remove nuts.	
Ref. No. 8 Procedure 1→2→3→7	Removal of the remote switch controller	Ref. No. 9 Procedure 1→2→3→8	Removal of the volume LED P.C.B.
	 1. Remove the 1 connector (CN601). 2. Release the 2 claws.		 1. Pull out the rec selector knob. 2. Remove the nut. 3. Remove the remote switch controller in the direction of the arrow.

Ref. No. 10	Checking of the main P.C.B.
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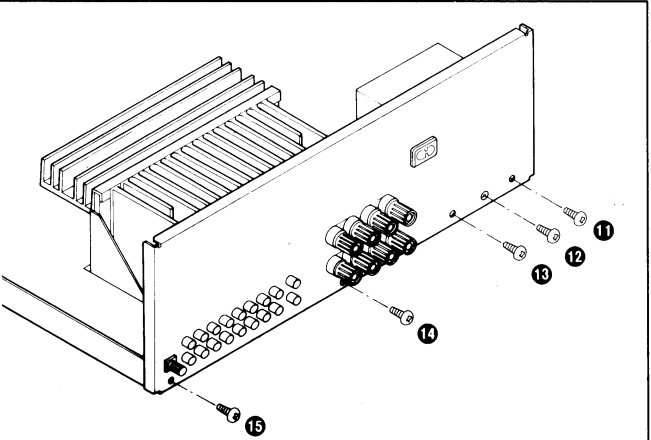
Procedure 1→2→10



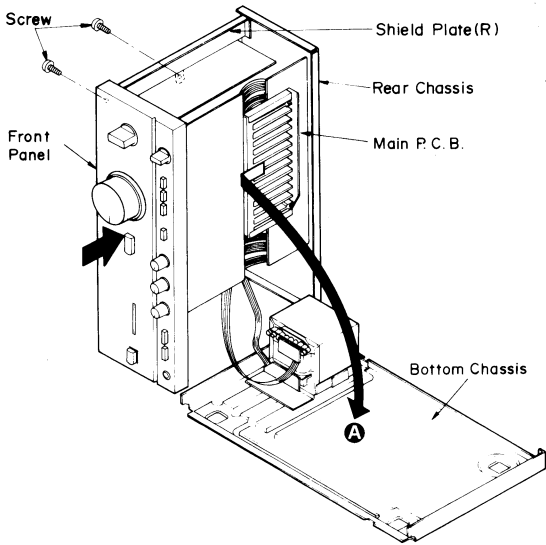
1. Remove the 10 screws (1~10).



3. Remove the 3 screws (16~18).
4. Remove the front panel.



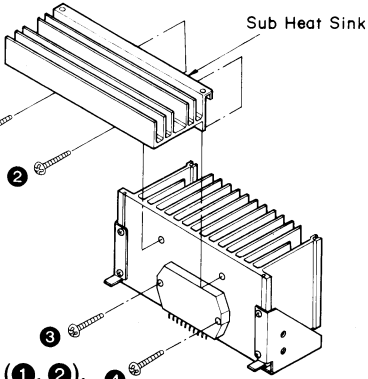
2. Remove the 5 screws (11~15).



5. Remove the bottom chassis in the direction of the arrow (A).
6. Reinstall the front panel to the main P.C.B.
7. Insert the shield plate (R) in the unit between the front panel and rear chassis and then secure it with the screws.

Ref. No. 11	Removal of the power IC
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Procedure 1→2→10→11

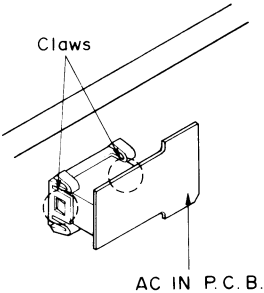


1. Remove the 2 screws (1, 2).
2. Remove the sub heat sink.
3. Unsolder the power IC.
4. Remove the 2 screws (3, 4).

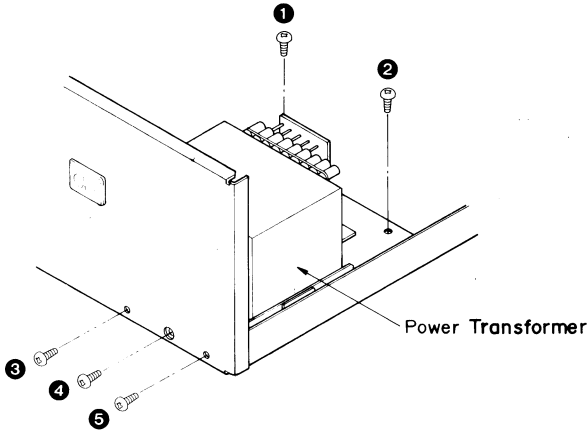
●When mounting the power IC, apply silicon thermal compound (SZZ0L15 or equivalent) to the rear of the power IC.

Ref. No. 12	Removal of the AC IN P.C.B.
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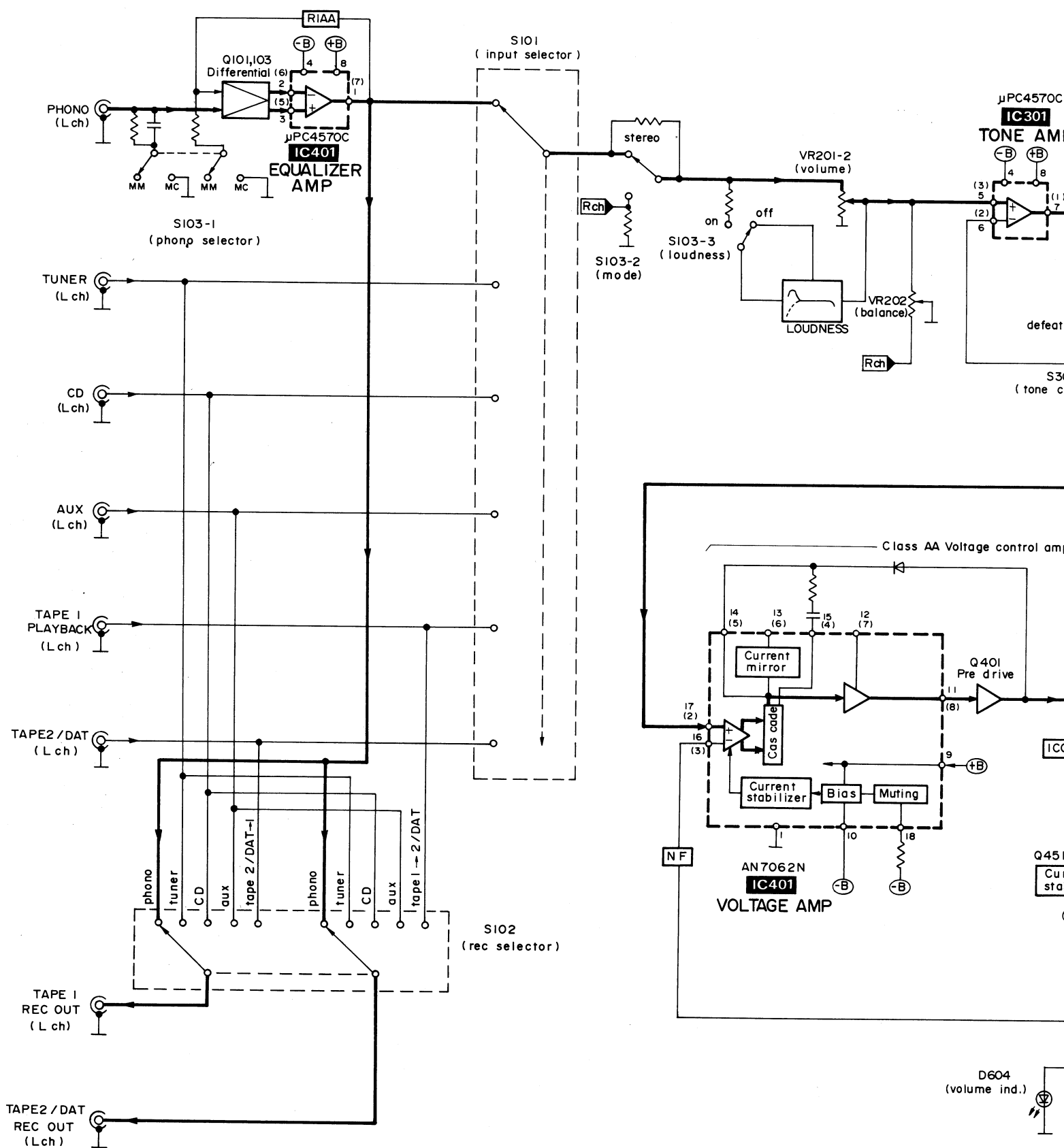
Procedure 1→2→12

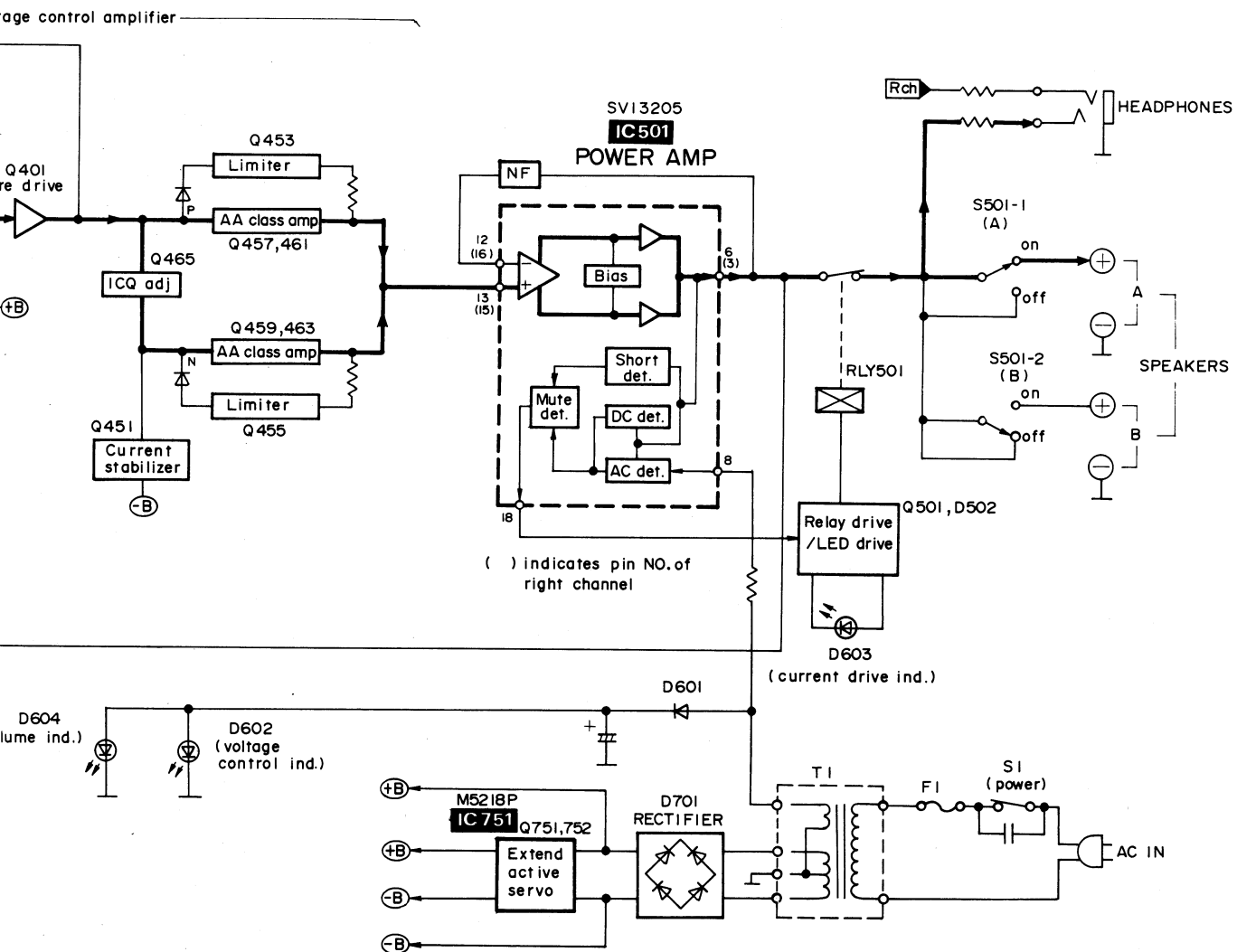
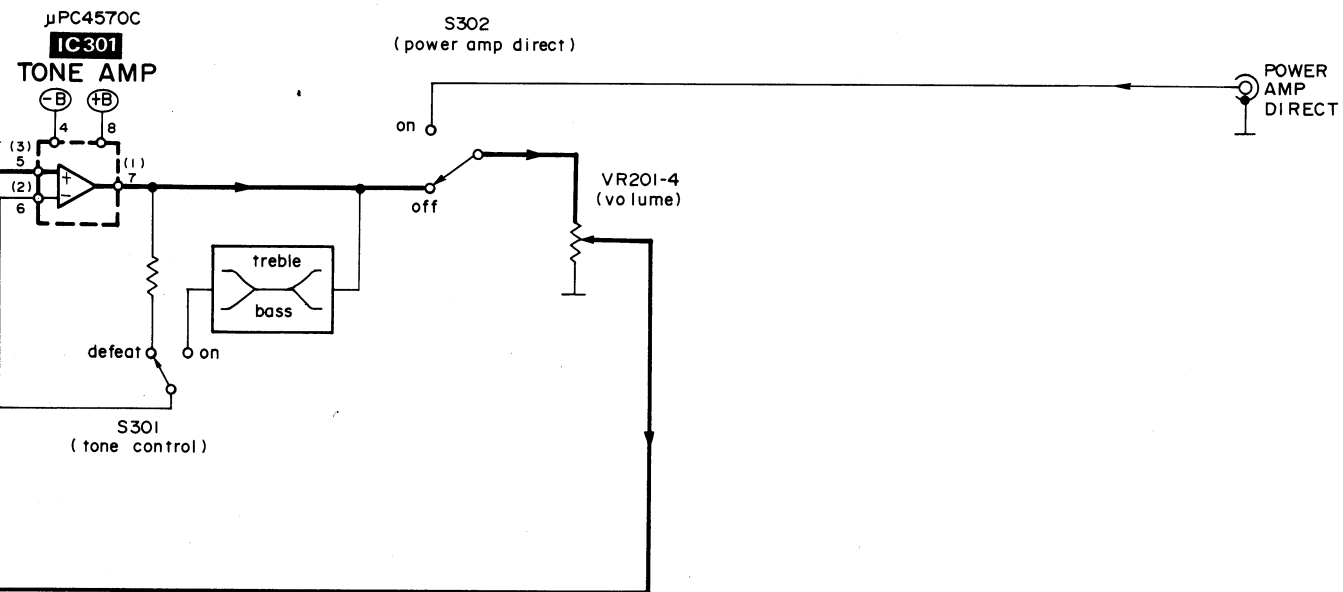


●Release the 2 claws.

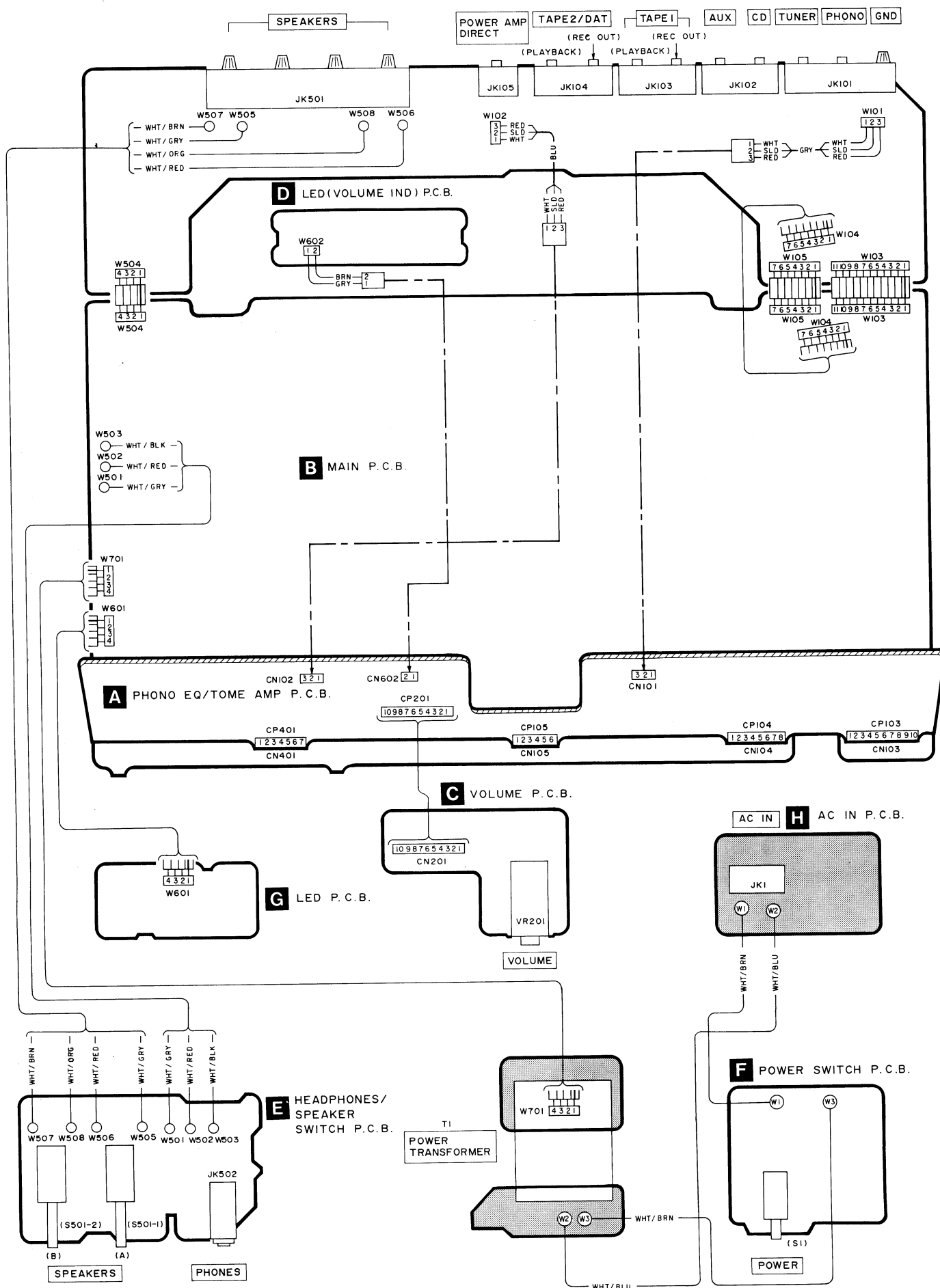
Ref. No. 13	Removal of the power transformer	
Procedure 1→13		
Remove the 5 screws (①~⑤).		

BLOCK DIAGRAM





■ WIRING CONNECTION DIAGRAM



A horizontal number line with arrows at both ends. There are five major tick marks labeled 1, 2, 3, 4, and 5 from left to right. There are also four minor tick marks between each pair of major tick marks, dividing each unit into five equal intervals.



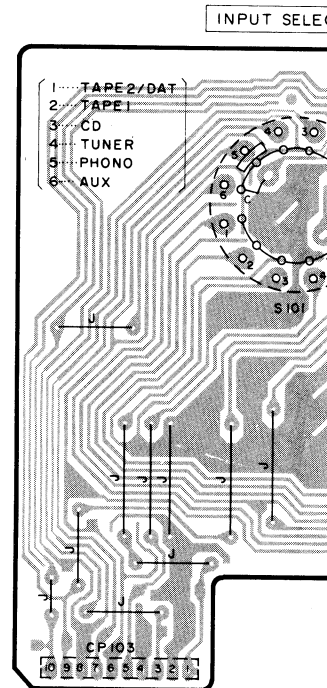
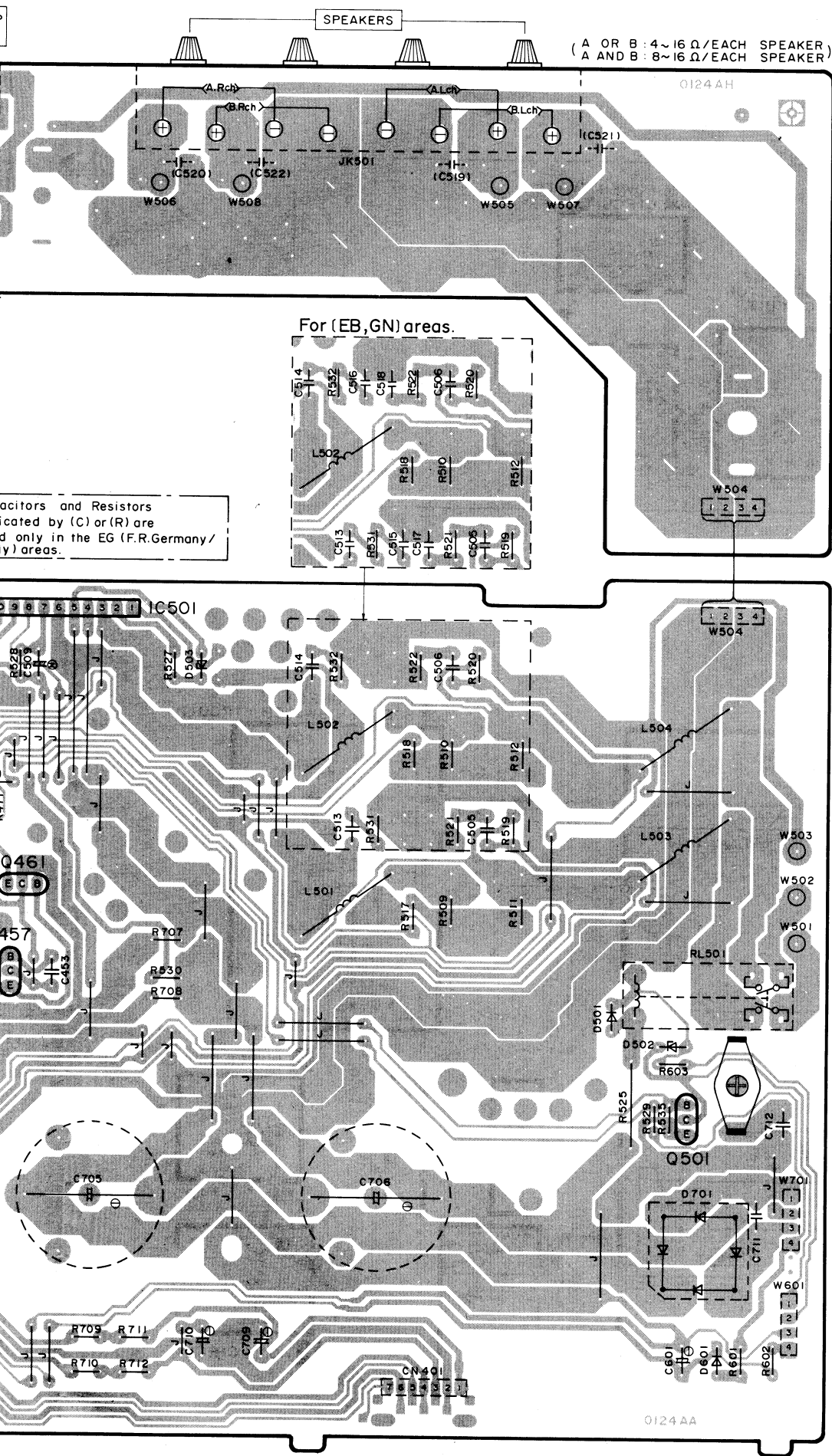
B MAIN P.C.B.

Voltage control
amp. ICQ adj. point

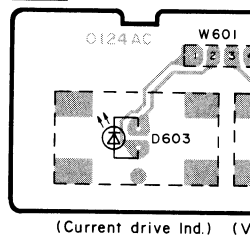
(1...Lch,+ 2...Lch,-)
(3...Rch,- 4...Rch,+)

Note:

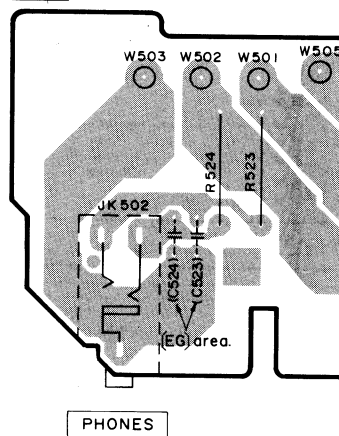
-- --(C)	} Capacitors and Resistors indicated by (C) or (R) and used only in the EG (F. Italy) areas.
-----(R)	



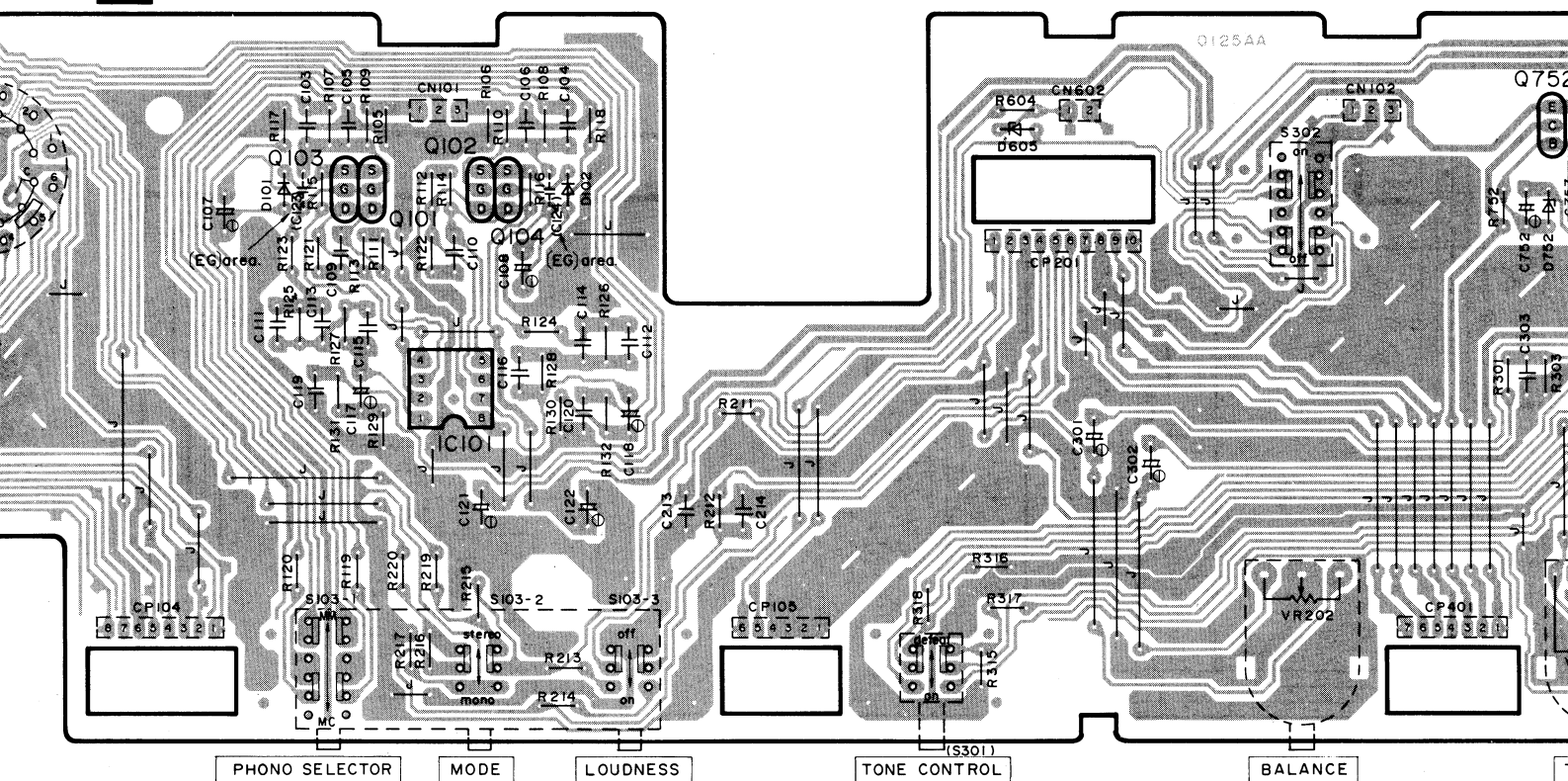
G LED P.C.B.



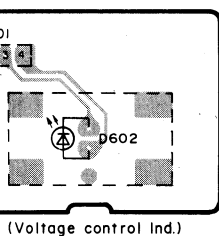
E HEADPHONES/SPEAKERS



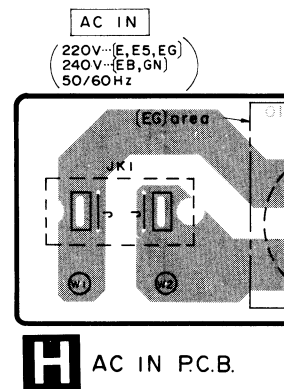
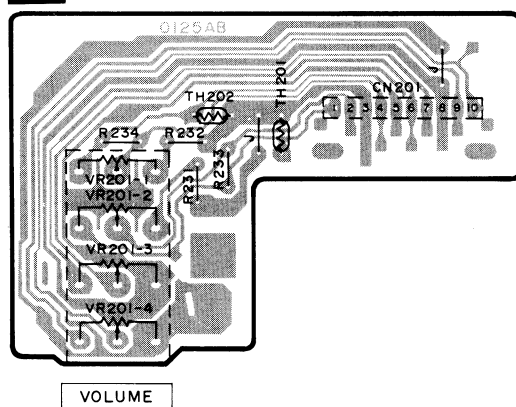
A



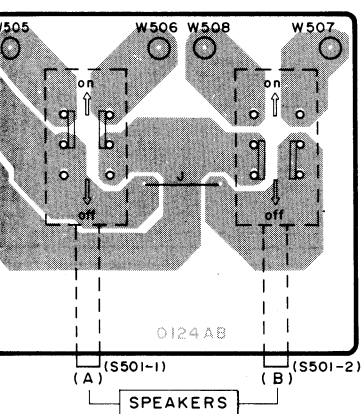
C VOLUME P.C.B.



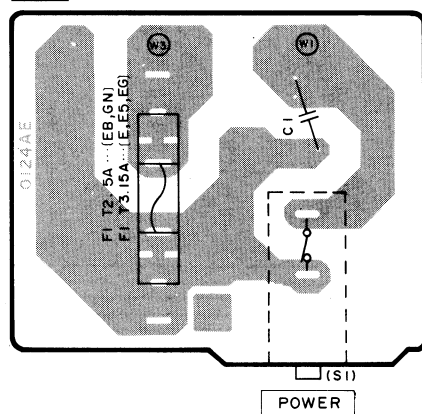
(Voltage control Ind.)



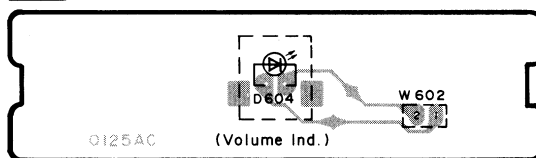
BREAKER SWITCH P.C.B.



F POWER SWITCH P.C.B.



D LED (VOLUME IND.) P.C.B.



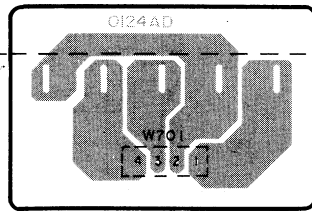
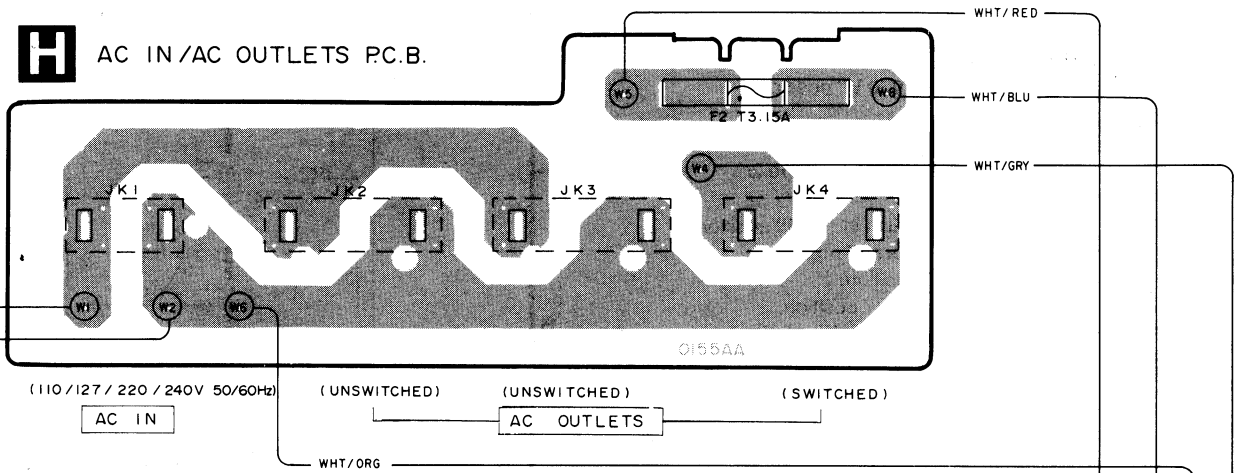
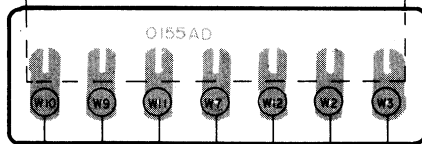
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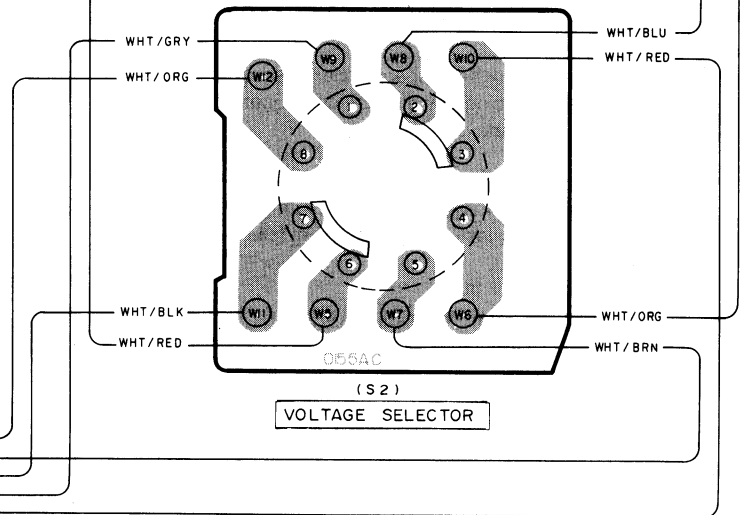
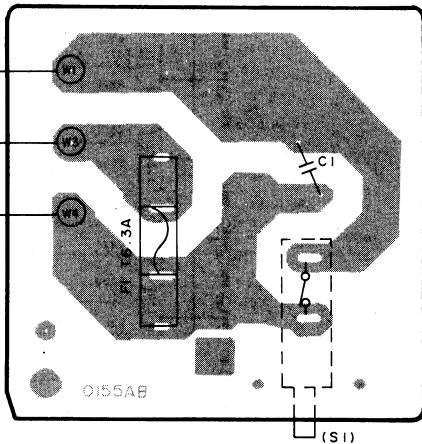
20

21

Power Source For(GC)area.

H AC IN/AC OUTLETS PC.B.T1
(Power transformer)

WHT/BLU
WHT/BLK
WHT/ORG
WHT/BRN
WHT/BLK
WHT/GRY
WHT/RED

I VOLTAGE SELECTOR PC.B.**F** POWER SWITCH PC.B.

POWER

Notes:

- S1 : Power switch in “on” position.
- S2 : Voltage selector switch in “220 V” position.
for (GC) area only.
- S101 : Input selector switch in “phono” position.
- S102 : Recording output selector switch in “**tape 2/**
DAT▶1” position.
- S103-1 : Phono cartridge selector switch in “MM” position.
- S103-2 : Mode selector switch in “stereo” position.
- S103-3 : Loudness switch in “off” position.
- S301 : Tone control switch in “defeat” position.
- S302 : Power amplifier direct switch in “off” position.
- S501-1 : Speaker (A) selector switch in “off” position.
- S501-2 : Speaker (B) selector switch in “off” position.
- < — : Positive voltage lines.
- < >-- : Negative voltage lines.
-  : Phono Signal (Lch)
-  : Recording Signal

Important safety notice:

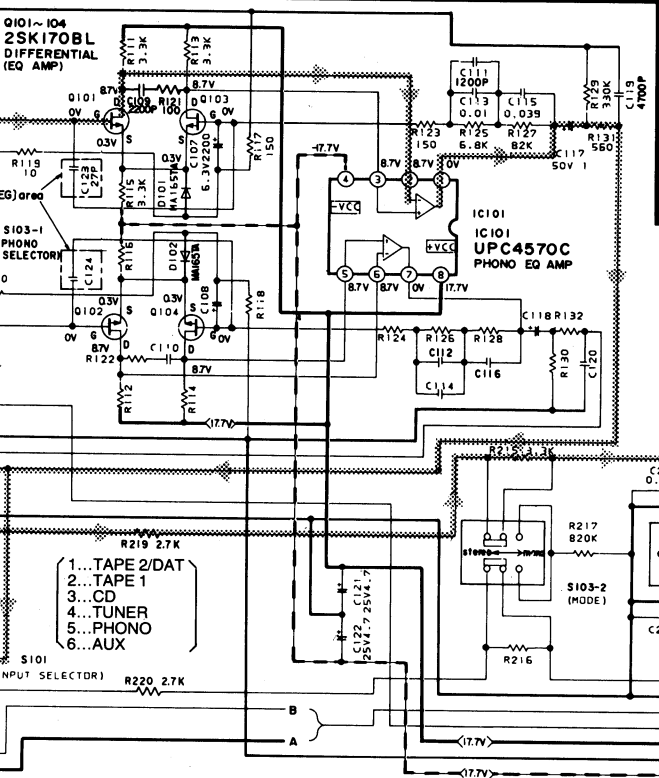
Components identified by mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

***Caution!**

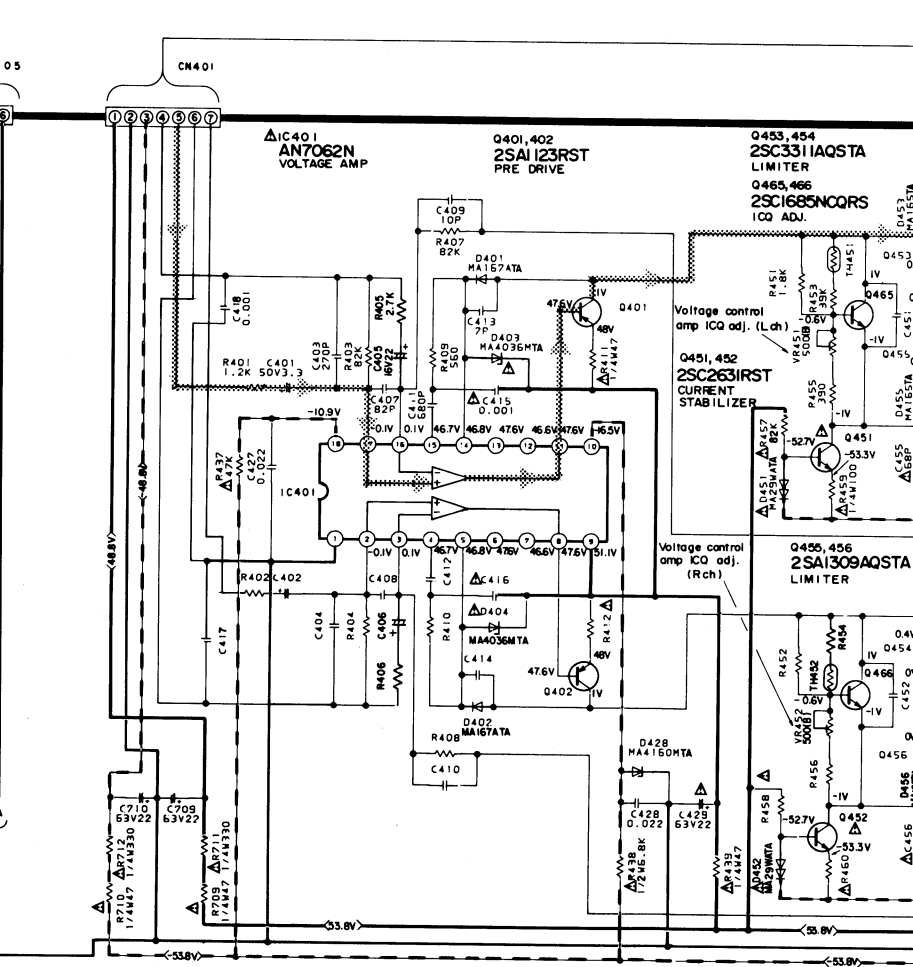
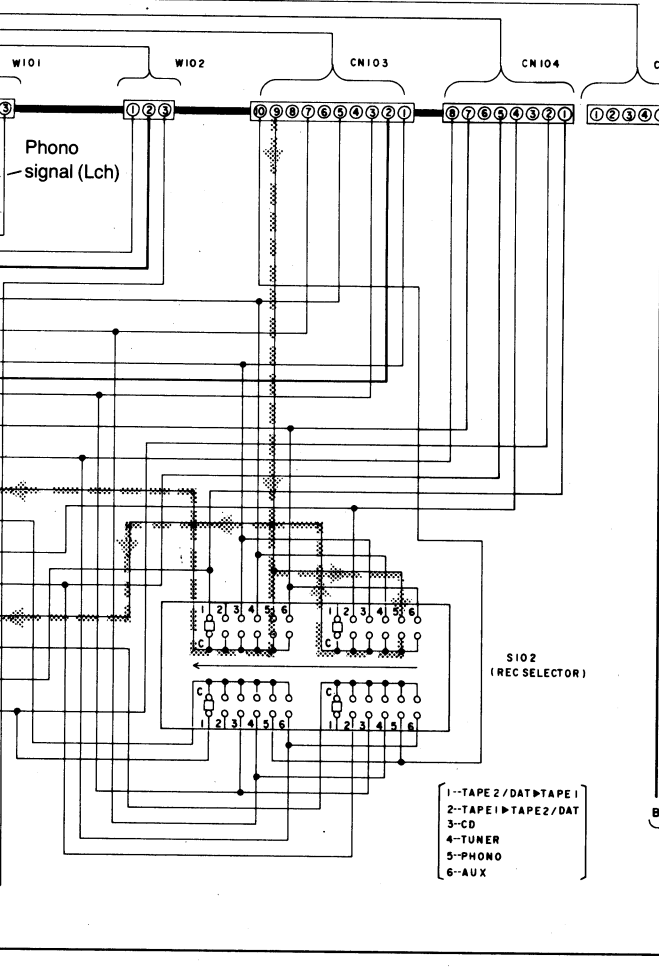
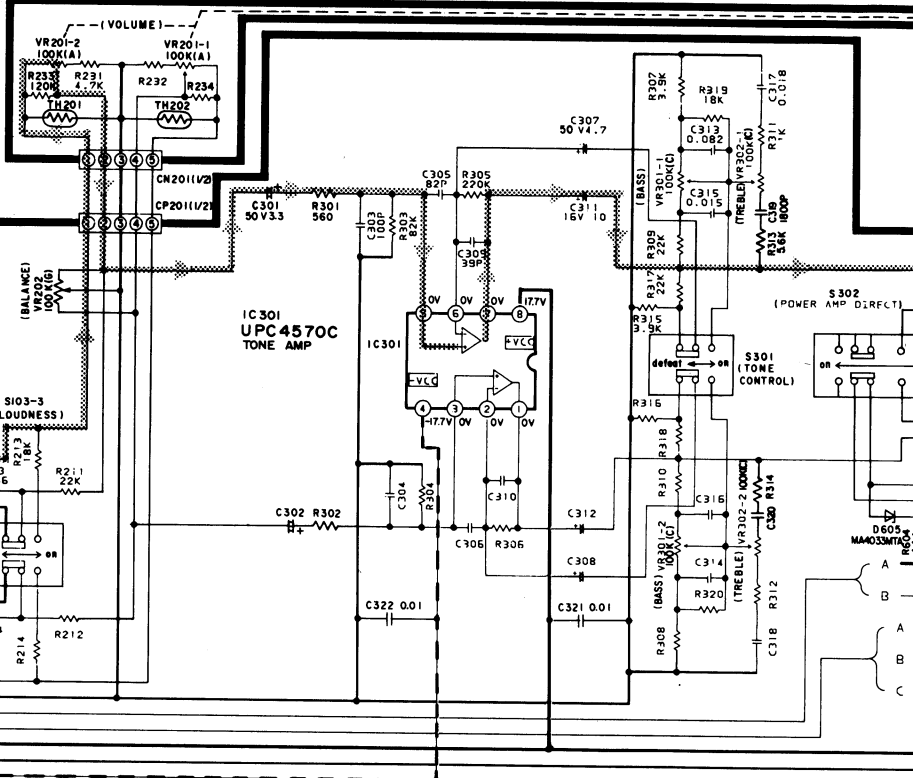
- IC and LSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.

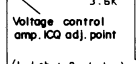
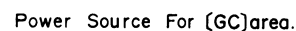


UIT



C VOLUME CIRCUIT





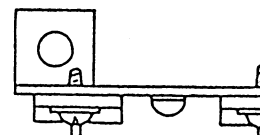
Control positions and

- Volume knob.....
- Main speaker select

VOLTAGE CONTROL

1. Test equipment connected to EVM on both channels.
2. Completely turn the (VOLUME) knob counter-clockwise.
3. Turn ON the set when the volume knob and VR452 so that the volume is at a minimum. Also, check that the volume is at a minimum after lapse of 10-15 min. (60 min.)

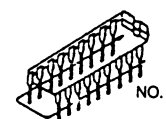
Adjustment points



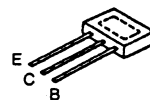
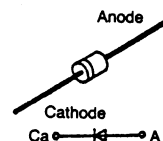
VR451



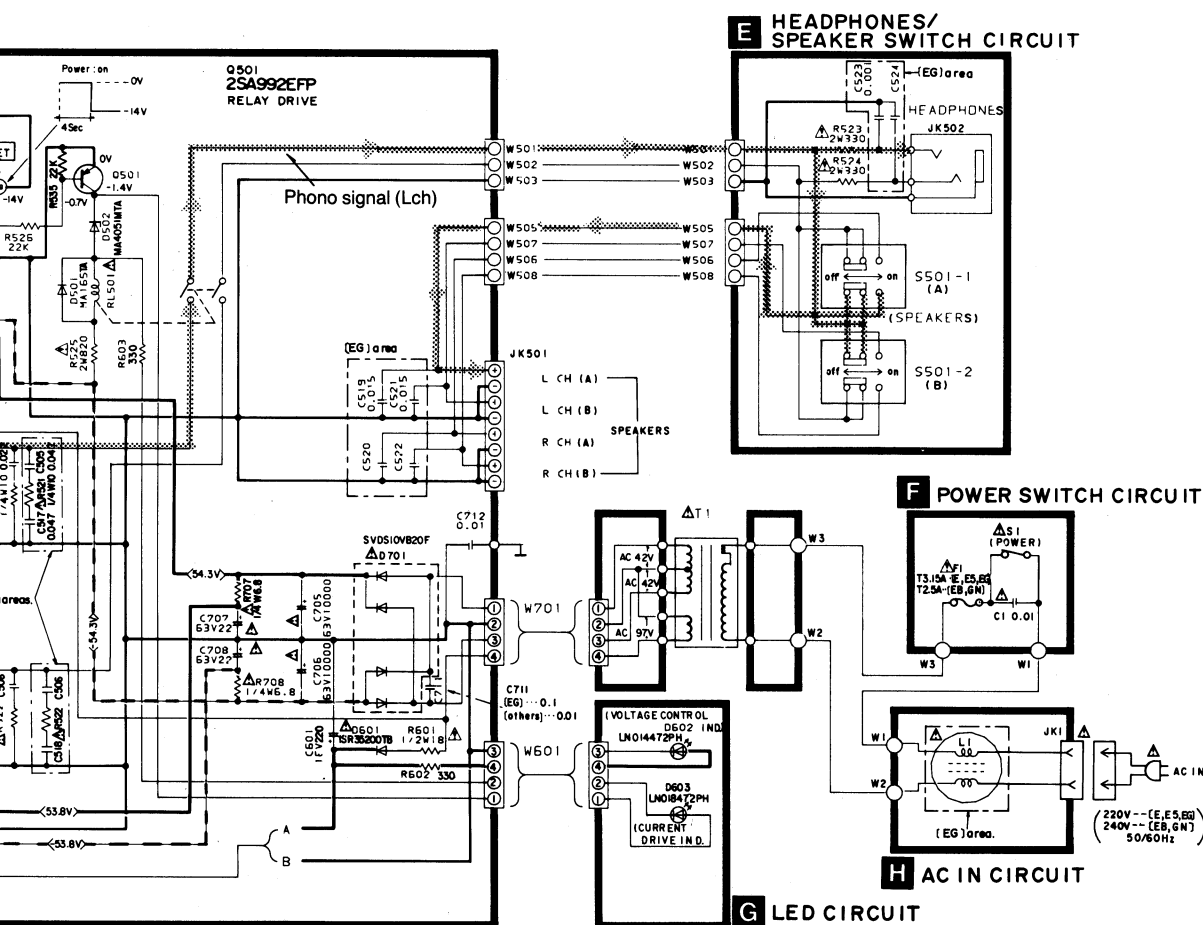
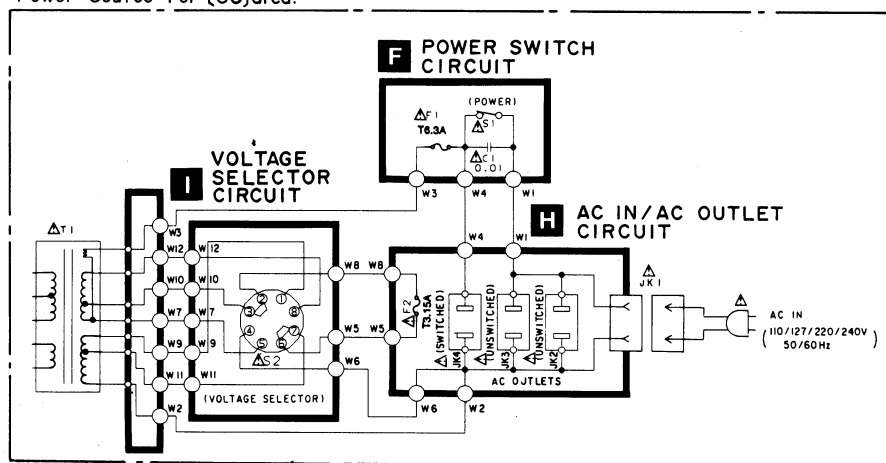
TERMINAL



2SC3311, 2SA1309

MA165, MA16, MA4051
MA29, 1SR35200TB

Power Source For (GC) area.



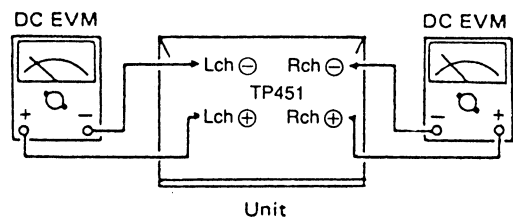
MEASUREMENTS AND ADJUSTMENTS

Control positions and equipment used.

- Volume knob.....∞ (Minimum)
- Main speaker selector.....off
- Remote speaker selector.....off
- Balance control knob 0

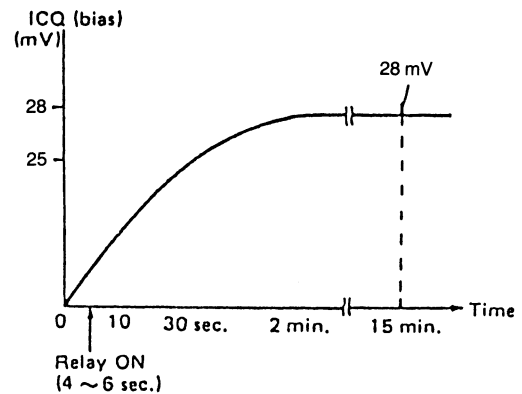
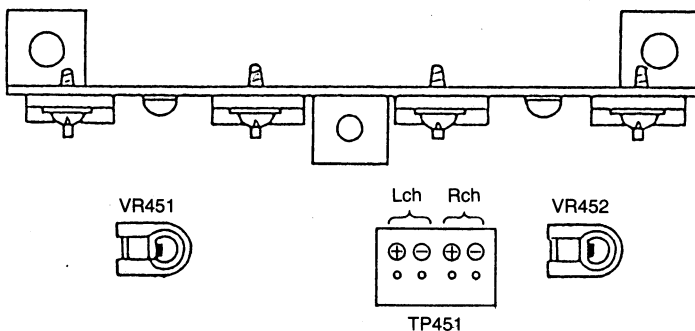
VOLTAGE CONTROL (V) AMP. IDLING (ICQ) ADJUSTMENT

1. Test equipment connection is shown in figure. (Connect the DC EVM on both channels.)
2. Completely turn the (V) amp. adjusting volumes (VR451, VR452) counter-clockwise.
3. Turn ON the set when it is cold, and 15 sec. later, adjust VR451 and VR452 so that the voltage is 25 mV.
Also, check that the voltage is 25~30 mV (standard: 28 mV) after lapse of 10~15 minutes. (Below 30 mV after lapse of 60 min.)

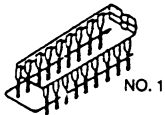
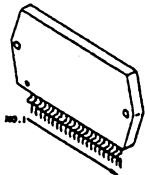
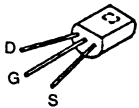
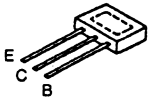
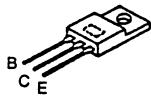
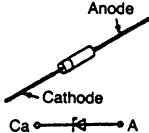
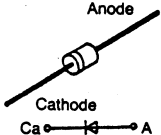


Adjustment points

Voltage control Amp.



TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

	<table><tr><td>UPC4570C</td><td>8 pin</td></tr><tr><td>AN7062N</td><td>18 pin</td></tr><tr><td>M5218P</td><td>8 pin</td></tr></table>	UPC4570C	8 pin	AN7062N	18 pin	M5218P	8 pin	SVI3205 18 pin 	2SK170 2SA1123 2SC1685, 2SC2631 2SA992 
UPC4570C	8 pin								
AN7062N	18 pin								
M5218P	8 pin								
2SC3311, 2SA1309 	2SC3944, 2SA1535 	MA4036, MA4160 MA4033, MA4180 	SVDS10VB20 						
MA165, MA16, MA4051 MA29, 1SR35200TB 									

REPLACEMENT PARTS LIST

Notes: *Important safety notice:

Components identified by  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

*The parenthesized indications in the Remarks columns specify the areas. (Refer to the first page for area.)

Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		RESISTORS		R439	ERD25FVJ470T	C. RESISTOR 1/4W 47	
				R451, 452	ERDS2TJ182T	C. RESISTOR 1/4W 1.8K	
				R453, 454	ERDS2TJ393T	C. RESISTOR 1/4W 39K	
R101 ~ 104	ERDS2TJ102T	C. RESISTOR 1/4W 1K	(EG)	R455, 456	ERDS2TJ391T	C. RESISTOR 1/4W 390	
R105, 106	ERDS2TJ473T	C. RESISTOR 1/4W 47K		R457, 458	ERDS2TJ823T	C. RESISTOR 1/4W 82K	
R107, 108	ERDS2TJ221T	C. RESISTOR 1/4W 220		R459, 460	ERD25FVJ101T	C. RESISTOR 1/4W 100	
R109, 110	ERDS2TJ220T	C. RESISTOR 1/4W 22		R461 ~ 464	ERDS2TJ223T	C. RESISTOR 1/4W 22K	
R111 ~ 116	ERDAS3G332T	C. RESISTOR 1/4W 3.3K		R465 ~ 468	ERD25FVJ101T	C. RESISTOR 1/4W 100	
R117, 118	ERDS2TJ151T	C. RESISTOR 1/4W 150		R469, 470	ERD25FVJ821T	C. RESISTOR 1/4W 820	
R119, 120	ERDS2TJ100T	C. RESISTOR 1/4W 10		R471 ~ 474	ERD25FVJ2R2T	C. RESISTOR 1/4W 2.2	
R121, 122	ERDS2TJ101T	C. RESISTOR 1/4W 100		R501, 502	ERDS2TJ362T	C. RESISTOR 1/4W 3.6K	
R123, 124	ERDS2TJ151T	C. RESISTOR 1/4W 150		R503, 504	ERDS2TJ121T	C. RESISTOR 1/4W 120	
R125, 126	ERDS2TJ682T	C. RESISTOR 1/4W 6.8K		R505, 506	ERDS2TJ392T	C. RESISTOR 1/4W 3.9K	
R127, 128	ERDS2TJ823T	C. RESISTOR 1/4W 82K		R507, 508	ERDS2TJ121T	C. RESISTOR 1/4W 120	
R129, 130	ERDS2TJ334T	C. RESISTOR 1/4W 330K		R509 ~ 512	RREEMKR10SC	C. RESISTOR 2W 0.1	
R131, 132	ERDS2TJ561T	C. RESISTOR 1/4W 560		R513 ~ 516	ERD25FVJ100T	C. RESISTOR 1/4W 10	
R201, 202	ERDS2TJ102T	C. RESISTOR 1/4W 1K	(EG)	R517, 518	ERD25FVJ1R0T	C. RESISTOR 1/4W 1.0	
R203, 204	ERDAS3G102T	C. RESISTOR 1/4W 1K	(EG)	R519 ~ 522	ERD25FVJ100T	C. RESISTOR 1/4W 10	
R205 ~ 210	ERDS2TJ102T	C. RESISTOR 1/4W 1K	(EG)	R523, 524	ERG2SJ331H	M. RESISTOR 2W 330	
R211, 212	ERDAS3G223T	C. RESISTOR 1/4W 22K		R525	ERG2SJ821H	M. RESISTOR 2W 820	
R213, 214	ERDS2TJ183T	C. RESISTOR 1/4W 18K		R526, 527	ERDS2TJ223T	C. RESISTOR 1/4W 22K	
R215, 216	ERDS2TJ332T	C. RESISTOR 1/4W 3.3K		R528	ERDS2TJ824T	C. RESISTOR 1/4W 820K	
R217	ERDS2TJ824T	C. RESISTOR 1/4W 820K		R529	ERDS2TJ124T	C. RESISTOR 1/4W 120K	
R219, 220	ERDAS3G272T	C. RESISTOR 1/4W 2.7K		R530	ERDS1FVJ682T	C. RESISTOR 1/2W 6.8K	
R221 ~ 224	ERDS2TJ471T	C. RESISTOR 1/4W 470	(EG)	R531, 532	ERDS1FVJ100T	C. RESISTOR 1/2W 10	
R225, 226	ERDS2TJ102T	C. RESISTOR 1/4W 1K	(EG)	R533, 534	ERDS2TJ182T	C. RESISTOR 1/4W 1.8K	
R231, 232	ERDAS3G472T	C. RESISTOR 1/4W 4.7K		R535	ERDS2TJ223T	C. RESISTOR 1/4W 22K	
R233, 234	ERDAS3G124T	C. RESISTOR 1/4W 120K		R601	ERDS1FVJ180T	C. RESISTOR 1/2W 18	
R251, R252	ERDAS3G102T	C. RESISTOR 1/4W 1K	(EG)	R602, 603	ERDS2TJ331T	C. RESISTOR 1/4W 330	
R301, 302	ERDAS3G561T	C. RESISTOR 1/4W 560		R604	ERDS2TJ471T	C. RESISTOR 1/4W 470	
R303, 304	ERDS2TJ823T	C. RESISTOR 1/4W 82K		R707, 708	ERD25FVJ6R8T	C. RESISTOR 1/4W 6.8	
R305, 306	ERDS2TJ224T	C. RESISTOR 1/4W 220K		R709, 710	ERD25FVJ470T	C. RESISTOR 1/4W 47	
R307, 308	ERDS2TJ392T	C. RESISTOR 1/4W 3.9K		R711, 712	ERD25FVJ331T	C. RESISTOR 1/4W 330	
R309, 310	ERDS2TJ223T	C. RESISTOR 1/4W 22K		R751, 752	ERDS2TJ223T	C. RESISTOR 1/4W 22K	
R311, 312	ERDS2TJ102T	C. RESISTOR 1/4W 1K		R753	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R313, 314	ERDS2TJ562T	C. RESISTOR 1/4W 5.6K		R754	ERDS2TJ153T	C. RESISTOR 1/4W 15K	
R315, 316	ERDAS3G392T	C. RESISTOR 1/4W 3.9K		R755	ERDS2TJ823T	C. RESISTOR 1/4W 82K	
R317, 318	ERDAS3G223T	C. RESISTOR 1/4W 22K		R756	ERDS2TJ153T	C. RESISTOR 1/4W 15K	
R319, 320	ERDS2TJ183T	C. RESISTOR 1/4W 18K		R757, 758	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R401, 402	ERDS2TJ122T	C. RESISTOR 1/4W 1.2K					
R403, 404	ERDS2TJ823T	C. RESISTOR 1/4W 82K				CAPACITORS	
R405, 406	ERDAS3G272T	C. RESISTOR 1/4W 2.7K					
R407, 408	ERDAS3G823T	C. RESISTOR 1/4W 82K		C1	ECKWNS103ZVS	C. CAPACITOR 250V 0.01U	
R409, 410	ERDS2TJ561T	C. RESISTOR 1/4W 560		C11, 12	ECBT1H102KB5	C. CAPACITOR 50V 0.001U	
R411, 412	ERD25FVJ470T	C. RESISTOR 1/4W 47		C101, 102	RCBS1H120JLY	C. CAPACITOR 50V 12P	(EG)
R437	ERDS2TJ473T	C. RESISTOR 1/4W 47K		C103, 104	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	
R438	ERDS1FVJ682T	C. RESISTOR 1/2W 6.8K		C105, 106	RCBS1H820KBY	C. CAPACITOR 50V 82P	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
C107, 108	ECEAJU222E	E. CAPACITOR 6.3V 2200U		C705, 706	ECET1JV103LY	E. CAPACITOR 63V 0.01U	△
C109, 110	ECQM1H222KV	P. CAPACITOR 50V 2200P		C707, 708	ECEAJU220	E. CAPACITOR 63V 22U	△
C111, 112	ECQM1H122KV3	P. CAPACITOR 50V 1200P		C709, 710	ECEAJU220	E. CAPACITOR 63V 22U	
C113, 114	ECQM1H103KV3	P. CAPACITOR 50V 0.01U		C711	ECKR2H103ZU	C. CAPACITOR 500V 0.01U	(E, E5, EB, GN, GC)
C115, 116	ECQV1H393JZ3	P. CAPACITOR 50V 0.039U		C711	ECQE2104KS	P. CAPACITOR 250V 0.1U	(EG)
C117, 118	UES1HD10M1TA	E. CAPACITOR 50V 1U		C712	ECKR2H103ZU	C. CAPACITOR 500V 0.01U	
C119, 120	ECQM1H472KV3	P. CAPACITOR 50V 4700P		C751 ~ 753	ECEA1EPX100B	E. CAPACITOR 25V 10U	
C121, 122	ECEA1EK4R7B	E. CAPACITOR 25V 4.7U		C754, 755	ECEA1HPX3R3B	E. CAPACITOR 50V 3.3U	
C123, 124	RCBS1H270JLY	C. CAPACITOR 50V 27P	(EG)	C756	ECBT1H821KB5	C. CAPACITOR 50V 820P	
C201 ~ 210	RCBS1H101KBY	C. CAPACITOR 50V 100P	(EG)	C757, 758	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	
C213, 214	ECQV1H563JZ3	P. CAPACITOR 50V 0.056U					
C221 ~ 224	RCBS1H181KBY	C. CAPACITOR 50V 180P	(EG)				
C225, 226	RCBS1H101KBY	C. CAPACITOR 50V 100P	(EG)				
C301, 302	ECEA1HPX3R3B	E. CAPACITOR 50V 3.3U					
C303, 304	RCBS1H101KBY	C. CAPACITOR 50V 100P					
C305, 306	RCBS1H820KBY	C. CAPACITOR 50V 82P					
C307, 308	ECEA1HPX4R7B	E. CAPACITOR 50V 4.7U					
C309, 310	RCBS1H390JLY	C. CAPACITOR 50V 39P					
C311, 312	ECEA1CPX100B	E. CAPACITOR 16V 10U					
C313, 314	ECQV1H823JZ3	P. CAPACITOR 50V 0.082U					
C315, 316	ECQM1H153KV3	P. CAPACITOR 50V 0.015U					
C317, 318	ECQM1H183JV3	P. CAPACITOR 50V 0.018U					
C319, 320	ECQM1H182JV	P. CAPACITOR 50V 1800P					
C321, 322	ECKT1H103ZF	C. CAPACITOR 50V 0.01U					
C401, 402	ECEA1HPX3R3B	E. CAPACITOR 50V 3.3U					
C403, 404	RCBS1H271KBY	C. CAPACITOR 50V 270P					
C405, 406	ECEA1CPX220B	E. CAPACITOR 16V 22U					
C407, 408	RCBS1H820KBY	C. CAPACITOR 50V 82P					
C409, 410	RCBS1H100JLY	C. CAPACITOR 50V 10P					
C411, 412	ECBT1H681KB5	C. CAPACITOR 50V 680P					
C413, 414	ECCT2H070D	C. CAPACITOR 500V 7P					
C415, 416	ECBT1H102KB5	C. CAPACITOR 50V 0.001U	△				
C417, 418	ECBT1H102KB5	C. CAPACITOR 50V 0.001U					
C427, 428	ECKT1H223ZF	C. CAPACITOR 50V 0.022U					
C429	ECEAJU220	E. CAPACITOR 63V 22U	△				
C451, 452	ECKT1H333ZF	C. CAPACITOR 50V 0.033U					
C453 ~ 456	ECCT2H680K	C. CAPACITOR 500V 68P	△				
C457 ~ 460	ECEA1HK010B	E. CAPACITOR 50V 1U					
C501 ~ 504	ECEAJPX101B	E. CAPACITOR 6.3V 100U					
C505, 506	ECKT1H223ZF	C. CAPACITOR 50V 0.022U	(E, E5, EG, GN, GC)				
C505, 506	ECKT1H473ZF	C. CAPACITOR 50V 0.047U	(EB, GN)				
C507	ECEA1CU101B	E. CAPACITOR 16V 100U					
C508	ECEA1HU470B	E. CAPACITOR 50V 47U					
C509	ECEA1HN100S	E. CAPACITOR 50V 10U					
C511, 512	RCBS1H180JLY	C. CAPACITOR 50V 18P					
C513, 514	ECKT1H223ZF	C. CAPACITOR 50V 0.022U	(E, E5, EG, GN, GC)				
C513, 514	ECKT1H473ZF	C. CAPACITOR 50V 0.047U	(EB, GN)				
C515 ~ 518	ECKT1H473ZF	C. CAPACITOR 50V 0.047U	(EB, GN)				
C519 ~ 522	ECQM1H153KV3	P. CAPACITOR 50V 0.015U	(EG)				
C523, 524	ECBT1H102KB5	C. CAPACITOR 50V 0.001U	(EG)				
C525, 526	ECQB1H272JZ3	P. CAPACITOR 50V 2700P					
C601	ECEA1CU221B	E. CAPACITOR 16V 220U					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUITS		VR451	EVNDXAA00B52	V. R, ICQ ADJ. (Lch)	
				VR452	EVNDXAA00B52	V. R, ICQ ADJ. (Rch)	
IC101	UPC4570C	IC, PHONO/EQ AMP.				THERMISTOR	
IC301	UPC4570C	IC, TONE AMP.					
IC401	AN7062N	IC, VOLTAGE AMP.	△	TH201, 202	ERTD22ZHL104T	THERMISTOR	
IC501	SVI3205	IC, POWER AMP.	△	TH451, 452	ERTD22ZHL104T	THERMISTOR	
IC751	M5218P	IC, ACTIVE SERVO				COILS	
		TRANSISTORS					
Q101 ~ 104	2SK170BL	TRANSISTOR		L1	SLQZ650MH49	COIL	△ (EG)
Q401, 402	2SA1123RST	TRANSISTOR		L101, 102	SLM1233	COIL	(EG)
Q451, 452	2SC2631RST	TRANSISTOR	△	L501 ~ 504	SLQY18G-10	COIL	
Q453, 454	2SC3311AQSTA	TRANSISTOR				TRANSFORMERS	
Q455, 456	2SA1309AQSTA	TRANSISTOR					
Q457, 458	2SC2631RST	TRANSISTOR	△	T1	RTP1Q5E001-W	POWER TRANSFORMER	△ (E, E5, EG)
Q459, 460	2SA1123RST	TRANSISTOR	△	T1	RTP1Q5B001-W	POWER TRANSFORMER	△ (EB, GN)
Q461, 462	2SC3944AQRS	TRANSISTOR	△	T1	RTP1Q5E002-W	POWER TRANSFORMER	△ (GC)
Q463, 464	2SA1535AQRS	TRANSISTOR	△			FUSES	
Q465, 466	2SC1685NCQRS	TRANSISTOR					
Q501	2SA992EFP	TRANSISTOR					
Q751	2SC3944AQRS	TRANSISTOR		F1	XBA2C31TB0	FUSE 250V T3. 15A	△ (E, E5, EG)
Q752	2SA1535AQRS	TRANSISTOR		F1	XBA2C25TB0	FUSE 250V T2. 5A	△ (EB, GN)
		DIODES		F1	XBA2C63TB0	FUSE 250V T6. 3A	△ (GC)
				F2	XBA2C31TB0	FUSE 250V T3. 15A	△ (GC)
D101, 102	MA165TA	DIODE				SWITCHES	
D401, 402	MA167ATA	DIODE					
D403, 404	MA4036MTA	DIODE	△	S1	ESB8249V	SW, POWER	△ (E, E5, EG, EB, GN)
D428	MA4160MTA	DIODE		S1	ESB8279V	SW, POWER	△ (GC)
D451, 452	MA29WATA	DIODE	△	S2	ESE37263	SW, VOLTAGESELECTOR	△ (GC)
D453 ~ 456	MA165TA	DIODE		S101	RSR6B001	SW, INPUT SELECTOR	
D501	MA165TA	DIODE		S102	RSS6D001	SW, REC SELECTOR	
D502	MA4051MTA	DIODE		S103	ESB68106	SW, MODE/LOUDNESS/PHONO	
D503	MA4160MTA	DIODE	△	S301	ESB68109	SW, TONE CONTROL	
D504	MA4160MTA	DIODE		S302	ESB68107	SW, POWER AMP DIRECT	
D601	1SR35200TB	DIODE	△	S501	RSP2002	SW, SPEAKER SELECTOR	
D602	LN014472PH	DIODE				JACKS	
D603	LN018472PH	DIODE					
D604	LN018304P	DIODE					
D605	MA4033MTA	DIODE		CN101	SJT3321	CONNECTOR (3P)	
D701	SVDS10VB20F	DIODE	△	CN102	SJT3321	CONNECTOR (3P)	
D751, 752	MA4180MTA	DIODE		CN103	SJS51080WL	SOCKET (10P)	
D753	MA165TA	DIODE		CN104	SJS50880WL	SOCKET (8P)	
		VARIABLE RESISTORS		CN105	SJS50680WL	SOCKET (6P)	
				CN201	SJS51080WL	SOCKET (10P)	
VR201	RRV16J01A	V. R, VOLUME CONTROL		CN401	SJS50780WL	SOCKET (7P)	
VR202	EWHFDA014G15	V. R, BALANCE		CN602	SJT3215	CONNECTOR (2P)	
VR301	EW2XA000C15	V. R, BASS		CP103	SJT31047WL	CONNECTOR (10P)	
VR302	EW2XA000C15	V. R, TREBLE		CP104	SJT30847WL	CONNECTOR (8P)	
				CP105	SJT30647WL	CONNECTOR (6P)	

Ref. No.	Part No.	Part Name & Description	Remarks
CP201	SJT31047WL	CONNECTOR (10P)	
CP401	SJT30747WL	CONNECTOR (7P)	
JK1	SJS9231-1B	AC INLET	△ (E, E5, EG, EB, GC)
JK1	SJS9234B	AC INLET	△ (GN)
JK2 ~ 4	SJS9233B	AC OUTLET	△ (GC)
JK101	SJF3067NJ	TERMINAL	
JK102	SJF3069N	TERMINAL	
JK103	SJF3069N	TERMINAL	
JK104	SJF3069N	TERMINAL	
JK105	SJF3068NJ	TERMINAL	
JK501	SJF4819	TERMINAL, SPEAKER	
JK502	SJJD19	HEADPHONES JACK	

Ref. No.	Part No.	Part Name & Description	Remarks
		FUSE HOLDERS	
FC1, 2	SJT390	FUSE HOLDER	△
FC3, 4	SJT388	FUSE HOLDER	△ (GC)
		RELAY	
RL501	SSY126	RELAY	△

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RGW002-2K	VOLUME KNOB	
2	RGW0029-K	INPUT SELECT KNOB	
2-1	SUS45-1	SPRING	
3	RGW0027-K	REC SELECT KNOB	
4	RGW0030-K	BALANCE/TONE KNOB	
5	RKMD041-K	CABINET	
6	SJPA11-1	SHORT PIN	
7	SNE2129-1	SCREW	
8	RGR0021A-A	REAR PANEL	(E)
8	RGR0053	REAR PANEL	(E5)
8	RGR0021A-C	REAR PANEL	(EB)
8	RGR0021A-B	REAR PANEL	(EG)
8	RGR0021B-A	REAR PANEL	(GC)
8	RGR0021A-D	REAR PANEL	(GN)
9	RGU0030	POWER BUTTON	
10	RGU0118-K	SPEAKER BUTTON	
11	RGU0119-K	DIRECT BUTTON	
12	RGU0120-K	SIGNAL BUTTON	
13	RKA0009-1	FOOT	
14	RMK0047	CHASSIS	
15	RYP0113	FRONT PANEL	
16	RSC0044	SHILD PLATE (R)	(E, E5, EG, GC, GN)
16	RSC0063	SHILD PLATE (R)	(EB)
17	RSC0045	SHILD PLATE (L)	
18	RSQ0004	REC SELECTOR	
19	XTB3+8J	SCREW	
20	SHE187-2	HOLDER	
21	SJS9231A	AC INLET COVER	(E, E5, EB, EG, GC)
21	SJS9234A	AC INLET COVER	(GN)
22	SNE4021-1	NUT	
23	XTB3+8JFZ1	SCREW	
24	XTB3+16JFZ	SCREW	
25	XTB3+20JFZ	SCREW	
26	XTB3+6J	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks
27	XTB3+8JFZ	SCREW	
28	XTWS3+8T	SCREW	
29	RGKD097	ORNAMENT (GOLD LINE)	
30	RGKD109-K	SIDE ORNAMENT (L)	
31	RGKD108-K	SIDE ORNAMENT (R)	
32	RMRO144	HOLDER	
33	RMRO137-K	HOLDER	
34	RMQ0069-1	HEAT SINK COVER	(EB)
35	SHR415	LATCH	
36	XTW3+8T	SCREW	
37	RGKD158	VOLUME ORNAMENT	
38	RGKD156-K	INDICATOR ORNAMENT	
39	RMRO143	HOLDER	
41	SUS890	SPRING	(EG)
42	XYN3+C6FZ	SCREW	(GC)
43	SJS9233A	AC OUTLET COVER	(GC)
		PACKING MATERIAL	
P1	RPG0198	CARTON BOX	
P2	SPS5185	PAD	
P3	SPS5257-1	PAD	
P4	SPS5258-1	PAD	
		ACCESSORIES	
A1	RQF0193	INSTRUCTIONS MANUAL	(E, E5)
A1	RQT0138B	INSTRUCTIONS MANUAL	(EB, GN)
A1	RQT0138D	INSTRUCTIONS MANUAL	(EG)
A1	RQF0196	INSTRUCTIONS MANUAL	(GC)
A2	SFDAC05E03	POWER CORD	△ (E, E5, EG)
A2	SJA193	POWER CORD	△ (EB)
A2	RJA0004	POWER CORD	△ (GC)
A2	SJA173	POWER CORD	△ (GN)
A3	SJP9215	AC PLUG ADAPTOR	△ (GC)

■ EXPLODED VIEW

