

Service Manual

Stereo Integrated Amplifier

SU-V460

Color

(S)...Silver Type
(K)...Black Type



Area

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

SPECIFICATIONS (DIN 45 500)

■ AMPLIFIER SECTION

20 Hz~20 kHz continuous power output both channels driven	2 × 45 W (8 Ω)
1 kHz continuous power output both channels driven (THD: 1%)	2 × 60 W (8 Ω) 2 × 85 W (4 Ω)
63 Hz~12.5 kHz continuous power output both channels driven (0.7%)	2 × 55 W (8 Ω) 2 × 75 W (4 Ω)
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	540 mV/330 Ω
Load impedance	
A or B	4 Ω~16 Ω
A and B	8 Ω~16 Ω

Input sensitivity and impedance

PHONO MM	2.5 mV/47 kΩ
TUNER, CD, AUX, TAPE 1, TAPE 2/DAT	150 mV/22 kΩ
POWER AMP DIRECT	1 V/18 kΩ
Phono maximum input voltage (IHF '66, 1 kHz, RMS)	
MM	150 mV

S/N

rated power (4 Ω)	
PHONO MM	76 dB (IHF '66: 81 dB)
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)	
PHONO MM	75 dB
TUNER, CD, AUX, TAPE 1, TAPE 2/DAT	84 dB
50 mW power (4 Ω)	
PHONO MM	75 dB
TUNER, CD, AUX, TAPE 1, TAPE 2/DAT	78 dB
Frequency response	
PHONO	RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
TUNER, CD, AUX, TAPE 1, TAPE 2/DAT	3 Hz~100 kHz (-3 dB) +0 dB, -0.2 dB (20 Hz~20 kHz) 2 Hz~120 kHz (-3 dB) +0 dB, -0.2 dB (20 Hz~20 kHz)
POWER AMP DIRECT	

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	±1 dB
Channel separation, AUX 1 kHz	50 dB

■ GENERAL

Power consumption	450 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 × H × D)	430 × 125 × 320 mm (16-15/16" × 4-15/16" × 12-5/8")

Weight

8.0 kg (17.6 lb.)

Notes:

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

Technics

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■ CONTENTS

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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	120~480 mA	110~441 mA	60~240 mA	55~220 mA
	60 Hz	114~456 mA	104~417 mA	56~227 mA	52~208 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:

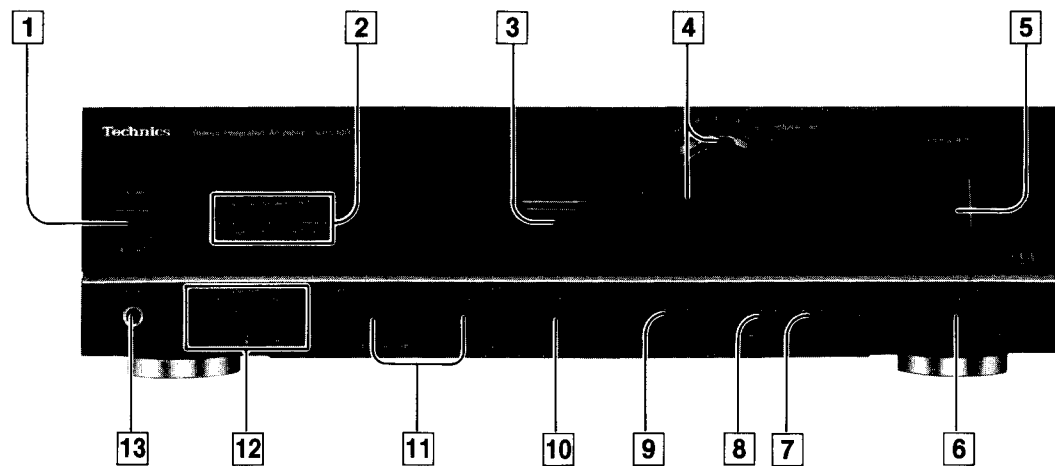
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ ACCESSORIES

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

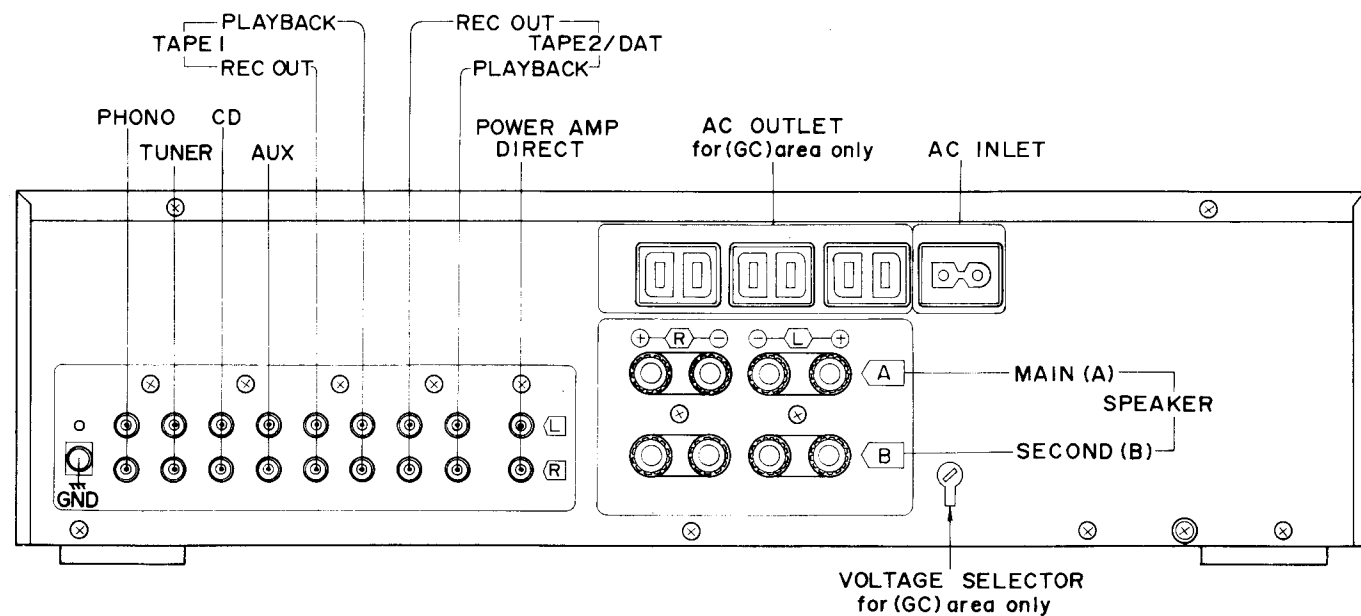
LOCATION OF CONTROLS

Front Panel



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

Rear Panel

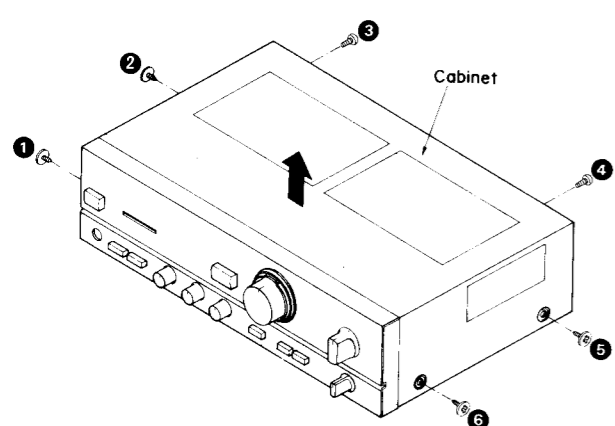
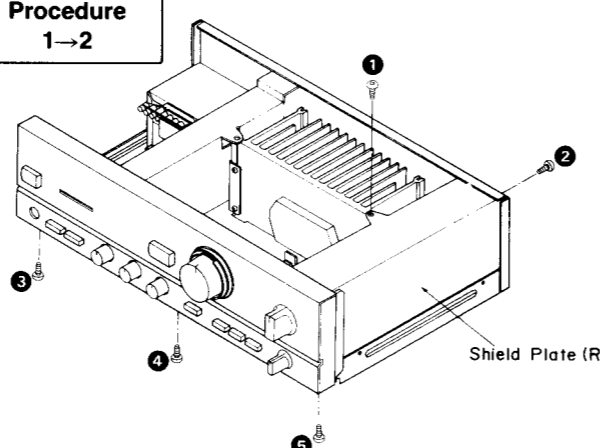
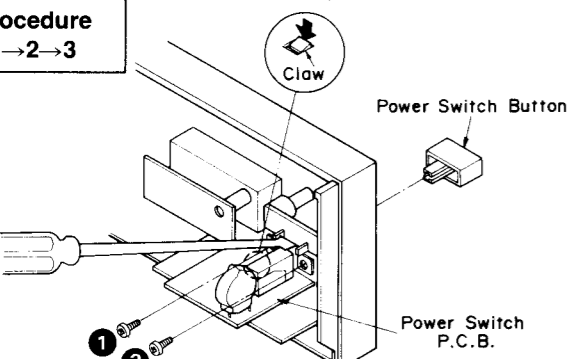
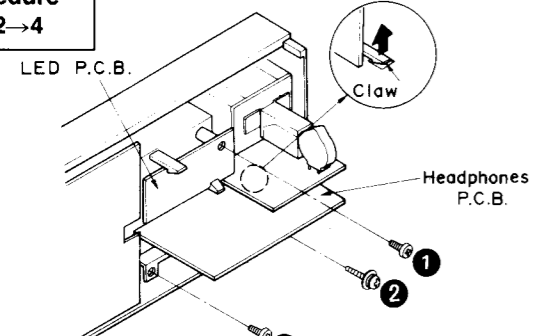


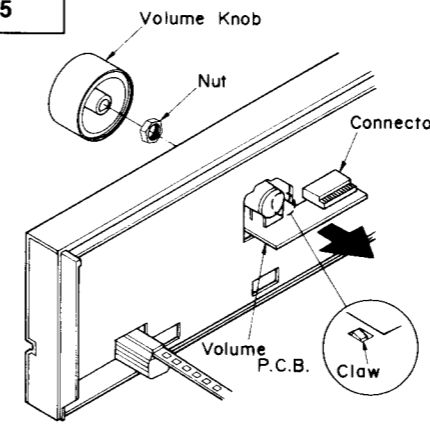
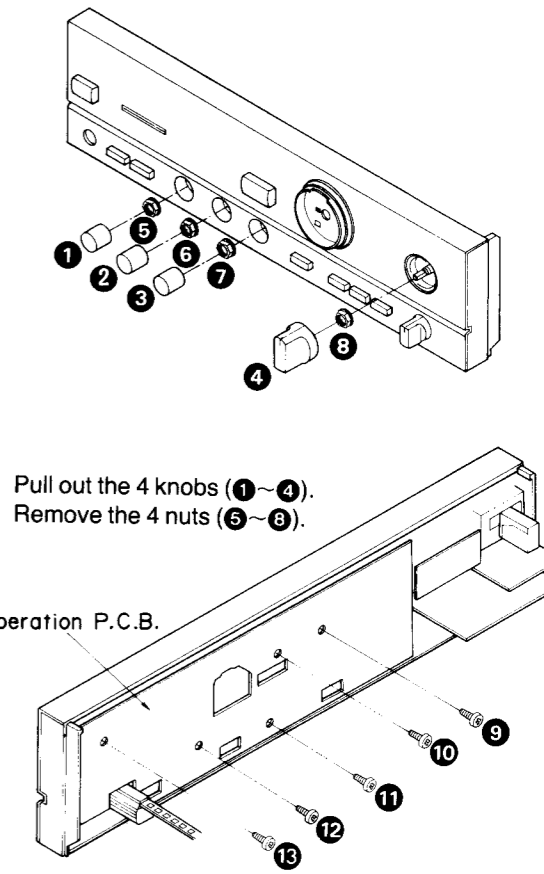
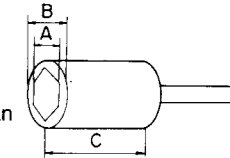
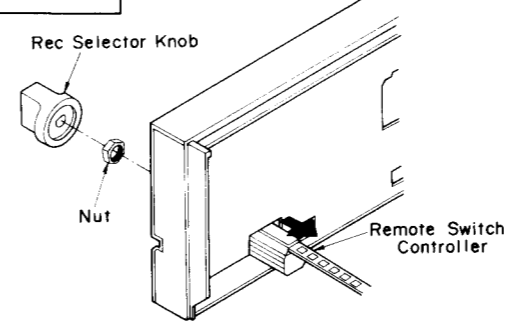
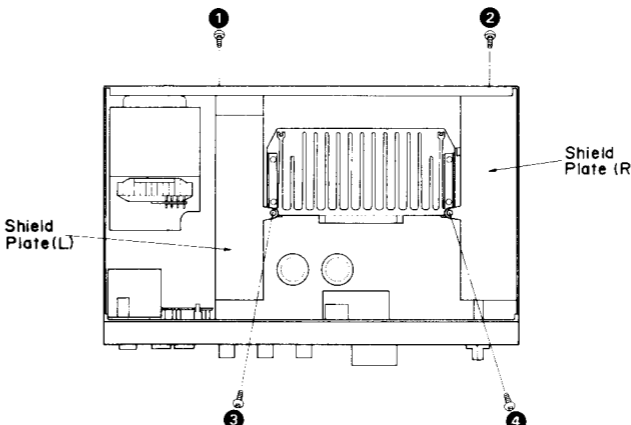
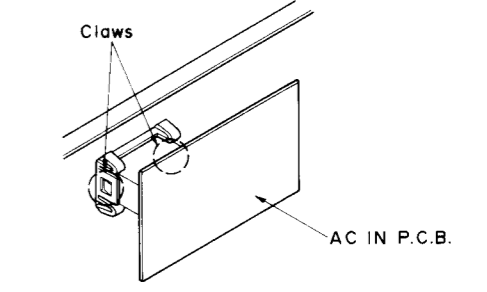
*Phono input capacitance is about 270 pF for EG area (about 100 pF for other areas).

DISASSEMBLY INSTRUCTIONS

Ref. No.	Procedure	Diagram
1	Removal of the cabinet	
1	Procedure 1	
		<ul style="list-style-type: none"> Remove the 6 screws (1~6).
2	Removal of the front panel	
1-2	Procedure 1-2	
		<ul style="list-style-type: none"> Remove the 2 screws (1, 2). Remove the shield plate (R). Remove the 3 screws (3~5).
3	Removal of the power switch P.C.B.	
1-2-3	Procedure 1-2-3	
		<ul style="list-style-type: none"> Remove the power switch button by pushing it from behind the front panel. Remove the 2 screws (1, 2). Release the 1 claw.
4	Removal of the LED P.C.B. and headphones P.C.B.	
1-2-4	Procedure 1-2-4	
		<p>Removal of the LED P.C.B.</p> <ul style="list-style-type: none"> Remove the 1 screw (1). Release the 2 claws. <p>Removal of the headphones P.C.B.</p> <ul style="list-style-type: none"> Remove the 2 screws (2, 3). Release the 1 claw.
		<p>Removal of the remote switch controller</p> <ul style="list-style-type: none"> Remove the 4 claws.
		<p>Replacing of the remote switch controller</p> <ul style="list-style-type: none"> Fully rotate the Recording Selector Control counterclockwise. Push the Switch Slide in the direction of the arrow.

DISASSEMBLY INSTRUCTIONS

<p>Ref. No. 1</p> <p>Removal of the cabinet</p>	<p>Ref. No. 2</p> <p>Removal of the front panel</p>
<p>Procedure 1</p>  <p>●Remove the 6 screws (1~6).</p>	<p>Procedure 1→2</p>  <p>1. Remove the 2 screws (1, 2). 2. Remove the shield plate (R). 3. Remove the 3 screws (3~5).</p>
<p>Ref. No. 3</p> <p>Removal of the power switch P.C.B.</p>	<p>Procedure 1→2→3</p>  <p>1. Remove the power switch button by pushing it from behind the front panel. 2. Remove the 2 screws (1, 2). 3. Release the 1 claw.</p>
<p>Ref. No. 4</p> <p>Removal of the LED P.C.B. and headphones P.C.B.</p>	<p>Procedure 1→2→4</p>  <p>Removal of the LED P.C.B. 1. Remove the 1 screw (1). 2. Release the 2 claws.</p> <p>Removal of the headphones P.C.B. 1. Remove the 2 screws (2, 3). 2. Release the 1 claw.</p>

<p>Ref. No. 5</p> <p>Removal of the volume P.C.B.</p>	<p>Ref. No. 6</p> <p>Removal of the operation P.C.B.</p>
<p>Procedure 1→2→5</p>  <p>1. Pull out the volume knob. 2. Remove the nut. 3. Release the 1 claw.</p>	<p>Procedure 1→2→5→6</p>  <p>1. Pull out the 4 knobs (1~4). 2. Remove the 4 nuts (5~8). 3. Remove the 5 screws (9~13).</p> <p>●Use a wrench of the dimensions shown in the illustration above to remove nuts.</p> 
<p>Ref. No. 7</p> <p>Removal of the remote switch controller</p>	<p>Ref. No. 8</p> <p>Removal of the shield plate (L) and shield plate (R)</p>
<p>Procedure 1→2→7</p>  <p>1. Pull out the rec selector knob. 2. Remove the nut. 3. Remove the remote switch controller in the direction of the arrow.</p>	<p>Procedure 1→8</p>  <p>●Remove the 4 screws (1~4).</p>
<p>Ref. No. 9</p> <p>Removal of the AC IN P.C.B.</p>	<p>Procedure 1→9</p>  <p>●Release the 2 claws.</p>

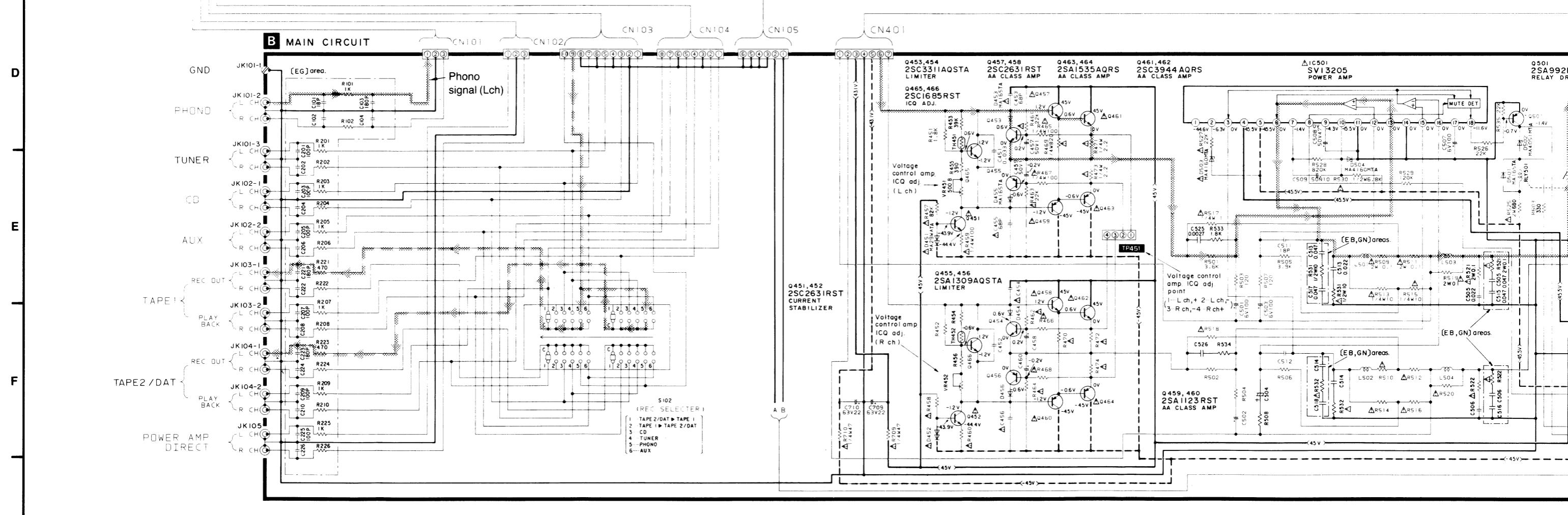
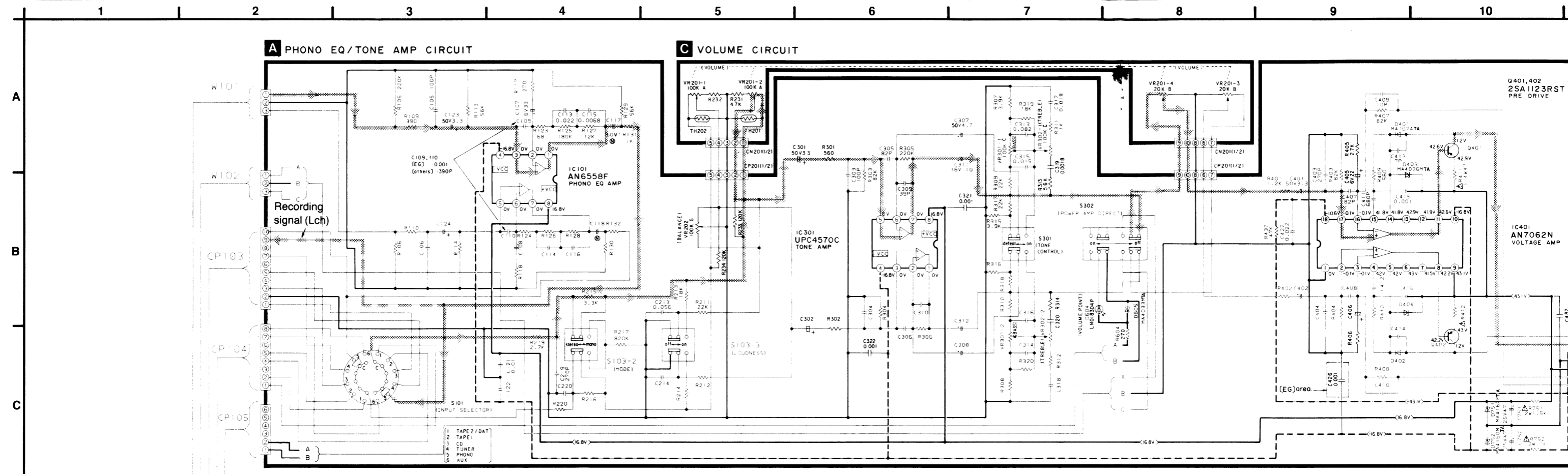
Volume P.C.B.	Ref. No. 6	Removal of the operation P.C.B.
Procedure 1→2→5→6	<p>1. Pull out the 4 knobs (1~4). 2. Remove the 4 nuts (5~8).</p> <p>3. Remove the 5 screws (9~13).</p> <p>•Use a wrench of the dimensions shown in the illustration above to remove nuts.</p> <p>A: 11 mm B: 16 mm C: longer than 22 mm</p>	

Shield plate (L) and Remote switch Remote Switch Controller	Ref. No. 9	Removal of the AC IN P.C.B.
Procedure 1→9	<p>•Release the 2 claws.</p>	

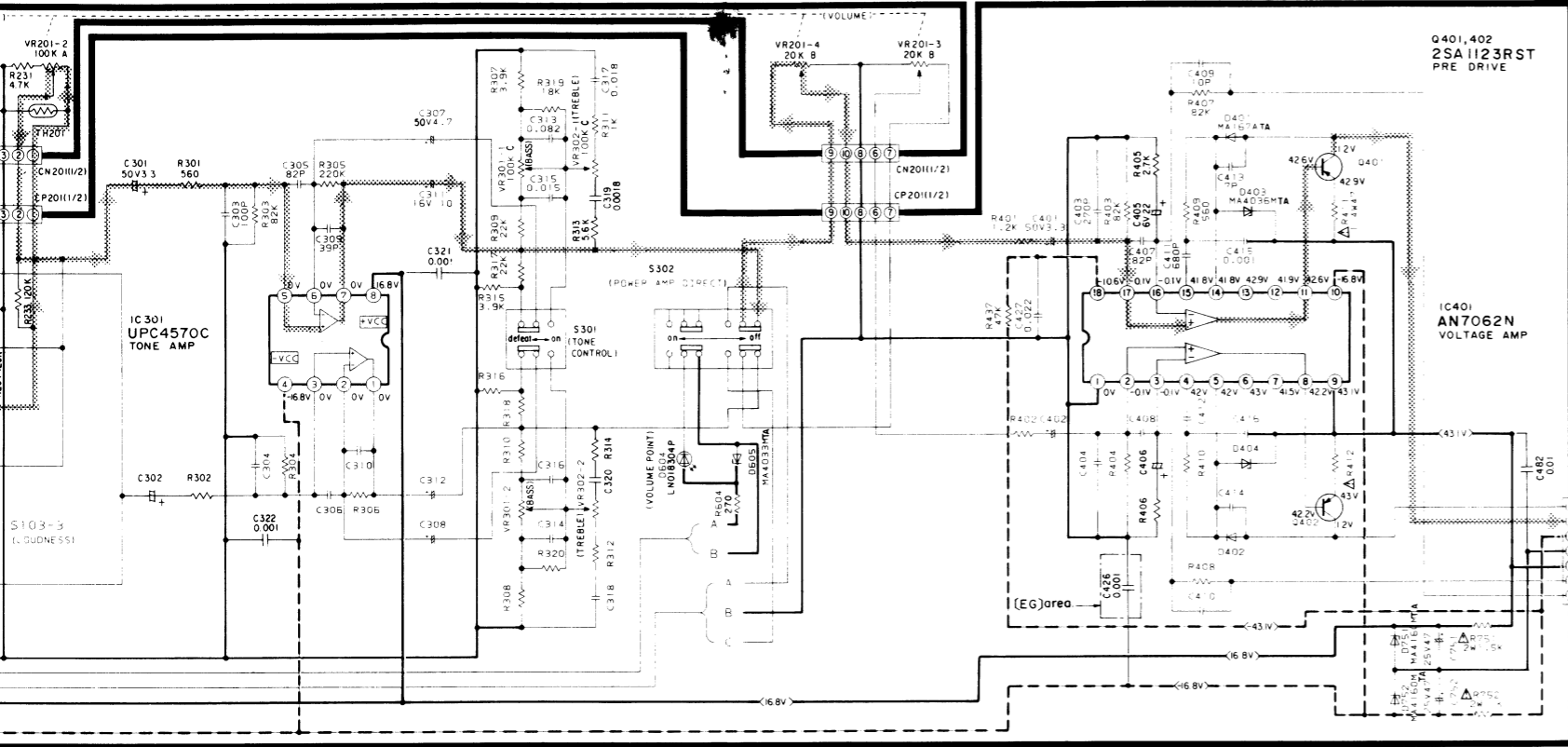
Ref. No. 10	Checking of the main P.C.B.
Procedure 1→8→10	<p>1. Remove the 9 screws (1~9).</p> <p>3. Remove the 3 screws (15~17). 4. Remove the front panel.</p> <p>2. Remove the 5 screws (10~14).</p> <p>5. Remove the bottom chassis in the direction of the arrow (A). 6. Reinstall the front panel to the main P.C.B.</p>

Ref. No. 11	Removal of the power IC
Procedure 1→8→10→11	<p>1. Unsolder the power IC. 2. Remove the 2 screws (1, 2).</p> <p>•When mounting the power IC, apply silicon thermal compound (SZZ0L15 or equivalent) to the rear of the power IC.</p>

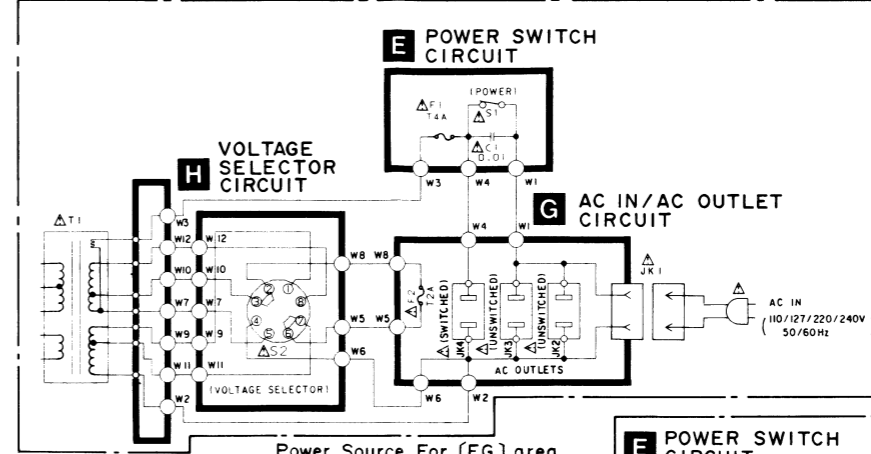
Ref. No. 12	Removal of the power transformer
Procedure 1→12	<p>•Remove the 5 screws (1~5).</p>



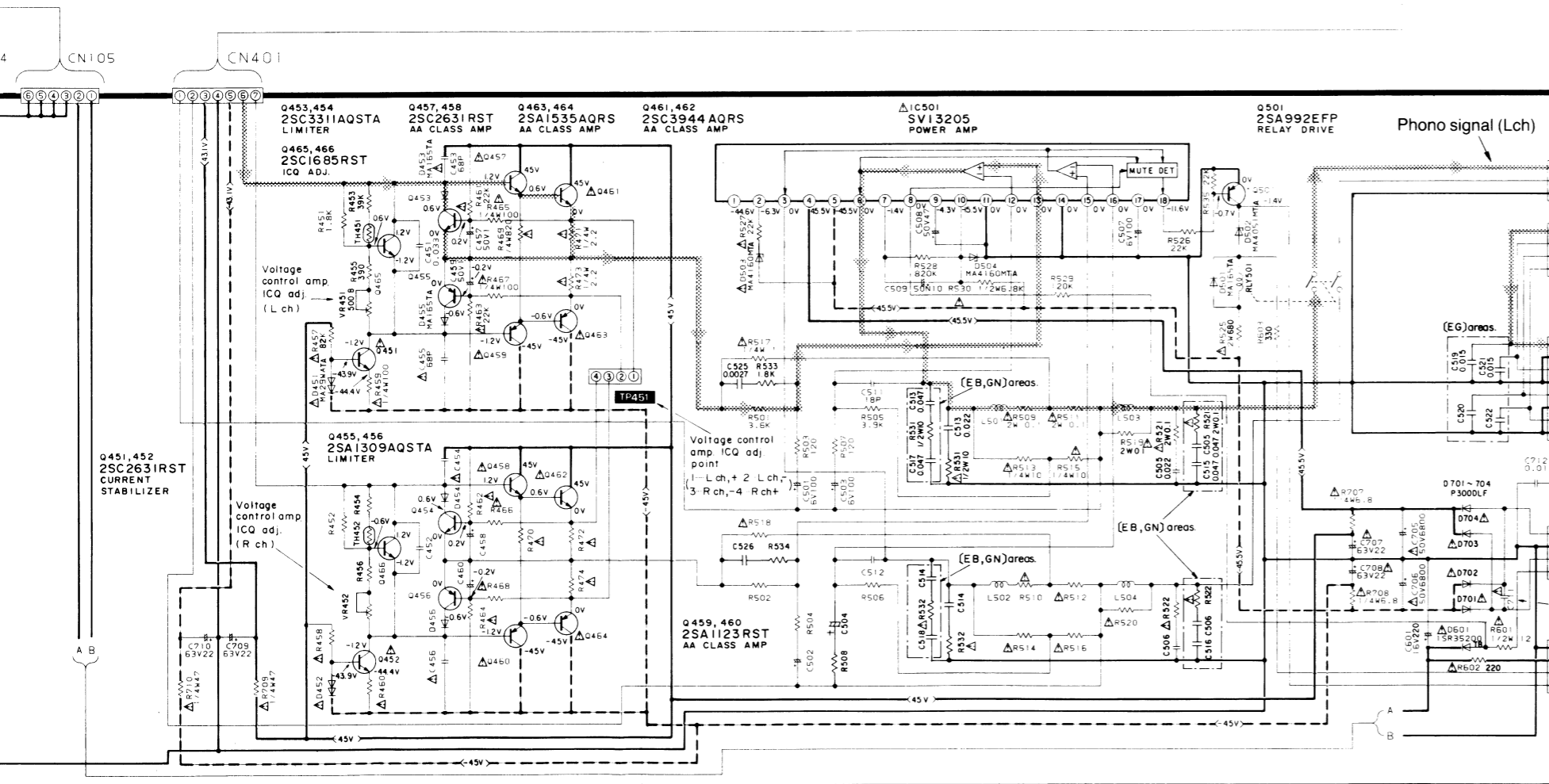
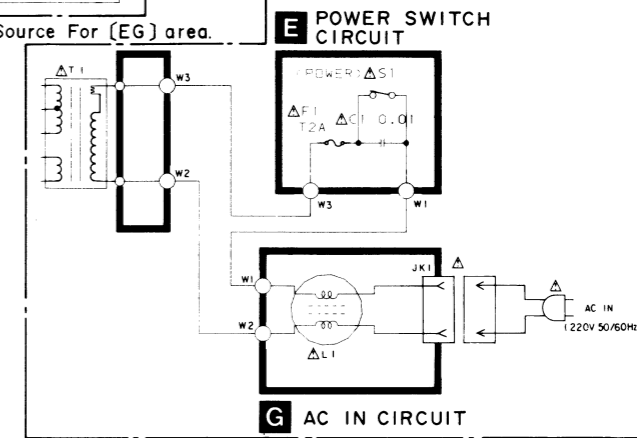
ME CIRCUIT



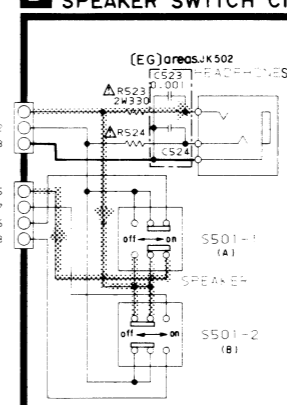
Power Source For (GC) area.



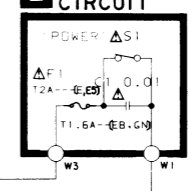
Power Source For (EG) area.



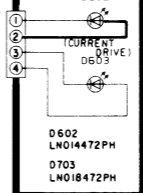
D HEADPHONES/SPEAKER SWITCH CIRCUIT



E POWER SWITCH CIRCUIT



F LED CIRCUIT



G AC IN CIRCUIT

SCHEMATIC (Parts list on p...)

(This schematic diagram shows the development of new...

- Notes:
- S1 : Power switch
 - S2 : Voltage selector
 - S101 : Input selector
 - S102 : Recording selector
 - S103-2 : Mode selector
 - S103-3 : Loudness selector
 - S301 : Tone control
 - S302 : Power amp selector
 - S501-1 : Speaker selector
 - S501-2 : Speaker selector
 - : Positive voltage
 - - - : Negative voltage
 - ⊕ : Phono Signal
 - ⊙ : Recording Signal

•Indicated voltage values are measured by the DC voltmeter with the chassis taken as ground. Errors in the voltage of the DC circuit tests are important safety notes. Components identified are important for safety. Only manufacturer's parts should be used. *Caution! IC and LSI are sensitive to static. Secondary trouble may occur. *Cover the parts box. *Ground the soldering iron. *Put a conductive mat. *Do not touch the lead...

SCHEMATIC DIAGRAM

(Parts list on page 18~21)

(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

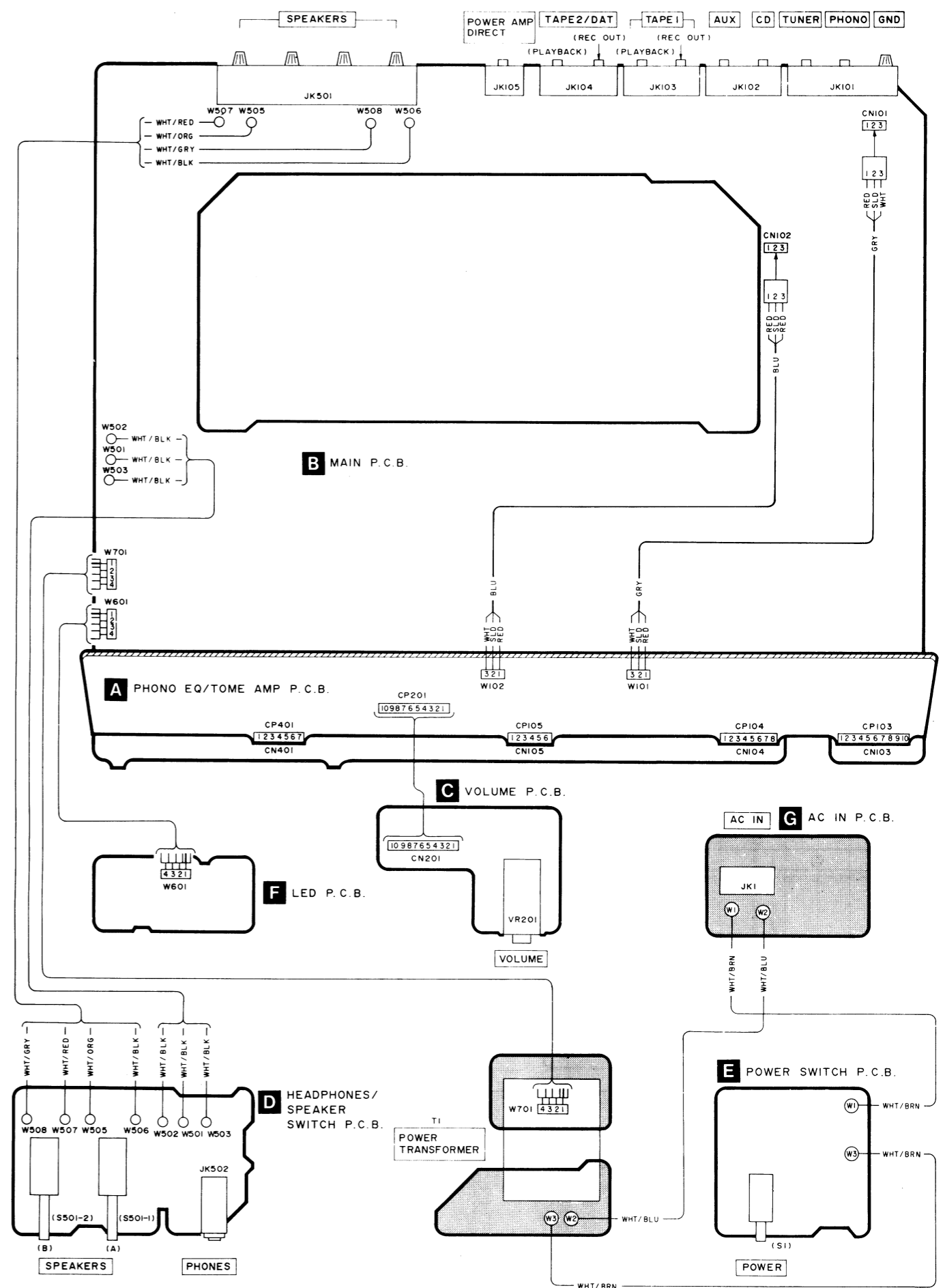
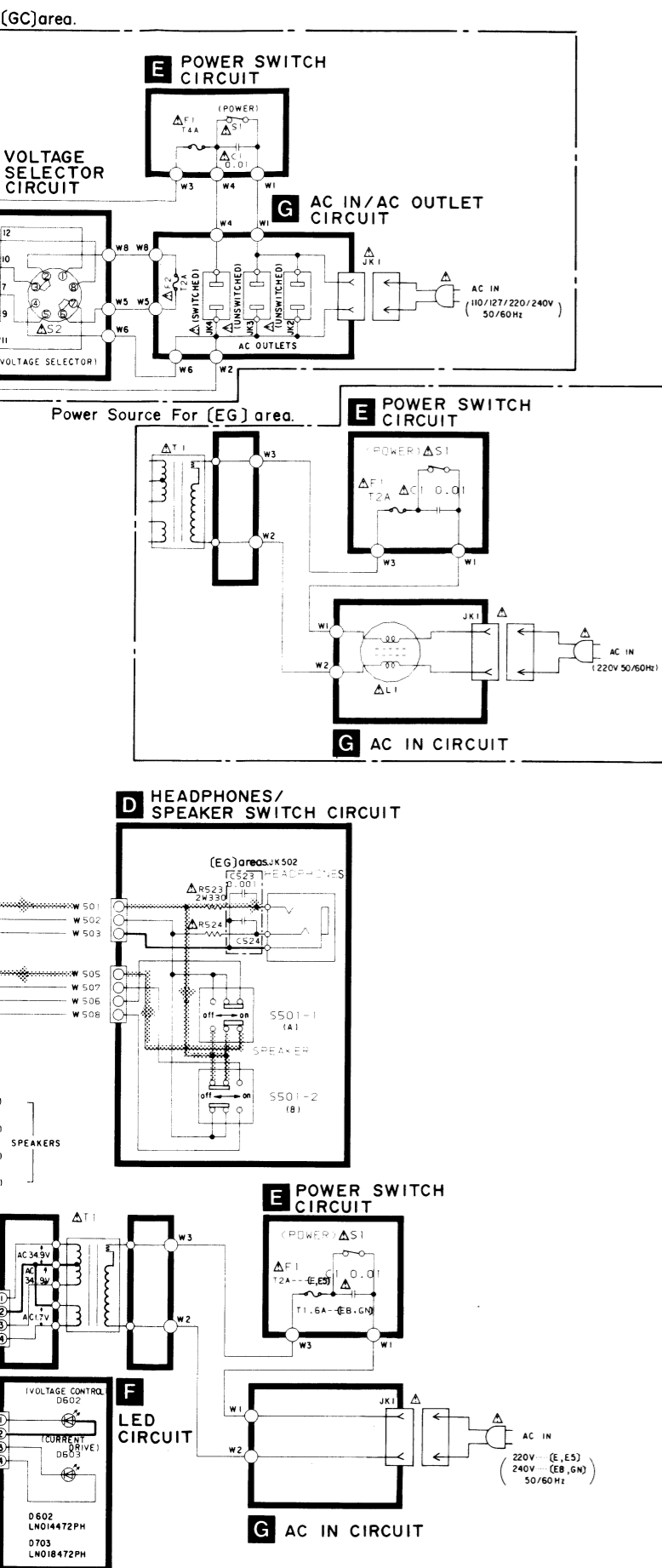
- S1 : Power switch in "on" position.
- S2 : Voltage selector switch in "220 V" position. for (GC) area only.
- S101 : Input selector switch in "phono" position.
- S102 : Recording output selector switch in "tape 2/ DAT▶1" position.
- S103-2 : Mode selector switch in "stereo" position.
- S103-3 : Loudness 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 "on" position.
- S501-2 : Speaker (B) selector switch in "off" position.

- : Positive voltage lines.
- - - : Negative voltage lines.
- ~ : Phono Signal (Lch)
- ~ : Recording Signal

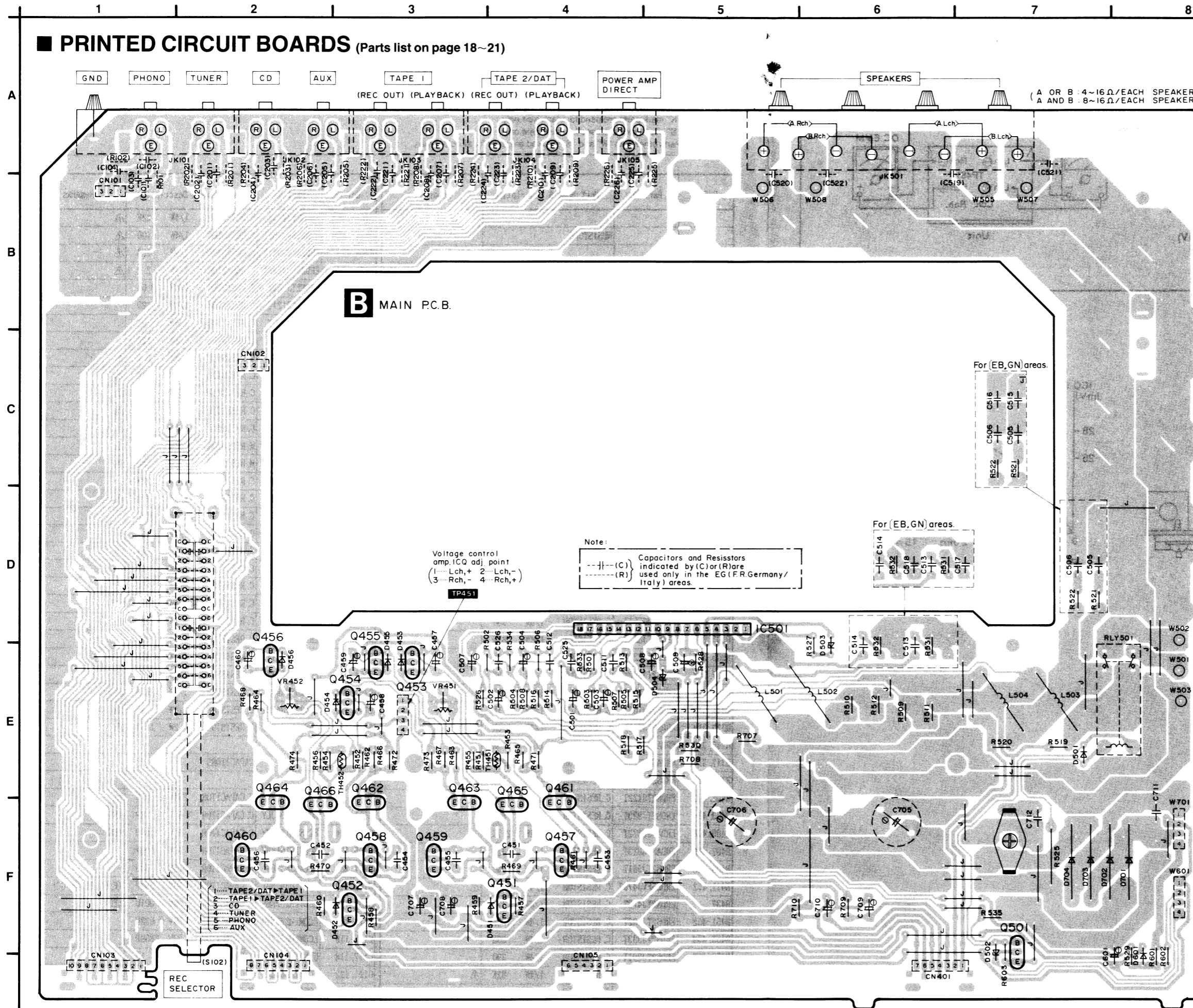
●Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

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

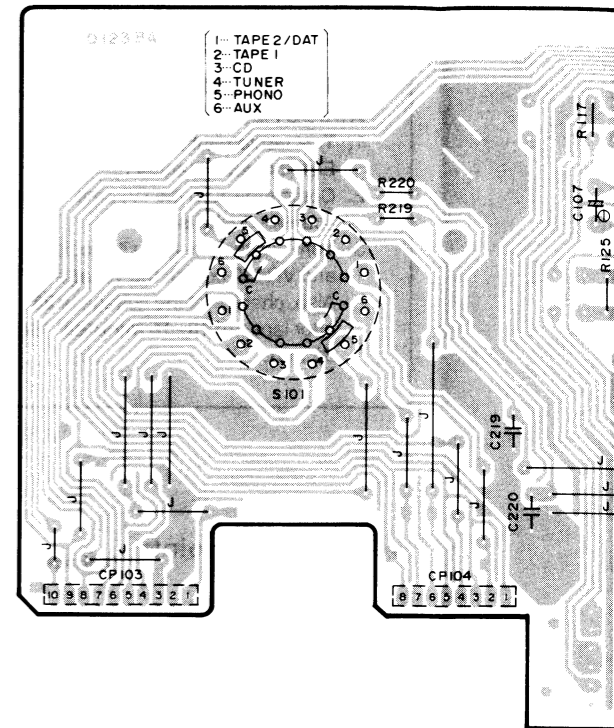
***Caution!**
IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.
*Cover the parts boxes made of plastics with aluminum foil.
*Ground the soldering iron.
*Put a conductive mat on the work table.
*Do not touch the legs of IC or LSI with the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



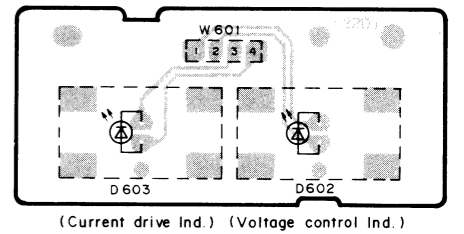
PRINTED CIRCUIT BOARDS (Parts list on page 18~21)



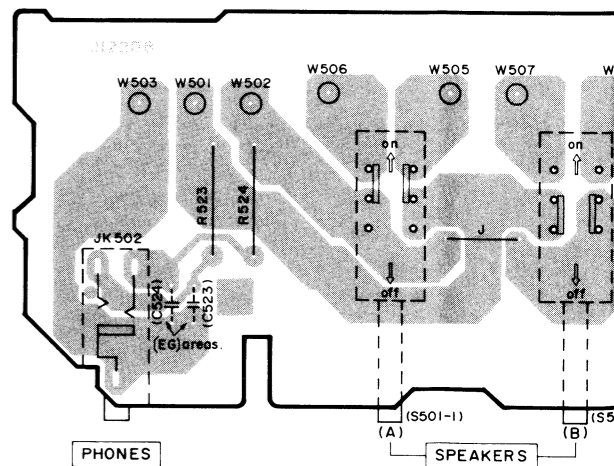
A PHONO EQ/TONE AMP P.C.B.

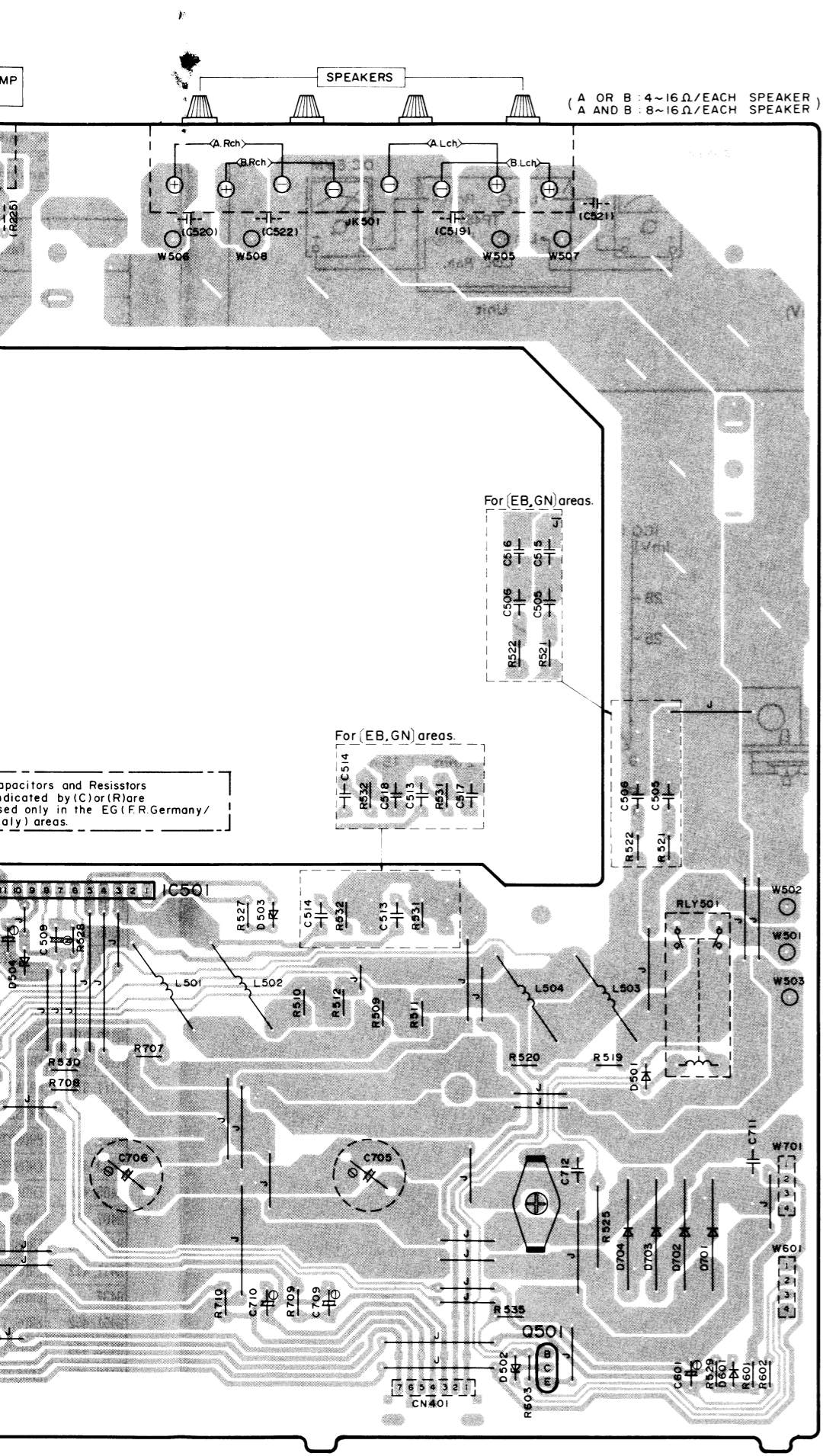


F LED P.C.B.

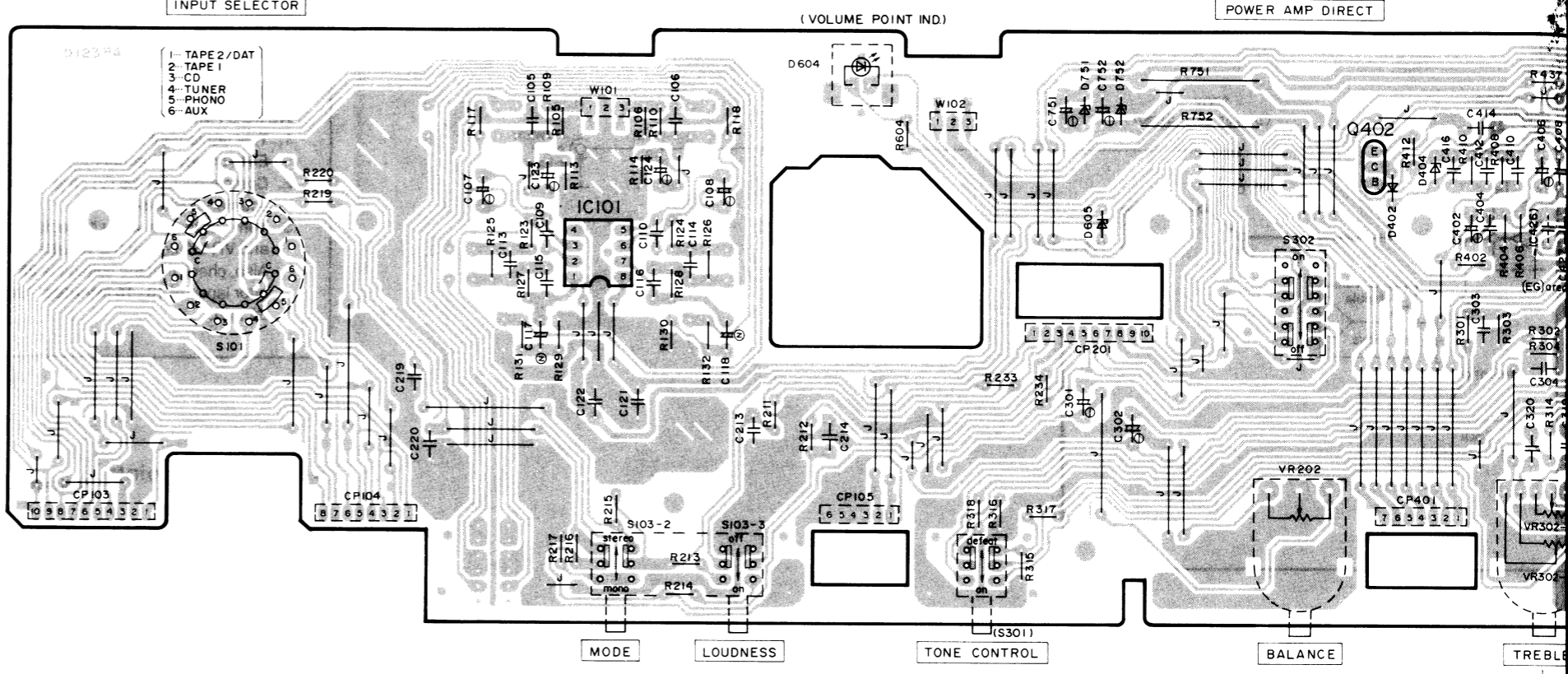


D HEADPHONES/SPEAKER SWITCH P.C.B.

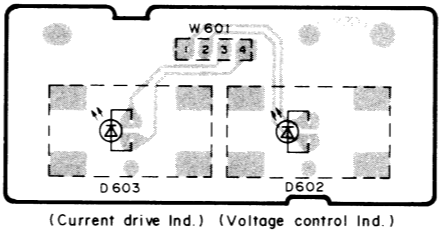




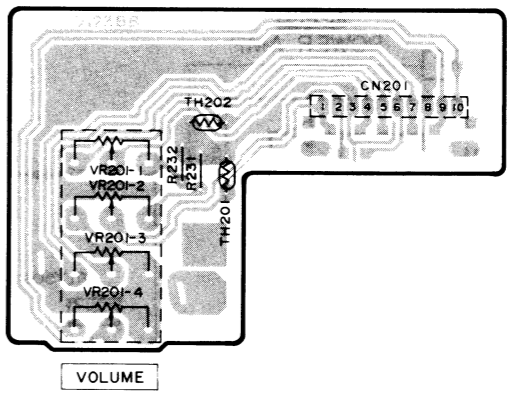
A PHONO EQ/TONE AMP PCB.



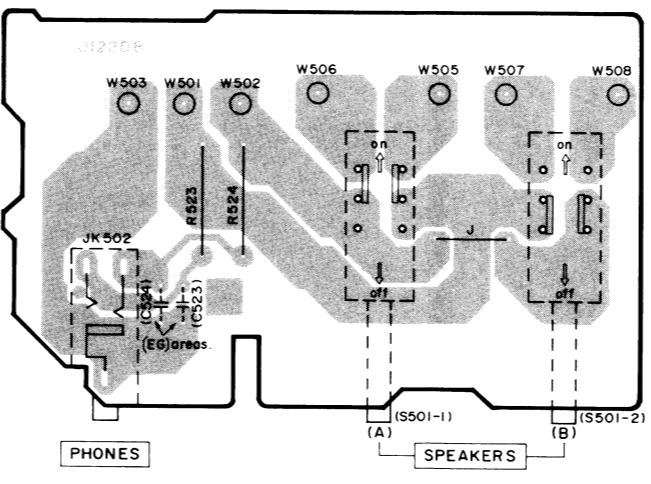
F LED PCB



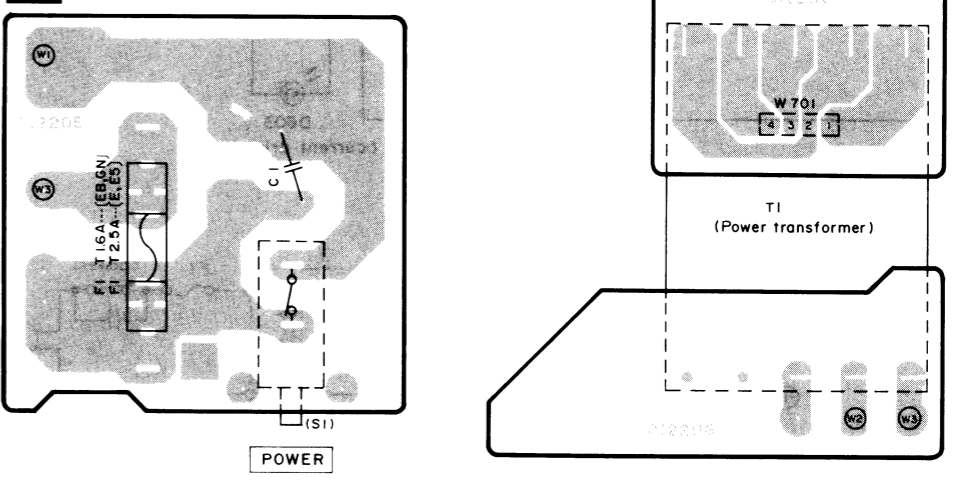
C VOLUME PCB

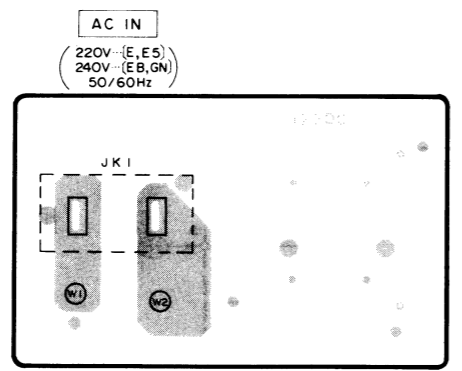
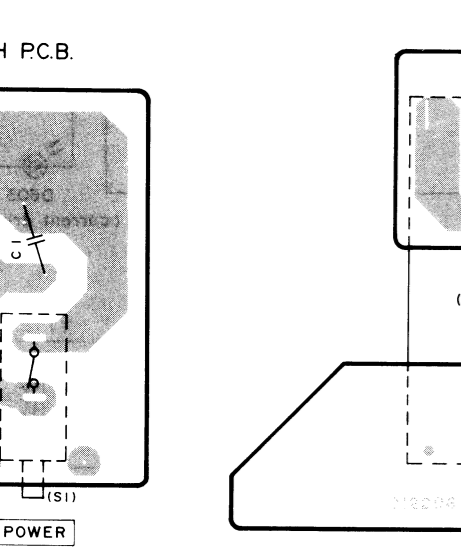
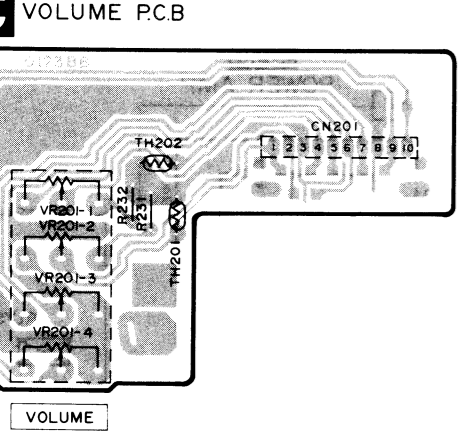
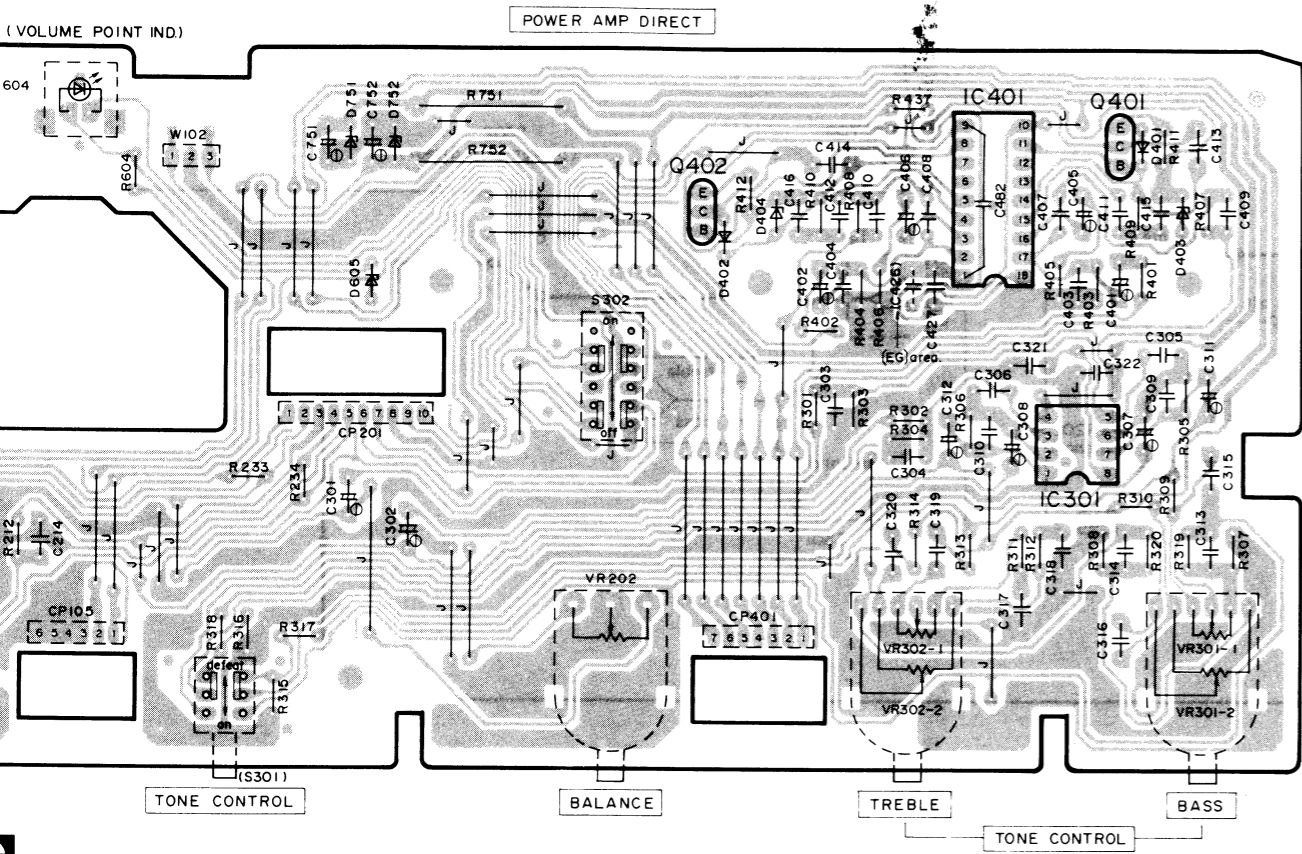


D HEADPHONES/SPEAKER SWITCH PCB.

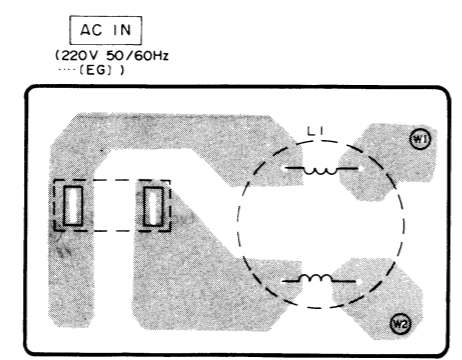


E POWER SWITCH PCB.



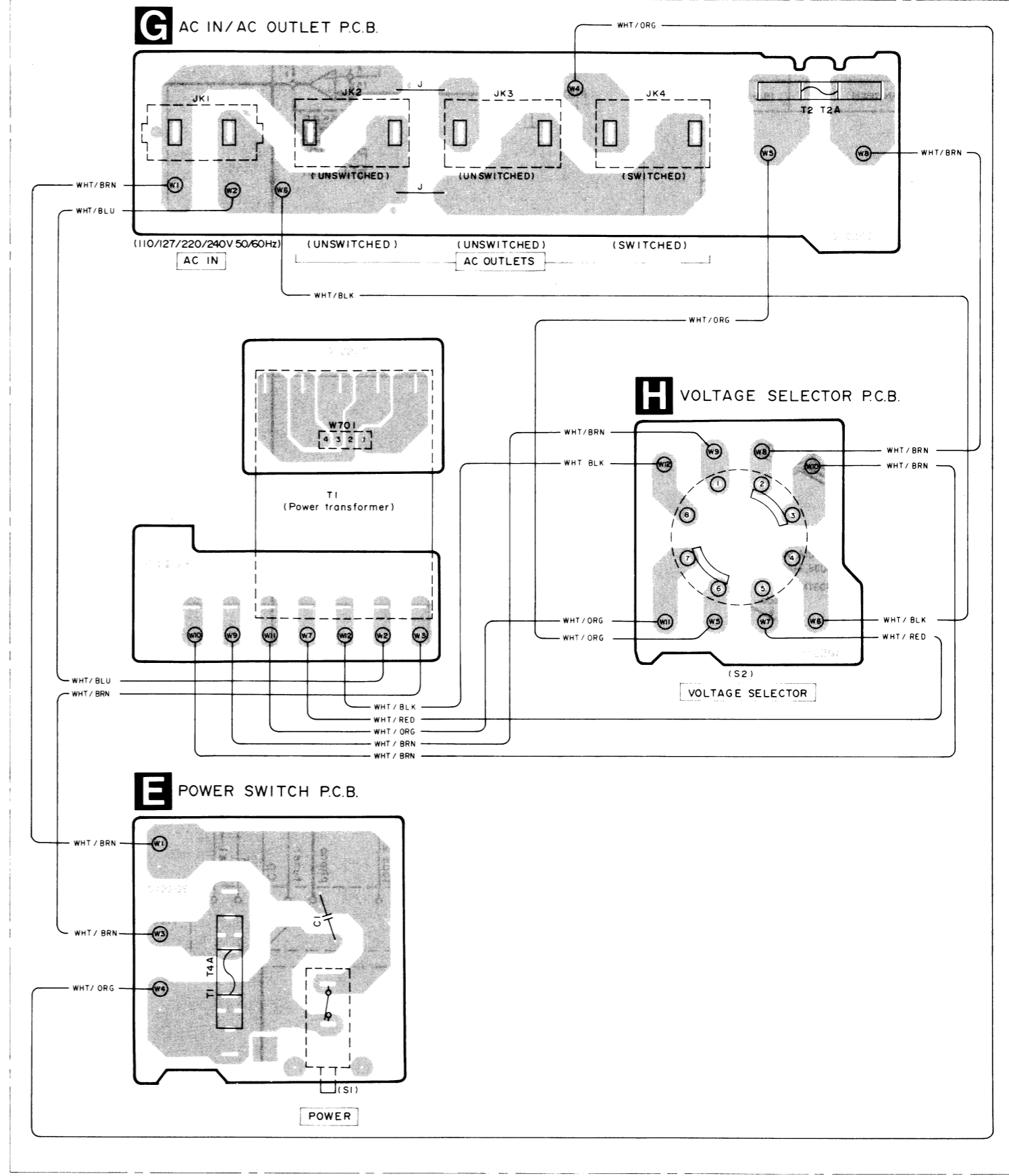


G AC IN PCB.

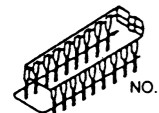
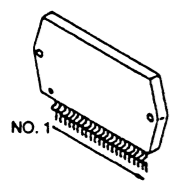
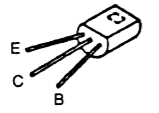
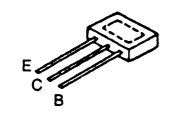
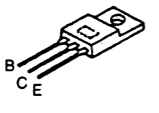
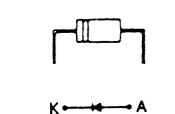
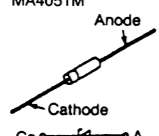
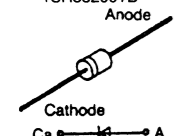


G AC IN PCB.

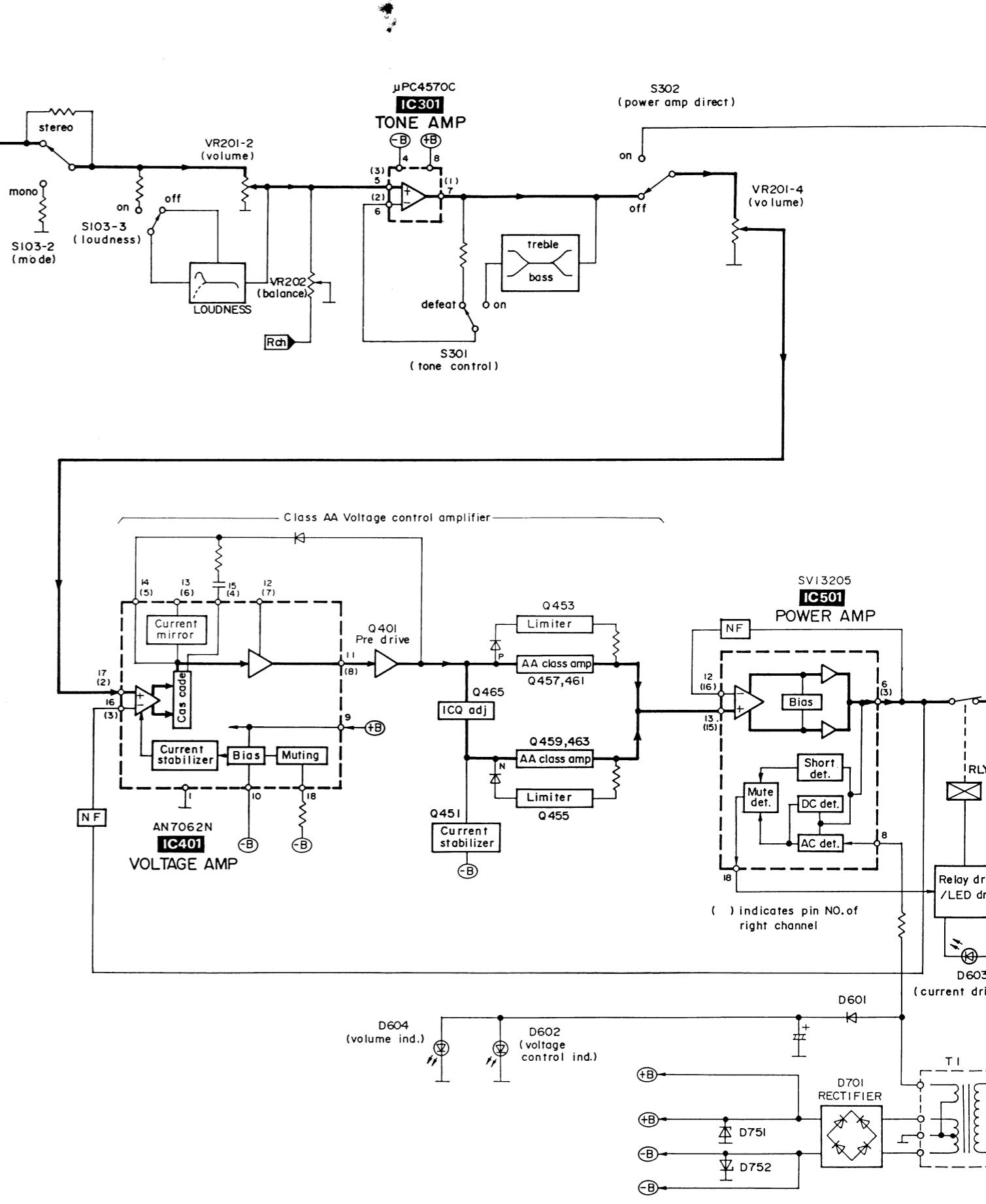
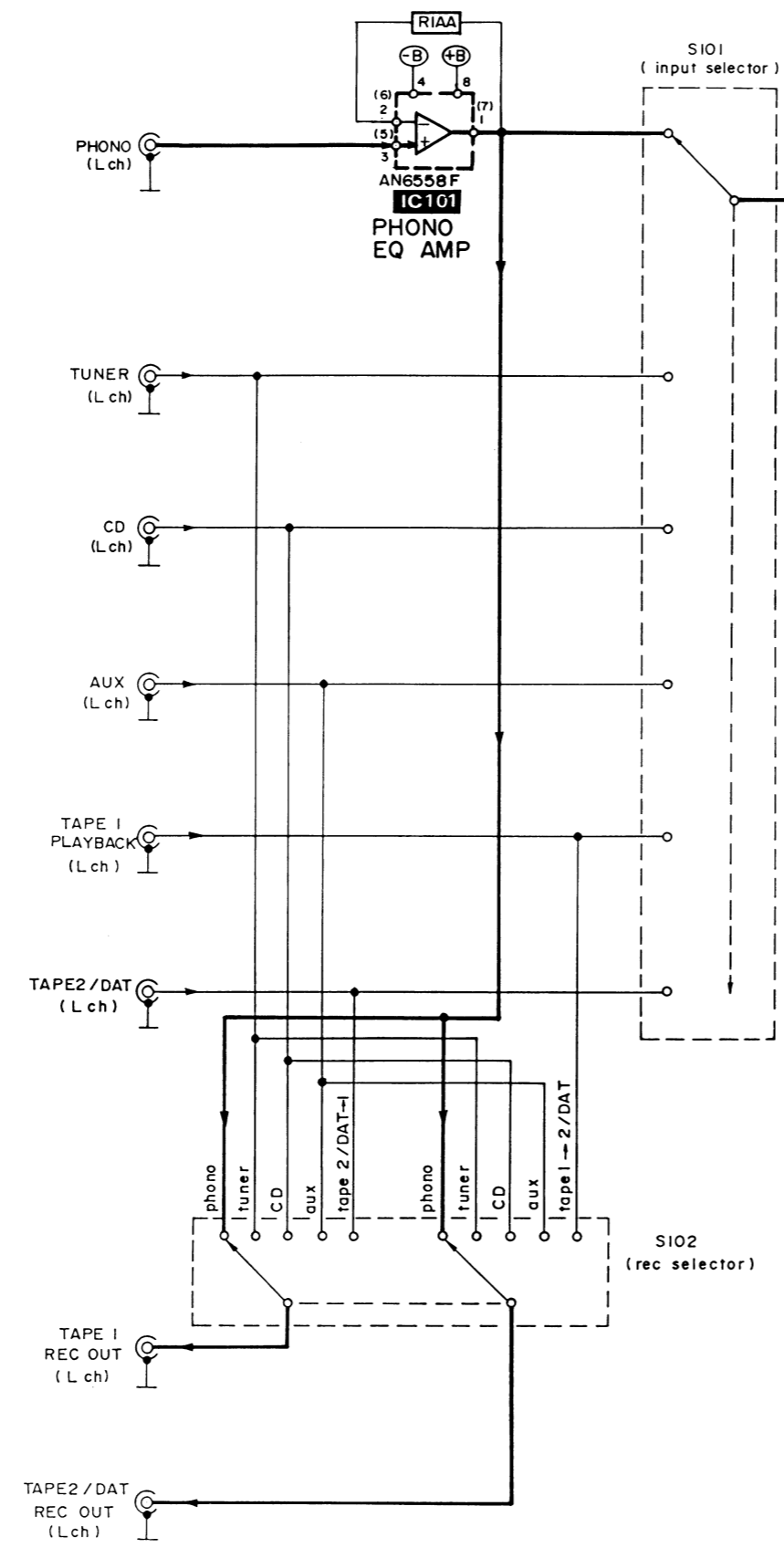
Power Source For (GC) area.

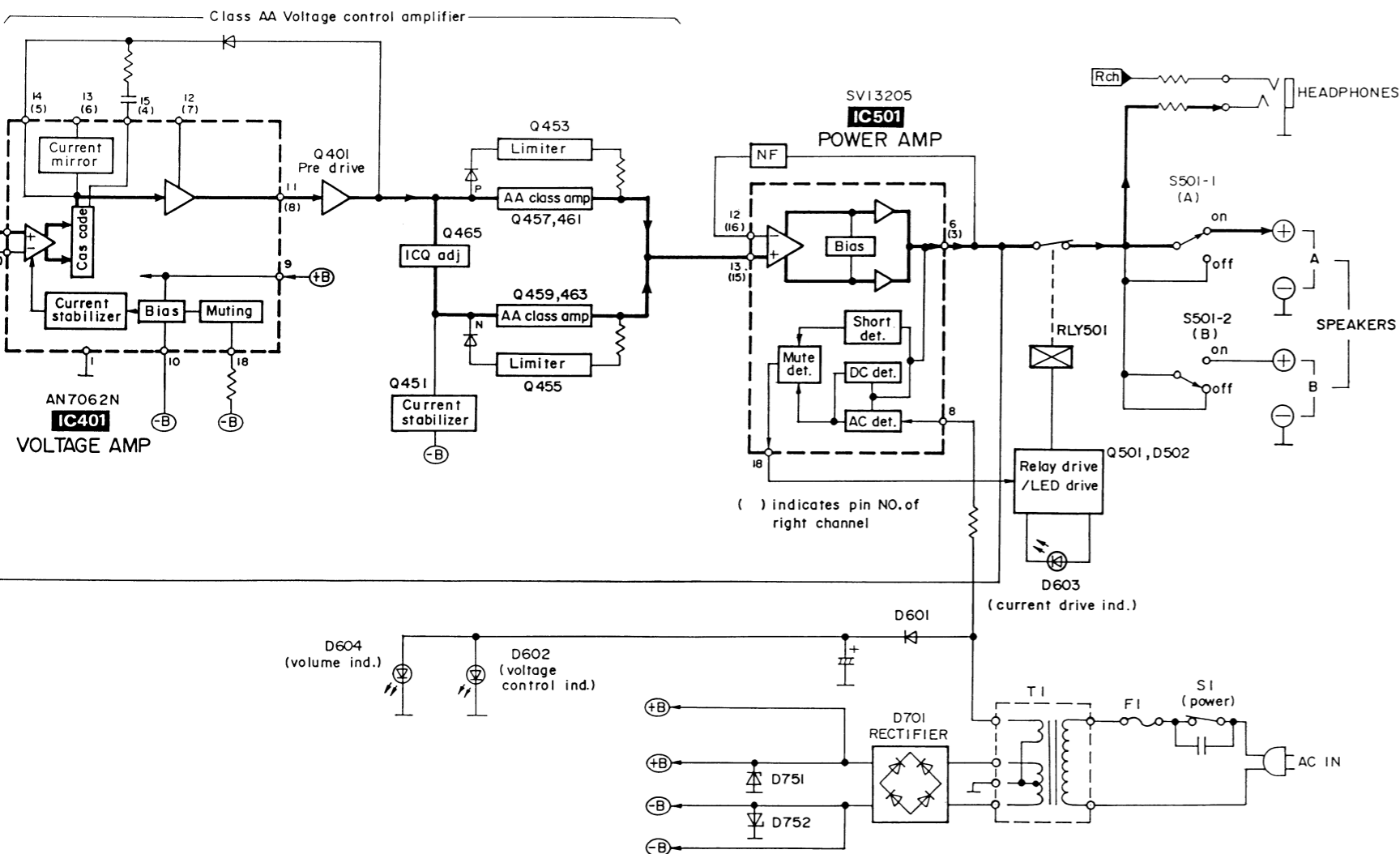
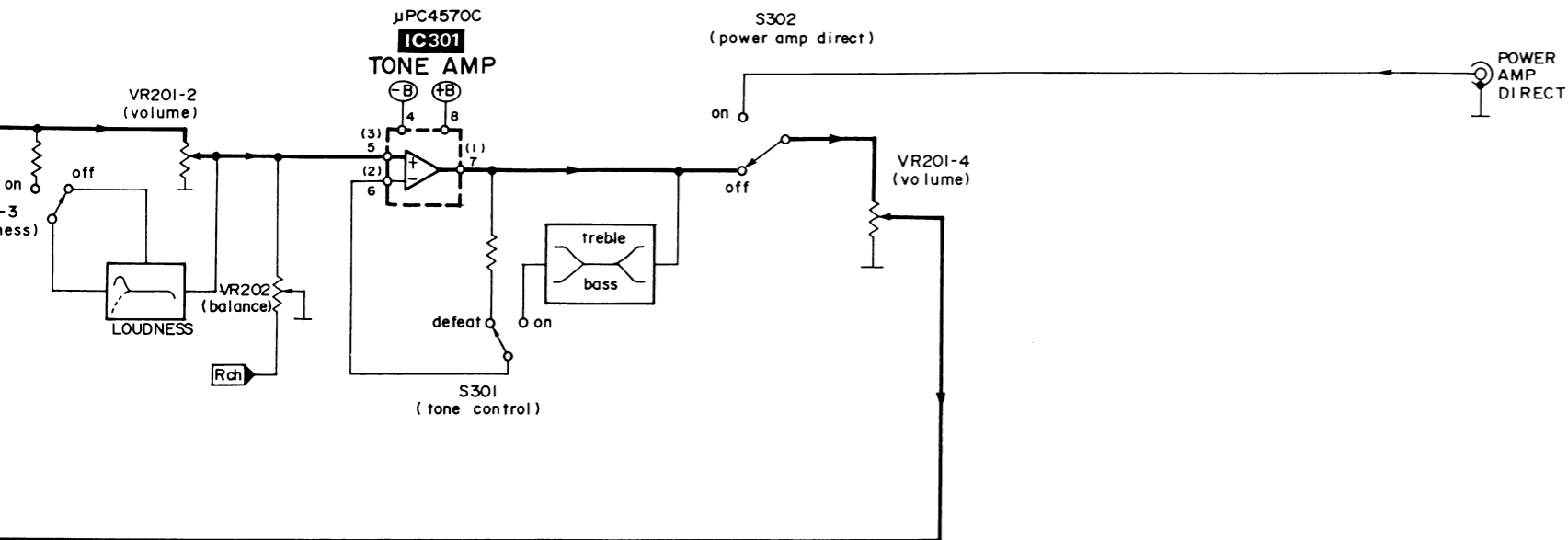


■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

 NO. 1 <table border="1"> <tr><td>AN6558F</td><td>8 pin</td></tr> <tr><td>UPC4570C</td><td>8 pin</td></tr> <tr><td>AN7062N</td><td>18 pin</td></tr> </table>		AN6558F	8 pin	UPC4570C	8 pin	AN7062N	18 pin
AN6558F	8 pin						
UPC4570C	8 pin						
AN7062N	18 pin						
SVI3205 18 pin  NO. 1	2SA1123, 2SC1685 2SC2631, 2SA992 						
2SC3311, 2SA1309 	2SC3944, 2SA1535 						
P300DLF 	MA4160M, MA4033 MA4036, MA4180 MA4051M 						
MA167, MA165 MA29WA 1SR35200TB Anode 	Cathode Ca → A						

■ BLOCK DIAGRAM





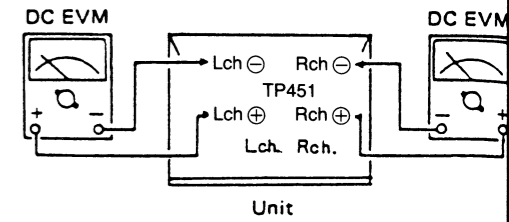
MEASUREMENTS AND ADJUSTMENTS

Control positions and equipment used.

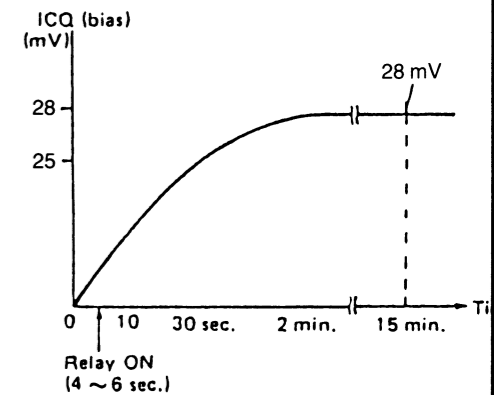
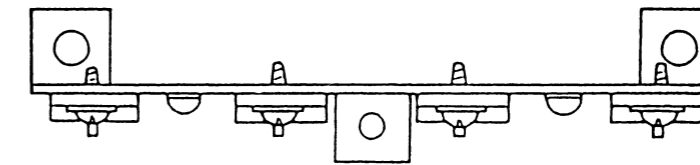
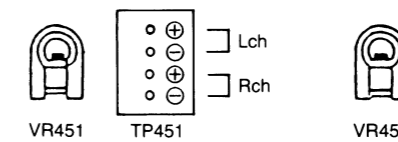
- Volume knob ∞ (Minimum)
- Main speaker selector off
- Balance knob 0
- DC electronic voltmeter (EVM)

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.



MEASUREMENTS AND ADJUSTMENTS

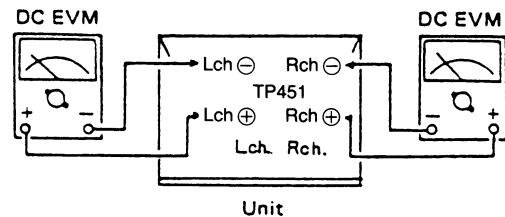
REPLACEMENT PARTS LIST

Control positions and equipment used.

- Volume knob ∞ (Minimum)
- Main speaker selector off
- Balance knob 0
- DC electronic voltmeter (EVM)

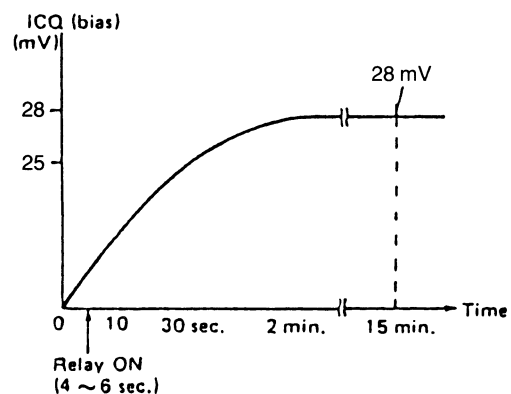
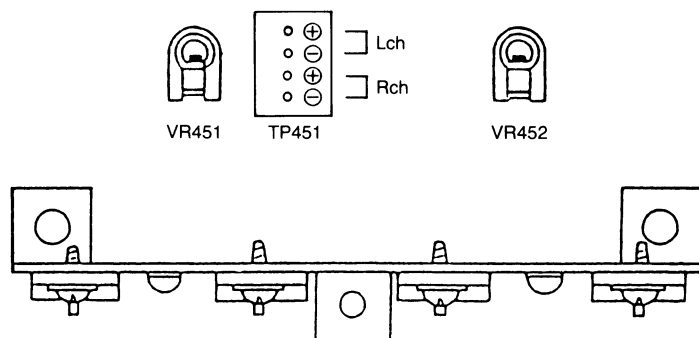
VOLTAGE CONTROL (V) AMP. IDLING (ICQ) ADJUSTMENT

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.



Notes: *Important safety notice:

Components identified by Δ 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.

**"K" mark parts are used for black type only.

**"S" mark parts are used for silver type only.

Parts other than "K" and "S" marked are used for all color types.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		RESISTORS		R461~464	ERDS2TJ223T	C. RESISTOR 1/4W 22K	Δ
				R465~468	ERD25FVJ101T	C. RESISTOR 1/4W 100	Δ
				R469, 470	ERD25FVJ821T	C. RESISTOR 1/4W 820	Δ
R101, 102	ERDS2TJ471T	C. RESISTOR 1/4W 1K	(EG)	R471~474	ERD25FVJ2R2T	C. RESISTOR 1/4W 2.2	Δ
R105, 106	ERDS2TJ224T	C. RESISTOR 1/4W 220K		R501, 502	ERDS2TJ362T	C. RESISTOR 1/4W 3.6K	
R109, 110	ERDS2TJ391T	C. RESISTOR 1/4W 390		R503, 504	ERDS2TJ121T	C. RESISTOR 1/4W 120	
R113, 114	ERDS2TJ563T	C. RESISTOR 1/4W 56K		R505, 506	ERDS2TJ392T	C. RESISTOR 1/4W 3.9K	
R117, 118	ERDS2TJ271T	C. RESISTOR 1/4W 270		R507, 508	ERDS2TJ121T	C. RESISTOR 1/4W 120	
R123, 124	ERDS2TJ680T	C. RESISTOR 1/4W 68		R509~512	RREEMKR10SC	C. RESISTOR 2W 0.1	Δ
R125, 126	ERDS2TJ184T	C. RESISTOR 1/4W 180K		R513~516	ERD25FVJ100T	C. RESISTOR 1/4W 10	Δ
R127, 128	ERDS2TJ123T	C. RESISTOR 1/4W 12K		R517, 518	ERD25FVJ1R0T	C. RESISTOR 1/4W 1.0	Δ
R129, 130	ERDS2TJ563T	C. RESISTOR 1/4W 56K		R519, 520	RREEMKR10SC	C. RESISTOR 2W 0.1	Δ
R131, 132	ERDS2TJ102T	C. RESISTOR 1/4W 1K		R521, 522	RREEMKR10SC	C. RESISTOR 2W 0.1	Δ
R201~210	ERDS2TJ102T	C. RESISTOR 1/4W 1K	(EG)	R523, 524	ERG2SJ331H	M. RESISTOR 2W 330	Δ
R211, 212	ERDAS3G223T	C. RESISTOR 1/4W 1K		R525	ERG2SJ681H	M. RESISTOR 2W 680	Δ
R213, 214	ERDS2TJ183T	C. RESISTOR 1/4W 18K		R526	ERDS2TJ223T	C. RESISTOR 1/4W 22K	Δ
R215, 216	ERDS2TJ332T	C. RESISTOR 1/4W 3.3K		R527	ERDS2TJ223T	C. RESISTOR 1/4W 22K	Δ
R217	ERDS2TJ824T	C. RESISTOR 1/4W 820K		R528	ERDS2TJ824T	C. RESISTOR 1/4W 820K	
R219, 220	ERDAS3G272T	C. RESISTOR 1/4W 2.7K		R529	ERDS2TJ124T	C. RESISTOR 1/4W 120K	
R221~224	ERDS2TJ471T	C. RESISTOR 1/4W 470	(EG)	R530	ERDS1FVJ682T	C. RESISTOR 1/2W 6.8K	Δ
R225, 226	ERDS2TJ102T	C. RESISTOR 1/4W 1K	(EG)	R531, 532	ERDS1FVJ100T	C. RESISTOR 1/2W 10	Δ
R231, 232	ERDAS3G472T	C. RESISTOR 1/4W 4.7K		R533, 534	ERDS2TJ182T	C. RESISTOR 1/4W 1.8K	
R233, 234	ERDAS3G124T	C. RESISTOR 1/4W 120K		R535	ERDS2TJ223T	C. RESISTOR 1/4W 22K	
R301, 302	ERDAS3G561T	C. RESISTOR 1/4W 560		R601	ERDS1FVJ120T	C. RESISTOR 1/2W 12	Δ
R303, 304	ERDS2TJ823T	C. RESISTOR 1/4W 82K		R602	ERDS2TJ221T	C. RESISTOR 1/4W 220	
R305, 306	ERDS2TJ224T	C. RESISTOR 1/4W 220K		R603	ERDS2TJ331T	C. RESISTOR 1/4W 330	
R307, 308	ERDS2TJ392T	C. RESISTOR 1/4W 3.9K		R604	ERDS2TJ271T	C. RESISTOR 1/4W 270	
R309, 310	ERDS2TJ223T	C. RESISTOR 1/4W 22K		R707, 708	ERD25FVJ6R8T	C. RESISTOR 1/4W 6.8	Δ
R311, 312	ERDS2TJ102T	C. RESISTOR 1/4W 1K		R709, 710	ERD25FVJ470T	C. RESISTOR 1/4W 47	Δ
R313, 314	ERDS2TJ562T	C. RESISTOR 1/4W 5.6K		R751, 752	ERG2ANJP152S	M. RESISTOR 2W 1.5K	Δ
R315, 316	ERDAS3G392T	C. RESISTOR 1/4W 3.9K				CAPACITORS	
R317, 318	ERDAS3G223T	C. RESISTOR 1/4W 22K		C1	ECKWNS103ZVS	C. CAPACITOR 250V 0.01U	Δ
R319, 320	ERDS2TJ183T	C. RESISTOR 1/4W 18K		C101, 102	RCBS1H180JLY	C. CAPACITOR 50V 18P	(EG)
R401, 402	ERDS2TJ122T	C. RESISTOR 1/4W 1.2K		C103, 104	RCBS1H181KBY	C. CAPACITOR 50V 180P	(EG)
R403, 404	ERDS2TJ823T	C. RESISTOR 1/4W 82K		C105, 106	RCBS1H101KBY	C. CAPACITOR 50V 100P	
R405, 406	ERDAS3G272T	C. RESISTOR 1/4W 2.7K		C107, 108	ECEADJK330B	E. CAPACITOR 6.3V 33U	
R407, 408	ERDAS3G823T	C. RESISTOR 1/4W 82K		C109, 110	RCBS1H391KBY	C. CAPACITOR 50V 390P	(E, E5, EB, GN, GC)
R409, 410	ERDS2TJ561T	C. RESISTOR 1/4W 560		C109, 110	ECBT1H102KBS	C. CAPACITOR 50V 0.001U	(EG)
R411, 412	ERD25FVJ470T	C. RESISTOR 1/4W 47	Δ	C113, 114	ECQM1H223KV3	P. CAPACITOR 50V 0.022U	
R437	ERDS2TJ473T	C. RESISTOR 1/4W 47K		C115, 116	ECQM1H682KV3	P. CAPACITOR 50V 6800P	
R451, 452	ERDS2TJ182T	C. RESISTOR 1/4W 1.8K		C117, 118	UES1H010M1TA	E. CAPACITOR 50V 1U	
R453, 454	ERDS2TJ393T	C. RESISTOR 1/4W 39K		C121, 122	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	
R455, 456	ERDS2TJ391T	C. RESISTOR 1/4W 390		C123, 124	ECEA1HPX3R3B	E. CAPACITOR 50V 3.3U	
R457, 458	ERDS2TJ823T	C. RESISTOR 1/4W 82K	Δ				
R459, 460	ERD25FVJ101T	C. RESISTOR 1/4W 100	Δ				

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
C201~210	RCBS1H101KBY	C. CAPACITOR 50V 100P	(EG)	C427	ECKT1H223ZF	C. CAPACITOR 50V 0.022U	
C213, 214	ECQV1H563JZ3	P. CAPACITOR 50V 0.056U		C451, 452	ECKT1H333ZF	C. CAPACITOR 50V 0.033U	
C219, 220	RCBS1H271KBY	C. CAPACITOR 50V 270P		C453~456	ECCT2H680K	C. CAPACITOR 500V 68P	△
C221~224	RCBS1H181KBY	C. CAPACITOR 50V 180P	(EG)	C457~460	ECEA1HK010B	E. CAPACITOR 50V 1U	
C225, 226	RCBS1H101KBY	C. CAPACITOR 50V 100P	(EG)	C482	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	
C301, 302	ECEA1HPX3R3B	E. CAPACITOR 50V 3.3U		C501~504	ECEA0JPX101B	E. CAPACITOR 6.3V 100U	
C303, 304	RCBS1H101KBY	C. CAPACITOR 50V 100P		C505, 506	ECKT1H223ZF	C. CAPACITOR 50V 0.022U	(E, E5, EG, GC)
C305, 306	RCBS1H820KBY	C. CAPACITOR 50V 82P		C505, 506	ECKT1H473ZF	C. CAPACITOR 50V 0.047U	(EB, GN)
C307, 308	ECEA1HPX4R7B	E. CAPACITOR 50V 4.7U		C507	ECEA0JK101B	E. CAPACITOR 6.3V 100U	
C309, 310	RCBS1H390JLY	C. CAPACITOR 50V 39P		C508	ECEA1HJ470B	E. CAPACITOR 50V 47U	
C311, 312	ECEA1CPX100B	E. CAPACITOR 16V 10U		C509	ECEA1HN100S	E. CAPACITOR 50V 10U	
C313, 314	ECQV1H823JZ3	P. CAPACITOR 50V 0.082U		C511, 512	RCBS1H180JLY	C. CAPACITOR 50V 18P	
C315, 316	ECQM1H153KV3	P. CAPACITOR 50V 0.015U		C513, 514	ECKT1H223ZF	C. CAPACITOR 50V 0.022U	(E, E5, EG, GC)
C317, 318	ECQM1H183KV3	P. CAPACITOR 50V 0.018U		C513~518	ECKT1H473ZF	C. CAPACITOR 50V 0.047U	(EB, GN)
C319, 320	ECQM1H182KV3	P. CAPACITOR 50V 1800P		C519~522	ECQM1H153KV3	P. CAPACITOR 50V 0.015U	(EG)
C321, 322	ECKT1H103ZF	C. CAPACITOR 50V 0.001U		C523, 524	ECBT1H102KB5	C. CAPACITOR 50V 0.001U	(EG)
C401, 402	ECEA1HPX3R3B	E. CAPACITOR 50V 3.3U		C525, 526	ECQB1H272JZ3	P. CAPACITOR 50V 2700P	
C403, 404	RCBS1H271KBY	C. CAPACITOR 50V 270P		C601	ECEA1CU221B	E. CAPACITOR 16V 220U	
C405, 406	ECEA1CPX220B	E. CAPACITOR 16V 22U		C705, 706	ECES1HV682UZ	E. CAPACITOR 50V 6800U	
C407, 408	RCBS1H820KBY	C. CAPACITOR 50V 82P		C707~710	ECEA1JU220	E. CAPACITOR 63V 22U	
C409, 410	RCBS1H100JLY	C. CAPACITOR 50V 10P		C711	ECKR2H103ZU	C. CAPACITOR 500V 0.01U	(E, E5, EB, GN, GC)
C411, 412	RCBS1H681KBY	C. CAPACITOR 50V 680P		C711	ECQE2104KS	P. CAPACITOR 200V 0.1U	(EG)
C413, 414	ECCT2H070D	C. CAPACITOR 500V 7P		C712	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	
C415, 416	ECQM1H102KV3	P. CAPACITOR 50V 1000P		C713, 714	ECKT1H103ZF	C. CAPACITOR 50V 0.01U	(EG)
C426	ECKT1H103ZF	C. CAPACITOR 50V 0.003U	(EG)	C751, 752	ECEA1EPX470B	E. CAPACITOR 25V 47U	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUITS					
						COILS	
IC101	AN6558F	IC, PHONO EQ AMP.		L1	SLQZ650MH49	COIL	△(EG)
IC301	UPC4570C	IC, TONE AMP.		L501~504	SLQY18G-10	COIL	
IC401	AN7062N	IC, V AMP.				TRANSFORMERS	
IC501	SV13205	IC, POWER AMP.	△				
		TRANSISTORS		T1	RTP1N5E001-W	POWER TRANSFORMER	△(E, E5, EG)
				T1	RTP1N5B002-W	POWER TRANSFORMER	△(EB, GN, GC)
Q401, 402	2SA1123RST	TRANSISTOR				FUSES	
Q451, 452	2SC2631RST	TRANSISTOR	△				
Q453, 454	2SC3311AQSTA	TRANSISTOR					
Q455, 456	2SA1309AQSTA	TRANSISTOR		F1	XBA2C20T80	FUSE 250V T2.0A	△(E, E5, EG)
Q457, 458	2SC2631RST	TRANSISTOR	△	F1	XBA2C16T80	FUSE 250V T1.6A	△(EB, GN)
Q459, 460	2SA1123RST	TRANSISTOR	△	F1	XBA2C40T80	FUSE 250V T4.0A	△(GC)
Q461, 462	2SC3944AQRS	TRANSISTOR	△	F2	XBA2C20T80	FUSE 250V T2.0A	△(GC)
Q463, 464	2SA1535AQRS	TRANSISTOR	△			SWITCHES	
Q465, 466	2SC1685RST	TRANSISTOR					
Q501	2SA992EFP	TRANSISTOR		S1	ESB8249V	POWER	△
		DIODES		S2	ESE37263	VOLTAGE SELECTOR	△(GC)
				S101	RSR6B001	INPUT SELECTOR	
D401, 402	MA167ATA	DIODE		S102	RSS6D001	REC SELECTOR	
D403, 404	MA4036MTA	DIODE		S103	ESB68108	MODE/LOUDNESS	
D451, 452	MA29WATA	DIODE	△	S301	ESB68107	TONE CONTROL	
D453~456	MA165TA	DIODE		S302	ESB68109	POWER AMP DIRECT	
D501	MA165TA	DIODE		S501	RSP2002	SPEAKER SELECTOR	
D502	MA4051MTA	DIODE				JACKS	
D503	MA4160MTA	DIODE	△				
D504	MA4160MTA	DIODE		CN101, 102	SJT3319	CONNECTOR (3P)	
D601	1SR35200TB	DIODE	△	CN103	SJS51080WL	SOCKET (10P)	
D602	LN014472PH	DIODE		CN104	SJS50880WL	SOCKET (8P)	
D603	LN018472PH	DIODE		CN105	SJS50680WL	SOCKET (6P)	
D604	LN018304P	DIODE		CN201	SJS51080WL	SOCKET (10P)	
D605	MA4033MTA	DIODE		CN401	SJS50780WL	SOCKET (7P)	
D701~704	P300DLF	DIODE	△	CP103	SJT31047WL	CONNECTOR (10P)	
D751, 752	MA4160MTA	DIODE		CP104	SJT30847WL	CONNECTOR (8P)	
		VARIABLE RESISTORS		CP105	SJT30647WL	CONNECTOR (6P)	
				CP201	SJT31047WL	CONNECTOR (10P)	
VR201	RRV16J01A	V. R. VOLUME CONTROL		CP401	SJT30747WL	CONNECTOR (7P)	
VR202	EWHFDA014G15	V. R. BALANCE		JK1	SJS9231-1B	AC INLET	△(E, E5, EG, EB, GC)
VR301	EW2XA000C15	V. R. BASS		JK1	SJS9234B	AC INLET	△(GN)
VR302	EW2XA000C15	V. R. TREBLE		JK2~4	SJS9233B	AC OUTLET	△(GC)
VR451	EVNDXAA00B52	V. R. ICQ ADJ. (Lch)		JK101	SJF3067NJ	TERMINAL, PHONO/TUNER	
VR452	EVNDXAA00B52	V. R. ICQ ADJ. (Rch)		JK102~104	SJF3069N	TERMINAL, CD/AUX/TAPE1/TAPE2	
		THERMISTOR		JK105	SJF3068NJ	TERMINAL, POWER AMP DIRECT	
				JK501	SJF4819	TERMINAL, SPEAKER	
TH201, 202	ERTD2ZHL104T	THERMISTOR		JK502	SJJD19	HEADPHONES JACK	
TH451, 452	ERTD2ZHL104T	THERMISTOR					

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUITS	
IC101	AN6558F	IC, PHONO EQ AMP.	
IC301	UPC4570C	IC, TONE AMP.	
IC401	AN7062N	IC, V AMP.	
IC501	SV13205	IC, POWER AMP.	△
		TRANSISTORS	
Q401, 402	2SA1123RST	TRANSISTOR	
Q451, 452	2SC2631RST	TRANSISTOR	△
Q453, 454	2SC3311AQSTA	TRANSISTOR	
Q455, 456	2SA1309AQSTA	TRANSISTOR	
Q457, 458	2SC2631RST	TRANSISTOR	△
Q459, 460	2SA1123RST	TRANSISTOR	△
Q461, 462	2SC3944AQRS	TRANSISTOR	△
Q463, 464	2SA1535AQRS	TRANSISTOR	△
Q465, 466	2SC1685RST	TRANSISTOR	△
Q501	2SA992EFP	TRANSISTOR	
		DIODES	
D401, 402	MA167ATA	DIODE	
D403, 404	MA4036MTA	DIODE	
D451, 452	MA29WATA	DIODE	△
D453-456	MA165TA	DIODE	
D501	MA165TA	DIODE	
D502	MA4051MTA	DIODE	
D503	MA4160MTA	DIODE	△
D504	MA4160MTA	DIODE	
D601	1SR35200TB	DIODE	△
D602	LN014472PH	DIODE	
D603	LN018472PH	DIODE	
D604	LN018304P	DIODE	
D605	MA4033MTA	DIODE	
D701-704	P300DLF	DIODE	△
D751, 752	MA4160MTA	DIODE	
		VARIABLE RESISTORS	
VR201	RRV16J01A	V. R. VOLUME CONTROL	
VR202	EWHFDA014G15	V. R. BALANCE	
VR301	EW2XA000C15	V. R. BASS	
VR302	EW2XA000C15	V. R. TREBLE	
VR451	EVNXXA00B52	V. R. ICQ ADJ. (Lch)	
VR452	EVNXXA00B52	V. R. ICQ ADJ. (Rch)	
		THERMISTOR	
TH201, 202	ERTD22HL104T	THERMISTOR	
TH451, 452	ERTD22HL104T	THERMISTOR	

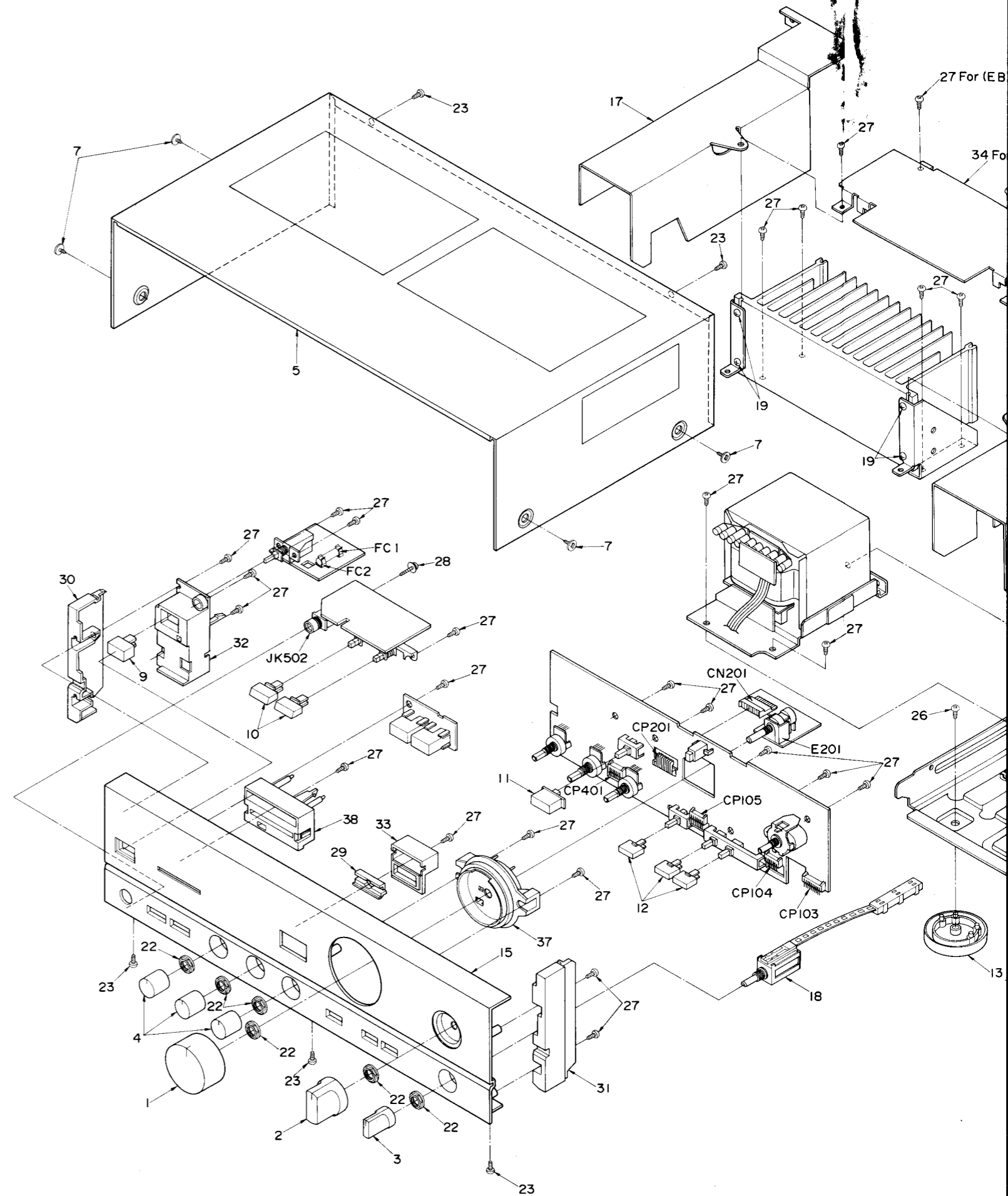
Ref. No.	Part No.	Part Name & Description	Remarks
		COILS	
L1	SLQZ650MH49	COIL	△ (EG)
L501~504	SLQY18G-10	COIL	
		TRANSFORMERS	
T1	RTP1N5E001-W	POWER TRANSFORMER	△ (E, E5, EG)
T1	RTP1N5B002-W	POWER TRANSFORMER	△ (EB, GN, GC)
		FUSES	
F1	XBA2C20TBO	FUSE 250V T2.0A	△ (E, E5, EG)
F1	XBA2C16TBO	FUSE 250V T1.6A	△ (EB, GN)
F1	XBA2C40TBO	FUSE 250V T4.0A	△ (GC)
F2	XBA2C20TBO	FUSE 250V T2.0A	△ (GC)
		SWITCHES	
S1	ESB8249V	POWER	△
S2	ESE37263	VOLTAGE SELECTOR	△ (GC)
S101	RSR6B001	INPUT SELECTOR	
S102	RSS6D001	REC SELECTOR	
S103	ESB68108	MODE/LOUDNESS	
S301	ESB68107	TONE CONTROL	
S302	ESB68109	POWER AMP DIRECT	
S501	RSP2002	SPEAKER SELECTOR	
		JACKS	
CN101, 102	SJT3319	CONNECTOR (3P)	
CN103	SJS51080WL	SOCKET (10P)	
CN104	SJS50880WL	SOCKET (8P)	
CN105	SJS50680WL	SOCKET (6P)	
CN201	SJS51080WL	SOCKET (10P)	
CN401	SJS50780WL	SOCKET (7P)	
CP103	SJT31047WL	CONNECTOR (10P)	
CP104	SJT30847WL	CONNECTOR (8P)	
CP105	SJT30647WL	CONNECTOR (6P)	
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, PHONO/TUNER	
JK102~104	SJF3069N	TERMINAL, CD/AUX/TAPE1/TAPE2	
JK105	SJF3068NJ	TERMINAL, POWER AMP DIRECT	
JK501	SJF4819	TERMINAL, SPEAKER	
JK502	SJJD19	HEADPHONES JACK	

Ref. No.	Part No.	Part Name & Description	Remarks
		SHIELD COVERS	
E101	SMC1299	SHIELD COVER	
E103	RMC0033	SHIELD COVER	
E201	RSQ0007	SHIELD COVER	
		FUSE HOLDERS	
FC1, 2	SJT390	FUSE HOLDER	△
FC3, 4	SJT388	FUSE HOLDER	△ (GC)

Ref. No.	Part No.	Part Name & Description	Remarks
		RELAY	
RLY501	SSY126	RELAY	△

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Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS		31	RGK0099-S	SIDE ORNAMENT (R)	S
1	RGW0025-K	VOLUME KNOB	K	32	RMRO136-K	HOLDER	K
1	RGW0025-S	VOLUME KNOB	S	32	RMRO136-S	HOLDER	S
2	RGW0026-K	INPUT SELECT KNOB	K	33	RMRO137-K	HOLDER	K
2	RGW0026-S	INPUT SELECT KNOB	S	33	RMRO137-S	HOLDER	S
3	RGW0027-K	REC SELECT KNOB	K	34	RMQ0069	HEAT SINK COVER	(EB)
3	RGW0027-S	REC SELECT KNOB	S	35	SHR415	LATCH	
4	RGW0028-K	TONE KNOB	K	36	XTW3+8T	SCREW	
4	RGW0028-S	TONE KNOB	S	37	RGK0154-K	VOLUME ORNAMENT	K
5	RGW0036A-K	CABINET	K	37	RGK0155-S	VOLUME ORNAMENT	S
5	RGW0036A-S	CABINET	S	38	RGK0156-K	INDICATOR ORNAMENT	K
6	SJPA11-1	SHORTING PIN		38	RGK0157-S	INDICATOR ORNAMENT	S
7	SNE2129-1	SCREW	K	39	SJS9233A	AC OUTLET COVER	(GC)
7	SNE2129	SCREW	S	40	XYN3+C6FZ	SCREW	(GC)
8	RGR0019A-A	REAR PANEL	(E)	41	SHR301	CLAMPER	
8	RGR0050	REAR PANEL	(E5)			PACKING MATERIAL	
8	RGR0019A-C	REAR PANEL	(EB)	P1	RPG0168	CARTON BOX	K
8	RGR0019A-B	REAR PANEL	(EG)	P1	RPG0166	CARTON BOX	S
8	RGR0019B-A	REAR PANEL	(GC)	P2	SPS5185	PAD	
8	RGR0019A-D	REAR PANEL	(GN)	P3	SPS5255-1	PAD	
9	RGU0030	POWER BUTTON	K	P4	SPS5256-1	PAD	
9	RGU0030-S	POWER BUTTON	S	P5	XZB60X60A01	PROTECTION COVER	
10	RGU0118-K	SPEAKER BUTTON	K			ACCESSORIES	
10	RGU0118-S	SPEAKER BUTTON	S	A1	RQF0170	INSTRUCTIONS MANUAL	(E, E5)
11	RGU0119-K	DIRECT BUTTON	K	A1	RQF0172	INSTRUCTIONS MANUAL	(EB)
11	RGU0119-S	DIRECT BUTTON	S	A1	RQF0171	INSTRUCTIONS MANUAL	(EG)
12	RGU0120-K	SIGNAL BUTTON	K	A1	RQF0173	INSTRUCTIONS MANUAL	(GC)
12	RGU0120-S	SIGNAL BUTTON	S	A1	RQF0174	INSTRUCTIONS MANUAL	(GN)
13	RKA0009-1	FOOT		A2	SFDAC05E03	POWER CORD	△ (E, E5, EG)
14	RMK0035	CHASSIS		A2	SJA193	POWER CORD	△ (EB)
15	RYP0104-K	FRONT PANEL	K	A2	RJA0004	POWER CORD	△ (GC)
15	RYP0105-S	FRONT PANEL	S	A2	SJA173	POWER CORD	△ (GN)
16	RSC0057	SHIELD PLATE (R)		A3	SJP9215	AC PLUG ADAPTOR	△ (GC)
17	RSC0058	SHIELD PLATE (L)					
18	RSQ0004	REC SELECTOR					
19	XTB3+8J	SCREW					
20	SHE187-2	HOLDER					
21	SJS9231A	AC INLET COVER	(E, E5, EB, EG, GC, GW)				
21	SJS9234A	AC INLET COVER	(GN)				
22	SNE4021-1	NUT					
23	XTBS3+8JFZ1	SCREW					
24	XTB3+16JFZ	SCREW					
25	XTB3+20J	SCREW					
26	XTB3+6J	SCREW					
27	XTB3+8JFZ	SCREW					
28	XTWS3+8T	SCREW					
29	RGK0097	ORNAMENT (GOLD LINE)					
30	RGK0098-K	SIDE ORNAMENT (L)	K				
30	RGK0098-S	SIDE ORNAMENT (L)	S				
31	RGK0099-K	SIDE ORNAMENT (R)	K				



EXPLODED VIEW

