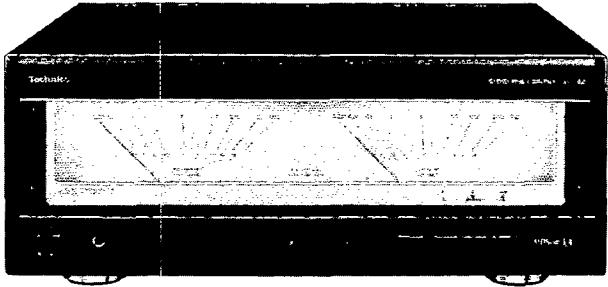


# Service Manual

Stereo Power Amplifier

Amplifier

SE-A2000



## Colour

(K) ... Black Type

## Area

Suffix for Model No.	Area	Colour
(EG)	Europe.	(K)
(EB)	Great Britain.	
(G)	Asia, Latin America, Middle Near East and Africa.	

**SPECIFICATIONS (DIN 45 500)**

<b>20 Hz–20 kHz continuous power output both channels driven</b>	2 × 100 W (8 Ω) 2 × 140 W (4 Ω)
<b>1 kHz continuous power output both channels driven (THD: 1%)</b>	2 × 110 W (8 Ω) 2 × 160 W (4 Ω)
<b>63 Hz–12.5 kHz continuous power output both channels driven (THD: 0.7%)</b>	2 × 105 W (8 Ω) 2 × 145 W (4 Ω)
<b>Total harmonic distortion rated power at 20 Hz–20 kHz</b>	0.005% (8 Ω) 0.009% (4 Ω)
<b>half power at 20 Hz–20 kHz</b>	0.003% (8 Ω)
<b>Intermodulation distortion (50 Hz: 7 kHz = 4:1, SMPTE) rated power</b>	0.005% (8 Ω)
<b>Power bandwidth (both channel driven) –3 dB THD 0.05%</b>	5 Hz–80 kHz (8 Ω)
<b>Residual hum and noise</b>	0.15 mV
<b>Damping factor</b>	100 (8 Ω) 50 (4 Ω)
<b>Headphones output level/impedance</b>	680 mV/330 Ω
<b>Load impedance</b>	
<b>A or B</b>	4 Ω–16 Ω
<b>A and B</b>	8 Ω–16 Ω
<b>Input sensitivity/impedance</b>	1.0 V/33 kΩ
<b>S/N (rated power, 4 Ω)</b>	107 dB (115 dB, IHF '66)
<b>Frequency response</b>	0.8 Hz–150 kHz (+0, –3 dB) +0 dB, –0.2 dB (20 Hz–20 kHz)

**GENERAL****Power consumption**

380 W

**Power supply**For (EG) area. AC 50 Hz/60 Hz, 230 V  
For (EB) area. AC 50 Hz/60 Hz, 230 V–240 V

For (G) area. AC 50 Hz/60 Hz, 110 V–127 V/220 V–240 V

**Dimensions (W × H × D)** 448 × 186 × 431 mm**Weight** 22 kg**Notes:**

1. Design and specifications are subject to change without notice.  
Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.
3. **For areas except (EG)**  
The specification values given have been measured while using a 240 V power supply.

**Technics**

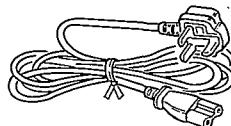
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## ■ ACCESSORIES

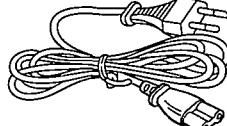
- AC power supply cord..... 1

[FOR (EB) area.]



(VJA0733)

[FOR (EG, G) areas.]



(RJA0019-2K)

- Power plug adaptor .....

[FOR (G) area.]



(SJP5213-2)

## ■ PROTECTION CIRCUITRY

The protection circuitry 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 outlines below:

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

### Note:

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

## ■ BEFORE REPAIR AND ADJUSTMENT

Disconnect AC power, Discharge both Power Supply Capacitors C701~C704 through a 10Ω, 5W resistor to ground.

DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdrive blade, for instance), as this may destroy solid state devices. After repairs are completed, restore power gradually using a variac, to avoid overcurrent.

Current consumption at 50Hz/60Hz in NO SIGNAL mode should be shown below with respect to supply voltage 230V/240V/110~127V/220~240V.

Power supply voltage	AC 230V		AC 240V		AC 120V (AC 110~127V)		AC 240V (AC 220~240V)	
	50Hz	150~450mA	50Hz	140~430mA	50Hz	260~880mA	50Hz	140~430mA
Consumed current 50/60Hz	60Hz	120~360mA	60Hz	112~344mA	60Hz	208~704mA	60Hz	112~344mA

## ■ CAUTION FOR AC MAINS LEAD

### [For (EB) area.]

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362. Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local dealer.

### CAUTION!

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt please consult a qualified electrician.

### IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral

Brown: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

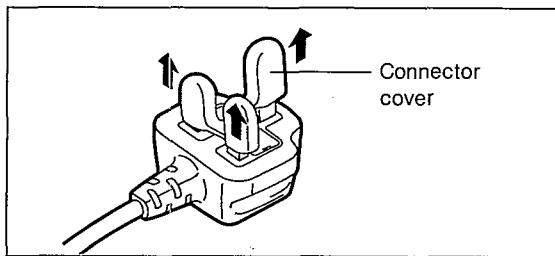
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol .

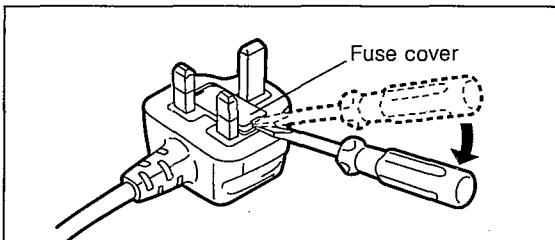
### Before use

Remove the connector cover as follows.

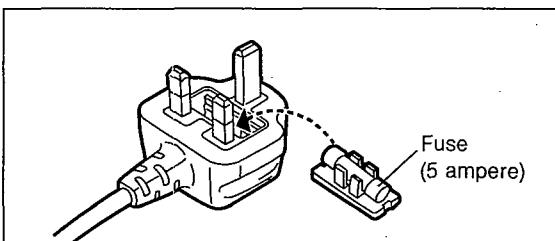


### How to replace the fuse

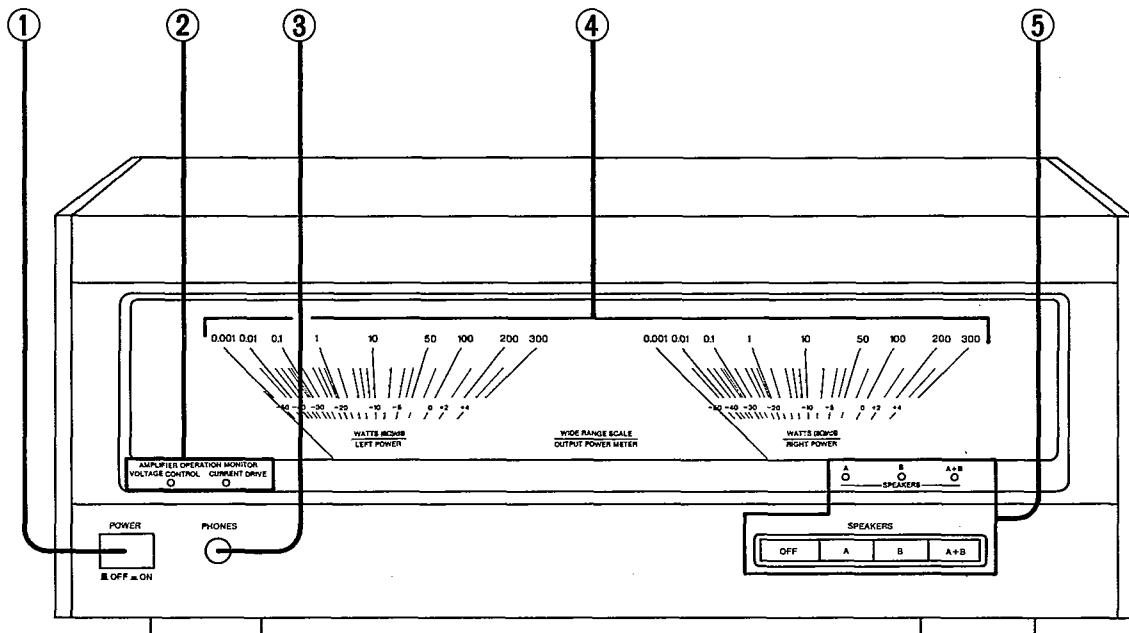
1. Remove the fuse cover with a screwdriver.



2. Replace the fuse and attach the fuse cover.



## ■ FRONT PANEL CONTROLS AND FUNCTIONS



### ① Power switch (POWER)

Switches the unit on or off.

### ② Operation indicators (AMPLIFIER OPERATION MONITOR)

These indicators illuminate to indicate the operating condition of this unit.

#### VOLTAGE CONTROL:

Illuminates up when the power is switched on. Indicates that the voltage control amplifier is ready to operate.

#### CURRENT DRIVE:

Illuminates approximately 3 seconds after the voltage control amplifier indicator illuminates. Indicates that the main unit is ready to operate.

If an abnormal condition in the circuitry is detected, such as DC voltage appearing in the output, or a short-circuit of the positive (+) and negative (-) wires from the speaker terminals, the protection circuit functions and this indicator will not illuminate.

### ③ Headphones jack (PHONES)

### ④ Power meters

Indicate the output (watts) of this unit.

When speakers having an impedance of  $8 \Omega$  are connected, the output level will be as indicated. However, if the speaker impedance is  $16 \Omega$ , the output level will be one-half the indicated value, and if the impedance is  $4 \Omega$ , the output level will be double the indicated value.

Actual output =

$$\text{meter indication} \times \frac{8 \text{ } (\Omega)}{\text{impedance of the speakers } (\Omega)}$$

### ⑤ Speaker selectors/indicators (SPEAKERS)

These selectors are used to select the speakers (A and/or B).

**OFF:** No sound will be heard from the speakers.

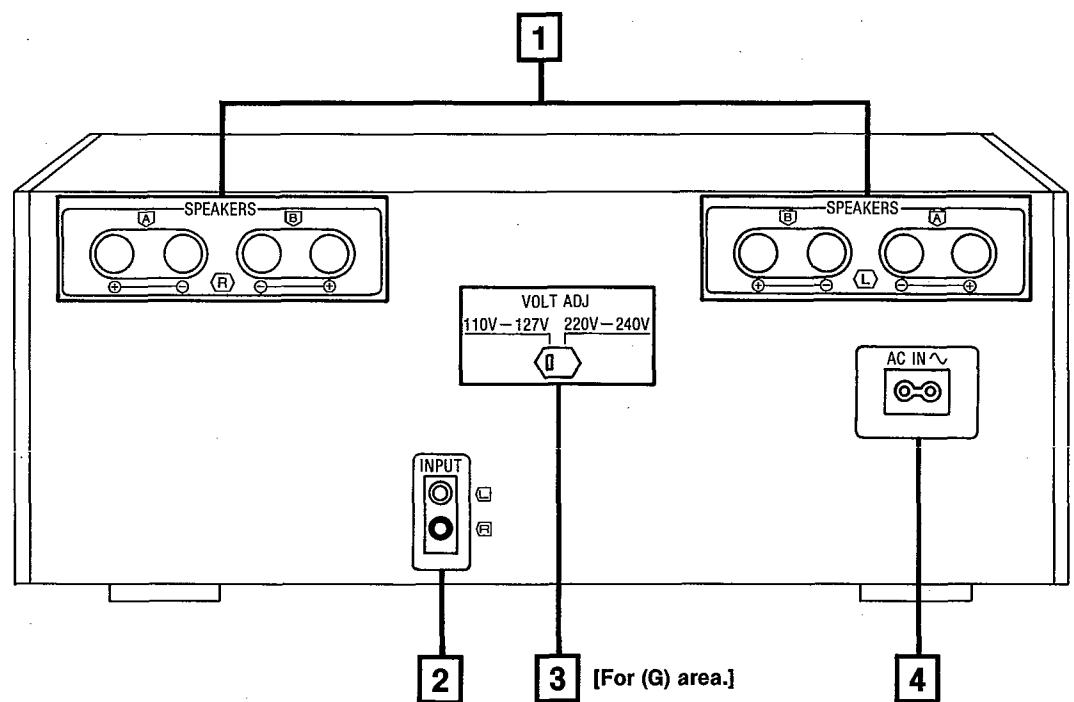
**A:** Sound can be heard from the speakers connected to the "A" terminals.

**B:** Sound can be heard from the speakers connected to the "B" terminals.

**A + B:** Sound can be heard simultaneously from the speakers connected to the "A" terminals and the "B" terminals.

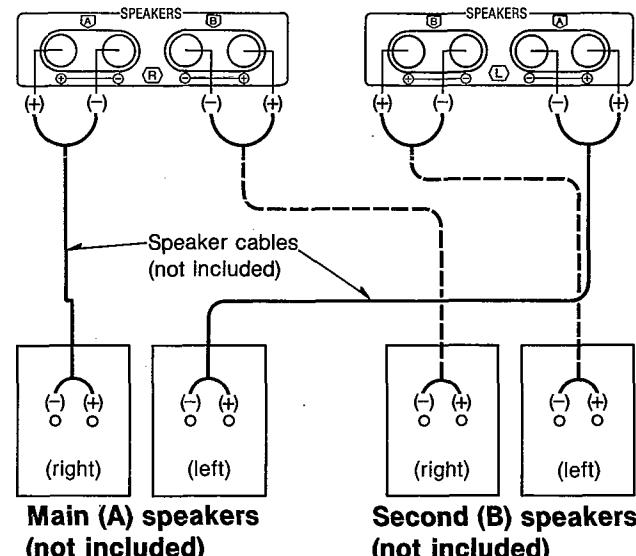
## ■ CONNECTIONS

Before making connections, be sure that the power to this unit and all other equipment is first turned off.



### 1 To connect speakers

One pair of speakers can be connected to the "A" terminals of this unit and one pair to the "B" terminals.



**Note:**

Be sure to only connect positive (+) wires to positive (+) terminals, and negative (-) wires to negative (-) terminals.

### ■ Speaker impedance

- When only the "A" or only the "B" terminals are used: 4–16 ohms
- When both the "A" and the "B" terminals are used simultaneously: 8–16 ohms

### ■ Connection of speaker wires

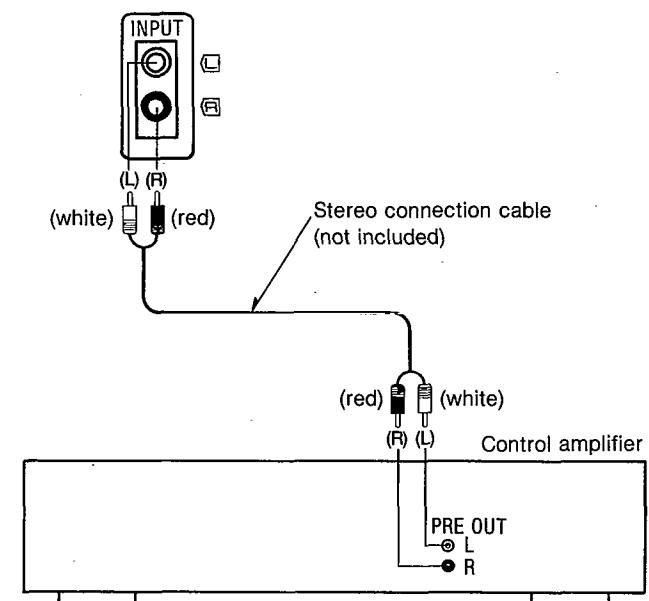
- Twist the center conductor. 15 mm → Twist.
- Turn the knob to the left and insert the wire. →
- Tighten the knob by turning it to the right and pull the wire to assure a proper connection. →

To prevent damage to the circuitry, never short-circuit positive (+) and negative (-) speaker wires.



### 2 To connect to the control amplifier

Use a stereo connection cable (not included) to connect to the output terminals of the control amplifier.



### 4 To connect the AC power supply cord

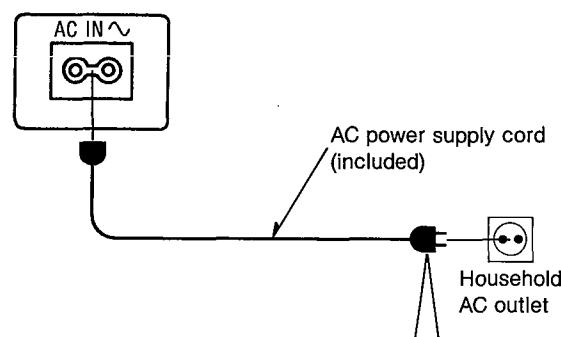
[For (EB) area.]

**BE SURE TO READ THE CAUTION FOR THE AC MAINS LEAD ON PAGE 3 BEFORE MAKING THE FOLLOWING CONNECTION.**

Connect the AC power supply cord (included) after all other cables and cords are connected.

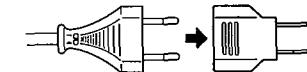
**Note:**

The configuration of the AC power supply cord differs according to area.



[For (G) area.]

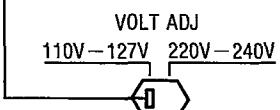
If the power plug will not fit your socket, use the power plug adaptor (included).



### 3 To set the power voltage

[For (G) area.]

Set the voltage selector to "110 V–127 V" or "220 V–240 V" according to the area in which the unit will be used.  
[Use a minus (-) screwdriver]



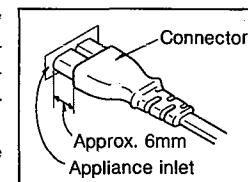
**Note:**

Note that this unit will be seriously damaged if this setting is not made correctly.

### Insertion of Connector

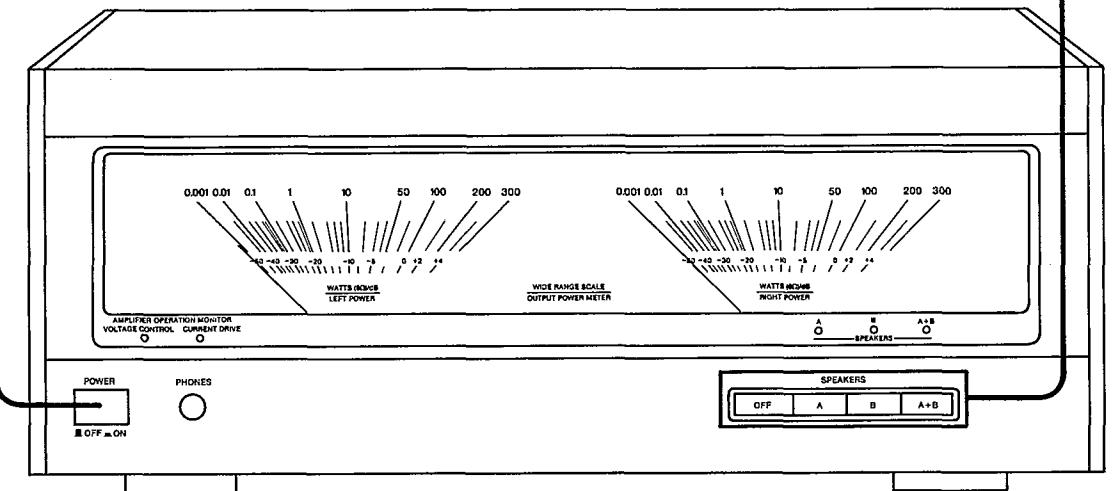
Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing.

However there is no problem using the unit.



**■ OPERATION**

2



3

In order to protect the speakers, before performing the following procedure, set the volume on the control amplifier to the minimum position.

**1 Switch on the power of the control amplifier.****2 Switch ON the power of this unit.**  
(The operation indicators will illuminate.)**3 Select the speakers to be used.**  
(The corresponding speaker indicator will illuminate.)**4 Operate the tape deck, CD player, or other equipment and adjust the volume on the control amplifier.****NOTE:**

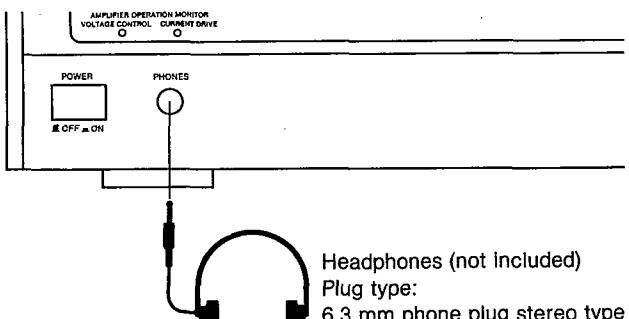
Because this unit has a very high output level, if the permissible input of the speaker is only low, the speakers could become damaged. Therefore, watch the power meters while adjusting the volume on the control amplifier and do not exceed the permissible input of the speakers being used.

**After listening is finished:**

First switch off the power of this unit, and then switch off the power of the control amplifier.

**When listening through headphones****Connect the headphones to the headphones jack.**

Always be sure to turn down the volume on the control amplifier before connecting the headphones.



Headphones (not included)  
Plug type:  
6.3 mm phone plug stereo type

If the sound from the speakers is not wanted, set the speaker selector to the "OFF" position.

**Note:**

Avoid listening for prolonged periods of time to prevent hearing damage.

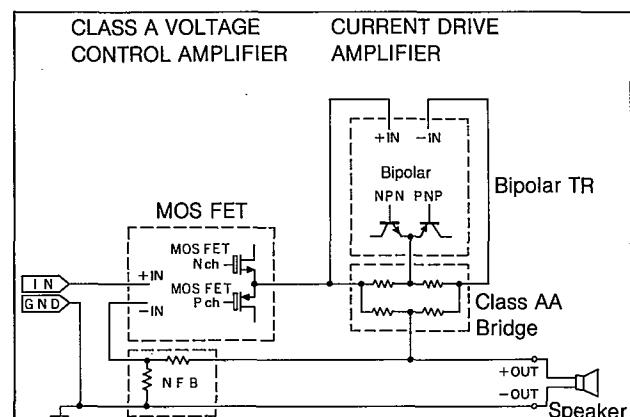
**■ DESCRIPTION OF TECHNICAL FEATURES****Newly developed "MOS class AA" circuit**

Technics developed the Class AA circuit in 1985, and since that time it has been used in many amplifiers. With the conventional power amplifiers, a single amplifier was used to perform two functions: "amplify the voltage" and "drive the current to the speakers". The Class AA circuit is a totally new and unique concept which has succeeded in combining two separate amplifiers, each of which performs one specific function.

Great progress has recently been made in semiconductor mass production technology, and the MOS FET, said to be the ideal semiconductor amplifier component, has been improved for use in audio equipment. However, as a component for the output stage, the MOS FET still has its own strong points and weak points when compared with the conventional bipolar transistor. Thus, by extending and expanding the features of the Class AA circuit, which created a whole new concept for the relationship between an amplifier's voltage amplification and current amplification, Technics has now developed the new MOS Class AA circuit, which combines the strong points of both the bipolar transistor and the MOS FET.

Considering the special features of the MOS Class AA circuit from the circuitry aspect, it is comprised of an A class voltage control amplifier which performs overall control of the entire amplifier, and a B class amplifier which generates the current to drive the speakers, thus combining high-quality A class sound with the capability to drive any type of speaker. Furthermore, in order to make the most of the features of this circuitry composition, a MOS FET which has excellent input and output linearity is used for the voltage control amplifier, and a bipolar transistor which has outstanding drive capability is used for the current drive amplifier.

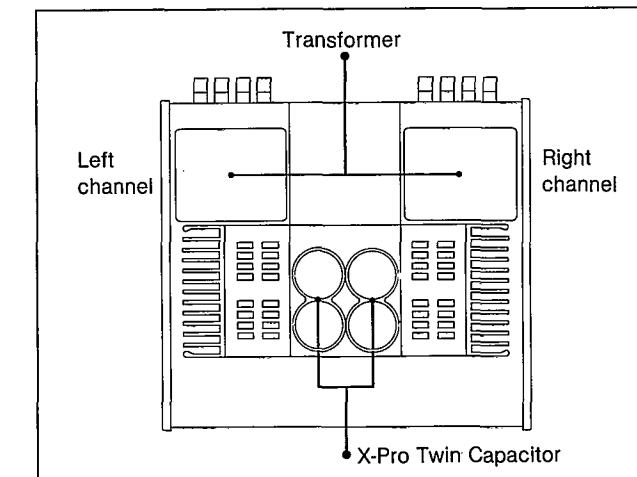
As a result, the sound data from the input source is faithfully reproduced without the addition of any unwanted noise.

**MOS Class AA circuit****Twin-monoaural composition with high-performance power supply units**

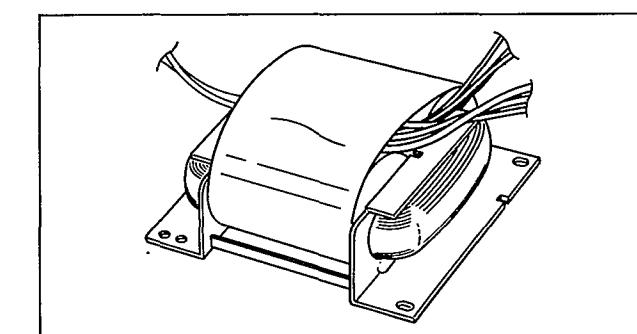
This circuit features a twin-monoaural composition in which the left channel and the right channel are independent of each other. As a result, noise generated by mutual interference between the two channels and the cross talk phenomenon have been drastically reduced.

The power supply section for each channel is equipped with a high-performance R-shaped core transformer having extremely low leakage flux. In addition, X-Pro twin capacitors are used for the electrolytic capacitors. In this composition, for each capacitor, there are two electrolytic capacitors, one for the (+)

side and one for the (-) side, packed together with shock-absorbing material into a resin case with a copper cap, thus reducing both mechanical vibration and electromagnetic radiation. Using this twin-monoaural composition with its high-performance power supply units, it is possible to reproduce powerful superbass sounds and achieve excellent channel separation.

**R-shaped core transformer with low leakage flux**

Most transformers use an EI type core or a toroidal core. However, in either case the core's cross-section is square-shaped; so the magnetic flux induced by the coil is not uniform, but rather lopsided at certain parts. In contrast, this power amplifier is equipped with a transformer which has a core with an R-shaped cross-section, thus reducing leakage flux and preventing the entrance of unwanted noise.

**Other features****■ High-precision large-sized power meters**

This model is equipped with the same large-sized power meters which have become a tradition on Technics power amplifiers. Furthermore, it is also equipped with operation indicators that confirm when the voltage control amplifier and the current drive amplifier are ready to operate and with speaker indicators.

**■ Electronic speaker selectors**

Electronic switches are used for the speaker selectors. Gold-clad contacts are used for the selector relays, thus providing light-touch operation and high reliability.

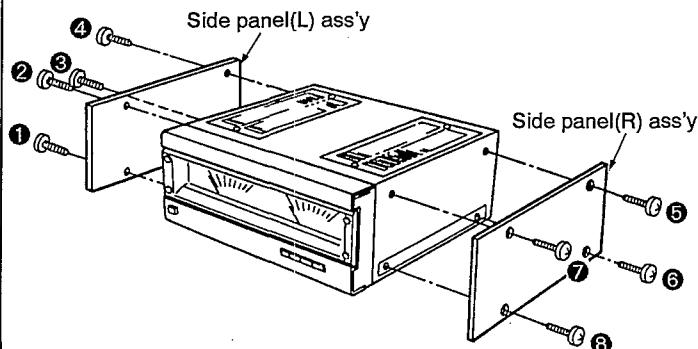
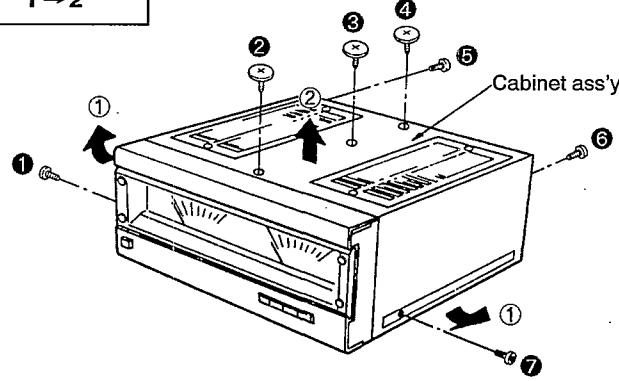
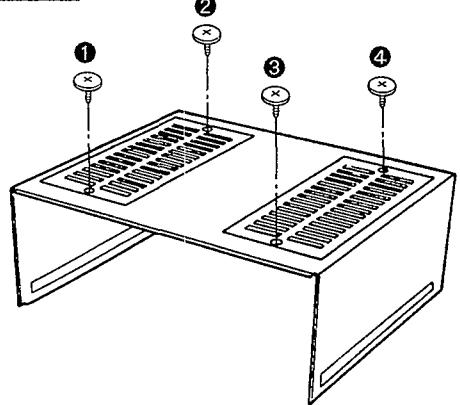
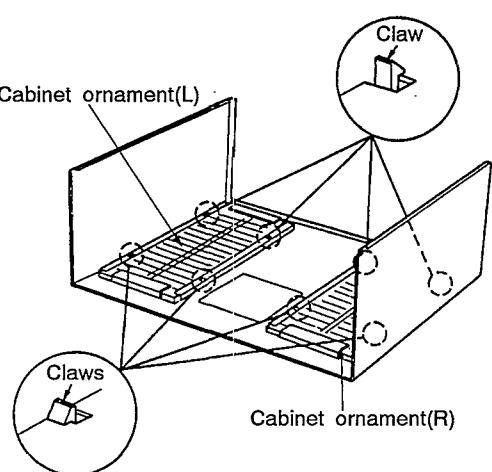
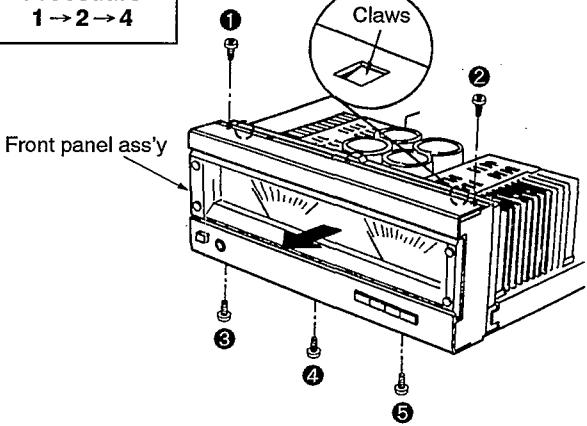
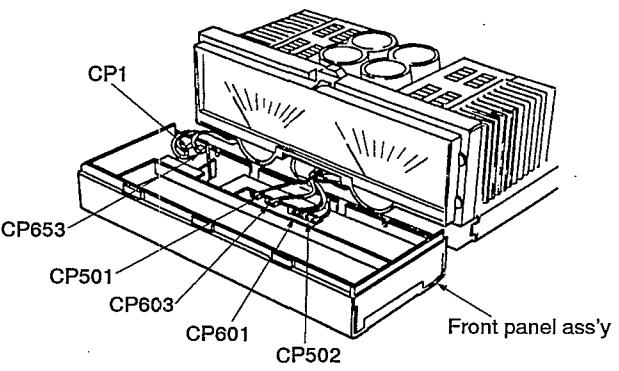
**■ High-rigidity chassis**

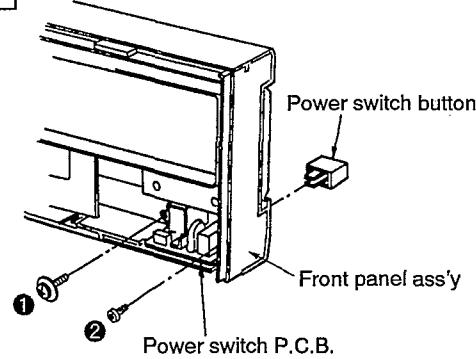
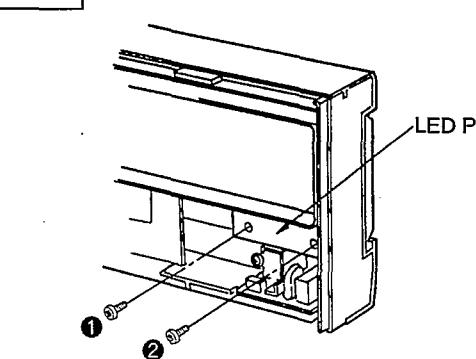
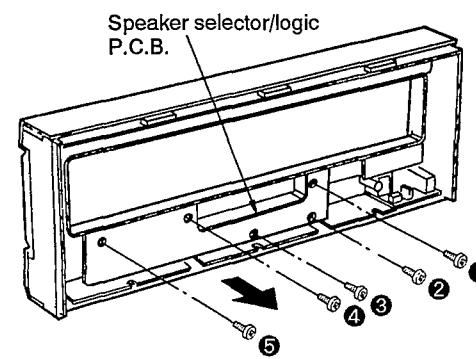
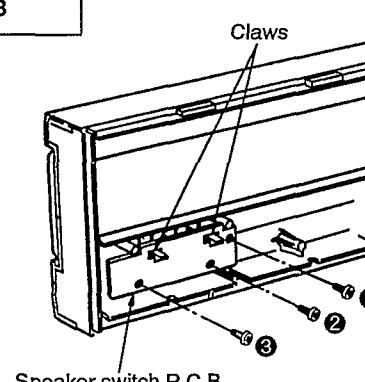
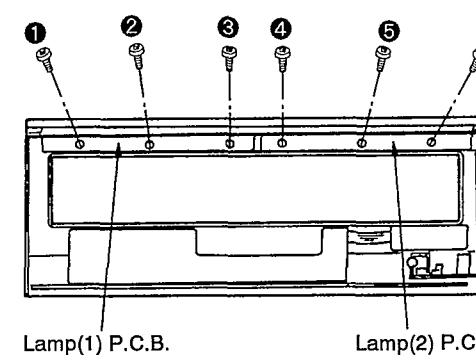
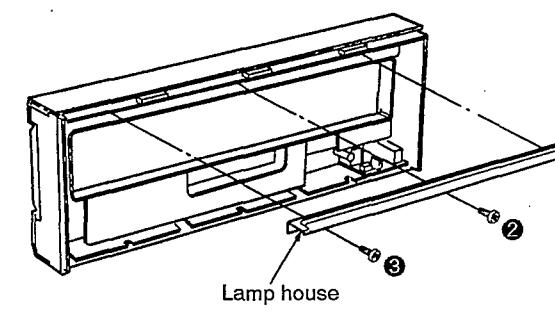
In order to provide solid support for the high-performance circuitry components, the cabinet features a completely vibration-proof design made possible by a high-rigidity chassis.

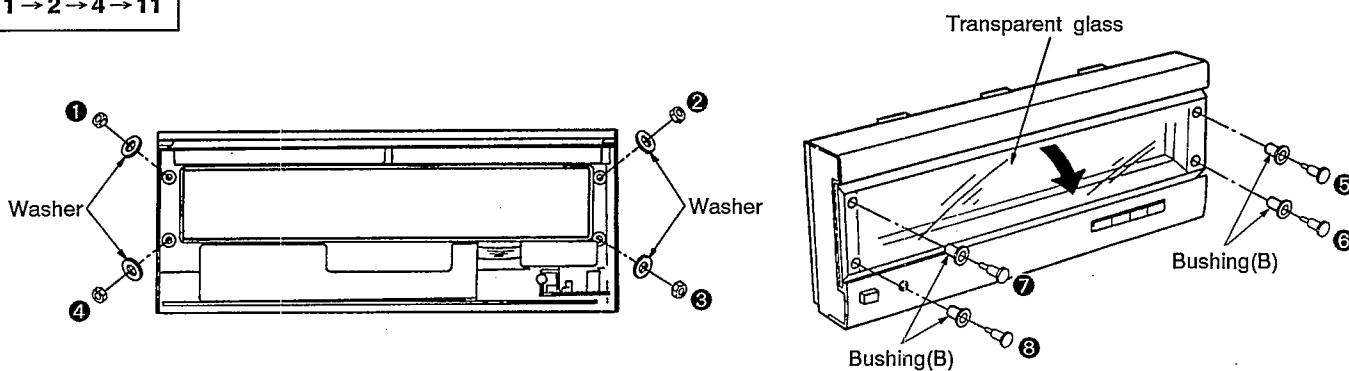
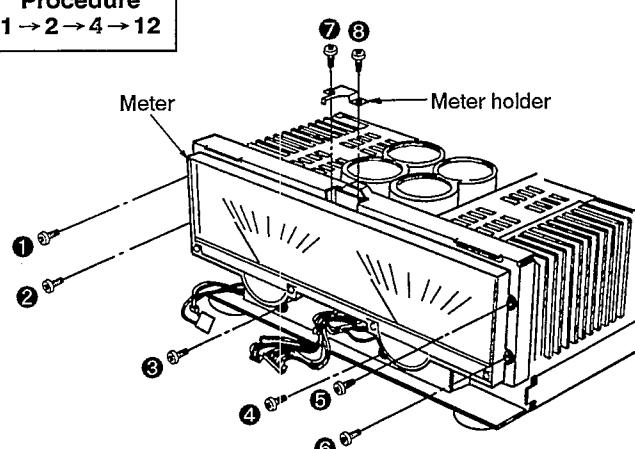
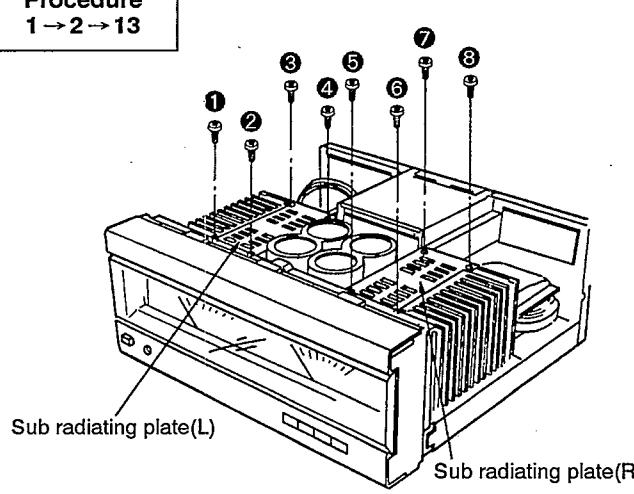
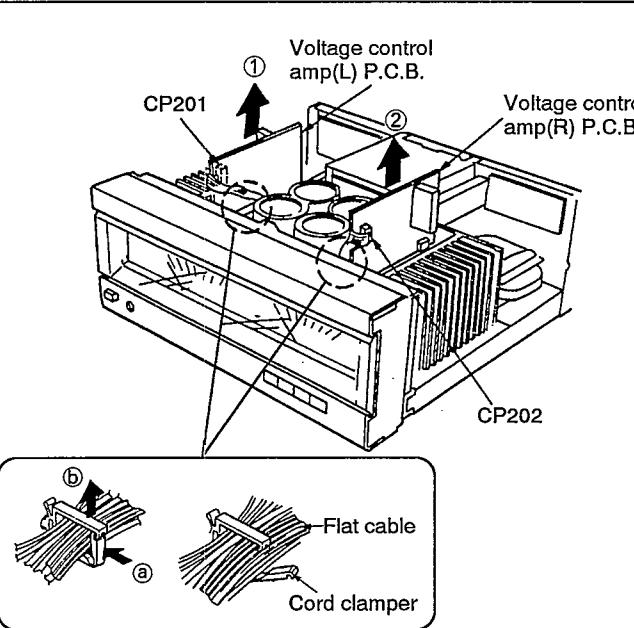
## ■ DISASSEMBLY INSTRUCTIONS

### "ATTENTION SERVICER"

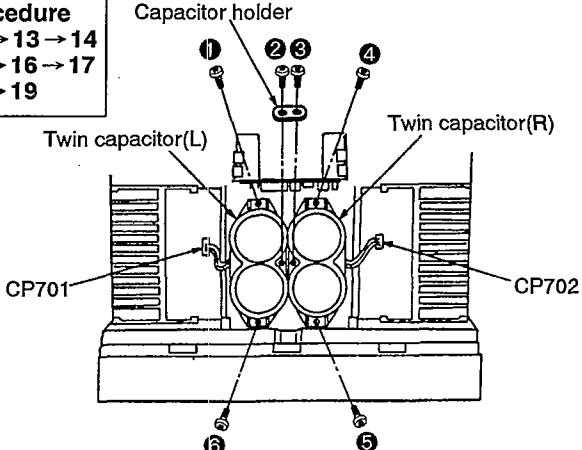
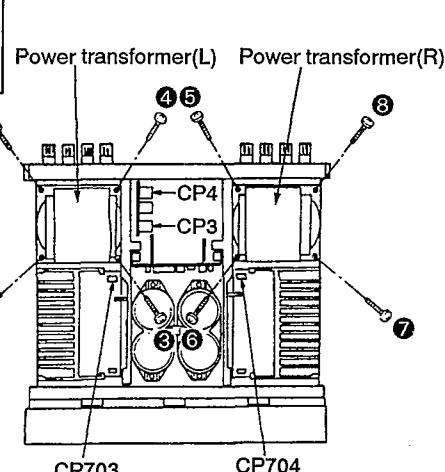
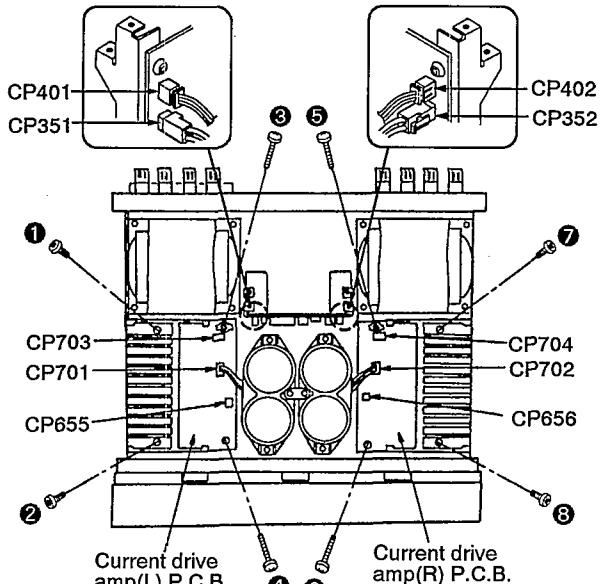
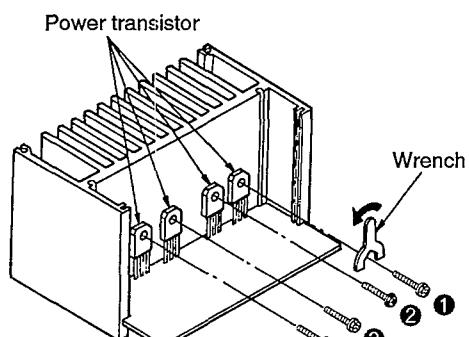
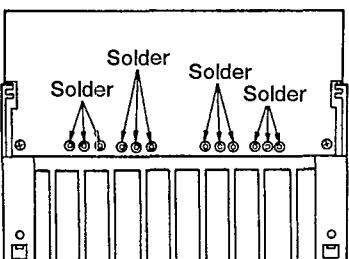
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

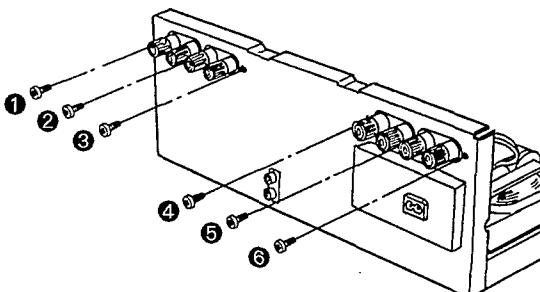
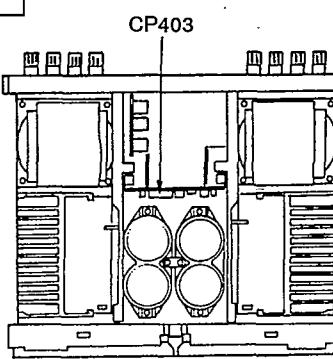
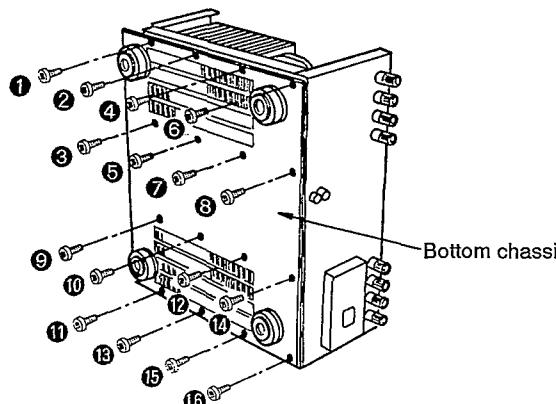
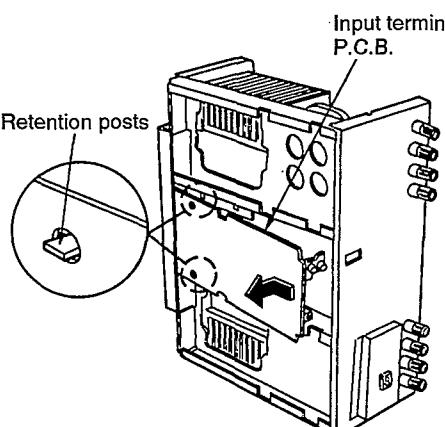
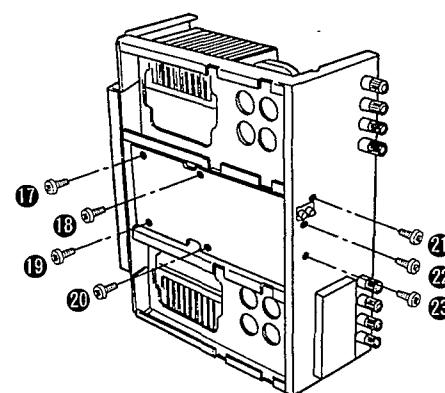
Ref.No. 1	Removal of the side panel(L) ass'y and side panel(R) ass'y	Ref.No. 2	Removal of the cabinet ass'y
Procedure 1	 <ul style="list-style-type: none"> <li>Remove the 8 screws(① ~ ⑧).</li> </ul>	Procedure 1 → 2	 <ol style="list-style-type: none"> <li>1. Remove the 7 screws(① ~ ⑦).</li> <li>2. Stretch the cabinet ass'y in the direction of arrow ①, and then remove the cabinet ass'y in the direction of arrow ②.</li> </ol>
Ref.No. 3	Removal of the cabinet ornament(L) and cabinet ornament(R)	Ref.No. 4	Removal of front panel ass'y
Procedure 1 → 2 → 3	 <ol style="list-style-type: none"> <li>1. Remove the 4 screws(① ~ ④).</li> </ol>  <ol style="list-style-type: none"> <li>2. Release the 8 claws.</li> </ol>	Procedure 1 → 2 → 4	 <ol style="list-style-type: none"> <li>1. Remove the 5 screws(① ~ ⑤).</li> <li>2. Release the 2 claws and then remove the front panel ass'y in the direction of arrow ③.</li> </ol>  <ol style="list-style-type: none"> <li>3. Remove the 6 connectors(CP1, CP501, CP502, CP601, CP603, CP653).</li> </ol>

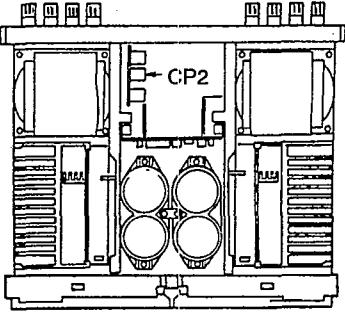
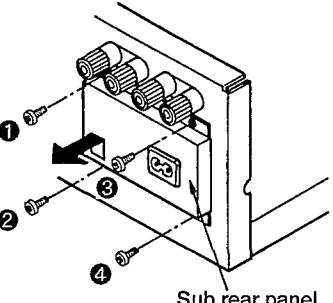
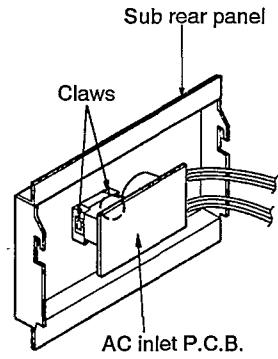
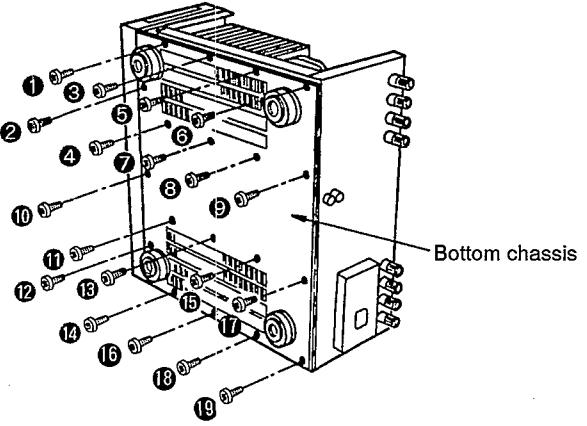
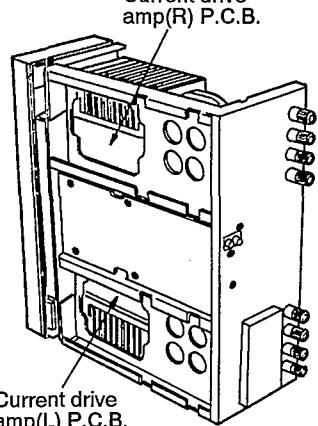
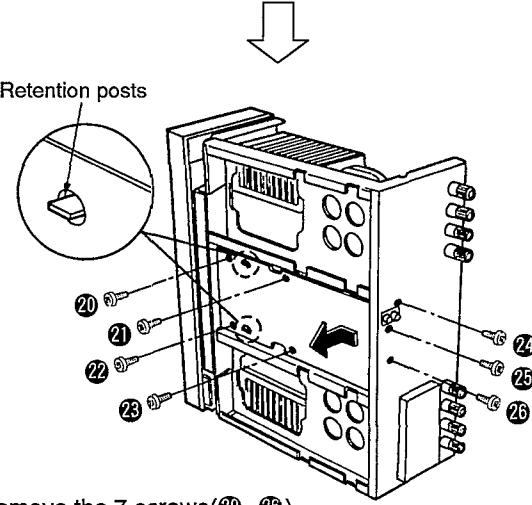
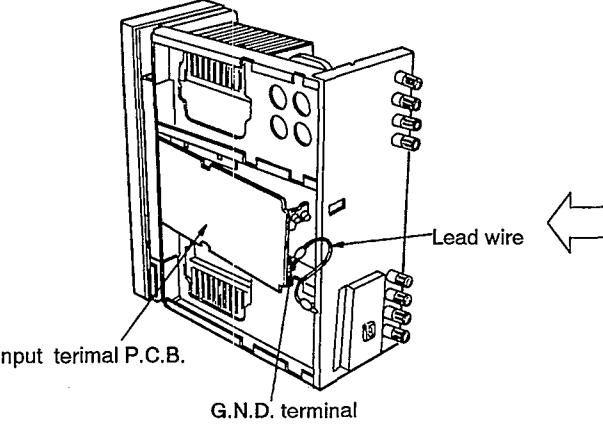
Ref.No. 5	<b>Removal of the power switch P.C.B.</b>	Ref.No. 6	<b>Removal of the LED P.C.B.</b>
<b>Procedure 1 → 2 → 4 → 5</b>	 <p>1. Remove the power switch button by pushing it from behind the front panel ass'y. 2. Remove the 2 screws(①, ②).</p>	<b>Procedure 1 → 2 → 4 → 6</b>	 <p>• Remove the 2 screws(①, ②).</p>
Ref.No. 7	<b>Removal of the speaker selector/logic P.C.B.</b>	Ref.No. 8	<b>Removal of the speaker switch P.C.B.</b>
<b>Procedure 1 → 2 → 4 → 7</b>	 <p>1. Remove the 5 screws(① ~ ⑤). 2. Remove the speaker selector/logic P.C.B. in the direction of arrow.</p>	<b>Procedure 1 → 2 → 4 → 7 → 8</b>	 <p>1. Remove the 3 screws(① ~ ③). 2. Release the 2 claws.</p>
Ref.No. 9	<b>Removal of the lamp(1) P.C.B. and lamp(2) P.C.B.</b>	Ref.No. 10	<b>Removal of the lamp house</b>
<b>Procedure 1 → 2 → 4 → 9</b>	 <p>• Remove the 6 screws(① ~ ⑥).</p>	<b>Procedure 1 → 2 → 4 → 9 → 10</b>	 <p>• Remove the 3 screws(① ~ ③).</p>

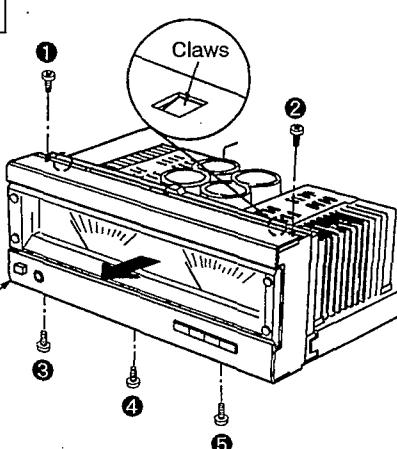
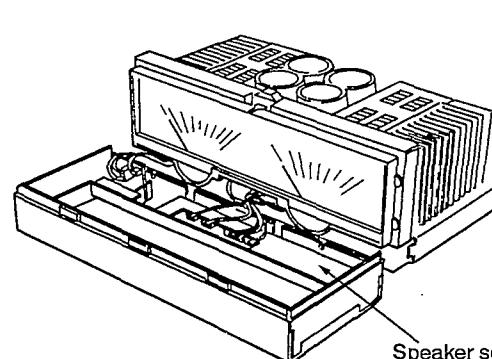
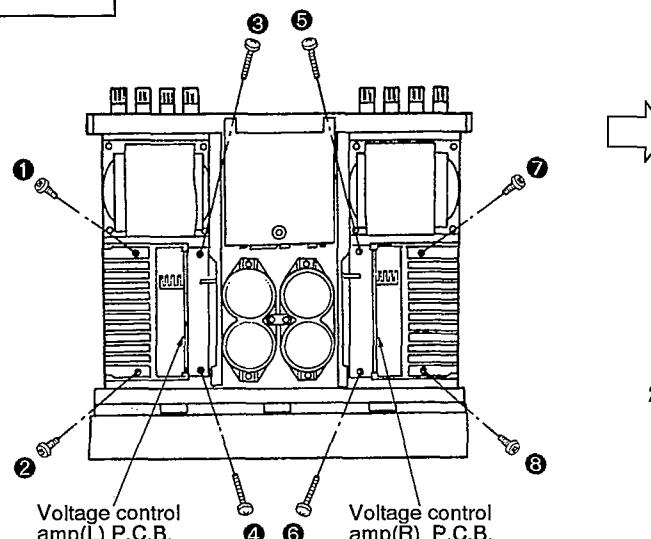
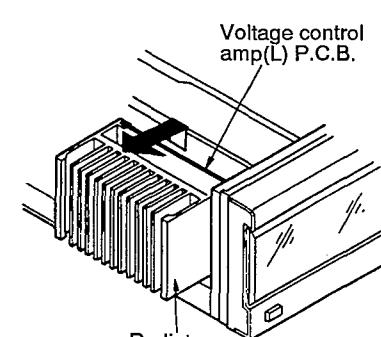
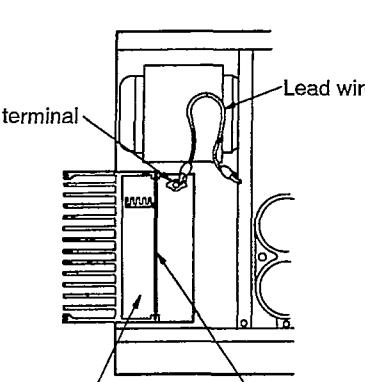
Ref.No. 11	<b>Removal of the transparent glass</b>
<b>Procedure</b> 1 → 2 → 4 → 11	
	 <p>1. Remove the 4 nuts( ① ~ ④ ).      2. Remove the 4 washers.</p> <p>3. Pull out the 4 screws( ⑤ ~ ⑧ ) and bushing(B).      4. Remove the transparent glass in the direction of arrow.</p>
Ref.No. 12	<b>Removal of the meter</b>
<b>Procedure</b> 1 → 2 → 4 → 12	 <p>1. Remove the 8 screws( ① ~ ⑧ ).      2. Remove the meter holder.</p>
Ref.No. 13	<b>Removal of the sub radiating plate (L) and sub radiating plate (R)</b>
<b>Procedure</b> 1 → 2 → 13	 <p>• Remove the 8 screws( ① ~ ⑧ ).</p>
Ref.No. 14	<b>Removal of the voltage control amp(L) P.C.B. and voltage control amp(R) P.C.B.</b>
<b>Procedure</b> 1 → 2 → 13 → 14	<p><b>■ Removal of the voltage control amp(L) P.C.B.</b></p> <ol style="list-style-type: none"> <li>1. Remove the flat cable form cord clamer.</li> <li>2. Pull out the voltage control amp(L) P.C.B. in the direction of arrow ①.</li> <li>3. Remove the 1 connector(CP201).</li> </ol> <p><b>■ Removal of the voltage control amp(R) P.C.B.</b></p> <ol style="list-style-type: none"> <li>1. Remove the flat cable form cord clamer.</li> <li>2. Pull out the voltage control amp(R) P.C.B. in the direction of arrow ②.</li> <li>3. Remove the 1 connector(CP202).</li> </ol> 

Ref.No. 15	<b>Removal of the pre-shield case</b>	Ref.No. 16	<b>Removal of the side angle(R)</b>
<b>Procedure</b> 1 → 2 → 15		<b>Procedure</b> 1 → 2 → 13 → 14 → 15 → 16	
<ul style="list-style-type: none"> <li>• Remove the 4 screws( 1 ~ 4 ).</li> </ul>		<ol style="list-style-type: none"> <li>1. Remove the lead wire form cord clamer.</li> <li>2. Remove the 3 screws( 1 ~ 3 ).</li> </ol>	
Ref.No. 17	<b>Removal of the side angle(L) and fuse P.C.B.</b>		
<b>Procedure</b> 1 → 2 → 13 → 14 → 15 → 16 → 17			
<ol style="list-style-type: none"> <li>1. Remove the 3 connectors(CP2, CP3, CP4).</li> <li>2. Remove the lead wire form cord clamer.</li> <li>3. Remove the 3 screws( 1 ~ 3 ).</li> <li>4. Remove the side angle(L) and fuse P.C.B.</li> </ol>		<ol style="list-style-type: none"> <li>5. Remove the 2 screws( 4, 5 ), and then remove the fuse P.C.B.</li> </ol>	
Ref.No. 18	<b>Removal of the relay P.C.B.</b>	<b>■ Removal of the latch</b> 	
<b>Procedure</b> 1 → 2 → 4 → 13 → 14 → 15 → 16 → 17 → 18			
<ol style="list-style-type: none"> <li>1. Remove the 2 latches.</li> <li>2. Remove the 9 connectors(CP351, CP352, CP401, CP402, CP403, CP405, CP406, CP651, CP652).</li> </ol>			

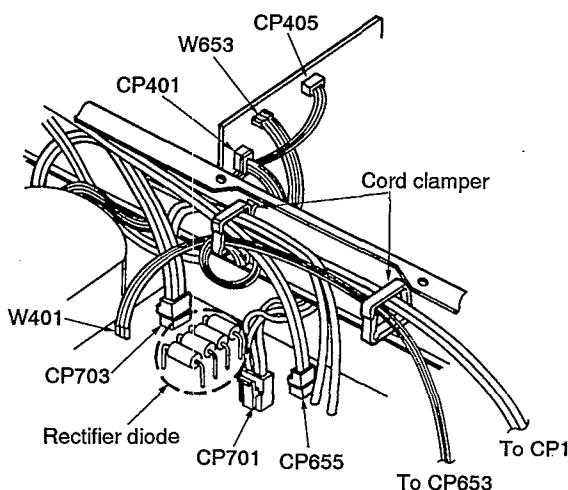
Ref.No. 19	Removal of the twin capacitor(L) and twin capacitor(R)	Ref.No. 20	Removal of the power transformer(L) and power transformer(R)
<b>Procedure</b> 1 → 2 → 13 → 14 → 15 → 16 → 17 → 19	 <p>1. Remove the 2 connectors(CP701, CP702) 2. Remove the 6 screws(① ~ ⑥). 3. Remove the capacitor holder.</p>	<b>Procedure</b> 1 → 2 → 13 → 14 → 15 → 20	 <p>1. Remove the 8 screws(① ~ ⑧). 2. Remove the 4 connectors(CP3, CP4, CP703, CP704).</p>
<b>Ref.No.</b> 21	<b>Removal of the current drive amp(L) P.C.B. and current drive amp(R) P.C.B.</b>		
<b>Procedure</b> 1 → 2 → 13 → 14 → 15 → 16 → 17 → 21	<p><b>■ Removal of the current drive amp(L) P.C.B.</b> 1. Remove the 4 screws(① ~ ④). 2. Remove the 5 connectors(CP351, CP401, CP655, CP701, CP703).</p> <p><b>■ Removal of the current drive amp(R) P.C.B.</b> 1. Remove the 4 screws(⑤ ~ ⑧). 2. Remove the 5 connectors(CP352, CP402, CP656, CP702, CP704).</p>		
<b>Ref.No.</b> 22	<b>Removal of the power transistor</b>		<p>1. Unsolder the power transistor. 2. Remove the 4 screws(① ~ ④).</p> <p>This figure show the left (L ch) power transistor. Remove the right (R ch) power transistor in the same way.</p> <ul style="list-style-type: none"> <li>• When mounting the regulator transistor. Apply silicone compound (RFKX0002) to the rear side of regulator transistor.</li> </ul>  

Ref.No. 23	<b>Removal of the speaker terminal(L) P.C.B. and speaker terminal(R) P.C.B.</b>
<b>Procedure</b> 1 → 2 → 13 → 14 → 15 → 16 → 17 → 23	
	 <p>Speaker terminal(L) P.C.B.      Speaker terminal(R) P.C.B.</p> <p>CP655      CP656</p>
	 <p>1. Remove the 6 screws(① ~ ⑥).</p>
	<p>2. Remove the 4 connectors(CP651, CP652, CP655, CP656).</p>
Ref.No. 24	<b>Removal of the input terminal P.C.B.</b>
<b>Procedure</b> 1 → 2 → 4 → 13 → 14 → 15 → 24	
	 <p>CP403</p>
	 <p>Bottom chassis</p> <p>1. Remove the 1 connector(CP403).</p>
	<p>2. Remove the 16 screws(① ~ ⑯).</p> <p>3. Remove the bottom chassis.</p>
	 <p>Input terminal P.C.B.</p> <p>Retention posts</p>
	 <p>4. Remove the 7 screws(⑰ ~ ㉓).</p> <p>5. Lift the input terminal P.C.B. off the retention posts on the chassis ass'y.</p> <p>6. Remove the input terminal P.C.B. in the direction of arrow.</p>

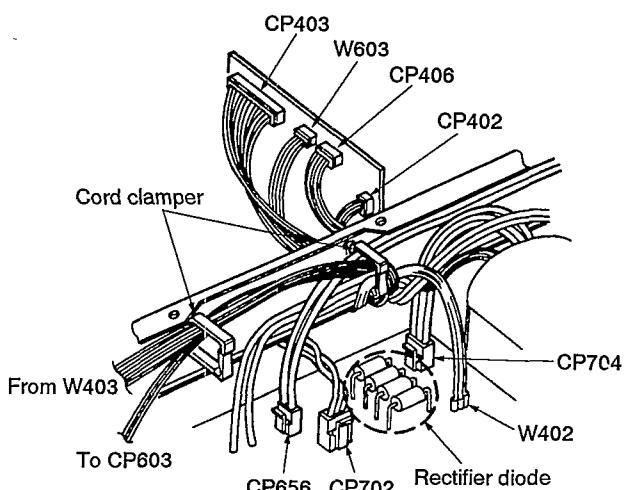
Ref.No. 25	<b>Removal of the AC inlet P.C.B.</b>
<b>Procedure</b> 1 → 2 → 4 → 13 → 15 → 25	
	
	
	
1. Remove the 1 connector(CP2).	2. Remove the 4 screws(① ~ ④).
	3. Remove the sub rear panel in the direction of arrow.
4. Release the 2 claws.	
Ref.No. 26	<b>How to check the current drive amp(L) P.C.B., current drive amp(R) P.C.B. and input terminal P.C.B.</b>
<b>Procedure</b> 1 → 2 → 26	
	
	
	
1. Remove the 19 screws(① ~ ⑯).	3. When checking the soldered surface of current drive amp (L), (R) P.C.B. and replacing the parts, do as shown.
2. Remove the bottom chassis.	
	
	
7. Connect the G.N.D. terminal to the rear panel by the lead wire.	4. Remove the 7 screws(⑳ ~ ㉖).
8. When checking the soldered surface of input terminal P.C.B. and replacing the parts, do as shown.	5. Lift the input terminal P.C.B. off the retention posts on the chassis ass'y.
	6. Remove the input terminal P.C.B. in the direction of arrow.

Ref.No. 27	How to check the speaker selector /logic P.C.B.
Procedure 1 → 2 → 27	  <p>Front panel ass'y Speaker selector /logic P.C.B.</p>
	<p>1. Remove the 5 screws(① ~ ⑤).</p> <p>2. Release the 2 claws and then remove the front panel ass'y in the direction of arrow.</p> <p>3. When checking the soldered surface of speaker selector /logic P.C.B. and replacing the parts, do as shown.</p>
Ref.No. 28	How to check the voltage control amp(L) P.C.B. and voltage control amp(R) P.C.B.
Procedure 1 → 2 → 13 → 28	  <p>Voltage control amp(L) P.C.B. Radiator</p> <p>Fig. 2</p> <p>2. Pull out the radiator and voltage control amp(L) P.C.B. in the direction of arrow.</p>  <p>Lead wire Ground terminal Current drive amp(L) P.C.B. Voltage control amp(L) P.C.B.</p> <p>Fig. 3</p> <p>1. Remove the 8 screws(① ~ ⑧).</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• Connect the ground terminal of current drive amp(L) P.C.B. and chassis by lead wire.</li> <li>• Figure 2 and figure 3 show the left (L ch) voltage control amp(L) P.C.B.</li> <li>• Remove the right (R ch) voltage control amp(R) P.C.B. in the same way.</li> </ul> <p>3. When checking the soldered surface of voltage control amp(L) P.C.B. and replacing the parts, do as shown.</p>

## ■ Lead wire and flat cable arrangement

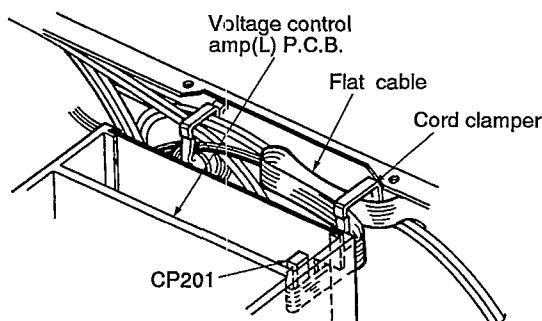


[ L side ]

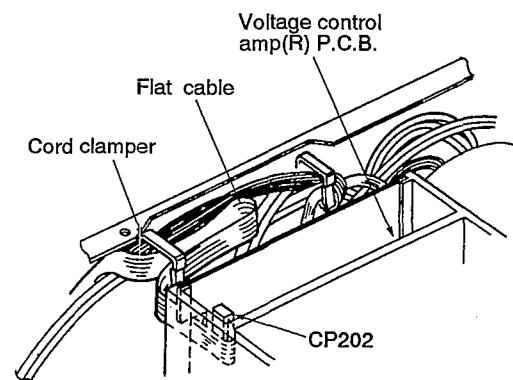


[ R side ]

1. Put the lead wires and flat cable through the cord clamper.
2. Arrange the various lead wires so that they are not touching the rectifier diode.
3. Care must be taken to avoid damage to the lead wires or flat cable.



[ L side ]



[ R side ]

4. After installing the voltage control amp(L), (R) P.C.B., put the flat cable attached to the connector (CP201, CP202) through the cord clamper.

## MEASUREMENTS AND ADJUSTMENTS

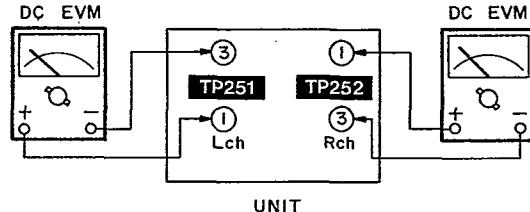
### Control positions and equipment used.

- Volume knob.....∞ (Minimum)
- AC and DC electronic voltmeter (EVM)
- AF Oscillator

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

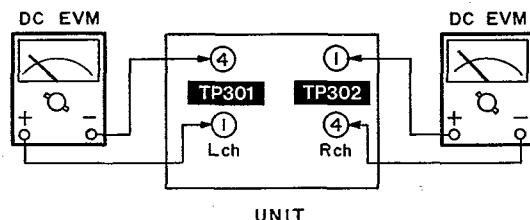
1. Connect the DC voltmeters to both channels of the amplifier, as shown on the right.
2. Set amplifier trimmer potentiometers **VR251** (L-ch.) and **VR252** (R-ch.) to center position.
3. Immediately after power-up (within 8sec. per channel), adjust **VR251** (L-ch.) and **VR252** (R-ch.) so the DC voltmeters read  $70 \pm 5\text{mV}$ .

**Note:** During adjustment, do not decrease the voltage below 30mV, as it may cause low-level oscillations.



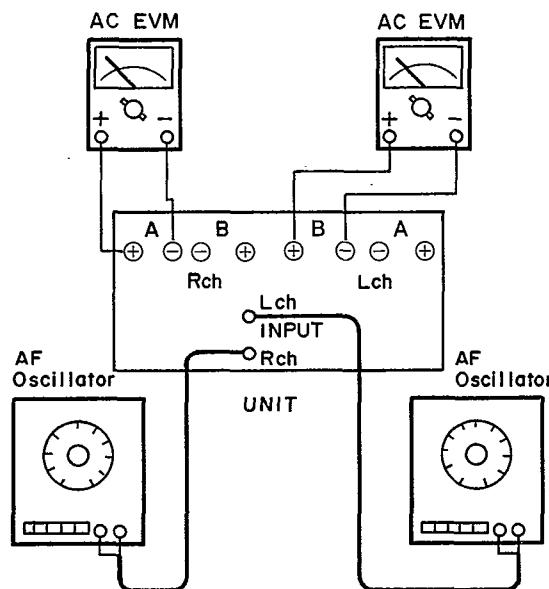
### (2) CURRENT DRIVE (C) AMP. IDLING (ICQ) ADJUSTMENT

1. Connect the DC voltmeters to both channels of the amplifier, as shown on the right.
2. Turn amplifier trimmer potentiometers **VR301** (L-ch.) and **VR302** (R-ch.) fully counterclockwise.
3. Adjust **VR301** (L-ch.) and **VR302** (R-ch.) so the DC voltmeters read  $3 \pm 1\text{mV}$  90 seconds after power on.

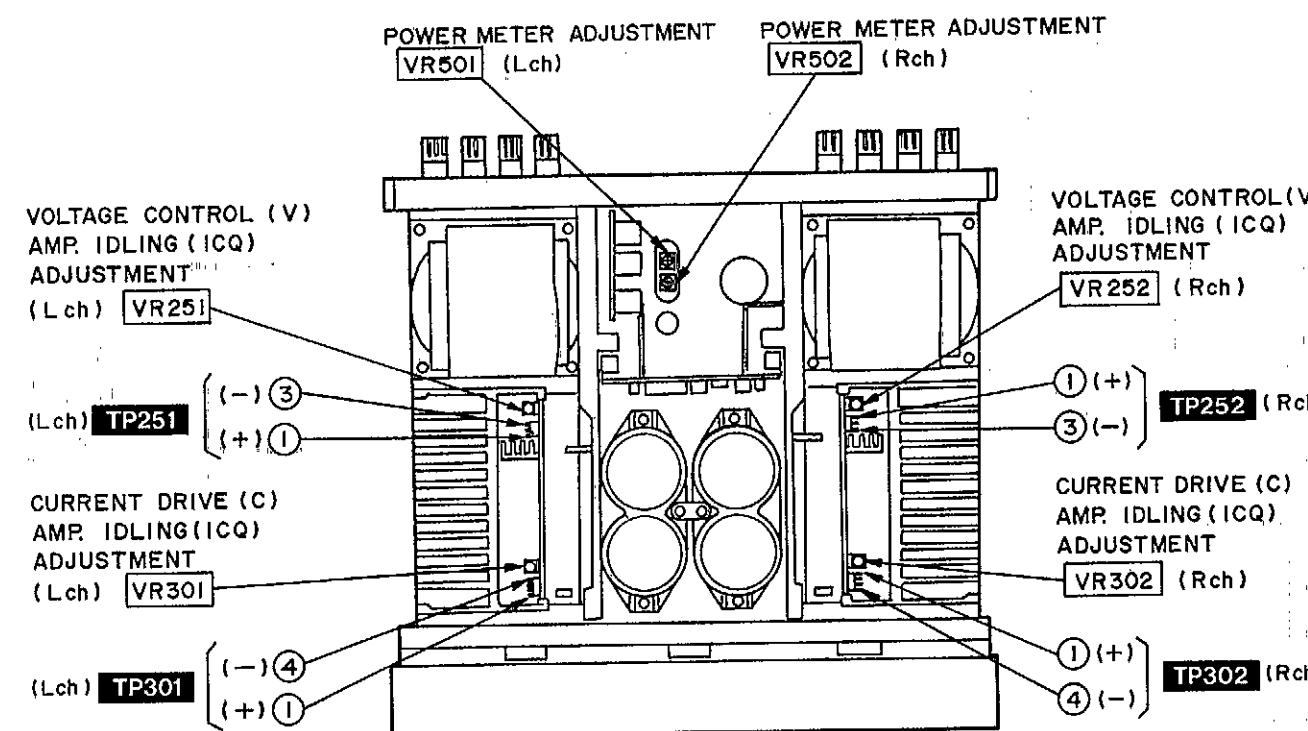


### (3) POWER METER ADJUSTMENT

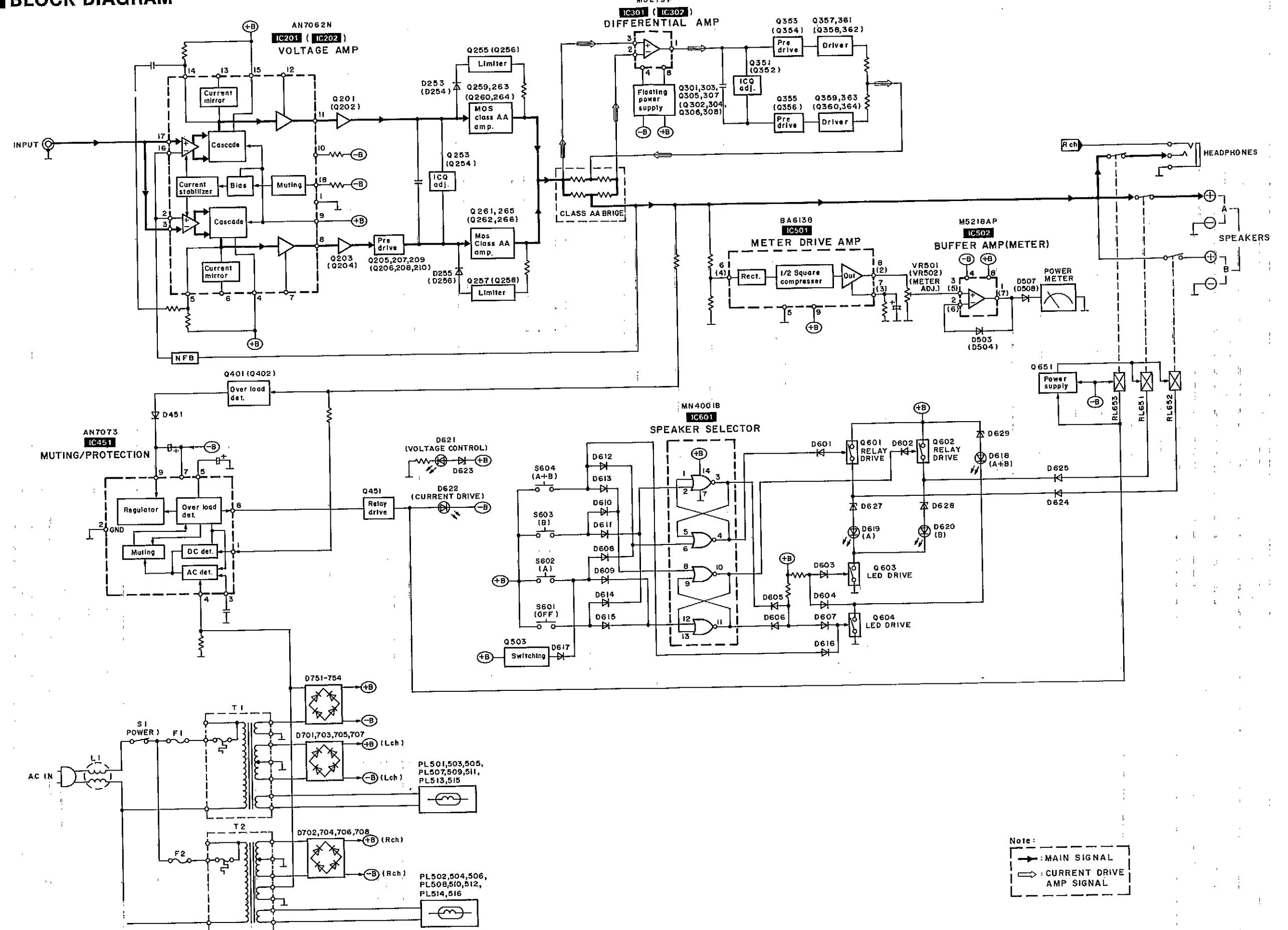
1. Connect an AF signal generator and power meter to the amplifier, as shown on the right.
2. Before powering the amplifier, set **VR501** (L-ch.) and **VR502** (R-ch.) to center position.
3. Zero adjust the power meter.
4. Apply a 1-kHz sinusoidal signal to the amplifier's input jack so the output voltage across the speaker terminals is  $28.3\text{V}$  (speaker load:  $\infty$ )  
(adjust the signal level with the AF generator's output attenuator).
5. Adjust **VR501** (L-ch.) and **VR502** (R-ch.) until the power meter reads  $100\text{W}$  ( $0\text{dB}$ ).



## • Adjustment points



## ■ BLOCK DIAGRAM



## SCHEMATIC DIAGRAM

(Parts list on pages 42~45.)

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

Note 1:

- S1 : Power (POWER) switch.
- S2 : Voltage Adjustment switch in "220V~240V" position.  
(110V~127V → 220V~240V)
- [For (G) area.]

- S601~S604:  
Speaker selectors (SPEAKERS) switches.  
[S601: OFF, S602: A]  
[S603: B, S604: A+B]

The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance), and oscilloscope on the basis of chassis. Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.

• Signal line

- Main signal (Lch)
- Current drive amp signal (Lch)

+B line

-B line

• Important safety notice:

Components identified by  $\Delta$  mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used as occasion calls. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

• Caution!

IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.

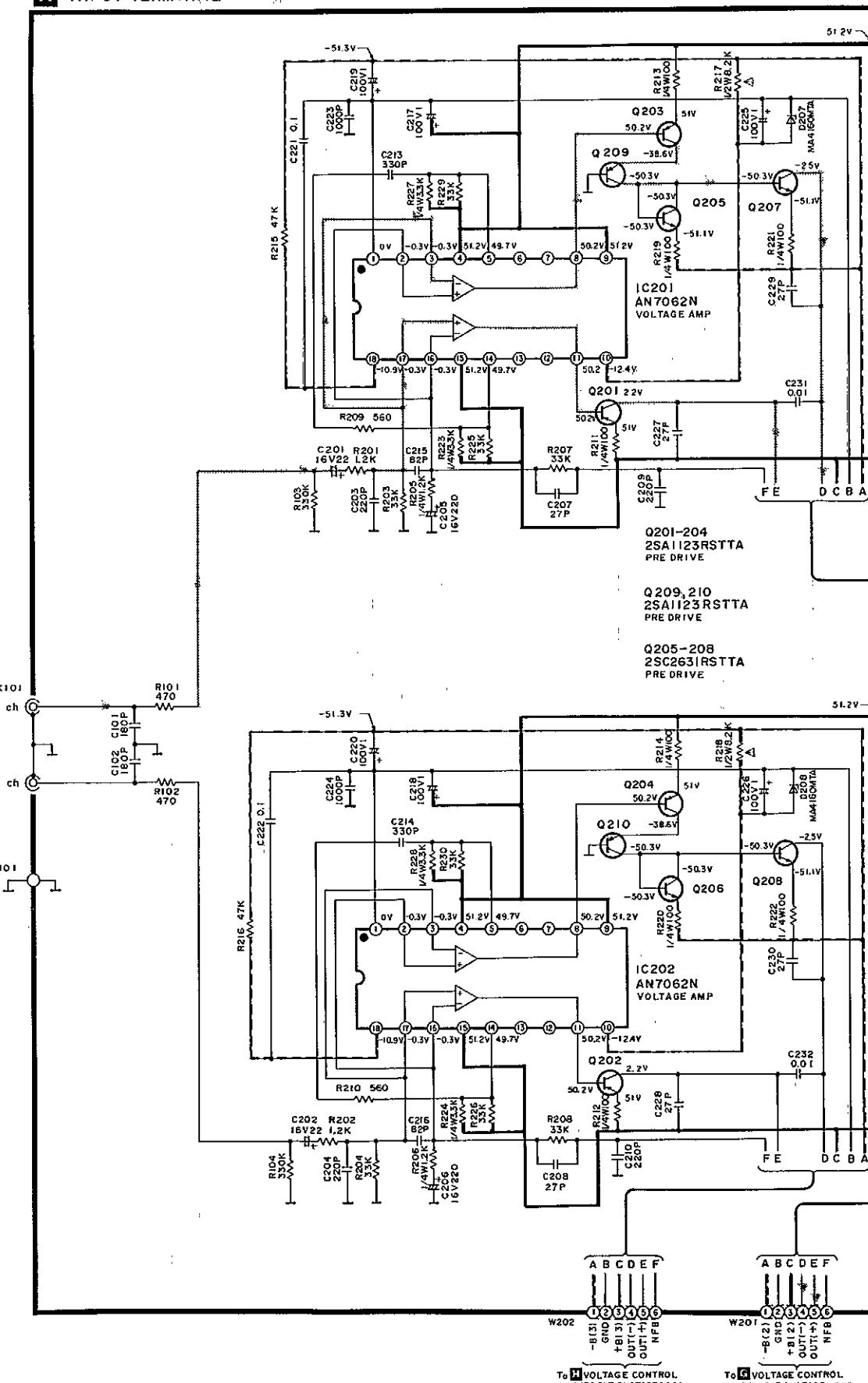
• Cover the parts boxes made of plastics with aluminum foil.

• Ground the soldering iron.

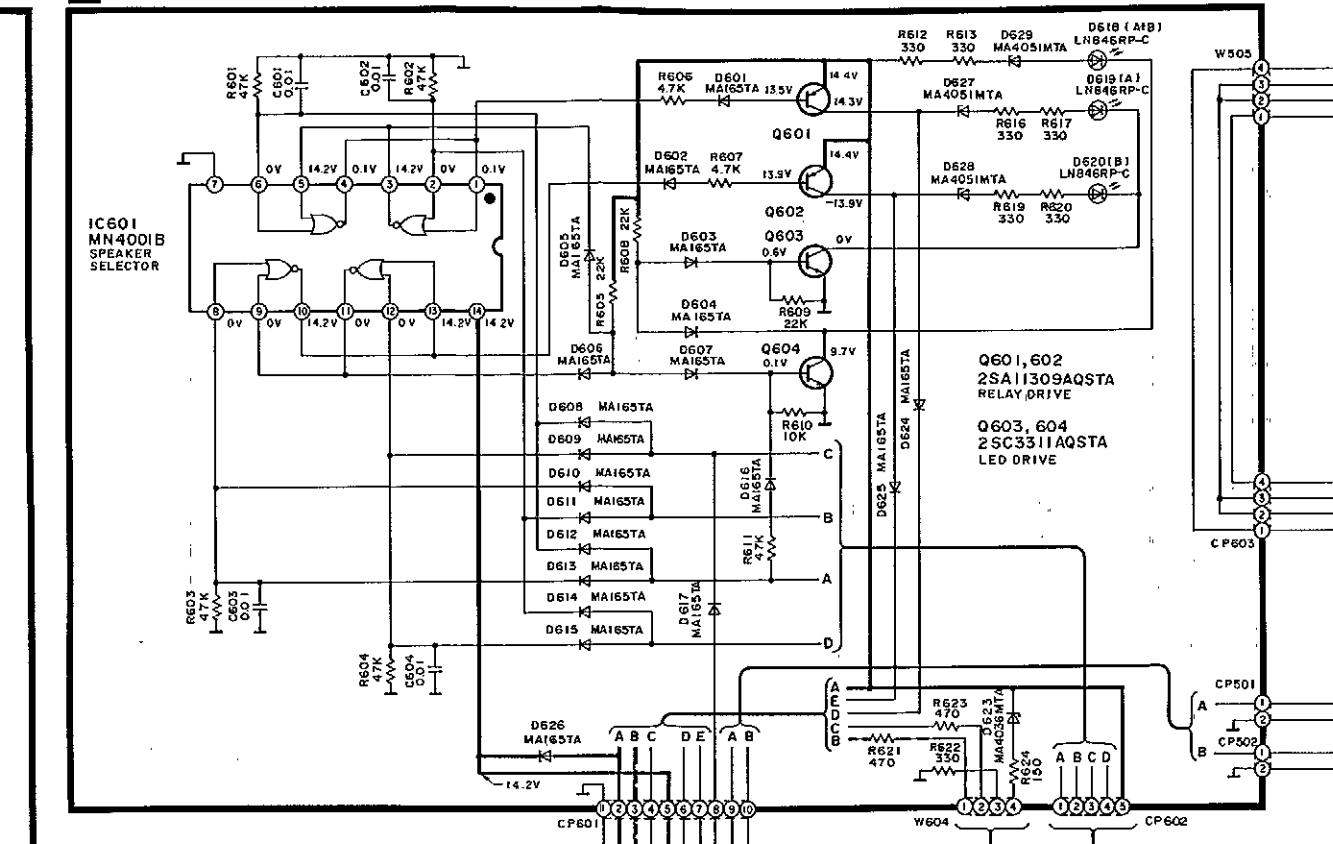
• Put a conductive mat on the work table.

• Do not touch the legs of IC or LSI with the fingers directly.

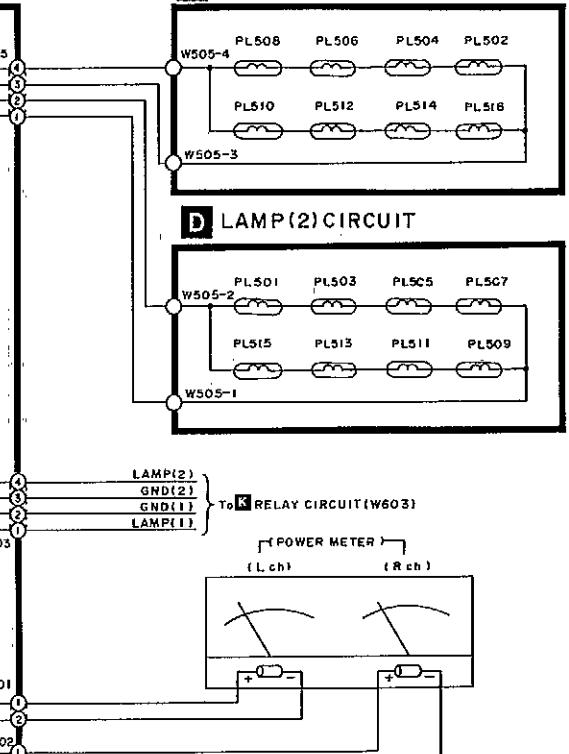
A INPUT TERMINAL CIRCUIT (VOLTAGE AMP/METER AMP/MUTING/PROTECTOR )



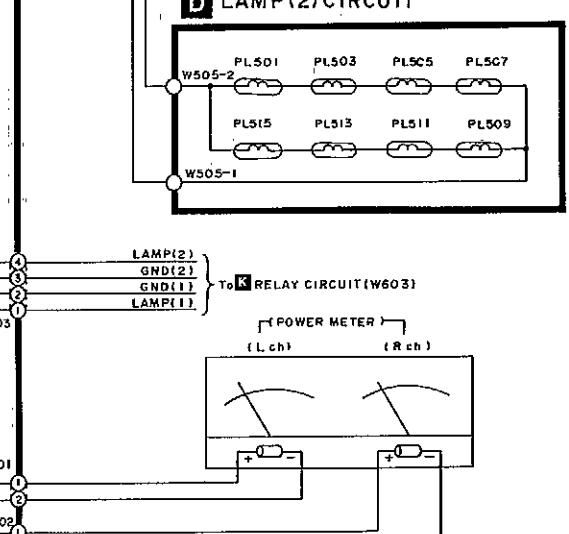
B SPEAKER SELECTOR/LOGIC CIRCUIT



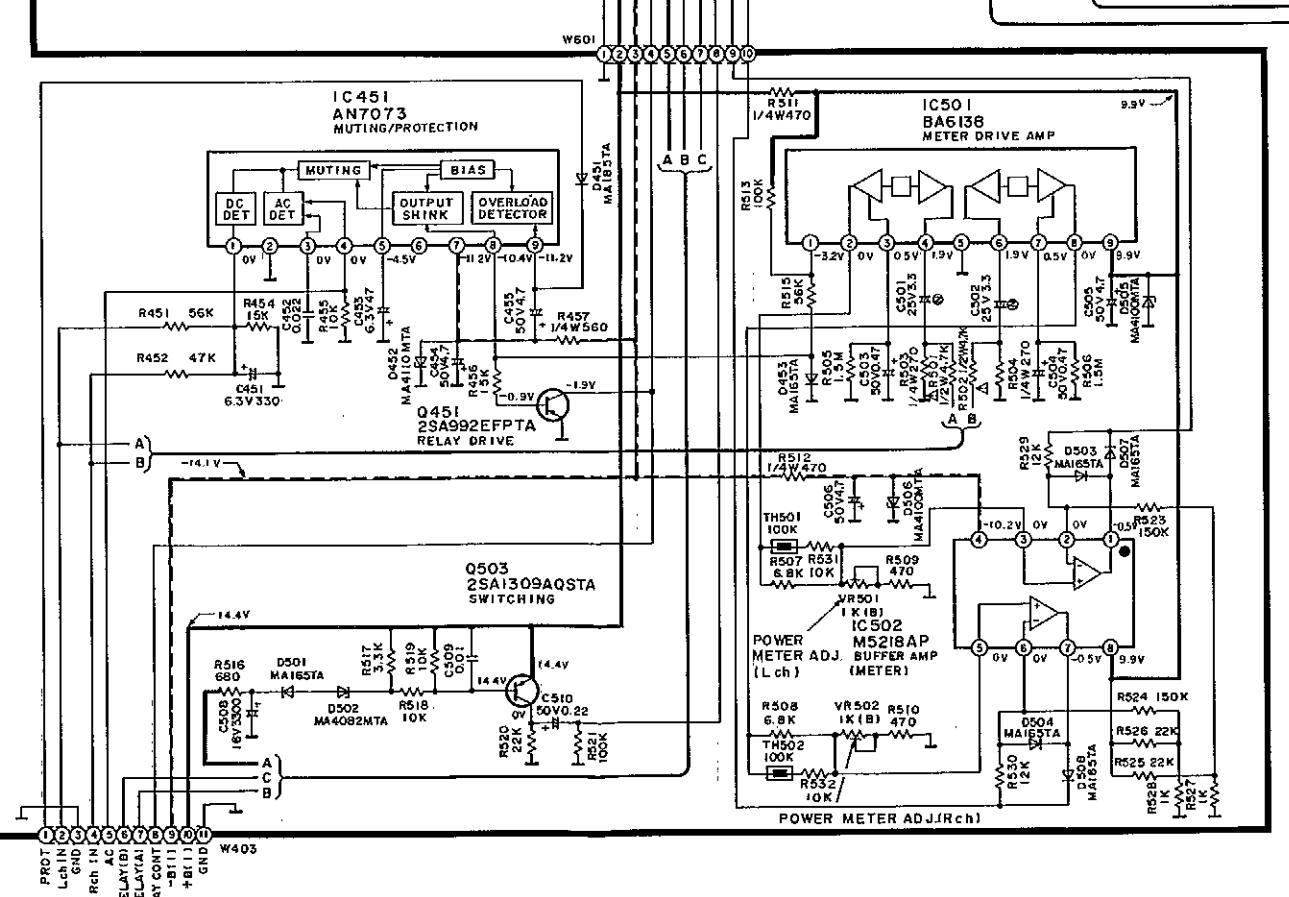
C LAMP(1) CIRCUIT



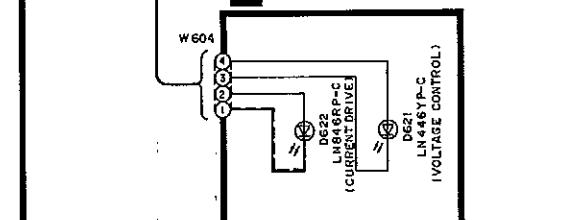
D LAMP(2) CIRCUIT

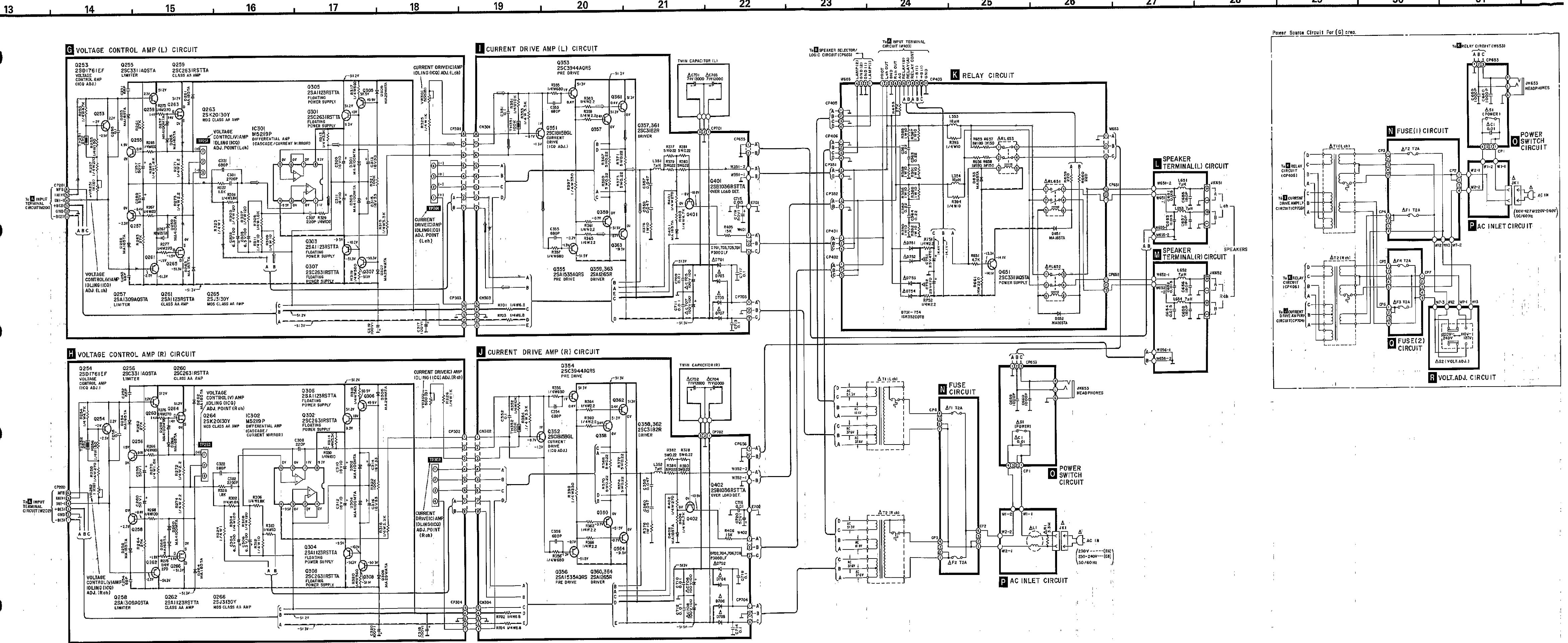


E SPEAKER SWITCH CIRCUIT

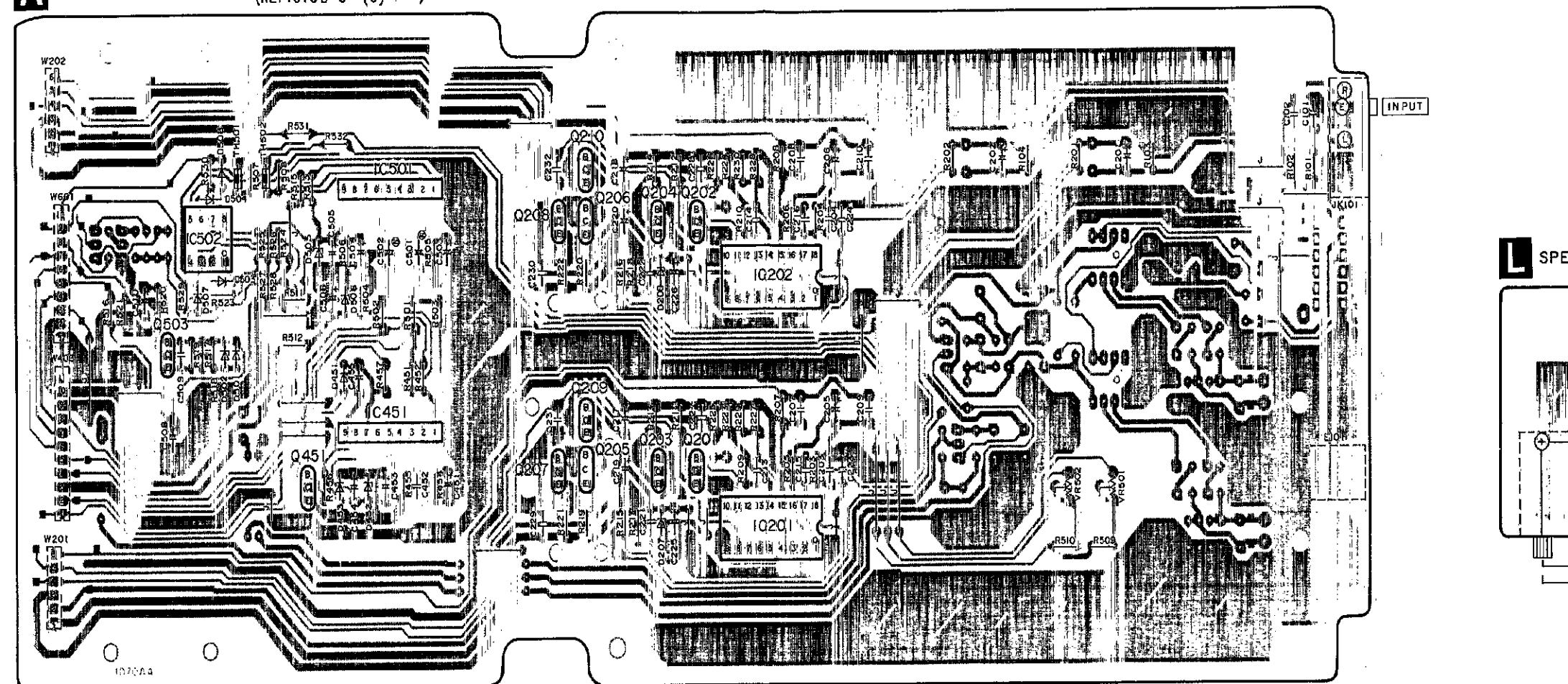


F LED CIRCUIT





## ■ PRINTED CIRCUIT BOARDS DIAGRAM

**A** INPUT TERMINAL P.C.B. (REP1616A-S... (EB,EG)  
(REP1616B-S... (G))

20

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22

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24

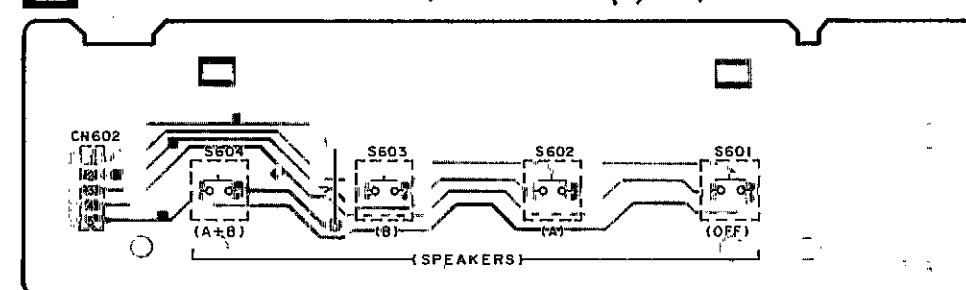
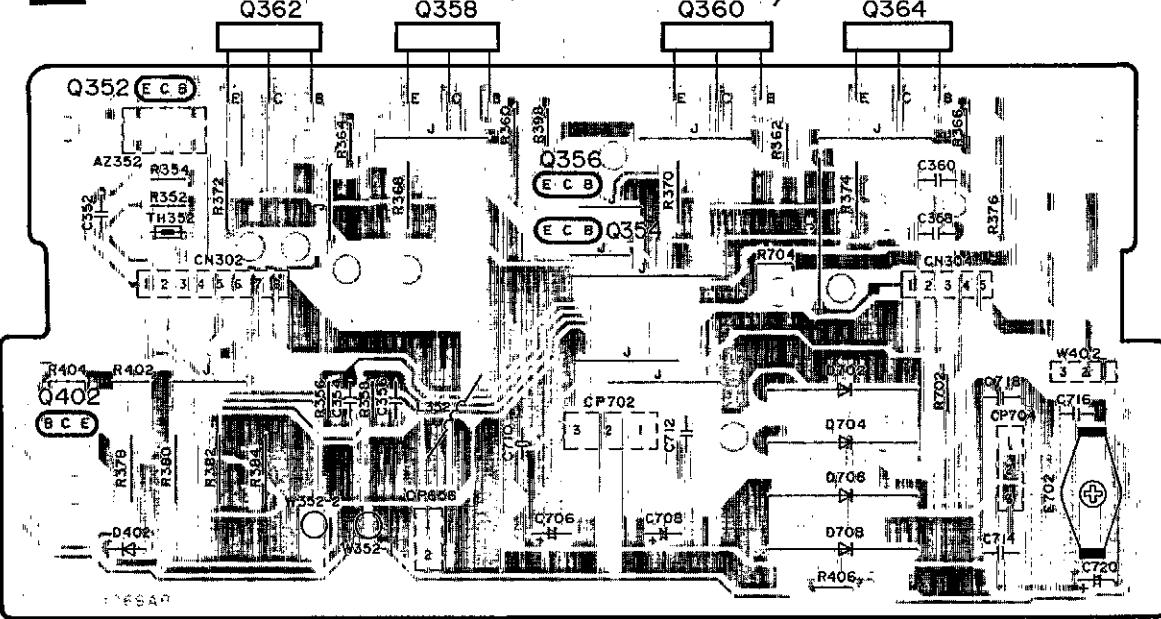
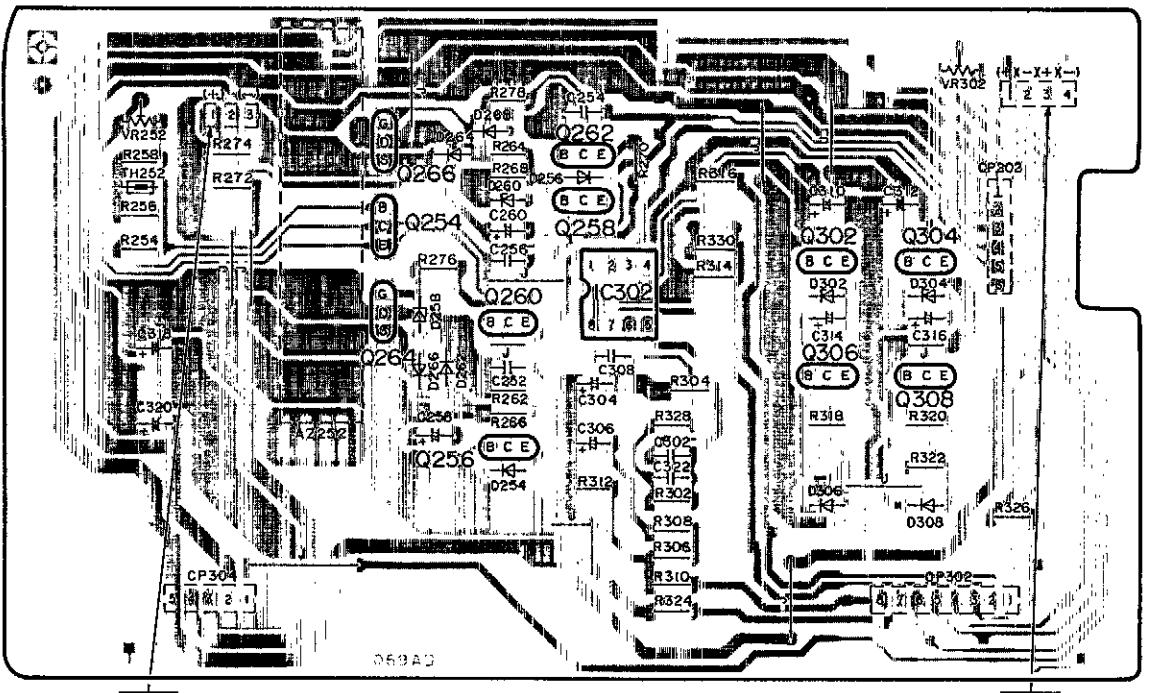
25

26

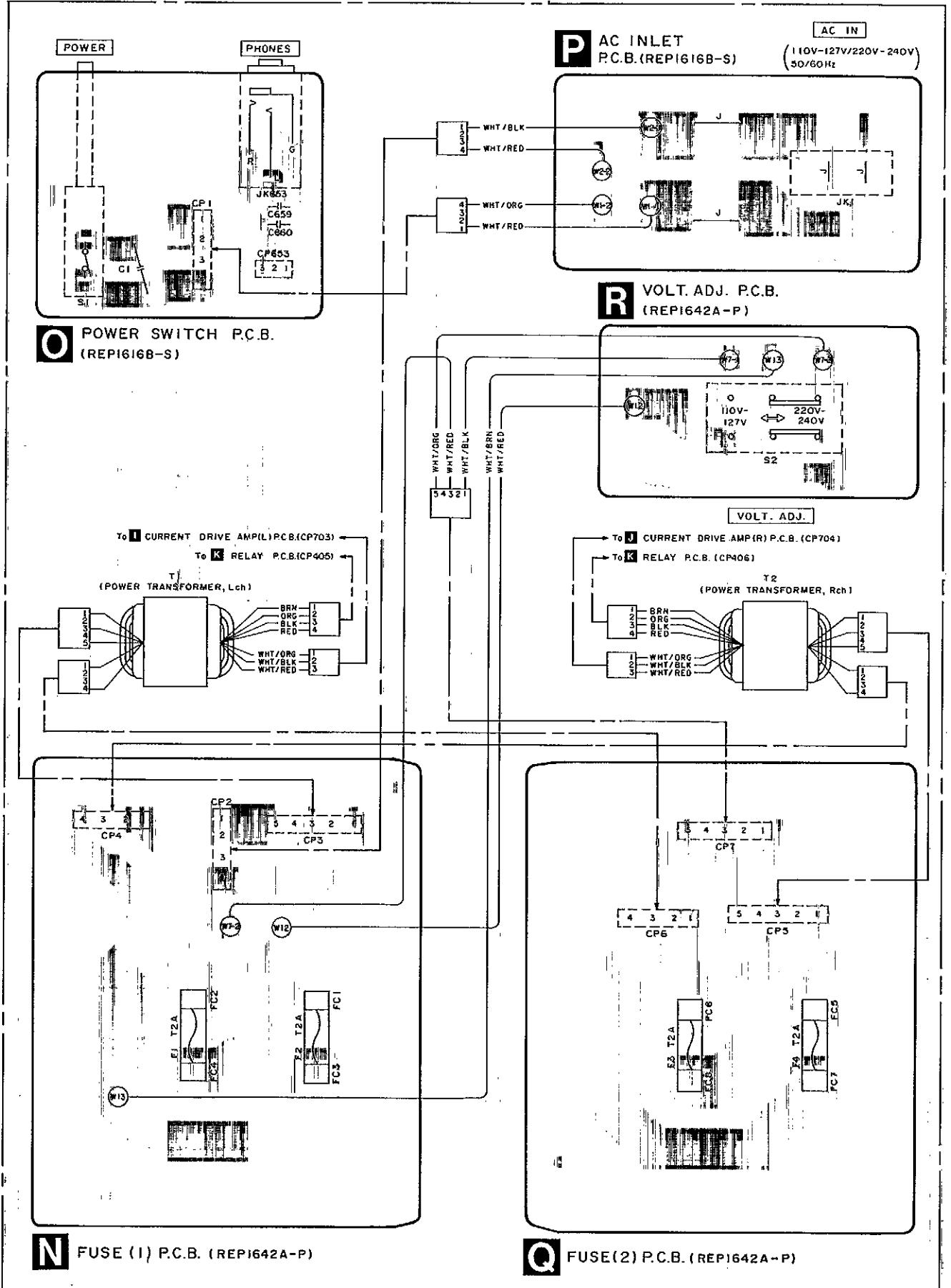
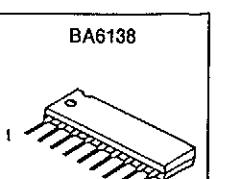
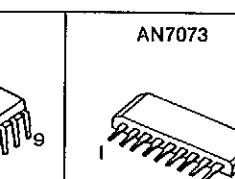
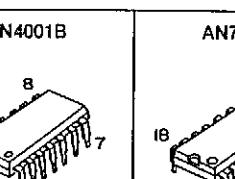
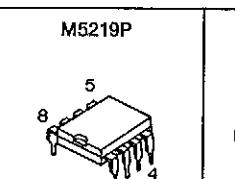
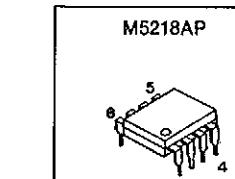
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28

29

**E** SPEAKER SWITCH P.C.B. (REPI616A-S... (EB,EG)  
(REPI616B-S... (G))**J** CURRENT DRIVE AMP(R) P.C.B. (REPI615A-M... (EB,EG)  
(REPI615B-M... (G))**H** VOLTAGE CONTROL AMP(R) P.C.B. (REPI615A-M... (EB,EG)  
(REPI615B-M... (G))VOLTAGE CONTROL(V) AMP.  
IDLING(ICO)ADJ. POINT(Rch)CURRENT DRIVE(C)AMP.  
IDLING(ICO)ADJ.POINT(Rch)

Power Source P.C.B. For (G) area.

**■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES**

2SA992EFPTA  
2SA1123RSTTA  
2SC1815BGL  
2SC2631RSTTA

2SA1309AQSTA  
2SB1036RSTTA  
2SC3311AQSTA

2SA1535AQRS  
2SC3844QRS  
2SD1761EF

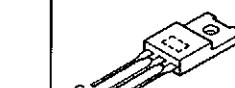


2SJ3130Y  
2SK20130Y

2SA1265R  
2SC3182R

MA165TA  
MA29WATA  
1SR35200TB

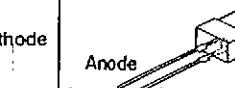
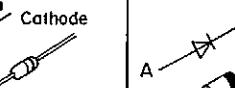
MA4036MTA  
MA4051MTA  
MA4082MTA



MA4100MTA  
MA4110MTA  
MA4160MTA

MA185TA

P300DLF



Cathode  
Anode

Cathode  
Anode

Cathode  
Anode

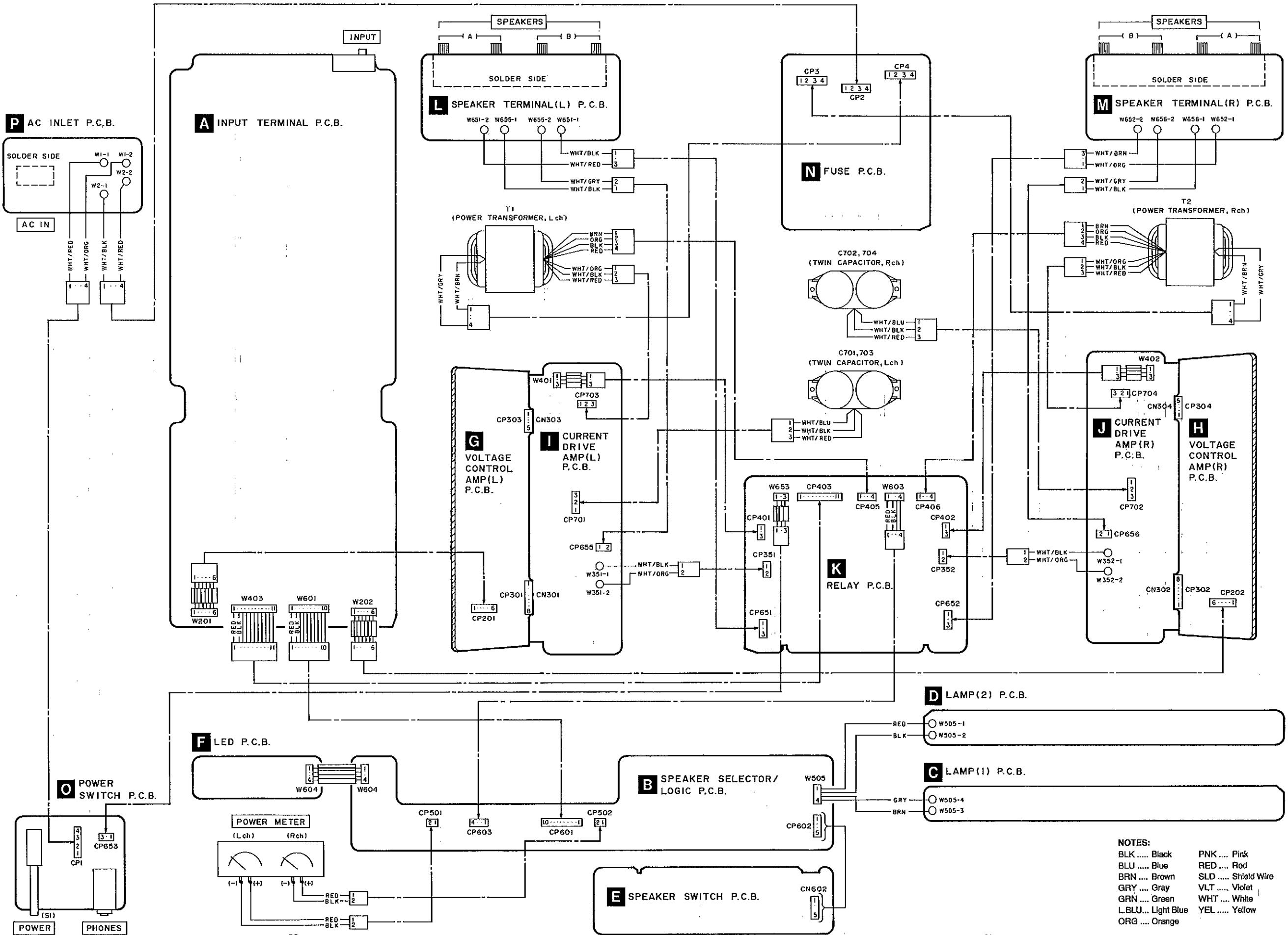


Anode  
Cathode

Anode  
Cathode

Anode  
Cathode

## ■ WIRING CONNECTION DIAGRAM



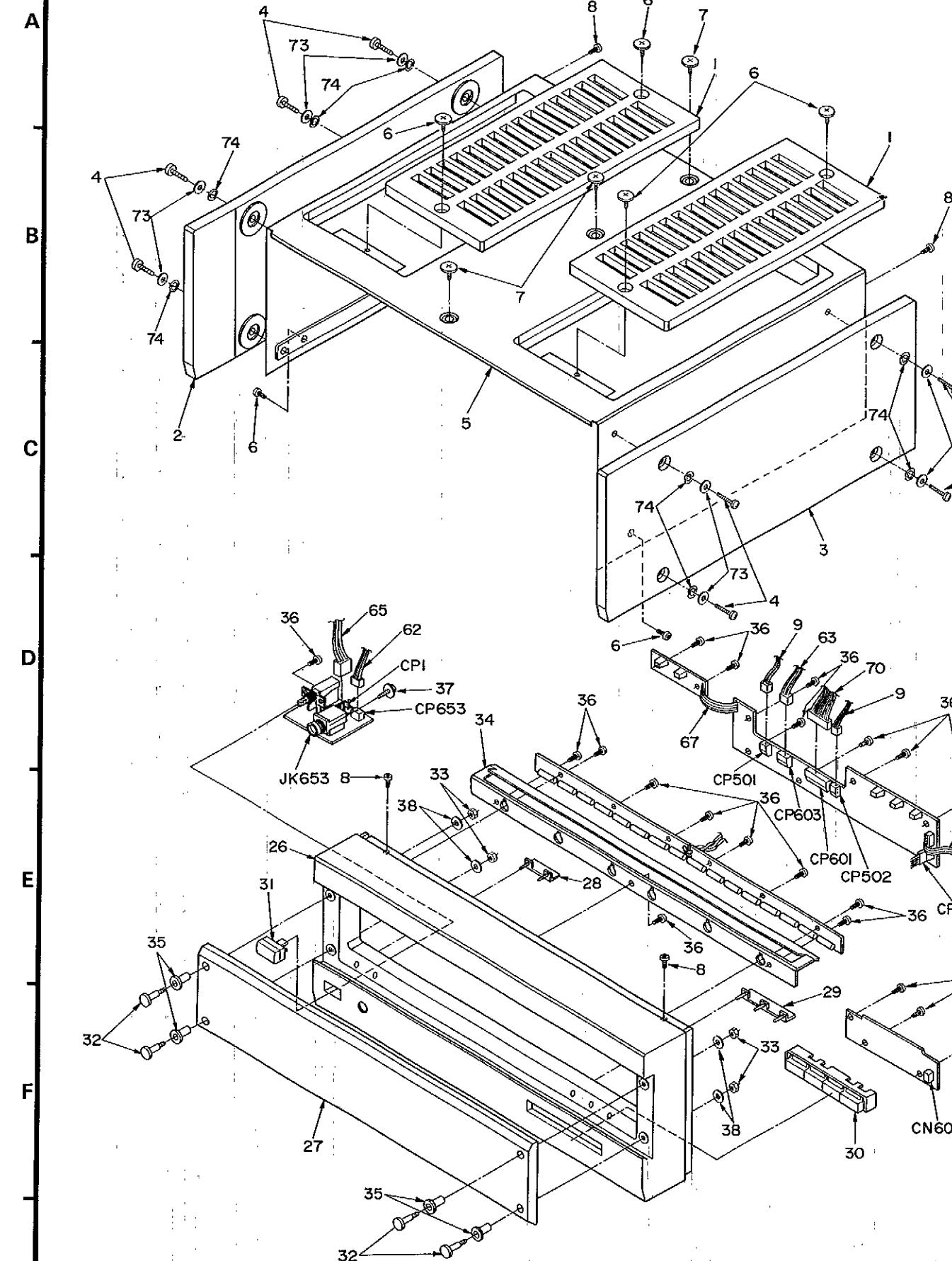
## ■ REPLACEMENT PARTS LIST

Note: \*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)  
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
43	SKL306	RUBBER FOOT	
44	SUN2987	METER HOLDER	
45	XTB3+1QFZ1	SCREW	
46	XTB3+10JFZ	SCREW	
47	XTB3+20J	SCREW	
48	XTB3+1JJFZ	SCREW	
49	XTB4+16FFZ	SCREW	
50	XTB4+8FFZ	SCREW	
51	XWE5X12FVC	WASHER	
52	RWQ0111	RADIATOR ANGLE	
53	SNE2117-1	SCREW	
54	RWY0036	SUB RADIATING PLATE (L) - (R)	
55	XYN3+F8	SCREW	
56	REZ0158	CONNECTOR ASS' Y(3P)	
57	RFKEA2000EGB	CONNECTOR ASS' Y(2P)	
58	RFKEA2000EGC	CONNECTOR ASS' Y(2P)	
59	RFKEA2000ERG	CONNECTOR ASS' Y(3P)	
60	RFKEA2000EGE	CONNECTOR ASS' Y(3P)	
61	RFKEA2000EGP	CONNECTOR ASS' Y(3P)	
62	RFKEA2000DEGG	CONNECTOR ASS' Y(3P)	
63	RFKEA2000EGH	CONNECTOR ASS' Y(4P)	
64	RFKEA2000EGI	CONNECTOR ASS' Y(4P)	
65	RFKEA2000EGK	CONNECTOR ASS' Y(4P)	
66	RFKEA2000EGL	CABLE ASS' Y(6P)	
67	RFKEA2000EGL	CONNECTOR ASS' Y(4P)	
68	RFKEA2000EGM	CONNECTOR ASS' Y(11P)	
69	RFKEA2000EGN	CONNECTOR ASS' Y(4P)	
70	RFKEA2000EGP	CONNECTOR ASS' Y(10P)	
71	RFKEA2000GQ	CONNECTOR ASS' Y(5P)	(G)
72	XTB3+8JFZ1	SCREW	(G)
73	RHN85001	WAVE WASHER	
74	XWE6FZ	WASHER	
75	SHE187-2	P. C. B. SUPPORT	(G)
76	XTB3+20J	SCREW	(G)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

### CABINET PARTS LOCATION



## **REPLACEMENT PARTS LIST**

**Notes:** \*Important safety notice:  
Components Identified by  $\Delta$  mark have special characteristics important for safety.  
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.  
*When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.*  
\*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)  
Parts without these indications can be used for all areas.  
\*The "SPT" mark denotes the standard part.

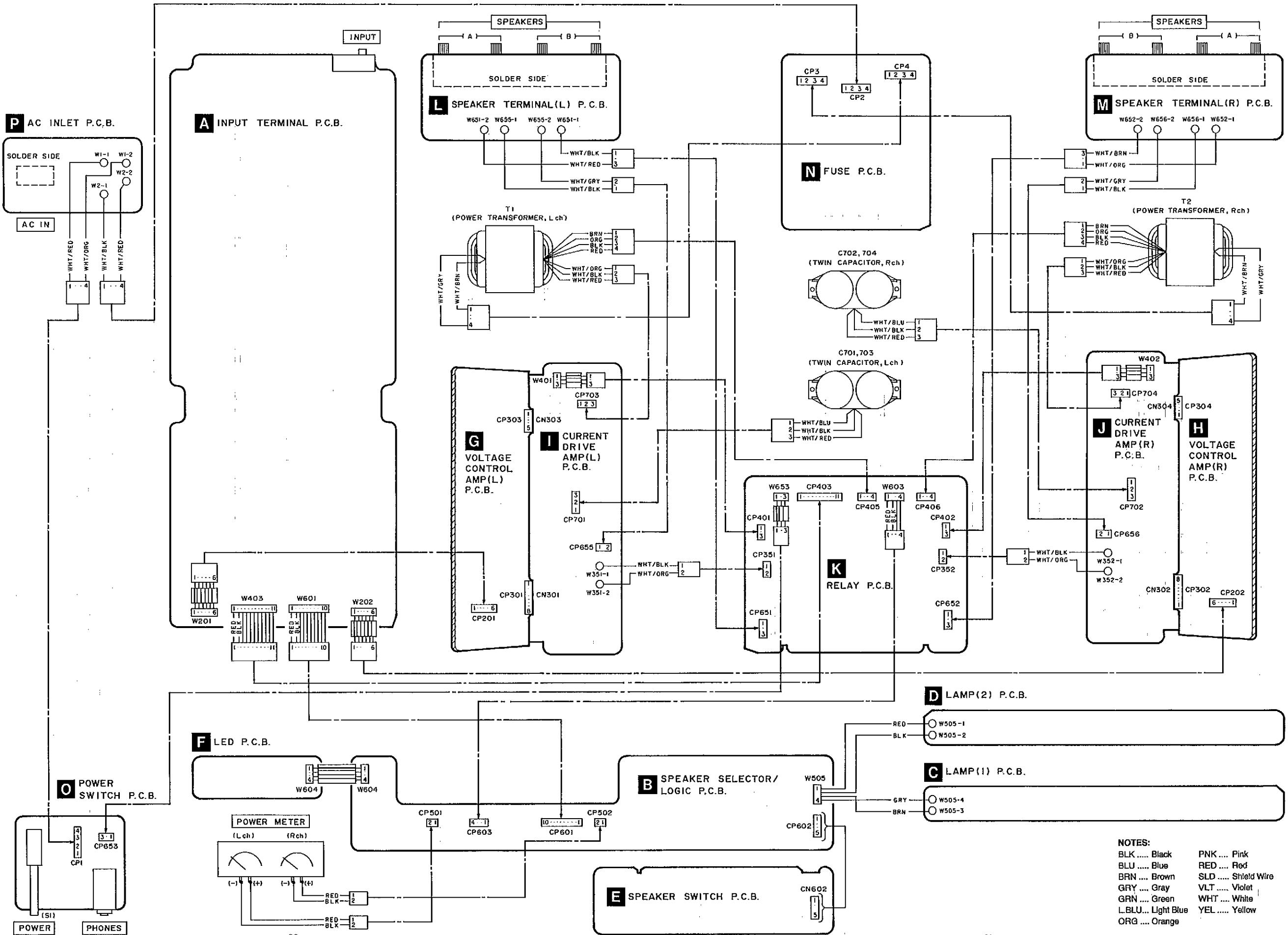
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		D305-308	MA29WA	DIODE	
IC201, 202	AN7062N	VOLTAGE AMP		D401, 402	MA185TA	DIODE	
IC301, 302	MS219P	DIFFERENTIAL AMP		D451	MA185TA	DIODE	
IC451	AN7073	MUTING/PROTECTION		D452	MA4110MTA	DIODE	
IC501	BA6138	METER DRIVE AMP		D453	MA165	DIODE	
IC502	MS218AP	METER DRIVE BUFFER AMP		D501	MA165	DIODE	
IC601	MN4001B	SPEAKER SELECTOR		D502	MA4082MTA	DIODE	
				D503, 504	MA165	DIODE	
		TRANSISTOR(S)		D505, 506	MA4100MTA	DIODE	
				D507, 508	MA165	DIODE	
				D601-617	MA165	DIODE	
				D618-620	LN846RP-C	L. E. D.	
Q201-204	2SA1123RSTTA	TRANSISTOR		D621	LN446YP	L. E. D.	
Q205-208	2SC2631RSTTA	TRANSISTOR		D622	LN846RP-C	L. E. D.	
Q209, 210	2SA1123RSTTA	TRANSISTOR		D623	MA4036MTA	DIODE	
Q253, 254	2SD1761EF	TRANSISTOR		D624-626	MA165	DIODE	
Q255, 256	2SC3311A-Q	TRANSISTOR		D627-629	MA4051MTA	DIODE	
Q257, 258	2SA1309A-R	TRANSISTOR		D651-653	MA165	DIODE	
Q259, 260	2SC2631RSTTA	TRANSISTOR		D701-708	P300DLF	DIODE	▲
Q261, 262	2SA1123RSTTA	TRANSISTOR		D751-754	1SR35200TB	DIODE	▲
Q263, 264	2SK2013DY	TRANSISTOR					
Q265, 266	2SJ3130Y	TRANSISTOR				VARIABLE RESISTOR(S)	
Q301, 302	2SC2631RSTTA	TRANSISTOR					
Q303-306	2SA1123RSTTA	TRANSISTOR		VR251, 252	EVNDCAA03B13	VOLT. CONTROL AMP ICQ ADJ.	
Q307, 308	2SC2631RSTTA	TRANSISTOR		VR301, 302	EVNDCAA03B52	CURRENT DRIVE AMP ICQ ADJ.	
Q351, 352	2SC1815BG	TRANSISTOR		VR501, 502	EVNDXAA00B13	POWER METER ADJ.	
Q353, 354	2SC3944AQPS	TRANSISTOR				TERMINATOR(S)	
Q355, 356	2SA1535AQRS	TRANSISTOR					
Q357, 358	2SC3182R	TRANSISTOR		TH251, 252	ERTD2ZGL251T	TERMISTOR	
Q359, 360	2SA1265R	TRANSISTOR		TH351, 352	ERTD2ZHL104T	TERMISTOR	
Q361, 362	2SC3182R	TRANSISTOR		TH501, 502	ERTD2ZHL104T	TERMISTOR	
Q363, 364	2SA1265R	TRANSISTOR				COIL(S)	
Q401, 402	2SB1036R	TRANSISTOR		L1	SLQZ650MH49	COIL	(EG, EB) ▲
Q451	2SA992EFPTA	TRANSISTOR		L351, 352	SLQY07G-40	COIL	
Q503	2SA1309A-R	TRANSISTOR		L353, 354	SLQY18G-10	COIL	
Q601, 602	2SA1309A-R	TRANSISTOR		L651-654	SLQY07G-40	COIL	
Q603, 604	2SC3311A-Q	TRANSISTOR				TRANSFORMER(S)	
Q651	2SC3311A-Q	TRANSISTOR		T1, 2	RTP7K5E004-W	POWER TRANSFORMER	(EG) ▲
				T1, 2	RTP7K5B003-W	POWER TRANSFORMER	(EB) ▲
		DIODE(S)		T1, 2	RTP7K5E006-W	POWER TRANSFORMER	(G) ▲
D207, 208	MA4160M	DIODE				LAMP(S)	
D253-256	MA165	DIODE					
D257-260	MA4100MTA	DIODE					
D261-264	MA185TA	DIODE					
D265-268	MA165	DIODE					
D301-304	MA4100MTA	DIODE					

No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
16	XAMR128S	LAMP		FC5-8	EYF52BC	FUSE HOLDER	(G)
		FUSE (S)				RELAY (S)	
	XBA2C20TB0	FUSE 250V, T2A	△	RL651, 652	RSY0004-1	RELAY	△
	XBA2C20TB0	FUSE 250V, T2A	(G) △	RL653	RSYG5A237P12	RELAY	△
		SWITCH(ES)				TERMINAL (S)	
	ESB8279V	POWER	△	JK1	SJS9231-1B	AC INLET	△
	ESD26200A	VOLTAGE ADJ.	(G) △	JK101	SJF3225-5A	UNBALANCE INPUT	
	EVQ21405R	OFF		JK651, 652	RJH403	SPEAKER A/B	
	EVQ21405R	SPEAKER A		JK653	QJA0455ZC-A	HEADPHONES	
	EVQ21405R	SPEAKER B				PACKING MATERIAL	
	EVQ21405R	SPEAKER A+B					
		CONNECTOR(S) AND SOCKET(S)		P1	RPG1582	PACKING CASE	(EG, G)
02	SJS50878JQ	SOCKET(8P)		P1	RPG1583-1	PACKING CASE	(EB)
04	SJS50578JQ	SOCKET(5P)		P2	RPN0687	CUSHION	
	SJS50581BB	SOCKET(5P)		P3	RPH101	KRAFT PAPER	
	RJP1A4204-1	CONNECTOR(3P)		P4	SPH6434	PROTECTION SHEET	
	RJP1A4204-1	CONNECTOR(3P)	(EG, EB)	P5	RPQ0164	PAD	
	RJP1A4205	CONNECTOR(4P)	(G)	P6	RPH0032	MIRROR SHEET	(EB)
	RJP1A4204-1	CONNECTOR(3P)	(G)			ACCESSORIES	
	RJP1A4205	CONNECTOR(4P)	(G)				
02	SJT3611	CONNECTOR(6P)		A1	RFKSEA2000EG	INSTRUCTION MANUAL ASS' Y	(EG)
02	SJT30845JQ	CONNECTOR(8P)		A1	RQT1988-B	INSTRUCTION MANUAL	(EB)
04	SJT30545JQ	CONNECTOR(5P)		A1	RFKSEA2000G	INSTRUCTION MANUAL ASS' Y	(G)
52	RJP1A3202	CONNECTOR(2P)		A2	RJA0019-2K	AC POWER SUPPLY CORD	(EG, G) △(SF)
02	SJT3319	CONNECTOR(3P)		A2	VJAD733	AC POWER SUPPLY CORD	(EB) △(SF)
	SJT3011	CONNECTOR(11P)		A3	RQA0013	WARRANTY CARD	(EG, EB)
06	SJT3415	CONNECTOR(4P)		A4	RQC00169	SERVICENTER LIST	
02	SJT3215	CONNECTOR(2P)		A5	SJP5213-2	POWER PLUG ADAPTOR	(G) △
	SJT3007	CONNECTOR(10P)		A6	RQA00134	VOLTAGE CAUTION LABEL	(G)
	SJT30549BB1	CONNECTOR(5P)					
	SJT3417	CONNECTOR(4P)					
52	RJP1A4103	CONNECTOR(2P)					
	SJT3319	CONNECTOR(3P)					
56	RJP1A3202	CONNECTOR(2P)					
04	RJP1A3303	CONNECTOR(3P)					
		GND PLATE					
52	SUS227	GND PLATE					
	RMN0132	GND PLATE					
2	SNE1004-1	GND PLATE					
		FUSE HOLDER					
		EYF52BC	FUSE HOLDER				

# RESISTORS AND CAPACITORS

Notes : - Capacity values are in microfarads ( $\mu\text{F}$ ) unless specified otherwise, P=Picofarads (pF) F=Farads (F)  
- Resistance values are in ohms, unless specified otherwise,  $1\text{K}=1,000$  ( $\text{OHM}$ )  $1\text{M}=1,000\text{k}$  ( $\text{OHM}$ )

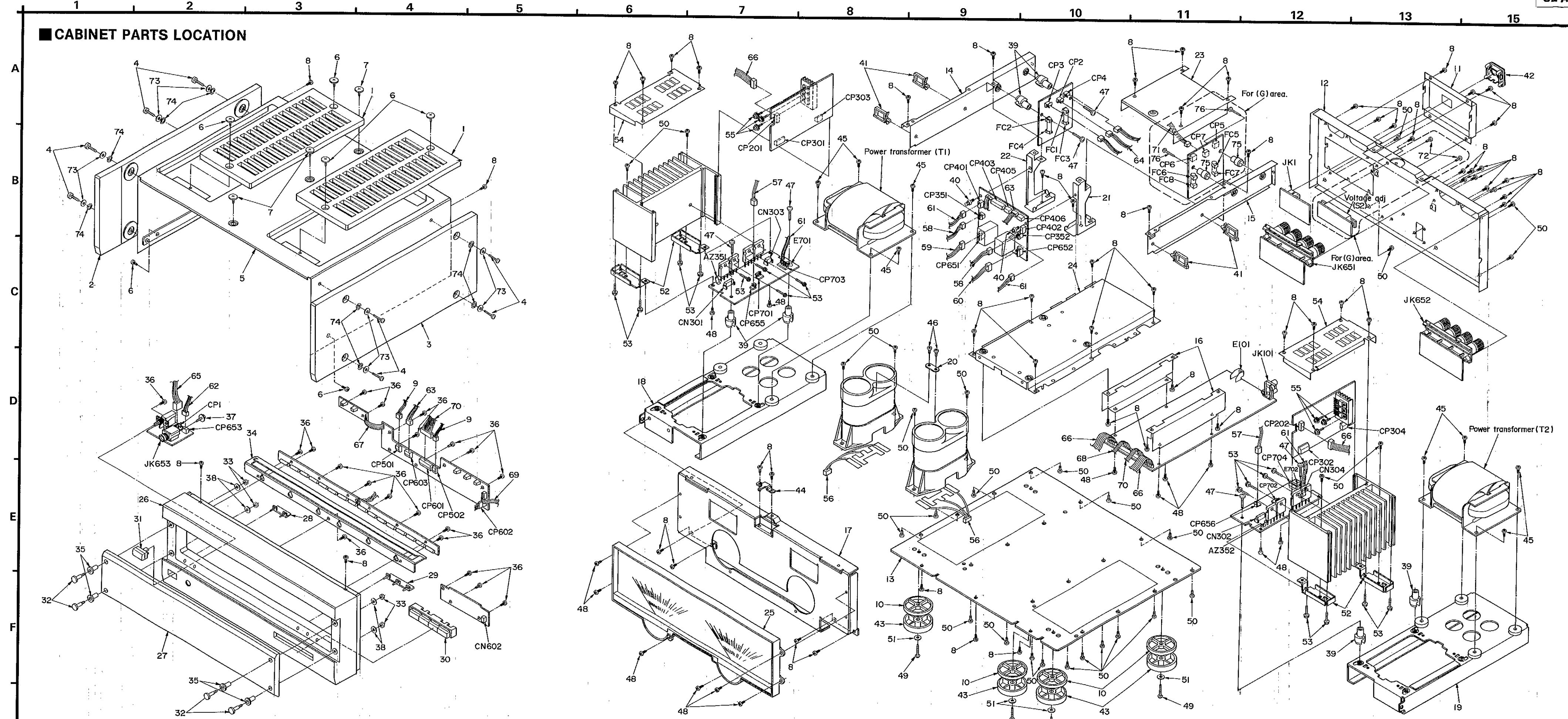
## ■ WIRING CONNECTION DIAGRAM



## ■ REPLACEMENT PARTS LIST

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Ref. No.	Part No.	Part Name & Description	Remarks
43	SKL306	RUBBER FOOT	
44	SUN2987	METER HOLDER	
45	XTB3+1QFZ1	SCREW	
46	XTB3+10JFZ	SCREW	
47	XTB3+20J	SCREW	
48	XTB3+1JJFZ	SCREW	
49	XTB4+16FFZ	SCREW	
50	XTB4+8FFZ	SCREW	
51	XWE5X12FVC	WASHER	
52	RWQ0111	RADIATOR ANGLE	
53	SNE2117-1	SCREW	
54	RWY0036	SUB RADIATING PLATE (L) - (R)	
55	XYN3+F8	SCREW	
56	REZ0158	CONNECTOR ASS' Y(3P)	
57	RFKEA2000EGB	CONNECTOR ASS' Y(2P)	
58	RFKEA2000EGC	CONNECTOR ASS' Y(2P)	
59	RFKEA2000ERG	CONNECTOR ASS' Y(3P)	
60	RFKEA2000EGE	CONNECTOR ASS' Y(3P)	
61	RFKEA2000EGF	CONNECTOR ASS' Y(3P)	
62	RFKEA2000EGG	CONNECTOR ASS' Y(3P)	
63	RFKEA2000EGH	CONNECTOR ASS' Y(4P)	
64	RFKEA2000EGI	CONNECTOR ASS' Y(4P)	
65	RFKEA2000EGK	CONNECTOR ASS' Y(4P)	
66	RFKEA2000EGL	CABLE ASS' Y(6P)	
67	RFKEA2000EGL	CABLE ASS' Y(4P)	
68	RFKEA2000EGM	CONNECTOR ASS' Y(11P)	
69	RFKEA2000EGN	CONNECTOR ASS' Y(4P)	
70	RFKEA2000EGP	CONNECTOR ASS' Y(10P)	
71	RFKEA2000GQ	CONNECTOR ASS' Y(5P)	(G)
72	XTB3+8JFZ1	SCREW	(G)
73	RHN85001	WAVE WASHER	
74	XWE6FZ	WASHER	
75	SHE187-2	P. C. B. SUPPORT	(G)
76	XTB3+20J	SCREW	(G)



## **REPLACEMENT PARTS LIST**

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\*The "SPT" mark denotes the standard part.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		D305-308	MA29WA	DIODE	
IC201, 202	AN7062N	VOLTAGE AMP		D401, 402	MA185TA	DIODE	
IC301, 302	MS219P	DIFFERENTIAL AMP		D451	MA185TA	DIODE	
IC451	AN7073	MUTING/PROTECTION		D452	MA4110MTA	DIODE	
IC501	BA6138	METER DRIVE AMP		D453	MA165	DIODE	
IC502	MS218AP	METER DRIVE BUFFER AMP		D501	MA165	DIODE	
IC601	MN4001B	SPEAKER SELECTOR		D502	MA4082MTA	DIODE	
				D503, 504	MA165	DIODE	
		TRANSISTOR(S)		D505, 506	MA4100MTA	DIODE	
				D507, 508	MA165	DIODE	
				D601-617	MA165	DIODE	
				D618-620	LN846RP-C	L. E. D.	
Q201-204	2SA1123RSTTA	TRANSISTOR		D621	LN446YP	L. E. D.	
Q205-208	2SC2631RSTTA	TRANSISTOR		D622	LN846RP-C	L. E. D.	
Q209, 210	2SA1123RSTTA	TRANSISTOR		D623	MA4036MTA	DIODE	
Q253, 254	2SD1761EF	TRANSISTOR		D624-626	MA165	DIODE	
Q255, 256	2SC3311A-Q	TRANSISTOR		D627-629	MA4051MTA	DIODE	
Q257, 258	2SA1309A-R	TRANSISTOR		D651-653	MA165	DIODE	
Q259, 260	2SC2631RSTTA	TRANSISTOR		D701-708	P300DLF	DIODE	▲
Q261, 262	2SA1123RSTTA	TRANSISTOR		D751-754	1SR35200TB	DIODE	▲
Q263, 264	2SK2013DY	TRANSISTOR					
Q265, 266	2SJ3130Y	TRANSISTOR				VARIABLE RESISTOR(S)	
Q301, 302	2SC2631RSTTA	TRANSISTOR					
Q303-306	2SA1123RSTTA	TRANSISTOR		VR251, 252	EVNDCAA03B13	VOLT. CONTROL AMP ICQ ADJ.	
Q307, 308	2SC2631RSTTA	TRANSISTOR		VR301, 302	EVNDCAA03B52	CURRENT DRIVE AMP ICQ ADJ.	
Q351, 352	2SC1815BG	TRANSISTOR		VR501, 502	EVNDXAA00B13	POWER METER ADJ.	
Q353, 354	2SC3944AQPS	TRANSISTOR				TERMINATOR(S)	
Q355, 356	2SA1535AQRS	TRANSISTOR					
Q357, 358	2SC3182R	TRANSISTOR		TH251, 252	ERTD2ZGL251T	TERMISTOR	
Q359, 360	2SA1265R	TRANSISTOR		TH351, 352	ERTD2ZHL104T	TERMISTOR	
Q361, 362	2SC3182R	TRANSISTOR		TH501, 502	ERTD2ZHL104T	TERMISTOR	
Q363, 364	2SA1265R	TRANSISTOR				COIL(S)	
Q401, 402	2SB1036R	TRANSISTOR		L1	SLQZ650MH49	COIL	(EG, EB) ▲
Q451	2SA992EFPTA	TRANSISTOR		L351, 352	SLQY07G-40	COIL	
Q503	2SA1309A-R	TRANSISTOR		L353, 354	SLQY18G-10	COIL	
Q601, 602	2SA1309A-R	TRANSISTOR		L651-654	SLQY07G-40	COIL	
Q603, 604	2SC3311A-Q	TRANSISTOR				TRANSFORMER(S)	
Q651	2SC3311A-Q	TRANSISTOR		T1, 2	RTP7K5E004-W	POWER TRANSFORMER	(EG) ▲
				T1, 2	RTP7K5B003-W	POWER TRANSFORMER	(EB) ▲
		DIODE(S)		T1, 2	RTP7K5E006-W	POWER TRANSFORMER	(G) ▲
D207, 208	MA4160M	DIODE				LAMP(S)	
D253-256	MA165	DIODE					
D257-260	MA4100MTA	DIODE					
D261-264	MA185TA	DIODE					
D265-268	MA165	DIODE					
D301-304	MA4100MTA	DIODE					

No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
16	XAMR128S	LAMP		FC5-8	EYF52BC	FUSE HOLDER	(G)
		FUSE (S)				RELAY (S)	
	XBA2C20TB0	FUSE 250V, T2A	△	RL651, 652	RSY0004-1	RELAY	△
	XBA2C20TB0	FUSE 250V, T2A	(G) △	RL653	RSYG5A237P12	RELAY	△
		SWITCH(ES)				TERMINAL (S)	
	ESB8279V	POWER	△	JK1	SJS9231-1B	AC INLET	△
	ESD26200A	VOLTAGE ADJ.	(G) △	JK101	SJF3225-5A	UNBALANCE INPUT	
	EVQ21405R	OFF		JK651, 652	RJH403	SPEAKER A/B	
	EVQ21405R	SPEAKER A		JK653	QJA0455ZC-A	HEADPHONES	
	EVQ21405R	SPEAKER B				PACKING MATERIAL	
	EVQ21405R	SPEAKER A+B					
		CONNECTOR(S) AND SOCKET(S)		P1	RPG1582	PACKING CASE	(EG, G)
02	SJS50878JQ	SOCKET(8P)		P1	RPG1583-1	PACKING CASE	(EB)
04	SJS50578JQ	SOCKET(5P)		P2	RPN0687	CUSHION	
	SJS50581BB	SOCKET(5P)		P3	RPH101	KRAFT PAPER	
	RJP1A4204-1	CONNECTOR(3P)		P4	SPH6434	PROTECTION SHEET	
	RJP1A4204-1	CONNECTOR(3P)	(EG, EB)	P5	RPQ0164	PAD	
	RJP1A4205	CONNECTOR(4P)	(G)	P6	RPH0032	MIRROR SHEET	(EB)
	RJP1A4204-1	CONNECTOR(3P)	(G)			ACCESSORIES	
	RJP1A4205	CONNECTOR(4P)	(G)				
02	SJT3611	CONNECTOR(6P)		A1	RFKSEA2000EG	INSTRUCTION MANUAL ASS' Y	(EG)
02	SJT30845JQ	CONNECTOR(8P)		A1	RQT1988-B	INSTRUCTION MANUAL	(EB)
04	SJT30545JQ	CONNECTOR(5P)		A1	RFKSEA2000G	INSTRUCTION MANUAL ASS' Y	(G)
52	RJP1A3202	CONNECTOR(2P)		A2	RJA0019-2K	AC POWER SUPPLY CORD	(EG, G) △(SF)
02	SJT3319	CONNECTOR(3P)		A2	VJAD733	AC POWER SUPPLY CORD	(EB) △(SF)
	SJT3011	CONNECTOR(11P)		A3	RQA0013	WARRANTY CARD	(EG, EB)
06	SJT3415	CONNECTOR(4P)		A4	RQC00169	SERVICENTER LIST	
02	SJT3215	CONNECTOR(2P)		A5	SJP5213-2	POWER PLUG ADAPTOR	(G) △
	SJT3007	CONNECTOR(10P)		A6	RQA00134	VOLTAGE CAUTION LABEL	(G)
	SJT30549BB1	CONNECTOR(5P)					
	SJT3417	CONNECTOR(4P)					
52	RJP1A4103	CONNECTOR(2P)					
	SJT3319	CONNECTOR(3P)					
56	RJP1A3202	CONNECTOR(2P)					
04	RJP1A3303	CONNECTOR(3P)					
		GND PLATE					
52	SUS227	GND PLATE					
	RMN0132	GND PLATE					
2	SNE1004-1	GND PLATE					
		FUSE HOLDER					
		EYF52BC	FUSE HOLDER				

# RESISTORS AND CAPACITORS

**Notes :** \* Capacity values are in microfarads ( $\mu\text{F}$ ) unless specified otherwise, P=Pico-farads ( $\text{pF}$ ) F=Farads ( $\text{F}$ )  
 \* Resistance values are in ohms, unless specified otherwise,  $1\text{K}=1,000$  ( $\Omega\text{HM}$ ),  $1\text{M}=1,000,000$  ( $\Omega\text{HM}$ )

Ref. No.	Part No.	Values & Remarks		Ref. No.	Part No.	Values & Remarks		Ref. No.	Part No.	Values & Remarks	
		RESISTORS		R401, 402	ERDAF2VJ271T	1/4W	270			CAPACITORS	
				R403, 404	ERDAF2VJ472T	1/4W	4.7K				
				R405, 406	ERDS2TJ153	1/4W	15K	C1	ECKWNS103ZVS	500V	0.01U △
				R451	ERDS2TJ563	1/4W	56K	C101, 102	ECCR1H181K5	50V	180P
				R452	ERDS2TJ473	1/4W	47K	C201, 202	ECA1CPX5220B	16V	22U
				R453	ERDS2TJ273	1/4W	27K	C203, 204	ECKT1H221KB	50V	220P
				R454	ERDS2TJ153	1/4W	15K	C205, 206	ECA1CPX5221B	16V	220U
				R455	ERDS2TJ103	1/4W	10K	C207, 208	ECCR2H270K5	500V	27P
				R456	ERDS2TJ153	1/4W	15K	C209, 210	ECKR2H221KB5	500V	220P
				R457	ERDAF2VJ561T	1/4W	560	C213, 214	EGBT1H331KB5	50V	330P
				R501, 502	ERDS1FVJ472T	1/2W	4.7K △	C215, 216	EGBT1H820KB5	50V	82P
				R503, 504	ERDAF2VJ271T	1/4W	270	C217-220	ECA2APX5010B	100V	1U
				R505, 506	ERDS2TJ155	1/4W	1.5M	C221, 222	EGBT1H104ZF5	50V	0.1U
				R507, 508	ERDS2TJ682T	1/4W	6.8K	C223, 224	EGBT1H102KB5	50V	1000P
				R509, 510	ERDS2TJ471	1/4W	470	C225, 226	ECA2APX5010B	100V	1U
				R511, 512	ERDAF2VJ471T	1/4W	470	C227-230	ECCR2H270K5	500V	27P
				R513	ERDS2TJ104	1/4W	100K	C231, 232	ECKR1H103ZF5	50V	0.01U
				R515	ERDS2TJ563	1/4W	56K	C251-254	ECCV2H680K	500V	68P
				R516	ERDS2TJ681	1/4W	680	C255, 256	EGBT1H104ZF5	50V	0.1U
				R517	ERDS2TJ332	1/4W	3.3K	C257-260	ECEA1HKA010B	50V	1U
				R518, 519	ERDS2TJ103	1/4W	10K	C301, 302	ECQBIH272JF3	50V	2700P
				R520	ERDS2TJ223	1/4W	22K	C303-306	ECA0JPX5101B	6.3V	100U
				R521	ERDS2TJ104	1/4W	100K	C307, 308	EGBT1H221KB5	50V	220P
				R523, 524	ERDS2TJ154	1/4W	150K	C309-312	ECA1CPX5100B	16V	10U
				R525, 526	ERDS2TJ223	1/4W	22K	C313-316	ECA1CPX5330B	16V	33U
				R527, 528	ERDS2TJ102	1/4W	1K	C317-320	ECA2APX5010B	100V	1U
				R529, 530	ERDS2TJ123	1/4W	12K	C321, 322	ECA1H681KB5	50V	680P
				R531, 532	ERDS2TJ103	1/4W	10K	C351, 352	EGBT1H104ZF5	50V	0.1U
				R601-604	ERDS2TJ473	1/4W	47K	C353-356	ECA1H681KB5	50V	680P
				R605	ERDS2TJ223	1/4W	22K	C357-360	ECQV1H173JM3	50V	0.047U
				R606, 607	ERDS2TJ472	1/4W	4.7K	C361-364	ECQV1H224JM3	50V	0.22U
				R608, 609	ERDS2TJ223	1/4W	22K	C451	ECA0JAP331B	6.3V	330U
				R610	ERDS2TJ103	1/4W	10K	C452	ECKT1H223F	50V	0.022U
				R611	ERDS2TJ473	1/4W	47K	C453	ECEA0JKA470B	6.3V	47U
				R612, 613	ERDS2TJ331	1/4W	330	C454, 455	ECEA1HKA4R7B	50V	4.7U
				R616, 617	ERDS2TJ331	1/4W	330	C501, 502	ECEA1EKN3R3B	25V	3.3U
				R619, 620	ERDS2TJ331	1/4W	330	C503, 504	ECEA1HKAR47B	50V	0.47U
				R621	ERDS2TJ471	1/4W	470	C505, 506	ECEA1HKA4R7B	50V	4.7U
				R622	ERDS2TJ331	1/4W	330	C508	ECA1CM332E	16V	3300U
				R623	ERDS2TJ471	1/4W	470	C509	EGBT1E103ZF	25V	0.01U
				R624	ERDS2TJ151	1/4W	150	C510	ECEA1HKAR22B	50V	0.22U
				R651	ERDS2TJ472	1/4W	4.7K	C601-604	EGBT1E103ZF	25V	0.01U
				R655, 656	ERG1SJ181E	1W	180	C651-654	ECQBIH153JF3	50V	0.015U
				R657, 658	ERG1SJ151E	1W	150	C655-658	ECKR1H181KB5	50V	180P
				R659, 660	ERD2FCVG221T	1/4W	220	C659, 660	EGBT1H102KB5	50V	1000P
				R661	ERDAF2VJ221T	1/4W	220	C701-704	ECD71M123TM	71V	12000U △
				R701-704	ERDAF2VJ68RT	1/4W	6.8	C705-708	ECA2APX5101E	100V	100U △
				R751, 752	ERDAF2VJ2R2T	1/4W	2.2	C709-712	ECKR1H103JZ3	50V	0.01U
								C713, 714	ECQEB2104KF3	125V	0.1U