

# Service Manual

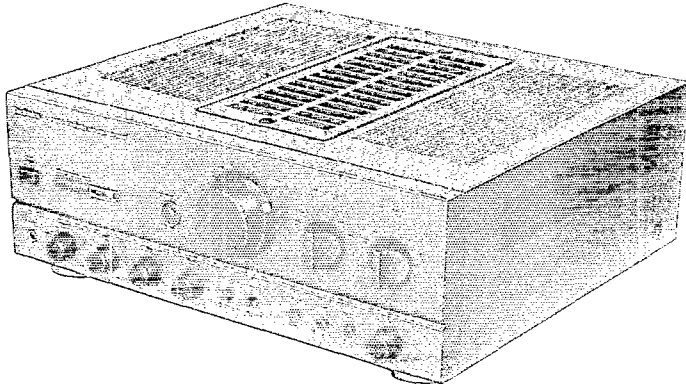
Stereo Integrated Amplifier

Amplifier

## SU-VX920

Colour

(K) ..... Black Type



### Areas

Suffix for Model No.	Area	Colour
(EB)	Great Britain	(K)
(EG)	Europe	
(GN)	Oceania	

## SPECIFICATIONS

(DIN 45 500)

### ■ MAIN AMP. SECTION

(POWER AMP. DIRECT input)

20 Hz~20 kHz continuous power output both channels driven:	2×110 W (8Ω)
1 kHz continuous power output both channels driven (THD: 1%):	2×130 W (8Ω) 2×180 W (4Ω)
63 Hz~12.5 kHz continuous power output both channels driven (THD: 0.7%):	2×120 W (8Ω) 2×160 W (4Ω)
Total harmonic distortion rated power at 20 Hz~20 kHz:	0.007% (8Ω)
half power at 20 Hz~20 kHz:	0.005% (8Ω)
half power at 1 kHz:	0.0009% (8Ω) 0.002% (4Ω)
Intermodulation distortion (50 Hz: 7 kHz=4:1, SMPTE) rated power:	0.007% (8Ω)
Residual hum and noise:	0.2 mV
Damping factor:	80 (8Ω) 40 (4Ω)
Headphones output level/Impedance:	635 mV/330Ω
Load impedance A or B, BI-WIRING:	4~16Ω
A and B:	8~16Ω

### ■ PRE AMP. SECTION

Input sensitivity/Impedance PHONO MM:	2.5 mV/47 kΩ
MC:	250 μV/220Ω
TUNER, CD, AUX, TAPE 1, TAPE 2/DAT:	150 mV/22 kΩ
ADAPTOR:	150 mV/22 kΩ
POWER AMP. DIRECT:	1 V/18 kΩ

Phono maximum input voltage (1 kHz, RMS)

MM:	170 mV
MC:	15 mV

S/N (Rated power, 4Ω)

PHONO MM:	79 dB (86 dB, IHF '66)
MC:	68 dB (68 dB, IHF '66)

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

97 dB (100 dB, IHF '66)

ADAPTOR: 97 dB (100 dB, IHF '66)

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

S/N at -26 dB power (4Ω)

PHONO MM:	77 dB
MC:	67 dB

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

84 dB

ADAPTOR: 84 dB

S/N at 50 mW power (4Ω)

PHONO MM:	75 dB
MC:	67 dB

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

78 dB

ADAPTOR: 78 dB

Frequency response

PHONO MM:	RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
-----------	---

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

3 Hz~100 kHz (+0, -3 dB)

+0 dB, -0.2 dB (20 Hz~20 kHz)

ADAPTOR: 3 Hz~100 kHz (+0, -3 dB)

+0 dB, -0.2 dB (20 Hz~20 kHz)

POWER AMP. DIRECT: 3 Hz~120 kHz (+0, -3 dB)

+0 dB, -0.2 dB (20 Hz~20 kHz)

# Technics

## Tone controls

<b>BASS:</b>	50 Hz, +10~-10 dB
<b>TREBLE:</b>	20 kHz, +10~-10 dB
<b>Muting:</b>	-20 dB
<b>Subsonic filter:</b>	20 Hz, -12 dB/oct
<b>Loudness control (volume at -30 dB):</b>	50 Hz, +9 dB
<b>Output voltage</b>	
<b>TAPE 1, TAPE 2/DAT REC OUT:</b>	150 mV
<b>Channel balance, (AUX 250 Hz~6.3 kHz):</b>	±1 dB
<b>Channel separation (AUX 1 kHz):</b>	50 dB

## ■ GENERAL

<b>Power consumption:</b>	440 W
<b>Power supply:</b>	AC 50 Hz/60 Hz, 230/240 V
<b>Dimensions (W×H×D):</b>	430×158×429 mm
<b>Weight:</b>	16.5 kg

### Notes:

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

## ■ CONTENTS

	Page		Page
BEFORE REPAIR AND ADJUSTMENT .....	2	BLOCK DIAGRAM .....	12
PROTECTION CIRCUITRY .....	2	SCHEMATIC DIAGRAM .....	13~17
LOCATION OF CONTROLS .....	3	PRINTED CIRCUIT BOARDS .....	18~21
ACCESSORY .....	4	WIRING CONNECTION DIAGRAM .....	22
CONNECTIONS .....	4~6	REPLACEMENT PARTS LIST .....	23~26, 29
DISASSEMBLY INSTRUCTIONS .....	7~10	CABINET PARTS LOCATION .....	27, 28
MEASUREMENTS AND ADJUSTMENTS .....	11, 12	PACKAGING .....	30

## ■ BEFORE REPAIR AND ADJUSTMENT

- (1) Turn off the power supply. Using a 10Ω, 10 W resistor, shortcircuit both ends of power supply capacitors (C601, C602) 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, VR452, VR501 and VR502) 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 230 V	AC 240 V
Consumed current	50 Hz	150~450 mA	140~430 mA
	60 Hz		

## ■ 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.

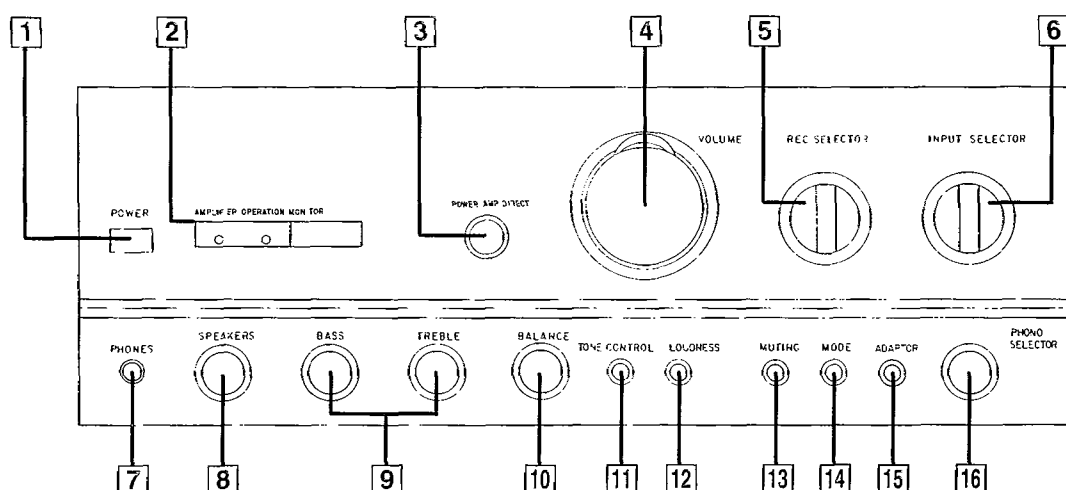
If this occurs, follow the procedure outlined below:

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.

## ■ LOCATION OF CONTROLS



### 1 Power switch (POWER)

### 2 Operation indicators (AMPLIFIER OPERATION MONITOR)

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

#### VOLTAGE CONTROL:

When the power is switched ON, this indicator illuminates when the unit is in the operating condition.

#### CURRENT DRIVE:

When the power is switched ON, this indicator illuminates after about 4 seconds when the unit is in the operating condition.

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 Power amplifier direct switch (POWER AMP DIRECT)

This switch is used to listen to the sound from a component connected to the "POWER AMP DIRECT" terminals.

When this switch is pressed inward to the "ON" position, a superior level of tone quality can be obtained, because the signals from the component connected to the "POWER AMP DIRECT" terminals are sent directly to the volume control and power amplifier section of this unit. The tone control circuit, balance control, loudness switch, muting switch and mode selector are bypassed.

### 4 Volume control/indicator (VOLUME)

There are two types of volume scale indications: one for when or the power amplifier direct switch is OFF, and one for when it is ON (Indicator will illuminate.)

### 5 Recording selector (REC SELECTOR)

This selector is used to select the sound source to be recorded by the connected tape deck 1 and/or tape deck 2 (or DAT).

### 6 Input selector (INPUT SELECTOR)

This selector is used to select the sound source to be heard, such as a disc, radio broadcast, etc.

### 7 Headphones jack (PHONES)

### 8 Speaker selector (SPEAKERS)

This selector is used to select the speakers to be used.

### 9 Tone controls (BASS/TREBLE)

The bass control is used to adjust the low-frequency sound range, and the treble control is used to adjust the high-frequency sound range.

### 10 Balance control (BALANCE)

This control is used to adjust the left/right volume balance.

### 11 Tone control switch (TONE CONTROL)

This switch is used to set the tone control circuit (bass, treble) to ON or DEFEAT.

### 12 Loudness switch (LOUDNESS)

This switch is used when listening to music at a low volume level. Auditory perception of sound in the low frequency range falls off at low volume, but when the switch is set to the "ON" position, this deficiency is compensated for, so that the full impact of the musical performance can be enjoyed.

### 13 Muting switch (MUTING)

This switch is used to temporarily reduce the volume level (approx. 1/10).

The effect activates when setting this switch to the "ON" position.

### 14 Mode selector (MODE)

This selector is used to select stereo or monaural operation.

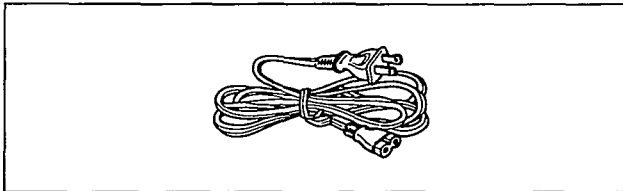
### 15 Adaptor switch (ADAPTOR)

This switch is used when enjoying music by changing the sound quality with the graphic equalizer, etc.

### 16 Phono cartridge selector (PHONO SELECTOR)

This selector should be set to the position which corresponds to the type of cartridge used on the turntable. The "SUBSONIC" position is used to eliminate ultra-low-frequency noise such as motor "rumble" and unusual vibration of the woofer cone caused by a warped disc, etc.

## ACCESSORY

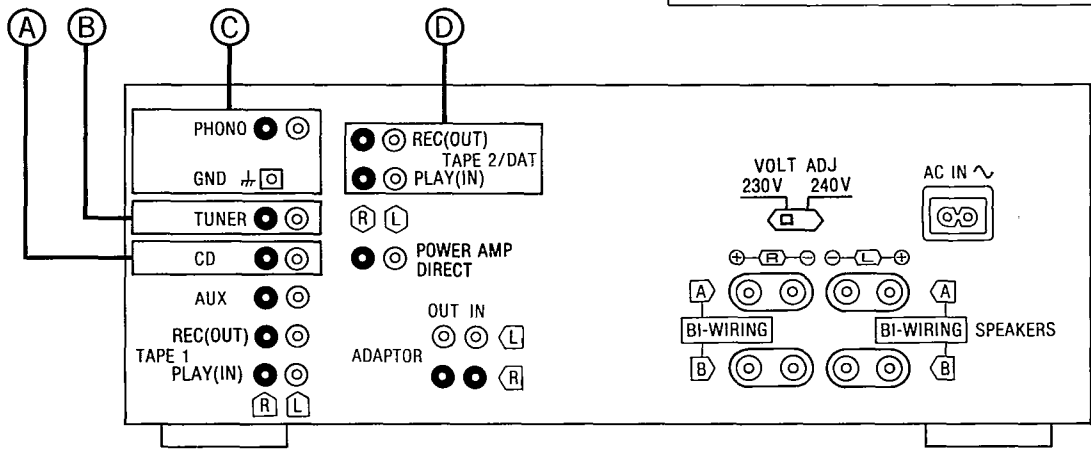
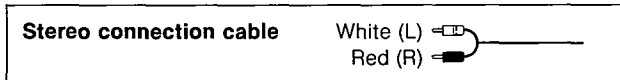


- AC power supply cords ..... 1
- <RJA0019-1K> For (EG) area.
- <SJA193> For (EB) area.
- <SJA173> For (GN) area.

## CONNECTIONS

### To connect to each terminals

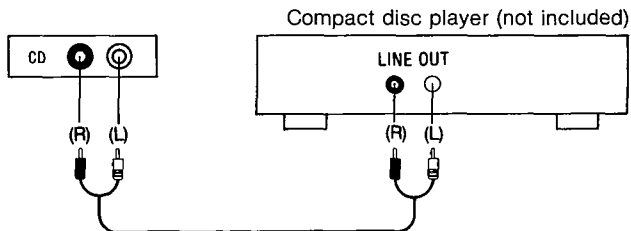
Make connections to each component in the system by using stereo connection cables (not included).



● Phono input capacitance is about 220 pF.

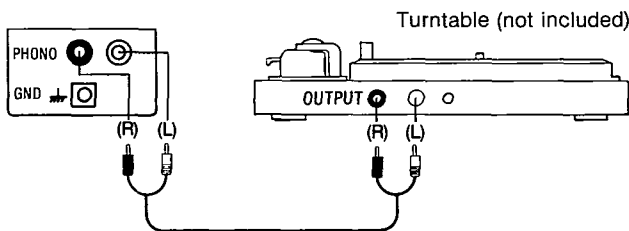
### A "CD" terminals

Connect to a compact disc player.



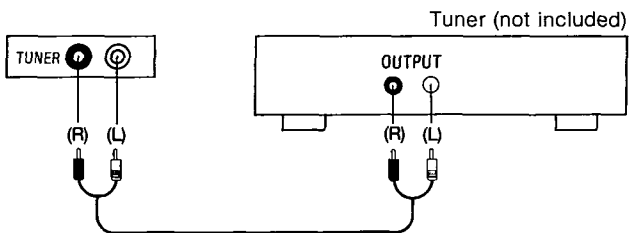
### C "PHONO" terminals

Connect to a turntable.



### B "TUNER" terminals

Connect to a tuner.

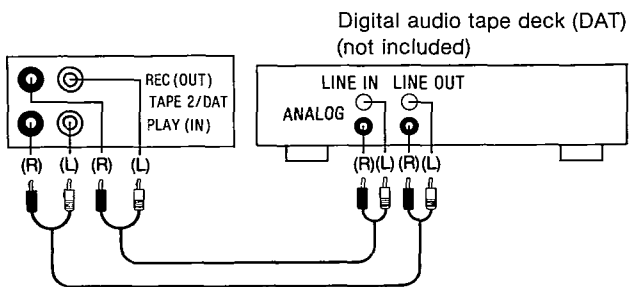


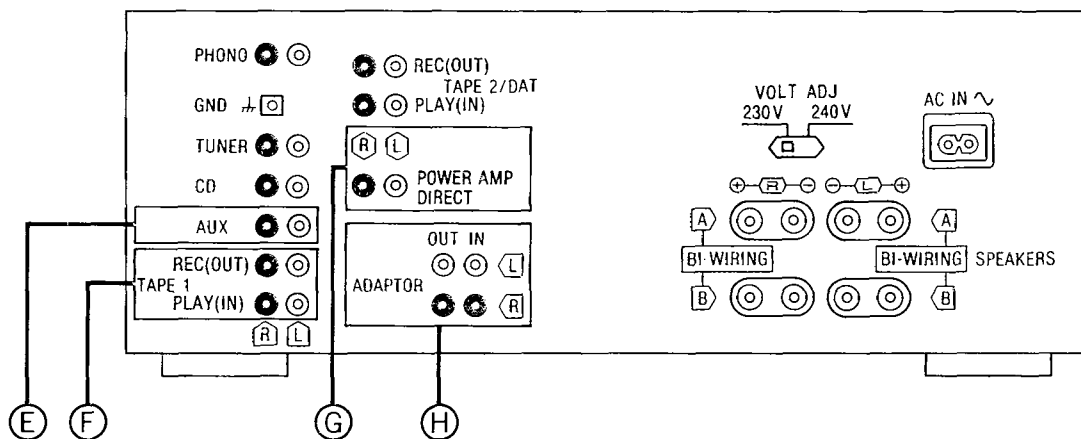
### GND terminal

This terminal is for use with a turntable which has a ground wire.

### D "TAPE 2/DAT" terminals

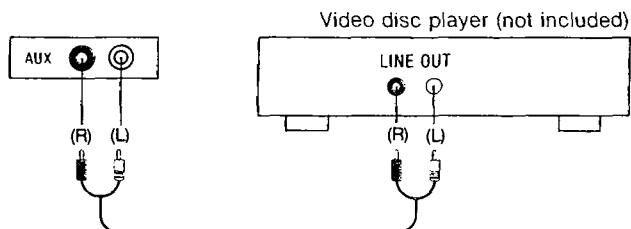
Connect to a second tape deck or a digital audio tape deck (DAT).





**E "AUX" terminals**

Connect to a component such as a video disc player (audio only connectable), etc.

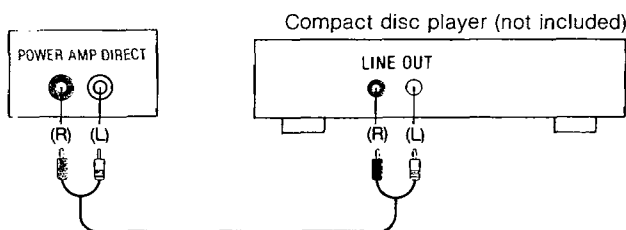


**G "POWER AMP DIRECT" terminals**

Connect to a compact disc player, a digital audio tape deck, or a D/A converter.

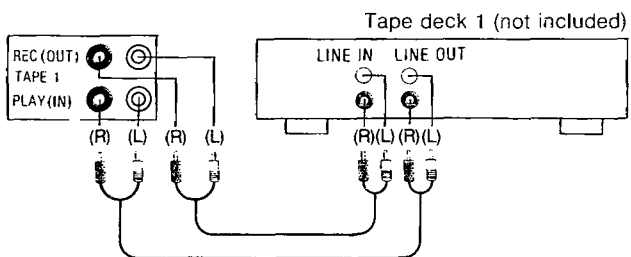
A superior level of tone quality can be obtained, because the signals from these terminals are sent directly to the volume control and power amplifier section of this unit.

The sounds from a component connected to these terminals cannot be recorded.



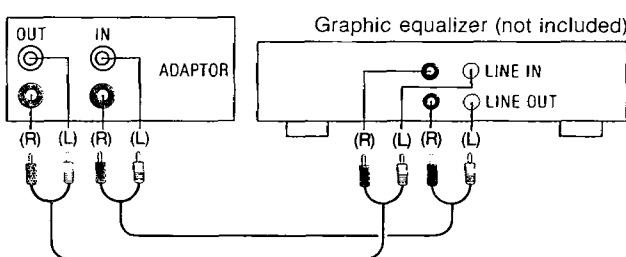
**F "TAPE 1" terminals**

Connect to a first tape deck.



**H "ADAPTOR" terminals**

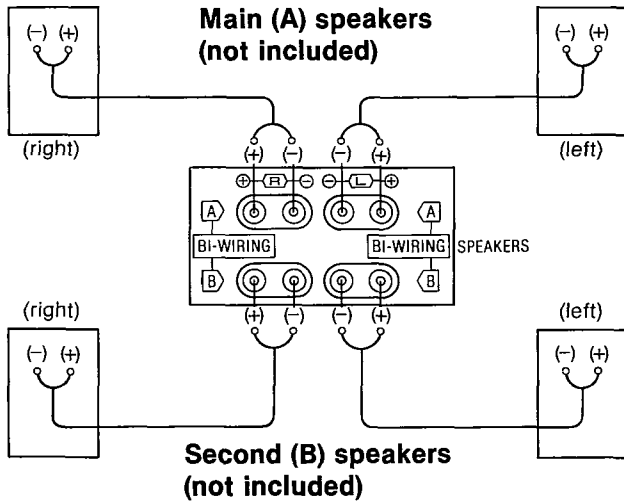
Connect to a graphic equalizer.



### To connect to speakers

One pair of speakers can be connected to the "A" terminals of this unit and one pair to the "B" terminals, or only one pair of bi-wired speakers can be connected to all terminals.

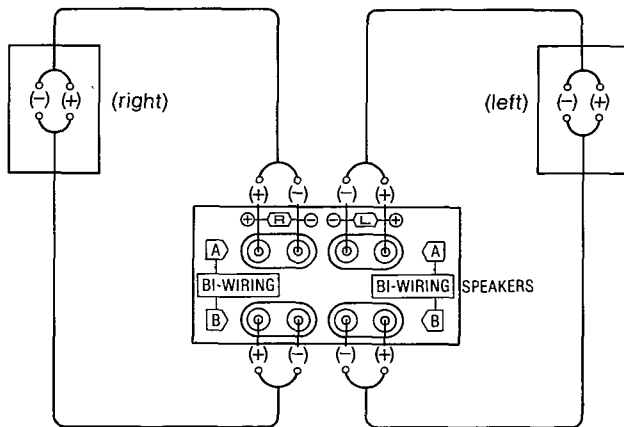
#### To connect main and/or second speakers



#### ■ Load 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

#### To connect bi-wired speakers



**Note:** Connect only bi-wired speakers in this way.

#### ■ Load impedance

When bi-wired speakers are used: 4–16 ohms

#### ■ Bi-wiring

The treble range and the bass range of the speakers are connected to the speaker terminals of the amplifier by using two speaker connection cords separately for each. As a result of making connections in this way, sound can be reproduced with much greater nuance and detail, with the feelings of air oscillation and deepness of sound provided by an input source that suppresses reciprocal band-range interference. (Refer to the operating instructions of the speakers.)

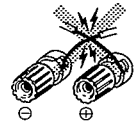
### To connect cords to terminals

- ① Strip off the outer covering, and twist the center conductor. Twist
- ② Turn completely to the left.
- ③ Insert the wire and turn completely to the right. Pull the cord to assure a proper connection.

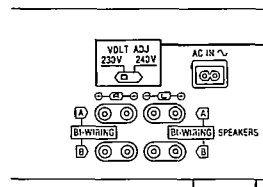
**Note:** Be sure to only connect positive (+) cords to positive (+) terminals, and negative (-) cords to negative (-) terminals.

#### **Note:**

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



### To set the power voltage



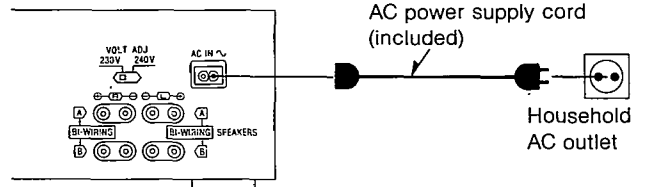
Set the voltage selector to the voltage setting for the area in which the unit will be used. [Use a minus (-) screwdriver]

#### **Note:**

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

### To connect the AC power supply cord (included)

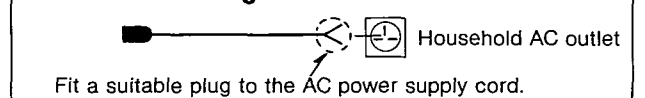
Connect the AC power supply cord (included) after all other cables and cords are connected.



#### **Note:**

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

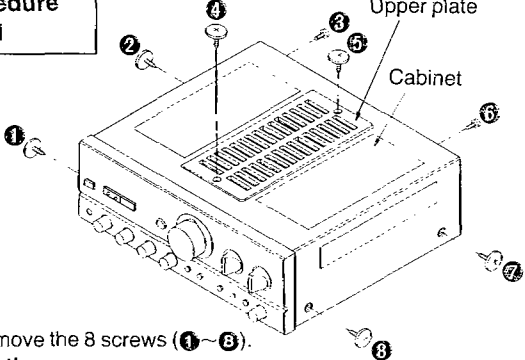
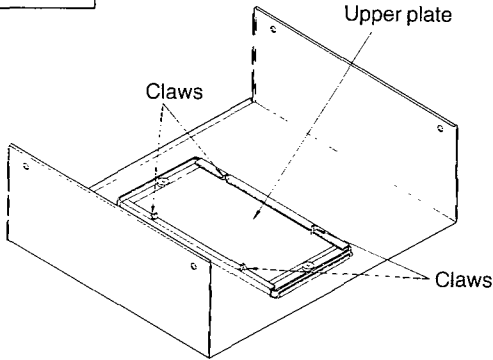
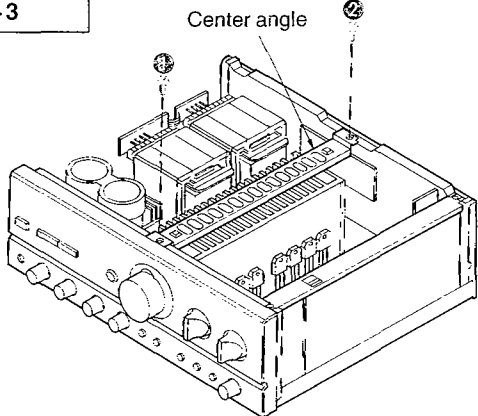
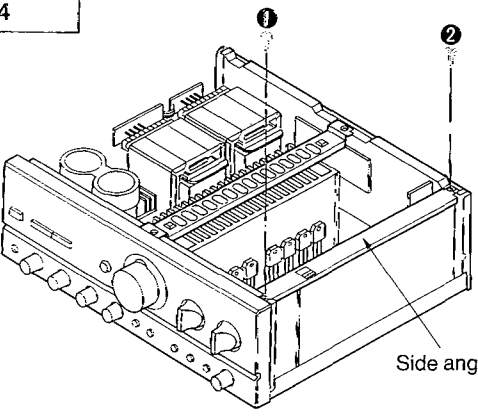
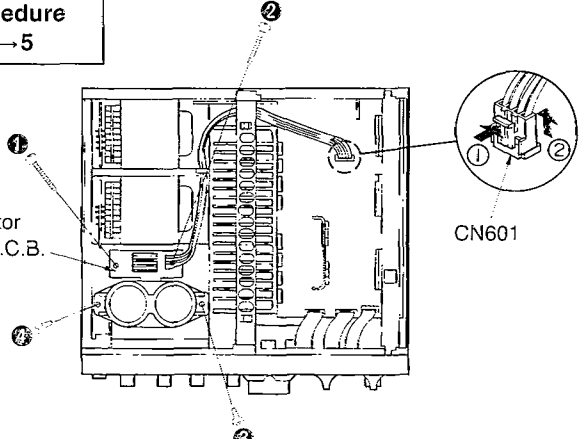
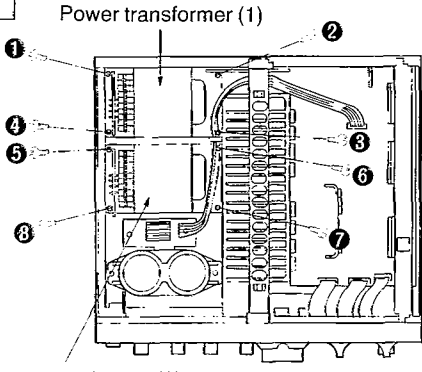
#### For United Kingdom



# DISASSEMBLY INSTRUCTIONS

**"ATTENTION SERVICER"**

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

<p>Ref. No. 1</p>	<p><b>Removal of the Cabinet</b></p>	<p>Ref. No. 2</p>	<p><b>Removal of the Upper Plate</b></p>
<p>Procedure 1</p>	 <p>● Remove the 8 screws (1-8). <b>Attention:</b> When removing the cabinet from the unit, please don't forget to remove the 2 screws (4, 5) of the upper plate. Unless you remove the 2 screws (4, 5), it may change shape of the cabinet.</p>	<p>Procedure 1-2</p>	 <p>● Release the 4 claws.</p>
<p>Ref. No. 3</p>	<p><b>Removal of the Center Angle</b></p>	<p>Ref. No. 4</p>	<p><b>Removal of the Side Angle</b></p>
<p>Procedure 1-3</p>	 <p>● Remove the 2 screws (1, 2).</p>	<p>Procedure 1-4</p>	 <p>● Remove the 2 screws (1, 2).</p>
<p>Ref. No. 5</p>	<p><b>Removal of the Capacitor Block P.C.B.</b></p>	<p>Ref. No. 6</p>	<p><b>Removal of the Power Transformer (1), (2)</b></p>
<p>Procedure 1-5</p>	 <p>1. Remove the 1 connector (CN601). 2. Remove the 4 screws (1-4).</p>	<p>Procedure 1-6</p>	 <p>● Remove the 8 screws (1-8).</p>

<p><b>Ref. No.</b> 7</p>	<p><b>Removal of the Front Panel Ass'y</b></p>	<div data-bbox="183 280 742 672"> </div> <div data-bbox="901 224 1428 660"> </div> <div data-bbox="146 689 660 743"> <ol style="list-style-type: none"> <li>1. Remove the remote switch controller.</li> <li>2. Remove the 3 flat cables (CN201, CN401, CN501).</li> </ol> </div> <div data-bbox="849 689 1394 743"> <ol style="list-style-type: none"> <li>3. Remove the 4 screws (1~4).</li> <li>4. Remove the front panel ass'y in the direction of arrow.</li> </ol> </div> <div data-bbox="146 779 692 810"> <p>■ <b>Removal of the remote switch controller</b></p> </div> <div data-bbox="146 810 362 837"> <p>● Remove the 4 claws.</p> </div> <div data-bbox="225 857 397 889"> <p><b>S101 (PHONO)</b></p> </div> <div data-bbox="231 891 571 1086"> </div> <div data-bbox="228 1115 515 1146"> <p><b>S102, S103 (REC, INPUT)</b></p> </div> <div data-bbox="221 1153 564 1355"> </div> <div data-bbox="681 1019 1098 1243"> </div> <div data-bbox="1134 999 1461 1247"> </div> <div data-bbox="849 779 1420 810"> <p>■ <b>Replacing of the remote switch controller</b></p> </div> <div data-bbox="849 810 1497 887"> <ol style="list-style-type: none"> <li>1. Turn the selector knobs to the arrows.</li> <li>2. Put the switch slider of switch to end and put in the remote switch controller.</li> </ol> </div>	
<p><b>Ref. No.</b> 8</p>	<p><b>Removal of the Power Switch/ Headphones Jack P.C.B.</b></p>	<p><b>Ref. No.</b> 9</p>	<p><b>Removal of the Volume P.C.B.</b></p>
<p><b>Procedure</b> 1→3→4→ 7→8</p>	<div data-bbox="322 1529 657 1830"> </div> <div data-bbox="146 1921 517 1977"> <ol style="list-style-type: none"> <li>1. Remove the 1 connector (CP502A).</li> <li>2. Remove the 2 screws (1, 2).</li> </ol> </div>		<div data-bbox="954 1503 1455 1910"> </div> <div data-bbox="852 1921 1126 2000"> <ol style="list-style-type: none"> <li>1. Pull out the volume knob.</li> <li>2. Remove the nut.</li> <li>3. Release the 1 claw.</li> </ol> </div>



Ref. No. 10	Removal of the Remote Switch Controller
Procedure 1→3→4→ 7→10	<p>Remote switch controller (REC)</p> <p>Remote switch controller (INPUT)</p> <p>Remote switch controller (PHONO)</p> <p>A: 11 mm B: 16 mm C: longer than 22 mm</p> <p>Use a wrench of the dimensions shown in the illustration above to remove nuts.</p> <p>1. Pull out the 3 knobs. 2. Remove the 3 nuts.</p> <p>3. Remove the remote switch controller in the direction of arrow.</p>

Ref. No. 11	Removal of the Operation P.C.B.
Procedure 1→3→4→7→ 8→9→11	<p>Operation P.C.B.</p> <p>1. Pull out the 4 knobs. 2. Remove the 4 nuts.</p> <p>3. Remove the 8 screws (1-8). 4. Remove the operation P.C.B. in the direction of arrow.</p>

Ref. No. 12	Removal of the AC INLET/VOLT ADJ. P.C.B.
Procedure 1→3→12	<p>AC Inlet cover</p> <p>AC IN/VOLT ADJ. P.C.B.</p> <p>1. Remove the 1 screw (1). 2. Release the 2 claws of AC inlet cover.</p>

Ref. No. 13	Removal of the Rear Panel
Procedure 1→3→4→13	<p>Rear panel</p> <p>1. Remove the 16 screws (1-16). 2. Remove the rear panel in the direction of arrow.</p>

Ref. No. 14	Removal of the Input Select P.C.B.
Procedure 1→3→4→ 13→14	<p>Input select P.C.B.</p> <p>Remote switch controller</p> <p>1. Remove the remote switch controller. 2. Remove the input select P.C.B. in the direction of arrow.</p>

Ref. No. 16	Removal of the Main P.C.B.
Procedure 1→3→4→13→ 14→15→16	<p>Main P.C.B.</p> <p>1. Remove the 3-flat cables (CN201, CN401, CN501). 2. Remove the 1 connector (CN601). 3. Remove the 10 screws (1-10).</p>

Ref. No. 18	Check of the Main P.C.B.
Procedure 1→18	<p>Bottom plate</p> <p>Main P.C.B.</p> <p>1. Remove the 4 screws (1-4).</p>

Ref. No. 15	Removal of the Tape 2/DAT P.C.B.
Procedure 1→3→4→ 13→15	<p>Tape 2/DAT P.C.B.</p> <p>Remove the tape 2/DAT P.C.B. in the direction of arrow.</p>

Ref. No. 17	Removal of the Power Transistor
Procedure 1→17	<p>Power transistor</p> <p>1. Unsolder the power transistor. 2. Remove the 8 screws (1-8). When mounting the power transistor, apply silicon thermal compound (RFXK002) to the rear of the power transistor.</p>

Ref. No. 18	Check of the Main P.C.B.
Procedure 1→18	<p>Bottom plate</p> <p>Main P.C.B.</p> <p>2. When checking the soldered surface of the digital P.C.B. and replacing the parts, do as shown in the Fig. 2.</p>

Replacement of the Foot

- Remove the 4 heat melted posts on the chassis with a pair of nippers or similar tool.
- To replace the foot (RKA009-1) on the chassis, melt the 4 posts with a soldering iron.

Heat Melted Posts

Foot

Bottom Board

Soldering Iron

Foot (RKA009-1)

MEASUREMENTS AND ADJUSTMENTS

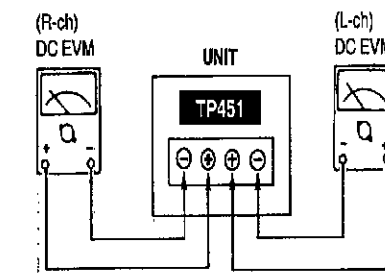
ADJUSTMENT

- Control positions and equipment used.
- Volume knob . . . . . ∞ (Minimum)
  - Speaker selector . . . . . off

AC and DC electronic voltmeter (EVM)

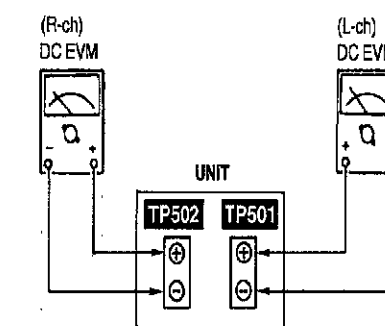
(1) VOLTAGE CONTROL (V) AMP. IDLING (ICQ) ADJUSTMENT

- Test equipment connection is shown in figure. (Connect the DC EVM on both channels.)
- Completely turn the (V) amp. adjusting volumes (VR451, VR452) counter-clockwise.
- Turn ON the set when it is cold, and about 8 sec. later, adjust VR451 and VR452 so that the voltage is 60 mV.

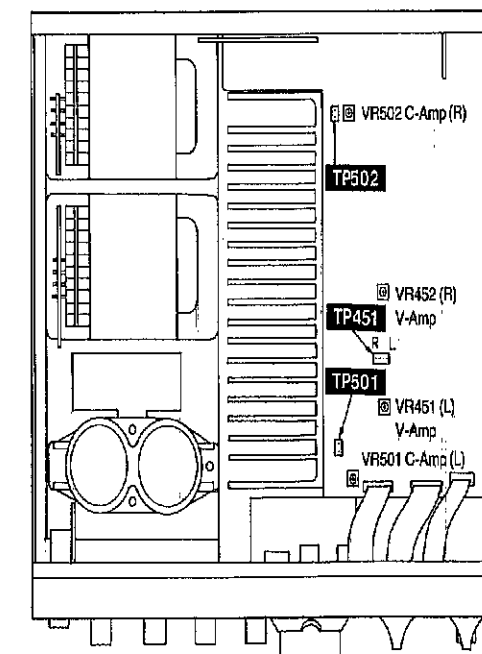


(2) CURRENT DRIVE (C) AMP. IDLING (ICQ) ADJUSTMENT

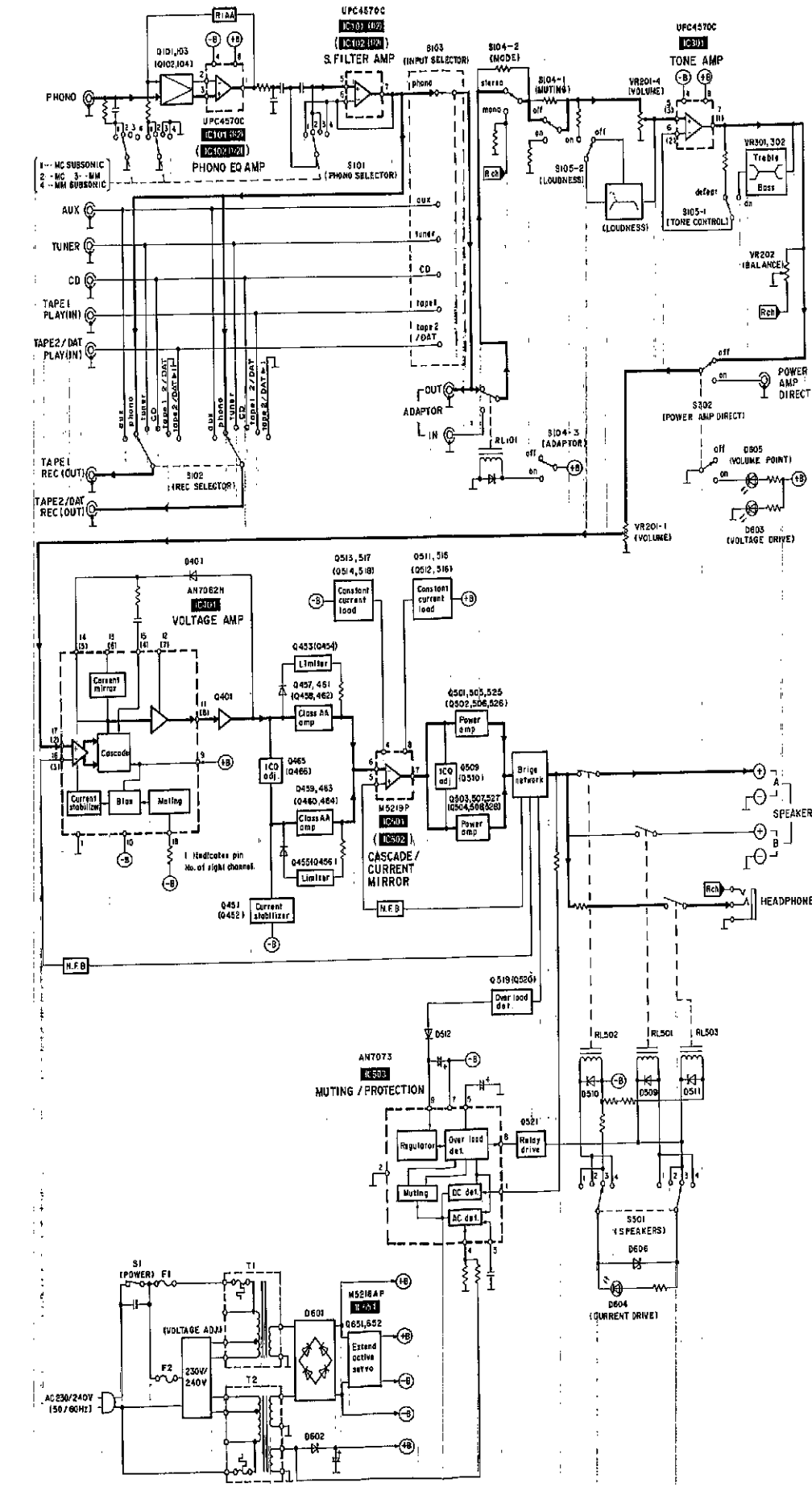
- Test equipment connection is shown in figure. (Connect the DC EVM on both channels.)
- Completely turn the (C) amp. adjusting volumes (VR501, VR502) counter-clockwise.
- Turn ON the set when it is cold, and the "VOLTAGE CONTROL (V) AMP. IDLING (ICQ) ADJUSTMENT" later, adjust VR501 and VR502 so that the voltage is 2 mV.



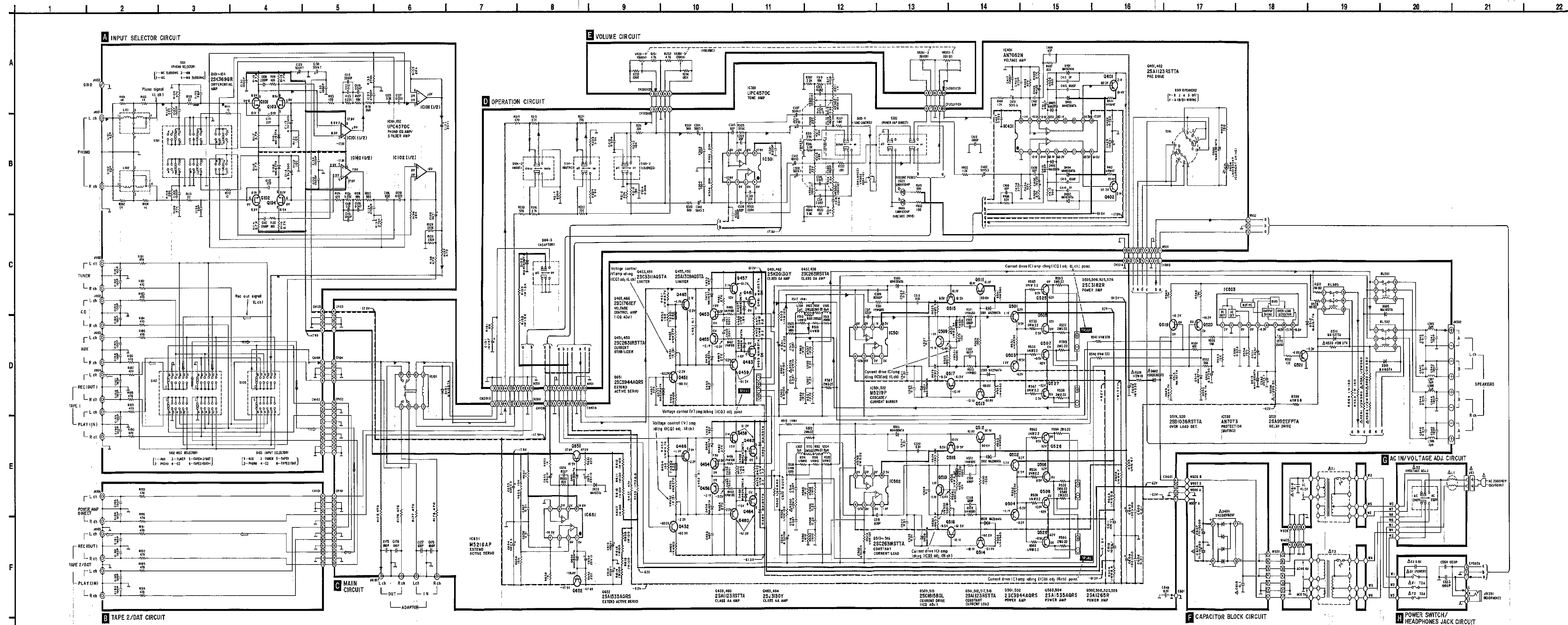
ADJUSTMENT POINTS



BLOCK DIAGRAM



SCHEMATIC DIAGRAM (Parts list on pages 23-26.)



PRINTED CIRCUIT BOARDS (Parts list on pages 23-26.)

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

Notes:

- S1 : Power switch in "off" position.
  - S2 : Voltage selector switch in "240 V" position. (230 V/240 V)
  - S101 : Phono cartridge selector (PHONO SELECTOR) switch in "MC" position.
  - S102 : Recording output selector (REC SELECTOR) switch in "TAPE2/DAT" position.
  - S103 : Input selector (INPUT SELECTOR) switch in "TAPE2/DAT" position.
  - S104-1 : Muting (MUTING) switch in "off" position.
  - S104-2 : Mode (MODE) switch in "stereo" position.
  - S104-3 : Adaptor (ADAPTOR) switch in "off" position.
  - S105-1 : Tone control (TONE CONTROL) switch in "defeat" position.
  - S105-2 : Loudness (LOUDNESS) switch in "off" position.
  - S302 : Power amplifier direct (POWER AMP DIRECT) switch in "off" position.
  - S501 : Speaker selector (SPEAKERS) switch in "off" position.
- Positive voltage line.  
 - - - Negative voltage line.  
 ⇨ Phono signal line.  
 ⇨ Recording output signal line.

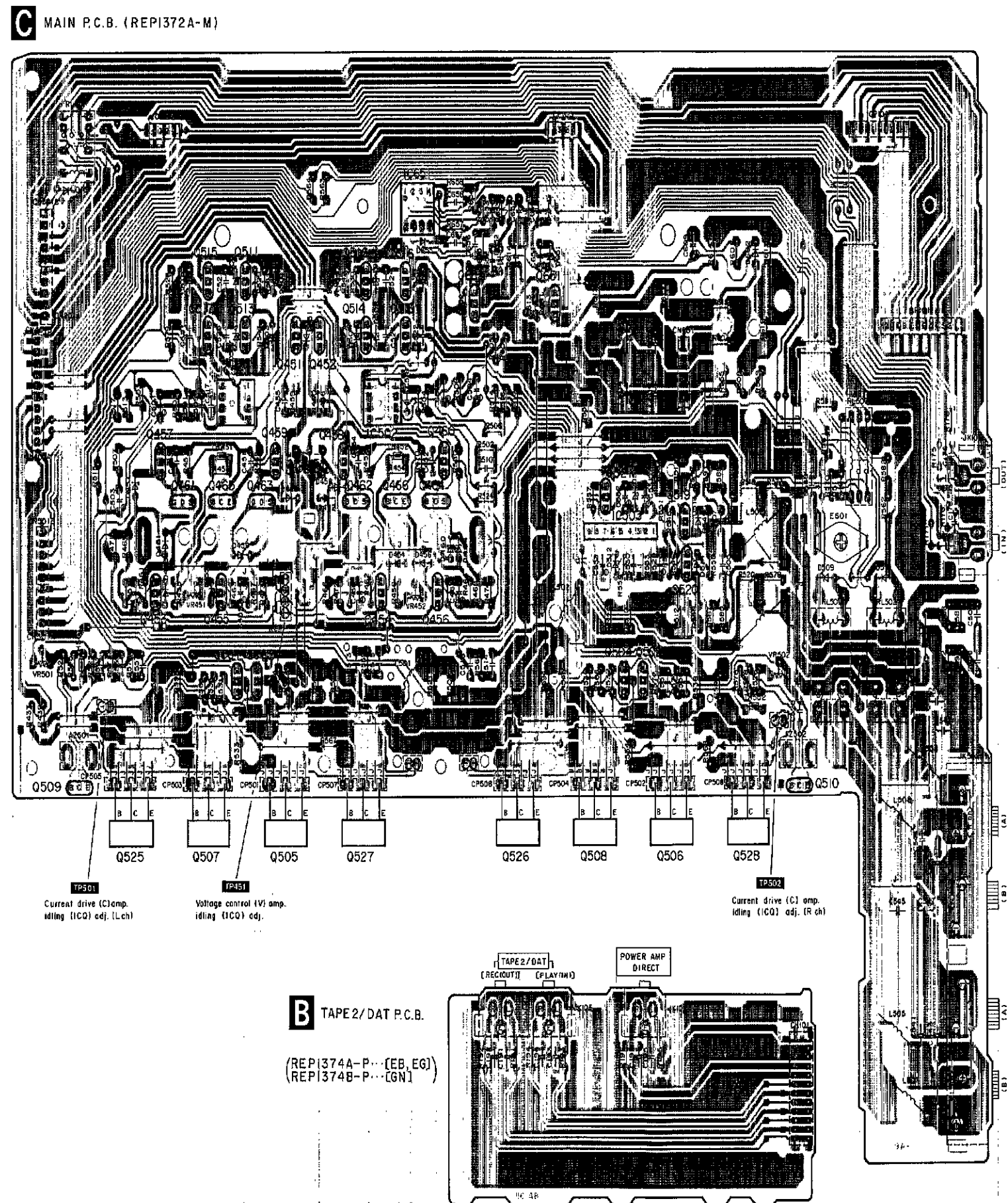
Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

Important safety notice: Components identified by a triangle 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.

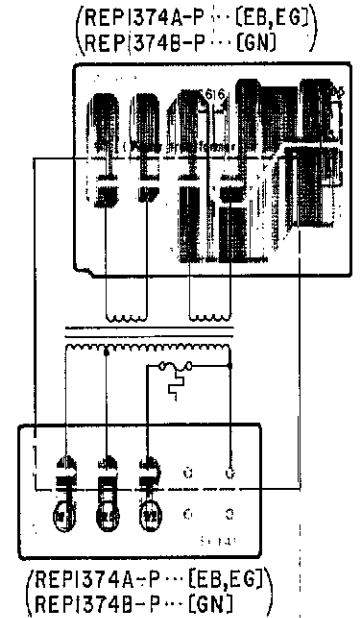
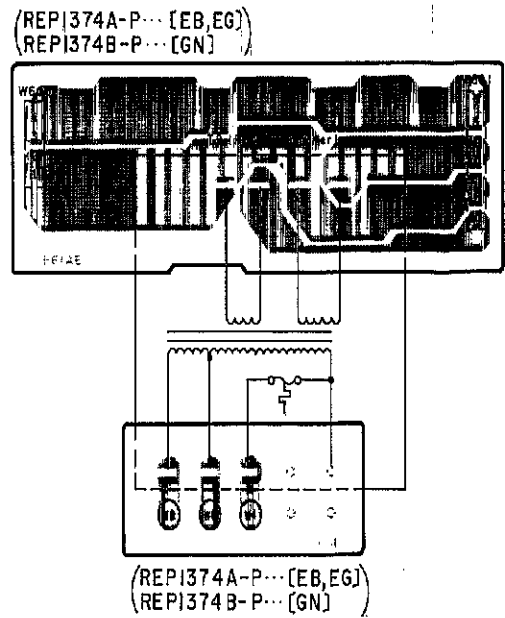
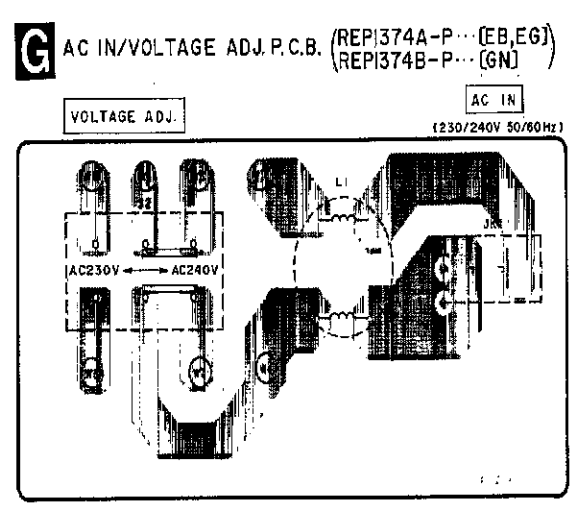
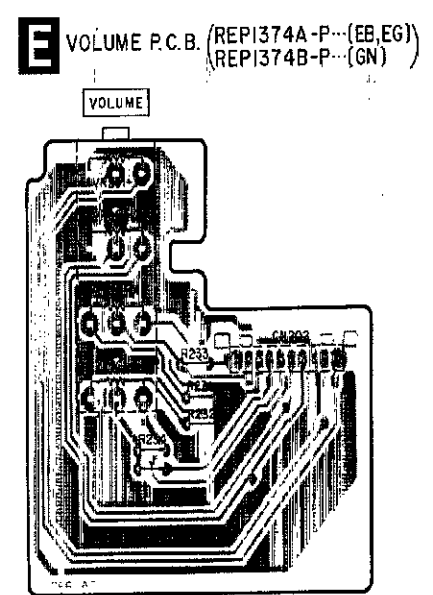
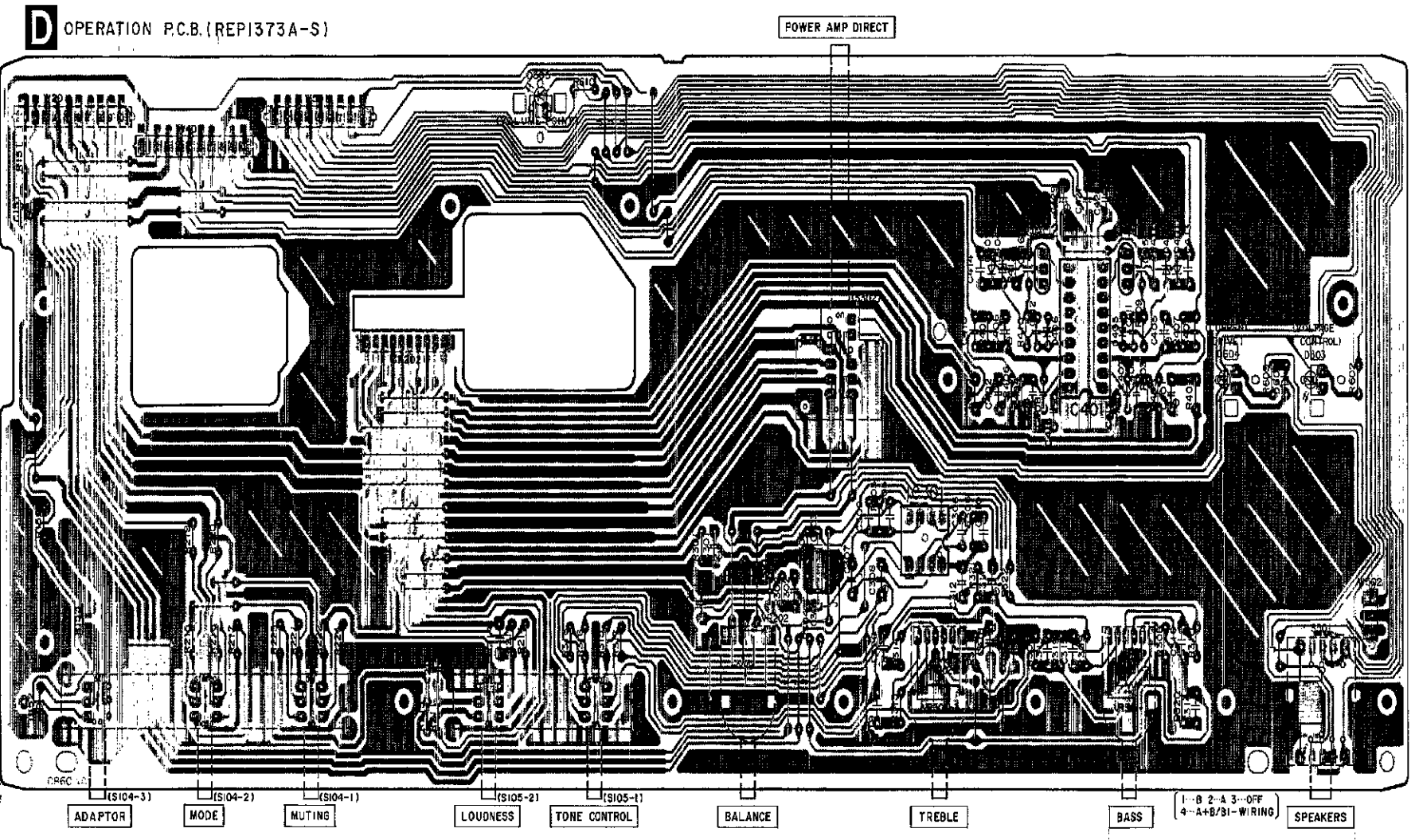
Caution! IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair. Cover the parts boxes made of plastics with aluminum foil. Ground the soldering iron. Put a conductive mat on the work table. Do not touch the legs of IC or LSI with the fingers directly.

Terminal guide of IC's, transistors and diodes

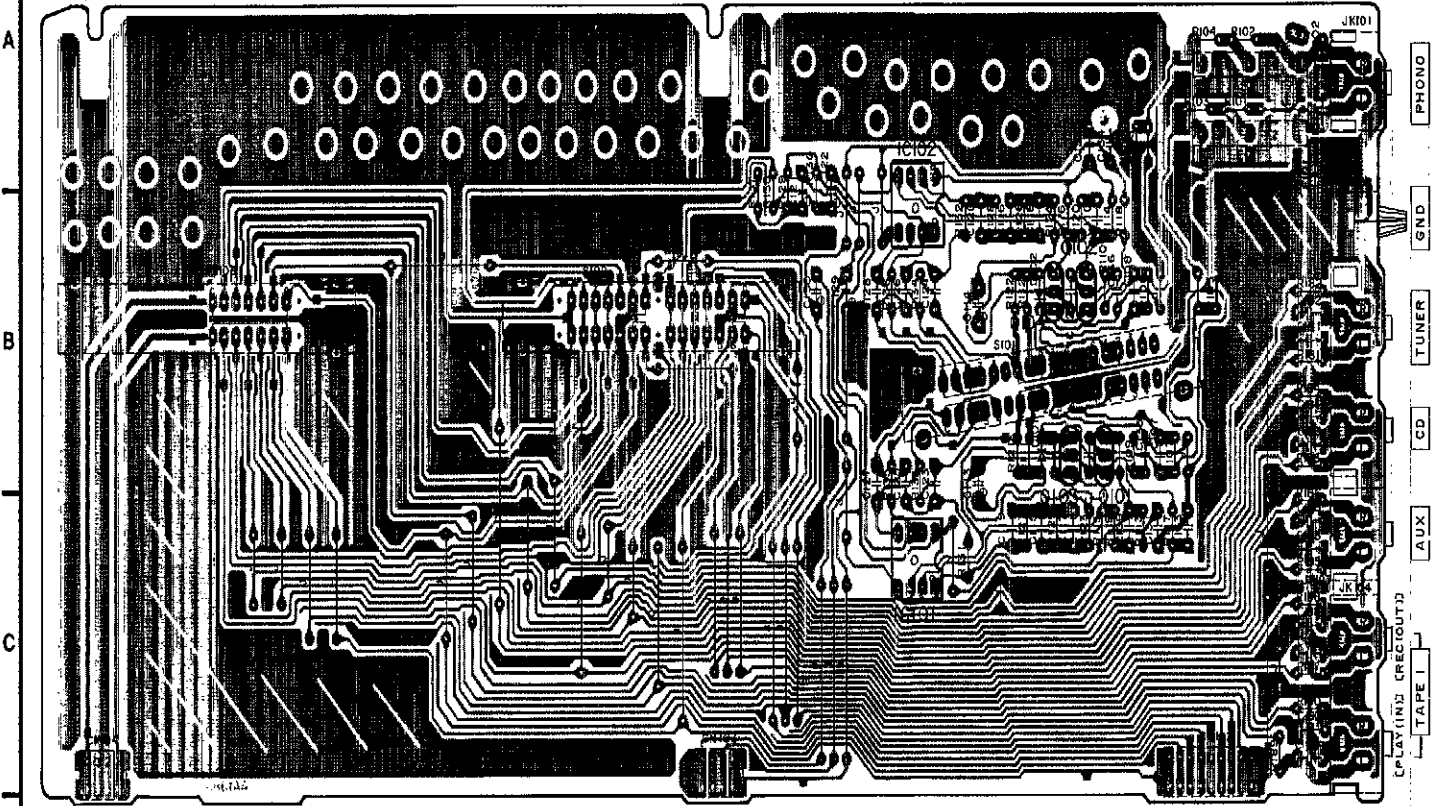
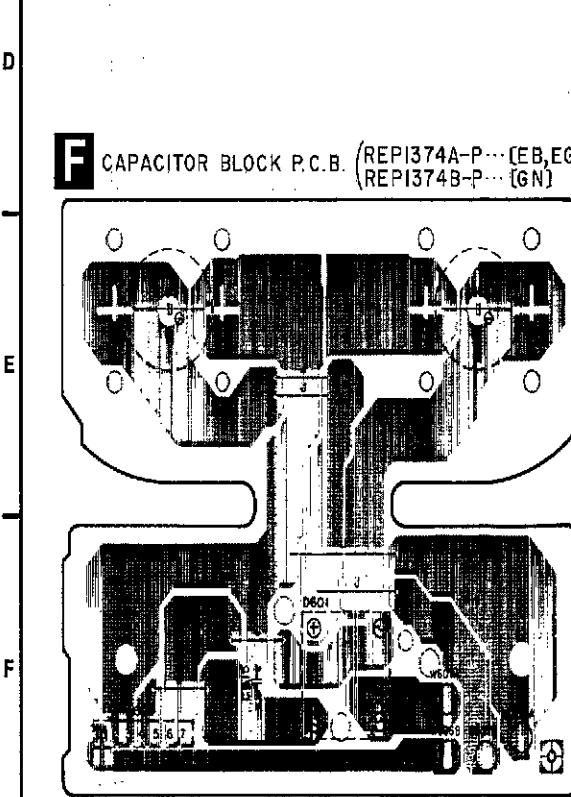
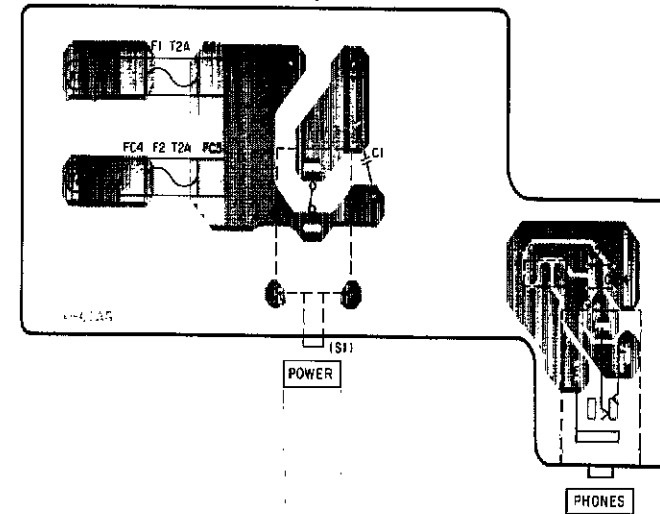
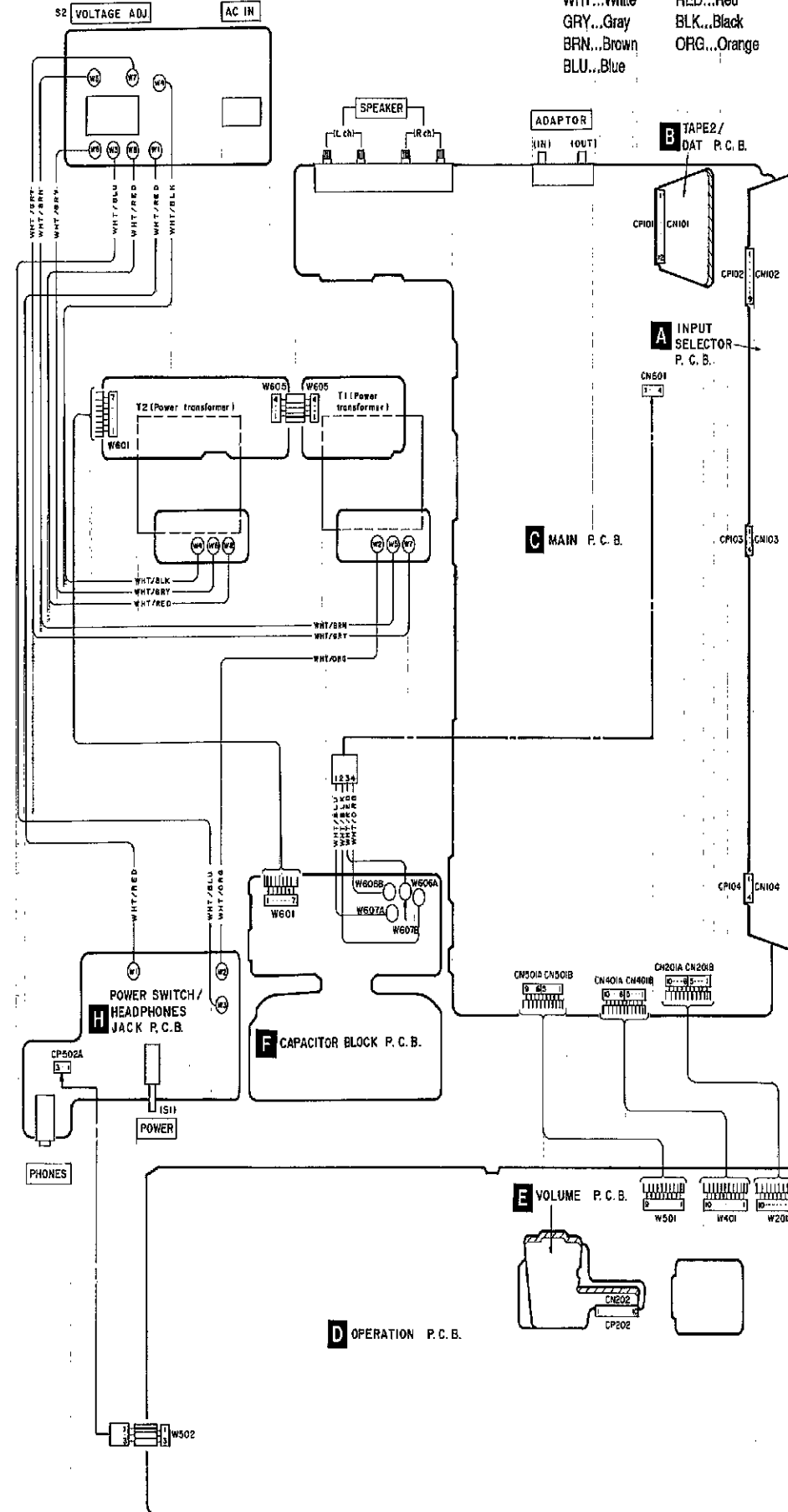
M5218AP 	M5219P 	AN7073 
UPC4570C 8 Pin AN7062N 18 Pin		2SA1265R 2SC3182R 
No.1 	2SA1309AQSTA 2SB1036RSTTA 2SC3311AQSTA 	2SK369GR 
2SA992EFPTA 2SA1123RSTTA 2SC1815BGL 2SC2631RSTTA 	2SA1535AQRS 2SC3944AQRS 2SD1761EF 	
2SK20130Y 2SJ130Y 	1SR35200TB MA165TA MA167TA MA167ATA MA185TA MA29WATA 	
MA4100MTA MA4120MTA MA4180MTA MA4180MTA MA4240MTA 	MA4030MTA MA4036MTA 	
SVDS10VB20F 	LN014304P LN018304P 	



This circuit board diagram may be modified at any time with the development of new technology.



**PRINTED CIRCUIT BOARDS** (Parts list on pages 23-26.)

**WIRING CONNECTION DIAGRAM**
**REPLACEMENT PARTS LIST**
**A** INPUT SELECTOR P.C.B. (REPI374A-P... [EB,EG]  
 (REPI374B-P... [GN])

**F** CAPACITOR BLOCK P.C.B. (REPI374A-P... [EB,EG]  
 (REPI374B-P... [GN])

**H** POWER SWITCH/HEADPHONES JACK P.C.B. (REPI374A-P... [EB,EG]  
 (REPI374B-P... [GN])

**G** AC IN/VOLTAGE ADJ. P.C.B.


Notes:  
 WHT...White  
 GRY...Gray  
 BRN...Brown  
 BLU...Blue  
 RED...Red  
 BLK...Black  
 ORG...Orange

Notes: \*Important safety notice:  
 Components identified by Δ 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 areas.)  
 Parts without these indications can be used for all areas.

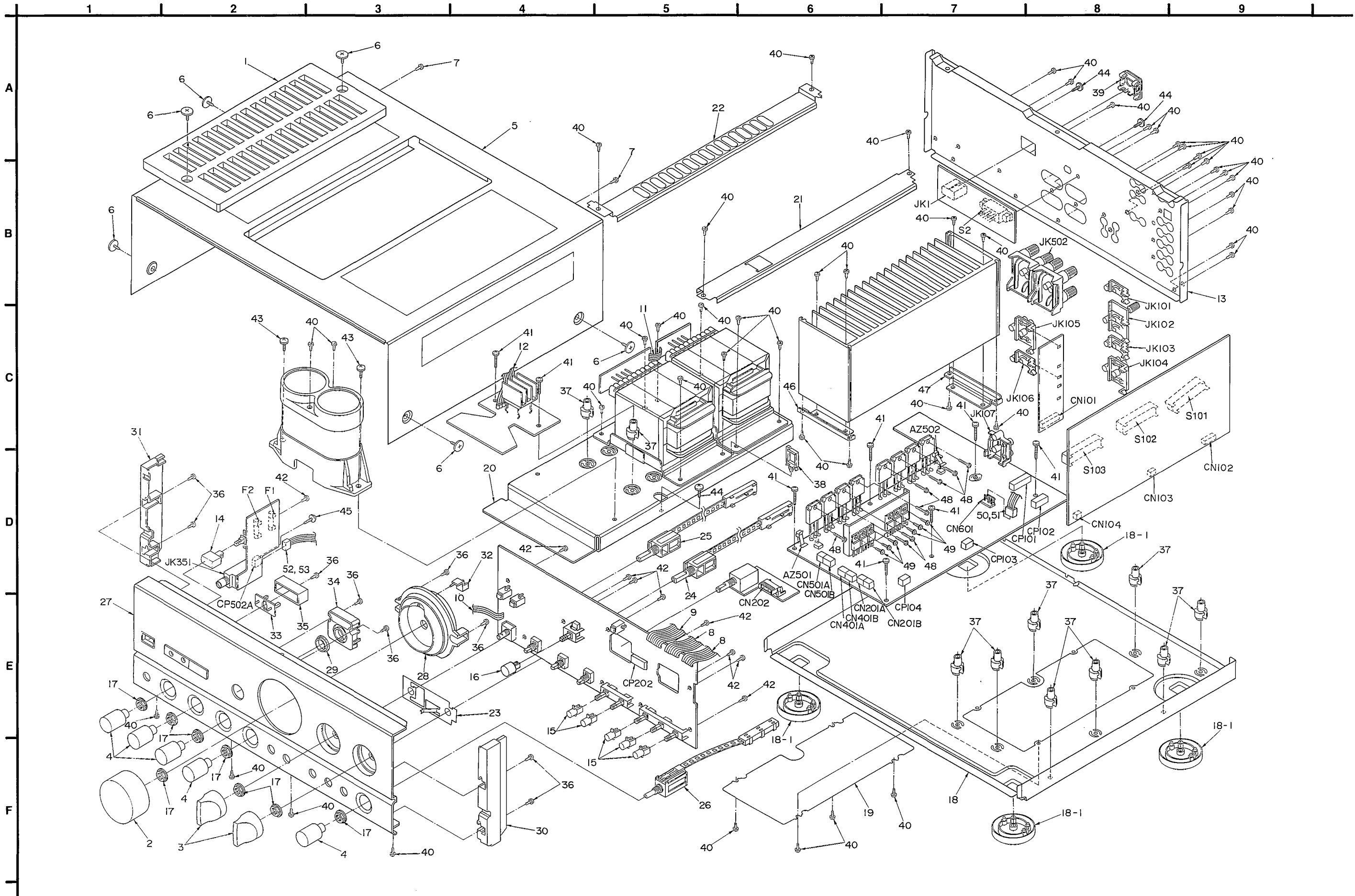
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		D453-459	HA165	DIODE	
IC101, 102	UPC4570C	I. C. PHONO/EQ. AMP.		D457-460	HA220M	DIODE	
IC201	UPC4570C	I. C. TONE AMP.		D451-464	HA1957A	DIODE	
IC401	AN7062N	I. C. VOLTAGE AMP.		D601-504	HA29MA	DIODE	
IC501, 502	MS219P	I. C. CASCADE CURRENT MIRROR		D605-508	HA4100MTA	DIODE	
IC601	AN7073	I. C. PROTECTION		D609-511	HA165	DIODE	
IC651	MS218AP	I. C. EXTEND ACTIVE SERVO		D612-514	HA167	DIODE	
		TRANSISTOR(S)		D615	HA160M	DIODE	
Q101-104	2SC369R	TRANSISTOR		D601	SVDS10P20F	DIODE	Δ
Q401, 402	2SA1123RSTTA	TRANSISTOR		D602	1SR352007R	DIODE	Δ
Q451, 452	2SC2631RSTTA	TRANSISTOR		D603	LND14364P	L. E. D.	
Q453, 454	2SC3311A-Q	TRANSISTOR		D604, 405	LND18304P	L. E. D.	
Q455, 456	2SA1309A-R	TRANSISTOR		D606	HA4300MTA	DIODE	
Q457, 458	2SC2631RSTTA	TRANSISTOR		D651, 652	MAA180-M	DIODE	
Q459, 460	2SA1123RSTTA	TRANSISTOR		D653	HA165	DIODE	
Q461, 462	2SK20130Y	TRANSISTOR				VARIABLE RESISTOR(S)	
Q463, 464	2S43130Y	TRANSISTOR		V2201	RHY18J04A	V. R. VOLUME CONTROL	
Q465, 466	2SD1761EF	TRANSISTOR		VR202	EVJ202P2C15	V. R. BALANCE	
Q501, 502	2SC3944QRS	TRANSISTOR		VR301, 302	EVJVA1P2C15	V. R. BASS/TREBLE CONTROL	
Q503, 504	2SA1535QRS	TRANSISTOR		VR451, 452	EVNVA400B13	V. R. ICQ ADJ. (V-AMP.)	
Q505, 506	2SC3182R	TRANSISTOR		VR501, 502	EVNVA400B52	V. R. ICQ ADJ. (G-AMP.)	
Q507, 508	2SA1285R	TRANSISTOR				THERMISTOR(S)	
Q509, 510	2SC1818BC	TRANSISTOR		TH451, 452	EKT02K1251T	THERMISTOR	
Q511, 512	2SA1123RSTTA	TRANSISTOR		TH601, 502	EKT02ZHL104T	THERMISTOR	
Q513-516	2SC2631RSTTA	TRANSISTOR				COIL(S)	
Q517, 518	2SA1123RSTTA	TRANSISTOR		L1	SLQ2650M40	COIL	Δ
Q519, 520	2SB1036R	TRANSISTOR		L101, 102	SUM1233	COIL	
Q521	2SA992EP7TA	TRANSISTOR		L501, 502	SLC0176-40	COIL	
Q525, 526	2SC3182R	TRANSISTOR		L503, 504	SLC018C-10	COIL	
Q527, 528	2SA1285R	TRANSISTOR		L505-508	SLC0176-40	COIL	
Q551	2SC3944QRS	TRANSISTOR				TRANSFORMER(S)	
Q552	2SA1535QRS	TRANSISTOR		T1, 2	KYPI5E003-W	POWER TRANSFORMER	Δ
		DIODE(S)				FUSE(S)	
D101, 102	HA165	DIODE		F1, 2	XR2C207B0	FUSE, 250V T2.0A	Δ
D151	HA165	DIODE				SWITCH(ES)	
D152	HA4120	DIODE					
D401, 402	HA167	DIODE					
D403, 404	HA4300MTA	DIODE					
D405, 406	HA165	DIODE					
D451	HA29MA	DIODE					

Notes : \* Capacity values are in microfarads (uF) unless specified otherwise, P=Pico farads (pF) F=Farads (F)
\* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k(OHM)

Table with columns: Ref. No., Part No., Values & Remarks. Contains resistor part numbers like ERDS2TJ102, ERDS2VJ6R8T, ERDS2VJ472T, etc., with values such as 1/4W 1K, 1/4W 47K, 1/4W 220, etc.

Table with columns: Ref. No., Part No., Values & Remarks. Contains capacitor part numbers like ECA1CPXS100B, ECQV1H823JZ, ECQB1H183JF3, etc., with values such as 16V 10u, 50V 0.082u, 50V 0.015u, etc.

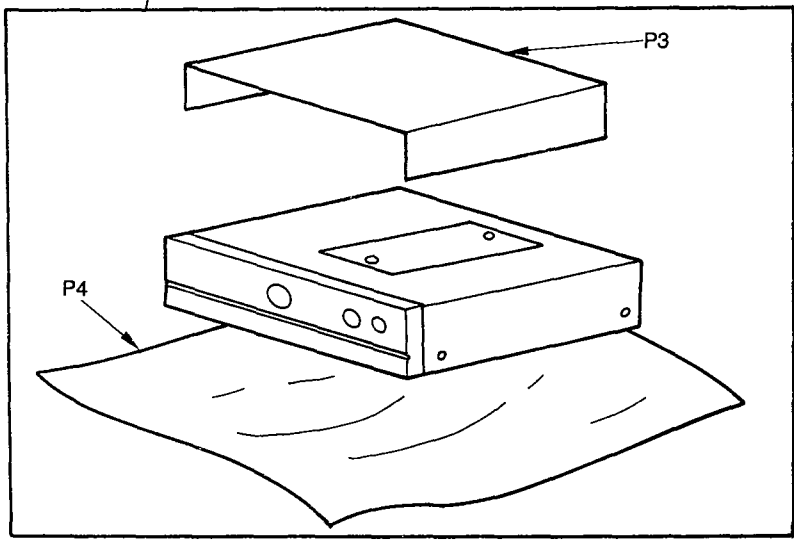
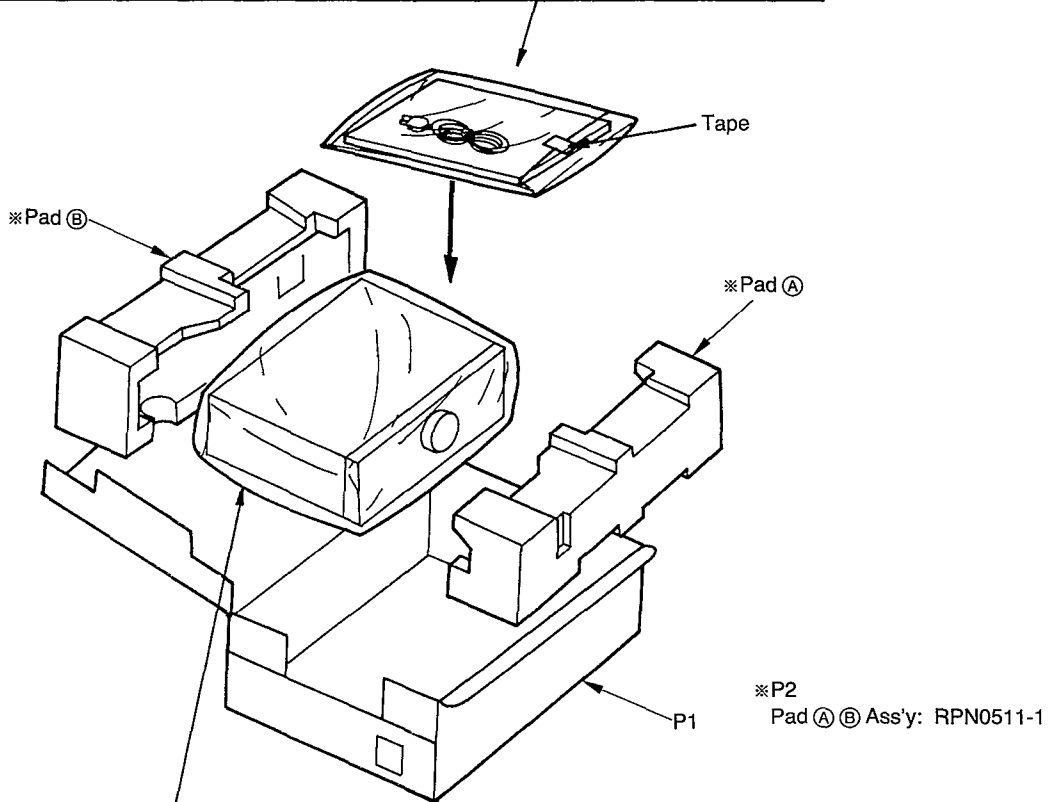
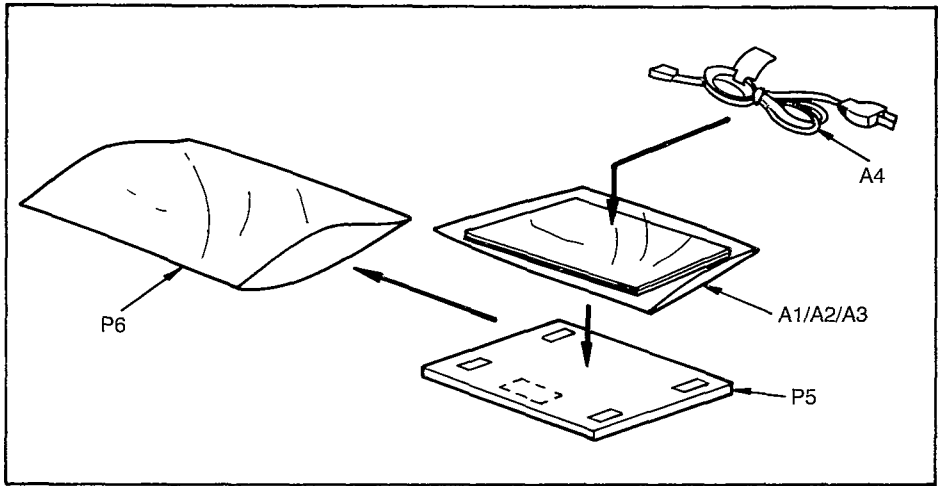
■ CABINET PARTS LOCATION



Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS		47	RMQ0240	ANGLE	
				48	SNE2117-1	SCREW	
				49	XTB3+8JFZ	SCREW	
1	RGK0397-K	UPPER PLATE		50	RJSA3404	SOCKET (4P)	
2	RGW0122-K	VOLUME KNOB		51	RJT053	TERMINAL	
3	RGW0123-K	REC. /INPUT KNOB		52	SJS5331	SOCKET (3P)	
4	RGW0150-K	TONE/PHONO/S. P. SELECT KNOB		53	SJT783	TERMINAL	
5	RK00172-K	CABINET					
6	SNE2129-3	SCREW				PACKING MATERIALS	
7	XTBS3+8JFZ1	SCREW					
8	RWJ3910170QQ	FLAT CABLE (10P) (W201, W401)		P1	RPG1213	PACKING CASE	
9	RWJ3909170QQ	FLAT CABLE (9P) (W501)		P2	RPNO511-1	PAD	
10	RWJ3903070XQ	FLAT CABLE (3P) (W502)		P3	SPH223	PROTECTION SHEET (A)	
11	RWJ3904050KK	FLAT CABLE (4P) (W605)		P4	SPH6434	PROTECTION SHEET (B)	
12	RWJ3907150QQ	FLAT CABLE (7P) (W601)		P5	RPQ0164	ACCESSORIES BOX	
13	RGR0124B-AA	REAR PANEL	(EG)	P6	XZB24X34C04	PROTECTION COVER (ACCESSORY)	
13	RGR0124B-BA	REAR PANEL	(EB, GN)				
14	RGU0030	POWER BUTTON				ACCESSORIES	
15	RGU0609-K	LOUDNESS/MUTING/MODE BUTTON					
16	RGU0611-K	DIRECT BUTTON		A1	RFKSUVX820EG	INSTRUCTIONS MANUAL	(EG)
17	RHN90001	NUT		A1	RQT1486-B	INSTRUCTIONS MANUAL	(EB, GN)
18	RFKJUVX800EX	BOTTOM BOARD ASS'Y		A2	RQAD013	WARRANTY CARD	(EG, EB)
18-1	RKA0009-1	FOOT		A2	RQX7433ZA	WARRANTY CARD	(GN)
19	RKL0036	BOTTOM PLATE		A3	RQCB0169	SERVICE CENTER LIST	
20	RMA0476-2	ANGLE		A4	RJA0019-1K	AC POWER SUPPLY CORD	△(EG)
21	RMA0584	SIDE ANGLE		A4	SJA193	AC POWER SUPPLY CORD	△(EB)
22	RMA0585	CENTER ANGLE		A4	SJA173	AC POWER SUPPLY CORD	△(GN)
23	RMQ0255-1	PLATE					
24	RSQ0019	REMOTE SWITCH (INPUT)					
25	RSQ0020	REMOTE SWITCH (REC. SEL.)					
26	RSQ0021	REMOTE SWITCH (PHONO)					
27	RFKJUVX920EG	FRONT PANEL ASS'Y					
28	RGK0393-K	VOLUME ORNAMENT					
29	RGK0394-A	RING					
30	RGK0398-K	SIDE ORNAMENT (R)					
31	RGK0399-K	SIDE ORNAMENT (L)					
32	RGL0136-C1	ORNAMENT					
33	RGL0164-C	ORNAMENT					
34	RMR0460-K	HOLDER					
35	RMR0461-K	HOLDER					
36	XTBS26+8J	SCREW					
37	SHE187-2	P. C. B. SPACER					
38	SHR9814	CLUMPER					
39	SJS9231A	AC INLET COVER	(EG, EB)				
39	SJS9234A	AC INLET COVER	(GN)				
40	XTBS3+8JFZ1	SCREW					
41	XTB3+20JFZ	SCREW					
42	XTBS26+8J	SCREW					
43	XTB4+10FFZ	SCREW					
44	XTB4+8FFZ	SCREW					
45	XTWS3-8T	SCREW					
46	RMQ0239	ANGLE					

# PACKAGING

1049





PRINTED CIRCUIT BOARDS (Parts list on pages 23-26.)

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

Notes:

- S1 : Power switch in "off" position.
  - S2 : Voltage selector switch in "240 V" position. (230 V/240 V)
  - S101 : Phono cartridge selector (PHONO SELECTOR) switch in "MC" position.
  - S102 : Recording output selector (REC SELECTOR) switch in "TAPE/DAT" position.
  - S103 : Input selector (INPUT SELECTOR) switch in "TAPE/DAT" position.
  - S104-1 : Muting (MUTING) switch in "off" position.
  - S104-2 : Mode (MODE) switch in "stereo" position.
  - S104-3 : Adaptor (ADAPTOR) switch in "off" position.
  - S105-1 : Tone control (TONE CONTROL) switch in "defeat" position.
  - S105-2 : Loudness (LOUDNESS) switch in "off" position.
  - S302 : Power amplifier direct (POWER AMP DIRECT) switch in "off" position.
  - S501 : Speaker selector (SPEAKERS) switch in "off" position.
- Positive voltage line.  
 - - - Negative voltage line.  
 — Phono signal line.  
 — Recording output signal line.

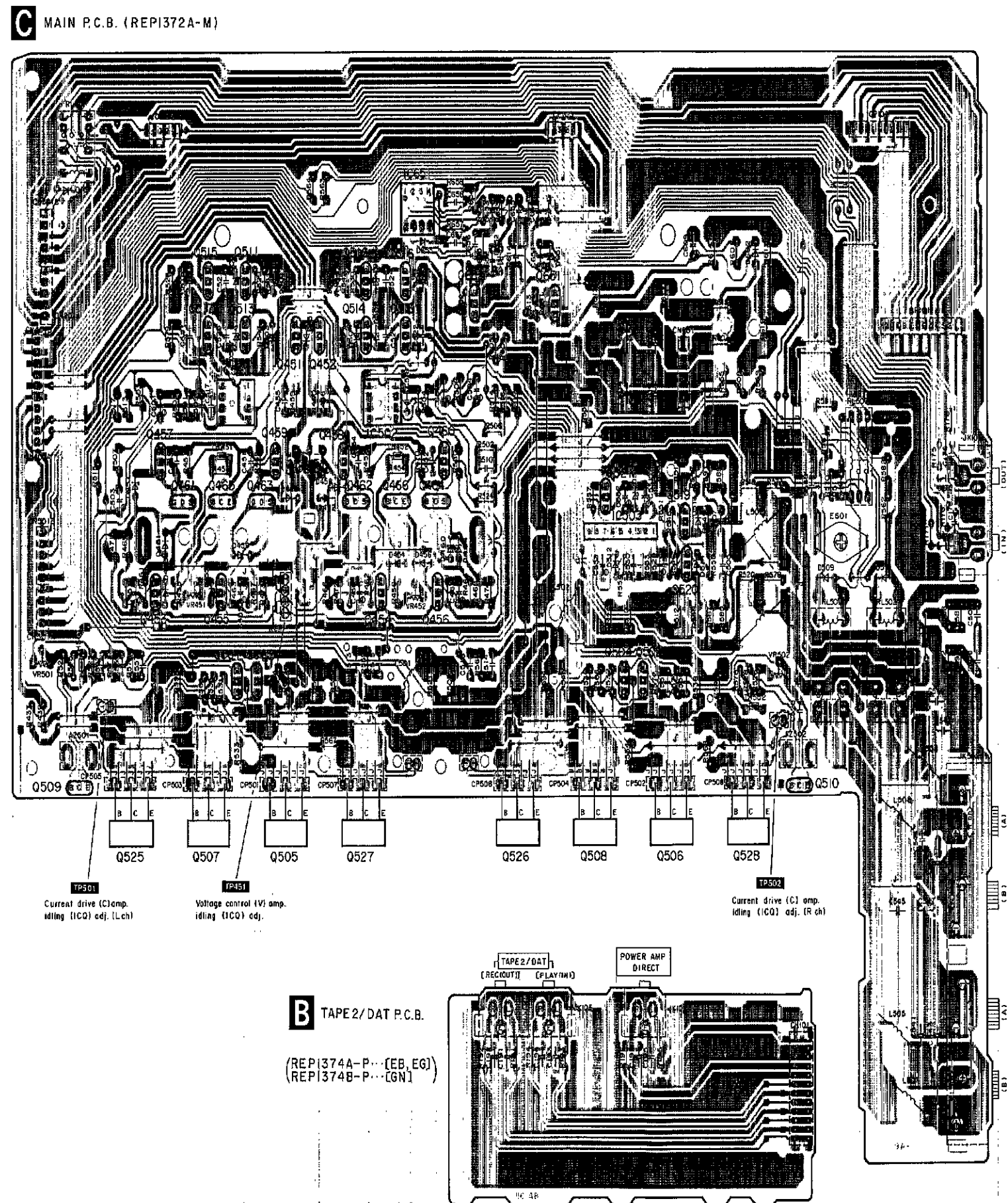
Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

Important safety notice: Components identified by a triangle 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.

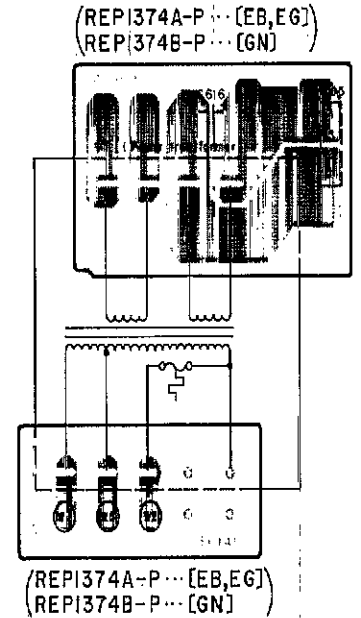
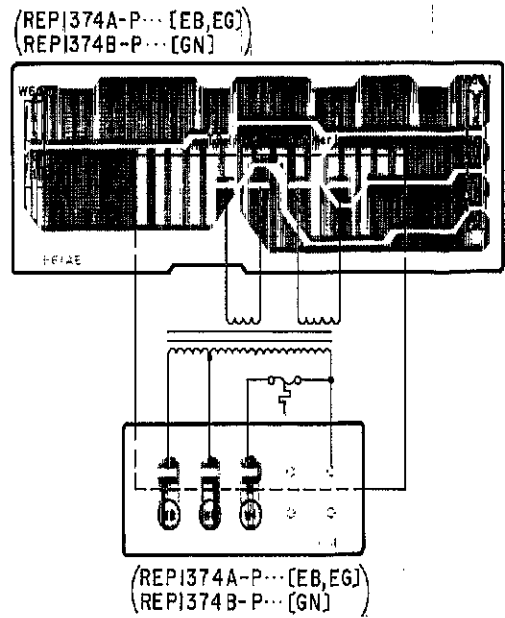
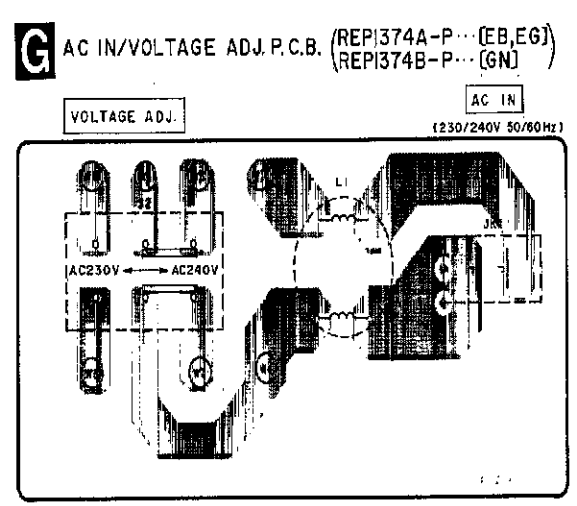
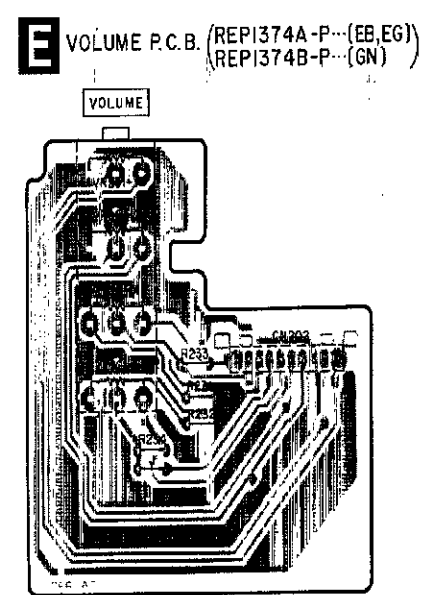
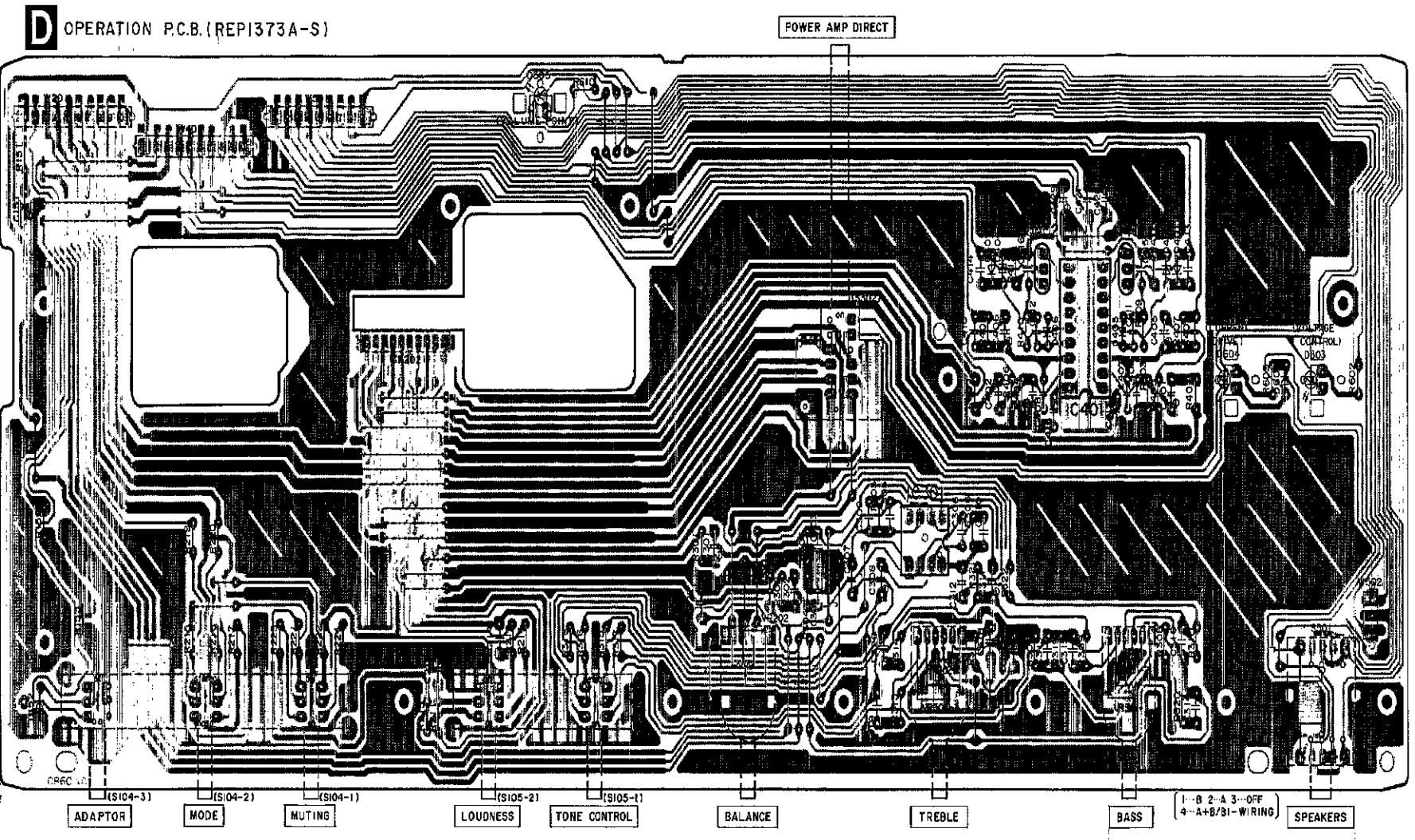
Caution! IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair. Cover the parts boxes made of plastics with aluminum foil. Ground the soldering iron. Put a conductive mat on the work table. Do not touch the legs of IC or LSI with the fingers directly.

Terminal guide of IC's, transistors and diodes

M5218AP 	M5219P 	AN7073 
UPC4570C 8 Pin AN7062N 18 Pin 		2SA1265R 2SC3182R 
2SA1309AQSTA 2SB1036RSTTA 2SC3311AQSTA 		2SK369GR 
2SA992EFPTA 2SA1123RSTTA 2SC1815BGL 2SC2631RSTTA 		2SA1535AQRS 2SC3944AQRS 2SD1761EF 
2SK20130Y 2SJ130Y 	Ca Cathode A Anode 	1SR35200TB MA165TA MA167TA MA167ATA MA185TA MA29WATA 
MA4100MTA MA4120MTA MA4180MTA MA4180MTA MA4240MTA 		MA4030MTA MA4036MTA 
SVDS10VB20F 	LN014304P LN018304P 	



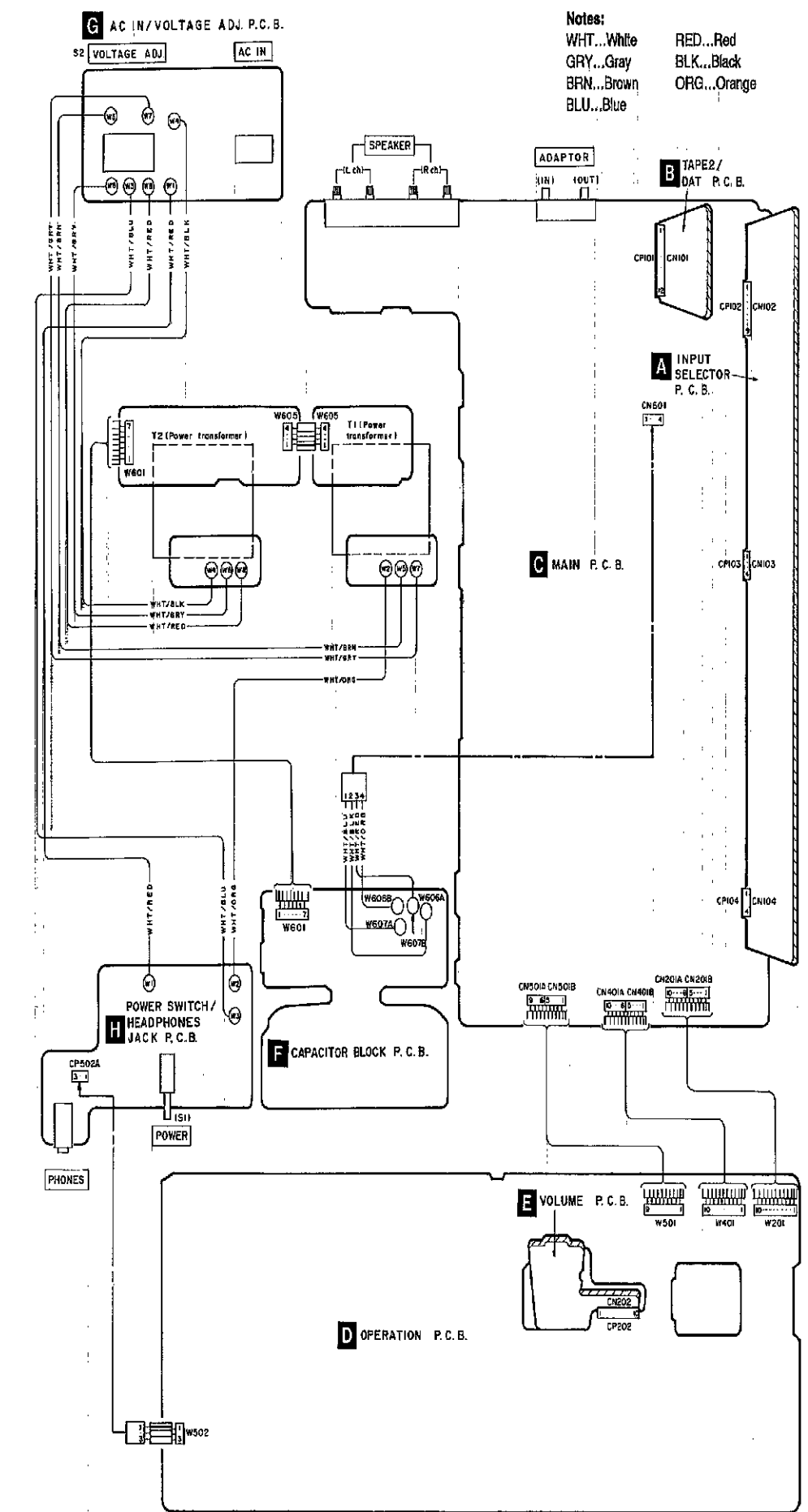
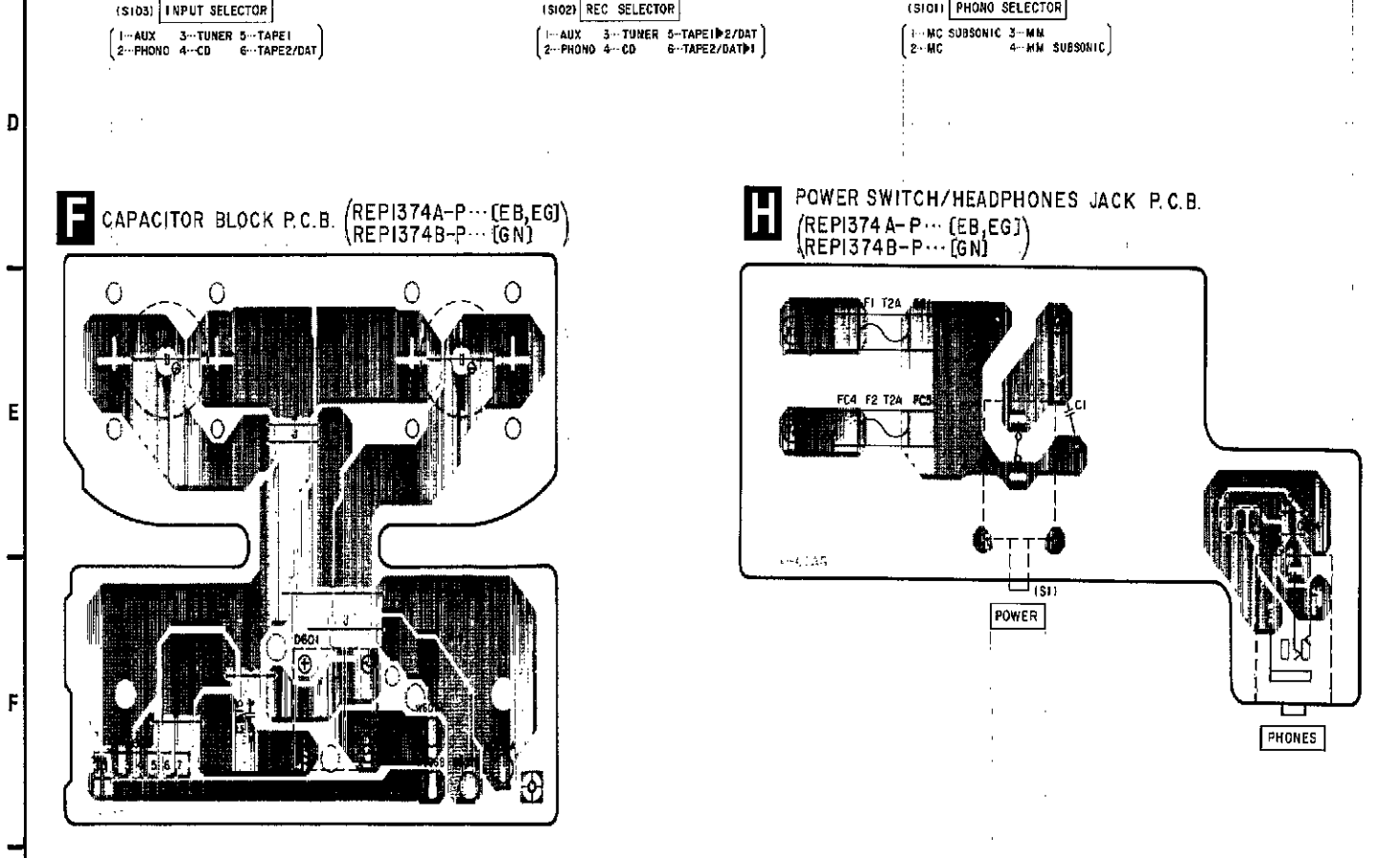
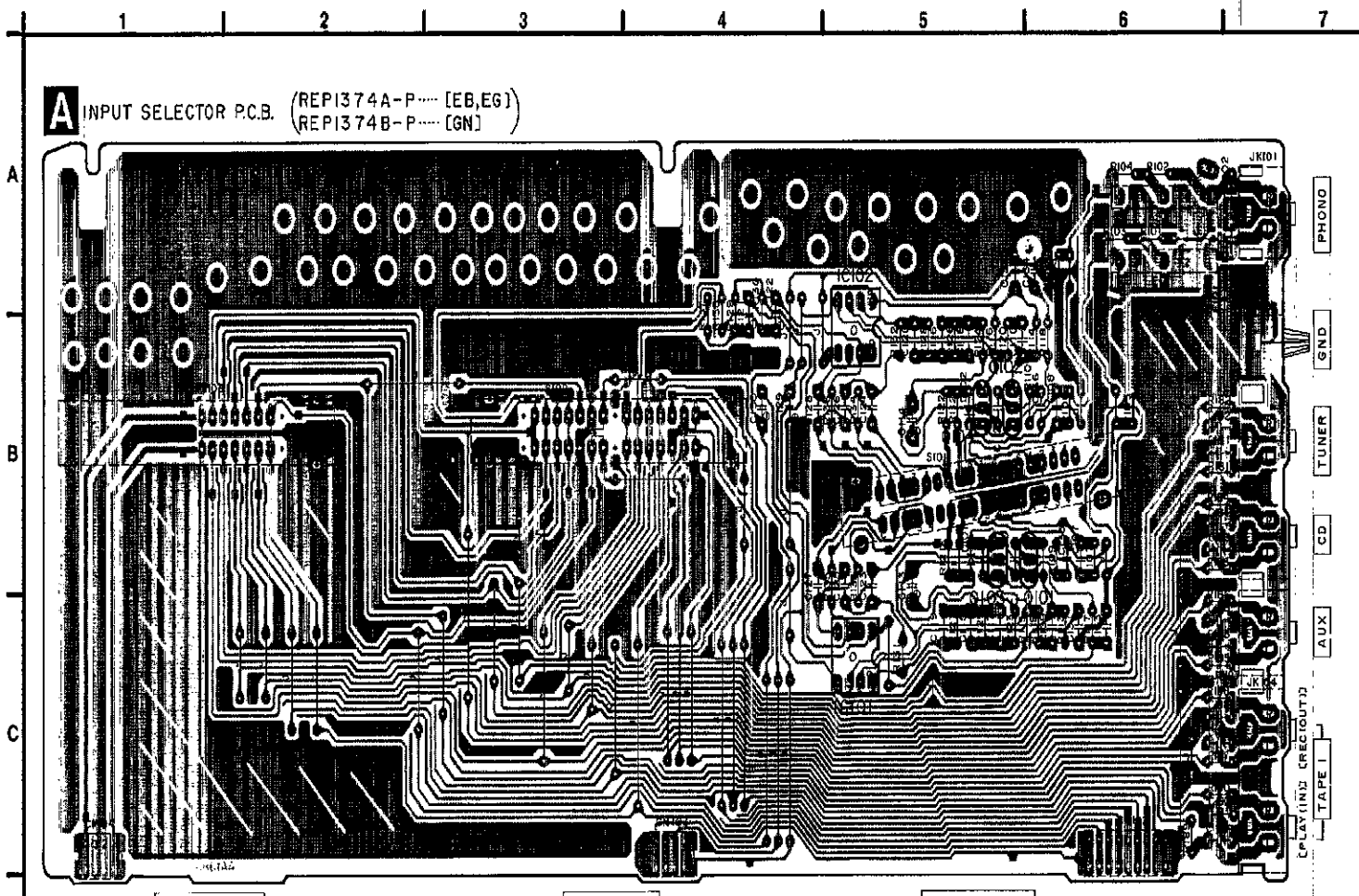
This circuit board diagram may be modified at any time with the development of new technology.



PRINTED CIRCUIT BOARDS (Parts list on pages 23-26.)

WIRING CONNECTION DIAGRAM

REPLACEMENT PARTS LIST



Notes:  
 WHT...White  
 GRY...Gray  
 BRN...Brown  
 BLU...Blue  
 RED...Red  
 BLK...Black  
 ORG...Orange

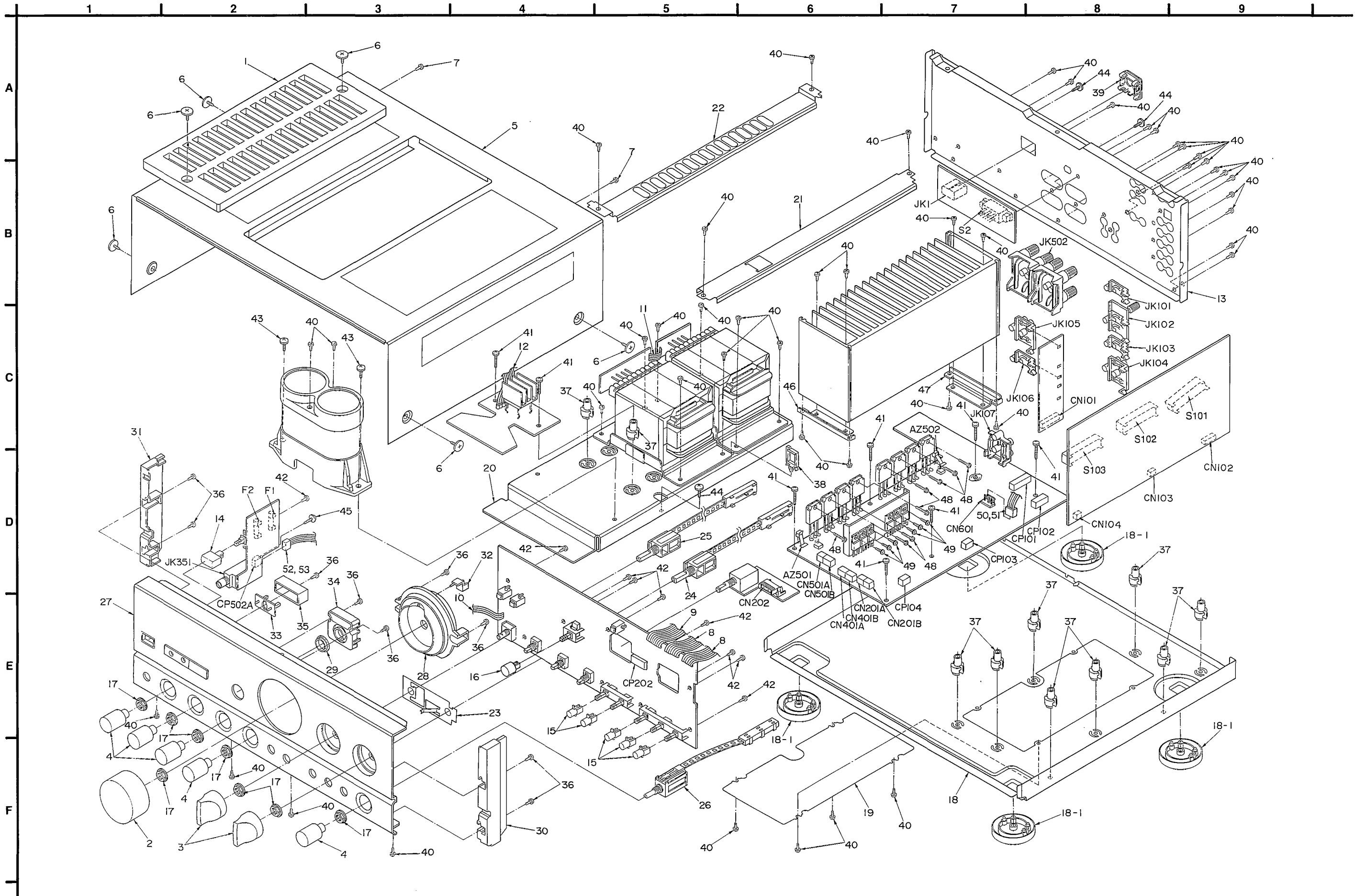
Notes: \*Important safety notice:  
 Components identified by Δ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors, low-noise resistors), etc. are used. When replacing any of components, 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 areas.) Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		D453-455	WA185	DIODE	
		TRANSISTOR(S)		D601	5YD510P20F	DIODE	Δ
		DIODE(S)		D602	1SR35200TR	DIODE	Δ
		TRANSFORMER(S)		TI.2	WPIPE003-W	POWER TRANSFORMER	Δ
		FUSE(S)		FI.2	XR2C207B0	FUSE, 250V T2.0A	Δ
		RELAY(S)		RL101	RSY5A237P12	RELAY	
		JACK(S)		JK1	SJS221-1B	AC INLET	Δ (ER, EG)
		SWITCH(ES)		JK1	SJS224B	AC INLET	Δ (GW)

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
S1	ES08249V	SW, POWER	Δ	JK101	SJF308N	PHONO JACK	
S2	ES026200A	SW, VOLTAGE SELECTOR	Δ	JK102	SJF307N	TUNER/CD JACK	
S101	RS47001-A	SW, PHONO SELECTOR		JK103	SJF308N	AUX JACK	
S102	RSR0001	SW, REC. SELECTOR		JK104	SJF308N	TAPE 1 JACK	
S103	RSR8001	SW, INPUT SELECTOR		JK105	SJF308N	TAPE 2/DAT JACK	
S104	ES068131	SW, MOUNTING/ADAPTOR		JK106	SJF308N	POWER AMP DIRECT JACK	
S105	ES068130	SW, LOUDNESS/TONE		JK107	SJF308N	ADAPTOR JACK	
S202	RSP2008-A	SW, POWER AMP. DIRECT		JK351	QW4455ZC-A	HEADPHONES JACK	
S501	RSR4004-A	SW, SPEAKER SELECTOR		JK502	RJH901-1	SPEAKER TERMINAL	
		CONNECTOR(S)				TEST POINT	
		SOCKET(S)		TP451	SJT3409	TEST POINT	
		PLUG(S)		TP501	SJT3209	TEST POINT	
		LE. D.		TP502	SJT3209	TEST POINT	
		VARIABLE RESISTOR(S)		TP503	SJT3209	TEST POINT	
		THERMISTOR(S)		TP504	SJT3209	TEST POINT	
		COIL(S)					
		SHIELD PLATE					
		GND PLATE					
		FUSE HOLDER(S)					
		RELAY(S)					



■ CABINET PARTS LOCATION



Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS		47	RMQ0240	ANGLE	
				48	SNE2117-1	SCREW	
				49	XTB3+8JFZ	SCREW	
1	RGK0397-K	UPPER PLATE		50	RJSA3404	SOCKET (4P)	
2	RGW0122-K	VOLUME KNOB		51	RJT053	TERMINAL	
3	RGW0123-K	REC. /INPUT KNOB		52	SJS5331	SOCKET (3P)	
4	RGW0150-K	TONE/PHONO/S. P. SELECT KNOB		53	SJT783	TERMINAL	
5	RK00172-K	CABINET					
6	SNE2129-3	SCREW				PACKING MATERIALS	
7	XTBS3+8JFZ1	SCREW					
8	RWJ3910170QQ	FLAT CABLE (10P) (W201, W401)		P1	RPG1213	PACKING CASE	
9	RWJ3909170QQ	FLAT CABLE (9P) (W501)		P2	RPNO511-1	PAD	
10	RWJ3903070XQ	FLAT CABLE (3P) (W502)		P3	SPH223	PROTECTION SHEET (A)	
11	RWJ3904050KK	FLAT CABLE (4P) (W605)		P4	SPH6434	PROTECTION SHEET (B)	
12	RWJ3907150QQ	FLAT CABLE (7P) (W601)		P5	RPQ0164	ACCESSORIES BOX	
13	RGR0124B-AA	REAR PANEL	(EG)	P6	XZB24X34C04	PROTECTION COVER (ACCESSORY)	
13	RGR0124B-BA	REAR PANEL	(EB, GN)				
14	RGU0030	POWER BUTTON				ACCESSORIES	
15	RGU0609-K	LOUDNESS/MUTING/MODE BUTTON					
16	RGU0611-K	DIRECT BUTTON		A1	RFKSUVX820EG	INSTRUCTIONS MANUAL	(EG)
17	RHN90001	NUT		A1	RQT1486-B	INSTRUCTIONS MANUAL	(EB, GN)
18	RFKJUVX800EX	BOTTOM BOARD ASS'Y		A2	RQAD013	WARRANTY CARD	(EG, EB)
18-1	RKA0009-1	FOOT		A2	RQX7433ZA	WARRANTY CARD	(GN)
19	RKL0036	BOTTOM PLATE		A3	RQCB0169	SERVICE CENTER LIST	
20	RMA0476-2	ANGLE		A4	RJA0019-1K	AC POWER SUPPLY CORD	△(EG)
21	RMA0584	SIDE ANGLE		A4	SJA193	AC POWER SUPPLY CORD	△(EB)
22	RMA0585	CENTER ANGLE		A4	SJA173	AC POWER SUPPLY CORD	△(GN)
23	RMQ0255-1	PLATE					
24	RSQ0019	REMOTE SWITCH (INPUT)					
25	RSQ0020	REMOTE SWITCH (REC. SEL.)					
26	RSQ0021	REMOTE SWITCH (PHONO)					
27	RFKJUVX920EG	FRONT PANEL ASS'Y					
28	RGK0393-K	VOLUME ORNAMENT					
29	RGK0394-A	RING					
30	RGK0398-K	SIDE ORNAMENT (R)					
31	RGK0399-K	SIDE ORNAMENT (L)					
32	RGL0136-C1	ORNAMENT					
33	RGL0164-C	ORNAMENT					
34	RMR0460-K	HOLDER					
35	RMR0461-K	HOLDER					
36	XTBS26+8J	SCREW					
37	SHE187-2	P. C. B. SPACER					
38	SHR9814	CLUMPER					
39	SJS9231A	AC INLET COVER	(EG, EB)				
39	SJS9234A	AC INLET COVER	(GN)				
40	XTBS3+8JFZ1	SCREW					
41	XTB3+20JFZ	SCREW					
42	XTBS26+8J	SCREW					
43	XTB4+10FFZ	SCREW					
44	XTB4+8FFZ	SCREW					
45	XTWS3-8T	SCREW					
46	RMQ0239	ANGLE					

# PACKAGING

1049

