

# Service Manual

Receiver

**QUARTZ** Synthesizer  
AM/FM Stereo Receiver

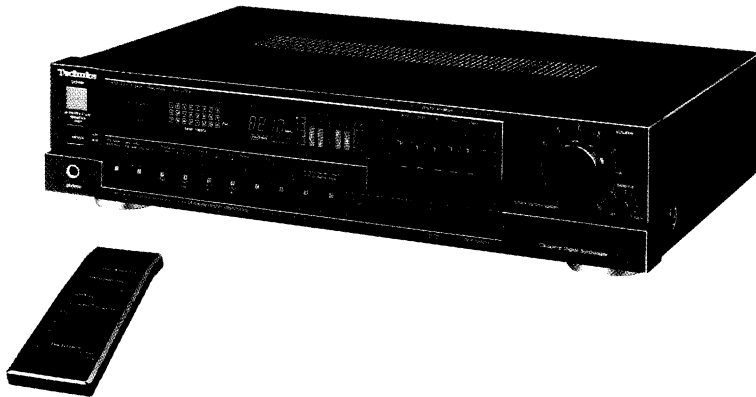
## SA-R230

Color

(K)...Black Type

Area

Color	Area
(K)	(EG).....F.R. Germany.



## SPECIFICATIONS

(DIN 45 500)

### ■ AMPLIFIER SECTION

<b>Power output</b>	
DIN 1kHz	2 × 50W (8Ω)
40Hz~20kHz continuous power output both channels driven	2 × 40W (8Ω)
<b>Total harmonic distortion</b>	
rated power at 40Hz~20kHz	0.05% (8Ω)
half power at 1kHz	0.03% (8Ω)
<b>Intermodulation distortion</b>	
rated power at 60Hz: 7kHz=4:1, SMPTE, 8Ω	0.5%
<b>Power bandwidth</b>	
both channels driven, -3dB	10Hz~40kHz (8Ω)
<b>Damping factor</b>	20 (8Ω)
<b>Input sensitivity and impedance</b>	
PHONO	3 mV/47kΩ
CD, VCR 1, TAPE/VCR 2	200mV/22kΩ
PHONO maximum input voltage (1kHz, RMS)	150mV
<b>S/N</b>	
rated power (8Ω)	
PHONO	70dB (IHF, A: 80dB)
CD, VCR 1, TAPE/VCR 2	80dB (IHF, A: 90dB)
<b>Frequency response</b>	
PHONO	RIAA standard curve ±0.8dB (30Hz~15kHz) 7Hz~70kHz (±3dB)
CD, VCR 1, TAPE/VCR 2	7Hz~70kHz (±3dB)
<b>5 band graphic equalizer</b>	
	80Hz, -10dB~+10dB
	250Hz, -10dB~+10dB
	1kHz, -10dB~+10dB
	4kHz, -10dB~+10dB
	12.5kHz, -10dB~+10dB

<b>Loudness control (volume at -30dB)</b>	50Hz, +9dB
<b>Output voltage</b>	
VCR 1, TAPE/VCR 2 REC OUT	200mV
<b>Channel balance, 250Hz~6,300Hz</b>	±1dB
<b>Channel separation</b>	55dB
<b>Headphones output level and impedance</b>	4Ω mV/330Ω
<b>Load impedance</b>	
MAIN or REMOTE	4Ω~16Ω
MAIN and REMOTE	8Ω~16Ω

### ■ FM TUNER SECTION

<b>Frequency range</b>	87.50~108.00MHz
<b>Sensitivity</b>	
S/N 30dB	1.5μV (75Ω)
S/N 26dB	1.3μV (75Ω)
S/N 20dB	1.2μV (75Ω)
<b>IHF usable sensitivity</b>	1.5μV (IHF '58, 75Ω)
<b>IHF 46dB stereo quieting sensitivity</b>	22μV/75Ω
<b>Total harmonic distortion</b>	
MONO	0.2%
STEREO	0.3%
<b>S/N</b>	
MONO	60dB (75dB, IHF)
STEREO	58dB (71dB, IHF)
<b>Frequency response</b>	20Hz~15kHz, +1dB~-2dB
<b>Alternate channel selectivity</b>	±40kHz, 65dB
<b>Capture ratio</b>	1.0dB
<b>Image rejection at 98MHz</b>	40dB
<b>IF rejection at 98MHz</b>	70dB
<b>Spurious response rejection at 98MHz</b>	70dB

# Technics

Matsushita Electric Industrial Co., Ltd.  
Central P.O. Box 288, Osaka 530-91, Japan

AM suppression	50 dB
Stereo separation 1 kHz	40 dB
10 kHz	30 dB
Carrier leak 19 kHz	-60 dB (-65 dB, IHF)
38 kHz	-70 dB (-75 dB, IHF)
Channel balance (250 Hz~6,300 Hz)	±1.5 dB
Limiting point	1.2 μV
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	75 Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	522~1611 kHz (9 kHz-steps) 530~1620 kHz (10 kHz-steps)
Sensitivity (S/N 20dB)	20 μV, 330 μV/m
Selectivity at 999 kHz	55 dB
Image rejection at 999 kHz	40 dB
IF rejection at 999 kHz	55 dB

■ GENERAL

Power consumption	330W
Power supply	AC 50 Hz/60 Hz, 220V
Dimensions (W × H × D)	430 × 102 × 290 mm (16-15/16" × 4" × 11-1/4")
Weight	6.0 kg (13.2 lb.)

Notes:

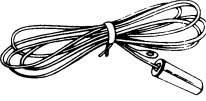
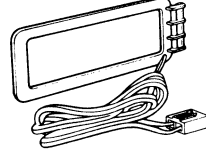
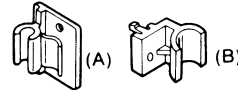



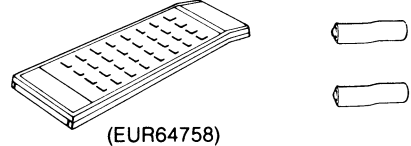
1. Specifications are subject to change without notice. Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

■ CONTENTS

	Page
ACCESSORIES .....	2
LOCATION OF CONTROLS .....	3~5
CONNECTIONS .....	6, 7
PROTECTION CIRCUITRY .....	7
BEFORE REPAIR AND ADJUSTMENT .....	7
DISASSEMBLY INSTRUCTIONS .....	8~10
MEASUREMENTS AND ADJUSTMENTS .....	11, 12
FUNCTION OF TERMINAL .....	13, 14
RESISTORS & CAPACITORS .....	15~17
REPLACEMENT PARTS LIST .....	18, 19
SCHEMATIC DIAGRAM OF REMOTE-CONTROL TRANSMITTER .....	20, 21

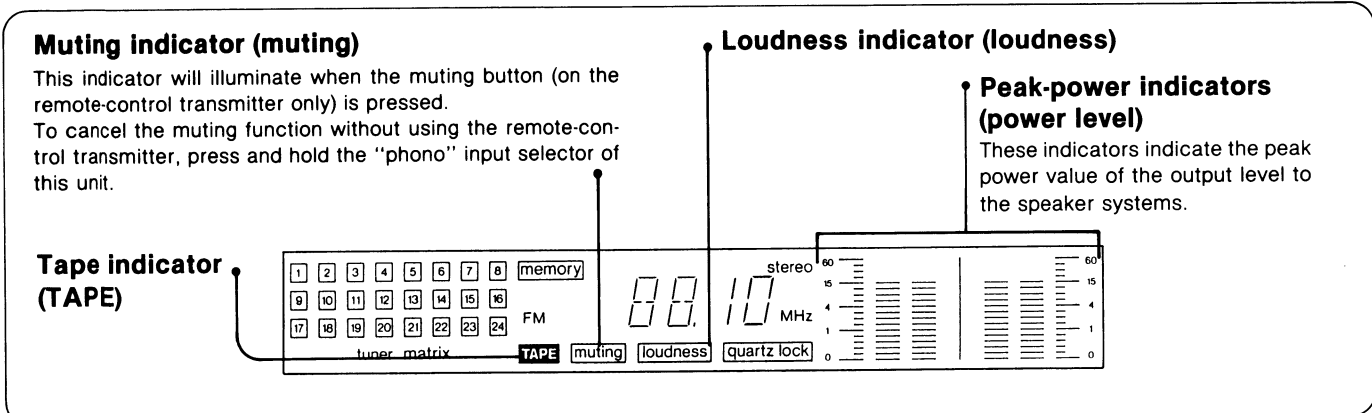
	Page
BLOCK DIAGRAM .....	22~24
DESCRIPTION OF FLUORESCENT DISPLAY .....	25
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES .....	26
PRINTED CIRCUIT BOARDS .....	27~30
WIRING CONNECTION DIAGRAM .....	31
SCHEMATIC DIAGRAM .....	32~38
CABINET PARTS LOCATION .....	39, 40
REPLACEMENT PARTS LIST .....	41
REMOTE-CONTROL PARTS LOCATION .....	42
REPLACEMENT PARTS LIST .....	42

■ ACCESSORIES

<ul style="list-style-type: none"> <li>• FM indoor antenna (1) (SSA270M)</li> </ul> 	<ul style="list-style-type: none"> <li>• AM loop antenna (1) (SPB1162T)</li> </ul> 	<ul style="list-style-type: none"> <li>• AM antenna holders (2)</li> </ul>  <p style="text-align: center;">(SMA233-1M) (SMA231M)</p>	<ul style="list-style-type: none"> <li>• Screws (2)</li> </ul>  <p style="text-align: center;">(XTN3 + 1) (AFZ)</p>
<ul style="list-style-type: none"> <li>• Connection cable for remote-control (1) (SJP2257T)</li> </ul> 	<ul style="list-style-type: none"> <li>• Flat cable for remote-control (1) (SWKST11M-1)</li> </ul> 	<ul style="list-style-type: none"> <li>• Remote-control transmitter (1)</li> <li>• Batteries (2) (UN-4NE/2S)</li> </ul>  <p style="text-align: center;">(EUR64758)</p>	

**LOCATION OF CONTROLS**

**Amplifier section**



**Muting indicator (muting)**  
This indicator will illuminate when the muting button (on the remote-control transmitter only) is pressed. To cancel the muting function without using the remote-control transmitter, press and hold the "phono" input selector of this unit.

**Loudness indicator (loudness)**

**Peak-power indicators (power level)**  
These indicators indicate the peak power value of the output level to the speaker systems.

**Tape indicator (TAPE)**

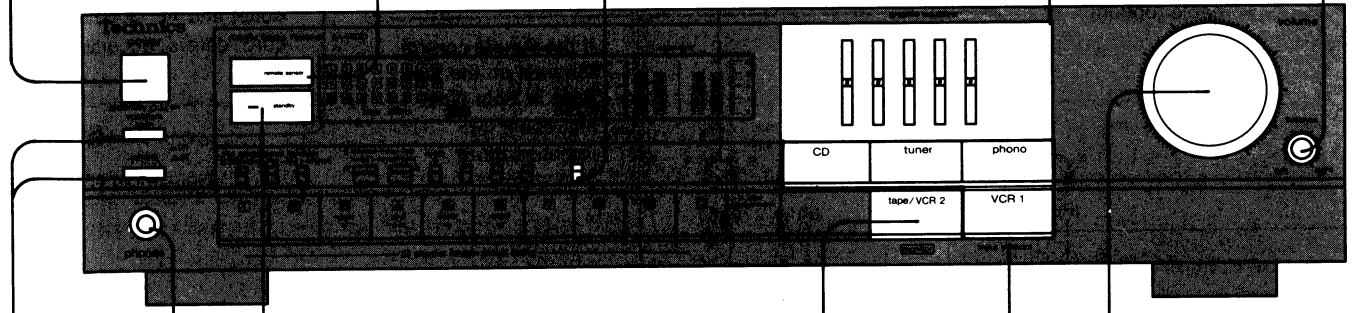
**Power "standby ⏻, on" switch (power "standby ⏻, on")**  
This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the "standby ⏻" position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

**Equalizer controls (graphic equalizer)**  
These controls are used to adjust the levels within each frequency band. The levels can be varied continuously over a range of +10 dB ~ -10 dB. By sliding the controls at each of the indicated frequencies in the "+" direction, the frequencies in that band are boosted, and by sliding them in the "-" direction, the frequencies in that band are attenuated. When the power switch is set to the "on" position, the tips of these level controls will illuminate.

**Remote-control signal sensor (remote sensor)**

**Loudness switch (loudness)**  
Set to the "on" position (The loudness indicator will illuminate.) when listening to music at low volume. Auditory perception of sound in the low frequency range falls off at low volume but when the switch is in this position, this deficiency is compensated for, so that the full impact of the musical performance can be enjoyed.

**Balance control (balance)**



**"standby ⏻" indicator**  
This indicator will illuminate when the unit is switched to the standby condition by the power "standby ⏻/on" switch on the unit or the ON/OFF switch on the remote-control transmitter.

**Headphones jack (phones)**

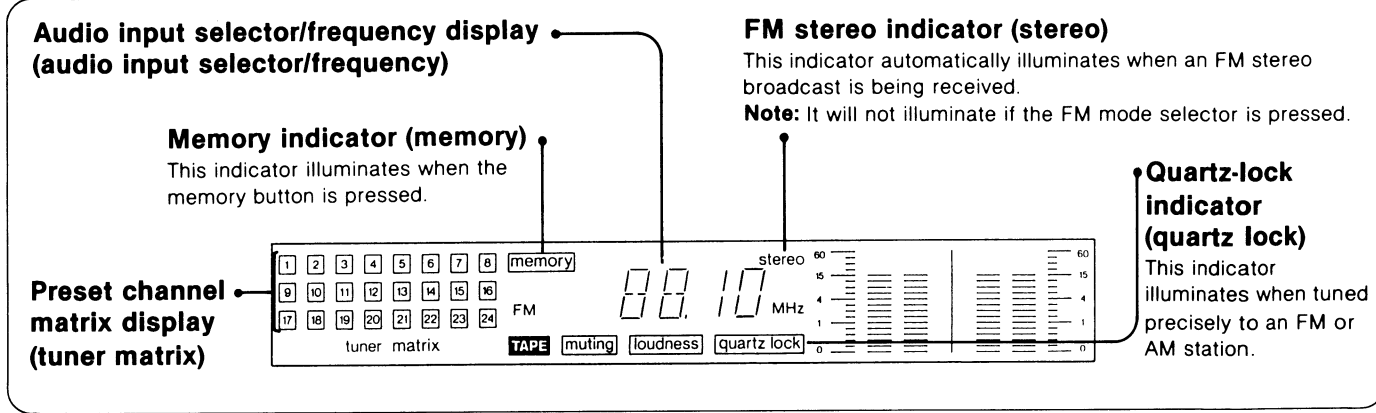
**Speaker selectors (speakers)**  
These selectors are used to switch the speaker systems ON and OFF.

**Tape-monitor switch (monitor)**  
Press this button to listen to tape. No other sources selected by the input selector can be heard while the tape indicator is illuminated. To listen to some other source, press this button once again.

**Volume-control/indicator (volume)**  
The indicator will move in accordance with the volume level.

**Input selectors (input selector)**  
These selectors are used to select the sound source to be heard, such as a disc, radio broadcast, etc. The selected sound is shown on the audio input selector/frequency display.

**Tuner section**



**Audio input selector/frequency display (audio input selector/frequency)**

**Memory indicator (memory)**  
This indicator illuminates when the memory button is pressed.

**FM stereo indicator (stereo)**  
This indicator automatically illuminates when an FM stereo broadcast is being received. **Note:** It will not illuminate if the FM mode selector is pressed.

**Quartz-lock indicator (quartz lock)**  
This indicator illuminates when tuned precisely to an FM or AM station.

**Preset channel matrix display (tuner matrix)**

**FM mode selector (FM mode)**  
This unit automatically switches to the stereo mode when a stereo broadcast is received. Press this selector to listen in the monaural mode. The stereo indicator will not illuminate in the monaural mode.

**Memory button (memory)**  
This button is used when preset memory setting of the preset-tuning buttons is made.

**Preset tuning buttons (1 ~ 0) (24 channel random preset tuning)**  
These buttons are used to preset FM and AM broadcast frequencies into the memory of this unit, and are also pressed to select the desired preset frequencies. **Note:** The buttons marked 3 ~ 6 are also used to listen to radio broadcasts arranged in convenient groups.

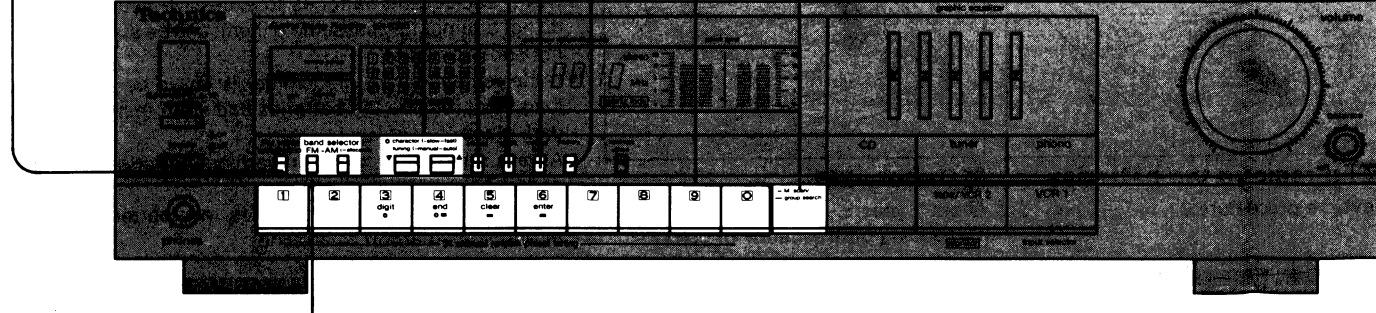
**Group select button (select)**

**Assort-mode select button (assort)**

**Change-mode select button (change)**

**Character-input/tuning buttons (character/tuning)**

**Memory-scan/group-search button (-M. scan/-group search)**

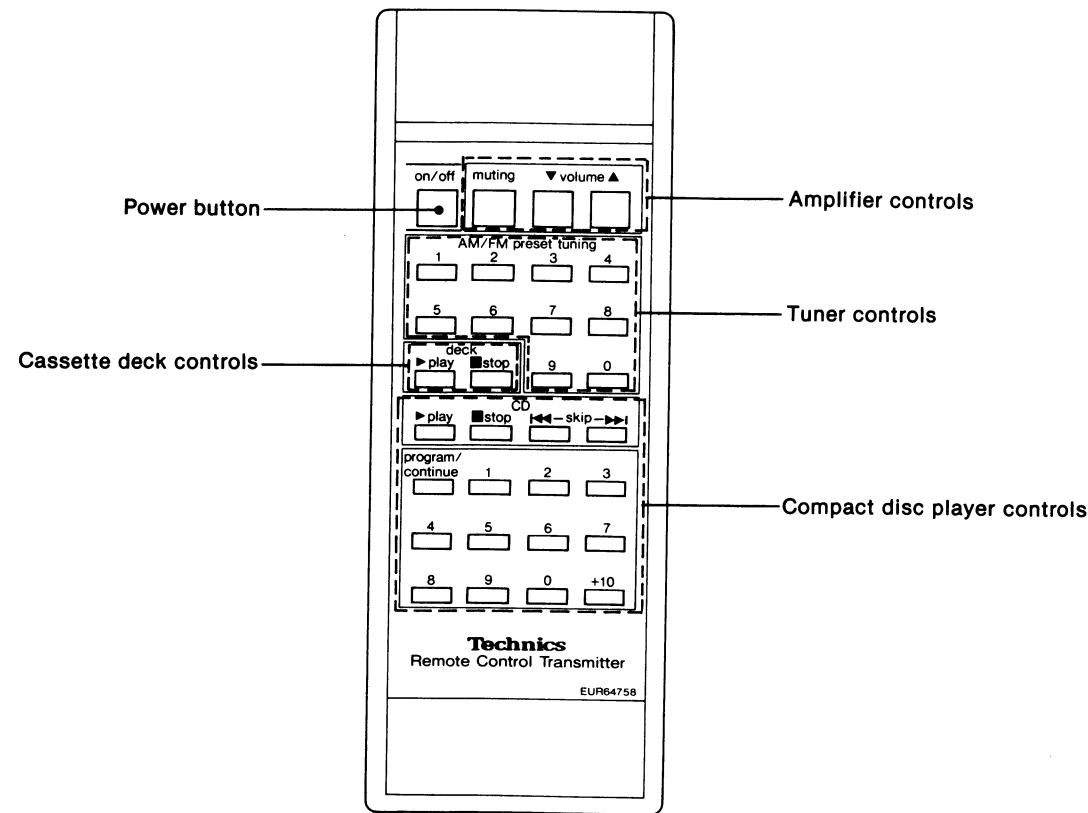


**Band selectors (band selector)**

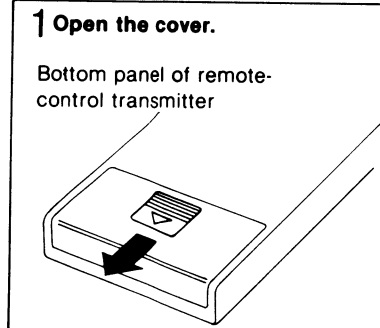
FM      -AM

**FM:** Press this button to listen to an FM broadcast.  
**AM:** Press this button to listen to an AM broadcast.  
**allocation:** When the AM button is pressed for about 4 seconds, the AM frequency step will change to 10 kHz per step. (This step is set to 9 kHz before shipment.) In order to return to the original frequency indication, press this button for about 4 seconds again.

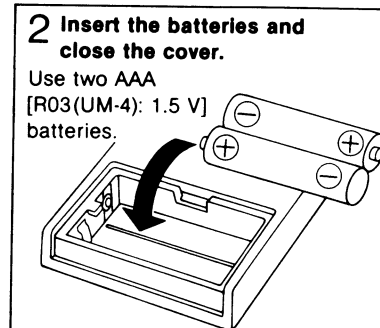
• Remote-control transmitter (EUR64758)



**Insertion of remote-control transmitter batteries**



**To remove the batteries**  
Reverse procedure 2.

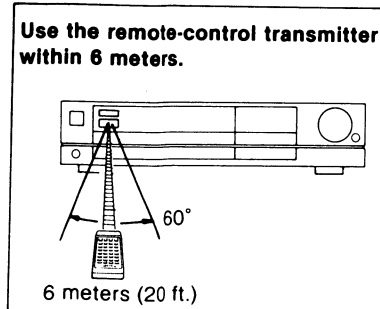


**Battery life**  
About 1 year.  
(Depending on frequency of use.)

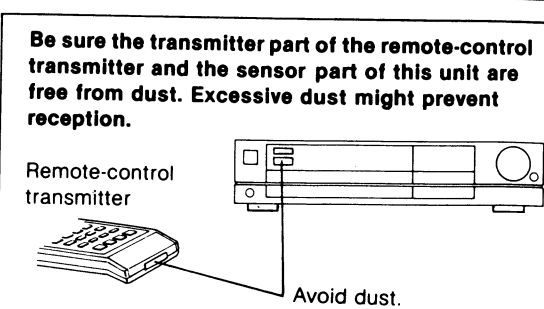
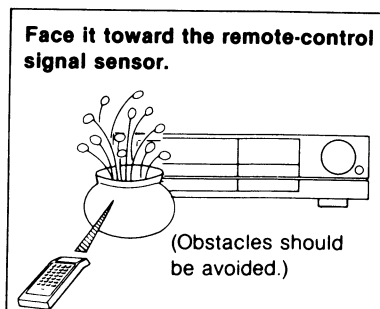
**Notes concerning use of dry batteries**

- Do not use chargeable batteries (Ni-Cd type).
- Be sure the batteries are inserted so that the positive (+) and negative (-) polarities are correct. Batteries installed with incorrect polarities may leak and damage the remote-control transmitter.
- Never subject the batteries to excessive heat or flame; do not attempt to disassemble them; and be sure they are not short-circuited.
- If the remote-control transmitter is not to be used for a long time, remove the batteries and store them in a cool dark place.
- Always remove old, weak or worn-out batteries promptly and dispose of them properly.
- Never mix old and new batteries, nor batteries of different types (carbon or alkaline).

**Operation notes**



- Notes:**
1. The control panel of the remote-control transmitter may be covered by a clear plastic protective sheet. This sheet may be removed if desired.
  2. If this unit is placed in an audio rack, the distance that the remote control transmitter can be used from might be reduced due to the thickness or color of the glass door.

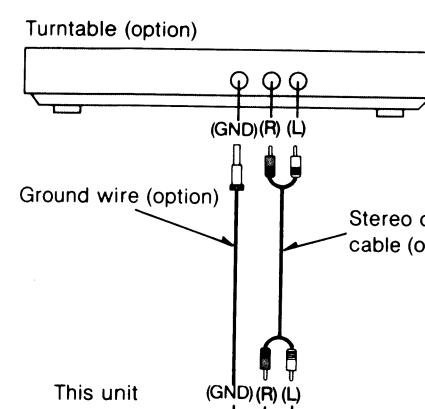


**CONNECTIONS**

• Connections to equipment

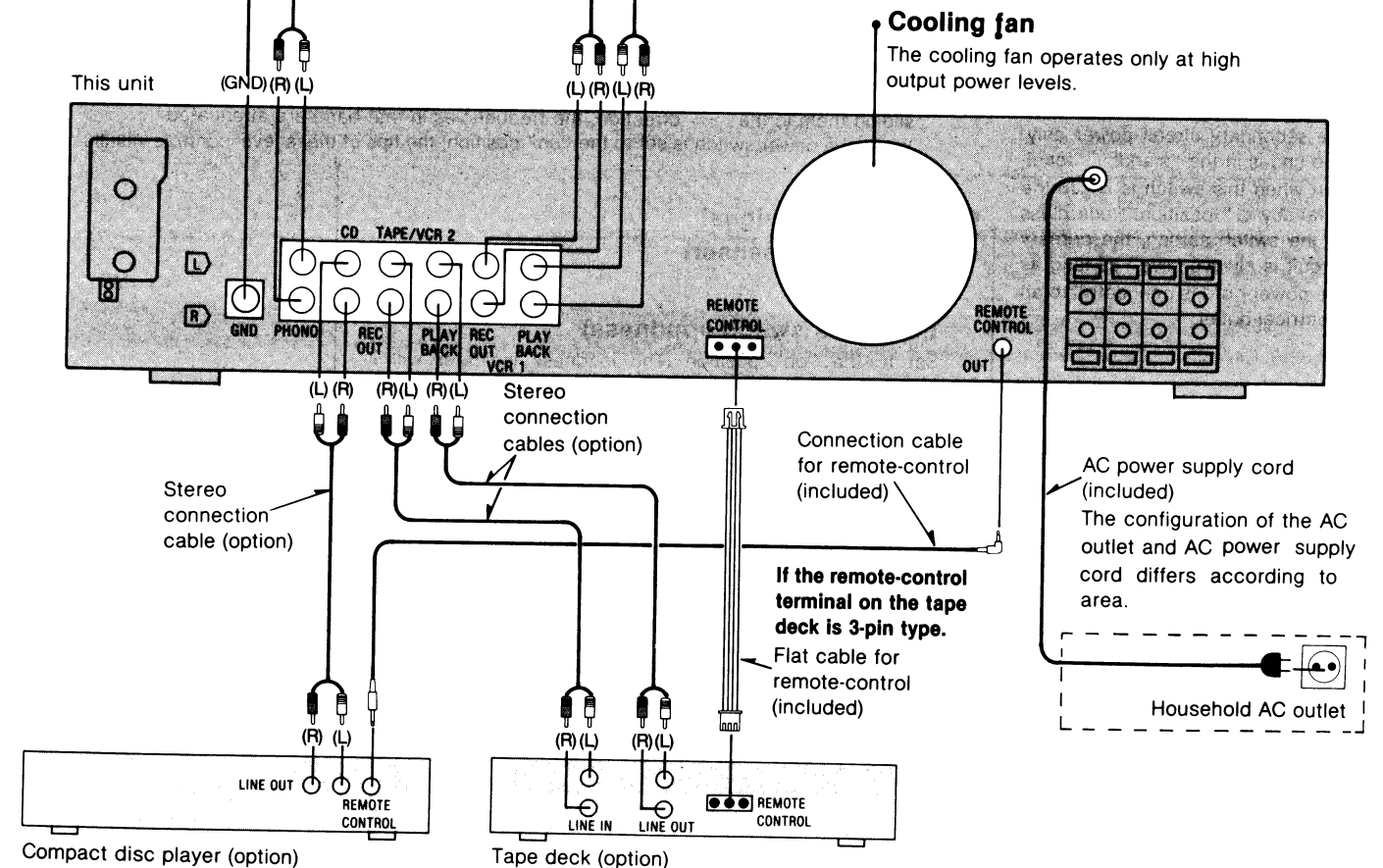
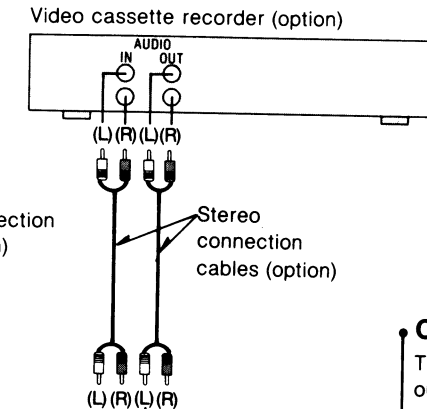
**“PHONO” terminals**

Connect a turntable.  
**Note:**  
For remote-control operation, be sure to connect the ground wire correctly.



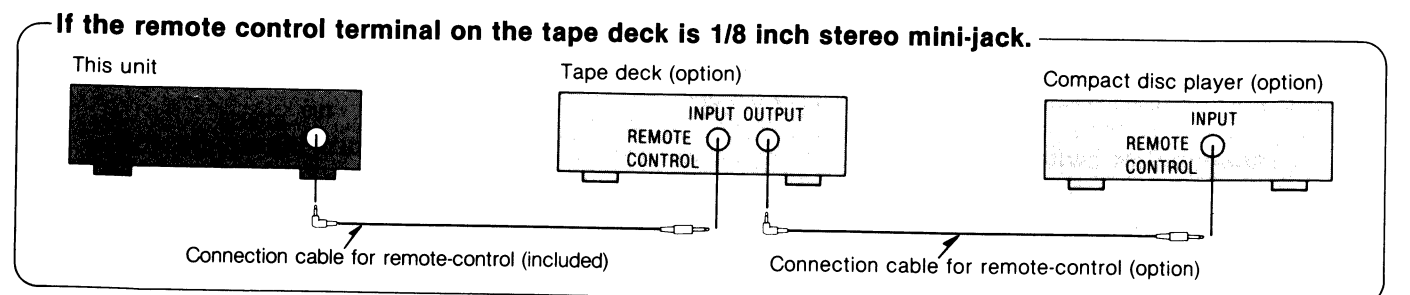
**“VCR 1” terminals**

Connect a video cassette recorder or an audio tape deck etc. (Refer to the operating instructions of VCR, etc.)



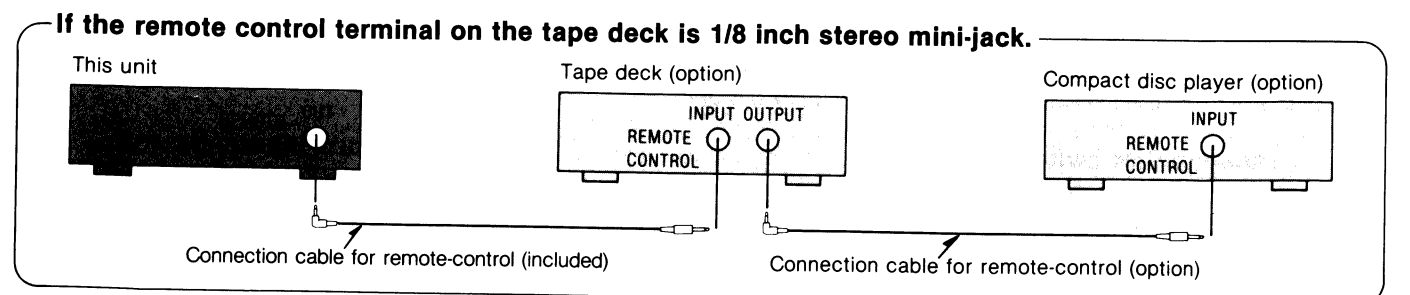
**“CD” terminals**

Connect a compact disc player.

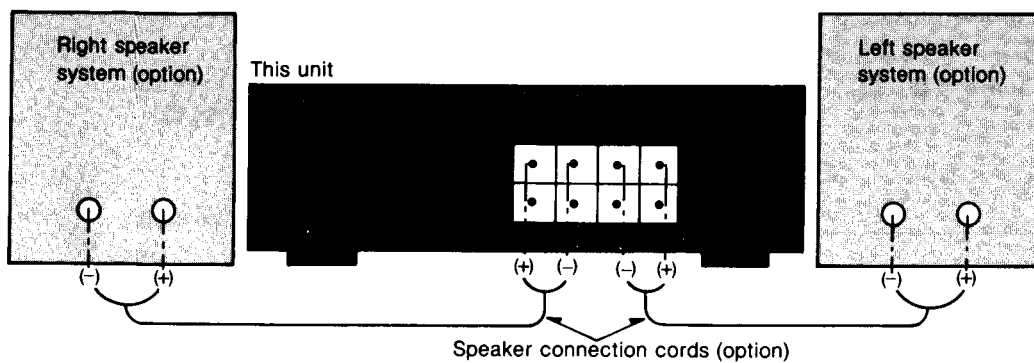


**“TAPE/VCR 2” terminals**

Connect a tape deck or second VCR.



## • Connections to speakers

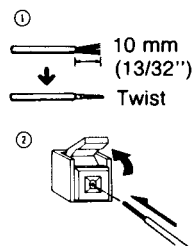


■ **Load impedance:**  
 MAIN or REMOTE: 4~16 Ω  
 MAIN and REMOTE: 8~16 Ω

■ **“REMOTE” terminals**  
 For connection to a second pair of speakers.

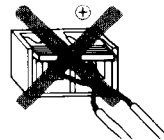
### Connection of speaker wires

- ① Twist the core of the speaker wires.
- ② Lift up the lever, and insert the core until it can no longer be seen.
- ③ Press down the lever, and pull the cord gently to be sure that it is secure.



#### Notes:

1. To prevent damage to circuitry, never short-circuit positive (+) and negative (-) speaker terminals.
2. Be sure to only connect positive (+) cords to positive (+) terminals, and negative (-) cords to negative (-) terminals.
3. Connections of speaker wires should be made before connecting the AC power supply cords.



## ■ 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:

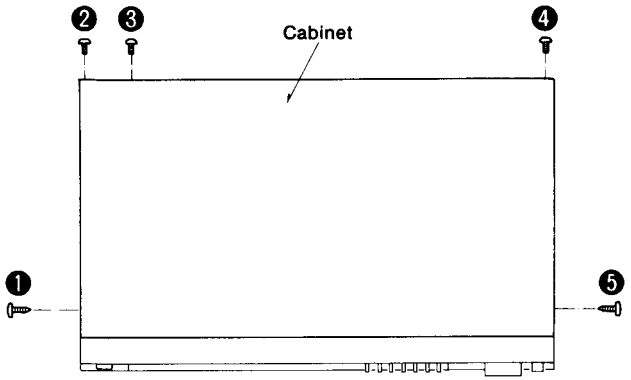
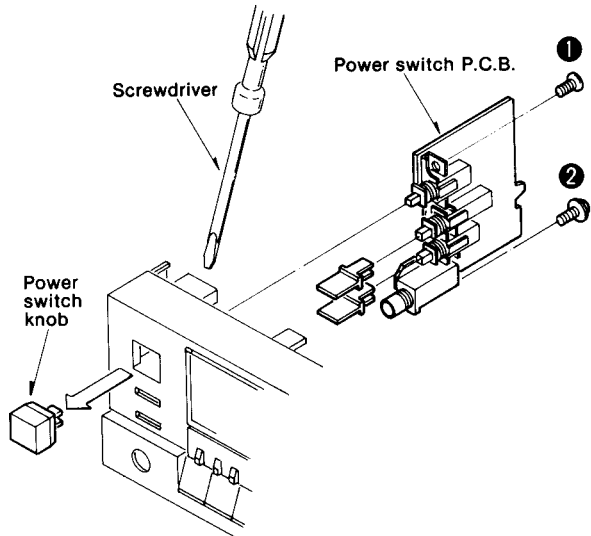
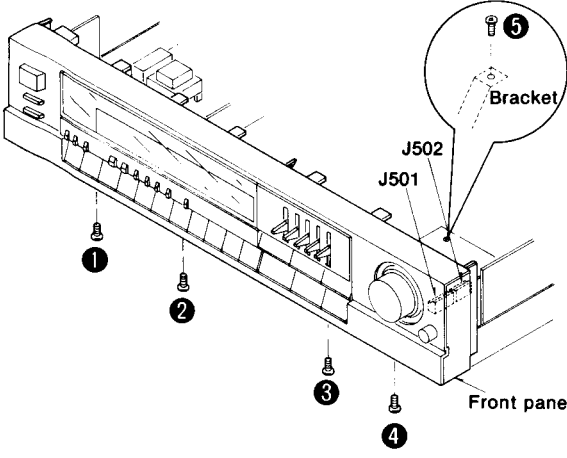
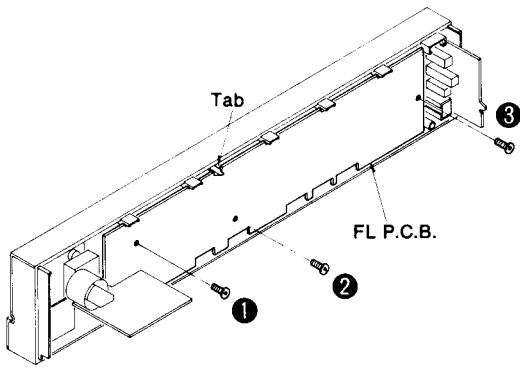
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

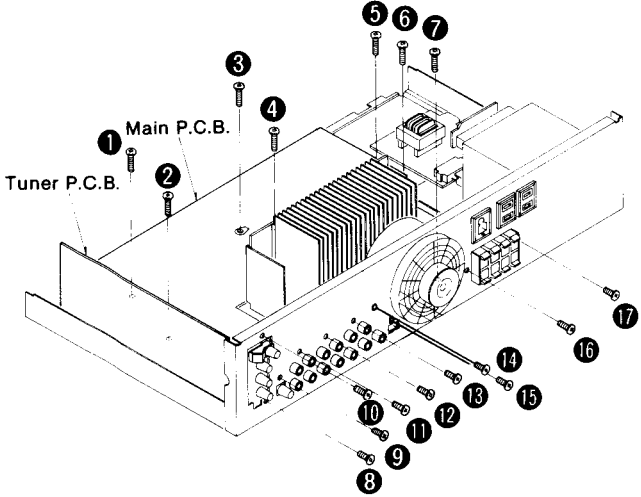
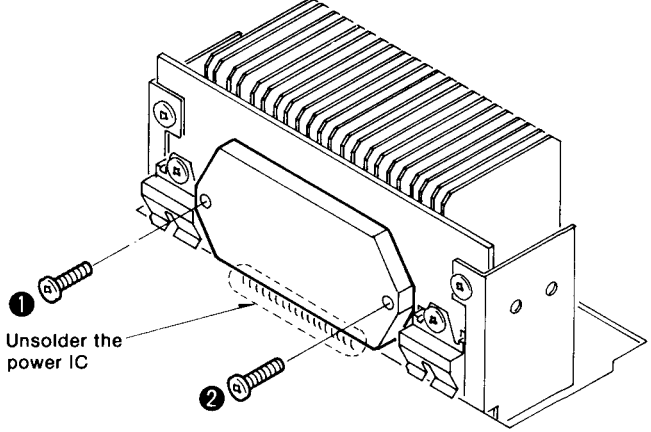
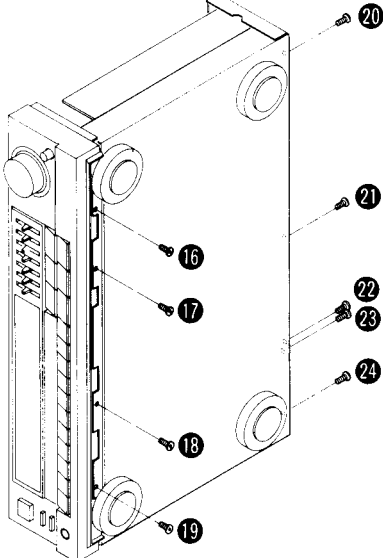
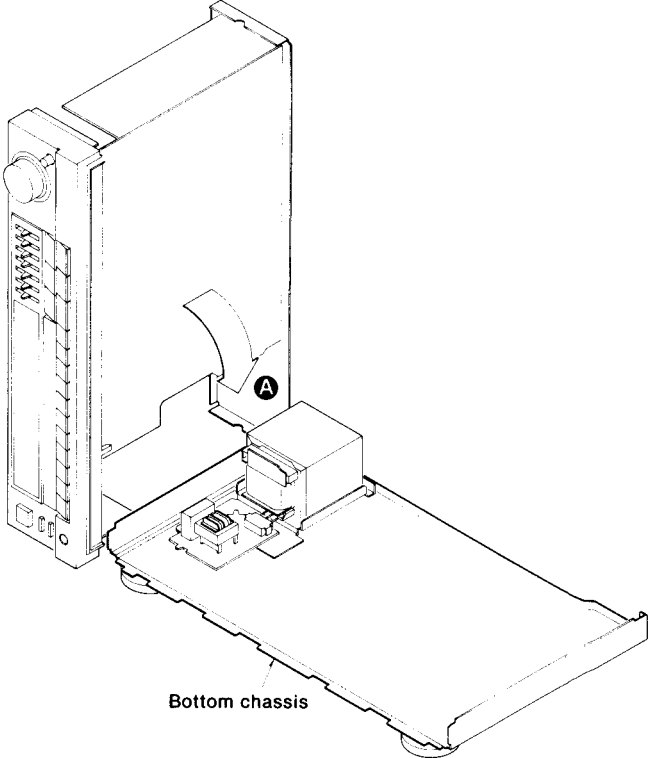
## ■ BEFORE REPAIR AND ADJUSTMENT

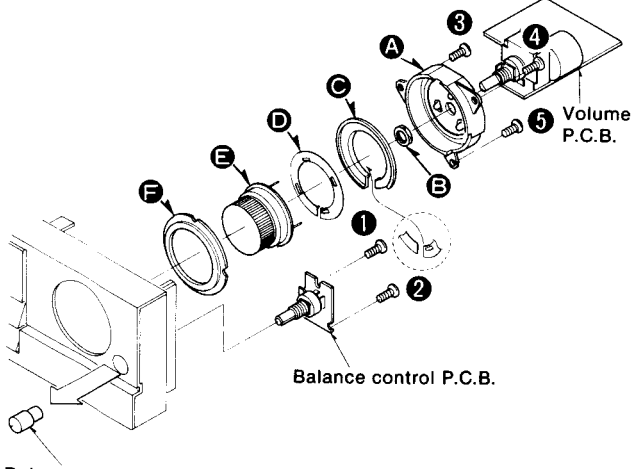
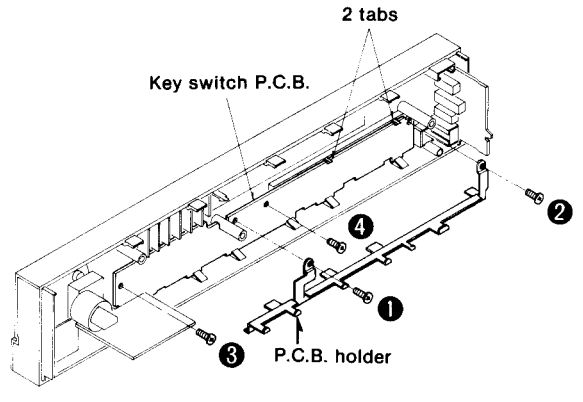
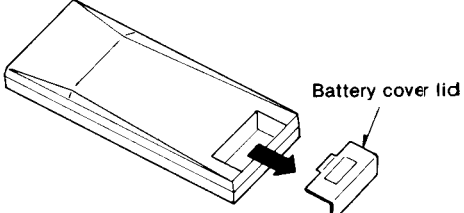
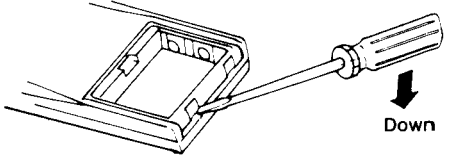
1. Turn off the power, discharge both power supply capacitors (C701, C702 6800μF) through a 10Ω 5W resistor to ground. Do not short between C701 and C702. It may damage the capacitors.
2. After completion of repair, slowly apply the primary voltage by using a variac to avoid over current. Current consumption at 50Hz/60Hz in no signal mode should be shown with respect to supply voltage 220V.

Power supply voltage		AC 220V
Consumed current	50/60Hz	220~420mA

## DISASSEMBLY INSTRUCTIONS

<p><b>Ref. No.</b> 1</p>	<p><b>How to remove the cabinet</b></p>	<p><b>Ref. No.</b> 3</p>	<p><b>How to remove the power switch P.C.B.</b></p>
<p><b>Procedure</b> 1</p>	<p>1. Remove the 5 screws (①~⑤).</p>	<p><b>Procedure</b> 1→2→3</p>	<p>1. Remove the power switch knob. 2. Remove the 2 screws (①, ②).</p>
			
<p><b>Ref. No.</b> 2</p>	<p><b>How to remove the front panel</b></p>	<p><b>Note:</b> Remove the knob by pushing it from behind the panel.</p>	
<p><b>Procedure</b> 1→2</p>	<p>1. Remove the 4 screws (①~④). 2. Remove the flat cables (J501 and J502).</p>	<p><b>Ref. No.</b> 4</p>	<p><b>How to remove the FL P.C.B.</b></p>
 <p><b>Removing the flat cable</b></p> <p>(No 1 side) White line ② pull</p> <p>① push</p> <p>No.1 2 3 4</p> <p>Cable</p> <p>Connector</p>		<p><b>Procedure</b> 1→2→4</p>	<p>1. Remove the 3 screws (①~③). 2. Release the tab.</p>
			

Ref. No. 5	How to remove the tuner P.C.B. and main P.C.B.	Ref. No. 6	How to remove the power IC
<b>Procedure</b> 1→2→5	1. Remove the 17 screws (①~⑰). 2. Remove the tuner P.C.B. and main P.C.B.	<b>Procedure</b> 1→2→5→6	1. Unsolder the power IC. 2. Remove the 2 screws (①, ②).
		 <p data-bbox="859 801 1455 891"><b>Note:</b> When mounting the power IC, apply silicon terminal compound (SZZ0L15) to the rear of the power IC.</p>	
<div style="border: 1px solid black; padding: 2px; display: inline-block;"><b>How to check the main P.C.B.</b></div>			
1. Remove the 7 screws (①~⑦) in above figure. 2. Remove the 9 screws (⑮~⑳).		3. Remove the bottom chassis in the direction of the arrow (A).	
		 <p data-bbox="969 1861 1110 1883">Bottom chassis</p>	

<b>Ref. No.</b> 7	<b>How to remove the balance control P.C.B. and volume P.C.B.</b>	<b>Ref. No.</b> 8	<b>How to remove the key switch P.C.B.</b>
<b>Procedure</b> 1→2→4→7	<ol style="list-style-type: none"> <li>1. Remove the balance control knob.</li> <li>2. Remove the 2 screws (①, ②).</li> <li>3. Remove the balance control P.C.B.</li> <li>4. Remove the 3 screws (③~⑤).</li> <li>5. Remove the volume P.C.B.</li> </ol>	<b>Procedure</b> 1→2→4→8	<ol style="list-style-type: none"> <li>1. Remove the 2 screws (①, ②), and remove the P.C.B. holder.</li> <li>2. Remove the 2 screws (③, ④).</li> <li>3. Remove the 2 tabs.</li> <li>4. Remove the key switch P.C.B.</li> </ol>
			
	<b>Ref. No.</b> 9	<b>How to disassemble the remote control</b>	
	<b>Procedure</b> 9	<ol style="list-style-type: none"> <li>1. Remove the Battery cover lid.</li> </ol>	
<p><b>Mounting main volume control</b></p> <ol style="list-style-type: none"> <li>1. Insert the motor volume shaft into volume base (A) and secure it with nut (B).</li> <li>2. Insert the shatter plate (D) into volume knob (E), then mount the volume light guide (C), volume knob, and volume ring (F) on the volume shaft.</li> </ol> <p><b>Note:</b> Slip one end of the shatter plate inside the volume light guide.</p>			
	<ol style="list-style-type: none"> <li>2. Insert a flat blade screwdriver between the upper and lower covers inside the battery compartment and then slowly loosen the bottom cover.</li> </ol> 		



## MEASUREMENTS AND ADJUSTMENTS

### FM

#### Control positions and equipment used

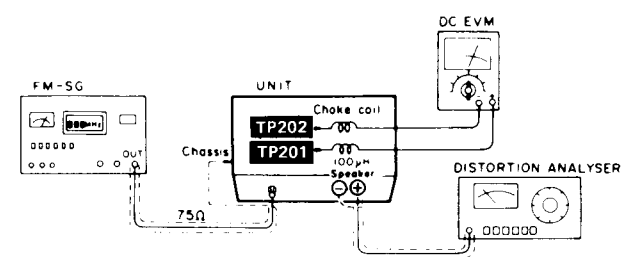
- FM signal generator (AM and FM-SG).
- Stereo modulator
- Distortion analyser
- Oscilloscope
- AC and DC electronic voltmeter (EVM)
- Frequency counter
- Resistor (100kΩ)

**Note:** For Z201, Z202, Z321, L321, L322 and L324, adjusted parts are supplied. So, do not turn the cores of these parts.

#### FM MONO DISTORTION ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "FM" position.
3. Set the radio frequency display and signal generator to 100.10MHz.
4. Adjust T201 core so that voltage measured in signal mode is 0mV (0±20mV) in 300mV range.
5. Adjust T202 so that the distortion factor of Lch is minimized.
6. Repeat steps 4 and 5 a few times.
7. Make sure that the distortion factors of Lch and Rch are nearly the same with each other to minimum.

**FM SIGNAL GENERATOR CONDITION**  
 Modulation.....100%  
 Modulation frequency.....1kHz  
 (MONO)  
 Output level.....66dB

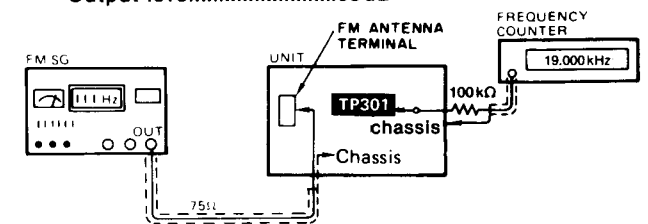


**Note:**  
 The adjusting screwdriver used should be made of resin.

#### MPX VCO ADJUSTMENT

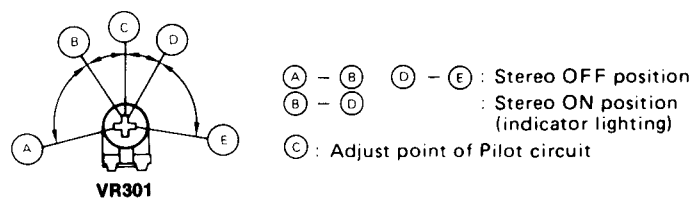
1. Test equipment connection is shown in figure.
2. Set the unit to "FM auto" position.
3. Place the radio frequency display and signal generator to 100.10MHz.
4. Adjust VR301 for 19.00±0.03kHz on frequency counter reading.

**FM SIGNAL GENERATOR CONDITION**  
 Modulation.....0%  
 (non-modulation)  
 Output level.....66dB



#### ★ USING ALTERNATE SYSTEM

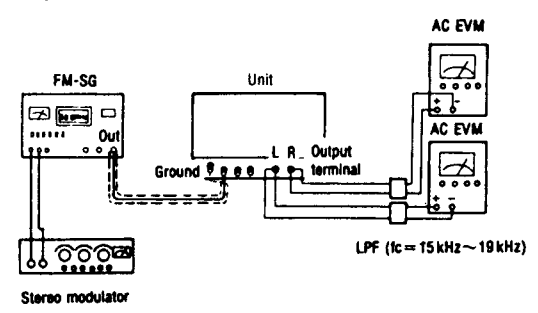
1. Apply stereo signal from generator or receive the stereo broadcast.
2. Adjust VR301 until stereo indicator lights up. Cement arm of VR301 as shown in figure.



#### FM STEREO SEPARATION ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "FM" mode.
3. Set the radio frequency display and signal generator to 100.10MHz.
4. Adjust VR302 so that the R-CH output is minimized when stereo modulator is in "L"(L-CH modulation) mode.

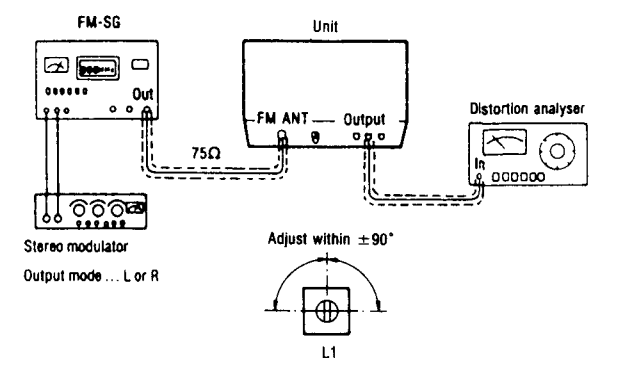
**FM SIGNAL GENERATOR CONDITION**  
 Modulation.....Stereo "L" mode or "R" mode 90%, Pilot 10%  
 Modulation frequency.....1kHz (Pilot 19kHz)  
 Output level.....66dB



#### FM STEREO DISTORTION ADJUSTMENT

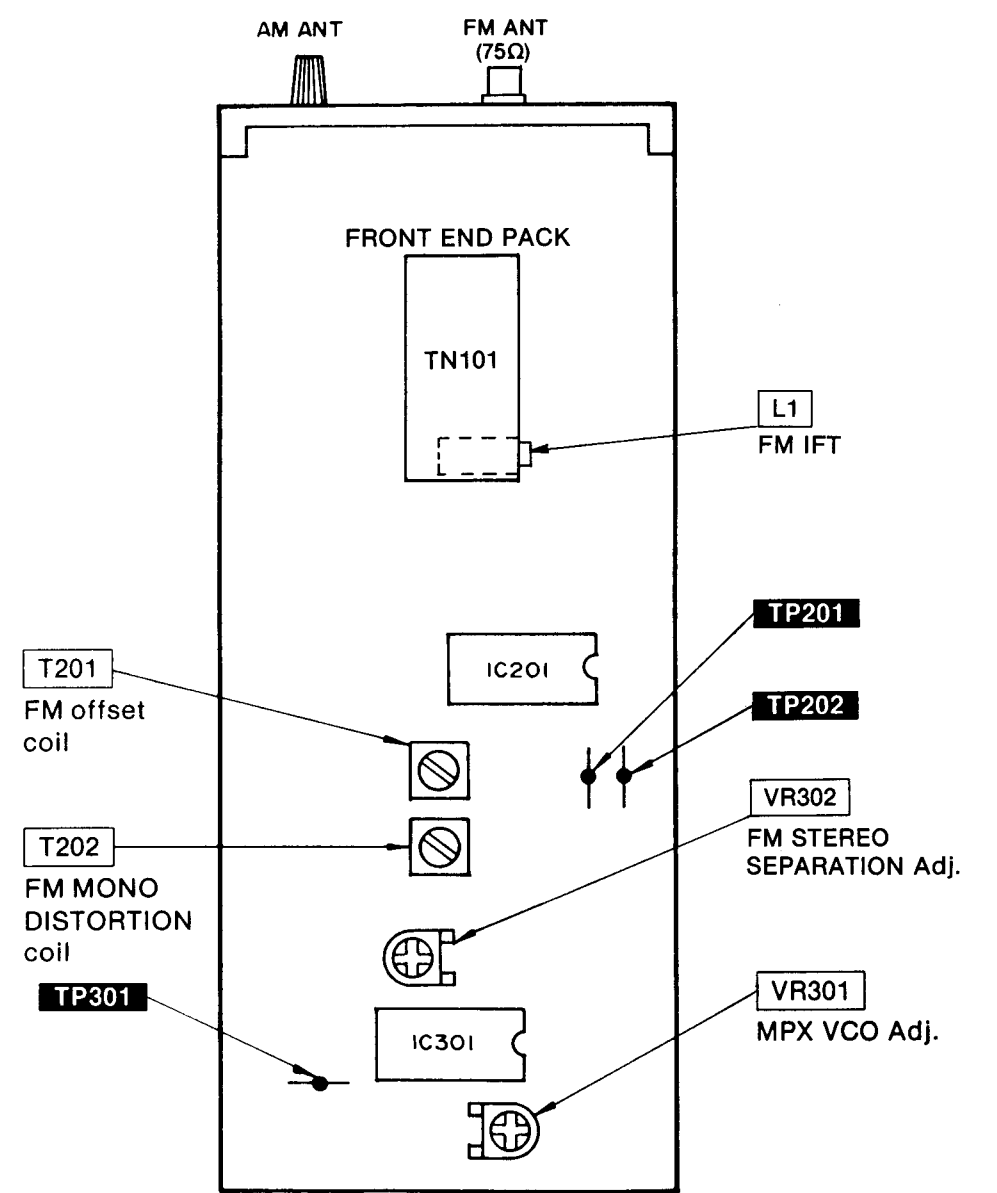
1. Test equipment connection is shown in figure.
2. Set the unit to "FM" mode.
3. Set the radio frequency display and signal generator to 100.10MHz.
4. Adjust L1 so that the distortion factor of L-CH is minimized.
5. Make sure that the distortion factors of L-CH and R-CH are nearly the same with each other to minimum.

**FM SIGNAL GENERATOR CONDITION**  
 Modulation.....Stereo "L" mode or "R" mode 45%, Pilot 10%  
 Modulation frequency.....1kHz (Pilot 19kHz)  
 Output level.....66dB



**Notes:**  
 1. The adjusting screwdriver used should be made of resin.  
 2. L1 should be rotated no more 1/4 turn (90 deg.) on either side.

#### • Adjustment points



## FUNCTION OF TERMINAL

### • IC901 (LC6554H3682): microcomputer

PIN NO.	MARK	I/O	DESCRIPTION OF TERMINAL
1	PP0 (S13)	O	Segment signal output
2 } 5 • 6 } 8	PA0 } PA3 • PB0 } PB2	I	Key return signal input
9	PB3 (STAND BY)	I	Power supply terminal
10	PC0 (OFF)	I	Power ON/OFF input
11	PC1 (STEREO)	I	Stereo signal input
12	PC2 (SD)	I	SD signal input
13	PC3 (DP)	I/O	Deck control terminal
14	PD0 (RELAY)	O	Relay control output
15	PD1 (DK)	I/O	Deck control terminal
16	NC	—	Not connected
17	NC	—	Not connected
18	PE0 (M0)	O	Auto/mono changeover terminal
19	PE1 (RFM)	O	Muting control output
20	PE2 (AT)	O	Attenuator control output
21	PE3 (AFM)	O	AF signal muting control output
22	TP	—	Ground terminal
23	V <sub>SS</sub>	—	Ground terminal
24	OSC1	I	Oscillator terminal
25	OSC2	O	Oscillator terminal
26	$\overline{\text{RES}}$	I	Reset signal input
27	PF0/D1	O	Serial data output terminal
28	PF1/CK	O	Clock signal terminal for serial data
29	PF2/CE	O	Chip enable terminal
30	PF3/ $\overline{\text{INT}}$	I	Remote control input
31	D1	—	Ground terminal

PIN NO.	MARK	I/O	DESCRIPTION OF TERMINAL
32	PG1 (CK)	—	Ground terminal
33	PG2 (ST)	O	Control signal terminal for IC401 (TC9163N)
34 } 37	NC	—	Not connected
38	PI3 (LOUDNESS)	O	Loudness control output
39 • 40	PJ0 (R) • PJ1 (F)	O	Volume motor drive output
41 • 42	NC	—	Not connected
43	V <sub>P</sub>	I	Power supply terminal (negative voltage)
44 } 55	S1 } S12	O	Segment signal output
57 } 64	D1 } D8	O	Digit signal output and key scan signal output
56	V <sub>DD</sub>	I	Power supply terminal (positive voltage)

# RESISTORS & CAPACITORS

**Notes :** \* Important safety notice :

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

\* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)  
Parts without these indications can be used for all areas.

**Numbering System For Resistors**

**Example:**

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1K $\Omega$ )
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470 $\Omega$ )

**Numbering System For Capacitors**

**Example:**

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001 $\mu$ F)	Tolerance	Unique
ECEA	50	M		330
Type	Voltage (50V)	Characteristics		Value (33 $\mu$ F)

- Capacitance values is in microfarads ( $\mu$ F) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
- Resistance values is in ohms ( $\Omega$ ), unless specified otherwise, 1K = 1,000 $\Omega$ , 1M = 1,000k $\Omega$

Resistor Type	Wattage		Tolerance
ERD : Carbon	10 : 1/8W	12 : 1/2W	J : $\pm 5\%$
ERG : Metal Oxide	14 : 1/4W	25 : 1/4W	F : $\pm 1\%$
ERO : Fuse Type Metal	1A : 1W	18 : 1/8W	G : $\pm 2\%$
ERX : Metal Film	S2 : 1/4W	S1 : 1/2W	J : $\pm 5\%$
ERD L : Carbon (chip)	2F : 1/4W	50 : 1/2W	K : $\pm 10\%$
ERO K : Metal Film (chip)	2A : 2W	3A : 3W	M : $\pm 20\%$
ERC : Solid	6G : 1/10W	8G : 1/8W	
ERF : Incombustible Box-Shaped			
ERM : Wire-Wound			
RRJ : Chip Resistor			
ERJ : Chip Resistor			

Capacitor Type	Voltage		Tolerance
ECE : Electrolytic	0J : 6.3V	1A : 10V	K : $\pm 10\%$
ECCD : Ceramic	1C : 16V	1E : 25V	M : $\pm 20\%$
ECKD : Ceramic Capacitor	1H : 50V	1V : 35V	Z : +80% -20
ECQM : Polyester	50 : 50V	05 : 50V	J : $\pm 5\%$
ECOP : Polypropylene	2H : 500V	2A : 100V	G : $\pm 2\%$
ECG : Ceramic	1 : 100V	1J : 63V	F : $\pm 1\%$
ECEA N : Non Polar Electrolytic	KC : 400V AC		C : $\pm 0.25$ pF
QCU : Ceramic (Chip Type)	KC : 125V AC (UL)		D : $\pm 0.5$ pF
ECUX : Ceramic (Chip Type)			
ECF : Semiconductor			
EECW : Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
<b>RESISTORS(VALUE, WATTAGE)</b>								
R101	ERDS2T J103	10K 1/4	R247	ERDS2T J103	10K 1/4	R451	ERDS2T J391	390 1/4
R102	ERDS2T J103	10K 1/4	R262	ERDS2T J332	3.3K 1/4	R452	ERDS2T J391	390 1/4
R104	ERDS2T J102	1K 1/4	R301	ERDS2T J393	39K 1/4	R453	ERDS2T J224	220K 1/4
R105	ERDS2T J561	560 1/4	R302	ERDS2T J151	150 1/4	R454	ERDS2T J224	220K 1/4
R106	ERDS2T J562	5.6K 1/4	R303	ERDS2T J223	22K 1/4	R455	ERDS2T J563	56K 1/4
R107	ERDS2T J103	10K 1/4	R304	ERDS2T J223	22K 1/4	R456	ERDS2T J563	56K 1/4
R108	ERDS2T J151	150 1/4	R305	ERDS2T J272	2.7K 1/4	R457	ERDS2T J271	270 1/4
R201	ERDS2T J332	3.3K 1/4	R306	ERDS2T J272	2.7K 1/4	R458	ERDS2T J271	270 1/4
R202	ERDS2T J474	470K 1/4	R307	ERDS2T J562	5.6K 1/4	R459	ERDS2T J680	68 1/4
R203	ERDS2T J122	1.2K 1/4	R308	ERDS2T J562	5.6K 1/4	R460	ERDS2T J680	68 1/4
R204	ERDS2T J824	820K 1/4	R309	ERDS2T J224	220K 1/4	R461	ERDS2T J184	180K 1/4
R205	ERDS2T J391	390 1/4	R311	ERDS2T J102	1K 1/4	R462	ERDS2T J184	180K 1/4
R206	ERDS2T J221	220 1/4	R312	ERDS2T J153	15K 1/4	R463	ERDS2T J123	12K 1/4
R207	ERDS2T J822	8.2K 1/4	R313	ERDS2T J473	47K 1/4	R464	ERDS2T J123	12K 1/4
R208	ERDS2T J102	1K 1/4	R314	ERDS2T J473	47K 1/4	R465	ERDS2T J563	56K 1/4
R209	ERDS2T J471	470 1/4	R315	ERDS2T J103	10K 1/4	R466	ERDS2T J563	56K 1/4
R210	ERDS2T J332	3.3K 1/4	R316	ERDS2T J103	10K 1/4	R467	ERDS2T J102	1K 1/4
R211	ERDS2T J222	2.2K 1/4	R317	ERDS2T J473	47K 1/4	R468	ERDS2T J102	1K 1/4
R212	ERDS2T J153	15K 1/4	R321	ERDS2T J223	22K 1/4	R501	ERDS2T J222	2.2K 1/4
R213	ERDS2T J104	100K 1/4	R322	ERDS2T J223	22K 1/4	R502	ERDS2T J222	2.2K 1/4
R214	ERDS2T J824	820K 1/4	R325	ERDS2T J102	1K 1/4	R503	ERDS2T J103	10K 1/4
R215	ERDS2T J822	8.2K 1/4	R326	ERDS2T J102	1K 1/4	R504	ERDS2T J103	10K 1/4
R216	ERDS2T J563	56K 1/4	R327	ERDS2T J183	18K 1/4	R505	ERDS2T J104	100K 1/4
R217	ERDS2T J223	22K 1/4	R401	ERDS2T J332	3.3K 1/4	R506	ERDS2T J104	100K 1/4
R218	ERDS2T J123	12K 1/4	R402	ERDS2T J332	3.3K 1/4	R507	ERDS2T J562	5.6K 1/4
R219	ERDS2T J562	5.6K 1/4	R403	ERDS2T J822	8.2K 1/4	R508	ERDS2T J562	5.6K 1/4
R220	ERDS2T J103	10K 1/4	R404	ERDS2T J822	8.2K 1/4	R509	ERDS2T J563	56K 1/4
R221	ERDS2T J104	100K 1/4	R405	ERDS2T J470	47 1/4	R510	ERDS2T J563	56K 1/4
R222	ERDS2T J473	47K 1/4	R406	ERDS2T J470	47 1/4	R513	ERDS2T J104	100K 1/4
R223	ERDS2T J154	150K 1/4	R407	ERDS2T J104	100K 1/4	R514	ERDS2T J104	100K 1/4
R227	ERDS2T J104	100K 1/4	R408	ERDS2T J104	100K 1/4	R515	ERDS2T J122	1.2K 1/4
R228	ERDS2T J123	12K 1/4	R409	ERDS2T J103	10K 1/4	R516	ERDS2T J122	1.2K 1/4
R229	ERDS2T J102	1K 1/4	R410	ERDS2T J103	10K 1/4	R517	ERDS2T J563	56K 1/4
R230	ERDS2T J104	100K 1/4	R411	ERDS2T J104	100K 1/4	R518	ERDS2T J563	56K 1/4
R231	ERDS2T J391	390 1/4	R412	ERDS2T J104	100K 1/4	R519	ERDS2T J563	56K 1/4
R232	ERDS2T J122	1.2K 1/4	R413	ERDS2T J102	1K 1/4	R522	ERDS2T J223	22K 1/4
R233	ERDS2T J684	680K 1/4	R414	ERDS2T J102	1K 1/4	R523	ERDS2T J223	22K 1/4
R234	ERDS2T J103	10K 1/4	R415	ERDS2T J104	100K 1/4	R524	ERDS2T J223	22K 1/4
R235	ERDS2T J471	470 1/4	R416	ERDS2T J104	100K 1/4	R525	ERDS2T J332	3.3K 1/4
R240	ERDS2T J152	1.5K 1/4	R417	ERDS2T J104	100K 1/4	R526	ERDS2T J332	3.3K 1/4
			R418	ERDS2T J104	100K 1/4	R527	ERDS2T J333	33K 1/4
			R421	ERDS2T J332	3.3K 1/4	R528	ERDS2T J563	56K 1/4

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
R530	ERDS2TJ333	33K 1/4	R722	ERDS2TJ333	33K 1/4	C226	ECKD1H103PF	0.01 50
R531	ERDS2TJ153	15K 1/4	R751	ERDS2TJ272	2.7K 1/4	C227	ECEA1CKS100	10 16
R532	ERDS2TJ153	15K 1/4	R752	ERDS2TJ562	5.6K 1/4	C230	RCBS1H471JLY	470P 50
R541	ERDS2TJ331	330 1/4	R753	ERDS2TJ472	4.7K 1/4	C301	ECEA1CU101	100 16
R542	ERDS2TJ331	330 1/4	R754	ERDS2TJ472	4.7K 1/4	C302	ECEA1HKR47	0.47 50
R553	ERDS2TJ472	4.7K 1/4	R755	ERDS2TJ102	1K 1/4	C303	ECEA1HK010	1 50
R554	ERDS2TJ472	4.7K 1/4	R771	△ ERDS1FJ2R2	2.2 1/2	C304	ECEA1HK3R3	3.3 50
R567	ERDS2TJ331	330 1/4	R772	△ ERDS1FJ2R2	2.2 1/2	C305	ECEA1HK3R3	3.3 50
R601	ERDS2TJ272	2.7K 1/4	R773	△ ERD25FJ4R7	4.7 1/4	C306	ECEA1HK3R3	3.3 50
R602	ERDS2TJ272	2.7K 1/4	R774	△ ERD25FJ4R7	4.7 1/4	C307	ECFTD392KXL	0.0039 25
R603	ERDS2TJ563	56K 1/4	R775	△ ERD25FJ4R7	4.7 1/4	C308	ECFTD392KXL	0.0039 25
R604	ERDS2TJ563	56K 1/4	R776	△ ERD25FJ4R7	4.7 1/4	C309	ECKD1H102PF	0.001 50
R605	ERDS2TJ182	1.8K 1/4	R777	△ ERD25FJ4R7	4.7 1/4	C310	ECFTD473KXL	0.047 25
R606	ERDS2TJ182	1.8K 1/4	R778	△ ERD25FJ4R7	4.7 1/4	C311	ECQP1471JZ	470P 125
R607	ERDS2TJ563	56K 1/4	R779	△ ERDS1FJ121	120 1/2	C312	ECEA1VK4R7	4.7 35
R608	ERDS2TJ563	56K 1/4	R780	△ ERDS1FJ121	120 1/2	C313	ECBT1H102KB	0.001 50
R609	ERDS2TJ470	47 1/4	R781	△ ERDS1FJ121	120 1/2	C314	ECBT1H102KB	0.001 50
R610	ERDS2TJ470	47 1/4	R782	△ ERDS1FJ121	120 1/2	C321	ECEA1CKS100	10 16
R611	△ ERD25FJ100	10 1/4	R785	△ ERDS1FJ2R2	2.2 1/2	C323	ECFTD332KXL	0.0033 25
R612	△ ERD25FJ100	10 1/4	R816	ERDS2TJ473	4.7K 1/4	C324	ECFTD332KXL	0.0033 25
R613	ERDS2TJ223	22K 1/4	R818	ERDS2TJ473	4.7K 1/4	C325	RCBS1H330JLY	33P 50
R614	△ ERD25FJ470	47 1/4	R826	ERDS2TJ221	220 1/4	C327	ECBT1H102KB	0.001 50
R615	ERDS2TJ473	4.7K 1/4	R830	ERDS2TJ221	220 1/4	C401	ECKD1H103PF	0.01 50
R616	△ ERDS1FJ151	150 1/2	R851	△ ERDS1FJ2R2	2.2 1/2	C402	ECKD1H103PF	0.01 50
R617	△ ERDS1FJ151	150 1/2	R891	ERDS2TJ182	1.8K 1/4	C405	ECEA1EK3R3B	3.3 25
R618	△ ERDS1FJ151	150 1/2	R901	ERDS2TJ222	2.2K 1/4	C406	ECEA1EK3R3B	3.3 25
R619	△ ERG2ANJ331	330 2	R902	ERDS2TJ105	1M 1/4	C407	ECCD1H101K	100P 50
R620	△ ERG2ANJ331	330 2	R903	ERDS2TJ563	56K 1/4	C408	ECCD1H101K	100P 50
R621	ERDS2TJ222	2.2K 1/4	R904	ERDS2TJ123	12K 1/4	C409	ECKD1H103PF	0.01 50
R622	ERDS2TJ222	2.2K 1/4	R906	ERDS2TJ334	330K 1/4	C410	ECKD1H103PF	0.01 50
R623	ERDS2TJ684	680K 1/4	R906	ERDS2TJ334	330K 1/4	C411	ECEA1EK3R3B	3.3 25
R624	ERDS2TJ104	100K 1/4	R907	ERDS2TJ681	680 1/4	C412	ECEA1EK3R3B	3.3 25
R625	ERDS2TJ102	1K 1/4	R910	ERDS2TJ122	1.2K 1/4	C415	ECKD1H103PF	0.01 50
R626	ERDS2TJ102	1K 1/4	R913	ERDS2TJ101	100 1/4	C416	ECKD1H103PF	0.01 50
R627	ERDS2TJ154	150K 1/4	R914	ERDS2TJ101	100 1/4	C417	ECKD1H103PF	0.01 50
R628	ERDS2TJ684	680K 1/4	R915	ERDS2TJ181	180 1/4	C418	ECEA1HKR47	0.47 50
R630	△ ERDS1FJ121	120 1/2	R916	ERDS2TJ104	100K 1/4	C419	ECEA0JU101	100 6.3
R651	ERDS2TJ223	22K 1/4	R919	ERDS2TJ122	1.2K 1/4	C421	ECEA1CK220	22 16
R652	ERDS2TJ223	22K 1/4	R920	ERDS2TJ122	1.2K 1/4	C422	ECEA1CK220	22 16
R653	ERDS2TJ223	22K 1/4	R922	ERDS2TJ224	220K 1/4	C425	ECCD1H101K	100P 50
R654	ERDS2TJ223	22K 1/4	R923	ERDS2TJ331	330 1/4	C451	ECEA1EK3R3B	3.3 25
R655	ERDS2TJ392	3.9K 1/4	R924	ERDS2TJ331	330 1/4	C452	ECEA1EK3R3B	3.3 25
R656	ERDS2TJ103	10K 1/4	R925	ERDS2TJ331	330 1/4	C453	ECCD1H101K	100P 50
R657	ERDS2TJ103	10K 1/4	R951	ERDS2TJ472	4.7K 1/4	C454	ECCD1H101K	100P 50
R658	ERDS2TJ223	22K 1/4	R954	ERDS2TJ331	330 1/4	C455	ECBT1H102KB	0.001 50
R659	△ ERDS1FJ820	82 1/2	R955	ERDS2TJ222	2.2K 1/4	C456	ECBT1H102KB	0.001 50
R660	△ ERDS1FJ820	82 1/2	CAPACITORS(VALUE,VOLTAGE)			C457	ECFTD223KXL	0.022 25
R661	ERDS2TJ153	15K 1/4	C101	RCBS1H150JCY	15P 50	C458	ECFTD223KXL	0.022 25
R671	ERDS2TJ471	470 1/4	C102	RCBS1H150JCY	15P 50	C459	ECFTD682KXL	0.0068 25
R672	ERDS2TJ471	470 1/4	C103	ECBT1H102KB	0.001 50	C460	ECFTD682KXL	0.0068 25
R673	ERDS2TJ222	2.2K 1/4	C104	RCBS1H181KBY	180P 50	C461	ECEA1EK3R3B	3.3 25
R674	ERDS2TJ222	2.2K 1/4	C105	ECEA0JK221B	220 6.3	C462	ECEA1EK3R3B	3.3 25
R675	ERDS2TJ102	1K 1/4	C106	ECKD1H103PF	0.01 50	C463	ECEA0JK330	33 6.3
R676	ERDS2TJ102	1K 1/4	C107	ECKD1H223PF	0.022 50	C464	ECEA0JK330	33 6.3
R681	ERDS2TJ222	2.2K 1/4	C108	ECEA25M4R7R	4.7 25	C501	ECKD1H331KB	330P 50
R682	ERDS2TJ222	2.2K 1/4	C109	ECEA1CU330	33 16	C502	ECKD1H331KB	330P 50
R683	ERDS2TJ102	1K 1/4	C110	ECBT1H102KB	0.001 50	C503	ECFTD333KXL	0.033 25
R684	ERDS2TJ102	1K 1/4	C201	ECKD1H103PF	0.01 50	C504	ECFTD333KXL	0.033 25
R687	ERDS2TJ221	220 1/4	C202	ECKD1H103PF	0.01 50	C505	ECEA1EK3R3B	3.3 25
R688	ERDS2TJ221	220 1/4	C204	RCBC1H470JLY	47P 50	C506	ECEA1EK3R3B	3.3 25
R701	△ ERDS1FJ332	3.3K 1/2	C205	ECKD1H223PF	0.022 50	C509	ECEA1CKS100	10 16
R702	ERDS2TJ122	1.2K 1/4	C206	RCBS1H150JCY	15P 50	C510	ECEA1CKS100	10 16
R703	ERDS2TJ272	2.7K 1/4	C208	ECEA0JU101	100 6.3	C511	ECCD1H120KC	12P 50
R704	ERDS2TJ222	2.2K 1/4	C209	ECEA1CKS100	10 16	C512	ECCD1H120KC	12P 50
R705	ERDS2TJ272	2.7K 1/4	C210	ECKD1H223PF	0.022 50	C513	ECEA1EK3R3	3.3 25
R706	ERDS2TJ1R2	1.2 1/4	C211	ECKD1H223PF	0.022 50	C514	ECEA1EK3R3	3.3 25
R707	ERDS2TJ1R2	1.2 1/4	C212	ECKD1H223PF	0.022 50	C515	ECBT1E103ZF	0.01 25
R708	△ ERDS1FJ270	27 1/2	C213	RCBC1H101KBY	100P 50	C516	ECEA1EK3R3B	3.3 25
R709	△ ERDS1FJ270	27 1/2	C214	ECEA1CKS100	10 16	C517	ECKD1H103PF	0.01 50
R710	ERDS2TJ272	2.7K 1/4	C215	ECKD1H103PF	0.01 50	C518	ECKD1H103PF	0.01 50
R713	ERDS2TJ183	18K 1/4	C216	ECEA1CKS100	10 16	C520	ECEA1EK3R3B	3.3 25
R715	ERDS2TJ101	100 1/4	C217	ECEA1HK010	1 50	C541	ECCD1H330K	33P 50
R716	ERDS2TJ222	2.2K 1/4	C220	ECEA1CKS100	10 16	C542	ECCD1H330K	33P 50
R717	△ ERD25FJ150	15 1/4	C221	ECFTD183KXL	0.018 25	C551	ECFTD563KXL	0.056 25
R719	ERDS2TJ4R7	4.7 1/4	C222	ECQM1H473JZ	0.047 50	C552	ECFTD563KXL	0.056 25
R720	ERDS2TJ222	2.2K 1/4	C225	RCBS1H180JCY	18P 50	C553	ECEA1HK010	1 50
R721	ERDS2TJ472	4.7K 1/4				C554	ECEA1HK010	1 50

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
C555	ECFTD223KXL	0.022 25	C610	ECCD1H151K	150P 50	C709	ECKD1H103PF	0.01 50
C556	ECFTD223KXL	0.022 25	C611	ECKD1H223PF	0.022 50	C710	ECKD1H103PF	0.01 50
C557	ECEA1HKR22	0.22 50	C612	ECKD1H223PF	0.022 50	C711	ECEA1CK101	100 16
C558	ECEA1HKR22	0.22 50	C613	ECEA1CK101	100 16	C712	ECEA1VU470	47 35
C559	ECFTD472KXL	0.0047 25	C614	ECEA1HS330	33 50	C713	ECEA0JU101	100 6.3
C560	ECFTD472KXL	0.0047 25	C615	ECEA2AU100	10 100	C714	ECEA0JU101	100 6.3
C561	ECFTD683KXL	0.068 25	C616	ECEA2AN2R2S	2.2 100	C751	ECEA16V1000	1000 16
C562	ECFTD683KXL	0.068 25	C617	ECQM1H681KF	680P 50	C752	ECEA1CU470	47 16
C563	ECFTD102KXL	0.001 25	C618	ECQM1H681KF	680P 50	C753	ECKD1H103PF	0.01 50
C564	ECFTD102KXL	0.001 25	C651	ECEA1CKS100	10 16	C754	ECKD1H103PF	0.01 50
C565	ECFTD183KXL	0.018 25	C671	ECCD1H180KC	18P 50	C755	ECEA1CU330	33 16
C566	ECFTD183KXL	0.018 25	C672	ECCD1H180KC	18P 50	C771	△ ECQE1104KN	0.1 100
C567	ECKD1H561KB	560P 50	C673	ECCC1H221K	220P 50	C781	△ ECEA1JU471	470 63
C568	ECKD1H561KB	560P 50	C674	ECCC1H221K	220P 50	C791	ECKWNS103ZVS	0.01 250
C569	ECFTD392KXL	0.0039 25	C675	ECCD1H101K	100P 50	C813	ECEA1CKS100	10 16
C570	ECFTD392KXL	0.0039 25	C676	ECCD1H101K	100P 50	C815	ECEA1CK100	10 16
C571	ECCD1H820K	82P 50	C677	ECCT1H331K	330P 50	C851	ECFTD104KXL	0.1 25
C572	ECCD1H820K	82P 50	C678	ECCT1H331K	330P 50	C852	ECEA0JU101	100 6.3
C573	ECKD1H471KB	470P 50	C679	ECCD1H101K	100P 50	C853	ECFTD104KXL	0.1 25
C574	ECKD1H471KB	470P 50	C680	ECCD1H101K	100P 50	C854	ECFTD104KXL	0.1 25
C575	ECEA1EK3R3B	3.3 25	C685	ECKD1H103PF	0.01 50	C891	ECKD1H392KB	3900P 50
C576	ECEA1EK3R3B	3.3 25	C686	ECKD1H103PF	0.01 50	C901	ECEA0JS102	1000 6.3
C577	ECEA1CKS100	10 16	C687	ECKD1H103PF	0.01 50	C902	ECEA0JS102	1000 6.3
C578	ECEA1CKS100	10 16	C688	ECKD1H103PF	0.01 50	C903	ECEA1HK101	1 50
C579	ECEA1CKS100	10 16	C693	ECCD1H820K	82P 50	C906	ECKD1H331KB	330P 50
C580	ECEA1CKS100	10 16	C694	ECCD1H820K	82P 50	C910	ECKD1H103PF	0.01 50
C589	ECEA1EK3R3B	3.3 25	C695	ECCT1H331K	330P 50	C911	ECEA1HU3R3	3.3 50
C590	ECEA1EK3R3B	3.3 25	C696	ECCT1H331K	330P 50	C912	ECEA1HK3R3	3.3 50
C601	ECEA1EK3R3	3.3 25	C697	ECCD1H101K	100P 50	C913	ECEA1HK3R3	3.3 50
C602	ECEA1EK3R3	3.3 25	C698	ECCD1H101K	100P 50	C914	ECEA1VK100B	10 35
C603	ECQP1391JZ	390P 100	C701	ECETS1HV682U	6800 50	C915	ECEA1HU101	100 50
C604	ECQP1391JZ	390P 100	C702	ECETS1HV682U	6800 50	C916	ECEA0JS102	1000 6.3
C605	ECEA1CK220	22 16	C703	ECKD1H103PF	0.01 50	C917	ECKD1H102PF	0.001 50
C606	ECEA1CK220	22 16	C704	ECEA1VU101	100 35	C919	ECEA1EK3R3B	3.3 25
C607	ECCD1H080CC	8P 50	C705	ECEA1CK101	100 16	C920	RCBS1H150JCY	15P 50
C608	ECCD1H080CC	8P 50	C706	ECKD1H103PF	0.01 50	C921	RCBS1H150JCY	15P 50
C609	ECCD1H151K	150P 50	C708	ECEA1CK101	100 16	C922	ECKD1H331KB	330P 50
						C951	ECEA0JU101	100 6.3

# REPLACEMENT PARTS LIST

Notes : \* Important safety notice :

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

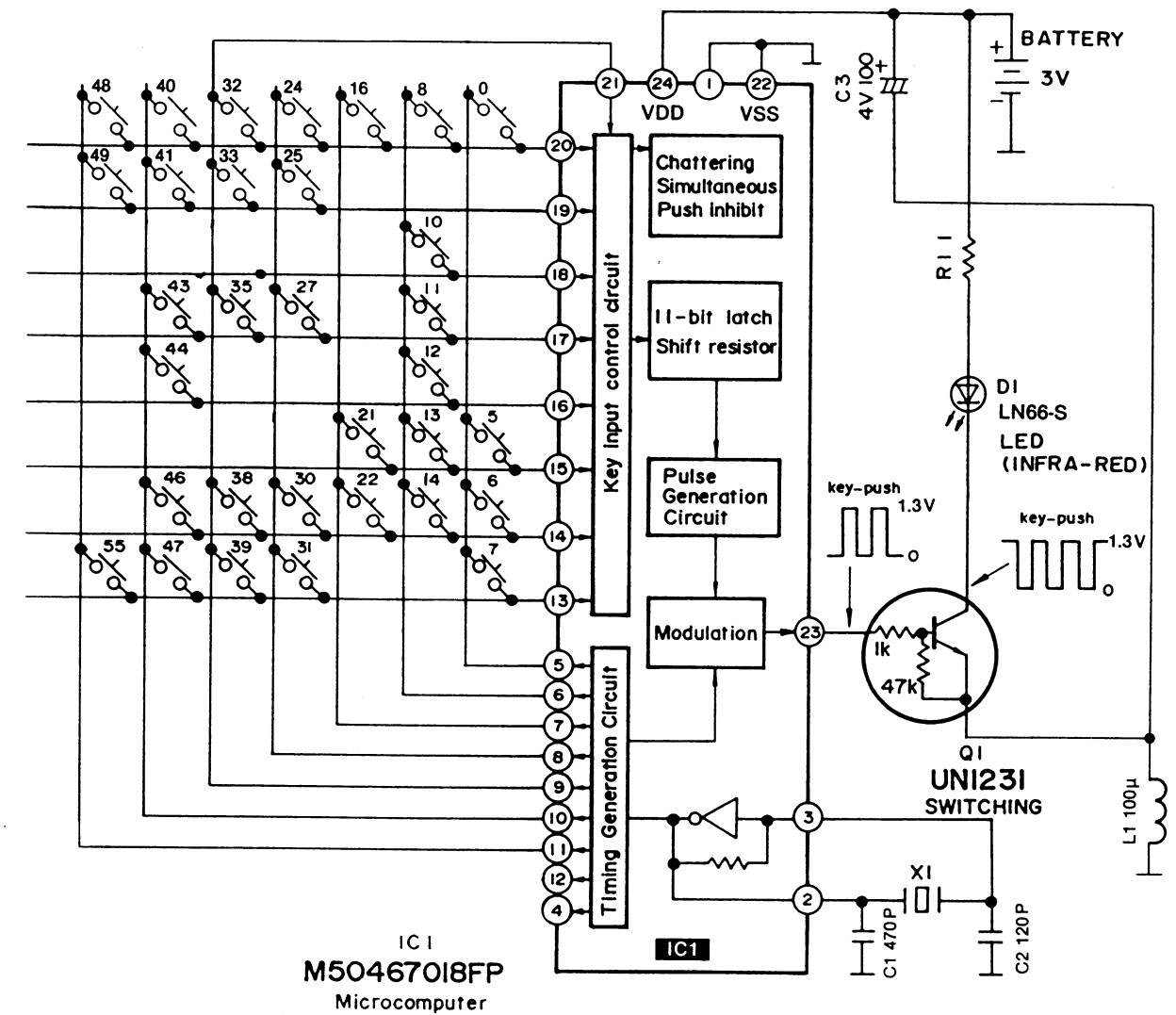
\* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)  
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
<b>INTEGRATED CIRCUITS</b>			Q968	UN4115	TRANSISTOR
IC101	LM7001	I.C. PLL SYNTHESIZER	Q969	UN4115	TRANSISTOR
IC201	AN7273B	I.C. FM/AM IF AMP	Q970	UN4115	TRANSISTOR
IC301	SV1UPC1161C3	I.C. FM MULTIPLEX	Q971	UN4115	TRANSISTOR
IC401	TC9163N	I.C. INPUT SELECTOR	Q972	UN4115	TRANSISTOR
IC402	AN6552F	I.C. BUFFER AMP	Q973	UN4115	TRANSISTOR
IC451	AN6558F	I.C. PHONO EQ AMP	<b>DIODES</b>		
IC501	AN6558F	I.C. BUFFER AMP	D101	MA165	DIODE
IC502	LC4966	I.C. GRAPHIC EQ CONTROL	D202	MA4110M	DIODE
IC551	M5226P	I.C. GRAPHIC EQ AMP	D204	MA165	DIODE
IC552	M5226P	I.C. GRAPHIC EQ AMP	D206	MA165	DIODE
IC601	SV13203	I.C. POWER AMP	D301	MA165	DIODE
IC851	BA6218	I.C. MOTOR DRIVE	D551	MA4030M	DIODE
IC901	LC6554H3682	I.C. MICRDCOMPUTER	D552	MA4030M	DIODE
IC902	AN90870	I.C. DATA COAD DET	D601	MA4120	DIODE
IC951	BA6148	I.C. FL DRIVE	D602	MA4120	DIODE
<b>TRANSISTORS</b>			D651	MA165	DIODE
Q101	2SC2785FE	TRANSISTOR	D652	MA4051-M	DIODE
Q102	2SC2785FE	TRANSISTOR	D653	MA165	DIODE
Q201	2SC2787L	TRANSISTOR	D654	MA167	DIODE
Q202	2SC2787L	TRANSISTOR	D655	MA167	DIODE
Q204	2SC1740SQ	TRANSISTOR	D701	$\Delta$ SVDS3V40	DIODE
Q205	2SC1740SQ	TRANSISTOR	D702	$\Delta$ SVDS3V40	DIODE
Q206	2SA933SQR	TRANSISTOR	D703	$\Delta$ SVDS3V40	DIODE
Q207	2SC1740SQ	TRANSISTOR	D704	$\Delta$ SVDS3V40	DIODE
Q208	2SA933SQR	TRANSISTOR	D705	MA4062-M	DIODE
Q209	2SA933SQR	TRANSISTOR	D706	MA4062-M	DIODE
Q210	2SC1740SQ	TRANSISTOR	D709	MA4300M	DIODE
Q301	2SD1450RS	TRANSISTOR	D710	MA29WA	DIODE
Q302	2SD1450RS	TRANSISTOR	D711	MA4150M	DIODE
Q303	2SA933SQR	TRANSISTOR	D712	MA165	DIODE
Q501	2SJ40CD	TRANSISTOR	D751	$\Delta$ SVD1SR35200A	DIODE
Q502	2SJ40CD	TRANSISTOR	D752	$\Delta$ SVD1SR35200A	DIODE
Q503	2SK117-GR	TRANSISTOR	D753	$\Delta$ SVD1SR35200A	DIODE
Q504	2SK117-GR	TRANSISTOR	D754	$\Delta$ SVD1SR35200A	DIODE
Q505	UN4111	TRANSISTOR	D755	MA165	DIODE
Q506	UN4211	TRANSISTOR	D756	MA165	DIODE
Q507	UN4211	TRANSISTOR	D757	MA4068M	DIODE
Q508	UN4111	TRANSISTOR	D781	$\Delta$ SVD1SR35200A	DIODE
Q509	UN4211	TRANSISTOR	D820	MA165	DIODE
Q510	2SJ40CD	TRANSISTOR	D822	MA165	DIODE
Q513	UN4211	TRANSISTOR	D891	MA165	DIODE
Q514	UN4211	TRANSISTOR	D892	LN846RP	L.E.D
Q601	2SA684-RNC	TRANSISTOR	D901	MA165	DIODE
Q651	2SC3311A-Q	TRANSISTOR	D902	MA165	DIODE
Q652	2SA1309Q	TRANSISTOR	D903	MA165	DIODE
Q701	2SD1762DEF	TRANSISTOR	D904	MA165	DIODE
Q702	2SD1762DEF	TRANSISTOR	D905	MA165	DIODE
Q703	2SC1685NCQRS	TRANSISTOR	D906	MA165	DIODE
Q704	2SC1685NCQRS	TRANSISTOR	D907	MA165	DIODE
Q705	2SC1384A-R	TRANSISTOR	D908	MA165	DIODE
Q708	2SB1185DEF	TRANSISTOR	D909	MA165	DIODE
Q709	2SC1685NCQRS	TRANSISTOR	D910	MA165	DIODE
Q710	2SB1185DEF	TRANSISTOR	D911	MA165	DIODE
Q711	UN4211	TRANSISTOR	D912	MA4068M	DIODE
Q713	UN4215	TRANSISTOR	D914	MA165	DIODE
Q751	2SC3311A-Q	TRANSISTOR	D915	MA165	DIODE
Q752	2SC1384A-R	TRANSISTOR	D919	MA165	DIODE
Q891	UN4113	TRANSISTOR	D921	MA165	DIODE
Q892	UN4215	TRANSISTOR	D922	MA165	DIODE
Q893	UN4215	TRANSISTOR	D952	MA165	DIODE
Q894	UN4215	TRANSISTOR	D953	MA165	DIODE
Q901	2SC1740SQ	TRANSISTOR	D955	MA165	DIODE
Q902	UN4215	TRANSISTOR	D956	MA165	DIODE
Q953	UN4115	TRANSISTOR	D958	MA4075M	DIODE
Q955	UN4115	TRANSISTOR	D959	MA4075M	DIODE
Q960	UN4213	TRANSISTOR	D960	MA165	DIODE
Q962	UN4213	TRANSISTOR	<b>VARIABLE RESISTORS</b>		
Q965	UN4115	TRANSISTOR	VR301	EVND4AA00B53	V.R. MPX VCO
Q966	UN4115	TRANSISTOR	VR302	EVND4AA00B53	V.R. SEPARATION
Q967	UN4115	TRANSISTOR	VR501	EUMMV7F20B15	V.R. BALANCE

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
VR502	EWHFDAF20G15	V.R. MAIN	CF202	SVFE107MM-E	CERAMIC FILTER
VR552	EVBJJAJ15G15	V.R. EQ	<b>OSCILLATORS</b>		
VR553	EVBJJAJ15G15	V.R. EQ	X101	SVQ49U722-S	CRYSTAL OSCILLATOR
VR554	EVBJJAJ15G15	V.R. EQ	<b>DISPLAYS</b>		
VR555	EVBJJAJ15G15	V.R. EQ	FL901	SADBG542GK	DISPLAY TUBE
VR556	EVBJJAJ15G15	V.R. EQ	<b>FRONT PACKS</b>		
<b>COILS AND TRANSFORMERS</b>			TN101	SNVFE337G01	TUNER PACK
L101	RLQZPR47KT-Y	CHOKE COIL	<b>LAMPS</b>		
L102	RLQZP1R2KT-Y	CHOKE COIL	PL1	SWL126-1	LAMP
L203	ELEPK1R0MA	COIL	<b>FUSES</b>		
L204	ELEPK1R0MA	COIL	F1	XBA2C10TB0	FUSE 250V, T1A
L321	SLM1B9-P	MPX COIL	<b>SWITCHES</b>		
L322	SLM1B9-P	MPX COIL	S1	EVQQB005R	SW. PRESET TUNING
L324	SLM1B10-M	COIL	S2	EVQQB005R	SW. PRESET TUNING
L325	RLQZP1R2KT-Y	CHOKE COIL	S3	EVQQB005R	SW. PRESET TUNING
L601	SLQY07G-40	CHOKE COIL	S4	EVQQB005R	SW. PRESET TUNING
L602	SLQY07G-40	CHOKE COIL	S5	EVQQB005R	SW. PRESET TUNING
L791	SLQX400-D	COIL	S6	EVQQB005R	SW. PRESET TUNING
L792	SLQX400-D	COIL	S7	EVQQB005R	SW. PRESET TUNING
L851	ELEPK1R0MA	COIL	S8	EVQQB005R	SW. PRESET TUNING
L852	ELEPK1R0MA	COIL	S9	EVQQB005R	SW. PRESET TUNING
L892	RLQZP101KT-Y	COIL	S10	EVQQB005R	SW. PRESET TUNING
L893	RLQZP101KT-Y	COIL	S11	EVQQB005R	SW. MEMORY-SCAN GROUP-S
L902	RLQZP101KT-Y	COIL	S12	EVQQB005R	SW. FM MODE SELECT
T201	SL14B511-Z	I.F. TRANSFORMER	S13	EVQQB005R	SW. BAND SELECT(FM)
T202	SL14B513-Z	I.F. TRANSFORMER	S14	EVQQB005R	SW. BAND SELECT(AM)
T701	SLT5M540-K	POWER TRANSFORMER	S16	EVQQB005R	SW. TUNING(MANUAL)
T751	SLT5128	POWER TRANSFORMER	S17	EVQQB005R	SW. TUNING(AUTE)
<b>COMPONENT COMBINATIONS</b>			S18	EVQQB005R	SW. CHANGE MODE SELECTO
Z201	SLA2Z1-T	COIL	S19	EVQQB005R	SW. ASSORT MODE
Z202	SL17Z101-T	I.F. TRANSFORMER	S20	EVQQB005R	SW. GROUP SELECTOR
Z321	SLA4Z13-Z	ANTENNA COIL	S21	EVQQB005R	SW. MEMORY
Z891	GP1U509M	DIODE, REMOTE SENSOR	S22	EVQQB005R	SW. LOUDNESS
Z901	EXFP12331MF	COMPONENT COMBINATION	S23	EVQQB005R	SW. PHONO
Z902	EXBF8E473J	COMPONENT COMBINATION	S24	EVQQB005R	SW. TUNER
Z903	EXBF9E103J	COMPONENT COMBINATION	S25	EVQQB005R	SW. CD
Z904	EXBF8E103J	COMPONENT COMBINATION	S26	EVQQB005R	SW. VCR1
Z905	EXBF9E103J	COMPONENT COMBINATION	S27	EVQQB005R	SW. VCR2
Z951	EXBF10E104J	100KΩ X 10	S601	SSH2137	SW. SP SELECTOR
<b>FILTERS</b>			S701	SSH1238	SW. POWER
CF201	SVFE107MZ-A	CERAMIC FILTER	S702	SSH1193	SW. SP IMPEDANCE
CF201	SVFE107MZ-D	CERAMIC FILTER	<b>RELAYS</b>		
CF201	SVFE107MZ-E	CERAMIC FILTER	RL601	SSY134	RELAY
CF202	SVFE107MM-A	CERAMIC FILTER	RL751	SSY140	RELAY
CF202	SVFE107MM-D	CERAMIC FILTER			

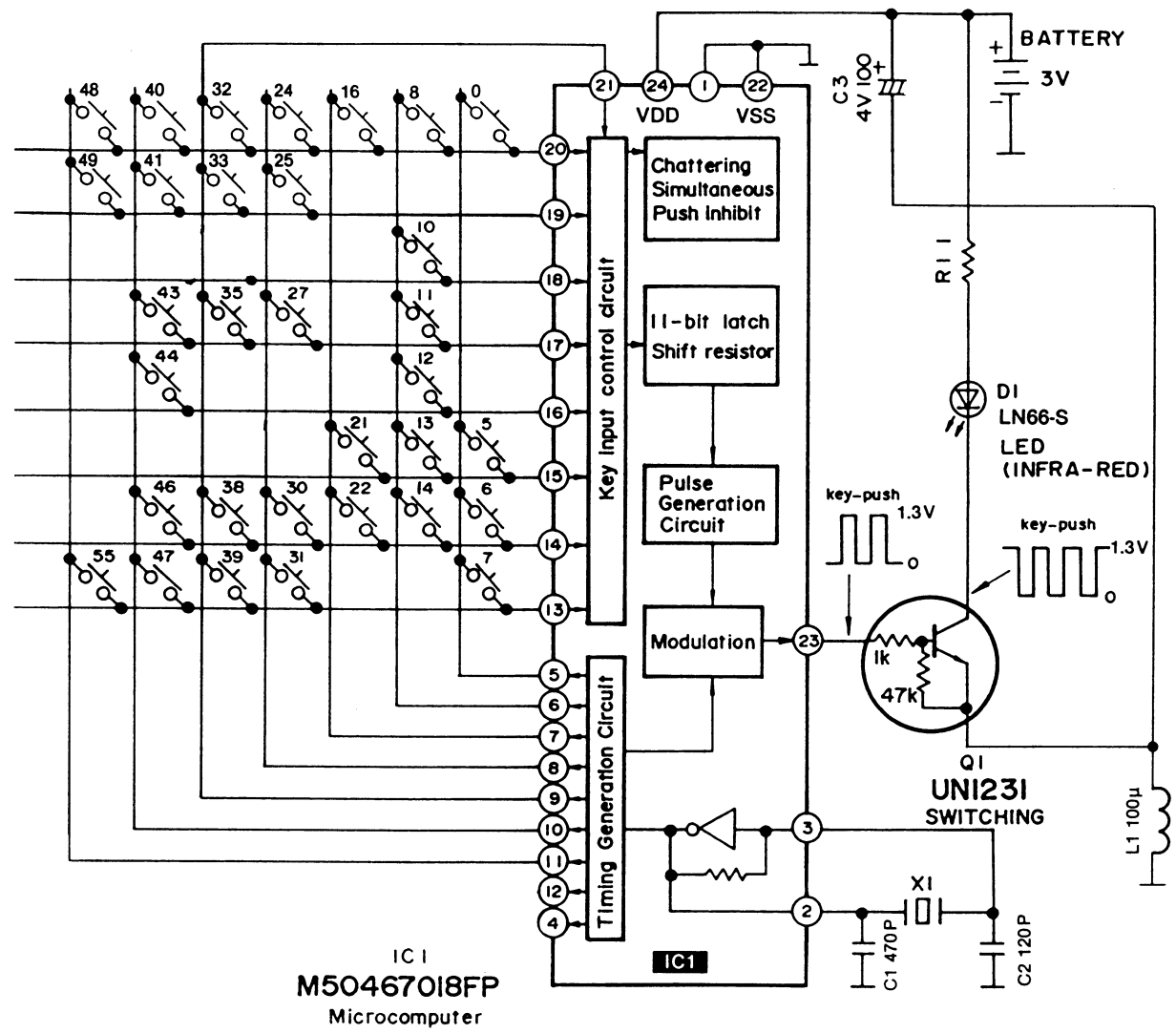
## SCHEMATIC DIAGRAM OF REMOTE-CONTROL TRANSMITTER

• KEY NUMBER



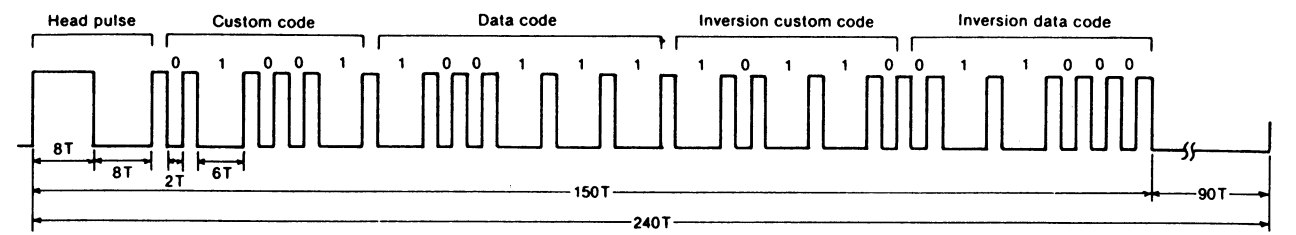
Key No.	
0	CD5
5	▲ vol
6	Tune
7	Power
8	CD6
10	prog
11	CD ▶
12	Deck
13	▼ vol
14	Tuner
16	CD7
21	mutir
22	Tuner
24	CD8
25	CD1
27	CD

■ SCHEMATIC DIAGRAM OF REMOTE-CONTROL TRANSMITTER



• KEY NUMBER DESCRIPTION AND DATA CODE (Example key No. 21)

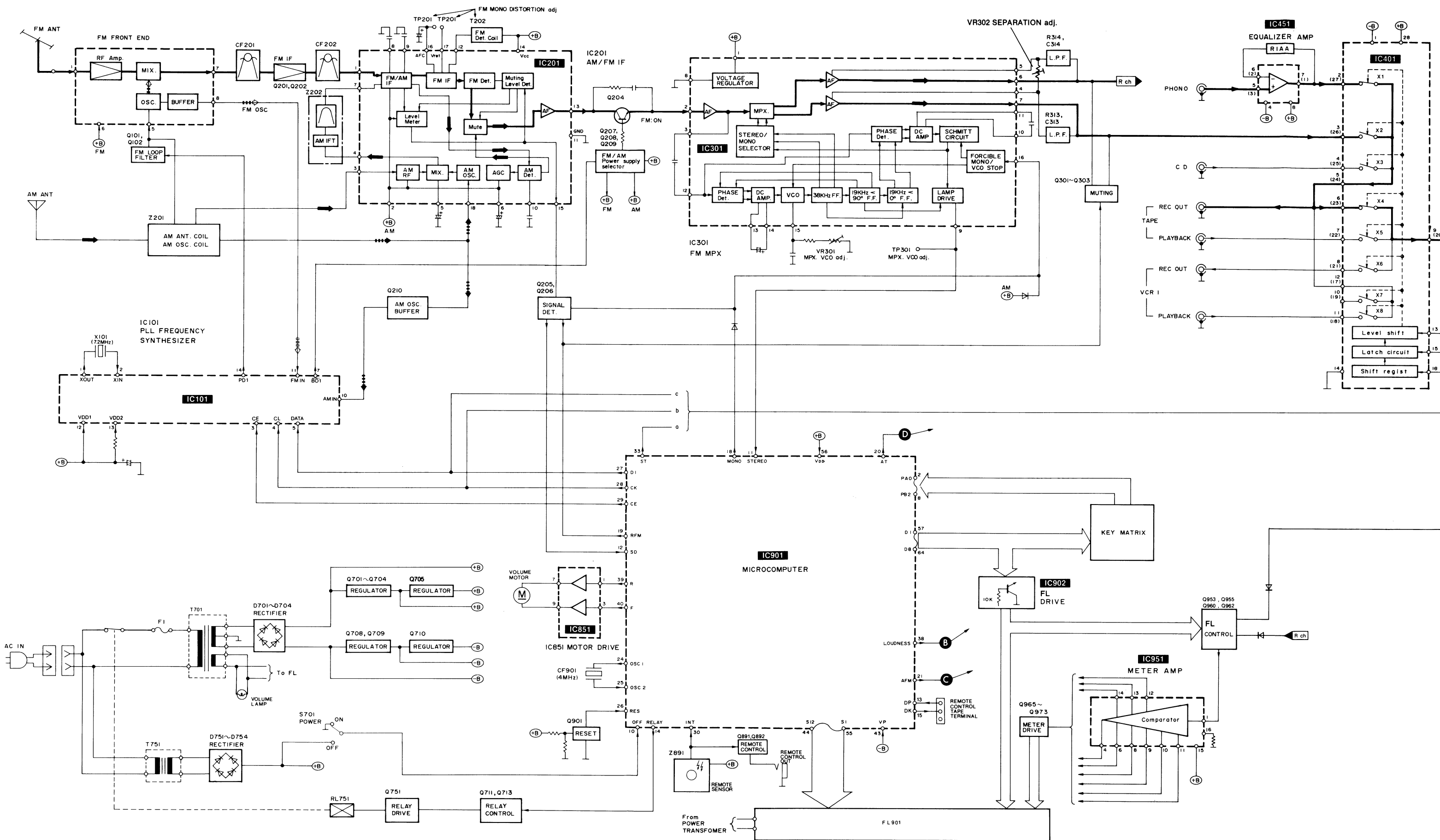
fosc = 420 kHz  
 fcar = fosc/12  
 fclk = fcar/16  
 T = 1/fclk

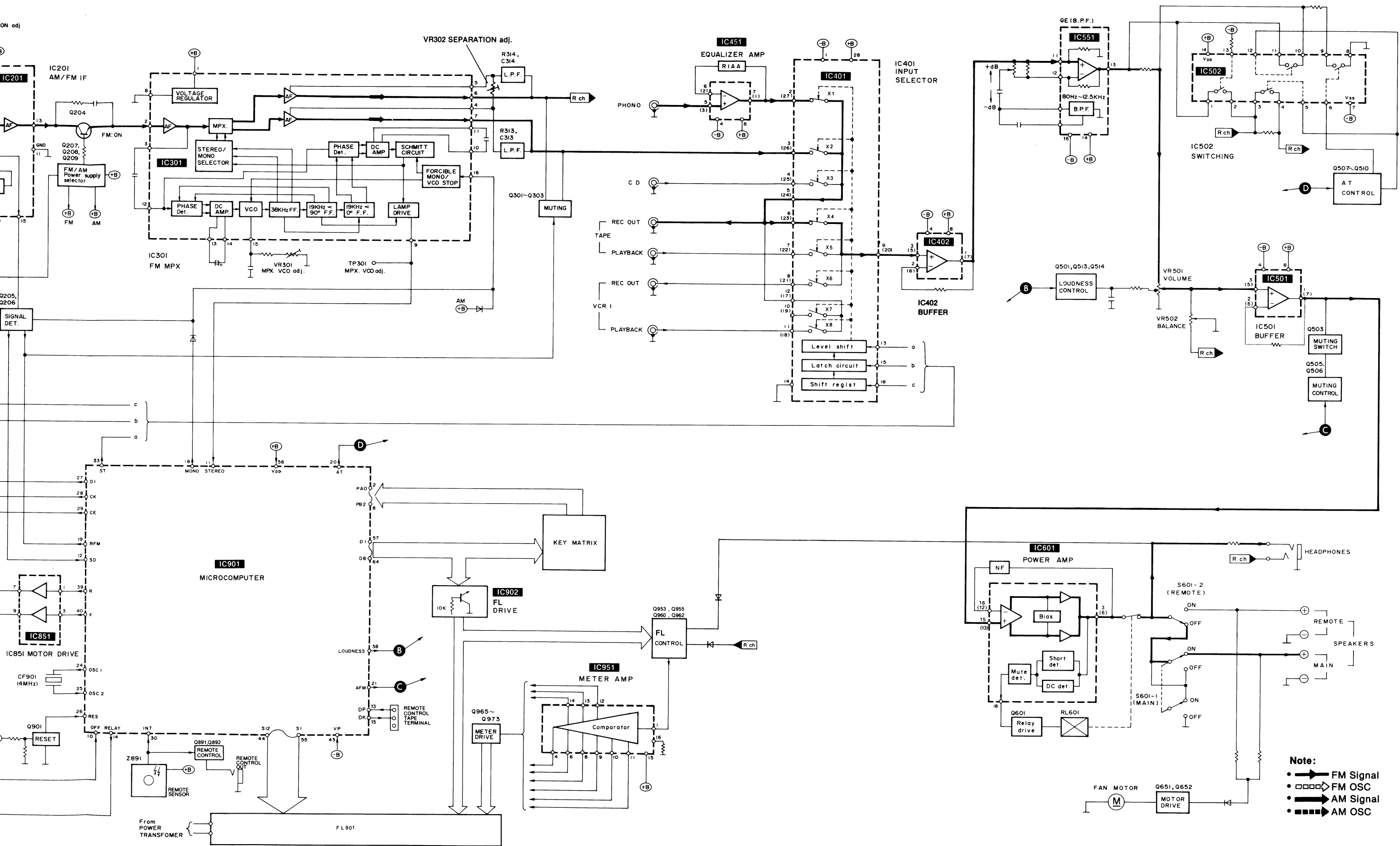


Key No.	Function	Custom code	Data code	Key No.	Function	Custom code	Data code
0	CD5	01100	010100	30	Tuner 8	01001	010111
5	▲ volume	01001	100100	31	Tuner 1	01001	010000
6	Tuner 5	01001	010100	32	CD9	01100	011000
7	Power on/off	01001	100000	33	CD2	01100	010001
8	CD6	01100	010101	35	CD ◀◀ skip	01100	000010
10	program/continue	01100	011101	38	Tuner 9	01001	011000
11	CD ▶ play	01100	001010	39	Tuner 2	01001	010001
12	Deck ▶ play	01001	001010	40	CD10	01100	011001
13	▼ volume	01001	100101	41	CD3	01100	010010
14	Tuner 6	01001	010101	43	CD ▶▶ skip	01100	000011
16	CD7	01100	010110	44	Deck ■ stop	01001	000000
21	muting	01001	100111	46	Tuner 10	01001	011001
22	Tuner 7	01001	010110	47	Tuner 3	01001	010010
24	CD8	01100	010111	48	CD +10	01100	011010
25	CD1	01100	010000	49	CD4	01100	010011
27	CD ■ stop	01100	000000	55	Tuner 4	01001	010011



# BLOCK DIAGRAM

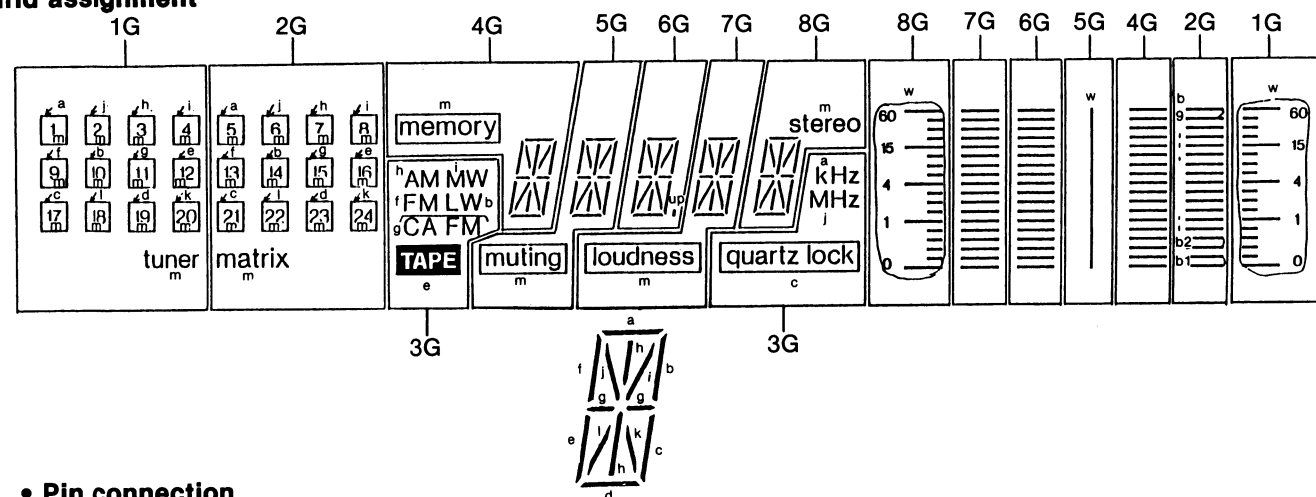




**Note:**  
 •——▶ FM Signal  
 - - - - -▶ FM OSC  
 •••••▶ AM Signal  
 - · - · -▶ AM OSC

### DESCRIPTION OF FLUORESCENT DISPLAY

• Grid assignment



• Pin connection

PIN NO.	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29			
CONNECTION	N	P	F	N	P	N	P	k	d	ℓ	c	e	g	b	f	i	h	j	a	N	P	N	P	1	N	2	N	3	N	4	N	5	N	6	N	7	P	G
PIN NO.	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										
CONNECTION	N	P	N	P	b	N	P	m	N	P	N	C	N	P	N	P	w	n	o	p	q	r	s	t	u	v	N	P	N	P	2	N	P					

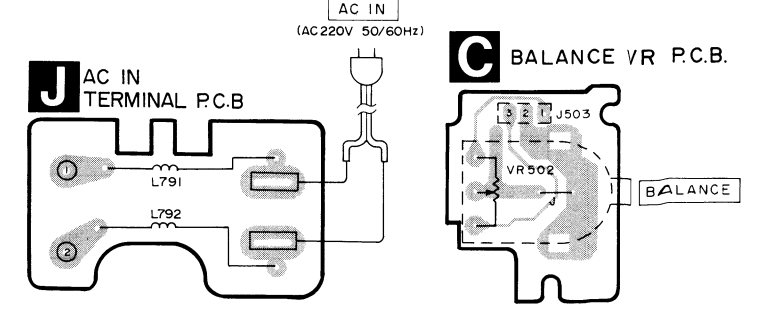
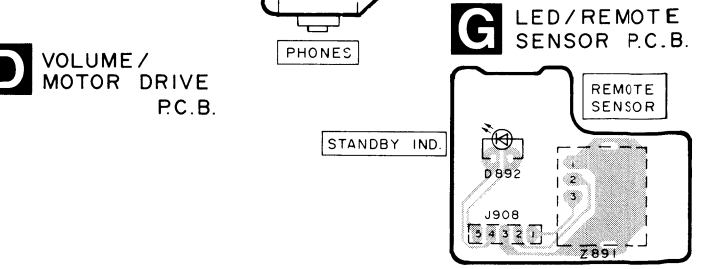
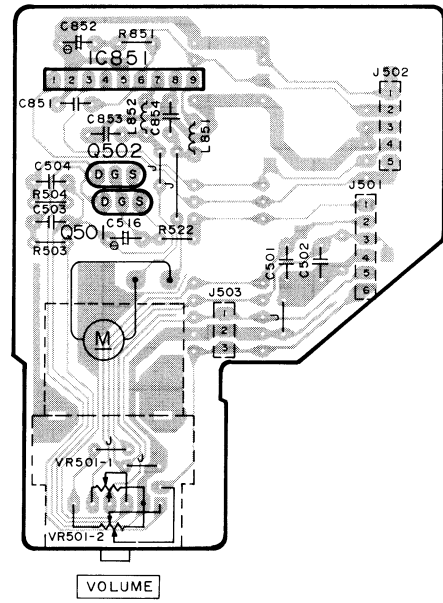
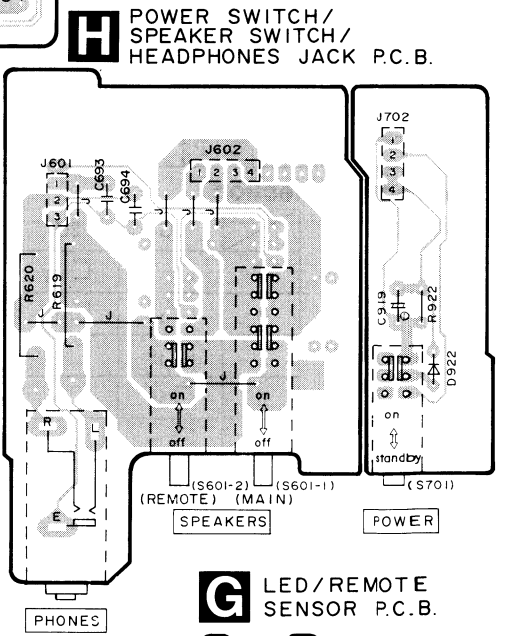
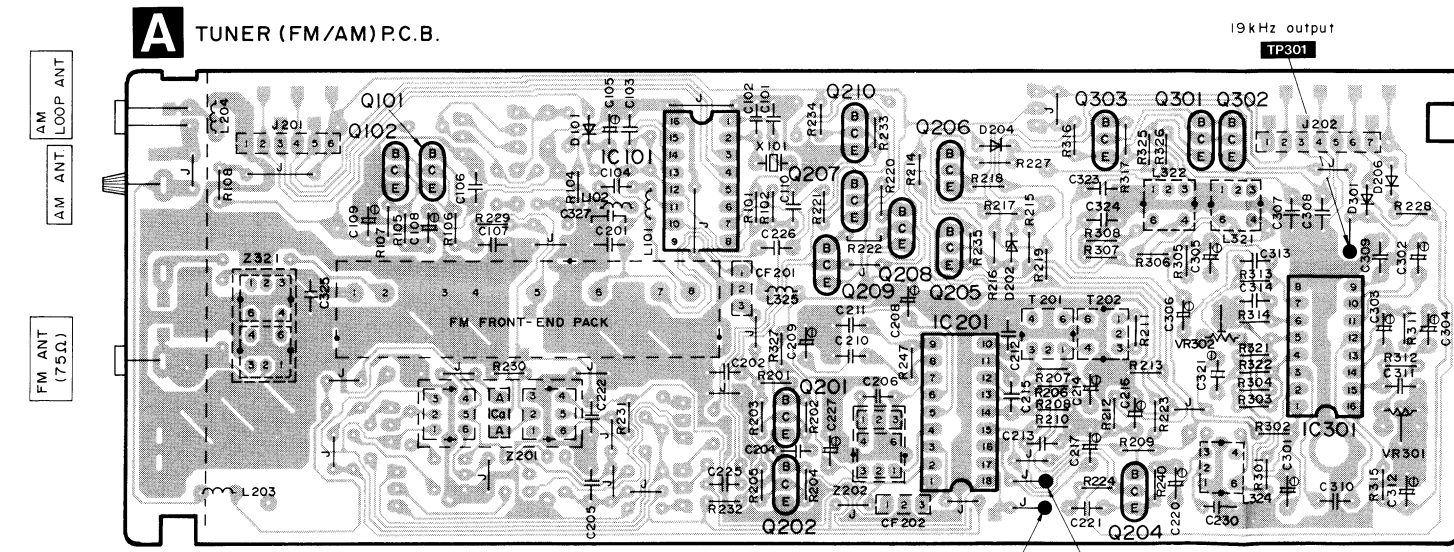
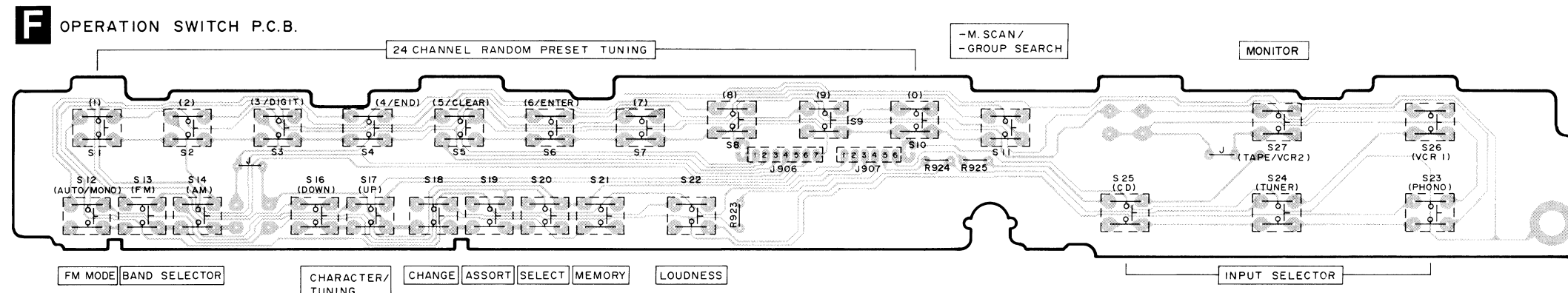
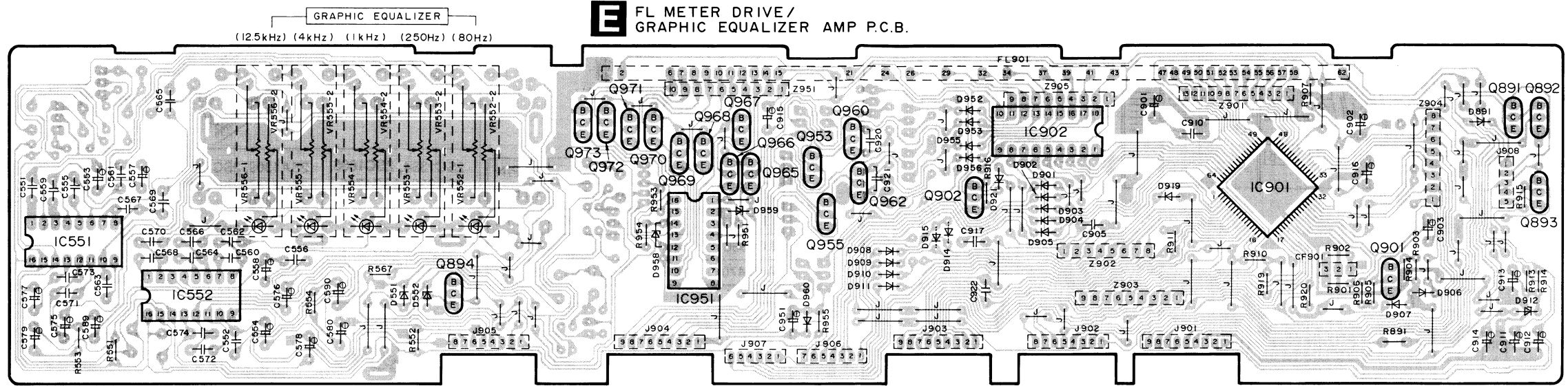
• Anode connection

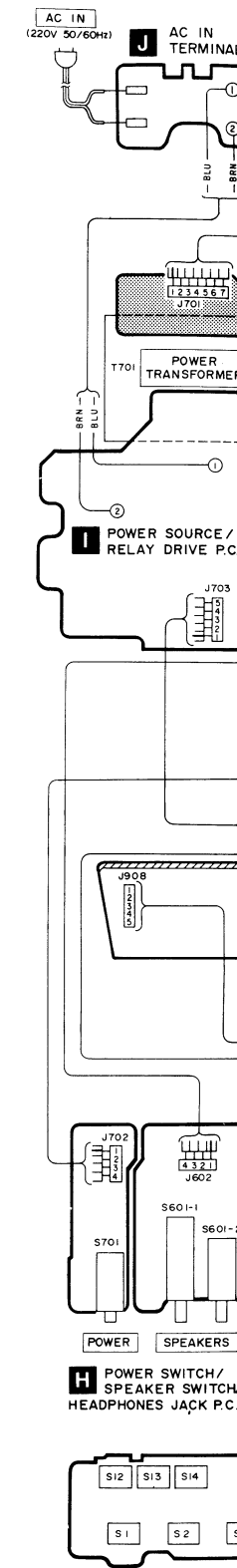
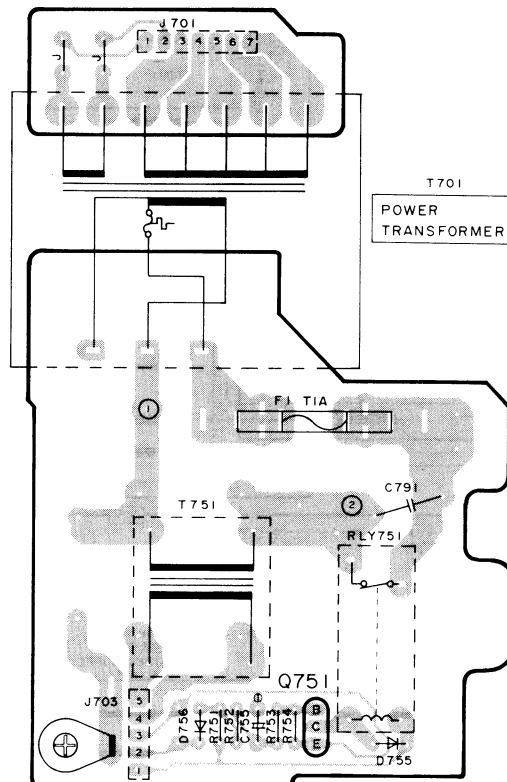
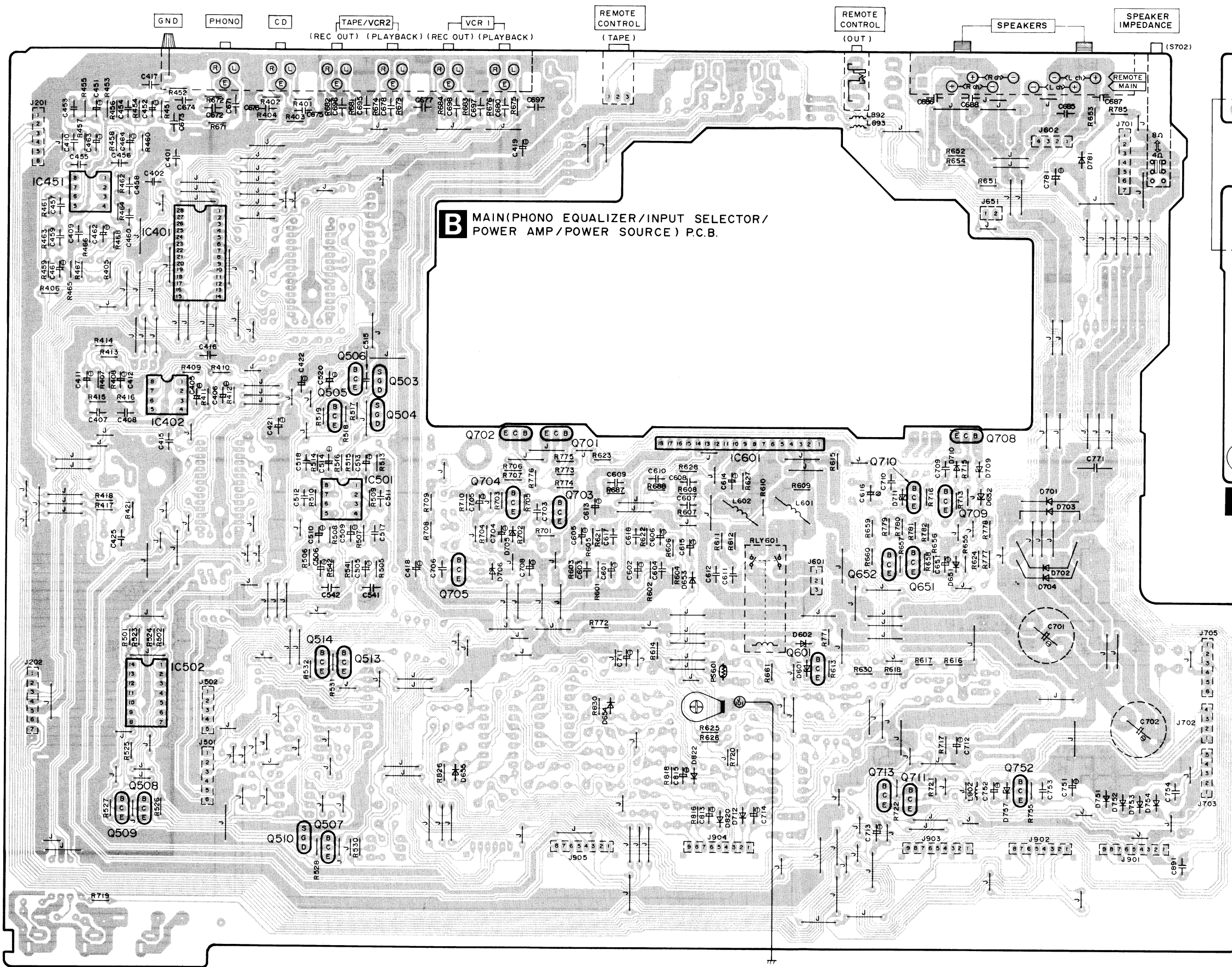
	1G	2G	3G	4G	5G	6G	7G	8G
a	□ 1	□ 5	KHz	a	a	a	a	a
b	□ 10	□ 14	LW	b	b	b	b	b
c	□ 17	□ 21	quartz lock	c	c	c	c	c
d	□ 19	□ 23	-	d	d	d	d	d
e	□ 12	□ 16	TAPE	e	e	e	e	e
f	□ 9	□ 13	FM	f	f	f	f	f
g	□ 11	□ 15	CAFM	g	g	g	g	g
h	□ 3	□ 7	AM	h	h	h	h	h
i	□ 4	□ 8	MW	i	i	i	i	i
j	□ 2	□ 6	MHz	j	j	j	j	j
k	□ 20	□ 24	-	k	k	k	k	k
ℓ	□ 18	□ 22	-	ℓ	ℓ	ℓ	ℓ	ℓ
m	1~4 9~12 17~20 tuner	5~8 13~16 21~24 matrix	-	memory	muting	D.P	loudness	stereo
n	-	≡ b1	-	≡ b1	-	≡ b1	≡ b1	-
o	-	≡ b2	-	≡ b2	-	≡ b2	≡ b2	-
p	-	≡ b3	-	≡ b3	-	≡ b3	≡ b3	-
q	-	≡ b4	-	≡ b4	-	≡ b4	≡ b4	-
r	-	≡ b5	-	≡ b5	-	≡ b5	≡ b5	-
s	-	≡ b6	-	≡ b6	-	≡ b6	≡ b6	-
t	-	≡ b7	-	≡ b7	-	≡ b7	≡ b7	-
u	-	≡ b8	-	≡ b8	-	≡ b8	≡ b8	-
v	-	≡ b9	-	≡ b9	-	≡ b9	≡ b9	-
w	60~0 	-	-	-	-	-	-	60~0 

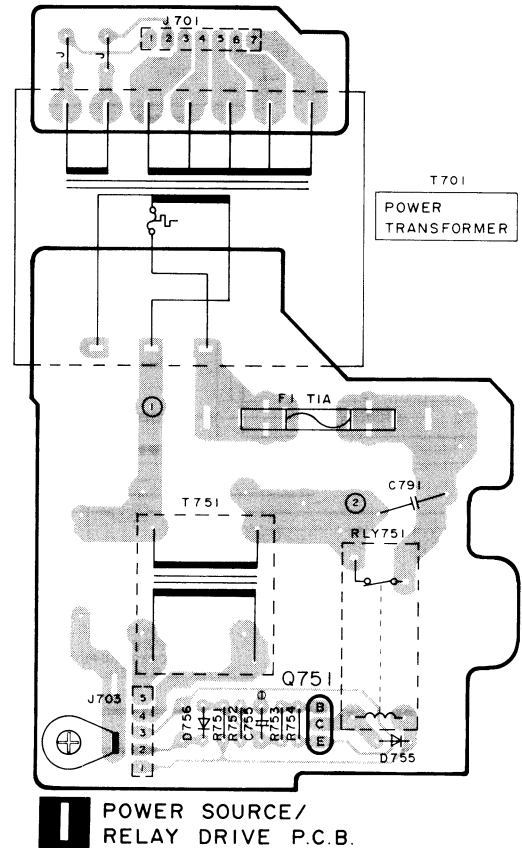
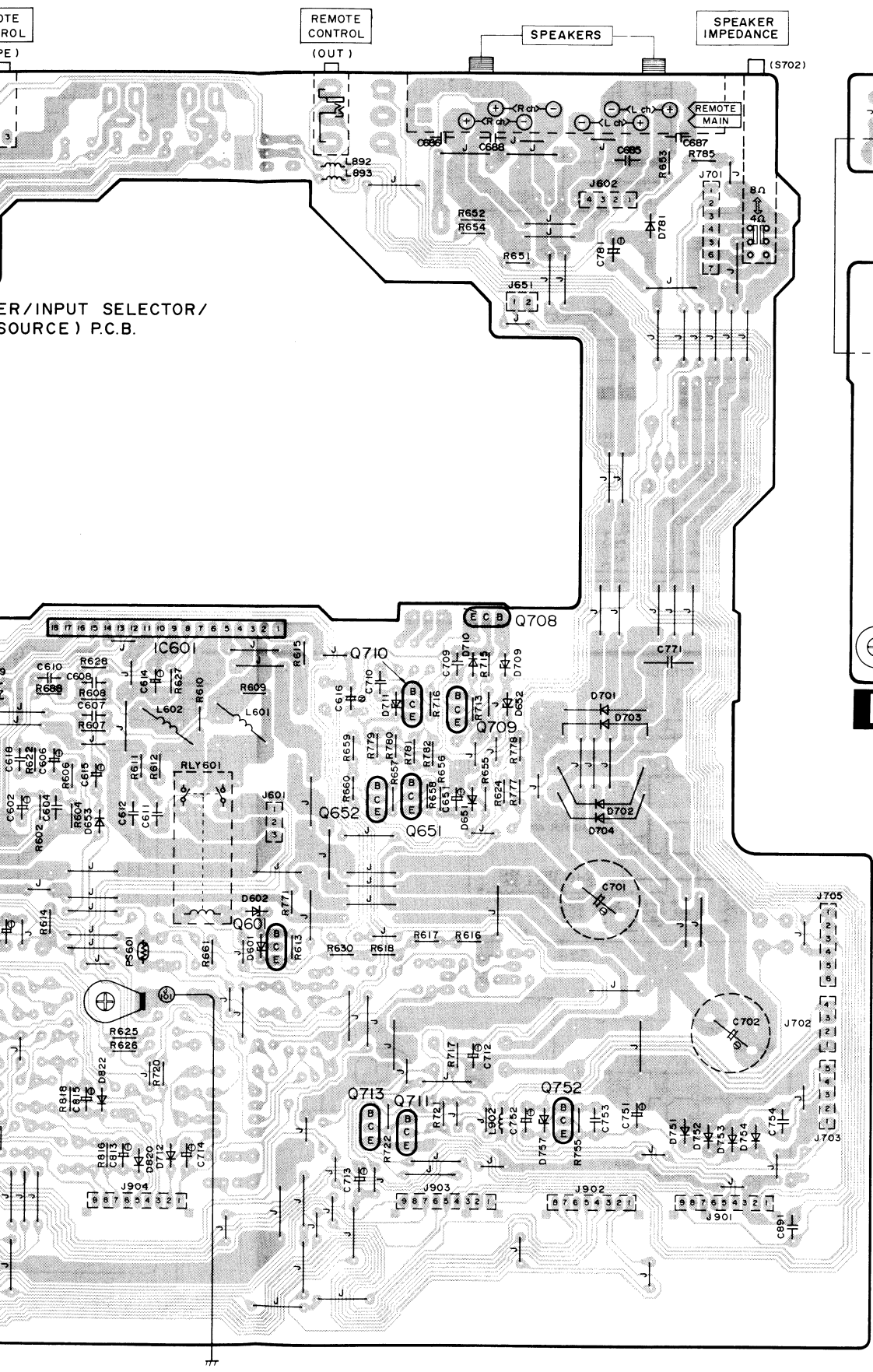
### TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

	LC6554H3682 (64 PIN)	SVI3203 (18 PIN)	BA6218 (9 PIN)
AN6552F 8 PIN AN6558F 8 PIN LM7001 8 PIN LC4966 14 PIN AN7470 16 PIN	BA6148 16 PIN M5226P 16 PIN AN90B70 18 PIN AN7273A 18 PIN TC9163N 28 PIN	2SC1384, 2SC1685, 2SA933, 2SC1740 2SA1309, 2SC2785, 2SC2787, 2SC3311, 2SD1450	2SK117 2SJ40CD
UN4111, UN4113	UN4211, UN4213	UN4115	UN4215
SVDS3V20, MA165, 1SR35200, MA29WA, MA167	LN846RP	2SB1185, 2SD1762	2SC684

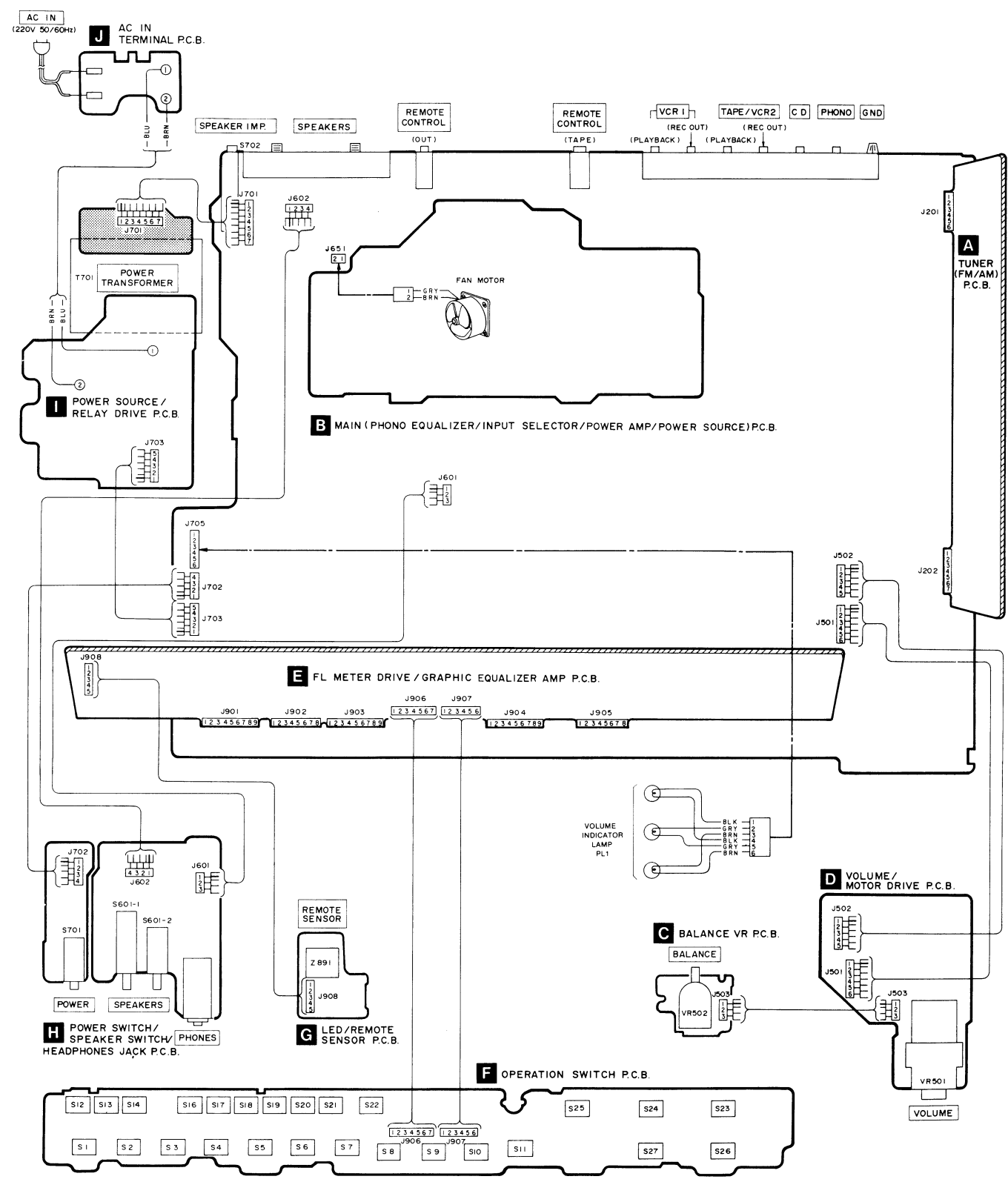
PRINTED CIRCUIT BOARDS







### WIRING CONNECTION DIAGRAM

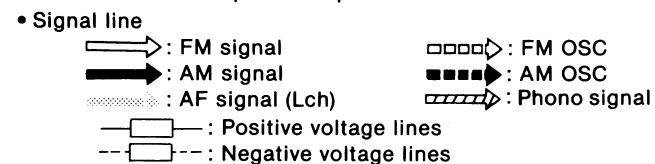


# SCHEMATIC DIAGRAM

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

### Note 1:

- **S1~S10** : Preset tuning switches.  
 [S1: 1, S2: 2, S3: 3, S4: 4, S5: 5,  
 S6: 6, S7: 7, S8: 8, S9: 9, S10: 0]
- **S11** : Memory-scan/group-search switch.
- **S12** : FM mode select switch. (AUTO→MONO)
- **S13, S14** : Band selectors.  
 S13: FM, S14: AM
- **S16, S17** : Character-input/tuning switches.  
 S16: down, S17: up
- **S18** : Change-mode selector.
- **S19** : Assort-mode selector.
- **S20** : Group select switch.
- **S21** : Memory switch.
- **S22** : Loudness switch.
- **S23~S27** : Input selector switches.  
 [S23: phono, S24: tuner, S25: CD,  
 S26: VCR1, S27: tape/VCR2]
- **S601-1, S601-2** : Speaker selectors.  
 S601-1: main, S601-2: remote
- **S701** : Power switch in "on" position.
- **S702** : Speaker impedance selector.



### Important safety notice:

Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts. Indicated voltage values are 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 internal impedance of the DC circuit tester.

All voltage values shown in circuitry are DC voltage in FM signal (Stereo signal) reception mode.  
 \* Figures in ( ) Stand for DC-voltage in AM signal reception mode

### Caution!

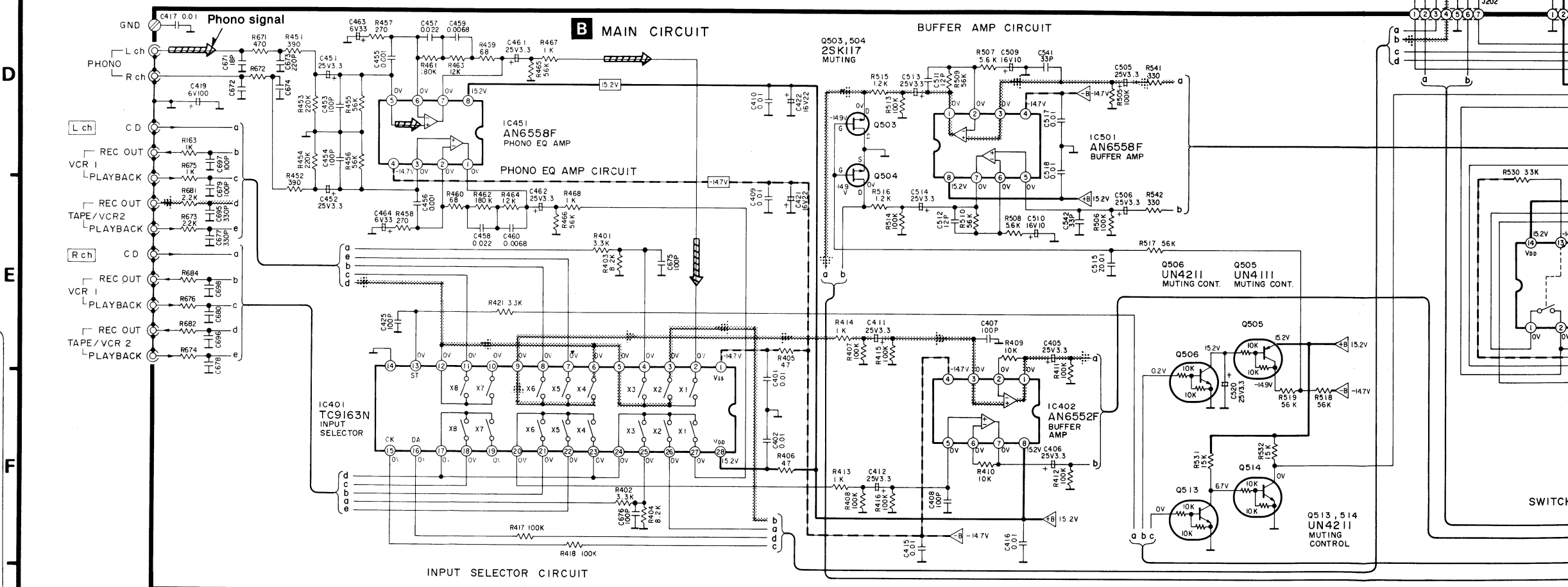
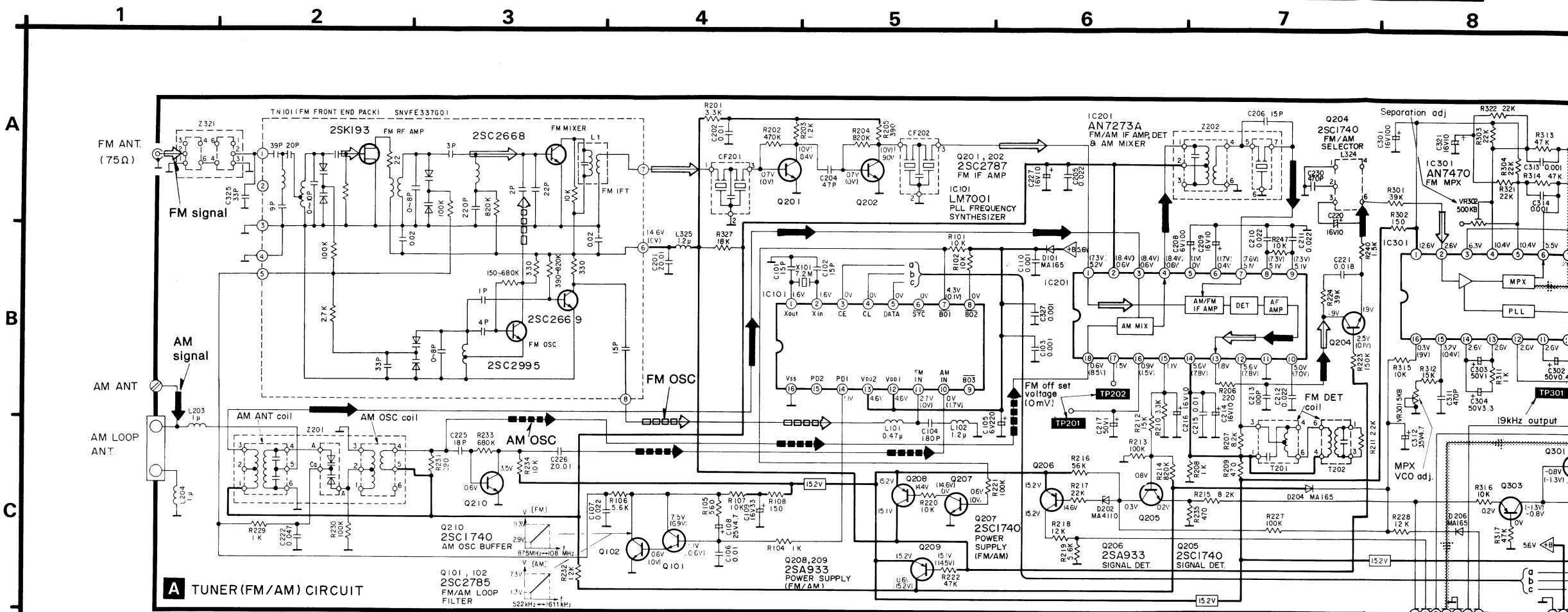
- \* IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.
- \* Cover the parts boxes made of plastics with aluminum foil.
- \* Ground the soldering iron.
- \* Put a conductive mat on the work table.
- \* Do not touch the legs of IC or LSI with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

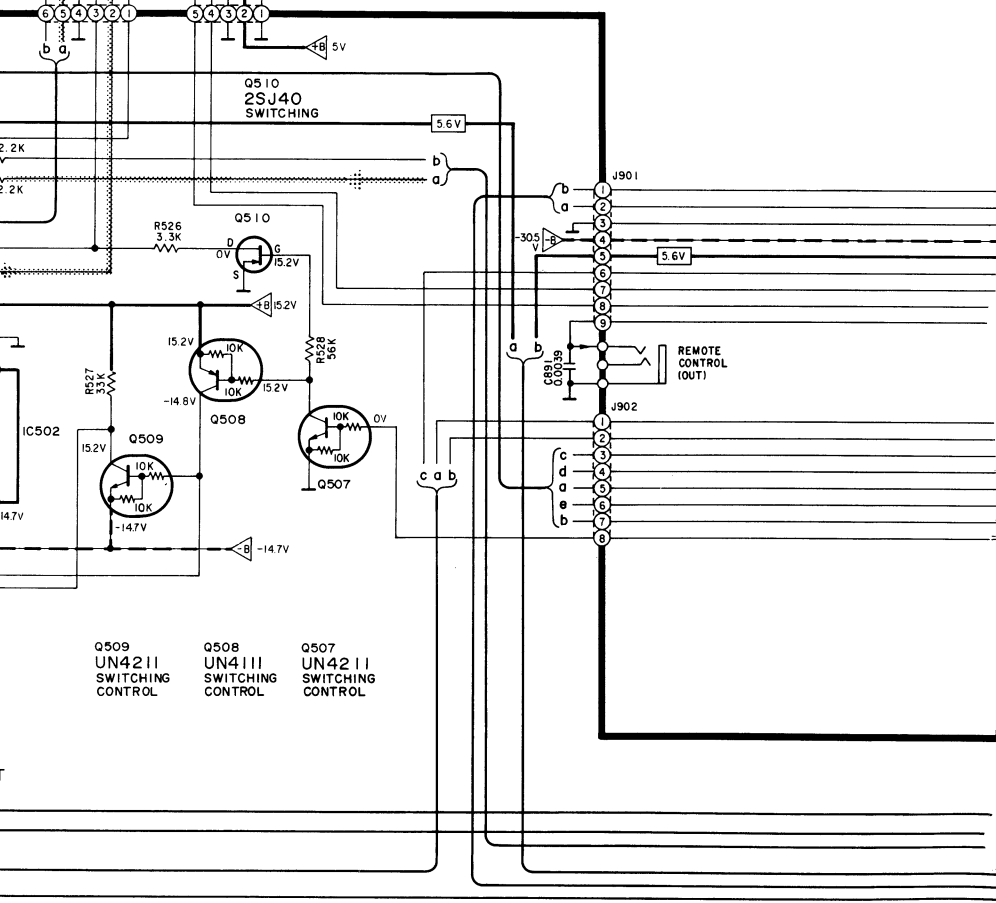
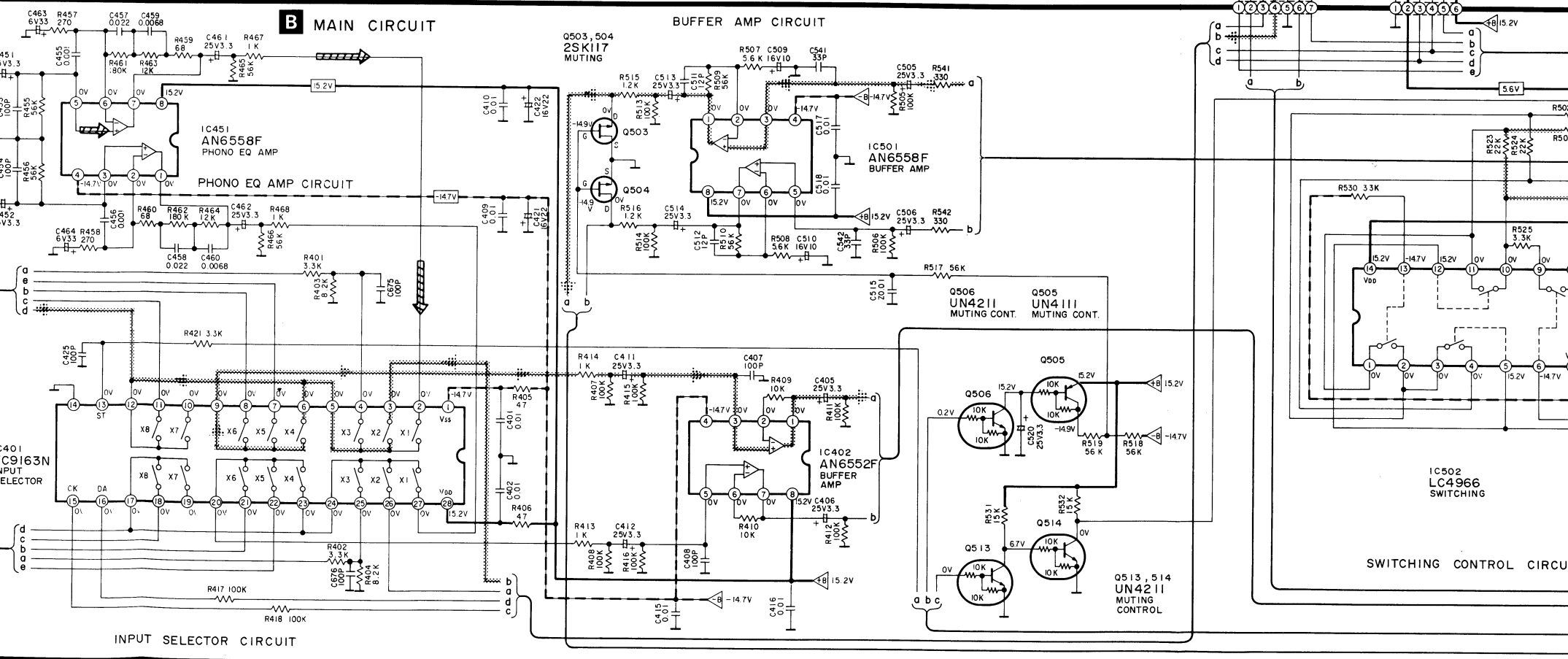
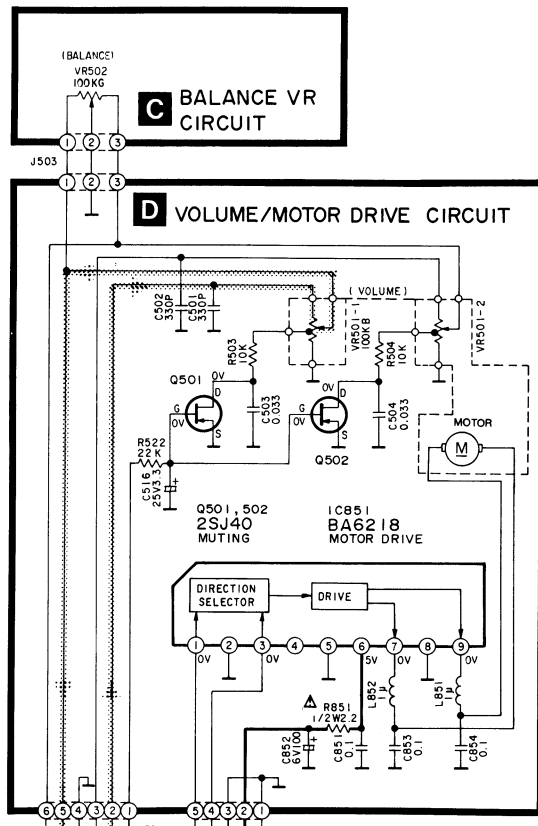
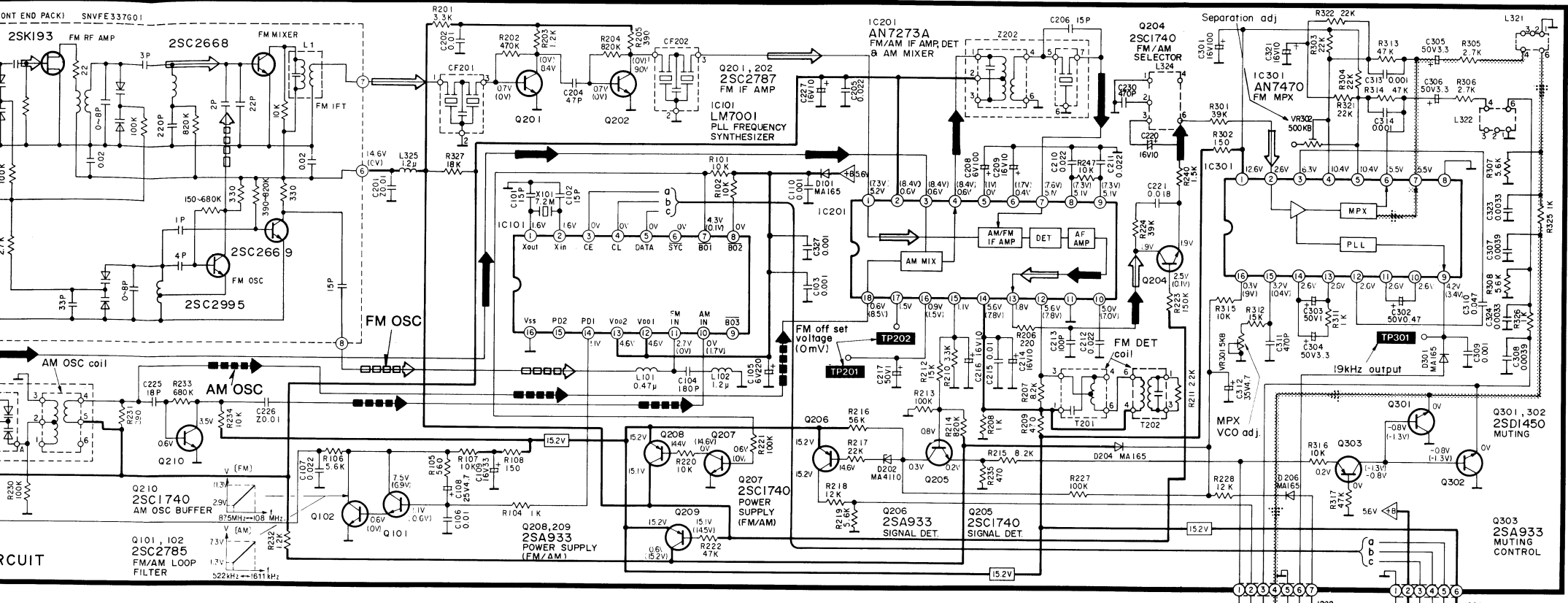
### Note 2:

**Use of ceramic filters in pairs**  
 The ceramic filters (CF201, CF202) for FM-IF circuit are available in three ranks. For this circuit, be sure to use the ceramics of the same rank in a pair.  
 At repairing and replacement, pay close attention to the diodes (D914, D915) for use as different diodes must be used depending on each rank of the ceramic filters.

Color marking (Red, Black or White)	RANK (Color)	D914	D915	CENTER FREQUENCY
SFE 10.7MHz	Black	○	×	10.65MHz
	Red	×	×	10.70MHz
	White	×	○	10.75MHz

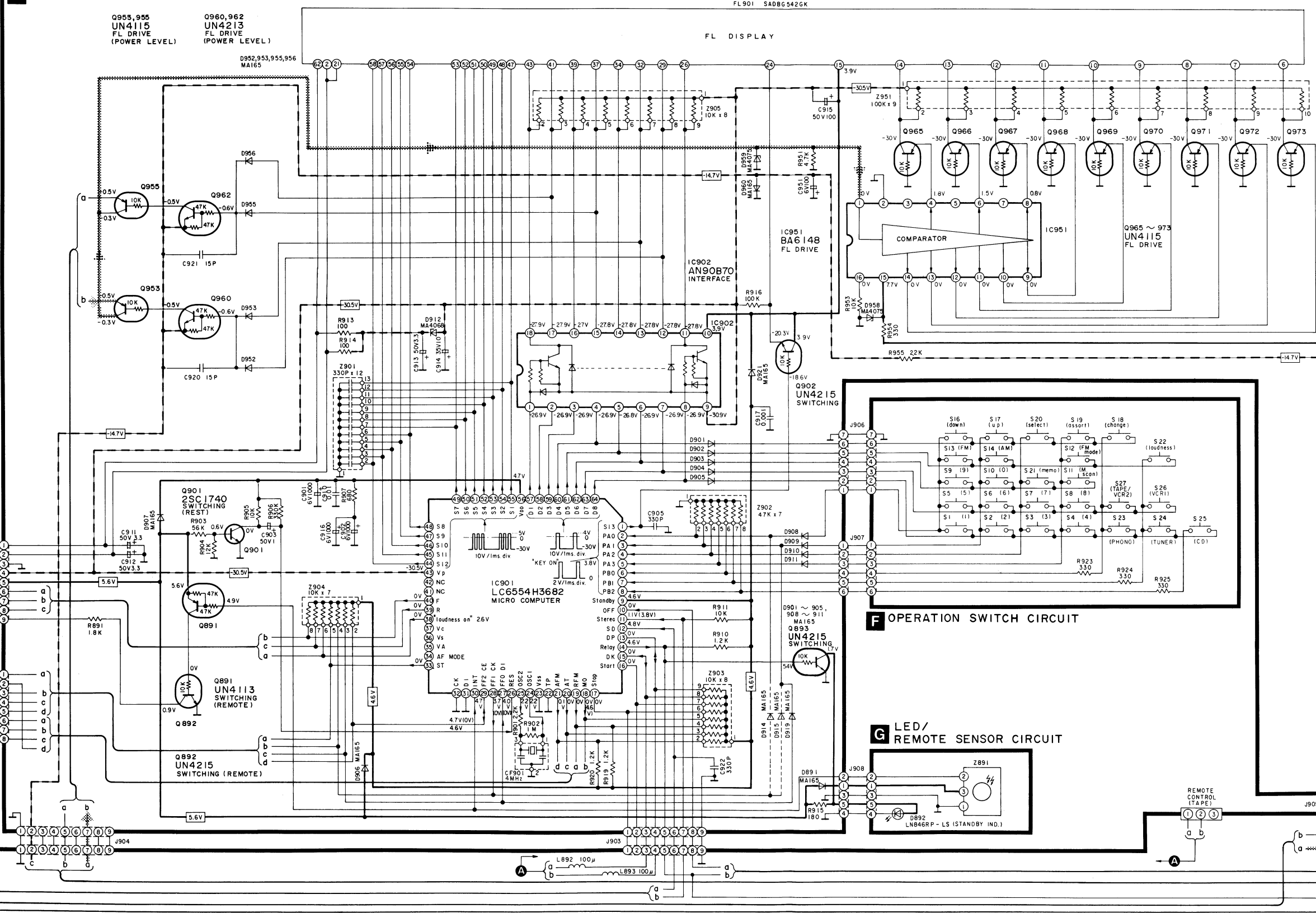
Note: ○ mark: Diode is used.  
 × mark: Diode is not used.



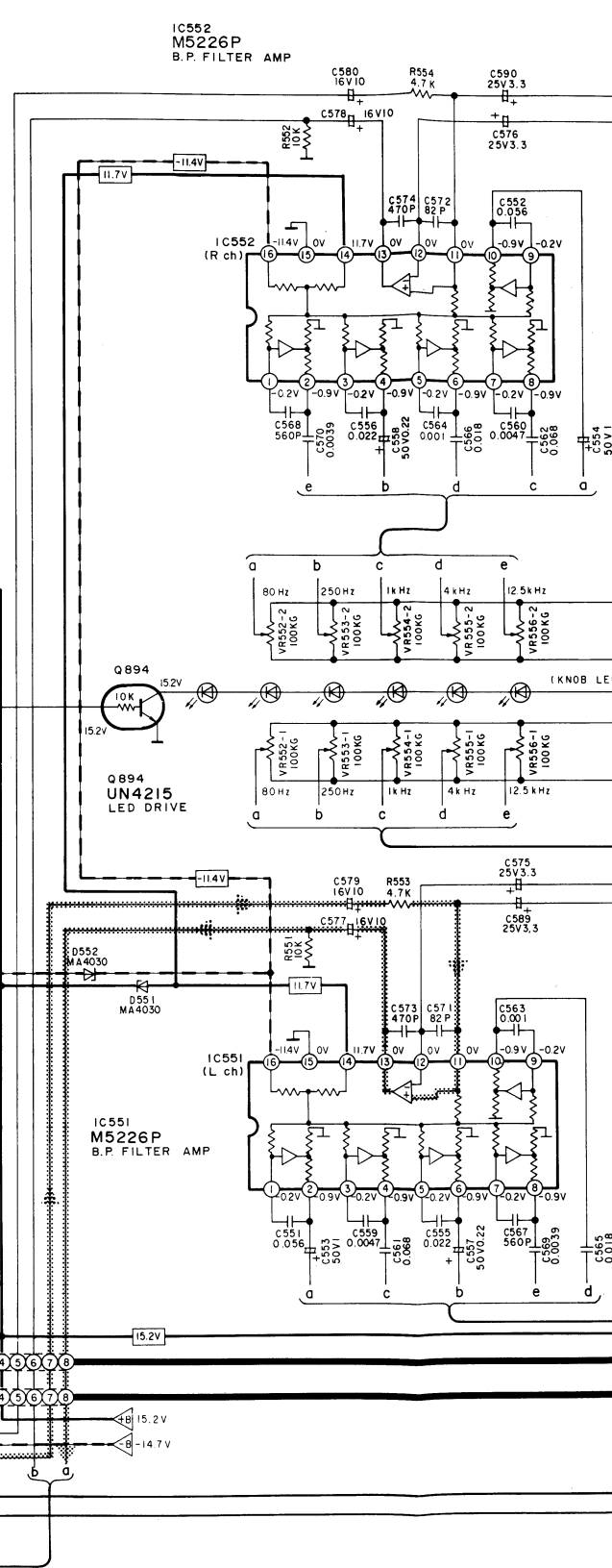


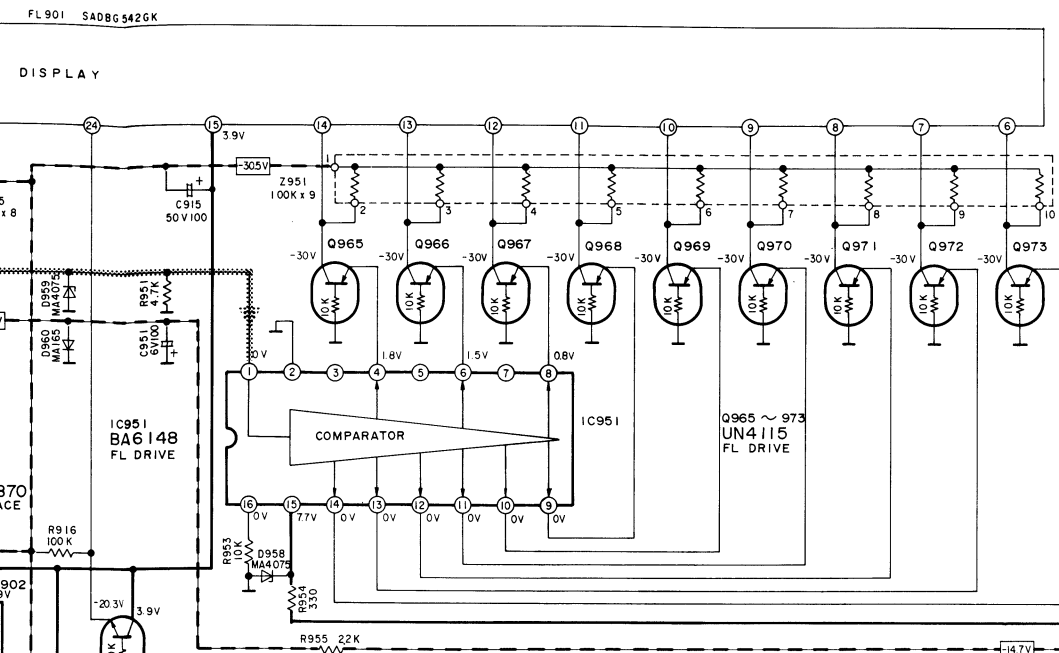


**E** FL METER DRIVE/GRAPHIC EQUALIZER AMP CIRCUIT SYSTEM CONTROL CIRCUIT

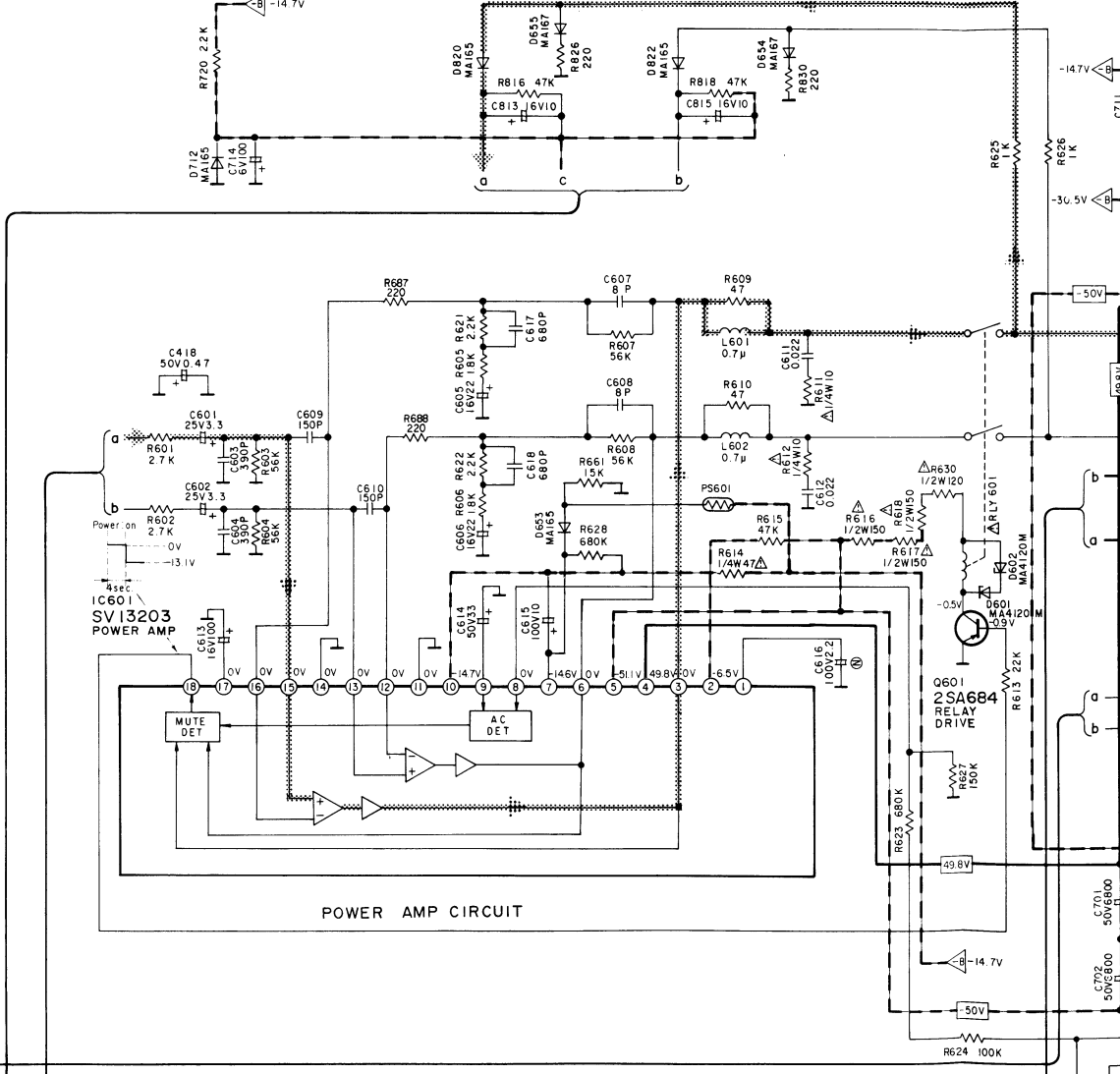
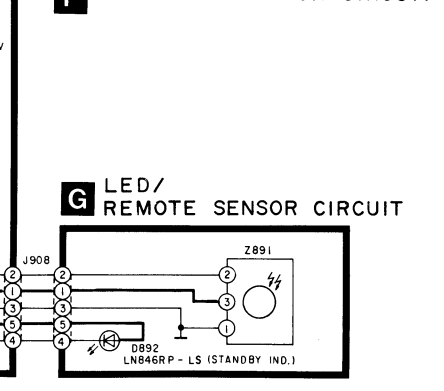
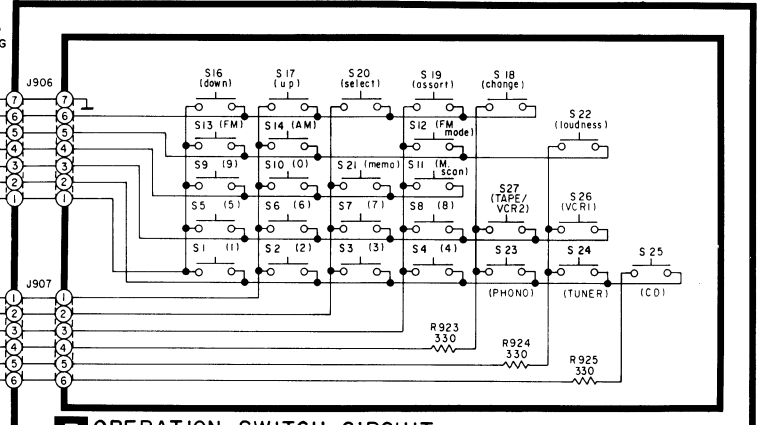
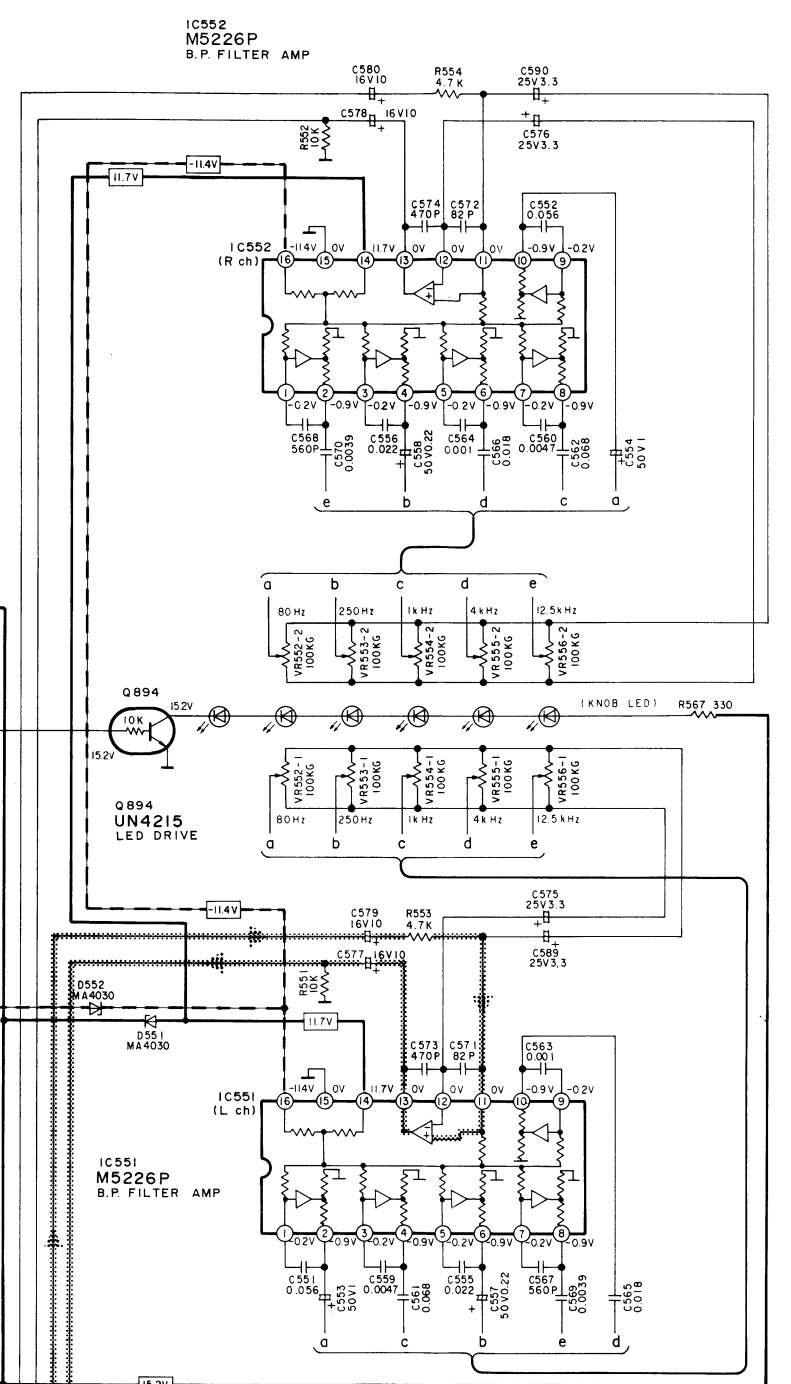


GRAPHIC EQUALIZER AMP CIRCUIT

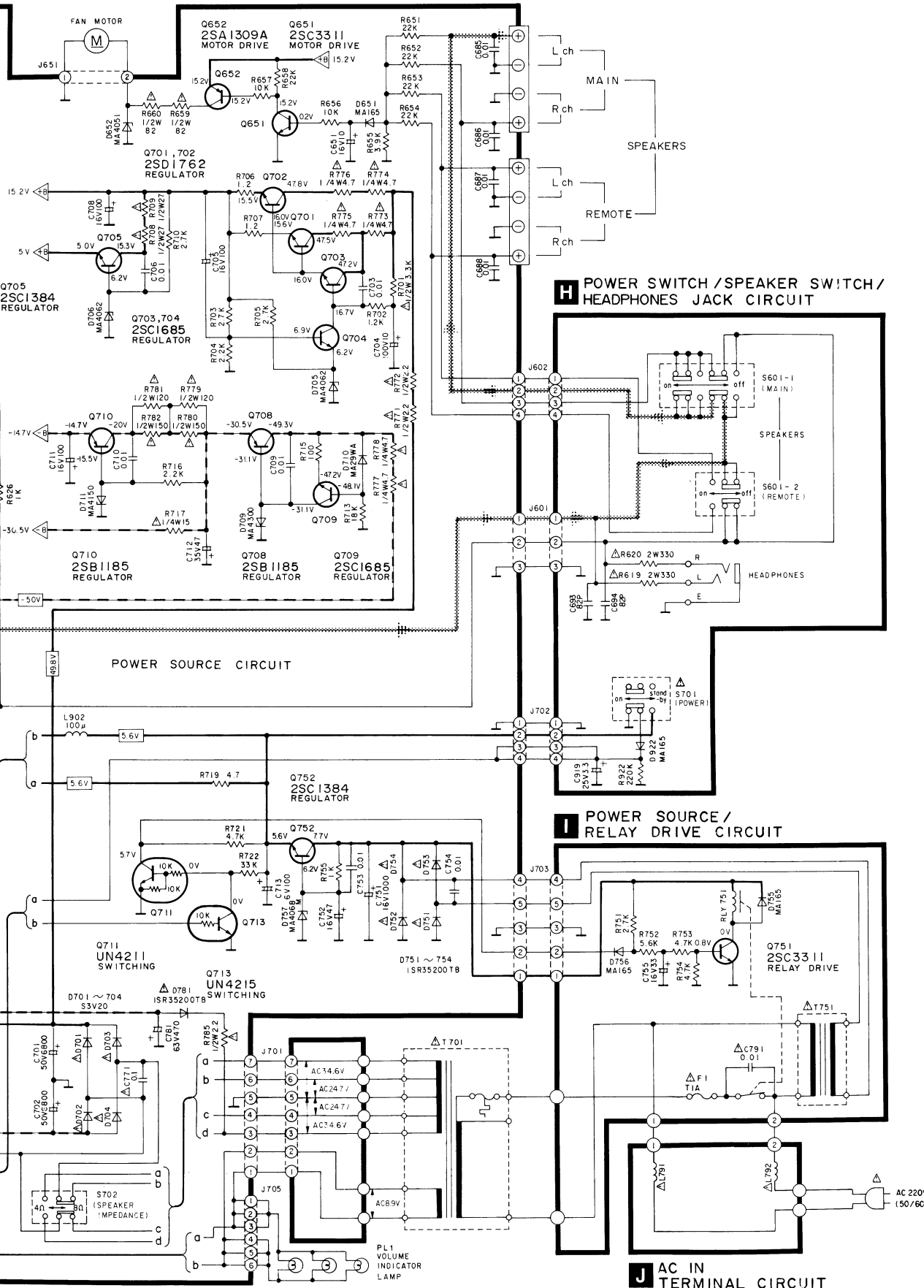
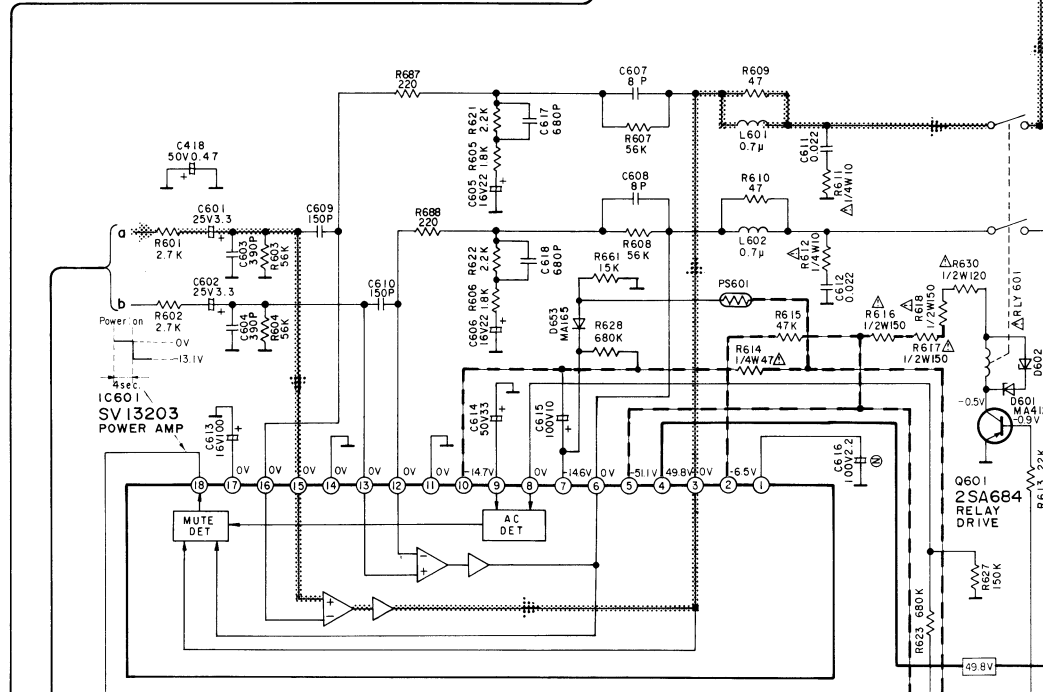
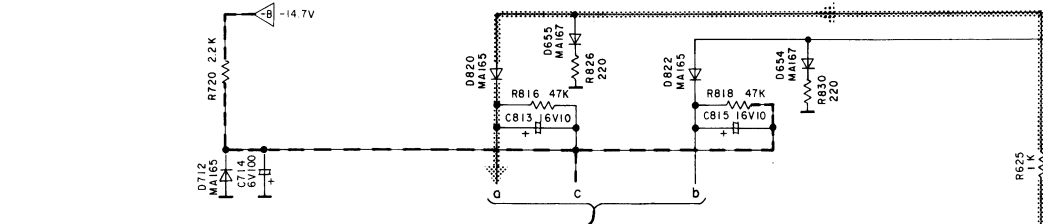
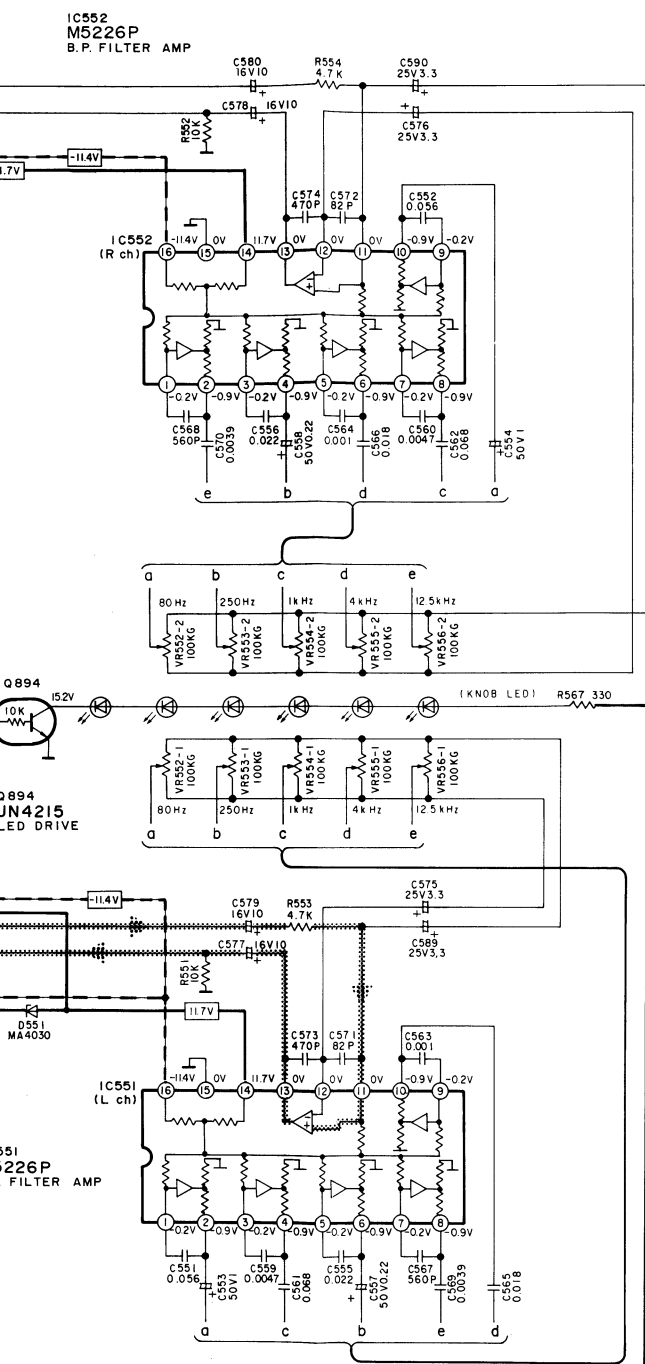




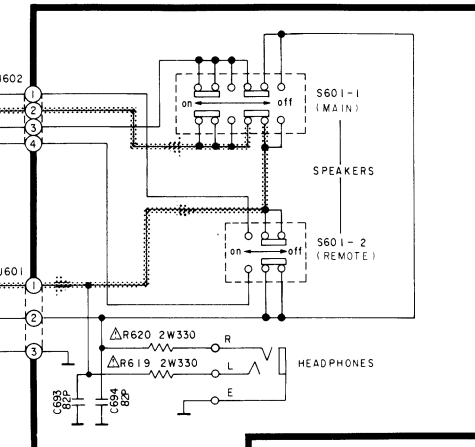
GRAPHIC EQUALIZER AMP CIRCUIT



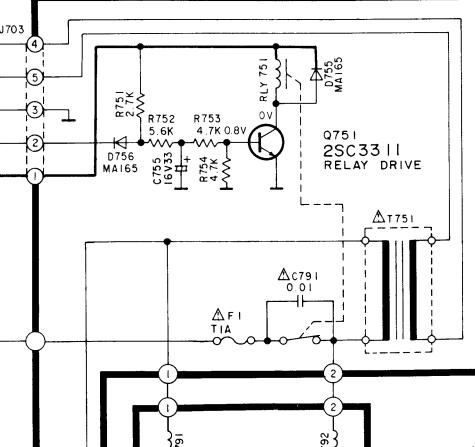
GRAPHIC EQUALIZER AMP CIRCUIT



H POWER SWITCH /SPEAKER SWITCH / HEADPHONES JACK CIRCUIT



I POWER SOURCE / RELAY DRIVE CIRCUIT

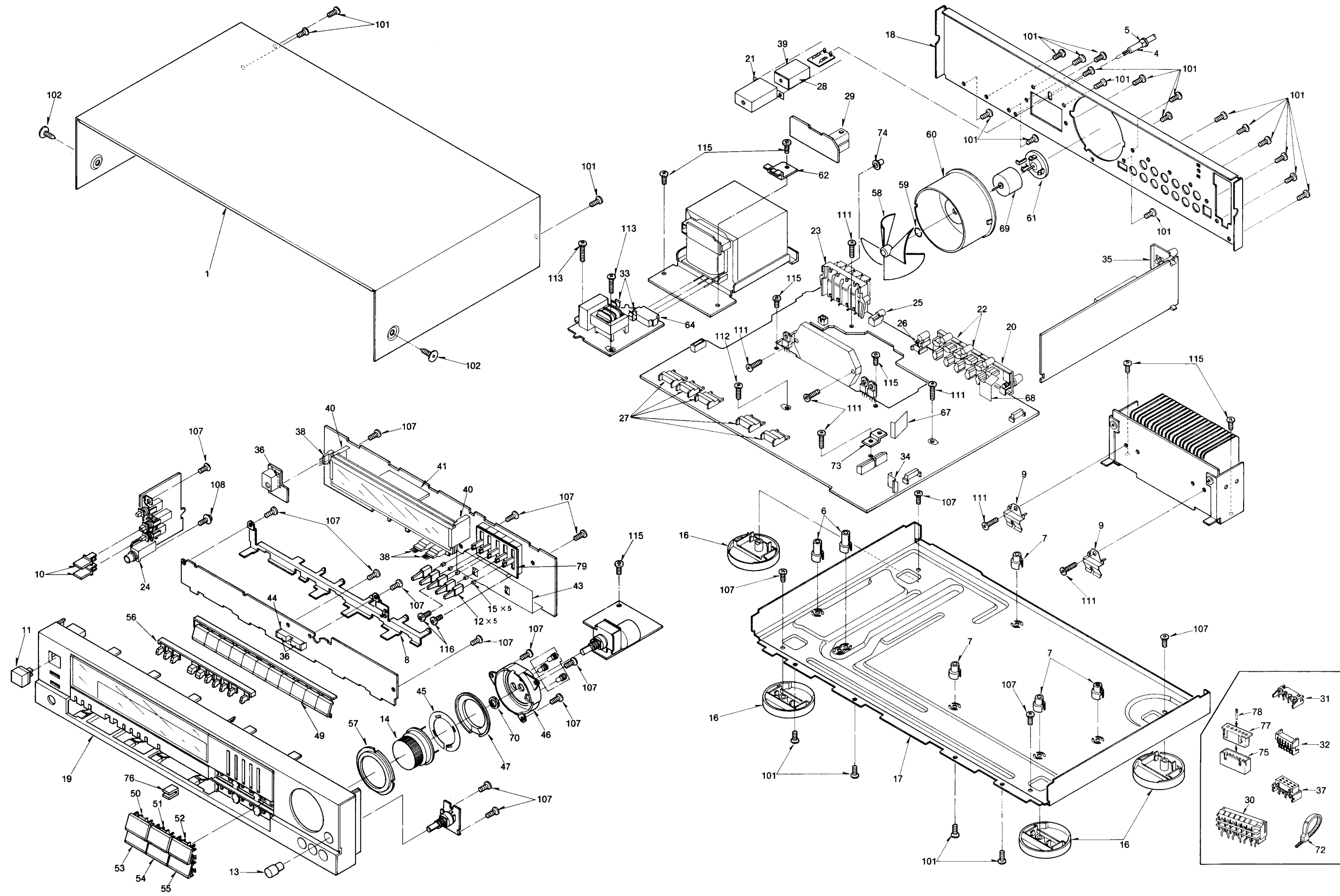


J AC IN TERMINAL CIRCUIT



**CABINET PARTS LOCATION**

A  
B  
C  
D  
E  
F

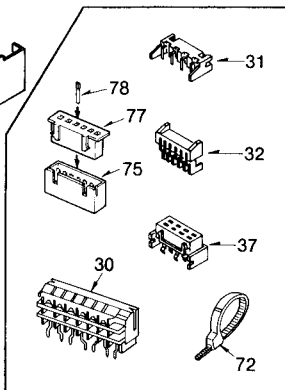


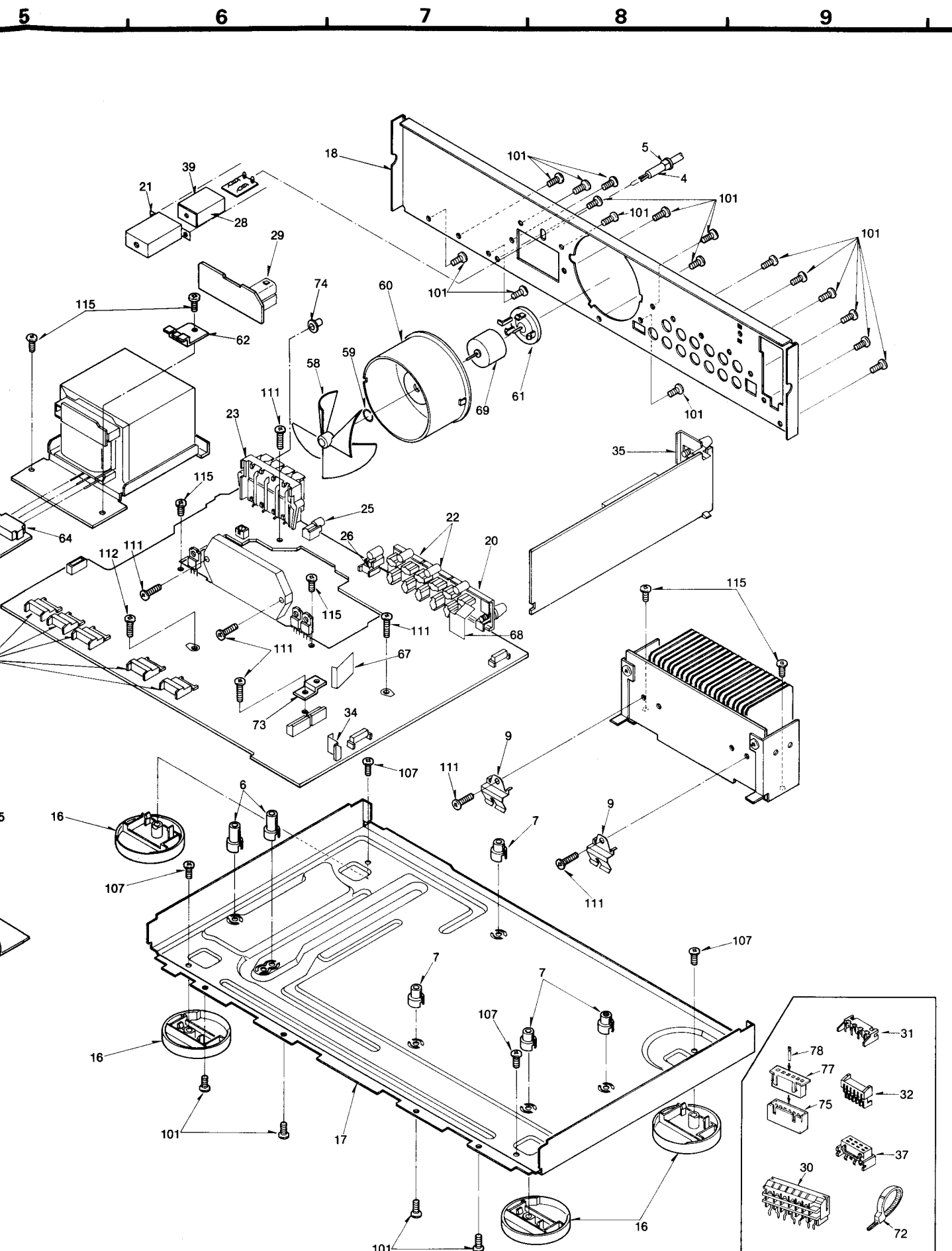
**REPLACEMENT PARTS**

Notes : \* Important safety notice  
Components identified by a triangle symbol are manufacturer's specifications.  
\* Bracketed indications indicate parts that are not included in the kit.  
Parts without these symbols are included in the kit.

Ref. No.	Part No.
<b>CABINET AND CHASSIS</b>	
1	SKC1741K993
4	△ SJA138-3
5	SHR127
6	SHE181
7	SHE185-1
8	SUN3121
9	SUS894
10	SBC315-7
11	SBC666-5
12	SBDK9
13	SBDW10ZK0A
14	SBN1251
15	SBZK29
16	SKL313
17	SKU11813
18	SGP7410-10A
19	SGYAR230-KE
20	SJF3067NJ
21	SMC1200
22	SJF3069NJ
23	SJF5813-1
24	SJJ134B
25	SJJ141-1
26	SJS306
27	SJS50880WL
27	SJS50980WL
28	SMX891
30	SJT30543-V
30	SJT30640LX-V
31	SJT30645JQ
31	SJT30745JQ
32	SJT30847WL
32	SJT30947WL
33	△ SMT390
34	SME103-5
35	SJF8305N
36	SJS50581BB
36	SJS50681BB
36	SJS50781BB
37	SJS50678JQ
37	SJS50778JQ
38	SJT30549BB
38	SJT30648BB
38	SJT30748BB
39	SMX940

Ref. No.	Part No.
<b>PACKING MATERIAL</b>	
P1	SPG6443
P2	SPS5174
P3	SPS5175
P5	SPP699
P6	SPSD152





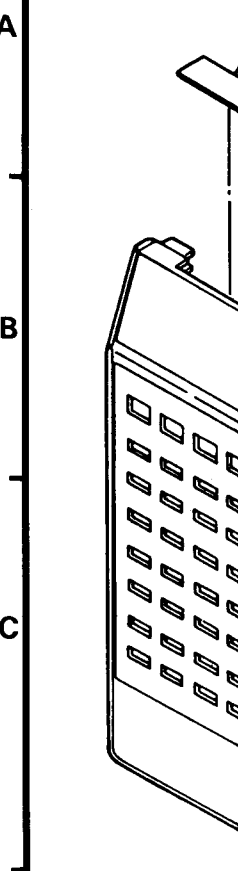
## REPLACEMENT PARTS LIST

**Notes :** \* Important safety notice :  
 Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.  
 \* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)  
 Parts without these indications can be used for all areas.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
<b>CABINET AND CHASSIS</b>					
1	SKC1741K993	CABINET BODY	40	SUW3122	BRACKET
4	$\Delta$ SJA138-3	POWER CORD	41	SUW3123	BRACKET
5	SHR127	SPACER, POWER CORD	43	SMC6465	SHIELD PLATE
6	SHE181	HOLDER	44	SMC6466	SHIELD PLATE
7	SHE185-1	HOLDER	45	SHR6080	SMOKE PLATE
8	SUW3121	BRACKET	46	SDH571	VOLUME ORNAMENT
9	SUS894	BRACKET (SPRING)	47	SDL101	SPACER
10	SBC315-7	BUTTON	49	SBC1033A	BUTTON
11	SBC666-5	BUTTON	50	SBC1034A	BUTTON
12	SBDK9	KNOB	51	SBC1034B	BUTTON
13	SBDM10ZK0A	KNOB	52	SBC1034C	BUTTON
14	SBN1251	KNOB	53	SBC1035	BUTTON
15	SBZK29	SPACER (KNOB)	54	SBC1035D	BUTTON
16	SKL313	FOOT	55	SBC1035B	BUTTON
17	SKU1813	BOTTOM BOARD	56	SBC1036	BUTTON
18	SGP7410-10A	REAR PANEL	57	SGL265-1	INDICATION PLATE
19	SGYAR230-KE	PANEL	58	SHE232	FAN
20	SJF3067NJ	TERMINAL BOARD	59	SUS271	SPRING
21	SMC1200	SHIELD COVER	60	SHE233-1	FAN CASE
22	SJF3069NJ	TERMINAL BOARD	61	SHE234	CAP
23	SJF5813-1	TERMINAL BOARD	62	SUW3132	BRACKET
24	SJJ134B	JACK	64	SJS305-1	PT SOCKET
25	SJJ141-1	M3 JACK	67	SMC1009	SHIELD PLATE
26	SJS306	REMOTE CONTROL CONNECTOR	68	SMC6471	SHIELD PLATE
27	SJS50880WL	SOCKET (8P)	69	MDN-4RB4MXA	MOTOR
27	SJS50980WL	SOCKET (9P)	70	XNS7	NUT
28	SMX891	SHIELD SPACER	72	SHR328	LEAD WIRE CLAMPER
30	SJT30543-V	CONNECTOR (5P)	73	SUW3128	BRACKET
30	SJT30640LX-V	CONNECTOR (6P)	74	SBC165	BUTTON, IMPEDANCE
31	SJT30645JQ	CONNECTOR (6P)	75	SJT3213	CONNECTOR (2P)
31	SJT30745JQ	CONNECTOR (7P)	75	SJT3611	CONNECTOR (6P)
32	SJT30847WL	CONNECTOR (8P)	76	SHR9666	SPACER
32	SJT30947WL	CONNECTOR (9P)	77	SJS5215	SOCKET (2P)
33	$\Delta$ SJT390	FUSE HOLDER	77	SJS5629	SOCKET (6P)
34	SME103-5	SHIELD PLATE	78	SJT783	CONTACT
35	SJF8305N	TERMINAL BOARD	79	SHR5354-1	ORNAMENT
36	SJS50581BB	SOCKET (5P)	<b>SCREWS, WASHERS AND NUTS</b>		
36	SJS50681BB	SOCKET (6P)	101	XTBS3+8JFZ1	SCREW
36	SJS50781BB	SOCKET (7P)	102	SNE2129-3	SCREW
37	SJS50678JQ	SOCKET (6P)	107	XTB3+8G	SCREW
37	SJS50778JQ	SOCKET (7P)	108	XTW3+8T	SCREW
38	SJT30549BB	CONNECTOR (5P)	111	XTB3+16JFZ	SCREW
38	SJT30648BB	CONNECTOR (6P)	112	XTBS3+16F1	SCREW
38	SJT30748BB	CONNECTOR (7P)	113	XTB3+20JFZ	SCREW
39	SMX940	SHIELD PLATE	115	XTB3+8JFZ	SCREW
			116	XSN2+2FZ	SCREW
<b>PACKING MATERIAL</b>			<b>ACCESSORIES</b>		
P1	SPG6443	CARTON BOX	A2	SSA270M	FM ANTENNA
P2	SPS5174	PAD	A3	SWKST11M-1	INSTRUCTION BOOK
P3	SPS5175	PAD	A4	SPB1162T	CORD (REMOTE CONTROL)
P5	SPP699	POLYETHYLENE SHEET	A5	UM-4NE	AM LOOP ANTENNA
P6	SPSD152	ACCESSORY BOX	A6	SJP2257T	BATTERY
			A7		CORD

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
<b>PACKING MATERIAL</b>			<b>ACCESSORIES</b>		
P1	SPG6443	CARTON BOX	A2	SSA270M	FM ANTENNA
P2	SPS5174	PAD	A3	SWKST11M-1	INSTRUCTION BOOK
P3	SPS5175	PAD	A4	SPB1162T	CORD (REMOTE CONTROL)
P5	SPP699	POLYETHYLENE SHEET	A5	UM-4NE	AM LOOP ANTENNA
P6	SPSD152	ACCESSORY BOX	A6	SJP2257T	BATTERY
			A7		CORD

## REMOTE CONTROL ASS'Y



## REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description
<b>REMOTE CONTROL ASS'Y</b>		
RC1	EUR64758	REMOTE CONTROL
<b>INTEGRATED CIRCUITS</b>		
IC1	MS046701	IC
<b>TRANSISTORS</b>		
Q1	UN1231	TRANSISTOR
<b>DIODES</b>		
D1	LN66-S	DIODE
D2	MA154WK	DIODE
D3	MA154WK	DIODE
<b>COIL</b>		
L1	ELEA101	COIL

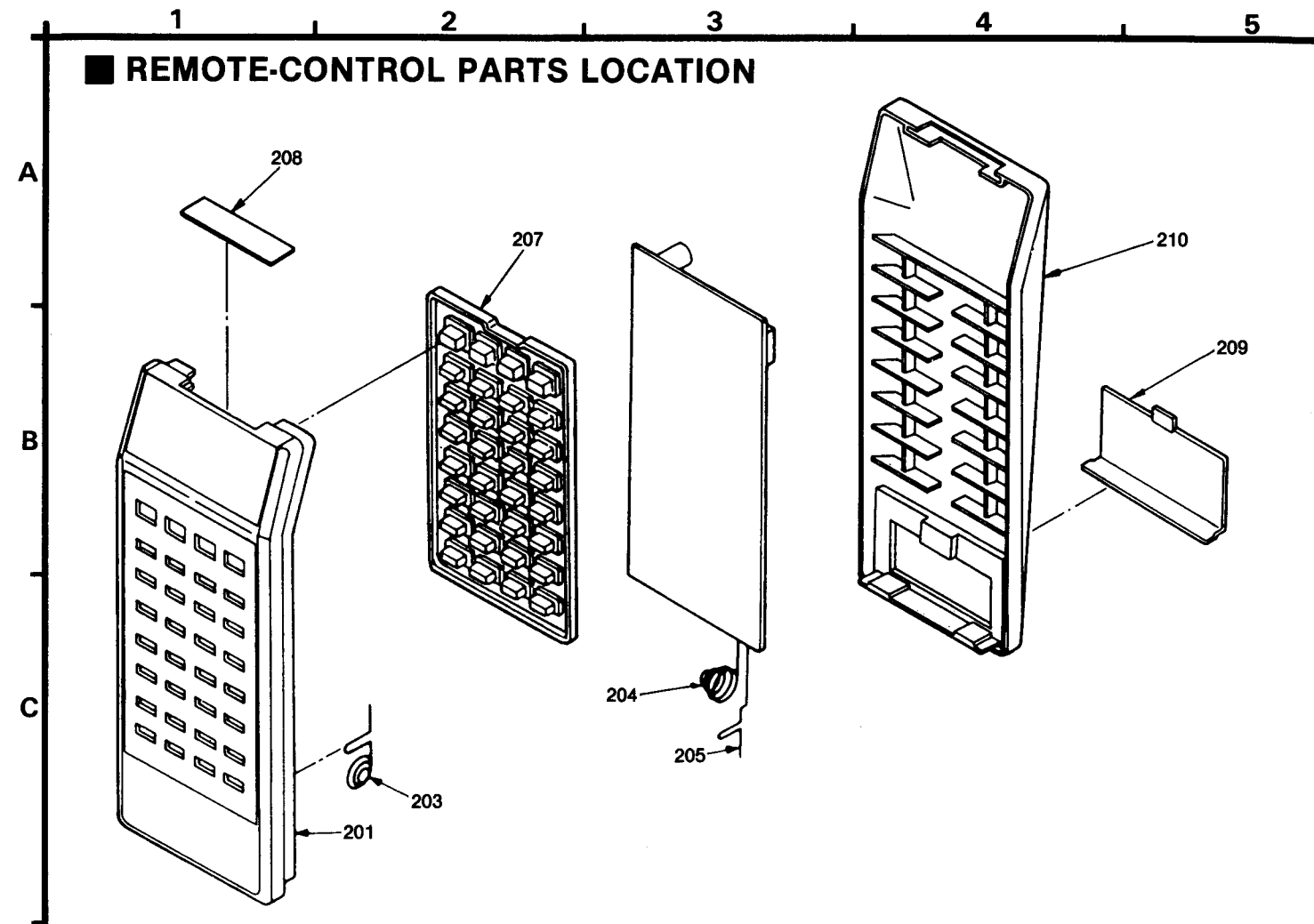
## REPLACEMENT PARTS LIST

**Notes :** \* Important safety notice :  
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Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
<b>CABINET AND CHASSIS</b>					
1	SKC1741K993	CABINET BODY	40	SUW3122	BRACKET
4	$\Delta$ SJA138-3	POWER CORD	41	SUW3123	BRACKET
5	SHR127	SPACER, POWER CORD	43	SMC6465	SHIELD PLATE
6	SHE181	HOLDER	44	SMC6466	SHIELD PLATE
7	SHE185-1	HOLDER	45	SHR6080	SMOKE PLATE
8	SUW3121	BRACKET	46	SDH571	VOLUME ORNAMENT
9	SUS894	BRACKET (SPRING)	47	SDL101	SPACER
10	SBC315-7	BUTTON	49	SBC1033A	BUTTON
11	SBC666-5	BUTTON	50	SBC1034A	BUTTON
12	SBDK9	KNOB	51	SBC1034B	BUTTON
13	SBDM10ZK0A	KNOB	52	SBC1034C	BUTTON
14	SBN1251	KNOB	53	SBC1035	BUTTON
15	SBZK29	SPACER (KNOB)	54	SBC1035D	BUTTON
16	SKL313	FOOT	55	SBC1035B	BUTTON
17	SKU11813	BOTTOM BOARD	56	SBC1036	BUTTON
18	SGP7410-10A	REAR PANEL	57	SGL265-1	INDICATION PLATE
19	SGYAR230-KE	PANEL	58	SHE232	FAN
20	SJF3057NJ	TERMINAL BOARD	59	SUS271	SPRING
21	SMC1200	SHIELD COVER	60	SHE233-1	FAN CASE
22	SJF3069NJ	TERMINAL BOARD	61	SHE234	CAP
23	SJF5813-1	TERMINAL BOARD	62	SUW3132	BRACKET
24	SJJ134B	JACK	64	SJS305-1	PT SOCKET
25	SJJ141-1	M3 JACK	67	SMC1009	SHIELD PLATE
26	SJS306	REMOTE CONTROL CONNECTOR	68	SMC6471	SHIELD PLATE
27	SJS50880WL	SOCKET (8P)	69	MDN-4RB4MXA	MOTOR
27	SJS50880WL	SOCKET (9P)	70	XNS7	NUT
28	SMX891	SHIELD SPACER	72	SHR328	LEAD WIRE CLAMPER
30	SJT30543-V	CONNECTOR (5P)	73	SUW3128	BRACKET
30	SJT30640LX-V	CONNECTOR (6P)	74	SBC165	BUTTON, IMPEDANCE
31	SJT30645JQ	CONNECTOR (6P)	75	SJT3213	CONNECTOR (2P)
31	SJT30745JQ	CONNECTOR (7P)	75	SJT3611	CONNECTOR (6P)
32	SJT30847WL	CONNECTOR (8P)	76	SHR9866	SPACER
32	SJT30947WL	CONNECTOR (9P)	77	SJS5215	SOCKET (2P)
33	SJT390	FUSE HOLDER	77	SJS5629	SOCKET (6P)
34	$\Delta$ SME103-5	SHIELD PLATE	78	SJT783	CONTACT
35	SJF8305N	TERMINAL BOARD	79	SHR5354-1	ORNAMENT
36	SJS50581BB	SOCKET (5P)	<b>SCREWS, WASHERS AND NUTS</b>		
36	SJS50681BB	SOCKET (6P)	101	XTBS3+8JFZ1	SCREW
36	SJS50781BB	SOCKET (7P)	102	SNE2129-3	SCREW
37	SJS50678JQ	SOCKET (6P)	107	XTB3+8G	SCREW
37	SJS50778JQ	SOCKET (7P)	108	XTW3+8T	SCREW
38	SJT30549BB	CONNECTOR (5P)	111	XTB3+16JFZ	SCREW
38	SJT30648BB	CONNECTOR (6P)	112	XTBS3+16F1	SCREW
38	SJT30748BB	CONNECTOR (7P)	113	XTB3+20JFZ	SCREW
39	SMX940	SHIELD PLATE	115	XTB3+8JFZ	SCREW
			116	XSN2+2FZ	SCREW

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
<b>PACKING MATERIAL</b>			<b>ACCESSORIES</b>		
P1	SPG6443	CARTON BOX	A2	SSA270M	FM ANTENNA
P2	SPS5174	PAD	A3	SQF13358	INSTRUCTION BOOK
P3	SPS5175	PAD	A4	SWKST11M-1	CORD (REMOTE CONTROL)
P5	SPP699	POLYETHYLENE SHEET	A5	SPB1162T	AM LOOP ANTENNA
P6	SPSD152	ACCESSORY BOX	A6	UM-4NE	BATTERY
			A7	SJP2257T	CORD

## REMOTE-CONTROL PARTS LOCATION



## REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
<b>REMOTE CONTROL ASS'Y</b>			<b>OSCILLATOR</b>		
RC1	EUR64758	REMOTE CONTROL	X1	CSB420PB1	OSCILLATOR
<b>REMOTE CONTROL</b>			<b>RESISTORS</b>		
<b>INTEGRATED CIRCUITS</b>			R1	ERDS2TJ1R0	CARBON, 1 $\Omega$ , 1/4W
IC1	M50467018FP	I.C. MICRO COMPUTER	<b>CAPACITORS</b>		
<b>TRANSISTORS</b>			C1	ECKD1H471KB	CERAMIC, 470PF, 50V
Q1	UN1231	TRANSISTOR	C2	ECKD1H121KB	CERAMIC, 120PF, 50V
<b>DIODES</b>			C3	ECEA0GK101	ELECTROLYTIC, 100 $\mu$ F, 4V
D1	LN66-S	L.E.D	<b>MECHANISM PARTS</b>		
D2	MA154WK	DIODE	201	UR64VCS606	UPPER CABINET
D3	MA154WK	DIODE	203	UR64TD374	BATTERY TERMINAL (COMMON)
<b>COIL</b>			204	UR64TD809	TERMINAL (-)
L1	ELEA101JA	COIL	205	UR64TD808	TERMINAL (+)
			207	UR64CT805	RUBBER (SWITCH)
			208	UR52SB327	PLATE (SMOKE)
			209	UR64EC804	BATTERY COVER
			210	UR64CS803A	LOWER CABINET