

# Service Manual

**QUARTZ Synthesizer**  
AM/FM Stereo Receiver

Receiver

## SA-GX100



Color

(K)... Black Type

Area

Country Code	Area	Color
(P)	U.S.A.	(K)
(PC)	Canada.	

## SPECIFICATIONS (IHF '78)

### ■ AMPLIFIER SECTION

**Rated minimum sine wave**  
RMS power output  
20 Hz~20 kHz both channels driven  
0.5% total harmonic distortion  
40 W per channel (8 ohms)

**1 kHz continuous power output**  
both channels driven  
0.5% total harmonic distortion 42 W per channel (8 ohms)  
Dynamic headroom 1.2 dB (8 ohms)

**Total harmonic distortion**  
rated power at 20 Hz~20 kHz 0.5% (8 ohms)  
half power at 1 kHz 0.07% (8 ohms)  
SMPTE intermodulation distortion 0.5% (8 ohms)

**Frequency response**  
PHONO RIAA standard curve  $\pm 0.8$  dB  
CD, VCR 1, TAPE/VCR 2 10 Hz~70 kHz,  $\pm 3$  dB

**Input sensitivity**  
PHONO 0.4 mV (3 mV, IHF '66)  
CD, VCR 1, TAPE/VCR 2 27 mV (200 mV, IHF '66)

**S/N (IHF, A)**  
PHONO 68 dB (71 dB, IHF '66)  
CD, VCR 1, TAPE/VCR 2 70 dB (85 dB, IHF '66)

**Maximum input voltage**  
PHONO 160 mV (IHF '66)

**Input impedance**  
PHONO 47 kilohms  
CD, VCR 1, TAPE/VCR 2 22 kilohms

**Tone controls**  
BASS 50 Hz, +10 dB~-10 dB  
TREBLE 20 kHz, +10 dB~-10 dB

**Loudness control (volume at -30 dB)** 50 Hz, +9 dB  
**Low frequency damping factor** 20 (8 ohms)  
**Load impedance**  
A or B 8~16 ohms  
A and B 8~16 ohms

### ■ FM TUNER SECTION

**Frequency range** 87.9~107.9 MHz  
**Sensitivity** 11.2 dBf (2  $\mu$ V, IHF '58)

**50 dB quieting sensitivity**  
MONO 20.2 dBf (5.6  $\mu$ V, IHF '58)  
STEREO 40.2 dBf (56  $\mu$ V, IHF '58)

**Total harmonic distortion** 0.2% (MONO), 0.3% (STEREO)  
**S/N**

MONO 75 dB  
STEREO 70 dB

**Frequency response** 20 Hz~15 kHz, +1 dB, -2 dB  
**Alternate channel selectivity** 65 dB

**Capture ratio** 1.0 dB  
**Image rejection at 98 MHz** 45 dB

**IF rejection at 98 MHz** 80 dB  
**Spurious response rejection at 98 MHz** 75 dB

**AM suppression** 50 dB  
**Stereo separation**

1 kHz 40 dB  
10 kHz 30 dB

**Carrier leak**  
19 kHz -35 dB  
38 kHz -50 dB

**Antenna terminals** 300 ohms (balanced)  
75 ohms (unbalanced)

# Technics

Matsushita Services Company  
Division of Matsushita Electric  
Corporation of America  
50 Meadowland Parkway,  
Secaucus, New Jersey 07094

Panasonic Sales Company,  
Division of Matsushita Electric  
of Puerto Rico, Inc.  
San Gabriel Industrial Park  
65th Infantry Ave. Km.9.5  
Carolina, P.R. 00630

Matsushita Electric of Canada  
Limited  
5770 Ambler Drive, Mississauga,  
Ontario, L4W 2T3

■ AM TUNER SECTION

Frequency range	530~1720 kHz
Sensitivity	20 $\mu$ V, 330 $\mu$ V/m
Selectivity	55 dB
Image rejection at 1000 kHz	40 dB
IF rejection at 1000 kHz	60 dB

■ GENERAL

Power consumption	170 W
Power supply	AC 120V, 60Hz
Dimensions (W x H x D)	430 x 124 x 300 mm (16-15/16" x 4-7/8" x 11-13/16")
Weight	5.9 kg (13.1 lb.)

**Note:**  
Total harmonic distortion is measured by the digital spectrum analyzer.

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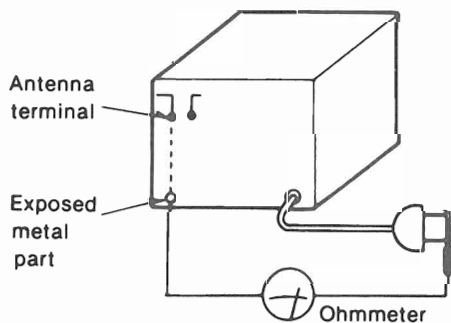
■ SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

● INSULATION RESISTANCE TEST

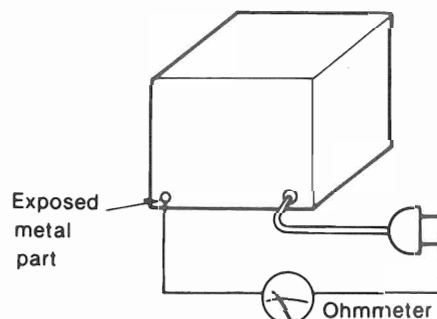
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3M $\Omega$  and 5.2M $\Omega$  to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

**Note:** Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3M $\Omega$ —5.2M $\Omega$



(Fig. B)

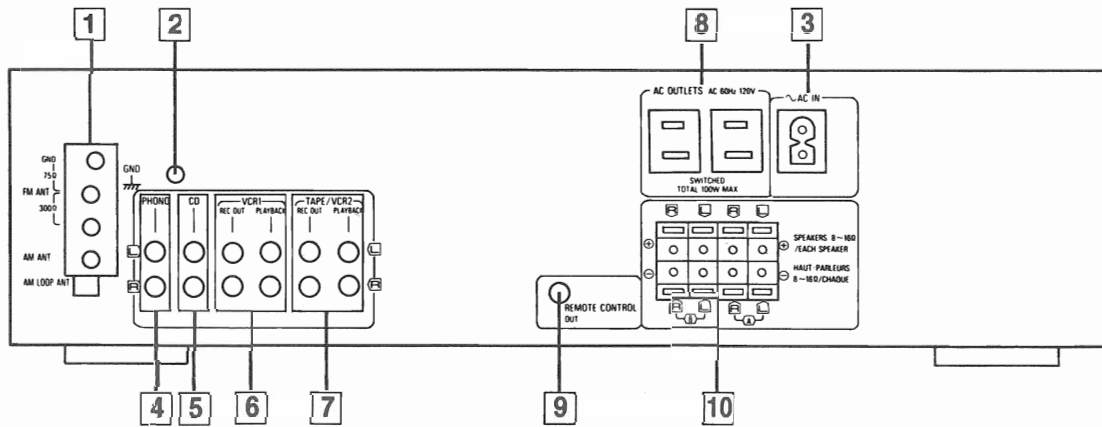
Resistance = Approx  $\infty$

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ ACCESSORIES

- |   |  |
|---|--|
| • AC power supply cord<br>(SJA172-1) (P)..... 1pc.<br>(SJA172) (PC)..... 1pc. | • Remote control transmitter<br>(RAK-SA301P)..... 1pc. |
| • FM indoor antenna<br>(SSA272M)..... 1pc.                                    | • AM loop antenna<br>(SPB1163T)..... 1pc.              |
| • AM antenna holder<br>(SMA233-1M)..... 1pc.                                  | • Screws<br>(XTN3+10AFZ)..... 2pcs.                    |

## REAR PANEL TERMINALS AND FUNCTIONS



### 1 Antenna connection terminals

### 2 "GND" terminal

Connect the turntable's ground wire to this terminal (if applicable).

### 3 AC IN socket (AC IN)

Connect this socket to an AC outlet on the wall using the power supply cord.

### 4 "PHONO" terminals

Connect a turntable only. Do not connect any other sound source to these terminals.

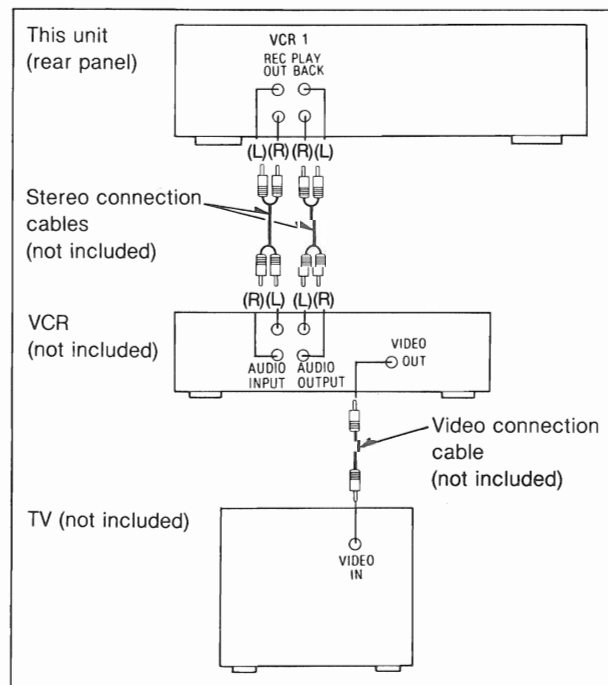
※ Phono input capacitance is about 100 pF.

### 5 "CD" terminals

Connect a compact disc player or other sound source.

### 6 "VCR 1" terminals

Connect a video cassette recorder or an audio tape deck, etc.

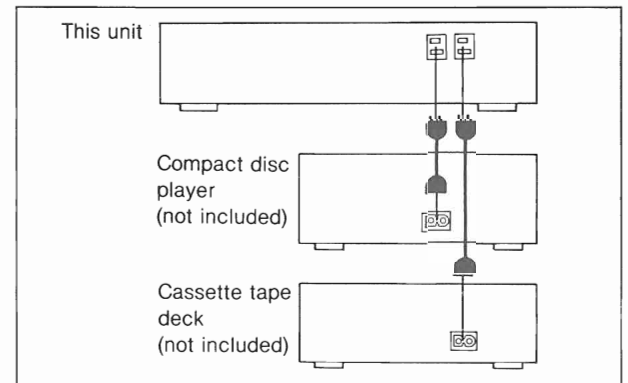


### 7 "TAPE/VCR 2" terminals

Connect a tape deck or second video cassette recorder.

### 8 Outlets "SWITCHED"

Power to these outlets is controlled by the power switch of this unit. Audio equipment rated up to 100 W (total for all outlets) can be connected here. For proper remote-control operation, connect the power cords of the tape deck and compact disc player to these outlets as indicated below:

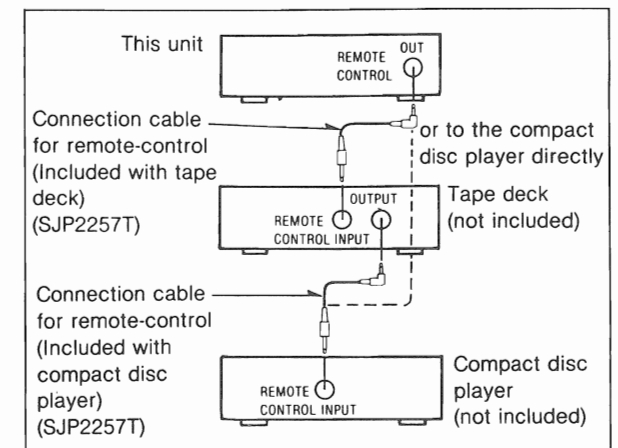


### 9 Remote-control OUT terminal (REMOTE CONTROL/OUT)

This terminal can be used only with Technics components which have the appropriate remote-control terminal. (Consult your dealer for details.)

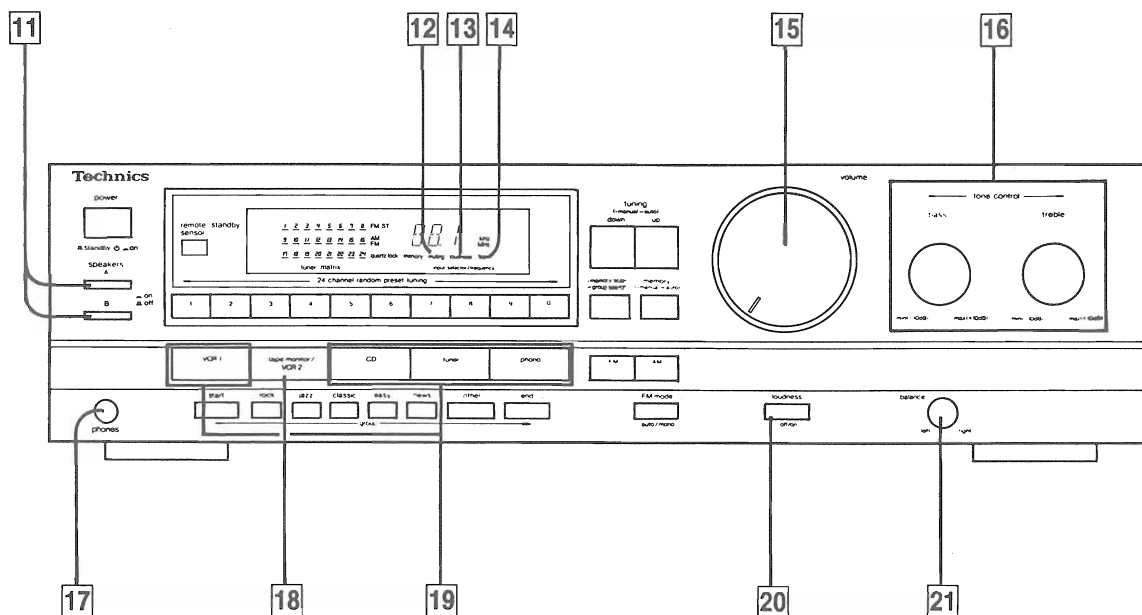
Proper connection with remote-control connection cables SJP2257T will allow control of some functions from this unit's remote-control transmitter.

Connect to a tape deck and/or compact disc player as shown below.



### 10 Speaker connection terminals

## FRONT PANEL CONTROLS AND FUNCTIONS



## Amplifier section

### 11 Speaker selectors (speakers)

These selectors are used to select the speaker system(s) (A and/or B).

### 12 Muting indicator (muting)

This indicator will illuminate when the muting button (on the remote-control transmitter) is pressed.

### 13 Loudness indicator (loudness)

This indicator will illuminate when the loudness switch is pressed.

### 14 Tape indicator (tape)

This indicator will illuminate when the tape-monitor switch is pressed.

### 15 Volume control/indicator (volume)

### 16 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.

### 17 Headphone jack (phones)

### 18 Tape-monitor/VCR 2 switch (tape monitor/VCR 2)

Press this button to listen to a tape or an equipment connected to the "TAPE/VCR2" terminals.

To listen to some other source, press this button once again (so that the indicator is switched OFF).

### 19 Input selector buttons

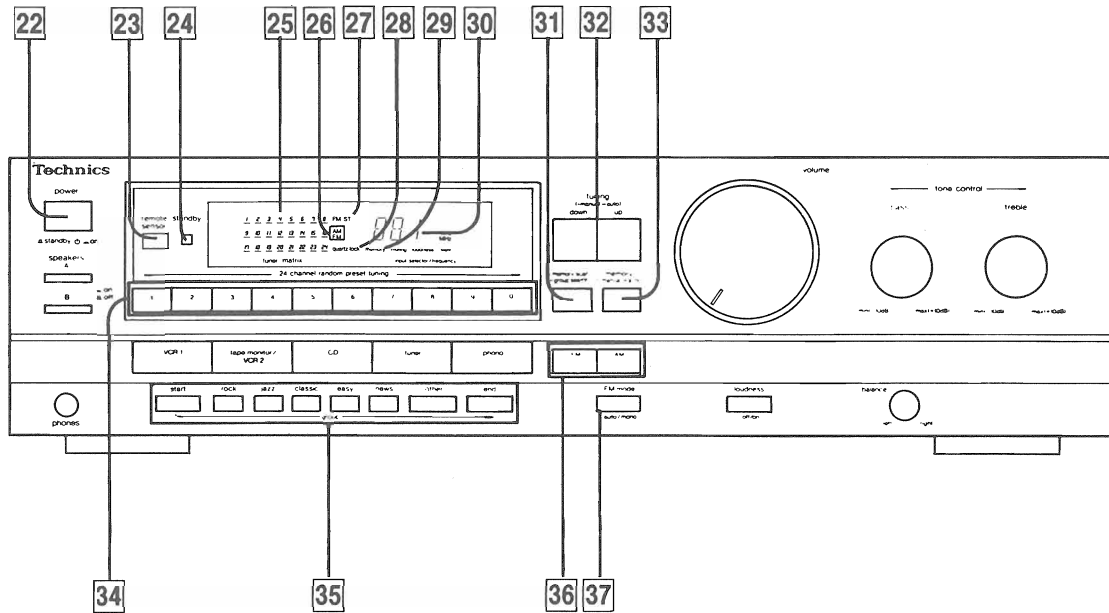
These buttons are used to select the sound source to be heard, such as a disc, radio broadcasts, etc. The selected sound source is shown on the audio input selector/frequency display. The "phono" input selector has two functions: when pressed momentarily it selects "PHONO". when pressed and held for about 5 seconds, it de-activates the muting function.

### 20 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.

### 21 Balance control (balance)





## Tuner section

### 22 Power “standby $\downarrow$ /on” switch (power/ $\blacksquare$ standby $\downarrow$ = on)

If the power was switched OFF from the remote control, to switch the power ON from the unit set the switch to OFF and then ON again.

**Note:**

The power can not be controlled from the remote control unless this switch is set to ON.

### 23 Remote-control signal receptor (remote sensor)

Receives the signals from the remote-control.

### 24 “standby” indicator (standby)

This indicator illuminates when the power switch of this unit or that of the remote control is switched “OFF”. Its purpose is to alert the user of the constant supply voltage to the internal circuitry even with the power switch OFF.

### 25 Preset channel matrix display (tuner matrix)

When an entry is made into memory, the bar under the figure illuminates.

The bar of the “channel” now being received flashes continuously.

### 26 Band indicators (AM/FM)

Indicates the selected band.

### 27 FM stereo indicator (FM ST)

This indicator automatically illuminates when an FM stereo broadcast is being received.

**Note:**

It will not illuminate if the FM mode selector is set to the monaural mode.

### 28 Quartz-lock indicator (quartz lock)

This indicator illuminates when the unit is tuned precisely to a broadcast station.

### 29 Memory indicator (memory)

This indicator illuminates when the memory button is pressed.

### 30 Audio input selector/frequency display (input selector/frequency)

Displays the selected source or broadcast frequency.

### 31 Memory-scan/group-search button (-memory scan/ -group search)

This button is used to scan the memory presets within a group (for about three seconds each) or to search for the desired group.

### 32 Tuning buttons (tuning)

These buttons are used for tuning to the desired broadcast station. The frequency will change at intervals of 0,1 MHz for FM and 10 kHz for AM.

### 33 Memory button (memory)

This button is used when presetting broadcast station frequencies into memory.

### 34 Preset-tuning buttons (1 – 0) (24 channel random preset tuning)

These buttons are used to preset broadcast frequencies into the memory of this unit and to recall the desired preset stations.

### 35 Group registration buttons (group)

These buttons are used to assign memory presets to the desired group or to select the desired group.

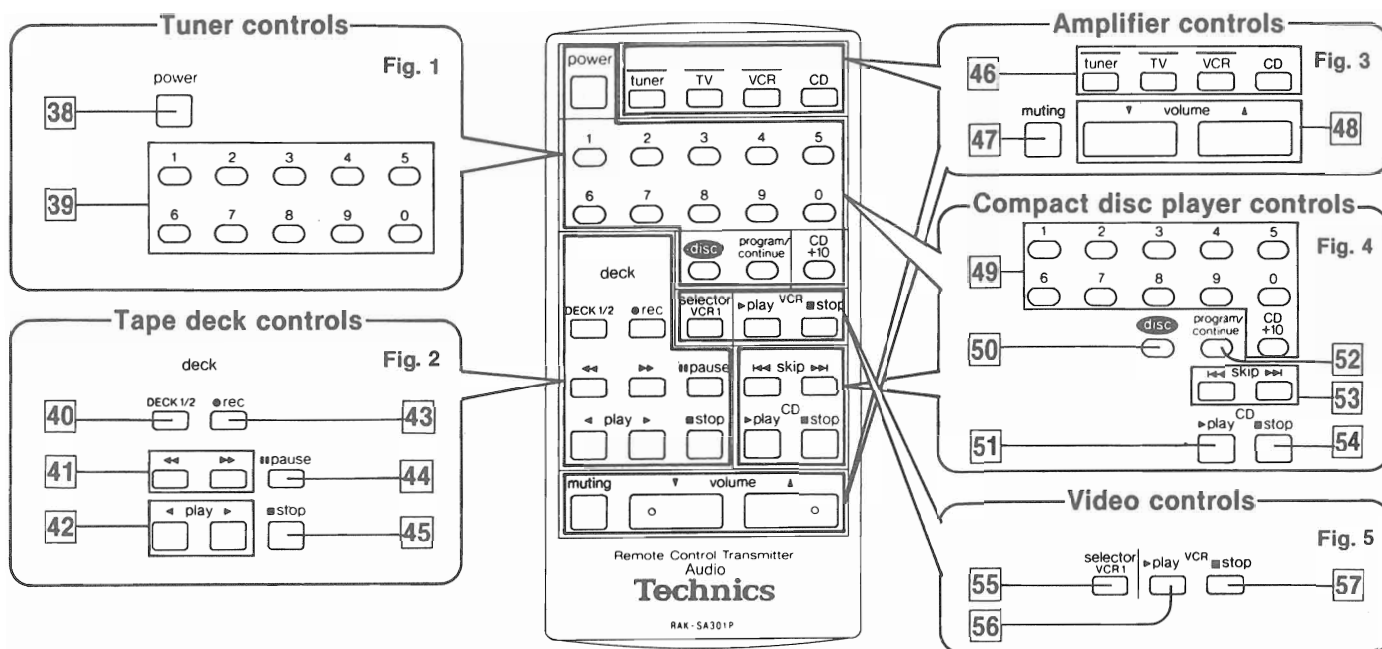
### 36 Band selectors

**FM:** Press this button to listen to an FM broadcast.

**AM:** Press this button to listen to an AM broadcast.

### 37 FM mode selector (FM mode)

This unit automatically switches to the stereo mode when an FM stereo broadcast is received. This selector is used to select the mode (stereo or monaural) of FM broadcast signals.



## Remote control section

### Tuner controls (Fig. 1)

#### 38 Power switch (power)

This power switch can be used for ON and OFF switching of this unit as well as any Panasonic remote controlled TV and/or VCR. When switching the power ON and OFF of each unit, be sure to first press the appropriate input selector button on amplifier controls.

#### 39 Preset-tuning buttons (1 – 0)

These buttons are used to tune to broadcast stations that have been preset to the unit's memory. When these buttons are used, be sure to first press the "tuner" button of the input selector buttons on amplifier controls.

### Tape deck controls (Fig. 2)

#### 40 Deck 1/Deck 2 selector (DECK 1/2)

This button is used to select the deck to be operated by remote control.

#### 41 First-forward/rewind buttons (◀◀, ▶▶)

Press this button to advance or rewind the tape while the unit is in the stop mode.

Press this button to select the desired tune while the unit is in the play mode.

(Only applicable to a Technics tape deck with the "music select" functions.)

#### 42 Playback buttons (◀ play ▶)

▶: For the "A"-side of the tape

◀: For the "B"-side of the tape

Press one of these buttons to begin the playback or recording, pressing the button corresponding to the side of the tape to be played (or recorded).

#### Note:

Depending on which Technics tape deck is used in combination with this unit, tape deck B might be the "A"-side playback-only type.

#### 43 Record button (● rec)

Press this button to change to the recording stand-by mode.

#### 44 Pause button (|| pause)

Press this button to temporarily stop playback or recording. Press the playback button to resume the play or recording.

#### 45 Stop button (■ stop)

To stop tape play or tape recording.

## Amplifier controls (Fig. 3)

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### 46 Input selector buttons (tuner/TV/VCR/CD)

These buttons are used to select the sound source to be heard, such as a disc, radio broadcasts, etc.

### 47 Muting button (muting)

This button is used to temporarily attenuate ("mute") the volume level.

### 48 Volume control (volume)

These buttons are used to adjust the volume level.

▼: To reduce the volume level.

▲: To increase the volume level.

## Compact disc player controls (Fig. 4)

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### 49 Numeric buttons (1-0, +10)

These buttons are used to select the track or the disc number (only 1~6).

When these buttons are used, be sure to first press the "CD" button of the input selector buttons on amplifier controls.

### 50 Disc button (disc)

This button is used when selecting the disc.

### 51 Play button (▶ play)

To start compact disc play.

### 52 Program/continue button (program/continue)

This button is used to select either the sequential play or program play mode.

### 53 Skip buttons (i◀◀ skip ▶▶i)

Press one of these buttons briefly to move the pickup (backward and forward) to the beginning of a specific track.

### 54 Stop button (■ stop)

To stop compact disc play.

## Video controls (Fig.5)

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### 55 Selector button (VCR 1)

This button is used when a TV broadcast is to be received at the VCR.

### 56 Play button (▶ play)

To start VCR play.

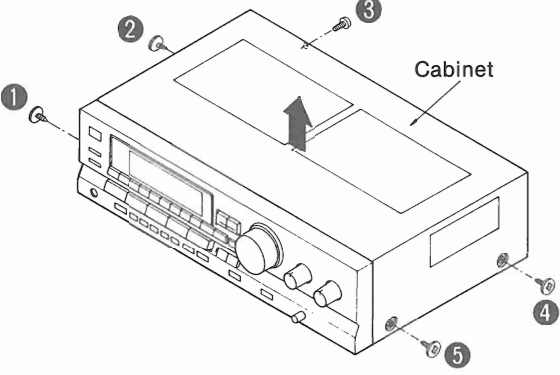
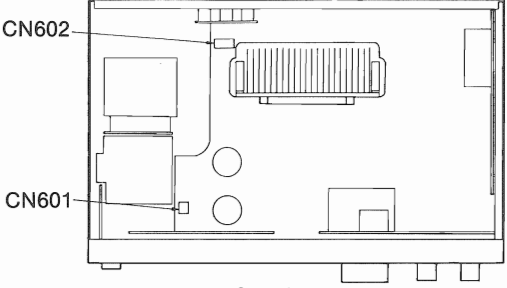
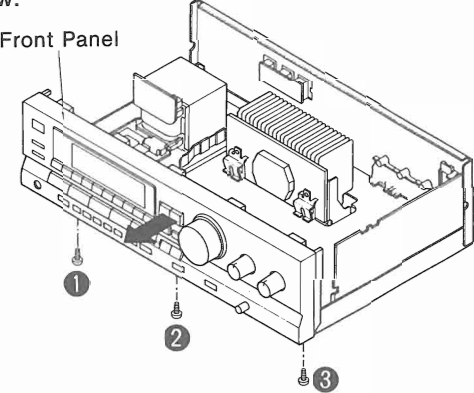

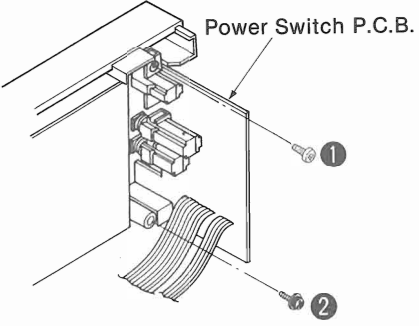
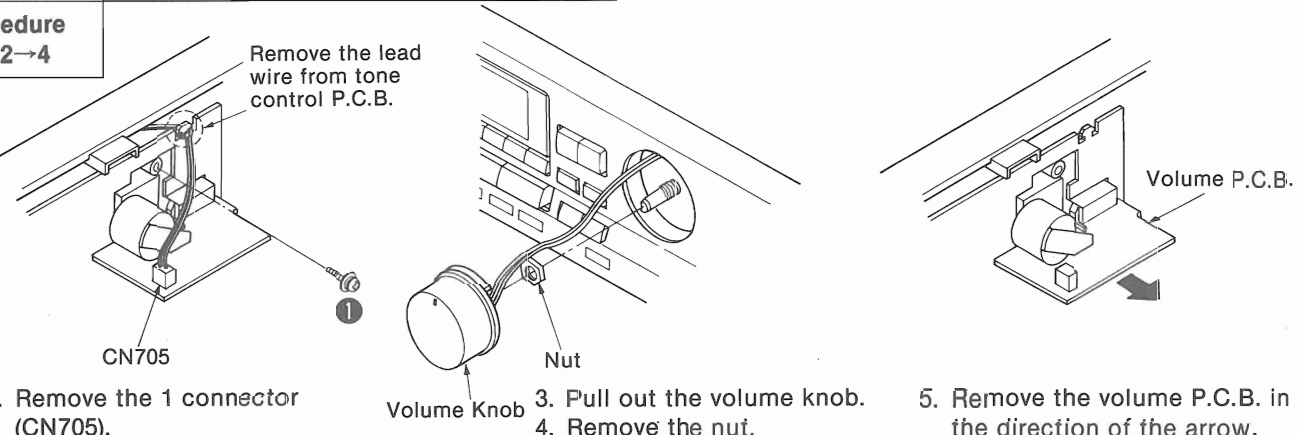
### 57 Stop button (■ stop)

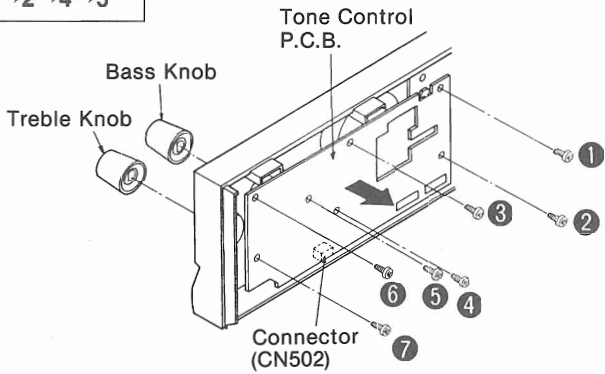
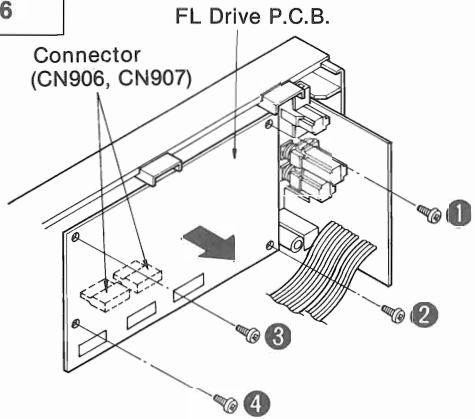
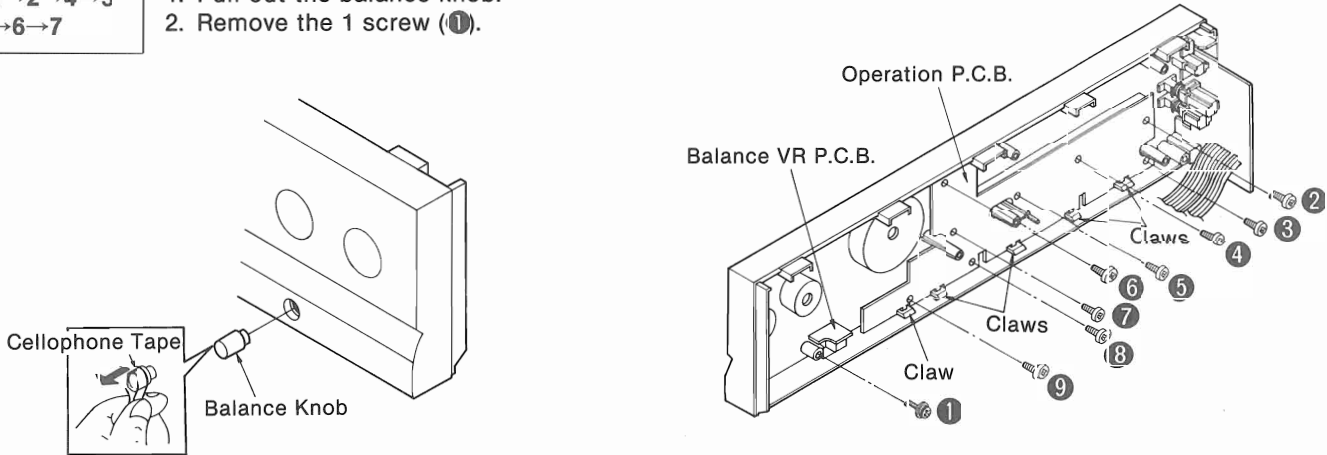
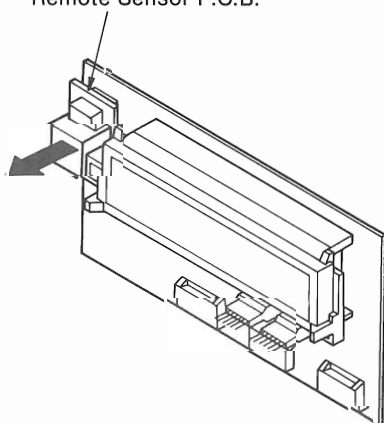
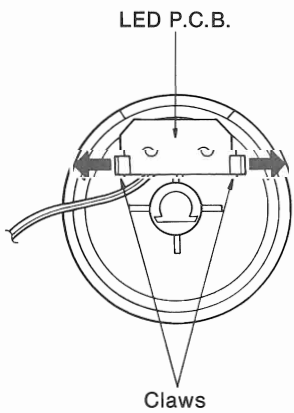
To stop VCR play.

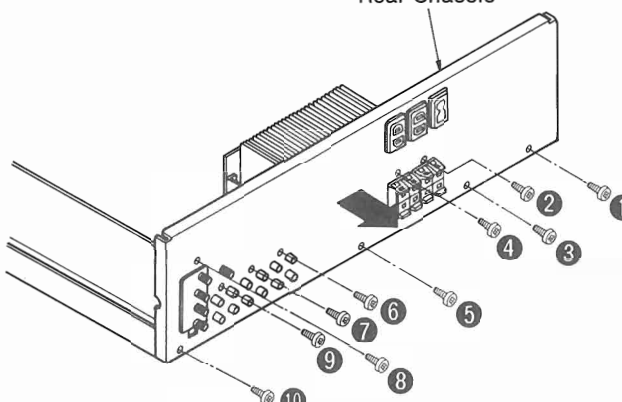
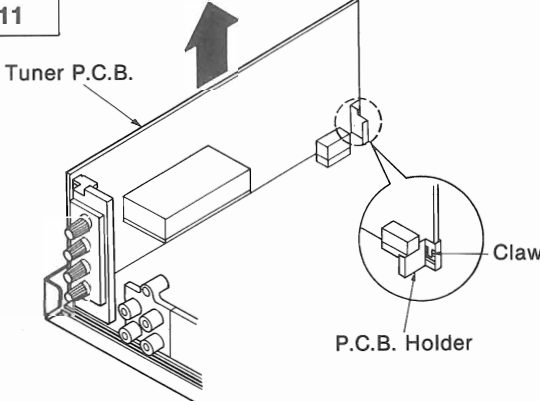
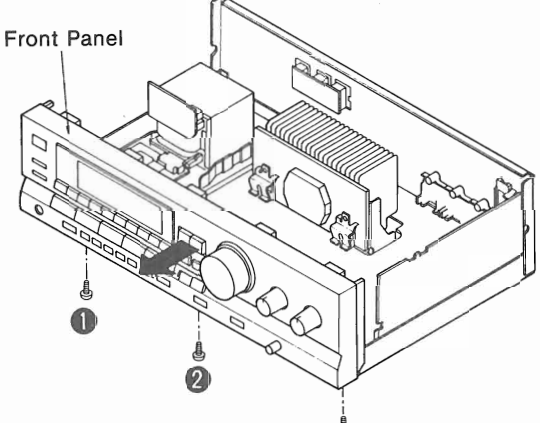
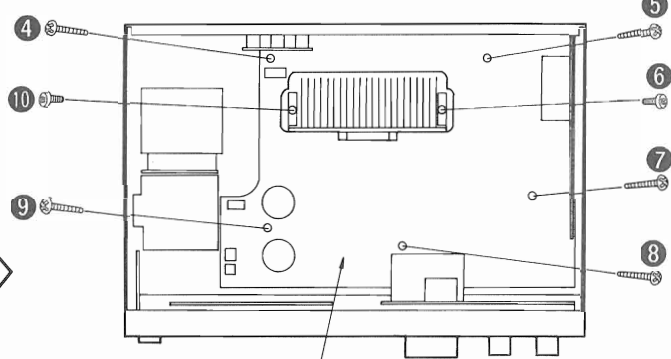
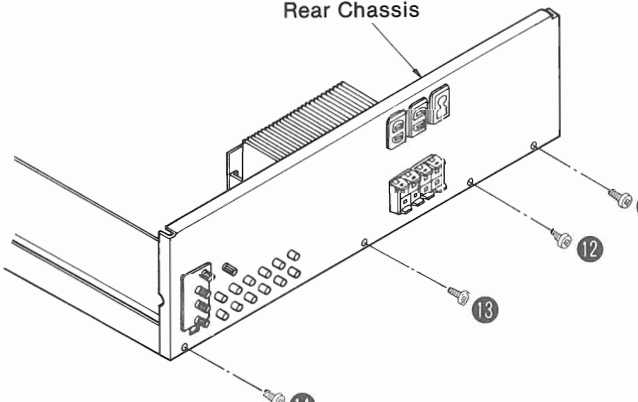
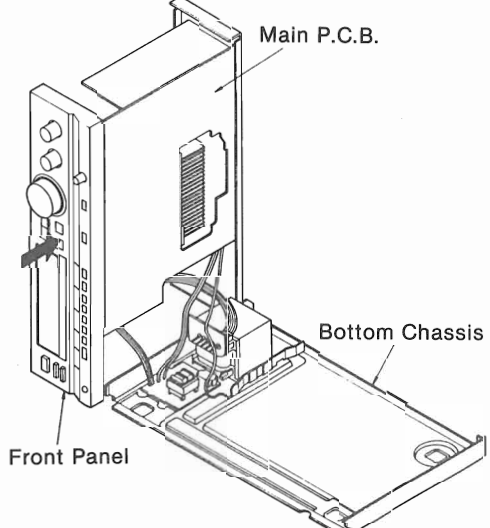
## DISASSEMBLY INSTRUCTIONS

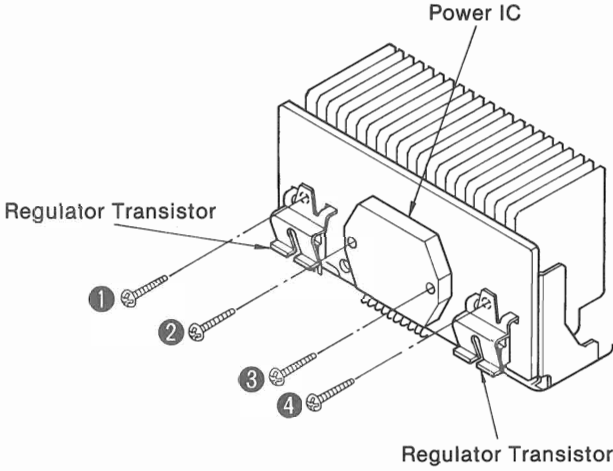
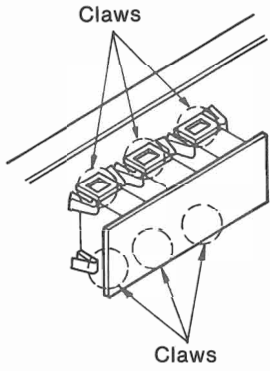
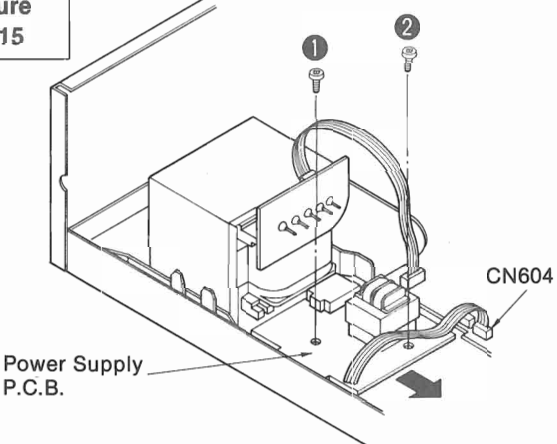
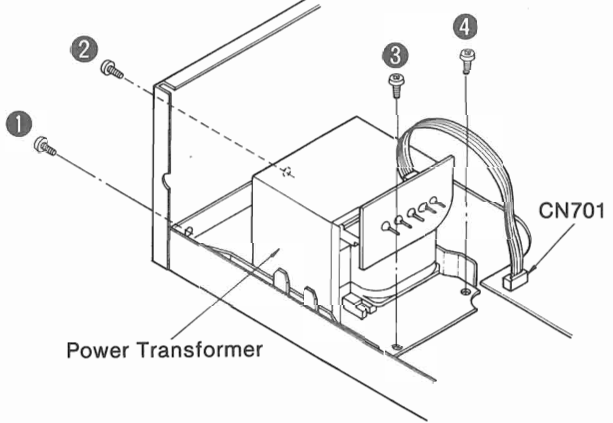
### "ATTENTION SERVICER"

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

Ref. No. 1	Removal of the cabinet	Ref. No. 2	Removal of the front panel
Procedure 1	 <p>• Remove the 5 screws (1~5).</p>	Procedure 1→2	<p>1. Remove the 2 flat cables (CN601, CN602)</p>  <p>2. Remove the 3 screws (1~3).</p> <p>3. Remove the front panel in the direction of the arrow.</p> 
Ref. No. 3	Removal of the power switch P.C.B.	<p><b>How to remove the flat cable (Two Types)</b></p> <ul style="list-style-type: none"> <li>• Pull out the flat cable while pressing the connector.</li> </ul> <ol style="list-style-type: none"> <li>1. Lift the connector.</li> <li>2. Pull out the flat cable.</li> </ol> 	
Procedure 1→2→3	 <p>• Remove the 2 screws (1, 2).</p>	<p><b>Ref. No. 4</b> <b>Removal of the volume P.C.B.</b></p> <p>Procedure 1→2→4</p>  <ol style="list-style-type: none"> <li>1. Remove the 1 connector (CN705).</li> <li>2. Remove the 1 screw (1).</li> <li>3. Pull out the volume knob.</li> <li>4. Remove the nut.</li> <li>5. Remove the volume P.C.B. in the direction of the arrow.</li> </ol>	

<p><b>Ref. No.</b> 5</p>	<p><b>Removal of the tone control P.C.B.</b></p>	<p><b>Ref. No.</b> 6</p>	<p><b>Removal of the FL drive P.C.B.</b></p>
<p><b>Procedure</b> 1→2→4→5</p>	 <ol style="list-style-type: none"> <li>1. Pull out the bass knob and treble knob.</li> <li>2. Remove the 7 screws (①~⑦).</li> <li>3. Remove the tone control P.C.B. in the direction of the arrow. (Take care of CN502.)</li> </ol>	<p><b>Procedure</b> 1→2→6</p>	 <ol style="list-style-type: none"> <li>1. Remove the 4 screws (①~④).</li> <li>2. Remove the FL drive P.C.B. in the direction of the arrow. (Take care of CN906, CN907.)</li> </ol>
<p><b>Ref. No.</b> 7</p>	<p><b>Removal of the operation P.C.B. and balance VR P.C.B.</b></p>	<p>■ <b>Operation P.C.B.</b></p> <ol style="list-style-type: none"> <li>1. Remove the 8 screws (②~⑨).</li> <li>2. Release the 5 claws.</li> </ol>	
<p><b>Procedure</b> 1→2→4→5 →6→7</p>	<p>■ <b>Balance VR P.C.B.</b></p> <ol style="list-style-type: none"> <li>1. Pull out the balance knob.</li> <li>2. Remove the 1 screw (①).</li> </ol>		
<p><b>Ref. No.</b> 8</p>	<p><b>Removal of the remote sensor P.C.B.</b></p>	<p><b>Ref. No.</b> 9</p>	<p><b>Removal of the LED P.C.B.</b></p>
<p><b>Procedure</b> 1→2→6→8</p>	 <p>● Remove the remote sensor P.C.B. in the direction of the arrow.</p>	<p><b>Procedure</b> 1→2→4→9</p>	 <p>● Release the 2 claws.</p>

<p><b>Ref. No.</b> 10</p>	<p><b>Removal of the rear chassis</b></p>	<p><b>Ref. No.</b> 11</p>	<p><b>Removal of the tuner P.C.B.</b></p>
<p><b>Procedure</b> 1→10</p>	<p>1. Remove the 1 connector (CN651). 2. Remove the 10 screws (①~⑩).</p>	<p><b>Procedure</b> 1→10→11</p>	
 <p>Rear Chassis</p> <p>3. Remove the rear chassis in the direction of the arrow.</p>		 <p>Tuner P.C.B.</p> <p>Claw</p> <p>P.C.B. Holder</p> <p>1. Release the 1 claw. 2. Remove the tuner P.C.B. in the direction of the arrow.</p>	
<p><b>Ref. No.</b> 12</p>	<p><b>How to check the main P.C.B.</b></p>		
<p><b>Procedure</b> 1→12</p>			
 <p>Front Panel</p> <p>1. Remove the 3 screws (①~③). 2. Remove the front panel in the direction of the arrow.</p>		 <p>Main P.C.B.</p> <p>3. Remove the 7 screws (④~⑩).</p>	
 <p>Rear Chassis</p> <p>4. Remove the 4 screws (⑪~⑭).</p>		 <p>Main P.C.B.</p> <p>Bottom Chassis</p> <p>Front Panel</p> <p>5. Remove the bottom chassis. 6. Reinstall the front panel to the main P.C.B.</p>	

Ref. No. 13	Removal of the power IC and regulator transistor	Ref. No. 14	Removal of the AC IN/AC OUTLETS P.C.B.
<b>Procedure</b> 1→12→13	<ol style="list-style-type: none"> <li>1. Unsolder the power IC or regulator transistor.</li> <li>2. Remove the 4 screws (①~④).</li> </ol>	<b>Procedure</b> 1→10→14	
	 <p>• When mounting the power IC or regulator transistor, apply silicon thermal compound (SZZ0L15 or equivalent) to the rear of the power IC or regulator transistor.</p>		 <p>• Release the 6 claws.</p>
<b>Ref. No.</b> 15	<b>Removal of the power supply P.C.B.</b>	<b>Ref. No.</b> 16	<b>Removal of the power transformer</b>
<b>Procedure</b> 1→2→15		<b>Procedure</b> 1→2→15→16	
	 <ol style="list-style-type: none"> <li>1. Remove the 1 flat cable (CN604).</li> <li>2. Remove the 2 screws (①, ②).</li> <li>3. Remove the power supply P.C.B. in the direction of the arrow.</li> </ol>		 <ol style="list-style-type: none"> <li>1. Remove the 1 flat cable (CN701).</li> <li>2. Remove the 4 screws (①~④).</li> </ol>

## PROTECTION CIRCUITRY

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

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

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

If this occurs, follow the procedure outlines below:

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

### Note:

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

## BEFORE REPAIR AND ADJUSTMENT

Disconnect AC power, Discharge both Power Supply Capacitors C701 and C702 through a 10 $\Omega$ , 5W resistor to ground.

DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may destroy solid state devices.

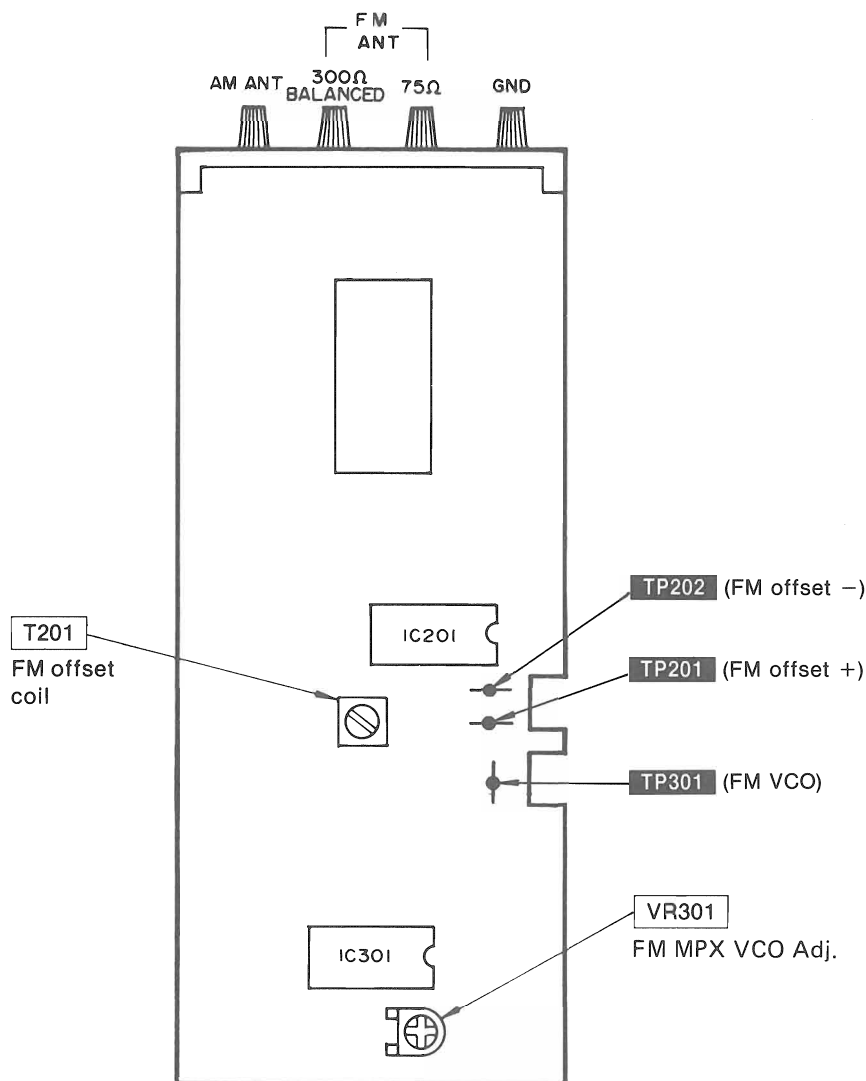
After repairs are completed, restore power gradually using a variac, to avoid overcurrent.

Current consumption at 120V, 60Hz in NO SIGNAL mode should be 200 ~ 500 mA.

## MEASUREMENTS AND ADJUSTMENTS

**Note:** For Z202 (AM-IFT), and Z201 (AM ANT and OSC coil), they are supplied as adjusted parts. So, do not turn the cores of the parts. It is not necessary to adjust the AM circuit.

### ADJUSTMENT POINTS





## • FM ADJUSTMENT

### Control positions and equipment used

- FM signal generator (FM-SG).
- Distortion analyser
- Oscilloscope
- DC electronic voltmeter (EVM)
- Frequency counter
- Choke coil (100 $\mu$ H)
- Resistor (100k $\Omega$ )

### FM MONO DISTORTION ADJUSTMENT

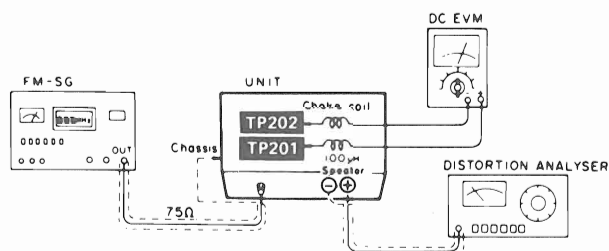
1. Test equipment connection is shown in figure.
2. Set the unit to "FM" position.
3. Set the radio frequency display and signal generator to **100.10MHz**.
4. Adjust **T201** core so that voltage measured in signal mode is **0mV (0 $\pm$ 20mV)** in **300mV** range.
5. Repeat step 4 a few times.
6. Make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

#### Note:

The adjusting screwdriver used should be made of resin.

#### FM SIGNAL GENERATOR CONDITION

Modulation .....100%  
 Modulation frequency.....1kHz  
 (MONO)  
 Output level.....66dB

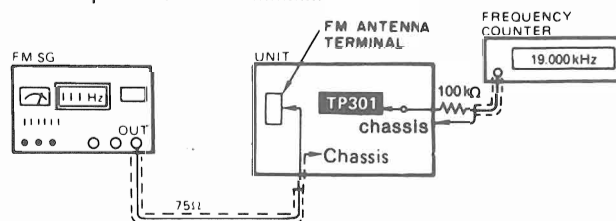


### FM MPX VCO ADJUSTMENT

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 setting to **100.10MHz**.
4. Adjust **VR301** for **19.00 $\pm$ 0.03kHz** on frequency counter reading.

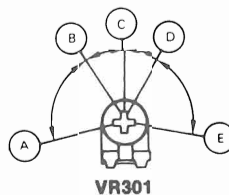
#### FM SIGNAL GENERATOR CONDITION

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.



- (A) - (B) (D) - (E) : Stereo OFF position  
 (B) - (D) : Stereo ON position  
 (indicator lighting)  
 (C) : Adjust point of pilot circuit

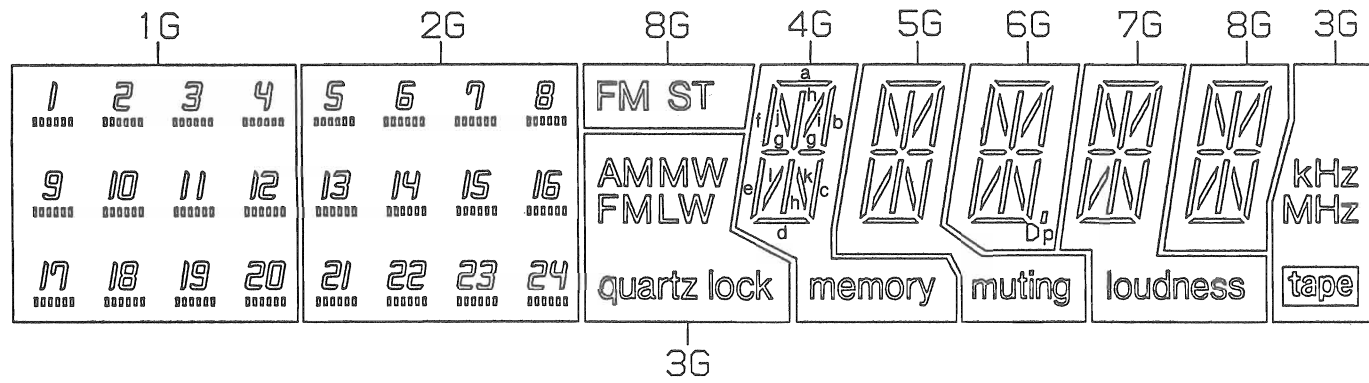
# TERMINAL FUNCTION OF IC

## • IC901 (LC6554H4280): Microcomputer

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	S13	O	Segment signal output	33	ST	O	Level shift control output
2 ┌ 3 └	PA0 ┌ └ PA3	I	Key return signal input	34	L	—	Not used, connected to GND
5				35	V		
6 ┌ 7 └	PB0 ┌ └ PB2	I	Key return signal input	36	TUNING 0	O	LED drive control signal for rotary tuning (Not used, connected to GND)
8				37	TUNING 1		
9	STAND BY	I	Power supply terminal	38	LOUDNESS	O	Loudness ON/OFF signal output
10	OFF	I	Power ON/OFF det. terminal (Not used, open)	39	R	O	Volume motor drive output
11	STEREO	I	Stereo signal det. terminal	40	F		
12	SD	I	Received signal det. terminal	41	A	O	Rotary tuning control signal output (Not used, connected to GND)
13	DP	I/O	Cassette deck control terminal	42	B		
14	RELAY	O	Relay control output	43	Vp	I	Power supply terminal (negative voltage)
15	DECK	I	Cassette deck control terminal (Not used, connected to GND)	44 ┌ └ 55	S1 ┌ └ S12	O	Segment signal output
16	OPT1 (IN)	—	Not used, connected to GND				
17	OPT1 (OUT)						
18	MONO	O	FM AUTO/MONO select signal output				
19	RFM	O	Muting control output for tuner circuit				
20	AT	O	Muting control output for amplifier circuit	56	VDD	I	Power supply terminal (positive voltage)
21	AFM	O	Muting control output for amplifier circuit	57 ┌ └ 64	D1 ┌ └ D8	O	Digit signal and key scan signal output
22	TEST	—	Not used, connected to GND				
23	V <sub>ss</sub>	—	Ground terminal				
24	OSC1	I	Oscillator terminal				
25	OSC2	O					
26	RES	I	Reset signal input				
27	DATA (PF0)	O	Serial data output				
28	CL (PF1)	O	Clock signal terminal for serial data				
29	CE (PF2)	I/O	Chip enable terminal				
30	INT	I	Remote control input				
31	L	—	Not used, connected to GND				
32	L	—	Not used, connected to GND				

# INTERNAL CONNECTION OF FL

## Grid assignment diagram



## Anode connection table

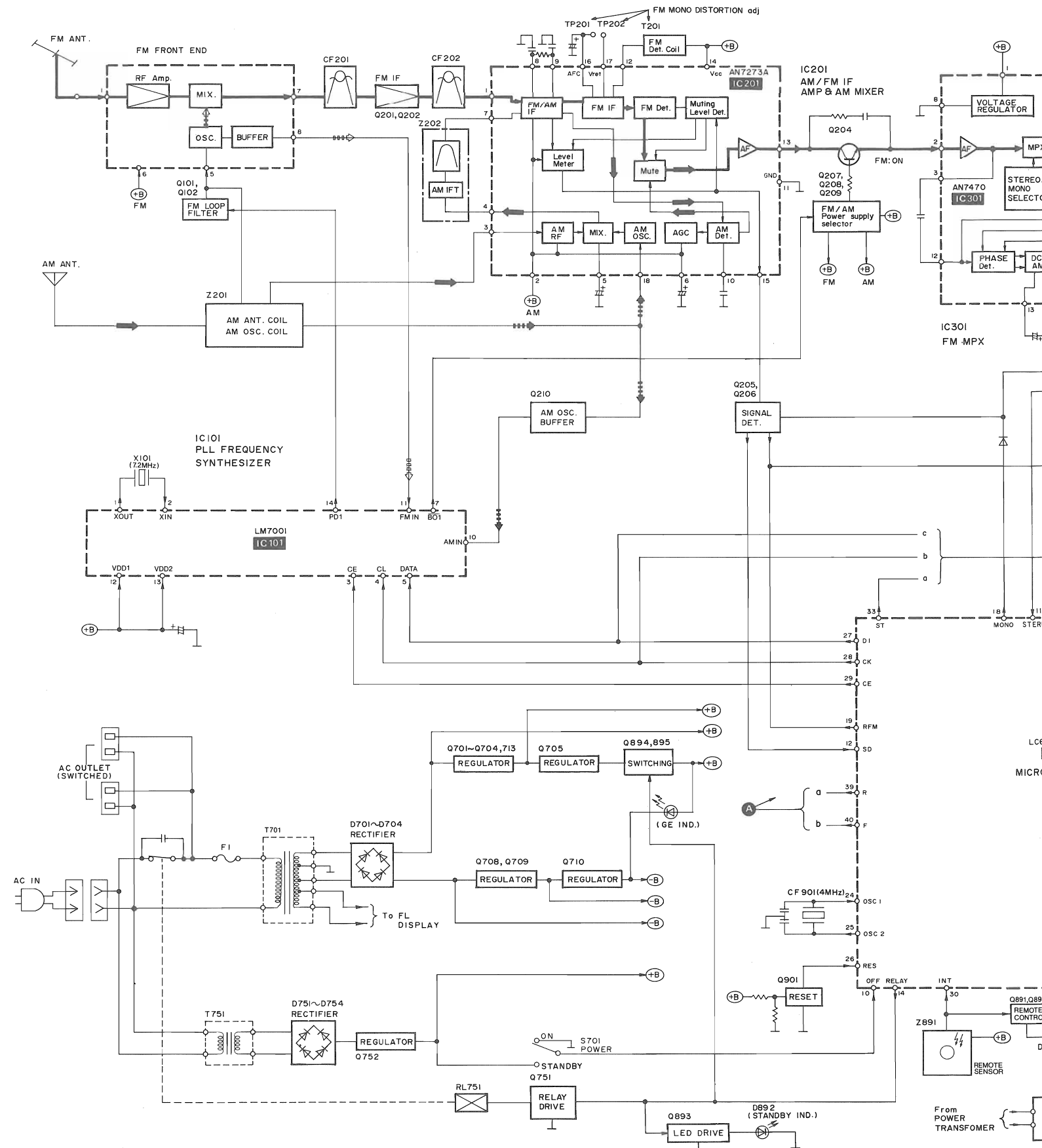
	1G	2G	3G	4G	5G	6G	7G	8G
a	..... (1)	..... (5)	KHz	a	a	a	a	a
b	..... (10)	..... (14)	LW	b	b	b	b	b
c	..... (17)	..... (21)	quartz lock	c	c	c	c	c
d	..... (19)	..... (23)	-	d	d	d	d	d
e	..... (12)	..... (16)	tape	e	e	e	e	e
f	..... (9)	..... (13)	FM	f	f	f	f	f
g	..... (11)	..... (15)	-	g	g	g	g	g
h	..... (3)	..... (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	5~8 13~16 21~24	-	memory	muting	D.P	loudness	FM ST

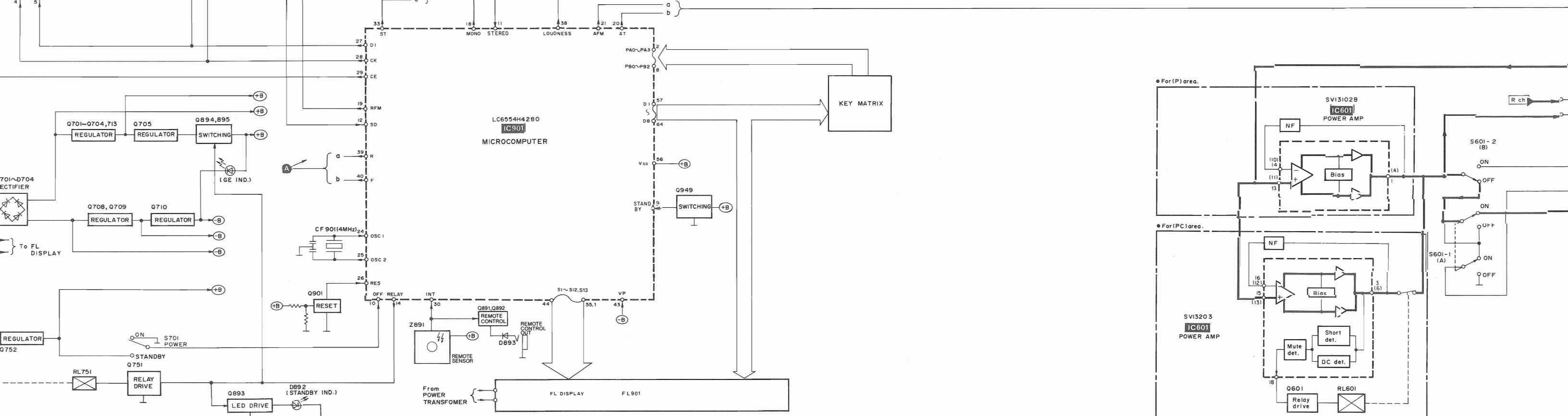
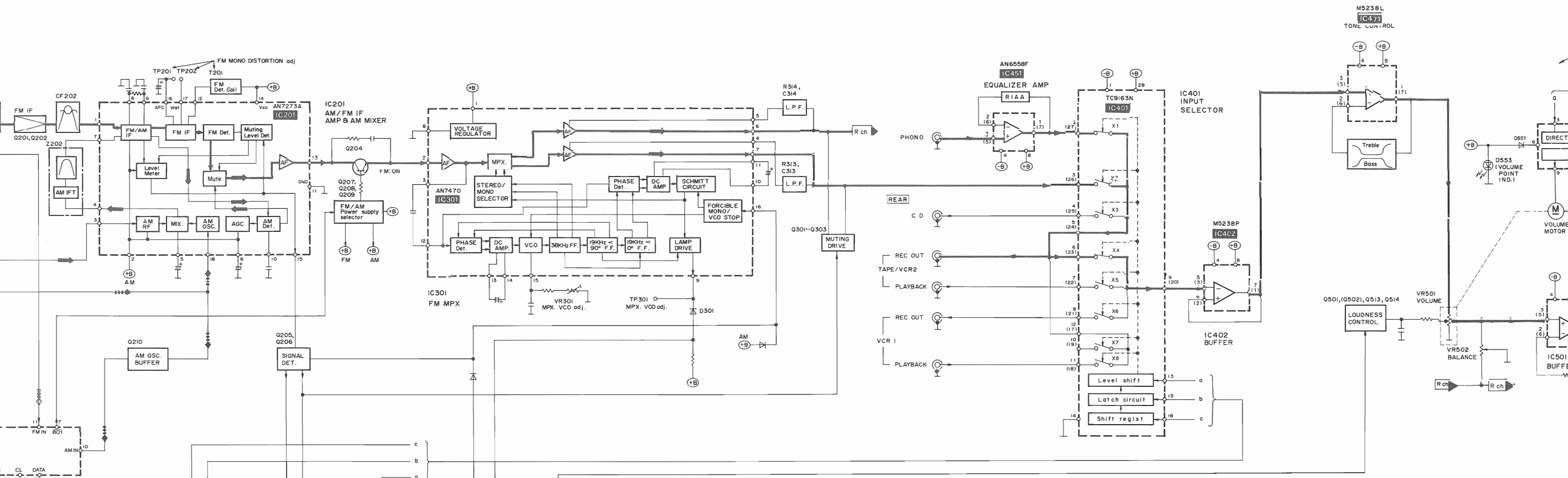
## Pin connection

PIN NO.	39	38	37	36	35	34	33	32	31	30	29	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	F	N	N	N	k	d	l	c	e	g	b	f	i	h	j	a	N	N	N	N	N	N	N	N	N	1	2	3	4	5	6	7	8	m	N	N	N	F	N

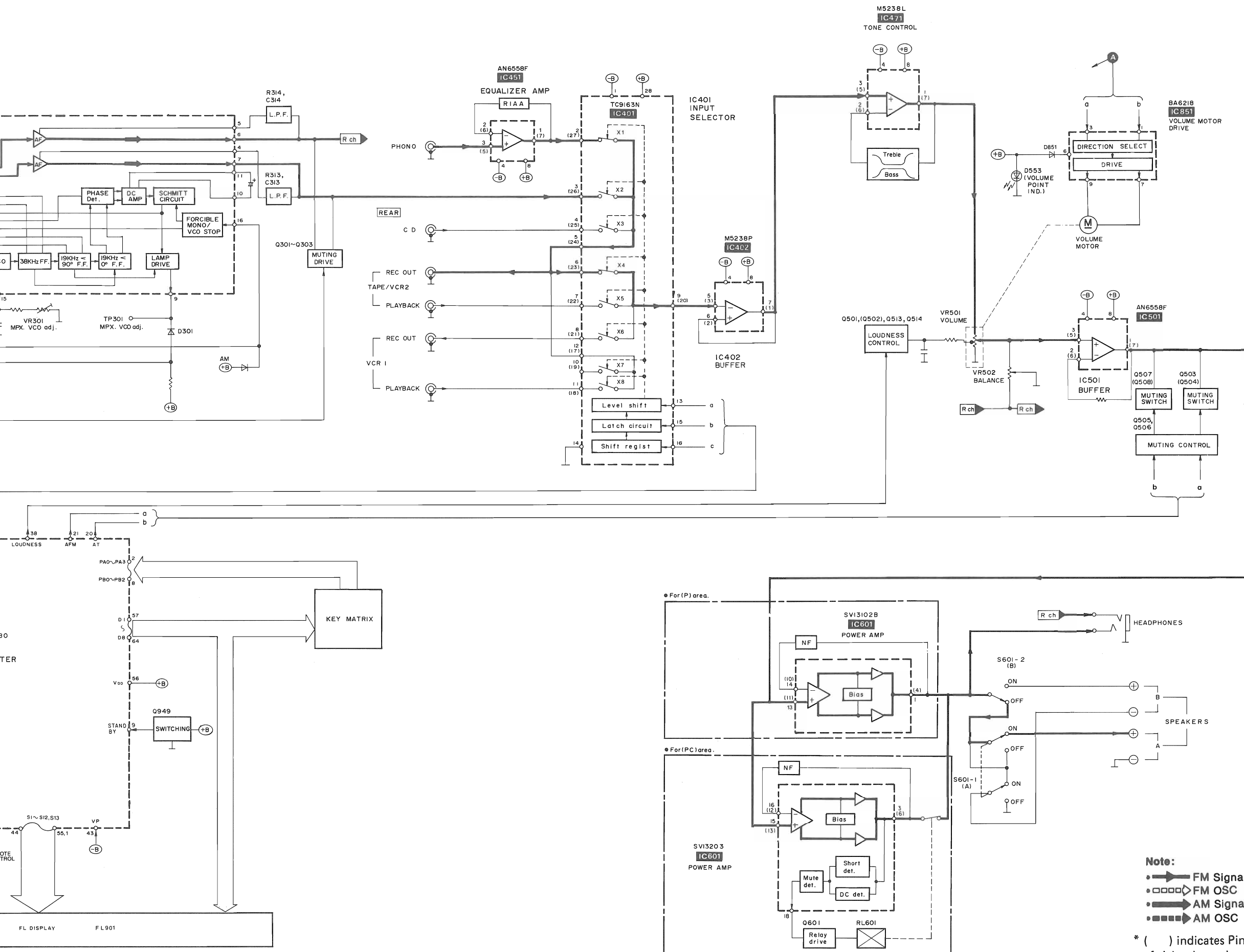
Note 1.) NP : No pin.  
 2.) 1G~8G : Grid  
 3.) F1, F2 : Filament

# BLOCK DIAGRAM





**TERMINAL GUIDE OF IC'S, TRANSISTERS AND DIODES**



<p>LC6554H4280 64 PIN</p>		<p>SVI3102B 14 PIN</p>	
<p>SVI3203 18 PIN</p>		<p>BA6218 9 PIN</p>	
<p>M5238P 8 PIN</p>		<p>AN7470 16 PIN</p>	
<p>AN6558F 8 PIN</p>		<p>AN7273A 18 PIN</p>	
<p>LM7001 8 PIN</p>		<p>TC9163N 28 PIN</p>	
<p>2SA933SQRSTA 2SC2785FETA 2SC2787LTA 2SD1450QRSTA 2SC3327ABTP 2SC3311AQSTA 2SA1309AQSTA</p>		<p>2S992EF 2SC1740SQSTA 2SC3940AQSTA</p>	
<p>2S40CDTA</p>		<p>UN4113TA</p>	
<p>UN4211TA UN4214TA</p>		<p>2SB1185DEF 2SD1761DEF</p>	
<p>2SB1240PRTV6</p>		<p>MA165TA MA29WATA SVDS5688GT3 1SS291TA P300DLF</p>	
<p>LN846RP-LS</p>		<p>MA4051MTA MA4062MTA MA4150MTA MA4068MTA MA4110MTA MA4270MTA</p>	

**Note:**

- FM Signal
- FM OSC
- AM Signal
- AM OSC

\* ( ) indicates Pin No. of right channel.

# SCHEMATIC DIAGRAM

(Parts list on pages 40~44)

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

**Note 1:**

- S601-1, S601-2 : Speaker selectors switch.  
S601-1: A S601-2: B
- S701 : Power "Standby  $\downarrow$ /on" switch.
- S901 ~ S910 : Preset-tuning (1-0) switches.  
S901 : CH1, S902 : CH2, S903 : CH3,  
S904 : CH4, S905 : CH5, S906 : CH6,  
S907 : CH7, S908 : CH8, S909 : CH9,  
S910 : CH0
- S911 : Memory scan/group-search switch.
- S912 : FM mode selector.
- S913, S914 : Band selectors.  
S913 : FM, S914 : AM
- S915, S916 : Tuning switches.  
S915 : down, S916 : up
- S917 : Memory switch.
- S918 : Loudness switch.
- S919 ~ S926 : Group registration switches.  
S919 : start, S920 : rock, S921 : jazz  
S922 : classic, S923 : easy, S924 : news  
S925 : other, S926 : end
- S927 ~ S929, S932 : Input selector switches.  
S927 : phono, S928 : tuner, S929 : CD,  
S932 : VCR1
- S931 : Tape-monitor/VCR 2 switch.
- Signal line

- 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.

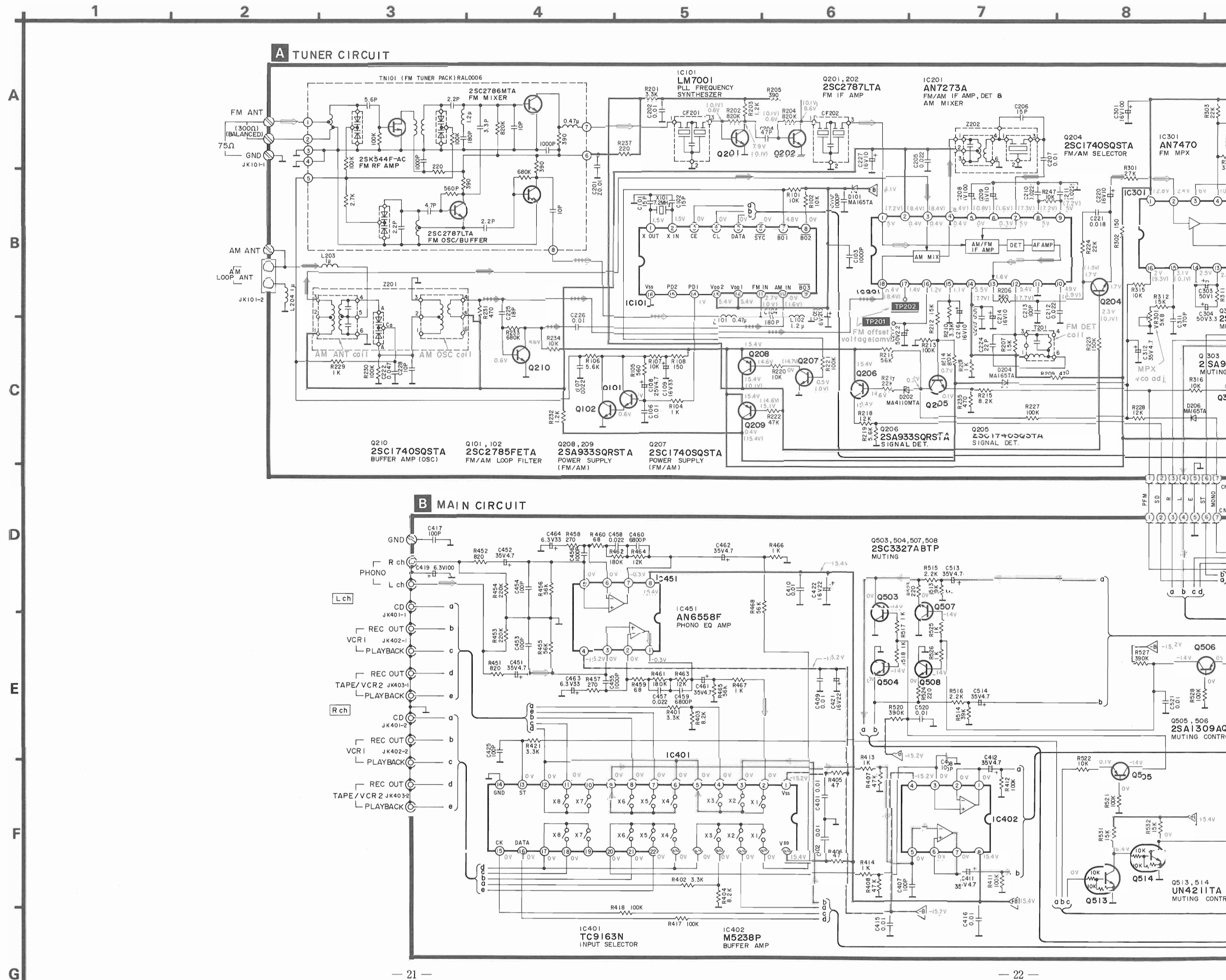
- \* Cover the parts boxes made of plastics with aluminum foil.
- \* Ground the soldering iron.
- \* Put a conductive mat on the work table.
- \* Do not touch the legs of IC or LSI with the fingers directly.

**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.

RANK (Color)	D914	D915	CENTER FREQUENCY
Blue	○	×	10.675MHz
Red	×	×	10.700MHz
Orange	×	○	10.725MHz

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

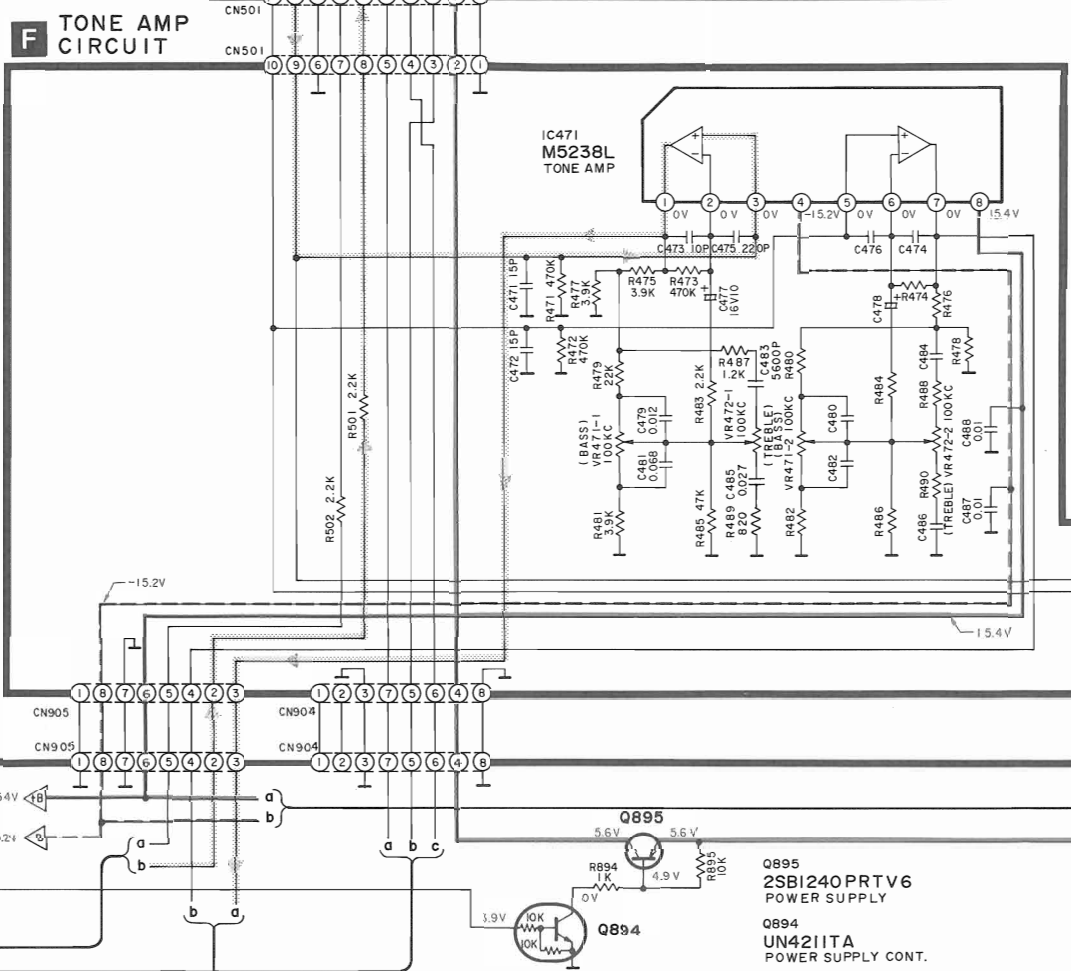
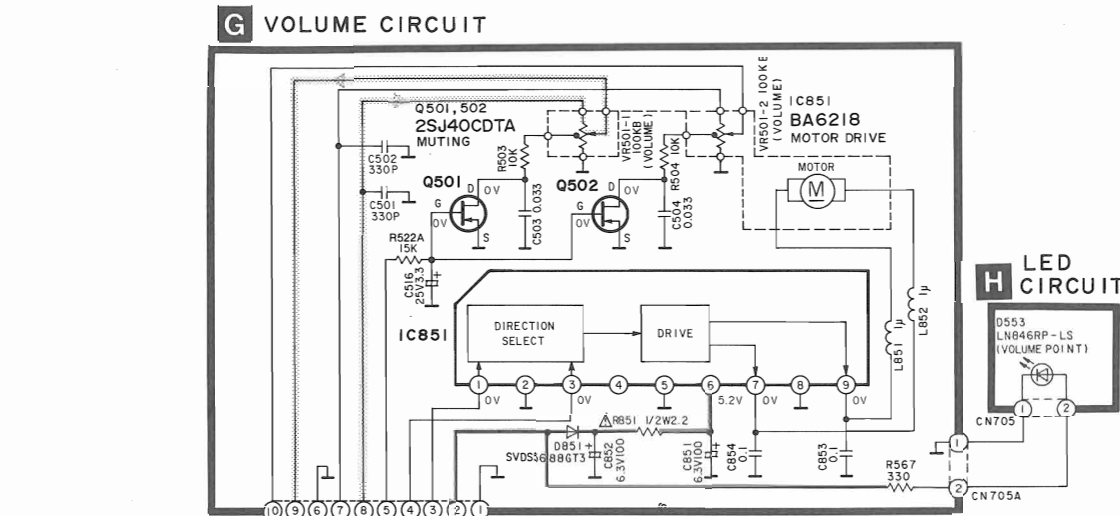








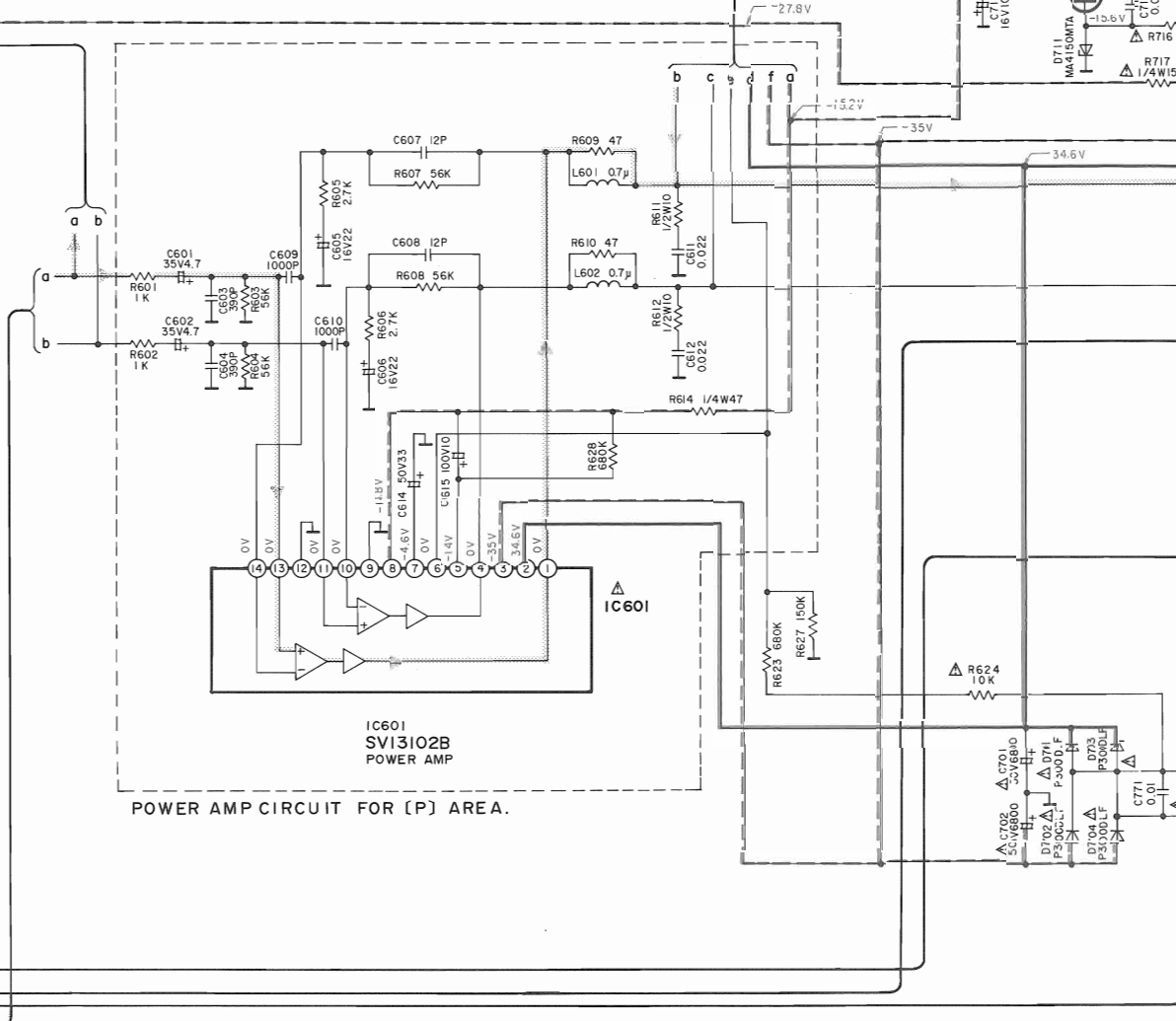
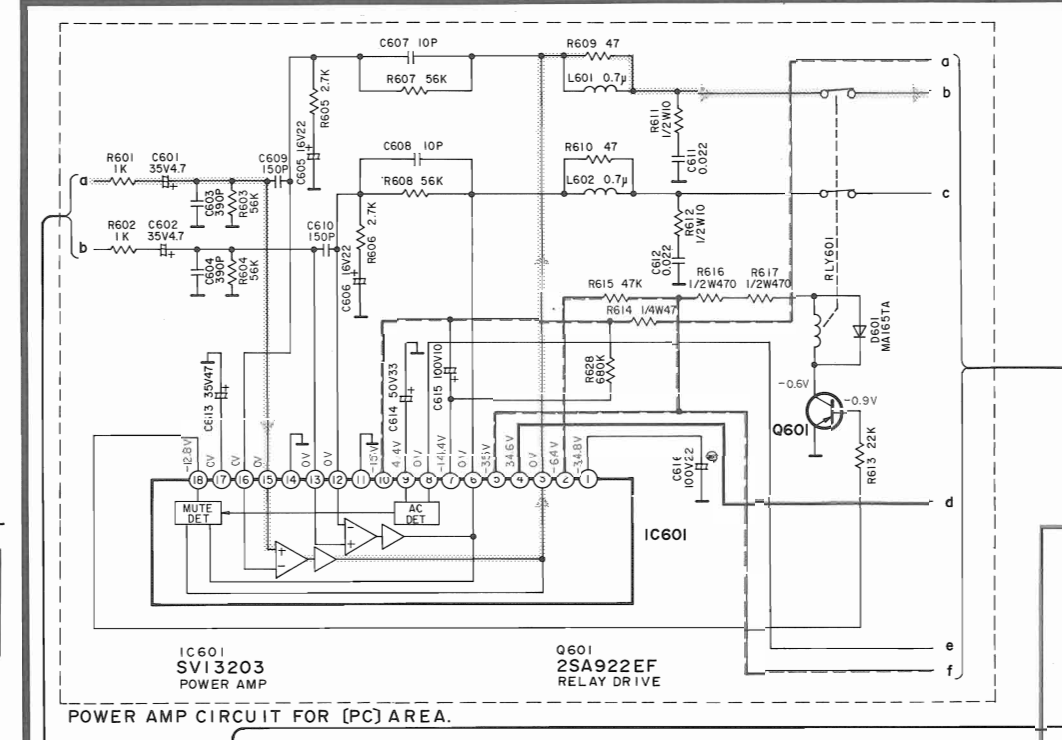
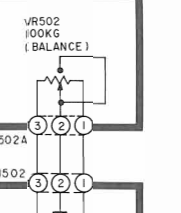




### H LED CIRCUIT

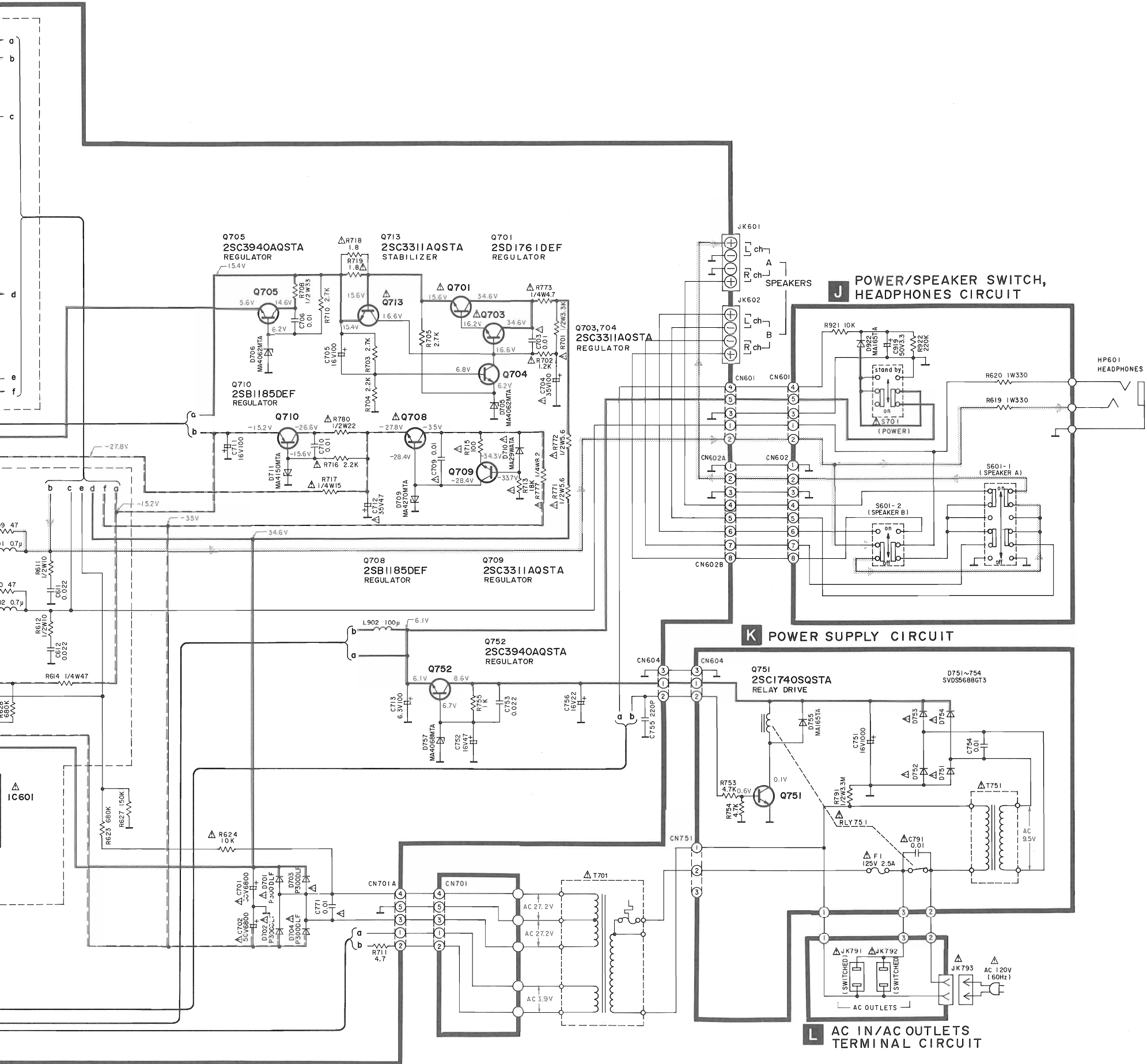


### I BALANCE VR CIRCUIT



Q895  
2SBI240PRTV6  
POWER SUPPLY

Q894  
UN421ITA  
POWER SUPPLY CONT.



**CAUTION:** FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE 2.5A 125V FUSE.



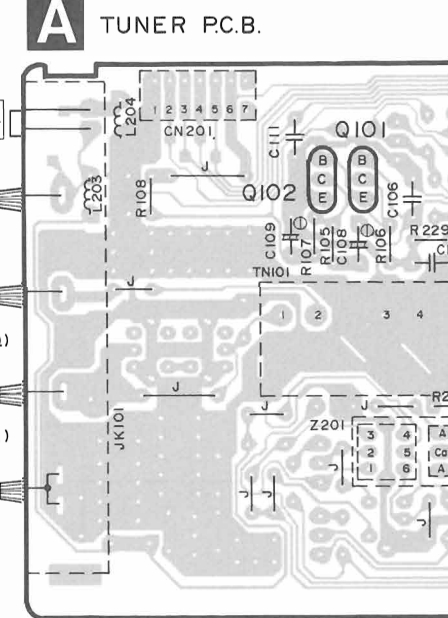
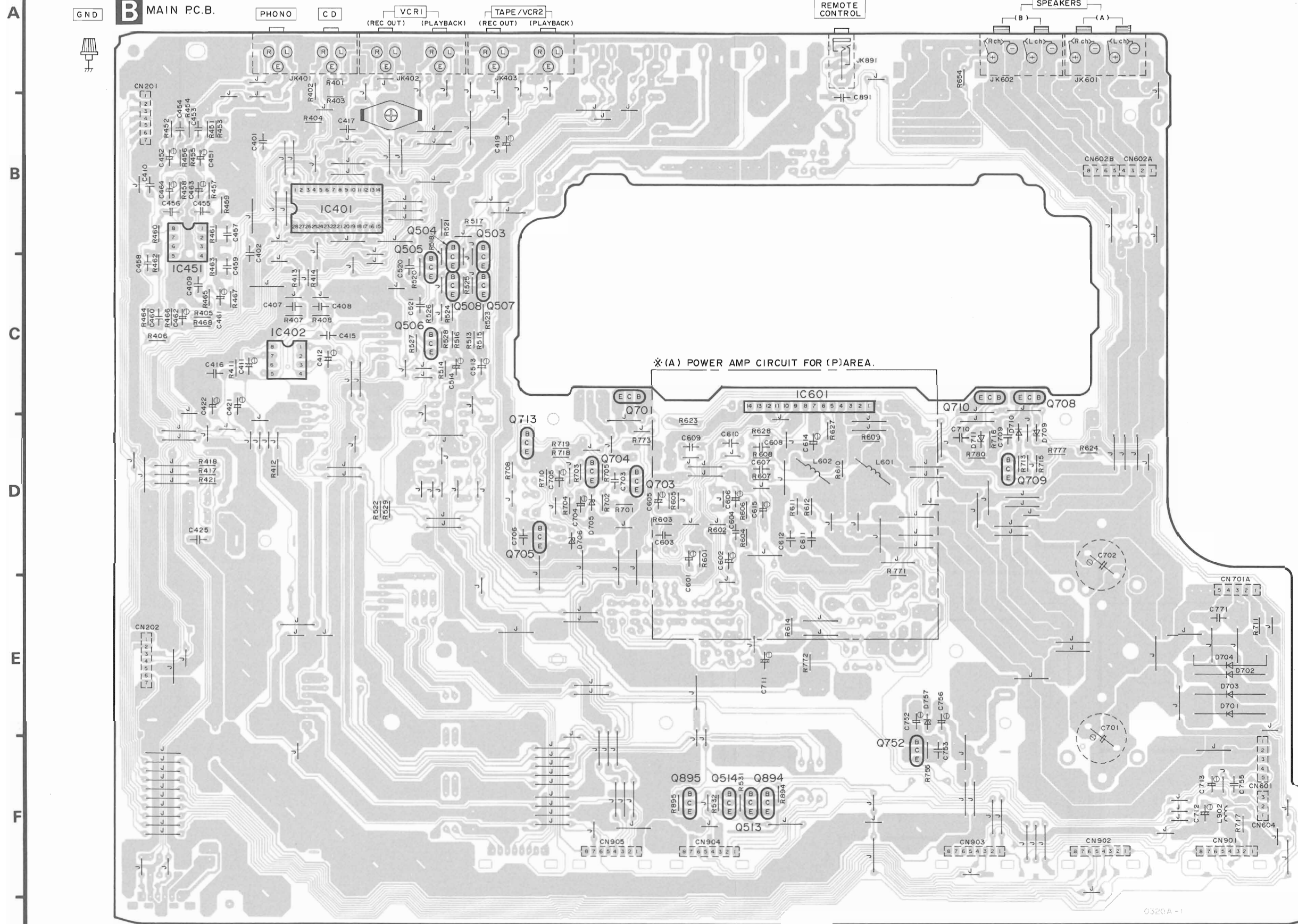
RISK OF FIRE-REPLACE FUSE AS MARKED.

**FUSE CAUTION**

⚠ This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating, refer to the marking adjacent to the symbol.

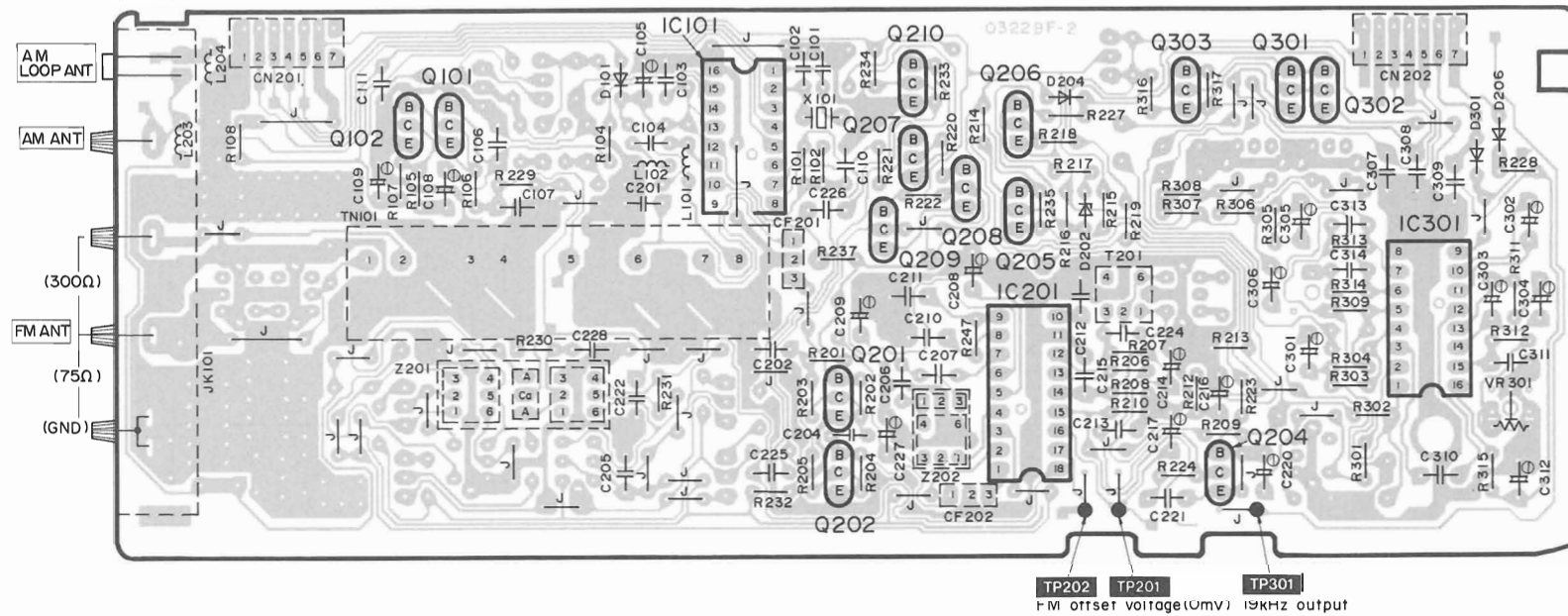
⚠ Ce symbole indique que le fusible utilisé est à rapide. Pour une protection permanente, n' utiliser que des fusibles de même type. Ce dernier est indiqué là où le présent symbole est apposé.

PRINTED CIRCUIT BOARDS

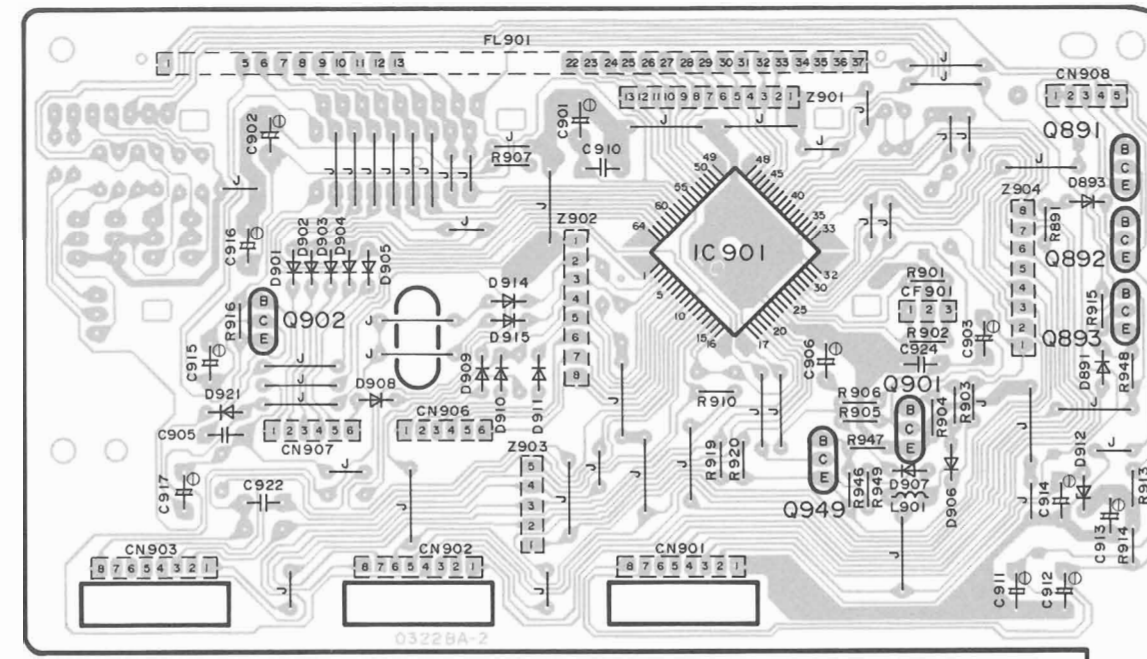




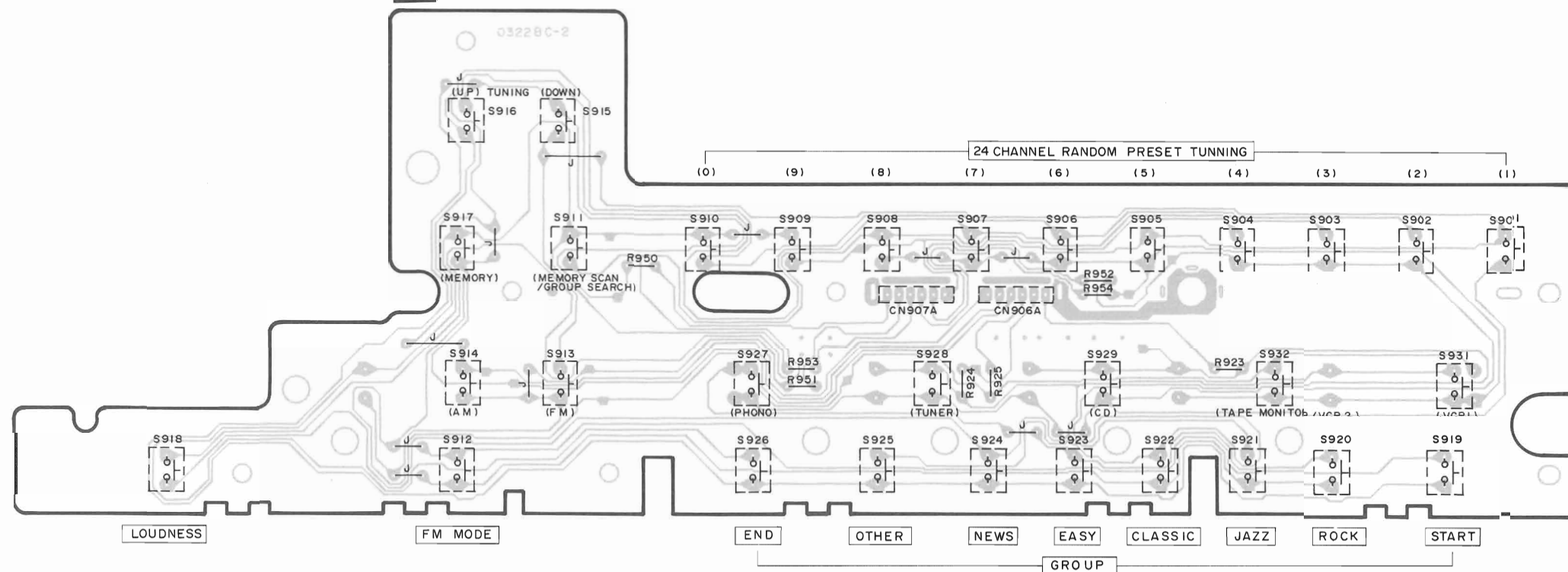
**A** TUNER P.C.B.



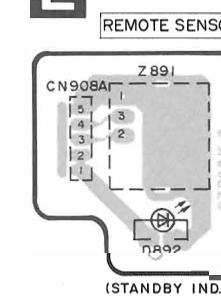
**C** FL DRIVE P.C.B.



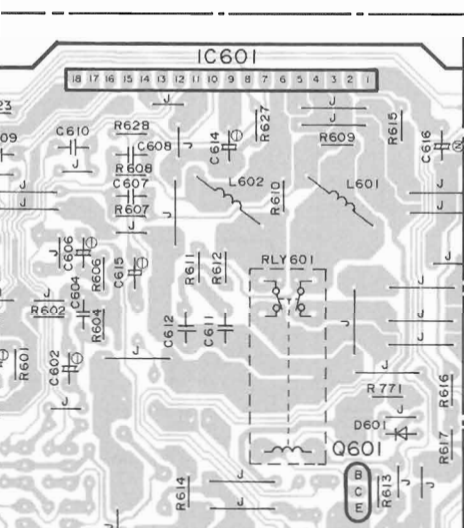
**D** OPERATION P.C.B.



**E** REMOTE SENSOR P.C.B.

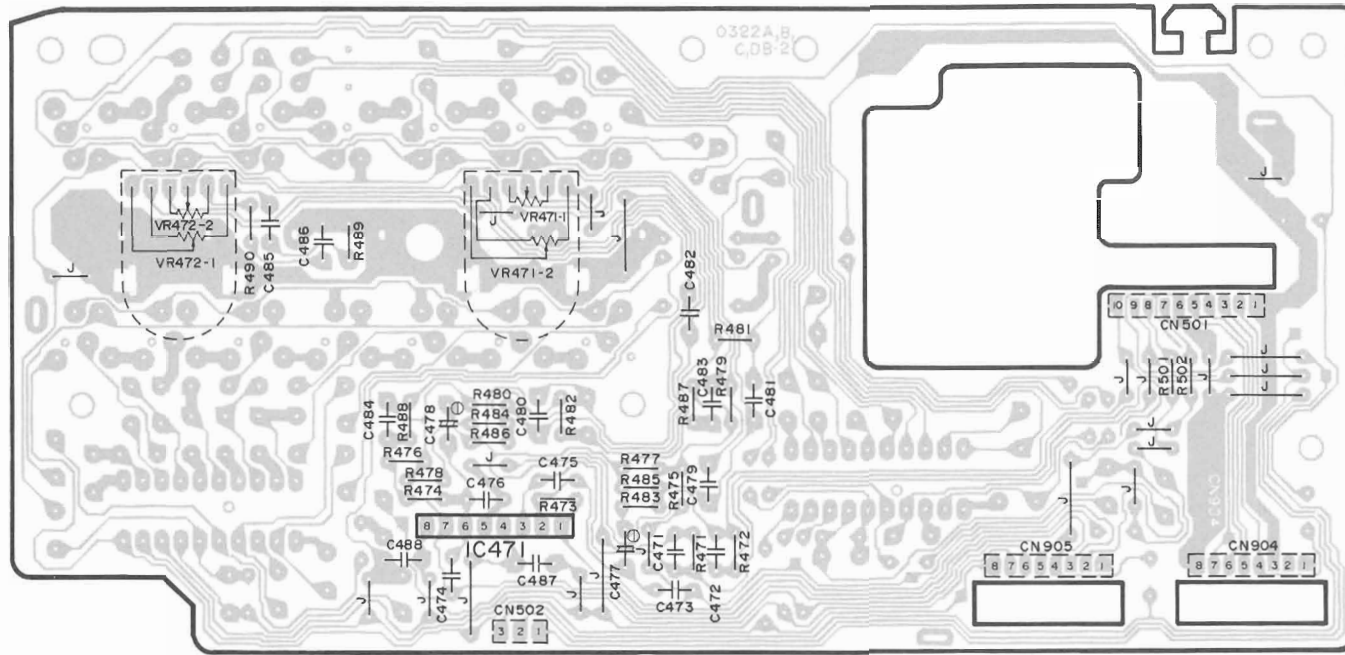


POWER AMP CIRCUIT FOR (PC) AREA.

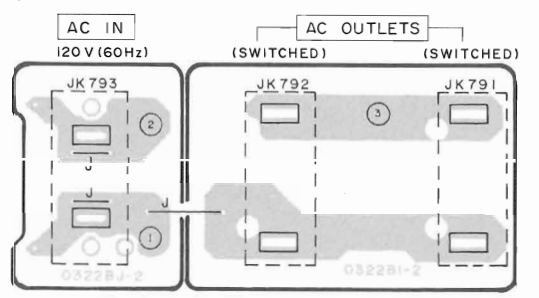


**F** TONE AMP P.C.B.

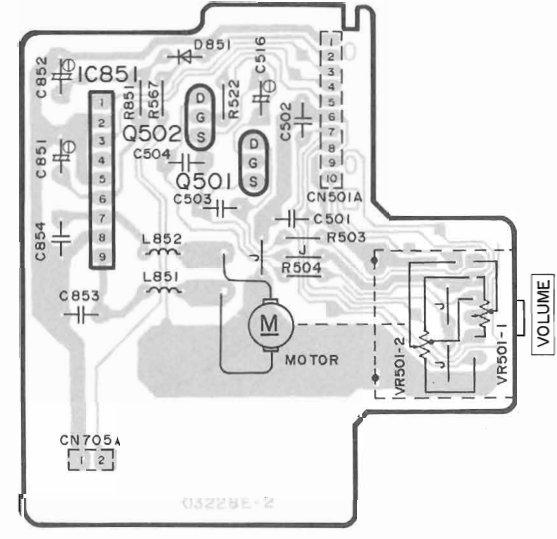
TREBLE — TONE CONTROL — BASS

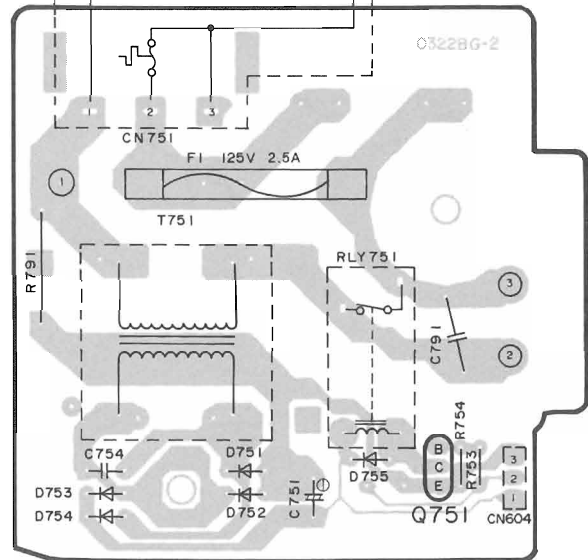
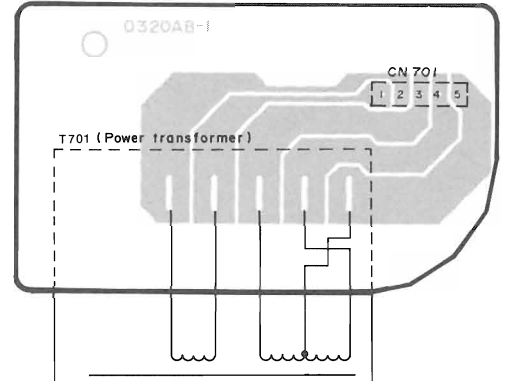
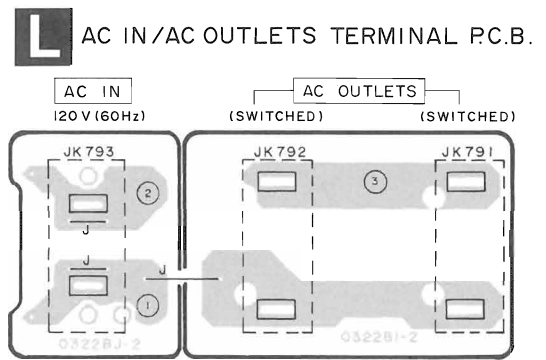
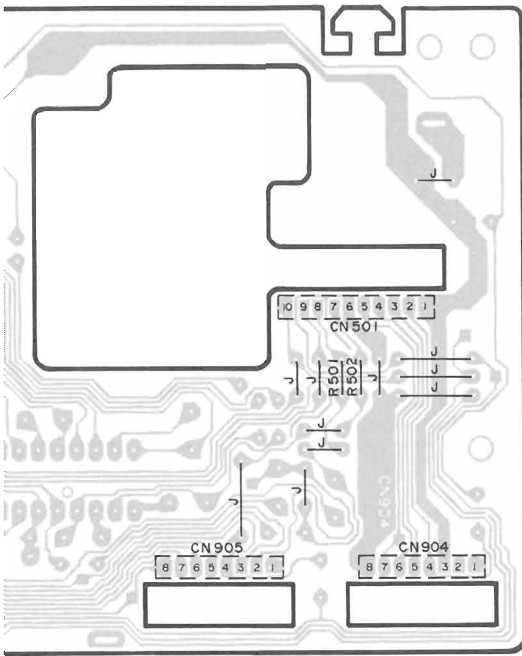


**L** AC IN/AC OUTLETS TERMINAL P.C.B.

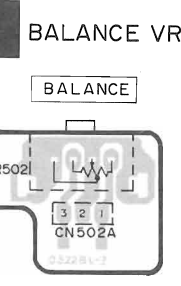
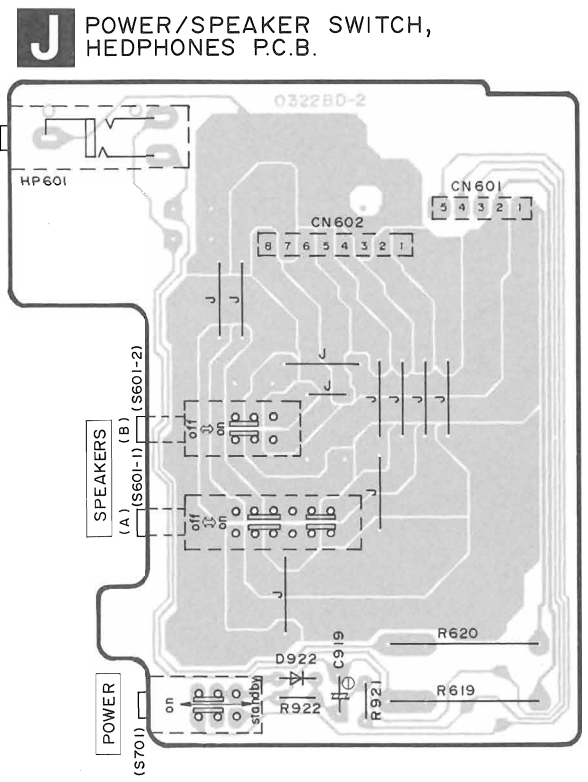
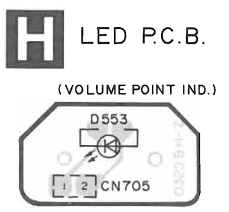


**G** VOLUME P.C.B.

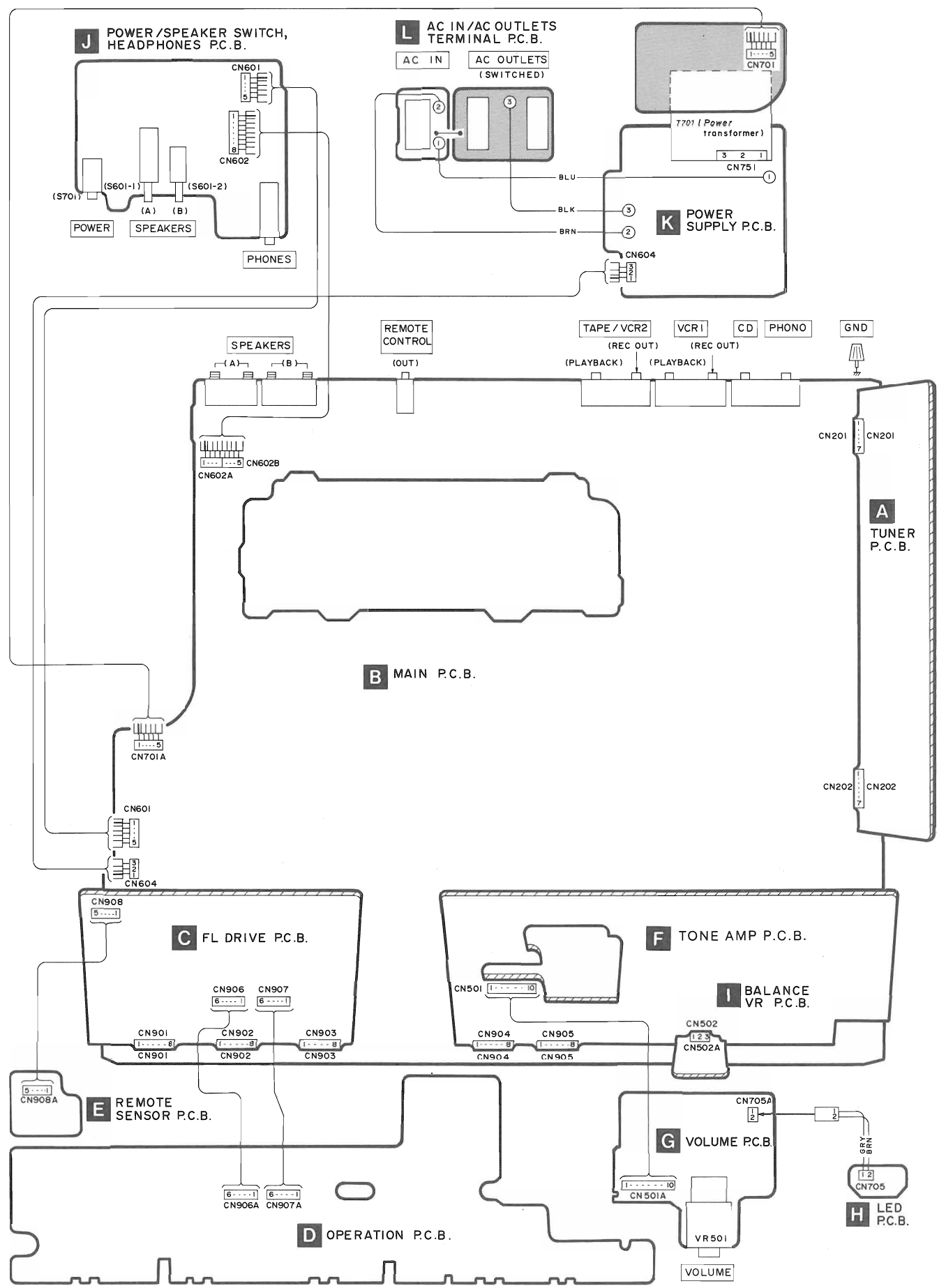




**K POWER SUPPLY P.C.B.**



**WIRING CONNECTION DIAGRAM**











## REPLACEMENT PARTS LIST

Notes : \* Important safety notice:

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

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

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS		P1	SPB1061	PROTECTION BAG (F. B)	(PC)
				P2	SPSD152	ACCESSORIES BOX	
				P3	RPG0453	PACKING CASE	
1	RKM0036A-K	CABINET		P4	RPN0328A	PAD	
2	REE0177	CONNECTOR ASS' Y (2P) (CN705)		P5	RPN0328B	PAD	
3	RWJ1803150QK	FLAT CABLE (3P)		P6	RPN0328C	PAD	
4	RWJ1805150QK	FLAT CABLE (5P)		P7	RPN0328D	PAD	
5	RWJ1808330QK	FLAT CABLE (8P)		P8	SPP723	PROTECTION BAG (UNIT)	
7	RMN0069	LED HOLDER					
8	RMN0070	FL HOLDER				ACCESSORIES	
9	RGRO079A-A	REAR PANEL					
10	RGU0030	BUTTON, POWER		A1	RQT0411-P	INSTRUCTION MANUAL	(P)
11	RGU0101	BUTTON, SPEAKER SELECTOR		A1	RQT0412-C	INSTRUCTION MANUAL	(PC)
12	RGW0070	KNOB, MAIN VOLUME		A2	SJA172-1	POWER CORD	(P) $\triangle$
13	RGW0072	KNOB, BASS/TREBLE		A2	SJA172	POWER CORD	(PC) $\triangle$
14	RGW0073	KNOB, BALANCE		A3	SPB1163T	AM LOOP ANTENNA	
15	RFKJAGX300P	CHASSIS ASS' Y		A3-1	SSA272M	FM ANTENNA	
15-1	RKA0009-1	FOOT		A3-2	SMA233-1M	AM ANTENNA HOLDER	
16	RFKGAGX100P	FRONT PANEL ASS' Y		A3-3	XTN3+10AFZ	SCREWS	
17	RSC0105	SHIELD PLATE		A7	SQX7147	WARRANTY CARD	(P)
18	RGU0344A	BUTTON, PRESET		A7	SQX7183	WARRANTY CARD	(PC)
19	RGU0345A	BUTTON, SELECTOR		A8	SQX9131	SERVICENTER LIST	(PC)
20	RGU0346	BUTTON, GROUP		A9	RAK-SA301P	REMOTE CONTROL TRANSMITTER	
21	RGU0347	BUTTON, UP-DOWN		A10	RKK0008	BATTERY COVER	
22	RGU0348A	BUTTON, MODE					
23	SHE187-2	P. C. B. SUPPORT					
24	SJS9233A	AC OUTLET COVER					
25	SJS9234A	AC INLET COVER					
26	SNE2123	GND TERMINAL					
27	SUS894-1	ANGLE, TRANSISTOR					
28	XNS7	NUT					
29	RWJ1805140QQ	CONNECTOR ASS' Y					
		SCREWS					
N1	SNE2129-3	SCREW					
N2	XTBS3+8JFZ1	SCREW					
N3	XTBS26+8J	SCREW					
N4	XTB3+16JFZ	SCREW					
N5	XTB3+20JFZ	SCREW					
N6	XTB3+8JFZ	SCREW					
N7	XTWS3+8T	SCREW					
N8	XTWS3+10Q	SCREW					
		PACKING MATERIAL					
P1	XZB24X33C04	PROTECTION BAG (F. B.)	(P)				

## 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.

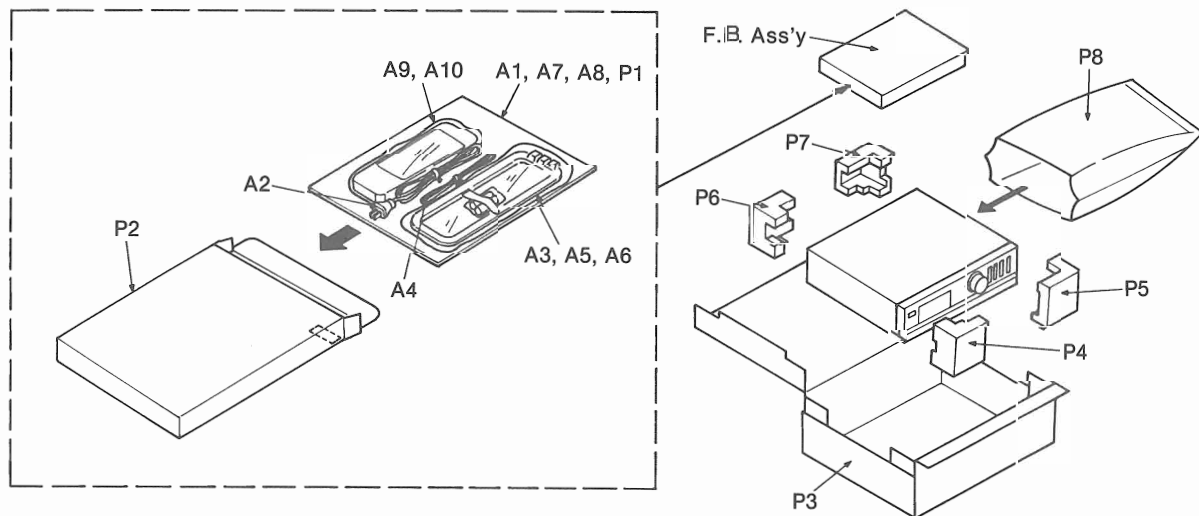
\* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)  
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		Q902	UN4215TA	TRANSISTOR	
				Q949	2SA933SQRSTA	TRANSISTOR	
IC101	LM7001	I. C, PLL FREQ. SYNTHESIZER				DIODE(S)	
IC201	AN7273A	I. C, FM/AM IF AMP & MIXER		D101	MA165TA	DIODE	
IC301	AN7470	I. C, FM MPX		D202	MA4110MTA	DIODE	
IC401	TC9163N	I. C, INPUT SELECTOR		D204	MA165TA	DIODE	
IC402	M5238P	I. C, BUFFER AMP		D206	MA165TA	DIODE	
IC451	AN6558F	I. C, PHONO EQ. AMP		D301	MA165TA	DIODE	
IC471	M5238L	I. C, TONE CONTROL		D553	LN846RP-LS	DIODE	
IC601	SVI3102B	I. C, POWER AMP	(P) $\Delta$	D601	MA165TA	DIODE	(PC)
IC601	SVI3203	I. C, POWER AMP	(PC) $\Delta$	D701-704	P300DLF	DIODE	$\Delta$
IC851	BA6218	I. C, MOTOR DRIVE		D705, 706	MA4062MTA	DIODE	
IC901	LC6554H4280	I. C, MICRO COMPUTER		D709	MA4270MTA	DIODE	
		TRANSISTOR(S)		D710	MA29WATA	DIODE	$\Delta$
				D711	MA4150MTA	DIODE	
Q101, 102	2SC2785FETA	TRANSISTOR		D751-754	SVDS5688GT3	DIODE	$\Delta$
Q201, 202	2SC2787LTA	TRANSISTOR		D755	MA165TA	DIODE	
Q204, 205	2SC1740SQSTA	TRANSISTOR		D757	MA4068MTA	DIODE	
Q206	2SA933SQRSTA	TRANSISTOR		D851	SVDS5688GT3	DIODE	
Q207	2SC1740SQSTA	TRANSISTOR		D891	MA165TA	DIODE	
Q208, 209	2SA933SQRSTA	TRANSISTOR		D892	LN846RP-LS	DIODE	
Q210	2SC1740SQSTA	TRANSISTOR		D893	MA29WATA	DIODE	
Q301, 302	2SD1450QRSTA	TRANSISTOR		D901-906	MA165TA	DIODE	
Q303	2SA933SQRSTA	TRANSISTOR		D907	1SS291TA	DIODE	
Q501, 502	2SJ40CDTA	TRANSISTOR		D908-911	MA165TA	DIODE	
Q503, 504	2SC3327ABTP	TRANSISTOR		D912	MA4051MTA	DIODE	
Q505, 506	2SA1309AQSTA	TRANSISTOR		D914, 915	MA165TA	DIODE	
Q507, 508	2SC3327ABTP	TRANSISTOR		D921, 922	MA165TA	DIODE	
Q513, 514	UN4211TA	TRANSISTOR				VARIABLE RESISTOR(S)	
Q601	2SA92EF	TRANSISTOR	(PC)				
Q701	2SD1761DEF	TRANSISTOR	$\Delta$	VR301	EVNDXAA00B53	V. R, MPX VCO ADJ.	
Q703, 704	2SC3311AQSTA	TRANSISTOR	$\Delta$ (Q703)	VR471, 472	EW2XAF25C15	V. R, TONE CONTROL	
Q705	2SC3940AQSTA	TRANSISTOR		VR501	EUMW0F20B15	V. R, MAIN VOLUME	
Q708	2SB1185DEF	TRANSISTOR	$\Delta$	VR502	EVJ01CF01G15	V. R, BALANCE	
Q709	2SC3311AQSTA	TRANSISTOR				COMPONENT COMBINATION(S)	
Q710	2SB1185DEF	TRANSISTOR					
Q713	2SC3311AQSTA	TRANSISTOR	$\Delta$	Z201	RLA22001-T	COIL	
Q751	2SC1740SQSTA	TRANSISTOR		Z202	SLI7Z101-T	COMPONENT COMBINATION	
Q752	2SC3940AQSTA	TRANSISTOR		Z891	A1QH3027H0	REMOTE CONT. SENSOR	
Q891	UN4113TA	TRANSISTOR		Z901	EXFP12331MF	COMPONENT COMBINATION	
Q892	UN4214TA	TRANSISTOR		Z902	EXBF8E473J	COMPONENT COMBINATION	
Q893	2SA933SQRSTA	TRANSISTOR		Z903	EXBF5E103J	COMPONENT COMBINATION	
Q894	UN4211TA	TRANSISTOR		Z904	EXBF8E103J	COMPONENT COMBINATION	
Q895	2SB1240PRTV6	TRANSISTOR					
Q901	2SC1740SQSTA	TRANSISTOR					

Ref.No.	Part No.	Part Name & Description	Remarks	Ref.No.	Part No.	Part Name & Description	Remarks
		COIL (S)		S914	EVQ21405R	SW, AM	
				S915	EVQ21405R	SW, TUNING DOWN	
				S916	EVQ21405R	SW, TUNING UP	
L1	RLQZP1R2KT-Y	COIL		S917	EVQ21405R	SW, MEMORY	
L2	RLQZPR47KT-Y	COIL		S918	EVQ21405R	SW, LOUDNESS	
L101	RLQZPR47KT-Y	COIL		S919	EVQ21405R	SW, START	
L102	RLQZP1R2KT-Y	COIL		S920	EVQ21405R	SW, ROCK	
L203, 204	ELEPK1ROMA	COIL		S921	EVQ21405R	SW, JAZZ	
L601, 602	SLQY07G-40	COIL		S922	EVQ21405R	SW, CLASSIC	
L851, 852	RLQZP1R0KT-Y	COIL		S923	EVQ21405R	SW, EASY	
L901, 902	ELEPK101KA	COIL		S924	EVQ21405R	SW, NEWS	
		TRANSFORMER (S)		S925	EVQ21405R	SW, OTHER	
				S926	EVQ21405R	SW, END	
T201	RLI4B007-Z	I.F.T.		S927	EVQ21405R	SW, PHONO	
T701	RTP1M5C001AV	POWER TRANSFORMER	△	S928	EVQ21405R	SW, TUNER	
T751	SLT5H2	TRANSFORMER	△	S929	EVQ21405R	SW, CD	
		FUSE (S)		S931	EVQ21405R	SW, TAPE MONITOR/VCR2	
				S932	EVQ21405R	SW, VCR1	
F1	XBA1F25NU14	FUSE, 125V, 2.5A	△			CONNECTOR (S) & SOCKET (S)	
		FILTER (S)		CN201	RJT057W007	CONNECTOR (7P)	
				CN201A	RJU057W007	SOCKET (7P)	
CF201, 202	RLFETNGM02L	CERAMIC FILTER		CN202	RJT057W007	CONNECTOR (7P)	
CF901	EFOGC4004T4	CERAMIC FILTER		CN202A	RJU057W007	SOCKET (7P)	
		OSCILLATOR (S)		CN501	RJT003K010M1	CONNECTOR (10P)	
				CN501	SJS51087WF	SOCKET (10P)	
X101	SVQ49U722T-S	OSCILLATOR		CN501A	RJU003K010M1	SOCKET (10P)	
		DISPLAY TUBE		CN501A	SJT31054WF	CONNECTOR (10P)	
				CN502	SJS50378JQ	SOCKET (3P)	
FL901	RSL0043-F	DISPLAY TUBE		CN502A	SJT30345JQ	CONNECTOR (3P)	
		SWITCH (ES)		CN601	RJS1A1705	CONNECTOR (5P)	
S601	SSH2137	SW, SPEAKERS		CN601	SJT30543-V	CONNECTOR (5P)	
S701	SSH1238	SW, POWER	△	CN602A	RJS1A1704	CONNECTOR (4P)	
S901	EVQ21405R	SW, PRESET TUNING 1		CN604	RJS1A1703	CONNECTOR (3P)	
S902	EVQ21405R	SW, PRESET TUNING 2		CN701	RJS1A1705	CONNECTOR (5P)	
S903	EVQ21405R	SW, PRESET TUNING 3		CN701	SJT30543-V	CONNECTOR (5P)	
S904	EVQ21405R	SW, PRESET TUNING 4		CN701A	RJS1A1705	CONNECTOR (5P)	
S905	EVQ21405R	SW, PRESET TUNING 5		CN701A	SJT30543-V	CONNECTOR (5P)	
S906	EVQ21405R	SW, PRESET TUNING 6		CN705A	SJT3213	CONNECTOR (2P)	
S907	EVQ21405R	SW, PRESET TUNING 7		CN751	SJS305-1	CONNECTOR (3P)	
S908	EVQ21405R	SW, PRESET TUNING 8		CN901	RJT003K008M1	CONNECTOR (8P)	
S909	EVQ21405R	SW, PRESET TUNING 9		CN901	SJS50887WF	SOCKET (8P)	
S910	EVQ21405R	SW, PRESET TUNING 0		CN901A	RJU003K008M1	SOCKET (8P)	
S911	EVQ21405R	SW, MEMORY SCAN		CN901A	SJT30854WF	CONNECTOR (8P)	(P)
S912	EVQ21405R	SW, FM MODE		CN901A	SJT30845WF	CONNECTOR (8P)	(PC)
S913	EVQ21405R	SW, FM		CN902	RJT003K008M1	CONNECTOR (8P)	
				CN902	SJS50887WF	SOCKET (8P)	
				CN902A	RJU003K008M1	SOCKET (8P)	
				CN902A	SJT30854WF	CONNECTOR (8P)	(P)
				CN902A	SJT30845WF	CONNECTOR (8P)	(PC)
				CN903	RJT003K008M1	CONNECTOR (8P)	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
CN903	SJS50887WF	SOCKET (8P)		JK401	SJF3069N	JACK, PHONO/CD	
CN903A	RJU003K008M1	SOCKET (8P)		JK402	SJF3069N	JACK, VCR1	
CN903A	SJT30854WF	CONNECTOR (8P)	(P)	JK403	SJF3069N	JACK, TAPE/VCR2	
CN903A	SJT30845WF	CONNECTOR (8P)	(PC)	JK601	RJR0054	JACK, SPEAKER	
CN904	RJT003K008M1	CONNECTOR (8P)		JK602	RJR0054	JACK, SPEAKER	
CN904	SJS50887WF	SOCKET (8P)		JK791	SJS9233B	AC OUTLET	△
CN904A	RJU003K008M1	SOCKET (8P)		JK792	SJS9233B	AC OUTLET	△
CN904A	SJT30854WF	CONNECTOR (8P)	(P)	JK793	SJS9234B	AC INLET	△
CN904A	SJT30845WF	CONNECTOR (8P)	(PC)	JK891	RJJ33TR01	JACK, REMOTE CONTROL OUT	
CN905	RJT003K008M1	CONNECTOR (8P)				RELAY(S)	
CN905	SJS50887WF	SOCKET (8P)					
CN905A	RJU003K008M1	SOCKET (8P)					
CN905A	SJT30854WF	CONNECTOR (8P)	(P)	RLY601	SSY134	RELAY	(PC)
CN905A	SJT30845WF	CONNECTOR (8P)	(PC)	RLY751	RSY0005-C	RELAY	△
CN906, 907	SJT30648BB1	CONNECTOR (6P)				FRONT END PACK ASS'Y	
CN908	SJT30549BB1	CONNECTOR (5P)					
CN906A	SJS50681BB	SOCKET (6P)					
CN907A	SJS50681BB	SOCKET (6P)		TN101	RAL0006	FM FRONT END	
CN908A	SJS50581BB	SOCKET (5P)					
CN602B	RJS1A1704	CONNECTOR (4P)					
		SHIELD PART (S)					
E401	SNE1004-1	GND PLATE					
E404	SME103-6	P. C. B. HOLDER					
E701, 702	RJR0011	FUSE HOLDER					
E901	RSC0111	SHIELD PLATE					
		JACK (S)					
HP601	SJJ146B	JACK, HEADPHONE					
JK101	RJH4405	JACK, ANTENNA					

**PACKING**



## RESISTORS & CAPACITORS

Notes : \* Capacity value 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)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS	R233	ERDS2TJ684T	1/4W 680K	R522	ERDS2TJ103T	1/4W 10K
			R234	ERDS2TJ103T	1/4W 10K	R522A	ERDS2TJ153T	1/4W 15K
			R235	ERDS2TJ471T	1/4W 470	R523, 524	ERDS2TJ221T	1/4W 220
R1	ERDS2TJ104T	1/4W 100K	R237	ERDS2TJ221T	1/4W 220	R525, 526	ERDS2TJ102T	1/4W 1K
R2	ERDS2TJ104T	1/4W 100K	R247	ERDS2TJ103T	1/4W 10K	R527	ERDS2TJ394T	1/4W 390K
R3	ERDS2TJ221T	1/4W 220	R301	ERDS2TJ273T	1/4W 27K	R528	ERDS2TJ104T	1/4W 100K
R4	ERDS2TJ104T	1/4W 100K	R302	ERDS2TJ151T	1/4W 150	R529	ERDS2TJ222T	1/4W 2.2K
R5	ERDS2TJ564T	1/4W 560K	R303, 304	ERDS2TJ223T	1/4W 22K	R531, 532	ERDS2TJ153T	1/4W 15K
R6	ERDS2TJ391T	1/4W 390	R305, 306	ERDS2TJ272T	1/4W 2.7K	R567	ERDS2TJ331T	1/4W 330
R7	ERDS2TJ272T	1/4W 2.7K	R307, 308	ERDS2TJ104T	1/4W 100K	R601, 602	ERDS2TJ102T	1/4W 1K
R8	ERDS2TJ474T	1/4W 470K	R309	ERDS2TJ334T	1/4W 330K	R603, 604	ERDS2TJ563T	1/4W 56K
R9	ERDS2TJ391T	1/4W 390	R311	ERDS2TJ102T	1/4W 1K	R605, 606	ERDS2TJ272T	1/4W 2.7K
R10	ERDS2TJ391T	1/4W 390	R312	ERDS2TJ153T	1/4W 15K	R607, 608	ERDS2TJ563T	1/4W 56K
R11	ERDS2TJ684T	1/4W 680K	R313, 314	ERDS2TJ473T	1/4W 47K	R609, 610	ERDS2TJ470T	1/4W 47
R101, 102	ERDS2TJ103T	1/4W 10K	R315, 316	ERDS2TJ103T	1/4W 10K	R611, 612	ERDS1FVJ100T	1/2W 10
R104	ERDS2TJ102T	1/4W 1K	R317	ERDS2TJ473T	1/4W 47K	R613	ERDS2TJ223T	1/4W 22K (PC)
R105	ERDS2TJ561T	1/4W 560	R401, 402	ERDS2TJ332T	1/4W 3.3K	R614	ERD25FVJ470T	1/4W 47
R106	ERDS2TJ562T	1/4W 5.6K	R403, 404	ERDS2TJ822T	1/4W 8.2K	R615	ERDS2TJ473T	1/4W 47K (PC)
R107	ERDS2TJ103T	1/4W 10K	R405, 406	ERDS2TJ470T	1/4W 47	R616, 617	ERDS1FVJ471T	1/2W 470 (PC)
R108	ERDS2TJ151T	1/4W 150	R407, 408	ERDS2TJ473T	1/4W 47K	R619, 620	ERG1ANJP331S	1W 330
R201	ERDS2TJ332T	1/4W 3.3K	R411, 412	ERDS2TJ104T	1/4W 100K	R623	ERDS2TJ684T	1/4W 680K
R202	ERDS2TJ824T	1/4W 820K	R413, 414	ERDS2TJ102T	1/4W 1K	R624	ERDS2TJ103T	1/4W 10K $\Delta$
R203	ERDS2TJ122T	1/4W 1.2K	R417, 418	ERDS2TJ104T	1/4W 100K	R627	ERDS2TJ154T	1/4W 150K
R204	ERDS2TJ824T	1/4W 820K	R421	ERDS2TJ332T	1/4W 3.3K	R628	ERDS2TJ684T	1/4W 680K
R205	ERDS2TJ391T	1/4W 390	R451, 452	ERDS2TJ821T	1/4W 820	R701	ERDS1FVJ332T	1/2W 3.3K $\Delta$
R206	ERDS2TJ561T	1/4W 560	R453, 454	ERDS2TJ224T	1/4W 220K	R702	ERDS2TJ122T	1/4W 1.2K $\Delta$
R207	ERDS2TJ152T	1/4W 1.5K	R455, 456	ERDS2TJ563T	1/4W 56K	R703	ERDS2TJ272T	1/4W 2.7K
R208	ERDS2TJ102T	1/4W 1K	R457, 458	ERDS2TJ271T	1/4W 270	R704	ERDS2TJ222T	1/4W 2.2K
R209	ERDS2TJ471T	1/4W 470	R459, 460	ERDS2TJ680T	1/4W 68	R705	ERDS2TJ272T	1/4W 2.7K
R210	ERDS2TJ332T	1/4W 3.3K	R461, 462	ERDS2TJ184T	1/4W 180K	R708	ERDS1FVJ330T	1/2W 33
R212	ERDS2TJ153T	1/4W 15K	R463, 464	ERDS2TJ123T	1/4W 12K	R710	ERDS2TJ272T	1/4W 2.7K
R213	ERDS2TJ104T	1/4W 100K	R465, 466	ERDS2TJ563T	1/4W 56K	R711	ERDS2TJ4R7T	1/4W 4.7
R214	ERDS2TJ824T	1/4W 820K	R467, 468	ERDS2TJ102T	1/4W 1K	R713	ERDS2TJ183T	1/4W 18K $\Delta$
R215	ERDS2TJ822T	1/4W 8.2K	R471, 472	ERDS2TJ104T	1/4W 100K	R715	ERDS2TJ101T	1/4W 100 $\Delta$
R216	ERDS2TJ563T	1/4W 56K	R473, 474	ERDS2TJ474T	1/4W 470K	R716	ERDS2TJ222T	1/4W 2.2K $\Delta$
R217	ERDS2TJ223T	1/4W 22K	R475, 476	ERDS2TJ392T	1/4W 3.9K	R717	ERD25FVJ150T	1/4W 15 $\Delta$
R218	ERDS2TJ123T	1/4W 12K	R479, 480	ERDS2TJ223T	1/4W 22K	R718, 719	ERDS2TJ1R8	1/4W 1.8 $\Delta$
R219	ERDS2TJ562T	1/4W 5.6K	R481, 482	ERDS2TJ392T	1/4W 3.9K	R753, 754	ERDS2TJ472T	1/4W 4.7K
R220	ERDS2TJ103T	1/4W 10K	R483, 484	ERDS2TJ222T	1/4W 2.2K	R755	ERDS2TJ102T	1/4W 1K
R221	ERDS2TJ104T	1/4W 100K	R485, 486	ERDS2TJ473T	1/4W 47K	R771, 772	ERDS1FVJ5R6T	1/2W 5.6 $\Delta$
R222	ERDS2TJ473T	1/4W 47K	R487, 488	ERDS2TJ122T	1/4W 1.2K	R773	ERD25FVJ4R7T	1/4W 4.7 $\Delta$
R223	ERDS2TJ154T	1/4W 150K	R489, 490	ERDS2TJ821T	1/4W 820	R777	ERD25FVJ8R2T	1/4W 8.2
R224	ERDS2TJ223T	1/4W 22K	R501, 502	ERDS2TJ222T	1/4W 2.2K	R780	ERDS1FVJ220T	1/2W 22 $\Delta$
R227	ERDS2TJ104T	1/4W 100K	R503, 504	ERDS2TJ103T	1/4W 10K	R791	ERC12ZGK335D	1/2W 3.3M
R228	ERDS2TJ123T	1/4W 12K	R513, 514	ERDS2TJ393T	1/4W 39K	R851	ERDS1FVJ2R2T	1/2W 2.2 $\Delta$
R229	ERDS2TJ102T	1/4W 1K	R515, 516	ERDS2TJ222T	1/4W 2.2K	R891	ERDS2TJ102T	1/4W 1K
R230	ERDS2TJ104T	1/4W 100K	R517, 518	ERDS2TJ102T	1/4W 1K	R894	ERDS2TJ102T	1/4W 1K
R231	ERDS2TJ471T	1/4W 470	R520	ERDS2TJ394T	1/4W 390K	R895	ERDS2TJ103T	1/4W 10K
R232	ERDS2TJ122T	1/4W 1.2K	R521	ERDS2TJ104T	1/4W 100K	R901	ERDS2TJ222T	1/4W 2.2K

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R902	ERDS2TJ105T	1/4W 1M	C215	ECKR1H103ZF5	50V 0.01U	C603, 604	ECKR1H391KB5	50V 390P
R903	ERDS2TJ563T	1/4W 56K	C216	ECEA1CK100B	16V 10U	C605, 606	ECEA1CPS220B	16V 22U
R904	ERDS2TJ123T	1/4W 12K	C217	ECEA1HK2R2B	50V 2.2U	C607, 608	ECCR1H120K5	50V 12P (P)
R905	ERDS2TJ103T	1/4W 10K	C220	ECEA1CK100B	16V 10U	C607, 608	ECCR1H100K5	50V 10P (PC)
R906	ERDS2TJ334T	1/4W 330K	C221	ECFR1E183KR	25V 0.018U	C609, 610	ECKR1H102KB5	50V 1000P (P)
R907	ERDS2TJ681T	1/4W 680	C222	ECQM1H473KV3	50V 0.047U	C609, 610	ECCR1H151K	50V 150P (PC)
R910	ERDS2TJ122T	1/4W 1.2K	C224	ECBT1H220JU5	50V 22P	C611, 612	ECKR1H223ZF5	50V 0.022U
R913, 914	ERDS2TJ101T	1/4W 100	C225	ECBT1H180JC5	50V 18P	C613	ECEA1VU470B	35V 47U (PC)
R915	ERDS2TJ331T	1/4W 330	C226	ECKR1H103ZF5	50V 0.01U	C614	ECEA1HU330B	50V 33U
R916	ERDS2TJ104T	1/4W 100K	C227	ECEA1CK100B	16V 10U	C615	ECEA2AU100B	100V 10U
R919, 920	ERDS2TJ122T	1/4W 1.2K	C228	ECBT1H100JC5	50V 10P	C616	ECEA2AN2R2SB	100V 2.2U (PC)
R921	ERDS2TJ103T	1/4W 10K	C301	ECEA1CU101B	16V 100U	C701, 702	ECETS1HV682U	50V 6800U Δ
R922	ERDS2TJ224T	1/4W 220K	C302	ECEA1HKR47B	50V 0.47U	C703	ECKR1H103ZF5	50V 0.01U Δ
R923-925	ERDS2TJ331T	1/4W 330	C303	ECEA1HK010B	50V 1U	C704	ECEA1VU101B	35V 100U Δ
R946	ERDS2TJ222T	1/4W 2.2K	C304-306	ECEA1HK3R3B	50V 3.3U	C705	ECEA1CU101B	16V 100U
R947	ERDS2TJ103T	1/4W 10K	C307, 308	ECFR1E273KR	25V 0.027U	C706	ECKR1H103ZF5	50V 0.01U
R948	ERDS2TJ221T	1/4W 220	C309	ECKR1H223ZF5	50V 0.022U	C709, 710	ECKR1H103ZF5	50V 0.01U Δ (C709)
R949	ERDS2TJ472T	1/4W 4.7K	C310	ECFR1E473KR	25V 0.047U	C711	ECEA1CU101B	16V 100U
R950-954	ERDS2TJ562T	1/4W 5.6K	C311	ECQP1471JZ3	50V 470P	C712	ECEA1VU470B	35V 47U Δ
			C312	ECEA1VK4R7B	35V 4.7U	C713	ECEA0JU101B	6.3V 100U
		CAPACITORS	C313, 314	ECBT1H181KB5	50V 180P	C751	ECEA1CU102E	16V 1000U
			C401, 402	ECKR1H103ZF5	50V 0.01U	C752	ECEA1CU470B	16V 47U
C1	ECBT1H5R6KC5	50V 5.6P	C407, 408	ECBT1H101KB5	50V 100P	C753, 754	ECKR1H103ZF5	50V 0.01U
C2	ECBT1H102KB5	50V 1000P	C409, 410	ECKR1H103ZF5	50V 0.01U	C755	ECBT1H221KB5	50V 220P
C3	ECBT1H2R2JC5	50V 2.2P	C411, 412	ECEA1VPS4R7B	35V 4.7U	C756	ECEA1CPS220B	16V 22U
C4	ECBT1H181KB5	50V 180P	C415, 416	ECKR1H103ZF5	50V 0.01U	C771	ECKR2H103ZU	500V 0.01U Δ
C5	ECBT1H5R6KC5	50V 5.6P	C417	ECBT1H101KB5	50V 100P	C791	ECKWNS103ZV	125V 0.01U Δ
C6	ECBT1H3R3KC5	50V 3.3P	C419	ECEA0JU101B	6.3V 100U	C851, 852	ECEA0JU101B	6.3V 100U
C7	ECBT1H4R7KC5	50V 4.7P	C421, 422	ECEA1CPS220B	16V 22U	C853, 854	ECFR1E104KR	25V 0.1U
C8	ECBT1H3R3KC5	50V 3.3P	C425	ECBT1H101KB5	50V 100P	C891	ECFR1E392KR	25V 3900P
C9	ECBT1H2R2JC5	50V 2.2P	C451, 452	ECEA1VPS4R7B	35V 4.7U	C901, 902	ECEA0JU102B	6.3V 1000U
C10	ECBT1H180J5	50V 18P	C453, 454	ECBT1H101KB5	50V 100P	C903	ECEA1HK010B	50V 1U
C11	ECBT1H102KB5	50V 1000P	C455, 456	ECBT1H102KB5	50V 1000P	C905	ECKR1H331KB5	50V 330P
C101, 102	ECBT1H150JC5	50V 15P	C457, 458	ECFR1E223KR	25V 0.022U	C906	ECEA0JU471B	6.3V 470U
C103	ECBT1H102KB5	50V 1000P	C459, 460	ECFR1E682KR	25V 6800P	C910	ECKR1H103ZF5	50V 0.01U
C104	ECBT1H181KB5	50V 180P	C461, 462	ECEA1VPS4R7B	35V 4.7U	C911-913	ECEA1HK3R3B	50V 3.3U
C105	ECEA0JU221B	6.3V 220U	C463, 464	ECEA0JPS330B	6.3V 33U	C914	ECEA1VK100B	35V 10U
C106	ECKR1H103ZF5	50V 0.01U	C471, 472	ECBT1H150JC5	50V 15P	C915	ECEA1VU101B	35V 100U
C107	ECKR1H223ZF5	50V 0.022U	C473, 474	ECBT1H100JC5	50V 10P	C916	ECEA0JU102B	6.3V 1000U
C108	ECEA25M4R7RB	25V 4.7U	C475, 476	ECBT1H221KB5	50V 220P	C917	ECEA0JU101B	6.3V 100U
C109	ECEA1CU330B	16V 33U	C477, 478	ECEA1CK100B	16V 10U	C919	ECEA1HK3R3B	50V 3.3U
C110, 111	ECBT1H102KB5	50V 1000P	C479, 480	ECFR1E123KR	25V 0.012U	C922	ECKR1H331KB5	50V 330P
C201, 202	ECKR1H103ZF5	50V 0.01U	C481, 482	ECFR1E683KR	25V 0.068U	C924	ECKR1H103ZF5	50V 0.01U
C204	ECBT1H470J5	50V 47P	C483, 484	ECFR1E562KR	25V 5600P			
C205	ECKR1H223ZF5	50V 0.022U	C485, 486	ECFR1E273KR	25V 0.027U			
C206	ECBT1H150JC5	50V 15P	C487, 488	ECKR1H103ZF5	50V 0.01U			
C207	ECBT1C103MS5	16V 0.01U	C501, 502	ECBT1H331KB5	50V 330P			
C208	ECEA0JU101B	6.3V 100U	C503, 504	ECFR1E333KR	25V 0.033U			
C209	ECEA1CK100B	16V 10U	C513, 514	ECEA1VPS4R7B	35V 4.7U			
C210-212	ECKR1H223ZF5	50V 0.022U	C516	ECEA1HK3R3B	50V 3.3U			
C213	ECBT1H101KB5	50V 100P	C520, 521	ECKR1H103ZF5	50V 0.01U			
C214	ECEA1CK100B	16V 10U	C601, 602	ECEA1VPS4R7B	35V 4.7U			