

Service Manual

QUARTZ Synthesizer
LW/MW/FM Stereo Receiver

Receiver
SA-GX100L



Color

(K)... Black Type

Area

Country Code	Area	Color
(E)	Continental Europe.	(K)
(EB)	Great Britain.	

SPECIFICATIONS (DIN 45 500)

■ AMPLIFIER SECTION

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

Loudness control (volume at -30 dB)	50 Hz, +9 dB
Output voltage	
VCR 1 AUDIO OUT, TAPE/VCR 2 REC OUT	200 mV
Channel balance, 250 Hz~6,300 Hz	±1 dB
Channel separation	55 dB
Headphones output level and Impedance	430 mV/330 Ω
Load Impedance	
A or B	4 Ω~16 Ω
A and B	8 Ω~16 Ω

■ FM TUNER SECTION

Frequency range	87.50~108.00 MHz
Sensitivity	
S/N 30 dB	1.5 μV (75 Ω)
S/N 26 dB	1.3 μV (75 Ω)
S/N 20 dB	1.2 μV (75 Ω)
IHF usable sensitivity	1.5 μV (IHF'58, 75 Ω)
IHF 46 dB stereo quieting sensitivity	22 μV/75 Ω
Total harmonic distortion	
MONO	0.2 %
STEREO	0.3 %
S/N	
MONO	60 dB (75 dB, IHF)
STEREO	58 dB (71 dB, IHF)
Frequency response	20 Hz~15 kHz, +1 dB~-2 dB

Technics

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

Alternate channel selectivity	65 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	40 dB
IF rejection at 98 MHz	70 dB
Spurious response rejection at 98 MHz	70 dB
AM suppression	50 dB
Stereo separation	
1 kHz	40 dB
10 kHz	30 dB
Carrier leak	
19 kHz	-55 dB (-60 dB, IHF)
38 kHz	-50 dB (-55 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	
MW	522 kHz~1611 kHz (9-kHz steps) 530 kHz~1620 kHz (10-kHz steps)
LW	155 kHz~353 kHz (9-kHz steps) 153 kHz~351 kHz (-2-kHz shift)
Sensitivity (S/N 20 dB)	
MW	20 μV, 330 μV/m
LW	45 μV

Selectivity (±9 kHz)	
MW (at 999 kHz)	55 dB
LW (at 254 kHz)	55 dB
Image rejection	
MW (at 999 kHz)	40 dB
LW (at 254 kHz)	40 dB
IF rejection	
MW (at 999 kHz)	55 dB
LW (at 254 kHz)	55 dB

■ GENERAL

Power consumption	265 W
Power supply	
For United Kingdom	AC 50 Hz/60 Hz, 240 V
For continental Europe	AC 50 Hz/60 Hz, 220 V
Dimensions (W × H × D)	430 × 124 × 300 mm (16-15/16" × 4-7/8" × 11-13/16")
Weight	5.5 kg (12.1 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.

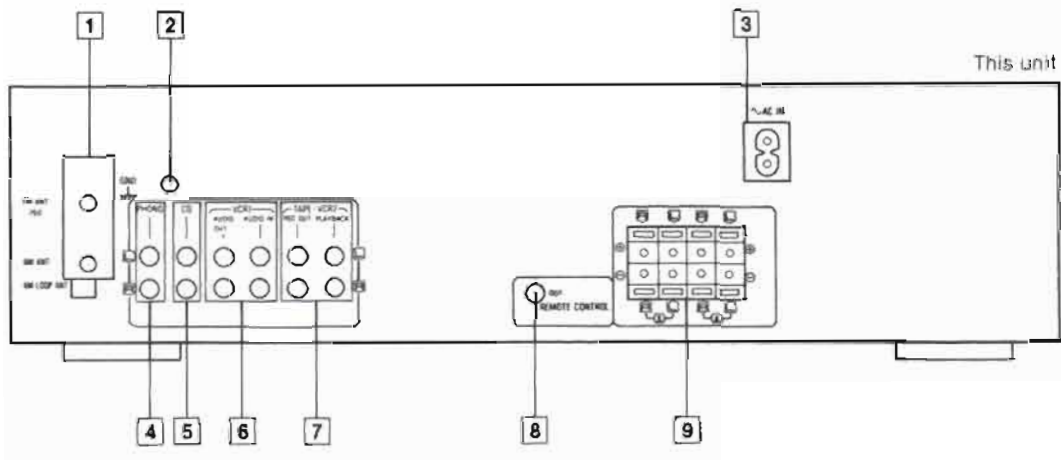
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■ ACCESSORIES

● AC power supply cord (1) [SFDAC05E03... (E)] [SJA193... (EB)]	● FM indoor antenna (1) (SSA270M)	● Attachment plug (1) (For United Kingdom only) (SJP9009)	● AM loop antenna (1) (SPB1163T)
● AM antenna holder (1) (SMA233-1M)	● Screws (2) (XTN3+10AFZ)	● Remote-control transmitter (1) (RAK-SA301E)	● Batteries (2) (LM-4NE/2S)

CONNECTIONS TO EQUIPMENT



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 by using the included AC 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 100pF.

5 "CD" terminals

Connect a compact disc player or other sound source.

6 "VCR 1" terminals

Connect a video cassette recorder.
(See the operating instructions of the VCR.)

7 "TAPE/VCR 2" terminals

Connect a tape deck or a second VCR.

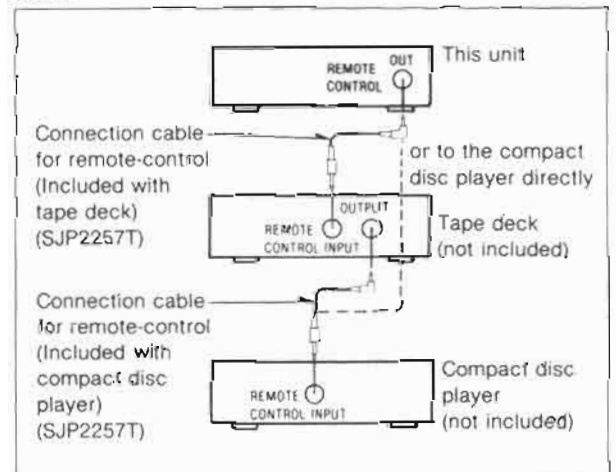
8 Remote-control terminal

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. (See page 6 for details.)

OUT:

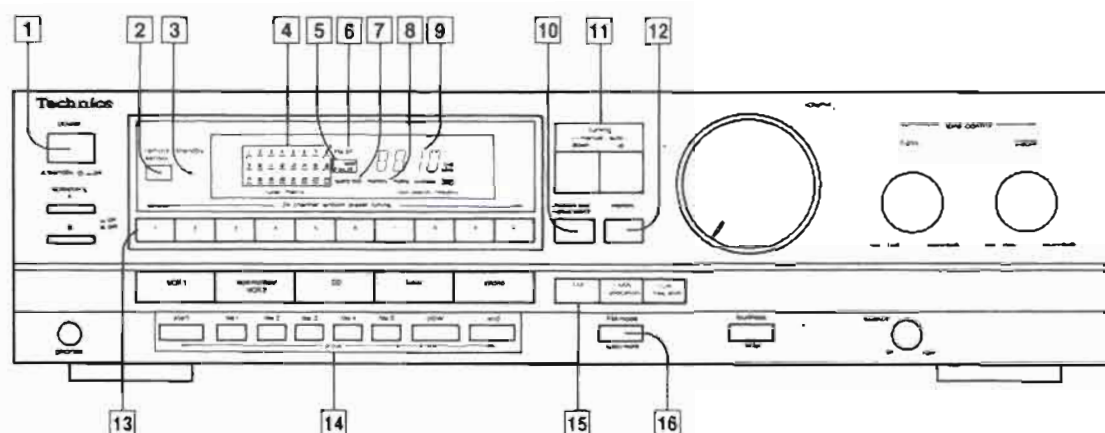
Connect a tape deck and/or compact disc player as shown below.



9 Speaker connection terminals

FRONT PANEL CONTROLS AND FUNCTIONS

Tuner section



1 Power "standby ϕ /on" switch (power/ \blacksquare standby ϕ \blacksquare 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 ϕ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

2 Remote-control signal receptor (remote sensor)

Receives the signals from the remote-control transmitter.

3 "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.

4 Preset channel matrix display (tuner matrix)

When an entry is made to the memory, the bar under the figure illuminates. The bar of the "channel" now being received flashes continuously.

5 Band indicators (FM/MW/LW)

Indicates the selected band.

6 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.

7 Quartz-lock indicator (quartz lock)

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

8 Memory indicator (memory)

This indicator illuminates when the memory button is pressed.

9 Audio input selector/frequency display (input selector/frequency)

Displays the selected source or broadcast frequency.

10 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.

11 Tuning buttons (tuning)

These buttons are used for tuning to the desired broadcast station.

12 Memory button (memory)

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

13 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.

14 Group registration buttons (group)

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

15 Band selectors

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

MW: Press this button to listen to an MW broadcast.

allocation: When the MW button is pressed for about 4 seconds, the MW 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.

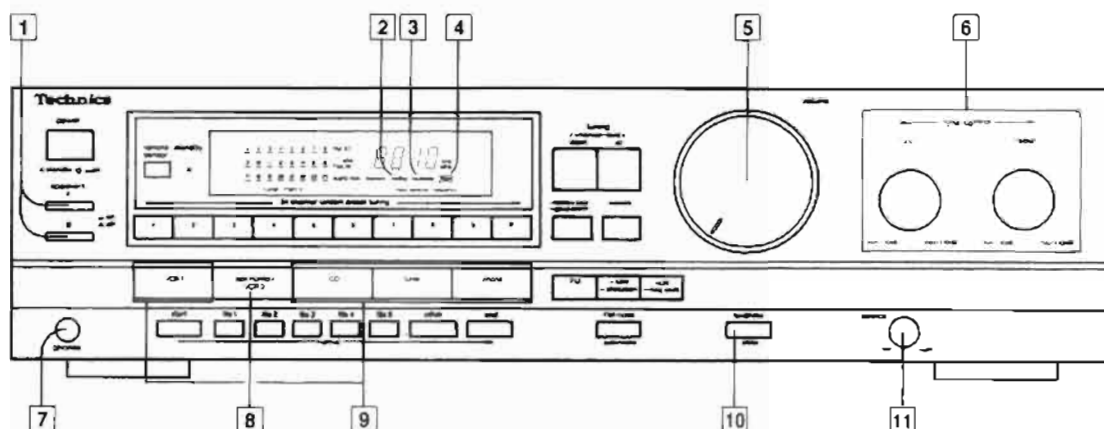
LW: Press this button to listen to an LW broadcast.

freq shift: When the LW button is pressed for about 4 seconds during reception of an LW broadcast, the LW frequency will decrease by 2 kHz. In order to return to the original frequency indication, press this button for about 4 seconds again.

16 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.

Amplifier section



1 Speaker selectors (speakers)

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

7 Headphone jack (phones)

8 Tape-monitor/VCR 2 switch

Press this button to listen to a tape or a second VCR. No other source selected by an input selector can be heard while the tape indicator is illuminated. To listen to some other source, press this switch once again.

2 Muting indicator (muting)

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

To cancel the muting function without using the remote-control transmitter, press and hold the "phono" input selector of this unit for about 5 seconds.

Note:

The unit will switch to the phono mode.

9 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.

3 Loudness indicator (loudness)

This indicator will illuminate when the loudness switch is pressed.

10 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.

4 Tape indicator (tape)

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

5 Volume control (volume)

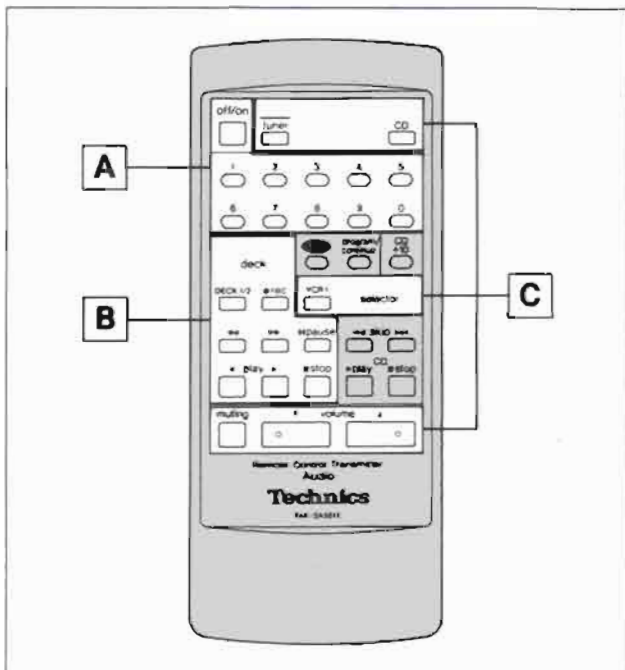
11 Balance control (balance)

6 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.

REMOTE-CONTROL OPERATION

- This remote-control transmitter can be used for control of a Technics cassette tape deck or a compact disc player with a remote-control terminal. Consult your dealer for details.
- For detailed information concerning operation steps, etc., please refer to the appropriate page for each unit and the respective operating instructions.



Before beginning

Make sure that the power switch of each unit is set to the "on" position.

A Tuner controls

off/on This key can be used for ON and OFF switching of this unit.

When switching the power ON and OFF, be sure to first press the "tuner" button on amplifier controls.

1 - **0** Press this key to select the desired preset channel.

When these buttons are used, be sure to first press the "tuner" button on amplifier controls.

- To designate channels 1-9: Press the appropriate (1-9) preset-tuning button.

Note: When selecting channel 1 or channel 2, enter the selection "01" or "02". If only "1" or "2" is pressed, channel access will be delayed by two seconds.

- To designate channels 10-24:

- Press the button for the left digit (1 or 2).
- Press the button for the right digit (1-0) within 2 seconds after pressing the first button.

Example: To designate channel 12
Press the "1" button and then the "2" button.

B Tape deck controls

DECK 1/2 Press this key to select the deck (tape deck 1 or tape deck 2) to be used.

PLAY **▶**: For the "A"-side of the tape
◀: For the "B"-side of the tape

Press one of these keys to begin the playback or recording, pressing the key 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 1 might be the "A"-side playback-only type.

DECK STOP Press this key to stop tape movement.

FF **REW**

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

Press this key 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.)

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

FREC Press this key to change to the recording stand-by mode.

Note

Depending on which Technics tape deck is used in combination with this unit, it might be that pause of the playback (and the recording), and the recording functions of tape deck 1 not be possible by using the remote-control transmitter.

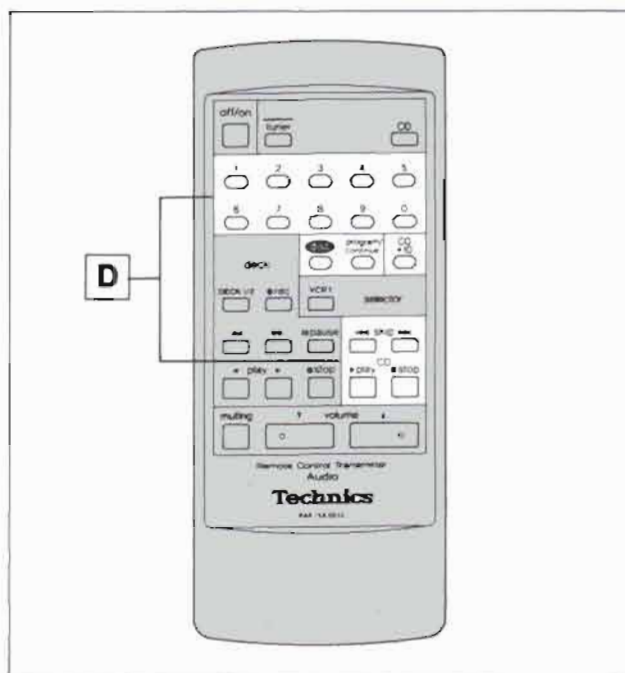
C Amplifier controls

FM **CD** These sound keys are used to select the source (radio broadcasts or compact disc) to be heard.


MUTING Press this key to temporarily reduce the volume level. The volume level is attenuated by 20 dB (approx. 1/10). Press once again to return to the previous volume level.

VOLUME Press this key to adjust the volume level.

VCR+ Press this key when a TV broadcast is to be received at the VCR.




D Compact disc player controls


 Press this key to start the play.

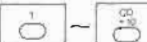
 Press this key to stop the play.



Press one of these buttons briefly to move the pick-up to the beginning of a specific track.

 If a Technics multi compact-disc player is used in combination with this unit, the disc to be played can be selected by first pressing this button and then pressing the appropriate "numeric button".

 Press to select the desired play mode. ("program" or "continue")

 These buttons can be used to select track number. When these buttons are used, be sure to first press the "CD" button on amplifier controls.

Note:

To select a track number 10 or higher in the direct access play or program play mode, first press the "+10" button the necessary number of times and then press the appropriate "numeric button".

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

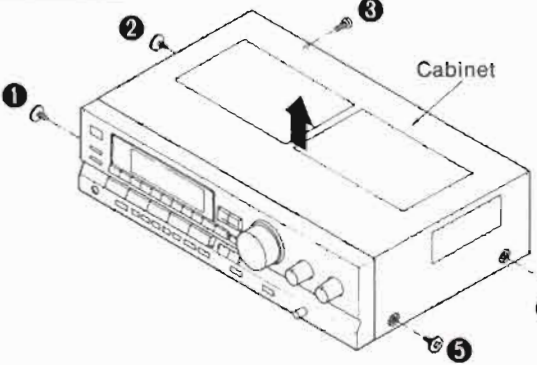
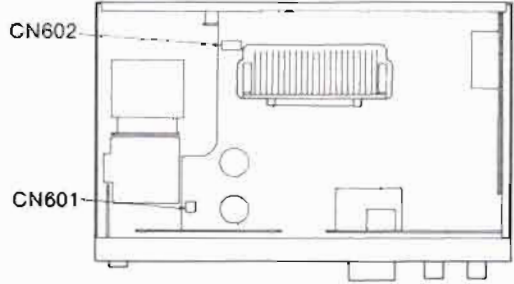
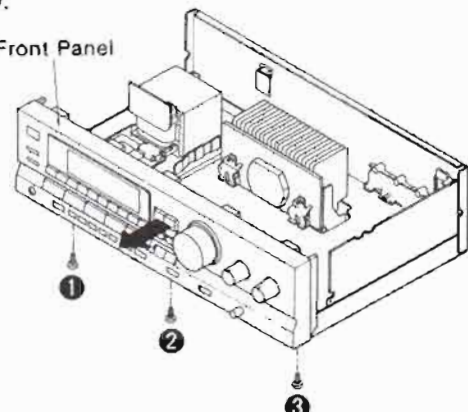
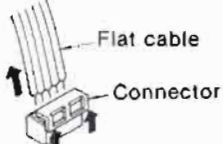
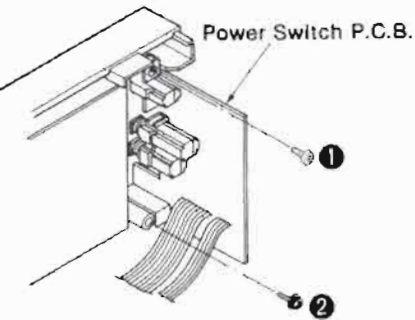
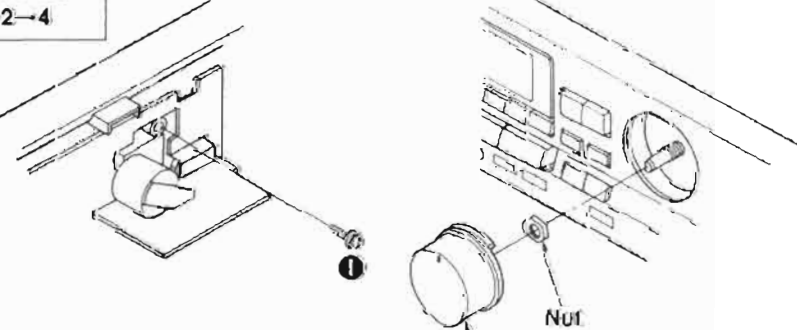
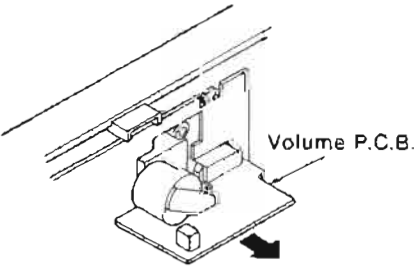
- (1) Turn off the power supply. Using a 10Ω, 5W resistor connect both ends of power supply capacitors (C701, C702, 6800μF) in order to discharge the voltage.
- (2) Before turning the power supply on, after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current at 50Hz/60Hz in NO SIGNAL mode should be shown below with respect to supply voltage 220V/240V.

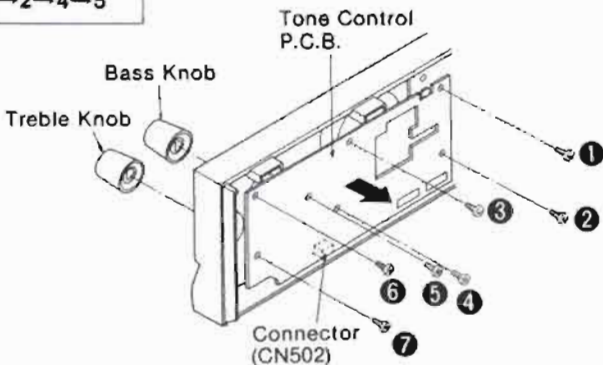
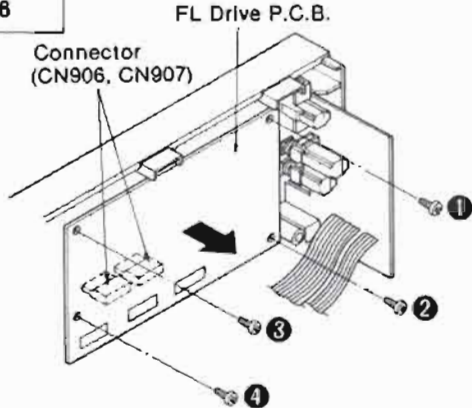
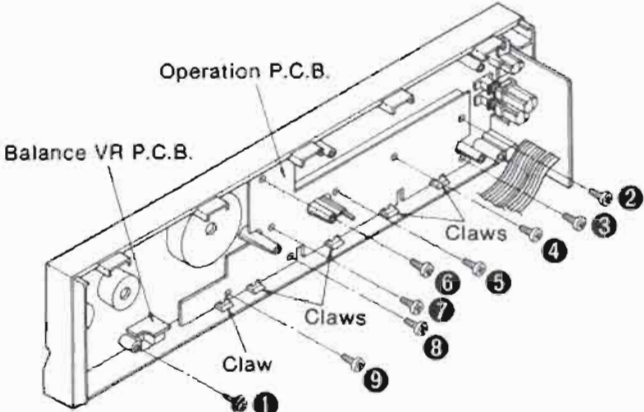
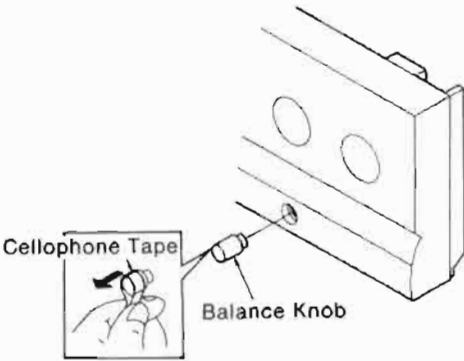
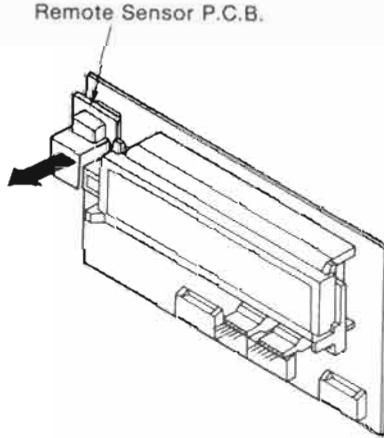
Power supply voltage	AC220V	AC240V
Consumed current 50/60Hz	85 ~ 170 mA	80 ~ 165 mA

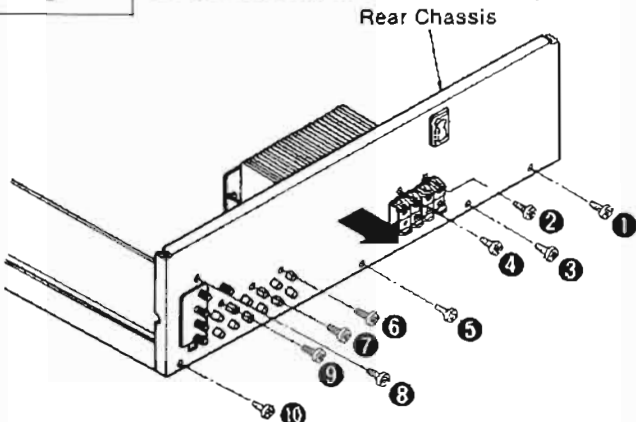
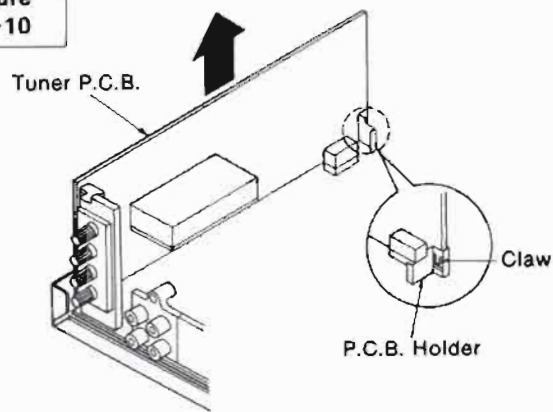
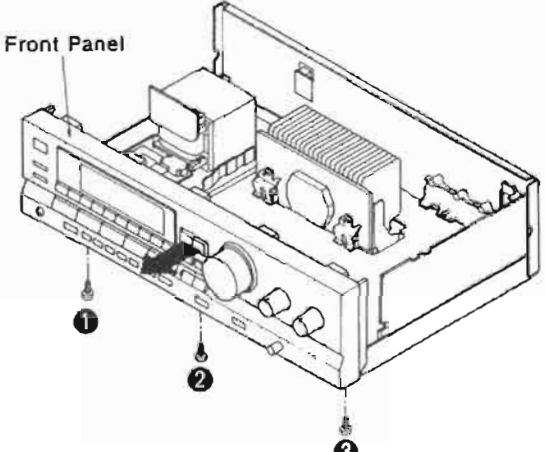
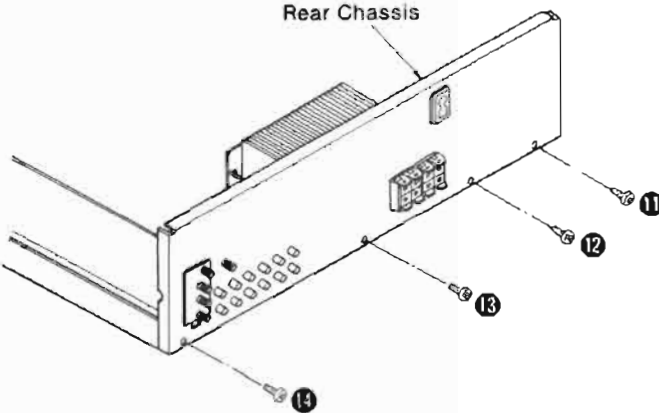
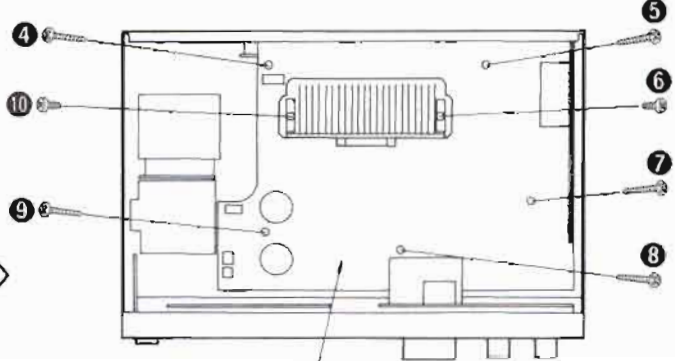
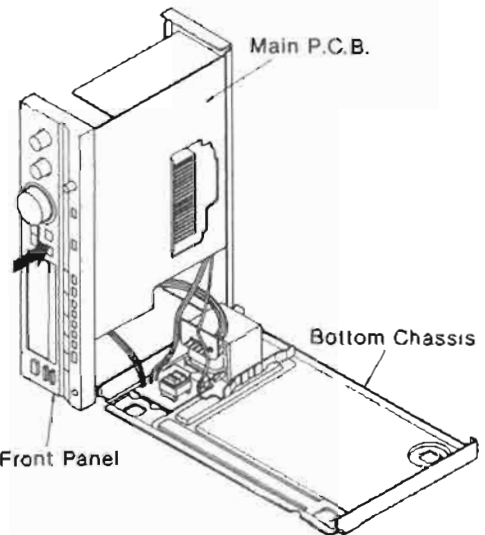
DISASSEMBLY INSTRUCTIONS

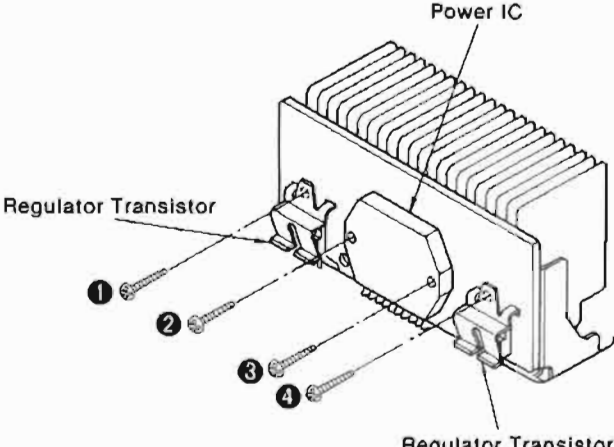
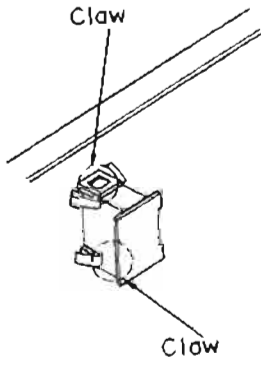
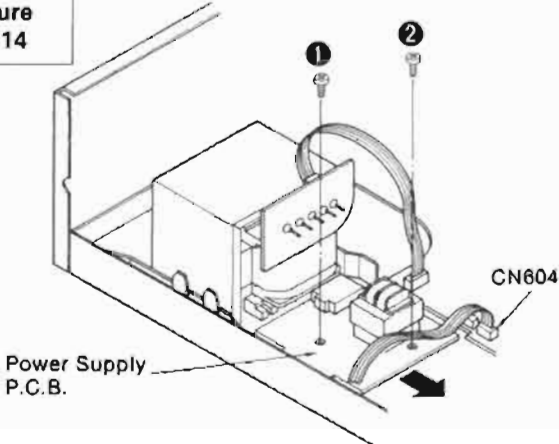
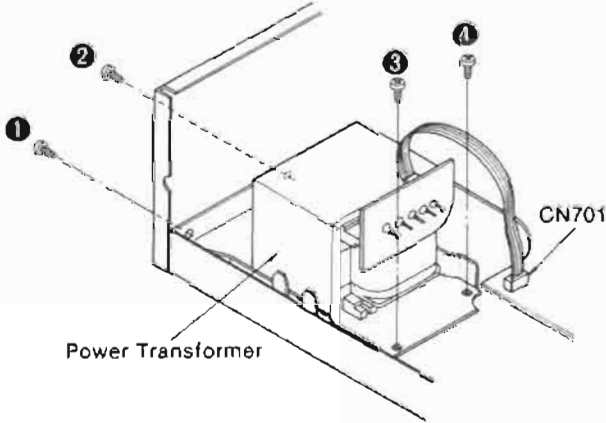
"ATTENTION SERVICER"

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	1. Remove the 2 flat cables (CN601, CN602)
Ref. No. 3	Removal of the power switch P.C.B.	 <p>2. Remove the 3 screws (①~③). 3. Remove the front panel in the direction of the arrow.</p>  <p>How to remove the flat cable</p> <p>1. Lift the connector. 2. Pull out the flat cable.</p> 	 <p>• Remove the 2 screws (①, ②).</p>
Ref. No. 4	Removal of the volume P.C.B.		
Procedure 1→2→4	 <p>1. Remove the 1 screw (①).</p> <p>2. Pull out the volume knob. 3. Remove the nut.</p>	 <p>4. Remove the volume P.C.B. in the direction of the arrow.</p>	

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

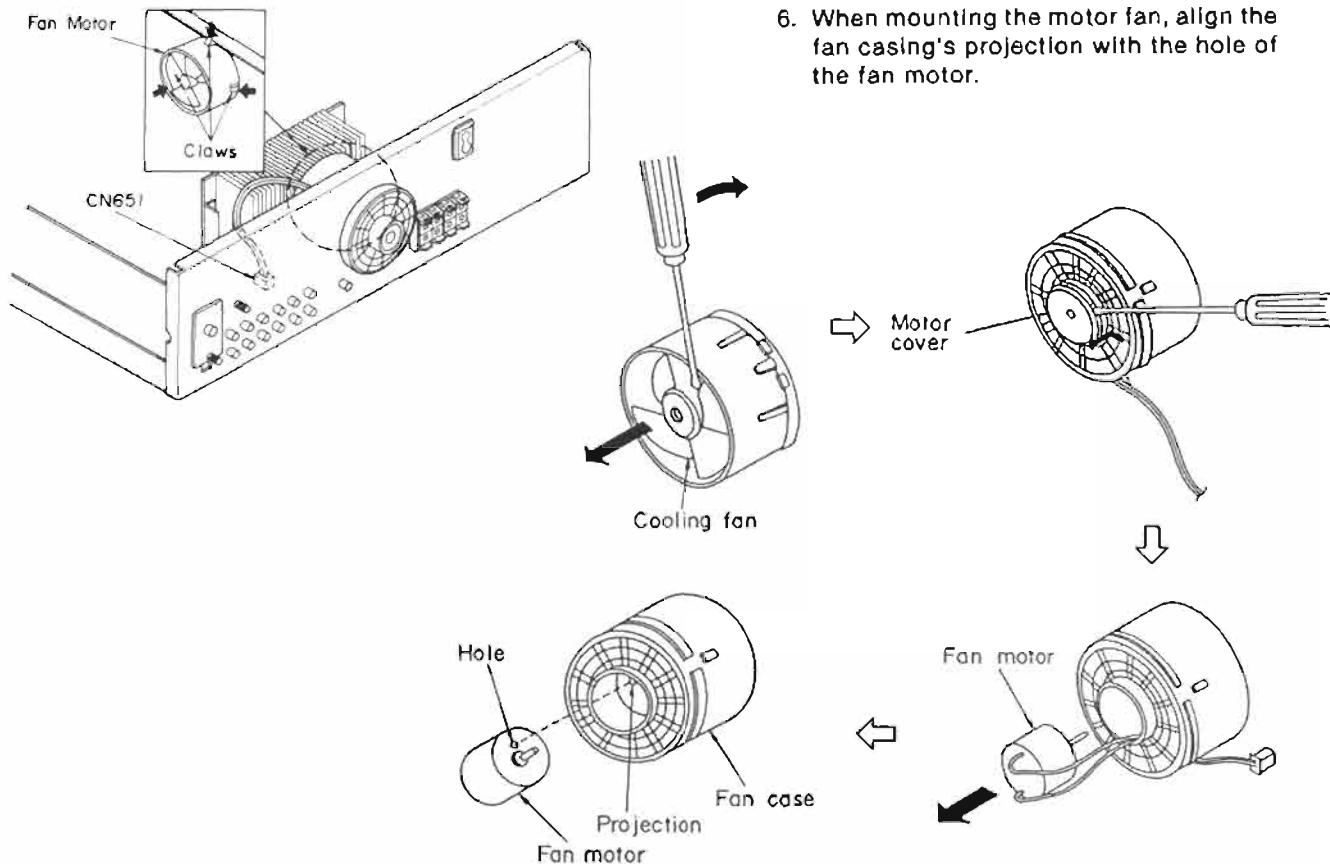
<p>Ref. No. 9</p>	<p>Removal of the rear chassis</p>	<p>Ref. No. 10</p>	<p>Removal of the tuner P.C.B.</p>
<p>Procedure 1→9</p>	<p>1. Remove the 1 connector (CN651). 2. Remove the 10 screws (①~⑩).</p>  <p>3. Remove the rear chassis in the direction of the arrow.</p>	<p>Procedure 1→9→10</p>	 <p>1. Release the 1 claw. 2. Remove the tuner P.C.B. In the direction of the arrow.</p>
<p>Ref. No. 11</p>	<p>How to check the main P.C.B.</p>		
<p>Procedure 1→11</p>	 <p>1. Remove the 3 screws (①~③). 2. Remove the front panel in the direction of the arrow.</p>		
 <p>4. Remove the 4 screws (⑪~⑭).</p>	 <p>3. Remove the 7 screws (④~⑩).</p>  <p>5. Remove the bottom chassis. 6. Reinstall the front panel to the main P.C.B.</p>		

Ref. No. 12	Removal of the power IC and regulator transistor	Ref. No. 13	Removal of the AC IN TERMINAL P.C.B.
Procedure 1→11→12	<ol style="list-style-type: none"> 1. Unsolder the power IC or regulator transistor. 2. Remove the 4 screws (①~④). 	Procedure 1→9→13	
 <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 2 claws.</p>	
Ref. No. 14	Removal of the power supply P.C.B.	Ref. No. 15	Removal of the power transformer
Procedure 1→2→14		Procedure 1→2→14→15	
 <ol style="list-style-type: none"> 1. Remove the 1 flat cable (CN604). 2. Remove the 2 screws (①, ②). 3. Remove the power supply P.C.B. in the direction of the arrow. 		 <ol style="list-style-type: none"> 1. Remove the 1 flat cable (CN701). 2. Remove the 4 screws (①~④). 	

Ref. No. 16	Removal of the fan motor (For (EB) area.)
-----------------------	-----------------------------------------------------

Procedure 1→16	1. Pull out the 1 connector (CN651). 2. Release the 3 claws.
--------------------------	-----------------------------------------------------------------

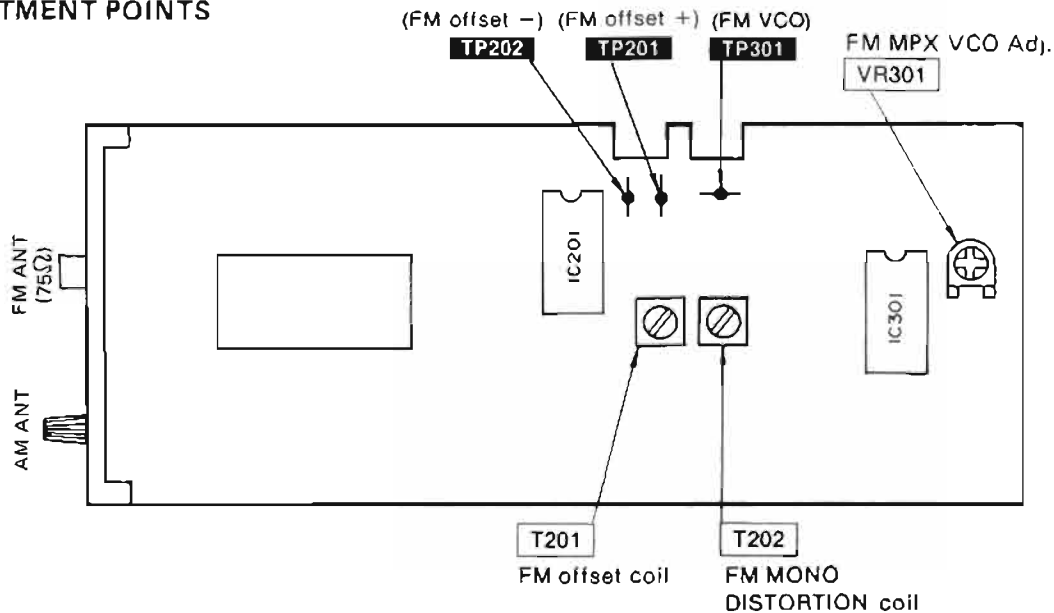
3. Insert a screwdriver at the root of the cooling fan. Force it out of the motor shaft.
4. Remove the motor cover by used ⊖ screwdriver.
5. Remove the motor from the fan casing.
6. When mounting the motor fan, align the fan casing's projection with the hole of the fan motor.



MEASUREMENTS AND ADJUSTMENTS

Note: For Z251 (AM(MW/LW)-IFT), Z201 (AM(MW/LW) ANT and OSC coil) and L321/L322 (MPX 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 (DC EVM)
- Frequency counter
- Choke coil (100 μ H)
- Resistor (100 k Ω)

FM MONO DISTORTION ADJUSTMENT

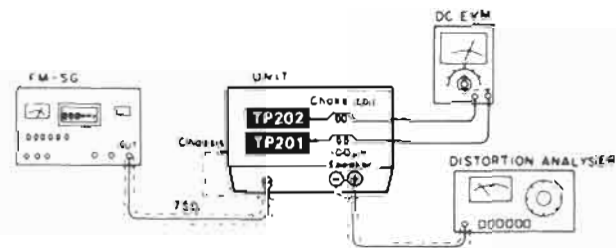
1. Test equipment connection is shown in figure.
2. Set the unit to "FM" position.
3. Set the radio frequency display and signal generator to 100.10 MHz.
4. Adjust T201 core so that voltage measured in signal mode is 0 mV (0 ± 30 mV) in 300 mV range.
5. Adjust T202 so that the distortion factor of Lch 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.

Note:

The adjusting screwdriver used should be made of resin.

FM SIGNAL GENERATOR CONDITION

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

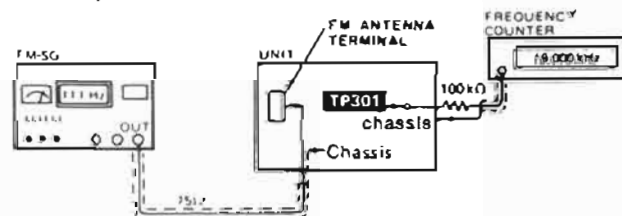


FM MPX VCO ADJUSTMENT

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

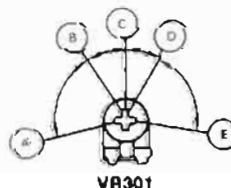
FM SIGNAL GENERATOR CONDITION

Modulation.....0%
 (non-modulation)
 Output level.....66 dB



★ 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.



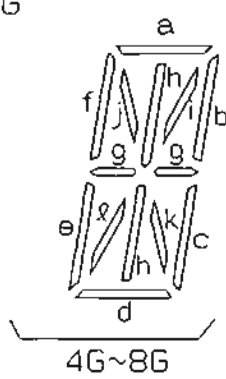
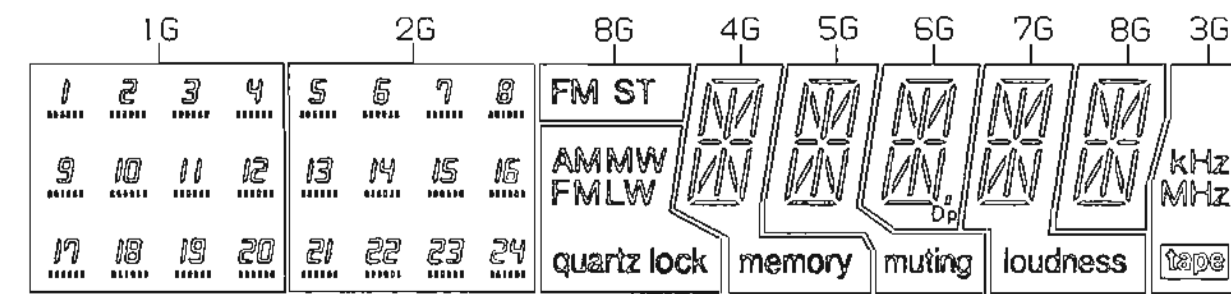
- (A) - (B) (D) - (E) Stereo OFF position
- (B) - (D) Stereo ON position (indicator lighting)
- (C) Adjust point of Pilot circuit

■ TERMINAL FUNCTION OF IC'S

• IC901 (LC6554H4097): 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 5	PA0 PA3	I	Key return signal input	34	L	—	Not used, connected to GND
6 7 8	PB0 PB2	I	Key return signal input	35	V		
9	STAND BY	I	Power supply terminal	36	TUNING 0	O	LED drive control signal for rotary tuning (Not used, connected to GND)
10	OFF	I	Power ON/OFF det. terminal (Not used, open)	37	TUNING 1		
11	STEREO	I	Stereo signal det. terminal	38	LOUDNESS	O	Loudness ON/OFF signal output
12	SD	I	Received signal det. terminal	39	R	O	Volume motor drive output
13	DP	I/O	Cassette deck control terminal	40	F		
14	RELAY	O	Relay control output	41	A	O	Rotary tuning control signal output (Not used, connected to GND)
15	DECK	I	Cassette deck control terminal (Not used, connected to GND)	42	B		
16	OPT1 (IN)	—	Not used, connected to GND	43	Vp	I	Power supply terminal (negative voltage)
17	OPT1 (OUT)						
18	MONO	O	FM AUTO/MONO select signal output	44	S1 S12	O	Segment signal output
19	RFM	O	Muting control output for tuner circuit				
20	AT	O	Muting control output for amplifier circuit	55			
21	AFM	O	Muting control output for amplifier circuit	56	VDD	I	Power supply terminal (positive voltage)
22	TEST	—	Not used, connected to GND	57	D1 D8	O	Digit signal and key scan signal output
23	Vss	—	Ground terminal				
24	OSC1	I	Oscillator terminal	64			
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				

• Grid assignment diagram



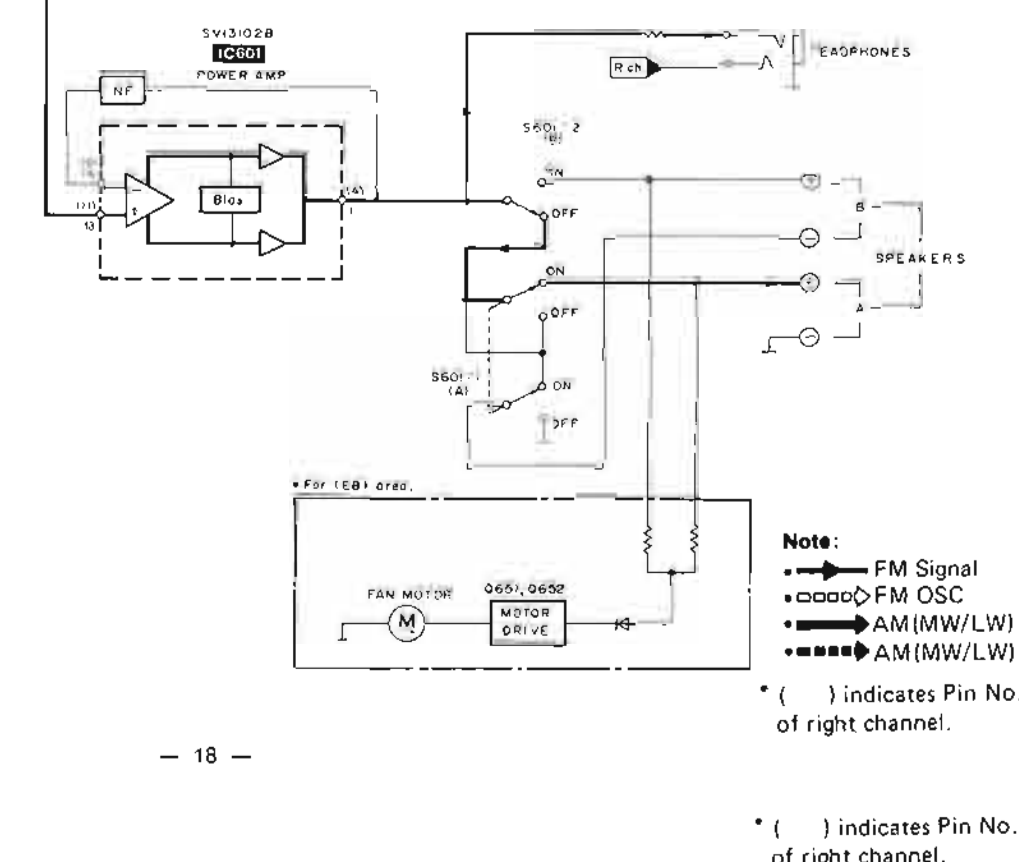
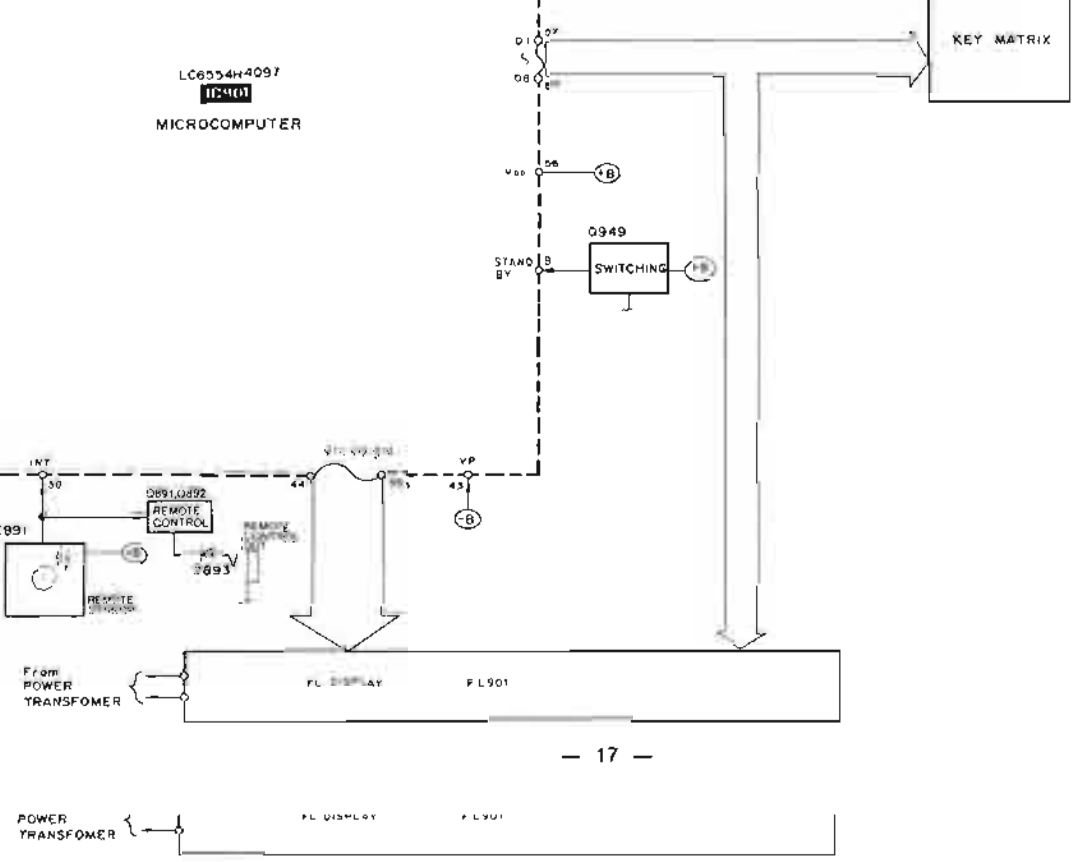
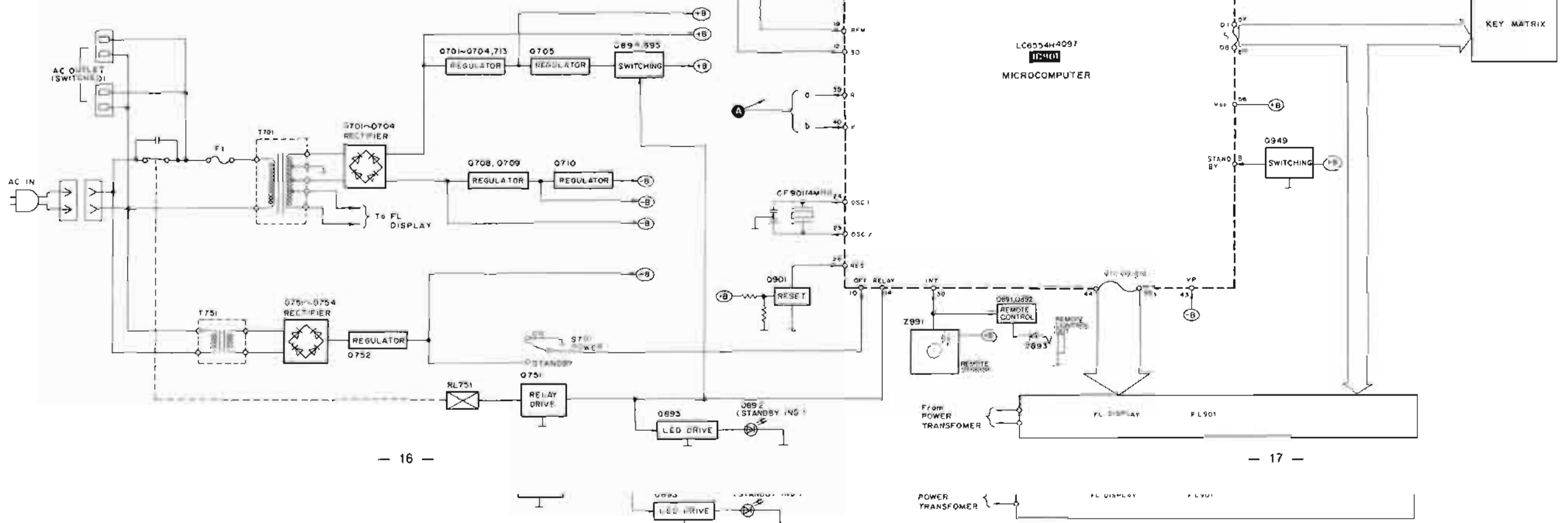
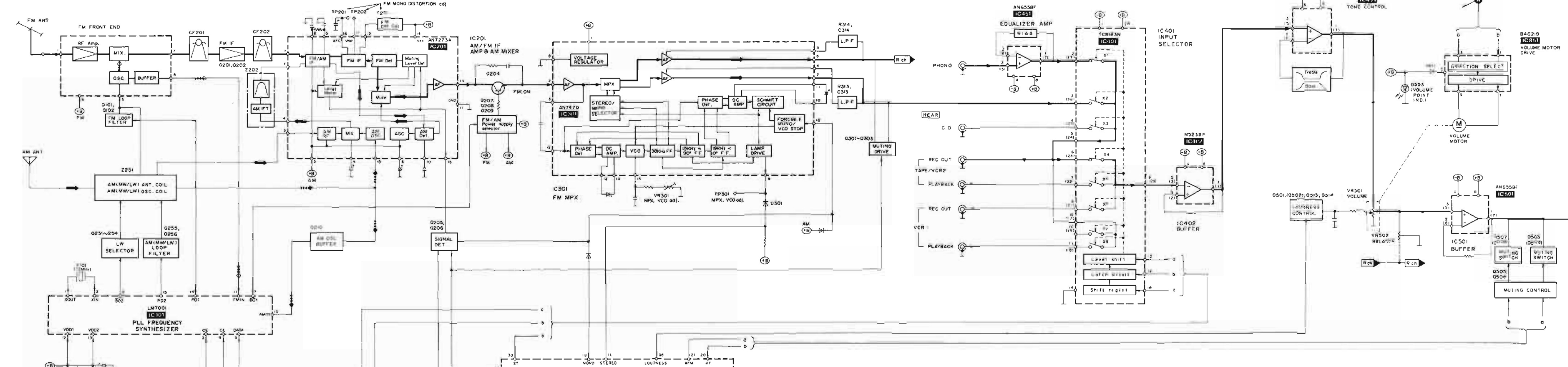
• Pin connection

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				
N	F	N	N	N	N	P	k	d	e	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	G	m	N	N	F	N	P

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

• 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



Note:
 ● FM Signal
 ○ FM OSC
 ● AM(MW/LW) Signal
 ○ AM(MW/LW) OSC

* () indicates Pin No. of right channel.

* () indicates Pin No. of right channel.

TRANSISTORS AND DIODES

 CG54H4097 64 PIN		 SV1302B 14 PIN	
M5238P 8 PIN AN858F 8 PIN LM7001 8 PIN	AN7470 16 PIN AN7273A 18 PIN TC9163N 28 PIN	B4621B 9 PIN M5238L 8 PIN	2SA933SORSTA 2SC2785FETA 2SC2787LTA 2SD1450ORSTA 2SC3327ABTP 2SC3311AQSTA 2SA1309AQSTA
2SC1740SOSTA 2SC3940AOSTA	2SJ40CDTA	UN4113TA	
UN4211TA UN4214TA	2SB1185DEF 2SD1761DEF	UN4215TA	
2SB1240PRTV6	MA185TA MA29WATA 5VDS588GT3 1S5291TA P300DLF	LN848P-LS	
	MA4051MTA MA4062MTA MA4150MTA MA4068MTA MA4110MTA MA4270MTA		

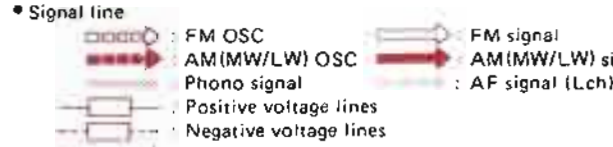
SCHEMATIC DIAGRAM

(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" on/off 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, S934 : Band selectors.
S913 : FM, S914 : MW, S934 : LW
- S915, S916 : Tuning switches.
S915 : down, S916 : up
- S917 : Memory switch.
- S918 : Loudness switch.
- S919 ~ S926 : Group registration switches.
S919 : start, S920 : file 1, S921 : file 2,
S922 : file 3, S923 : file 4, S924 : file 5,
S925 : other, S926 : end
- S927 ~ S929, S931 : Input selector switches.
S927 : phono, S928 : tuner, S929 : CD,
S931 : VCR1
- S932 : Tape-monitor/VCR 2 switch.



• Important safety notice:
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts. 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(MW/LW) signal reception mode.
• Figures in [] stand for DC-voltage in LW 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

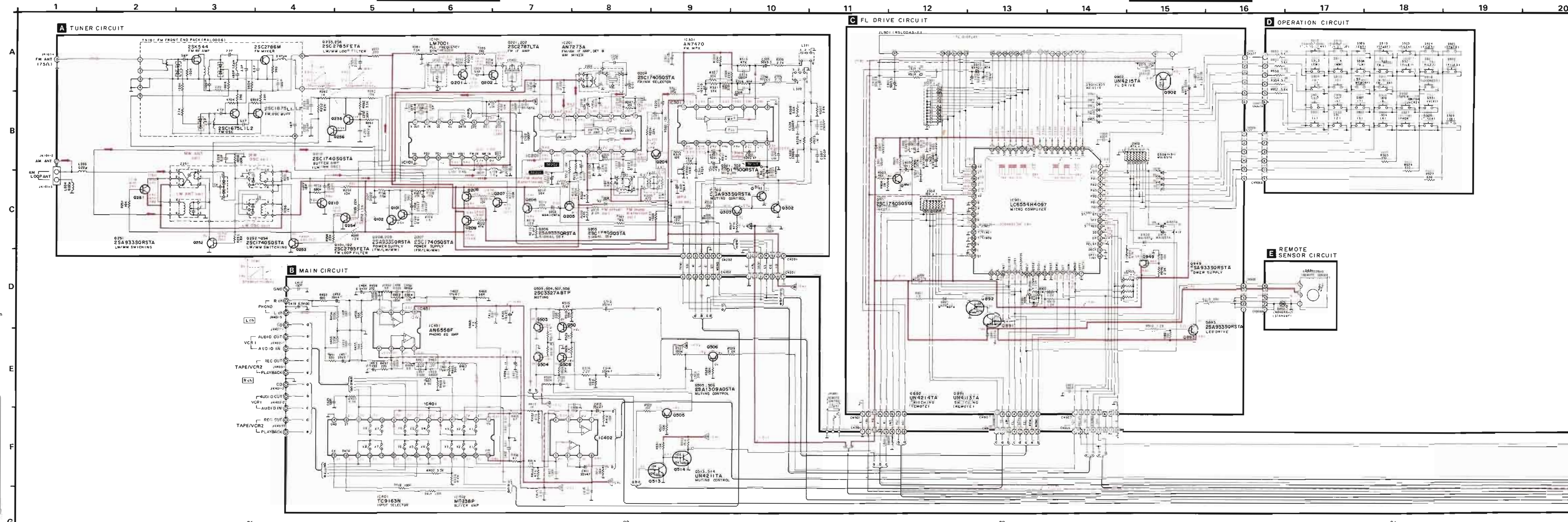
Note 2:

• 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 diode diodes must be used depending on each rank of the ceramic filters.

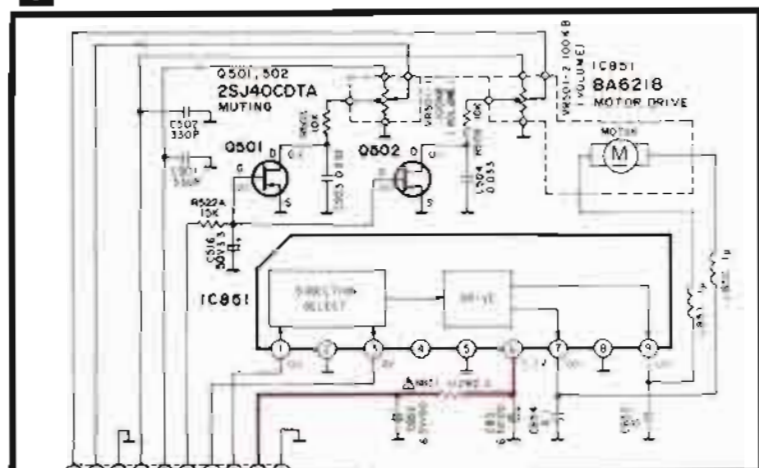
Color marking (Blue, Red or Orange)

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

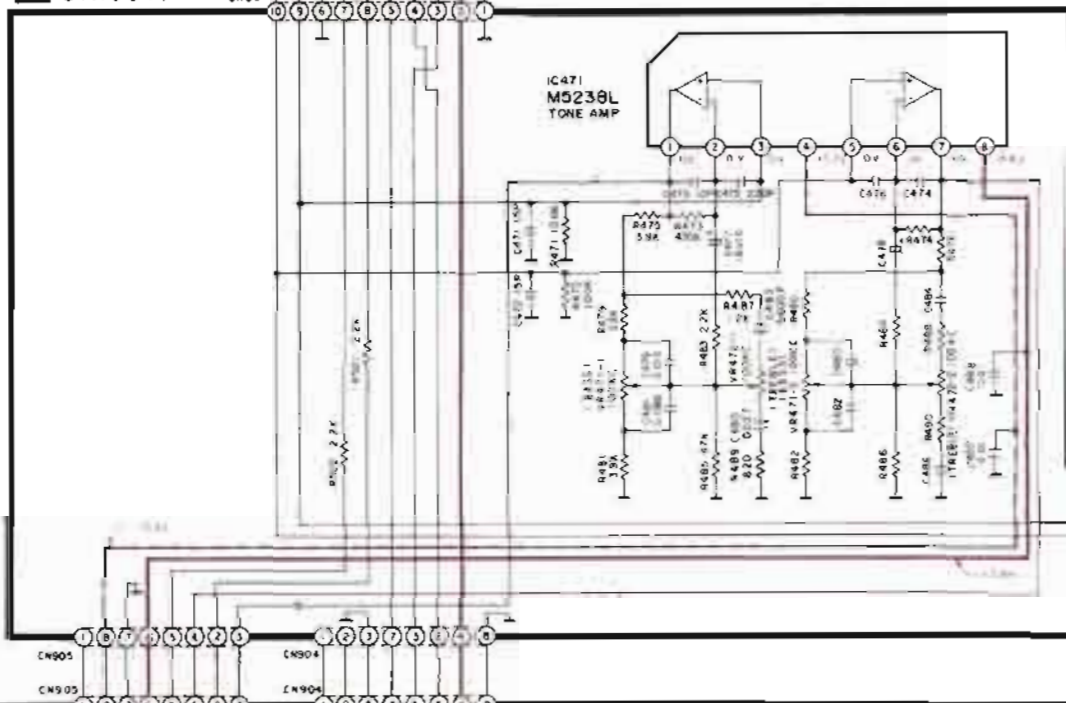
Note: ○ mark: Diode is used.
X mark: Diode is not used.



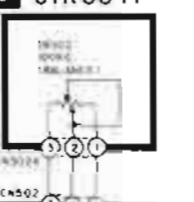
G VOLUME CIRCUIT



F TONE AMP CIRCUIT



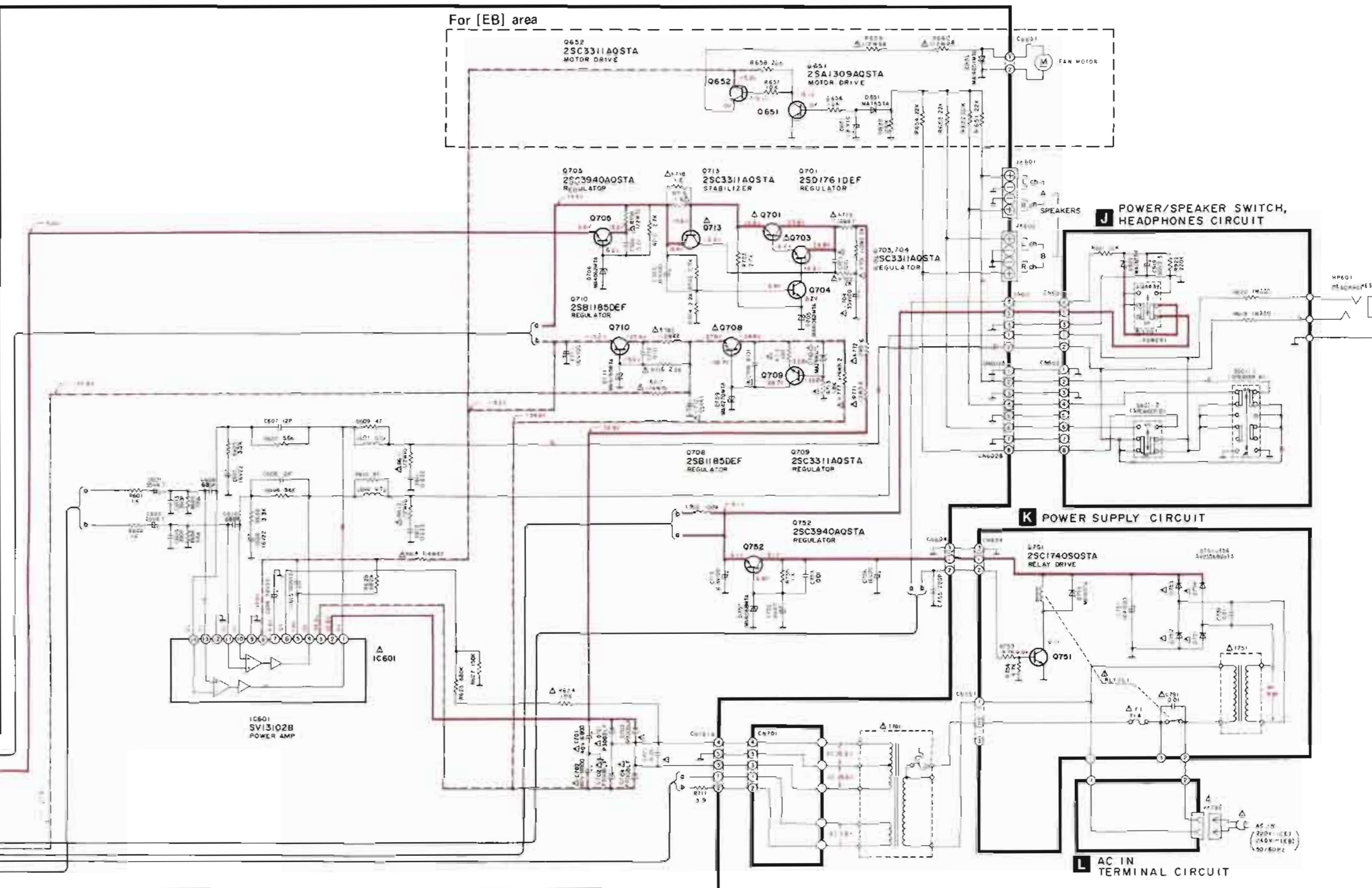
L BALANCE VR CIRCUIT



O895 25B1240PRTV6 POWER SUPPLY

O894 UN42/ITA POWER SUPPLY CONT

For [EB] area

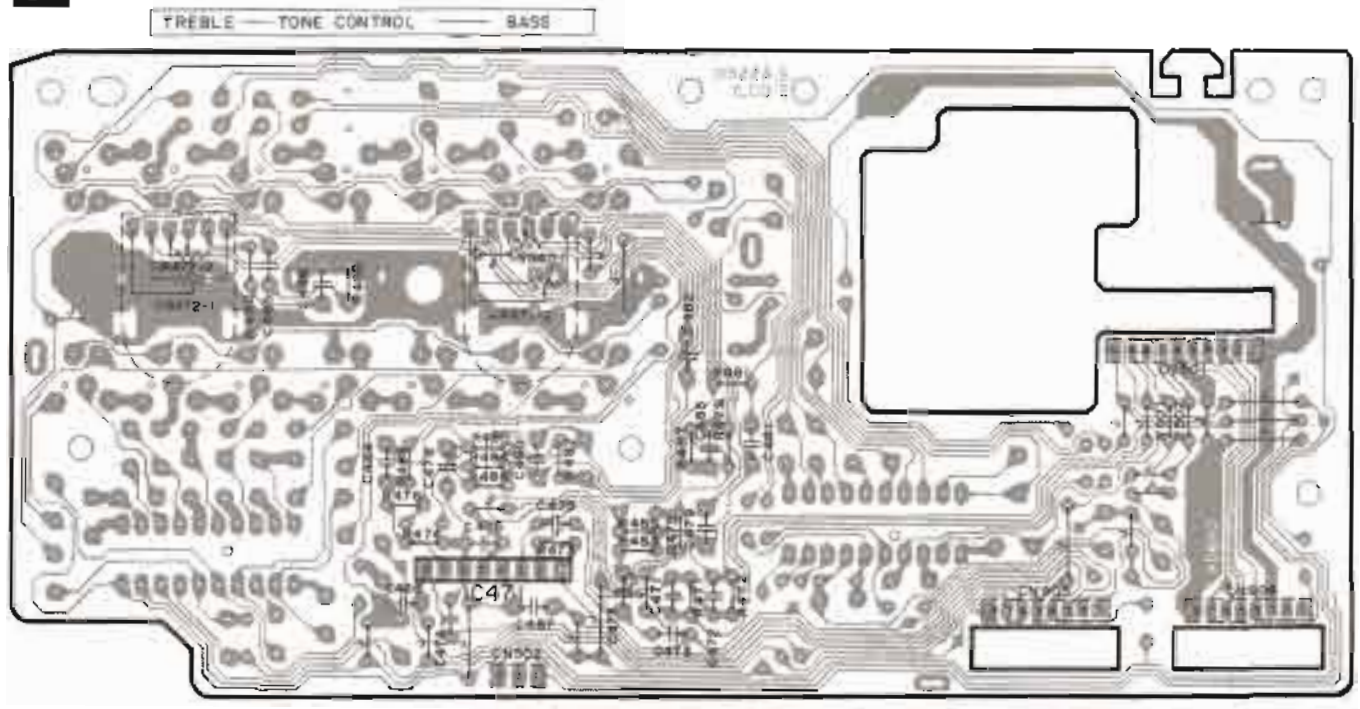


J POWER/SPEAKER SWITCH, HEADPHONES CIRCUIT

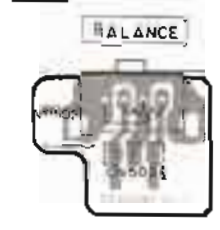
K POWER SUPPLY CIRCUIT

L AC IN TERMINAL CIRCUIT

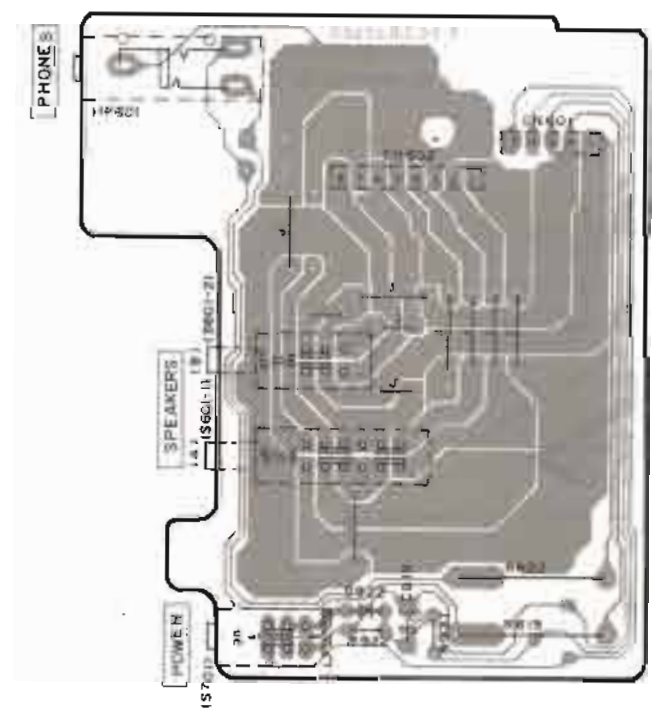
F TONE AMP P.C.B.



I BALANCE VR P.C.B.



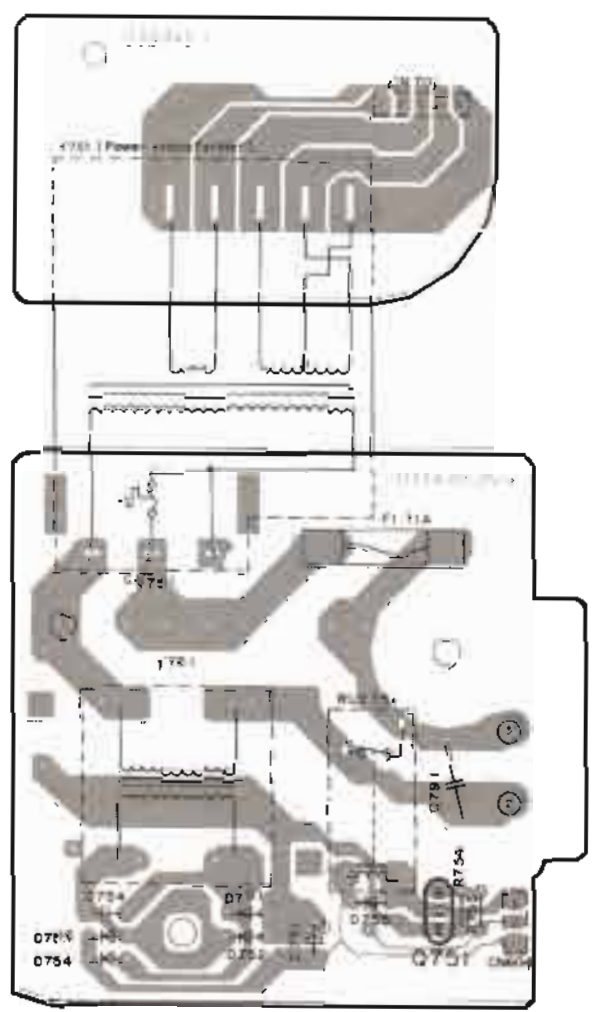
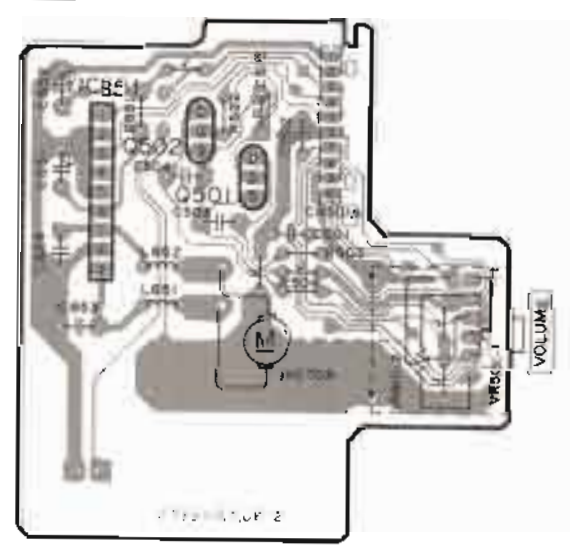
J POWER/SPEAKER SWITCH, HEADPHONES P.C.B.



L AC IN TERMINAL P.C.B.

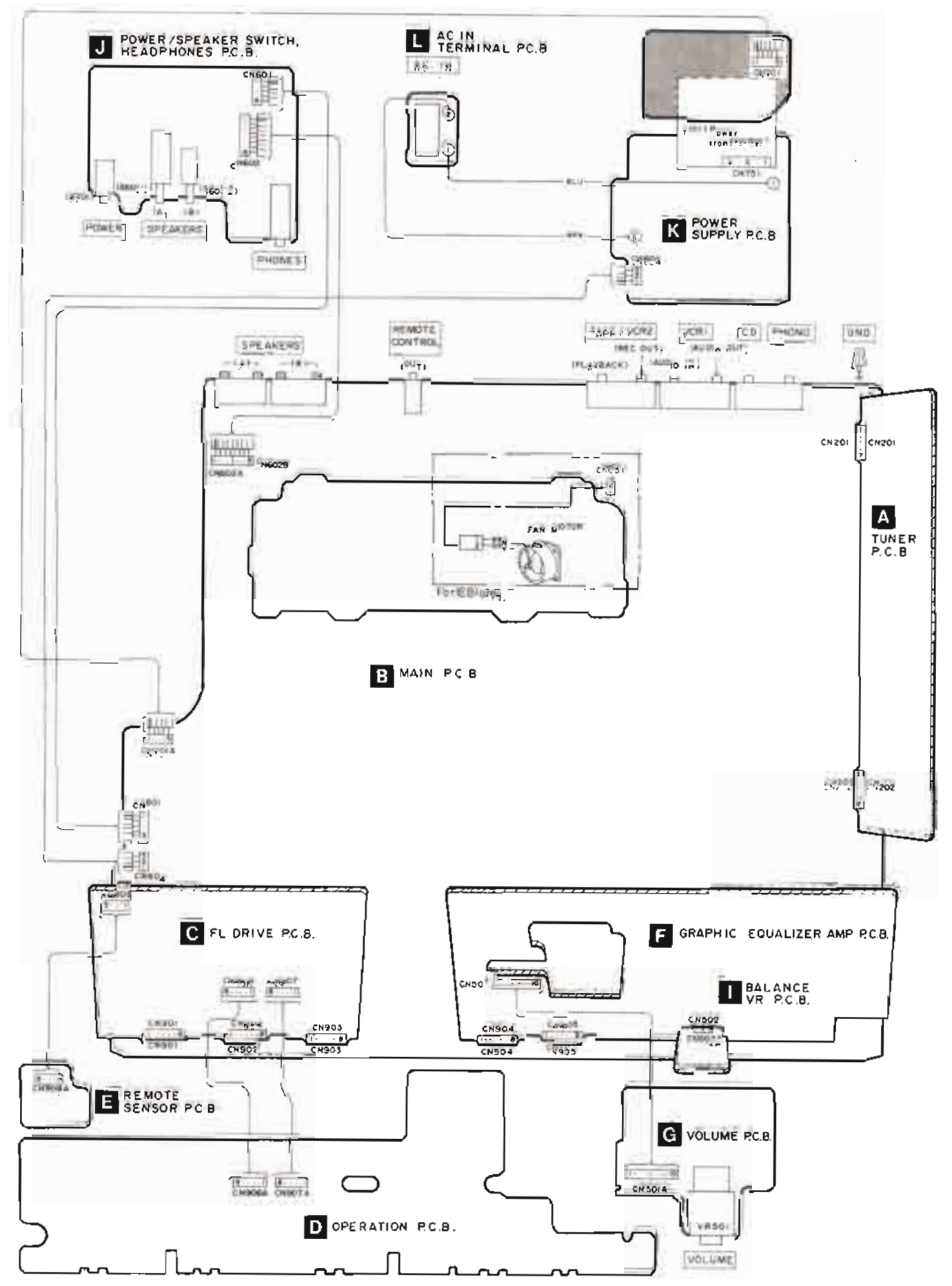


G VOLUME P.C.B.

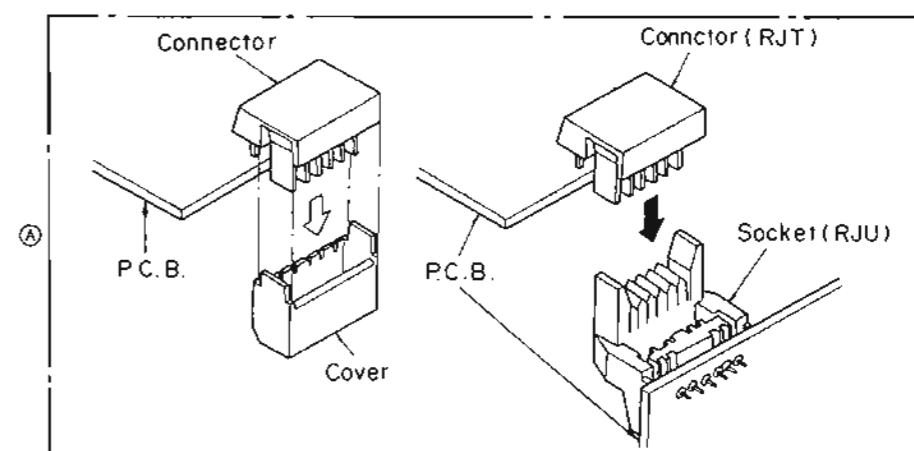
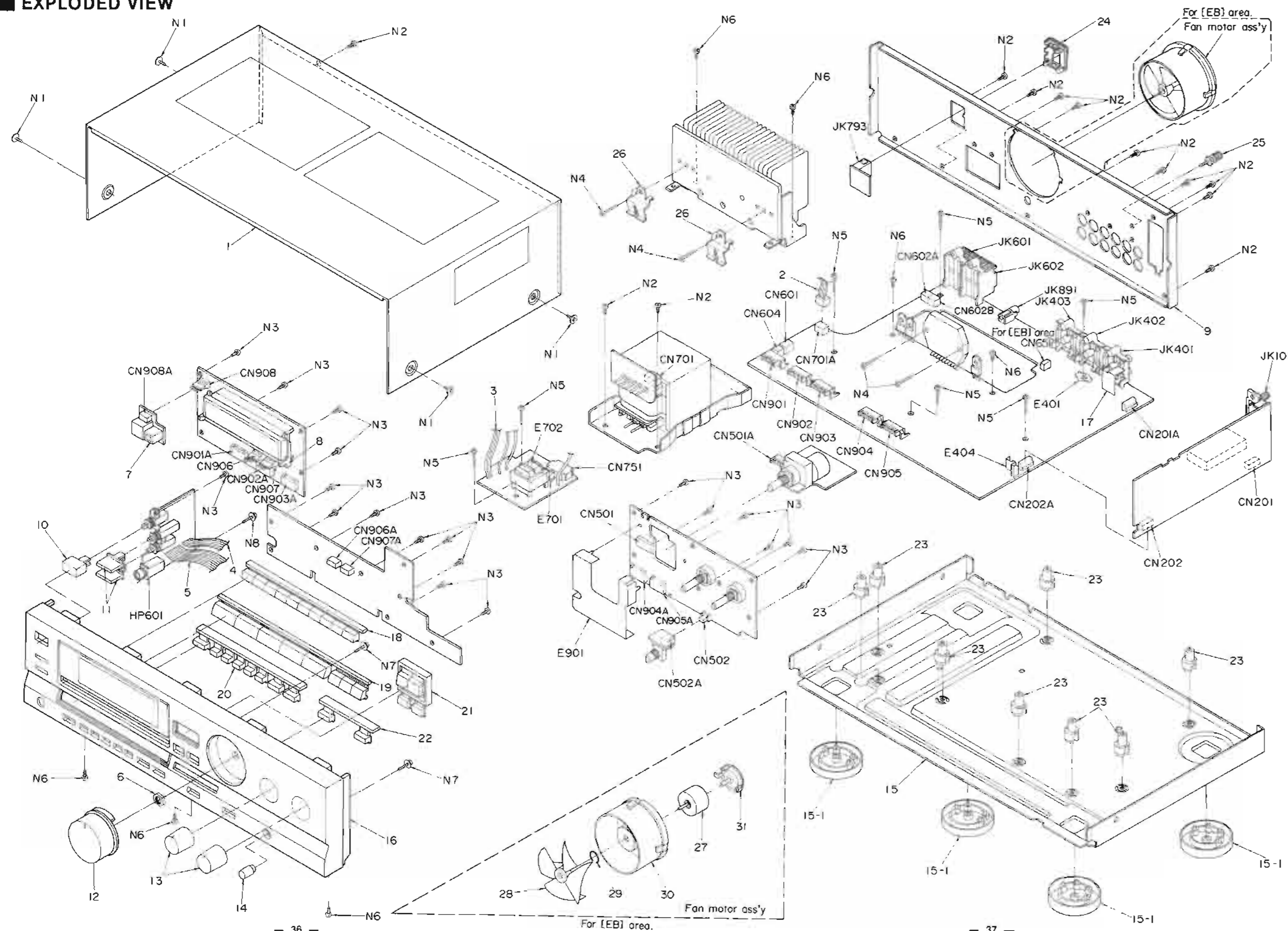


K POWER SUPPLY P.C.B.

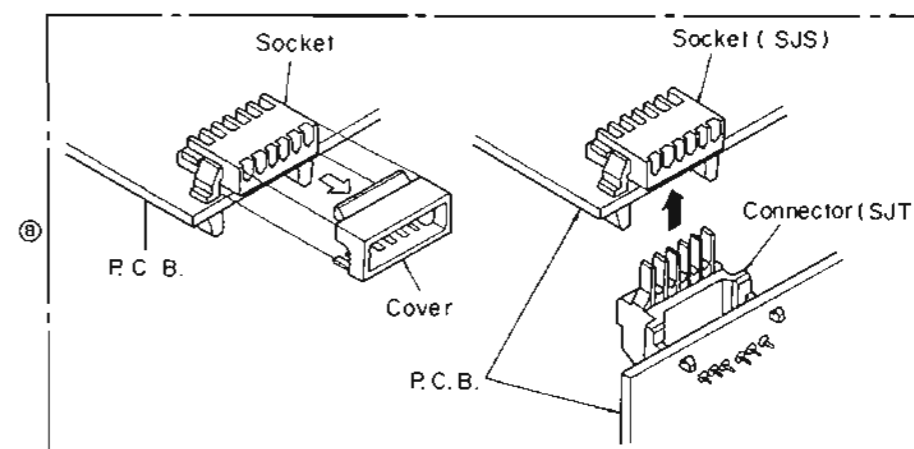
WIRING CONNECTION DIAGRAM



EXPLODED VIEW

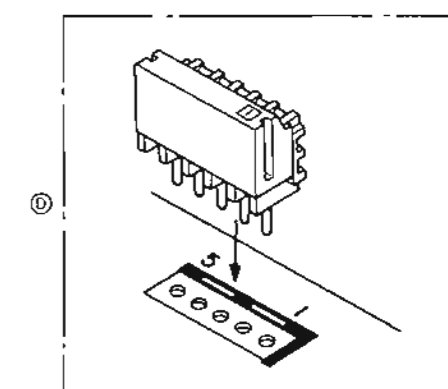
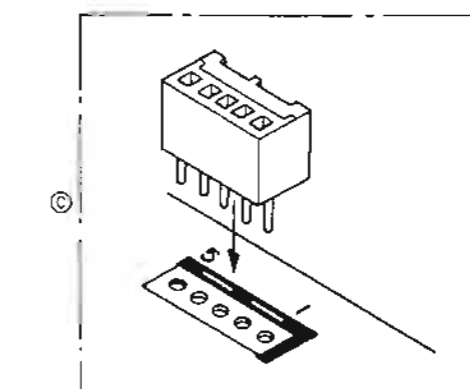


Pins	Part No.	Color
8 Pin	RJT003K008M1	(Black or Gray)
8 Pin	RJU003K008M1	(Black)
10 Pin	RJT003K010M1	(Black or Gray)
10 Pin	RJU003K010M1	(Black)



Pins	Part No.	Color
8 Pin	SJS50887WF	(Ivory)
8 Pin	SJT30854WF	(Ivory)
10 Pin	SJS51087WF	(Ivory)
10 Pin	SJT31054WF	(Ivory)

- Regarding Ref. No. CN501, CN501A, CN901, CN901A, CN902, CN902A, CN903, CN903A, CN904, CN904A, CN905, CN905A, there are two types (Ⓒ and Ⓓ).
- Be sure to order the replacement parts of the desired color by the corresponding part numbers.
- The type-A connector and the type-B socket are protected with covers when they are supplied. Remove the cover after soldering the connector or socket to the P.C.B. (Then discard it.)



- Regarding Ref. No. CN601, CN701, CN701A, there are two types (Ⓒ and Ⓓ).

REPLACEMENT PARTS LIST

Notes : • Important safety notice:

- Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
- The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
- Parts without these indications can be used for all areas.

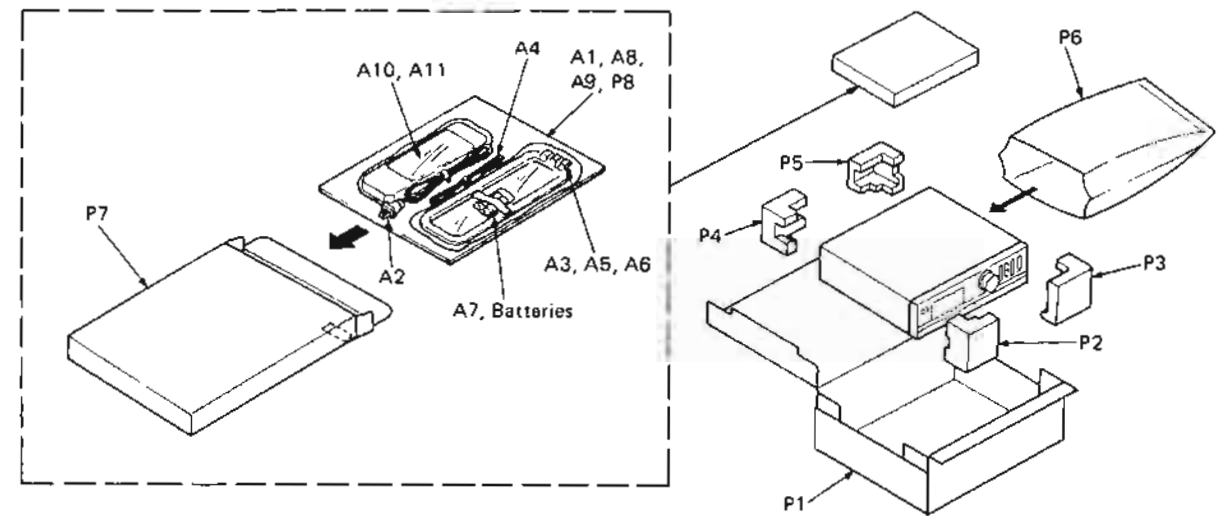
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS		N8	XTWS3-10Q	SCREW	
						PACKING MATERIAL	
1	RND036A-K	CABINET	(E)	P1	RPG0541	PACKING CASE	
1	RND036B-K	CABINET	(EB)	P2	RPN0328A	PAD	
2	RWJ180S1400Q	CONNECTOR ASS'Y (5P)		P7	RPN0328B	PAD	
3	RWJ180S1500Q	FLAT CABLE (3P) (CN604)		P4	RPN0328C	PAD	
4	RWJ180S1500K	FLAT CABLE (5P) (CN601)		P5	RPN0328D	PAD	
5	RWJ180S3000Q	FLAT CABLE (8P) (CN602)		P6	SPP723	PROTECTION BAG (UNIT)	
6	XNS7	NUT		P7	SPSD152	ACCESSORIES BOX	
7	RMN0069	LFD HOLDER		P8	SPB1061	PROTECTION BAG (F. IL.)	
8	RMN0070	FL. BRIDGE				ACCESSORIES	
9	RGR0079E-A	REAR PANEL	(EB)	A1	RQT0560-G	INSTRUCTION MANUAL	(E)
9	RGR0079C-A	REAR PANEL	(E)	A1	RFBAGK100LE	INST. MANUAL ASS'Y	(E)
10	RGJ0030	BUTTON, POWER		A2	SFBAC05E03	POWER CORD	Δ (E)
11	RGR0101	BUTTON, SPEAKER SELECTOR		A2	SJA193	POWER CORD	Δ (EB)
12	RGM0084	KNOB, MAIN VOLUME		A3	SPH1637	AM LOOP ANTENNA	
13	RGM0072	KNOB, BASS/TREBLE		A4	SSA270H	FM ANTENNA	
14	RGM0073	KNOB, BALANCE		A5	SMA231-1M	AM ANTENNA HOLDER	
15	RFKJAGX300P	CHASSIS ASS'Y		A6	XTW3-10AFZ	SCREW	
15-1	RKA0009-1	FOOT		A7	SJPP909	ATTACHMENT PLUG	Δ (EB)
16	RFBAGX100E	FRONT PANEL ASS'Y		A8	RQAD013	WARRANTY CARD	
17	RSC0005	SHIELD PLATE		A9	RQCB0169	SERVICE CENTER LIST	
18	RGL0344A	BUTTON, PRESET		A10	RAK-SA301E	REMOTE CONTROL TRANSMITTER	
19	RGL0345B	BUTTON, SELECTOR		A11	RKDD008	BATTERY COVER	
20	RGL0346	BUTTON, GROUP					
21	RGL0347	BUTTON, LP-DOWN					
22	RGL0348A	BUTTON, MODE					
23	SHE187-2	P. C. B. SUPPORT					
24	SJS9231A	AC INLET COVER					
25	SKZ123	GND TERMINAL					
26	SJS894-1	ANGLE, TRANSISTOR					
27	MDN-4RD4MTC	WATTIR	(EB)				
28	SHE222	FAN	(EB)				
29	SJS271	SPRING	(EB)				
30	SHE233	FAM CASE	(EB)				
31	SHE234	CAP	(EB)				
		SCREWS					
N1	SNE2129-3	SCREW					
N2	XTWS3-RJFZ1	SCREW					
N3	XTWS28+8J	SCREW					
N4	XTB3+16JFZ	SCREW					
N5	XTB3+20JFZ	SCREW					
N6	XTB3+8JFZ	SCREW					
N7	XTWS3-8T	SCREW					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT (S)		Q101, 102	2SC2785FETA	TRANSISTOR	
IC001	LM7001	I. C. PLL FREQ SYNTHESIZER		Q201, 202	2SC2787LTA	TRANSISTOR	
IC201	AN7273A	I. C. FM/AM IF AMP&MIXER		Q204, 205	2SC1740SQSTA	TRANSISTOR	
IC301	AN7470	I. C. FM MPX		Q206	2SA933SQSTA	TRANSISTOR	
IC401	TC9163V	I. C. IMPUT SELECTOR		Q207	2SC1740SQSTA	TRANSISTOR	
IC402	MS238P	I. C. BUFFER AMP		Q208, 209	2SA933SQSTA	TRANSISTOR	
IC451	AN0158F	I. C. PHONO EQ. AMP		Q210	2SC1740SQSTA	TRANSISTOR	
IC471	MS238L	I. C. TONE CONTROL		Q251	2SA933SQSTA	TRANSISTOR	
IC601	5V13102B	I. C. POWER AMP	Δ	Q252-254	2SC1740SQSTA	TRANSISTOR	
IC651	BA621B	I. C. MOTOR DRIVE		Q255, 256	2SC2785FETA	TRANSISTOR	
IC901	LE6554HM097	I. C. MICRO COMPUTER		Q301, 302	2SD1760QRSTA	TRANSISTOR	
		TRANSISTOR (S)		Q303	2SA933SQSTA	TRANSISTOR	
Q101, 102	2SC2785FETA	TRANSISTOR		Q501, 502	2SJ140CDA	TRANSISTOR	
Q201, 202	2SC2787LTA	TRANSISTOR		Q503, 504	2SC3327ABTP	TRANSISTOR	
Q204, 205	2SC1740SQSTA	TRANSISTOR		Q505, 506	2SA1309AQSTA	TRANSISTOR	
Q206	2SA933SQSTA	TRANSISTOR		Q507, 508	2SC3327ABTP	TRANSISTOR	
Q207	2SC1740SQSTA	TRANSISTOR		Q513, 514	1N4211TA	TRANSISTOR	
Q208, 209	2SA933SQSTA	TRANSISTOR		Q651	2SA1309AQSTA	TRANSISTOR	(EB)
Q210	2SC1740SQSTA	TRANSISTOR		Q652	2SC3311AQSTA	TRANSISTOR	(EB)
Q251	2SA933SQSTA	TRANSISTOR		Q701	2SD1761DEF	TRANSISTOR	Δ
Q252-254	2SC1740SQSTA	TRANSISTOR		Q703	2SC3311AQSTA	TRANSISTOR	Δ
Q255, 256	2SC2785FETA	TRANSISTOR		Q704	2SC3311AQSTA	TRANSISTOR	
Q301, 302	2SD1760QRSTA	TRANSISTOR		Q705	2SC3311AQSTA	TRANSISTOR	
Q303	2SA933SQSTA	TRANSISTOR		Q708	2SB1185DEF	TRANSISTOR	Δ
Q501, 502	2SJ140CDA	TRANSISTOR		Q709	2SC3311AQSTA	TRANSISTOR	
Q503, 504	2SC3327ABTP	TRANSISTOR		Q710	2SB1185DEF	TRANSISTOR	
Q505, 506	2SA1309AQSTA	TRANSISTOR		Q713	2SC3311AQSTA	TRANSISTOR	Δ
Q507, 508	2SC3327ABTP	TRANSISTOR		Q751	2SC1740SQSTA	TRANSISTOR	
Q513, 514	1N4211TA	TRANSISTOR		Q752	2SC3940AQSTA	TRANSISTOR	
Q651	2SA1309AQSTA	TRANSISTOR	(EB)	Q801	1N4113TA	TRANSISTOR	
Q652	2SC3311AQSTA	TRANSISTOR	(EB)	Q802	1N4214TA	TRANSISTOR	
Q701	2SD1761DEF	TRANSISTOR	Δ			VARIABLE RESISTOR (S)	
Q703	2SC3311AQSTA	TRANSISTOR	Δ	VR301	EVNDXAA00B53	V. R. MPX VCU ADJ.	
Q704	2SC3311AQSTA	TRANSISTOR		VR471, 472	EWX2XAF25C15	V. R. TUNE CONTROL	
Q705	2SC3311AQSTA	TRANSISTOR		VR501	ELWNN0F20B15	V. R. MAIN VOLUME	
Q708	2SB1185DEF	TRANSISTOR	Δ	VR502	EVJ01CF01G15	V. R. BALANCE	
Q709	2SC3311AQSTA	TRANSISTOR				COMPONENT COMBINATION (S)	
Q710	2SB1185DEF	TRANSISTOR		Z202	SEL7Z101-T	COMPONENT COMBINATION	
Q713	2SC3311AQSTA	TRANSISTOR	Δ	Z251	REL6Z001-T	COMPONENT COMBINATION	
Q751	2SC1740SQSTA	TRANSISTOR		Z801	A1QPC02000	REMOTE CONT. SENSOR	
Q752	2SC3940AQSTA	TRANSISTOR		Z901	EXFP12331MF	COMPONENT COMBINATION	

Ref.No.	Part No.	Part Name & Description	Remarks	Ref.No.	Part No.	Part Name & Description	Remarks
Z902	EXBF8E473J	COMPONENT COMBINATION		S908	EVQ21405R	SW, PRESET TUNING8	
Z903	EXBF5E103J	COMPONENT COMBINATION		S909	EVQ21405R	SW, PRESET TUNING9	
Z904	EXBF8E103J	COMPONENT COMBINATION		S910	EVQ21405R	SW, PRESET TUNING10	
		COIL(S)		S911	EVQ21405R	SW, MEMORY SCAN	
				S912	EVQ21405R	SW, FM MODE	
L101	RLQZP147KT-Y	COIL		S913	EVQ21405R	SW, FM	
L102	RLQZP1R2KT-Y	COIL		S914	EVQ21405R	SW, MR	
L202, 204	ELFPR22MA	COIL		S915	EVQ21405R	SW, TUNING DOWN	
L321, 322	RLM21003-K	COIL		S916	EVQ21405R	SW, TUNING UP	
L401, 602	SLQY170-40	COIL		S917	EVQ21405R	SW, MEMORY	
L851, 852	RLQZP1R0KT-Y	COIL		S918	EVQ21405R	SW, LOUDNESS	
L901, 902	ELFPR1011A	COIL		S919	EVQ21405R	SW, START	
		TRANSFORMER(S)		S120	EVQ21405R	SW, FILE 1	
				S121	EVQ21405R	SW, FILE 2	
T201	RL14002-Z	TRANSFORMER		S122	EVQ21405R	SW, FILE 3	
T202	RL14003-Z	TRANSFORMER		S123	EVQ21405R	SW, FILE 4	
T701	RTP1M5003-V	POWER TRANSFORMER	△(E)	S124	EVQ21405R	SW, FILE 5	
T701	RTP1M5003-V	POWER TRANSFORMER	△(EB)	S125	EVQ21405R	SW, OTHER	
T751	RTP115001-Y	TRANSFORMER	△(E)	S126	EVQ21405R	SW, END	
T751	RTP115001-V	TRANSFORMER	△(EB)	S127	EVQ21405R	SW, PHONO	
		FILTER(S)		S128	EVQ21405R	SW, TUNER	
				S129	EVQ21405R	SW, CD	
				S131	EVQ21405R	SW, TAPE MONITOR/VCR2	
				S132	EVQ21405R	SW, VCR1	
				S134	EVQ21405R	SW, LW	
						CONNECTOR(S) & SOCKET(S)	
CF201, 202	RLFETNM02LA	RED(10.700MHz)		CN201	RJT0570007	CONNECTOR(7P)	
CF201, 202	RLFETNM02LB	BLUE(11.675MHz)		CN201A	RJL0570007	SOCKET(7P)	
CF201, 202	RLFETNM02LC	ORANGE(10.725MHz)		CN202	RJT0570007	CONNECTOR(7P)	
CF301	EPDGC0004T4	CERAMIC FILTER		CN202A	RJL0570007	SOCKET(7P)	
		OSCILLATOR(S)		CN501	RJT003K008M1	CONNECTOR(8P)	
				CN501	SJS51087WF	SOCKET(8P)	
X101	SYW9U722T-S	OSCILLATOR		CN501A	RJL003K008M1	SOCKET(8P)	
		DISPLAY TUBE		CN501LA	SJT31054WF	CONNECTOR(10P)	
FL001	RSLD043-F	DISPLAY TUBE		CN5012	SJS50378JQ	SOCKET(3P)	
		FUSE(S)		CN602A	SJT30345JQ	CONNECTOR(3P)	
				CN601	RJS1A1705	CONNECTOR(5P)	
F1	XBAZC1U7B0	FUSE	△	CN602A	RJS1A1704	CONNECTOR(4P)	
		SWITCH(ES)		CN602B	RJS1A1704	CONNECTOR(4P)	
				CN604	RJS1A1703	CONNECTOR(3P)	
S801	SSH2137	SW, SPEAKERS		CN651	SJT3213	CONNECTOR(2P)	(EB)
S701	SSH1238	SW, POWER	△	CN701	RJS1A1705	CONNECTOR(5P)	
S901	EVQ21405R	SW, PRESET TUNING1		CN701A	RJS1A1705	CONNECTOR(5P)	
S902	EVQ21405R	SW, PRESET TUNING2		CN751	SJS305-1	CONNECTOR(3P)	
S903	EVQ21405R	SW, PRESET TUNING3		CN801	RJT003K008M1	CONNECTOR(8P)	
S904	EVQ21405R	SW, PRESET TUNING4		CN801	SJS50887WF	SOCKET(8P)	
S905	EVQ21405R	SW, PRESET TUNING5		CN801LA	RJL003K008M1	SOCKET(8P)	
S906	EVQ21405R	SW, PRESET TUNING6		CN801A	SJT30854WF	CONNECTOR(8P)	
S907	EVQ21405R	SW, PRESET TUNING7		CN801E	RJT003K008M1	CONNECTOR(8P)	
				CN902	SJS50887WF	SOCKET(8P)	

Ref.No.	Part No.	Part Name & Description	Remarks	Ref.No.	Part No.	Part Name & Description	Remarks
CN902A	RJL003K008M1	SOCKET(8P)					
CN902A	SJT30854WF	CONNECTOR(8P)				JACK(S)	
CN903	RJT003K008M1	CONNECTOR(8P)					
CN903	SJS50887WF	SOCKET(8P)		JK901	SJJ146B	JACK, HEADPHONE	
CN903A	RJL003K008M1	SOCKET(8P)		JK101	RJH4202	JACK, ANTENNA	
CN903A	SJT30854WF	CONNECTOR(8P)		JK401	SJF3069N	JACK, PHONO/CD	
CN904	RJT003K008M1	CONNECTOR(8P)		JK402	SJF3069N	JACK, VCR1	
CN904	SJS50887WF	SOCKET(8P)		JK403	SJF3069N	JACK, TAPE/VCR2	
CN904A	RJL003K008M1	SOCKET(8P)		JK601	RJR0054	JACK, SPEAKER	
CN904A	SJT30854WF	CONNECTOR(8P)		JK602	RJR0054	JACK, SPEAKER	
CN905	RJT003K008M1	CONNECTOR(8P)		JK793	SJS231-1B	JACK, AC INLET	△
CN905	SJS50887WF	SOCKET(8P)		JK891	RJJC3TR11	JACK, REMOTE CONTROL, OUT	
CN905A	RJL003K008M1	SOCKET(8P)				RELAY(S)	
CN905A	SJT30854WF	CONNECTOR(8P)					
CN906, 907	SJT306488B1	CONNECTOR(6P)					
CN906A	SJS50681BB	SOCKET(6P)		RL751	RSY0005-C	RELAY	△
CN907A	SJS50681BB	SOCKET(6P)				FRONT END PACK ASS'Y	
CN908	SJT305498B1	CONNECTOR(5P)					
CN908A	SJS50581BB	SOCKET(5P)					
		SHIELD PART(S)					
E401	SNE1004-1	GND PLATE					
E404	SME103-6	P. C. B. HOLDER					
F701, 702	EYF52BC	FUSE HOLDER					
E901	RSC0111	SHIELD PLATE					

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						
R101, 102	ERDS2TJ103T	1/4W 10K	R259	ERDS2TJ223T	1/4W 22K	R520	ERDS2TJ394T	1/4W 390K
R104	ERDS2TJ102T	1/4W 1K	R261	ERDS2TJ102T	1/4W 1K	R521	ERDS2TJ104T	1/4W 100K
R105	ERDS2TJ561T	1/4W 560	R262	ERDS2TJ332T	1/4W 3.3K	R522	ERDS2TJ103T	1/4W 10K
R106	ERDS2TJ562T	1/4W 5.6K	R263	ERDS2TJ153T	1/4W 15K	R522A	ERDS2TJ153T	1/4W 15K
R107	ERDS2TJ103T	1/4W 10K	R264	ERDS2TJ102T	1/4W 1K	R523, 524	ERDS2TJ221T	1/4W 220
R108	ERDS2TJ151T	1/4W 150	R301	ERDS2TJ393T	1/4W 39K	R525, 526	ERDS2TJ102T	1/4W 1K
R201	ERDS2TJ332T	1/4W 3.3K	R302	ERDS2TJ151T	1/4W 150	R527	ERDS2TJ394T	1/4W 390K
R202	ERDS2TJ824T	1/4W 820K	R303, 304	ERDS2TJ223T	1/4W 22K	R528	ERDS2TJ104T	1/4W 100K
R203	ERDS2TJ122T	1/4W 1.2K	R305, 306	ERDS2TJ272T	1/4W 2.7K	R529	ERDS2TJ222T	1/4W 2.2K
R204	ERDS2TJ824T	1/4W 820K	R307, 308	ERDS2TJ562T	1/4W 5.6K	R531, 532	ERDS2TJ153T	1/4W 15K
R205	ERDS2TJ391T	1/4W 390	R309	ERDS2TJ224T	1/4W 220K	R601, 602	ERDS2TJ102T	1/4W 1K
R206	ERDS2TJ561T	1/4W 560	R311	ERDS2TJ102T	1/4W 1K	R603, 604	ERDS2TJ563T	1/4W 56K
R207	ERDS2TJ822T	1/4W 8.2K	R312	ERDS2TJ153T	1/4W 15K	R605, 606	ERDS2TJ332T	1/4W 3.3K
R208	ERDS2TJ102T	1/4W 1K	R313, 314	ERDS2TJ473T	1/4W 47K	R607, 608	ERDS2TJ563T	1/4W 56K
R209	ERDS2TJ471T	1/4W 470	R315, 316	ERDS2TJ103T	1/4W 10K	R609, 610	ERDS2TJ470T	1/4W 47
R210	ERDS2TJ332T	1/4W 3.3K	R317	ERDS2TJ473T	1/4W 47K	R611, 612	ERDS1FVJ100T	1/2W 10 Δ
R211	ERDS2TJ222T	1/4W 2.2K	R321, 322	ERDS2TJ333T	1/4W 33K	R614	ERD25FVJ470T	1/4W 47 Δ
R212	ERDS2TJ153T	1/4W 15K	R325, 326	ERDS2TJ102T	1/4W 1K	R619, 620	ERGLANJP331S	1W 330
R213	ERDS2TJ104T	1/4W 100K	R401, 402	ERDS2TJ332T	1/4W 3.3K	R623	ERDS2TJ684T	1/4W 680K
R214	ERDS2TJ824T	1/4W 820K	R403, 404	ERDS2TJ822T	1/4W 8.2K	R624	ERDS2TJ103T	1/4W 10K Δ
R215	ERDS2TJ822T	1/4W 8.2K	R405, 406	ERDS2TJ470T	1/4W 47	R627	ERDS2TJ154T	1/4W 150K
R216	ERDS2TJ563T	1/4W 56K	R407, 408	ERDS2TJ473T	1/4W 47K	R628	ERDS2TJ684T	1/4W 680K
R217	ERDS2TJ223T	1/4W 22K	R411, 412	ERDS2TJ104T	1/4W 100K	R651-654	ERDS2TJ223T	1/4W 22K (EB)
R218	ERDS2TJ123T	1/4W 12K	R413, 414	ERDS2TJ102T	1/4W 1K	R655	ERDS2TJ392T	1/4W 3.9K (EB)
R219	ERDS2TJ562T	1/4W 5.6K	R417, 418	ERDS2TJ104T	1/4W 100K	R656, 657	ERDS2TJ103T	1/4W 10K (EB)
R220	ERDS2TJ103T	1/4W 10K	R421	ERDS2TJ332T	1/4W 3.3K	R658	ERDS2TJ223T	1/4W 22K (EB)
R221	ERDS2TJ104T	1/4W 100K	R451, 452	ERDS2TJ821T	1/4W 820	R659, 660	ERDS1FVJ680T	1/2W 68 Δ (EB)
R222	ERDS2TJ473T	1/4W 47K	R453, 454	ERDS2TJ224T	1/4W 220K	R701	ERDS1FVJ332T	1/2W 3.3K Δ
R223	ERDS2TJ154T	1/4W 150K	R455, 456	ERDS2TJ563T	1/4W 56K	R702	ERDS2TJ122T	1/4W 1.2K Δ
R224	ERDS2TJ223T	1/4W 22K	R457, 458	ERDS2TJ271T	1/4W 270	R703	ERDS2TJ272T	1/4W 2.7K
R227	ERDS2TJ104T	1/4W 100K	R459, 460	ERDS2TJ680T	1/4W 68	R704	ERDS2TJ222T	1/4W 2.2K
R228	ERDS2TJ123T	1/4W 12K	R461, 462	ERDS2TJ184T	1/4W 180K	R705	ERDS2TJ272T	1/4W 2.7K
R230	ERDS2TJ104T	1/4W 100K	R463, 464	ERDS2TJ123T	1/4W 12K	R708	ERDS1FVJ330T	1/2W 33 Δ
R231	ERDS2TJ102T	1/4W 1K	R465, 466	ERDS2TJ563T	1/4W 56K	R710	ERDS2TJ272T	1/4W 2.7K
R232	ERDS2TJ122T	1/4W 1.2K	R467, 468	ERDS2TJ102T	1/4W 1K	R711	ERDS2TJ3R9T	1/4W 3.9
R233	ERDS2TJ684T	1/4W 680K	R471, 472	ERDS2TJ104T	1/4W 100K	R713	ERDS2TJ183T	1/4W 18K Δ
R234	ERDS2TJ103T	1/4W 10K	R473, 474	ERDS2TJ474T	1/4W 470K	R715	ERDS2TJ101T	1/4W 100 Δ
R235	ERDS2TJ471T	1/4W 470	R475, 476	ERDS2TJ392T	1/4W 3.9K	R716	ERDS2TJ222T	1/4W 2.2K Δ
R237	ERDS2TJ221T	1/4W 220	R479, 480	ERDS2TJ223T	1/4W 22K	R717	ERD25FVJ150T	1/4W 15 Δ
R247	ERDS2TJ103T	1/4W 10K	R481, 482	ERDS2TJ392T	1/4W 3.9K	R718, 719	ERDS2TJ1R8T	1/4W 1.8 Δ
R251	ERDS2TJ103T	1/4W 10K	R483, 484	ERDS2TJ222T	1/4W 2.2K	R753, 754	ERDS2TJ472T	1/4W 4.7K
R252	ERDS2TJ822T	1/4W 8.2K	R485, 486	ERDS2TJ473T	1/4W 47K	R755	ERDS2TJ102T	1/4W 1K
R253	ERDS2TJ182T	1/4W 1.8K	R487, 488	ERDS2TJ122T	1/4W 1.2K	R771, 772	ERDS1FVJ5R6T	1/2W 5.6 Δ
R254	ERDS2TJ223T	1/4W 22K	R489, 490	ERDS2TJ821T	1/4W 820	R773	ERD25FVJ4R7T	1/4W 4.7 Δ
R256	ERDS2TJ102T	1/4W 1K	R501, 502	ERDS2TJ222T	1/4W 2.2K	R777	ERD25FVJ8R2T	1/4W 8.2 Δ
R258	ERDS2TJ122T	1/4W 1.2K	R503, 504	ERDS2TJ103T	1/4W 10K	R780	ERDS1FVJ220T	1/2W 22 Δ
			R513, 514	ERDS2TJ393T	1/4W 39K	R851	ERDS1FVJ2R2T	1/2W 2.2 Δ
			R515, 516	ERDS2TJ222T	1/4W 2.2K	R891	ERDS2TJ102T	1/4W 1K
			R517, 518	ERDS2TJ102T	1/4W 1K	R894	ERDS2TJ102T	1/4W 1K

