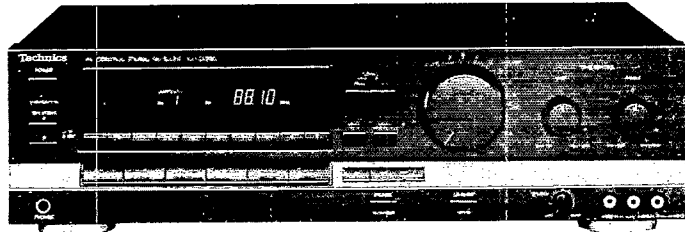


# Service Manual

AV Control Stereo Receiver

Receiver

SA-GX230



Colour

(K) ... Black Type  
(S) ... Silver Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe.	(K)
(EB)	Great Britain.	
(EG)	Germany and Italy.	(K) (S)

## SPECIFICATIONS (DIN 45 500)

### ■ AMPLIFIER SECTION

<b>Power output</b>	
DIN 1 kHz (T.H.D. 1%)	2 × 80 W (4 Ω)
<b>40 Hz~20 kHz continuous power output</b>	
both channels driven	2 × 50 W (8 Ω)
<b>Total harmonic distortion</b>	
rated power at 40 Hz~20 kHz	0.5% (8 Ω)
half power at 1 kHz	0.03% (8 Ω)
<b>Intermodulation distortion</b>	
rated power at 60 Hz: 7 kHz=4:1, SMPTE	0.5% (8 Ω)
<b>Power bandwidth</b>	
both channels driven, -3 dB	10 Hz~40 kHz (8 Ω)
<b>Damping factor</b>	40 (8 Ω)
<b>Input sensitivity and impedance</b>	
PHONO	3 mV/47 kΩ
CD, VCR 1	200 mV/22 kΩ
VCR2, TAPE	200 mV/22 kΩ
<b>PHONO maximum input voltage (1 kHz, RMS)</b>	150 mV
<b>S/N at rated power (8 Ω)</b>	
PHONO	70 dB (IHF, A: 80 dB)
CD, VCR 1	80 dB (IHF, A: 90 dB)
VCR 2, TAPE	80 dB (IHF, A: 90 dB)
<b>Frequency response</b>	
PHONO	RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
CD, VCR 1	10 Hz~40 kHz (±3 dB)
VCR 2, TAPE	10 Hz~40 kHz (±3 dB)
<b>Tone controls</b>	
Bass	50 Hz, +10 dB~-10 dB
Treble	20 kHz, +10 dB~-10 dB
<b>Loudness control (volume at -30 dB)</b>	50 Hz, +9 dB
<b>Output voltage</b>	
VCR 1 OUT	200 mV
TAPE REC (OUT)	200 mV
<b>Channel balance, 250 Hz~6.3 kHz</b>	±1 dB
<b>Channel separation</b>	55 dB
<b>Headphones output level and impedance</b>	430 mV/330 Ω
<b>Load impedance</b>	
A or B	4 Ω~16 Ω
A and B	8 Ω~16 Ω

### ■ FM TUNER SECTION

<b>Frequency range</b>	87.50~108.00 MHz
<b>Sensitivity</b>	
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)
<b>IHF usable sensitivity</b>	1.5 μV (IHF'58, 75 Ω)
<b>IHF 46 dB stereo quieting sensitivity</b>	22 μV/75 Ω
<b>Total harmonic distortion</b>	
MONO	0.2%
STEREO	0.3%
<b>S/N</b>	
MONO	60 dB (75 dB, IHF)
STEREO	58 dB (71 dB, IHF)
<b>Frequency response</b>	20 Hz~15 kHz, +1 dB~-2 dB
<b>Alternate channel selectivity</b>	
±400 kHz	65 dB
<b>Capture ratio</b>	1.0 dB
<b>Image rejection at 98 MHz</b>	40 dB
<b>IF rejection at 98 MHz</b>	70 dB
<b>Spurious response rejection at 98 MHz</b>	70 dB
<b>AM suppression</b>	50 dB
<b>Stereo separation</b>	
1 kHz	40 dB
<b>Carrier leak</b>	
19 kHz	-55 dB (-60 dB, IHF)
38 kHz	-50 dB (-55 dB, IHF)
<b>Channel balance (250 Hz~6.3 kHz)</b>	±1.5 dB
<b>Limiting point</b>	1.2 μV
<b>Bandwidth</b>	
IF amplifier	180 kHz
FM demodulator	1000 kHz
<b>Antenna terminals</b>	75 Ω (unbalanced)

# Technics

## ■ AM TUNER SECTION

For (E/EB) areas.

Frequency range

MW 522 kHz~1611 kHz (9-kHz steps)  
530 kHz~1620 kHz (10-kHz steps)  
LW 144 kHz~288 kHz

LW

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 252 kHz) 55 dB

Image rejection

MW (at 999 kHz) 40 dB

LW (at 252 kHz) 40 dB

IF rejection

MW (at 999 kHz) 55 dB

LW (at 252 kHz) 55 dB

For (EG) area.

Frequency range

522 kHz~1611 kHz (9-kHz-Schritte)  
530 kHz~1620 kHz (10-kHz-Schritte)

Selectivity (S/N 20 dB)

20 μV, 330 μV/m

Selectivity at 999 kHz

55 dB

Image rejection at 999 kHz

40 dB

IF rejection at 999 kHz

55 dB

## ■ CONTENTS

	Page
ACCESSORIES .....	2
BEFORE USE .....	2
REAR PANEL TERMINALS AND FUNCTIONS .....	3, 4
FRONT PANEL CONTROLS AND FUNCTIONS .....	5, 6
REMOTE CONTROL OPERATION .....	7, 8
DISASSEMBLY INSTRUCTIONS .....	9~12
MEASUREMENTS AND ADJUSTMENTS .....	13
BLOCK DIAGRAM .....	14~16
SCHEMATIC DIAGRAM .....	17~26

## ■ GENERAL

Power consumption

260 W

Power supply

For (E, EB) areas.

AC 50 Hz/60 Hz, 230 V/240 V

For (EG) area.

AC 50 Hz/60 Hz, 230 V

Dimensions (W × H × D)

430 × 125 × 305 mm

Weight

7 kg

## ■ REMOTE CONTROL TRANSMITTER

Control keys

32 keys

Dimensions (W × H × D)

70 × 27 × 175 mm

Weight (including batteries)

125 g

Power source

Two UM-4

(Panasonic R03/LR03 or equivalent)

### Notes:

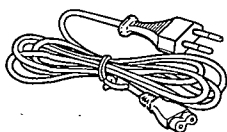
- Specifications are subject to change without notice. Weight and dimensions are approximate.
- Total harmonic distortion is measured by the digital spectrum analyzer.

	Page
PRINTED CIRCUIT BOARDS .....	27~32
WIRING CONNECTION DIAGRAM .....	33
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES .....	34
INTERNAL CONNECTION OF FL .....	35
TERMINAL FUNCTION OF IC .....	36
CABINET PARTS LOCATION .....	37, 38
REPLACEMENT PARTS LIST .....	39~42
RESISTORS AND CAPACITORS .....	42~44
PACKAGING .....	44

## ■ ACCESSORIES

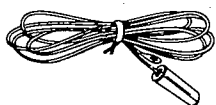
• AC power supply cord... 1 pc.

[ RJA0019-1K (E, EG)  
SJA193 (EB) ]



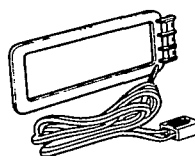
• FM indoor antenna

(RSA0007) ..... 1 pc.



• AM loop antenna

(SPB1163T) ..... 1 pc.



• AM antenna holder

(SMA231M) ..... 1 pc.



• Screws

(XTN3+10AFZ)..... 2 pcs.



• Remote-control transmitter

(RAK-SA302E)..... 1 pc.



• Batteries

(UM-4/R03) ..... 2 pcs.  
for Remote control unit



• Attachment plug

(SJP9009): (EB) only .... 1 pc.



## ■ BEFORE USE

Be sure to disconnect the mains cord before adjusting the voltage selector.

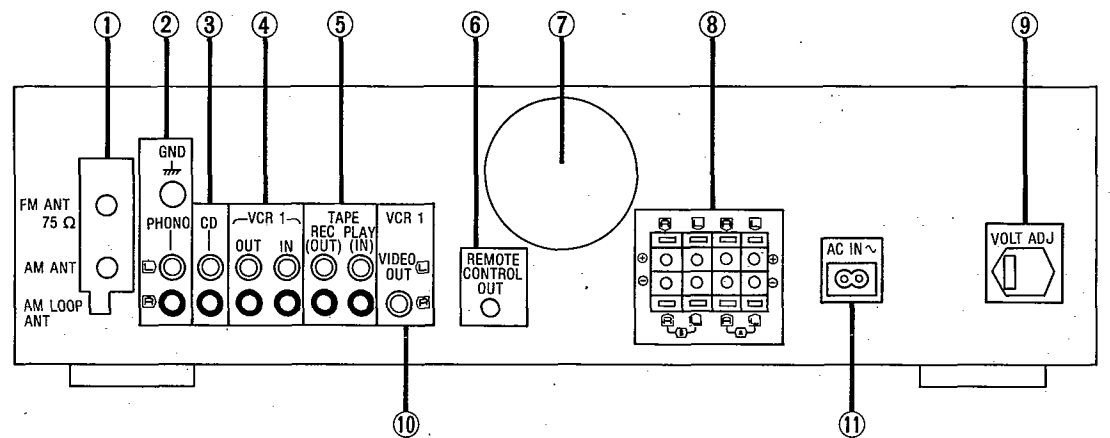
Use a flat-tip (–) screwdriver to set the voltage selector (on the rear panel) to the voltage setting for the area in which the unit will be used.

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

# REAR PANEL TERMINALS AND FUNCTIONS

**Caution:**  
Do not place books, etc., on top of this unit so that the heat radiation vents remain unblocked.

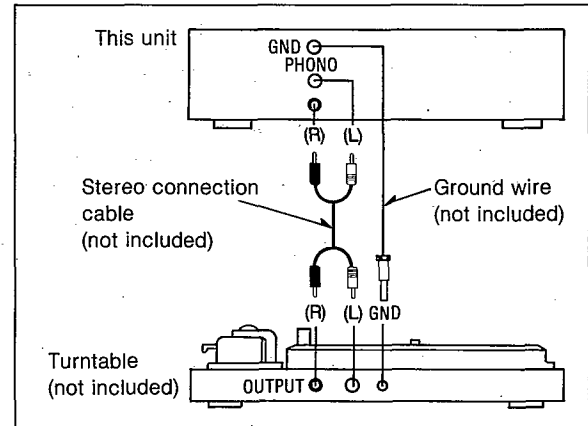
**Stereo connection cable (not included)**  
White (L) —  
Red (R) —



## ① Antenna connection terminals

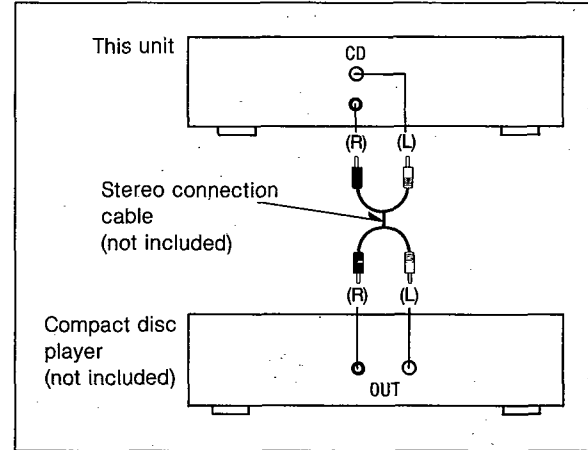
## ② "PHONO" terminals

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



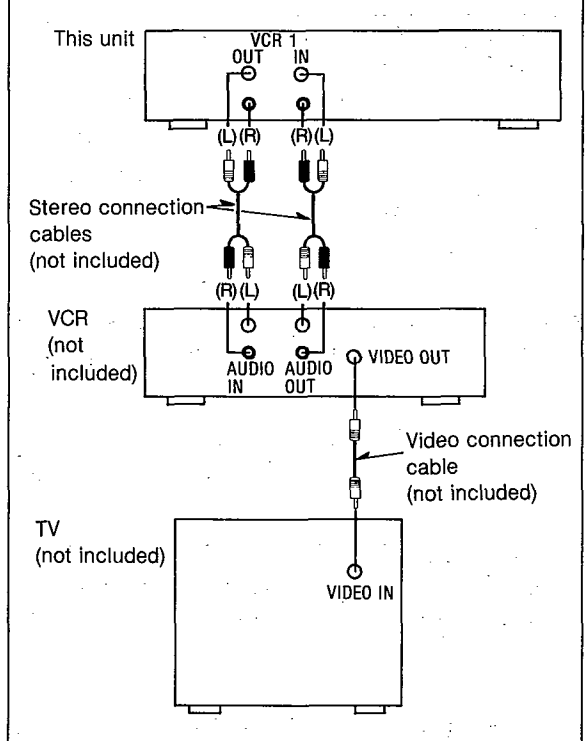
## ③ "CD" terminals

Connect a compact disc player.



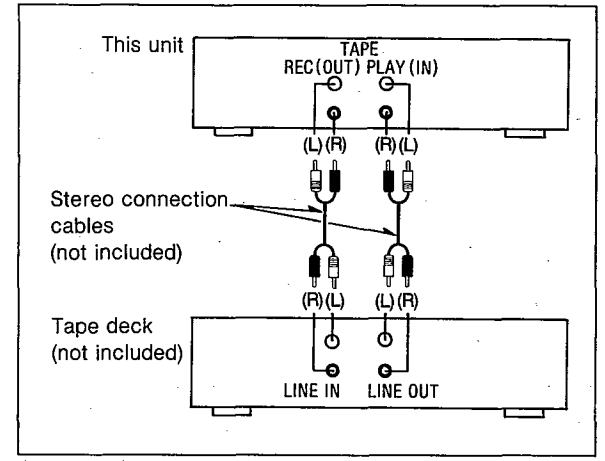
## ④ "VCR 1" terminals

Connect a VCR. (See the operating instructions of the VCR.)



## ⑤ "TAPE" terminals

Connect a tape deck.



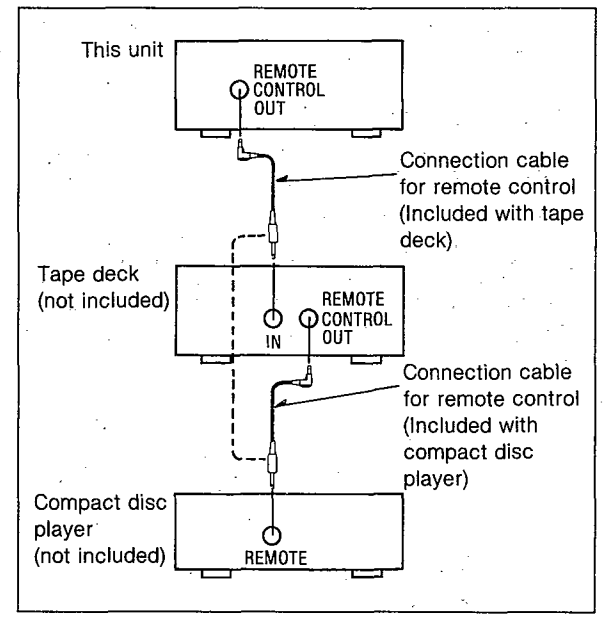
## ⑥ Remote control OUT terminal (REMOTE CONTROL OUT)

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. (See pages 7-8 for details.)

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

If a tape deck is not being used, the compact disc player can be connected directly (dotted line).



**Note:**  
For a compact disc player with a remote control sensor the above connection is not necessary.

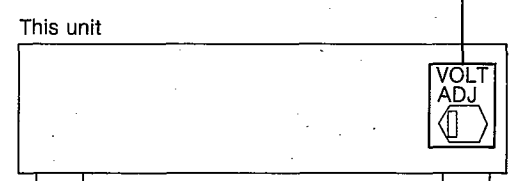
## ⑦ Cooling fan

The cooling fan operates at high output power levels only.

## ⑧ Speaker connection terminals

## ⑨ Voltage selector (VOLT ADJ): for (E, EB) areas

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

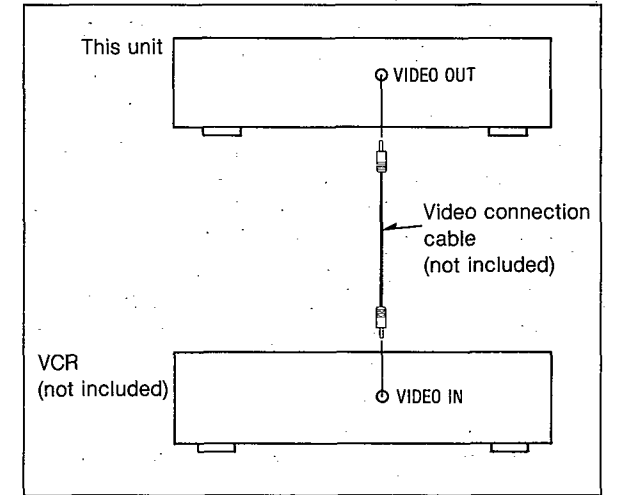


**Note:**  
Note that this unit will be seriously damaged if this setting is not made correctly.

## ⑩ "VIDEO OUT" terminal

Connect a video connection cable (not included) to the video input terminal of the VCR connected to the "VCR 1" terminals.

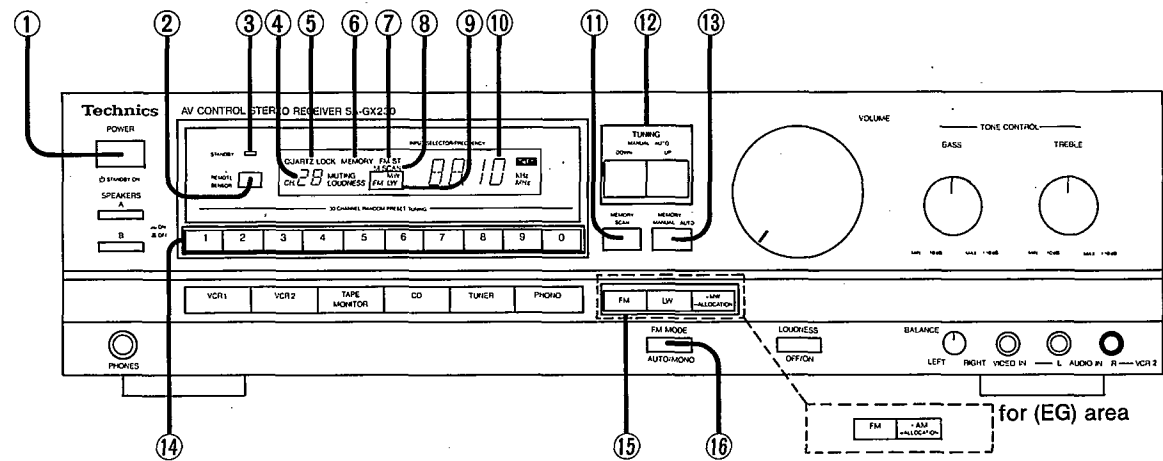
When this connection is made, tape-to-tape recording (audio and video) can be carried out simply by connecting a video camera or second VCR (for playback) to the "VCR 2" terminals of this unit.



## ⑪ AC IN socket (AC IN)

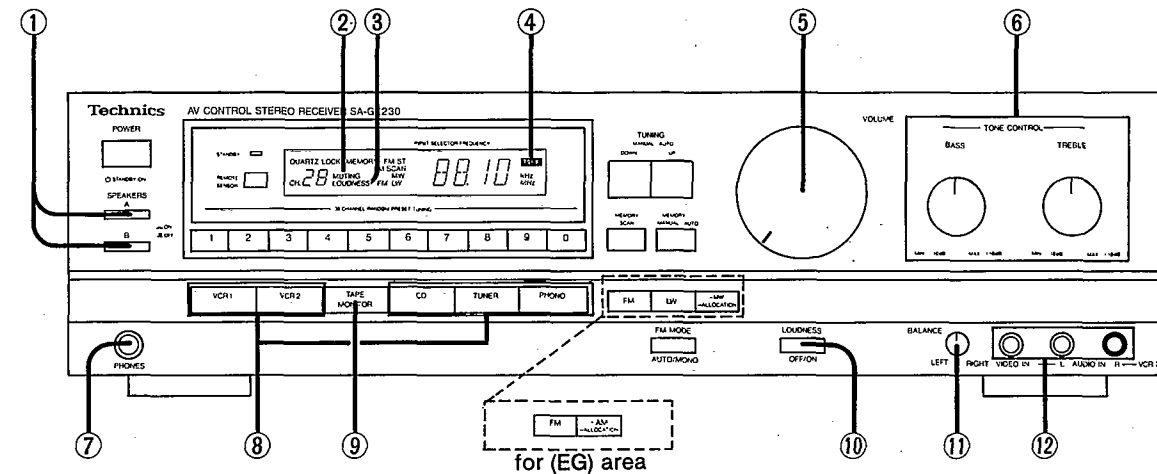
## FRONT PANEL CONTROLS AND FUNCTIONS

### Tuner section



- ① **Power "⏻ STANDBY/ON" switch (POWER, ⏻ STANDBY/ON)**  
This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the ⏻ STANDBY position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.
- ② **Remote control signal receptor (REMOTE SENSOR)**  
Receives the signals from the remote control.
- ③ **"STANDBY" indicator (STANDBY)**  
This indicator illuminates when the "STANDBY" mode is set by the main unit or the remote control transmitter.
- ④ **Channel display**  
This display shows the channel number selected by one of the preset-tuning buttons. Also this display shows the channel number for about 3 seconds during memory scan operation.
- ⑤ **Quartz-lock indicator (QUARTZ LOCK)**  
This indicator illuminates when the unit is tuned precisely to a broadcast station.
- ⑥ **Memory indicator (MEMORY)**  
This indicator illuminates when the memory button is pressed.
- ⑦ **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.
- ⑧ **Memory scan indicator (M. SCAN)**  
This indicator illuminates when the memory scan button is pressed.
- ⑨ **Band indicators (FM, LW, MW): for (E, EB) areas (FM, AM) : for (EG) area**  
Indicates the selected band.
- ⑩ **Input selector/frequency display (INPUT SELECTOR/FREQUENCY)**  
Displays the selected source or broadcast frequency.
- ⑪ **Memory scan button (MEMORY SCAN)**  
This button is used to locate a desired broadcast station; each broadcast station is selected for about 3 seconds.
- ⑫ **Tuning buttons (TUNING)**  
These buttons are used for tuning to the desired broadcast station.
- ⑬ **Memory button (MEMORY)**  
This button is used when presetting broadcast station frequencies into memory.
- ⑭ **Preset-tuning buttons (1-0) (30 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.
- ⑮ **Band selectors (FM, LW, MW): for (E, EB) areas (FM, AM) : for (EG) area**  
**FM:** Press this button to listen to an FM broadcast.  
**LW:** Press this button to listen to an LW broadcast.  
**MW (E, EB)/AM (EG):** Press this button to listen to an MW/AM broadcast.  
**ALLOCATION:** When the MW/AM button is pressed for about 3 seconds, the MW frequency step will change to 10 kHz per set. (This step is set to 9 kHz before shipment.) In order to return to the original frequency indication, press this button for about 3 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.

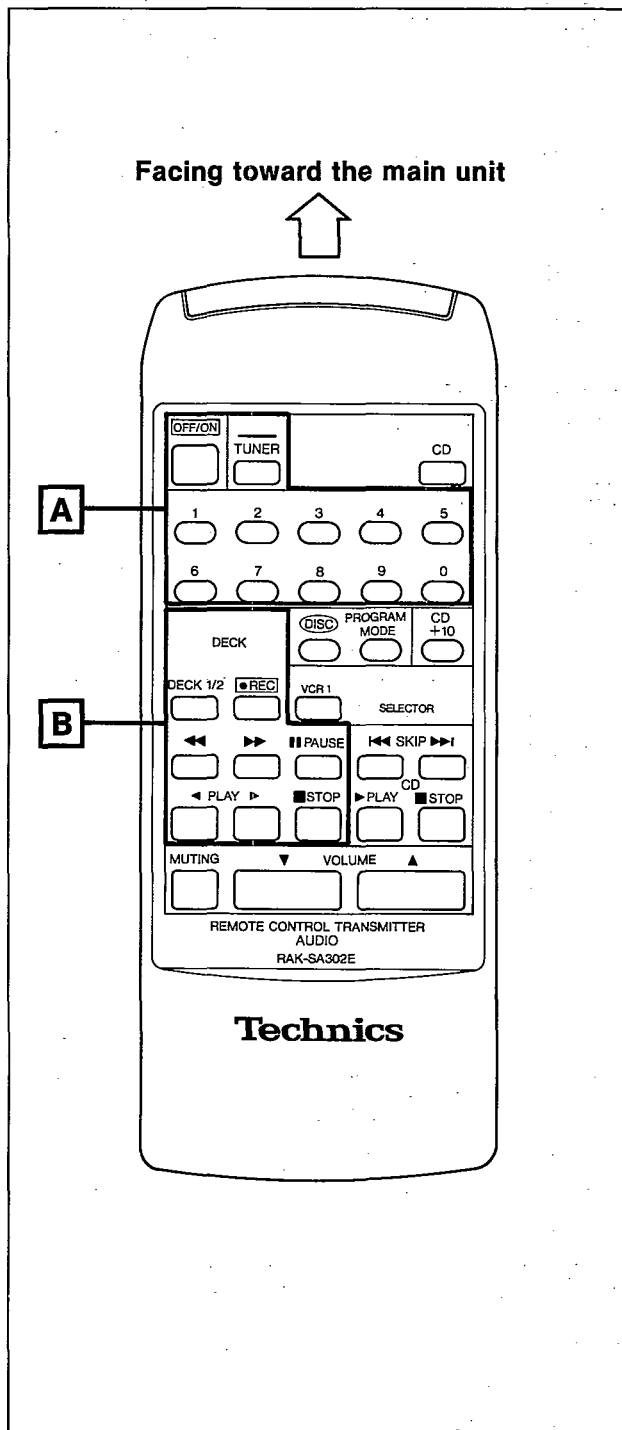
### Amplifier section



- ① **Speaker selectors (SPEAKERS)**  
These selectors are used to select the speaker system(s) (A and/or B).
- ② **Muting indicator (MUTING)**  
This indicator will illuminate when the muting button (on the remote control transmitter) is pressed.
- ③ **Loudness indicator (LOUDNESS)**  
This indicator will illuminate when the loudness button is pressed.
- ④ **Tape indicator (TAPE)**  
This indicator will illuminate when the tape-monitor button is pressed.
- ⑤ **Volume control (VOLUME)**
- 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.
- ⑦ **Headphones jack (PHONES)**
- ⑧ **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 input selector/frequency display. The "PHONO" input selector has two functions: when pressed momentarily it selects "PHONO". When pressed and held for about 4 seconds, it de-activates the muting function.
- ⑨ **Tape-monitor button (TAPE MONITOR)**  
Press this button to listen to a tape. To listen to some other source, press this button once again (so that the indicator is switched OFF).
- ⑩ **Loudness button (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.
- ⑪ **Balance control (BALANCE)**
- ⑫ **"VCR 2" terminals (VCR 2)**  
These terminals are used for tape-to-tape recording if a second VCR is connected here.

## 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.
- For this system, you can listen to tapes or compact discs, etc., by operating the remote control transmitter without using this unit's input selectors.
- Make sure that the power of each unit is set to the "ON" position, before beginning the operations.



### A Tuner controls

#### TUNER

Press this button first to use the "OFF/ON" button or the  $\boxed{1} - \boxed{0}$  buttons.

#### OFF/ON

This button 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.

#### $\boxed{1} - \boxed{0}$

Press these buttons to select the desired preset channel. When these buttons are used, be sure to first press the "TUNER" button.

#### To designate channels 1-9:

Press the appropriate (1-9) preset-tuning button.

**Note:** When selecting channel 1, 2 or 3 enter the selection "01", "02" or "03". If only "1", "2" or "3" is pressed, channel access will be delayed by two seconds.

#### To designate channels 10-30:

① Press the button for the "tens" digit (1, 2 or 3).

② Press the button for the "units" digit (1-0) within 2 seconds after pressing the first button.

#### Note:

If the interval between pressing the first button and pressing the second button is more than about 2 seconds, the setting may not be made correctly. If this happens, make the setting once again.

### B Tape deck controls

#### DECK 1/2

Press this button to select the deck ("DECK 1" or "DECK 2") to be controlled.

#### REC

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



Press one of these buttons to advance or rewind the tape while the unit is in the stop mode.

Press one of these buttons 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 button to temporarily stop playback or recording. Press the playback button to resume the playback or recording.

#### PLAY

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

► : For the "forward (A)" side of the tape

◄ : For the "reverse (B)" side of the tape

#### 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.

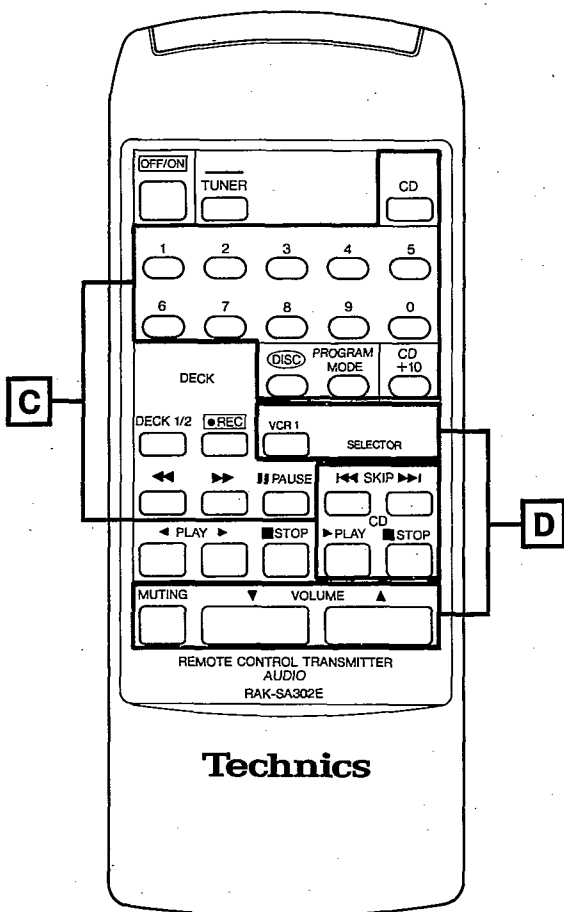
#### STOP

Press this button to stop tape movement.

#### Note

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

Facing toward the main unit



## C Compact disc player controls

### CD

Press this button first to use the 1 - +10 buttons.

### 1 - +10

Press these buttons to select the desired track.

Playback begins from the track selected.

When these buttons are used, be sure to first press the "CD" button.

### Tracks 1-9:

Press the appropriate numeric button 1 - 9 directly.

### To select a two-digit track number over 10:

Press the +10 button the necessary number of times to select the "tens" digit, and then one of the 1 - 0 buttons to select the "units" digit.

### DISC

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 (1 - 0).

### PROGRAM MODE

Press this button to select the desired play mode. ("PROGRAM" or "CONTINUE")

### SKIP

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

### PLAY

Press this button to start play.

### STOP

Press this button to stop play.

### Note:

When operating a compact disc player with a remote control sensor, face this remote control transmitter toward the remote control sensor of the compact disc player.

## D Amplifier controls

### VCR 1

Press this button to select the "VCR 1" input selector on the main unit.

### MUTING

Press this button 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.

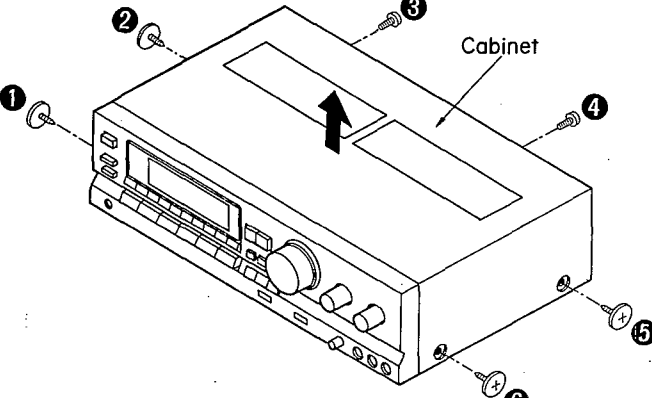
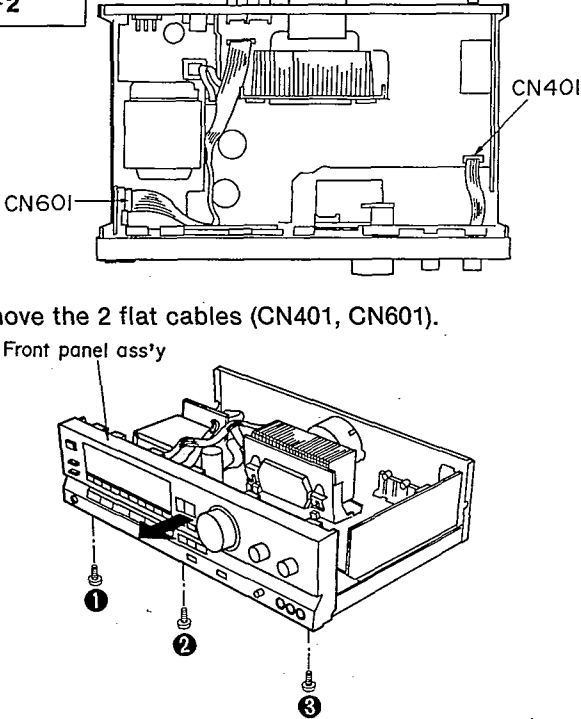
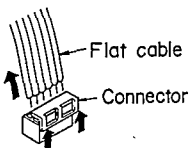
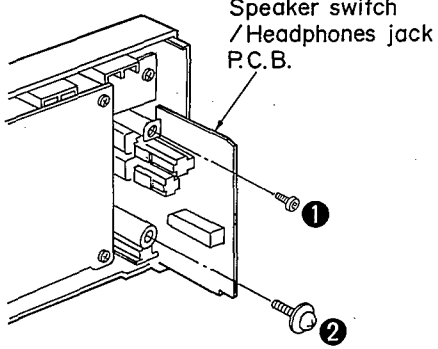
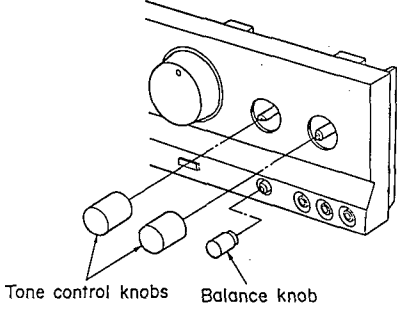
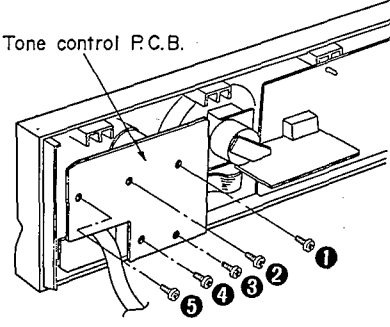
### VOLUME

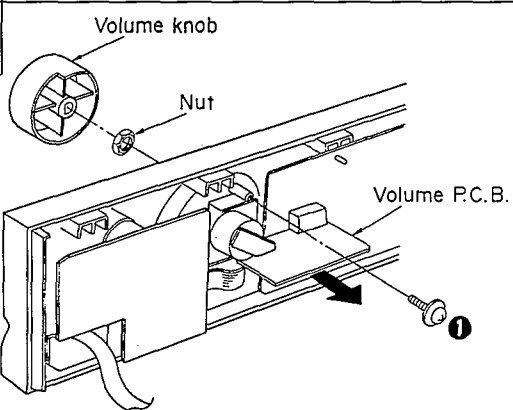
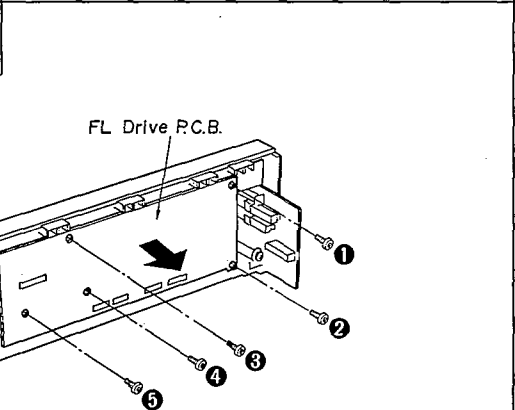
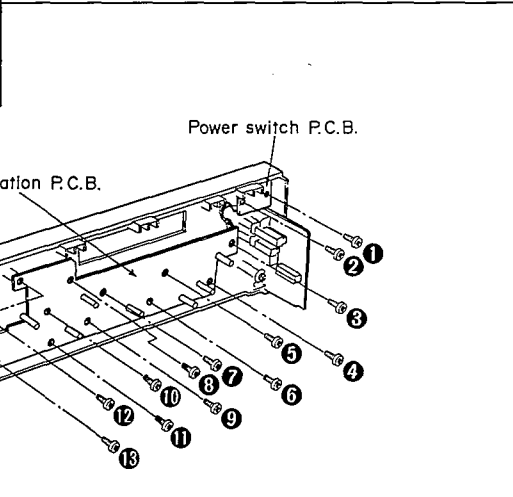
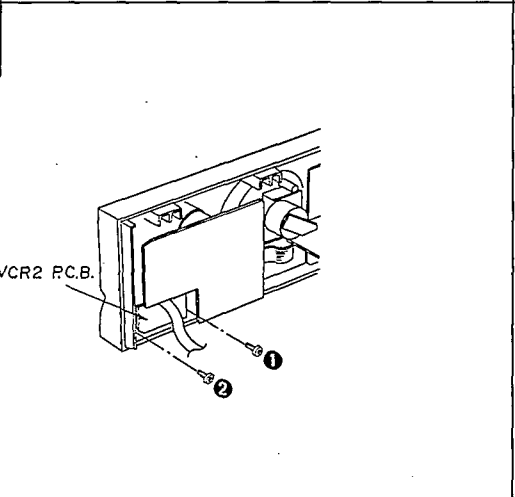
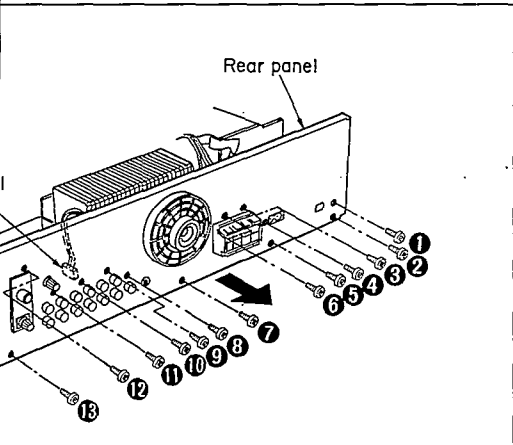
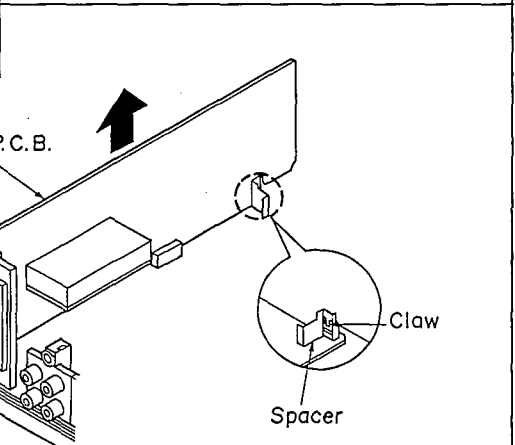
Press one of these buttons to adjust the volume level.

## DISASSEMBLY INSTRUCTIONS

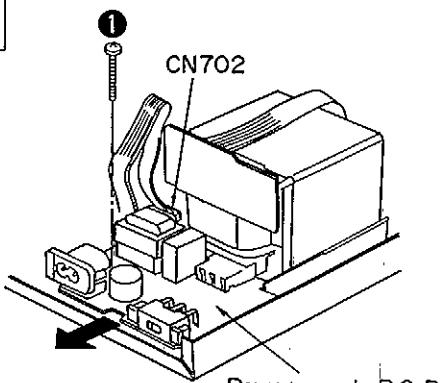
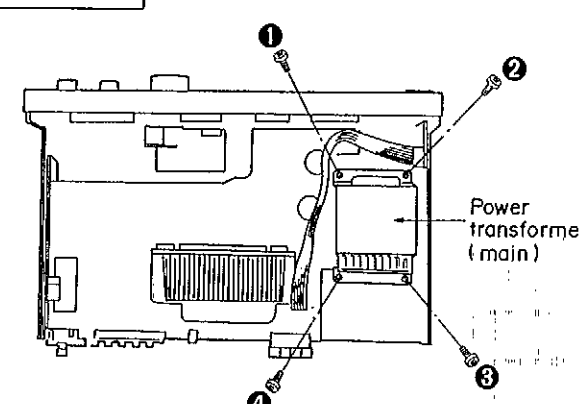
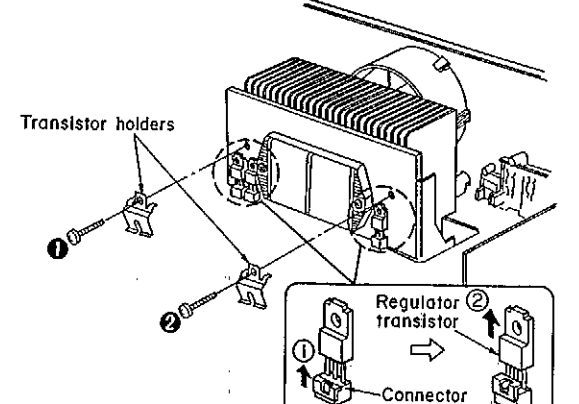
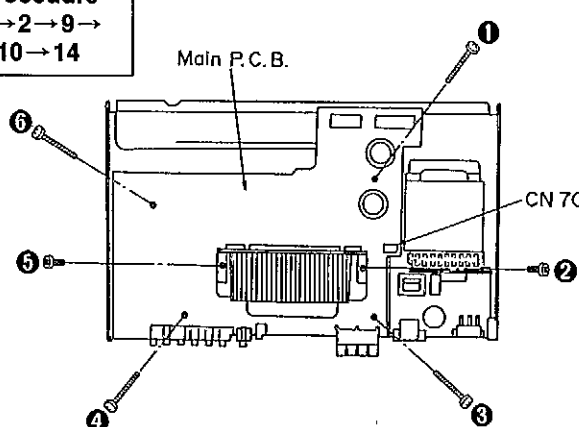
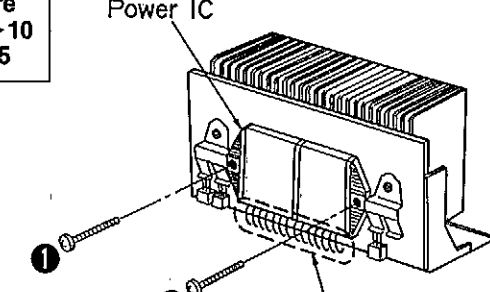
### "ATTENTION SERVICER"

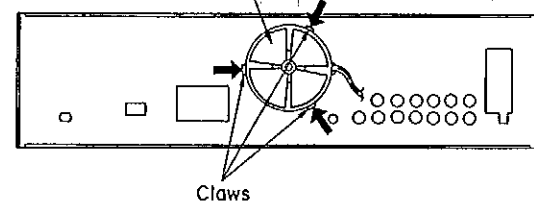
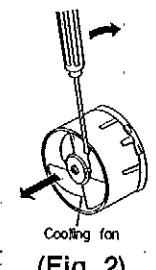
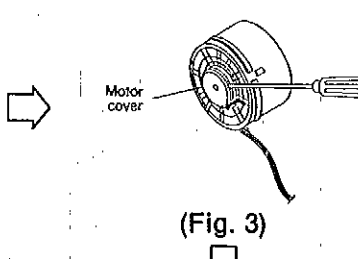
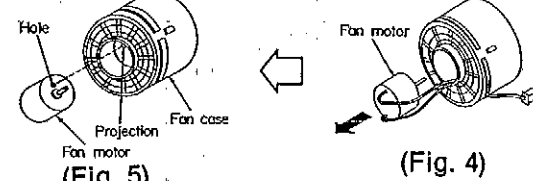
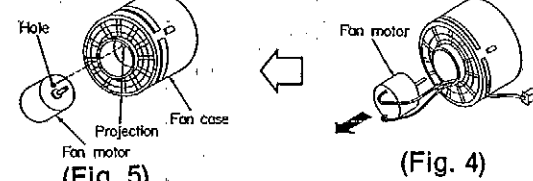
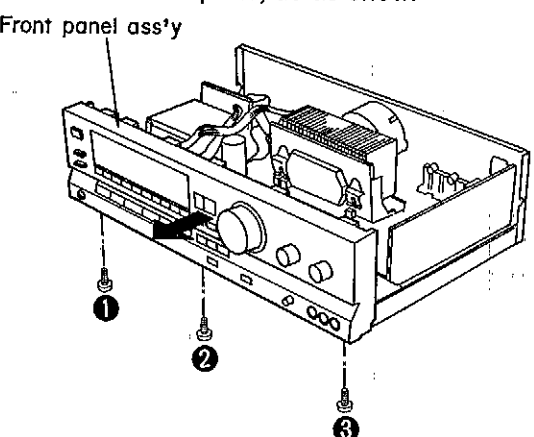
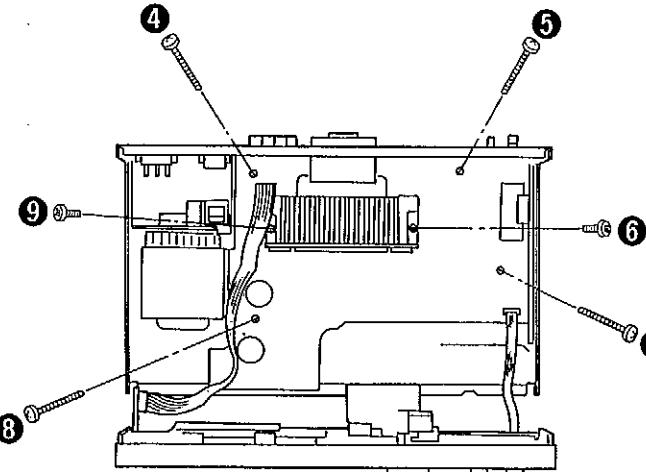
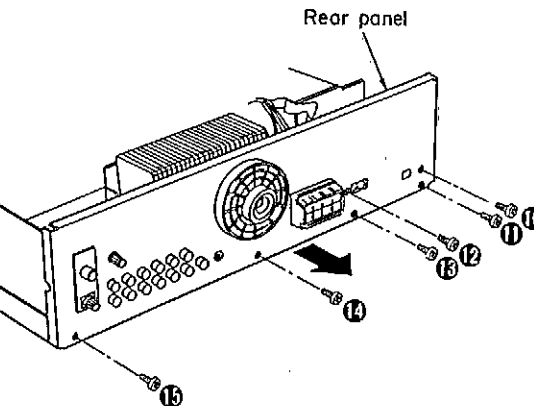
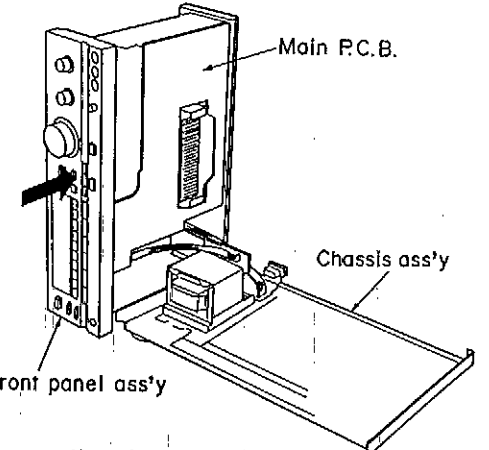
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

<b>Ref. No.</b> 1	<b>Removal of the cabinet</b>	<b>Ref. No.</b> 2	<b>Removal of the front panel ass'y</b>
<b>Procedure</b> 1	 <p>• Remove the 6 screws (①~⑥).</p>	<b>Procedure</b> 1→2	 <ol style="list-style-type: none"> <li>1. Remove the 2 flat cables (CN401, CN601).</li> <li>2. Remove the 3 screws (①~③).</li> <li>3. Remove the front panel ass'y in the direction of arrow.</li> </ol> <p><b>How to remove the flat cable</b></p> <ol style="list-style-type: none"> <li>1. Lift up the connector.</li> <li>2. Pull out the flat cable.</li> </ol> 
<b>Ref. No.</b> 3	<b>Removal of the speaker switch/headphones jack P.C.B.</b>		
<b>Procedure</b> 1→2→3	 <p>• Remove the 2 screws (①, ②).</p>		
<b>Ref. No.</b> 4	<b>Removal of the tone control P.C.B.</b>		
<b>Procedure</b> 1→2→4	 <p>1. Remove the 2 tone control knobs and a balance knob.</p>	 <p>2. Remove the 5 screws (①~⑤).</p>	

<p><b>Ref. No.</b> 5</p>	<p><b>Removal of the volume 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→5</p>	 <p>Volume knob Nut Volume P.C.B.</p> <ol style="list-style-type: none"> <li>1. Pull out the volume knob.</li> <li>2. Remove the nut.</li> <li>3. Remove the 1 screw (①).</li> <li>4. Remove the volume P.C.B. in the direction of arrow.</li> </ol>	<p><b>Procedure</b> 1→2→5→6</p>	 <p>FL Drive P.C.B.</p> <ol style="list-style-type: none"> <li>1. Remove the 5 screws (①~⑤).</li> <li>2. Remove the FL drive P.C.B. in the direction of arrow.</li> </ol>
<p><b>Ref. No.</b> 7</p>	<p><b>Removal of the power switch P.C.B. and Operation P.C.B.</b></p>	<p><b>Ref. No.</b> 8</p>	<p><b>Removal of the VCR2 P.C.B.</b></p>
<p><b>Procedure</b> 1→2→5→6 →7</p>	 <p>Power switch P.C.B. Operation P.C.B.</p> <p>• Remove the 13 screws (①~⑬).</p>	<p><b>Procedure</b> 1→2→8</p>	 <p>VCR2 P.C.B.</p> <p>• Remove the 2 screws (①, ②).</p>
<p><b>Ref. No.</b> 9</p>	<p><b>Removal of the rear panel</b></p>	<p><b>Ref. No.</b> 10</p>	<p><b>Removal of the tuner P.C.B.</b></p>
<p><b>Procedure</b> 1→9</p>	 <p>Rear panel CN651</p> <ol style="list-style-type: none"> <li>1. Remove the 13 screws (①~⑬).</li> <li>2. Remove the 1 connector (CN651).</li> <li>3. Remove the rear panel in the direction of arrow.</li> </ol>	<p><b>Procedure</b> 1→9→10</p>	 <p>Tuner P.C.B. Claw Spacer</p> <ol style="list-style-type: none"> <li>1. Release the 1 claw.</li> <li>2. Remove the tuner P.C.B. in the direction of arrow.</li> </ol>



<p>Ref. No. 11</p> <p>Removal of the power supply P.C.B.</p>	<p>Ref. No. 12</p> <p>Removal of the power transformer (main)</p>
<p>Procedure 1→9→11</p>  <p>1. Remove the 1 screw (1).</p> <p>2. Remove the 1 flat cable (CN702).</p> <p>3. Remove the power supply P.C.B. in the direction of arrow.</p>	<p>Procedure 1→9→11→12</p>  <p>• Remove the 4 screws (1~4).</p>
<p>Ref. No. 13</p> <p>Removal of the regulator transistor</p>	<p>Procedure 1→2→13</p>  <p>1. Remove the 2 screws (1, 2).</p> <p>2. Remove the 2 transistor holders.</p> <p>3. Lift up the connector in the direction of arrow 1.</p> <p>4. Remove the regulator transistor in the direction of arrow 2.</p> <p>• When mounting the regulator transistor. Apply silicone thermal compound (RFKX0002 or equivalent) to the rear of the regulator transistor.</p>
<p>Ref. No. 14</p> <p>Removal of the main P.C.B.</p>	<p>Ref. No. 15</p> <p>Removal of the power IC</p>
<p>Procedure 1→2→9→10→14</p>  <p>1. Remove the 1 flat cable (CN702).</p> <p>2. Remove the 6 screws (1~6).</p>	<p>Procedure 1→2→9→10→14→15</p>  <p>1. Remove the 2 screws (1, 2).</p> <p>2. Unsolder the power IC.</p> <p>• When mounting the power IC. Apply silicone thermal compound (RFKX0002 or equivalent) to the rear of the power IC.</p>

<p>Ref. No. 16</p> <p>Removal of the cooling fan motor</p>	<p>Procedure 1→9→16</p> <p>1. Release the 3 claws in the direction of arrow and remove the fan motor. (Refer to Fig. 1)</p> <p>2. Insert a screwdriver at the root of the cooling fan. Force it out of the motor shaft. (Refer to Fig. 2)</p> <p>3. Remove the motor cover by used ⊖ screwdriver. (Refer to Fig. 3)</p> <p>4. Remove the motor from the fancasing. (Refer to Fig. 4)</p> <p>5. When mounting the motor fan, align the fan casing's projection with the hole of the fan motor. (Refer to Fig. 5)</p>     
<p>Ref. No. 17</p> <p>Check of the main P.C.B.</p>	<p>Procedure 1→17</p> <p>• When checking the soldered surfaces of main P.C.B. and replacing the parts, do as show.</p>   <p>1. Remove the 3 screws (1~3).</p> <p>2. Remove the 6 screws (4~9).</p>  <p>3. Remove the 6 screws (10~15).</p> <p>4. Remove the rear panel in the direction of arrow.</p>  <p>5. Remove the chassis ass'y.</p> <p>6. Reinstall the front panel ass'y to the main P.C.B.</p>

## MEASUREMENTS AND ADJUSTMENTS

**Note:** For Z201/Z251 (AM (MW/LW) ANT and OSC coil), Z202 (AM (MW/LW)-IFT), they are supplied as adjusted parts. So, do not turn the cores of the parts. It is not necessary to adjust the AM (MW/LW) circuit.

### FM ADJUSTMENT

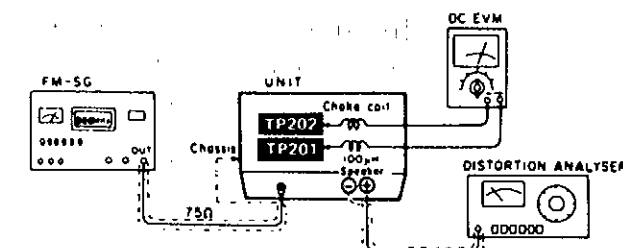
#### Control positions and equipment used

- FM signal generator (FM-SG).
- Distortion analyser
- DC electronic voltmeter (DC EVM)
- Frequency counter
- Choke coil (100μH)
- Resistor (100kΩ)

### FM MONO DISTORTION ADJUSTMENT

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

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



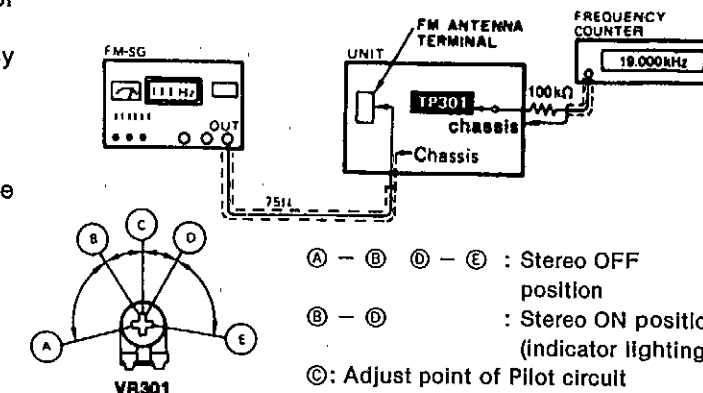
#### Note:

The adjusting screwdriver used should be made of resin.

### 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 100.10MHz.
4. Adjust VR301 for 19.00±0.03kHz on frequency counter reading.

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

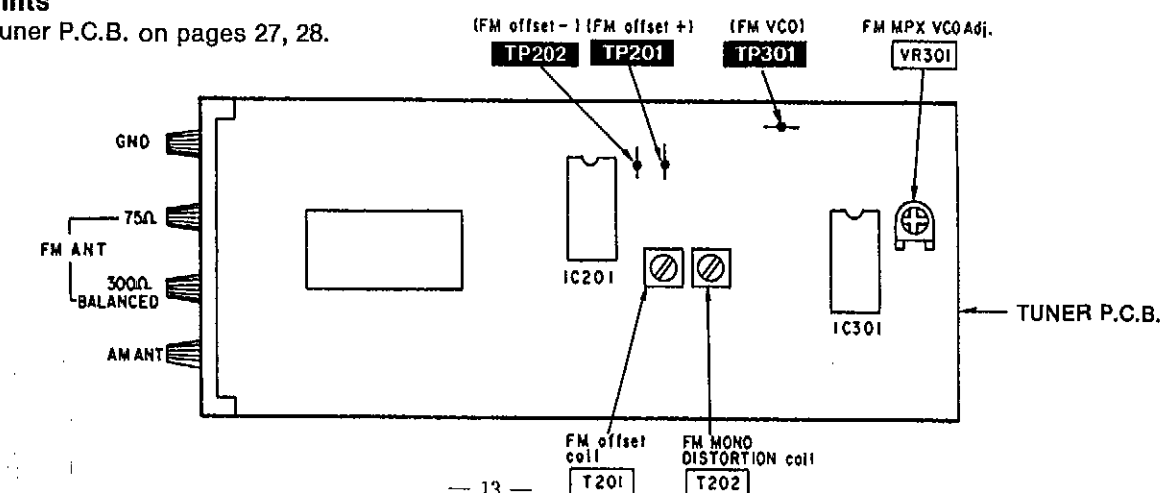


### ★ USING ALTERNATE SYSTEM

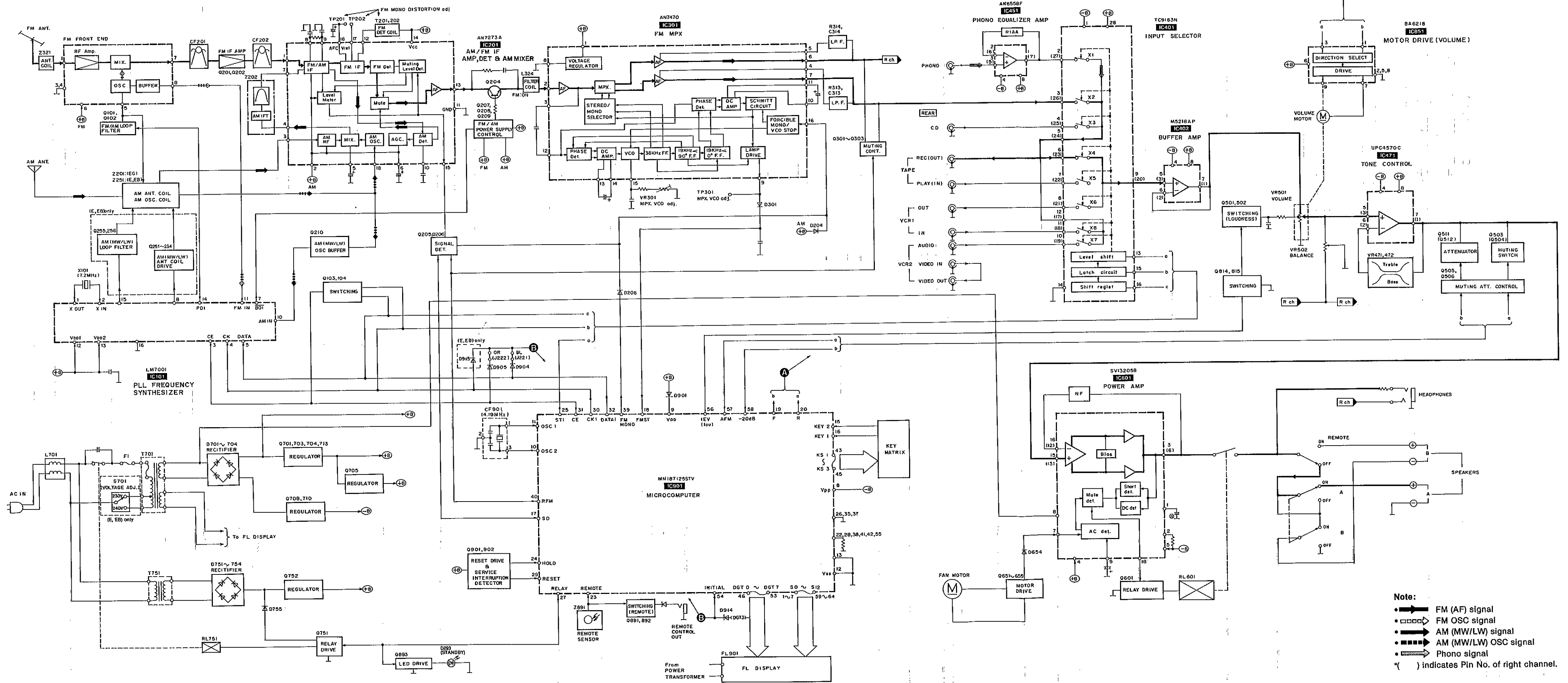
1. Apply stereo signal from generator or receive the stereo broadcast.
2. Adjust VR301 until stereo indicator lights up. Cement arm of VR301 as shown in figure.

### • Adjustment points

Please refer to tuner P.C.B. on pages 27, 28.



**BLOCK DIAGRAM**



**Note:**  
 ●→ FM (AF) signal  
 ○→ FM OSC signal  
 ■→ AM (MW/LW) signal  
 ■→ AM (MW/LW) OSC signal  
 ●→ Phono signal  
 (\*) indicates Pin No. of right channel.

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

(Parts list on pages 40~44.)

**Note 1:**

- S601 : Speaker selectors (SPEAKERS) switches. [S601-1: A, S601-2: B]
- S701 : Voltage selector (VOLT ADJ) switch. For (E, EB) areas.
- S901~910 : Preset-tuning (1-0) (30 CHANNEL RANDOM PRESET TUNING) switches. [S901: 1, S902: 2, S903: 3, S904: 4, S905: 5, S906: 6, S907: 7, S908: 8, S909: 9, S910: 0]
- S914 : Power (POWER) switch.
- S916~918, 921~923 : Input selector switches. [S916: PHONO, S917: TUNER, S918: TAPE, S921: VCR 2, S922: VCR 1, S923: CD]
- S925 : Loudness (LOUDNESS) switch.
- S929, 936 : Tuning (TUNING) switches. [S929: DOWN, S936: UP]
- S930, 931, 932 : Band selector switches. [S930: FM, S931: LW/AM, S932: MW (For (E, EB) areas.)]
- S933 : FM mode selector (FM MODE) switch.
- S934 : Memory scan (MEMORY SCAN) switch.
- S935 : Memory (MEMORY) switch.

**Signal line**

- : FM OSC signal
- ▣▣▣▣ : AM (MW/LW) OSC signal
- ▤▤▤▤ : Phono signal
- ▥▥▥▥ : Positive voltage lines
- ▧▧▧▧ : Negative voltage lines
- : FM signal
- ⇨ : AM (MW/LW) signal
- ⇩ : AF signal (Lch)

**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 (MW) signal reception mode.
- Figures in [ ] Stand for DC-voltage in LW signal reception mode.
- The supply part number is described alone in the replacement parts list.

Ref. No.	Production Part No.	Supply Part No.
IC301	AN7470	SVIUPC1161C3
Z891	RCDHC-677-E	RCDHC-677

**\* 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.

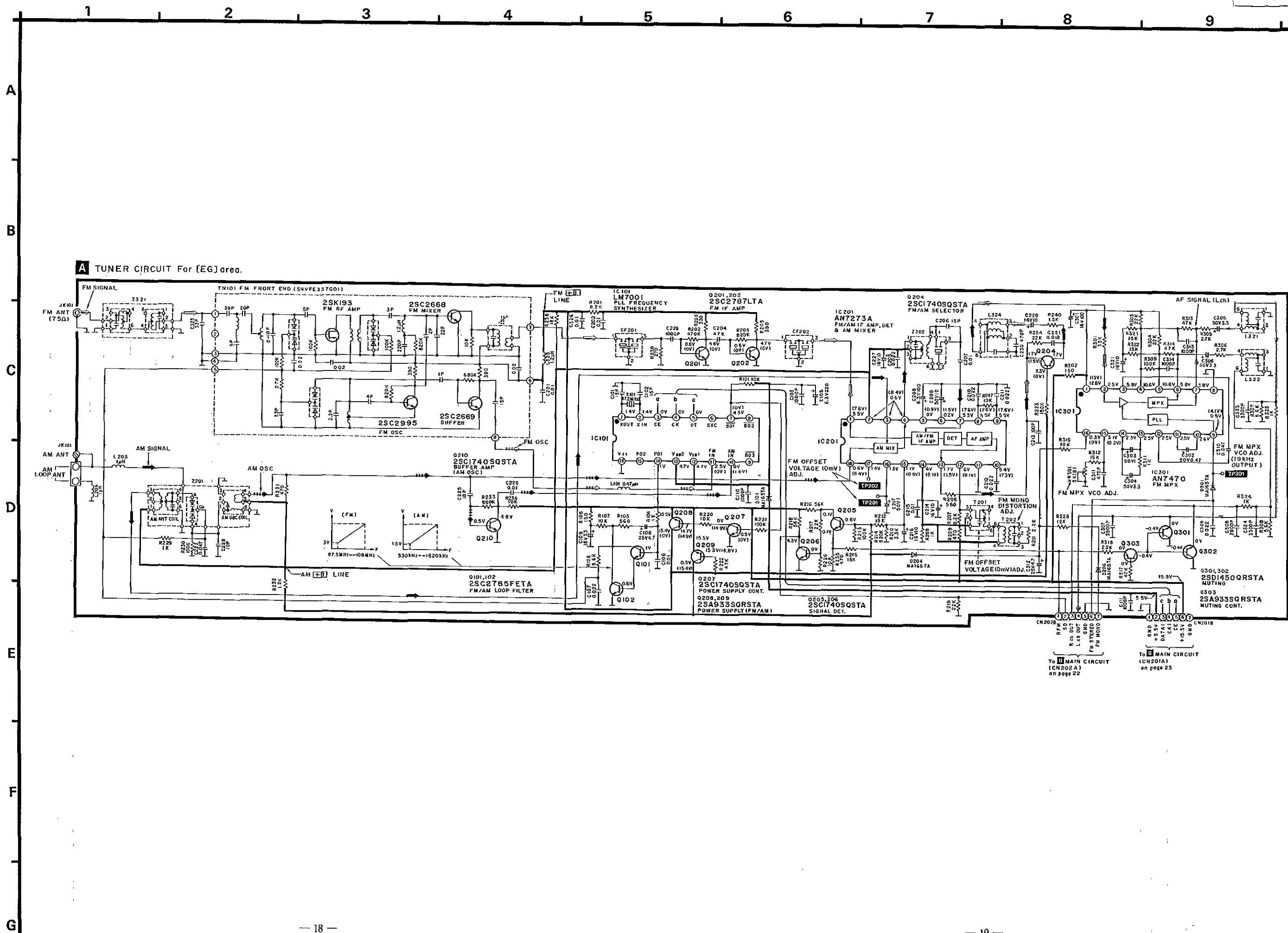
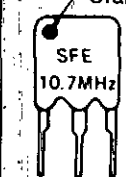
**Note 2:**

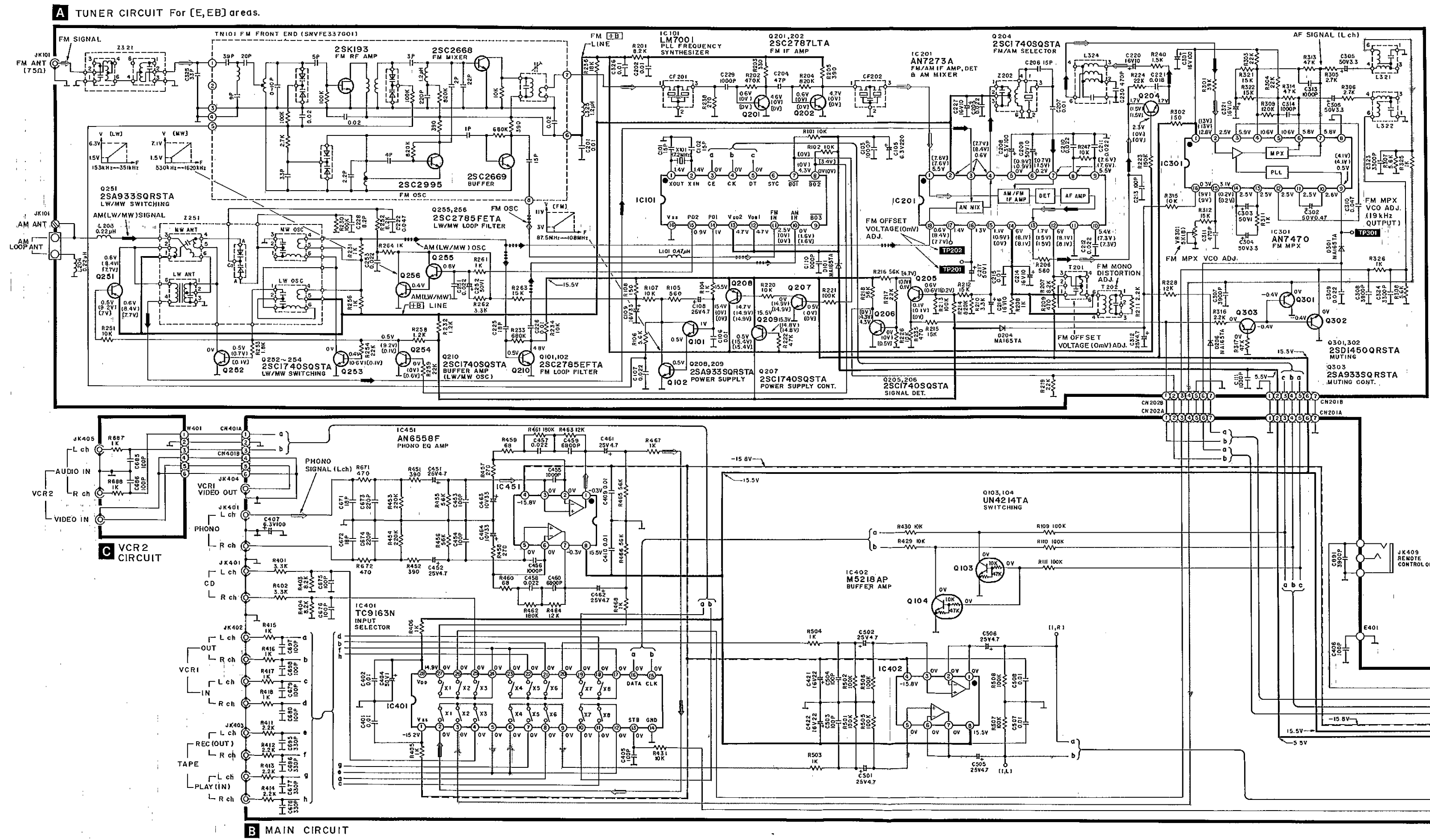
- Use of ceramic filters in pairs  
The ceramic filters (CF201, CF202) for FM-IF circuit are available in three ranks. For this circuit, be sure to use the ceramics of the same rank in a pair. At repairing and replacement, pay close attention to the short jumpers (J221, J222) for use as different short jumpers must be used depending on each rank of the ceramic filters.

Color marking (Blue, Red or Orange)

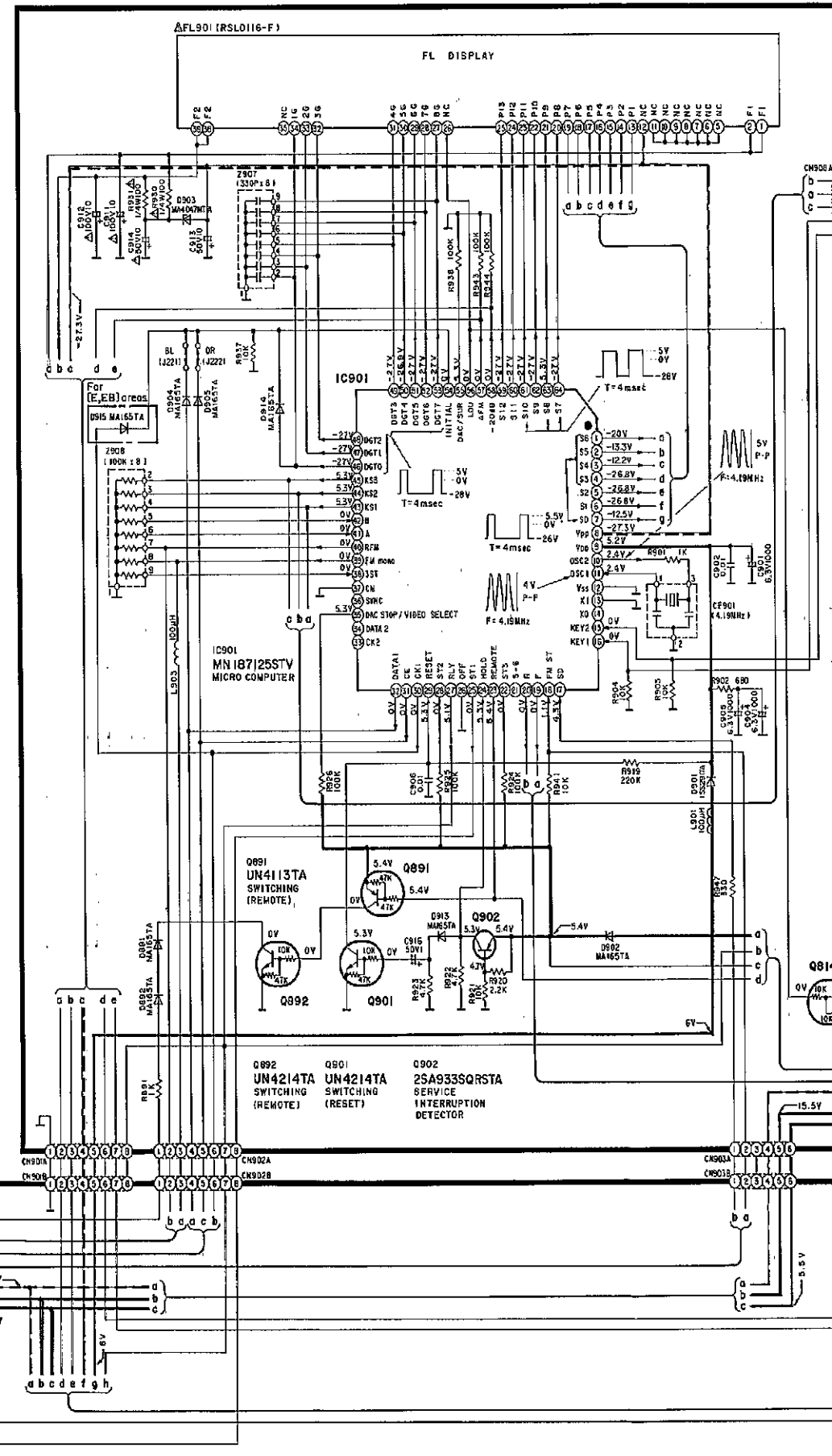
RANK (Color)	J221 (BL)	J222 (OR)	CENTER FREQUENCY
Blue	○	×	10.675MHz
Red	○	○	10.700MHz
Orange	×	○	10.725MHz

Note: ○ mark: short jumper is used.  
× mark: short jumper is not used.

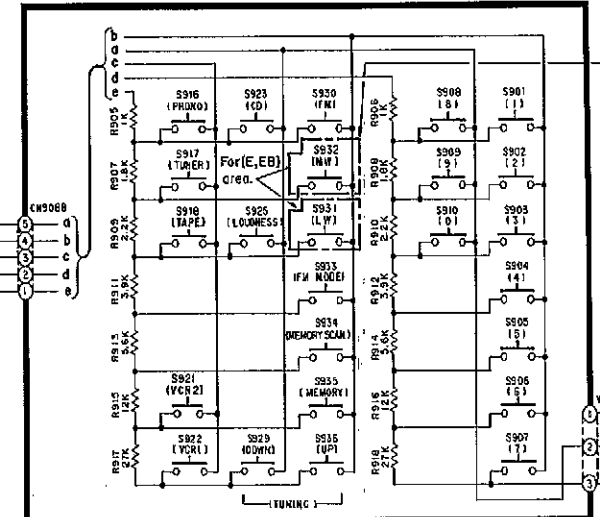




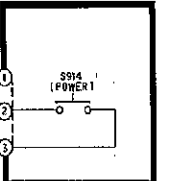
D FL DRIVE CIRCUIT



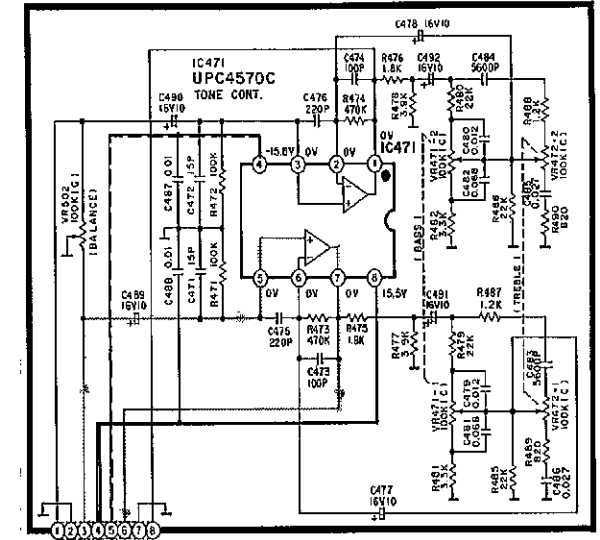
E OPERATION CIRCUIT



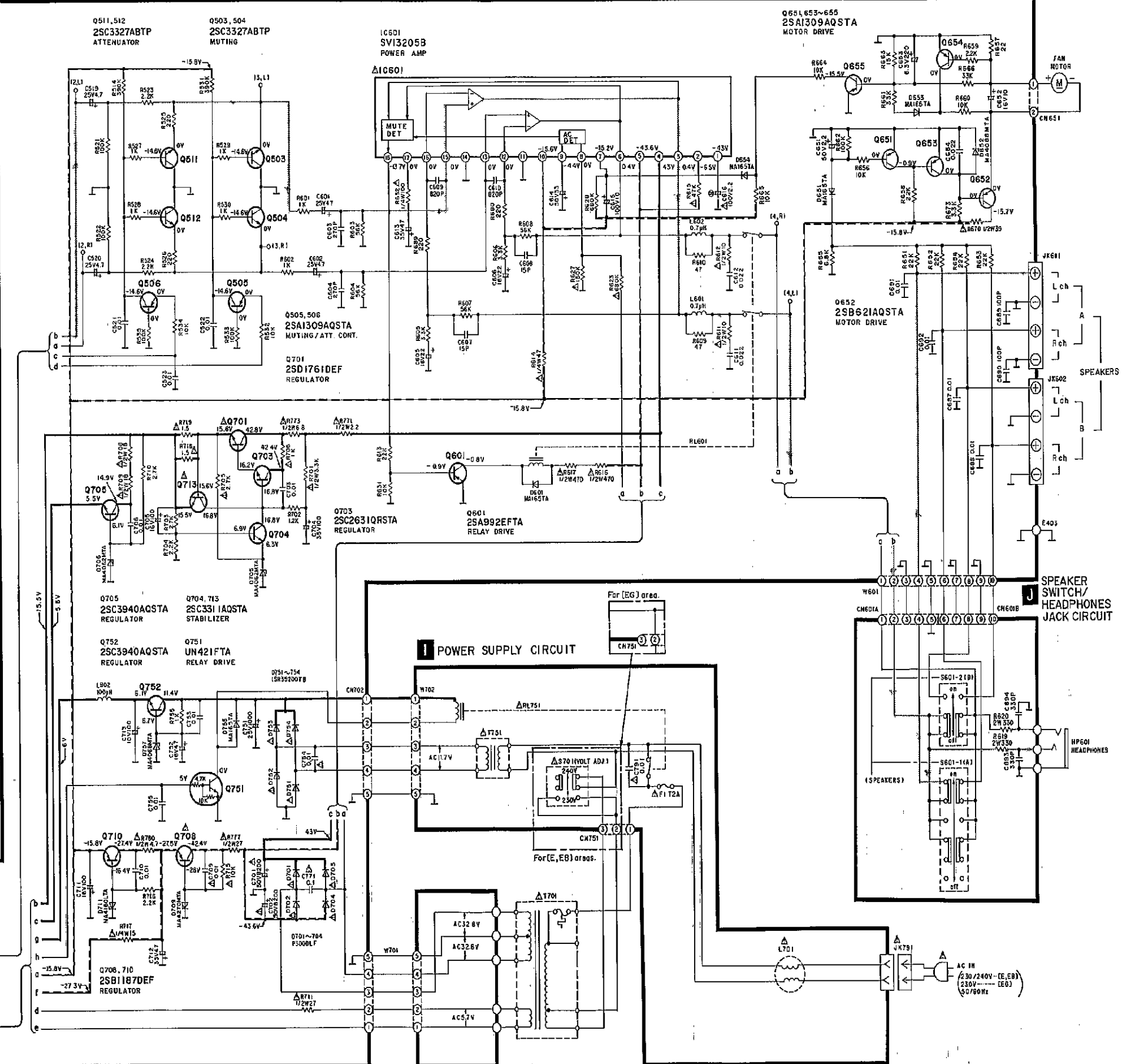
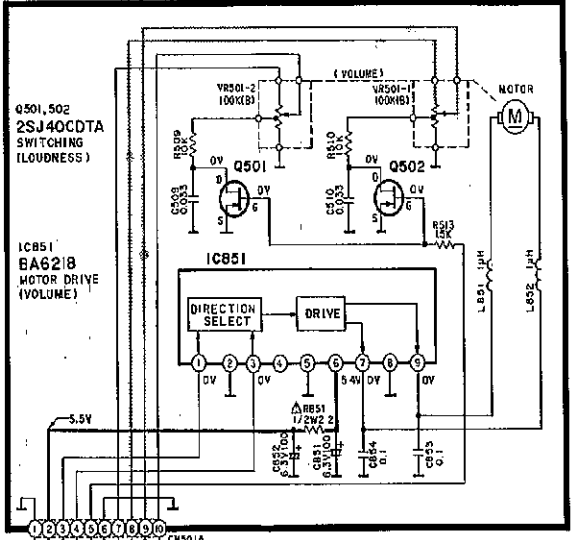
G POWER SWITCH CIRCUIT



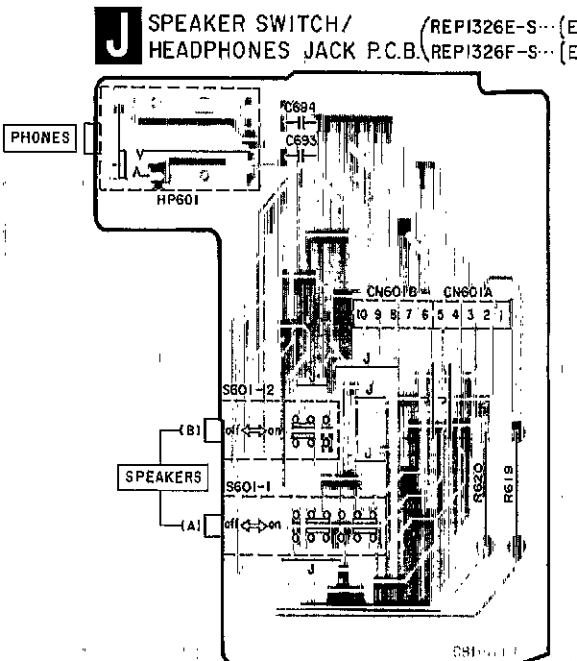
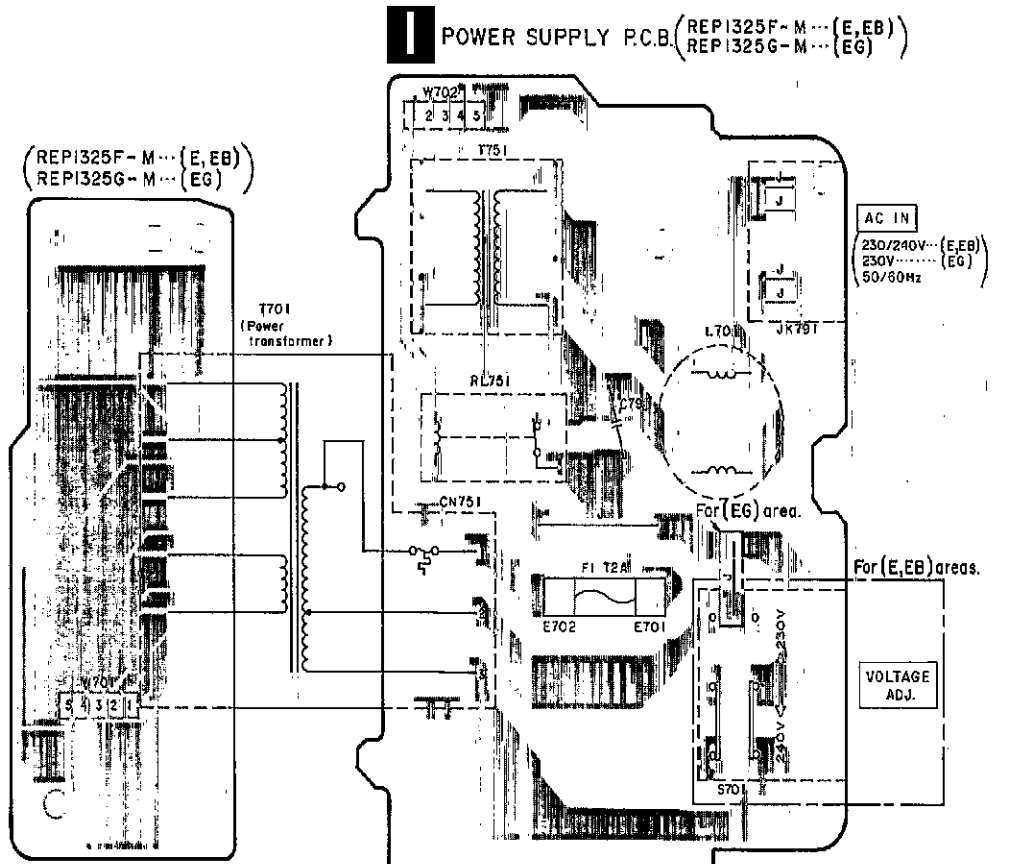
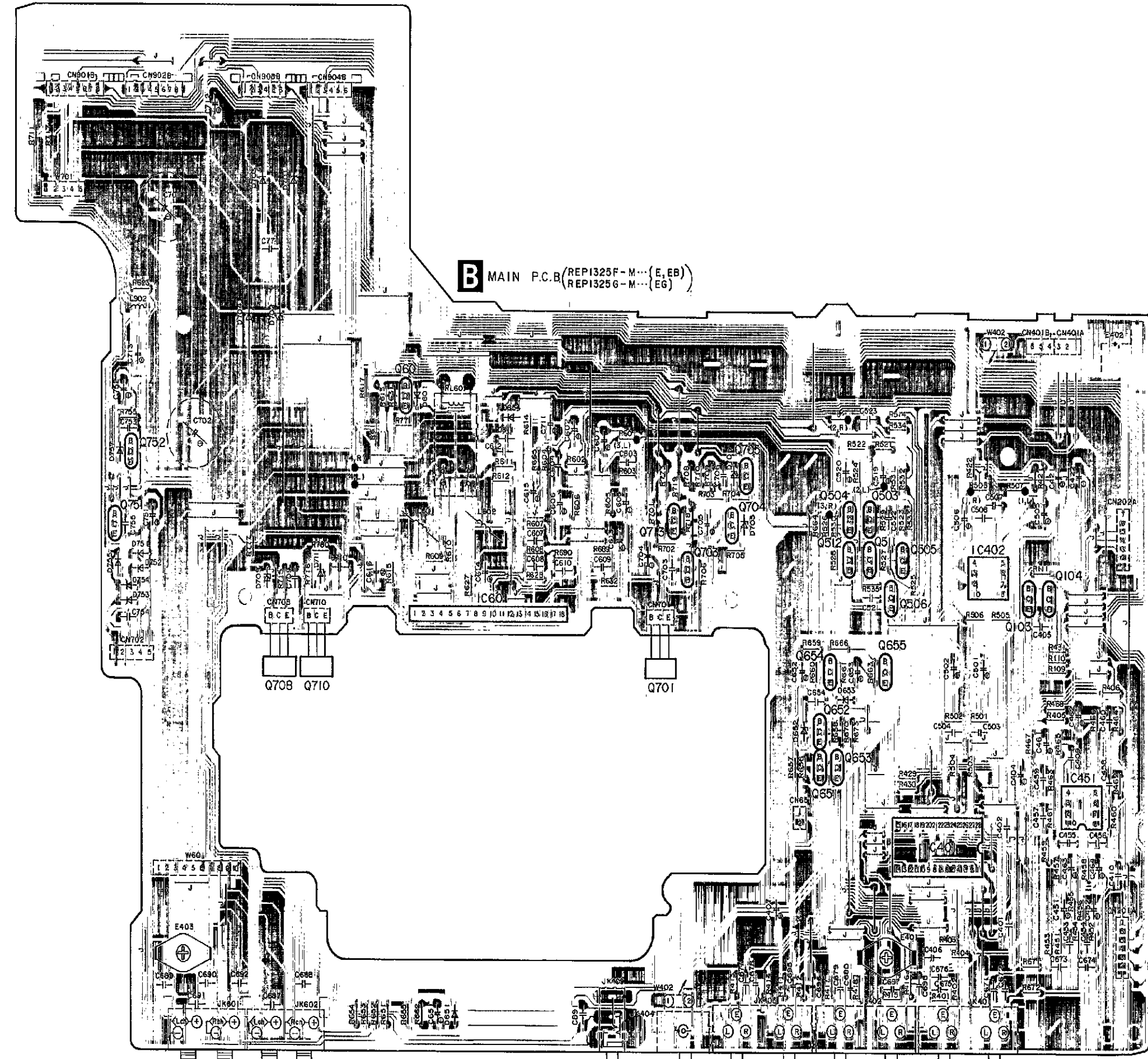
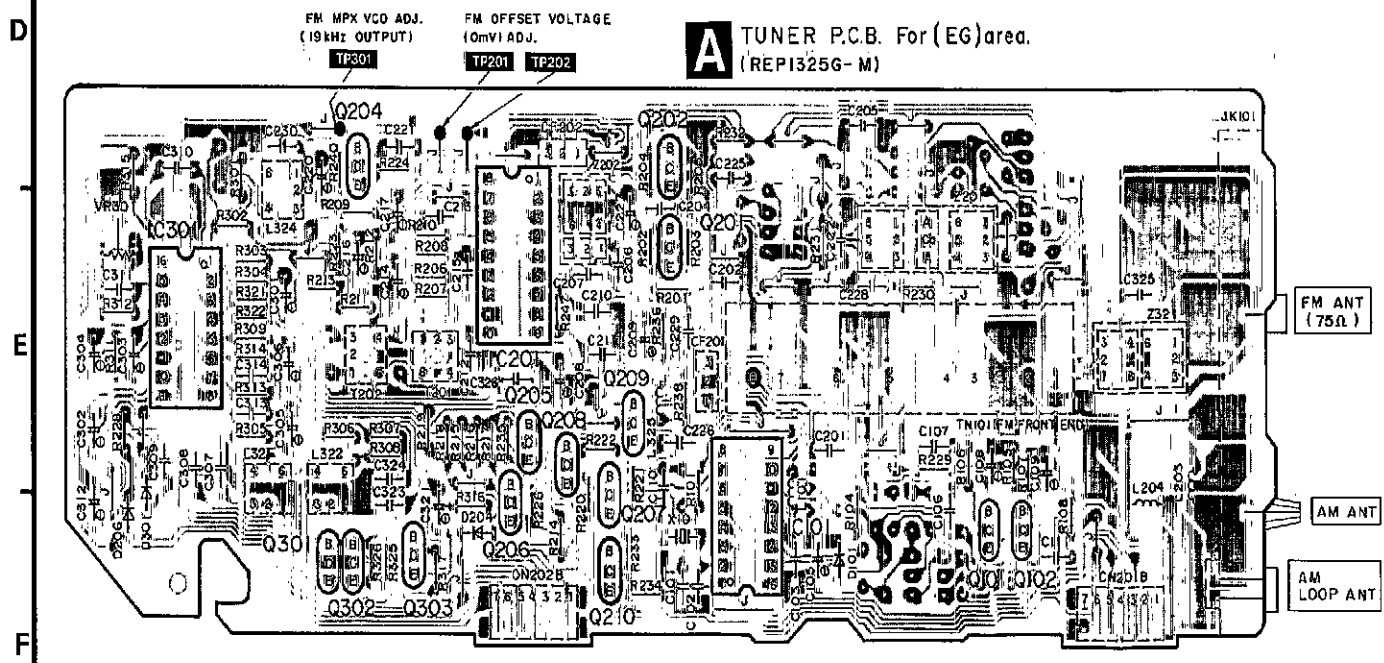
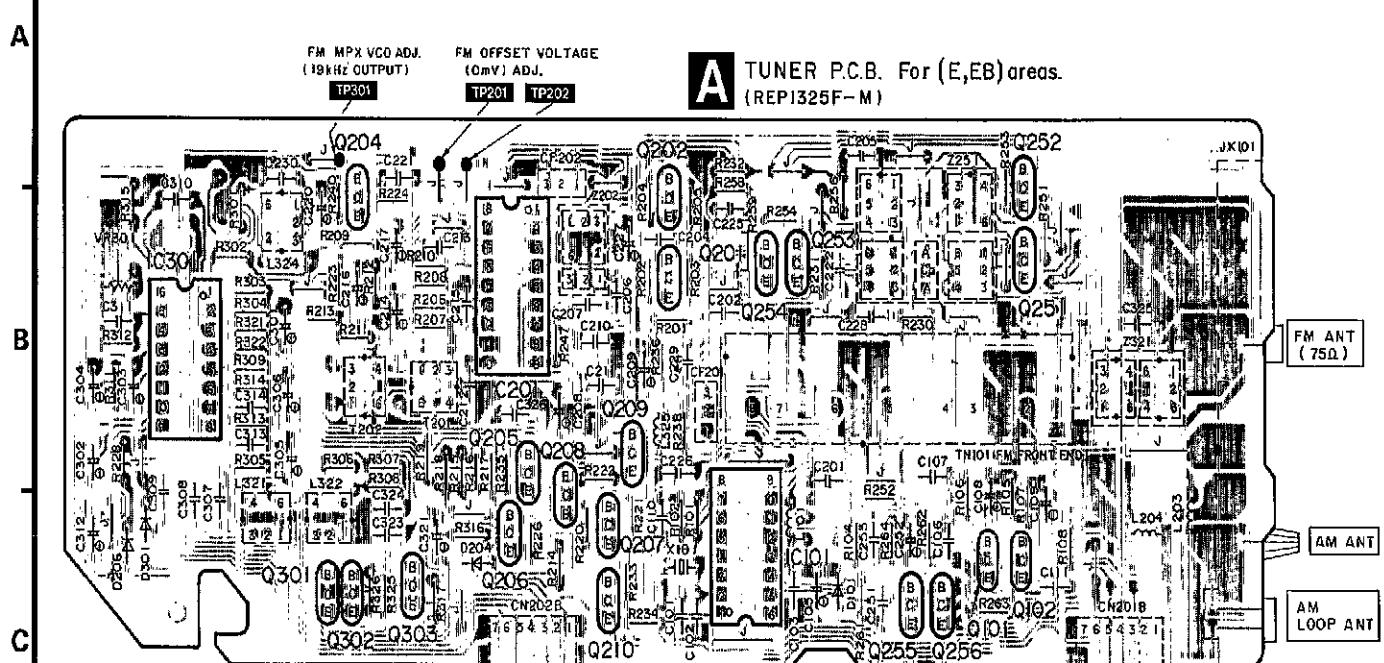
F TONE CONTROL CIRCUIT



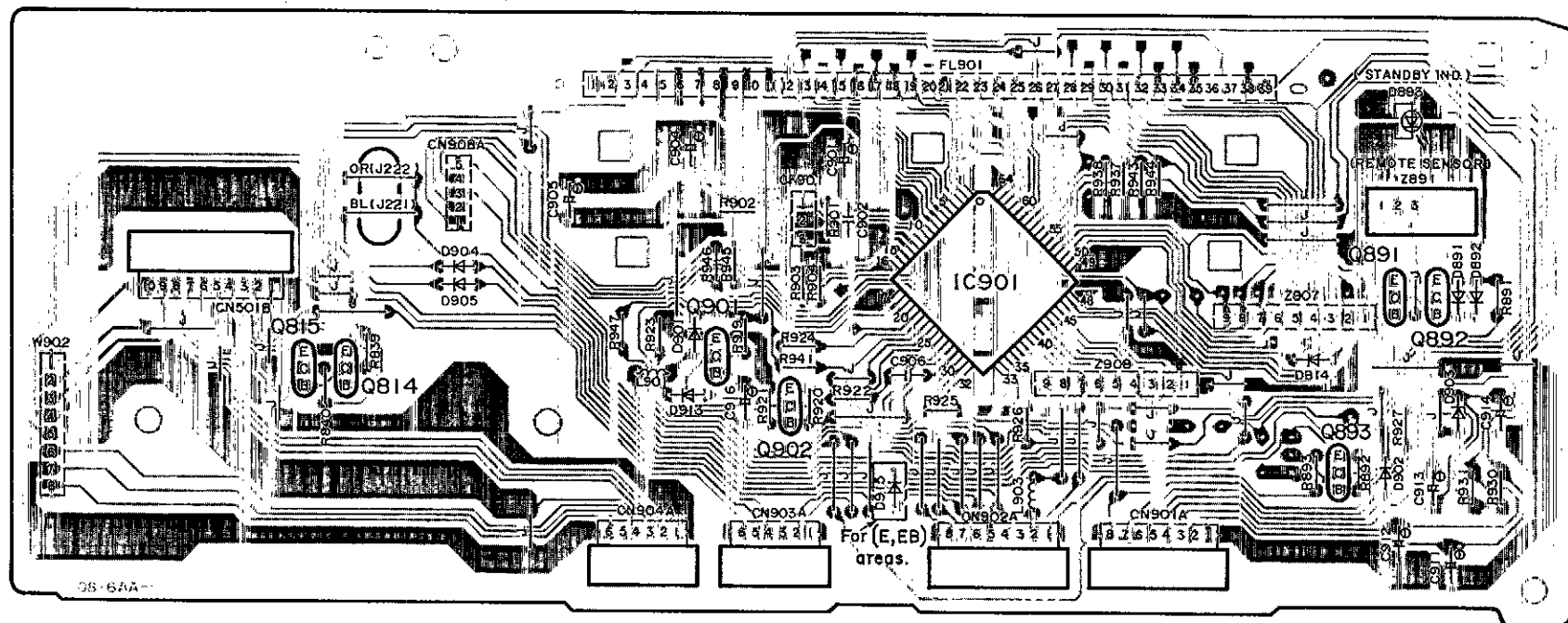
H VOLUME CIRCUIT



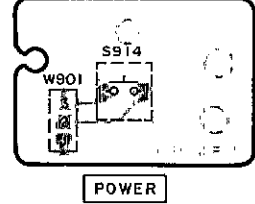
■ PRINTED CIRCUIT BOARDS



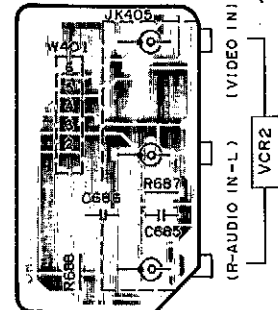
**D** FL DRIVE P.C.B. (REPI326E-S... (E,EB)  
REPI326F-S... (EG))



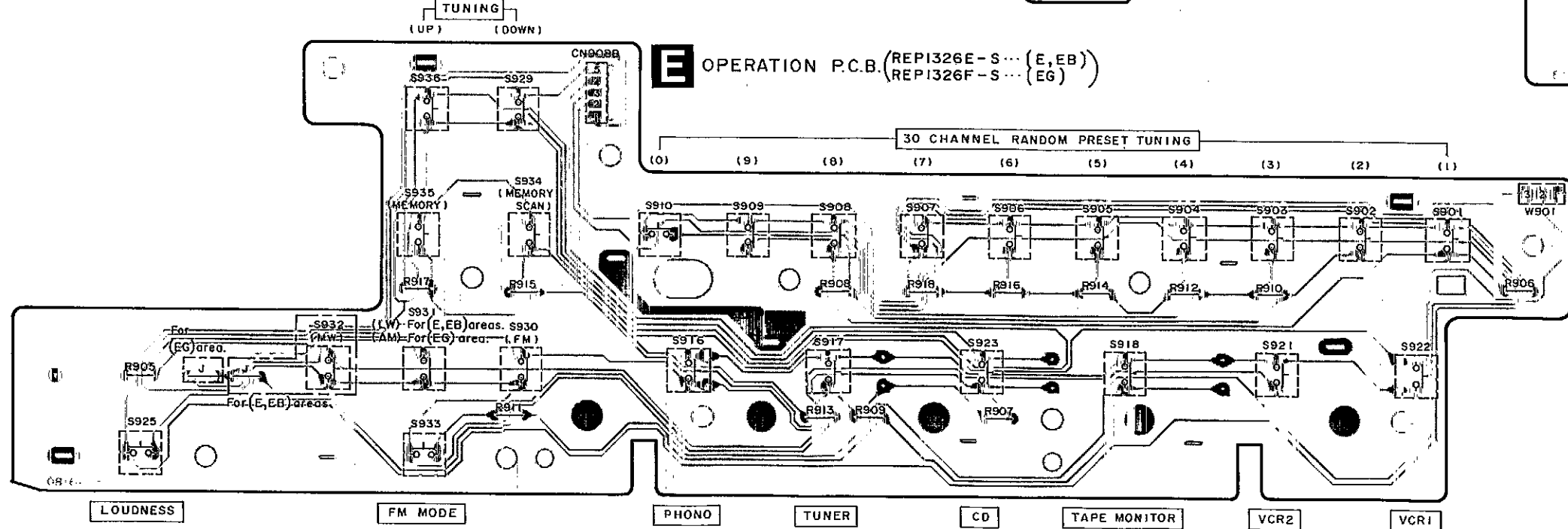
**G** POWER SWITCH P.C.B. (REPI326E-S... (E,EB)  
REPI326F-S... (EG))



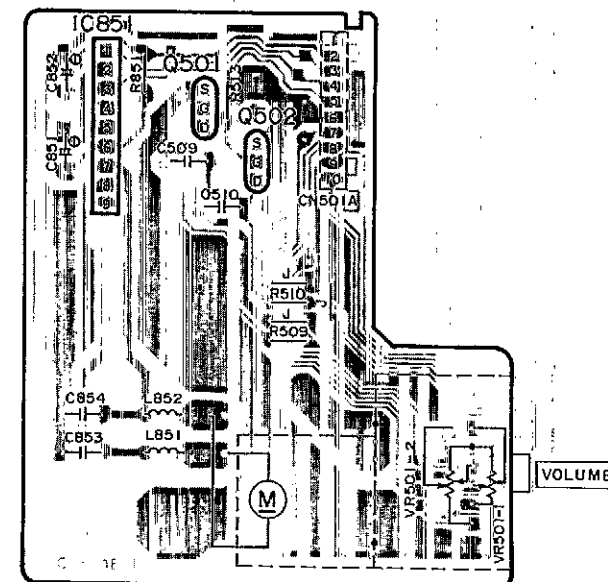
**C** VCR2 P.C.B. (REPI325F-M... (E,EB)  
REPI325G-M... (EG))



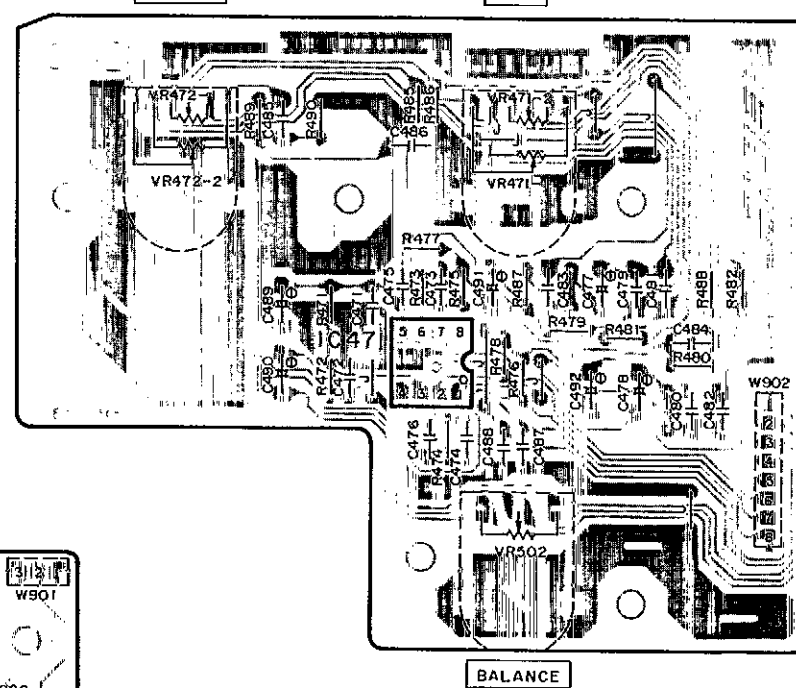
**E** OPERATION P.C.B. (REPI326E-S... (E,EB)  
REPI326F-S... (EG))



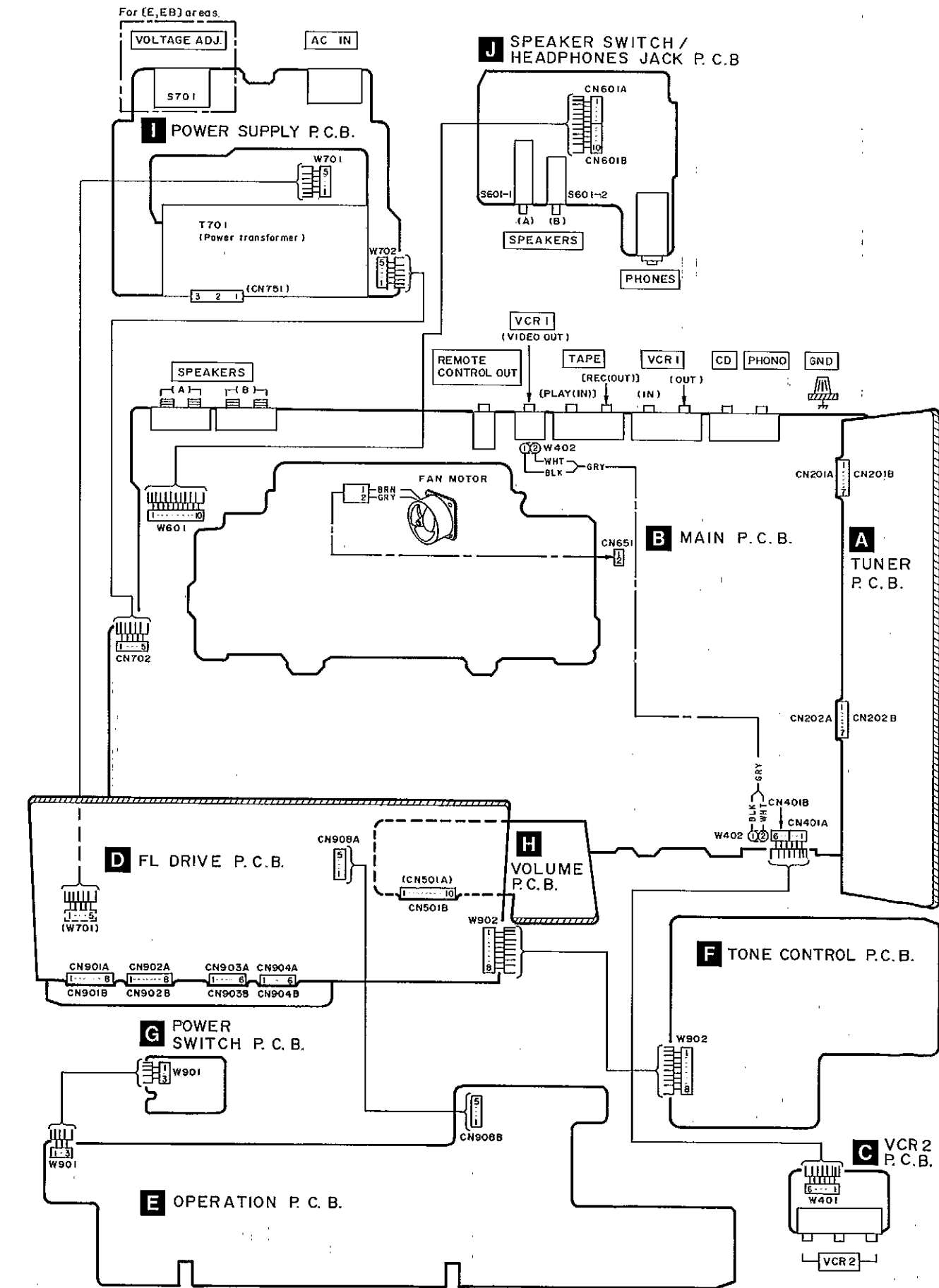
**H** VOLUME P.C.B. (REPI326E-S... (E,EB)  
REPI326F-S... (EG))



**F** TONE CONTROL P.C.B. (REPI326E-S... (E,EB)  
REPI326F-S... (EG))



**■ WIRING CONNECTION DIAGRAM**

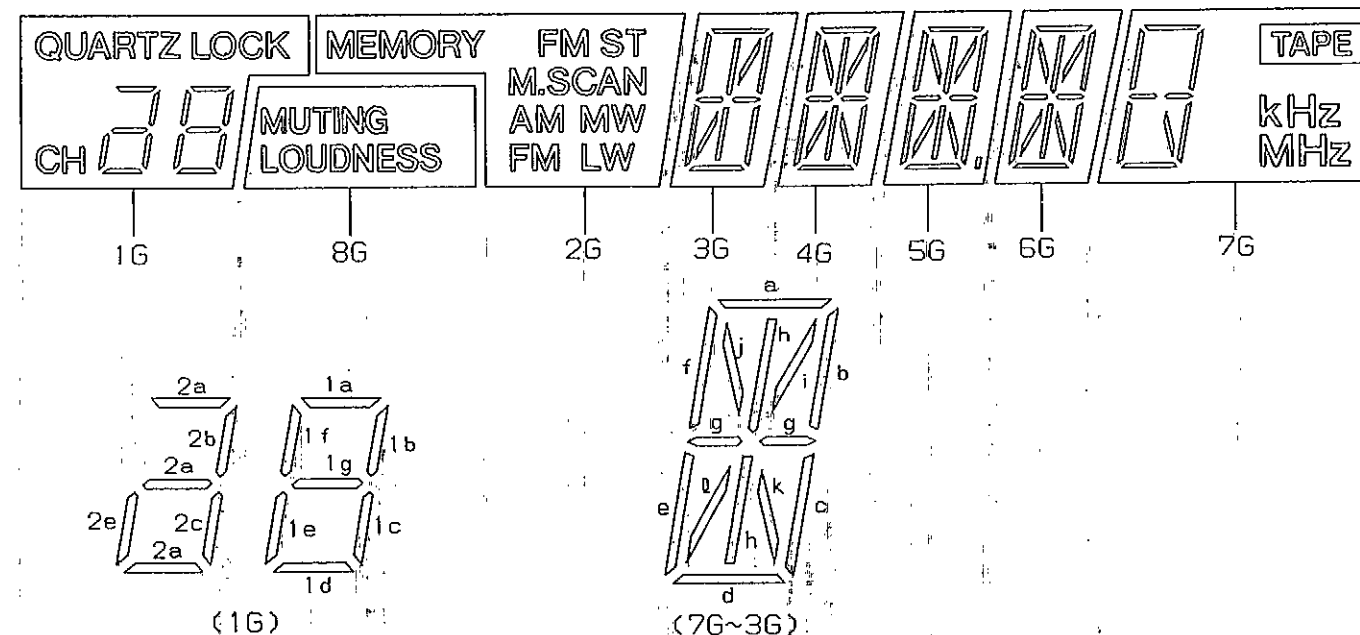


■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

	AN6558F 8 Pin UPC4570C 8 Pin AN7470 16 Pin LM7001 16 Pin AN7273A 18 Pin	M5218AP 	TC9163 
MN187125STV 	BA6218 	SVI3205B 	2SC3940AQSTA 
2SA992EFTA 2SC2631QRSTA 2SB621AQSTA 	UN421FTA UN4113TA UN4211TA UN4214TA 2SA1309AQSTA 2SC2785FETA 2SC2787LTA 	2SC3311AQSTA 2SD1450QRSTA 	
2SA933SQRSTA 2SC1740SQSTA 2SC3327ABTP 	2SJ40CDTA 	2SB1187DEF 2SD1761DEF 	
P300DLF 	MA165TA 1SS291TA 1SR35200TB 	MA4047MTA MA4062MTA MA4068MTA 	MA4160LTA MA4270MTA 
LN846RPH 			

■ INTERNAL CONNECTION OF FL

• Grid connection diagram



• Anode connection table

	1G	2G	3G	4G	5G	6G	7G	8G
P1	1a	-	a	a	a	a	a	-
P 2	2b	-	i, l	j	j	j	-	-
P 3	2c	AM	h	h	h	h	TAPE	-
P 4	2a	MW	-	i	i	i	-	-
P 5	1f	FM	f	f	f	f	f	-
P 6	1b	LW	b	b	b	b	b	-
P 7	1g	-	g	g	g	g	g	-
P 8	1e	-	e	e	e	e	e	-
P 9	1c	M.SCAN	c	c	c	c	c	MUTING
P10	2e	MEMORY	-	l	l	l	kHz	LOUDNESS
P11	1d	-	d	d	d	d	d	-
P12	QUARTZ LOCK	-	-	k	k	k	k	-
P13	CH	FM ST	-	-	l	-	MHz	-

• Pin connection

PIN NO.	3	3	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	9	8	7	6	5	4	3	2	1					
CONNECTION	F	F	N	N	N	N	1	2	3	4	5	6	7	8	N	1	1	1	1	1	1	1	P	P	P	P	P	P	P	N	N	N	N	N	N	N	N	N	N	F	F	F
	2	2	P	P	C	G	G	G	G	G	G	G	G	C	3	2	1	0	9	8	7	6	5	4	3	2	1	C	C	C	C	C	C	C	C	P	P	1	1	1	1	1

NOTE 1) F1, F2 --- Filament  
 2) NP ----- No pin  
 3) NC ----- No connection  
 4) 1G~8G --- Grid

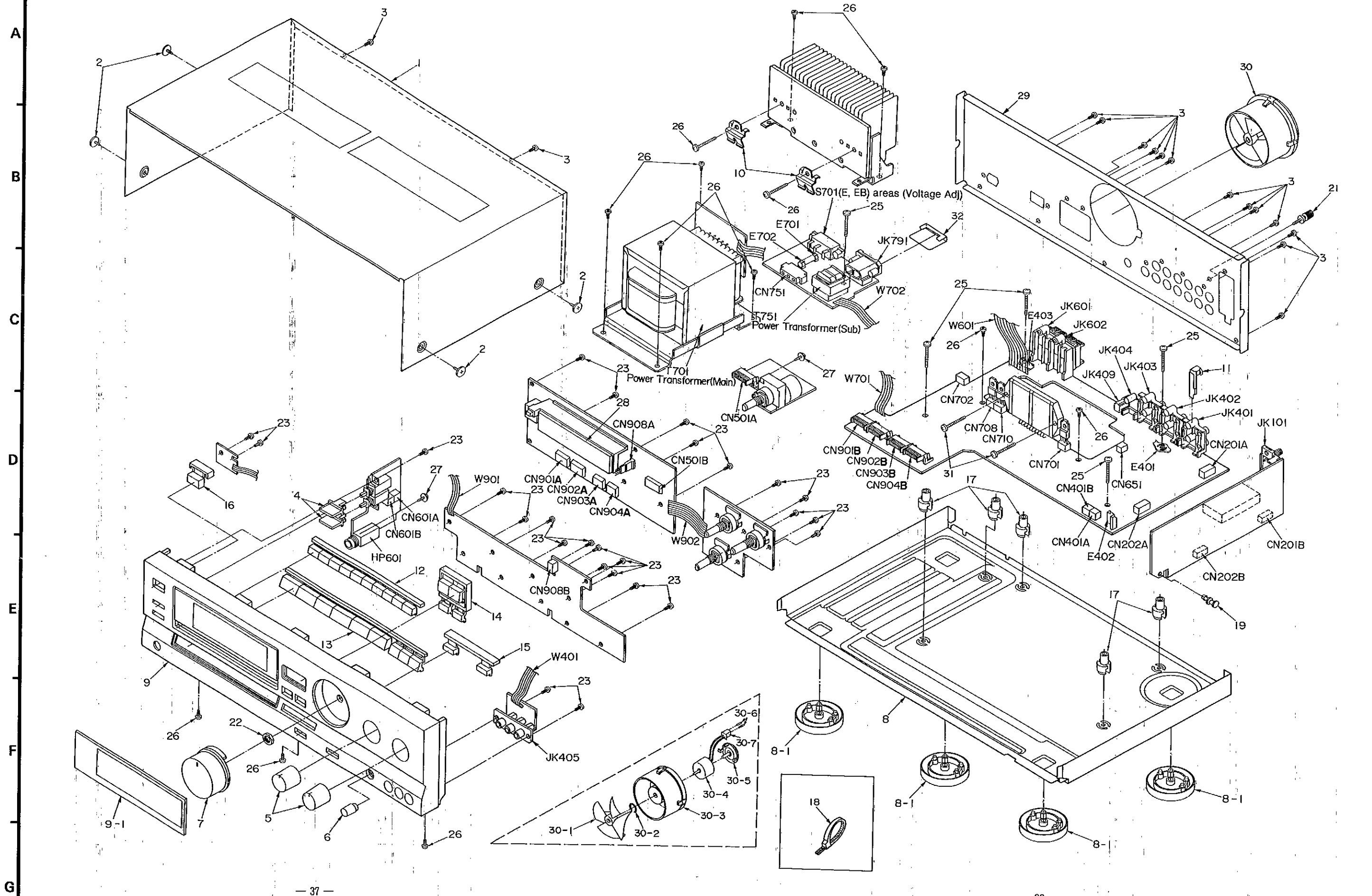
■ TERMINAL FUNCTION OF IC

• IC901 (MN187125STV): Microcomputer

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	S0 S6	O	Segment signal to FL display	31	CE	O	Chip enable terminal
7				DATA1	O	Serial data signal	
8				Vpp	I	Power supply terminal to FL display	
9	Vdd	I	Power supply terminal	33	CK2	-	Serial clock signal Not used, open
10	OSC2	O	Crystal oscillator terminal (4.19MHz)	34	DATA2	-	Serial data signal Not used, open
11	OSC1	I	Crystal oscillator terminal (4.19MHz)	35	DAC STOP/ VIDEO SELECT	-	Video selector control terminal Not used, connected to resistor.
12	Vss	-	GND terminal	36	SYNC	-	Not used, open
13	XI	-	Not used, connected to GND	37	CM	-	Not used, connected to GND
14	XO	-	Not used, open	38	3ST	I	Not used, connected to resistor
15	KEY2	I	Key return signal	39	FM mono	O	Forcible monaural signal
16	KEY1			40	RFM	O	Muting control to tuner circuit
17	SD	I	Received signal detect terminal	41	A	I	Rotary tuning control terminal Not used, connected to resistor.
18	FM ST	I	Stereo signal detect terminal	42	B		
19	F	O	Sense of rotation for volume motor control terminal	43	KS1 KS3	O	Key scan signal
20	R						
21	5-6	-	Not used, open	46	DGT0 DGT7	O	Digit signal to FL display
22	ST3	-	Level shift control terminal Not used, connected to resistor.				
23	REMOTE	I	Remote control terminal	54	INITIAL	I	Serial data detect terminal
24	HOLD	I	Service interruption detect terminal	55	DAC/SUR	-	Muting control signal Not used, connected to resistor.
25	ST1	O	Level shift control terminal	56	LOU	O	Loudness control signal
26	OFF	-	Not used, connected to GND	57	AFM	O	Muting control to amplifier circuit
27	RLY	O	Relay control terminal	58	-20dB	O	Muting control (-20dB) to amplifier circuit
28	ST2	-	Level shift control terminal Not used, connected to resistor.	59	S7 S12	O	Segment signal to FL display
29	RESET	I	Reset detect terminal				
30	CK1	O	Serial clock signal	64			



# CABINET PARTS LOCATION



# REPLACEMENT PARTS LIST

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

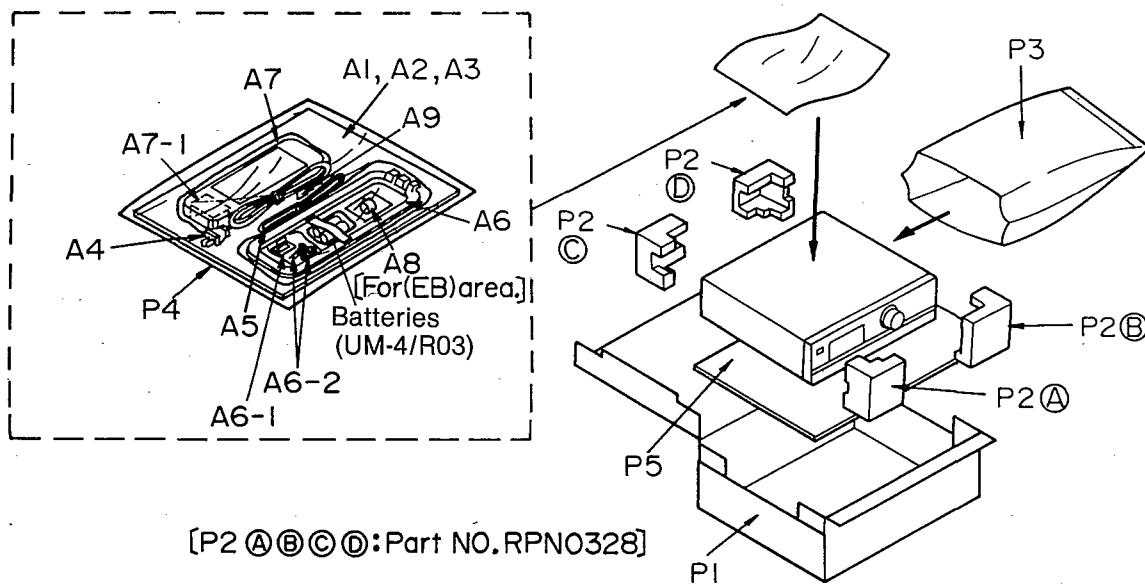
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS		29	RGR0145D-B1	REAR PANEL	
				29	RGR0145E-A	REAR PANEL	
				30	SYE1128-2	COOLING FAN UNIT	
1	RKMD036B-K	CABINET	(K) (E, EB, EG)	30-1	SHE232	COOLING FAN	
1	RKMD036B-S	CABINET	(S) (EG)	30-2	SUS271	SPRING	
2	SNE2129-3	SCREW		30-3	SHE233	COOLING FAN CASE	
3	XTBS3+8JFZ1	SCREW		30-4	MDN-4RB4MRC	MOTOR	
4	RGU0101	BUTTON, SPEAKERS	(K) (E, EB, EG)	30-5	SHE234	COOLING FAN CASE CAP	
4	RGU0101-S	BUTTON, SPEAKERS	(S) (EG)	30-6	SJT783	CONNECTOR TERMINAL	
5	RGW072	KNOB, TONE CONTROLS	(K) (E, EB, EG)	30-7	SJS5215	SOCKET (2P)	
5	RGW072-S	KNOB, TONE CONTROLS	(S) (EG)	31	XTWS+15T	SCREW	
6	RGW073	KNOB, BALANCE	(K) (E, EB, EG)	32	RMZ0204	AC INLET BARRIER	
6	RGW073-S	KNOB, BALANCE	(S) (EG)				
7	RGW084	KNOB, VOLUME	(K) (E, EB, EG)				PACKING MATERIAL
7	RGW084-S	KNOB, VOLUME	(S) (EG)				
8	RFKJAGX500PP	CHASSIS ASS'Y		P1	RP61264	PACKING CASE	
8-1	RKA0009-1	FOOT		P1	RP61311	PACKING CASE	
9	RFKGGX230EK	FRONT PANEL ASS'Y	(K) (E, EB)	P1	RP61333	PACKING CASE	
9	RFKGGX230EGK	FRONT PANEL ASS'Y	(K) (EG)	P2	RP60328	PADS	
9	RFKGGX230EGS	FRONT PANEL ASS'Y	(S) (EG)	P3	XZB52X60A01Z	PROTECTION BAG (UNIT)	
9-1	RKW089C-Q	CLEAR PANEL		P4	XZB24X34C04	PROTECTION BAG (ACCESSORY)	
10	RMCO158	TRANSISTOR HOLDER		P5	RPQ0164	PAD	
11	RSC0105	SHIELD PLATE					ACCESSORIES
12	RGU0344A-K1	BUTTON, PRESET TUNING	(K) (E, EB, EG)	A1	RFKSAGX130EK	INST. MANUAL ASS'Y	
12	RGU0344A-S	BUTTON, PRESET TUNING	(S) (EG)	A1	RQT1550-B	INSTRUCTION MANUAL	
13	RGU0394E-K1	BUTTON, INPUT SELECTOR	(K) (E, EB)	A1	RQT1549-D	INSTRUCTION MANUAL	
13	RGU0394D-S	BUTTON, INPUT SELECTOR	(S) (EG)	A2	RQAO013	WARRANTY CARD	
14	RGU0347-K1	BUTTON, TUNING	(K) (E, EB, EG)	A3	RQCB0169	SERVICENTER LIST	
14	RGU0347-S	BUTTON, TUNING	(S) (EG)	A4	RJAO019-1K	AC POWER SUPPLY CORD	
15	RGU0348A-K1	BUTTON, MODE/LOUDNESS	(K) (E, EB, EG)	A4	SJA193	AC POWER SUPPLY CORD	
15	RGU0348A-S	BUTTON, MODE/LOUDNESS	(S) (EG)	A5	RSAD007	FM INDOOR ANTENNA	
16	RGU0380	BUTTON, POWER	(K) (E, EB, EG)	A6	SPB1163T	AM LOOP ANTENNA	
16	RGU0380-S	BUTTON, POWER	(S) (EG)	A6-1	SMA231M	AM ANTENNA HOLDER	
17	SHE187-2	P. C. B. SUPPORT		A6-2	XTN3+10AFZ	SCREW	
18	SHR301	FASTNER		A7	RAK-SA302E	REMOTE CONTROL TRANSMITTER	
19	SHR8006	SPACER		A7-1	RKND020-K	BATTERY COVER	
21	SNE2123	GND TERMINAL		A8	SJP9009	AC PLUG ADAPTOR	
22	XNS7FZ	MUT		A9	RQLAO134	VOLTAGE CAUTION LABEL	
23	XTBS26+8J	SCREW					
25	XTB3+20JFZ	SCREW					
26	XTB3+8JFZ	SCREW					
27	XTWS3+10Q	SCREW					
28	RMNO170	FL HOLDER					
29	RGR0145D-A1	REAR PANEL	(E)				



Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R453, 454	ERDS2TJ224T	1/4W 220K	R658	ERDS2TJ223	1/4W 22K	R937	ERDS2TJ103	1/4W 10K
R455, 456	ERDS2TJ563	1/4W 56K	R659	ERDS2TJ222	1/4W 2.2K	R938	ERDS2TJ104	1/4W 100K
R457, 458	ERDS2TJ271	1/4W 270	R660	ERDS2TJ103	1/4W 10K	R941	ERDS2TJ103	1/4W 10K
R459, 460	ERDS2TJ680T	1/4W 68	R661	ERDS2TJ333	1/4W 33K	R943, 944	ERDS2TJ104	1/4W 100K
R461, 462	ERDS2TJ184T	1/4W 180K	R662	ERDS2TJ104	1/4W 100K	R945-947	ERDS2TJ331	1/4W 330
R463, 464	ERDS2TJ123	1/4W 12K	R663	ERDS2TJ153	1/4W 15K			
R465, 466	ERDS2TJ563	1/4W 56K	R664, 665	ERDS2TJ103	1/4W 10K			CAPACITORS
R467, 468	ERDS2TJ102	1/4W 1K	R666	ERDS2TJ333	1/4W 33K			
R471, 472	ERDS2TJ104	1/4W 100K	R670	ERDS1FVJ390T	1/2W 39 Δ	C101, 102	ECBT1H150JC5	50V 15P
R473, 474	ERDS2TJ474	1/4W 470K	R671, 672	ERDS2TJ471	1/4W 470	C103	ECBT1H102KB5	50V 1000P
R475, 476	ERDS2TJ182	1/4W 1.8K	R673	ERDS2TJ332	1/4W 3.3K	C105	ECEAJU221	6.3V 220U
R477, 478	ERDS2TJ392T	1/4W 3.9K	R687, 688	ERDS2TJ102	1/4W 1K	C106	ECKR1H103ZF5	50V 0.01U
R479, 480	ERDS2TJ223	1/4W 22K	R689, 690	ERDS2TJ221	1/4W 220	C107	ECKT1H223ZF	50V 0.022U
R481, 482	ERDS2TJ332	1/4W 3.3K	R701	ERDS1FVJ332T	1/2W 3.3K Δ	C108	ECEA1EKA4R7B	25V 4.7U
R485, 486	ERDS2TJ223	1/4W 22K	R702	ERDS2TJ122	1/4W 1.2K	C109	ECEA1CU330	16V 33U
R487, 488	ERDS2TJ122	1/4W 1.2K	R703	ERDS2TJ272T	1/4W 2.7K	C110, 111	ECBT1H102KB5	50V 1000P
R489, 490	ERDS2TJ821	1/4W 820	R704	ERDS2TJ222	1/4W 2.2K	C201, 202	ECKR1H103ZF5	50V 0.01U
R501, 502	ERDS2TJ104	1/4W 100K	R705	ERDS2TJ272T	1/4W 2.7K Δ	C204	ECBT1H470J5	50V 47P
R503, 504	ERDS2TJ102	1/4W 1K	R706	ERDS2TJ102	1/4W 1K Δ	C205	ECKT1H223ZF	50V 0.022U
R505-508	ERDS2TJ104	1/4W 100K	R708, 709	ERDS1FVJ180T	1/2W 18 Δ	C206	ECBT1H150JC5	50V 15P
R509, 510	ERDS2TJ103	1/4W 10K	R710	ERDS2TJ272T	1/4W 2.7K	C207	ECBT1C103MS5	16V 0.01U
R513	ERDS2TJ153	1/4W 15K	R711	ERDS1FJ270	1/2W 27 Δ	C208	ECEAJU101B	6.3V 100U
R514	ERDS2TJ394	1/4W 390K	R715	ERDS2TJ103	1/4W 10K Δ	C209	ECEA1HKA100B	50V 10U
R521, 522	ERDS2TJ104	1/4W 100K	R716	ERDS2TJ222	1/4W 2.2K	C210-212	ECKT1H223ZF	50V 0.022U
R523, 524	ERDS2TJ222	1/4W 2.2K	R717	ERD25FVJ150T	1/4W 15 Δ	C213	ECBT1H101KB5	50V 100P
R525, 526	ERDS2TJ221	1/4W 220	R718, 719	ERDS2TJ1R5T	1/4W 1.5 Δ	C214	ECEA1CKA100B	16V 10U
R527-530	ERDS2TJ102	1/4W 1K	R755	ERDS2TJ102	1/4W 1K	C215	ECKR1H103ZF5	50V 0.01U
R531	ERDS2TJ394	1/4W 390K	R771	ERDS1FVJ2R2T	1/2W 2.2 Δ	C216	ECEA1CKA100B	16V 10U
R532	ERDS2TJ103	1/4W 10K	R773	ERDS1FVJ6R8T	1/2W 6.8 Δ	C217	ECEA1HKA010B	50V 1U
R533	ERDS2TJ104	1/4W 100K	R777	ERDS1FJ270	1/2W 27 Δ	C220	ECEA1CKA100B	16V 10U
R534	ERDS2TJ103	1/4W 10K	R780	ERDS1FVJ4R7T	1/2W 4.7 Δ	C221	ECFR1E183KR	25V 0.018U
R535	ERDS2TJ104	1/4W 100K	R839, 840	ERDS2TJ153	1/4W 15K	C222	ECQB1H473KF3	50V 0.047U
R601, 602	ERDS2TJ102	1/4W 1K	R851	ERDS1FVJ2R2T	1/2W 2.2 Δ	C225	ECBT1H180JC5	50V 18P
R603, 604	ERDS2TJ563	1/4W 56K	R891, 892	ERDS2TJ102	1/4W 1K	C226	ECKR1H103ZF5	50V 0.01U
R605, 606	ERDS2TJ332	1/4W 3.3K	R893	ERDS2TJ472	1/4W 4.7K	C227	ECEA1CKA100B	16V 10U
R607, 608	ERDS2TJ563	1/4W 56K	R901	ERDS2TJ102	1/4W 1K	C228	ECBT1H8R2KC5	50V 8.2P (E, EB)
R609, 610	ERDS2TJ470	1/4W 47	R902	ERDS2TJ681	1/4W 680	C228	ECBT1H100JC5	50V 10P (EG)
R611, 612	ERDS1FVJ100T	1/2W 10 Δ	R903, 904	ERDS2TJ103	1/4W 10K	C229	ECBT1H102KB5	50V 1000P
R613	ERDS2TJ223	1/4W 22K	R905, 906	ERDS2TJ102	1/4W 1K	C230	ECBT1H471KB5	50V 470P
R614	ERD25FJ470	1/4W 47 Δ	R907, 908	ERDS2TJ182	1/4W 1.8K	C251	ECBT1E223ZF	25V 0.022U (E, EB)
R615	ERDS2TJ473	1/4W 47K Δ	R909, 910	ERDS2TJ222	1/4W 2.2K	C252	ECEA1HKA010B	50V 1U (E, EB)
R616, 617	ERDS1FVJ471T	1/2W 470 Δ	R911, 912	ERDS2TJ392T	1/4W 3.9K	C253	ECKT1H223ZF	50V 0.022U (E, EB)
R619, 620	ERG2SJ331P	2W 330	R913, 914	ERDS2TJ562	1/4W 5.6K	C301	ECA1CM101B	16V 100U
R623	ERDS2TJ684	1/4W 680K Δ	R915, 916	ERDS2TJ123	1/4W 12K	C302	ECEA1HKA47B	50V 0.47U
R627	ERDS2TJ154	1/4W 150K Δ	R917, 918	ERDS2TJ273	1/4W 27K	C303	ECEA1HKA010B	50V 1U
R628	ERDS2TJ684	1/4W 680K	R919	ERDS2TJ224T	1/4W 220K	C304-306	ECEA1HKA3R3B	50V 3.3U
R631	ERDS2TJ103	1/4W 10K	R920	ERDS2TJ222	1/4W 2.2K	C307, 308	ECFR1E392KR	25V 3900P
R632	ERD25FJ101	1/4W 100 Δ	R921	ERDS2TJ103	1/4W 10K	C309	ECKT1H223ZF	50V 0.022U
R651-654	ERDS2TJ223	1/4W 22K	R922, 923	ERDS2TJ472	1/4W 4.7K	C310	ECFR1E473KR	25V 0.047U
R655	ERDS2TJ682T	1/4W 6.8K	R924-926	ERDS2TJ104	1/4W 100K	C311	ECQP1471JZ	50V 470P
R656	ERDS2TJ103	1/4W 10K	R927	ERDS2TJ181T	1/4W 180	C312	ECEA1EKA4R7B	25V 4.7U
R657	ERDS2TJ220T	1/4W 22	R930, 931	ERD25FJ101	1/4W 100 Δ	C313, 314	ECBT1H102KB5	50V 1000P

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C321	ECEA1CKA100B	16V 10U	C507, 508	ECBT1E103ZF	25V 0.01U	C697, 698	ECBT1H101KB5	50V 100P
C323, 324	ECFR1E332KR	25V 3300P	C509, 510	ECFR1E333KR	25V 0.033U	C701, 702	ECES1HV822UM	50V. 8200P Δ
C325	ECBT1H330J5	50V 33P	C519, 520	ECEA1EKA4R7B	25V 4.7U	C703	ECKR1H103ZF5	50V 0.01U
C326	ECKR1H103ZF5	50V 0.01U	C521-523	ECBT1E103ZF	25V 0.01U	C704	ECA1VM101B	35V 100U
C401, 402	ECBT1E103ZF	25V 0.01U	C601, 602	ECEA1EKA4R7B	25V 4.7U	C705	ECA1CM101B	16V 100U
C404	ECEA1HKA010B	50V 1U	C603, 604	ECBT1H271KB5	50V 270P	C706	ECKR1H103ZF5	50V 0.01U
C405, 406	ECBT1H101KB5	50V 100P	C605, 606	ECEA1CKA220B	16V 22U	C709	ECKR1H103ZF5	50V 0.01U Δ
C407	ECEAOJU101B	6.3V 100U	C607, 608	ECCD1H150KC	50V 15P	C710	ECKR1H103ZF5	50V 0.01U
C409, 410	ECBT1E103ZF	25V 0.01U	C609, 610	ECBT1H821KB5	50V 820P	C711	ECA1CM101B	16V 100U
C421, 422	ECEA1CKA220B	16V 22U	C611, 612	ECFR1E223KR	25V 0.022U	C712	ECEA1VJ470	35V 47U
C451, 452	ECEA1EKA4R7B	25V 4.7U	C613	ECEA1VJ470	35V 47U	C713	ECEA1AU101	10V 100U
C453, 454	ECBT1H101KB5	50V 100P	C614	ECEA1HJ330	50V 33U	C751	ECA1EM102E	25V 1000U
C455, 456	ECBT1H102KB5	50V 1000P	C615	ECEA2AU100	100V 10U	C752	ECEA1CU470	16V 47U
C457, 458	ECFR1E223KR	25V 0.022U	C616	ECEA2AN2RSB	100V 2.2U Δ	C753	ECBT1E103ZF	25V 0.01U
C459, 460	ECFR1E682KR	25V 6800P	C651	ECEA1HKA2R2B	50V 2.2U	C754	ECKR1H103ZF5	50V 0.01U Δ
C461, 462	ECEA1EKA4R7B	25V 4.7U	C652	ECEA1CKA100B	16V 10U	C755	ECBT1E103ZF	25V 0.01U
C463, 464	ECEA1AKA330B	10V 33U	C653	ECEAOJU221	6.3V 220U	C771	ECQE2104KF3	250V 0.1U Δ
C471, 472	ECBT1H150JC5	50V 15P	C654	ECKT1H223ZF	50V 0.022U	C791	ECKWNS103ZVS	500V 0.01U Δ
C473, 474	ECBT1H101KB5	50V 100P	C671, 672	ECBT1H180JC5	50V 18P	C851, 852	ECEAOJU101B	6.3V 100U
C475, 476	ECBT1H221KB5	50V 220P	C673, 674	ECBT1H221KB5	50V 220P	C853, 854	ECFR1E104KR	25V 0.1U
C477, 478	ECEA1CKA100B	16V 10U	C675, 676	ECBT1H101KB5	50V 100P	C891	ECFR1E392KR	25V 3900P
C479, 480	ECFR1E123KR	25V 0.012U	C677, 678	ECBT1H331KB5	50V 330P	C901	ECEAOJU102	6.3V 1000U
C481, 482	ECFR1E683KR	25V 0.068U	C679, 680	ECBT1H101KB5	50V 100P	C902	ECBT1E103ZF	25V 0.01U
C483, 484	ECFR1E562KR	25V 5600P	C685, 686	ECBT1H101KB5	50V 100P	C904, 905	ECEAOJU102	6.3V 1000U
C485, 486	ECFR1E273KR	25V 0.027U	C687, 688	ECKR1H103ZF5	50V 0.01U	C906	ECBT1E103ZF	25V 0.01U
C487, 488	ECBT1E103ZF	25V 0.01U	C689, 690	ECKT1H101KB	50V 100P	C911, 912	ECEA2AU100	100V 10U Δ
C489-492	ECEA1CKA100B	16V 10U	C691, 692	ECKR1H103ZF5	50V 0.01U	C913	ECEA1HKA100B	50V 10U
C501, 502	ECEA1EKA4R7B	25V 4.7U	C693, 694	ECBT1H331KB5	50V 330P (E, EB)	C914	ECEA1HKA100B	50V 10U Δ
C503, 504	ECBT1H101KB5	50V 100P	C693, 694	ECKR1H331KB5	50V 330U (EG)	C916	ECEA1HKA010B	50V 1U
C505, 506	ECEA1EKA4R7B	25V 4.7U	C695, 696	ECBT1H331KB5	50V 330U (E, EB)			

■ PACKAGING



[P2 (A) (B) (C) (D): Part NO. RPN0328]