

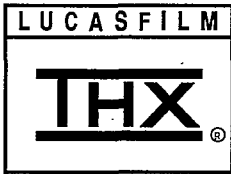
# Service Manual

Receiver

Home THX control receiver -



SA-TX50



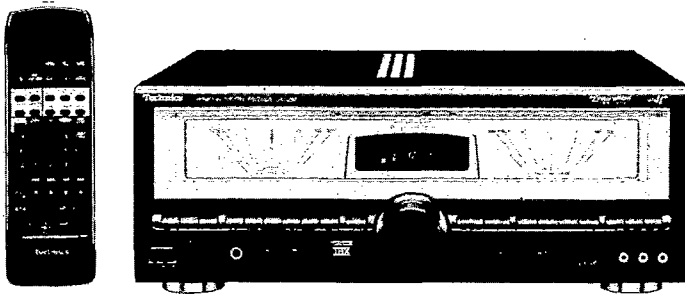
Manufactured under license from Lucasfilm Ltd. U.S. patent numbers 5,043,970; 5,189,703; and 5,222,059. Foreign patents pending. Lucasfilm, THX and Home THX Cinema are registered trademarks of Lucasfilm Ltd.

Colour

(B)...Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe.	(K)
(EB)	Great Britain.	
(EG)	Germany and Italy.	
(GU)	Asia, Middle Near East and Africa, Latin America, .	
(GN)	Oceania.	



## Specifications (DIN 45 500)

### ■ POWER AMPLIFIER SECTION

(POWER AMPLIFIER INPUT)

Power output

DIN 1 kHz (T.H.D. 1%)  $2 \times 130 \text{ W (6 } \Omega)$ 20 Hz–20 kHz continuous power output both channels driven  $2 \times 125 \text{ W (6 } \Omega)$ 

Total harmonic distortion

rated power at 20 Hz–20 kHz 0.05% (6  $\Omega$ )half power at 1 kHz 0.03% (6  $\Omega$ )

Power output at the Dolby Pro Logic operation

DIN 1 kHz (T.H.D. 1%)

Front  $2 \times 120 \text{ W (6 } \Omega)$ Center 120 W (6  $\Omega$ )Surround  $2 \times 100 \text{ W (6 } \Omega)$ 

Intermodulation distortion

rated power at 60 Hz: 7 kHz=4:1, SMPTE 0.3% (8  $\Omega$ )Damping factor 25 (6  $\Omega$ )

Load impedance

Front

A or B 4–16  $\Omega$ A and B 8–16  $\Omega$ Center 4–16  $\Omega$ Surround 4–16  $\Omega$ 

### ■ PRE AMPLIFIER SECTION

Frequency response

CD, TAPE, VCR 1, VCR 2, VCR 3, VDP, VDP6CH, TV 20 Hz–20 kHz,  $\pm 1 \text{ dB}$ 

Input sensitivity and impedance

CD, TAPE, VCR 1, VCR 2, VCR 3, VDP, VDP6CH, TV 300 mV/34 k $\Omega$ S/N at rated power (6  $\Omega$ )

CD, TAPE, VCR 1, VCR 2, VCR 3, VDP, VDP6CH, TV 70 dB

Tone controls

BASS 50 Hz, +10 to –10 dB

TREBLE 20 kHz, +10 to –10 dB

\* Manufactured under license from Dolby Laboratories Licensing Corporation. Additionally licensed under one or more of the following patents: U.S. numbers 3,632,886, 3,756,792 and 3,959,590; Canada numbers 1,004,603 and 1,037,877.

"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

### ■ FM TUNER SECTION

Frequency range 87.50–108.00 MHz

Sensitivity

S/N 30 dB 1.5  $\mu\text{V/75 } \Omega$ S/N 26 dB 1.3  $\mu\text{V/75 } \Omega$ S/N 20 dB 1.2  $\mu\text{V/75 } \Omega$ IHF usable sensitivity 1.5  $\mu\text{V/75 } \Omega$  (IHF '58)

IHF 46 dB stereo quieting sensitivity

22  $\mu\text{V/75 } \Omega$ 

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

Alternate channel selectivity

 $\pm 400 \text{ kHz}$  65 dB

Capture ratio 1 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

Carrier leak

19 kHz –30 dB (–35 dB, IHF)

38 kHz –50 dB (–55 dB, IHF)

Channel balance (250 Hz–6.3 kHz)  $\pm 1.5 \text{ dB}$ Limiting point 1.2  $\mu\text{V}$ 

Bandwidth

IF amplifier 180 kHz

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**⚠ WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

**FM demodulator** 1000 kHz  
**Antenna terminal(s)** 75 Ω (unbalanced)

**Image rejection at 999 kHz** 40 dB  
**IF rejection at 999 kHz** 55 dB

**■ AM TUNER SECTION**

For (E, EB) areas.

**Frequency range**  
**MW** 522–1611 kHz (9 kHz steps)  
 530–1620 kHz (10 kHz steps)  
**LW** 144–288 kHz

**Sensitivity**  
**MW** 20 μV, 330 μV/m  
**LW** 45 μV

**Selectivity**  
**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, GU, GN) areas.

**Frequency range**  
 522–1611 kHz (9 kHz steps)  
 530–1620 kHz (10 kHz steps)

**Sensitivity** 20 μV, 330 μV/m  
**Selectivity at 999 kHz** 55 dB

**■ VIDEO SECTION**

**Output voltage at 1 V input (unbalanced)** 1 ±0.1 V<sub>p-p</sub>  
**Maximum input voltage** 1.5 V<sub>p-p</sub>  
**Input/output impedance** 75 Ω (unbalanced)

**■ GENERAL**

**Power supply**  
 For (EB, GN) areas. AC 50 Hz, 230–240 V  
 For (E, EG, GU) areas. AC 50 Hz, 230 V  
**Power consumption** 330 W  
**Dimensions (W×H×D)** 430×170×375 mm  
**Weight** 12.0 kg

**■ REMOTE CONTROL TRANSMITTER**

**Control keys** 57 keys  
**Dimensions (W×H×D)** 70×28×215 mm  
**Weight (including batteries)** 160 g  
**Power source** Two UM-4 / "AAA"  
 (Panasonic R03 / LR03 or equivalent)

**Notes:**

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

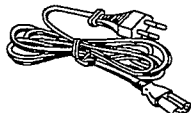
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**■ Accessories**

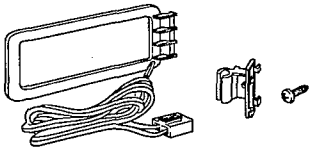
- AC power supply cord .....1 pc. (RJA0019-2K): For (E, EG, GU) areas.
- AM loop antenna set (RSA0010) .....1 pc.
  - AM antenna holder (RMN0244).....1 pc.
  - Screw (XTN3+12AFZ).....1 pc.
- Attachment plug (SJP9009) .....1 pc. For (EB) area only.



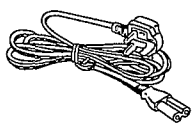
(RJA0049-K)  
: For (EB) area.



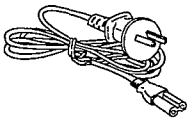
(RJA0035-K)  
: For (GN) area.



Antenna plug (RFE0014) .....1 pc. For (GU, GN) areas.



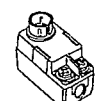
FM indoor antenna (RSA0007) .....1 pc.



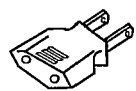
Remote control transmitter (RAK-SA610WH) ..... 1 pc.  
 Batteries for remote control transmitter .....2 pcs. (UM-4, "AAA", R03)



Note: These are available on sales route.



Power plug adaptor (RFE0028) .....1 pc. For (GU) area only.



## ■ Cautions for AC Mains Lead



### ( For (EB) area only. )

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local dealer.

### CAUTION!

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt please consult a qualified electrician.

### IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral, Brown: Live.

As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.

The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

(For (EG, GU, GN) areas.

THIS TUNER/RECEIVER IS CAPABLE OF RECEIVING THE NEW AM STEREO BROADCASTS FROM THE AM BAND RADIO STATIONS. HOWEVER LIKE MANY TUNERS AND RECEIVERS CURRENTLY AVAILABLE ON THE MARKET IT WILL REPRODUCE THIS AM STEREO SIGNAL ONLY IN AM MONO, WHICH, IN EFFECT, IS OF NO LESSER QUALITY THAN YOUR EXISTING AM MONO TUNER/RECEIVER.

**WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL  $\perp$  OR COLOURED GREEN OR GREEN/YELLOW.**

**THIS PLUG IS NOT WATERPROOF—KEEP DRY.**

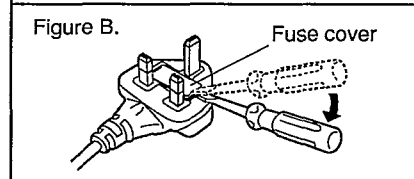
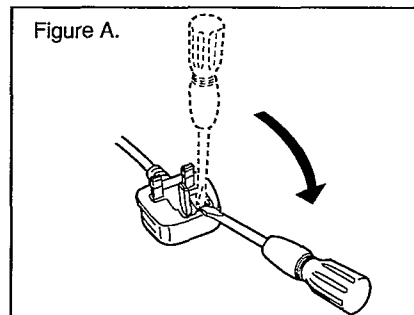
### Before use

Remove the connector cover.

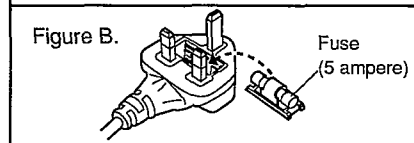
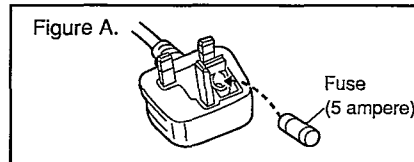
### How to replace the fuse

The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below. Illustrations may differ from actual AC mains plug.

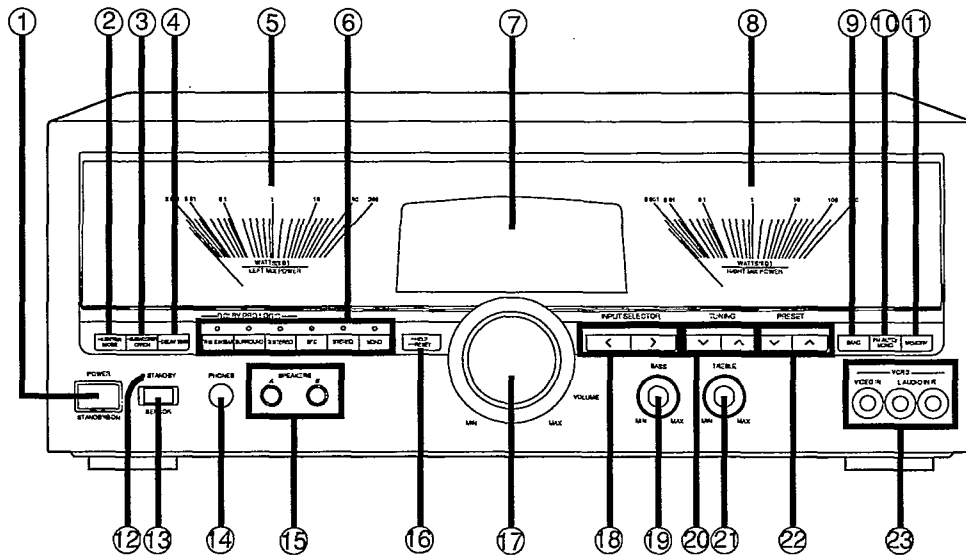
1. Open the fuse cover with a screwdriver.



2. Replace the fuse and close or attach the fuse cover.



## ■ Front Panel Controls



No.	Name
①	Power "STANDBY  /ON" switch (POWER, STANDBY  /ON) Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.
②	Center mode select button (-CENTER MODE)
③	Subwoofer OFF/ON button (-SUBWOOFER OFF/ON)
④	Delay time adjust button (-DELAY TIME)
⑤	Left channel power meter (LEFT MIX POWER)
⑥	Playback mode select buttons/indicators
⑦	Display
⑧	Right channel power meter (RIGHT MIX POWER)
⑨	Band select button (BAND)
⑩	FM mode select button (FM AUTO/MONO)
⑪	Memory button (MEMORY)
⑫	"STANDBY" indicator (STANDBY) When the unit is connected to the AC mains supply, this indicator lights up in standby mode and goes out when the unit is turned on.

No.	Name
⑬	Remote control signal sensor (SENSOR)
⑭	Headphone jack (PHONES)
⑮	Speaker select buttons (SPEAKERS)
⑯	Help/reset button (-HELP -RESET)
⑰	Volume control (VOLUME)
⑱	Input select buttons (INPUT SELECTOR)
⑲	Bass control (BASS)
⑳	Tuning control buttons (TUNING)
㉑	Treble control (TREBLE)
㉒	Preset channel select button (PRESET)
㉓	VCR 3 front input terminals (VCR 3)

### Power meters (⑤, ⑧)

The meters on each side of the display indicate the power mix of all the speakers combined, the left power mix on the left and the right power mix on the right.

When only the center speaker is producing sound, as is the case with monaural signals, output testing or dialogues heard in the Dolby Pro Logic playback mode, the left and right needles waver exactly the same.

### For your reference

The short and long bars found on some of the buttons indicate whether you have to press (-) the button or hold it down (-) to access/operate the function.

## Equipment Connections

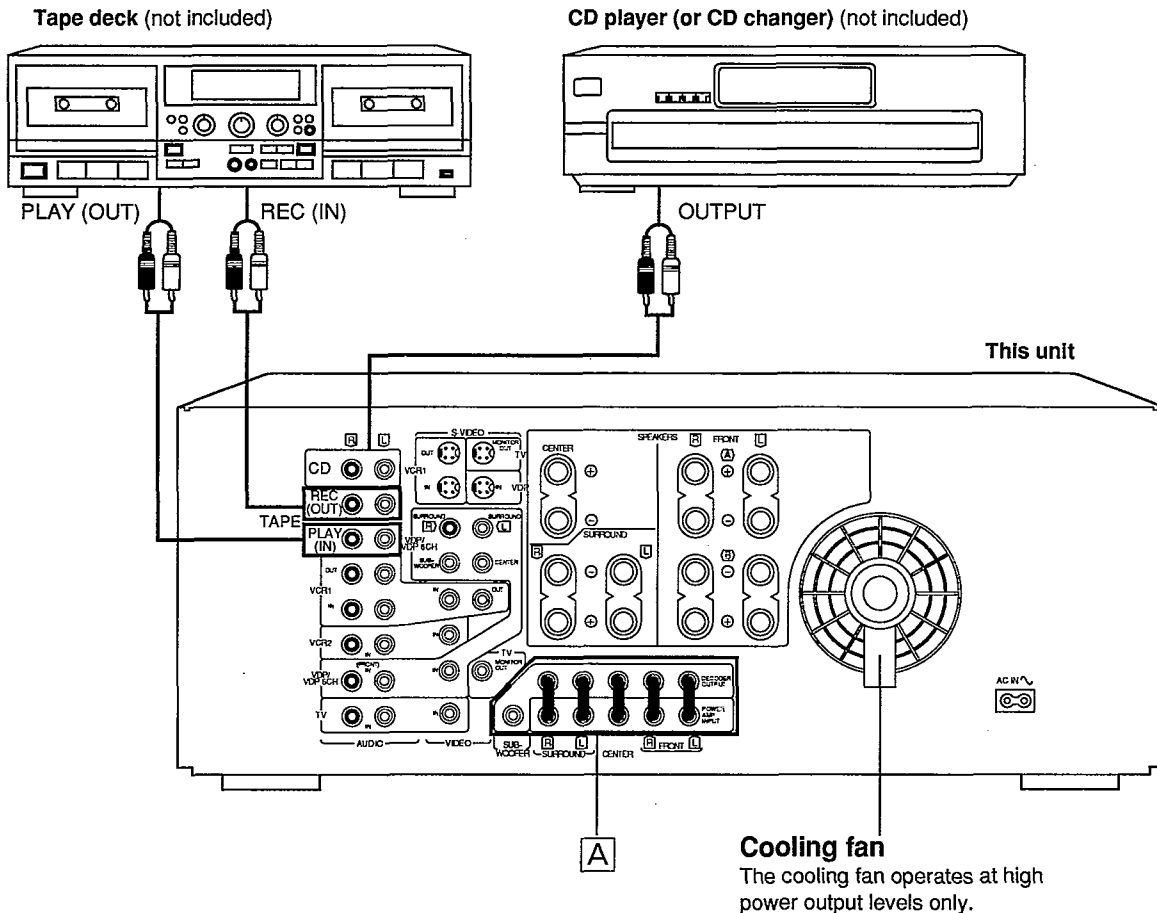
### Connecting audio equipment

Make sure that the power supply for all components has been turned off before making any connections.

#### Note

Do not place books, etc., on top of this unit or block the heat radiation vents in any way.

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





#### **A** "DECODER OUTPUT"/ "POWER AMP INPUT" terminals

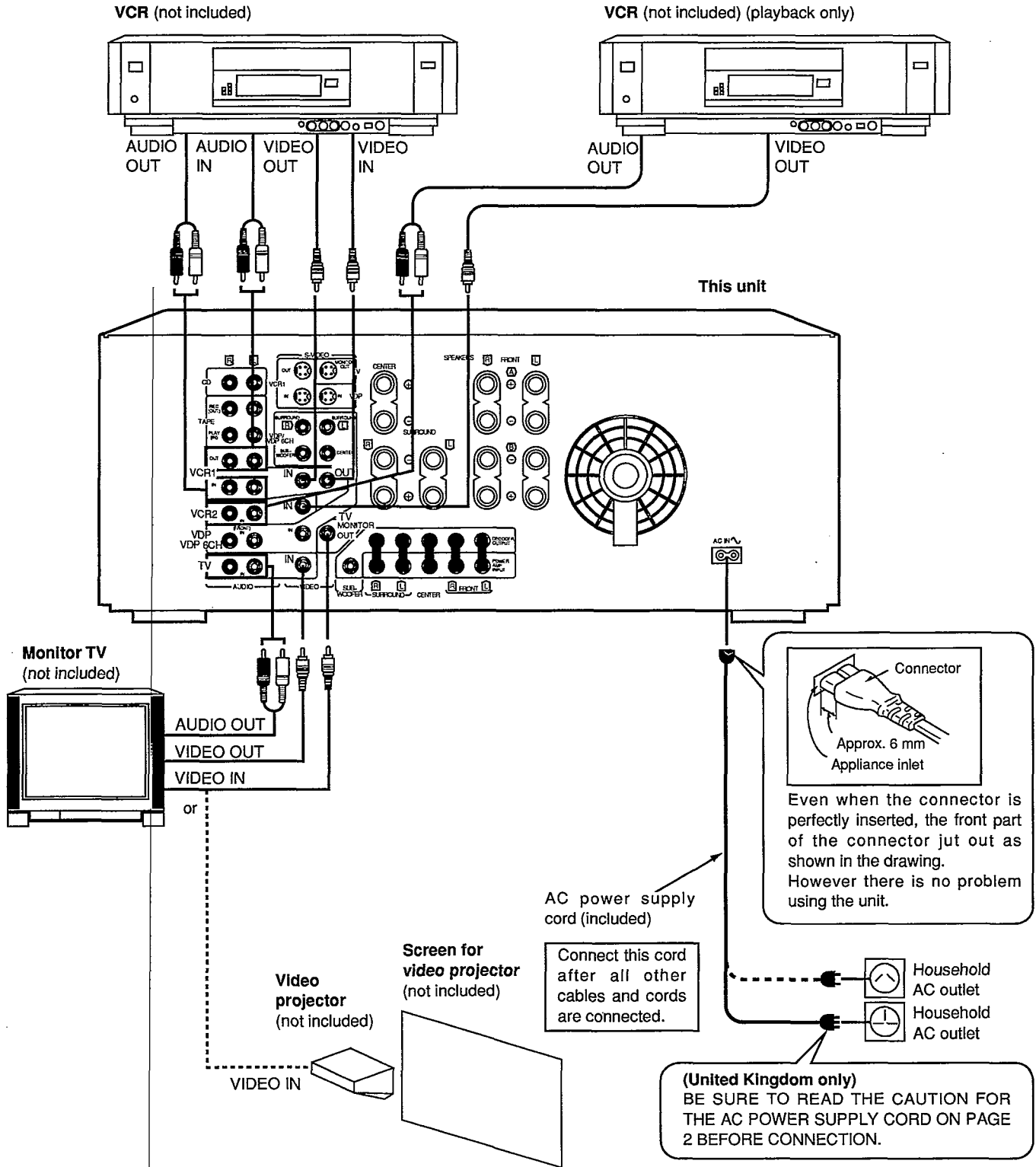
These terminals can be used in either of the following two ways.

1. For connecting a power amplifier (not included). This will allow you to enjoy amply reproduced sounds in large rooms of more than about 85 cubic meters. (See page 13.)
2. For connecting a graphic equalizer (not included). This lets you correct the sound quality of your system, such as adjusting frequency characteristics to the listening room. With a graphic equalizer, you have to use the "DECODER OUTPUT" and "POWER AMP INPUT" terminals of a specific channel whose sound quality you want to correct. Connect the "DECODER OUTPUT" terminal to the input terminal on the graphic equalizer, and the output terminal on the graphic equalizer to the "POWER AMP INPUT" terminal.

## Connecting video equipment

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

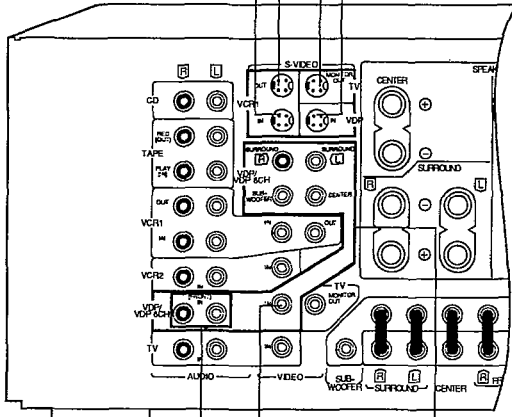
**Video connection cable**  
(not included) 



**Connections to/from S-VIDEO terminals**

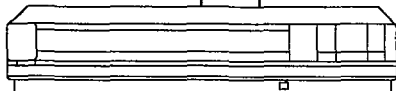
This receiver has an S-VIDEO terminal for a TV, laser disc player and VCR (VCR 1 only)

To the S-VIDEO input terminal of a VCR  
 To the S-VIDEO input terminal of a TV  
 To the S-VIDEO output terminal of a VCR  
 To the S-VIDEO output terminal of a laser disc player



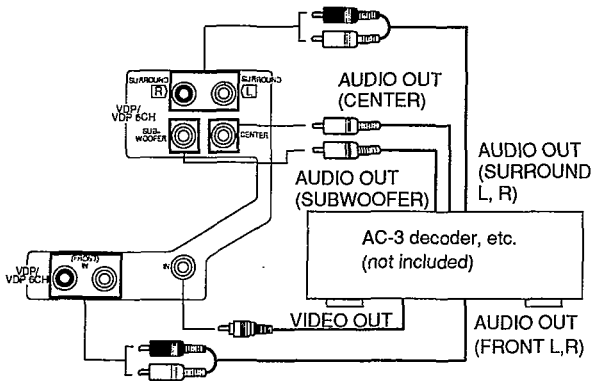
Connecting laser disc player

AUDIO OUT VIDEO OUT



Laser disc player (not included)

**Connecting components capable of 6 channel output such as AC-3 decoders**



**Caution when using a TV with an S-VIDEO terminal**

On some television models, the video signal from components which do not use S-VIDEO input and are connected only to the VIDEO terminals will not be shown on the television screen. If this occurs, use one of the following methods to view the video signal.

Does the television have a "VIDEO/S-VIDEO" selector switch?

YES

Set the switch to "VIDEO".

NO

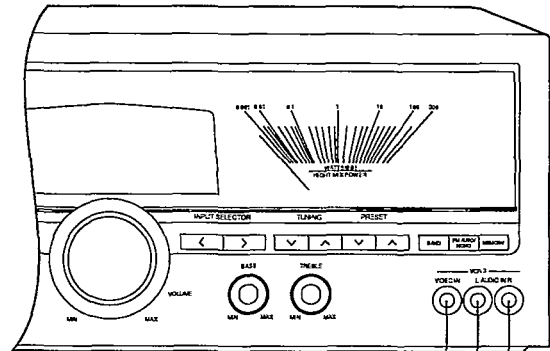
**If the television has two or more video input terminals**

Connect the VIDEO terminal and the S-VIDEO terminal to different video input terminals on the television, and switch the picture on the television according to the video source being played.

**If the television has only one video input terminal**

Disconnect the S-VIDEO cable connected to the television's S-VIDEO terminal and connect only the video terminal.

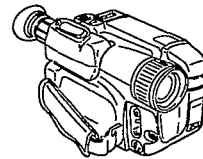
**Connecting to the front VCR 3 terminals**



(VIDEO)(L)(R)

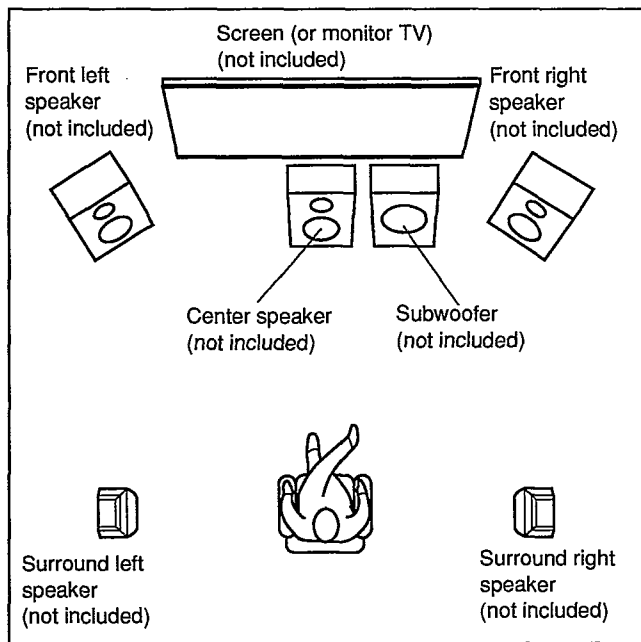
Camcorder (not included)

VIDEO OUT  
 AUDIO OUT



## Speaker Connections

### Placement of speakers



#### For front speakers

Place the front left/right speakers at both the left and right edges of the screen at seated ear height so that there is good coherency between the picture and sound.

#### For center speaker

Place the center speaker underneath or above the center of the screen (or monitor TV). Aim the speaker such that it is pointed at the seating area.

#### For surround speakers

Place these speakers somewhere between 1.5 m–2 m from the floor on the left and right sides of the listening position.

#### For subwoofer

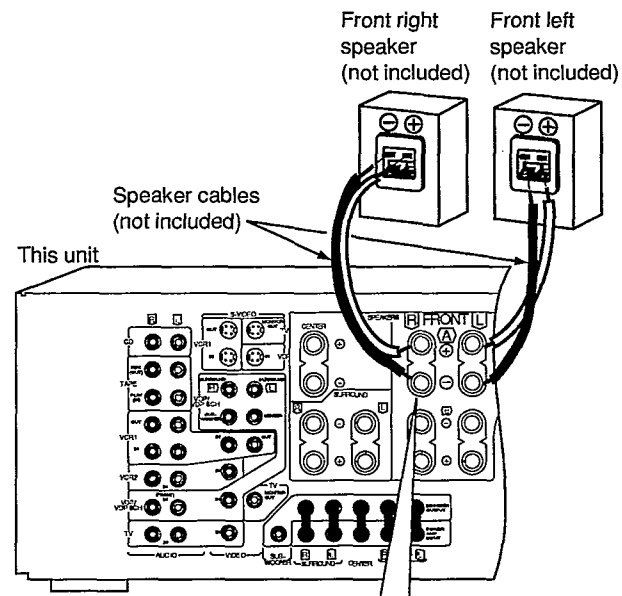
The subwoofer can be placed in any position as long as it is at a reasonable distance from the screen or monitor TV.

Note that some experimentation in placement of the subwoofer can yield smoothest low frequency performance. Placement near a corner can increase the apparent output level, but can result in unnatural bass.

#### For your reference:

The SA-TX50 will provide outstanding performance when used with any speaker system. For most accurate multichannel soundtrack reproduction, the use of a THX-certified speaker system is recommended.

### Connection of front speakers



#### To connect cords to terminals

- Strip off the outer covering, and twist the center conductor. 10 mm Twist
- Turn completely to the left.
- Insert the wire and turn completely to the right. Pull the cord to assure a proper connection. Be sure to only connect positive (+) cords to positive (+) terminals, and negative (-) cords to negative (-) terminals.

#### Note

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

- Banana type connectors are not suitable for use with the speaker terminals of this unit.
- When connecting THX-approved front speakers, be sure to also use a THX-approved subwoofer in order to achieve a full THX system.

#### “B” terminals

For connection to a second pair of speakers.

#### Speaker impedance

##### When only the “A” or “B” speakers are connected:

The impedance of the speaker used with this unit must be 4–16 Ω.

#### Note

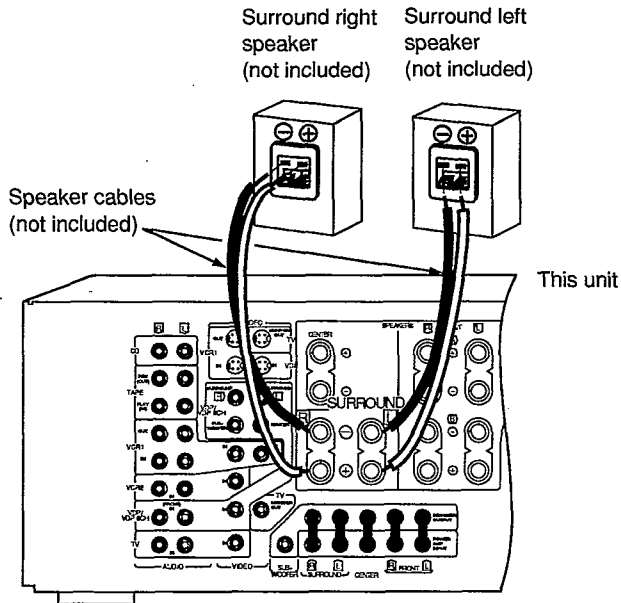
If speakers under 6 Ω are connected, be sure to set the impedance on the unit to LOW according to step 2 on page 10.

##### When both the “A” and “B” speakers are connected simultaneously:

The impedance of the speaker used with this unit must be 8–16 Ω.



## Connection of surround speakers



**Note**

Before sound can be heard from the surround speakers, both surround speakers must be connected.

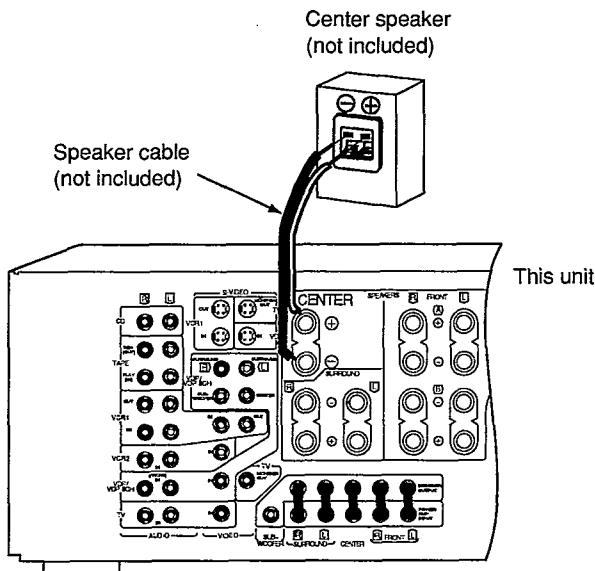
**Speaker impedance**

The impedance of any speaker used with this unit must be 4–16 Ω.

**Note**

If speakers under 6 Ω are connected, be sure to set the impedance on the unit to LOW according to step 2 on page 10.

## Connection of center speaker



**Speaker impedance**

The impedance of any speaker used with this unit must be 4–16 Ω.

**Note**

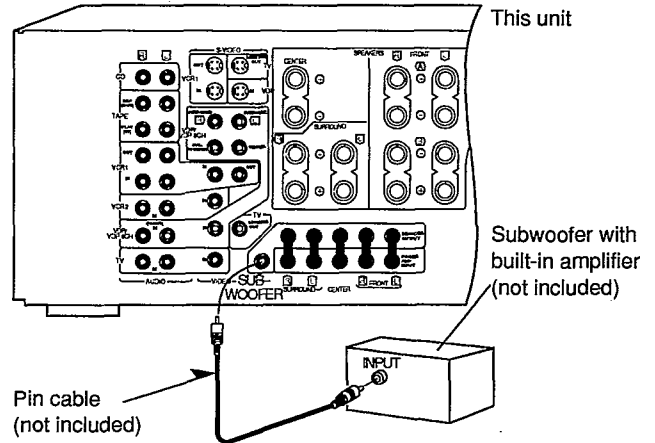
If a speaker under 6 Ω is connected, be sure to set the impedance on the unit to LOW according to step 2 on page 10.

## Connection of subwoofer

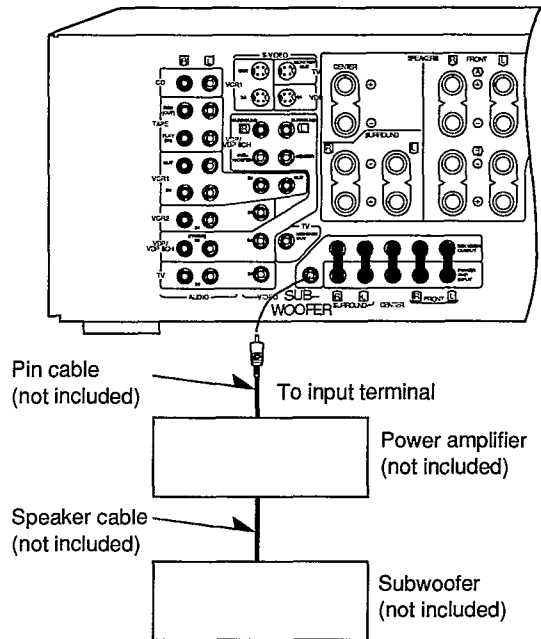
A subwoofer is recommended when bass sounds are inadequately reproduced from front speakers that are too small. For subwoofer placement, see page 8.

**Note**

- The SA-TX50 has no amplifier section designed especially for the subwoofer, so it is necessary to purchase a subwoofer with a built in amplifier or buy the two separately.
- The SA-TX50 will provide outstanding performance when used with any subwoofer and power amplifier. For most accurate sound reproduction, the use of THX-certified subwoofer and power amplifier is recommended.

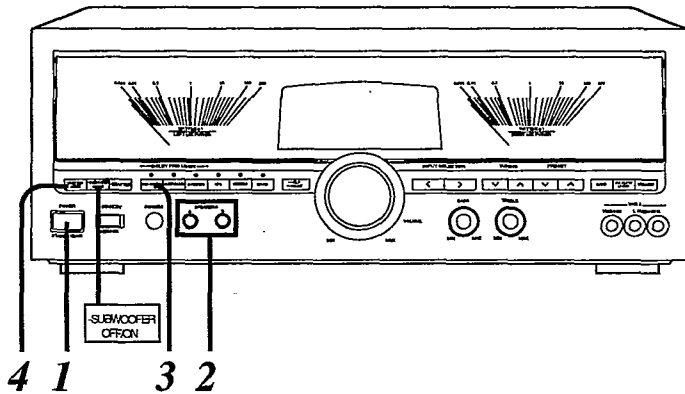


### Connecting a subwoofer which does not have a built-in amplifier



## ■ Preparation for Dolby Pro Logic Operation

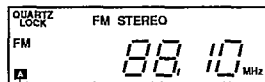
### Adjusting the output level of each speaker



- Before operation, set VOLUME to the "MIN" position.
- When viewing a video, turn on the power supply for the TV and set the TV to video mode.
- When ready to adjust speakers output level, situate yourself away from the speakers as you normally do when listening.

**1** **Press POWER to switch on the power.**

**2** **Press A or B to select the front speaker systems to be used.**  
A and B refer to the speaker terminals at the rear of the unit.

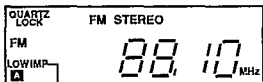


Illuminates

If the button is pressed once more, the indicator will switch off and no sound will be heard from the speakers.

#### When using speakers with under 6 Ω impedance

If even one of the speakers being used has an impedance of under 6 Ω, press either button A or button B for 4 seconds or more to set the impedance on the main unit to LOW.



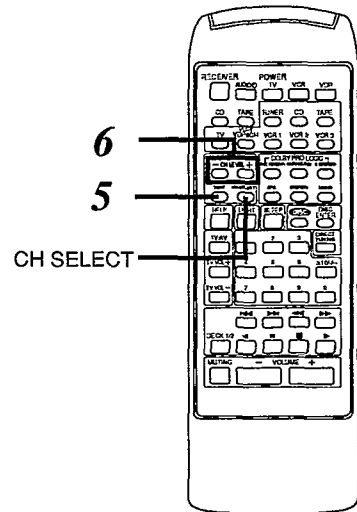
Illuminates

(Press once again for 4 seconds or more to turn it off.)

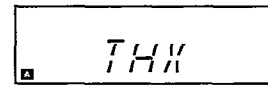
Note that when this indicator is illuminated, speakers A and B cannot both be used at the same time.

#### To change a speaker:

e.g. To use B speaker press A (the [A] indicator goes out), and then press B to activate the B speaker.

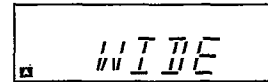


**3** **Press THX CINEMA to turn on the THX CINEMA mode.**



The indicator above this button will illuminate.

**4** **Press CENTER MODE to select the correct center mode.**



When the button is pressed, the current center mode is displayed. Holding it down again changes the center mode.

#### **NORM [NORMAL <SMALL>]**

When the center speaker is smaller than the front speakers

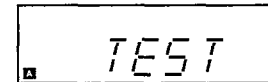
#### **WIDE [WIDE <LARGE/THX>]**

When the center speaker is the same size as the front speakers or when your speaker system is THX certified and includes a subwoofer

#### **PHAN [PHANTOM <NONE>]**

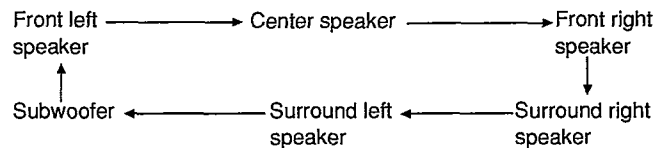
When no center speaker is connected.

**5** **by remote control only Press TEST to output a test signal.**



Test signal sounds automatically and switches from speaker to speaker.

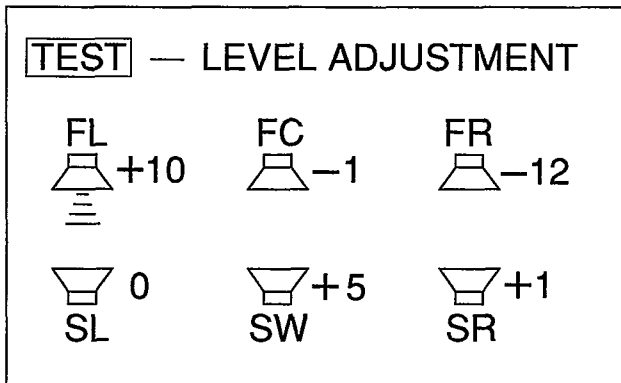
You can also select a particular speaker without waiting until its turn comes, by pressing CH SELECT.



#### **Note**

In the PHANTOM mode, the sound from the center speaker can not be heard.

When you turn on the TV and set the TV to the video mode, the output test display will appear on the TV. (See page 16.)



In this example, the test signal is being emitted by the front left speaker.

**6** **by remote control only**  
**Press CHANNEL LEVEL (-) or (+) to adjust the output level balance.**  
 Adjust each speaker with CHANNEL LEVEL "+", "-" to obtain equal sound level all around.

○ : Decrease the output level.  
 ⊕ : Increase the output level.

The output levels can be varied within a range of -12 dB to +12 dB.

#### For your reference:

- If you have a sound level meter, set all speakers to 75 dB SPL (C-weighted/slow mode at seating position).
- To help you balance your speakers accurately, the test signal is output at a uniform volume and is not effected by volume control settings.



#### To stop the test signal

Press TEST on the remote control.

#### For your reference

When you adjust speaker output level (steps 2-6), output level is automatically adjusted for not only the THX CINEMA mode but also the SURROUND and 3 STEREO modes.

#### Note

If you replace your front speakers after adjusting output level, playback balance may be lost depending on speaker efficiency. If this happens, simply readjust output level.

#### If a subwoofer is not connected to this unit.

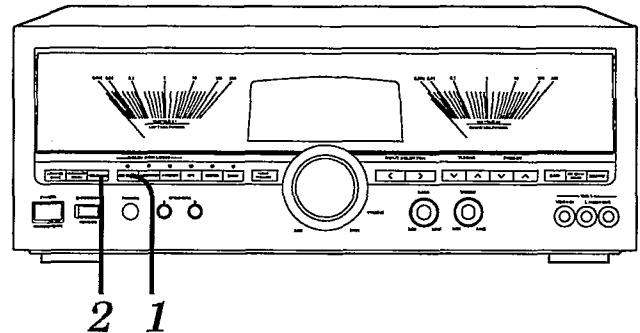


Hold down SUBWOOFER OFF/ON until "OFF" appears.

To return to the "ON" condition, hold down the button until the "ON" appears.

## Adjusting the delay time

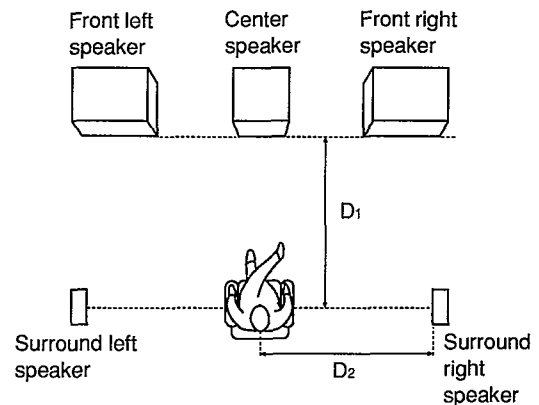
This adjustment reduces audible crosstalk from the surround speakers so that screen sounds such as dialogue will be correctly heard from their normal position at the front.



**1** **Press THX CINEMA to turn on the THX CINEMA mode.**

**2** **Press DELAY TIME to set to the suitable time.**

When the button is pressed, the current delay time is displayed. If you then hold it down, the delay time changes. Each time you perform this combination, the delay time will increase by 5 ms within a range of 15 ms to 30 ms. To calculate the delay time, refer to the calculation method below. The standard setting is 20 ms.



$D_1$ : Distance from front speakers

$D_2$ : Distance from surround speakers

- If  $D_1$  is equal to or less than  $D_2$

Set to 15 ms.

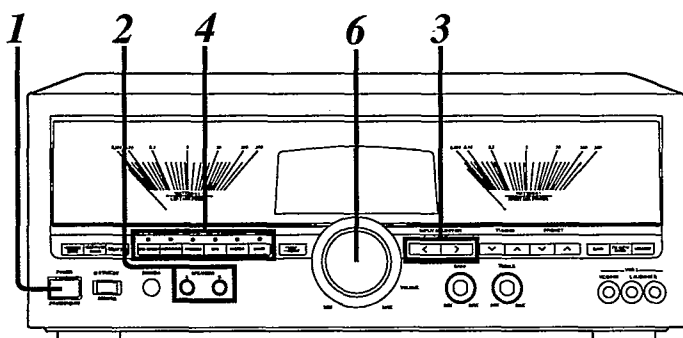
- If  $D_2$  is less than  $D_1$

Start at 15 ms and increase by 5 ms for every 1.5 m of difference between  $D_1$  and  $D_2$ .

#### For your reference

When you adjust delay time (steps 1 and 2), delay time is automatically adjusted for not only the THX CINEMA mode but also the SURROUND mode.

## Basic Operations



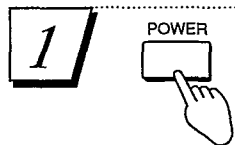
- Before operation, set VOLUME to the "MIN" position.
- Before operation, turn on the power supply for the TV and set the TV/VIDEO mode as described below.

### To enjoy videos or laser discs

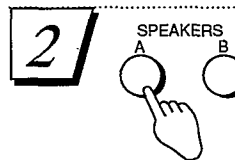
Set it to VIDEO mode.

### To watch TV

Set it to TV mode.



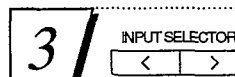
**1** Press **POWER** to switch on the power.



**2** Press **A** or **B** to select the speaker system to be used.

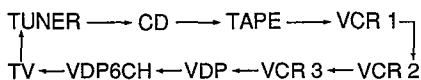
#### Note

If using both speakers A and B at the same time, be sure to set the playback mode to "STEREO" (see step 4.).



**3** Press **INPUT SELECTOR** (< or >) to select the desired source.

Each time you press this button, audio and video sources will be switched as follows.



These indications correspond to terminals on the front and rear panels. Switch the displayed indication to the source you want to use.

#### Note

When you select "VDP6CH" as the input source, you do not have to perform step 4 because the playback mode is fixed for VDP6CH sources.

**4** Press **THX CINEMA** to select the desired playback mode.

**THX CINEMA:** For motion picture program material recorded in the Dolby Surround format (See the right page.)

**SURROUND:** For program material recorded in the Dolby Surround format but which was not mixed in a film dubbing stage (See the right page.)

**3 STEREO:** For program material which has been recorded in the Dolby Surround format without the use of surround speakers (See the right page.)

**SFC:** For giving the music or movie presence and spread.

**STEREO:** For CD's and tapes recorded in stereo

**MONO:** For monaural recordings

**5** Start the desired source.

- See the operating instructions for listening to radio broadcasts.
- See the appropriate operating instructions for operating optional equipments.

**6** Turn **VOLUME** to adjust the volume level.

#### For your reference

If you want, you can reproduce the same volume used in dubbing stages. To do so, set output level from all your speakers to 75 dB SPL (see step 6 on page 11). Watch the sound level meter to get an accurate setting. And, select the THX CINEMA mode (step 4 on this page). Finally, and most importantly, set volume control to "REFERENCE".

#### After listening is finished

Be sure to reduce the volume level, and switch the power to the standby condition by pressing POWER.

## DOLBY PRO LOGIC modes

There are three modes of operation. BEFORE using any of them, be sure you make all the preparations explained on pages 10 and 11.

### THX CINEMA

This mode faithfully reproduces motion picture program material which has been recorded in the Dolby Surround format.

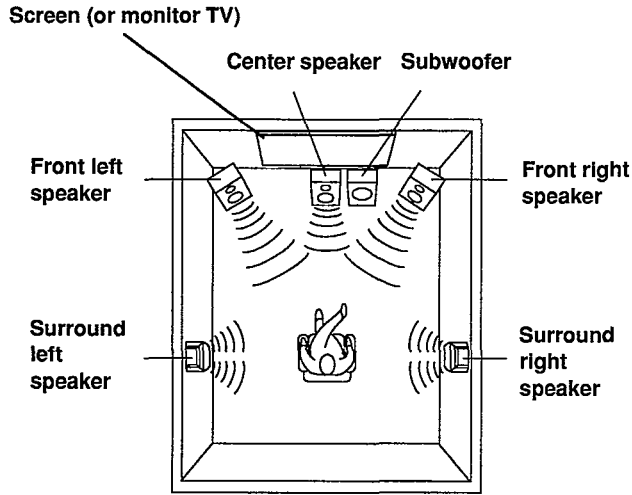
It achieves this by recreating the sonic qualities of film studio sound recording stages (known as the dubbing stage).

Home THX systems provide home viewers with the same degree of sound quality as the THX theater sound systems created by Lucasfilm Ltd. By combining this sound with the picture on a wide screen, this mode lets you enjoy a true home sound system with full intensity and feeling of "being there".

## Optional Power Amplifier Connections

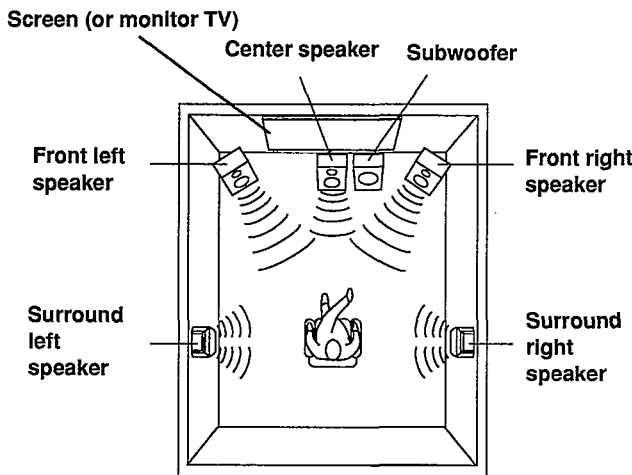
### (Using the DECODER OUTPUT terminals)

If the listening room in your home has a total volume of more than about 85 cubic meters you can best experience THX sound by connecting larger external power amplifiers (sold separately) to the "DECODER OUTPUT" terminals on the rear of this unit.



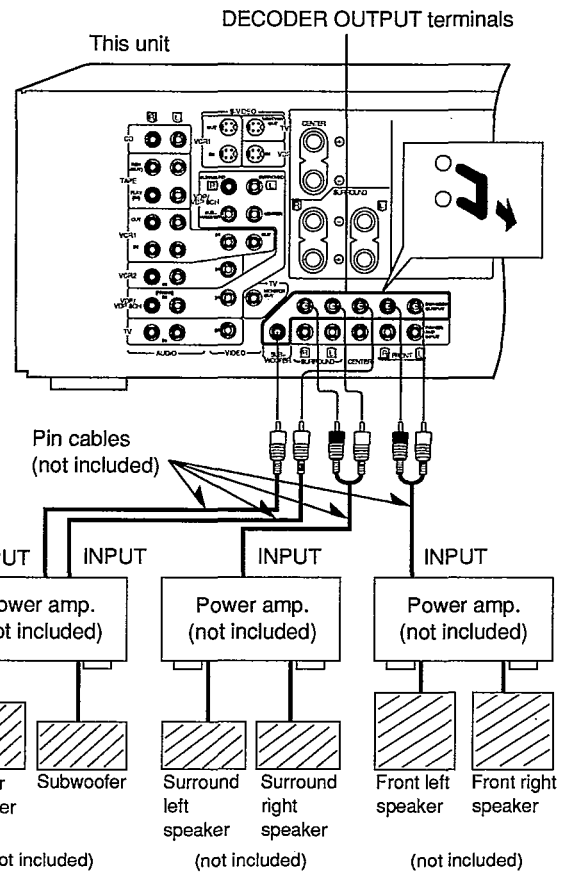
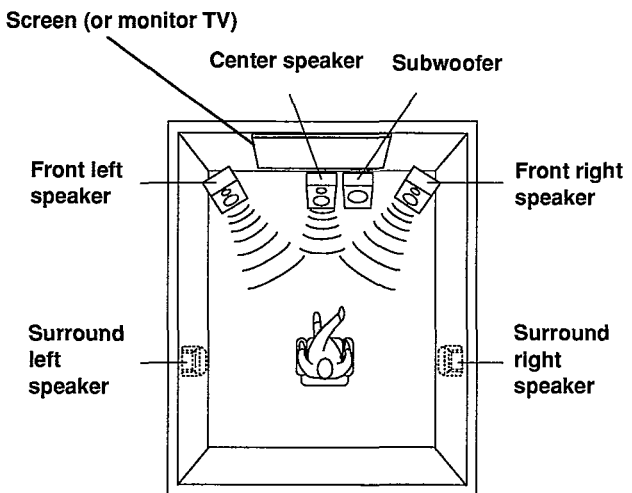
### SURROUND

This mode is for program material which has been recorded in the Dolby Surround format but which was not mixed in a film dubbing stage. By reproducing the feeling of depth and movement of sound, video software or compact discs recorded with Dolby Surround provide the listener with a feeling of "being there".



### 3 STEREO

This mode reproduces program material which has been recorded in the Dolby Surround format without the use of surround speakers. Also music and news programs can be heard with better clarity and localization.



### Note when using the "DECODER OUTPUT" terminals

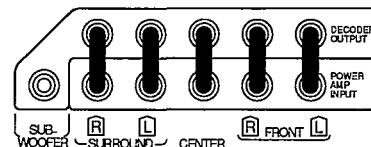
- In order to obtain correct multi-channel playback performance, be sure to press speaker select button A or B on the front of this unit (A and/or B will illuminate). If you do not do this (if neither A or B is illuminated on the display), sound will not come out from any speakers other than the front left/right speakers.
- The SA-TX50 will provide outstanding performance when used with any speaker and power amplifier. For most accurate sound reproduction, the use of THX-certified speakers and power amplifiers is recommended.

### When DECODER OUTPUT terminals are not in use

Be sure to insert the "shorting" pins (included).



Always insert pins top-to-bottom, never sideways, and completely to the rear.



## ■ On-Screen Display Function

The On-Screen Display function can provide a wide range of information on a TV screen, thus making operation easier.

For example, by pressing the button(s), the state of each setting will display. If there is no sound and you do not understand why, press the HELP button to display an outline drawing of the unit and applicable operating procedures on the TV.

### Note

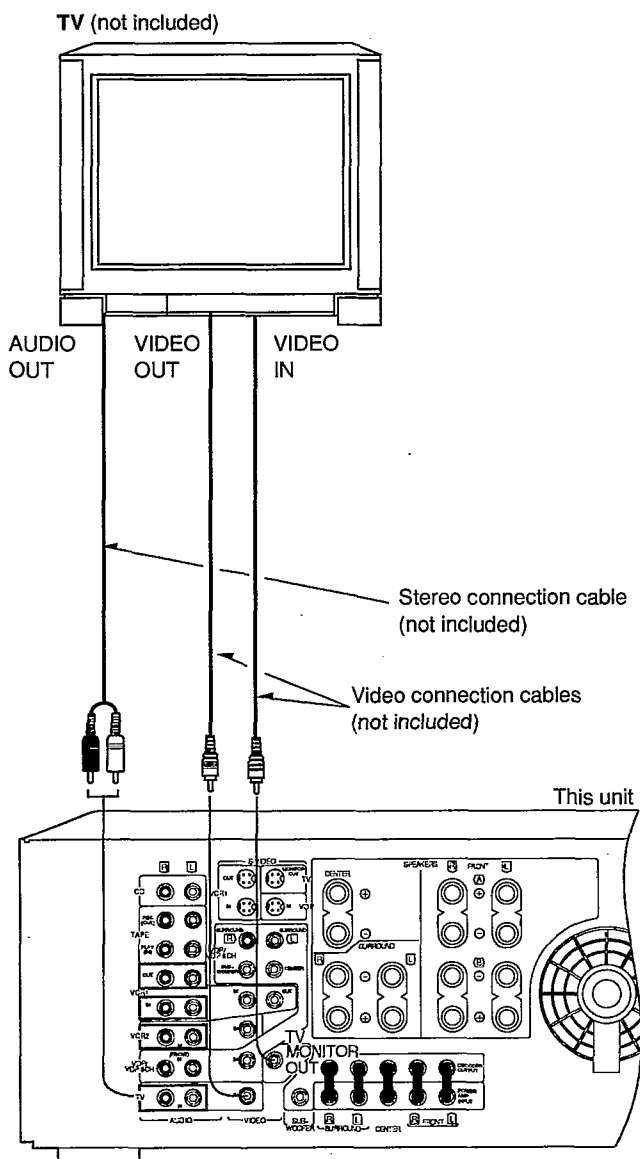
The On-Screen Displays are produced as PAL system video signals. With TVs of other video systems, the displays may not be clear.

### Before trying to display anything

- Check your receiver is connected from "TV MONITOR OUT" on the rear panel to "VIDEO INPUT" on the TV rear panel.
- Turn on the power supply for the TV and set the TV to the video mode.

### Note

When using a TV with an S-VIDEO terminal, see page 7.



## Types of displays for TV screens

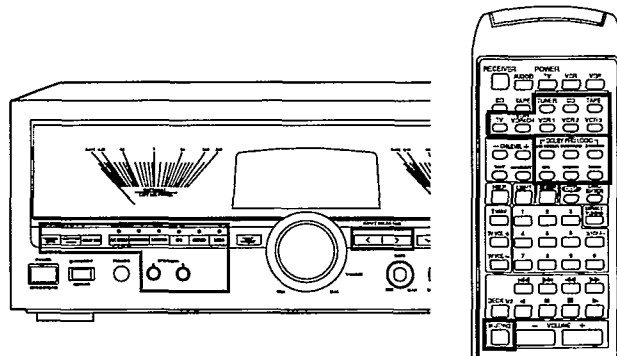
There are 5 different types of displays that appear on the TV.

### 1 Simple stereo operation displays

These displays mirror operation as you press buttons.

They are directly superimposed over the picture while you watch and operate your receiver, except, of course, if no picture is projected, then a blue background is produced.

Messages are displayed only when you operate the controls show below.



SELECTOR : VCR 1

In this example, the VCR1 has been selected as the input source.

### Note

While muting is ON, the message "MUTING ON NOW" is displayed. The box and wording are alternately highlighted to call your attention to the fact that the sound has been muted.

### ■ Auto HELP

The following messages run across the TV screen when you turn ON the power to the receiver, if your receiver is set as described below.

Receiver setting	Messages
Both speakers A and B are OFF	SPEAKERS OFF NOW

### To turn OSDs (On-screen display) ON/OFF

Hold down the FM AUTO/MONO button on the main unit for a moment. Every time you hold the button down, the function switches between ON and OFF. On the TV, OSD ON and OSD OFF will be displayed as you make your selection.

REMEMBER the FM AUTO/MONO button turns ON/OFF the simple stereo operation displays only and has nothing to do with other displays mentioned in this section.

## Types of displays for TV screens

### 2 Basic control status display

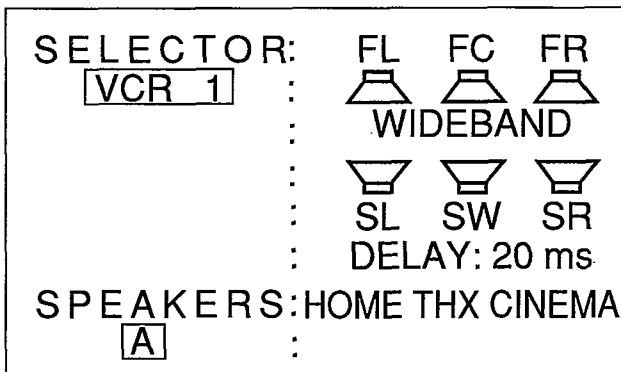
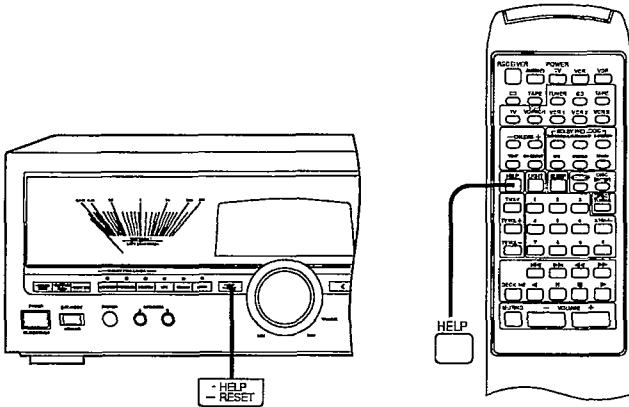
This display lets you get a quick view of your present settings.

Though basic, it puts the status of the settings below on a single screen, in front of a blue background, for your review.

To view, press the HELP button. (Touch only.)

Pressing again turns off the display.

- Currently set input source
- Selected speaker systems
- Dolby Pro Logic/SFC/STEREO/MONO/VDP6CH modes



In this example, VCR1 has been selected as the input source, speaker A is selected, delay time is 20 ms, the DOLBY PRO LOGIC THX CINEMA mode is ON and the WIDEBAND is selected as the center mode.

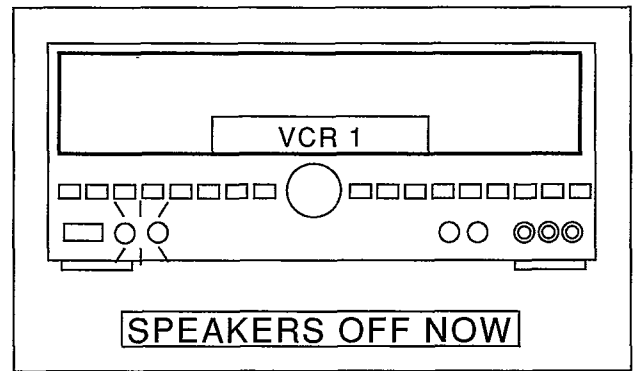
When you're having trouble operating your receiver, the help display appears when you press the HELP button (Touch only). (See "Help displays" at the right.)

### 3 Help displays

These displays promptly advise you on what to do when you're having trouble operating your receiver, for example, when no sound comes out.

To get help, press the HELP button (Touch only). The button you need to operate will start flashing on the illustration and information you'll want to know will be highlighted on a green background.

#### Example 1

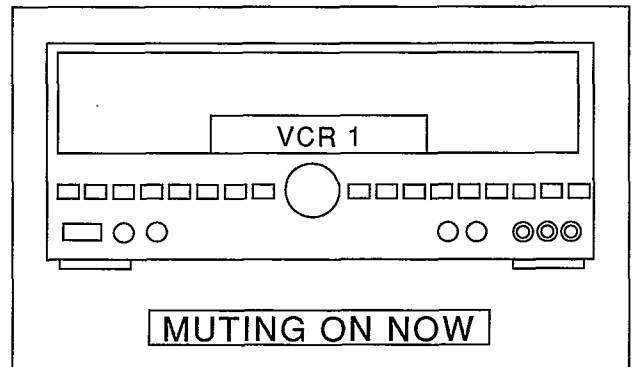


In this example, sound is not coming out because the speaker select buttons are both OFF.

#### Note

In the above example, after the message shown is displayed, the message "SELECT SPEAKER A OR B" runs across the screen from right to left, instructing you how to gain back the sound.

#### Example 2



In this example, sound is not coming out because muting is ON.

#### Note

In the above example, after the message is displayed, the message "PRESS THE MUTING BUTTON ON REMOTE CONTROLLER" runs across the screen from right to left, instructing you how to gain back the sound.

If you press the wrong button or do something the receiver won't let you, the message "ERROR" will be shown on the receiver's display. At the same time, the message "PLEASE PRESS THE HELP BUTTON" will run across the TV screen.

In such a case, press the HELP button (Touch only). A worded message explaining how to fix the trouble will run across the display while the button you need to press will flash on the illustration also.

#### ■ When you wrongly input the frequency in direct tuning

The message "ENTER CORRECT FREQUENCY" will run across the screen.

#### ■ When you try turning ON both speaker A and B while Dolby Pro Logic (THX CINEMA, SURROUND, 3 STEREO), SFC or MONO is ON

The message "PRESS THE STEREO BUTTON OR SELECT ONLY SPEAKER A OR B" will run across the screen.

**When you try turning ON both speaker A and B while VDP6CH mode is ON**

The message "SELECT ONLY SPEAKER A OR B" will run across the screen.

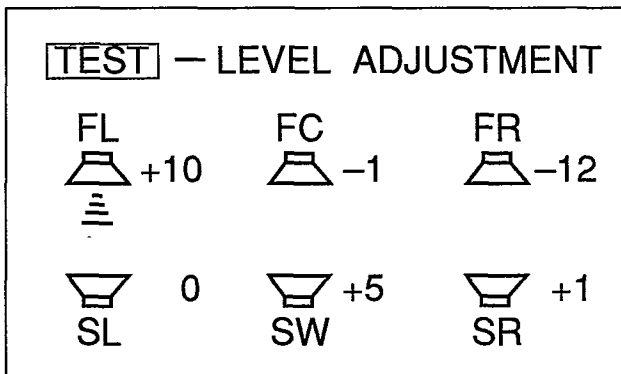
**When you try turning ON either Dolby Pro Logic (THX CINEMA, SURROUND, 3 STEREO), SFC or MONO while both speaker A and B are ON**

The message "TURN OFF SPEAKER A OR B" will run across the screen.

**4 Output test display**

This display is handy when adjusting speaker output level if you're using Dolby Pro Logic (THX CINEMA, SURROUND, 3 STEREO) and VDP6CH.

As each speaker emits the test signal, that speaker's icon is highlighted on the TV. The display follows the sequence the speakers do, unless of course, you select a particular speaker, then it returns to that speaker's icon.



In this example, the THX CINEMA mode has been selected and the test signal is being emitted by the front left speaker.

**Note**

While you adjust output level, the test signal is produced only from the speaker you are now adjusting. At the same time, the display stops on that speaker's icon and a volume bar indicating output in dB appears. The level then changes as you adjust output.

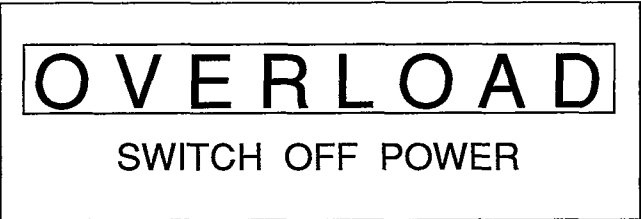
**5 Overload display**

When this message is displayed, you have overloaded your system.

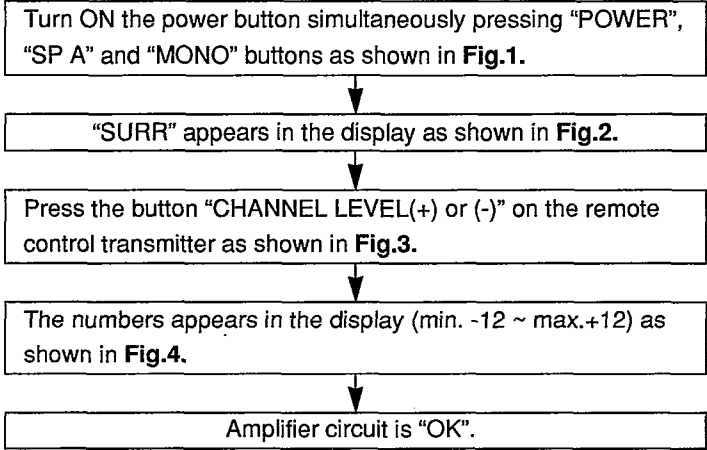
**Probable cause(s)**

The protection circuitry has functioned because the positive and negative speaker connection wires are "shorted". Speaker systems with an impedance less than the indicated rated impedance of this unit are used or under severe use, such as loud volume, excessive power and in an excessively hot environment.

The "OVERLOAD" message will appear on a red background. When this display comes up, switch off the power, and after determining and correcting the cause, switch ON the power once



**Service Mode**



**Note:** To cancel, turn the power button OFF.

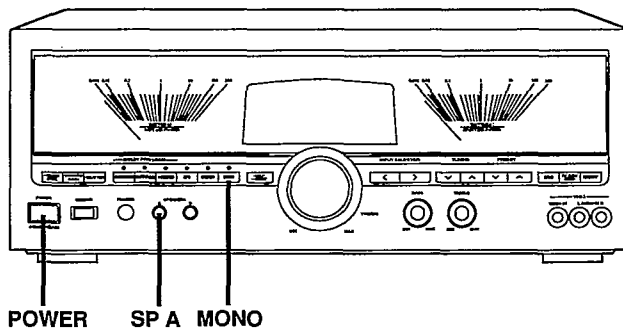


Fig.1

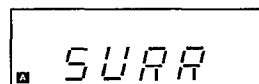


Fig.2

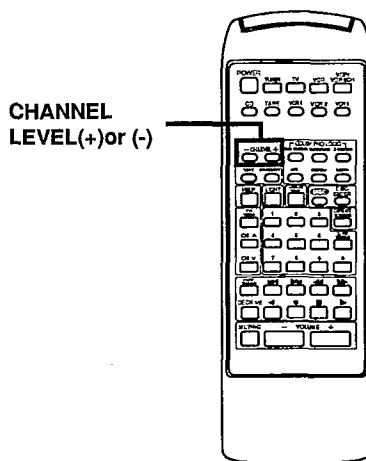


Fig.3

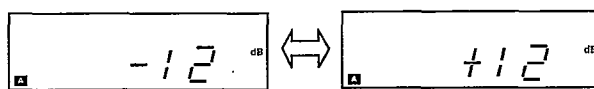


Fig.4



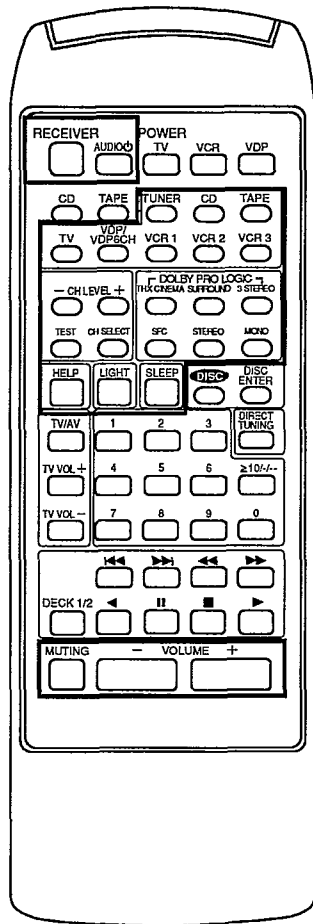
## Remote Control Operation

This remote control transmitter can be used to operate other units manufactured by this company in addition to this receiver, including TVs and VCRs manufactured since 1985, laser disc players, CD players (or CD changers) and cassette decks which are equipped with a remote control sensor.

For detailed information concerning operation steps, etc., please refer to the appropriate page for each unit and the respective operating instructions.

### To operate the receiver

Facing toward the receiver



#### Basic operations

To turn the receiver ON/OFF	RECEIVER <input type="checkbox"/>
To select an input source	TUNER CD TAPE TV VDP/VDP6CH VCR 1 VCR 2 VCR 3 Each time you press the VDP/VDP6CH button, "VDP" and "VDP6CH" will be switched alternately.
To select the desired playback mode	THX CINEMA SURROUND 3 STEREO SFC STEREO MONO Each time you press the SFC button, you can change the SFC mode.
To output a test signal	TEST Press once more to stop the test signal.
To adjust the output level of each speaker	CH SELECT → CH LEVEL + or (See pages 10 and 11.) TEST → CH LEVEL +
To select the sleep timer	SLEEP Changes as follows each time the button is pressed. 30 → 60 → 90 → OFF
To display basic control status and procedures for remedying trouble	HELP (See pages 12 and 15.)
To mute the sound level	MUTING Press once more to return to the original volume.
To adjust the volume level	- VOLUME + <input type="text"/> <input type="text"/>
To turn the power meter light OFF/ON	LIGHT <input type="checkbox"/>
To turn the audio system OFF	AUDIO <input type="checkbox"/> (This may not be possible with some models.)

## ■ Operation Checks and Main Component Replacement Procedures

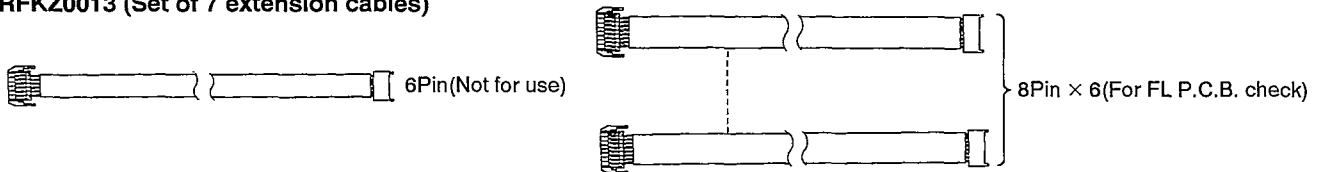
- NOTE**
1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
  2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
  3. Select items from the following index when checks or replacement are required.
  4. Illustrated screws are equivalent to actual size.
  5. Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.

### ● Contents

• Checking Procedure for each P.C.B.	Page.
1. Checking for the tuner P.C.B., IN/OUT terminal P.C.B. and video terminal P.C.B..	18,19.
2. Checking for the digital P.C.B. and FL panel P.C.B..	20.
3. Checking for the main P.C.B..	21.
• Main Component Replacement Procedures	
1. Replacement for the meter ass'y.	22.
2. Replacement for the fan motor.	23.
3. Replacement for the power IC and regulator transistor.	23~25.
• Lead wire and flat cable arrangement	25.

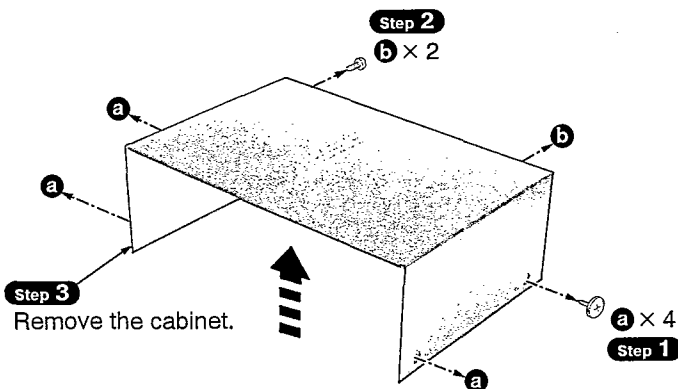
### ● The following extension cable kits is necessary to check the unit's P.C.B.

- RFKZ0013 (Set of 7 extension cables)

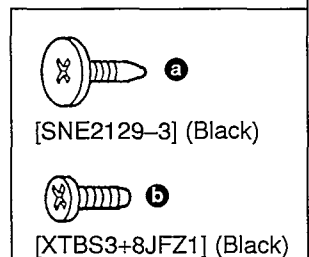
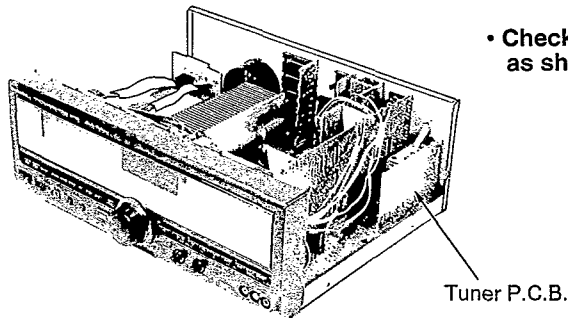


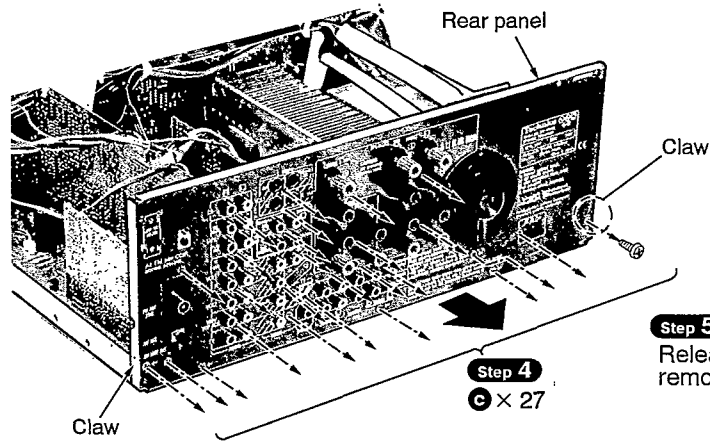
## ■ Checking Procedure for each P.C.B.

### 1. Checking for the tuner P.C.B., IN/OUT terminal P.C.B. and video terminal P.C.B.



• Check the tuner P.C.B. as shown below.

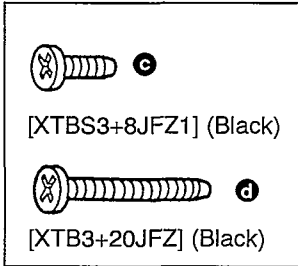
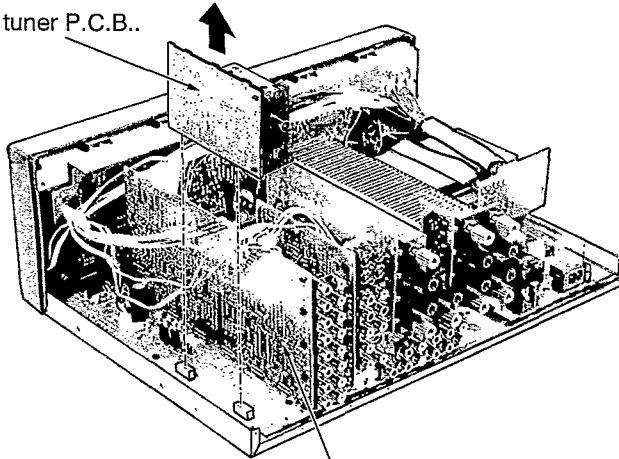




**Step 5**  
Release the claws, and then remove the rear panel.

**Step 6**  
Pull out the tuner P.C.B..

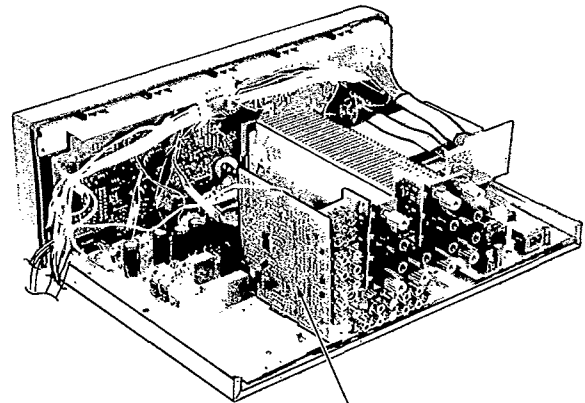
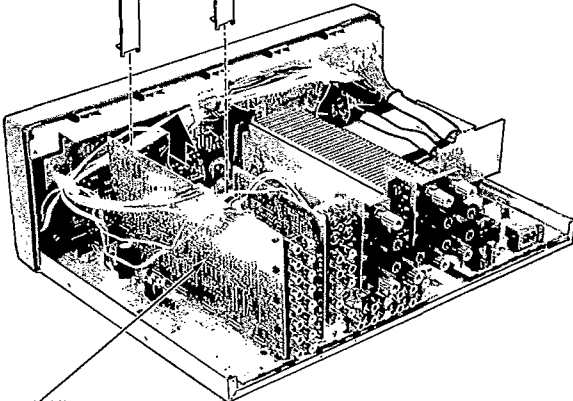
• Check the IN/OUT terminal P.C.B. as shown below.



**Step 8**  
Remove the hold ornament.

**Step 7**  
d x 2

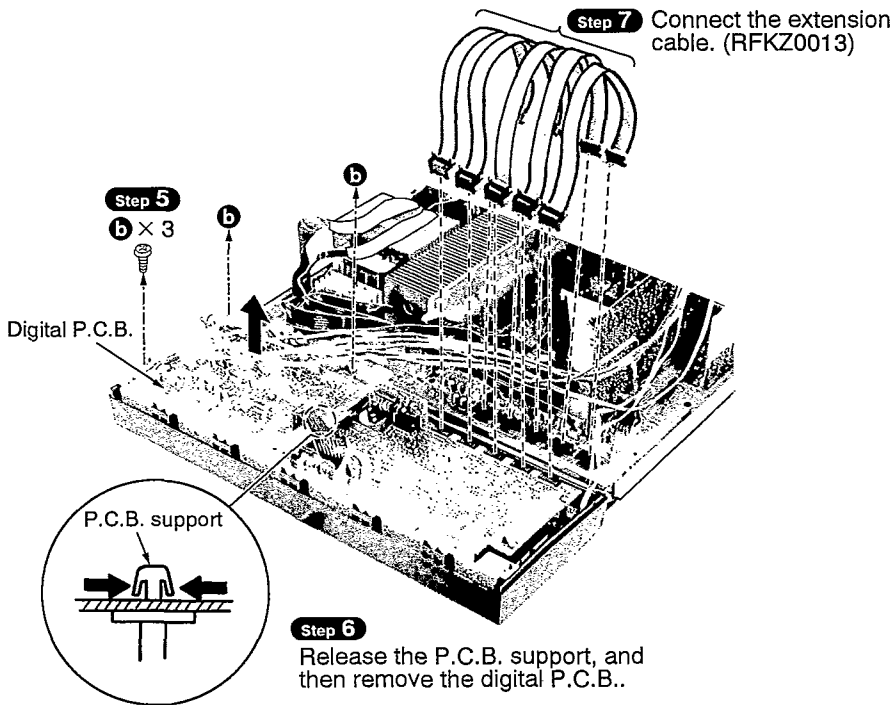
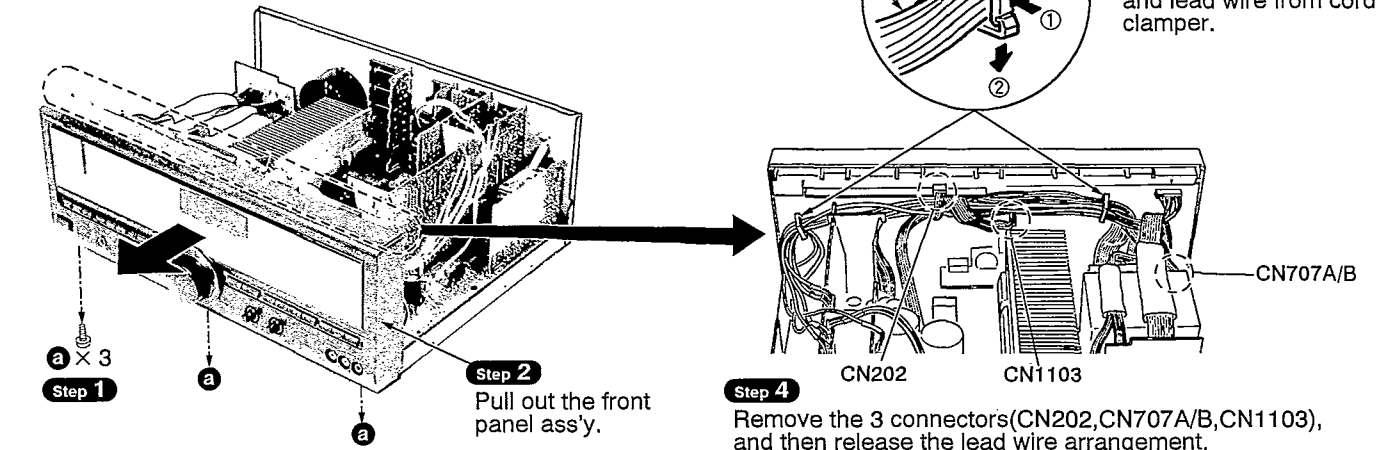
• Check the video terminal P.C.B. as shown below.



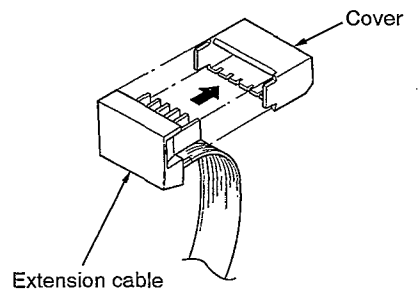
**Step 9**  
Pull out the IN/OUT terminal P.C.B..

**2. Checking for the digital P.C.B. and FL panel P.C.B.**

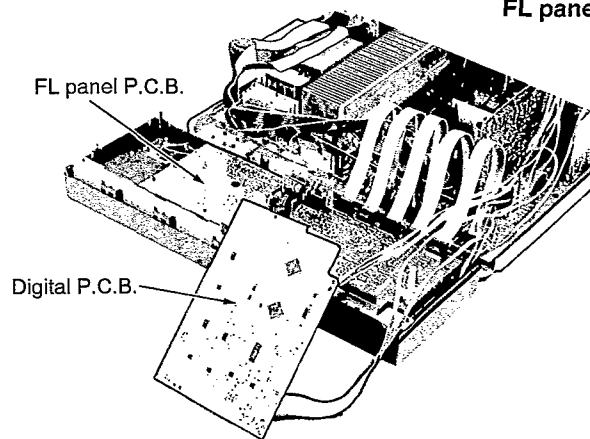
• Follow the **Step 1** ~ **Step 3** in item 1 on checking procedure for each P.C.B. on page 18.





**NOTE**  
Remove the cover of extension cable.



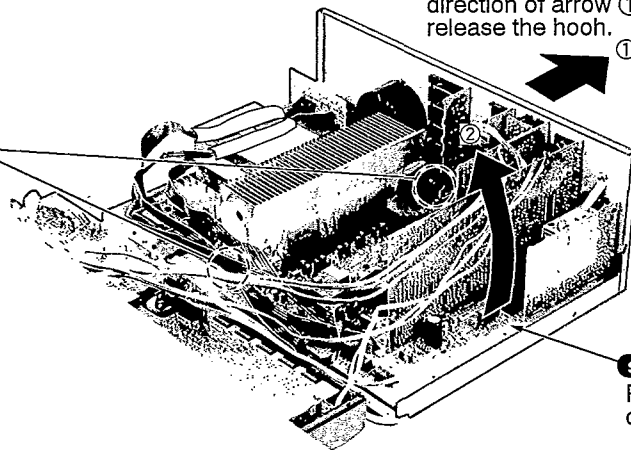
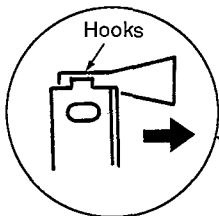
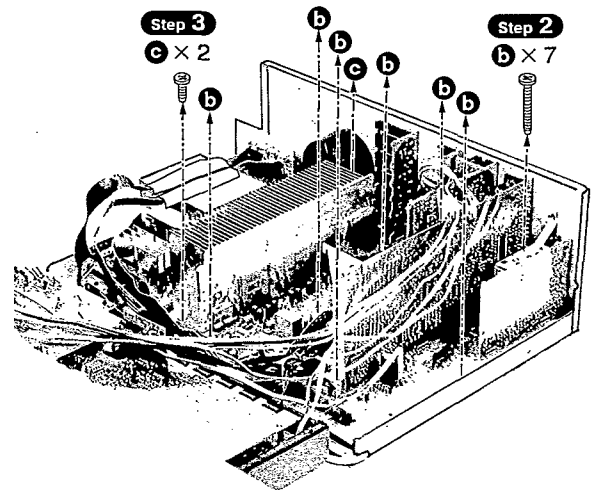
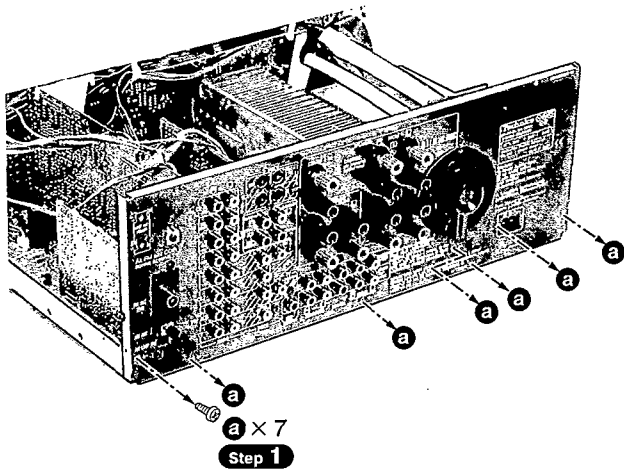
• Check the digital P.C.B. and FL panel P.C.B. as shown below.



-  **a**  
[XTBS3+8JFZ1] (Black)
-  **b**  
[XTBS26+8J] (Black)

### 3. Checking for the main P.C.B.

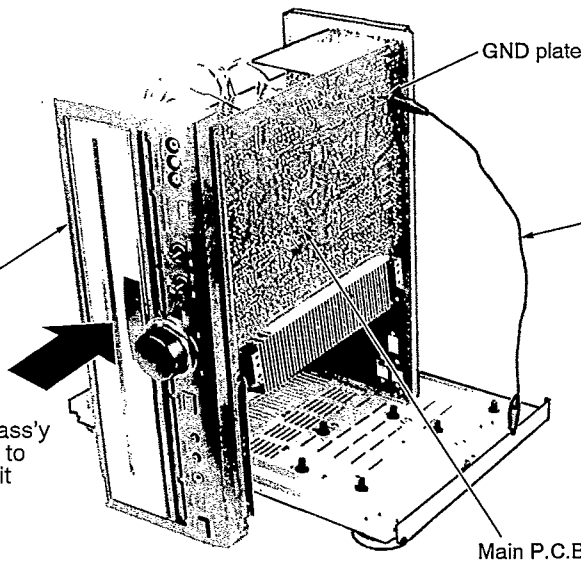
- Follow the **Step 1** ~ **Step 3** in item 1 on checking procedure for each P.C.B. on page 18.
- Follow the **Step 1** ~ **Step 4** in item 2 on checking procedure for each P.C.B. on page 20.



**Step 4**  
Slide the main P.C.B. in the direction of arrow ①, and the release the hook.

**Step 5**  
Remove the main P.C.B. in the direction of arrow ②.

• Check the main P.C.B. as shown below.



**Step 6**  
Connect the front panel ass'y of the P.C.B. connectors to the main P.C.B. and set it as the illustration right.

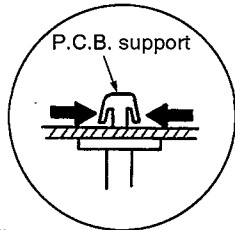
**Step 7**  
Connect the lead wire.

- a, c**  
[XTBS3+8JFZ1] (Black)
- b**  
[XTB3+20JFZ] (Black)

## Main Component Replacement Procedures

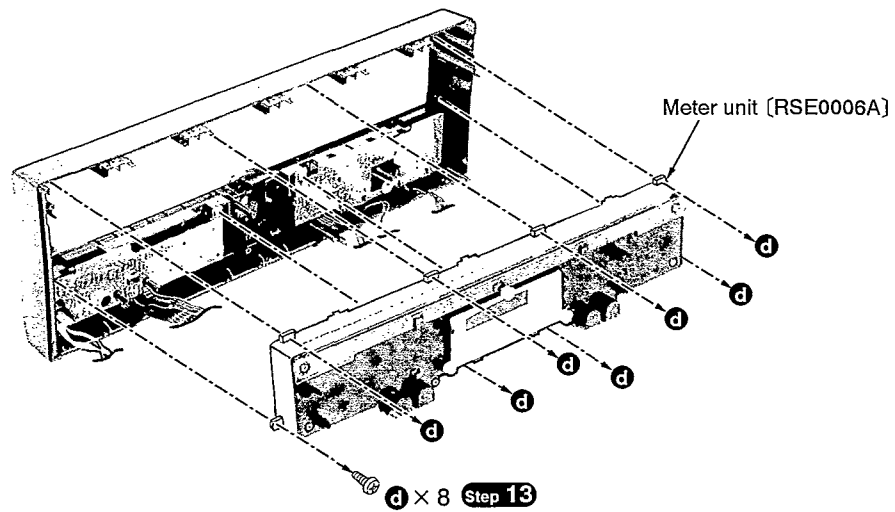
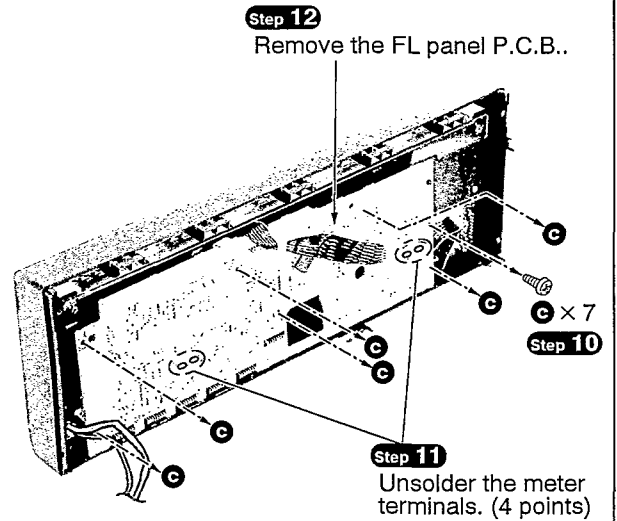
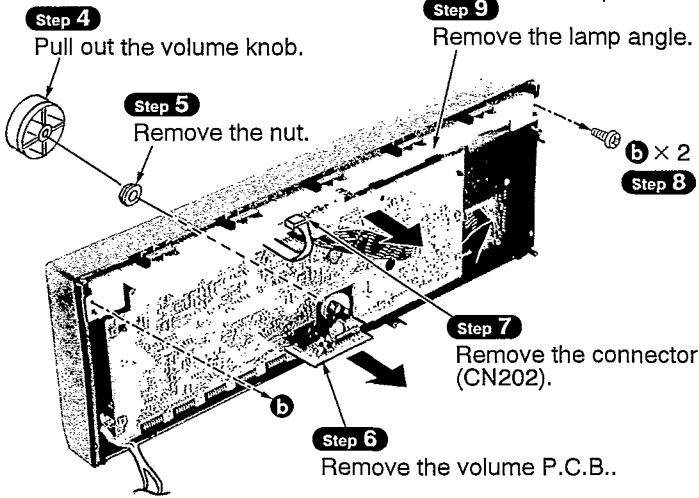
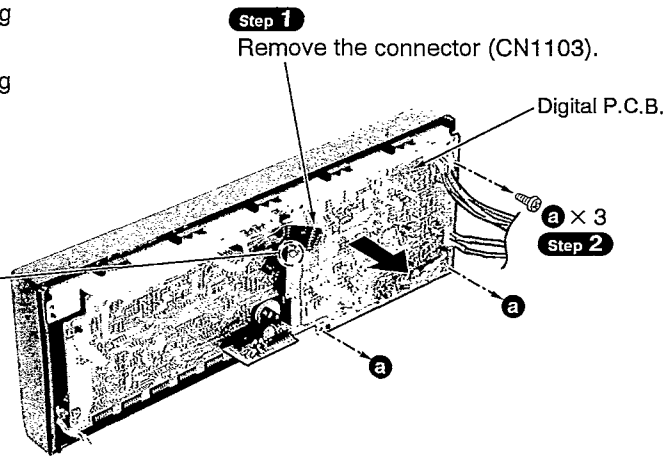
### 1. Replacement for the meter ass'y

- Follow the **Step 1** ~ **Step 3** in item 1 on checking procedure for each P.C.B. on page 18.
- Follow the **Step 1** ~ **Step 4** in item 2 on checking procedure for each P.C.B. on page 20.



**Step 3**

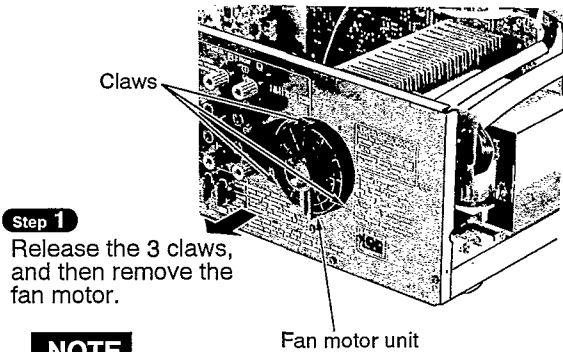
Release the P.C.B. support, and then remove the digital P.C.B.



[XTBS26+8J]

## 2. Replacement for the fan motor

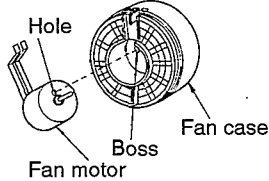
- Follow the **Step 1** ~ **Step 3** in item 1 on checking procedure for each P.C.B. on page 18.



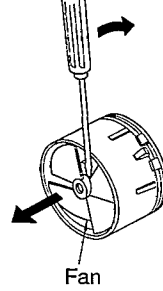
- Step 1**  
Release the 3 claws, and then remove the fan motor.

### NOTE

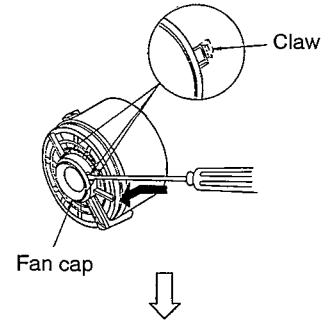
When replacing the fan motor, align the boss of the fan case with the hole of the fan motor.



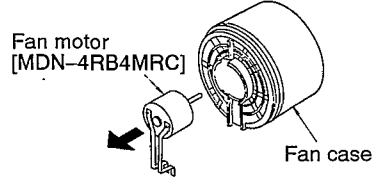
- Step 2**  
Put a screwdriver at the root of the fan and remove it.



- Step 3**  
Remove the fan cap.



- Step 5**  
Remove the fan motor.



- Step 4**  
Remove the fan terminal cap.

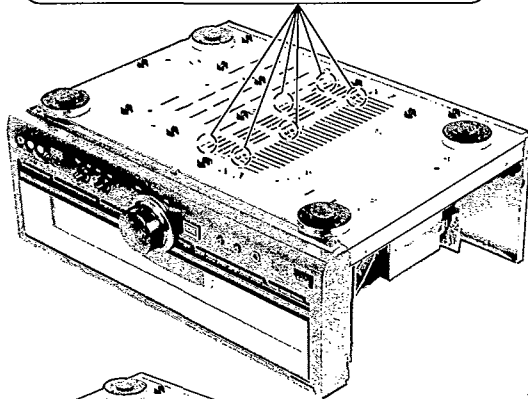
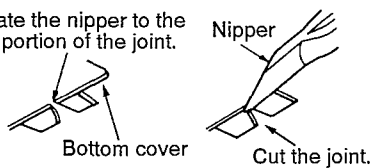


## 3. Replacement for the power IC and regulator transistor

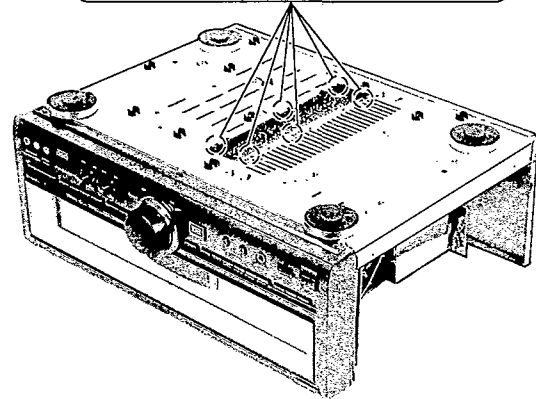
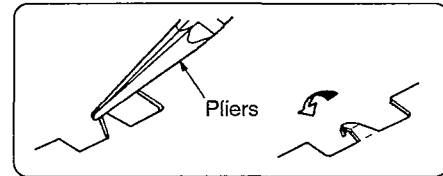
- Follow the **Step 1** ~ **Step 3** in item 1 on checking procedure for each P.C.B. on page 18.

- Step 1** Cut the joints as shown below.(6 portions)

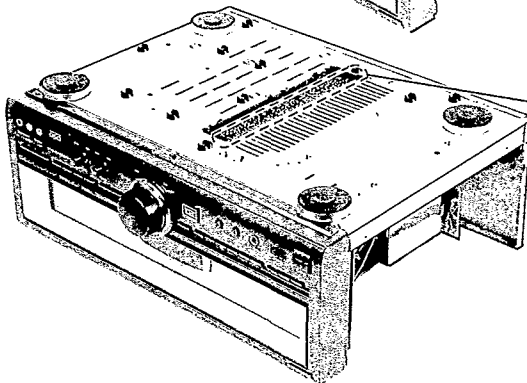
Locate the nipper to the thin portion of the joint.

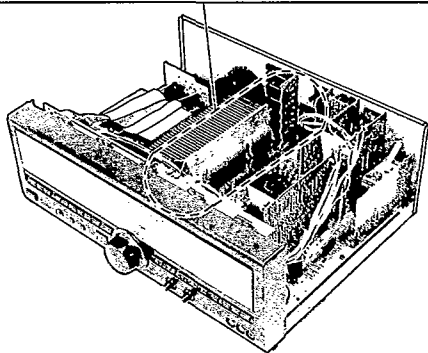
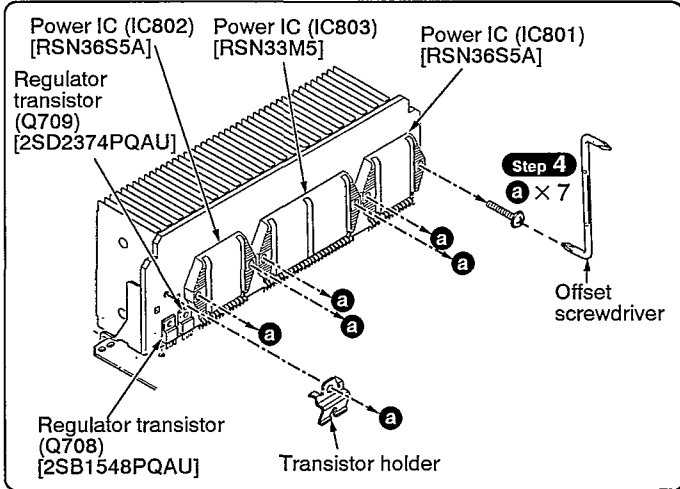


- Step 2** Fold the joints.(6 portions)



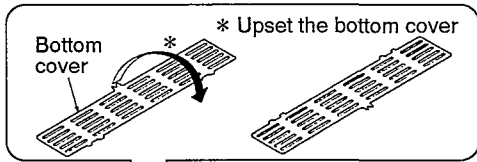
- Step 3**  
Unsolder the terminals of power IC and regulator transistor.



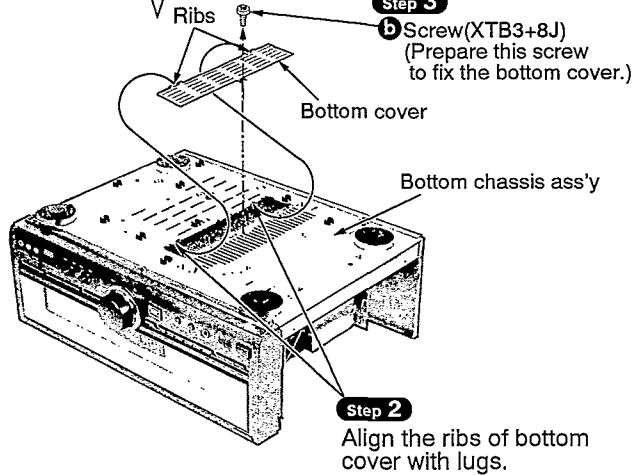


**Installation of the bottom cover after replacement**

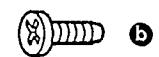
**Step 1**



**Step 3**



[XTW3+15T]



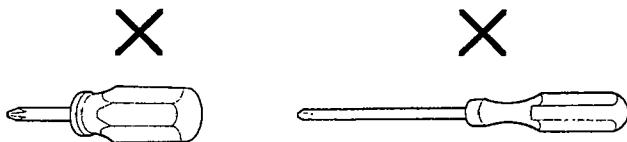
[XTB3+8J](Black)

(Prepare this screw to fix the bottom cover.)

**CAUTION**

1. After replacing the power IC or regulator transistor, apply a sufficient quantity of compound grease (RFKX0002) between the heat sink and the power IC or regulator transistor (Radiation of power IC).
2. Tighten enough the screws (a) after replacing the power IC and regulator transistor. Otherwise, the heat radiation works little.
3. When installing or removing the power IC or transistor holder, be sure to use an offset screwdriver.

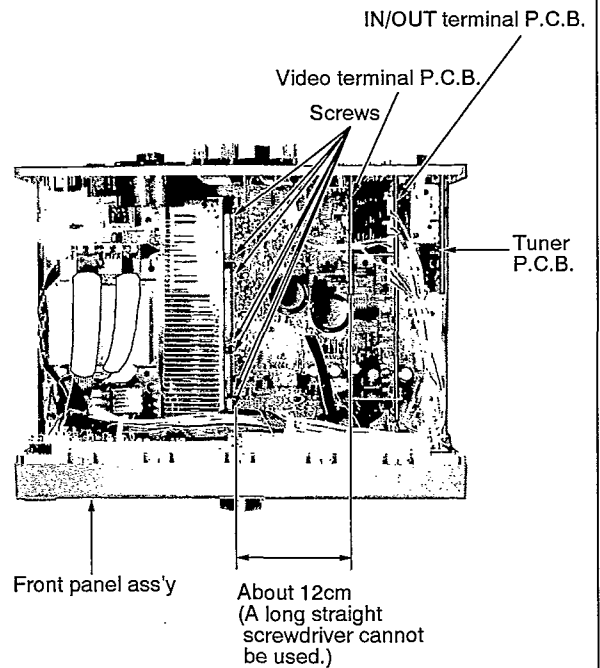
- A long straight screwdriver cannot be used for removal or mounting since its long grip interferes with the neighboring P.C.B. (See Fig.1)
- A short straight screwdriver may be used for removal, but cannot be used for mounting because the limited space in the unit will not allow sufficient tightening torque. (See Fig.2)



A short straight screwdriver

A long straight screwdriver

**Fig.2**



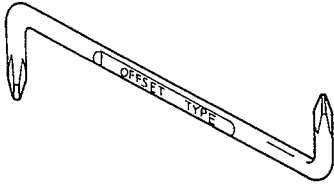
**Fig.1**

- Insufficient tightening will cause poor heat dissipation from the power IC and regulator transistor and, in the worst case, may lead their thermal breakdown. (See Fig.2)



**—OFFSET SCREWDRIVER—**

- The PROTO offset screwdriver No.34- ¼ is recommended for use in the application above.



No.		
34 ¼	1 & 2	4 ¾"

- The address of PROTO International Sales is as follows.

**International Sales**

International Sales Office  
Stanley-Proto Industrial Tools  
14117 Industrial Park Blvd.  
Covington, GA 30209 U.S.A.  
Fax: 706-786-4387  
Phone: 706-787-3800

Australia, New Zealand &  
South Pacific  
Stanley-Proto Industrial Tools  
P.O.Box 10  
400 Whitehorse Road  
Nunweding 3131  
Victoria, Australia  
Fax: 61-3-894-1173  
Phone: 61-3-878-9244

Singapore, Indonesia,  
Philippines, Korea, Hong  
Kong, Malaysia, China.  
Stanley-Proto Asia Pacific  
12 Gul Drive  
Singapore 2262  
Fax: 65-861-3206  
Phone: 65-862-0883

Thailand  
Stanley-Proto Thailand Ltd.  
1017 Moo 13 Bangnatrad  
Highway, Tambol Bankaew  
Amphur Bangplee  
Samutprakarn, Thailand  
Fax: 66-2-316-6071  
Phone: 66-2-316-8655

Japan  
Stanley Works Japan  
110, Sanmai-cho  
Kanagawa-ku Yokohama  
221 Japan  
Fax: 81-45-413-3031  
Phone: 81-45-413-3030

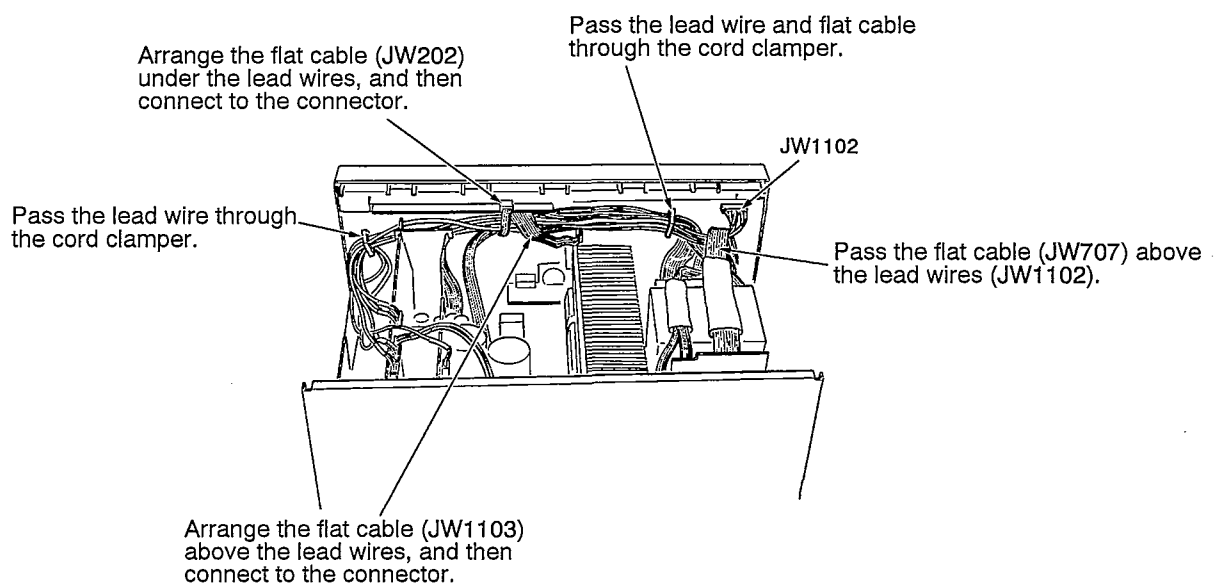
Mexico  
Herramientas Stanley S.A.  
DE C.V.  
Apartado Postal 675  
72030 Puebla, Pue, Mexico  
Fax: 52-22-494-4880  
Phone: 52-22-495-300

South & Central America,  
Puerto Rico, The Caribbean  
Stanley Inter-America  
2101 N.W. 84th Ave.  
Miami, Florida 33122  
Fax: 305-594-4261  
Phone: 305-591-3828

Europe  
Stanley-Proto Europe  
Woodside, Sheffield  
539PD  
England  
Fax: 44-742-739-038  
Phone: 44-742-768-888

Canada  
Stanley-Proto Canada  
1100 Corporate Drive  
Burlington, Ontario  
Canada, L7L 5R6  
Fax: 416-335-0075  
Phone: 416-335-0075

Middle East, Mediterranean  
& Africa  
Stanley-MEMA  
Cory House The Ring  
Bracknell Berkshire  
RG 12 1A2  
England  
Fax: 44-344-485-526  
Phone: 44-344-51813

**● Lead wire and flat cable arrangement**

## ■ 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 is used.

If this occurs, follow the procedure outlined below:

1. Turn OFF the power.
2. Determine the cause of the problem and correct it.
3. Turn ON the power again after one minute.

### Note:

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

## ■ Before Repair and Adjustment

Disconnect AC power, Discharge both Power Supply Capacitors C711(4700 $\mu$ F), C718~721(3300 $\mu$ F), C722/ 723(15000 $\mu$ F) and C729(1000 $\mu$ F) through a 10 $\Omega$ , 5W resistor to ground. DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may destroy solid state devices. After repairs are completed, restore power gradually using a variac, to avoid overcurrent.

Current consumption at 230V / 240V, 50Hz in NO SIGNAL mode should be 150~500mA.

## ■ Measurements and Adjustment

### Control positions and equipment used.

- BASS, TREBLE knob ..... Center
- INPUT SELECTOR ..... CD
- AF Oscillator
- AC EVM (Electronic Voltmeter)

### • POWER METER ADJUSTMENT

1. Confirm the meter indicators, as shown in Fig. 1.
2. Connect an AF oscillator and AC EVM to the unit, as shown in Fig. 2.
3. Turn the power on to the unit and apply a signal (1kHz) from the CD terminal as shown in Fig. 2.
4. Adjust the volume control so that the output level of a signal (1kHz) from the speakers terminals is within the range of 2.76~2.90V (LR=  $\infty$  or 8 $\Omega$ ).
5. Adjust VR350 (Rch) and VR351 (Lch) until the power meter reads 1W, as shown in Fig. 3.

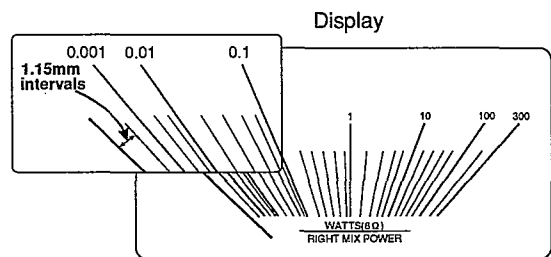


Fig. 1

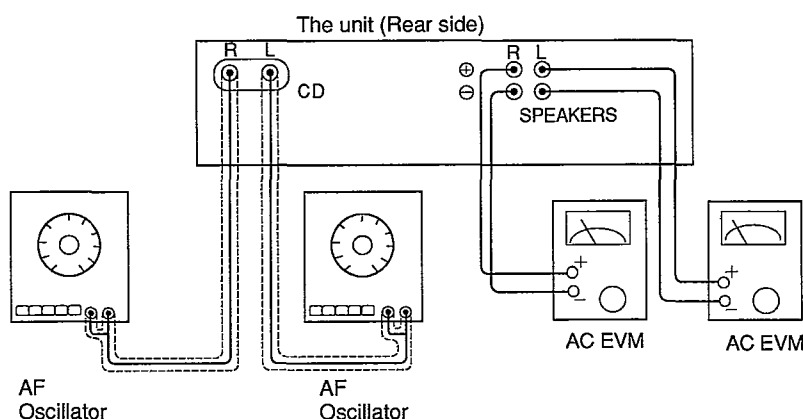


Fig. 2.

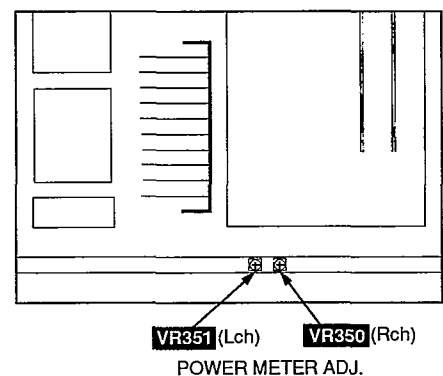
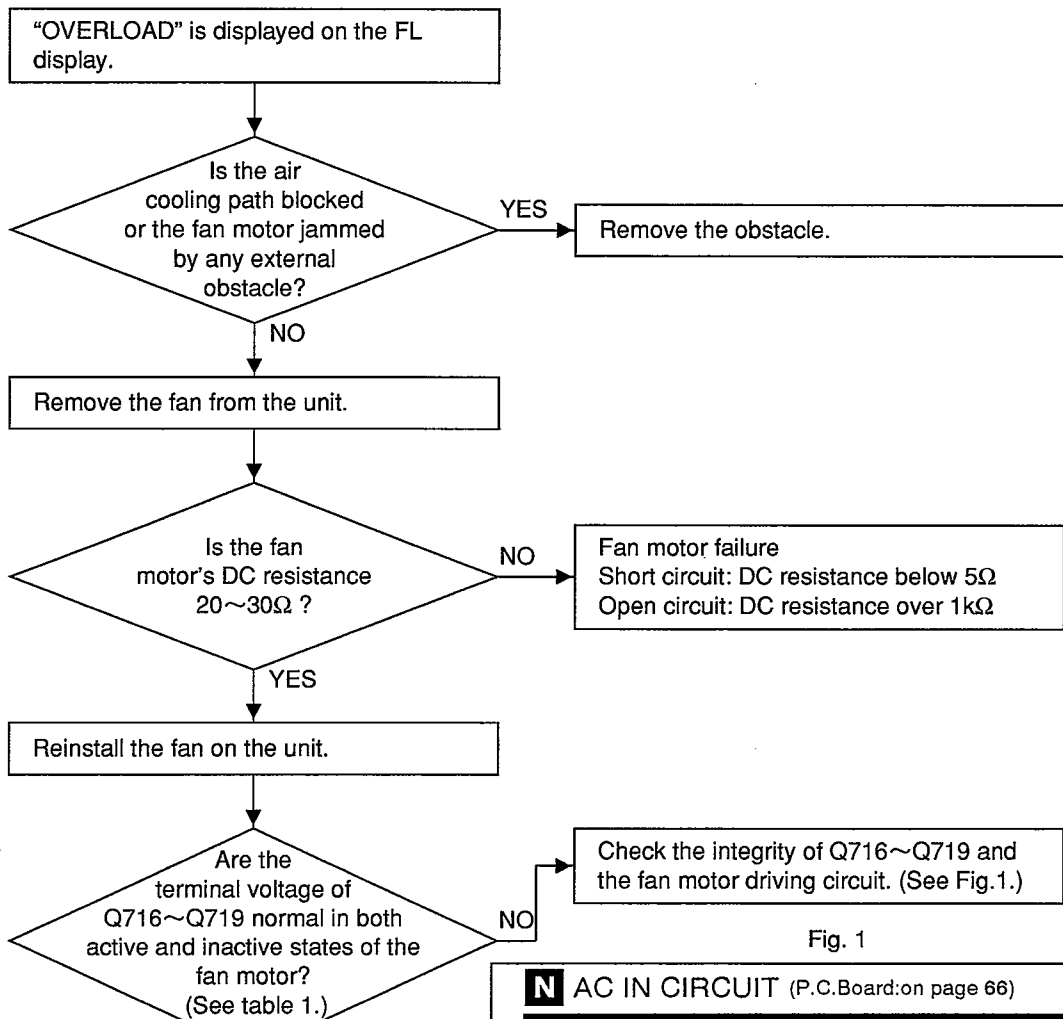


Fig. 3.

## Fan Motor Troubleshooting Guide

The Model SA-TX50 employ fan motor error sensing electronics.

If the cooling fan is not operation and "OVER LOAD" is displayed on the FL display, check the fan motor and its driving circuit.



Ref No.	Voltage	
	fan. off	fan. on
Q716	E	0V
	C	-0.9V
	B	0V
Q717	E	0V
	C	0V
	B	-0.9V
Q718	E	0V
	C	-14.9V
	B	0V
Q719	E	0V
	C	-14.9V
	B	0V

(Table 1)

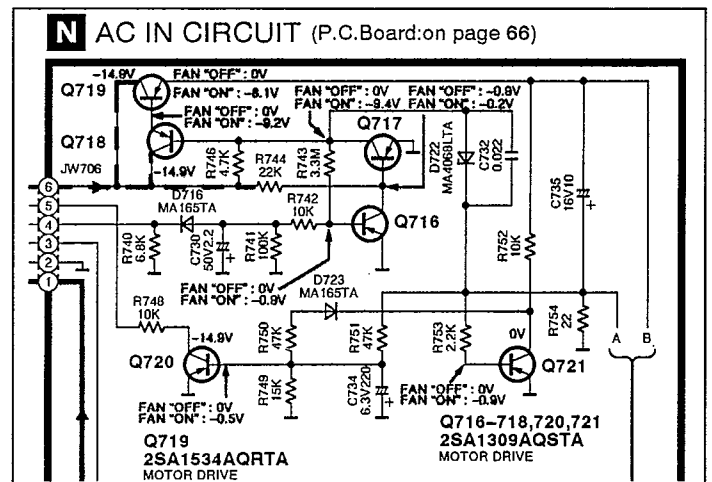
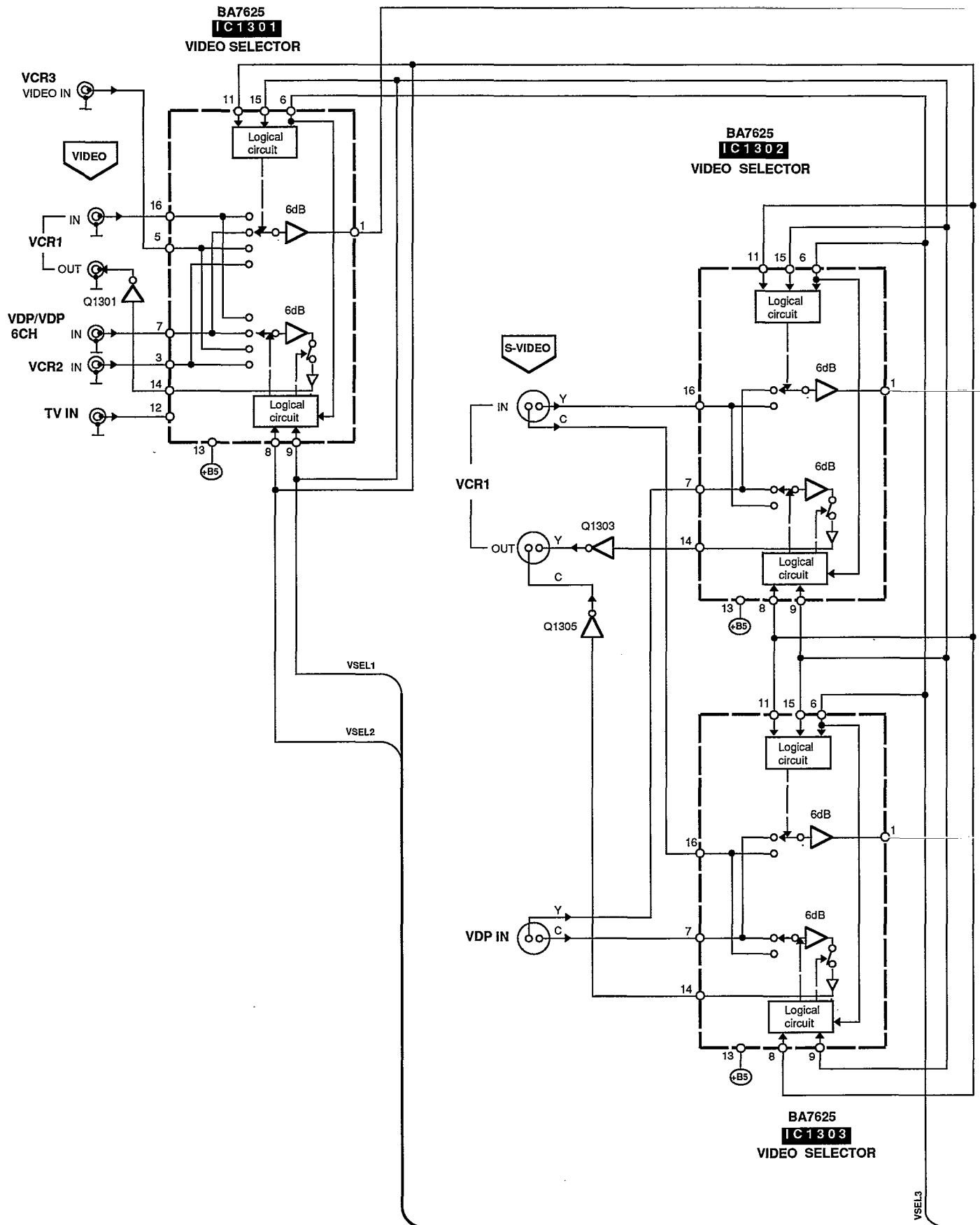
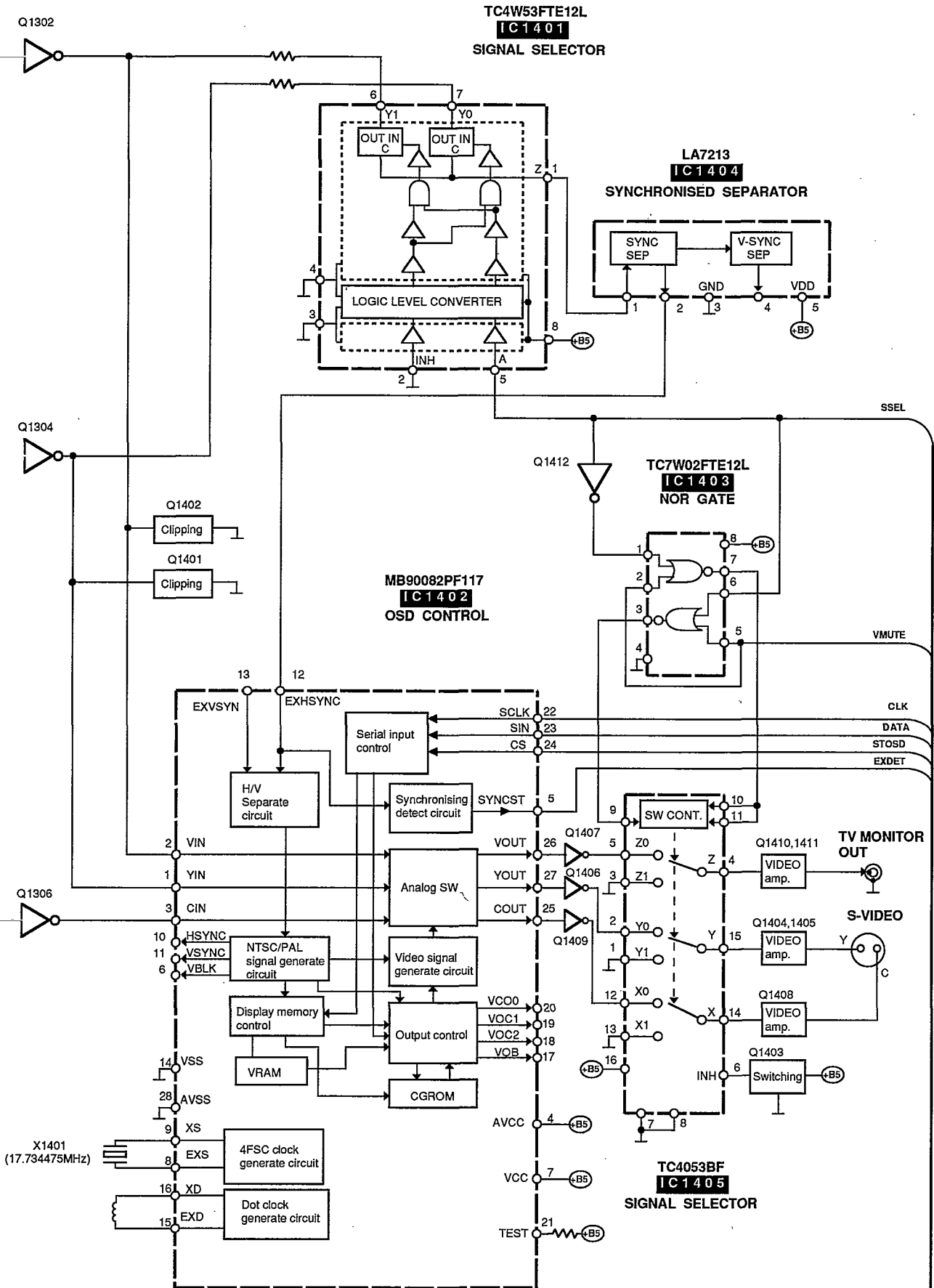
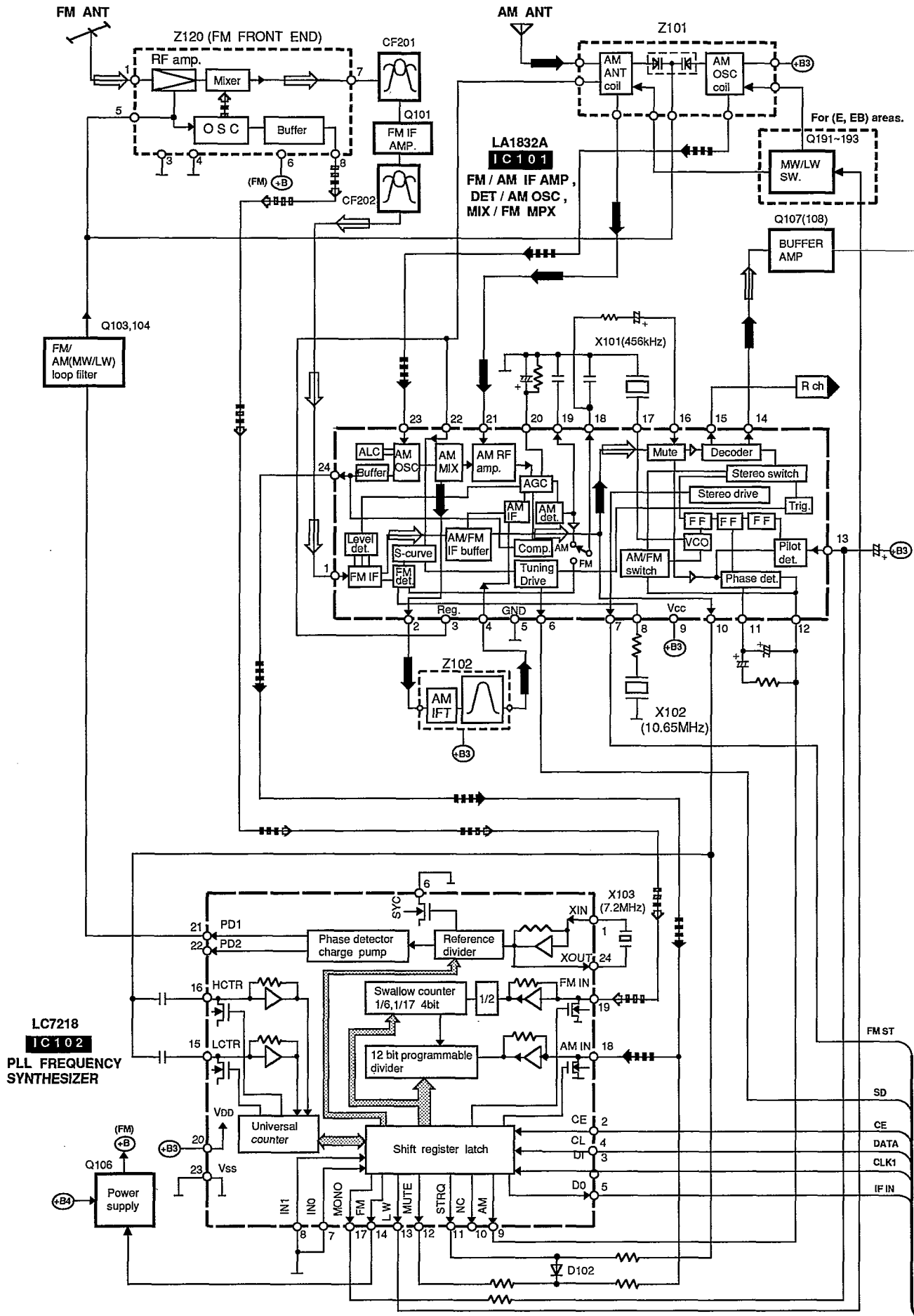


Fig. 1

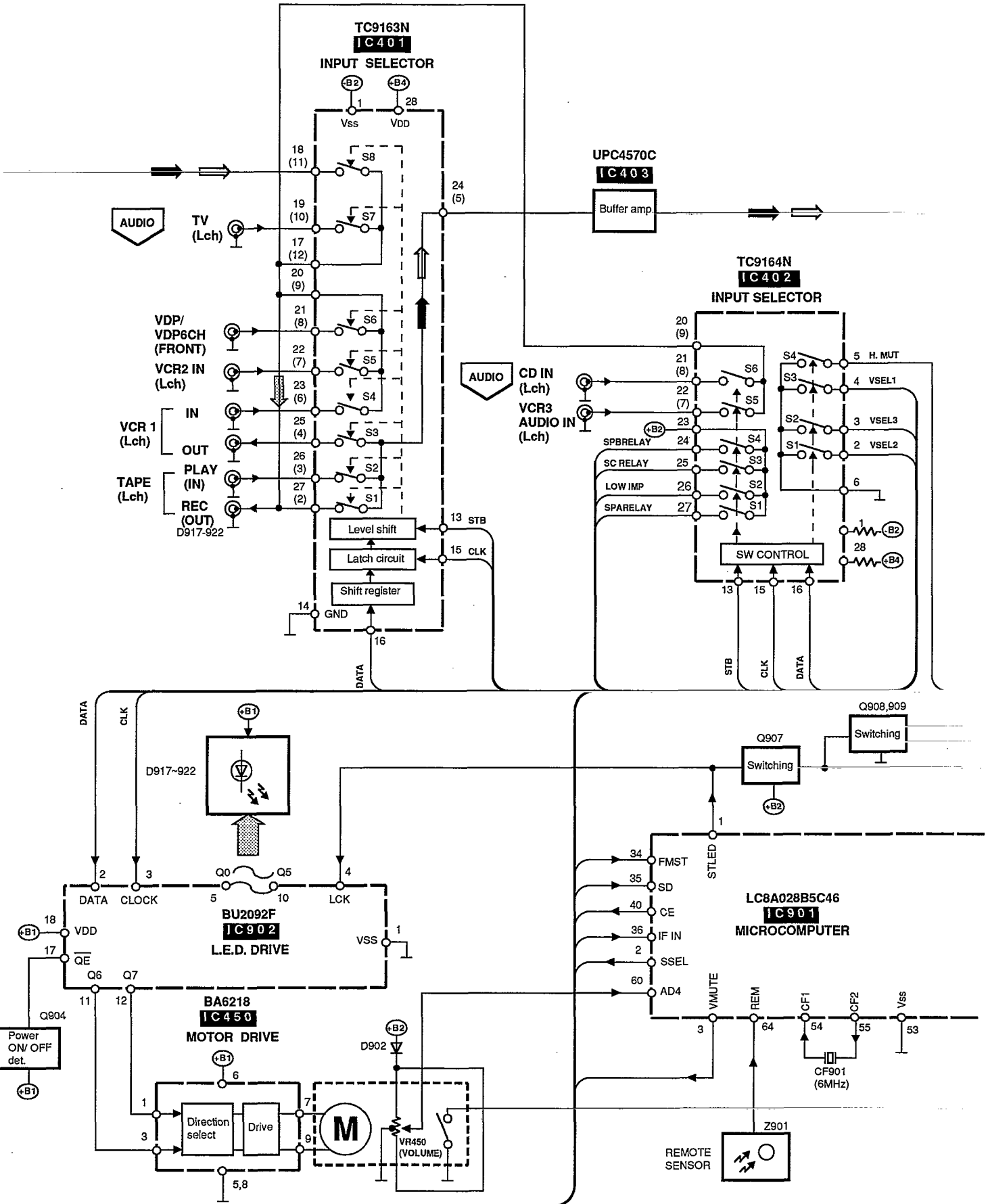
Block Diagram



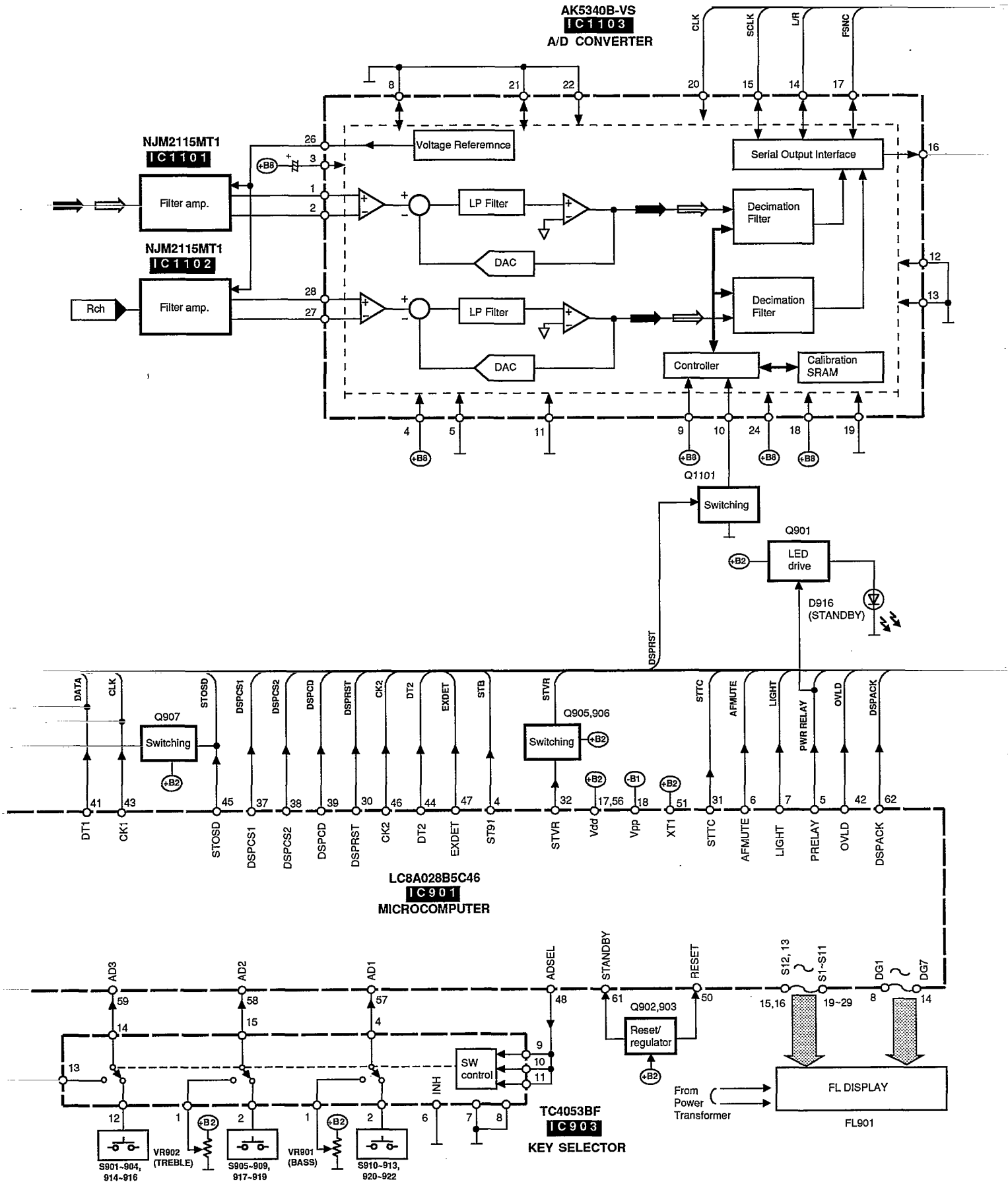




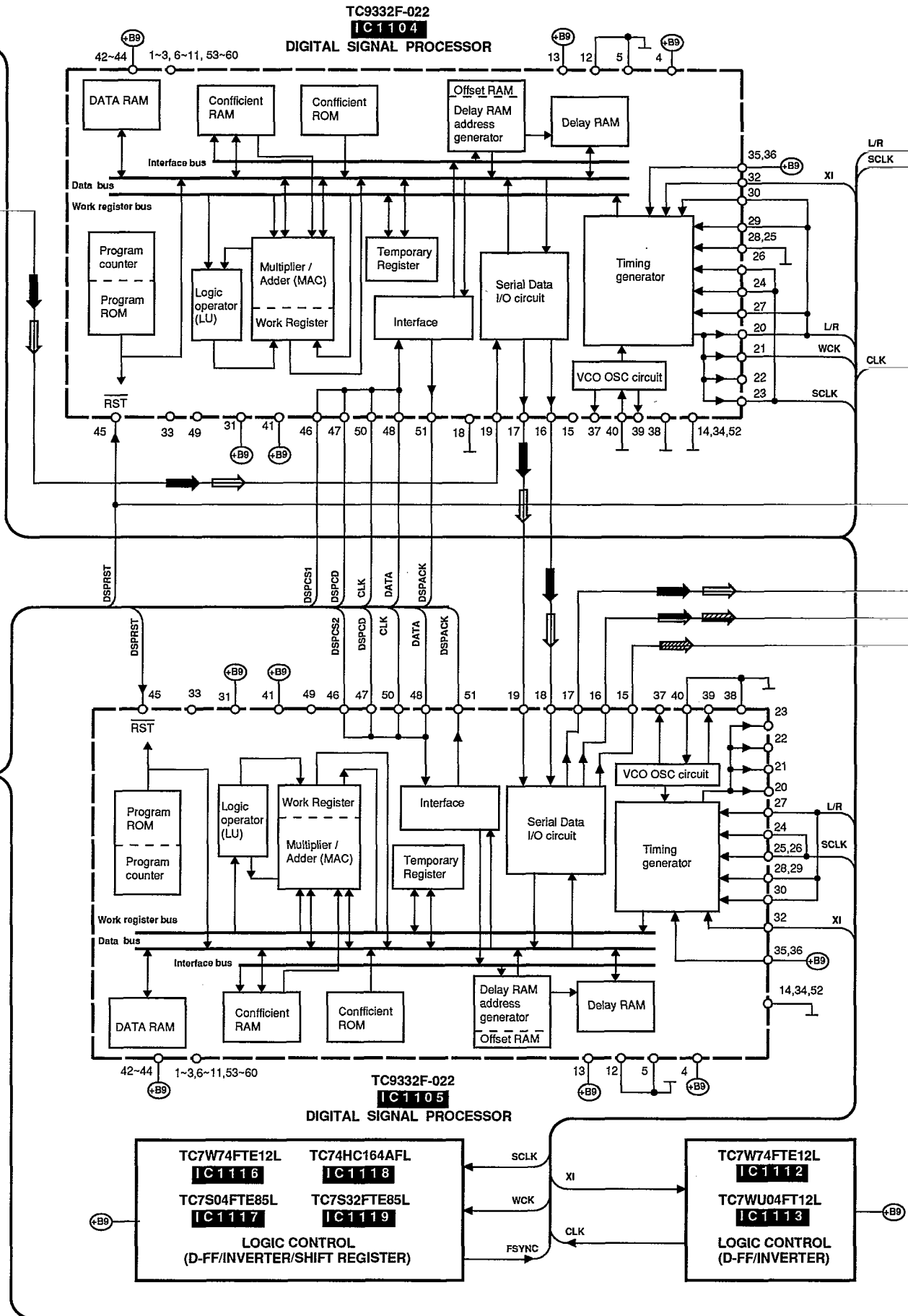
● Signal line     $\Rightarrow$  : FM signal     $\square\square\square\square$  : FM OSC signal     $\blacksquare$  : AM(MW/LW) signal     $\blacksquare\blacksquare\blacksquare\blacksquare$  : AM OSC signal  
 $\Rightarrow$  : Rec out signal    \* ( ) indicates pin No. of right channel.



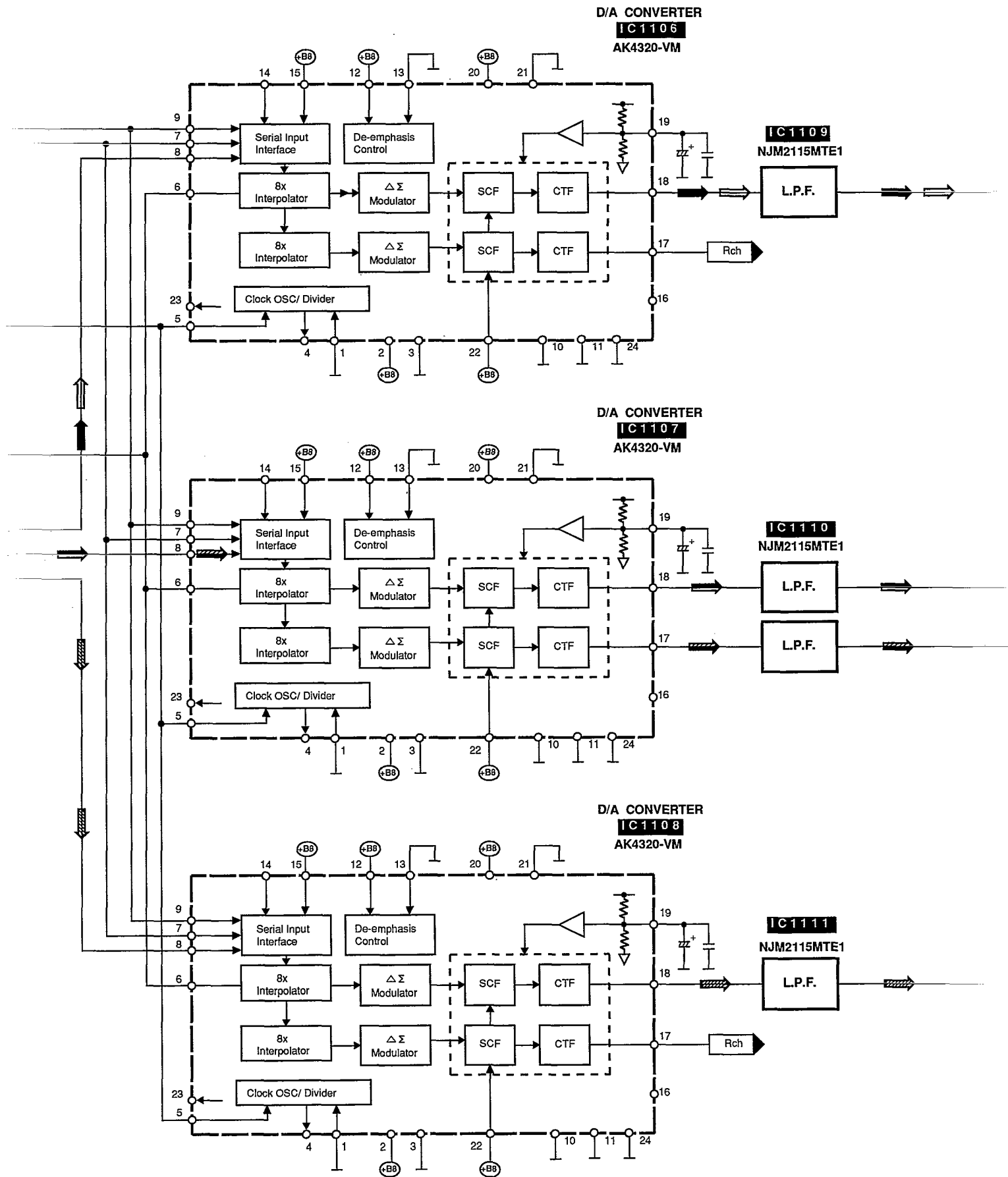
• Signal line     $\Rightarrow$  : FM signal     $\Rightarrow$  : AM(MW/LW) signal  
 $\Rightarrow$  : Subwoofer signal     $\Rightarrow$  : Surround speaker drive signal     $\Rightarrow$  : Center speaker drive signal

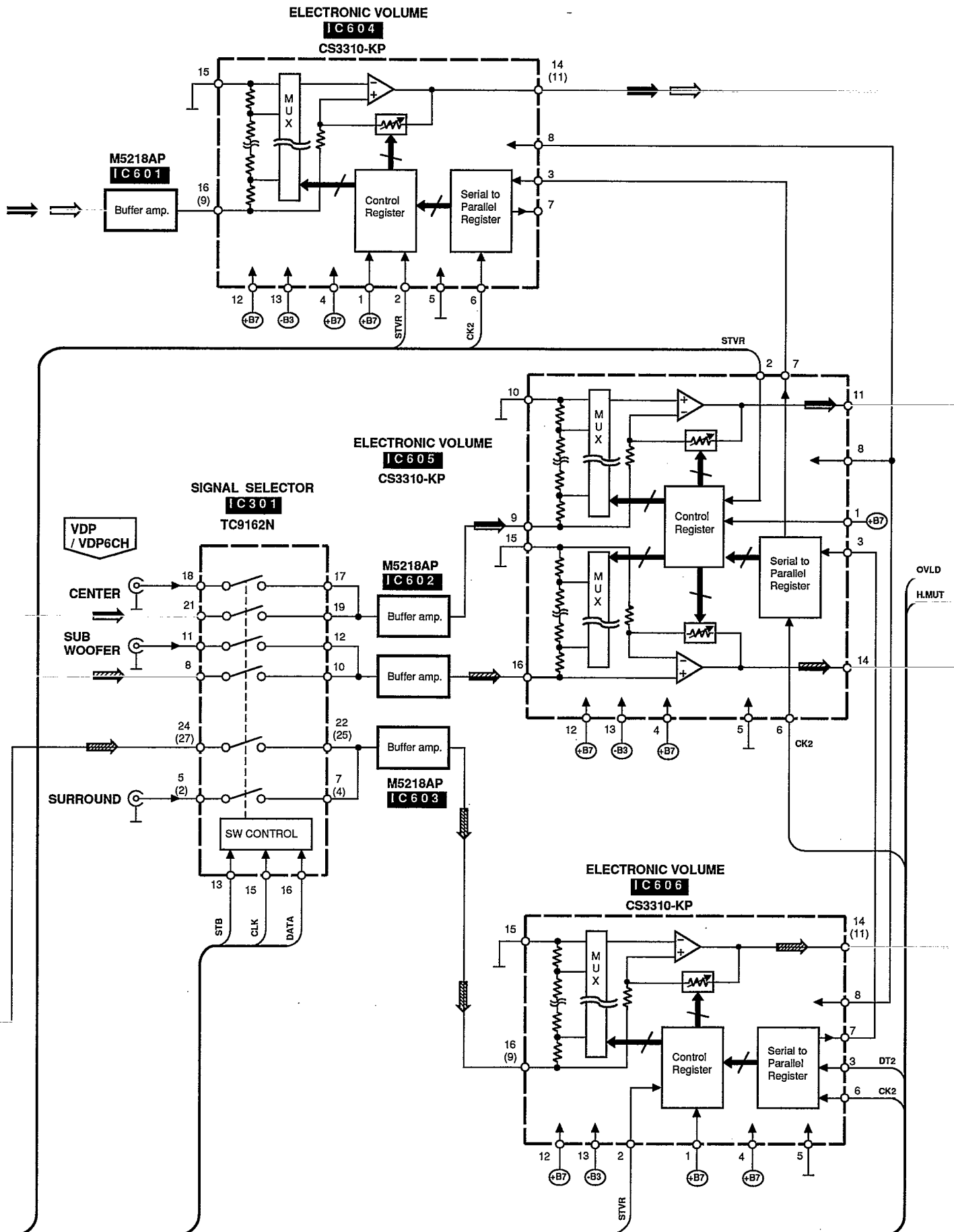




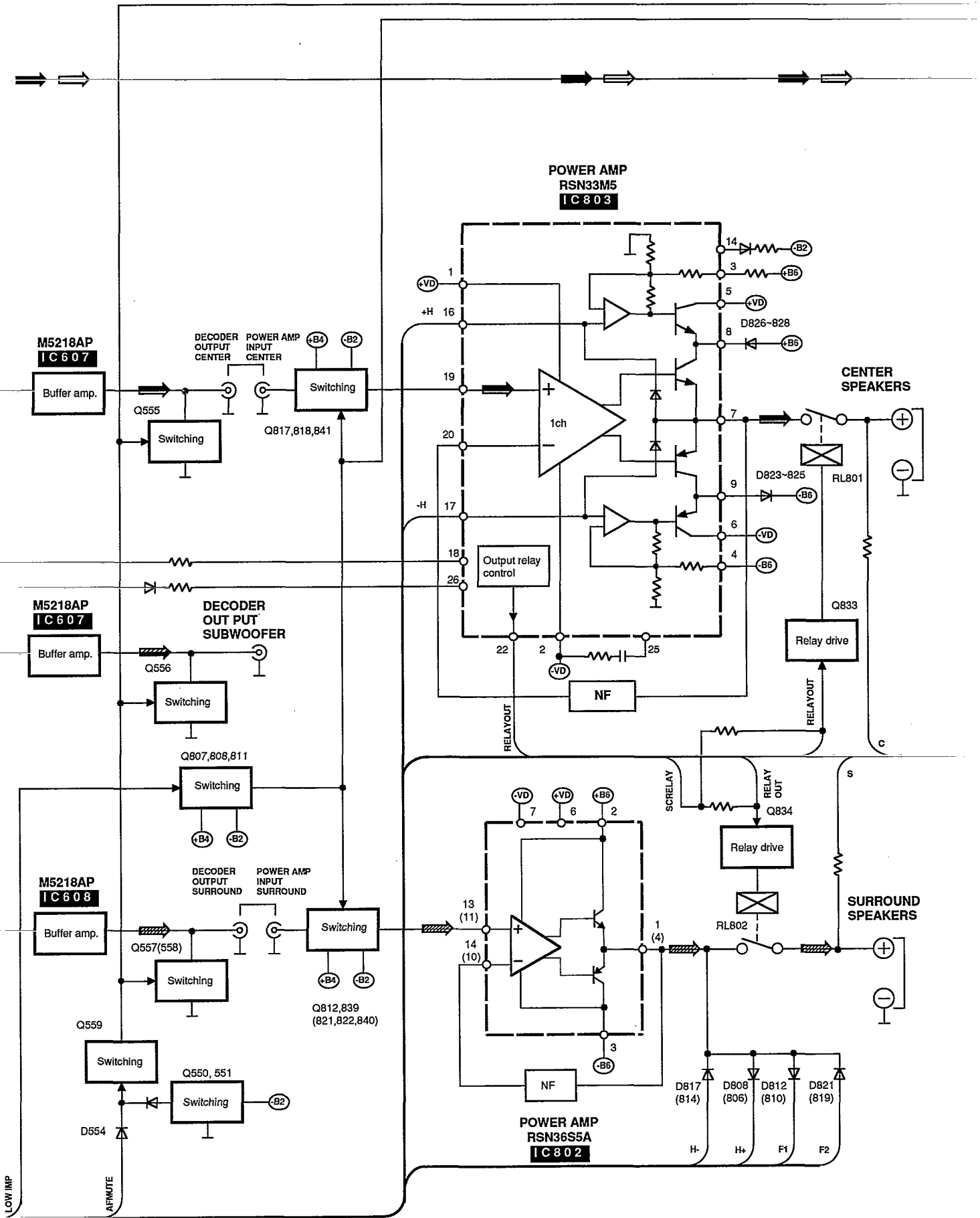


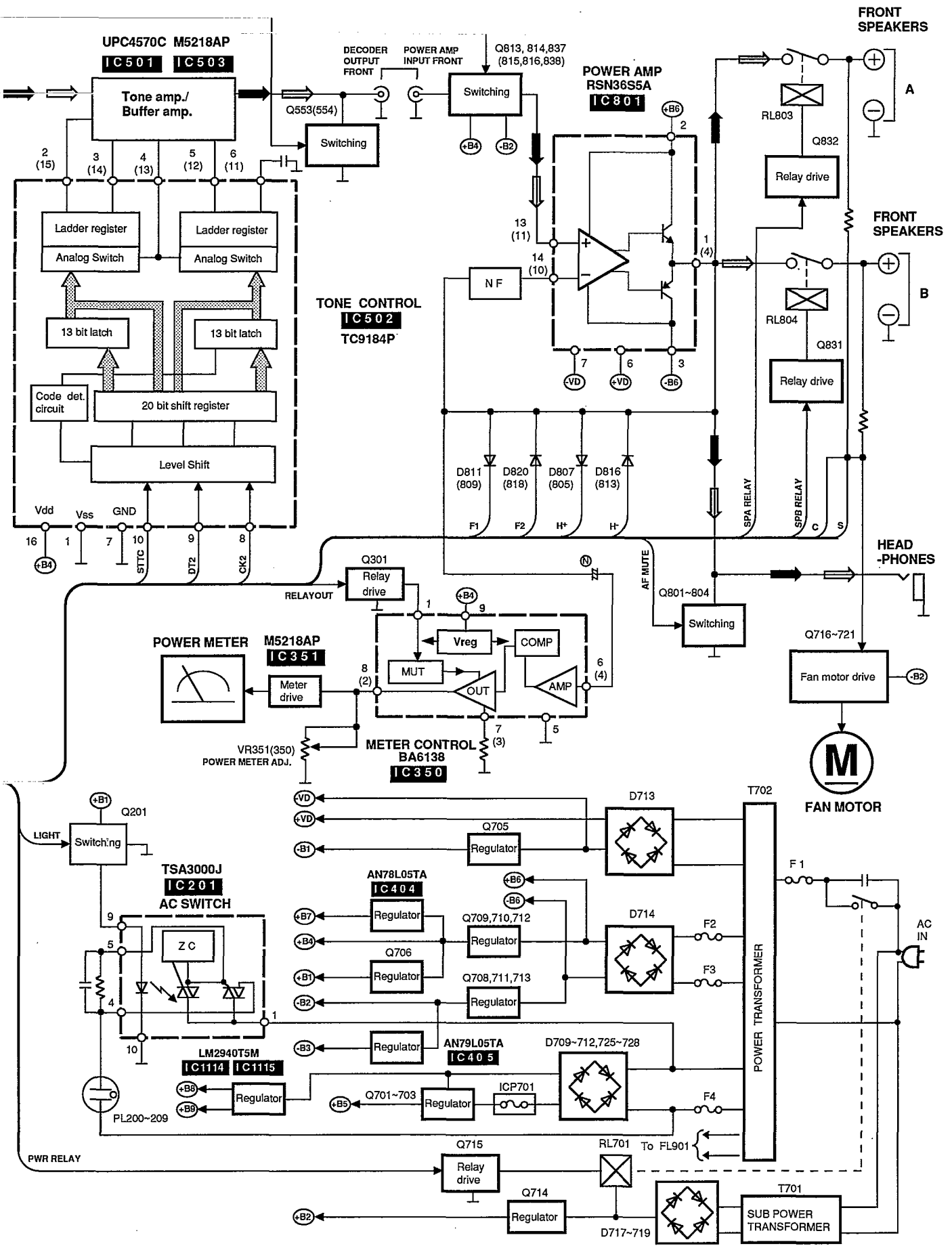
• Signal line  $\Rightarrow$  : FM signal  $\Rightarrow$  : AM(MW/LW) signal  
 $\Rightarrow$  : Subwoofer signal  $\Rightarrow$  : Surround speaker drive signal  $\Rightarrow$  : Center speaker drive signal





• Signal line     $\Rightarrow$  : FM signal     $\Rightarrow$  : AM(MW/LW) signal  
 $\Rightarrow$  : Subwoofer signal     $\Rightarrow$  : Surround speaker drive signal     $\Rightarrow$  : Center speaker drive signal





# Terminal Guide of IC's, Transistors and Diodes

<p>TC4053BF</p>	<p>UPC4570C</p>	<p>BA6218 BA6138</p>	<p>LA7213</p>	<table border="1"> <tr> <td>MB90082PF117</td> <td>28PIN</td> </tr> <tr> <td>BU2092F</td> <td>18PIN</td> </tr> <tr> <td>AK5340B-VS</td> <td>28PIN</td> </tr> <tr> <td>AK4320-VM</td> <td>24PIN</td> </tr> </table>		MB90082PF117	28PIN	BU2092F	18PIN	AK5340B-VS	28PIN	AK4320-VM	24PIN
MB90082PF117	28PIN												
BU2092F	18PIN												
AK5340B-VS	28PIN												
AK4320-VM	24PIN												
<table border="1"> <tr> <td>TC9162N</td> <td>28PIN</td> </tr> <tr> <td>TC9163N</td> <td>28PIN</td> </tr> <tr> <td>TC9164N</td> <td>28PIN</td> </tr> </table>		TC9162N	28PIN	TC9163N	28PIN	TC9164N	28PIN	<p>TC9184P</p>	<p>TC74HC164AFL</p>	<p>TC4W53FTE12L TC7W02FTE12L</p>	<p>BA7625</p>		
TC9162N	28PIN												
TC9163N	28PIN												
TC9164N	28PIN												
<p>TSA3000J</p>	<p>LC8A028B5C46</p>	<table border="1"> <tr> <td>M5218AP</td> <td>8PIN</td> </tr> <tr> <td>LA1832A</td> <td>24PIN</td> </tr> <tr> <td>LC7218</td> <td>24PIN</td> </tr> </table>		M5218AP	8PIN	LA1832A	24PIN	LC7218	24PIN	<p>RSN33M5</p>	<p>RSN36S5A</p>		
M5218AP	8PIN												
LA1832A	24PIN												
LC7218	24PIN												
<p>TC9332F-022</p>	<p>TC7S04FTE85L</p>	<p>NJM2115MTE1 TC7W74FTE12L TC7WU04FT12L</p>	<p>CS3310-KP</p>	<p>LM2940T5M</p>	<p>AN79L05TA</p>								
<p>AN78L05TA</p>	<p>2SB1548PQAU 2SD2374PQAU</p>	<p>2SA1534AQRSTA</p>		<p>2SA1309AQSTA 2SC2785FETA 2SC2787LTA 2SC3311ARSTA 2SC3311AQSTA 2SD1915FTA</p>	<p>UN411FTA UN4119TA UN4211AITA UN4213AITA UN4214AITA UN4111AITA UN4115TA</p>								
	<p>UN4113AITA UN4219TA UN4210TA UN4216TA</p>	<p>2SC3940AQSTA</p>	<p>2SB621AQRSTA</p>	<p>SB360L6508</p>	<p>1SS291TA MA167ATA MA4220MTA</p>								
<p>MA4062LTA MA4068LTA</p>	<p>MA4030MTA MA4039MTA MA4051MTA MA4056MTA MA4062MTA MA4068MTA MA4075MTA MA4091MTA</p>	<p>1SR35200TB</p>	<p>SVDS10VB20F</p>	<p>MA165TA MA700ATA</p>	<p>SLR-325VC</p>								

## Schematic Diagram

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

	Page		Page
<b>A</b> TUNER CIRCUIT .....	40~43	<b>J</b> S-VIDEO JACK CIRCUIT .....	50
<b>B</b> FL PANEL CIRCUIT .....	44~46	<b>K</b> VIDEO TERMINAL CIRCUIT .....	50, 51
<b>C</b> VOLUME CIRCUIT .....	45	<b>L</b> IN/OUT TERMINAL CIRCUIT .....	52~55
<b>D</b> LAMP(L) CIRCUIT .....	45	<b>M</b> MAIN CIRCUIT .....	52~59
<b>E</b> LAMP(R) CIRCUIT .....	45	<b>N</b> AC IN/OUT CIRCUIT .....	59
<b>F</b> OPERATION (1) CIRCUIT .....	46	<b>O</b> POWER SUPPLY CIRCUIT .....	59
<b>G</b> OPERATION (2) CIRCUIT .....	46	<b>P</b> POWER TRANSFORMER CIRCUIT .....	59
<b>H</b> HEADPHONES JACK CIRCUIT .....	46	<b>Q</b> SPEAKERS TERMINAL (1) CIRCUIT .....	59
<b>I</b> DIGITAL CIRCUIT .....	47~49	<b>R</b> SPEAKERS TERMINAL (2) CIRCUIT .....	59

### Note :

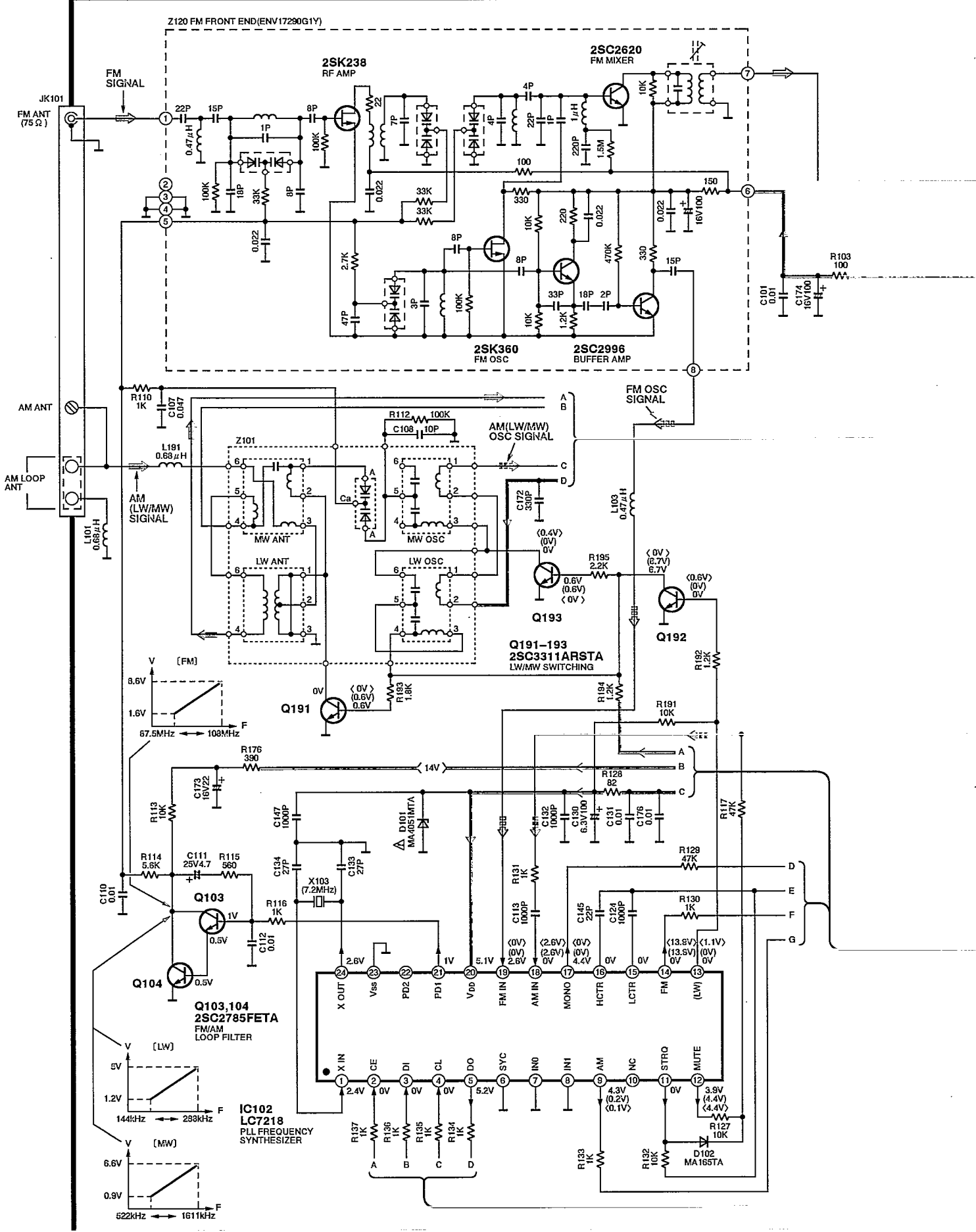
- **S901**: Playback mode select (SFC) Switch.
- **S902**: Playback mode select (THX CINEMA) Switch.
- **S903**: Center mode select (— CENTER MODE) Switch.
- **S904**: Power "STANDBY / ON" (POWER, STANDBY / ON) Switch.
- **S905**: Subwoofer OFF/ ON (— SUBWOOFER OFF/ ON) Switch.
- **S906**: Help/ reset (— HELP— RESET) Switch.
- **S907**: Playback mode select (STEREO) Switch.
- **S908**: Speaker select (SPEAKERS A) Switch.
- **S909**: Playback mode select (SURROUND) Switch.
- **S910**: Playback mode select (MONO) Switch.
- **S911**: Speaker select (SPEAKERS B) Switch.
- **S912**: Playback mode select (3 STEREO) Switch.
- **S913**: Delay time adjust (— DELAY TIME) Switch.
- **S914**: Band select (BAND) Switch.
- **S915**: Tuning control (TUNING ) Switch.
- **S916**: Input select (INPUT SELECTOR <) Switch.
- **S917**: FM mode select (FM AUTO / MONO) Switch.
- **S918**: Preset channel select (PRESET ) Switch.
- **S919**: Input select (INPUT SELECTOR >) Switch.
- **S920**: Memory (MEMORY) Switch.
- **S921**: Preset channel select (PRESET ) Switch.
- **S922**: Tuning control (TUNING ) Switch.
- Signal line
  - : FM OSC signal
  - : AM(MW/LW) OSC signal
  - : Rec out signal (Lch)
  - : Surround speaker drive signal (Lch)
  - : Positive voltage lines
  - : Negative voltage lines
  - : FM signal
  - : AM(MW/LW) signal
  - : Center speaker drive signal (Lch)
  - : Subwoofer speaker drive signal

- Important safety notice:  
Components identified by mark have special characteristics important for safety.  
Furthermore, special parts which have purpose of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used as occasion calls. When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
- The supply part number is described alone in the replacement parts.
- 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.

### • Caution!

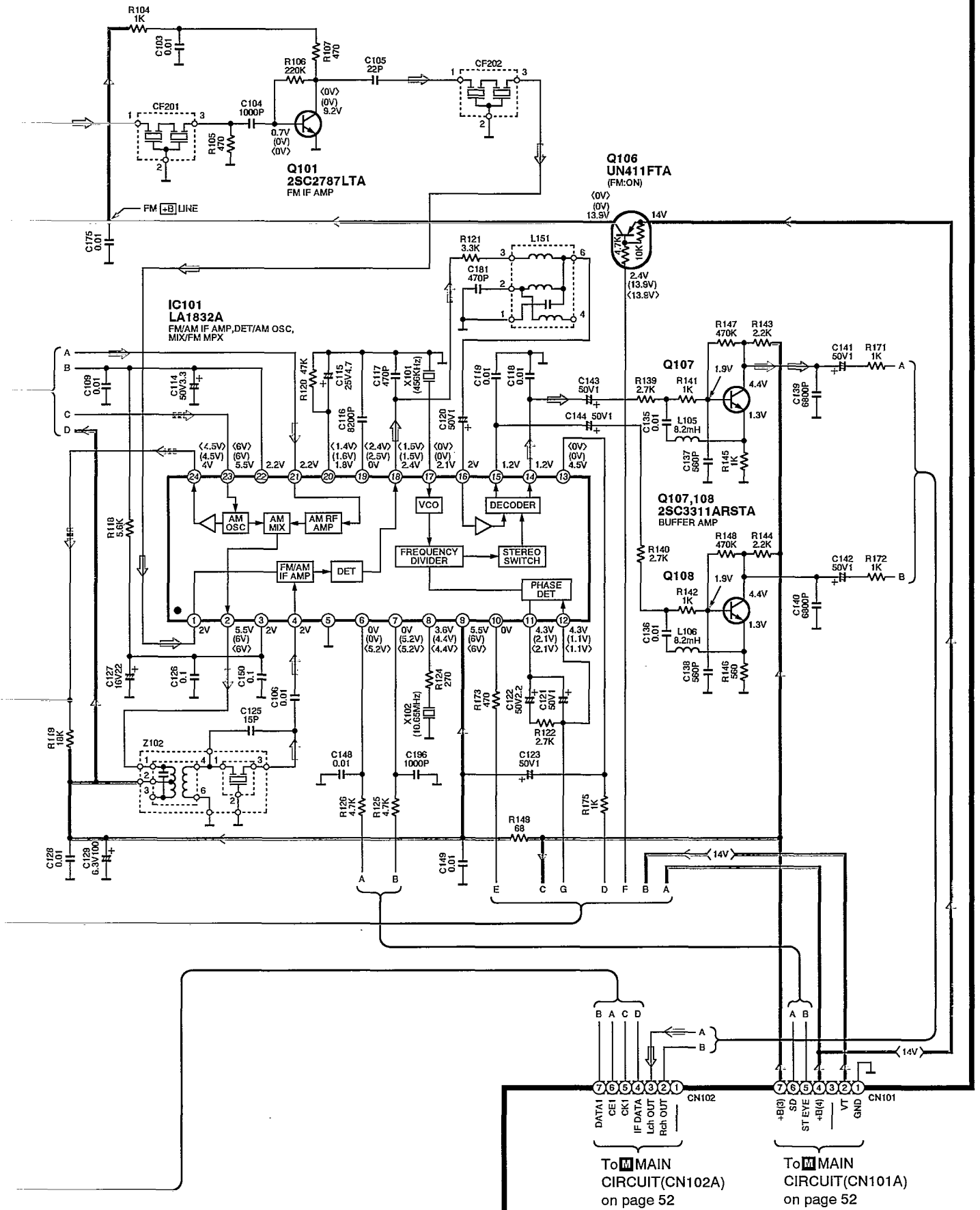
- IC and LSI are sensitive to static electricity.  
Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers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

**A** TUNER CIRCUIT For [E,EB] areas. (P.C. Board: on page 60)

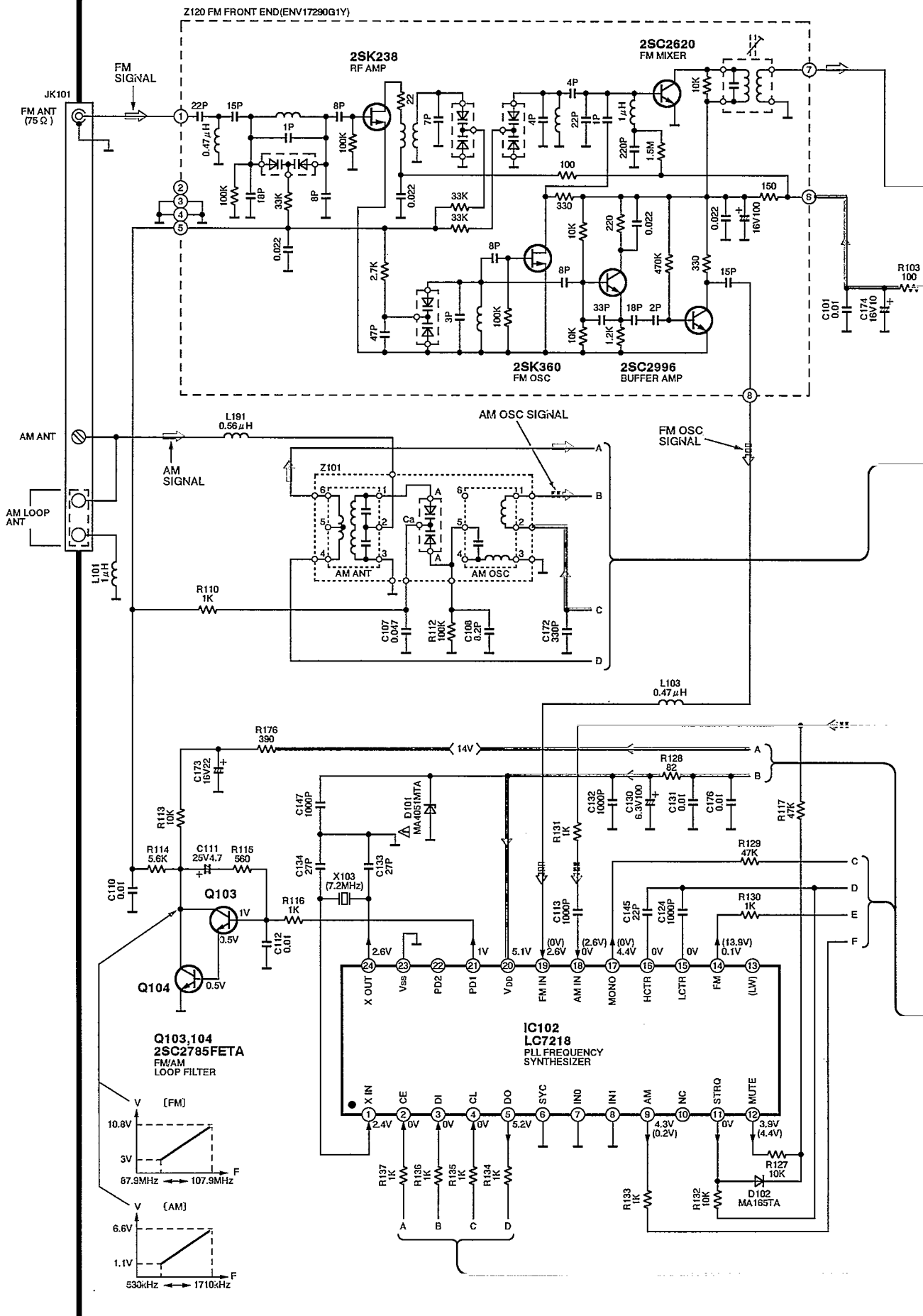




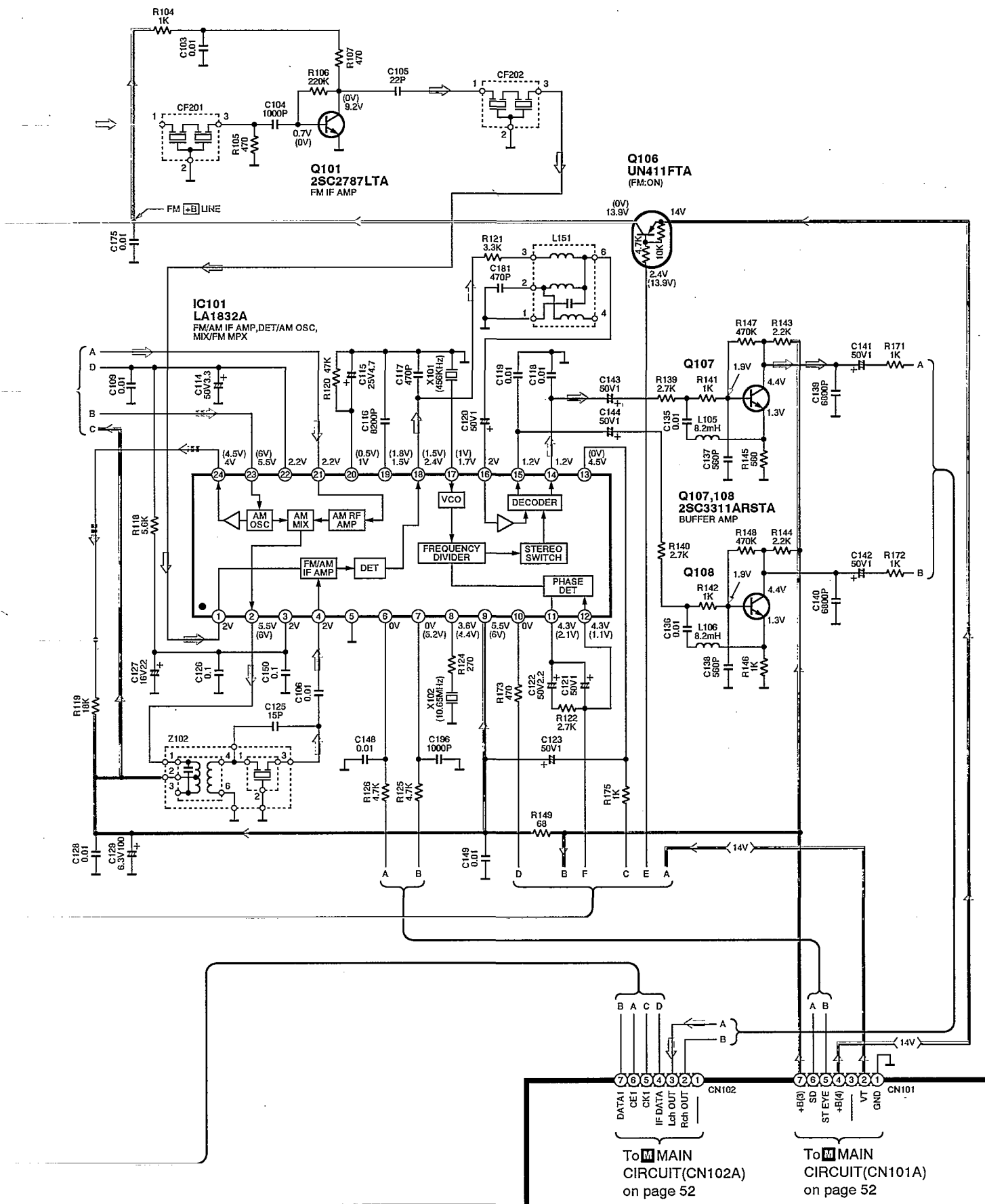
Notes: ● → : FM signal ● □□□□ : FM OSC signal  
 ● → : AM signal ● □□□□ : AM OSC signal



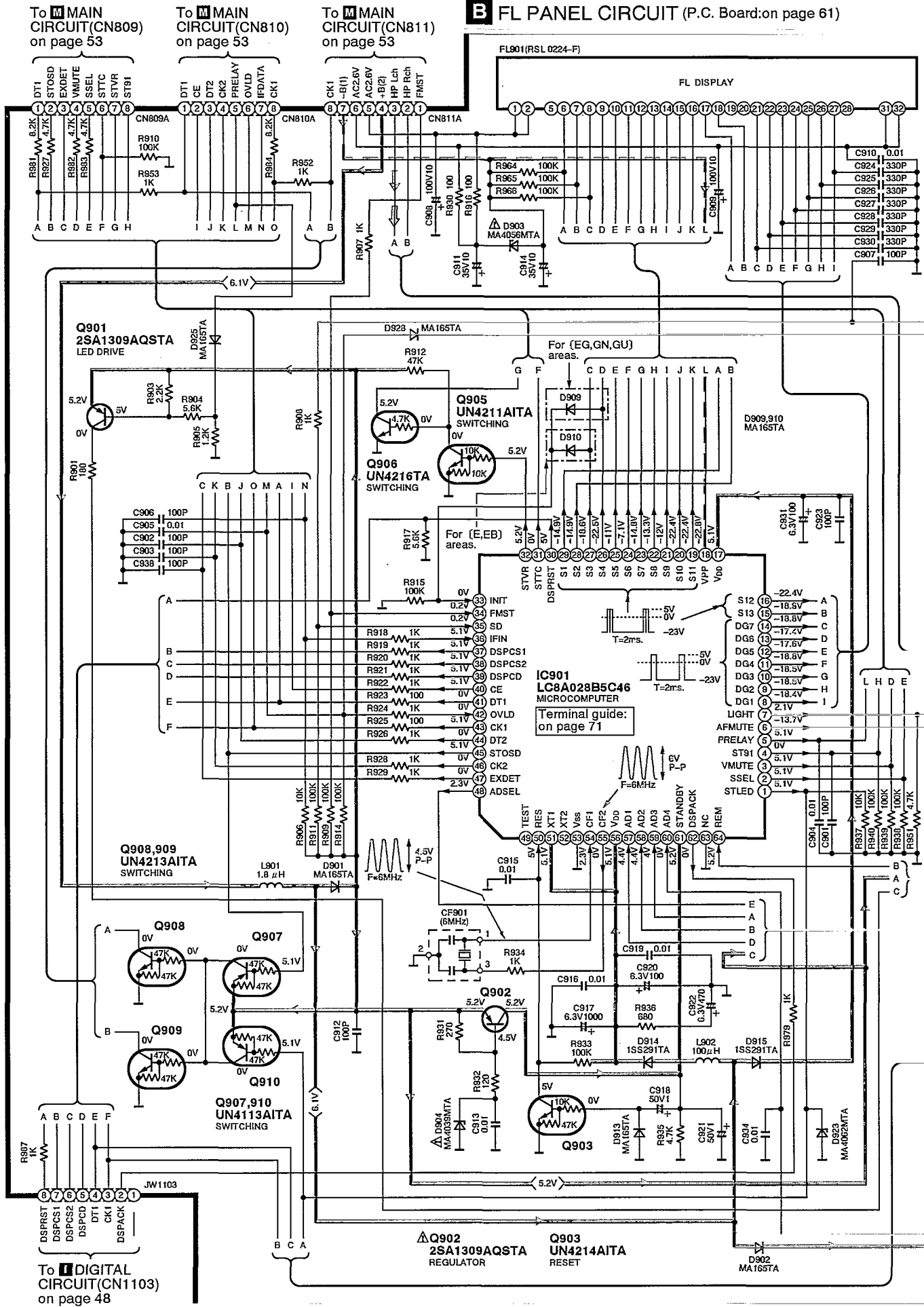
**A** TUNER CIRCUIT For [EG,GN,GU] areas. (P.C. Board: on page 60)



Notes: ● → : FM signal      ● □ □ □ → : FM OSC signal  
 ● → : AM signal      ● □ □ □ → : AM OSC signal



**B** FL PANEL CIRCUIT (P.C. Board: on page 61)



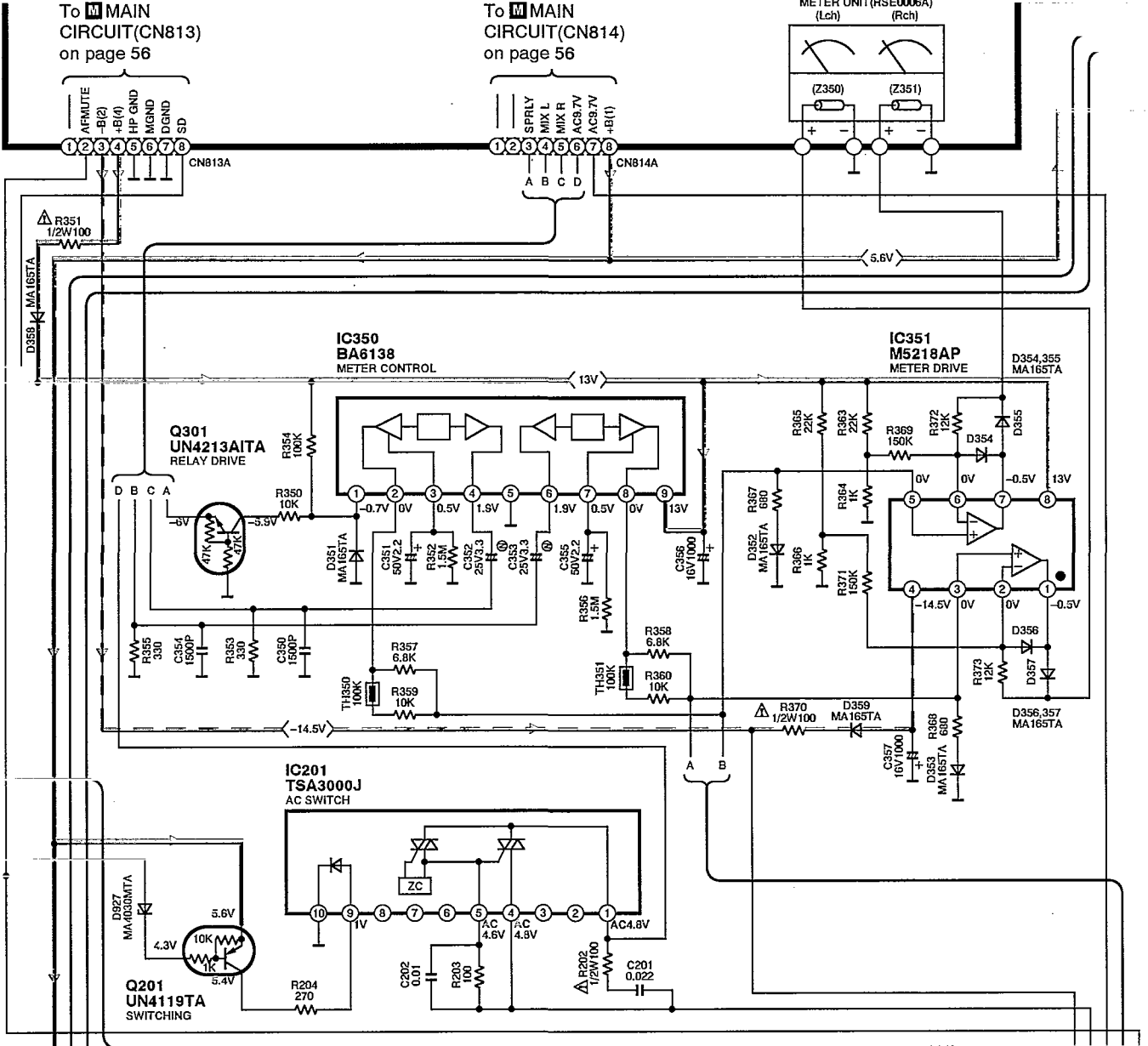
To **D** DIGITAL CIRCUIT (CN1103) on page 48

Notes: ● → : FM signal  
 ● → : AM signal

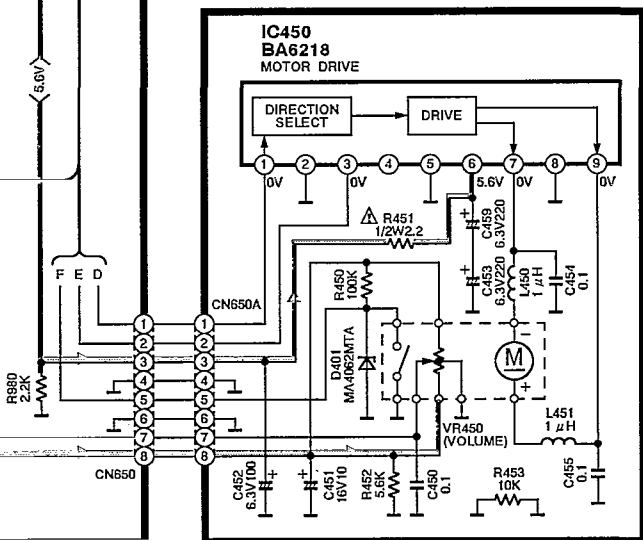
To MAIN CIRCUIT(CN813) on page 56

To MAIN CIRCUIT(CN814) on page 56

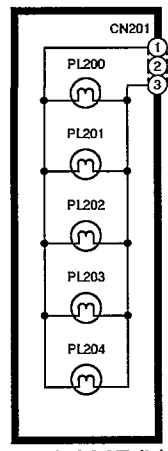
METER UNIT(RSE0006A) (Lch) (Rch)



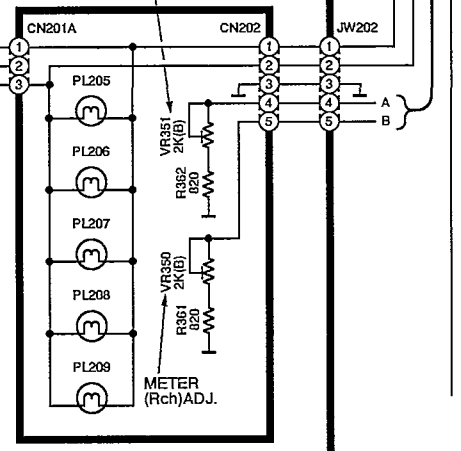
**C VOLUME CIRCUIT**  
 (P.C. Board: on page 60)



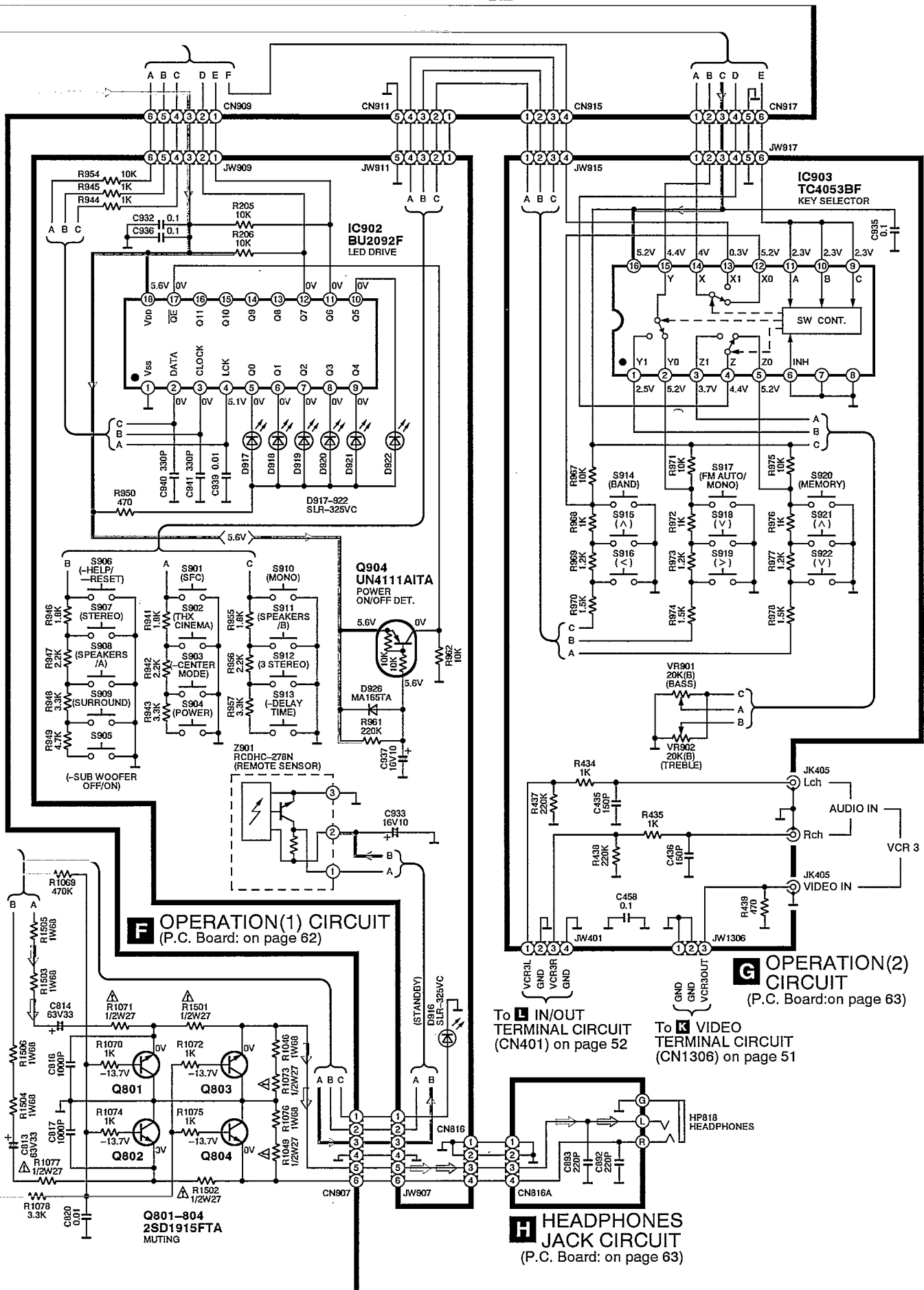
**D LAMP(L) CIRCUIT**  
 (P.C. Board: on page 61)



**E LAMP(R) CIRCUIT**  
 (P.C. Board: on page 62)



**B** FL PANEL CIRCUIT (P.C. Board: on page 61)

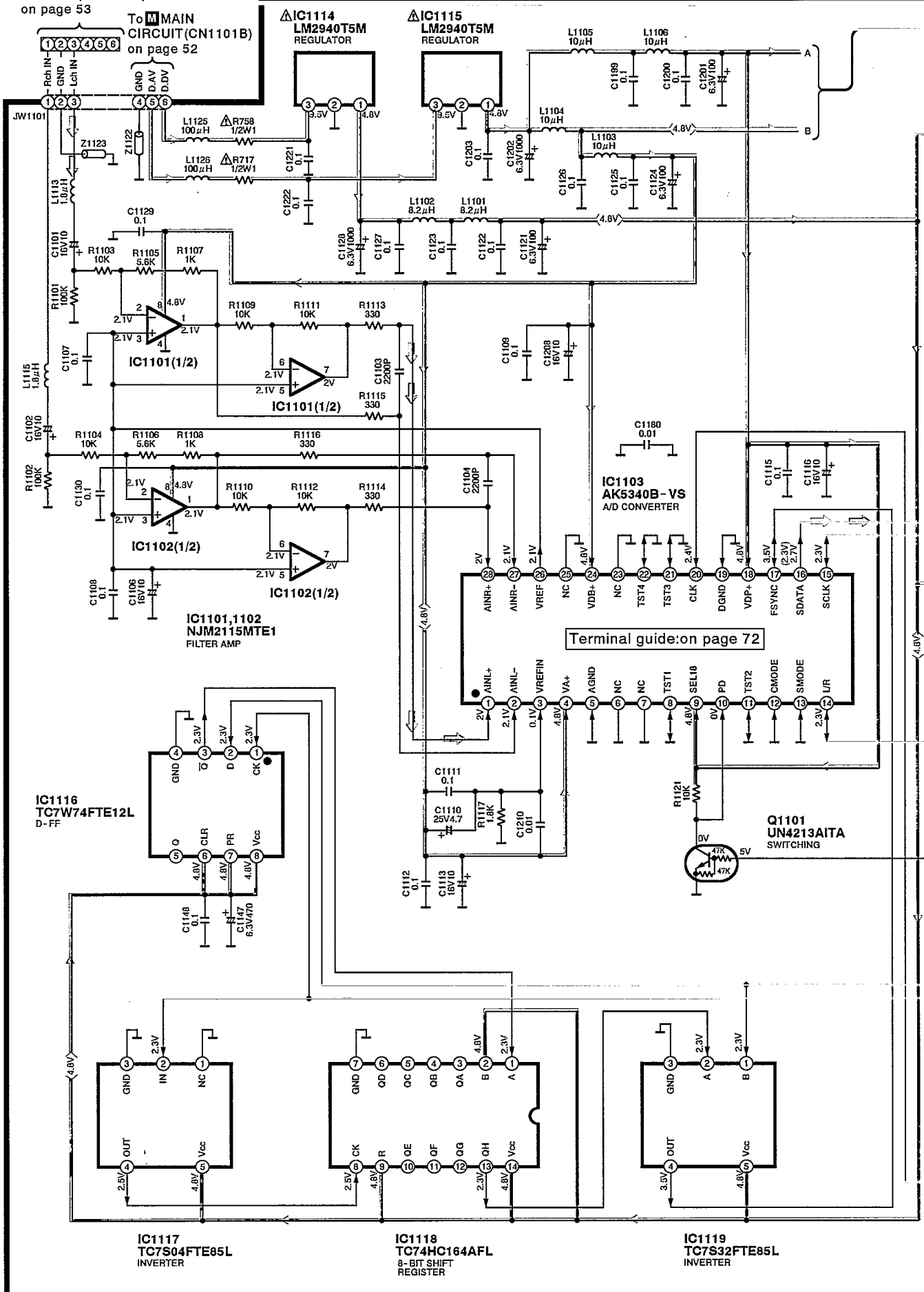


Notes: ● → : FM signal  
● → : AM signal

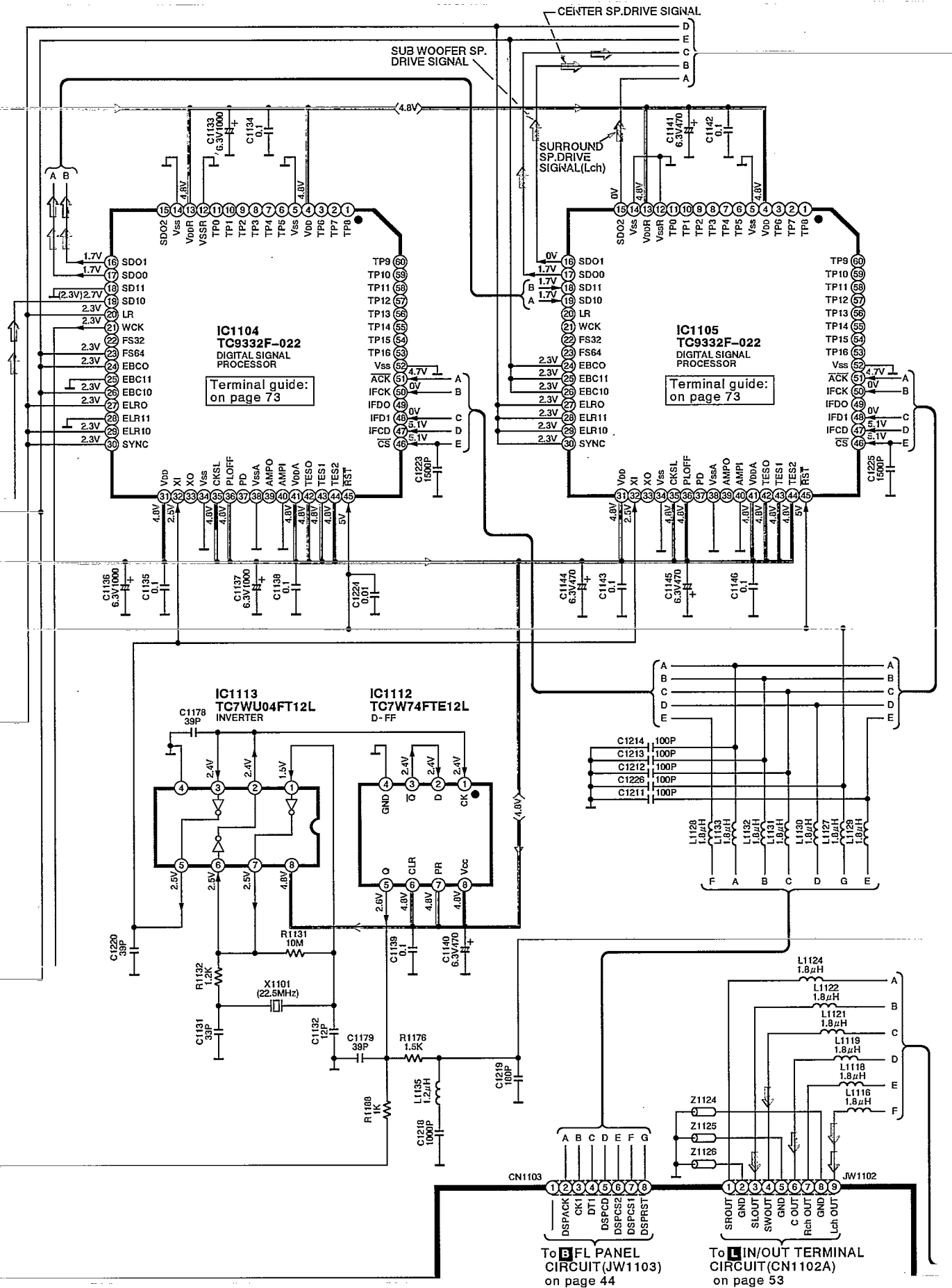
To IN/OUT TERMINAL CIRCUIT(CN1101A) on page 53

DIGITAL CIRCUIT (P.C.Board: on page 64)

To MAIN CIRCUIT(CN1101B) on page 52



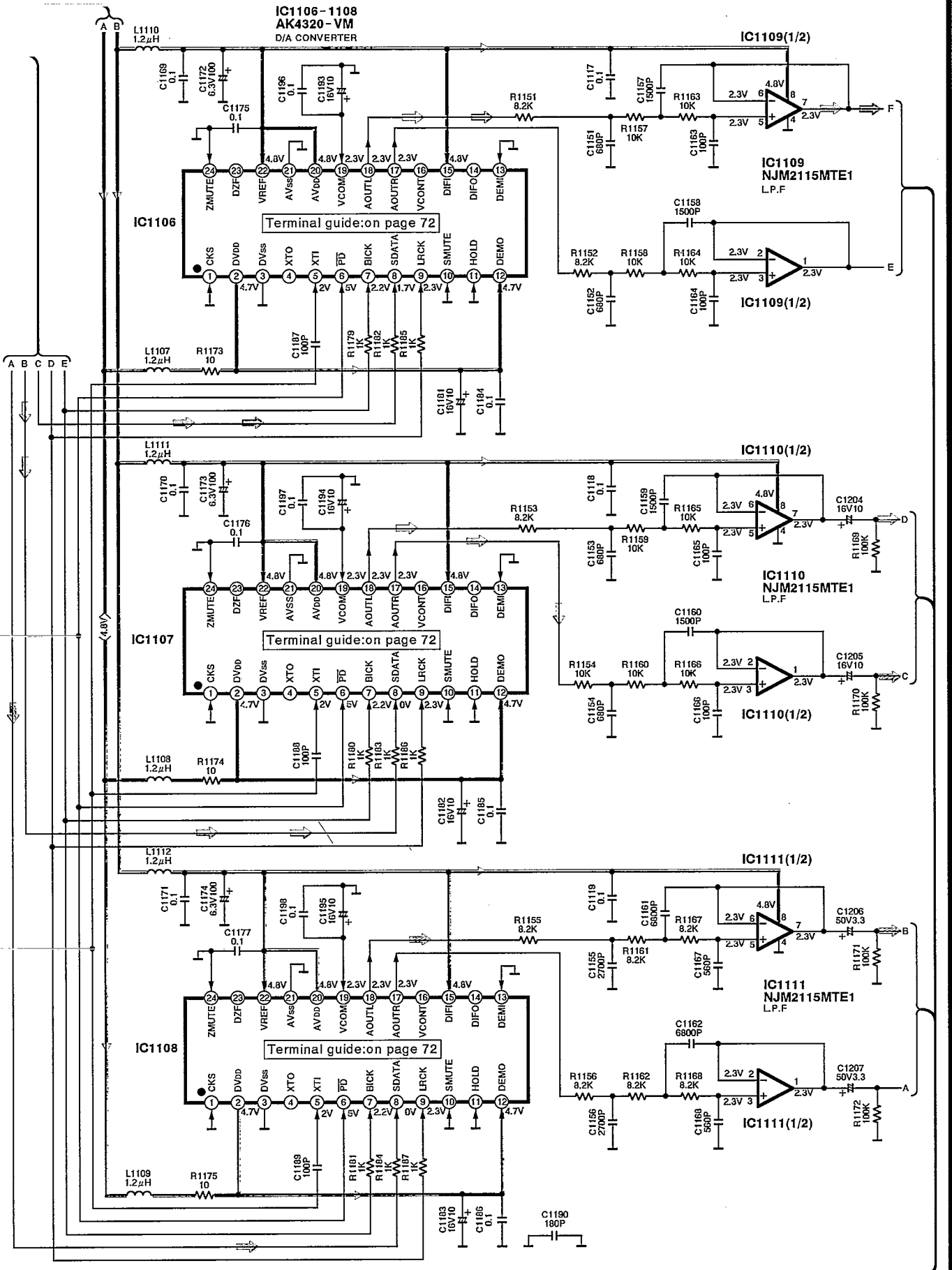
Terminal guide: on page 72





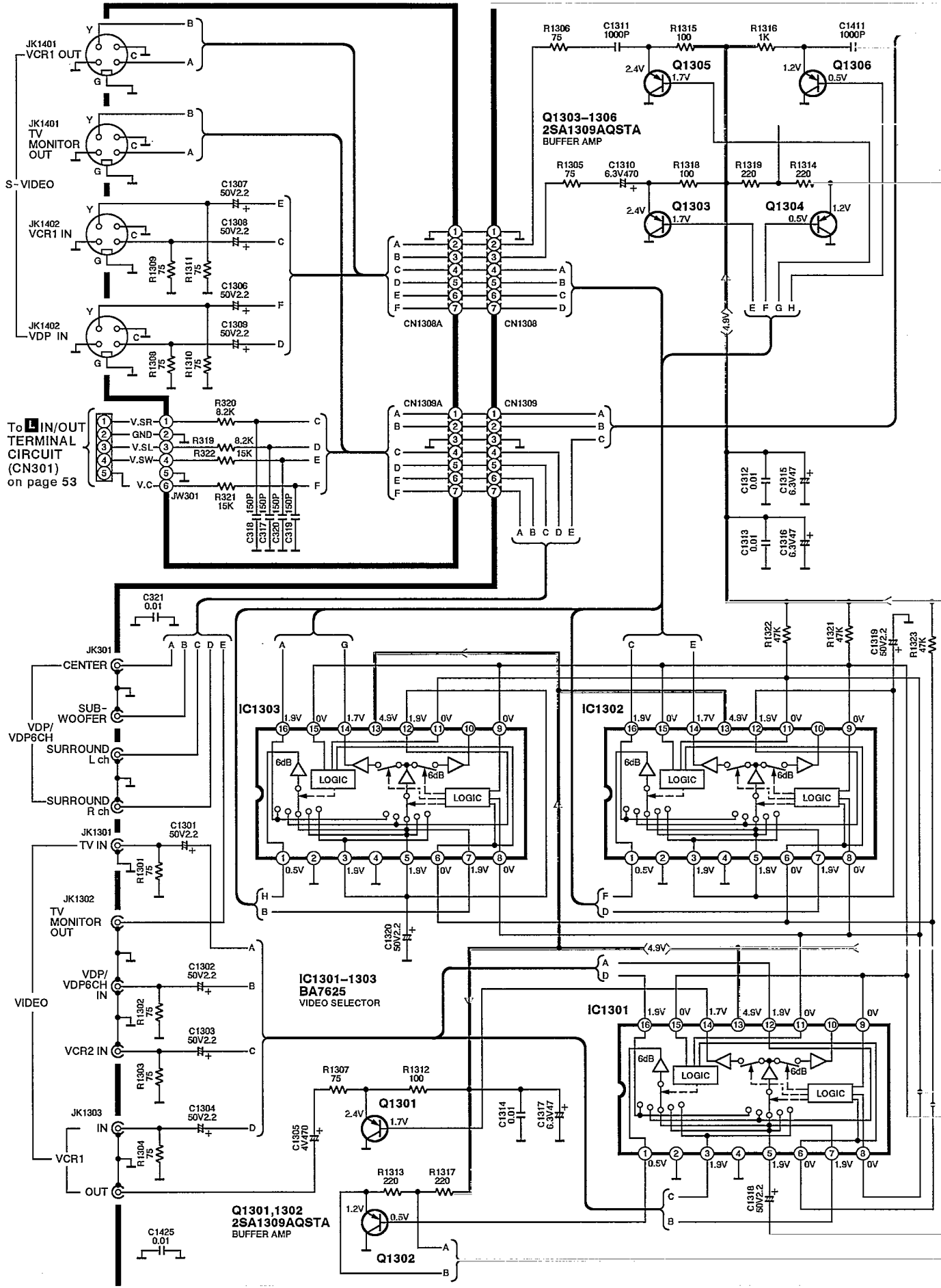
- Notes:
- → : FM signal
  - → : AM signal
  - → : Surround speaker drive signal (Lch)
  - → : Subwoofer speaker drive signal
  - → : Center speaker drive signal

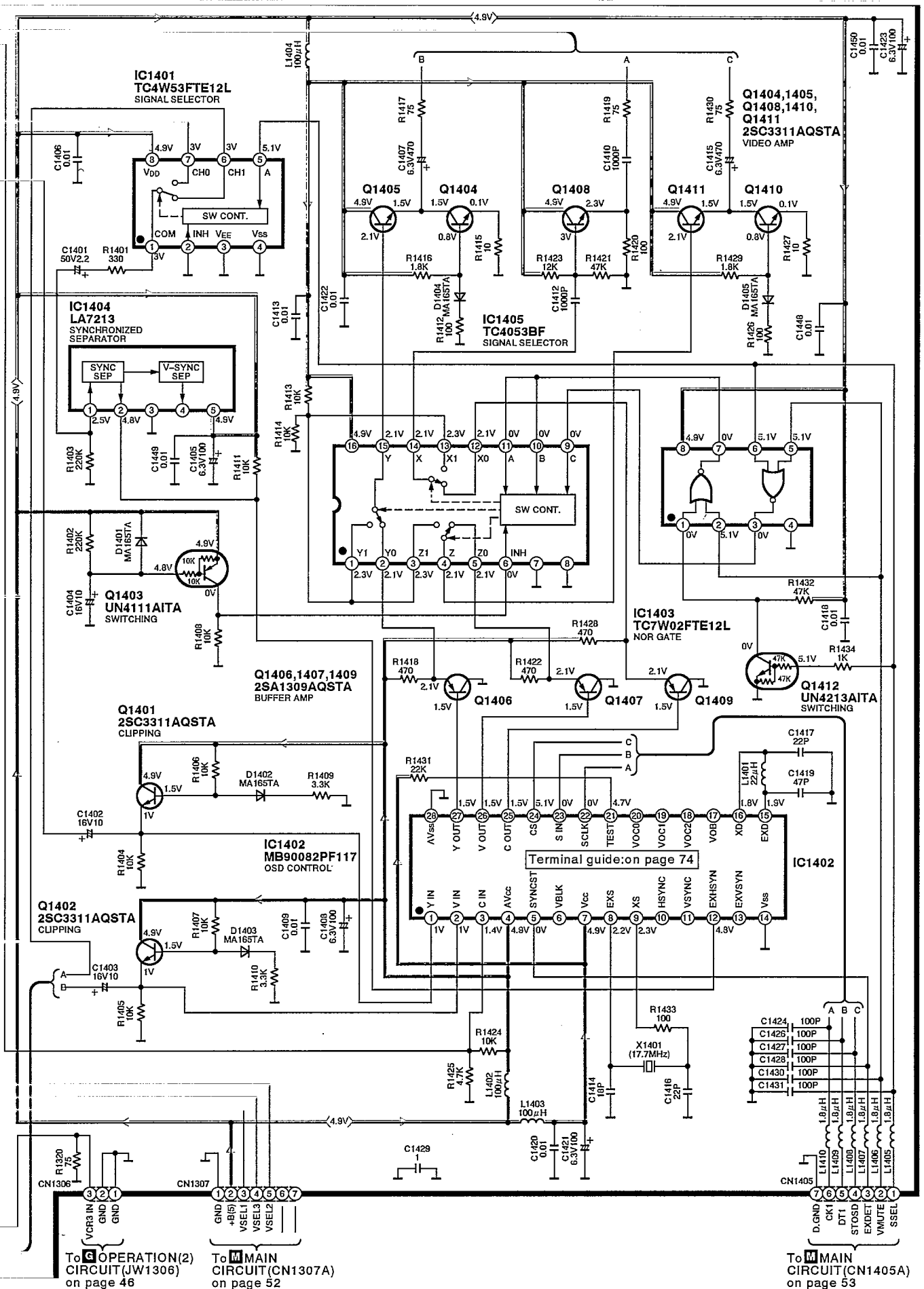
**I** DIGITAL CIRCUIT  
(P.C.Board: on page 64)



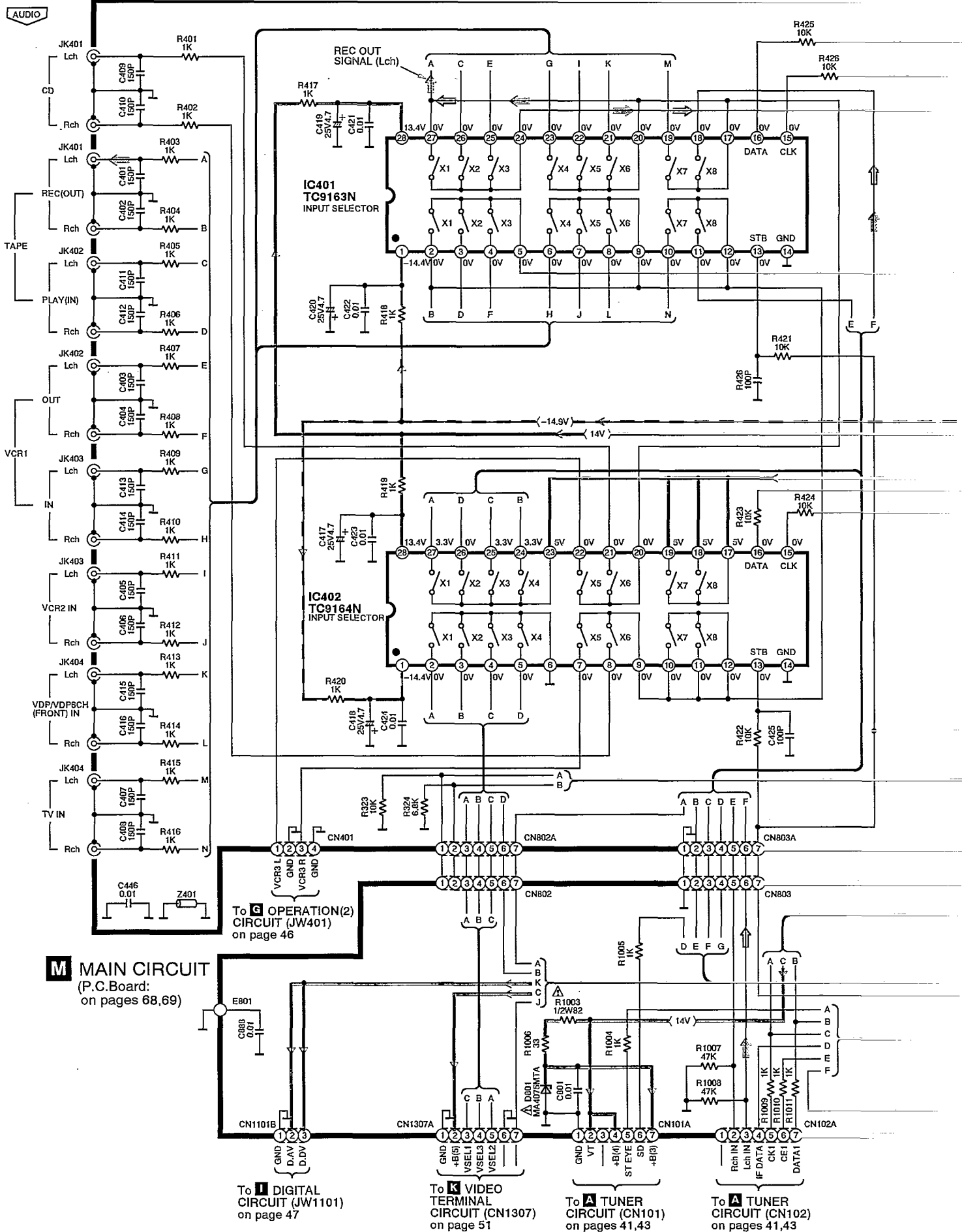
**J S-VIDEO JACK CIRCUIT**  
(P.C.Board: on page 65)

**K VIDEO TERMINAL CIRCUIT**  
(P.C.Board: on page 65)

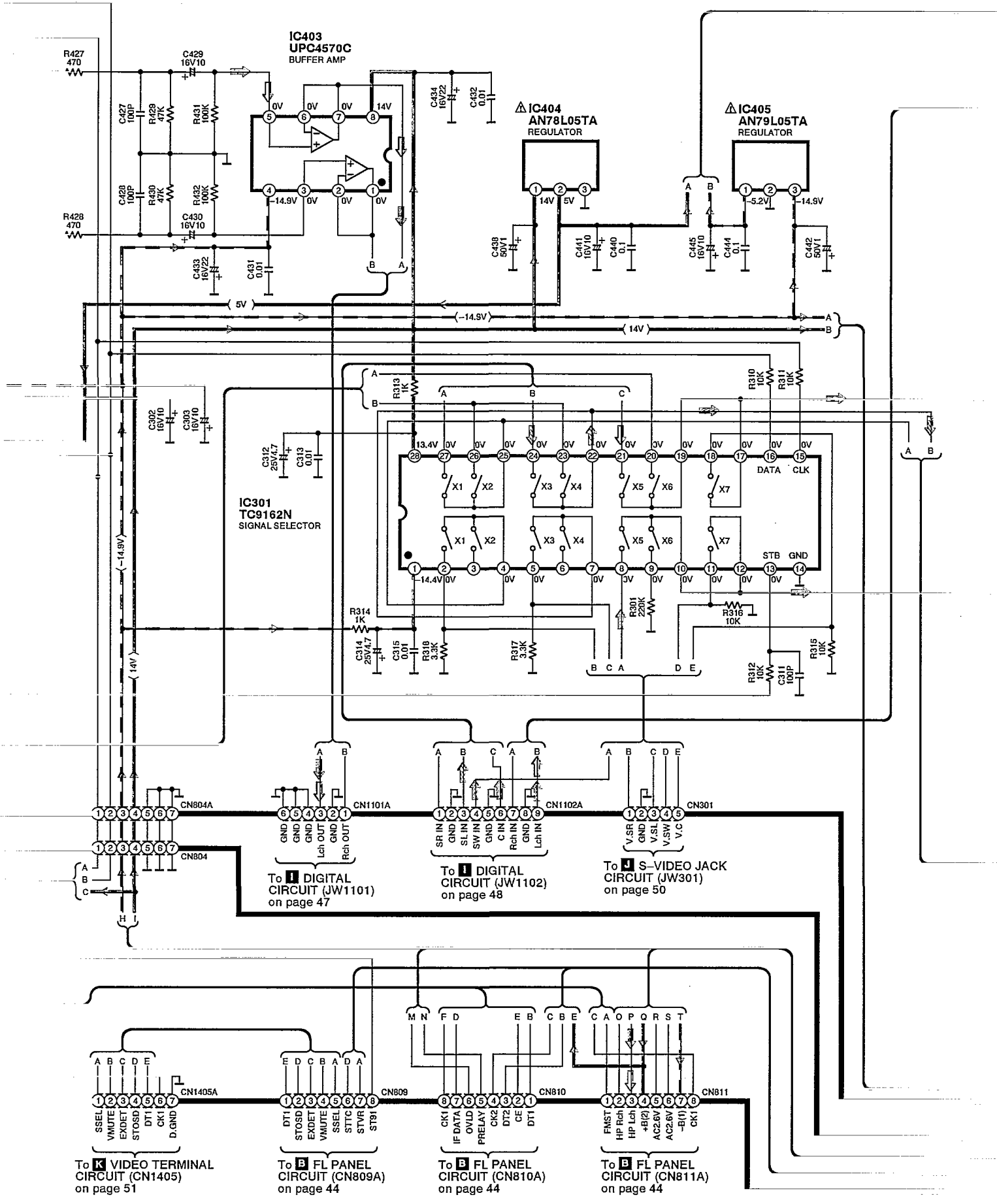




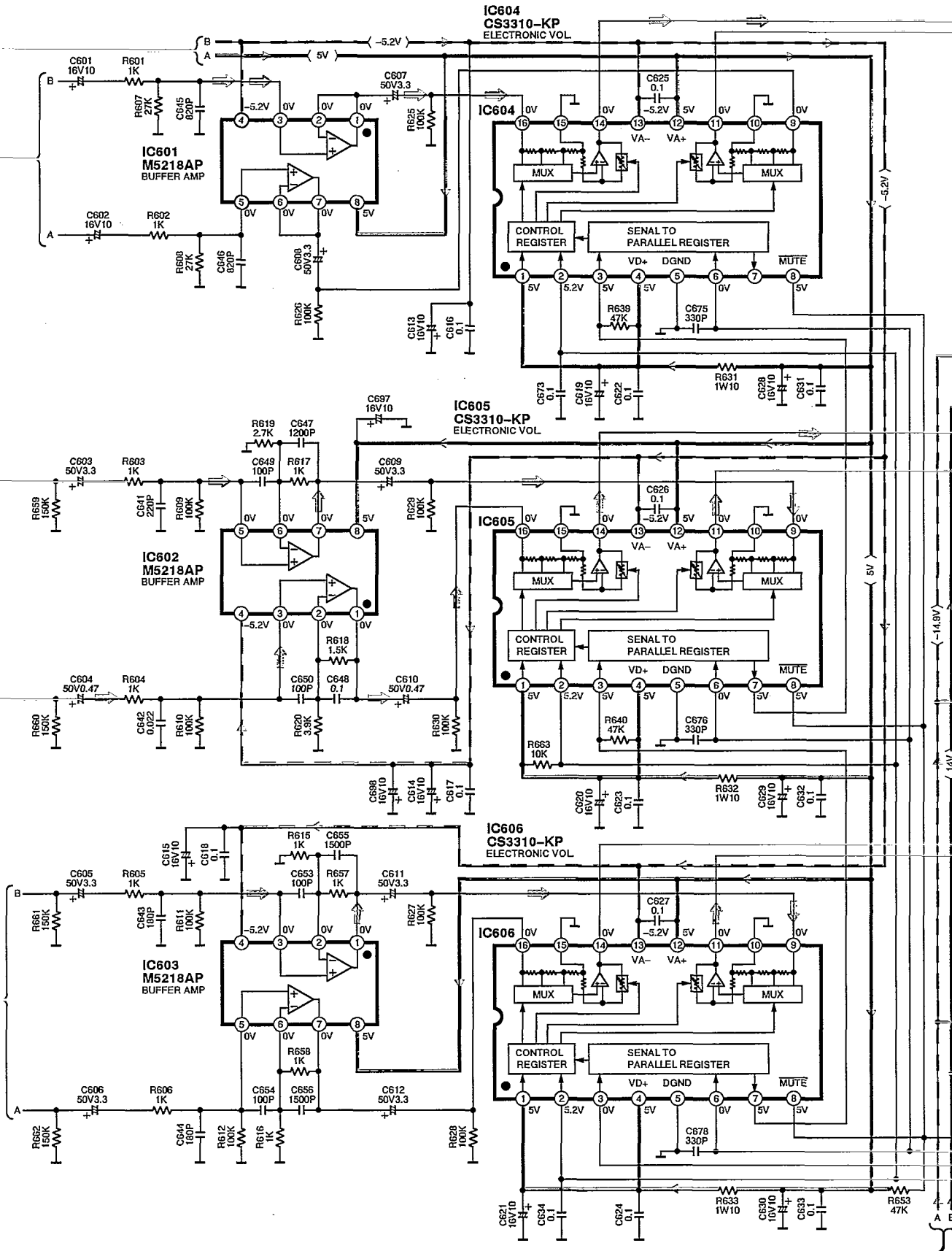
**L** IN/OUT TERMINAL CIRCUIT (P.C.Board: on page 67)








- Notes: ● → : FM signal    ● → : Surround speaker drive signal (Lch)    ● → : Center speaker drive signal  
 ● → : AM signal    ● → : Subwoofer speaker drive signal    ● → : Rec out signal (Lch)

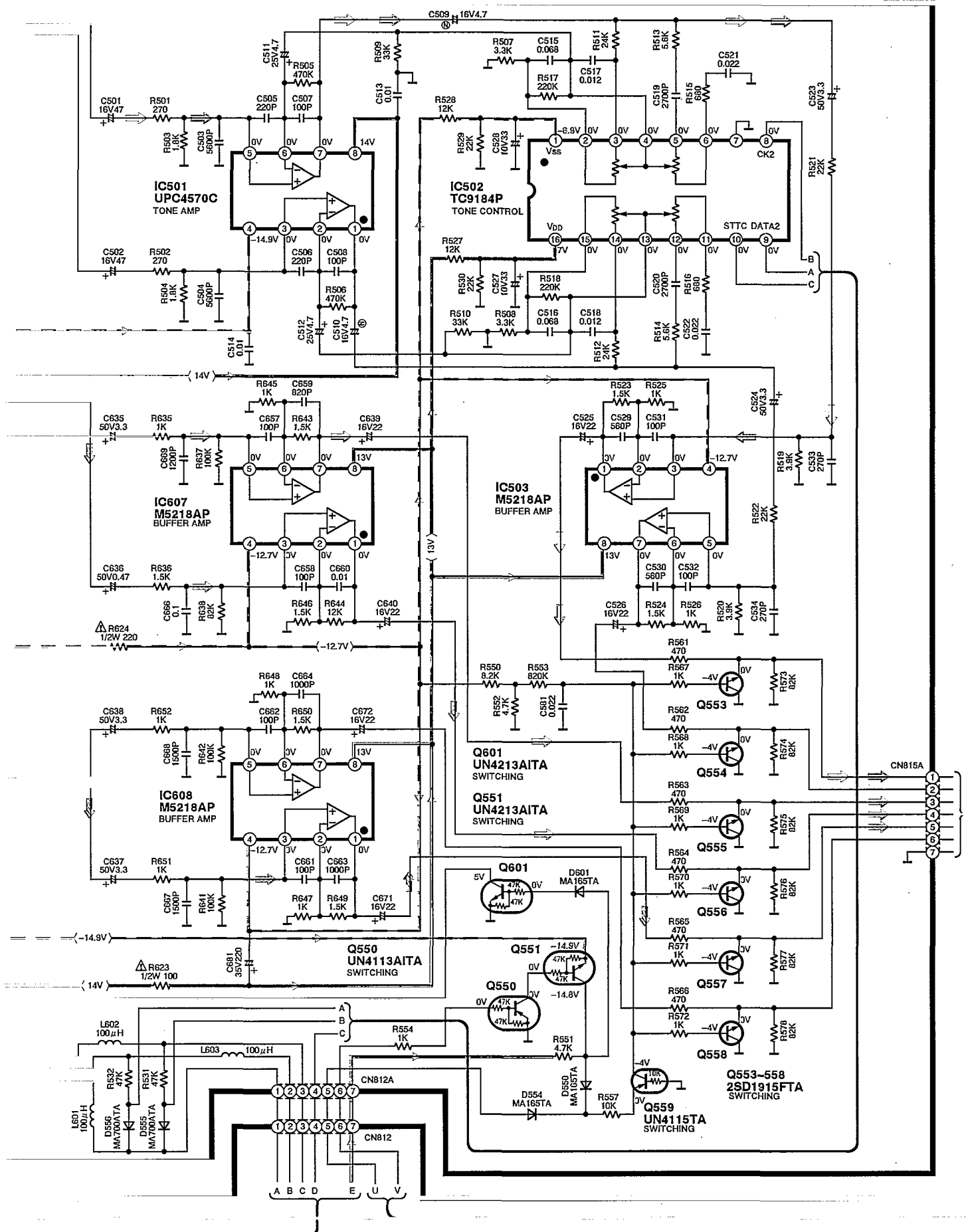


**L** IN/OUT TERMINAL CIRCUIT (P.C.Board: on page 67)

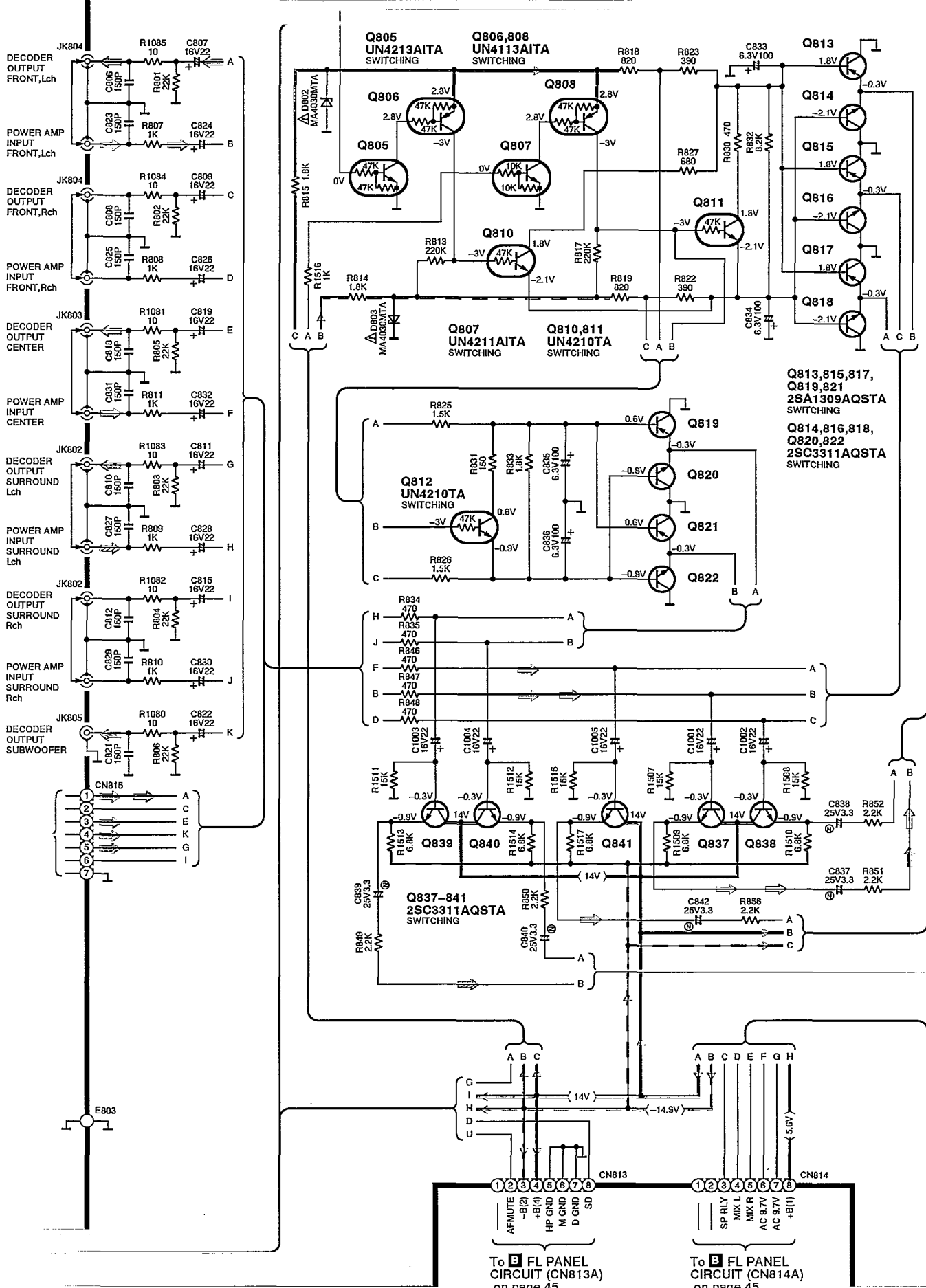


**M** MAIN CIRCUIT (P.C.Board: on pages 68,69)

Notes: ●  : FM signal    ●  : Surround speaker drive signal (Lch)    ●  : Center speaker drive signal  
 ●  : AM signal    ●  : Subwoofer speaker drive signal

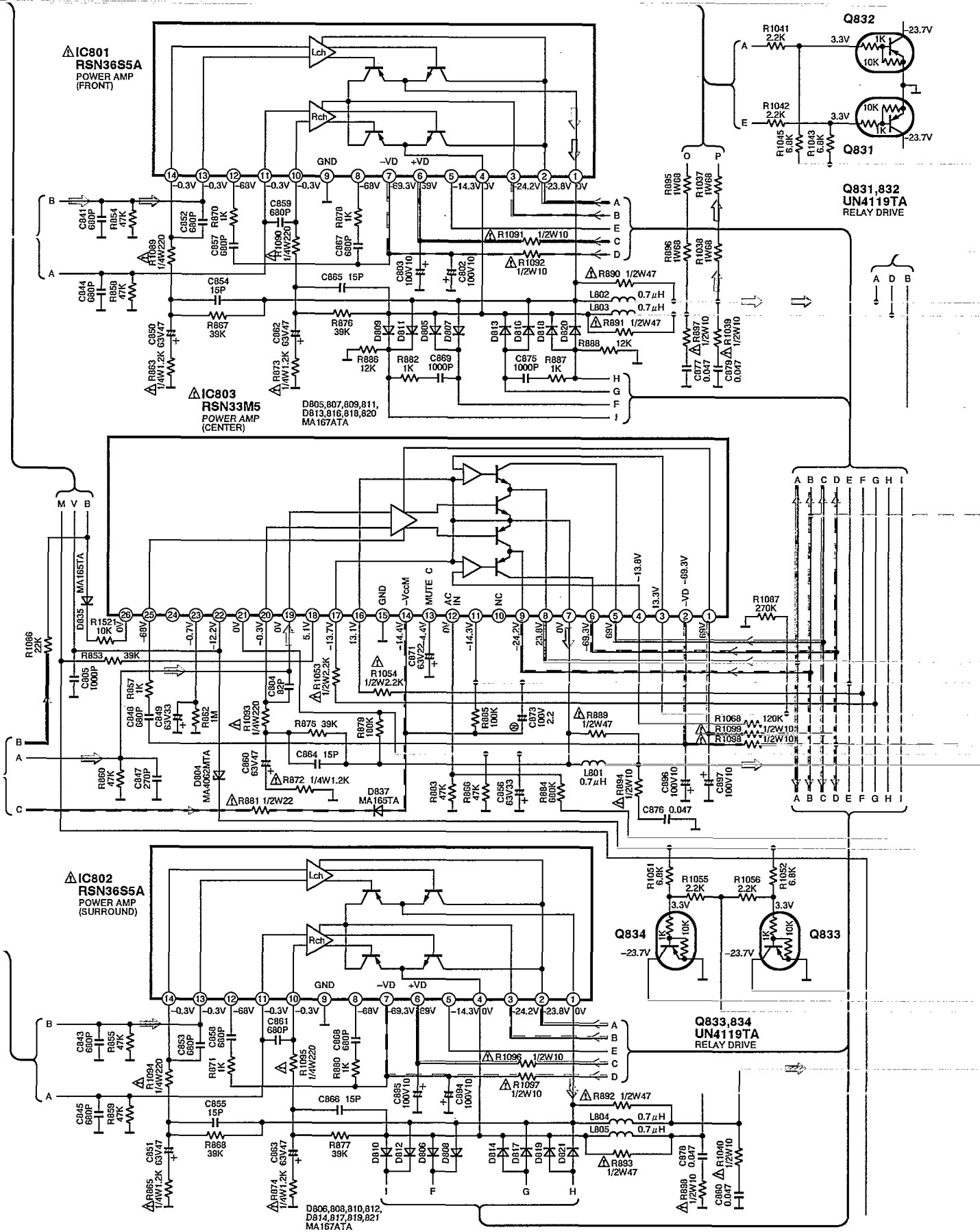


**M** MAIN CIRCUIT (P.C.Board: on pages 68,69)

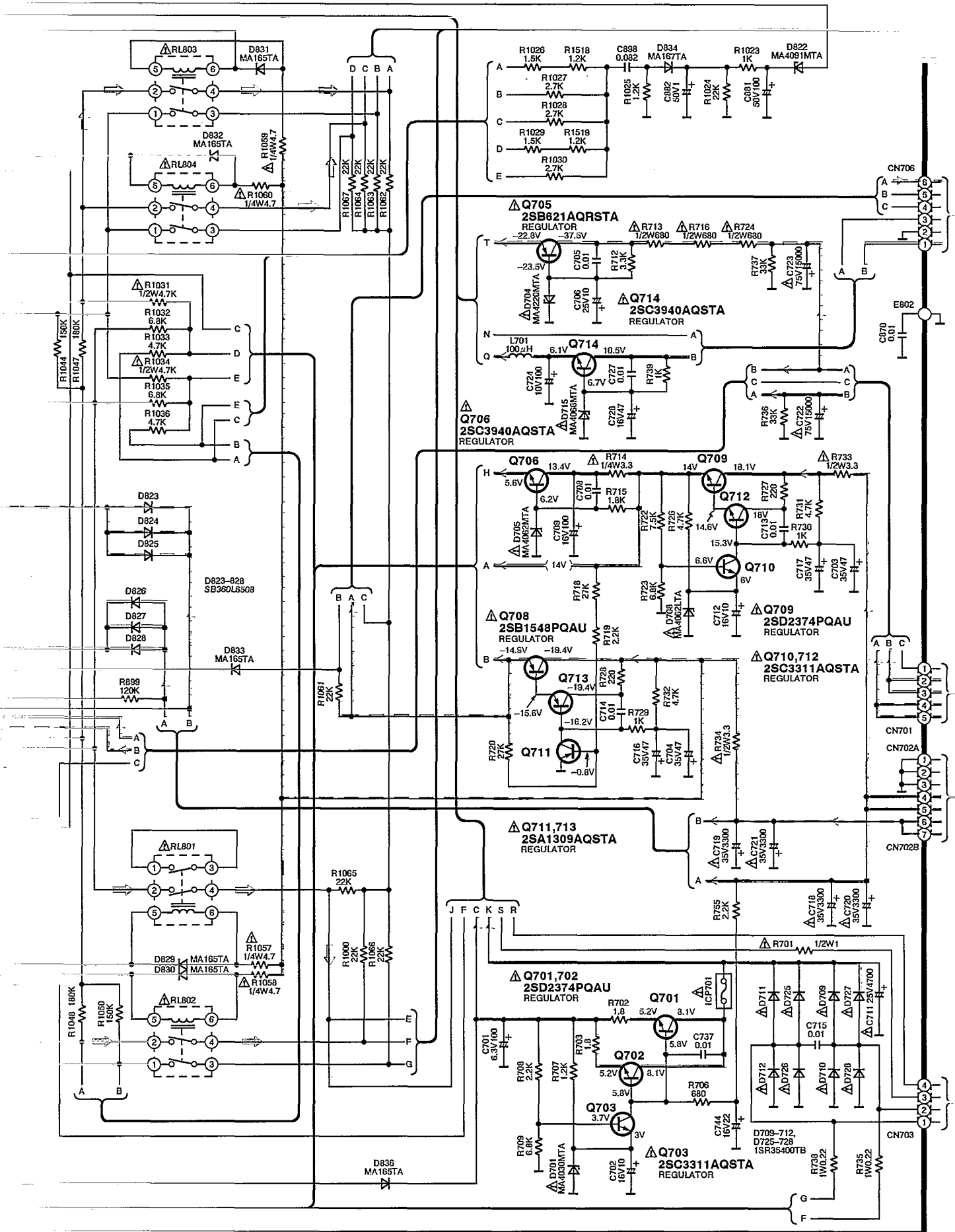




**Notes:** ● → : FM signal ● → : Surround speaker drive signal (Lch) ● → : Center speaker drive signal  
 ● → : AM signal ● → : Subwoofer speaker drive signal

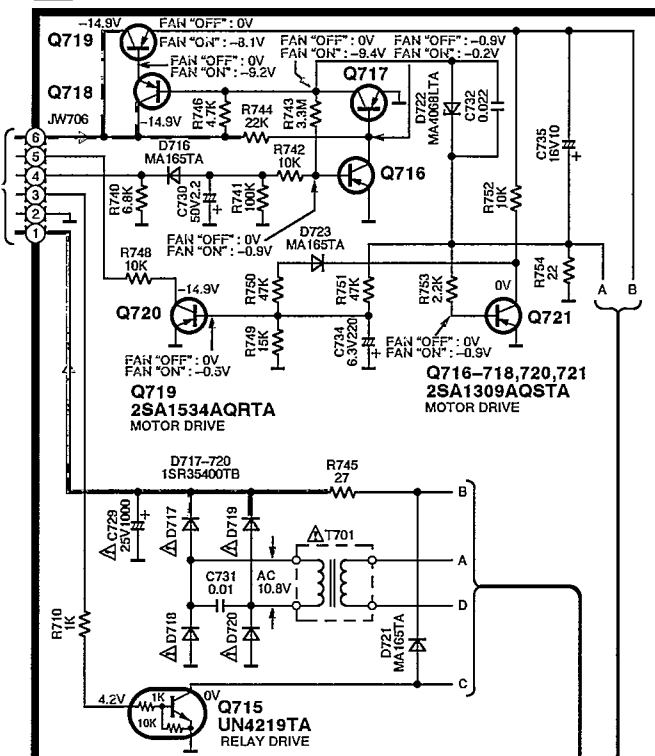


**M** MAIN CIRCUIT (P.C.Board: on pages 68,69)

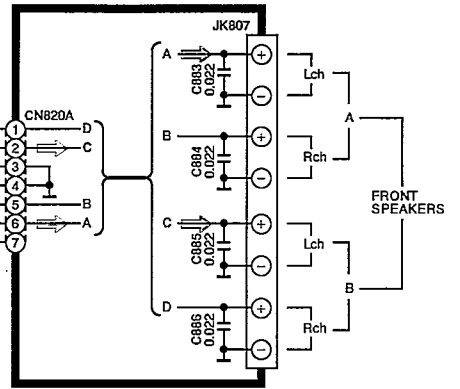


- Notes: ● → : FM signal      ● → : Surround speaker drive signal (Lch)  
 ● → : AM signal      ● → : Center speaker drive signal

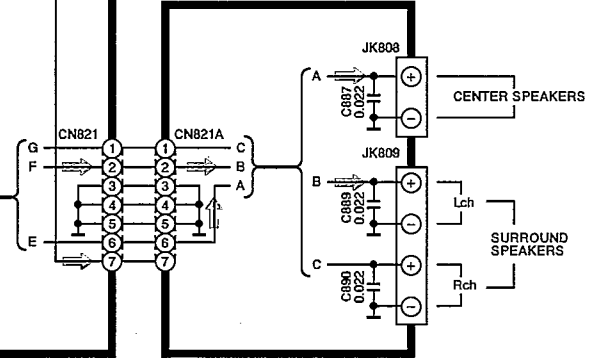
**N AC IN CIRCUIT (P.C.Board: on page 66)**



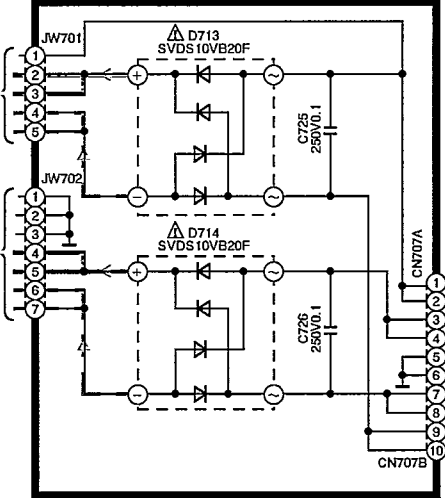
**Q SPEAKERS TERMINAL (1) CIRCUIT (P.C. Board: on page 66)**



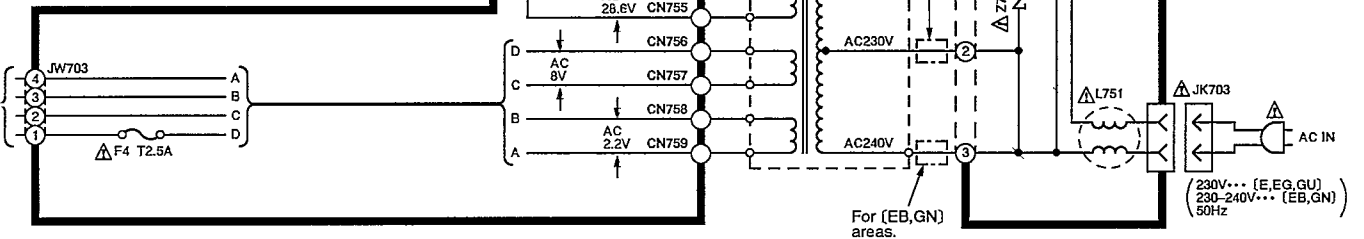
**R SPEAKERS TERMINAL (2) CIRCUIT (P.C. Board: on page 66)**



**O POWER SUPPLY CIRCUIT (P.C. Board: on page 67)**



**P POWER TRANSFORMER CIRCUIT (P.C. Board: on page 66)**

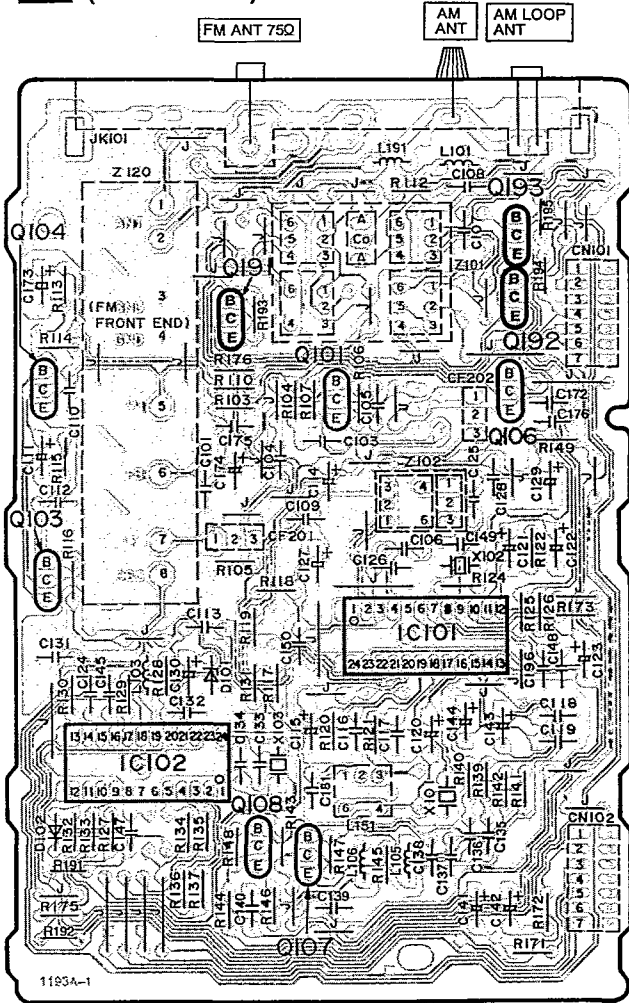


# Printed Circuit Board Diagram

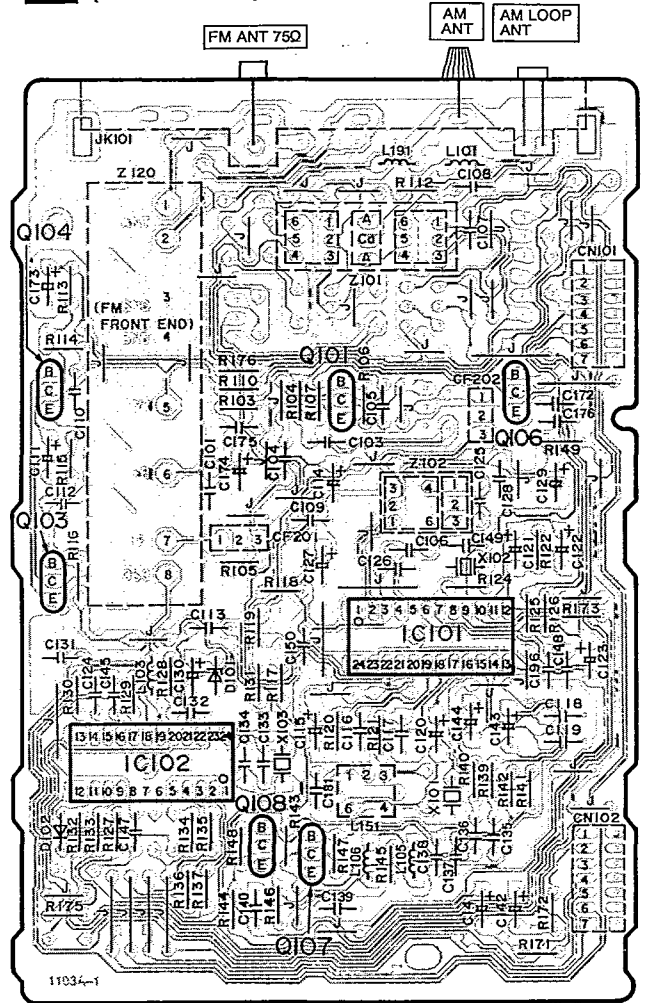
• This printed circuit board diagram may be modified at any time with the development of new technology.

A

**A** TUNER P.C.B. For [E,EB] areas.  
(REP1750B-T)



**A** TUNER P.C.B. For [EG,GN,GU] areas.  
(REP1750C-T)



B

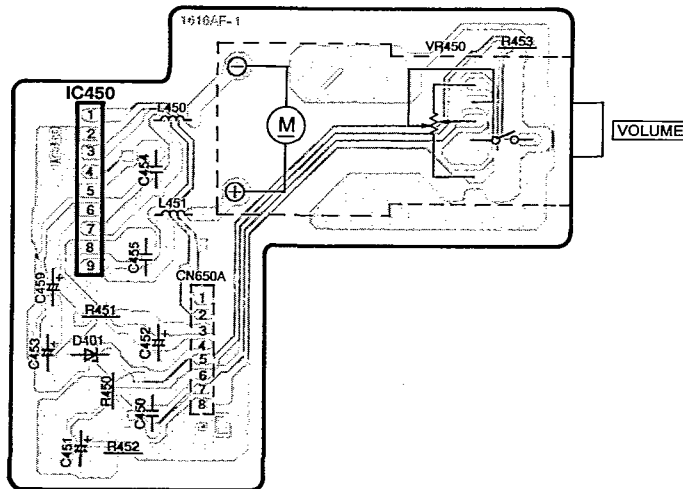
C

D

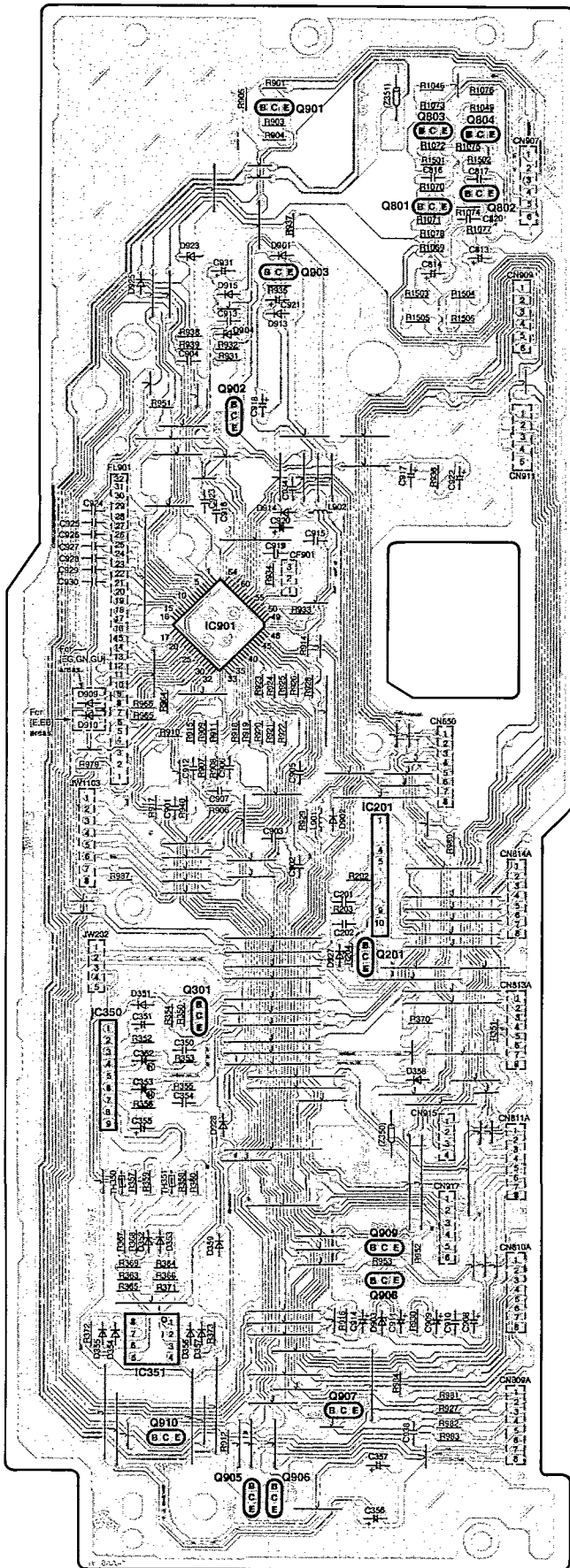
E

F

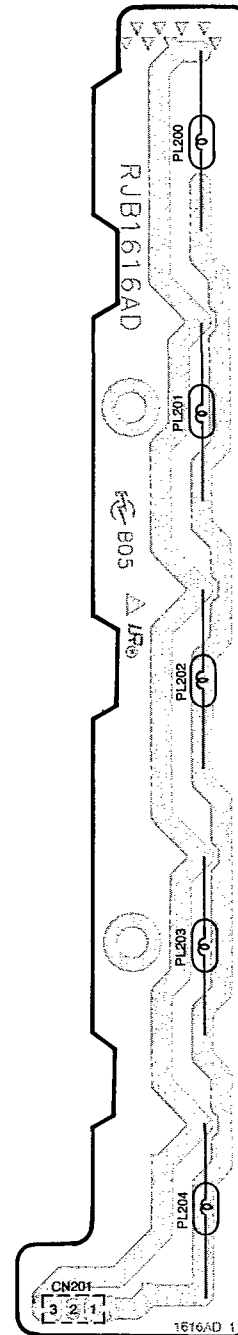
**C** VOLUME P.C.B.  
(REP2277C-S...[EG,GN,GU]  
REP2277D-S...[E,EB])



**B** FL PANEL P.C.B.  
(REP2277C-S...[EG,GN,GU])  
(REP2277D-S...[E,EB])



**D** LAMP (L) P.C.B.  
(REP2277C-S...[EG,GN,GU])  
(REP2277D-S...[E,EB])



A

B

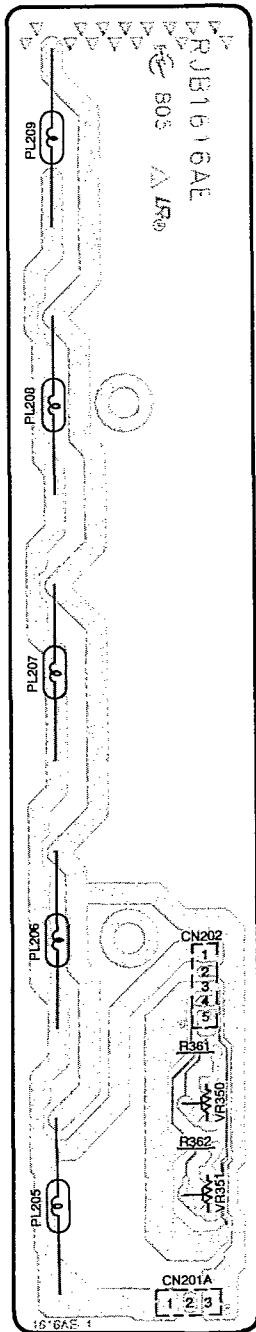
C

D

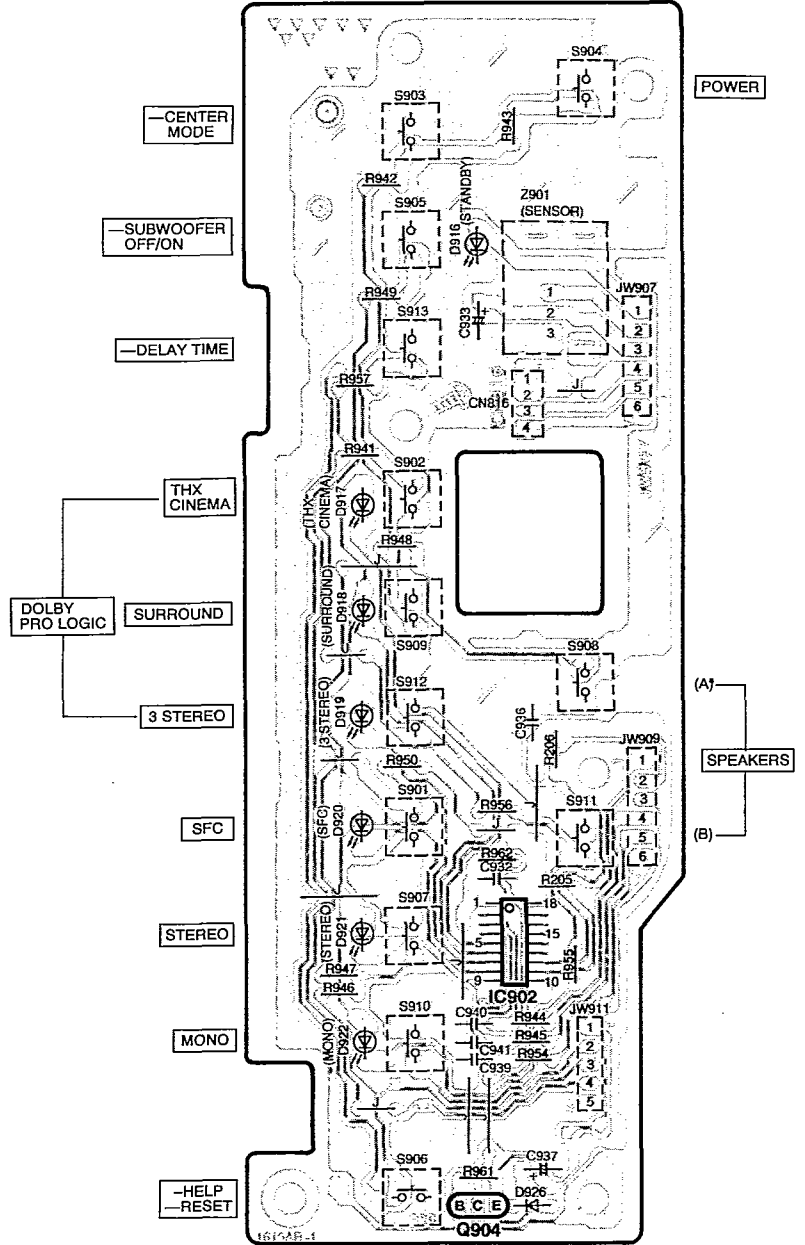
E

F

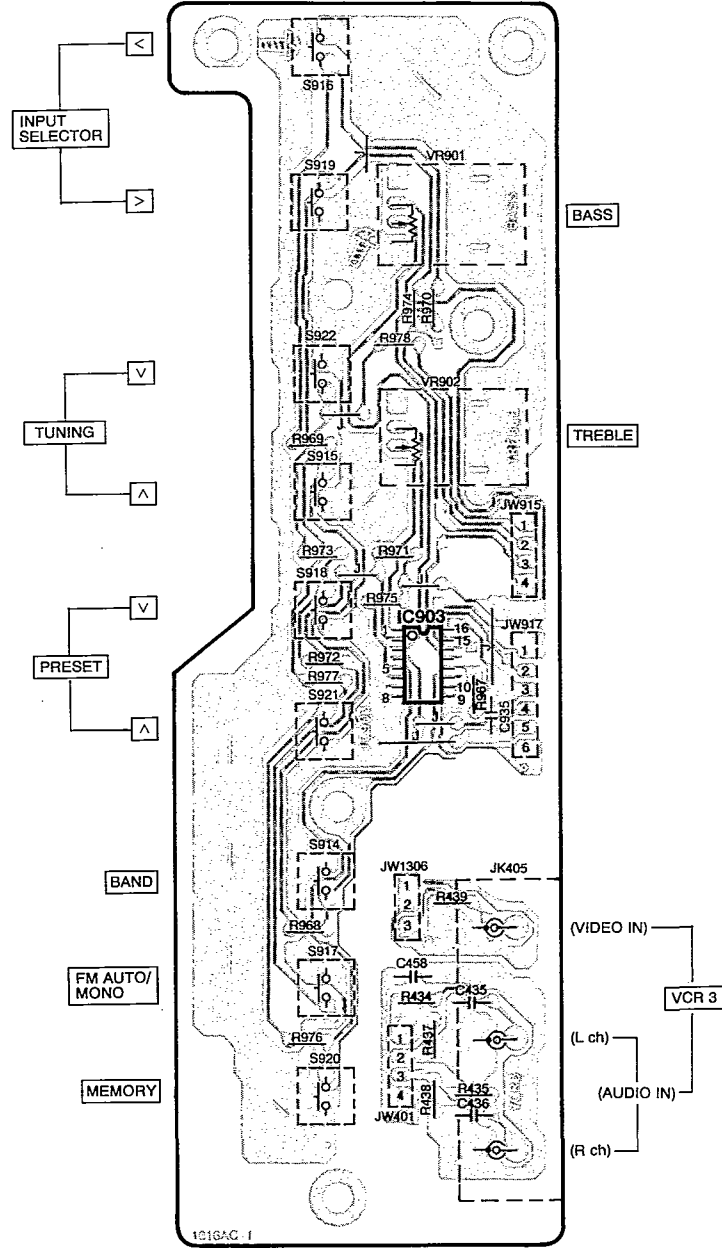
**E** LAMP (R) P.C.B.  
 (REP2277C-S...[EG,GN,GU])  
 (REP2277D-S...[E,EB])



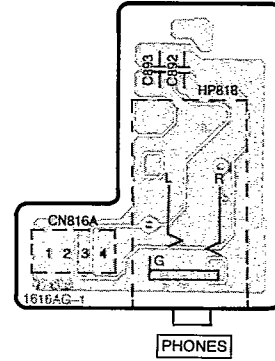
**F** OPERATION (1) P.C.B.  
 (REP2277C-S...[EG,GN,GU])  
 (REP2277D-S...[E,EB])



**G** OPERATION (2) P.C.B.  
(REP2277C-S...[EG,GN,GU])  
(REP2277D-S...[E,EB])



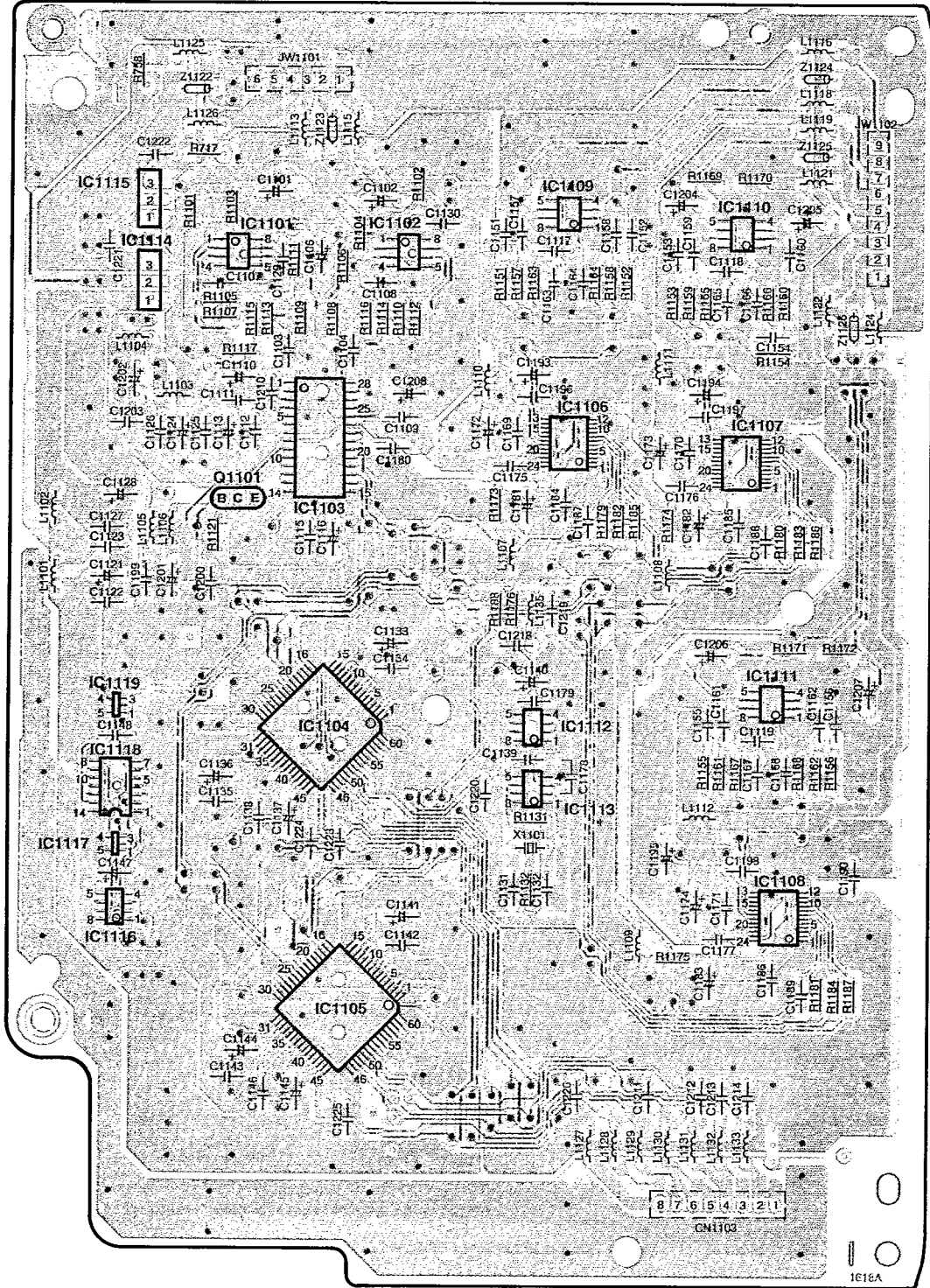
**H** HEADPHONES JACK P.C.B.  
(REP2277C-S...[EG,GN,GU])  
(REP2277D-S...[E,EB])



## Notes:

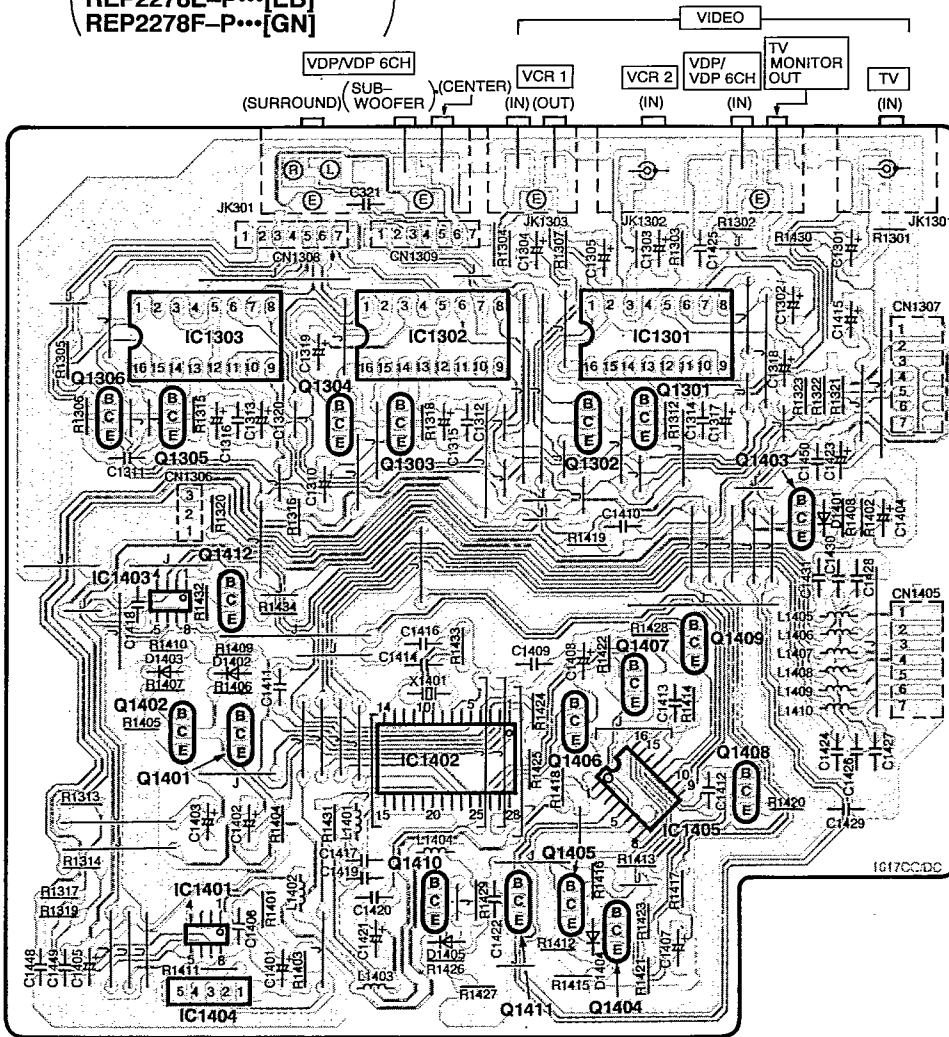
- In this printed circuit board diagram, the parts and foil patterns on the board facing toward you are printed in black.
- The "●" mark denotes the connection points of double-faced foil patterns (through holes) on both sides of the printed circuit board.

## DIGITAL P.C.B. (REP2279A-T)

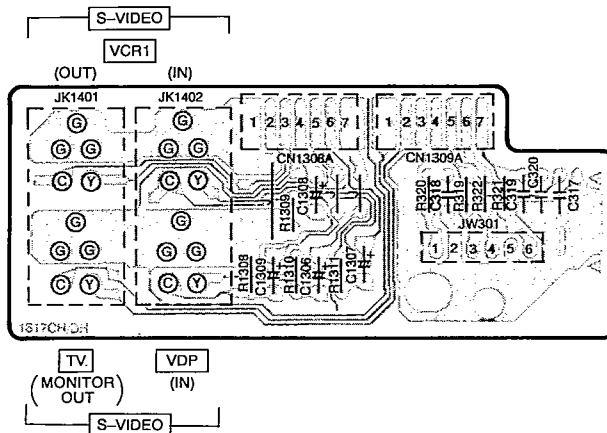




**K** VIDEO TERMINAL P.C.B.  
 (REP2278C-P...[E,EG,GU])  
 (REP2278E-P...[EB])  
 (REP2278F-P...[GN])



**J** S-VIDEO JACK P.C.B. (REP2278C-P...[E,EG,GU])  
 (REP2278E-P...[EB])  
 (REP2278F-P...[GN])



A

B

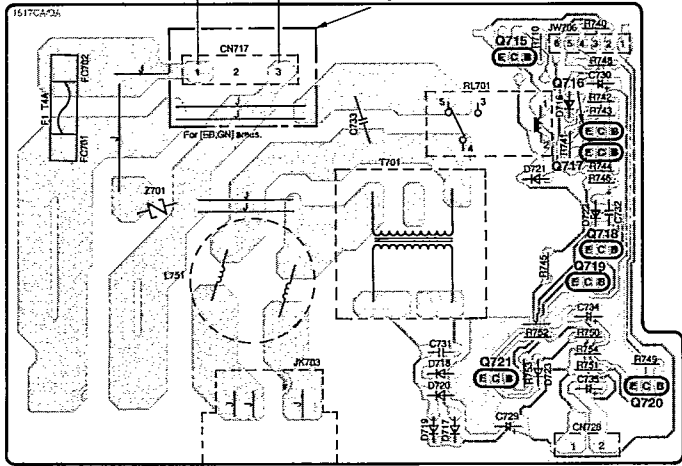
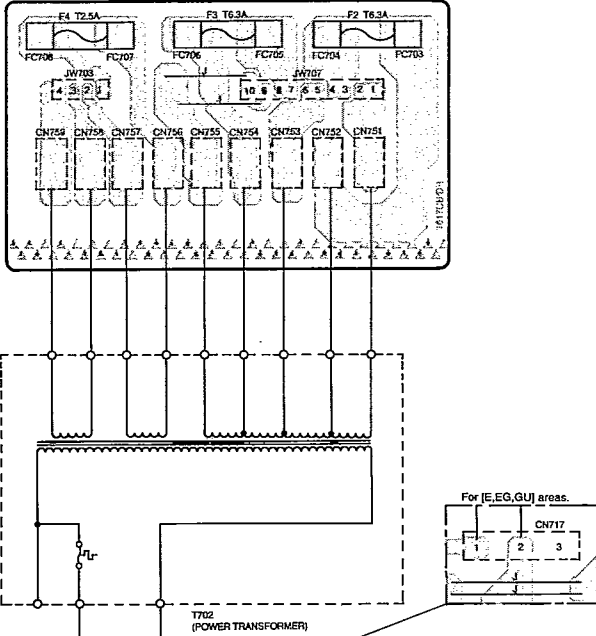
C

D

E

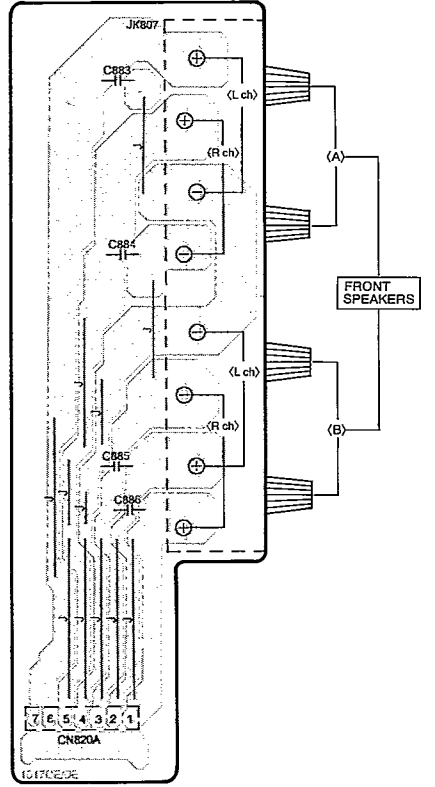
F

**P** POWER TRANSFORMER P.C.B.  
 (REP2278C-P...[E,EG,GU])  
 (REP2278E-P...[EB])  
 (REP2278F-P...[GN])

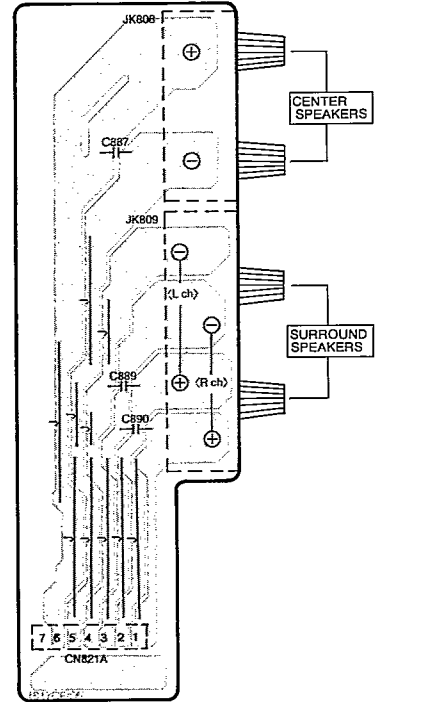


**N** AC IN P.C.B.  
 (REP2278C-P...[E,EG,GU])  
 (REP2278E-P...[EB])  
 (REP2278F-P...[GN])

**Q** SPEAKERS TERMINAL (1) P.C.B.  
 (REP2278C-P...[E,EG,GU])  
 (REP2278E-P...[EB])  
 (REP2278F-P...[GN])

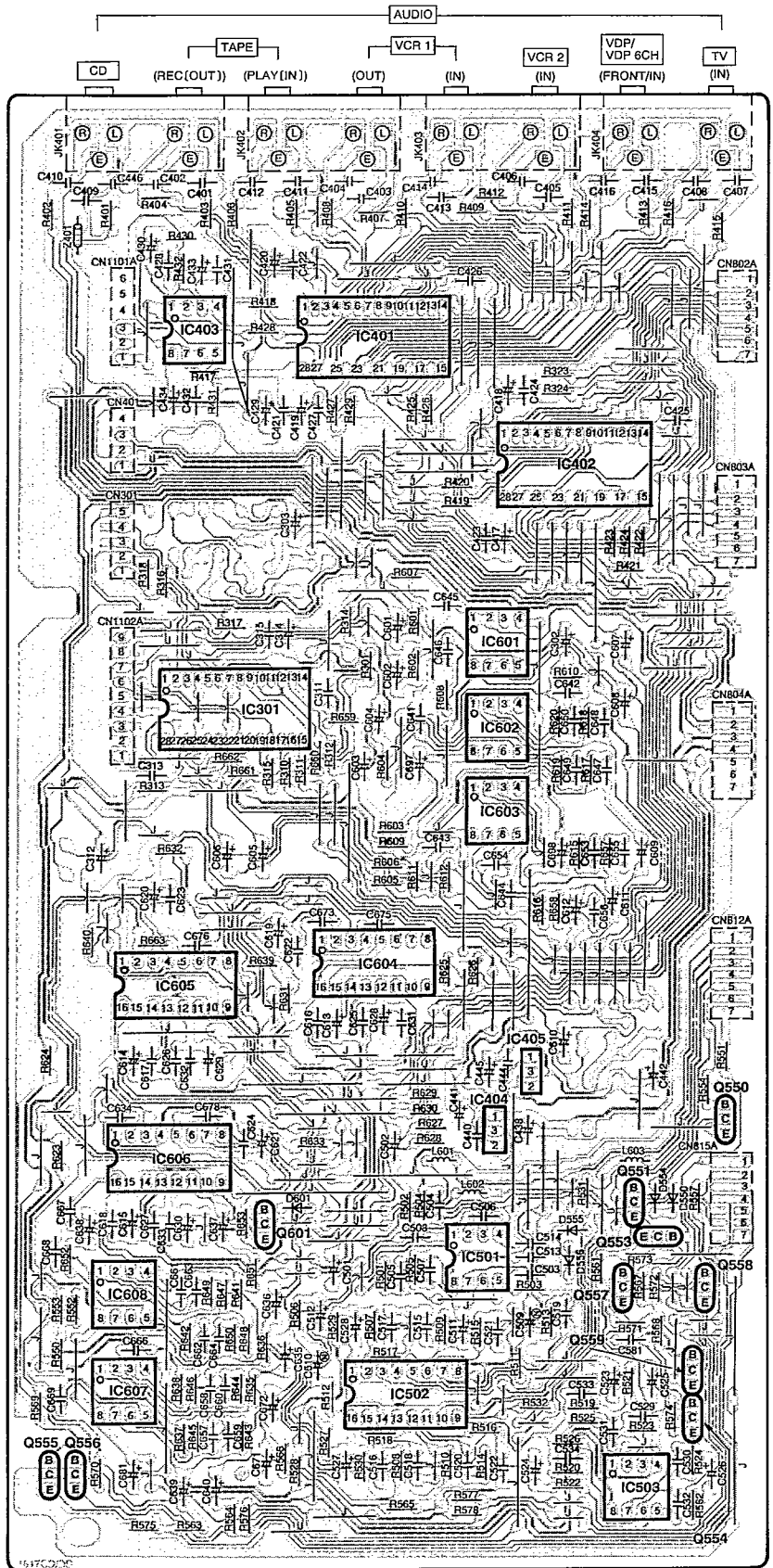
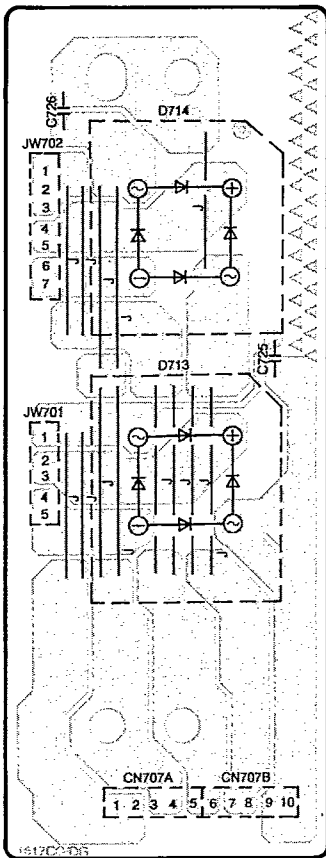


**R** SPEAKERS TERMINAL (2) P.C.B.  
 (REP2278C-P...[E,EG,GU])  
 (REP2278E-P...[EB])  
 (REP2278F-P...[GN])



**L** IN/OUT TERMINAL P.C.B. (REP2278C-P...[E,EG,GU])  
 (REP2278E-P...[EB])  
 (REP2278F-P...[GN])

**O** POWER SUPPLY P.C.B. (REP2278C-P...[E,EG,GU])  
 (REP2278E-P...[EB])  
 (REP2278F-P...[GN])



A

B

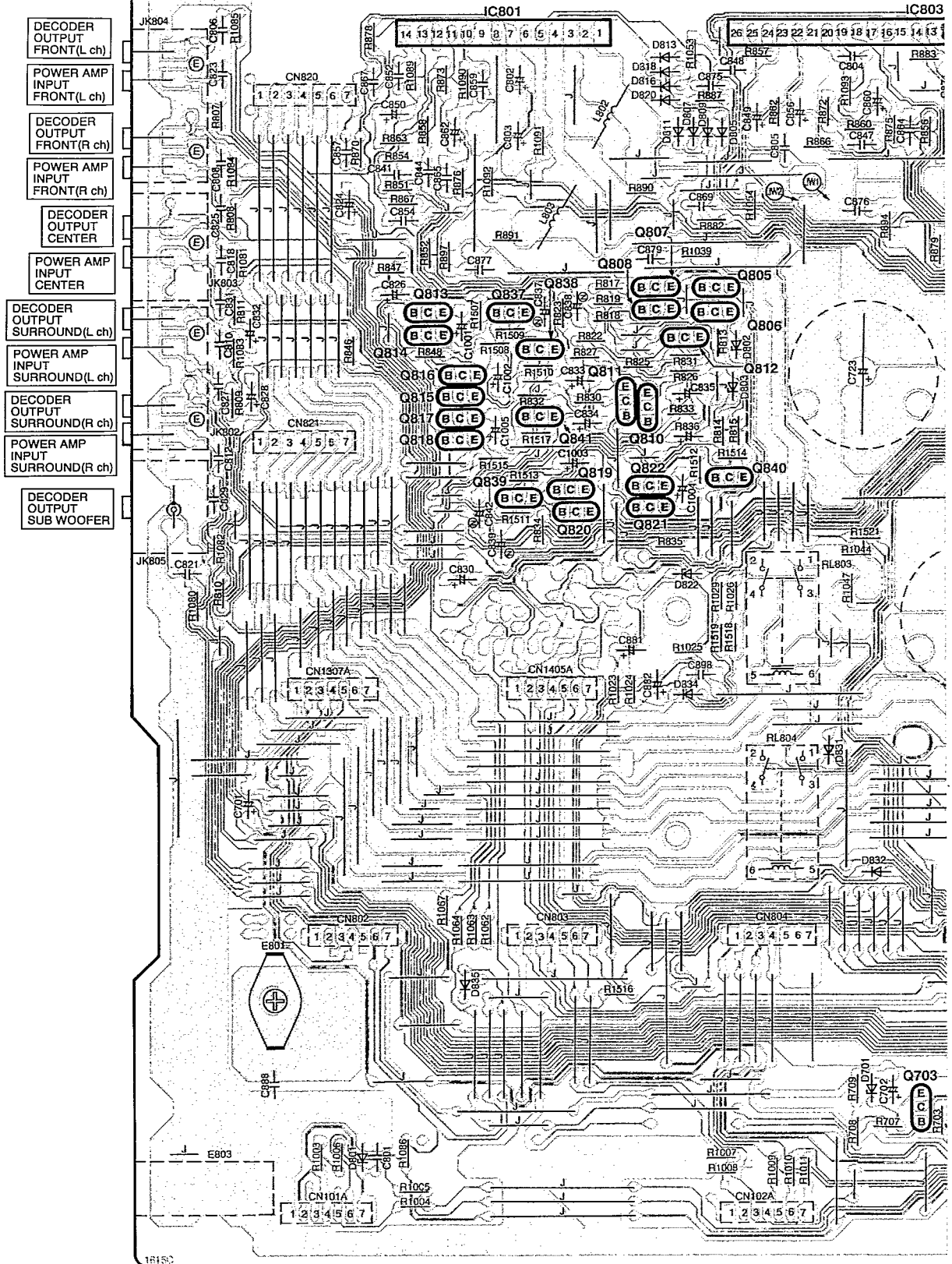
C

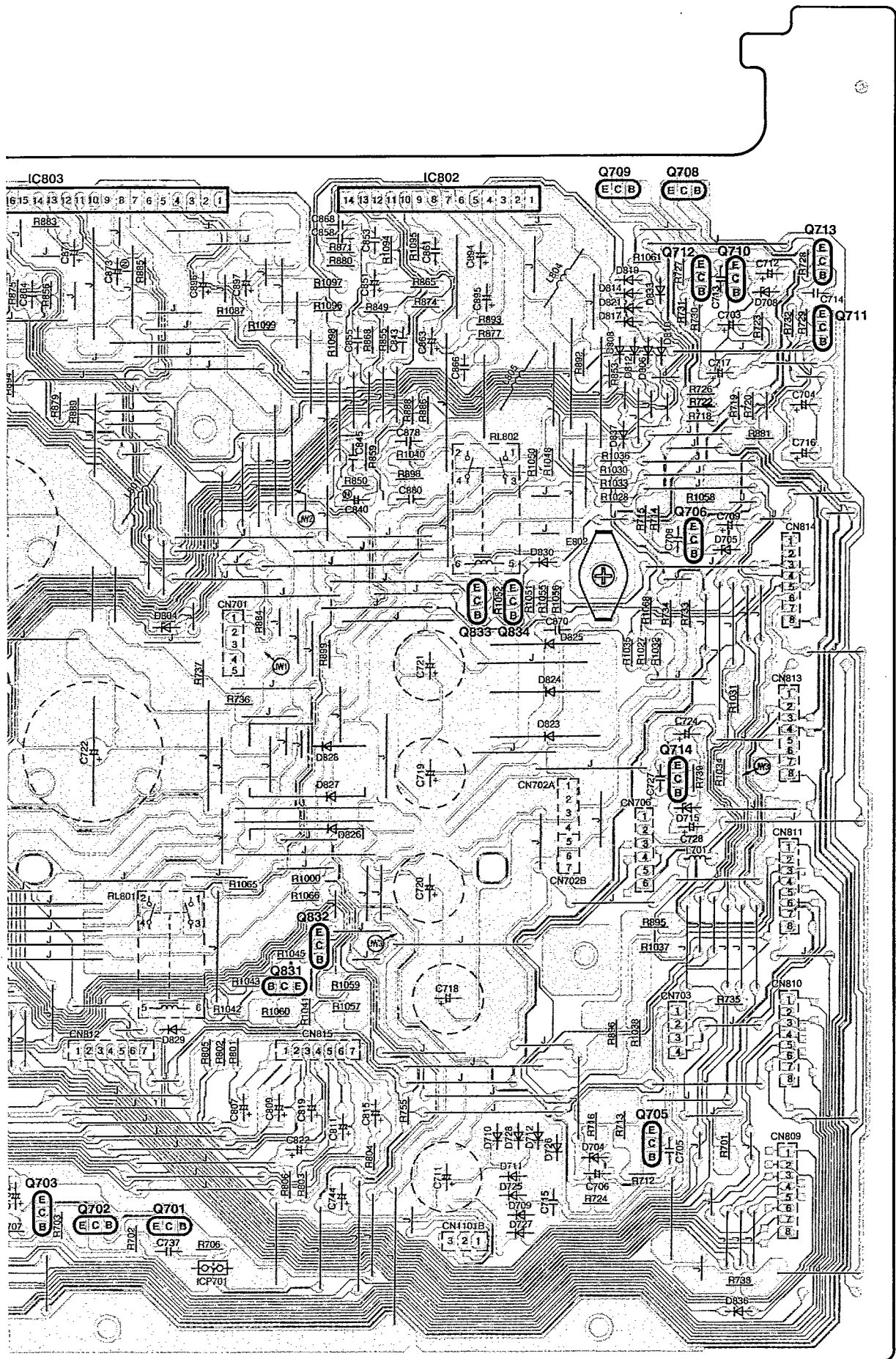
D

E

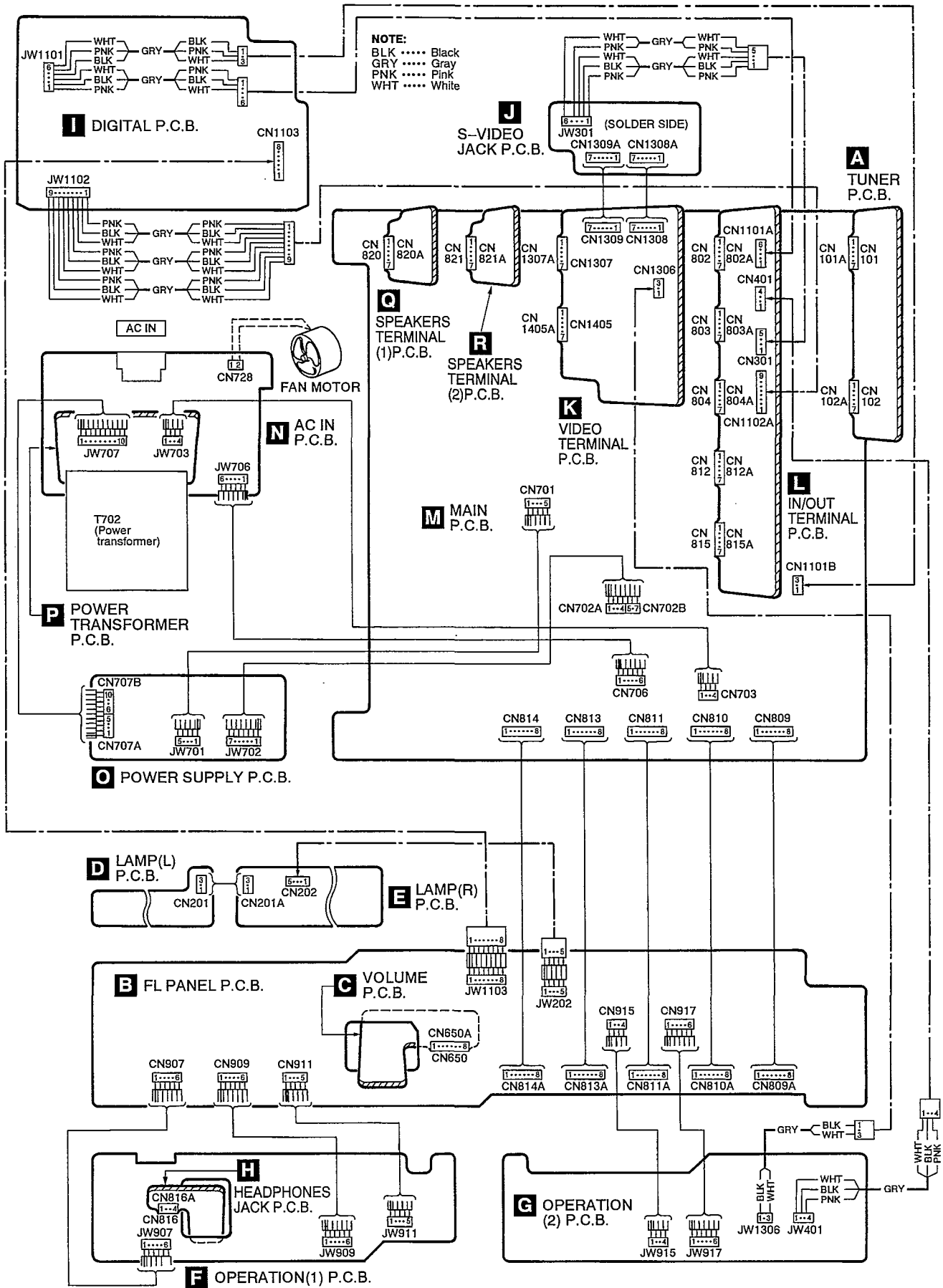
F

M MAIN P.C.B. (REP2276C-M)





# Wiring Connection Diagram



## Terminal Guide

### • IC901 (LC8A028B5C46): Microcomputer

Pin No.	Mark	I/O	Function
1	STLED	O	LED drive clock signal terminal.
2	SSEL	O	Signal select terminal.
3	VMUTE	O	Muting control terminal of video circuit.
4	ST91	O	Level shift control terminal.
5	PRELAY	O	Relay control terminal of power supply circuit.
6	AFMUTE	O	Muting control terminal.
7	LIGHT	O	AC switch control terminal.
8 ┆ 14	DG1 ┆ DG7	O	Digital signal of FL display.
15  16	S13  S12	O	Segment signal of FL display.
17	VDD	I	Power supply terminal.
18	VPP	I	Power supply terminal of FL display.
19 ┆ 27	S11 ┆ S3	O	Digital signal of FL display.
28  29	S2  S1	O	Segment signal of FL display.
30	DSPRST	O	Reset signal terminal of DSP.
31	STTC	O	Strobe terminal.
32	STVR	O	Chip select terminal.
33	INIT	I	Initial setting terminal.
34	FMST	I	Stereo signal det. terminal.
35	SD	I	Received signal det. terminal.
36	IF IN	I	Serial data signal.
37	DSPCS1	O	Chip select terminal of DSP 1.
38	DSPCS2	O	Chip select terminal of DSP 2.

Pin No.	Mark	I/O	Function
39	DSPCD	O	Command/ data input mode select terminal.
40	CE	O	Chip enable terminal.
41	DT1	O	Serial data signal.
42	OVL D	I	Overload det. terminal.
43	CK1	O	Serial clock signal.
44	DT2	O	Serial data signal.
45	STOSD	O	Chip select control terminal.
46	CK2	O	Serial clock signal.
47	EXDET	O	Synchronizing signal det. terminal.
48	ADSEL	O	Analog switch control terminal.
49	TEST	-	Test terminal.
50	RES	I	Reset det. terminal.
51	XT1	I	Not used, connected to power supply.
52	XT2	-	Not used, open.
53	VSS	-	GND terminal.
54	CF1	I	Crystal OSC terminal. (f=6MHz)
55	CF2	O	Crystal OSC terminal. (f=6MHz)
56	VDD	I	Power supply terminal.
57	AD1	I	Bass control level det. terminal.
58	AD2	I	Treble control level det. terminal.
59	AD3	I	Key switch det. terminal.
60	AD4	I	Volume control level det. terminal.
61	STANDBY	I	Power det. terminal.
62	DSPACK	O	Acknowledged signal terminal.
63	NC	-	Not used, open.
64	REM	I	Remote control terminal.

**● IC1103 (AK5340B-VS): A/D converter**

Pin No.	Mark	I/O	Function
1	AINL+	I	Analog signal terminal. (Lch)
2	AINL-		
3	VREF IN	I	Reference voltage terminal.
4	VA+	I	Analog power supply terminal.
5	AGND	-	Analog GND terminal.
6	NC	-	Not used, connected to GND.
7	NC		
8	TST1	-	Test terminal.
9	SEL18	I	Data with select terminal ("L": 16bit, "H": 18bit)
10	PD	I	Power down det. terminal.
11	TST2	I/O	Test terminal.
12	CMODE	I	Master clock select terminal ("L": 256fs, "H": 384fs)
13	SMODE	I	Interface clock select terminal ("L": Slave mode, "H": Master mode)
14	L/R	I/O	Input channel select terminal (Slave mode: fs clock input, Master mode: fs clock output)

Pin No.	Mark	I/O	Function
15	SCLK	I/O	Serial data clock terminal (Slave mode: 32fs~64fs clock input, Master mode: 64fs clock output)
16	SDATA	O	Serial data signal (Power down [PD: "H": "L"])
17	FSYNC	I/O	Frame synchronizing clock terminal (Slave mode: SDATA enable with "H", Master mode: 2fs clock output)
18	VDP+	I	Digital power supply terminal.
19	DGND	-	Digital GND terminal.
20	CLK	I	Master clock terminal. (CMODE: "H": 384fs, CMODE: "L": 256fs)
21	TST3	I/O	Test terminal.
22	TST4		
23	NC	-	Not used, connected to GND.
24	VDB+	I	Digital power supply terminal.
25	NC	-	Not used, connected to GND.
26	VREF	O	Reference voltage terminal.
27	AINR-	I	Analog signal terminal. (Rch)
28	AINR+		

**● IC1106~1108 (AK4320-VM): D/A converter**

Pin No.	Mark	I/O	Function
1	CKS	I	IClock select terminal. ("L": XTl=256fs, "H": XTl=384fs)
2	DVDD	I	Digital power supply terminal.
3	DVSS	-	Digital GND terminal.
4	XTO	O	Crystal OSC terminal. (Not used, open.)
5	XTI	I	Clock terminal.
6	PD	I	Power down det. terminal.
7	BICK	I	Serial bit clock terminal.
8	SDATA	I	Serial data terminal.
9	LRCK	I	L/R channel clock select terminal.
10	SMUTE	I	Soft mute terminal.
11	HOLD	I	Soft mute hold terminal.
12	DEM0	I	De-emphasis mode terminal.

Pin No.	Mark	I/O	Function
13	DEM1	I	De-emphasis mode terminal.
14	DIF0	I	Input format terminal.
15	DIF1		
16	VCONT	O	Mute voltage control terminal. (Not used, open.)
17	AOUTR	O	Analog signal (R ch)
18	AOUTL	O	Analog signal (L ch)
19	VCOM	I	Common voltage (AVDD/Z) terminal.
20	AVDD	I	Analog power supply terminal.
21	AVSS	-	Analog GND terminal.
22	VREF	I	Reference voltage terminal.
23	DZF	O	Zero input det. terminal. (Not used, open.)
24	ZMUTE	I	Zero mute terminal.



## ● IC1104, 1105 (TC9332F-022): Digital signal processor

Pin No.	Mark	I/O	Function
1 } 3	TP8 } TP6	O	Test data terminal. (Not used, open.)
4	VDD	I	Power supply terminal.
5	VSS	-	GND terminal.
6 } 11	TP5 } TP0	O	Test data terminal. (Not used, open.)
12	VSSR	-	GND terminal of internal delay RAM (DLRAM)
13	VDDR	I	Power supply terminal of internal delay RAM. (DLRAM)
14	VSS	-	GND terminal.
15 } 17	SDO2 } SDO0	O	Serial data terminal.
18	SD11	I	Serial data terminal.
19	SD10	I	Serial data terminal.
20	LR	O	LR clock terminal. (1fs)
21	WCK	O	Word clock terminal. (2fs)
22	FS32	O	Bit clock terminal. (32fs) (Not used, open.)
23	FS64	O	Bit clock terminal. (64fs)
24	EBCO	I	Bit clock terminal.
25	EBC11	I	Bit clock terminal.
26	EBC10	I	Bit clock terminal.
27	ELRO	I	LR clock terminal.
28	ELR11	I	LR clock terminal.
29	ELR10	I	LR clock terminal.
30	SYNC	I	Synchronizing signal terminal.

Pin No.	Mark	I/O	Function
31	VDD	I	Power supply terminal.
32	XI	I	Crystal OSC terminal.
33	XO	-	Not used, open.
34	VSS	-	GND terminal.
35	CKSL	I	Clock select terminal ("L": 384fs, "H": 512fs)
36	PLOFF	I	X'tal OSC mode/ VCO OSC mode select terminal.
37	PD	O	Phase comparative data terminal. (Not used, open.)
38	VSSA	-	Analog GND terminal.
39	AMPO	O	Amp. terminal of L.P.F.
40	AMPI	I	Amp. terminal of L.P.F.
41	VDDA	I	Analog power supply terminal. (Not used, open.)
42 } 44	TES0 } TES2	I	Test terminal.
45	$\overline{\text{RST}}$	I	Reset signal terminal.
46	$\overline{\text{CS}}$	I	Chip select signal terminal.
47	IFCD	I	Command/ data input mode select terminal.
48	IFDI	I	Data signal terminal.
49	IFDO	O	Data (DBUS) terminal. (Not used, open)
50	IFCK	I	Shift clock terminal of data.
51	$\overline{\text{ACK}}$	I	Acknowledged signal terminal.
52	VSS	-	GND terminal
53 } 60	TP16 } TP9	O	Test data terminal. (Not used, open.)

## ● IC1402 (MB90082PF117): OSD control

Pin No.	Mark	I/O	Function
1	YIN	I	Brightness signal input terminal.
2	VIN	I	Composite video signal input terminal
3	CIN	I	Color signal input terminal.
4	AVCC	I	Power supply terminal.
5	SYNCST	O	Synchronizing signal of EXHSYN input detect terminal.
6	VBLK	O	Vertical blanking signal output terminal. (Not used, open.)
7	VCC	I	Power supply terminal.
8	EXS	I	Clock generator for colour burst terminal. (PAL: 17.734475MHz)
9	XS	O	
10	HSYNC	O	Horizontal synchronizing signal output. (Not used, open.)
11	VSYNC	O	Vertical synchronizing signal output. (Not used, open.)
12	EXHSYN	I	External horizontal synchronizing signal input.
13	EXVSYN	I	External vertical synchronizing signal input. (Not used, open.)
14	VSS	-	GND terminal.

Pin No.	Mark	I/O	Function
15	EXD	I	Dot clock generator terminal. (Not used, connected to capacitor.)
16	XD	O	
17	VOB	O	Background of display output. (Not used, open.)
18	VOC2	O	Color signal output terminal. (Not used, open.)
19	VOC1	O	Color signal output terminal. (Not used, open.)
20	VCO0	O	Color signal output terminal. (Not used, open.)
21	TEST	I	Test signal input terminal (Not used, connected to power supply.)
22	SCLK	I	Shift clock input terminal.
23	SIN	I	Serial data input terminal.
24	CS	I	Chip select terminal.
25	COUT	O	Color signal output terminal.
26	VOUT	O	Composite video signal output terminal.
27	YOUT	O	Brightness signal output terminal.
28	AVSS	-	GND terminal.

## 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.

\* [M] indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT (S)		IC1302	BA7625	IC	
				IC1303	BA7625	IC	
IC101	LA1832A	IC		IC1401	TC4W53FTE12L	IC	
IC102	LC7218	IC		IC1402	MB90082PF117	IC	
IC201	TSA3000J	IC		IC1403	TC7W02FTE12L	IC	
IC301	TC9162N	IC		IC1404	LA7213	IC	
IC350	BA6138	IC		IC1405	TC4053BF	IC	
IC351	M5218AP	IC				TRANSISTOR (S)	
IC401	TC9163N	IC		Q101	2SC2787L	TRANSISTOR	
IC402	TC9164N	IC		Q103, 104	2SC2785FE	TRANSISTOR	
IC403	UPC4570C	IC		Q106	UN411FTA	TRANSISTOR	
IC404	AN78L05TA	IC	$\Delta$	Q107, 108	2SC3311ARSTA	TRANSISTOR	
IC405	AN79L05TA	IC	$\Delta$	Q191-193	2SC3311ARSTA	TRANSISTOR	(E, EB)
IC450	BA6218	IC		Q201	UN4119	TRANSISTOR	
IC501	UPC4570C	IC		Q301	UN4213AITA	TRANSISTOR	
IC502	TC9184P	IC		Q550	UN4113	TRANSISTOR	
IC503	M5218AP	IC		Q551	UN4213AITA	TRANSISTOR	
IC601-603	M5218AP	IC		Q553-558	2SD1915FTA	TRANSISTOR	
IC604-606	CS3310-KP	IC		Q559	UN4115	TRANSISTOR	
IC607, 608	M5218AP	IC		Q601	UN4213AITA	TRANSISTOR	
IC801, 802	RSN36S5A	IC	$\Delta$	Q701, 702	2SD2374PQAU	TRANSISTOR	$\Delta$
IC803	RSN33M5	IC	$\Delta$	Q703	2SC3311A-Q	TRANSISTOR	$\Delta$
IC901	LC8A028B5C46	IC		Q705	2SB621A-R	TRANSISTOR	$\Delta$
IC902	BU2092F	IC		Q706	2SC3940AQSTA	TRANSISTOR	$\Delta$
IC903	TC4053BF	IC		Q708	2SB1548PQAU	TRANSISTOR	$\Delta$
IC1101	NJM2115MT1	IC		Q709	2SD2374PQAU	TRANSISTOR	$\Delta$
IC1102	NJM2115MT1	IC		Q710	2SC3311A-Q	TRANSISTOR	$\Delta$
IC1103	AK5340B-VS	IC		Q711	2SA1309A-R	TRANSISTOR	$\Delta$
IC1104	TC9332F-022	IC		Q712	2SC3311A-Q	TRANSISTOR	$\Delta$
IC1105	TC9332F-022	IC		Q713	2SA1309A-R	TRANSISTOR	$\Delta$
IC1106	AK4320-VM	IC		Q714	2SC3940AQSTA	TRANSISTOR	$\Delta$
IC1107	AK4320-VM	IC		Q715	UN4219TA	TRANSISTOR	
IC1108	AK4320-VM	IC		Q716-718	2SA1309A-R	TRANSISTOR	
IC1109	NJM2115MT1	IC		Q719	2SA1534AQRTA	TRANSISTOR	[M]
IC1110	NJM2115MT1	IC		Q720, 721	2SA1309A-R	TRANSISTOR	
IC1111	NJM2115MT1	IC		Q801-804	2SD1915FTA	TRANSISTOR	
IC1112	TC7W74FTE12L	IC		Q805	UN4213AITA	TRANSISTOR	
IC1113	TC7WU04FT12L	IC		Q806	UN4113	TRANSISTOR	
IC1114	LM2940T5	IC	$\Delta$	Q807	UN4211	TRANSISTOR	
IC1115	LM2940T5	IC	$\Delta$	Q808	UN4113	TRANSISTOR	
IC1116	TC7W74FTE12L	IC		Q810-812	UN4210-S	TRANSISTOR	
IC1117	TC7S04FTE85L	IC		Q813	2SA1309A-R	TRANSISTOR	
IC1118	TC74HC164AFL	IC		Q814	2SC3311A-Q	TRANSISTOR	
IC1119	TC7S32FTE85L	IC		Q815	2SA1309A-R	TRANSISTOR	
IC1301	BA7625	IC					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
Q816	2SC3311A-Q	TRANSISTOR		D801	MA4075MTA	DIODE	△
Q817	2SA1309A-R	TRANSISTOR		D802, 803	MA4030MTA	DIODE	△
Q818	2SC3311A-Q	TRANSISTOR		D804	MA4062MTA	DIODE	
Q819	2SA1309A-R	TRANSISTOR		D805-814	MA167	DIODE	
Q820	2SC3311A-Q	TRANSISTOR		D816-821	MA167	DIODE	
Q821	2SA1309A-R	TRANSISTOR		D822	MA4091-M	DIODE	
Q822	2SC3311A-Q	TRANSISTOR		D823-828	SB360L5508	DIODE	
Q831-834	UN4119	TRANSISTOR		D829-833	MA165	DIODE	
Q837-841	2SC3311A-Q	TRANSISTOR		D834	MA167	DIODE	
Q901	2SA1309A-R	TRANSISTOR		D835-837	MA165	DIODE	
Q902	2SA1309A-R	TRANSISTOR	△	D901, 902	MA165	DIODE	
Q903	UN4214TA	TRANSISTOR		D903	MA4056MTA	DIODE	△
Q904	UN4111	TRANSISTOR		D904	MA4039MTA	DIODE	△
Q905	UN4211	TRANSISTOR		D909	MA165	DIODE	(EG, GU, GN)
Q906	UN4216-S	TRANSISTOR		D910	MA165	DIODE	(E, EB)
Q907	UN4113	TRANSISTOR		D913	MA165	DIODE	
Q908, 909	UN4213AITA	TRANSISTOR		D914, 915	1SS291TA	DIODE	
Q910	UN4113	TRANSISTOR		D916-922	SLR-325VC	L. E. D.	[M]
Q1101	UN4213AITA	TRANSISTOR		D923	MA4062MTA	DIODE	
Q1301-1306	2SA1309A-R	TRANSISTOR		D925, 926	MA165	DIODE	
Q1401, 1402	2SC3311A-Q	TRANSISTOR		D927	MA4030MTA	DIODE	
Q1403	UN4111	TRANSISTOR		D928	MA165	DIODE	
Q1404, 1405	2SC3311A-Q	TRANSISTOR		D1401-1405	MA165	DIODE	
Q1406, 1407	2SA1309A-R	TRANSISTOR					
Q1408	2SC3311A-Q	TRANSISTOR				IC PROTECTOR(S)	
Q1409	2SA1309A-R	TRANSISTOR					
Q1410, 1411	2SC3311A-Q	TRANSISTOR		ICP701	SRUN10	IC PROTECTOR	△
Q1412	UN4213AITA	TRANSISTOR				VARIABLE RESISTOR(S)	
		DIODE(S)					
D101	MA4051MTA	DIODE	△	VR350, 351	EVNDXAA00B23	V. R	
D102	MA165	DIODE		VR450	EUWMR9F201J9	V. R	
D351-359	MA165	DIODE		VR901, 902	EVJ02KF02B24	V. R	
D401	MA4062MTA	DIODE				THERMISTOR(S)	
D550	MA165	DIODE					
D554	MA165	DIODE		TH350, 351	ERTD2ZHL104T	THERMISTOR	
D555, 556	MA700	DIODE				COIL(S)	
D601	MA165	DIODE					
D701	MA4030MTA	DIODE	△	L101	ELESNR68MA	COIL	(E, EB)
D704	MA4220MTA	DIODE	△	L101	ELESN1ROMA	COIL	(EG, GU, GN)
D705	MA4062MTA	DIODE	△	L103	ELETR47MA9	COIL	
D708	MA4062	DIODE	△	L105, 106	RLQZB822KT-D	COIL	
D709-712	1SR35200TB	DIODE	△	L151	SLM1B10M-1M	COIL	
D713, 714	SVDS10VB20F	DIODE	△	L191	ELESNR68MA	COIL	(E, EB)
D715	MA4068M	DIODE	△	L191	ELESNR56MA	COIL	(EG, GU, GN)
D716	MA165	DIODE		L450, 451	RLQZP1ROKT-Y	COIL	
D717-720	1SR35200TB	DIODE	△	L601-603	RLQZP101KT-Y	COIL	
D721	MA165	DIODE		L701	ELEPK101KA	COIL	
D722	MA4068L	DIODE		L751	SLQZ650MH49	COIL	△
D723	MA165	DIODE		L801-805	SLQV07G-40	COIL	
D725-728	1SR35200TB	DIODE	△				

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
L901	RLQZP1R8KT-Y	COIL					
L902	RLQZP101KT-Y	COIL				FM FRONT END PACK ASS'Y(S)	
L1101, 1102	RLQZB8R2KT-D	COIL					
L1103-1106	RLQZP100KT-Y	COIL		Z120	ENV17290G1Y	FM FRONT END	
L1107-1112	RLQZP1R2KT-Y	COIL					
L1113	RLQZP1R8KT-Y	COIL				FUSE(S)	
L1115, 1116	RLQZP1R8KT-Y	COIL					
L1118, 1119	RLQZP1R8KT-Y	COIL		F1	XBA2C40TBO	FUSE, 250V, T4A	△
L1121, 1122	RLQZP1R8KT-Y	COIL		F2, 3	XBA2C63TBO	FUSE, 250V, T6. 3A	△
L1124	RLQZP1R8KT-Y	COIL		F4	XBA2C25TBO	FUSE, 250V, T2. 5A	△
L1125, 1126	RLQZB101KT-D	COIL					
L1127-1133	RLQZP1R8KT-Y	COIL				SWITCH(ES)	
L1135	RLQZP1R2KT-Y	COIL					
L1401	RLQZP220KT-Y	COIL		SS901-922	EVQ21405R	SW	
L1402	RLQZB101KT-D	COIL					
L1403	RLQZP101KT-Y	COIL				RELAY(S)	
L1404	RLQZB101KT-D	COIL					
L1405-1410	RLQZP1R8KT-Y	COIL		RL701	RSY0019-0	RELAY	△
				RL801-804	RSY0013M-0	RELAY	△
		TRANSFORMER(S)					
						CONNECTOR(S) AND SOCKET(S)	
T701	RTP115E006	TRANSFORMER	△				
T702	RTP1Q5B002-W	TRANSFORMER	△	CN101	RJU057W007	SOCKET(7P)	
				CN101A	RJT057W007-1	CONNECTOR(7P)	
		COMPONENT COMBINATION(S)		CN102	RJU057W007	SOCKET(7P)	
				CN102A	RJT057W007-1	CONNECTOR(7P)	
Z101	RLA6Z005M-T	COMPONENT COMBINATION	(E, EB)	CN201	SJT30345JQ	CONNECTOR(3P)	
Z101	RLA2Z002M-T	COMPONENT COMBINATION	(EG, GU, GN)	CN201A	SJS50382JQH	SOCKET(3P)	
Z102	RL12Z006M-T	COMPONENT COMBINATION		CN202	RJP5G17ZA	CONNECTOR(5P)	
Z401	BL02RN2R65T2	COMPONENT COMBINATION		CN301	SJT3513	CONNECTOR(5P)	
Z701	ERZV10V511GS	SURGE ABSORBER	△	CN401	SJT3417	CONNECTOR(4P)	
Z901	RCDHC-278N	REMOTE SENSOR		CN650	RJT003K008-1	CONNECTOR(8P)	
Z1122-1126	BL02RN2R65T2	COMPONENT COMBINATION		CN650A	RJU003K008M1	SOCKET(8P)	
				CN701	RJS1A6605	CONNECTOR(5P)	
		FILTER(S) AND OSCILLATOR(S)		CN702A	RJS1A6604	CONNECTOR(4P)	
				CN702B	RJS1A6603	CONNECTOR(3P)	
CF201	RLFFETNGD01L	FILTER		CN703	RJS1A6604	CONNECTOR(4P)	
CF202	RLFFETMGD01L	FILTER		CN706	RJS1A6606	CONNECTOR(6P)	
CF901	EFOEC6004T4	OSCILLATOR		CN707A	RJS1A6605	CONNECTOR(5P)	
X101	RSXZ456KM07M	OSCILLATOR		CN707B	RJS1A6605	CONNECTOR(5P)	
X102	RLFDGTD01I	OSCILLATOR		CN717	SJS305-1	CONNECTOR(3P)	
X103	RSXC7M20S05T	OSCILLATOR		CN728	RJS1A7402-1	CONNECTOR(2P)	
X1101	RSXC22M5S01T	OSCILLATOR		CN751-759	RJS1A1101T1	CONNECTOR(1P)	
X1401	RSXC17M7S01	OSCILLATOR		CN802	RJT057W007-1	CONNECTOR(7P)	
				CN802A	RJU057W007	SOCKET(7P)	
		DISPLAY TUBE		CN803	RJT057W007-1	CONNECTOR(7P)	
				CN803A	RJU057W007	SOCKET(7P)	
FL901	RSL0224-F	DISPLAY TUBE		CN804	RJT057W007-1	CONNECTOR(7P)	
				CN804A	RJU057W007	SOCKET(7P)	
		LAMP(S)		CN809	RJU003K008M1	SOCKET(8P)	
				CN809A	RJT003K008-1	CONNECTOR(8P)	
PL200-209	XAMR131	LAMP		CN810	RJU003K008M1	SOCKET(8P)	

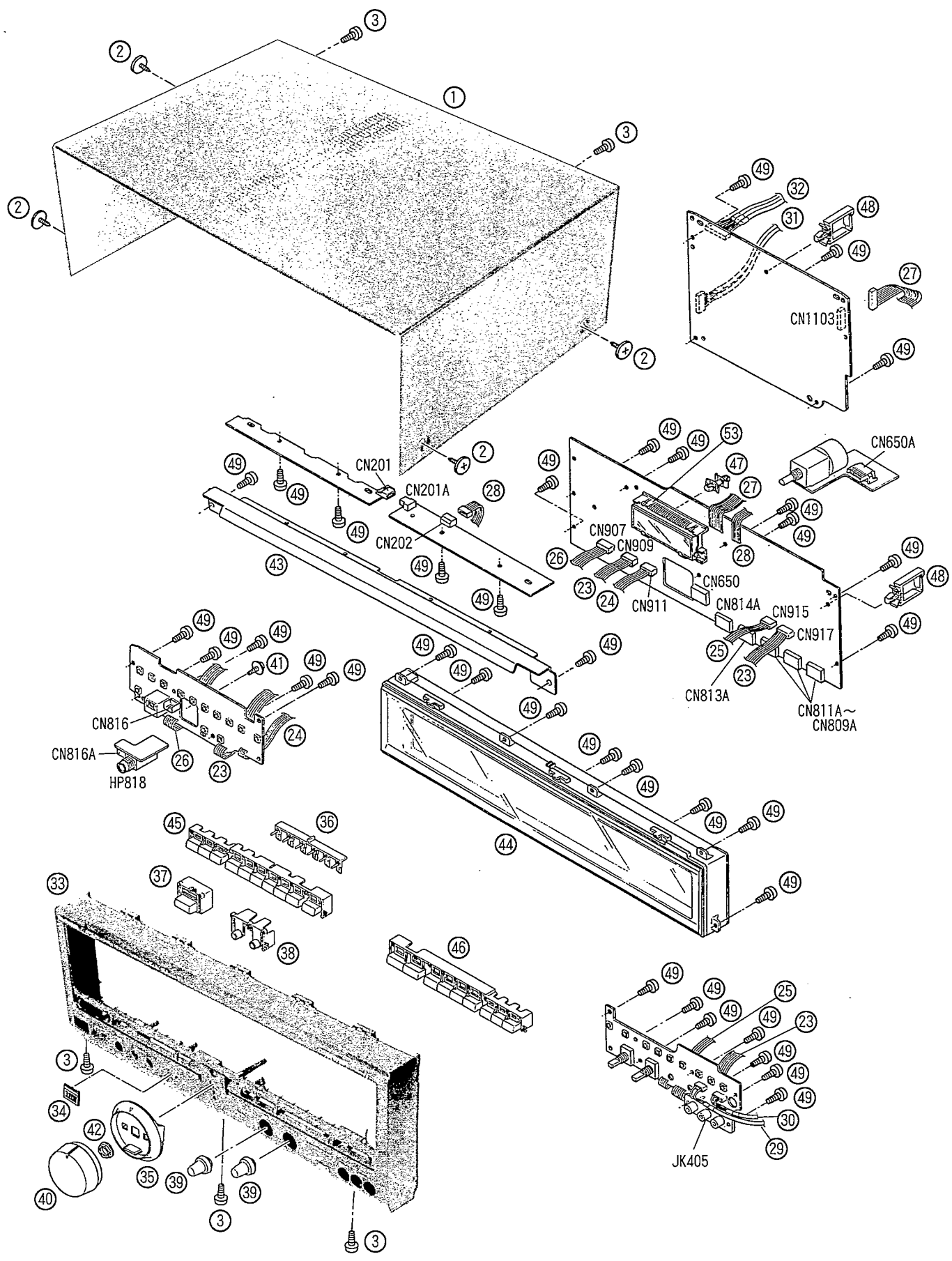
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
CN810A	RJT003K008-1	CONNECTOR (8P)		JK808	RJH4203A	CENTER SPEAKERS	
CN811	RJU003K008M1	SOCKET (8P)		JK809	RJH4406	SURROUND SPEAKERS	
CN811A	RJT003K008-1	CONNECTOR (8P)		JK1301	SJFD7-5	TV IN (VIDEO)	
CN812	RJT057W007-1	CONNECTOR (7P)		JK1302	SJF3069-12N	VCR2/VDP IN, TV MONI. (VIDEO)	
CN812A	RJU057W007	SOCKET (7P)		JK1303	SJF3068-2N	VCR1 IN/OUT (VIDEO)	
CN813	RJU003K008M1	SOCKET (8P)		JK1401	RJS1D1104	VCR1/TV MONITOR(S-VIDEO)	
CN813A	RJT003K008-1	CONNECTOR (8P)		JK1402	RJS1D1104	VCR1/VDP IN (S-VIDEO)	
CN814	RJU003K008M1	SOCKET (8P)				GND PLATE(S)	
CN814A	RJT003K008-1	CONNECTOR (8P)					
CN815	RJT057W007-1	CONNECTOR (7P)					
CN815A	RJU057W007	SOCKET (7P)		E801, 802	SNE1004-2	GND PLATE	
CN816	RJT057W004-1	CONNECTOR (4P)		E803	FMA0824	GND PLATE	
CN816A	RJU057W004	SOCKET (4P)				FUSE HOLDER(S)	
CN820	RJU060G07T	SOCKET (7P)					
CN820A	RJT060R07	CONNECTOR (7P)		FC701-708	EYF52BC	FUSE HOLDER	
CN821	RJU060G07T	SOCKET (7P)					
CN821A	RJT060R07	CONNECTOR (7P)					
CN907	RJS1A6606	CONNECTOR (6P)					
CN909	RJS1A6606	CONNECTOR (6P)					
CN911	RJS1A6605	CONNECTOR (5P)					
CN915	RJS1A6604	CONNECTOR (4P)					
CN917	RJS1A6606	CONNECTOR (6P)					
CN1101A	SJT3613	CONNECTOR (6P)					
CN1101B	RJT029W03VT	CONNECTOR (3P)					
CN1102A	SJT3909	CONNECTOR (9P)					
CN1103	SJT3809	CONNECTOR (8P)					
CN1306	SJT3321	CONNECTOR (3P)					
CN1307	RJU057W007	SOCKET (7P)					
CN1307A	RJT057W007-1	CONNECTOR (7P)					
CN1308	RJT057W007-1	CONNECTOR (7P)					
CN1308A	RJU057W007	SOCKET (7P)					
CN1309	RJT057W007-1	CONNECTOR (7P)					
CN1309A	RJU057W007	SOCKET (7P)					
CN1405	RJU057W007	SOCKET (7P)					
CN1405A	RJT057W007-1	CONNECTOR (7P)					
		JACK (S) AND TERMINAL (S)					
HP818	RJJ63TA01	HEADPHONES JACK					
JK101	RJH4202M	ANT TERMINAL					
JK301	SJF3069-13N	VDP 6 CH IN (AUDIO)					
JK401	SJF3069-5N	CD IN, TAPE REC OUT (AUDIO)					
JK402	SJF3069N	VCR1 OUT, TAPE PLAYIN (AUDIO)					
JK403	SJF3069N	VCR1 IN, VCR2 IN/OUT (AUDIO)					
JK404	SJF3069N	VDP/VDP 6CH/TV IN (AUDIO)					
JK405	SJFK5-1	VCR 3 AUDIO/IN					
JK703	SJS9236	AC INLET	△				
JK802	SJF3069-2N	P. AMP IN, D. OUT (SURROUND)					
JK803	SJF3068-3N	P. AMP IN, D. OUT (CENTER)					
JK804	SJF3069-2N	P. AMP IN, D. OUT (FRONT)					
JK805	SJFD7	DECODER OUT (SUBWOOFER)					
JK807	RJH4801-1	FRONT SPEAKERS					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS		40	RGW0176-K	VOLUME KNOB	
				41	RHD26016	SCREW	
				42	RHN90001	NUT	
1	RKMO331A-K	CABINET		43	RMA0869	LAMP ORNAMENT	
2	SNE2129-3	SCREW		44	RSE0006A	METER UNIT	
3	XTBS3+8JFZ1	SCREW		45	RGU1436-K	DOLBY PRO LOGIC BUTTON	
4	RWJ1805480KQ	FLAT CABLE (5P) (CN/JW701)		46	RGU1437-K	SELECTOR BUTTON	
5	RWJ1807470KQ	FLAT CABLE (7P) (CN/JW702)		47	SHR9793	SPACER	
6	RWJ1806650KQ	FLAT CABLE (6P) (CN/JW706)		48	SHR9814	CABLE CLIP	
7	RWJ1810330KQ	FLAT CABLE (10P) (CN/JW707)		49	XTBS26+8J	SCREW	
8	RWJ1804570KQ	FLAT CABLE (4P) (CN/JW703)		50	XTB3+20JFZ	SCREW	
9	REZ0924	CONNECTOR ASS'Y		51	XTB3+6G	SCREW	
10	REMO020-1	FAN MOTOR UNIT		52	XTW3+15T	SCREW	
10-1	MDN-4RB4MRC	FAN MOTOR		53	RMN0389	FL HOLDER	
10-2	RMQ0208-K	FAN CAP		54	RMZ0339	SURGE ABSORBER COVER	
10-3	RMQ0209-K	FAN CASE					
10-4	RMQ0212-K	FAN TERMINAL CAP					
10-5	SHE232-1	FAN					
10-6	SUS271	SPRING					
11	RGRO244C-A1	REAR PANEL	(EG)				
11	RGRO244C-C	REAR PANEL	(EB)				
11	RGRO244C-D	REAR PANEL	(GN)				
11	RGRO244C-E	REAR PANEL	(GJ)				
11	RGRO244C-B1	REAR PANEL	(E)				
12	RHD30061-K	SCREW					
13	RHR1370ZA	SPACER					
14	RJRO168	SHORT PIN PLUG					
15	RKA0053-A	FOOT					
16	RKQ0089	P. C. B. SUPPORT					
17	RMA0977	HOLD ORNAMENT					
18	RMCO158	TRANSISTOR HOLDER					
19	RMCO272	TUNER EARTH SPRING					
20	RMKO200-3	CHASSIS					
21	RMNO217	P. C. B. HOLDER					
22	RMNO392	P. C. B. HOLDER					
23	RWJ1806070KQ	FLAT CABLE (6P) (JW909/917)					
24	RWJ1805070KQ	FLAT CABLE (5P) (CN/JW911)					
25	RWJ1804070KQ	FLAT CABLE (4P) (CN/JW915)					
26	RWJ1806100KQ	FLAT CABLE (6P) (CN/JW907)					
27	RFKEATX50PAK	CONNECTOR ASS'Y (8P)					
28	RFKEATX50PBK	CONNECTOR ASS'Y (5P)					
29	RFKEATX50PCK	CONNECTOR ASS'Y (3P)					
30	RFKEATX50PDK	CONNECTOR ASS'Y (4P)					
31	RFKEATX50PEK	CONNECTOR ASS'Y (4P)					
32	RFKEATX50PEK	CONNECTOR ASS'Y (9P)					
33	RFKGATX50E-K	FRONT PANEL ASS'Y					
34	RGB0077-N	THX BADGE					
35	RGK0842A-S	ORNAMENT RING					
36	RGLO344-Q	OPTICAL CONDUCTIVE PLATE					
37	RGU0882-K	POWER BUTTON					
38	RGU1438-K	SPEAKERS SELECT BUTTON					
39	RGW0175-2K	BASS/TREBLE KNOB					

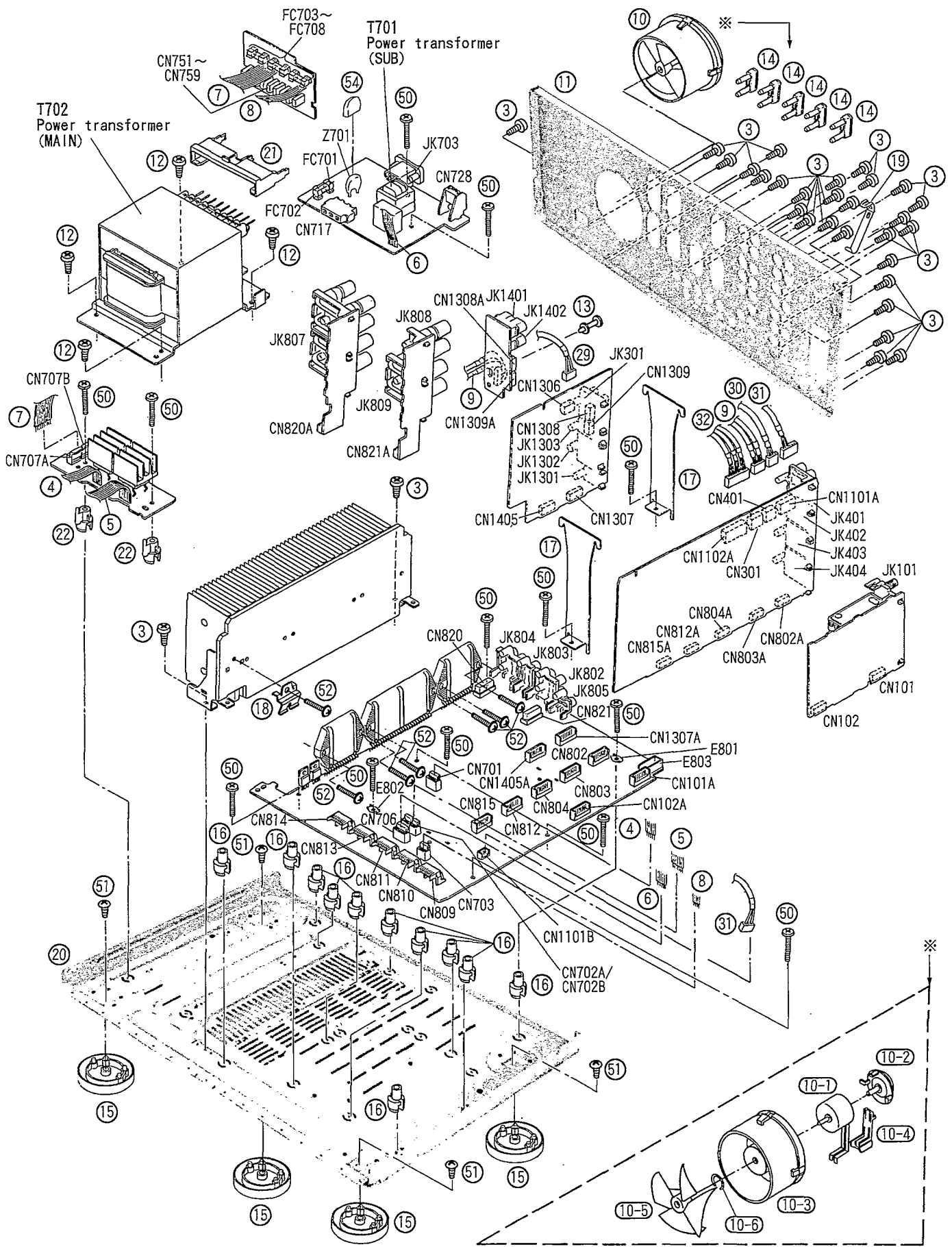
1 2 3 4 5

**■ Cabinet Parts Location**

A  
B  
C  
D  
E  
F







## Resistors and Capacitors

**Notes:** \* Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)  
 \* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM)  
 \* [MAV] indicates in Remarks columns parts that are supplied by MAV.

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS	R310-312	ERDS2TJ103	1/4W 10K	R521, 522	ERDS2TJ223	1/4W 22K
			R313, 314	ERDS2TJ102	1/4W 1K	R523, 524	ERDS2TJ152	1/4W 1.5K
			R315, 316	ERDS2TJ103	1/4W 10K	R525, 526	ERDS2TJ102	1/4W 1K
R103	ERDS2TJ101	1/4W 100	R317, 318	ERDS2TJ332	1/4W 3.3K	R527, 528	ERDS2TJ123	1/4W 12K
R104	ERDS2TJ102	1/4W 1K	R319, 320	ERDS2TJ822	1/4W 8.2K	R529, 530	ERDS2TJ223	1/4W 22K
R105	ERDS2TJ471	1/4W 470	R321, 322	ERDS2TJ153	1/4W 15K	R531, 532	ERDS2TJ473	1/4W 47K
R106	ERDS2TJ224T	1/4W 220K	R323	ERDS2TJ103	1/4W 10K	R550	ERDS2TJ822	1/4W 8.2K
R107	ERDS2TJ471	1/4W 470	R324	ERDS2TJ682T	1/4W 6.8K	R551, 552	ERDS2TJ472	1/4W 4.7K
R110	ERDS2TJ102	1/4W 1K	R350	ERDS2TJ103	1/4W 10K	R553	ERDS2TJ824	1/4W 820K
R112	ERDS2TJ104	1/4W 100K	R351	ERDS1FVJ101T	1/2W 100 $\Delta$	R554	ERDS2TJ102	1/4W 1K
R113	ERDS2TJ103	1/4W 10K	R352	ERDS2TJ155	1/4W 1.5M	R557	ERDS2TJ103	1/4W 10K
R114	ERDS2TJ562	1/4W 5.6K	R353	ERDS2TJ331	1/4W 330	R561-566	ERDS2TJ471	1/4W 470
R115	ERDS2TJ561	1/4W 560	R354	ERDS2TJ104	1/4W 100K	R567-572	ERDS2TJ102	1/4W 1K
R116	ERDS2TJ102	1/4W 1K	R355	ERDS2TJ331	1/4W 330	R573-578	ERDS2TJ823T	1/4W 82K
R117	ERDS2TJ473	1/4W 47K	R356	ERDS2TJ155	1/4W 1.5M	R601-606	ERDS2TJ102	1/4W 1K
R118	ERDS2TJ562	1/4W 5.6K	R357, 358	ERDS2TJ682T	1/4W 6.8K	R607, 608	ERDS2TJ273	1/4W 27K
R119	ERDS2TJ183T	1/4W 18K	R359, 360	ERDS2TJ103	1/4W 10K	R609-612	ERDS2TJ104	1/4W 100K
R120	ERDS2TJ473	1/4W 47K	R361, 362	ERDS2TJ821	1/4W 820	R615-617	ERDS2TJ102	1/4W 1K
R121	ERDS2TJ332	1/4W 3.3K	R363	ERDS2TJ223	1/4W 22K	R618	ERDS2TJ152	1/4W 1.5K
R122	ERDS2TJ272T	1/4W 2.7K	R364	ERDS2TJ102	1/4W 1K	R619	ERDS2TJ272T	1/4W 2.7K
R124	ERDS2TJ271	1/4W 270	R365	ERDS2TJ223	1/4W 22K	R620	ERDS2TJ392T	1/4W 3.9K
R125, 126	ERDS2TJ472	1/4W 4.7K	R366	ERDS2TJ102	1/4W 1K	R623	ERDS1FVJ101T	1/2W 100 $\Delta$
R127	ERDS2TJ103	1/4W 10K	R367, 368	ERDS2TJ681	1/4W 680	R624	ERDS1FVJ221T	1/2W 220 $\Delta$
R128	ERDS2TJ820	1/4W 82	R369	ERDS2TJ154	1/4W 150K	R625-630	ERDS2TJ104	1/4W 100K
R129	ERDS2TJ473	1/4W 47K	R370	ERDS1FVJ101T	1/2W 100 $\Delta$	R631-633	ERGLS1J10E	1W 10
R130, 131	ERDS2TJ102	1/4W 1K	R371	ERDS2TJ154	1/4W 150K	R635	ERDS2TJ102	1/4W 1K
R132	ERDS2TJ103	1/4W 10K	R372, 373	ERDS2TJ123	1/4W 12K	R636	ERDS2TJ152	1/4W 1.5K
R133-137	ERDS2TJ102	1/4W 1K	R401-420	ERDS2TJ102	1/4W 1K	R637	ERDS2TJ104	1/4W 100K
R139, 140	ERDS2TJ272T	1/4W 2.7K	R421-426	ERDS2TJ103	1/4W 10K	R638	ERDS2TJ823T	1/4W 82K
R141, 142	ERDS2TJ102	1/4W 1K	R427, 428	ERDS2TJ471	1/4W 470	R639, 640	ERDS2TJ473	1/4W 47K
R143, 144	ERDS2TJ222	1/4W 2.2K	R429, 430	ERDS2TJ473	1/4W 47K	R641, 642	ERDS2TJ104	1/4W 100K
R145, 146	ERDS2TJ102	1/4W 1K (E, EB)	R431, 432	ERDS2TJ104	1/4W 100K	R643	ERDS2TJ152	1/4W 1.5K
R145, 146	ERDS2TJ561	1/4W 560 (EG, GU, GN)	R434, 435	ERDS2TJ102	1/4W 1K	R644	ERDS2TJ123	1/4W 12K
R147, 148	ERDS2TJ474	1/4W 470K	R437, 438	ERDS2TJ224T	1/4W 220K	R645	ERDS2TJ102	1/4W 1K
R149	ERDS2TJ680T	1/4W 68	R439	ERDS2TJ471	1/4W 470	R646	ERDS2TJ152	1/4W 1.5K
R171, 172	ERDS2TJ102	1/4W 1K	R450	ERDS2TJ104	1/4W 100K	R647, 648	ERDS2TJ102	1/4W 1K
R173	ERDS2TJ471	1/4W 470	R451	ERDS1FVJ2R2T	1/2W 2.2 $\Delta$	R649, 650	ERDS2TJ152	1/4W 1.5K
R175	ERDS2TJ102	1/4W 1K	R452	ERDS2TJ562	1/4W 5.6K	R651, 652	ERDS2TJ102	1/4W 1K
R176	ERDS2TJ391	1/4W 390	R453	ERDS2TJ103	1/4W 10K	R653	ERDS2TJ473	1/4W 47K
R191	ERDS2TJ103	1/4W 10K (E, EB)	R501, 502	ERDS2TJ271	1/4W 270	R657, 658	ERDS2TJ102	1/4W 1K
R192	ERDS2TJ122	1/4W 1.2K (E, EB)	R503, 504	ERDS2TJ182	1/4W 1.8K	R659-662	ERDS2TJ154	1/4W 150K
R193	ERDS2TJ182	1/4W 1.8K (E, EB)	R505, 506	ERDS2TJ474	1/4W 470K	R663	ERDS2TJ103	1/4W 10K
R194	ERDS2TJ122	1/4W 1.2K (E, EB)	R507, 508	ERDS2TJ332	1/4W 3.3K	R701	ERDS1FVJ1R0T	1/2W 1.0 $\Delta$
R195	ERDS2TJ222	1/4W 2.2K (E, EB)	R509, 510	ERDS2TJ333	1/4W 33K	R702, 703	ERDS2TJ1R8T	1/4W 1.8
R202	ERDS1FVJ101T	1/2W 100 $\Delta$	R511, 512	ERDS2TJ243T	1/4W 24K	R706	ERDS2TJ681	1/4W 680
R203	ERDS2TJ101	1/4W 100	R513, 514	ERDS2TJ562	1/4W 5.6K	R707	ERDS2TJ122	1/4W 1.2K
R204	ERDS2TJ271	1/4W 270	R515, 516	ERDS2TJ681	1/4W 680	R708	ERDS2TJ222	1/4W 2.2K
R205, 206	ERDS2TJ103	1/4W 10K	R517, 518	ERDS2TJ224T	1/4W 220K	R709	ERDS2TJ682T	1/4W 6.8K
R301	ERDS2TJ224T	1/4W 220K	R519, 520	ERDS2TJ392T	1/4W 3.9K	R710	ERDS2TJ102	1/4W 1K

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R712	ERDS2TJ332	1/4W 3.3K	R853	ERDS2TJ393	1/4W 39K	R935	ERDS2TJ472	1/4W 4.7K
R713	ERDS1FVJ681T	1/2W 680 $\Delta$	R854, 855	ERDS2TJ473	1/4W 47K	R936	ERDS2TJ681	1/4W 680
R714	ERD25FVJ3R3T	1/4W 3.3 $\Delta$	R856	ERDS2TJ222	1/4W 2.2K	R937	ERDS2TJ103	1/4W 10K
R715	ERDS2TJ182	1/4W 1.8K	R857	ERDS2TJ102	1/4W 1K	R938-940	ERDS2TJ104	1/4W 100K
R716	ERDS1FVJ681T	1/2W 680 $\Delta$	R858-860	ERDS2TJ473	1/4W 47K	R941	ERDS2TJ182	1/4W 1.8K
R717	ERDS1FVJ1R0T	1/2W 1.0 $\Delta$	R862	ERDS2TJ105T	1/4W 1M	R942	ERDS2TJ222	1/4W 2.2K
R718	ERDS2TJ273	1/4W 27K	R863	ERD25FVJ122T	1/4W 1.2K $\Delta$	R943	ERDS2TJ332	1/4W 3.3K
R719	ERDS2TJ222	1/4W 2.2K	R865	ERD25FVJ122T	1/4W 1.2K $\Delta$	R944, 945	ERDS2TJ102	1/4W 1K
R720	ERDS2TJ273	1/4W 27K	R866	ERDS2TJ473	1/4W 47K	R946	ERDS2TJ182	1/4W 1.8K
R722	ERDS2TJ752T	1/4W 7.5K	R867, 868	ERDS2TJ393	1/4W 39K	R947	ERDS2TJ222	1/4W 2.2K
R723	ERDS2TJ682T	1/4W 6.8K	R870, 871	ERDS2TJ102	1/4W 1K	R948	ERDS2TJ332	1/4W 3.3K
R724	ERDS1FVJ681T	1/2W 680 $\Delta$	R872-874	ERD25FVJ122T	1/4W 1.2K $\Delta$	R949	ERDS2TJ472	1/4W 4.7K
R726	ERDS2TJ472	1/4W 4.7K	R875-877	ERDS2TJ393	1/4W 39K	R950	ERDS2TJ471	1/4W 470
R727, 728	ERDS2TJ221	1/4W 220	R878	ERDS2TJ102	1/4W 1K	R951	ERDS2TJ472	1/4W 4.7K
R729, 730	ERDS2TJ102	1/4W 1K	R879	ERDS2TJ184T	1/4W 180K	R952, 953	ERDS2TJ102	1/4W 1K
R731, 732	ERDS2TJ472	1/4W 4.7K	R880	ERDS2TJ102	1/4W 1K	R954	ERDS2TJ103	1/4W 10K
R733, 734	ERDS1FVJ3R3T	1/2W 3.3 $\Delta$	R881	ERDS1FVJ220T	1/2W 22 $\Delta$	R955	ERDS2TJ182	1/4W 1.8K
R735	ERX1SJR22E	1W 0.22	R882	ERDS2TJ102	1/4W 1K	R956	ERDS2TJ222	1/4W 2.2K
R736, 737	ERDS2TJ333	1/4W 33K	R883	ERDS2TJ473	1/4W 47K	R957	ERDS2TJ332	1/4W 3.3K
R738	ERX1SJR22E	1W 0.22	R884	ERDS2TJ684	1/4W 680K	R961	ERDS2TJ224T	1/4W 220K
R739	ERDS2TJ102	1/4W 1K	R885	ERDS2TJ104	1/4W 100K	R962	ERDS2TJ103	1/4W 10K
R740	ERDS2TJ682T	1/4W 6.8K	R886	ERDS2TJ123	1/4W 12K	R964-966	ERDS2TJ104	1/4W 100K
R741	ERDS2TJ104	1/4W 100K	R887	ERDS2TJ102	1/4W 1K	R967	ERDS2TJ103	1/4W 10K
R742	ERDS2TJ103	1/4W 10K	R888	ERDS2TJ123	1/4W 12K	R968	ERDS2TJ102	1/4W 1K
R743	ERDS2TJ335T	1/4W 3.3M	R889-893	ERDS1FVJ470T	1/2W 47 $\Delta$	R969	ERDS2TJ122	1/4W 1.2K
R744	ERDS2TJ223	1/4W 22K	R894	ERDS1FVJ100T	1/2W 10 $\Delta$	R970	ERDS2TJ152	1/4W 1.5K
R745	ERDS2TJ270T	1/4W 27	R895, 896	ERG1SJ680E	1W 68	R971	ERDS2TJ103	1/4W 10K
R746	ERDS2TJ472	1/4W 4.7K	R897, 898	ERDS1FVJ100T	1/2W 10 $\Delta$	R972	ERDS2TJ102	1/4W 1K
R748	ERDS2TJ103	1/4W 10K	R899	ERDS2TJ124T	1/4W 120K	R973	ERDS2TJ122	1/4W 1.2K
R749	ERDS2TJ153	1/4W 15K	R901	ERDS2TJ181T	1/4W 180	R974	ERDS2TJ152	1/4W 1.5K
R750, 751	ERDS2TJ473	1/4W 47K	R903	ERDS2TJ222	1/4W 2.2K	R975	ERDS2TJ103	1/4W 10K
R752	ERDS2TJ103	1/4W 10K	R904	ERDS2TJ562	1/4W 5.6K	R976	ERDS2TJ102	1/4W 1K
R753	ERDS2TJ222	1/4W 2.2K	R905	ERDS2TJ122	1/4W 1.2K	R977	ERDS2TJ122	1/4W 1.2K
R754	ERDS2TJ220T	1/4W 22	R906	ERDS2TJ103	1/4W 10K	R978	ERDS2TJ152	1/4W 1.5K
R755	ERDS2TJ222	1/4W 2.2K	R907, 908	ERDS2TJ102	1/4W 1K	R979	ERDS2TJ102	1/4W 1K
R758	ERDS1FVJ1R0T	1/2W 1.0 $\Delta$	R909-911	ERDS2TJ104	1/4W 100K	R980	ERDS2TJ222	1/4W 2.2K
R801-806	ERDS2TJ223	1/4W 22K	R912	ERDS2TJ473	1/4W 47K	R981	ERDS2TJ822	1/4W 8.2K
R807-811	ERDS2TJ102	1/4W 1K	R914, 915	ERDS2TJ104	1/4W 100K	R982, 983	ERDS2TJ472	1/4W 4.7K
R813	ERDS2TJ224T	1/4W 220K	R916	ERDS2TJ101	1/4W 100	R984	ERDS2TJ822	1/4W 8.2K
R814, 815	ERDS2TJ182	1/4W 1.8K	R917	ERDS2TJ562	1/4W 5.6K	R987	ERDS2TJ102	1/4W 1K
R817	ERDS2TJ224T	1/4W 220K	R918-922	ERDS2TJ102	1/4W 1K	R1000	ERDS2TJ223	1/4W 22K
R818, 819	ERDS2TJ821	1/4W 820	R923	ERDS2TJ101	1/4W 100	R1003	ERDS1FVJ820T	1/2W 82 $\Delta$
R822, 823	ERDS2TJ391	1/4W 390	R924	ERDS2TJ102	1/4W 1K	R1004, 1005	ERDS2TJ102	1/4W 1K
R825, 826	ERDS2TJ152	1/4W 1.5K	R925	ERDS2TJ101	1/4W 100	R1006	ERDS2TJ330	1/4W 33
R827	ERDS2TJ681	1/4W 680	R926	ERDS2TJ102	1/4W 1K	R1007, 1008	ERDS2TJ473	1/4W 47K
R830	ERDS2TJ471	1/4W 470	R927	ERDS2TJ472	1/4W 4.7K	R1009-1011	ERDS2TJ102	1/4W 1K
R831	ERDS2TJ151	1/4W 150	R928, 929	ERDS2TJ102	1/4W 1K	R1023	ERDS2TJ102	1/4W 1K
R832	ERDS2TJ822	1/4W 8.2K	R930	ERDS2TJ101	1/4W 100	R1024	ERDS2TJ223	1/4W 22K
R833	ERDS2TJ182	1/4W 1.8K	R931	ERDS2TJ271	1/4W 270	R1025	ERDS2TJ122	1/4W 1.2K
R834, 835	ERDS2TJ471	1/4W 470	R932	ERDS2EJ121	1/4W 120	R1026	ERDS2TJ152	1/4W 1.5K
R846-848	ERDS2TJ471	1/4W 470	R933	ERDS2TJ104	1/4W 100K	R1027, 1028	ERDS2TJ272T	1/4W 2.7K
R849-852	ERDS2TJ222	1/4W 2.2K	R934	ERDS2TJ102	1/4W 1K	R1029	ERDS2TJ152	1/4W 1.5K

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R1030	ERDS2TJ272T	1/4W 2.7K	R1157-1160	ERDS2TJ103	1/4W 10K	R1516	ERDS2TJ102	1/4W 1K
R1031	ERDS1FVJ472T	1/2W 4.7K $\Delta$	R1161, 1162	ERDS2TJ822	1/4W 8.2K	R1517	ERDS2TJ682T	1/4W 6.8K
R1032	ERDS2TJ682T	1/4W 6.8K	R1163-1166	ERDS2TJ103	1/4W 10K	R1518, 1519	ERDS2TJ122	1/4W 1.2K
R1033	ERDS2TJ472	1/4W 4.7K	R1167, 1168	ERDS2TJ822	1/4W 8.2K	R1521	ERDS2TJ103	1/4W 10K
R1034	ERDS1FVJ472T	1/2W 4.7K $\Delta$	R1169-1172	ERDS2TJ104	1/4W 100K			
R1035	ERDS2TJ682T	1/4W 6.8K	R1173-1175	ERDS2TJ100	1/4W 10			CAPACITORS
R1036	ERDS2TJ472	1/4W 4.7K	R1176	ERDS2TJ152	1/4W 1.5K			
R1037, 1038	ERG1SJ680E	1W 68	R1179-1188	ERDS2TJ102	1/4W 1K	C101	ECBT1C103NS5	16V 0.01U
R1039, 1040	ERDS1FVJ100T	1/2W 10 $\Delta$	R1301-1311	ERDS2TJ750	1/4W 75	C103	ECBT1C103NS5	16V 0.01U
R1041, 1042	ERDS2TJ222	1/4W 2.2K	R1312	ERDS2TJ101	1/4W 100	C104	ECBT1H102KB5	50V 1000P
R1043	ERDS2TJ682T	1/4W 6.8K	R1313, 1314	ERDS2TJ221	1/4W 220	C105	ECBT1H220JC5	50V 22P
R1044	ERDS2TJ154	1/4W 150K	R1315	ERDS2TJ101	1/4W 100	C106	ECBT1C103NS5	16V 0.01U
R1045	ERDS2TJ682T	1/4W 6.8K	R1316	ERDS2TJ102	1/4W 1K	C107	ECBT1H473ZF5	50V 0.047U
R1046	ERG1SJ680E	1W 68	R1317	ERDS2TJ221	1/4W 220	C108	ECBT1H100JC5	50V 10P (E, EB)
R1047, 1048	ERDS2TJ184T	1/4W 180K	R1318	ERDS2TJ101	1/4W 100	C108	ECBT1H8R2KC5	50V 8.2P (EG, GI, GN)
R1049	ERDS1FJ270	1/2W 27 $\Delta$	R1319	ERDS2TJ221	1/4W 220	C109, 110	ECBT1C103NS5	16V 0.01U
R1050	ERDS2TJ154	1/4W 150K	R1320	ERDS2TJ750	1/4W 75	C111	ECEA1EKA4R7B	25V 4.7U
R1051, 1052	ERDS2TJ682T	1/4W 6.8K	R1321-1323	ERDS2TJ473	1/4W 47K	C112	ECBT1C103NS5	16V 0.01U
R1053, 1054	ERDS1FVJ222T	1/2W 2.2K $\Delta$	R1401	ERDS2TJ331	1/4W 330	C113	ECBT1H102KB5	50V 1000P
R1055, 1056	ERDS2TJ222	1/4W 2.2K	R1402, 1403	ERDS2TJ224T	1/4W 220K	C114	RCE1HKA3R3BG	50V 3.3U
R1057-1060	ERD2FCVJ47T	1/4W 4.7 $\Delta$	R1404-1408	ERDS2TJ103	1/4W 10K	C115	ECEA1EKA4R7B	25V 4.7U
R1061-1067	ERDS2TJ223	1/4W 22K	R1409, 1410	ERDS2TJ332	1/4W 3.3K	C116	ECBT1C822MS5	16V 8200P
R1068	ERDS2TJ124T	1/4W 120K	R1411	ERDS2TJ103	1/4W 10K	C117	ECQB1H471JF3	50V 470P
R1069	ERDS2TJ474	1/4W 470K	R1412	ERDS2TJ101	1/4W 100	C118, 119	ECQB1H103JF3	50V 0.01U
R1070	ERDS2TJ102	1/4W 1K	R1413, 1414	ERDS2TJ103	1/4W 10K	C120, 121	ECEA1HKA010B	50V 1U
R1071	ERDS1FJ270	1/2W 27 $\Delta$	R1415	ERDS2TJ100	1/4W 10	C122	ECEA1HKA2R2B	50V 2.2U
R1072	ERDS2TJ102	1/4W 1K	R1416	ERDS2TJ182	1/4W 1.8K	C123	ECEA1HKA010B	50V 1U
R1073	ERDS1FJ270	1/2W 27 $\Delta$	R1417	ERDS2TJ750	1/4W 75	C124	ECBT1H102KB5	50V 1000P
R1074, 1075	ERDS2TJ102	1/4W 1K	R1418	ERDS2TJ471	1/4W 470	C125	ECBT1H150JC5	50V 15P
R1076	ERG1SJ680E	1W 68	R1419	ERDS2TJ750	1/4W 75	C126	ECBT1H104ZF5	50V 0.1U
R1077	ERDS1FJ270	1/2W 27 $\Delta$	R1420	ERDS2TJ101	1/4W 100	C127	ECEA1CKA220B	16V 22U
R1078	ERDS2TJ332	1/4W 3.3K	R1421	ERDS2TJ473	1/4W 47K	C128	ECBT1C103NS5	16V 0.01U
R1080-1085	ERDS2TJ100	1/4W 10	R1422	ERDS2TJ471	1/4W 470	C129, 130	ECEA0JKA101B	6.3V 100U
R1086	ERDS2TJ223	1/4W 22K	R1423	ERDS2TJ123	1/4W 12K	C131	ECBT1C103NS5	16V 0.01U
R1087	ERDS2TJ274	1/4W 270K	R1424	ERDS2TJ103	1/4W 10K	C132	ECBT1H102KB5	50V 1000P
R1089, 1090	ERD25FVJ221T	1/4W 220 $\Delta$	R1425	ERDS2TJ472	1/4W 4.7K	C133, 134	ECBT1H270JU5	50V 27P
R1091, 1092	ERDS1FVJ100T	1/2W 10 $\Delta$	R1426	ERDS2TJ101	1/4W 100	C135, 136	ECBT1C103KS5	16V 0.01U
R1093-1095	ERD25FVJ221T	1/4W 220 $\Delta$	R1427	ERDS2TJ100	1/4W 10	C137, 138	ECBT1H561KB5	50V 560P
R1096-1099	ERDS1FVJ100T	1/2W 10 $\Delta$	R1428	ERDS2TJ471	1/4W 470	C139, 140	ECQB1H682JF3	50V 6800P
R1101, 1102	ERDS2TJ104	1/4W 100K	R1429	ERDS2TJ182	1/4W 1.8K	C141-144	ECEA1HKA010B	50V 1U
R1103, 1104	ERDS2TJ103	1/4W 10K	R1430	ERDS2TJ750	1/4W 75	C145	ECBT1H220JC5	50V 22P
R1105, 1106	ERDS2TJ562	1/4W 5.6K	R1431	ERDS2TJ223	1/4W 22K	C147	ECBT1H102KB5	50V 1000P
R1107, 1108	ERDS2TJ102	1/4W 1K	R1432	ERDS2TJ473	1/4W 47K	C148, 149	ECBT1C103NS5	16V 0.01U
R1109-1112	ERDS2TJ103	1/4W 10K	R1433	ERDS2TJ101	1/4W 100	C150	ECBT1H104ZF5	50V 0.1U
R1113-1116	ERDS2TJ331	1/4W 330	R1434	ERDS2TJ102	1/4W 1K	C172	ECBT1H331KB5	50V 330P
R1117	ERDS2TJ182	1/4W 1.8K	R1501, 1502	ERDS1FJ270	1/2W 27 $\Delta$	C173	ECEA1CKA220B	16V 22U
R1121	ERDS2TJ103	1/4W 10K	R1503-1506	ERG1SJ680E	1W 68	C174	ECEA1CKA101B	16V 100U
R1131	ERDS2TJ106T	1/4W 10M	R1507, 1508	ERDS2TJ153	1/4W 15K	C175, 176	ECBT1C103NS5	16V 0.01U
R1132	ERDS2TJ122	1/4W 1.2K	R1509, 1510	ERDS2TJ682T	1/4W 6.8K	C181	ECBT1H471KB5	50V 470P
R1151-1153	ERDS2TJ822	1/4W 8.2K	R1511, 1512	ERDS2TJ153	1/4W 15K	C196	ECBT1H102KB5	50V 1000P
R1154	ERDS2TJ103	1/4W 10K	R1513, 1514	ERDS2TJ682T	1/4W 6.8K	C201	ECBT1E223ZF	25V 0.022U
R1155, 1156	ERDS2TJ822	1/4W 8.2K	R1515	ERDS2TJ153	1/4W 15K	C202	ECBT1E103ZF	25V 0.01U

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C302, 303	RCE1CKA100BG	16V 10U	C529, 530	ECBT1H561KB5	50V 560P	C713, 714	ECBT1E103ZF	25V 0.01U
C311	ECBT1H101KB5	50V 100P	C531, 532	ECBT1H101KB5	50V 100P	C715	ECKR1H103ZF5	50V 0.01U
C312	ECEA1EKA4R7B	25V 4.7U	C533, 534	ECBT1H271KB5	50V 270P	C716, 717	ECEA1VKA470B	35V 47U
C313	ECBT1E103ZF	25V 0.01U	C581	ECBT1E223ZF	25V 0.022U	C718-721	ECA1VM332E	35V 3300U $\Delta$
C314	ECEA1EKA4R7B	25V 4.7U	C601, 602	RCE1CKA100BG	16V 10U	C722, 723	ECET75V153WX	75V 15000U $\Delta$
C315	ECBT1E103ZF	25V 0.01U	C603	RCE1HKA3R3BG	50V 3.3U	C724	RCE1AU101BV	10V 100U
C317-320	ECBT1H151KB5	50V 150P	C604	RCE1HKA47BG	50V 0.47U	C725, 726	ECQE2104KF3	250V 0.1U
C321	ECBT1E103ZF	25V 0.01U	C605-609	RCE1HKA3R3BG	50V 3.3U	C727	ECBT1E103ZF	25V 0.01U
C350	ECBT1C152KR5	16V 1500P	C610	RCE1HKA47BG	50V 0.47U	C728	RCE1CKA470BG	16V 47U
C351	ECEA1HKA2R2B	50V 2.2U	C611, 612	RCE1HKA3R3BG	50V 3.3U	C729	ECA1EM102E	25V 1000U $\Delta$
C352, 353	ECEA1EKN3R3B	25V 3.3U	C613-615	RCE1CKA100BG	16V 10U	C730	ECEA1HKA2R2B	50V 2.2U
C354	ECBT1C152KR5	16V 1500P	C616-618	ECBT1H104ZF5	50V 0.1U	C731	ECKR1H103ZF5	50V 0.01U
C355	ECEA1HKA2R2B	50V 2.2U	C619-621	RCE1CKA100BG	16V 10U	C732	ECBT1E223ZF	25V 0.022U
C356, 357	ECA1CM102B	16V 1000U	C622-627	ECBT1H104ZF5	50V 0.1U	C733	ECKWRS102MBC	400V 1000P $\Delta$ [MAV]
C401-416	ECBT1H151KB5	50V 150P	C628-630	RCE1CKA100BG	16V 10U	C734	ECEADJKA221B	6.3V 220U
C417-420	ECEA1EKA4R7B	25V 4.7U	C631-634	ECBT1H104ZF5	50V 0.1U	C735	RCE1CKA100BG	16V 10U
C421-424	ECBT1E103ZF	25V 0.01U	C635	RCE1HKA3R3BG	50V 3.3U	C737	ECBT1E103ZF	25V 0.01U
C425-428	ECBT1H101KB5	50V 100P	C636	RCE1HKA47BG	50V 0.47U	C744	ECEA1CKA220B	16V 22U
C429, 430	RCE1CKA100BG	16V 10U	C637, 638	RCE1HKA3R3BG	50V 3.3U	C801	ECBT1E103ZF	25V 0.01U
C431, 432	ECBT1E103ZF	25V 0.01U	C639, 640	ECEA1CKA220B	16V 22U	C802, 803	ECEA2AU100	100V 10U
C433, 434	ECEA1CKA220B	16V 22U	C641	ECBT1H221KB5	50V 220P	C804	ECBT1H820KB5	50V 82P
C435, 436	ECBT1H151KB5	50V 150P	C642	ECBT1E223ZF	25V 0.022U	C805	ECBT1H102KB5	50V 1000P
C438	ECEA1HKA010B	50V 1U	C643, 644	ECBT1H181KB5	50V 180P	C806	ECBT1H151KB5	50V 150P
C440	ECBT1H104ZF5	50V 0.1U	C645, 646	ECBT1H821KB5	50V 820P	C807	ECEA1CKA220B	16V 22U
C441	RCE1CKA100BG	16V 10U	C647	ECBT1C122KR5	16V 1200P	C808	ECBT1H151KB5	50V 150P
C442	RCE1HKS010BV	50V 1U	C648	ECBT1H104ZF5	50V 0.1U	C809	ECEA1CKA220B	16V 22U
C444	ECBT1H104ZF5	50V 0.1U	C649, 650	ECBT1H101KB5	50V 100P	C810	ECBT1H151KB5	50V 150P
C445	RCE1CKA100BG	16V 10U	C653, 654	ECBT1H101KB5	50V 100P	C811	ECEA1CKA220B	16V 22U
C446	ECBT1E103ZF	25V 0.01U	C655, 656	ECBT1C152KR5	16V 1500P	C812	ECBT1H151KB5	50V 150P
C450	ECBT1H104ZF5	50V 0.1U	C657, 658	ECBT1H101KB5	50V 100P	C813, 814	ECA1JM330B	63V 33U
C451	RCE1CKA100BG	16V 10U	C659	ECBT1H821KB5	50V 820P	C815	ECEA1CKA220B	16V 22U
C452	ECEADJKA101B	6.3V 100U	C660	ECBT1E103ZF	25V 0.01U	C816, 817	ECBT1H102KB5	50V 1000P
C453	ECEADJKA221B	6.3V 220U	C661, 662	ECBT1H101KB5	50V 100P	C818	ECBT1H151KB5	50V 150P
C454, 455	ECFR1E104KR	25V 0.1U	C663, 664	ECBT1H102KB5	50V 1000P	C819	ECEA1CKA220B	16V 22U
C458	ECBT1H104ZF5	50V 0.1U	C666	ECBT1H104ZF5	50V 0.1U	C820	ECBT1E103ZF	25V 0.01U
C459	ECEADJKA221B	6.3V 220U	C667, 668	ECBT1C152KR5	16V 1500P	C821	ECBT1H151KB5	50V 150P
C501, 502	RCE1CKA470BG	16V 47U	C669	ECBT1C122KR5	16V 1200P	C822	ECEA1CKA220B	16V 22U
C503, 504	ECBT1C562KR5	16V 5600P	C671, 672	ECEA1CKA220B	16V 22U	C823	ECBT1H151KB5	50V 150P
C505, 506	ECBT1H221KB5	50V 220P	C673	ECBT1H104ZF5	50V 0.1U	C824	ECEA1CKA220B	16V 22U
C507, 508	ECBT1H101KB5	50V 100P	C675, 676	ECBT1H331KB5	50V 330P	C825	ECBT1H151KB5	50V 150P
C509, 510	ECEA1CKN4R7B	16V 4.7U	C678	ECBT1H331KB5	50V 330P	C826	ECEA1CKA220B	16V 22U
C511, 512	ECEA1EKA4R7B	25V 4.7U	C681	ECA1VM221B	35V 220U	C827	ECBT1H151KB5	50V 150P
C513, 514	ECBT1E103ZF	25V 0.01U	C697, 698	RCE1CKA100BG	16V 10U	C828	ECEA1CKA220B	16V 22U
C515, 516	ECQV1H683JM3	50V 0.068U	C701	ECEADJKA101B	6.3V 100U	C829	ECBT1H151KB5	50V 150P
C517, 518	ECFR1C123KR	16V 0.012U	C702	RCE1CKA100BG	16V 10U	C830	ECEA1CKA220B	16V 22U
C519, 520	ECBT1C272KR5	16V 2700P	C703, 704	ECEA1VKA470B	35V 47U	C831	ECBT1H151KB5	50V 150P
C521, 522	ECFR1C223KR	16V 0.022U	C705	ECBT1E103ZF	25V 0.01U	C832	ECEA1CKA220B	16V 22U
C523	RCE1HKS3R3BV	50V 3.3U	C706	ECEA1EKA100B	25V 10U	C833-836	ECEADJKA101B	6.3V 100U
C524	RCE1HKA3R3BG	50V 3.3U	C708	ECBT1E103ZF	25V 0.01U	C837-840	ECEA1EKN3R3B	25V 3.3U
C525	ECEA1CKS220	16V 22U	C709	ECEA1CKA101B	16V 100U	C841	ECBA1H681KB5	50V 680P
C526	ECEA1CKA220B	16V 22U	C711	ECA1EM472E	25V 4700U $\Delta$	C842	ECEA1EKN3R3B	25V 3.3U
C527, 528	RCE1AKA330BG	10V 33U	C712	RCE1CKA100BG	16V 10U	C843-845	ECBA1H681KB5	50V 680P

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C847	ECBT1H271KB5	50V 270P	C939	ECBT1E103ZF	25V 0.01U	C1206, 1207	RCE1HKA3R3BG	50V 3.3U
C848	ECBA1H681KB5	50V 680P	C940, 941	ECBT1H331KB5	50V 330P	C1208	RCE1CKA100BG	16V 10U
C849	ECA1JM330B	63V 33U	C1001-1005	ECEA1CKA220B	16V 22U	C1210	ECBT1E103ZF	25V 0.01U
C850, 851	ECA1JM470B	63V 47U	C1101, 1102	RCE1CKA100BG	16V 10U	C1211-1214	ECBT1H101KB5	50V 100P
C852, 853	ECBA1H681KB5	50V 680P	C1103, 1104	ECBT1C222KR5	16V 2200P	C1218	ECKT1H102KB	50V 1000P
C854, 855	ECCD1H150KC	50V 15P	C1106	RCE1CKA100BG	16V 10U	C1219	ECCT1H181K	50V 180P
C856	ECA1JM330B	63V 33U	C1107-1109	ECBT1H104ZF5	50V 0.1U	C1220	ECBT1H390J5	50V 39P
C857-859	ECBA1H681KB5	50V 680P	C1110	ECEA1EKA4R7B	25V 4.7U	C1221, 1222	ECBT1H104ZF5	50V 0.1U
C860	ECA1JM470B	63V 47U	C1111, 1112	ECBT1H104ZF5	50V 0.1U	C1223	ECBT1C152KR5	16V 1500P
C861	ECBA1H681KB5	50V 680P	C1113	RCE1CKA100BG	16V 10U	C1224	ECBT1E103ZF	25V 0.01U
C862, 863	ECA1JM470B	63V 47U	C1115	ECBT1H104ZF5	50V 0.1U	C1225	ECBT1C152KR5	16V 1500P
C864-866	ECCD1H150KC	50V 15P	C1116	RCE1CKA100BG	16V 10U	C1226	ECBT1H101KB5	50V 100P
C867, 868	ECBA1H681KB5	50V 680P	C1117-1119	ECBT1H104ZF5	50V 0.1U	C1301-1303	ECEA1HKA2R2B	50V 2.2U
C869	ECBT1H102KB5	50V 1000P	C1121	ECEA0JKA101B	6.3V 100U	C1304	ECEA1HKS2R2B	50V 2.2U
C870	ECKR1H103ZF5	50V 0.01U	C1122, 1123	ECBT1H104ZF5	50V 0.1U	C1305	ECEA0GKA471B	4V 470U
C871	ECEA1JU220	63V 22U	C1124	ECEA0JKA101B	6.3V 100U	C1306-1309	ECEA1HKS2R2B	50V 2.2U
C873	ECEA2AN2R2SB	100V 2.2U	C1125-1127	ECBT1H104ZF5	50V 0.1U	C1310	ECA0JM471B	6.3V 470U
C875	ECBT1H102KB5	50V 1000P	C1128	ECA0JM102B	6.3V 1000U	C1311	ECBT1H102KB5	50V 1000P
C876-880	ECQV1H473JM3	50V 0.047U	C1129, 1130	ECBT1H104ZF5	50V 0.1U	C1312-1314	ECBT1E103ZF	25V 0.01U
C881	ECA1HM101B	50V 100U	C1131	ECBT1H330J5	50V 33P	C1315-1317	ECEA0JKA470B	6.3V 47U
C882	ECEA1HKA010B	50V 1U	C1132	ECBT1H120J5	50V 12P	C1318-1320	ECEA1HKA2R2B	50V 2.2U
C883-887	ECKT1H223ZF	50V 0.022U	C1133	ECA0JM102B	6.3V 1000U	C1401	ECEA1HKA2R2B	50V 2.2U
C888	ECBT1E103ZF	25V 0.01U	C1134, 1135	ECBT1H104ZF5	50V 0.1U	C1402	RCE1CKA100BG	16V 10U
C889, 890	ECKT1H223ZF	50V 0.022U	C1136, 1137	ECA0JM102B	6.3V 1000U	C1403	ECEA1CKS100L	16V 10U
C892, 893	ECBT1H221KB5	50V 220P	C1138, 1139	ECBT1H104ZF5	50V 0.1U	C1404	RCE1CKA100BG	16V 10U
C894-897	ECEA2AU100	100V 10U	C1140, 1141	ECA0JM471B	6.3V 470U	C1405	ECEA0JKA101B	6.3V 100U
C898	ECQV1H823JM3	50V 0.082U	C1142, 1143	ECBT1H104ZF5	50V 0.1U	C1406	ECBT1E103ZF	25V 0.01U
C901-903	ECBT1H101KB5	50V 100P	C1144, 1145	ECA0JM471B	6.3V 470U	C1407	ECA0JM471B	6.3V 470U
C904, 905	ECBT1E103ZF	25V 0.01U	C1146	ECBT1H104ZF5	50V 0.1U	C1408	ECEA0JKA101B	6.3V 100U
C906, 907	ECBT1H101KB5	50V 100P	C1147	ECA0JM471B	6.3V 470U	C1409	ECBT1E103ZF	25V 0.01U
C908, 909	ECA2AM100B	100V 10U	C1148	ECBT1H104ZF5	50V 0.1U	C1410-1412	ECBT1H102KB5	50V 1000P
C910	ECBT1E103ZF	25V 0.01U	C1151-1154	ECBA1H681KB5	50V 680P	C1413	ECBT1E103ZF	25V 0.01U
C911	RCE1VKA100BG	35V 10U	C1155, 1156	ECBT1C272KR5	16V 2700P	C1414	ECBT1H180JC5	50V 18P
C912	ECBT1H101KB5	50V 100P	C1157-1160	ECBT1C152KR5	16V 1500P	C1415	ECA0JM471B	6.3V 470U
C913	ECBT1E103ZF	25V 0.01U	C1161, 1162	ECBT1C682KR5	16V 6800P	C1416, 1417	ECBT1H220JC5	50V 22P
C914	RCE1VKA100BG	35V 10U	C1163-1166	ECBT1H101KB5	50V 100P	C1418	ECBT1E103ZF	25V 0.01U
C915, 916	ECBT1E103ZF	25V 0.01U	C1167, 1168	ECBT1H561KB5	50V 560P	C1419	ECBT1H470J5	50V 47P
C917	ECA0JM102B	6.3V 1000U	C1169-1171	ECBT1H104ZF5	50V 0.1U	C1420	ECBT1E103ZF	25V 0.01U
C918	ECEA1HKA010B	50V 1U	C1172-1174	ECEA0JKA101B	6.3V 100U	C1421	ECEA0JKA101B	6.3V 100U
C919	ECBT1E103ZF	25V 0.01U	C1175-1177	ECBT1H104ZF5	50V 0.1U	C1422	ECBT1E103ZF	25V 0.01U
C920	ECEA0JKA101B	6.3V 100U	C1178, 1179	ECBT1H390J5	50V 39P	C1423	ECEA0JKA101B	6.3V 100U
C921	ECEA1HKA010B	50V 1U	C1180	ECBT1E103ZF	25V 0.01U	C1424	ECBT1H101KB5	50V 100P
C922	ECA0JM471B	6.3V 470U	C1181-1183	RCE1CKA100BG	16V 10U	C1425	ECBT1E103ZF	25V 0.01U
C923	ECBT1H101KB5	50V 100P	C1184-1186	ECBT1H104ZF5	50V 0.1U	C1426-1428	ECBT1H101KB5	50V 100P
C924-930	ECBT1H331KB5	50V 330P	C1187-1189	ECBT1H101KB5	50V 100P	C1429	ECBT1C105ZF5	16V 1U
C931	ECEA0JKA101B	6.3V 100U	C1190	ECBT1H181KB5	50V 180P	C1430, 1431	ECBT1H101KB5	50V 100P
C932	ECBT1H104ZF5	50V 0.1U	C1193-1195	RCE1CKA100BG	16V 10U	C1448-1450	ECBT1E103ZF	25V 0.01U
C933	RCE1CKA100BG	16V 10U	C1196-1200	ECBT1H104ZF5	50V 0.1U			
C934	ECBT1E103ZF	25V 0.01U	C1201	ECEA0JKA101B	6.3V 100U			
C935, 936	ECBT1H104ZF5	50V 0.1U	C1202	ECA0JM102B	6.3V 1000U			
C937	RCE1CKA100BG	16V 10U	C1203	ECBT1H104ZF5	50V 0.1U			
C938	ECBT1H101KB5	50V 100P	C1204, 1205	RCE1CKA100BG	16V 10U			

# Replacement Parts List

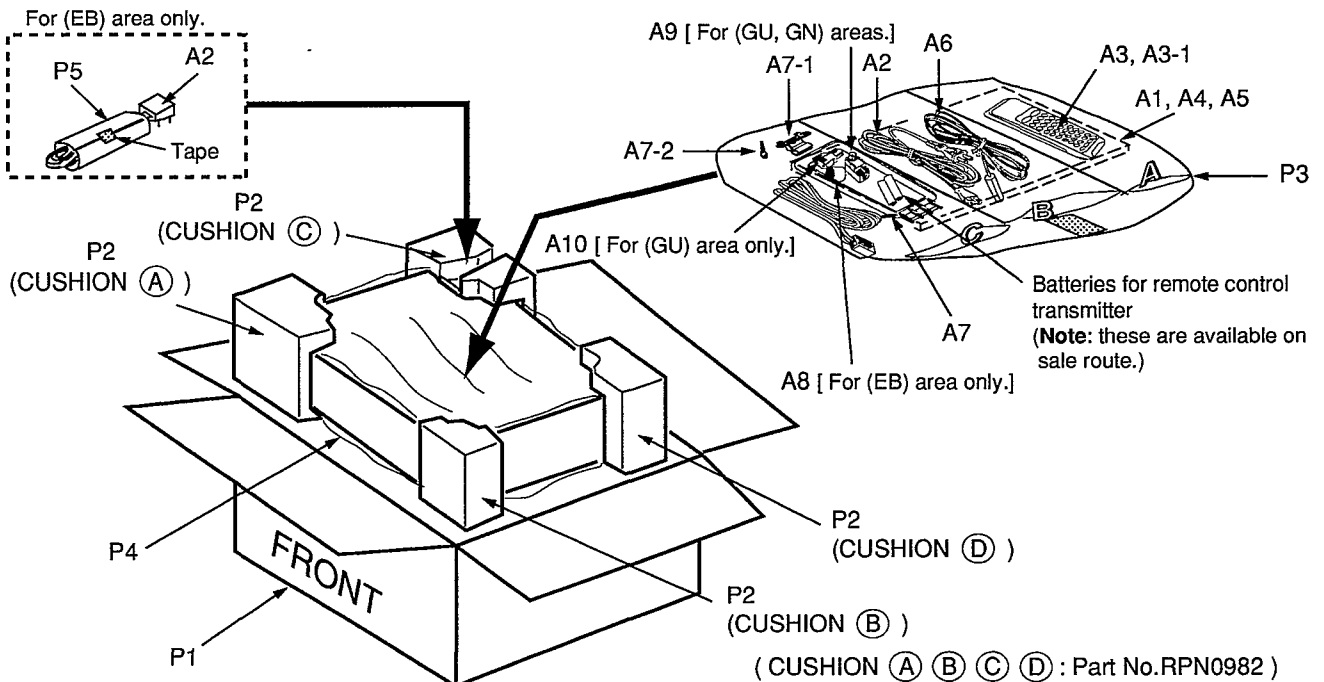
**Notes:** \* Important safety notice:  
 Components identified by  $\Delta$  mark have special characteristics important for safety.  
 Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.  
 When replacing 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.  
 \* The "(SF)" mark denotes the standard part.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIAL		A4	RQA0117	WARRANTY CARD	(E, EB, EG)
				A4	RQX7433ZA	WARRANTY CARD	(GN)
P1	RPG3160	PACKING CASE		A5	RQCB0169	SERVICENTER LIST	
P2	RPN0982	CUSHION		A6	RSA0007	FM INDOOR ANTENNA	
P3	RPF0139	PROTECTION BAG (F. B.)		A7	RSA0010	AM LOOP ANTENNA SET	
P4	SPP730	PROTECTION BAG (UNIT)		A7-1	RMN0244	AM ANTENNA HOLDER	
P5	RPH0032	PROTECTION SHEET	(EB)	A7-2	XTN3+12AFZ	SCREW	
		ACCESSORIES		A8	SJP9009	ATTACHMENT PLUG	(EB) $\Delta$
				A9	RFEO014	ANTENNA PLUG	(GU, GN)
				A10	RFEO028	POWER PLUG ADAPTOR	(GU) $\Delta$
						<GREASE OR JIG/TOOL>	
A1	RQT3601-E	INSTRUCTION MANUAL	(E) <IA>			GREASE	
A1	RQT3602-D	INSTRUCTION MANUAL	(E, EG) <IB>	SA1	RFKX0002	COMPOUND GREASE	
A1	RQT3603-B	INSTRUCTION MANUAL	(EB, GN) <IC>			EXTENSION CABLE	
A1	RQT3604-G	INSTRUCTION MANUAL	(GU) <ID>				
A2	RJA0019-2K	AC POWER SUPPLY CORD	(E, EG, GU) $\Delta$ (SF)	SA2	RFKZ0013	EXTENSION CABLE ASS'Y	
A2	RJA0049-K	AC POWER SUPPLY CORD	(EB) $\Delta$				
A2	RJA0035-K	AC POWER SUPPLY CORD	(GN) $\Delta$				
A3	RAK-SA610WH	REMOTE CONTROL TRANSMITTER					
A3-1	RKRO020-K	BATTERY COVER	FOR R/C TRANSMITTER				

**Note:** The "< IA > , < IB > , < IC > , < ID > " marks in Remarks indicate language of instruction manual.

< IA > : English, Spanish, Dutch, Swedish      < IC > : English  
 < IB > : German, Italian, French, Russian      < ID > : English, Spanish, Chinese, Arabic

## Packaging



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