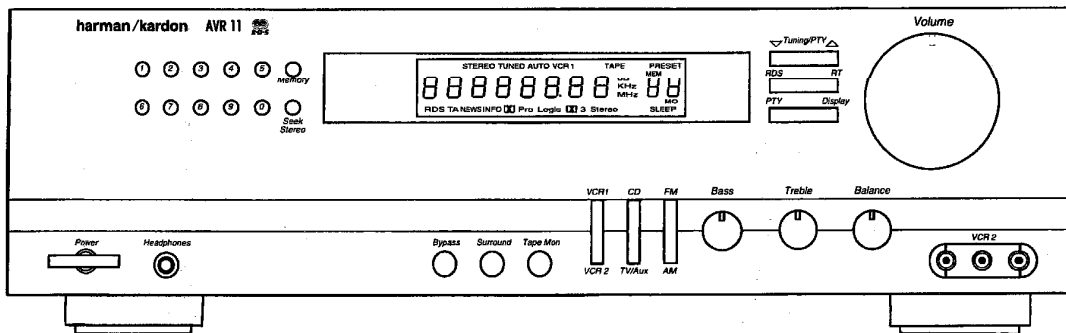


# The Harman Kardon Model AVR11

Manual A

## AUDIO AND VIDEO RECEIVER

# Technical Manual



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**harman/kardon**

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1112-AVR11 G9711 1200 Printed in Korea

## SPECIFICATIONS

### FRONT AMP SECTION

	Nominal	Limit
RMS Output Power		
THD: 0.2%, 8 ohms	≥ 35 W	≥ 30 W
Both Channel Driven (20 Hz - 20 kHz)		
THD at 35 W, 8 ohms		
20 Hz	≤ 0.09%	≤ 0.2%
1 kHz	≤ 0.09%	≤ 0.2%
20 kHz	≤ 0.09%	≤ 0.2%
IM Distortion at 35 W, 8 ohms		
60:7000 Hz = 4:1	≤ 0.1%	≤ 0.2%
Input Sensitivity at 35 W, 8 ohms		
CD, AUX, VCR	190 ± 15 mV	190 ± 30 mV
S/N Ratio Input Shorted at Volume Max.		
(WTD IHF-A) at 35 W, 8 ohms		
CD, AUX	≥ 95 dB	≥ 90 dB
TV, VCR1,2	≥ 85 dB	≥ 80 dB
Tone Control		
Bass: 50 Hz	± 10 dB ± 1.5 dB	± 10 dB ± 2 dB
Treble: 10 kHz	± 10 dB ± 1.5 dB	± 10 dB ± 2 dB
Frequency Response at 1 W, 8 ohms (CD/AUX)		
20 Hz, 20 kHz	± 1.0 dB	± 1.5 dB
Channel Crosstalk Input Shorted at 35 W, 8 ohms		
1 kHz	≥ 60 dB	≥ 50 dB
10 kHz	≥ 50 dB	≥ 45 dB

### CENTER AMP SECTION

	Nominal	Limit
RMS Output Power		
THD (0.9%, 8 ohms, 1 kHz)		
Only Center Channel Driven	≥ 45 W	≥ 30 W
S/N Ratio		
Input Shorted, IHF-A WTD	≥ 70 dB	≥ 65 dB
Frequency Response at -3 dB		
Normal	100 Hz - 20 kHz	120 Hz - 15 kHz
Wide	20 Hz - 20 kHz	50 Hz - 15 kHz

### REAR AMP SECTION

	Nominal	Limit
RMS Output Power		
THD (1%, 8 ohms, 1 kHz)		
Both Rear Channel Driven	≥ 22.5 W	≥ 20 W
S/N Ratio (Input Shorted, IHF-A WTD)		
Dolby	≥ 60 dB	≥ 55 dB
Frequency Response at -3 dB		
8 ohms, Dolby Pro-Logic	80 Hz - 7 kHz (± 0.5 k)	100 Hz - 7 kHz (± 1.0 k)

### VIDEO AMP SECTION

	Nominal	Limit
Input Sensitivity/Impedance		
VCR1, VCR2	1 V <sub>r.p.</sub> /75 Ω	1 V <sub>r.p.</sub> /75 Ω
Output Level/Impedance		
VCR1, REC out, TV Monitor out		
	1 V <sub>r.p.</sub> /75 Ω	1 V <sub>r.p.</sub> /75 Ω
Frequency Response at -3 dB	DC-10 MHz	5 - 6 MHz
Crosstalk at 1.0 MHz	≥ 50 dB	≥ 45 dB

### FM SECTION

	Nominal	Limit
Tuning Cover Range (30 kHz Step)	87.5 - 108.0 MHz	
Usable Sensitivity (75 ohms Input)	≤ 14.2 dbf	≤ 17.2 dbf
S/N=26 dB		
Image Rejection (at 106 MHz)	≥ 80 dB	≥ 70 dB
IF Rejection (at 90 MHz)	≥ 90 dB	≥ 80 dB
Full Limiting (at -3 dB)	≤ 12.2 dbf	≤ 15.2 dbf
46 dB Quieting Sensitivity (at 98 MHz, 75 kHz DEV.)		
IHF Band Pass Filter		
Mono	≤ 21.3 dbf	≤ 24.3 dbf
Stereo	≤ 44.3 dbf	≤ 47.3 dbf

### Distortion (1 kHz, 100% MOD. at 98 MHz)

IHF Band Pass Filter		
Mono	≤ 0.3%	≤ 0.5%
Stereo	≤ 0.5%	≤ 0.7%
S/N Ratio (1 mV 75 kHz DEV. Input, 100% MOD. at 98 MHz)		
IHF Band Pass Filter		
Mono	≥ 67 dB	≥ 63 dB
Stereo	≥ 65 dB	≥ 60 dB
Frequency Response (at +1.5 dB, -3 dB)	20 Hz - 15 kHz	40 Hz - 14 kHz
AM Rejection Ratio (100 uV - 20 mV Input)	≥ 50 dB	≥ 45 dB
Search Level (at 98 MHz)	11-24 uV	10-25 uV
Automatic Stereo Threshold (at 98 MHz)		
	11-24 uV	10-25 uV
Muting Threshold (at 98 MHz)	11-24 uV	10-25 uV
Overload (at 98 MHz, 100% MOD., 100 mV RF Input)		
	≤ 0.3%	≤ 0.5%
Spurious Response (at 98 MHz, Antenna Input 3 uV)		
	≥ 70 dB	≥ 60 dB
Capture Ratio at 40/60 dbf	≤ 2 dB	≤ 2.5 dB
Alternative Channel Selectivity (at 98 MHz ± 400 kHz)		
	≥ 65 dB	≥ 55 dB
Stereo Separation (at 98 MHz, 100% MOD., 1 mV Input)		
IHF Band Pass Filter		
100 Hz	≥ 35 dB	≥ 30 dB
1 kHz	≥ 35 dB	≥ 30 dB
10 kHz	≥ 30 dB	≥ 25 dB
Output Voltage (at 75 kHz DEV., 100% MOD., 1 mV Input)		
Mono	500 mV	500 ± 150 mV
Stereo	450 mV	450 ± 150 mV
RDS Sensitivity (at 98 MHz)	≤ 38.2 dbf	≤ 40.2 dbf

### AM SECTION

	Nominal	Limit
Tuning Cover Range (9 kHz Step)	522 - 1611 kHz	
Usable Sensitivity (400 Hz, 30% MOD., S/N 20 dB)	≤ 500 uV/m	≤ 1000 uV/m
Image Rejection (at 1404 kHz)	≥ 35 dB	≥ 30 dB
IF Rejection (at 594 kHz)	≥ 50 dB	≥ 45 dB
AGC Figure of Merit (From 100 mV/m at 999 kHz)	≥ 50 dB	≥ 45 dB
Distortion (400 Hz, 30% MOD. 5 mV/m Input)	≤ 0.8%	≤ 1.5%
IF Bandwidth (6 dB Down, 350 uV/m)	5-10 kHz	4-11 kHz
Audio Response (at -6 dB, 5 mV/m Input 1 kHz 0 dB, 999 kHz)	80 Hz - 2.2 kHz	100 Hz - 2 kHz
Selectivity (at 350 uV/m)		
± 10 kHz	≥ 25 dB	≥ 20 dB
S/N Ratio (999 kHz, With Antenna Input 5 mV/m)	≥ 40 dB	≥ 37 dB
RF Overload (400 Hz 80% MOD, 100 mV/m Input)	≤ 5%	≤ 10%
Search Level (at 999 kHz)	800 uV ± 5 dB	800 uV ± 6 dB
Output Voltage (400 Hz 30% MOD., 5 mV/m Input)	200 ± 30 mV	200 ± 40 mV
Whistle	≤ 10%	≤ 15%

### GENERAL

Power Consumption	450 W
Power Supplies	AC 230 V, 50 Hz
Dimensions (W × H × D);	17-5/16 × 4-7/8 × 14-15/16 inches
	440 × 142 × 330 mm
Weight (lbs/kgs)	18 lbs, 8.2 kg

These specifications are service target specs.  
Specifications and components are subject to change without notice.  
Overall performance will maintained or improved.

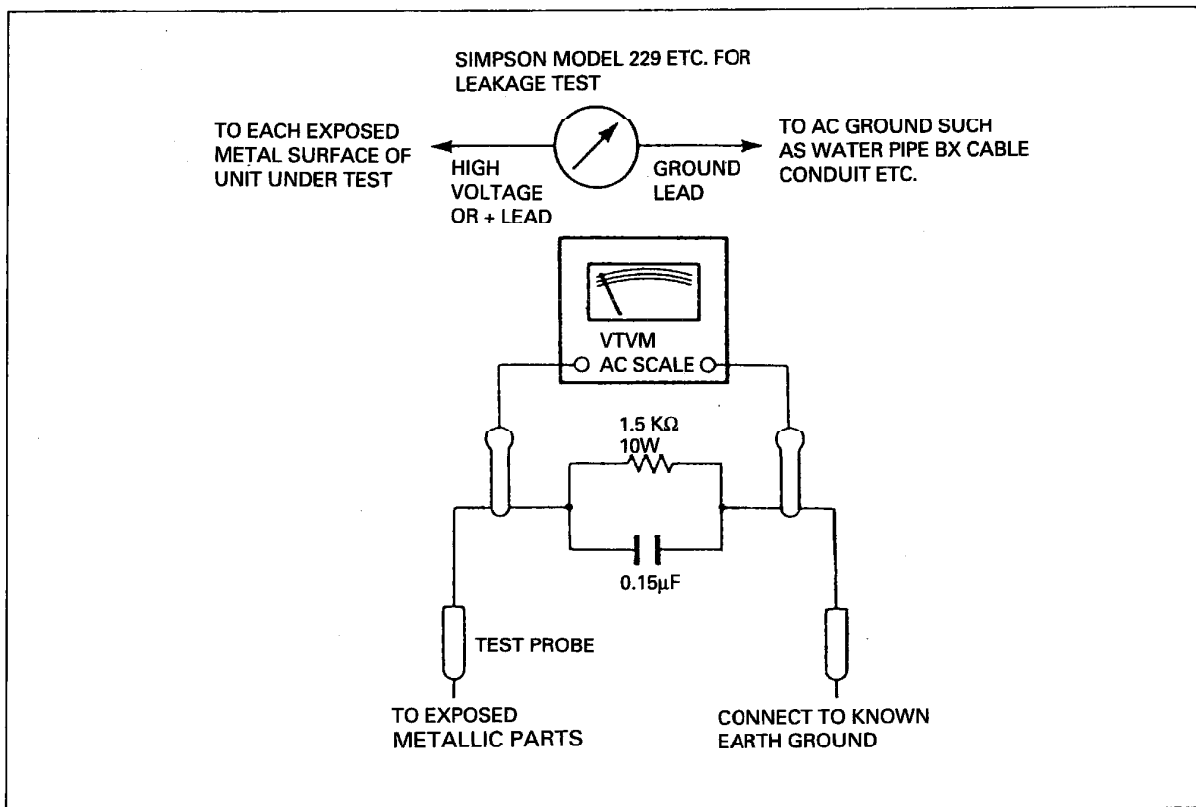
## LEAKAGE TEST

Before returning the unit to the user, perform the following safety checks:

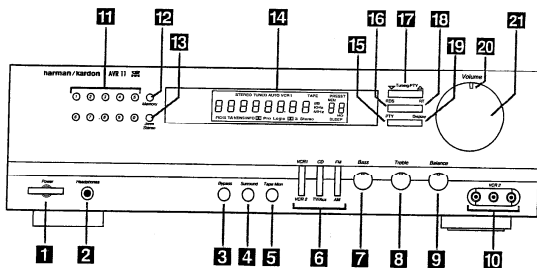
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metallic parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc., which were removed for servicing are properly reinstalled.
3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows: Plug the power cord directly into a 230-volt AC receptacle (do not use an Isolation Transformer for this test).

Using two clip leads, connect a 1500 Ohm, 10-watt resistor paralleled by a  $0.15\mu\text{F}$  capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 Ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See Diagram.) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the power switch in both the On and Off positions.)

A reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.



## CONTROLS AND FUNCTIONS



**1 POWER Button:** Press this button to turn the power on. Press again to turn the power off. If you connect other components to the switched outlet, it can also be used as a system power button.

**2 HEADPHONE Jack:** Stereo headphones may be plugged into this jack for private listening. Headphone impedance should be between 8 and 2K ohms. Best results are between 200 and 400 ohms.

**3 BYPASS Selector:** Defeats all surround modes.

**4 SURROUND MODE Selector:** Press this button to select the desired surround mode. The mode is changed between normal DOLBY Pro-Logic and DOLBY 3-STEREO.

**5 TAPE MONITOR Button:** Press this button to select input from a tape deck or to monitor a recording in progress.

**6 INPUT Selector Buttons:** Press these buttons to select the desired input source.

**7 BASS Control:** Modifies the low-frequency sound of the left and right channels as much as  $\pm 10$ dB. Set this control at a suitable position for your taste and room acoustics.

**8 TREBLE Control:** Modifies the high-frequency sound of the left and right channels as much as  $\pm 10$ dB. Set this control at a suitable position for your taste and room acoustics.

**9 BALANCE Control:** This control is used for balancing the relative sound volume of the left and right channel speakers. Clockwise rotation reduces the volume from the left speaker, counterclockwise rotation reduces the volume from the right speaker.

**10 VCR2 A/V INPUT Jacks:** Connect these jacks to the corresponding output jacks of a VCR.

**11 STATION PRESET Buttons:** These buttons are used to recall or store preset stations. Pressing the buttons will automatically choose the tuner as an input and switch to the selected station. Pressing the buttons after pushing **MEMORY 12** will store a station's frequency to the desired location.

**NOTE:** To select or enter a preset location between 10 and 29 you must select the second digit within 2 seconds of the first. To select preset location 30, simply press 0.

**12 MEMORY Button:** Press these buttons to store an AM or FM frequency in the unit's memory. The **MEMORY** indicator will blink in the display to remind you to choose a location using the **STATION PRESET 11** buttons. Press the button a second time to complete the memorization process. Storing a station in a memory location that has already been used will overwrite the existing data.

**NOTE:** The preset memories are protected from power loss for two weeks. If the unit is unplugged for more than two weeks, all stored frequencies will be erased.

**13 SEEK / STEREO Button:** Press this button. **AUTO** will illuminate in the display. Then press the **Tuner/Preset** button. The tuner will automatically seek out stations in your area that have enough signal strength to be listenable. The tuner continues to seek additional stations until the **SEEK/STEREO** button is pressed again.

**14 DISPLAY WINDOW:** The indicators in this display provide information about the input source, tuner/RDS operation and surround options. The IR remote sensor is also behind this window.

**NOTE:** For optimal operation of the remote control be certain that the window is not blocked by cabinet doors or other obstructions.

**15 PTY (Program Type Search):** When the RDS system is engaged by pressing **RDS SELECT 16**, this button is used to initiate a search for stations with a specific Programme Type (PTY). Press this button and note that **PTY SEL** appears in the display window. Use the **TUNE/PTY** button to scroll through the list of available PTY types and press this button again to scan for your selection. The display will indicate the preset number for all stations with the correct PTY and tune to the strongest.

**16 RDS SELECTOR:** Press this button to activate the RDS system. Note that **RDS** will appear in the display window. Pressing the **TUNING/PTY 17** button will advance the tuner to each available station that is transmitting RDS data. Press the button again to resume tuning of all stations.

**17 TUNING/PTY  $\Delta$   $\nabla$ :** When the tuner is selected, pressing  $\nabla$  tunes to stations with lower frequency, pressing  $\Delta$  tunes to higher frequencies. This button is also used to scroll up or down through the list of PTY choices when the RDS system is in use.

**18 FT Selector:** When the RDS system is engaged by pressing **RDS 16**, selector, pressing this button will display a rolling text message with additional data about the station or programme being transmitted. If there is no FT message the display will indicate **NO FT**.

**19 RDS DISPLAY Button:** Pressing this button when the RDS system is engaged will change messages in the display window. The normal display is the Station Name. Press the button once to display the Programme Type (PTY) and again show the correct clock time (CT). Press again to return to the Station Name. If no data is available for the station being transmitted, messages of that effect will appear in the display.

**20 POWER/MUTE:** This indicator will glow in a green color whenever the unit is turned on and its position gives you a relative indication of the volume level. When the volume is muted by pressing the **MUTE 21** button on the remote, the indicator will flash as a reminder that the unit is on, but the speaker output has been temporarily silenced.

**21 VOLUME Control:** Turn the knob clockwise to increase the volume and counterclockwise to decrease it. The volume of the front, center and rear channels is changed at the same time. Note that the volume control is inactivated, and will reset automatically when the volume is changed with the remote control.



## DISASSEMBLY PROCEDURES

REFER TO PAGES 26-29.

### 1 COVER TOP REMOVAL.

Remove 6 screws ( S98 to S103 ) and then remove the Cover Top 1.

### 2 COVER BOTTOM REMOVAL.

Remove 13 screws ( S3 to S6 , S62 to S65 , S67 , S68 and S70 to S72 ) and then remove the Cover Bottom 2.

### 3 FRONT PANEL ASSEMBLY REMOVAL

1. Remove the Cover Top 1, referring to the previous step 1.
2. Disconnect (Connector703-1) from the Tuner P.C.Board (PCB15).
3. Disconnect (Connector113-1) from the VCR2 P.C.Board (PCB9).
4. Disconnect (Connector116, Connector111) from the Main P.C.Board (PCB1).
5. Disconnect (Connector702-1, Connector603) from the Power P.C.Board (PCB6).
6. Remove the Card Cable from (Connector107) on the Main P.C.Board (PCB1).
7. Remove 10 screws ( S1 to S10 ) and then remove the Front Panel Assembly AA.

### 4 VCR2 P.C.BOARD (PCB9) REMOVAL

1. Remove the Cover Top 1, referring to the previous step 1.
2. Remove the Front Panel Assembly AA, referring to the previous step 3.
3. Remove 2 screws ( S25 and S26 ) and then remove the VCR2 P.C.Board (PCB9).

### 5 TONE P.C.BOARD (PCB2) REMOVAL

1. Remove the Cover Top 1, referring to the previous step 1.
2. Remove the Front Panel Assembly AA, referring to the previous step 3.
3. Pull out the knobs 42 (Bass/Treble/Balance)
4. Remove the Hex Nuts from the variable resistors 15, 16 and then remove the Tone P.C.Board (PCB2).

### 6 VOLUME P.C.BOARD (PCB4) REMOVAL

1. Remove the Cover Top 1, referring to the previous step 1.
2. Remove the Front Panel Assembly AA, referring to the previous step 3.
3. Disconnect (Connector700, Connector705-1) from the Volume P.C.Board (PCB4).

4. Pull out the volume knob 41 with volume LED P.C.Board (PCB5)
5. Remove the Hex Nut from Volume-motor and then remove the Volume P.C.Board (PCB4).

### 7 HEADPHONE P.C.BOARD (PCB8) REMOVAL

1. Remove the Cover Top 1, referring to the previous step 1.
2. Remove the Front Panel Assembly AA, referring to the previous step 3.
3. Remove 2 screws ( S33 and S34 ) and then remove the Headphone P.C.Board (PCB8).

### 8 FRONT & POWER SW P.C.BOARD (PCB4 & PCB7) REMOVAL

1. Remove the Cover Top 1, referring to the previous step 1.
2. Do steps 3 and 7.
3. Disconnect (Connector705-1) from the Volume P.C.Board (PCB4).
4. Remove 11 screws ( S1, S2, S3 to S11 ) and then remove the Front & Power SW P.C.Board (PCB4 & PCB7).

### 9 TUNER P.C.BOARD (PCB15) REMOVAL

1. Remove the Cover Top 1, referring to the previous step 1.
2. Disconnect (Connector703-1) from the Tuner P.C.Board (PCB15).
3. Remove 2 screws ( S97 and S98 ) and then remove the Tuner P.C.Board (PCB15).

### 10 SURROUND P.C.BOARD (PCB11) REMOVAL

1. Remove the Cover Top 1, referring to the previous step 1.
2. Remove 2 screws ( S90 and S91 ) and then remove the Surround P.C.Board (PCB11).

### 11 VIDEO P.C.BOARD (PCB12) REMOVAL

1. Remove the Cover Top 1, referring to the previous step 1.
2. Remove 2 screws ( S87 and S88 ) and then remove the Video P.C.Board (PCB12).

### 12 CENTER SPEAKER P.C.BOARD (PCB13) REMOVAL

1. Remove the Cover Top 1, referring to the previous step 1.
2. Disconnect (Connector117-1) from the Center Speaker P.C.Board (PCB13).
3. Remove 2 screws ( S89 and S94 ) and then remove the Center Speaker P.C.Board (PCB13).

**13 SURROUND AMP & REAR SPEAKER  
P.C.BOARD (PCB10 & PCB14) REMOVAL**

1. Remove the Cover Top ①, referring to the previous step ①.
2. Disconnect (Connector117-1) from the Center Speaker P.C.Board (PCB13).
3. Unsolder all leads of (Q414, Q410, Q413, Q427, Q424 and Q428) from copper track on the Surround AMP P.C.Board (PCB8).
4. Remove 4 screws (S42, S43, S81, S82) and then remove the Surround AMP & Rear Speaker P.C.Board (PCB10 & PCB14).

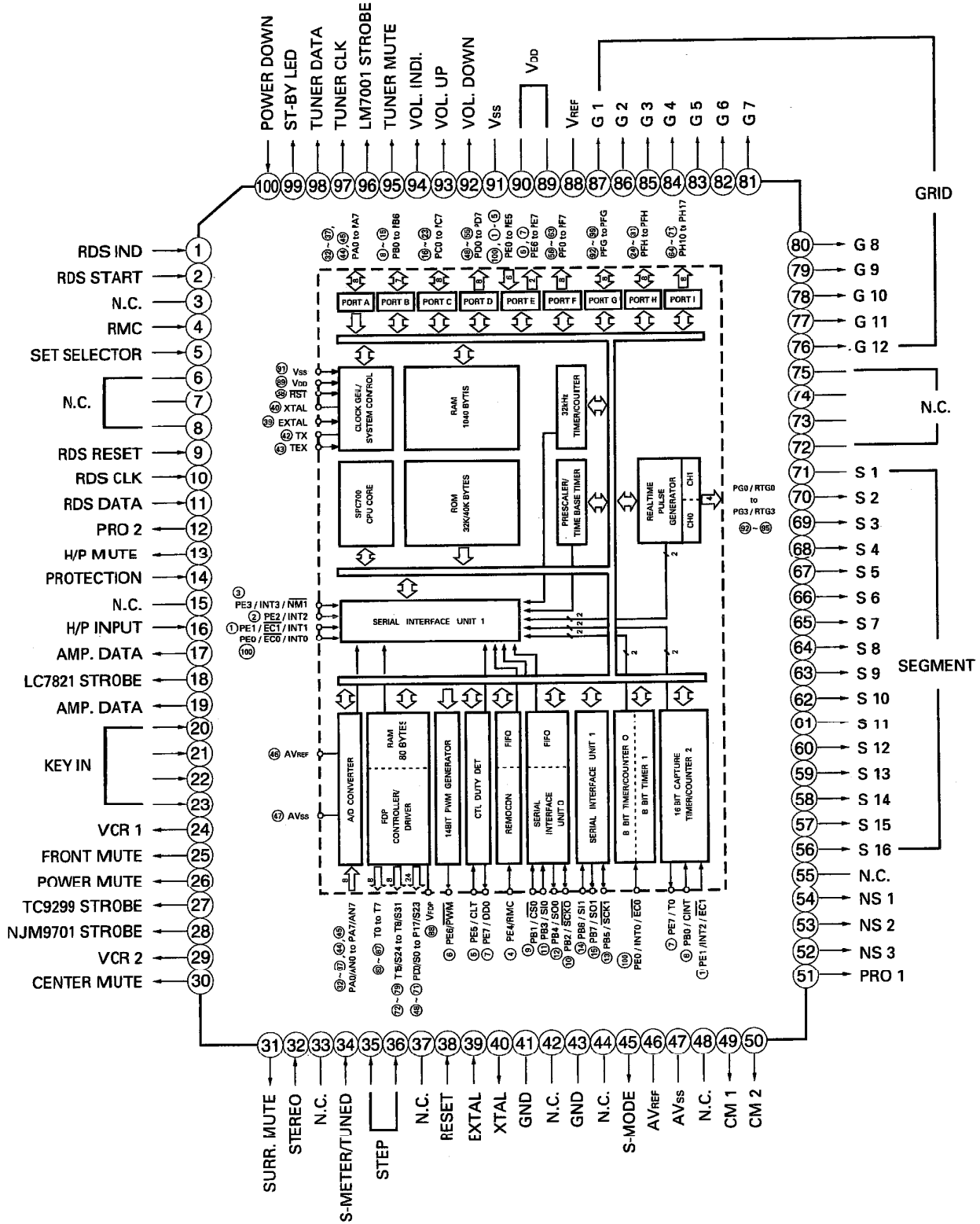
**14 MAIN P.C.BOARD (PCB1) REMOVAL**

1. Remove the Cover Top ①, referring to the previous step ①.
2. Do steps ②, ③, ⑧, ⑦, ⑩, and ⑫.
3. Disconnect (Connector102, Connector103, Connector104) from the Main P.C.Board (PCB1).
4. Unsolder all leads of (Q216L/R, Q211L/R, Q215L/R, Q186, IC105, P201,) from copper track on the Main P.C.Board (PCB1)
5. Remove 8 screws (S44, S46, S51, S67, S71, S74 ~ S76) and then remove the Main P.C.Board (PCB1).

# CIRCUIT DESCRIPTION

## 1. CPU CIRCUITS (IC 701: CXP82432A)

### 1) PIN DESCRIPTION & BLOCK DIAGRAM





## 2) INPUT/OUTPUT TERMINAL FUNCTIONS

Pin No.	Symbol	Description												
1	RDS IND	Input for TDA7330A RDS indication.												
2	RDS START	Input for LC7073 data start.												
3	NC	Not used !												
4	RMC	Input for remote control signal. (At "L", it is active)												
5	SET SEL.	Input to select AVR11 or JSR635i. ("L": AVR11, "H": JSR635i)												
6~8	NC	Not used !												
9	RDS RESET	Input to select LC7073. (Delay 10 mS after POWER ON)												
10, 11	RDS CLK/DATA	Input for LC7073 clock and data signal.												
12	PRO2	Output to control LC4966. (L: PROLOGIC & 3-STEREO, H: BYPASS)												
13	H/P MUTE	Output for headphone mute. Output low level under the following conditions. 1. When power is turned on or off. 2. When headphone plug is removed from headphone jack.												
14	PROTECTION	Input for protection signal. If it is low, all channel mute signal levels are turned to high. Except for first 3 seconds, it doesn't check protection.												
15	NC	Not used !												
16	H/P INPUT	Input for headphone signal.												
17, 19	AMP CLK, DATA	Output for clock and data signal to LC7821, NJU9701 and TC9299.												
18	LC7821 STROBE	Output to enable LC7821.												
20~23	KEY IN	Input data of K <sub>1</sub> ~ K <sub>4</sub> for key scan.												
24, 29	VCR1, VCR2	Output to select the video signal of VCR1 or VCR2. Output data for each mode is as follows. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>MODE</th> <th>VCR1</th> <th>VCR2</th> </tr> </thead> <tbody> <tr> <td>VCR1</td> <td>H</td> <td>L</td> </tr> <tr> <td>VCR2</td> <td>L</td> <td>H</td> </tr> <tr> <td>ELSE</td> <td>△</td> <td>△</td> </tr> </tbody> </table> △: Keeping last state.	MODE	VCR1	VCR2	VCR1	H	L	VCR2	L	H	ELSE	△	△
MODE	VCR1	VCR2												
VCR1	H	L												
VCR2	L	H												
ELSE	△	△												
25	FRONT MUTE	Output for main mute. Output low level under the following conditions. 1. When power is turned on or off. 2. When function is changed. 3. When mono or stereo is changed. 4. When the protection terminal's level is low. 5. When "-∞ mute signal" is received from the commander. 6. When headphone plug is inserted.												
26	POWER MUTE	Output for all amplifier mute. Output low level under the following conditions. 1. When power is turned on or off. 2. When the protection terminal's level is low.												
27	TC9299 STROBE	Output to enable TC9299.												
28	NJU9701 STROBE	Output to enable NJU9701.												
30	CENTER MUTE	Output for center mute. Output low level under the following conditions. 1. When power is turned on or off. 2. When center mode is turned on or off. 3. When center mode is switched. 4. When test tone mode is switched on, or when output is not directed to center.												

Pin No.	Symbol	Description																								
31	SURR. MUTE	Output for surround mute. Output low level under the following conditions. 1. When power is turned on or off. 2. When surround mode is turned on or off.(Keeping low level in surround off) 3. When test tone mode is changed, or when output is not directed to surround. 4. When delay time is switched. 5. When the protection terminal's level low. 6. When "-∞ mute signal" is received from the commander. 7. When headphone plug is inserted.																								
32	STEREO	When receiving low level, it turns on the stereo flag of FL.																								
33	NC	Not used !																								
34	S-METER/TUNED	Input for station detector signal in searching tuning. Searching up or down stops when station detector reaches a certain level.																								
35, 36	STEP	Input to select frequency band & step according to regions. <table border="1"> <thead> <tr> <th>VERSION</th> <th>STFP</th> <th>BAND</th> <th>35</th> <th>36</th> </tr> </thead> <tbody> <tr> <td rowspan="2">USA/Canada</td> <td>50 k</td> <td>FM</td> <td rowspan="2">L</td> <td rowspan="2">H</td> </tr> <tr> <td>10 k</td> <td>AM</td> </tr> <tr> <td rowspan="2">Europe</td> <td>50 k</td> <td>FM</td> <td rowspan="2">L</td> <td rowspan="2">L</td> </tr> <tr> <td>9 k</td> <td>AM</td> </tr> </tbody> </table>	VERSION	STFP	BAND	35	36	USA/Canada	50 k	FM	L	H	10 k	AM	Europe	50 k	FM	L	L	9 k	AM					
VERSION	STFP	BAND	35	36																						
USA/Canada	50 k	FM	L	H																						
	10 k	AM																								
Europe	50 k	FM	L	L																						
	9 k	AM																								
37	NC	Not used !																								
38	RESET	Input to reset micom.																								
39, 40	EXTAL/XTAL	Input and Output pin for connecting a crystal oscillator.																								
41, 43	GND	Provides the ground potential.																								
42, 44	NC	Not used !																								
45	S-MODE	Output voltage is as follows to control surround mode. Prologic: 5 V, 3-Stereo: 2.5 V, Bypass: 0 V																								
46	Avref	Provides the reference potential.																								
47	Avss	Ground																								
48	NC	Not used !																								
49, 50	CM1, CM2	Output data to control center mode. <table border="1"> <thead> <tr> <th>MODE</th> <th>NORMAL</th> <th>PHANTOM</th> <th>WIDE</th> </tr> </thead> <tbody> <tr> <td>49</td> <td>H</td> <td>L</td> <td>L</td> </tr> <tr> <td>50</td> <td>L</td> <td>L</td> <td>H</td> </tr> </tbody> </table>	MODE	NORMAL	PHANTOM	WIDE	49	H	L	L	50	L	L	H												
MODE	NORMAL	PHANTOM	WIDE																							
49	H	L	L																							
50	L	L	H																							
51	PRO1	Output to control LC4966.(H: Prologic & 3-Stereo, L: Bypass)																								
52~54	NS3/NS2/NS1	Output signal to select output channel in testing tone. Output signal for 2 second per each channel in order L, C, R, S. <table border="1"> <thead> <tr> <th>MODE</th> <th>LEFT</th> <th>CENTER</th> <th>RIGHT</th> <th>SURR.</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>54</td> <td>L</td> <td>L</td> <td>L</td> <td>L</td> <td>H</td> </tr> <tr> <td>53</td> <td>L</td> <td>L</td> <td>H</td> <td>H</td> <td>X</td> </tr> <tr> <td>52</td> <td>L</td> <td>H</td> <td>L</td> <td>H</td> <td>X</td> </tr> </tbody> </table> X: Keeping last state.	MODE	LEFT	CENTER	RIGHT	SURR.	OFF	54	L	L	L	L	H	53	L	L	H	H	X	52	L	H	L	H	X
MODE	LEFT	CENTER	RIGHT	SURR.	OFF																					
54	L	L	L	L	H																					
53	L	L	H	H	X																					
52	L	H	L	H	X																					
55	NC	Not used !																								
56~71	S16~S1	Output for segment.																								
72~75	NC	Not used !																								
76~87	G1~G12	Output for grid.																								
88	Vref	Power supply of the FL controller.																								
89, 90	Vdd	Power supply.																								

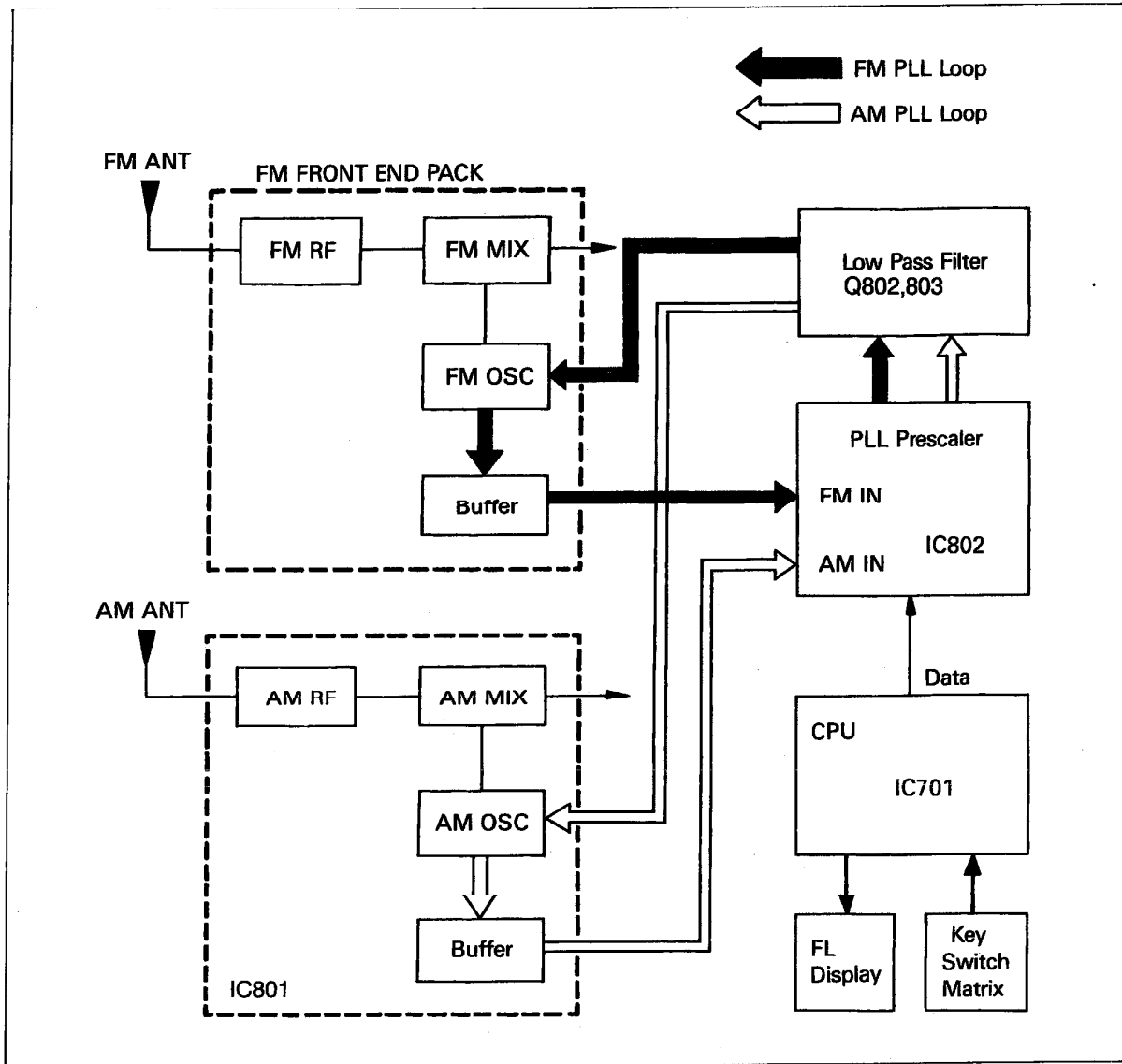
Pin No.	Symbol	Description
91	Vss	Ground
92, 93	VOL. DOWN/UP	Output signal to turn up or down volume motor.
94	VOL. INDICATOR	Output signal to turn on or off the LED which is used master volume indicator. It is high level in turning on and low level in turning off.
95	TUNER MUTE	Output for tuner mute. Output low level under the following conditions. 1. When power is turned on or off. 2. When tuner band is changed. 3. When tuner up or down button is pressed. 4. When preset button is pressed. 5. When preset number displayed changes during memory scan. 6. When the protection terminal's level is low. 7. When "-∞ mute signal" is received from the commander.
96	LM7001 STROBE	Output to enable LM7001.
97, 98	TUNERCLK/DATA	Output, clock and data signal to LM7001.
99	ST-BY LED	Output voltage to control stand by LED is as follows. When power is turned on by power switch or remote, it is high level. Otherwise, it is low level.(Keeping last level)
100	POWER DOWN	Input for power down.(At "L", it is active)

### 3) KEY MATRIX

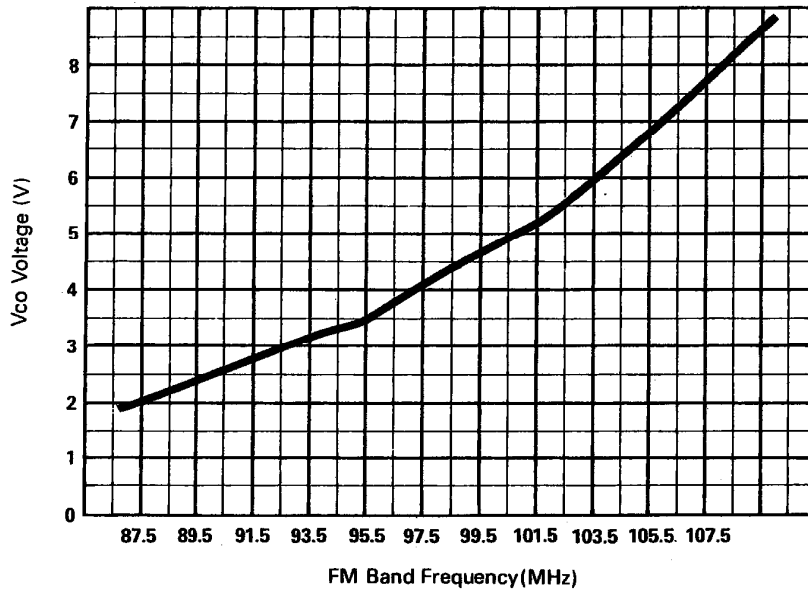
Pin No.	65	66	67	68	69	70	71
20	5	3	1	AF	DISPLAY	BYPASS	VCR1
21	0	8	6	RDS	AM	TAPE MON.	FM
22	SEEK STEREO	9	7	TUNING DOWN	PTY	VCR2	TV/AUX
23	MEMORY	4	2	TUNING UP		SURR. MODE	CD

## 2. DIGITAL TUNING SYSTEM DESCRIPTION

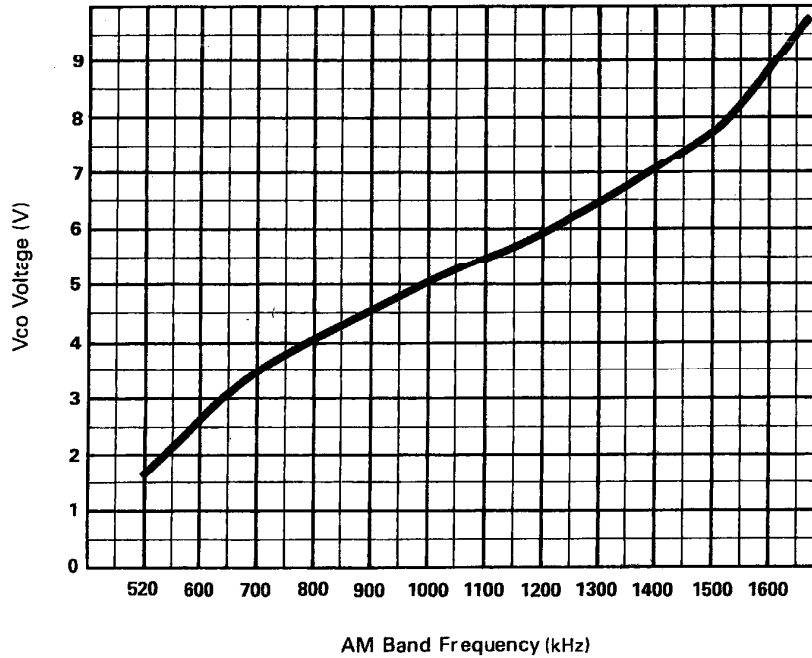
### 1) DIGITAL TUNING SYSTEM



2) VCO VS. FM BAND FREQUENCY CURVE



3) VCO VS. AM BAND FREQUENCY CURVE

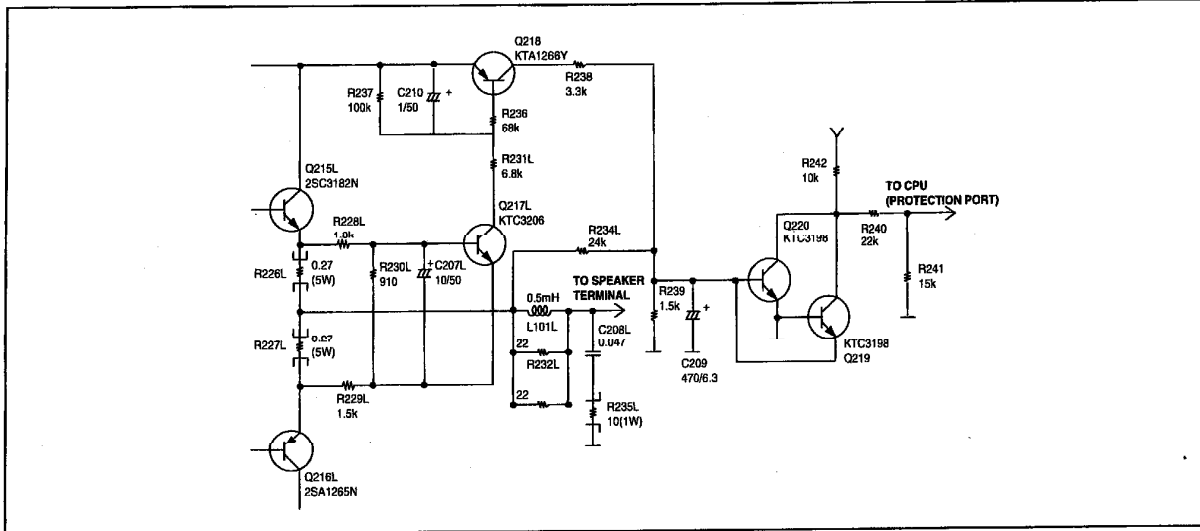


### 3. PROTECTION CIRCUITS

#### 1) SPEAKER PROTECTION CIRCUIT

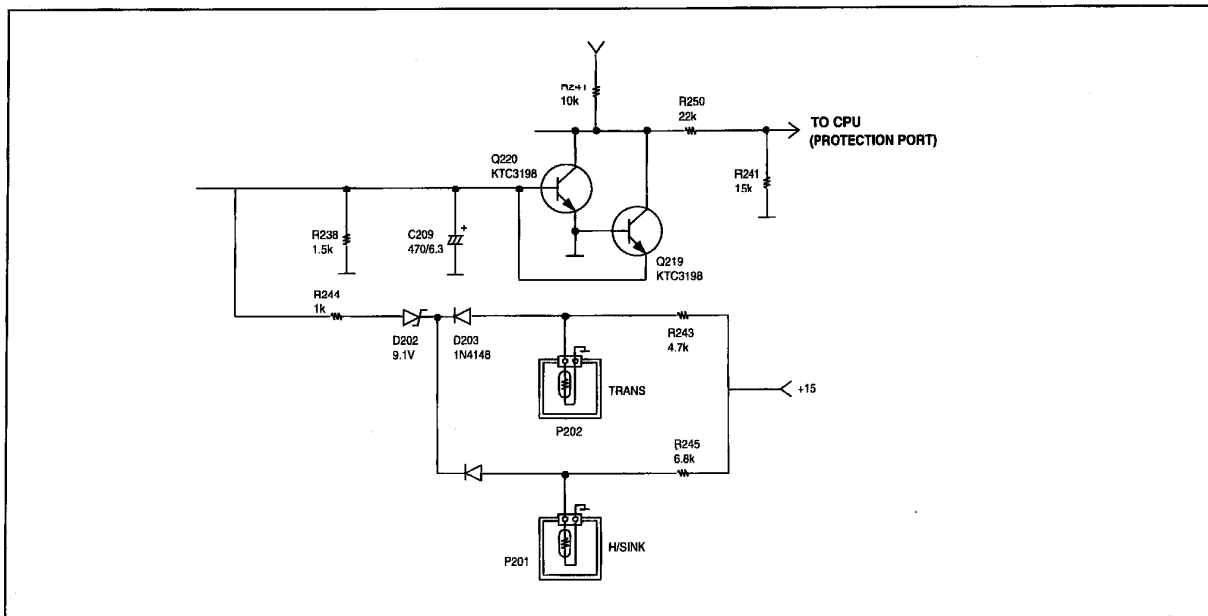
The CPU protects both this unit and the speakers when an abnormally high current flows in Q215 L/R and Q216 L/R due to excessive input drive, too low of a load impedance, or short of the speaker terminals. If current increase is excessive the voltage across R226 L/R or R227 L/R turns on Q217 L/R, then Q218 turns on Q220.

It makes the protection port of the CPU to low state. Then the power is turned off.



#### 2) THERMAL PROTECTION CIRCUIT

This receiver has an overload thermal protection circuit to guard against abnormal operation. When the temperature of TRANS POSISTOR installed with the main tranformer or H/SINK POSISTOR rises abnormally, the resistance of the posistor becomes high and Q220 is turned on. It makes the protection port of the CPU to a low state. Then the power is turned off.

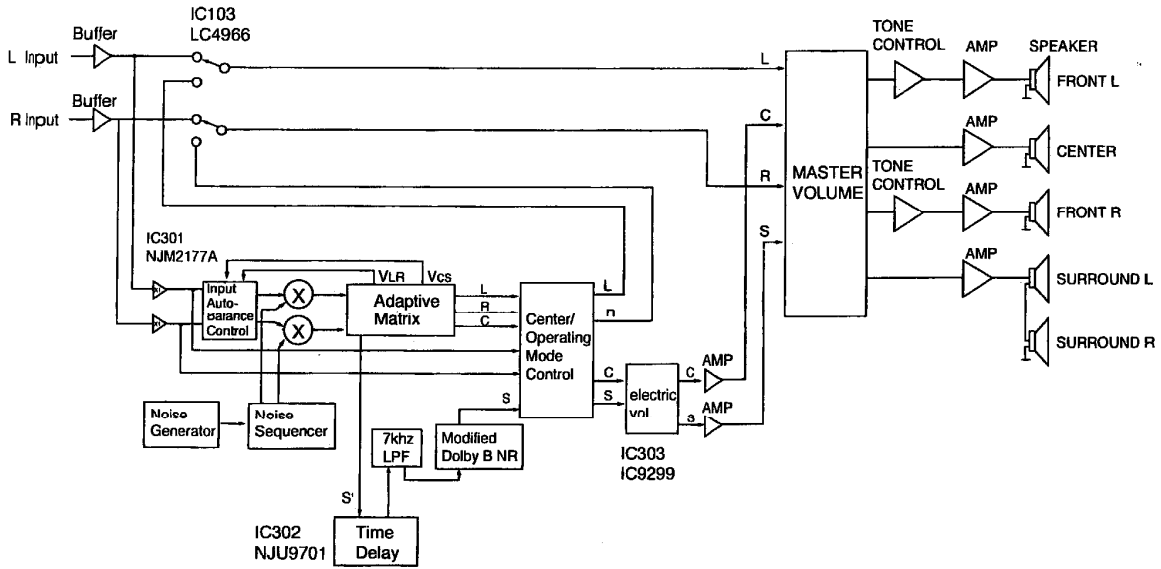


**4. SURROUND CIRCUITS**

This model incorporates a surround processor circuit.

Fig. 1 is a block diagram of the surround processor circuit.

The microprocessor transfers the data to the Dolby Pro – Logic decoder and Time Delay Device to operate the circuits in each mode.



<Block diagram of the surround processor circuit>  
Fig. 1

**1) OFF**

Set to this mode to listen to ordinary stereo sound.  
The rear L/R and center outputs will be muted.

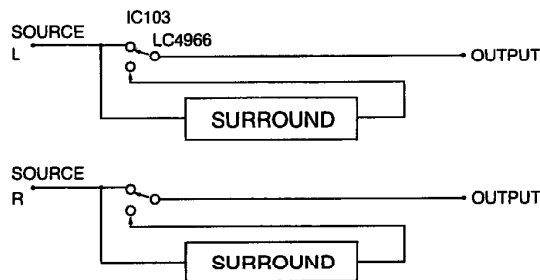


Fig. 2

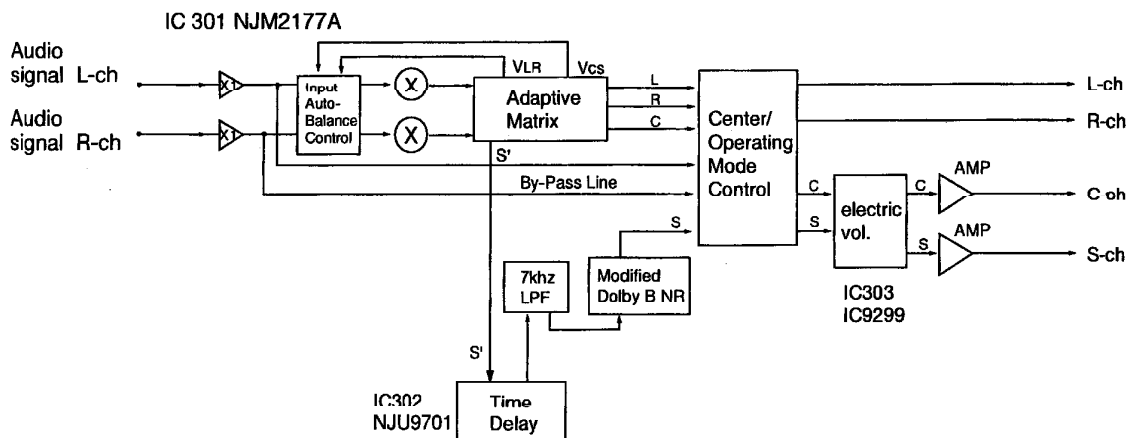
## 2) DOLBY PRO – LOGIC CIRCUIT

Dolby Pro – Logic is a sound effect system for movies developed by the Dolby Laboratories Licensing Corp. IC301 (NJM2177A) is a Dolby Pro – Logic decoder IC.

When an audio signal recorded using the Dolby Pro – Logic system is sent to this IC, the left, right, center and surround components are separated.

The surround signal component is delayed by the delay IC302 (NJU9701).

Fig. 3 Shows the configuration of the dolby decoder.



<Flow of signals within the system in the Dolby Pro – Logic mode>

Fig. 3

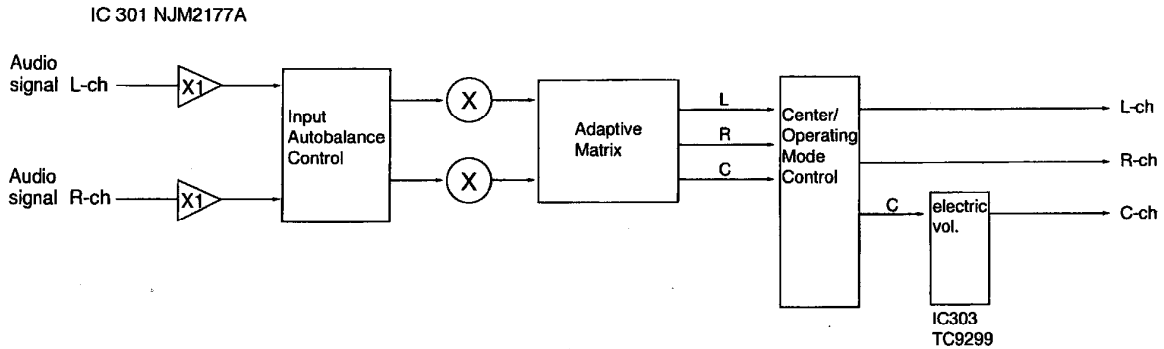
With Dolby pro logic, three center modes depend on the use of a center speaker as follows.

<b>NORMAL</b>	: Bass frequencies are sent only to the Left and Right Front channels. Select this mode when the Center Speaker is smaller than the Left and Right speakers.
<b>WIDE</b>	: Bass frequencies are sent to the Left, Center and Right speakers. Select this mode when the Center speaker is approximately the same size as the Left and Right speakers.
<b>PHANTOM</b>	: Center channel information is sent to the Left and Right speakers. Select this mode when you do not have a center channel speaker.



**3) STEREO CIRCUIT**

In 3 – stereo mode, surround sound is sent to front Left channel and front Right channel and no surround sound is sent to surround channel.

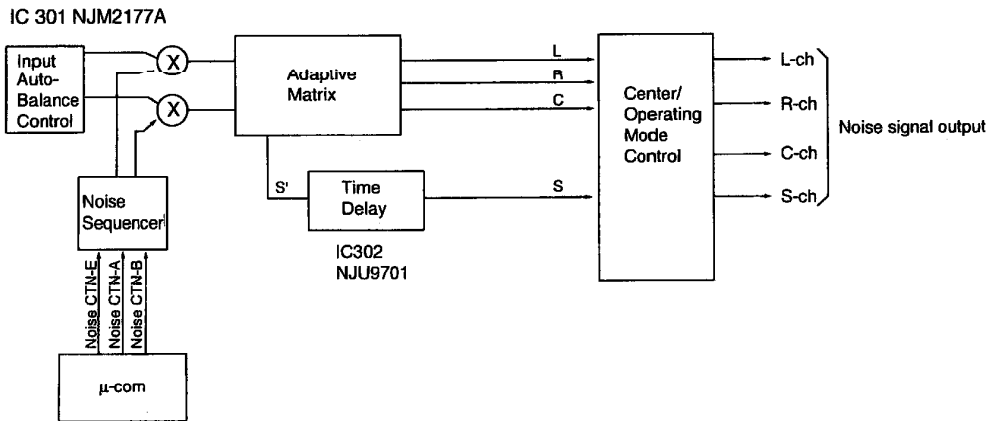


<Flow of signal within the system in the 3 – stereo mode>  
Fig. 4

**4) TEST TONE GENERATOR**

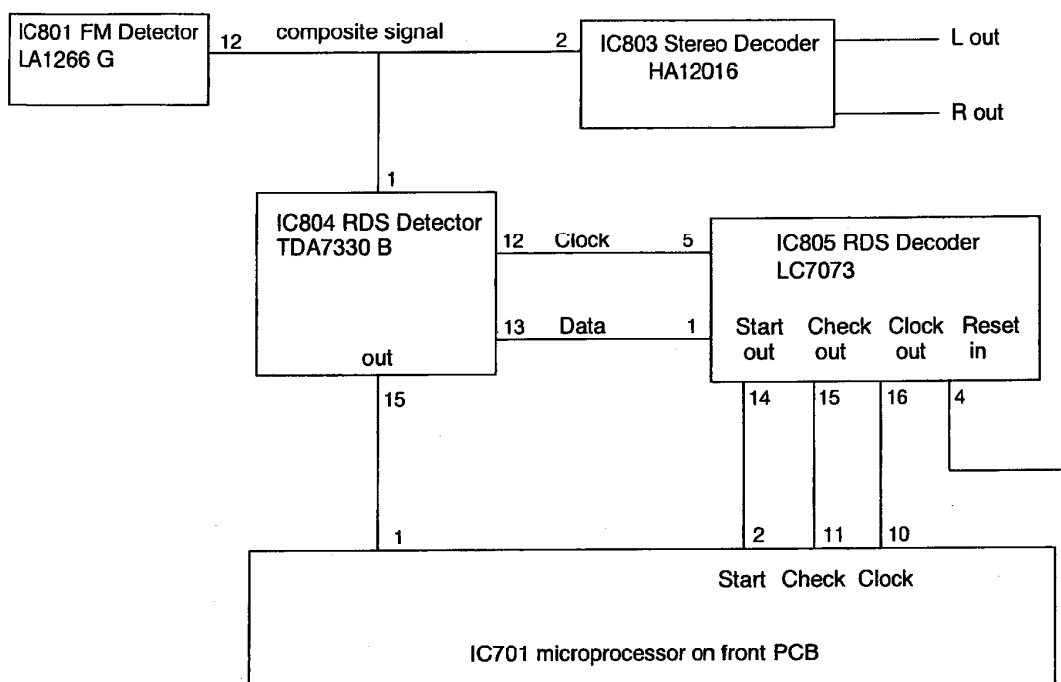
The test tone generator generates a test tone (noise) to check the balance of sound output from each speaker in the Dolby pro logic mode. (This circuit is produced under license of the Dolby Laboratories Licensing Corp.) The noise generator signals shown the table below applies to the Noise – CNT – A/B/E pins of IC 301. The test tone is sent to the loud – speakers at 2 second intervals in the following sequence : Left, Center, Right, Rear (both rear channels).

Pin Name	Noise-CNT-E (Pin 23)	Noise-CNT-A (Pin 24)	Noise-CNT-B (Pin 25)
Signal Select	H		
L – CH.	L	L	L
C – CH.	L	L	H
R – CH.	L	H	L
S – CH.	L	H	H



<Flow of noise signals within the system>  
Fig. 5

## 5. RDS CIRCUITS



<RDS decoder, block diagram>  
Fig. 6

### IC701 Pin and function descriptions for RDS

- Pin 1 RI ⇒ Output for RDS indication
- Pin 2 Start ⇒ Serial data start output
- Pin 11 Check ⇒ Serial data output check
- Pin 10 Clock ⇒ Serial data output clock

RDS information in the composite signal is fed to pin 1 of RDS Detector (IC804).

IC804 performs the following functions;

- Remove Low frequency audio information and pass the 57 kHz subcarrier.
- Lock onto the 57 kHz subcarrier, recover the clock signal and get the demodulation of original RDS data.

The Low level signal from pin 15 of IC804 is fed to pin 1 of the microprocessor (IC701).

The recovered clock signal from pin 12 of IC804 is fed to pin 5 of the RDS decoder (IC805).

The decoded Low signal from pin 14 of IC804 is fed to pin 6 of IC805.

The RDS Detector (IC805) performs the following functions;

Logic reset (During power on, pin 4 is momentarily connected to ground for chip reset.)

Convert serial data from pin 6 (Data in) and pin 5 (Clock) into parallel data.

Error detection and correction.

It provides group synchronization.

The Low level momentary signal from pin 14 of IC805, is fed to pin 2 of the microprocessor (IC701), and lets you know the start point of one block of RDS data.

The data signal from pin 15 of IC805, is fed to pin 9 of the microprocessor (IC701), and lets you know the content of RDS data.

The clock signal from pin 16 of IC805, is fed to pin 10 of the microprocessor (IC701), and lets you know the frequency clock of RDS data.

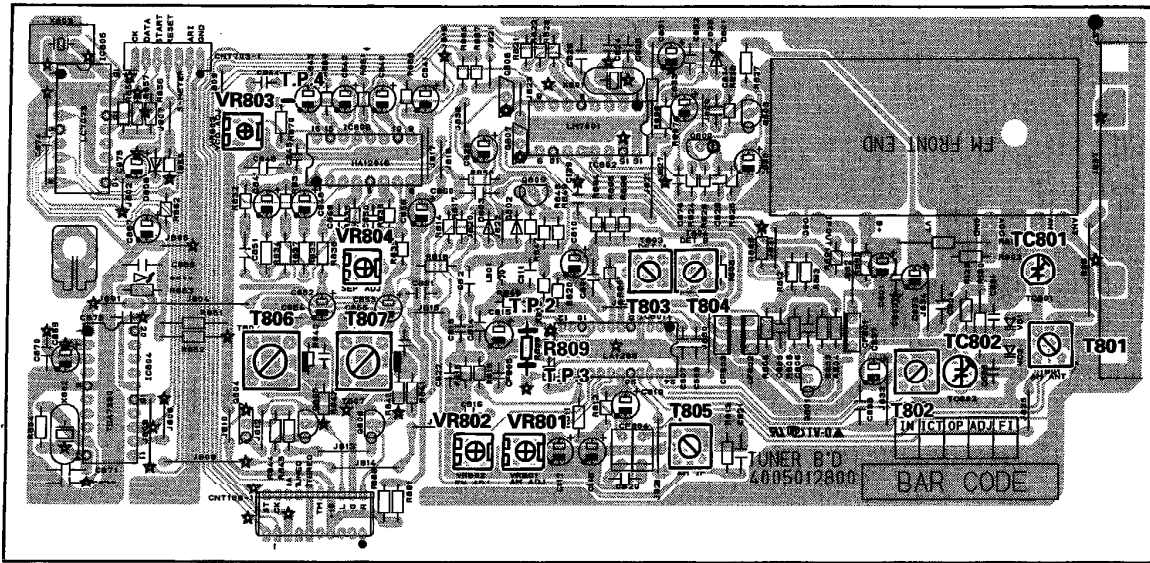
## ALIGNMENT PROCEDURES

### 1. Equipment Required

- AM Standard Signal Generator (AM SSG)
- Oscilloscope
- AC Voltmeter
- FM Standard Signal Generator (FM SSG)
- Stereo Modulator
- Audio Generator
- Distortion Meter
- DC Voltmeter
- Frequency Counter

**Note :** Disconnect external FM antenna prior to alignment.

### 2. Alignment and Test Points (PCB15)



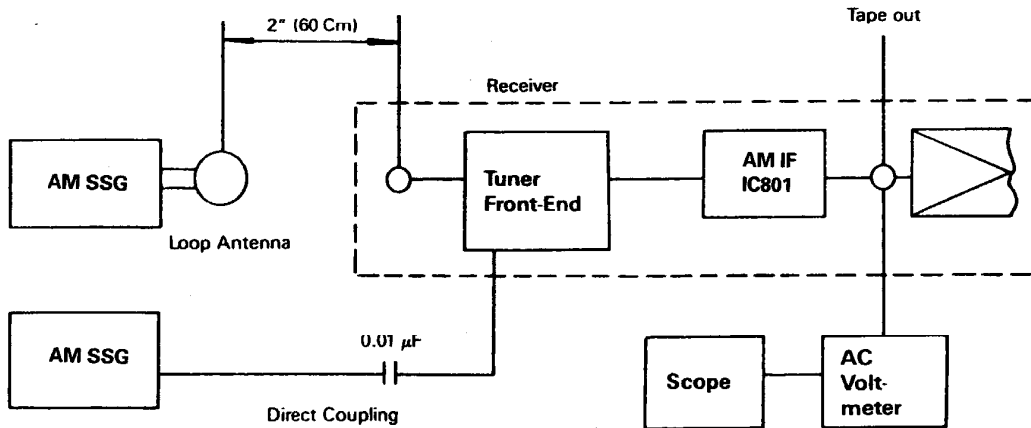
### 3. AM IF and RF Alignment

#### Preparation

1. Output of Signal Generator should not be higher than necessary to obtain an optimum output reading.
2. Signal Generator Modulation : 30%
3. Switch : Press to AM.

Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment Point	Adjust for
1	999 kHz (400 Hz, Mod.)	522 kHz	DC Voltmeter TP1	T802	1.2 V reading
		1611 kHz	DC Voltmeter TP1	TC802	8.5 V reading
2	594 kHz (400 Hz, Mod.)	594 kHz	Same as Step 1.	T801 (ANT Coil)	Same as Step 1
3	1404 kHz (400 Hz, Mod.)	1404 kHz	Same as Step 1.	TC801 (ANT Trimmer)	Same as Step 1

4	450 kHz (400 Hz, Mod.)	Place at a non-interference spot around 600 kHz	AC voltmeter to TAPE OUT jack.	T805 (IFT)	Maximum reading
5	999 kHz (400 Hz, Mod.)	999 kHz	Same as Step 1.	VR801	FL display 'TUNED' Indication on receiver with AM SSG Output level of 800 $\mu$ V/m



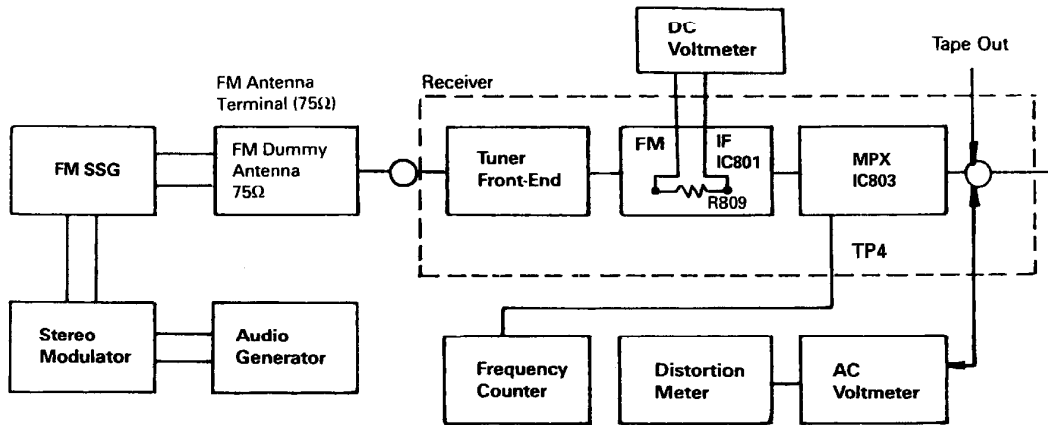
AM Alignment Connection

**4. FM IF Alignment**

Preparation

1. Signal Generator output should be no higher than necessary to obtain an optimum output reading.
2. Switch Press to FM.
3. Signal generator deviation : 40 kHz.

Step	Signal Generator Frequency	Receiver Frequency Display	Equipment Connection	Adjustment Point	Adjust for
1	98.0 MHz (1 kHz, Mod.)	98.0 MHz	Distortion meter to TAPE OUT jack	T804	Minimum distortion 1KHz mono(<0.3%)
2	98.0 MHz (1 kHz, Mod.)	98.0 MHz	Same as Step 1	VR802	FL display 'TUNED' Indication on receiver with FM SSG output level of 10 $\mu$ V/m
3	98.0 MHz (1 kHz, Mod.)	98.0 MHz	DC Volt meter across R809 which are TP 2 and TP 3. (PCB 15)	T803	Zero reading on DC volt meter.



FM RF/IF and MPX Alignment Connection

**5. MPX Alignment**

Preparation

1. Switch : Press to FM.
2. Tuner for 98 MHz on band.
3. Signal Generator output level : 1000  $\mu$ V.
4. Deviation : 40 kHz, at 100% modulation of composite signal.
5. Connect Signal Generator to FM antenna terminal through FM dummy antenna (75 $\Omega$ ).

Step	19 kHz Modulation Level	Signal Generator Frequency Setting	Equipment Connection	Adjustment Point	Adjust for
1	Pilot off	Carrier only	Frequency counter connect to TP4 (HOT) of PCB and ground	VR803	76 kHz ( $\pm$ 1KHz)
2	8% Mod.	Composite to channel 1kHz R	AC voltmeter to TAPE OUT jack of R channel	-	Confirm audio output as about 520 mV and ref. as "0 dB".
3	8% Mod.	Composite to channel 1 kHz L	AC voltmeter to TAPE OUT jack of R channel	VR804	AC voltmeter reading should be at least 40 dB below.
4	8% Mod.	Composite to channel 1 kHz R	AC voltmeter to TAPE OUT jack of L channel	VR804	Same as Step 3.
5	8% Mod.	Composite to channel 1KHz L/R	AC voltmeter to TAPE OUT jack L/R channel.	T806/T807	<ul style="list-style-type: none"> <li>• Set the modulator to pilot signal only.</li> <li>• Adjust so that L/R output level becomes minimum.</li> </ul>

If you could not obtain -40dB readings in Steps 3 and 4 (compared with Step 2), readjust VR804 until you obtain -40dB readings for both Steps 3 and 4. Nominal is -45 dB.

## TROUBLESHOOTING

Symptom	Cause and Remedy
Receiver inoperative. (FL indicator does not light.)	<p>A) Faulty AC power cord. Replace.</p> <p>B) Defective the power switch. Replace.</p> <p>C) Broken wire in the power transformer. Replace the power transformer.</p> <p>D) Blown fuse. Replace the fuse.</p>
Fuse blows when power is turned on.	<p>A) Defective power transformer. Replace.</p> <p>B) Short on the primary or secondary of the transformer circuitry. Repair the short.</p> <p>C) Damaged rectifier (D208 to D211) or damaged transistor (Q216 to Q217). Replace the defective component(s).</p> <p>D) Short circuit in the amplifier circuit. Replace the shorted component(s) in the amplifier circuit.</p>
Power indicator lights but no sound from both channels.	<p>A) Defect in transistor Q215 L/R, Q216 L/R on the Main Amp Board. Replace the defective component(s).</p>
One channel does not work when volume is at maximum with a test signal applied to the center terminal of volume control VR5 of the dead channel.	<p>A) Defect in transistors Q215 L/R, Q216 L/R on the Main Amp Board Locate and correct the defect.</p> <p>B) Break in copper foil of printed circuit board. Repair the trace.</p> <p>C) Short in speaker output terminal. Repair or replace.</p>
Speaker works normally but headphones inoperative.	<p>A) Headphone plug does not mate with jack. Replace the jack.</p> <p>B) Defective resistor R728L/R. Replace.</p>
FM inoperative	<p>A) Defective front-end. (FE407-G60) Replace.</p> <p>B) Defective FM switch. Replace the switch.</p> <p>C) Defective transistors Q801, Q805, Q806 or IC801, IC803 Replace the defective transistor(s) or IC(s).</p> <p>D) Defective coil T803 or T804. Replace the coil(s).</p> <p>E) Defective lead-in. Repair or replace the lead-in.</p> <p>F) Ceramic filters CF801, CF802, CF803 defective. Replace the defective ceramic filter(s).</p> <p>G) Defective controller circuit component. Replace.</p>

Symptom	Cause and Remedy
Poor multiplex separation.	<p>A) Improper adjustment. Readjust VR803 and VR804. (Refer to MPX Alignment.)</p> <p>B) IC803 defective. Replace.</p> <p>C) Variable resistor VR803 or VR804 defective. Replace the variable resistor(s).</p>
STEREO indicator does not light.	<p>A) Defective indicator in FL. Replace.</p> <p>B) Improper adjustment of VR803 of tuner board. Make readjustment.</p> <p>C) Defective IC803. Replace the defective component.</p>
FM volume not sufficient.	<p>A) If volume from both L and R channels is not loud enough : Front end section defective. Faulty IC801, Coil T803, Defective C838 of Tuner Board. If sound of one channel is not loud enough: Defective T806, T807</p>
FM Mono has no effect.	<p>A) Defective FM MODE switch. Replace.</p>
AM inoperative.	<p>A) Damaged IC801 of tuner board. Replace.</p> <p>B) Defective T801, T802, T805 or CF804 of Tuner Board. Replace the defective component(s).</p> <p>C) Resistors R829, R817 defective. Replace the defective component(s).</p> <p>D) Capacitors C836, C818, C813 defective. Replace the defective capacitor(s).</p> <p>E) Defective AM switch. Replace.</p> <p>F) Defective varicap diodes VD1, VD2 Replace varicap diodes(s).</p> <p>G) Damaged AM loop antenna. Repair or replace.</p> <p>H) Defective controller circuit component. Replace.</p>
Bass control has no effect	<p>A) Variable resistor BASS defective. Replace.</p> <p>B) Defective R129L/R, R131L/R, C126L/R, C128L/R. Replace the defective component(s).</p>
Treble control has no effect.	<p>A) Variable resistor TREBLE defective.</p> <p>B) Defective R130L/R, R132L/R, C127L/R, C129L/R. Replace the defective components(s).</p>

Symptom	Cause and Remedy
Auto tune inoperative. (UP/DOWN)	A) Poor contact in Up/Down key. Repair or replace. B) Defective IC701. Replace. C) Defective tuner circuit components. Replace. D) In case of FM only, improper adjustment of FM front-end. Readjust.
Manual tune inoperative. (UP/DOWN) (AM or FM)	A) Poor contact in Up/Down key. Replace. B) Defective IC701. Replace.
Memory setting (Keys 1 -10) inoperative.	A) Poor contact in memory keys 1-10. Replace. B) Poor contact in memory set key. Replace. C) Defective IC701. Replace the defective component.
FL inoperative.	A) FL defective. Replace. B) Defective IC701. Replace C) Defective IC700. Replace.
Noisy volume control.	A) Defective volume control. Replace. B) Defective capacitors C701 or C703 Replace the defective capacitor(s).
Remote Control Unit inoperative.	A) Weak battery. Replace. B) Defective. Replace. C) Defective IC701 (Front Board) or IC01. Replace.



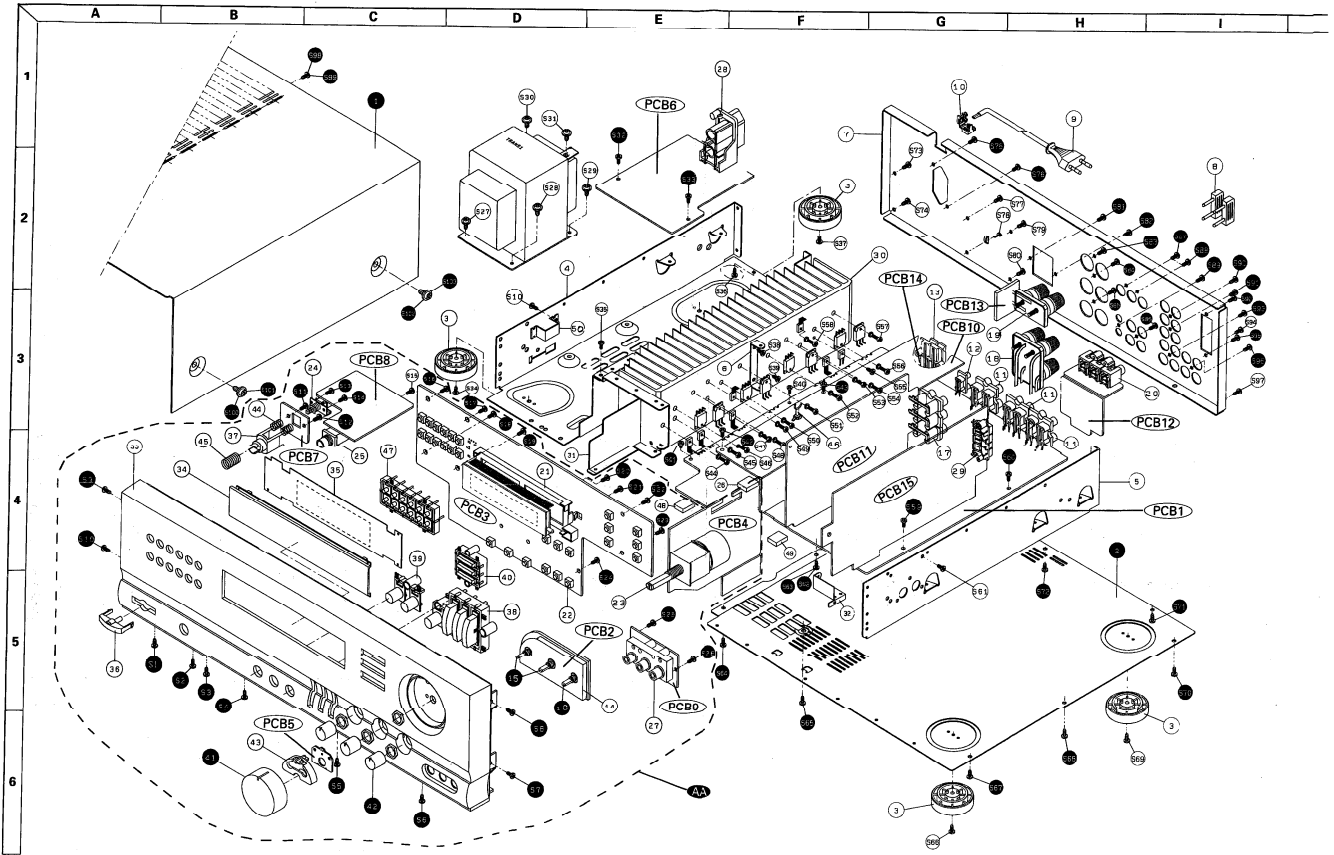
## GENERAL UNIT PARTS LIST

Ref. No.	Description	Mfr. Part No.	Q'ty
<b>CABINET &amp; CHASSIS</b>			
1	Cover Top, SECC, Black	6122029620	1
2	Cover Bottom, SECC, 1t	6122420410	1
3	Foot, Hot-Stamping, Gold	046033102511	4
4	Frame Left, SECC, 1t	6121607640	1
5	Frame Right, SECC, 1t	6122633520	1
6	Bracket PCB Surround/Main	6505139720	1
7	Chassis Back, SECC, Black	046102042652	1
8	Jumper Plug, 2P	4328204210	2
9	Cord AC Power	4308000430	1
10	Stopper Cord	6518002310	1
11	Jack RCA, 4P	4438103110	3
12	Jack Mini, 2P	4438007510	1
13	Terminal Speaker Rear, 4P	4408108910	1
14	Shield Fence, Tone	6163116210	1
15	Volume, Bass/Treble	3208049510	2
16	Volume, Balance	3208052010	1
17	Jack RCA, 6P	4438103210	1
18	Terminal Speaker Main, Screw Type, 4P	4408108610	1
19	Terminal Speaker Center, Screw Type, 2P	4408108710	1
20	Jack RCA(VCR1/Monitor), 3P	4438114310	1
21	Holder FL	6043010210	1
22	Switch Tact	4658004810	27
23	Volume Motor, 50 k(A)	3228020010	1
24	Switch Power, Push Type	4628055910	1
25	Jack Phone, Headphone, 9P	4438005610	1
26	Sponge	6715024830	1
27	Jack RCA, 3P, VCR	4438109710	1
△ 28	Outlet, AC	4448103610	1
29	Terminal Antenna	4408108210	1
30	Heatsink Power	7502008730	1
31	Bracket Heatsink	6503032310	1
32	Bracket PCB Tuner	6505139810	1
33	Panel Front, ABS, Black	048501035041	1
34	Window Display	8553019720	1
35	Filter FL	04855048612	1
36	Button Power, ABS, Black	048545128611	1
37	Indicator Power	8545128810	1
38	Button Function, ABS, Black, 7key	048543064911	1
39	Button Surround, ABS, Black, 2key	048545128711	1
40	Button RDS, 6key	048543071911	1
41	Knob Volume, ABS, Black	048543059811	1
42	Knob Rotary(Bass/Treble/Balance), Black	048545135611	3
43	Indicator Volume	8555048610	1
44	Spring Indicator	6555008730	2
45	Spring Power	6555008720	1
46	Clamp Wire	6620002540	1
47	Button, Preset, 12 key	048543059611	1
48	Sponge Spacer	6715026110	1
49	Sponge	6715018910	1
50	Bracket Frame	6505139910	1
<b>HARDWARE KIT</b>			
S1-S14	Screw #B BTT 3x8B	8179130083	14
S15	Screw Washer	8155001210	1
S16-S26	Screw #B BTT 3x8B	8179130083	11
S27-S30	Screw WSAM 4x8B	8159440083	4
S31-S33	Screw #B WPTT 3x6Y	8179230061	3
S34-S39	Screw #B BTT 3x8B	8179130083	6
S40-S43	Screw #B WPTT 3x6Y	8179230061	4
S44-S54	Screw Heatsink	8195000310	11
S55	Screw #B BTT 3x8B	8179130083	1
S56-S58	Screw Heatsink	8195000310	3
S59/S60	Screw #B WPTT 3x6Y	8179230061	2
S61-S89	Screw #B BTT 3x8B	8179130083	29
S90	Screw Ground	8155000710	1
S91/S92	Screw #B BTT 3x8B	8179130083	2
S93	Screw Ground	8155000710	1
S94-S99	Screw #B BTT 3x8B	8179130083	6
S100-S103	Screw WSAM 4x8B	8159440083	4
S104	Screw #B BTT 3x8B	8179130083	1
<b>MISCELLANEOUS</b>			
Trans	Power Transformer, 230 V, 50 Hz	2828100867	1
	FPC Cable, 31P, 270mm	4118631275	1

## PRODUCT SAFETY NOTICE

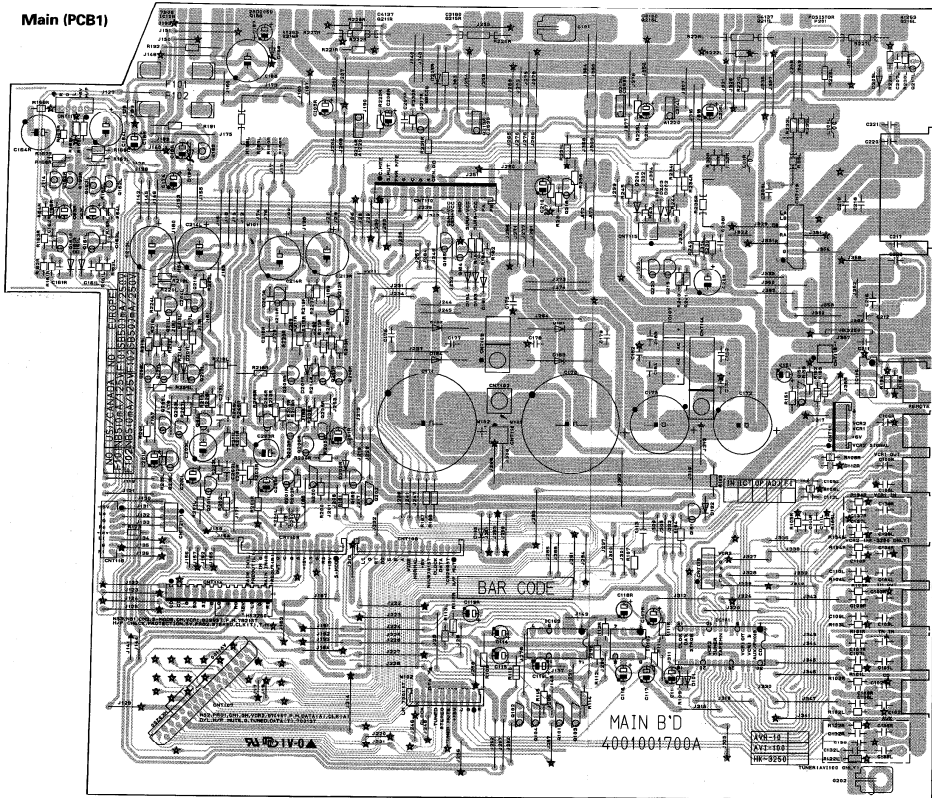
Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol  $\Delta$  in the parts list are of special significance to safety. When replacing a component identified with  $\Delta$ , use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

GENERAL UNIT EXPLODED VIEW

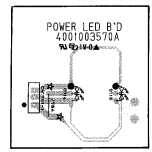


PRINTED CIRCUIT BOARDS

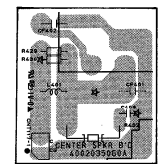
Main (PCB1)



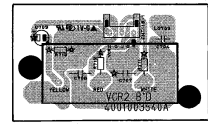
Power LED (PCB7)



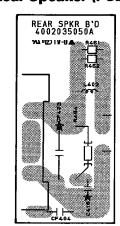
Center Speaker (PCB13)



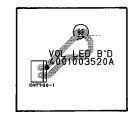
VCR2 (PCB9)



Rear Speaker (PCB14)

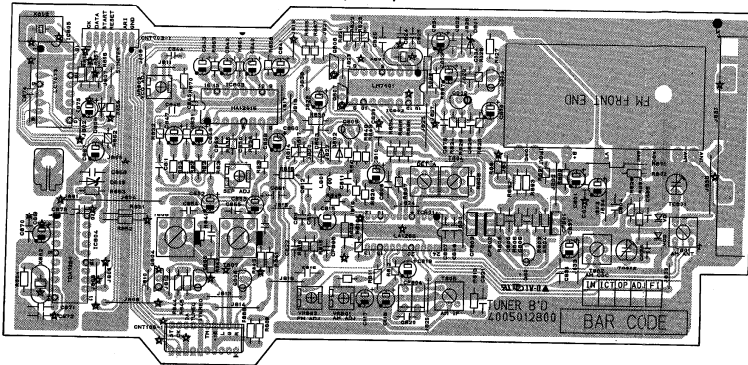


Volume LED (PCB5)

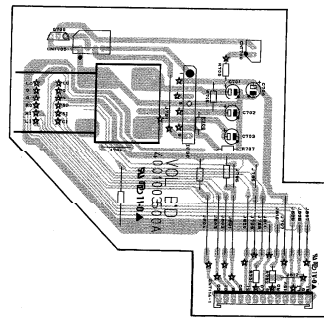




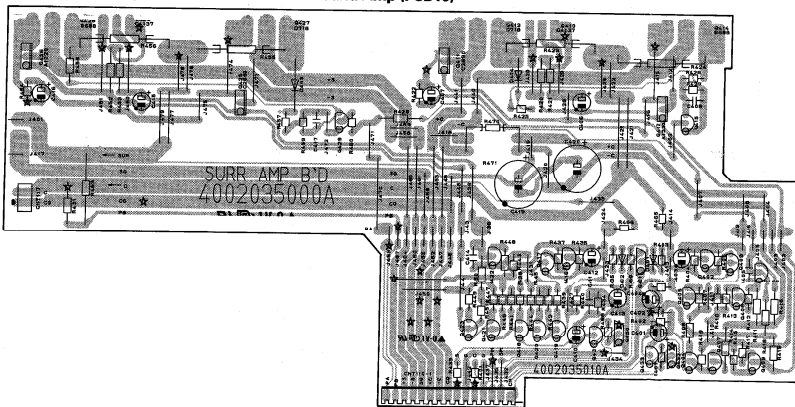
Tuner (PCB15)



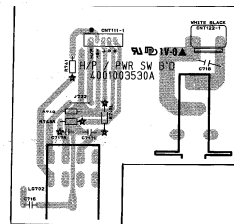
Volume (PCB4)



Surround Amp (PCB10)



Headphone (PCB8)



## ELECTRICAL PARTS LIST

**PRODUCT SAFETY NOTICE :** Products marked with  $\Delta$  have special characteristics important to safety.

If you replace any of these components, read carefully the product safety notice in this manual.

Don't degrade the safety of the product through improper servicing.

Resistor/Capacitor tolerance - D : ( $\pm 0.5\%$ ), J : ( $\pm 5\%$ ), K : ( $\pm 10\%$ ), M : ( $\pm 20\%$ ), Z : (+80, -20%)

Ref. No.	Description	Mfr. Part No.	Q'ty	Ref. No.	Description	Mfr. Part No.	Q'ty
PCB1	<b>ASSEMBLY P.C. BOARD MAIN</b>			IC104	LTV-817, Optocoupler	2408000136	1
	<b>CAPACITORS</b>			$\Delta$ IC106	KIA7806PI, Regulator	2168806110	1
C107/LR	Ceramic Tubular	100 pF 50 V K	3519101935 2		<b>COILS</b>		
C108/LR	Ceramic Tubular	100 pF 50 V K	3519101935 2	L101/LR	Inductor, 0.5 mH	2648001010	2
C109/LR	Ceramic Tubular	100 pF 50 V K	3519101935 2		<b>POSISTORS</b>		
C111/LR	Ceramic Tubular	100 pF 50 V K	3519101935 2	P201	Ass'y Posistor, 280mm	052438000283	1
C113	Ceramic Tubular	100 pF 50 V K	3519101935 1	P202	PTH9M04BE22TS2F33	2438012200	1
C114/C115	Electrolytic SG	47 uF 16 V M	3479347031 2		<b>TRANSISTORS</b>		
C116	Electrolytic SG	1 uF 50 V M	3479310971 1	Q101/Q102	DTC114YS	2208622106	2
C117/LR	Electrolytic SG	4.7 uF 50 V M	3479347971 2	Q103/Q104	KRA107M(DTA114YS)	2238006103	2
C118/LR	Electrolytic SG	47 uF 16 V M	3479347031 2	Q151	KRA107M(DTA114YS)	2238006103	1
C119/LR	Electrolytic SG	47 uF 16 V M	3479347031 2	Q161/LR	BKTC3200BL(KTC2240BL), NPN	2208606108	2
C120/C121	Electrolytic SG	47 uF 16 V M	3479347031 2	Q162/LR	MPSA06Y, NPN	2208606114	2
C136	Ceramic Disk	0.1 uF 50 V J	3509104512 1	Q163/LR	MPSA56Y, PNP	2208206113	2
C151	Electrolytic SG	22 uF 10 V M	3479322021 1	Q181/Q182	BKTC3198Y(KTC1815Y), NPN	2208606104	2
C161/LR	Mylar	0.15 uF 63 V K	3679154297 2	Q183	MPSA56Y, PNP	2208606104	2
C162/LR	Ceramic Tubular	47 pF 50 V J	3519470935 2	Q184/Q185	BKTC3198Y(KTC1815Y), NPN	2208622106	1
C163/LR	Electrolytic SG	4.7 uF 50 V M	3479347971 2	Q196	2SD2060Y(KTC2060Y)	2208622106	1
C164/LR	Electrolytic SG	470 uF 16 V M	3479347139 2	Q200	DTC114YS	2208606112	2
$\Delta$ C170/C171	Electrolytic HS	6800 uF 50 V M	3419568224 2	Q201/LR	KTD1302, NPN	2238006103	1
$\Delta$ C172/C173	Electrolytic SG	2200 uF 50 V M	3409322279 2	Q202	KRA107M(DTA114YS)	2208206104	2
C174	Electrolytic SG	4.7 uF 50 V M	3479347971 1	Q203/LR	KTA1268(KTA970BL), PNP	2208206104	2
C175-C177	Mylar	0.047 uF 100 V J	3679473120 3	Q204/LR	KTA1268(KTA970BL), PNP	2208206104	2
C180-C182	Mylar	0.047 uF 100 V J	3679473120 3	Q205/LR	KTA1268(KTA970BL), PNP	2208206105	2
C185	Electrolytic SG	330 uF 50 V M	3409333179 1	Q206/LR	KTA1266Y(KTA1015Y), PNP	2208606108	2
C186-C188	Electrolytic SG	4.7 uF 50 V M	3479347971 3	Q207/LR	BKTC3200BL(KTC2240BL), NPN	2208606108	2
C200/LR	Electrolytic SG	47 uF 16 V M	3479347031 2	Q208/LR	BKTC3200BL(KTC2240BL), NPN	2208206104	2
C201/LR	Electrolytic SG	1 uF 50 V M	3479310971 2	Q209/LR	KTA1268(KTA970BL), PNP	2208206102	2
C202/LR	Ceramic Tubular	68 pF 50 V J	3519680935 2	Q210/LR	KTA1024Y(BKTA949Y), PNP	2208606118	2
C203/LR	Electrolytic SG	470 uF 6.3 V M	3479347111 2	Q211/LR	2SC4137, NPN, Bias	2208602102	2
C204/LR	Ceramic Tubular	47 pF 50 V J	3519470935 2	Q212/LR	KTC3206Y(BKTC2229Y), NPN	2008602102	2
C205/LR	Electrolytic SG	10 uF 50 V M	3479310071 2	Q213/LR	KSC2690AY, NPN	2008202101	2
C206/LR	Electrolytic SG	4.7 uF 50 V M	3479347971 2	Q214/LR	KSA1220AY, PNP	2028307101	2
C207/LR	Mylar	0.068 uF 100 V J	3679683120 2	$\Delta$ Q215/LR	2SC3182N-O	2028007101	2
C208/LR	Mylar	0.047 uF 100 V J	3679473120 2	$\Delta$ Q216/LR	2SA1265N-O	2208606107	2
C209	Electrolytic SG	470 uF 6.3 V M	3479347111 1	Q217/LR	KTC3206Y(BKTC2229Y), NPN	2208206105	1
C210	Electrolytic SG	1 uF 50 V M	3479310071 1	Q218	KTA1266Y(KTA1015Y), PNP	2208606104	2
C211	Ceramic Disc	0.0022 uF 50 V Z	3579222130 1	Q219/Q220	BKTC3198Y(KTC1815Y), NPN		
C213/LR	Electrolytic SG	330 uF 50 V M	3409333179 2		<b>RESISTORS</b>		
C214/LR	Electrolytic SG	330 uF 50 V M	3409333179 2	R101/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
C215/LR	Ceramic Tubular	3.3 pF 50 V J	3519033935 2	R102/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
C217	Ceramic Disc	0.0022 uF 50 V Z	3579222130 1	R103/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
	<b>CONNECTORS</b>			R104/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
CNT102-1	Pin Base, 1P		4428525860 1	R105/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
CNT103-1	Pin Base, 2P		4428525780 1	R106/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
CNT104-1	Pin Base, 3P		4428525790 1	R107	Carbon Film	1 kohm 1/5 W J	3069102970 1
CNT106	Wafer, 10P, B'D to B'D		4428550100 1	R108	Carbon Film	150 ohm 1/5 W J	3069151970 1
CNT107	Wafer FCC, 31P		4428509029 1	R109	Carbon Film	100 kohm 1/5 W J	3069104970 1
CNT108	Wafer, 15P, B'D to B'D		4428550150 1	R110	Carbon Film	150 ohm 1/5 W J	3069151970 1
CNT109	Wafer, 15P, B'D to B'D		4428550150 1	R111/LR	Carbon Film	100 kohm 1/5 W J	3069104970 2
CNT110	Wafer, 15P, B'D to B'D		4428561520 1	R112/LR	Carbon Film	220 kohm 1/5 W J	3069224970 2
CNT111	Wafer, 5P		4428516410 1	R113/LR	Carbon Film	220 kohm 1/5 W J	3069224970 2
CNT112	Wafer, 6P		4438302927 1	R114/R115	Carbon Film	100 kohm 1/5 W J	3069104970 2
CNT113	Lead Assy, 5P, 280mm		436205283332 1	R123	Carbon Film	150 ohm 1/5 W J	3069151970 1
CNT114	Wafer, 13P, B'D to B'D		4428551320 1	R151	Carbon Film	3.9 kohm 1/5 W J	3069392970 1
CNT116	Wafer, 8P		4428516710 1	R152	Carbon Film	3.3 kohm 1/5 W J	3069332970 1
CNT118	Lead Assy, 2P, 200mm, to CNT118-1		436102203601 1	R153	Carbon Film	100 ohm 1/5 W J	3069101970 1
CNT1607-1	Wafer, 2P		4428508210 1	R154	Carbon Film	47 ohm 1/5 W J	3069470970 1
CNT115	Wafer, 2P		4428508210 1	R155	Carbon Film	47 kohm 1/5 W J	3069473970 1
	<b>DIODES</b>			R156	Carbon Film	270 ohm 1/5 W J	3069271970 1
D101	1N4148, Switching		2058322101 1	R161/LR	Carbon Film	100 kohm 1/5 W J	3069104970 2
D161/LR	1N4148, Switching		2058322101 2	R162/LR	Carbon Film	1 Mohm 1/5 W J	3069105970 2
$\Delta$ D181-D184	1N5402, Rectifier		2058100105 4	R163/LR	Carbon Film	220 kohm 1/5 W J	3069224970 2
D189/D190	Zener, UZ 16.0BSD		2258599117 2	R164/LR	Carbon Film	15 kohm 1/5 W J	3069153970 2
D191-D195	1N4148, Switching		2058322101 5	R165/LR	Carbon Film	2.4 kohm 1/5 W J	3069242970 2
D200/LR	1N4148, Switching		2058322101 2	R166/LR	Carbon Film	33 ohm 1/5 W J	3069330970 2
D201/LR	1N4148, Switching		2058322101 2	R167/LR	Carbon Film	33 ohm 1/5 W J	3069330970 2
D202	Zener, UZ 9.1BSC		2258599107 1	R168/LR	Carbon Film	10 ohm 1/5 W J	3069100970 2
D203/D204	1N4148, Switching		2058322101 2	R169/LR	Carbon Film	100 ohm 1/5 W J	3069101970 2
$\Delta$ IC107	PBL303, Bridge		2058100146 1	R181	Carbon Film	3.3 kohm 1/5 W J	3069332970 1
	<b>FUSES</b>			R182-R185	Carbon Film	47 kohm 1/5 W J	3069473970 4
$\Delta$ F101/F102	GMC 250 V, 0.5 A		5508301635 2	R186/R187	Carbon Film	3.3 kohm 1/5 W J	3069332970 2
	<b>INTEGRATED CIRCUITS</b>			R188/LR	Metal Film	47 ohm 1 W J	3029470470 2
IC101	LC7821, Analog Function Switching		2168017132 1	R189/LR	Metal Film	47 ohm 1 W J	3029470470 2
IC102	KIA4559P (KIA75559P), OP Amp		2168206104 1	R191/R192	Carbon Film	4.7 kohm 1/5 W J	3069472970 2
IC103	IC4966, Quad Analog Switch		2138017108 1	R194	Carbon Film	3.3 kohm 1/5 W J	3069332970 1

Ref. No.	Description	Mfr. Part No.	Q'ty
R200	Carbon Film	150 kohm 1/5 W J 3069154970	2
R201/LR	Carbon Film	330 ohm 1/5 W J 3069331970	2
R202/LR	Carbon Film	3.3 kohm 1/5 W J 3069332970	2
R203/LR	Carbon Film	33 kohm 1/5 W J 3069333970	2
R204/LR	Carbon Film	33 kohm 1/5 W J 3069333970	2
R205/LR	Carbon Film	10 kohm 1/5 W J 3069103970	2
R206/LR	Carbon Film	270 ohm 1/5 W J 3069271970	2
R207/LR	Carbon Film	390 ohm 1/5 W J 3069391970	2
R208/LR	Carbon Film	390 ohm 1/5 W J 3069391970	2
R209/LR	Carbon Film	1.5 kohm 1/5 W J 3069152970	2
R210/LR	Carbon Film	1.5 kohm 1/5 W J 3069152970	2
R211/LR	Carbon Film	2.2 kohm 1/5 W J 3069222970	2
R212/LR	Carbon Film	560 ohm 1/5 W J 3069561970	2
R213/LR	Carbon Film	560 ohm 1/5 W J 3069561970	2
R214/LR	Carbon Film	560 ohm 1/5 W J 3069561970	2
R216/LR	Carbon Film	560 ohm 1/5 W J 3069561970	2
R216/LR	Carbon Film	560 ohm 1/5 W J 3069561970	2
R217/LR	Carbon Film	560 ohm 1/5 W J 3069561970	2
R218/LR	Carbon Film	4.7 kohm 1/5 W J 3069472970	2
R219/LR	Carbon Film	22 kohm 1/5 W J 3069223970	2
R220/LR	Carbon Film	22 kohm 1/5 W J 3069223970	2
R221/LR	Metal Film	1.21 kohm 1/4 W F 3027121125	2
R222/LR	Metal Film	442 ohm 1/4 W F 3027442025	2
R223/LR	Carbon Film	82 ohm 1/5 W J 3069820970	2
R224/LR	Carbon Film	82 ohm 1/5 W J 3069820970	2
R225/LR	Carbon Film	82 ohm 1/5 W J 3069820970	2
R226/LR	Cement	0.27 ohm 5 W J 3059027776	2
R227/LR	Cement	0.27 ohm 5 W J 3059027776	2
R228/LR	Carbon Film	1.8 kohm 1/5 W J 3069182970	2
R229/LR	Carbon Film	1.5 kohm 1/5 W J 3069152970	2
R230/LR	Carbon Film	910 ohm 1/5 W J 3069911970	2
R231/LR	Carbon Film	6.8 kohm 1/5 W J 3069682970	2
R232/LR	Carbon Film	22 ohm 1/5 W J 3069220970	2
R233/LR	Carbon Film	22 ohm 1/5 W J 3069220970	2
R234/LR	Carbon Film	24 kohm 1/5 W J 3069243970	2
R235/LR	Metal Film	10 ohm 1 W J 3029100470	2
R236	Carbon Film	68 kohm 1/5 W J 3069683970	1
R237	Carbon Film	100 kohm 1/5 W J 3069104970	1
R238	Carbon Film	3.3 kohm 1/5 W J 3069332970	1
R239	Carbon Film	1.5 kohm 1/5 W J 3069152970	1
R240	Carbon Film	22 kohm 1/5 W J 3069223970	1
R241	Carbon Film	15 kohm 1/5 W J 3069153970	1
R242	Carbon Film	10 kohm 1/5 W J 3069103970	1
R243	Carbon Film	4.7 kohm 1/5 W J 3069472970	1
R244	Carbon Film	1 kohm 1/5 W J 3069102970	1
R245	Carbon Film	6.8 kohm 1/5 W J 3069682970	1
R246/LR	Carbon Film	33 kohm 1/5 W J 3069333970	2

**MISCELLANEOUS**

	Terminal Ground	4235007310	2
	Clip Fuse	4255001010	4
11	Jack RCA, 4P	4438103110	2
12	Jack Mini, 2P	4438007510	1
10	Terminal Speaker Mini, Screw Type, 4P	4400100010	1

**PCB2 ASSEMBLY P.C. BOARD TONE**

**CAPACITORS**

C120/C121	Electrolytic SSE	47 uF 16 V M 3479147035	2
C122/LR	Electrolytic SSE	47 uF 16 V M 3479147035	2
C123/LR	Electrolytic SSE	4.7 uF 16 V M 3479147935	2
C124/LR	Ceramic Tubular	56 pF 50 V K 3519560935	2
C125/LR	Electrolytic SSE	4.7 uF 16 V M 3479147935	2
C126/LR	Poly	0.015 pF 63 V J 3633153187	2
C127/LR	Poly	0.0039 pF 63 V J 3633392187	2
C128/LR	Poly	0.15 pF 63 V J 3633154187	2
C129/LR	Poly	0.018 pF 63 V J 3633183187	2
C130/LR	Ceramic Tubular	330 pF 50 V K 3519331935	2
C131/LR	Poly	0.018 pF 63 V J 3633183187	2

**CONNECTOR**

CNT116-1	Lead Assy, 8P, 120mm	436208123332	
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**INTEGRATED CIRCUIT**

IC105	KIA4559P (KIA75559P), OP Amp	2168206104	
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**RESISTORS**

R121/LR	Carbon Film	100 kohm 1/5 W J 3069104970	2
R124	Metal Film	150 ohm 1/5 W J 3029151970	1
R125/LR	Carbon Film	100 kohm 1/5 W J 3069104970	2
R126/LR	Carbon Film	100 kohm 1/5 W J 3069104970	2
R127/LR	Carbon Film	1 Mohm 1/5 W J 3069105970	2
R128/LR	Metal Film	1 kohm 1/5 W J 3029102970	2
R129/LR	Carbon Film	18 kohm 1/5 W J 3069183970	2

Ref. No.	Description	Mfr. Part No.	Q'ty
R130/LR	Metal Film	1.2 kohm 1/5 W J 3029122970	2
R131/LR	Metal Film	3.9 kohm 1/5 W J 3029392970	2
R132/LR	Metal Film	560 ohm 1/5 W J 3029561970	2

**MISCELLANEOUS**

14	Shield Fence, Tone	6163116210	1
15	Volume, Bass/Treble	3208049510	2
16	Volume, Balance	3208052010	1

**PCB3 ASSEMBLY P.C. BOARD FRONT**

**CAPACITORS**

C705/C706	Mylar	0.047 uF 100 V J 3679473120	2
C711	Electrolytic SG	1 uF 50 V M 3479310971	1
C712	Electrolytic SG	10 uF 50 V M 3479310071	1
C713	Ceramic Disc	0.022 uF 50 V Z 3579223530	1
C714	Back-Up	0.047 uF 5.5 V M 3439247315	1
C715	Electrolytic SG	47 uF 16 V M 3479347031	1
C721	Ceramic Tubular	100 pF 50 V K 3519101935	1
C726	Electrolytic SG	10 uF 50 V M 3479310071	1

**CONNECTORS**

CNT701	Lead Assy, 3P, 140mm to CNT701-1	436403143231	1
CNT702	Lead Assy, 7P, 260mm	436207263332	1
CNT703	Lead Assy, 7P, 300mm	436107303331	1
CNT705	Lead Assy, 4P, 120mm	436104123331	1
CNT707-1	Water, FPC, 31P	4426331020	1

**DIODES**

D701-D712	1N4148, Switching	2058322101	13
D713	Zener, UZ 4.3BSB	2258599102	1
D716	1N4148, Switching	2058322101	1

**INTEGRATED CIRCUIT**

IC701	CXP82432A-144Q, DWP455	2139322717	1
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**TRANSISTORS**

Q701-Q703	BKTC3198Y(KTC1815Y), NPN	2208606105	3
Q704	KTA1266Y(KTA1015Y), PNP	2208206105	1
Q705	BKTC3198Y(KTC1815Y), NPN	2208606105	1

**RESISTORS**

R704	Metal Film	1 kohm 1/5 W J 3029102970	1
R707L	Carbon Film	47 kohm 1/5 W J 3069473970	1
R708L	Carbon Film	47 kohm 1/5 W J 3069473970	1
R709/R710	Carbon Film	100 kohm 1/5 W J 3069104970	2
R714-R716	Carbon Film	100 kohm 1/5 W J 3069104970	3
R717	Metal Film	330 ohm 1/5 W J 3029331970	1
R718	Carbon Film	47 kohm 1/5 W J 3069473970	1
R719/R720	Carbon Film	100 kohm 1/5 W J 3069104970	2
R721	Metal Film	2.2 kohm 1/5 W J 3029222970	1
R722	Carbon Film	47 kohm 1/5 W J 3069473970	1
R723	Carbon Film	100 kohm 1/5 W J 3069104970	1
R724	Carbon Film	10 kohm 1/5 W J 3069103970	1
R725	Metal Film	330 ohm 1/5 W J 3029331970	1
R726	Metal Film	1 kohm 1/5 W J 3029102970	1
R727	Carbon Film	47 kohm 1/5 W J 3069473970	1
R728	Metal Film	220 ohm 1/5 W J 3029221970	1
R729	Metal Film	1 kohm 1/5 W J 3029102970	1
R730	Carbon Film	100 kohm 1/5 W J 3069104970	1
R731	Metal Film	220 ohm 1/5 W J 3029221970	1
R732	Carbon Film	100 kohm 1/5 W J 3069104970	1
R733	Metal Film	4.7 kohm 1/5 W J 3029472970	1
R734/R735	Carbon Film	100 kohm 1/5 W J 3069104970	2
R736	Metal Film	4.7 kohm 1/5 W J 3029472970	1
R737	Carbon Film	47 kohm 1/5 W J 3069473970	1
R738	Metal Film	3.3 kohm 1/5 W J 3029332970	1
R739	Metal Film	2.2 kohm 1/5 W J 3029222970	1
R740	Carbon Film	47 kohm 1/5 W J 3069473970	1
R743	Carbon Film	10 kohm 1/5 W J 3069103970	1
R744	Metal Film	1.5 kohm 1/5 W J 3029152970	1
R746-R750	Carbon Film	100 kohm 1/5 W J 3069104970	5

**MISCELLANEOUS**

FL700	FL Display CM1361C	2328002306	1
RMC	RMC Module, CRV1G342-185BD	2408000180	1
X700	Resonator, CST10MTW-TF01	3938124010	1
21	Holder FL	6043010210	1
22	Switch Tact	4658004810	14

**PCB4 ASSEMBLY P.C. BOARD VOLUME**

C700	CAP, Electrolytic SG	10 uF 50 V M 3479310071	1
C701	CAP, Electrolytic SG	100 uF 10 V M 3479310121	1

Ref. No.	Description	Mfr. Part No.	Q'ty
C702	CAP, Electrolytic SG	100 uF 16 V M	3479310131 1
C703	CAP, Electrolytic SG	100 uF 10 V M	3479310121 1
CNT700	Connector, Wafer, 2P		4428508210 1
IC700	TA7291S, Bridge Driver		2168007204 1
Q700	TR, DTC114TS		2208622108 1
R700	RES, Metal Film	680 ohm 1/5 W J	3029681970 1
R701/R702	RES, Metal Film	1 kohm 1/5 W J	3029102970 2
R705	RES, Metal Film	4.7 ohm 1/5 W J	3029479970 1
R706	RES, Carbon Film	10 kohm 1/5 W J	3069103970 1
R707	RES, Metal Film	3 kohm 1/5 W J	3029302970 1
CNT114-1	Connector, Wafer, 13P, B'D to B'D Type		4428551320 1
CNT705-1	Connector, Wafer, 4P		4428513440 1
23	Volume Motor, 50 k(A)		3228020010 1

PCB5 ASSEMBLY P.C. BOARD VOLUME LED			
D700	LED, SLR 40MG3, Green		2308220324 1
CNT700-1	Lead Assy, 2P, 140mm		435102143481 1

PCB6 ASSEMBLY P.C. BOARD POWER CAPACITORS			
C601/C602	Mylar	0.047 uF 100 V J	3679473120 2
C603	Electrolytic SG	1000 uF 25 V M	3409310249 1
C604	Electrolytic SG	1 uF 50 V M	3479310971 1
C605	Electrolytic SG	100 uF 35 V M	3479310161 1
C606	SPK-Killer	0.0047 uF 250 V	3640472107 1

CONNECTORS			
CNT601	Pin Base, 3P		4428525790 1
CNT702-1	Wafer, 7P		4428505410 1
CNT603	Wafer, 3P to CNT122-1		4428536102 1
CNT604	Wafer, AC, 2P		4428100291 1
CNT602	Wafer, 4P		4428505410 1
CNT104	Lead Assy, 3P, 400mm, LV Type		435603403519 1
CNT101-1	Pin Base, 2P		4428525780 1
CNT607-1	Lead Assy, 2P, 450mm		436102453331 1

DIODES			
D601-D606	1N4003, Rectifier		2258128002 6
D607/D608	Zener, UZ 15 BCC		2258599109 2
D609	Zener, UZ 9.1BSC		2258599107 1

FUSES			
F601	GMC 3.15 A, 250 V		5508302735 1
F602	GMC 1 A, 250 V		5508302035 1
F603	GMC 3.15 A, 250 V		5508302735 1
F604	GMC 3.15 A, 250 V		5508302735 1
F605	GMC 500 mA, 250 V		5508301635 1

INTEGRATED CIRCUIT			
IC601	KIA7806PI, Regulator		2168601110 1

TRANSISTOR			
Q601	BKTC3198Y(KTC1815Y), NPN		2208606104 1

RESISTORS			
R601	Metal Film	4.7 ohm 1 W J	3029479470 1
R602	Metal Film	10 ohm 1 W J	3029100470 1
R603	Metal Film	1 kohm 1/5 W J	3029102970 1
R604	Metal Film	390 ohm 1 W J	3029391470 1
R605	Metal Film	100 ohm 1/5 W J	3029101970 1
R606	Carbon Film	15 kohm 1/5 W J	3069153970 1
R607	Carbon Film	47 kohm 1/5 W J	3069473970 1

MISCELLANEOUS			
ST-BY	Stand-by Transformer, 230 V, 50 Hz		2828090901 1
RELAY	Relay, SDT-SS-112DM		5528043000 1
	Clip Fuse		4255001010 2
	Pin Solder		4228001410 2
	Terminal Ground		4235007310 1
28	Outlet, AC		4448103610 1

PCB7 ASSEMBLY P.C. BOARD POWER LED			
D714/D715	LED, SPR-54MDW3, Green/Amber		2308222205 2

PCB8 ASSEMBLY P.C. BOARD HEADPHONE			
C716	CAP, Ceramic Disc	0.1 uF 50V Z	3579104530 1
C718	CAP, SPK-Killer	0.0047 uF 250 V	3549472107 1
C717L/R	CAP, Ceramic Disc	0.047 uF 50 V Z	3579473530 2
R741	RES, Metal Film	2.2 kohm 1/5 W J	3029222970 1

Ref. No.	Description	Mfr. Part No.	Q'ty
R742	RES, Carbon Film	10 kohm 1/5 W J	3069103970 1
R743L/R	RES, Metal Film	4.7 ohm 1/5 W J	3029479970 2
CNT111-1	Connector, Lead Assy, 5P, 280mm		436205283332 1
CNT122-1	Connector, Lead Assy, 3P, 350mm		435003352016 1
24	Switch Power, Push Type		4628055910 1
25	Jack Phone, Headphone, 9P		4438004510 1

PCB9 ASSEMBLY P.C. BOARD VCR2			
C704	CAP, Ceramic Disc	0.1 uF 50V Z	3579104530 1
C707/C708	CAP, Ceramic Tubular	100 pF 50 V K	3519101935 2
C709	CAP, Electrolytic SA	33 uF 16 V M	3479333031 1
R711/R712	RES, Metal Film	1 kohm 1/5 W J	3029102970 2
R713	RES, Metal Film	75 ohm 1/5 W J	3029750970 1
CNT113-1	Connector, Wafer, 5P, Angle		4428525550 1
27	Jack RCA, 3P, VCR		4438109710 1

PCB10 ASSEMBLY P.C. BOARD SURROUND AMP			
CAPACITORS			
C401	Electrolytic SG	47 uF 16 V M	3479347031 1
C402	Ceramic Tubular	100 pF 50 V K	3519101935 1
C403	Electrolytic SG	1 uF 50 V M	3479310971 1
C404	Electrolytic SG	47 uF 25 V M	3479347041 1
C405	Ceramic Tubular	47 pF 50 V K	3519470935 1
C406	Electrolytic SG	10 uF 50 V M	3479310071 1
C407	Electrolytic EC	1.7 uF 50 V J	3479347071 1
C408	Mylar	0.068 uF 100 V J	3679683120 1
C409	Mylar	0.047 uF 100 V J	3679473120 1
C410	Electrolytic SG	47 uF 16 V M	3479347031 1
C411	Ceramic Tubular	100 pF 50 V K	3519101935 1
C412	Electrolytic SG	1 uF 50 V M	3479310971 1
C413	Electrolytic SG	47 uF 25 V M	3479347041 1
C414	Ceramic Tubular	47 pF 50 V K	3519470935 1
C415	Electrolytic SG	10 uF 50 V M	3479310071 1
C416	Electrolytic SG	4.7 uF 50 V M	3479347971 1
C417	Mylar	0.068 uF 100 V J	3679683120 1
C418	Electrolytic EC	220 uF 50 V M	3409322179 1
C471	Electrolytic SG	220 uF 50 V M	3409322179 1
CONNECTORS			
CNT110-1	Wafer, 15P		4428561520 1
CNT117	Lead Assy, 2P, 120mm		436102123321 1
DIODES			
D401/D402	1N4148, Switching		2058322101 2
TRANSISTORS			
Q401	UIC114YS		22086022100 1
Q402	KTA1266Y(KTA1015Y), PNP		2208206105 1
Q403-Q405	KTA1268(KTA970BL), PNP		2208206104 3
Q406/Q407	BKTC3200BL(KTC2240BL), NPN		2208606108 2
Q408	KTA1024Y(BKA949Y), PNP		2208606105 1
Q409	KTC3206Y(BKTC2229Y), NPN		2208606118 1
Q410	2SC4137, NPN, Bias		2008622110 1
Q411	KSC2690AY, NPN		2008602102 1
Q412	KSA1220AY, PNP		2008202101 1
Q413	KTD718(2SD718), NPN		2028407109 1
Q414	KT8688(2SB688), PNP		2028107106 1
Q415	BKTC3198Y(KTC1815Y), NPN		2208606104 1
Q416	KTA1266Y(KTA1015Y), PNP		2208206105 1
Q417-Q419	KTA1268(KTA970BL), PNP		2208206104 3
Q420/Q421	BKTC3200BL(KTC2240BL), NPN		2208606108 2
Q422	KTA1024Y(BKA949Y), PNP		2208206102 1
Q423	KTC3206Y(BKTC2229Y), NPN		2208606118 1
Q424	2SC4137, NPN, Bias		2008622110 1
Q425	KSC2690AY, NPN		2008602102 1
Q426	KSA1220AY, PNP		2008202101 1
Q427	KTD718(2SD718), NPN		2028407109 1
Q428	KT8688(2SB688), PNP		2028107106 1
Q429	KTC3206Y(BKTC2229Y), NPN		2208606118 1
Q430	KRA107M(DTA114YS)		2238006103 1
Q431	KTD1302, NPN		2208606112 1
Q432	KRA107M(DTA114YS)		2238006103 1
Q433	KTD1302, NPN		2208606112 1
RESISTORS			
R401	Carbon Film	1 kohm 1/5 W J	3069102970 1
R402/R403	Carbon Film	33 kohm 1/5 W J	3069333970 2
R404	Carbon Film	10 kohm 1/5 W J	3069103970 1
R405	Carbon Film	270 ohm 1/5 W J	3069271970 1
R406/R407	Carbon Film	390 ohm 1/5 W J	3069391970 2
R408	Carbon Film	1 kohm 1/5 W J	3069102970 1
R409/R410	Carbon Film	1.5 kohm 1/5 W J	3069152970 2



Ref. No.	Description	Mfr. Part No.	Q'ty
R411-R415	Carbon Film	560 ohm 1/5 W J	3069561970 5
R416/R417	Carbon Film	82 ohm 1/5 W J	30699220970 2
R418/R419	Carbon Film	22 kohm 1/5 W J	3069223970 2
R420	Carbon Film	470 ohm 1/5 W J	3069471970 1
R421	Carbon Film	1.2 kohm 1/5 W J	3069122970 1
R422	Carbon Film	82 ohm 1/5 W J	3069820970 1
△ R423/R424	Cement	0.27 ohm 5 W J	3059278782 2
R425	Carbon Film	1.8 kohm 1/5 W J	3069182970 1
R426	Carbon Film	1.5 kohm 1/5 W J	3069152970 1
R427	Carbon Film	910 ohm 1/5 W J	3069911970 1
R428	Carbon Film	6.8 kohm 1/5 W J	3069682970 1
R431	Carbon Film	24 kohm 1/5 W J	3069243970 1
R433	Carbon Film	1 kohm 1/5 W J	3069102970 1
R434/R435	Carbon Film	33 kohm 1/5 W J	3069333970 2
R436	Carbon Film	10 kohm 1/5 W J	3069103970 1
R437	Carbon Film	270 ohm 1/5 W J	3069271970 1
R438/R439	Carbon Film	390 ohm 1/5 W J	3069391970 2
R440	Carbon Film	680 ohm 1/5 W J	3069681970 1
R441/R442	Carbon Film	1.5 kohm 1/5 W J	3069152970 2
R443-R447	Carbon Film	560 ohm 1/5 W J	3069561970 5
R448/R449	Carbon Film	82 ohm 1/5 W J	3069820970 2
R450/R451	Carbon Film	22 kohm 1/5 W J	3069223970 2
R452	Carbon Film	470 ohm 1/5 W J	3069471970 1
R453	Carbon Film	1.2 kohm 1/5 W J	3069122970 1
R454	Carbon Film	82 ohm 1/5 W J	3069820970 1
△ R455/R456	Cement	0.27 ohm 5 W J	3059278782 2
R457	Carbon Film	1.8 kohm 1/5 W J	3069182970 1
R458	Carbon Film	1.5 kohm 1/5 W J	3069152970 1
R459	Carbon Film	910 ohm 1/5 W J	3069911970 1
R460	Carbon Film	6.8 kohm 1/5 W J	3069682970 1
R463	Carbon Film	24 kohm 1/5 W J	3069243970 1
R465/R466	Carbon Film	33 kohm 1/5 W J	3069333970 2
R467/R468	Carbon Film	3.3 kohm 1/5 W J	3069332970 2
R469	Carbon Film	150 kohm 1/5 W J	3069154970 1
R470/R471	Metal Film	47 ohm 1 W J	3029470470 2

Ref. No.	Description	Mfr. Part No.	Q'ty
C365	Electrolytic SG	4.7 uF 50 V M	3479347971 1
C366	Ceramic Tubular	100 pF 50 V K	3519101935 1
C367	Ceramic Tubular	680 pF 50 V J	3519681935 1
C368	Electrolytic SG	4.7 uF 50 V M	3479347971 1
C369	Electrolytic SG	0.47 uF 50 V M	3479347871 1
C370	Ceramic Tubular	100 pF 50 V K	3519101935 1
C371	Ceramic Tubular	680 pF 50 V J	3519681935 1
C372	Electrolytic SG	0.47 uF 50 V M	3479347871 1
C373/C374	Electrolytic SG	47 uF 16 V M	3479347031 2
C375/LR	Electrolytic SG	4.7 uF 50 V M	3479347971 2
C376/LR	Ceramic Tubular	100 pF 50 V K	3519101935 2
C377/LR	Electrolytic SG	4.7 uF 50 V M	3479347971 2
C378/LR	Ceramic Tubular	33 pF 50 V K	3519330935 2
C380	Mylar	0.0033 uF 100 V J	3679332120 1
C383/LR	Ceramic Tubular	100 pF 50 V J	3519101935 2
C385/LR	Ceramic Tubular	100 pF 50 V J	3519101935 2

**CONNECTORS**

CNT108-1	Wafer, 15P	4428560150	1
CNT109-1	Wafer, 15P	4428560150	1

**DIODES**

D301/D302	1N4148, Switching	2058322101	2
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**INTEGRATED CIRCUITS**

IC301	NJM2177AFB3, Dolby Decoder	2169020000	1
IC302	TL19701, Time Delay	2168020114	1
IC303	TC9299, Electronic Volume	2168007210	1
IC304/IC305	KIA4559P (KIA75559P), OP Amp	2168206104	2

**TRANSISTORS**

Q301/Q302	DTC114YS	2208622106	2
Q303-Q305	KRA107M(DTA114YS)	2238006103	2
Q306/Q307	KTD1302, NPN	2208606112	2

**RESISTORS**

R301	Carbon Film	7.5 kohm 1/5 W J	3069752970 1
R302	Carbon Film	47 kohm 1/5 W J	3069473970 1
R303	Carbon Film	15 kohm 1/5 W J	3069153970 1
R304	Carbon Film	4.7 Mohm 1/5 W J	3069475970 1
R305/R306	Carbon Film	22 kohm 1/5 W J	3069223970 2
R307-R309	Carbon Film	100 kohm 1/5 W J	3069104970 3
R310	Carbon Film	10 kohm 1/5 W J	3069103970 1
R311	Carbon Film	68 ohm 1/5 W J	3069680970 1
R312	Carbon Film	100 kohm 1/5 W J	3069104970 1
R313	Carbon Film	100 kohm 1/5 W J	3069104970 1
R314	Carbon Film	100 kohm 1/5 W J	3069104970 1
R315	Carbon Film	15 kohm 1/5 W J	3069153970 1
R316/R317	Carbon Film	8.2 kohm 1/5 W J	3069822970 2
R318	Carbon Film	6.8 kohm 1/5 W J	3069682970 1
R319	Carbon Film	330 kohm 1/5 W J	3069334970 1
R320	Carbon Film	7.5 kohm 1/5 W J	3069752970 1
R321	Carbon Film	47 kohm 1/5 W J	3069473970 1
R322	Carbon Film	15 kohm 1/5 W J	3069153970 1
R323	Carbon Film	56 ohm 1/5 W J	3069560970 1
R324	Carbon Film	47 ohm 1/5 W J	3069470970 1
R325	Carbon Film	1 Mohm 1/5 W J	3069105970 1
R326/R327	Carbon Film	1 kohm 1/5 W J	3069102970 2
R328	Carbon Film	8.2 kohm 1/5 W J	3069822970 1
R329	Carbon Film	7.5 kohm 1/5 W J	3069752970 1
R330	Carbon Film	18 kohm 1/5 W J	3069183970 1
R331	Carbon Film	5.6 kohm 1/5 W J	3069562970 1
R332/R333	Carbon Film	22 ohm 1/5 W J	3069220970 2
R334	Carbon Film	15 kohm 1/5 W J	3069153970 1
R335	Carbon Film	18 kohm 1/5 W J	3069183970 1
R336	Carbon Film	15 kohm 1/5 W J	3069153970 1
R338/R339	Carbon Film	150 ohm 1/5 W J	3069151970 2
R340-R342	Carbon Film	1 kohm 1/5 W J	3069102970 3
R343/R344	Carbon Film	150 ohm 1/5 W J	3069151970 2
R346	Carbon Film	100 kohm 1/5 W J	3069104970 1
R347	Carbon Film	8.2 kohm 1/5 W J	3069822970 1
R348	Carbon Film	1.8 kohm 1/5 W J	3069182970 1
R349	Carbon Film	100 kohm 1/5 W J	3069104970 1
R351	Carbon Film	47 kohm 1/5 W J	3069473970 1
R352	Carbon Film	8.2 kohm 1/5 W J	3069822970 1
R353	Carbon Film	1.0 kohm 1/5 W J	3069182970 1
R354	Carbon Film	10 kohm 1/5 W J	3069103970 1
R355/R356	Carbon Film	150 ohm 1/5 W J	3069151970 2
R358/LR	Carbon Film	100 kohm 1/5 W J	3069104970 2
R359/LR	Carbon Film	1.5 kohm 1/5 W J	3069152970 2
R360/LR	Carbon Film	9.1 kohm 1/5 W J	3069912970 2
R361/LR	Carbon Film	100 kohm 1/5 W J	3069104970 2
R362/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
R363/R364	Carbon Film	3.3 kohm 1/5 W J	3069332970 2

**PCB11 ASSEMBLY P. C. BOARD SURROUND**

<b>CAPACITORS</b>			
C301	Mylar	0.047 uF 100 V J	3679473120 1
C302/C303	Mylar	0.1 uF 63 V K	3679104297 2
C304	Poly	680 pF 50 V J	3615681110 1
C305	Mylar	0.047 uF 100 V J	3679473120 1
C306	Electrolytic SG	22 uF 50 V M	3479322071 1
C307-C309	Electrolytic SG	10 uF 50 V M	3479310071 3
C310	Electrolytic SG	22 uF 50 V M	3479322071 1
C311	Mylar	0.0047 uF 100 V J	3679472120 1
C312	Electrolytic SG	0.47 uF 50 V M	3479347871 1
C313/C314	Electrolytic SG	4.7 uF 50 V M	3479347971 2
C315	Electrolytic SG	0.22 uF 50 V M	3479322871 1
C316	Electrolytic SG	10 uF 50 V M	3479310071 1
C317	Electrolytic SG	220 uF 16 V M	3479322131 1
C318/C319	Electrolytic SG	4.7 uF 50 V M	3479347971 2
C320	Mylar	0.0056 uF 100 V J	3679562120 1
C321	Electrolytic SG	220 uF 10 V M	3479322121 1
C322	Mylar	0.047 uF 100 V J	3679473120 1
C323	Ceramic Disc	470 pF 50 V J	3579471130 1
C324	Mylar	0.047 uF 100 V J	3679473120 1
C325	Mylar	0.0056 uF 100 V J	3679562120 1
C326	Mylar	0.047 uF 63 V K	3679224297 1
C327-C329	Mylar	0.22 uF 63 V K	3679224297 3
C330/C331	Electrolytic SG	4.7 uF 50 V M	3479347971 2
C332	Mylar	0.22 uF 63 V K	3679224297 1
C333-C336	Mylar	0.1 uF 63 V K	3679104297 4
C337/C338	Mylar	0.022 uF 100 V J	3679223120 2
C339/C340	Mylar	0.1 uF 63 V K	3679104297 2
C341	Poly	680 pF 50 V J	3615681110 1
C342	Electrolytic SG	100 uF 10 V M	3479310121 1
C343	Ceramic Tubular	0.1 uF 50 V K	3519104935 1
C344	Electrolytic SG	100 uF 10 V M	3479310121 1
C345/C346	Ceramic Disc	270 pF 50 V J	3579271130 2
C347	Ceramic Tubular	100 pF 50 V K	3519101935 1
C348/C349	Mylar	0.0056 uF 100 V J	3679562120 2
C350	Ceramic Disc	470 pF 50 V J	3579471130 1
C351	Mylar	0.1 uF 63 V J	3679104297 1
C352	Electrolytic SG	47 uF 10 V M	3479347031 1
C353/C354	Mylar	0.047 uF 100 V J	3679473120 2
C355	Mylar	0.1 uF 63 V J	3679104297 1
C356	Ceramic Disc	470 pF 50 V J	3579471130 1
C357	Electrolytic SG	1 uF 50 V M	3479310971 1
C358/C359	Electrolytic SG	47 uF 16 V M	3479347031 2
C360/C361	Ceramic Tubular	0.1 uF 50 V K	3519104935 2
C362	Ceramic Tubular	100 pF 50 V K	3519101935 1
C363/C364	Electrolytic SG	47 uF 16 V M	3479347031 2

Ref. No.	Description			Mfr. Part No.	Q'ty
R365	Carbon Film	1	kohm 1/5 W J	3069102970	1
R366-R368	Carbon Film	10	kohm 1/5 W J	3069104970	3
R370LR	Carbon Film	1.5	kohm 1/5 W J	3069152970	2
R371LR	Carbon Film	1	kohm 1/5 W J	3069102970	2
<b>MISCELLANEOUS</b>					
X301	Resonator, CSA2.00MG			3938131740	1
11	Jack RCA, 4P			4438103110	1
17	Jack RCA, Sub Output, 2P			4438111310	1

**PCB12 ASSEMBLY P.C. BOARD VIDEO**

<b>CAPACITORS</b>					
C501	Ceramic Tubular	5	pF 50 V D	3519050935	1
C502	Electrolytic SG	33	uF 16 V M	3479333031	1
C603	Ceramic Tubular	5	pF 50 V D	3519050935	1
C504/C505	Electrolytic SG	470	uF 10 V M	3479347121	2
C506	Electrolytic SG	100	uF 10 V M	3479310121	1
C507	Ceramic Tubular	0.1	uF 50 V Z	3519104935	1

<b>INTEGRATED CIRCUIT</b>					
IC501	GD4068B, Switching			2138001101	1

<b>TRANSISTORS</b>					
Q501	BKTC3198Y(KTC1815Y), NPN			2208606104	1
Q502	KTA1266Y(KTA1015Y), PNP			2208206105	1
Q503	BKTC3198Y(KTC1815Y), NPN			2208606104	1
Q504	KTA1266Y(KTA1015Y), PNP			2208206105	1

<b>RESISTORS</b>					
R501	Carbon Film	8.2	kohm 1/5 W J	3069822970	1
R502	Carbon Film	12	kohm 1/5 W J	3069123970	1
R503	Carbon Film	150	ohm 1/5 W J	3069151970	1
R504/R505	Carbon Film	1.2	kohm 1/5 W J	3069122970	2
R506	Carbon Film	180	ohm 1/5 W J	3069181970	1
R507	Carbon Film	75	ohm 1/5 W J	3069750970	1
R508	Carbon Film	12	kohm 1/5 W J	3069123970	1
R509	Carbon Film	8.2	kohm 1/5 W J	3069822970	1
R510	Carbon Film	1.2	kohm 1/5 W J	3069122970	1
R511	Carbon Film	150	ohm 1/5 W J	3069151970	1
R512	Carbon Film	1.2	kohm 1/5 W J	3069122970	1
R513	Carbon Film	180	ohm 1/5 W J	3069181970	1
R514/R515	Carbon Film	75	ohm 1/5 W J	3069750970	2
R516	Carbon Film	100	ohm 1/5 W J	3069101970	1
R517/R518	Carbon Film	100	kohm 1/5 W J	3069104970	2

<b>MISCELLANEOUS</b>					
CNT112-1	Connector, Wafer, 6P			4438302927	1
20	Jack RCA(VCR1/Monitor), 3P			4438114310	1

**PCB13 ASSEMBLY P.C. BOARD CENTER SPEAKER**

CF401/402	CAP, Ceramic Tubular	4700	pF 16 V K	3519472935	2
R423/R430	RES, Carbon Film	22	ohm 1/5 W J	3069230970	2
R432	RES, Metal Film	10	ohm 1 W J	3029100470	1
L401	Coil, Inductor, 0.5 mH			2648001010	1
CNT117-1	Connector, Wafer, 2P			4428508210	1
19	Terminal Speaker Center, Screw Type, 2P			4408108710	1

**PCB14 ASSY P.C. BOARD REAR SPEAKER**

CF403	CAP, Ceramic	3300	pF 16 V K	3519332935	1
C418	CAP, Mylar	0.047	uF 100 V J	3679473120	1
R461/R462	RES, Carbon Film	22	ohm 1/5 W J	3069220970	2
R464	RES, Metal Film	10	ohm 1 W J	3029100470	1
L402	Coil, Inductor, 0.5 mH			2648001010	1
13	Terminal Speaker Rear, 4P			4408108910	1

**PCB15 ASSEMBLY P.C. BOARD TUNER**

<b>CAPACITORS</b>					
C801	Electrolytic SG	100	uF 25 V M	3479310141	1
C802	Ceramic Tubular	0.022	uF 25 V K	3519223520	1
C804-809	Ceramic Tubular	0.022	uF 25 V K	3519223520	6
C810	Electrolytic SG	47	uF 25 V M	3479347041	1
C811	Ceramic Tubular	82	pF 50 V J	3519820935	1
C812	Ceramic Tubular	100	pF 50 V J	3519101935	1
C813	Mylar	0.039	uF 100 V J	3679393120	1
C814	Ceramic Tubular	100	pF 50 V J	3519101935	1
C815	Electrolytic SG	0.47	uF 50 V M	3479347871	1
C816	Ceramic Tubular	0.022	uF 25 V K	3519223520	1
C817	Electrolytic SG	4.7	uF 50 V M	3479347971	1
C818	Electrolytic SG	3.3	uF 50 V M	3479333971	1
C819	Electrolytic SG	4.7	uF 50 V M	3479347971	1

C820	Ceramic Tubular	47	pF 50 V J	3519470935	1
C821	Ceramic Tubular	0.022	uF 25 V K	3519223520	1
C822	Mylar	0.0033	uF 100 V J	3679332120	1
C823	Electrolytic SG	2.2	uF 50 V M	3479322971	1
C824/825	Ceramic Disc CH	18	pF 50 V J	3528180210	2
C826	Ceramic Tubular	100	pF 50 V J	3519101935	1
C829	Ceramic Tubular	0.01	uF 16 V Z	3519103915	1
C830	Electrolytic SG	1	uF 50 V M	34793470971	1
C831	Electrolytic SG	47	uF 25 V M	3479347041	1
C832	Ceramic Tubular	0.022	uF 25 V K	3519223520	1
C833	Electrolytic SG	47	uF 25 V M	3479347041	1
C834	Ceramic Tubular	0.022	uF 25 V K	3519223520	1
C835	Mylar	0.047	uF 100 V J	3679473120	1
C836	Poly	470	pF 50 V J	3615471110	1
C837	Electrolytic SG	10	uF 50 V M	3479310071	1
C838	Ceramic Tubular	0.022	uF 25 V K	3519223520	1
C839	Ceramic Tubular	0.01	uF 16 V Z	3519103915	1
C840	Electrolytic SG	3.3	uF 50 V M	3479333971	1
C841/842	Electrolytic SG	1	uF 50 V M	3479310971	2
C843	Electrolytic SG	3.3	uF 50 V M	3479333971	1
C844	Mylar	0.001	uF 100 V J	3679102120	1
C845	Mylar	0.047	uF 100 V J	3679473120	1
C846	Ceramic Tubular	680	pF 50 V J	3519681935	1
C847/848	Electrolytic SG	22	uF 35 V M	3479322061	2
C849/850	Mylar	0.001	uF 100 V J	3679102120	2
C851	Ceramic Disc	270	pF 50 V J	3579271130	1
C852/853	Electrolytic SG	4.7	uF 50 V M	3479347971	2
C854/855	Mylar	0.0022	uF 100 V J	3679222120	2
C858	Electrolytic SG	100	uF 25 V M	3479310141	1
C860	Ceramic Tubular	0.022	uF 25 V K	3519223520	1
C861	Ceramic Tubular	270	pF 50 V J	3519271935	1
C867	Electrolytic SG	47	uF 25 V M	3479347041	1
C868	Ceramic Tubular	0.022	uF 25 V K	3519223520	1
C869	Electrolytic SG	10	uF 50 V M	3479310071	1
C870	Ceramic Tubular	0.1	uF 50 V Z	3519104935	1
C871/C872	Ceramic Tubular	27	pF 50 V J	3519270935	2
C873/C874	Ceramic Tubular	0.1	uF 50 V Z	3519104935	2
C875	Electrolytic SG	10	uF 50 V M	3479310071	1
C876	Ceramic Tubular	0.0022	uF 16 V J	3519222915	1
TC801	Trimmer, 20 pF			3838001010	1
TC802	Trimmer, 10 pF			3838001000	1

<b>FILTERS</b>					
CF801-803	SFE10.7MS3GH			3978011011	3
CF804	SFZ450F			3908001380	1
CF805	BFU450C			3908001020	1

<b>CONNECTORS</b>					
CNT703-1	Wafer, GIL-07P-S			4428525570	1
CNT106-1	Wafer, GB200-10S-LS			4428560100	1

<b>DIODES</b>					
D801	Zener, UZ 5.1 BSB			2258599103	1
D802/D803	1N4148, Switching			2058322101	2
D805	Zener, UZ 5.1BSB			2258599103	1
D806	1N4148, Switching			2058322101	1
VD1/VD2	KV1236Z, Diode, Varactor			2058819106	1

<b>INTEGRATED CIRCUITS</b>					
IC801	LA1266, AM/FM IF			2168017128	1
IC802	LM7001, PLL			2138017112	1
IC803	HA12016, MPX			2168411105	1
IC804	TDA7330B, RDS Decoder			2138025001	1
IC805	LC7073, Error Correction			2168017145	1

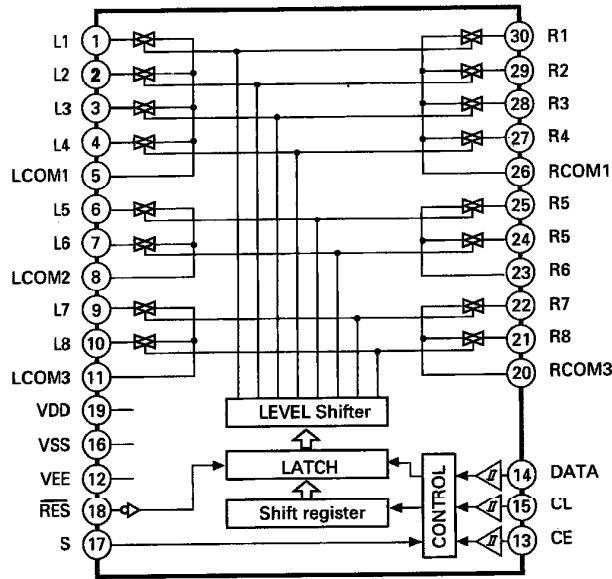
<b>TRANSISTORS</b>					
Q801	KTC1923Y/KTC3194, NPN			2208406103	1
Q802	2SK168, FET			2018211100	1
Q803	BKTC3200BL(KTC2240BL), NPN			2208606108	1
Q804	KRA107M(DTA114YS)			2238006103	1
Q805/806	KTD1302, NPN			2208606112	2
Q807/Q808	KRA107M(DTA114YS)			2238006103	2
Q809	BKTC3198Y(KTC1815Y), NPN			2208606104	1

<b>RESISTORS</b>					
R801	Carbon Film	100	kohm 1/5 W J	3069104970	1
R802	Carbon Film	62	kohm 1/5 W J	3069623970	1
R803	Carbon Film	470	ohm 1/5 W J	3069471970	1
R804	Carbon Film	3.3	kohm 1/5 W J	3069332970	1
R805/806	Carbon Film	330	ohm 1/5 W J	3069331970	2
R807	Carbon Film	10	kohm 1/5 W J	3069103970	1
R808	Carbon Film	3.3	kohm 1/5 W J	3069332970	1
R809	Carbon Film	33	kohm 1/5 W J	3069333970	1
R810	Carbon Film	82	ohm 1/5 W J	3069820970	1

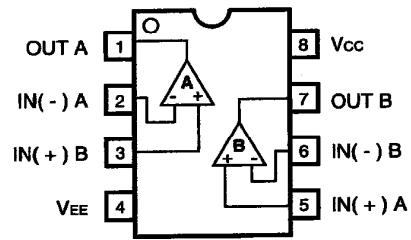
Ref. No.	Description		Mfr. Part No.	Q'ty
R811	Carbon Film	22 kohm 1/5 W J	3069223970	1
R812	Carbon Film	10 kohm 1/5 W J	3069103970	1
R813	Carbon Film	68 kohm 1/5 W J	3069683970	1
R814	Carbon Film	4.3 kohm 1/5 W J	3069432970	1
R815	Carbon Film	5.6 kohm 1/5 W J	3069562970	1
R816	Carbon Film	2.4 kohm 1/5 W J	3069242970	1
R817/818	Carbon Film	100 kohm 1/5 W J	3069104970	2
R819	Carbon Film	10 kohm 1/5 W J	3069103970	1
R820	Carbon Film	4.7 kohm 1/5 W J	3069472970	1
R821-823	Carbon Film	1 kohm 1/5 W J	3069102970	3
R824	Carbon Film	820 ohm 1/5 W J	3069821970	1
R825	Carbon Film	1.5 kohm 1/5 W J	3069152970	1
R826	Carbon Film	10 kohm 1/5 W J	3069103970	1
R827	Carbon Film	1 kohm 1/5 W J	3069102970	1
R828	Carbon Film	100 ohm 1/5 W J	3069101970	1
R829/830	Carbon Film	100 kohm 1/5 W J	3069104970	2
R831/832	Carbon Film	22 kohm 1/5 W J	3069223970	2
R833/834	Carbon Film	1.8 kohm 1/5 W J	3069182970	2
R835/836	Carbon Film	51 kohm 1/5 W J	3069513970	2
R837	Carbon Film	3.9 kohm 1/5 W J	3069392970	1
R838/839	Carbon Film	2.4 kohm 1/5 W J	3069242970	2
R840/841	Carbon Film	3.3 kohm 1/5 W J	3069332970	2
R842/843	Carbon Film	1 kohm 1/5 W J	3069102970	2
R844/845	Carbon Film	3.3 kohm 1/5 W J	3069332970	2
R846	Carbon Film	1.8 kohm 1/5 W J	3069182970	1
R847	Carbon Film	47 kohm 1/5 W J	3069473970	1
R848/R849	Carbon Film	22 ohm 1/5 W J	3069220970	2
R850	Carbon Film	1 kohm 1/5 W J	3069102970	1
R851/R852	Carbon Film	680 ohm 1/5 W J	3069681970	1
R854	Carbon Film	2.2 Mohm 1/5 W J	3069225970	1
R855-R858	Carbon Film	10 kohm 1/5 W J	3069103970	4
R861	Carbon Film	33 kohm 1/5 W J	3069333970	1
R862/R863	Carbon Film	33 ohm 1/5 W J	3069330970	2
R865	Carbon Film	4.7 kohm 1/5 W J	3069472970	1
R867	Carbon Film	10 kohm 1/5 W J	3069103970	1
R868	Carbon Film	100 kohm 1/5 W J	3069104970	2
R869	Carbon Film	1 kohm 1/5 W J	3069102970	1
R870	Carbon Film	5.6 kohm 1/5 W J	3069562970	1
R888/889	Carbon Film	270 ohm 1/5 W J	3069271970	2
R890/891	Carbon Film	220 ohm 1/5 W J	3069221970	2
R892-897	Carbon Film	270 ohm 1/5 W J	3069271970	6
R898	Carbon Film	330 ohm 1/5 W J	3069331970	1
R899	Carbon Film	470 ohm 1/5 W J	3069471970	1
<b>COILS</b>				
L801	Inductor, 20.8 mH		2648601430	1
T801	AM ANT		2608201120	1
T802	OSC., AM		2638201150	1
T803	FM Quad DET(A)		2628000100	1
T804	FM Quad DET(B)		2628000110	1
T805	AM IFT, P-7SB		2648001250	1
T806/807	MPX 19 k/38 kHz, Coil, Black		2658001050	2
<b>SEMI FIXED RESISTORS</b>				
VR801	20 k(B)		3248020343	1
VR802	50 k(B)		3248050343	1
VR803	5 k(B)		3248050243	1
VR804	500 k(B)		3248050443	1
<b>MISCELLANEOUS</b>				
29	Terminal Antenna		4408108210	1
FE1	FM Front End, FE407-G60		3928801890	1
X801	Crystal, 7.2MHz		3938223003	1
X802	Crystal, 4.332 MHz		3938201920	1
X803	Resonator, 4.00MGW		3938131570	1

# IC FUNCTIONAL BLOCK DIAGRAM

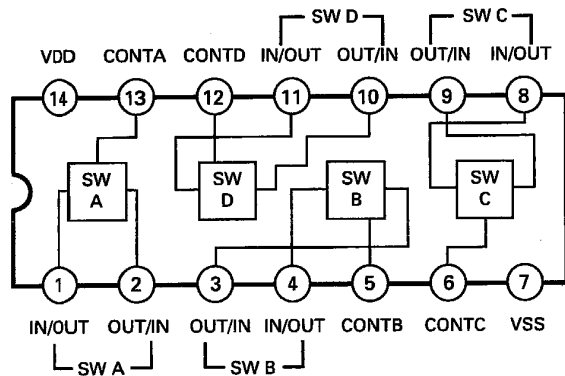
**IC101 : LC7821 (Analog Function Switch)**



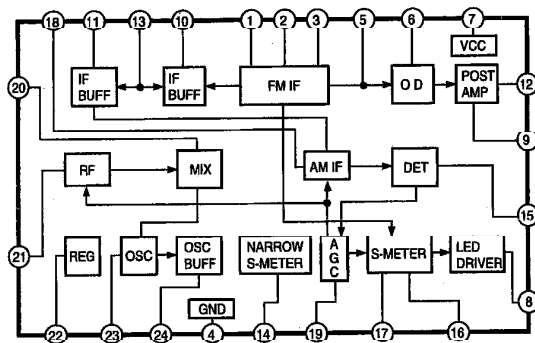
**IC102. IC105. IC304, IC305 : KIA4559P (OP-Amp)**



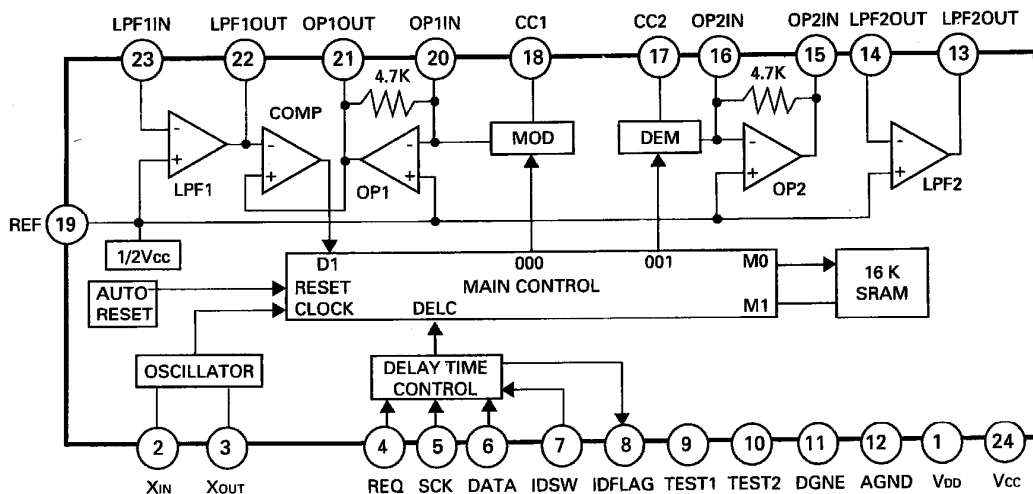
**IC103 : LC4966B (Quad Analog Switch)**



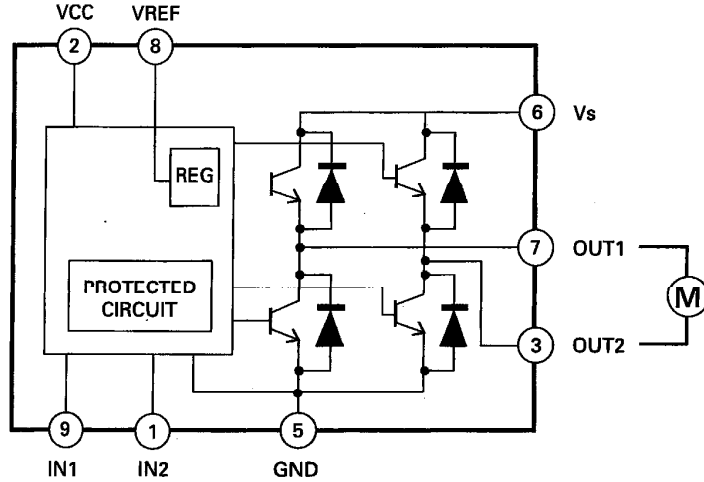
**IC801 : LA1266 (AM/FM IF)**



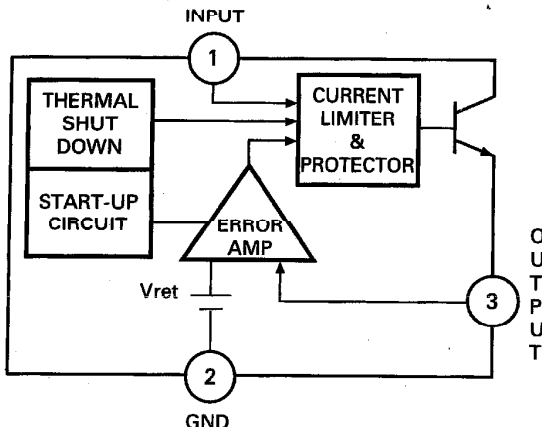
**IC302 : NJU9701 (Time Delay)**



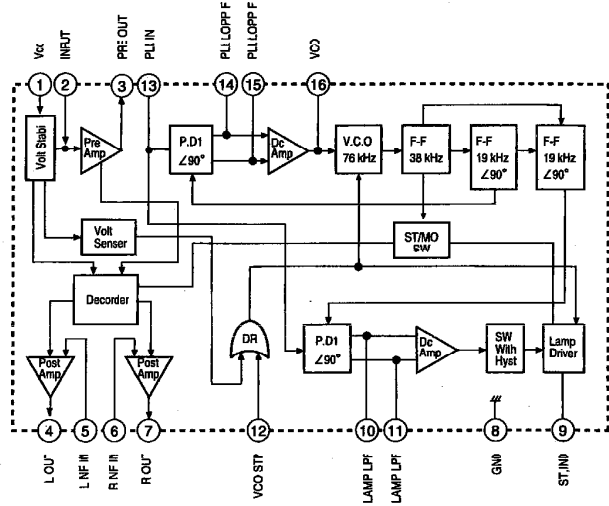
**IC700 : TA7291S (Bridge Driver)**



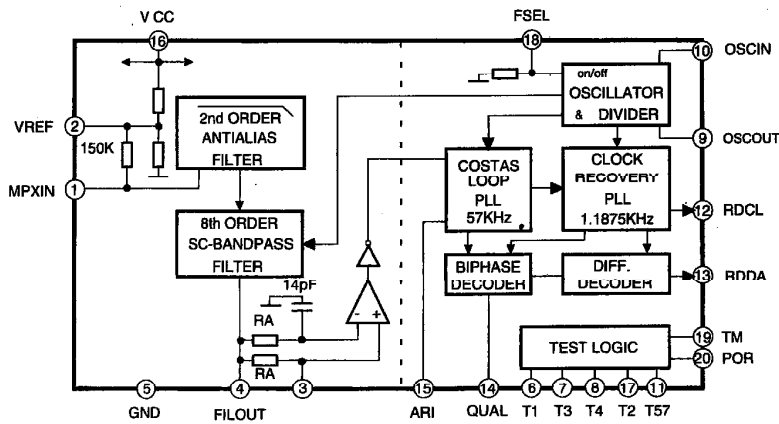
**IC106, IC601 : GD7806PI (Regulator)**



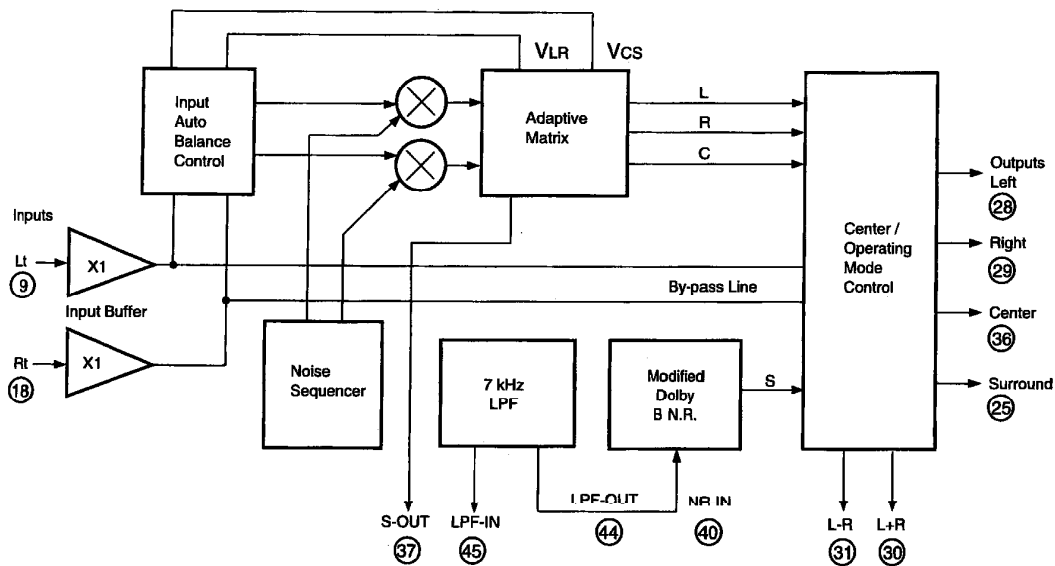
**IC803 : HA12016 (MPX)**



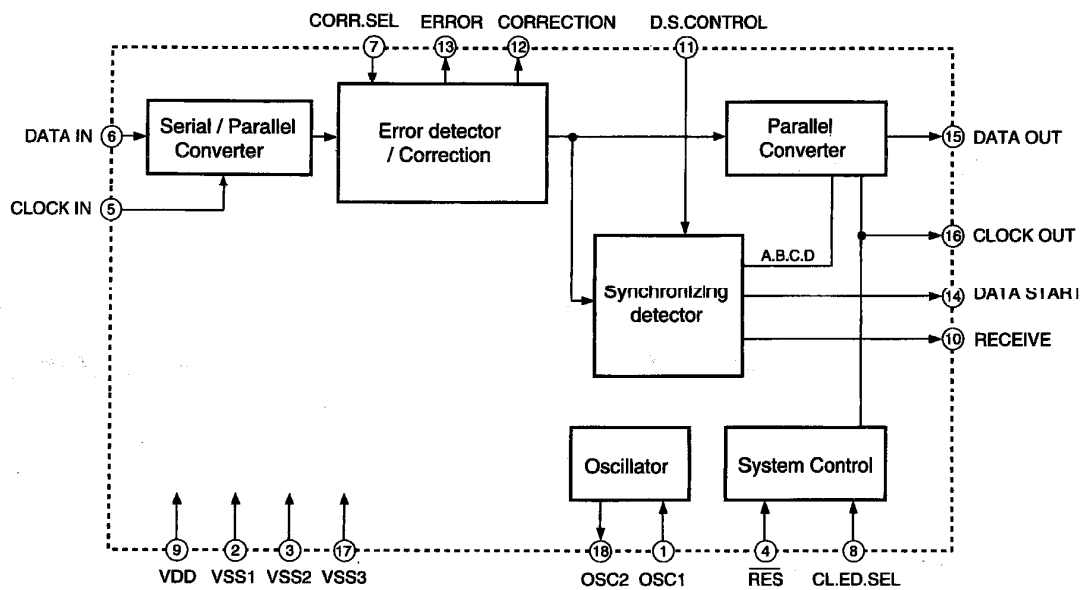
**IC804 : TDA7330B (RDS Decoder)**



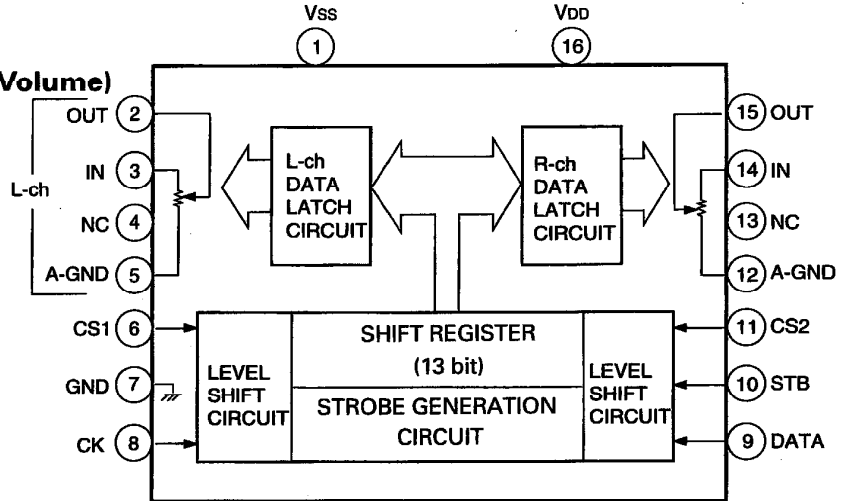
**IC301 : NJM2177AFB3 (Dolby Decoder)**



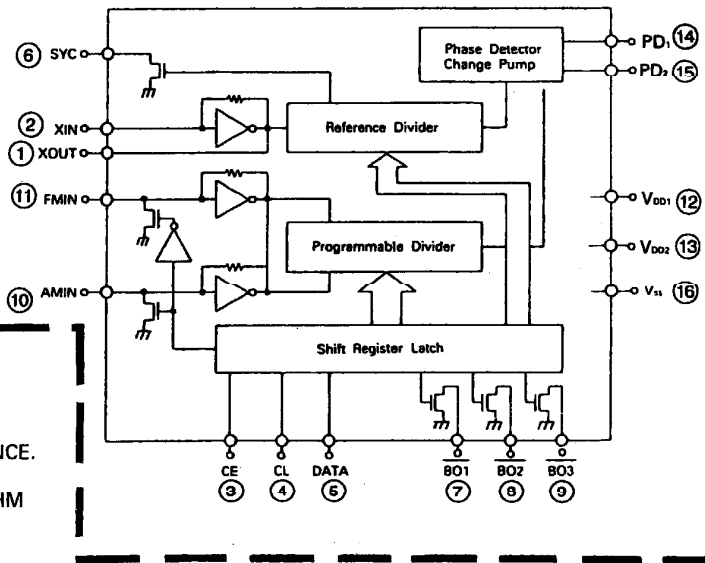
**IC805 : LC7073 (Error Correction)**



**IC303 : TC9299 (Electronic Volume)**



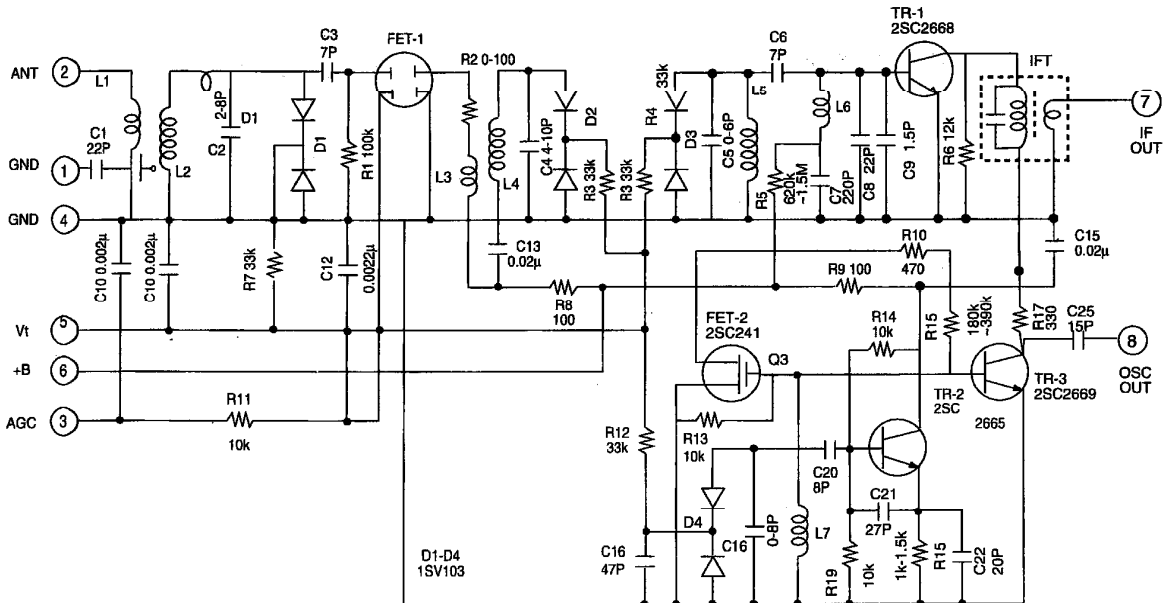
**IC802 : LM7001 (PLL)**



**FE1 : FM FRONT - END (FE 407-G60)**

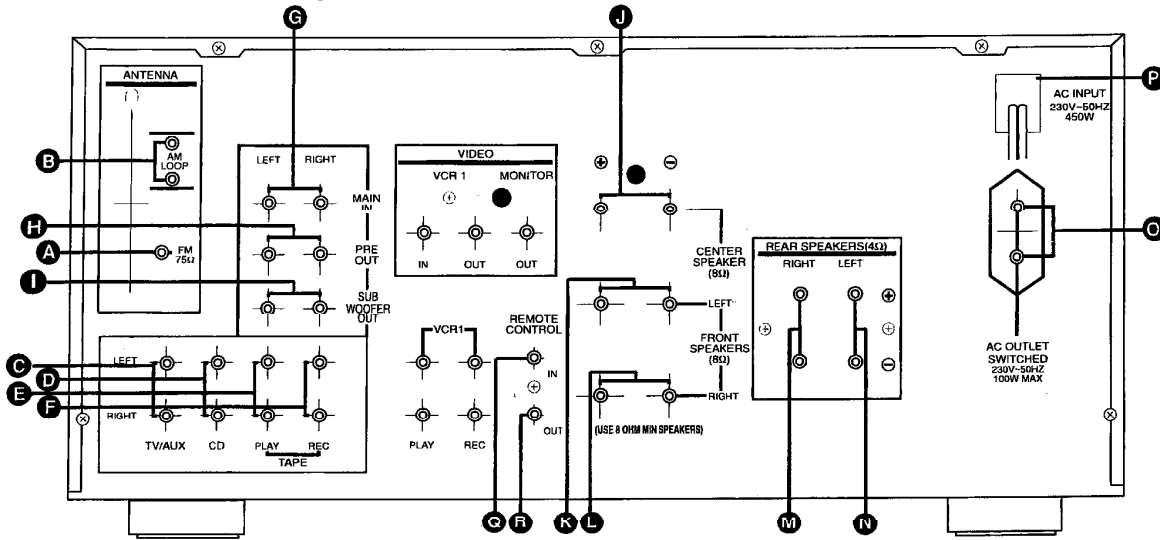
**NOTES**

- 1) TERMINAL NUMBER REFER TO OVERALL APPEARANCE.
- 2) RECEIVING FREQUENCY : 87.5 ~ 108 MHz
- 3) INPUT IMPEDANCE : ① ~ ④ 75 OHM, ① ~ ② 300 OHM
- 4) OUTPUT IMPEDANCE : 360 OHMS
- 5) SUPPLY VOLTAGE : +B → 12 V
- 6) TUNING VOLTAGE : Vt 1.6 ~ 8.0 V
- 7) AGC VOLTAGE : 5 V



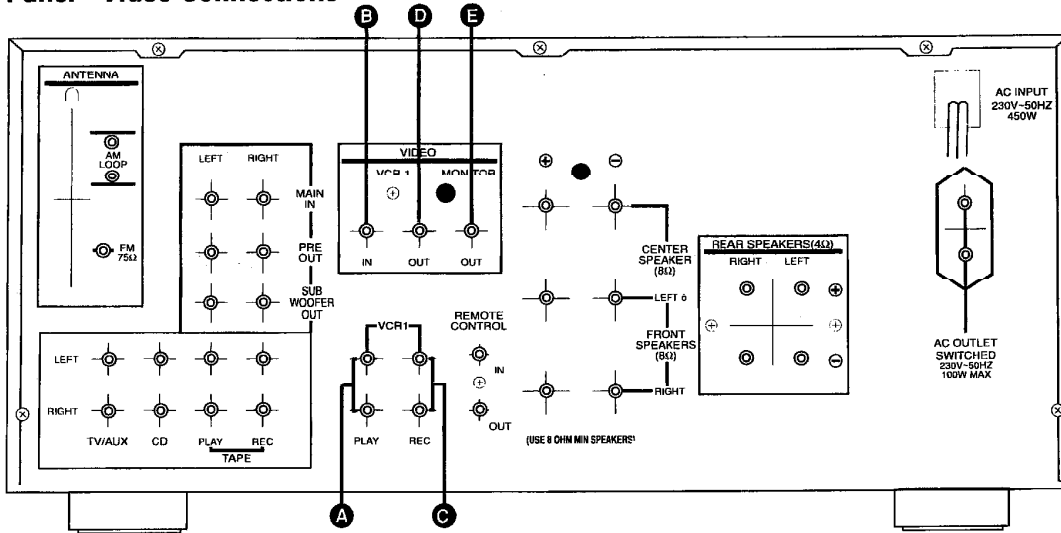
# REAR PANEL CONNECTIONS

## Rear Panel - Audio and System Connections



- A** FM Antenna
- B** AM Antenna
- C** TV/AUX In
- D** CD In
- E** Tape In
- F** Tape Out (REC)
- G** Main Amp In
- H** Pre Amp Out
- I** Subwoofer Pre-Out
- J** Center-Speaker
- K** Front L-Speaker
- L** Front R-Speaker
- M** Rear R-Speaker
- N** Rear L-Speaker
- O** Switched AC Outlet
- P** Power Cable
- Q** Remote Control-In
- R** Remote Control-Out

## Rear Panel - Video Connections



- A** VCR1 Audio In
- B** VCR1 Video In
- C** VCR1 Audio Out (REC)
- D** VCR1 Video Out
- E** TV Monitor Out



**PACKAGE**

