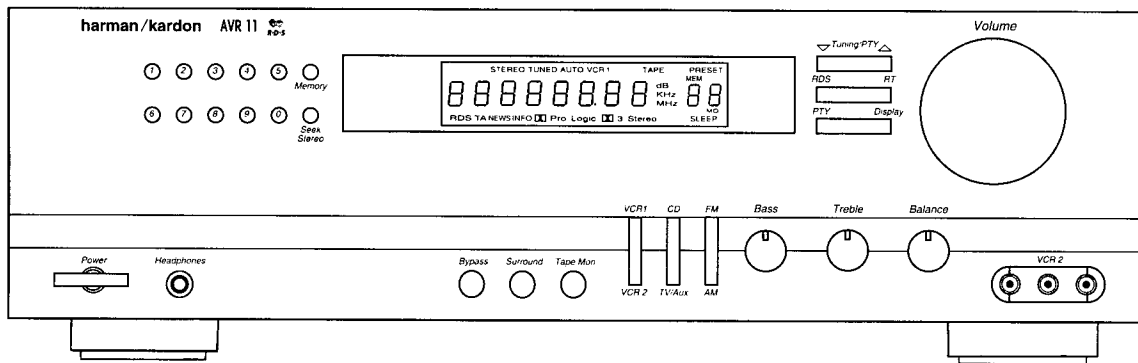


The Harman Kardon Model AVR11

Manual A

AUDIO AND VIDEO RECEIVER

Technical Manual



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harman/kardon

Parts and Service Office
80 Crossways Park West, Woodbury, N.Y. 11797
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 _{p-p} /75 Ω	1 V _{p-p} /75 Ω
Output Level/Impedance		
VCR1, REC out, TV Monitor out	1 V _{p-p} /75 Ω	1 V _{p-p} /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 (50 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)

	Nominal	Limit
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.

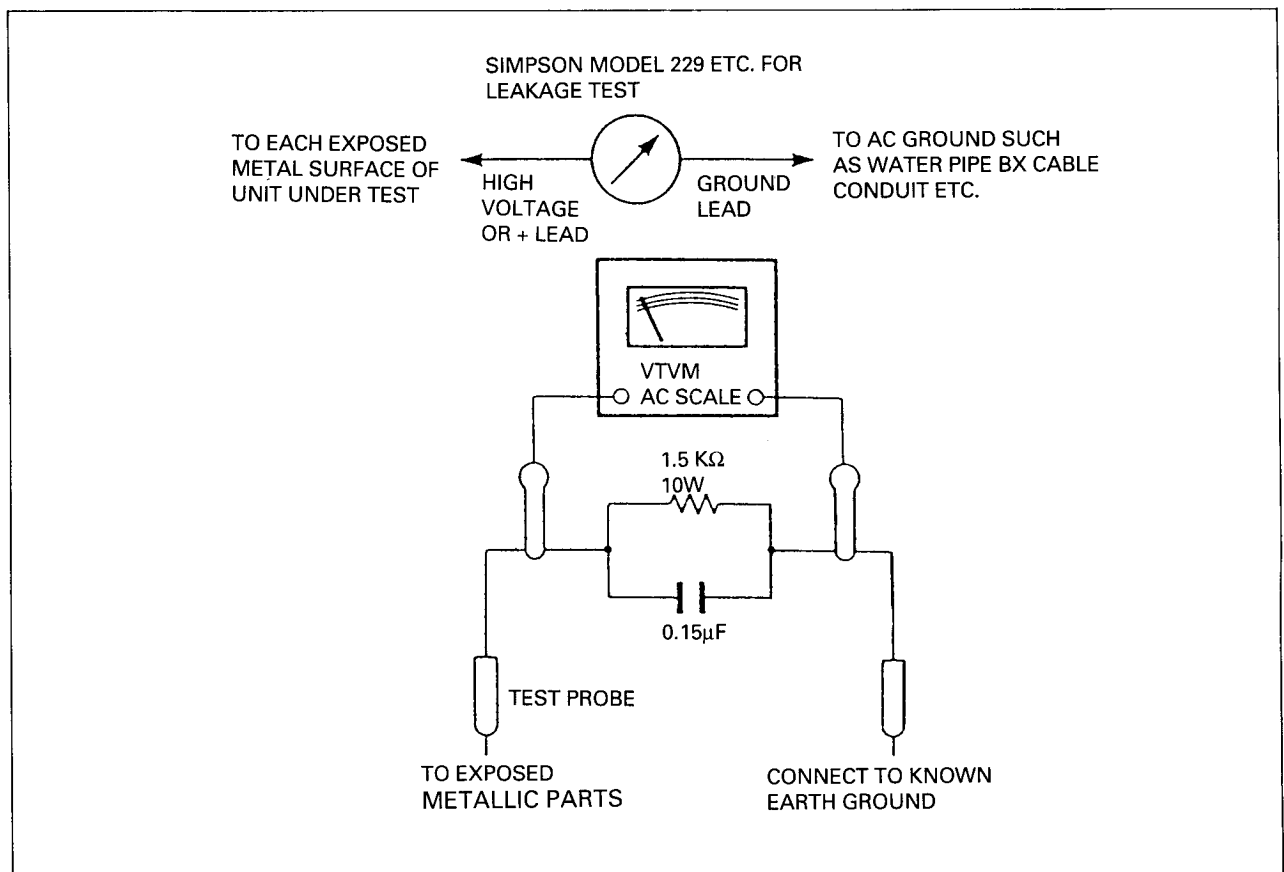
LEAKAGE TEST

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

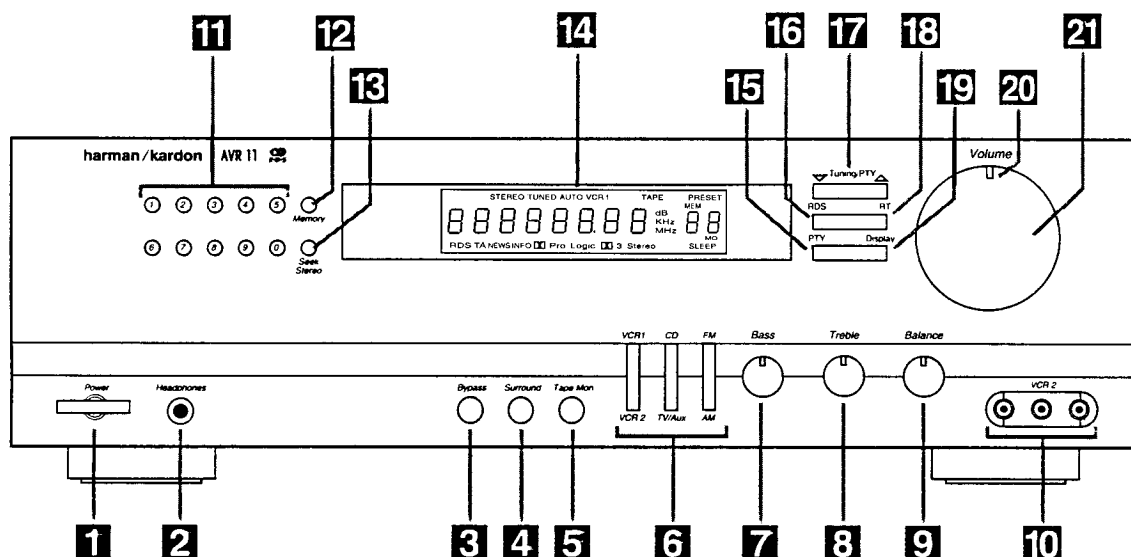
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metallic parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers 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 μ 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 ± 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 ± 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 two weeks, all stored frequencies will be erased.

13 SEEK / STEREO Button: Press this button, **AUTO** will illuminate in the display. Then press the Tune/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 SELECTOR 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 ▲ ▼: When the tuner is selected, pressing ▼ tunes to stations with lower frequency, pressing ▲ 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 RT 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 RT message the display will indicate **NO RT**.

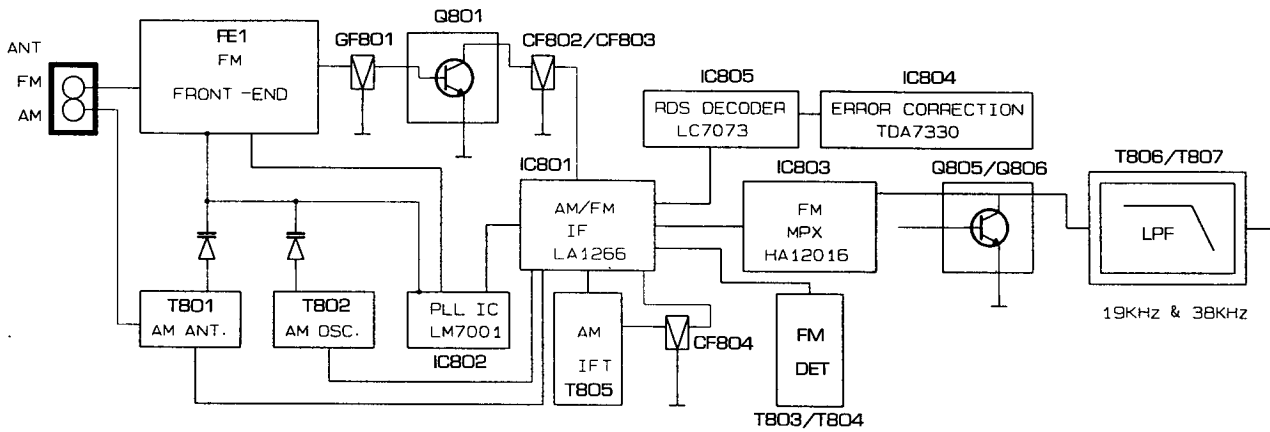
19 RDS DISPLAY Button: Pressing this button when the RDS system is engaged will change messages in the display window. The normal display is the Station Name. Press the button once to display the Programme Type (PTY) and again show the correct clock time (CT). Press again to return to the Station Name. If no data is available for the station being tuned, a message to 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 17** 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 motorized, and will rotate automatically when the volume is changed with the remote control.

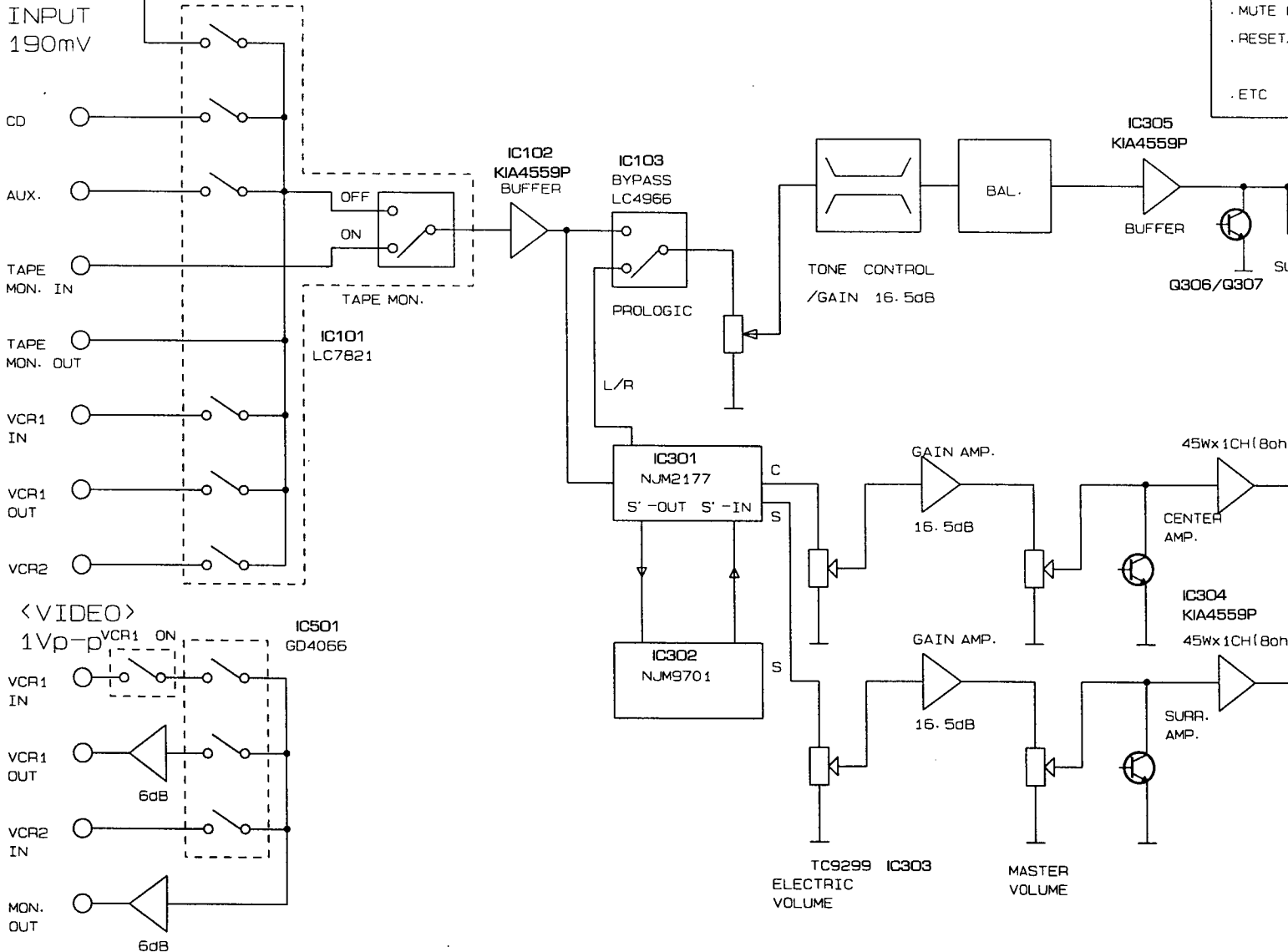
BLOCK DIAGRAM

< TUNER >



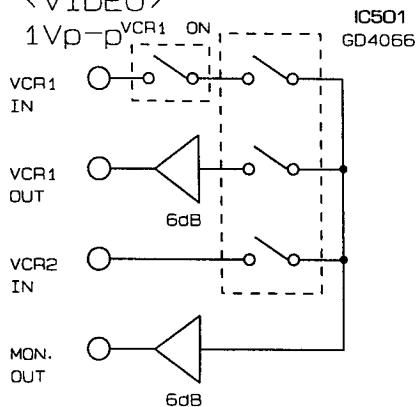
< AUDIO >

INPUT
190mV



< VIDEO >

1Vp-p



- . LC7821
- . LM7001
- . NJM2177
- . GD4966
- . TUNED
- . STEREO
- . H/P C
- . TUNED
- . CLK/D
- . CLK/D
- . PROTE
- . VOL. U
- . MUTE
- . RESET
- . ETC

- . LC7821 STROBE
- . LM7001 STROBE
- . NJM2177A/NJU9701 CONTROL
- . GD4966/GD4066 SWITCHING PULSE
- . TUNED
- . STEREO
- . H/P CHECK / MUTE
- . TUNED /FRONT/CENTER SURR. MUTE
- . CLK/DATA (AMP)
- . CLK/DATA (TUNER)
- . PROTECTION PULSE CHECK PORT
- . VOL. UP/DOWN
- . MUTE LED BLINKING PORT
- . RESET/POWER-DOWN CHECK PORT
- . ETC

F/L DISPLAY

IC701
MICOM
CXP 82432A

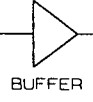
REMOTE CONTROL SENSOR

COMMANDER

KEY MATRIX

5.6

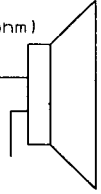
IC305
KIA4559P



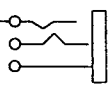
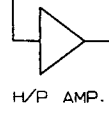
Q306/Q307

PRE IN/OUT

35wx2CH (8ohm)



SUB WOOFER OUTPUT



45wx1CH (8ohm)

CENTER AMP.

IC304
KIA4559P

45wx1CH (8ohm)

SURR. AMP.

MASTER VOLUME

REGULATED SUPPLY
+6V

UNREGULATED SUPPLY
± 37 V

UNREGULATED SUPPLY
± 40 V

REGULATED SUPPLY
±15V

REGULATED SUPPLY
+6V

ST-BY TRANS

MAIN TRANS

ST-BY RELAY

AC OUTLET

AC INPUT
AC230V
/50HZ

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 (S13 and S14) 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 (S11, S12 , S16 to S24) 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 (S92 and S95) 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 (S83 and S84) 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).

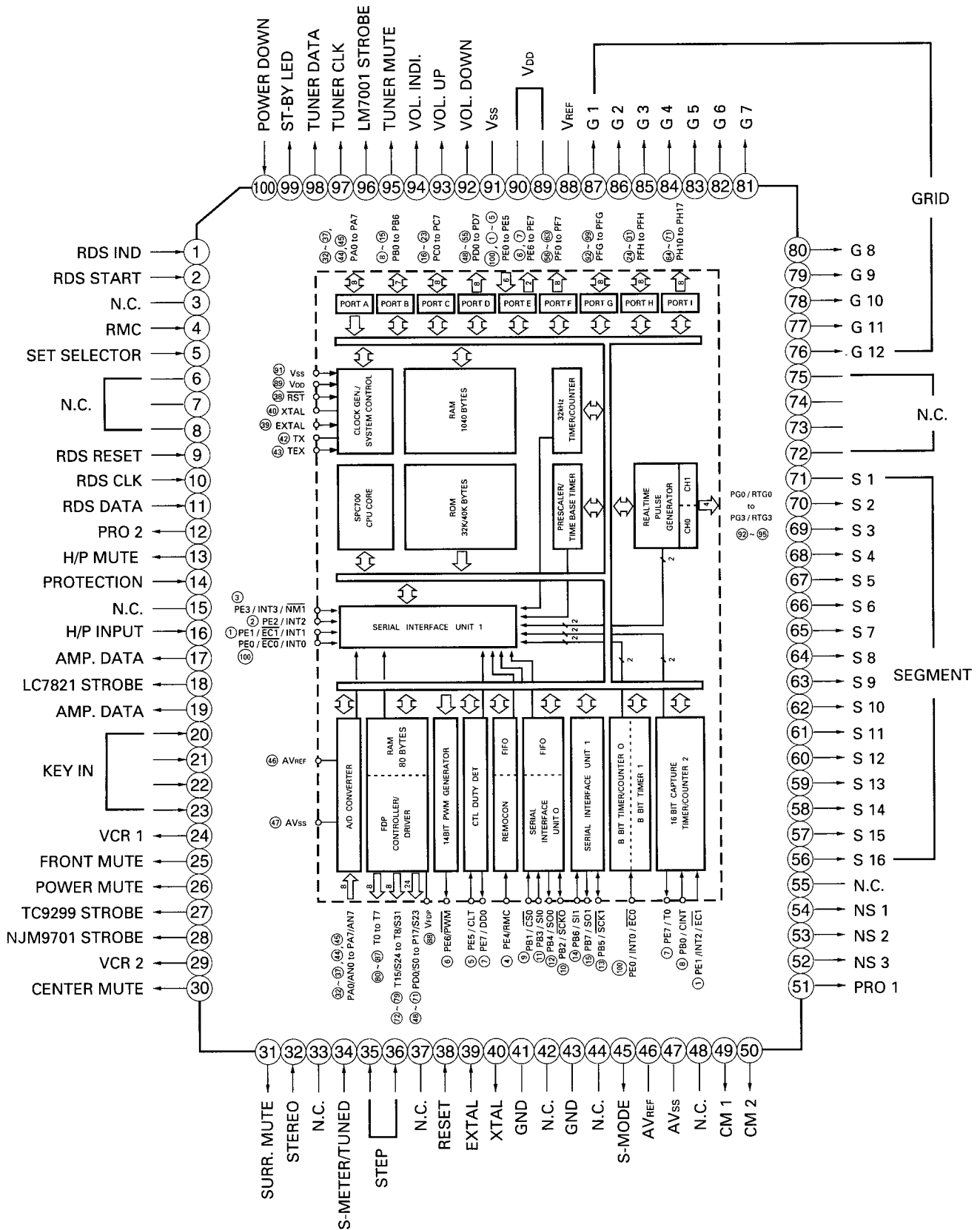
14 MAIN P.C.BOARD (PCB1) REMOVAL

1. Remove the Cover Top ①, referring to the previous step 1.
2. Do steps 2, 3, 8, 9, 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 ₁ ~K ₄ 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>STEP</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	STEP	BAND	35	36	USA/Canada	50 k	FM	L	H	10 k	AM	Europe	50 k	FM	L	L	9 k	AM					
VERSION	STEP	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.																								

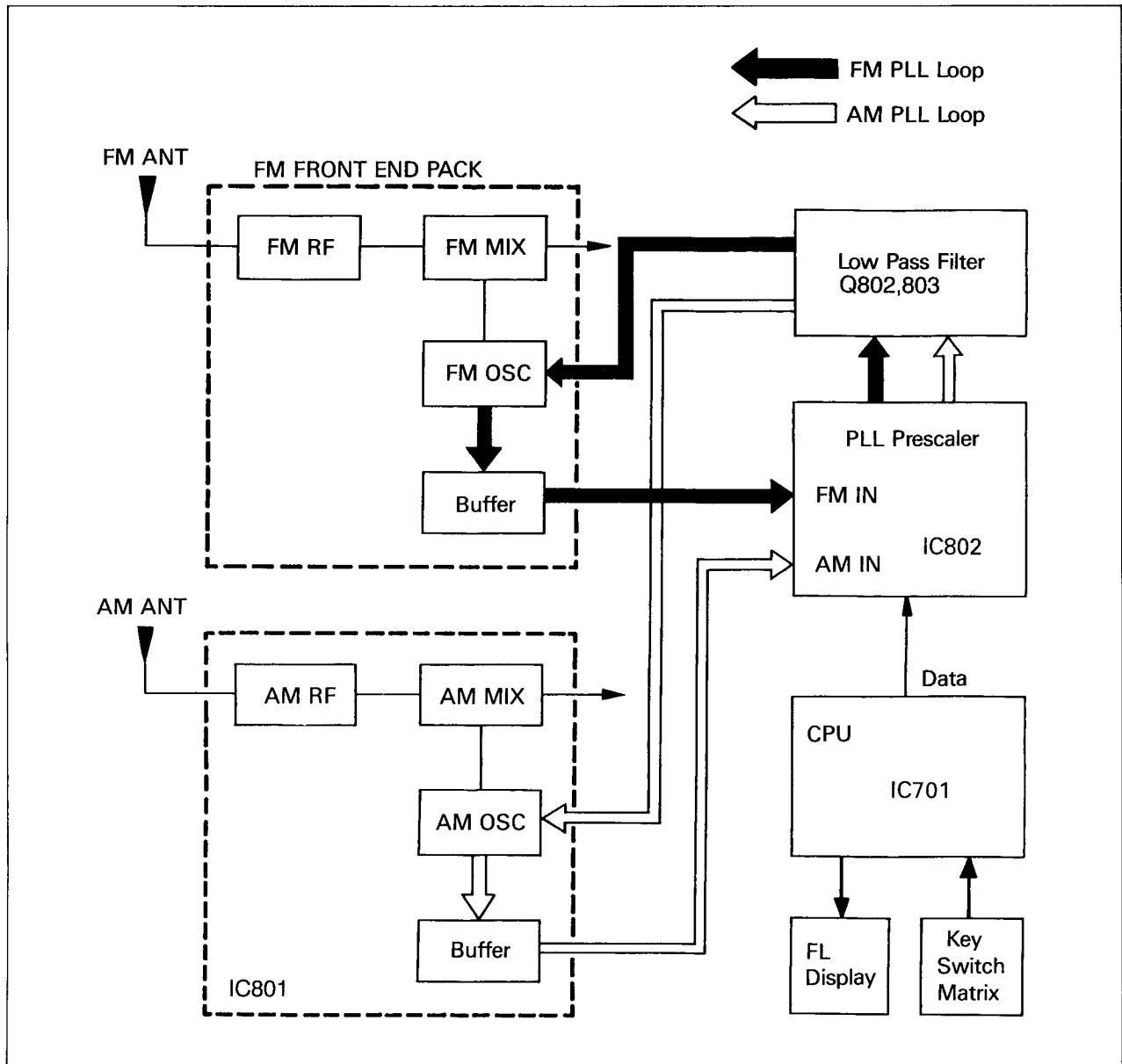
Pin No.	Symbol	Description
91	Vss	Ground
92, 93	VOL. DOWN/UP	Output signal to turn up or down volume motor.
94	VOL. INDICATOR	Output signal to turn on or off the LED which is used master volume indicator. It is high level in turning on and low level in turning off.
95	TUNER MUTE	Output for tuner mute. 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 remocon, 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

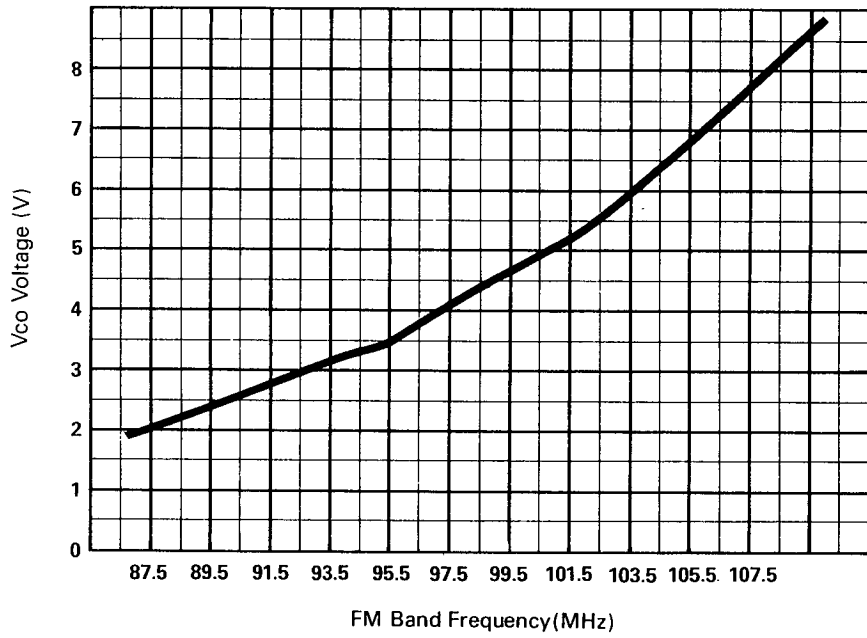
Pin No.	65	66	67	68	69	70	71
20	5	3	1	AF	DISPLAY	BYPASS	VCR1
21	0	8	6	RDS	AM	TAPE MON.	FM
22	SEEK STEREO	9	7	TUNING DOWN	PTY	VCR2	TV/AUX
23	MEMORY	4	2	TUNING UP		SURR. MODE	CD

2. DIGITAL TUNING SYSTEM DESCRIPTION

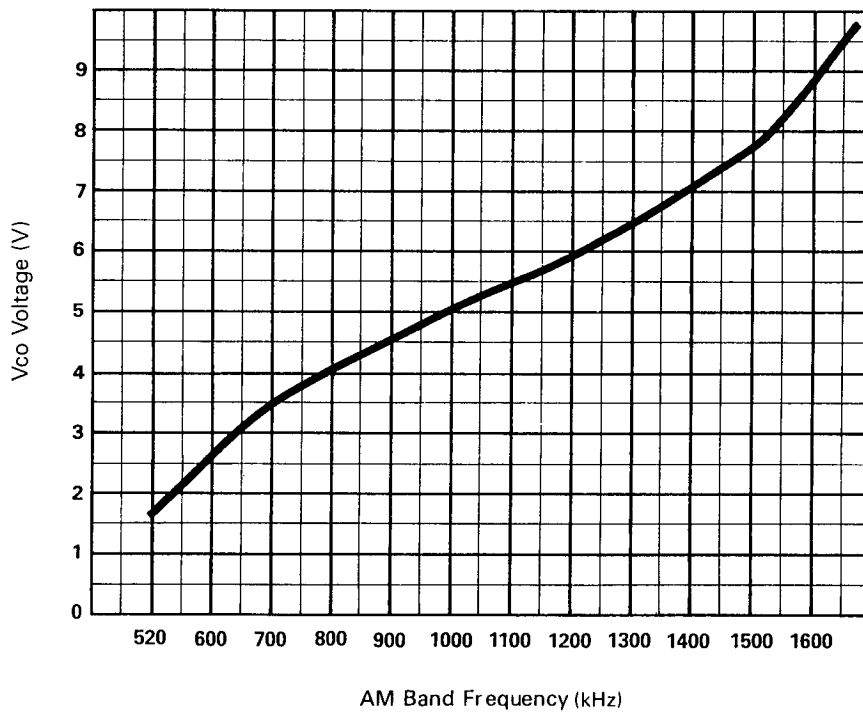
1) DIGITAL TUNING SYSTEM



2) VCO VS. FM BAND FREQUENCY CURVE



3) VCO VS. AM BAND FREQUENCY CURVE



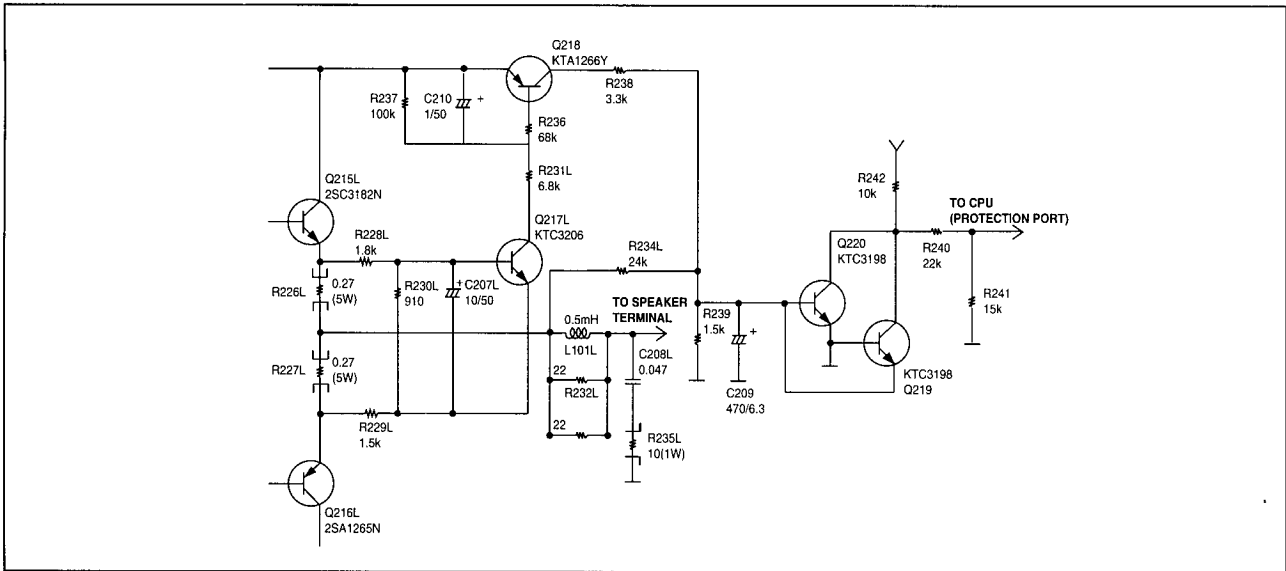
3. PROTECTION CIRCUITS

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.

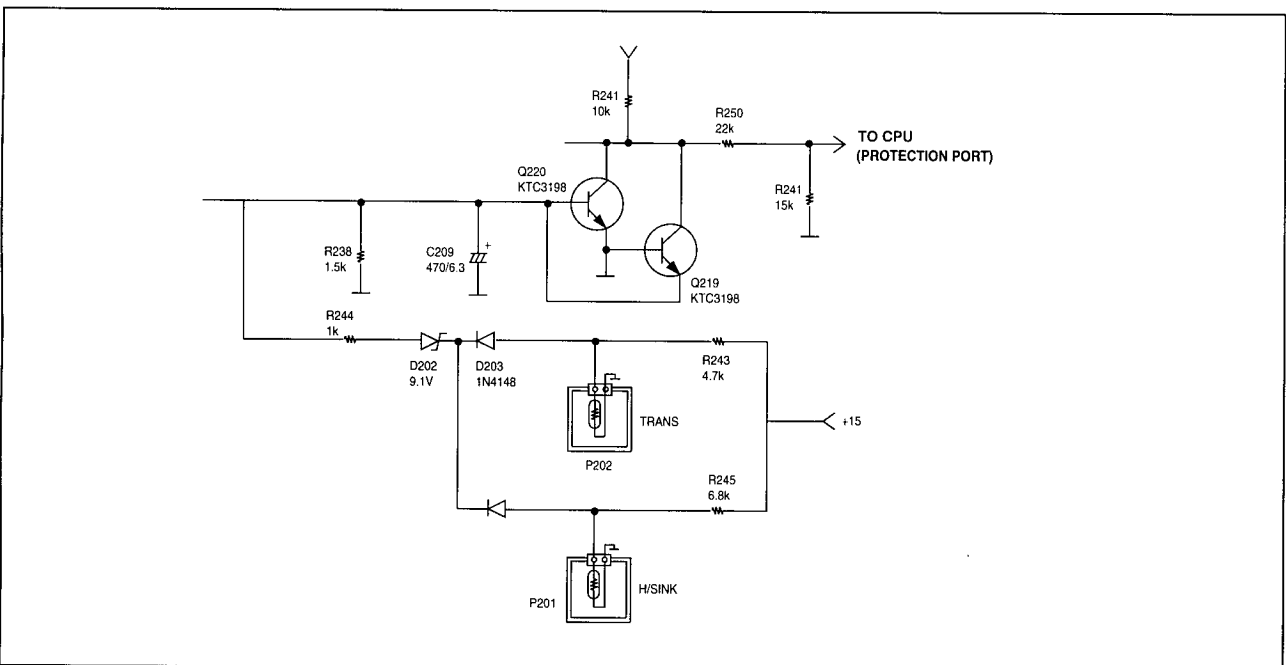


2) THERMAL PROTECTION CIRCUIT

This receiver has an overload thermal protection circuit to guard against abnormal operation.

When the temperature of TRANS POSISTOR installed with the main transformer 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.

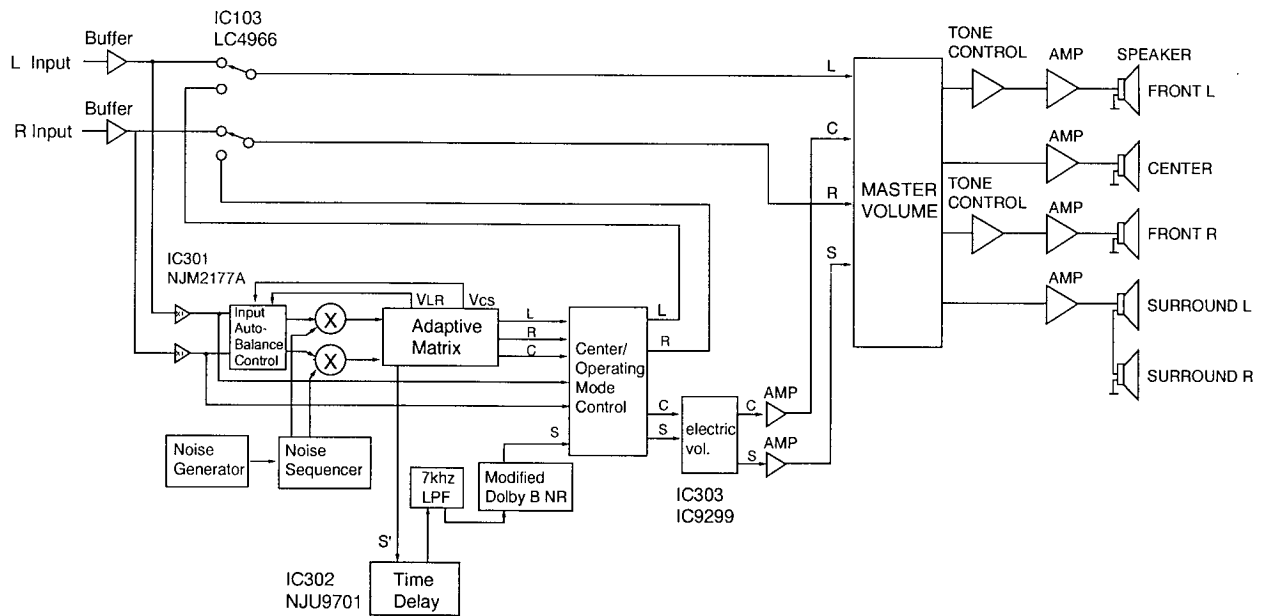


4. SURROUND CIRCUITS

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.

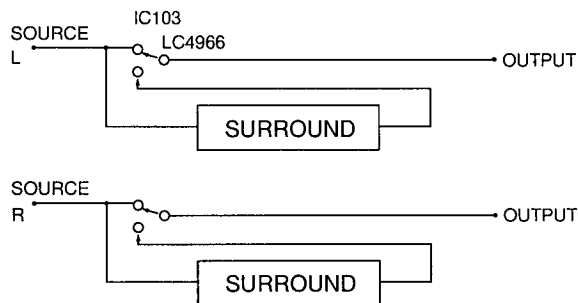


Fig. 2

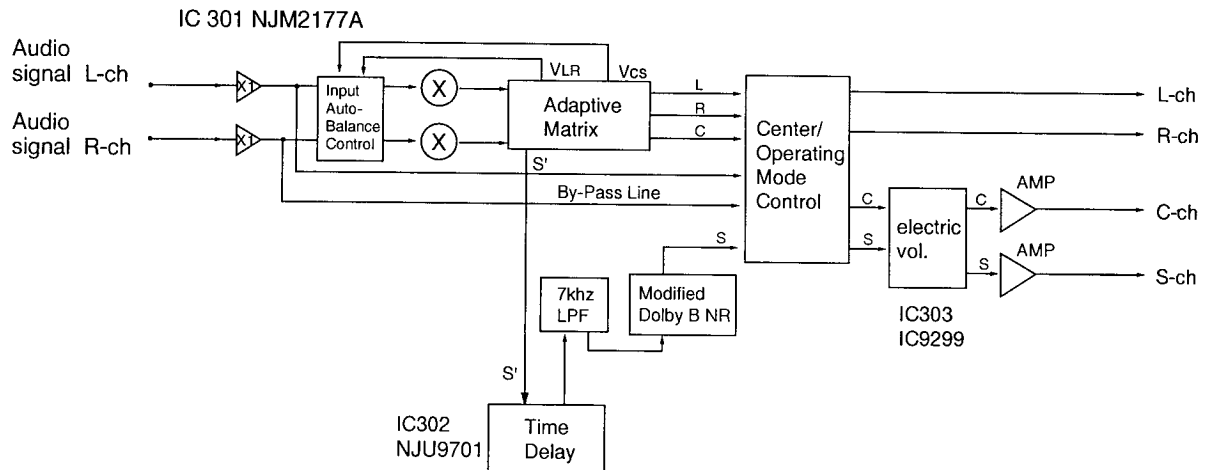
2) DOLBY PRO – LOGIC CIRCUIT

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>

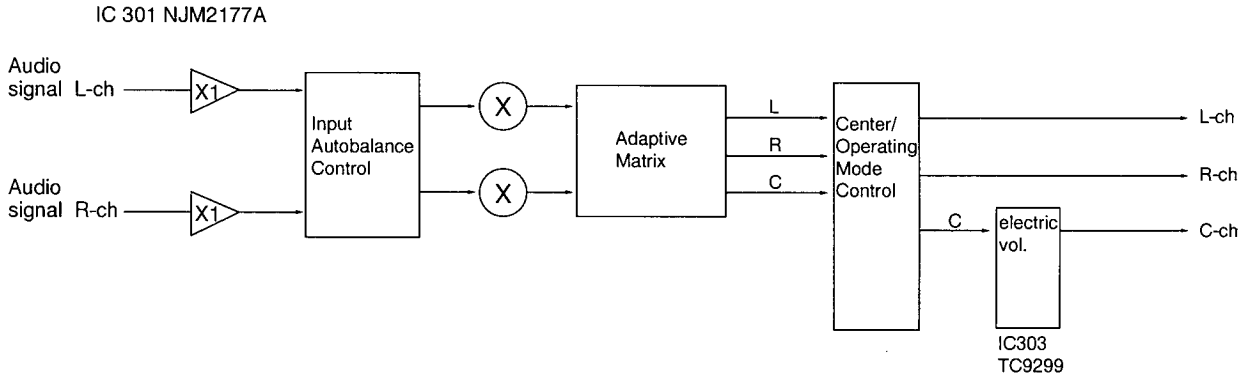
Fig. 3

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

NORMAL	: 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.
WIDE	: 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.
PHANTOM	: 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.

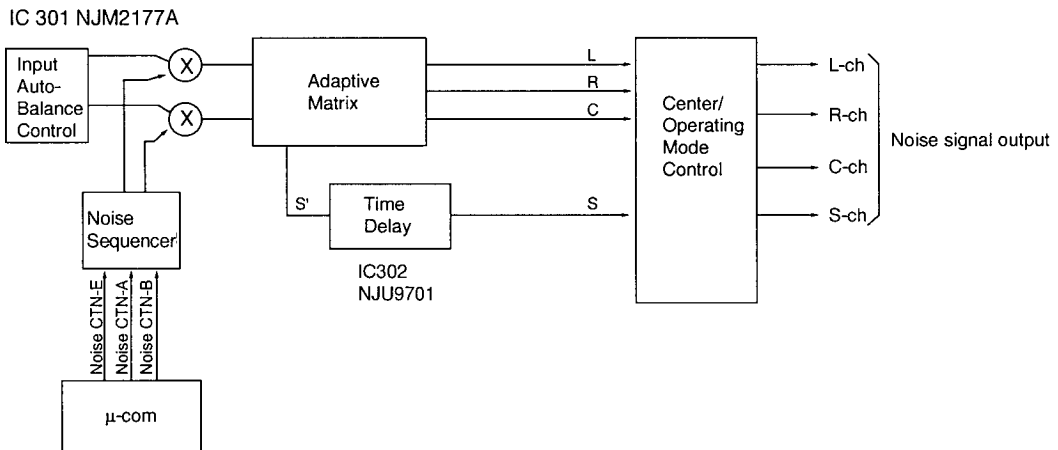


<Flow of signal within the system in the 3 – stereo mode>
Fig. 4

4) TEST TONE GENERATOR

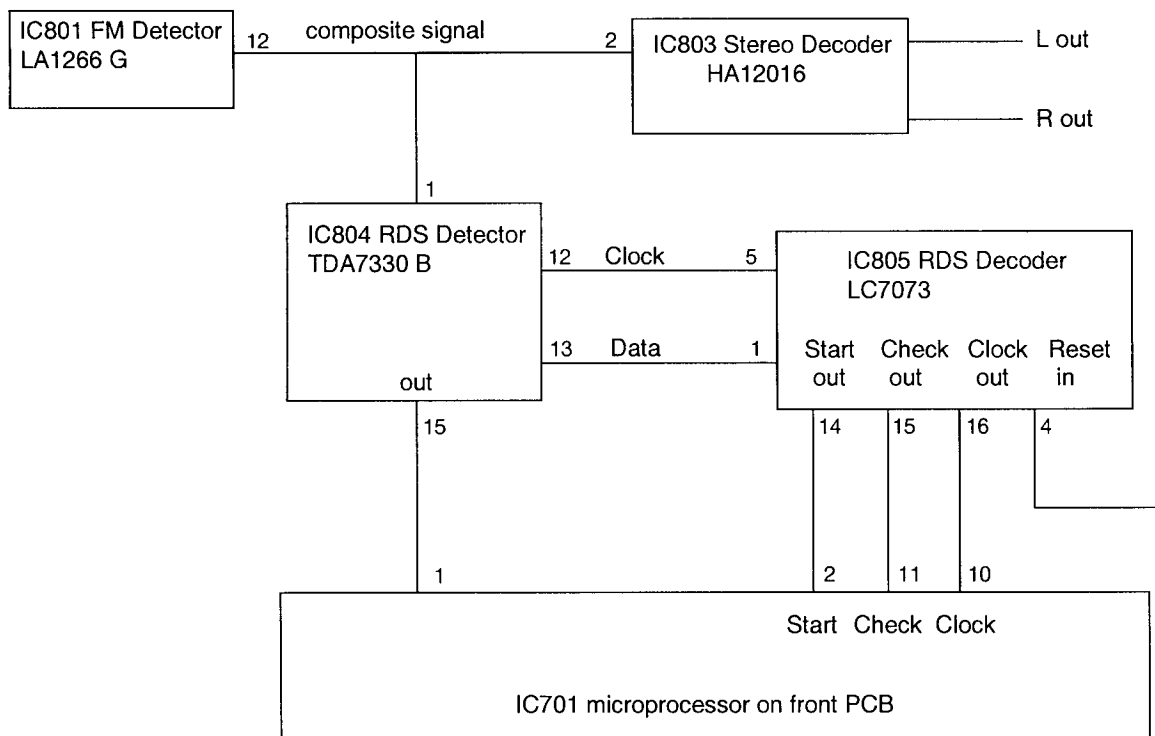
The test tone generator generates a test tone (noise) to check the balance of sound output from each speaker in the Dolby pro logic mode. (This circuit is produced under license of the Dolby Laboratories Licensing Corp.) The noise generator signals shown the table below applies to the Noise – CNT – A/B/E 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.

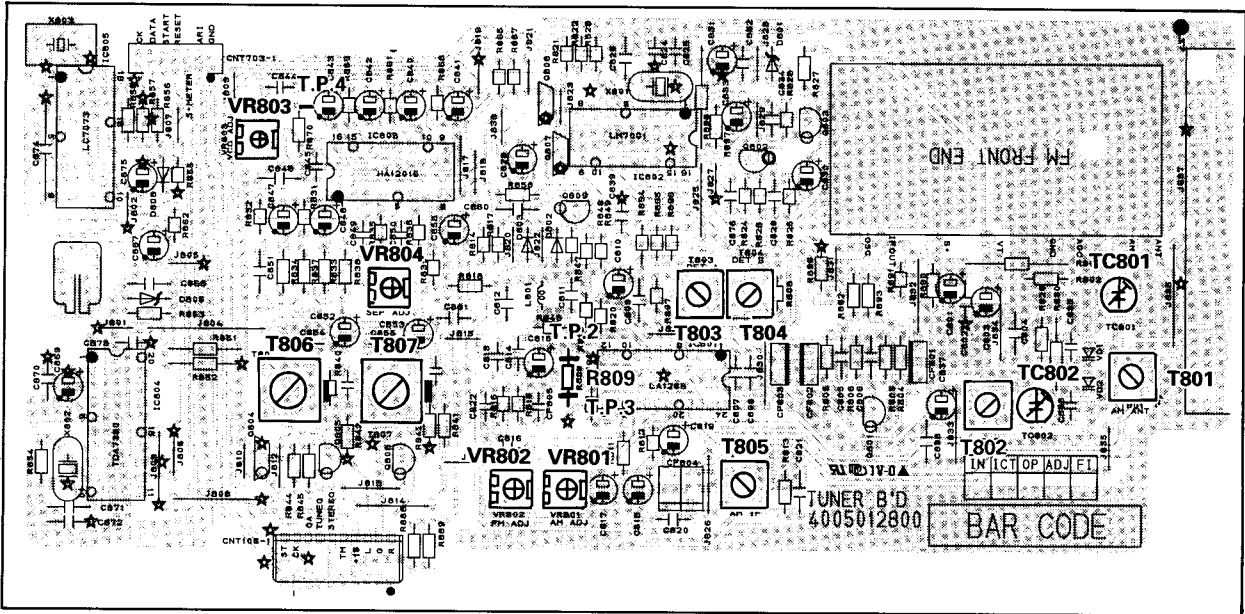
ALIGNMENT PROCEDURES

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)



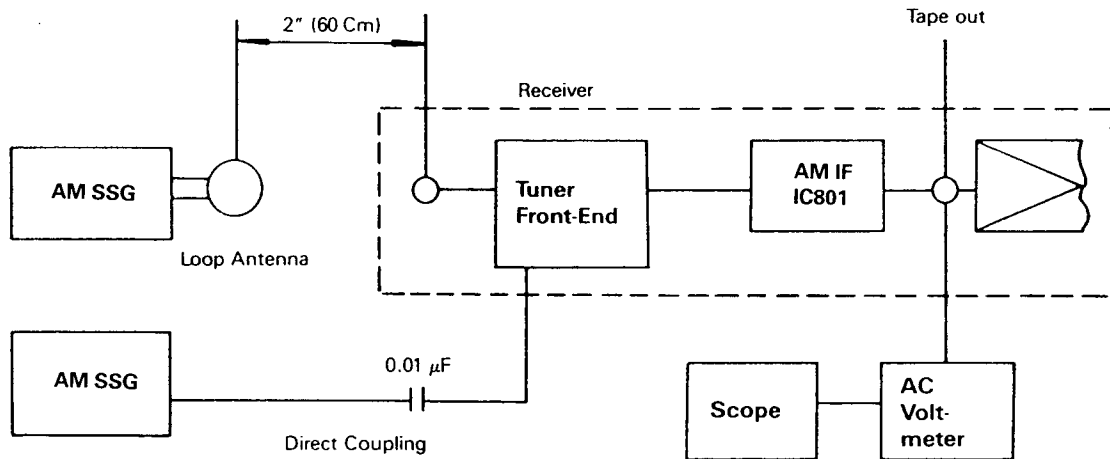
3. AM IF and RF Alignment

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 noninterference 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 μ V/m



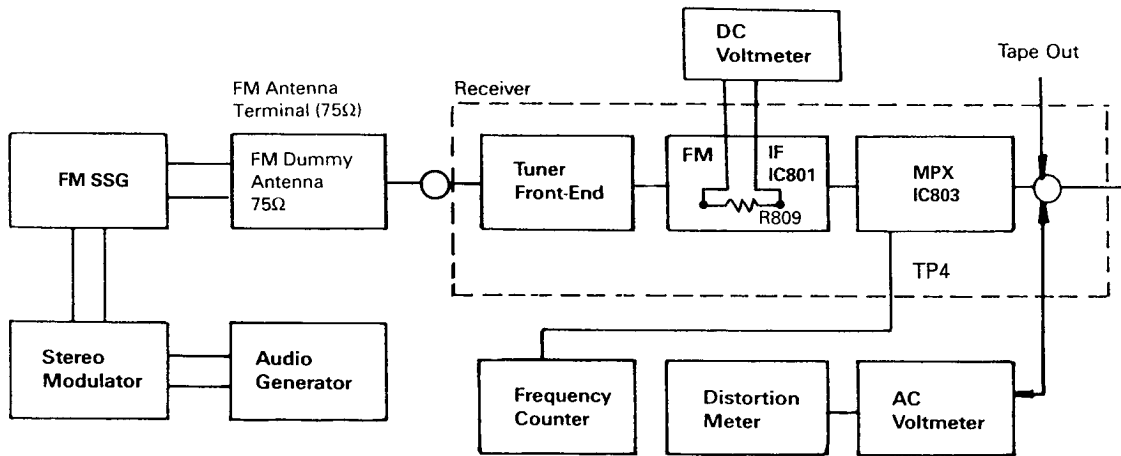
AM Alignment Connection

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 μ 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 μ V.
4. Deviation : 40 kHz, at 100% modulation of composite signal.
5. Connect Signal Generator to FM antenna terminal through FM dummy antenna (75 Ω).

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"> • Set the modulator to pilot signal only. • Adjust so that L/R output level becomes minimum.

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.)	<ul style="list-style-type: none"> A) Faulty AC power cord. Replace. B) Defective the power switch. Replace. C) Broken wire in the power transformer. Replace the power transformer. D) Blown fuse. Replace the fuse.
Fuse blows when power is turned on.	<ul style="list-style-type: none"> A) Defective power transformer. Replace. B) Short on the primary or secondary of the transformer circuitry. Repair the short. C) Damaged rectifier (D208 to D211) or damaged transistor (Q216 to Q217). Replace the defective component(s). D) Short circuit in the amplifier circuit. Replace the shorted component(s) in the amplifier circuit.
Power indicator lights but no sound from both channels.	<ul style="list-style-type: none"> A) Defect in transistor Q215 L/R, Q216 L/R on the Main Amp Board. Replace the defective component(s).
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.	<ul style="list-style-type: none"> A) Defect in transistors Q215 L/R, Q216 L/R on the Main Amp Board Locate and correct the defect. B) Break in copper foil of printed circuit board. Repair the trace. C) Short in speaker output terminal. Repair or replace.
Speaker works normally but headphones inoperative.	<ul style="list-style-type: none"> A) Headphone plug does not mate with jack. Replace the jack. B) Defective resistor R728L/R. Replace.
FM inoperative	<ul style="list-style-type: none"> A) Defective front-end. (FE407-G60) Replace. B) Defective FM switch. Replace the switch. C) Defective transistors Q801, Q805, Q806 or IC801, IC803 Replace the defective transistor(s) or IC(s). D) Defective coil T803 or T804. Replace the coil(s). E) Defective lead-in. Repair or replace the lead-in. F) Ceramic filters CF801, CF802, CF803 defective. Replace the defective ceramic filter(s). G) Defective controller circuit component. Replace.

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

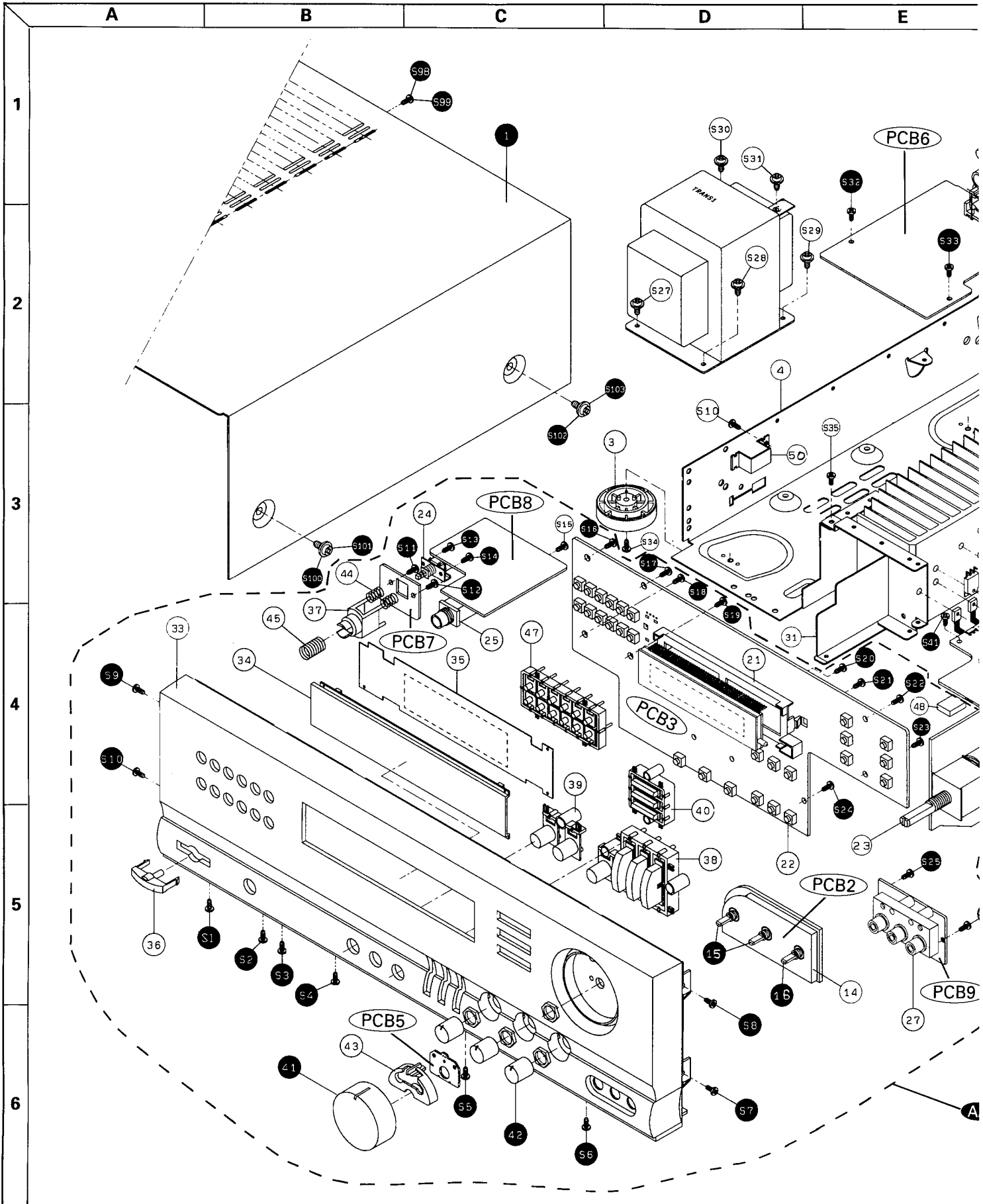
GENERAL UNIT PARTS LIST

Ref. No.	Description	Mfr. Part No.	Q'ty
CABINET & CHASSIS			
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	048555048512	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	6528302540	1
47	Button, Preset, 12 key	048543059611	1
48	Sponge Spacer	6715026110	1
49	Sponge	6715018910	1
50	Bracket Frame	6505139910	1
HARDWARE KIT			
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
MISCELLANEOUS			
Trans	Power Transformer, 230 V, 50 Hz	2828100967	1
	FPC Cable, 31P, 270mm	4118631275	1

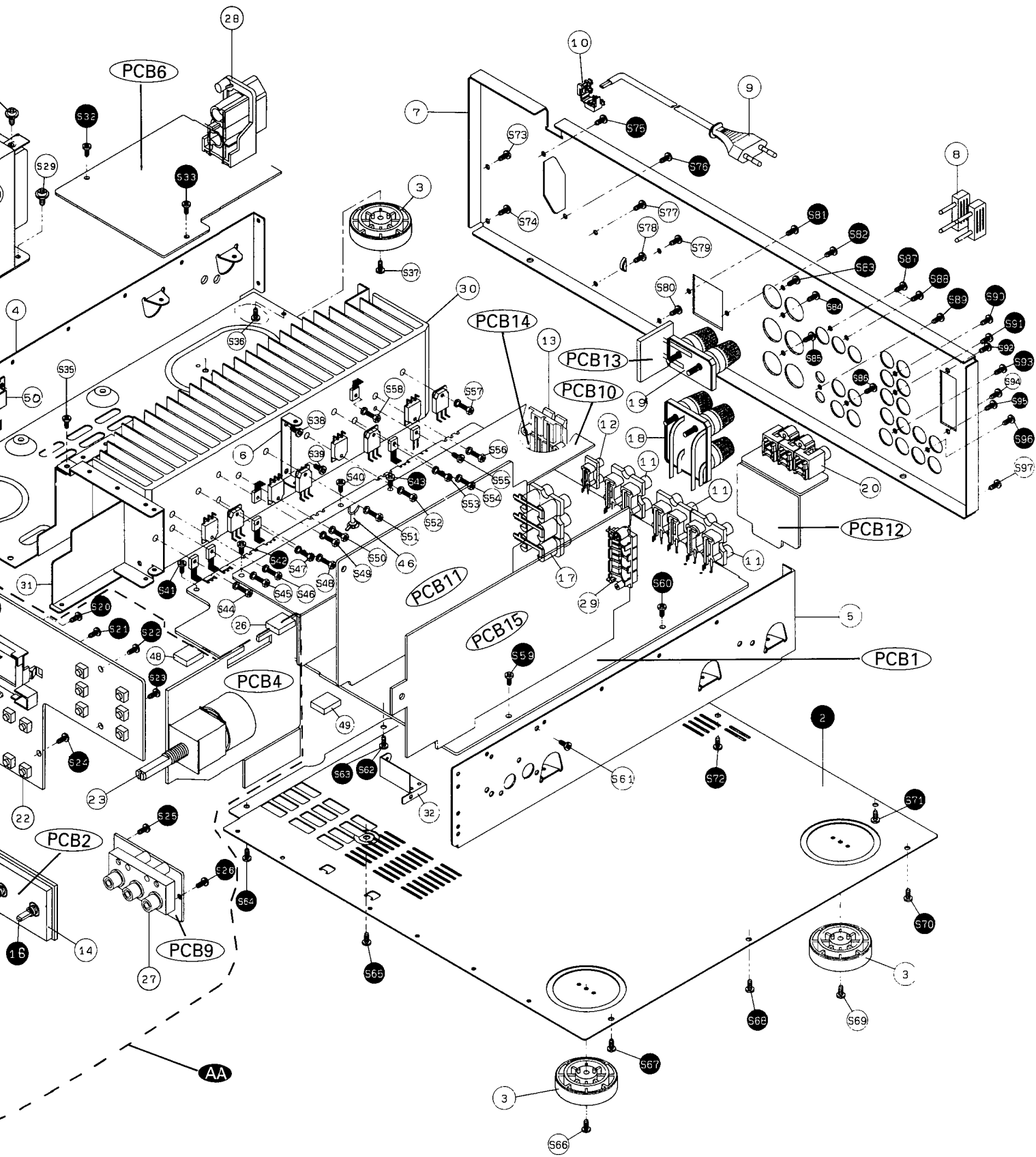
PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol △ in the parts list are of special significance to safety. When replacing a component identified with △, 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

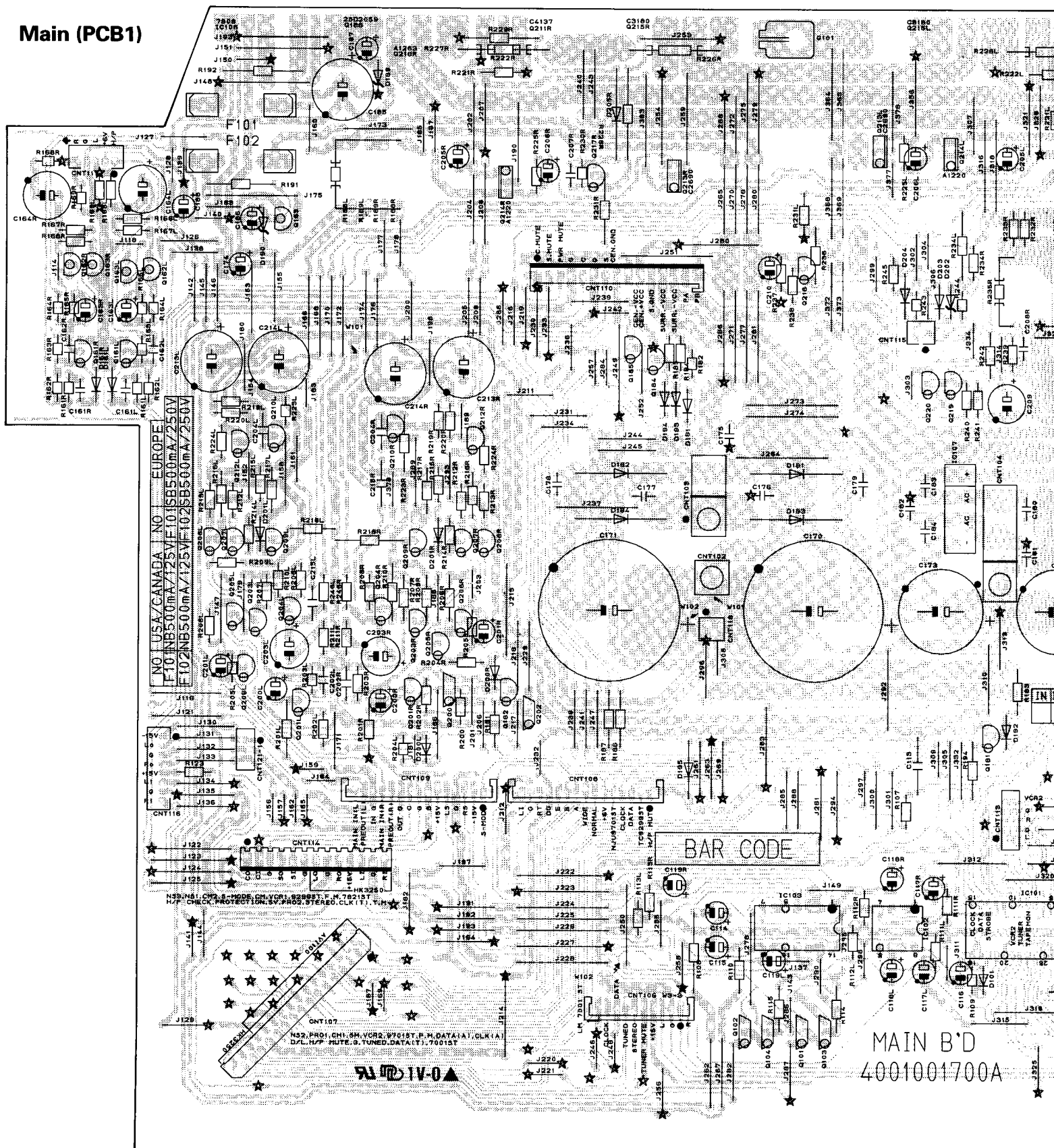


E	F	G	H	I
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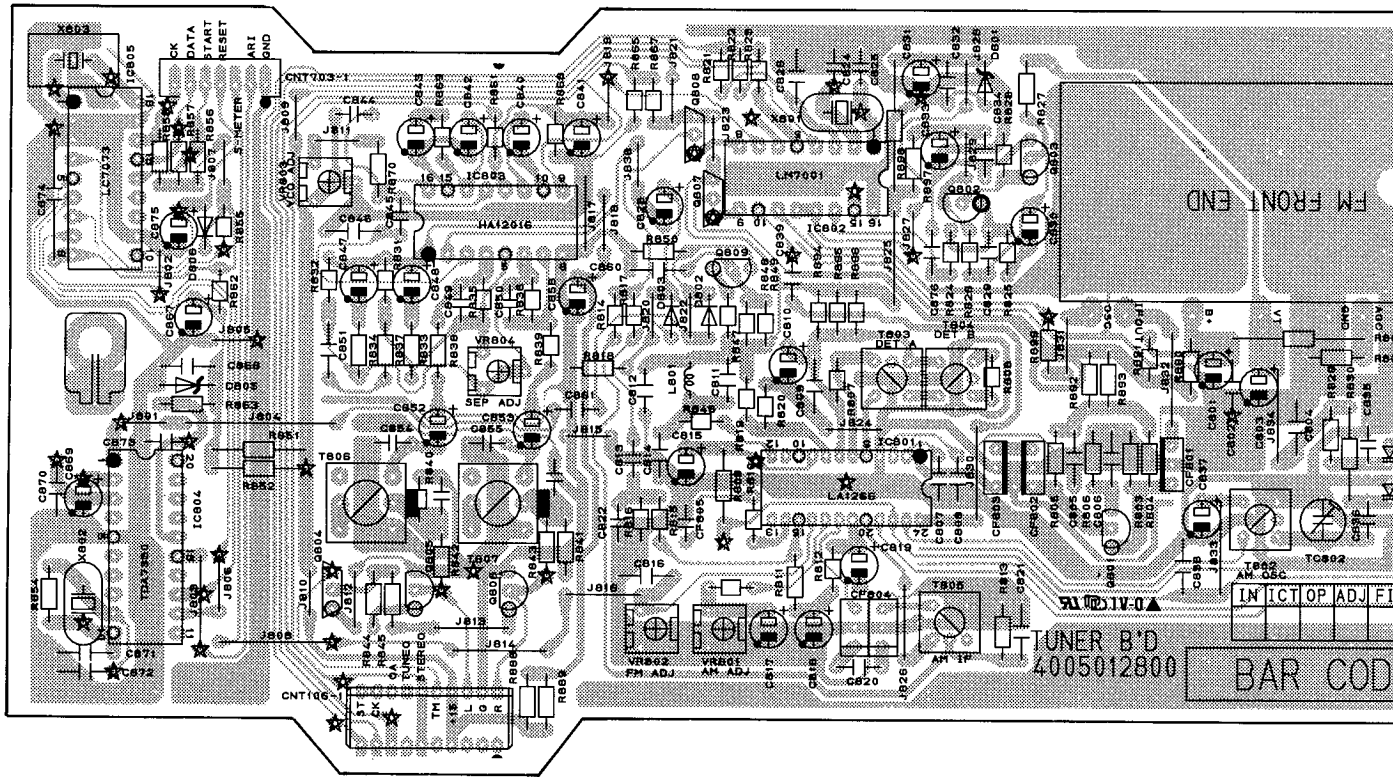


PRINTED CIRCUIT BOARDS

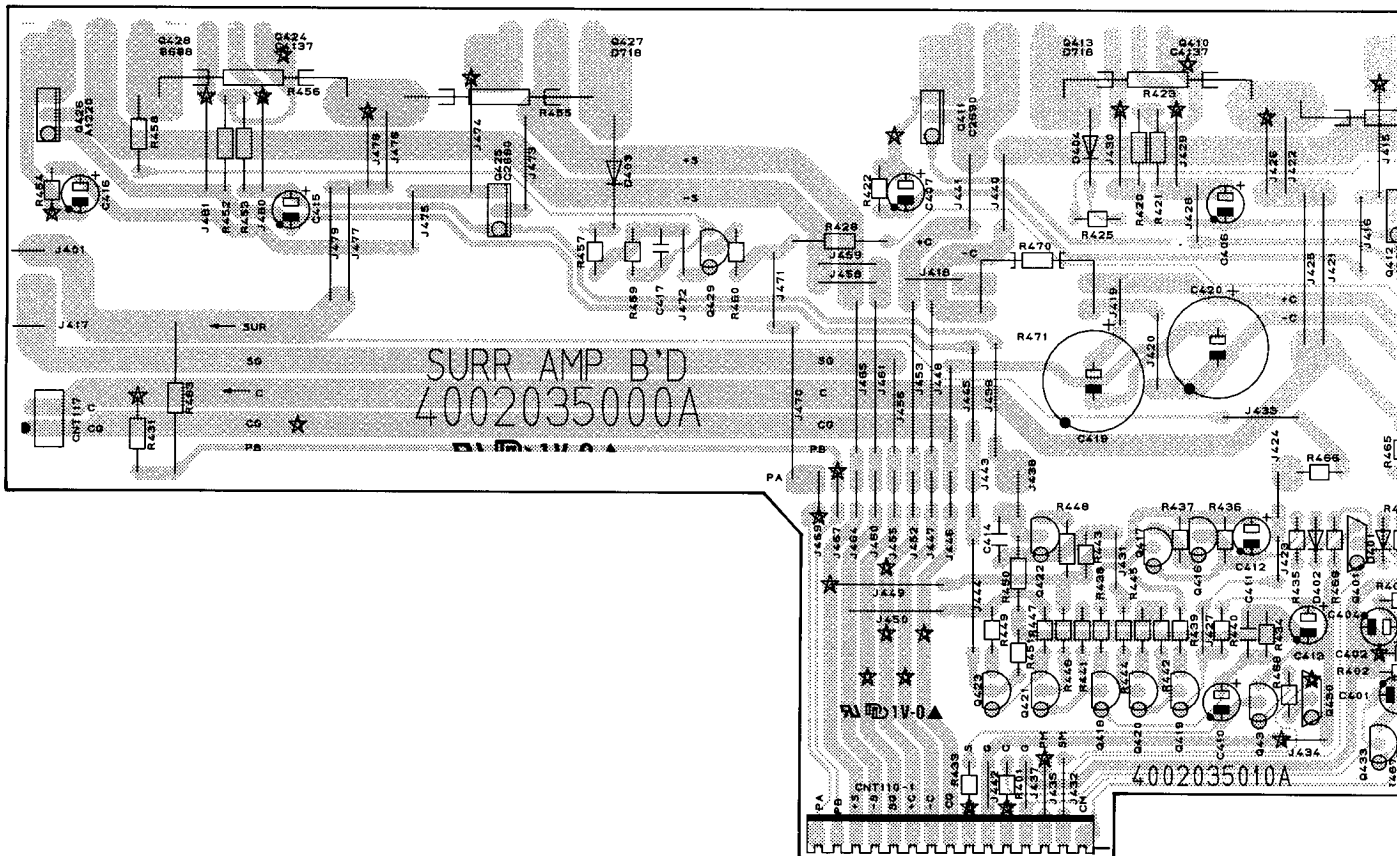
Main (PCB1)

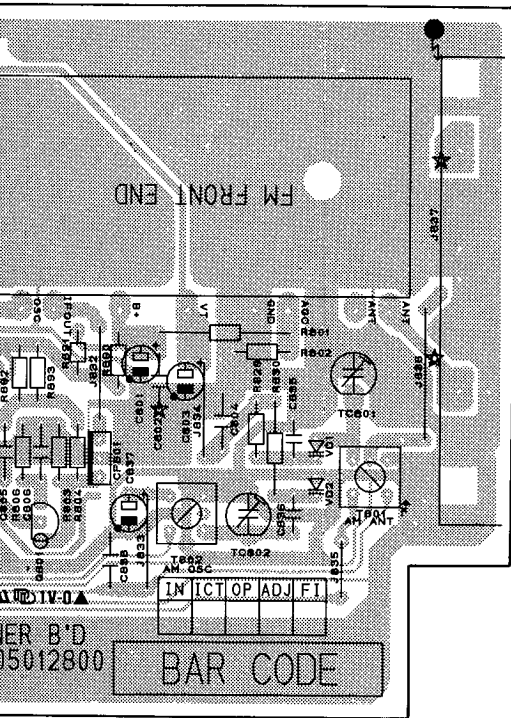


Tuner (PCB15)

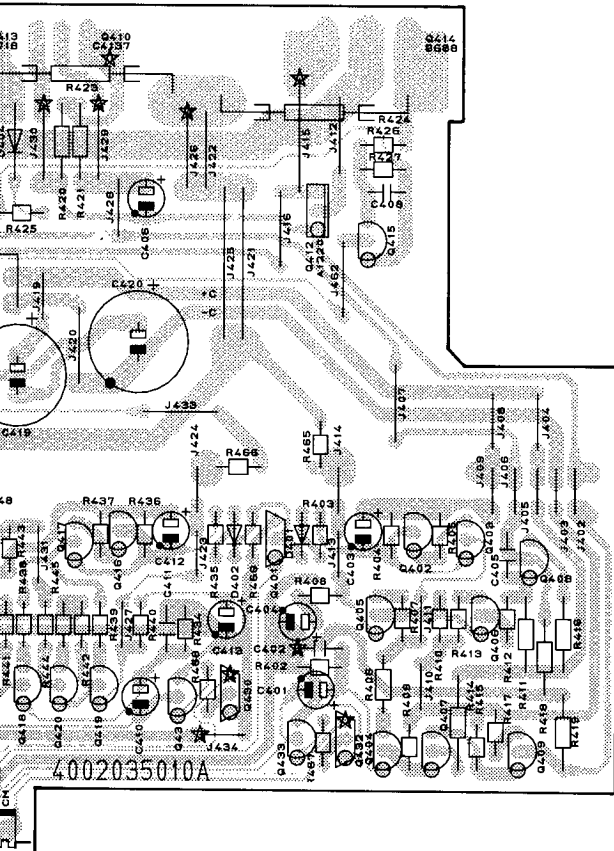
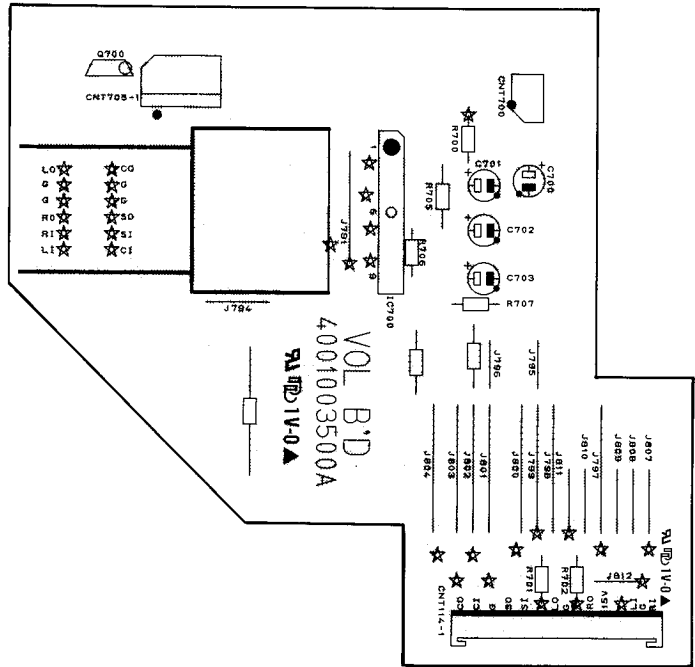


Surround Amp (PCB10)

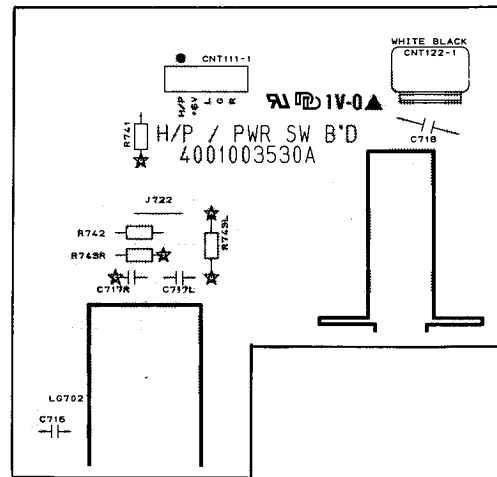




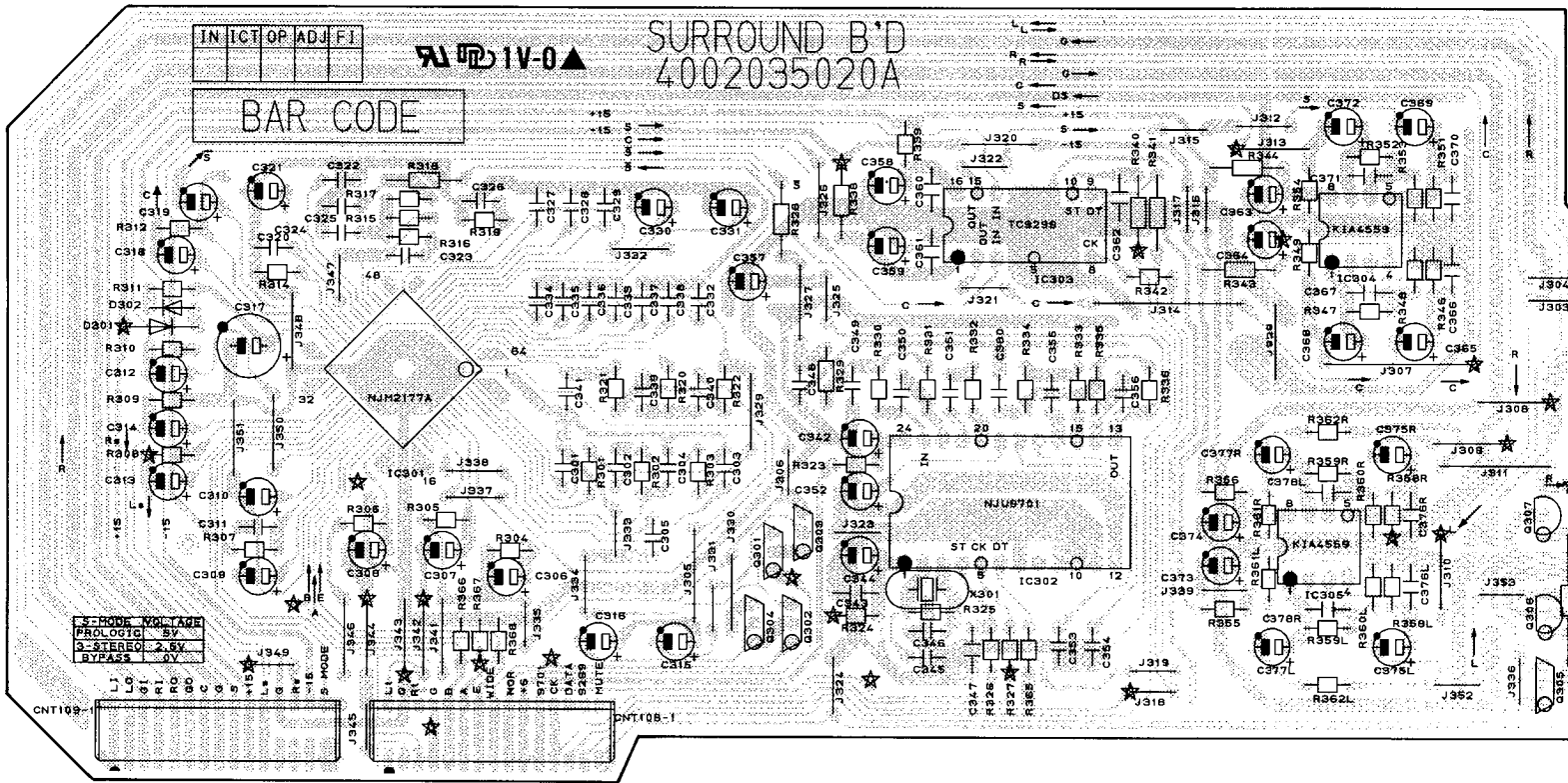
Volume (PCB4)



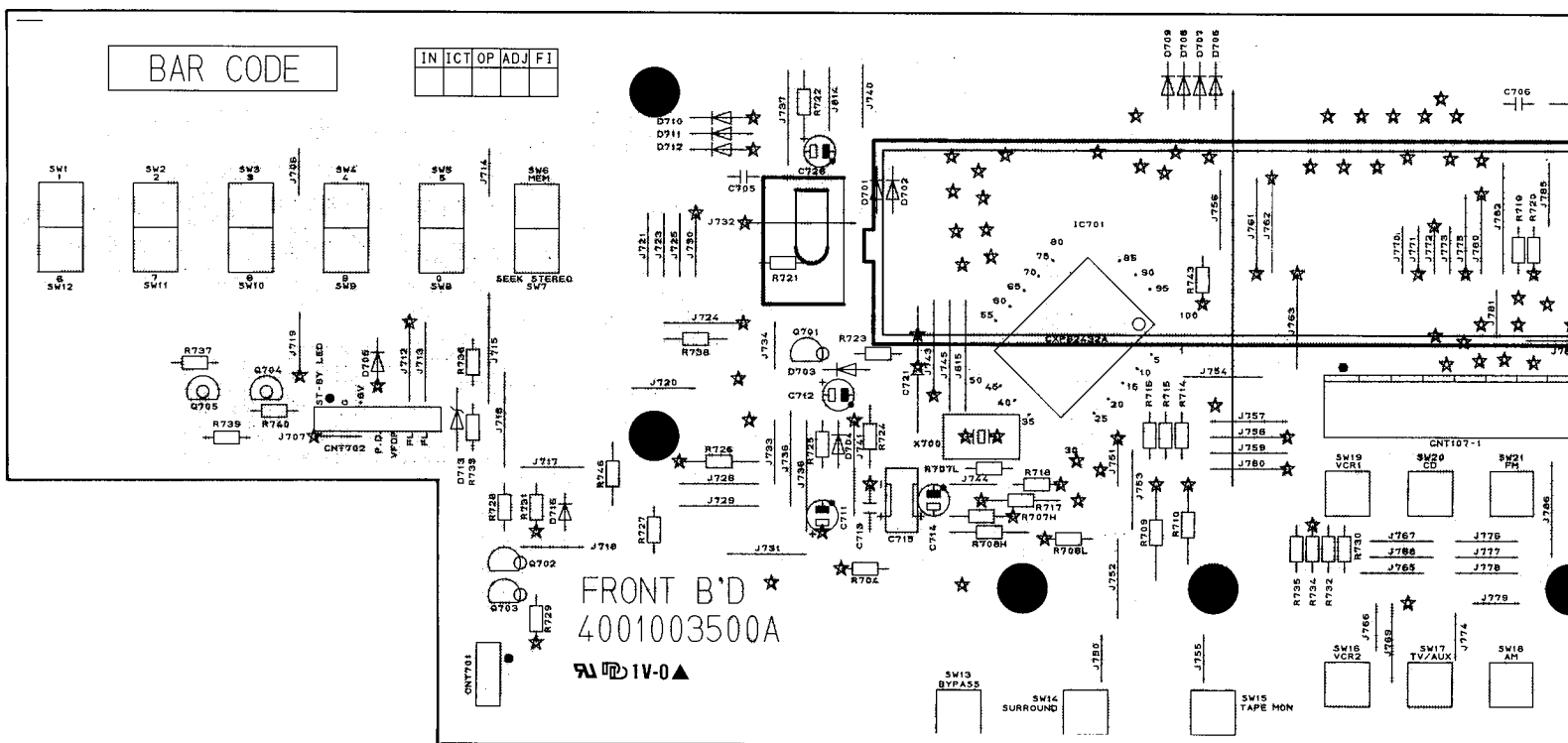
Headphone (PCB8)

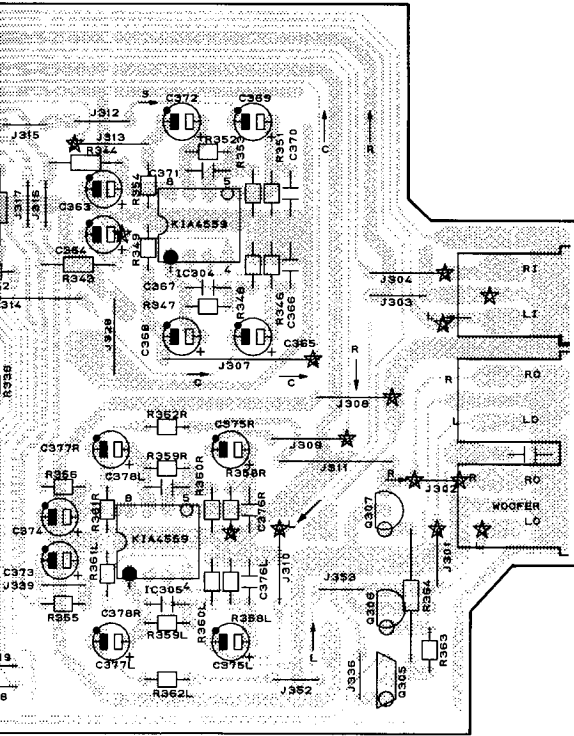


Surround (PCB11)

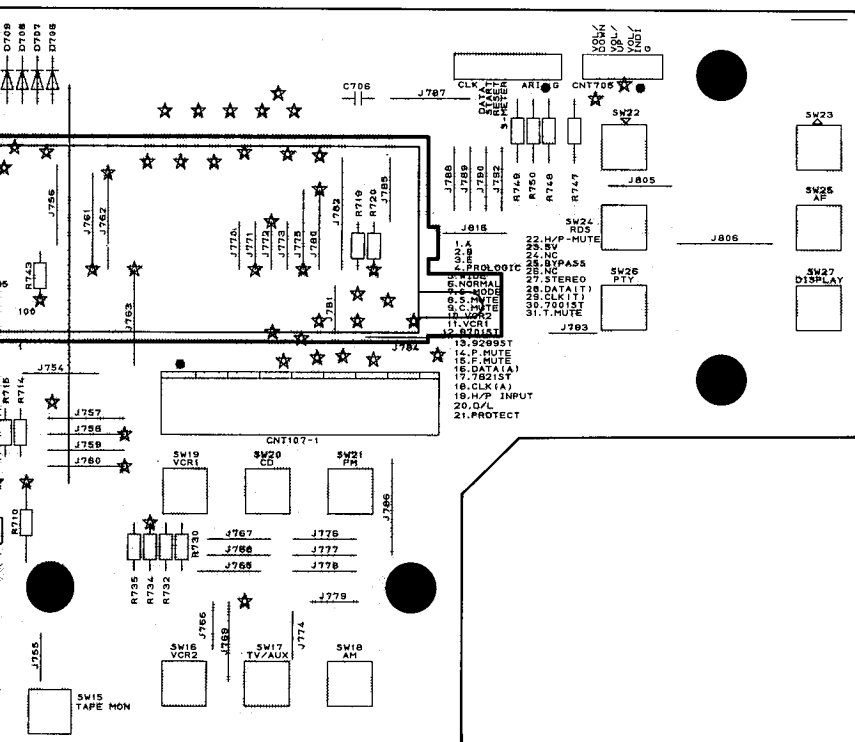
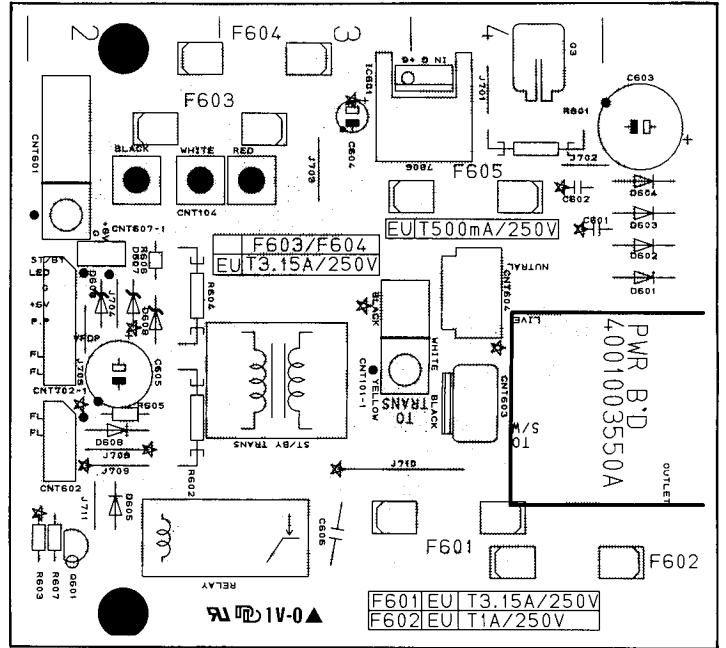


Front (PCB3)

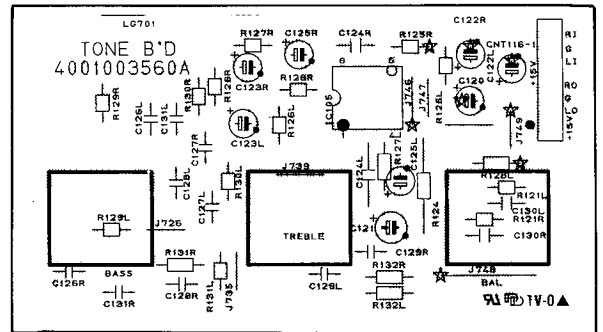




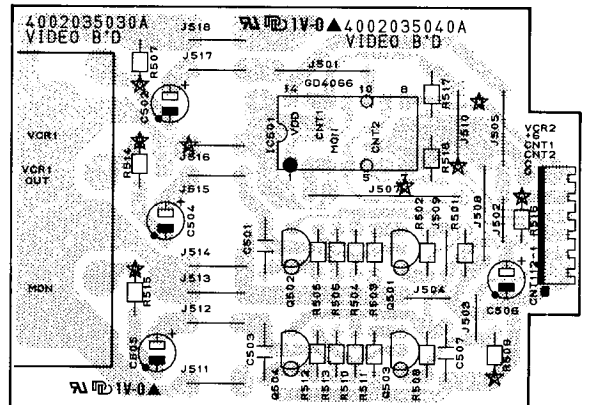
Power (PCB6)



Video (PCB12)



Tone (PCB2)



ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTICE : Products marked with Δ 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	ASSEMBLY P.C.BOARD MAIN			IC104	LTV-817, Optocoupler	2408000136	1	
	CAPACITORS			Δ IC106	KIA7806PI, Regulator	2168606110	1	
C107L/R	Ceramic Tubular	100 pF 50 V K	3519101935 2		COILS			
C108L/R	Ceramic Tubular	100 pF 50 V K	3519101935 2	L101L/R	Inductor, 0.5 mH	2648001010	2	
C109L/R	Ceramic Tubular	100 pF 50 V K	3519101935 2		POSISTORS			
C111L/R	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	PTH9M04BE222TS2F33	2438012200	1	
C114/C115	Electrolytic SG	47 uF 16 V M	3479347031 2		TRANSISTORS			
C116	Electrolytic SG	1 uF 50 V M	3479310971 1	Q101/Q102	DTC114YS	2208622106	2	
C117L/R	Electrolytic SG	4.7 uF 50 V M	3479347971 2	Q103/Q104	KRA107M(DTA114YS)	2238006103	2	
C118L/R	Electrolytic SG	47 uF 16 V M	3479347031 2	Q151	KRA107M(DTA114YS)	2238006103	1	
C119L/R	Electrolytic SG	47 uF 16 V M	3479347031 2	Q161L/R	BKTC3200BL(KTC2240BL), NPN	2208606108	2	
C120/C121	Electrolytic SG	47 uF 16 V M	3479347031 2	Q162L/R	MPSA06Y, NPN	2208606114	2	
C136	Ceramic Disk	0.1 uF 50 V J	3509104512 1	Q163L/R	MPSA56Y, PNP	2208606113	2	
C151	Electrolytic SG	22 uF 10 V M	3479322021 1	Q181/Q182	BKTC3198Y(KTC1815Y), NPN	2208606104	2	
C161L/R	Mylar	0.15 uF 63 V K	3679154297 2	Q183	MPSA56Y, PNP	2208606113	1	
C162L/R	Ceramic Tubular	47 pF 50 V J	3519470935 2	Q184/Q185	BKTC3198Y(KTC1815Y), NPN	2208606104	2	
C163L/R	Electrolytic SG	4.7 uF 50 V M	3479347971 2	Q186	2SD2059Y(KTD2059Y)	2029406123	1	
C164L/R	Electrolytic SG	470 uF 16 V M	3479347139 2	Q200	DTC114YS	2208622106	1	
Δ C170/C171	Electrolytic HS	6800 uF 50 V M	3419568224 2	Q201L/R	KTD1302, NPN	2208606112	2	
Δ C172/C173	Electrolytic SG	2200 uF 50 V M	3409322279 2	Q202	KRA107M(DTA114YS)	2238006103	1	
C174	Electrolytic SG	4.7 uF 50 V M	3479347971 1	Q203L/R	KTA1268(KTA970BL), PNP	2208606104	2	
C175-C177	Mylar	0.047 uF 100 V J	3679473120 3	Q204L/R	KTA1268(KTA970BL), PNP	2208606104	2	
C180-C182	Mylar	0.047 uF 100 V J	3679473120 3	Q205L/R	KTA1268(KTA970BL), PNP	2208606104	2	
C185	Electrolytic SG	330 uF 50 V M	3409333179 1	Q206L/R	KTA1266Y(KTA1015Y), PNP	2208606105	2	
C186-C188	Electrolytic SG	4.7 uF 50 V M	3479347971 3	Q207L/R	BKTC3200BL(KTC2240BL), NPN	2208606108	2	
C200L/R	Electrolytic SG	47 uF 16 V M	3479347031 2	Q208L/R	BKTC3200BL(KTC2240BL), NPN	2208606108	2	
C201L/R	Electrolytic SG	1 uF 50 V M	3479310971 2	Q209L/R	KTA1268(KTA970BL), PNP	2208606104	2	
C202L/R	Ceramic Tubular	68 pF 50 V J	3519680935 2	Q210L/R	KTA1024Y(BKTA949Y), PNP	2208606102	2	
C203L/R	Electrolytic SG	470 uF 6.3 V M	3479347111 2	Q211L/R	2SC4137, NPN, Bias	2008622110	2	
C204L/R	Ceramic Tubular	47 pF 50 V J	3519470935 2	Q212L/R	KTC3206Y(BKTC2229Y), NPN	2208606118	2	
C205L/R	Electrolytic SG	10 uF 50 V M	3479310071 2	Q213L/R	KSC2690AY, NPN	2008602102	2	
C206L/R	Electrolytic SG	4.7 uF 50 V M	3479347971 2	Q214L/R	KSA1220AY, PNP	2008202101	2	
C207L/R	Mylar	0.068 uF 100 V J	3679683120 2	Δ Q215L/R	2SC182N-O	2028307101	2	
C208L/R	Mylar	0.047 uF 100 V J	3679473120 2	Δ Q216L/R	2SA1265N-O	2028007101	2	
C209	Electrolytic SG	470 uF 6.3 V M	3479347111 1	Q217L/R	KTC3206Y(BKTC2229Y), NPN	2208606107	2	
C210	Electrolytic SG	1 uF 50 V M	3479310971 1	Q218	KTA1266Y(KTA1015Y), PNP	2208606105	1	
C211	Ceramic Disc	0.0022 uF 50 V Z	3579222130 1	Q219/Q220	BKTC3198Y(KTC1815Y), NPN	2208606104	2	
C213L/R	Electrolytic SG	330 uF 50 V M	3409333179 2		RESISTORS			
C214L/R	Electrolytic SG	330 uF 50 V M	3409333179 2	R101L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
C215L/R	Ceramic Tubular	3.3 pF 50 V J	3519033935 2	R102L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
C217	Ceramic Disc	0.0022 uF 50 V Z	3579222130 1	R103L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
	CONNECTORS			R104L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
CNT102-1	Pin Base, 1P		4428525860 1	R105L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
CNT103-1	Pin Base, 2P		4428525780 1	R106L/R	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 FPC, 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	R111L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2
CNT110	Wafer, 15P, B'D to B'D		4428561520 1	R112L/R	Carbon Film	220 kohm 1/5 W J	3069224970	2
CNT111	Wafer, 5P		4428516410 1	R113L/R	Carbon Film	220 kohm 1/5 W J	3069224970	2
CNT112	Wafer, 6P		4428530297 1	R114/R115	Carbon Film	100 kohm 1/5 W J	3069104970	2
CNT113	Lead Ass'y, 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	3069332970	1
CNT116	Wafer, 8P		4428516710 1	R152	Carbon Film	3.3 kohm 1/5 W J	3069332970	1
CNT118	Lead Ass'y, 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	3059473970	1
	DIODES			R156	Carbon Film	270 ohm 1/5 W J	3069271970	1
D101	1N4148, Switching		2058322101 1	R161L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2
D161L/R	1N4148, Switching		2058322101 2	R162L/R	Carbon Film	1 kohm 1/5 W J	3069105970	2
Δ D181-D184	1N5402, Rectifier		2058100105 4	R163L/R	Carbon Film	220 kohm 1/5 W J	3069224970	2
D189/D190	Zener, UZ 16.0BSD		2258599117, 2	R164L/R	Carbon Film	15 kohm 1/5 W J	3069153970	2
D191-D195	1N4148, Switching		2058322101 5	R165L/R	Carbon Film	2.4 kohm 1/5 W J	3069242970	2
D200L/R	1N4148, Switching		2058322101 2	R166L/R	Carbon Film	33 ohm 1/5 W J	3069330970	2
D201L/R	1N4148, Switching		2058322101 2	R167L/R	Carbon Film	33 ohm 1/5 W J	3069330970	2
D202	Zener, UZ 9.1BSC		2258599107 1	R168L/R	Carbon Film	10 ohm 1/5 W J	3069100970	2
D203/D204	1N4148, Switching		2058322101 2	R169L/R	Carbon Film	100 ohm 1/5 W J	3069101970	2
Δ IC107	PBL303, Bridge		2058100146 1	R181	Carbon Film	3.3 kohm 1/5 W J	3069332970	1
	FUSES			R182-R185	Carbon Film	47 kohm 1/5 W J	3069473970	4
Δ F101/F102	GMC 250 V, 0.5 A		5508301635 2	R186/R187	Carbon Film	3.3 kohm 1/5 W J	3069332970	2
	INTEGRATED CIRCUITS			R188L/R	Metal Film	47 ohm 1 W J	3029470470	2
IC101	LC7821, Analog Function Switching		2168017132 1	R189L/R	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	LC4966, 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	Ref. No.	Description	Mfr. Part No.	Q'ty
R200	Carbon Film	150 kohm 1/5 W J	2	R130L/R	Metal Film	1.2 kohm 1/5 W J	3029122970 2
R201L/R	Carbon Film	330 ohm 1/5 W J	2	R131L/R	Metal Film	3.9 kohm 1/5 W J	3029392970 2
R202L/R	Carbon Film	3.3 kohm 1/5 W J	2	R132L/R	Metal Film	560 ohm 1/5 W J	3029561970 2
R203L/R	Carbon Film	33 kohm 1/5 W J	2				
R204L/R	Carbon Film	33 kohm 1/5 W J	2		MISCELLANEOUS		
R205L/R	Carbon Film	10 kohm 1/5 W J	2	14	Shield Fence, Tone	6163116210	1
R206L/R	Carbon Film	270 ohm 1/5 W J	2	15	Volume, Bass/Treble	3208049510	2
R207L/R	Carbon Film	390 ohm 1/5 W J	2	16	Volume, Balance	3208052010	1
R208L/R	Carbon Film	390 ohm 1/5 W J	2				
R209L/R	Carbon Film	1.5 kohm 1/5 W J	2				
R210L/R	Carbon Film	1.5 kohm 1/5 W J	2	PCB3	ASSEMBLY P.C.BOARD FRONT		
R211L/R	Carbon Film	2.2 kohm 1/5 W J	2		CAPACITORS		
R212L/R	Carbon Film	560 ohm 1/5 W J	2	C705/C706	Mylar	0.047 uF 100 V J	3679473120 2
R213L/R	Carbon Film	560 ohm 1/5 W J	2	C711	Electrolytic SG	1 uF 50 V M	3479310971 1
R214L/R	Carbon Film	560 ohm 1/5 W J	2	C712	Electrolytic SG	10 uF 50 V M	3479310071 1
R215L/R	Carbon Film	560 ohm 1/5 W J	2	C713	Ceramic Disc	0.022 uF 50 V Z	3579223530 1
R216L/R	Carbon Film	560 ohm 1/5 W J	2	C714	Back-Up	0.047 uF 5.5 V M	3439247315 1
R217L/R	Carbon Film	560 ohm 1/5 W J	2	C715	Electrolytic SG	47 uF 16 V M	3479347031 1
R218L/R	Carbon Film	4.7 kohm 1/5 W J	2	C721	Ceramic Tubular	100 pF 50 V K	3519101935 1
R219L/R	Carbon Film	22 kohm 1/5 W J	2	C726	Electrolytic SG	10 uF 50 V M	3479310071 1
R220L/R	Carbon Film	22 kohm 1/5 W J	2		CONNECTORS		
R221L/R	Metal Film	1.21 kohm 1/4 W F	2	CNT701	Lead Ass'y, 3P, 140mm to CNT701-1	436403143231	1
R222L/R	Metal Film	442 ohm 1/4 W F	2	CNT702	Lead Ass'y, 7P, 260mm	436207263332	1
R223L/R	Carbon Film	82 ohm 1/5 W J	2	CNT703	Lead Ass'y, 7P, 300mm	436107303331	1
R224L/R	Carbon Film	82 ohm 1/5 W J	2	CNT705	Lead Ass'y, 4P, 120mm	436104123331	1
R225L/R	Carbon Film	82 ohm 1/5 W J	2	CNT107-1	Wafer, FPC, 31P	4428531826	1
R226L/R	Cement	0.27 ohm 5 W J	2		DIODES		
R227L/R	Cement	0.27 ohm 5 W J	2	D701-D712	1N4148, Switching	2058322101	13
R228L/R	Carbon Film	1.8 kohm 1/5 W J	2	D713	Zener, UZ 4.3BSB	2258599102	1
R229L/R	Carbon Film	1.5 kohm 1/5 W J	2	D716	1N4148, Switching	2058322101	1
R230L/R	Carbon Film	910 ohm 1/5 W J	2		INTEGRATED CIRCUIT		
R231L/R	Carbon Film	6.8 kohm 1/5 W J	2	IC701	CXP82432A-144Q, DWP455	2139322717	1
R232L/R	Carbon Film	22 ohm 1/5 W J	2		TRANSISTORS		
R233L/R	Carbon Film	22 ohm 1/5 W J	2	Q701-Q703	BKTC3198Y(KTC1815Y), NPN	2208606105	3
R234L/R	Carbon Film	24 kohm 1/5 W J	2	Q704	KTA1266Y(KTA1015Y), PNP	2208206105	1
R235L/R	Metal Film	10 ohm 1 W J	2	Q705	BKTC3198Y(KTC1815Y), NPN	2208606105	1
R236	Carbon Film	68 kohm 1/5 W J	1		RESISTORS		
R237	Carbon Film	100 kohm 1/5 W J	1	R704	Metal Film	1 kohm 1/5 W J	3029102970 1
R238	Carbon Film	3.3 kohm 1/5 W J	1	R707L	Carbon Film	47 kohm 1/5 W J	3069473970 1
R239	Carbon Film	1.5 kohm 1/5 W J	1	R708L	Carbon Film	47 kohm 1/5 W J	3069473970 1
R240	Carbon Film	22 kohm 1/5 W J	1	R709/R710	Carbon Film	100 kohm 1/5 W J	3069104970 2
R241	Carbon Film	15 kohm 1/5 W J	1	R714-R716	Carbon Film	100 kohm 1/5 W J	3069104970 3
R242	Carbon Film	10 kohm 1/5 W J	1	R717	Metal Film	330 ohm 1/5 W J	3029331970 1
R243	Carbon Film	4.7 kohm 1/5 W J	1	R718	Carbon Film	47 kohm 1/5 W J	3069473970 1
R244	Carbon Film	1 kohm 1/5 W J	1	R719/R720	Carbon Film	100 kohm 1/5 W J	3069104970 2
R245	Carbon Film	6.8 kohm 1/5 W J	1	R721	Metal Film	2.2 kohm 1/5 W J	3029222970 1
R246L/R	Carbon Film	33 kohm 1/5 W J	2	R722	Carbon Film	47 kohm 1/5 W J	3069473970 1
	MISCELLANEOUS			R723	Carbon Film	100 kohm 1/5 W J	3069104970 1
	Terminal Ground	4235007310	2	R724	Carbon Film	10 kohm 1/5 W J	3069103970 1
	Clip Fuse	4255001010	4	R725	Metal Film	330 ohm 1/5 W J	3029331970 1
11	Jack RCA, 4P	4438103110	2	R726	Metal Film	1 kohm 1/5 W J	3029102970 1
12	Jack Mini, 2P	4438007510	1	R727	Carbon Film	47 kohm 1/5 W J	3069473970 1
18	Terminal Speaker Main, Screw Type, 4P	4408108610	1	R728	Metal Film	220 ohm 1/5 W J	3029221970 1
				R729	Metal Film	1 kohm 1/5 W J	3029102970 1
PCB2	ASSEMBLY P.C.BOARD TONE			R730	Carbon Film	100 kohm 1/5 W J	3069104970 1
	CAPACITORS			R731	Metal Film	220 ohm 1/5 W J	3029221970 1
C120/C121	Electrolytic SSE	47 uF 16 V M	2	R732	Carbon Film	100 kohm 1/5 W J	3069104970 1
C122L/R	Electrolytic SSE	47 uF 16 V M	2	R733	Metal Film	4.7 kohm 1/5 W J	3029472970 1
C123L/R	Electrolytic SSE	4.7 uF 16 V M	2	R734/R735	Carbon Film	100 kohm 1/5 W J	3069104970 2
C124L/R	Ceramic Tubular	56 pF 50 V K	2	R736	Metal Film	4.7 kohm 1/5 W J	3029472970 1
C125L/R	Electrolytic SSE	4.7 uF 16 V M	2	R737	Carbon Film	47 kohm 1/5 W J	3069473970 1
C126L/R	Poly	0.015 pF 63 V J	2	R738	Metal Film	3.3 kohm 1/5 W J	3029332970 1
C127L/R	Poly	0.0039 pF 63 V J	2	R739	Metal Film	2.2 kohm 1/5 W J	3029222970 1
C128L/R	Poly	0.15 pF 63 V J	2	R740	Carbon Film	47 kohm 1/5 W J	3069473970 1
C129L/R	Poly	0.018 pF 63 V J	2	R743	Carbon Film	10 kohm 1/5 W J	3069103970 1
C130L/R	Ceramic Tubular	330 pF 50 V K	2	R744	Metal Film	1.5 kohm 1/5 W J	3029152970 1
C131L/R	Poly	0.018 pF 63 V J	2	R746-R750	Carbon Film	100 kohm 1/5 W J	3069104970 5
	CONNECTOR				MISCELLANEOUS		
CNT116-1	Lead Ass'y, 8P, 120mm	436208123332	2	FL700	FL Display CM1361C	2328002306	1
	INTEGRATED CIRCUIT			RMC	RMC Module, CRV1G342-185BD	2408000180	1
IC105	KIA4559P (KIA75559P), OP Amp	2168206104	2	X700	Resonator, CST10MTW-TF01	3938124010	1
	RESISTORS			21	Holder FL	6043010210	1
R121L/R	Carbon Film	100 kohm 1/5 W J	2	22	Switch Tact	4658004810	14
R124	Metal Film	150 ohm 1/5 W J	1		PCB4	ASSEMBLY P.C.BOARD VOLUME	
R125L/R	Carbon Film	100 kohm 1/5 W J	2	C700	CAP, Electrolytic SG	10 uF 50 V M	3479310071 1
R126L/R	Carbon Film	100 kohm 1/5 W J	2	C701	CAP, Electrolytic SG	100 uF 10 V M	3479310121 1
R127L/R	Carbon Film	1 Mohm 1/5 W J	2				
R128L/R	Metal Film	1 kohm 1/5 W J	2				
R129L/R	Carbon Film	18 kohm 1/5 W J	2				

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	
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 Ass'y, 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	3549472107	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 Ass'y, 3P, 400mm, LV Type	435603403519	1
CNT101-1	Pin Base, 2P	4428525780	1
CNT607-1	Lead Ass'y, 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 Ass'y, 5P, 280mm	436205283332	1
CNT122-1	Connector, Lead Ass'y, 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 SG 4.7 uF 50 V M	3479347971	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
C419	Electrolytic SG 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 Ass'y, 2P, 120mm	436102123321	1
DIODES			
D401/D402	1N4148, Switching	2058322101	2
TRANSISTORS			
Q401	DTC114YS	2208622106	1
Q402	KTA1266Y(KTA1015Y), PNP	2208206105	1
Q403-Q405	KTA1268(KTA970BL), PNP	2208206104	3
Q406/Q407	BKTC3200BL(KTC2240BL), NPN	2208606108	2
Q408	KTA1024Y(BKTA949Y), PNP	2208206105	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	KTB688(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(BKTA949Y), 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	KTB688(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	Ref. No.	Description	Mfr. Part No.	Q'ty
R411-R415	Carbon Film	560 ohm 1/5 W J	3069561970 5	C365	Electrolytic SG	4.7 uF 50 V M	3479347971 1
R416/R417	Carbon Film	82 ohm 1/5 W J	3069820970 2	C366	Ceramic Tubular	100 pF 50 V K	3519101935 1
R418/R419	Carbon Film	22 kohm 1/5 W J	3069223970 2	C367	Ceramic Tubular	680 pF 50 V J	3519681935 1
R420	Carbon Film	470 ohm 1/5 W J	3069471970 1	C368	Electrolytic SG	4.7 uF 50 V M	3479347971 1
R421	Carbon Film	1.2 kohm 1/5 W J	3069122970 1	C369	Electrolytic SG	0.47 uF 50 V M	3479347871 1
R422	Carbon Film	82 ohm 1/5 W J	3069820970 1	C370	Ceramic Tubular	100 pF 50 V K	3519101935 1
▲ R423/R424	Cement	0.27 ohm 5 W J	3059278782 2	C371	Ceramic Tubular	680 pF 50 V J	3519681935 1
R425	Carbon Film	1.8 kohm 1/5 W J	3069182970 1	C372	Electrolytic SG	0.47 uF 50 V M	3479347871 1
R426	Carbon Film	1.5 kohm 1/5 W J	3069152970 1	C373/C374	Electrolytic SG	47 uF 16 V M	3479347031 2
R427	Carbon Film	910 ohm 1/5 W J	3069911970 1	C375L/R	Electrolytic SG	4.7 uF 50 V M	3479347971 2
R428	Carbon Film	6.8 kohm 1/5 W J	3069682970 1	C376L/R	Ceramic Tubular	100 pF 50 V K	3519101935 2
R431	Carbon Film	24 kohm 1/5 W J	3069243970 1	C377L/R	Electrolytic SG	4.7 uF 50 V M	3479347971 2
R433	Carbon Film	1 kohm 1/5 W J	3069102970 1	C378L/R	Ceramic Tubular	33 pF 50 V K	3519330935 2
R434/R435	Carbon Film	33 kohm 1/5 W J	3069333970 2	C380	Mylar	0.0033 uF 100 V J	3679332120 1
R436	Carbon Film	10 kohm 1/5 W J	3069103970 1	C383L/R	Ceramic Tubular	100 pF 50 V J	3519101935 2
R437	Carbon Film	270 ohm 1/5 W J	3069271970 1	C385L/R	Ceramic Tubular	100 pF 50 V J	3519101935 2
R438/R439	Carbon Film	390 ohm 1/5 W J	3069391970 2				
R440	Carbon Film	680 ohm 1/5 W J	3069681970 1		CONNECTORS		
R441/R442	Carbon Film	1.5 kohm 1/5 W J	3069152970 2	CNT108-1	Wafer, 15P		4428560150 1
R443/R447	Carbon Film	560 ohm 1/5 W J	3069561970 5	CNT109-1	Wafer, 15P		4428560150 1
R448/R449	Carbon Film	82 ohm 1/5 W J	3069820970 2				
R450/R451	Carbon Film	22 kohm 1/5 W J	3069223970 2		DIODES		
R452	Carbon Film	470 ohm 1/5 W J	3069471970 1	D301/D302	1N4148, Switching		2058322101 2
R453	Carbon Film	1.2 kohm 1/5 W J	3069122970 1				
R454	Carbon Film	82 ohm 1/5 W J	3069820970 1		INTEGRATED CIRCUITS		
▲ R455/R456	Cement	0.27 ohm 5 W J	3059278782 2	IC301	NJM2177AFB3, Dolby Decoder		2169020000 1
R457	Carbon Film	1.8 kohm 1/5 W J	3069182970 1	IC302	NJU9701, Time Delay		2168020114 1
R458	Carbon Film	1.5 kohm 1/5 W J	3069152970 1	IC303	TC9299, Electronic Volume		2168007210 1
R459	Carbon Film	910 ohm 1/5 W J	3069911970 1	IC304/IC305	KIA4559P (KIA75559P), OP Amp		2168206104 2
R460	Carbon Film	6.8 kohm 1/5 W J	3069682970 1				
R463	Carbon Film	24 kohm 1/5 W J	3069243970 1		TRANSISTORS		
R465/R466	Carbon Film	33 kohm 1/5 W J	3069333970 2	Q301/Q302	DTC114YS		2208622106 2
R467/R468	Carbon Film	3.3 kohm 1/5 W J	3069332970 2	Q303-Q305	KRA107M(DTA114YS)		2238006103 2
R469	Carbon Film	150 kohm 1/5 W J	3069154970 1	Q306/Q307	KTD1302, NPN		2208606112 2
R470/R471	Metal Film	47 ohm 1 W J	3029470470 2				

PCB11 ASSEMBLY P. C. BOARD SURROUND

CAPACITORS

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	0.68 uF 63 V K	3679684297 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 16 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

RESISTORS

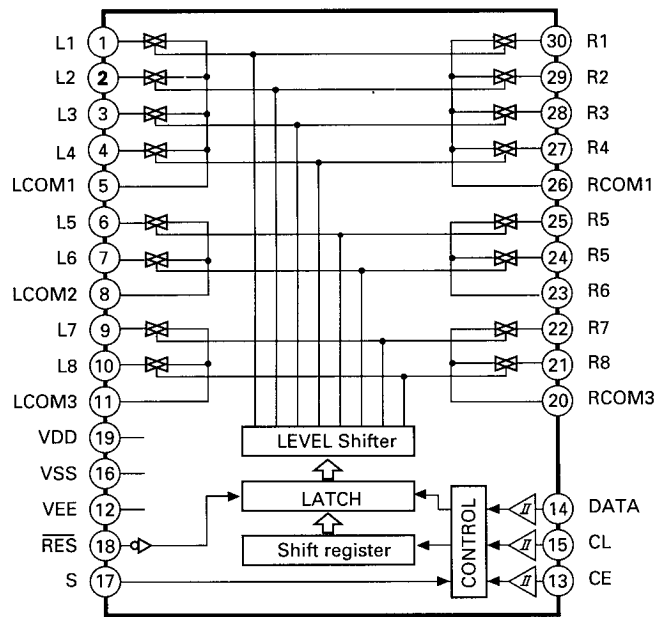
R301	Carbon Film	7.5 kohm 1/5 W J	3069752970 1
R302	Carbon Film	47 kohm 1/5 W J	3069473970 1
R303	Carbon Film	15 kohm 1/5 W J	3069153970 1
R304	Carbon Film	4.7 Mohm 1/5 W J	3069475970 1
R305/R306	Carbon Film	22 kohm 1/5 W J	3069223970 2
R307-R309	Carbon Film	100 kohm 1/5 W J	3069104970 3
R310	Carbon Film	10 kohm 1/5 W J	3069103970 1
R311	Carbon Film	68 kohm 1/5 W J	3069680970 1
R312	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 kohm 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	1.8 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
R358L/R	Carbon Film	100 kohm 1/5 W J	3069104970 2
R359L/R	Carbon Film	1.5 kohm 1/5 W J	3069152970 2
R360L/R	Carbon Film	9.1 kohm 1/5 W J	3069912970 2
R361L/R	Carbon Film	100 kohm 1/5 W J	3069104970 2
R362L/R	Carbon Film	1 kohm 1/5 W J	3069102970 2
R363/R364	Carbon Film	3.3 kohm 1/5 W J	3069332970 2

Ref. No.	Description	Mfr. Part No.	Q'ty	Ref. No.	Description	Mfr. Part No.	Q'ty		
R365	Carbon Film	1 kohm 1/5 W J	3069102970	1	C820	Ceramic Tubular	47 pF 50 V J	3519470935	1
R366-R368	Carbon Film	10 kohm 1/5 W J	3069104970	3	C821	Ceramic Tubular	0.022 uF 25 V K	3519223520	1
R370L/R	Carbon Film	1.5 kohm 1/5 W J	3069152970	2	C822	Mylar	0.0033 uF 100 V J	3679332120	1
R371L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2	C823	Electrolytic SG	2.2 uF 50 V M	3479322971	1
	MISCELLANEOUS				C824/825	Ceramic Disc CH	18 pF 50 V J	3528180210	2
X301	Resonator, CSA2.00MG		3938131740	1	C826	Ceramic Tubular	100 pF 50 V J	3519101935	1
11	Jack RCA, 4P		4438103110	1	C829	Ceramic Tubular	0.01 uF 16 V Z	3519103915	1
17	Jack RCA, Sub Output, 2P		4438111310	1	C830	Electrolytic SG	1 uF 50 V M	3479370971	1
	PCB12 ASSEMBLY P. C. BOARD VIDEO				C831	Electrolytic SG	47 uF 50 V M	3479347041	1
	CAPACITORS				C832	Ceramic Tubular	0.022 uF 25 V K	3519223520	1
C501	Ceramic Tubular	5 pF 50 V D	3519050935	1	C833	Electrolytic SG	47 uF 25 V M	3479347041	1
C502	Electrolytic SG	33 uF 16 V M	3479333031	1	C834	Ceramic Tubular	0.022 uF 25 V M	3519223520	1
C503	Ceramic Tubular	5 pF 50 V D	3519050935	1	C835	Mylar	0.047 uF 100 V J	3679473120	1
C504/C505	Electrolytic SG	470 uF 10 V M	3479347121	2	C836	Poly	470 pF 50 V J	3615471110	1
C506	Electrolytic SG	100 uF 10 V M	3479310121	1	C837	Electrolytic SG	10 uF 50 V M	3479310071	1
C507	Ceramic Tubular	0.1 uF 50 V Z	3519104935	1	C838	Ceramic Tubular	0.022 uF 25 V K	3519223520	1
	INTEGRATED CIRCUIT				C839	Ceramic Tubular	0.01 uF 16 V Z	3519103915	1
IC501	GD4066B, Switching		2138001101	1	C840	Electrolytic SG	3.3 uF 50 V M	3479333971	1
	TRANSISTORS				C841/842	Electrolytic SG	1 uF 50 V M	3479310971	2
Q501	BKTC3198Y(KTC1815Y), NPN		2208606104	1	C843	Electrolytic SG	3.3 uF 50 V M	3479333971	1
Q502	KTA1266Y(KTA1015Y), PNP		2208206105	1	C844	Mylar	0.001 uF 100 V J	3679102120	1
Q503	BKTC3198Y(KTC1815Y), NPN		2208606104	1	C845	Mylar	0.047 uF 100 V J	3679473120	1
Q504	KTA1266Y(KTA1015Y), PNP		2208206105	1	C846	Ceramic Tubular	680 pF 50 V J	3519681935	1
	RESISTORS				C847/848	Electrolytic SG	22 uF 35 V M	3479322061	2
R501	Carbon Film	8.2 kohm 1/5 W J	3069822970	1	C849/850	Mylar	0.001 uF 100 V J	3679102120	2
R502	Carbon Film	12 kohm 1/5 W J	3069123970	1	C851	Ceramic Disc	270 pF 50 V J	3579271130	1
R503	Carbon Film	150 ohm 1/5 W J	3069151970	1	C852/853	Electrolytic SG	4.7 uF 50 V M	3479347971	2
R504/R505	Carbon Film	1.2 kohm 1/5 W J	3069122970	2	C854/855	Mylar	0.0022 uF 100 V J	3679222120	2
R506	Carbon Film	180 ohm 1/5 W J	3069181970	1	C858	Electrolytic SG	100 uF 25 V M	3479310141	1
R507	Carbon Film	75 ohm 1/5 W J	3069750970	1	C860	Ceramic Tubular	0.022 uF 25 V K	3519223520	1
R508	Carbon Film	12 kohm 1/5 W J	3069123970	1	C861	Ceramic Tubular	270 pF 50 V J	3519271935	1
R509	Carbon Film	8.2 kohm 1/5 W J	3069822970	1	C867	Electrolytic SG	47 uF 25 V M	3479347041	1
R510	Carbon Film	1.2 kohm 1/5 W J	3069122970	1	C868	Ceramic Tubular	0.022 uF 25 V K	3519223520	1
R511	Carbon Film	150 ohm 1/5 W J	3069151970	1	C869	Electrolytic SG	10 uF 50 V M	3479310071	1
R512	Carbon Film	1.2 kohm 1/5 W J	3069122970	1	C870	Ceramic Tubular	0.1 uF 50 V Z	3519104935	1
R513	Carbon Film	180 ohm 1/5 W J	3069181970	1	C871/C872	Ceramic Tubular	27 pF 50 V J	3519270935	2
R514/R515	Carbon Film	75 ohm 1/5 W J	3069750970	2	C873/C874	Ceramic Tubular	0.1 uF 50 V Z	3519104935	2
R516	Carbon Film	100 ohm 1/5 W J	3069101970	1	C875	Electrolytic SG	10 uF 50 V M	3479310071	1
R517/R518	Carbon Film	100 kohm 1/5 W J	3069104970	2	C876	Ceramic Tubular	0.0022 uF 16 V J	3519222915	1
	MISCELLANEOUS				TC801	Trimmer, 20 pF		3838001010	1
CNT112-1	Connector, Wafer, 6P		4438302927	1	TC802	Trimmer, 10 pF		3838001000	1
20	Jack RCA(VCR1/Monitor), 3P		4438114310	1		FILTERS			
	PCB13 ASSEMBLY P. C. BOARD CENTER SPEAKER				CF801-803	SFE10.7MS3GH		3978011011	3
CF401/402	CAP, Ceramic Tubular	4700 pF 16 V K	3519472935	2	CF804	SFZ450F		3908001380	1
R429/R430	RES, Carbon Film	22 ohm 1/5 W J	3069220970	2	CF805	BFU450C		3908001020	1
R432	RES, Metal Film	10 ohm 1 W J	3029100470	1		CONNECTORS			
L401	Coil, Inductor, 0.5 mH		2648001010	1	CNT703-1	Wafer, GIL-07P-S		4428525570	1
CNT117-1	Connector, Wafer, 2P		4428508210	1	CNT106-1	Wafer, GB200-10S-LS		4428560100	1
19	Terminal Speaker Center, Screw Type, 2P		4408108710	1		DIODES			
	PCB14 ASSY P. C. BOARD REAR SPEAKER				D801	Zener, UZ 5.1 BSB		2258599103	1
CF403	CAP, Ceramic	3300 pF 16 V K	3519332935	1	D802/D803	1N4148, Switching		2058322101	2
C418	CAP, Mylar	0.047 uF 100 V J	3679473120	1	D805	Zener, UZ 5.1BSB		2258599103	1
R461/R462	RES, Carbon Film	22 ohm 1/5 W J	3069220970	2	D806	1N4148, Switching		2058322101	1
R464	RES, Metal Film	10 ohm 1 W J	3029100470	1	VD1/VD2	KV1236Z, Diode, Varactor		2058819106	1
L402	Coil, Inductor, 0.5 mH		2648001010	1		INTEGRATED CIRCUITS			
13	Terminal Speaker Rear, 4P		4408108910	1	IC801	LA1266, AM/FM IF		2168017128	1
	PCB15 ASSEMBLY P.C.BOARD TUNER				IC802	LM7001, PLL		2138017112	1
	CAPACITORS				IC803	HA12016, MPX		2168411105	1
C801	Electrolytic SG	100 uF 25 V M	3479310141	1	IC804	TDA7330B, RDS Decoder		2138025001	1
C802	Ceramic Tubular	0.022 uF 25 V K	3519223520	1	IC805	LC7073, Error Correction		2168017145	1
C804-809	Ceramic Tubular	0.022 uF 25 V K	3519223520	6		TRANSISTORS			
C810	Electrolytic SG	47 uF 25 V M	3479347041	1	Q801	KTC1923Y/KTC3194, NPN		2208406103	1
C811	Ceramic Tubular	82 pF 50 V J	3519820935	1	Q802	2SK168, FET		2018211100	1
C812	Ceramic Tubular	100 pF 50 V J	3519101935	1	Q803	BKTC3200BL(KTC2240BL), NPN		2208606108	1
C813	Mylar	0.039 uF 100 V J	3679393120	1	Q804	KRA107M(DTA114YS)		2238006103	1
C814	Ceramic Tubular	100 pF 50 V J	3519101935	1	Q805/806	KTD1302, NPN		2208606112	2
C815	Electrolytic SG	0.47 uF 50 V M	3479347871	1	Q807/Q808	KRA107M(DTA114YS)		2238006103	2
C816	Ceramic Tubular	0.022 uF 25 V K	3519223520	1	Q809	BKTC3198Y(KTC1815Y), NPN		2208606104	1
C817	Electrolytic SG	4.7 uF 50 V M	3479347971	1		RESISTORS			
C818	Electrolytic SG	3.3 uF 50 V M	3479333971	1	R801	Carbon Film	100 kohm 1/5 W J	3069104970	1
C819	Electrolytic SG	4.7 uF 50 V M	3479347971	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

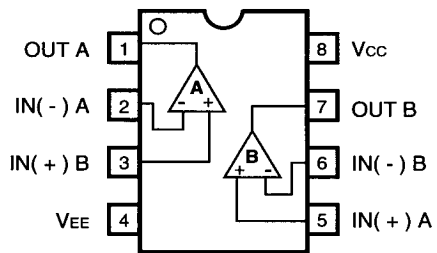
Ref. No.	Description		Mfr. Part No.	Q'ty
R811	Carbon Film	22 kohm 1/5 W J	3069223970	1
R812	Carbon Film	10 kohm 1/5 W J	3069103970	1
R813	Carbon Film	68 kohm 1/5 W J	3069683970	1
R814	Carbon Film	4.3 kohm 1/5 W J	3069432970	1
R815	Carbon Film	5.6 kohm 1/5 W J	3069562970	1
R816	Carbon Film	2.4 kohm 1/5 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
COILS				
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		2848001250	1
T806/807	MPX 19 k/38 kHz, Coil, Black		2658001050	2
SEMI FIXED RESISTORS				
VR801	20 k(B)		3248020343	1
VR802	50 k(B)		3248050343	1
VR803	5 k(B)		3248050243	1
VR804	500 k(B)		3248050443	1
MISCELLANEOUS				
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

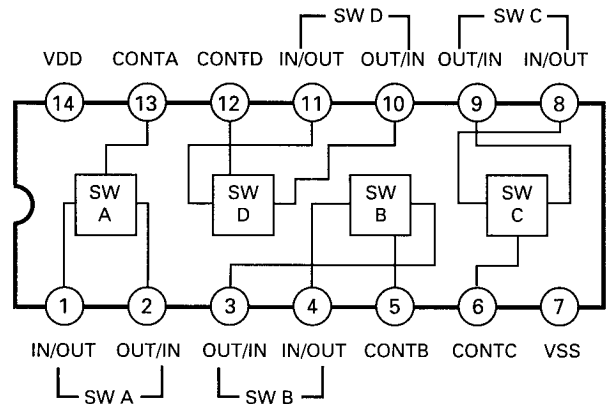
IC101 : LC7821 (Analog Function Switch)



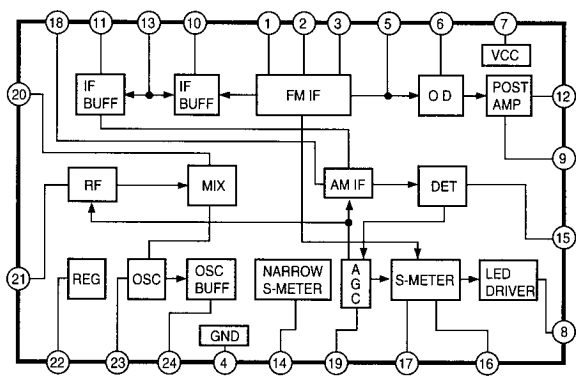
IC102, IC105, IC304, IC305 : KIA4559P (OP-Amp)



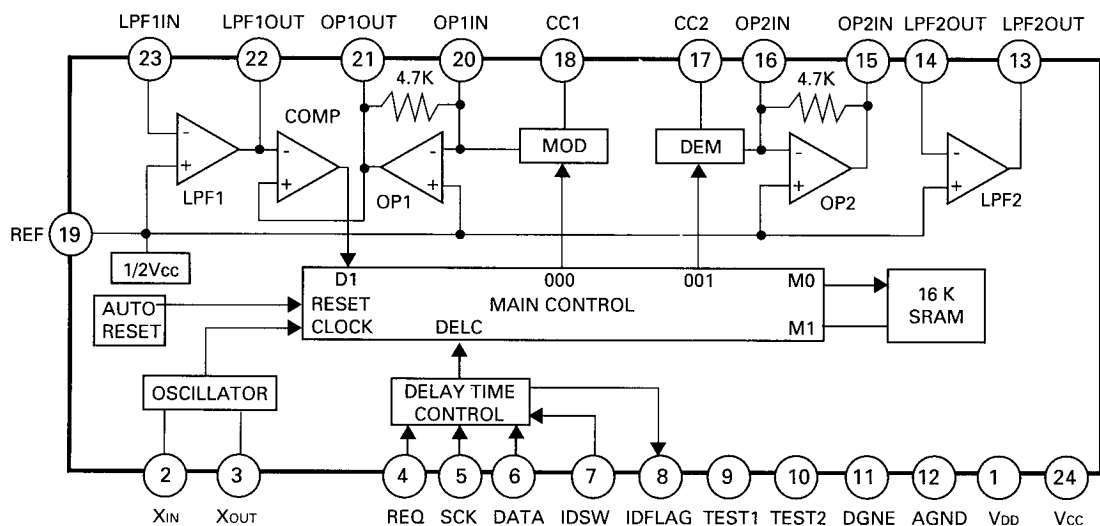
IC103 : LC4966B (Quad Analog Switch)



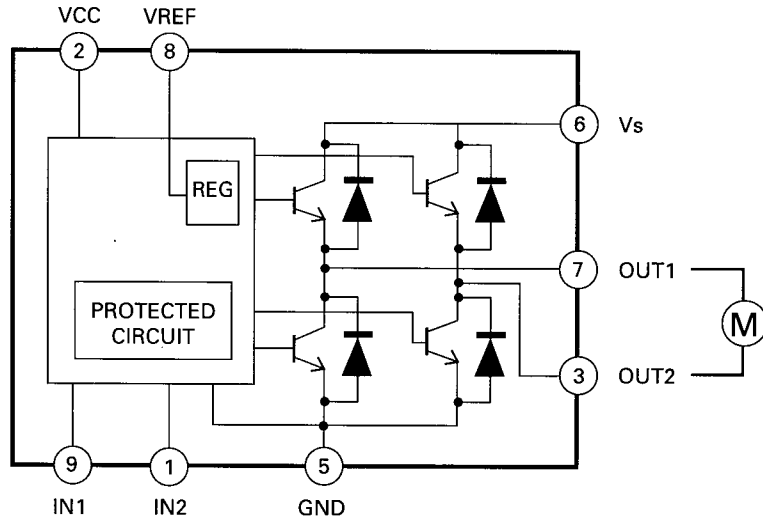
IC801 : LA1266 (AM/FM IF)



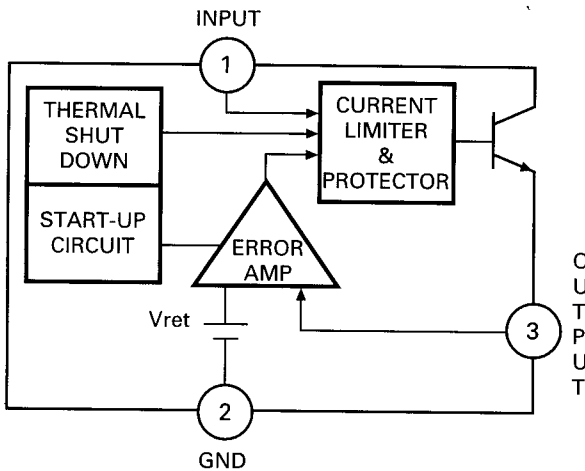
IC302 : NJU9701 (Time Delay)



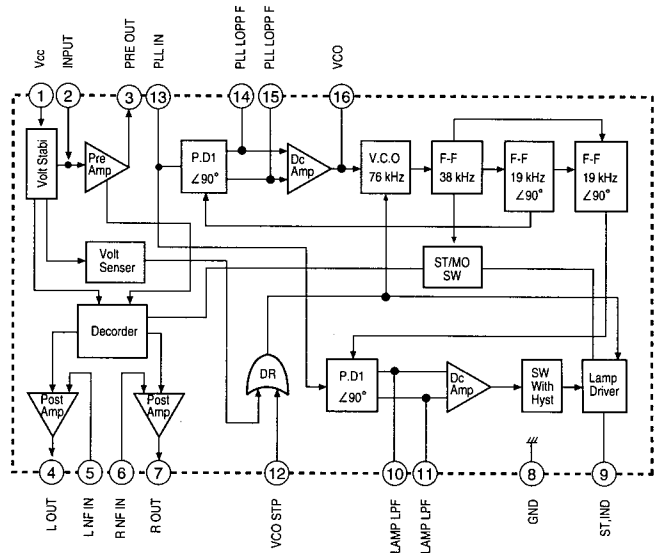
IC700 : TA7291S (Bridge Driver)



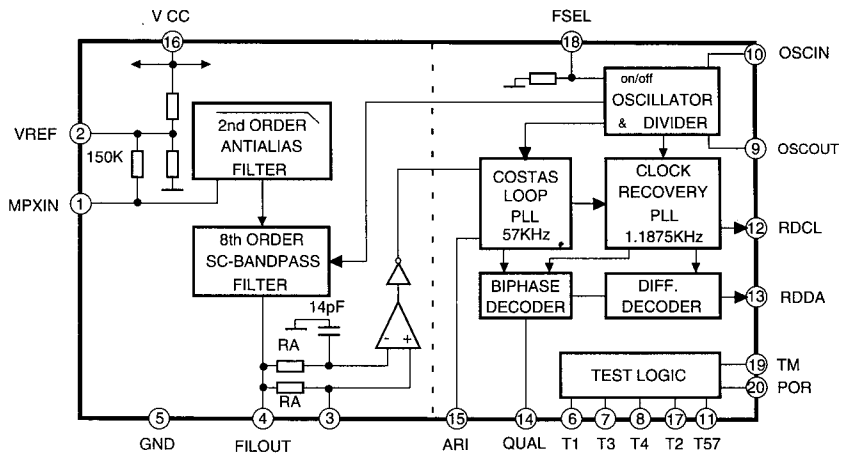
IC106, IC601 : GD7806PI (Regulator)



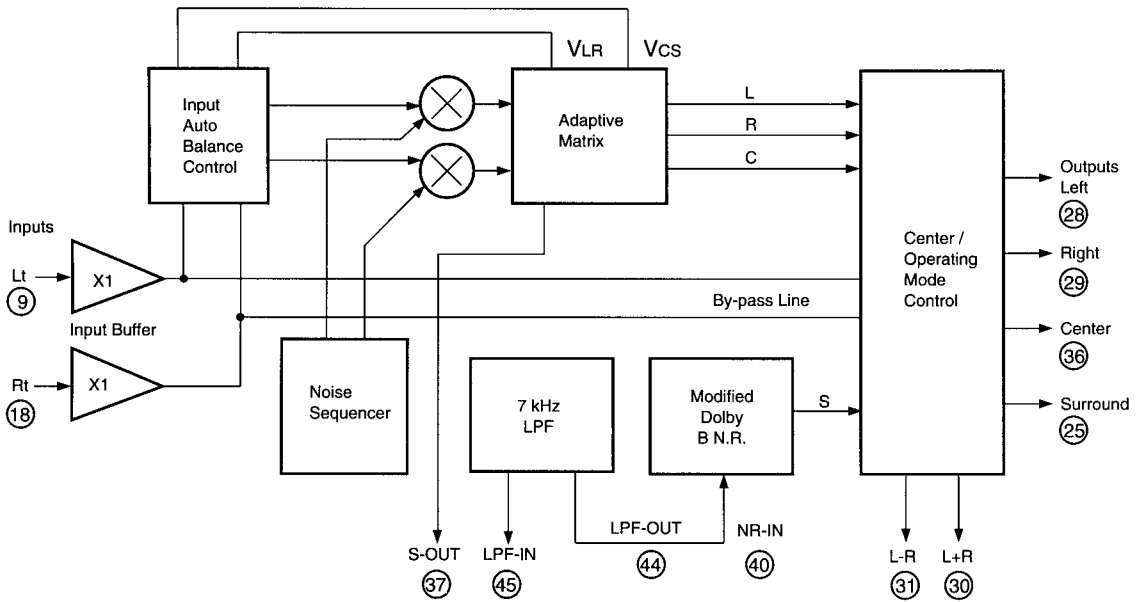
IC803 : HA12016 (MPX)



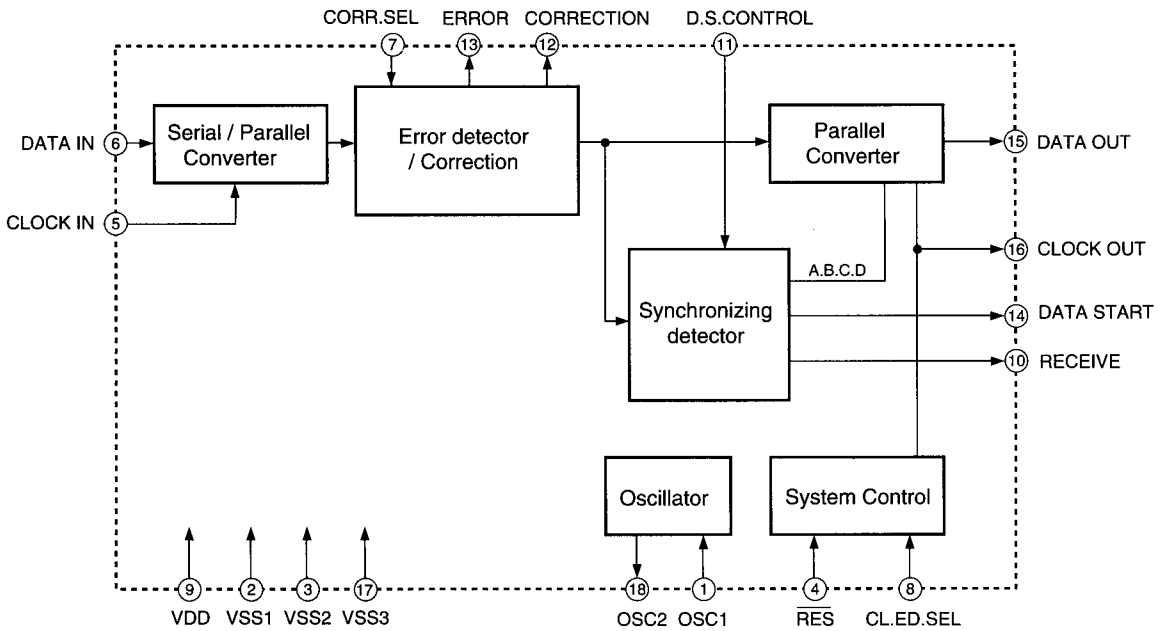
IC804 : TDA7330B (RDS Decoder)



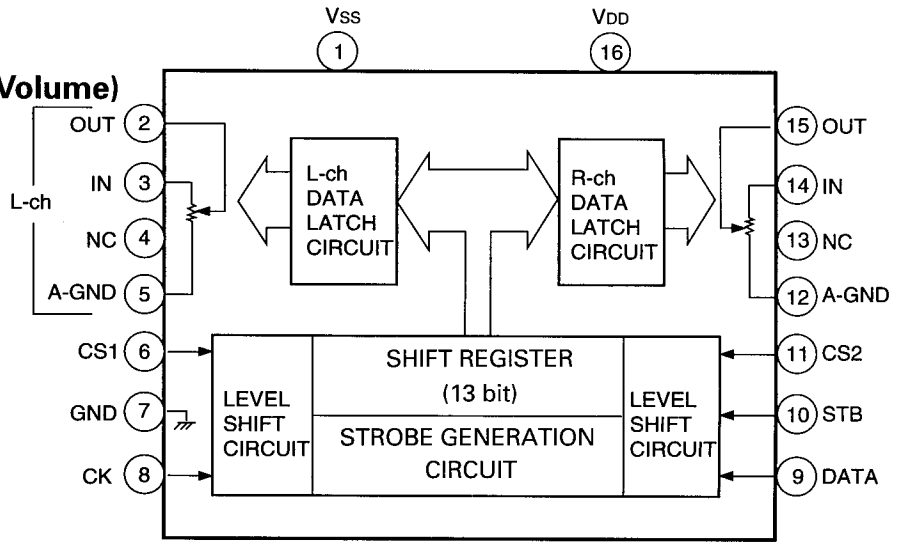
IC301 : NJM2177AFB3 (Dolby Decoder)



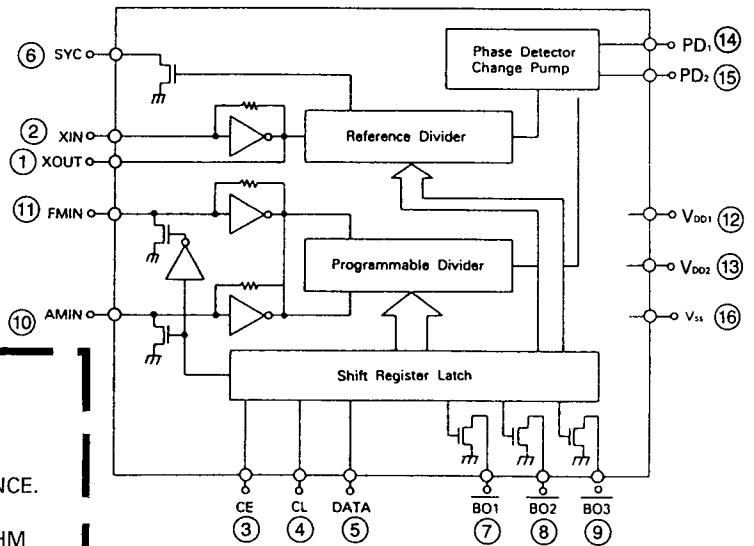
IC805 : LC7073 (Error Correction)



IC303 : TC9299 (Electronic Volume)



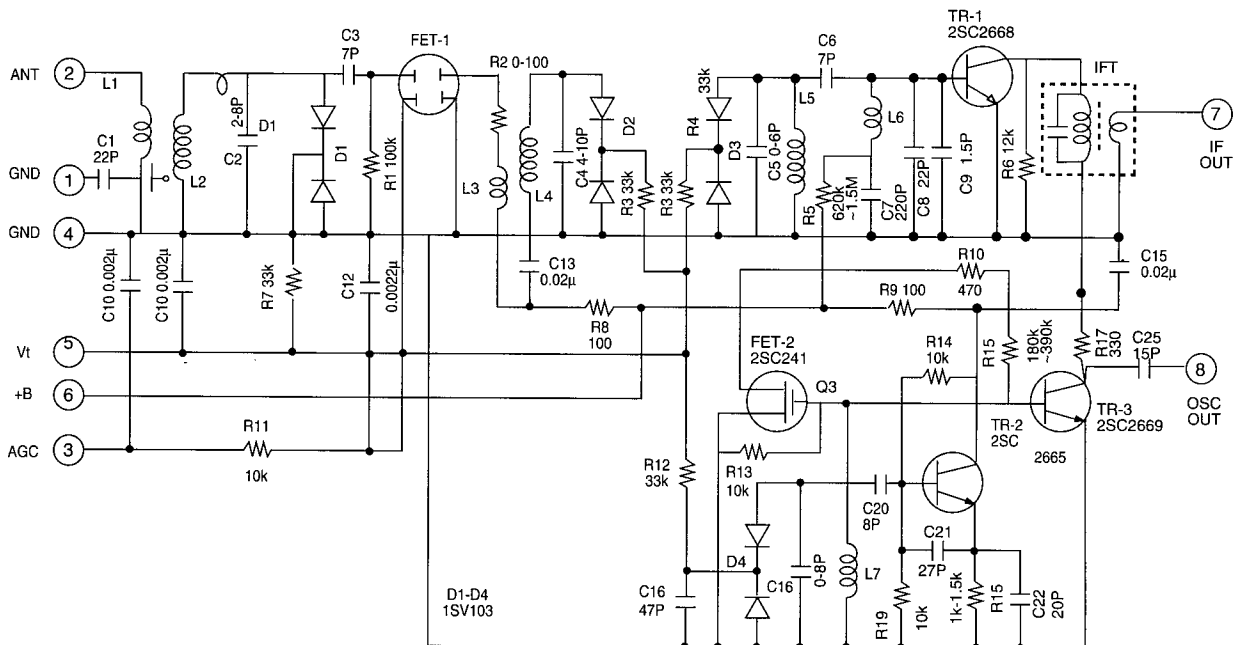
IC802 : LM7001 (PLL)



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

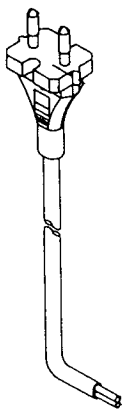
NOTES

- 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



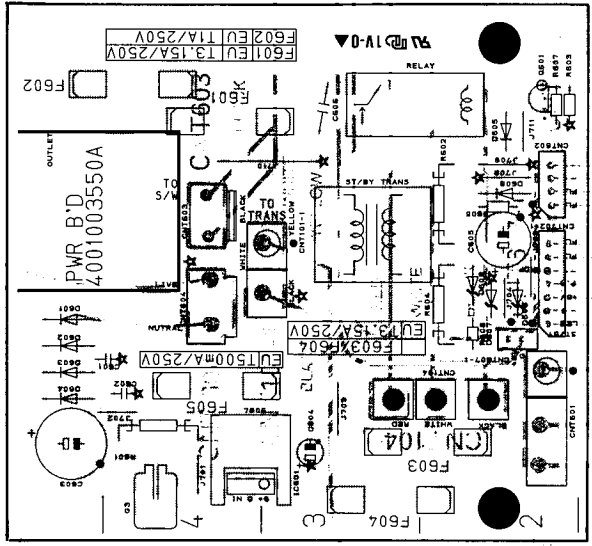
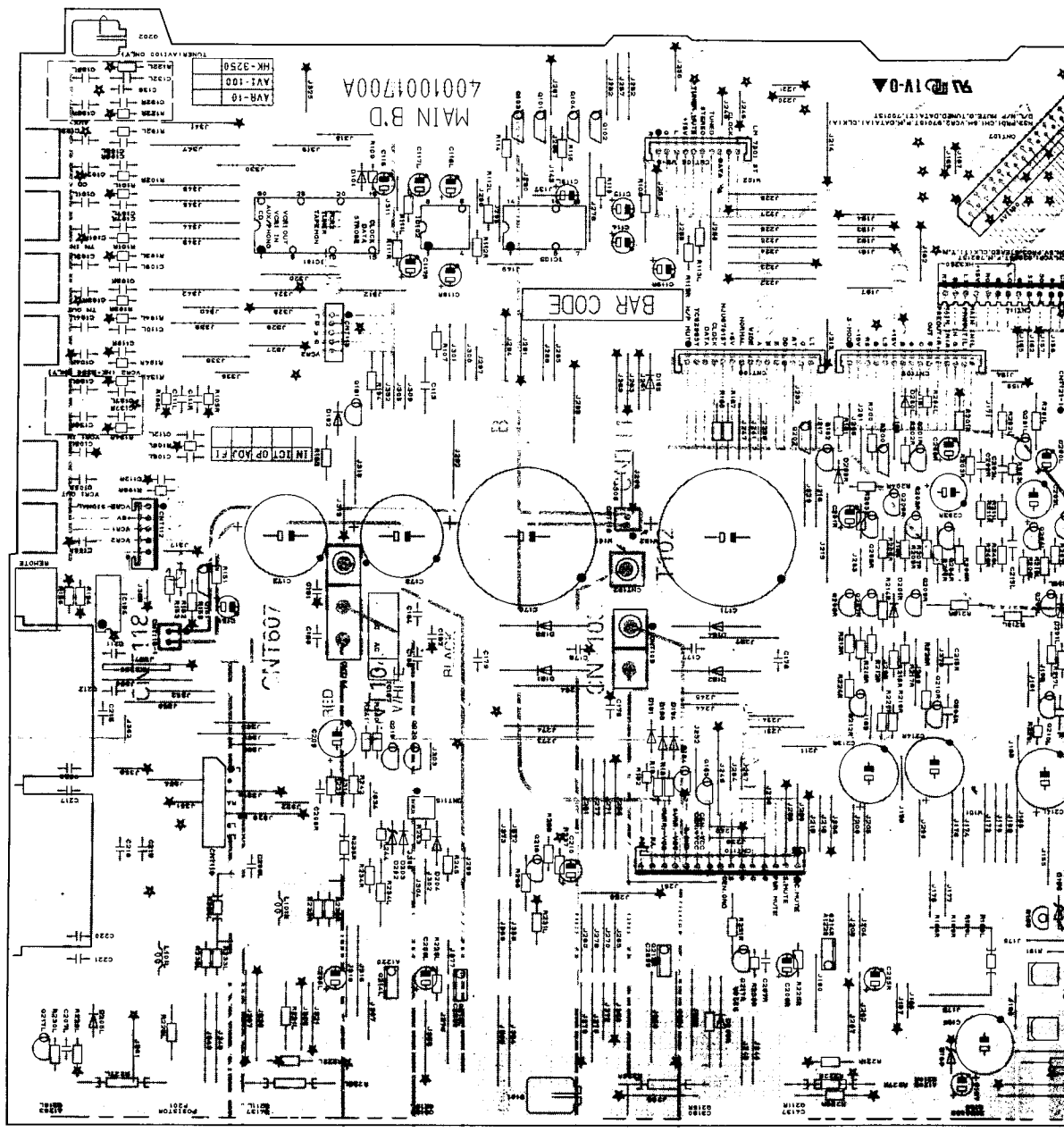
WIRING DIAGRAM

A B C D E F G



PCB1

PCB6



1

2

3

4

5

M

L

K

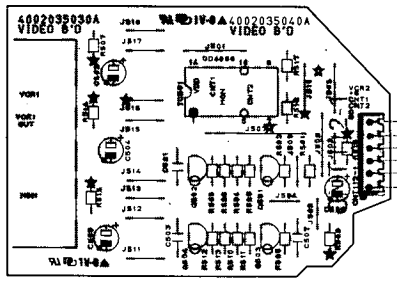
J

I

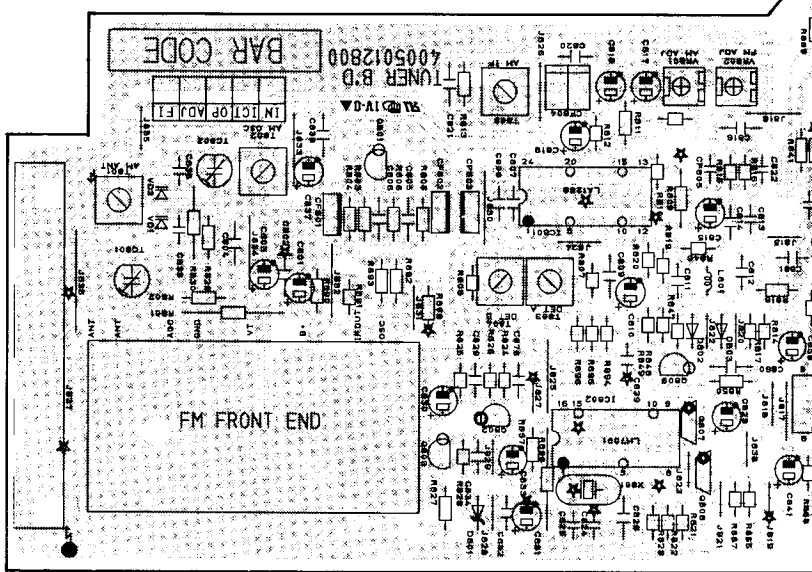
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G

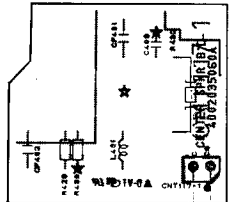
PCB12



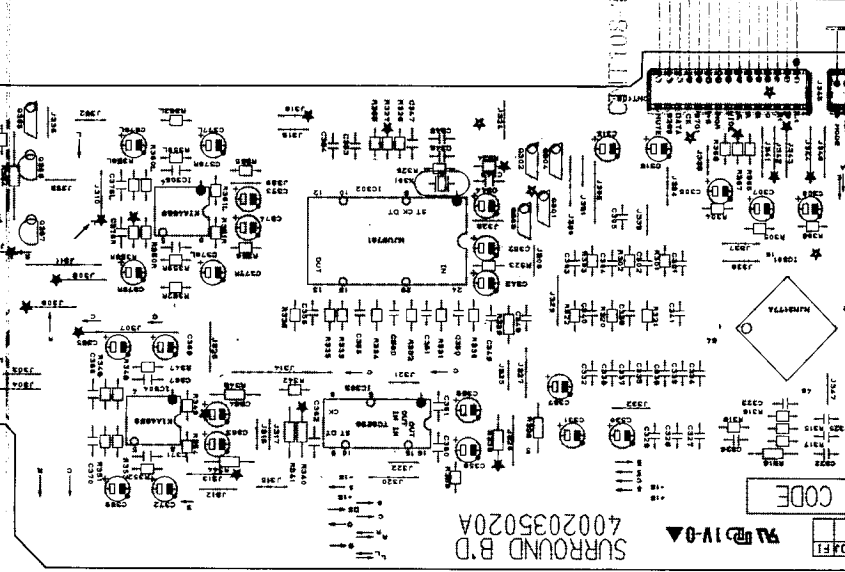
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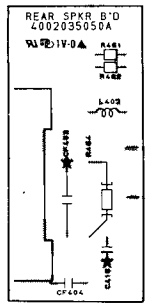
PCB13



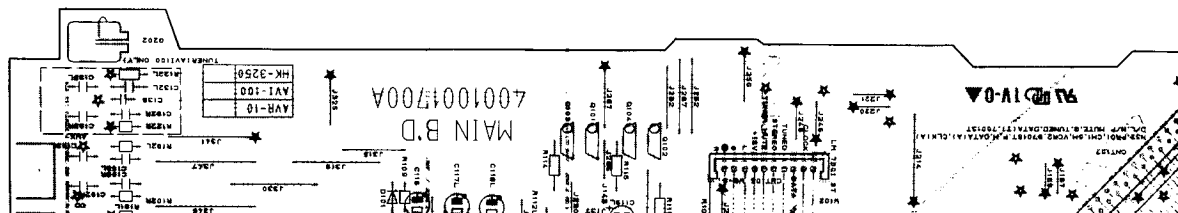
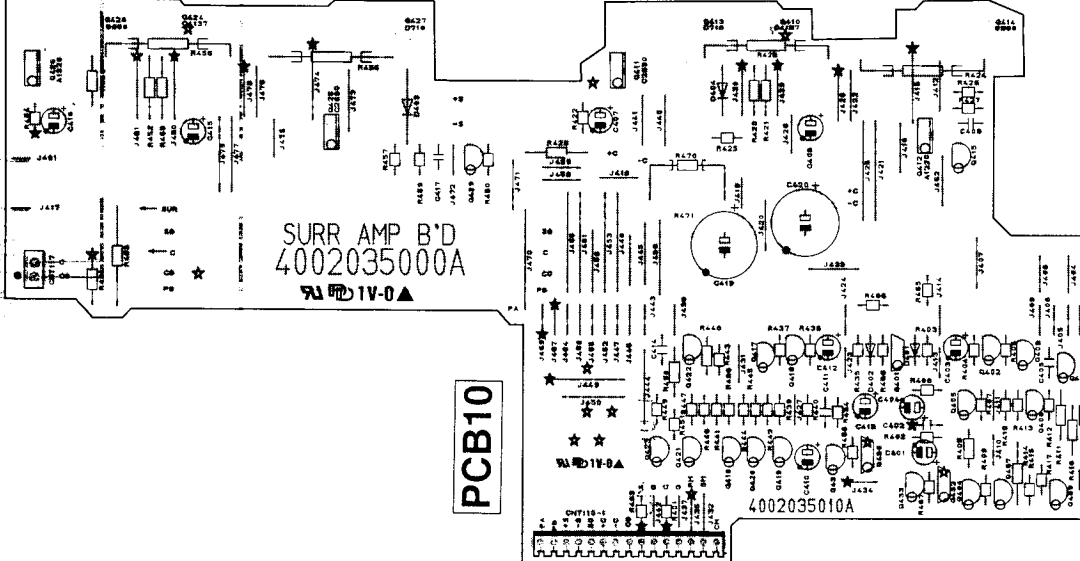
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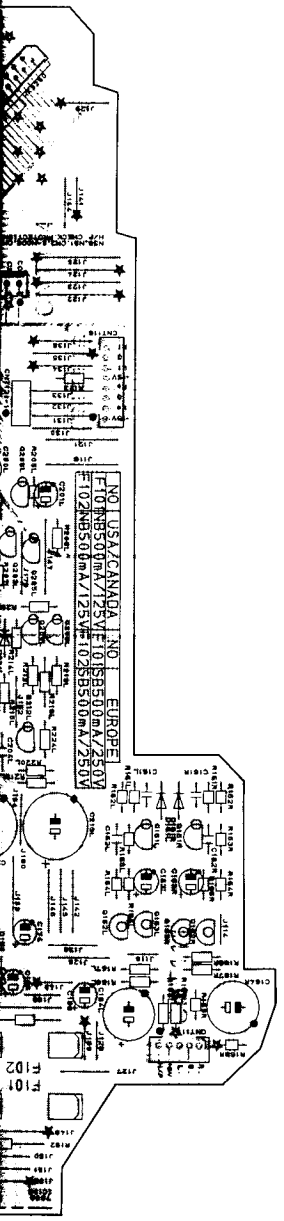


PCB14

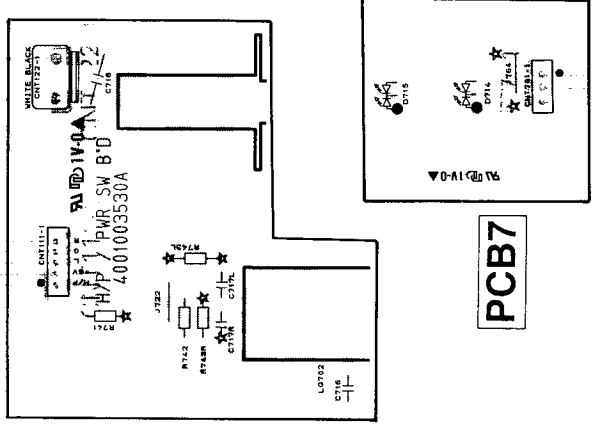
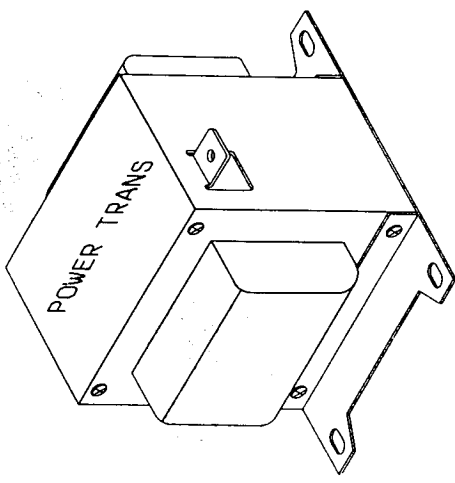
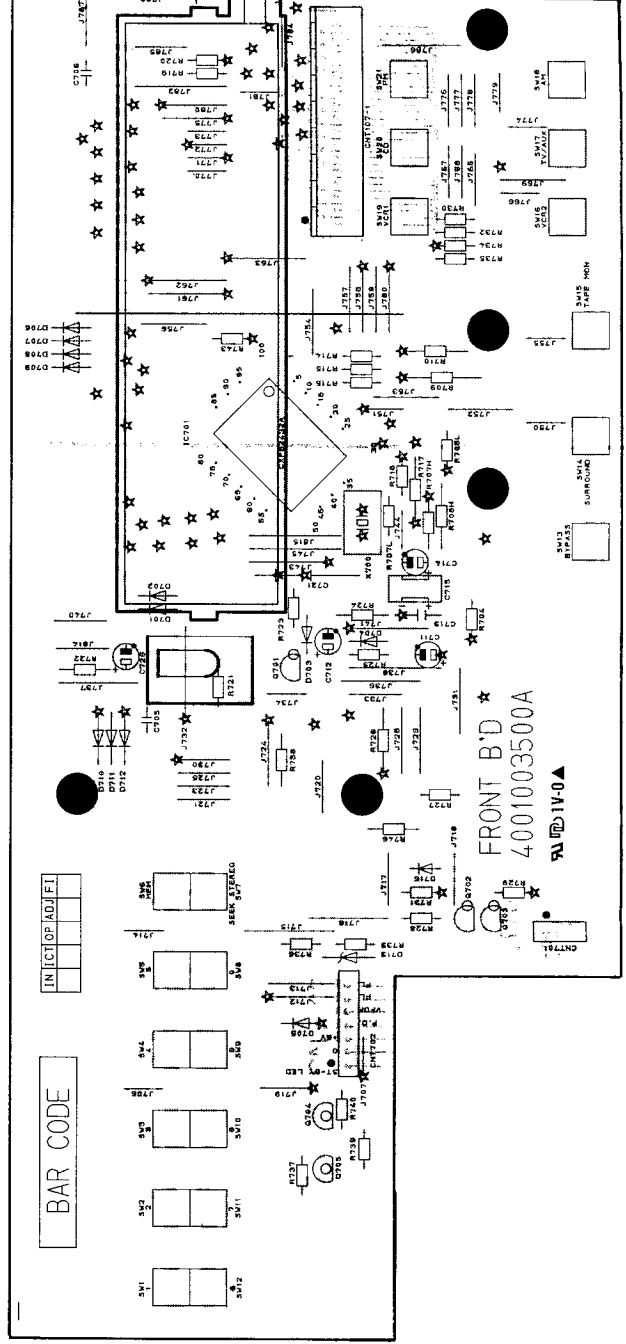


PCB10

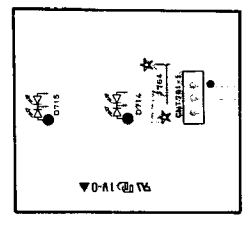




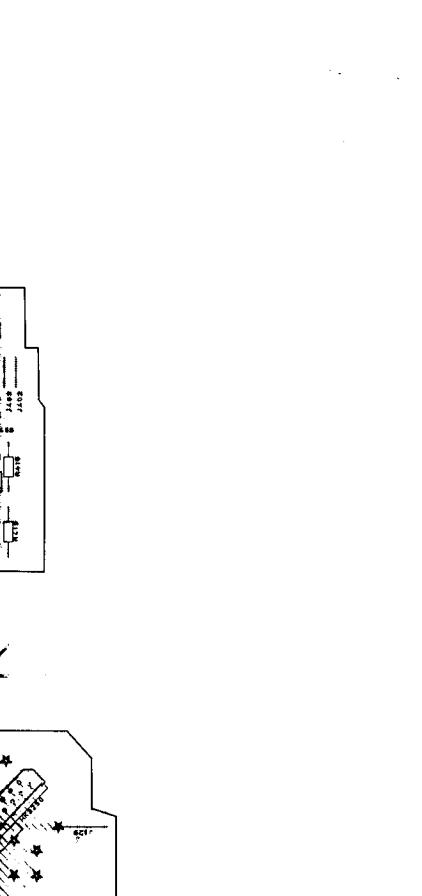
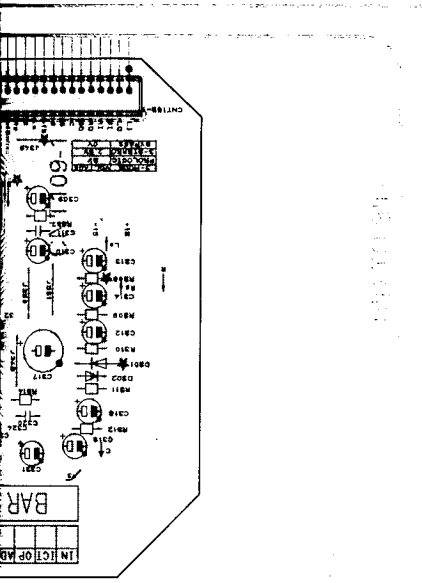
PCB3



PCB8

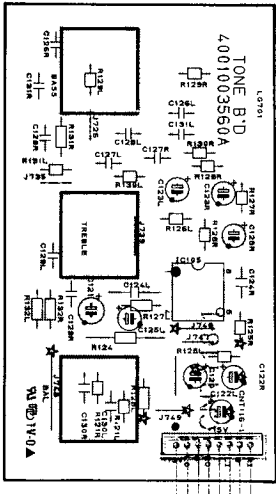


PCB7

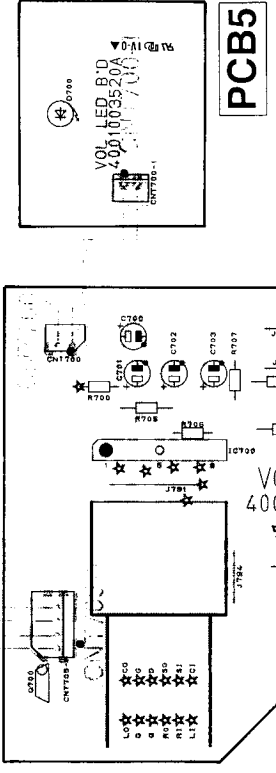


B'D TO B'D

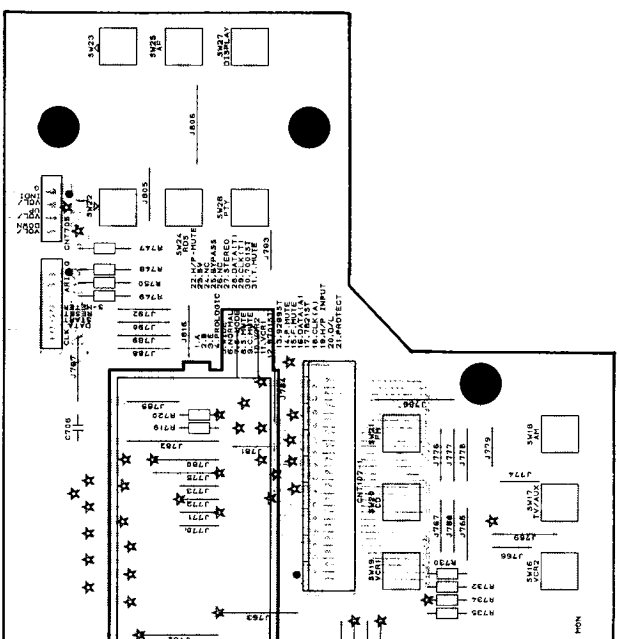
PCB2



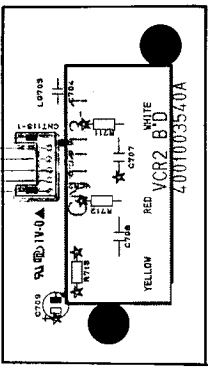
PCB5



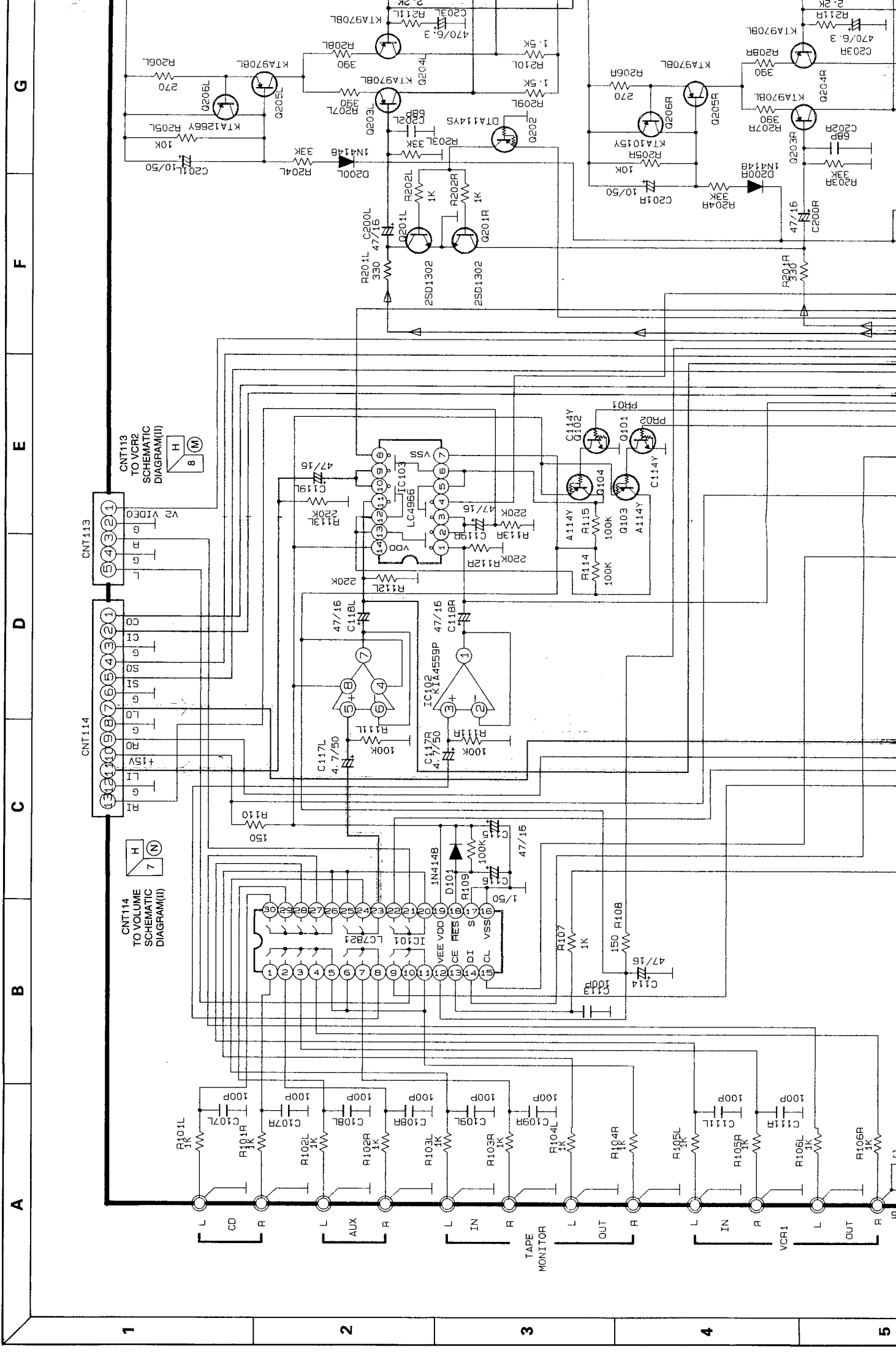
PCB4



PCB9



SCHEMATIC DIAGRAM I



A B C D E F G

1 2 3 4 5

NNT113
TO VCR2
SCHEMATIC
DIAGRAM(II)

NNT114
TO VOLUME
SCHEMATIC
DIAGRAM(II)

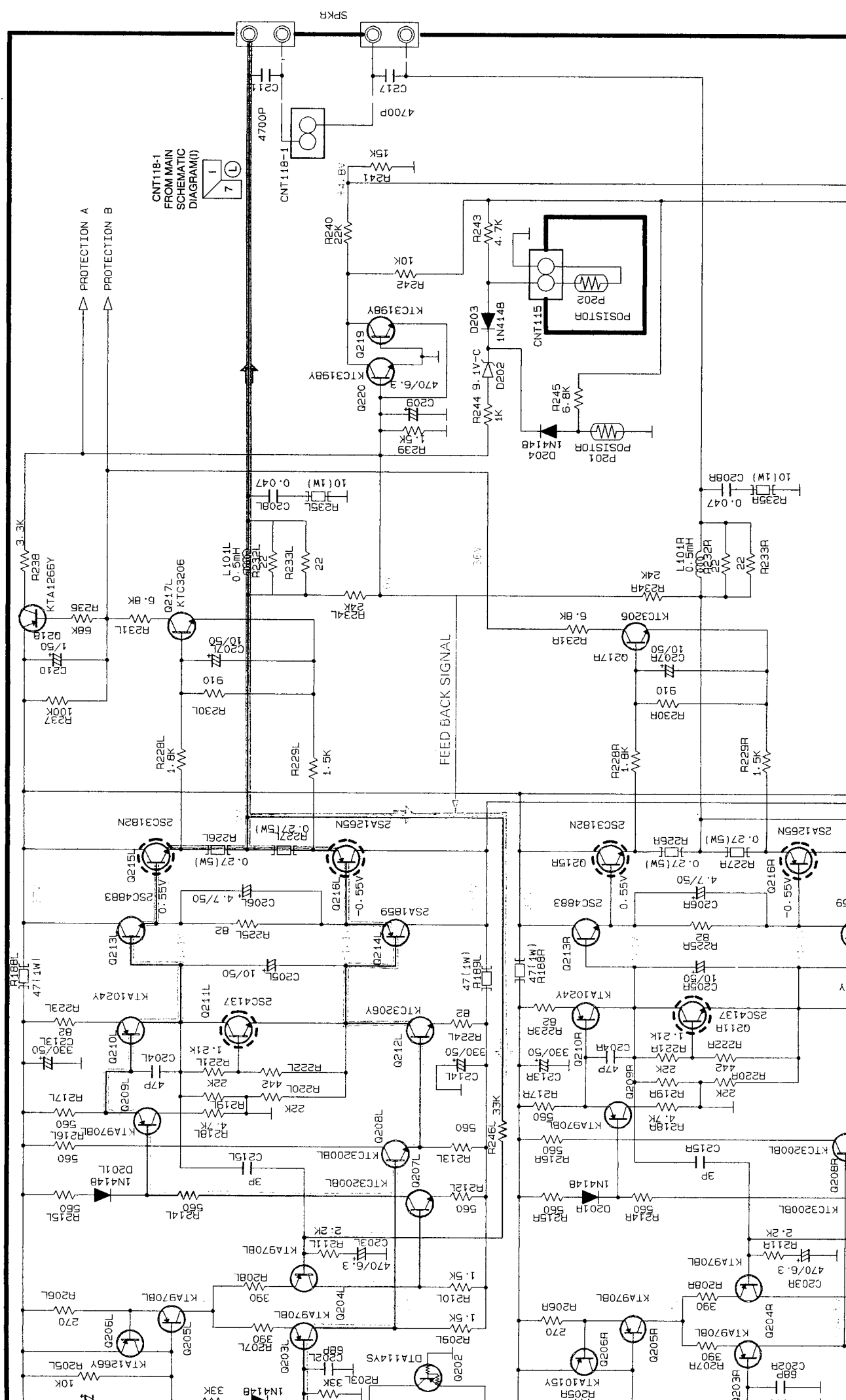
NNT115
TO VCR1
SCHEMATIC
DIAGRAM(II)

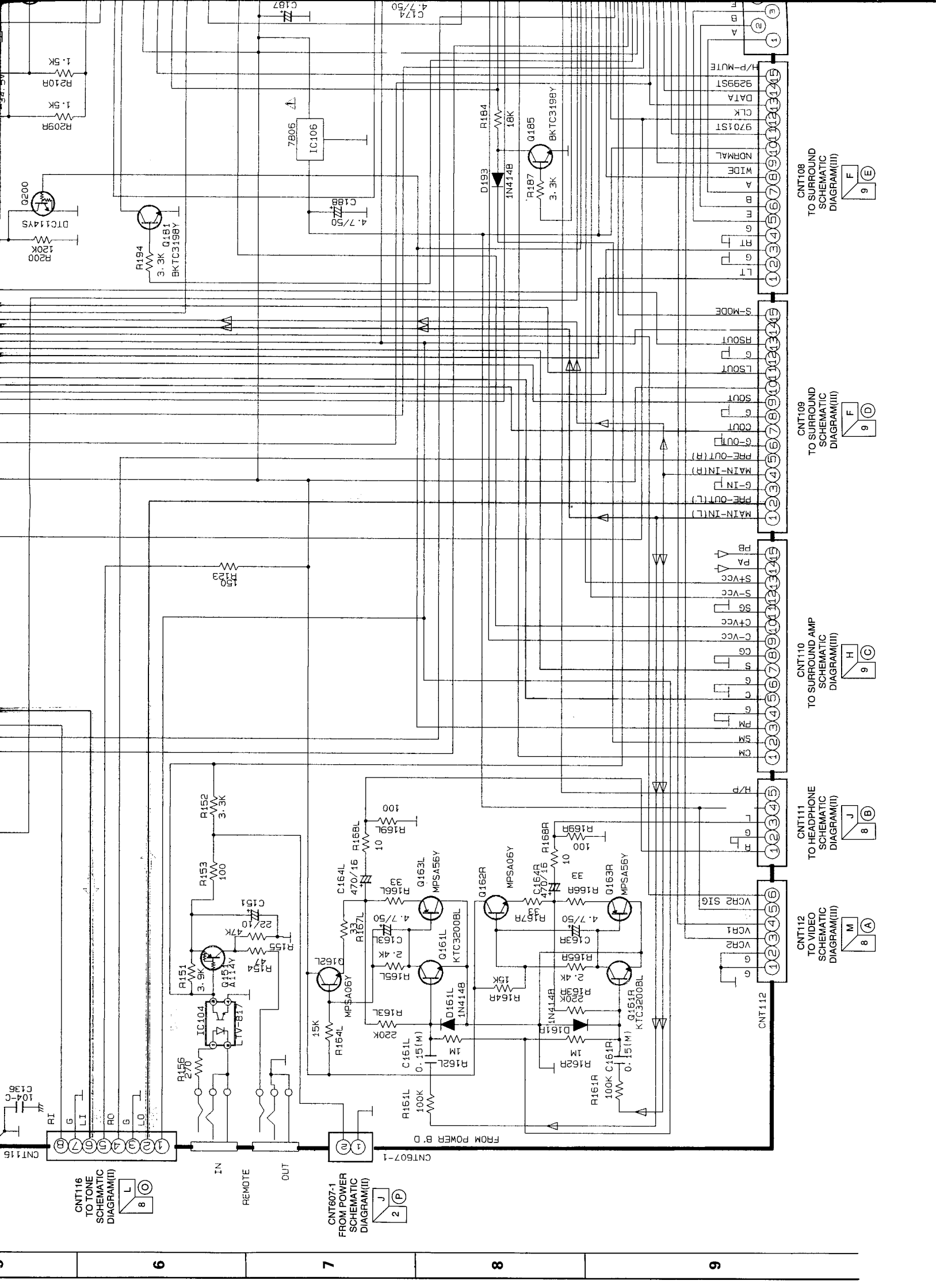
NNT116
TO VCR3
SCHEMATIC
DIAGRAM(II)

NNT117
TO VCR4
SCHEMATIC
DIAGRAM(II)

G H I J K L M

AVR11 (11/4/70)





CNT116
TO TONE
SCHEMATIC
DIAGRAM(II)

CNT607-1
FROM POWER B.D.
SCHEMATIC
DIAGRAM(II)

CNT112
TO VIDEO
SCHEMATIC
DIAGRAM(III)

CNT111
TO HEADPHONE
SCHEMATIC
DIAGRAM(II)

CNT110
TO SURROUND AMP
SCHEMATIC
DIAGRAM(III)

CNT109
TO SURROUND
SCHEMATIC
DIAGRAM(III)

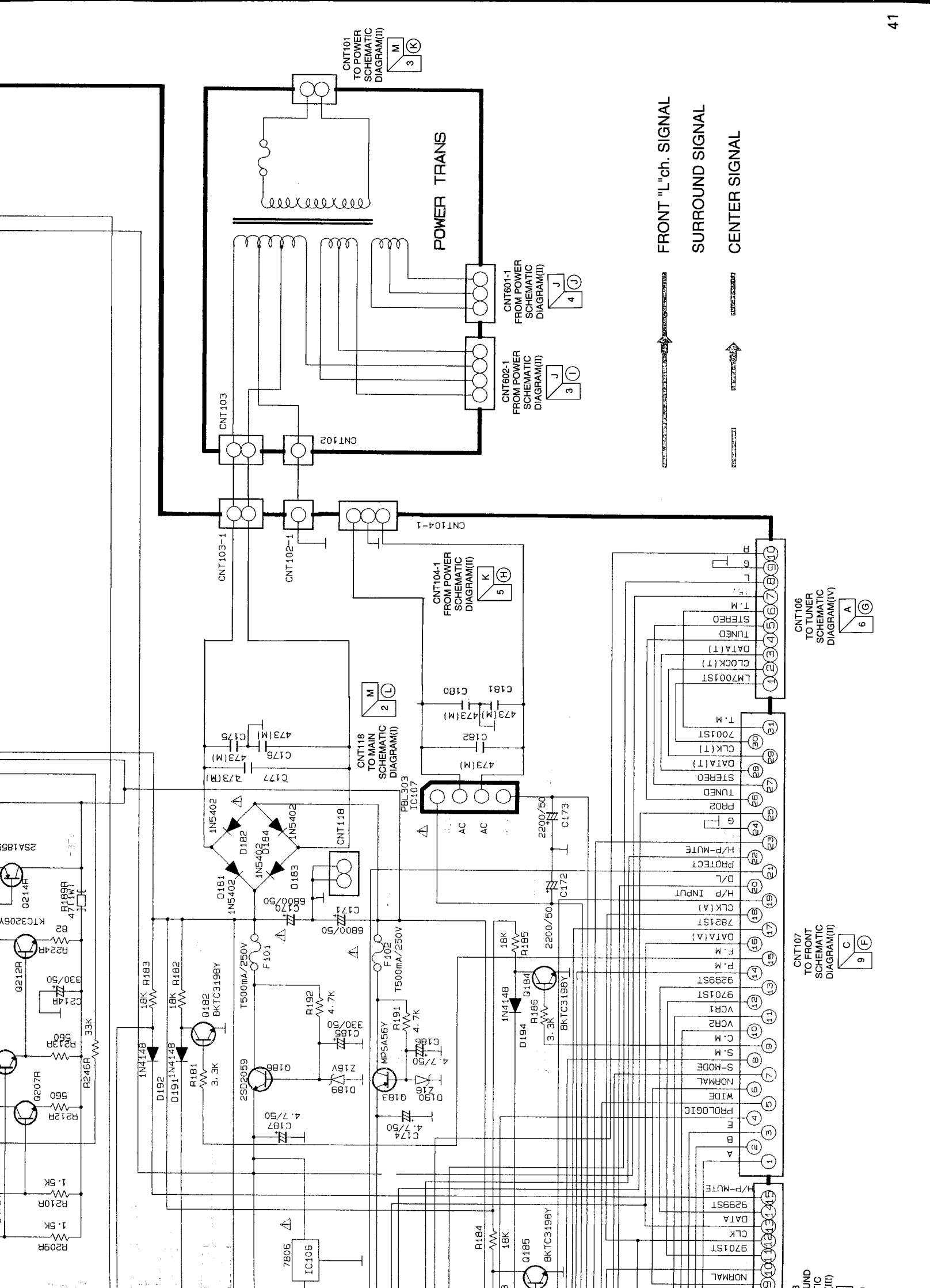
CNT108
TO SURROUND
SCHEMATIC
DIAGRAM(III)

6

7

8

9



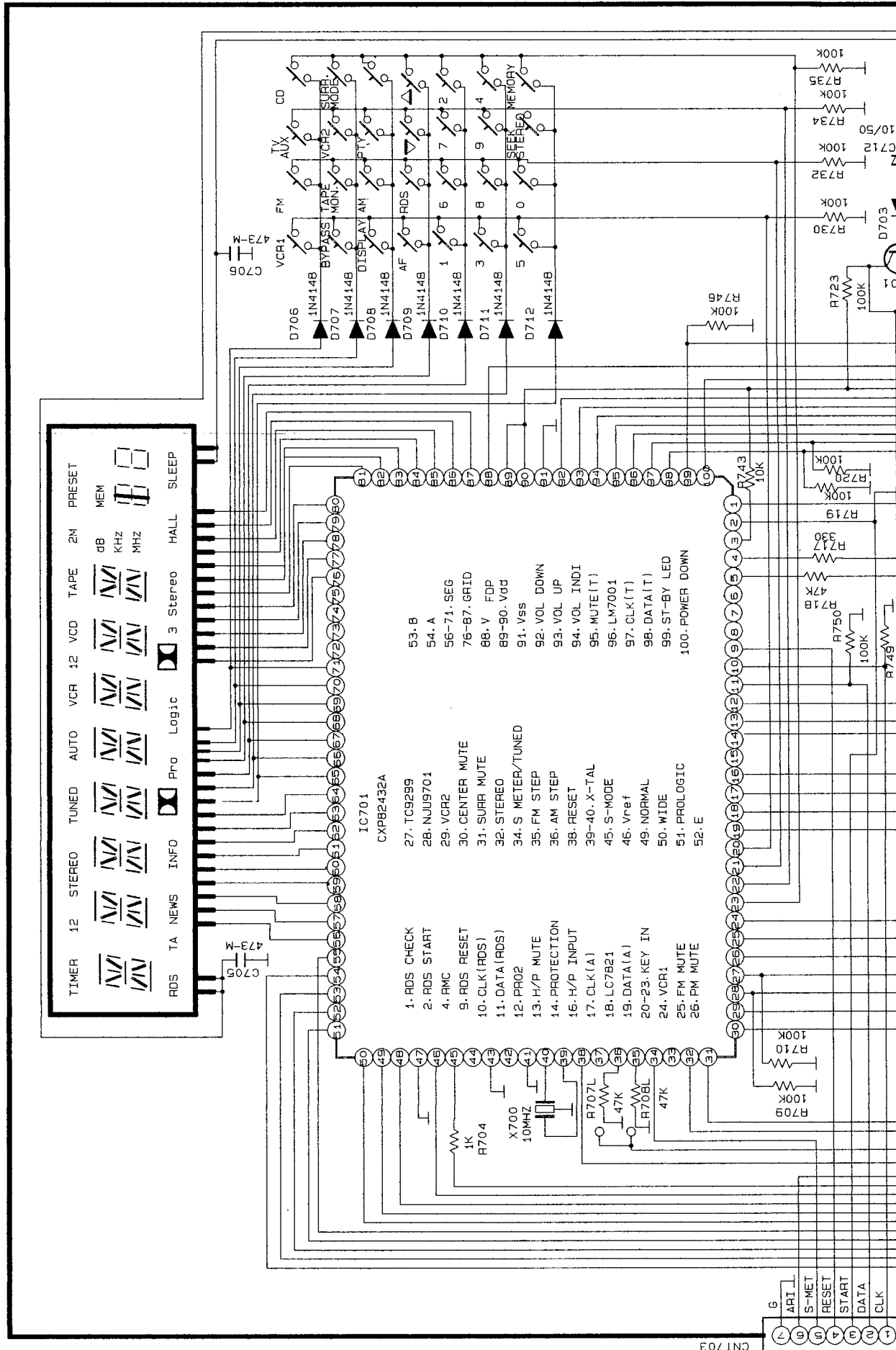
FRONT "L" ch. SIGNAL
 SURROUND SIGNAL
 CENTER SIGNAL

SCHEMATIC DIAGRAM II

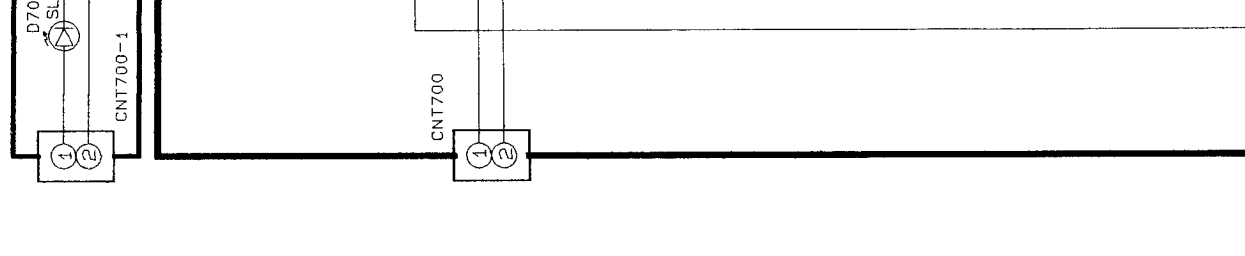
A B C D E F G

1 2 3 4 5

PCB3 (FRONT)



PCB5 (VOLUME)



H

I

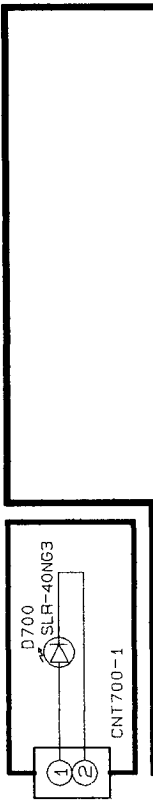
J

K

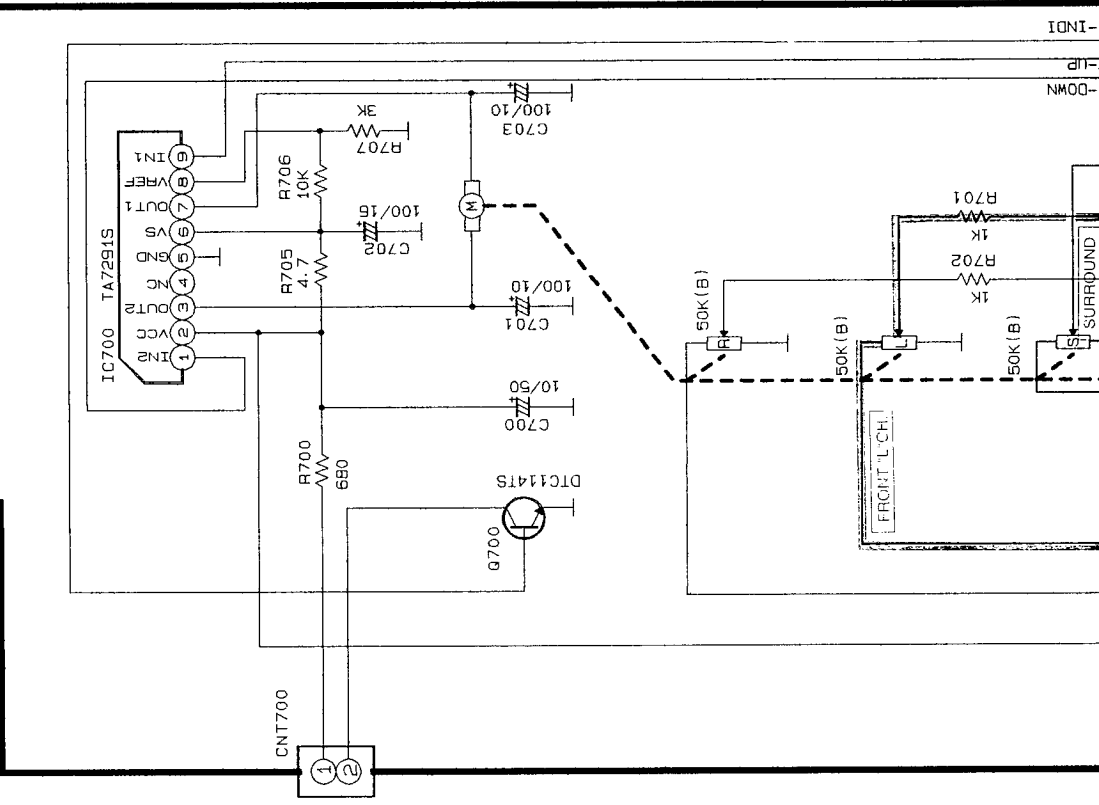
L

M

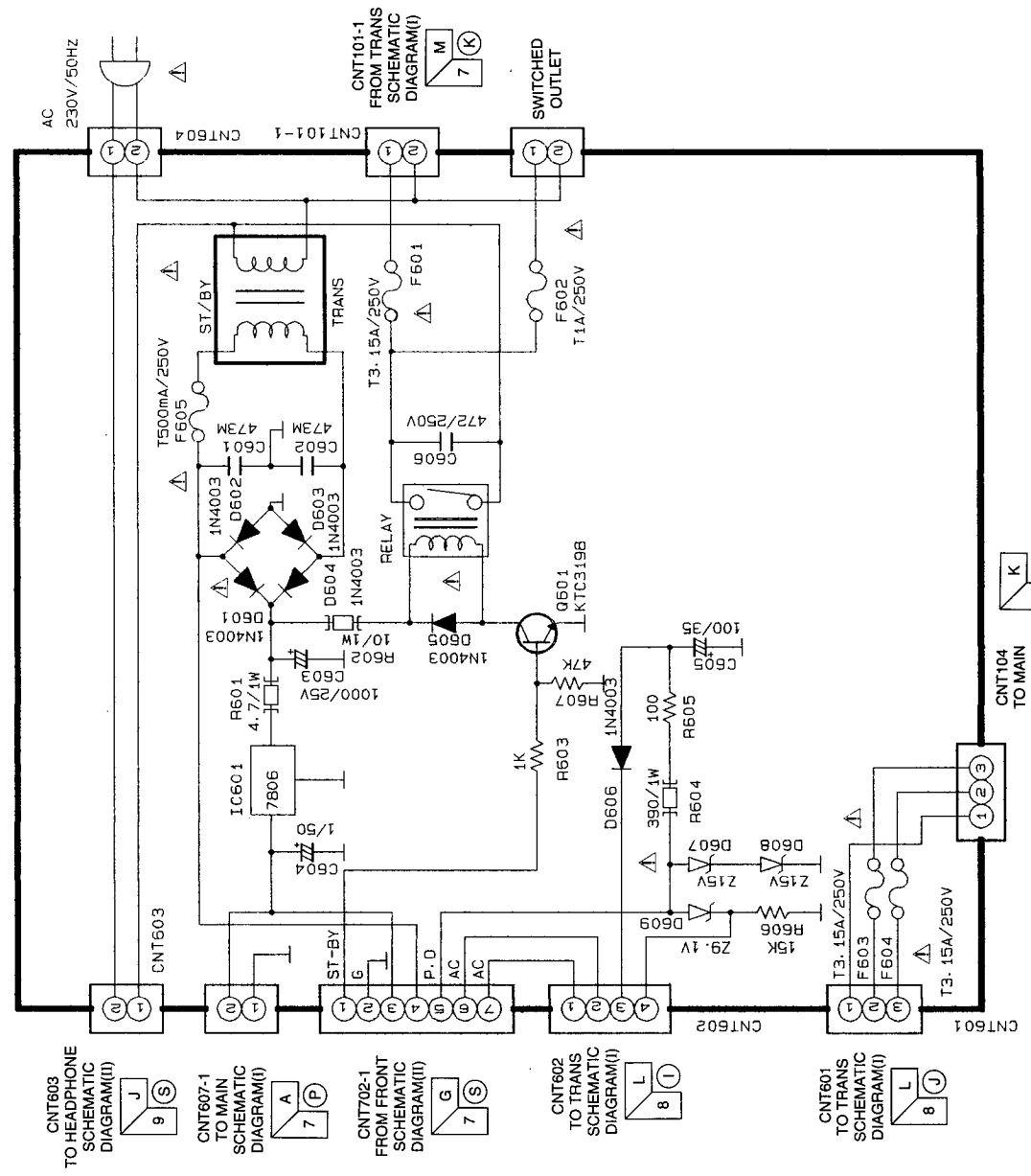
PCB5 (VOLUME LED)



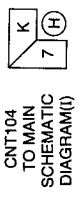
PCB4 (VOLUME)

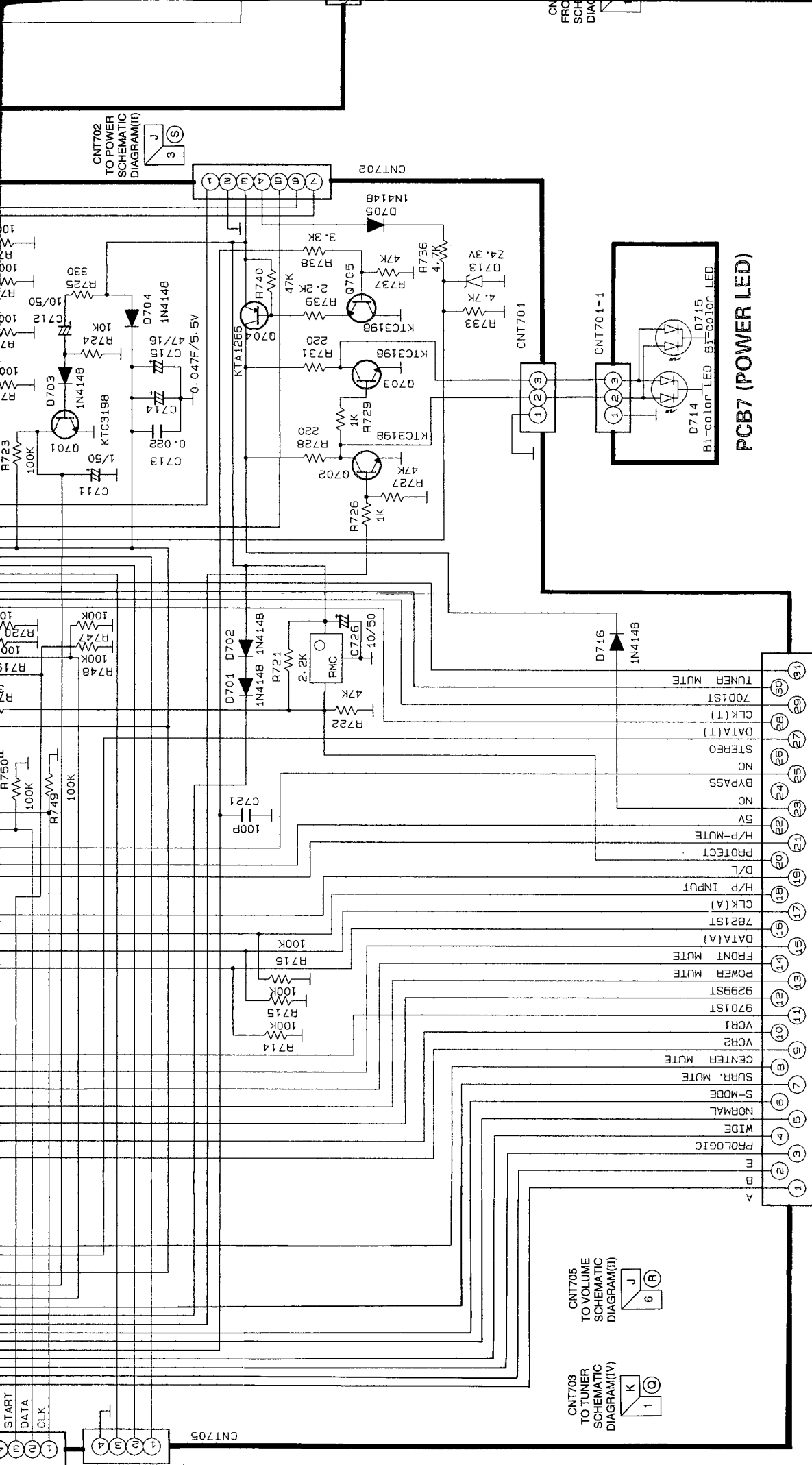


PCB6 (POWER)



PCB2 (TONE)





CNT107-1
FROM MAIN
SCHEMATIC
DIAGRAM(I)



CNT703
TO TUNER
SCHEMATIC
DIAGRAM(IV)



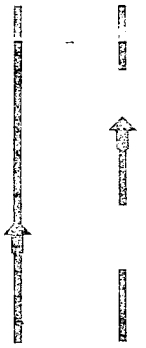
CNT705
TO VOLUME
SCHEMATIC
DIAGRAM(II)



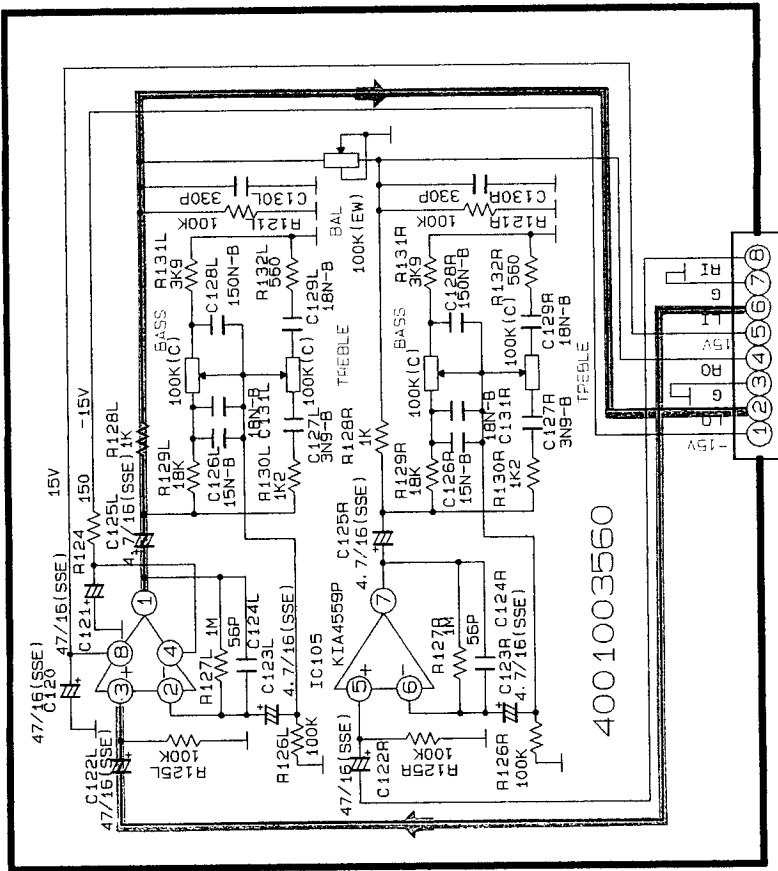
CNT702
TO POWER
SCHEMATIC
DIAGRAM(II)



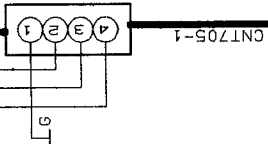
FRONT "L"ch. SIGNAL
SURROUND SIGNAL
CENTER SIGNAL



PCB2 (TONE)



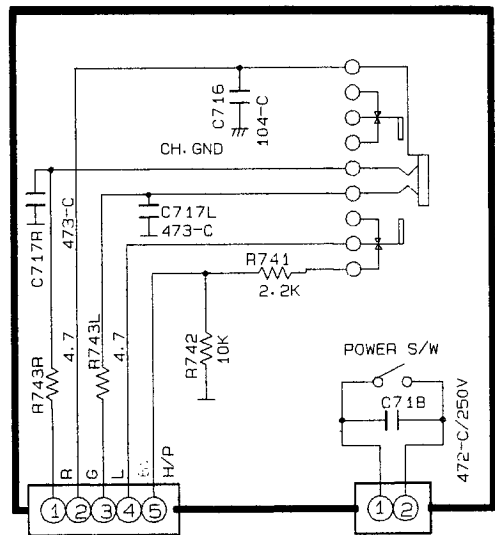
NNT705-1 FROM FRONT SCHEMATIC DIAGRAM(II)



NNT702 TO POWER SCHEMATIC DIAGRAM(II)



PCB8 (HEADPHONE)



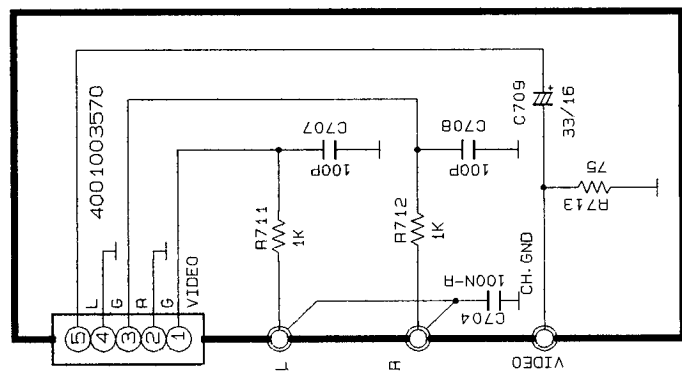
NNT111-1 FROM MAIN SCHEMATIC DIAGRAM(I)



NNT122-1 FROM POWER SCHEMATIC DIAGRAM(II)



PCB9 (VCR2)



NNT113-1 FROM MAIN SCHEMATIC DIAGRAM(I)



NNT114-1 FROM MAIN SCHEMATIC DIAGRAM(I)



NOTES

1. Resistor values are indicated in ohms unless otherwise specified
[K=1,000 M=1,000,000]
2. Capacitor values are indicated in microfarads unless otherwise specified.
[p=micro-microfarades]

CAUTION

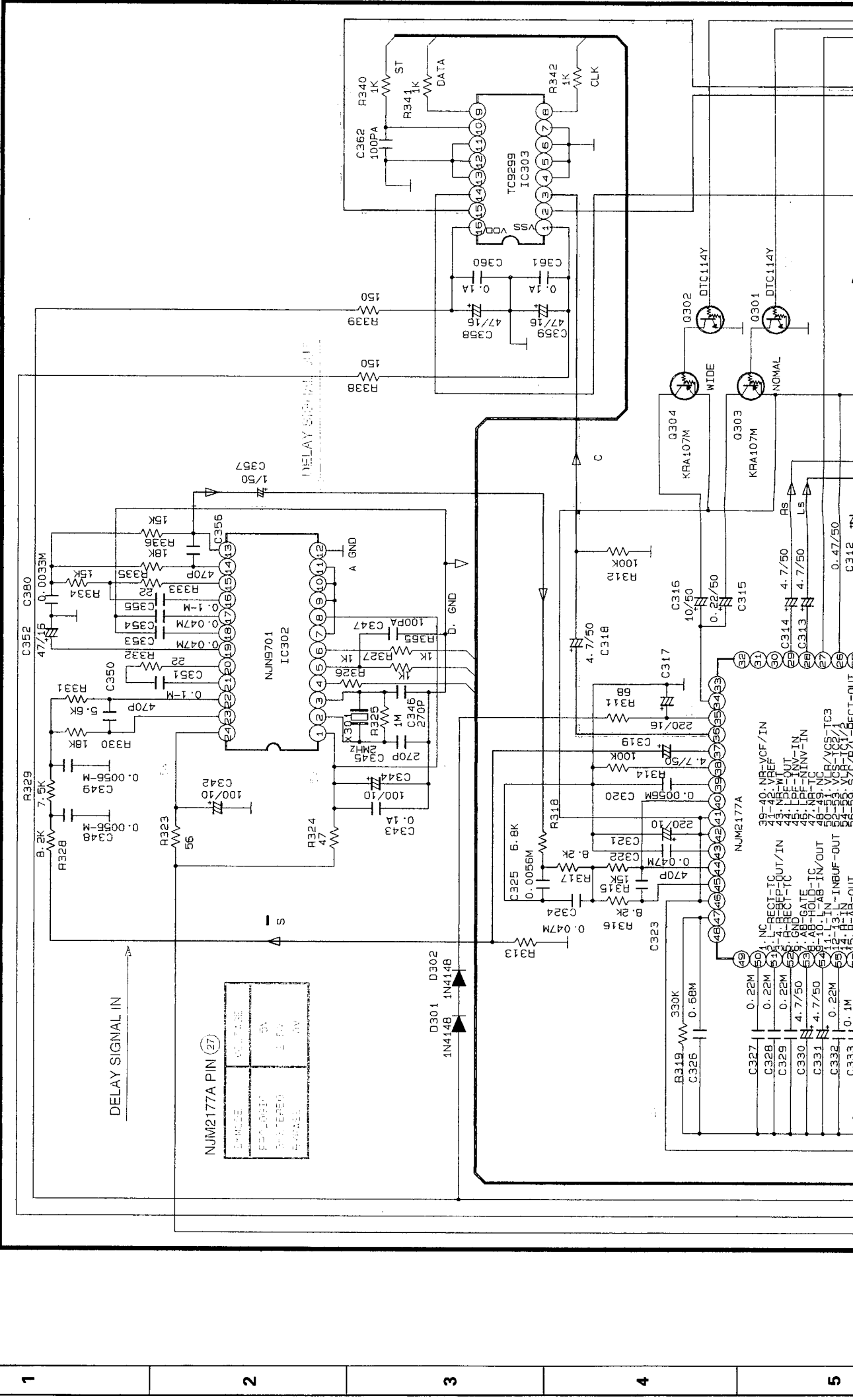
Safety precaution to be followed during servicing

- 1) Since those parts marked with are critical parts for safety, use only the one described in the parts list
- 2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

SCHEMATIC DIAGRAM III

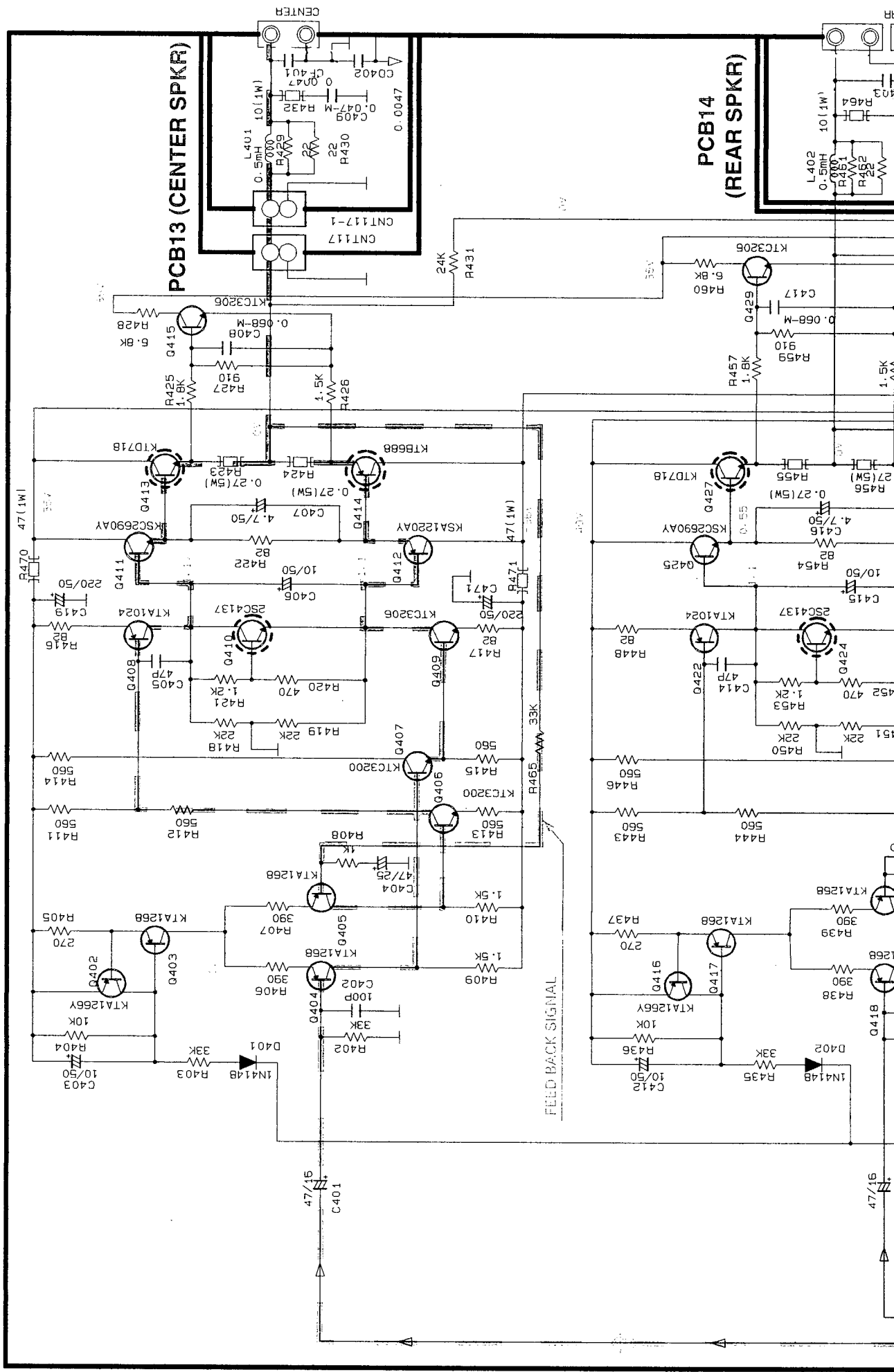
A B C D E F G

REPT (5000000)



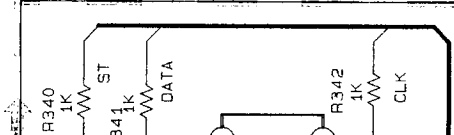
G H I J K L M

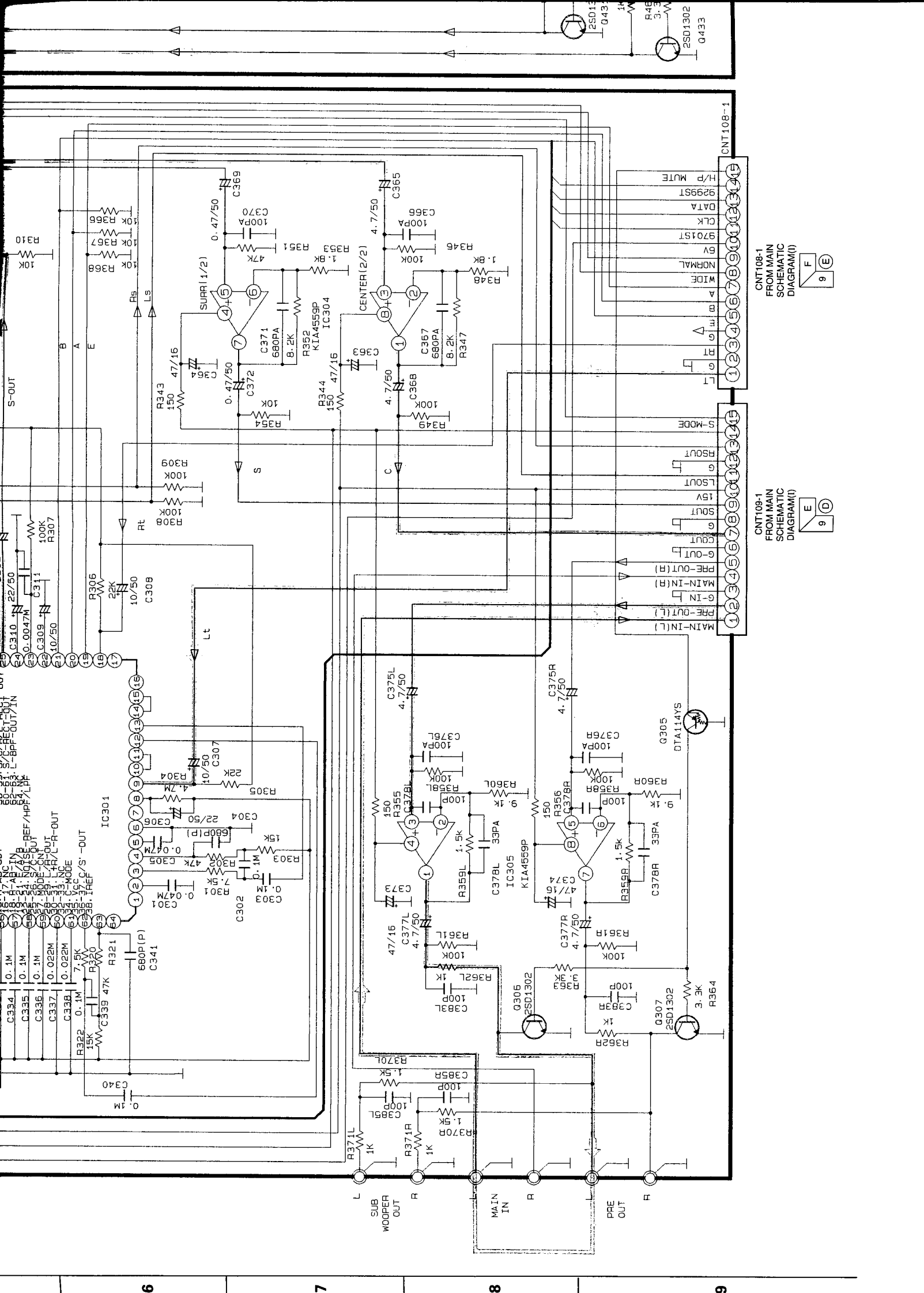
PCB10 (SURROUND AMP)



PCB13 (CENTER SPKR)

PCB14 (REAR SPKR)





CNT108-1
FROM MAIN
SCHEMATIC
DIAGRAM(I)

CNT109-1
FROM MAIN
SCHEMATIC
DIAGRAM(I)

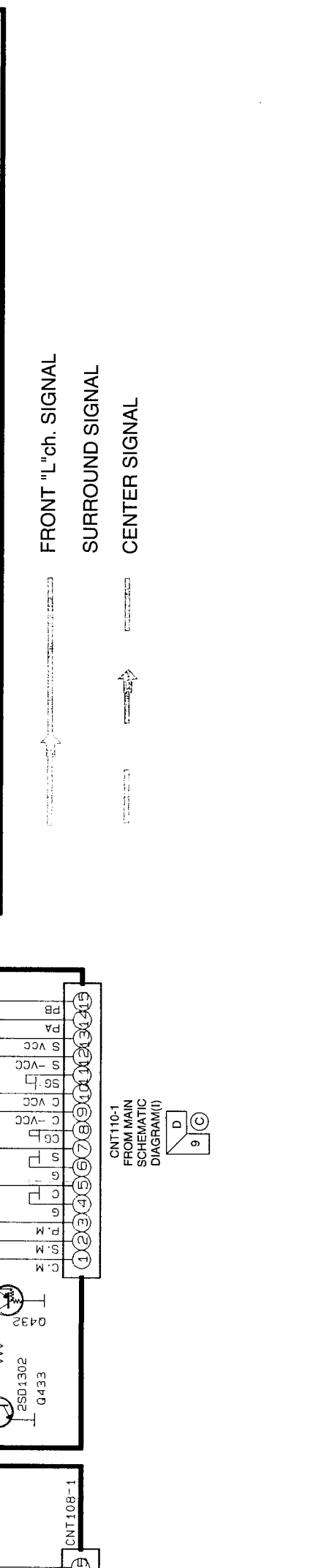
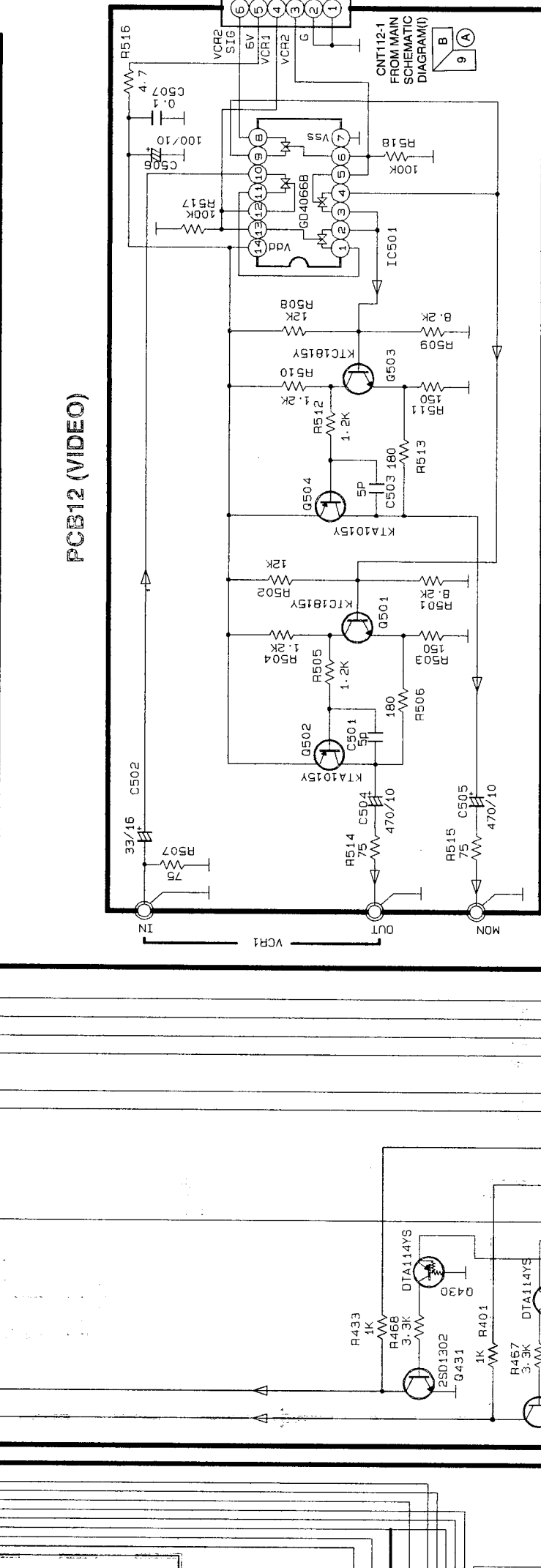
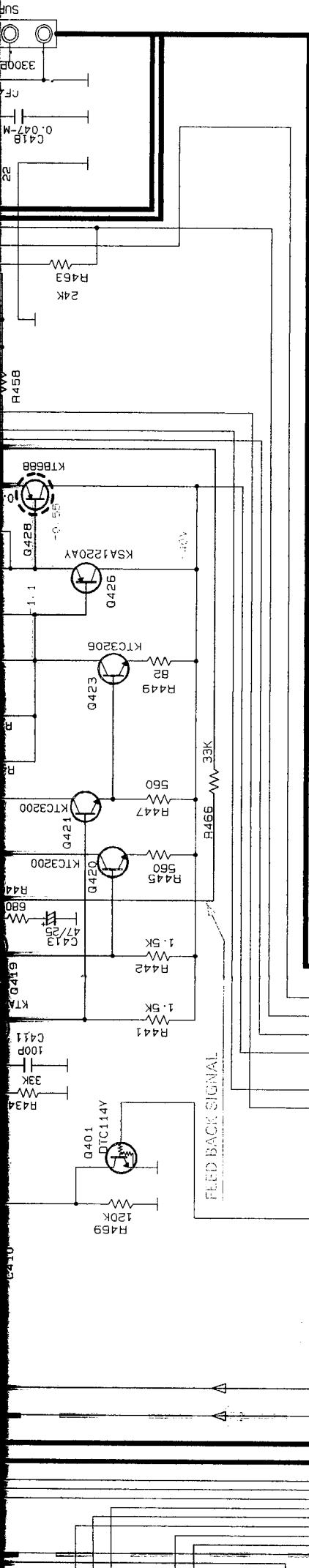


6

7

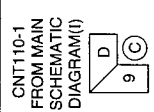
8

9



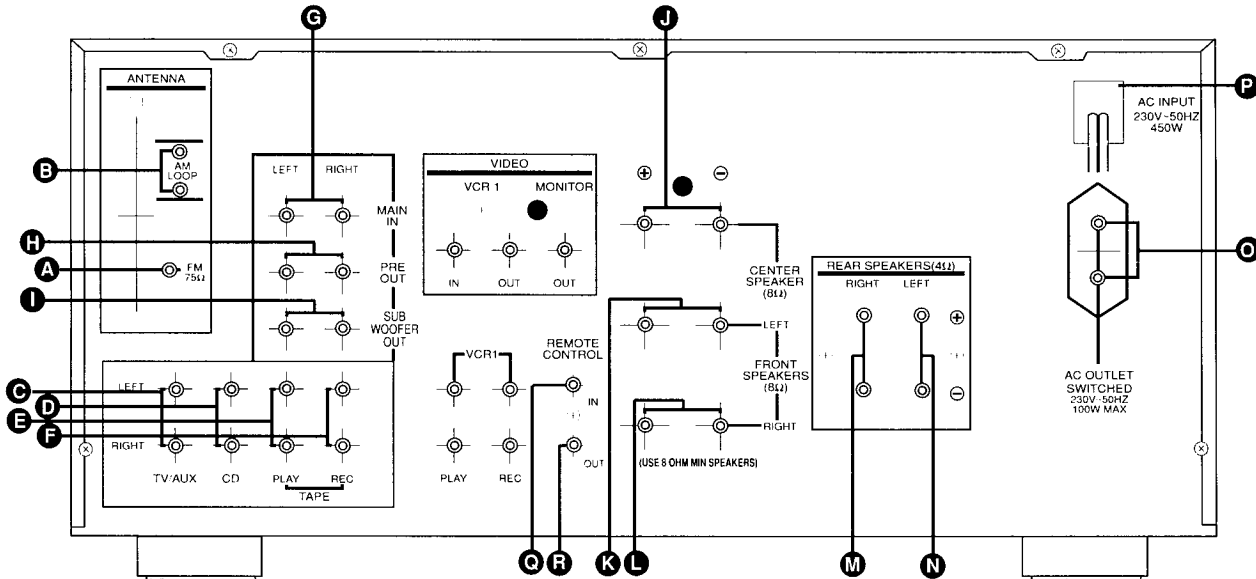
PCB12 (VIDEO)

FRONT "L"ch. SIGNAL
SURROUND SIGNAL
CENTER SIGNAL



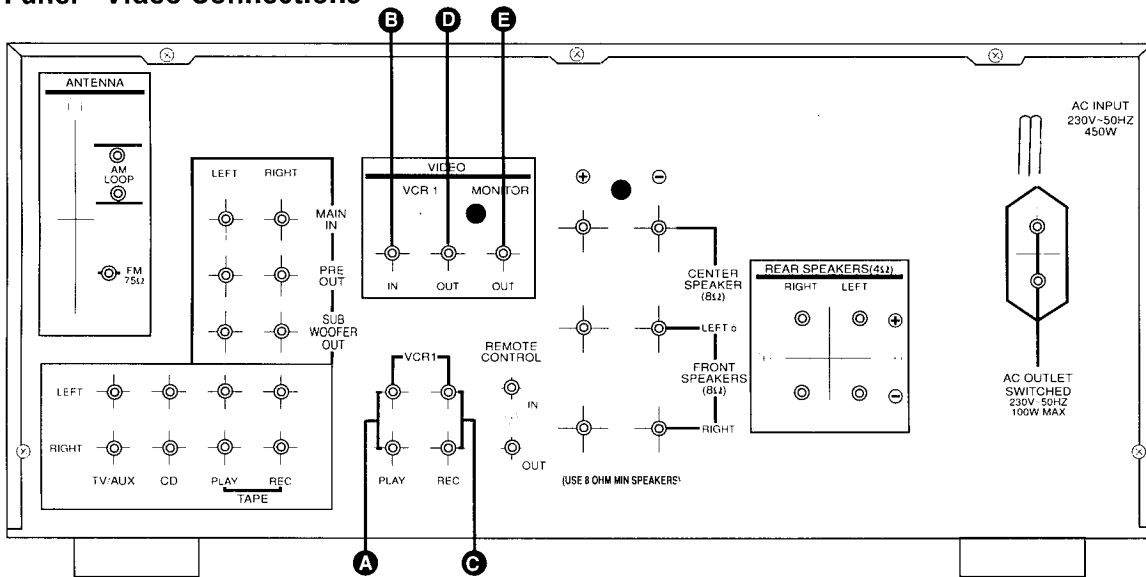
REAR PANEL CONNECTIONS

Rear Panel - Audio and System Connections



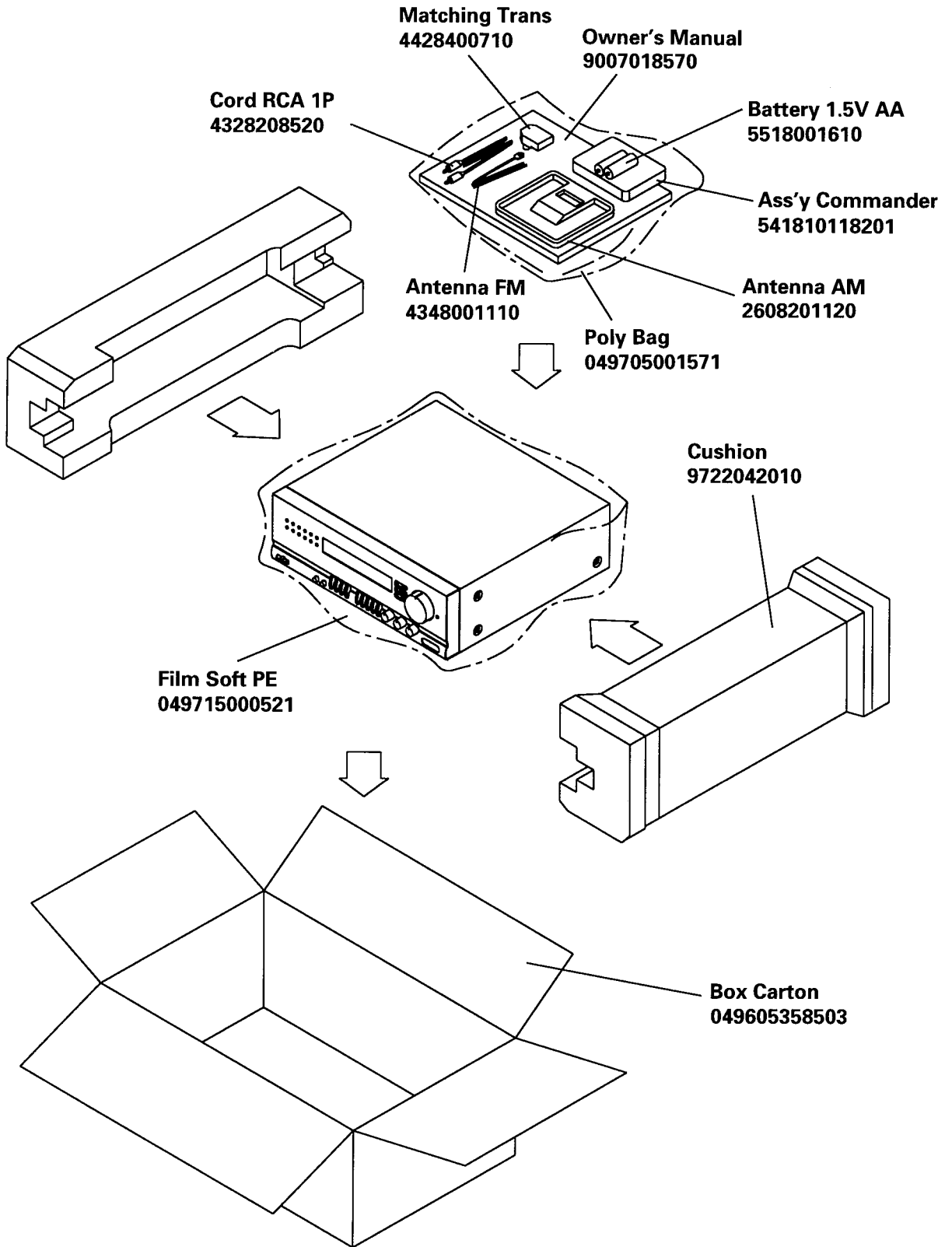
- A** FM Antenna
- B** AM Antenna
- C** TV/AUX In
- D** CD In
- E** Tape In
- F** Tape Out (REC)
- G** Main Amp In
- H** Pre Amp Out
- I** Subwoofer Pre-Out
- J** Center-Speaker
- K** Front L-Speaker
- L** Front R-Speaker
- M** Rear R-Speaker
- N** Rear L-Speaker
- O** Switched AC Outlet
- P** Power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



SCHEMATIC DIAGRAM IV

A

B

C

D

E

F

G

TUNER "L"ch. SIGNAL

AM SIGNAL

FM SIGNAL



1

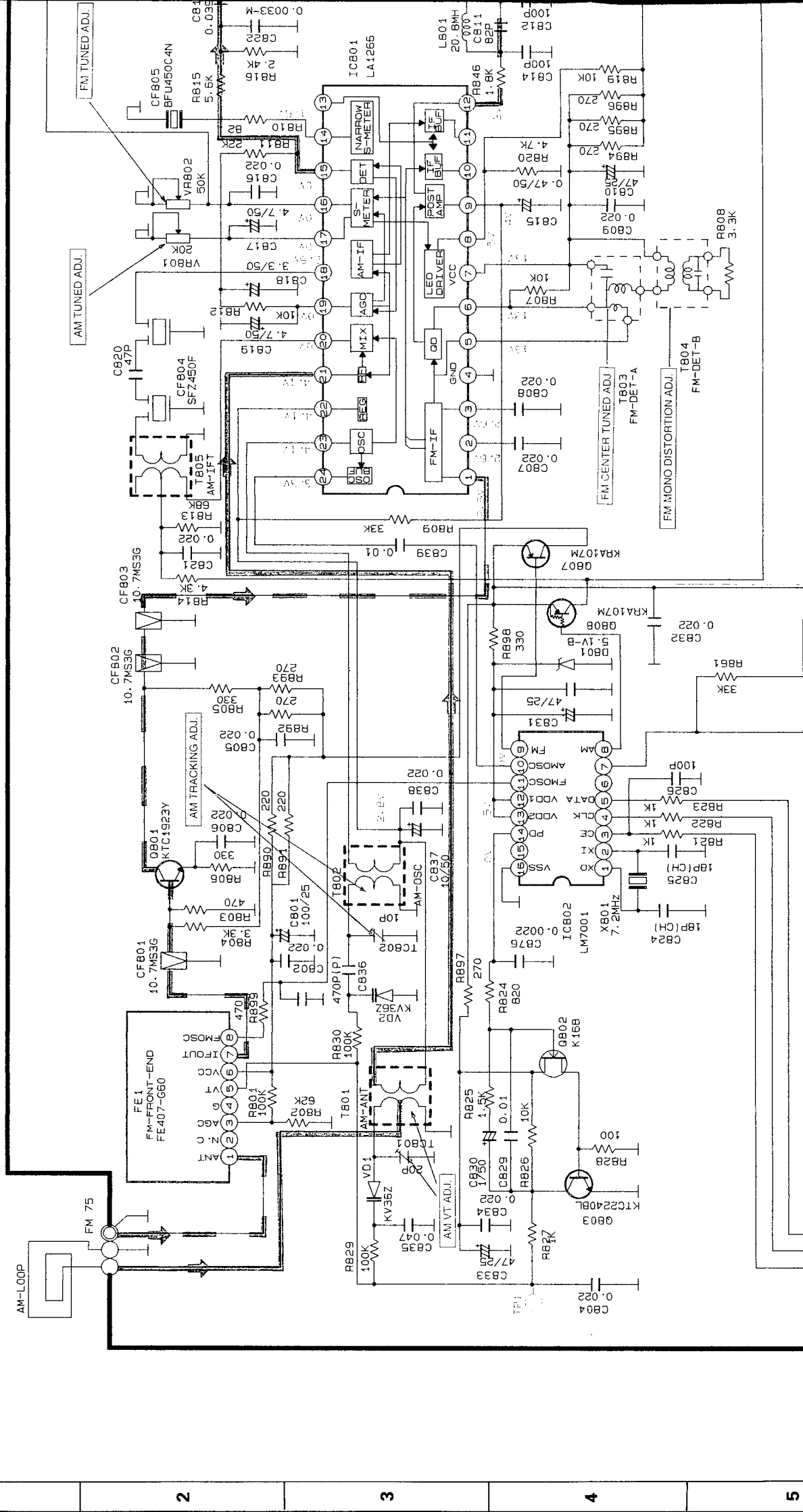
2

3

4

5

PCB15 (TUNER)



1

2

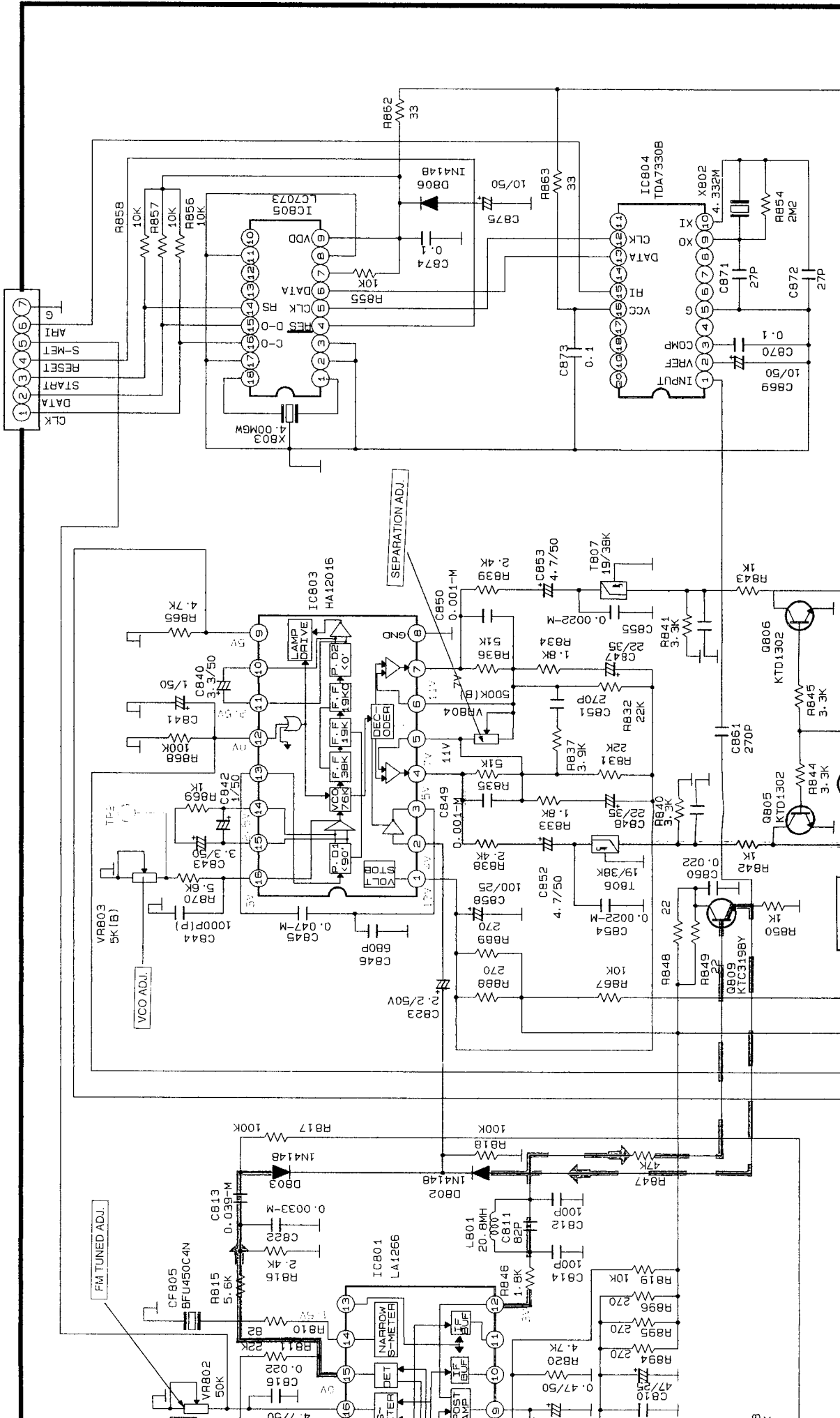
3

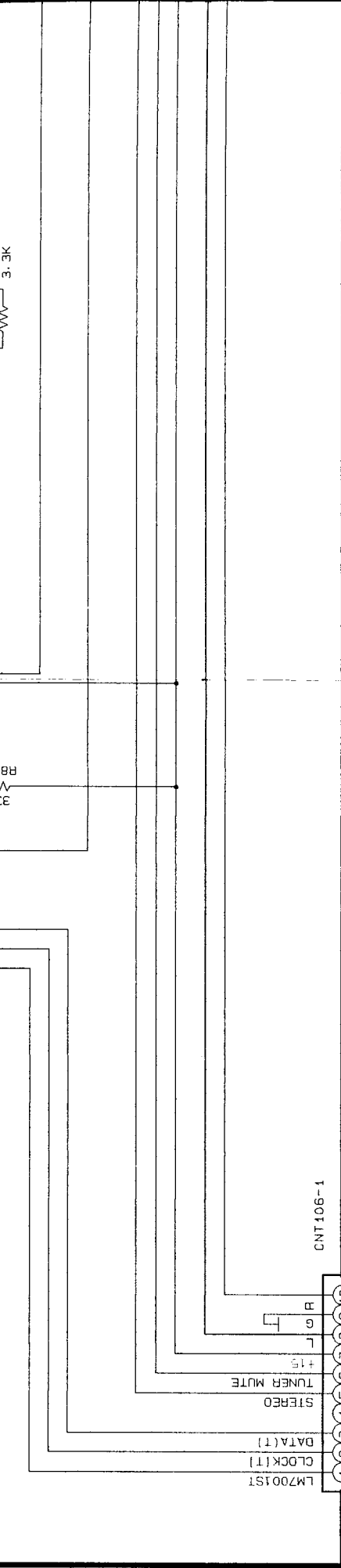
4

5

CNT703-1
FROM FRONT
SCHEMATIC
DIAGRAM(II)

PCB15 (TUNER)





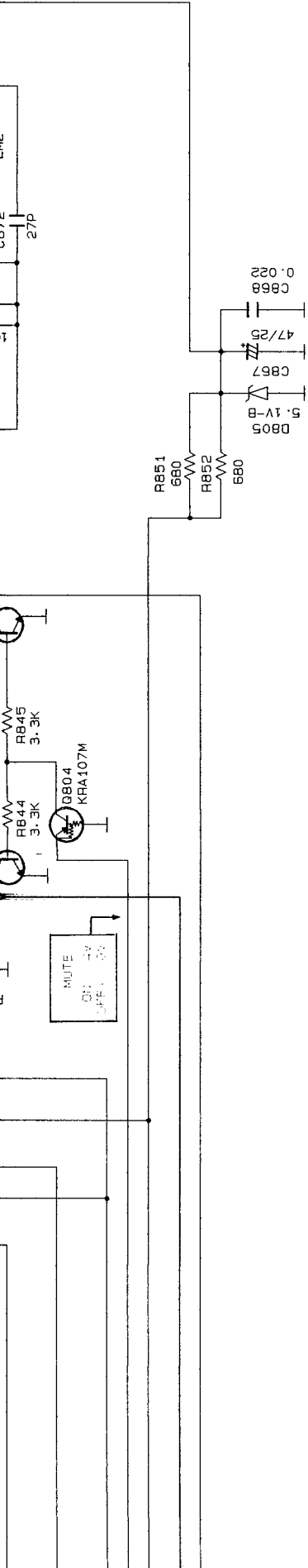
CNT106-1
FROM MAIN
SCHEMATIC
DIAGRAM(I)

PIN CONNECTION DIAGRAM OF TRANSISTORS, IC'S AND DIODES.

<p>2SA1265N 2SC3182N KTB688 KTD718</p>	<p>2SC4137 KSC2690A KSA1220A</p>	<p>DTA114YS DTC114YS DTC114TS</p>	<p>SLR-40MG3</p>	<p>ZENER 1N5402 1N4002 1N4148</p>	<p>2SK168</p>	<p>KTD1302 KTC2240/KTC3200 KTC3198/KTC1815 KTA1266/KT1015Y KTA1268/KTA790BL KTC1923Y/KTC3194</p>
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PIN CONNECTION DIAGRAM OF IC'S.

<p>TA7291S KIA4559S/KIA75559S</p>	<p>LC7821</p>	<p>NJM2177AFB3</p>	<p>KIA4559P/KIA7555P</p>	<p>KIA7806PI</p>	<p>LA1266 NUJ9701</p>	<p>HA12016 LM7001 TC9299</p>
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<p>2 3/KTC3200 4/KTC1815 5/KT1015Y 6/KTA790BL 7Y/KTC3194</p>	<p>MPSA56Y MPSA06Y</p>	<p>KV1236Z</p>	<p>PBL303</p>	<p>2SC4883A 2SA2509Y/KTD2059Y</p>	<p>KTC2229/KTC3206 KTA949/KTA1024</p>	<p>SLF54MDW3</p>
<p>HA12016 LM7001 TC9299</p>	<p>LC4966 GD4066B</p>	<p>TDA7398B</p>	<p>LC7370</p>			