

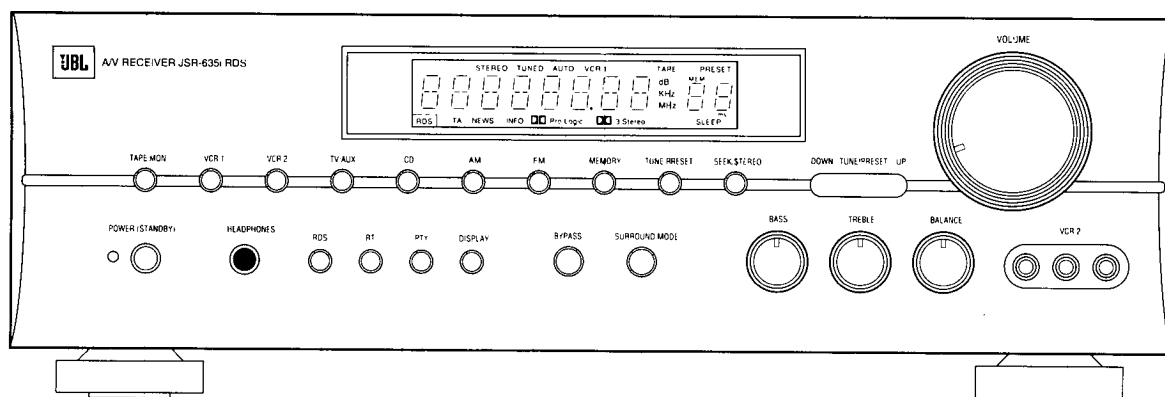


Model JSR635i

Manual A

AUDIO AND VIDEO RECEIVER

Technical Manual



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Parts and Service Office
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1112-JSR635i 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)

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.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charge sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpacked replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

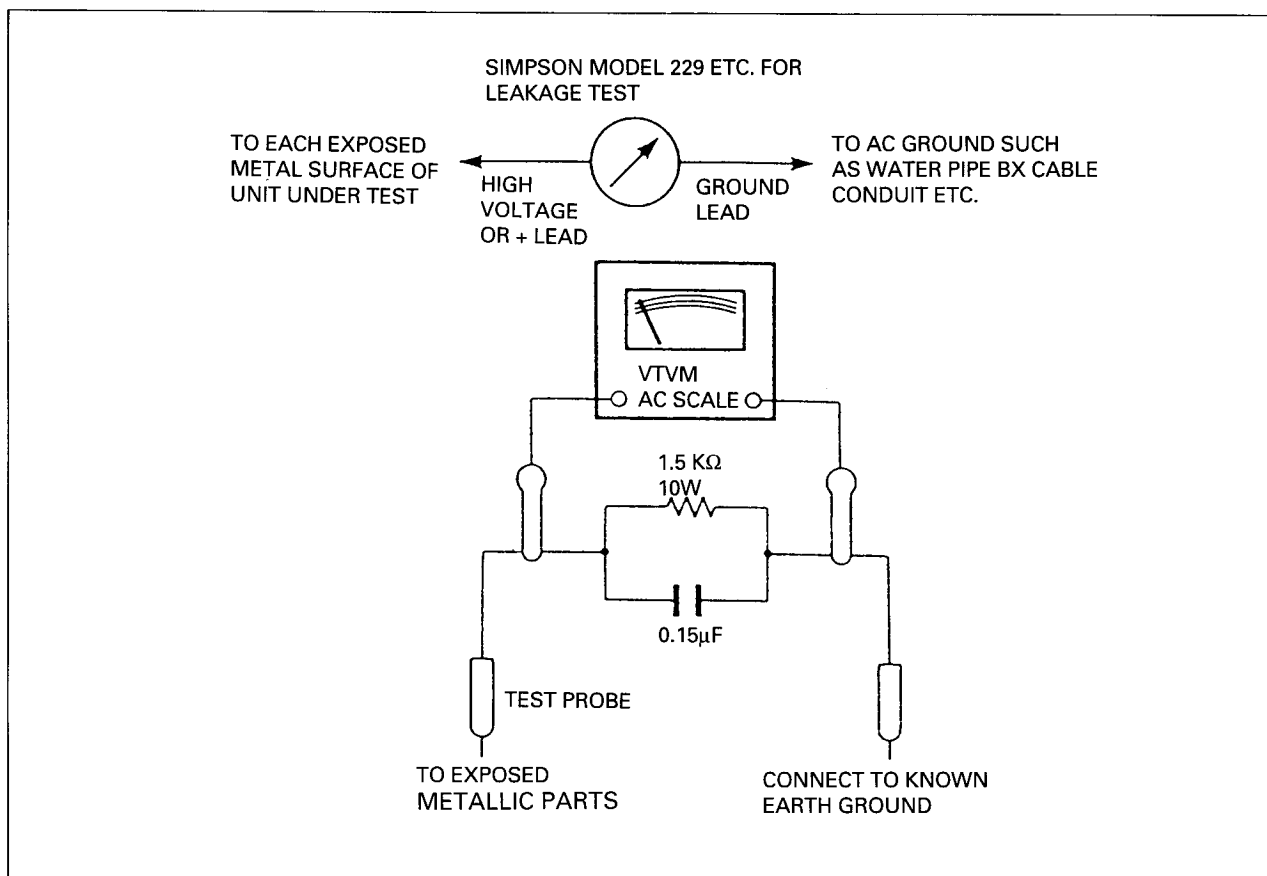
LEAKAGE TEST

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

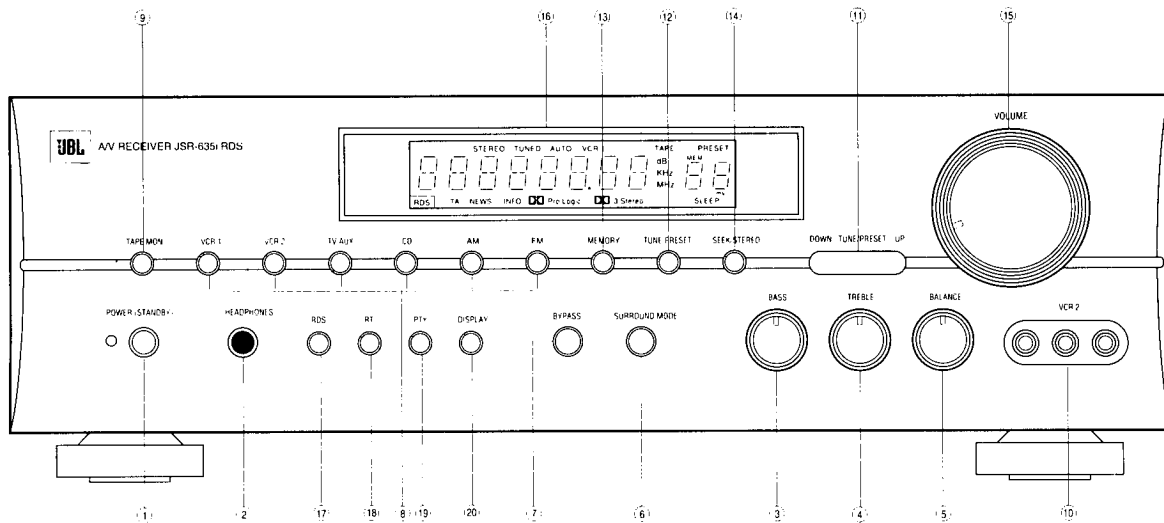
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metallic parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers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

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

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



CONTROLS AND FUNCTIONS



① POWER BUTTON

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

② HEADPHONE JACK

Stereo headphones can be plugged into this jack for private listening. Headphone impedance should be between 8 and 2K ohms. Best results between 200 and 400 ohms.

③ 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.

④ TREBLE CONTROL

Modifies the high frequency sound of the left and right channels by as much as +/-10 dB. Set this control at a suitable position for your taste and room acoustics.

⑤ BALANCE CONTROL

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

⑥ SURROUND MODE SELECTOR

Press this button to select the desired surround mode. The mode is changed between DOLBY Pro Logic and DOLBY 3-STEREO.

⑦ BYPASS SELECTOR

Defeats all surround modes.

⑧ INPUT FUNCTION SELECTOR BUTTONS

Press these buttons to select the desired input source.

⑨ TAPE MONITOR BUTTON

Press this button to select input from a tape deck.

⑩ VCR 2 INPUT JACKS

Connect these jacks to the corresponding output jacks of a VCR.

⑪ TUNE/PRESET BUTTON

When PRESET and AUTO is not lit, the TUNE/PRESET button will allow you to tune to a station manually.

⑫ MEMORY TUNE/PRESET BUTTON

Press the TUNE/PRESET side of this button to light up the preset mode, then use the up/down buttons momentarily to scan the preset station frequencies. The receiver stops at each preset location from 1-30 that has been entered in memory. Hold the button down to skip through the presets quickly. In the TUNE mode press these buttons to change selected frequencies.

⑬ MEMORY BUTTON

Use this button to store an AM or FM frequency. Press this button and select one of 30 preset locations to store the frequency with the TUNE/PRESET button while the MEMORY indicator blinks, press MEMORY again to store preset station.

Note: When you store a frequency in a memory location that already contains a frequency, you replace the previous frequency. If your receiver is disconnected from AC power for more than about 2 weeks, it loses all stored frequencies.

⑭ **SEEK STEREO BUTTON**
Press this button, "Auto" the display. Then press tl button. The tuner will aut stations in your area that signal strength to be liste will stop on stations until button is pressed again.

⑮ **VOLUME CONTROL**
Turn the VOLUME clockw volume and counterclock The volume of the front, channels is changed at tl

⑯ **DISPLAY WINDOW**
This window shows the c for easier control of the r controls the IR Remote S

⑰ RDS

What is RDS on FM?
RDS (Radio Data System used on FM in many cou Inaudible digital codes an addition to the normal ra codes contain various in 1. Program Service name The tuner automatically name, when available in frequency.

2. Scrolling Text Messag Some stations include in station, the current prog musical selection in the l such as the song time ar recording artist. You can information as a text me across the main display.

3. Program Type(PHY):TI transmits the program ty so stations can be select Definition of the terms u program type:

- News
- Affairs; political and cur
- Information; trading, me ences and weather forec
- Education; industrial ed programs and scholastic
- Drama; broadcast plays
- Culture; church and cor
- Science; scientific and t programs
- Varied; entertainment
- Pop music
- Rock music
- M.O.R. music; middle-o music
- L.Classical; light classic.
- S.Classical; semi-classic
- Other music; rap, jazz, r blues, reggae and so or
- Alarm; emergency warn
- None(PHY undefined)

⑭ 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 will stop on stations until the SEEK STEREO button is pressed again.

⑮ VOLUME CONTROL

Turn the VOLUME 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.

⑯ DISPLAY WINDOW

This window shows the state of operation for easier control of the receiver. it also controls the IR Remote Sensor.

⑰ RDS

What is RDS on FM?

RDS (Radio Data System) is gradually being used on FM in many countries.

Inaudible digital codes are transmitted in addition to the normal radio signal. These codes contain various information including:

1. Program Service name (PS):

The tuner automatically displays the station name, when available instead of the frequency.

2. Scrolling Text Messages (RT):

Some stations include information about the station, the current program or the current musical selection in the RDS broadcast, such as the song time and name of the recording artist. You can view this information as a text message scrolled across the main display.

3. Program Type (PTY): This code transmits the program type to the tuner, so stations can be selected by type. Definition of the terms used to denote program type:

- News
- Affairs; political and current events
- Information; trading, medical conferences and weather forecasts
- Education; industrial education programs and scholastic programs
- Drama; broadcast plays and literature
- Culture; church and community
- Science; scientific and technical programs
- Varied; entertainment
- Pop music
- Rock music
- M.O.R. music; middle-of-the road music
- L.Classical; light classical music
- S.Classical; semi-classical music
- Other music; rap, jazz, rhythm and blues, reggae and so on
- Alarm; emergency warnings
- None (PTY undefined)

RDS TUNING

To tune stations that are currently broadcasting casting RDS data:

1. Press the RDS button **⑰** so that the 'RDS' indicator lights up
2. Press the TUNING button **①** (▼ or ▲) to tune. Tuning will start automatically and stop at the first broadcast station frequency on which RDS data is being broadcast. The station name (PS), if available, will be shown in the main display in place of the station frequency. Each press of a TUNING button will tune to the next RDS station
3. To return to tuning all stations, not just RDS stations, press the RDS button again so that the 'RDS' indicator goes out.

⑱ RT TUNING

While listening to an RDS station (station name visible in the main display), you may view the scrolling text message (if any) being broadcast by pressing the RT button **⑱**. The main display will change to a flashing "TEXT" indication as the receiver checks for an RT message. If a message is detected, it will automatically begin to scroll across the display from right to left. If no message is being broadcast by that station at that time, the words "NO TEXT", will be displayed.

Note: The Scrolling Text feature requires you to be listening to a strong station with good reception. If entire words are missing from the message and replaced by asterisks (*), try slowly adjusting your antenna to improve the signal or tune to another, stronger RDS station. To turn off Scrolling Text and return to the Station Name display, press the RT button a second time. Scrolling Text is also automatically turned off by selecting any other feature which uses the main display, such as changing to another input source, like CD.

⑲ PTY (PROGRAM TYPE SEARCH)

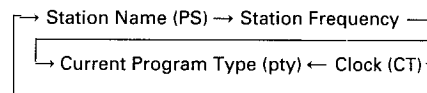
To search your presets for RDS stations which are currently broadcasting a particular program or music type:

1. Press the RDS button **⑰** so that the 'RDS' indicator lights up.
2. Press the PTY button **⑲**. The main display will change to show 'PTY SEL'. While the 'PTY SEL' display is still visible (several seconds), repeatedly press the TUNING button (▼ or ▲) to scroll through the list of possible program types until the desired type is shown in the display.

3. While the desired program type is still visible (several seconds), press the PTY button again. Your FM presets will be scanned automatically on the main display. When the scan is finished, a list of the preset numbers for RDS stations currently broadcasting the selected program type (for example: '04/13/28') will be shown briefly in the main display and the strongest of these stations will be automatically tuned in.

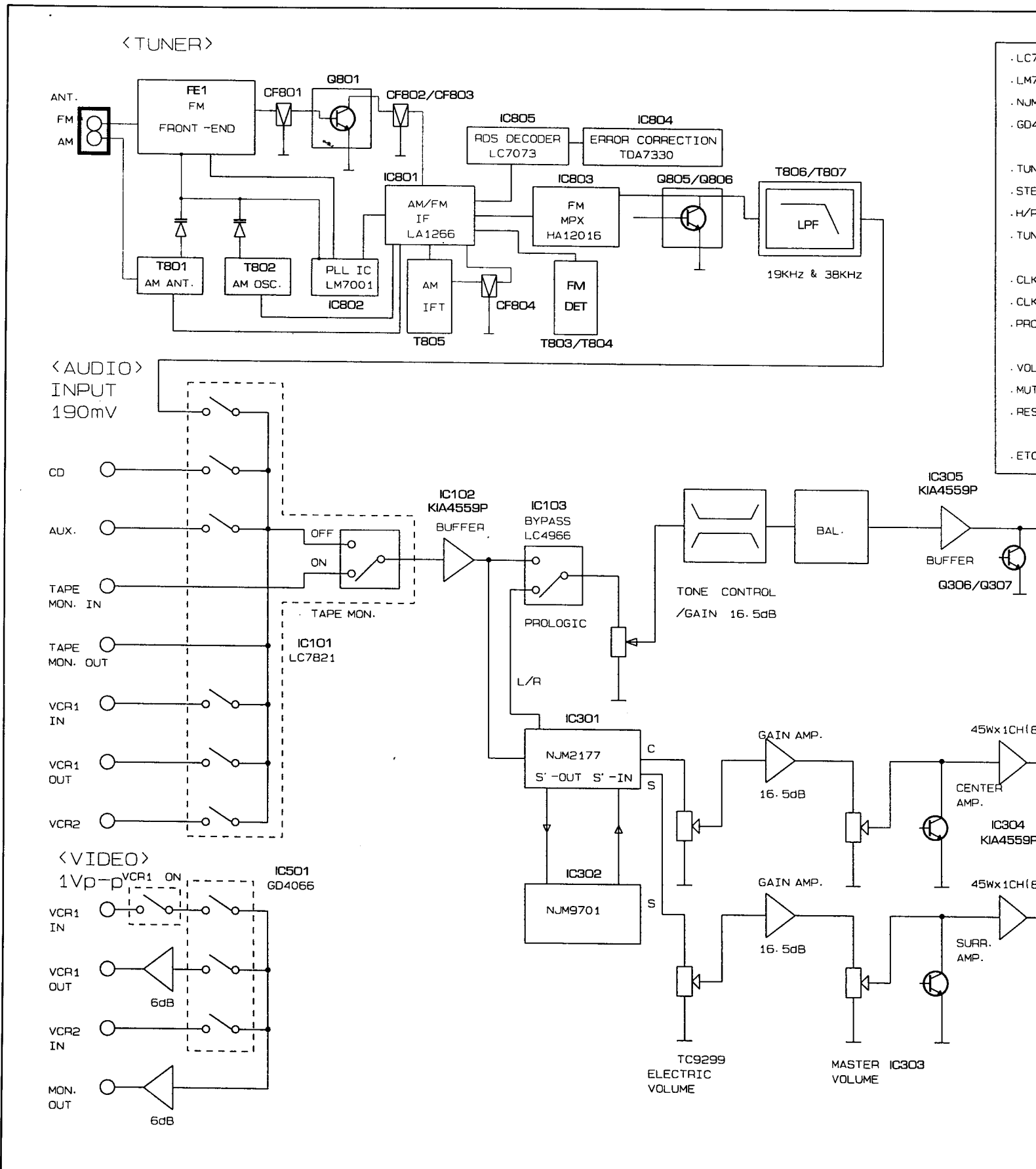
⑳ DISPLAY SWITCH

This switch may be used to change the function of the main display to show available RDS and system information. Press the DISPLAY button to select the desired display mode. The display mode changes in succession, as shown below.

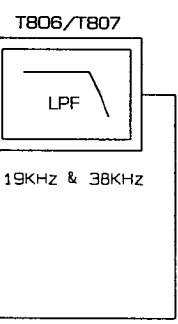
**DISPLAY MODE**

If the data required for the selected display mode is not currently being received, a message to that effect will be shown in the main display.

BLOCK DIAGRAM

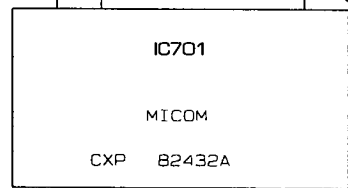


- . LC7
- . LM7
- . NJM
- . GD4
- . TUN
- . STE
- . H/P
- . TUN
- . CLK
- . CLK
- . PRO
- . VOL
- . MUT
- . RES
- . ETC



- . 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

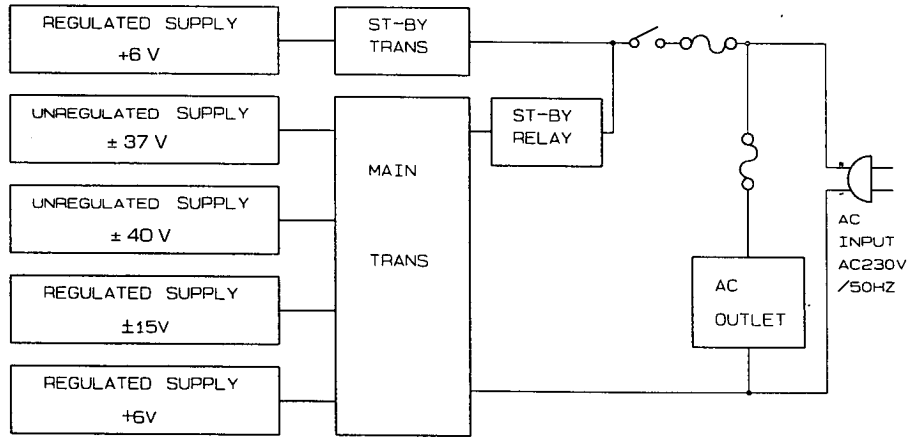
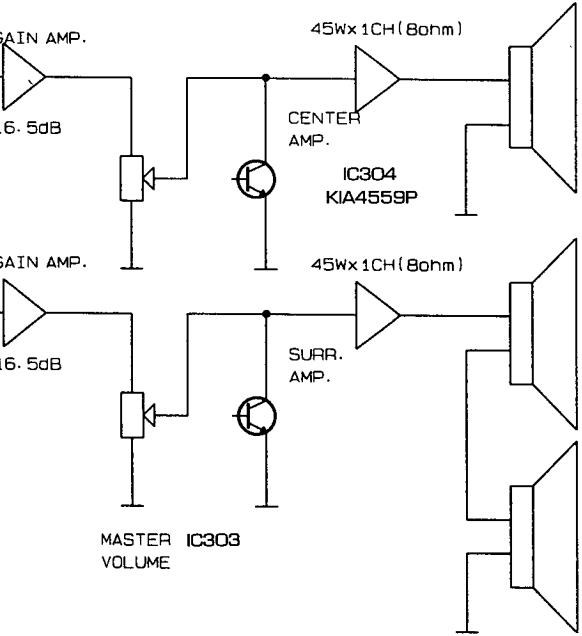
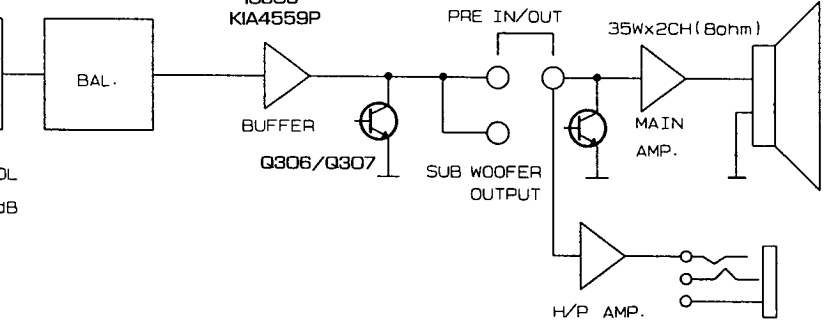


REMOTE CONTROL SENSOR



KEY MATRIX

5.6



DISASSEMBLY PROCEDURES

REFER TO PAGE 26.

① COVER TOP REMOVAL.

Remove 6 screws (S80 ~ S83 and S68, S80) and then remove the Cover Top ①.

② COVER BOTTOM REMOVAL.

Remove 11 screws (S1 ~ S3, S29, S30, S32, S33, S35 ~ S39) 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 (Connector113, Connector114, Connector116, Connector111) from the Main P.C.Board (PCB1).
3. Remove the Card Cable from wafer (Connector107) on the Main P.C.Board (PCB1).
4. Disconnect (Connector702-1, Connector603) from the Power P.C.Board (PCB6).
5. Disconnect (Connector106-1) from the Tuner P.C.Board (PCB12).
6. Remove the lug wire from the Bracket Heatsink ③1.
7. Remove 8 screws (S1 ~ S8) and then remove the Front Panel Assembly AA.

④ VOLUME AND VOLUME LED P.C.BOARD (PCB4 AND PCB5) 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 ③9 with Volume LED P.C.Board (PCB5).
5. Remove the Hex Nut from the Volume-motor and then remove the Volume P.C.Board (PCB4).

⑤ FRONT P.C.BOARD 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 (Connector705-1) from the Volume P.C.Board (PCB4).
4. Remove 9 screws (S16 ~ S24) and then remove the Front P.C.Board (PCB3).

⑥ 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 ④0 (Bass, Treble, Ballance).
4. Remove the Hex Nuts from the Variable resistors ①6 and ①7.
5. Remove 3 screws (S11 ~ S13) and then remove the Tone P.C.Board (PCB2).

⑦ HEADPHONE P.C.BOARD (PCB7) 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 3 screws (S14, S15 and S30) and then remove the Headphone P.C.Board (PCB7).

⑧ TUNER P.C.BOARD (PCB12) REMOVAL

1. Remove the Cover Top ①, referring to the previous step ①.
2. Disconnect (Connector106-1) from the Tuner P.C.Board (PCB12).
3. Remove 3 screws (S47, S49 and S77) and then remove the Tuner P.C.Board(PCB12).

⑨ SURROUND P.C.BOARD (PCB9) REMOVAL

1. Remove the Cover Top ①, referring to the previous step ①.
2. Remove 2 screws (S48 and S60) and then remove the Surround P.C.Board (PCB9).

⑩ VIDEO P.C.BOARD (PCB10) REMOVAL

1. Remove the Cover Top ①, referring to the previous step ①.
2. Remove 2 screws (S52 and S65) and then remove the Video P.C.Board (PCB10).

⑪ CENTER SPEAKER P.C.BOARD (PCB11) REMOVAL

1. Remove the Cover Top ①, referring to the previous step ①.
2. Disconnect (Connector117-1) from the Center Speaker P.C.Board (PCB11).
3. Remove 2 screws (S53 and S66) and then remove the Center Speaker P.C.Board (PCB11).

12 SURROUND AMP AND REAR SPEAKER P.C.BOARD (PCB8 & AND 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 (PCB11).
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 (**S72**, **S73**, **S54**, **S55**) and then remove the Surround AMP & Rear Speaker P.C.Board (PCB8 & PCB13).

13 POWER P.C.BOARD (PCB6) REMOVAL

1. Remove the Cover Top **1**, referring to the previous step **1**.
2. Disconnect (Connector603, Connector604, Connector605, Connector601, Connector702-1, Connector602) from the Power P.C.Board (PCB6).
3. Disconnect (Connector104) from the Main P.C.Board (PCB1).
4. Remove 4 screws (**S78**, **S79**, **S60**, **S61**) and then remove the Power P.C.Board (PCB6).

14 POWER P.C.BOARD (PCB6) REMOVAL

1. Remove the Cover Top **1**, referring to the previous step **1**.
2. Disconnect (Connector602, Connector702-1, Connector601, Connector603, Connector604) from the Power P.C.Board (PCB6).
3. Disconnect (Connector607, Connector104) from the Main P.C.Board (PCB1).
4. Remove 4 screws (**S32**, **S33**, **S75**, **S76**) and then remove the Power P.C.Board (PCB6).

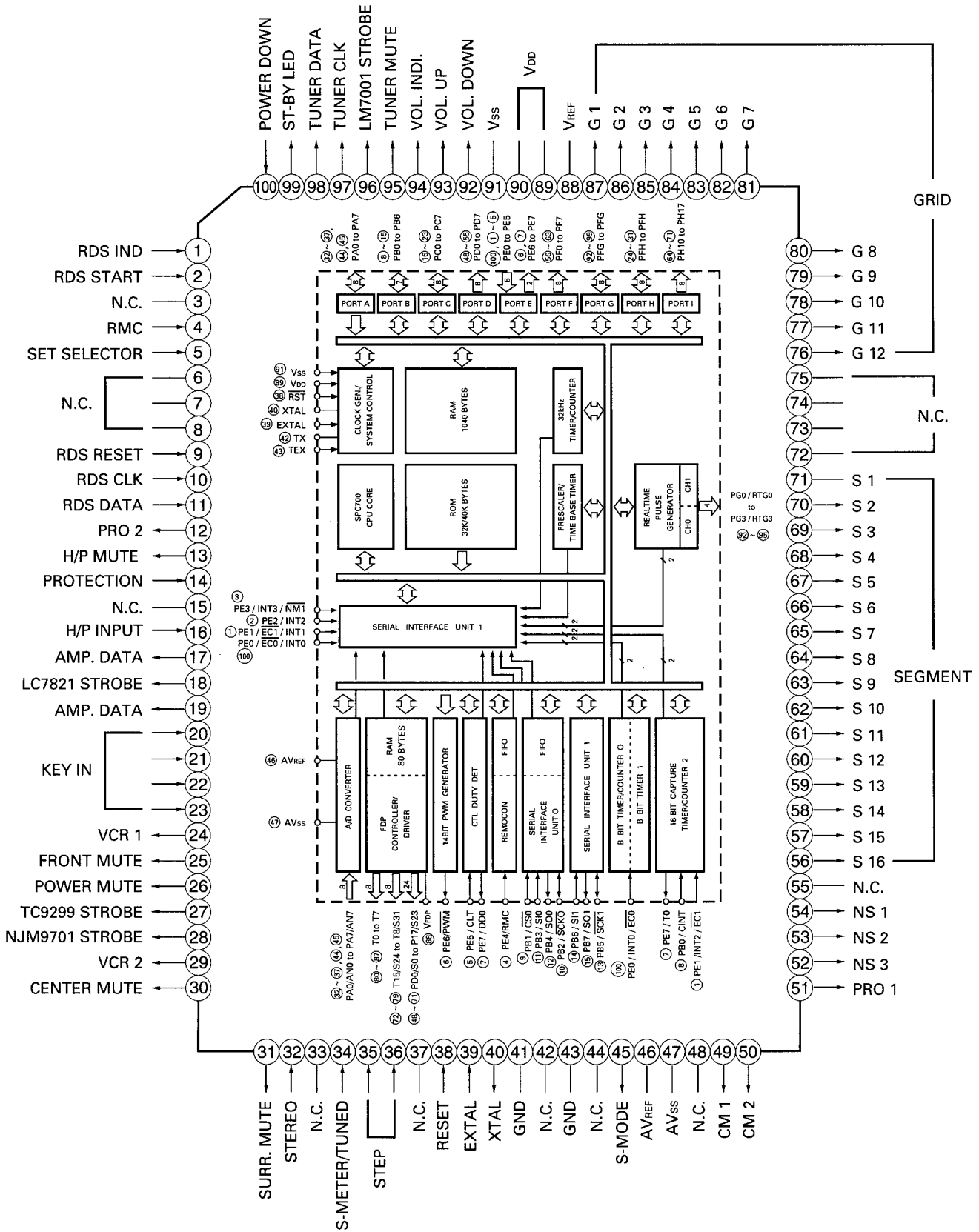
15 MAIN P.C.BOARD (PCB1) REMOVAL

1. Remove the Cover Top **1**, referring to the previous step **1**.
2. Do steps **3**, **9**, **10**, **11**, and **13**.
3. Disconnect (Connector607, 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 (**S41**, **S59**, **S80**, **S83**, **S86**, **S89**, **S93**, **S96**) 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.																								

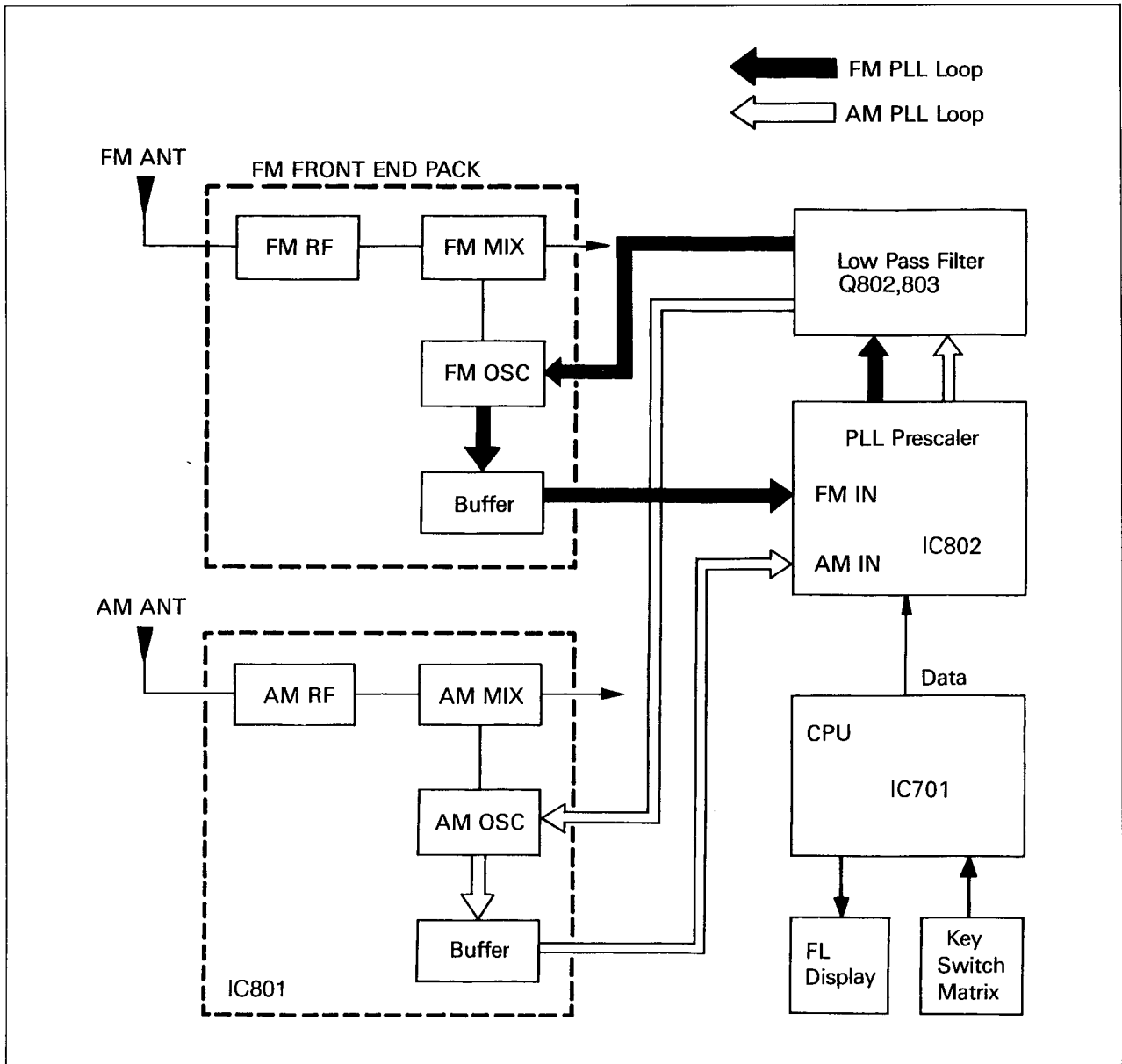
Pin No.	Symbol	Description
91	Vss	Ground
92, 93	VOL. DOWN/UP	Output signal to turn up or down volume motor.
94	VOL. INDICATOR	Output signal to turn on or off the LED which is used master volume indicator. It is high level in turning on and low level in turning off.
95	TUNER MUTE	Output for tuner mute.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

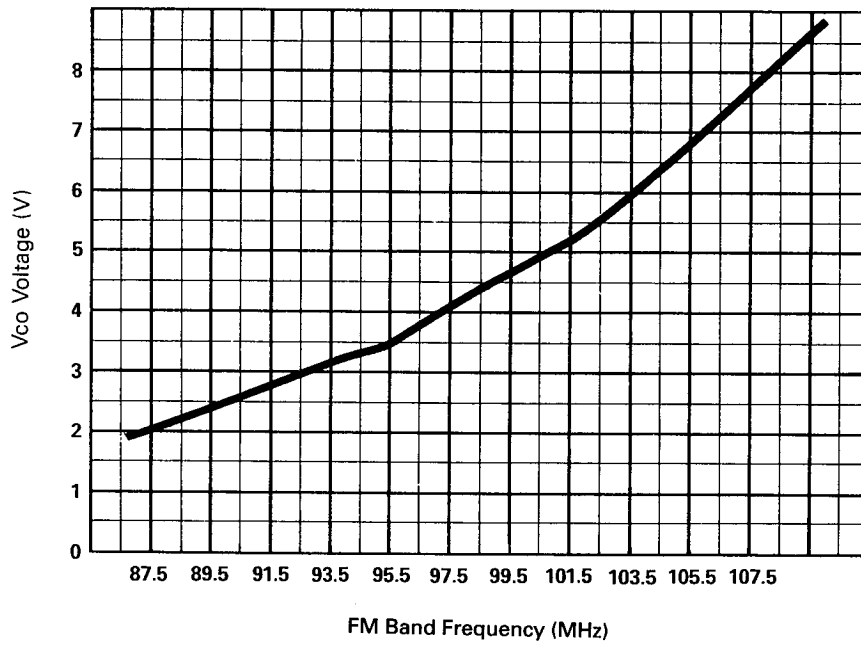
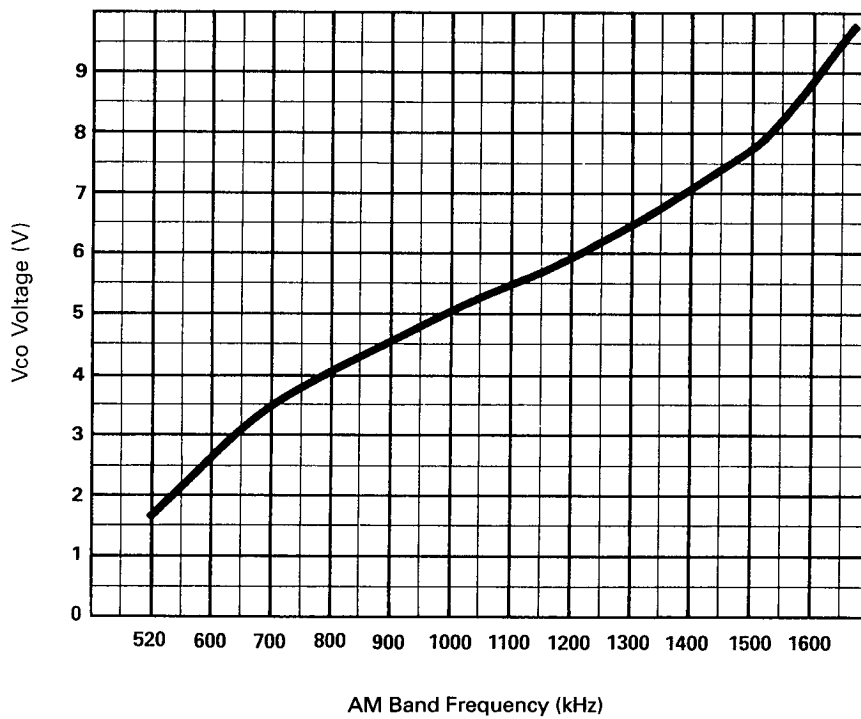
3) KEY MATRIX

Pin No.	65	66	67	68	69	70	71
20				AF	DISPLAY	BYPASS	VCR1
21				RDS	AM	TAPE MON.	FM
22	SEEK STEREO			TUNING DOWN	PTY	VCR2	TV/AUX
23	MEMORY			TUNING UP	TUNE	SURR. MODE	CD

2. DIGITAL TUNING SYSTEM DESCRIPTION

1) DIGITAL TUNING SYSTEM



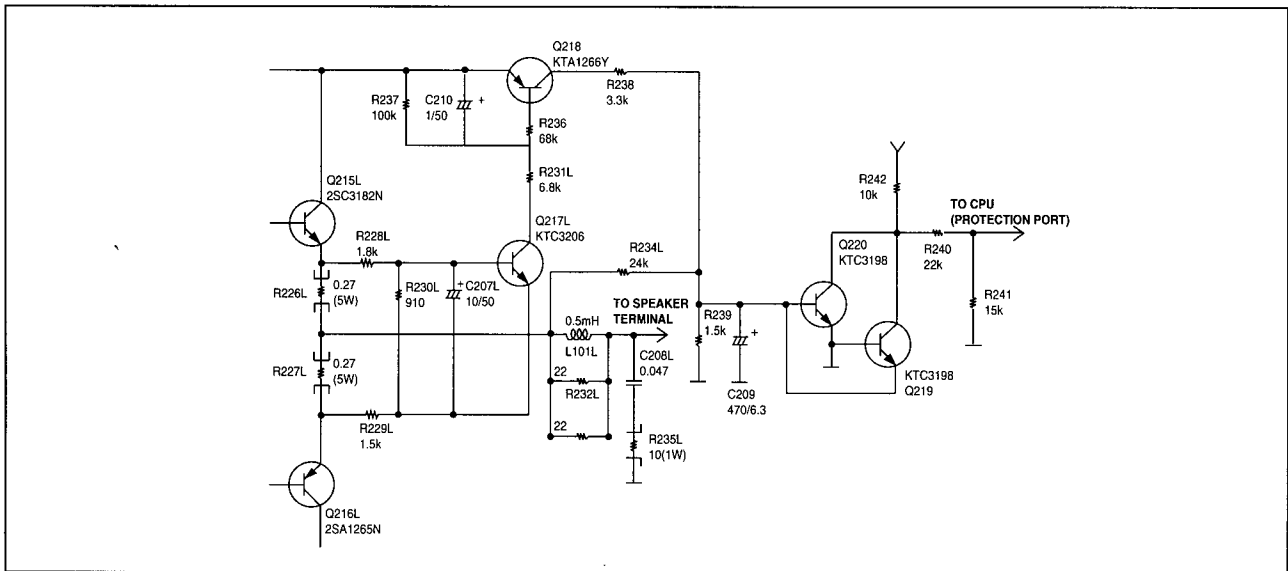
2) VCO VS. FM BAND FREQUENCY CURVE**3) VCO VS. AM BAND FREQUENCY CURVE**

3. PROTECTION CIRCUITS

1) SPEAKER PROTECTION CIRCUIT

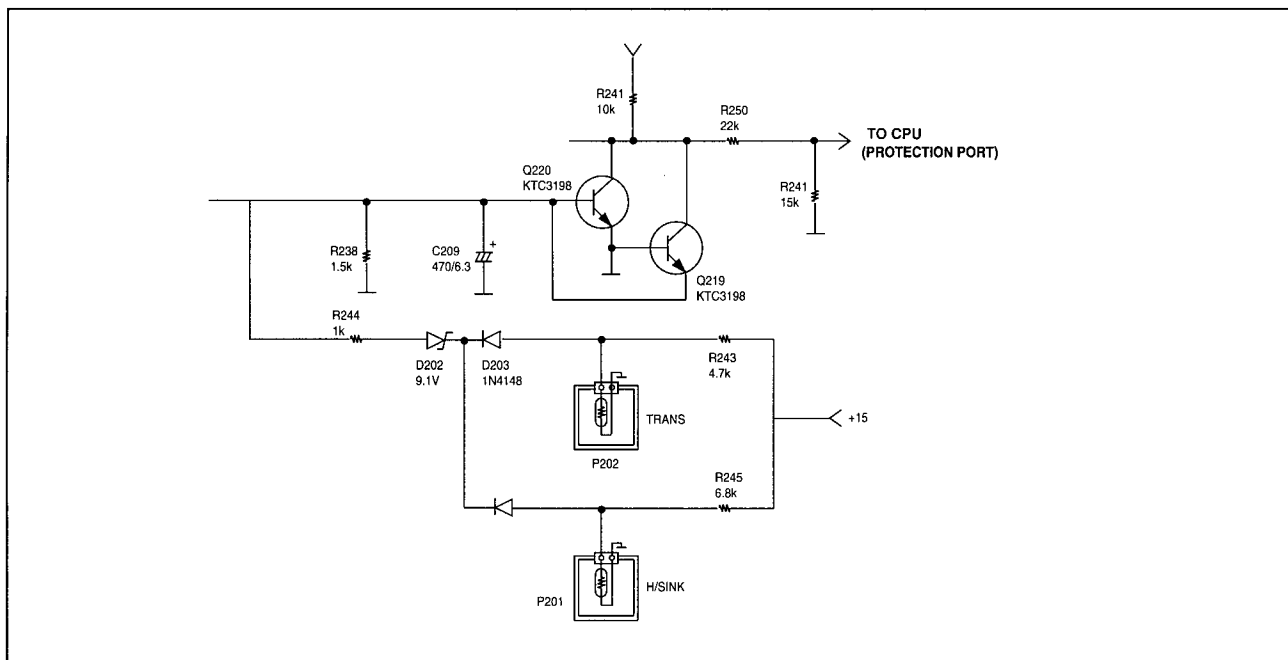
The CPU protects both this unit and the speakers when an abnormally high current flows in Q215 L/R and Q216 L/R due to excessive input drive, too low of a load impedance, or short of the speaker terminals. If current increase is excessive the voltage across R226 L/R or R227 L/R turns on Q217 L/R, then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

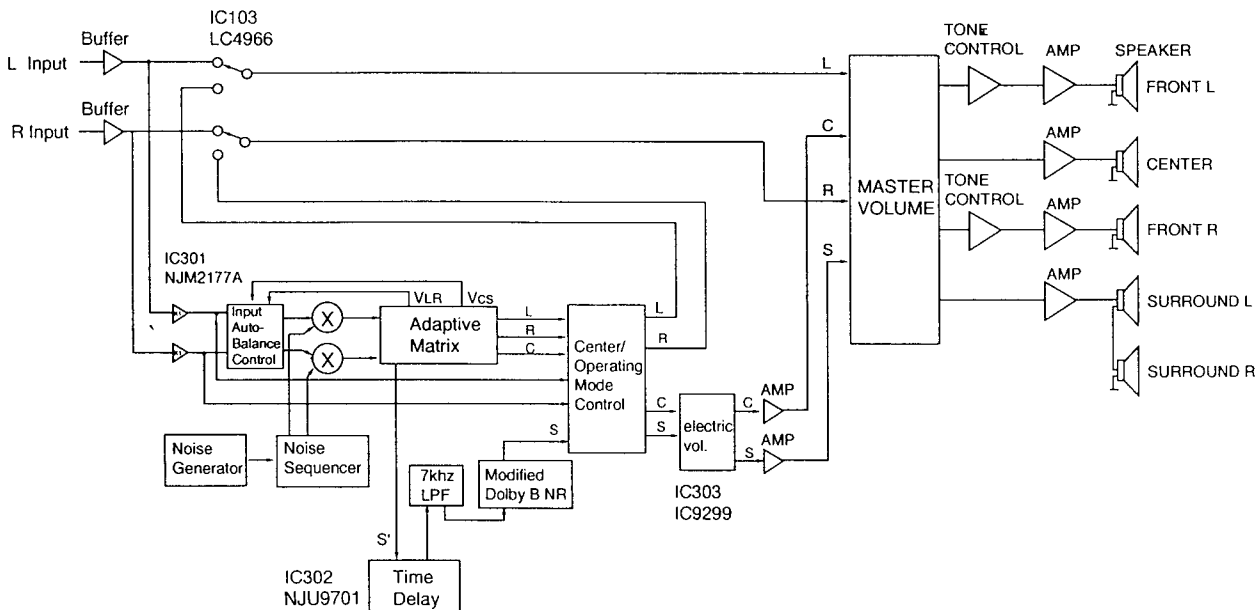


4. SURROUND CIRCUITS

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.

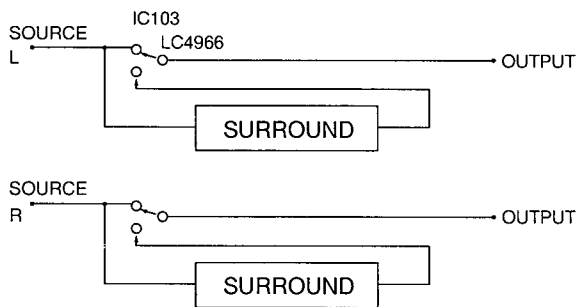


Fig. 2

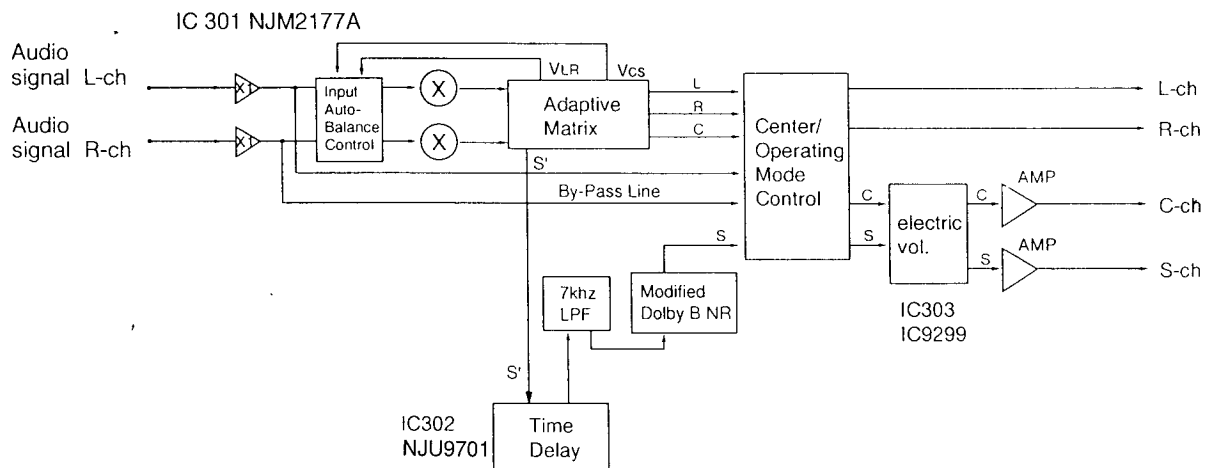
2) DOLBY PRO – LOGIC CIRCUIT

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.



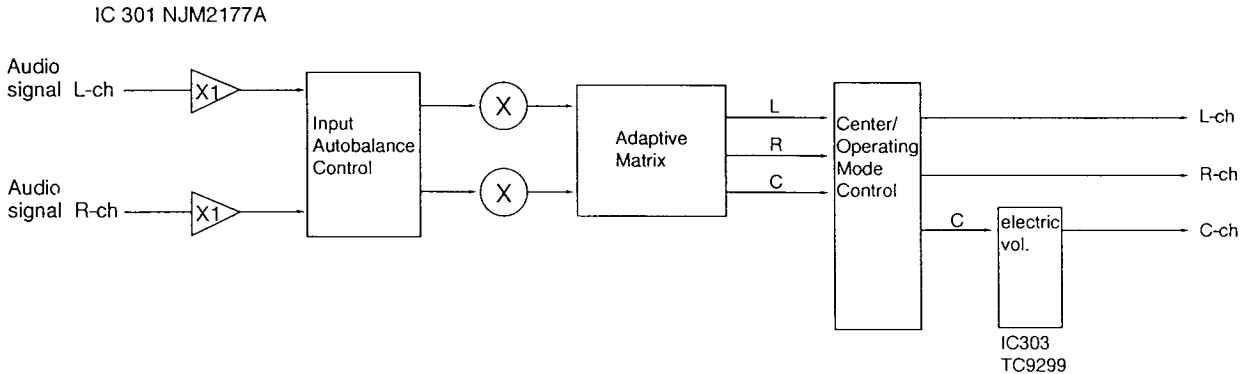
<Flow of signals within the system in the Dolby Pro – Logic mode>
Fig. 3

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.

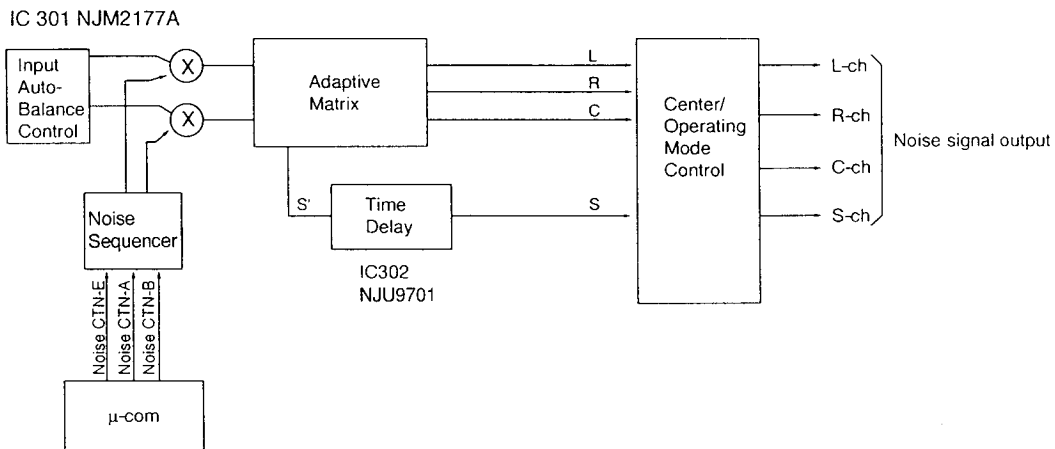


<Flow of signal within the system in the 3 – stereo mode>
Fig. 4

4) TEST TONE GENERATOR

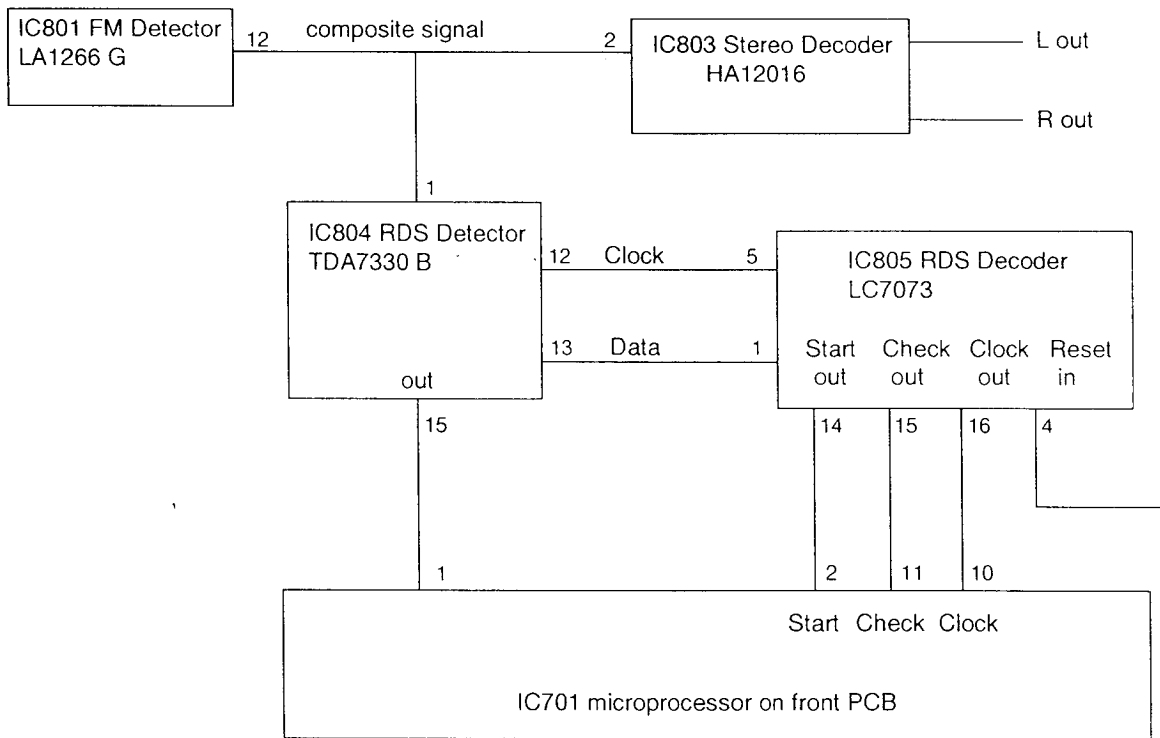
The test tone generator generates a test tone (noise) to check the balance of sound output from each speaker in the Dolby pro logic mode. (This circuit is produced under license of the Dolby Laboratories Licensing Corp.) The noise generator signals shown the table below applies to the Noise - CNT - A/B/E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

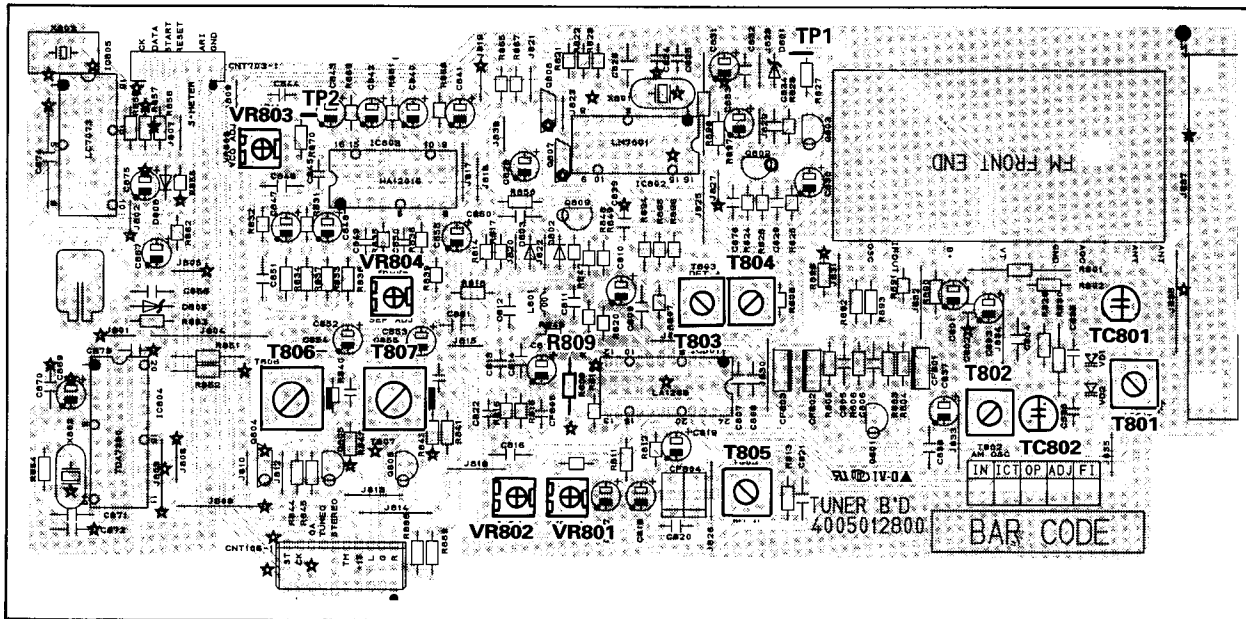
ALIGNMENT PROCEDURES

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 (PCB12)



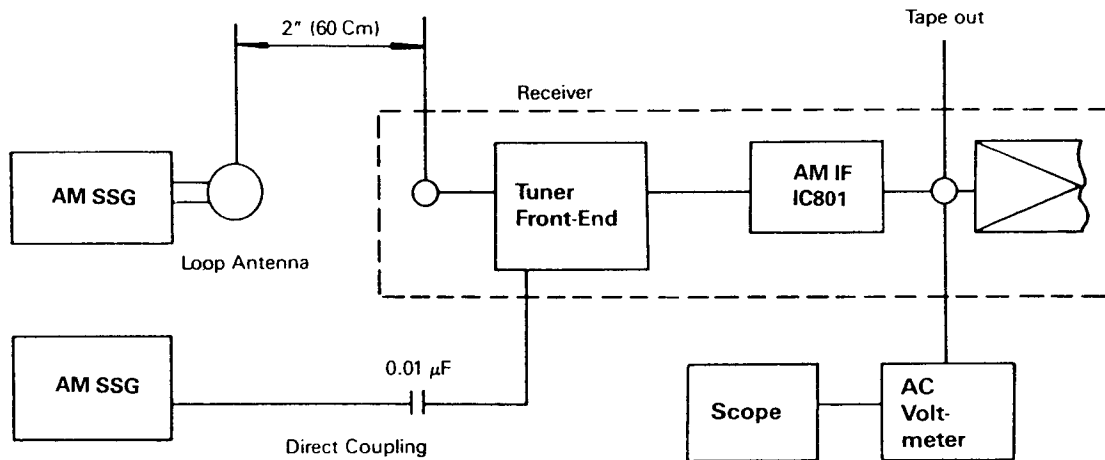
3. AM IF and RF Alignment

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 $\mu\text{V/m}$



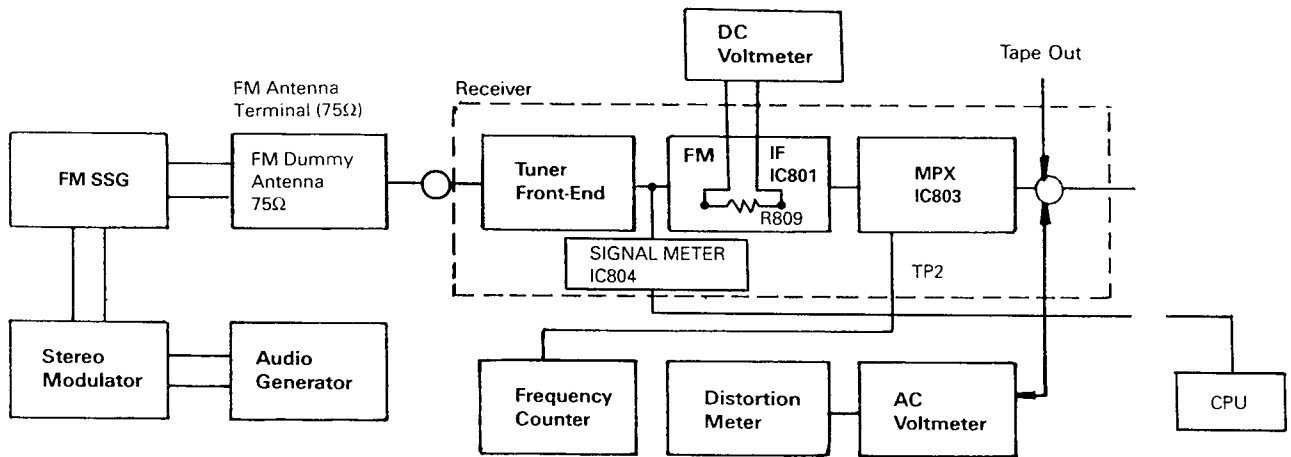
AM Alignment Connection

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
2	98.0 MHz (1 kHz, Mod.)	98.0 MHz	Same as Step 1	VR802	FL display 'TUNED' Indication on receiver with FM SSG output level of 10 $\mu\text{V/m}$
3	98.0 MHz (1 kHz, Mod.)	98.0 MHz	DC Volt meter to R809 (PCB12)	T803	Zero reading on DC volt meter.



FM RFIF and MPX Alignment Connection

5. MPX Alignment, FM Alignment

Preparation

1. Switch : Press to FM.
2. Tuner for 98 MHz 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 TP2 (HOT) of PCB and ground	VR803	76 kHz
2	8% Mod.	Composite to channel 1kHz R	AC voltmeter to TAPE OUT jack of R channel	-	Adjust for about 450mV of audio output
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.

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 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 diodes(s).</p> <p>G) Damaged AM loop antenna. Repair or replace.</p> <p>H) Defective controller circuit component. Replace.</p>
Bass control has no effect	<p>A) Variable resistor BASS defective. Replace.</p> <p>B) Defective R129L/R, R131L/R, C126L/R, C128L/R. Replace the defective component(s).</p>
Treble control has no effect.	<p>A) Variable resistor TREBLE defective.</p> <p>B) Defective R130L/R, R132L/R, C127L/R, C129L/R. Replace the defective components(s).</p>

Symptom	Cause and Remedy
Auto tune inoperative. (UP/DOWN)	<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). Replace.</p>

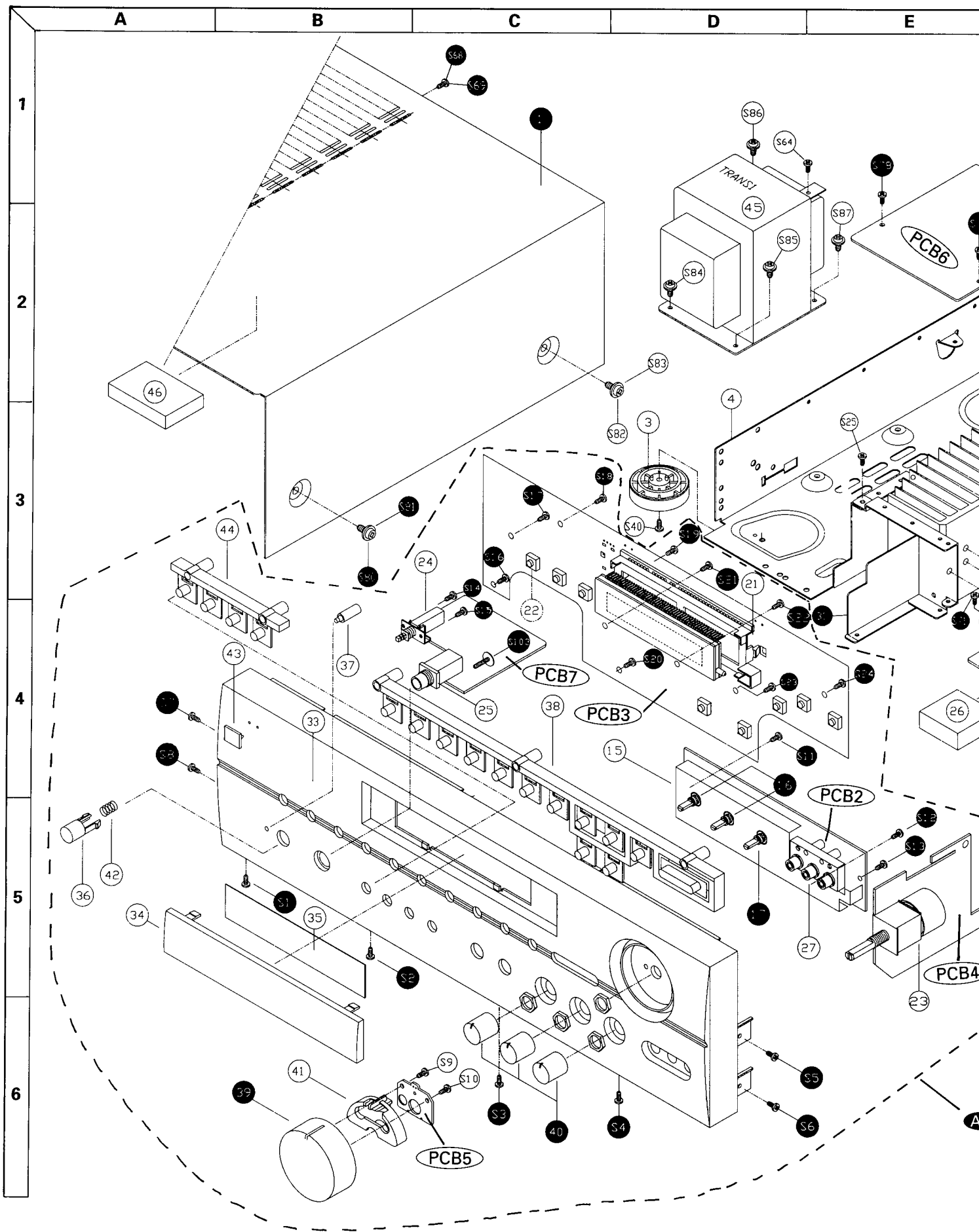
GENERAL UNIT PARTS LIST

Ref. No.	Description	Mfr. Part No.	Q'ty
CABINET & CHASSIS			
1	Cover, Top	046122029611	1
2	Cover, Bottom	6122420410	1
3	Foot	046033102411	4
4	Frame Left	6121607640	1
5	Frame Right	6122633520	1
6	Bracket, PCB Tuner	6505139810	1
7	Chassis, Back	046102046023	1
8	Jumper Plug, 2P	4328204210	2
9	Curd AC Power	4308000430	1
10	Assembly Cord AC Power	4308009510	1
11	Stopper Cord	6518002310	1
12	Jack RCA, 4P	4438103110	3
13	Jack RCA, 6P	4438103210	1
14	Terminal Speaker, 4P, Rear	4408108910	1
15	Shield Fence	6163115910	1
16	Volume, Bass/Treble	3208049510	2
17	Volume, Balance	3208052010	1
18	Terminal Speaker, 4P, Main, Screw Type	4408108610	1
19	Terminal Speaker, 2P, Center, Screw Type	4408108710	1
20	Jack RCA(VCR1/Monitor), 3P	4438114310	1
21	Holder FL	6043010210	1
22	Switch Tact	4658004810	14
23	Volume Motor, 50 k(A)	3228020010	1
24	Switch Power, Push Type	4628055910	1
25	Jack Phone, Headphone, 9P	4438005610	1
26	Spacer	6715026110	1
27	Jack RCA, 3P, VCR	4438109710	1
△ 28	Outlet, AC	4448103610	1
29	Terminal Antenna	4308108210	1
30	Heatsink, Power	7502008730	1
31	Bracket, Heatsink	6503032310	1
32	Bracket, PCB Main	6505139720	1
33	Panel, Front	048501037721	1
34	Window Display	8553024410	1
35	Filter FL	04853024311	1
36	Button, Power	048545134011	1
37	Indicator, Power	8545134110	1
38	Button Function, 14key	048542008211	1
39	Knob, Volume	048543059812	1
40	Knob, Rotary Volume(Bass/Treble/Balance)	048545124312	3
41	Indicator, Volume	8555048610	1
42	Spring, Power	6555000120	1
43	Badge, JBL	048535046711	1
44	Button, RDS	048543071611	1
45	Clamp Wire	6528302540	1
46	Power Transformer, 230V, 50Hz	2828100967	1
47	Sponge	6715018910	1
HARDWARE KIT			
S1	Screw, #2BTC 3x8B	8109230083	58
S2	Screw, WBTC 3x8Y	8159230083	10
S3	Screw, WSAM 4x8B	8159440083	8
S4	Screw, #1PT 3x10B	8119130103	14
S5	Screw, Ground	8155000710	1
S6	Screw, Washer	8155001210	1
S7	Screw, Heatsink (L=12)	8195000310	12
MISCELLANEOUS			
	FPC Cable, 31P, 240mm	4118631275	1

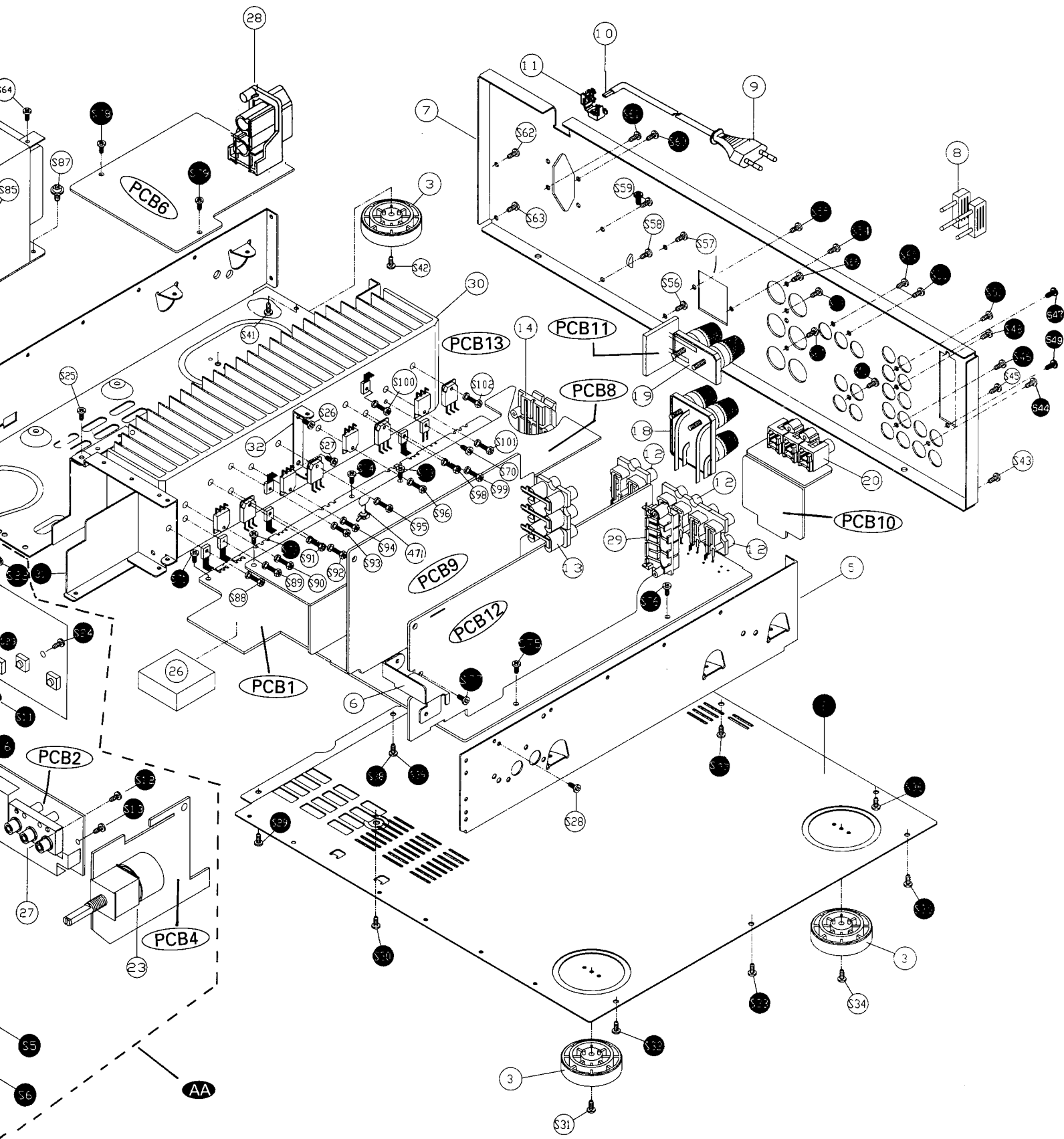
PRODUCT SAFETY NOTICE

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

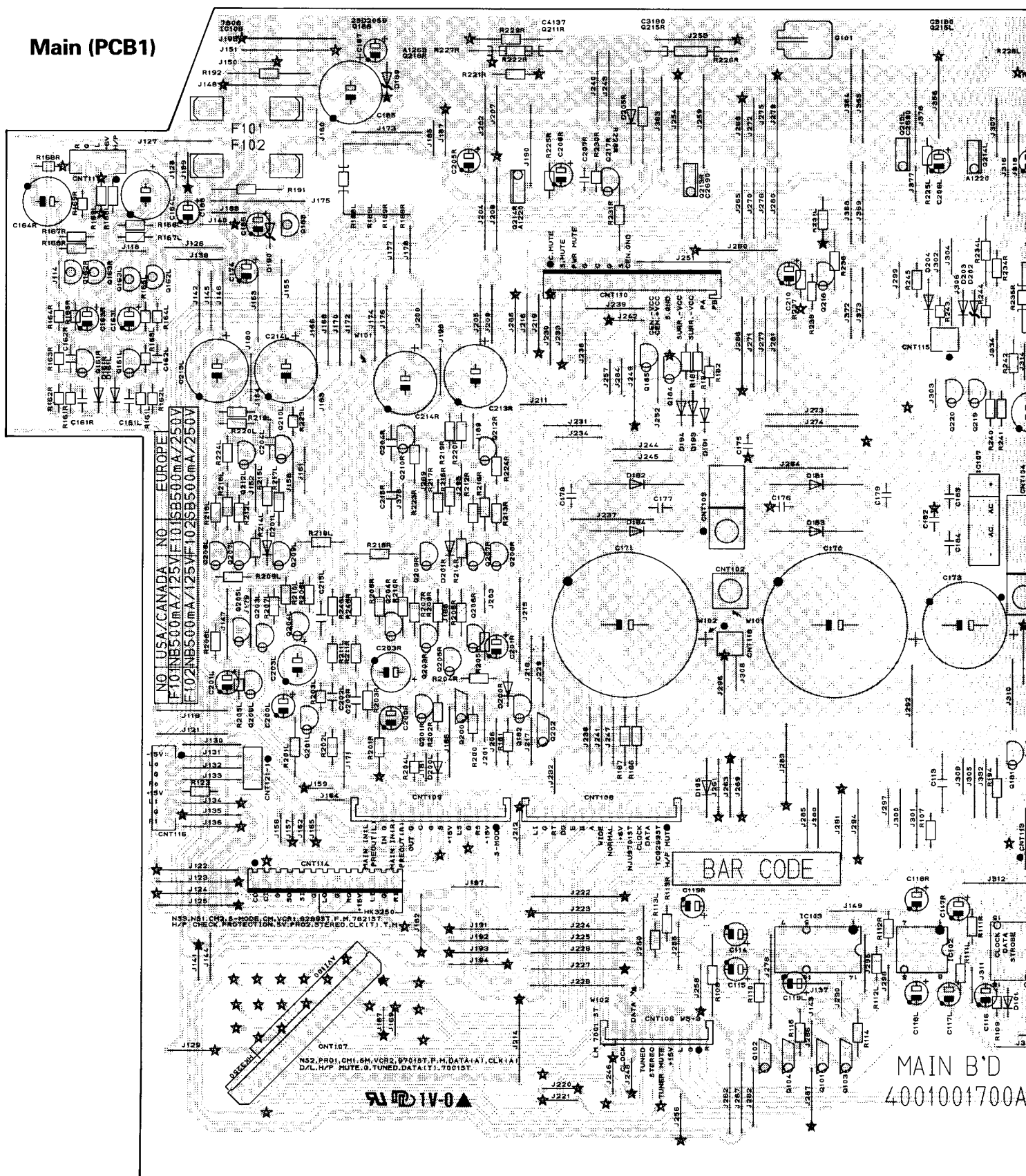


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PRINTED CIRCUIT BOARDS

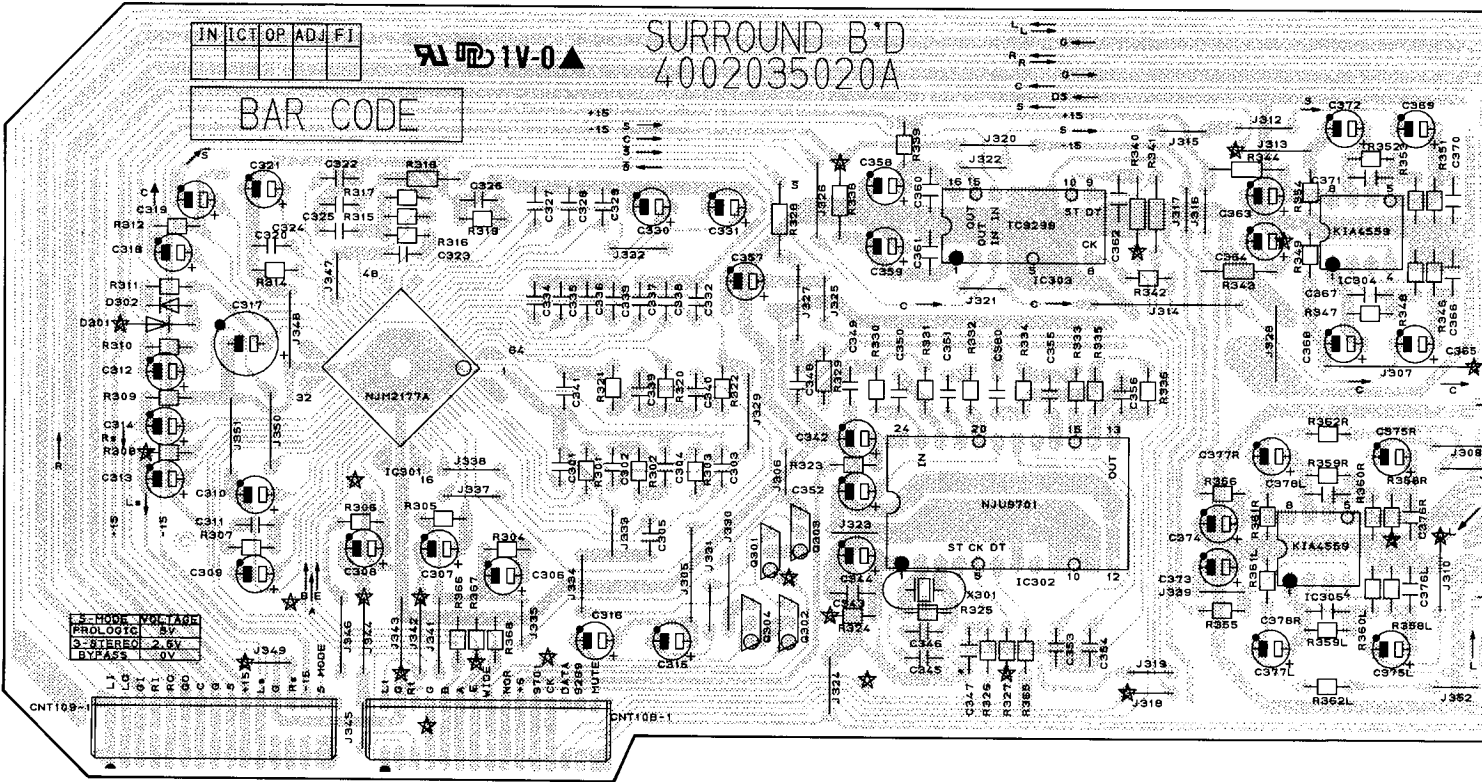
Main (PCB1)



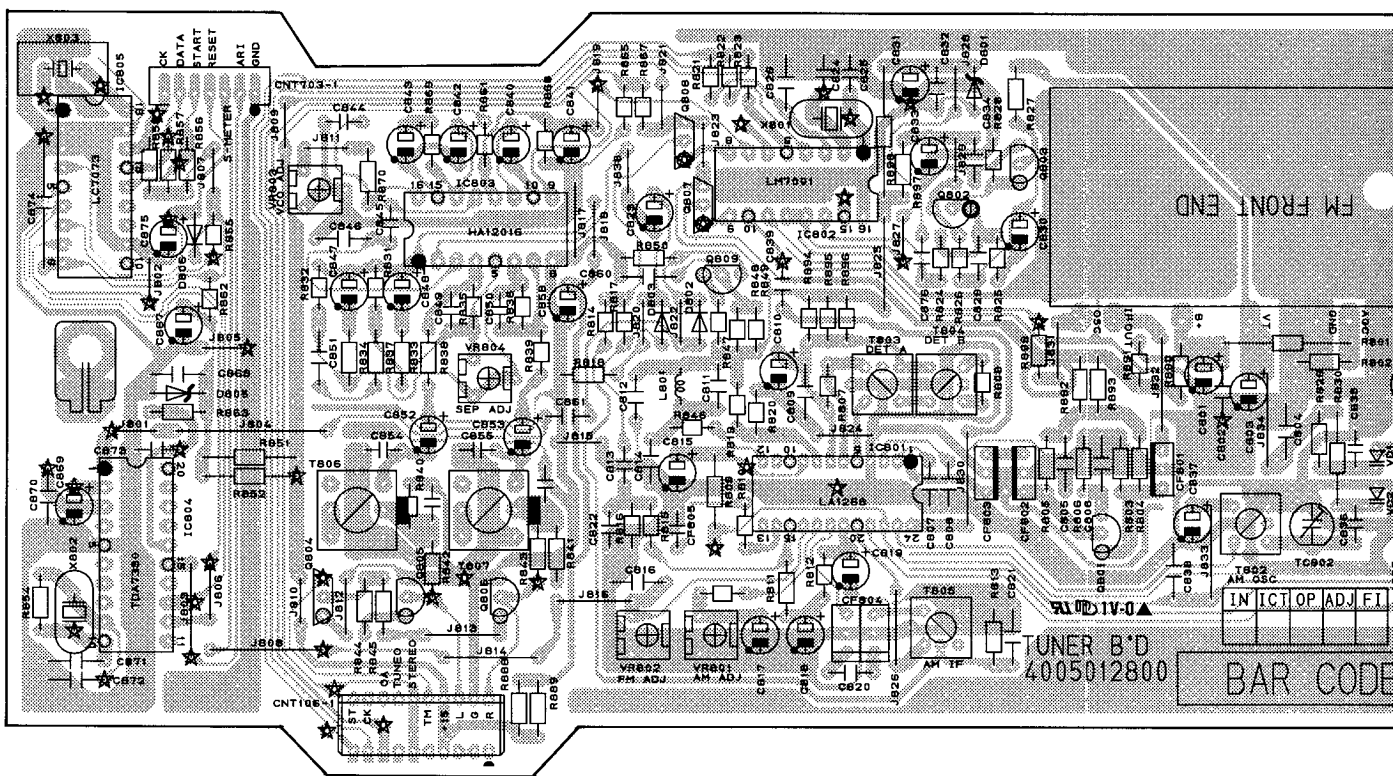
BAR CODE

MAIN B'D
4001001700A

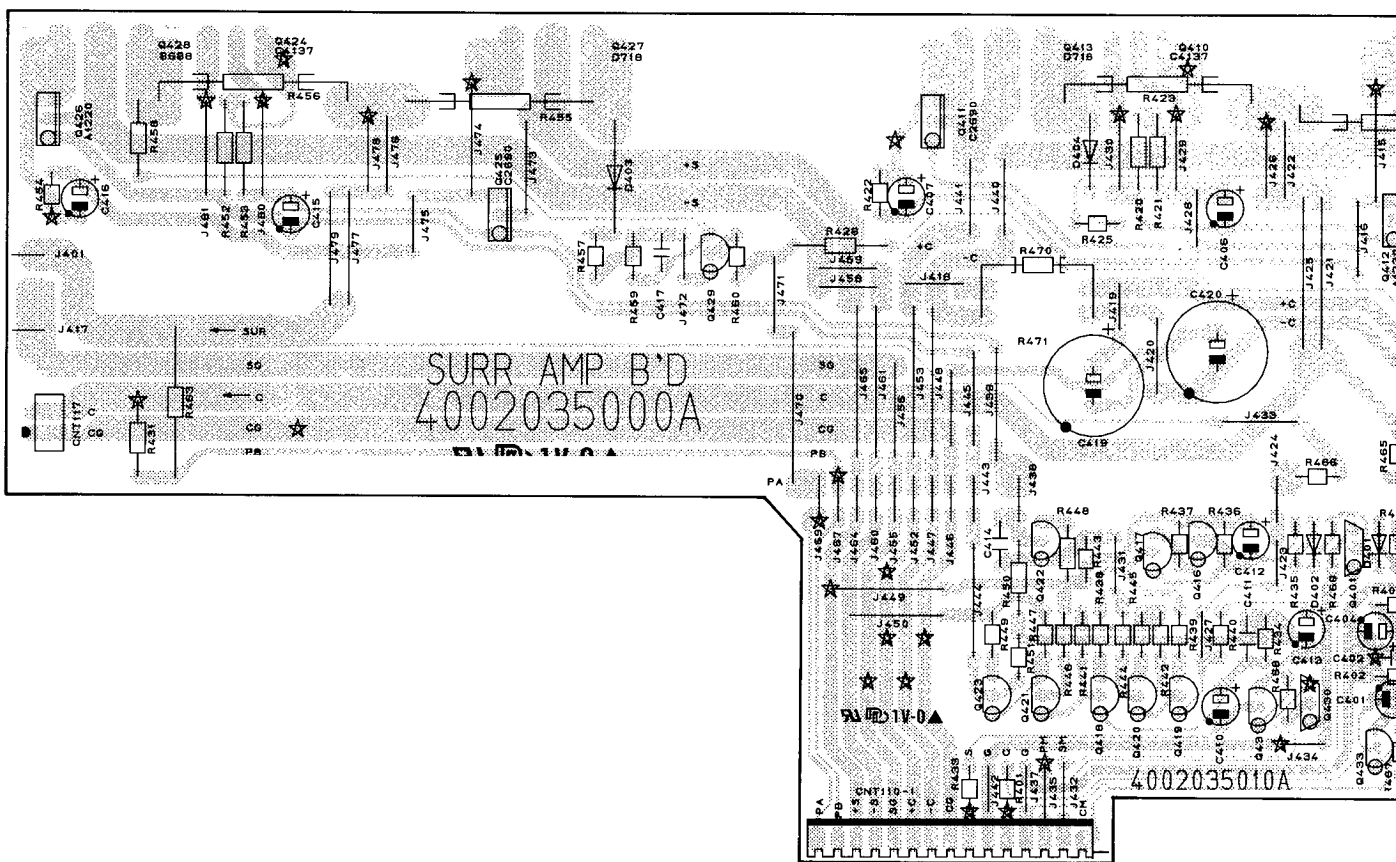
Surround (PCB9)



Tuner (PCB12)



Surround Amp (PCB8)



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							
CAPACITORS							
C107/LR	Ceramic Tubular	100 pF 50 V K	3519101935 2	Δ IC103	LC4966, Quad Analog Switch	2138017108	1
C108/LR	Ceramic Tubular	100 pF 50 V K	3519101935 2	IC106	KIA7806PI, Regulator	2168606110	1
C109/LR	Ceramic Tubular	100 pF 50 V K	3519101935 2				
C111/LR	Ceramic Tubular	100 pF 50 V K	3519101935 2	L101/LR	COILS Inductor, 0.5 mH	2648001010	2
C113	Ceramic Tubular	100 pF 50 V K	3519101935 1				
C114/C115	Electrolytic SG	47 uF 16 V M	3479347031 2				
C116	Electrolytic SG	1 uF 50 V M	3479310971 1				
C117/LR	Electrolytic SG	4.7 uF 50 V M	3479347971 2	P201	Ass'y Posistor, 280mm	052438000283	1
C118/LR	Electrolytic SG	47 uF 16 V M	3479347031 2	P202	PTH9M04BE222TS2F33	2438012200	1
C119/LR	Electrolytic SG	47 uF 16 V M	3479347031 2				
C120/C121	Electrolytic SG	47 uF 16 V M	3479347031 2				
C136	Ceramic Disk	0.1 uF 50 V J	3509104512 1				
C161/LR	Mylar	0.15 uF 63 V K	3679154297 2				
C162/LR	Ceramic Tubular	47 pF 50 V J	3519470935 2				
C163/LR	Electrolytic SG	4.7 uF 50 V M	3479347971 2				
C164/LR	Electrolytic SG	470 uF 16 V M	3479347139 2				
Δ C170/C171	Electrolytic HS	6800 uF 50 V M	3419568224 2				
Δ C172/C173	Electrolytic SG	2200 uF 50 V M	3409322279 2				
C174	Electrolytic SG	4.7 uF 50 V M	3479347971 1				
C175-C177	Mylar	0.047 uF 100 V J	3679473120 3				
C180-C182	Mylar	0.047 uF 100 V J	3679473120 3				
C185	Electrolytic SG	330 uF 50 V M	3409333179 1				
C186-C188	Electrolytic SG	4.7 uF 50 V M	3479347971 3				
C200/LR	Electrolytic SG	47 uF 16 V M	3479347031 2				
C201/LR	Electrolytic SG	1 uF 50 V M	3479310971 2				
C202/LR	Ceramic Tubular	68 pF 50 V J	3519680935 2				
C203/LR	Electrolytic SG	470 uF 6.3 V M	3479347111 2				
C204/LR	Ceramic Tubular	47 pF 50 V J	3519470935 2				
C205/LR	Electrolytic SG	10 uF 50 V M	3479310071 2				
C206/LR	Electrolytic SG	4.7 uF 50 V M	3479347971 2				
C207/LR	Mylar	0.068 uF 100 V J	3679683120 2				
C208/LR	Mylar	0.047 uF 100 V J	3679473120 2				
C209	Electrolytic SG	470 uF 6.3 V M	3479347111 1				
C210	Electrolytic SG	1 uF 50 V M	3479310971 1				
C211	Ceramic Disc	0.0022 uF 50 V Z	3579222130 1				
C213/LR	Electrolytic SG	330 uF 50 V M	3409333179 2				
C214/LR	Electrolytic SG	330 uF 50 V M	3409333179 2				
C215/LR	Ceramic Tubular	3.3 pF 50 V J	3519033935 2				
C216	Not Used !						
C217	Ceramic Disc	0.0022 uF 50 V Z	3579222130 1				
C222	Not Used !						
CONNECTORS							
CNT102-1	Pin Base, 1P		4428525860 1				
CNT103-1	Pin Base, 2P		4428525780 1				
CNT104-1	Pin Base, 3P		4428525790 1				
CNT106	Wafer, 10P, B'D to B'D		4428550100 1				
CNT107	Wafer FPC, 31P		4428509029 1				
CNT108	Wafer, 15P, B'D to B'D		4428550150 1				
CNT109	Wafer, 15P, B'D to B'D		4428550150 1				
CNT110	Wafer, 15P, B'D to B'D		4428561520 1				
CNT111	Wafer, 5P		4428516410 1				
CNT112	Wafer, 6P		4438302927 1				
CNT113	Lead Ass'y, 5P, 280mm		436205283332 1				
CNT114	Wafer, 13P, B'D to B'D		4428551320 1				
CNT116	Wafer, 8P		4428516710 1				
CNT118	Lead Ass'y, 2P, 200mm, to CNT118-1		436102203601 1				
CNT115	Wafer, 2P		4428508210 1				
DIODES							
D101	1N4148, Switching		2058322101 1				
D161/LR	1N4148, Switching		2058322101 2				
Δ D181-D184	1N5402, Rectifier		2058100105 4				
D189/D190	Zener, UZ 16.0BSD		2258599117 2				
D191-D195	1N4148, Switching		2058322101 5				
D200/LR	1N4148, Switching		2058322101 2				
D201/LR	1N4148, Switching		2058322101 2				
D202	Zener, UZ 9.1BSC		2258599107 1				
D203/D204	1N4148, Switching		2058322101 2				
Δ IC107	PBL303, Bridge		2058100146 1				
FUSES							
Δ F101	GMC 250 V, 0.5 A		5508301635 1				
Δ F102	GMC 250 V, 0.5 A		5508301635 1				
INTEGRATED CIRCUITS							
IC101	LC7821, Analog function Switch		2168017132 1				
IC102	KIA4559P (KIA75559P), OP Amp		2168206104 1				
				RESISTORS			
				R101/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
				R102/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
				R103/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
				R104/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
				R105/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
				R106/LR	Carbon Film	1 kohm 1/5 W J	3069102970 2
				R107	Carbon Film	1 kohm 1/5 W J	3069102970 1
				R108	Carbon Film	150 ohm 1/5 W J	3069151970 1
				R109	Carbon Film	100 kohm 1/5 W J	3069104970 1
				R110	Carbon Film	150 ohm 1/5 W J	3069151970 1
				R111/LR	Carbon Film	100 kohm 1/5 W J	3069104970 2
				R112/LR	Carbon Film	220 kohm 1/5 W J	3069224970 2
				R113/LR	Carbon Film	220 kohm 1/5 W J	3069224970 2
				R114/R115	Carbon Film	100 kohm 1/5 W J	3069104970 2
				R123	Carbon Film	150 ohm 1/5 W J	3069151970 1
				R161/LR	Carbon Film	100 kohm 1/5 W J	3069104970 2
				R162/LR	Carbon Film	1 Mohm 1/5 W J	3069105970 2
				R163/LR	Carbon Film	220 kohm 1/5 W J	3069224970 2
				R164/LR	Carbon Film	15 kohm 1/5 W J	3069153970 2
				R165/LR	Carbon Film	2.4 kohm 1/5 W J	3069242970 2
				R166/LR	Carbon Film	33 ohm 1/5 W J	3069330970 2
				R167/LR	Carbon Film	33 ohm 1/5 W J	3069330970 2
				R168/LR	Carbon Film	10 ohm 1/5 W J	3069100970 2
				R169/LR	Carbon Film	100 ohm 1/5 W J	3069101970 2
				R181	Carbon Film	3.3 kohm 1/5 W J	3069332970 1
				R182-R185	Carbon Film	47 kohm 1/5 W J	3069473970 4
				R186/R187	Carbon Film	3.3 kohm 1/5 W J	3069332970 2
				R188/LR	Metal Film	47 ohm 1 W J	3029470470 2
				R189/LR	Metal Film	47 ohm 1 W J	3029470470 2
				R191/R192	Carbon Film	4.7 kohm 1/5 W J	3069472970 2
				R194	Carbon Film	3.3 kohm 1/5 W J	3069332970 1
				R200	Carbon Film	150 kohm 1/5 W J	3069154970 2
				R201/LR	Carbon Film	330 ohm 1/5 W J	3069331970 2
				R202/LR	Carbon Film	3.3 kohm 1/5 W J	3069332970 2
				R203/LR	Carbon Film	33 kohm 1/5 W J	3069333970 2
				R204/LR	Carbon Film	33 kohm 1/5 W J	3069333970 2
				R205/LR	Carbon Film	10 kohm 1/5 W J	3069103970 2

Ref. No.	Description	Mfr. Part No.	Q'ty	Ref. No.	Description	Mfr. Part No.	Q'ty
PCB4	ASSEMBLY P.C.BOARD VOLUME			CNT603-1	Connector, Lead Ass'y, 3P, 350mm	435003352016	1
C700	CAP, Electrolytic SG	10 uF 50 V M	3479310071	1	24	Switch Power, Push Type	4628055910
C701	CAP, Electrolytic SG	100 uF 10 V M	3479310121	1	25	Jack Phone, Headphone, 9P	4438005610
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	IC, TA7291S, Bridge Driver		2168007204	1			
Q700	TR, DTC114TS		2208622108	1			
R700	RES, Metal Film	680 ohm 1/5 W J	3029681970	1			
R701/R702	RES, Metal Film	1 kohm 1/5 W J	3029102970	2			
R705	RES, Metal Film	4.7 ohm 1/5 W J	3029479970	1			
R706	RES, Carbon Film	10 kohm 1/5 W J	3069103970	1			
R707/R744	RES, Metal Film	1.5 kohm 1/5 W J	3029152970	2			
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 F 250 V	3549472107	1			
	CONNECTORS						
CNT601	Pin Base, 3P		4428525790	1			
CNT702-1	Wafer, 7P		4428505410	1			
CNT602	Wafer, 4P		4428505410	1			
CNT603	Wafer, 3P		4428536102	1			
CNT604	Wafer, AC, 2P		4428100291	1			
CNT605	Pin Base, 2P		4428525780	1			
CNT104	Lead Ass'y, 3P, 400mm, LV Type		435603403519	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 HEADPHONE						
C716	CAP, Ceramic Disc	0.1 uF 50V Z	3579104530	1			
C718	CAP, SPK-Killer	0.0047 F 250 V	3549472107	1			
C717/LR	CAP, Ceramic Disc	0.047 uF 50 V Z	3579473530	2			
R741	RES, Metal Film	2.2 kohm 1/5 W J	3029222970	1			
R742	RES, Carbon Film	10 kohm 1/5 W J	3069103970	1			
R743/LR	RES, Metal Film	4.7 ohm 1/5 W J	3029479970	2			
CNT111-1	Connector, Lead Ass'y, 5P, 280mm		436205283332	1			
	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/KTA970, PNP		2208206104	3			
Q406/Q407	BKTC3200BL(KTC2240BL), NPN		2208606108	2			
Q408	KTA1024Y(BKTA949Y), PNP		2208206102	1			
Q409	KTC3206Y(BKTC2229Y), NPN		2208606107	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/KTA970, PNP		2208206104	3			
Q420/Q421	BKTC3200BL(KTC2240BL), NPN		2208606108	2			
Q422	KTA1024Y(BKTA949Y), PNP		2208206102	1			
Q423	KTC3206Y(BKTC2229Y), NPN		2208606107	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		2208606107	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			
R411-R415	Carbon Film	560 ohm 1/5 W J	3069561970	5			
R416/R417	Carbon Film	82 ohm 1/5 W J	3069820970	2			
R418/R419	Carbon Film	22 kohm 1/5 W J	3069223970	2			
R420	Carbon Film	470 ohm 1/5 W J	3069471970	1			
R421	Carbon Film	1.2 kohm 1/5 W J	3069122970	1			
R422	Carbon Film	82 ohm 1/5 W J	3069820970	1			
△ R423/R424	Cement	0.27 ohm 5 W J	3059278782	2			
R425	Carbon Film	1.8 kohm 1/5 W J	3069182970	1			
R426	Carbon Film	1.5 kohm 1/5 W J	3069152970	1			
R427	Carbon Film	910 ohm 1/5 W J	3069911970	1			
R428	Carbon Film	6.8 kohm 1/5 W J	3069682970	1			
R431	Carbon Film	24 kohm 1/5 W J	3069243970	1			
R433	Carbon Film	1 kohm 1/5 W J	3069102970	1			

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

PCB9 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 K	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 K	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
C365	Electrolytic SG	4.7 uF 50 V M	3479347971 1
C366	Ceramic Tubular	100 pF 50 V K	3519101935 1
C367	Ceramic Tubular	680 pF 50 V J	3519681935 1
C368	Electrolytic SG	4.7 uF 50 V M	3479347971 1
C369	Electrolytic SG	0.47 uF 50 V M	3479347871 1
C370	Ceramic Tubular	100 pF 50 V K	3519101935 1
C371	Ceramic Tubular	680 pF 50 V J	3519681935 1
C372	Electrolytic SG	0.47 uF 50 V M	3479347871 1
C373/C374	Electrolytic SG	47 uF 16 V M	3479347031 2
C375L/R	Electrolytic SG	4.7 uF 50 V M	3479347971 2
C376L/R	Ceramic Tubular	100 pF 50 V K	3519101935 2
C377L/R	Electrolytic SG	4.7 uF 50 V M	3479347971 2
C378L/R	Ceramic Tubular	33 pF 50 V K	3519330935 2

Ref. No.	Description	Mfr. Part No.	Q'ty
C380	Mylar	0.0033 uF 100 V J	3679332120 1
C383L/R	Ceramic Tubular	100 pF 50 V J	3519101935 2
C385L/R	Ceramic Tubular	100 pF 50 V J	3519101935 2

CONNECTORS

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

DIODES

D301/D302	1N4148, Switching		2058322101 2
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INTEGRATED CIRCUITS

IC301	NJM2177AFB3, Dolby Decoder		2169020000 1
IC302	NJU9701, Time Delay		2168020114 1
IC303	TC9299, Electronic Volume		2168007210 1
IC304/IC305	KIA4559P (KIA7559P), OP Amp		2168206104 2

TRANSISTORS

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

RESISTORS

R301	Carbon Film	7.5 kohm 1/5 W J	3069752970 1
R302	Carbon Film	47 kohm 1/5 W J	3069473970 1
R303	Carbon Film	15 kohm 1/5 W J	3069153970 1
R304	Carbon Film	4.7 Mohm 1/5 W J	3069475970 1
R305/R306	Carbon Film	22 kohm 1/5 W J	3069223970 2
R307-R309	Carbon Film	100 kohm 1/5 W J	3069104970 3
R310	Carbon Film	10 kohm 1/5 W J	3069103970 1
R311	Carbon Film	68 ohm 1/5 W J	3069680970 1
R312/R314	Carbon Film	100 kohm 1/5 W J	3069104970 2
R315	Carbon Film	15 kohm 1/5 W J	3069153970 1
R316/R317	Carbon Film	8.2 kohm 1/5 W J	3069822970 2
R318	Carbon Film	6.8 kohm 1/5 W J	3069682970 1
R319	Carbon Film	330 kohm 1/5 W J	3069334970 1
R320	Carbon Film	7.5 kohm 1/5 W J	3069752970 1
R321	Carbon Film	47 kohm 1/5 W J	3069473970 1
R322	Carbon Film	15 kohm 1/5 W J	3069153970 1
R323	Carbon Film	56 ohm 1/5 W J	3069560970 1
R324	Carbon Film	47 ohm 1/5 W J	3069470970 1
R325	Carbon Film	1 Mohm 1/5 W J	3069105970 1
R326/R327	Carbon Film	1 kohm 1/5 W J	3069102970 2
R328	Carbon Film	8.2 kohm 1/5 W J	3069822970 1
R329	Carbon Film	7.5 kohm 1/5 W J	3069752970 1
R330	Carbon Film	18 kohm 1/5 W J	3069183970 1
R331	Carbon Film	5.6 kohm 1/5 W J	3069562970 1
R332/R333	Carbon Film	22 ohm 1/5 W J	3069220970 2
R334	Carbon Film	15 kohm 1/5 W J	3069153970 1
R335	Carbon Film	18 kohm 1/5 W J	3069183970 1
R336	Carbon Film	15 kohm 1/5 W J	3069153970 1
R338/R339	Carbon Film	150 ohm 1/5 W J	3069151970 2
R340-R342	Carbon Film	1 kohm 1/5 W J	3069102970 3
R343/R344	Carbon Film	150 ohm 1/5 W J	3069151970 2
R346	Carbon Film	100 kohm 1/5 W J	3069104970 1
R347	Carbon Film	8.2 kohm 1/5 W J	3069822970 1
R348	Carbon Film	1.8 kohm 1/5 W J	3069182970 1
R349	Carbon Film	100 kohm 1/5 W J	3069104970 1
R351	Carbon Film	47 kohm 1/5 W J	3069473970 1
R352	Carbon Film	8.2 kohm 1/5 W J	3069822970 1
R353	Carbon Film	1.8 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
R365	Carbon Film	1 kohm 1/5 W J	3069102970 1
R366-R368	Carbon Film	10 kohm 1/5 W J	3069104970 3
R370L/R	Carbon Film	1.5 kohm 1/5 W J	3069152970 2
R371L/R	Carbon Film	1 kohm 1/5 W J	3069102970 2

MISCELLANEOUS

X301	Resonator, CSA2.00MG		3938131740 1
13	Jack RCA, 6P		4438103210 1

PCB10 ASSEMBLY P. C. BOARD VIDEO

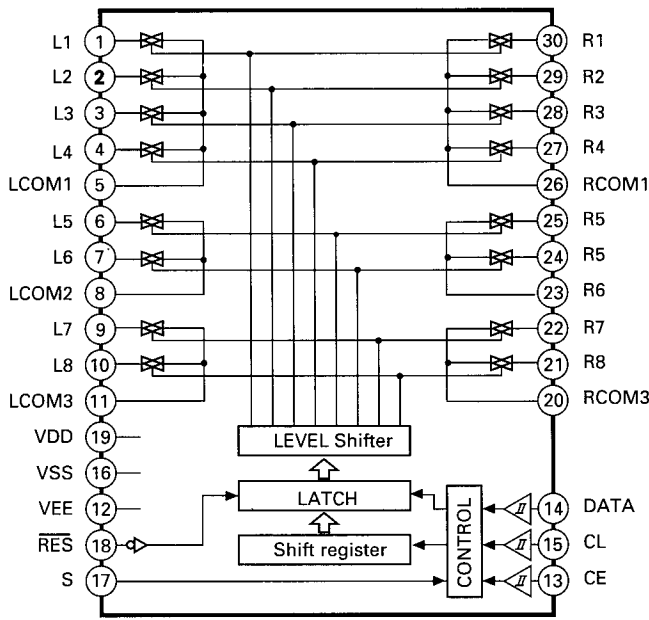
CAPACITORS

C501	Ceramic Tubular	5 pF 50 V D	3519050935 1
C502	Electrolytic SG	33 uF 16 V M	3479333031 1
C503	Ceramic Tubular	5 pF 50 V D	3519050935 1

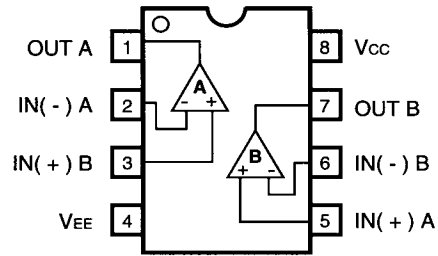
Ref. No.	Description	Mfr. Part No.	Q'ty
R847	Carbon Film 47 kohm 1/5 W J	3069473970	1
R848/R849	Carbon Film .22 ohm 1/5 W J	3069220970	2
R850	Carbon Film 1 kohm 1/5 W J	3069102970	1
R851/R852	Carbon Film 680 ohm 1/5 W J	3069681970	1
R854	Carbon Film 2.2 Mohm 1/5 W J	3069225970	1
R855-R858	Carbon Film 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	4308108210	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
PCB13 ASSEMBLY P.C. BOARD REAR SPEAKER			
CF403	CAP, Ceramic 3300 pF 16 V K	3519332935	1
C418	CAP, Mylar 0.047 uF 100 V J	3679473120	1
R461/R462	RES, Carbon Film 22 ohm 1/5 W J	3069220970	2
R464	RES, Metal Film 10 ohm 1 W J	3029100470	1
L402	Coil, Inductor, 0.5 mH	2648001010	1
14	Terminal Speaker, 4P, Rear	4408108910	1

IC FUNCTIONAL BLOCK DIAGRAM

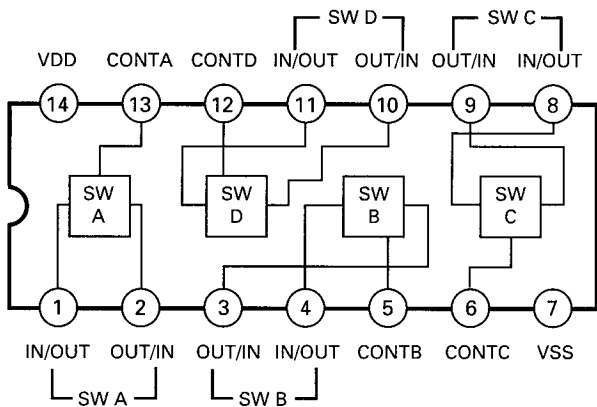
IC101 : LC7821 (Analog Function Switch)



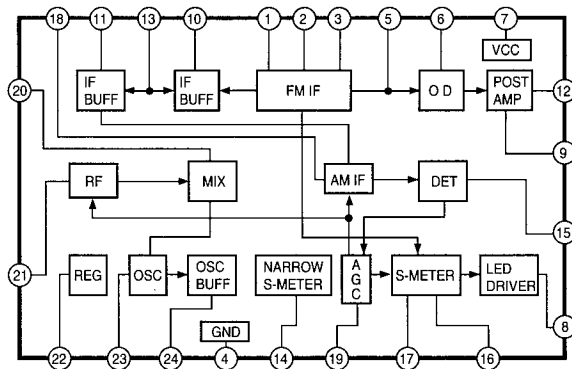
IC102, IC105, IC304, IC305 : KIA4559P (OP-Amp)



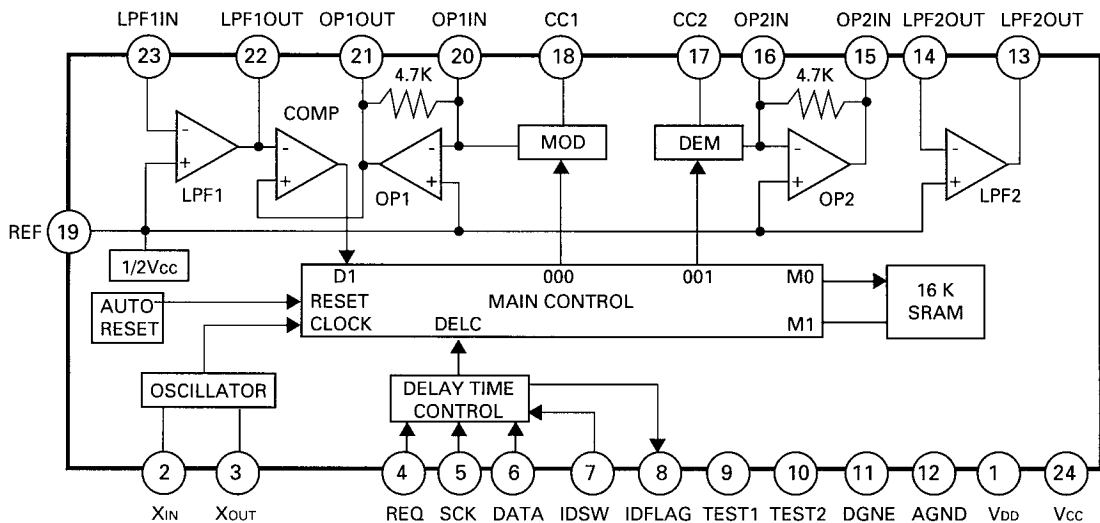
IC103 : LC4966B (Quad Analog Switch)



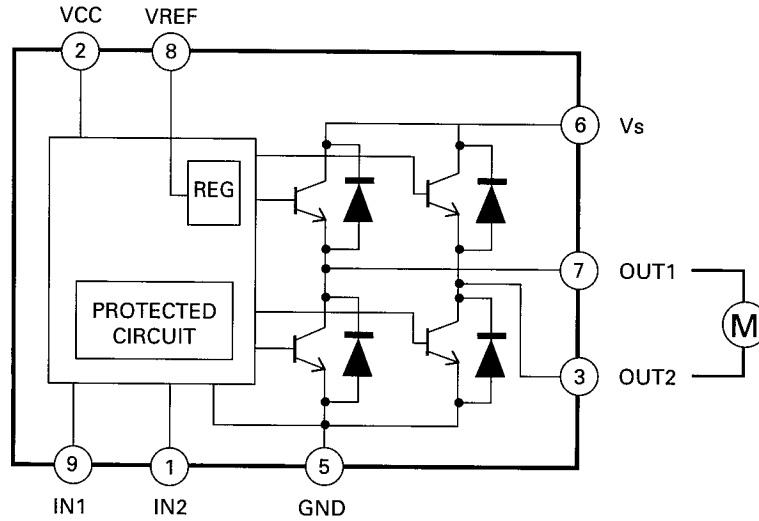
IC801 : LA1266 (AM/FM IF)



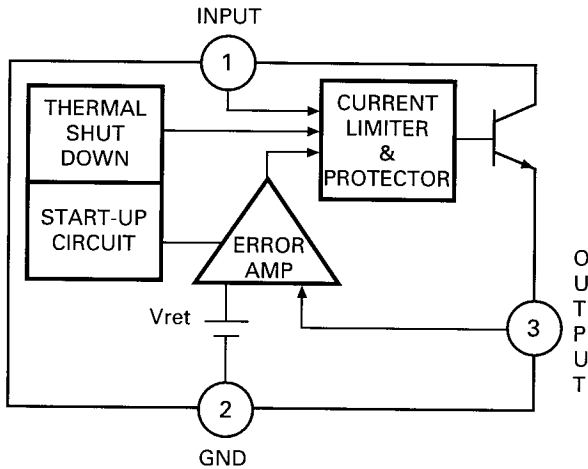
IC302 : NJU9701 (Time Delay)



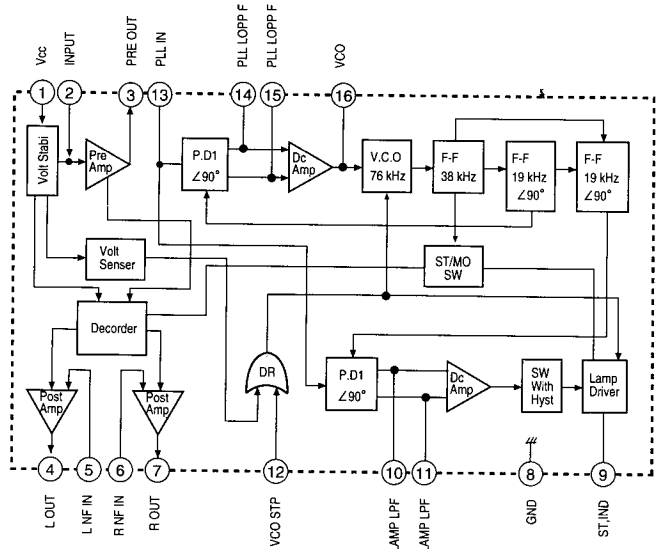
IC700 : TA7291S (Bridge Driver)



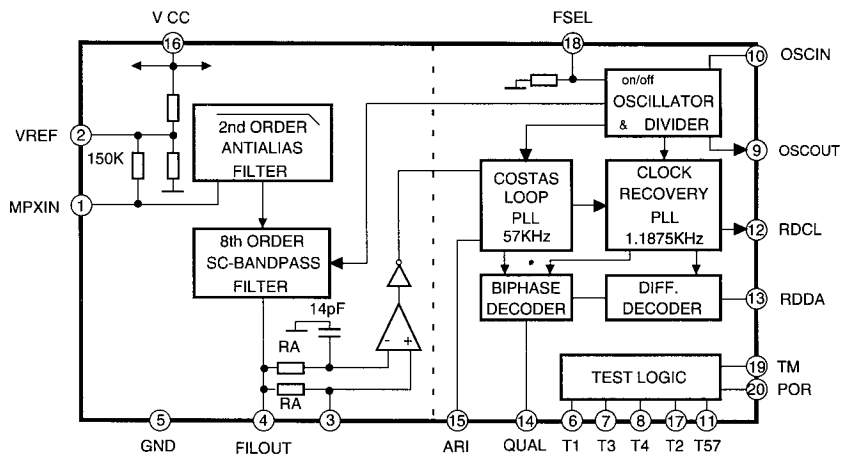
IC106, IC601 : GD7806PI (Regulator)



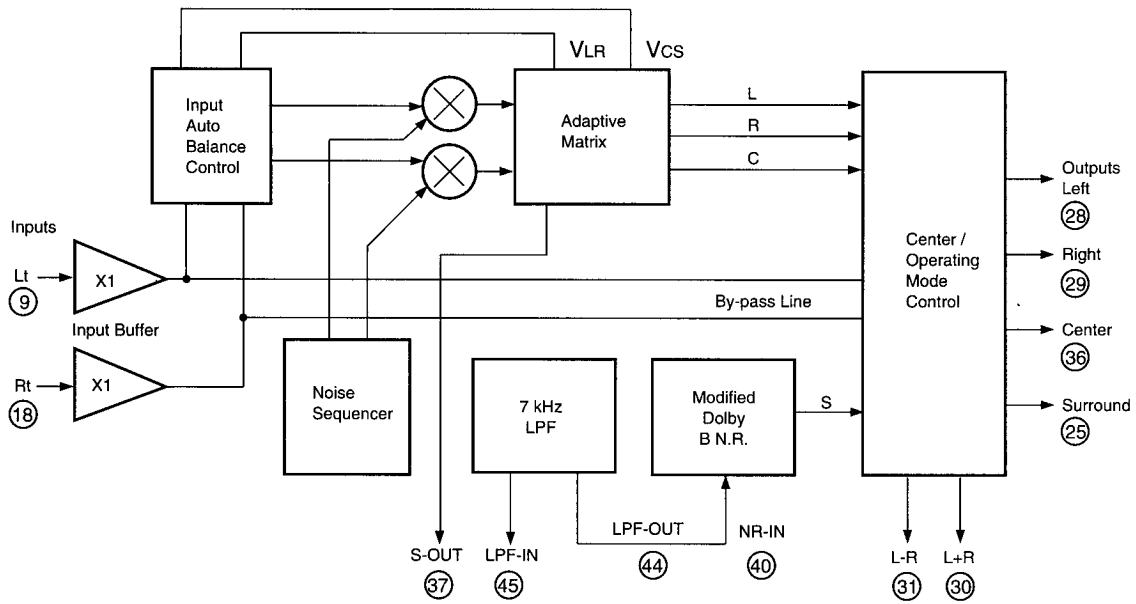
IC803 : HA12016 (MPX)



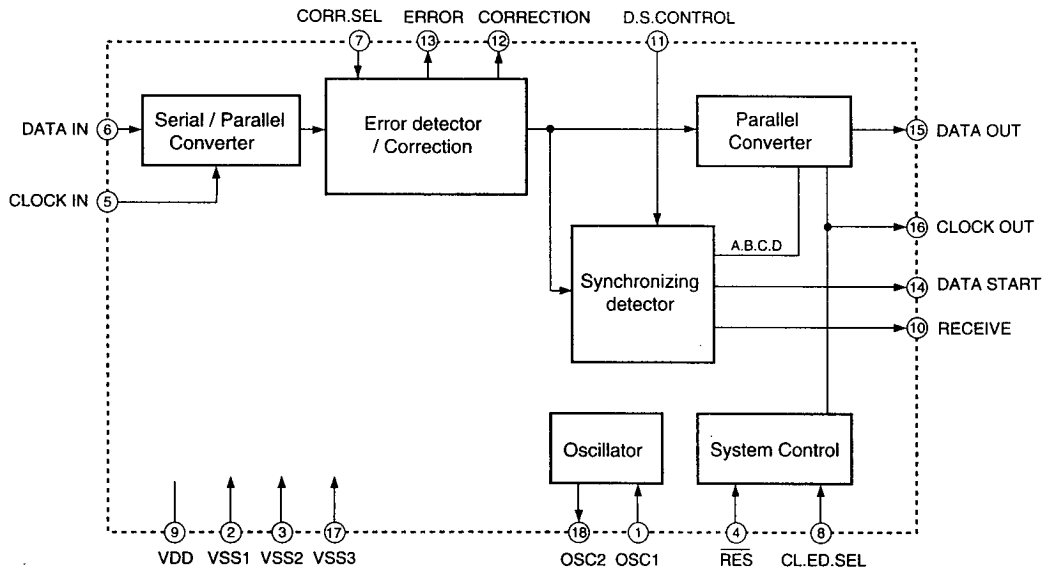
IC804 : TDA7330B (RDS Decoder)



IC301 : NJM2177AFB3 (Dolby Decoder)

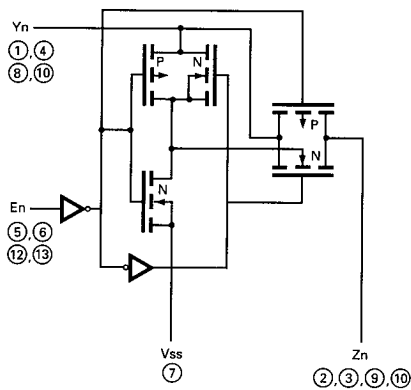


IC805 : LC7073 (Error Correction)

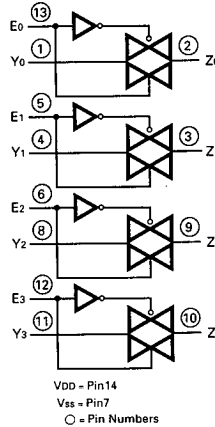


IC501 : GD4066B (Switching)

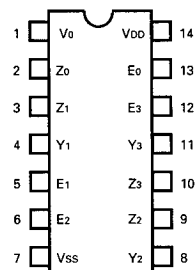
LOGIC DIAGRAM (1/4 OF A 4066B)



LOGIC SYMBOL

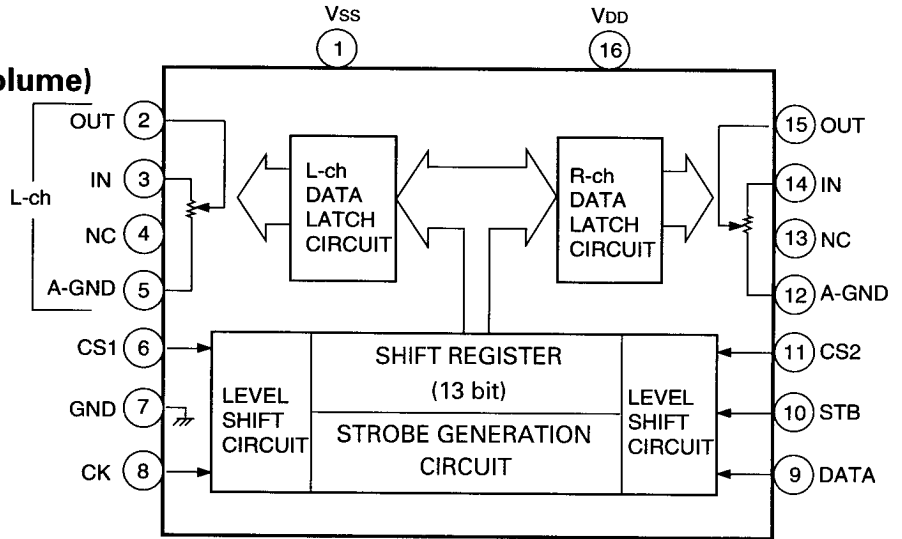


CONNECTION DIAGRAM
DIP(TOP VIEW)

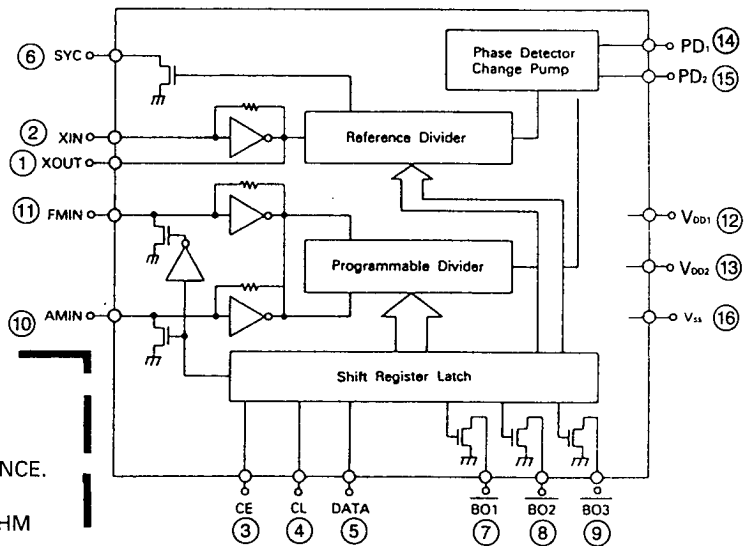


NOTE:
The SO Package has the same pinout (Connection Diagram) as the Dual-line Package.

IC303 : TC9299 (Electronic Volume)



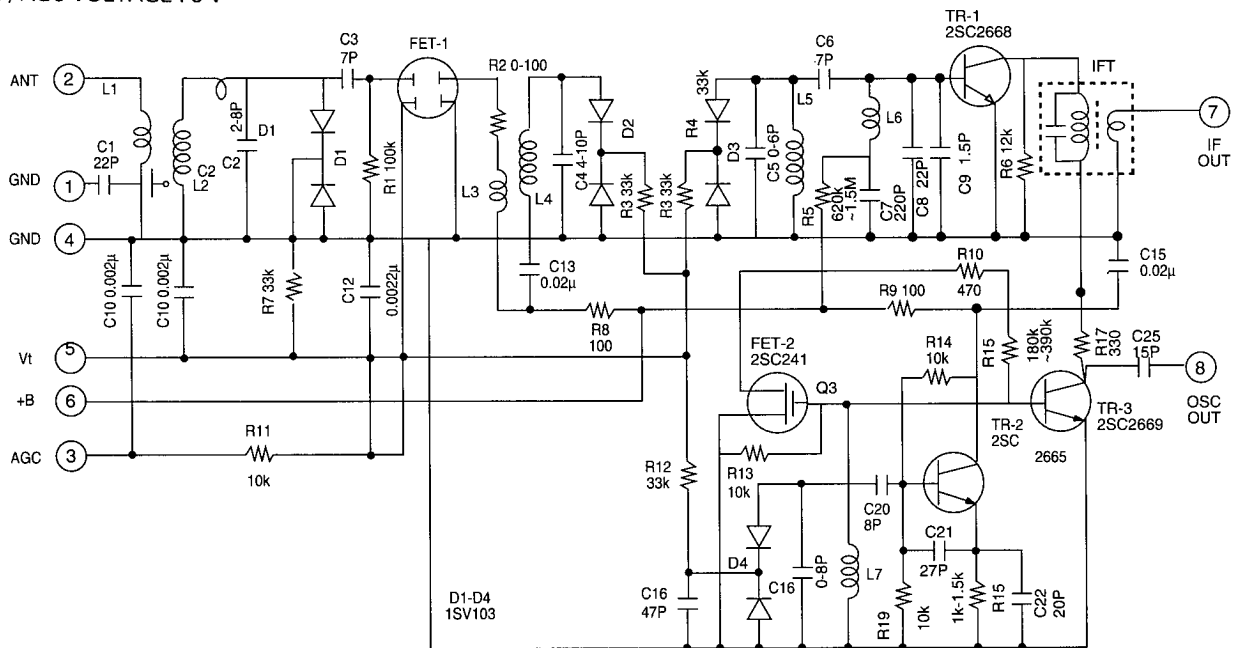
IC802 : LM7001 (PLL)



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

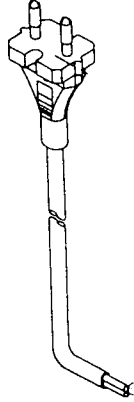
1

2

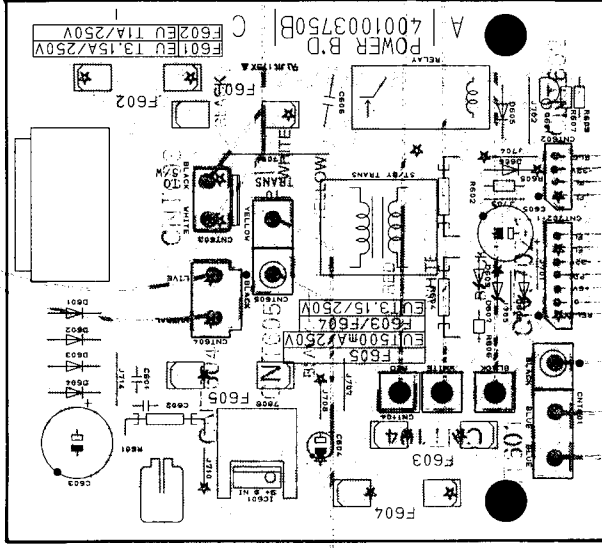
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4

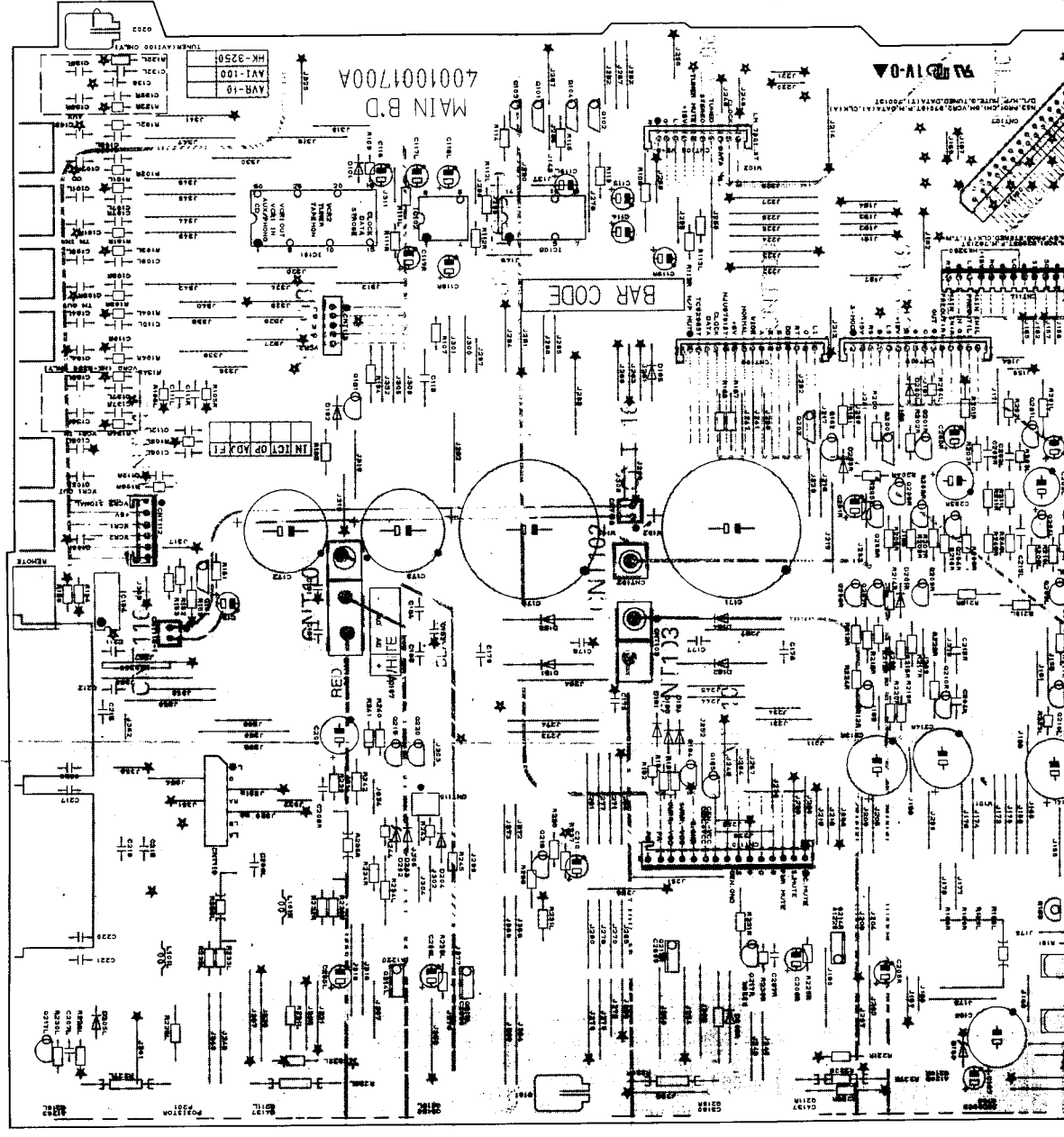
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PCB6



PCB1



M

L

K

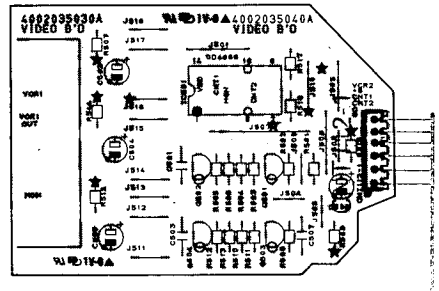
J

I

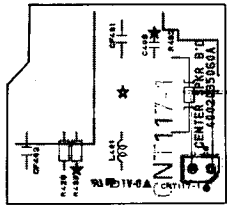
H

G

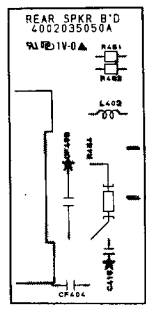
PCB10



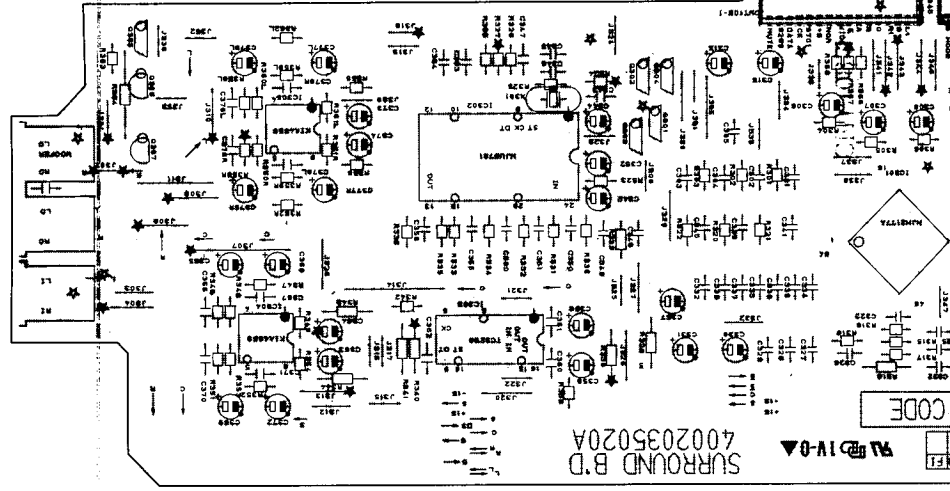
PCB11



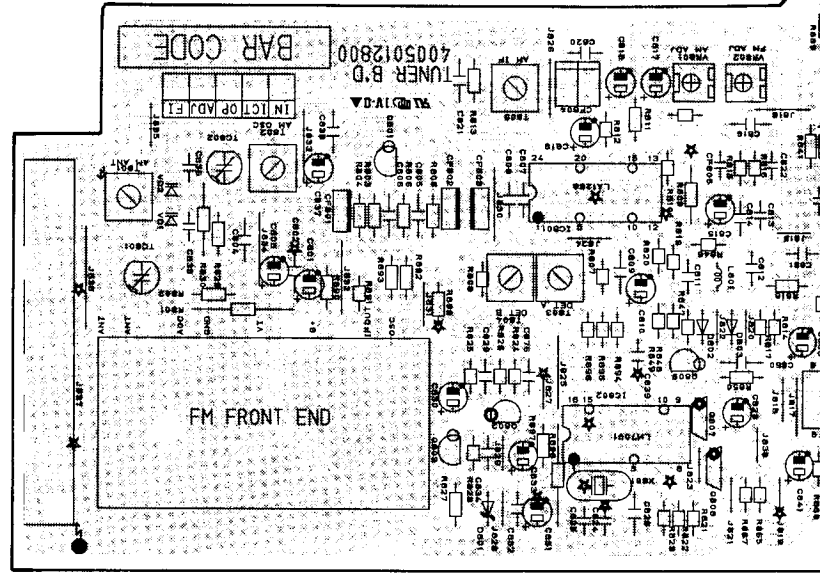
PCB13



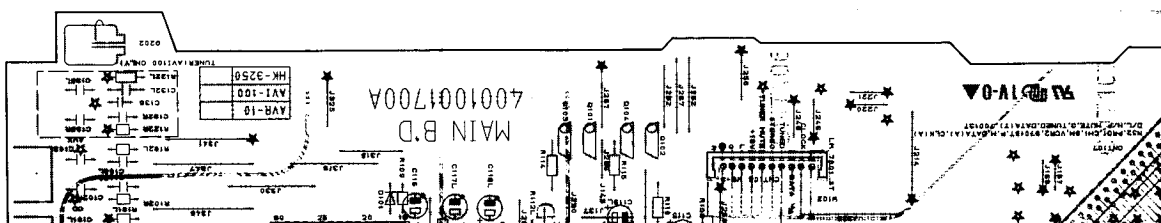
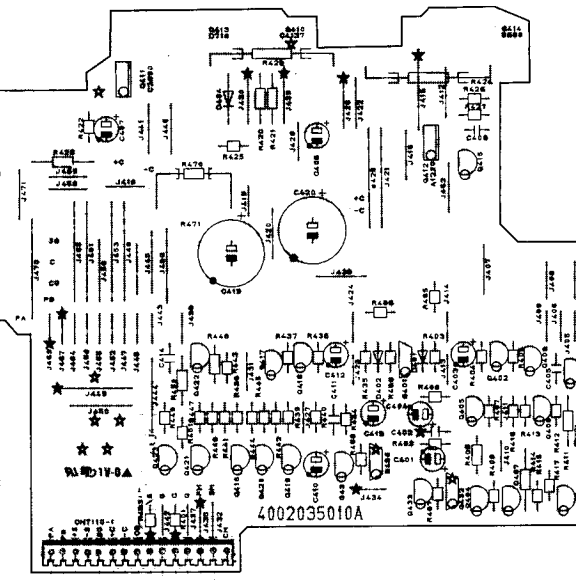
PCB9

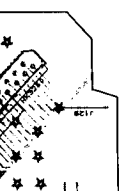
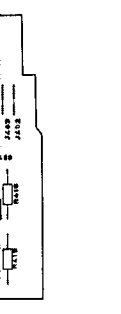
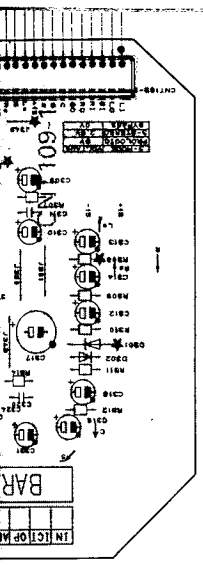
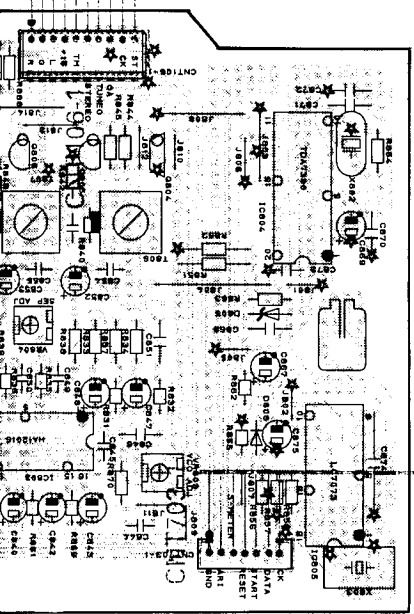


PCB12



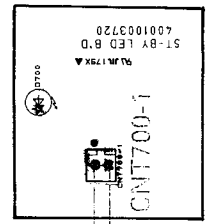
PCB8



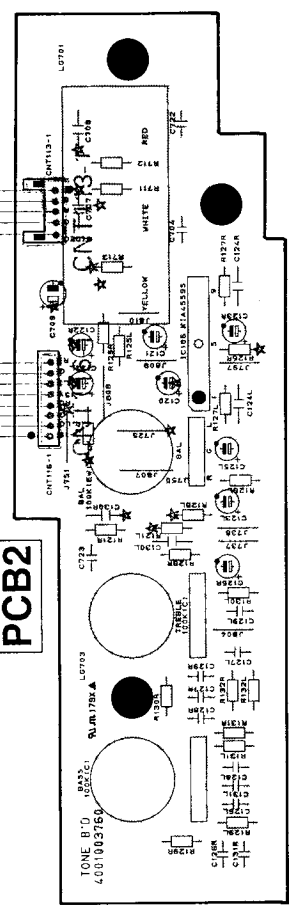


B'D TO B'D

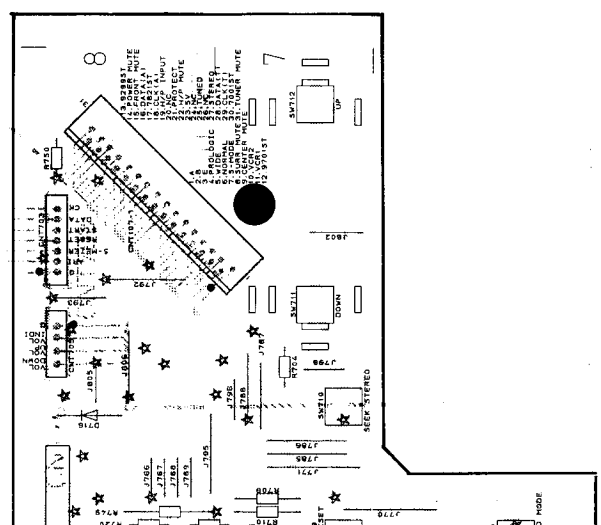
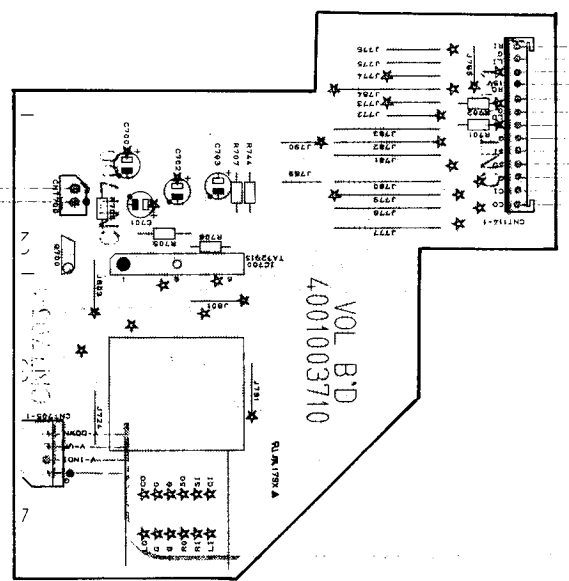
PCB5



PCB2

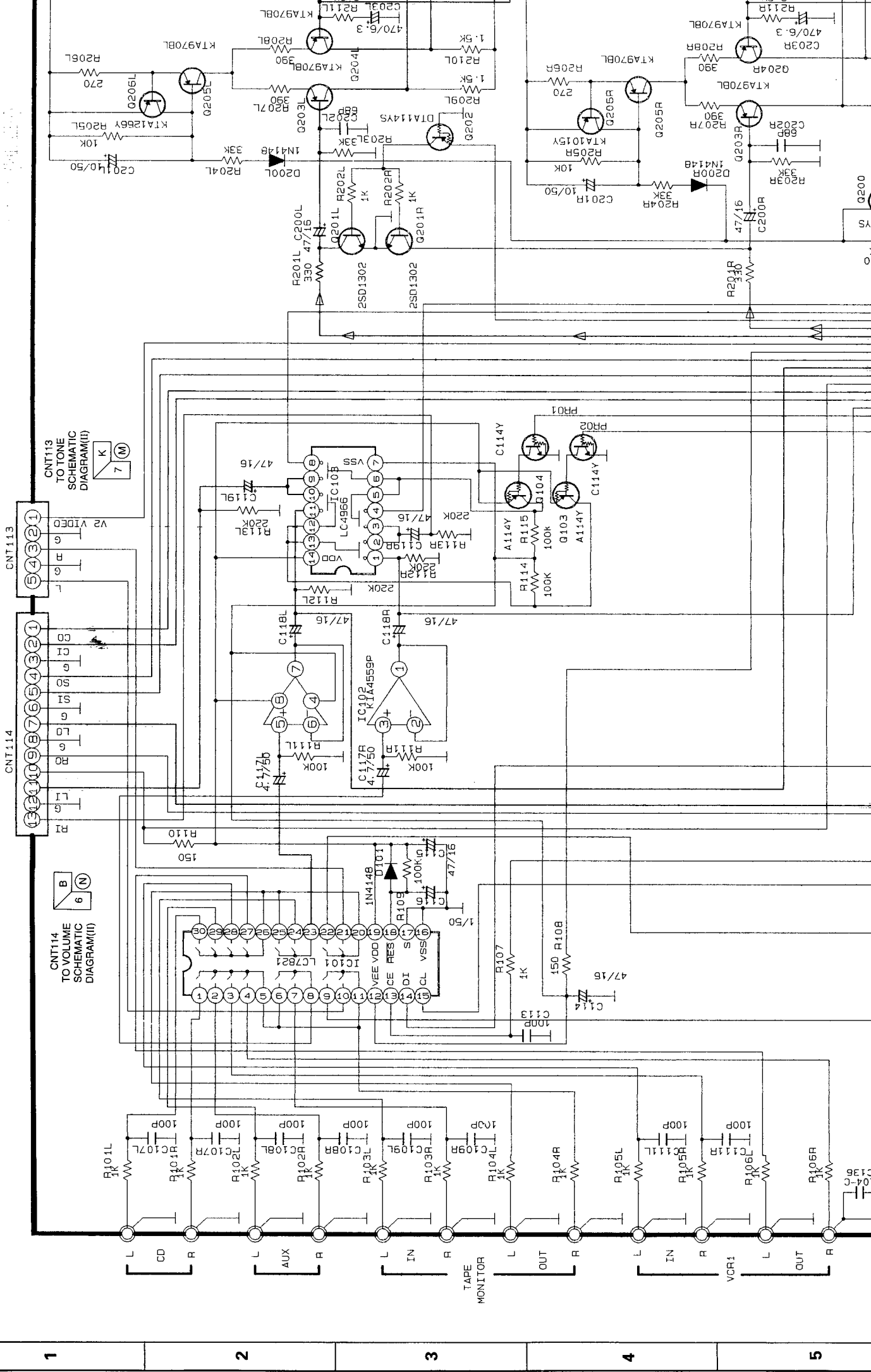


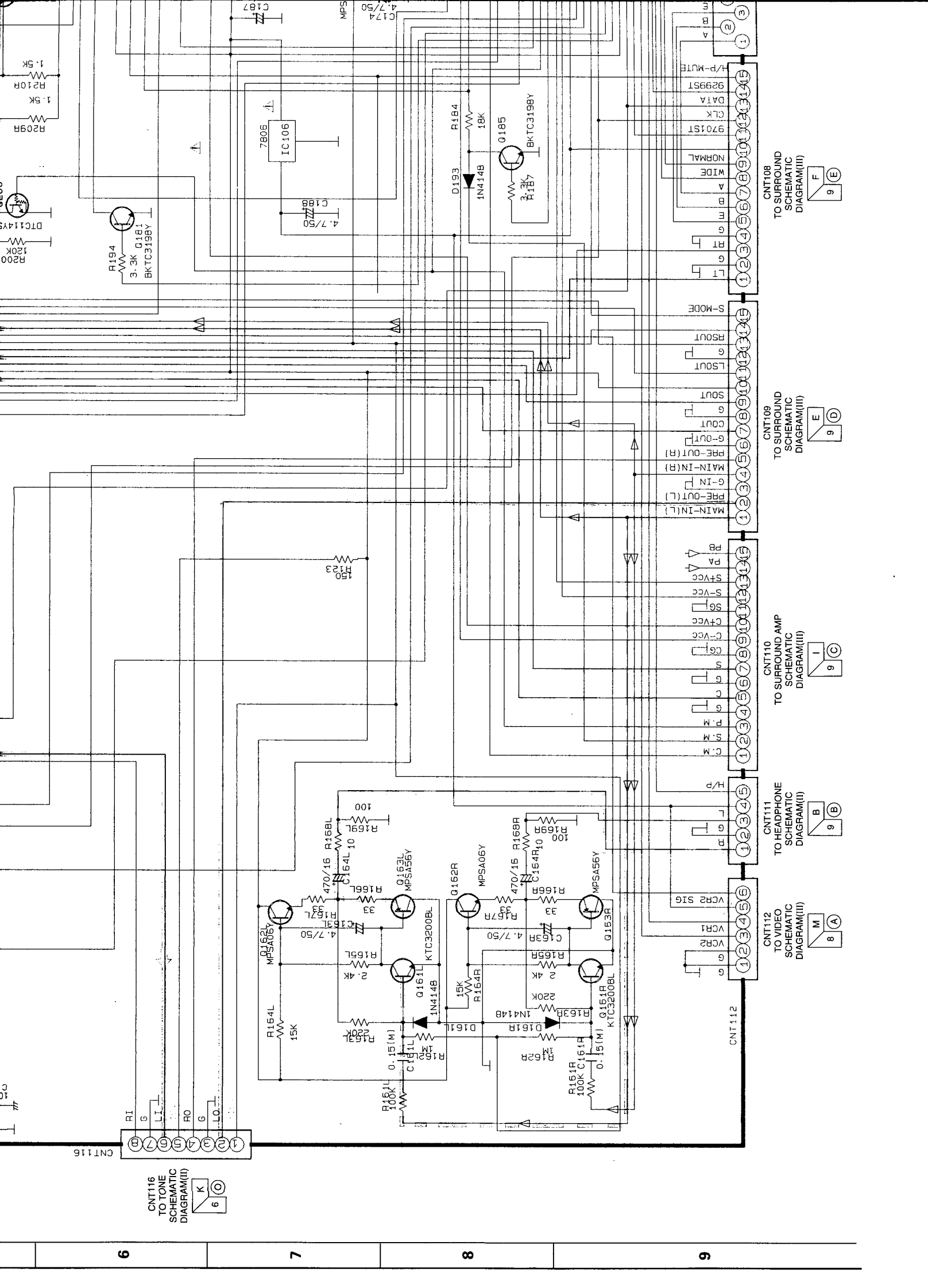
PCB4



SCHEMATIC DIAGRAM I

A B C D E F G





CNT116 TO TONE 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

SCHEMATIC DIAGRAM II

A

B

C

D

E

F

G

1

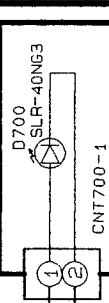
2

3

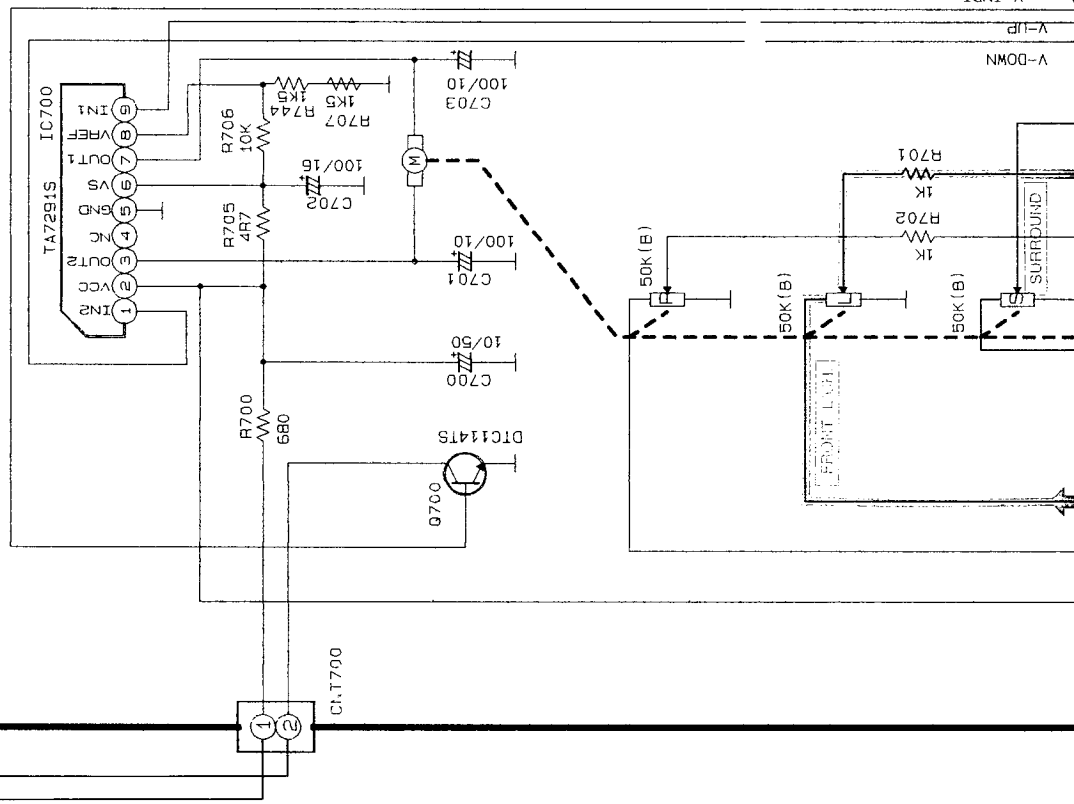
4

5

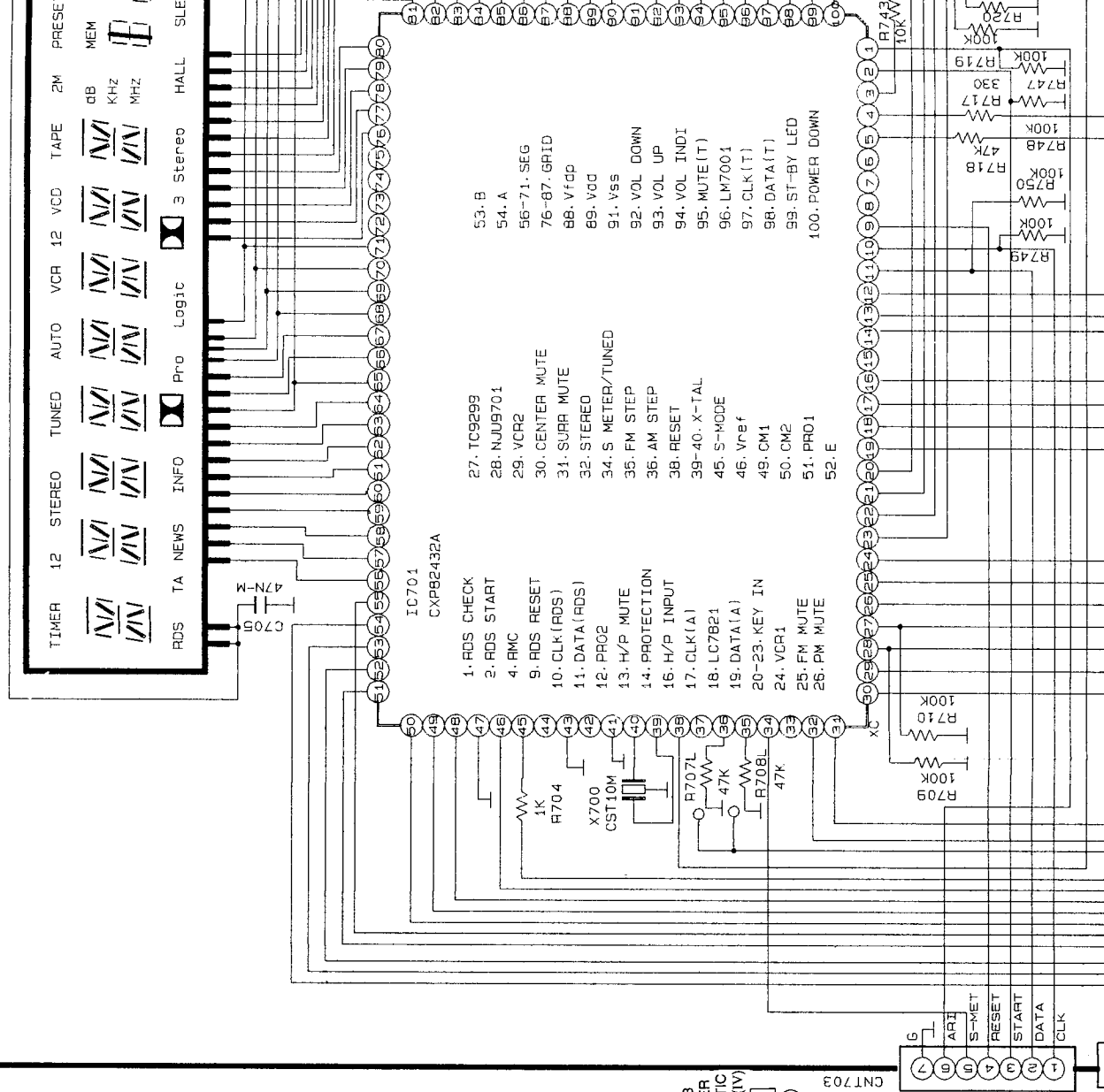
PCB3 (VOLUME LED)



PCB4 (VOLUME)

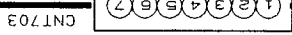
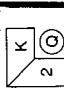


PCB3 (FRONT)



- 1. RDS CHECK
- 2. RDS START
- 4. RMC
- 9. RDS RESET
- 10. CLK (RDS)
- 11. DATA (RDS)
- 12. PR02
- 13. H/P MUTE
- 14. PROTECTION
- 16. H/P INPUT
- 17. CLK(A)
- 18. LC7B21
- 19. DATA(A)
- 20-23. KEY IN
- 24. VCR1
- 25. FM MUTE
- 26. PM MUTE
- 27. TC9299
- 28. NUJ9701
- 29. VCR2
- 30. CENTER MUTE
- 31. SURR MUTE
- 32. STEREO
- 34. S. METER/TUNED
- 35. FM STEP
- 36. AM STEP
- 38. RESET
- 39-40. X-TAL
- 45. S-MODE
- 46. Vref
- 49. CM1
- 50. CM2
- 51. PR01
- 52. E

CNT703
TO TUNER
SCHEMATIC
DIAGRAM (V)

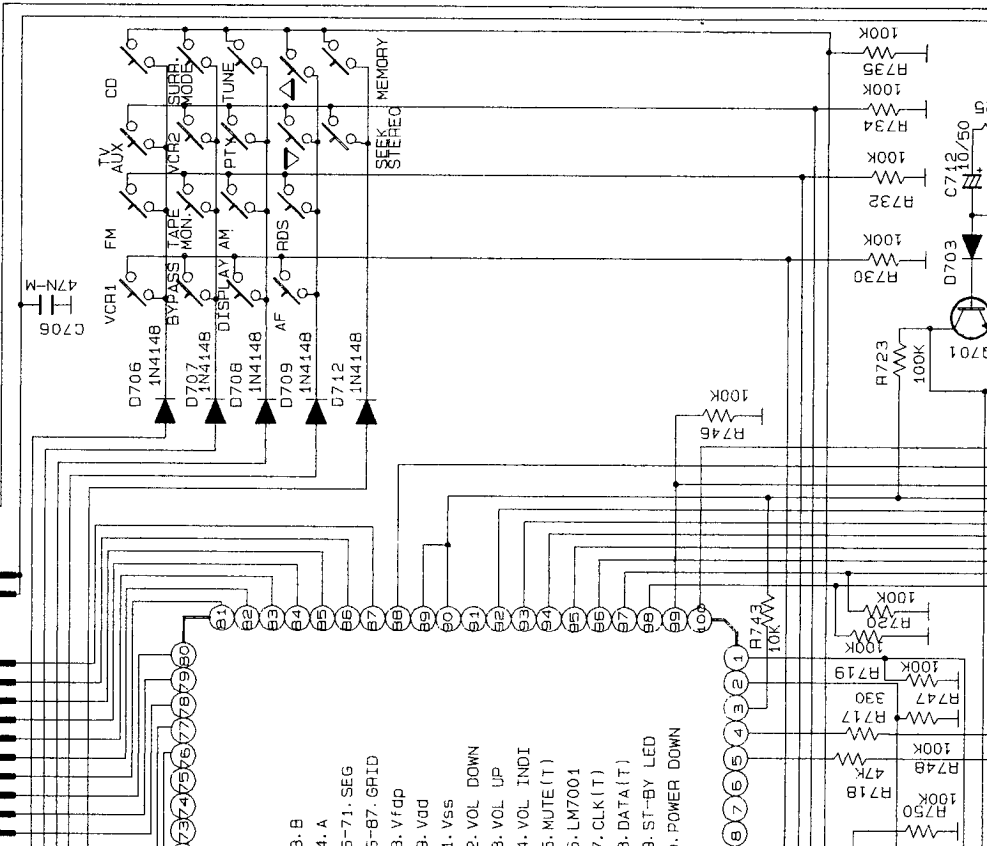
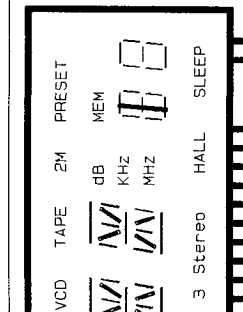


FRONT LIGHT

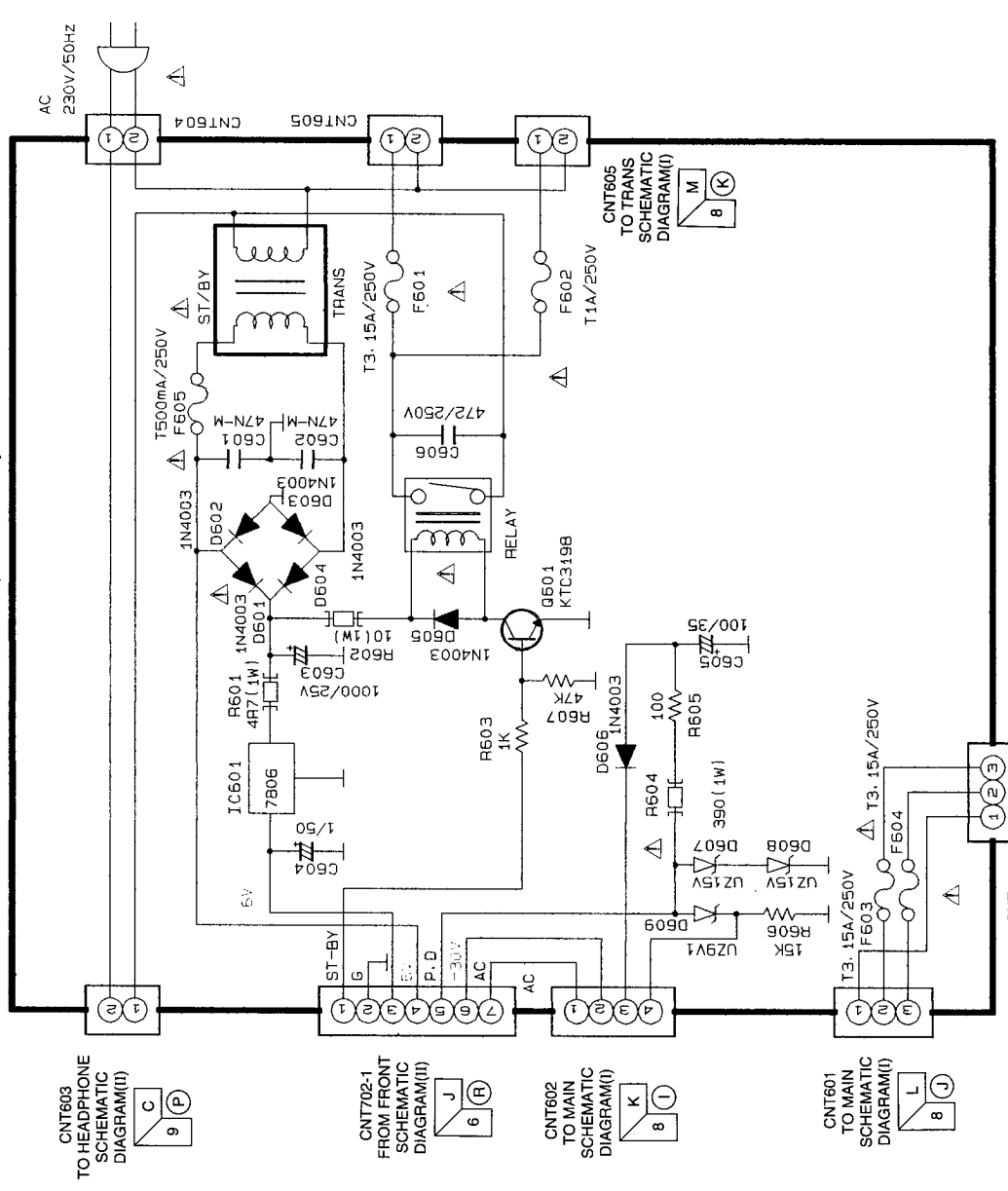
SURROUND

V-INDI
V-IFP
V-DOWN

ONT)

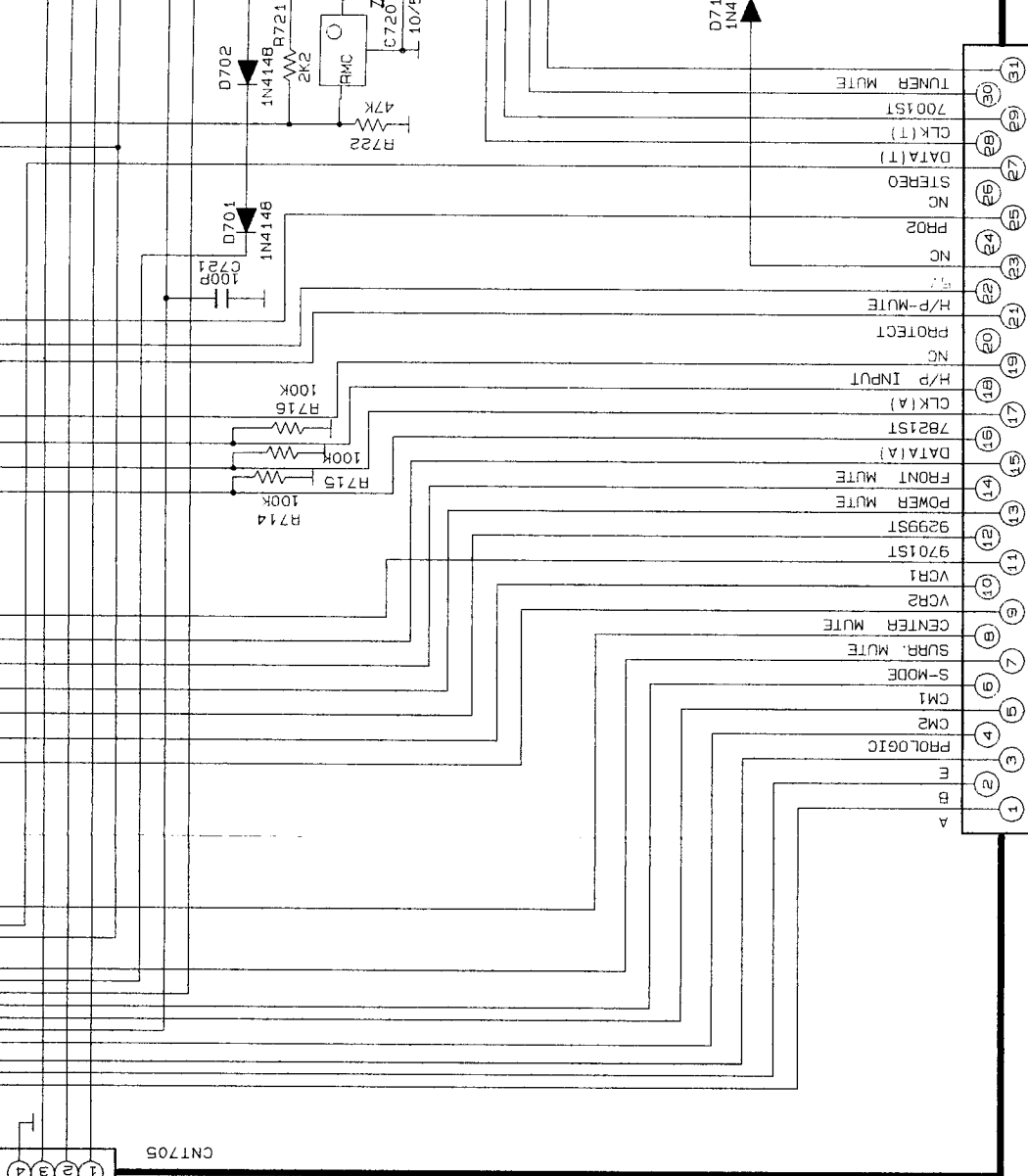


PCB6 (POWER)

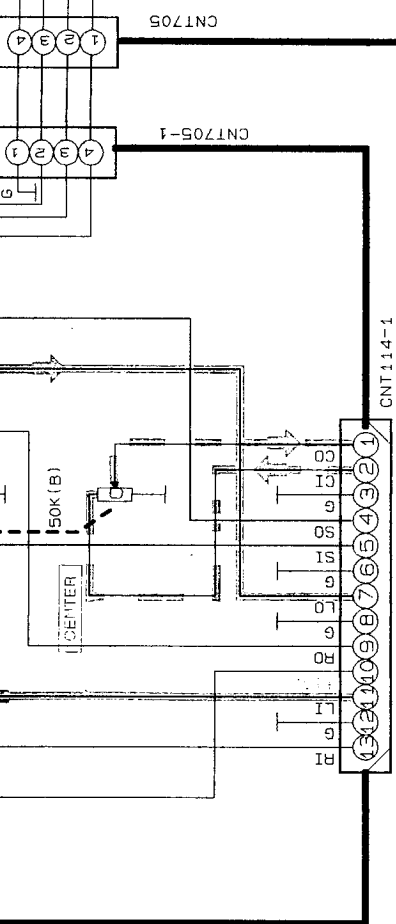
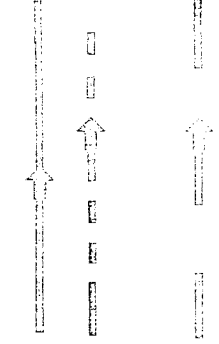


PCB2 (TONE)

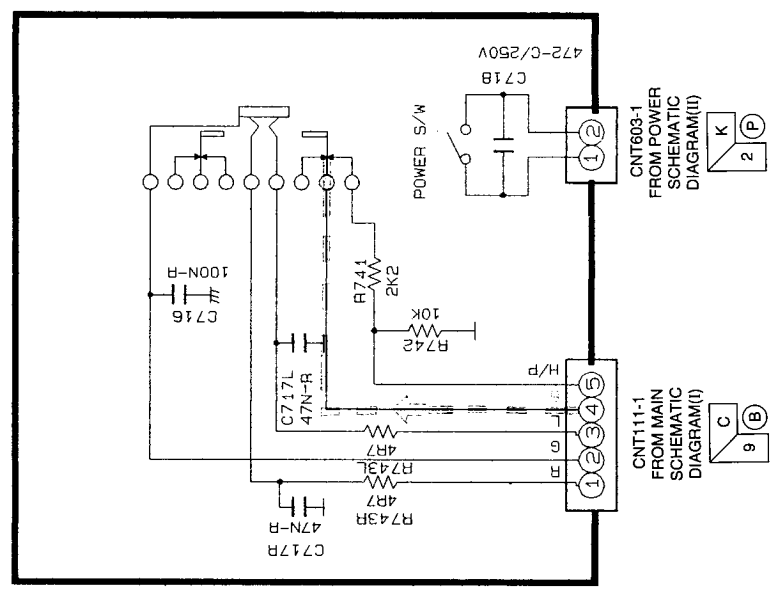




CNT107-1
FROM MAIN
SCHEMATIC
DIAGRAM(I)

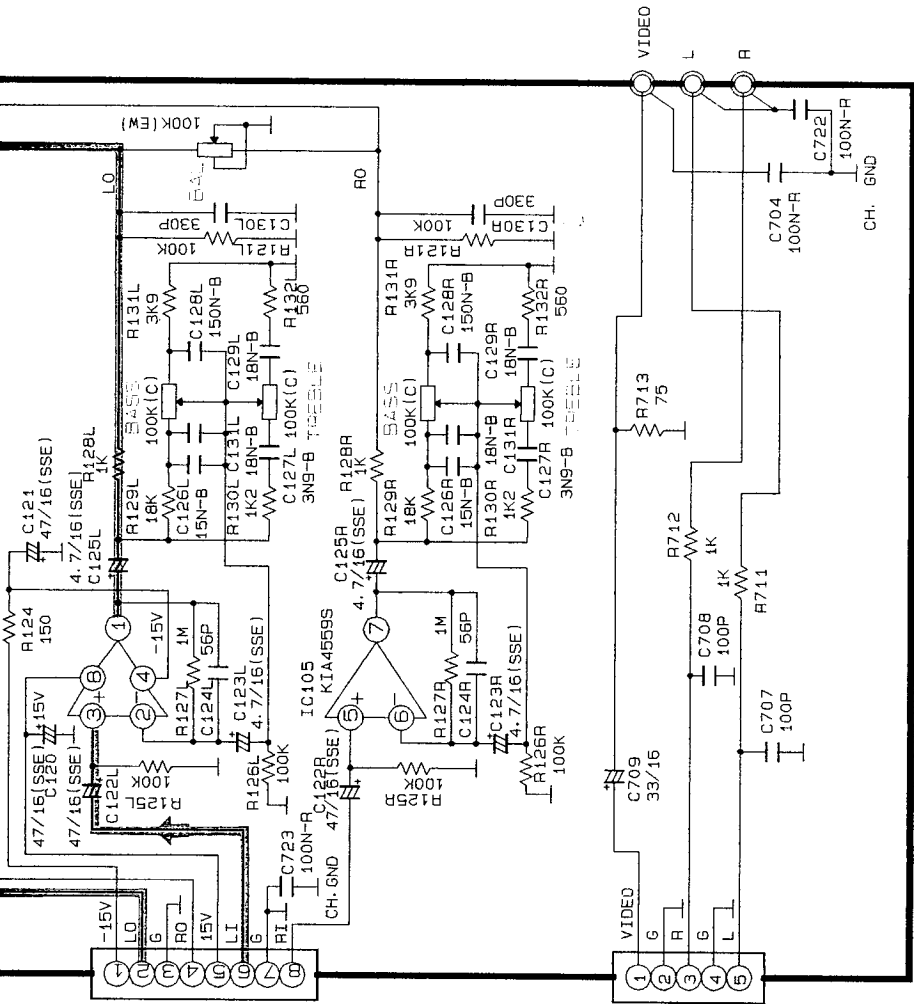


CNT114-1
FROM MAIN
SCHEMATIC
DIAGRAM(I)



CNT603-1
FROM POWER
SCHEMATIC
DIAGRAM(II)

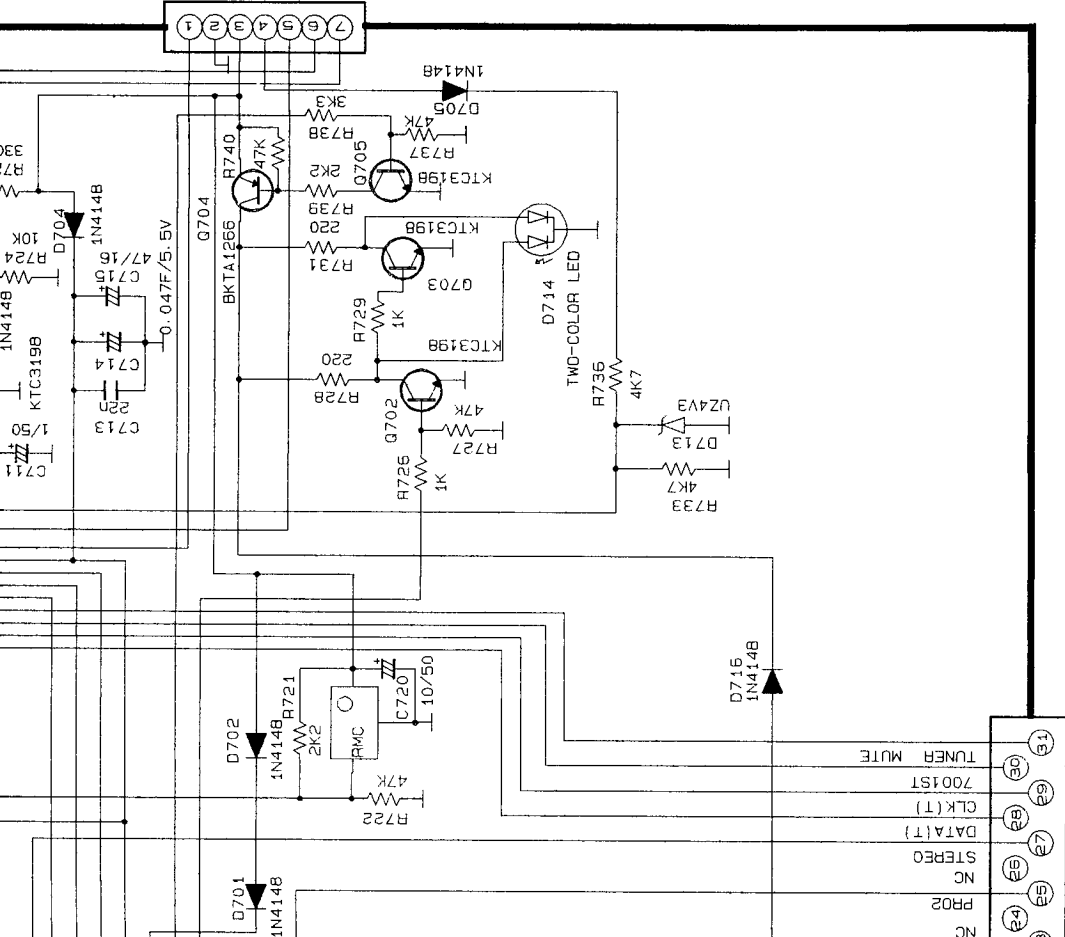
CNT111-1
FROM MAIN
SCHEMATIC
DIAGRAM(I)



ONT116-1 FROM MAIN SCHEMATIC DIAGRAM(I)

ONT702 TO POWER SCHEMATIC DIAGRAM(II)

ONT113-1 FROM MAIN SCHEMATIC DIAGRAM(I)



NOTES

1. Resistor values are indicated in ohms unless otherwise specified in I K=1,000 M=1,000,000
2. Capacitor values are indicated in microfarads unless otherwise specified. (p=micro-microfarads)

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

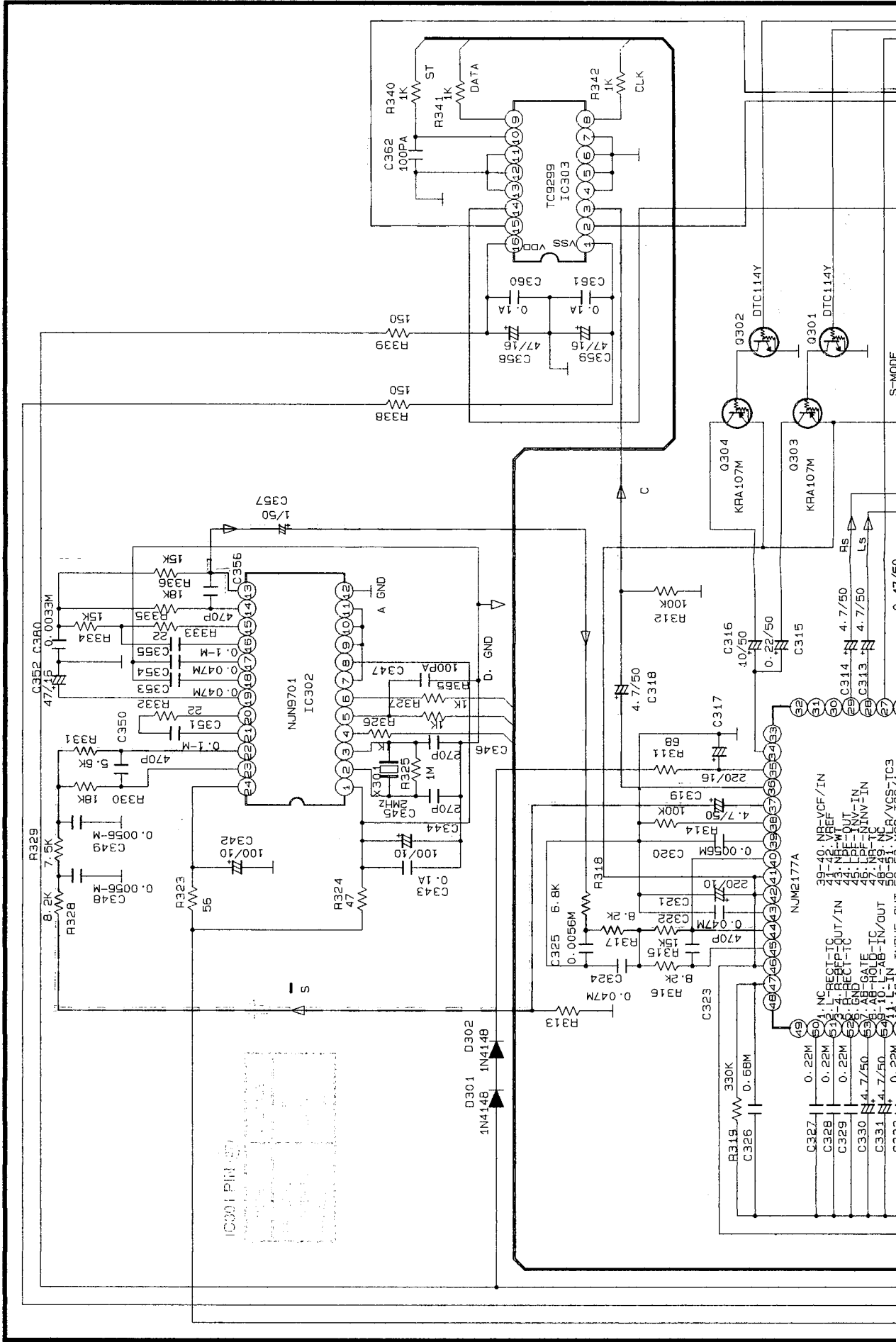
1

2

3

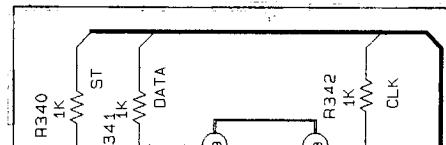
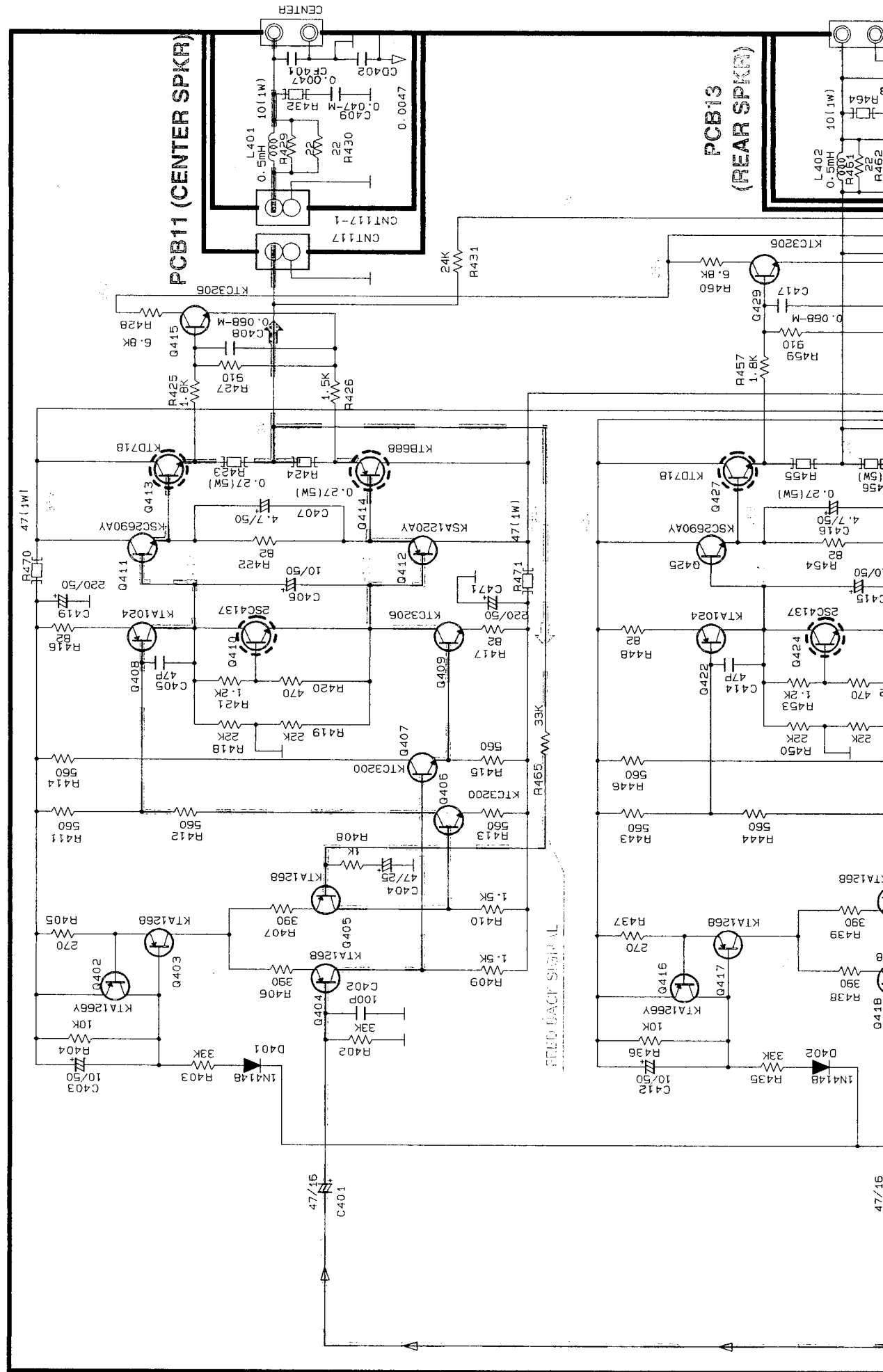
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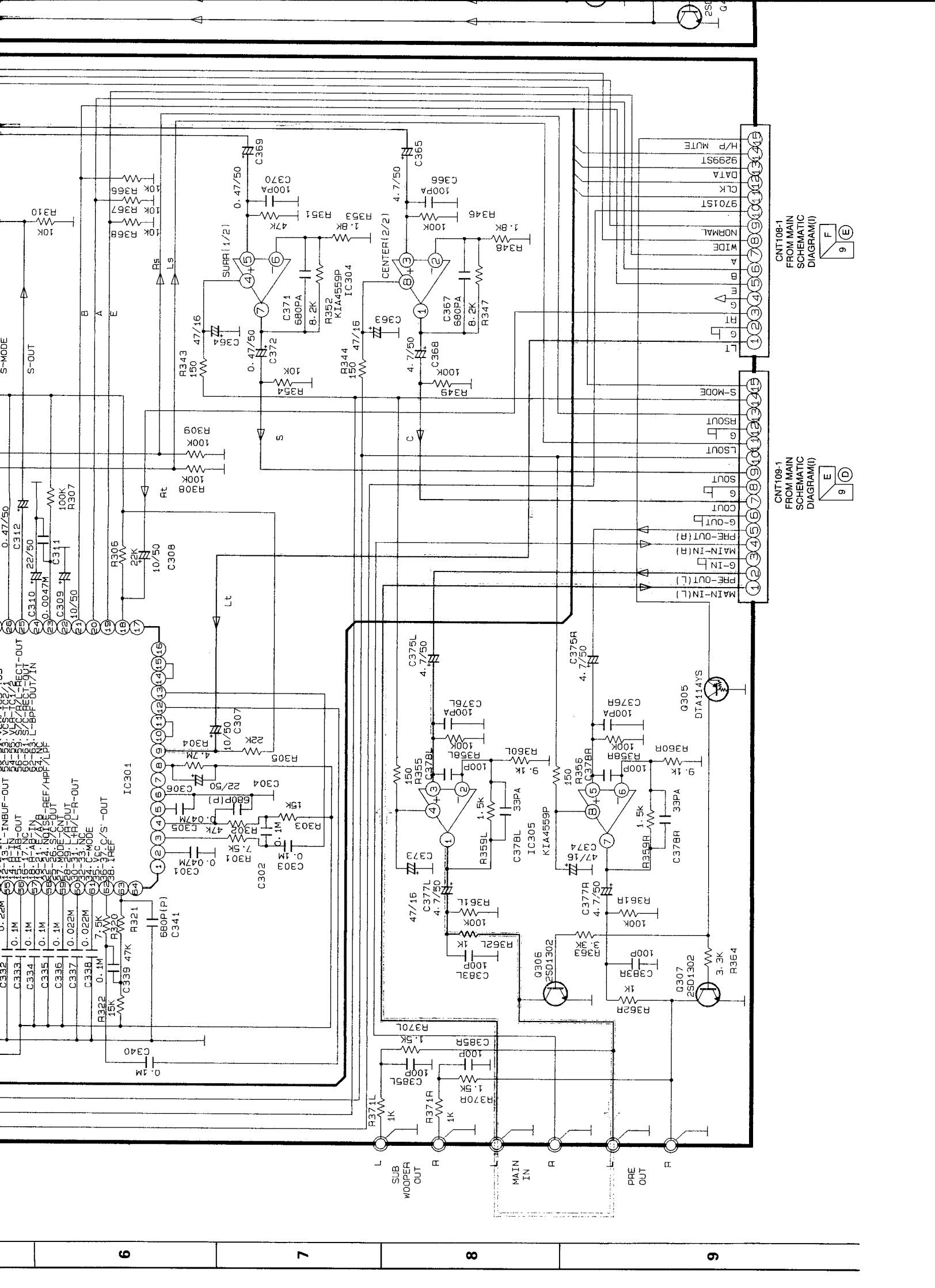
5



G H I J K L M

PCAO (SURROUND AMP)





CNT108-1
FROM MAIN
SCHEMATIC
DIAGRAM(I)

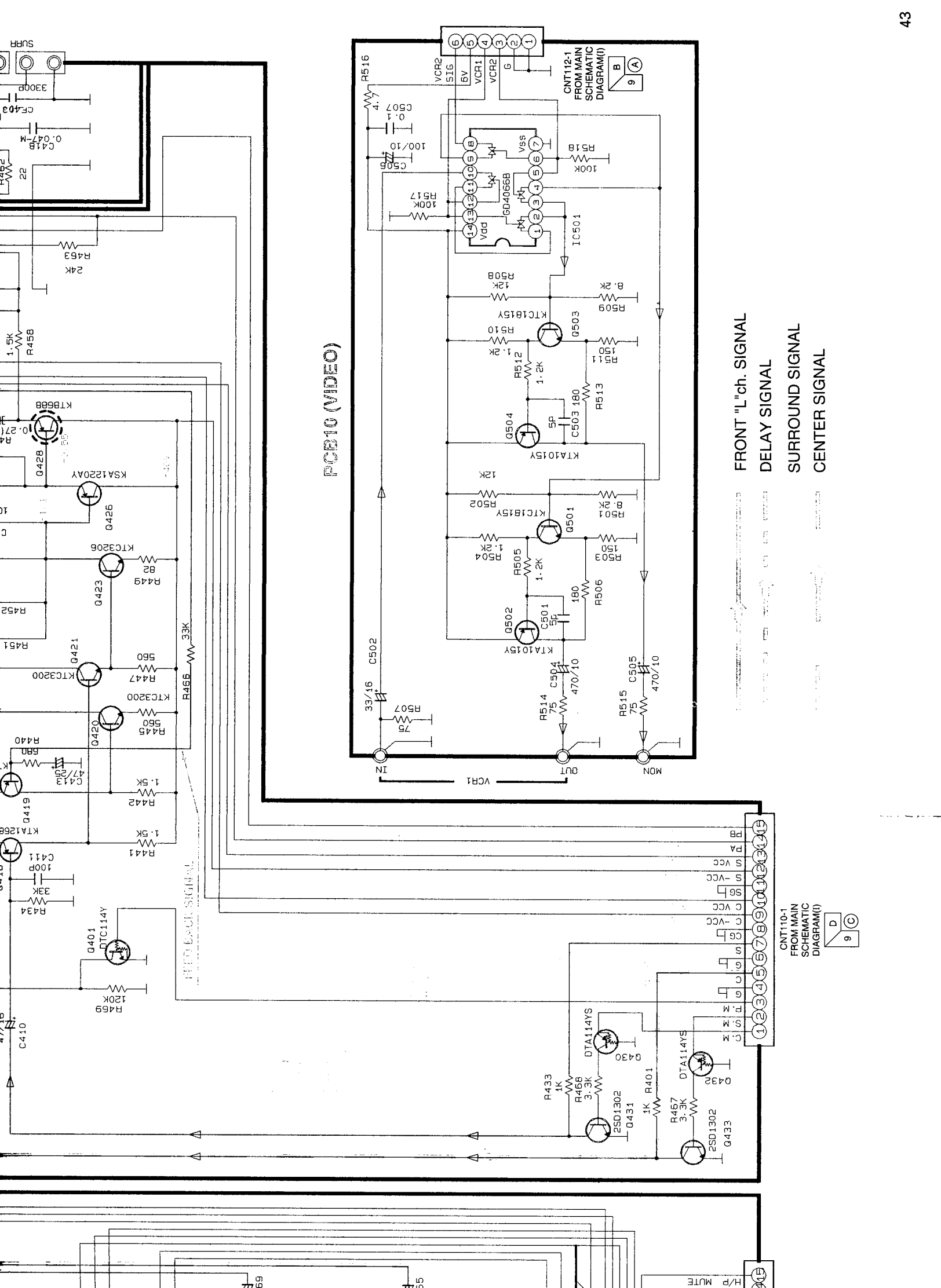
CNT108-1
FROM MAIN
SCHEMATIC
DIAGRAM(I)

6

7

8

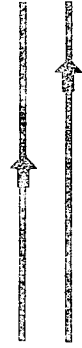
9



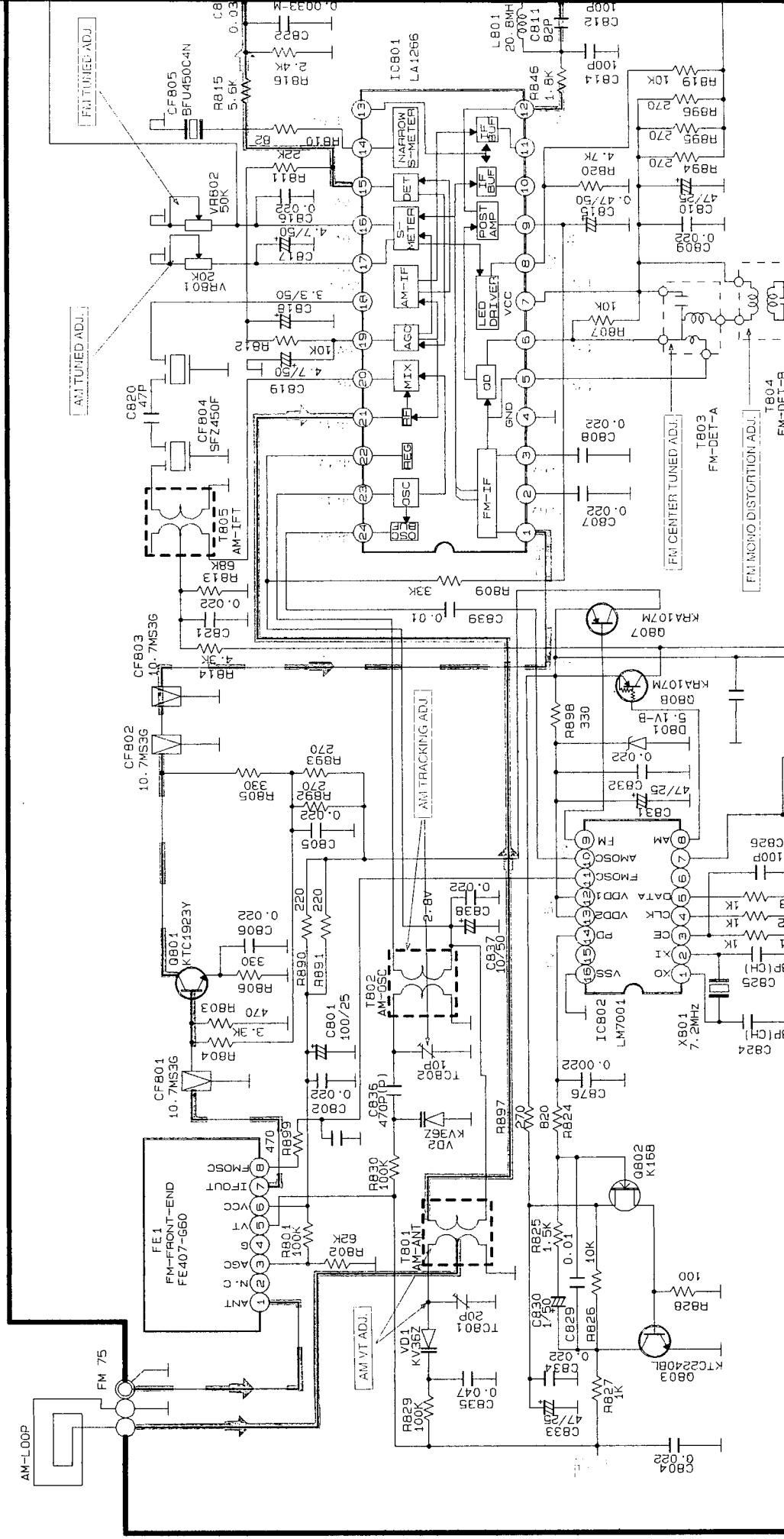
SCHEMATIC DIAGRAM IV

A	B	C	D	E	F	G
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TUNER "L" ch. SIGNAL
 AM SIGNAL
 FM SIGNAL



PC312 (TUNER)



1

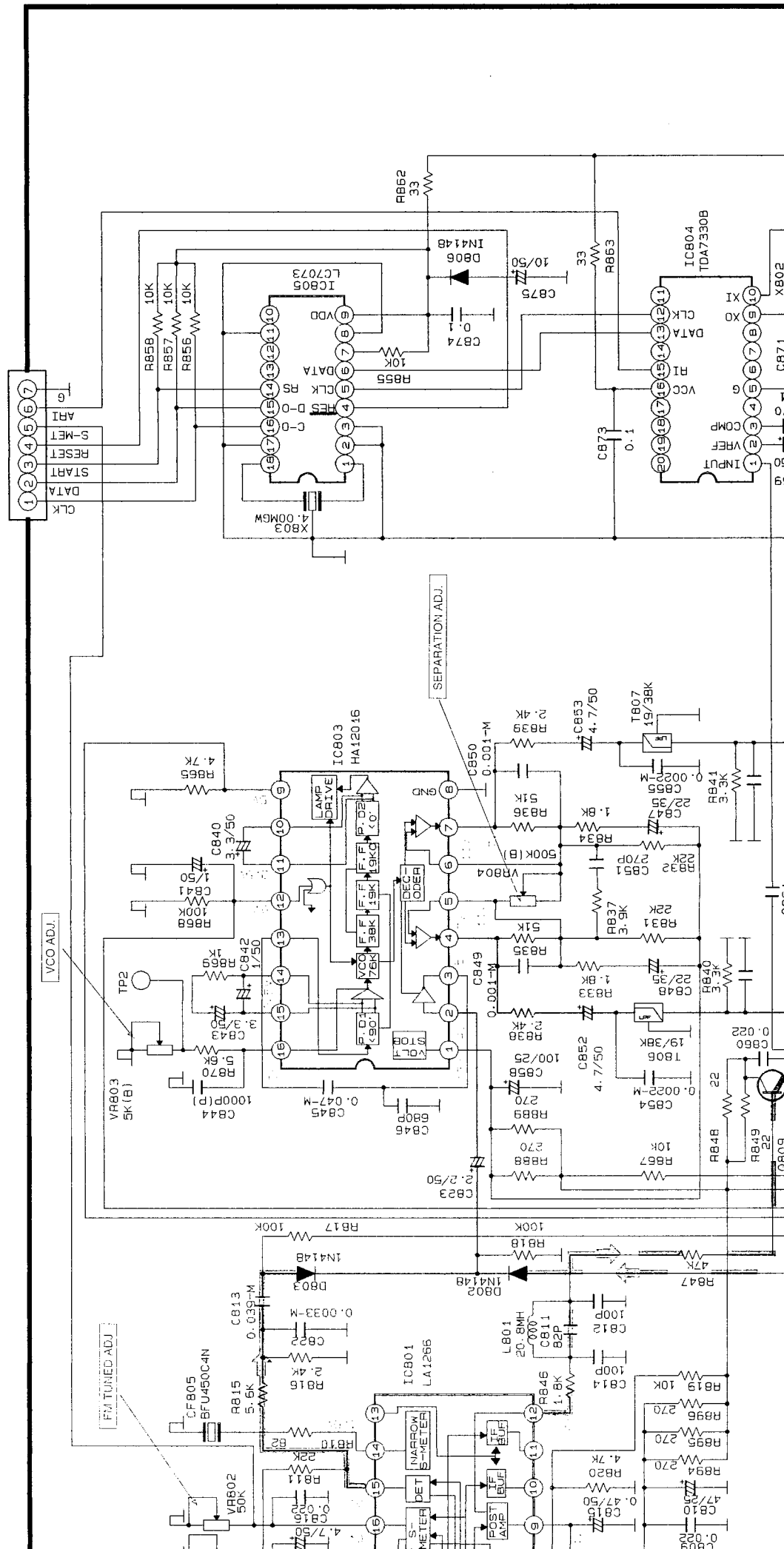
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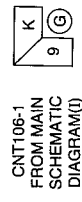
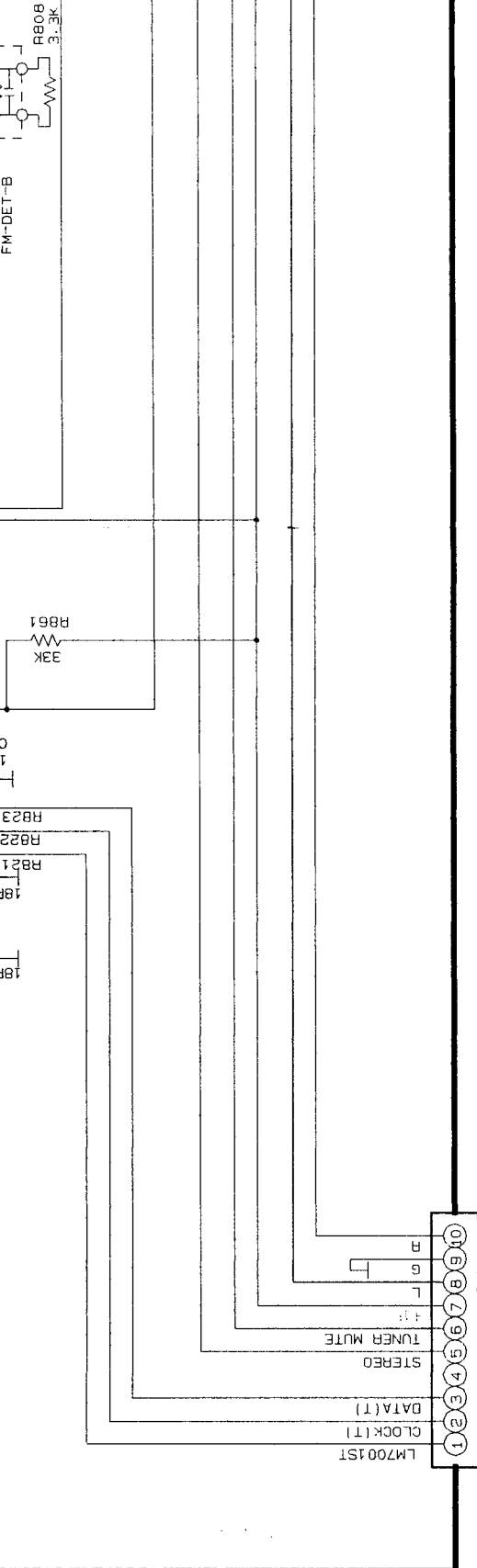
3

4

5

CNT703-1
FROM FRONT
SCHEMATIC
DIAGRAM(II)





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

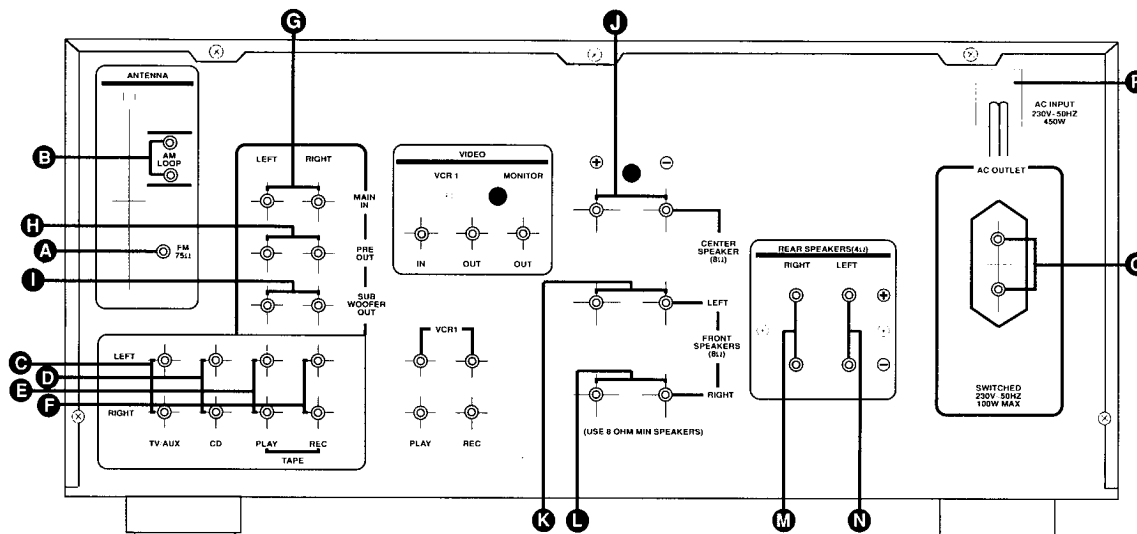
<p>2SA1265N 2SC3182N KTB688 KTD718</p>	<p>2SC4137 KSC2690A KSA1220A</p>	<p>DTA114YS DTC114YS DTC114TS</p>	<p>SLR-40MG3</p>	<p>ZENER 1N5402 1N4002 1N4148</p>	<p>2SK168</p>	<p>KTD1302 KTC2240/KTC3200 KTC3198/KTC1815 KTA1266/KT1015Y KTA1268/KTA790BL KTC1923Y/KTC3194</p>
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PIN 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 NJU9701</p>	<p>HA12016 LM7001 TC9299</p>
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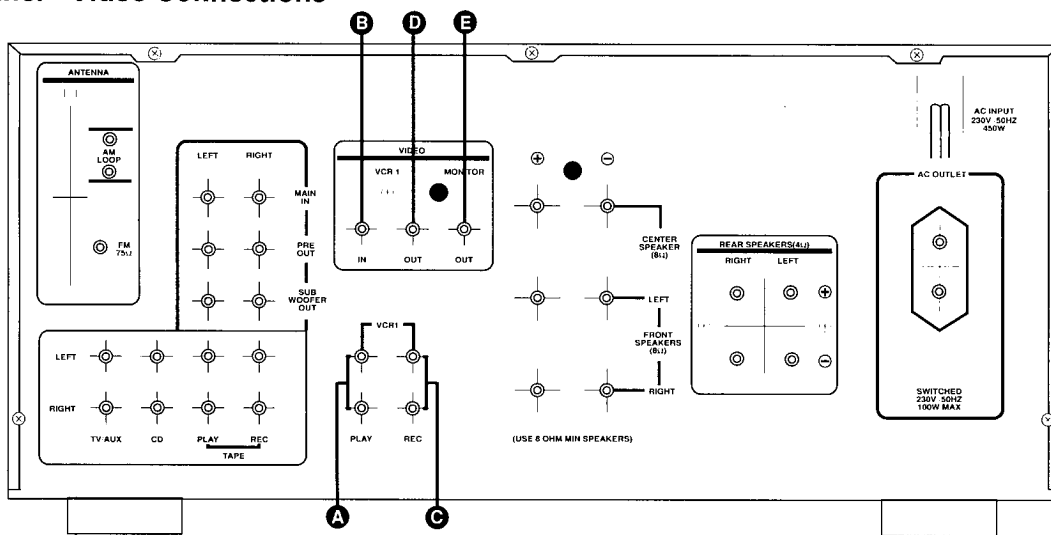
REAR PANEL CONNECTIONS

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

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

