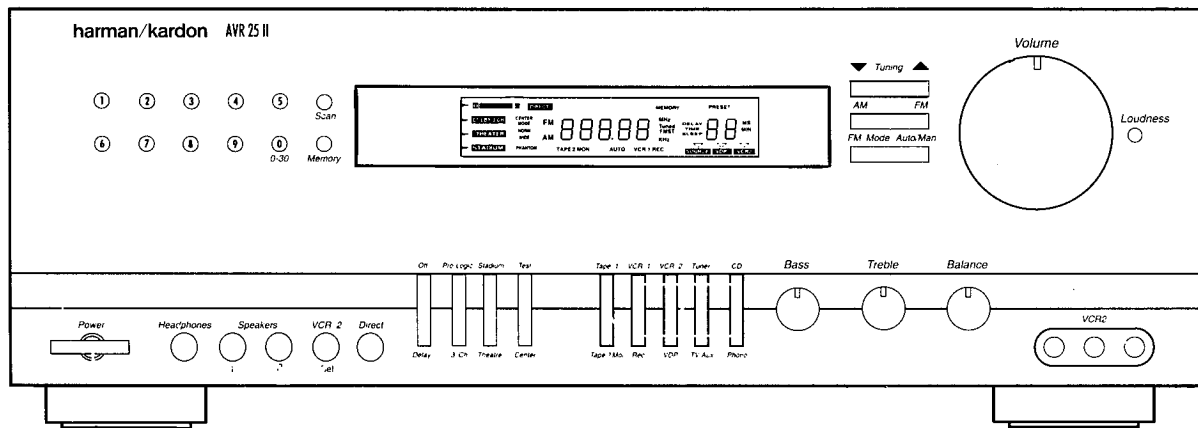


The Harman Kardon Model AVR25MKII AUDIO AND VIDEO RECEIVER

Technical Manual



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harman/kardon

Parts and Service Office
80 Crossways Park West, Woodbury, N.Y. 11797
1112-AVR25MKII G9604 1200 Printed in Korea

SPECIFICATIONS

FRONT AMP SECTION

	Nominal	Limit
RMS Output Power		
THD (0.2%, 8 ohms, 1 kHz)	≥ 68 W	≥ 65 W
Both Channel Driven (20 Hz - 20 kHz)		
THD (20 Hz - 20 kHz) at 65 W, 8 ohms		
20 kHz	≤ 0.09%	≤ 0.2%
1 kHz	≤ 0.09%	≤ 0.2%
20 kHz	≤ 0.09%	≤ 0.2%
IM Distortion at 65 W, 8 ohms		
60:7000 Hz = 4:1	≤ 0.1%	≤ 0.2%
Input Sensitivity at 65 W, 8 ohms		
PHONO (MM)	2.5 ± 0.2 mV	2.5 ± 0.3 mV
CD, AUX, VCR	150 ± 20 mV	150 ± 30 mV
S/N Ratio Input Shorted at Volume Max. (WTD IHF-A) at 65 W, 8 ohms		
PHONO	≥ 72 dB	≥ 65 dB
CD, AUX	≥ 91 dB	≥ 85 dB
TV, VCR1,2	≥ 91 dB	≥ 85 dB
Phono Overload at 1 kHz, THD: 0.5%		
Phono Input → Tape Monitor Output	≥ 140 mV	≥ 120 mV
Phono Equalization (RIAA 30 Hz - 15 kHz)		
Tape Monitor Output	RIAA ± 1.0 dB	RIAA ± 2.0 dB
Tone Control		
Bass: 100 Hz	+10 ± 1.0 dB	+10 ± 2.0 dB
	-10 ± 2.0 dB	-10 ± 3.0 dB
Treble: 10 kHz	+10 ± 1.0 dB	+10 ± 2.0 dB
	-10 ± 2.0 dB	-10 ± 3.0 dB
Loudness Contour at -40 dB		
100 Hz	+6 ± 2.0 dB	+6 ± 3.0 dB
10 kHz	+3 ± 2.0 dB	+3 ± 3.0 dB
Frequency Response at 1 W, 8 ohms		
CD/AUX		
20 Hz, 20 kHz	± 1.0 dB	± 2.0 dB
Channel Crosstalk Input Shorted at 65 W, 8 ohms		
1 kHz	≥ 55 dB	≥ 48 dB
10 kHz	≥ 45 dB	≥ 37 dB

CENTER AMP SECTION

	Nominal	Limit
RMS Output Power		
THD (0.2%, 8 ohms, 1 kHz)		
Only Center Channel Driven	≥ 68 W	≥ 63 W
S/N Ratio		
Input Shorted, IHF-A WTD	≥ 75 dB	≥ 68 dB
Frequency Response at -3 dB		
Normal	130 Hz - 20 kHz	180 Hz - 15 kHz
Wide	40 Hz - 20 kHz	60 Hz - 15 kHz

REAR AMP SECTION

	Nominal	Limit
RMS Output Power		
THD (1%, 8 ohms, 80 Hz - 7 kHz)		
Both Rear Channel Driven	≥ 27 W	≥ 23 W
S/N Ratio (Input Shorted, IHF-A WTD)		
Dolby	≥ 65 dB	≥ 57 dB
Stadium	≥ 65 dB	≥ 57 dB
Theater	≥ 65 dB	≥ 57 dB
Frequency Response at -3 dB		
8 ohms, Dolby Pro-Logic	100 Hz - 6 kHz	120 Hz - 5 kHz

VIDEO AMP SECTION

	Nominal	Limit
Input Sensitivity/Impedance		
VCR1, VCR2, VDP	1 V _{p,p} /75 Ω	± 0.5 dB
Output Level/Impedance		
VCR1, REC out, TV Monitor out	1 V _{p,p} /75 Ω ± 0.3 d	± 1.0 dB
Frequency Response at -3 dB	DC-10 MHz	5 - 6 MHz
Crosstalk at 1.0 MHz	≥ 50 dB	≥ 43 dB

FM SECTION

	Nominal	Limit
Tuning Cover Range		
USA/Canada: 75 kHz DIV.	87.5 - 107.9 MHz	
Europe: 40 kHz DIV.	87.5 - 108.0 MHz	
Usable Sensitivity (75 ohms Input)		
USA/Canada: 30 dB S/N	≤ 11.2 dbf	≤ 17.2 dbf
Europe: 26 dB S/N		
Image Rejection (at 106 MHz)		
USA/Canada	≥ 60 dB	≥ 55 dB
Europe	≥ 90 dB	≥ 80 dB
IF Rejection (at 90 MHz)	≥ 110 dB	≥ 100 dB
Full Limiting (at -3 dB)	≤ 12.2 dbf	≤ 15.2 dbf
50 dB Quieting Sensitivity (at 98.1 MHz, 100% MOD.)		
IHF Band Pass Filter		
Mono	≤ 19.2 dbf	≤ 23.2 dbf
Stereo: USA/Canada	≤ 40.2 dbf	≤ 43.2 dbf
Europe	≤ 45.3 dbf	≤ 48.3 dbf
Distortion (1 kHz, 100% MOD. at 98.1 MHz)		
IHF Band Pass Filter		
Mono	≤ 0.2%	≤ 0.5%
Stereo	≤ 0.4%	≤ 0.8%
S/N Ratio (1 mV Input, 100% MOD. at 98.1 MHz)		
IHF Band Pass Filter		
Mono	≥ 70 dB	≥ 63 dB
Stereo	≥ 65 dB	≥ 57 dB
Frequency Response (at +1 dB, -3 dB)		
20 Hz - 15 kHz		50 Hz - 15 kHz
AM Rejection Ratio (100 uV - 20 mV Input)		
	≥ 60 dB	≥ 50 dB
Search Level (at 98.1 MHz)	31.2 ± 3 dbf	31.2 ± 6 dbf
Automatic Stereo Threshold (at 98.1 MHz)		
	31.2 ± 3 dbf	31.2 ± 6 dbf
Muting Threshold (at 98.1 MHz)	31.2 ± 3 dbf	31.2 ± 6 dbf
Overload at 98.1 MHz		
(100% MOD. 100 mV RF Input)	≤ 0.2%	≤ 0.5%
Suprious Response (at 98.1 MHz)		
Antenna Input 3 uV	≥ 70 dB	≥ 60 dB
Capture Ratio at 40/60 dbf	≤ 2 dB	≤ 3 dB
Alternative Channel Selectivity (at 98.1 MHz ± 400 kHz)		
	≥ 65 dB	≥ 55 dB
Stereo Separation (at 98.1 MHz, 100% MOD., 1 mV Input)		
IHF Band Pass Filter		
100 Hz	≥ 40 dB	≥ 33 dB
1 kHz	≥ 45 dB	≥ 38 dB
10 kHz	≥ 35 dB	≥ 28 dB
Output Voltage (at 100% MOD., 1 kHz Input)		
Mono	500 ± 100 mV	500 ± 150 mV
Stereo	450 ± 100 mV	450 ± 150 mV

AM SECTION

	Nominal	Limit
Tuning Cover Range		
USA/Canada: 10 kHz Step	520 - 1710 kHz	
Europe: 9 kHz Step	522 - 11611 kHz	
Usable Sensitivity (400 Hz, 30% MOD., S/N 20 dB)		
	≤ 500 uV/m	≤ 800 uV/m
Image Rejection (at 1400 kHz)	≥ 35 dB	≥ 30 dB
IF Rejection (at 600 kHz)	≥ 60 dB	≥ 50 dB
AGC Figure of Merit (From 100 mV/m at 1000 kHz)	≥ 50 dB	≥ 43 dB
Distortion (400 Hz, 30% MOD. 5 mV/m Input)		
	≤ 0.8%	≤ 1.5%
IF Bandwidth (6 dB Down, 350 uV/m)		
	5 - 8 kHz	4 - 9 kHz
Audio Response (5 mV/m Input 1 kHz 0 dB, 1000 kHz)		
at -6 dB	80 Hz - 2.3 kHz	100 Hz - 2 kHz
Selectivity (at 350 uV/m)		
± 10 kHz	≥ 25 dB	≥ 20 dB
S/N Ratio (1000 kHz, With Antenna Input 5 mV/m)		
	≥ 45 dB	≥ 38 dB
RF Overload (400 Hz 80% MOD, 100 mV/m Input)		
	≤ 5%	≤ 10%
Search Level (at 1000 kHz)	800 uV ± 4 dB	800 uV ± 6 dB
Output Voltage (400 Hz 30% MOD., 5 mV/m Input)		
	165 ± 30 mV	165 ± 50 mV
Whistle	≤ 7%	≤ 12%

GENERAL

Power Consumption;	
USA/Canada	2.5 A
Europe	650 W
Power Supplies;	
USA/Canada	AC 120 V, 60 Hz
Europe	AC 230 V, 50 Hz
Dimensions (W × H × D);	
inches	17 ^{3/8} × 6 ^{1/8} × 16 ^{1/2}
mm	440 × 155 × 420
Weight (lbs/kgs)	26.9/12.2

These specifications are service target specs.

Specifications and components are subject to change without notice.

Overall performance will be maintained or improved.

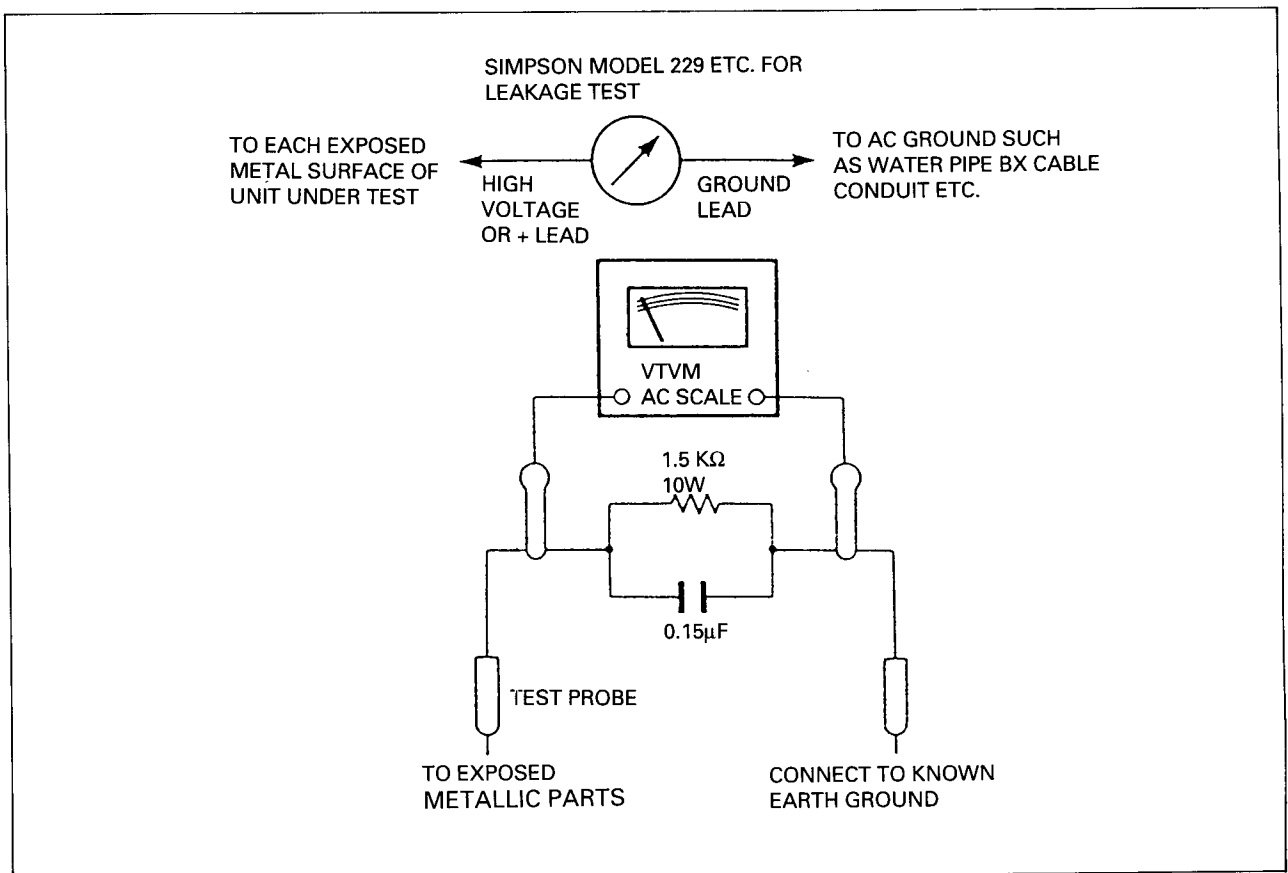
LEAKAGE TEST

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

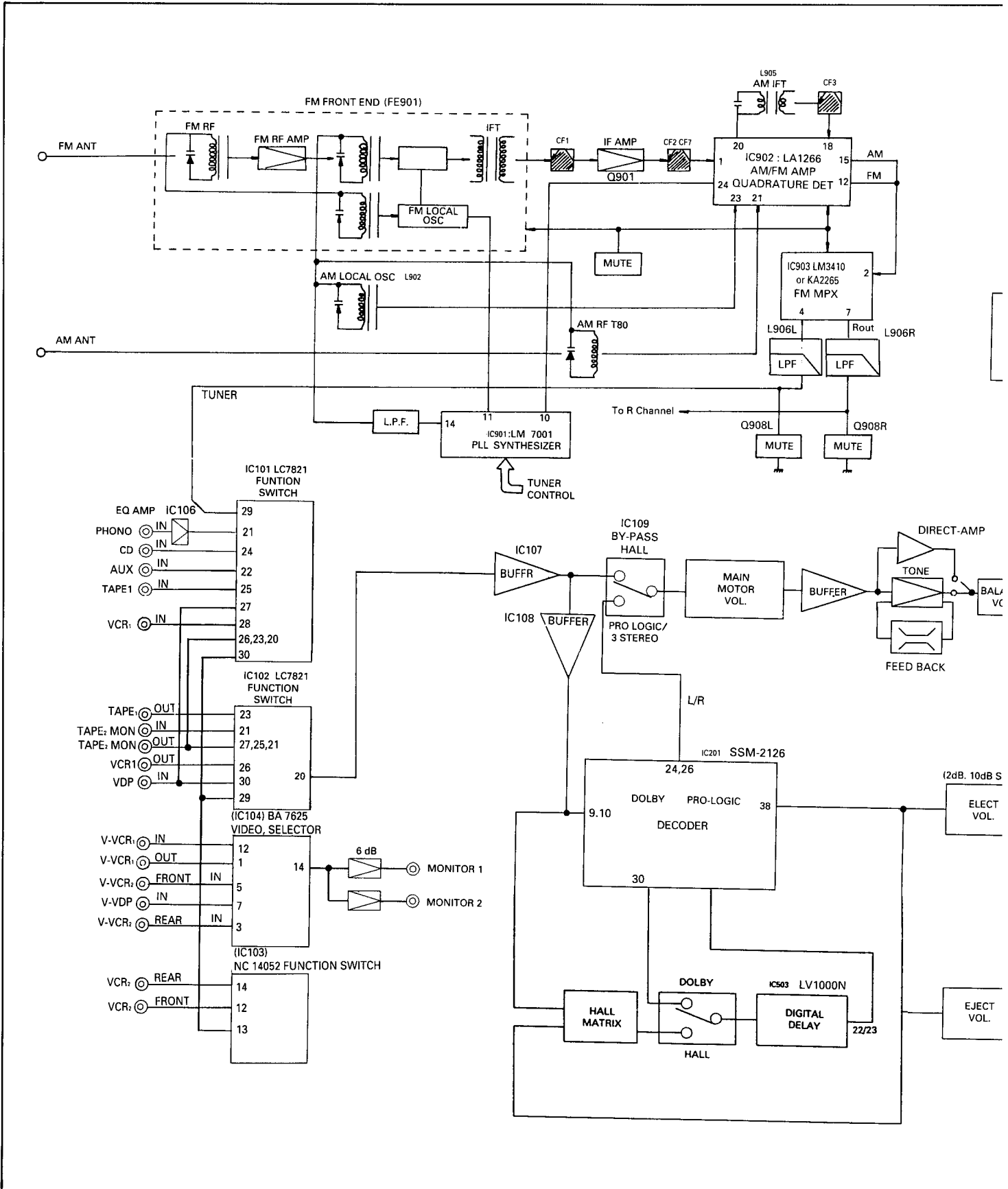
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metallic parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers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

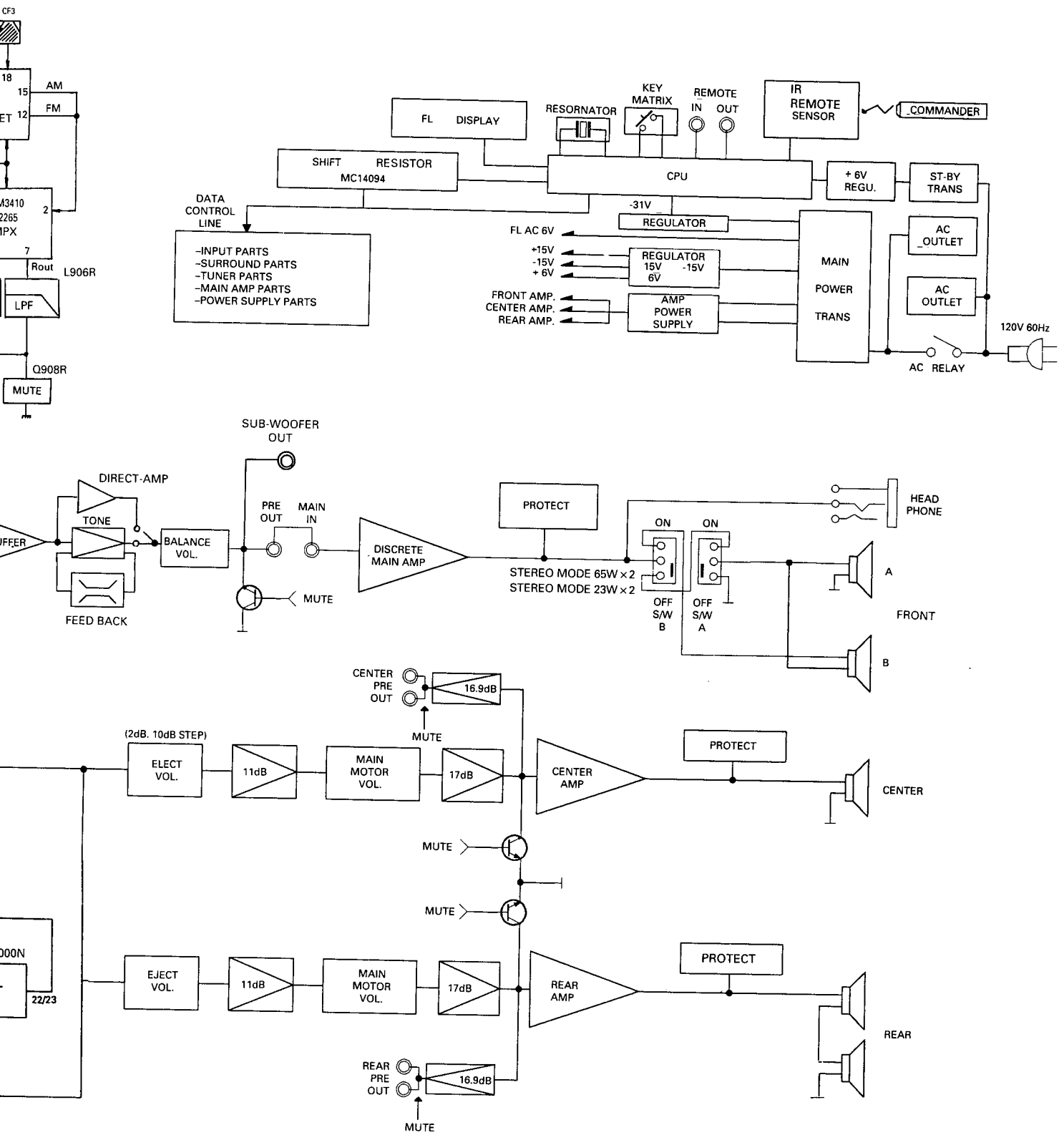
Using two clip leads, connects a 1500 Ohm, 10-watt resistor paralleled by a 0.15 μ F capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 Ohms per volt, or higher sensitivity to measure the AC voltage drop across 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.

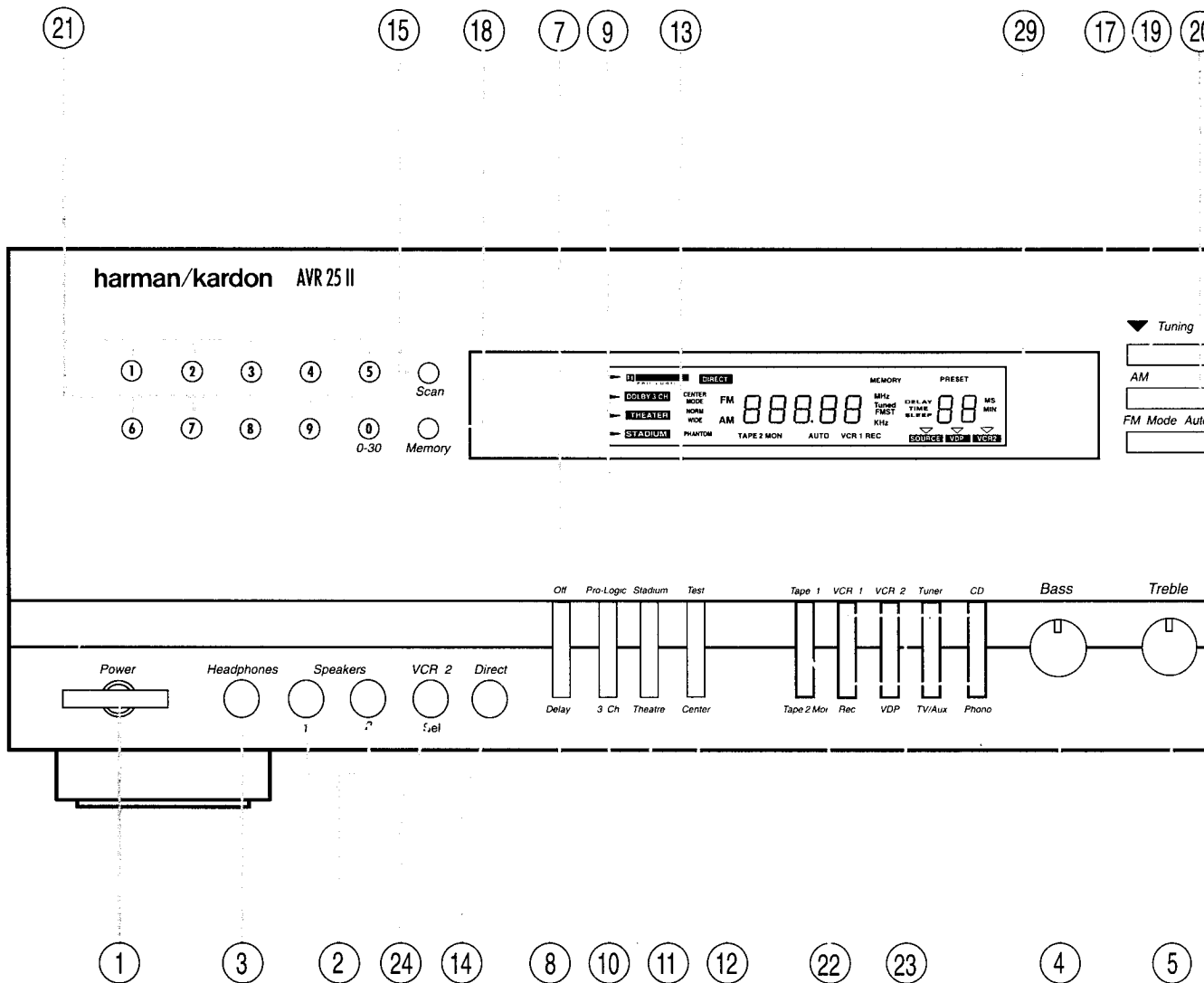


BLOCK DIAGRAM





CONTROLS AND FUNCTIONS



1. POWER BUTTON

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

NOTE: In POWER OFF state, the POWER indicator will light up orange and power is partially supplied to the infrared remote control receiver and the memory circuitry.

2. 1/2 SPEAKER SWITCHES

These switches allow you to select various combinations of speakers as follows;

- To drive 1 pair of speakers, push only the speaker 1 switch in.
- To drive a second pair of speakers, push only the speaker 2 switch in.

- To drive both pairs of speakers, push both 1 and 2 switches in.

- To use headphones for private listening or monitoring, leave both 1 and 2 switches pushed out.

NOTE: If both speaker switches are pushed in and only one set of speakers is connected to the receiver, no sound will be heard.

3. 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.

4. BASS CONTROL

Modifies the low-frequency the left and right channels +/- 10dB. Set this control a position for your taste and acoustics.

5. TREBLE CONTROL

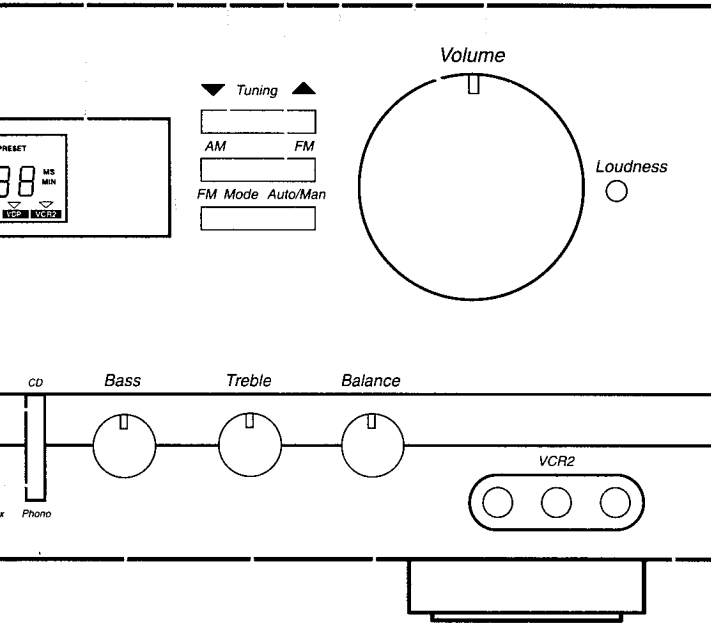
Modifies the high-frequency the left and right channels +/- 10dB. Set this control a position for your taste and acoustics.

6. BALANCE CONTROL

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

29 17 19 20 16 28 27

26



10. 3 CHANNEL MODE

The 3 channel mode can be used when rear speakers are not being used to provide a center (dialog) channel.

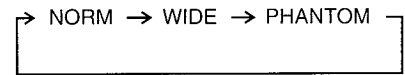
11. STADIUM/THEATER MODE

Switches for selecting desired surround mode; Stadium or Theater. See Surround Sound Effects on page 13.

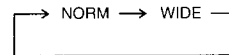
12. CENTER MODE SELECTOR

This button operates only in DOLBY PRO-LOGIC and DOLBY 3 STEREO mode. The mode changes as below, when the button is pressed in succession.

DOLBY PRO-LOGIC MODE



DOLBY 3 STEREO MODE



The display window shows each mode.

NORM: Select this mode if you use a small center speaker. The bass sound of the center channel is reproduced from the front speakers, because the small speaker cannot produce enough bass.

WIDE: Select this mode if you use a medium-to-large center speaker. The bass sound is reproduced from the center speaker.

PHANTOM: Select this mode if you don't use a center speaker. The center speaker's sound is reproduced from the front speakers.

13. TEST TONE BUTTON

This button operates only in DOLBY PRO-LOGIC and DOLBY 3 STEREO mode. When the button is pressed, 2 seconds of test tone is generated in all channels (Left, Center, Right, and Rear) in succession. The display window shows TEST Left, Center, Right, and Rear in succession (in DOLBY PRO-LOGIC mode) or Left Center or Right (in DOLBY 3 STEREO mode) in succession. Use this button to test speaker connections.

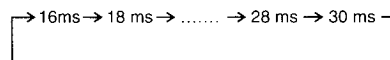
7. SURROUND-OFF MODE SELECTOR

Press this switch to select normal stereo mode.

8. DELAY TIME

Adjusts time delay between front and rear channels, operates only when the surround mode is on. (see Delay Time button on page 16).

Adjusts the surround delay time in steps. For Dolby Surround 20ms is standard.



9. PRO LOGIC MODE

Press this button for Pro-Logic mode.

4. BASS CONTROL

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

5. TREBLE CONTROL

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

6. 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.

4

5

6

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14. SOURCE/DIRECT BUTTON

This feature bypasses the tone control circuitry, resulting in flatter frequency response and wider bandwidth. When it is activated, "DIRECT" illuminates in the display.

15. PRESET SCAN BUTTON

Press this button to scan the preset station frequencies. The receiver stops at each preset location that contains a frequency for about 4 seconds, so you can hear a station. The preset location indicator blinks 4 times. Press this button again to stop scanning.

16. SEARCH SELECTOR

Press this button to select AUTO or MANUAL tuning.

- In AUTO mode, scanning is automatically continued up or down until the next station is picked up by pressing the UP/DOWN tuning buttons. The display window shows 'AUTO'. Use this mode to quickly find strong AM or FM stations.

- In MANUAL mode, the frequency is changed by a step with the UP/DOWN button. If you keep pressing the UP/DOWN tuning buttons, scanning is continued until the button is released.

NOTE: Tuning Intervals:

BAND	USA/CANADA
FM	50 KHz
AM	10 KHz

17. FM MODE BUTTON

Press this button to select stereo or mono mode.

- **STEREO:** Provides stereophonic reception of an FM stereo broadcast. The display window shows 'FMST'.

- **MONO:** The left and right channel signals detected from an FM stereo broadcast are mixed and reproduced through both channels. If you want to find a weak FM station, select this mode.

18. STATION 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 STATION PRESET buttons while the memory indicator, 'MEMORY' blinks.

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 10 days, it loses all stored frequencies.

19. UP/DOWN TUNING BUTTONS

Press the DOWN button (v) to tune in lower frequency stations, the UP button (^) to tune in higher frequency stations. If you press the DOWN button when the display is at the bottom of the frequency range, the display returns to the top of the range. If you press the UP button when the display is at the top of the frequency range, the display returns to the bottom of the range. When the receiver finds a strong frequency, the display window shows 'TUNED'.

20. FM/AM BAND SELECTOR

Press these buttons to select the FM or AM radio band. When you select the AM or FM radio band, the receiver displays the last frequency selected on that band.

21. STATION PRESET BUTTONS

Select one of 30 preset locations to recall the station stored in memory. The input function is automatically changed to TUNER when the button is pressed. When you select numbers from 10 through 29, you must select the second digit within about 2 seconds. To select preset 30, simply press "0".

22. TAPE 2 MONITOR BUTTON

Set TAPE 2 MONITOR to the "off" position when you want to hear the other input functions. Press this button to monitor the cassette deck connected to the TAPE 2 MON input jacks.

23. INPUT FUNCTION SELECTOR

Press the button to select the desired input function: VCR 1, VCR 2, VDP, TAPE 1, TV/Aux, Tuner, CD or Phono.

To dub from VCR 2 to VCR 1, press the VCR 2 button and then press the VCR 1 REC button.

For the input function of VCR 1 press the VCR 2 button and VCR1 DUBBING button. Set the recording VCR (VCR 1) to recording mode. Set the playback VCR (VCR 2) to play a tape.

Dubbing will start.

- To hear another input source during video tape dubbing: Press the input function you want to hear, and play the input source.

NOTE: If you press the TEST TONE button during VCR 1 DUBBING, the audio signal is not recorded.

24. VCR 2 SELECTOR

Push in this button to select the VCR 2 jacks on the front, rather than the VCR 2 jacks on the rear.

25. VCR 2/CAMCORDER INPUT JACKS

VIDEO IN:

Connect to the VIDEO OUTPUT jack of a VCR (yellow jack).

AUDIO IN:

Connect to the AUDIO OUTPUT jacks of a VCR (red and white jacks).

26. LOUDNESS BUTTON

Press this button to compensate for the response of the human ear at low listening levels (known as the Fletcher-Munson hearing curve). The high and low frequencies are automatically boosted when this button is pushed in. In the OFF position, the frequency response is flat at all volume levels. This button does not work at high volume levels.

27. 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.

28. VOLUME LEVEL INDICATOR

This indicator moves in accordance with the volume level. The indicator blinks when the mute button on the remote commander is pressed.

29. DISPLAY WINDOW

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

DISASSEMBLY PROCEDURES

REFER TO PAGES 23 AND 37.

① COVER TOP REMOVAL

Remove 8 screws (A) and then remove the Cover Top (61).

② COVER BOTTOM REMOVAL

Remove 9 screws (B) and then remove the Cover Bottom (35).

③ FRONT PANEL ASSEMBLY REMOVAL

1. Remove the Cover Top (61), referring to the previous step ①.
2. Remove the Card cable from wafer (CP502) on the Volume P.C.Board (PCB6).
3. Remove the Card cable from wafer (CP802) on the Dolby P.C.Board (PCB8).
4. Remove the Card cable from wafer (CP803) on the Tuner P.C.Board (PCB2).
5. Disconnect (CP401 and CP581) from the Dolby P.C.Board (PCB8).
6. Disconnect (CP291) from the Tuner P.C.Board (PCB2).
7. Disconnect (CP402) from the Main P.C.Board (PCB1).
8. Disconnect (CP801) from the Power Supply P.C.Board (PCB3).
9. Remove 4 screws (C), 4 screws (A) and then remove the Front Panel Assembly (AA).

④ HEADPHONE P.C.BOARD (PCB9) REMOVAL

1. Remove the Front Panel Assembly (AA), referring to the Previous step ③.
2. Remove 2 screws (E) and then remove the Headphone P.C.Board (PCB9).

⑤ VOLUME P.C.BOARD (PCB6) REMOVAL

1. Remove the Front Panel Assembly (AA), referring to the Previous step ③.
2. Pull out the Volume Knob (5) with LED P.C.Board (PCB10).
3. Remove the Hex Nut from the volume-motor to remove the Volume P.C.Board (PCB6).
4. Remove 2 screws (F) and then remove the Volume P.C.Board (PCB6).

⑥ TONE P.C.BOARD (PCB5) REMOVAL

1. Remove the Front Panel Assembly (AA), referring to the Previous step ③.
2. Pull the Bass, Treble, Balance Knobs (7).
3. Remove the Hex Nuts from the variable resistors (19, 20).
4. Remove 4 screws (G) and then Tone P.C.Board (PCB5).

⑦ FRONT P.C.BOARD (PCB7) REMOVAL.

1. Remove the Front Panel Assembly (AA), referring to the Previous step ③.
2. Remove 11 screws (H) and then remove the Front P.C.Board (PCB7).

⑧ SUB-WOOFER P.C.BOARD (PCB11) REMOVAL

1. Remove the Cover Top (61), referring to the previous step ①.
2. Disconnect (CP903) on the Tuner P.C.Board (PCB2).
3. Remove 2 screws (K) and then remove the Sub-Woofer P.C.Board (PCB11).

⑨ TUNER P.C.BOARD (PCB2) REMOVAL

1. Remove the Cover Top (61), referring to the previous step ①.
2. Remove the Card cable from wafer (CP803) on the Tuner P.C.Board (PCB2).
3. Disconnect (CP102, CP103, CP104, CP105, CP291, CP501, CP704, CP901, CP902 and CP903) on the Tuner P.C.Board (PCB2).
4. Remove 2 screws (I), 6 screws (J) and then remove the Tuner P.C.Board (PCB2).

⑩ DOLBY P.C.BOARD (PCB8) REMOVAL

1. Remove the Cover Top (61), referring to the previous step ①.
2. Remove the Front Panel Assembly (AA), referring to the previous step ③.
3. Remove the Card cable (CN501) on the Dolby P.C.Board (PCB8).
4. Disconnect (CP601) from the Dolby P.C.Board (PCB8).
5. Unjoin 2 Fasteners (37) for remove the Dolby P.C.Board (PCB8).

⑪ SURROUND P.C.BOARD (PCB4) REMOVAL

1. Remove the Cover Top (61), referring to the previous step ①.
2. Do Steps ②, ③ and ⑩.
3. Disconnect (CP602) from the Power Supply P.C.Board (PCB3).
4. Remove 6 Screws (L) and then remove the Chassis Front (36).
5. Remove 2 screws (M) and then remove the Surround P.C.Board (PCB4).

⑫ CHASSIS BACK REMOVAL

1. Remove the Cover Top (61), referring to the previous step ①.
2. Do Steps ②, ③, ⑩, ⑪.

3. Unsolder 2 leads of the AC Cord (59) from neutral and live on the Power Supply P.C.Board (PCB3).
4. Remove 20 screws (N) and then remove the Chassis Back (57).

13 MAIN P.C.BOARD (PCB1) REMOVAL

1. Remove the Cover Top (61), referring to the previous step 11.
2. Do Steps 12, 13 and 14.
3. Unsolder all leads of Q262L/R/C, Q263L/R/C, Q270L/R/C and IC241 from copper track on the Main P.C.Board (PCB1).
4. Disconnect (CP241) from the Power Transformer (62).
5. Remove 2 screws (O) and then remove the Main P.C.Board (PCB1).

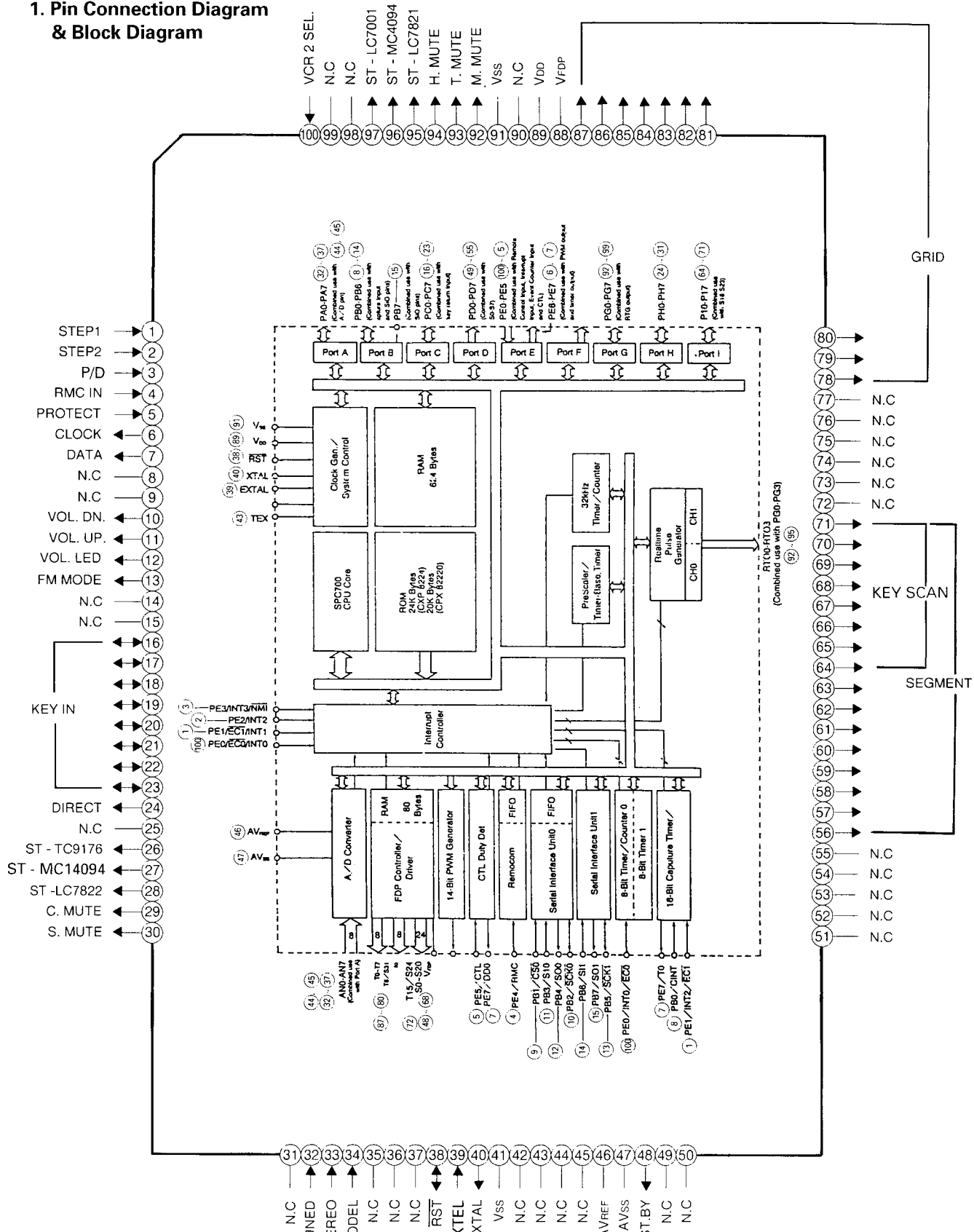
14 POWER SUPPLY P.C.BOARD (PCB3) REMOVAL

1. Remove the Cover Top (61), referring to the previous step 11.
2. Disconnect (CP801, CP703, CP602, CP101, CP701 and CP702) from Power Supply P.C.Board (PCB3).
3. Disconnect (CP704) from the Tuner P.C.Board (PCB2).
4. Unsolder 2 leads of the AC Cord (59) from neutral and live on the Power Supply P.C.Board (PCB3).
5. Remove 4 screws (P) and then remove the Power Supply (PCB3).

CIRCUIT DESCRIPTION

CPU (IC801) : CXP82220-107Q (8 bit SINGLE-CHIP MICROCOMPUTER)

1. Pin Connection Diagram & Block Diagram



2. Pin Functions

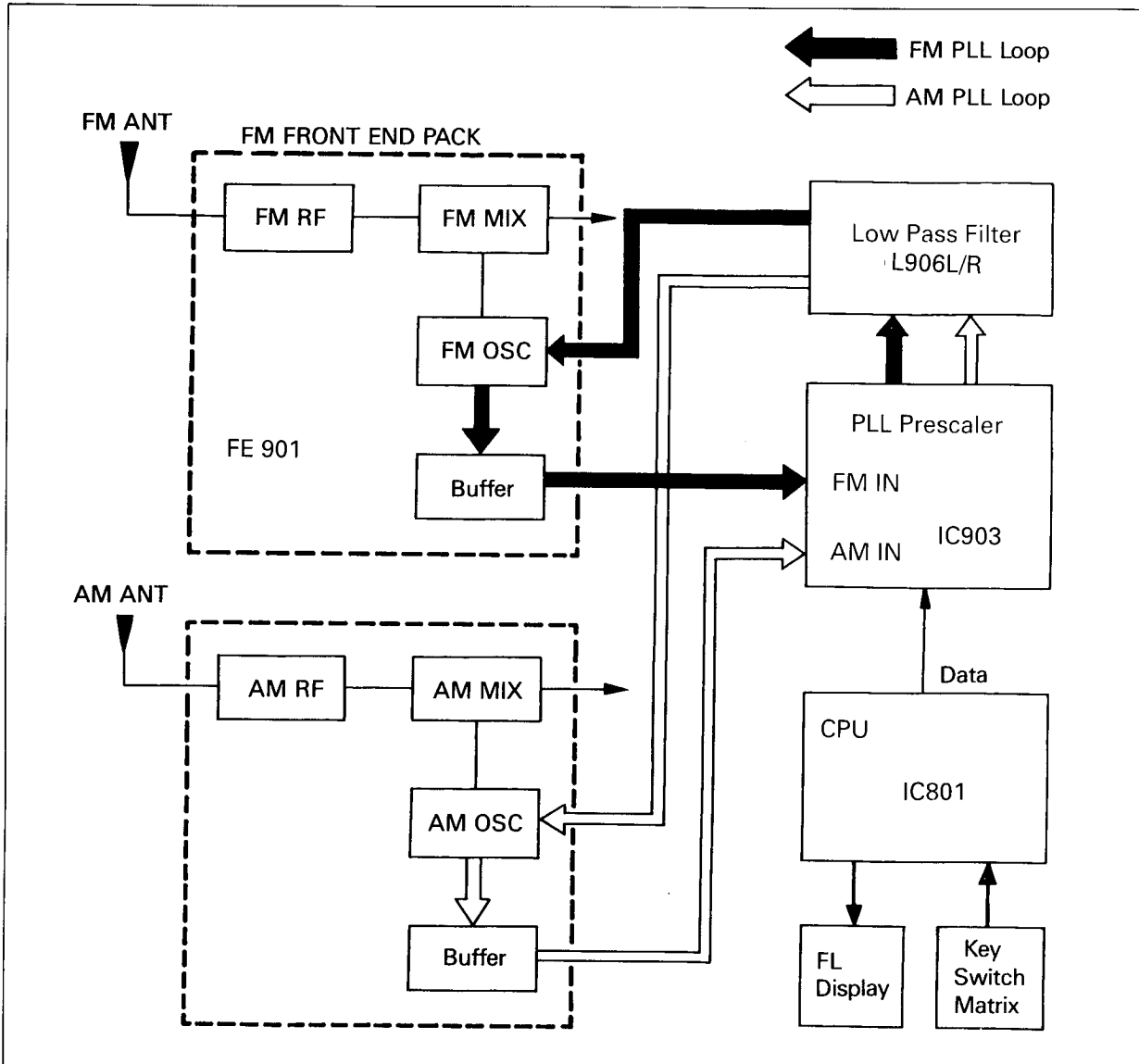
Pin No.	Symbol	Description															
1 / 2	STEP 1 / STEP 2	Input to select frequency band and step according to regions. <table border="1" data-bbox="570 318 1354 493"> <thead> <tr> <th>REGION</th> <th>FREQUENCY</th> <th>STEP</th> <th>STEP 1</th> <th>STEP 2</th> </tr> </thead> <tbody> <tr> <td>AMERICA</td> <td>FM: 87.5 - 107.9 MHz AM: 520 - 1710 kHz</td> <td>200 kHz 10 kHz</td> <td>H</td> <td>H</td> </tr> <tr> <td>EUROPE</td> <td>FM: 87.5 - 108 MHz AM: 522 - 1611 kHz</td> <td>50 kHz 9 kHz</td> <td>L</td> <td>L</td> </tr> </tbody> </table>	REGION	FREQUENCY	STEP	STEP 1	STEP 2	AMERICA	FM: 87.5 - 107.9 MHz AM: 520 - 1710 kHz	200 kHz 10 kHz	H	H	EUROPE	FM: 87.5 - 108 MHz AM: 522 - 1611 kHz	50 kHz 9 kHz	L	L
REGION	FREQUENCY	STEP	STEP 1	STEP 2													
AMERICA	FM: 87.5 - 107.9 MHz AM: 520 - 1710 kHz	200 kHz 10 kHz	H	H													
EUROPE	FM: 87.5 - 108 MHz AM: 522 - 1611 kHz	50 kHz 9 kHz	L	L													
3	P / D	Input to detect power down. (At "L", it is active.)															
4	RMC IN	Input for remote control signal. (At "L", it is active.)															
5	PROTECT	Signal input for protection. (At "L", it is active.)															
6 / 7	CK / DA	Clock / Data output for LC7821, GD4094, TC9213 and LM7001.															
8 / 9	N.C.	Not used !															
10	VOL. DOWN	Output to drive volume motor for decreasing volume level. (At "H", it is active.)															
11	VOL. UP	Output to drive volume motor for increasing volume level. (At "H", it is active.)															
12	VOL. LED	Output to drive volume LED.															
13	FM MODE	Output to select FM MONO or STEREO. At "H", FM MONO is selected and at "L", FM STEREO is selected.															
14 / 15	N.C.	Not used !															
16 - 23	KEY IN	Data input for key scan.															
24	DIRECT	Output to allow sound signal to by-pass tone control circuitry. (At "H", it is active.)															
25	N.C.	Not used !															
26	ST-TC9176	Chip enable output for TC9176.															
27	ST-MC14094	Chip enable output for MC14094.															
28	ST-LC7822	Chip enable output for LC7822.															
29	C. MUTE	Output for center mute. Output, "H" under the following conditions. <ol style="list-style-type: none"> 1. When power is turned on or off. 2. When center mode is turned on or off. 3. When center mode is selected. 4. When test tone mode is on or off or when the channel is changed in the test tone mode. 5. When the protection terminal's level is "L". 6. When "-∞" mute signal is received from the commander. 															
30	S. MUTE	Output for surround mute. Output, "H" under the following conditions. <ol style="list-style-type: none"> 1. When power is turned on or off. 2. When surround mode is selected. 3. When test tone mode is on or off or when channel is changed in the test tone mode. 4. When adjusting delay time. 5. When the protection terminal's level is "L". 6. When "-∞" mute signal is received from the commander. 															
31	N.C.	Not used !															
32	TUNED	Input to detect station during tuning. If "L" is inputted during tuning, tuning stops at that frequency.															
33	STEREO	Input to light "STEREO" indicator. (At "L", it is active.)															

Pin No.	Symbol	Description
34	MODEL	Input to select. (At "H", it is active)
35 - 37	N.C.	Not used ! (Connected to V_{DD})
38	RST	Input to reset CPU.
39	EXTAL	Input for crystal oscillator.
40	XTAL	Output for crystal oscillator.
41	V_{SS}	Ground.
42	N.C.	Not used !
43 - 45	N.C.	Not used ! (Connected to V_{DD})
46	AV_{ref}	Reference voltage. (Connected to 5 V, not V_{DD} .)
47	AV_{SS}	Ground.
48	ST.BY	When power is on, control data output is "H". When power is off, control data output is "L" and last memory function is activated.
49 - 55	N.C.	Not used !
56 - 63	SEGMENT	Segment signal output for FIP.
64 - 71	SEGMENT / KEY SCAN	Segment signal output for FIP and Data output for key scan.
72 - 77	N.C.	Not used !
78 - 87	GRID	Grid signal output for FIP.
88	V_{FDP}	Power supply for FIP controller.
89	V_{DD}	+5 V power supply.
90	N.C.	Not used !
91	V_{SS}	Ground.
92	M. MUTE	Output for main mute. Output is "H" under the following conditions. 1. When power is turned on or off. 2. When function is changed. 3. When the protection terminal's level is "L". 4. When "-∞" mute signal is received from the commander.
93	T. MUTE	Output for tuner mute. Output, "H" under the following conditions. 1. When power is turned on or off. 2. When tuner band or FM mode is changed. 3. When Tuning Up or Down button is pressed. 4. When recalling the station stored in memory. 5. When the protection terminal's level is "L". 6. When "-∞" mute signal is received from the commander.
94	H. MUTE	Output for headphone mute. Output, "H" under the following conditions. 1. When power is turned on or off. 2. When selecting the input function. 3. When the protection terminal's level is "L". 4. When "-∞" mute signal is received from the commander.
95	ST-LC7821	Chip enable output for LC7821.
96	ST-MC4094	Chip enable output for MC4094.
97	ST-LC7001	Chip enable output for LC7001.
98 / 99	N.C.	Not used !
100	VCR 2 SEL.	Input to select VCR 2 rear or front. At "H", VCR 2 rear is selected and at "L", VCR 2 front is selected.

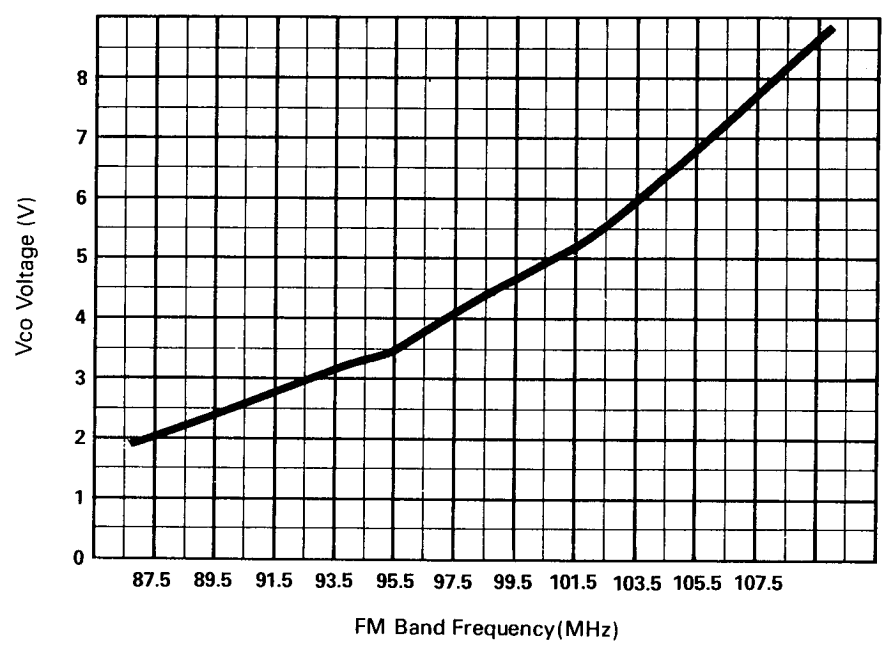
3. Key Matrix

Pin No.	64	65	66	67	68	69	70	71
16	3 CHANNEL	TAPE2 MON.			TV/AUX		▶	◀
17	DIRECT	CENTER		SURR. MODE			AUTO MANU.	MODE
18		VCR1/REC			VDP	VCR2	FM	AM
19								
20							CD	TUNER
21	P.SCAN	5	9		MEMO.	VCR1		
22	1	4	2	3		TAPE1	TEST	OFF
23	6	0	7	8	PWR		STADIUM	PRO-LOGIC

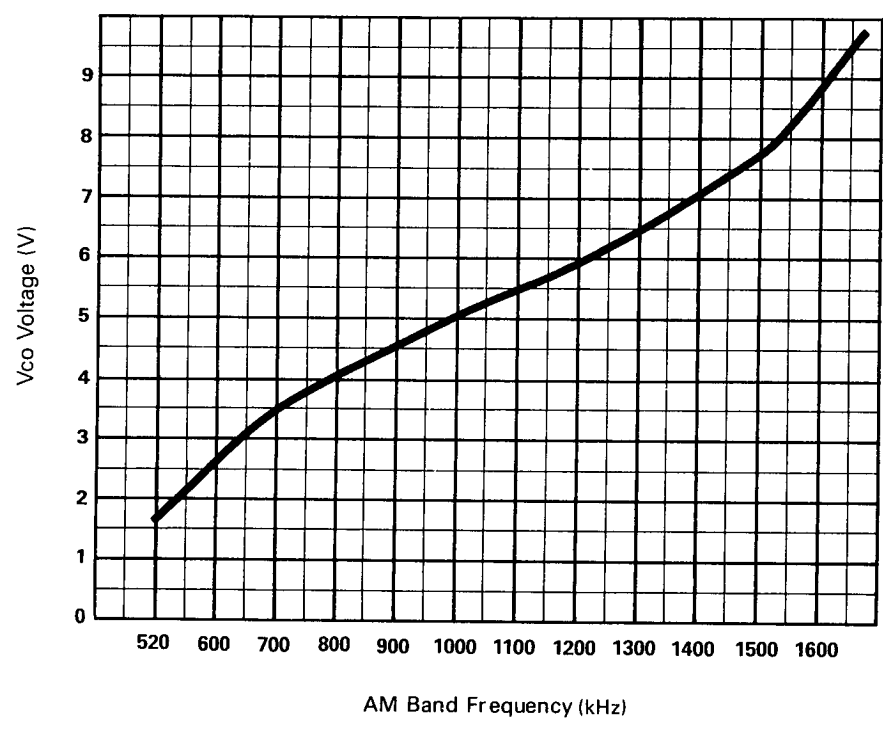
4. Digital Tuning System Description



• Vco vs. FM Band Frequency Curve



• Vco vs. AM Band Frequency Curve

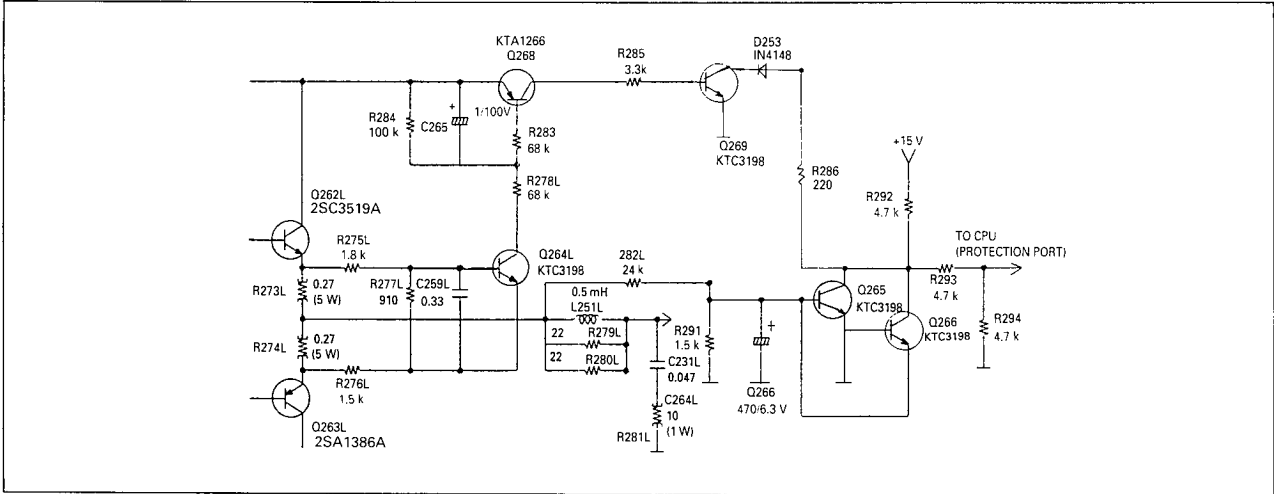


5. Protection Circuits

Speaker Protection Circuits

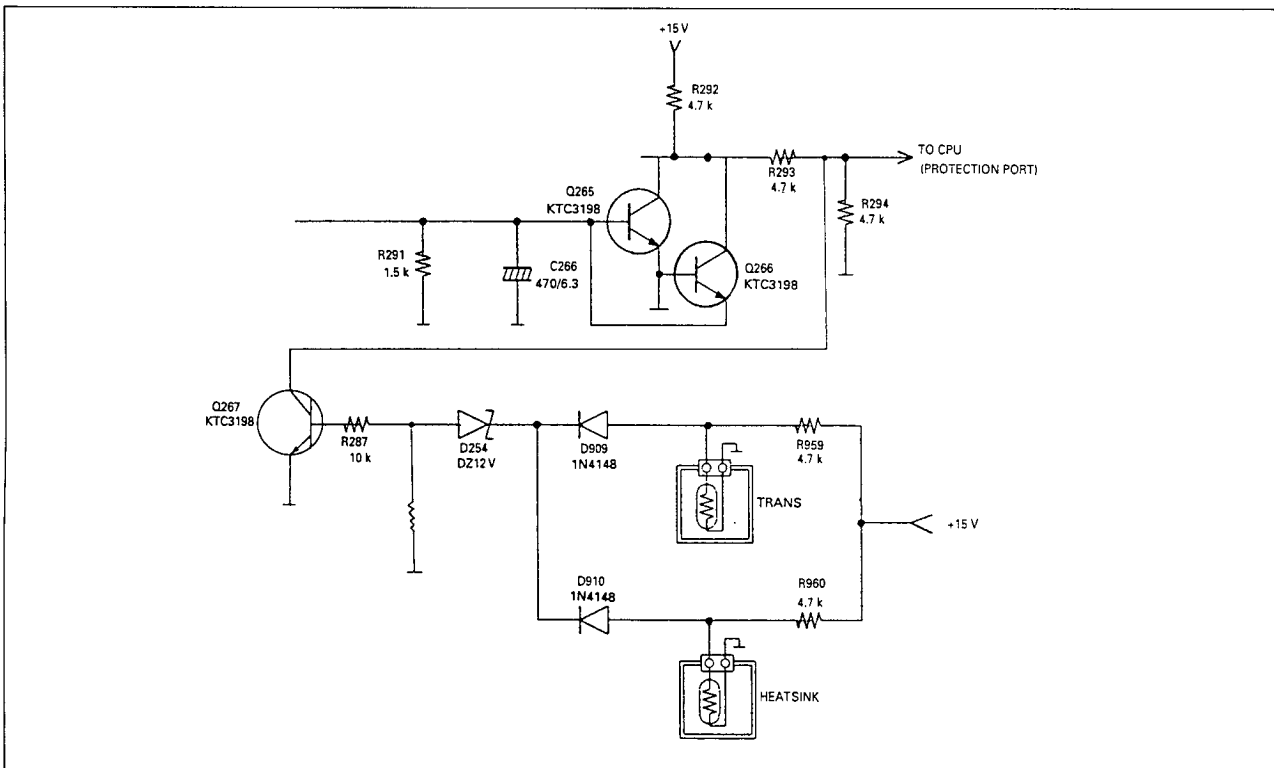
The CPU protects both this unit and the speakers when an abnormally high current flows in Q262 L/R/C and Q263 L/R/C due to excessive input drive, too low of a load impedance, or short of the speaker terminals. If current increase is excessive, the voltage across R273 L/R/C or R274 L/R/C turns on Q264 L/R/C, then Q268 turns on Q269.

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



Thermal Protection Circuits

This unit has a overload thermal protection circuits 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 larger and Q221 is turned on. It makes the protection port of the CPU to low state. Then the power is turned off.



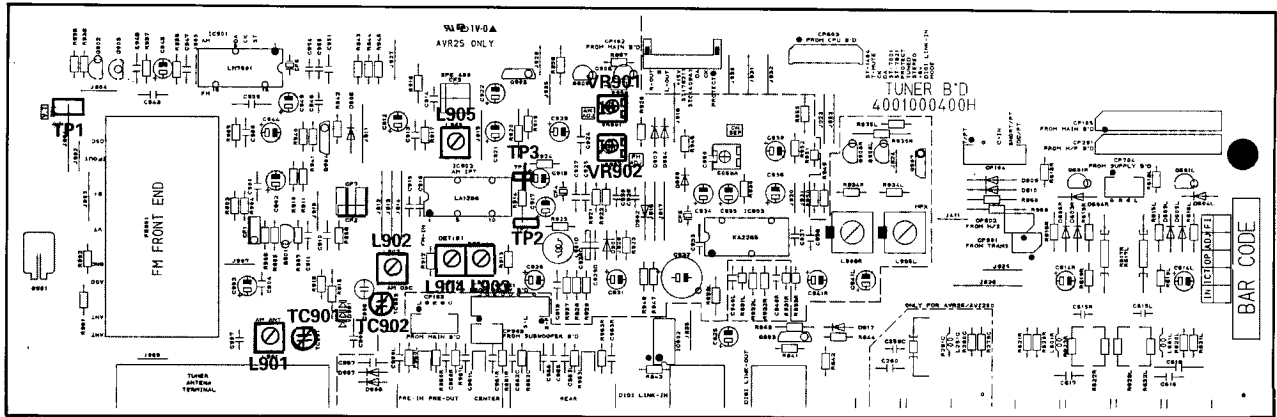
ALIGNMENT PROCEDURES

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 (PCB2)

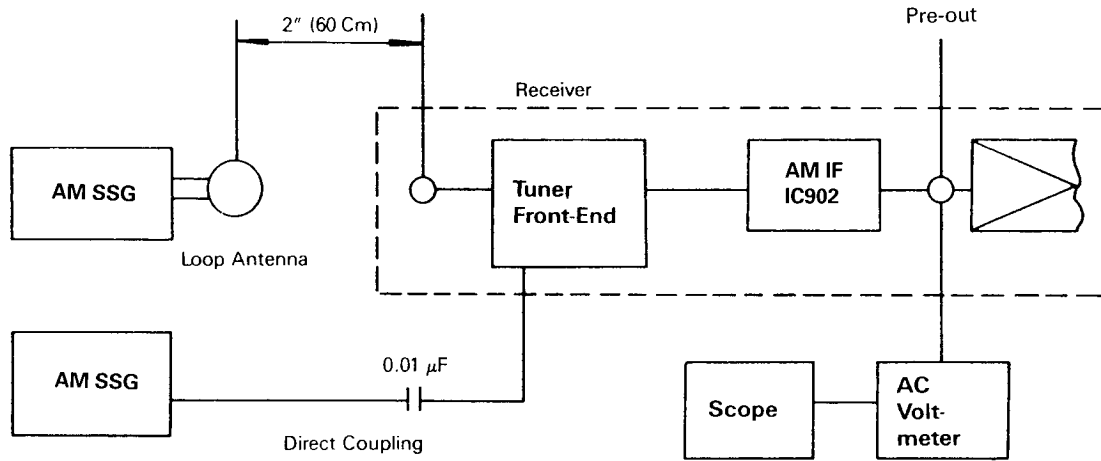


3. AM IF and RF Alignment

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	L902	1.2 V reading
		1611 kHz	DC Voltmeter TP1	TC902	8.5 V reading
2	594 kHz (400 Hz, Mod.)	594 kHz	AC Voltmeter to TAPE OUT jack.	L901 (ANT Coil)	Maximum reading
3	1404 kHz (400 Hz, Mod.)	1404 kHz	AC Voltmeter to TAPE OUT jack.	TC901 (ANT Trimmer)	Maximum reading
4	450 kHz (400 Hz, Mod.)	999 kHz	AC Voltmeter to TAPE OUT jack.	L905 (IFT)	Maximum reading
5	999 kHz (400 Hz, Mod.)	999 kHz	Same as Step 1.	VR901	FL display 'TUNED' Indication on receiver with AM SSG Output level of 800 μ V/m



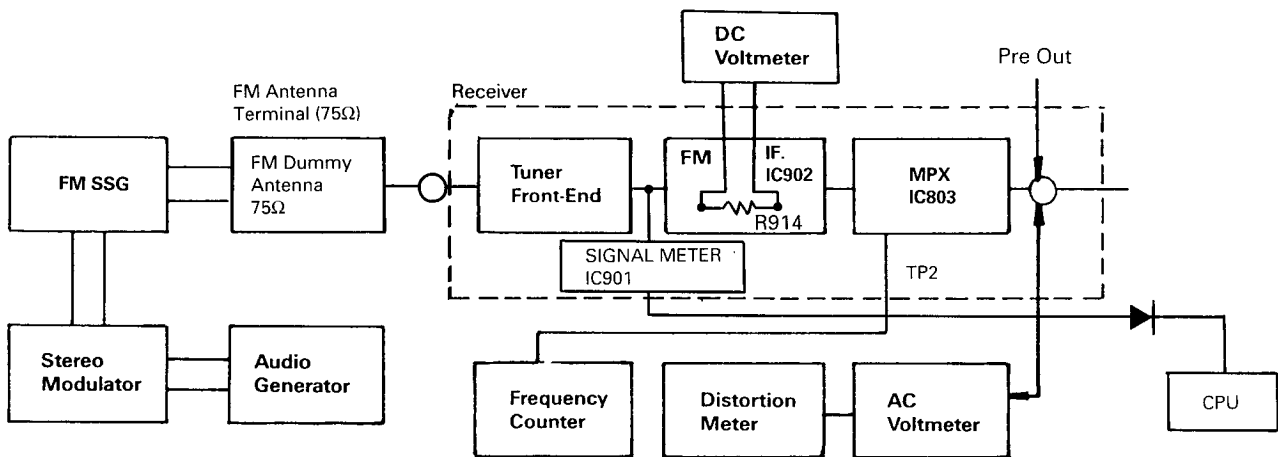
AM Alignment Connection

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	DC Volt meter to TP2, TP3	L903	Zero reading on DC volt meter.
2	98.0 MHz (1 kHz, Mod.)	98.0 MHz	Distortion meter to TAPE OUT jack	L904	Minimum distortion
3	98.0 MHz (1 kHz, Mod.)	98.0 MHz	Same as Step 1	VR902	FL display 'TUNED' Indication on receiver with FM SSG output level of 10 μV/m



FM RF/IF and MPX Alignment Connection

5. MPX Alignment, SM 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	8% Mod.	Composite to channel 1kHz R	AC voltmeter to TAPE OUT jack of R channel	–	Adjust for about 450mV of audio output
2	8% Mod.	Composite to channel 1 kHz L	AC voltmeter to TAPE OUT jack of R channel	VR803	AC voltmeter reading should be at least 40 dB below.
3	8% Mod.	Composite to channel 1 kHz R	AC voltmeter to TAPE OUT jack of L channel	VR803	Same as Step 2.

If you could not obtain –40dB readings in Steps 2 and 3 (compared with Step 1), readjust VR803 until you obtain –40dB readings for both Steps 2 and 3. 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) Defect the power switch. Replace. C) Broken wire in the power transformer. Replace the power transformer. D) Blown power Replace the fuse.
Fuse blows when power is turned on.	<ul style="list-style-type: none"> A) Defective power transformer. Replace. B) Short the primary or secondary of the transformer circuitry. Repair the trace. C) Damaged rectifier (D241 to D244) or damaged trans (Q262 and Q263). Replace the defective component(s). D) Short circuit in the amplifier circuit. Repair the shorted component(s) in the amplifier circuit.
Power indicator lights but no sound from both channels	<ul style="list-style-type: none"> A) Speaker switch 1 or 2 defective. Replace the defective switch (es). B) Defect in transistor Q262L/R, Q263L/R on the Main Amp Board. (PCB1). Replace the defective component(s).
Speaker A inoperative	<ul style="list-style-type: none"> A) Speaker switch A defective. Replace
Speaker B inoperative	<ul style="list-style-type: none"> A) Speaker switch B defective. 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 resistors R295L/R. Replace.
PHONO input inoperative	<ul style="list-style-type: none"> A) Poor contact in phono input jack. Repair or replace the jack. B) Defective phono switch or IC106. Replace.
LOUDNESS has no effect	<ul style="list-style-type: none"> A) Defective loudness switch. Replace. B) Replace the defective component(s).
FM inoperative	<ul style="list-style-type: none"> A) Defective front-end. (FE-901) Replace. B) Defective FM switch. Replace the switch

Symptom	Cause and Remedy
FM inoperative	<p>C) Defective transistor Q901, Q904, Q905 and IC'S IC901, IC902, IC903 Replace the defective transistor(s) or IC(s).</p> <p>D) Defective coil L903 or L904. Replace the coil(s).</p> <p>E) Defective lead-in. Repair or replace the lead-in.</p> <p>F) Ceramic filter CF901, CF902 defective. Replace the defective ceramic filter(s).</p> <p>G) Defective controller circuit component. Replace.</p>
Poor multiplex separation	<p>A) Improper adjustment. Readjust VR803. (Refer to MPX Alignment.)</p> <p>B) IC903 defective. Replace.</p> <p>C) Variable resistor VR803 defective. Replace the variable resistor.</p>
STEREO indicator does not light	<p>A) Defective indicator in FL. Replace.</p> <p>B) Improper adjustment of VR903 of tuner board. (PCB2). Make readjustment.</p> <p>C) Defective IC903. 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 IC902, Coil L903 Defective C907 of tuner Board (PCB2). If sound of one channel is not loud enough: Defective L906 L/R.</p>
FM Mono has no effect	<p>A) Defective FM MODE switch. Replace.</p>
AM inoperative	<p>A) Damaged IC902 of tuner board. Replace.</p> <p>B) Defective L901, L902, L905 or CF3 of tuner board (PCB2). Replace the defective component(s).</p> <p>C) Resistor R915, R926 defective. Replace the defective component(s).</p> <p>D) Capacitor C906, C922, C926 defective. Replace the defective capacitor(s).</p> <p>E) Defective AM switch Replace.</p> <p>F) Defective varicap diode VD901, VD902. Replace varicap diode(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 R416L/R, R417L/R, R418L/R, C414L/R, C415L/R Replace the defective component(s).</p>

Symptom	Cause and Remedy
Treble control has no effect	A) Variable resistor TREBLE defective. B) Defective C417L/R, C418L/R, R419L/R, R420L/R Replace the defective components(s).
Auto tune inoperative (UP/DOWN)	A) Poor contact in Up/Down key. Repair replace. B) Defective IC801 Replace. C) Defective FL Display Replace. D) Defective tuner circuit component. Replace. E) In case of FM only, improper adjustment of FM front-end. Readjust.
Manual tune inoperative (UP/DOWN) (AM or FM)	A) Poor contact in Up/Down key. Replace. B) Defective IC801. Replace.
Memory setting (keys 1-10) inoperative	A) Poor contact in memory keys 1-10. Replace. B) Poor contact in memory set key. Replace. C) Defective IC801. Replace the defective component.
FL inoperative	A) FL defective. Replace. B) Defective IC801. Replace C) Defective X-TAL 801. Replace.
Noise Volume control	A) Defective IC301. Replace. B) Defective capacitor C304 or C305 Replace the defective capacitor(s).
Remote Control Unit inoperative	A) Weak Battery. Replace. B) Defective. Replace. C) Defective IC801 or Sensor 801 (CPU Board) or IC01. Replace.

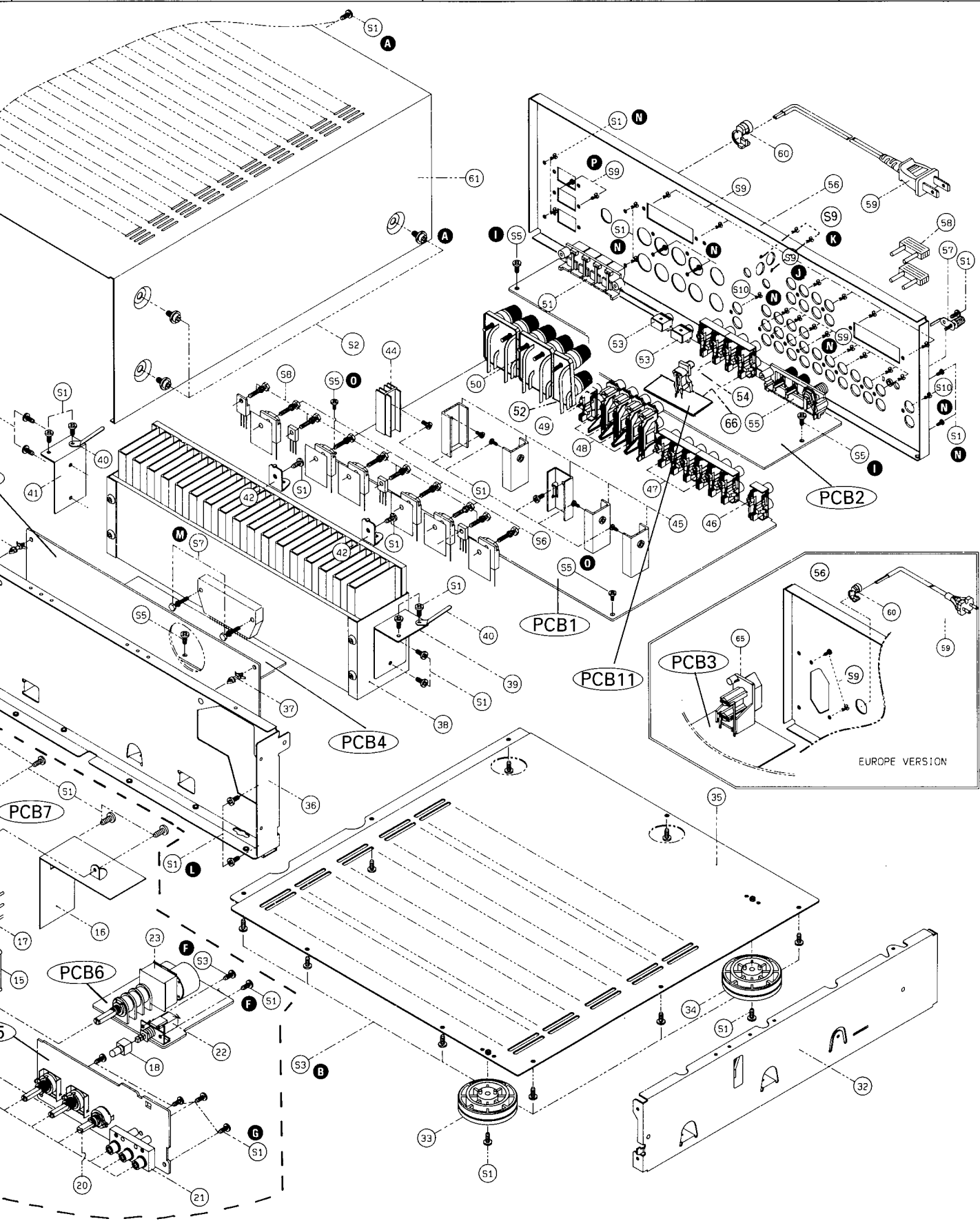
GENERAL UNIT PARTS LIST

Ref. No.	Description	Mfr. Part No.	Q'ty	Version
CABINET AND CHASSIS				
1	Panel, Front	048602019312	1	
2	Body, Front	8521008910	1	
3	Window, FL	048553020111	1	
4	Filter, FL	048535042611	1	
5	Knob, Volume	048643006711	1	
6	Indicator, Volume	8555049210	1	
7	Knob, Rotary	048545126311	3	
8	Button, Power	048543061011	1	
9	Light Shield	8535042910	1	
10	Indicator, Power	8555048710	1	
11	Button, Speaker	048545124111	3	
12	Bracket Shield	6165148210	1	
13	Button, Source	048543060911	1	
14	Sponge	6715020730	1	
15	Button, Seesaw	048543060811	1	
16	Shield Fence	6163114510	1	
17	Button, Tuning	048543059711	1	
18	Button Loud	048545124211	1	
19	Volume, Rotary (Bass/Treble)	3208049510	2	
20	Volume, Rotary (Balance)	3208052010	1	
21	Jack, RCA, 3P	4438109710	1	
22	Switch, Push	4628059610	1	
23	Volume, Motor	3228019410	1	
24	Switch, Push	4628054410	1	
25(SW291)	Switch, Push	4628043810	1	
26(SW292)	Switch, Push	4628049210	1	
27	Jack, Phone	4438005010	1	
28	Switch Tact	4658003710	38	
29(SEN801)	Remote Sensor, TFMT5380 (38 KHZ)	2408005001	1	
30(FIP801)	FIP, 12 LM 8, FL Display	2328130301	1	
31	Button, Preset	048543059611	1	
32	Frame Right	6122632210	1	
33	Foot, ABS, Gold, Hot stamping	046033102511	2	
34	Foot, ABS, Balck	6033102510	2	
35	Cover Bottom	6122418610	1	
36	Chassis, Front	6122214610	1	
37	Fastener	6528300110	2	
38	Heatsink Power	7502008310	1	
39	Bracket Heat Sink Right	6505135910	1	
40	Clamp Wire	6525002210	2	
41	Bracket Heat Sink Left	6505135810	1	
42	Bracket, PCB	6505130010	2	
43	Frame left	6122632110	1	
44	Heatsink, Regulator TR.	7505206220	1	
45	Heatsink, Regulator TR.	7505202410	5	
46	Jack, RCA, 2P	4438108510	1	
47	Jack, RCA, 6P	4438108710	2	
48	Jack, RCA, 3P	4438108810	4	
49	Jack, RCA, 2P, Yellow	4438114210	1	
50	Terminal Speaker, 8P	4408105810	1	
51	Terminal Speaker, 4P	4408105410	1	
52	Terminal Speaker, 2P	4408108710	1	
53	Jack, Multiroom	4438006510	2	
54	Jack, RCA, 4P	4438108610	2	
55	Terminal, Antenna	4408108210	1	EUROPE
(55)	Terminal, Antenna	4408108310	1	USA/CANADA
56	Chassis, Back	046102041252	1	EUROPE
(56)	Chassis, Back	046102041222	1	USA/CANADA
57	Ground Terminal	4408103720	1	
58	Plug, Jumper	4328208510	2	
59	Cord, AC Power	4308002310	1	EUROPE
(59)	Cord, AC Power	4308001410	1	USA/CANADA
60	Stopper, AC Cord	6518000111	1	EUROPE
(61)	Stopper, AC Cord	6518000710	1	USA/CANADA
61	Cover, Top	046122022611	1	
62	⚠ Power Transformer, 230 V, 50 Hz	2828001117	1	EUROPE
(62)	⚠ Power Transformer, 120 V, 60 Hz	2828009967	1	USA/CANADA
63	Heatsink (H:30), Regulator TR.	7505206210	1	
64	Tie locking	6528002810	1	
65	⚠ Outlet, 1P	4448103610	1	EUROPE
(65)	⚠ Outlet, 3P	4448102910	1	USA/CANADA
66	Jack RCA, 2P	4438111510	1	
HEADWARE KIT				
S1	Screw #2 BTC 3 X 8 B	8109230083	37	
S2	Screw WSAM 4 X 8 B	8159440083	10	
S3	Screw #2 BTC 3 X 6 B	8109230063	5	
S4	Screw #2 FTC 3 X 8 B	8129230083	9	
S5	Screw #2 WPTC 3 X 8 Y	8159230081	11	
S6	HEX MSPW 3 X 12 Y	8099130121	6	
S7	HEX MSPW 3 X 16 Y	8099130161	2	
S8	Screw, Heatsink	8195000310	4	
S9	Screw #1 PTC 3 X 10 B	8119130103	21	
S10	Screw Ground	8155000710	2	
MISCELLANEOUS				
	Card Cable, 18P, 140mm	4118618149	1	
	Card Cable, 15P, 180mm	4118615189	1	
	Card Cable, 12P, 450mm	4118612455	1	
	Card Cable, 19P, 450mm	4118619459	1	
	Ass'y Posistor	052438012202	1	
	Posistor, PTH9M04BE222	2438012200	2	

PRODUCT SAFETY NOTICE

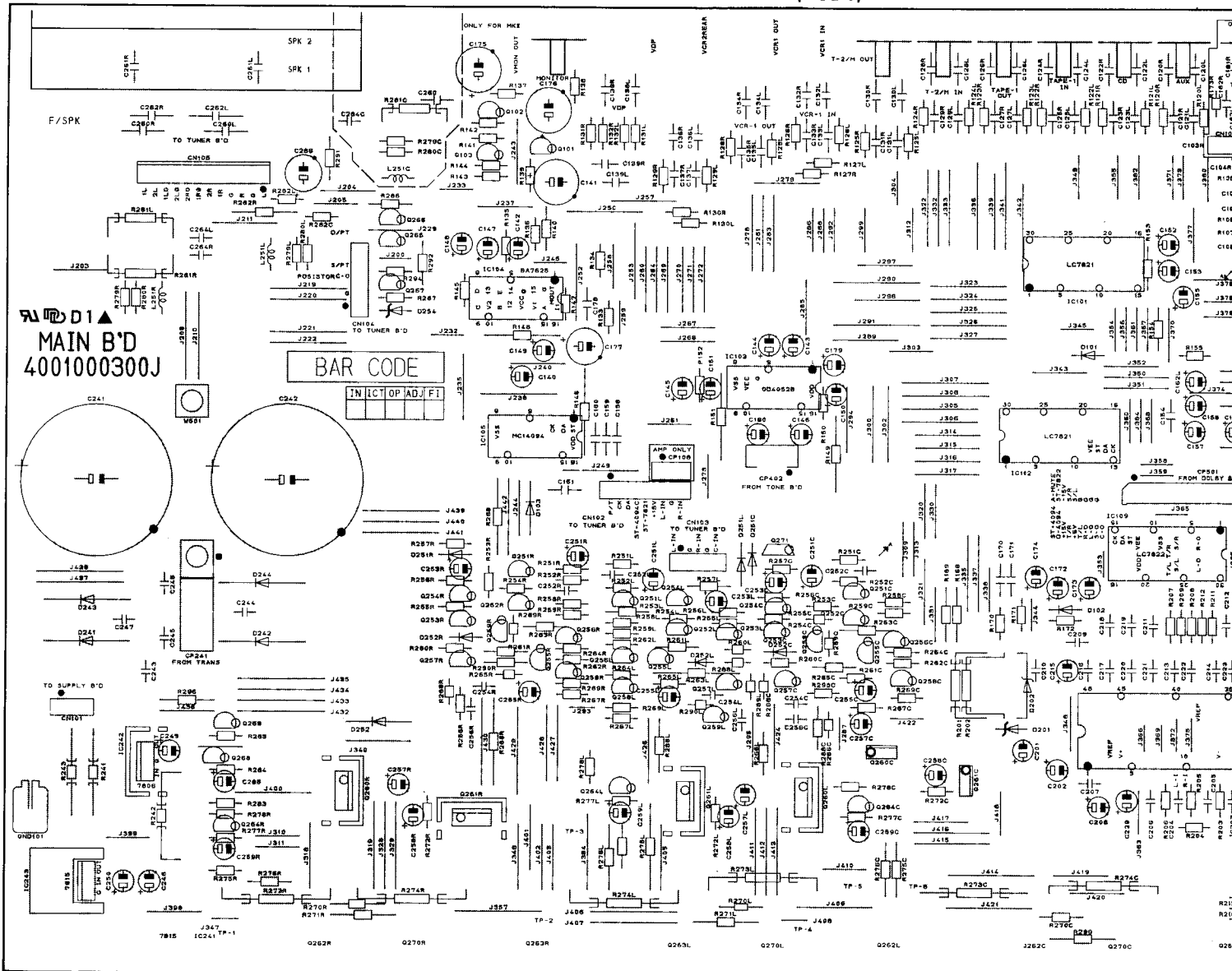
Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list are of special significance to safety. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, 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.

E F G H I

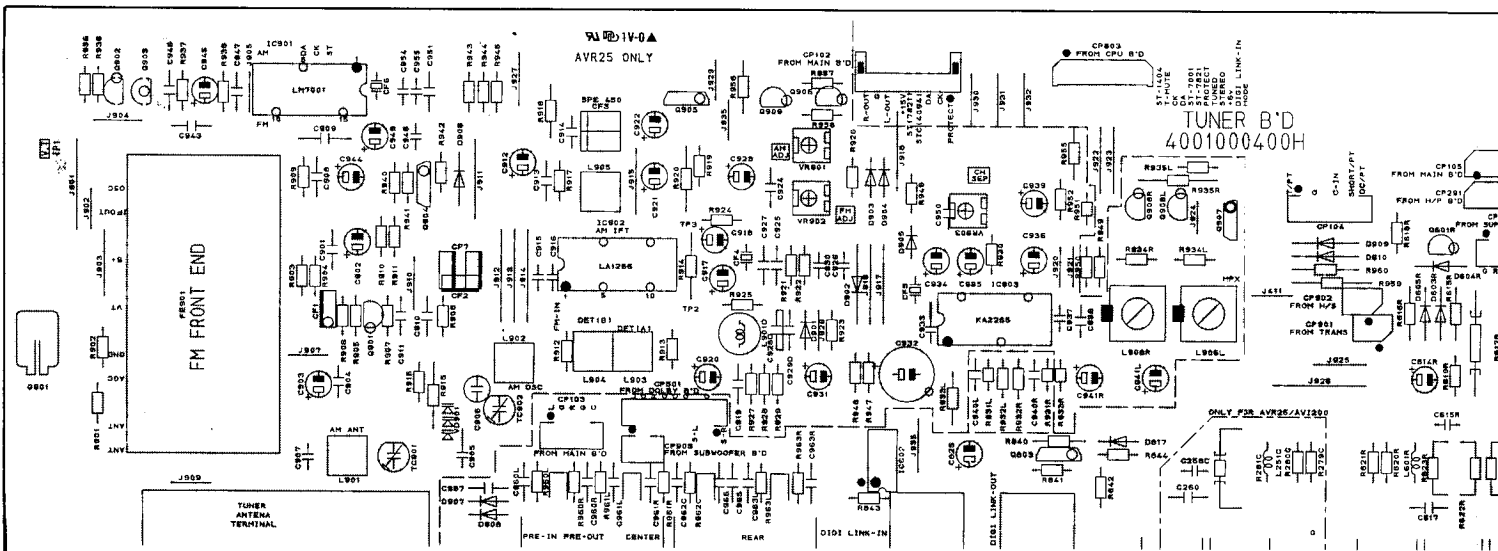


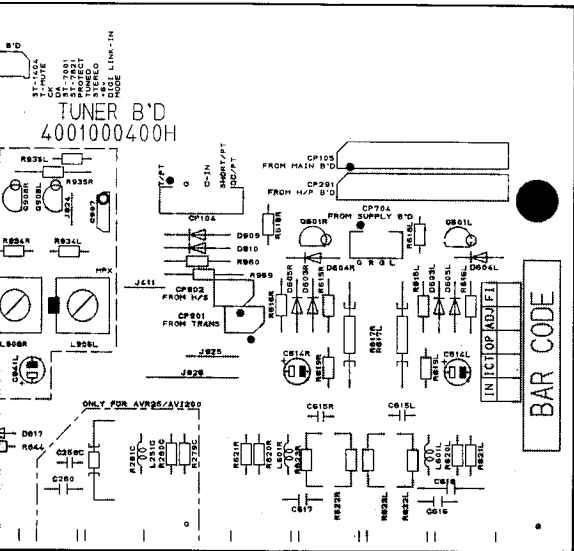
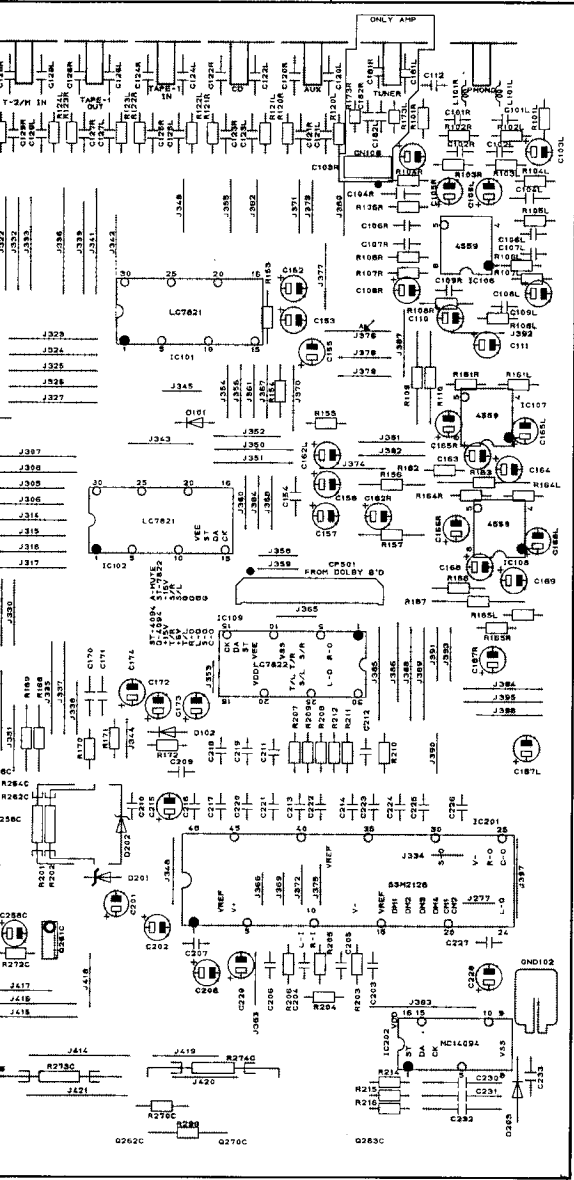
PRINTED CIRCUIT BOARDS

MAIN (PCB1)

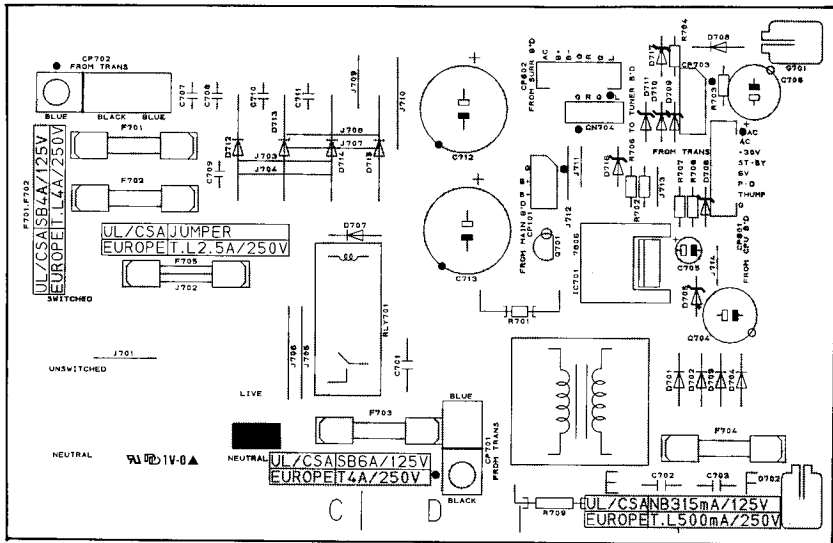


TUNER (PCB2)

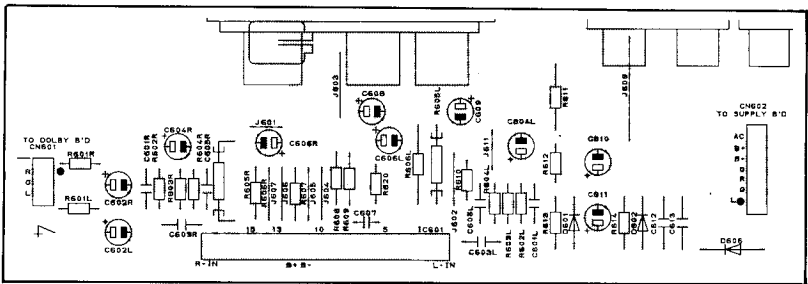




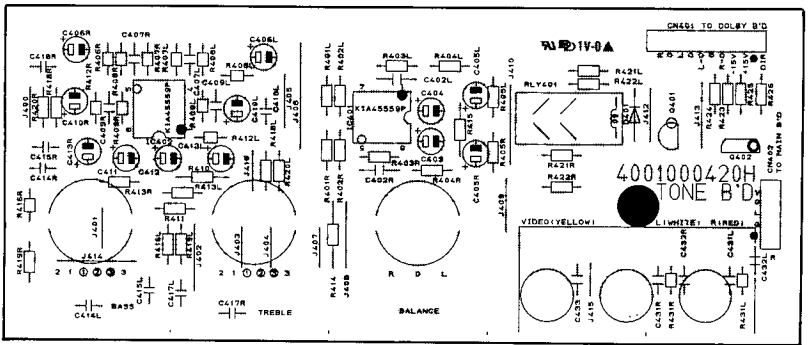
POWER SUPPLY (PCB3)



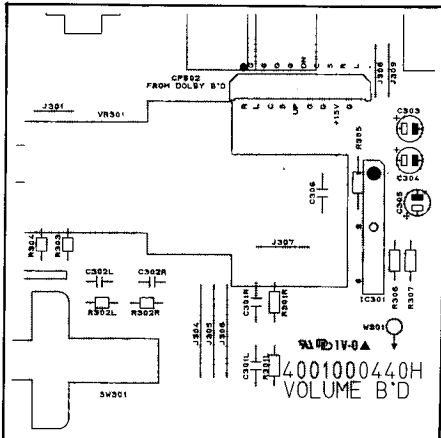
SURROUND (PCB4)



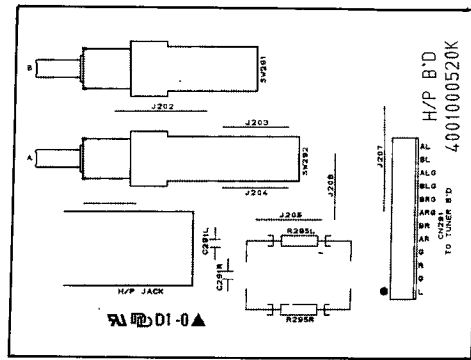
TONE (PCB5)



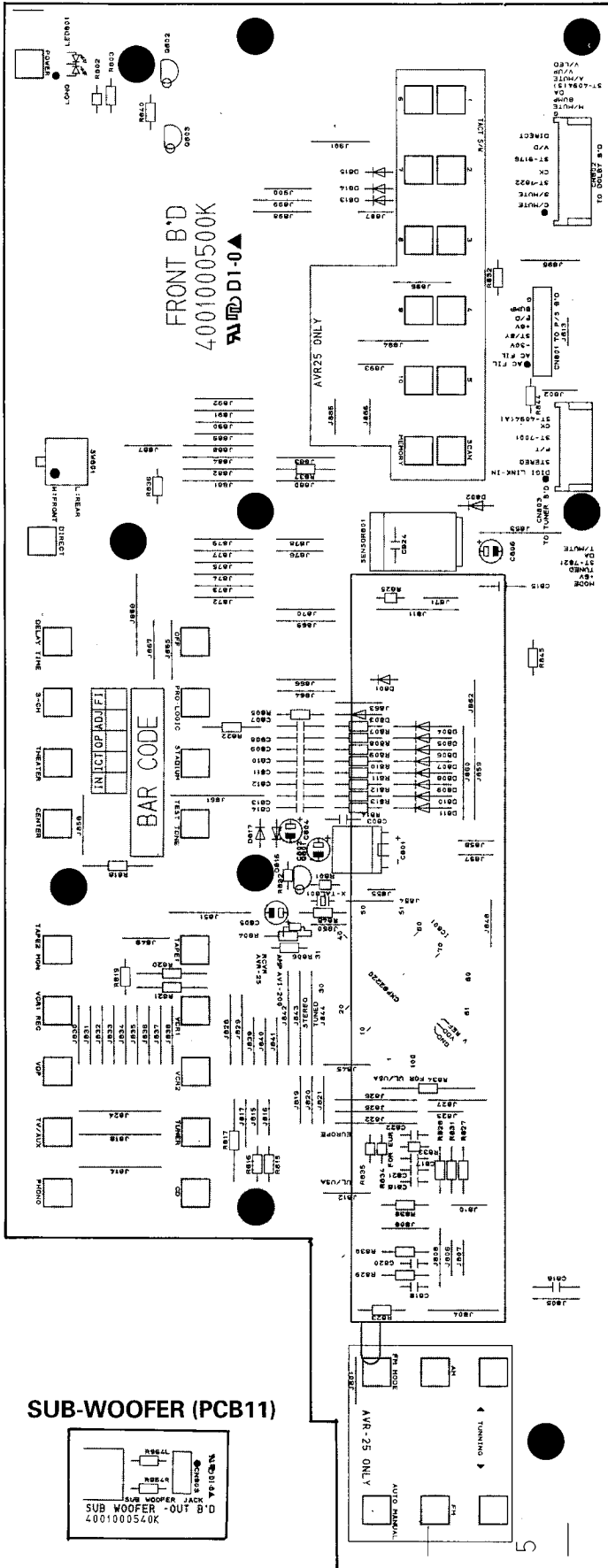
VOLUME (PCB6)



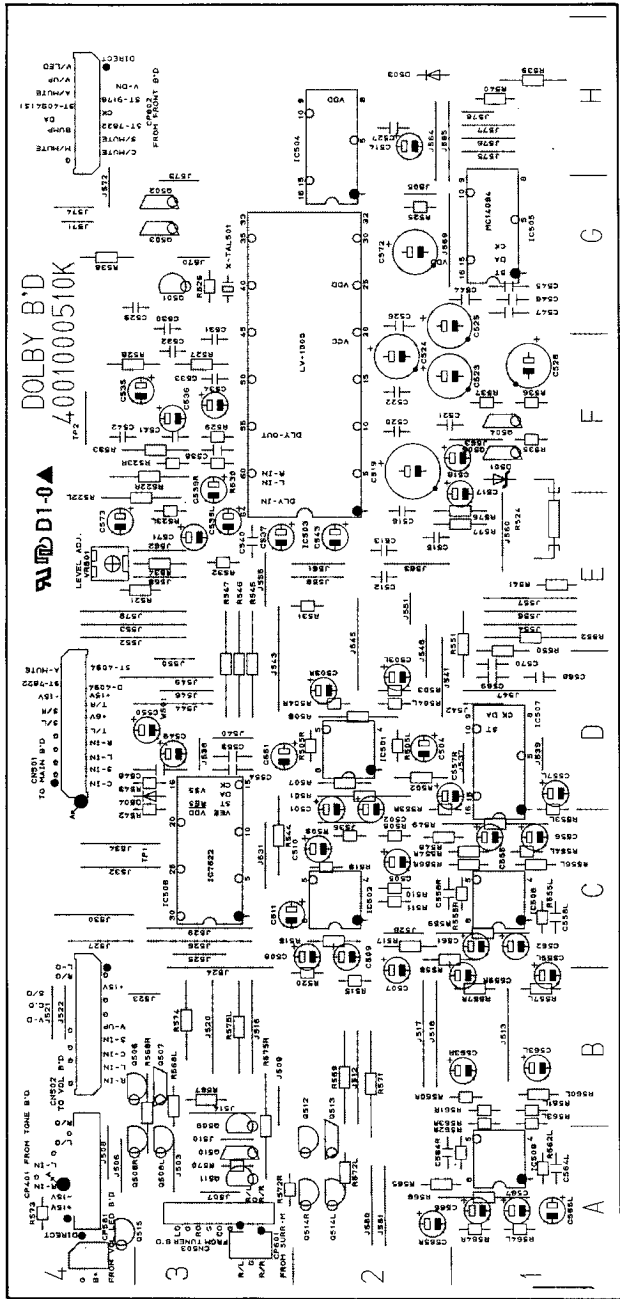
HEADPHONE (PCB9)



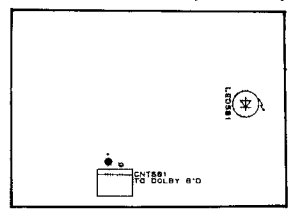
FRONT (PCB7)



DOLBY (PCB8)



VOLUME LED (PCB10)



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	Version	Ref. No.	Description	Mfr. Part No.	Q'ty	Version
PCB1 ASSEMBLY P.C BOARD MAIN									
CAPACITORS									
C101/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C102/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2			
C103/LR	Electrolytic SA	4.7	uF	50 V M	3479247971	2			
C104/LR	Ceramic Tubular	2200	pF	50 V J	3519222935	2	EUROPE		
C105/LR	Electrolytic SA	33	uF	25 V M	3479233041	2			
C106/LR	Mylar	0.002	uF	100 V J	3679182120	2			
C107/LR	Mylar	0.006	uF	100 V J	3679562120	2			
C108/LR	Electrolytic SA	1	uF	50 V M	3479210971	2			
C109/LR	Mylar	0.002	uF	100 V J	3679182120	2			
C110/C111	Electrolytic SG	47	uF	25 V M	3479347041	2			
C112	Ceramic Disc	0.01	uF	50 V Z	3579103530	1			
C120/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C121/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C122/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C123/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C124/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C125/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C126/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C127/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C128/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C129/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C130/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C131/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C132/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C133/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C134/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C135/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C136/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C137/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C138/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C139/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2	EUROPE		
C140	Electrolytic SA	33	uF	25 V M	3479233041	1			
C141	Electrolytic SG	470	uF	10 V M	3479347121	1			
C142	Electrolytic SA	33	uF	25 V M	3479233041	1			
C143-C146	Electrolytic SA	10	uF	50 V M	3479210071	4			
C147/C148	Electrolytic SA	33	uF	25 V M	3479233041	2			
C149	Electrolytic SA	2.2	uF	50 V M	3479222971	1			
C150-C153	Electrolytic SG	47	uF	25 V M	3479347041	4			
C154	Ceramic Disc	0.01	uF	50 V Z	3579103530	1			
C155	Electrolytic SA	1	uF	50 V M	3479210971	1			
C156/C157	Electrolytic SG	47	uF	25 V M	3479347041	2			
C158	Ceramic Tubular	1000	pF	50 V J	3519102935	1			
C159/C160	Ceramic Tubular	100	pF	50 V J	3519101935	2			
C161	Ceramic Tubular	0.1	uF	50 V Z	3519104935	1			
C162/LR	Electrolytic SA	4.7	uF	50 V M	3479247971	2			
C163/C164	Electrolytic SG	47	uF	25 V M	3479347041	2			
C165/LR	Electrolytic SA	4.7	uF	50 V M	3479247971	2			
C166/LR	Electrolytic SA	10	uF	50 V M	3479210071	2			
C167/LR	Electrolytic SA	10	uF	50 V M	3479210071	2			
C168/C169	Electrolytic SG	47	uF	25 V M	3479347041	2			
C170/C171	Ceramic Tubular	100	pF	50 V J	3519101935	2			
C172	Electrolytic SG	47	uF	25 V M	3479347041	1			
C173	Electrolytic SA	1	uF	50 V M	3479210971	1			
C174	Electrolytic SG	47	uF	25 V M	3479347041	1			
C175-C177	Electrolytic SG	470	uF	10 V M	3479347121	3			
C178	Ceramic Tubular	0.1	uF	50 V Z	3519104935	1			
C179/C180	Electrolytic SA	10	uF	50 V M	3479210071	2			
C201/C202	Electrolytic SG	220	uF	10 V M	3479322121	2			
C203-C205	Mylar	0.01	uF	100 V J	3679103120	3			
C206/C207	Mylar	0.22	uF	63 V K	3679224297	2			
C208	Electrolytic SA	4.7	uF	50 V M	3479247971	1			
C209-C212	Mylar	0.1	uF	63 V K	3679104297	4			
C213/C214	Poly	680	pF	50 V J	3619681110	2			
C215	Electrolytic SA	4.7	uF	50 V M	3479247971	1			
C216/C217	Mylar	0.22	uF	63 V K	3679224297	2			
C218-C221	Mylar	0.33	uF	63 V K	3679334297	4			
C222-C225	Mylar	0.022	uF	100 V J	3679223120	4			
C226/C227	Mylar	0.1	uF	63 V K	3679104297	2			
C228	Electrolytic SG	100	uF	10 V M	3479310121	1			
C229	Electrolytic SA	10	uF	50 V M	3479210071	1			
C230-C232	Ceramic Tubular	100	pF	50 V J	3519101935	3			
C233	Ceramic Disc	0.01	uF	50 V Z	3579103530	1			
Δ C241/C242	Electrolytic HM	10000	uF	80 V M	3419510345	2			
C243-C247	Ceramic Disc	0.01	uF	500 V Z	3509103451	5			
C248-C250	Electrolytic SA	1	uF	50 V M	3479210971	3			
C251C	Electrolytic SG	47	uF	25 V M	3479347041	1			
C251/LR	Electrolytic SG	47	uF	25 V M	3479347041	2			
C252C	Ceramic Disc	68	pF	50 V J	3579680130	1			
C252/LR	Ceramic Disc	68	pF	50 V J	3579680130	2			
C253C	Electrolytic SA	1	uF	50 V M	3479210971	1			
C253/LR	Electrolytic SA	1	uF	50 V M	3479210971	2			
C254C	Ceramic Disc	3	pF	50 V D	3579309030	1			
C254/LR	Ceramic Disc	3	pF	50 V D	3579309030	2			
C255C	Electrolytic SG	470	uF	10 V M	3479347121	1			
C255/LR	Electrolytic SG	470	uF	10 V M	3479347121	2			
C256C	Ceramic Tubular	100	pF	50 V J	3519101935	1			
C256/LR	Ceramic Tubular	100	pF	50 V J	3519101935	2			
C257C	Electrolytic SA	10	uF	50 V M	3479210071	1			
C257/LR	Electrolytic SA	10	uF	50 V M	3479210071	2			
C258C	Electrolytic SA	4.7	uF	50 V M	3479247971	1			
C258/LR	Electrolytic SA	4.7	uF	50 V M	3479247971	2			
C259C	Electrolytic SA	10	uF	35 V M	3479210064	1			
C259/LR	Electrolytic SA	10	uF	35 V M	3479210064	2			
C260	Ceramic Tubular	2200	pF	50 V J	3519222915	1			
C260/LR	Ceramic Tubular	2200	pF	50 V J	3519222935	1	EUROPE		
C261/LR	Ceramic Tubular	2200	pF	50 V J	3519222935	2	EUROPE		
C262/LR	Ceramic Tubular	2200	pF	50 V J	3519222935	2	EUROPE		
C264C	Mylar	0.047	uF	100 V J	3679473120	1			
C264/LR	Mylar	0.047	uF	100 V J	3679473120	2			
C265	Electrolytic SA	1	uF	100 V M	3479210997	1			
C266	Electrolytic SG	470	uF	10 V M	3479347121	1			
CONNECTORS									
CN101	Lead Ass'y, 3P, 200 mm				436103203331	1			
CN102	Lead Ass'y, 9P, 100 mm				436209103332	1			
CN103	Lead Ass'y, 5P, 180 mm				436205183332	1			
CN104	Lead Ass'y, 7P, 140 mm				436207143332	1			
CN105	Lead Ass'y, 12P, 140 mm				435112143401	1			
CP108	Wafer, 3P				4428516210	1			
CN108	Lead Ass'y, 3P, 200 mm				436403203232	1			
CP241	Plug LV AC, 3P				4428525790	1			
CP402	Wafer 5P				4428516410	1			
CP501	FPC Plug 19P				4428528310	1			
	Plug LV AC, 1P				4428525860	1			
DIODES									
D101-D103	1N4148M, Switching				2058322101	3			
D201/D202	Diode Zener, DZ 6.8BSC				2258599121	2			
D203	1N4148M, Switching				2058322101	1			
Δ D241-D244	PX6A03, Rectifier				2058100138	4			
D251C	1N4148M, Switching				2058322101	1			
D251/LR	1N4148M, Switching				2058322101	2			
D252C	1N4148M, Switching				2058322101	1			
D252/LR	1N4148M, Switching				2058322101	2			
D254	Diode Zener, DZ 12.0BSC				2258599116	1			
INTEGRATED CIRCUITS									
IC101/IC102	LC7821				2168017132	2			
IC103	GD4052B				2138001114	1			
IC104	BA7625, Video Switching				2168027106	1			
IC105	MC14094BCP				2138009115	1			
IC106-IC108	KIA4559P/KIA755559P, OP Amp				2168206104	3			
IC109	LC7822				2168017139	1			
IC201	SSM-2126A				2168000122	1			
IC202	MC14094BCP				21				

Ref. No.	Description	Mfr. Part No.	Q'ty	Version	Ref. No.	Description	Mfr. Part No.	Q'ty	Version
C944	Electrolytic SG	47 uF 25 V M	3479347041	1	R910/R911	Carbon Film	180 ohm 1/5 W J	3069181970	2
C945	Electrolytic SA	1 uF 50 V M	3479210971	1	R912	Carbon Film	3.3 kohm 1/5 W J	3069332970	1
C946	Ceramic Tubular	2200 uF 50 V Z	3519223935	1	R913	Carbon Film	10 kohm 1/5 W J	3069103970	1
C947/CS48	Ceramic Tubular	0.01 uF 50 V Z	3519103935	2	R914	Carbon Film	47 kohm 1/5 W J	3069473970	1
C949	Electrolytic SG	47 uF 25 V M	3479347041	1	R915/R916	Carbon Film	100 kohm 1/5 W J	3069104970	2
C950	Ceramic Tubular	270 pF 50 V J	3519271935	1	R917	Carbon Film	68 kohm 1/5 W J	3069683970	1
C951	Ceramic Tubular	100 pF 50 V J	3519101935	1	R918	Carbon Film	5.6 kohm 1/5 W J	3069562970	1
C954/C955	Ceramic Disc CH	33 pF 50 V J	3528330210	2	R919	Carbon Film	10 kohm 1/5 W J	3069103970	1
C960/L/R	Ceramic Tubular	100 pF 50 V J	3519101935	2	R920	Carbon Film	24 kohm 1/5 W J	3069243970	1
C961/L/R	Ceramic Tubular	100 pF 50 V J	3519101935	2	R921	Carbon Film	22 kohm 1/5 W J	3069223970	1
C962C	Ceramic Tubular	100 pF 50 V J	3519101935	1	(R921)	Carbon Film	10 kohm 1/5 W J	3069103970	1
C963/L/R	Ceramic Tubular	100 pF 50 V J	3519101935	2	R923	Carbon Film	27 kohm 1/5 W J	3069273970	1
C965-C967	Ceramic Disc	0.1 uF 50 V Z	3579104530	3	R924	Carbon Film	82 ohm 1/5 W J	3069820970	1
FILTERS					R925	Carbon Film	1.8 kohm 1/5 W J	3069182970	1
CF1/CF2	Ceramic, SFE 10.7MS3GH		3908011011	2	R926	Carbon Film	100 kohm 1/5 W J	3069104970	1
CF3	Ceramic, SFZ450		3908001150	1	R927-R929	Carbon Film	330 ohm 1/5 W J	3069331970	3
CF4	Ceramic, BFU450C4N		3908001020	1	R930	Carbon Film	1 kohm 1/5 W J	3069102970	1
CF5	Resonator, CSB456F11		3938001009	1	R931/L/R	Carbon Film	330 kohm 1/5 W J	3069334970	2
CF6	Crystal, 7.2MHZ, HC-49/U		3908101031	1	(R931/L/R)	Carbon Film	180 kohm 1/5 W J	3069184970	2
CONNECTORS					R932/L/R	Carbon Film	180 kohm 1/5 W J	3069184970	2
CP102	Wafer 9P		4428525590	1	(R932/L/R)	Carbon Film	150 kohm 1/5 W J	3069154970	2
CP103	Wafer 5P		4428516410	1	R933/L/R	Carbon Film	3.3 kohm 1/5 W J	3069332970	2
CP104	Wafer 7P		4428516610	1	R934/L/R	Carbon Film	3.3 kohm 1/5 W J	3069332970	2
CP105	Wafer 12P		4428510720	1	R935/L/R	Carbon Film	3.3 kohm 1/5 W J	3069332970	2
CP271	Wafer 12P		4428510720	1	R936	Carbon Film	1 kohm 1/5 W J	3069102970	1
CP503	Wafer 9P		4428516810	1	R937	Carbon Film	1.5 kohm 1/5 W J	3069152970	1
CP704	Wafer 4P		4428516310	1	R938	Carbon Film	82 ohm 1/5 W J	3069820970	1
CP803	FPC Plug 12P		4428526246	1	R939	Carbon Film	820 ohm 1/5 W J	3069821970	1
CP901	Wafer, 2P		4428508210	1	R940-R942	Carbon Film	330 ohm 1/5 W J	3069331970	3
CP902	Wafer, 2P		4428508210	1	R943-R945	Carbon Film	100 ohm 1/5 W J	3069101970	3
CP903	Wafer 3P		4428516210	1	R946	Carbon Film	2.7 kohm 1/5 W J	3069272970	1
DIODES					R947/R948	Carbon Film	270 ohm 1/5 W J	3069271970	2
D603/L/R	1N4148M, Switching		2058322101	2	R949/R950	Carbon Film	4.7 kohm 1/5 W J	3069472970	2
D604/L/R	1N4148M, Switching		2058322101	2	R951/R952	Carbon Film	10 kohm 1/5 W J	3069103970	2
D605/L/R	1N4148M, Switching		2058322101	2	R955	Carbon Film	100 kohm 1/5 W J	3069104970	1
D817	1N4148M, Switching		2058322101	1	R956	Carbon Film	3.3 kohm 1/5 W J	3069332970	1
D901-D905	1N4148M, Switching		2058322101	5	R957	Carbon Film	47 kohm 1/5 W J	3069473970	1
D906	Zener, UZ 5.1BSB		2258599103	1	R958	Carbon Film	10 kohm 1/5 W J	3069103970	1
D907-D910	1N4148M, Switching		2058322101	4	R959/R960	Carbon Film	4.7 kohm 1/5 W J	3069472970	2
FRONT-END					R960/L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
FE901	FM Tuner, FE406-G60		3928801890	1	R961/L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
(FE901)	FM Tuner, FE406-A15		3928801970	1	R962C	Carbon Film	1 kohm 1/5 W J	3069102970	1
INTEGRATED CIRCUITS					R963/L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
IC802	LTV817, Photo-Coupler		2408000136	1	SEMI FIXED RESISTORS				
IC901	LM7001		2138017112	1	VR901	50 k(B)		3248050343	1
IC902	LA1266		2168017128	1	VR902	50 k(B)		3248050343	1
IC903	KA2265, MPX		2168002112	1	VR903	200 k (B)		3248020443	1
COILS					MISCELLANEOUS				
L601/L/R	Inductor, 0.5 uH		2648001010	2	TC901	Trimmer, 20P		3838001160	1
L906/L/R	MPX 19 k/38 kHz, Coil, Black		2658001050	2	TC902	Trimmer, 10P		3838001150	1
L901	AM ANT		2608201120	1	VD901	KV1236Z, Diode, Varactor		2058819106	1
L901D	Inductor, 20.8mH		2648601430	1	G901	Plate, Ground		4235007310	1
L902	AM OSC		2638201150	1	51	Terminal Speaker, 4P		4408105410	1
L903	FM QUAD DET A		2838501110	1	53	Jack, Multiroom		4438006510	2
L904	FM QUAD DET B		2838501210	1	54	Jack, RCA, 4P		4438108610	2
L905	AM IFT, P-7SB		2848001250	1	55	Terminal, Antenna		4408108210	1
TRANSISTORS					(55)	Terminal, Antenna		4408108310	1
Q601/L/R	KTC3198Y/KTC1815Y, NPN		2208606104	2	PCB3 ASSEMBLY P.C BOARD SUPPLY				
Q901	KTC1923Y/KTC3194Y, NPN		2208406103	1	CAPACITORS				
Q902	KTC2240BL/KTC3200, NPN		2208606108	1	C701	Ceramic Disc	0.047 uF 400 V Z	3549472410	1
Q903	FET, 2SK168D, N.-CH.		2018211100	1	C702/C703	Ceramic Tubular	0.047 uF 50 V Z	3519473935	2
Q904/Q905	DTA114YS, PNP		2208222105	2	C704	Electrolytic SG	220 uF 16 V M	3479322131	1
Q906	BKTA1266Y/KTA1015Y, PNP		2208206105	1	C705	Electrolytic SA	1 uF 50 V M	3479210971	1
Q907	DTA114YS, PNP		2208222105	1	C706	Electrolytic SG	100 uF 50 V M	3479310171	1
Q908/L/R	KTD1302, NPN		2208606112	2	C707-C711	Mylar	0.047 uF 100 V J	3679473120	5
Q909	KTC3198Y/KTC1815Y, NPN		2208606104	1	▲C712	Electrolytic SG	3300 uF 35 V M	3409333262	1
RESISTORS					▲C713	Electrolytic SG	2200 uF 35 V M	3409332269	1
R615/L/R	Carbon Film	390 ohm 1/5 W J	3069391970	2	CONNECTORS				
R616/L/R	Carbon Film	15 kohm 1/5 W J	3069153970	2	CN704	Lead Ass'y, 4P, 160 mm		436204163332	1
▲R617/L/R	Cement	0.47 ohm 2 W J	3059478572	2	CP101	Plug LV AC, 3P		4428525790	1
R618/L/R	Carbon Film	22 kohm 1/5 W J	3069223970	2	CP602	Wafer 7P		4428516610	1
R619/L/R	Carbon Film	2.2 kohm 1/5 W J	3069222970	2	CP701	Plug LV AC, 2P		4428525780	1
R620/L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2	CP702	Plug LV AC, 3P		4428525790	1
R621/L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2	CP703	Wafer 4P		4428505610	1
R622/L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2	CP801	Wafer 8P		4428516710	1
R623/L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2	DIODES				
R840	Carbon Film	100 ohm 1/5 W J	3069101970	1	▲D701-D704	1N4002, Rectifier		2258100135	4
R841	Carbon Film	47 kohm 1/5 W J	3069473970	1	D705/D706	Zener, UZ 5.1BSB		2258599103	2
R842	Carbon Film	47 ohm 1/5 W J	3069470970	1	D707/D708	1N4002, Rectifier		2258100135	2
R843	Carbon Film	270 ohm 1/5 W J	3069271970	1	D709	Zener, UZ 7.5BSC		2258599130	1
R844	Carbon Film	3.9 kohm 1/5 W J	3069392970	1	D710/D711	Zener, UZ 15.0BSC		2258599109	2
R901	Carbon Film	56 kohm 1/5 W J	3069563970	1	▲D712-D715	1N5402, Rectifier		2058100136	4
R902	Carbon Film	100 kohm 1/5 W J	3069104970	1	D716	Zener, UZ 5.1BSB		2258599103	1
R903	Carbon Film	560 ohm 1/5 W J	3069561970	1	INTEGRATED CIRCUIT				
R904	Carbon Film	180 ohm 1/5 W J	3069181970	1	▲IC701	GL7806, Regulator		2168601110	1
R905	Carbon Film	3.3 kohm 1/5 W J	3069332970	1	TRANSISTOR				
R906	Carbon Film	470 ohm 1/5 W J	3069471970	1	Q701	KTC3198Y/KTC1815Y, NPN		2208606104	1
R907/R908	Carbon Film	330 ohm 1/5 W J	3069331970	2					
R909	Carbon Film	560 ohm 1/5 W J	3069561970	1					

Ref. No.	Description	Mfr. Part No.	Qty	Version	Ref. No.	Description	Mfr. Part No.	Qty	Version	
RESISTORS					CONNECTORS					
R701	Metal Film	10 ohm 1 W J	3029100470	1	C433	Ceramic Tubular	100 pF 50 V J	3519101935	1	
R702	Carbon Film	2 kohm 1/5 W J	3069202970	1	CONNECTORS					
R703	Carbon Film	330 ohm 1/5 W J	3069331970	1	CN401	Lead Ass'y, 10P, 220 mm		436210223332	1	
R704	Carbon Film	15 kohm 1/5 W J	3069153970	1	CN402	Lead Ass'y, 5P, 400 mm		436205403332	1	
R706	Carbon Film	6.8 kohm 1/5 W J	3069682970	1	DIODE					
R707	Carbon Film	1 kohm 1/5 W J	3069102970	1	D401	1N4148M, Switching		2058322101	1	
R708	Carbon Film	10 kohm 1/5 W J	3069103970	1	INTEGRATED CIRCUITS					
R709	Metal Film	3.3 ohm 1/2 W J	3009335373	1	USA/CANADA	IC401/IC402	KIA4559P/KIA755559P, OP Amp		2168206104	2
FUSES					TRANSISTORS					
F701	△ TL 4A, 250V		5508302934	1	EUROPE	Q401	BKTA1266Y/KTA1015Y, PNP		2208206105	1
(F701)	△ SB 4A, 125V		5508102921	1	USA/CANADA	Q402	DTC114YS		2208622106	1
F702	△ TL 4A, 250V		5508302934	1	EUROPE	RESISTORS				
(F702)	△ SB 4A, 125V		5508102921	1	USA/CANADA	R401L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2
F703	△ TL 4A, 250V		5508302934	1	EUROPE	R402L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
(F703)	△ SB 4A, 125V		5508103121	1	USA/CANADA	R403L/R	Carbon Film	5.1 kohm 1/5 W J	3069512970	2
F704	△ TL 500mA, 250V		5508301934	1	EUROPE	R404L/R	Carbon Film	560 ohm 1/5 W J	3069561970	2
(F704)	△ NB 315mA, 125V		5508201421	1	USA/CANADA	R405L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2
F705	△ TL 2.5A, 250V		5508302535	1	EUROPE	R406L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
MISCELLANEOUS					TRANSISTORS					
RLY701	△ Relay, HR-CR313(TV-3)		5528042002	1	USA/CANADA	R407L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2
G701	Plate, Ground		4235007310	1	EUROPE	R408L/R	Carbon Film	120 kohm 1/5 W J	3069124970	2
G702	Plate, Ground		4235007310	1	USA/CANADA	R409L/R	Carbon Film	1 ohm 1/5 W J	3069105970	2
63	Heatsink (H:30), Regulator TR.		7505206210	1	EUROPE	R410/R411	Carbon Film	220 ohm 1/5 W J	3069221970	2
64	Tie locking		6528002810	1	USA/CANADA	R412L/R	Carbon Film	560 ohm 1/5 W J	3069561970	2
65	△ Outlet, 1P		4448103610	1	EUROPE	R413L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2
(65)	△ Outlet, 3P		4448102910	1	USA/CANADA	R414/R415	Carbon Film	220 ohm 1/5 W J	3069221970	2
	△ Standby Transformer, 230 V 50 Hz		2828000077	1	EUROPE	R416L/R	Carbon Film	20 kohm 1/5 W J	3069203970	2
	△ Standby Transformer, 120 V 60 Hz		2828089007	1	USA/CANADA	R418L/R	Carbon Film	3.9 kohm 1/5 W J	3069392970	2
	Pin, Solder		4228001410	2		R419L/R	Carbon Film	2.2 kohm 1/5 W J	3069222970	2
	Clip Fuse		4255001010	8		R420L/R	Carbon Film	560 ohm 1/5 W J	3069561970	2
PCB4 ASSEMBLY P.C BOARD SURROUND					MISCELLANEOUS					
CAPACITORS					RLY401					
C601L/R	Ceramic Tubular	2200 pF 50 V J	3519222935	2	19	Volume Rotary (Bass/Treble)		3208049510	2	
C602L/R	Electrolytic SA	2.2 uF 50 V M	3479222971	2	20	Volume Rotary (Balance)		3208052010	1	
C603L/R	Ceramic Tubular	100 pF 50 V J	3519101935	2	21	Jack, RCA, 3P		4438109710	1	
C604L/R	Electrolytic SA	2.2 uF 50 V M	3479222971	2	PCB5 ASSEMBLY P.C BOARD VOLUME					
C605L/R	Ceramic Tubular	4.7 pF 50 V J	3519047935	2	CAPACITORS					
C606L/R	Electrolytic SA	47 uF 35 V M	3479247061	2	C301L/R	Ceramic Tubular	470 pF 50 V J	3519471935	2	
C607	Mylar	0.1 uF 63 V K	3679104297	1	C302L/R	Mylar	0.082 uF 100 V J	3679823120	2	
C608/C809	Electrolytic SA	10 uF 50 V M	3479210071	2	C303	Electrolytic SG	47 uF 25 V M	3479347041	1	
C610/C611	Electrolytic SA	10 uF 50 V M	3479210071	2	C304/C305	Electrolytic SG	100 uF 10 V M	3479310121	2	
C612/C613	Ceramic Tubular	2200 uF 50 V Z	3519222935	2	C306	Ceramic Disc	0.047 uF 50 V Z	3579473530	1	
CONNECTORS					CONNECTOR					
CN601	Lead Ass'y, 3P, 180 mm		436203183332	1	CP502	FPC Plug, 18P		4428526305	1	
CN602	Lead Ass'y, 7P, 350 mm		436207353332	1	INTEGRATED CIRCUIT					
DIODES					IC301					
D601	1N4002, Rectifier		2258100135	1	TA7291S					
D602	1N4002, Rectifier		2258100135	1						
D606	1N4002, Rectifier		2258100135	1	RESISTOS					
INTEGRATED CIRCUITS					R301L/R					
IC601	STK4132 II, Hybrid IC		2178317129	1	R302L/R	Carbon Film	51 kohm 1/5 W J	3069513970	2	
RESISTORS					R303/R304	Carbon Film	6.2 kohm 1/5 W J	3069622970	2	
R601L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2	R305	Carbon Film	33 ohm 1/5 W J	3069330970	1	
R602L/R	Carbon Film	47 kohm 1/5 W J	3069473970	2	R306	Carbon Film	15 kohm 1/5 W J	3069153970	1	
R603L/R	Carbon Film	2 kohm 1/5 W J	3069202970	2	R307	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	
R604L/R	Carbon Film	43 kohm 1/5 W J	3069433970	2	MISCELLANEOUS					
R605L/R	Metal Film	2.2 kohm 1 W J	3029222470	2	W301	Wire Lug, #24, Black, 140mm		152624101457	2	
R606L/R	Carbon Film	1.3 kohm 1/5 W J	3069132970	2	22	Switch Push		4628059610	1	
R607	Carbon Film	10 ohm 1/5 W J	3069100970	1	23	Volume Motor		3228019410	1	
R608	Carbon Film	1.5 kohm 1/5 W J	3069152970	1	PCB7 ASSEMBLY P.C BOARD FRONT					
R609	Carbon Film	1 kohm 1/5 W J	3069102970	1	CAPACITORS					
R610	Carbon Film	10 kohm 1/5 W J	3069103970	1	C801	CAP, FMOH473ZTP16, Backup	5.5 V	3409347314	1	
R611	Carbon Film	390 kohm 1/5 W J	3069394970	1	C802	Electrolytic SG	47 uF 25 V M	3479347041	1	
R612	Carbon Film	68 kohm 1/5 W J	3069683970	1	C803	Ceramic Tubular	0.1 uF 50 V Z	3519104935	1	
R613	Carbon Film	220 kohm 1/5 W J	3069224970	1	C804	Electrolytic SA	10 uF 50 V M	3479210071	1	
R614	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	C805	Ceramic Tubular	12 pF 50 V J	3519120935	1	
R620	Carbon Film	100 ohm 1/5 W J	3069101970	1	C806	Electrolytic SA	33 uF 25 V M	3479233041	1	
MISCELLANEOUS					C807-C814					
	Plate, Ground		4235007310	1	C815/C816	Ceramic Tubular	100 pF 50 V J	3519101935	8	
PCB5 ASSEMBLY P.C BOARD TONE					C817-C821					
CAPACITORS					C822					
C402L/R	Ceramic Tubular	22 pF 50 V J	3519220935	2	C824	Ceramic Tubular	0.1 uF 50 V Z	3519104935	1	
C403/C404	Electrolytic SG	47 uF 25 V M	3479347041	2	CONNECTORS					
C405L/R	Electrolytic SA	10 uF 50 V M	3479210071	2	CN801	Lead Ass'y, 8P 350 mm		436208353332	1	
C406L/R	Electrolytic SA	10 uF 50 V M	3479210071	2	CN802	FPC Plug 15P		4428526690	1	
C407L/R	Ceramic Disc	39 pF 50 V J	3579390130	2	CN803	FPC Plug 12P		4428526246	1	
C409L/R	Ceramic Tubular	39 pF 50 V J	3519390935	2	PCB7 ASSEMBLY P.C BOARD FRONT					
C410L/R	Electrolytic SA	10 uF 50 V M	3479210071	2	CAPACITORS					
C411/C412	Electrolytic SG	47 uF 25 V M	3479347041	2	C801	CAP, FMOH473ZTP16, Backup	5.5 V	3409347314	1	
C413L/R	Electrolytic SA	10 uF 50 V M	3479210071	2	C802	Electrolytic SG	47 uF 25 V M	3479347041	1	
C414L/R	Mylar	0.015 uF 100 V J	3679153120	2	C803	Ceramic Tubular	0.1 uF 50 V Z	3519104935	1	
C415L/R	Mylar	0.082 uF 100 V J	3679823120	2	C804	Electrolytic SA	10 uF 50 V M	3479210071	1	
C417L/R	Mylar	0.003 uF 100 V J	3679332120	2	C805	Ceramic Tubular	12 pF 50 V J	3519120935	1	
C418L/R	Mylar	0.018 uF 100 V J	3679183120	2	C806	Electrolytic SA	33 uF 25 V M	3479233041	1	
C431L/R	Ceramic Tubular	100 pF 50 V J	3519101935	2	EUROPE	C807-C814	Ceramic Tubular	100 pF 50 V J	3519101935	8
C432L/R	Ceramic Tubular	100 pF 50 V J	3519101935	2	EUROPE	C815/C816	Ceramic Tubular	0.047 uF 50 V Z	3519473935	2

Ref. No.	Description	Mfr. Part No.	Qty	Version	Ref. No.	Description	Mfr. Part No.	Qty	Version
DIODES					CONNECTORS				
D801-D816	1N4148M, Switching	2058322101	6		CN501	FPC Plug 19P	4428526310	1	
LED801	LED, SPR54MWV3, Red/Green	2308222302	1		CN502	FPC Plug 18P	4428526305	1	
INTEGRATED CIRCUIT					DIODES				
IC801	CPX82220-107Q, CPU	2138322182	1		D501	Zener, UZ 12.0BSC	2258599116	1	
TRANSISTORS					INTEGRATED CIRCUITS				
Q801	MPSA06Y, NPN	2208606114	1		D502-D504	1N4148M, Switching	2058322101	3	
Q802	KTC3198Y/KTC1815Y, NPN	2208606104	1		IC501/IC502	KIA4559P/KIA755559P, OP Amp	2168206104	2	
Q803	DTA114YS, PNP	2208222105	1		IC503	LV-1000NA	2168017142	1	
RESISTORS					TRANSISTORS				
R801	Carbon Film	10 kohm 1/5 W J	3069103970	1	Q501	BKTA1266Y/KTA1015Y, PNP	2208206105	1	
R802	Carbon Film	180 ohm 1/5 W J	3069181970	1	Q502	DTC114YS	2208622106	1	
R803	Carbon Film	150 ohm 1/5 W J	3069151970	1	Q503	DTA114YS, PNP	2208222105	1	
R804	Carbon Film	22 kohm 1/5 W J	3069223970	1	Q504/Q505	DTC114YS	2208622106	2	
R805	Carbon Film	47 kohm 1/5 W J	3069473970	1	Q506	KTC3198Y/KTC1815Y, NPN	2208606104	1	
R806	Carbon Film	10 kohm 1/5 W J	3069103970	1	Q507	DTA114YS, PNP	2208222105	1	
R807-R814	Carbon Film	1 kohm 1/5 W J	3069102970	8	Q508/LR	KTD1302, NPN	2208606112	2	
R815-R822	Carbon Film	47 kohm 1/5 W J	3069473970	8	Q509	KTC3198Y/KTC1815Y, NPN	2208606104	1	
R823	Carbon Film	1 kohm 1/5 W J	3069224970	1	Q510	DTA114YS, PNP	2208222105	1	
R825	Carbon Film	3.3 kohm 1/5 W J	3069332970	1	Q511	KTD1302, NPN	2208606112	1	
R827-R831	Carbon Film	100 ohm 1/5 W J	3069101970	5	Q512	KTC3198Y/KTC1815Y, NPN	2208606104	1	
R832	Carbon Film	1 kohm 1/5 W J	3069102970	1	Q513	DTA114YS, PNP	2208222105	1	
R834/R835	Carbon Film	47 kohm 1/5 W J	3069473970	2	Q514/LR	KTD1302, NPN	2208606112	2	
R836	Carbon Film	470 ohm 1/5 W J	3069471970	1	Q515	KTC3198Y/KTC1815Y, NPN	2208606104	1	
R837	Carbon Film	1 kohm 1/5 W J	3069102970	1	RESISTORS				
R838	Carbon Film	330 ohm 1/5 W J	3069331970	1	R501/R502	Carbon Film	100 ohm 1/5 W J	3069101970	2
R839	Carbon Film	47 kohm 1/5 W J	3069473970	1	R503	Carbon Film	10 kohm 1/5 W J	3069103970	1
R844/R845	Carbon Film	3.3 ohm 1/5 W J	3069339970	2	R504L	Carbon Film	10 kohm 1/5 W J	3069103970	1
MISCELLANEOUS					R504R	Carbon Film	22 kohm 1/5 W J	3069223970	1
X-TAL801	Resonator, CST10.00MTW	3938131750	1		R505/LR	Carbon Film	22 kohm 1/5 W J	3069223970	2
24	Switch Push	4628054410	1		R506	Carbon Film	22 kohm 1/5 W J	3069223970	1
28	Switch Tact	4658003710	38		R507	Carbon Film	1.5 kohm 1/5 W J	3069152970	1
29(SEN801)	Remote Sensor, TFMT5380 (38 kHz)	2408005001	1		R508	Carbon Film	750 ohm 1/5 W J	3069751970	1
30(FIP801)	FIP, 12 LM 8, FL Display	2328130301	1		R509	Carbon Film	1.8 kohm 1/5 W J	3069182970	1
PCB ASSEMBLY P.C. BOARD DOLBY					R510	Carbon Film	3.9 kohm 1/5 W J	3069392970	1
CAPACITORS					R511	Carbon Film	4.7 kohm 1/5 W J	3069472970	1
C501/C502	Electrolytic SG	47 uF 25 V M	3479347041	2	R515	Carbon Film	3.3 kohm 1/5 W J	3069332970	1
C503/LR	Electrolytic SA	4.7 uF 50 V M	3479247971	2	R516/R517	Carbon Film	100 ohm 1/5 W J	3069101970	2
C504	Electrolytic SA	3.3 uF 50 V M	3479233971	1	R519	Carbon Film	10 kohm 1/5 W J	3069103970	1
C505	Electrolytic SA	10 uF 50 V M	3479210071	1	R520	Carbon Film	100 kohm 1/5 W J	3069104970	1
C507	Electrolytic SA	3.3 uF 50 V M	3479233971	1	R521	Carbon Film	3.9 kohm 1/5 W J	3069392970	1
C508/C509	Electrolytic SG	47 uF 25 V M	3479347041	2	R522/LR	Carbon Film	6.8 kohm 1/5 W J	3069682970	2
C510	Electrolytic SA	2.2 uF 50 V M	3479222971	1	R523/LR	Carbon Film	100 kohm 1/5 W J	3069104970	2
C511	Electrolytic SA	3.3 uF 50 V M	3479233971	1	R524	Metal Film	56 ohm 1 W J	3029560470	1
C512	Mylar	0.15 uF 63 V K	3679154297	1	R525	Carbon Film	56 ohm 1/5 W J	3069560970	1
C513	Ceramic Tubular	150 pF 50 V J	3519151935	1	R526	Carbon Film	1 ohm 1/5 W J	3069105970	1
C514	Electrolytic SG	220 uF 10 V M	3479322121	1	R527	Carbon Film	47 kohm 1/5 W J	3069473970	1
C515	Poly	120 pF 50 V J	3619121110	1	R528	Carbon Film	3.3 kohm 1/5 W J	3069332970	1
C516	Poly	680 pF 50 V J	3619681110	1	R529	Carbon Film	15 kohm 1/5 W J	3069153970	1
C517	Electrolytic SA	4.7 uF 50 V M	3479247971	1	R530	Carbon Film	8.2 kohm 1/5 W J	3069822970	1
C518	Electrolytic SG	47 uF 50 V M	3479347071	1	R531	Carbon Film	100 kohm 1/5 W J	3069104970	1
C519	Electrolytic SG	470 uF 10 V M	3479347121	1	R532	Carbon Film	39 kohm 1/5 W J	3069393970	1
C520	Poly	680 pF 50 V J	3619681110	1	R533/R534	Carbon Film	8.2 kohm 1/5 W J	3069822970	2
C521	Mylar	0.022 uF 100 V J	3679223120	1	R535	Carbon Film	47 kohm 1/5 W J	3069473970	1
C522	Poly	150 pF 50 V J	3619151110	1	R536	Carbon Film	5.6 kohm 1/5 W J	3069562970	1
C523-C525	Electrolytic SG	220 uF 16 V M	3479322131	3	R537	Carbon Film	1 kohm 1/5 W J	3069102970	1
C526/C527	Ceramic Tubular	0.1 uF 50 V Z	3519104935	2	R538	Carbon Film	10 kohm 1/5 W J	3069103970	1
C528	Electrolytic SG	220 uF 16 V M	3479322131	1	R539-R541	Carbon Film	1 kohm 1/5 W J	3069102970	3
C529	Mylar	0.22 uF 63 V K	3679224297	1	R542	Carbon Film	220 ohm 1/5 W J	3069221970	1
C530	Mylar	0.068 uF 100 V J	3679683120	1	R543	Carbon Film	100 kohm 1/5 W J	3069104970	1
C531	Mylar	0.0039 uF 100 V J	3679392120	1	R544	Carbon Film	220 ohm 1/5 W J	3069221970	1
C532	Mylar	0.0047 uF 100 V J	3679472120	1	R545-R547	Carbon Film	1 kohm 1/5 W J	3069102970	3
C533	Mylar	0.033 uF 100 V J	3679333120	1	R548/R549	Carbon Film	220 ohm 1/5 W J	3069221970	2
C534	Electrolytic SA	10 uF 50 V M	3479210071	1	R550-R552	Carbon Film	1 kohm 1/5 W J	3069102970	3
C535	Electrolytic SA	1 uF 50 V M	3479210971	1	R553/LR	Carbon Film	680 ohm 1/5 W J	3069681970	2
C536/C537	Electrolytic SA	10 uF 50 V M	3479210071	2	R554/LR	Carbon Film	1 ohm 1/5 W J	3069105970	2
C538	Ceramic Tubular	470 pF 50 V J	3519471935	1	R555/LR	Carbon Film	4.7 kohm 1/5 W J	3069472970	2
C539/LR	Electrolytic SA	10 uF 50 V M	3479210071	2	R556/LR	Carbon Film	1.5 kohm 1/5 W J	3069152970	2
C540	Ceramic Tubular	680 pF 50 V J	3519681935	1	R557/LR	Carbon Film	2 kohm 1/5 W J	3069202970	2
C541	Mylar	0.0056 uF 100 V J	3679562120	1	R558/R559	Carbon Film	100 ohm 1/5 W J	3069101970	2
C542	Mylar	0.0047 uF 100 V J	3679472120	1	R560/LR	Carbon Film	680 ohm 1/5 W J	3069681970	2
C543	Electrolytic SA	10 uF 50 V M	3479210071	1	R561/LR	Carbon Film	1 ohm 1/5 W J	3069105970	2
C544	Ceramic Tubular	0.1 uF 50 V Z	3519104935	1	R562/LR	Carbon Film	4.7 kohm 1/5 W J	3069472970	2
C545-C547	Ceramic Tubular	100 pF 50 V J	3519101935	3	R563/LR	Carbon Film	1.5 kohm 1/5 W J	3069152970	2
C548	Ceramic Tubular	0.01 uF 50 V Z	3519103935	1	R564/LR	Carbon Film	2 kohm 1/5 W J	3069202970	2
C549	Electrolytic SA	1 uF 50 V M	3479210971	1	R565/R566	Carbon Film	100 ohm 1/5 W J	3069101970	2
C550/C551	Electrolytic SG	47 uF 25 V M	3479347041	2	R567	Carbon Film	2.2 kohm 1/5 W J	3069222970	1
C553/C554	Ceramic Tubular	100 pF 50 V J	3519101935	2	R568/LR	Carbon Film	2.2 kohm 1/5 W J	3069222970	2
C555/C556	Electrolytic SG	47 uF 25 V M	3479347041	2	R569-R571	Carbon Film	2.2 kohm 1/5 W J	3069222970	3
C557/LR	Electrolytic SA	1 uF 50 V M	3479210971	2	R572/LR	Carbon Film	2.2 kohm 1/5 W J	3069222970	2
C558/LR	Ceramic Tubular	0.001 uF 50 V Z	3519102935	2	R573	Carbon Film	820 ohm 1/5 W J	3069821970	1
C559/LR	Electrolytic SA	22 uF 50 V M	3479222041	2	R574	Carbon Film	1 kohm 1/5 W J	3069102970	1
C561/C562	Electrolytic SG	47 uF 25 V M	3479347041	2	R575/LR	Carbon Film	1 kohm 1/5 W J	3069102970	2
C563/LR	Electrolytic SA	1 uF 50 V M	3479210971	2	R576/R577	Carbon Film	220 kohm 1/5 W J	3069224970	2
C564/LR	Ceramic Tubular	0.001 uF 50 V Z	3519102935	2					
C565/LR	Electrolytic SA	3.3 uF 50 V M	3479233971	2					
C568/C567	Electrolytic SG	47 uF 25 V M	3479347041	2					
C568-C570	Ceramic Tubular	100 pF 50 V J	3519101935	3					
C571	Electrolytic SA	10 uF 50 V M	3479210071	1					
C572	Electrolytic SG	220 uF 16 V M	3479322131	1					
C573	Electrolytic SA	10 uF 50 V M	3479210071	1					

Ref. No.	Description	Mfr. Part No.	Q'ty	Version
MISCELLANEOUS				
X-TAL501	Resonator, CST8.00MTW	3938131590	1	
VR501	Semi Fixed Resistor, 10 k (B)	3248010343	1	
W501	CTB 0135 LV DIAMOND DL B#16	4359855035	1	

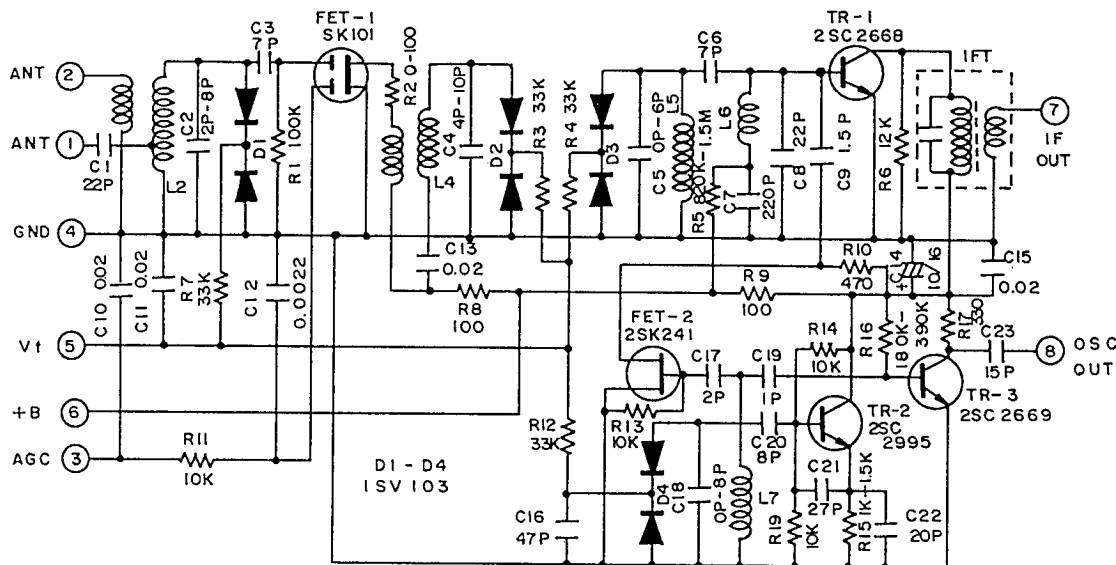
Ref. No.	Description	Mfr. Part No.	Q'ty	Version
PCB10 ASSEMBLY P.C. BOARD VOLUME LED				
CNT581	Lead Assy, 2P, 180 mm, 2.5 mm Pitch	4358102184	1	
LED581	LED, SLC-22VRS, Green	2308220324	1	

Ref. No.	Description	Mfr. Part No.	Q'ty	Version
PCB9 ASSEMBLY P.C. BOARD HEADPHONE				
R295L/R	RES, Metal Film 470 ohm 2 W J	3029471570	2	
C291L/R	CAP, Ceramic 560 pF 50 V J	3519561935	2	
CN291	Connector, Lead Ass'y, 12P, 350 mm	435112353401	1	
25(SW291)	Switch Push	4628043810	1	
26(SW292)	Switch Push	4628049210	1	
27	Jack, Phone	4438005010	1	

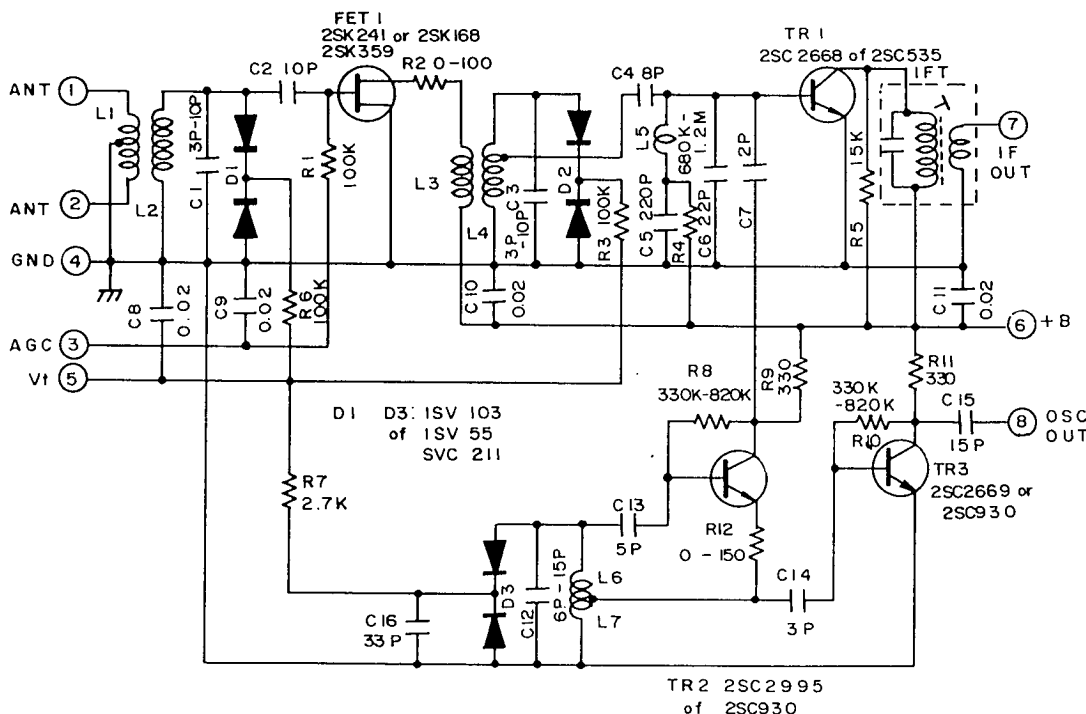
Ref. No.	Description	Mfr. Part No.	Q'ty	Version
PCB11 ASSEMBLY P.C. BOARD SUB-WOOFER				
CN903	Lead Assy, 3P, 180mm	436203183332	1	
R964L/R	Carbon Film 1 kohm 1/5 W J	3069102970	2	
66	Jack RCA, 2P	4438111510	1	

IC FUNCTIONAL BLOCK DIAGRAM

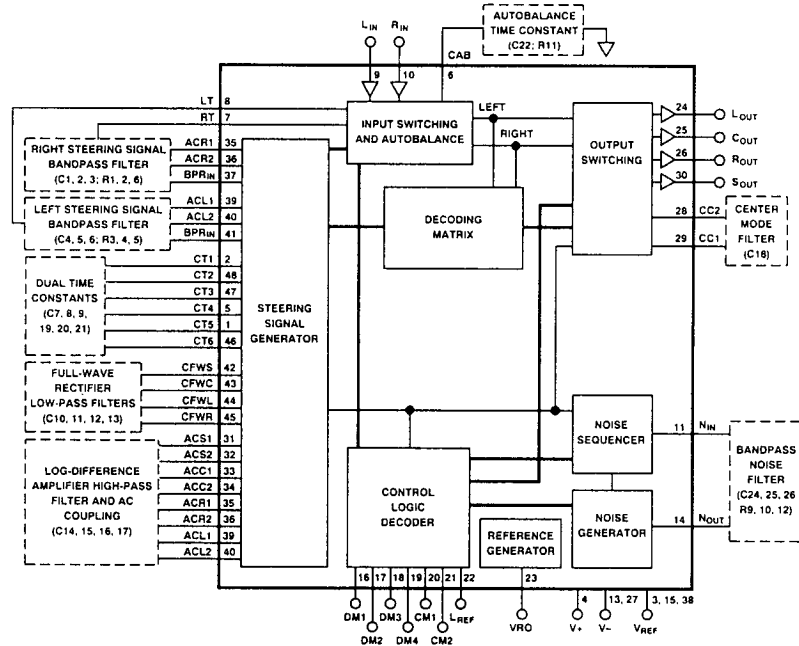
FE901 FE407-G60 (EUROPE VERSION)



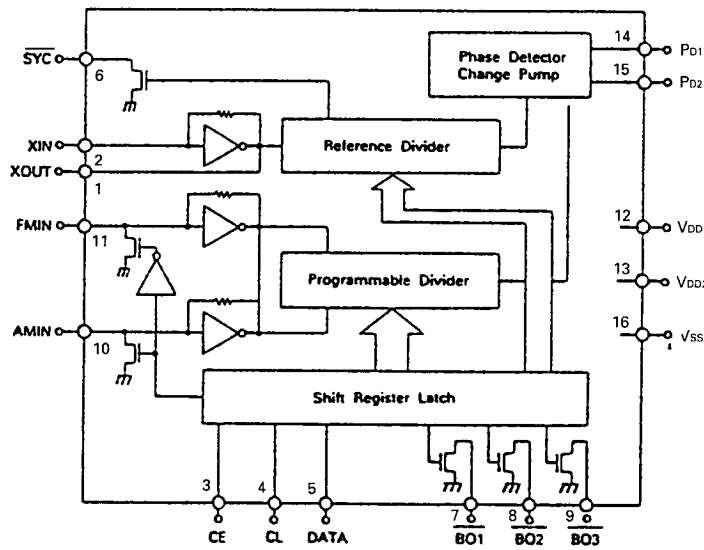
FE901 FE407-A15 (USA/CANADA VERSION)



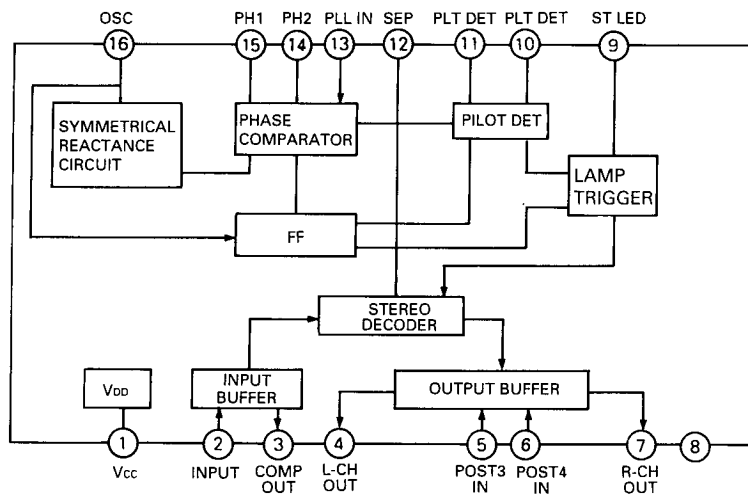
IC201 SSM2126A



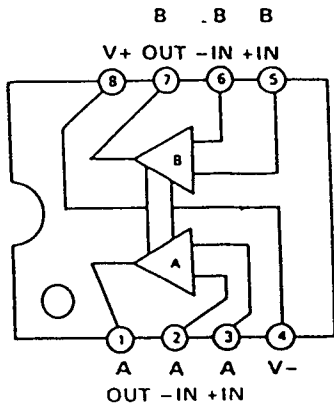
IC901 LM7001



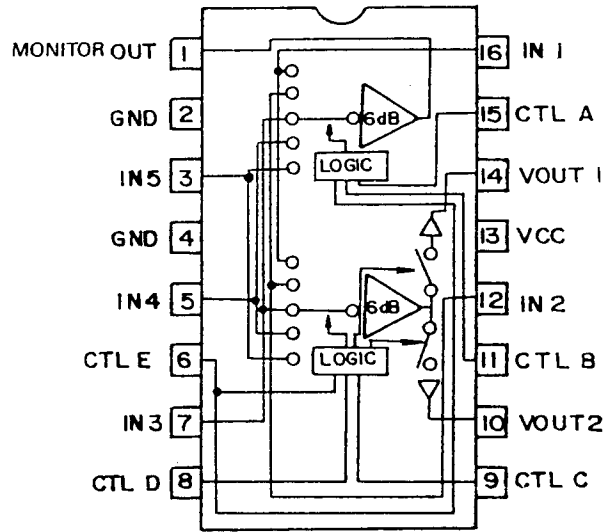
IC903 KA2265



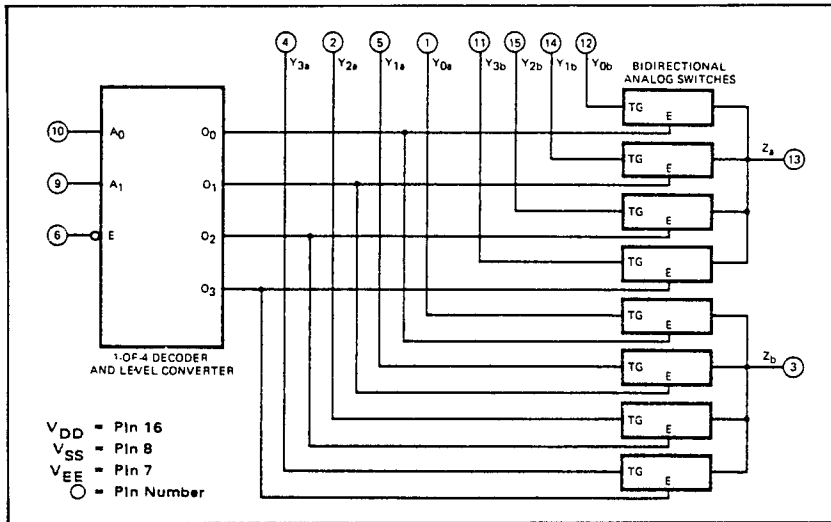
IC106, IC107, IC108, IC401, IC402
 IC501, IC502, IC508, IC509
 KIA4559P/KIA75559P



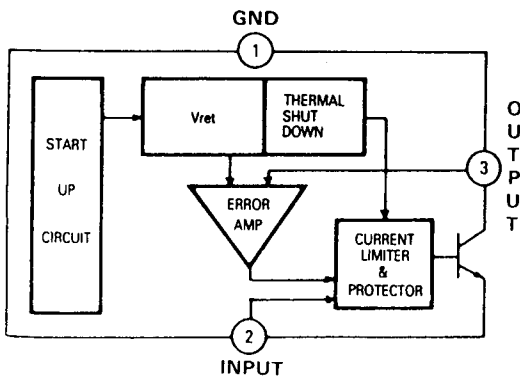
IC104 BA7625



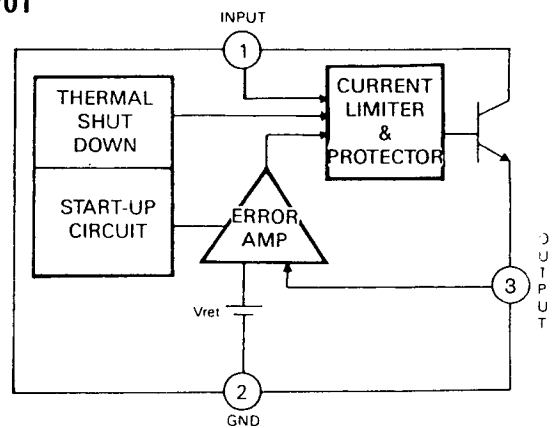
IC103 GD4052B



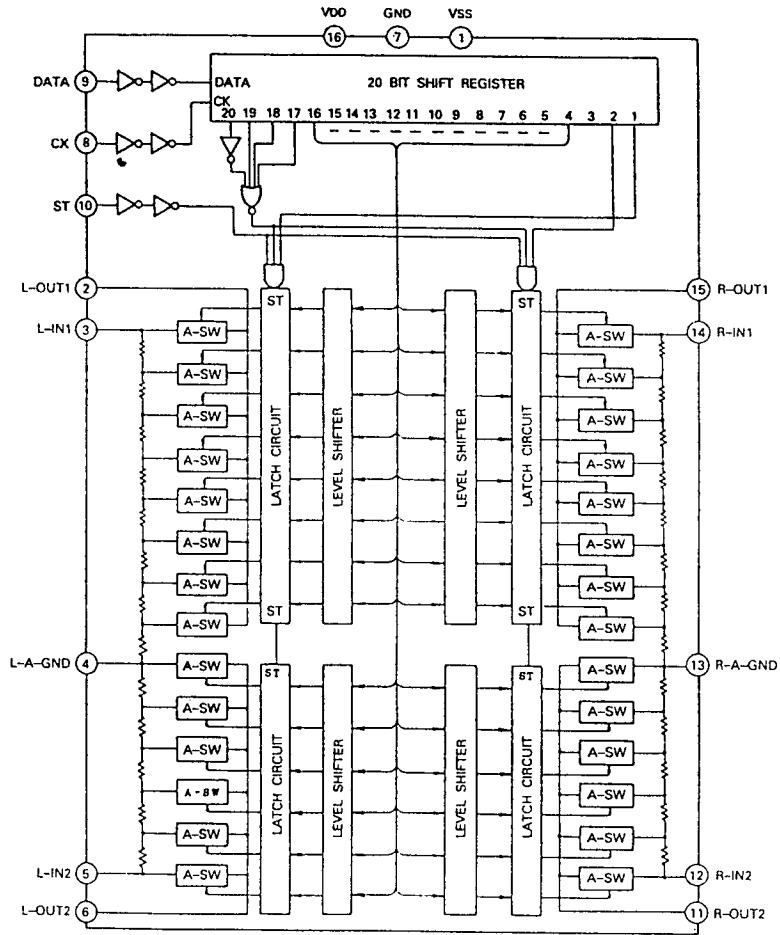
IC243 GL7915



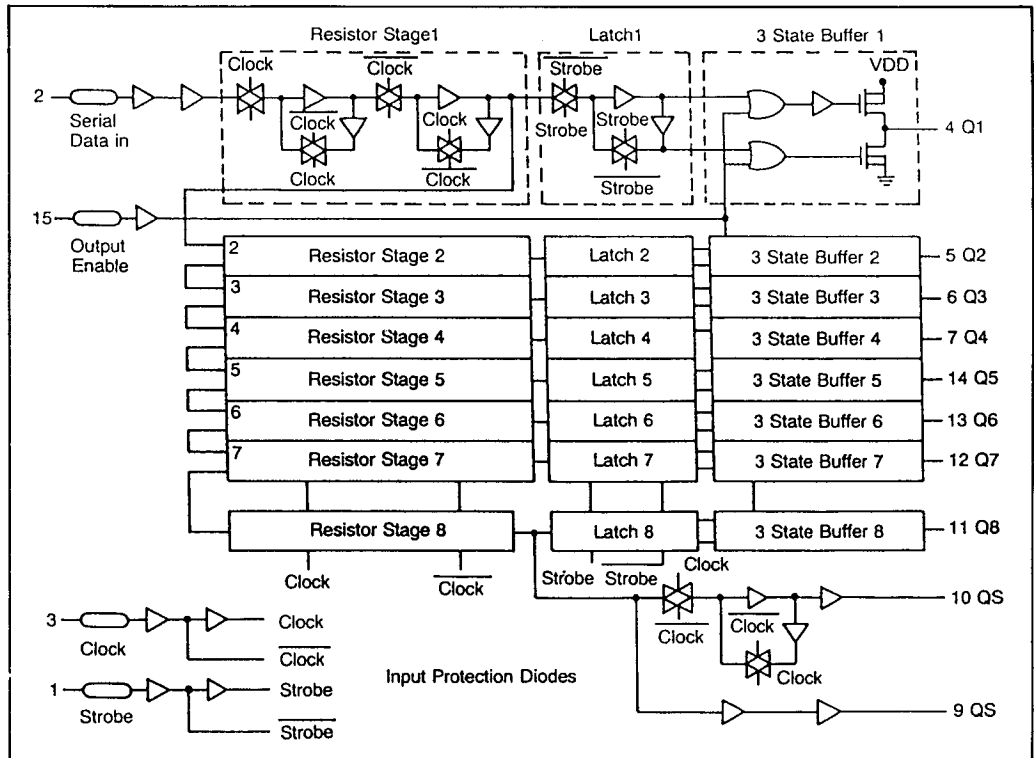
IC241 GL7815
 IC242 GL7006
 IC701



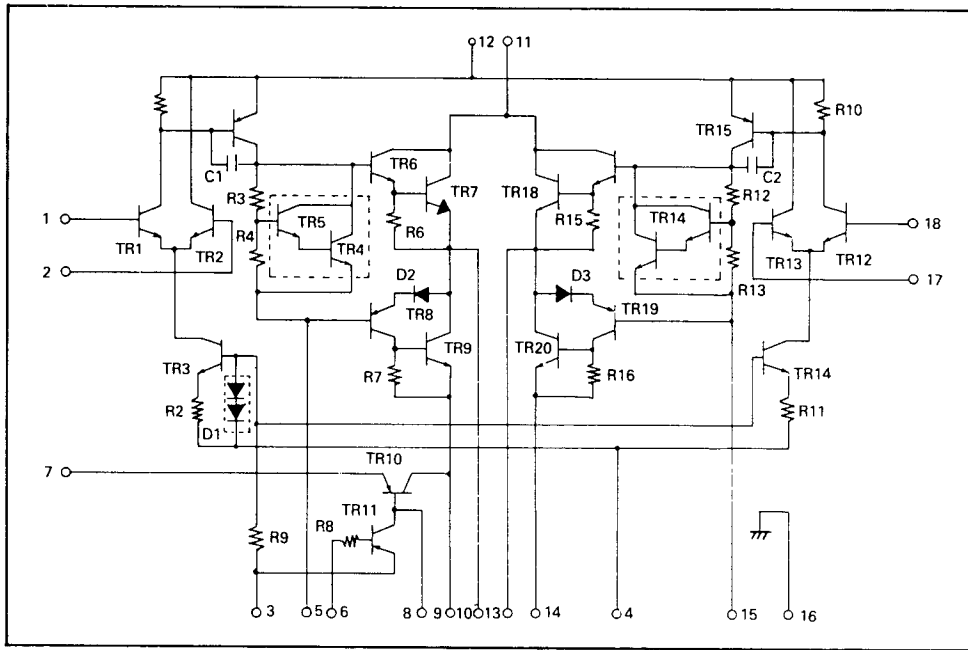
IC507 TC9176P



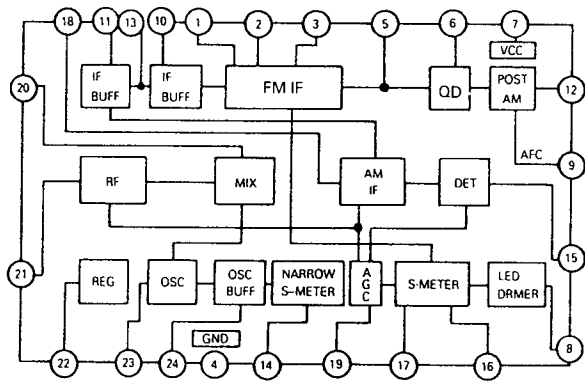
IC105, IC202, IC505 MC14094BCP



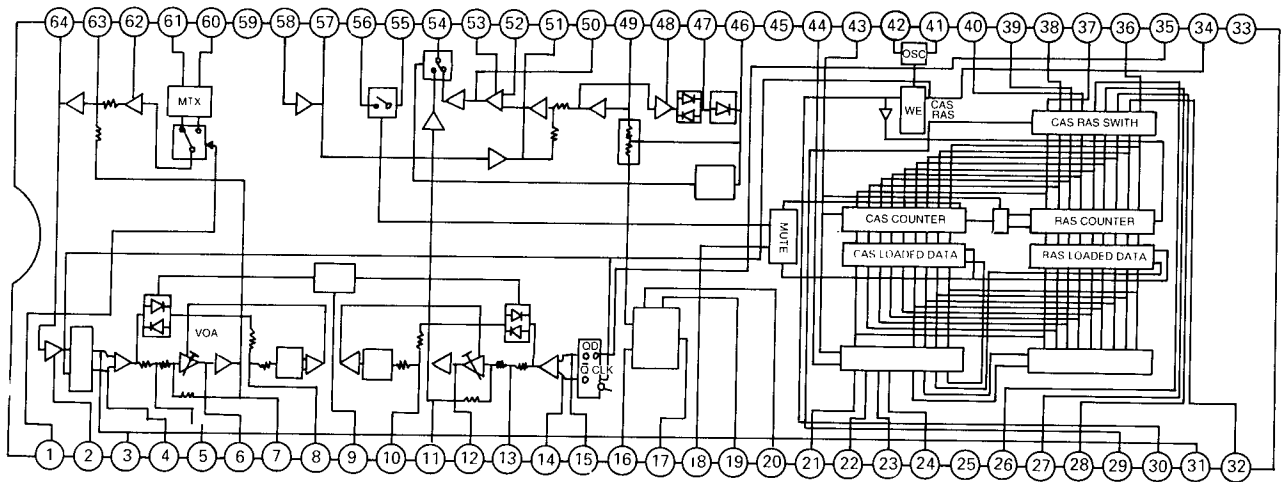
IC601 STK4132II



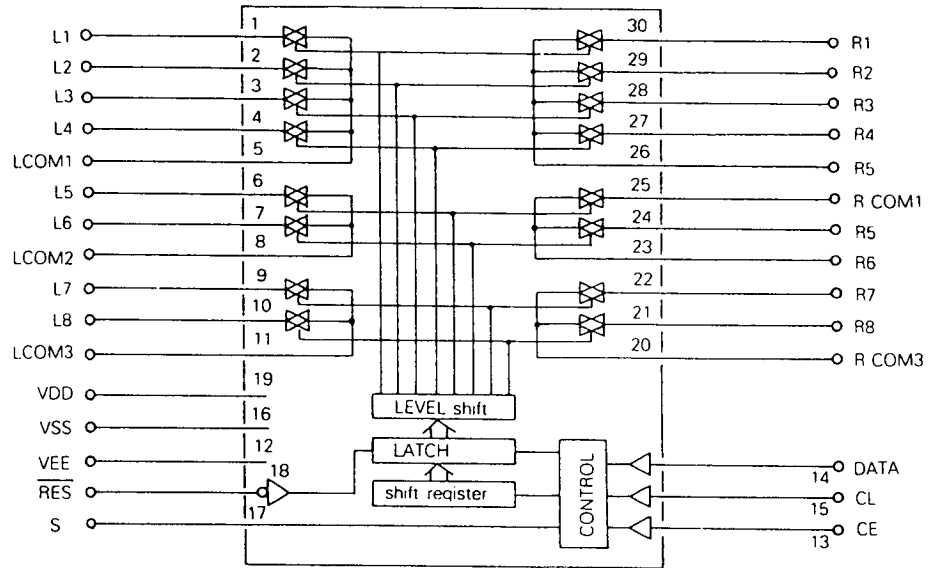
IC902 LA1266



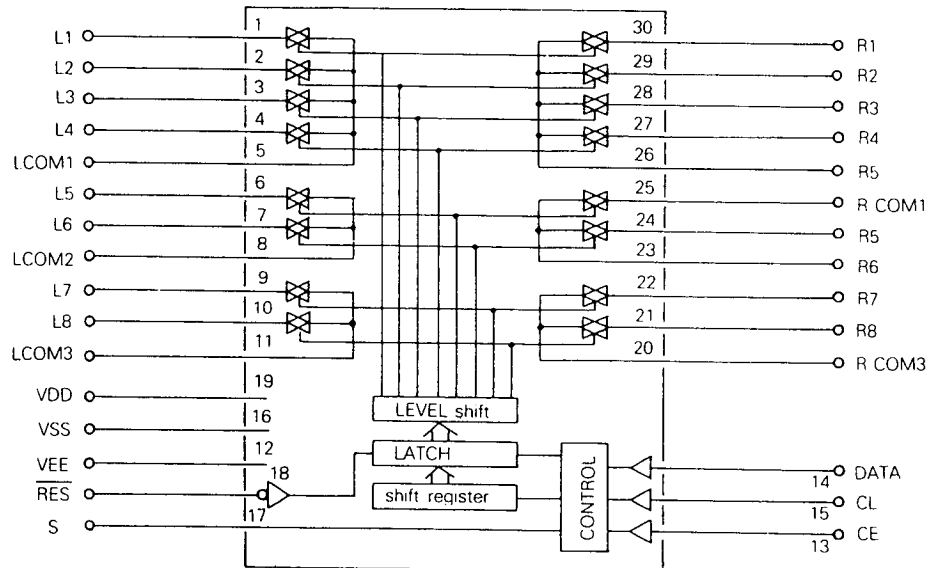
IC503 LV1000NA



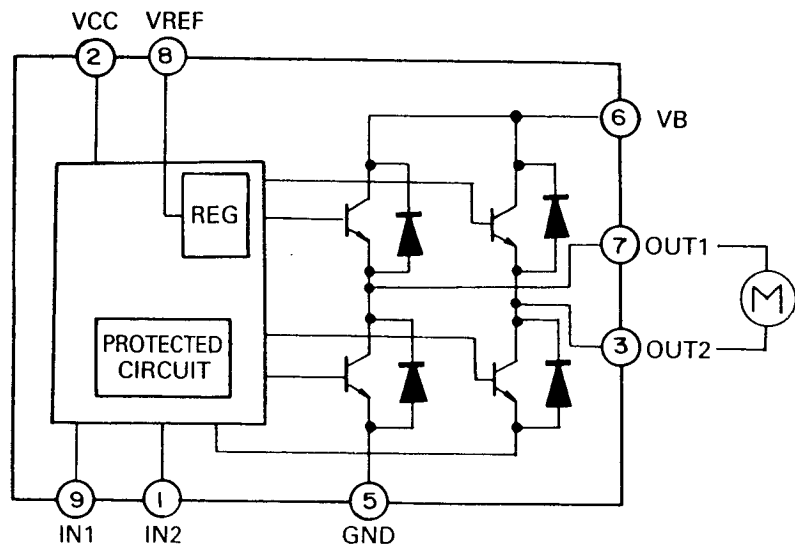
IC101, IC102 LC7821

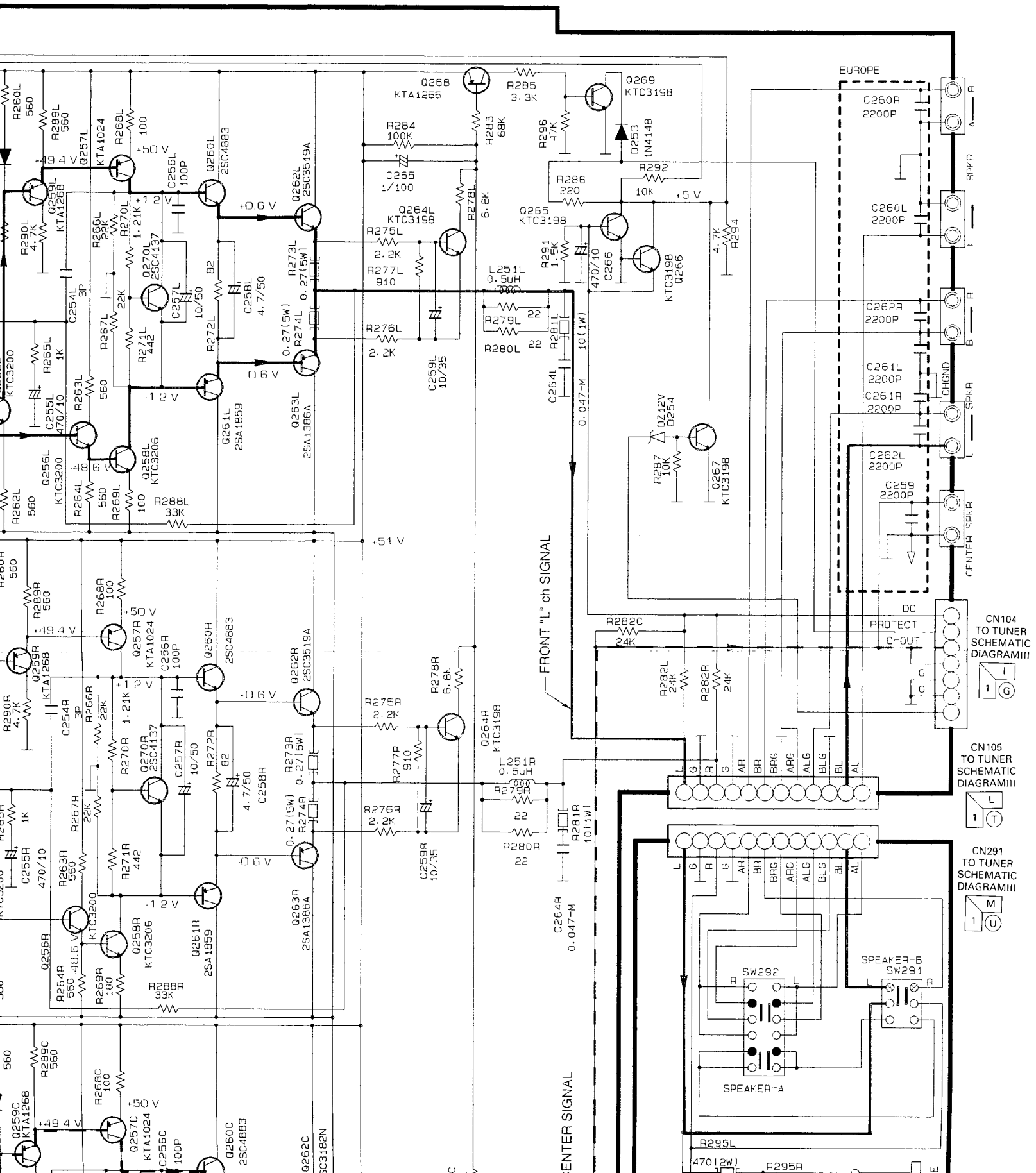


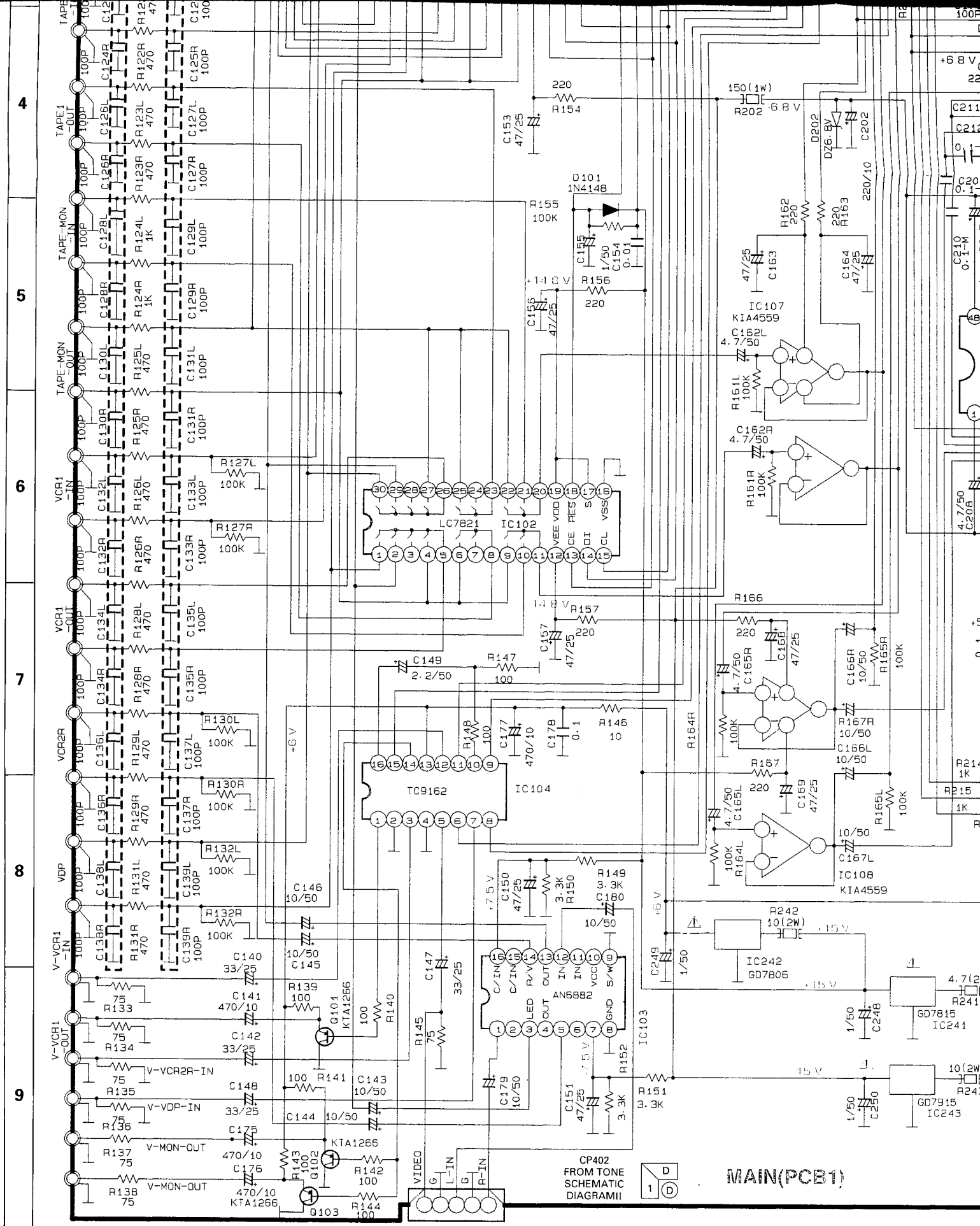
IC109, IC506 LC7822



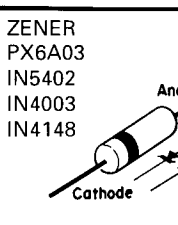
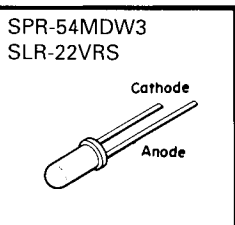
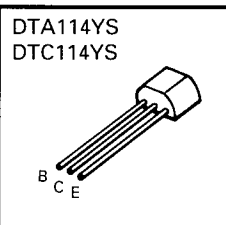
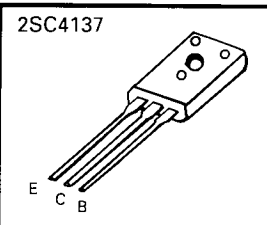
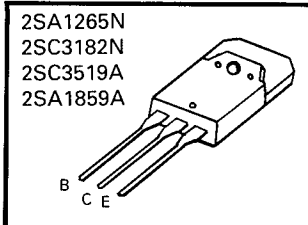
IC301 TA7291S

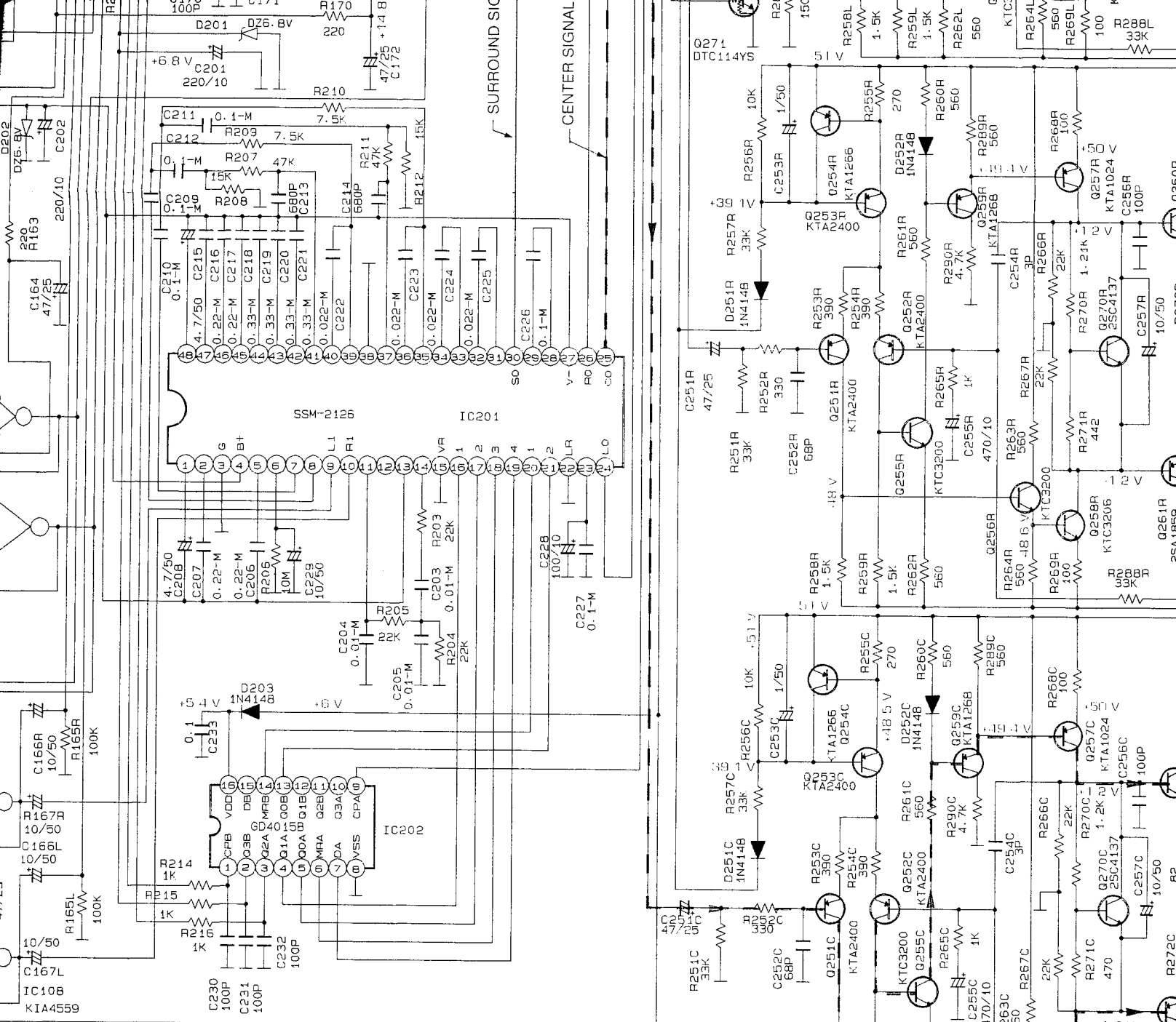






PIN CONNECTION DIAGRAM OF TRANSISTORS AND DIODES



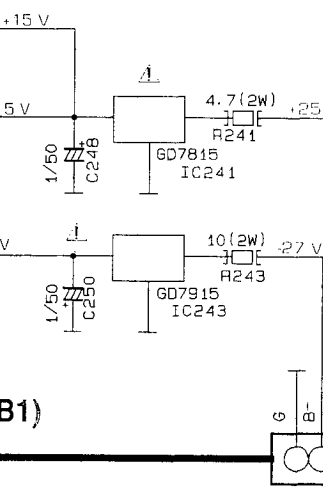


NOTES

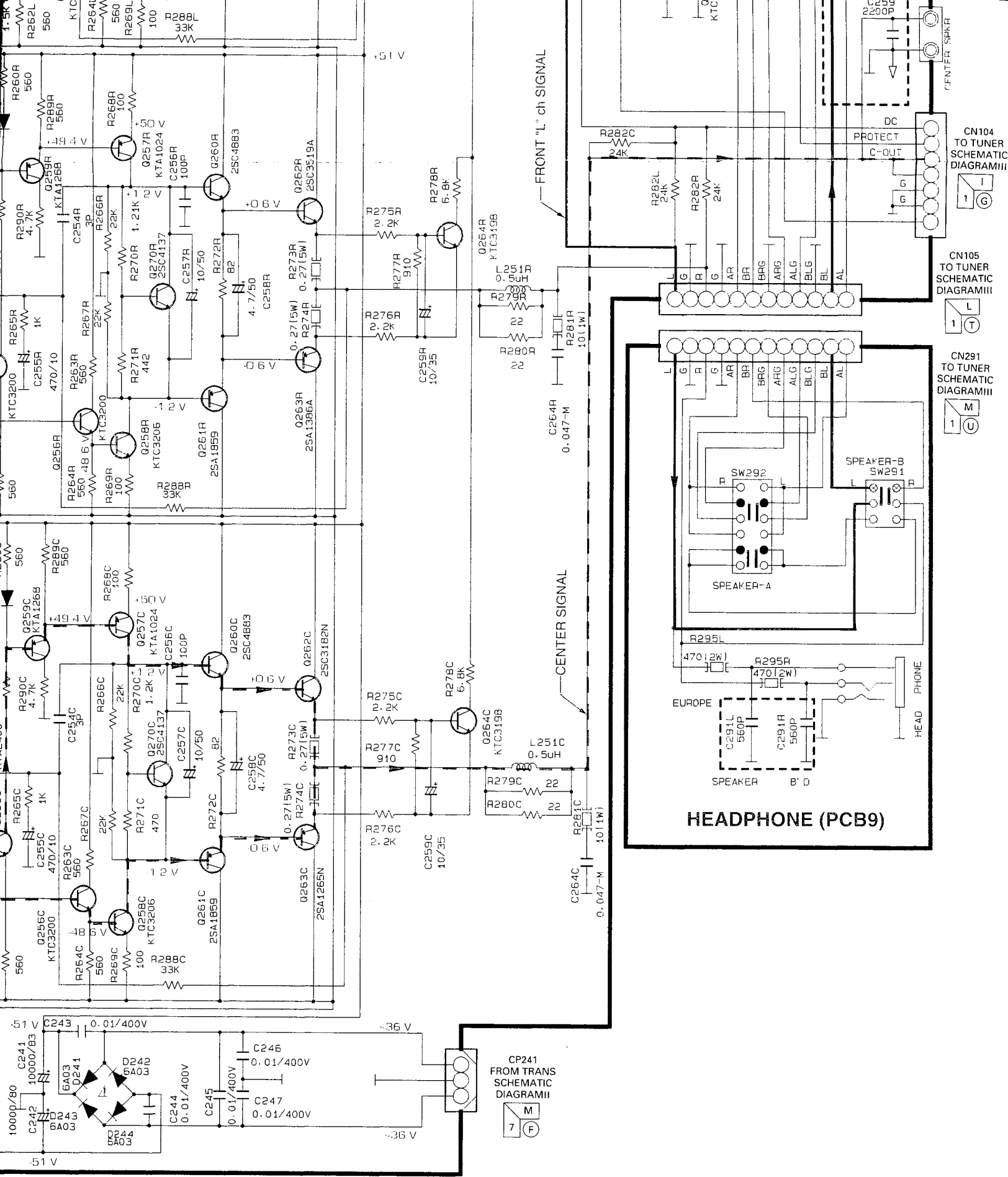
1. Resistor values are indicated in ohms unless otherwise specified.
[K=1,000 M=1,000,000]
2. Capacitor values are indicated in microfarads unless otherwise specified.
[p=micro-microfarades]

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.



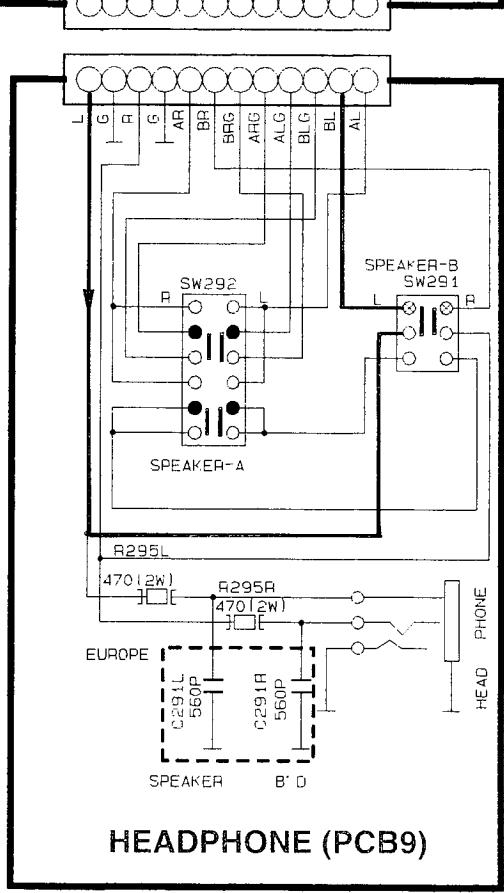
<p>ZENER PX6A03 IN5402 IN4003 IN4148</p>	<p>2SK168</p>	<p>KTA2400 KTD1302 KTC2240/KTC3200 KTC3198/KTC1815 KTC1923/KTC3194 KTA1266/KTA1015Y</p>	<p>KV1236Z</p>	<p>2SA1386A 2SC4883A</p>	<p>KTC2229/KTC3200 KTA949/KTA1024</p>
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CN104 TO TUNER SCHEMATIC DIAGRAM III

CN105 TO TUNER SCHEMATIC DIAGRAM III

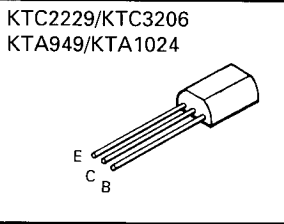
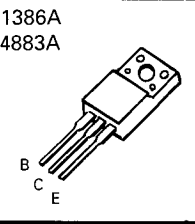
CN291 TO TUNER SCHEMATIC DIAGRAM III



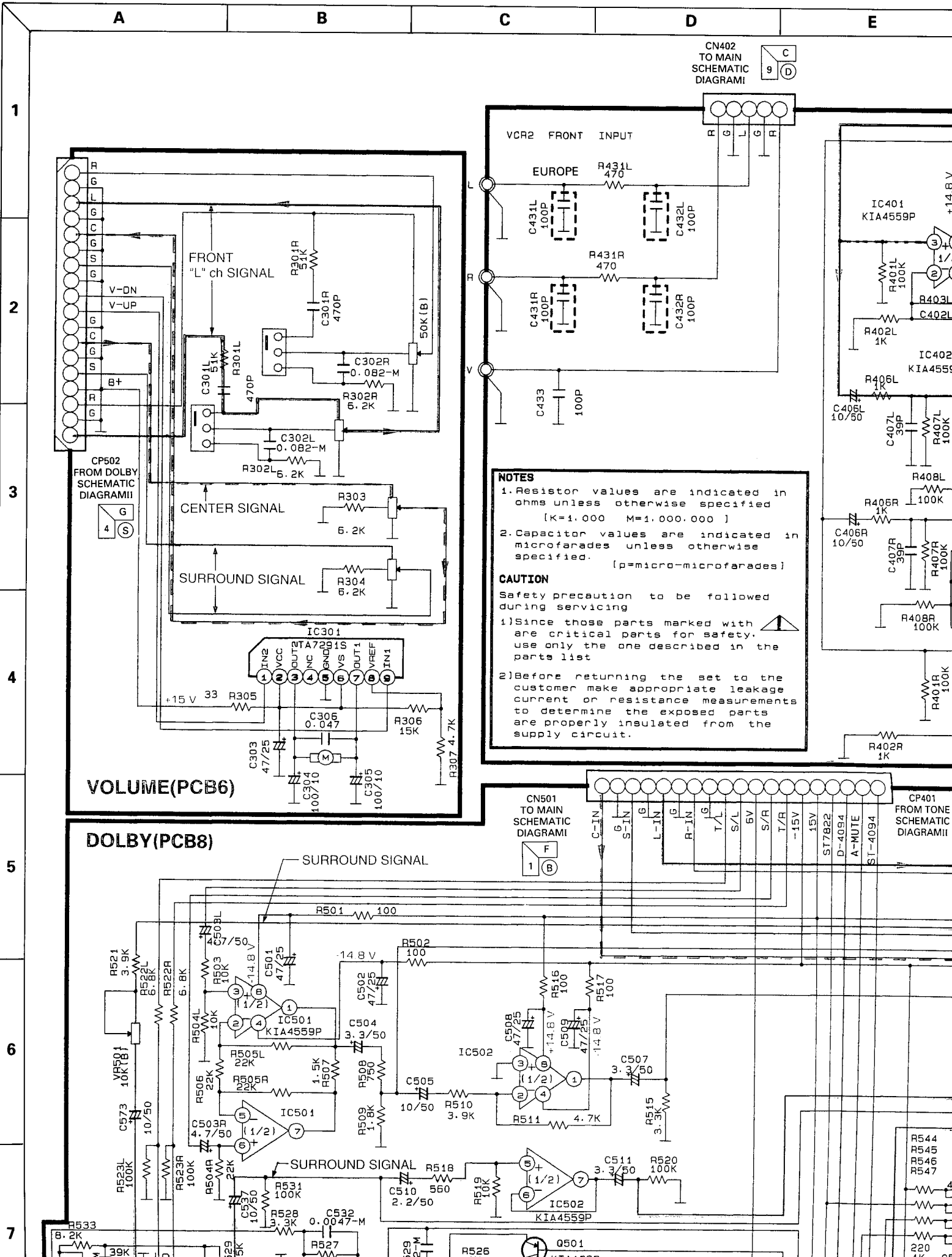
HEADPHONE (PCB9)

CP241 FROM TRANS SCHEMATIC DIAGRAM III

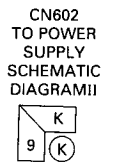
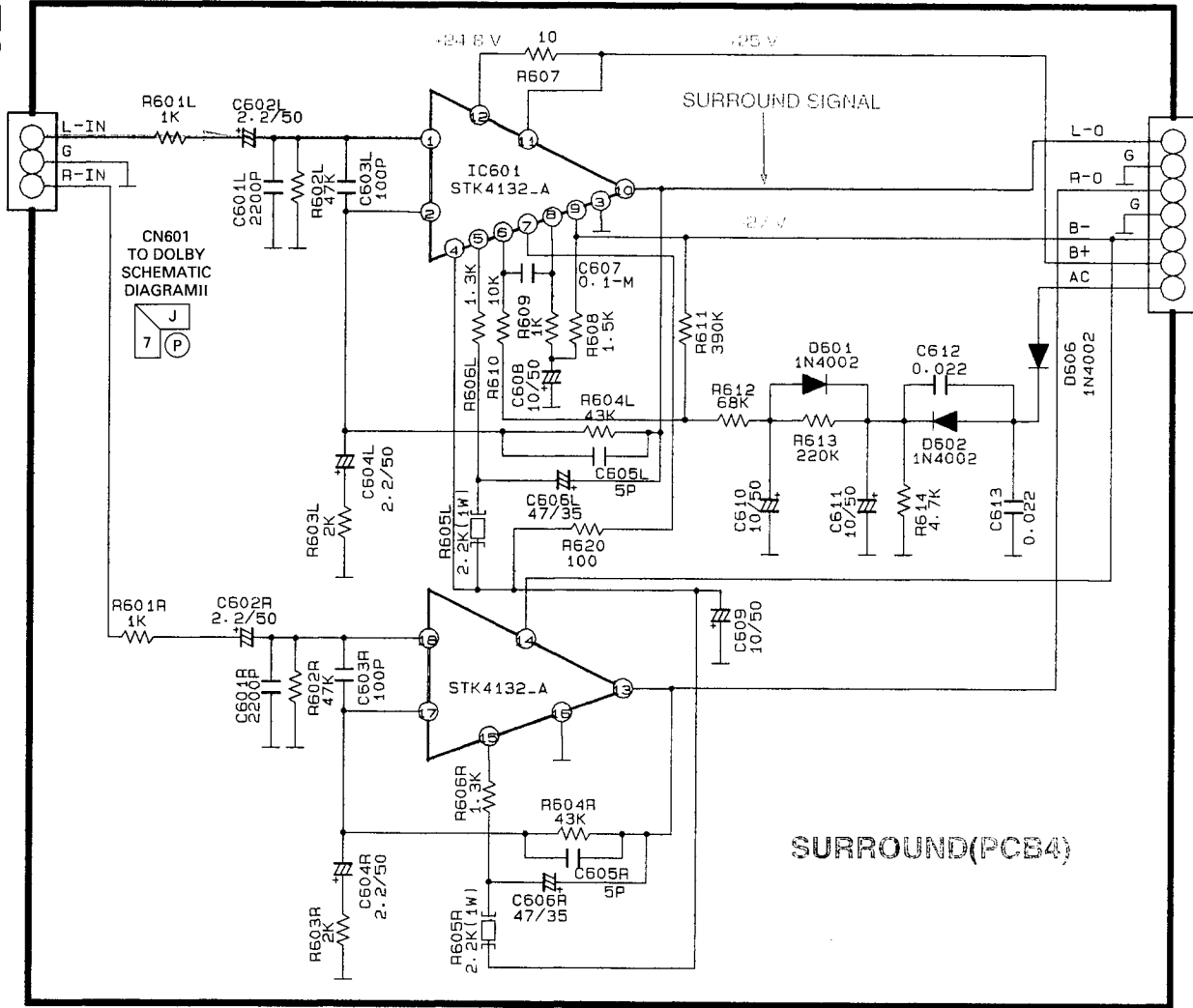
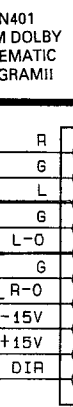
- FRONT "L" ch SIGNAL
- SURROUND SIGNAL
- - - CENTER SIGNAL



SCHEMATIC DIAGRAMS II

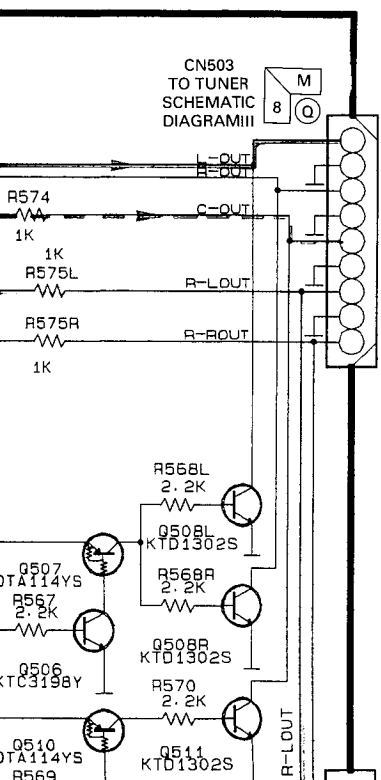


I J K L M

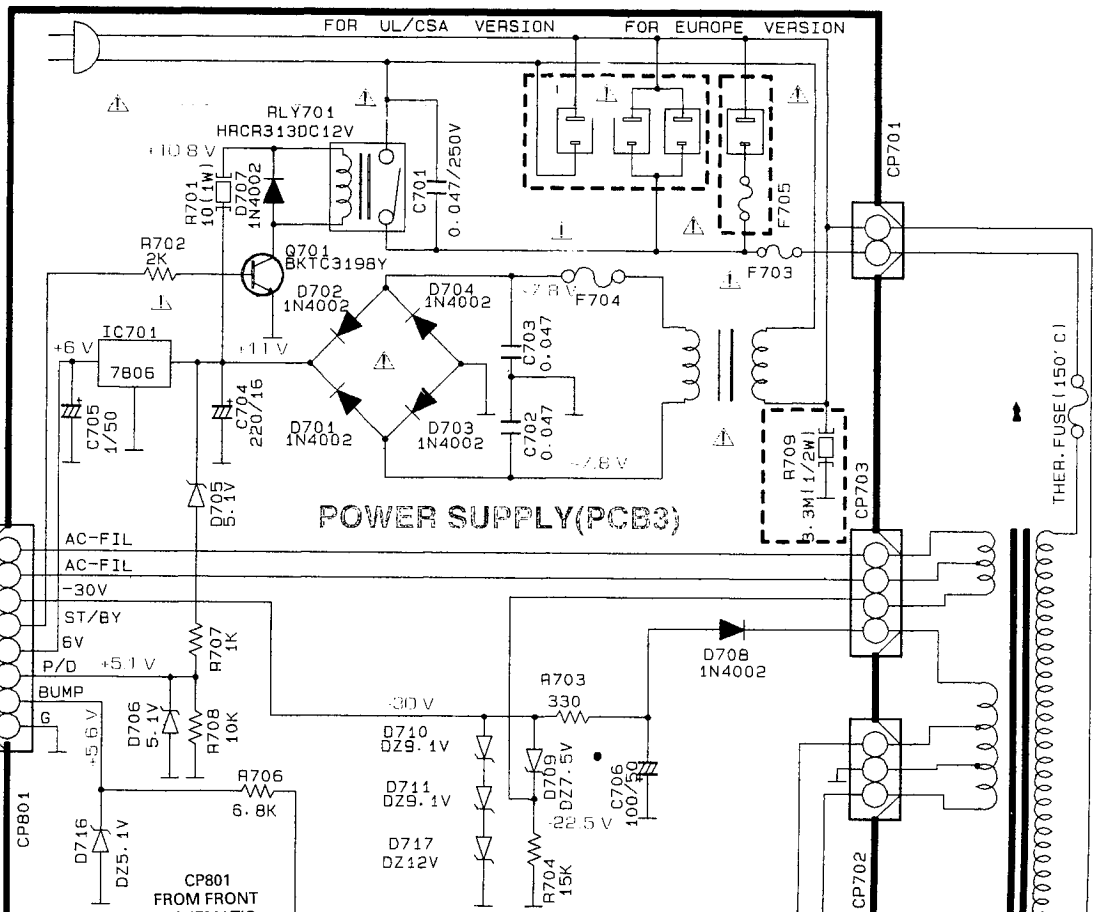


CN602 TO POWER SUPPLY SCHEMATIC DIAGRAM II

VERSION	INPUT
UL/CSA	AC120V/60Hz
EUROPE	AC230V/50Hz



CN503 TO TUNER SCHEMATIC DIAGRAM III



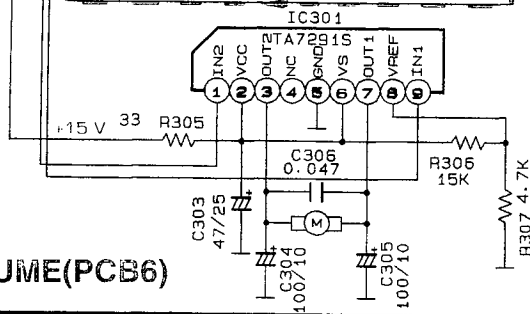
POWER SUPPLY (PCB3)

FOR UL/CSA VERSION FOR EUROPE VERSION


THER. FUSE (150° C.)

4

VOLUME(PCB6)



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.

5

DOLBY(PCB8)

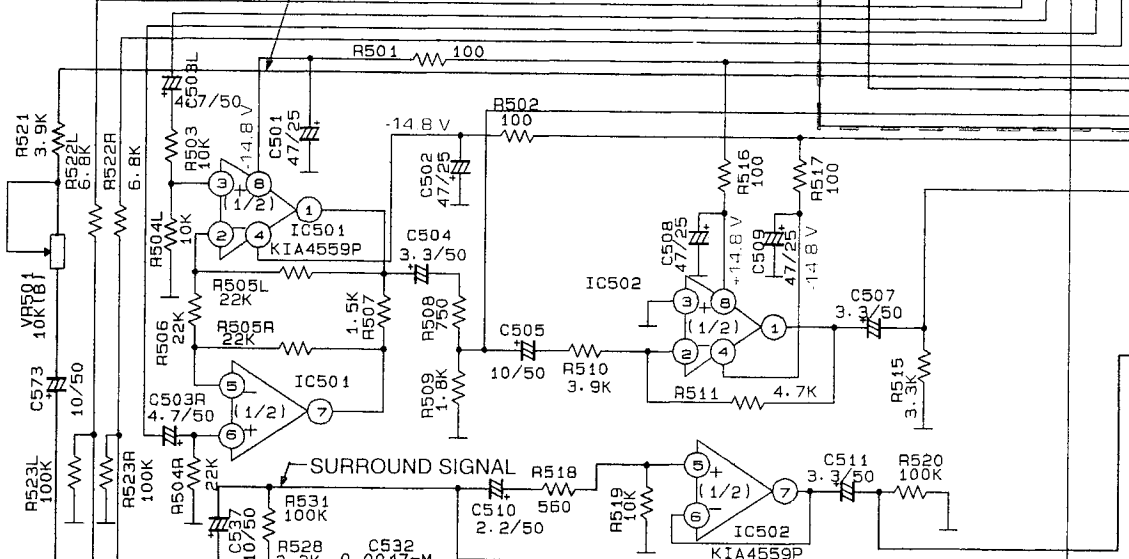
SURROUND SIGNAL

CN501
TO MAIN
SCHEMATIC
DIAGRAM I



CP401
FROM TONE
SCHEMATIC
DIAGRAM II

6



7

SURROUND SIGNAL

Q501
KTA1266

X-TAL501
8MHZ


8

IC503
LV-1000

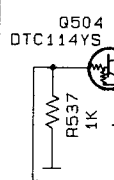
IC504
256KD-RAM




IC505
MC14094

CP802
FROM FRONT
SCHEMATIC
DIAGRAM III

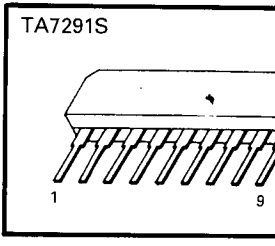


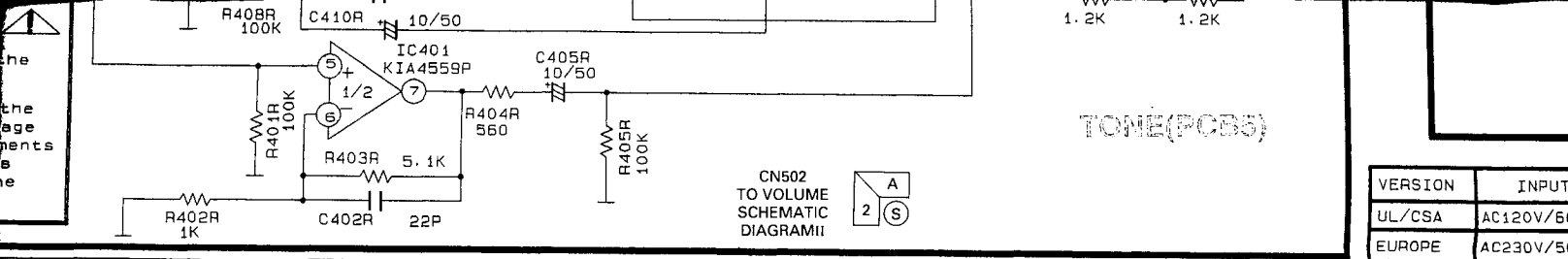
9



-  FRONT "L"ch SIGNAL
-  SURROUND SIGNAL
-  CENTER SIGNAL

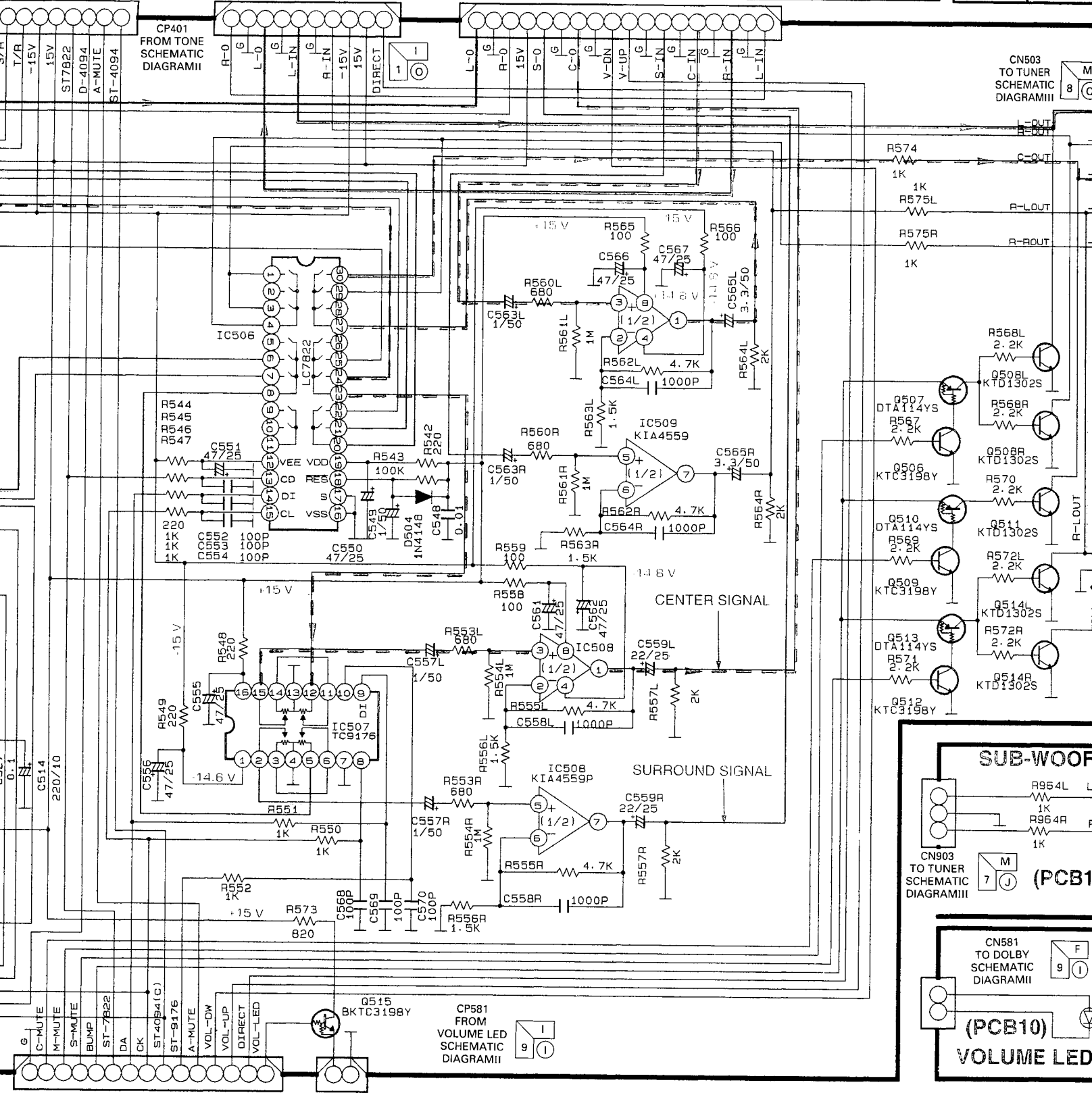
PIN CONNECTION DIAG



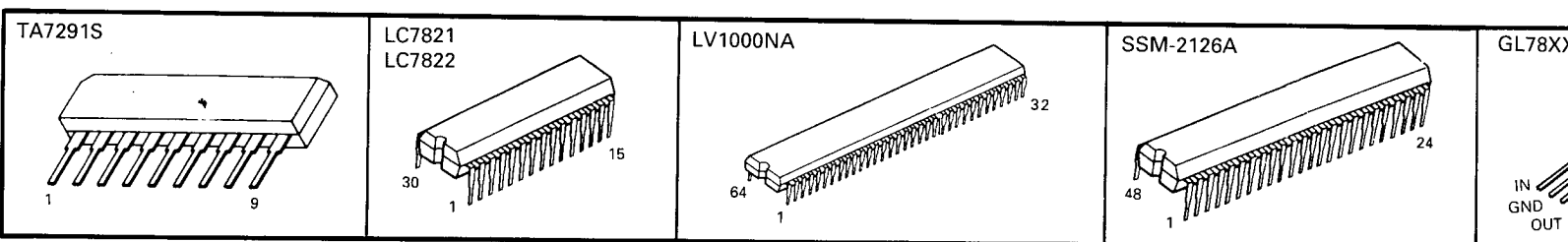


TONE(PCB5)

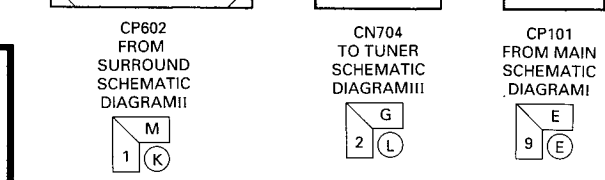
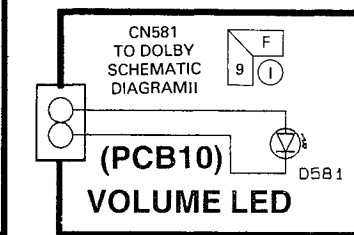
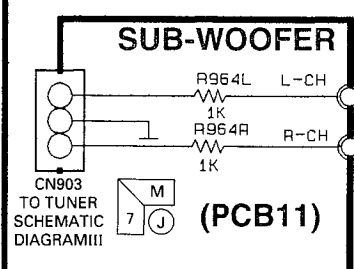
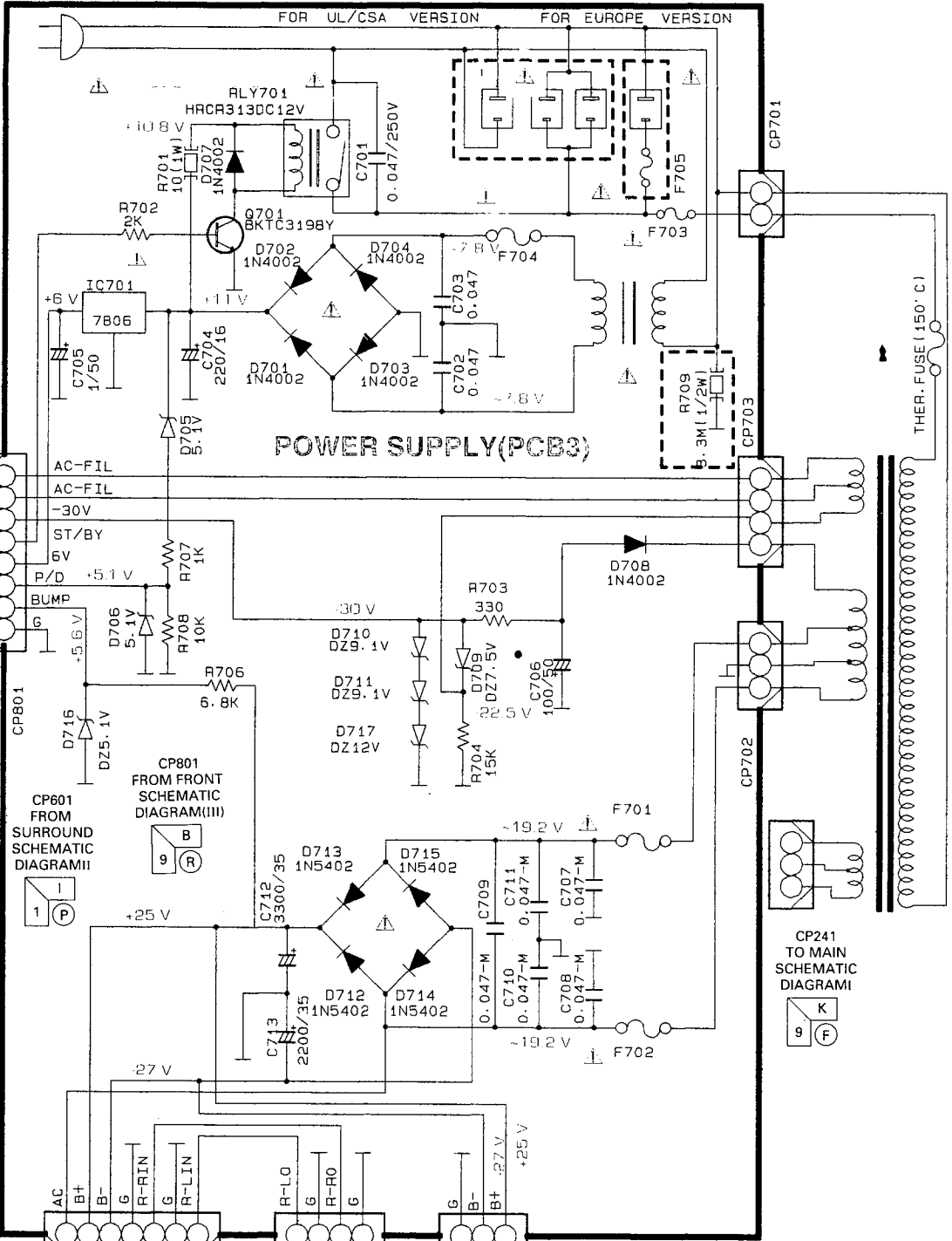
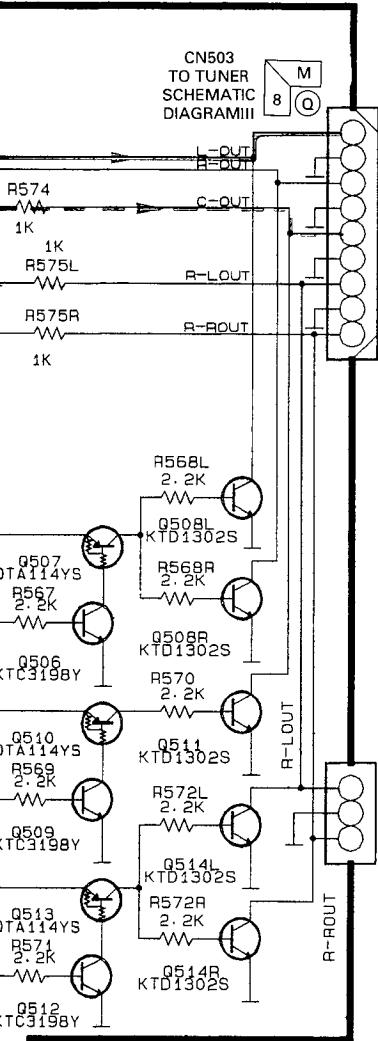
VERSION	INPUT
UL/CSA	AC120V/60
EUROPE	AC230V/50



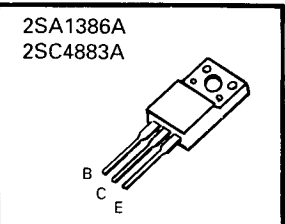
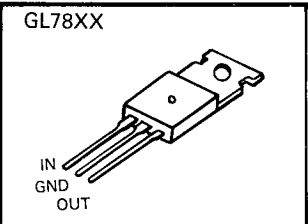
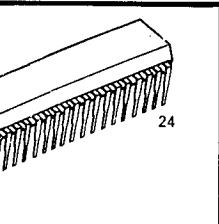
PIN CONNECTION DIAGRAM OF ICs.



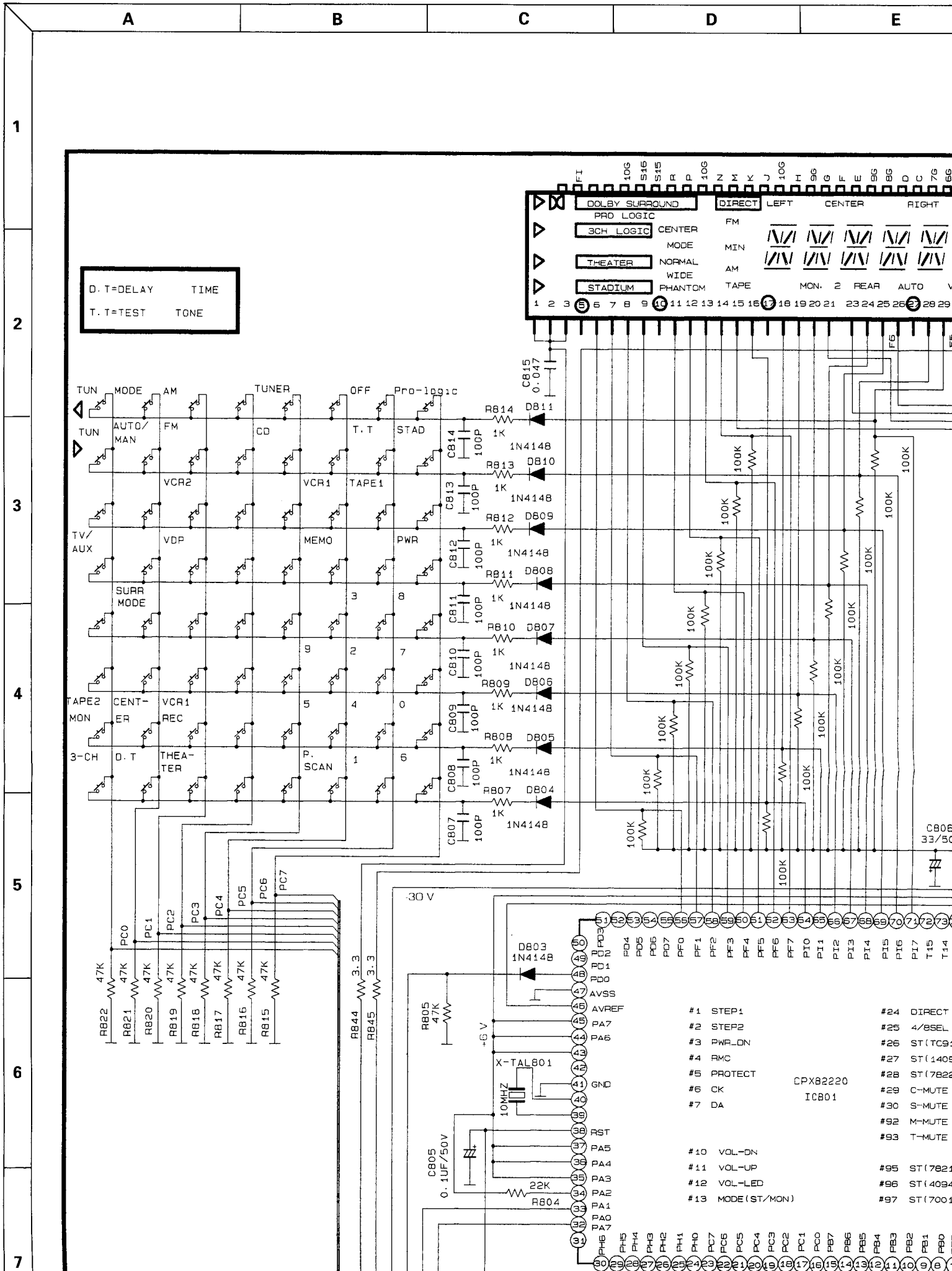
VERSION	INPUT
UL/CSA	AC120V/60Hz
EUROPE	AC230V/50Hz



NO	VERSION	USA/CANADA	EUROPE
F701, F702		SB4A/125V	T4A/250V
F703		SB6A/125V	T4A/250V
F704		NB315mA/125V	T500mA/250V
F705		-	T2.5A/250V
R708		3.3M (1/2W)	-



SCHEMATIC DIAGRAMS III



E

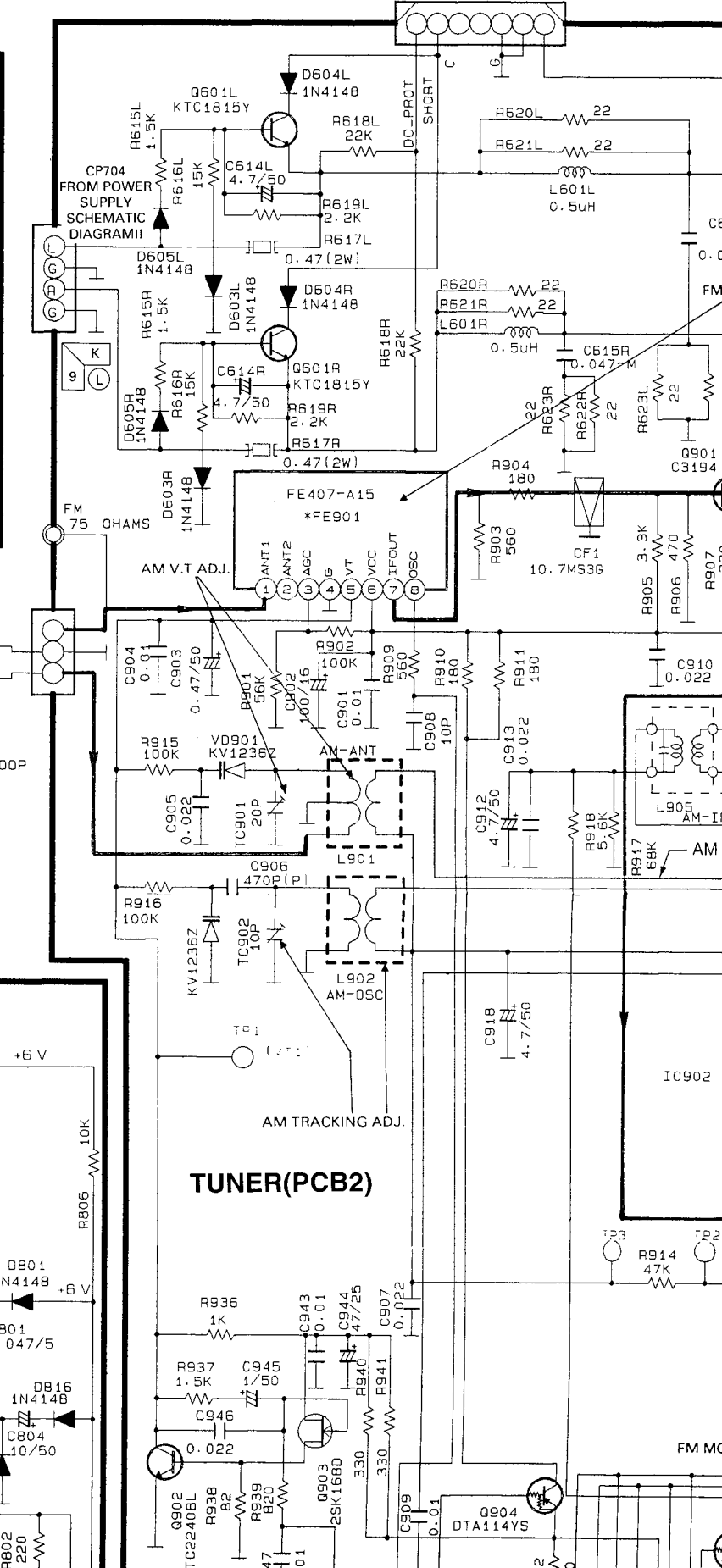
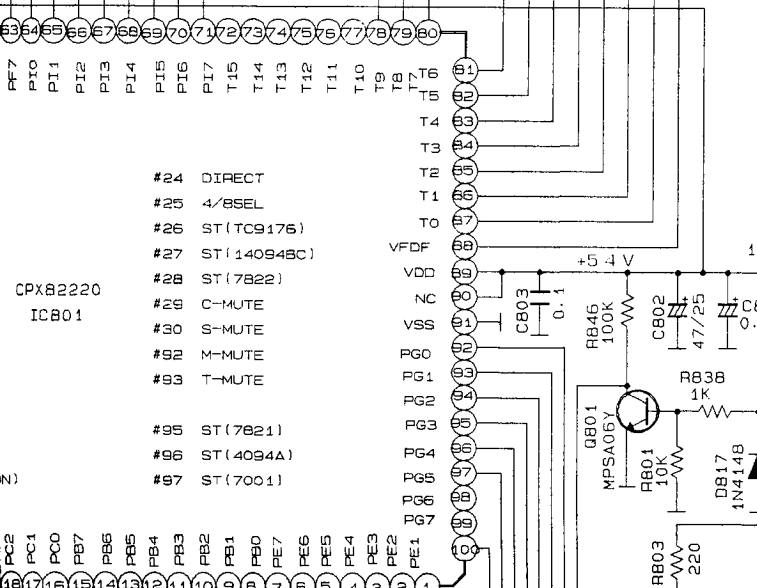
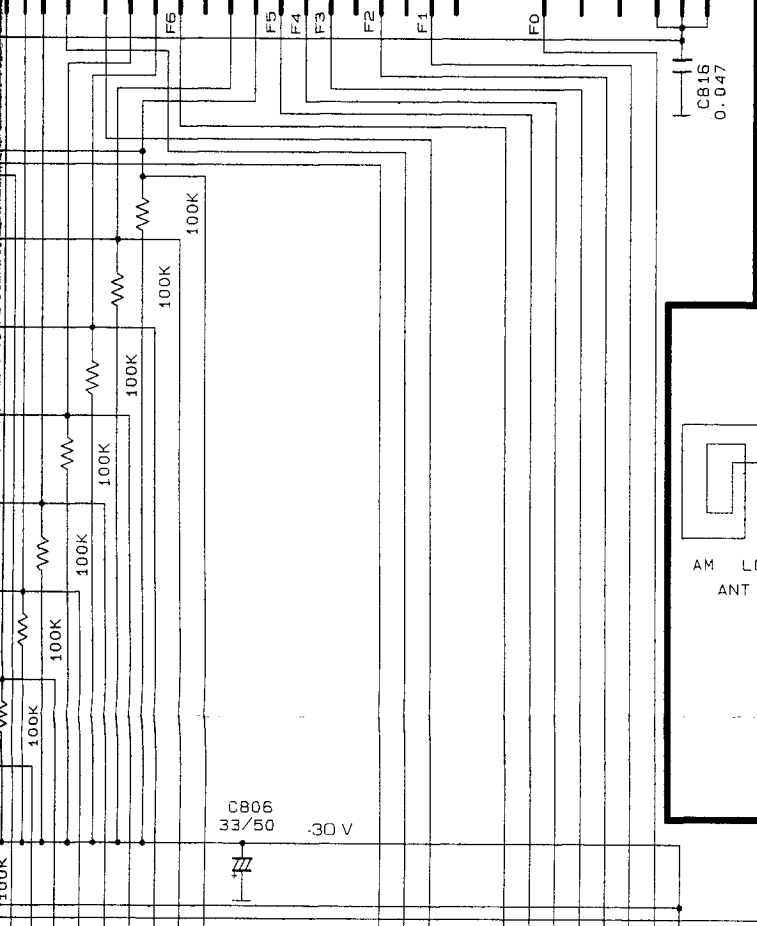
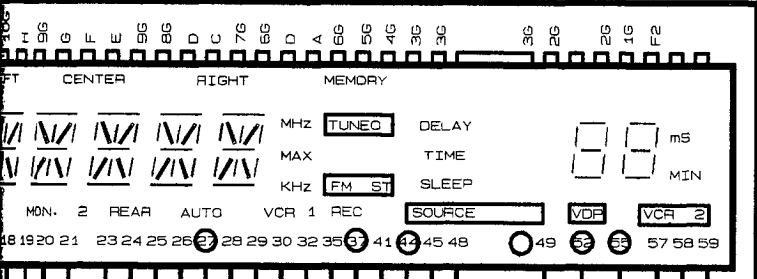
F

G

H

I

CP104 FROM MAIN SCHEMATIC DIAGRAM!

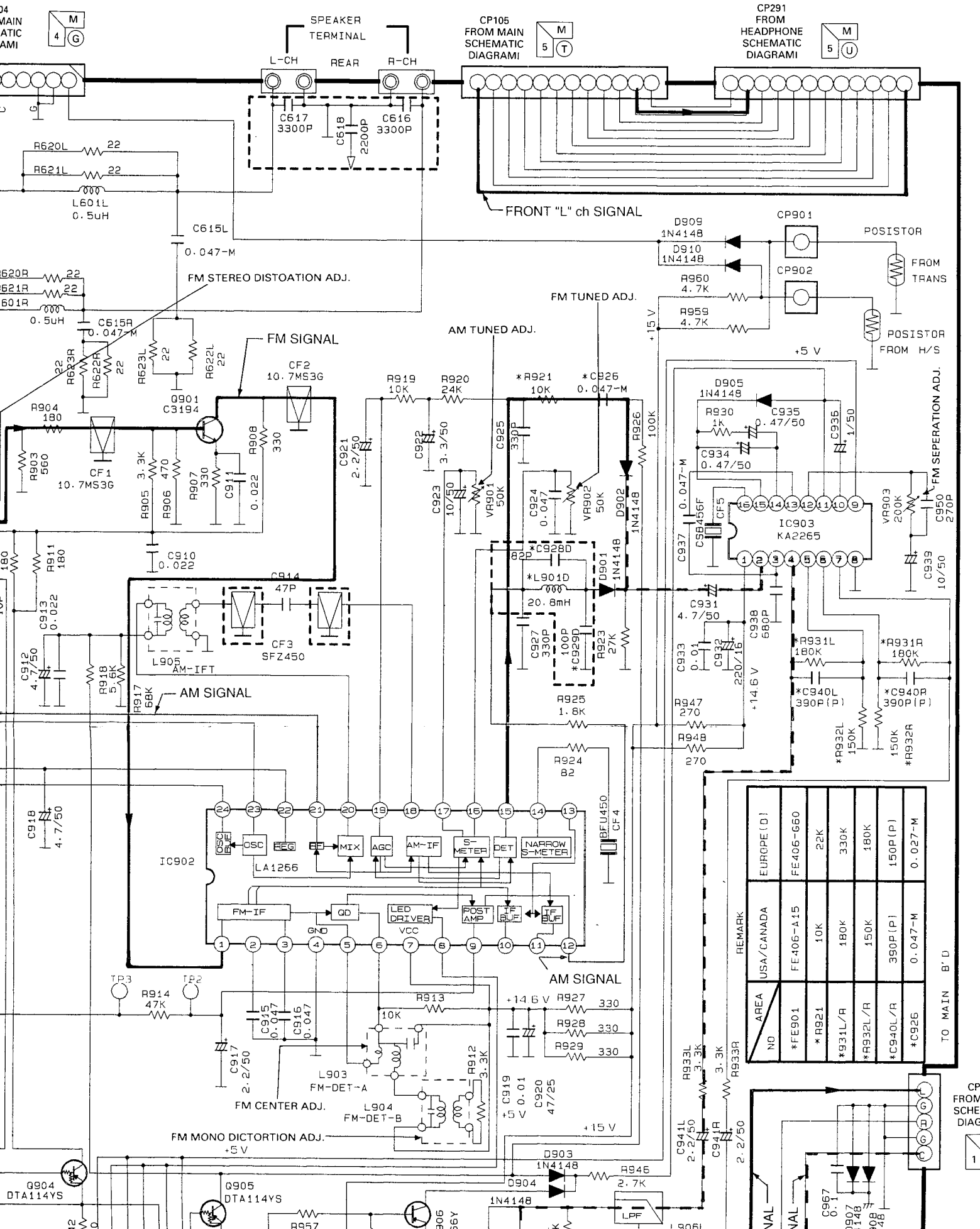


- #24 DIRECT
- #25 4/8SEL
- #26 ST(7C9176)
- #27 ST(14094BC)
- #28 ST(7822)
- #29 C-MUTE
- #30 S-MUTE
- #32 M-MUTE
- #33 T-MUTE
- #95 ST(7821)
- #96 ST(4094A)
- #97 ST(7001)

CPXB2220 IC801

IC902

FM MO

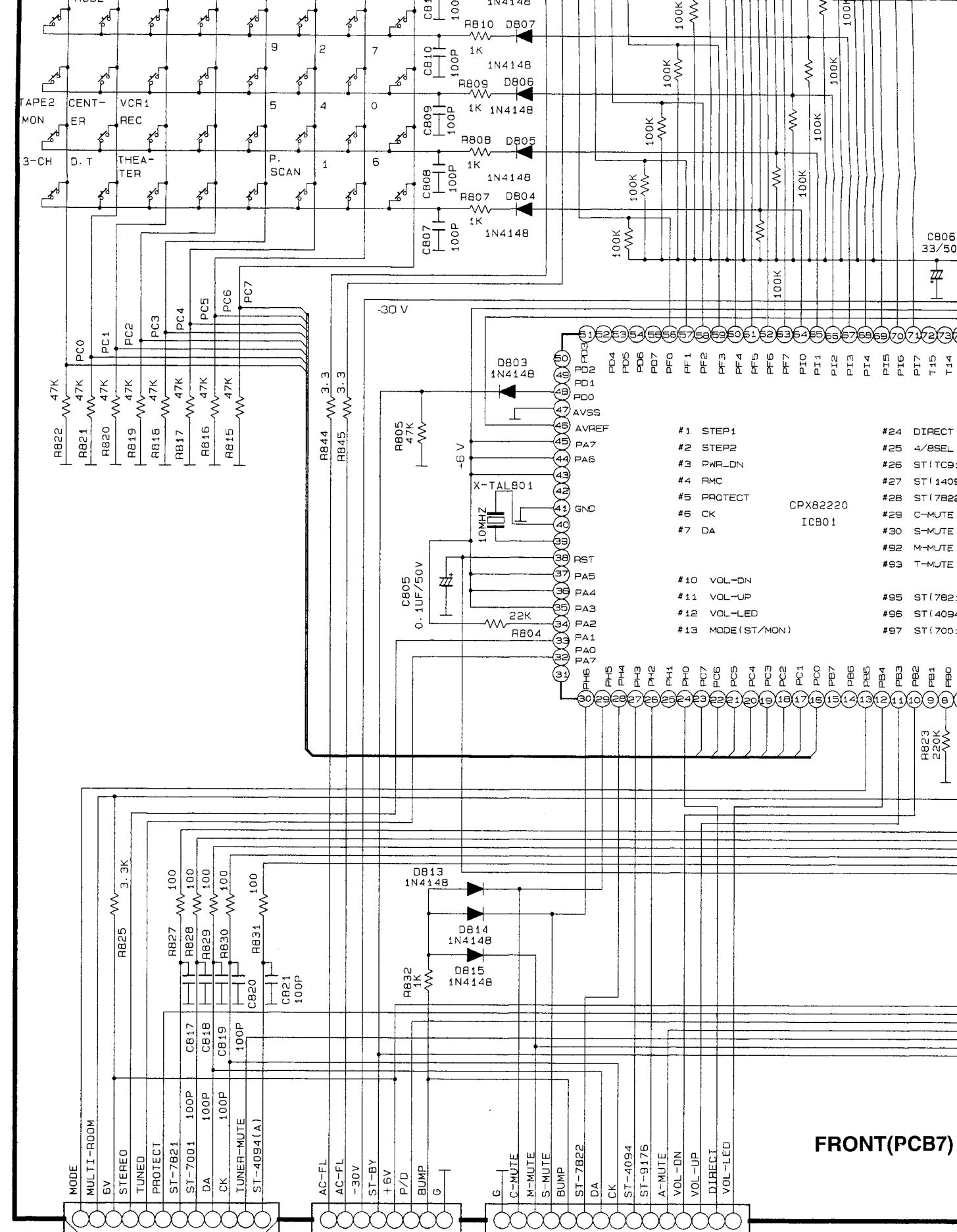


CP103 FROM MAIN SCHEMATIC DIAGRAM

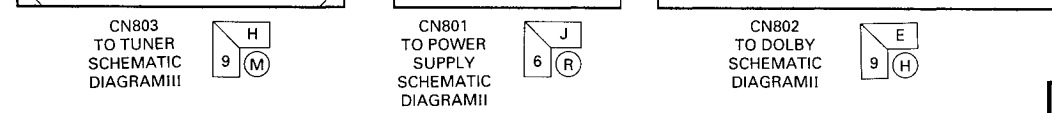
AREA	REMARK	USA/CANADA	EUROPE (D)
ND			
*FE901		FE406-A15	FE406-660
*R921		10K	22K
*R931L/R		180K	330K
*R932L/R		150K	180K
*C940L/R		390P(P)	150P(P)
*C926		0.047-M	0.027-M

TO MAIN B'D

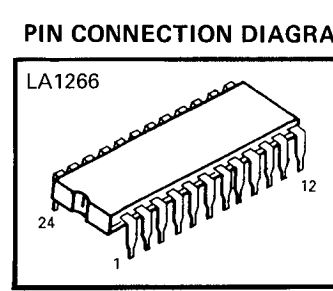
4
5
6
7
8
9

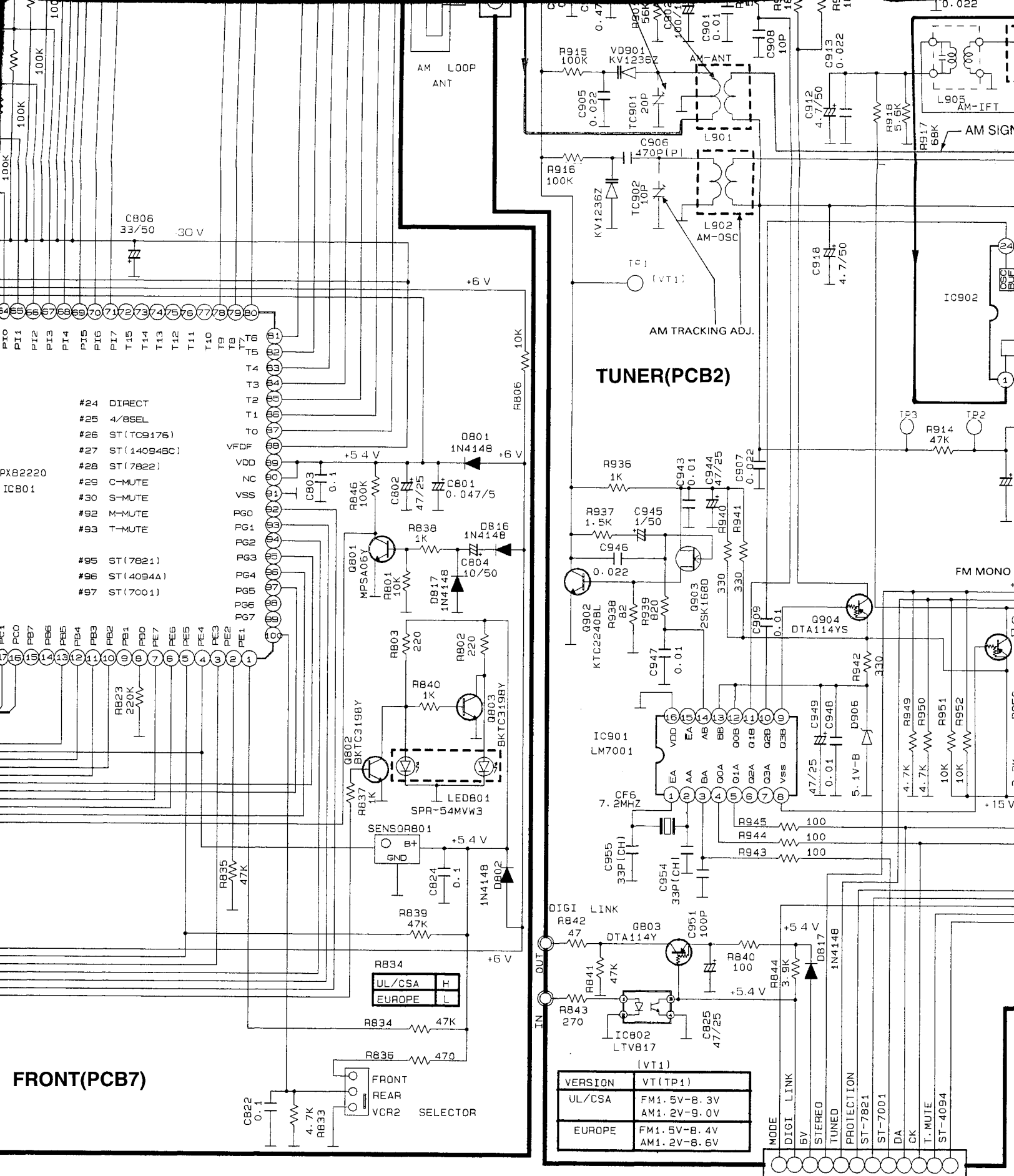


- #1 STEP1
- #2 STEP2
- #3 PWR_DN
- #4 RMC
- #5 PROTECT
- #6 CK
- #7 DA
- #10 VOL-DN
- #11 VOL-UP
- #12 VOL-LED
- #13 MODE(ST/MON)
- #24 DIRECT
- #25 4/8SEL
- #26 ST(1TC9)
- #27 ST(1409)
- #28 ST(782)
- #29 C-MUTE
- #30 S-MUTE
- #92 M-MUTE
- #93 T-MUTE
- #95 ST(782)
- #96 ST(409)
- #97 ST(700)



FRONT(PCB7)



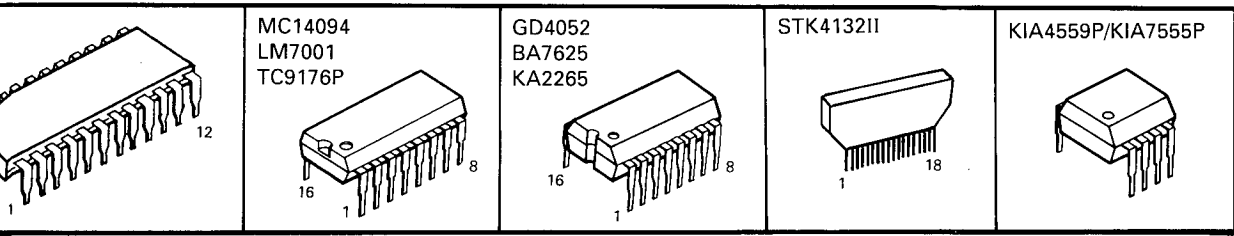


FRONT(PCB7)

TUNER(PCB2)

FM MONO

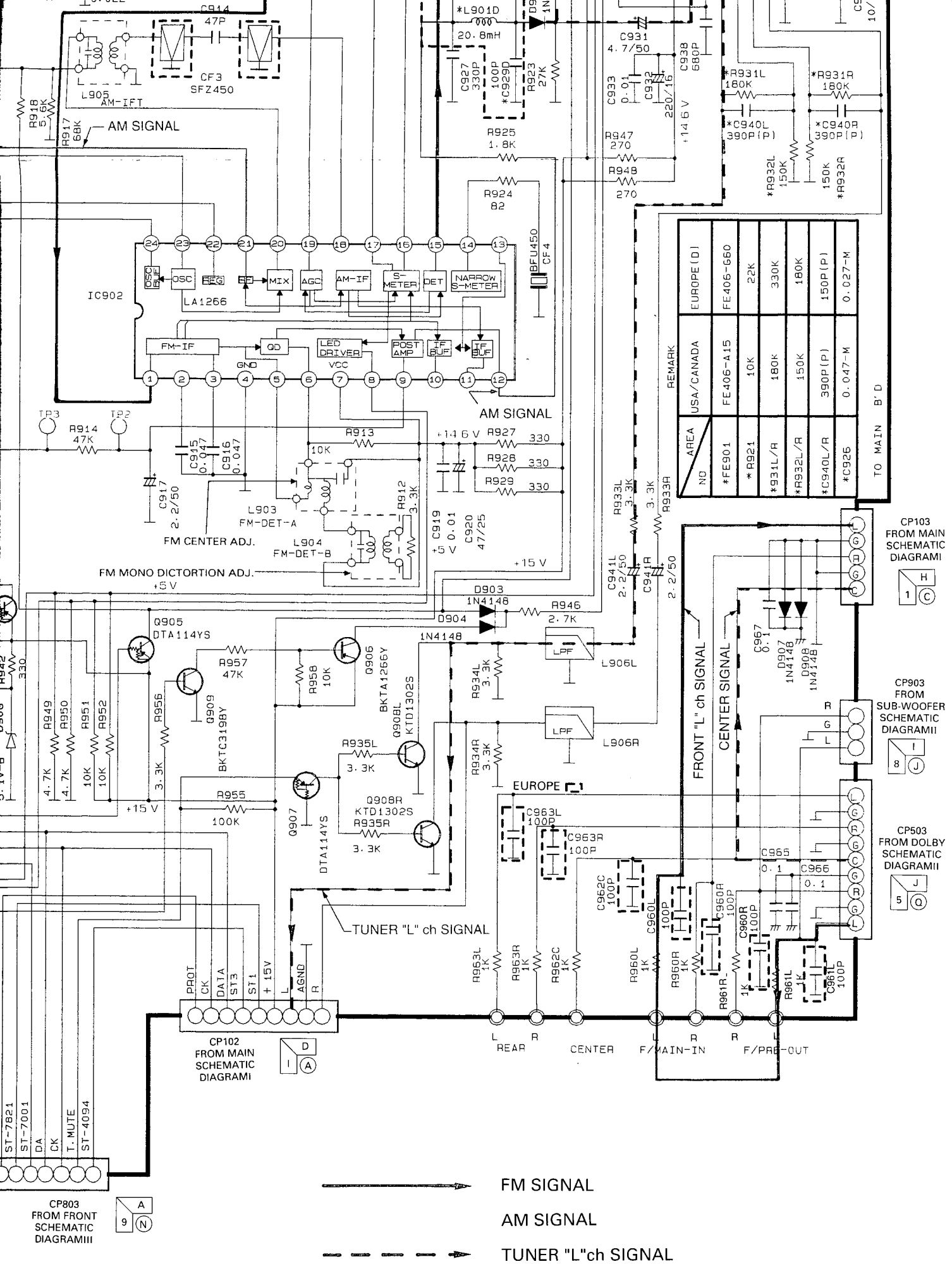
CONNECTION DIAGRAM OF ICs.



VERSION	VT (TP1)
UL/CSA	FM1.5V-8.3V AM1.2V-9.0V
EUROPE	FM1.5V-8.4V AM1.2V-8.6V

MODE	DIGI LINK	5V	STEREO	TUNED	PROTECTION	ST-7821	ST-7001	DA	CK	T-MUTE	ST-4094
IN	OUT										

CP803 FROM FRONT SCHEMATIC DIAGRAM III



REMARK	USA/CANADA	EUROPE (D)
NO	FE406-A15	FE406-660
*R921	10K	22K
*R931L/R	180K	330K
*R932L/R	150K	180K
*C940L/R	390P(P)	150P(P)
*C925	0.047-M	0.027-M

CP103 FROM MAIN SCHEMATIC DIAGRAM I C

CP903 FROM SUB-WOOFER SCHEMATIC DIAGRAM II 8 J

CP503 FROM DOLBY SCHEMATIC DIAGRAM II 5 O

CP803 FROM FRONT SCHEMATIC DIAGRAM III 9 A N

FM SIGNAL

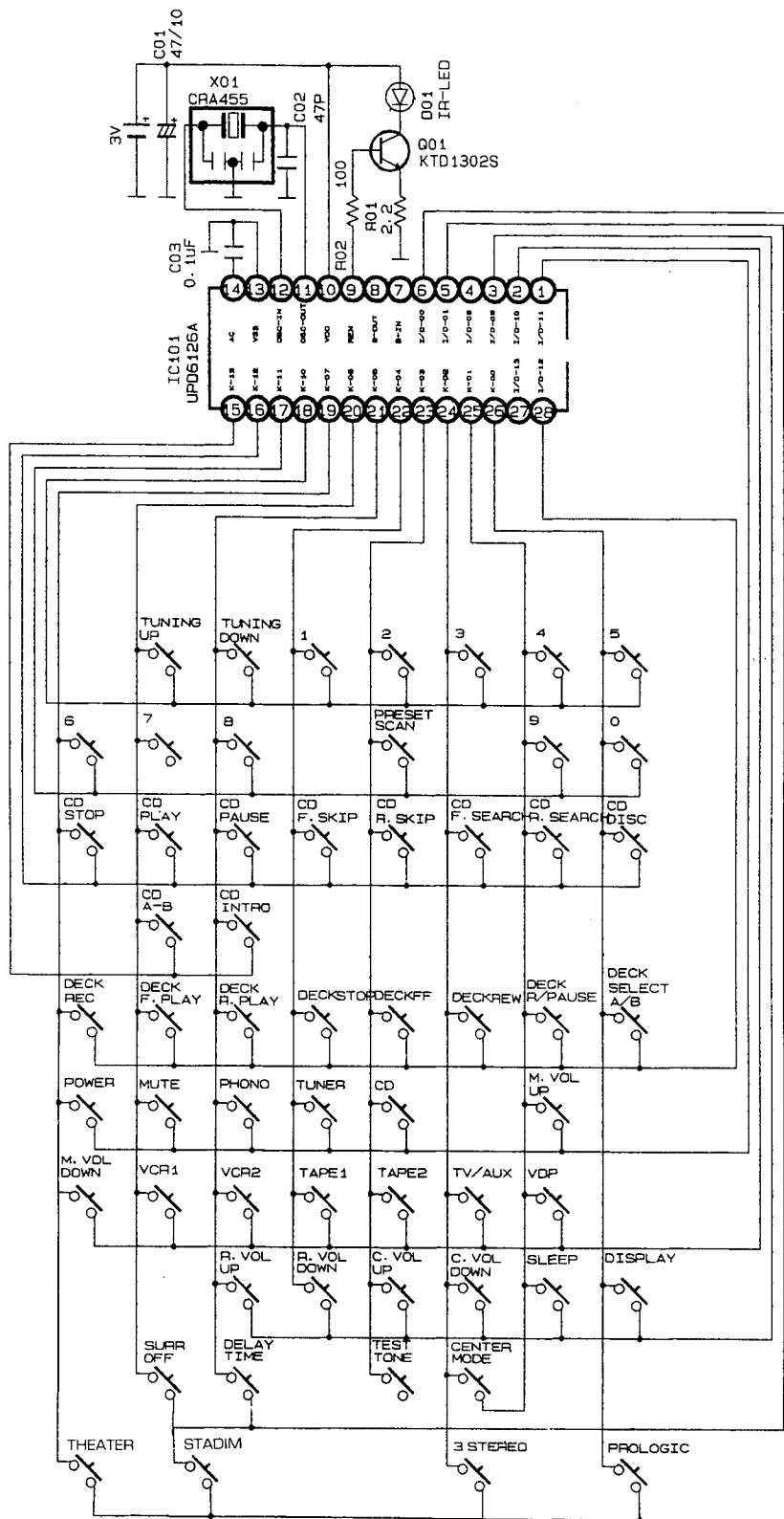
AM SIGNAL

TUNER "L" ch SIGNAL

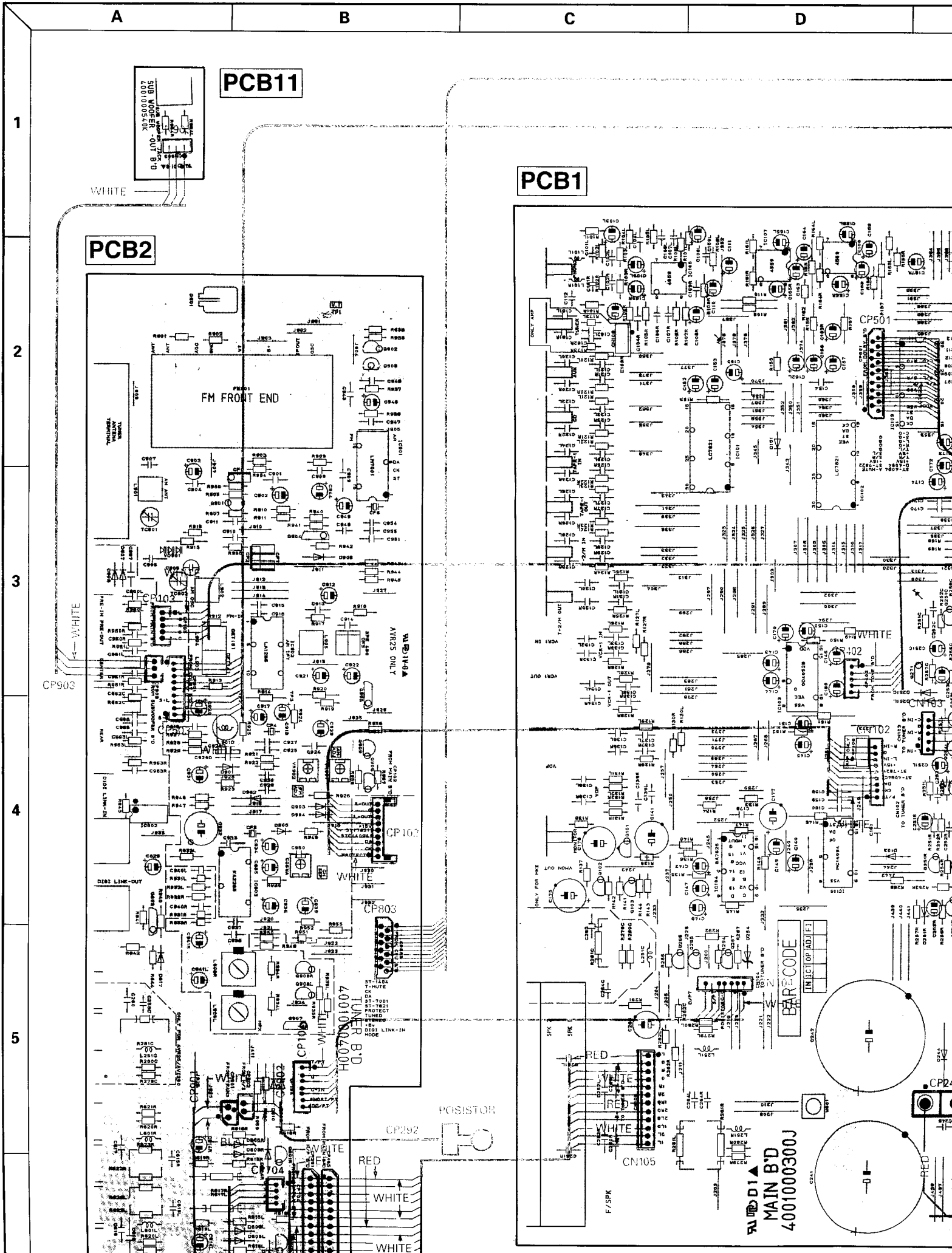


SCHEMATIC DIAGRAM IV

COMMANDER



WIRING DIAGRAM



E

F

G

H

PCB10

VOLUME LED B'D
4001000530K

CP501

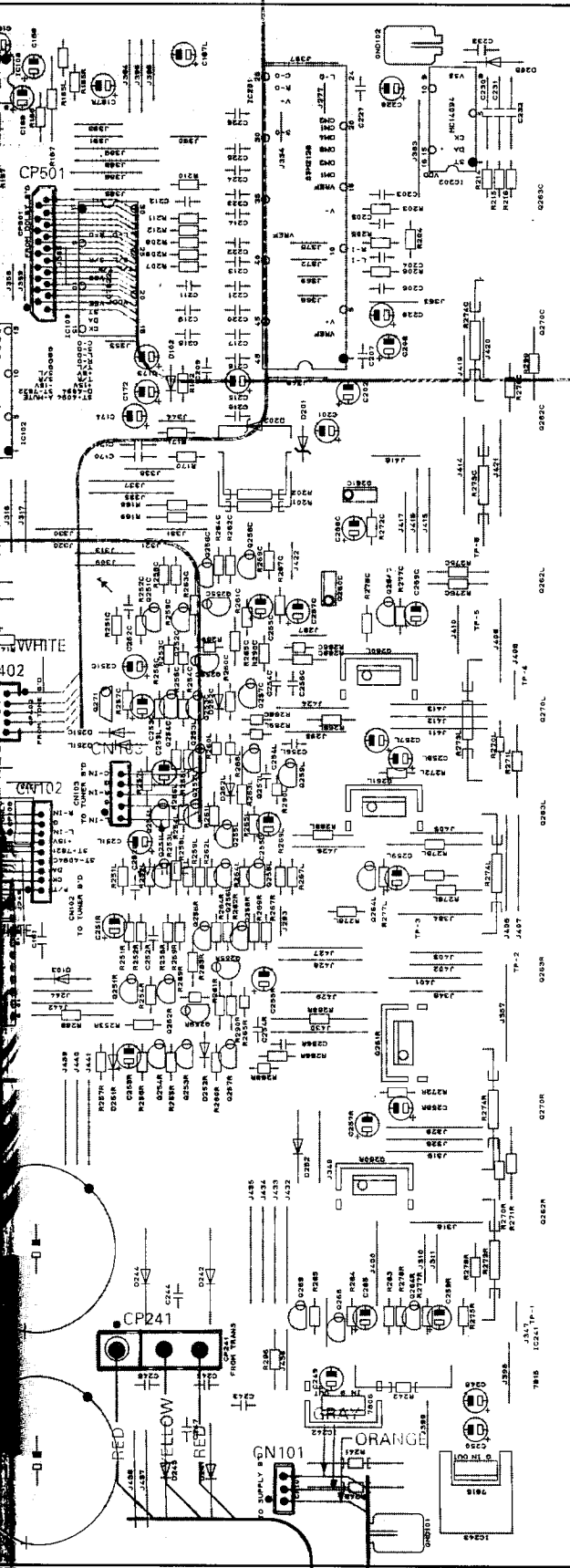
RED BLACK

BLACK

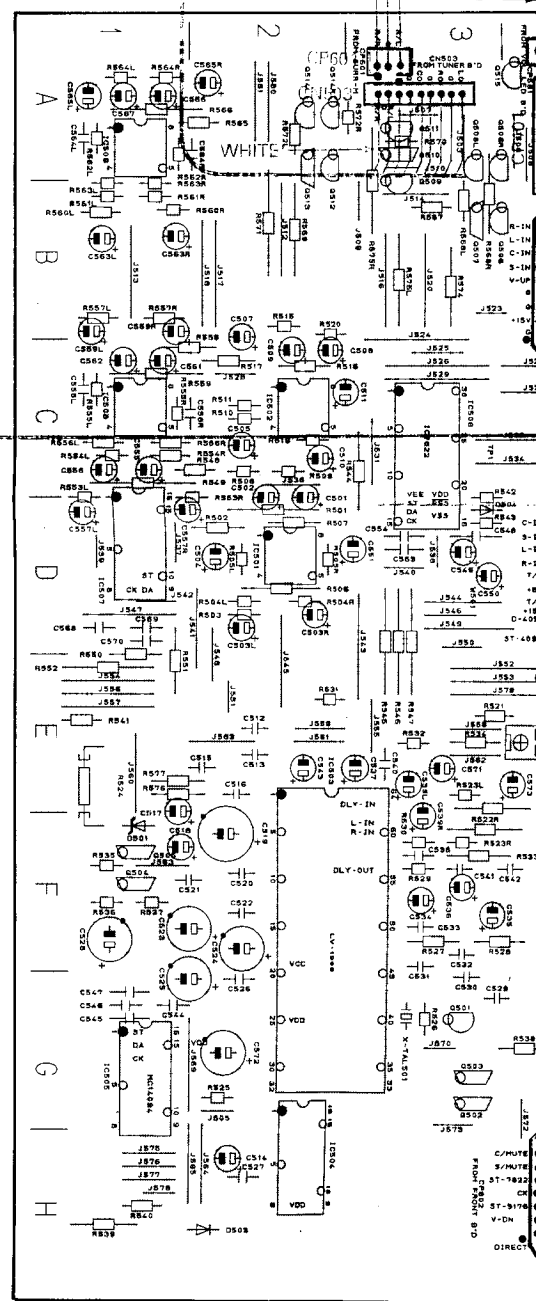
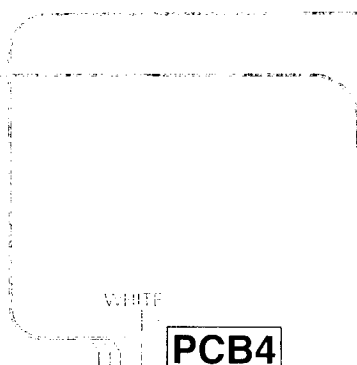
WHITE

PCB4

4001000420H
SURR MAIN B'D

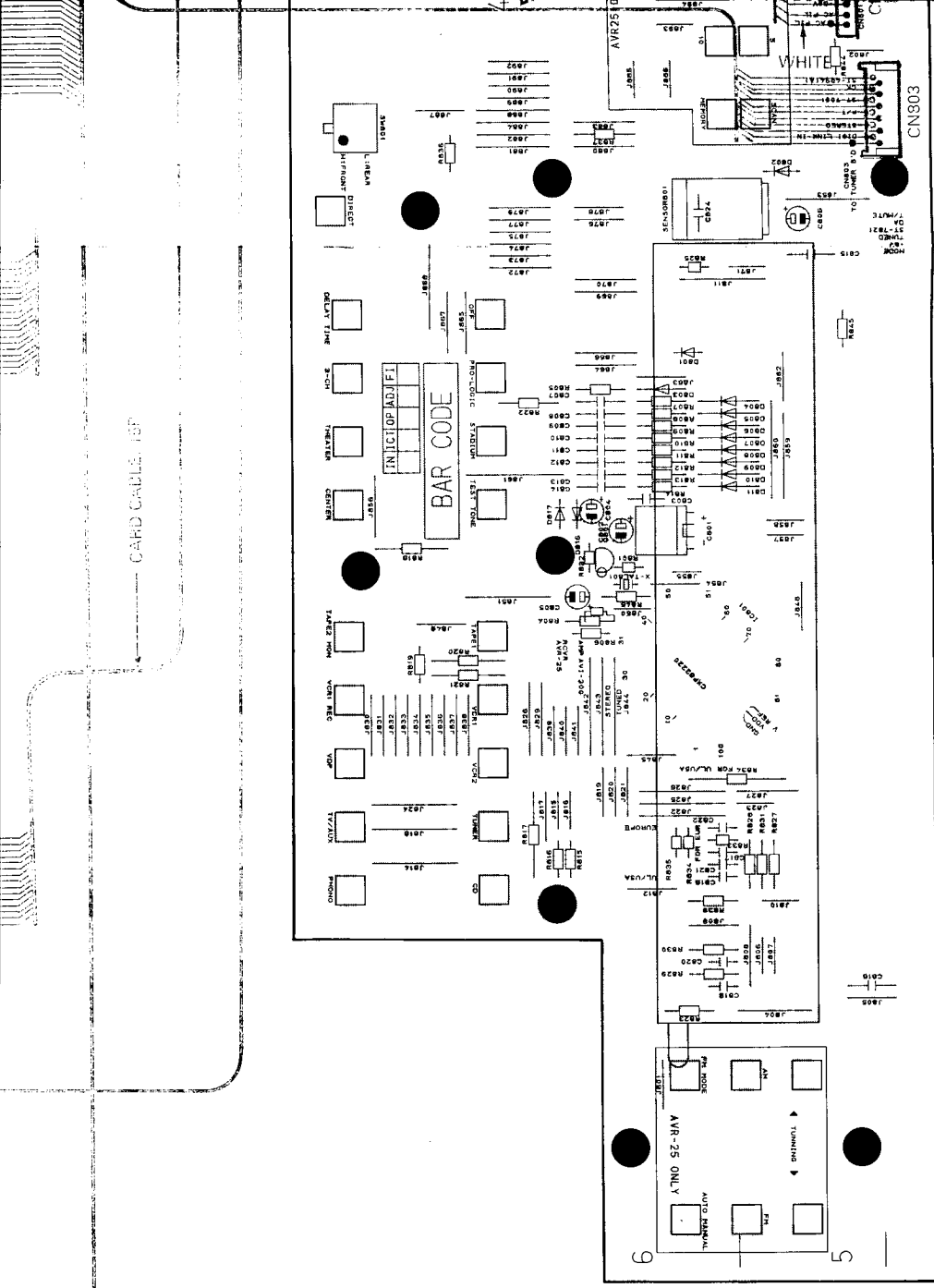
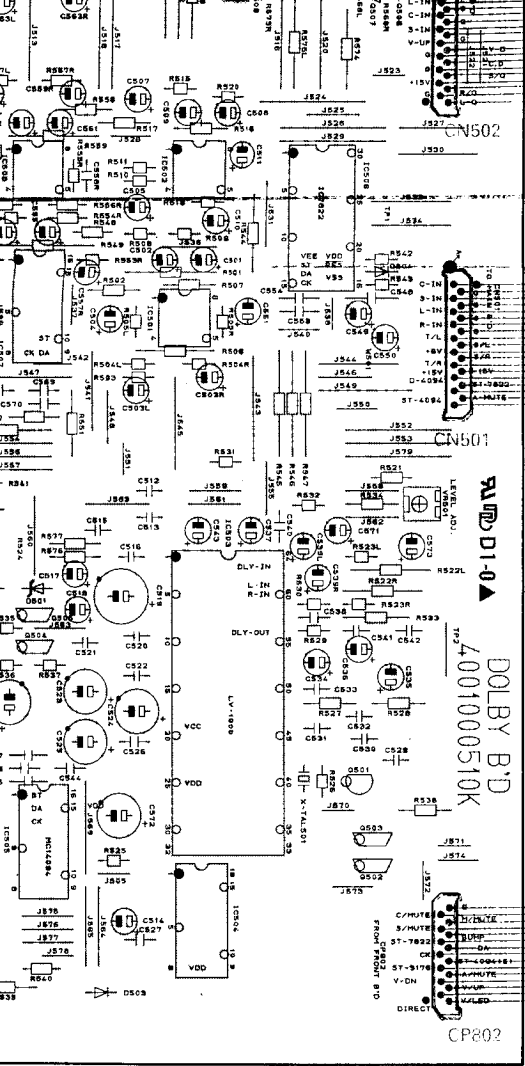


CARD CABLE, 19F



WHITE

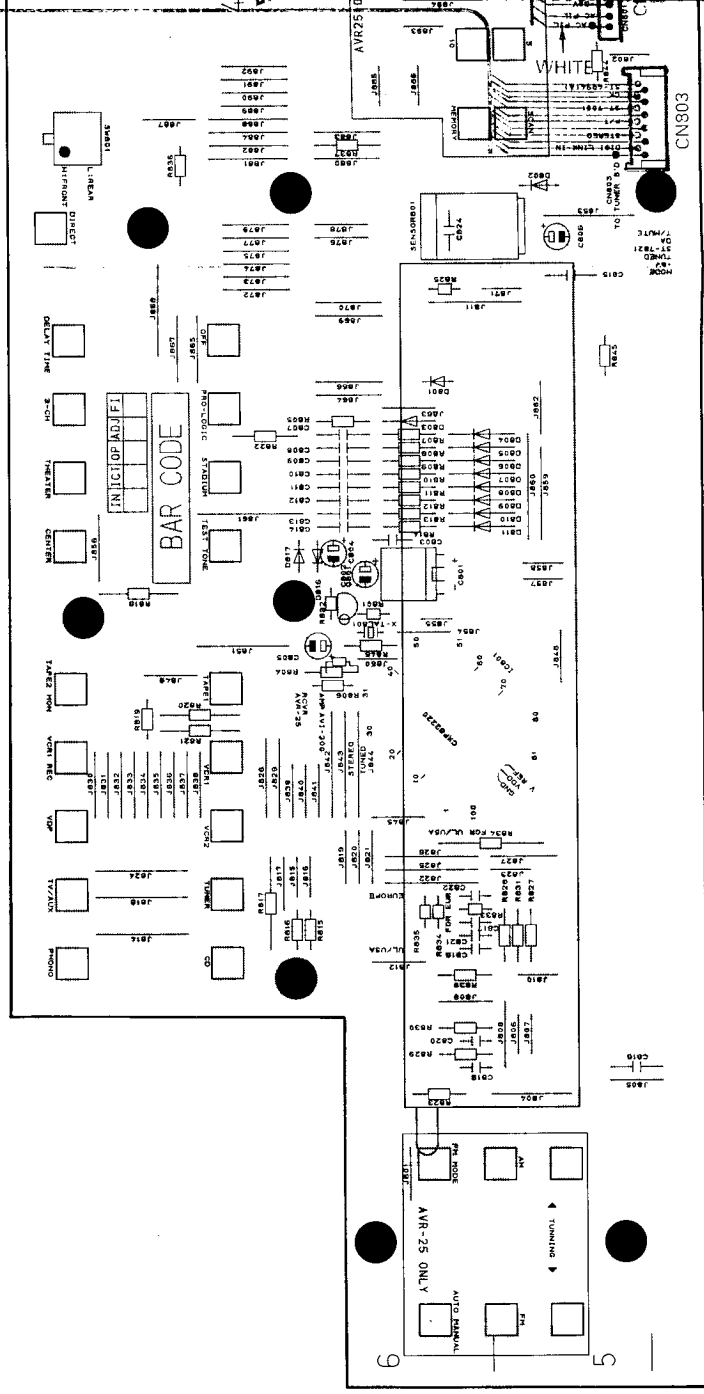
CP501
VOLUME LED B'D
4001000530K



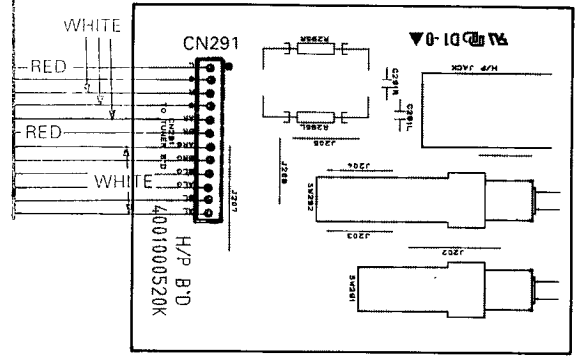
8

CARD CABLE TOP

CARD CABLE TOP



PCB9



PCB6

