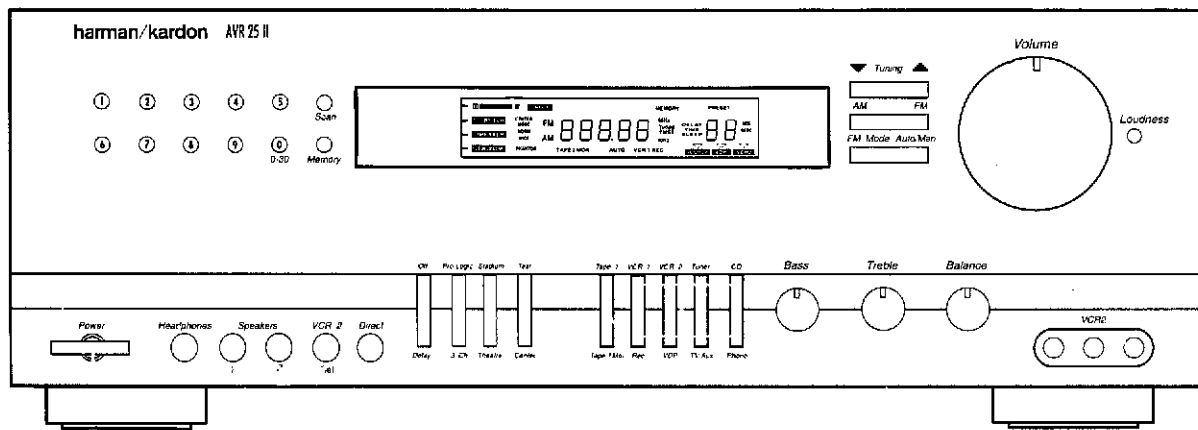


The Harman Kardon Model AVR25MKII AUDIO AND VIDEO RECEIVER

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%
Spurious 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.

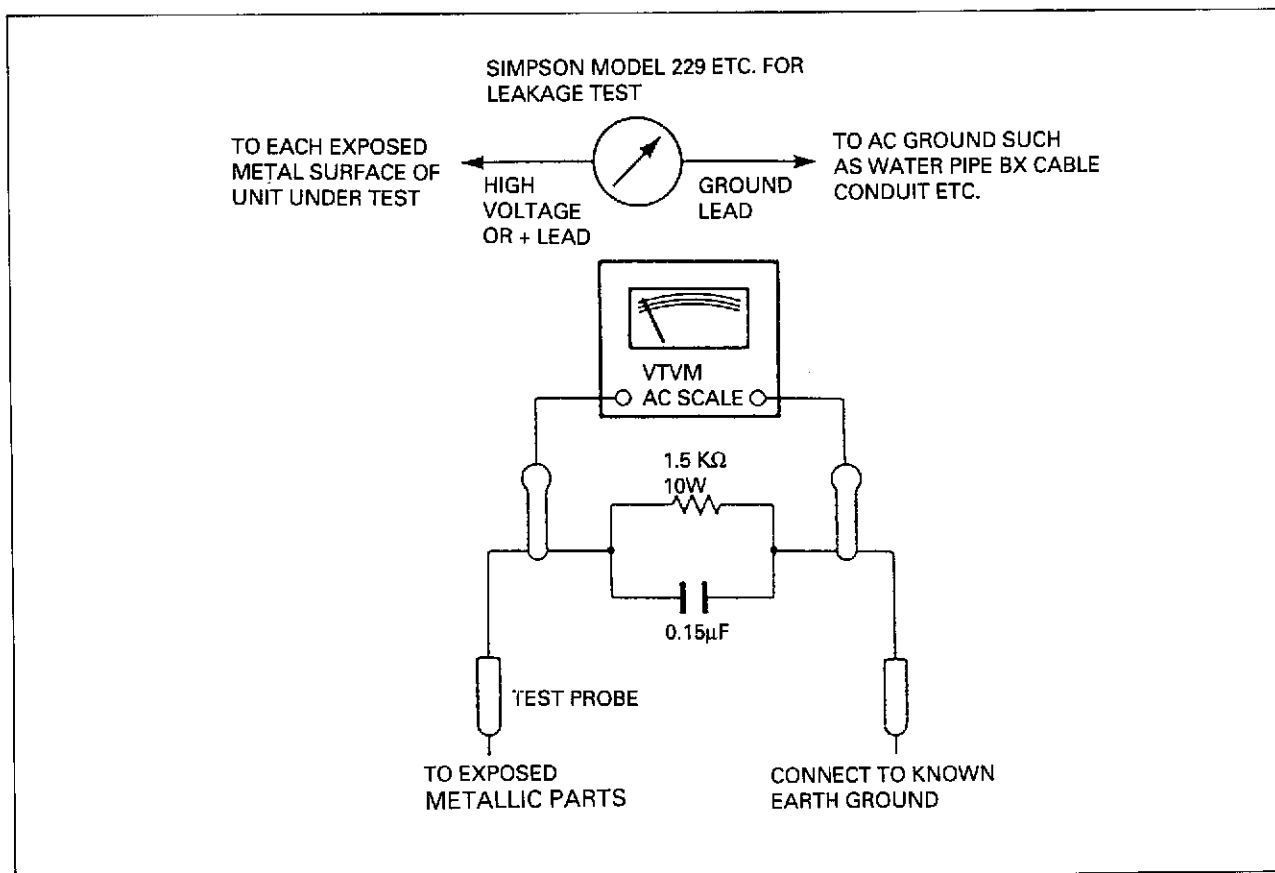
LEAKAGE TEST

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

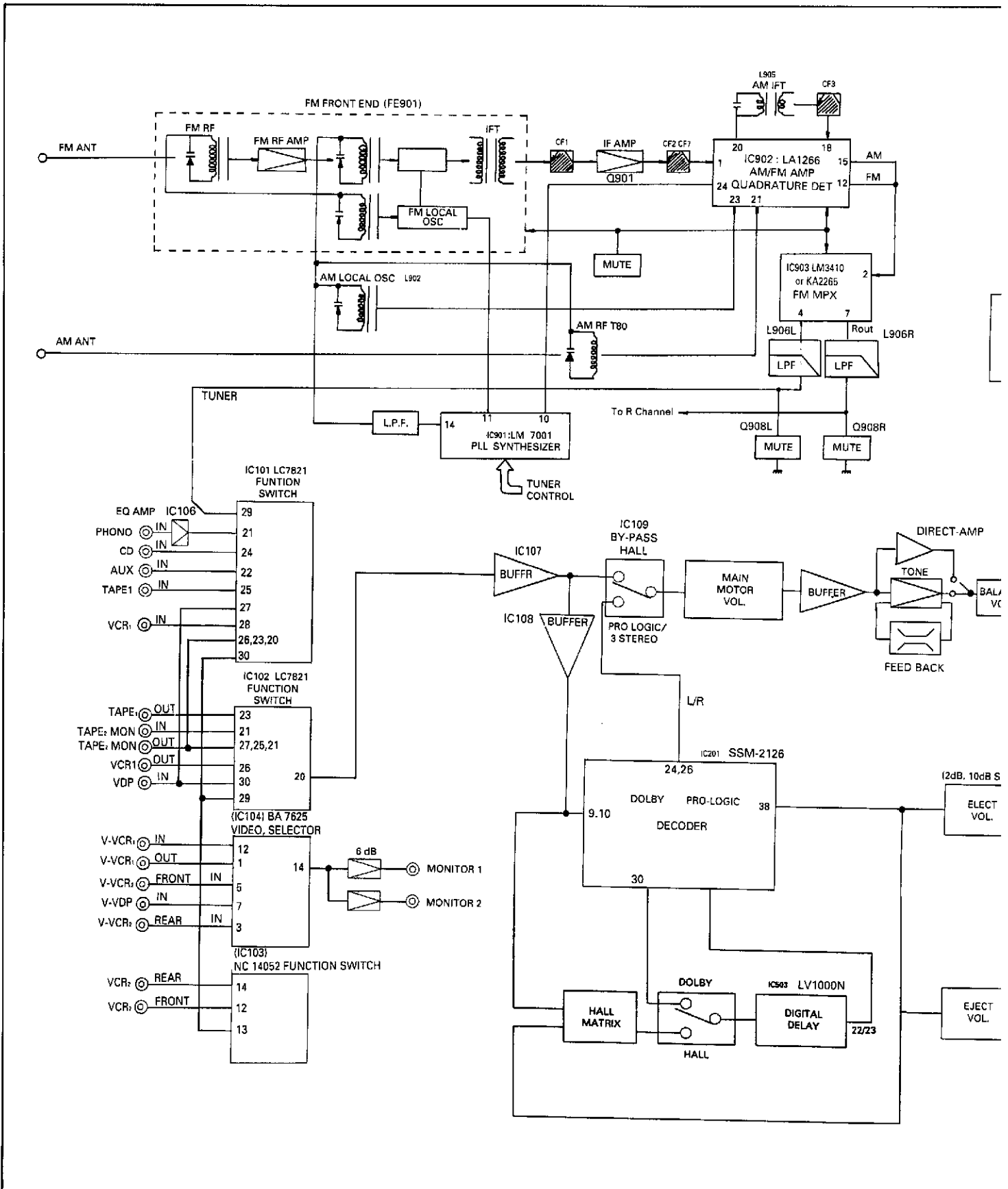
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metallic parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers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

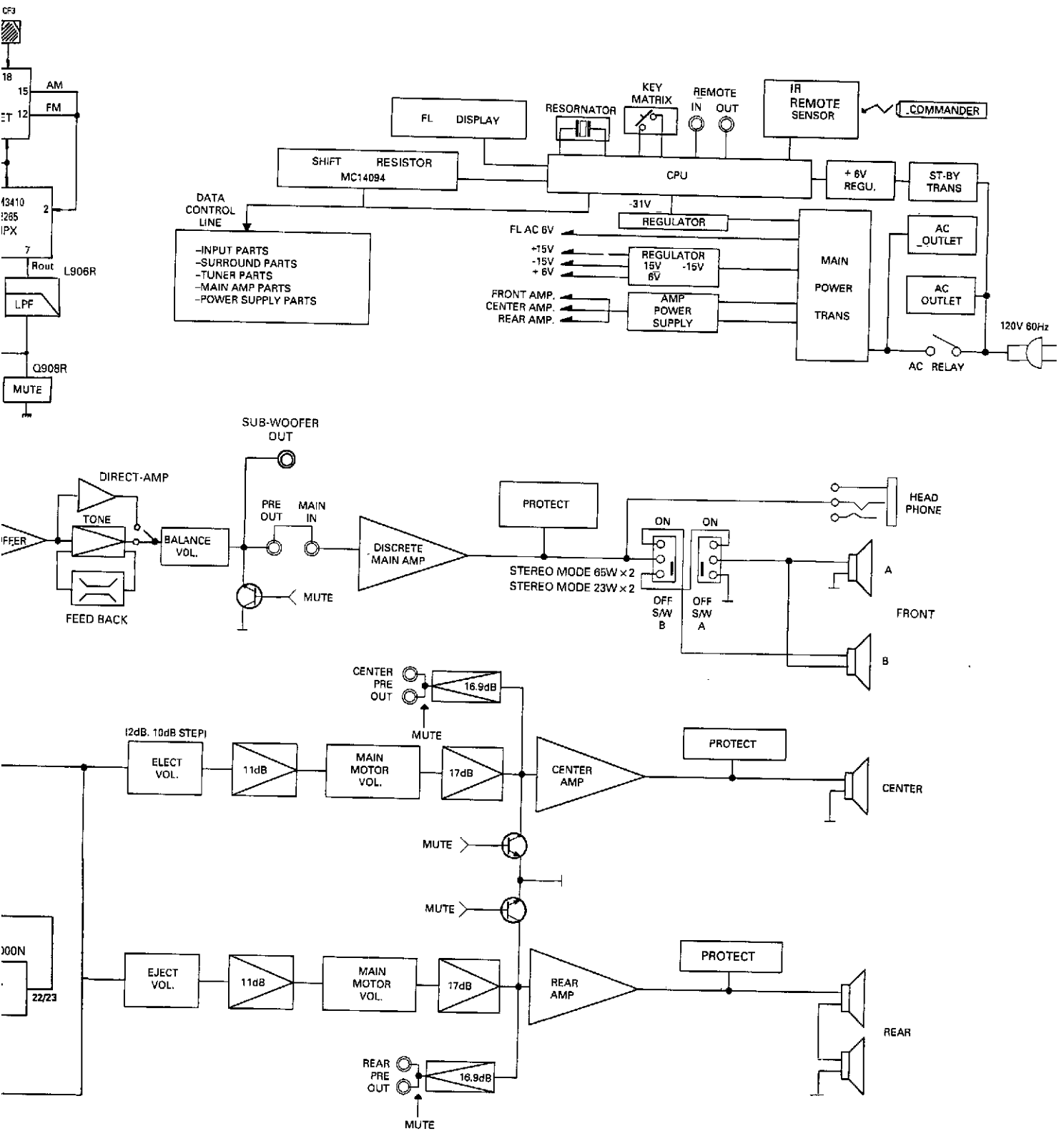
Using two clip leads, connects a 1500 Ohm, 10-watt resistor paralleled by a $0.15\mu\text{F}$ capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 Ohms per volt, or higher sensitivity to measure the AC voltage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

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

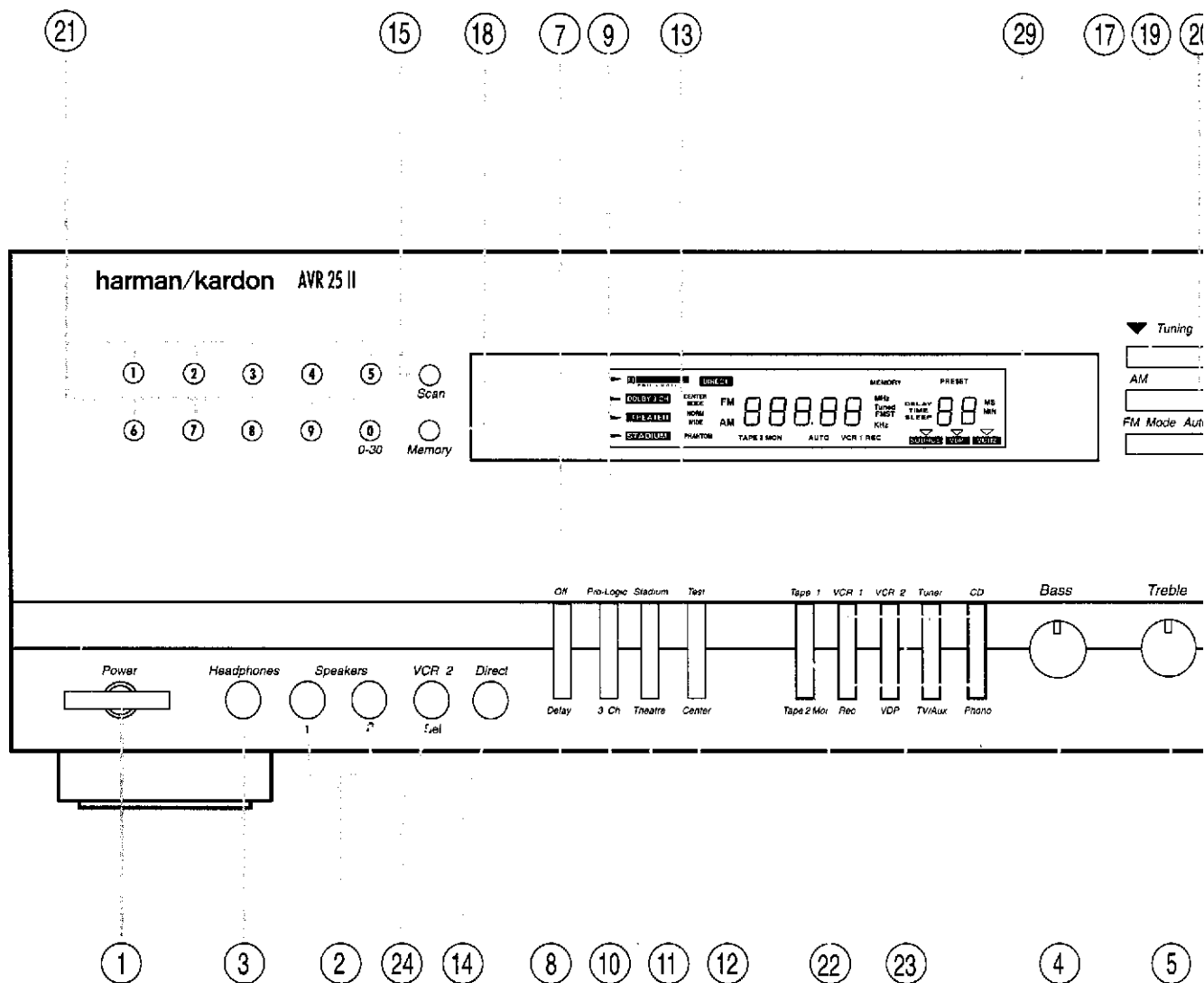


BLOCK DIAGRAM





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 a +/- 10dB. Set this control a position for your taste and acoustics.

5. TREBLE CONTROL

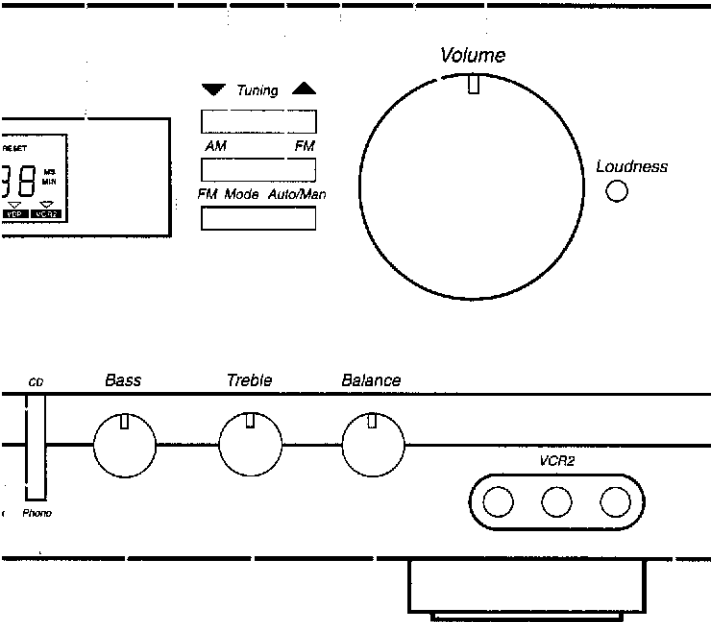
Modifies the high-frequency the left and right channels a +/- 10dB. Set this control a position for your taste and acoustics.

6. BALANCE CONTR

This control is used for balance relative sound volume of the 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.

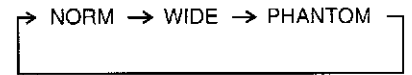
11. STADIUM/THEATER MODE

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

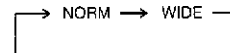
12. CENTER MODE SELECTOR

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.

4 5 6

25

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.

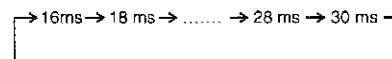
7. SURROUND-OFF MODE SELECTOR

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.

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).

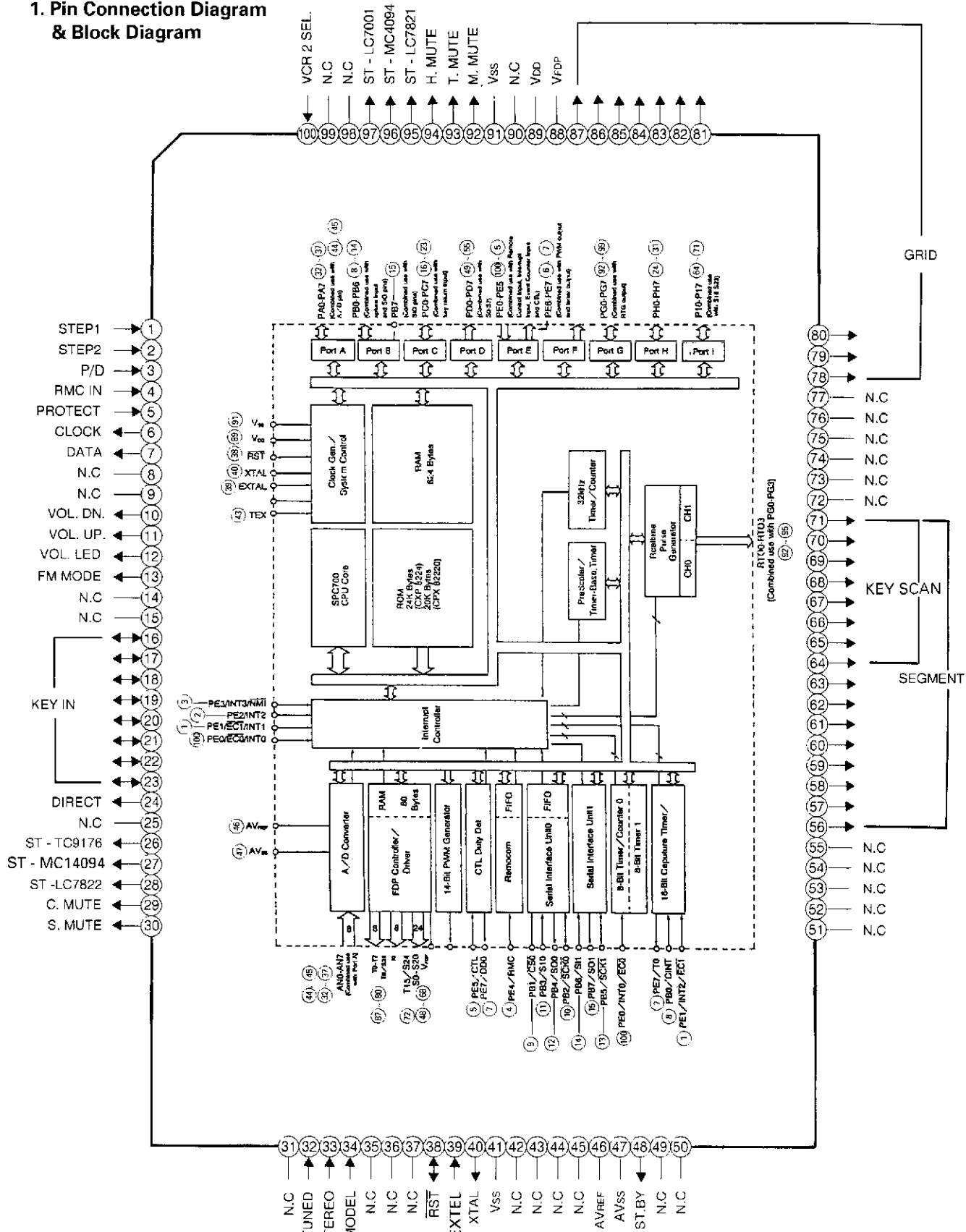
14 POWER SUPPLY P.C.BOARD (PCB3) REMOVAL

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

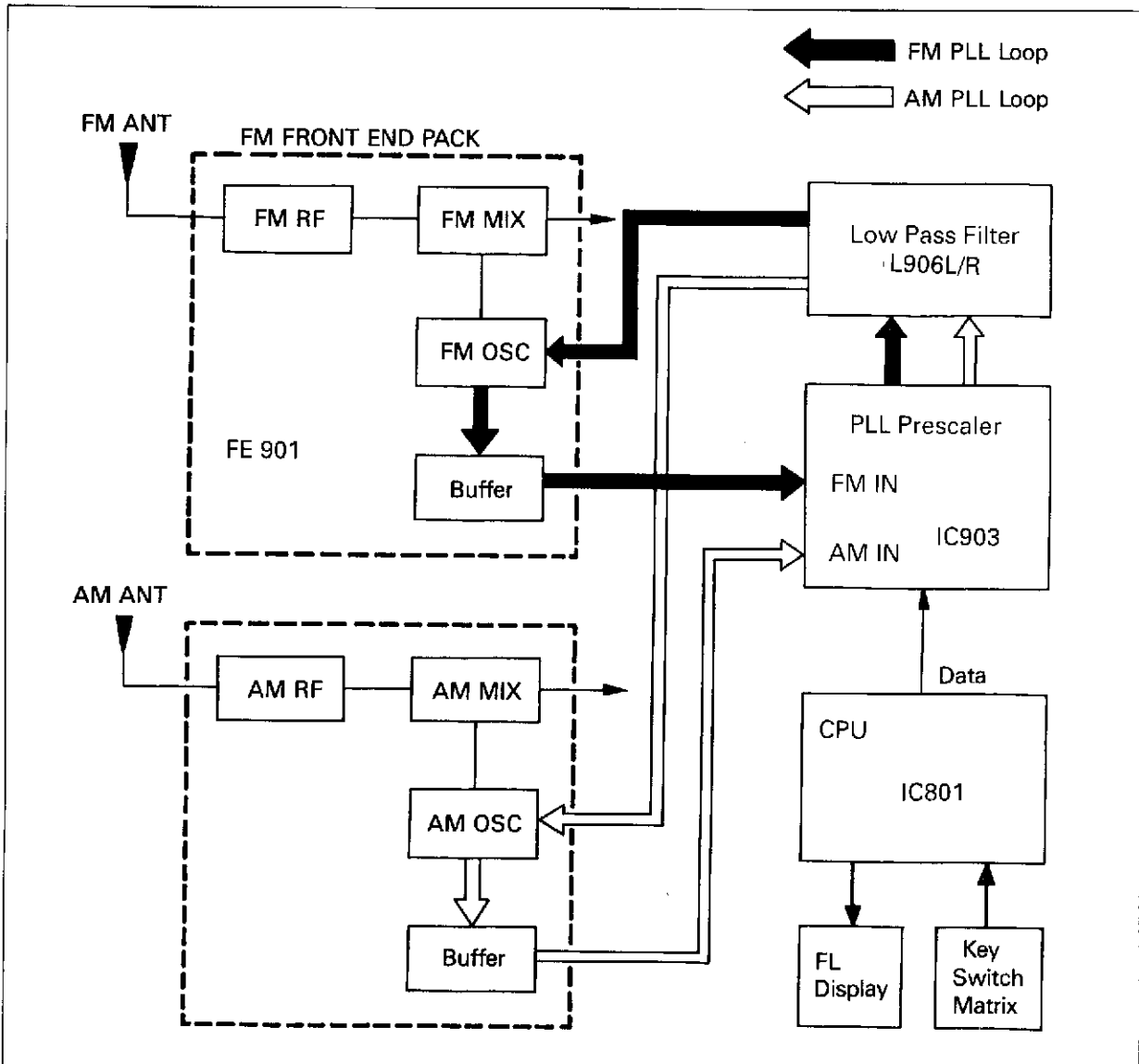
Pin No.	Symbol	Description																			
1 / 2	STEP 1 / STEP 2	Input to select frequency band and step according to regions. <table border="1" data-bbox="570 318 1354 493"> <thead> <tr> <th>REGION</th> <th>FREQUENCY</th> <th>STEP</th> <th>STEP 1</th> <th>STEP 2</th> </tr> </thead> <tbody> <tr> <td rowspan="2">AMERICA</td> <td>FM: 87.5 - 107.9 MHz</td> <td>200 kHz</td> <td rowspan="2">H</td> <td rowspan="2">H</td> </tr> <tr> <td>AM: 520 - 1710 kHz</td> <td>10 kHz</td> </tr> <tr> <td rowspan="2">EUROPE</td> <td>FM: 87.5 - 108 MHz</td> <td>50 kHz</td> <td rowspan="2">L</td> <td rowspan="2">L</td> </tr> <tr> <td>AM: 522 - 1611 kHz</td> <td>9 kHz</td> </tr> </tbody> </table>	REGION	FREQUENCY	STEP	STEP 1	STEP 2	AMERICA	FM: 87.5 - 107.9 MHz	200 kHz	H	H	AM: 520 - 1710 kHz	10 kHz	EUROPE	FM: 87.5 - 108 MHz	50 kHz	L	L	AM: 522 - 1611 kHz	9 kHz
REGION	FREQUENCY	STEP	STEP 1	STEP 2																	
AMERICA	FM: 87.5 - 107.9 MHz	200 kHz	H	H																	
	AM: 520 - 1710 kHz	10 kHz																			
EUROPE	FM: 87.5 - 108 MHz	50 kHz	L	L																	
	AM: 522 - 1611 kHz	9 kHz																			
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 osillator.
40	XTAL	Output for crystal osillator.
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.

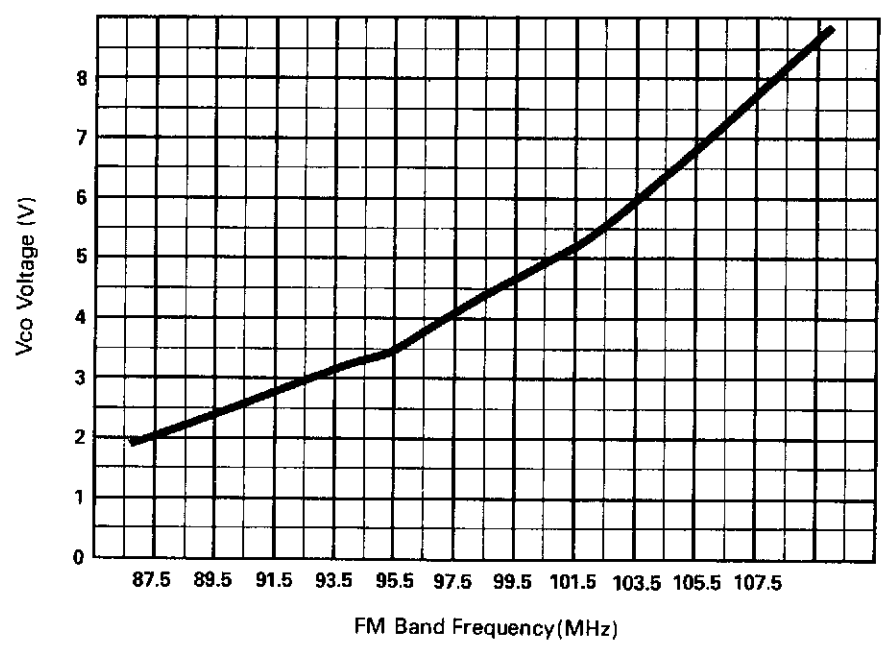
3. Key Matrix

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

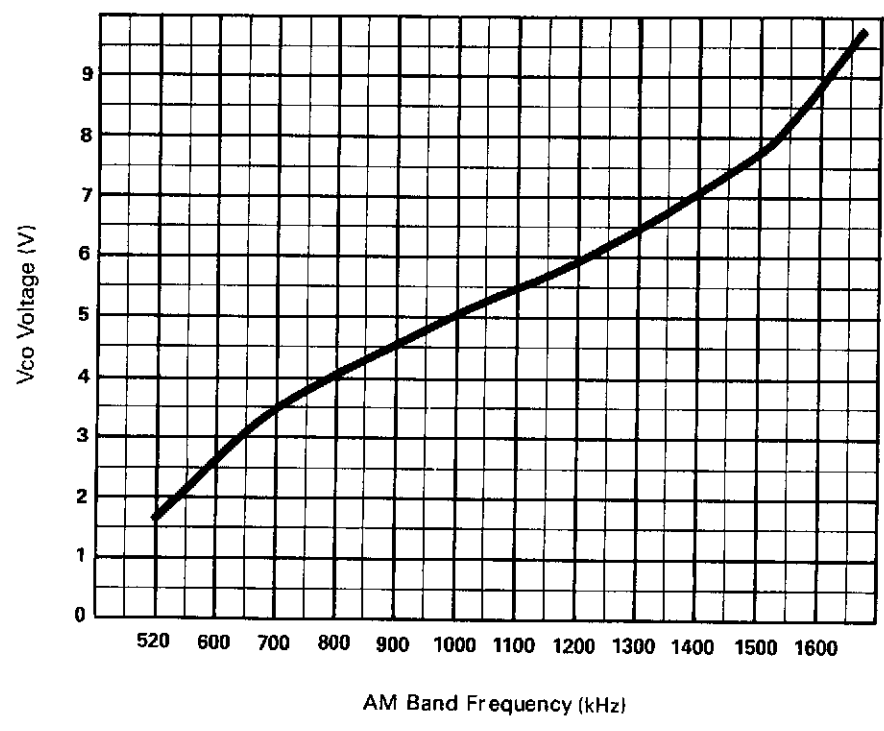
4. Digital Tuning System Description



• Vco vs. FM Band Frequency Curve



• Vco vs. AM Band Frequency Curve

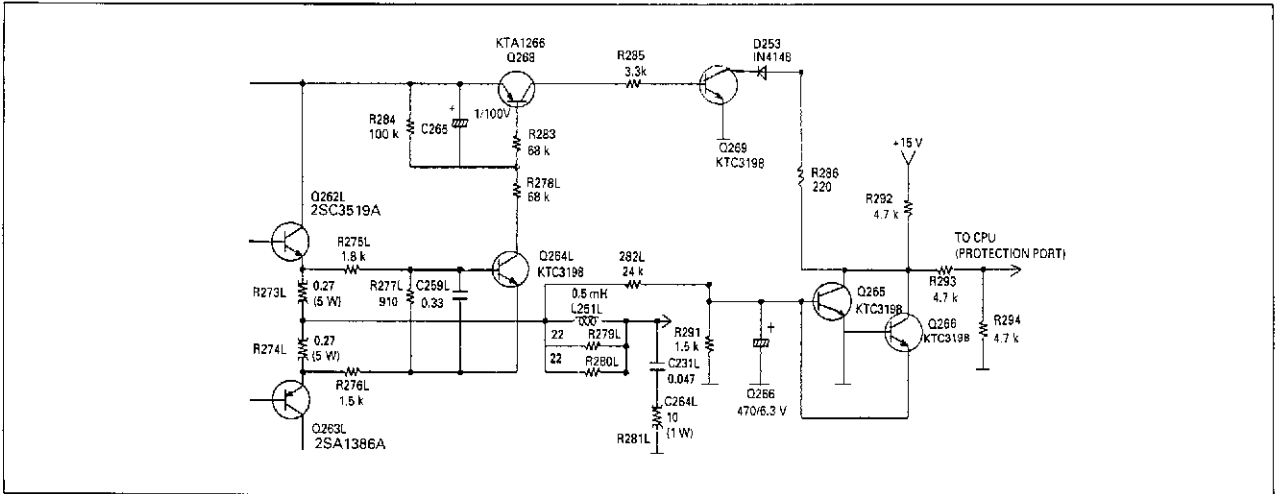


5. Protection Circuits

Speaker Protection Circuits

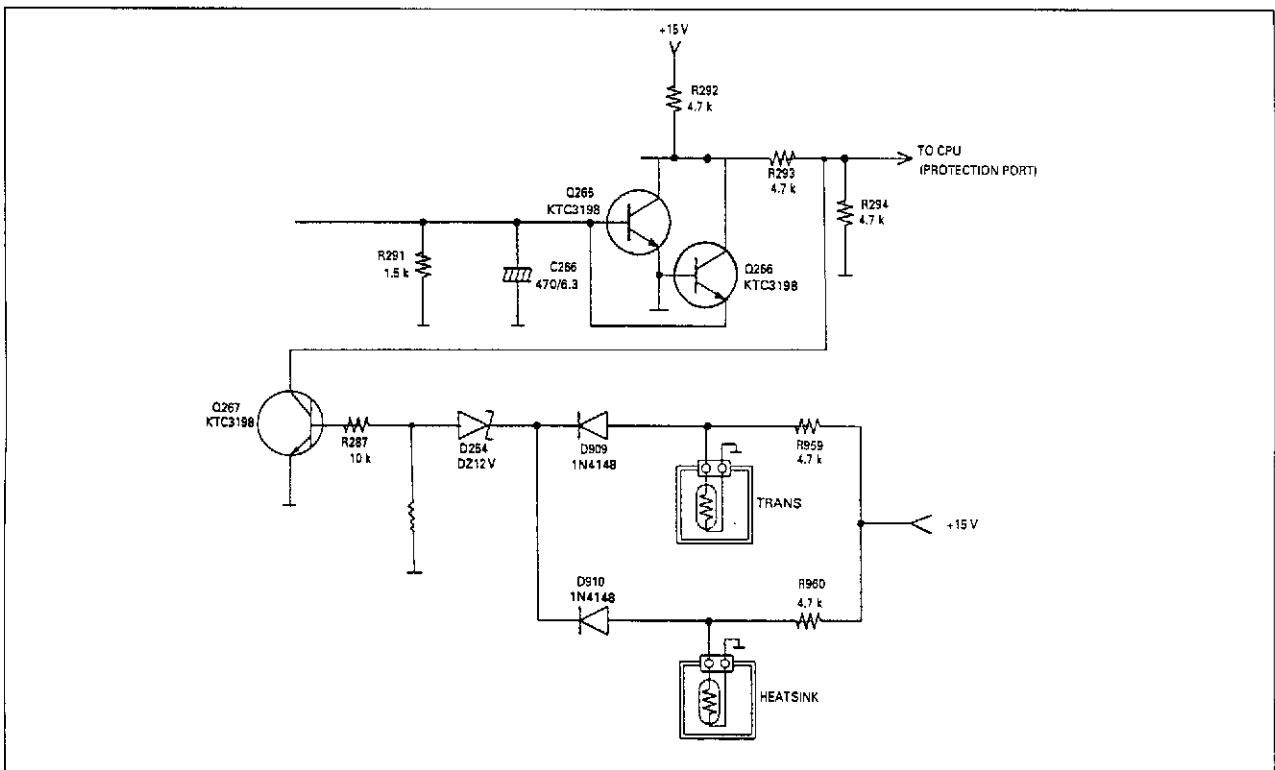
The CPU protects both this unit and the speakers when an abnormally high current flows in Q262 L/R/C and Q263 L/R/C due to excessive input drive, too low of a load impedance, or short of the speaker terminals. If current increase is excessive, the voltage across R273 L/R/C or R274 L/R/C turns on Q264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



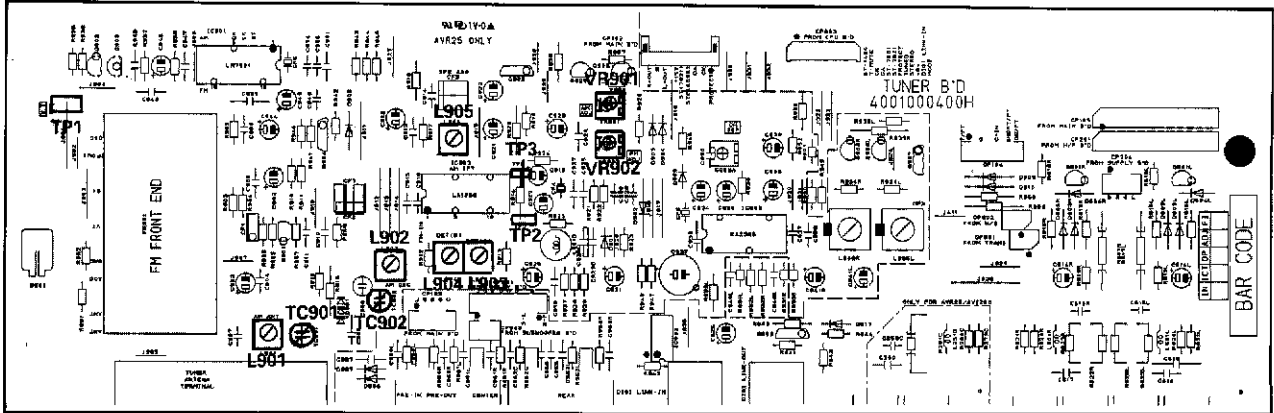
ALIGNMENT PROCEDURES

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)

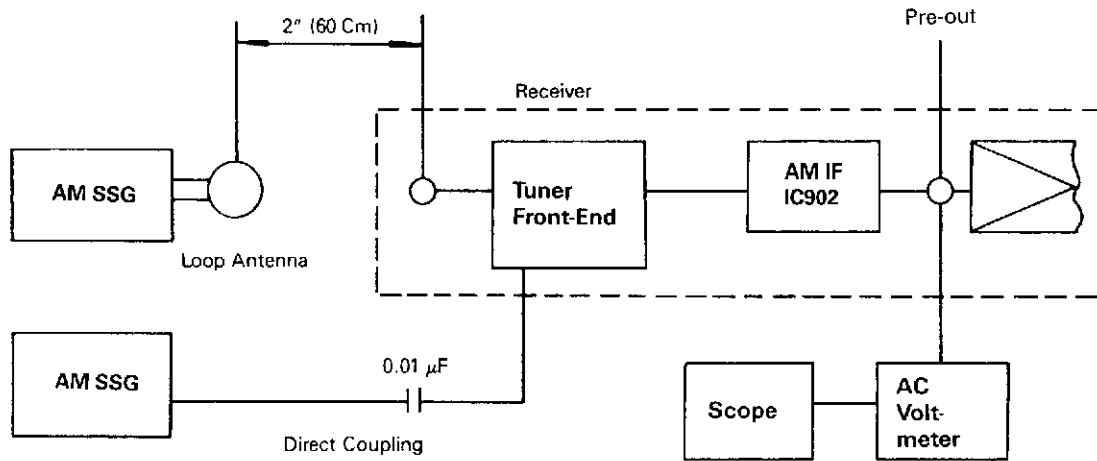


3. AM IF and RF Alignment

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



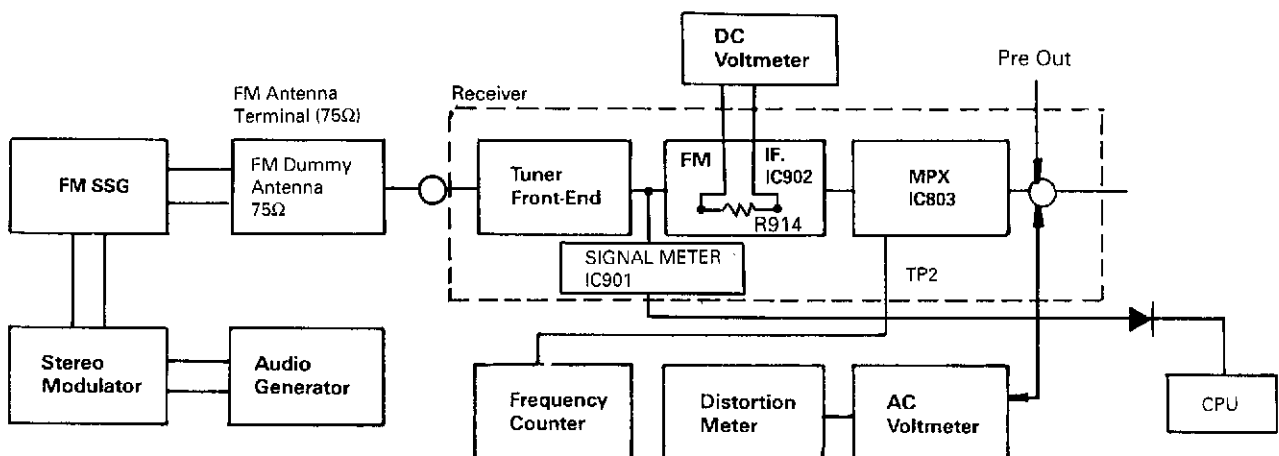
AM Alignment Connection

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.

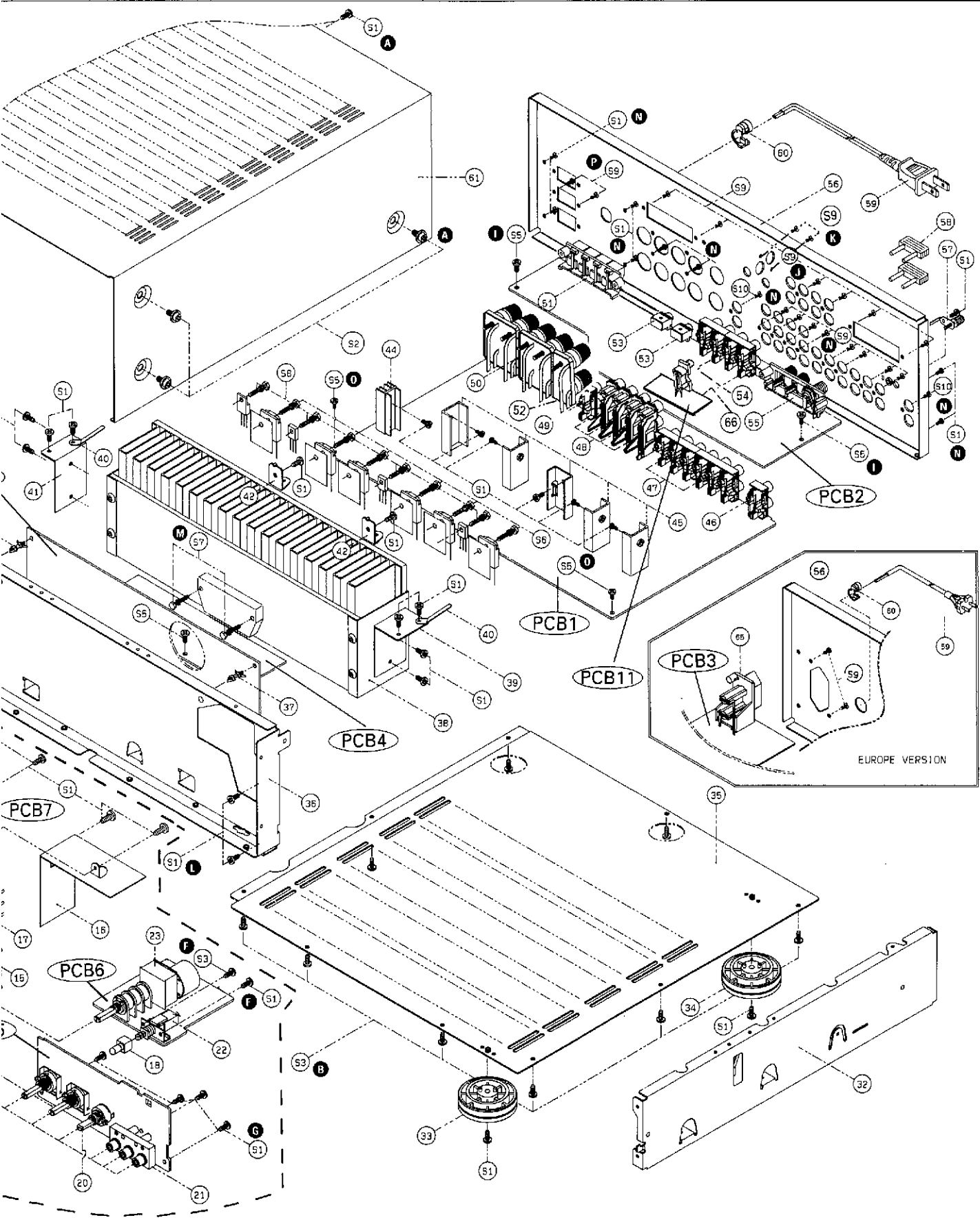
GENERAL UNIT PARTS LIST

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	8165148210	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	4656003710	38	
29(SEN601)	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, Bald, Hot stamping	046033102511	2	
34	Foot, ABS, Bald	6033102510	2	
35	Cover Bottom	6122218610	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	048102041252	1	EUROPE
(56)	Chassis, Back	048102041222	1	USA/CANADA
57	Ground Terminal	4406103720	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	048122022611	1	
62	▲ Power Transformer, 230 V, 50 Hz	2828001117	1	EUROPE
(62)	▲ Power Transformer, 120 V, 60 Hz	2826009967	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	8109230063	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	8159230083	11	
S6	HEX MSPW 3 X 12 Y	8089130121	6	
S7	HEX MSPW 3 X 16 Y	8089130161	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	4118616149	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

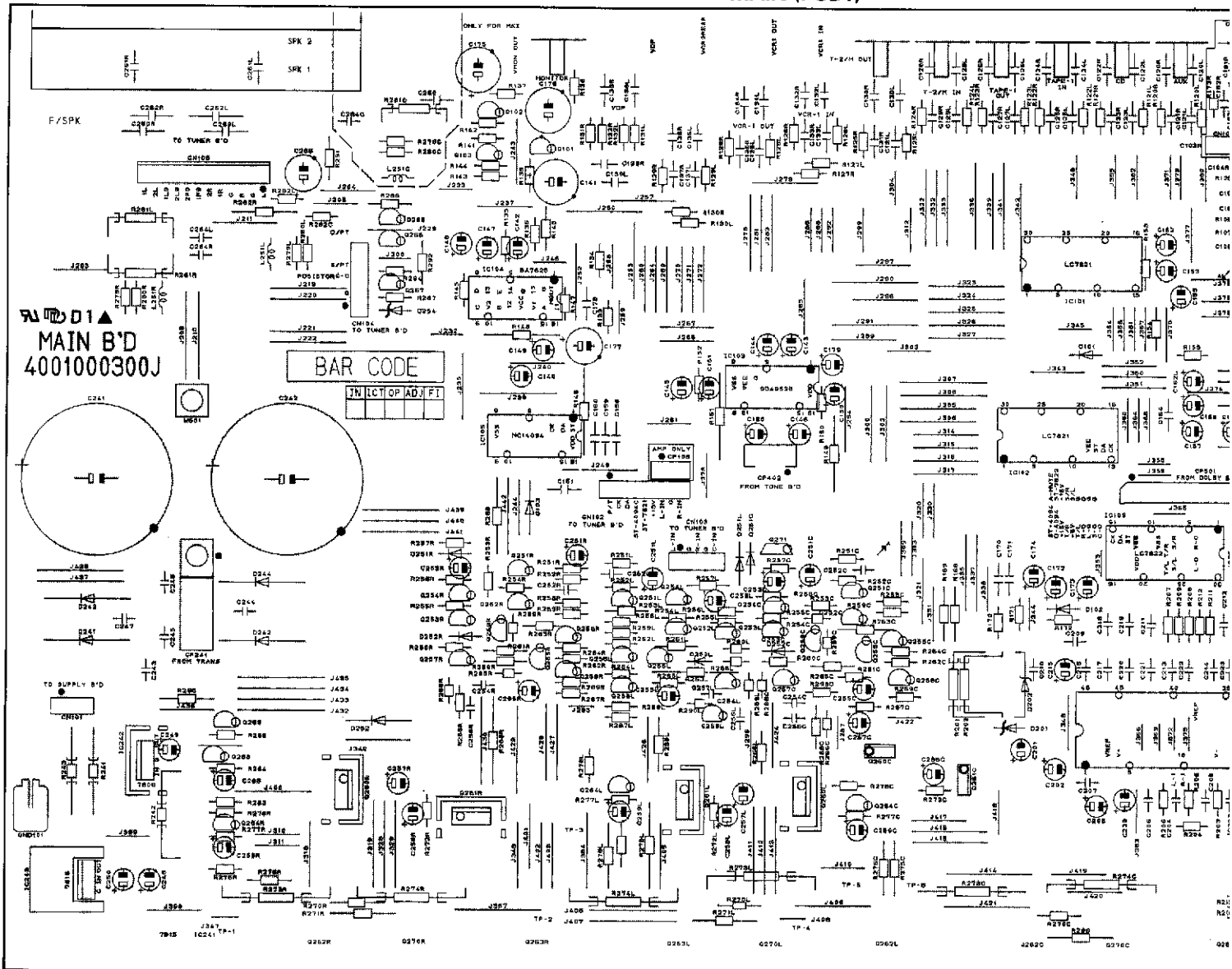
Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ▲ in the parts list are of special significance to safety. When replacing a component identified with ▲, use only the replacement parts designated, or parts with the same ratings of resistance,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

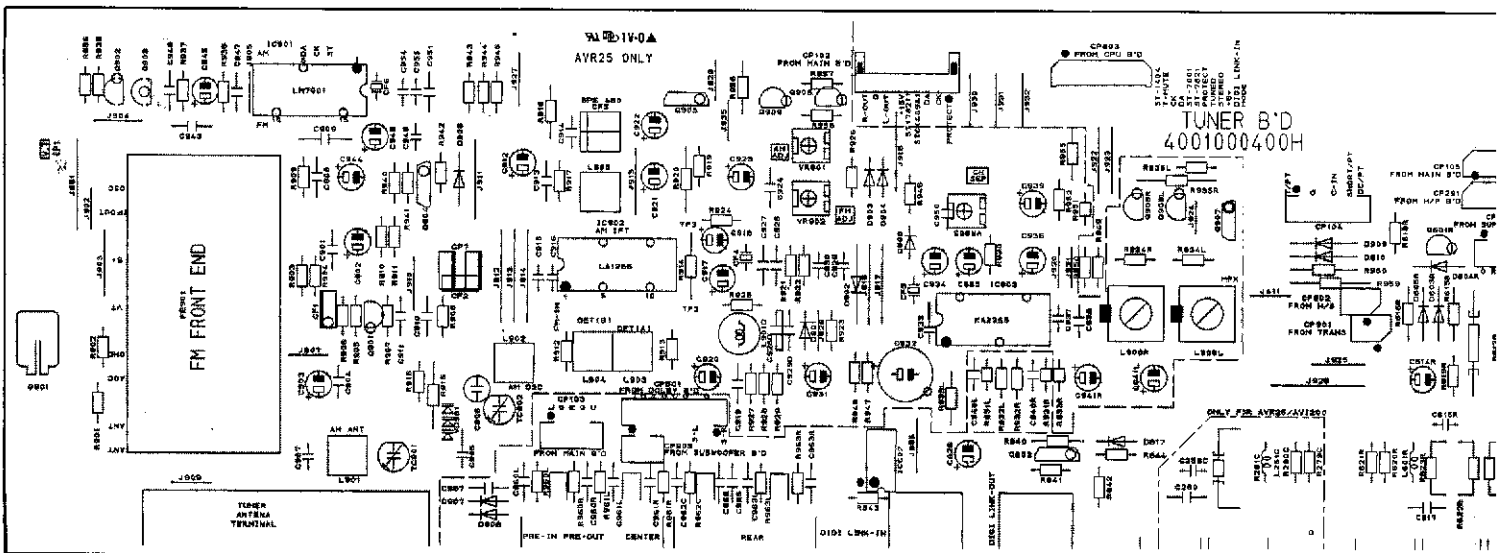


PRINTED CIRCUIT BOARDS

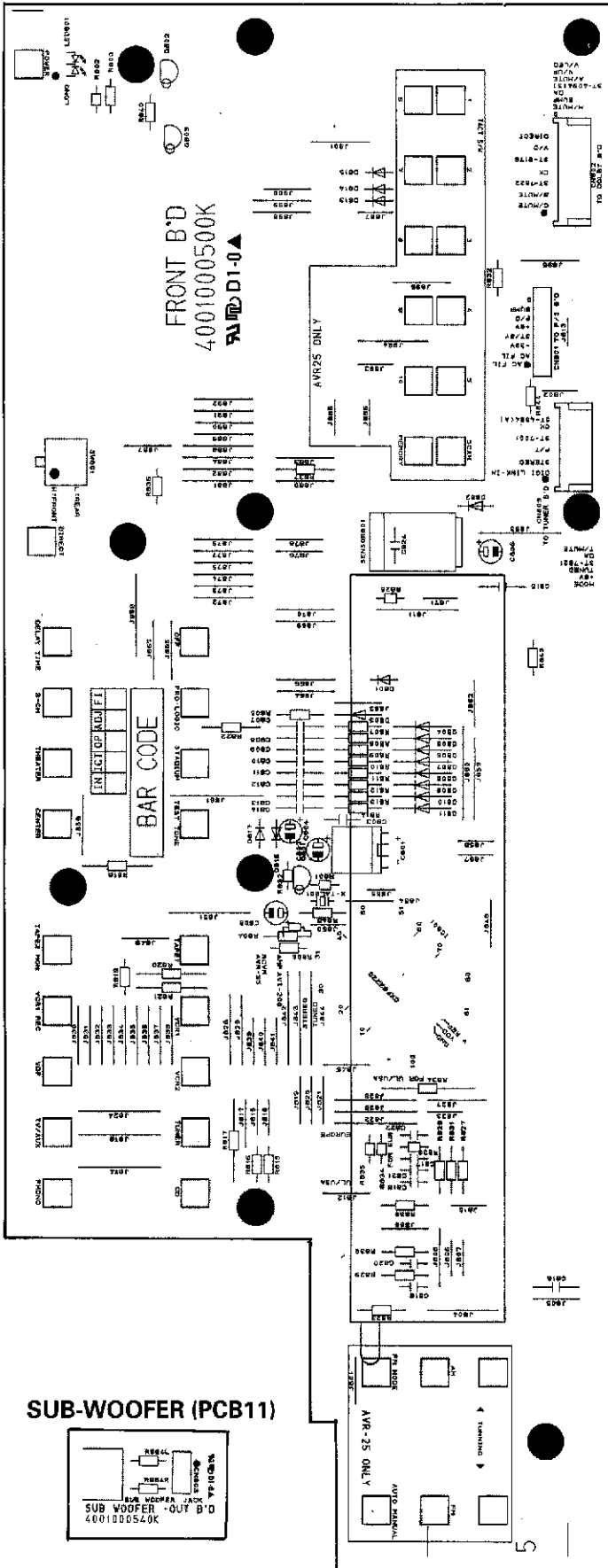
MAIN (PCB1)



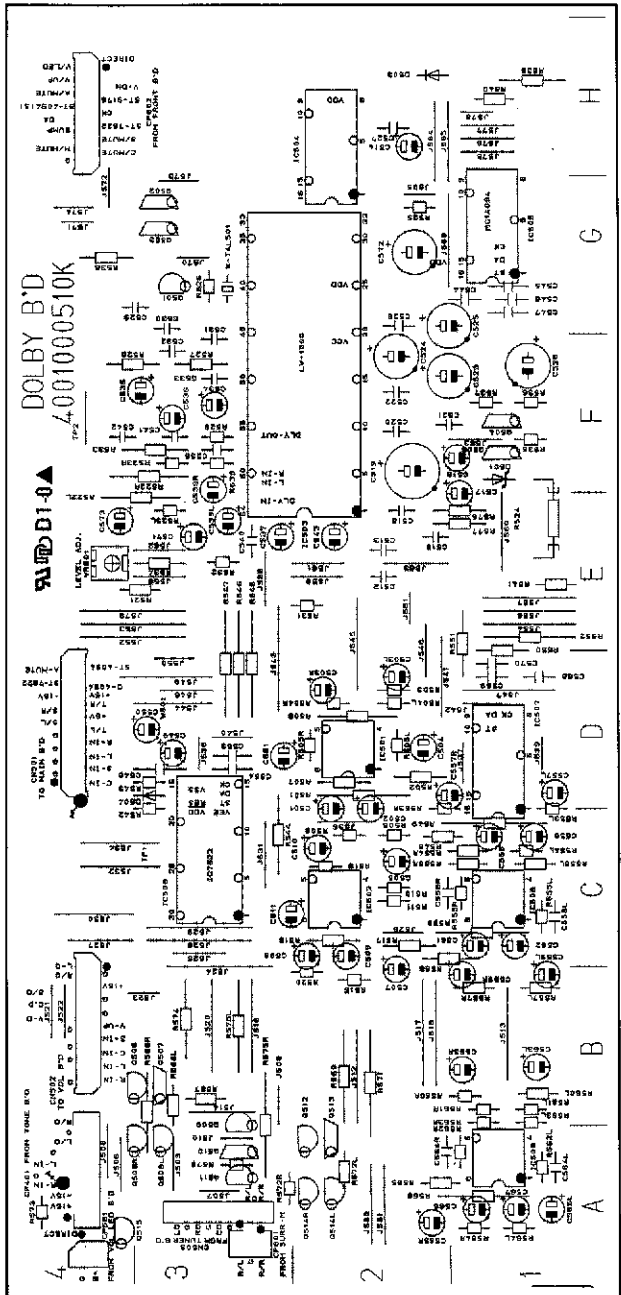
TUNER (PCB2)



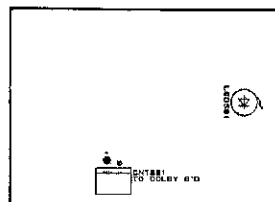
FRONT (PCB7)



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
PCB ASSEMBLY PCB 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-C148	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	83 V K	3679224297	2			
C208	Electrolytic SA	4.7	uF	50 V M	3479247971	1			
C209-C212	Mylar	0.1	uF	83 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	83 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	83 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	3519222935	1			
C260/LR	Ceramic Tubular	2200	pF	50 V J	3519222935	2	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	3479210971	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			
CN106	Lead Ass'y, 3P, 200 mm				436403203232	1			
CP241	Plug LV AC, 3P				4428525790	1			
CP402	Wafer 5P				4428518410	1			
CP501	FPC Plug 19P				4428526310	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			
IC108-IC108	KIA4559P/KIA75559P, OP Amp				2168208104	3			
IC109	LC7822				2168017139	1			
IC201	SSM-2126A				2168000122	1			
IC202	MC14094BCP				2138009115</				

Ref. No.	Description	Mfr. Part No.	Q'ty	Version
Q269	KTC3188Y/KTC1815Y, NPN	2208608104	1	
Q270C	2SC4137, NPN, Bias	2008622110	1	
Q270LR	2SC4137, NPN, Bias	2008622110	2	
Q271	DTC114YS	2208622106	1	
RESISTORS				
R101/LR	Carbon Film	1 kohm 1/5 W J	3069102970	2
R102/LR	Carbon Film	91 kohm 1/5 W J	3069913970	2
R105/LR	Carbon Film	91 kohm 1/5 W J	3069913970	2
R104/LR	Carbon Film	520 ohm 1/5 W J	3069821970	2
R105/LR	Carbon Film	43 kohm 1/5 W J	3069433970	2
R106/LR	Carbon Film	560 kohm 1/5 W J	3069564970	2
R107/LR	Carbon Film	560 ohm 1/5 W J	3069561970	2
R108/LR	Carbon Film	100 kohm 1/5 W J	3069104970	2
R109/R110	Carbon Film	220 ohm 1/5 W J	3069221970	2
R120/LR	Carbon Film	470 ohm 1/5 W J	3069471970	2
R121/LR	Carbon Film	470 ohm 1/5 W J	3069471970	2
R122/LR	Carbon Film	470 ohm 1/5 W J	3069471970	2
R123/LR	Carbon Film	470 ohm 1/5 W J	3069471970	2
R124/LR	Carbon Film	1 kohm 1/5 W J	3069102970	2
R125/LR	Carbon Film	470 ohm 1/5 W J	3069471970	2
R126/LR	Carbon Film	470 ohm 1/5 W J	3069471970	2
R127/LR	Carbon Film	100 kohm 1/5 W J	3069104970	2
R128/LR	Carbon Film	470 ohm 1/5 W J	3069471970	2
R129/LR	Carbon Film	470 ohm 1/5 W J	3069471970	2
R130/LR	Carbon Film	100 kohm 1/5 W J	3069104970	2
R131/LR	Carbon Film	470 ohm 1/5 W J	3069471970	2
R132/LR	Carbon Film	100 kohm 1/5 W J	3069104970	2
R133-R138	Carbon Film	75 ohm 1/5 W J	3069750970	5
R139-R144	Carbon Film	100 ohm 1/5 W J	3069101970	6
R145	Carbon Film	75 ohm 1/5 W J	3069750970	1
R146	Carbon Film	10 ohm 1/5 W J	3069100970	1
R147/R148	Carbon Film	100 ohm 1/5 W J	3069101970	2
R149-R152	Carbon Film	3.3 kohm 1/5 W J	3069332970	4
R153/R154	Carbon Film	220 ohm 1/5 W J	3069221970	2
R155	Carbon Film	100 kohm 1/5 W J	3069104970	1
R156/R157	Carbon Film	220 ohm 1/5 W J	3069221970	2
R161/LR	Carbon Film	100 kohm 1/5 W J	3069104970	2
R162/R163	Carbon Film	220 ohm 1/5 W J	3069221970	2
R164/LR	Carbon Film	100 kohm 1/5 W J	3069104970	2
R165/LR	Carbon Film	100 kohm 1/5 W J	3069104970	2
R166/R167	Carbon Film	220 ohm 1/5 W J	3069221970	2
R168/R169	Carbon Film	100 ohm 1/5 W J	3069101970	2
R170/R171	Carbon Film	220 ohm 1/5 W J	3069221970	2
R172	Carbon Film	100 kohm 1/5 W J	3069104970	1
R201/R202	Metal Film	150 ohm 1 W J	3029151470	2
R203-R205	Carbon Film	22 kohm 1/5 W J	3069223970	3
R206	Carbon Film	10 ohm 1/5 W J	3069106970	1
R207	Carbon Film	47 kohm 1/5 W J	3069473970	1
R208	Carbon Film	15 kohm 1/5 W J	3069153970	1
R209/R210	Carbon Film	7.5 kohm 1/5 W J	3069752970	2
R211	Carbon Film	47 kohm 1/5 W J	3069473970	1
R212	Carbon Film	15 kohm 1/5 W J	3069153970	1
R214-R216	Carbon Film	1 kohm 1/5 W J	3069102970	3
R241	Metal Film	4.7 ohm 2 W J	3029479570	1
R242/R243	Metal Film	10 ohm 2 W J	3029100570	1
R251C	Carbon Film	33 kohm 1/5 W J	3069333970	1
R251/LR	Carbon Film	33 kohm 1/5 W J	3069333970	1
R252C	Carbon Film	330 ohm 1/5 W J	3069331970	1
R252/LR	Carbon Film	330 ohm 1/5 W J	3069331970	1
R253C	Carbon Film	390 ohm 1/5 W J	3069391970	1
R253/LR	Carbon Film	390 ohm 1/5 W J	3069391970	2
R254C	Carbon Film	390 ohm 1/5 W J	3069391970	1
R254/LR	Carbon Film	390 ohm 1/5 W J	3069391970	2
R255C	Carbon Film	270 ohm 1/5 W J	3069271970	1
R255/LR	Carbon Film	270 ohm 1/5 W J	3069271970	2
R256C	Carbon Film	10 kohm 1/5 W J	3069103970	1
R256/LR	Carbon Film	10 kohm 1/5 W J	3069103970	2
R257C	Carbon Film	33 kohm 1/5 W J	3069333970	1
R257/LR	Carbon Film	33 kohm 1/5 W J	3069333970	2
R258C	Carbon Film	1.5 kohm 1/5 W J	3069152970	1
R258/LR	Carbon Film	1.5 kohm 1/5 W J	3069152970	2
R259C	Carbon Film	1.5 kohm 1/5 W J	3069152970	1
R259/LR	Carbon Film	1.5 kohm 1/5 W J	3069152970	2
R260C	Carbon Film	560 ohm 1/5 W J	3069561970	1
R260/LR	Carbon Film	560 ohm 1/5 W J	3069561970	2
R261C	Carbon Film	560 ohm 1/5 W J	3069561970	1
R261/LR	Carbon Film	560 ohm 1/5 W J	3069561970	2
R262C	Carbon Film	560 ohm 1/5 W J	3069561970	1
R262/LR	Carbon Film	560 ohm 1/5 W J	3069561970	2
R263C	Carbon Film	560 ohm 1/5 W J	3069561970	1
R263/LR	Carbon Film	560 ohm 1/5 W J	3069561970	2
R264C	Carbon Film	560 ohm 1/5 W J	3069561970	1
R264/LR	Carbon Film	560 ohm 1/5 W J	3069561970	2
R265C	Carbon Film	1.3 kohm 1/5 W J	3069132970	1
R265/LR	Carbon Film	1.3 kohm 1/5 W J	3069132970	2
R266C	Carbon Film	22 kohm 1/5 W J	3069223970	1
R266/LR	Carbon Film	22 kohm 1/5 W J	3069223970	2
R267C	Carbon Film	22 kohm 1/5 W J	3069223970	1
R267/LR	Carbon Film	22 kohm 1/5 W J	3069223970	2
R268C	Carbon Film	100 ohm 1/5 W J	3069101970	1
R268/LR	Carbon Film	100 ohm 1/5 W J	3069101970	2
R269C	Carbon Film	100 ohm 1/5 W J	3069101970	1
R269/LR	Carbon Film	100 ohm 1/5 W J	3069101970	2
R270C	Metal Film	1.21 kohm 1/5 W F	3027121125	1
R270/LR	Metal Film	1.21 kohm 1/5 W F	3027121125	2
R271C	Carbon Film	470 ohm 1/5 W J	3069471970	1
R271/LR	Metal Film	442 ohm 1/5 W F	3027442025	2

Ref. No.	Description	Mfr. Part No.	Q'ty	Version
R272C	Carbon Film	82 ohm 1/5 W J	3069820970	1
R272/LR	Carbon Film	82 ohm 1/5 W J	3069820970	2
△R273C	Cement	0.27 ohm 5 W J	3059278782	1
△R273/LR	Cement	0.27 ohm 5 W J	3059278782	2
△R274C	Cement	0.27 ohm 5 W J	3059278782	1
△R274/LR	Cement	0.27 ohm 5 W J	3059278782	2
R275C	Carbon Film	1.8 kohm 1/5 W J	3069182970	1
R275/LR	Carbon Film	1.8 kohm 1/5 W J	3069182970	2
R276C	Carbon Film	1.5 kohm 1/5 W J	3069152970	1
R276/LR	Carbon Film	1.5 kohm 1/5 W J	3069152970	2
R277C	Carbon Film	910 ohm 1/5 W J	3069911970	1
R277/LR	Carbon Film	910 ohm 1/5 W J	3069911970	2
R278C	Carbon Film	6.8 kohm 1/5 W J	3069682970	1
R278/LR	Carbon Film	6.8 kohm 1/5 W J	3069682970	2
R279C	Carbon Film	22 ohm 1/5 W J	3069220970	1
R279/LR	Carbon Film	22 ohm 1/5 W J	3069220970	2
R280C	Carbon Film	22 ohm 1/5 W J	3069220970	1
R280/LR	Carbon Film	22 ohm 1/5 W J	3069220970	2
R281C	Carbon Film	22 ohm 1/5 W J	3069220970	1
R281/LR	Metal Film	10 ohm 1 W J	3029100470	2
R282C	Carbon Film	24 kohm 1/5 W J	3069243970	1
R282/LR	Carbon Film	24 kohm 1/5 W J	3069243970	2
R283	Carbon Film	69 kohm 1/5 W J	3069693970	1
R284	Carbon Film	100 kohm 1/5 W J	3069104970	1
R285	Carbon Film	3.3 kohm 1/5 W J	3069332970	1
R286	Carbon Film	220 ohm 1/5 W J	3069221970	1
R287	Carbon Film	10 kohm 1/5 W J	3069103970	1
R288	Carbon Film	150 kohm 1/5 W J	3069154970	1
R288C	Carbon Film	33 kohm 1/5 W J	3069333970	1
R288/LR	Carbon Film	33 kohm 1/5 W J	3069333970	2
R289C	Carbon Film	560 ohm 1/5 W J	3069561970	1
R289/LR	Carbon Film	560 ohm 1/5 W J	3069561970	2
R290C	Carbon Film	4.7 kohm 1/5 W J	3069472970	1
R290/LR	Carbon Film	4.7 kohm 1/5 W J	3069472970	2
R291	Carbon Film	1.5 kohm 1/5 W J	3069152970	1
R292	Carbon Film	10 kohm 1/5 W J	3069103970	1
R294	Carbon Film	4.7 kohm 1/5 W J	3069472970	3
R296	Carbon Film	47 kohm 1/5 W J	3069473970	1

MISCELLANEOUS				
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	1
49	Jack, RCA, 2P, Yellow		4438114210	1
50	Terminal Speaker, 8P		4408105810	1
52	Terminal Speaker, 2P		4408108710	1
	Plate, Ground		4235007310	2

PCB2 ASSEMBLY P.C. BOARD TUNER				
CAPACITORS				
C614/LR	Electrolytic SA	4.7 uF 50 V M	3479247971	2
C615/LR	Mylar	0.047 uF 100 V J	3679473120	2
C616-C617	Ceramic Tubular	3300 pF 50 V J	3519332935	2 EUROPE
C618	Ceramic Tubular	2200 pF 50 V J	3519223935	1 EUROPE
C825	Electrolytic SG	47 uF 25 V M	3479347041	1
C901	Ceramic Tubular	0.01 uF 50 V Z	3519103935	1
C902	Electrolytic SG	100 uF 16 V M	3479310131	1
C903	Electrolytic SA	0.47 uF 50 V M	3479247971	1
C904	Ceramic Tubular	0.01 uF 50 V Z	3519103935	1
C905	Ceramic Tubular	2200 uF 50 V Z	3519223935	1
C906	Poly	470 pF 50 V J	3619471110	1
C907	Ceramic Tubular	2200 uF 50 V Z	3519223935	1
C908	Ceramic Tubular	10 pF 50 V J	3519100935	1
C909	Ceramic Tubular	0.01 uF 50 V Z	3519103935	1
C910/C911	Ceramic Tubular	2200 uF 50 V Z	3519223935	2
C912	Electrolytic SA	4.7 uF 50 V M	3479247971	1
C913	Ceramic Tubular	2200 uF 50 V Z	3519223935	1
C914	Ceramic Tubular	47 pF 50 V J	3519470935	1
C915/C916	Ceramic Disc	0.047 uF 50 V Z	3579473530	2
C917	Electrolytic SA	2.2 uF 50 V M	3479222971	1
C918	Electrolytic SA	4.7 uF 50 V M	3479247971	1
C919	Ceramic Tubular	0.01 uF 50 V Z	3519103935	1
C920	Electrolytic SG	47 uF 25 V M	3479347041	1
C921	Electrolytic SA	2.2 uF 50 V M	3479222971	1
C922	Electrolytic SA	3.3 uF 50 V M	3479233971	1
C923	Electrolytic SA	10 uF 50 V M	3479210071	1
C924	Ceramic Tubular	0.047 uF 50 V Z	3519473935	1
C925	Ceramic Tubular	330 pF 50 V J	3519331935	1
C926	Mylar	0.027 uF 100 V J	3679273120	1 EUROPE
(C926)	Mylar	0.047 uF 100 V J	3679473120	1 USA/CANADA
C927	Ceramic Tubular	330 pF 50 V J	3519331935	1
C928D	Ceramic Tubular	82 pF 50 V J	3519820935	1 EUROPE
C929D	Ceramic Tubular	100 pF 50 V J	3519101935	1 EUROPE
C931	Electrolytic SA	4.7 uF 50 V M	3479247971	1
C932	Electrolytic SG	220 uF 16 V M	3479322131	1
C933	Ceramic Tubular	0.01 uF 50 V Z	3519103935	1
C934/C935	Electrolytic SA	0.47 uF 50 V M	3479247971	2
C936	Electrolytic SA	1 uF 50 V M	3479210971	1
C937	Mylar	0.047 uF 100 V J	3679473120	1
C938	Ceramic Tubular	680 pF 50 V J	3519681935	1
C939	Electrolytic SA	10 uF 50 V M		

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
C960L/R	Ceramic Tubular	100 pF 50 V J	3519101935	2	R920	Carbon Film	24 kohm 1/5 W J	3069243970	1
C961L/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
C963L/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	R931L/R	Carbon Film	330 kohm 1/5 W J	3069334970	2
CF6	Crystal, 7.2MHZ, HC-49/U		3908101031	1	(R931L/R)	Carbon Film	180 kohm 1/5 W J	3069184970	2
CONNECTORS					R932L/R	Carbon Film	180 kohm 1/5 W J	3069184970	2
CP102	Wafer 9P		4428525590	1	(R932L/R)	Carbon Film	150 kohm 1/5 W J	3069154970	2
CP103	Wafer 5P		4428516410	1	R933L/R	Carbon Film	3.3 kohm 1/5 W J	3069332970	2
CP104	Wafer 7P		4428516610	1	R934L/R	Carbon Film	3.3 kohm 1/5 W J	3069332970	2
CP105	Wafer 12P		4428510720	1	R935L/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		4428516810	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
D603L/R	1N4148M, Switching		2058322101	2	R949/R950	Carbon Film	4.7 kohm 1/5 W J	3069472970	2
D604L/R	1N4148M, Switching		2058322101	2	R951/R952	Carbon Film	10 kohm 1/5 W J	3069103970	2
D605L/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					R960L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
FE901	FM Tuner, FE406-G60		3928801890	1	R961L/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					R963L/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(Ω)		3248050343	1
IC902	LA1286		2168017128	1	VR902	50 k(Ω)		3248050343	1
IC903	KA2265, MPX		2168002112	1	VR903	200 k(Ω)		3248020443	1
COILS					MISCELLANEOUS				
L601L/R	Inductor, 0.5 uH		2648001010	2	TC901	Trimmer, 20P		3838001160	1
L908L/R	MPX 19 k/38 kHz, Coil, Black		2658001050	2	TC902	Trimmer, 10P		3638001150	1
L901	AM ANT		2680201120	1	VD901	KV1236Z, Diode, Varactor		2058619108	1
L901D	Inductor, 20.8mH		2648601430	1	G901	Plate, Ground		4235007310	1
L902	AM OSC		2636201150	1	51	Terminal Speaker, 4P		4408105410	1
L903	FM QUAD DET A		2638501110	1	53	Jack, Multiroom		4438008510	2
L904	FM QUAD DET B		2638501210	1	54	Jack, RCA, 4P		4438108610	2
L905	AM IFT, P-7SB		2648001250	1	55	Terminal, Antenna		4408108210	1
TRANSISTORS					(55)	Terminal, Antenna		4408108310	1
Q601L/R	KTC3198Y/KTC1815Y, NPN		2208606104	2	PCBS ASSEMBLY/FPC BOARD SUPPLY				
Q901	KTC1923Y/KTC3194Y, NPN		2208406103	1	CAPACITORS				
Q902	KTC2240L/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
Q908L/R	KTD1302, NPN		2208608112	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	3409322269	1
R815L/R	Carbon Film	390 ohm 1/5 W J	3069391970	2	CONNECTORS				
R816L/R	Carbon Film	15 kohm 1/5 W J	3069153970	2	CN704	Lead Ass'y, 4P, 160 mm		436204163332	1
R817L/R	Cement	0.47 ohm 2 W J	3059478572	2	CP101	Plug LV AC, 3P		4428525790	1
R818L/R	Carbon Film	22 kohm 1/5 W J	3069223970	2	CP602	Wafer 7P		4428516610	1
R619L/R	Carbon Film	2.2 kohm 1/5 W J	3069222970	2	CP701	Plug LV AC, 2P		4428525780	1
R620L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2	CP702	Plug LV AC, 3P		4428525790	1
R621L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2	CP703	Wafer 4P		4428505810	1
R622L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2	CP801	Wafer 8P		4428516710	1
R623L/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/D708	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
RESISTORS				
R701	Metal Film	10 ohm 1 W J	3029100470	1
R702	Carbon Film	2 kohm 1/5 W J	3069202970	1
R703	Carbon Film	330 ohm 1/5 W J	3069331970	1
R704	Carbon Film	15 kohm 1/5 W J	3069153970	1
R706	Carbon Film	6.8 kohm 1/5 W J	3069682970	1
R707	Carbon Film	1 kohm 1/5 W J	3069102970	1
R708	Carbon Film	10 kohm 1/5 W J	3069103970	1
R709	Metal Film	3.3 ohm 1/2 W J	3009335373	1 USA/CANADA
FUSES				
F701	△ TL 4A, 250V	5508302934	1	EUROPE
(F701)	△ SB 4A, 125V	5508102921	1	USA/CANADA
F702	△ TL 4A, 250V	5508302934	1	EUROPE
(F702)	△ SB 4A, 125V	5508102921	1	USA/CANADA
F703	△ TL 4A, 250V	5508302934	1	EUROPE
(F703)	△ SB 6A, 125V	5508103121	1	USA/CANADA
F704	△ TL 500mA, 250V	5508301934	1	EUROPE
(F704)	△ NB 315mA, 125V	5508201421	1	USA/CANADA
F705	△ TL 2.5A, 250V	5508302535	1	EUROPE
MISCELLANEOUS				
RLY701	△ Relay, HR-CR313(TV-3)	5528042002	1	
G701	Plate, Ground	4235007310	1	
G702	Plate, Ground	4235007310	1	
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
	△ Standby Transformer, 230 V 50 Hz	2828000077	1	EUROPE
	△ Standby Transformer, 120 V 60 Hz	2828089007	1	USA/CANADA
	Pin, Solder	4228001410	2	
	Clip Fuse	4255001010	8	
PCB4 ASSEMBLY P.C. BOARD SURROUND				
CAPACITORS				
C601/L/R	Ceramic Tubular	2200 pF 50 V J	3519222935	2
C602/L/R	Electrolytic SA	2.2 uF 50 V M	3479222971	2
C603/L/R	Ceramic Tubular	100 pF 50 V J	3519101935	2
C604/L/R	Electrolytic SA	2.2 uF 50 V M	3479222971	2
C605/L/R	Ceramic Tubular	4.7 pF 50 V J	3519047935	2
C606/L/R	Electrolytic SA	47 uF 35 V M	3479247061	2
C607	Mylar	0.1 uF 63 V K	3679104297	1
C608/C609	Electrolytic SA	10 uF 50 V M	3479210071	2
C610/C611	Electrolytic SA	10 uF 50 V M	3479210071	2
C612/C613	Ceramic Tubular	2200 uF 50 V Z	3519222935	2
CONNECTORS				
CN601	Lead Assy, 3P, 180 mm	436203183332	1	
CN602	Lead Assy, 7P, 350 mm	436207353332	1	
DIODES				
D601	1N4002, Rectifier	2258100135	1	
D602	1N4002, Rectifier	2258100135	1	
D606	1N4002, Rectifier	2258100135	1	
INTEGRATED CIRCUITS				
IC601	STK4132 II, Hybrid IC	2178317129	1	
RESISTORS				
R601/L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
R602/L/R	Carbon Film	47 kohm 1/5 W J	3069473970	2
R603/L/R	Carbon Film	2 kohm 1/5 W J	3069202970	2
R604/L/R	Carbon Film	43 kohm 1/5 W J	3069433970	2
R605/L/R	Metal Film	2.2 kohm 1 W J	3029222470	2
R606/L/R	Carbon Film	1.3 kohm 1/5 W J	3069132970	2
R607	Carbon Film	10 ohm 1/5 W J	3069100970	1
R608	Carbon Film	1.5 kohm 1/5 W J	3069152970	1
R609	Carbon Film	1 kohm 1/5 W J	3069102970	1
R610	Carbon Film	10 kohm 1/5 W J	3069103970	1
R611	Carbon Film	390 kohm 1/5 W J	3069394970	1
R612	Carbon Film	68 kohm 1/5 W J	3069683970	1
R613	Carbon Film	220 kohm 1/5 W J	3069224970	1
R614	Carbon Film	4.7 kohm 1/5 W J	3069472970	1
R620	Carbon Film	100 ohm 1/5 W J	3069101970	1
MISCELLANEOUS				
	Plate, Ground	4235007310	1	

Ref. No.	Description	Mfr. Part No.	Qty	Version
C433	Ceramic Tubular	100 pF 50 V J	3519101935	1
CONNECTORS				
CN401	Lead Assy, 10P, 220 mm	436210223332	1	
CN402	Lead Assy, 5P, 400 mm	436205403332	1	
DIODE				
D401	1N4148M, Switching	2058322101	1	
INTEGRATED CIRCUITS				
IC401/IC402	KIA4559P/KIA75559P, OP Amp	2168206104	2	
TRANSISTORS				
Q401	BKTA1266Y/KTA1015Y, PNP	2208206105	1	
Q402	DTC114Y5	2208622106	1	
RESISTORS				
R401/L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2
R402/L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
R403/L/R	Carbon Film	5.1 kohm 1/5 W J	3069512970	2
R404/L/R	Carbon Film	560 ohm 1/5 W J	3069561970	2
R405/L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2
R406/L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
R407/L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2
R408/L/R	Carbon Film	120 kohm 1/5 W J	3069124970	2
R409/L/R	Carbon Film	1 ohm 1/5 W J	3069105970	2
R410/R411	Carbon Film	220 ohm 1/5 W J	3069221970	2
R412/L/R	Carbon Film	560 ohm 1/5 W J	3069561970	2
R413/L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2
R414/R415	Carbon Film	220 ohm 1/5 W J	3069221970	2
R416/L/R	Carbon Film	20 kohm 1/5 W J	3069203970	2
R418/L/R	Carbon Film	3.9 kohm 1/5 W J	3069392970	2
R419/L/R	Carbon Film	2.2 kohm 1/5 W J	3069222970	2
R420/L/R	Carbon Film	560 ohm 1/5 W J	3069561970	2
R421/L/R	Carbon Film	1.2 kohm 1/5 W J	3069122970	2
R422/L/R	Carbon Film	1.2 kohm 1/5 W J	3069122970	2
R423	Carbon Film	12 kohm 1/5 W J	3069123970	1
R424	Carbon Film	100 ohm 1/5 W J	3069101970	1
R425/R426	Carbon Film	3.6 kohm 1/5 W J	3069362970	2
R431/L/R	Carbon Film	470 ohm 1/5 W J	3069471970	2
MISCELLANEOUS				
RLY401	Relay, G5V-2-H1	5528040001	1	
19	Volume Rotary (Bass/Treble)	3208049510	2	
20	Volume Rotary (Balance)	3208052010	1	
21	Jack, RCA, 3P	4438109710	1	
PCB5 ASSEMBLY P.C. BOARD VOLUME				
CAPACITORS				
C301/L/R	Ceramic Tubular	470 pF 50 V J	3519471935	2
C302/L/R	Mylar	0.082 uF 100 V J	3679623120	2
C303	Electrolytic SG	47 uF 25 V M	3479347041	1
C304/C305	Electrolytic SG	100 uF 10 V M	3479310121	2
C306	Ceramic Disc	0.047 uF 50 V Z	3579473530	1
CONNECTOR				
CP502	FPC Plug, 18P	4428526305	1	
INTEGRATED CIRCUIT				
IC301	TA7291S	2168007204	1	
RESISTORS				
R301/L/R	Carbon Film	51 kohm 1/5 W J	3069513970	2
R302/L/R	Carbon Film	6.2 kohm 1/5 W J	3069622970	2
R303/R304	Carbon Film	6.2 kohm 1/5 W J	3069622970	2
R305	Carbon Film	33 ohm 1/5 W J	3069330970	1
R306	Carbon Film	15 kohm 1/5 W J	3069153970	1
R307	Carbon Film	4.7 kohm 1/5 W J	3069472970	1
MISCELLANEOUS				
W301	Wire Lug, #24, Black, 140mm	152624101457	2	
22	Switch Push	4828059610	1	
23	Volume Motor	3228019410	1	
PCB7 ASSEMBLY P.C. BOARD FRONT				
CAPACITORS				
C801	CAP, FMOH47SZTP16, Backup	5.5 V	3409947314	1
C802	Electrolytic SG	47 uF 25 V M	3479347041	1
C803	Ceramic Tubular	0.1 uF 50 V Z	3519104935	1
C804	Electrolytic SA	10 uF 50 V M	3479210071	1
C805	Ceramic Tubular	12 pF 50 V J	3519120935	1
C806	Electrolytic SA	33 uF 25 V M	3479233041	1
C807-C814	Ceramic Tubular	100 pF 50 V J	3519101935	8
C815/C816	Ceramic Tubular	0.047 uF 50 V Z	3519473935	2
C817-C821	Ceramic Tubular	100 pF 50 V J	3519101935	5
C822	Ceramic Tubular	0.1 uF 50 V Z	3519104935	1
C824	Ceramic Tubular	0.1 uF 50 V Z	3519104935	1
CONNECTORS				
CN801	Lead Assy, 8P 350 mm	436208353332	1	
CN802	FPC Plug 15P	4428526690	1	
CN803	FPC Plug 12P	4428526246	1	

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	4428528310	1	
LED801	LED, SPR54MWV3, Red/Green	2306222302	1		CN502	FPC Plug 18P	4428528305	1	
INTEGRATED CIRCUIT					DIODES				
(C801)	CPX82220-107Q, CPU	2138322182	1		CN503	Lead Ass'y, 9P, 450 mm	436209453332	1	
TRANSISTORS					INTEGRATED CIRCUITS				
Q801	MPSA06Y, NPN	2208606114	1		IC501/IC502	KIA4559P/KIA755559P, OP Amp	2168206104	2	
Q802	KTC3198Y/KTC1815Y, NPN	2208606104	1		IC503	LV-1000NA	2168017142	1	
Q803	DTA114YS, PNP	2208222105	1		IC504	DRAM, uPD61256-08	2138430001	1	
RESISTORS					TRANSISTORS				
R801	Carbon Film	10 kohm 1/5 W J	3069103970	1	Q501	BKTA1268Y/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/L/R	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/L/R	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					CAPACITORS				
X-TAL801	Resonator, CST10.00MTW	3938131750	1		C501/C502	Electrolytic SG	47 uF 25 V M	3479347041	2
24	Switch Push	4628054410	1		C503/L/R	Electrolytic SA	4.7 uF 50 V M	3479247971	2
28	Switch Tact	4658003710	38		C504	Electrolytic SA	3.3 uF 50 V M	3479233971	1
29(SEN801)	Remote Sensor, TFM5380 (38 kHz)	2408005001	1		C505	Electrolytic SA	10 uF 50 V M	3479210071	1
30(FIP801)	FIP, 12 LM 8, FL Display	2326130301	1		C507	Electrolytic SA	3.3 uF 50 V M	3479233971	1
PCBB ASSEMBLY PCB BOARD DOLBY									
CAPACITORS									
C501/C502	Electrolytic SG	47 uF 25 V M	3479347041	2	R504R	Carbon Film	22 kohm 1/5 W J	3069223970	1
C503/L/R	Electrolytic SA	4.7 uF 50 V M	3479247971	2	R505/L/R	Carbon Film	22 kohm 1/5 W J	3069223970	2
C504	Electrolytic SA	3.3 uF 50 V M	3479233971	1	R506	Carbon Film	22 kohm 1/5 W J	3069223970	1
C505	Electrolytic SA	10 uF 50 V M	3479210071	1	R507	Carbon Film	1.5 kohm 1/5 W J	3069152970	1
C507	Electrolytic SA	3.3 uF 50 V M	3479233971	1	R508	Carbon Film	750 ohm 1/5 W J	3069751970	1
C508/C509	Electrolytic SG	47 uF 25 V M	3479347041	2	R509	Carbon Film	1.8 kohm 1/5 W J	3069182970	1
C510	Electrolytic SA	2.2 uF 50 V M	3479222971	1	R510	Carbon Film	3.9 kohm 1/5 W J	3069392970	1
C511	Electrolytic SA	3.3 uF 50 V M	3479233971	1	R511	Carbon Film	4.7 kohm 1/5 W J	3069472970	1
C512	Mylar	0.15 uF 63 V K	3679154297	1	R515	Carbon Film	3.3 kohm 1/5 W J	3069332970	1
C513	Ceramic Tubular	150 pF 50 V J	3519151935	1	R516/R517	Carbon Film	100 ohm 1/5 W J	3069101970	2
C514	Electrolytic SG	220 uF 10 V M	3479322121	1	R519	Carbon Film	10 kohm 1/5 W J	3069103970	1
C515	Poly	120 pF 50 V J	3619121110	1	R520	Carbon Film	100 kohm 1/5 W J	3069104970	1
C516	Poly	680 pF 50 V J	3619681110	1	R521	Carbon Film	3.9 kohm 1/5 W J	3069392970	1
C517	Electrolytic SA	4.7 uF 50 V M	3479247971	1	R522/L/R	Carbon Film	8.8 kohm 1/5 W J	306962970	2
C518	Electrolytic SG	47 uF 50 V M	3479347071	1	R523/L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2
C519	Electrolytic SG	470 uF 10 V M	3479347121	1	R524	Metal Film	56 ohm 1 W J	3029680470	1
C520	Poly	680 pF 50 V J	3619681110	1	R525	Carbon Film	56 ohm 1/5 W J	3069580970	1
C521	Mylar	0.022 uF 100 V J	3679223120	1	R526	Carbon Film	1 ohm 1/5 W J	3069105970	1
C522	Poly	150 pF 50 V J	3619151110	1	R527	Carbon Film	47 kohm 1/5 W J	3069473970	1
C523-C525	Electrolytic SG	220 uF 16 V M	3479322131	3	R528	Carbon Film	3.3 kohm 1/5 W J	3069332970	1
C526/C527	Ceramic Tubular	0.1 uF 50 V Z	3519104935	2	R529	Carbon Film	15 kohm 1/5 W J	3069153970	1
C528	Electrolytic SG	220 uF 16 V M	3479322131	1	R530	Carbon Film	8.2 kohm 1/5 W J	3069822970	1
C529	Mylar	0.22 uF 63 V K	3679224297	1	R531	Carbon Film	100 kohm 1/5 W J	3069104970	1
C530	Mylar	0.068 uF 100 V J	3679683120	1	R532	Carbon Film	39 kohm 1/5 W J	3069393970	1
C531	Mylar	0.0039 uF 100 V J	3679392120	1	R533/R534	Carbon Film	6.2 kohm 1/5 W J	3069822970	2
C532	Mylar	0.0047 uF 100 V J	3679472120	1	R535	Carbon Film	47 kohm 1/5 W J	3069473970	1
C533	Mylar	0.033 uF 100 V J	3679333120	1	R536	Carbon Film	5.6 kohm 1/5 W J	3069582970	1
C534	Electrolytic SA	10 uF 50 V M	3479210071	1	R537	Carbon Film	1 kohm 1/5 W J	3069102970	1
C535	Electrolytic SA	1 uF 50 V M	3479210971	1	R538	Carbon Film	10 kohm 1/5 W J	3069103970	1
C536/C537	Electrolytic SA	10 uF 50 V M	3479210071	2	R539-R541	Carbon Film	1 kohm 1/5 W J	3069102970	3
C538	Ceramic Tubular	470 pF 50 V J	3519471935	1	R542	Carbon Film	220 ohm 1/5 W J	3069221970	1
C539/L/R	Electrolytic SA	10 uF 50 V M	3479210071	2	R543	Carbon Film	100 kohm 1/5 W J	3069104970	1
C540	Ceramic Tubular	680 pF 50 V J	3519681935	1	R544	Carbon Film	220 ohm 1/5 W J	3069221970	1
C541	Mylar	0.0056 uF 100 V J	3679582120	1	R545-R547	Carbon Film	1 kohm 1/5 W J	3069102970	3
C542	Mylar	0.0047 uF 100 V J	3679472120	1	R548/R549	Carbon Film	220 ohm 1/5 W J	3069221970	2
C543	Electrolytic SA	10 uF 50 V M	3479210071	1	R550-R552	Carbon Film	1 kohm 1/5 W J	3069102970	3
C544	Ceramic Tubular	0.1 uF 50 V Z	3519104935	1	R553/L/R	Carbon Film	680 ohm 1/5 W J	3069681970	2
C545-C547	Ceramic Tubular	100 pF 50 V J	3519101935	3	R554/L/R	Carbon Film	1 ohm 1/5 W J	3069105970	2
C548	Ceramic Tubular	0.01 uF 50 V Z	3519103935	1	R555/L/R	Carbon Film	4.7 kohm 1/5 W J	3069472970	2
C549	Electrolytic SA	1 uF 50 V M	3479210971	1	R556/L/R	Carbon Film	1.5 kohm 1/5 W J	3069152970	2
C550/C551	Electrolytic SG	47 uF 25 V M	3479347041	2	R557/L/R	Carbon Film	2 kohm 1/5 W J	3069202970	2
C553/C554	Ceramic Tubular	100 pF 50 V J	3519101935	2	R558/R559	Carbon Film	100 ohm 1/5 W J	3069101970	2
C555/C556	Electrolytic SG	47 uF 25 V M	3479347041	2	R560/L/R	Carbon Film	680 ohm 1/5 W J	3069681970	2
C557/L/R	Electrolytic SA	1 uF 50 V M	3479210971	2	R561/L/R	Carbon Film	1 ohm 1/5 W J	3069105970	2
C558/L/R	Ceramic Tubular	0.001 uF 50 V Z	3519102935	2	R562/L/R	Carbon Film	4.7 kohm 1/5 W J	3069472970	2
C559/L/R	Electrolytic SA	22 uF 50 V M	3479222041	2	R563/L/R	Carbon Film	1.5 kohm 1/5 W J	3069152970	2
C561/C562	Electrolytic SG	47 uF 25 V M	3479347041	2	R564/L/R	Carbon Film	2 kohm 1/5 W J	3069202970	2
C563/L/R	Electrolytic SA	1 uF 50 V M	3479210971	2	R565/R566	Carbon Film	100 ohm 1/5 W J	3069101970	2
C564/L/R	Ceramic Tubular	0.001 uF 50 V Z	3519102935	2	R567	Carbon Film	2.2 kohm 1/5 W J	3069222970	1
C565/L/R	Electrolytic SA	3.3 uF 50 V M	3479233971	2	R568/L/R	Carbon Film	2.2 kohm 1/5 W J	3069472970	2
C566/C567	Electrolytic SG	47 uF 25 V M	3479347041	2	R569-R571	Carbon Film	2.2 kohm 1/5 W J	3069222970	3
C568-C570	Ceramic Tubular	100 pF 50 V J	3519101935	3	R572/L/R	Carbon Film	2.2 kohm 1/5 W J	3069202970	2
C571	Electrolytic SA	10 uF 50 V M	3479210071	1	R573	Carbon Film	820 ohm 1/5 W J	3069621970	1
C572	Electrolytic SG	220 uF 16 V M	3479322131	1	R574	Carbon Film	1 kohm 1/5 W J	3069102970	1
C573	Electrolytic SA	10 uF 50 V M	3479210071	1	R575/L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2
					R576/R577	Carbon Film	220 kohm 1/5 W J	3069224970	2

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	

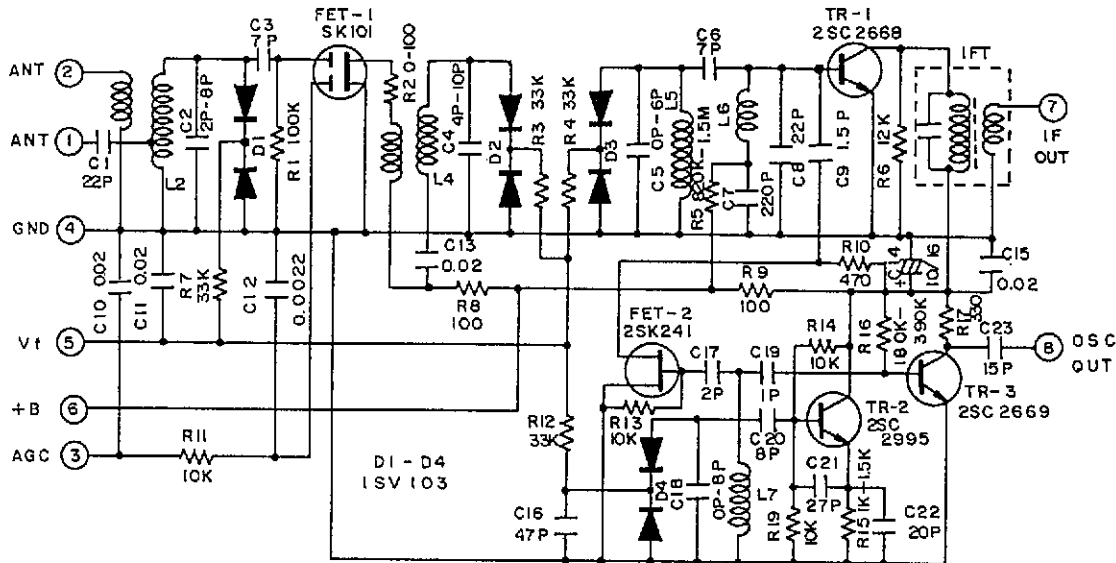
Ref. No.	Description	Mfr. Part No.	Q'ty	Version
PCB10 ASSEMBLY P.C. BOARD VOLUME LED				
CNT581	Lead Assy, 2P, 180 mm, 2.5 mm Pitch	4358102184	1	
LED581	LED, SLC-22VRS, Green	2308220324	1	

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 580 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	

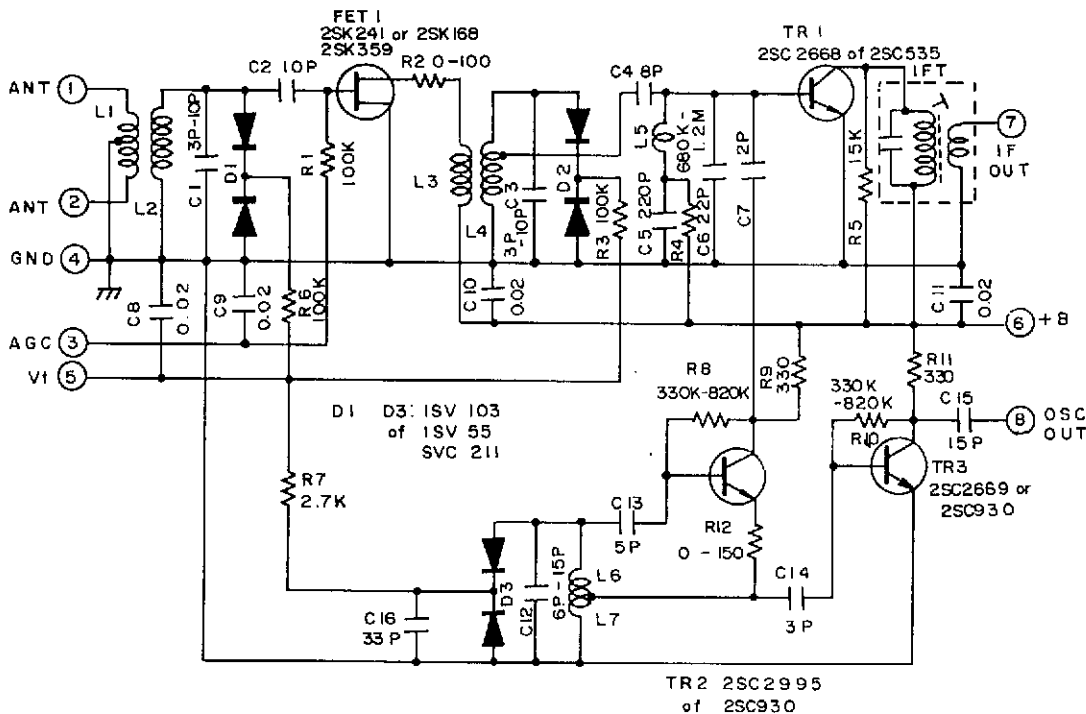
Ref. No.	Description	Mfr. Part No.	Q'ty	Version
PCB11 ASSEMBLY P.C. BOARD SUB-WOOFER				
CN903	Lead Assy, 3P, 180mm	436203183332	1	
R964L/R	Carbon Film 1 kohm 1/5 W J	3069102970	2	
66	Jack RCA, 2P	4438111510	1	

IC FUNCTIONAL BLOCK DIAGRAM

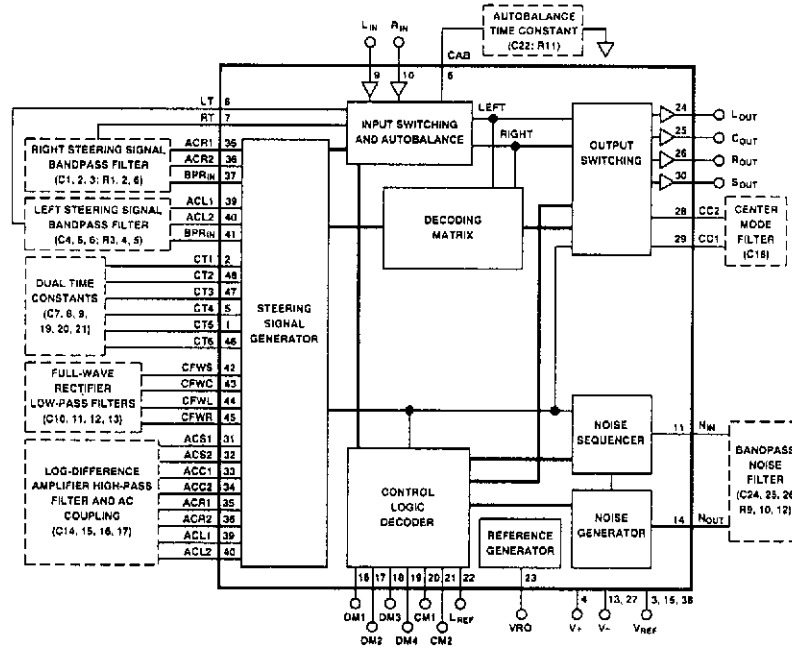
FE901 FE407-G60 (EUROPE VERSION)



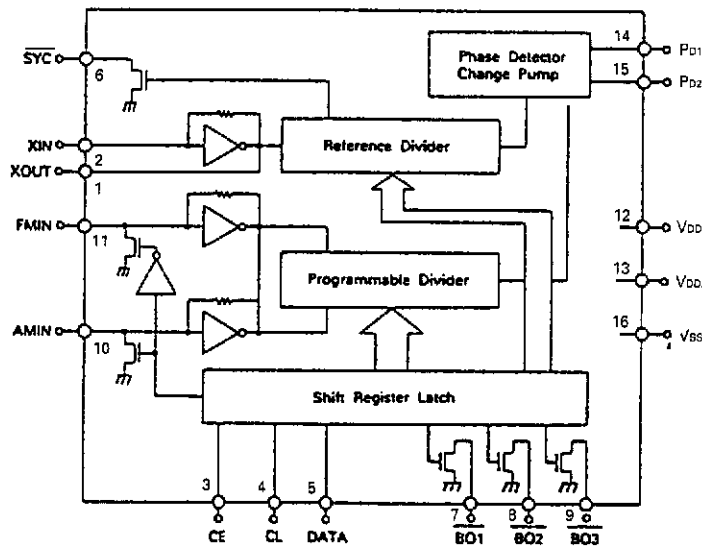
FE901 FE407-A15 (USA/CANADA VERSION)



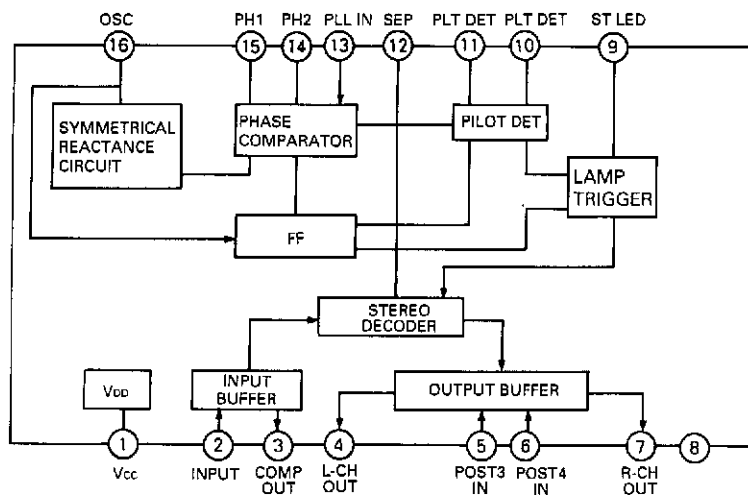
IC201 SSM2126A



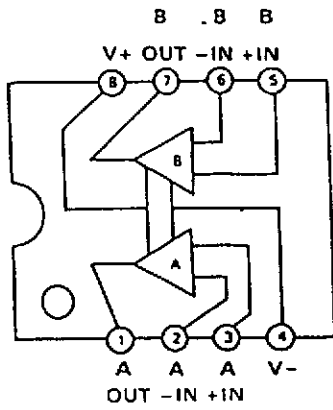
IC901 LM7001



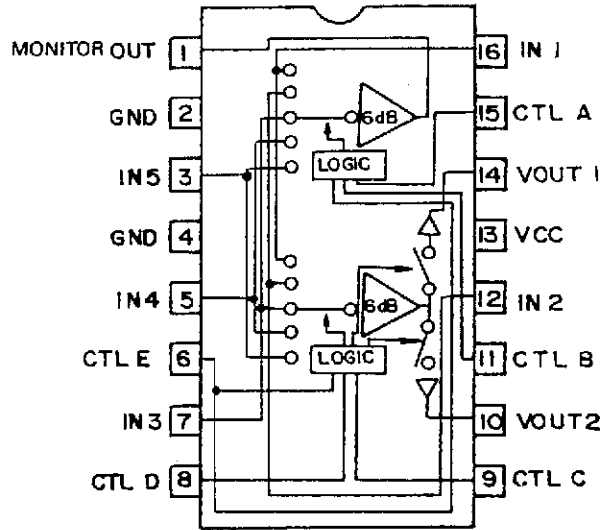
IC903 KA2265



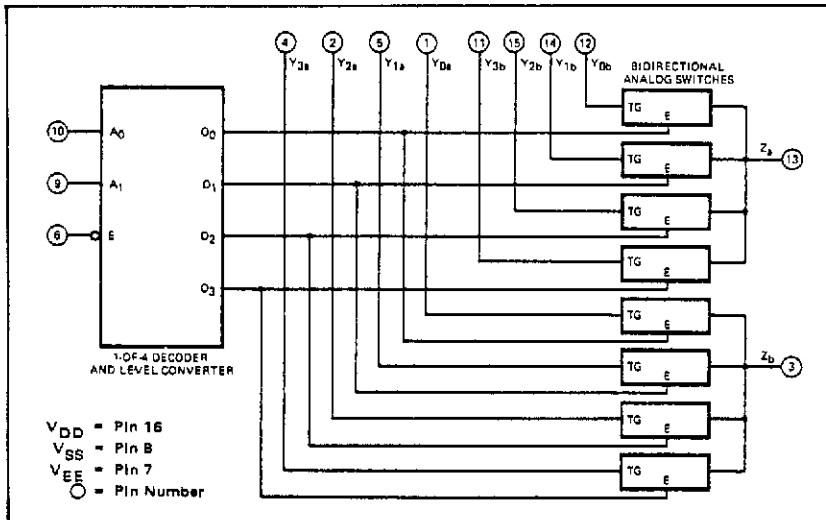
IC106, IC107, IC108, IC401, IC402
 IC501, IC502, IC508, IC509
 KIA4559P/KIA75559P



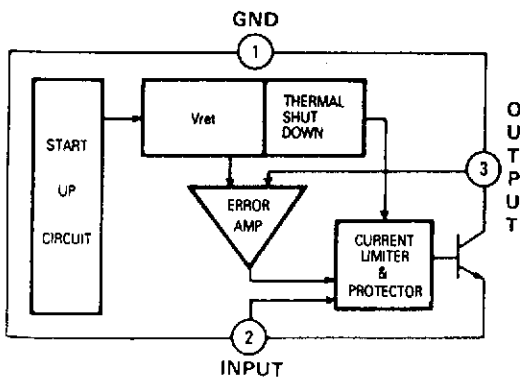
IC104 BA7625



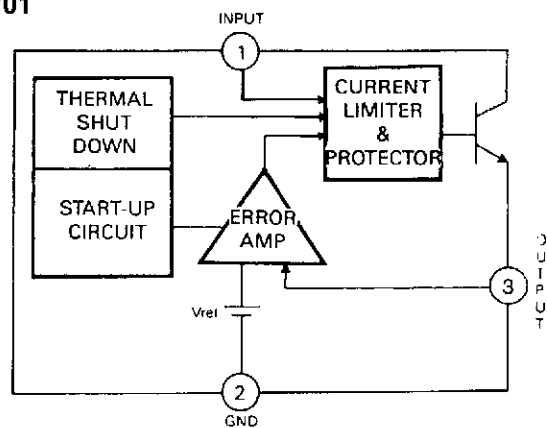
IC103 GD4052B



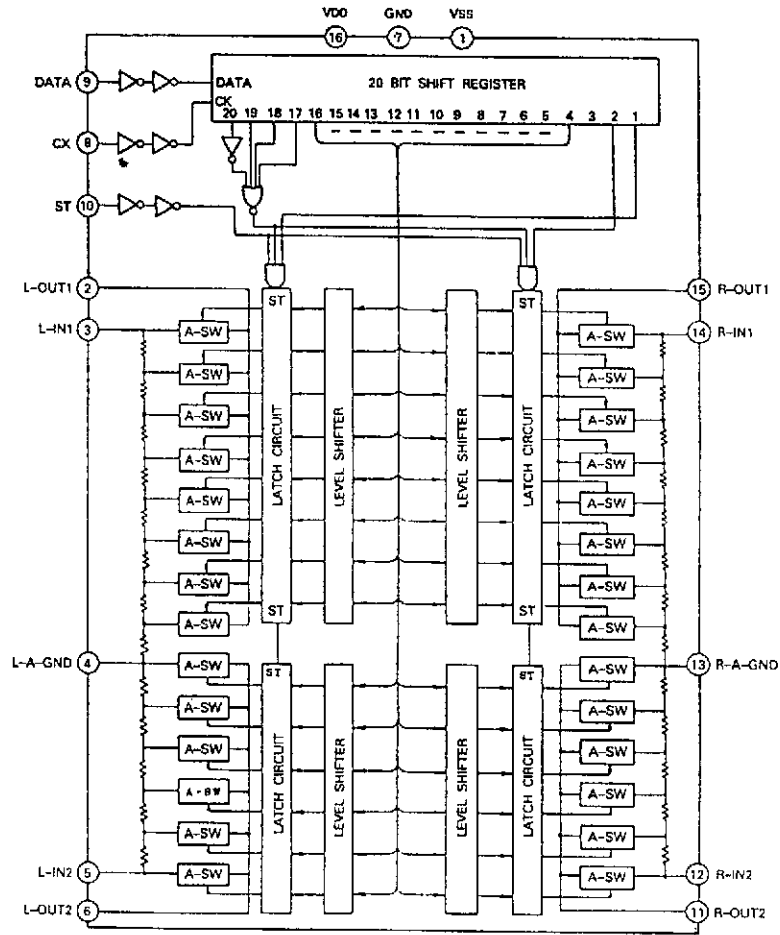
IC243 GL7915



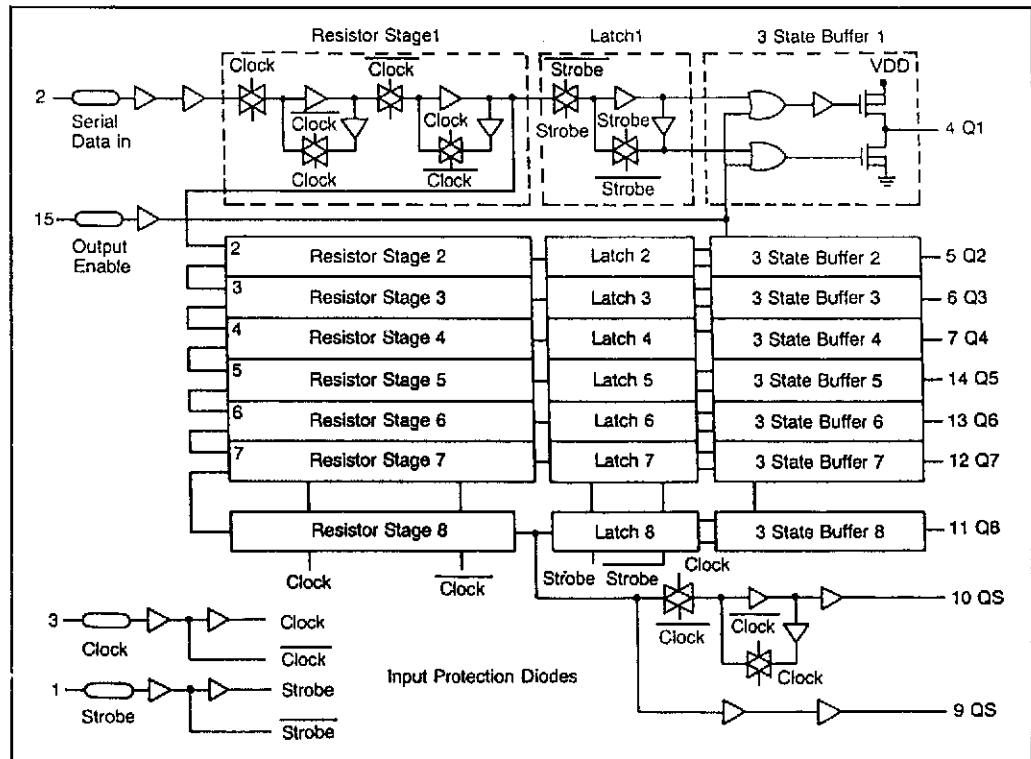
IC241 GL7815
 IC242 GL7006
 IC701



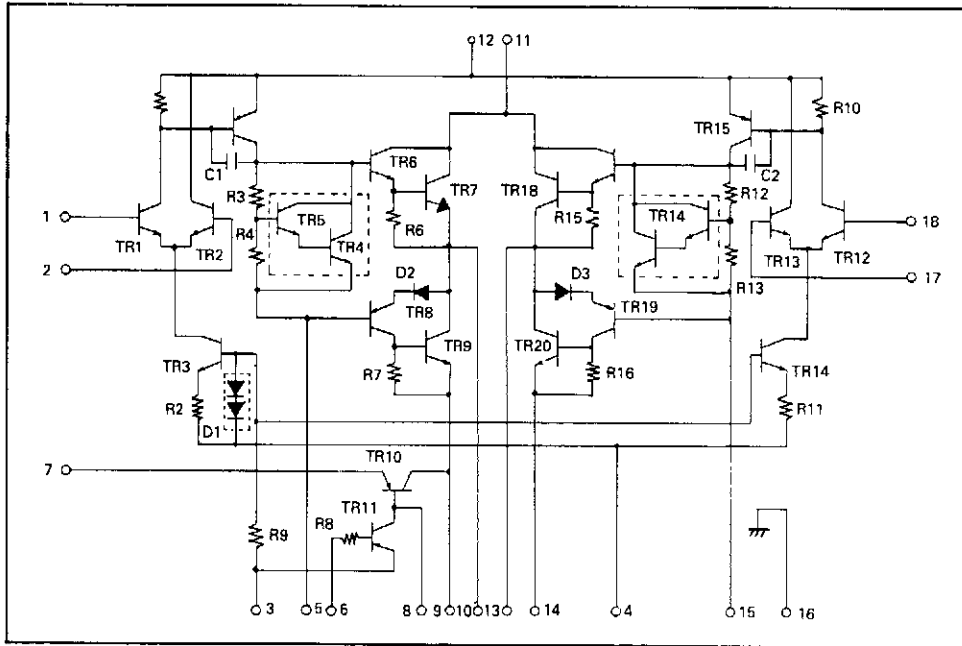
IC507 TC9176P



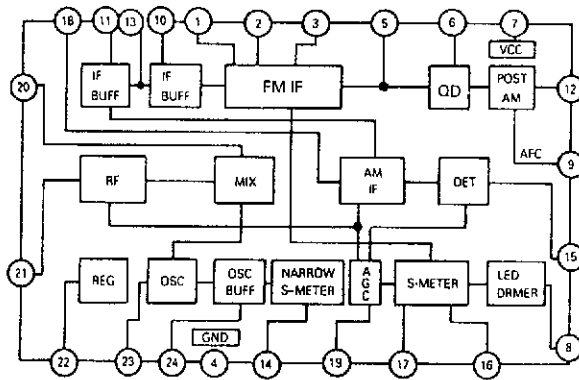
IC105, IC202, IC505 MC14094BCP



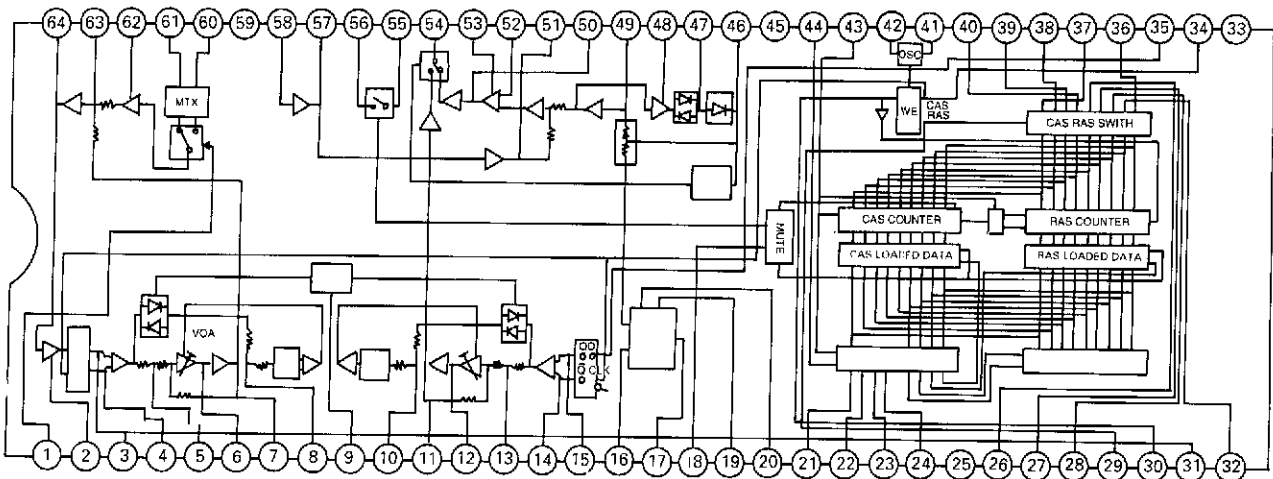
IC601 STK4132II



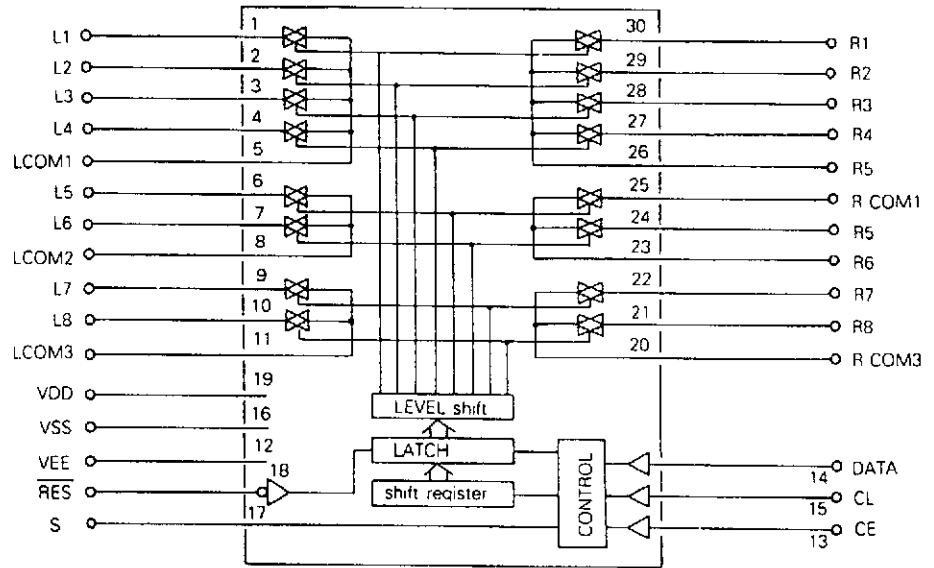
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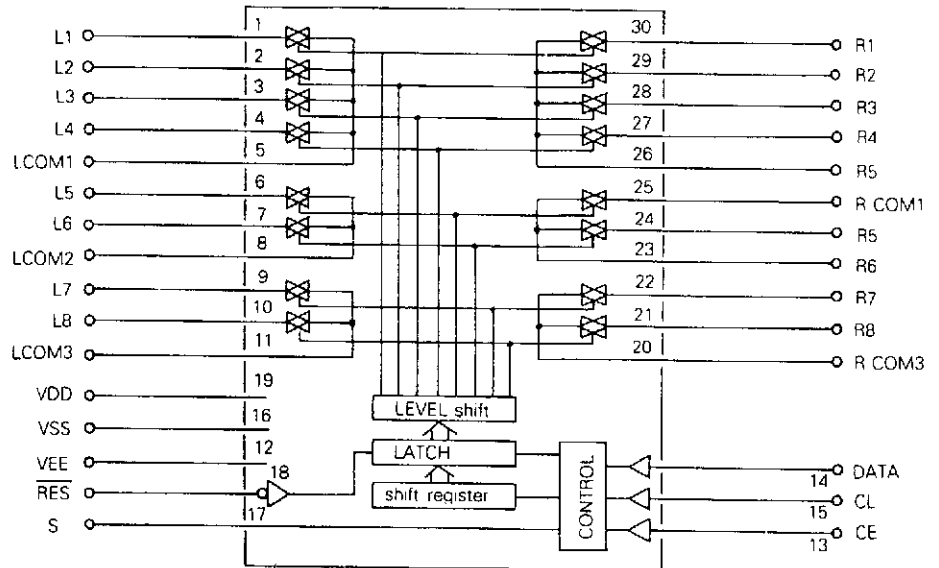
IC503 LV1000NA



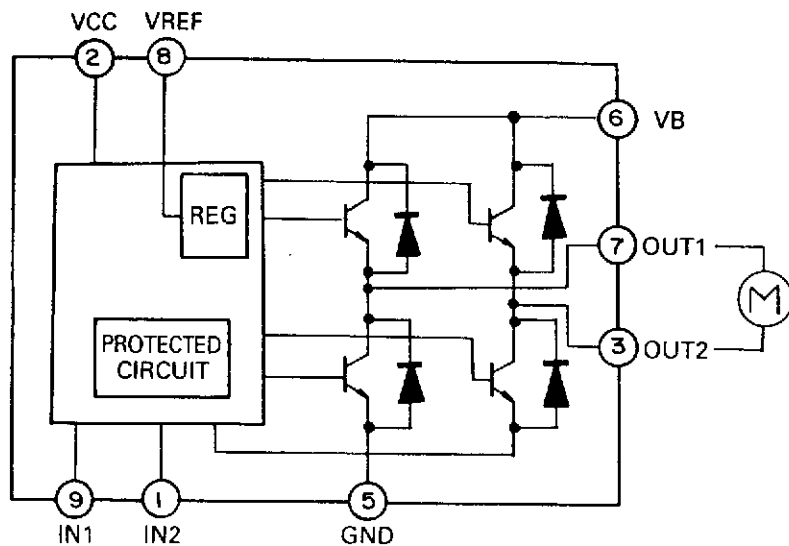
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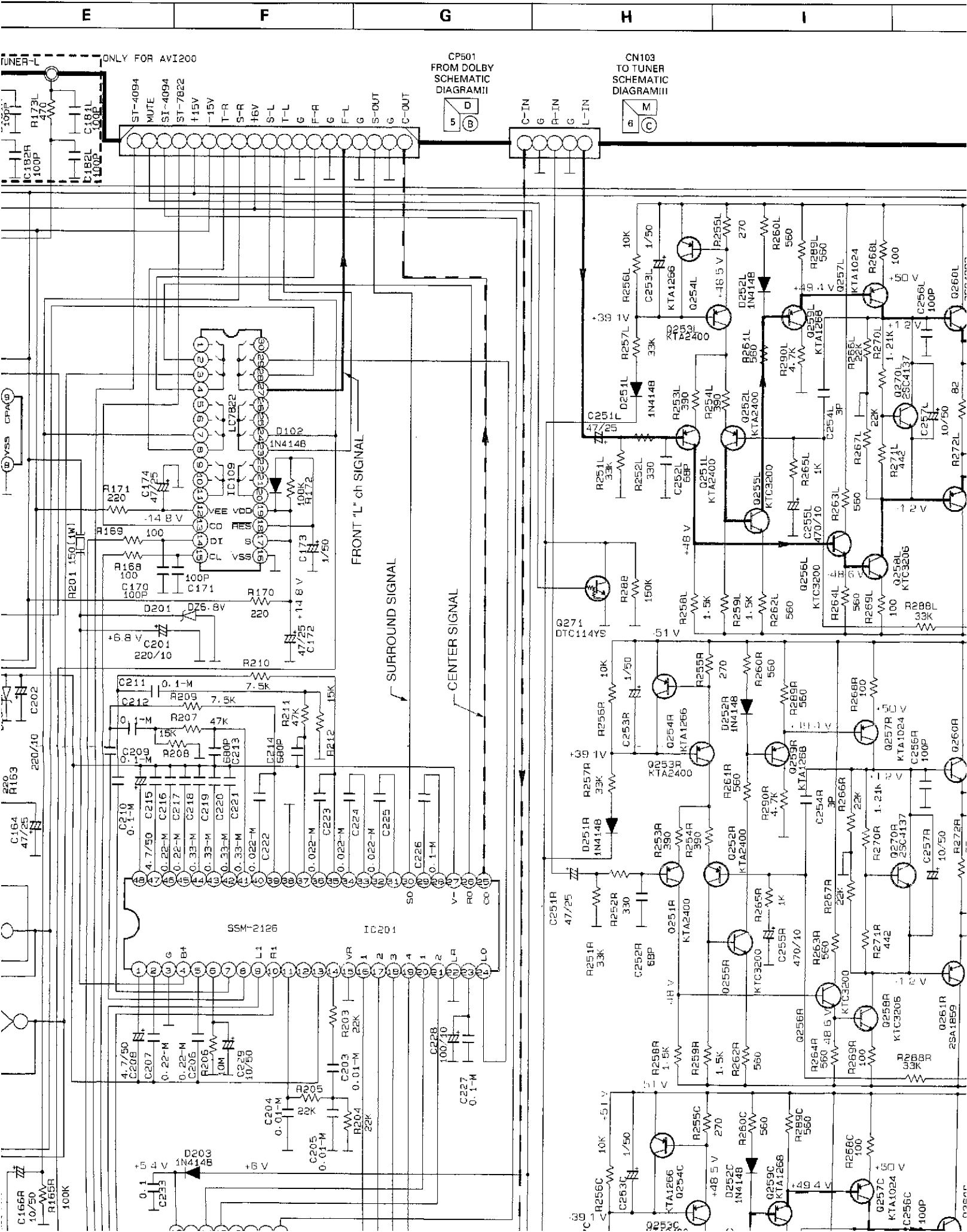


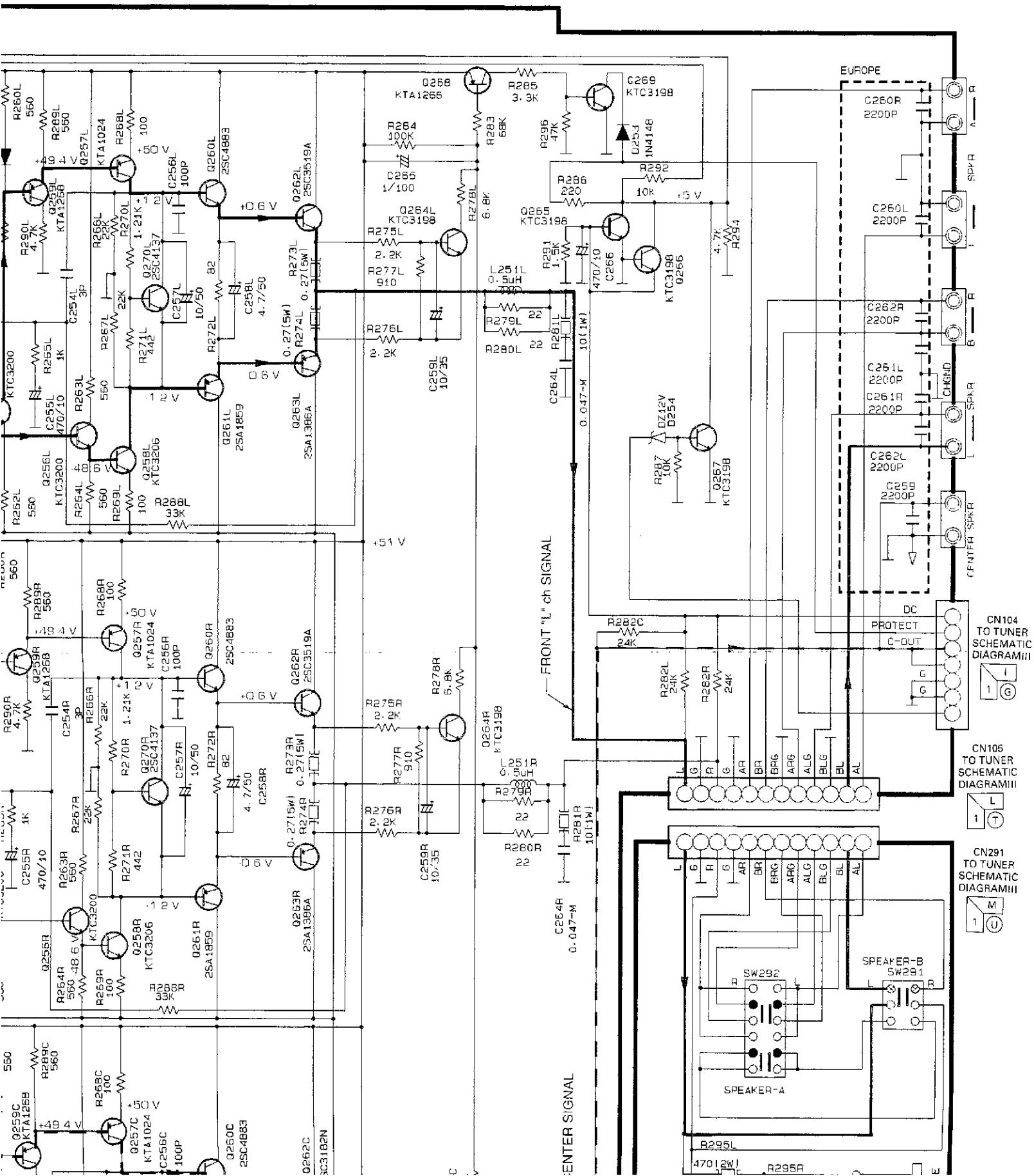
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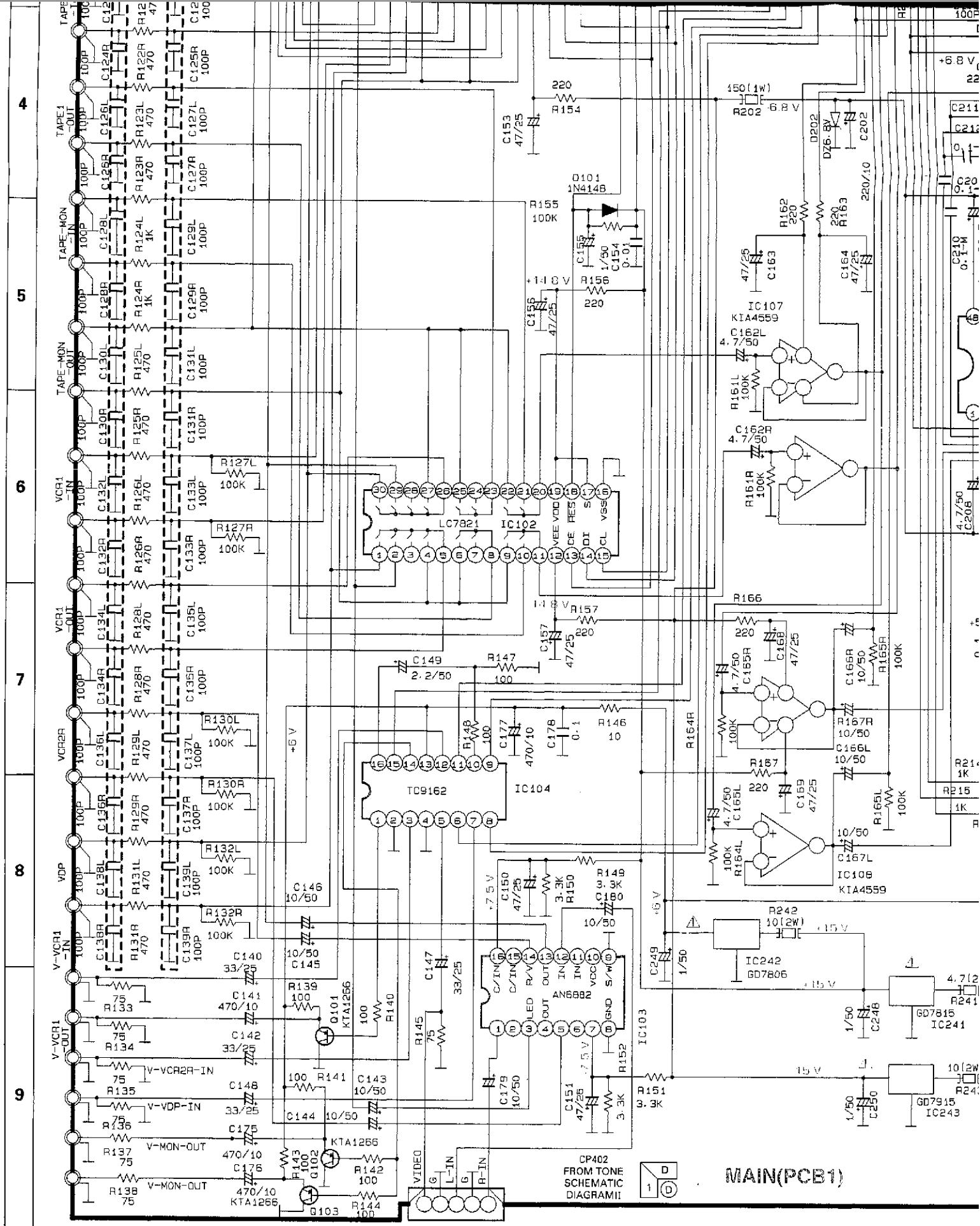


IC301 TA7291S

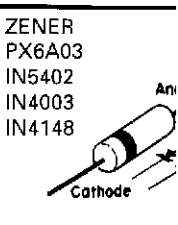
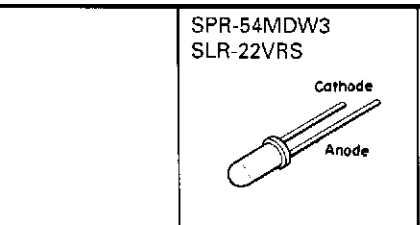
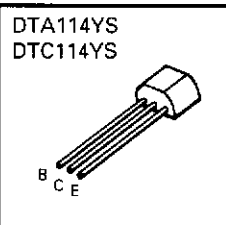
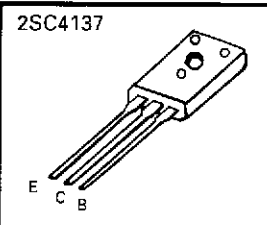
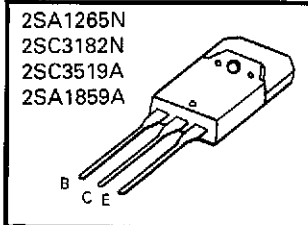


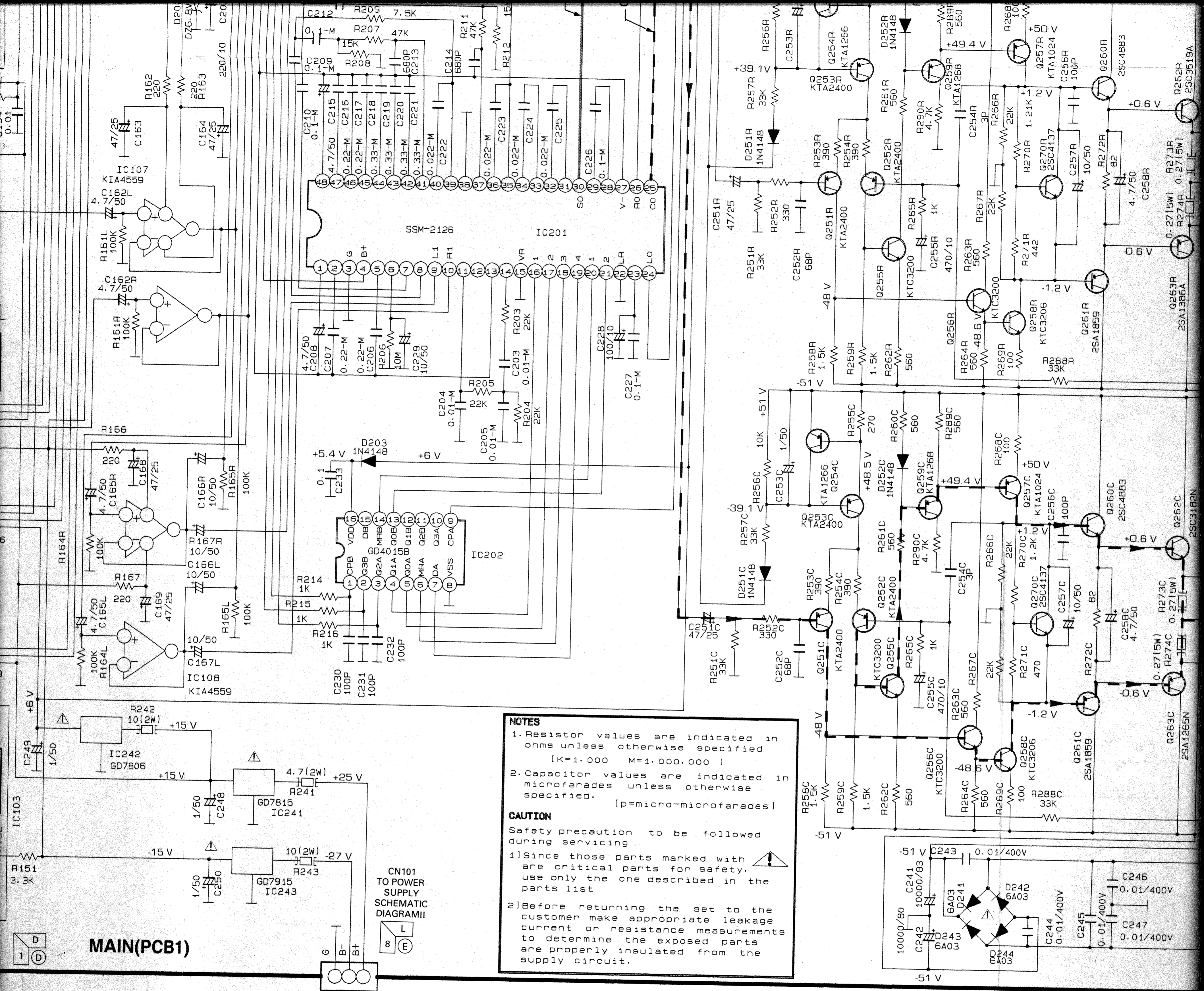




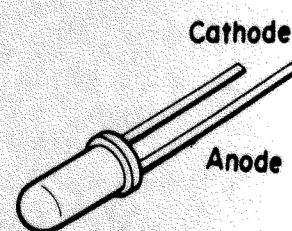


PIN CONNECTION DIAGRAM OF TRANSISTORS AND DIODES

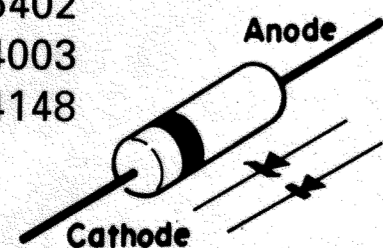




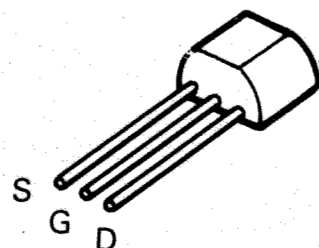
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SLR-22VRS



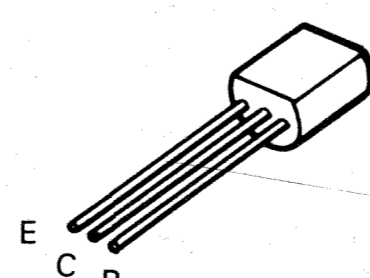
ZENER
PX6A03
IN5402
IN4003
IN4148



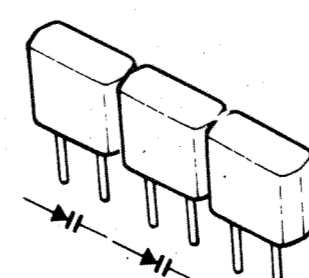
2SK168



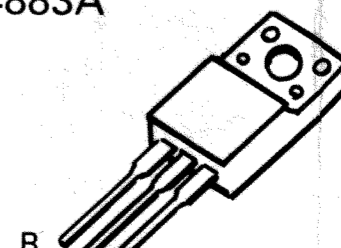
KTA2400
KTD1302
KTC2240/KTC3200
KTC3198/KTC3185
KTC1923/KTC3194
KTA1266/KTA1015Y



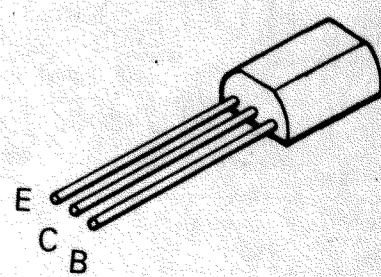
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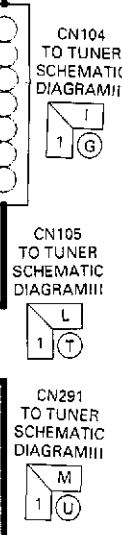
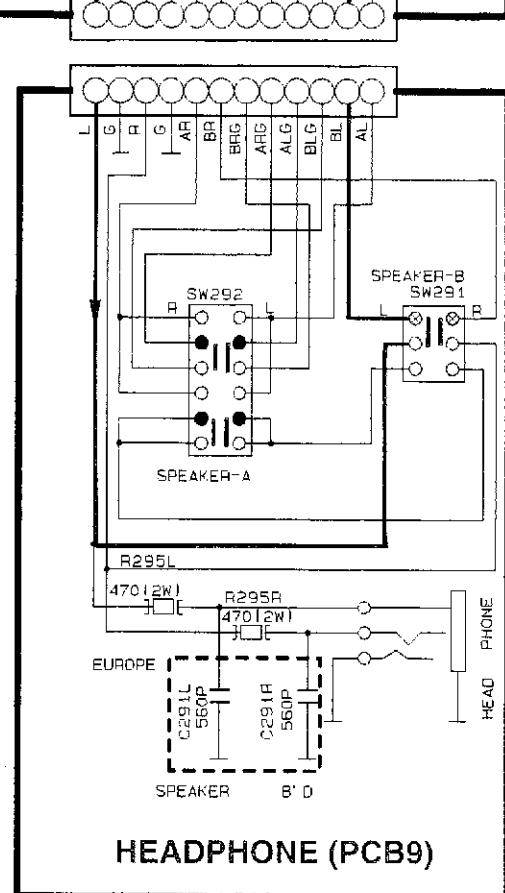
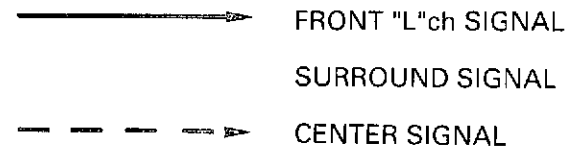
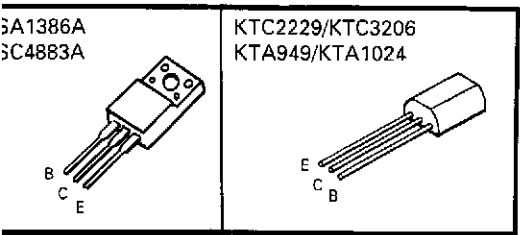
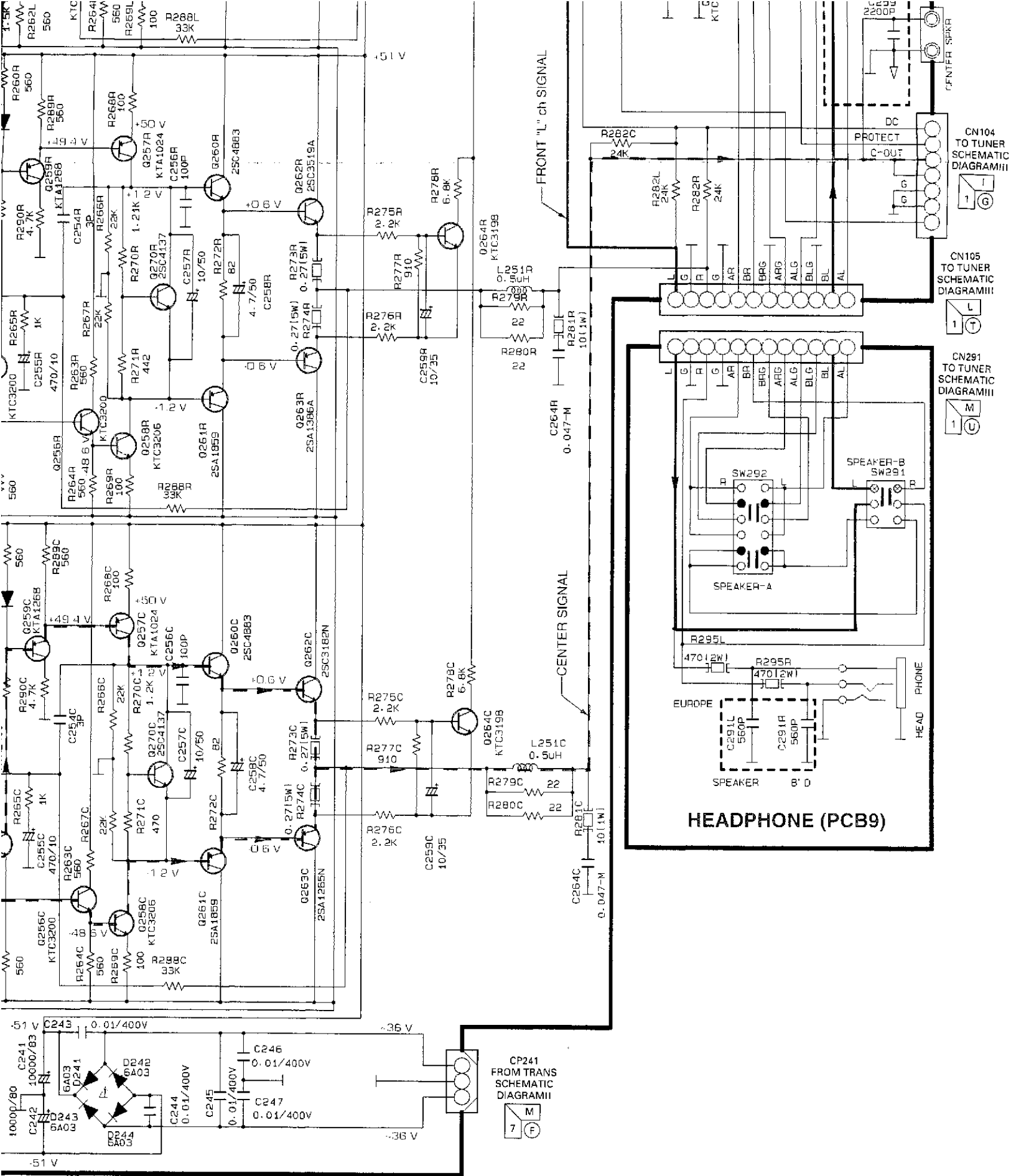


2SA1386A
2SC4883A

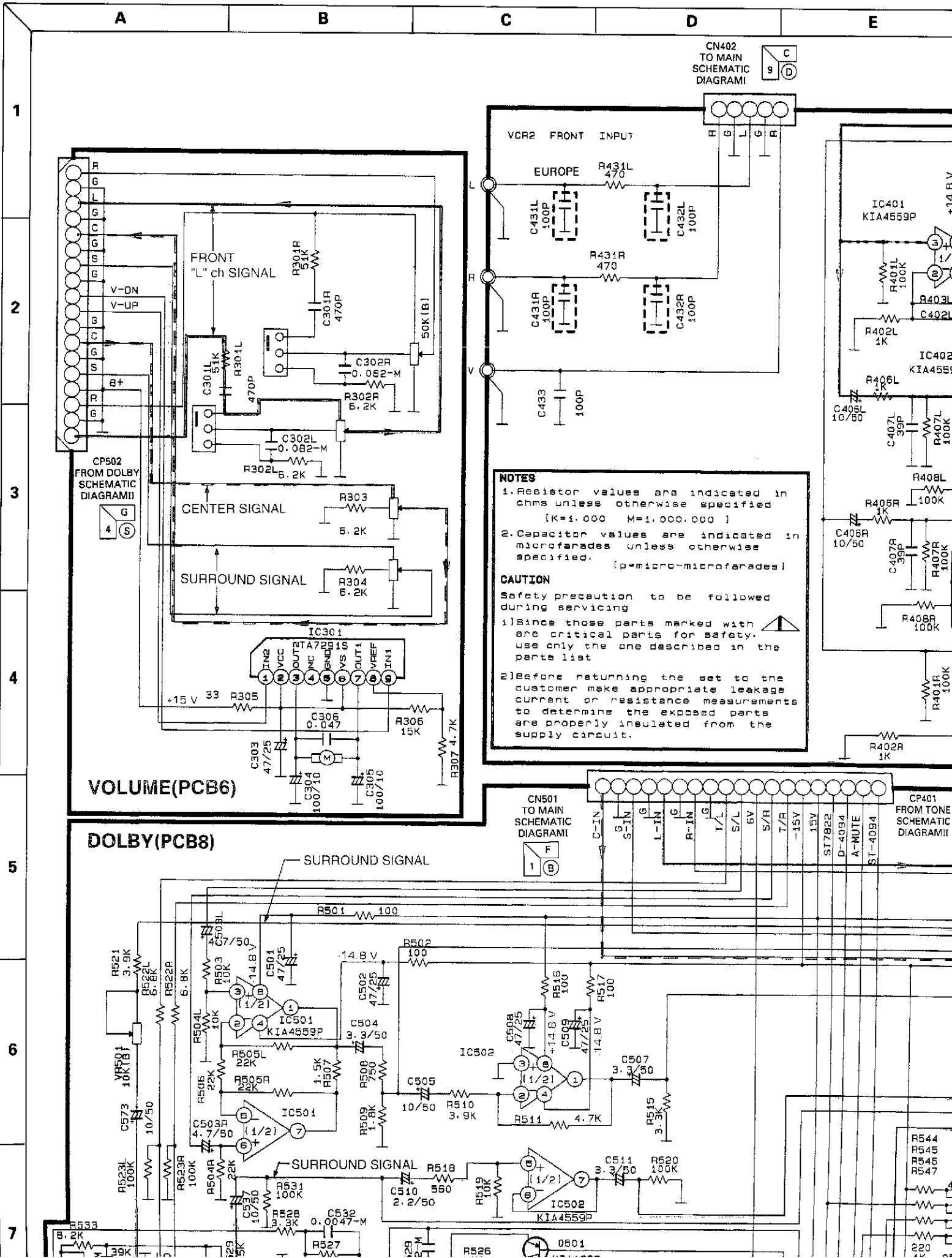


KTC2229/KTC3206
KTA949/KTA1024



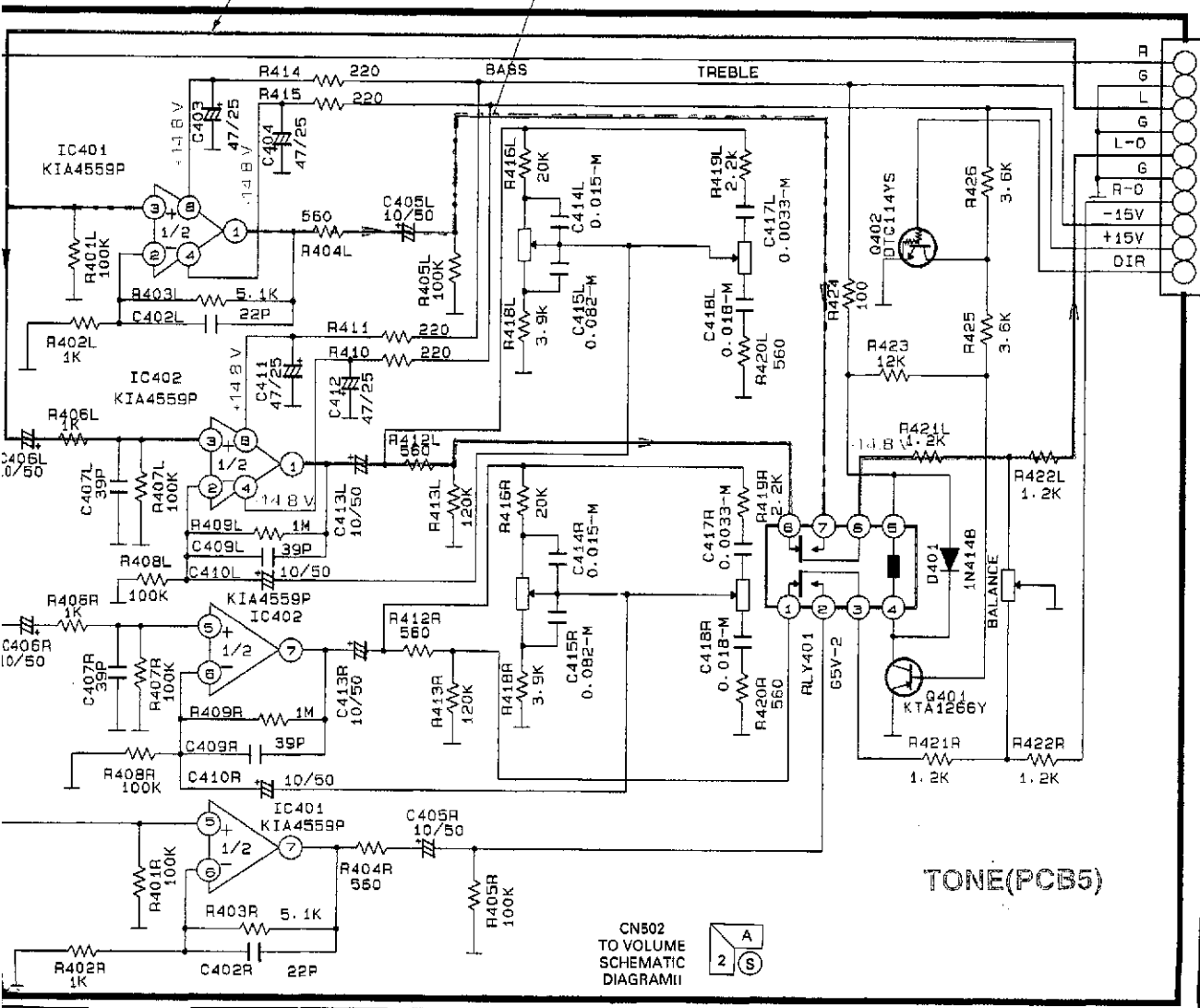


SCHEMATIC DIAGRAMS II



FRONT "L" ch SIGNAL
DIRECT SIGNAL

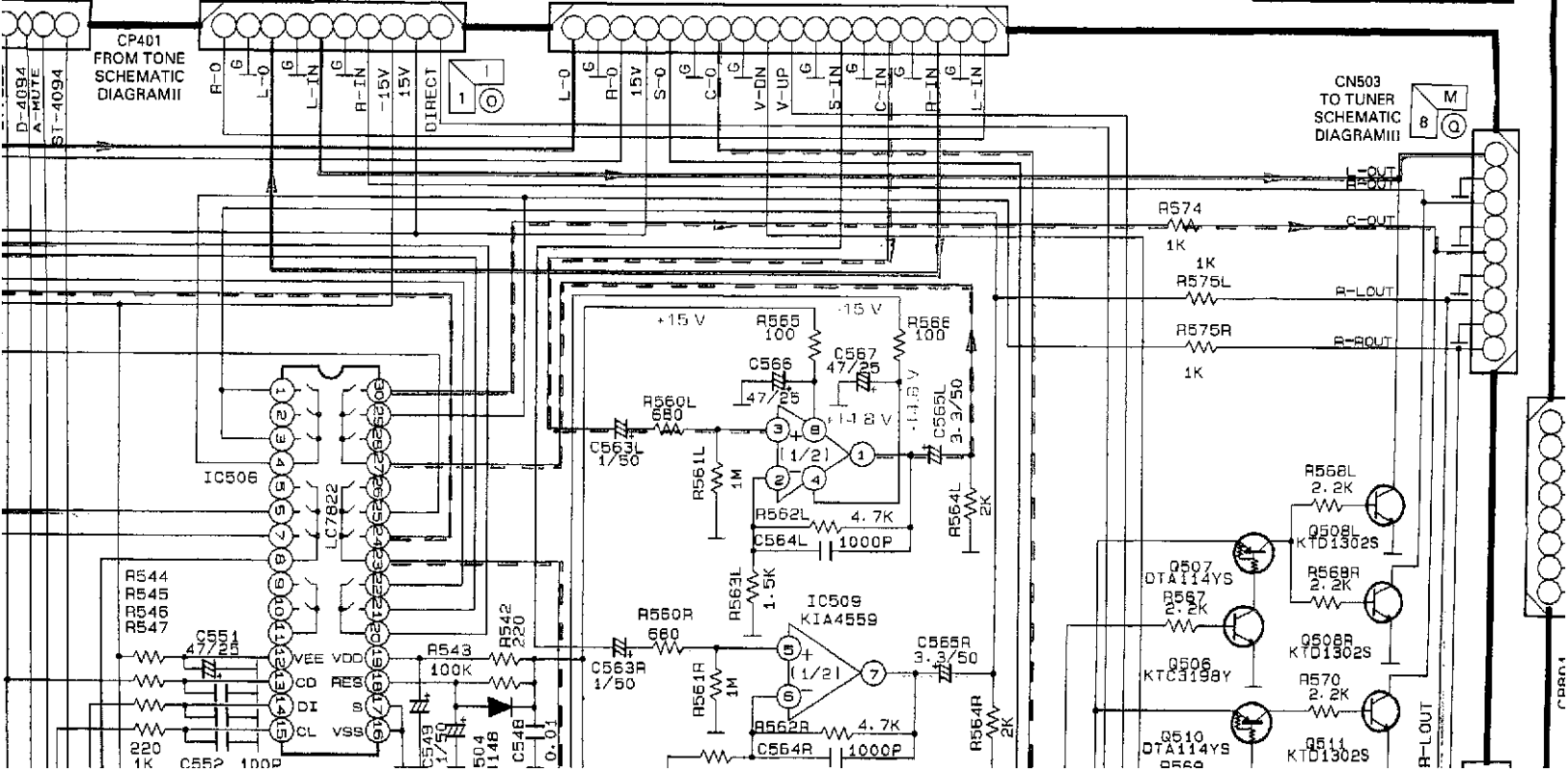
CN401 FROM DOLBY SCHEMATIC DIAGRAM I



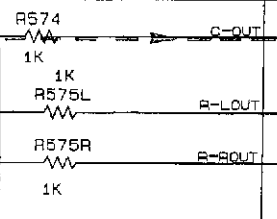
TONE(PCB5)

CN502 TO VOLUME SCHEMATIC DIAGRAM I

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

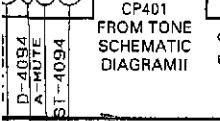


CN503 TO TUNER SCHEMATIC DIAGRAM III



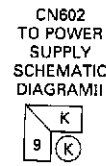
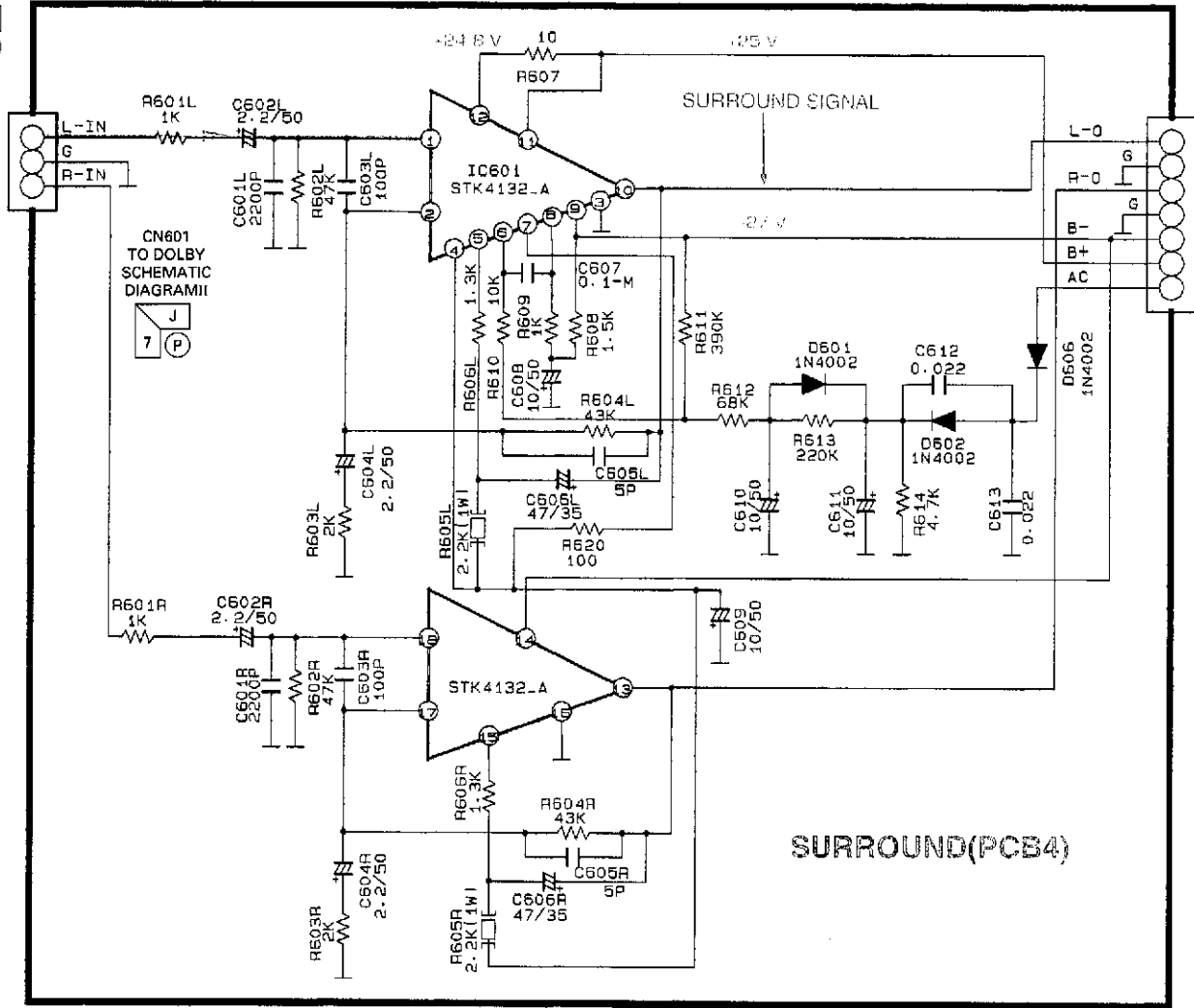
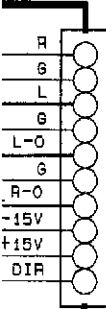
CN601 TO DOLBY SCHEMATIC DIAGRAM II

CP401 FROM TONE SCHEMATIC DIAGRAM II



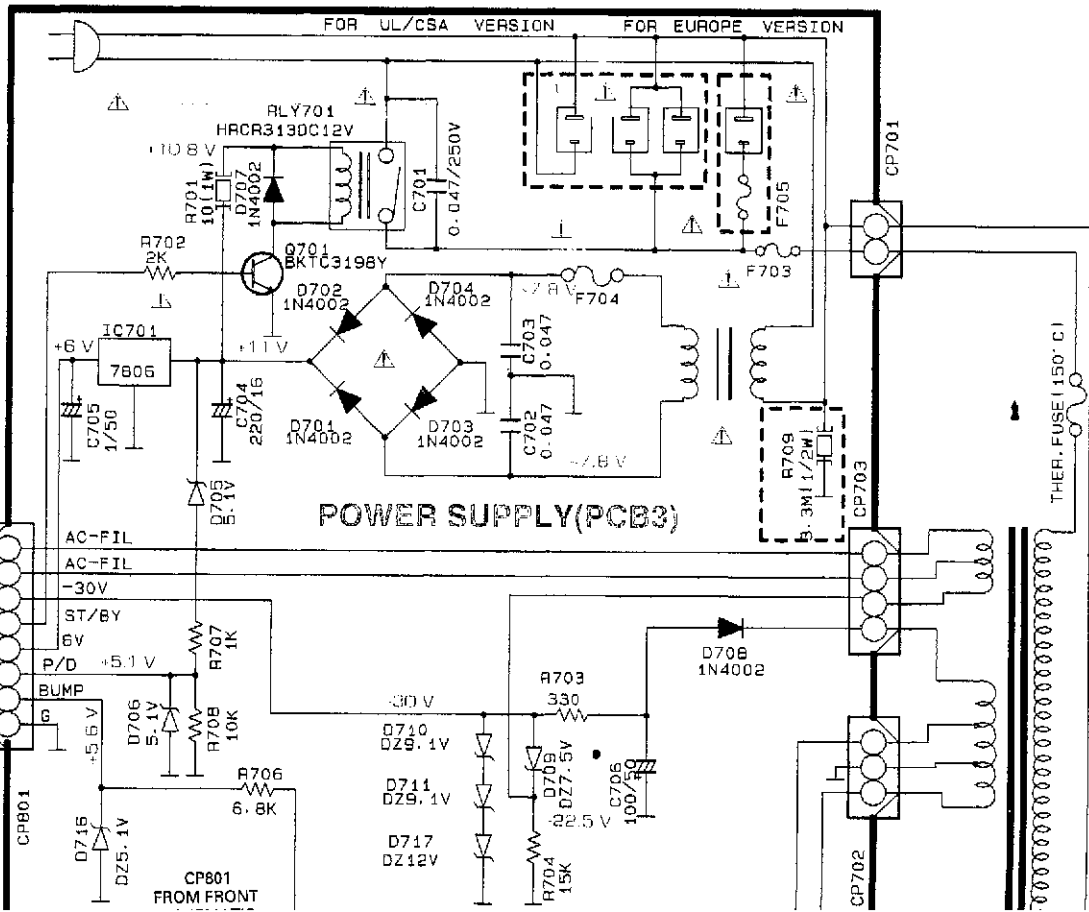
I J K L M

V401
1 DOLBY
EMATIC
GRAM II

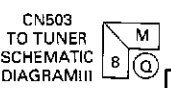
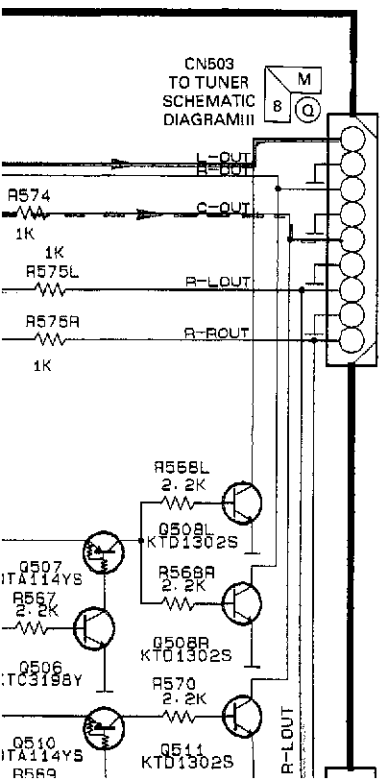


SURROUND(PCB4)

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



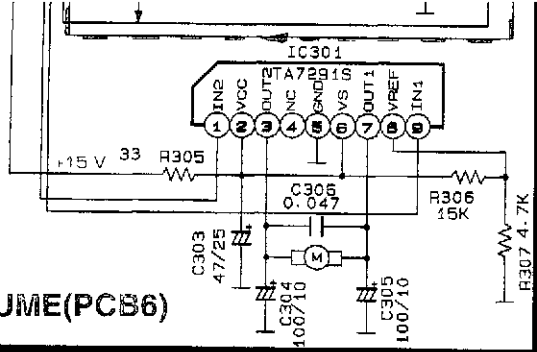
POWER SUPPLY(PCB3)




CP801 FROM FRONT

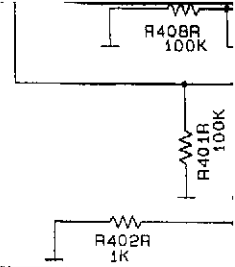
4

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)

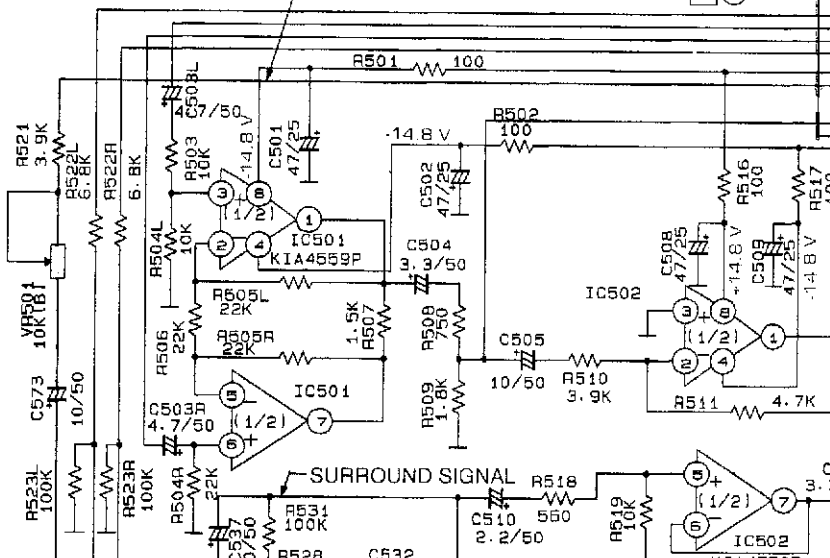
SURROUND SIGNAL

CN501
TO MAIN
SCHEMATIC
DIAGRAM I



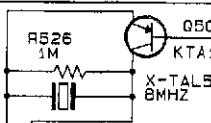

CP401
FROM TONE
SCHEMATIC
DIAGRAM II

6

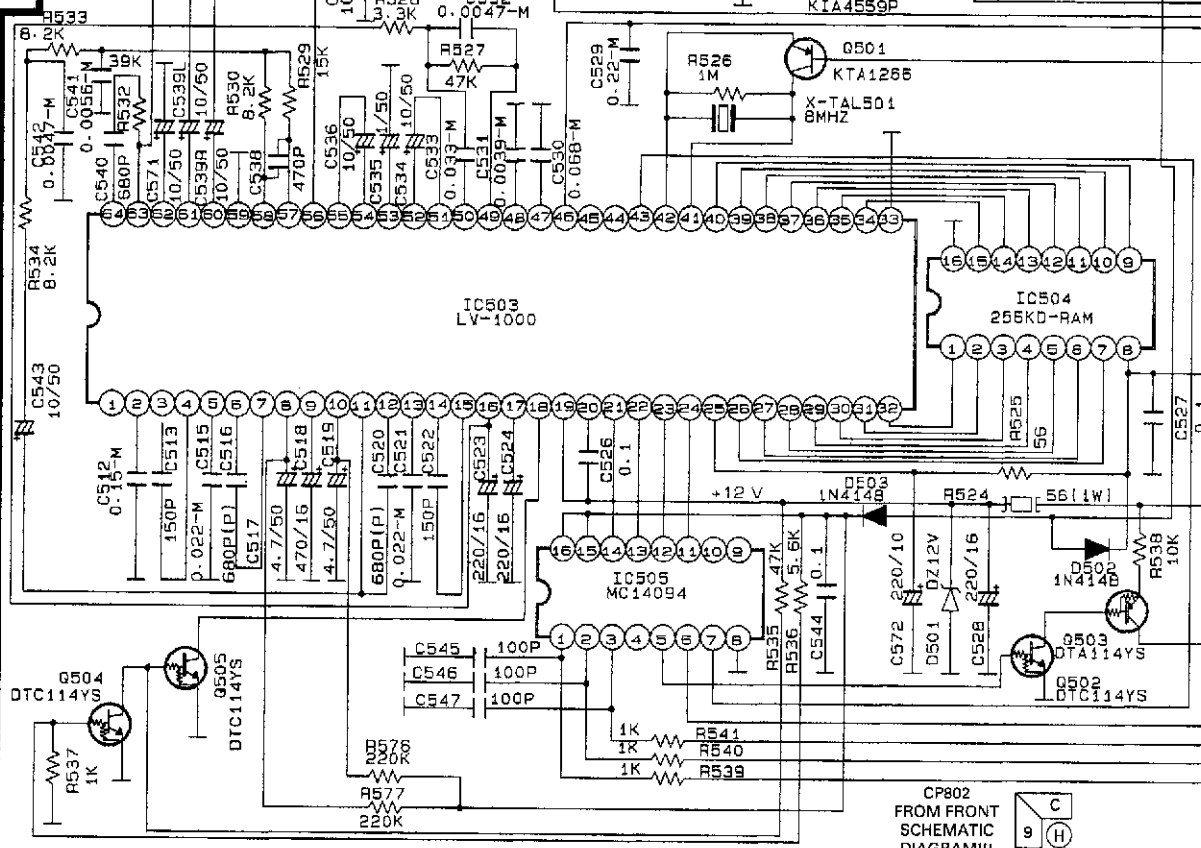


7

SURROUND SIGNAL




8






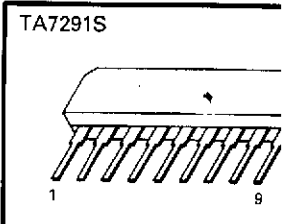
9

CP802
FROM FRONT
SCHEMATIC
DIAGRAM III

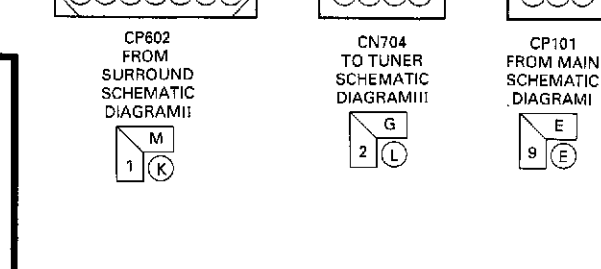
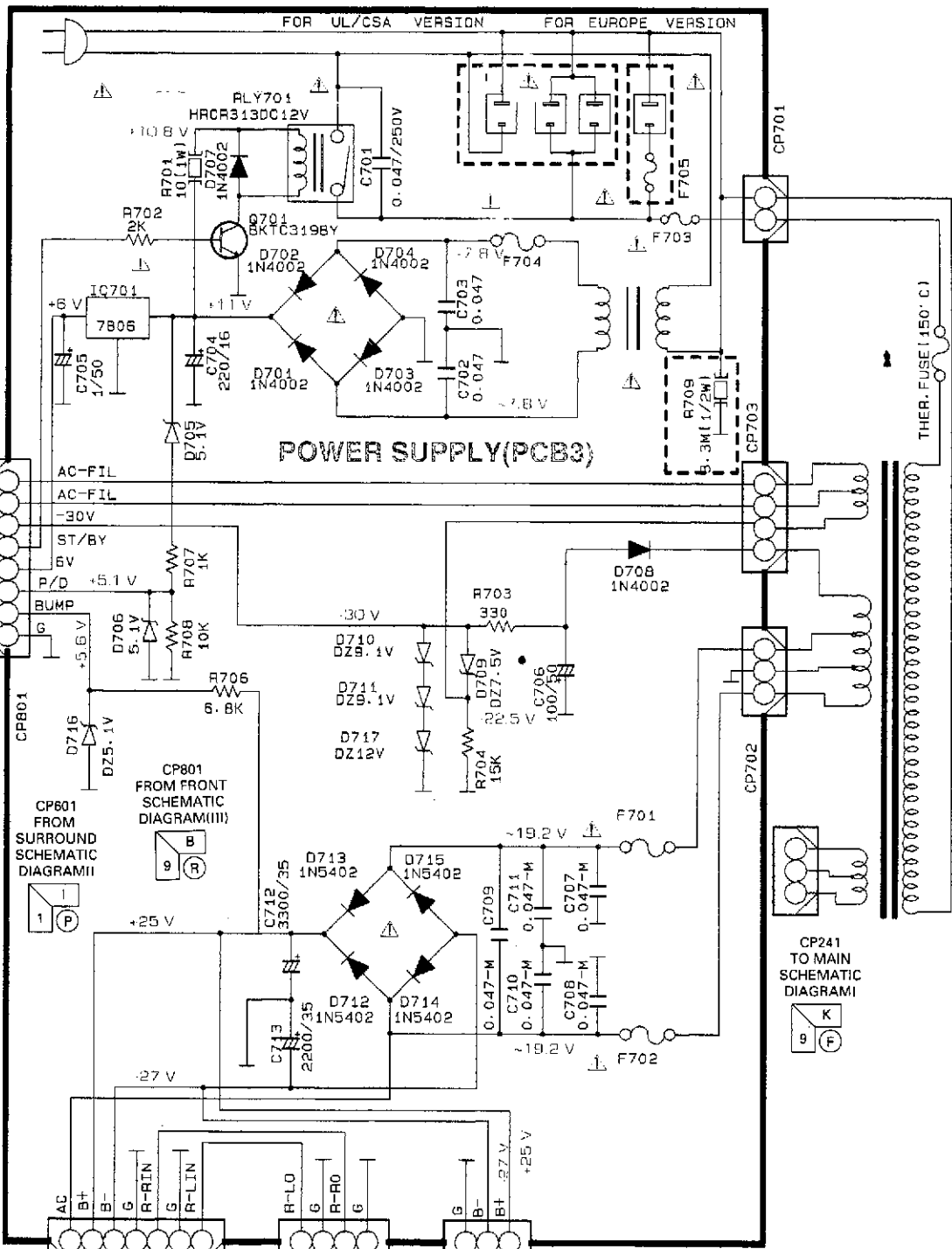
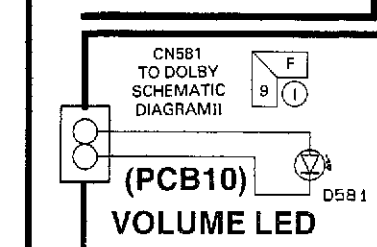
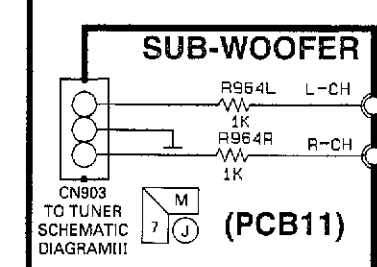
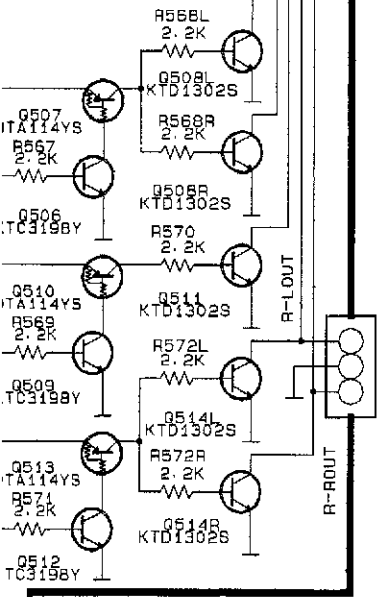
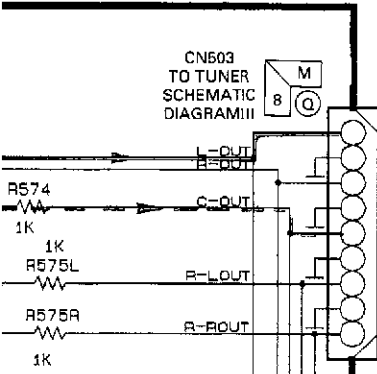


PIN CONNECTION DIAG

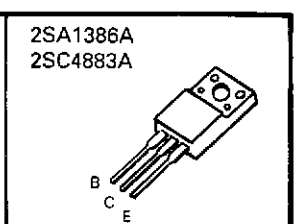
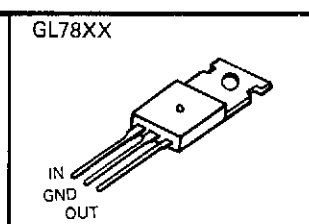
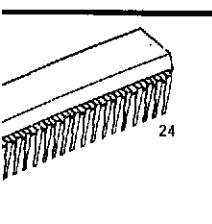
-  FRONT "L"ch SIGNAL
-  SURROUND SIGNAL
-  CENTER SIGNAL



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)	-



E

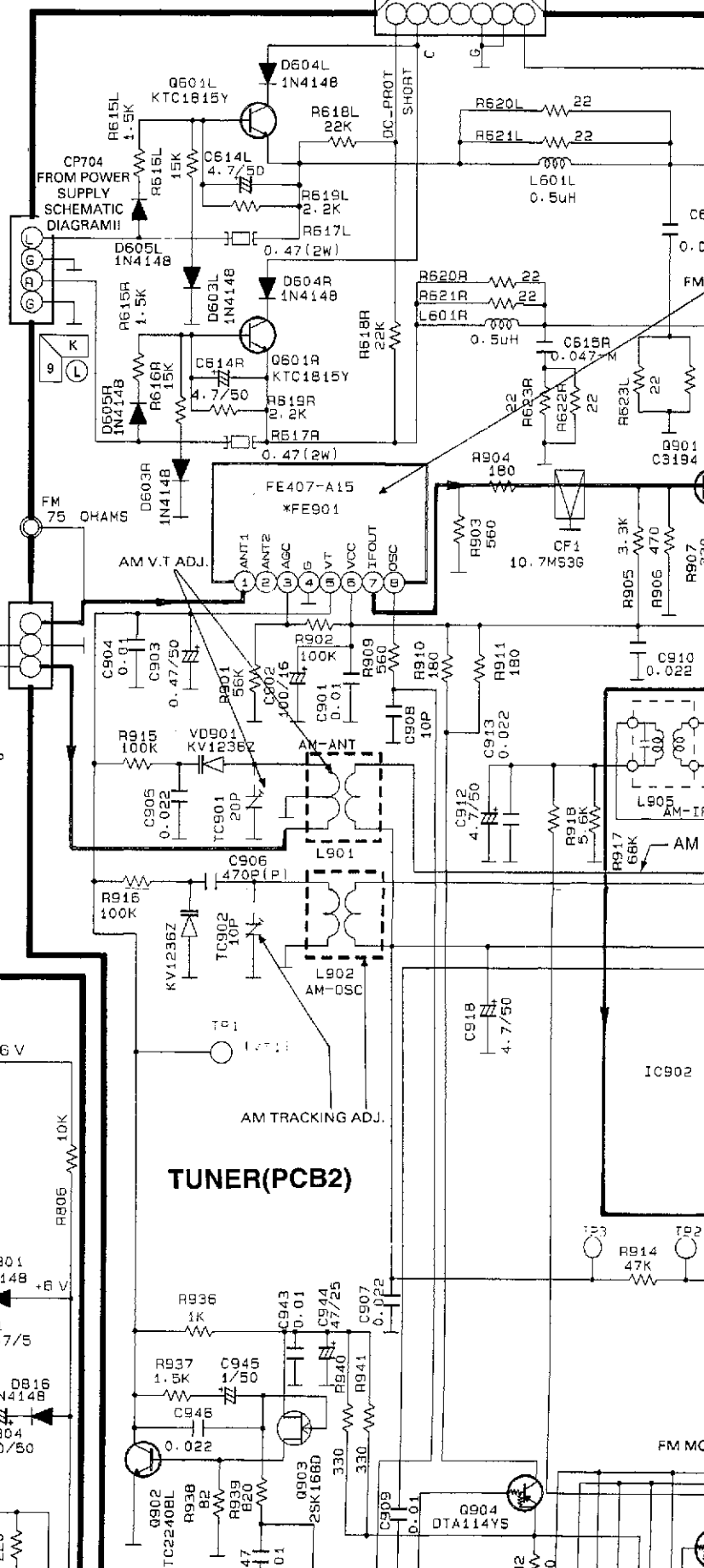
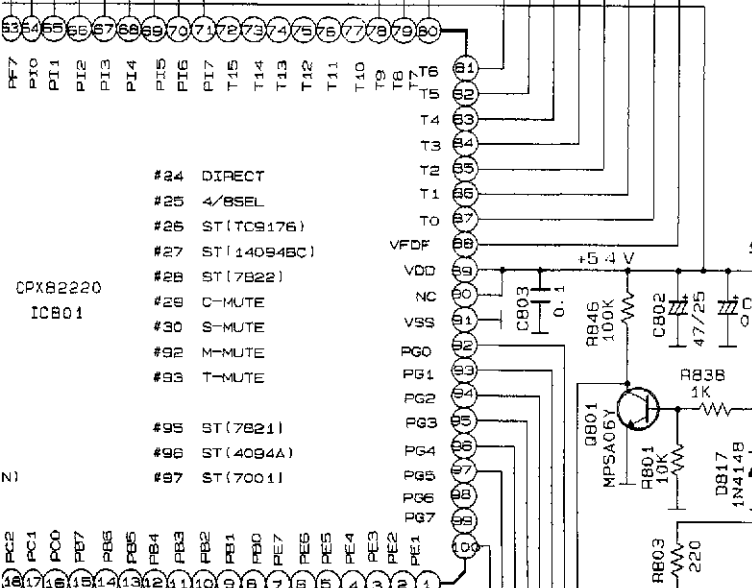
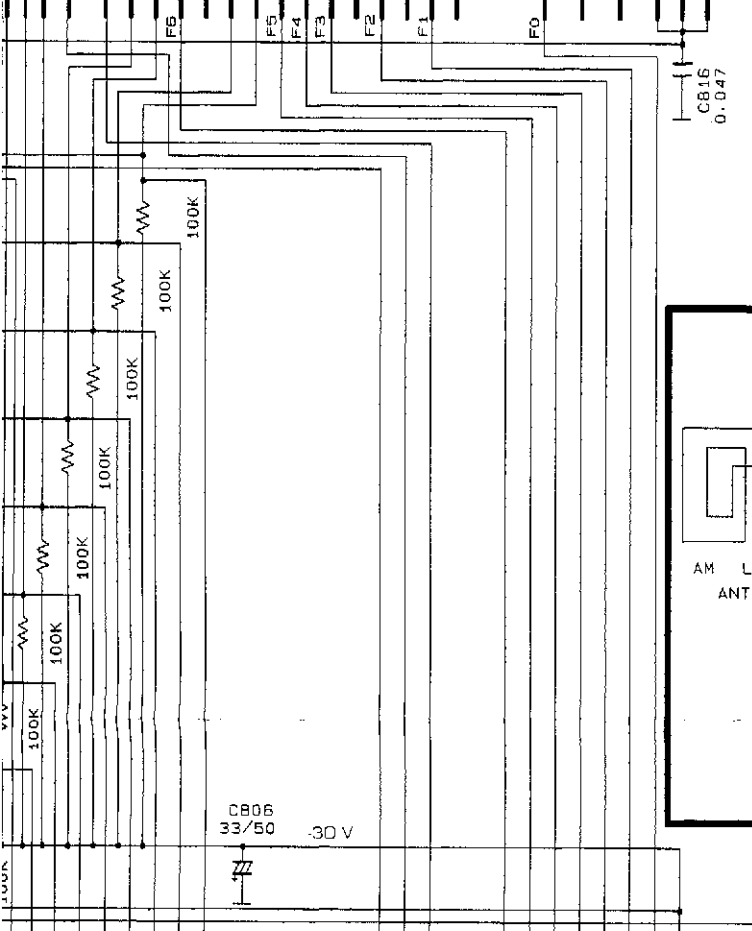
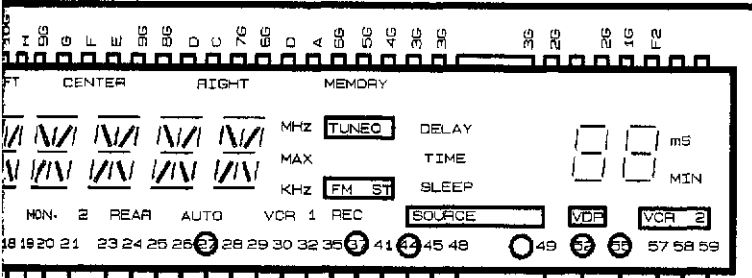
F

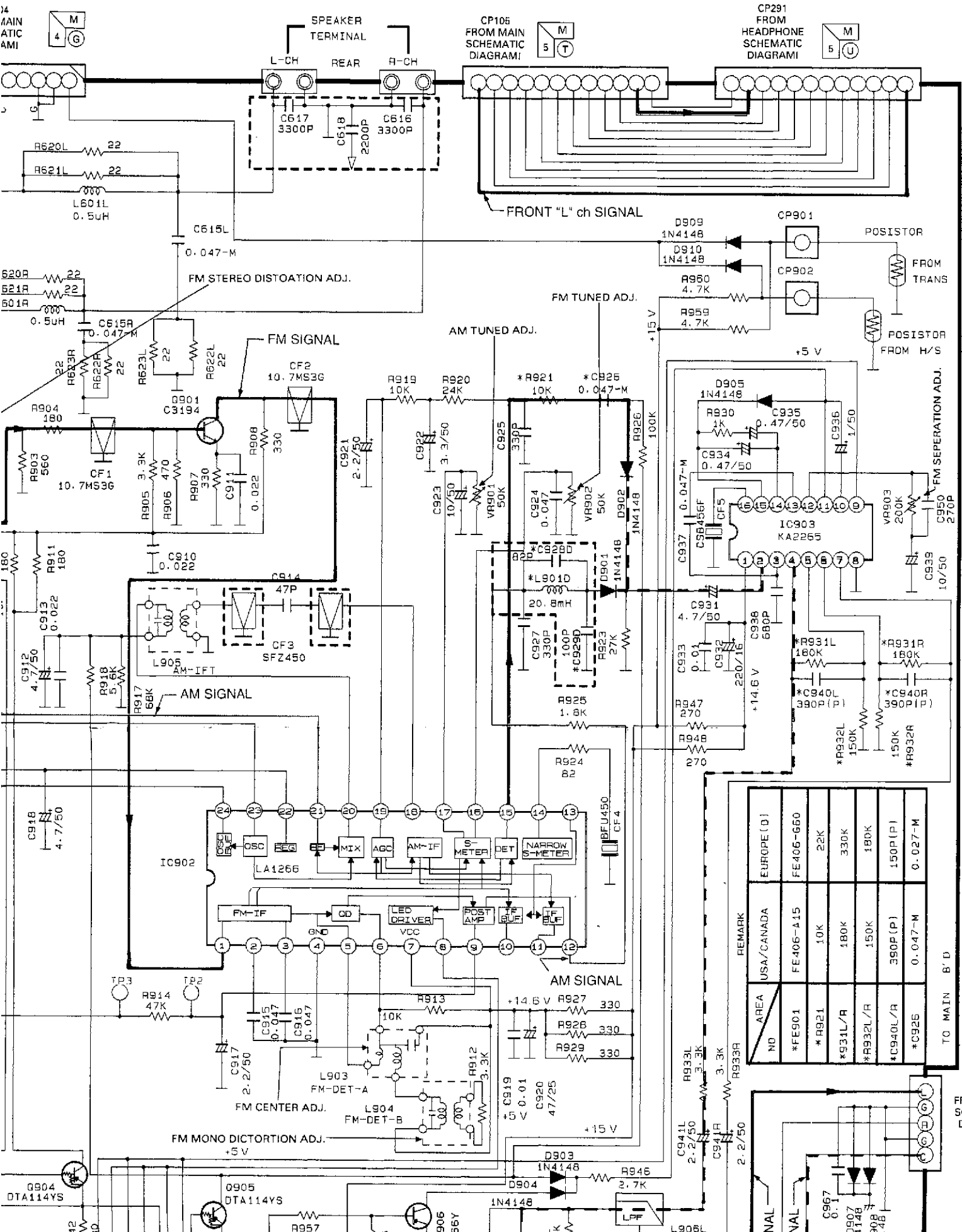
G

H

I

CP104 FROM MAIN SCHEMATIC DIAGRAM!





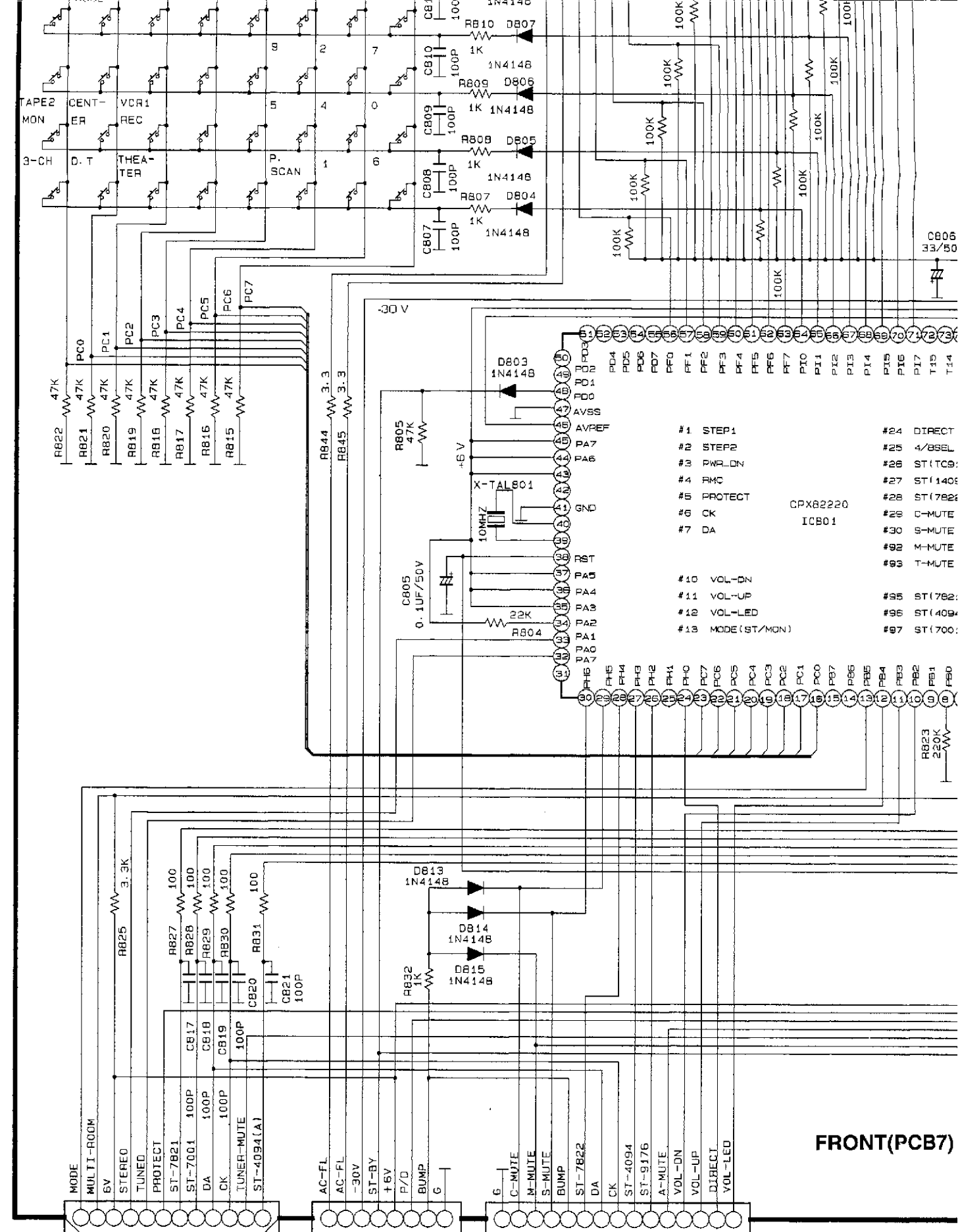
NO	AREA	REMARK
*FE501	USA/CANADA	FE406-A15
*R921		10K
*R931L/R		180K
*R932L/R		150K
*C940L/R		390P(P)
*C925		0.047-M
		FE406-660
		22K
		330K
		180K
		150P(P)
		0.027-M

TO MAIN B'D

CP103 FROM MAIN SCHEMATIC DIAGRAM



4
5
6
7
8
9

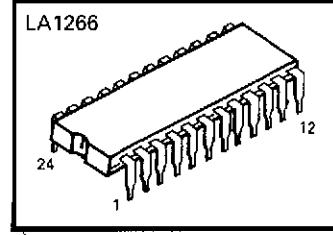


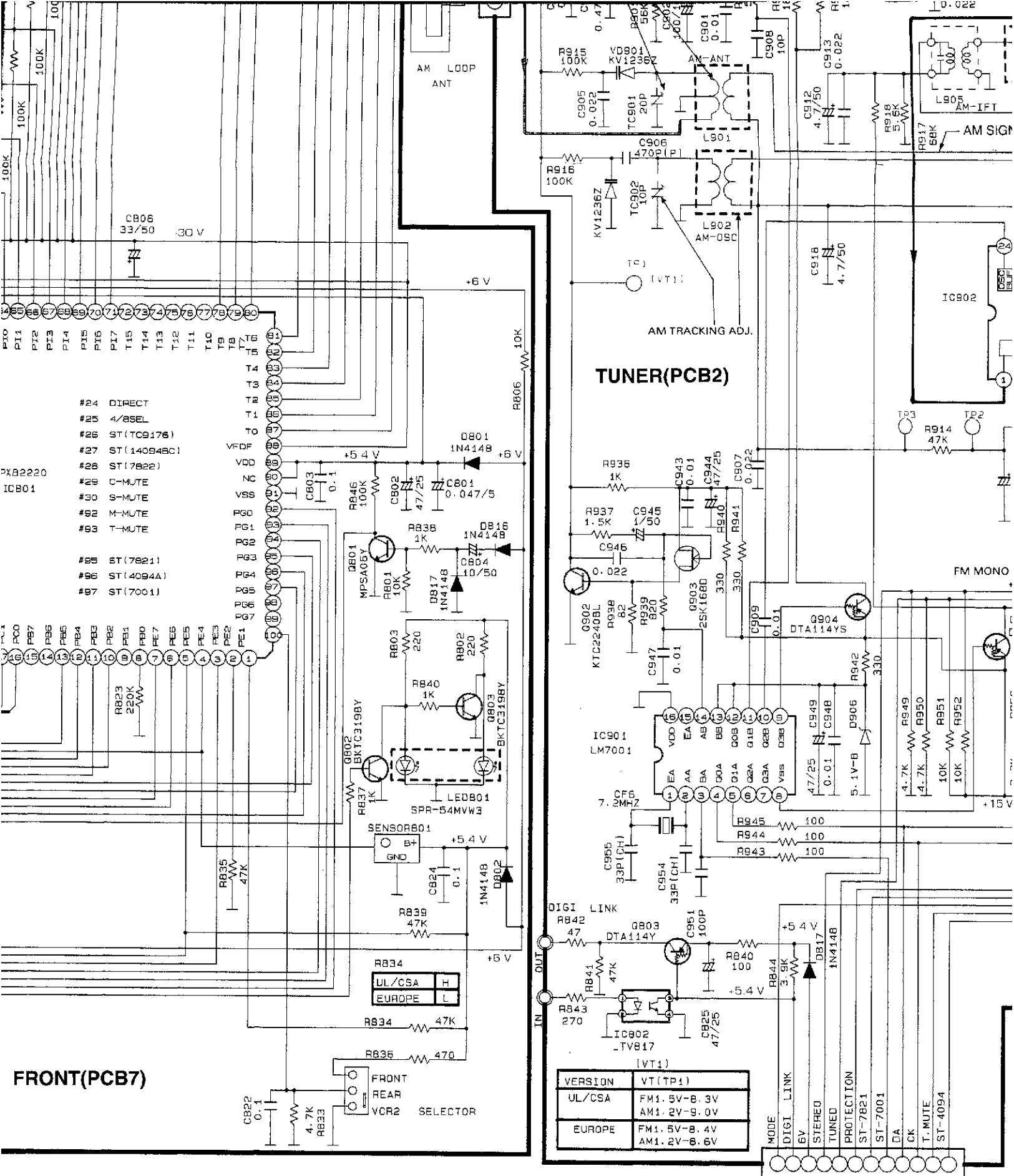
#1	STEP1	#24	DIRECT
#2	STEP2	#25	4/BSEL
#3	PWR_DN	#26	ST(1C9)
#4	RMC	#27	ST(1409)
#5	PROTECT	#28	ST(782)
#6	CK	#29	C-MUTE
#7	DA	#30	S-MUTE
		#31	M-MUTE
		#32	T-MUTE
#10	VOL-DN	#95	ST(782)
#11	VOL-UP	#96	ST(1409)
#12	VOL-LED	#97	ST(700)
#13	MODE(ST/MON)		

CN803 TO TUNER SCHEMATIC DIAGRAM III
 CN801 TO POWER SUPPLY SCHEMATIC DIAGRAM III
 CN802 TO DOLBY SCHEMATIC DIAGRAM III

FRONT(PCB7)

PIN CONNECTION DIAGRAM

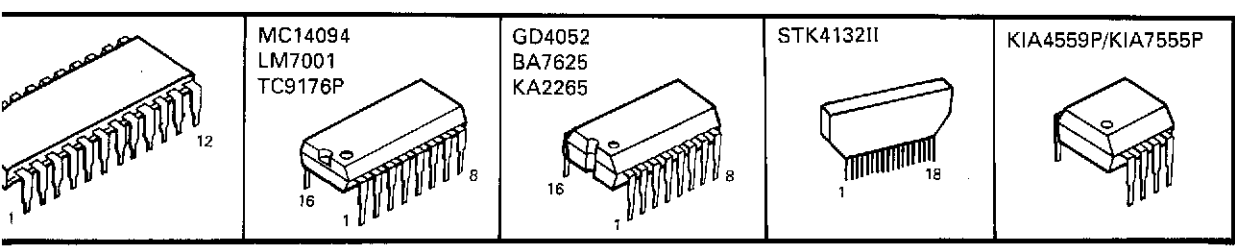




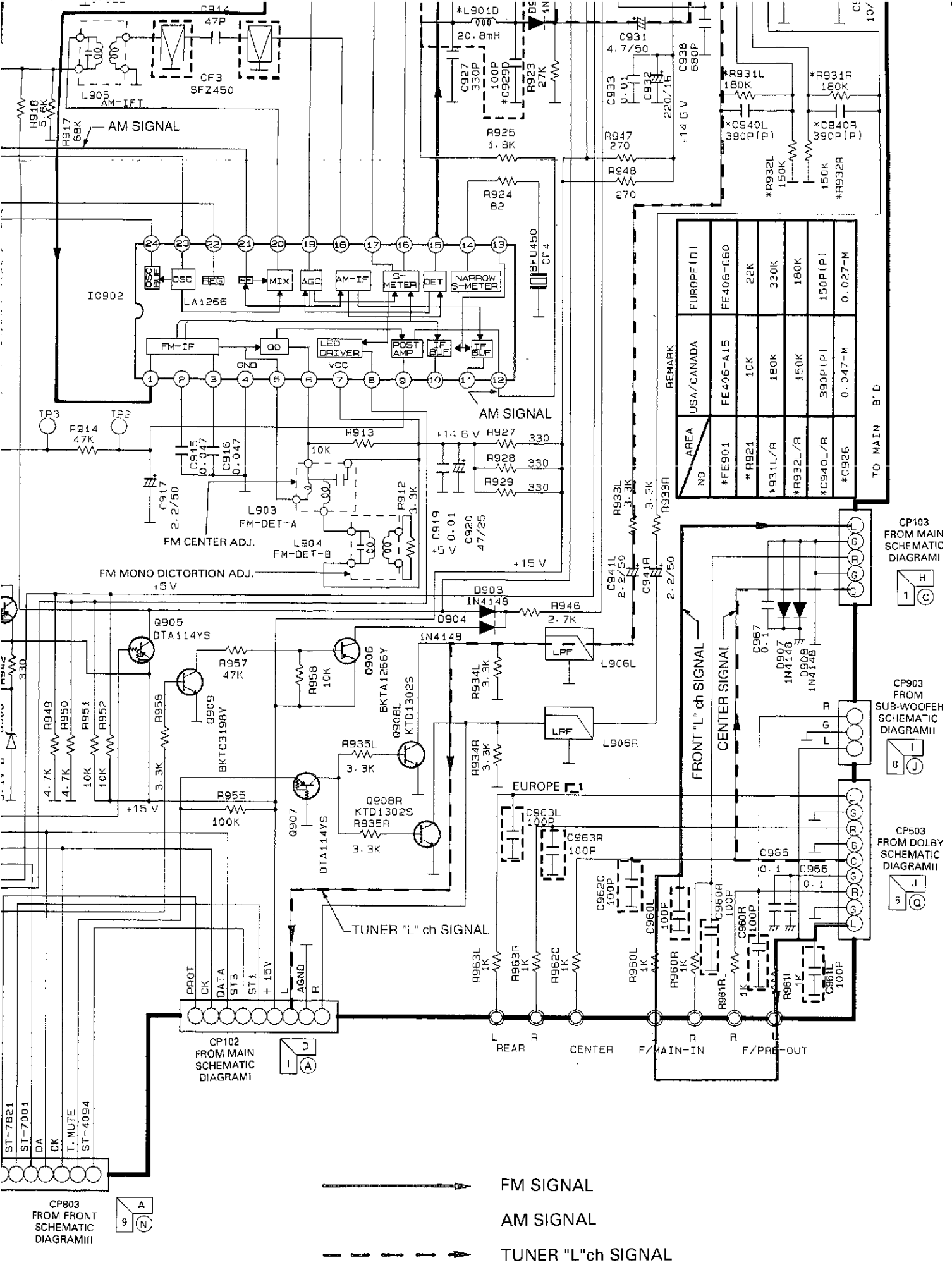
- #24 DIRECT
- #25 4/BSEL
- #26 ST (TC9176)
- #27 ST (14094BC1)
- #28 ST (7822)
- #29 C-MUTE
- #30 S-MUTE
- #32 M-MUTE
- #33 T-MUTE
- #55 ST (7821)
- #56 ST (4094A)
- #57 ST (7001)

VERSION	VT (TP1)
UL/CSA	FM1.5V-B.3V AM1.2V-B.0V
EUROPE	FM1.5V-B.4V AM1.2V-B.6V

CONNECTION DIAGRAM OF ICs.

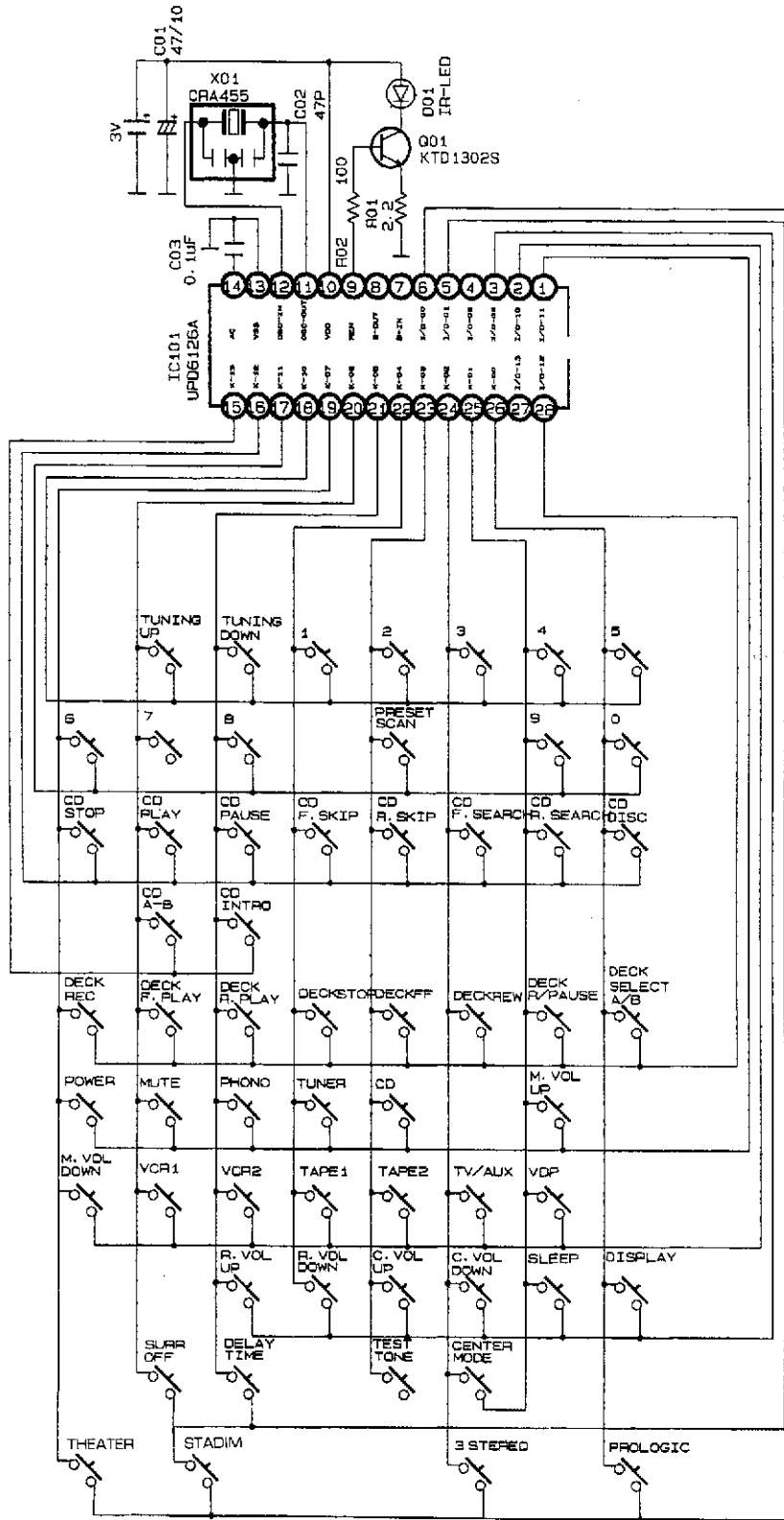


CP803 FROM FRONT SCHEMATIC DIAGRAM III

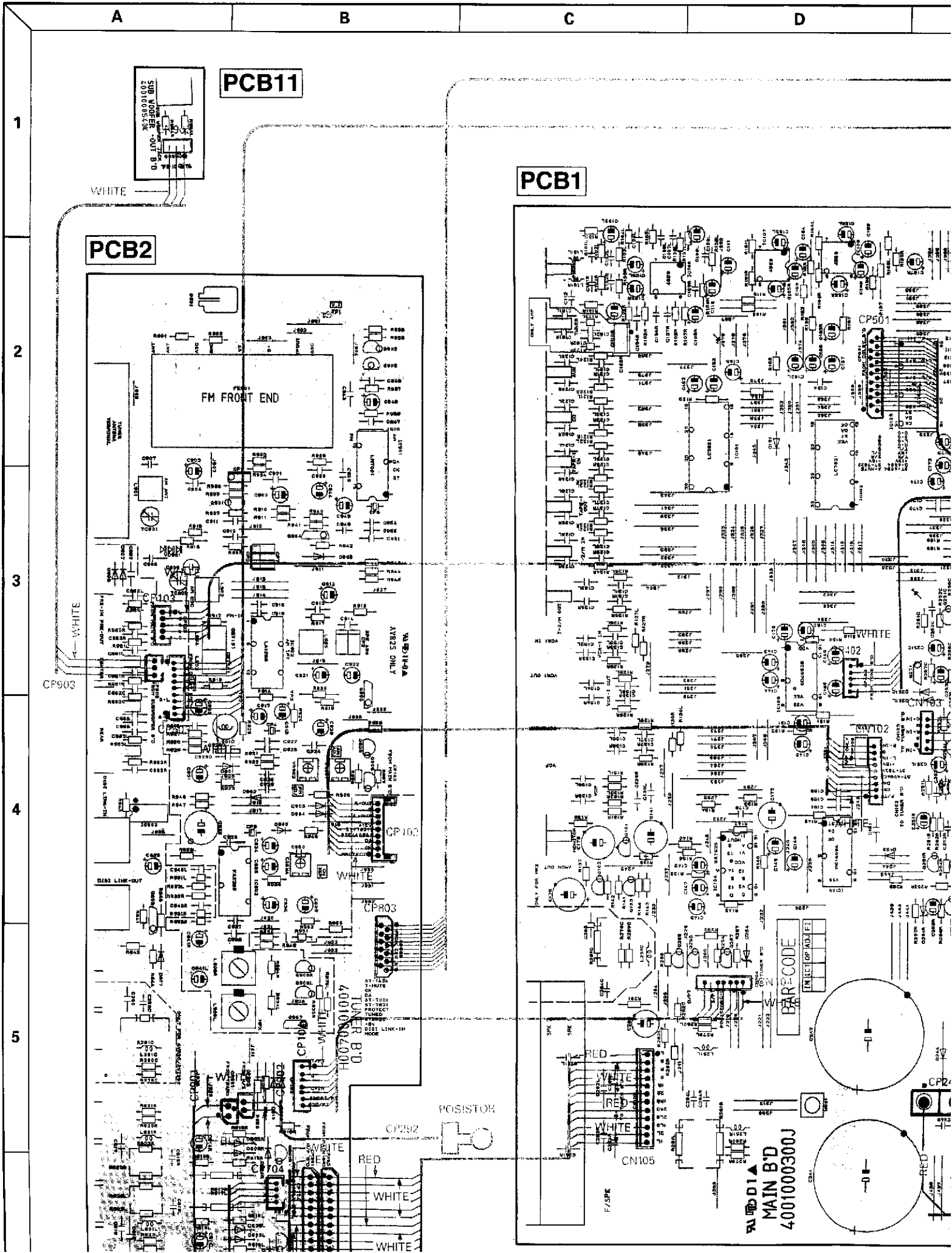


SCHEMATIC DIAGRAM IV

COMMANDER



WIRING DIAGRAM



E

F

G

H

PCB10

VOLUME LED B'D
4001000530K

RED

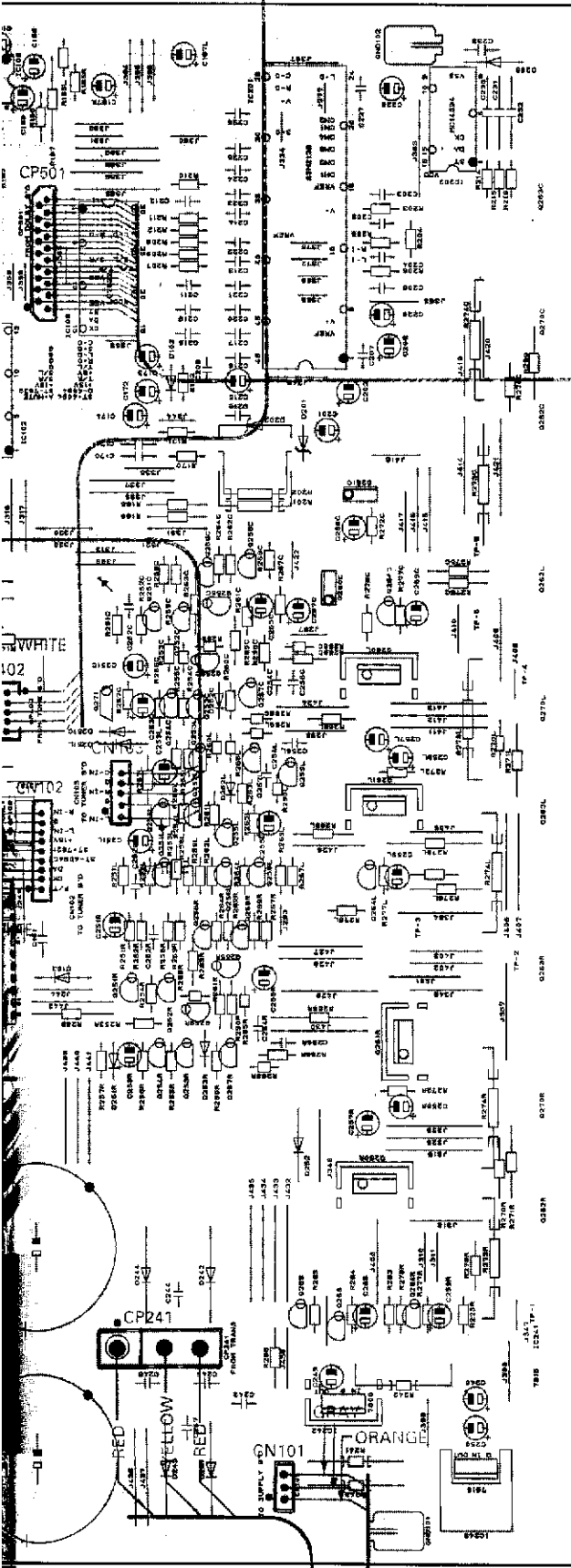
BLACK

BLACK

WHITE

PCB4

WALDINVA
4001000420H
SURR MAIN B'D



CARD CABLE, ISP

