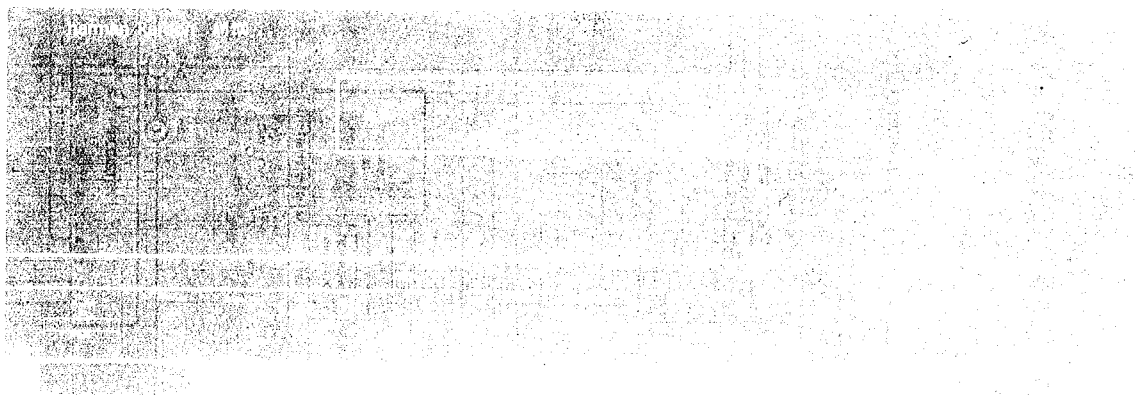


# The Harman Kardon Model AVI200 AUDIO AND VIDEO AMPLIFIER

Manual 188A

## Technical Manual



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**harman/kardon**

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1112-0330A152 G9212 1500 Printed in Korea

**SPECIFICATIONS**

	Nominal	Limit
● FRONT AMP SECTION		
RMS Output Power		
THD ( 0.09 %, 8 ohms)	≥ 68 W	≥ 65 W
Both Channel Driven (20 Hz-20 kHz)		
THD (20Hz-20KHz) at 65 W, 8 ohms		
20 Hz	≤ 0.09 %	≤ 0.2 %
1 kHz	≤ 0.09 %	≤ 0.2 %
20 kHz	≤ 0.09 %	≤ 0.2 %
IM Distortion at 65 W, 8 ohms, 60:700 Hz=4:1	≤ 0.1 %	≤ 0.2 %
Input Sensitivity at 65 W, 8 ohms		
Phono (MM)	2.5 mV	2.5±0.3 mV
CD, AUX, VCR	150 mV	150±30 mV
S/N Ratio Input Shorted at Volume Max (WTD IHF-A) at 65 W, 8 ohms		
Phono	≥ 72 dB	≥ 68 dB
CD, AUX	≥ 91 dB	≥ 88 dB
TV, VCR1, 2	≥ 91 dB	≥ 88 dB
Phono Overload at 1 kHz, THD: 0.5 % Phono		
Input → Tape Monitor Output	≥ 140 mV	≥ 130 mV
Phono Equalization		
RIAA 30 Hz-15 kHz, Tape Monitor, Output	RIAA	RIAA±1.0 dB
Tone Control		
Bass, 100 Hz	± 10 dB	± 10±2 dB
Treble, 10 kHz	± 10 dB	± 10±2 dB
Loudness contour at -40 dB		
100 Hz	+6 dB	6±2 dB
10 kHz	+3 dB	3±2 dB
Frequency Response at 1W, 8 ohms		
CD/AUX		
20 Hz, 20 kHz	±0.5 dB	±1 dB
Channel Crosstalk Input Shorted at 65 W, 8 ohms		
1 kHz	≥ 55 dB	≥ 50 dB
10 kHz	≥ 45 dB	≥ 40 dB

	Nominal	Limit
● CENTER AMP SECTION		
RMS Output Power.		
THD = 0.09 %, 8 ohms, 1 kHz	≥ 67 W	≥ 60 W
Only Center Channel Driven		
S/N Ratio		
Input Shorted, IHF-A WTD	≥ 78 dB	≥ 73 dB
Frequency Response at -3 dB		
Normal	100-20 kHz	150-15 kHz
Wide	20-20 kHz	50-15 kHz
● REAR AMP SECTION		
RMS Output Power.		
THD = 1 %, 8 ohms, 80 Hz-7 kHz	≥ 27 W x 2	≥ 25 W x 2
Both Rear Channel Driven		
S/N Ratio		
Input Shorted, (IHF-A WTD)		
Dolby	≥ 65 dB	≥ 63 dB
Stadium	≥ 65 dB	≥ 63 dB
Theater	≥ 65 dB	≥ 63 dB
Frequency Response at -3 dB		
8 ohms, Dolby Pro-Logic	80-7 kHz	100-6 kHz
● VIDEO SECTION		
Input Sensitivity/Impedance.		
VCR1, VCR2, VDP	1 Vp-p/75 Ω dB	1 Vp-p/75Ω±0.5 dB
Output Level/Impedance		
VCR1, REC out, TV Monitor Out	1 Vp-p/75 Ω dB	1 Vp-p/75Ω±0.5 dB
Frequency Response at -3 dB		
DC -10 MHz	5-6 MHz	
Crosstalk at 1.0 MHz	≥ 50 dB	≥ 45 dB

**Note :** Nominal speses represent the design specs. All units should be able to approximate these-some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable ; in no case should a unit fail to meet limit specs. This manual is based on the American Standard wiring diagram, and information on regional component variations through use of parts list. Design and specifications subject to change without notice for improvement.

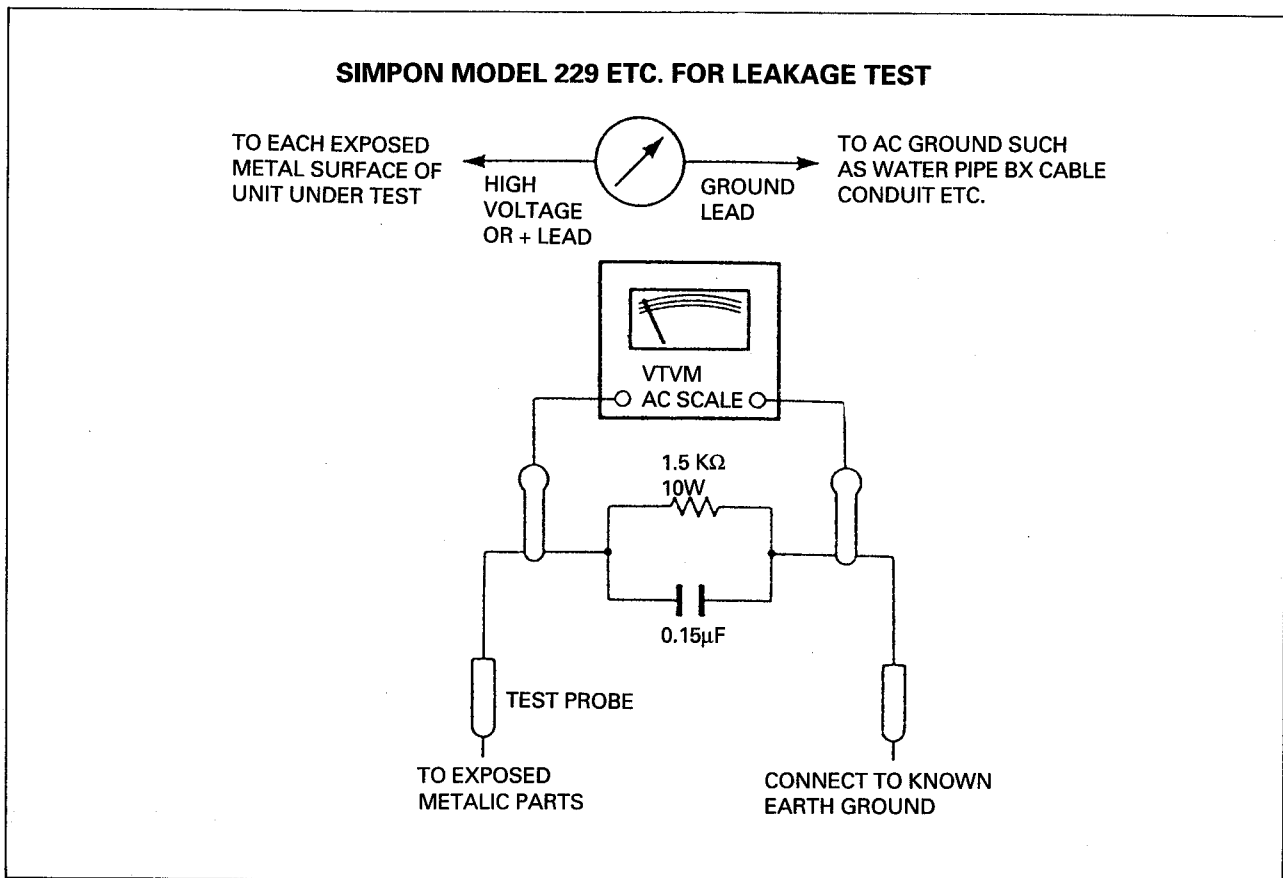
## LEAKAGE TEST

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

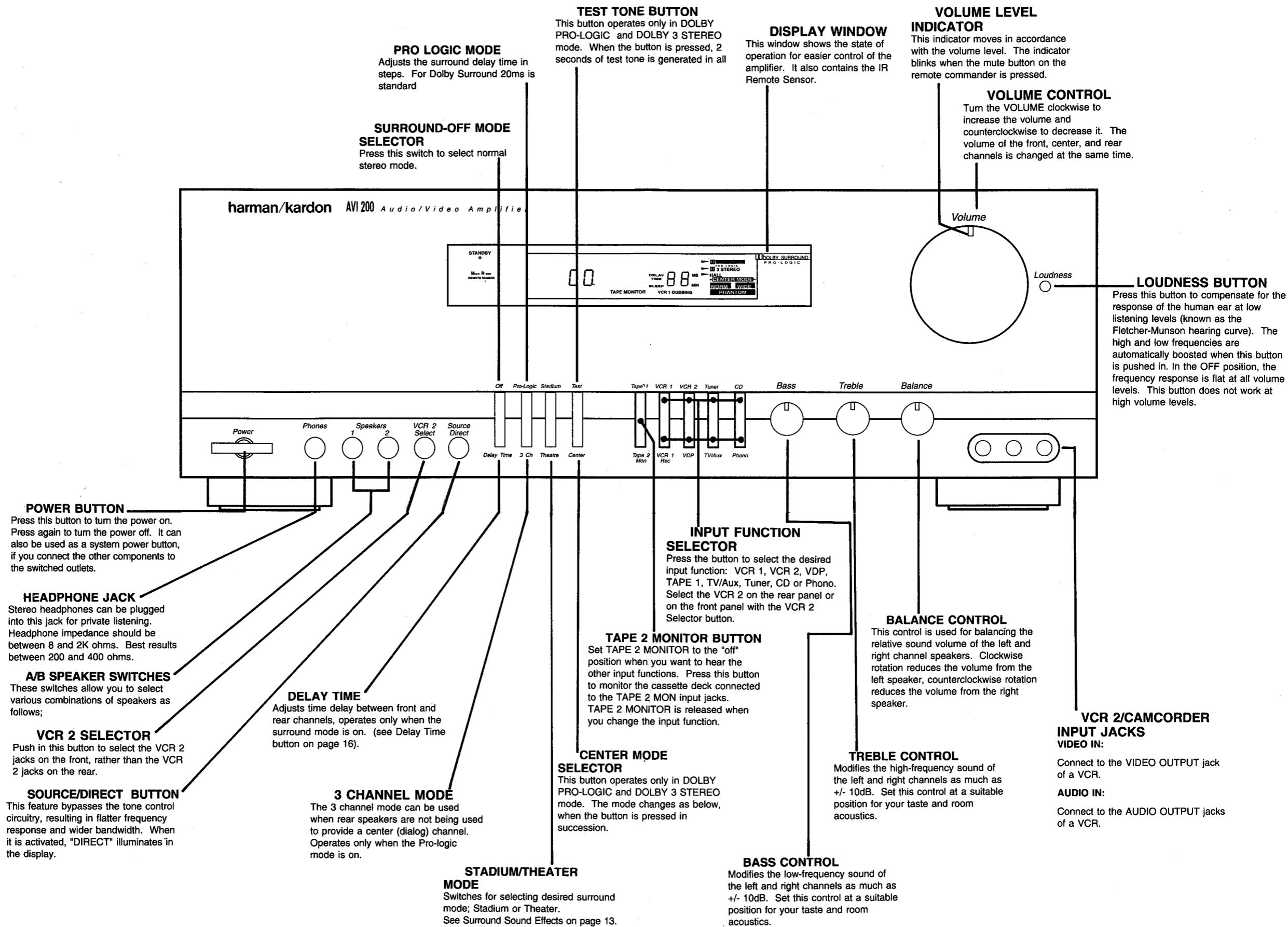
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metallic parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers 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 120-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.



**CONTROLS AND FUNCTIONS**



**PRO LOGIC MODE**  
Adjusts the surround delay time in steps. For Dolby Surround 20ms is standard

**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

**DISPLAY WINDOW**  
This window shows the state of operation for easier control of the amplifier. It also contains the IR Remote Sensor.

**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.

**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.

**SURROUND-OFF MODE SELECTOR**  
Press this switch to select normal stereo mode.

**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.

**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.

**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.

**A/B SPEAKER SWITCHES**  
These switches allow you to select various combinations of speakers as follows;

**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.

**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.

**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).

**3 CHANNEL MODE**  
The 3 channel mode can be used when rear speakers are not being used to provide a center (dialog) channel. Operates only when the Pro-logic mode is on.

**STADIUM/THEATER MODE**  
Switches for selecting desired surround mode; Stadium or Theater. See Surround Sound Effects on page 13.

**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. Select the VCR 2 on the rear panel or on the front panel with the VCR 2 Selector button.

**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. TAPE 2 MONITOR is released when you change the input function.

**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.

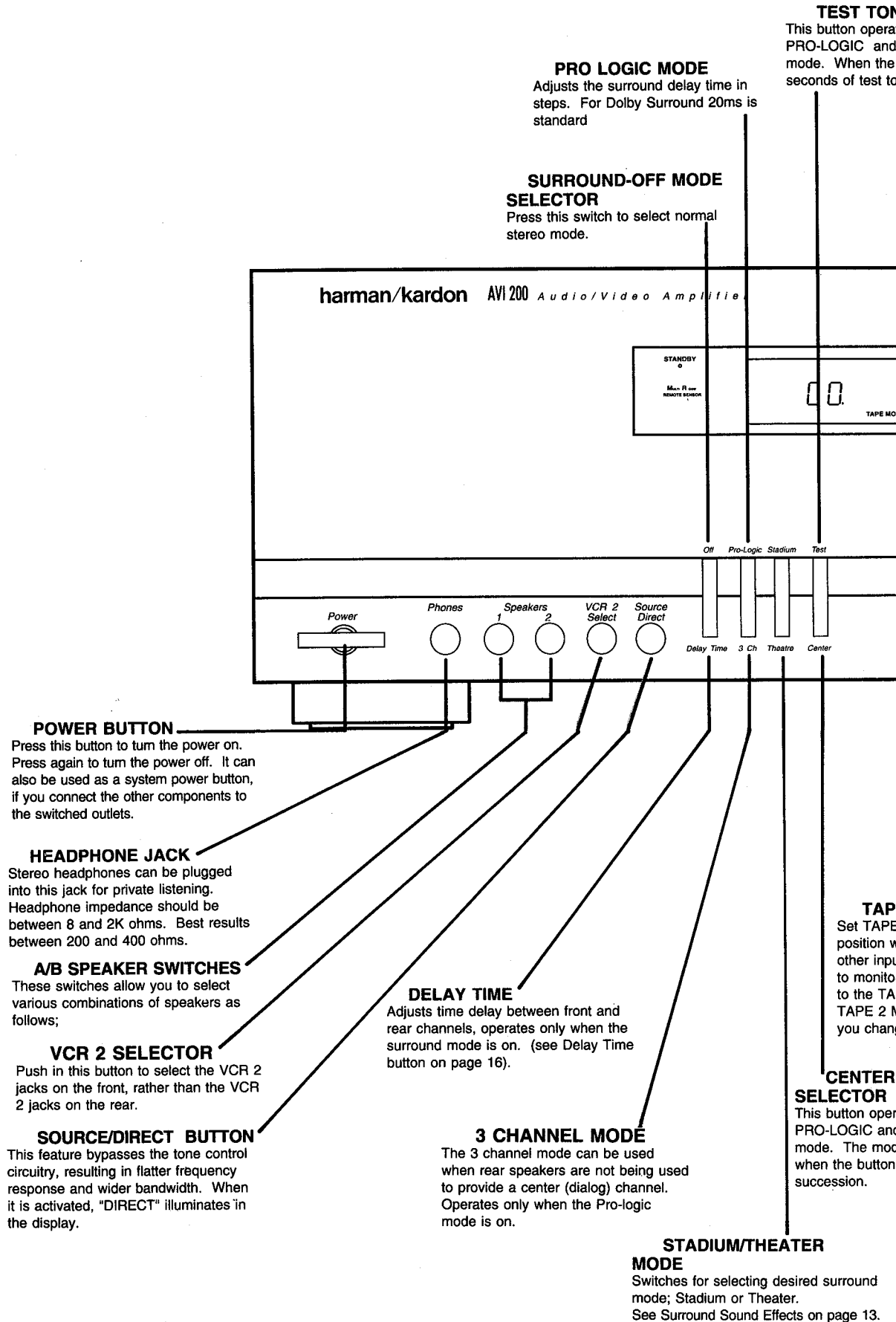
**BALANCE CONTROL**  
This control is used for balancing the relative sound volume of the left and right channel speakers. Clockwise rotation reduces the volume from the left speaker, counterclockwise rotation reduces the volume from the right speaker.

**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.

**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.

**VCR 2/CAMCORDER INPUT JACKS**  
VIDEO IN: Connect to the VIDEO OUTPUT jack of a VCR.  
AUDIO IN: Connect to the AUDIO OUTPUT jacks of a VCR.

# CONTROLS AND FUNCTIONS



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The 3 channel mode can be used when rear speakers are not being used to provide a center (dialog) channel. Operates only when the Pro-logic mode is on.

**TAPE MON**

Set TAPE position with other inputs to monitor to the TAPE 2 M you change

**CENTER SELECTOR**

This button operates PRO-LOGIC and mode. The mode when the button succession.

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

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### 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.

### 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.

### 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.

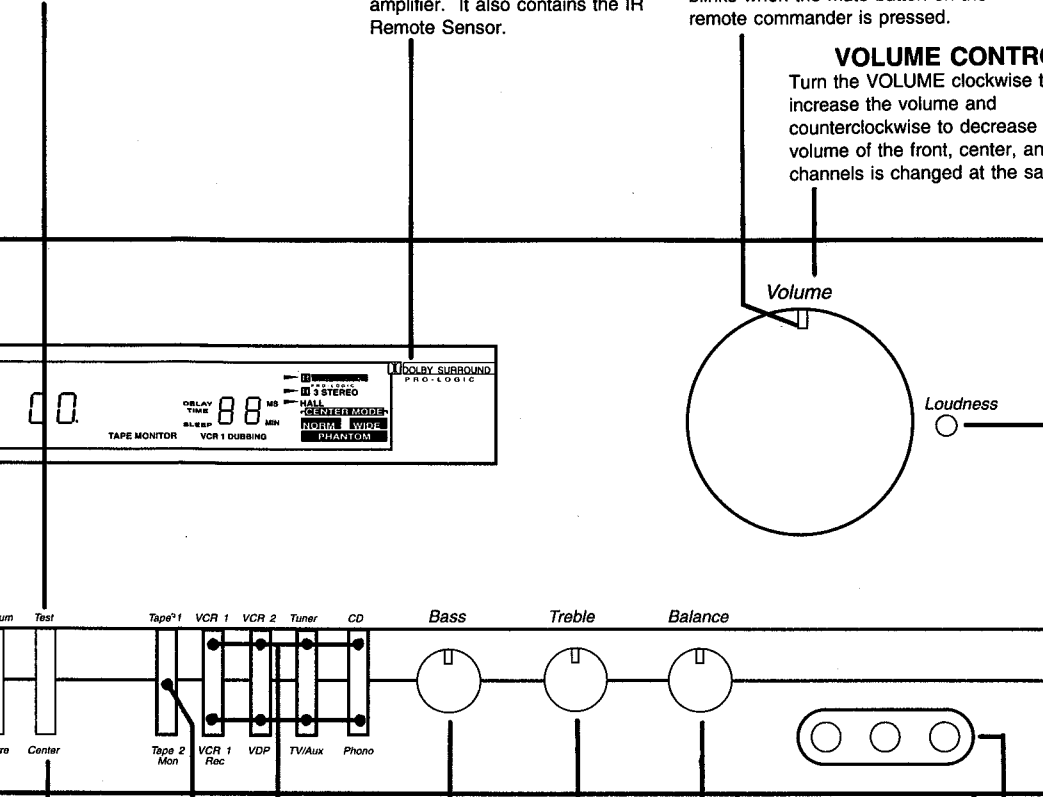
### VCR 2/CAMCORDER INPUT JACKS

#### VIDEO IN:

Connect to the VIDEO OUTPUT jack of a VCR.

#### AUDIO IN:

Connect to the AUDIO OUTPUT jacks of a VCR.



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cts on page 13.

## DISASSEMBLY PROCEDURES

### MODEL NO. : AVI-200

NOTE : The item numbers given in the following procedures refer to the exploded view and parts list.

#### 1 Cover top removal

1. Remove 6 screws (S2) from the sides of chassis.
2. Remove 2 screws (S1) from the chassis back (item #56).
3. Carefully lift the cover top to remove.

#### 2 Cover bottom removal

1. Remove 9 screws (S1) from the chassis.
2. Carefully lift the cover bottom (item #56) to remove.

#### 3 Panel Front Assembly removal

1. Remove the cover top.
2. Remove 4 screws (S1) from bottom of the chassis front (item #34).
3. Remove 4 screws (S5) from both side of the chassis front (item # 34).
4. Remove the flat cable from wafer (CP502) on the volume PC Board.
5. Remove the flat cable from wafer (CP802) on the Dolby PC Board.
6. Disconnect CP401 and CP581 from the Dolby PC Board.
7. Remove the flat cable from wafer (CNTP803) on the tuner PC Board.
8. Disconnect CP291 from the tuner PC Board.
9. Disconnect CP402 from the main PC Board.
10. Disconnect CP801 from the power supply PC Board.

#### 4 Volume PC Board removal

1. Remove the panel front assembly.
2. Pull out the main volume knob with LED PC Board.
3. Remove the hex nut from the volume-motor to remove the volume PC Board.
4. Remove 2 screws (S1 and S3) from the panel front (item #2).
5. Pull the volume PC Board from the panel front assembly to remove.

#### 5 Headphone PC Board Removal

1. Remove the panel front assembly.
2. Remove 2 screws (S1) from the panel front (item #2) to release the headphone PC Board.

#### 6 Tone PC Board Removal

1. Remove the panel front assembly.
2. Pull the knobs (bass, treble, balance) out from the panel front assembly.
3. Remove the hex nut from the variable resistors (item #18 and #19).
4. Remove 4 screws (S1).

#### 7 Front PC Board Removal

1. Remove the panel front assembly.
2. Remove 11 screws (S1) holding the front PC Board to the panel front (item #2).

#### 8 Tuner PC Board Removal

1. Remove the cover top.
2. Remove the panel front assembly.
3. Disconnect CP103, CP601, CP101, CP104, CP704 and CP106 on the tuner PC Board.
4. Disconnect CP901 and CP902 on the tuner PC Board.
5. Remove 2 screws (S5) from the tuner PC Board.
6. Remove 8 screws (S9) from the chassis back (item #53)

#### 9 Dolby PC Board Removal

1. Remove the cover top.
2. Remove the panel front assembly.
3. Unjoin 2 fastener (item #35) for remove the Dolby PC Board.
4. Remove the flat cable CN501 on the Dolby PC Board.
5. Disconnect CP601 from the Dolby PC Board.

#### 10 Surround PC Board Removal

1. Remove the cover top.
2. Remove the cover bottom.
3. Remove the panel front assembly.
4. Remove the Dolby PC Board.
5. Disconnect CP602 from the power supply PC Board.
6. Remove 1 screw (S5) from the bottom of Chassis front (item #34).
7. Remove 6 screws (S1) from the chassis front (item #34)
8. Remove the chassis front.
9. Remove 2 screws (S7) from the heatsink (item #36).

**11 Chassis back Removal**

1. Remove the cover top.
2. Remove the cover bottom
3. Do steps 8, 9 and 10.
4. Unsolder the solder pins to remove the power cord (item #56).
5. Remove 1 screw (S1) from the bottom of chassis left (item #41) and Remove 4 screws (S1) from the chassis back.
6. Remove 19 screws (S9) and 2 screws (S10: PHONO and MONITORS) holding the chassis back.

**12 Main PC Board Removal**

1. Remove the cover top.
2. Remove the cover bottom.
3. Remove the panel front assembly.
4. Remove the chassis back.
5. Unsolder all leads of Q262L/R, Q263L/R, Q270L/R, Q262C, Q263C, Q270C and IC241 from copper track on the main PC Board.
6. Disconnect CP101 from the power supply PC Board.
7. Disconnect CP241 from the power transformer.
8. Remove 2 screws (S5) from the main PC

Board.

**13 Power Supply PC Board Removal**

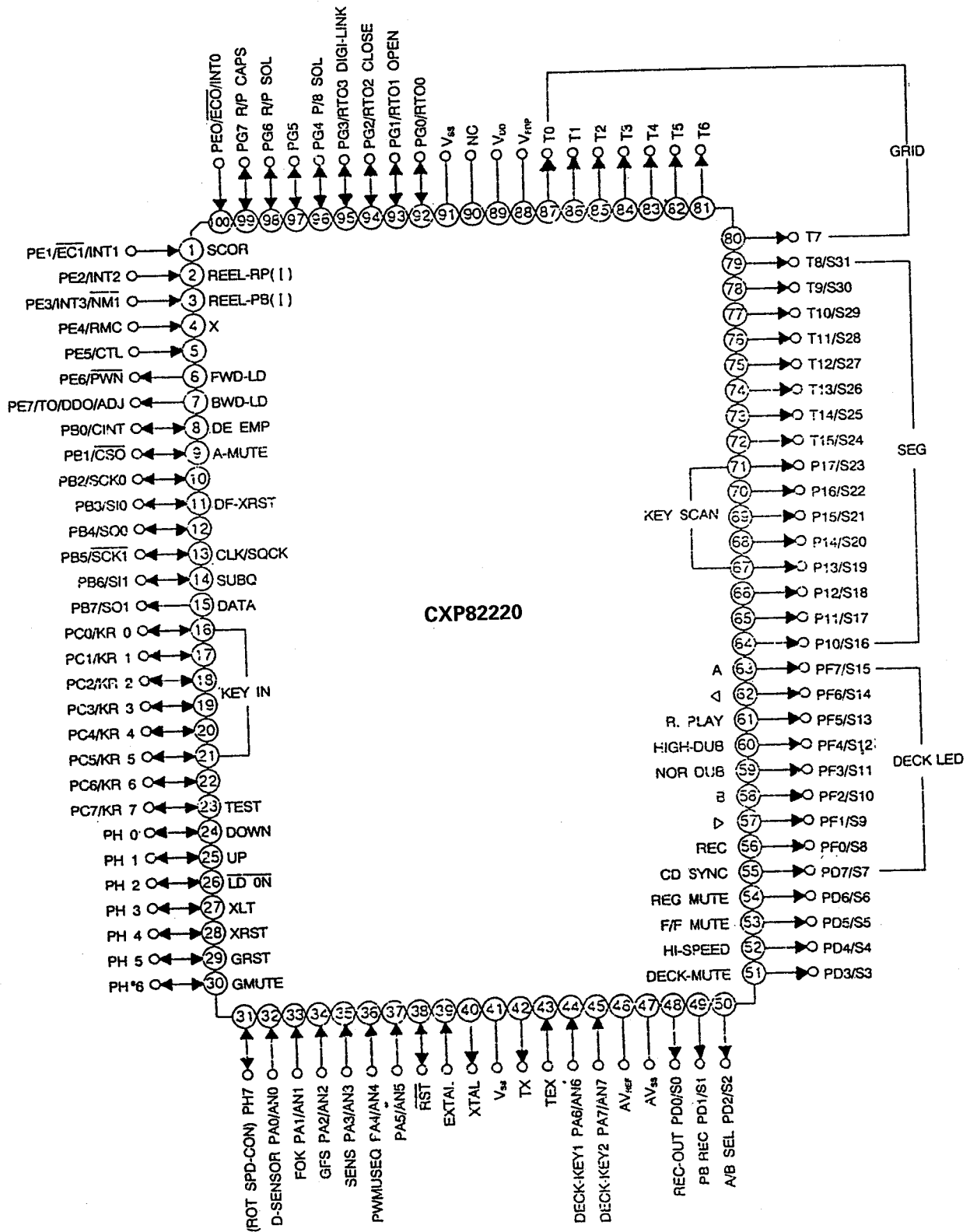
1. Remove the cover top.
2. Disconnect CP801 from front P.C. Board
3. Disconnect CP602 from the surround P.C. Board.
4. Disconnect CP101 from the power supply P.C. Board.
5. Disconnect CN704 from the tuner P.C. Board.
6. Disconnect CP701, CP702 and CP703 from the transformer.
7. Unsolder 2 leads of the AC-cord (item #56) from neutral and live on the power supply PC Board.
8. Remove 2 screws (S5) from the power supply PC Board.
9. Remove 2 screws (S9) from the chassis back.



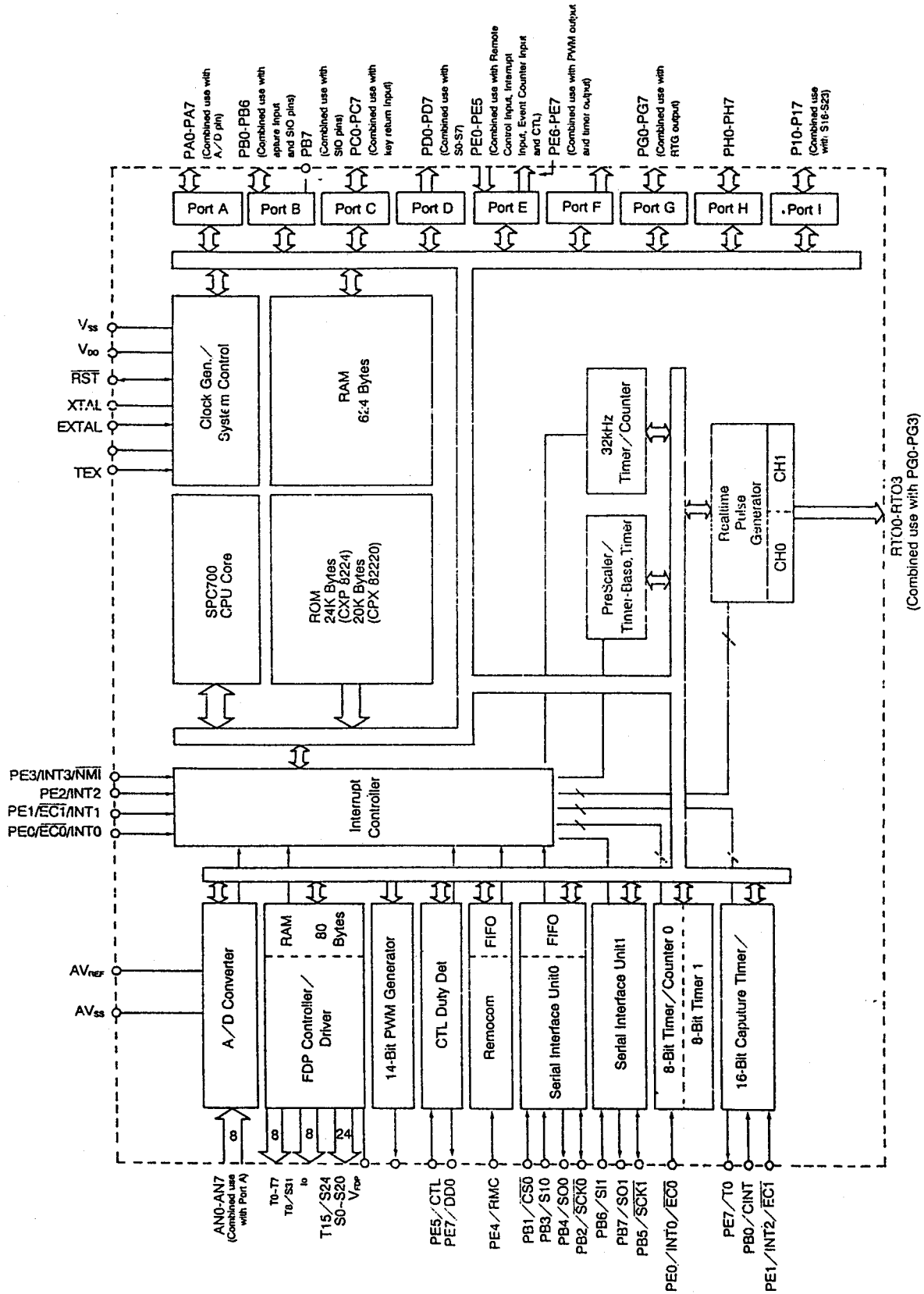
# CIRCUIT DESCRIPTION

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

### 1. Pin Connection Diagram



2. Block Diagram



## 3. Pin Functions

Symbol	Input/Output		Functions	
PA0/AN0 to PA7/AN7	I/O/Analog Input	(Port A) 8-bit I/O port. Each bit can be individually specified as input or output. (8 pins)	A/D converter analog input pins.	
PB0/CINT	I/O/Input	(Port B) 8-bit I/O port. The low 7 bits can be individually specified as input or output. The most significant bit (PB7) is output only. (8pins)	16-bit timer/counter external capture input pin	
PB1/ $\overline{\text{CS0}}$	I/O/Input		Serial inter face(CH0) chip select input pin.	
PB2/ $\overline{\text{SCK0}}$	I/O/I/O		Serial data (CH0) I/O pin.	
PB3/S10	I/O/Input		Serial data (CH0) input pin.	
PB4/SO0	I/O/Output		Serial data (CH0) output pin.	
PB5/ $\overline{\text{SCK1}}$	I/O/I/O		Serial clock (CH1) I/O pin.	
PB6/S11	I/O/Input		Serial data (CH1) input pin.	
PB7/SO1	Output/Output		Serial data (CH1) output pin.	
PC0/KR0 ~ PC7/KR7	I/O/Input	(port C) 8-bit I/O port. Each bit can be indivi- dually specified as in- put or output. Each can drive a 12 mA sink current. (8 pins)	Key return input pins for performing key scans with the FDP segment signals.	
PD0/S0 ~ PD7/S7	Output/Output	(Port D) 8-bit output port. (8 pins)	FDP segment signal output pins.	
PE0/INT0/ $\overline{\text{EC0}}$	Input/Input/Input	(Port E) 8-bit input/output port. The low 6 bits are inputs, and the high 2 bits are outputs.  (8 pins)	External interrupt request input pins.  (4 pins)	Timer/counter external event input pins. (2 pins)
PE0/INT0/ $\overline{\text{EC1}}$	Input/Input/Input			
PE2/INT2	Input/Input			
PE3/INT3/ $\overline{\text{NMI}}$	Input/Input/Input			
PE4/RMC	Input/Input		Non-maskable interrupt request input pin.	
PE5/CTL	Input/Input		Remote control unit receive circuit input pin.	
PE6/ $\overline{\text{PWM}}$	Output/Output		14-bit PWM output pin.	
PE7/TO/DD0/ADJ	Output/Output Output/Output	16-bit timer/counter square wave output pin. CTL duty detection output pin, and pin for frequency division output of 32 kHz oscillator		
PF0/S8 ~ PF7/S15	Output/Output	(Port F) 8-bit output port. (8 pins)	FDP segment signal output pins.	

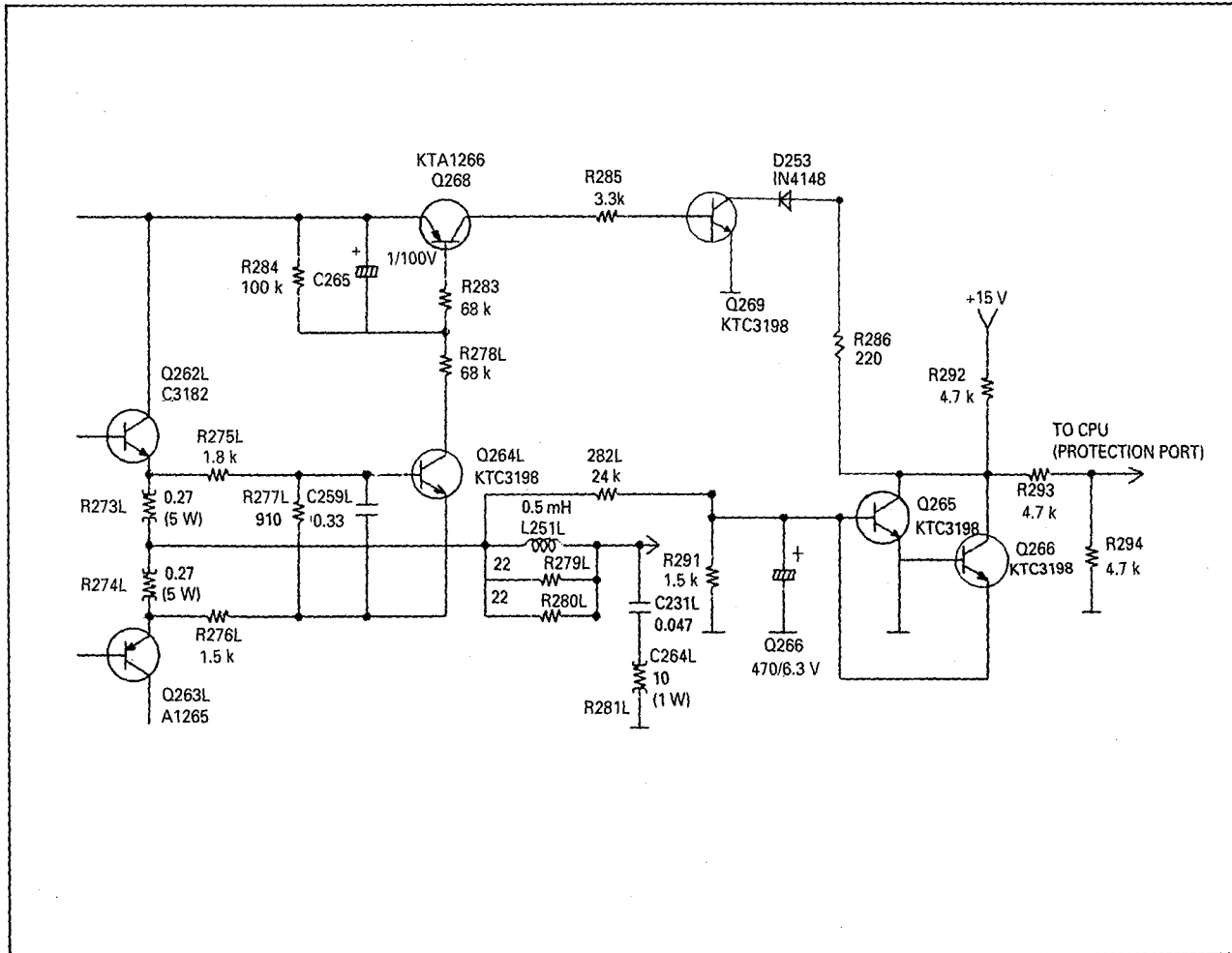
Symbol	Input/Output	Functions	
PG0/PT0 o ~ PG3/RT 03	I/O/Output	(Port G) 8-bit I/O port. Each bit can be individually specified as input or output. The lower four bits are output logically ORed with the RTO contents. (8 pins)	Realtime pulse generator (RTG) outputs. These function as high-precision realtime. pulse output ports. (4 pins)
PG4 ~ PG7	I/O		
PH0 ~ PH7	I/O	(Port H) 8-bit I/O port. Each bit can be individually specified as input or output. (8 pins)	
P10/S16 ~ P17/S23	Output/Output	(Port1) 8-bit output port. (8 pins)	FDP segment signal output pins.
T8/S31 ~ T15/S24	Output/Output	Dual-use output pins for FDP timing signals and FDP segment signals.	
T0 ~ T7	Output	FDP timing signal output pins	
V <sub>FDP</sub>		FDP voltage supply pin if an internal resistor was specified with a mask option.	
EXTAL	Input	Crystal interface pins for system clock oscillation. If the clock is supplied externally then it should be input to the EXTAL pin. The XTAL pin should then be left open	
XTAL	Output		
TEX	Input	Crystal interface pins for the 32 kHz timer/counter's oscillator. A 32-kHz liquid crystal oscillator is placed between TEX and TX. When used as an event input, connect the signal source to TEX, and leave TX open.	
TX			
$\overline{\text{RST}}$	I/O	System reset pin, active when "L"	
NC		This pin should be connected to V <sub>DD</sub> during operation.	
AV <sub>REF</sub>	Input	A/D converter reference voltage input pin.	
AV <sub>SS</sub>		A/D converter ground pin.	
V <sub>DD</sub>		Positive power supply pin.	
V <sub>SS</sub>		GND pin.	

## PROTECTION CIRCUITS

### SPEAKER PROTECTION CIRCUITS

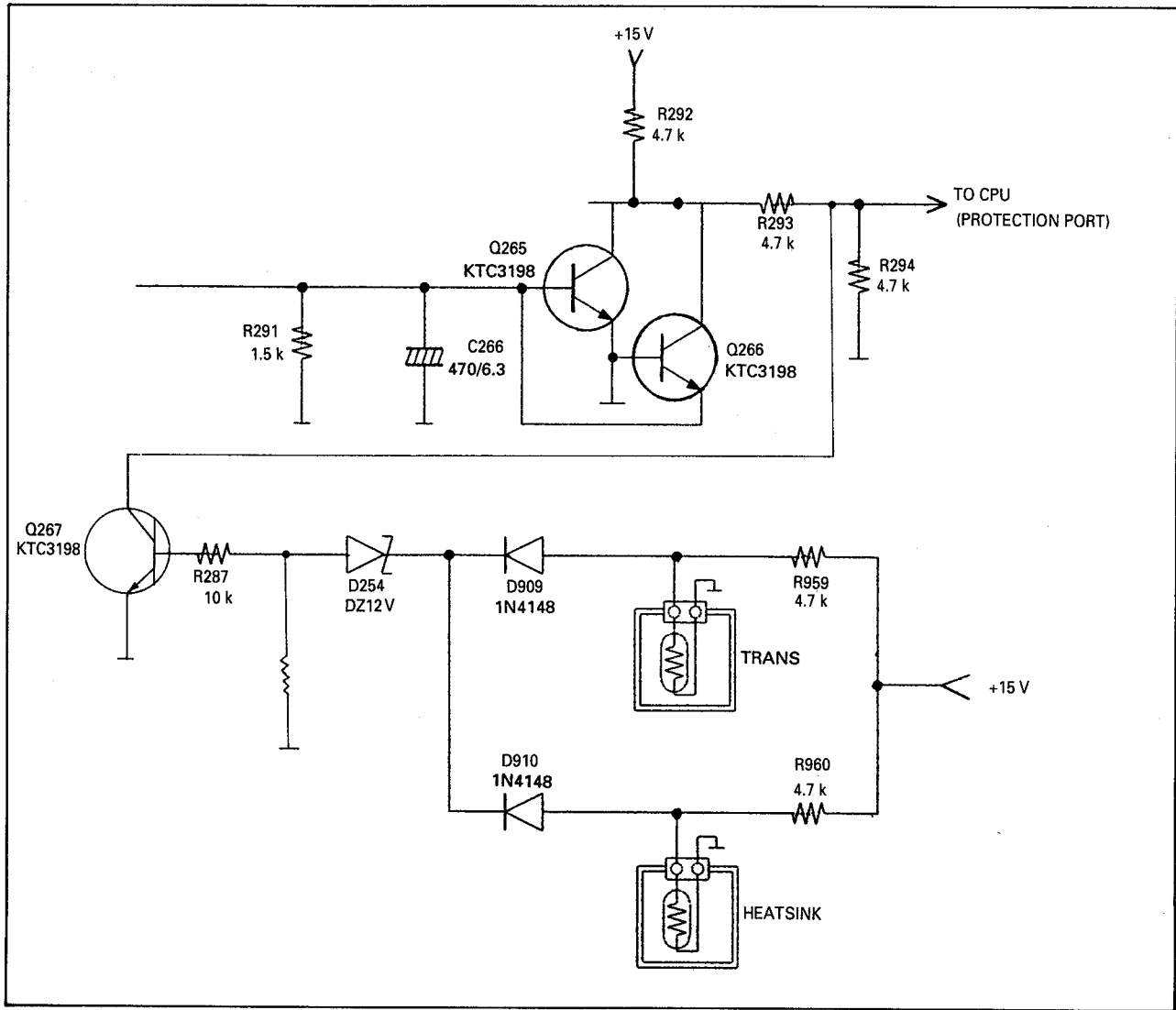
The CPU protects both this unit and the speakers when an abnormally high current flows in Q262 L/R/C and Q263 L/R/C due to excessive input drive, too low of a load impedance, or short of the speaker terminals. If current increase is excessive the voltage across R273 L/R/C or R274 L/R/C turns on Q264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

It makes the protection port of the CPU to low state, and the CPU turns unit to standby state.



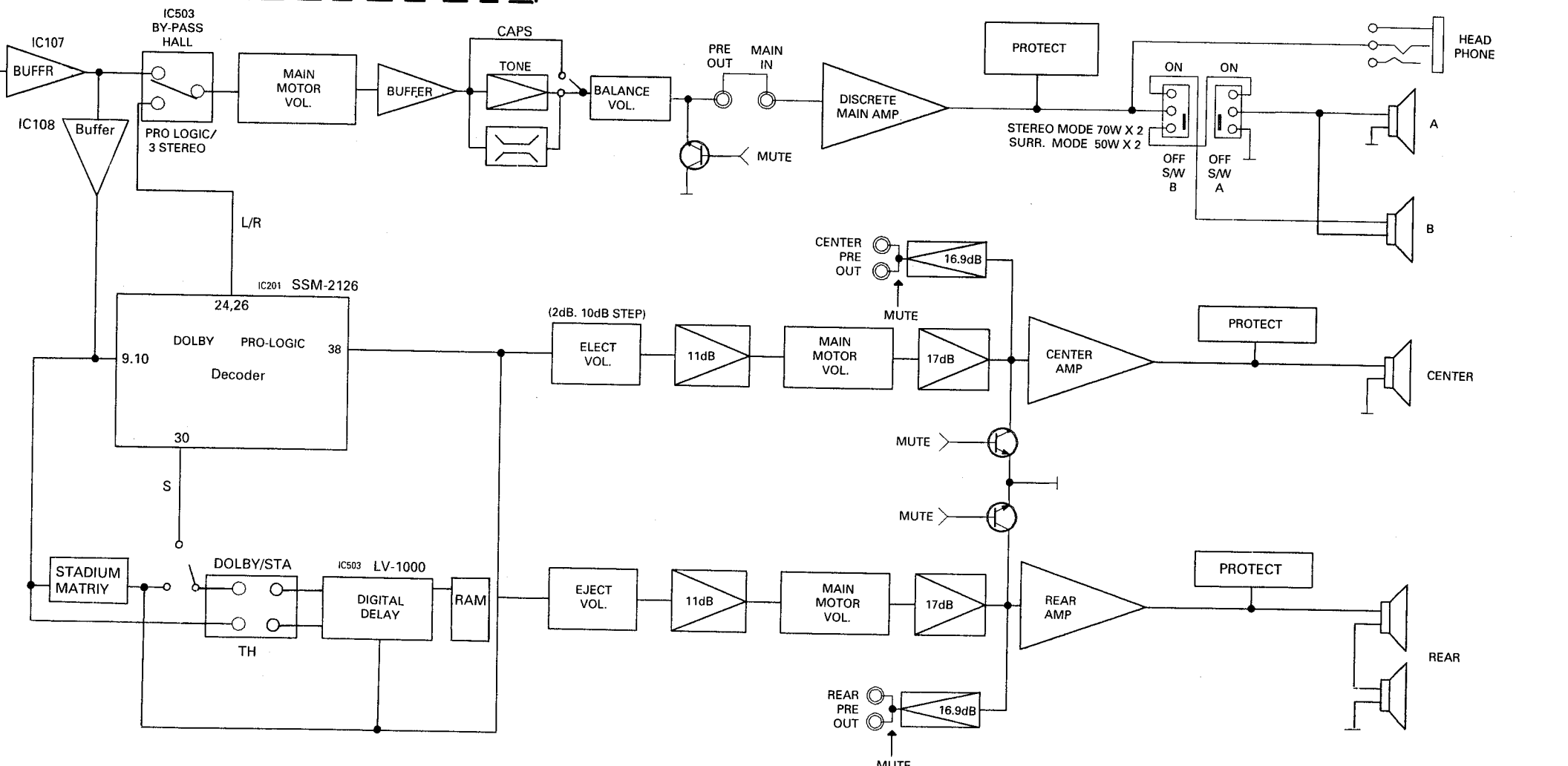
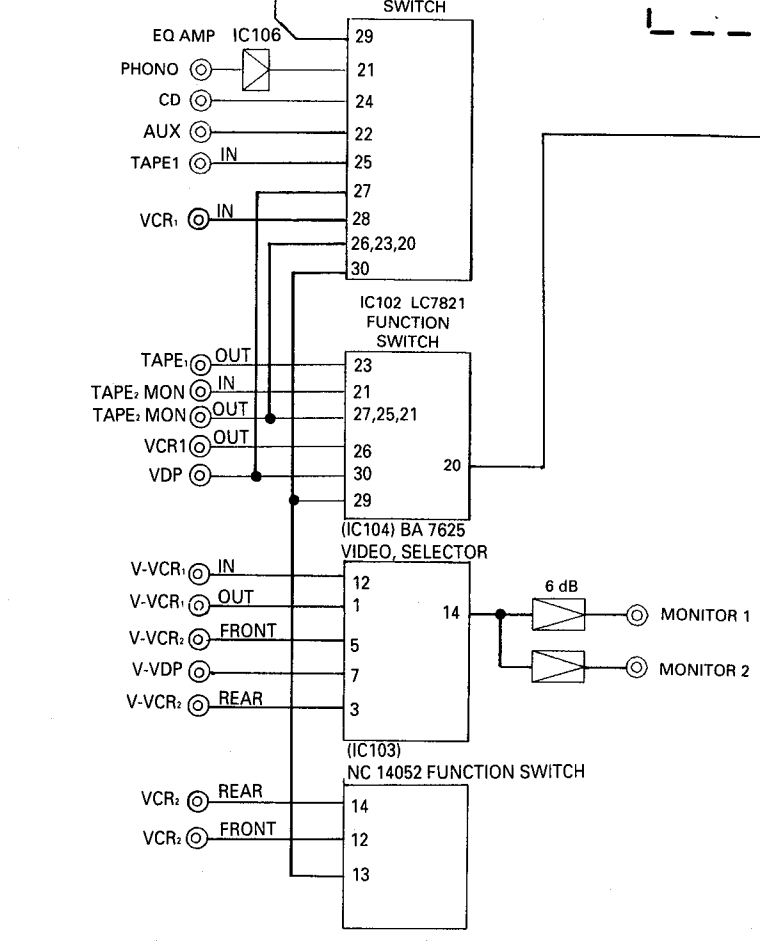
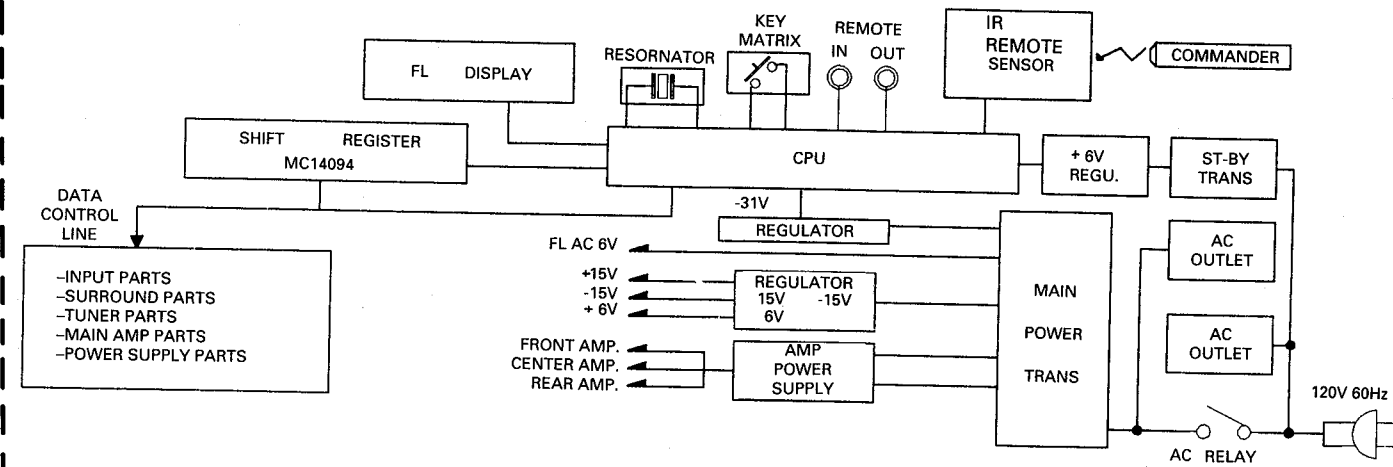
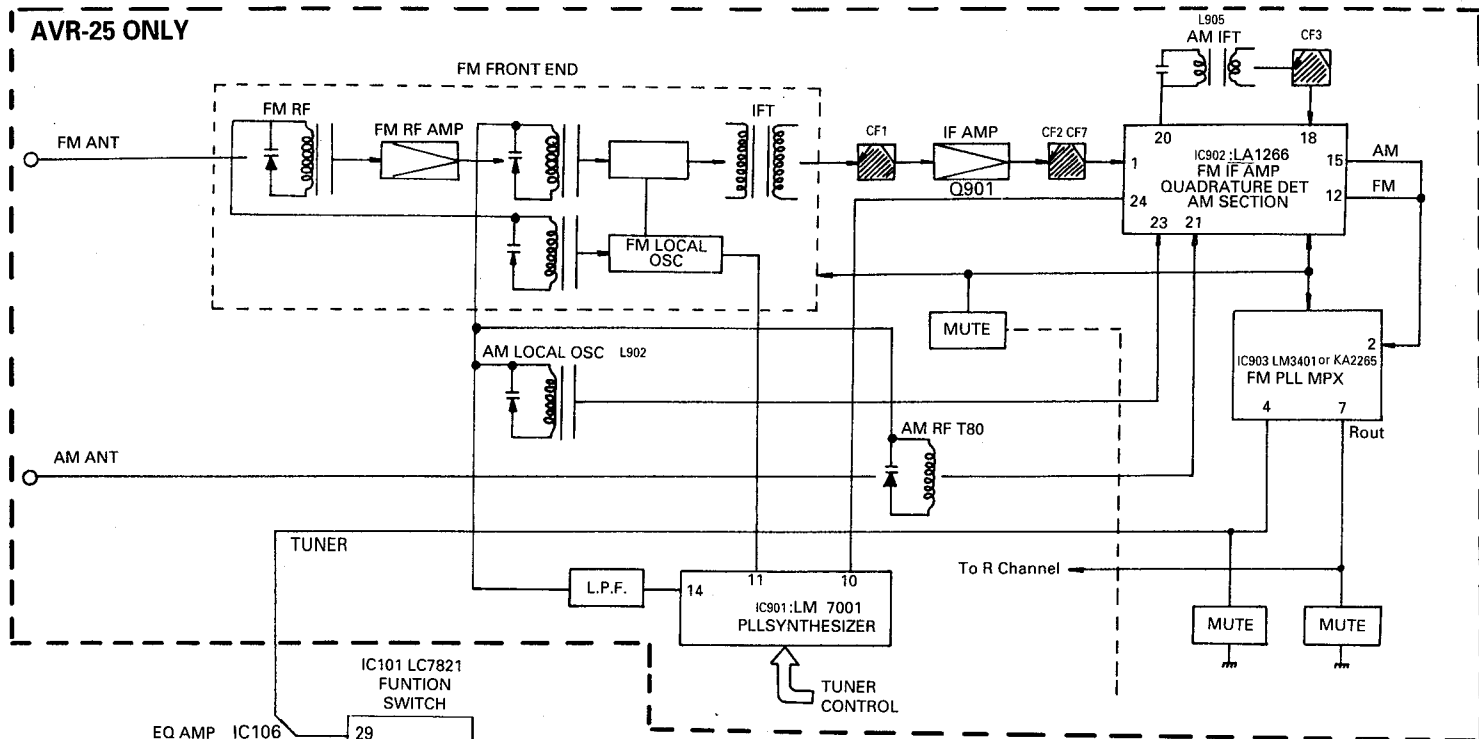
**THERMAL PROTECTION CIRCUITS**

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 Q267 is turned on. It makes the protection port of the CPU to Low state, and the CPU turns unit to standby state.

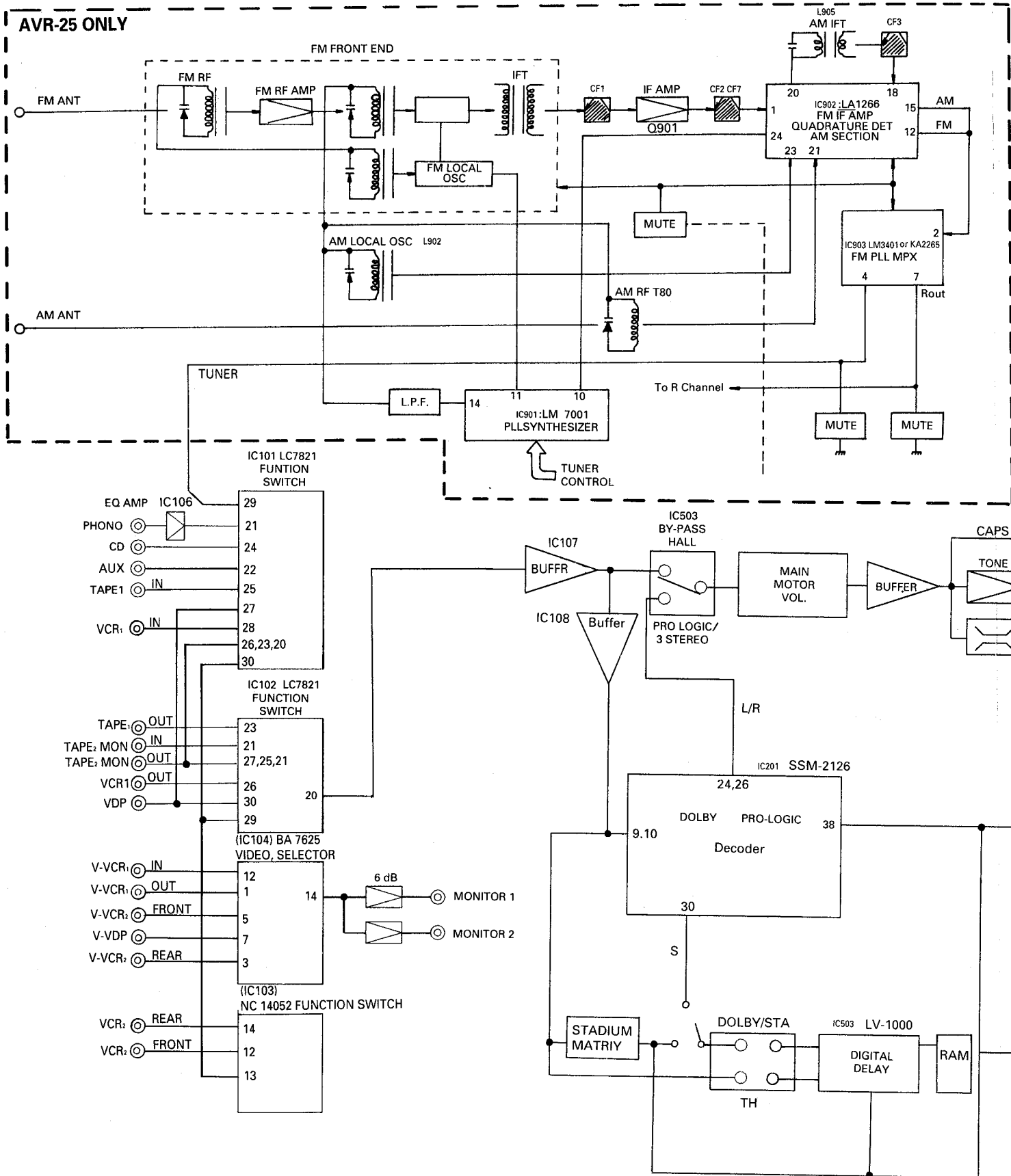


BLOCK DIAGRAM

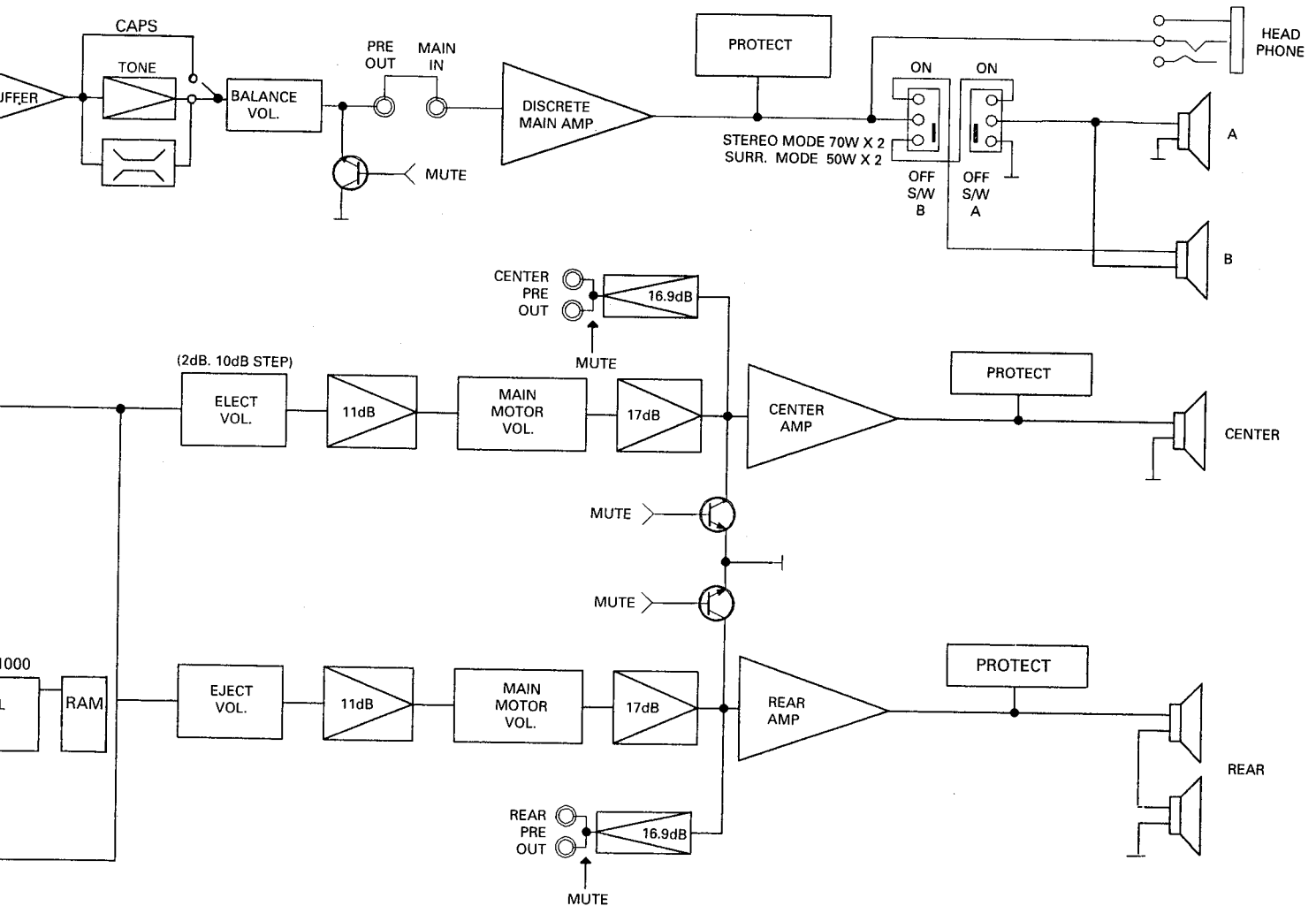
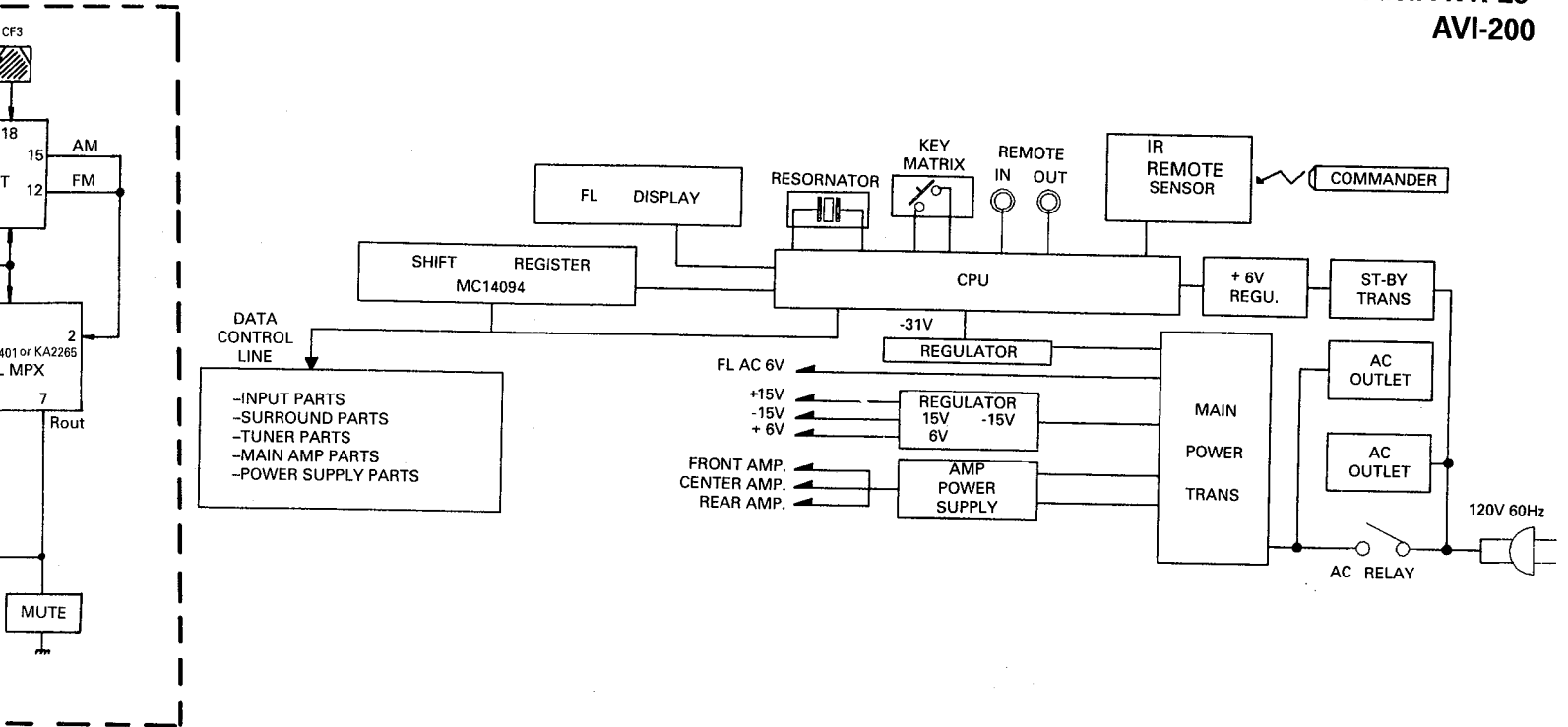
Model: AVR-25  
AVI-200



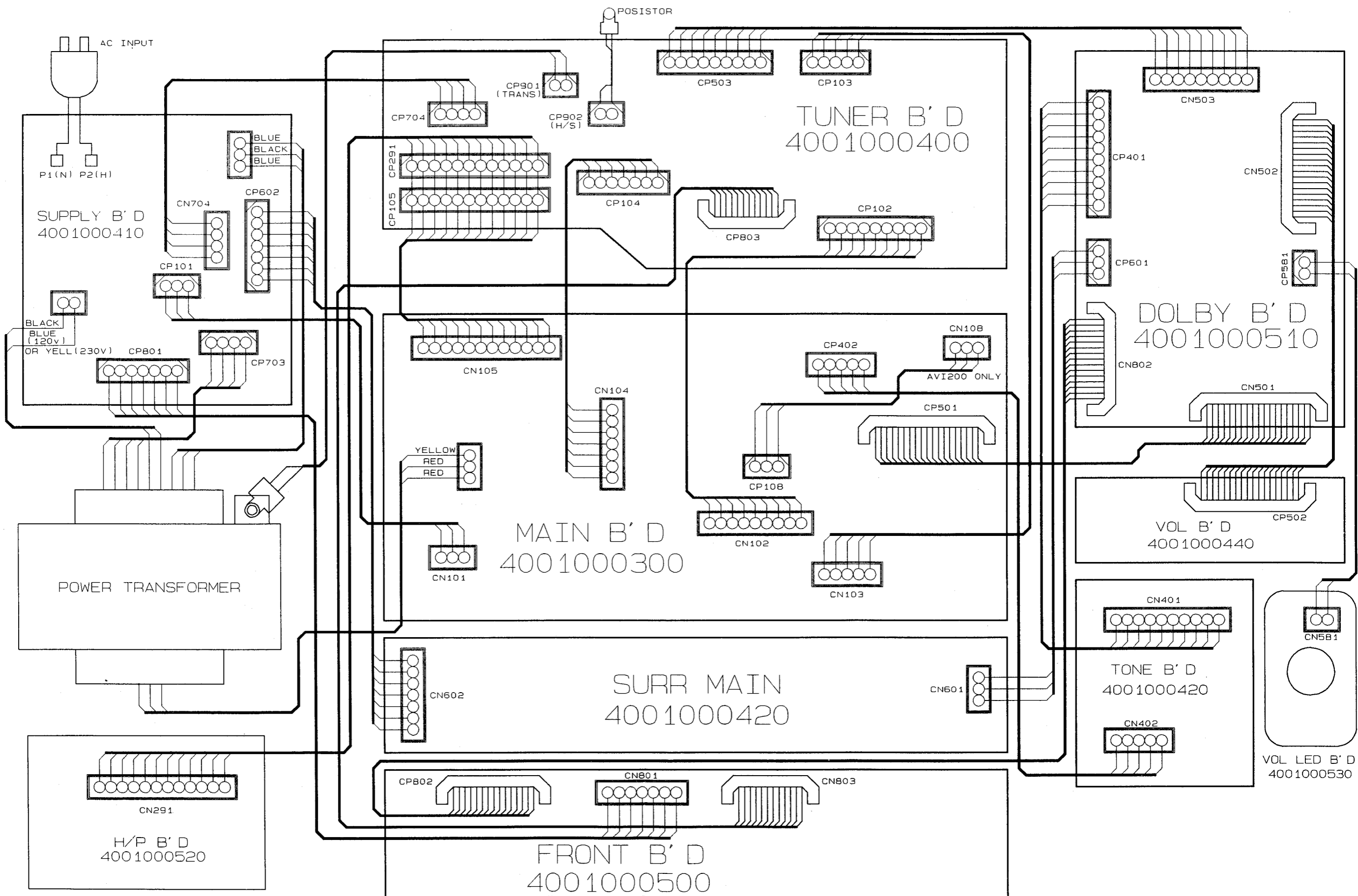
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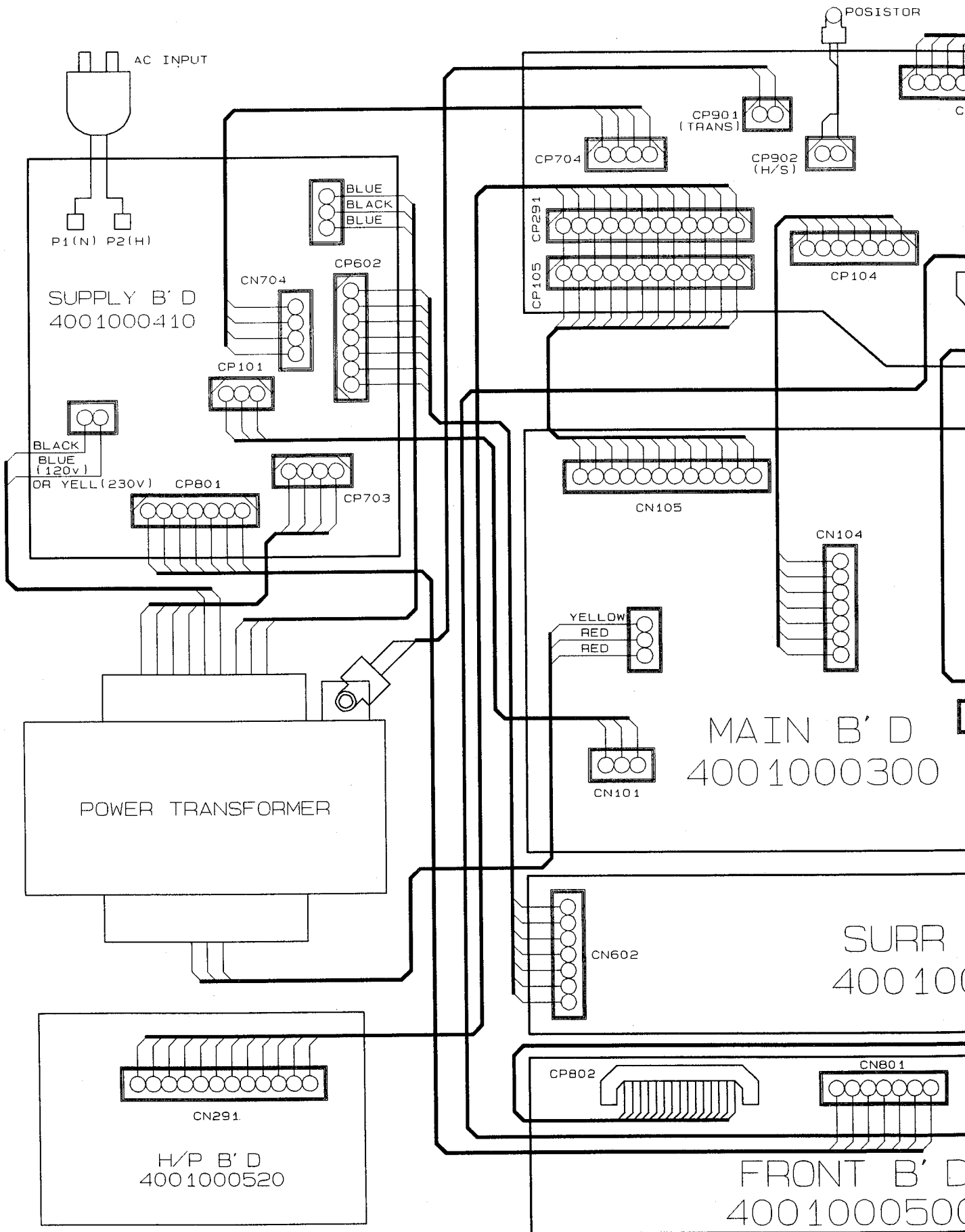




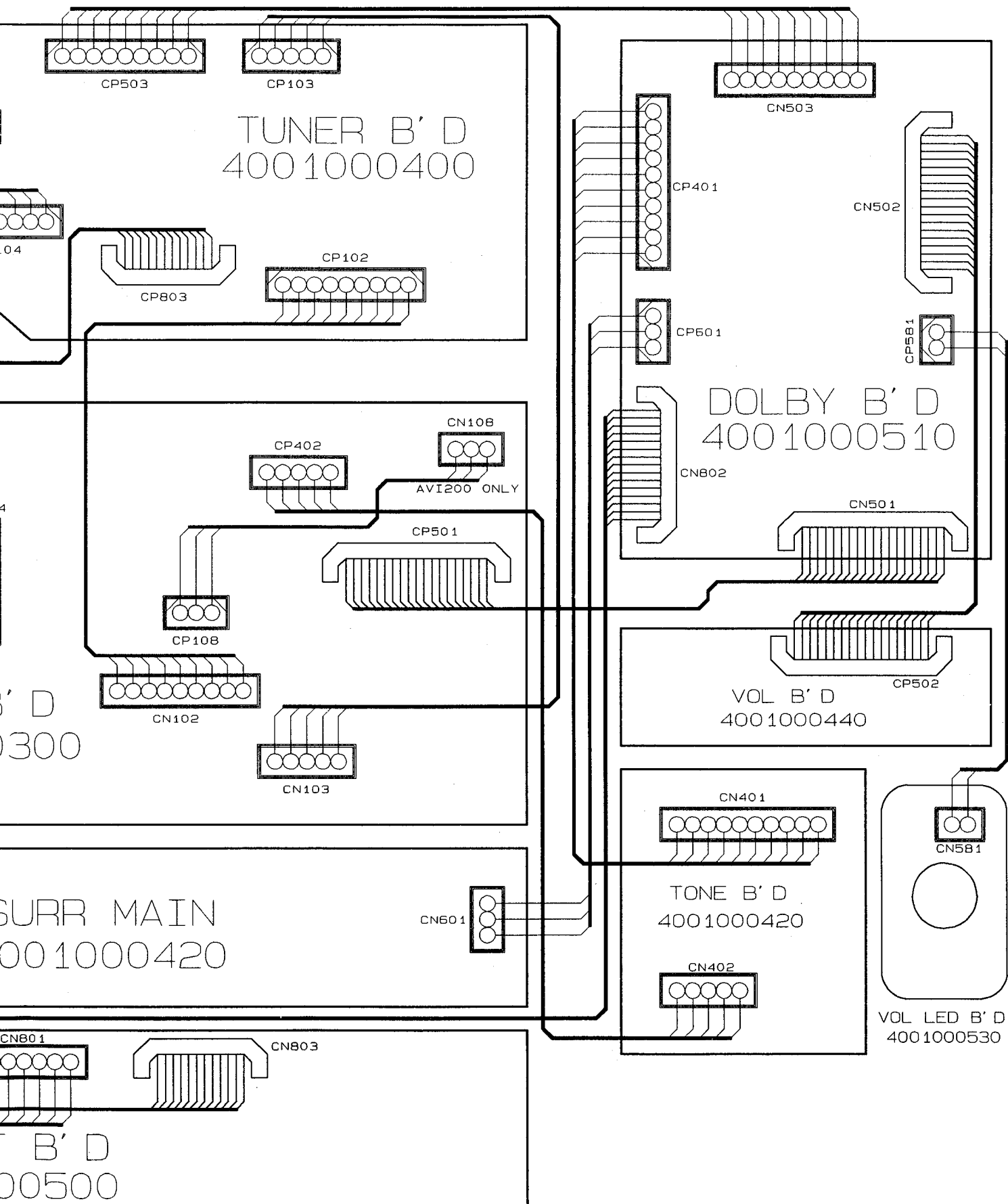
# WIRING DIAGRAM



# WIRING DIAGRAM



OSISTOR



## TROUBLESHOOTING

Symptom	Cause and Remedy
Unit inoperative (FL indicator does not light)	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.	A) Defective power transformer. Replace. B) Short the primary or secondary of the transformer circuitry. Repair the short. 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 short.
Power indicator lights but no sound from both channels	A) Speaker switch 1 or 2 defective. Replace the defective switch (es). B) Defect in transistor Q262 L/R, Q263 L/R on the Main Amp Board. Replace the defective component(s).
Speaker A inoperative	A) Speaker switch A defective. Replace
Speaker B inoperative	A) Speaker switch B defective. Replace.
Speaker works normally but headphones inoperative	A) Defective resistor R295L/R Replace.
PHONO input inoperative	A) Poor contact in phono input jack. Repair or replace the jack. B) Defective phono switch or IC106. Replace.
LOUDNESS has no effect	A) Defective loudness switch. Replace. B) Defective resistor R301 L/R, C301 L/R and C302 L/R Replace the defective component(s).
Bass control has no effect	A) Variable resistor BASS defective. Replace. B) Defective R416L/R, R417L/R, R418L/R, C414L/R, C415L/R Replace the defective component(s).

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).
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.

## TROUBLESHOOTING

Symptom	Cause and Remedy
Unit inoperative (FL indicator does not light)	<ul style="list-style-type: none"> <li>A) Faulty AC power cord. Replace.</li> <li>B) Defect the power switch. Replace.</li> <li>C) Broken wire in the power transformer. Replace the power transformer.</li> <li>D) Blown power Replace the fuse.</li> </ul>
Fuse blows when power is turned on.	<ul style="list-style-type: none"> <li>A) Defective power transformer. Replace.</li> <li>B) Short the primary or secondary of the transformer circuitry. Repair the short.</li> <li>C) Damaged rectifier (D241 to D244) or damaged trans (Q262 and Q263). Replace the defective component(s).</li> <li>D) Short circuit in the amplifier circuit. Repair the short.</li> </ul>
Power indicator lights but no sound from both channels	<ul style="list-style-type: none"> <li>A) Speaker switch 1 or 2 defective. Replace the defective switch (es).</li> <li>B) Defect in transistor Q262 L/R, Q263 L/R on the Main Amp Board. Replace the defective component(s).</li> </ul>
Speaker A inoperative	<ul style="list-style-type: none"> <li>A) Speaker switch A defective. Replace</li> </ul>
Speaker B inoperative	<ul style="list-style-type: none"> <li>A) Speaker switch B defective. Replace.</li> </ul>
Speaker works normally but headphones inoperative	<ul style="list-style-type: none"> <li>A) Defective resistor R295L/R Replace.</li> </ul>
PHONO input inoperative	<ul style="list-style-type: none"> <li>A) Poor contact in phono input jack. Repair or replace the jack.</li> <li>B) Defective phono switch or IC106. Replace.</li> </ul>
LOUDNESS has no effect	<ul style="list-style-type: none"> <li>A) Defective loudness switch. Replace.</li> <li>B) Defective resistor R301 L/R, C301 L/R and C302 L/R Replace the defective component(s).</li> </ul>
Bass control has no effect	<ul style="list-style-type: none"> <li>A) Variable resistor BASS defective. Replace.</li> <li>B) Defective R416L/R, R417L/R, R418L/R, C414L/R, C415L/R Replace the defective component(s).</li> </ul>

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).
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

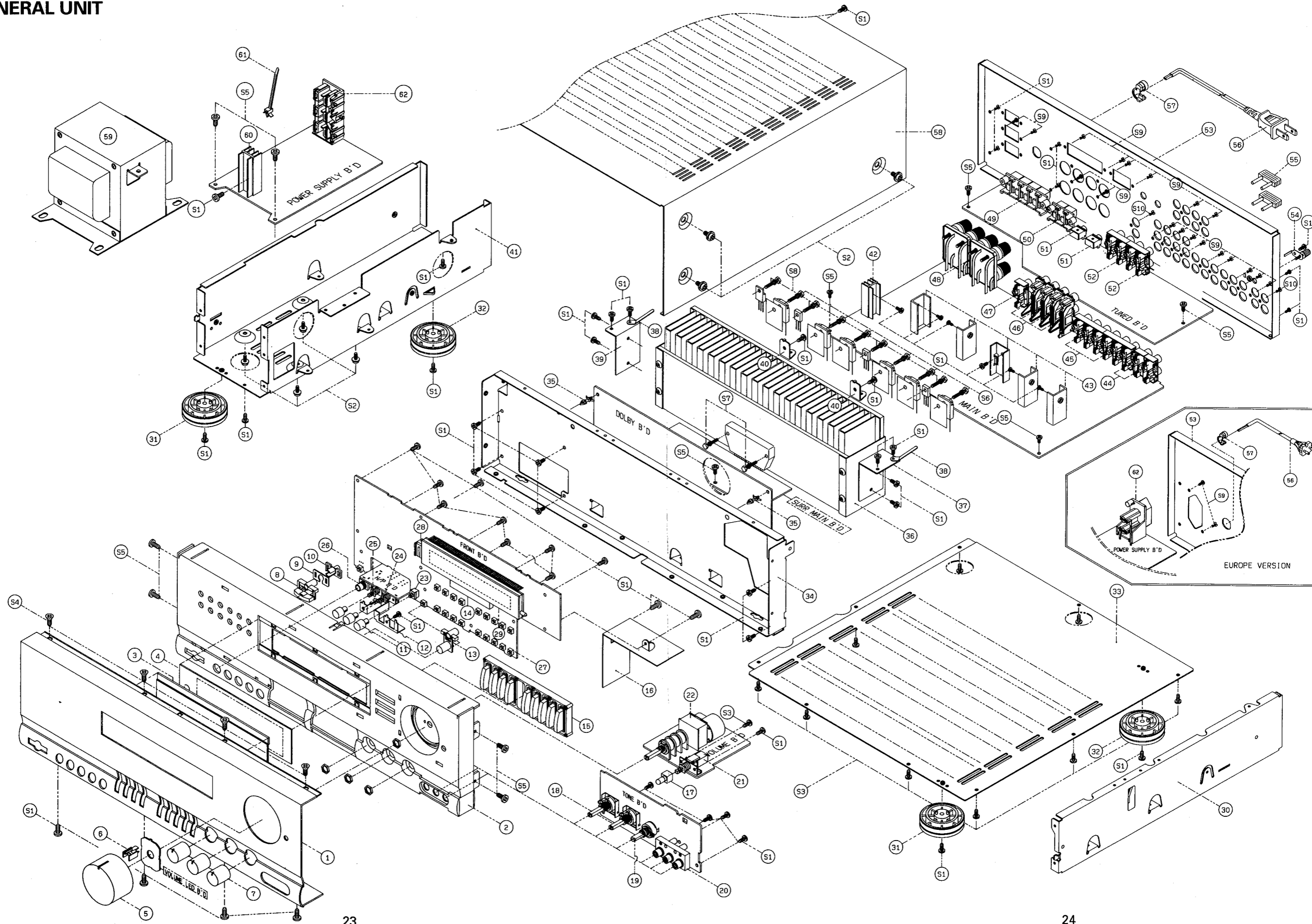
Ref. No.	Description	Mfr. Part No.	Version	Ref. No.	Description	Mfr. Part No.	Version
1	Panel Front, Aluminium, black	048602019321		49	Terminal Speaker, 4P	4408105410	
2	Body, Front, ABS, black	8521008910		50	Terminal Speaker, 2P	4408107010	
3	Window FL, Acryl, Dark Smoke	048553020111		51	Jack, Multiroom	4438006510	
4	Filter, FL, PVC, Red	048535042611		52	Jack, RCA, 4P	4438108610	
5	Knob, Volume, Aluminium, Black	048643006711		53	Chassis, Back, SECC	046202041241	Europe
6	Indicator, Volume, Acryl, Milk	8555049210			Chassis, Back, SECC	046102041321	USA/CA
7	Knob Rotary, ABS, Black	048545126311		54	Ground Terminal	4408103720	
8	Button Power, ABS, black	048543061011		55	Plug, Mono	4328204210	
9	Light Shield, PVC, Black	8535042910		56	Cord, AC Power	4308002310	Europe
10	Indicator, Power, Acryl, Milk	8555048710			Cord, AC Power	4308001410	USA/CA
11	Button Speaker, ABS, black	048545124111		57	Stopper, Cord	6518000111	Europe
12	Bracket Shield, ET	6165148210			Stopper, Cord	6518000710	USA/CA
13	Button Source, ABS, black	048543060911		58	Cover Top, SECC, Black	046122022611	
14	Sponge, EVA, Black	6715020730		59	Power Transformer, 230 V, 50 Hz	2828001117	Europe
15	Button Seesaw, ABS, black	048543060811			Power Transformer, 120 V, 60 Hz	2828009967	USA/CA
16	Shield Fence, ET	6163114510		60	Heatsink (H:30), Regulator TR.	7505206210	
17	Button Tuning, ABS, black	048543059711		61	Tie locking	6528002810	
18	Volume Rotary (Bass/Treble)	3208049510		62	Outlet, 1P	4448103610	Europe
19	Volume Rotary (Balance)	3208052010			Outlet, 3P	4448102910	USA/CA
20	Jack, RCA, 3P	4438109710		S1	Screw #2 BTC 3 X 8 B	8109230083	
21 (SW301)	Switch Push	4628059610		S2	Screw WSAM 4 X 8 B	8159440083	
22 (VR301)	Volume Motor	3228019410		S3	Screw #2 BTC 3 X 6 B	8109230063	
23 (SW801)	Switch Push	4628054410		S4	Screw #2 FTC 3 X 8 B	8129230083	
24 (SW291)	Switch Push	4628043810		S5	Screw #2 WPTC 3 X 8 Y	8159230081	
25 (SW292)	Switch Push	4628049210		S6	HEX MSPW 3 X 12 Y	8099130121	
26	Jack, Phone	4438005010		S7	HEX MSPW 3 X 16 Y	8099130161	
27	Switch Tact	4658003710		S8	Screw, Heatsink	8195000310	
28 (SEN801)	Remote Sensor, TFMT5380 (38 kHz)	2408005001		S9	Screw #1 PTC 3 X 10 B	8119130103	
29 (FIP801)	FIP, 12 LM 8, FL Display	2328130301		S10	Screw Ground	8155000710	
30	Frame Right, SECC	6122632210					
31	Foot, ABS, Gold, Hot stamping	046033102511			<b>MISCELLANEOUS</b>		
32	Foot, ABS, Black	6033102510		P1	P.C.Board Main	4001000300	
33	Cover Bottom, SECC	6122418610		P2	P.C.Board Tuner	4001000400	
34	Chassis, Front, SECC	6122214610		P2-1	P.C.Board Power Supply	4001000410	
35	Fastner	6528300110		P2-2	P.C.Board Surround Main	4001000420	
36	Heatsink Power, Aluminium	7502008310		P2-3	P.C.Board Tone	4001000430	
37	Braket Heat Sink Right, SECC	6505135910		P2-4	P. C. Board Volume	4001000440	
38	Clamp, Wire	6525002210		P3	P.C.Board Front	4001000500	
39	Braket Heat Sink Left, SECC	6505135810		P3-1	P.C.Board Dolby	4001000510	
40	Braket PCB, SECC	6505130010		P3-2	P.C.Board Headphone	4001000520	
41	Frame left, SECC	6122632110		P3-3	P.C.Board Volume LED	4001000530	
42	Heatsink, Regulator TR.	7505206220			Card Cable, 12P 450mm	4118612455	
43	Heatsink, Regulator TR.	7505202410			Card Cable, 15P 180mm	4118615189	
44	Jack, RCA, 2P	4438108510			Card Cable, 18P, 140mm	4118618149	
45	Jack, RCA, 6P	4438108710			Card Cable, 19P, 450mm	4118619459	
46	Jack, RCA, 3P	4438108810			Standby Transformer, 230 V 50 Hz	2828000077	Europe
47	Jack, RCA, 2P, Yellow	4438114210			Standby Transformer, 120 V 60 Hz	2828089007	USA/CA
48	Terminal Speaker, 8P	4408105810					



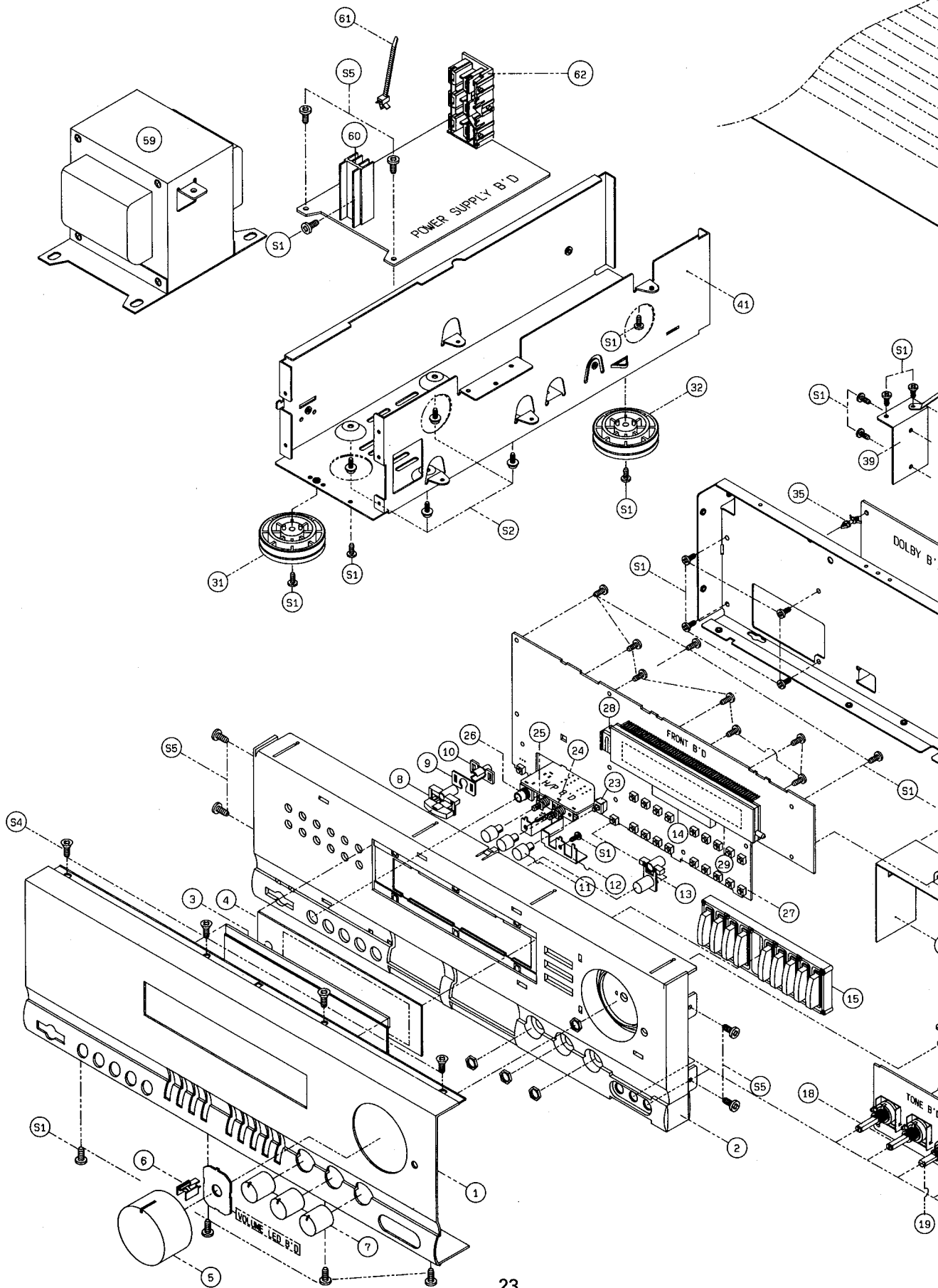
## GENERAL UNIT PARTS LIST

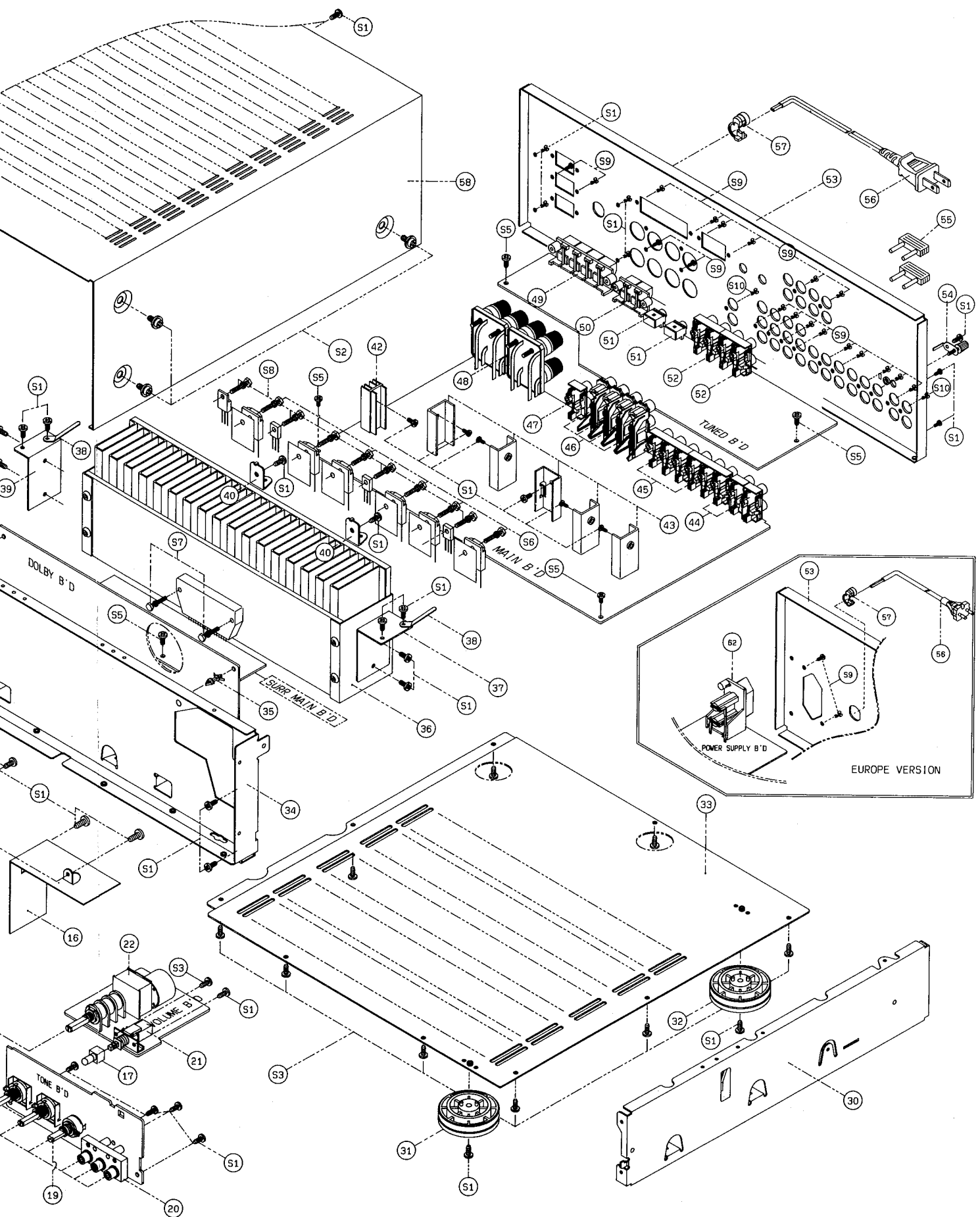
Ref. No.	Description	Mfr. Part No.	Version	Ref. No.	Description	Mfr. Part No.	Version
1	Panel Front, Aluminium, black	048602019321		49	Terminal Speaker, 4P	4408105410	
2	Body, Front, ABS, black	8521008910		50	Terminal Speaker, 2P	4408107010	
3	Window FL, Acryl, Dark Smoke	048553020111		51	Jack, Multiroom	4438006510	
4	Filter, FL, PVC, Red	048535042611		52	Jack, RCA, 4P	4438108610	
5	Knob, Volume, Aluminium, Black	048643006711		53	Chassis, Back, SECC	046202041241	Europe
6	Indicator, Volume, Acryl, Milk	8555049210			Chassis, Back, SECC	046102041321	USA/CA
7	Knob Rotary, ABS, Black	048545126311		54	Ground Terminal	4408103720	
8	Button Power, ABS, black	048543061011		55	Plug, Mono	4328204210	
9	Light Shield, PVC, Black	8535042910		56	Cord, AC Power	4308002310	Europe
10	Indicator, Power, Acryl, Milk	8555048710			Cord, AC Power	4308001410	USA/CA
11	Button Speaker, ABS, black	048545124111		57	Stopper, Cord	6518000111	Europe
12	Bracket Shield, ET	6165148210			Stopper, Cord	6518000710	USA/CA
13	Button Source, ABS, black	048543060911		58	Cover Top, SECC, Black	046122022611	
14	Sponge, EVA, Black	6715020730		59	Power Transformer, 230 V, 50 Hz	2828001117	Europe
15	Button Seesaw, ABS, black	048543060811			Power Transformer, 120 V, 60 Hz	2828009967	USA/CA
16	Shield Fence, ET	6163114510		60	Heatsink (H:30), Regulator TR.	7505206210	
17	Button Tuning, ABS, black	048543059711		61	Tie locking	6528002810	
18	Volume Rotary (Bass/Treble)	3208049510		62	Outlet, 1P	4448103610	Europe
19	Volume Rotary (Balance)	3208052010			Outlet, 3P	4448102910	USA/CA
20	Jack, RCA, 3P	4438109710		S1	Screw #2 BTC 3 X 8 B	8109230083	
21 (SW301)	Switch Push	4628059610		S2	Screw WSAM 4 X 8 B	8159440083	
22 (VR301)	Volume Motor	3228019410		S3	Screw #2 BTC 3 X 6 B	8109230063	
23 (SW801)	Switch Push	4628054410		S4	Screw #2 FTC 3 X 8 B	8129230083	
24 (SW291)	Switch Push	4628043810		S5	Screw #2 WPTC 3 X 8 Y	8159230081	
25 (SW292)	Switch Push	4628049210		S6	HEX MSPW 3 X 12 Y	8099130121	
26	Jack, Phone	4438005010		S7	HEX MSPW 3 X 16 Y	8099130161	
27	Switch Tact	4658003710		S8	Screw, Heatsink	8195000310	
28 (SEN801)	Remote Sensor, TFMT5380 (38 kHz)	2408005001		S9	Screw #1 PTC 3 X 10 B	8119130103	
29 (FIP801)	FIP, 12 LM 8, FL Display	2328130301		S10	Screw Ground	8155000710	
30	Frame Right, SECC	6122632210					
31	Foot, ABS, Gold, Hot stamping	046033102511			<b>MISCELLANEOUS</b>		
32	Foot, ABS, Black	6033102510		P1	P.C.Board Main	4001000300	
33	Cover Bottom, SECC	6122418610		P2	P.C.Board Tuner	4001000400	
34	Chassis, Front, SECC	6122214610		P2-1	P.C.Board Power Supply	4001000410	
35	Fastner	6528300110		P2-2	P.C.Board Surround Main	4001000420	
36	Heatsink Power, Aluminium	7502008310		P2-3	P.C.Board Tone	4001000430	
37	Bracket Heat Sink Right, SECC	6505135910		P2-4	P. C. Board Volume	4001000440	
38	Clamp, Wire	6525002210		P3	P.C.Board Front	4001000500	
39	Bracket Heat Sink Left, SECC	6505135810		P3-1	P.C.Board Dolby	4001000510	
40	Bracket PCB, SECC	6505130010		P3-2	P.C.Board Headphone	4001000520	
41	Frame left, SECC	6122632110		P3-3	P.C.Board Volume LED	4001000530	
42	Heatsink, Regulator TR.	7505206220			Card Cable, 12P 450mm	4118612455	
43	Heatsink, Regulator TR.	7505202410			Card Cable, 15P 180mm	4118615189	
44	Jack, RCA, 2P	4438108510			Card Cable, 18P, 140mm	4118618149	
45	Jack, RCA, 6P	4438108710			Card Cable, 19P, 450mm	4118619459	
46	Jack, RCA, 3P	4438108810			Standby Transformer, 230 V 50 Hz	2828000077	Europe
47	Jack, RCA, 2P, Yellow	4438114210			Standby Transformer, 120 V 60 Hz	2828089007	USA/CA
48	Terminal Speaker, 8P	4408105810					

# GENERAL UNIT

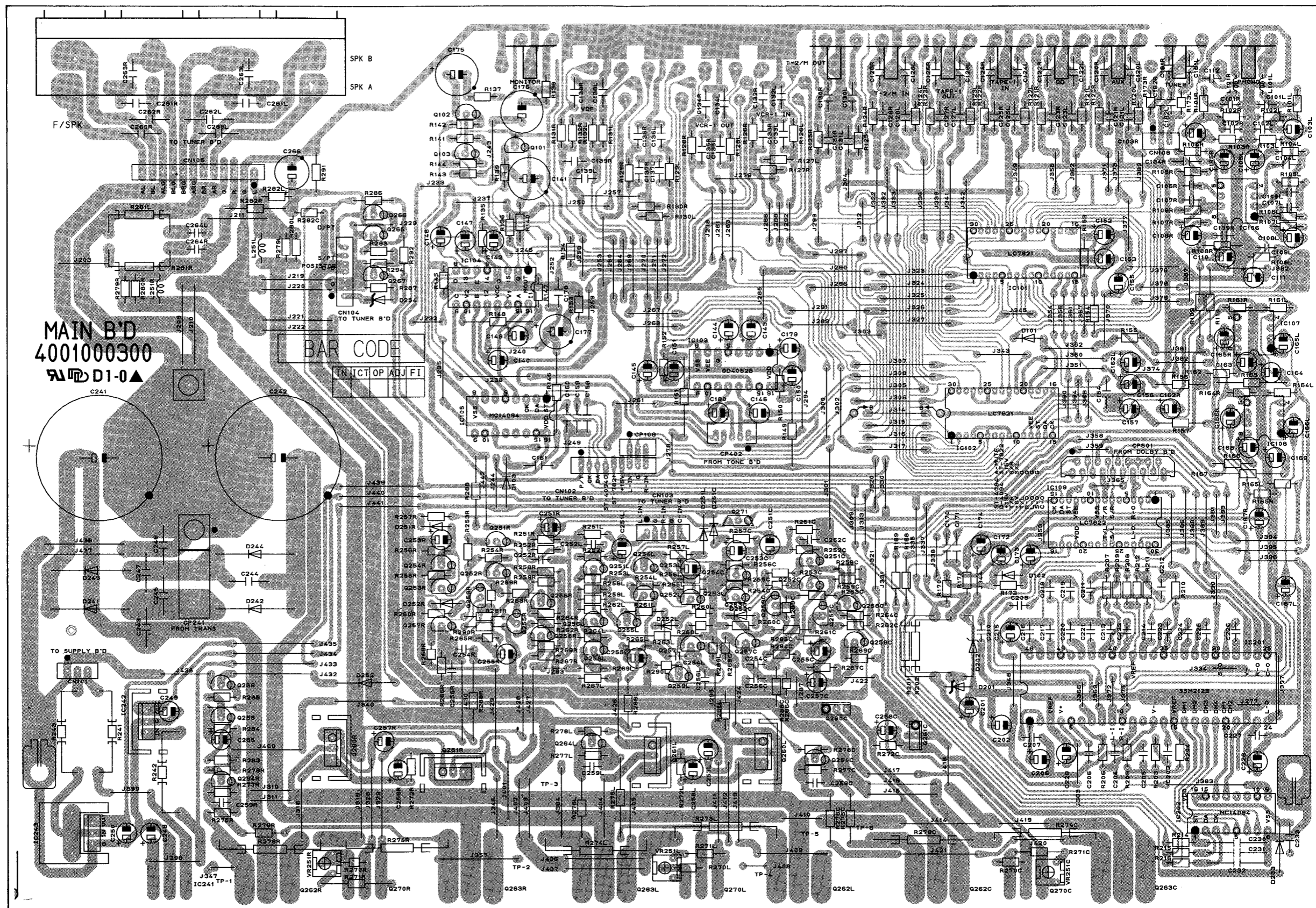


# GENERAL UNIT





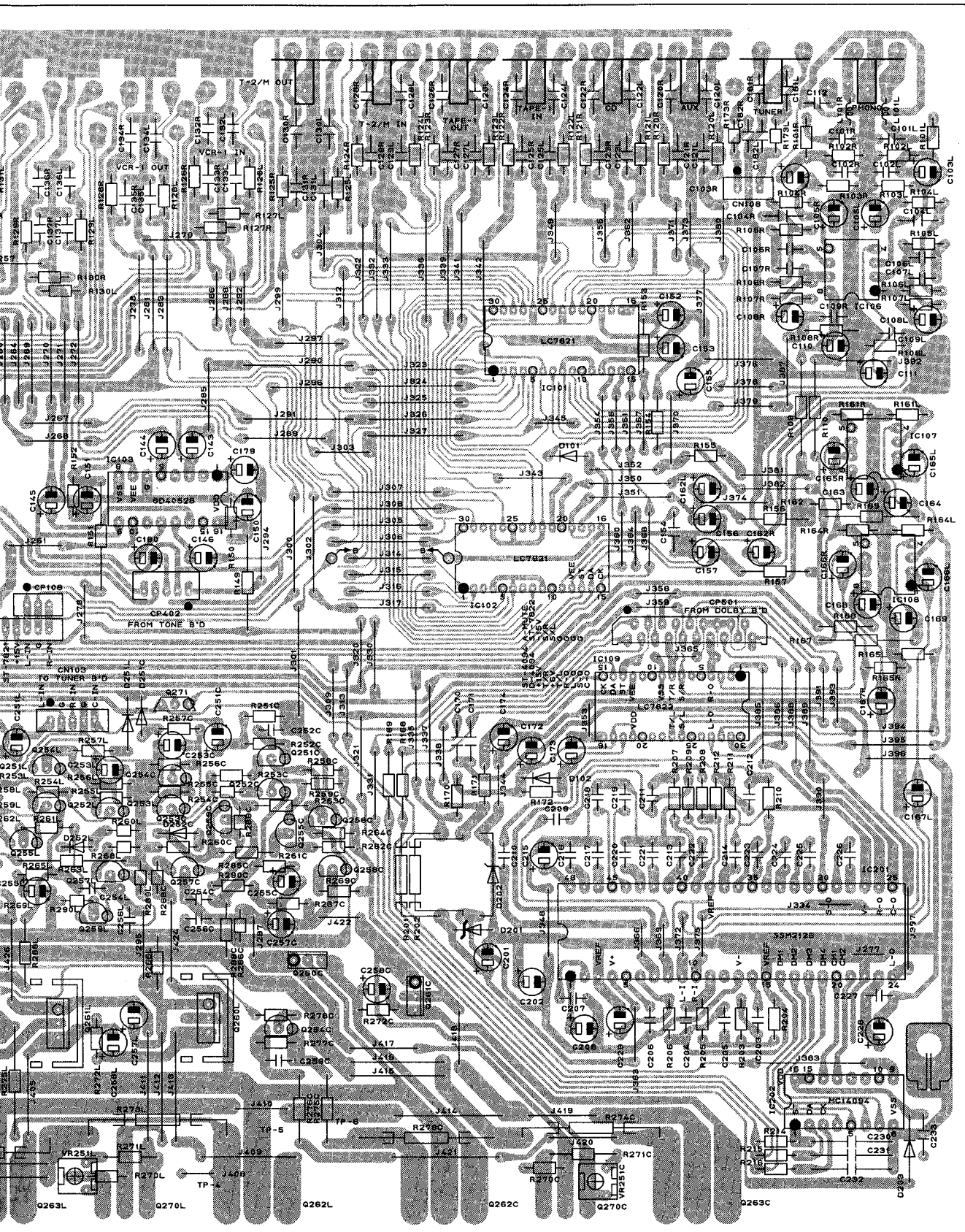
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D1-0

BAR CODE  
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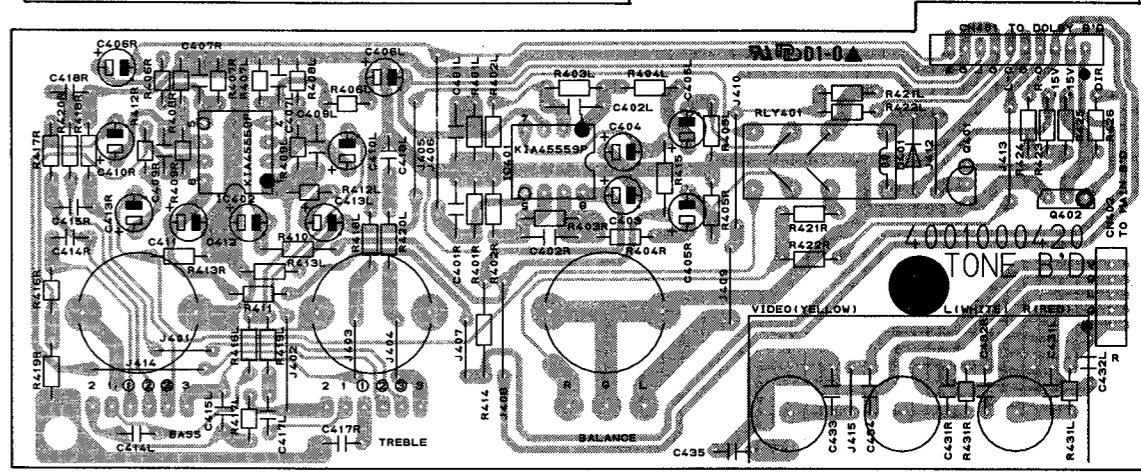
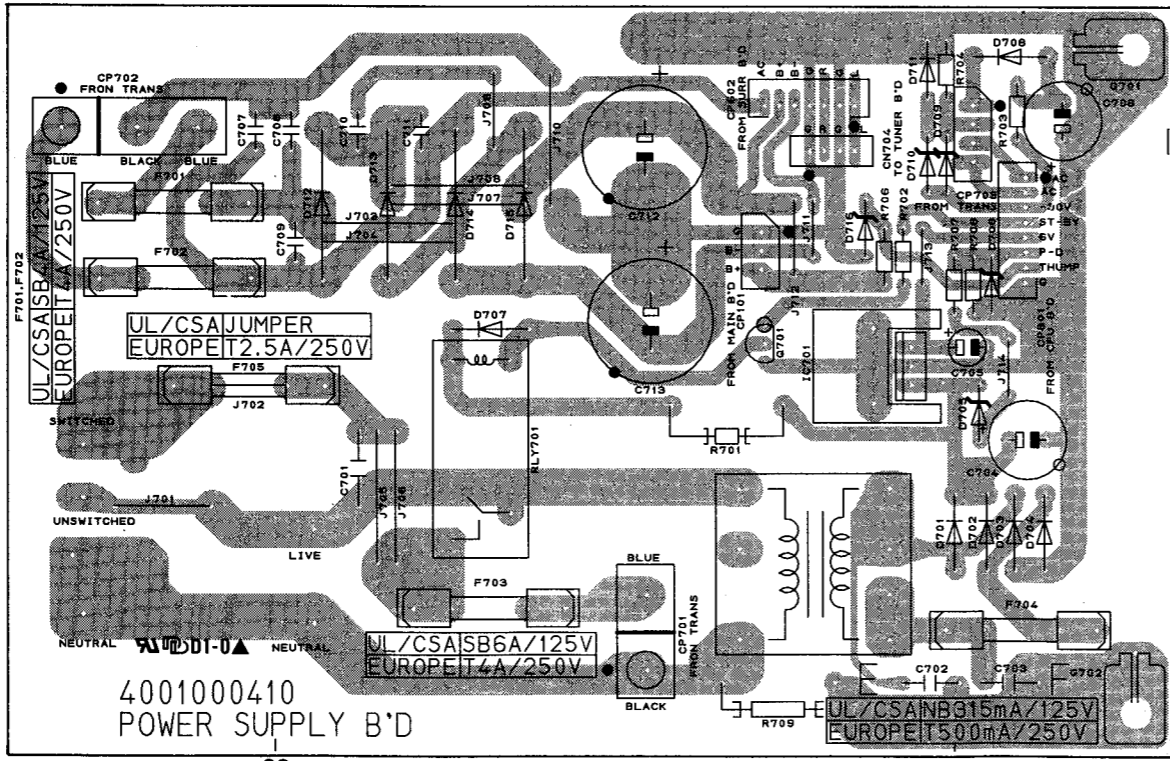
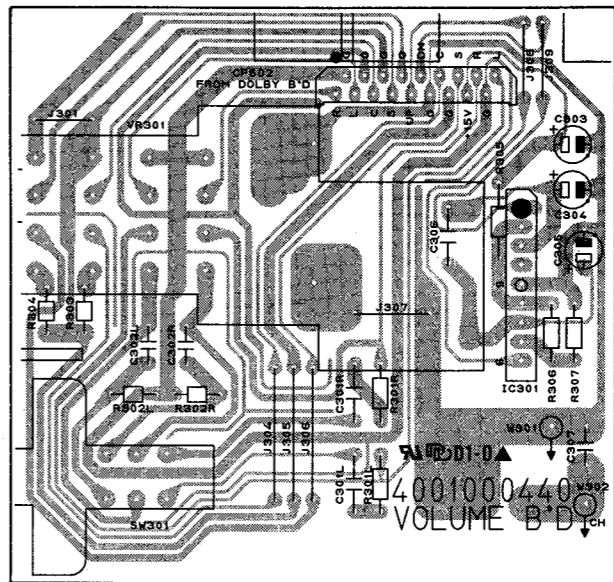
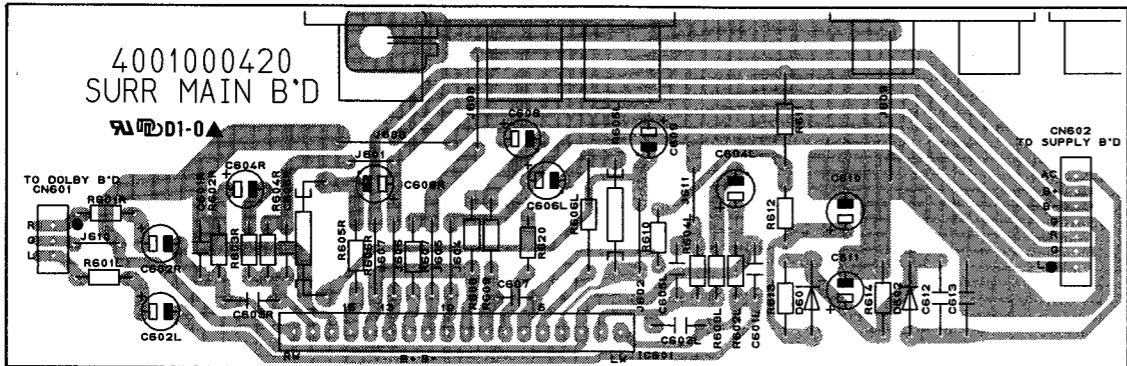
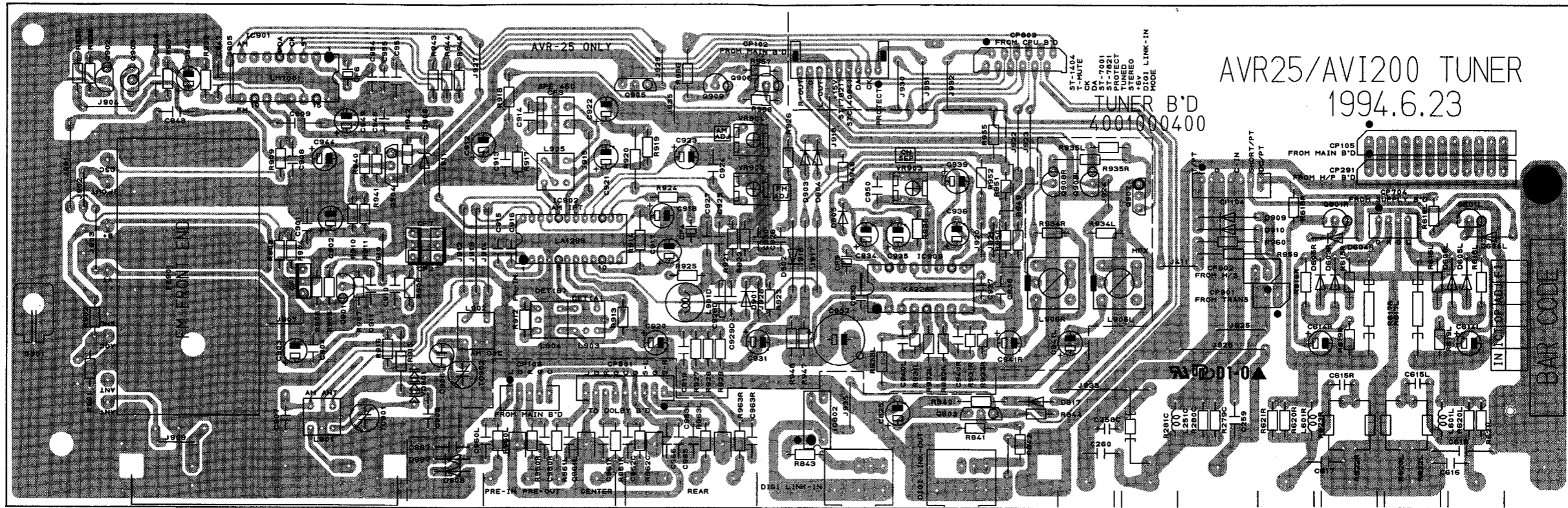


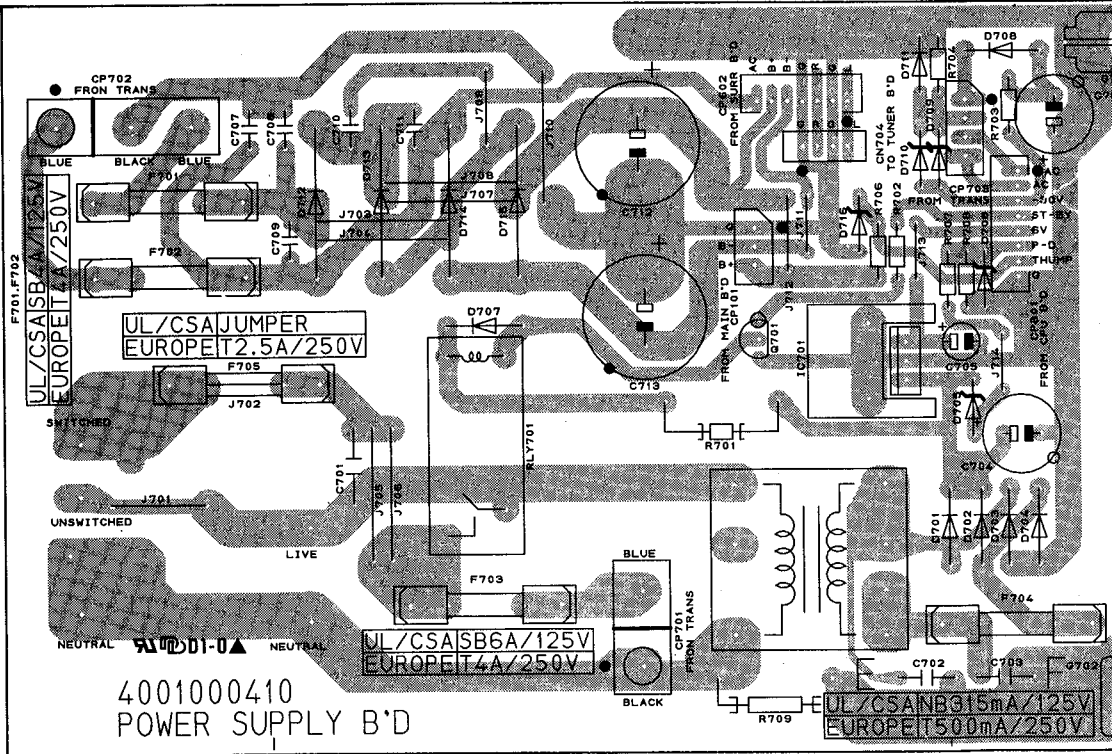
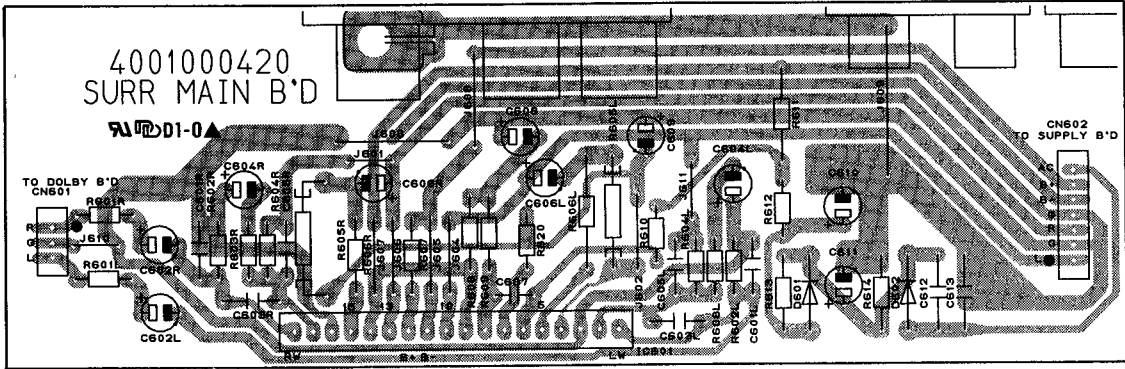
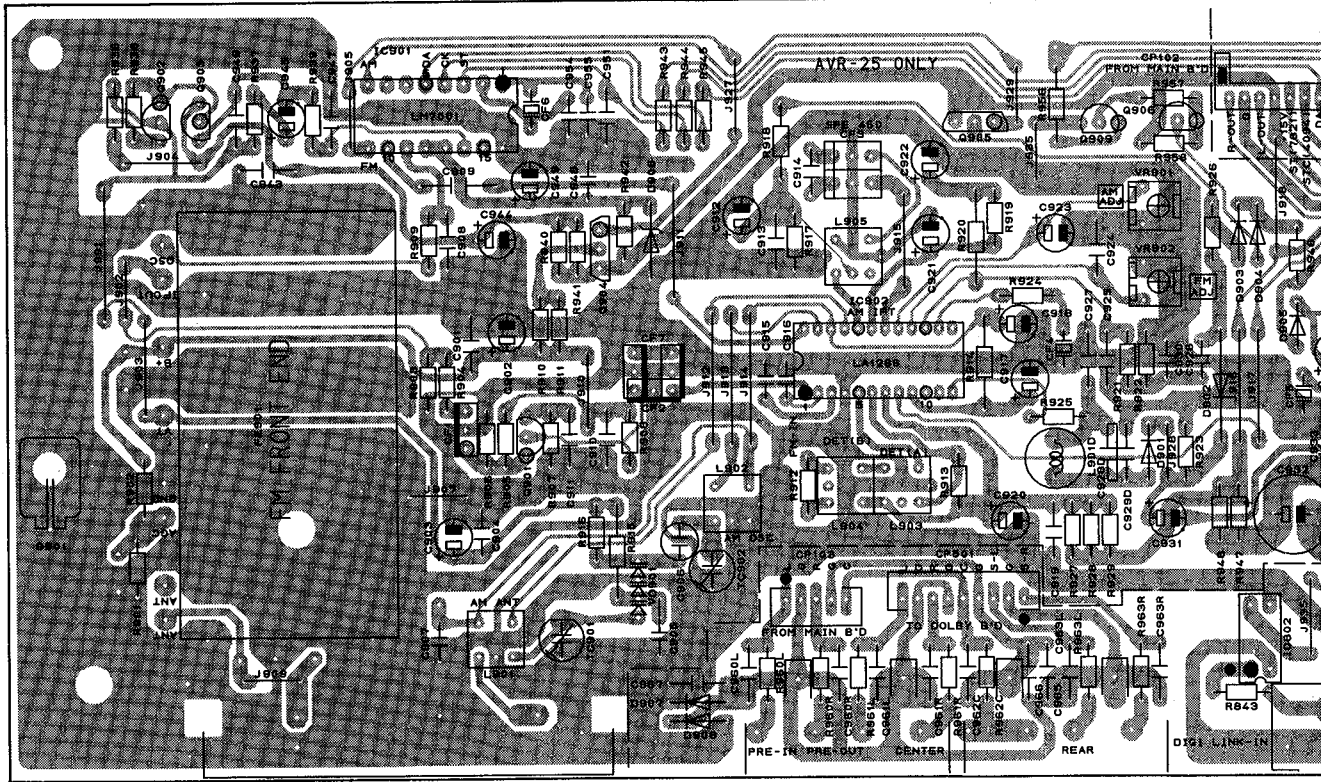


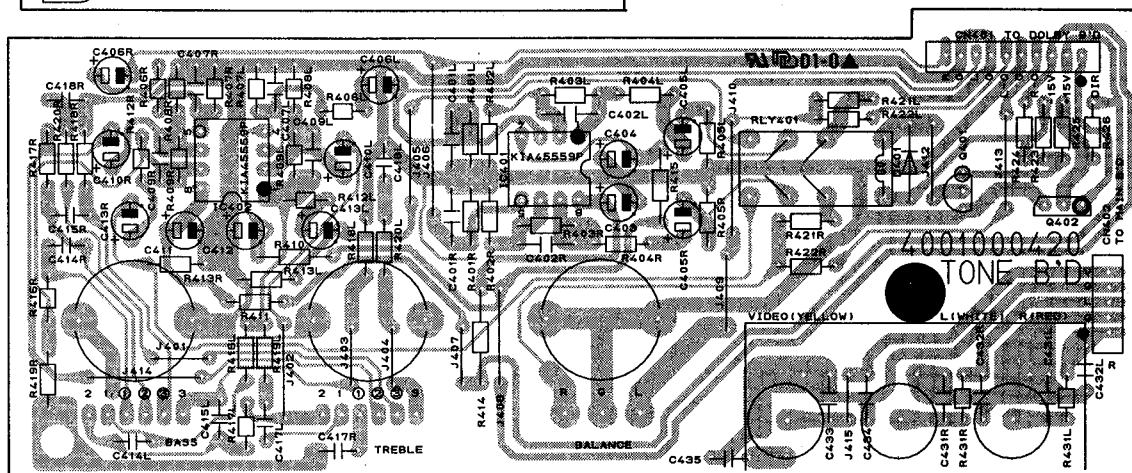
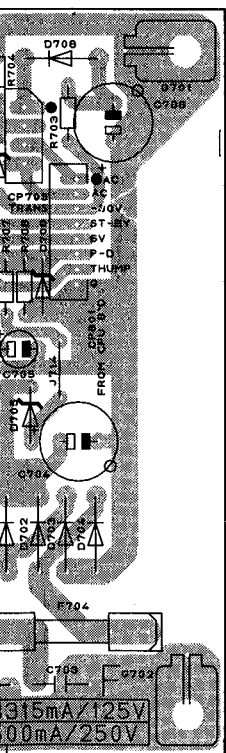
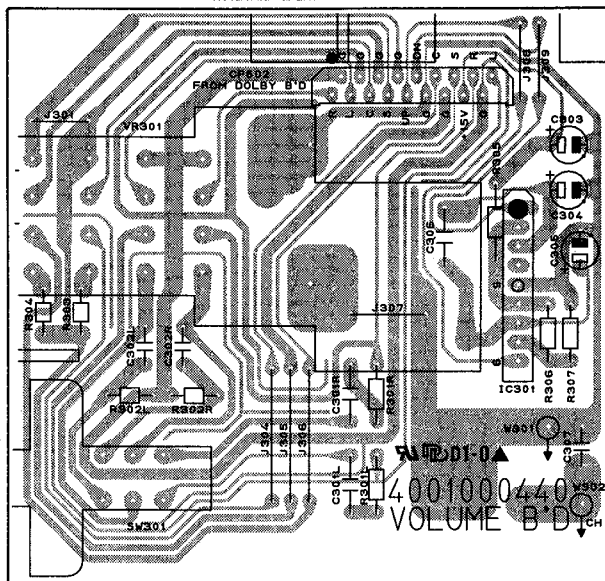
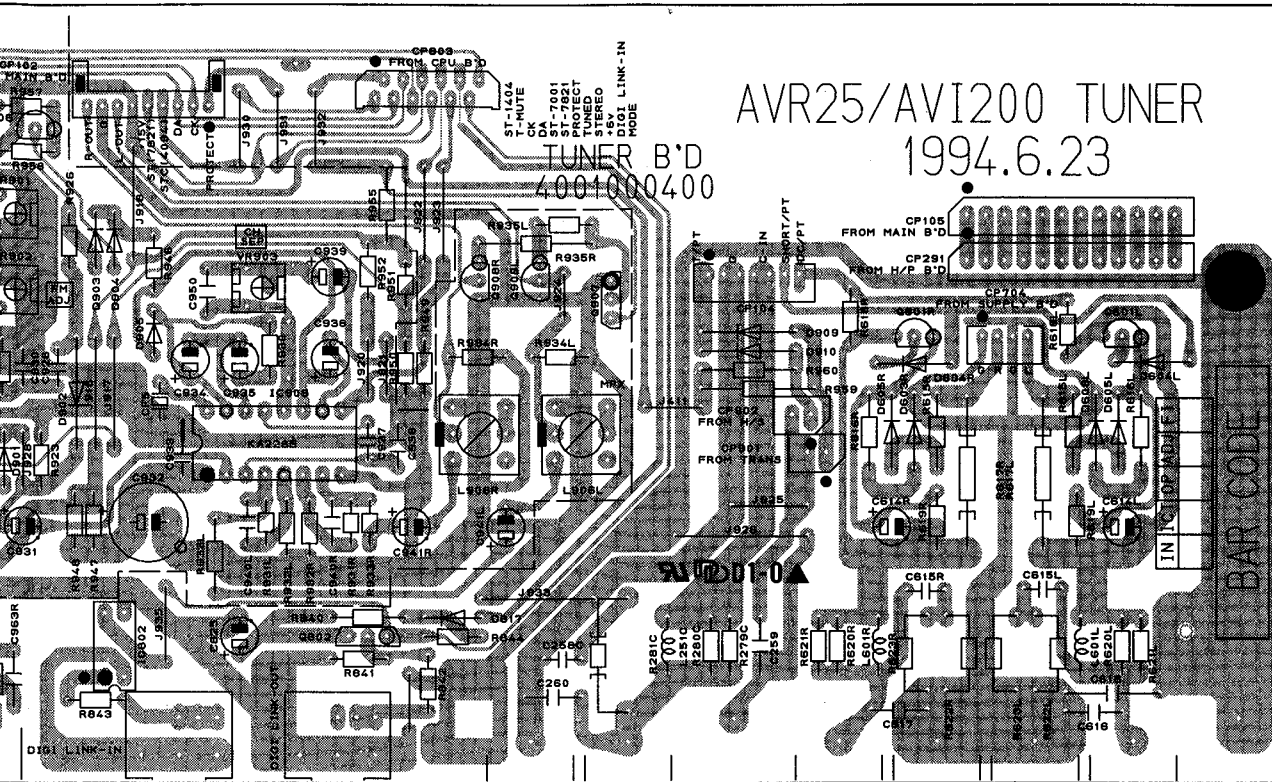












## ELECTRICAL PARTS LIST

Ref. No.	Description	Mfr. Part No.	Ref. No.	Description	Mfr. Part No.
<b>ASSEMBLY HEATSINK</b>			<b>057502000151</b>		
36	Heatsink Power, Aluminium	7502008310	C173	Electrolytic SA	1 uF 50 V M 3479210971
37	Bracket Heat Sink Right, SECC	6505135910	C174	Electrolytic SG	47 uF 25 V M 3479347041
38	Clamp, Wire	6525002210	C175-C177	Electrolytic SG	470 uF 10 V M 3479347121
39	Bracket Heat Sink Left, SECC	6505135810	C178	Ceramic Tubular	0.1 uF 50 V Z 3519104935
40	Bracket PCB, SECC	6505130010	C179/C180	Electrolytic SA	10 uF 50 V M 3479210071
Q270C	2SC4137, NPN, Bias	2008622110	C201/C202	Electrolytic SG	220 uF 10 V M 3479322121
IC241	GL7815, Regulator	2168601105	C203-C205	Mylar	0.01 uF 100 V J 3679103120
Q270L/R	2SC4137, NPN, Bias	2008622110	C206/C207	Mylar	0.22 uF 63 V K 3679224297
Q262C	2SC3182N-O, NPN	2028307101	C208	Electrolytic SA	4.7 uF 50 V M 3479247971
Q263C	2SA1265N-O, PNP	2028007101	C209-C212	Mylar	0.1 uF 63 V K 3679104297
Q262L/R	2SC3182N-O, NPN	2028307101	C213/C214	Poly	680 pF 50 V J 3619681110
Q263L/R	2SA1265N-O, PNP	2028007101	C215	Electrolytic SA	4.7 uF 50 V M 3479247971
S1	Screw #2 BTC 3 X 8 B	8109230083	C216/C217	Mylar	0.22 uF 63 V K 3679224297
S6	HEX MSPW 3 X 12 Y	8099130121	C218-C221	Mylar	0.33 uF 63 V K 3679334297
S7	HEX MSPW 3 X 16 Y	8099130161	C222-C225	Mylar	0.022 uF 100 V J 3679223120
S8	Screw, Heatsink	8195000310	C226/C227	Mylar	0.1 uF 63 V K 3679104297
<b>END OF ASSEMBLY HEATSINK</b>			C228	Electrolytic SG	100 uF 10 V M 3479310121
<b>P1 Ass'y P.C.B MAIN</b>			<b>054002007585</b>		
<b>CAPACITORS</b>			C229	Electrolytic SA	10 uF 50 V M 3479210071
C102L/R	Ceramic Tubular	100 pF 50 V J 3519101935	C230-C232	Ceramic Tubular	100 pF 50 V J 3519101935
C103L/R	Electrolytic SA	4.7 uF 50 V M 3479247971	C233	Ceramic Disc	0.01 uF 50 V Z 3579103530
C105L/R	Electrolytic SA	33 uF 25 V M 3479233041	C241/C242	Electrolytic HM	10000 uF 80 V M 3419510345
C106L/R	Mylar	0.0018 uF 100 V J 3679182120	C243-C247	Ceramic Disc	0.01 uF 500 V Z 3509103451
C107L/R	Mylar	0.0056 uF 100 V J 3679562120	C248-C250	Electrolytic SA	1 uF 50 V M 3479210971
C108L/R	Electrolytic SA	1 uF 50 V M 3479210971	C251C	Electrolytic SG	47 uF 25 V M 3479347041
C109L/R	Mylar	0.0018 uF 100 V J 3679182120	C251L/R	Electrolytic SG	47 uF 25 V M 3479347041
C110/C111	Electrolytic SG	47 uF 25 V M 3479347041	C252C	Ceramic Disc	68 pF 50 V J 3579680130
C112	Ceramic Disc	0.01 uF 50 V Z 3579103530	C252L/R	Ceramic Disc	68 pF 50 V J 3579680130
C140	Electrolytic SA	33 uF 25 V M 3479233041	C253C	Electrolytic SA	1 uF 50 V M 3479210971
C141	Electrolytic SG	470 uF 10 V M 3479347121	C253L/R	Electrolytic SA	1 uF 50 V M 3479210971
C142	Electrolytic SA	33 uF 25 V M 3479233041	C254C	Ceramic Disc	3 pF 50 V D 3579309030
C143-C146	Electrolytic SA	10 uF 50 V M 3479210071	C254L/R	Ceramic Disc	3 pF 50 V D 3579309030
C147/C148	Electrolytic SA	33 uF 25 V M 3479233041	C255C	Electrolytic SG	470 uF 10 V M 3479347121
C149	Electrolytic SA	2.2 uF 50 V M 3479222971	C255L/R	Electrolytic SG	470 uF 10 V M 3479347121
C150-C153	Electrolytic SG	47 uF 25 V M 3479347041	C256C	Ceramic Tubular	100 pF 50 V J 3519101935
C154	Ceramic Disc	0.01 uF 50 V Z 3579103530	C256L/R	Ceramic Tubular	100 pF 50 V J 3519101935
C155	Electrolytic SA	1 uF 50 V M 3479210971	C257C	Electrolytic SA	10 uF 50 V M 3479210071
C156/C157	Electrolytic SG	47 uF 25 V M 3479347041	C257L/R	Electrolytic SA	10 uF 50 V M 3479210071
C158	Ceramic Tubular	1000 pF 50 V J 3519102935	C258C	Electrolytic SA	4.7 uF 50 V M 3479247971
C159/C160	Ceramic Tubular	100 pF 50 V J 3519101935	C258L/R	Electrolytic SA	4.7 uF 50 V M 3479247971
C161	Ceramic Tubular	0.1 uF 50 V Z 3519104935	C259C	Mylar	0.33 uF 63 V K 3679334297
C162L/R	Electrolytic SA	4.7 uF 50 V M 3479247971	C259L/R	Mylar	0.33 uF 63 V K 3679334297
C163/C164	Electrolytic SG	47 uF 25 V M 3479347041	C264L/R	Mylar	0.047 uF 100 V J 3679473120
C165L/R	Electrolytic SA	4.7 uF 50 V M 3479247971	C265	Electrolytic SA	1 uF 100 V M 3479210997
C166L/R	Electrolytic SA	10 uF 50 V M 3479210071	C266	Electrolytic SG	470 uF 10 V M 3479347121
C167L/R	Electrolytic SA	10 uF 50 V M 3479210071	<b>CONNECTORS</b>		
C168/C169	Electrolytic SG	47 uF 25 V M 3479347041	Plug LV AC, 1P 4428525860		
C170/C171	Ceramic Tubular	100 pF 50 V J 3519101935	CN101	Lead Ass'y, 3P, 200 mm	436103203331
C172	Electrolytic SG	47 uF 25 V M 3479347041	CN102	Lead Ass'y, 9P 100 mm	436209103332
			CN103	Lead Ass'y, 5P, 180 mm	436205183332
			CN104	Lead Ass'y, 7P 140 mm	436207143332
			CN105	Lead Ass'y, 12P, 140 mm	435112143401

Ref. No.	Description	Mfr. Part No.	Ref. No.	Description	Mfr. Part No.
CP108	Wafer 3P	4428516210	Q260L/R	2SC4883A-Y, NPN	2028316100
CP241	Plug LV AC, 3P	4428525790	Q261C	2SA1859A-Y, PNP	2028016100
CP402	Wafer 5P	4428516410	Q261L/R	2SA1859A-Y, PNP	2028016100
CP501	FPC Plug 19P	4428526310	Q264C	KTC3198Y/KTC1815Y, NPN	2208606104
			Q264L/R	KTC3198Y/KTC1815Y, NPN	2208606104
			Q265-Q267	KTC3198Y/KTC1815Y, NPN	2208606104
D101-D103	1N4148M, Switching	2058322101	Q268	BKTA1266Y/KTA1015Y, PNP	2208206105
D201/D202	Diode Zener, DZ 6.8BSC	2258599121	Q269	KTC3198Y/KTC1815Y, NPN	2208606104
D203	1N4148M, Switching	2058322101	Q271	DTC114YS	2208622106
D241-D244	Diode, PX6A03, Rectifier	2058100138			
D251C	1N4148M, Switching	2058322101		<b>RESISTORS</b>	
D251L/R	1N4148M, Switching	2058322101	R101L/R	Carbon Film 1 kohm 1/5 W J	3069102970
D252C	1N4148M, Switching	2058322101	R102L/R	Carbon Film 91 kohm 1/5 W J	3069913970
D252L/R	1N4148M, Switching	2058322101	R103L/R	Carbon Film 91 kohm 1/5 W J	3069913970
D254	Diode Zener, DZ 12.0BSC	2258599116	R104L/R	Carbon Film 820 ohm 1/5 W J	3069821970
			R105L/R	Carbon Film 43 kohm 1/5 W J	3069433970
			R106L/R	Carbon Film 560 kohm 1/5 W J	3069564970
			R107L/R	Carbon Film 560 ohm 1/5 W J	3069561970
			R108L/R	Carbon Film 100 kohm 1/5 W J	3069104970
			R109/R110	Carbon Film 220 ohm 1/5 W J	3069221970
			R120L/R	Carbon Film 470 ohm 1/5 W J	3069471970
			R121L/R	Carbon Film 470 ohm 1/5 W J	3069471970
			R122L/R	Carbon Film 470 ohm 1/5 W J	3069471970
			R123L/R	Carbon Film 470 ohm 1/5 W J	3069471970
			R124L/R	Carbon Film 1 kohm 1/5 W J	3069102970
			R125L/R	Carbon Film 470 ohm 1/5 W J	3069471970
			R126L/R	Carbon Film 470 ohm 1/5 W J	3069471970
			R127L/R	Carbon Film 100 kohm 1/5 W J	3069104970
			R128L/R	Carbon Film 470 ohm 1/5 W J	3069471970
			R129L/R	Carbon Film 470 ohm 1/5 W J	3069471970
			R130L/R	Carbon Film 100 kohm 1/5 W J	3069104970
			R131L/R	Carbon Film 470 ohm 1/5 W J	3069471970
			R132L/R	Carbon Film 100 kohm 1/5 W J	3069104970
			R133-R138	Carbon Film 75 ohm 1/5 W J	3069750970
			R139-R144	Carbon Film 100 ohm 1/5 W J	3069101970
			R145	Carbon Film 75 ohm 1/5 W J	3069750970
			R146	Carbon Film 10 ohm 1/5 W J	3069100970
			R147/R148	Carbon Film 100 ohm 1/5 W J	3069101970
			R149-R152	Carbon Film 3.3 kohm 1/5 W J	3069332970
			R153/R154	Carbon Film 220 ohm 1/5 W J	3069221970
			R155	Carbon Film 100 kohm 1/5 W J	3069104970
			R156/R157	Carbon Film 220 ohm 1/5 W J	3069221970
			R161L/R	Carbon Film 100 kohm 1/5 W J	3069104970
			R162/R163	Carbon Film 220 ohm 1/5 W J	3069221970
			R164L/R	Carbon Film 100 kohm 1/5 W J	3069104970
			R165L/R	Carbon Film 100 kohm 1/5 W J	3069104970
			R166/R167	Carbon Film 220 ohm 1/5 W J	3069221970
			R168/R169	Carbon Film 100 ohm 1/5 W J	3069101970
			R170/R171	Carbon Film 220 ohm 1/5 W J	3069221970
			R172	Carbon Film 100 kohm 1/5 W J	3069104970
			R173L/R	Carbon Film 470 ohm 1/5 W J	3069471970
			R201/R202	Metal Film 150 ohm 1 W J	3029151470

Ref. No.	Description		Mfr. Part No.	Ref. No.	Description		Mfr. Part No.
R203-R205	Carbon Film	22 kohm 1/5 W J	3069223970	R272C	Carbon Film	82 ohm 1/5 W J	3069820970
R206	Carbon Film	10 Mohm 1/5 W J	3069106970	R272L/R	Carbon Film	82 ohm 1/5 W J	3069820970
R207	Carbon Film	47 kohm 1/5 W J	3069473970	R273C	Cement	0.27 ohm 5 W J	3059278782
R208	Carbon Film	15 kohm 1/5 W J	3069153970	R273L/R	Cement	0.27 ohm 5 W J	3059278782
R209/R210	Carbon Film	7.5 kohm 1/5 W J	3069752970	R274C	Cement	0.27 ohm 5 W J	3059278782
R211	Carbon Film	47 kohm 1/5 W J	3069473970	R274L/R	Cement	0.27 ohm 5 W J	3059278782
R212	Carbon Film	15 kohm 1/5 W J	3069153970	R275C	Carbon Film	1.8 kohm 1/5 W J	3069182970
R214-R216	Carbon Film	1 kohm 1/5 W J	3069102970	R275L/R	Carbon Film	1.8 kohm 1/5 W J	3069182970
R241	Metal Film	4.7 ohm 2 W J	3029479570	R276C	Carbon Film	1.5 kohm 1/5 W J	3069152970
R242/R243	Metal Film	10 ohm 2 W J	3029100570	R276L/R	Carbon Film	1.5 kohm 1/5 W J	3069152970
R251C	Carbon Film	33 kohm 1/5 W J	3069333970	R277C	Carbon Film	910 ohm 1/5 W J	3069911970
R251L/R	Carbon Film	33 kohm 1/5 W J	3069333970	R277L/R	Carbon Film	910 ohm 1/5 W J	3069911970
R252C	Carbon Film	330 ohm 1/5 W J	3069331970	R278C	Carbon Film	6.8 kohm 1/5 W J	3069682970
R252L/R	Carbon Film	330 ohm 1/5 W J	3069331970	R278L/R	Carbon Film	6.8 kohm 1/5 W J	3069682970
R253C	Carbon Film	390 ohm 1/5 W J	3069391970	R279C-R281C	Carbon Film	22 ohm 1/5 W J	3069220970
R253L/R	Carbon Film	390 ohm 1/5 W J	3069391970	R279L/R	Carbon Film	22 ohm 1/5 W J	3069220970
R254C	Carbon Film	390 ohm 1/5 W J	3069391970	R280L/R	Carbon Film	22 ohm 1/5 W J	3069220970
R254L/R	Carbon Film	390 ohm 1/5 W J	3069391970	R281L/R	Metal Film	10 ohm 1 W J	3029100470
R255C	Carbon Film	270 ohm 1/5 W J	3069271970	R282C	Carbon Film	24 kohm 1/5 W J	3069243970
R255L/R	Carbon Film	270 ohm 1/5 W J	3069271970	R282L/R	Carbon Film	24 kohm 1/5 W J	3069243970
R256C	Carbon Film	10 kohm 1/5 W J	3069103970	R283	Carbon Film	68 kohm 1/5 W J	3069683970
R256L/R	Carbon Film	10 kohm 1/5 W J	3069103970	R284	Carbon Film	100 kohm 1/5 W J	3069104970
R257C	Carbon Film	33 kohm 1/5 W J	3069333970	R285	Carbon Film	3.3 kohm 1/5 W J	3069332970
R257L/R	Carbon Film	33 kohm 1/5 W J	3069333970	R286	Carbon Film	220 ohm 1/5 W J	3069221970
R258C	Carbon Film	1.5 kohm 1/5 W J	3069152970	R287	Carbon Film	10 kohm 1/5 W J	3069103970
R258L/R	Carbon Film	1.5 kohm 1/5 W J	3069152970	R288	Carbon Film	150 kohm 1/5 W J	3069154970
R259C	Carbon Film	1.5 kohm 1/5 W J	3069152970	R288C	Carbon Film	33 kohm 1/5 W J	3069333970
R259L/R	Carbon Film	1.5 kohm 1/5 W J	3069152970	R288L/R	Carbon Film	33 kohm 1/5 W J	3069333970
R260C	Carbon Film	560 ohm 1/5 W J	3069561970	R289C	Carbon Film	560 ohm 1/5 W J	3069561970
R260L/R	Carbon Film	560 ohm 1/5 W J	3069561970	R289L/R	Carbon Film	560 ohm 1/5 W J	3069561970
R261C	Carbon Film	560 ohm 1/5 W J	3069561970	R290C	Carbon Film	4.7 kohm 1/5 W J	3069472970
R261L/R	Carbon Film	560 ohm 1/5 W J	3069561970	R290L/R	Carbon Film	4.7 kohm 1/5 W J	3069472970
R262C	Carbon Film	560 ohm 1/5 W J	3069561970	R291	Carbon Film	1.5 kohm 1/5 W J	3069152970
R262L/R	Carbon Film	560 ohm 1/5 W J	3069561970	R292-R294	Carbon Film	4.7 kohm 1/5 W J	3069472970
R263C	Carbon Film	560 ohm 1/5 W J	3069561970				
R263L/R	Carbon Film	560 ohm 1/5 W J	3069561970				
R264C	Carbon Film	560 ohm 1/5 W J	3069561970	42	Heatsink, Regulator TR.		7505202410
R264L/R	Carbon Film	560 ohm 1/5 W J	3069561970	42	Heatsink, Regulator TR.		7505206220
R265C	Carbon Film	1.3 kohm 1/5 W J	3069132970	44	Jack, RCA, 2P		4438108510
R265L/R	Carbon Film	1.3 kohm 1/5 W J	3069132970	45	Jack, RCA, 6P		4438108710
R266C	Carbon Film	22 kohm 1/5 W J	3069223970	46	Jack, RCA, 3P		4438108810
R266L/R	Carbon Film	22 kohm 1/5 W J	3069223970	47	Jack, RCA, 2P, Yellow		4438114210
R267C	Carbon Film	22 kohm 1/5 W J	3069223970	48	Terminal Speaker, 8P		4408105810
R267L/R	Carbon Film	22 kohm 1/5 W J	3069223970	S1	Screw #2 BTC 3 X 8 B		8109230083
R268C	Carbon Film	100 ohm 1/5 W J	3069101970	S5	Screw #2 WPTC 3 X 8 Y		8159230081
R268L/R	Carbon Film	100 ohm 1/5 W J	3069101970		Plate, Ground		4235007310
R269C	Carbon Film	100 ohm 1/5 W J	3069101970				
R269L/R	Carbon Film	100 ohm 1/5 W J	3069101970				
R270C	Carbon Film	1.21 kohm 1/5 W F	3027121125				
R270L/R	Carbon Film	1.21 kohm 1/5 W F	3027121125	<b>P2</b>	<b>Ass'y P.C.B TUNER</b>		<b>054002007598</b>
R271C	Carbon Film	470 ohm 1/5 W J	3069471970		<b>CAPACITORS</b>		
R271L/R	Carbon Film	442 ohm 1/5 W J	3027442025	C258C	Mylar	0.047 uF 100 V J	3679473120

**MISCELLANEOUS**

**END OF P.C.B MAIN**



Ref. No.	Description	Mfr. Part No.	Ref. No.	Description	Mfr. Part No.
C614L/R	Electrolytic SA 4.7 uF 50 V M	3479247971	<b>CAPACITORS</b>		
C615L/R	Mylar 0.047 uF 100 V J	3679473120	C701	Ceramic Disc 0.0047 uF 400 V Z	3549472410
C825	Electrolytic SG 47 uF 25 V M	3479347041	C702/C703	Ceramic Tubular 0.047 uF 50 V Z	3519473935
C965-C967	Ceramic Tubular 0.1 uF 50 V Z	3519104935	C704	Electrolytic SG 220 uF 16 V M	3479322131
<b>DIODES</b>			C705	Electrolytic SA 1 uF 50 V M	3479210971
D603L/R	1N4148M, Switching	2058322101	C706	Electrolytic SG 100 uF 50 V M	3479310171
D604L/R	1N4148M, Switching	2058322101	C707-C711	Mylar 0.047 uF 100 V J	3679473120
D605L/R	1N4148M, Switching	2058322101	C712	Electrolytic SG 3300 uF 35 V M	3409333262
D906	Diode Zener, UZ 5.1BSB	2258599103	C713	Electrolytic SG 2200 uF 35 V M	3409322269
D907-D910	1N4148M, Switching	2058322101	<b>CONNECTORS</b>		
<b>COILS</b>			CN704	Lead Ass'y, 4P, 160 mm	436204163332
L251C	Coil, Inductor, 0.5 uH	2648001010	CP101	Plug LV AC, 3P	4428525790
L601L/R	Coil, Inductor, 0.5 uH	2648001010	CP602	Wafer 7P	4428516610
<b>TRANSISTORS</b>			CP701	Plug LV AC, 2P	4428525780
Q601L/R	KTC3198Y/KTC1815Y, NPN	2208606104	CP702	Plug LV AC, 3P	4428525790
<b>RESISTORS</b>			CP703	Wafer 4P	4428505610
R280C	Carbon Film 22 ohm 1/5 W J	3069220970	CP801	Wafer 8P	4428516710
R615L/R	Carbon Film 390 ohm 1/5 W J	3069391970	<b>DIODES</b>		
R616L/R	Carbon Film 15 kohm 1/5 W J	3069153970	D701-D704	1N4002, Rectifier	2258100135
R617L/R	Cement 0.47 ohm 2 W J	3059478572	D705/D706	Diode Zener, UZ 5.1BSB	2258599103
R618L/R	Carbon Film 22 kohm 1/5 W J	3069223970	D707/D708	1N4002, Rectifier	2258100135
R619L/R	Carbon Film 2.2 kohm 1/5 W J	3069222970	D709	Diode Zener, UZ 7.5BSC	2258599130
R620L/R	Carbon Film 22 ohm 1/5 W J	3069220970	D710/D711	Diode Zener, UZ 15.0BSC	2258599109
R621L/R	Carbon Film 22 ohm 1/5 W J	3069220970	D712-D715	1N5402, Rectifier	2058100136
R622L/R	Carbon Film 22 ohm 1/5 W J	3069220970	D716	Diode Zener, UZ 5.1BSB	2258599103
R623L/R	Carbon Film 22 ohm 1/5 W J	3069220970	<b>IC</b>		
R840	Carbon Film 100 ohm 1/5 W J	3069101970	IC701	GL7806, Regulator	2168601110
R841	Carbon Film 47 kohm 1/5 W J	3069473970	<b>TRANSISTOR</b>		
R842	Carbon Film 47 ohm 1/5 W J	3069470970	Q701	KTC3198Y/KTC1815Y, NPN	2208606104
R843	Carbon Film 270 ohm 1/5 W J	3069271970	<b>RESISTORS</b>		
R844	Carbon Film 3.9 kohm 1/5 W J	3069392970	R701	Metal Film 10 ohm 1 W J	3029100470
R949/R950	Carbon Film 4.7 kohm 1/5 W J	3069472970	R702	Carbon Film 2 kohm 1/5 W J	3069202970
R960L/R	Carbon Film 1 kohm 1/5 W J	3069102970	R703	Carbon Film 330 ohm 1/5 W J	3069331970
R961L/R	Carbon Film 1 kohm 1/5 W J	3069102970	R704	Carbon Film 15 kohm 1/5 W J	3069153970
R962C	Carbon Film 1 kohm 1/5 W J	3069102970	R706	Carbon Film 6.8 kohm 1/5 W J	3069682970
R963L/R	Carbon Film 1 kohm 1/5 W J	3069102970	R707	Carbon Film 1 kohm 1/5 W J	3069102970
<b>MISCELLANEOUS</b>			R708	Carbon Film 10 kohm 1/5 W J	3069103970
G901	Plate, Ground	4235007310	R709	Carbon Film 3.3 Mohm 1/2 W J	3029335370
49	Terminal Speaker, 4P	4408105410	<b>RELAY</b>		
50	Terminal Speaker, 2P	4408107010	RLY701	HR-CR313(TV-3)	5528042002
51	Jack, Multiroom	4438006510	<b>MISCELLANEOUS</b>		
52	Jack, RCA, 4P	4438108610	F701	Fuse, SB 4A 125V	5508102921
S5	Screw #2 WPTC 3 X 8 Y	8159230081	F702	Fuse, SB 4A 125V	5508102921
<b>END OF P.C.B TUNER</b>			F703	Fuse, SB 6A 125V	5508103121

Ref. No.	Description	Mfr. Part No.	Ref. No.	Description	Mfr. Part No.
F704	Fuse, NB 315mA 125V	5508201421	R613	Carbon Film 220 kohm 1/5 W J	3069224970
G701	Plate, Ground	4235007310	R614	Carbon Film 4.7 kohm 1/5 W J	3069472970
G702	Plate, Ground	4235007310	R620	Carbon Film 100 ohm 1/5 W J	3069101970
60	Heatsink (H:30), Regulator TR.	7505206210	<b>MISCELLANEOUS</b>		
61	Tie locking	6528002810		Plate, Ground	4235007310
62	Outlet, 3P	4448102910	S5	Screw #2 WPTC 3 X 8 Y	8159230081
S1	Screw #2 BTC 3 X 8 B	8109230083	<b>END OF P.C.B SURROUND</b>		
S5	Screw #2 WPTC 3 X 8 Y	8159230081	<b>P2-3 Ass'y P.C.B TONE 054002007604</b>		
	Standby Transformer, 120 V 60 Hz	2828089007	<b>CAPACITORS</b>		
	Pin, Solder	4228001410	C402L/R	Ceramic Tubular 22 pF 50 V J	3519220935
	Clip Fuse	4255001010	C403/C404	Electrolytic SG 47 uF 25 V M	3479347041
<b>END OF P.C.B POWER SUPPLY</b>			C405L/R	Electrolytic SA 10 uF 50 V M	3479210071
<b>P2-2</b>	<b>Ass'y P.C.B SURROUND</b>	<b>054002007602</b>	C406L/R	Electrolytic SA 10 uF 50 V M	3479210071
<b>CAPACITORS</b>			C407L/R	Ceramic Disc 39 pF 50 V J	3579390130
C601L/R	Ceramic Tubular 2200 pF 50 V J	3519222935	C409L/R	Ceramic Tubular 39 pF 50 V J	3519390935
C602L/R	Electrolytic SA 2.2 uF 50 V M	3479222971	C410L/R	Electrolytic SA 10 uF 50 V M	3479210071
C603L/R	Ceramic Tubular 100 pF 50 V J	3519101935	C411/C412	Electrolytic SG 47 uF 25 V M	3479347041
C604L/R	Electrolytic SA 2.2 uF 50 V M	3479222971	C413L/R	Electrolytic SA 10 uF 50 V M	3479210071
C605L/R	Ceramic Tubular 4.7 pF 50 V J	3519047935	C414L/R	Mylar 0.015 uF 100 V J	3679153120
C606L/R	Electrolytic SA 47 uF 35 V M	3479247061	C415L/R	Mylar 0.082 uF 100 V J	3679823120
C607	Mylar 0.1 uF 63 V K	3679104297	C417L/R	Mylar 0.0018 uF 100 V J	3679182120
C608/C809	Electrolytic SA 10 uF 50 V M	3479210071	C418L/R	Mylar 0.012 uF 100 V J	3679123120
C610/C611	Electrolytic SA 10 uF 50 V M	3479210071	<b>CONNECTORS</b>		
C612/C613	Ceramic Tubular 2200 uF 50 V Z	3519222935	CN401	Lead Ass'y, 10P, 220 mm	436210223332
<b>CONNECTORS</b>			CN402	Lead Ass'y, 5P, 400 mm	436205403332
CN601	Lead Ass'y, 3P, 180 mm	436203183332	<b>DIODE</b>		
CN602	Lead Ass'y, 7P, 350 mm	436207353332	D401	1N4148M, Switching	2058322101
<b>DIODES</b>			<b>ICs</b>		
D601/602	1N4002, Rectifier	2258100135	IC401/IC402	KIA4559P/KIA75559P, OP Amp	2168206104
D606	1N4002, Rectifier	2258100135	<b>TRANSISTORS</b>		
<b>IC</b>			Q401	BKTA1266Y/KTA1015Y, PNP	2208206105
IC601	STK4132 II, Hybrid IC	2178317129	Q402	DTC114YS	2208622106
<b>RESISTORS</b>			<b>RESISTORS</b>		
R601L/R	Carbon Film 1 kohm 1/5 W J	3069102970	R401L/R	Carbon Film 100 kohm 1/5 W J	3069104970
R602L/R	Carbon Film 47 kohm 1/5 W J	3069473970	R402L/R	Carbon Film 820 ohm 1/5 W J	3069821970
R603L/R	Carbon Film 2 kohm 1/5 W J	3069202970	R403L/R	Carbon Film 5.1 kohm 1/5 W J	3069512970
R604L/R	Carbon Film 43 kohm 1/5 W J	3069433970	R404L/R	Carbon Film 560 ohm 1/5 W J	3069561970
R605L/R	Metal Film 2.2 kohm 1 W J	3029222470	R405L/R	Carbon Film 100 kohm 1/5 W J	3069104970
R606L/R	Carbon Film 1.3 kohm 1/5 W J	3069132970	R406L/R	Carbon Film 1 kohm 1/5 W J	3069102970
R607	Carbon Film 10 ohm 1/5 W J	3069100970	R407L/R	Carbon Film 100 kohm 1/5 W J	3069104970
R608	Carbon Film 1.5 kohm 1/5 W J	3069152970	R408L/R	Carbon Film 100 kohm 1/5 W J	3069104970
R609	Carbon Film 1 kohm 1/5 W J	3069102970	R409L/R	Carbon Film 1 Mohm 1/5 W J	3069105970
R610	Carbon Film 10 kohm 1/5 W J	3069103970	R410/R411	Carbon Film 220 ohm 1/5 W J	3069221970
R611	Carbon Film 390 kohm 1/5 W J	3069394970			
R612	Carbon Film 68 kohm 1/5 W J	3069683970			

Ref. No.	Description	Mfr. Part No.	Ref. No.	Description	Mfr. Part No.
R412L/R	Carbon Film 560 ohm 1/5 W J	3069561970	22(VR301)	Volume Motor	3228019410
R413L/R	Carbon Film 100 kohm 1/5 W J	3069104970	S1	Screw #2 BTC 3 X 8 B	8109230083
R414/R415	Carbon Film 220 ohm 1/5 W J	3069221970	S3	Screw #2 BTC 3 X 6 B	8109230063
R416L/R	Carbon Film 22 kohm 1/5 W J	3069223970			
R417L/R	Carbon Film 3.3 kohm 1/5 W J	3069332970			
R418L/R	Carbon Film 3.6 kohm 1/5 W J	3069362970			
R419L/R	Carbon Film 6.2 kohm 1/5 W J	3069622970			
R420L/R	Carbon Film 1 kohm 1/5 W J	3069102970			
R421L/R	Carbon Film 1.2 kohm 1/5 W J	3069122970			
R422L/R	Carbon Film 1.2 kohm 1/5 W J	3069122970			
R423	Carbon Film 12 kohm 1/5 W J	3069123970			
R424	Carbon Film 100 ohm 1/5 W J	3069101970			
R425/R426	Carbon Film 3.6 kohm 1/5 W J	3069362970			
R431L/R	Carbon Film 470 ohm 1/5 W J	3069471970			
	<b>RELAY</b>				
RLY401	Relay, G5V-2-H1	5528040001			
	<b>MISCELLANEOUS</b>				
18	Volume Rotary (Bass/Treble)	3208049510			
19	Volume Rotary (Balance)	3208052010			
20	Jack, RCA, 3P	4438109710			
S1	Screw #2 BTC 3 X 8 B	8109230083			
	<b>END OF ASS'Y P.C.B TONE</b>				
<b>P2-4</b>	<b>Ass'y P. C. B VOLUME</b>	<b>054002007606</b>			
	<b>CAPACITORS</b>				
C301L/R	Ceramic Tubular 470 pF 50 V J	3519471935			
C302L/R	Mylar 0.082 uF 100 V J	3679823120			
C303	Electrolytic SG 47 uF 25 V M	3479347041			
C304/C305	Electrolytic SG 100 uF 10 V M	3479310121			
C306	Ceramic Disc 0.047 uF 50 V Z	3579473530			
	<b>CONNECTOR</b>				
CP502	FPC Plug, 18P	4428526305			
	<b>IC</b>				
IC301	TA7291S	2168007204			
	<b>RESISTOS</b>				
R301L/R	Carbon Film 51 kohm 1/5 W J	3069513970			
R302L/R	Carbon Film 6.2 kohm 1/5 W J	3069622970			
R303/R304	Carbon Film 6.2 kohm 1/5 W J	3069622970			
R305	Carbon Film 33 ohm 1/5 W J	3069330970			
R306	Carbon Film 15 kohm 1/5 W J	3069153970			
R307	Carbon Film 4.7 kohm 1/5 W J	3069472970			
	<b>MISCELLANEOUS</b>				
W301	Wire Lug, #24, Black, 140mm	152624101457			
21(SW301)	Switch Push	4628059610			
			<b>P3</b>	<b>Ass'y P.C.B FRONT</b>	<b>054002007590</b>
				<b>CAPACITORS</b>	
			C801	CAP, FMOH473ZTP16, Backup 5.5 V	3409347314
			C802	Electrolytic SG 47 uF 25 V M	3479347041
			C803	Ceramic Tubular 0.1 uF 50 V Z	3519104935
			C804	Electrolytic SA 10 uF 50 V M	3479210071
			C805	Ceramic Tubular 12 pF 50 V J	3519120935
			C806	Electrolytic SA 33 uF 25 V M	3479233041
			C807-C814	Ceramic Tubular 100 pF 50 V J	3519101935
			C815/C816	Ceramic Tubular 0.047 uF 50 V Z	3519473935
			C817-C821	Ceramic Tubular 100 pF 50 V J	3519101935
			C822	Ceramic Tubular 0.1 uF 50 V Z	3519104935
			C824	Ceramic Tubular 0.1 uF 50 V Z	3519104935
				<b>CONNECTORS</b>	
			CN801	Lead Ass'y, 8P 350 mm	436208353332
			CN802	FPC Plug 15P	4428526690
			CN803	FPC Plug 12P	4428526246
				<b>DIODES</b>	
			D801-D816	1N4148M, Switching	2058322101
			LED801	LED, SPR54MVW3, Red/Green	2308222302
				<b>IC</b>	
			IC801	CPX82220-107Q, CPU	2138322182
				<b>TRANSISTORS</b>	
			Q801	MPSA06Y, NPN	2208606114
			Q802	KTC3198Y/KTC1815Y, NPN	2208606104
			Q803	DTA114YS, PNP	2208222105
				<b>RESISTORS</b>	
			R801	Carbon Film 10 kohm 1/5 W J	3069103970
			R802	Carbon Film 180 ohm 1/5 W J	3069181970
			R803	Carbon Film 150 ohm 1/5 W J	3069151970
			R804	Carbon Film 22 kohm 1/5 W J	3069223970
			R805	Carbon Film 47 kohm 1/5 W J	3069473970
			R806	Carbon Film 10 kohm 1/5 W J	3069103970
			R807-R814	Carbon Film 1 kohm 1/5 W J	3069102970
			R815-R822	Carbon Film 47 kohm 1/5 W J	3069473970
			R823	Carbon Film 1 kohm 1/5 W J	3069224970
			R825	Carbon Film 3.3 kohm 1/5 W J	3069332970
			R827-R831	Carbon Film 100 ohm 1/5 W J	3069101970
			R832	Carbon Film 1 kohm 1/5 W J	3069102970
			R834/R835	Carbon Film 47 kohm 1/5 W J	3069473970

Ref. No.	Description	Mfr. Part No.	Ref. No.	Description	Mfr. Part No.	
R836	Carbon Film	470 ohm 1/5 W J	3069471970	C540	Ceramic Tubular 680 pF 50 V J	3519681935
R837	Carbon Film	1 kohm 1/5 W J	3069102970	C541	Mylar 0.0056 uF 100 V J	3679562120
R838	Carbon Film	330 ohm 1/5 W J	3069331970	C542	Mylar 0.0047 uF 100 V J	3679472120
R839	Carbon Film	47 kohm 1/5 W J	3069473970	C543	Electrolytic SA 10 uF 50 V M	3479210071
R844/R845	Carbon Film	3.3 ohm 1/5 W J	3069339970	C544	Ceramic Tubular 0.1 uF 50 V Z	3519104935
<b>RESONATOR</b>						
X-TAL801	Resonator, CST10.00MTW		3938131750	C545-C547	Ceramic Tubular 100 pF 50 V J	3519101935
<b>MISCELLANEOUS</b>						
23(SW801)	Switch Push		4628054410	C548	Ceramic Tubular 0.01 uF 50 V Z	3519103935
27	Switch Tact		4658003710	C549	Electrolytic SA 1 uF 50 V M	3479210971
28(SEN801)	Remote Sensor, TFMT5380 (38 kHz)		2408005001	C550/C551	Electrolytic SG 47 uF 25 V M	3479347041
29(FIP801)	FIP, 12 LM 8, FL Display		2328130301	C553/C554	Ceramic Tubular 100 pF 50 V J	3519101935
S1	Screw #2 BTC 3 X 8 B		8109230083	C555/C556	Electrolytic SG 47 uF 25 V M	3479347041
<b>END OF P.C.B FRONT</b>						
<b>P3-1</b>	<b>Ass'y P.C.B DOLBY</b>		<b>054002007592</b>	C557L/R	Electrolytic SA 1 uF 50 V M	3479210971
<b>CAPACITORS</b>						
C501/C502	Electrolytic SG	47 uF 25 V M	3479347041	C558L/R	Ceramic Tubular 0.001 uF 50 V Z	3519102935
C503L/R	Electrolytic SA	4.7 uF 50 V M	3479247971	C559L/R	Electrolytic SA 3.3 uF 50 V M	3479233971
C504	Electrolytic SA	3.3 uF 50 V M	3479233971	C561/C562	Electrolytic SG 47 uF 25 V M	3479347041
C505	Electrolytic SA	10 uF 50 V M	3479210071	C563L/R	Electrolytic SA 1 uF 50 V M	3479210971
C507	Electrolytic SA	3.3 uF 50 V M	3479233971	C564L/R	Ceramic Tubular 0.001 uF 50 V Z	3519102935
C508/C509	Electrolytic SG	47 uF 25 V M	3479347041	C565L/R	Electrolytic SA 3.3 uF 50 V M	3479233971
C510	Electrolytic SA	2.2 uF 50 V M	3479222971	C566/C567	Electrolytic SG 47 uF 25 V M	3479347041
C511	Electrolytic SA	3.3 uF 50 V M	3479233971	C568-C570	Ceramic Tubular 100 pF 50 V J	3519101935
C512	Mylar	0.15 uF 63 V K	3679154297	C571	Electrolytic SA 10 uF 50 V M	3479210071
C513	Ceramic Tubular	150 pF 50 V J	3519151935	C572	Electrolytic SG 220 uF 16 V M	3479322131
C514	Electrolytic SG	220 uF 10 V M	3479322121	C573	Electrolytic SA 10 uF 50 V M	3479210071
C515	Poly	120 pF 50 V J	3619121110	<b>CONNECTORS</b>		
C516	Poly	680 pF 50 V J	3619681110	CN501	FPC Plug 19P	4428526310
C517	Electrolytic SA	4.7 uF 50 V M	3479247971	CN502	FPC Plug 18P	4428526305
C518	Electrolytic SG	47 uF 50 V M	3479347071	CN503	Lead Ass'y, 9P, 450 mm	436209453332
C519	Electrolytic SG	470 uF 10 V M	3479347121	CP401	Wafer 10P	4428516910
C520	Poly	680 pF 50 V J	3619681110	CP581	Wafer 2P	4428508210
C521	Mylar	0.022 uF 100 V J	3679223120	CP601	Wafer 3P	4428516210
C522	Poly	150 pF 50 V J	3619151110	CP802	FPC Plug 15P	4428526270
C523-C525	Electrolytic SG	220 uF 16 V M	3479322131	<b>DIODES</b>		
C526/C527	Ceramic Tubular	0.1 uF 50 V Z	3519104935	D501	Diode Zener, UZ 12.0BSC	2258599116
C528	Electrolytic SA	1 uF 50 V M	3479210971	D502-D504	1N4148M, Switching	2058322101
C529	Mylar	0.22 uF 63 V K	3679224297	<b>ICs</b>		
C530	Mylar	0.068 uF 100 V J	3679683120	IC501/IC502	KIA4559P/KIA75559P, OP Amp	2168206104
C531	Mylar	0.0039 uF 100 V J	3679392120	IC503	LV-1000NA	2168017142
C532	Mylar	0.0047 uF 100 V J	3679472120	IC504	DRAM, uPD61256-08	2138430001
C533	Mylar	0.033 uF 100 V J	3679333120	IC505	MC14094BCP	2138009115
C534	Electrolytic SA	10 uF 50 V M	3479210071	IC506	LC7622	2168017139
C535	Electrolytic SA	1 uF 50 V M	3479210971	IC507	TC9176P	2138007124
C536/C537	Electrolytic SA	10 uF 50 V M	3479210071	IC508/IC509	KIA4559P/KIA75559P, OP Amp	2168206104
C538	Ceramic Tubular	470 pF 50 V J	3519471935	<b>TRANSISTORS</b>		
C539L/R	Electrolytic SA	10 uF 50 V M	3479210071	Q501	BKTA1266Y/KTA1015Y, PNP	2208206105
				Q502	DTC114YS	2208622106
				Q503	DTA114YS, PNP	2208222105
				Q504/Q505	DTC114YS	2208622106

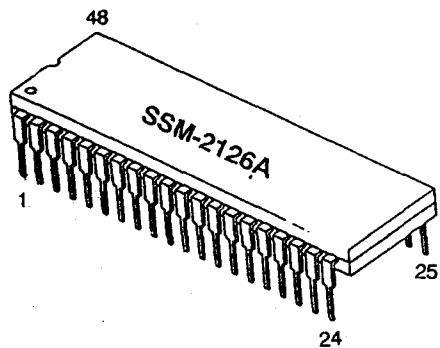
Ref. No.	Description	Mfr. Part No.	Ref. No.	Description	Mfr. Part No.
Q506	KTC3198Y/KTC1815Y, NPN	2208606104	R554L/R	Carbon Film 1 Mohm 1/5 W J	3069105970
Q507	DTA114YS, PNP	2208222105	R555L/R	Carbon Film 4.7 kohm 1/5 W J	3069472970
Q508L/R	KTD1302, NPN	2208606112	R556L/R	Carbon Film 1.5 kohm 1/5 W J	3069152970
Q509	KTC3198Y/KTC1815Y, NPN	2208606104	R557L/R	Carbon Film 2 kohm 1/5 W J	3069202970
Q510	DTA114YS, PNP	2208222105	R558/R559	Carbon Film 100 ohm 1/5 W J	3069101970
Q511	KTD1302, NPN	2208606112	R560L/R	Carbon Film 680 ohm 1/5 W J	3069681970
Q512	KTC3198Y/KTC1815Y, NPN	2208606104	R561L/R	Carbon Film 1 Mohm 1/5 W J	3069105970
Q513	DTA114YS, PNP	2208222105	R562L/R	Carbon Film 4.7 kohm 1/5 W J	3069472970
Q514L/R	KTD1302, NPN	2208606112	R563L/R	Carbon Film 1.5 kohm 1/5 W J	3069152970
Q515	KTC3198Y/KTC1815Y, NPN	2208606104	R564L/R	Carbon Film 2 kohm 1/5 W J	3069202970
			R565/R566	Carbon Film 100 ohm 1/5 W J	3069101970
			R567	Carbon Film 2.2 kohm 1/5 W J	3069222970
			R568L/R	Carbon Film 2.2 kohm 1/5 W J	3069222970
			R569-R571	Carbon Film 2.2 kohm 1/5 W J	3069222970
			R572L/R	Carbon Film 2.2 kohm 1/5 W J	3069222970
			R573	Carbon Film 820 ohm 1/5 W J	3069821970
			R574	Carbon Film 1 kohm 1/5 W J	3069102970
			R575L/R	Carbon Film 1 kohm 1/5 W J	3069102970
			R576/R577	Carbon Film 220 kohm 1/5 W J	3069224970
				<b>SEMI FIXED RESISTOR</b>	
			VR501	Semi, 10 k (B)	3248010343
				<b>RESONATOR</b>	
			X-TAL501	Resonator, CST8.00MTW	3938131590
				<b>MISCELLANEOUS</b>	
			W501	CTB 0135 LV DIAMOND DL B#16	4359855035
				<b>END OF P.C.B DOLBY</b>	
			<b>P3-2</b>	<b>Ass'y P.C.B HEADPHONE</b>	<b>054002007594</b>
				<b>RESISTORS</b>	
			R295L/R	Metal Film 470 ohm 2 W J	3029471570
			C291L/R	Ceramic Tubular 560 pF 50 V J	3519561935
				<b>CONNECTOR</b>	
			CN291	Lead Ass'y, 12P, 350 mm	435112353401
				<b>MISCELLANEOUS</b>	
			24(SW291)	Switch Push	4628043810
			25(SW292)	Switch Push	4628049210
			26	Jack, Phone	4438005010
				<b>END OF P.C.B HEADPHONE</b>	
			<b>P3-3</b>	<b>Ass'y P.C.B VOLUME LED</b>	<b>054002007596</b>
			CNT581	Lead Ass'y, 2P, 180 mm, 2.5 mm Pitch	4358102184
			LED581	LED, SLC-22VRS, Green	2308220324
				<b>END OF P.C.B VOLUME LED</b>	

Ref. No.	Description	Mr. Part No.	Ref. No.	Description	Mr. Part No.
<b>The following parts are only for European version.</b>					
<b>P1</b>	<b>Ass'y P.C.B MAIN</b>	<b>054002007917</b>	C432L/R	Ceramic Tubular 100 pF 50 V J	3519101935
C101L/R	Ceramic Tubular 100 pF 50 V J	3519101935	C433	Ceramic Tubular 100 pF 50 V J	3519101935
C104L/R	Ceramic Tubular 2200 pF 50 V J	3519222935	<b>P3</b>	<b>Ass'y P.C.B FRONT</b>	<b>054002007921</b>
C120L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C121L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C122L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C123L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C124L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C125L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C126L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C127L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C128L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C129L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C130L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C131L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C132L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C133L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C134L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C135L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C136L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C137L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C138L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C139L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C181L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C182L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C260L/R	Ceramic Tubular 2200 pF 50 V J	3519222935			
C261L/R	Ceramic Tubular 2200 pF 50 V J	3519222935			
C262L/R	Ceramic Tubular 2200 pF 50 V J	3519222935			
L101L	Coil, Inductor, 50 uH	2648601470			
L101R	Coil, Inductor, 50 uH	2648601470			
<b>P2</b>	<b>Ass'y P.C.B TUNER</b>	<b>05400200792</b>			
C259	Ceramic Tubular 2200 pF 50 V J	3519222935			
C260	Ceramic Tubular 3300 pF 50 V J	3519332935			
C616-C617	Ceramic Tubular 3300 pF 50 V J	3519332935			
C618	Ceramic Tubular 2200 pF 50 V J	3519222935			
C960L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C961L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
C962C	Ceramic Tubular 100 pF 50 V J	3519101935			
C963L/R	Ceramic Tubular 100 pF 50 V J	3519101935			
<b>P2-1</b>	<b>Ass'y P.C.B POWER SUPPLY</b>	<b>054002007926</b>			
F701	Fuse, TL 4A 250V	5508302534			
F702	Fuse, TL 4A 250V	5508302534			
F703	Fuse, TL 4A 250V	5508302534			
F704	Fuse, TL 500mA 250V	5508301634			
F705	Fuse, TL 2.5A 250V	5508302534			
62	Outlet, 1P	4448103610			
	Standby Transformer, 230 V 50 Hz	2828000077			
<b>P2-3</b>	<b>Ass'y P.C.B TONE</b>	<b>054002007928</b>			
C431L/R	Ceramic Tubular 100 pF 50 V J	3519101935			

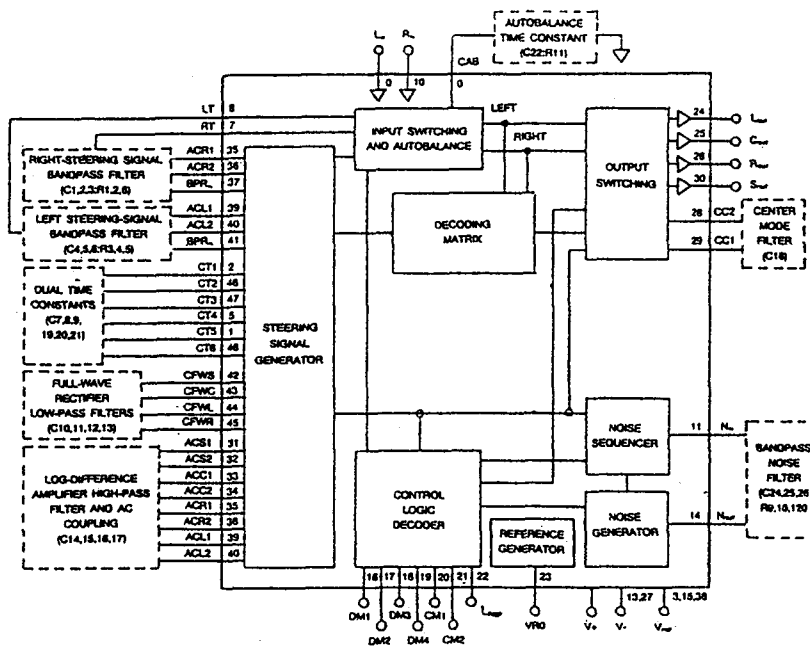
# SEMICONDUCTOR LEAD IDENTIFICATION & INTERNAL DIAGRAM

SSM-2126A : IC201

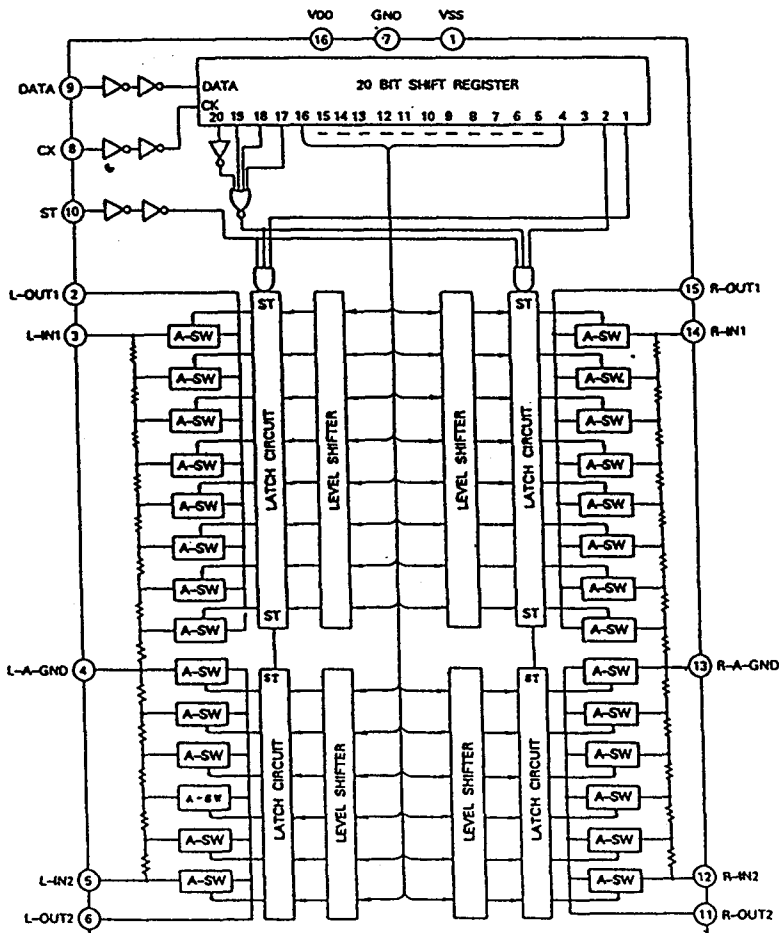
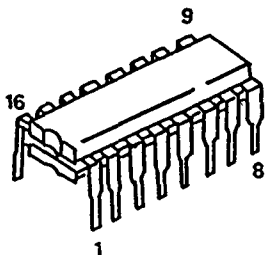
Package Outline



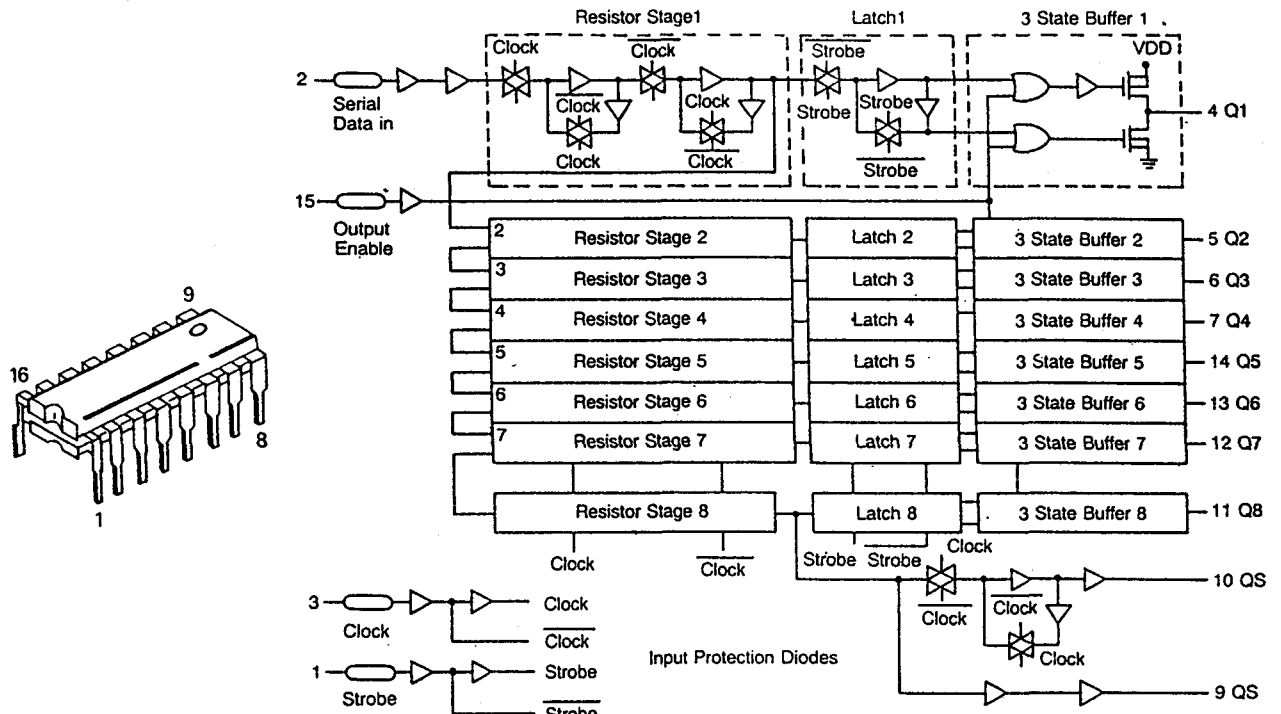
Block Diagram



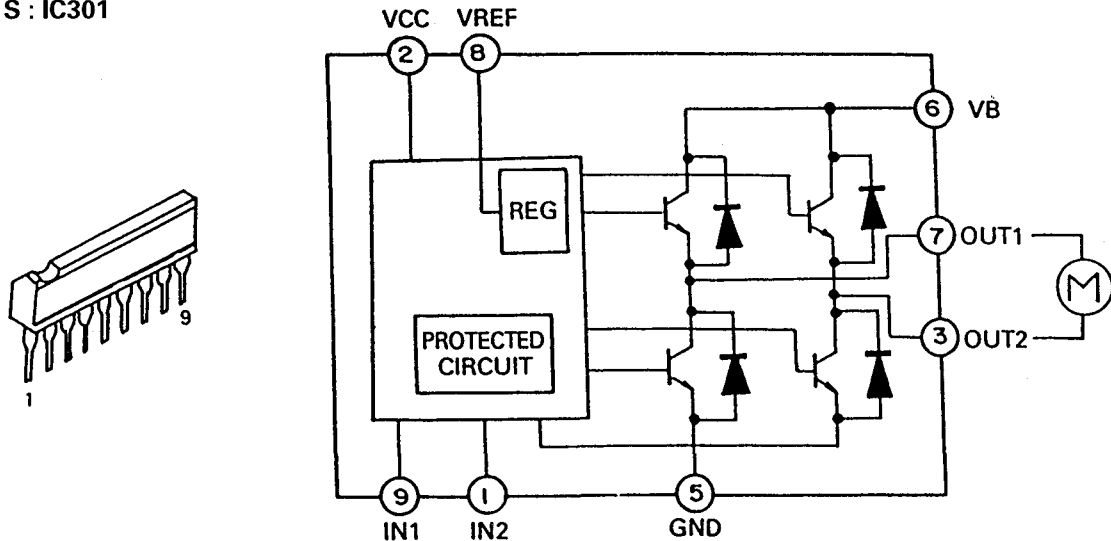
TC9176 : IC507



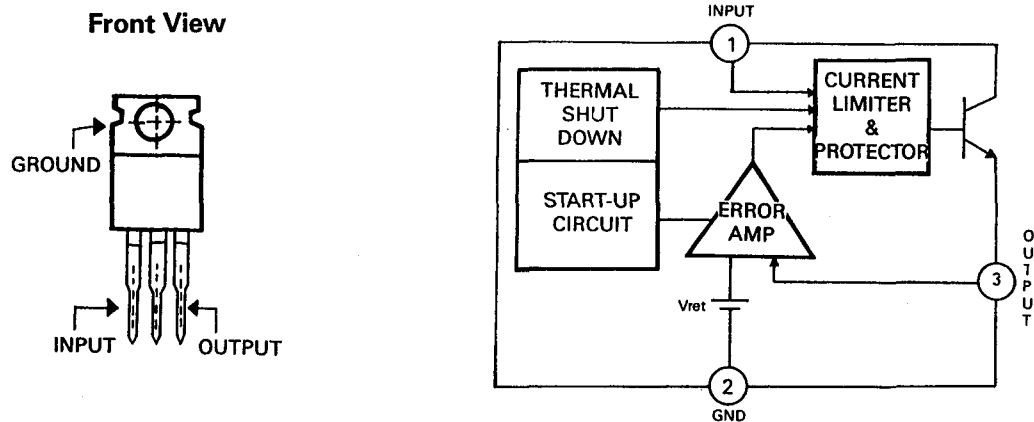
MC14094 : IC105, IC202, IC505



TA7291S : IC301



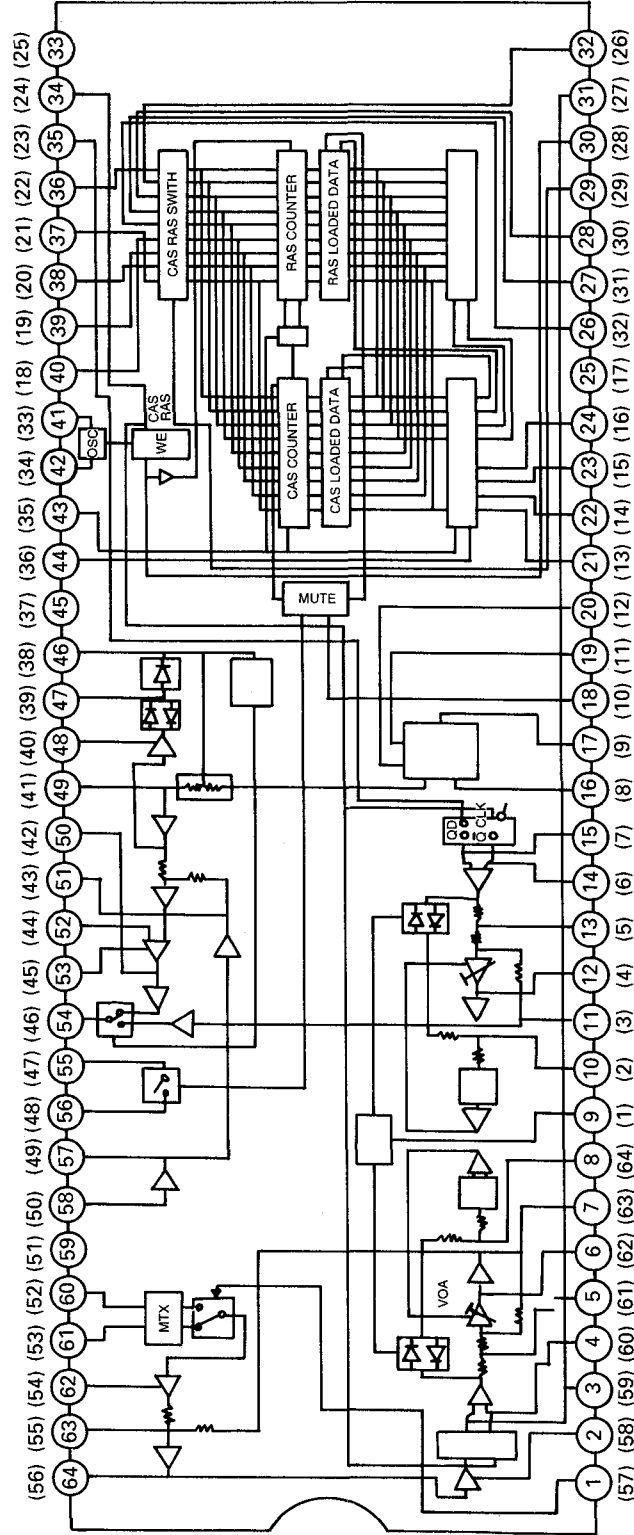
GD78XX : IC241, IC242, IC701







2. Block Diagram

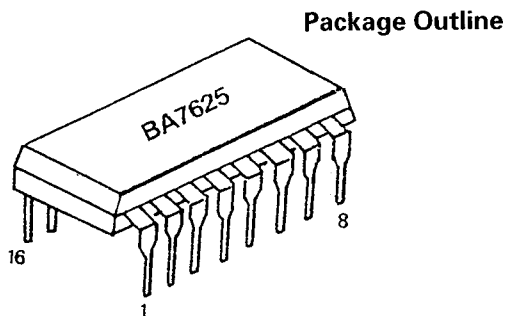
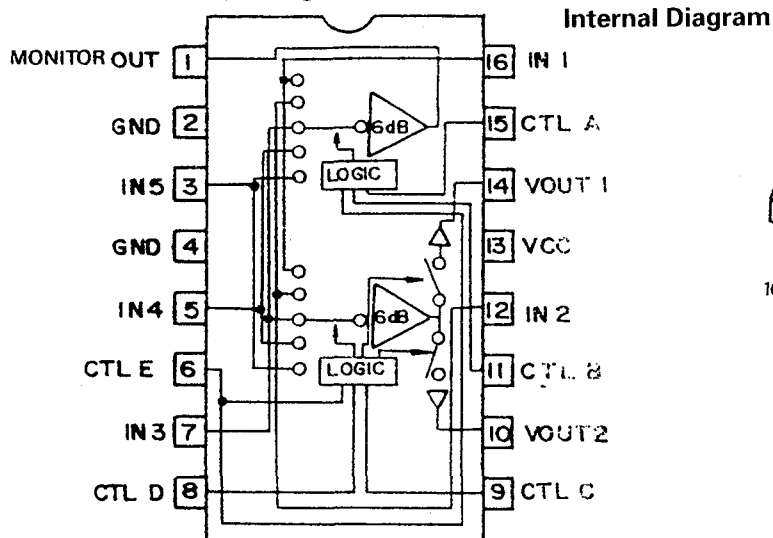


( ) : Pin No. for LV1001MA

## 3. PIN Functions

Pin No.	Explanations
1(57)	Delay input signal mode select switch (L+R/L-R)
2(58)	Filter for supply voltage on comparator
3,15(7, 59)	Input filter for rectifier
4,14(6, 60)	Input filter for rectifier
5,13(5, 61)	Capacitor for pre-emphasis
6,12(4, 62)	Capacitor for sliding band filter
7(63)	Capacitor for sliding band filter and local decoder output
8,10(2, 64)	Capacitor for smoothing of rectifier output
9(1)	De-couple capacitor for threshold voltage
11(3)	Capacitor for sliding band filter and Delayed output
16(8)	Reference voltage
17(9)	Reference voltage
18(10)	Mute control
19(11)	V <sub>CC</sub>
20(12)	Output for V <sub>DD</sub>
21(13)	Clock input for serial input, data input for parallel input mode
22(14)	Data input for serial input, data input for parallel input mode
23(15)	Column address selection for serial input, data input for parallel input mode
24(16)	Row address selection for serial input, data input for parallel input mode
25(17)	V <sub>DD</sub>
26 to 40	Connection to memory device
(18 to 32)	Connection to memory device
33(25)	V <sub>SS</sub>
41(33)	X'tal resonator for oscillator
42(34)	X'tal resonator for oscillator
43(35)	Long or Short mode selection
44(36)	Serial or Parallel mode selection
45(37)	For test mode
46(38)	Smoothing for NR rectifier
47(39)	Smoothing for NR rectifier
48(40)	Capacitor for weighting on side chain path
49(41)	Input for variable resistor
50(42)	NR output
51(43)	7kHz low pass filter output
52(44)	Input for NR
53(45)	Capacitor for de-couple on NR
54(46)	Delay output or NR output
55(47)	Input for mute circuit
56(48)	Output for mute circuit
57(49)	Output for 7 kHz low pass filter
58(50)	Input for 7 kHz low pass filter
59(51)	GND
60(52)	Input for right channel
61(53)	Input for left channel
62(54)	Capacitor for de-couple on Fixed matrix output
63(55)	Noise shaping and delay input
64(56)	Noise shaping output

**BA7625 : IC104 (Video signal switch for AV amplifier)**

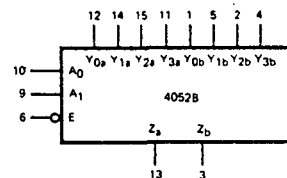


**GD 4052B : IC103 (Dual 4 -Channel analog multiplexer/demultiplexer)**

**TRUTH TABLE**

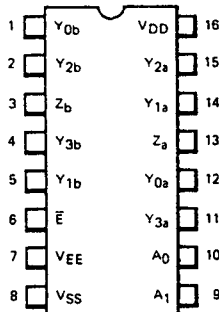
INPUTS			CHANNELS			
E	A <sub>1</sub>	A <sub>0</sub>	Y <sub>0</sub> -Z	Y <sub>1</sub> -Z	Y <sub>2</sub> -Z	Y <sub>3</sub> -Z
L	L	L	ON	OFF	OFF	OFF
L	L	H	OFF	ON	OFF	OFF
L	H	L	OFF	OFF	ON	OFF
L	H	H	OFF	OFF	OFF	ON
H	X	X	OFF	OFF	OFF	OFF

L=LOW Level H=HIGH Level, X=Don't care

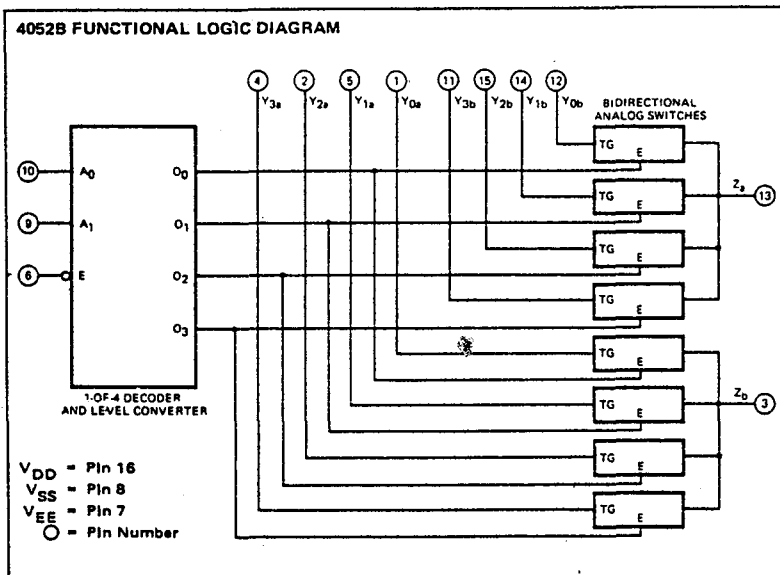


V<sub>DD</sub> = PIN 16  
V<sub>SS</sub> = PIN 8  
V<sub>EE</sub> = PIN 7

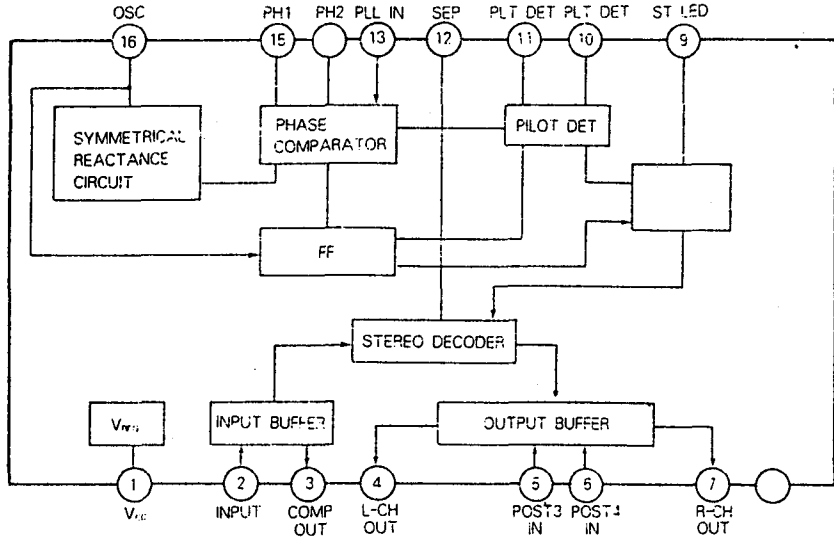
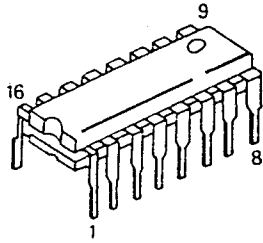
**CONNECTION DIAGRAM  
DIP (TOP VIEW)**



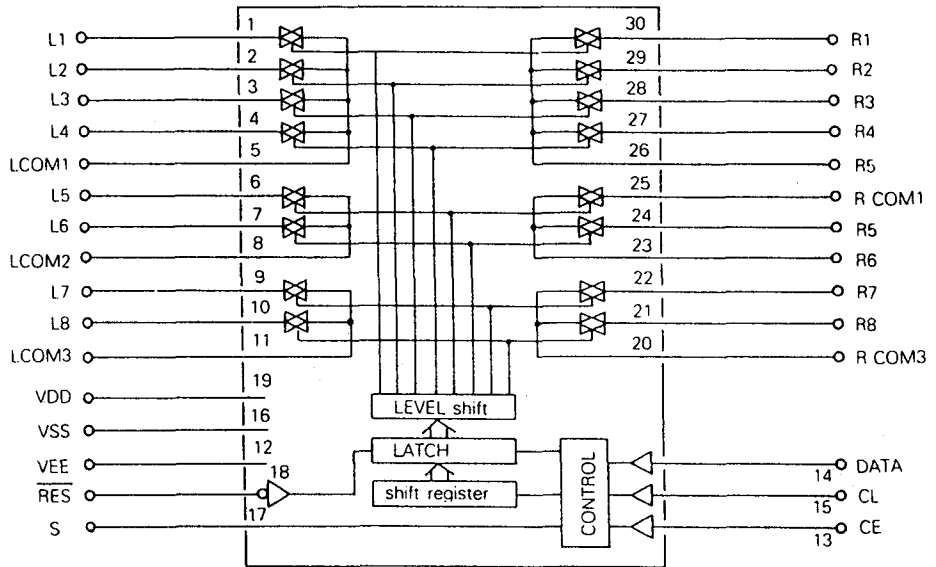
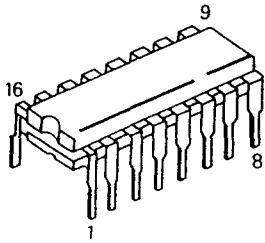
**NOTE:**  
The SO Package has the same pinouts (Connection Diagram) as the Dual in-line Package.



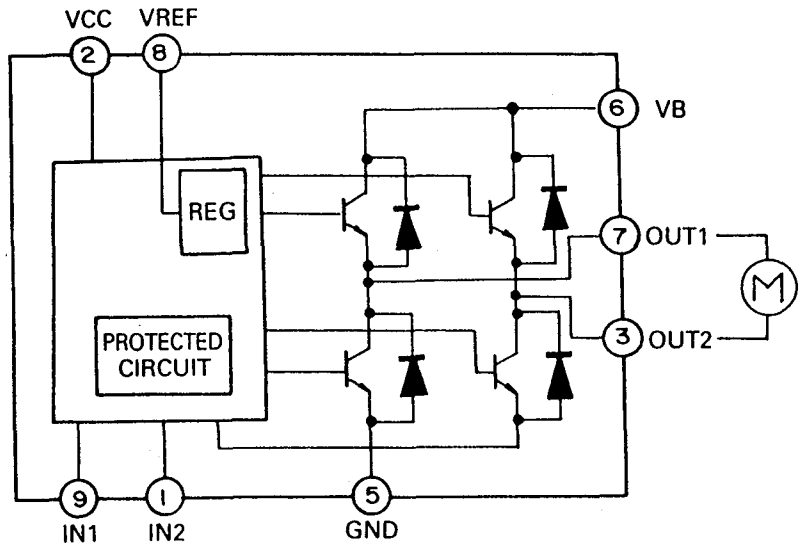
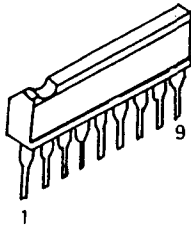
KA2265 : IC903 (AVR25 ONLY)



LC7821 : IC101, IC102

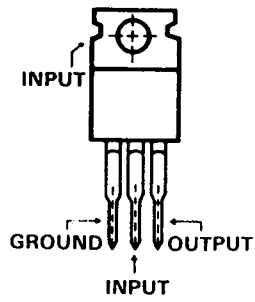


TA7291S : IC109, IC506

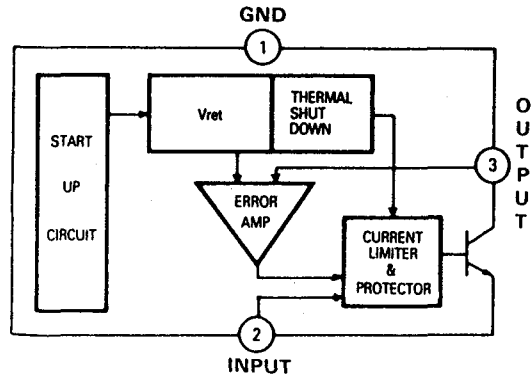


GD79XX : IC243

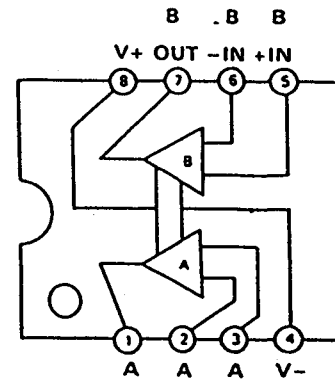
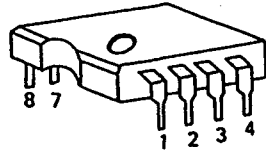
Front View



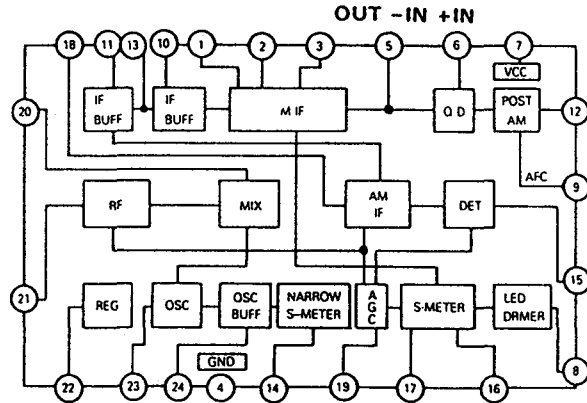
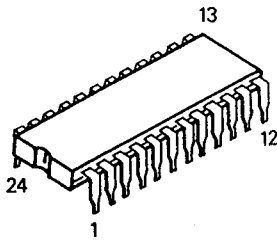
Block Diagram



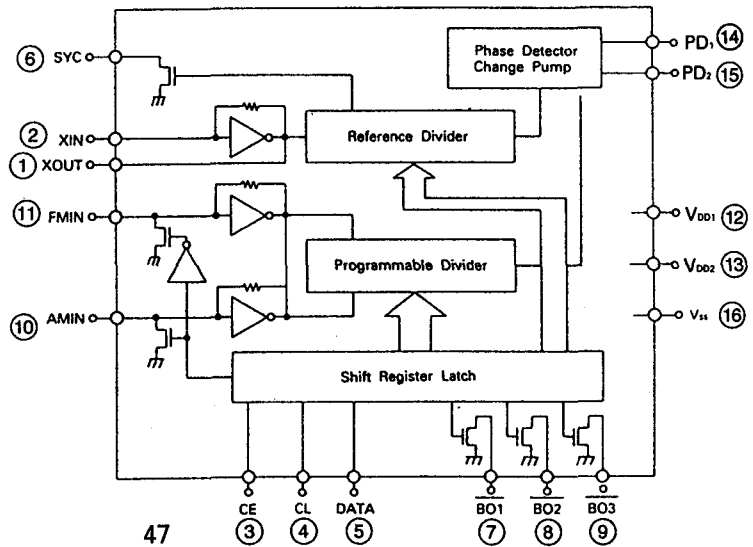
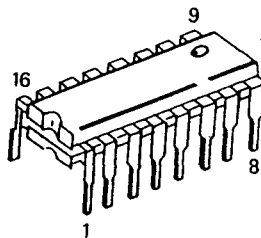
KIA4559P/KIA7559P : IC106, 107, 108, IC401, IC402  
IC501, IC502, IC508, IC509



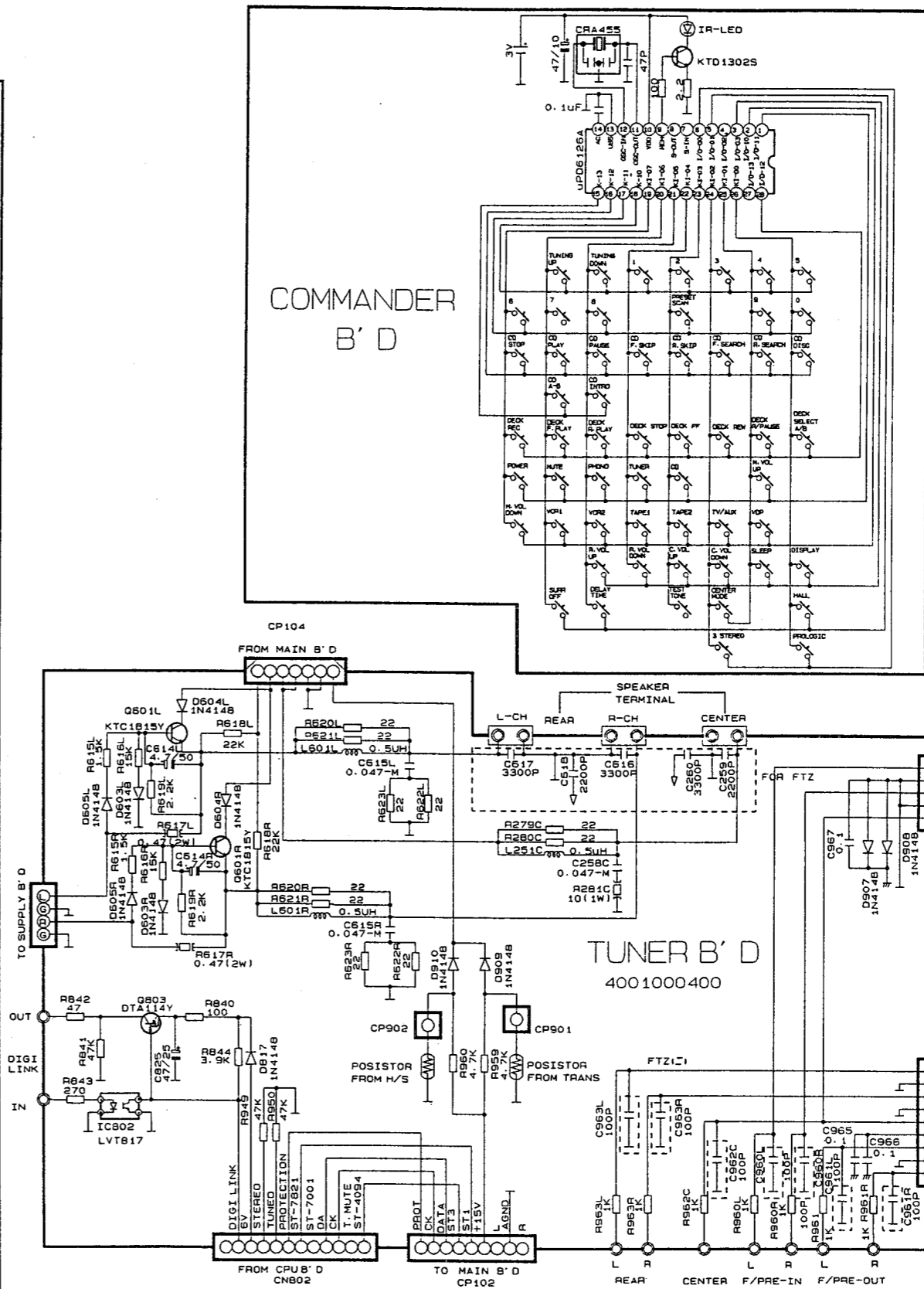
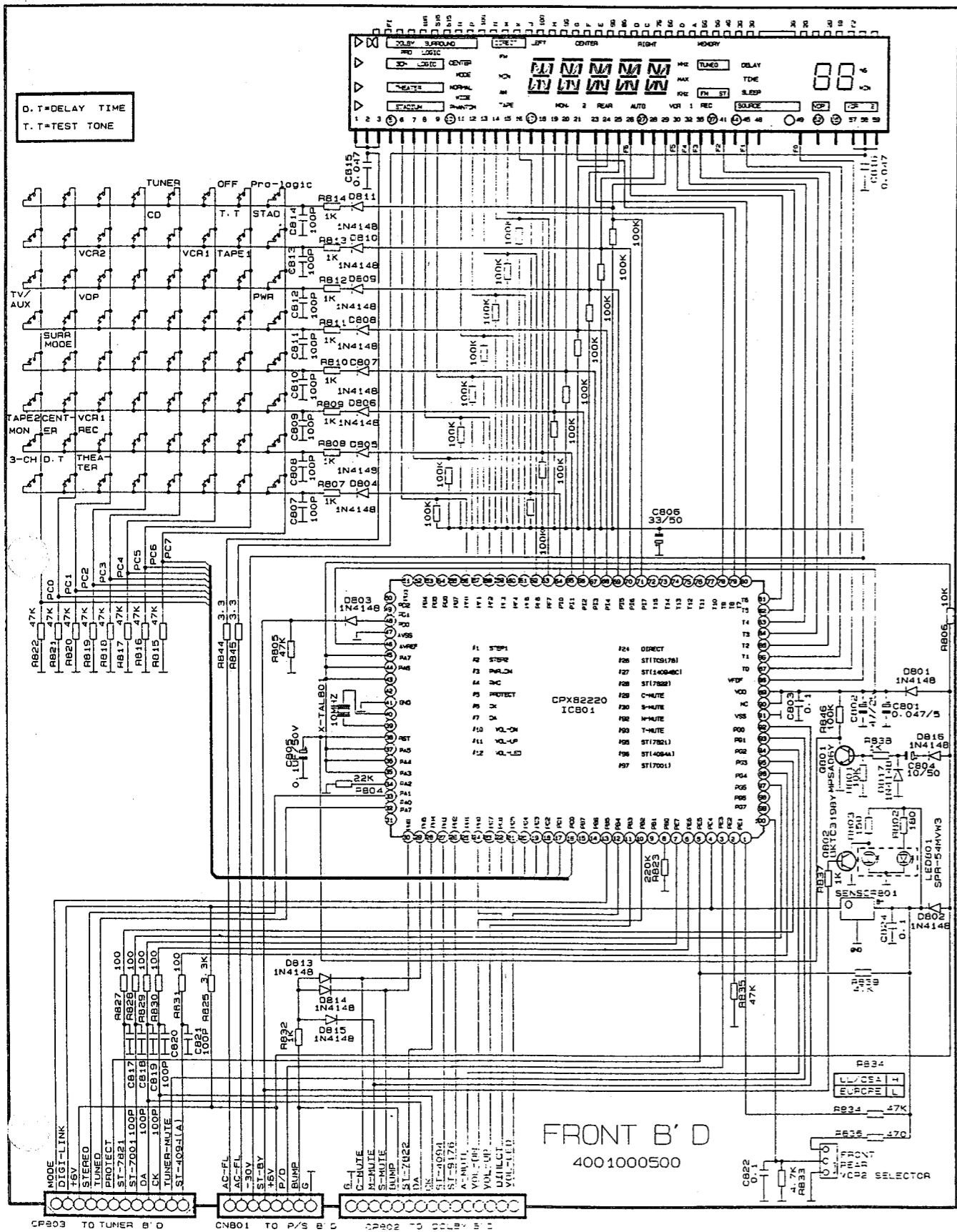
LA1266 : IC902 (AVR25 ONLY)



LM7001 : IC901 (AVR25 ONLY)



**SCHEMATIC DIAGRAM I**



**NOTES**

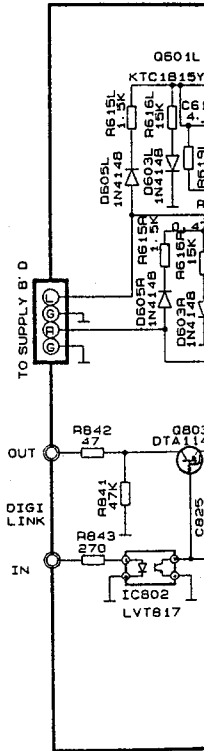
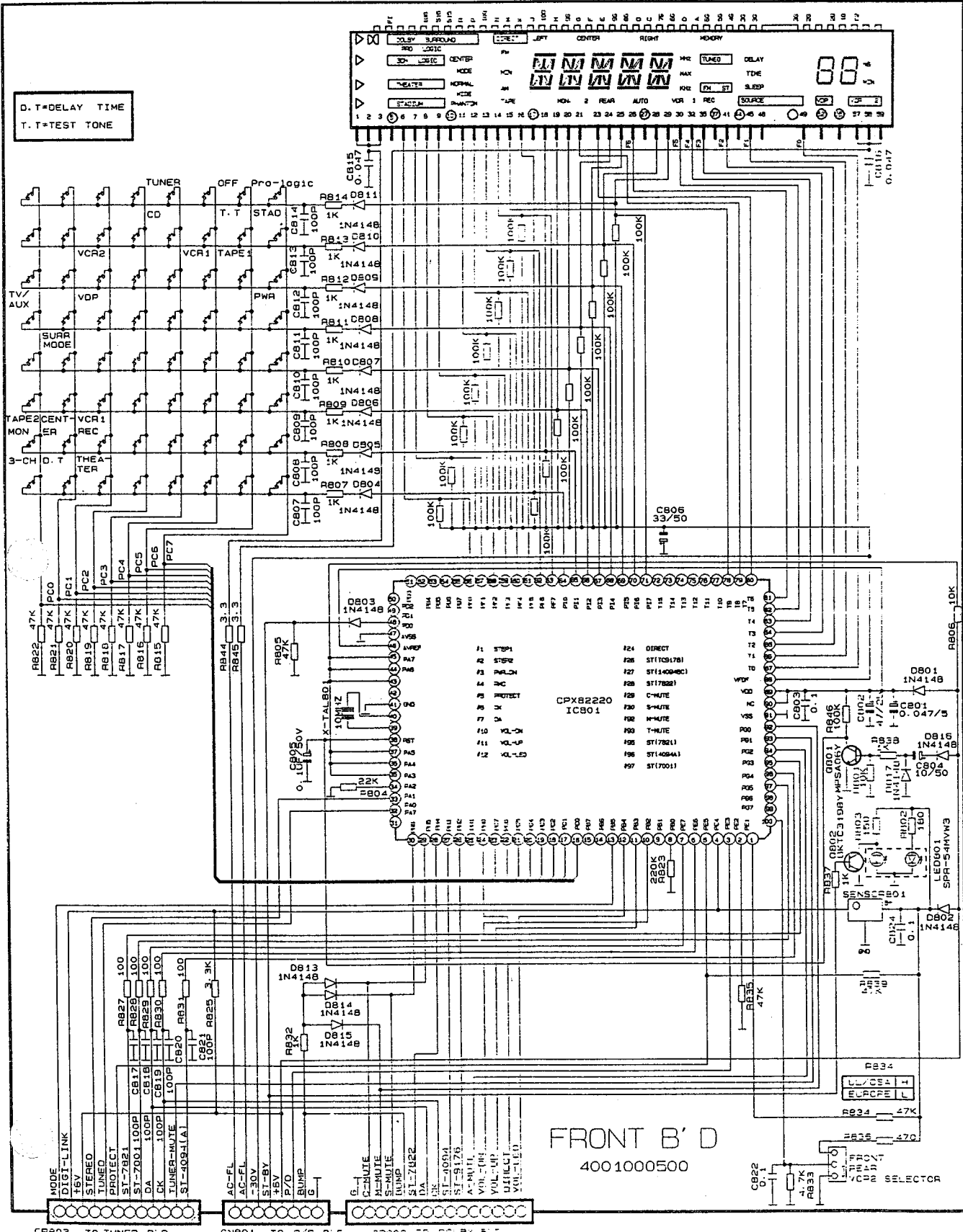
- Resistor values are indicated in ohms unless otherwise specified (K=1,000 M=1,000,000)
- Capacitor values are indicated in microfarads unless otherwise specified. (p=picofarads)

**CAUTION**

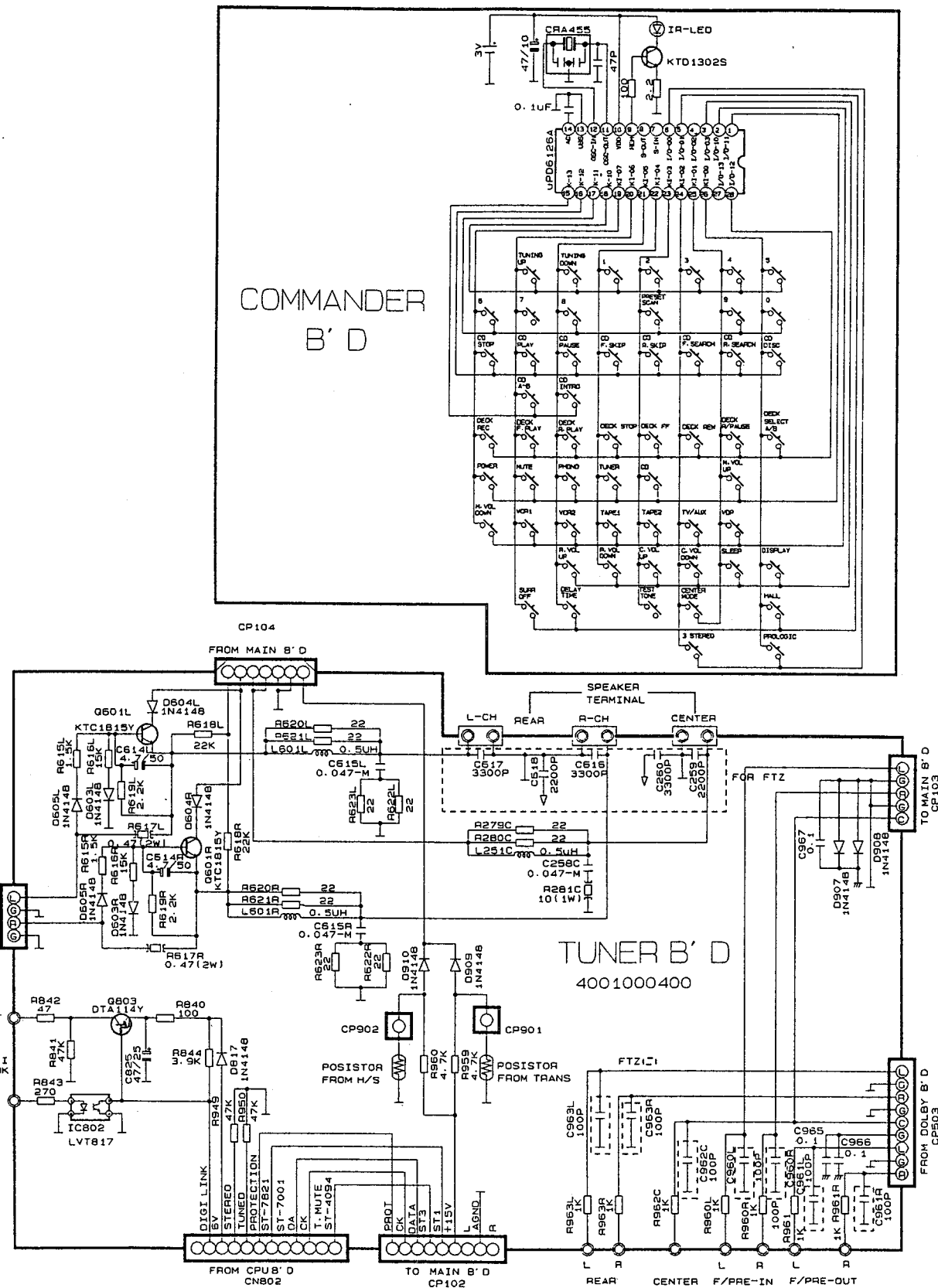
Safety precaution to be followed during servicing:

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

# SCHEMATIC DIAGRAM I







**NOTES**

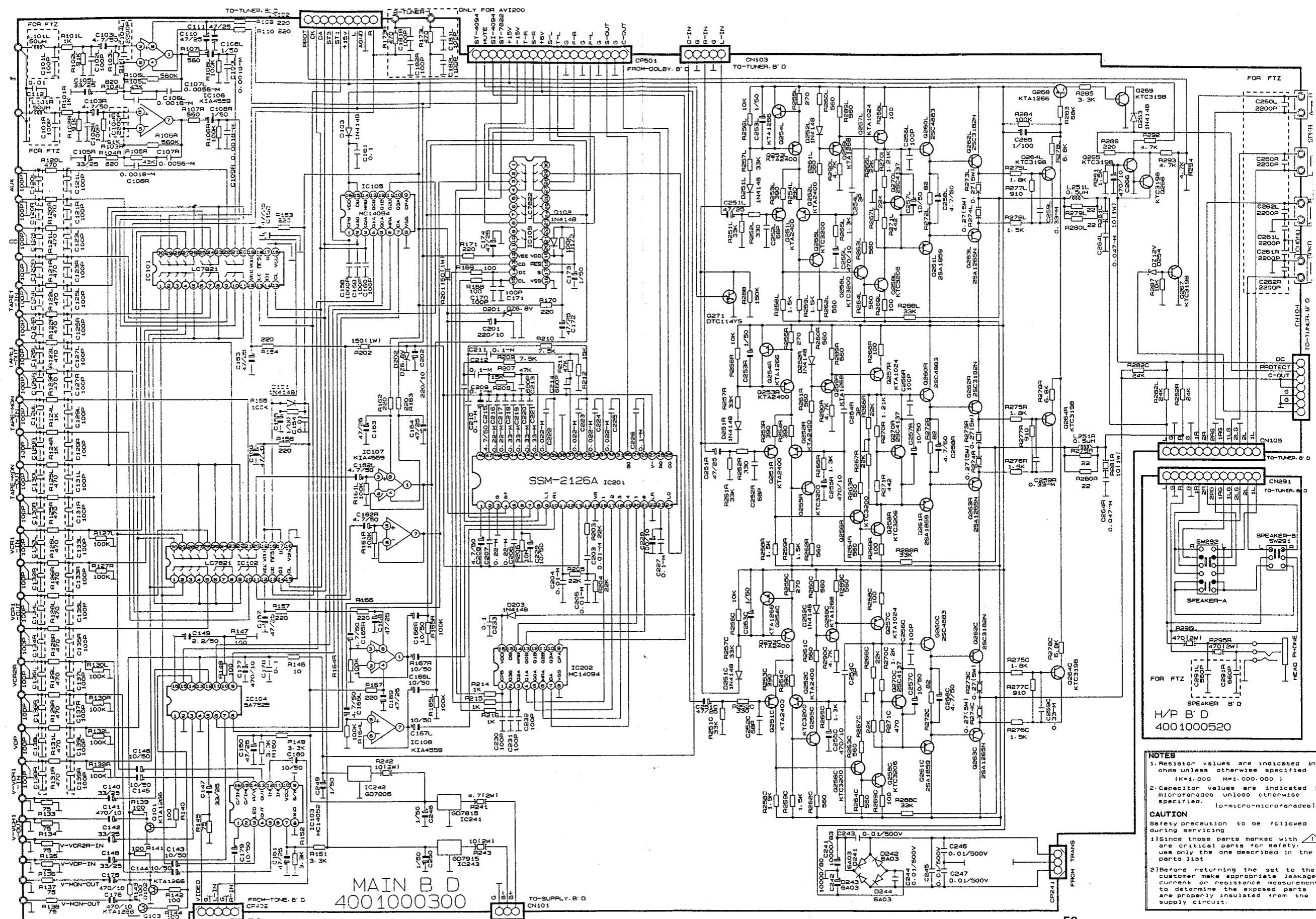
1. Resistor values are indicated in ohms unless otherwise specified [K=1,000 M=1,000,000]
2. Capacitor values are indicated in microfarads unless otherwise specified. [p=micro-microfarads]

**CAUTION**

Safety precaution to be followed during servicing

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

# SCHEMATIC DIAGRAM II



**NOTES**

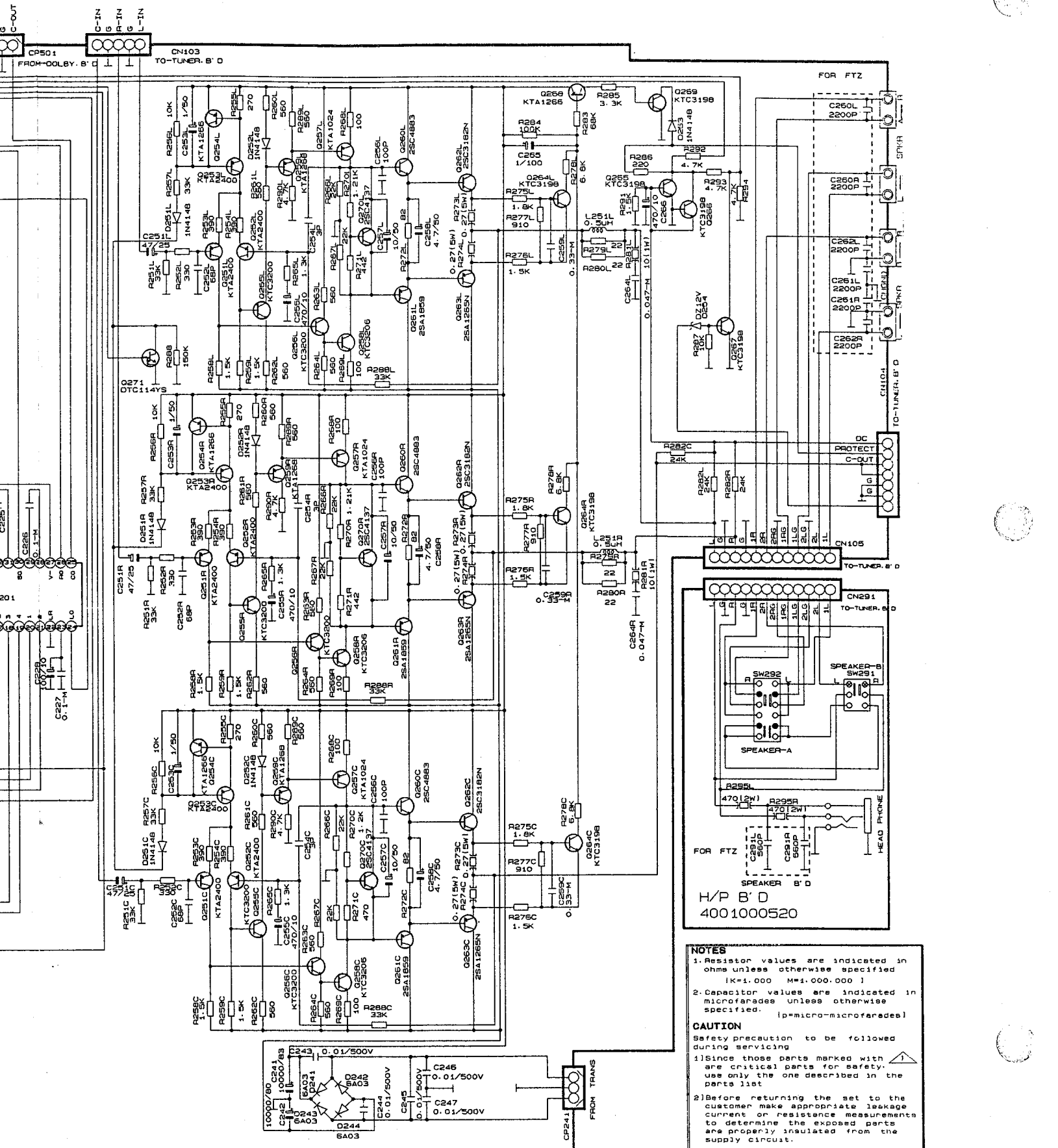
1. Resistor values are indicated in ohms unless otherwise specified (K=1,000 M=1,000,000)
2. Capacitor values are indicated in microfarads unless otherwise specified. (p=micro-microfarads)

**CAUTION**

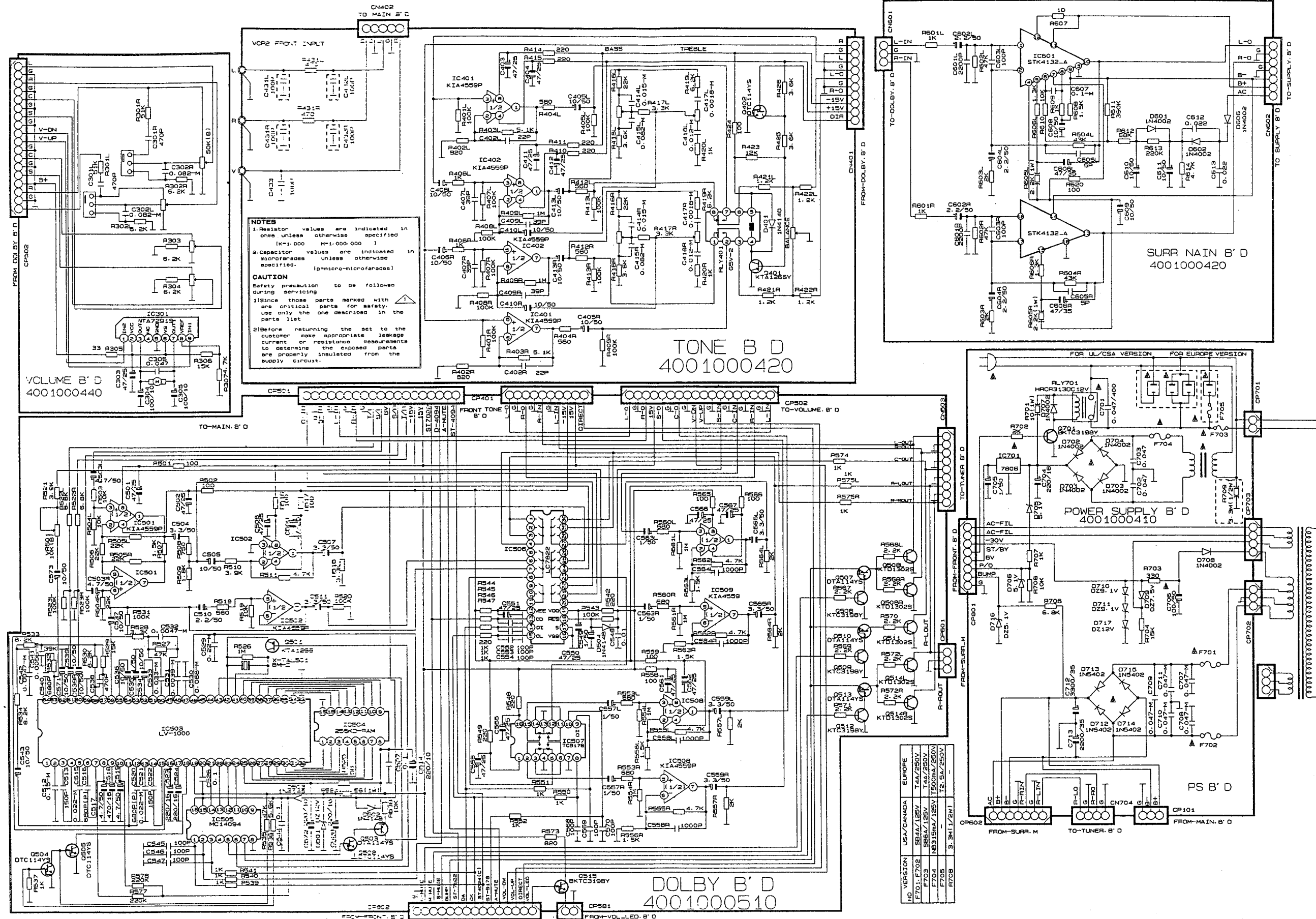
Safety precautions to be followed during servicing:

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

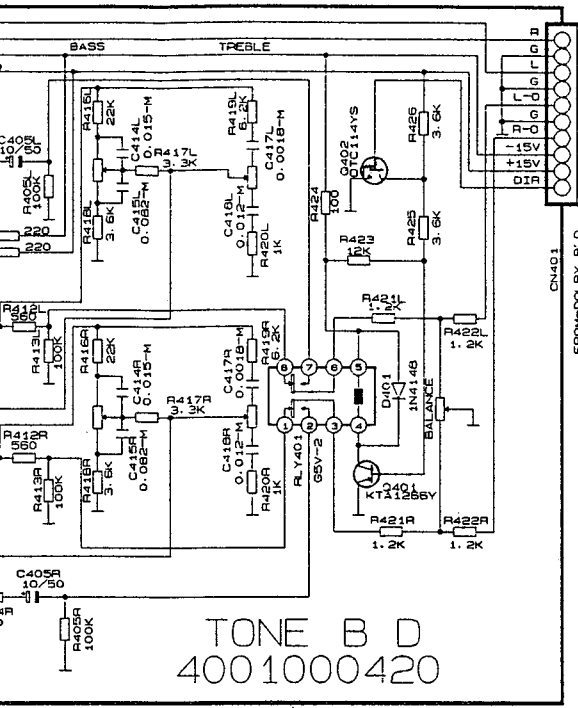




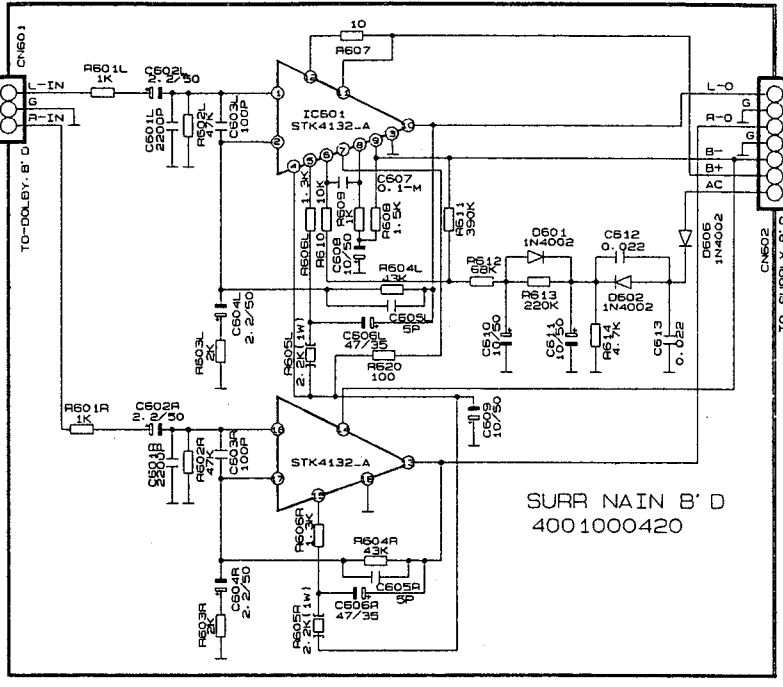
**SCHEMATIC DIAGRAM III**



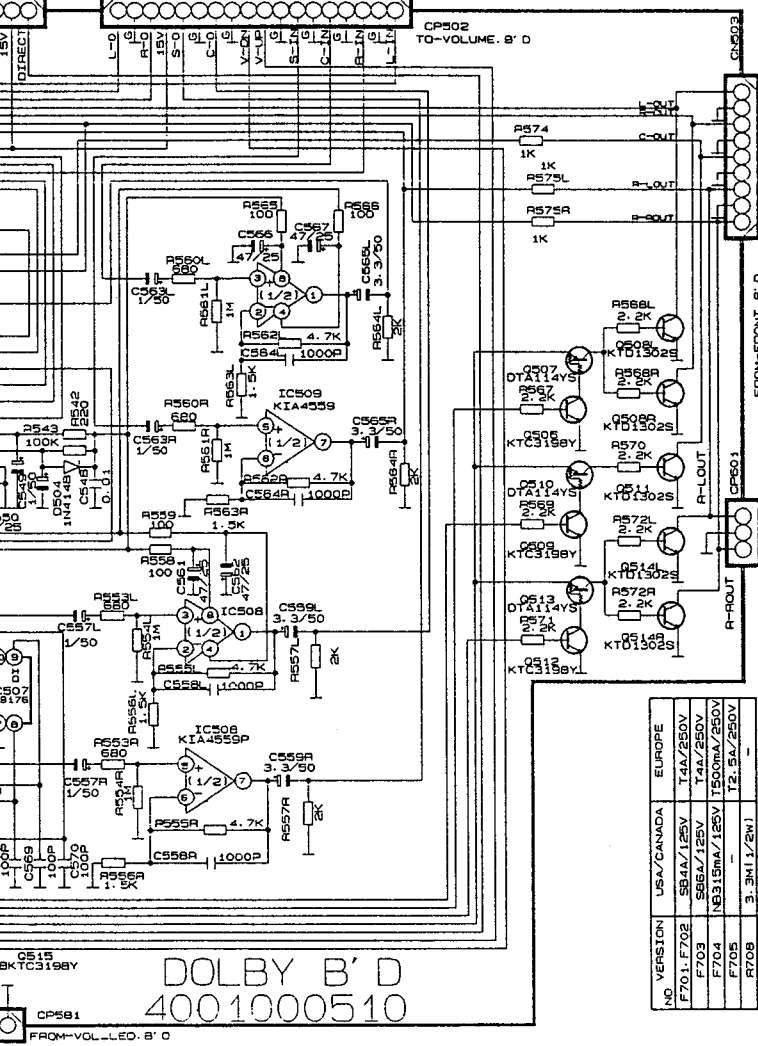




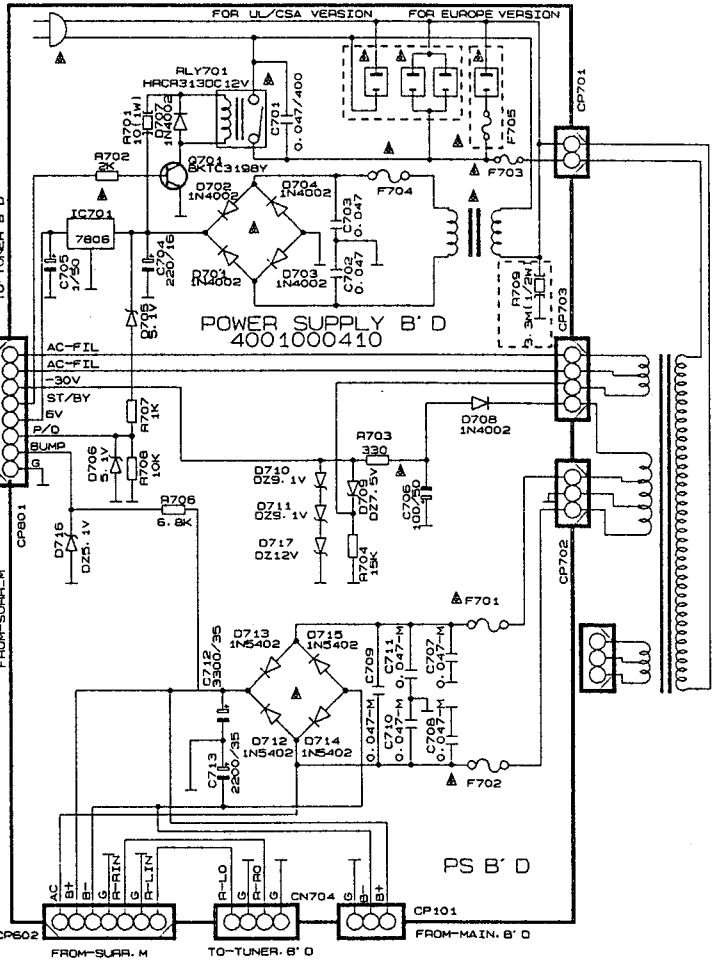
TONE B D  
4001000420



SURR MAIN B' D  
4001000420



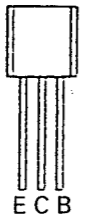
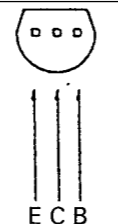
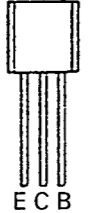
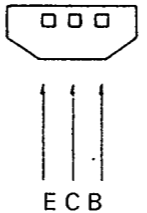
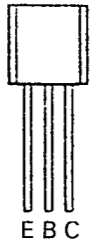
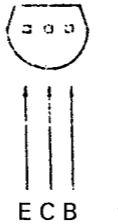
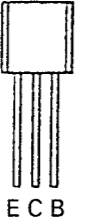
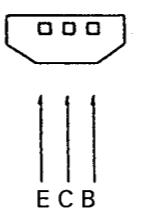
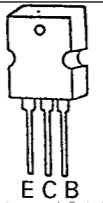

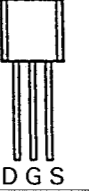

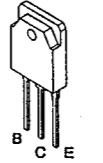
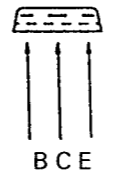
DOLBY B' D  
4001000510



POWER SUPPLY B' D  
4001000410

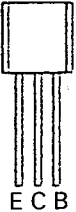


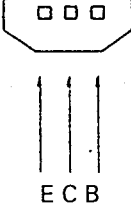
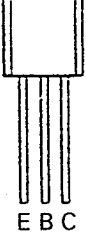


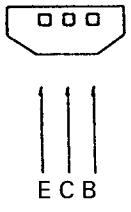
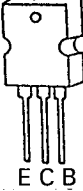
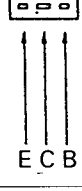


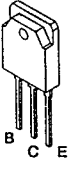

NO.	VERSION	USA/CANADA	EUROPE
F701	F702	S84A/125V	14A/250V
F703	F704	S86A/125V	14A/250V
F705	F706	N8315MA/120V	1500mA/250V
F708	F709	3.3M11/2W1	-

### TRANSISTORS LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW
TDA 1302 KTC3200/KTC2240 KTC3198/KTC1815 KTC1923/KTC3194 KTA2400 KTA1268/KTA970 KTA1266/KTA1015	 E C B	 E C B
DTC114YS DTA114YS	 E C B	 E C B
MPSA06	 E B C	 E C B
KTA1024 KTC3206	 E C B	 E C B
2SC4137	 E C B	 E C B
2SK168A	 D G S	 D G S
2SA1265N-O 2SA1859A-Y 2SC4883A-Y 2SC3182N-O	 B C E	 B C E
<b>TERMINAL NAME</b>		
B→BASE C→COLLECTOR E→EMITTER		



# TRANSISTORS LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW
TDA 1302 KTC3200/KTC2240 KTC3198/KTC1815 KTC1923/KTC3194 KTA2400 KTA1268/KTA970 KTA1266/KTA1015	 <p style="text-align: center;">E C B</p>	 <p style="text-align: center;">E C B</p>
DTC114YS DTA114YS	 <p style="text-align: center;">E C B</p>	 <p style="text-align: center;">E C B</p>
MPSA06	 <p style="text-align: center;">E B C</p>	 <p style="text-align: center;">E C B</p>
KTA1024 KTC3206	 <p style="text-align: center;">E C B</p>	 <p style="text-align: center;">E C B</p>
2SC4137	 <p style="text-align: center;">E C B</p>	 <p style="text-align: center;">E C B</p>
2SK168A	 <p style="text-align: center;">D G S</p>	 <p style="text-align: center;">D G S</p>
2SA1265N-O 2SA1859A-Y 2SC4883A-Y 2SC3182N-O	 <p style="text-align: center;">B C E</p>	 <p style="text-align: center;">B C E</p>
<b>TERMINAL NAME</b>		
B→BASE C→COLLECTOR E→EMITTER		