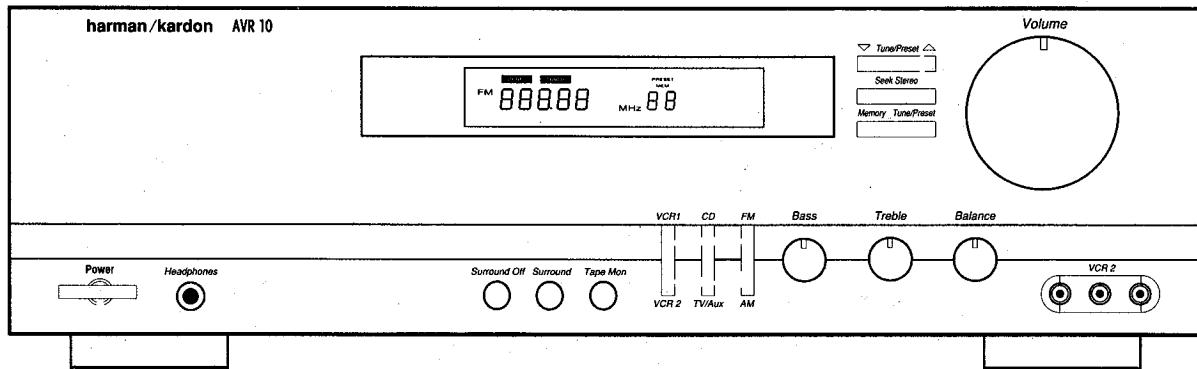


The Harman Kardon Model AVR10

AUDIO AND VIDEO RECEIVER

Manual A

Technical Manual



■ CONTENTS ■

SPECIFICATIONS	2	GENERAL UNIT	27
LEAKAGE TEST	4	PRINTED CIRCUIT BOARDS	29
CONTROLS AND FUNCTIONS	5	ELECTRICAL PARTS LIST	35
BLOCK DIAGRAM	7	SEMICONDUCTOR LEAD IDENTIFICATION & INTERNAL DIAGRAM	42
DISASSEMBLY PROCEDURES	9	TRANSISTOR LEAD IDENTIFICATION	47
CIRCUIT DESCRIPTION	12	PACKAGE	48
ALIGNMENT PROCEDURES	20	WIRING DIAGRAM	49
TROUBLESHOOTING	23	SCHEMATIC DIAGRAMS (I, II, III, IV)	50
GENERAL UNIT PARTS LIST	26		

harman/kardon

Parts and Service Office
80 Crossways Park West, Woodbury, N.Y. 11797
1112-AVR10A G9603 1200 Printed in Korea

SPECIFICATIONS

	Nominal	Limit	Nominal	Limit
● FRONT AMP SECTION			Frequency Response at -3 dB	
RMS Output Power			DC -10 MHz	5-6 MHz
THD 0.2 %, 8 ohms	≥ 35 W	≥ 30 W	≥ 50 dB	≥ 45 dB
Both Channel Driven (20 Hz-20 kHz)				
THD at 35 W, 8 ohms			● FM SECTION	
20 Hz	≤ 0.09 %	≤ 0.2 %	Tuning Cover Range 50 kHz Step	
1 kHz	≤ 0.09 %	≤ 0.2 %	Low	87.5 MHz
20 kHz	≤ 0.09 %	≤ 0.2 %	High	108.0 MHz
IM Distortion at 35 W, 8 ohms, 60:7000 Hz=4:1			Usable Sensitivity 75 ohms Input	
≤ 0.1 %	≤ 0.2 %	S/N 30 dB UL/CSA	≤ 14.2 dBf	≤ 17.2 dBf
Input Sensitivity at 35 W, 8 ohms			S/N 26 dB Europe	
CD, AUX, VCR	150 mV	150±30 mV	Image Rejection at 106 MHz	
S/N Ratio Input Shorted at Volume Max.			UL/CSA	≥ 40 dB
(WTD IHF-A) at 35 W, 8 ohms			Europe	≥ 80 dB
CD, AUX	≥ 95 dB	≥ 90 dB	IF Rejection, at 90 MHz	≥ 80 dB
TV, VCR1, 2	≥ 85 dB	≥ 80 dB	Full Limiting at -3 dB	≤ 12.2 dBf
Tone Control			50 dB Quieting Sensitivity at 98 MHz, 75 k DEV	≤ 15.2 dBf
Bass, 50 Hz	±10 dB	±10±2 dB	IHF Band Pass Filter	
Treble, 10 kHz	±10 dB	±10±2 dB	Mono	≤ 20.2 dBf
Frequency Response at 1 W, 8 ohms			Stereo	≤ 40.3 dBf
CD/AUX			Distortion, 1 kHz 100 % MOD at 98 MHz	
20 Hz, 20 kHz	±1.0 dB	±1.5 dB	IHF Band Pass Filter	
Channel Crosstalk Input Shorted at 35 W, 8 ohms			Mono	≤ 0.3 %
1 kHz	≥ 60 dB	≥ 50 dB	Stereo	≤ 0.5 %
10 kHz	≥ 47 dB	≥ 45 dB	S/N Ratio, 1 mV 75K DEV Input 100 % MOD, at 98 MHz	
● CENTER AMP SECTION			IHF Band Pass Filter	
RMS Output Power.			Mono	≥ 70 dB
THD 0.9 %, 8 ohms, 1 kHz	≥ 32 W	≥ 30 W	Stereo	≥ 65 dB
Only Center Channel Driven			Frequency Response, 20 Hz-15 kHz	
S/N Ratio			± 1.5 dB	± 3 dB
Input Shorted, IHF-A WTD	≥ 67 dB	≥ 65 dB	AM-Rejection Ratio	
Frequency Response at -3 dB			(100 μV-20 mV Input)	≥ 60 dB
Normal	100 Hz-20 kHz	120 Hz-15 kHz	Search Level (at 98 MHz)	31.2 dBf
Wide	20 Hz-20 kHz	50 Hz-15 kHz	Automatic Stereo Threshold at 98 MHz	31.2 dBf
● REAR AMP SECTION			Muting Threshold. at 98 MHz	31.2 dBf
RMS Output Power.			Overload. at 98 MHz	31.2± 5 dBf
THD 1 %, 8 ohms, 1 kHz	≥ 21 W x 2	≥ 20 W x 2	100 % MOD, 100 mV RF Input	≤ 0.3 %
Both Rear Channel Driven			Suprious Response.	≤ 0.5 %
S/N Ratio			at 98 MHz, Antenna Input 3 μV	≥ 70 dB
Input Shorted, (IHF-A WTD)			Capture Ratio 40/60 dBf	≤ 2 dB
Dolby	≥ 60 dB	≥ 55 dB	Alternative Channel Selectivity.	≥ 65 dB
Frequency Response at -3 dB			Input at 98 MHz	±400 kHz
8 ohms, Dolby Pro-Logic	80 Hz-9 kHz	100 Hz-6 kHz	Stereo Separation 100% MOD, 1 mV Input at 98 MHz	
● VIDEO SECTION			IHF Band Pass Filter	
Input Sensitivity/Impedance.			100 Hz	≥ 40 dB
VCR1, VCR2	1 Vp-p/75 Ω	1 Vp-p/75Ω	1 kHz	≥ 45 dB
Output Level/Impedance			10 kHz	≥ 35 dB
VCR1, REC out, TV Monitor Out	1 Vp-p/75 Ω	1 Vp-p/75Ω	Output Voltage at 75 kHz DEV, 1 kHz MOD, 1 mV Input	
			Mono	600 mV 600± 150 mV
			Stereo	550 mV 550± 150 mV

Nominal	Limit	
● AM SECTION		
Tuning Cover Range, 10 kHz/9 kHz Step		
Low	520/522 kHz	
High	1710/1611 kHz	
Usable Sensitivity.		
400Hz, 30% MOD, S/N 20 dB	$\leq 500 \mu\text{V/m}$	$\leq 1000 \mu\text{V/m}$
Image Rejection at 1400 kHz	$\geq 35 \text{ dB}$	$\geq 30 \text{ dB}$
IF Rejection at 600 kHz	$\geq 50 \text{ dB}$	$\geq 45 \text{ dB}$
AGC Figure of Merit.	$\geq 50 \text{ dB}$	$\geq 45 \text{ dB}$
From 100 mV/m at 1000 kHz		
Distortion.	$\leq 0.8 \%$	$\leq 1.5 \%$
400 Hz, 30% MOD, 5 mV/m Input		
IF Bandwidth	6 kHz	4-11 kHz
6 dB Down, 350 $\mu\text{V/m}$		
Audio Response, 5 mV/m Input, 1 kHz, 0 dB, 1000 kHz		
at -6 dB	80 Hz-2.2 kHz	100 Hz-2 kHz
Selectivity at 350 $\mu\text{V/m}$		
$\pm 10 \text{ kHz}$	$\geq 25 \text{ dB}$	$\geq 20 \text{ dB}$
S/N Ratio, 1000 kHz, With Antenna Input 5 mV/m		
	$\geq 43 \text{ dB}$	$\geq 40 \text{ dB}$
RF Overload, 400 Hz, 80 % MOD, 100 mV/m Input		
	$\leq 5 \%$	$\leq 10 \%$
Search Level (at 1000 kHz)	800 μV	$800 \pm 6 \text{ dB}\mu\text{V}$
Output Voltage, 400 Hz, 30 % MOD, 5 mV/m Input		
	200 mV	$200 \pm 40 \text{ mV}$
Whistle	$\leq 10 \%$	$\leq 15 \%$

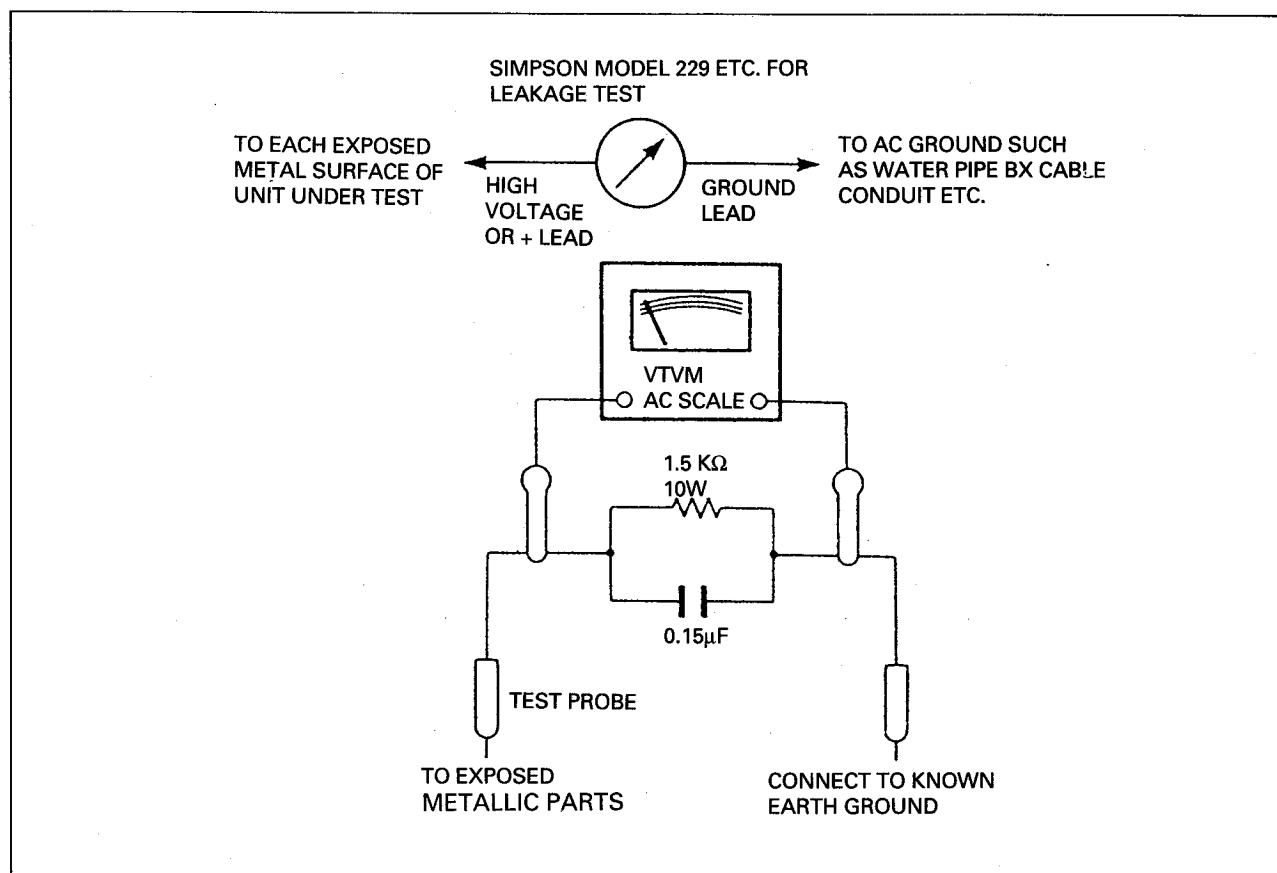
LEAKAGE TEST

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

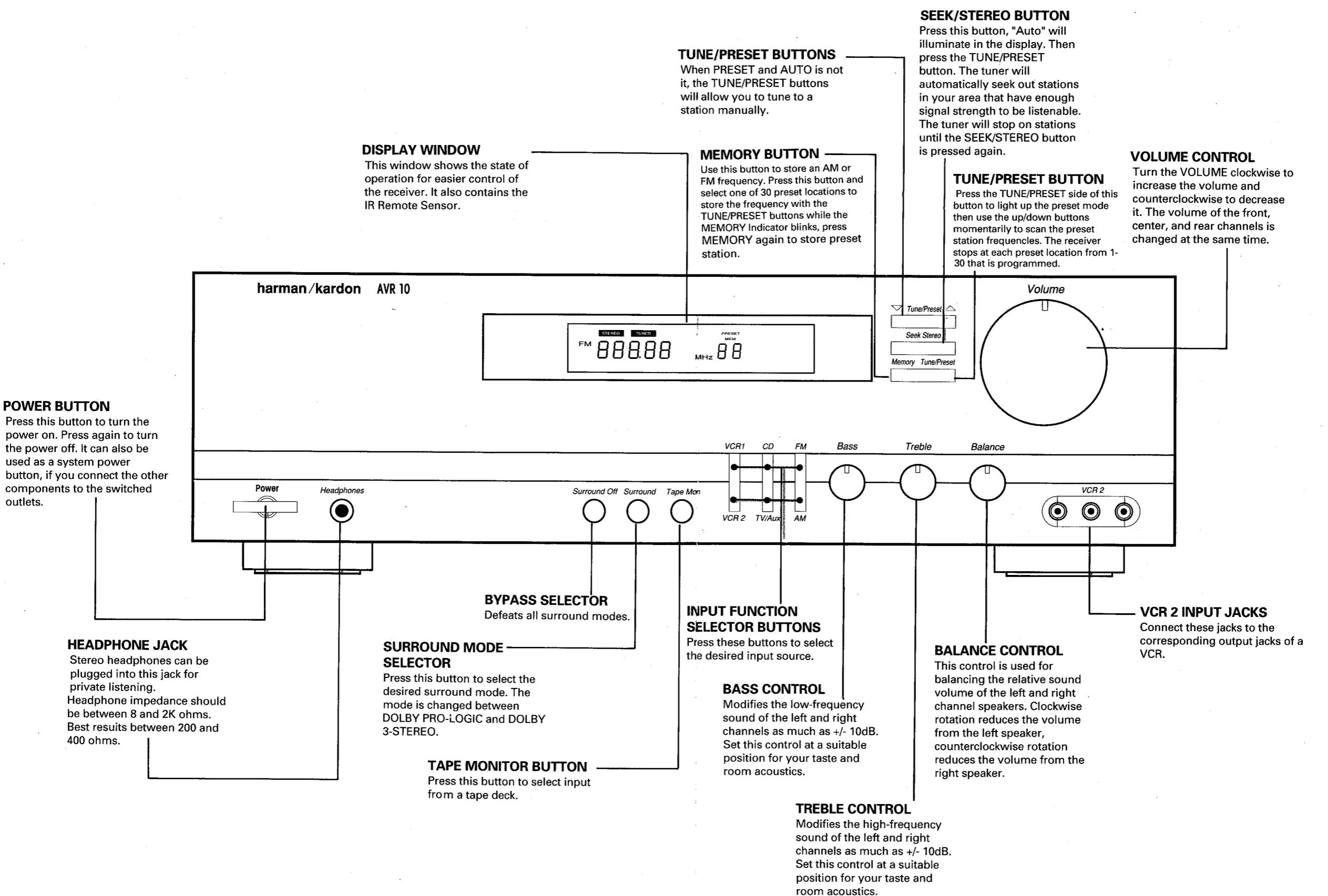
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metallic parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers 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 $0.15\mu F$ 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



CONTROLS AND FUNCTIONS

DISPLAY WINDOW

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

harman/kardon AVR 10

STEREO TUNED
FM 888.88

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.

Power

Headphones

Surround Off Surround Tap

BYPASS SELECTOR
Defeats all surround modes.

SURROUND MODE SELECTOR

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

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.

TAPE MONITOR BUTTON
Press this button to select input from a tape deck.

TUNE/PRESET BUTTONS

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

SEEK/STEREO BUTTON

Press this button, "Auto" will illuminate in the display. Then press the TUNE/PRESET button. The tuner will automatically seek out stations in your area that have enough signal strength to be listenable. The tuner will stop on stations until the SEEK/STEREO button is pressed again.

MEMORY BUTTON

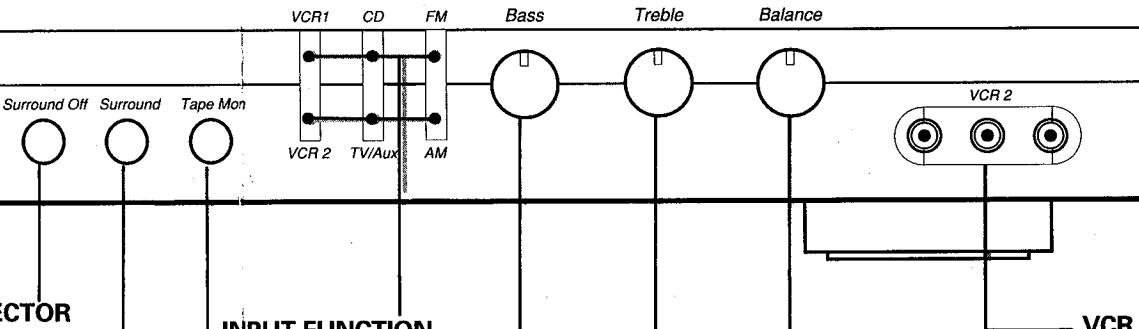
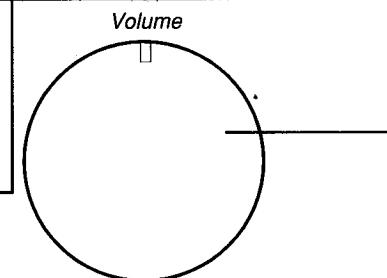
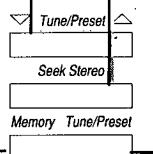
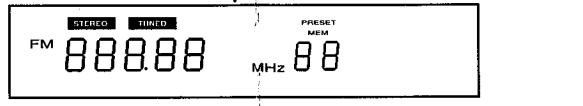
Use this button to store an AM or FM frequency. Press this button and select one of 30 preset locations to store the frequency with the TUNE/PRESET buttons while the MEMORY Indicator blinks, press MEMORY again to store preset station.

TUNE/PRESET BUTTON

Press the TUNE/PRESET side of this button to light up the preset mode then use the up/down buttons momentarily to scan the preset station frequencies. The receiver stops at each preset location from 1-30 that is programmed.

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.



SELECTOR
surround modes.

**INPUT FUNCTION
SELECTOR BUTTONS**

Press these buttons to select the desired input source.

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.

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.

BUTTON
select input

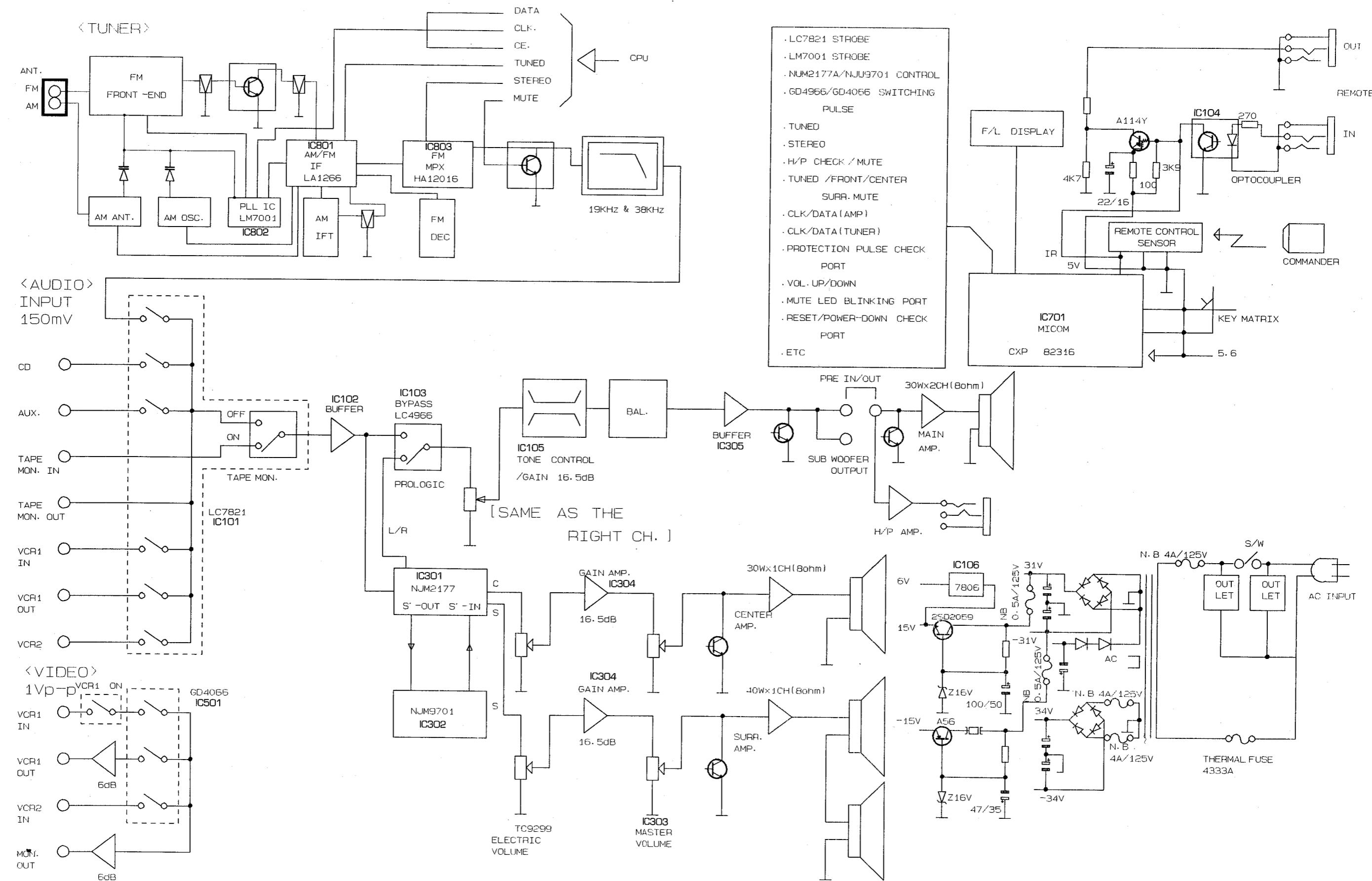
TREBLE CONTROL

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.

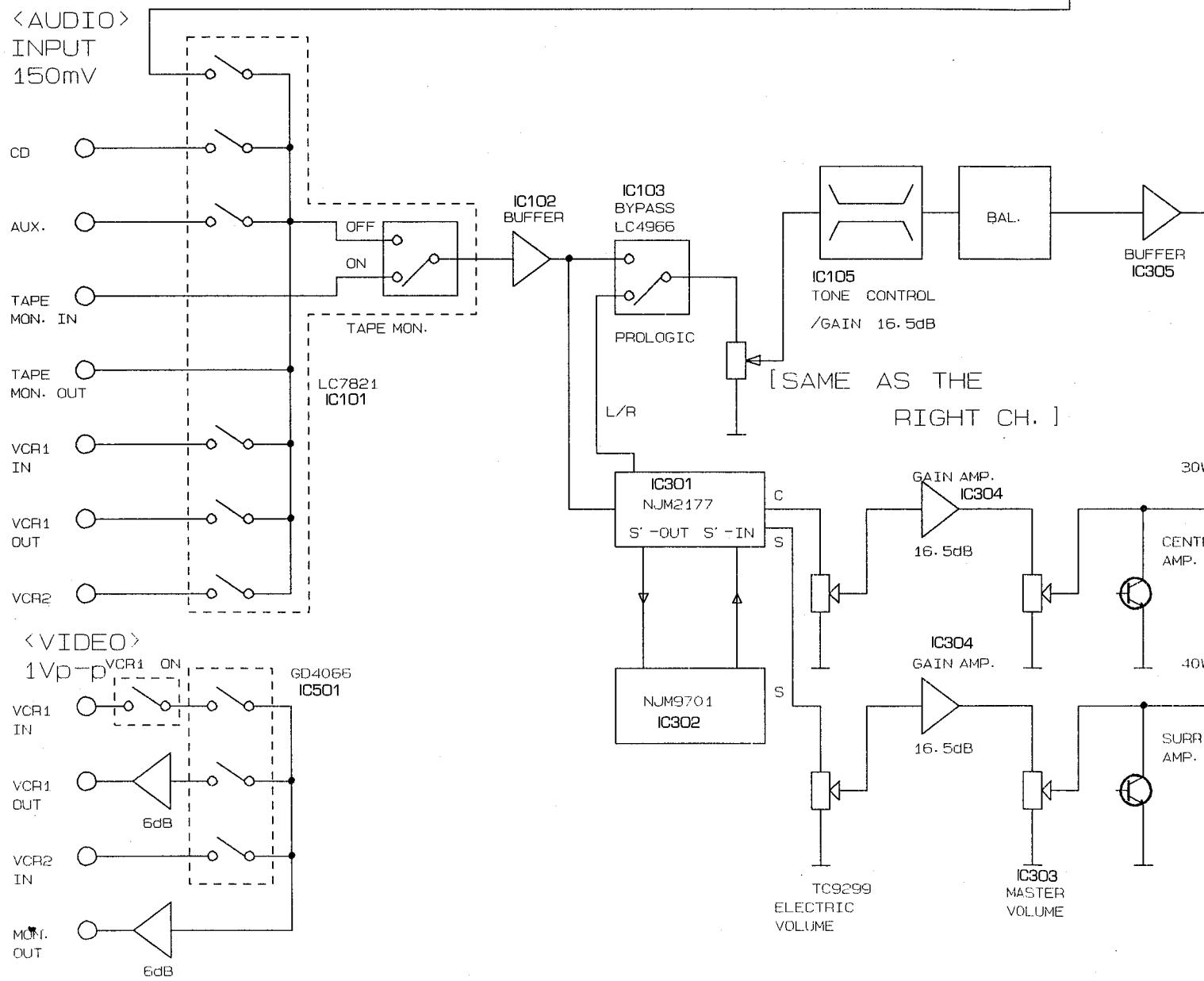
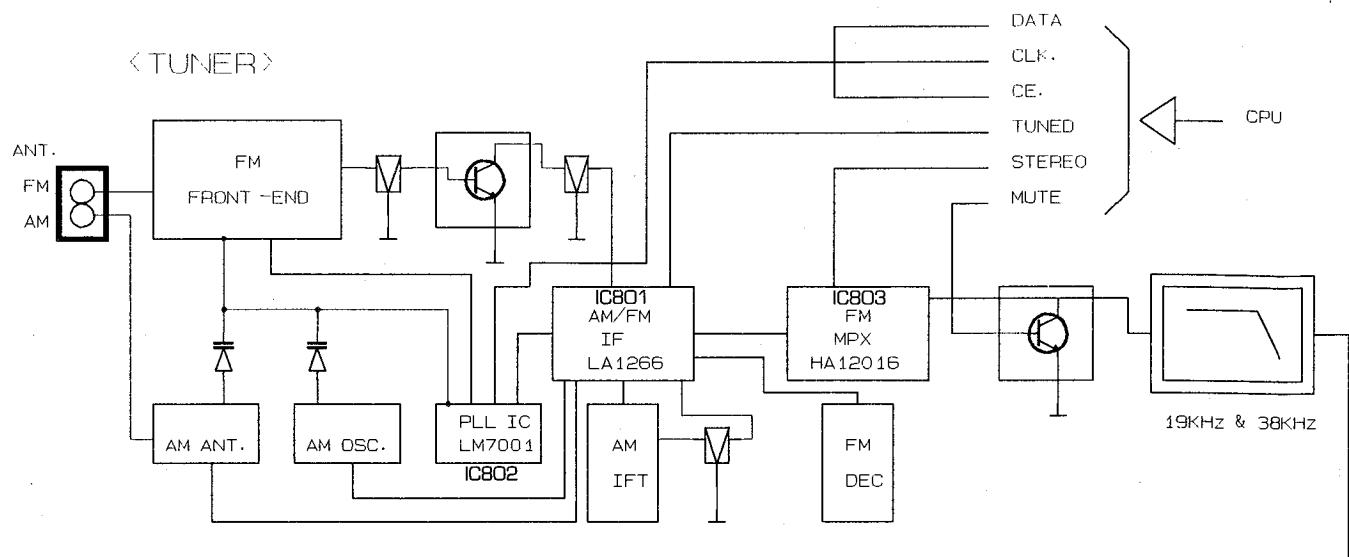
VCR 2 INPUT JACKS

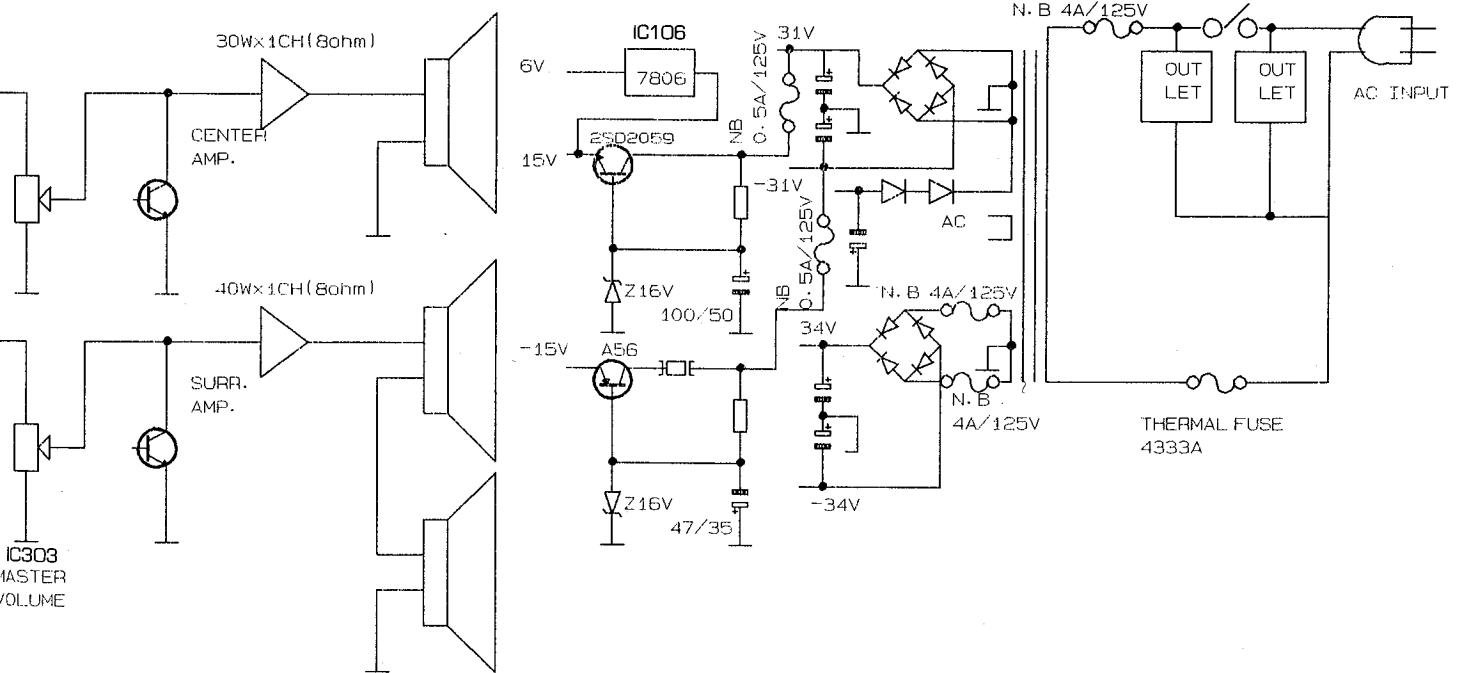
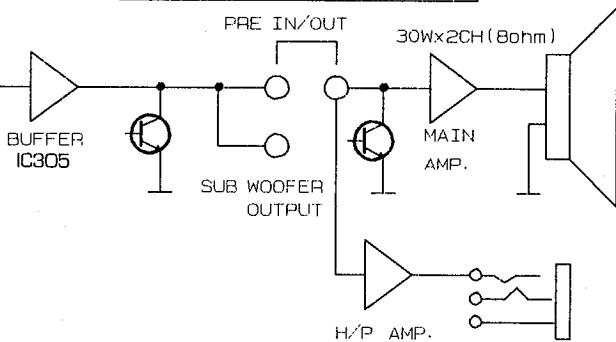
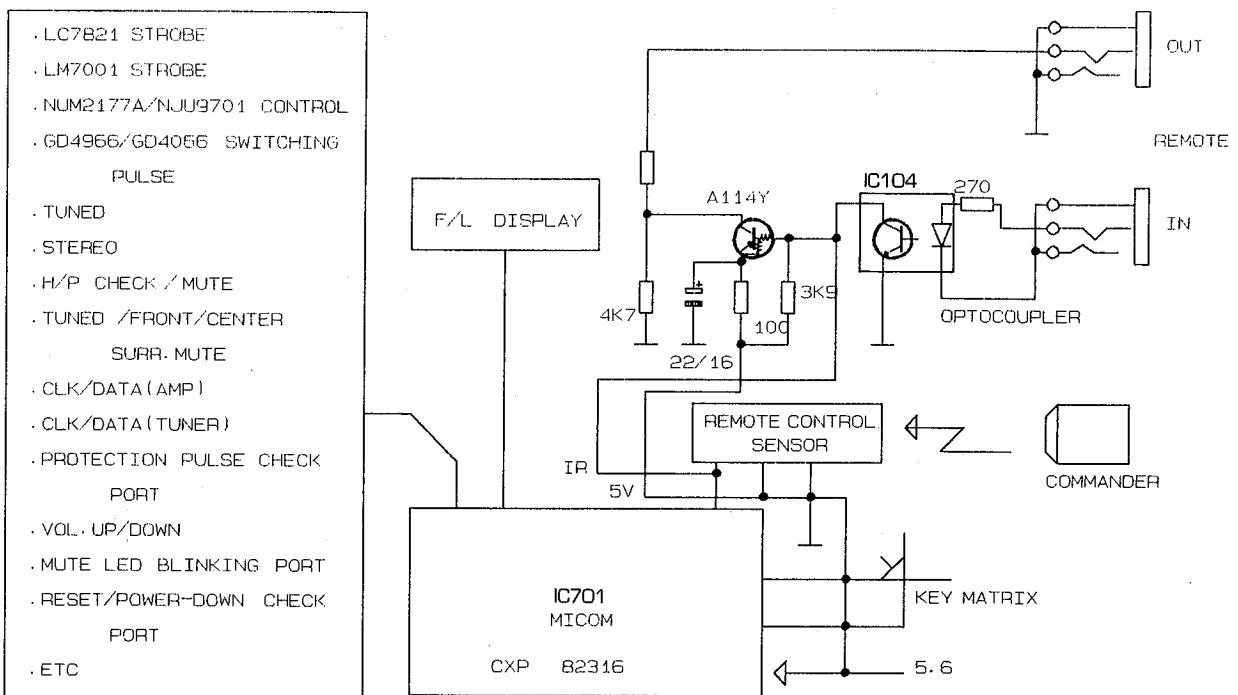
Connect these jacks to the corresponding output jacks of a VCR.

BLOCK DIAGRAM



BLOCK DIAGRAM





DISASSEMBLY PROCEDURES

[1] Cover Top Removal (Figure 1)

1. Remove 4 screws (① to ④) from the both sides of chassis.
2. Remove 2 screws (⑤ and ⑥) from the chassis back.
3. Carefully lift the cover top to remove.

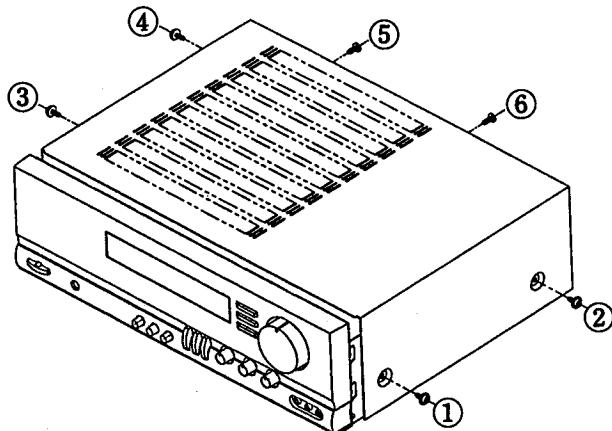


Figure 1

[2] Cover Bottom Removal (Figure 2)

1. Remove 12 screws (① to ⑫) from the cover bottom.
2. Carefully lift the cover bottom to remove.

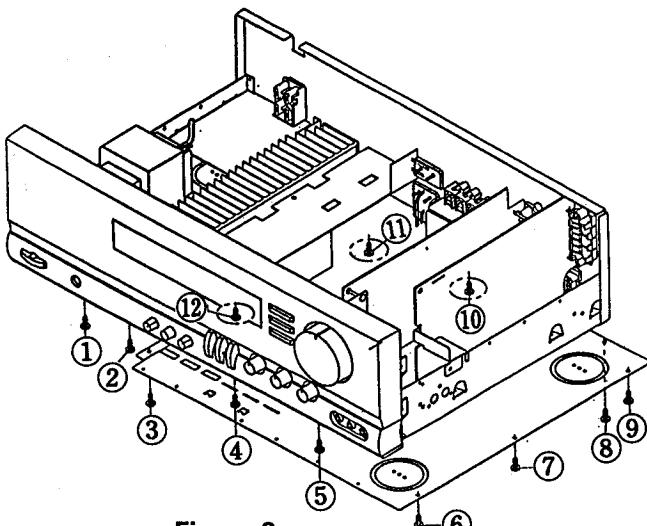


Figure 2

[3] Panel Front Assembly Removal (Figure 3)

1. Remove the cover top and cover bottom (Refer to step ① and ②).
2. Remove 4 screws (① to ④) from both sides of the panel front.
3. Remove 2 screws (⑤ and ⑥) from the bottom of the panel front.

4. Disconnect CNT107, CNT114, CNT116, CNT111 from the Main P.C.Board.
5. Disconnect CNT113-1 from the Video P.C.Board.
6. Disconnect CNT122 from the Outlet P.C.Board.
7. Disconnect CNT105-1 from the Front P.C.Board.
8. Remove a screw ⑦ from the right frame to release lug wire.
9. Remove a screw ⑧ from the left frame to release lug wire.

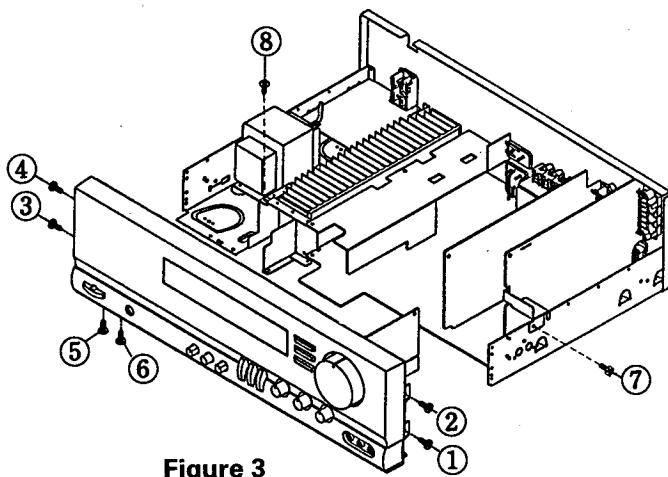


Figure 3

[4] Volume and Front P.C.Board Removal (Figure 4)

1. Remove the panel front assembly. (Refer to step ③).
2. Disconnect CNT700 from the Volume P.C.Board.
3. Disconnect CNT701 from the Front P.C.Board.
4. Pull the knob(Volume) from the panel front.
5. Remove the hex nut from the volume motor and remove 5 screws (① to ⑥) from the Front P.C.Board to release the Volume and Front P.C.Board.

[5] VCR2 P.C.Board Removal (Figure 4)

1. Remove the panel front assembly (Refer to step ③).
2. Remove 2 screws (⑦ and ⑧) from the Video P.C.Board to release the P.C.Board.

[6] Tone P.C.Board Removal (Figure 4)

1. Remove the panel front assembly. (Refer to step ③).
2. Pull the knobs (Bass/Treble/Balance) from the panel front assembly.
3. Remove the hex nuts from the variable resistors to release the Tone P.C.Board.

[7] Head Phone P.C.Board Removal (Figure 4)

1. Remove the panel front assembly (Refer to step [3])
2. Remove a screw ⑨ from the head phone jack.
3. Remove 2 screws (⑩ and ⑪) from the power switch to release the Headphone P.C.Board.

[8] Power Led P.C.Board Removal (Figure 4)

1. Remove the panel front assembly (Refer to step [3])
2. Remove the headphone PC Board (Refer to step [7])
3. Remove 2 screws (⑫ and ⑬) from the Power LED P.C.Board to release the P.C.Board.

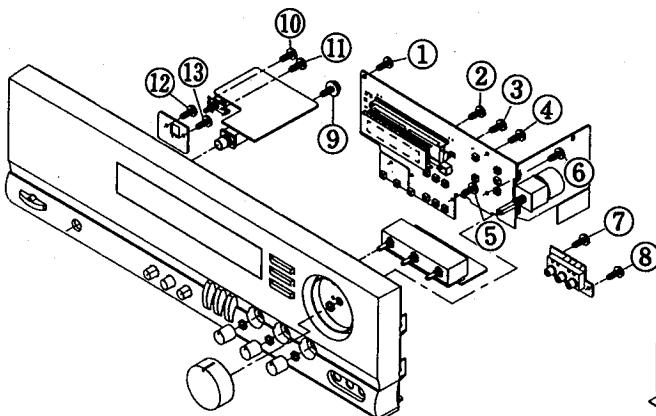


Figure 4

[9] Tuner P.C.Board Removal (Figure 5)

1. Remove the cover top (Refer to step [1])
2. Remove a screw ① from the Tuner P.C.Board bracket.
3. Remove 2 screws (② and ③) from the chassis back.
4. Disconnect CNT106 from the Main P.C.Board to release the Tuner P.C.Board.

[10] Surround P.C.Board Removal (Figure 5)

1. Remove the cover top (Refer to step [1])
2. Remove 2 screws (④ and ⑤) from the chassis back.
3. Disconnect CNT108 and CNT109 from the Main P.C.Board to release the Surround P.C.Board.

[11] Video P.C.Board Removal (Figure 5)

1. Remove the cover top (Refer to step [1])
2. Remove 2 screws (⑥ and ⑦) from the chassis back.
3. Disconnect CNT112 from the Main P.C.Board to release the Video P.C.Board.

[12] Center Speaker P.C.Board Removal (Figure 5)

1. Remove the cover top (Refer to step [1]).
2. Remove a screws (⑧ and ⑨) from the chassis back.
3. Disconnect CNT117-1 from the Center speaker P.C.Board.

[13] Surround/Surround Amp/Rear Speaker P.C.Board Removal (Figure 5)

1. Remove the cover top (Refer to step [1])
2. Remove 2 screws (⑩ and ⑪) from the chassis back.
3. Remove 2 screws (⑫ and ⑬) from the Surround P.C.Board.
4. Unsolder all leads of Q414, Q410, Q413, Q427, Q424, Q428 in the Surround PC Board.
5. Disconnect CNT110 from the Main P.C.Board to release the surround/surround amp/rear Speaker P.C.Board.

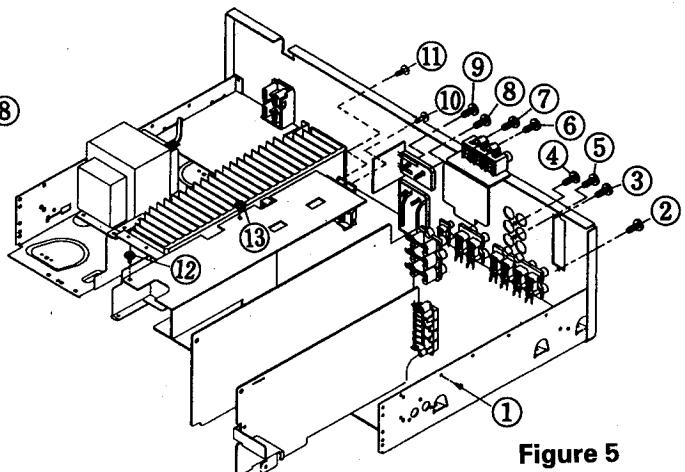


Figure 5

[14] Outlet P.C.Board Removal (Figure 6)

1. Remove the cover top (Refer to step [1]).
2. Remove a screws (① and ②) from the chassis back.
3. Disconnect CNT 101-1, CNT 122 from the Outlet P.C.Board.
4. Remove 3 screws (③ to ⑤) from the Outlet P.C.Board.

[15] Main P.C.Board Removal (Figure 6)

1. Remove the cover top (Refer to step [1])
2. Remove the panel front assembly (Refer to step [3]).
3. Do steps [9], [10], [11], [12], [13].
4. Remove 5 screws (⑥ and ⑩) from the chassis back.
5. Remove 4 screws (⑪ and ⑭) from the Main P.C.Board top.

6. Disconnect CNT103, CNT102, CNT104 from the Main P.C.Board.
7. Unsolder all leads of Q216L/R, Q211L/R, Q215L/R, Q186, IC105 P201 in the Main P.C.Board.
8. Release the Main P.C.Board.

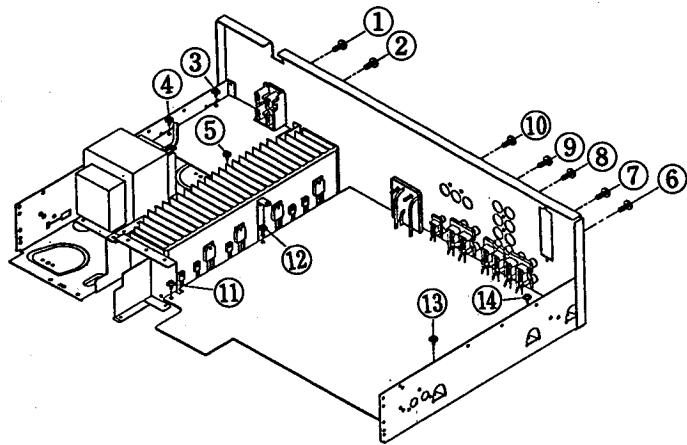
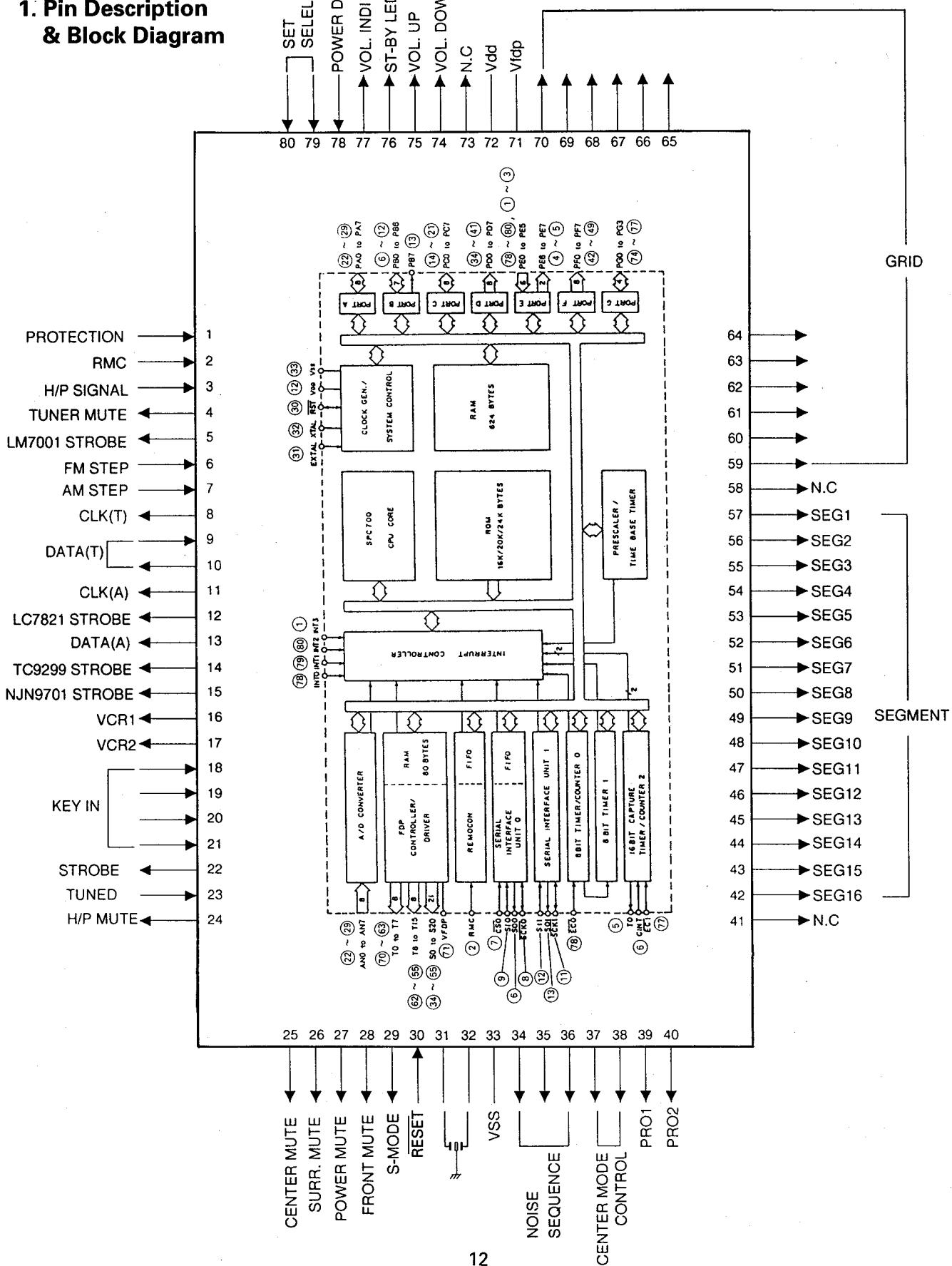


Figure 6

CIRCUIT DESCRIPTION

CPU(IC701) : CXP82316

1. Pin Description & Block Diagram



2. Input and Output Terminal Functions

Pin. No.	Symbol	Description																				
1	PROTECTION	<p>Input for protection signal. If it is low, all channel mute signal level is turned to high. Except for first 3 second it doesn't check protection.</p>																				
2	RMC	Input for remote control signal."L-active")																				
3	H/P SIGNAL	Input for headphone signal.																				
4	TUNER MUTE	<p>Output for tuner mute. Output high under the following conditions.</p> <ul style="list-style-type: none"> 1. When power is turned on or off. 2. When tuner band is changed. 3. When tuner up or down button is pressed. 4. When preset button is pressed. 5. When preset number displayed changes during memory scan. 6. When the protection terminal's level is low. 7. When "-∞ mute signal" is received from the commander. 																				
5	LM7001 STROBE	Output to enable IC LM7001.																				
6~7	STEP	<p>Input to select step.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>BAND</th> <th>STEP</th> <th>6</th> <th>7</th> </tr> <tr> <td>FM</td> <td>50 K</td> <td>L</td> <td>H</td> </tr> <tr> <td>AM</td> <td>10 K</td> <td>L</td> <td>H</td> </tr> <tr> <td>FM</td> <td>50 K</td> <td>L</td> <td>L</td> </tr> <tr> <td>AM</td> <td>9 K</td> <td>L</td> <td>L</td> </tr> </table>	BAND	STEP	6	7	FM	50 K	L	H	AM	10 K	L	H	FM	50 K	L	L	AM	9 K	L	L
BAND	STEP	6	7																			
FM	50 K	L	H																			
AM	10 K	L	H																			
FM	50 K	L	L																			
AM	9 K	L	L																			
8,10	CLK(T),DATA(T)	Output, clock and data signal to IC LM7001.																				
11,13	CLK(A),DATA(A)	Output, clock and data signal to ICs LC7821, NJU701 and TC9299.																				
12	LC7821 STROBE	Output to enable IC LC7821.																				
14	TC9299 STROBE	Output to enable IC TC9299.																				
15	NJN9701 STROBE	Output to enable IC NJN9701.																				
16, 17	VCR1/VCR2	<p>Output to select the video signal of VCR1 or VCR2. Output data for each mode is as follows.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>MODE</th> <th>18</th> <th>19</th> </tr> <tr> <td>VCR1</td> <td>H</td> <td>L</td> </tr> <tr> <td>VCR2</td> <td>L</td> <td>H</td> </tr> <tr> <td>ELSE</td> <td>△</td> <td>△</td> </tr> </table> <p>△;keeping last state.</p>	MODE	18	19	VCR1	H	L	VCR2	L	H	ELSE	△	△								
MODE	18	19																				
VCR1	H	L																				
VCR2	L	H																				
ELSE	△	△																				
18~21	KEY INPUT	Input data of K ₁ - K ₄ for key scan.																				
22	STEREO	When receiving low level, it turn on the stereo flag of FL.																				
23	TUNED	<p>Input for station detector signal in searching turning. Stops searching up or down when stops station detector reached a certain level.</p>																				
24	H/P MUTE	<p>Output for headphone mute. Output low level under the following conditions.</p> <ul style="list-style-type: none"> 1. When power is turned on or off. 2. When headphone plug is removed from headphone jack. 																				
25	CENTER MUTE	<p>Output for center mute. Output low level under the following conditions.</p> <ul 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 switched. 4. When test tone mode is switched on, or when output is not directed to center. 																				

Pin. No.	Symbol	Description																									
26	SURR, MUTE	<p>Output for surround mute. Output low level under the following conditions.</p> <ol style="list-style-type: none"> When power is turned on or off. When surround mode is turned on or off.(Keeping low level in surr. off.) When test tone mode is changed, or when output is not directed to surround. When delay time is switched. When the protection terminal's level is low. When "-∞ mute signal" is received from the commander. When headphone plug is inserted. 																									
27	POWER MUTE	<p>Output for all amp. mute. Output low level under the following conditions.</p> <ol style="list-style-type: none"> When power is turned on or off. When the protection terminal's level is low. 																									
28	FRONT MUTE	<p>Output for main mute. Output low level under the following conditions.</p> <ol style="list-style-type: none"> When power is turned on or off. When function is changed. When mono or stereo is changed. When the protection terminal's level is low. When "-∞ mute signal" is received from the commander. When headphone plug is inserted. 																									
29	S-MODE	<p>Output voltage is as follows to control surround mode. Prologic : 5V, 3-Stereo : 2.5V, bypass : 0V</p>																									
30	RESET	Input to reset micom																									
31,32	EXTAL, XTAL	Input and output pin for connecting a crystal oscillator.																									
33	VSS	Provides the ground potential.																									
34~36	NOISE SEQUENCE	<p>Output signal to select output channal in testing tone. Output signal for 2 second per each channal in order L,C,R,S.</p> <table border="1"> <thead> <tr> <th rowspan="2">PIN No.</th> <th>MODE</th> <th>L</th> <th>C</th> <th>R</th> <th>S</th> <th>TEST TONE OFF</th> </tr> </thead> <tbody> <tr> <td>34</td> <td>L</td> <td>L</td> <td>L</td> <td>L</td> <td>H</td> </tr> <tr> <td>35</td> <td>L</td> <td>L</td> <td>H</td> <td>H</td> <td>△</td> </tr> <tr> <td>36</td> <td>L</td> <td>H</td> <td>L</td> <td>H</td> <td>△</td> </tr> </tbody> </table> <p>△ : Keeping last state</p>	PIN No.	MODE	L	C	R	S	TEST TONE OFF	34	L	L	L	L	H	35	L	L	H	H	△	36	L	H	L	H	△
PIN No.	MODE	L		C	R	S	TEST TONE OFF																				
	34	L	L	L	L	H																					
35	L	L	H	H	△																						
36	L	H	L	H	△																						
37, 38	CENTER MODE CONTROL	<p>Output data to control center mode.</p> <table border="1"> <thead> <tr> <th rowspan="2">PIN No.</th> <th>MODE</th> <th>NOR MAL</th> <th>PHAN TOM</th> <th>WIDE</th> </tr> </thead> <tbody> <tr> <td>37</td> <td>H</td> <td>L</td> <td>L</td> </tr> <tr> <td>38</td> <td>L</td> <td>L</td> <td>H</td> </tr> </tbody> </table>	PIN No.	MODE	NOR MAL	PHAN TOM	WIDE	37	H	L	L	38	L	L	H												
PIN No.	MODE	NOR MAL		PHAN TOM	WIDE																						
	37	H	L	L																							
38	L	L	H																								
39, 40	PRO1, PRO2	Input for protection signal.																									
41	NC	Not used.																									
42~57	S16-S1	Output for segment.																									
58	NC	Not used.																									
59~70	G1-G12	Output for grid.																									
71	Vfdp	Power supply of the FL controller.																									
72	Vdd	Power supply.																									
73	NC	Not used.																									
74, 75	VOL. UP/DOWN	Output signal to turn up or down volume meter.																									

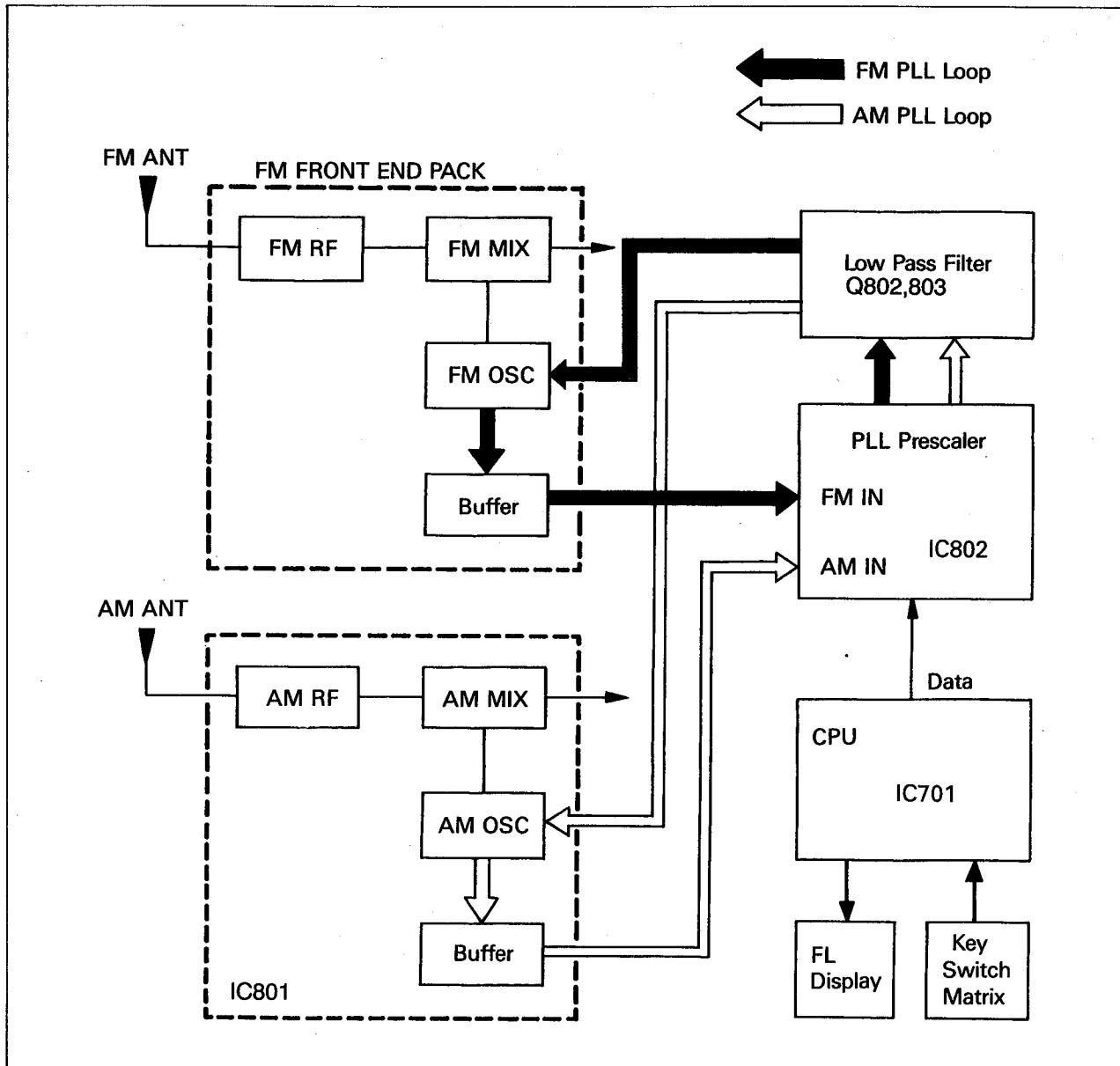
Pin. No.	Symbol	Description												
76	ST-BY LED	Output voltage to control ST-BY LED is asfollows. When power is turned on by power s/w or remocon, it is high level. Else, it is low level. (Keeping last level)												
77	VOL. INDI.	Output signal to turn on or off the LED which is used master volume indicator. It is high level in turning on and low level in turning off.												
78	PD	Input for power down. (At "L", it is active)												
79, 80	SELECTOR	Input signal is as follows to select one of three sets(AVR10, AVI100 and HK3250). <table border="1" data-bbox="696 516 1200 622"> <tr> <th>SET</th> <th>AVR10</th> <th>AVI100</th> <th>HK3250</th> </tr> <tr> <td>79</td> <td>H</td> <td>L</td> <td>L</td> </tr> <tr> <td>80</td> <td>H</td> <td>L</td> <td>H</td> </tr> </table>	SET	AVR10	AVI100	HK3250	79	H	L	L	80	H	L	H
SET	AVR10	AVI100	HK3250											
79	H	L	L											
80	H	L	H											

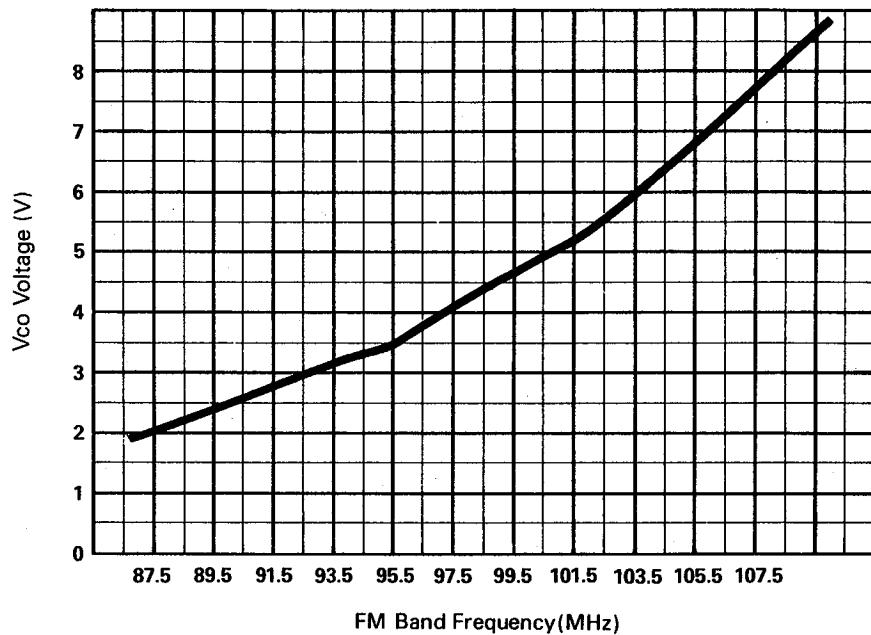
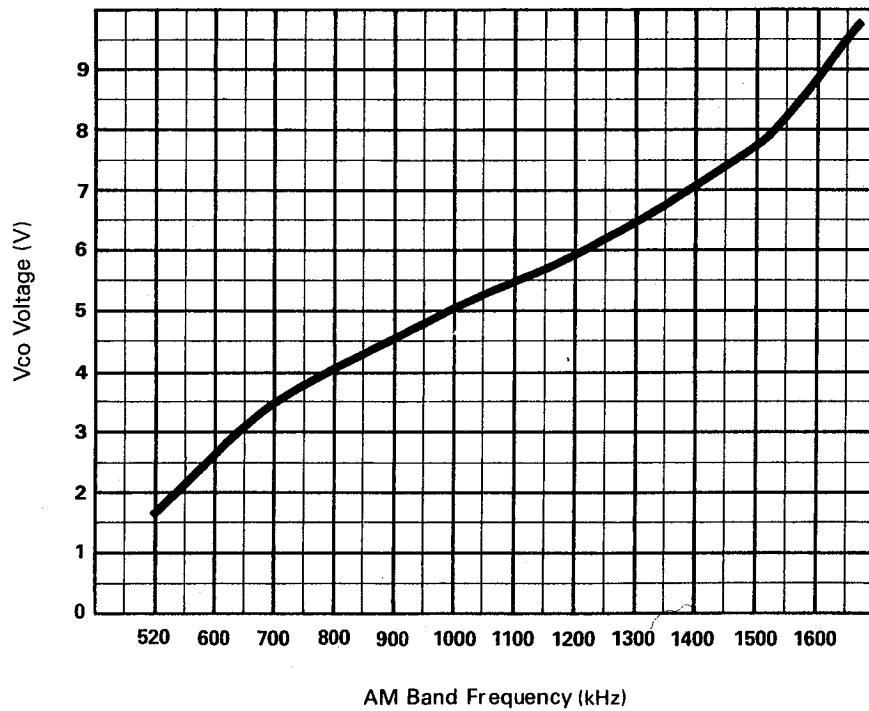
3. Key Matrix

PIN NO.	51	52	53	54
18	SURR1. BYPASS	SURR. MODE	SEEK STEREO	PRESET UP
19	TAPE MON.	VCR1	TUNER ▼ PRESET ▲	PRESET DOWN
20	TV/VCR2	CD	MEMORY	
21	AUX	FM	AM	

4. Digital Tuning System Description

DIGITAL TUNING SYSTEM



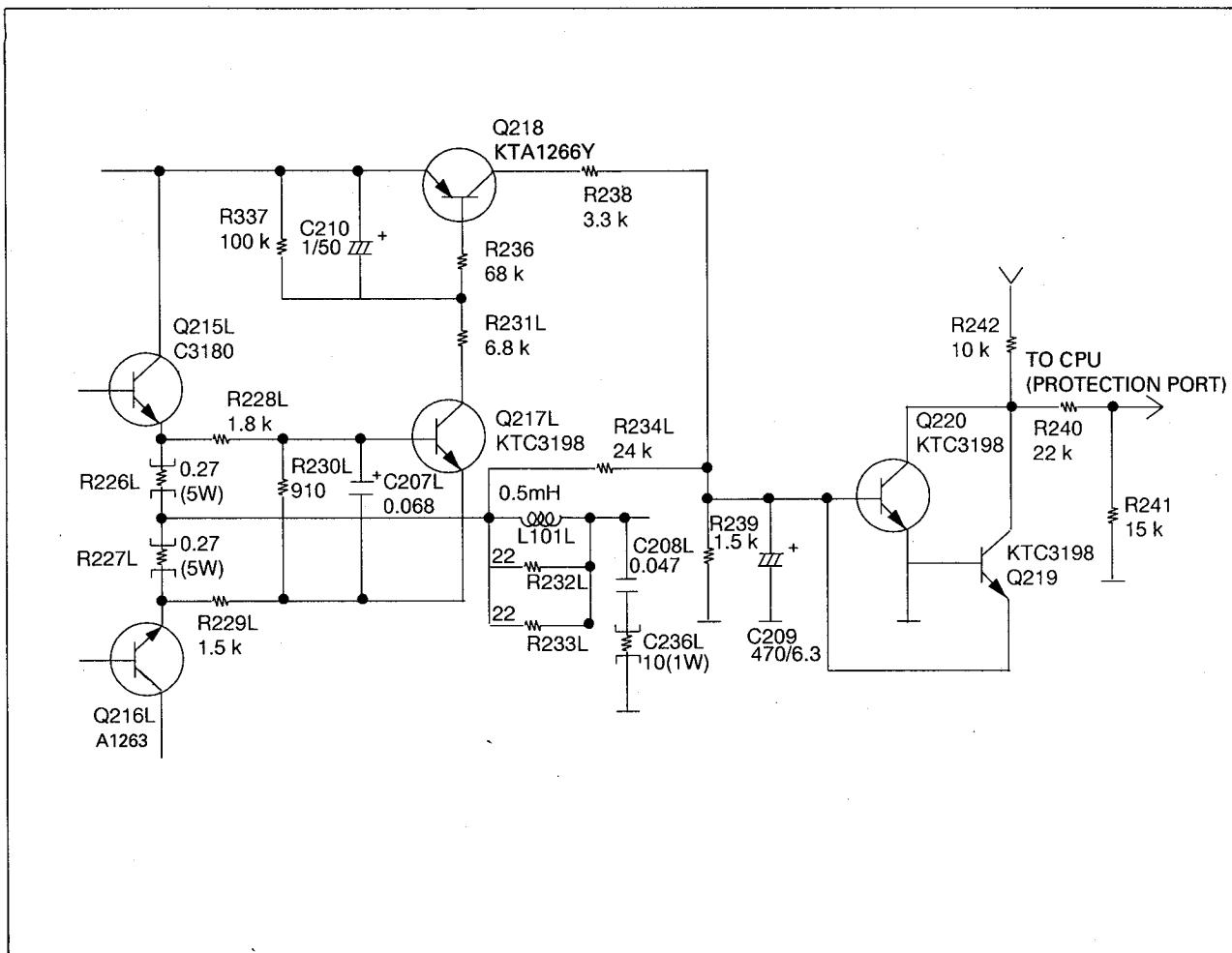
V_{CO} vs. FM Band Frequency Curve**V_{CO} vs. AM Band Frequency Curve**

5. Protection Circuits

SPEAKER PROTECTION CIRCUIT

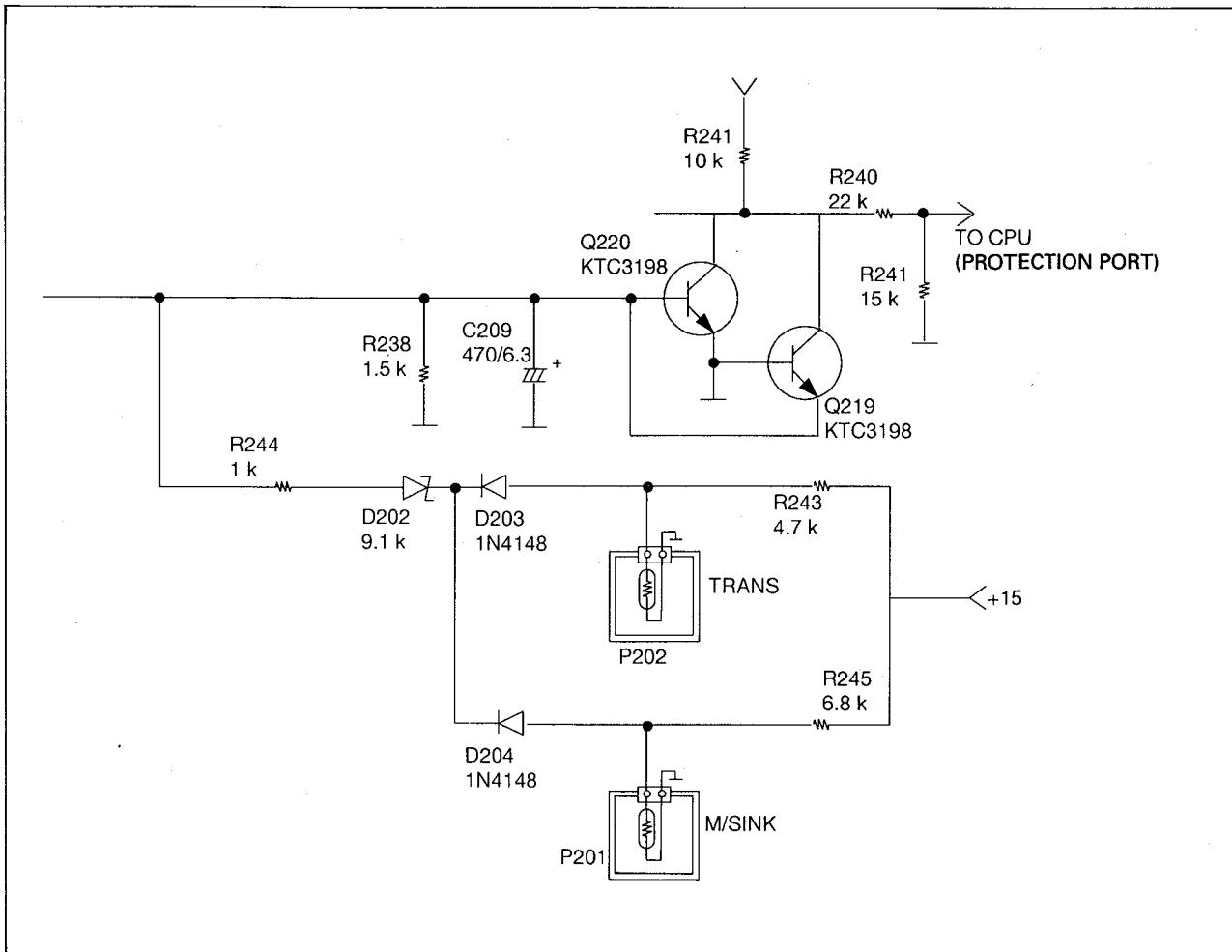
The CPU protects both this unit and the speakers when an abnormally high current flows in Q215 L/R/C and Q216 L/R due to excessive input drive, too low of a load impedance, or short of the speaker terminals. If current increase is excessive the voltage across R226 L/R or R227 L/R turns on Q217 L/R, then Q218 turns on Q220.

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



THERMAL PROTECTION CIRCUIT

This receiver 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 Q220 is turned on. It makes the protection port of the CPU to low state. Then the power is turned off.



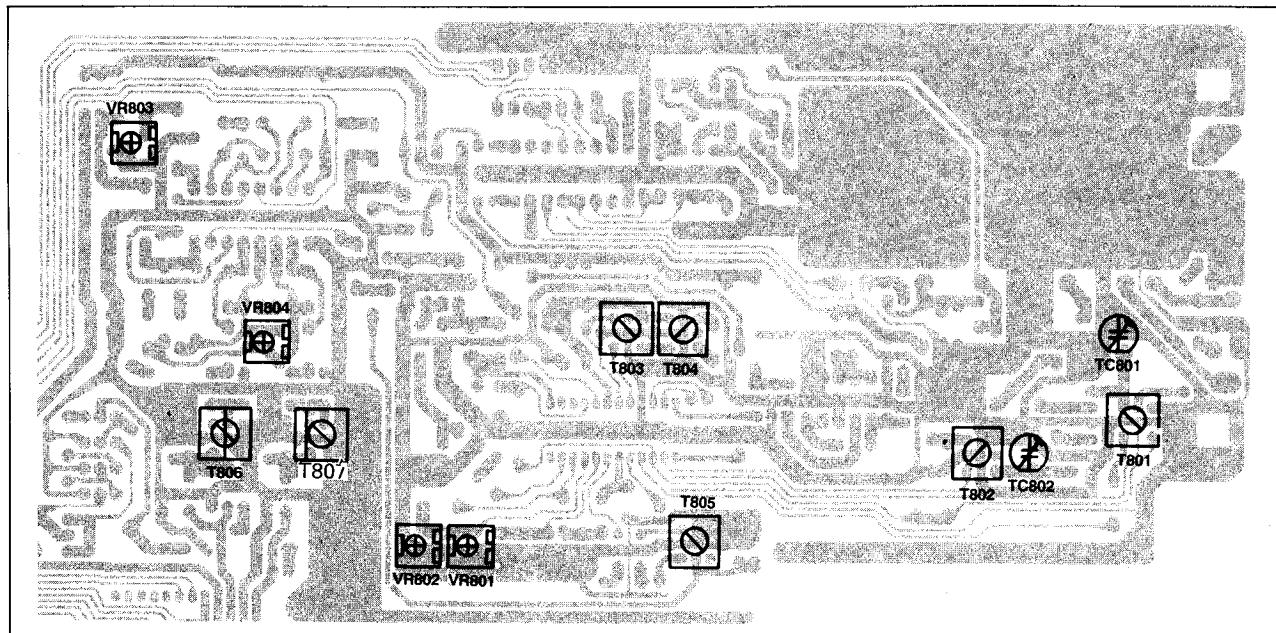
ALIGNMENT PROCEDURES

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 (PCB14)



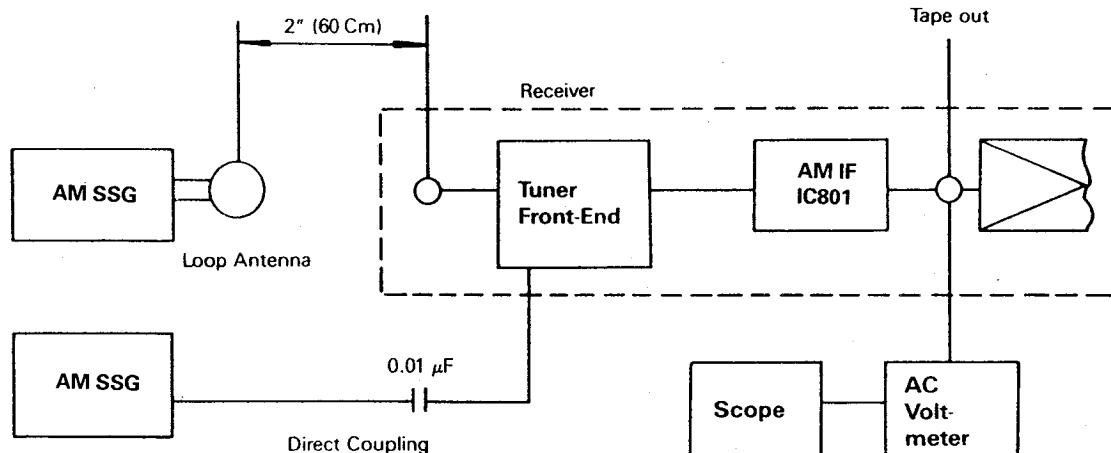
3. AM IF and RF Alignment

Preparation

1. Output of Signal Generator should not be higher than necessary to obtain an optimum output reading.
2. Signal Generator Modulation : 30%
3. Switch : Press to AM.

Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment Point	Adjust for
1	999 kHz (400 Hz, Mod.)	522 kHz	DC Voltmeter TP1	T802	1.2 V reading
		1611 kHz	DC Voltmeter TP1	TC802	8.5 V reading
2	594 kHz (400 Hz, Mod.)	594 kHz	Same as Step 1.	T801 (ANT Coil)	Same as Step 1
3	1404 kHz (400 Hz, Mod.)	1404 kHz	Same as Step 1.	TC801 (ANT Trimmer)	Same as Step 1

4	450 kHz (400 Hz, Mod.)	Place at a noninterference spot around 600 kHz	AC voltmeter to TAPE OUT jack.	T805 (IFT)	Maximum reading
5	999 kHz (400 Hz, Mod.)	999 kHz	Same as Step 1.	VR801	FL display 'TUNED' Indication on receiver with AM SSG Output level of 800 μ V/m



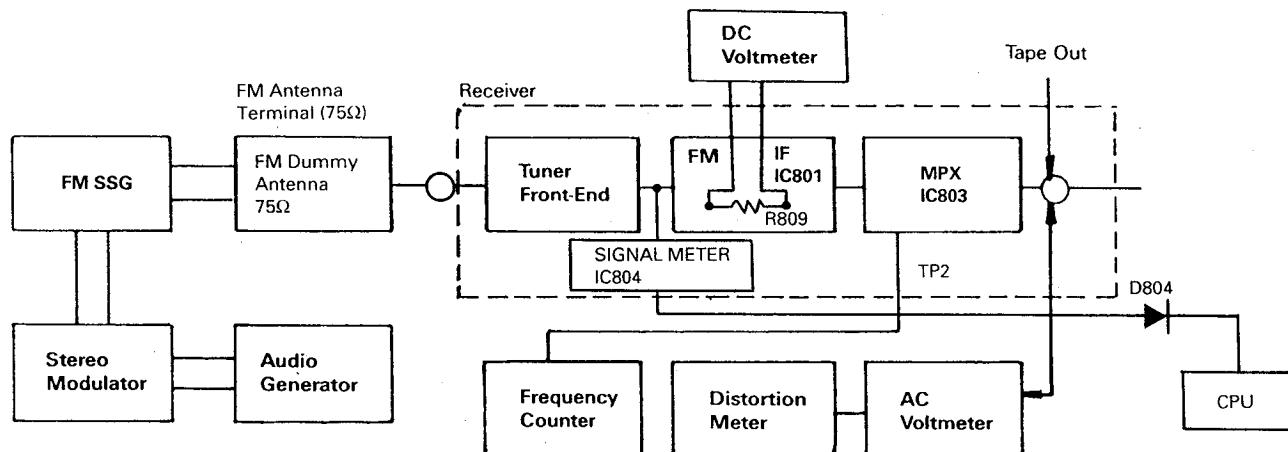
AM Alignment Connection

4. FM IF Alignment

Preparation

1. Signal Generator output should be no higher than necessary to obtain an optimum output reading.
2. Switch Press to FM.
3. Signal generator deviation : 40 kHz.

Step	Signal Generator Frequency	Receiver Frequency Display	Equipment Connection	Adjustment Point	Adjust for
1	98.0 MHz (1 kHz, Mod.)	98.0 MHz	Distortion meter to TAPE OUT jack	T804	Minimum distortion
2	98.0 MHz (1 kHz, Mod.)	98.0 MHz	Same as Step 1	VR802	FL display 'TUNED' Indication on receiver with FM SSG output level of 10 μ V/m
3	98.0 MHz (1 kHz, Mod.)	98.0 MHz	DC Volt meter to R809 (PCB14)	T803	Zero reading on DC volt meter.



FM RFIF 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 (75Ω).

Step	19 kHz Modulation Level	Signal Generator Frequency Setting	Equipment Connection	Adjustment Point	Adjust for
1	Pilot off	Carrier only	Frequency counter connect to TP2 (HOT) of PCB and ground	VR803	76 kHz
2	8% Mod.	Composite to channel 1kHz R	AC voltmeter to TAPE OUT jack of R channel	-	Adjust for about 450mV of audio output
3	8% Mod.	Composite to channel 1 kHz L	AC voltmeter to TAPE OUT jack of R channel	VR804	AC voltmeter reading should be at least 40 dB below.
4	8% Mod.	Composite to channel 1 kHz R	AC voltmeter to TAPE OUT jack of L channel	VR804	Same as Step 3.
5	8% Mod.	Composite to channel 1 kHz L or R	AC voltmeter to TAPE OUT jack Lor R channel	VR805	FL display 'SIG 60 dB' indication on receiver with FM SSG output level of 1000 μ V/m

If you could not obtain -40dB readings in Steps 3 and 4 (compared with Step 2), readjust VR804 until you obtain -40dB readings for both Steps 3 and 4. Nominal is -45 dB.

TROUBLESHOOTING

Symptom	Cause and Remedy
Receiver inoperative. (FL indicator does not light.)	A) Faulty AC power cord. Replace. B) Defective the power switch. Replace. C) Broken wire in the power transformer. Replace the power transformer. D) Blown fuse. Replace the fuse.
Fuse blows when power is turned on.	A) Defective power transformer. Replace. B) Short on the primary or secondary of the transformer circuitry. Repair the short. C) Damaged rectifier (D208 to D211) or damaged transistor (Q216 to Q217). Replace the defective component(s). D) Short circuit in the amplifier circuit. Replace the shorted component(s) in the amplifier circuit.
Power indicator lights but no sound from both channels.	A) Defect in transistor Q215 L/R, Q216 L/R on the Main Amp Board. Replace the defective component(s).
One channel does not work when volume is at maximum with a test signal applied to the center terminal of volume control VR5 of the dead channel.	A) Defect in transistors Q215 L/R, Q216 L/R on the Main Amp Board Locate and correct the defect. B) Break in copper foil of printed circuit board. Repair the trace. C) Short in speaker output terminal. Repair or replace.
Speaker works normally but headphones inoperative.	A) Headphone plug does not mate with jack. Replace the jack. B) Defective resistor R728L/R. Replace.
FM inoperative	A) Defective front-end. (FIH3-505H) Replace. B) Defective FM switch. Replace the switch. C) Defective transistors Q801, Q805, Q806, IC801, IC803 Replace the defective transistor(s) or IC(s). D) Defective coil T803 or T804. Replace the coil(s). E) Defective lead-in. Repair or replace the lead-in. F) Ceramic filters CF801, CF802, CF803 defective. Replace the defective ceramic filter(s). G) Defective controller circuit component. Replace.

Symptom	Cause and Remedy
Poor multiplex separation.	A) Improper adjustment. Readjust VR803 and VR804. (Refer to MPX Alignment.) B) IC803 defective. Replace. C) Variable resistor VR803 or VR804 defective. Replace the variable resistor(s).
STEREO indicator does not light.	A) Defective indicator in FL. Replace. B) Improper adjustment of VR803 of tuner board. Make readjustment. C) Defective IC803. Replace the defective component.
FM volume is sufficient.	A) If volume from both L and R channels is not loud enough : Front end section defective. Faulty IC801, Coil T803, Defective C838 of Tuner Board. If sound of one channel is not loud enough: Defective T806, T807
FM Mono has no effect.	A) Defective FM MODE switch. Replace.
AM inoperative.	A) Damaged IC801 of tuner board. Replace. B) Defective T801, T802, T805 or CF804 of Tuner Board. Replace the defective component(s). C) Resistors R829, R817 defective. Replace the defective component(s). D) Capacitors C836, C818, C813 defective. Replace the defective capacitor(s). E) Defective AM switch. Replace. F) Defective varicap diodes VD1, VD2 Replace varicap diod(s). G) Damaged AM loop antenna. Repair or replace. H) Defective controller circuit component. Replace.
Bass control has no effect	A) Variable resistor BASS defective. Replace. B) Defective R129L/R, R131L/R, C126L/R, C128L/R. Replace the defective component(s).

Symptom	Cause and Remedy
Treble control has no effect.	A) Variable resistor TREBLE defective. B) Defective R130L/R, R132L/R, C127L/R, C129L/R. Replace the defective components(s).
Auto tune inoperative. (UP/DOWN)	A) Poor contact in Up/Down key. Repair or replace. B) Defective IC701. Replace. C) Defective tuner circuit components. Replace. D) 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 IC701. Replace.
Memory setting inoperative.	A) Poor contact in memory keys 1-10. Replace. B) Defective IC701. Replace the defective component.
FL inoperative.	A) FL defective. Replace. B) Defective IC701. Replace C) Defective X-700. Replace.
Noisy volume control.	A) Defective volume control. Replace. B) Defective capacitors C701 or C703 Replace the defective capacitor(s).
Remote Control Unit inoperative.	A) Weak battery. Replace. B) Defective. Replace. C) Defective IC701 (CPU Board) or IC01. Replace.

GENERAL UNIT PARTS LIST

Ref. No.	Mfr. Part No.	Description	Q'ty
CABINET & CHASSIS			
1	046122029611	Cover Top, SECC, Black	1
2	6122420410	Cover Bottom, SECC, 1t	1
3	046033102511	Foot, Hot-Stamping, Gold	4
4	6121607640	Frame Left, SECC, 1t	1
5	6122633520	Frame Right, SECC, 1t	1
6	6505139720	Bracket PCB Surround/Main	1
7	046102042621	Chassis Back, SECC, Black	1
8	4328204210	Jumper Plug, 2P	2
9	4308001410	Cord AC Power	1
10	6518002310	Stopper Cord	1
11	4438103110	Jack RCA, 4P	3
12	4438007510	Jack Mini, 2P	1
13	4408108910	Terminal Speaker Rear, 4P	1
14	6165149710	Shield Fence, Tone	1
15	3208068910	Volume, Bass/Treble	2
16	3208068810	Volume, Balance	1
17	4438111310	Jack RCA, Sub Output, 2P	1
18	4408108610	terminal Speaker Main, Screw Type, 4P	1
19	4408108710	Terminal Speaker Center, Screw Type, 2P	1
20	4438114310	Jack RCA(VCR1/Monitor), 3P	1
21	6043010210	Holder FL	1
22	4658004810	Switch Tact	14
23	3228020010	Volume Motor, 50 k(A)	1
24	4628055910	Switch Power, Push Type	1
25	4438004510	Jack Phone, Headphone, 9P	1
26	6528301710	Fastener	1
27	4438109710	Jack RCA, 3P, VCR	1
28	4448104810	Outlet, AC	1
29	4408108310	Terminal Antenna	1
30	7502008710	Heatsink Power	1
31	6503031410	Bracket Heatsink	1
32	6505139810	Bracket PCB Tuner	1
33	048501035011	Panel Front, ABS, Black	1
34	8553019710	Window Display	1
35	048555048512	Filter FL	1
36	048545128611	Button Power, ABS, Black	1
37	8545128810	Indicator Power	1
38	048543064911	Button Function, ABS, Black, 7key	1
39	048545128711	Button Surround, ABS, Black, 2key	1
40	048543065011	Button Preset, ABS, Black, 5key	1
41	048543059811	Knob Volume, ABS, Black	1
42	048545124311	Knob Rotary(Bass/Treble/Balance), Black	3
43	8555048610	Indicator Volume	1
44	6555008730	Spring Indicator	2
45	6555008720	Spring Power	1
46	6225002610	Clamp Wire	1
47	6528302520	Clamp Wire	1
HARDWARE KIT			
S1-S57	8109230083	Screw #2BTC 3x8B, Black	57
S56-S61	8159440083	Screw WSAM 4x8B, Black	4
S62-S65	8159440083	Screw WSAM 4x8B	4
S66-S80	8119130103	Screw #1PT 3x10B, Black	14
S81-S83	8155000710	Screw Ground	3
S84	8155001210	Screw Washer	1
S85-S87	8159230083	Screw #2WPTC 3x8(B), Black	3
S88-S101	8099130121	Screw HEX MSPW 3x12Y, Yellow	14
MISCELLANEOUS			
Trans	△ 2828100297	Power Transformer, 120 V, 60 Hz	1
	4118631275	FPC Cable, 31P, 270mm	1

1. This parts list based on American version is for European version.
 2. Each initial in the Remark is denoted as follows.

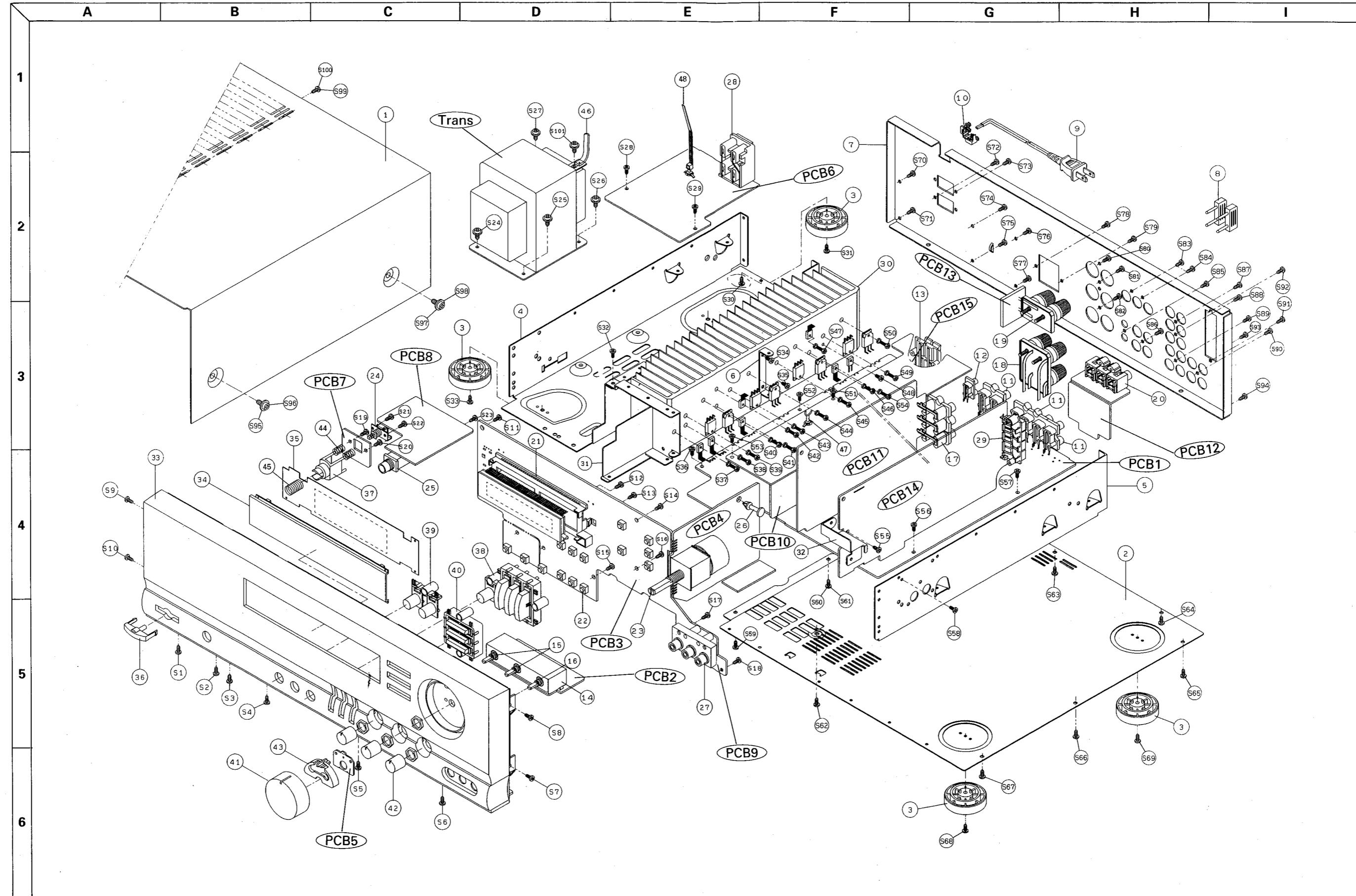
C: Changed, D: Deleted, A: Added

Ref. No.	Mfr. Part No.	Description	Q'ty	Remark
ACCESSORIES				
	4348001110	Antenna Cord FM	1	C
	9007018231	Manual Instruction	1	C
CABINET & CHASSIS				
7	046102012651	Chassis Back, SECC, Black	1	C
9 △	4308000430	Cord AC Power	1	C
10	6518002320	Stopper Cord	1	C
28 △	4448103610	Outlet, AC	1	C
29	4408108210	Terminal Antenna	1	C
MISCELLANEOUS				
Trans △	2828100497	Power Transformer, 230 V, 50 Hz	1	C

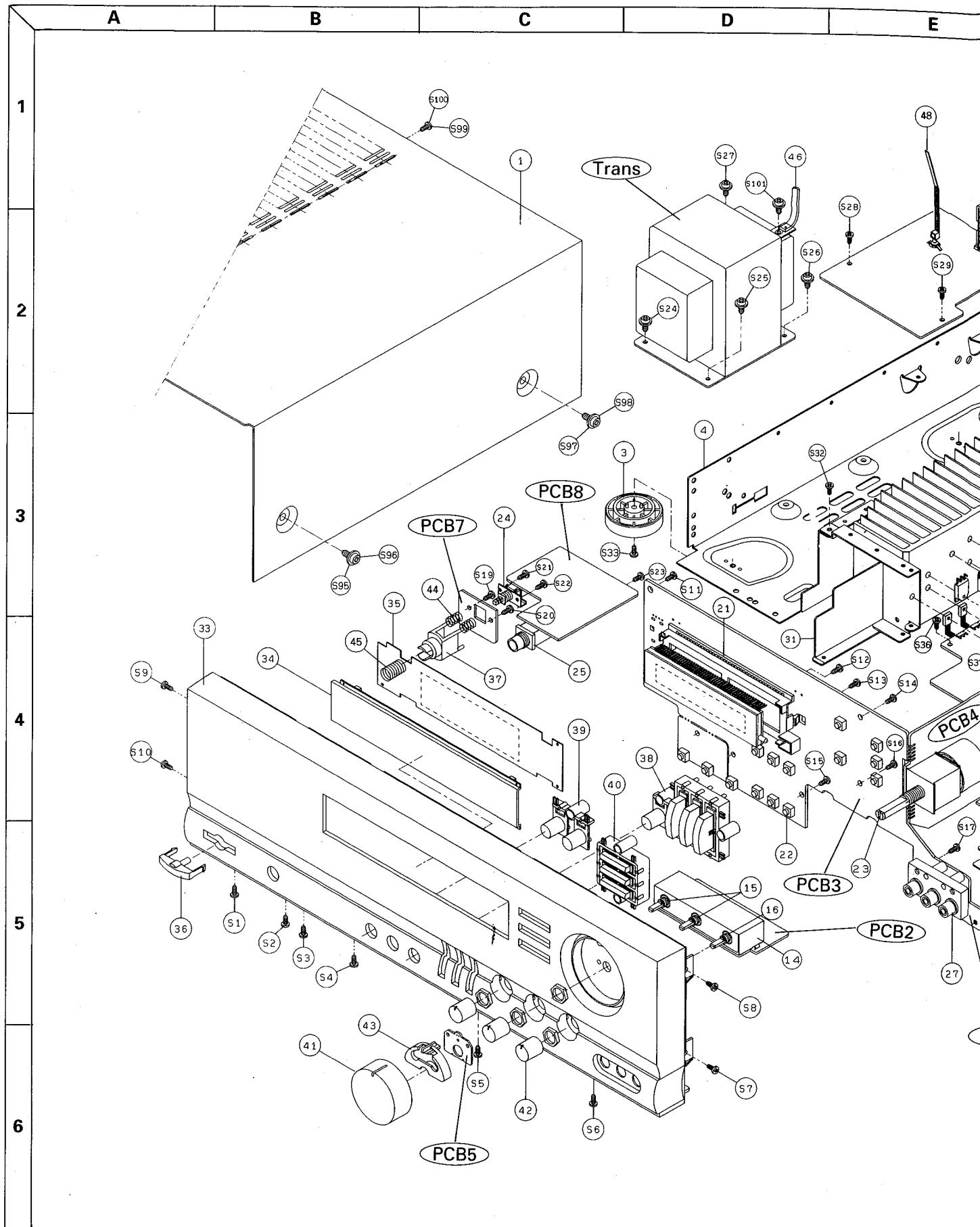
PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol △ in the part list are of special significance to safety. When replacing a component identified with △, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

GENERAL UNIT



GENERAL UINIT



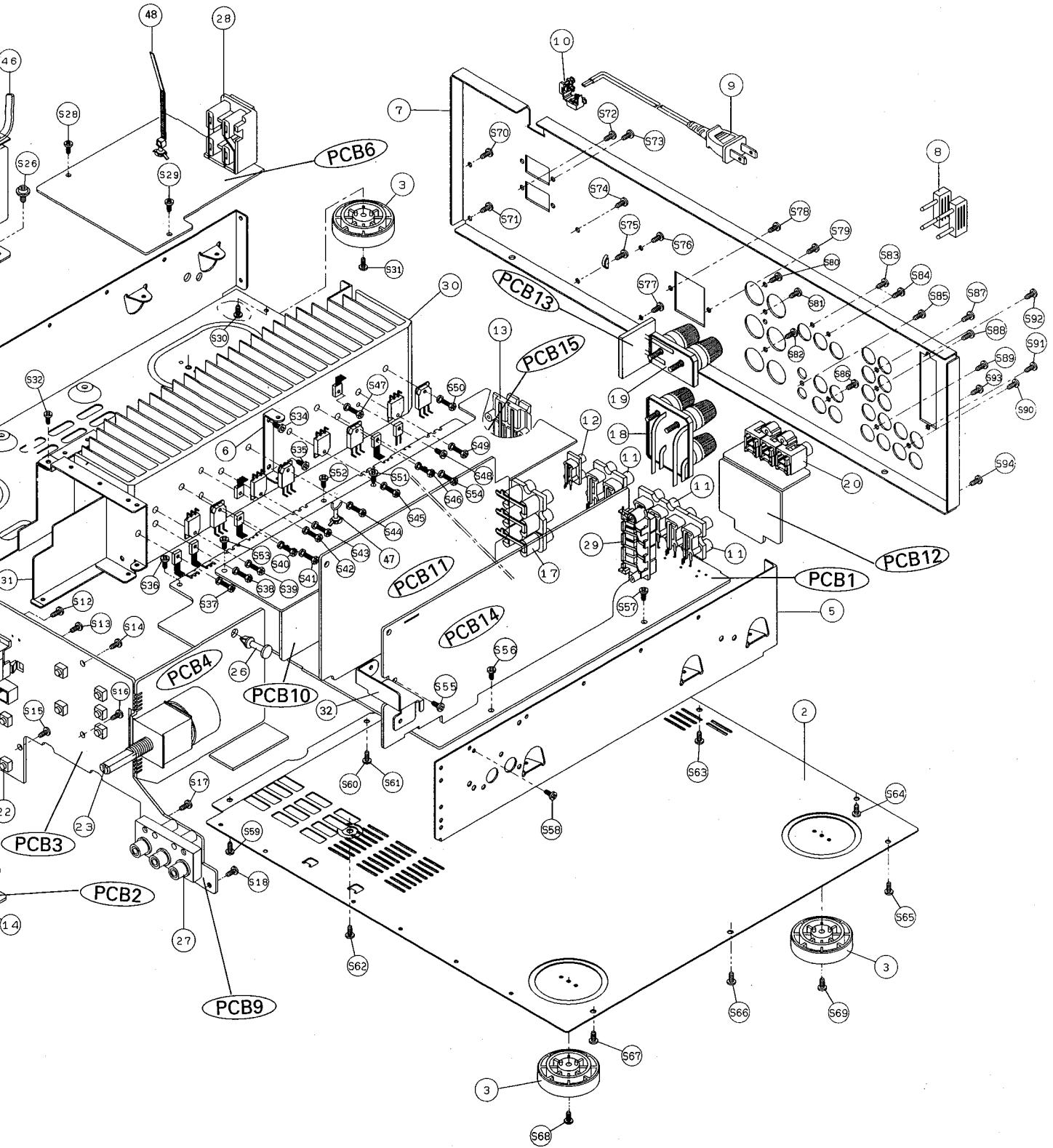
E

F

G

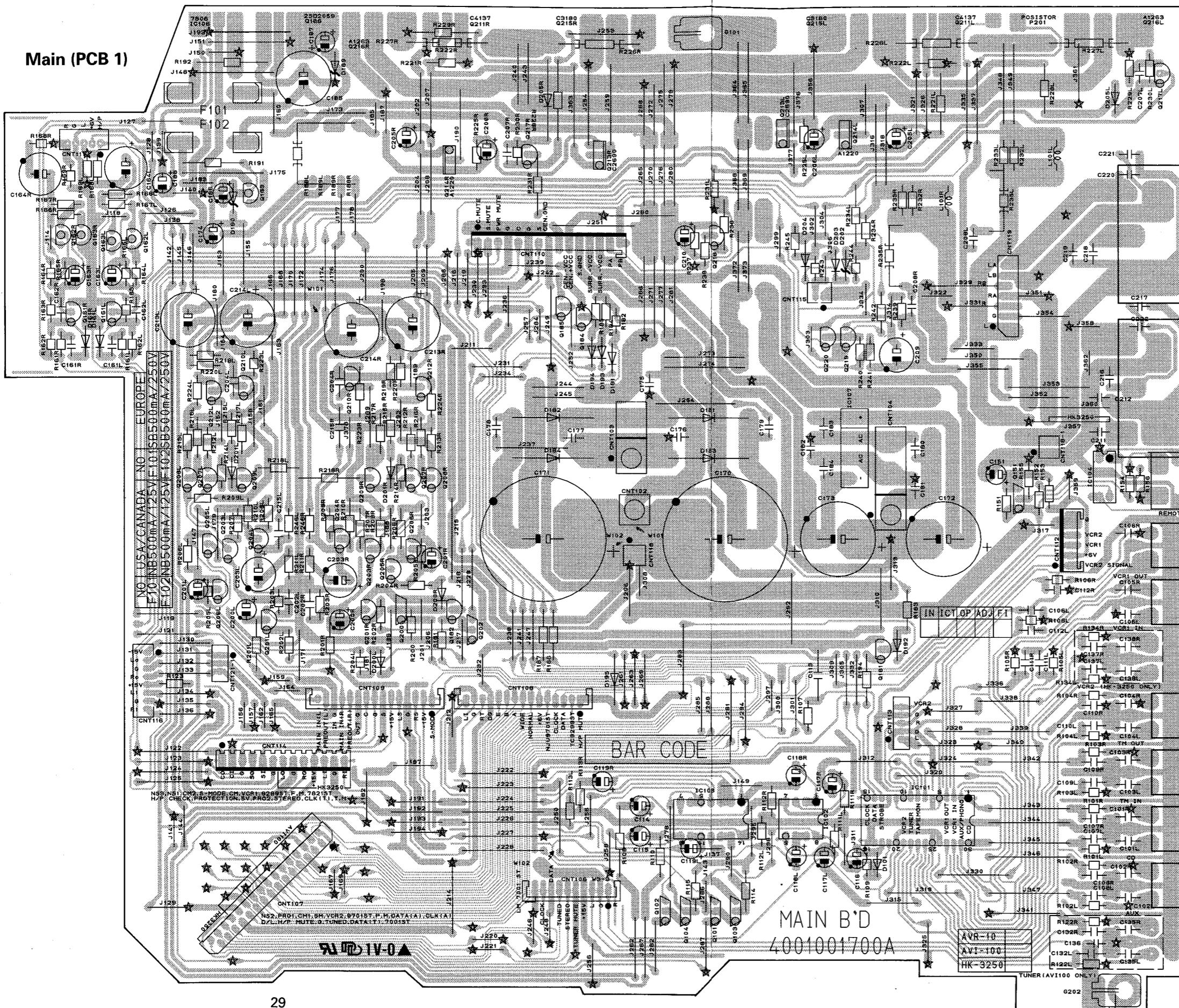
H

1

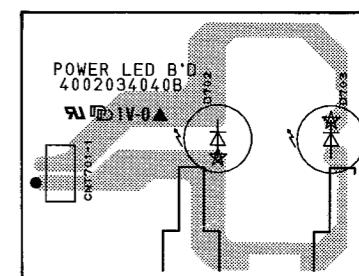


PRINTED CIRCUIT BOARDS

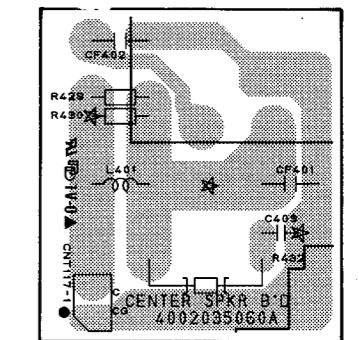
Main (PCB 1)



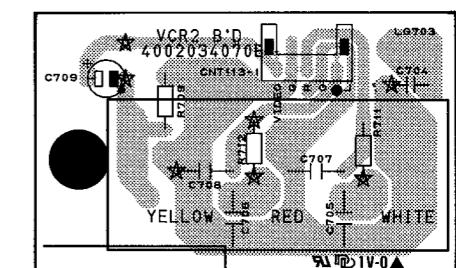
Power LED (PCB 7)



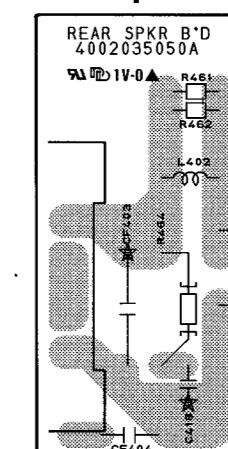
Center Speaker (PCB 13)



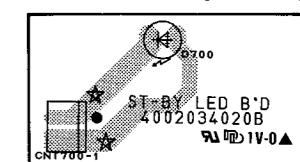
VCR2 (PCB 9)



Rear Speaker (PCB 15)

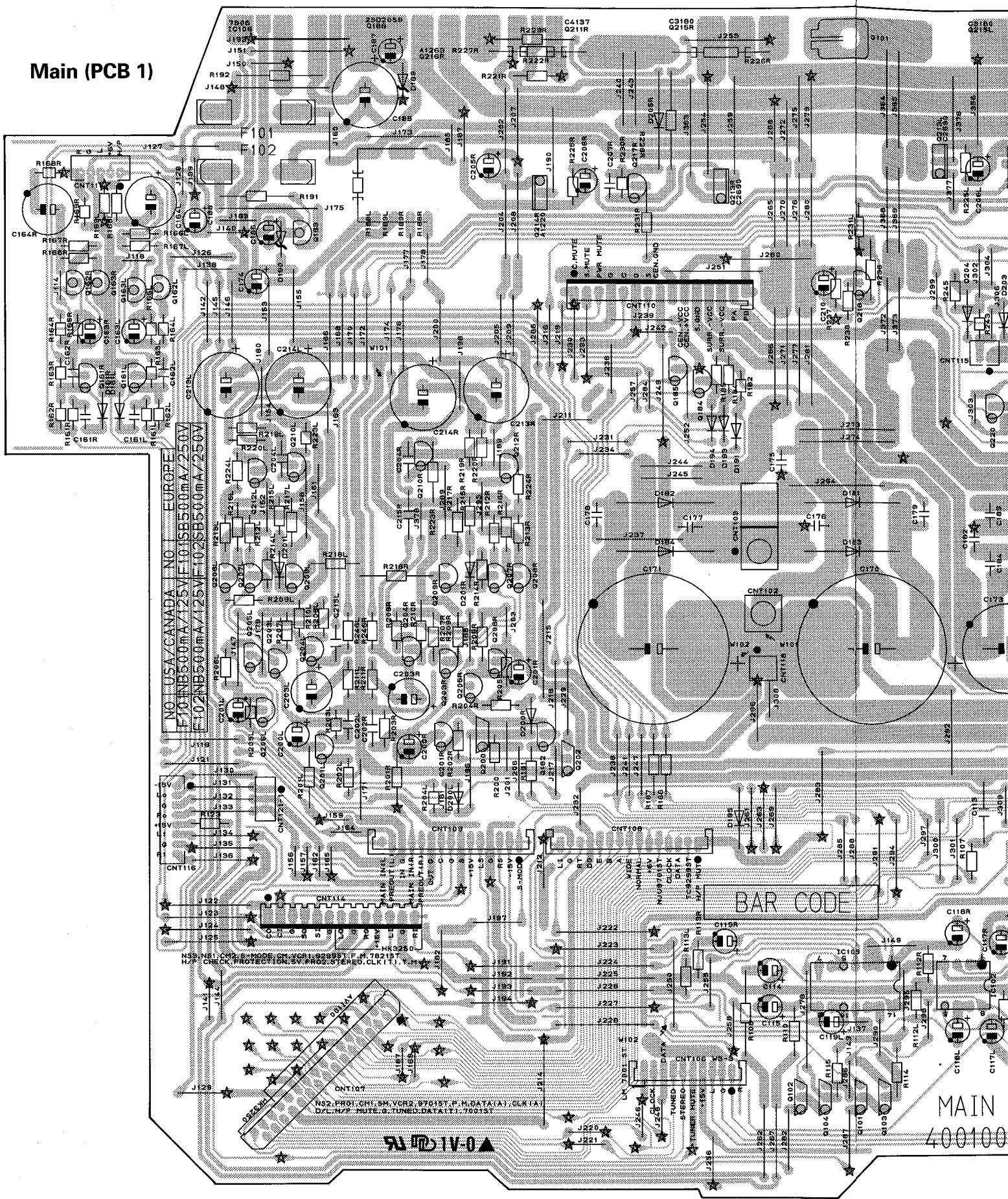


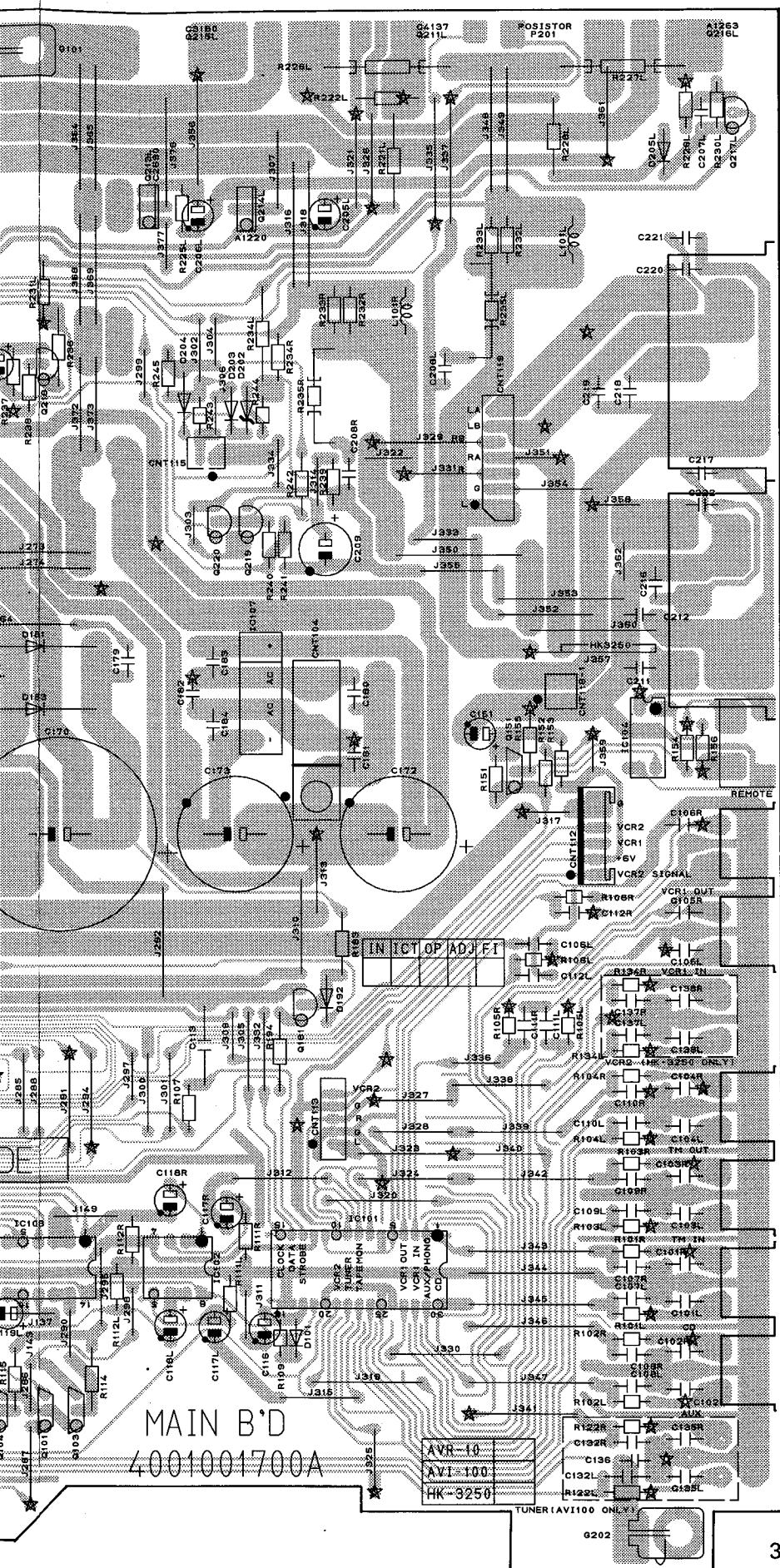
ST-BY LED (PCB 5)



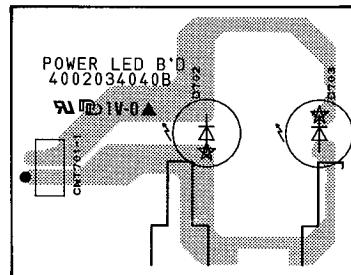
PRINTED CIRCUIT BOARDS

Main (PCB 1)

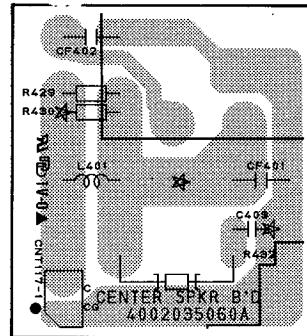




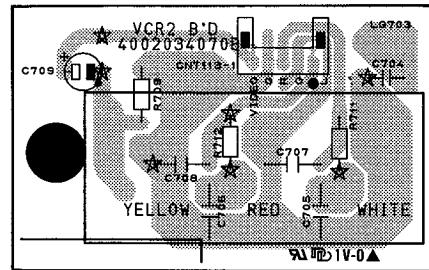
Power LED (PCB 7)



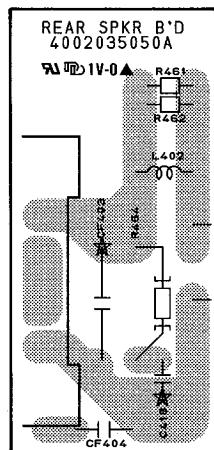
Center Speaker (PCB 13)



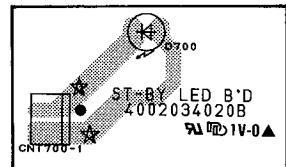
VCR2 (PCB 9)



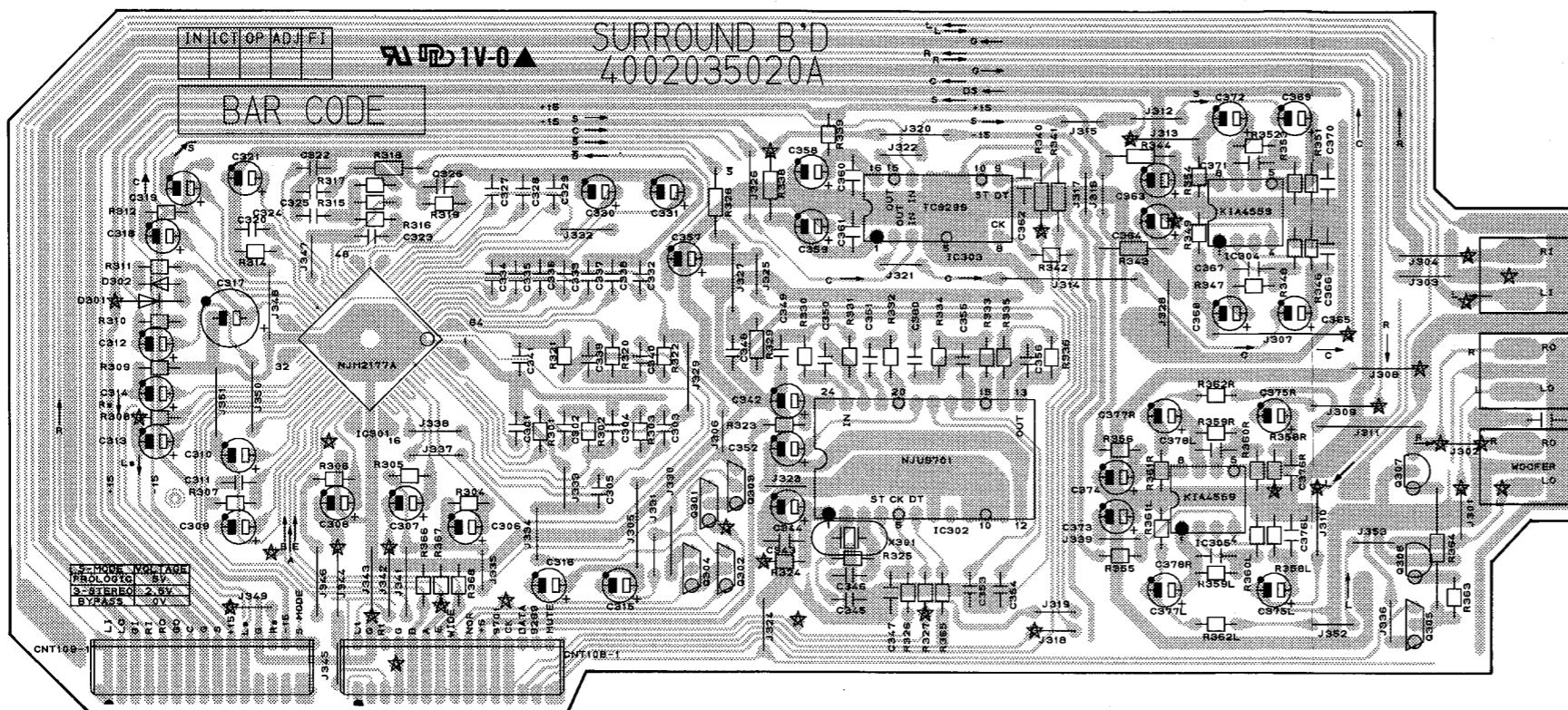
Rear Speaker (PCB 15)



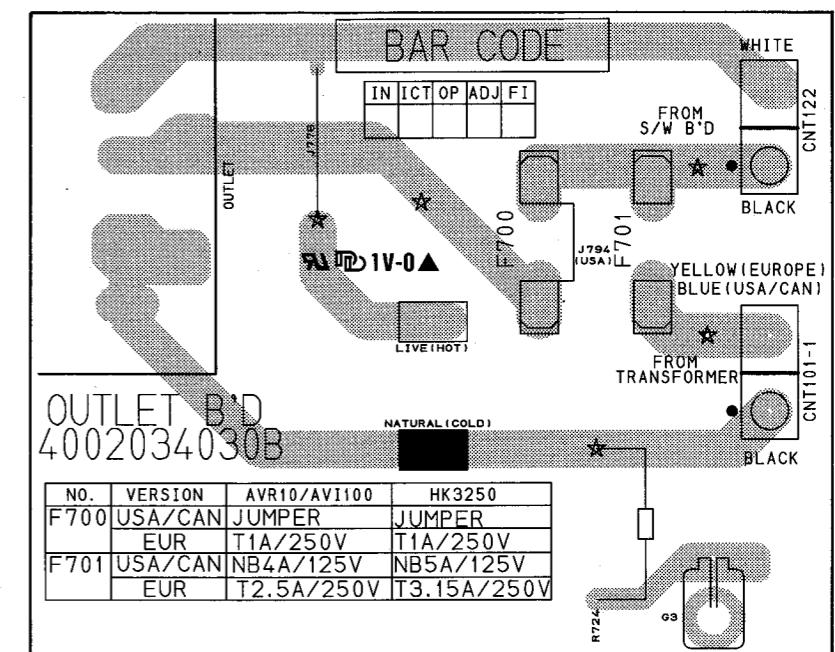
ST-BY LED (PCB 5)



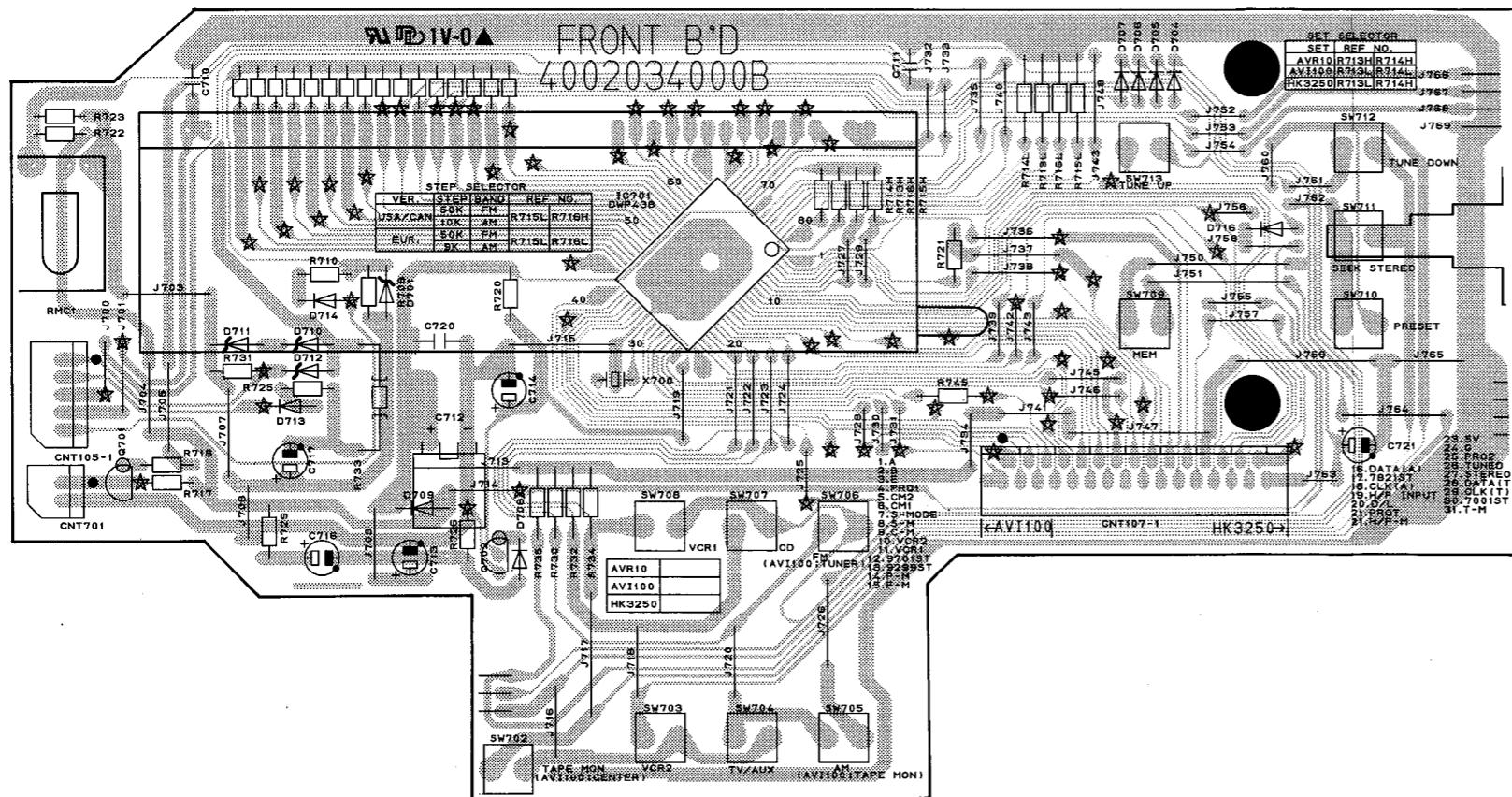
Surround (PCB 11)



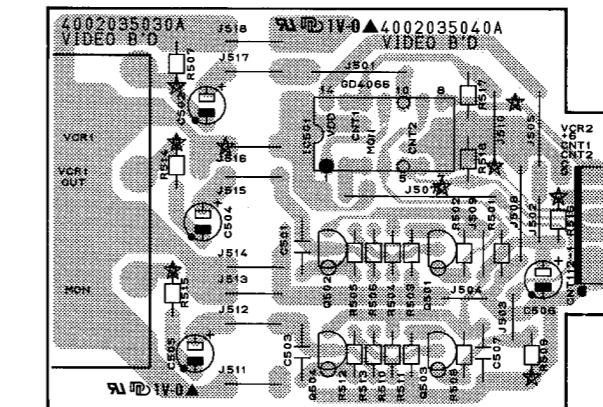
Outlet (PCB 6)



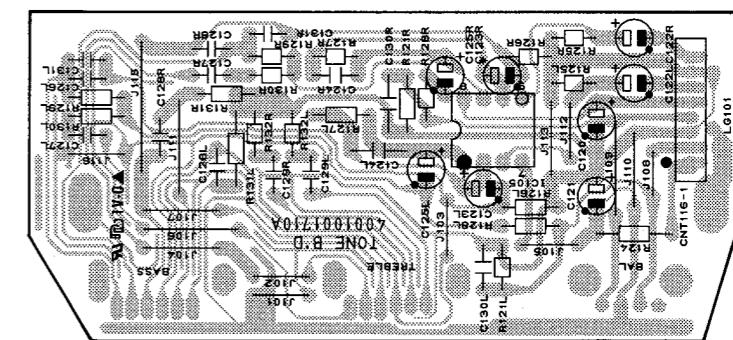
Front (PCB 3)



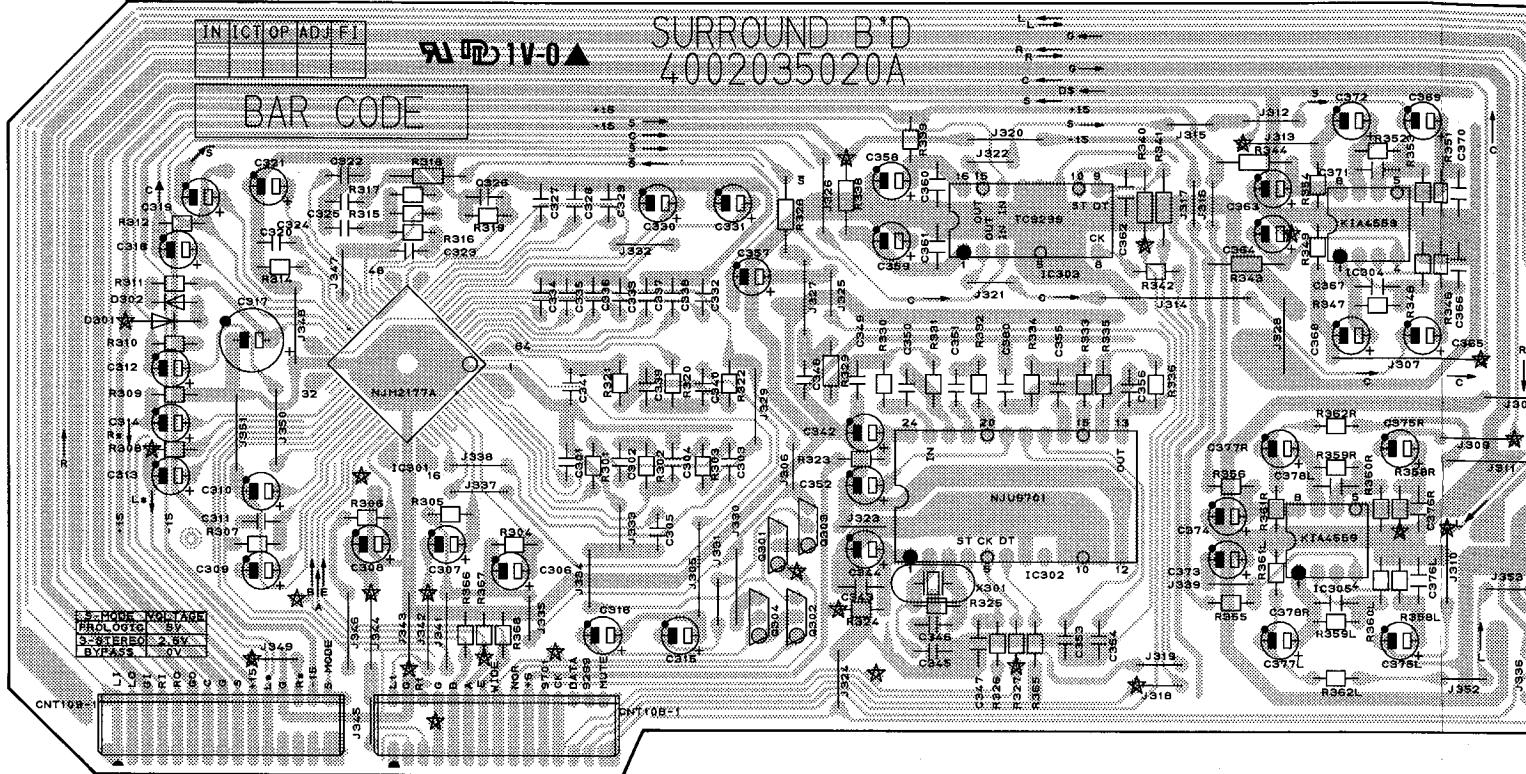
Video (PCB 12)



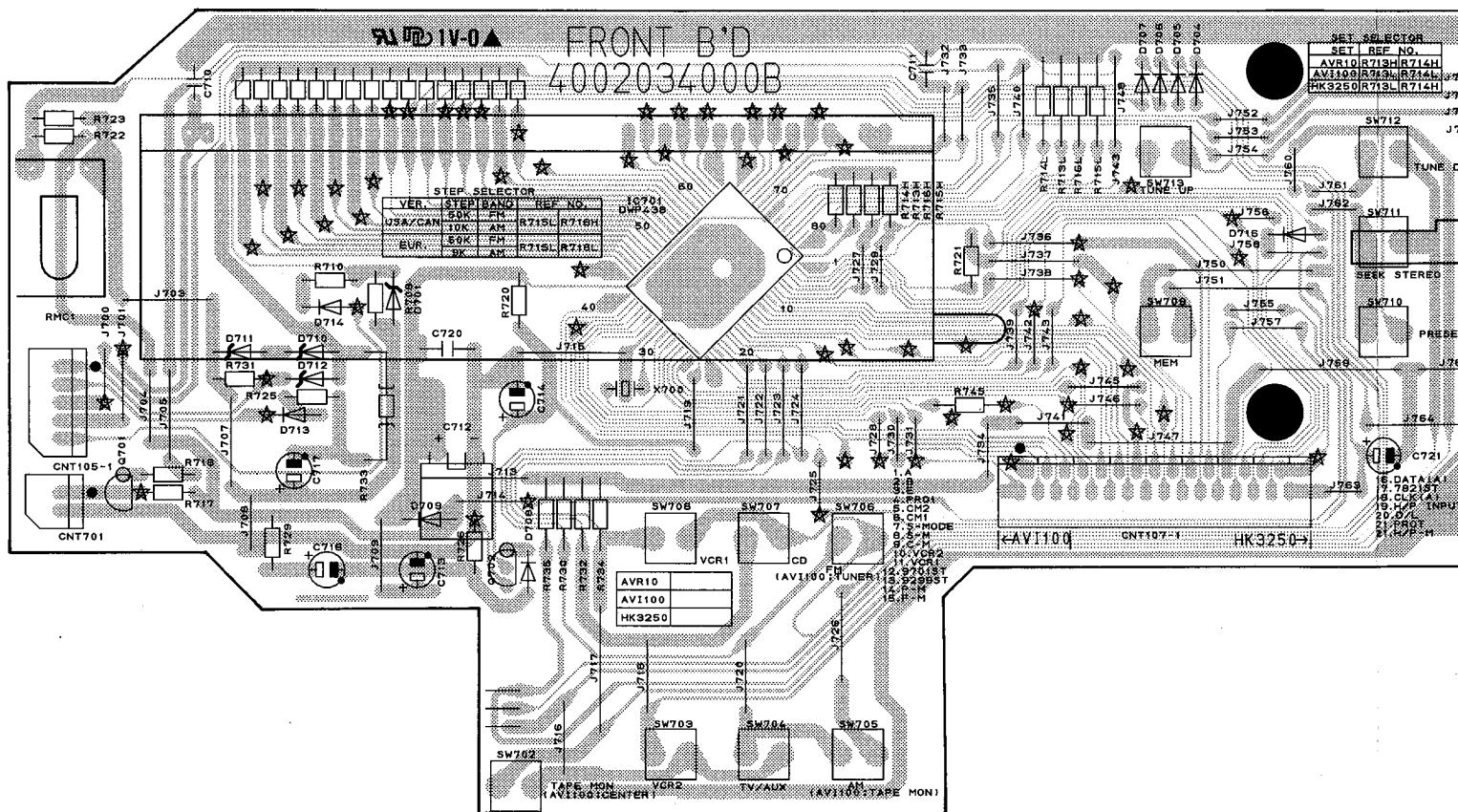
Tone (PCB 2)

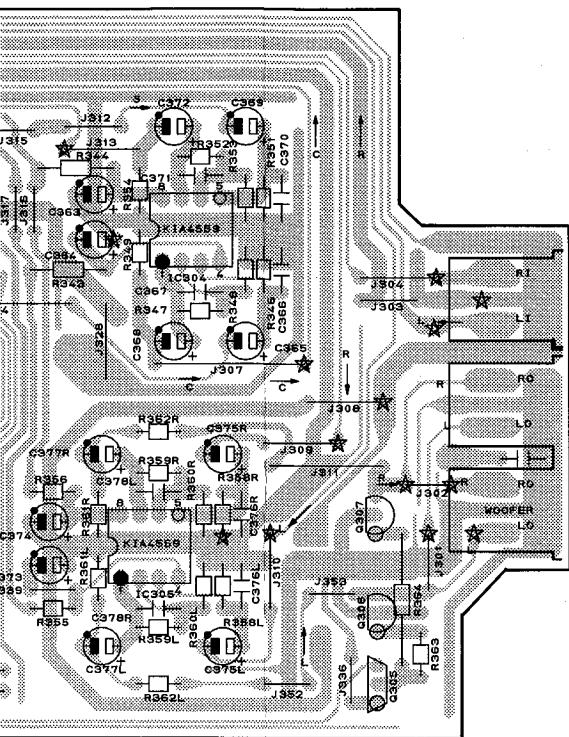


Surround (PCB 11)

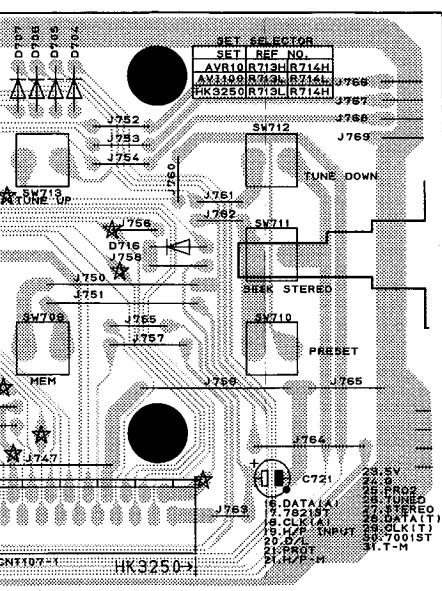
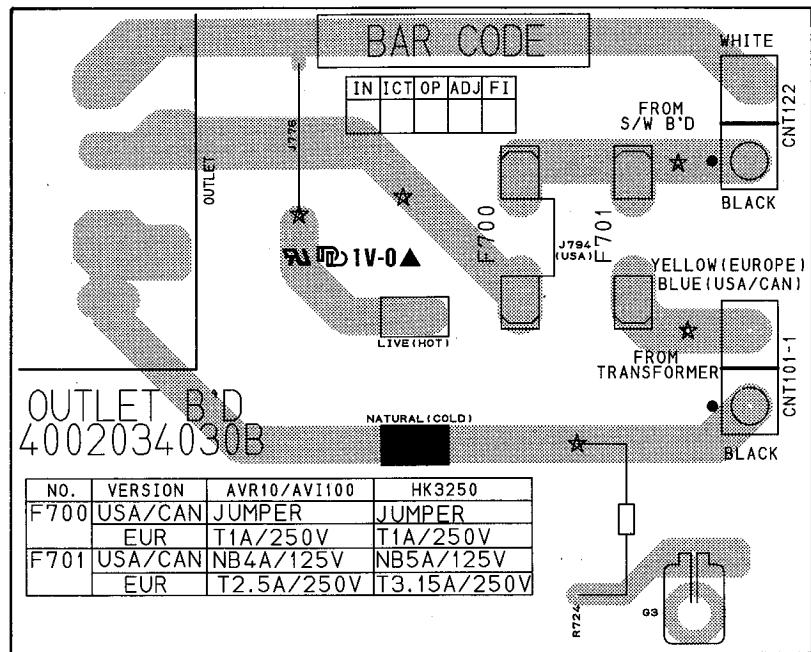


Front (PCB 3)

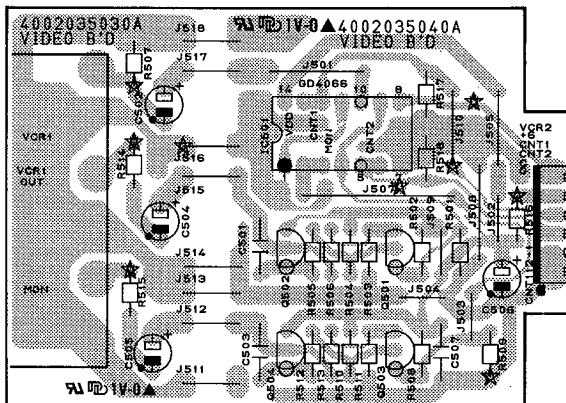




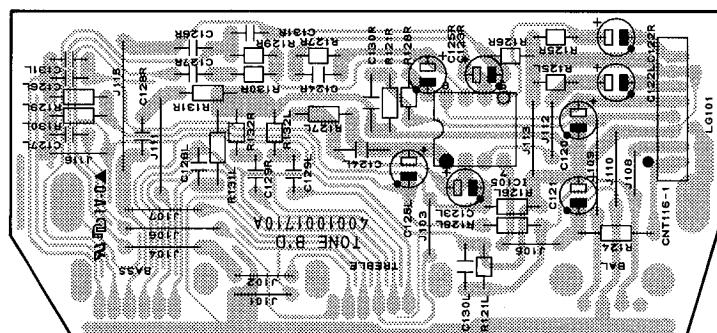
Outlet (PCB 6)



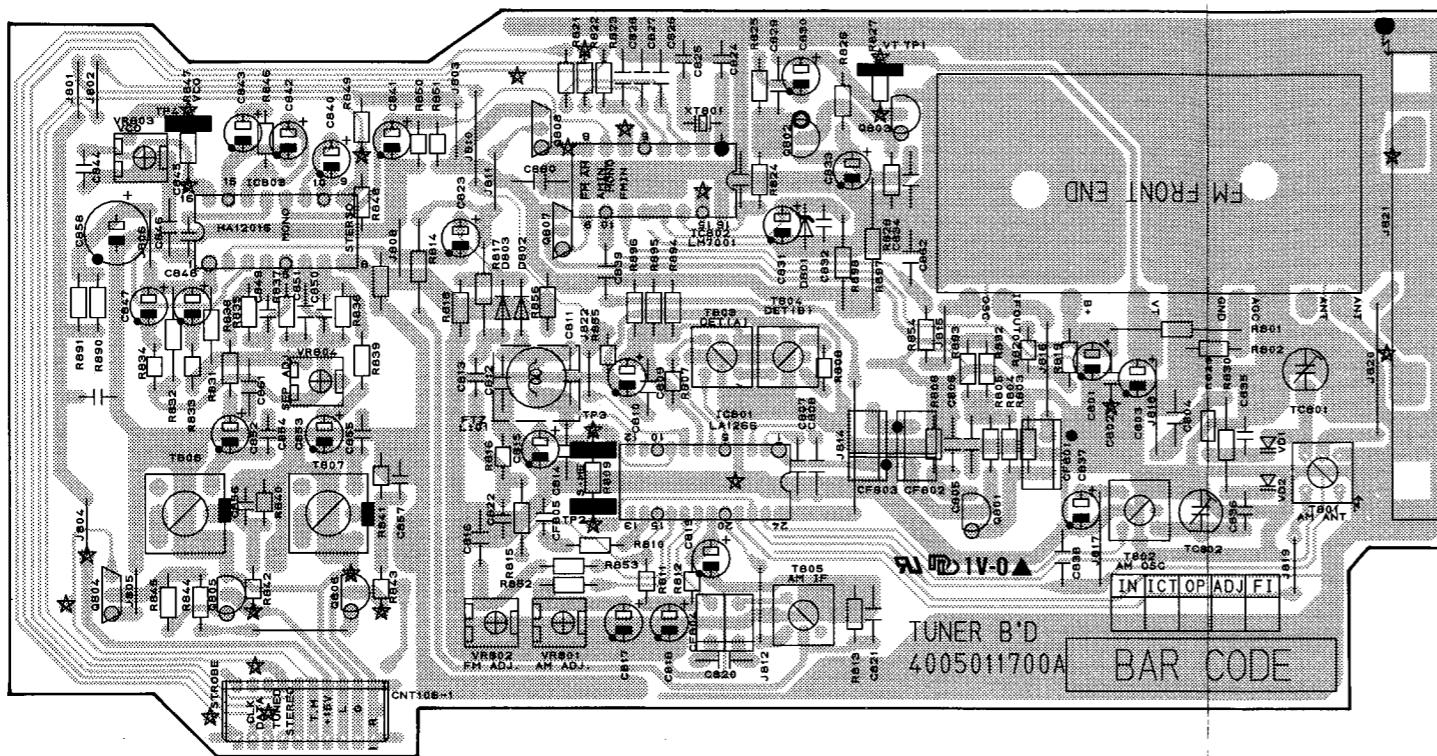
Video (PCB 12)



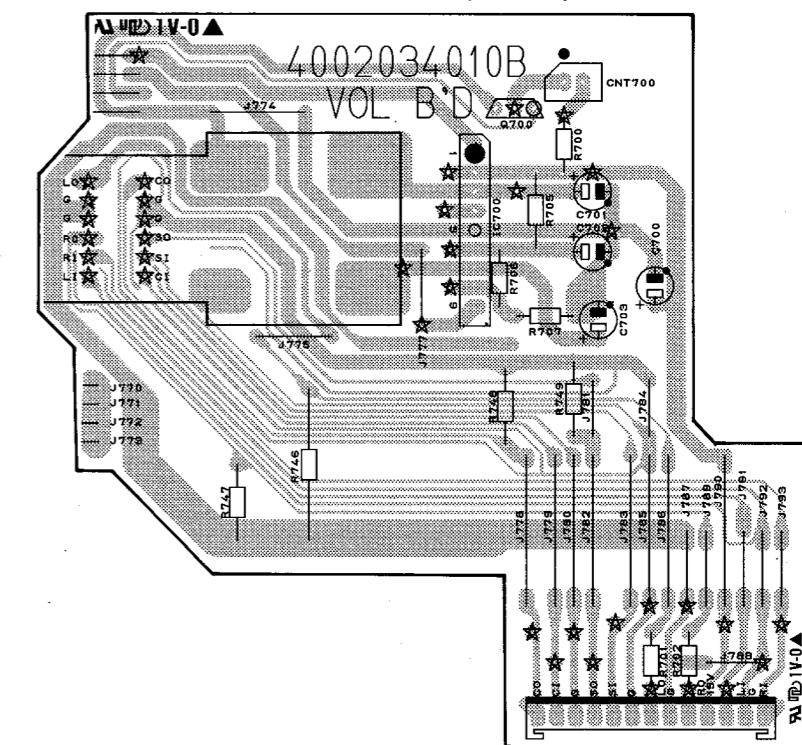
Tone (PCB 2)



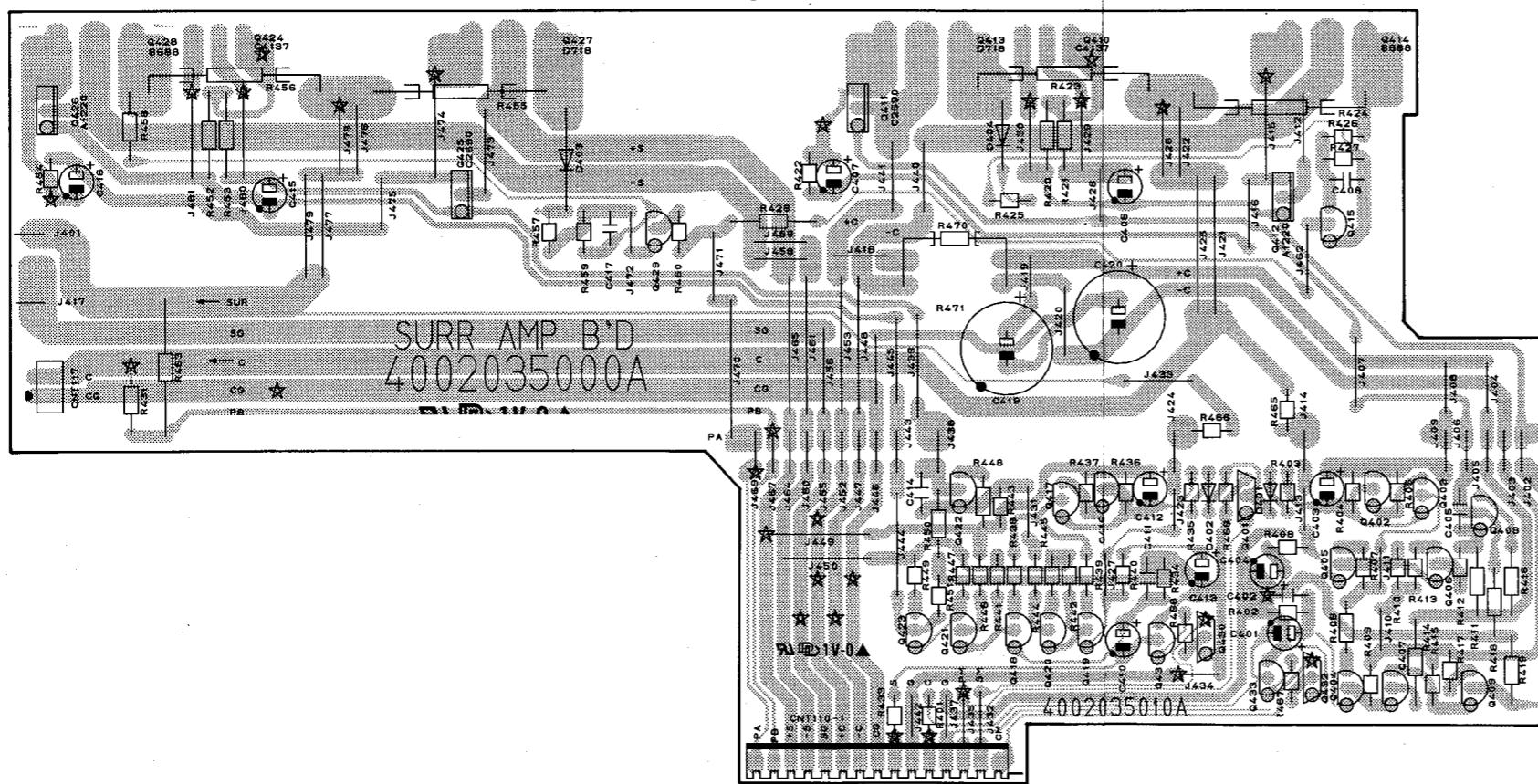
Tuner (PCB 14)



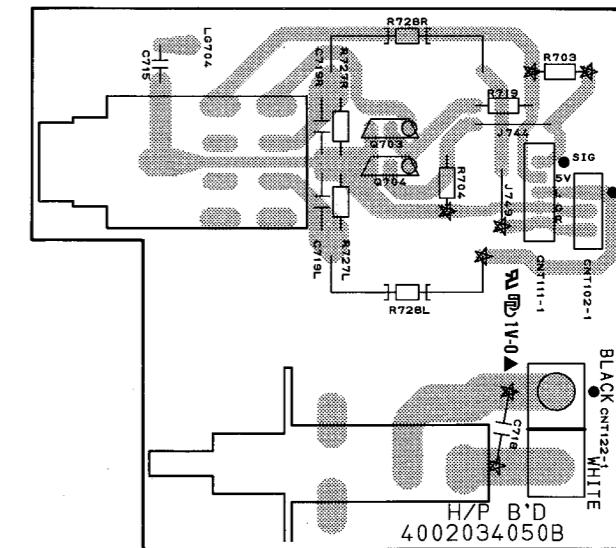
Volume (PCB 4)



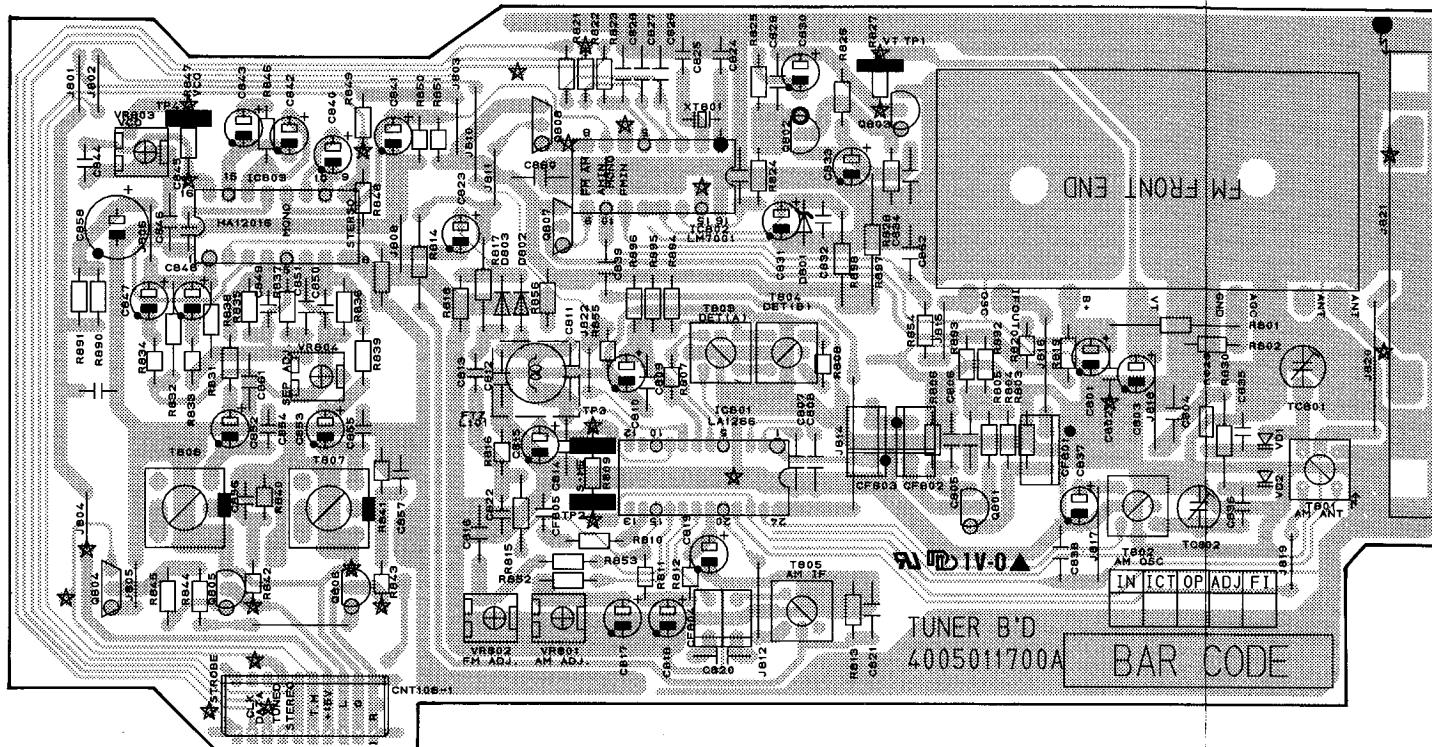
Surround Amp (PCB 10)



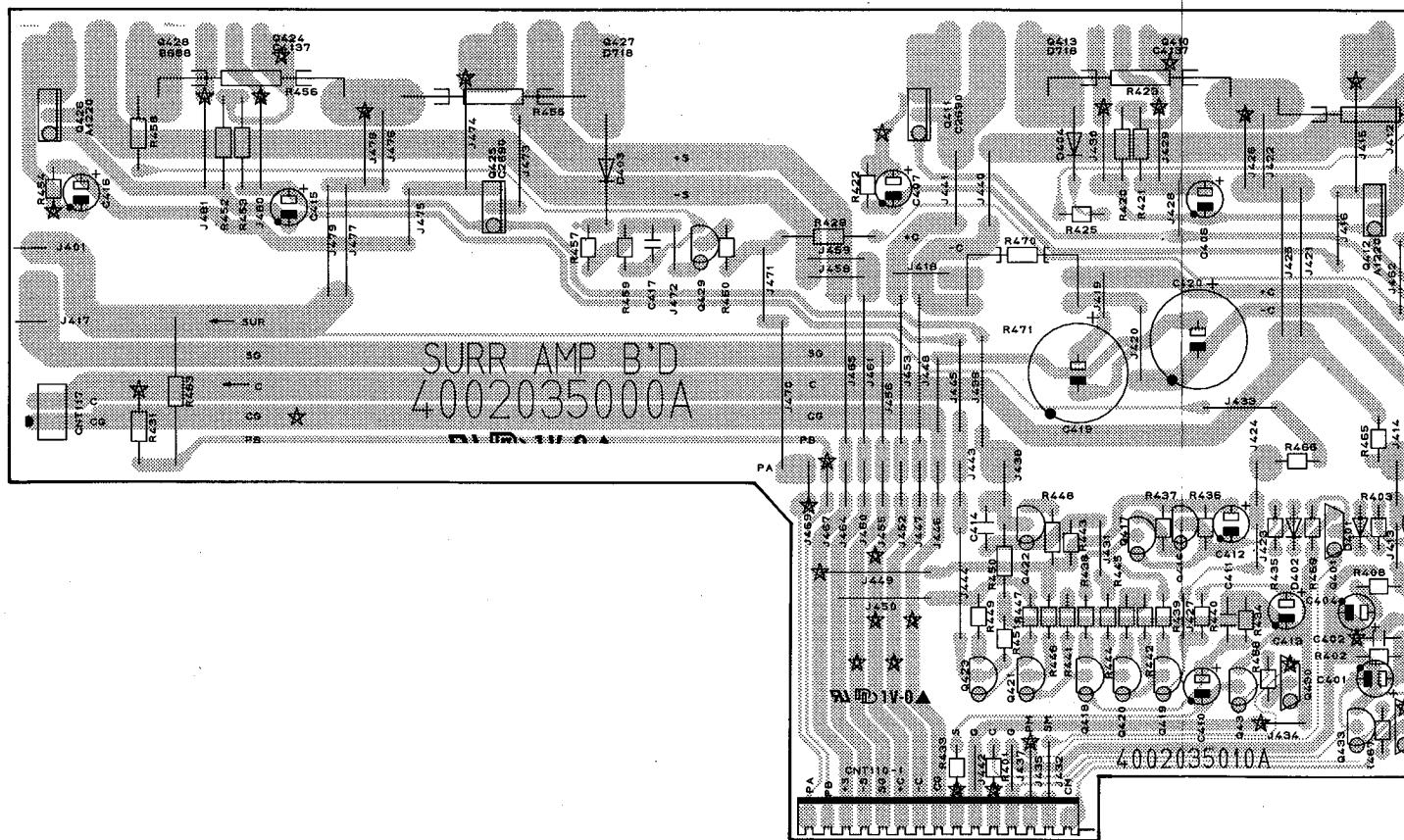
Headphone (PCB 8)

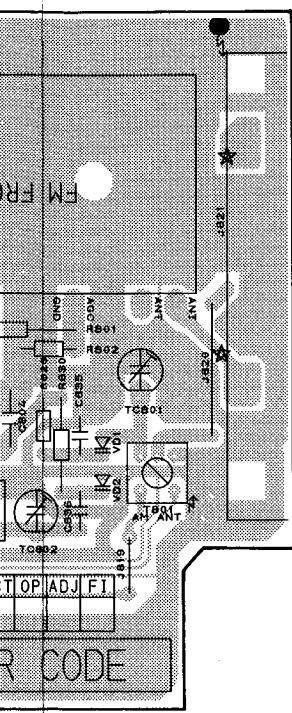


Tuner (PCB 14)

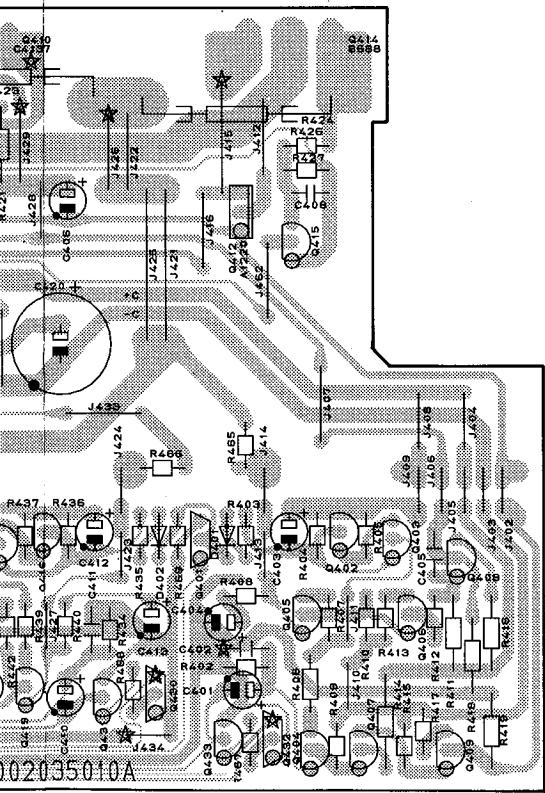
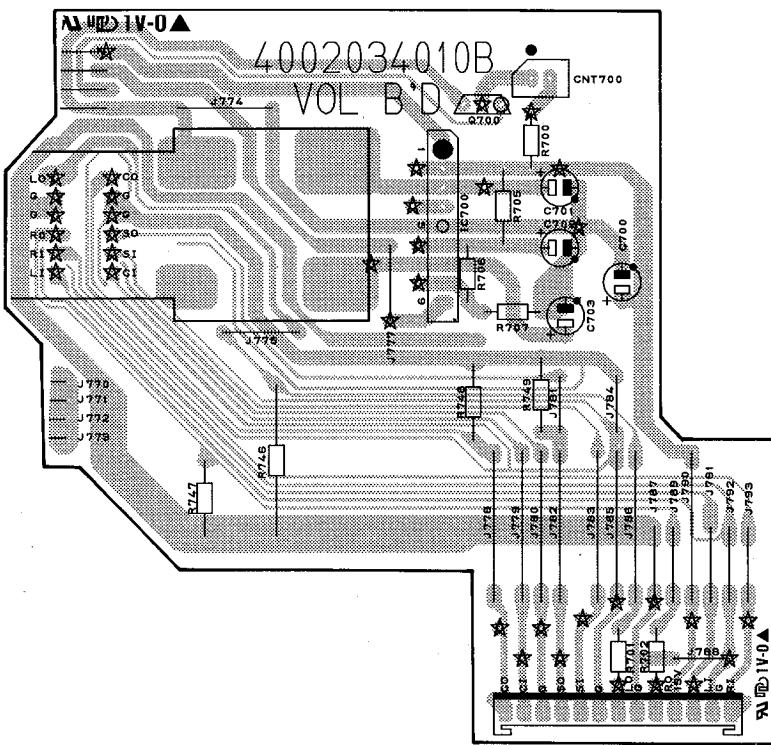


Surround Amp (PCB 10)

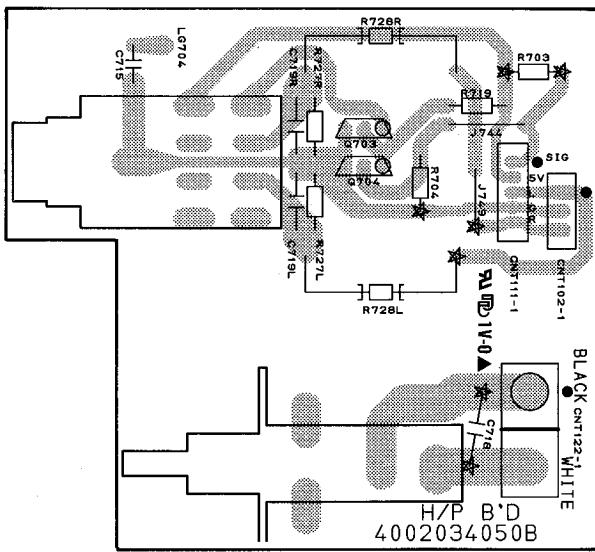




Volume (PCB 4)



Headphone (PCB 8)



ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTICE : Products marked with \triangle 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.	Mfr. Part No.	Description	Q'ty	Ref. No.	Mfr. Part No.	Description	Q'ty
PCB1							
ASSY/P.C.BOARD MAIN							
CAPACITORS							
C107L/R	3519101935	Ceramic Tubular	100	pF	50 V K 2		
C108L/R	3519101935	Ceramic Tubular	100	pF	50 V K 2		
C109L/R	3519101935	Ceramic Tubular	100	pF	50 V K 2		
C111L/R	3519101935	Ceramic Tubular	100	pF	50 V K 2		
C113	3519101935	Ceramic Tubular	100	pF	50 V K 1		
C114/C115	3479347031	Electrolytic SG	47	μ F	16 V M 2	\triangle	D181-D184
C116	3479310971	Electrolytic SG	1	μ F	50 V M 1		2058100105
C117L/R	3479347971	Electrolytic SG	4.7	μ F	50 V M 2		1N5402, Retifier
C118L/R	3479347031	Electrolytic SG	47	μ F	16 V M 2	\triangle	D189/D190
C119L/R	3479347031	Electrolytic SG	47	μ F	16 V M 2		2258599120
C120/C121	3479347031	Electrolytic SG	47	μ F	16 V M 2		D191-D195
C136	3509104512	Ceramic Disk	0.1	μ F	50 V J 1		2058322101
C151	3479322021	Electrolytic SG	22	μ F	10 V M 1		D200L/R
C161L/R	3679154297	Mylar	0.15	μ F	63 V K 2		D201L/R
C162L/R	3519470935	Ceramic Tubular	47	μ F	50 V J 2		2258599107
C163L/R	3479347971	Electrolytic SG	4.7	μ F	50 V M 2		D202
C164L/R	3479347139	Electrolytic SG	470	μ F	16 V M 2		D203/D204
\triangle C170/C171	3419568224	Electrolytic HS	6800	μ F	50 V M 2		\triangle IC107
\triangle C172/C173	3409322279	Electrolytic SG	2200	μ F	50 V M 2		2058100146
C174	3479347971	Electrolytic SG	4.7	μ F	50 V M 1		
C175-C184	3679473120	Mylar	0.047	μ F	100 V J 10		
C185	3409333179	Electrolytic SG	330	μ F	50 V M 1		
C186-C188	3479347971	Electrolytic SG	4.7	μ F	50 V M 3		
C200L/R	3479347031	Electrolytic SG	47	μ F	16 V M 2		P201
C201L/R	3479310971	Electrolytic SG	1	μ F	50 V M 2		P202
C202L/R	3579680130	Ceramic Tubular	68	pF	50 V J 2		
C203L/R	3479347111	Electrolytic SG	470	μ F	6.3 V M 2		
C204L/R	3519470935	Ceramic Tubular	47	μ F	50 V J 2		
C205L/R	3479310071	Electrolytic SG	10	μ F	50 V M 2		
C206L/R	3479347971	Electrolytic SG	4.7	μ F	50 V M 2		
C207L/R	3679683120	Mylar	0.068	μ F	100 V J 2		
C208L/R	3679473120	Mylar	0.047	μ F	100 V J 2		
C209	3479347111	Electrolytic SG	470	μ F	6.3 V M 1		
C210	3479310971	Electrolytic SG	1	μ F	50 V M 1		
C211	3579222130	Ceramic Disc	0.0022	μ F	50 V Z 1		
C213L/R	3409333179	Electrolytic SG	330	μ F	50 V M 2		
C214L/R	3409333179	Electrolytic SG	330	μ F	50 V M 2		
C215L/R	3519033935	Ceramic Tubular	3.3	pF	50 V J 2		
C216	3679473120	Mylar	0.047	μ F	100 V J 1		
C217	3579222130	Ceramic Disc	0.0022	μ F	50 V Z 1		
C222	3679473120	Mylar	0.047	μ F	100 V J 1		
CONNECTORS							
CNT102-1	4428525860	Pin Base, 1P	1				
CNT103-1	4428525780	Pin Base, 2P	1				
CNT104-1	4428525790	Pin Base, 3P	1				
CNT106	4428550100	Wafer, 10P, B'D to B'D	1				
CNT107	4428509029	Wafer FPC, 31P	1				
CNT108	4428550150	Wafer, 15P, B'D to B'D	1				
CNT109	4428550150	Wafer, 15P, B'D to B'D	1				
CNT110	4428561520	Wafer, 15P, B'D to B'D Type	1				
CNT111	4428516410	Wafer, 5P	1				
CNT112	4438302927	Wafer, 6P	1				
CNT113	436205283332	Lead Ass'y, 5P, 280mm	1				
CNT114	4428551320	Wafer, 13P, B'D to B'D Type	1				
CNT115	4428516110	Wafer, 2P	1				
CNT116	4428516710	Wafer, 8P	1				
CNT118	436102203601	Lead Ass'y, 2P, 200mm, to CNT118-1	1				
DIODES							
D101	2058322101	1N4148, Switching	1				
D161L/R	2058322101	1N4148, Switching	2				
RESISTORS							
R101L/R	3069102970	Carbon Film	1	kohm	1/5 W J	2	
R102L/R	3069102970	Carbon Film	1	kohm	1/5 W J	2	
R103L/R	3069102970	Carbon Film	1	kohm	1/5 W J	2	
R104L/R	3069102970	Carbon Film	1	kohm	1/5 W J	2	

Ref. No.	Mfr. Part No.	Description	Q'ty	Ref. No.	Mfr. Part No.	Description	Q'ty
R105L/R	3069102970	Carbon Film	1 kohm 1/5 W J 2	R237	3069104970	Carbon Film	100 kohm 1/5 W J 1
R106L/R	3069102970	Carbon Film	1 kohm 1/5 W J 2	R238	3069332970	Carbon Film	3.3 kohm 1/5 W J 1
R107	3069102970	Carbon Film	1 kohm 1/5 W J 1	R239	3069152970	Carbon Film	1.5 kohm 1/5 W J 1
R108	3069151970	Carbon Film	150 ohm 1/5 W J 1	R240	3069223970	Carbon Film	22 kohm 1/5 W J 1
R109	3069104970	Carbon Film	100 kohm 1/5 W J 1	R241	3069153970	Carbon Film	15 kohm 1/5 W J 1
R110	3069151970	Carbon Film	150 ohm 1/5 W J 1	R242	3069103970	Carbon Film	10 kohm 1/5 W J 1
R111L/R	3069104970	Carbon Film	100 kohm 1/5 W J 2	R243	3069472970	Carbon Film	4.7 kohm 1/5 W J 1
R112L/R	3069224970	Carbon Film	220 kohm 1/5 W J 2	R244	3069102970	Carbon Film	1 kohm 1/5 W J 1
R113L/R	3069224970	Carbon Film	220 kohm 1/5 W J 2	R245	3069682970	Carbon Film	6.8 kohm 1/5 W J 1
R114/R115	3069104970	Carbon Film	100 kohm 1/5 W J 2	R246L/R	3069333970	Carbon Film	33 kohm 1/5 W J 2
R123	3069151970	Carbon Film	150 ohm 1/5 W J 1				
R151	3069392970	Carbon Film	3.9 kohm 1/5 W J 1				
R152	3069332970	Carbon Film	3.3 kohm 1/5 W J 1				
R153	3069101970	Carbon Film	100 ohm 1/5 W J 1				
R154	3069470970	Carbon Film	47 ohm 1/5 W J 1				
R155	3069473970	Carbon Film	47 kohm 1/5 W J 1				
R156	3069271970	Carbon Film	270 ohm 1/5 W J 1				
R161L/R	3069104970	Carbon Film	100 kohm 1/5 W J 2				
R162L/R	3069105970	Carbon Film	1 Mohm 1/5 W J 2				
R163L/R	3069224970	Carbon Film	220 kohm 1/5 W J 2				
R164L/R	3069153970	Carbon Film	15 kohm 1/5 W J 2				
R165L/R	3069242970	Carbon Film	2.4 kohm 1/5 W J 2				
R166L/R	3069330970	Carbon Film	33 ohm 1/5 W J 2				
R167L/R	3069330970	Carbon Film	33 ohm 1/5 W J 2				
R168L/R	3069100970	Carbon Film	10 ohm 1/5 W J 2				
R169L/R	3069101970	Carbon Film	100 ohm 1/5 W J 2				
R181	3069332970	Carbon Film	3.3 kohm 1/5 W J 1				
R182-R185	3069473970	Carbon Film	47 kohm 1/5 W J 4				
R186/R187	3069332970	Carbon Film	3.3 kohm 1/5 W J 2				
△ R188L/R	3029470470	Metal Film	47 ohm 1 W J 2				
△ R189L/R	3029470470	Metal Film	47 ohm 1 W J 2				
R191/R192	3069472970	Carbon Film	4.7 kohm 1/5 W J 2				
R194	3069332970	Carbon Film	3.3 kohm 1/5 W J 1				
R200	3069154970	Carbon Film	150 kohm 1/5 W J 2	CNT116-1	436208123332	Lead Ass'y, 8P, 120mm	1
R201L/R	3069331970	Carbon Film	330 ohm 1/5 W J 2				
R202L/R	3069332970	Carbon Film	3.3 kohm 1/5 W J 2				
R203L/R	3069333970	Carbon Film	33 kohm 1/5 W J 2				
R204L/R	3069333970	Carbon Film	33 kohm 1/5 W J 2				
R205L/R	3069103970	Carbon Film	10 kohm 1/5 W J 2				
R206L/R	3069271970	Carbon Film	270 ohm 1/5 W J 2				
R207L/R	3069391970	Carbon Film	390 ohm 1/5 W J 2				
R208L/R	3069391970	Carbon Film	390 ohm 1/5 W J 2				
R209L/R	3069152970	Carbon Film	1.5 kohm 1/5 W J 2				
R210L/R	3069152970	Carbon Film	1.5 kohm 1/5 W J 2				
R211L/R	3069182970	Carbon Film	1.8 kohm 1/5 W J 2				
R212L/R	3069561970	Carbon Film	560 ohm 1/5 W J 2				
R213L/R	3069561970	Carbon Film	560 ohm 1/5 W J 2				
R214L/R	3069561970	Carbon Film	560 ohm 1/5 W J 2				
R215L/R	3069561970	Carbon Film	560 ohm 1/5 W J 2				
R216L/R	3069561970	Carbon Film	560 ohm 1/5 W J 2				
R217L/R	3069561970	Carbon Film	560 ohm 1/5 W J 2				
R218L/R	3069472970	Carbon Film	4.7 kohm 1/5 W J 2				
R219L/R	3069223970	Carbon Film	22 kohm 1/5 W J 2				
R220L/R	3069223970	Carbon Film	22 kohm 1/5 W J 2				
R221L/R	3027121125	Metal Film	1.21 kohm 1/4 W F 2				
R222L/R	3027442025	Metal Film	442 ohm 1/4 W F 2				
R223L/R	3069820970	Carbon Film	82 ohm 1/5 W J 2				
R224L/R	3069820970	Carbon Film	82 ohm 1/5 W J 2				
R225L/R	3069820970	Carbon Film	82 ohm 1/5 W J 2				
△ R226L/R	3059027776	Cement	0.27 ohm 5 W J 2				
△ R227L/R	3059027776	Cement	0.27 ohm 5 W J 2				
R228L/R	3069182970	Carbon Film	1.8 kohm 1/5 W J 2				
R229L/R	3069152970	Carbon Film	1.5 kohm 1/5 W J 2				
R230L/R	3069911970	Carbon Film	910 ohm 1/5 W J 2				
R231L/R	3069682970	Carbon Film	6.8 kohm 1/5 W J 2				
R232L/R	3069220970	Carbon Film	22 ohm 1/5 W J 2				
R233L/R	3069220970	Carbon Film	22 ohm 1/5 W J 2				
R234L/R	3069243970	Carbon Film	24 kohm 1/5 W J 2				
△ R235L/R	3029100470	Metal Film	10 ohm 1 W J 2	CNT105-1	4428513450	Wafer, 5P, Angle	1
R236	3069683970	Carbon Film	68 kohm 1/5 W J 1	CNT107-1	4428531826	Wafer FPC, 31P	1
				CNT701	4428513420	Wafer, 2P, Angle	1
PCB2							
ASSY P.C. BOARD TONE							
CAPACITORS							
C122L/R	3479347031	Electrolytic SG	47 μ F	16 V	M	2	
C123L/R	3479347971	Electrolytic SG	4.7 μ F	50 V	M	2	
C124L/R	3519470935	Ceramic Tubular	47 pF	50 V	J	2	
C125L/R	3479347971	Electrolytic SG	4.7 μ F	50 V	M	2	
C126L/R	3679273120	Mylar	0.027 μ F	100 V	J	2	
C127L/R	3679332120	Mylar	0.0033 μ F	100 V	J	2	
C128L/R	3679154297	Mylar	0.15 μ F	63V	K	2	
C129L/R	3679183120	Mylar	0.018 μ F	100 V	J	2	
C130L/R	3519331935	Ceramic Tubular	330 pF	50 V	K	2	
CONNECTOR							
CNT116-1	436208123332	Lead Ass'y, 8P, 120mm					
INTEGRATED CIRCUIT							
IC105	2168206104	KIA4559P (KIA75559P), OP Amp					
RESISTORS							
R124	3069151970	Carbon Film	150 ohm	1/5 W	J	1	
R121L/R	3069104970	Carbon Film	100 kohm	1/5 W	J	2	
R125L/R	3069104970	Carbon Film	100 kohm	1/5 W	J	2	
R126L/R	3069274970	Carbon Film	270 kohm	1/5 W	J	2	
R127L/R	3069105970	Carbon Film	1 Mohm	1/5 W	J	2	
R128L/R	3069102970	Carbon Film	1 kohm	1/5 W	J	2	
R129L/R	3069183970	Carbon Film	18 kohm	1/5 W	J	2	
R130L/R	3069102970	Carbon Film	1 kohm	1/5 W	J	2	
R131L/R	3069392970	Carbon Film	3.9 kohm	1/5 W	J	2	
R132L/R	3069621970	Carbon Film	620 ohm	1/5 W	J	2	
MISCELLANEOUS							
14	6165149710	Shield Fence, Tone					
15	3208068910	Volume, Bass/Treble					
16	3208068810	Volume, Balance					
PCBS							
ASSY P.C. BOARD FRONT							
CAPACITORS							
C710/C711	3679473120	Mylar	0.047 μ F	100 V	J	2	
C712	3439247315	Back-Up	0.047 μ F	5.5 V	M	1	
C713	3479347021	Electrolytic SG	47 μ F	10 V	M	1	
C714	3479310971	Electrolytic SG	1 μ F	50 V	M	1	
C716	3479310071	Electrolytic SG	10 μ F	50 V	M	1	
C717	3479310171	Electrolytic SG	100 μ F	50 V	M	1	
C720	3519223530	Ceramic Disc	0.022 μ F	50 V	Z	1	
C721	3479347871	Electrolytic SG	0.47 μ F	50 V	M	1	
CONNECTORS							
CNT105-1	4428513450	Wafer, 5P, Angle					
CNT107-1	4428531826	Wafer FPC, 31P					
CNT701	4428513420	Wafer, 2P, Angle					

Ref. No.	Mfr. Part No.	Description	Q'ty	Ref. No.	Mfr. Part No.	Description	Q'ty		
DIODES									
D701	2258599102	UZ 4.3BSB	1	D700	2308220324	LED, SLR 40MG3, Green	1		
D704-D709	2058322101	1N4148, Switching	6	CNT700-1	435102183181	Connector, Lead Ass'y, 2P, 180mm	1		
D710/D711	2258599117	UZ 16.0BSD	2						
D712	2258599107	UZ 9.1BSC	1						
D713	2258100135	1N4002, Rectifier	1						
D714	2058322101	1N4148, Switching	1						
D716	2058322101	1N4148, Switching	1						
FIP									
FL700	2328002306	FL Display CM1361C	1	△ F700	1508400602	Jumper	1		
INTEGRATED CIRCUIT									
IC701	2138322189	CXP82316, CPU	1	△ F701	5508202921	Fuse, NB 125 V, 4 A	1		
TRANSISTORS									
Q701	2208606104	BKTC3198Y(KTC1815Y), NPN	1	R724	3029335380	RES, Carbon Film 3.3 Mohm 1/2 W J	1		
Q702	2208606104	BKTC3198Y(KTC1815Y), NPN	1	CNT101-1	4428525780	Connector, Pin Base, 2P	1		
RESISTORS				CNT122	4428525780	Connector, Pin Base, 2P	1		
R708	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	4255001010	Clip Fuse	2			
R710	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	4228001410	Pin Solder	2			
R713H	3069473970	Carbon Film 47 kohm 1/5 W J	1	4235007310	Terminal Ground	1			
R714L	3069473970	Carbon Film 47 kohm 1/5 W J	1	△ 28	4448104810	Outlet, AC	1		
R715H	3069473970	Carbon Film 47 kohm 1/5 W J	1						
R716L	3069473970	Carbon Film 47 kohm 1/5 W J	1						
R717	3069471970	Carbon Film 470 ohm 1/5 W J	1						
R718	3069332970	Carbon Film 3.3 kohm 1/5 W J	1						
R720	3069104970	Carbon Film 100 kohm 1/5 W J	1						
R721	3069331970	Carbon Film 330 ohm 1/5 W J	1						
R722	3069332970	Carbon Film 3.3 kohm 1/5 W J	1						
R723	3069473970	Carbon Film 47 kohm 1/5 W J	1						
R725	3069101970	Carbon Film 100 ohm 1/5 W J	1						
R726	3069103970	Carbon Film 10 kohm 1/5 W J	1						
R729	3069331970	Carbon Film 330 ohm 1/5 W J	1						
R730	3069104970	Carbon Film 100 kohm 1/5 W J	1						
R731	3069153970	Carbon Film 15 kohm 1/5 W J	1						
R732	3069104970	Carbon Film 100 kohm 1/5 W J	1						
R733	3029391470	Metal Film 390 ohm 1 W J	1						
R734/R735	3069104970	Carbon Film 100 kohm 1/5 W J	2						
R745	3069102970	Carbon Film 1 kohm 1/5 W J	1						
MISCELLANEOUS									
X700	3938124010	Resonator, CST10MTW-TF01	1	24	4628055910	Switch Power, Push Type	1		
RMC1	2408005001	Sensor, TEMT5380(38 kHz)	1	25	4438004510	Jack Phone, Headphone, 9P	1		
21	6043010210	Holder FL	1						
22	4658004810	Switch Tact	14						
PCB4 ASSY P.C. BOARD VOLUME									
CAPASISTORS									
C700	3479310071	Electrolytic SG 10 μ F 50 V M	1	C704	3579104530	Ceramic Disc. 0.1 μ F 50V Z	1		
C701	3479310121	Electrolytic SG 100 μ F 10 V M	1	C707/C708	3519101935	Ceramic Tubular 100 μ F 50 V K	2		
C702	3479310131	Electrolytic SG 100 μ F 16 V M	1	C709	3479333031	Electrolytic SG. 33 μ F 16 V M	1		
C703	3479310121	Electrolytic SG 100 μ F 10 V M	1						
CONNECTORS									
CNT114-1	4428551320	Wafer, 13P	1						
CNT700	4428508210	Wafer, 2P	1	R709	3069750970	Carbon Film 75 ohm 1/5 W J	1		
				R711/R712	3069102970	Carbon Film 1 kohm 1/5 W J	2		
RESISTORS									
R700	3069681970	Carbon Film 680 ohm 1/5 W J	1						
R701/R702	3069102970	Carbon Film 1 kohm 1/5 W J	2						
R705	3069479970	Carbon Film 4.7 ohm 1/5 W J	1						
R706	3069103970	Carbon Film 10 kohm 1/5 W J	1						
R707	3069302970	Carbon Film 3 kohm 1/5 W J	1						
MISCELLANEOUS									
IC700	2168007204	IC, TA7291S	1						
Q700	2208622108	TR, DTC114TS	1						
23	3228020010	Volume Motor, 50 k(A)	1						
PCB5 ASSY P.C. BOARD ST-BY LED									
PCB6 ASSY P.C. BOARD OUTLET									
				△ F700	1508400602	Jumper	1		
				△ F701	5508202921	Fuse, NB 125 V, 4 A	1		
				R724	3029335380	RES, Carbon Film 3.3 Mohm 1/2 W J	1		
				CNT101-1	4428525780	Connector, Pin Base, 2P	1		
				CNT122	4428525780	Connector, Pin Base, 2P	1		
				4255001010	Clip Fuse	2			
				4228001410	Pin Solder	2			
				4235007310	Terminal Ground	1			
				△ 28	4448104810	Outlet, AC	1		
PCB7 ASSY P.C. BOARD POWER LED									
PCB8 ASSY P.C. BOARD HEADPHONE									
				CAPACITORS					
				C715	3579104530	Ceramic Disc. 0.1 μ F 50V Z	1		
				C718	3548472340	SPK-Killer 0.0047 μ F 400V	1		
				C719L/R	3579473530	Ceramic Disc. 0.047 μ F 50 V Z	2		
TRANSISTORS									
				Q703/Q704	2208622106	DTC114YS	2		
RESISTORS									
				R703	3069202970	Carbon Film 2 kohm 1/5 W J	1		
				R704	3069103970	Carbon Film 10 kohm 1/5 W J	1		
				R719	3069103970	Carbon Film 10 kohm 1/5 W J	1		
				R728L/R	3069101970	Carbon Film 100 ohm 1/5 W J	2		
CONNECTORS									
				CNT111-1	436205283332	Lead Ass'y, 5P, 280mm	1		
				CNT122-1	4358850230	Lead Ass'y, 2P, 300mm, LV Type	1		
MISCELLANEOUS									
				24	4628055910	Switch Power, Push Type	1		
				25	4438004510	Jack Phone, Headphone, 9P	1		
PCB9 ASSY P.C. BOARD VCR2									
CAPACITORS									
				C704	3579104530	Ceramic Disc. 0.1 μ F 50V Z	1		
				C707/C708	3519101935	Ceramic Tubular 100 μ F 50 V K	2		
				C709	3479333031	Electrolytic SG. 33 μ F 16 V M	1		
RESISTORS									
				R709	3069750970	Carbon Film 75 ohm 1/5 W J	1		
				R711/R712	3069102970	Carbon Film 1 kohm 1/5 W J	2		
MISCELLANEOUS									
				CNT113-1	4428525550	Connector, Wafer, 5P, Angle	1		
				27	4438109710	Jack RCA, 3P, VCR	1		
PCB10 ASSY P.C. BOARD SURROUND AMP									
CAPACITORS									
				C401	3479347031	Electrolytic SG 47 μ F 16 V M	1		
				C402	3519101935	Ceramic Tubular 100 μ F 50 V K	1		
				C403	3479310971	Electrolytic SG 1 μ F 50 V M	1		
				C404	3479347041	Electrolytic SG 47 μ F 25 V M	1		
				C405	3519470935	Ceramic Tubular 47 μ F 50 V K	1		
				C406	3479310071	Electrolytic SG 10 μ F 50 V M	1		
				C407	3479347971	Electrolytic SG 4.7 μ F 50 V M	1		

Ref. No.	Mfr. Part No.	Description	Q'ty	Ref. No.	Mfr. Part No.	Description	Q'ty						
C408	3679683120	Mylar	0.068	μ F	100 V J	1	R434/R435	3069333970	Carbon Film	33	kohm	1/5 W J	2
C409	3679473120	Mylar	0.047	μ F	100 V J	1	R436	3069103970	Carbon Film	10	kohm	1/5 W J	1
C410	3479347031	Electrolytic SG	47	μ F	16 V M	1	R437	3069271970	Carbon Film	270	ohm	1/5 W J	1
C411	3519101935	Ceramic Tubular	100	pF	50 V K	1	R438/R439	3069391970	Carbon Film	390	ohm	1/5 W J	2
C412	3479310971	Electrolytic SG	1	μ F	50 V M	1	R440	3069102970	Carbon Film	1	kohm	1/5 W J	1
△ C413	3479347041	Electrolytic SG	47	μ F	25 V M	1	R441/R442	3069152970	Carbon Film	1.5	kohm	1/5 W J	2
△ C414	3519470935	Ceramic Tubular	47	pF	50 V K	1	R443-R447	3069561970	Carbon Film	560	ohm	1/5 W J	5
C415	3479310071	Electrolytic SG	10	μ F	50 V M	1	R448/R449	3069820970	Carbon Film	82	ohm	1/5 W J	2
C416	3479347971	Electrolytic SG	4.7	μ F	50 V M	1	R450/R451	3069223970	Carbon Film	22	kohm	1/5 W J	2
C417	3679683120	Mylar	0.068	μ F	100 V J	1	R452	3069471970	Carbon Film	470	ohm	1/5 W J	1
C419	3409322179	Electrolytic SG	220	μ F	50 V M	1	R453	3069122970	Carbon Film	1.2	kohm	1/5 W J	1
C471	3409322179	Electrolytic SG	220	μ F	50 V M	1	R454	3069820970	Carbon Film	82	ohm	1/5 W J	1
CONNECTORS													
CNT110-1	4428561520	Wafer, 15P											
CNT117	436102123321	Lead Ass'y, 2P, 120mm											
DIODES													
D401/D402	2058322101	1N4148, Switching											
TRANSISTORS													
Q401	2208622106	DTC114YS											
Q402	2208206105	KTA1266Y(KTA1015Y), PNP											
Q403-Q405	2208206104	KTA1268/KTA970, PNP											
Q406/Q407	2208606108	KTC3200BL(KTC2240BL), NPN											
Q408	2208206102	KTA1024Y(BKTA949Y), PNP											
Q409	2208606107	KTC3206Y(BKTC2229Y), NPN											
Q410	2008622110	2SC4137, NPN, Bias											
Q411	2008602102	KSC2690AY, NPN											
Q412	2008202101	KSA1220AY, NPN											
Q413	2028407109	KTD718(2SD718), NPN											
Q414	2028107106	KTB688(2SB688), PNP											
Q415	2208606104	BKTC3198Y(KTC1815Y), NPN											
Q416	2208206105	KTA1266Y(KTA1015Y), PNP											
Q417-Q419	2208206104	KTA1268/KTA970, PNP											
Q420/Q421	2208606108	BKTC3200BL(KTC2240BL), NPN											
Q422	2208206102	KTA1024Y(BKTA949Y), PNP											
Q423	2208606107	KTC3206Y(BKTC2229Y), NPN											
Q424	2008622110	2SC4137, NPN, Bias											
Q425	2008602102	KSC2690AY, NPN											
Q426	2008202101	KSA1220AY, PNP											
Q427	2028407109	KTD718(2SD718), NPN											
Q428	2028107106	KTB688(2SB688), PNP											
Q429	2208606104	BKTC3198Y(KTC1815Y), NPN											
Q430	2238006103	KRA107M(DTA114YS)											
Q431	2208606112	2SD1302, NPN											
Q432	2238006103	KRA107M(DTA114YS)											
Q433	2208606112	2SD1302, NPN											
RESISTORS													
R401	3069102970	Carbon Film	1	kohm	1/5 W J	1	C332-C336	3679473120	Mylar	0.047	μ F	100 V J	1
R402/R403	3069333970	Carbon Film	33	kohm	1/5 W J	2	C337/C338	3679104297	Mylar	0.1	μ F	63V K	2
R404	3069103970	Carbon Film	10	kohm	1/5 W J	1	C339/C340	3679104297	Mylar	680	pF	50 V J	1
R405	3069271970	Carbon Film	270	ohm	1/5 W J	1	C341	3615681110	Poly	0.047	μ F	100 V J	1
R406/R407	3069391970	Carbon Film	390	ohm	1/5 W J	2	C342	3479310121	Electrolytic SG	22	μ F	50 V M	1
R408	3069102970	Carbon Film	1	kohm	1/5 W J	1	C343	3519104935	Ceramic Tubular	0.1	μ F	50 V K	1
R409/R410	3069152970	Carbon Film	1.5	kohm	1/5 W J	2	C344	3479310121	Electrolytic SG	100	μ F	10 V M	1
R411-R415	3069561970	Carbon Film	560	ohm	1/5 W J	5	C345/C346	3579271130	Ceramic Disc	270	pF	50 V K	2
R416/R417	3069820970	Carbon Film	82	ohm	1/5 W J	2	C347	3519101935	Ceramic Tubular	100	pF	50 V K	1
R418/R419	3069223970	Carbon Film	22	kohm	1/5 W J	2	C348/C349	3679562120	Mylar	0.0056	μ F	100 V J	2
R420	3069471970	Carbon Film	470	ohm	1/5 W J	1	C350	3579471130	Ceramic Disc	470	pF	50 V K	1
R421	3069122970	Carbon Film	1.2	kohm	1/5 W J	1	C351	3679104297	Mylar	0.1	μ F	63V J	1
R422	3069820970	Carbon Film	82	ohm	1/5 W J	1	C352	3479347031	Electrolytic SG	47	μ F	16 V M	1
R423/R424	3059278782	Cement	0.27	ohm	5 W J	2	C353/C354	3679473120	Mylar	0.047	μ F	100 V J	2
R425	3069128970	Carbon Film	1.8	kohm	1/5 W J	1	C355	3679104297	Mylar	0.1	μ F	63V J	1
R426	3069152970	Carbon Film	1.5	kohm	1/5 W J	1	C356	3579471130	Ceramic Disc	470	pF	50 V K	1
△ R427	3069911970	Carbon Film	910	ohm	1/5 W J	1	C357	3479310971	Electrolytic SG	1	μ F	50 V M	1
△ R428	3069682970	Carbon Film	6.8	kohm	1/5 W J	1	C358/C359	3479347031	Electrolytic SG	47	μ F	16 V M	2
R431	3069243970	Carbon Film	24	kohm	1/5 W J	1	C360/C361	3519104935	Ceramic Tubular	0.1	μ F	50 V K	2
R433	3069102970	Carbon Film	1	kohm	1/5 W J	1	C362	3519101935	Ceramic Tubular	100	pF	50 V K	1

Ref. No.	Mfr. Part No.	Description	Q'ty	Ref. No.	Mfr. Part No.	Description	Q'ty	
C363/C364	3479347031	Electrolytic SG	47 μ F	16 V M 2	R349	3069104970	Carbon Film	100 kohm 1/5 W J 1
C365	3479347971	Electrolytic SG	4.7 μ F	50 V M 1	R351	3069473970	Carbon Film	47 kohm 1/5 W J 1
C366	3519101935	Ceramic Tubular	100 pF	50 V K 1	R352	3069822970	Carbon Film	8.2 kohm 1/5 W J 1
C367	3519681935	Ceramic Disc	680 pF	50 V J 1	R353	3069182970	Carbon Film	1.8 kohm 1/5 W J 1
C368	3479347971	Electrolytic SG	4.7 μ F	50 V M 1	R354	3069103970	Carbon Film	10 kohm 1/5 W J 1
C369	3479347871	Electrolytic SG	0.47 μ F	50 V M 1	R355/R356	3069151970	Carbon Film	150 ohm 1/5 W J 2
C370	3519101935	Ceramic Tubular	100 pF	50 V K 1	R358L/R	3069104970	Carbon Film	100 kohm 1/5 W J 2
C371	3519681935	Ceramic Tubular	680 pF	50 V J 1	R359L/R	3069152970	Carbon Film	1.5 kohm 1/5 W J 2
C372	3479347871	Electrolytic SG	0.47 μ F	50 V M 1	R360L/R	3069912970	Carbon Film	9.1 kohm 1/5 W J 2
C373/C374	3479347031	Electrolytic SG	47 μ F	16 V M 2	R361L/R	3069104970	Carbon Film	100 kohm 1/5 W J 2
C375L/R	3479347971	Electrolytic SG	4.7 μ F	50 V M 2	R362L/R	3069102970	Carbon Film	1 kohm 1/5 W J 2
C376L/R	3519101935	Ceramic Tubular	100 pF	50 V K 2	R363/R364	30699332970	Carbon Film	3.3 kohm 1/5 W J 2
C377L/R	3479347971	Electrolytic SG	4.7 μ F	50 V M 2	R365	3069102970	Carbon Film	1 kohm 1/5 W J 1
C378L/R	3519330935	Ceramic Tubular	33 pF	50 V K 2	R366-R368	3069104970	Carbon Film	10 kohm 1/5 W J 3
C380	3679332120	Mylar	0.0033 μ F	100 V J 1				
		CONNECTORS						
CNT108-1	4428560150	Wafer, 15P		X301	3938131740	Resonator, CSA2.00MG	1	
CNT109-1	4428560150	Wafer, 15P	1	11	4438103110	Jack RCA, 4P	1	
				17	4438111310	Jack RCA, Sub Output, 2P	1	
		DIODES						
D301/D302	2058322101	1N4148, Switching	2		PCB12	ASSY P.C. BOARD VIDEO		
		INTEGRATED CIRCUITS				CAPACITORS		
IC301	2169020000	NJM2177AFB3	1	C501	3519050935	Ceramic Tubular	5 pF 50 V D 1	
IC302	2168020114	NJU9701, Delay	1	C502	347933031	Electrolytic SG	33 μ F 16 V .M 1	
IC303	2168007210	TC9299	1	C503	3519050935	Ceramic Tubular	5 μ F 50 V D 1	
IC304/IC305	2168206104	KIA4559P (KIA75559P), OP Amp	2	C504/C505	3479347121	Electrolytic SG	470 μ F 10 V M 2	
				C506	3479310121	Electrolytic SG	100 μ F 10 V M 1	
				C507	3519104935	Ceramic Tubular	0.1 μ F 50 V Z 1	
		TRANSISTORS						
Q301/Q302	2208622106	DTC114YS	2			INTEGRATED CIRCUIT		
Q303-Q305	2238006103	KRA107M(DTA114YS)	2	IC501	2138001101	GD4066B	1	
Q306/Q307	2208606112	2SD1302, NPN	2			TRANSISTORS		
		RESISTORS						
R301	3069752970	Carbon Film	7.5 kohm 1/5 W J 1	Q501	2208606104	BKTC3198Y(KTC1815Y), NPN	1	
R302	3069473970	Carbon Film	47 kohm 1/5 W J 1	Q502	2208206105	KTA1266Y(KTA1015Y), PNP	1	
R303	3069153970	Carbon Film	15 kohm 1/5 W J 1	Q503	2208606104	BKTC3198Y(KTC1815Y), NPN	1	
R304	3069475970	Carbon Film	4.7 Mohm 1/5 W J 1	Q504	2208206105	KTA1266Y(KTA1015Y), PNP	1	
R305/R306	3069223970	Carbon Film	22 kohm 1/5 W J 2			RESISTORS		
R307-R309	3069104970	Carbon Film	100 kohm 1/5 W J 3	R501	3069822970	Carbon Film	8.2 kohm 1/5 W J 1	
R310	3069103970	Carbon Film	10 kohm 1/5 W J 1	R502	3069123970	Carbon Film	12 kohm 1/5 W J 1	
R311	3069680970	Carbon Film	68 ohm 1/5 W J 1	R503	3069151970	Carbon Film	150 ohm 1/5 W J 1	
R312	3069104970	Carbon Film	100 kohm 1/5 W J 1	R504/R505	3069122970	Carbon Film	1.2 kohm 1/5 W J 2	
R314	3069104970	Carbon Film	100 kohm 1/5 W J 1	R506	3069181970	Carbon Film	180 ohm 1/5 W J 1	
R315	3069153970	Carbon Film	15 kohm 1/5 W J 1	R507	3069750970	Carbon Film	75 ohm 1/5 W J 1	
R316/R317	3069822970	Carbon Film	8.2 kohm 1/5 W J 2	R508	3069123970	Carbon Film	12 kohm 1/5 W J 1	
R318	3069682970	Carbon Film	6.8 kohm 1/5 W J 1	R509	3069822970	Carbon Film	8.2 kohm 1/5 W J 1	
R319	3069334970	Carbon Film	330 kohm 1/5 W J 1	R510	3069122970	Carbon Film	1.2 kohm 1/5 W J 1	
R320	3069752970	Carbon Film	7.5 kohm 1/5 W J 1	R511	3069151970	Carbon Film	150 ohm 1/5 W J 1	
R321	3069473970	Carbon Film	47 kohm 1/5 W J 1	R512	3069122970	Carbon Film	1.2 kohm 1/5 W J 1	
R322	3069153970	Carbon Film	15 kohm 1/5 W J 1	R513	3069181970	Carbon Film	180 ohm 1/5 W J 1	
R323	3069560970	Carbon Film	56 ohm 1/5 W J 1	R514/R515	3069750970	Carbon Film	75 ohm 1/5 W J 2	
R324	3069470970	Carbon Film	47 ohm 1/5 W J 1	R516	3069101970	Carbon Film	100 ohm 1/5 W J 1	
R325	3069105970	Carbon Film	1 Mohm 1/5 W J 1	R517/R518	3069104970	Carbon Film	100 kohm 1/5 W J 2	
R326/R327	3069102970	Carbon Film	1 kohm 1/5 W J 2			MISCELLANEOUS		
R328	3069822970	Carbon Film	8.2 kohm 1/5 W J 1	CNT112-1	4438302927	Connector, Wafer, 6P	1	
R329	3069752970	Carbon Film	7.5 kohm 1/5 W J 1	20	4438114310	Jack RCA(VCR1/Monitor), 3P	1	
R330	3069183970	Carbon Film	18 kohm 1/5 W J 1					
R331	3069562970	Carbon Film	5.6 kohm 1/5 W J 1			PCB13	ASSY P.C. BOARD CENTER SPEAKER	
R332/R333	3069220970	Carbon Film	22 ohm 1/5 W J 2	CF401/402	3519472935	CAP, Ceramic	0.0047 μ F 50 V K 2	
R334	3069153970	Carbon Film	15 kohm 1/5 W J 1	R429/R430	3069220970	RES, Carbon Film	22 ohm 1/5 W J 2	
R335	3069183970	Carbon Film	18 kohm 1/5 W J 1	R432	3029100470	RES, Metal Film	10 ohm 1 W J 1	
R336	3069153970	Carbon Film	15 kohm 1/5 W J 1	L401	2648001010	Coil, Inductor, 0.5 uH	1	
R338/R339	3069151970	Carbon Film	150 ohm 1/5 W J 2	CNT117-1	4428508210	Connector, Wafer, 2P	1	
R340-R342	3069102970	Carbon Film	1 kohm 1/5 W J 3	19	4408108710	Terminal Speaker Center, Screw Type, 2P	1	
R343/R344	3069151970	Carbon Film	150 ohm 1/5 W J 2					
R346	3069104970	Carbon Film	100 kohm 1/5 W J 1					
R347	3069822970	Carbon Film	8.2 kohm 1/5 W J 1					
R348	3069182970	Carbon Film	1.8 kohm 1/5 W J 1					

Ref. No.	Mfr. Part No.	Description	Q'ty
PCB14			
ASSY P.C. BOARD-TUNER			
CAPACITORS			
C801	3479310141	Electrolytic SG	100 μ F 25 V M 1
C802	3519223935	Ceramic Tubular	0.022 μ F 50 V Z 1
C804-C809	3519223935	Ceramic Tubular	0.022 μ F 50 V Z 6
C810	3479347041	Electrolytic SG	47 μ F 25 V M 1
C813	3679473120	Mylar	0.047 μ F 100 V J 1
C814	3519331935	Ceramic Tubular	330 pF 50 V K 1
C815	3479347871	Electrolytic SG	0.47 μ F 50 V M 1
C816	3519223935	Ceramic Tubular	0.022 μ F 50 V Z 1
C817	3479347971	Electrolytic SG	4.7 μ F 50 V M 1
C818	3479333971	Electrolytic SG	3.3 μ F 50 V M 1
C819	3479347971	Electrolytic SG	4.7 μ F 50 V M 1
C820	3519470935	Ceramic Tubular	47 pF 50 V J 1
C821	3519223935	Ceramic Tubular	0.022 μ F 50 V Z 1
C822	3679272120	Mylar	0.0027 μ F 100 V J 1
C823	3479322971	Electrolytic SG	2.2 μ F 50 V M 1
C824/C825	3528330210	Ceramic Disc, CH	33 pF 50 V J 2
C828	3519101935	Ceramic Tubular	100 pF 50 V K 1
C829	3519103935	Ceramic Tubular	0.01 μ F 50 V Z 1
C830	3479310971	Electrolytic SG	1 μ F 50 V M 1
C831	3479347041	Electrolytic SG	47 μ F 25 V M 1
C832	3519223935	Ceramic Tubular	0.022 μ F 50 V Z 1
C833	3479347041	Electrolytic SG	47 μ F 25 V M 1
C834	3519223935	Ceramic Tubular	0.022 μ F 50 V Z 1
C835	3579473530	Ceramic Disc	0.047 μ F 50 V Z 1
C836	3615471110	Poly	470 pF 50 V J 1
C837	3479310071	Electrolytic SG	10 μ F 50 V M 1
C838	3519223935	Ceramic Tubular	0.022 μ F 50 V Z 1
C839	3519103935	Ceramic Tubular	0.01 μ F 50 V Z 1
C840	3479333971	Electrolytic SG	3.3 μ F 50 V M 1
C841/C842	3479310971	Electrolytic SG	1 μ F 50 V M 2
C843	3479333971	Electrolytic SG	3.3 μ F 50 V M 1
C844	3615102110	Poly	1000 pF 50 V J 1
C845	3679473120	Mylar	0.047 μ F 100 V J 1
C846	3519681935	Ceramic Tubular	680 pF 50 V J 1
C847/C848	3479322041	Electrolytic SG	22 μ F 25 V M 2
C849/C850	3679152120	Mylar	0.0015 μ F 100 V J 2
C851	3519151935	Ceramic Tubular	150 pF 50 V K 1
C852/C853	3479322971	Electrolytic SG	2.2 μ F 50 V M 2
C854/C855	3679222120	Mylar	0.0022 μ F 100 V J 2
C858	3479310141	Electrolytic SG	100 μ F 25 V M 1
FILTERS			
CF801/802	3978011011	SFE10.7MS3GH-ATF21	2
CF804	3908001380	Ceramic, SFZ450F	1
CF805	3908001020	Ceramic, BFU450C	1
DIODES			
D801	2258599103	UZ 5.1BSB	1
D802/D803	2058322101	1N4148, Switching	2
INTEGRATED CIRCUITS			
IC801	2168017128	LA1266	1
IC802	2168411105	HA12016	1
IC803	2138017112	LM7001	1
TRANSISTORS			
Q801	2208406103	KTC1923Y(KTC3194Y), NPN	1
Q802	2018211100	2SK168, N-CH, FET	1
Q803	2208606108	BKTC3200BL(KTC2240BL), NPN	1
Q804	2238006103	KRA107M(DTA114YS)	1
Q805/Q806	2208606112	KTD1302, NPN	2
Q807/Q808	2238006103	DTA114YS/KRA107M	2
RESISTORS			
R803	3069471970	Carbon Film	470 ohm 1/5 W J 1
R804	3069332970	Carbon Film	3.3 kohm 1/5 W J 1
R805	3069331970	Carbon Film	330 ohm 1/5 W J 1
R806	3069471970	Carbon Film	470 ohm 1/5 W J 1

Ref. No.	Mfr. Part No.	Description	Q'ty
PCB15			
ASSY P.C. BOARD-REAR SPEAKER			
R807	3069103970	Carbon Film	10 kohm 1/5 W J 1
R808	3069332970	Carbon Film	3.3 kohm 1/5 W J 1
R809	3069473970	Carbon Film	47 kohm 1/5 W J 1
R810	3069820970	Carbon Film	82 ohm 1/5 W J 1
R811	3069243970	Carbon Film	24 kohm 1/5 W J 1
R812	3069103970	Carbon Film	10 kohm 1/5 W J 1
R813	3069683970	Carbon Film	68 kohm 1/5 W J 1
R814	3069472970	Carbon Film	4.7 kohm 1/5 W J 1
R815	3069222970	Carbon Film	2.2 kohm 1/5 W J 1
R816	3069272970	Carbon Film	2.7 kohm 1/5 W J 1
R817/R818	3069104970	Carbon Film	100 kohm 1/5 W J 2
R819/R820	3069221970	Carbon Film	220 ohm 1/5 W J 2
R821-R823	3069102970	Carbon Film	1 kohm 1/5 W J 3
R824	3069821970	Carbon Film	820 ohm 1/5 W J 1
R825	3069152970	Carbon Film	1.5 kohm 1/5 W J 1
R826	3069103970	Carbon Film	10 kohm 1/5 W J 1
R827	3069102970	Carbon Film	1 kohm 1/5 W J 1
R828	3069101970	Carbon Film	100 ohm 1/5 W J 1
R829/R830	3069104970	Carbon Film	100 kohm 1/5 W J 2
R831/R832	3069223970	Carbon Film	22 kohm 1/5 W J 2
R833/R834	3069272970	Carbon Film	2.7 kohm 1/5 W J 2
R835/R836	3069473970	Carbon Film	.47 kohm 1/5 W J 2
R837	3069392970	Carbon Film	3.9 kohm 1/5 W J 1
R838-R841	3069332970	Carbon Film	3.3 kohm 1/5 W J 4
R842/R843	3069102970	Carbon Film	1 kohm 1/5 W J 2
R844/R845	3069332970	Carbon Film	3.3 kohm 1/5 W J 2
R846	3069102970	Carbon Film	1 kohm 1/5 W J 1
R847	3069562970	Carbon Film	5.6 kohm 1/5 W J 1
R848	3069223970	Carbon Film	22 kohm 1/5 W J 1
R849	3069473970	Carbon Film	47 kohm 1/5 W J 1
R850/R851	3069103970	Carbon Film	10 kohm 1/5 W J 2
R852	3069102970	Carbon Film	1 kohm 1/5 W J 1
R854	3069101970	Carbon Film	100 ohm 1/5 W J 1
R855	3069223970	Carbon Film	22 kohm 1/5 W J 1
R856	3069473970	Carbon Film	47 kohm 1/5 W J 1
R890-R898	3069271970	Carbon Film	270 ohm 1/5 W J 9
COILS			
T801	2608201120	AM-ANT	1
T802	2638201150	AM-OSC	1
T803	2838501110	FM Quad DET(A)	1
T804	2838501210	FM Quad DET(B)	1
T805	2848001250	AM-IFT, P-7SB	1
T806	2658001050	Filter, '19KHz/38KHz, MPX BLK	1
T807	2658001050	Filter, '19KHz/38KHz, MPX BLK	1
TRIMMERS			
TC801	3838001010	TZ03-T200FR	1
TC802	3838001000	TZ03-T110FR	1
SEMI FIXED RESISTORS			
VR801	3248050243	5 k(B)	1
VR802	3248020343	20 k(B)	1
VR803	3248050243	5 k(B)	1
VR804	3248020443	200 k(B)	1
MISCELLANEOUS			
3928101790	F/E FTH3-505H 3	1	
4408108310	Terminal Antenna	1	
2058819106	Diode Varactor, 'KV1236Z	1	
3978101031	Crystal, 7.2MHz	1	
PCB15			
CF403	3519332935	CAP, Ceramic	3300 pF 50 V K 1
C418	3679473120	CAP, Mylar	0.047 μ F 100 V J 1
R461/R462	3069220970	RES, Carbon Film	22 ohm 1/5 W J 2
R464	3029100470	RES, Metal Film	10 ohm 1 W J 1
L402	2648001010	Coil, Inductor, 0.5 uH	1
4408108910	Terminl Speaker Rear, 4P	1	

1. This parts list based on American version is for European version.

2. Each initial in the Remark is denoted as follows.

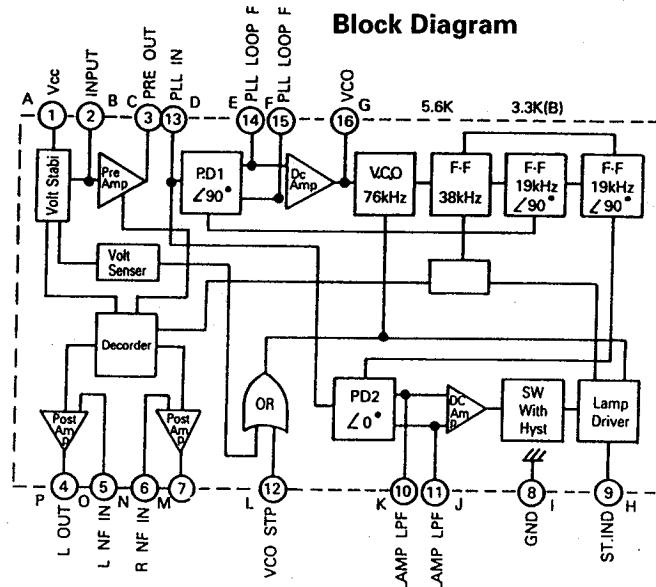
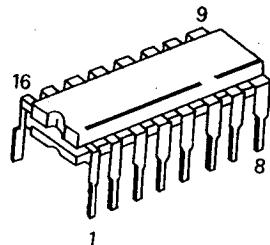
C: Changed, D: Deleted, A: Added

Ref. No.	Mfr. Part No.	Description	Q'ty	Remark
PCB6				
ASSY P.C.B. BOARD OUTLET				
FUSE				
1 F700	5508302035	T 250 V, 1 A	1	C
A F701	5508302535	T 250 V, 2.5 A	1	C
RESISTOR				
R724	3029335380	Carbon Film	3.3 Moh	1/2 W J 0 D
MISCELLANEOUS				
A 28	4448103610	Outlet, AC	1	C
PCB14				
ASSY P.C.B. BOARD TUNER				
CAPACITORS				
C811	3519820935	Ceramic Tubular	82 pF	50 V J 1 A
C812	3519101935	Ceramic Tubular	100 pF	50 V J 1 A
C861	3519271935	Ceramic Tubular	270 pF	50 V K 1 A
FILTERS				
CF803	3978011011	SFE10.7MS3GH-ATF21	1	A
TRANSISTORS				
Q805/Q806	2208606112	KTD1302, NPN	2	C
RESISTORS				
R801	3069623970	Carbon Film	62 kohm	1/5 W J 1 A
R802	3069104970	Carbon Film	100 kohm	1/5 W J 1 A
R809	3069563970	Carbon Film	56 kohm	1/5 W J 1 C
R857	3069102970	Carbon Film	1 kohm	1/5 W J 1 A
COIL				
L101	2648050443	Inductor, 20.8 mH	1	A
SEMI FIXED RESISTOR				
VR804	3248050443	500 k(B)	1	C
MISCELLANEOUS				
29	3928801890	FE407-G60, Front-end	1	C
	4408108210	Terminal Antenna	1	C

SEMICONDUCTOR LEAD IDENTIFICATION & INTERNAL DIAGRAM

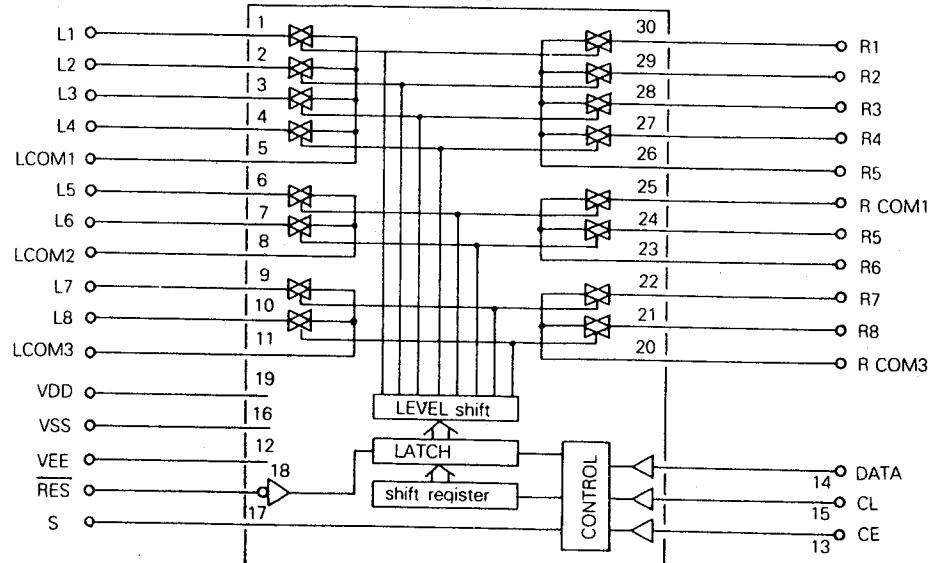
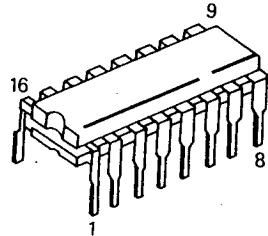
HA12016 : IC803

Package Outline



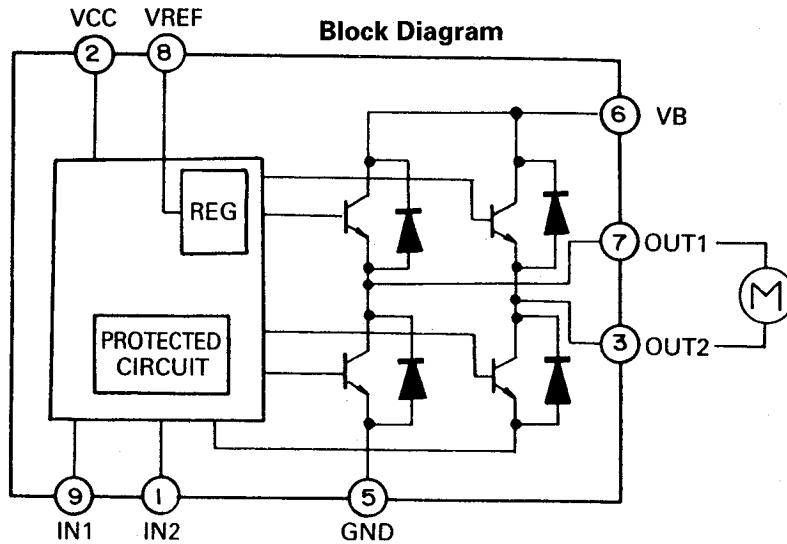
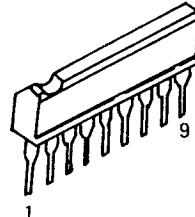
LC7821 : IC101

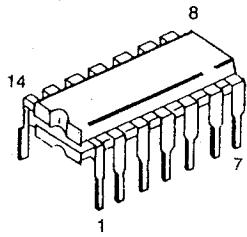
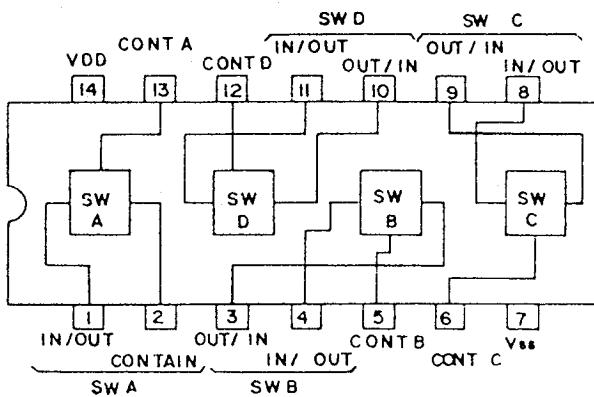
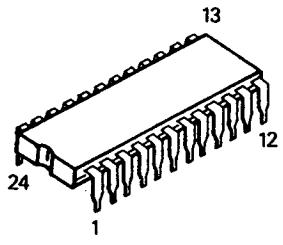
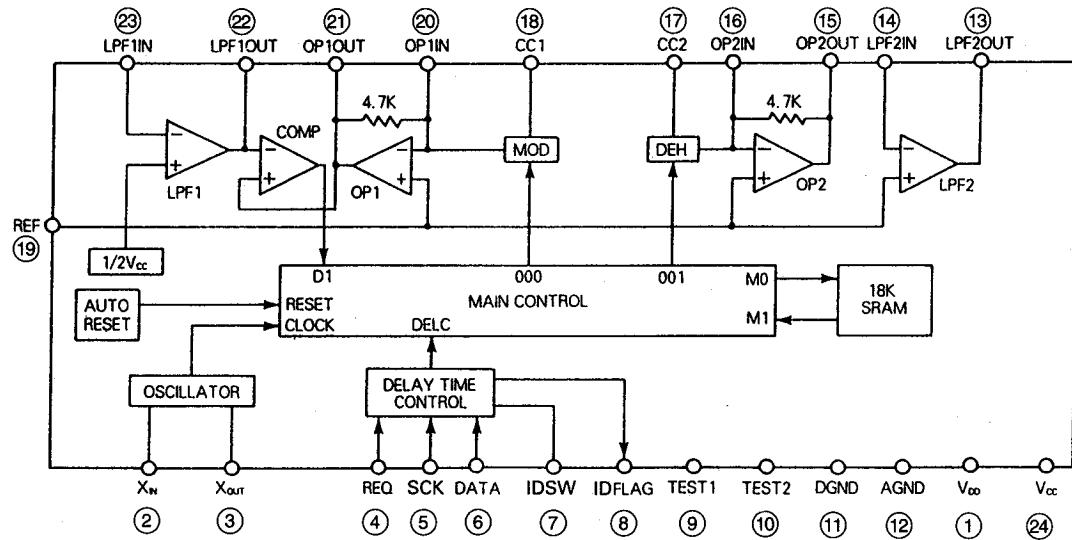
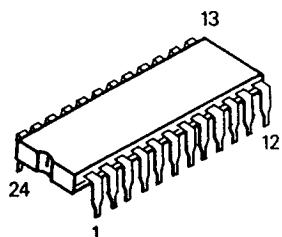
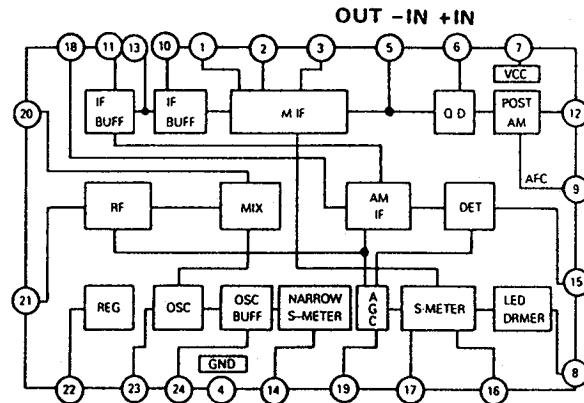
Package Outline



TA7291S : IC700

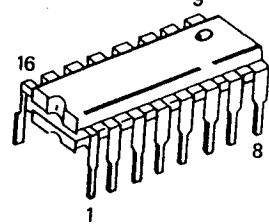
Package Outline



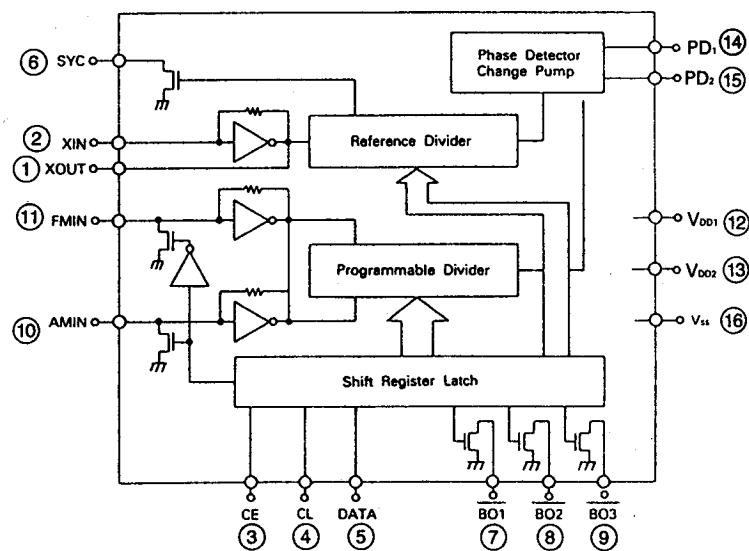
LC4966B : IC103**Package Outline****Block Diagram****NJU9701 : IC302****Package Outline****Block Diagram****LA1266 : IC801****Package Outline****Block Diagram**

LM7001 : IC802

Package Outline



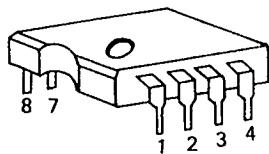
Block Diagram



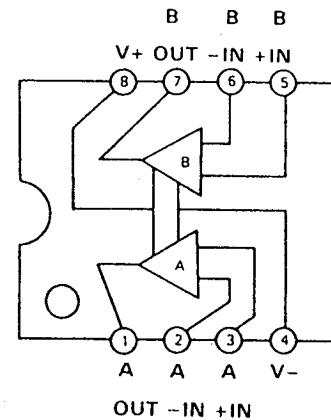
KIA 4559P : IC102, IC105, IC304, IC305

KIA 6259P : IC103

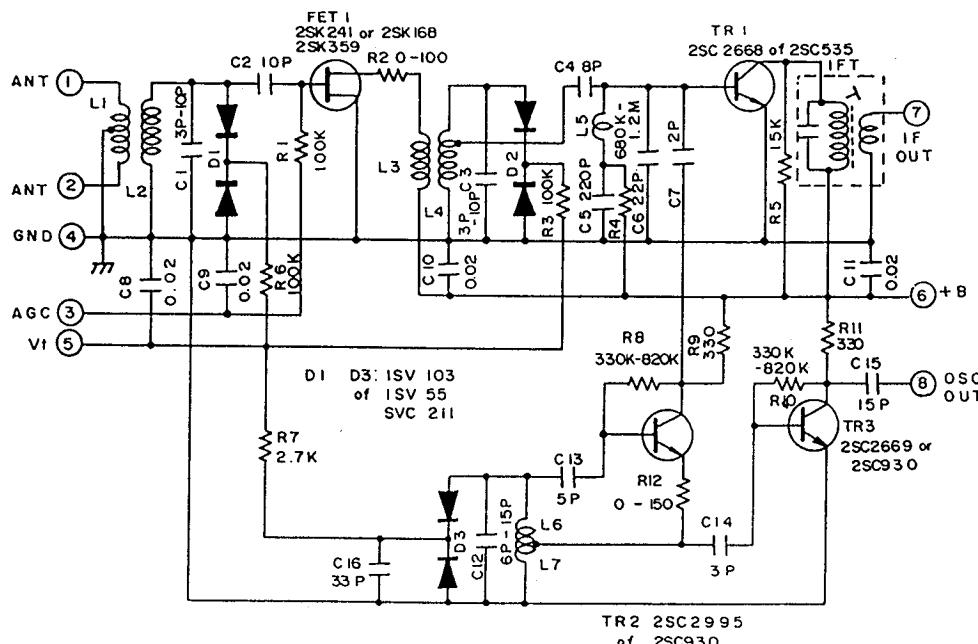
Package Outline

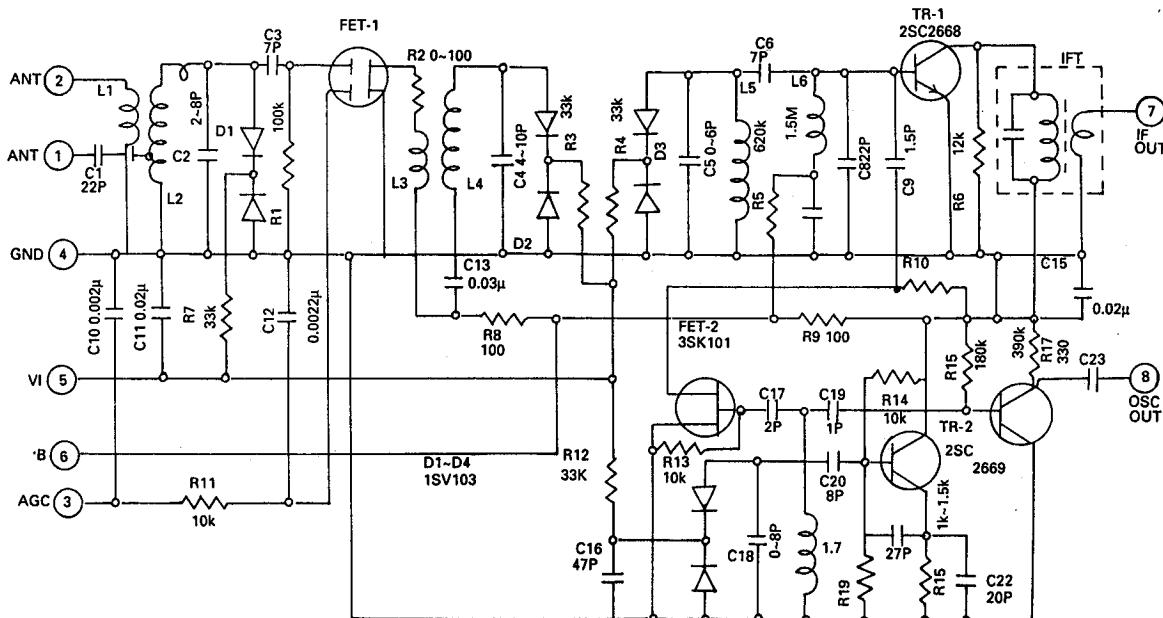
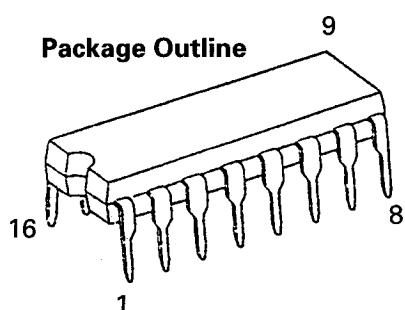
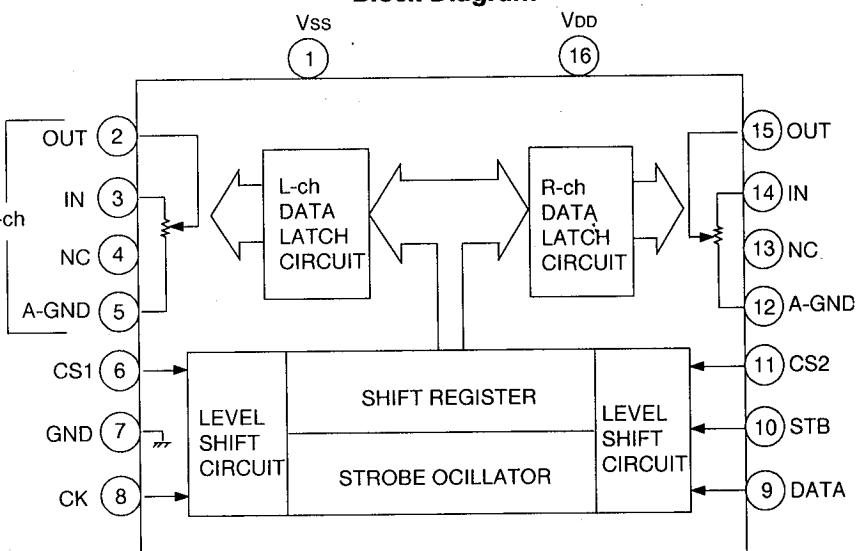
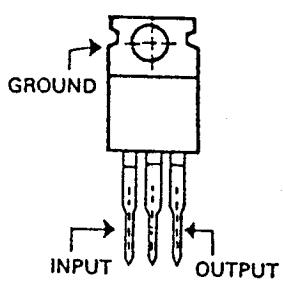
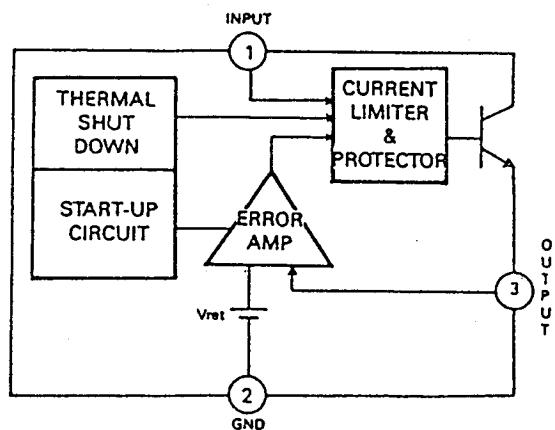


Block Diagram



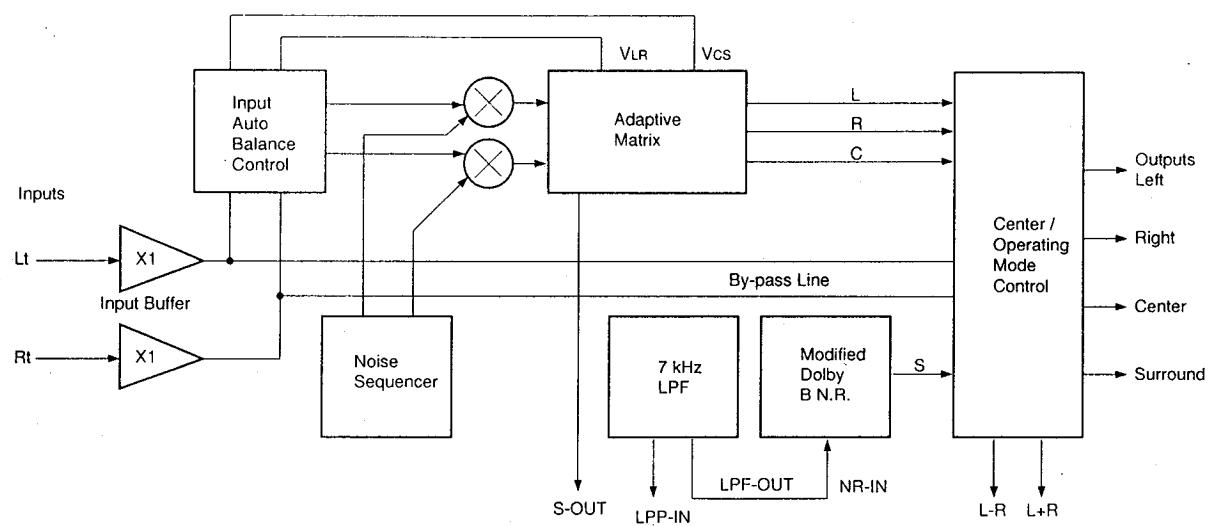
FRONT-END : FE FTH3-505H(USA/CA)



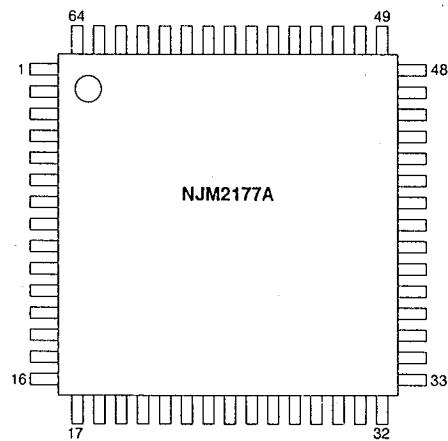
FE407-G6O (Europe)**TC9299P : IC303****Block Diagram****GD78XX : IC105****Front View****Block Diagram**

NJM2177A : IC301

Block Diagram



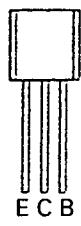
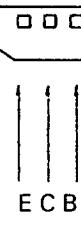
Package Outline

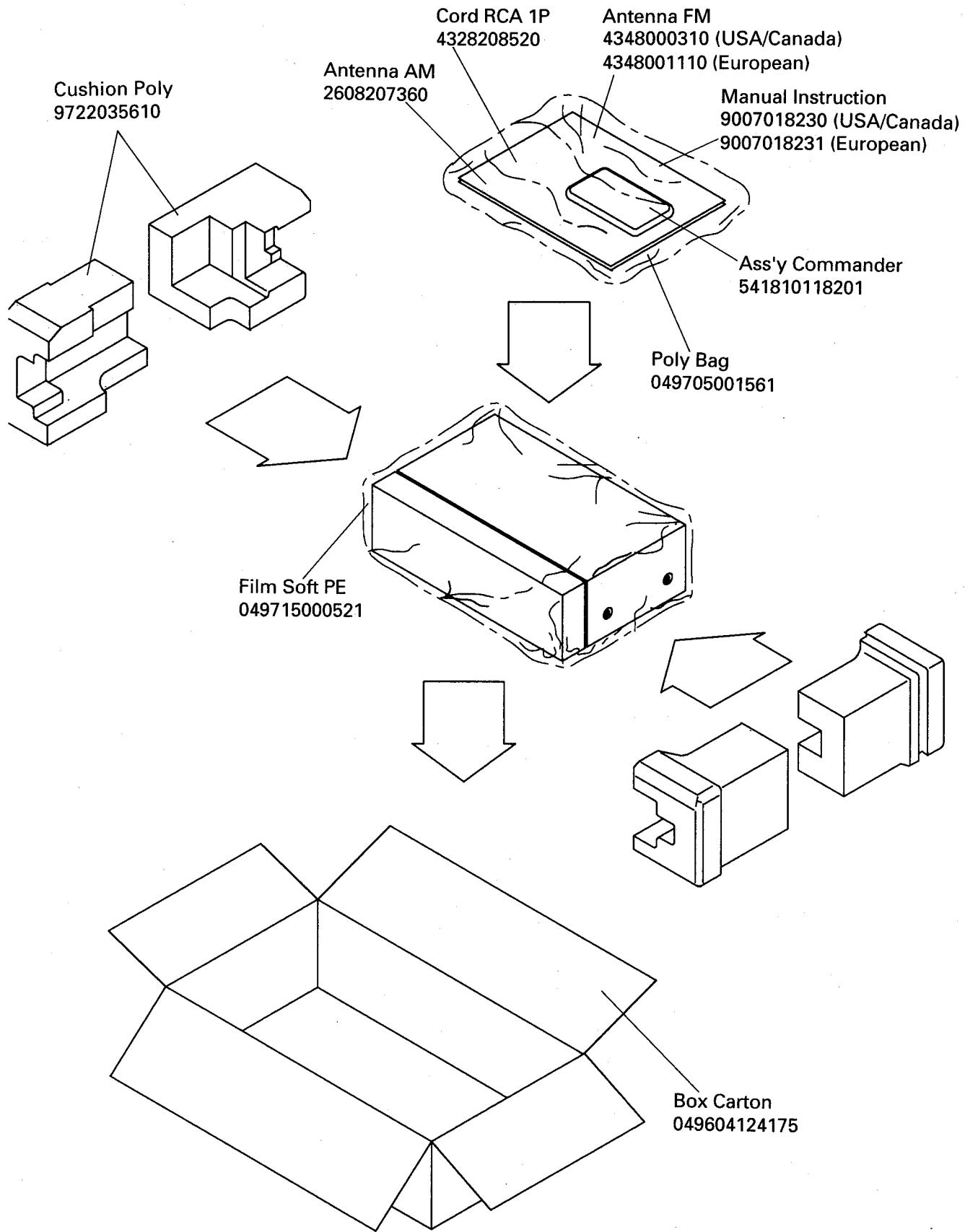


Pin Description

PIN No.	Pin Name	PIN No.	Pin Name	PIN No.	Pin Name
1	NC	23	NOISE-HPF	45	LPF-INV-IN
2	L-RECT-TC	24	NOISE-LPF	46	LPF-NINV-IN
3	R-BPF-OUT	25	S-OUT	47	NR-TC
4	R-BPF-IN	26	CENTER-CNT	48	NC
5	R-RECT-TC	27	MODE-CNT	49	NC
6	GND	28	L-OUT	50	VLR-TC3
7	AB-GATE	29	R-OUT	51	VCS-TC3
8	AB-HOLD-TC	30	L+R-OUT	52	VCS-TC2
9	L-AB-IN	31	L-R-OUT	53	VCS-TC1
10	L-AB-OUT	32	NC	54	VCS-T1
11	L-IN	33	NC	55	VLR-TC2
12	L-INBUF-OUT	34	CENTER-MODE	56	S-RECT-OUT
13	R-INBUF-OUT	35	Vcc	57	C-RECT-OUT
14	R-IN	36	C-OUT	58	R-RECT-OUT
15	R-AB-OUT	37	S'-OUT	59	L-RECT-OUT
16	NC	38	IREF	60	S-RECT-TC
17	NC	39	NR-VCF	61	C-RECT-TC
18	R-AB-IN	40	NR-IN	62	L-BPF-OUT
19	NOISE-CNT-E	41	VREF	63	L-BPF-IN
20	NOISE-CNT-A	42	VREF	64	NC
21	NOISE-CNT-B	43	NR-WT		
22	NOISE-REF	44	LPF-OUT		

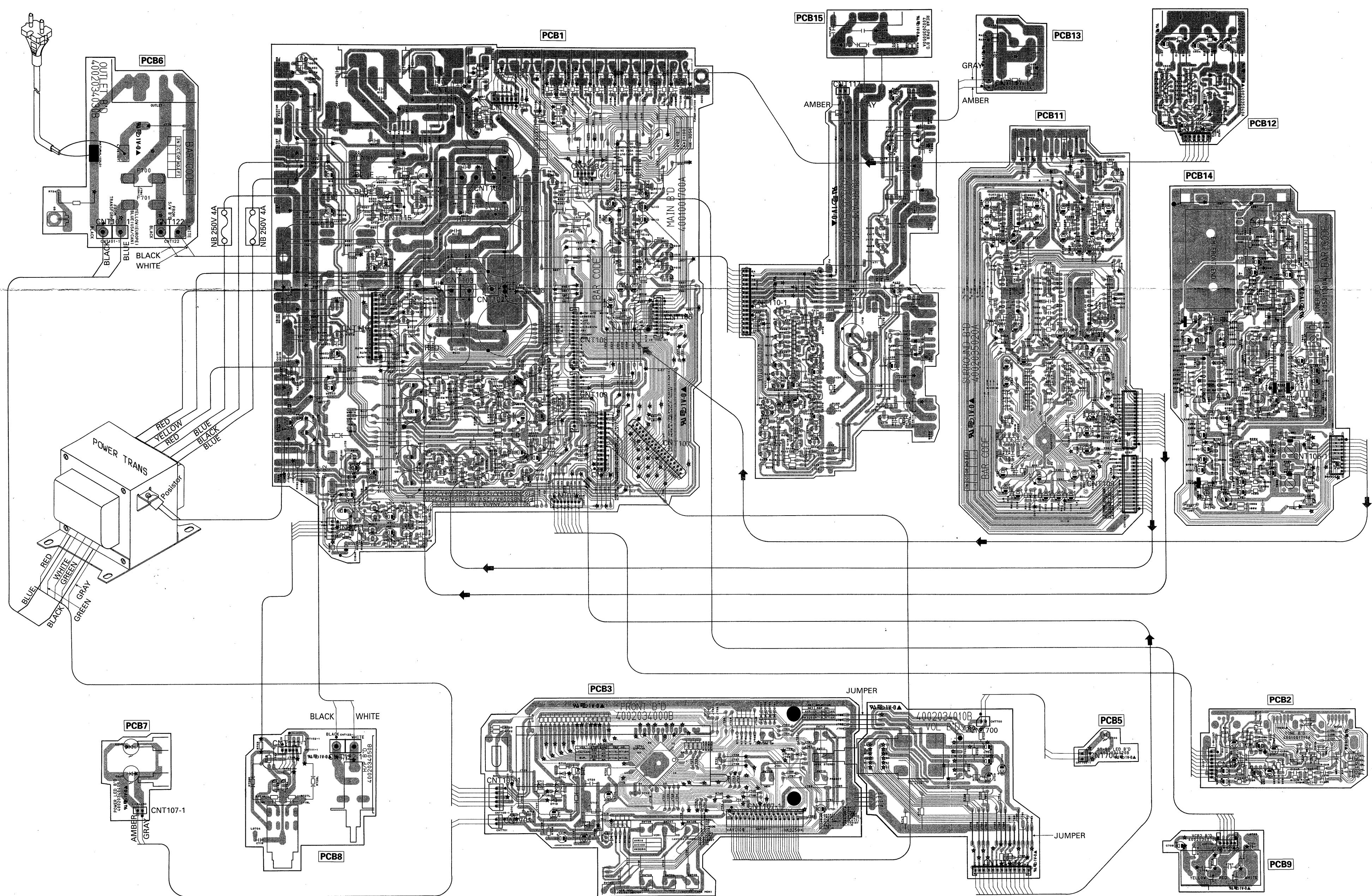
TRANSISTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW
TDA 1302 KTC3200/KTC2240 KTC3198/KTC1815 KTC1923/KTC3194 KTA2400 KTA1268/KTA970 KTA1266/KTA1015		
DTC114YS DTA114YS		
MPSA06 MPSA56		
KTA1024 KTC3206		
2SC4137 KSC2690 KSA1220		
2SK168A		
2SA1263N-O 2SC3180N-O		
TERMINAL NAME		
B→BASE C→COLLECTOR E→EMITTER	G→GATE S→SOURCE D→DRAIN	

PACKAGE

WIRING DIAGRAM

A | B | C | D | E | F | G | H | I | J | K | L | M



WIRING DIAGRAM

A

B

C

D

E

1

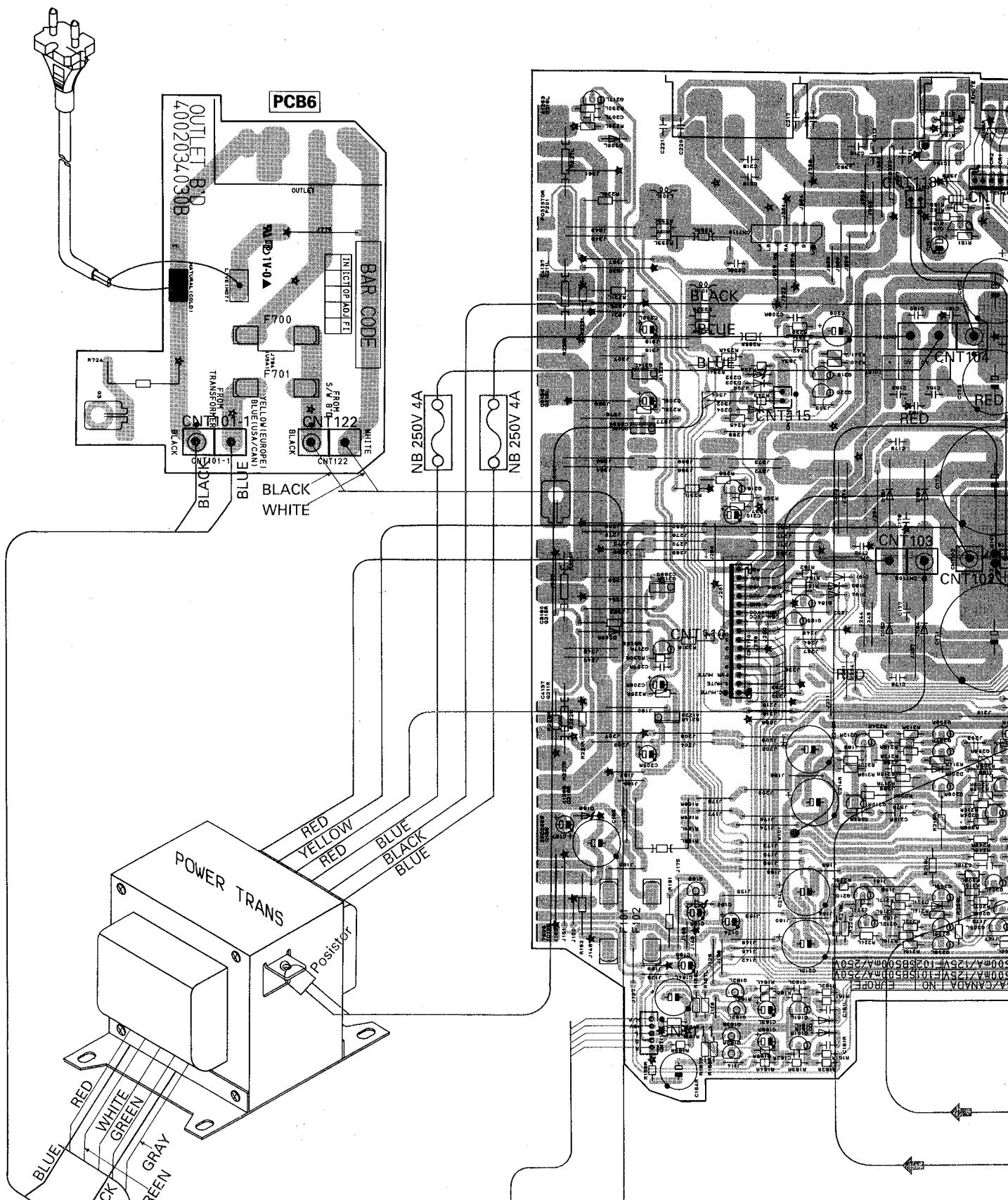
2

3

4

5

6

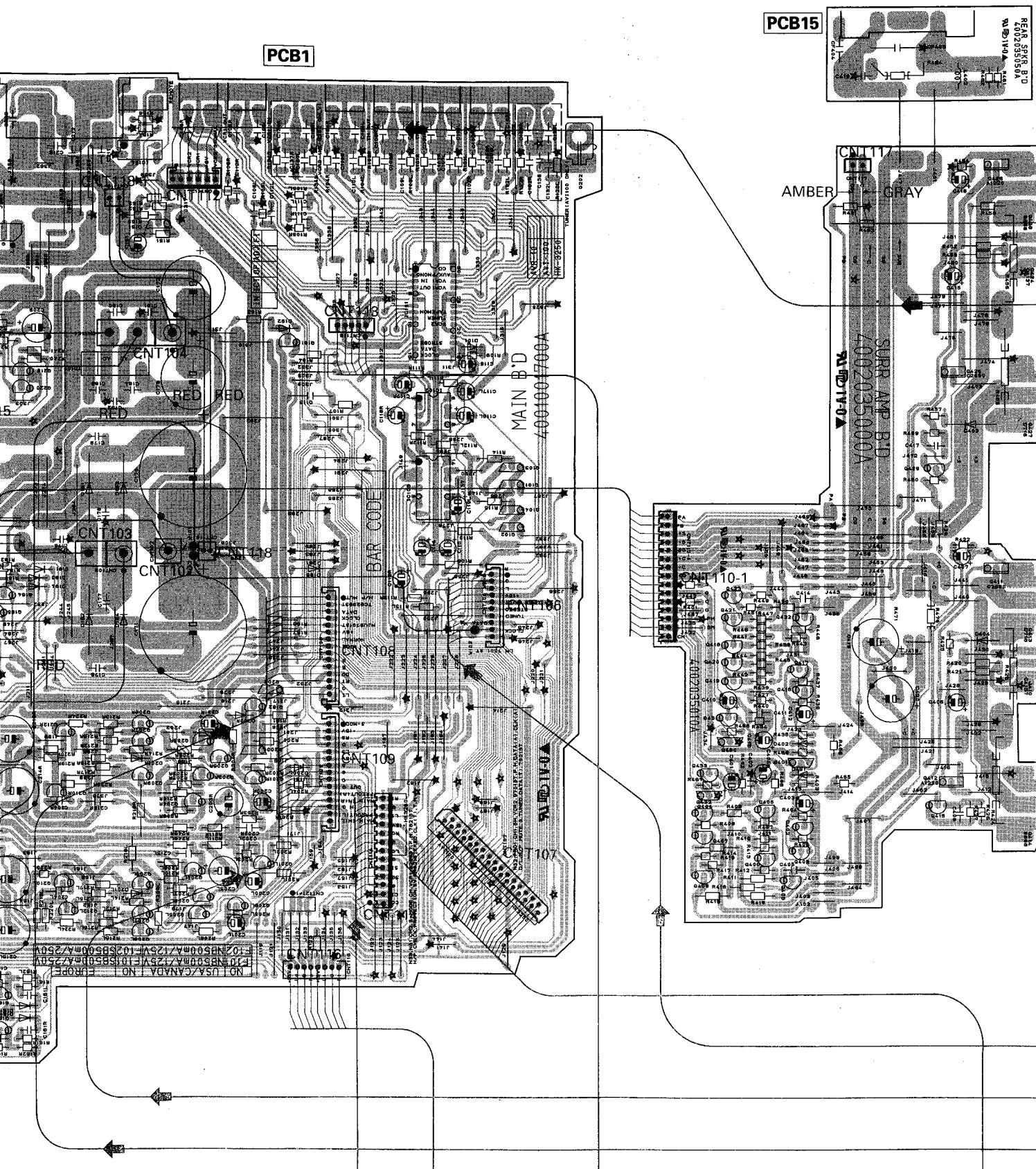


E

F

G

H

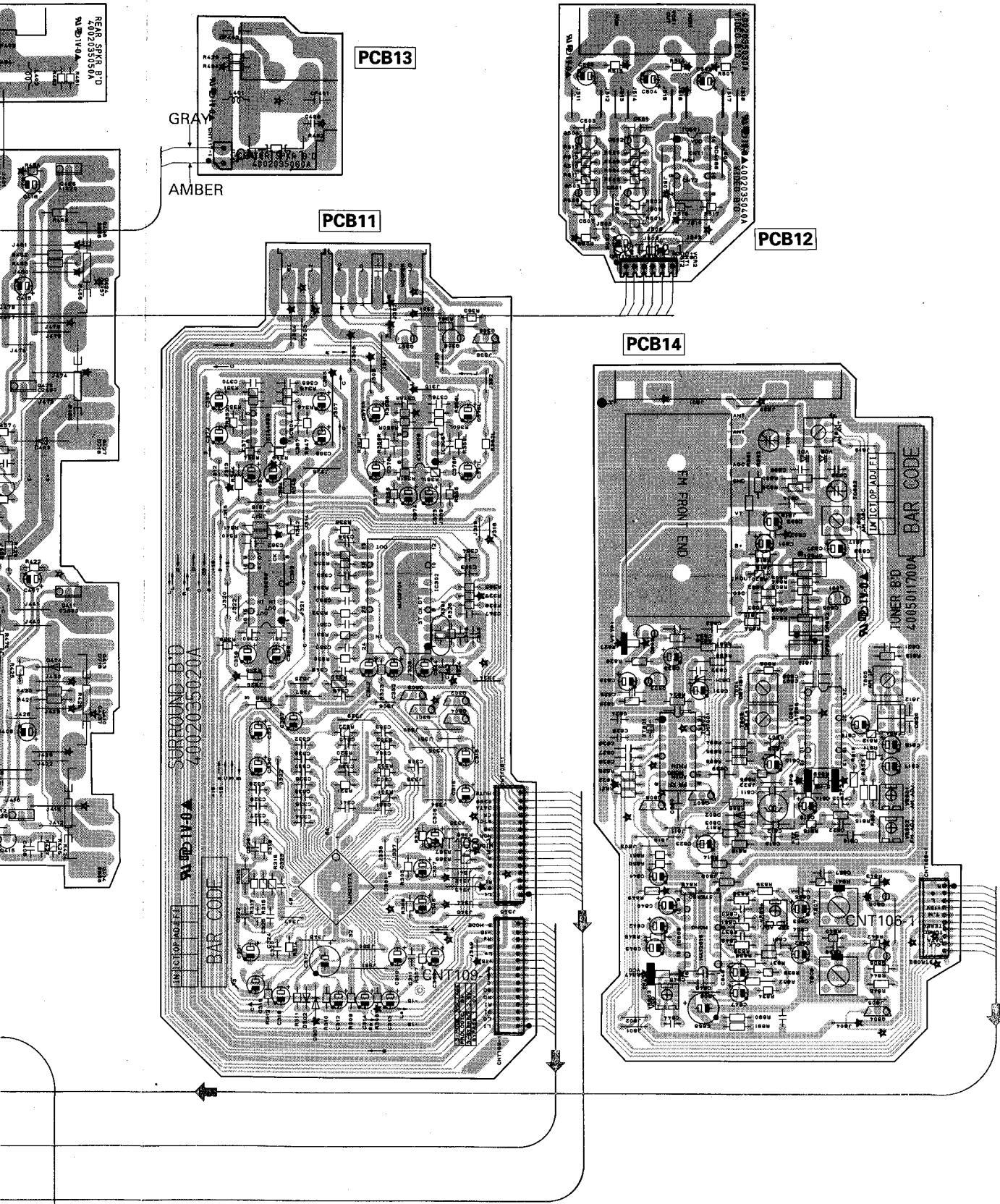


J

K

L

M



3

4

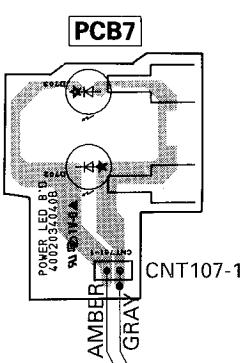
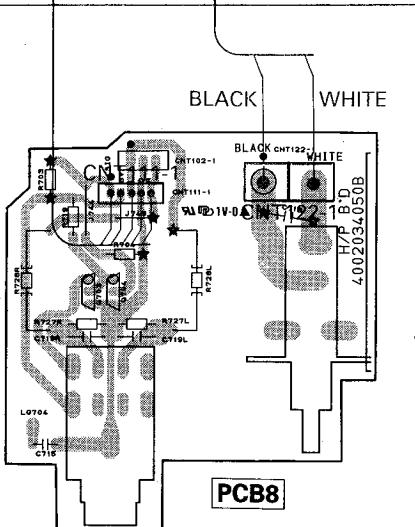
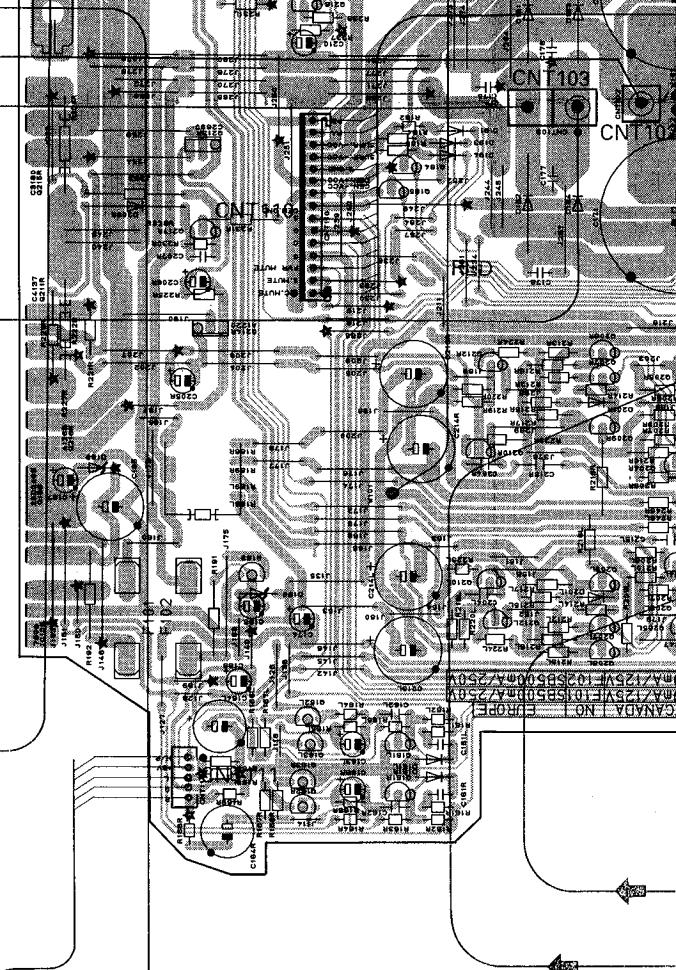
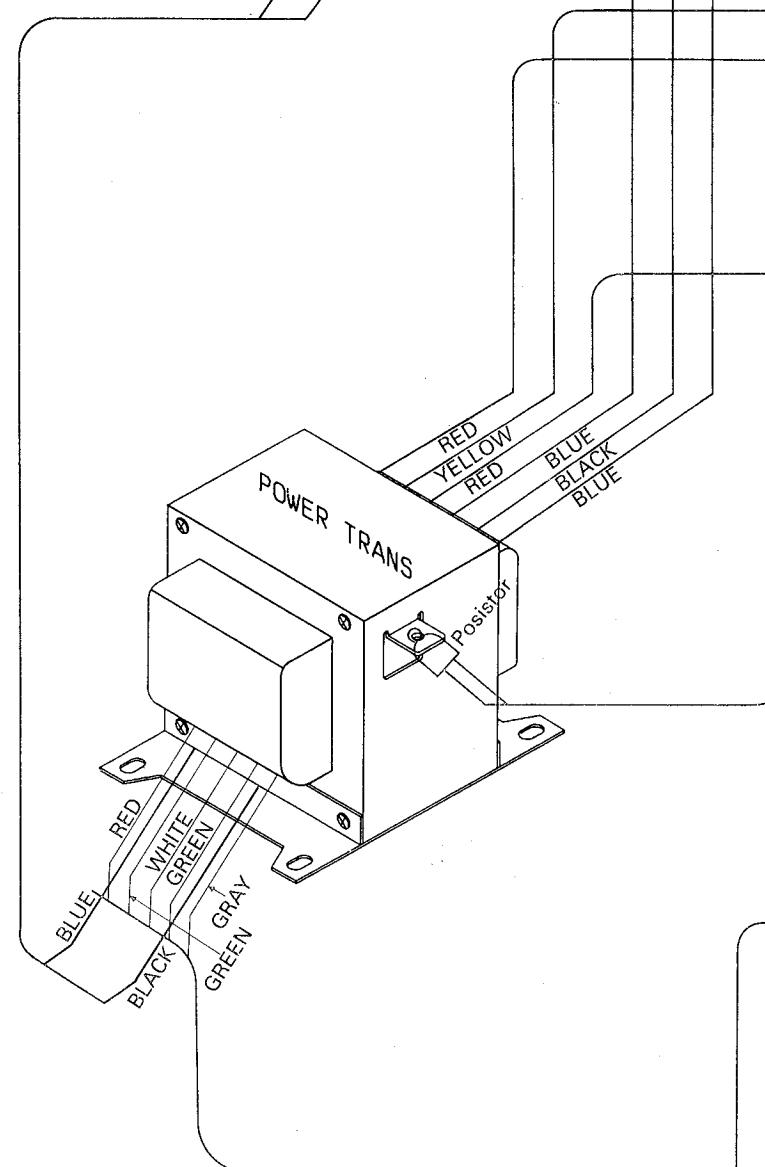
5

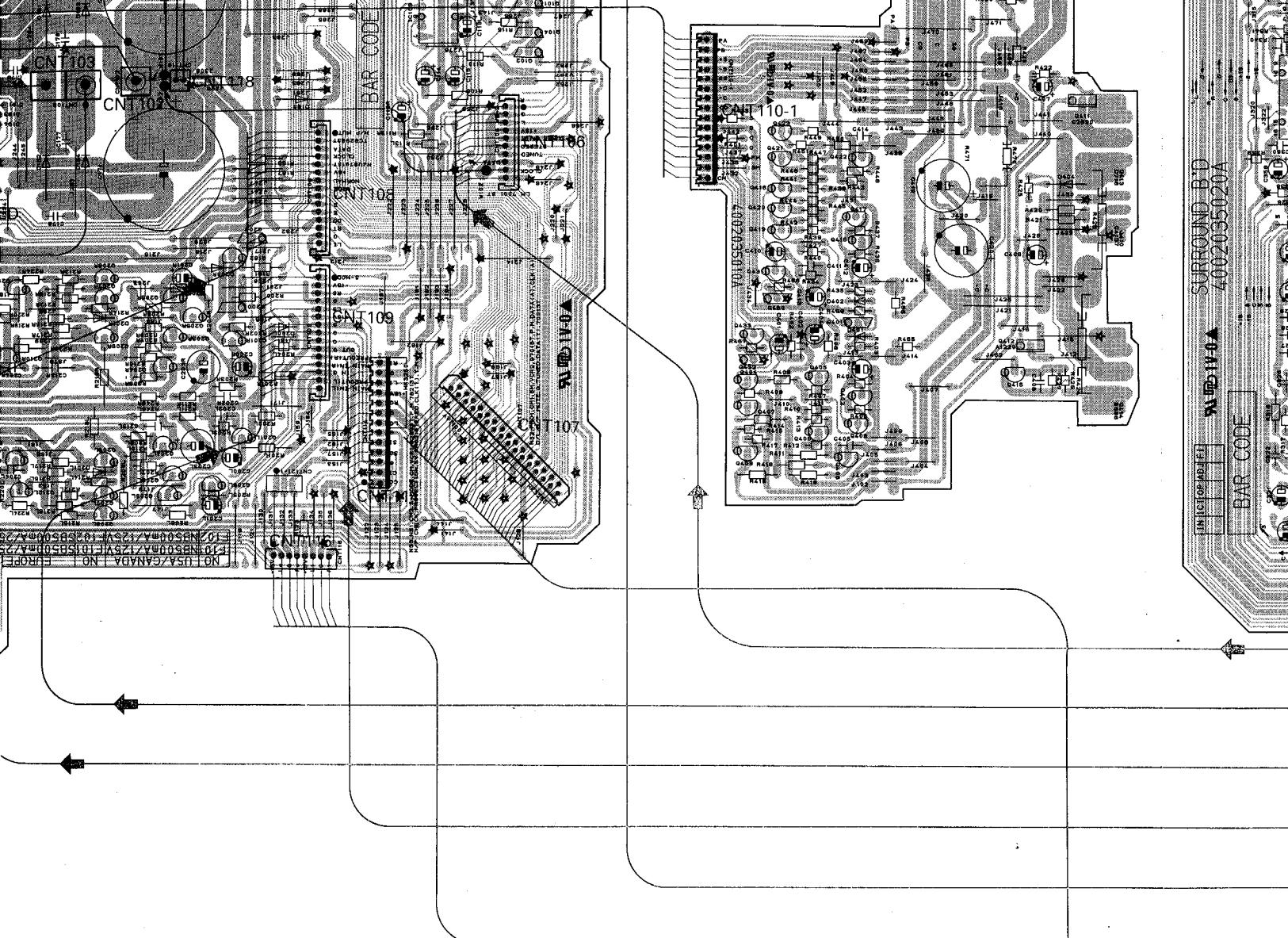
6

7

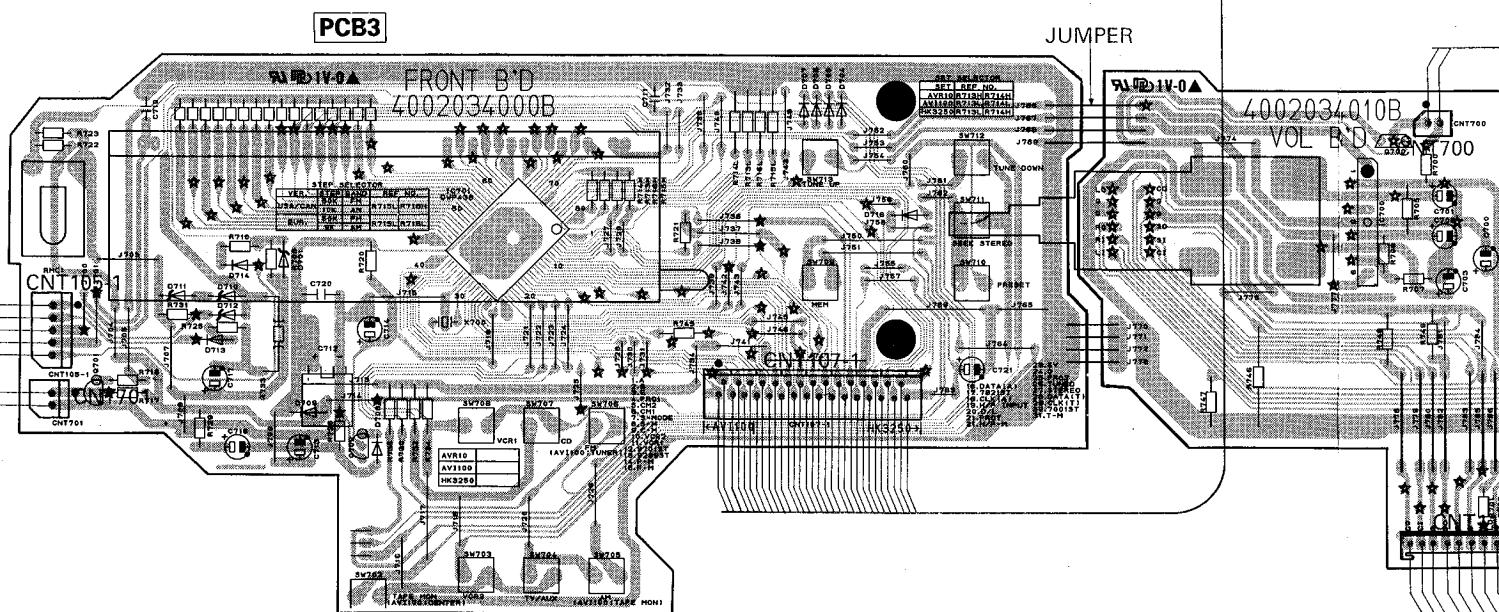
8

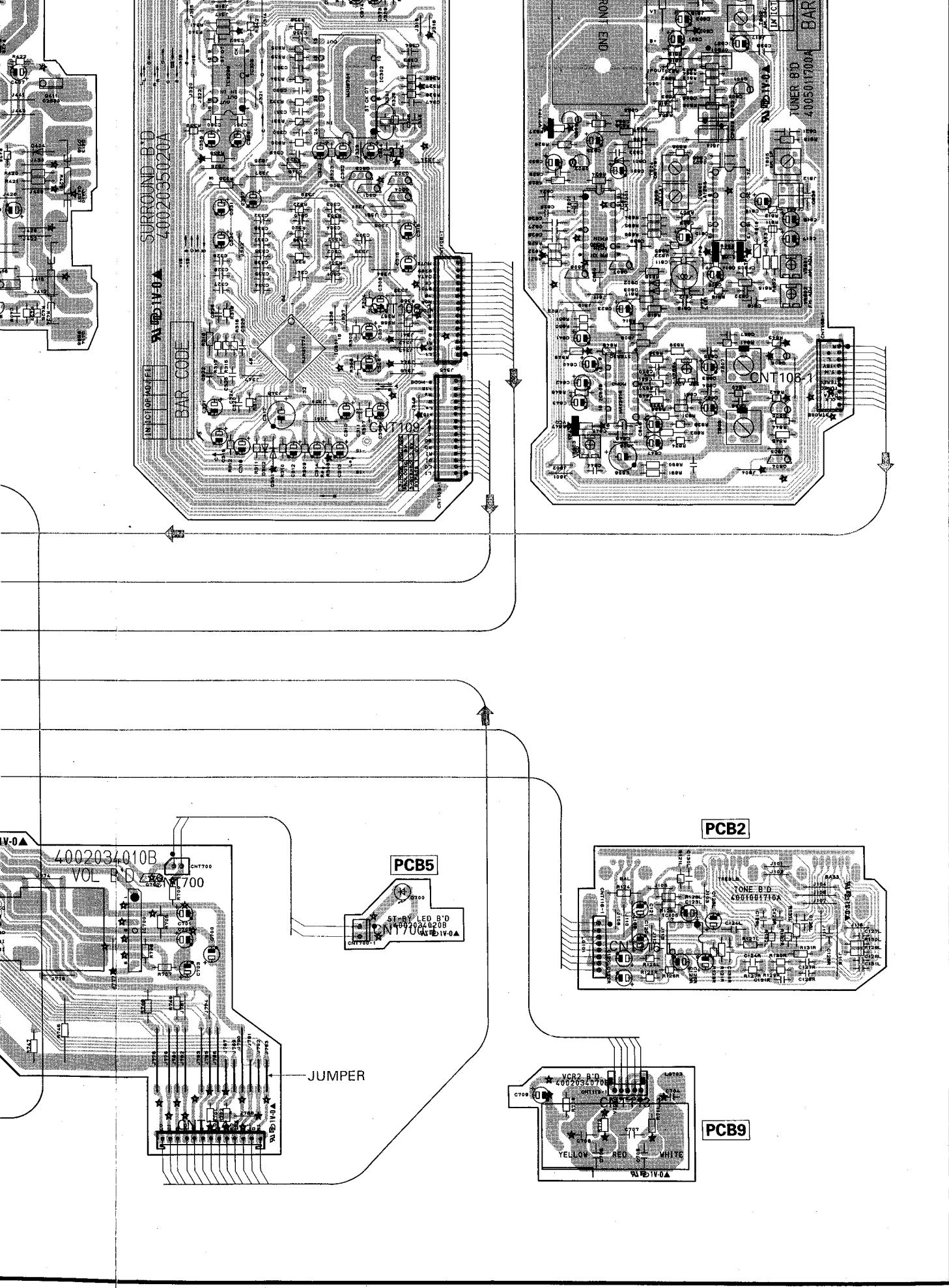
9





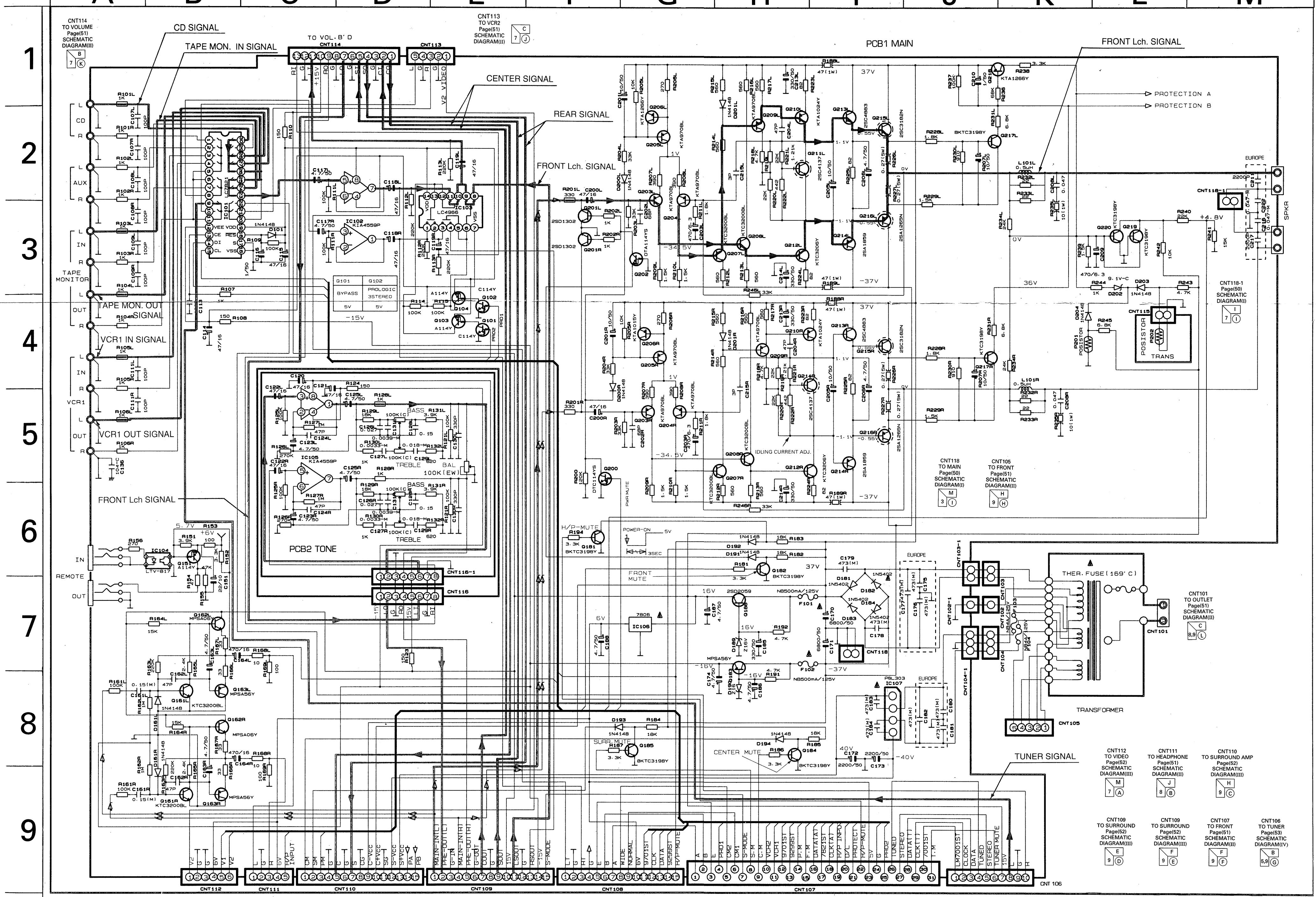
PCB3





SCHEMATIC DIAGRAM I

A B C D E F G H I J K L M



SCHEMATIC DIAGRAM I

A

B

C

D

E

1

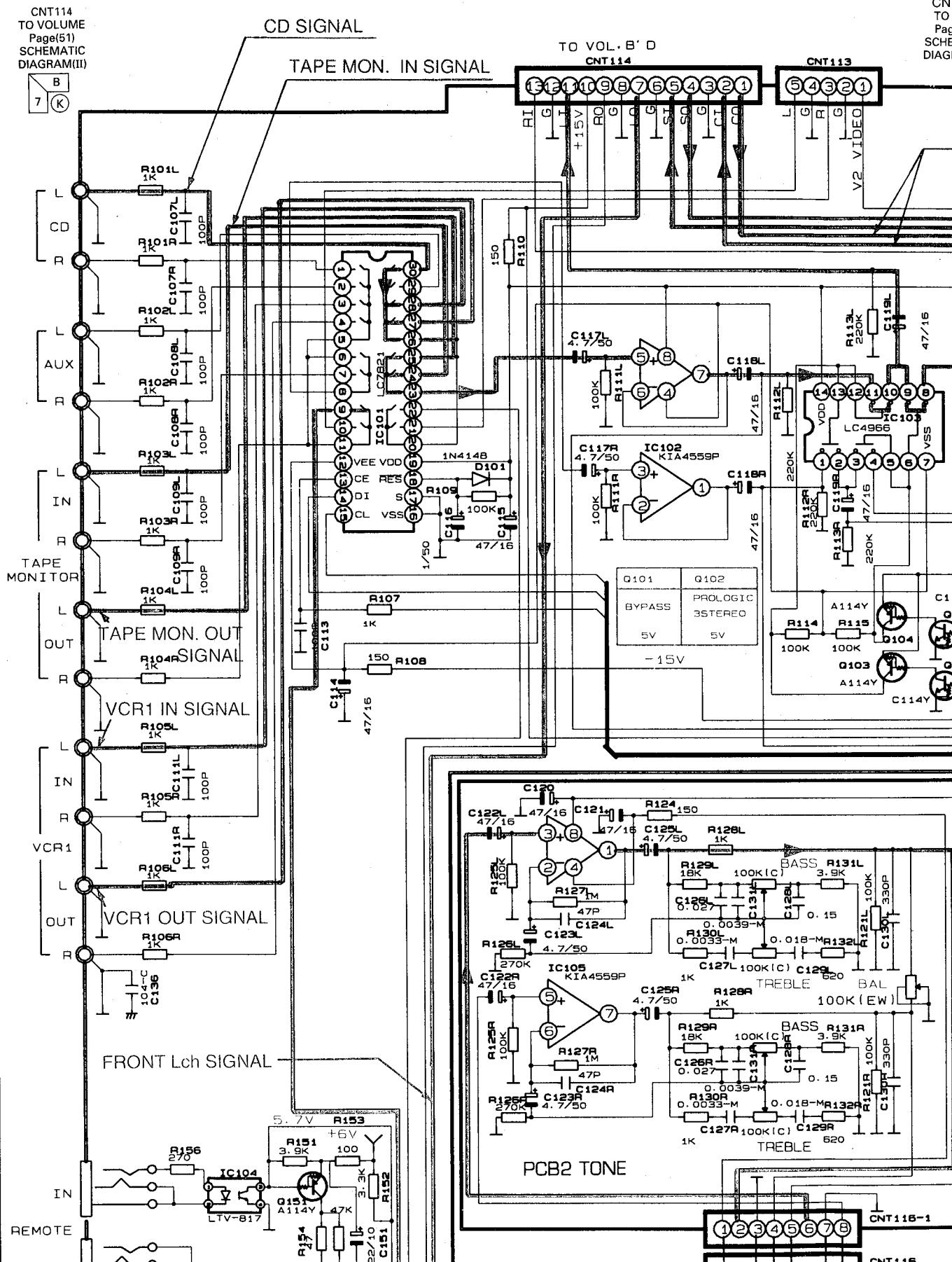
2

3

4

5

6



CNT113
TO VCR2
Page(51)
SCHEMATIC
DIAGRAM(JJ)

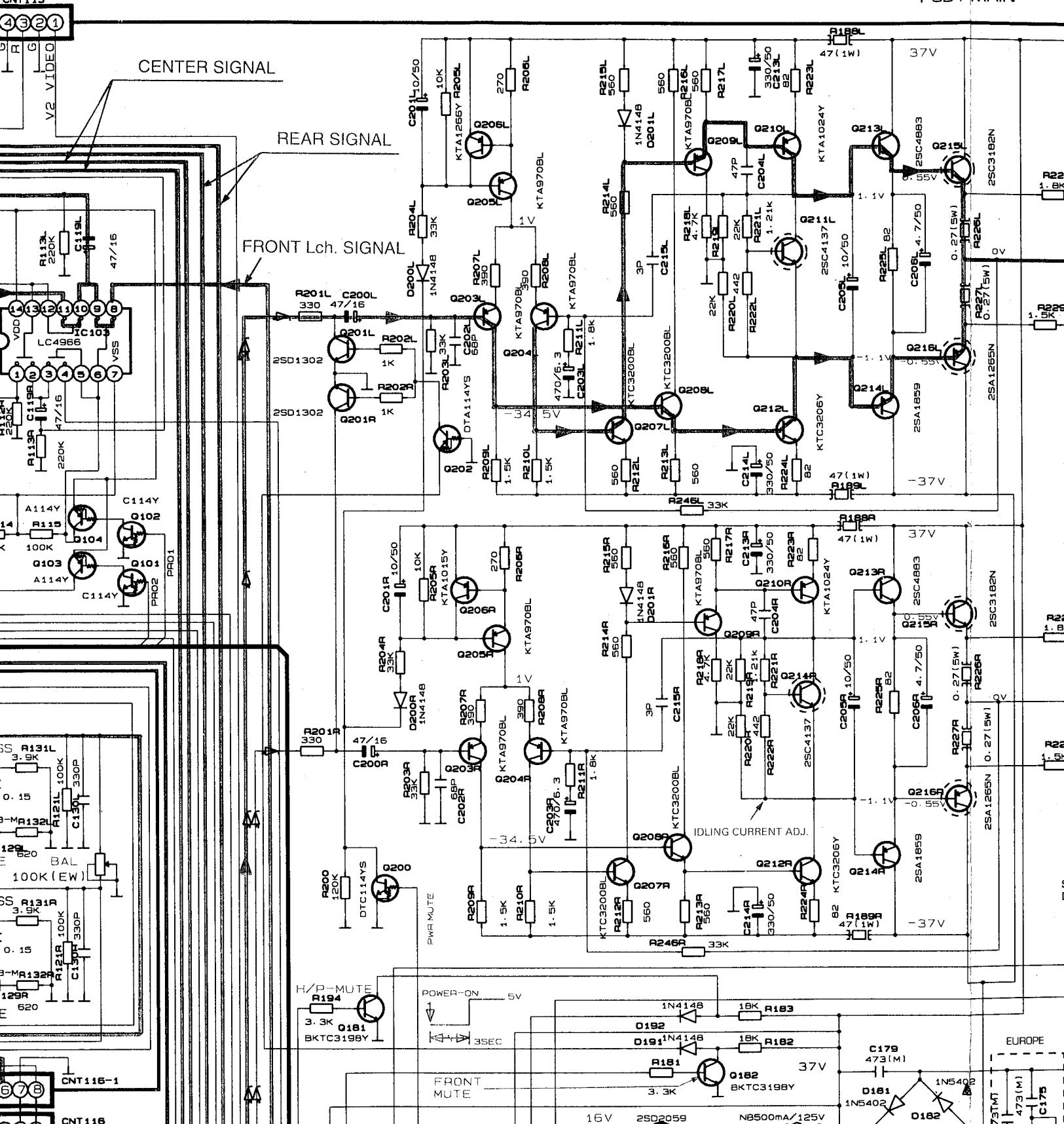
C
7
J

F

G

H

PCB1 MAIN



J

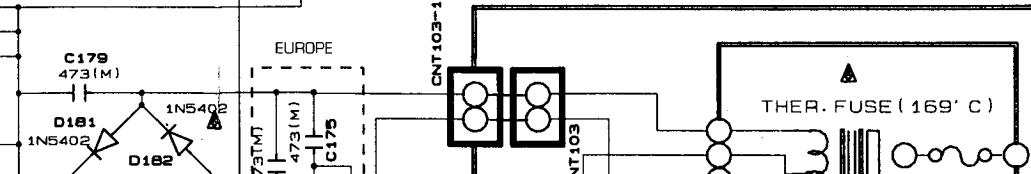
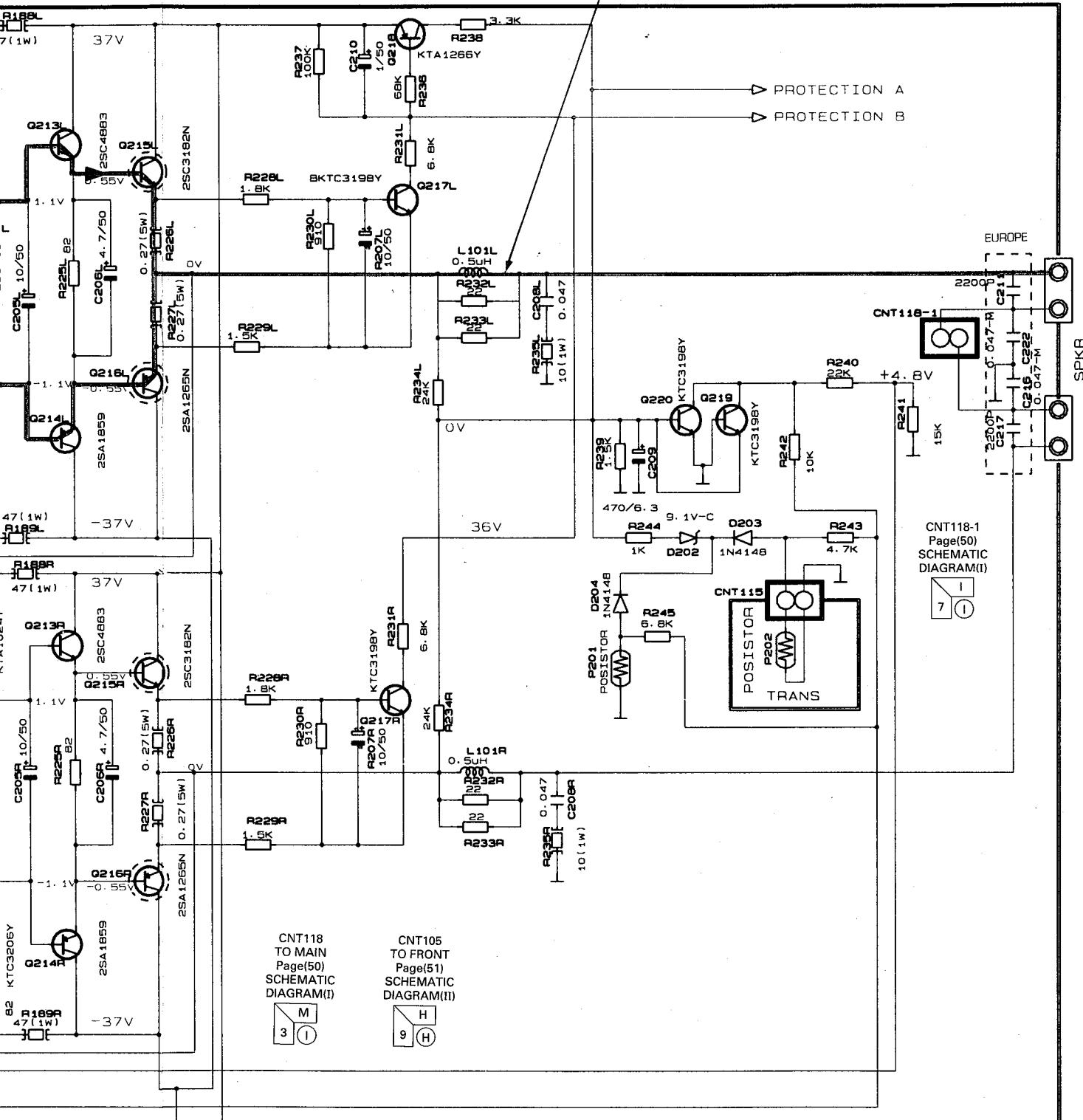
K

L

M

PCB1 MAIN

FRONT Lch. SIGNAL



CNT101

4

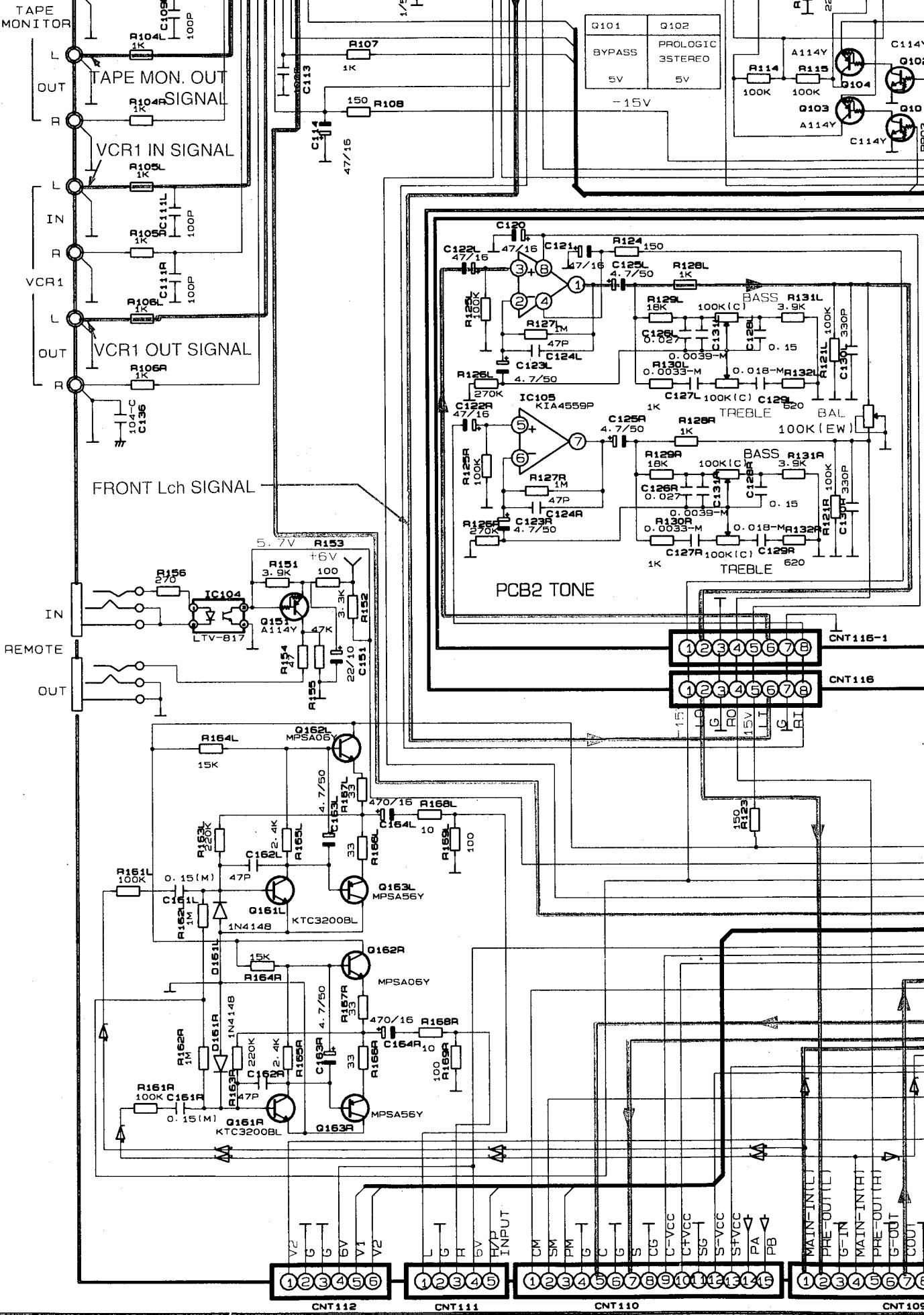
5

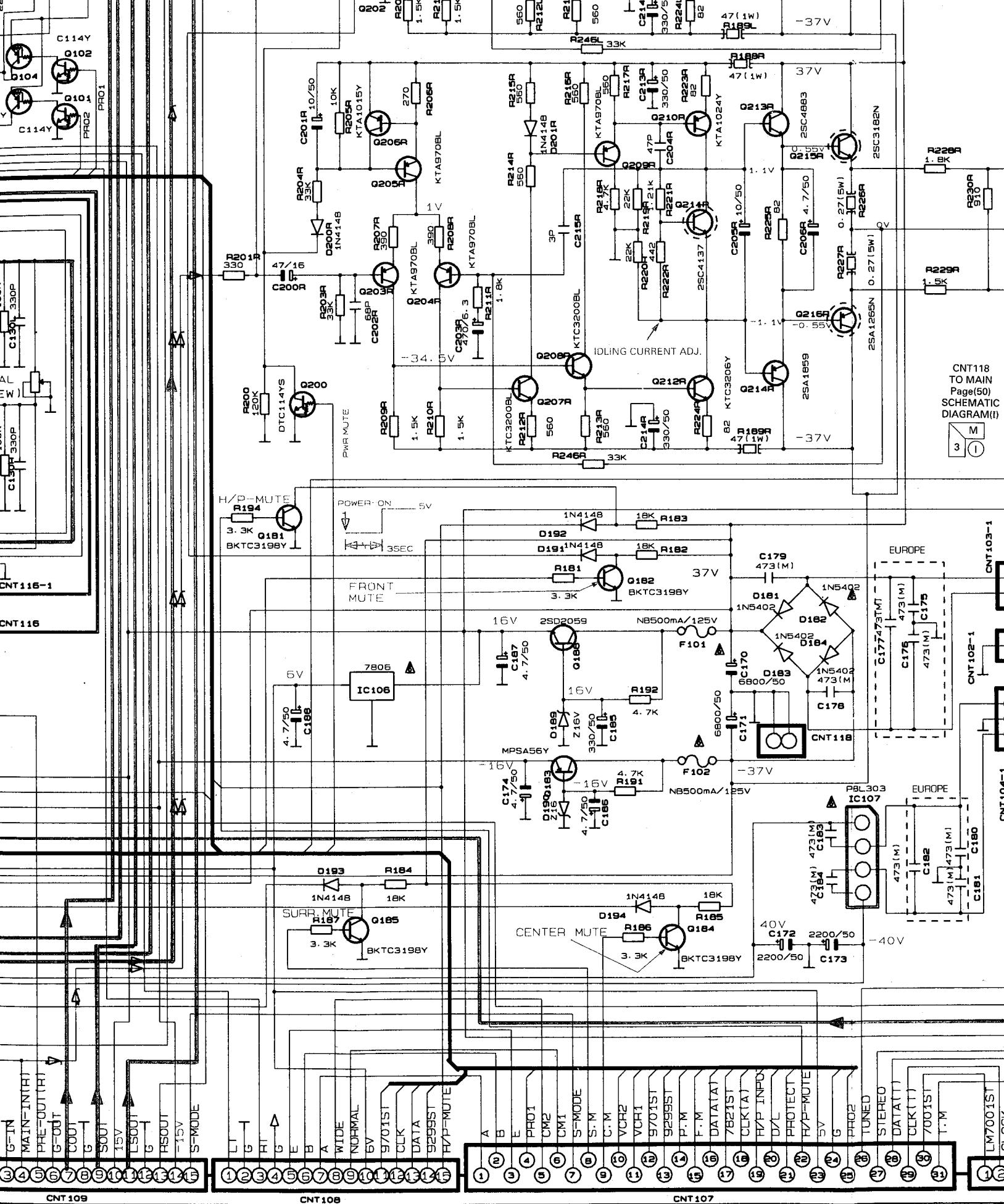
6

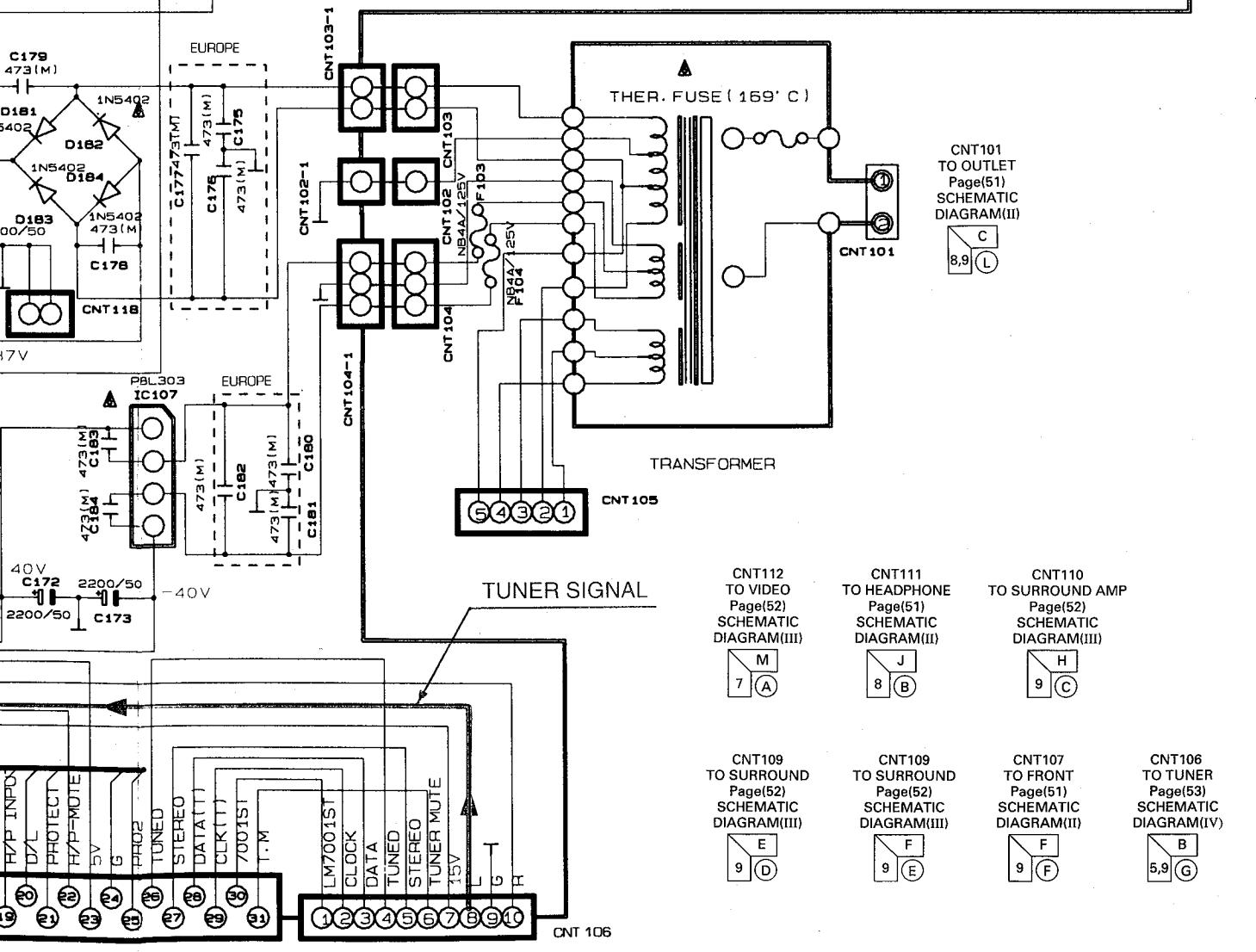
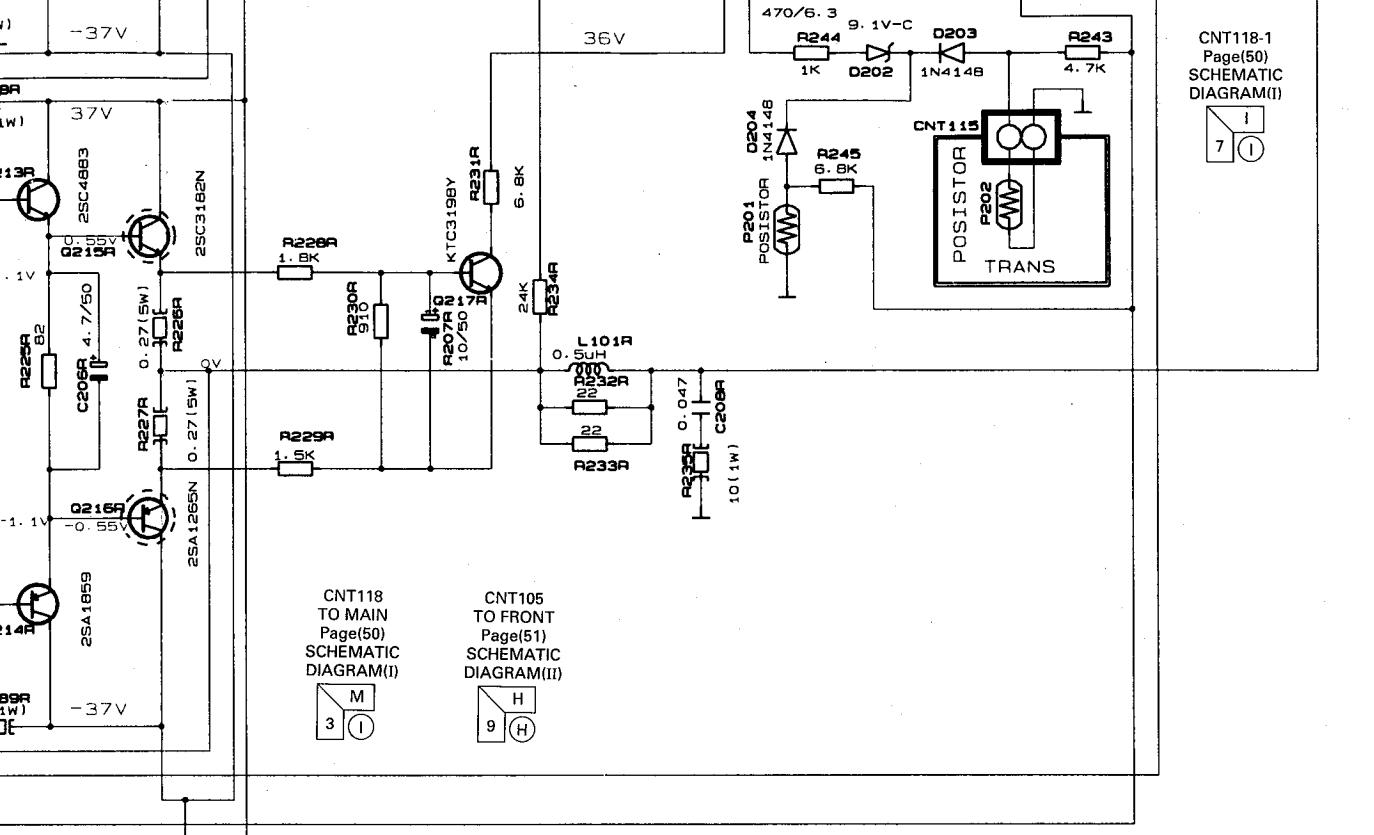
7

8

9

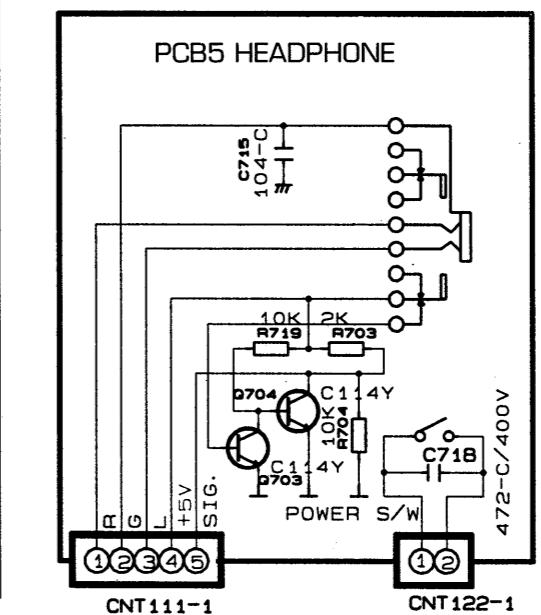
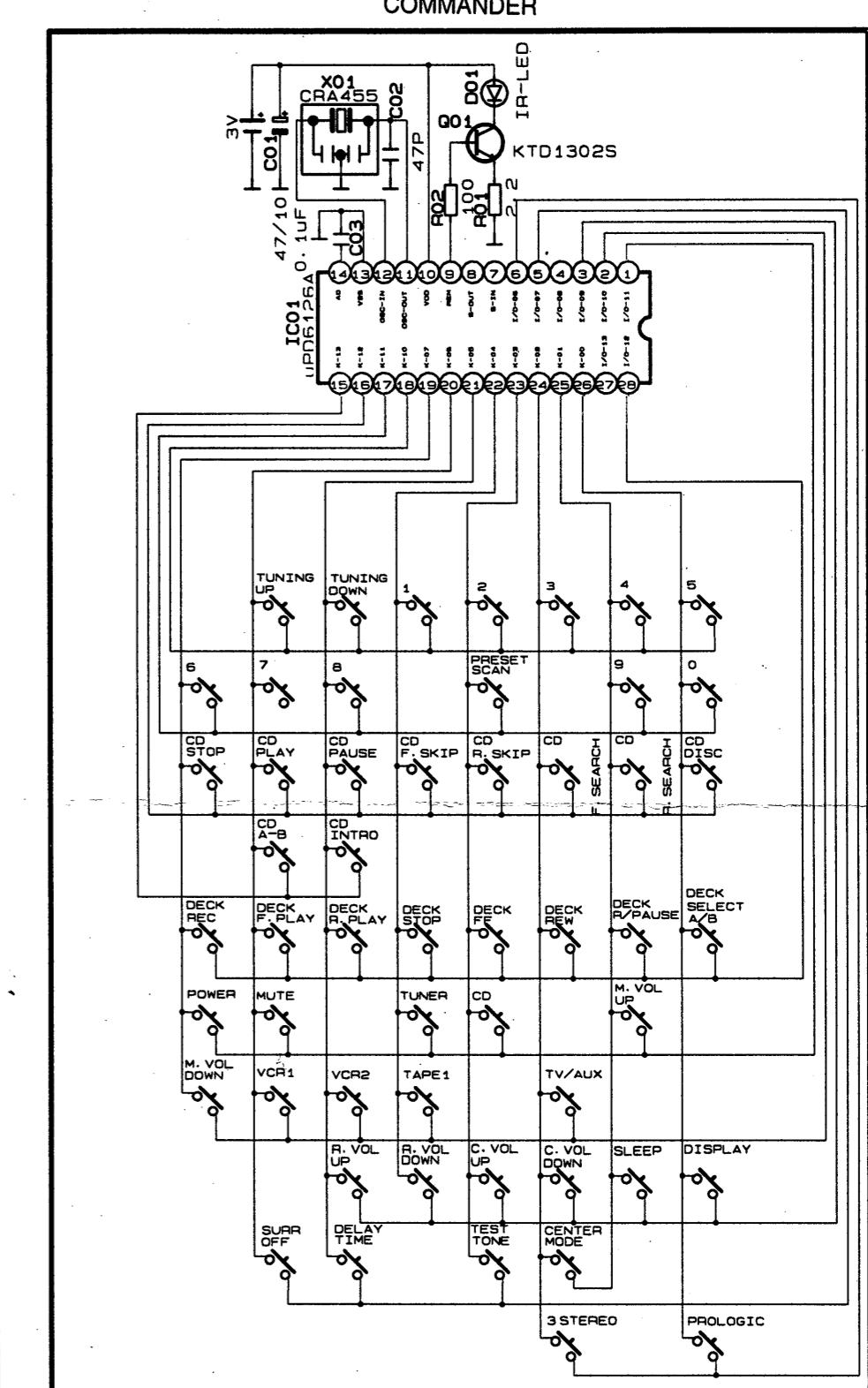
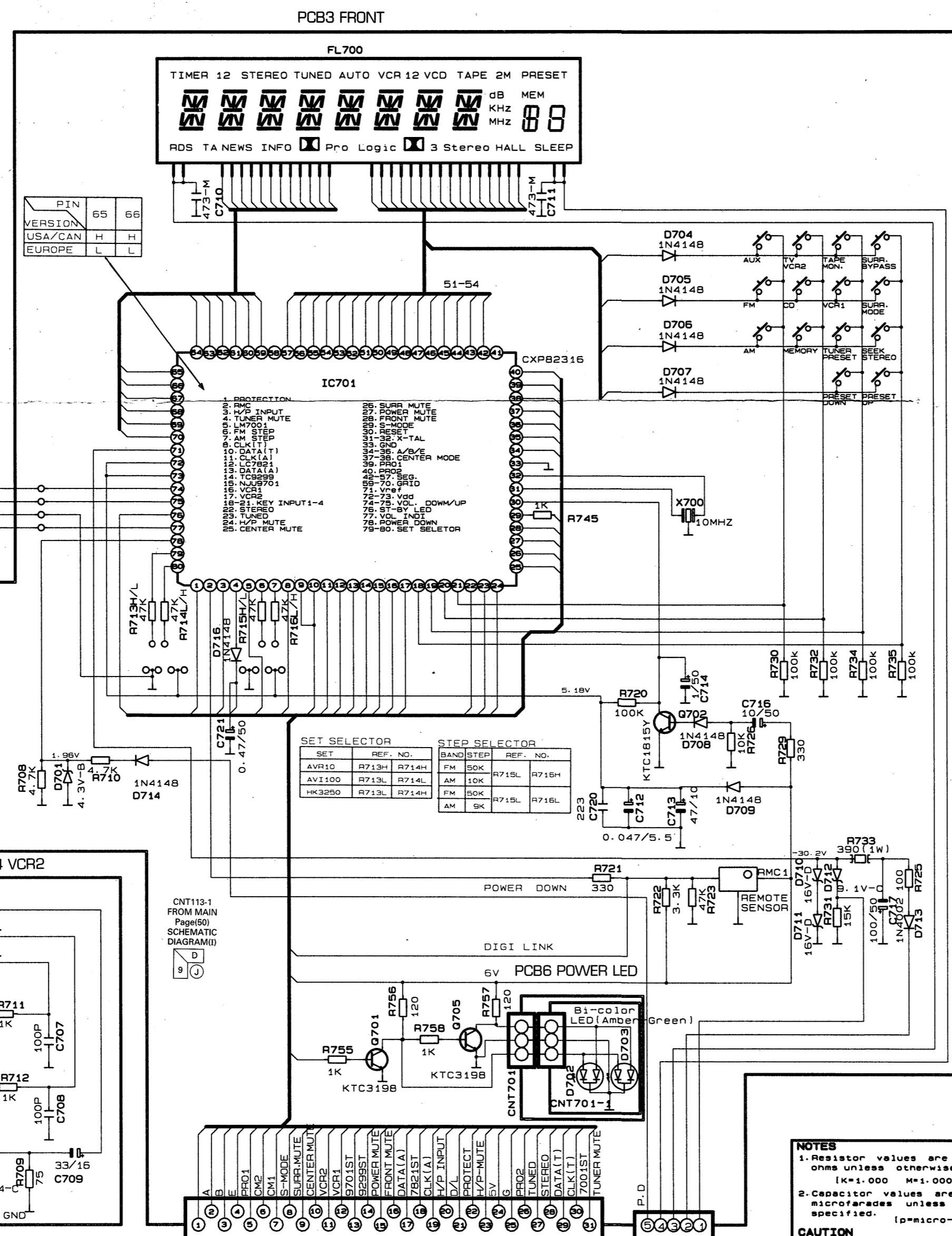
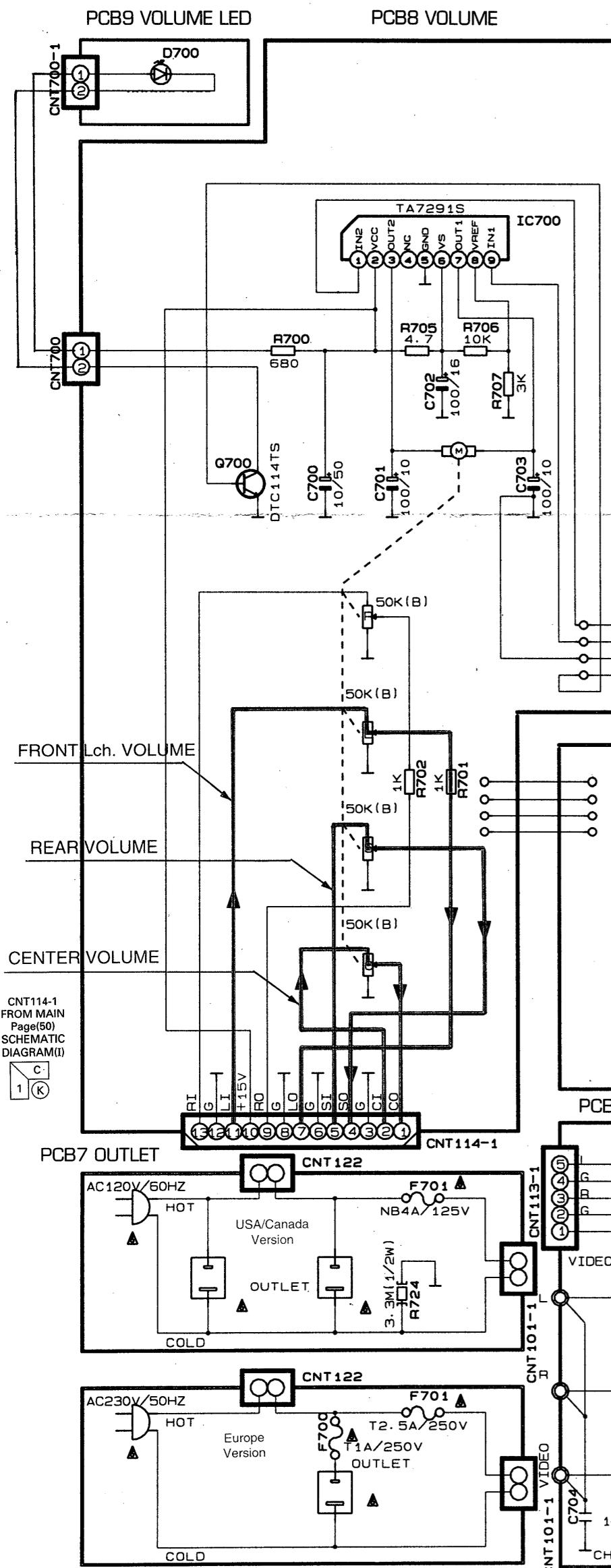






SCHEMATIC DIAGRAM II

A B C D E F G H I J K L M



NOTES

- Resistor values are indicated in ohms unless otherwise specified
 $1\text{k}\cdot1.000 \text{ M}\cdot1.000.000$
- Capacitor values are indicated in microfarads unless otherwise specified.
(μ -micro-microfarads)

CAUTION

Safety precaution to be followed during servicing

Since those parts marked with \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 II

A

B

C

D

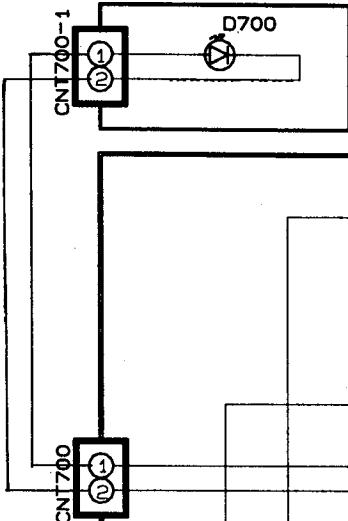
E

1

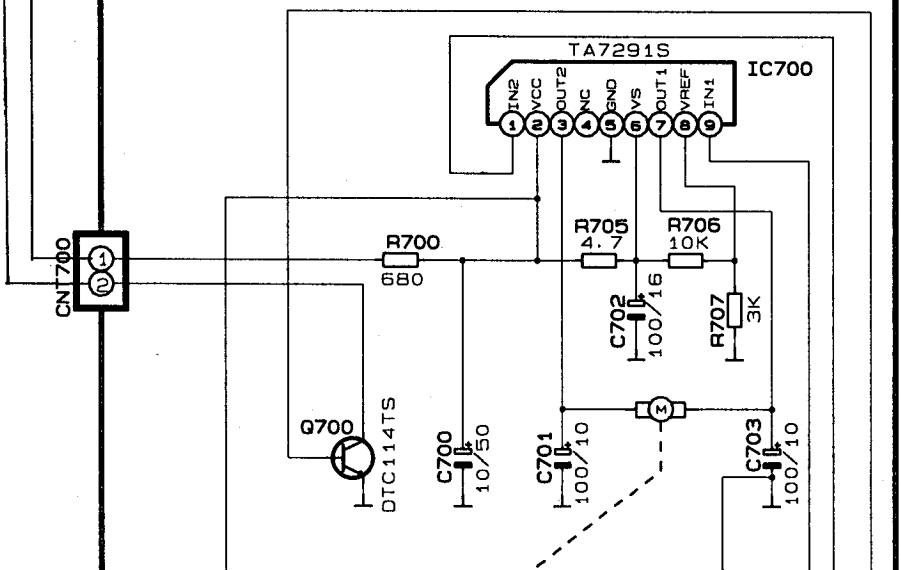
PCB9 VOLUME LED

PCB8 VOLUME

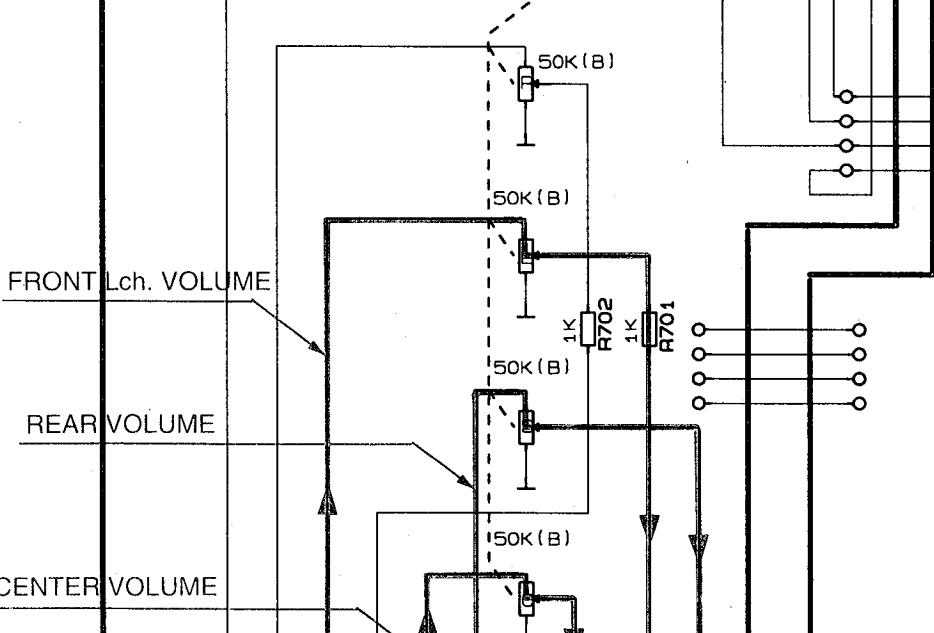
2



3



4



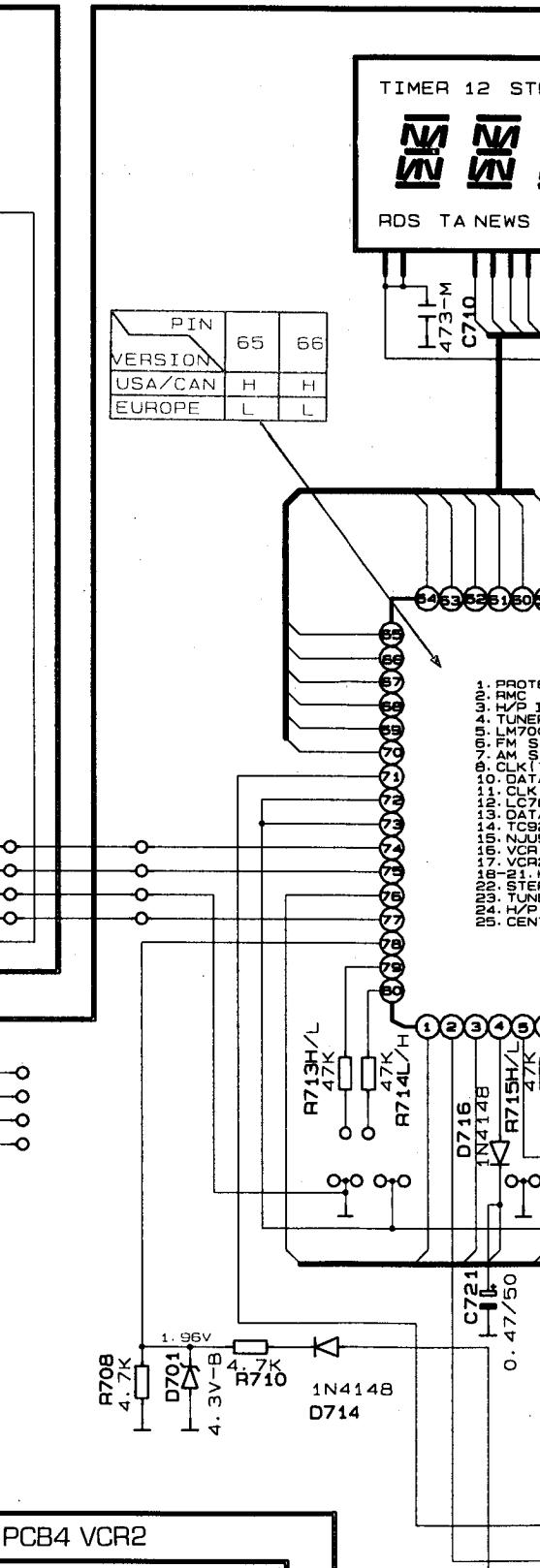
5

FRONT Lch. VOLUME

REAR VOLUME

CENTER VOLUME

CNT114-1
FROM MAIN
Page(50)
SCHEMATIC
DIAGRAM(I)



E

F

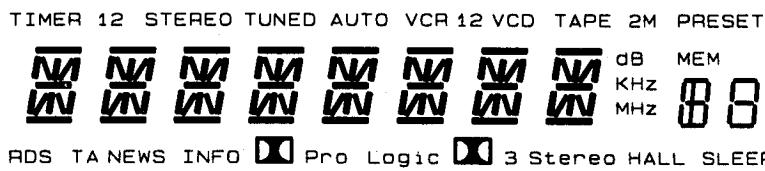
G

H

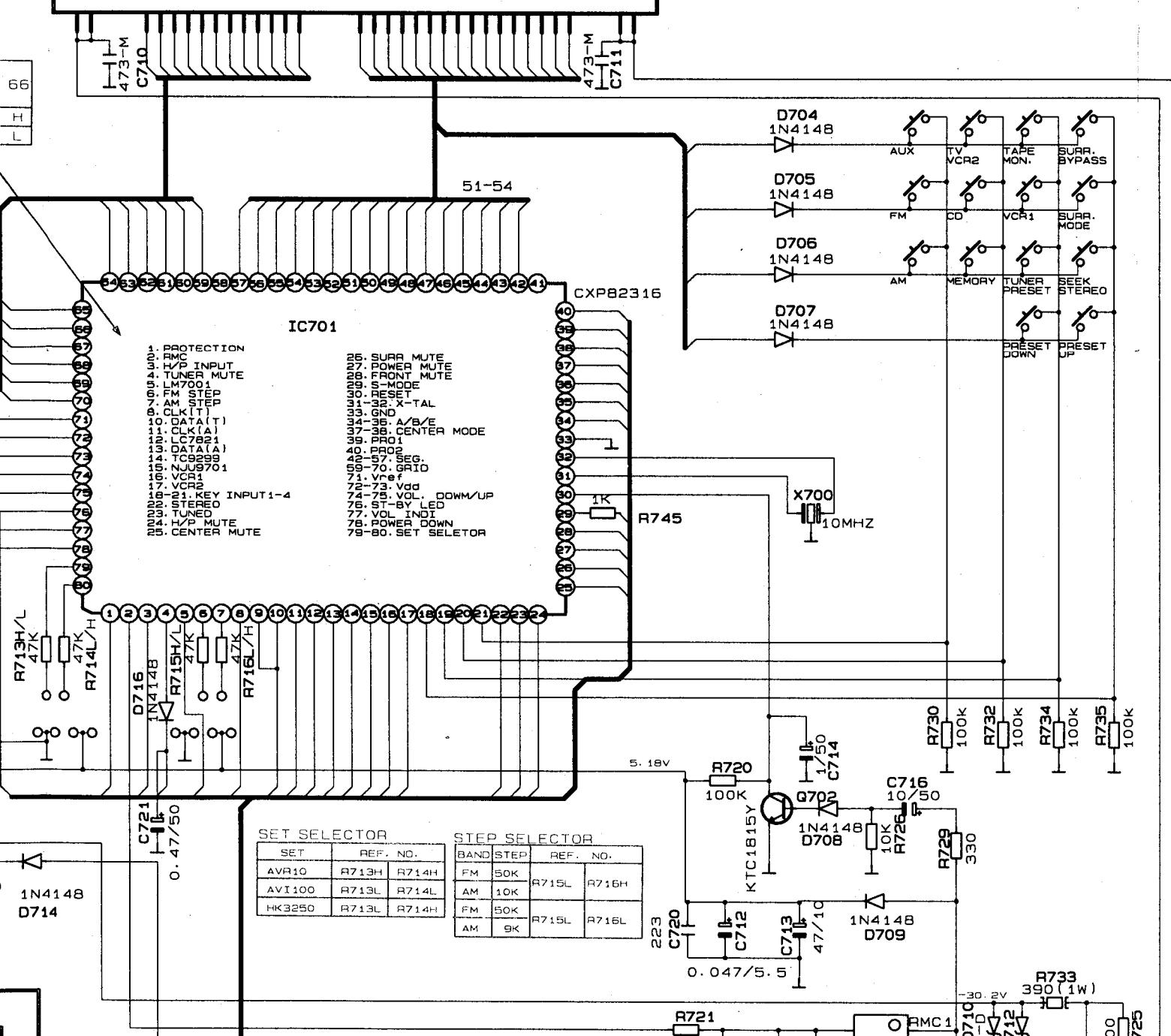
I

PCB3 FRONT

FL700



RDS TA NEWS INFO Pro Logic 3 Stereo HALL SLEEP



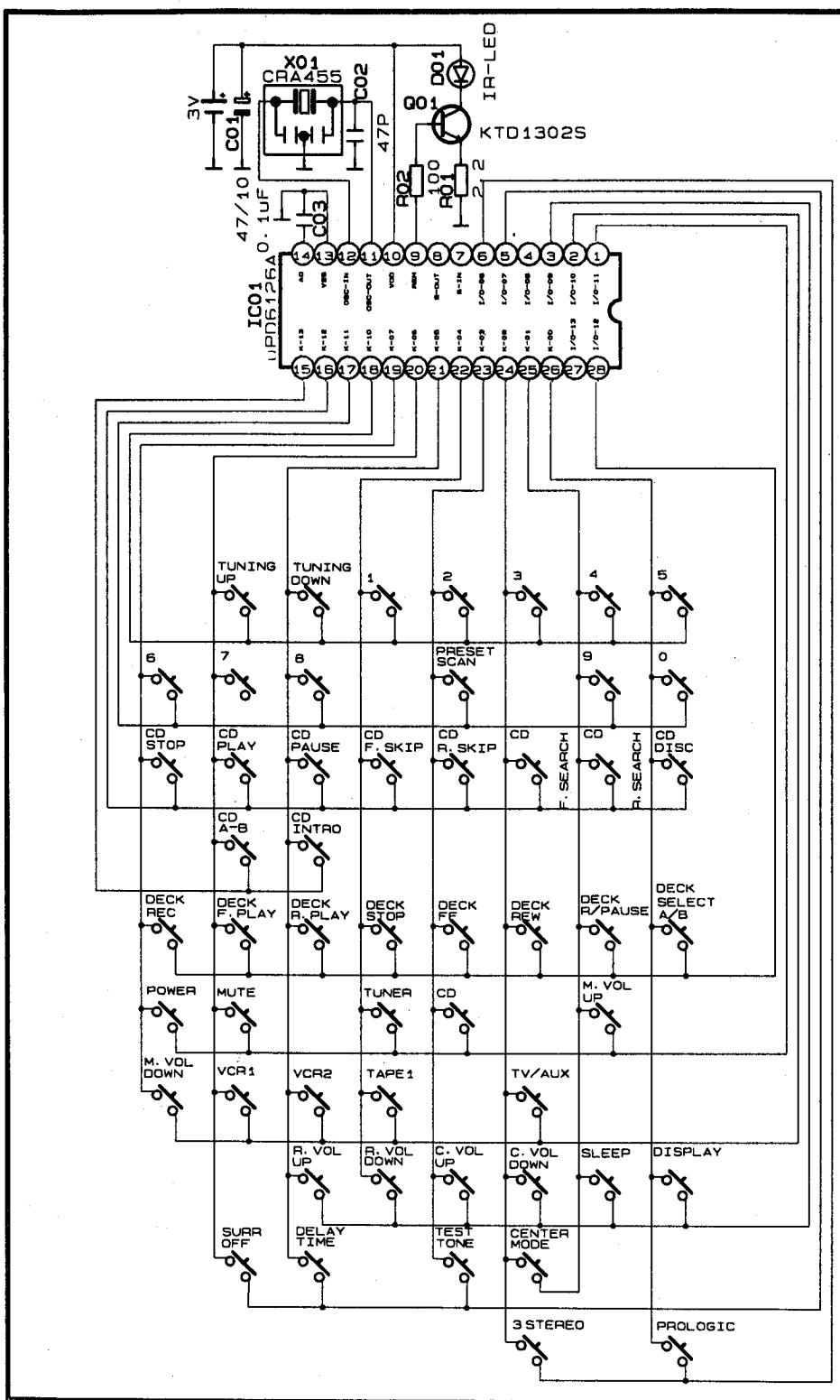
J

K

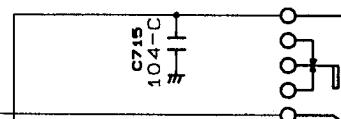
L

M

COMMANDER



PCB5 HEADPHONE



R733 390 (1W)
2V
R734 100
R735 100K
H732 100K
725

4

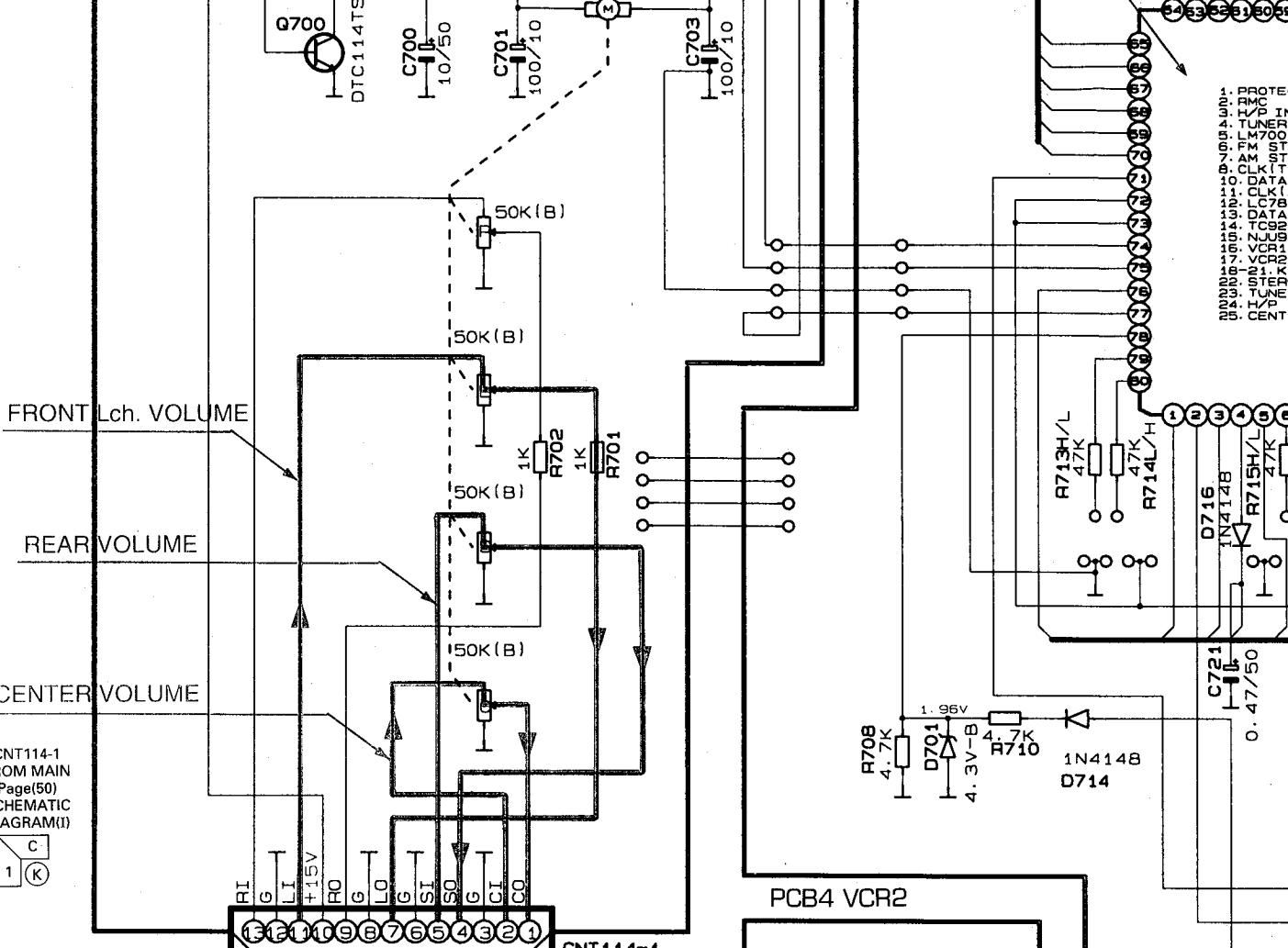
5

6

7

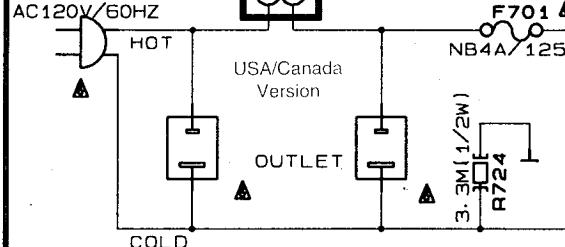
8

9

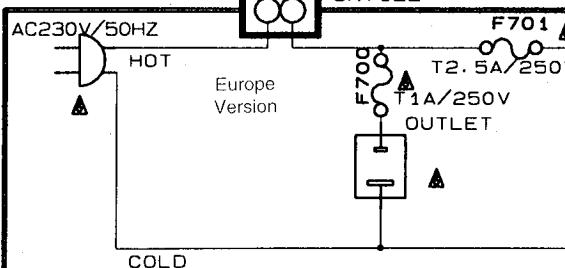


PCB7 OUTLET

CNT122



CNT122



CNT122
TO HEADPHONE
Page(51)
SCHEMATIC
DIAGRAM(II)



CNT101-1
FROM TRANS
Page(50)
SCHEMATIC
DIAGRAM(II)



PROTE
ARM
H/P IN
TUNER
AM ST
CLK T
DATA
CLK1
TC92
VCR1
24. K
STER
TUNE
H/P
CENT

25.

CNT113-1

FROM MAIN

Page(50)

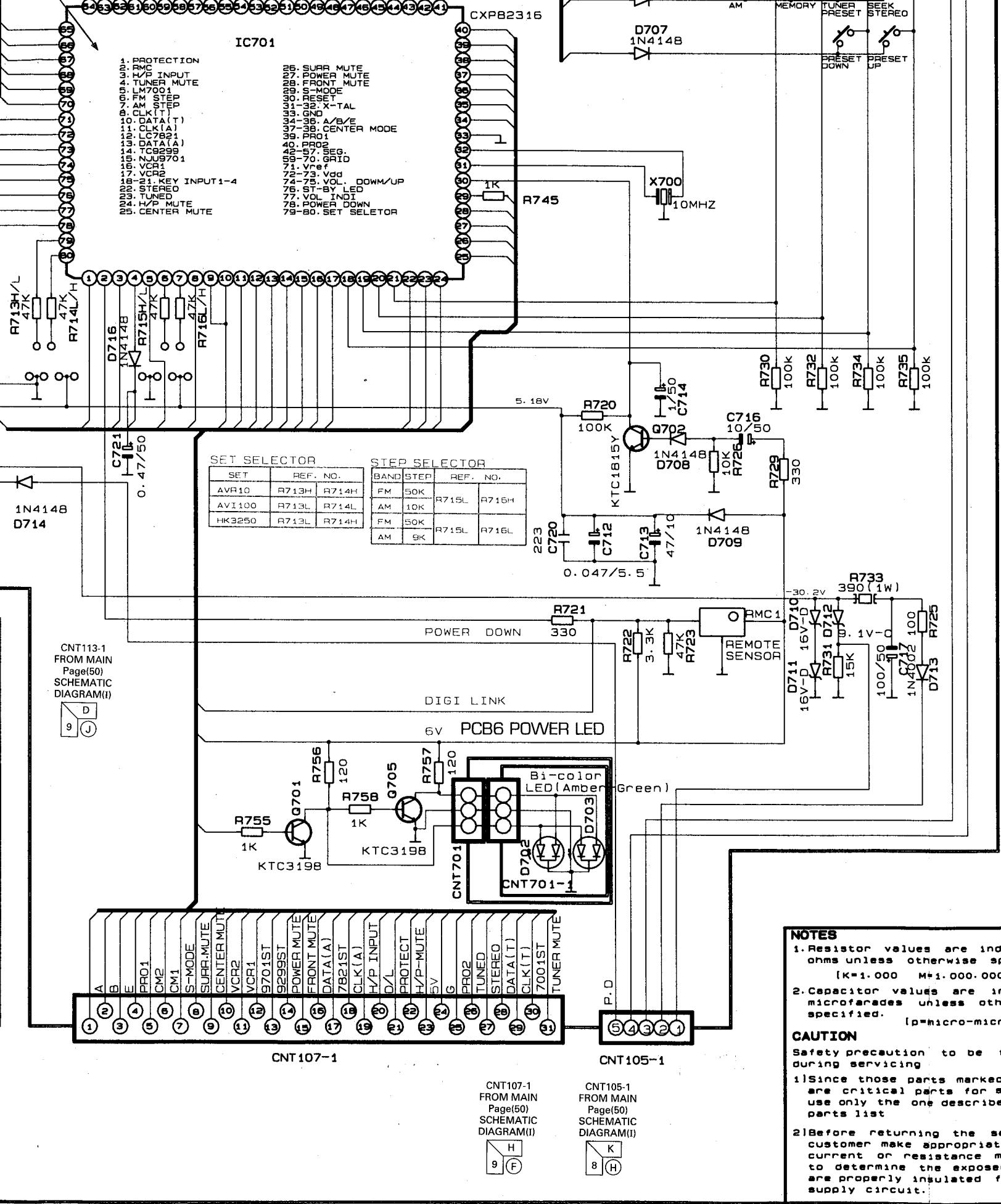
SCHEMATIC

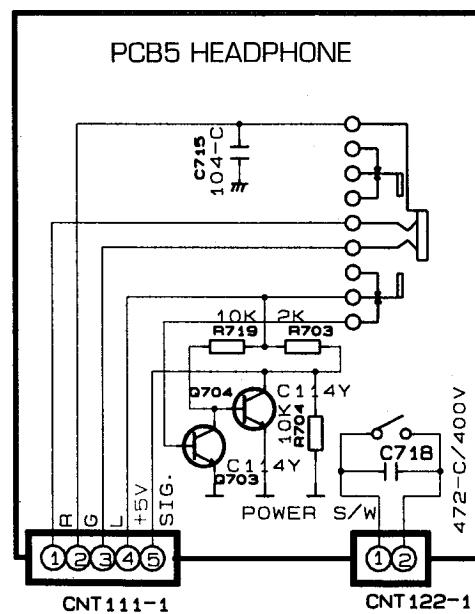
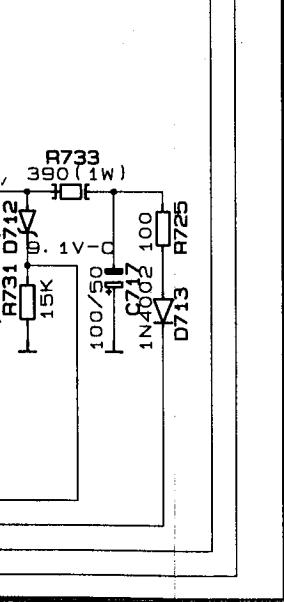
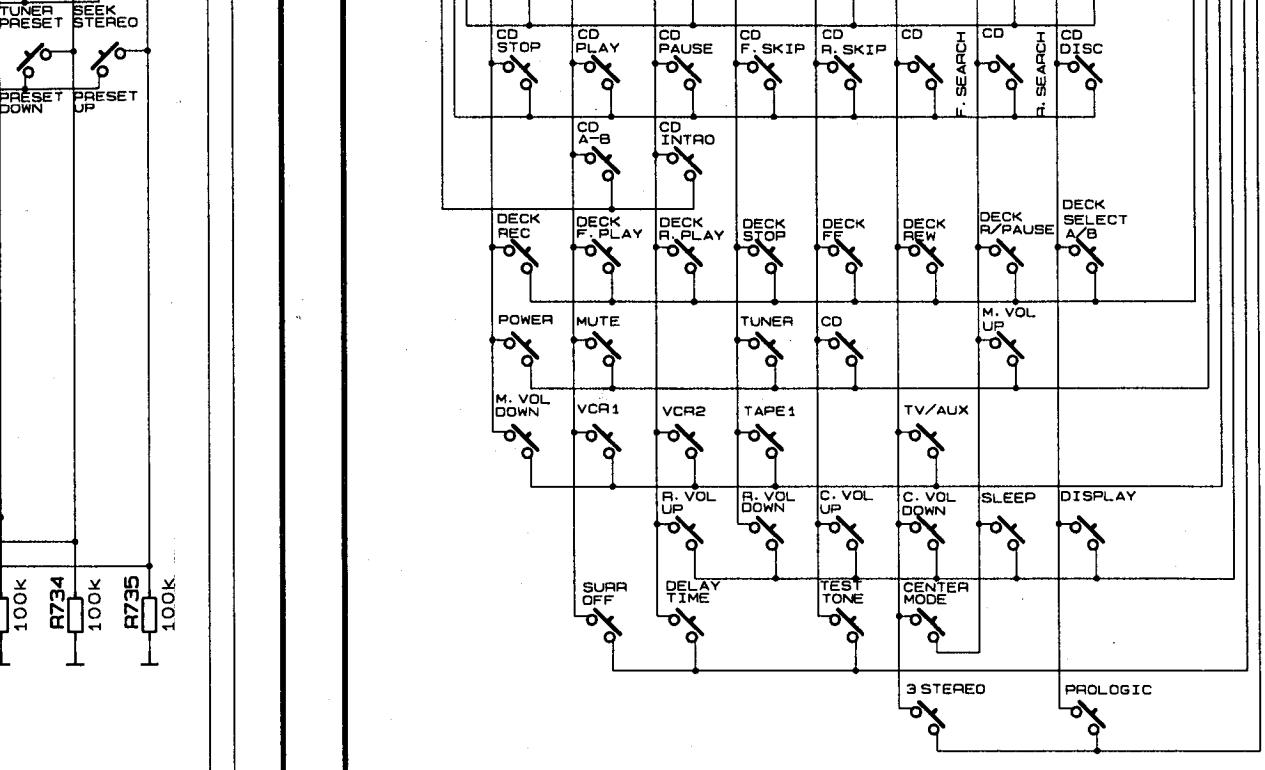
DIAGRAM(I)

D9

J







ES
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.
(μ=micro-microfarads)

ENTION
Safety precaution to be followed during servicing
Since those parts marked with 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.

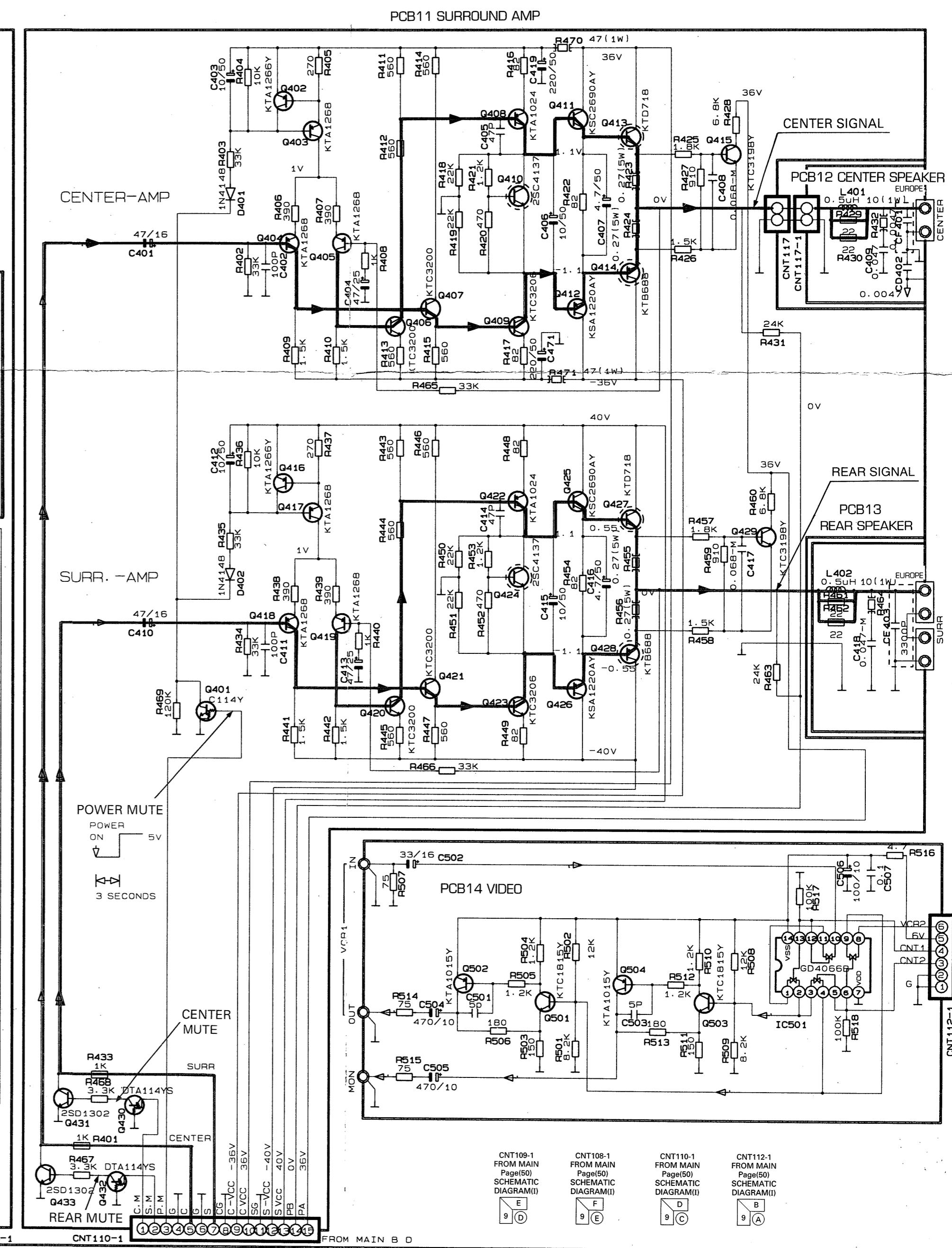
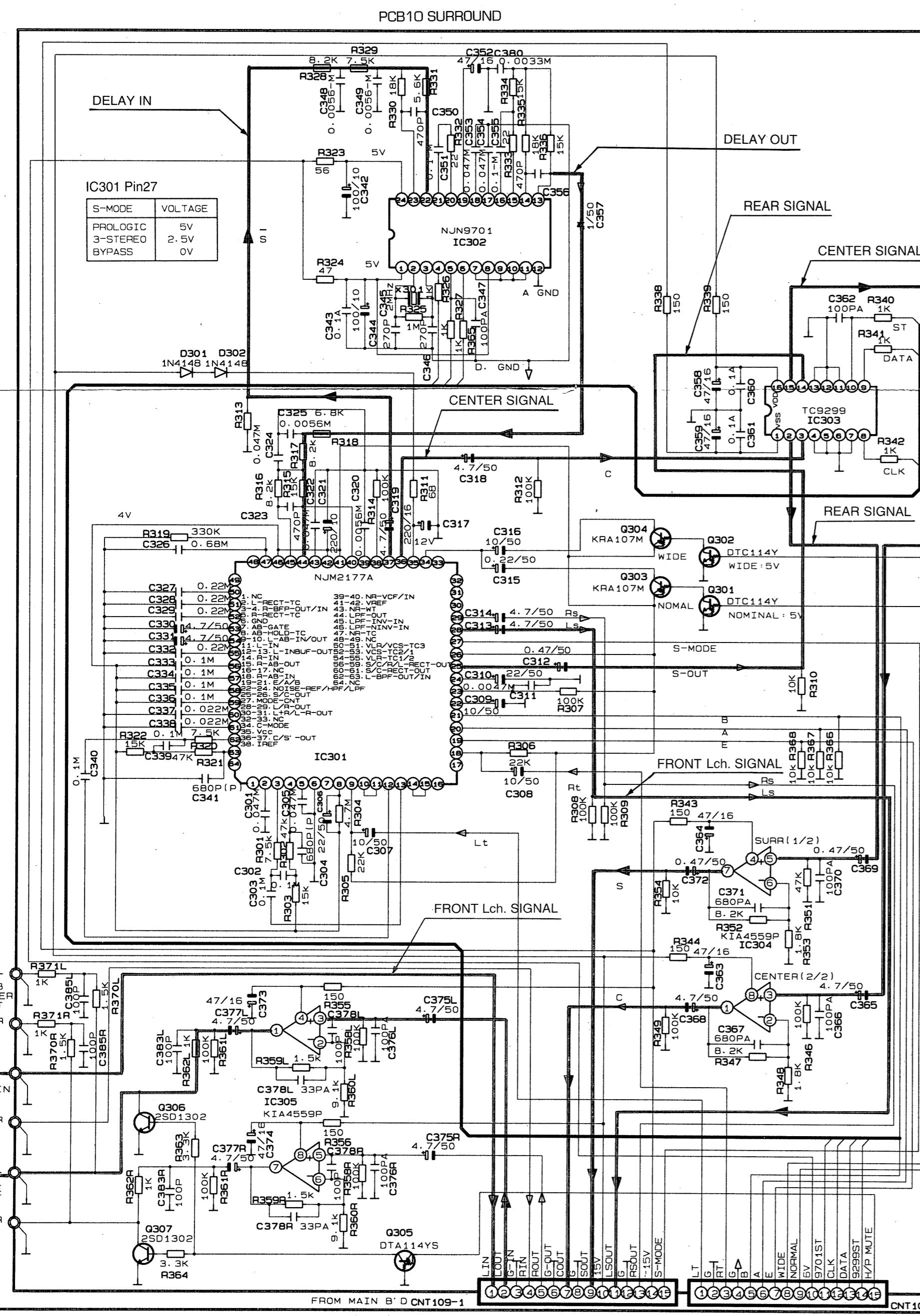
CNT111-1
FROM MAIN
Page(50)
SCHEMATIC
DIAGRAM(I)



CNT122-1
FROM OUTLET
Page(51)
SCHEMATIC
DIAGRAM(II)



SCHEMATIC DIAGRAM III



SCHEMATIC DIAGRAM III

1

2

3

4

5

6

A

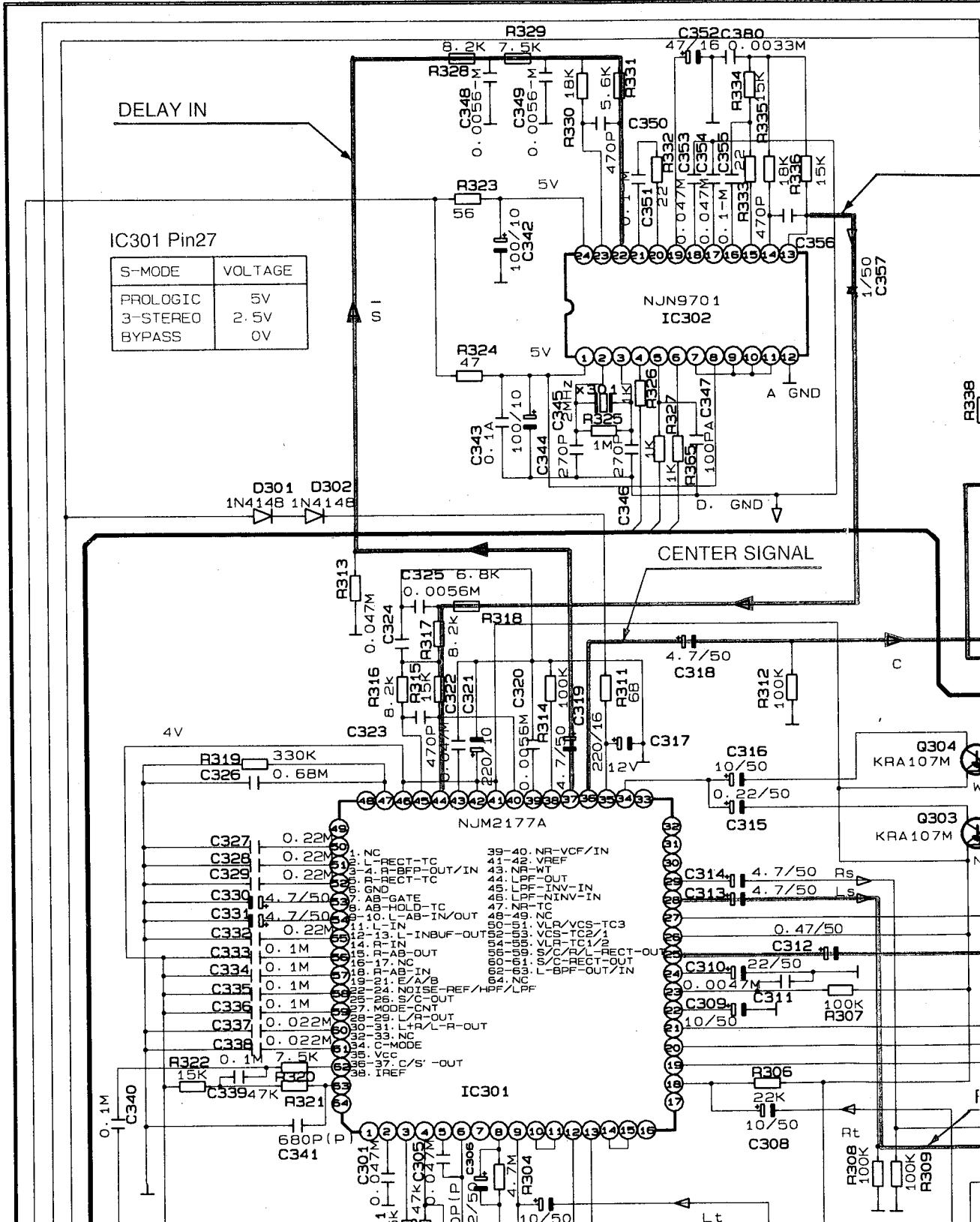
B

C

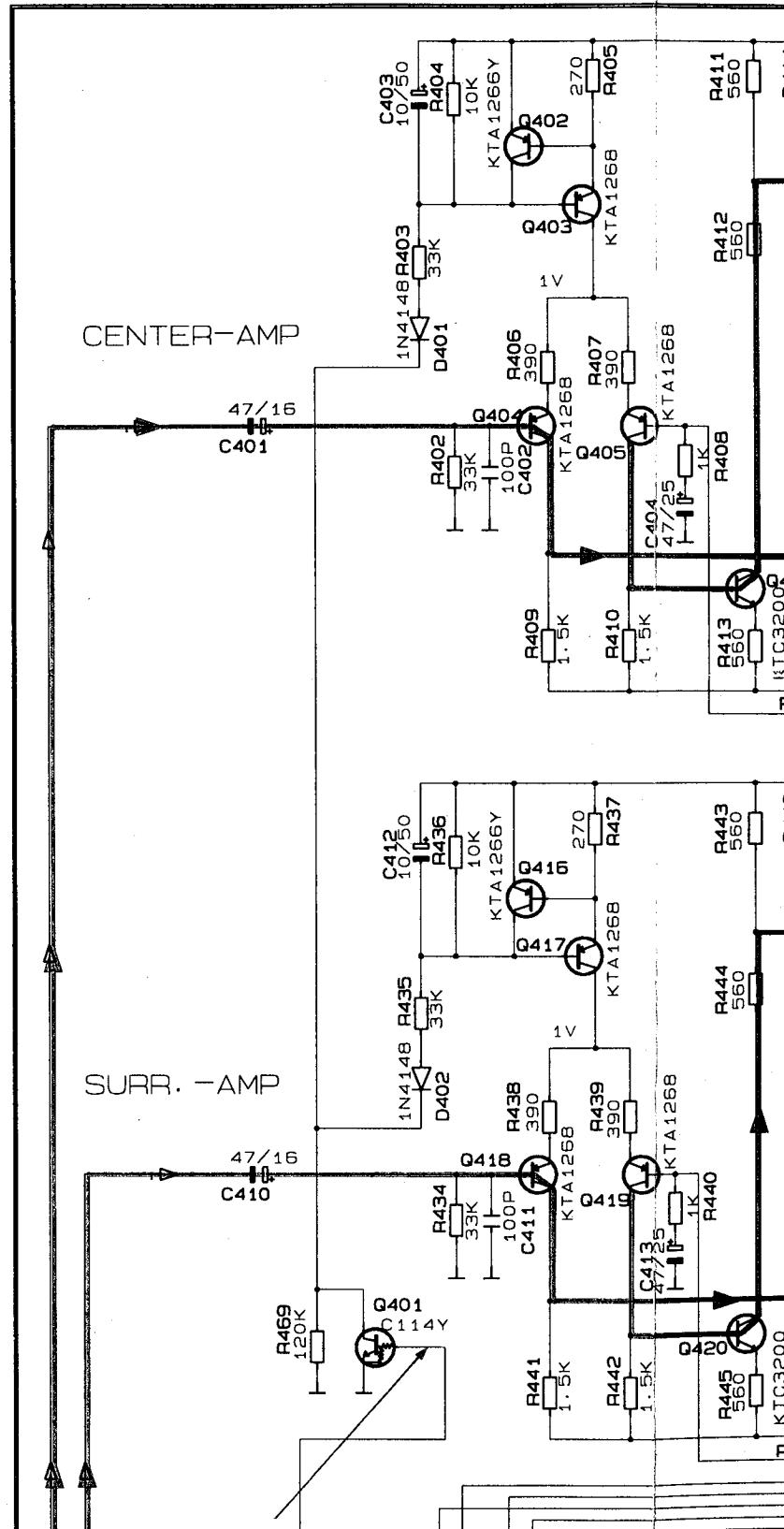
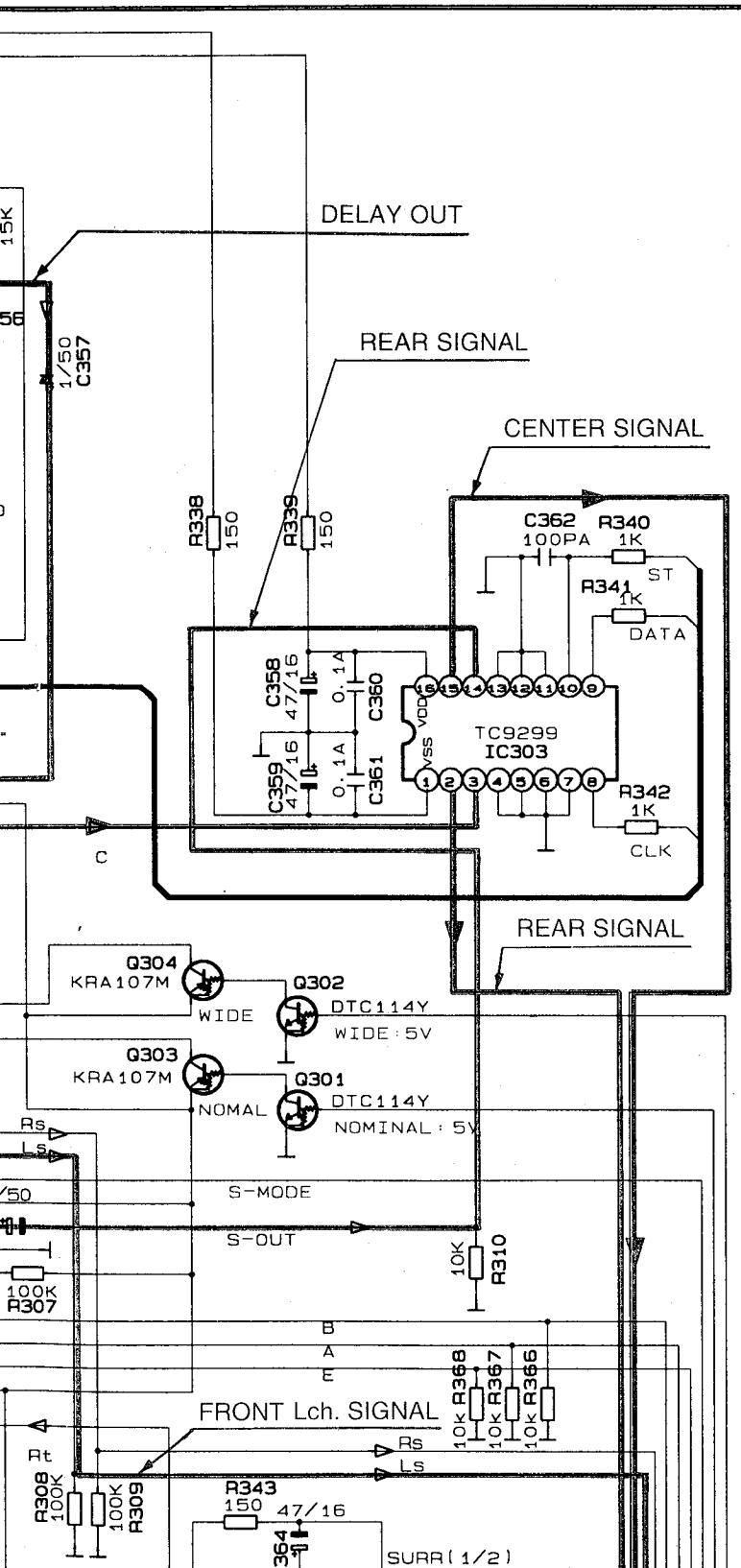
D

E

PCB10 SURROUND



E F G H



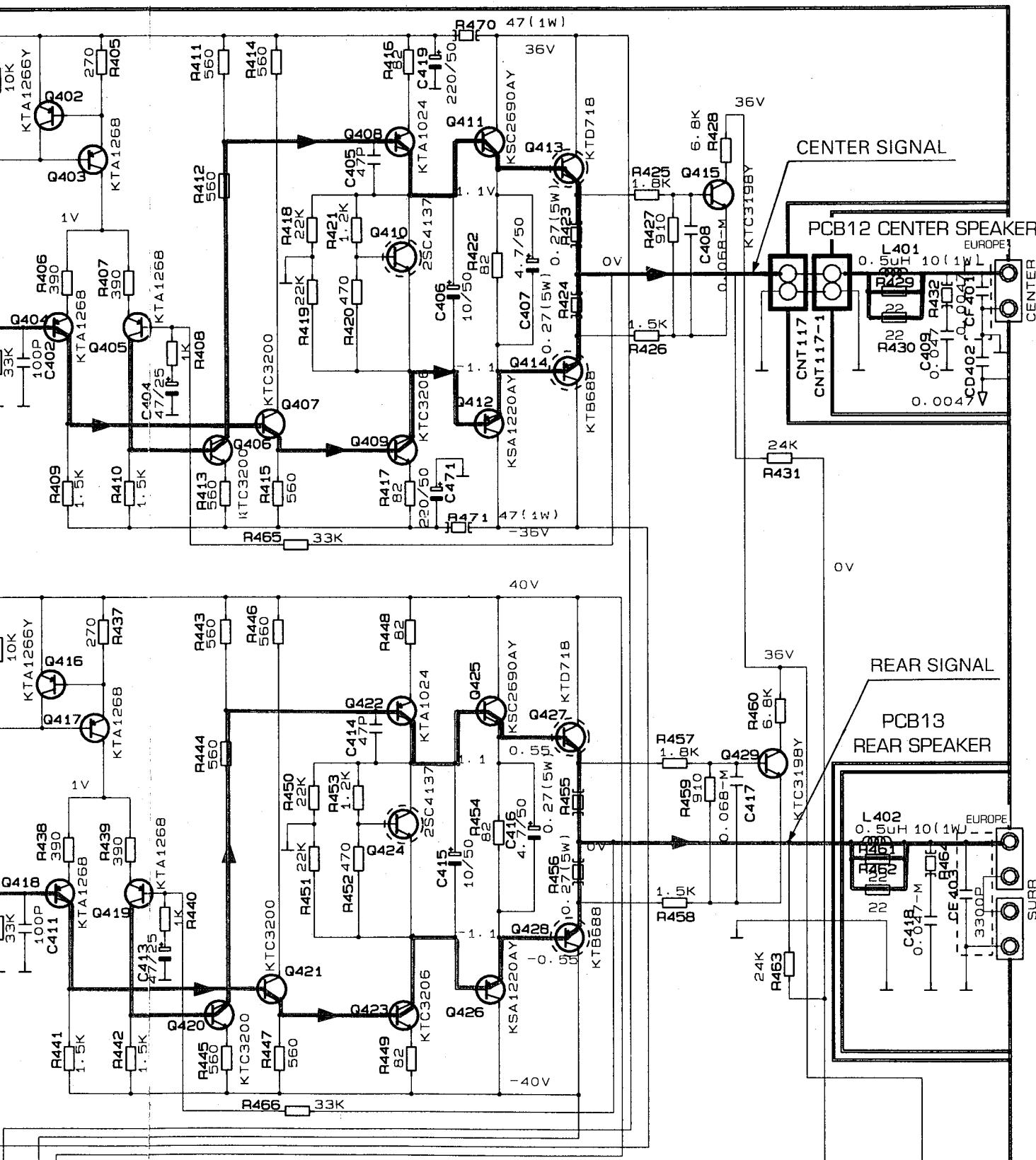
J

K

L

M

PCB11 SURROUND AMP



3

4

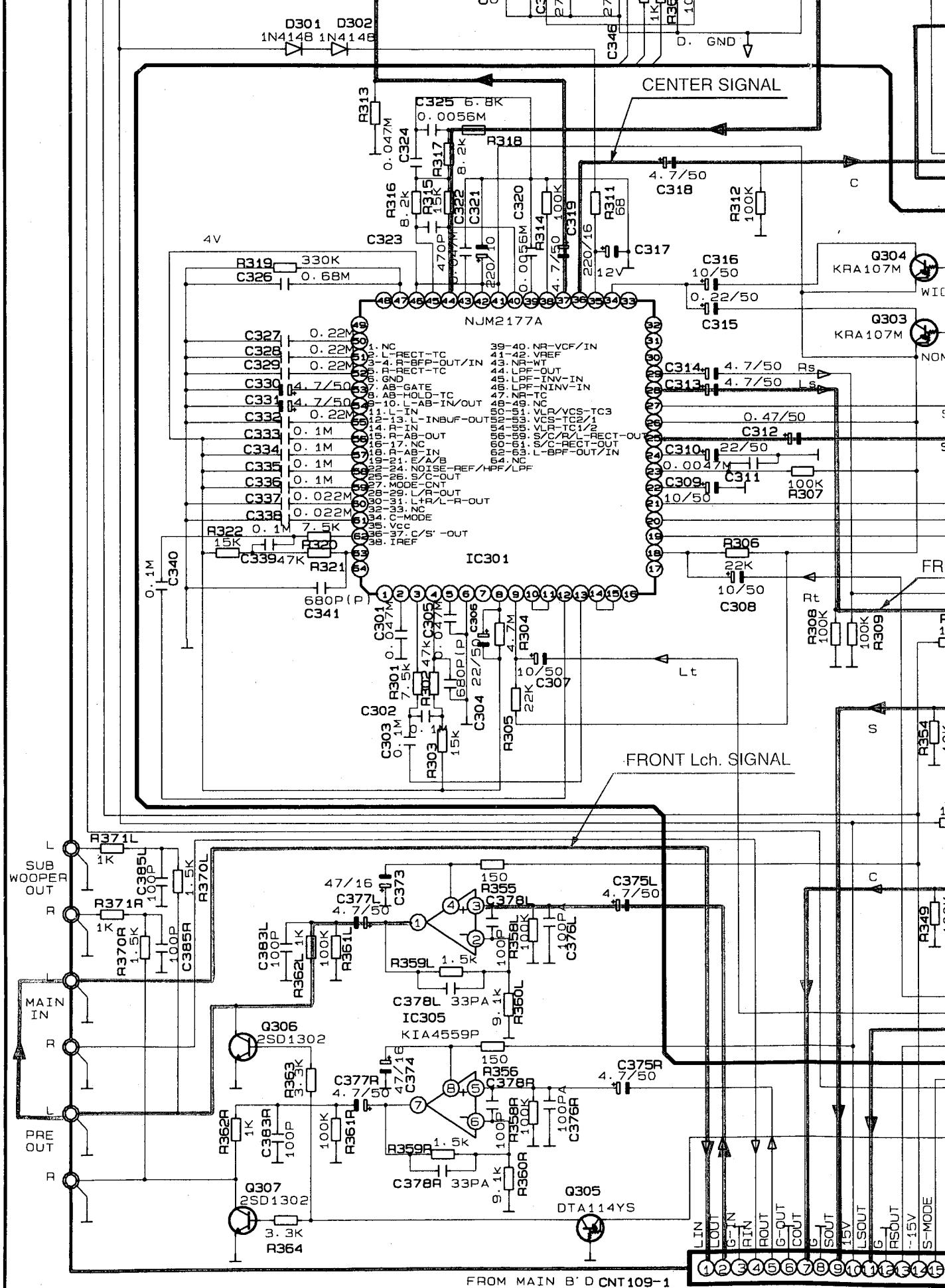
5

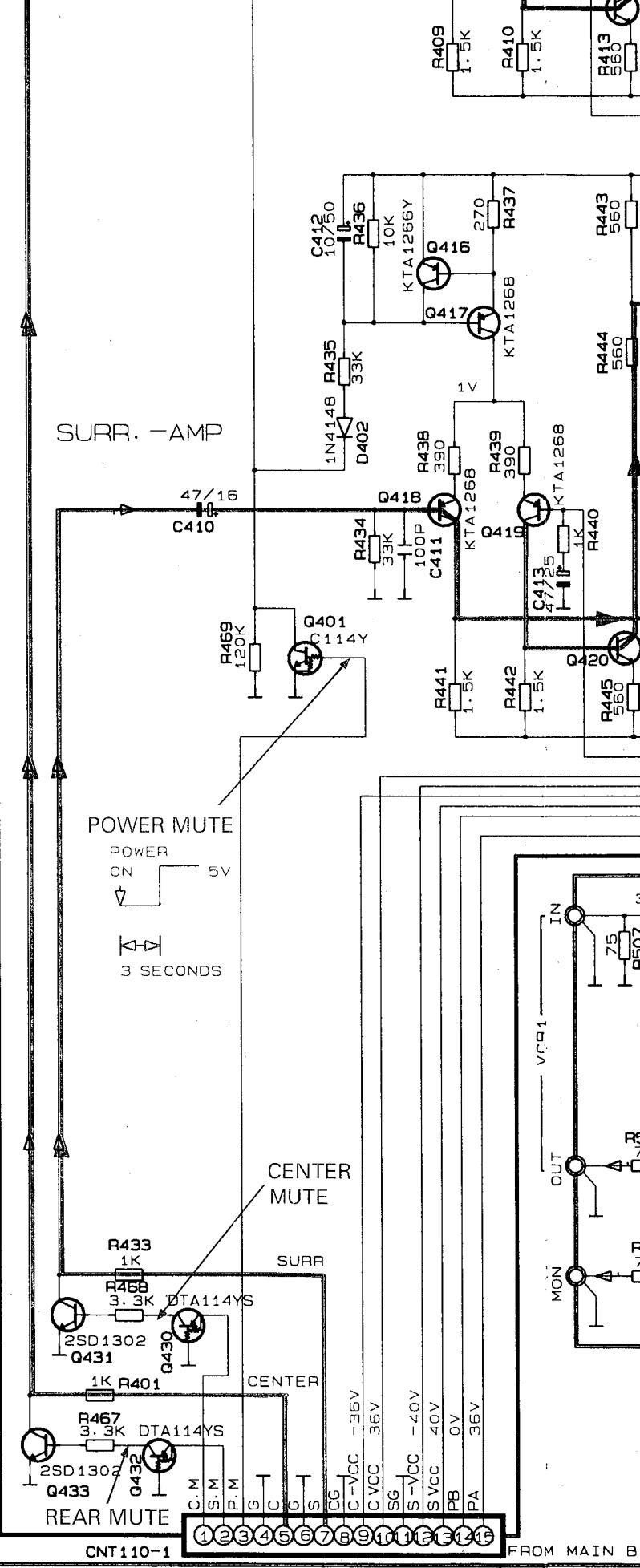
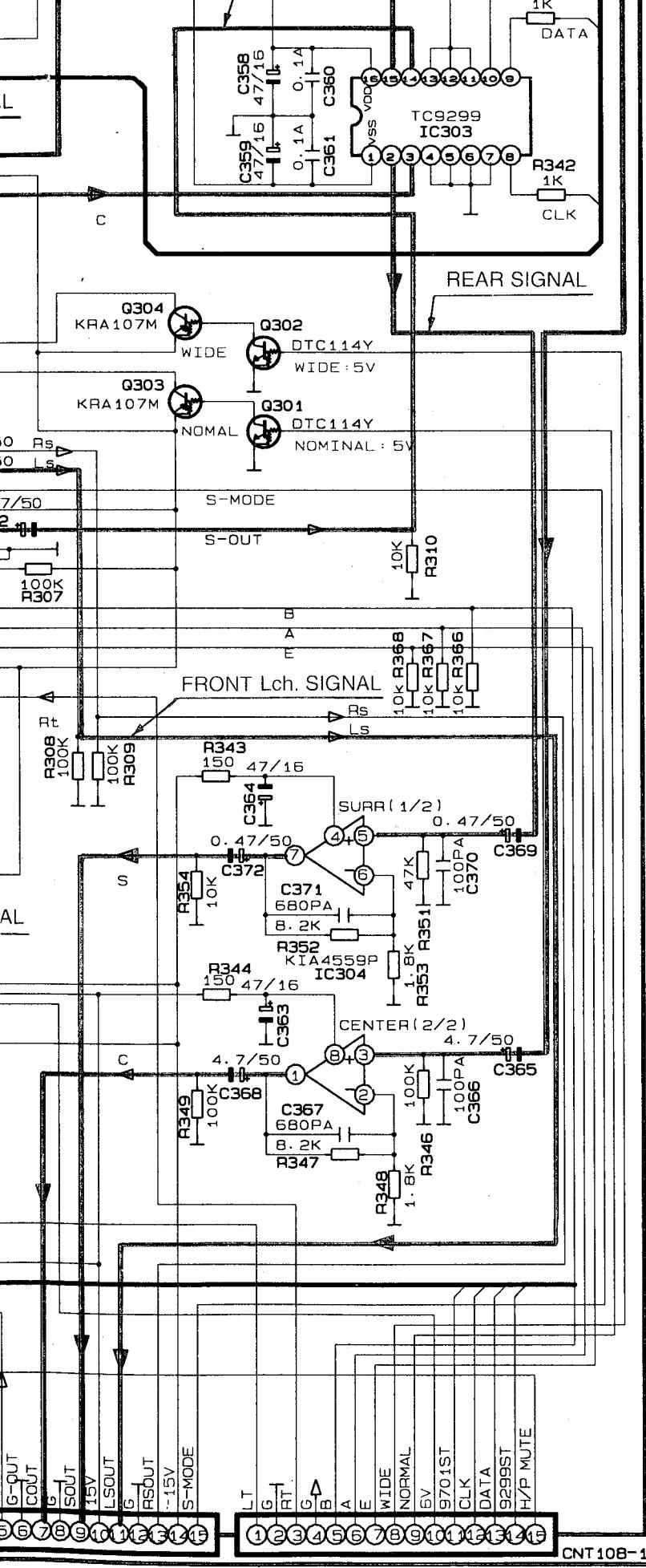
6

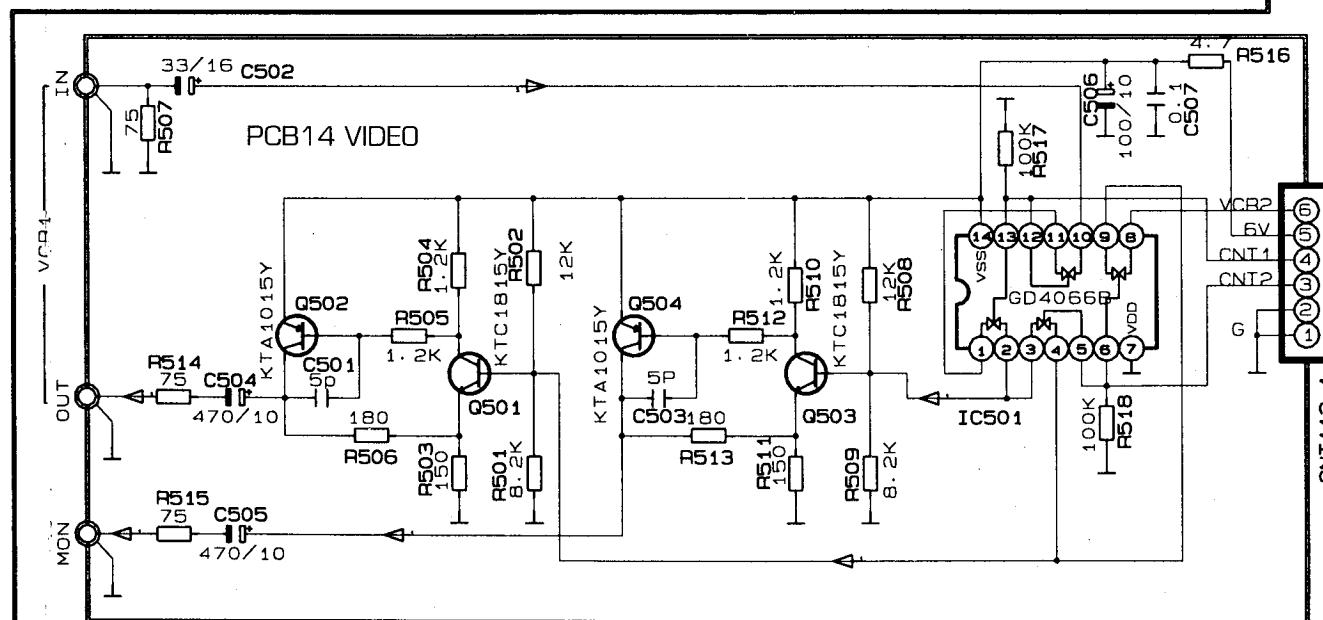
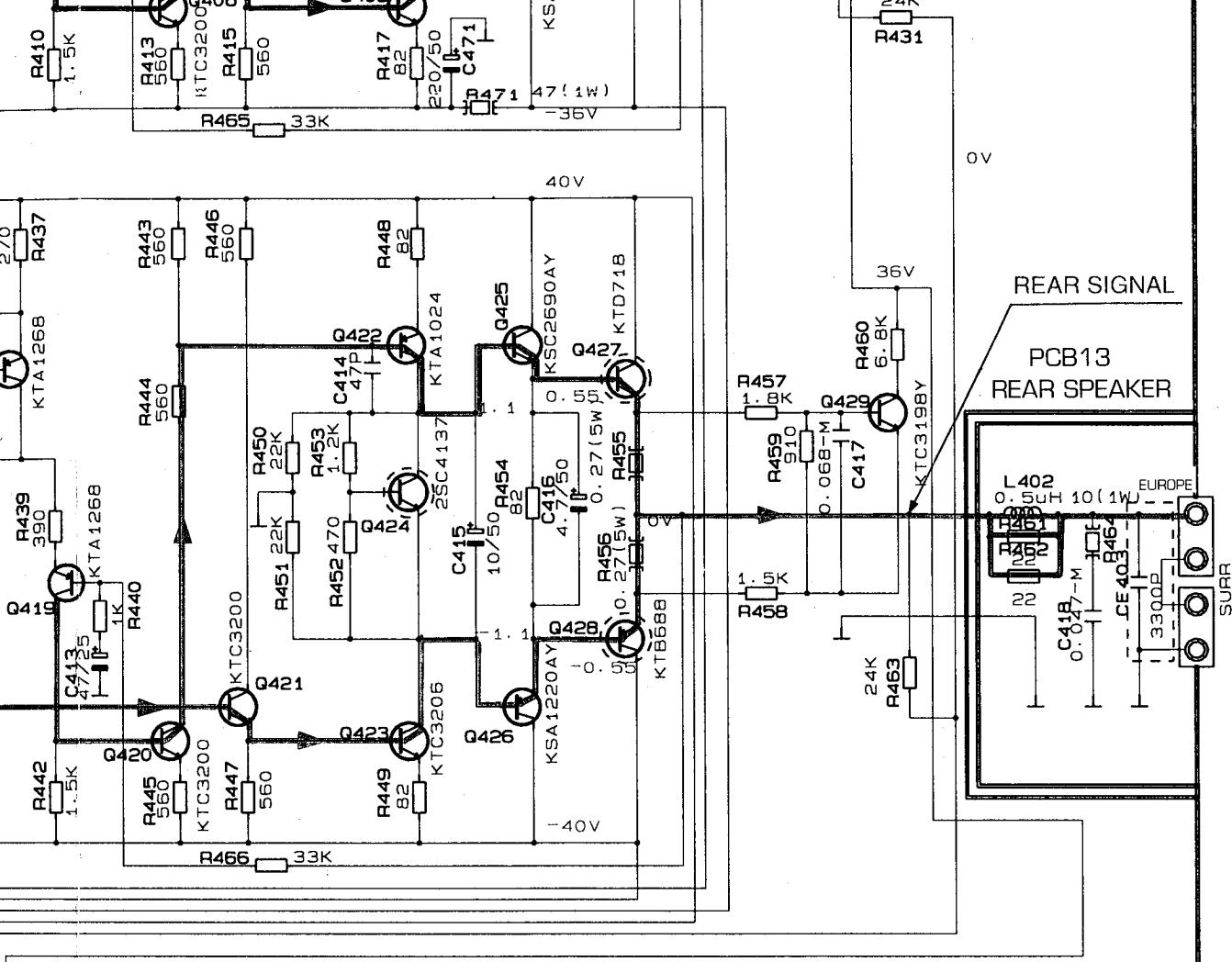
7

8

9







CNT109-1
FROM MAIN
Page(50)
SCHEMATIC
DIAGRAM(I)

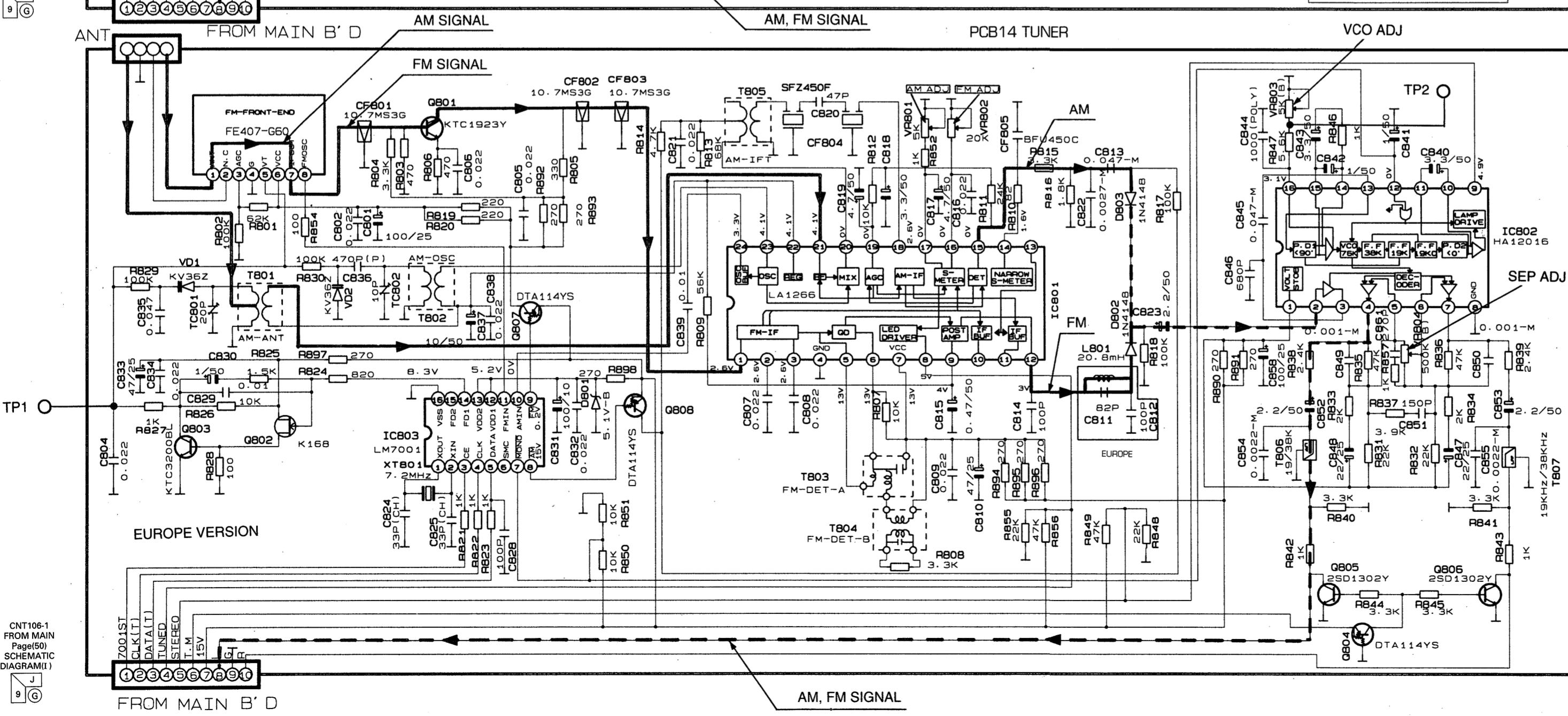
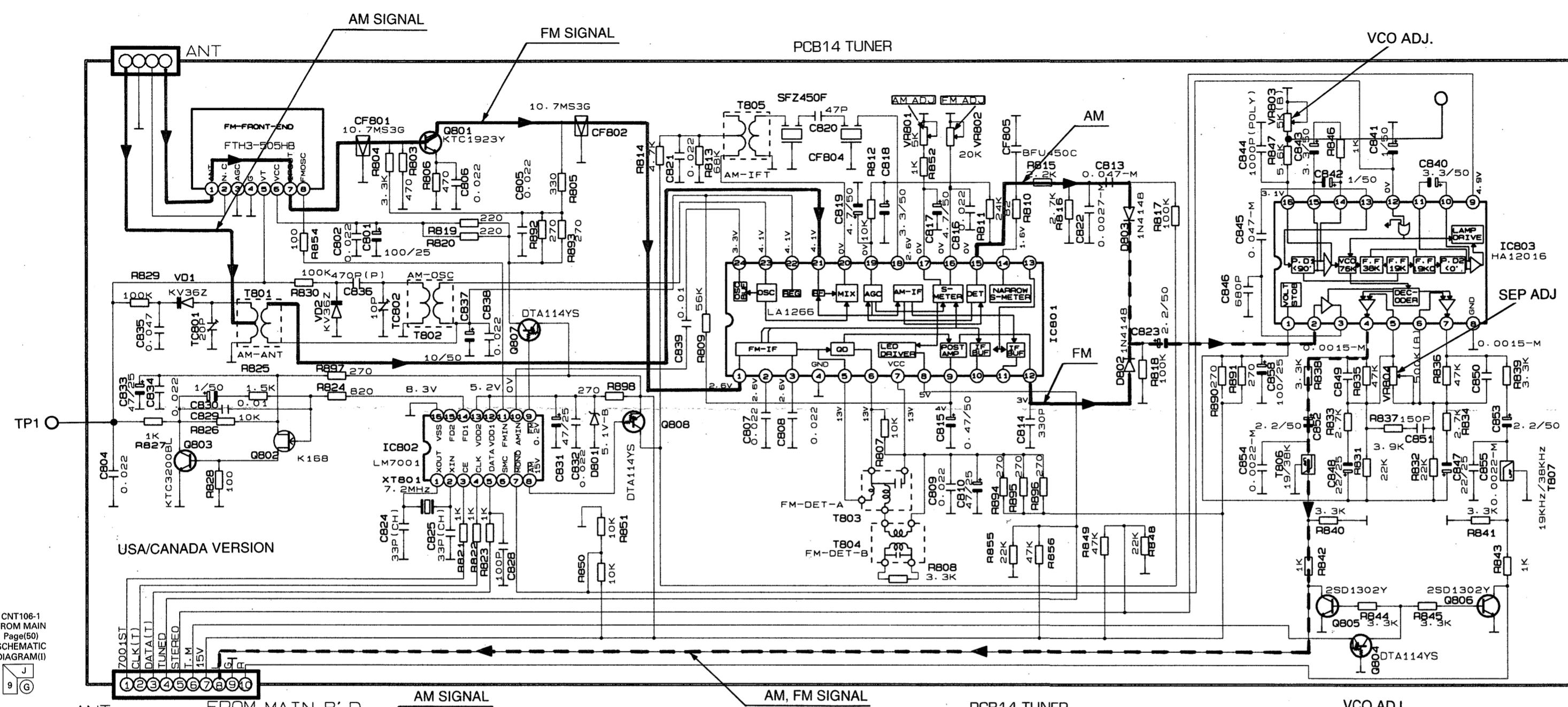
CNT108-1
FROM MAIN
Page(50)
SCHEMATIC
DIAGRAM(I)

CNT110-1
FROM MAIN
Page(50)
SCHEMATIC
DIAGRAM(I)

CNT112-1
FROM MAIN
Page(50)
SCHEMATIC
DIAGRAM(I)

SCHEMATIC DIAGRAM IV

A | B | C | D | E | F | G | H | I | J | K | L | M



NOTES

- Resistor values are indicated in ohms unless otherwise specified
 $R=1.000 \Omega$ $M=1.000.000 \Omega$
- Capacitor values are indicated in microfarads unless otherwise specified.
(μ =micro-microfarads)

CAUTION

Safety precaution to be followed during servicing

- Since those parts marked with \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 IV

1

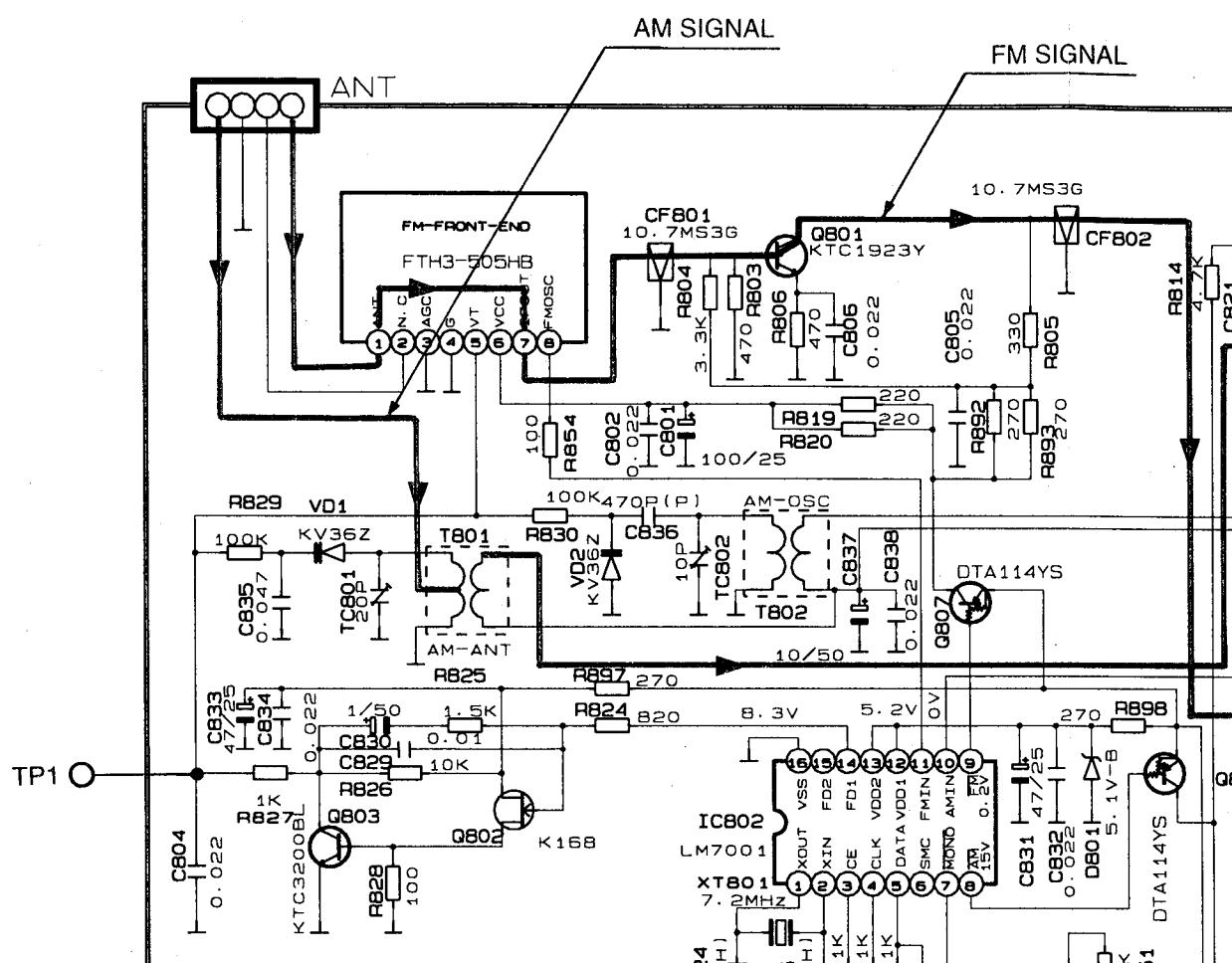
2

3

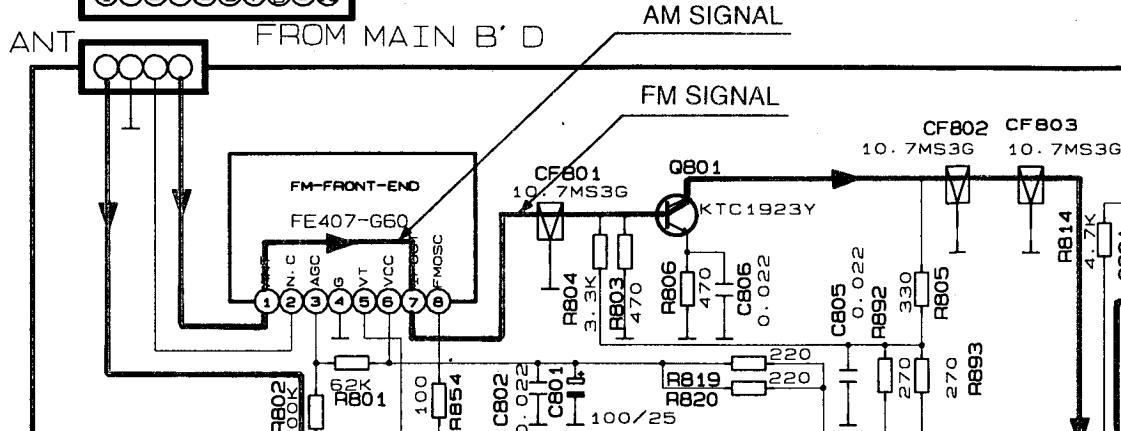
4

5

6



CNT106-1
FROM MAIN
Page(50)
SCHEMATIC
DIAGRAM(I)



E

F

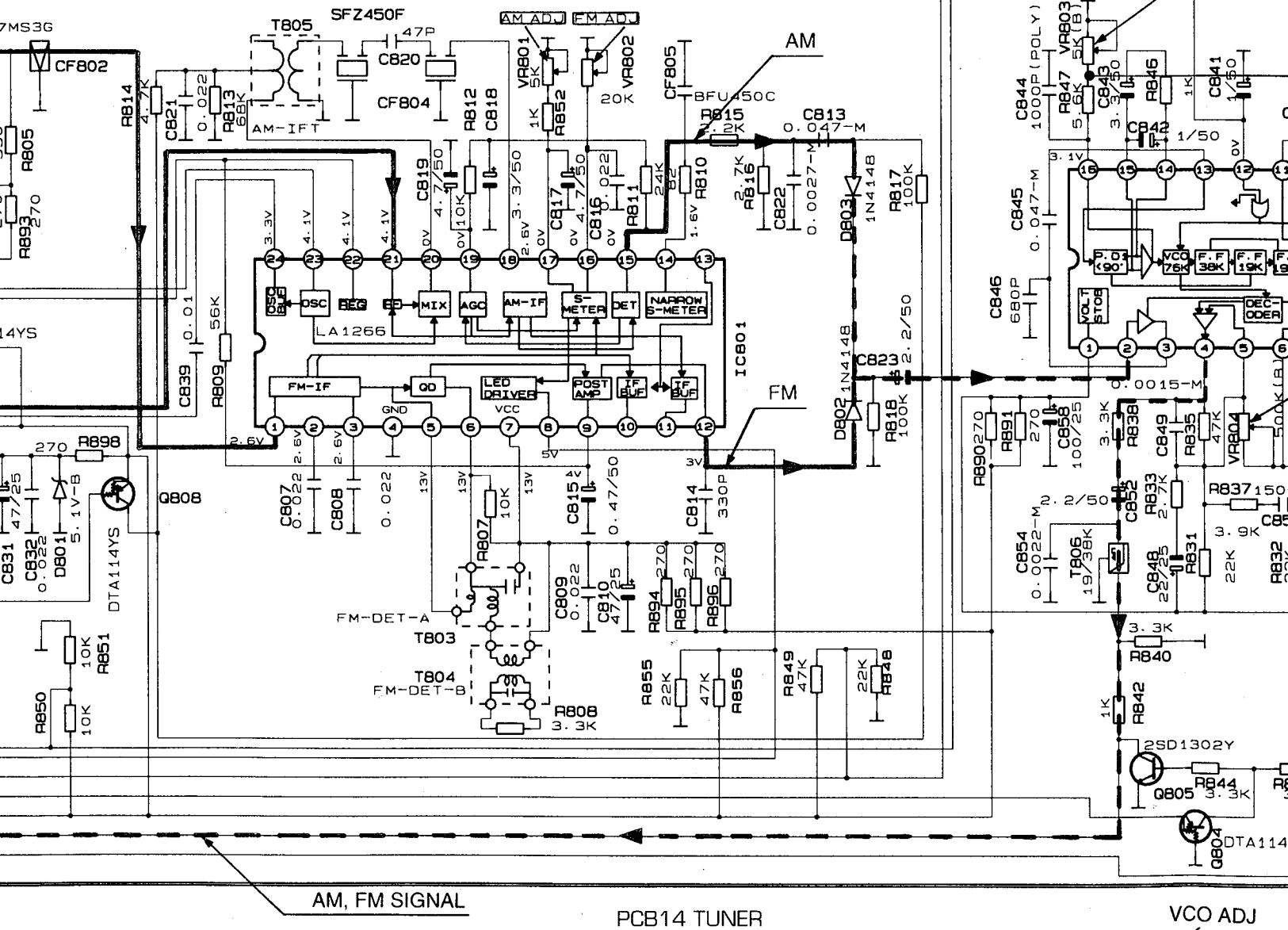
G

H

J

4 SIGNAL

PCB14 TUNER

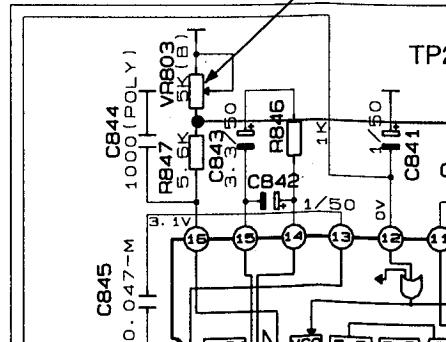


AM, FM SIGNAL

PCB14 TUNER

VCO ADJ

Circuit diagram showing two operational amplifiers, CF802 and CF803, connected as buffers. CF802 has a 3.3k input resistor and a 10k output resistor. CF803 has a 10k input resistor and a 4.7k output resistor.

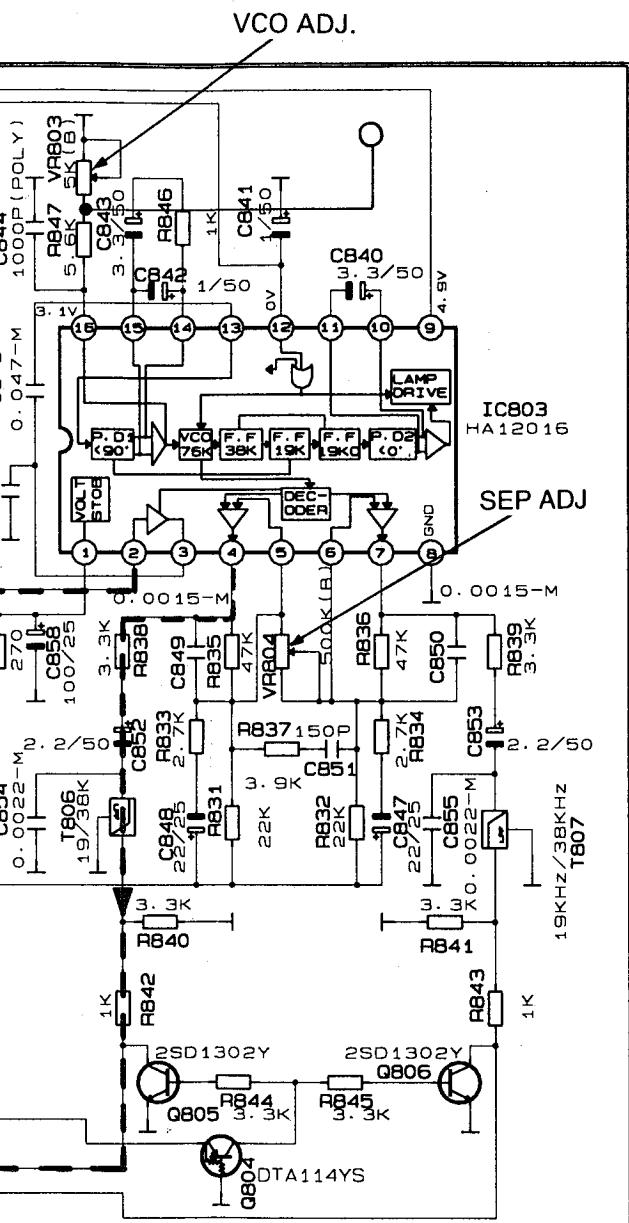


J

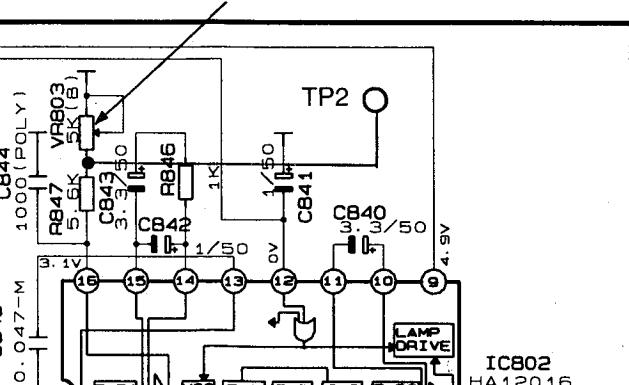
K

L

M



VCO ADJ



3

4

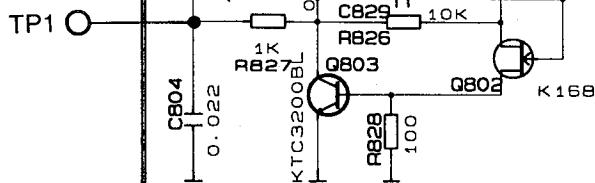
5

6

7

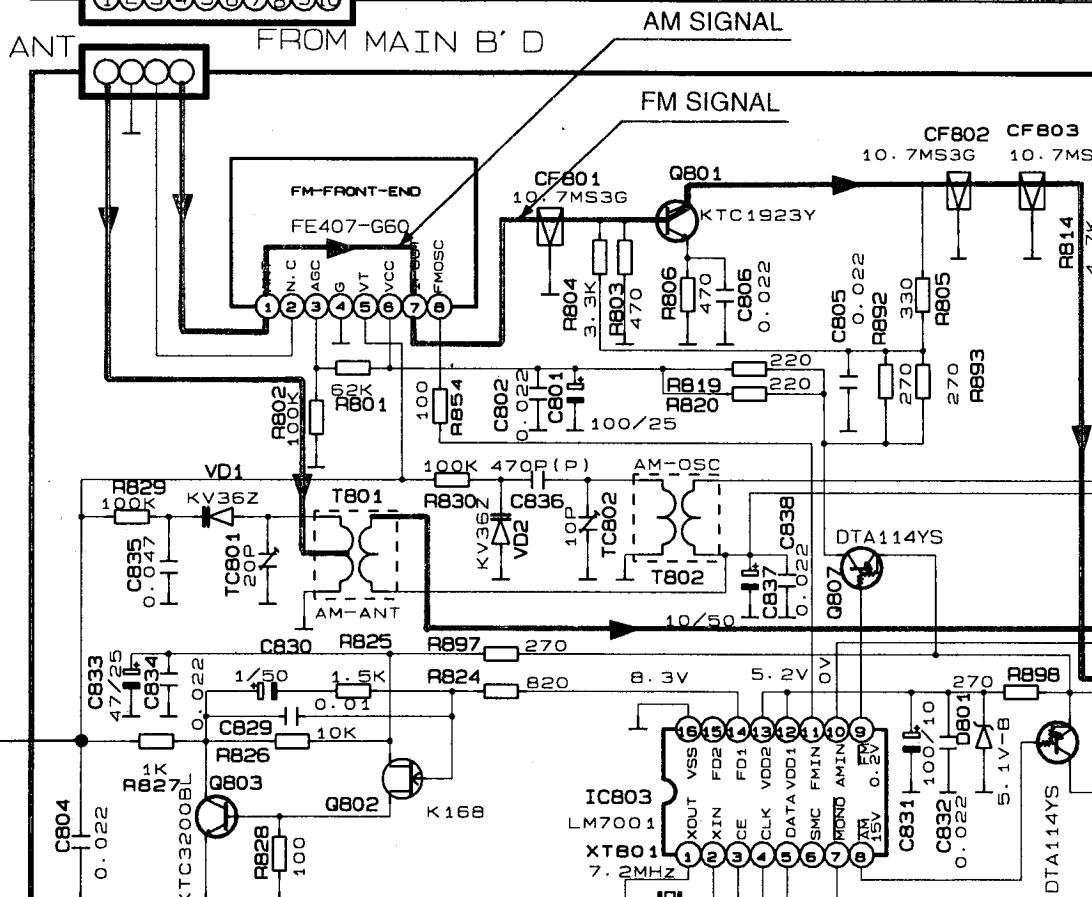
8

9



USA/CANADA VERSION

CNT106-1
FROM MAIN
Page(50)
SCHEMATIC
DIAGRAM(I)



FROM MAIN B' D

AM SIGNAL

FM SIGNAL

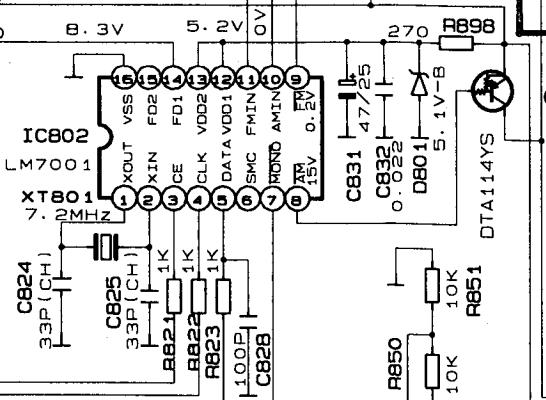
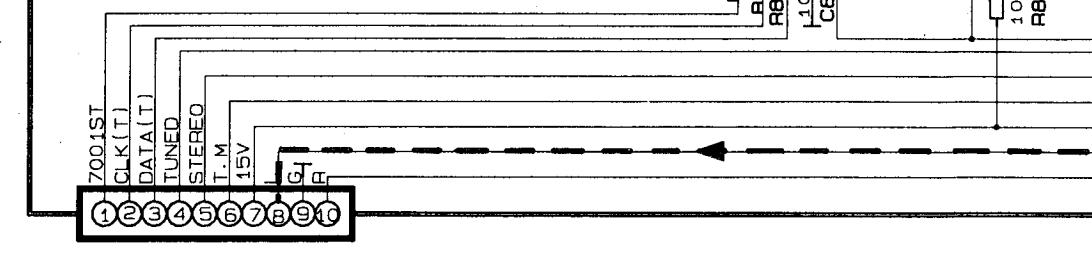


EUROPE VERSION

CNT106-1
FROM MAIN
Page(50)
SCHEMATIC
DIAGRAM(I)



FROM MAIN B' D



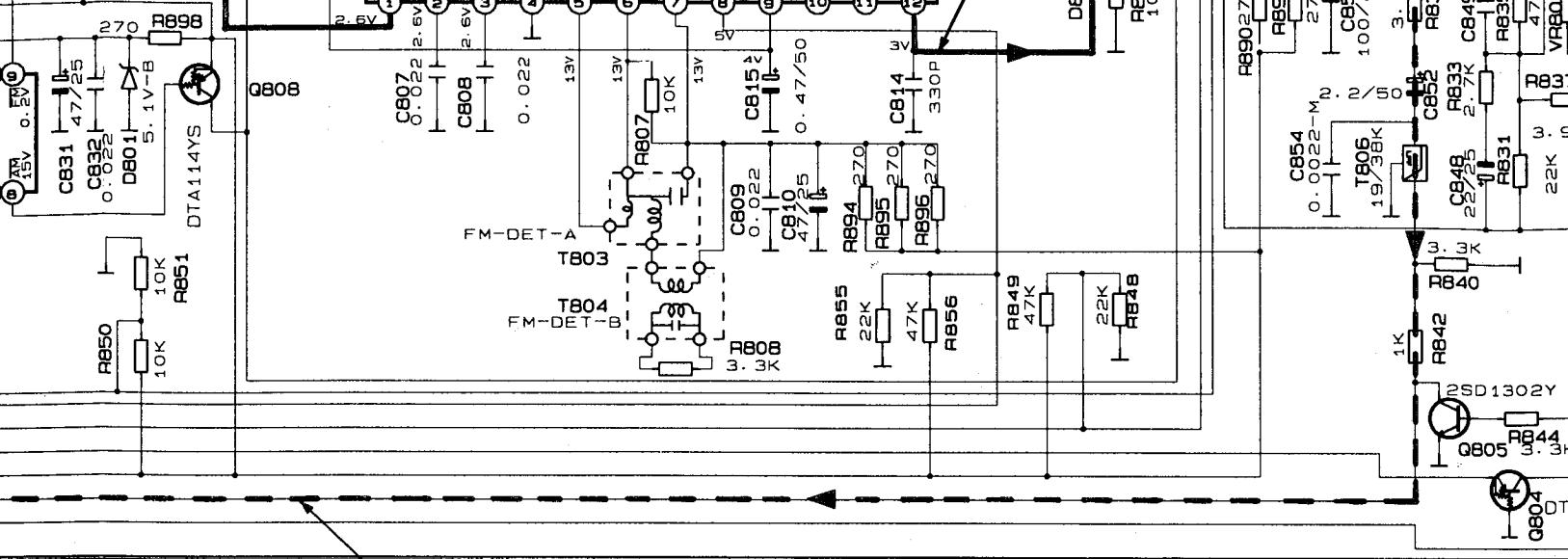
DTA114YS

R851

R850

10K

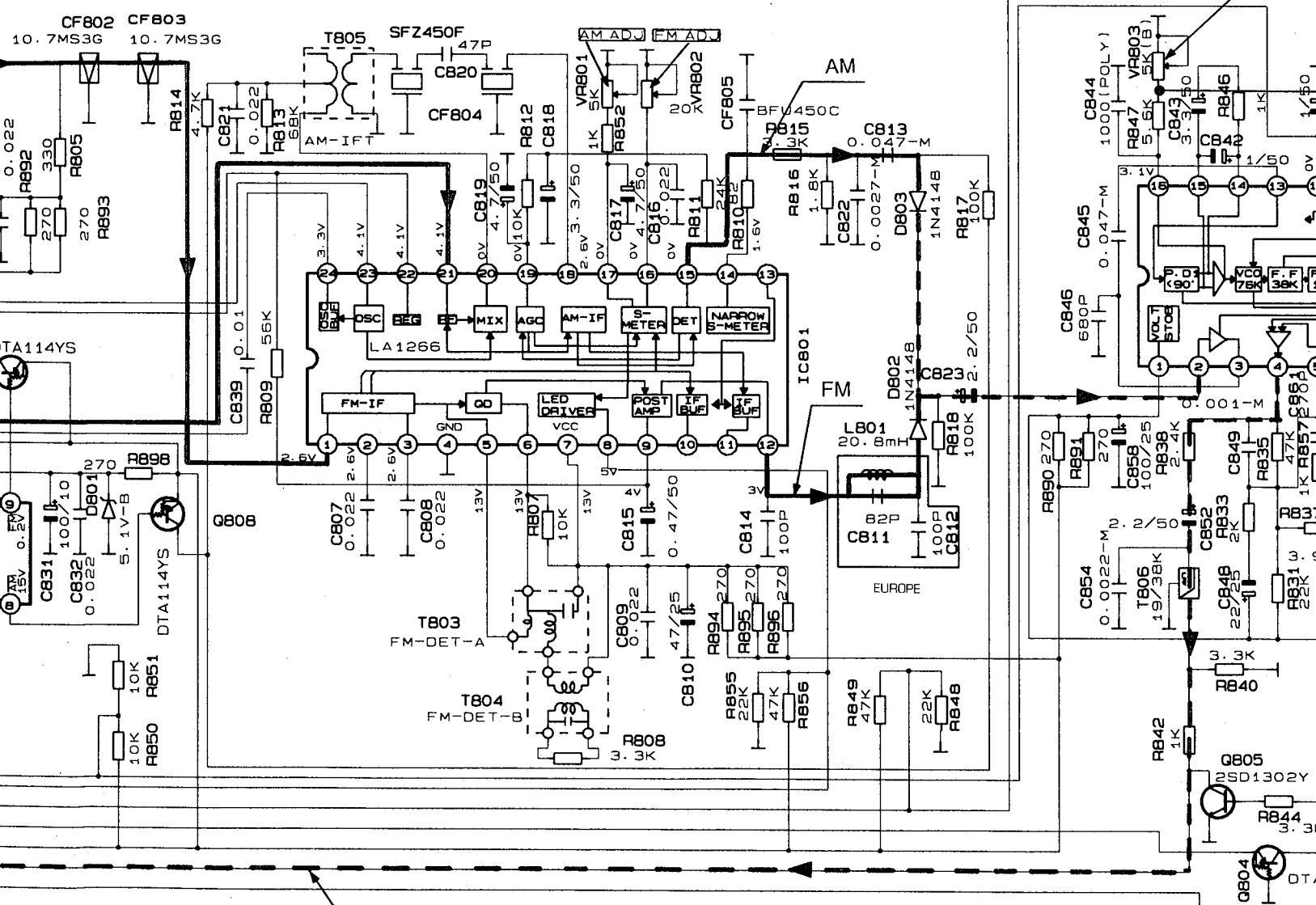
R850



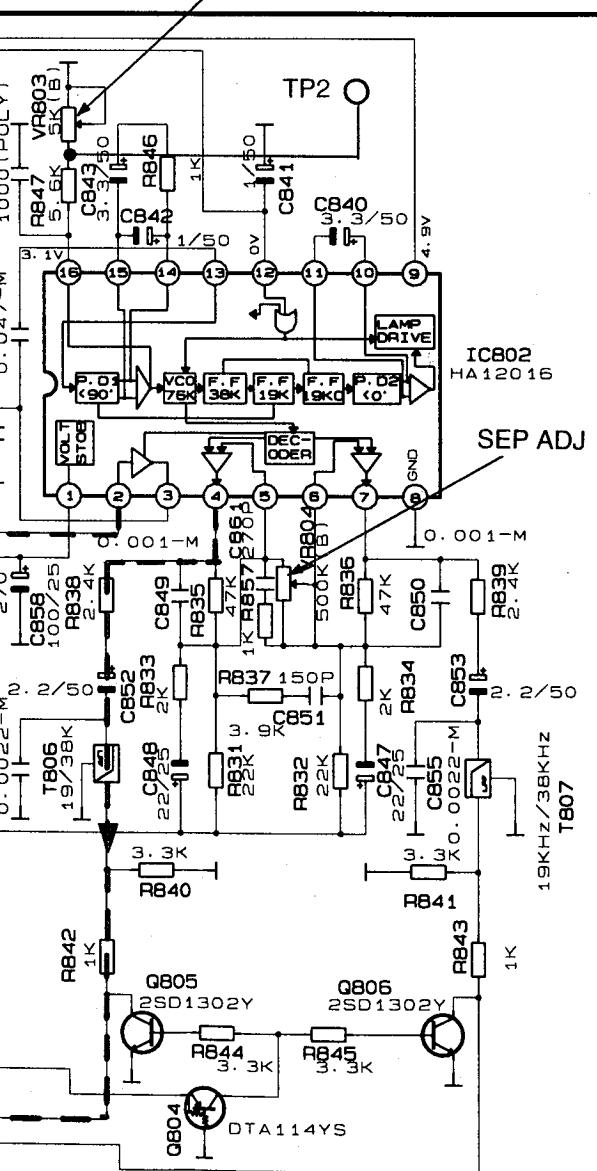
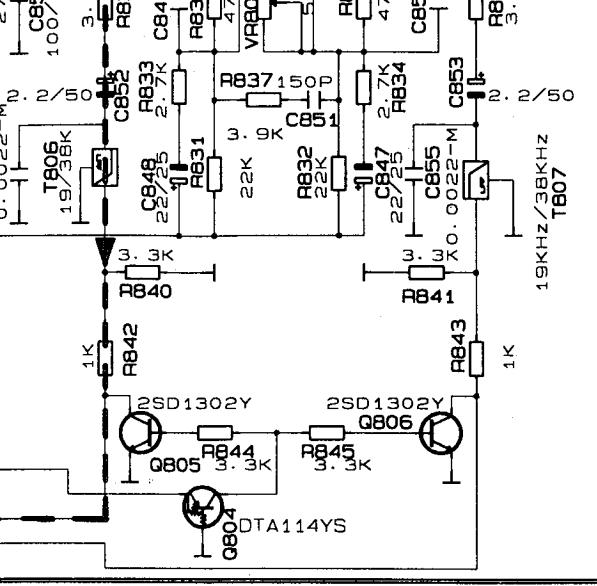
AM, FM SIGNAL

PCB14 TUNER

VCO AD



AM, FM SIGNAL



VCO ADJ

SEP AD

NOT

- NOTES**

 1. Resistor values are indicated in ohms unless otherwise specified
[K=1.000 M=1.000.000]
 2. Capacitor values are indicated in microfarades unless otherwise specified. [p=micro-microfarades]

CAUTION

Safety precaution to be followed during servicing

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