

Service Manual

74 SR66/02B
SR-66U

A/V Surround Receiver

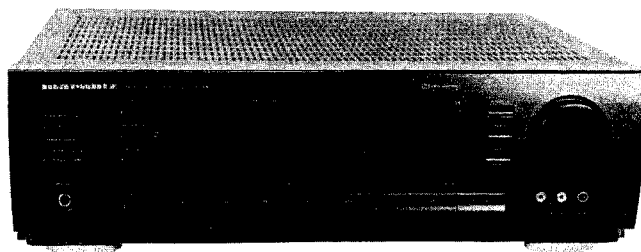


TABLE OF CONTENTS

SECTION	PAGE
1. TECHNICAL SPECIFICATIONS	1
2. BLOCK DIAGRAM	5
3. WIRING DIAGRAM	7
4. SCHEMATIC DIAGRAM AND PARTS LOCATION (Pattern Side)	9
5. SERVICE TEST PROGRAM OF THE MICROPROCESSOR	24
6. ALIGNMENT PROCEDURES	28
7. EXPLODED VIEW AND PARTS LIST	32
8. ELECTRICAL PARTS LIST	35

Please use this service manual with referring to the user guide (D.F.U) without fail.

marantz®

model SR-66

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS:

Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or Fax. must be signed, otherwise such part order will be considered as null and void.

USA

MARANTZ AMERICA, INC.
440 MEDINAH ROAD
ROSELLE, ILLINOIS 60172-2330
USA
PHONE : 708-307-3100
FAX : 708-307-2687

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SHOCK, FIRE HAZARD SERVICE TEST:

CAUTION: After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard NO.1492.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

1. TECHNICAL SPECIFICATIONS

□ FRONT AMP SECTION (Condition: DOLBY PRO-LOGIC OFF)		Unit	Normal	Limit
· RMS Output Power:				
Both channels driven at 40 Hz, 0.3 % THD, 8 Ω load		W	≥ 82	≥ 80
Both channels driven at 1 kHz, 0.3 % THD, 8 Ω load		W	≥ 82	≥ 80
· Inter-modulation Distortion(60 Hz : 7 kHz = 4 : 1 SMPTE)				
at 80 W output, 8 Ω load		%	0.05	0.08
· Total Harmonic Distortion				
at 20 Hz - 20 kHz, 80 W output, 8 Ω load	40 Hz	%	0.15	0.3
	1 kHz	%	0.1	0.2
	20 kHz	%	0.15	0.3
· Frequency Response				
at CD, 1 W output, 8 Ω load	20 Hz - 40 kHz	dB	± 3	± 3
· Input Sensitivity for 80 W output, 8 Ω load				
	CD/AUX	mV	200±20	200±30
· Tone Control				
	Bass at 100 Hz	dB	± 10	± 12
	Treble at 10 kHz	dB	± 10	± 12
· Channel Separation with input shorted				
at CD/TAPE	1 kHz	dB	45	35
	10 kHz	dB	40	30
· Signal to Noise Ratio with input shorted, IHF "A" weighted				
	CD/AUX/TAPE	dB	≥ 90	≥ 87
□ CENTER AMP SECTION				
(Condition: VCR1 input, 230 mV input level at 1 kHz, center level with master vol. max. adj., WIDE mode)				
· RMS Output Power at 1 kHz, 0.3 % THD, 8 Ω load				
		W	≥ 52	≥ 50
· Signal to Noise Ratio with input shorted, IHF "A" weighted(PRO-LOGIC, 3-STEREO)				
		dB	≥ 70	≥ 65
· Frequency Response				
at 1 W output, -3 dB, 8 Ω load(PRO-LOGIC)	Normal	Hz	100 - 17000	150 - 15000
	Wide	Hz	30 - 17000	50 - 15000
□ REAR AMP SECTION				
(Condition: VCR1 input, 230 mV input level at 1 kHz, rear level with master vol. max. adj.)				
· RMS Output Power at 1 kHz, 0.9 % THD, 16 Ω load				
		W	≥ 27	≥ 25
· Signal to Noise Ratio with input shorted, IHF "A" weighted, 20 ms delay time(PRO-LOGIC)				
		dB	≥ 65	≥ 60
· Frequency Response				
at 1 W output, -3 dB, 16 Ω load(PRO-LOGIC)		Hz	80 - 7000	100 - 6000
□ FM SECTION				
(Condition: 65 dBf antenna input, 1 kHz MOD., 75 kHz DEV.)				
· Tuning Frequency Range				
100 kHz step	U	MHz	87.5 - 108	
50 kHz step	/02B	MHz	87.5 - 108	
· Usable Sensitivity				
at impedance 75 Ω, 3 % THD	U	dBf	≤ 16.2	≤ 20.2
at impedance 75 Ω, 26 dB S/N	/02B	dBf	≤ 16.2	≤ 20.2
· Image Rejection Ratio				
at 106.1 MHz	U	dB	≥ 40	≥ 35
at 106 MHz	/02B	dB	≥ 80	≥ 70
· IF Rejection Ratio				
at 90.1 MHz	U	dB	≥ 75	≥ 70
at 90 MHz	/02B	dB	≥ 75	≥ 70

		Unit	Normal	Limit
. Full Limiting at -3 dB		μV	1.5	2
. 50 dB Quieting Sensitivity with IHF band pass filter at 98.1 MHz, U	MONO	dBf	≤ 20.2	≤ 24.2
	STEREO	dBf	≤ 42.2	≤ 45.2
at 98 MHz, /02B	MONO	dBf	≤ 20.2	≤ 24.2
	STEREO	dBf	≤ 42.2	≤ 45.2
. Signal to Noise Ratio with IHF band pass filter at 1 mV input	MONO	dB	≥ 70	≥ 68
	STEREO	dB	≥ 65	≥ 60
. De-emphasis at 40 - 12000 Hz				
75 μs	U	dB	± 1.0	± 1.5
50 μs	/02B	dB	± 1.0	± 1.5
. Auto Stop Level				
at 98.1 MHz	U	dBf	28	28 ± 6
at 98 MHz	/02B	dBf	28	28 ± 6
. Output Voltage				
at 75 kHz DEV., 1 kHz MOD., 1 mV input, MONO		V	0.6	0.6 ± 0.1
. Multing Threshold				
at 98.1 MHz	U	dBf	28	28 ± 6
at 98 MHz	/02B	dBf	28	28 ± 6
. Supurious Response with 1/2 IF				
at 98.1 MHz	U	dB	70	60
at 98 MHz	/02B	dB	70	60
. Capture Ratio at 1 mV input		dB	2.5	3
. Alternative Channel Selectivity at 45 dBf				
± 400 kHz	U	dB	≥ 50	≥ 40
± 300 kHz	/02B	dB	≥ 65	≥ 60
. Total Harmonic Distortion at 1 mV input, 1 kHz				
U	MONO	%	≤ 0.3	≤ 0.5
	STEREO	%	≤ 0.5	≤ 0.7
/02B	MONO	%	≤ 0.5	≤ 0.7
	STEREO	%	≤ 0.8	≤ 1.0

MPX SECTION

. Stereo Separation				
at 100 % MOD., 1mV input, IHF band pass filter	1 kHz	dB	≥ 32	≥ 28
	10 kHz	dB	≥ 24	≥ 20
. Automatic stereo threshold				
at 98.1 MHz	U	dBf	28	28 ± 6
at 98 MHz	/02B	dBf	28	28 ± 6

AM SECTION

(Condition: 80 dB/m(10 mV/m) antenna input, 400 Hz, 30 % MOD.)

. Tuning Frequency Range				
10 kHz step	U	kHz		520 - 1710
9 kHz step	/02B	kHz		522 - 1611
. Usable sensitivity at 400 Hz, 30 % MOD., -20 dB S/N				
600, 1000, 1400 kHz	U	dB/m	≤ 58	≤ 60
603, 999, 1404 kHz	/02B	dB/m	≤ 58	≤ 60
. Image Rejection Ratio at 1400 kHz(1404 kHz for /02B)		dB	35	28
. IF Rejection Ratio at 600 kHz(603 kHz for /02B)		dB	35	30
. AGC figure of merit from 100 mV/m at 1000 kHz(999 kHz for /02B)		dB	45	45
. Total Harmonic Distortion at 400 kHz, 30 % MOD., 10 mV/m input		%	≤ 1	≤ 2

	Unit	Norminal	Limit
· Output Voltage at 400 Hz, 30 % MOD., 10 mV/m input	mV	200	200 ± 50
· Audio Response at 10 mV/m input, 1 kHz / 0 dB, 1000 kHz(999 kHz for EUR/AUS) / -6 dB	Hz	80 - 2300	100 - 2000
· Selectivity at 350 μ V/m, ± 9 kHz(± 10 kHz for EUR/AUS)	dB	≥ 25	≥ 20
· Signal to Noise Ratio at 1000 kHz(999 kHz for EUR/AUS)	dB	≥ 40	≥ 35
· Auto Stop Level	dB	58	58 ± 6

GENERAL

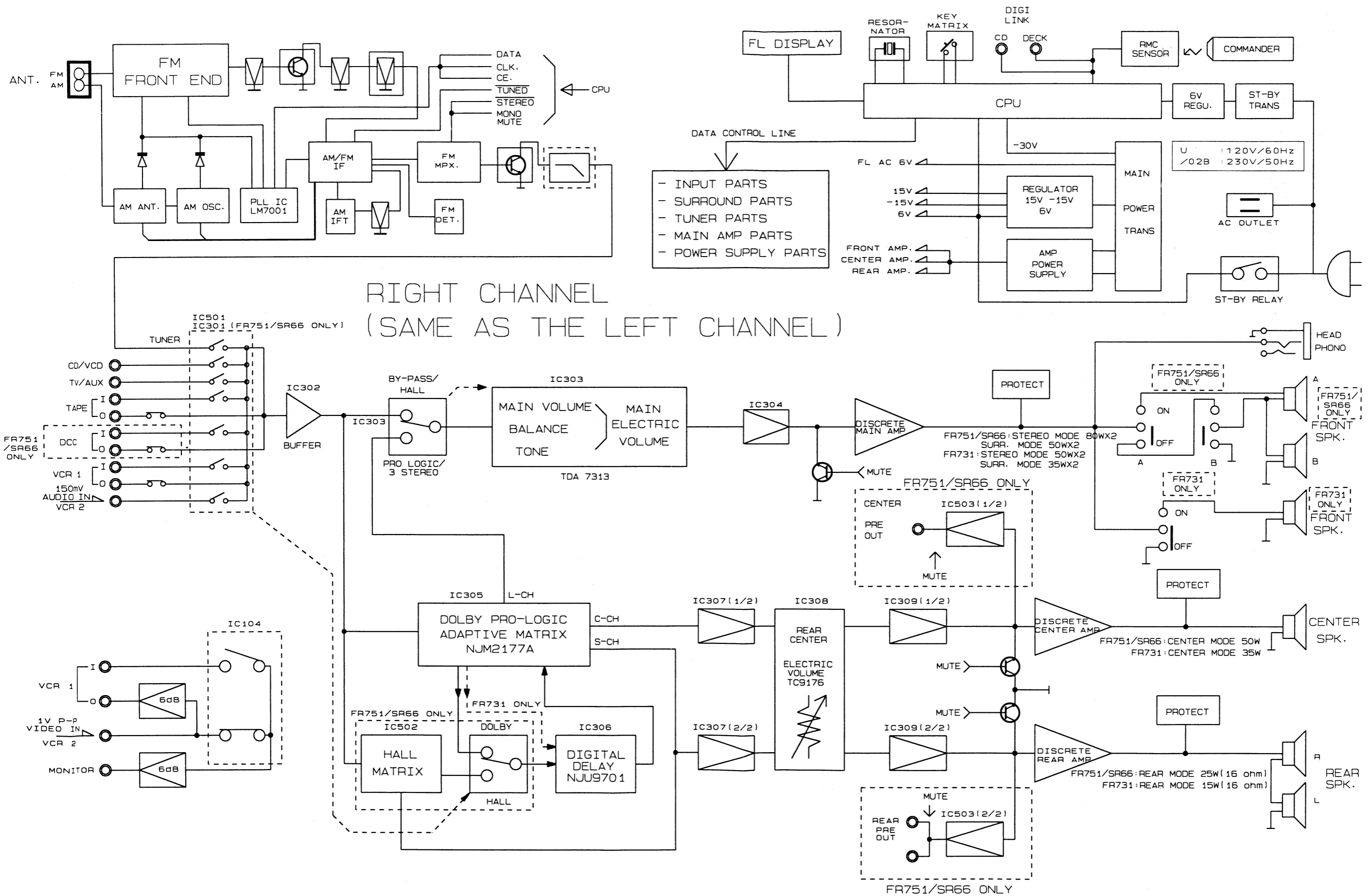
· Speaker load impedance -----	8 Ω
· Power consumption:	
No load, No signal -----	50 Watts
1/8 W Pmax. -----	210 Watts
P _{max} (Undistorted) with outlet -----	650 Watts
· Dimensions(WxHxD) -----	435 x 125 x 350 mm
· Weight(Net.) -----	11.8 Kg(26 lbs)

POWER REQUIREMENTS

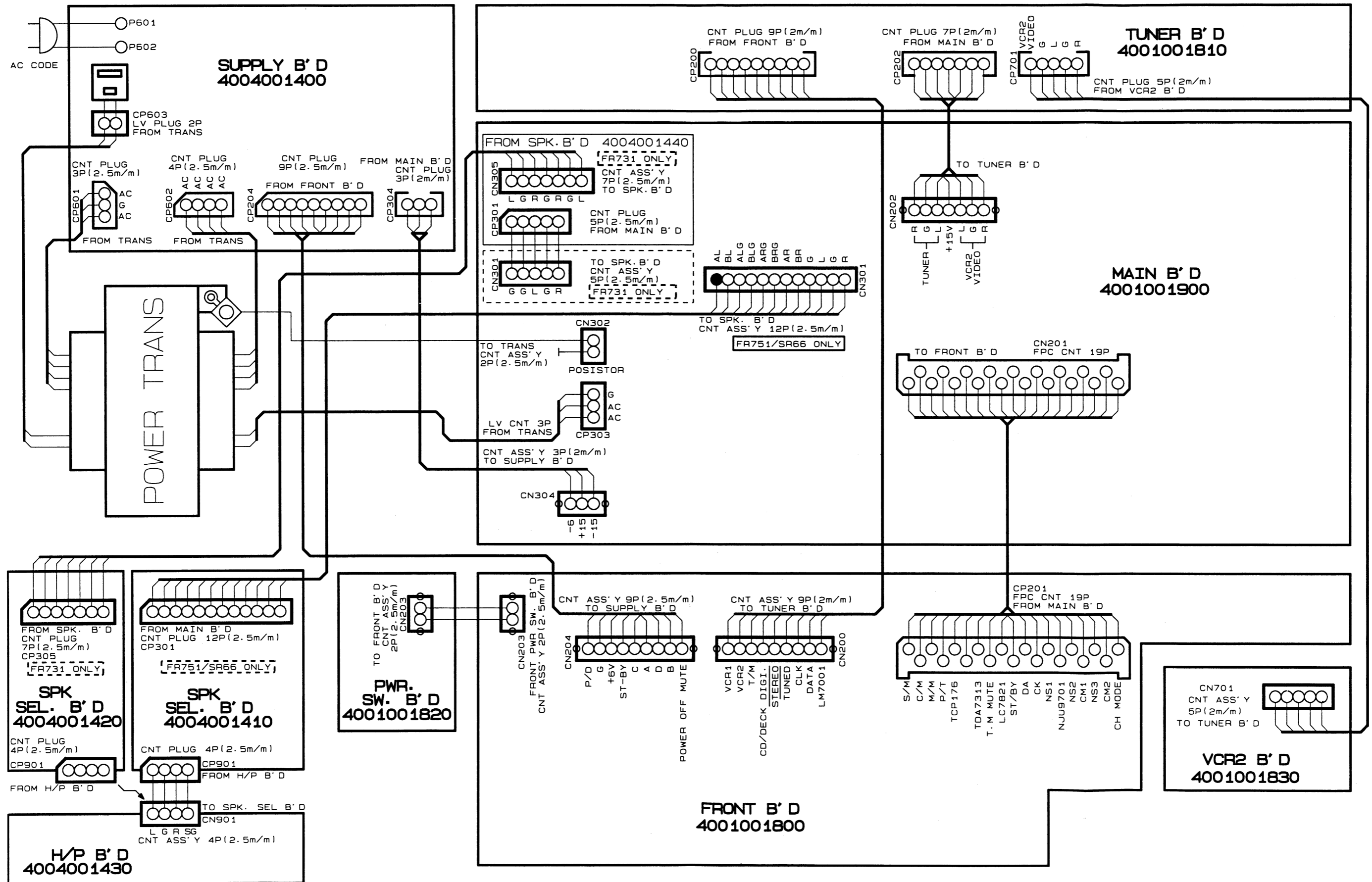
U -----	120 V, 60 Hz
/02B -----	230 V, 50 Hz

Notes: Norminal specs represent the design specs. All units should be able to approximate these, some will exceed and some may drop slightly below these specs.
Limit specs represent the absolute worst condition that still might be considered acceptable: In no case should a unit fail to meet limit specs.

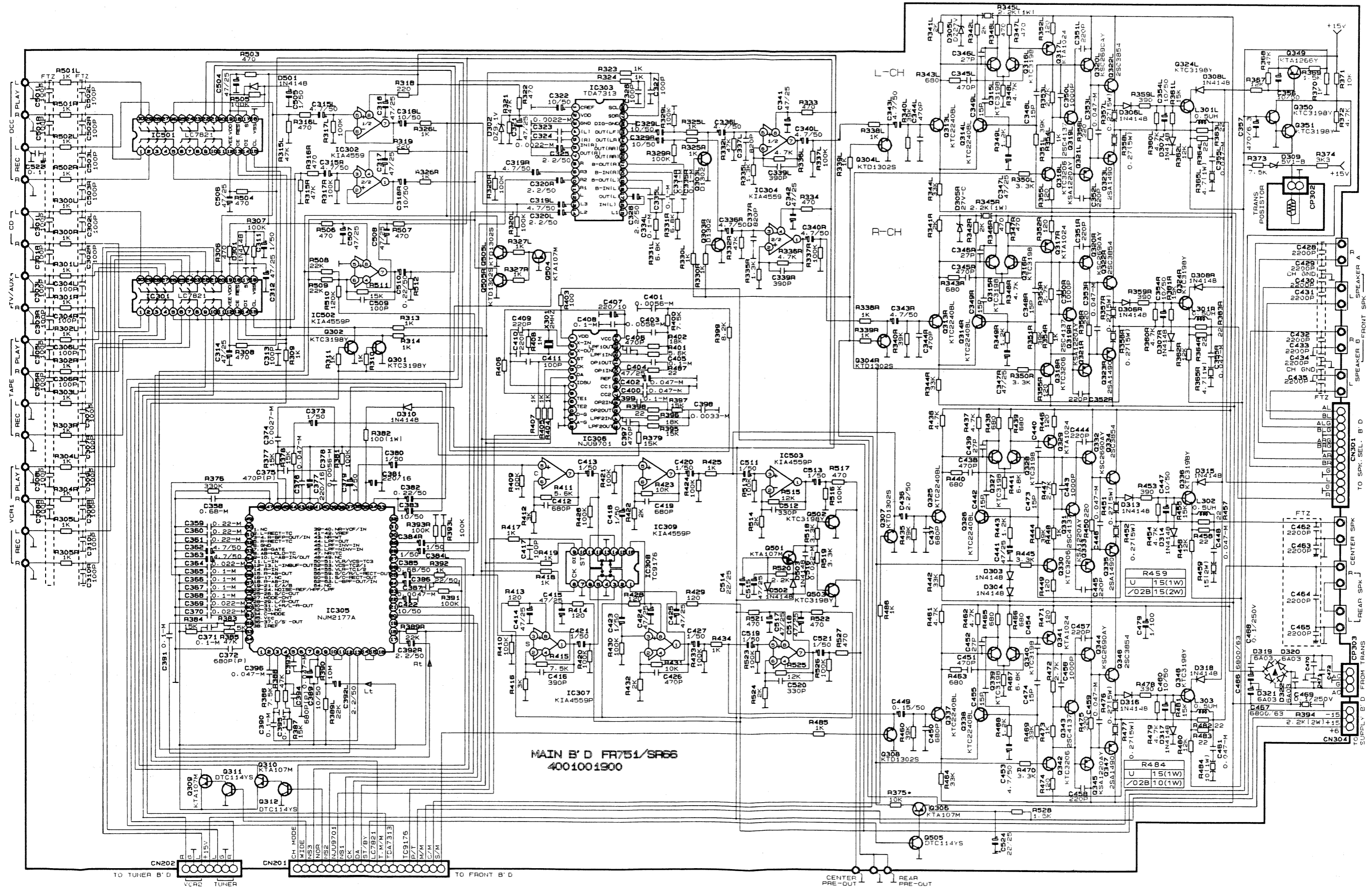
2. BLOCK DIAGRAM



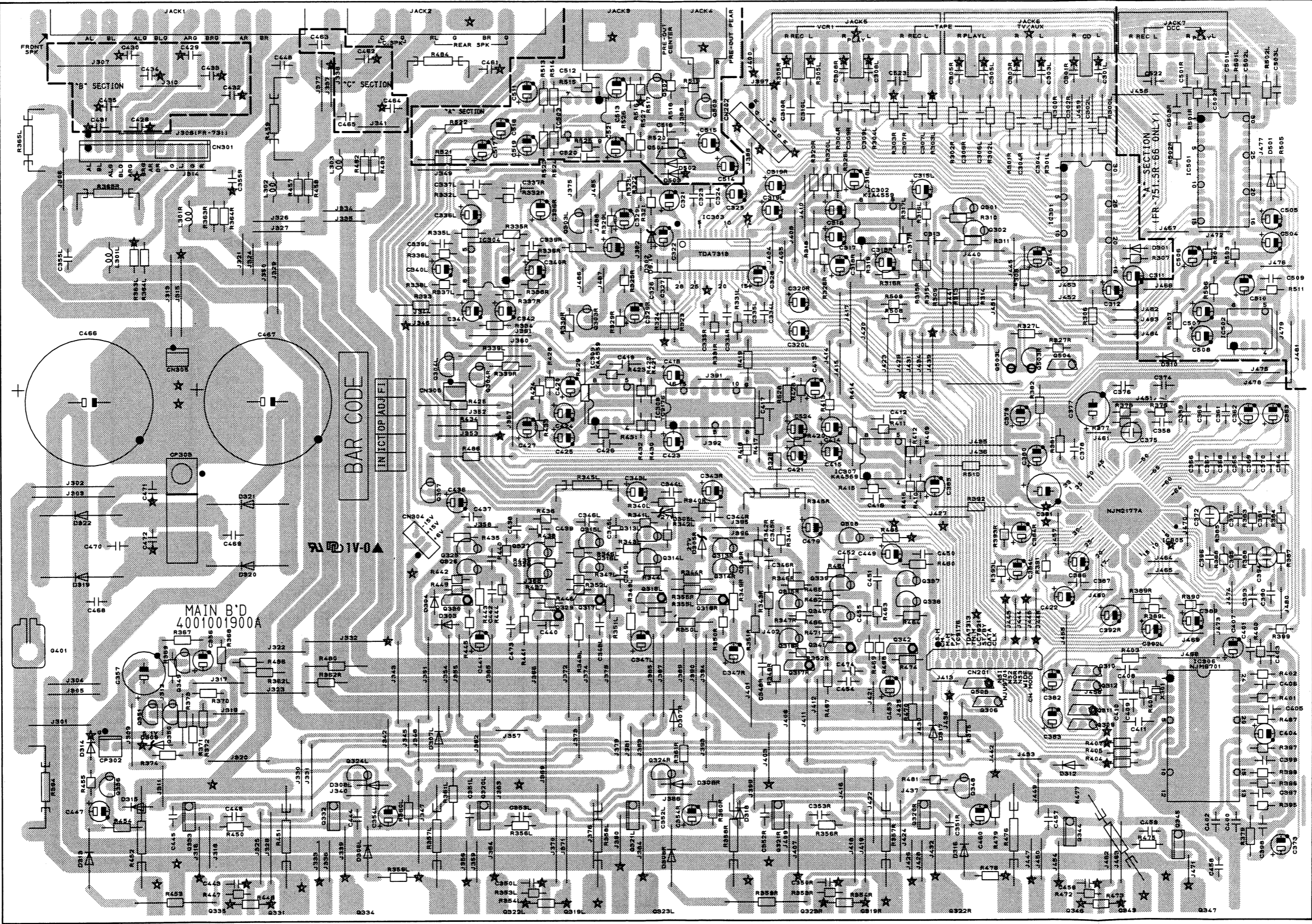
3. WIRING DIAGRAM

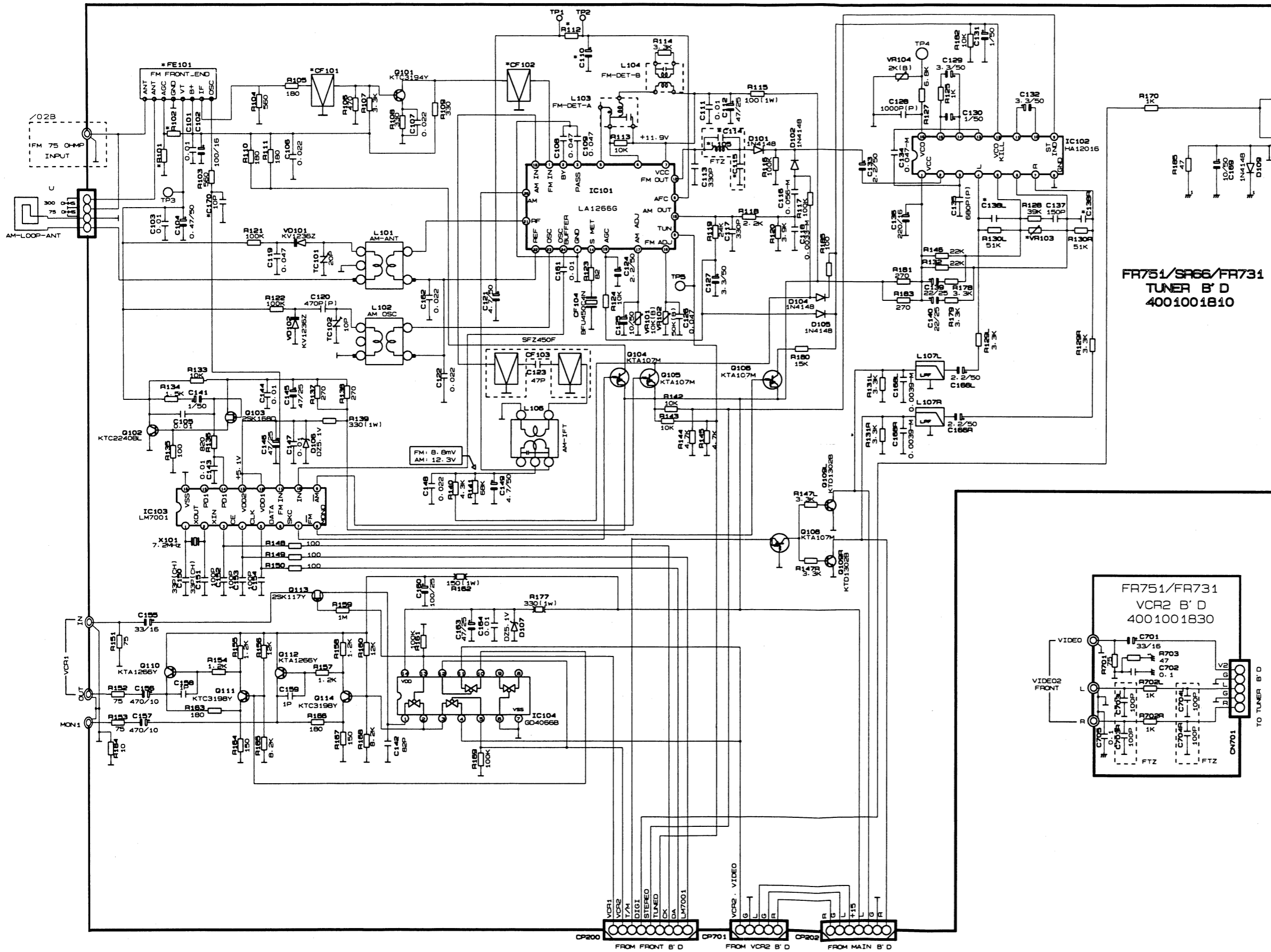


4. SCHEMATIC DIAGRAM AND PARTS LOCATION (Pattern Side)



PC.Board Main(4001001900)





FR751/SA66/FR731
TUNER B' D
4001001810

FR751/FR731
VCR2 B' D
4001001830

*REMARK			
NO	AREA	U	/O2B
*FE101	FTH3-505-B	FE407-G60	
*CF101	10.7MA8	10.7MS3G	
*R112	27K	47K	
*C114/ C115	-	100P(C)	
*L105	JUMPER	20.8mH	
*R101	JUMPER	62K	
*R102	-	100K	
*VR103	220K(B)	500K(B)	
*C138L/R	0.0015-M	0.001-M	
*C110	2.2/50	1/50	

NOTES

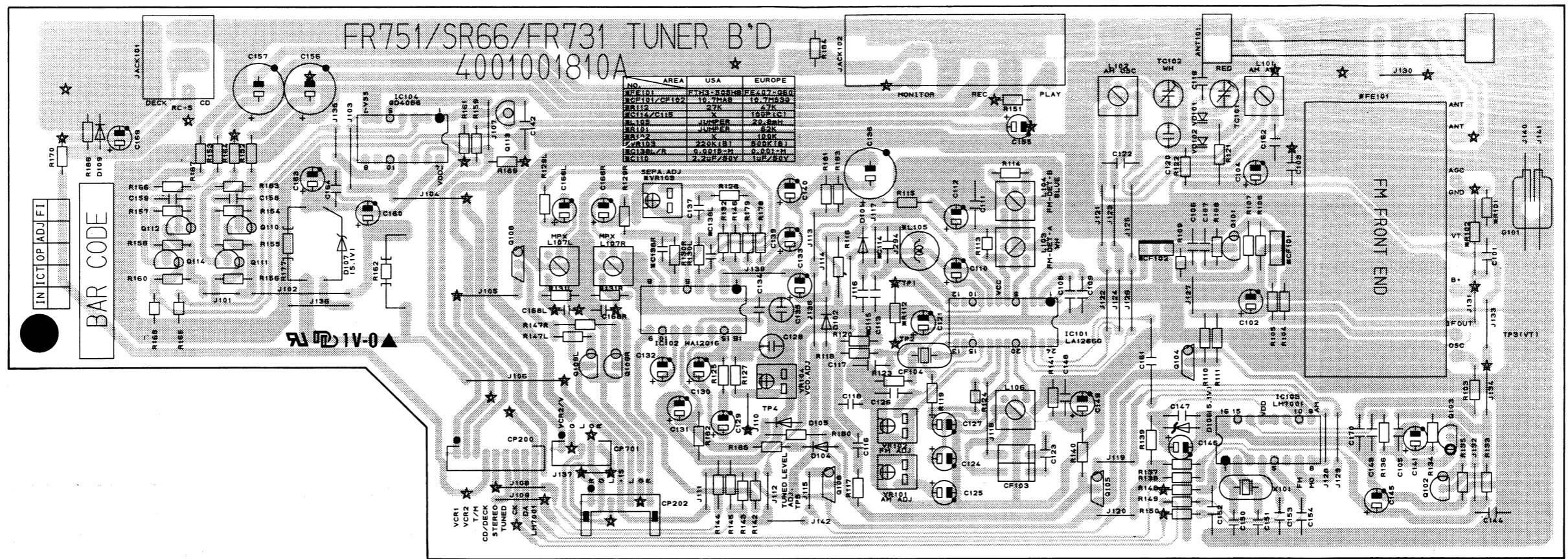
1. Resistance value are indicated ohms unless otherwise specified [K=1.000 M=1.000.000]
2. Capacitance value are shown in microfarads unless otherwise noted [P=micro-microfarad]

CAUTION

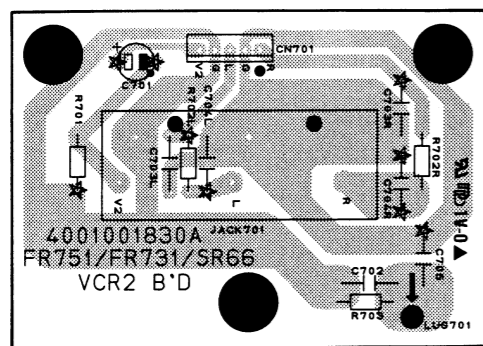
Safety precaution to be followed during servicing

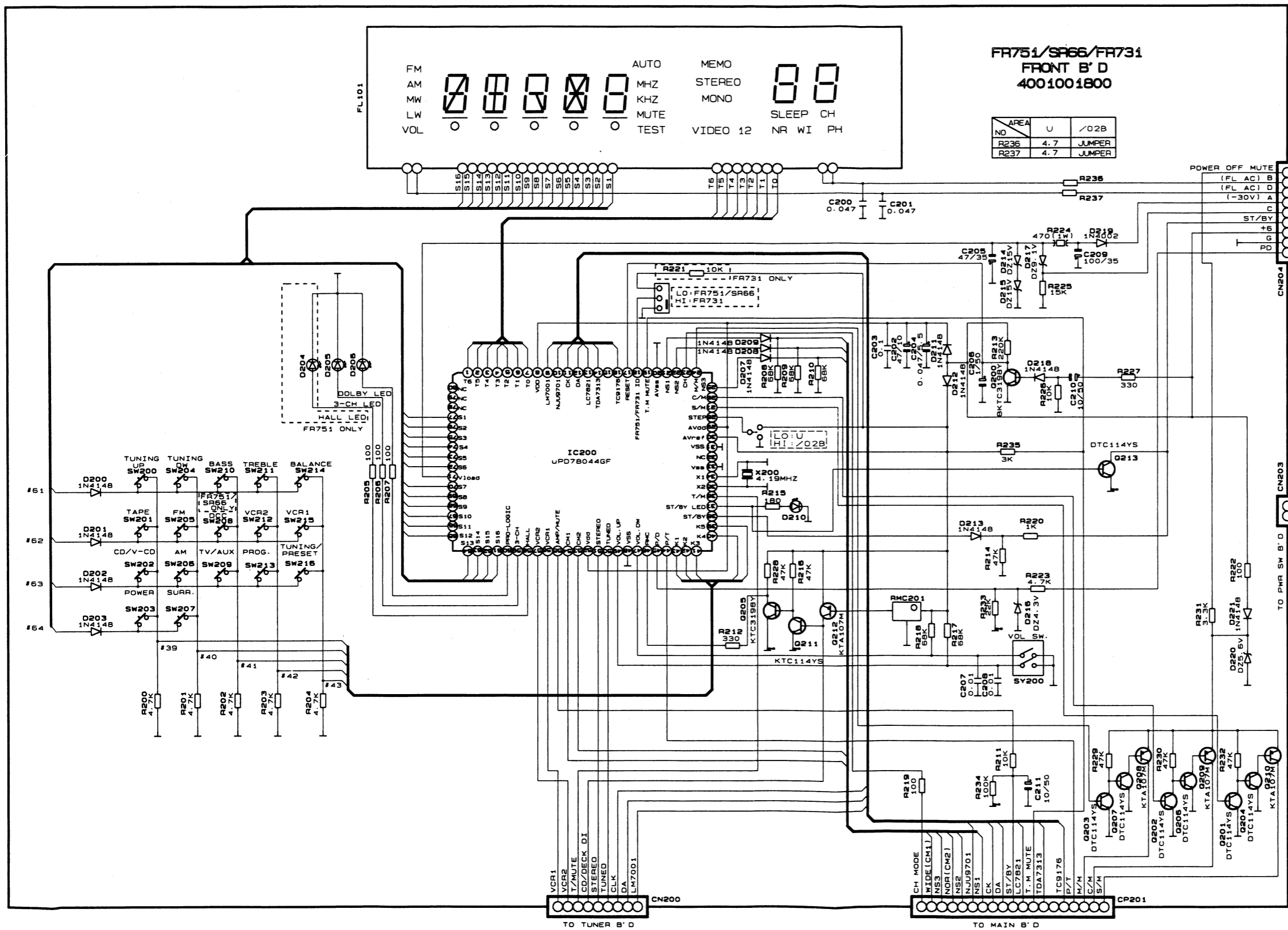
- 1) Since these parts made with are critical part for safety use the one deservised part list
- 2) Before returning the receiver to the customer make appropriate leakage current or resistance exposed part are properly insulated from the supply circuit

P.C.Board Tuner(4001001810)



P.C.Board VCR2 (4001001830)





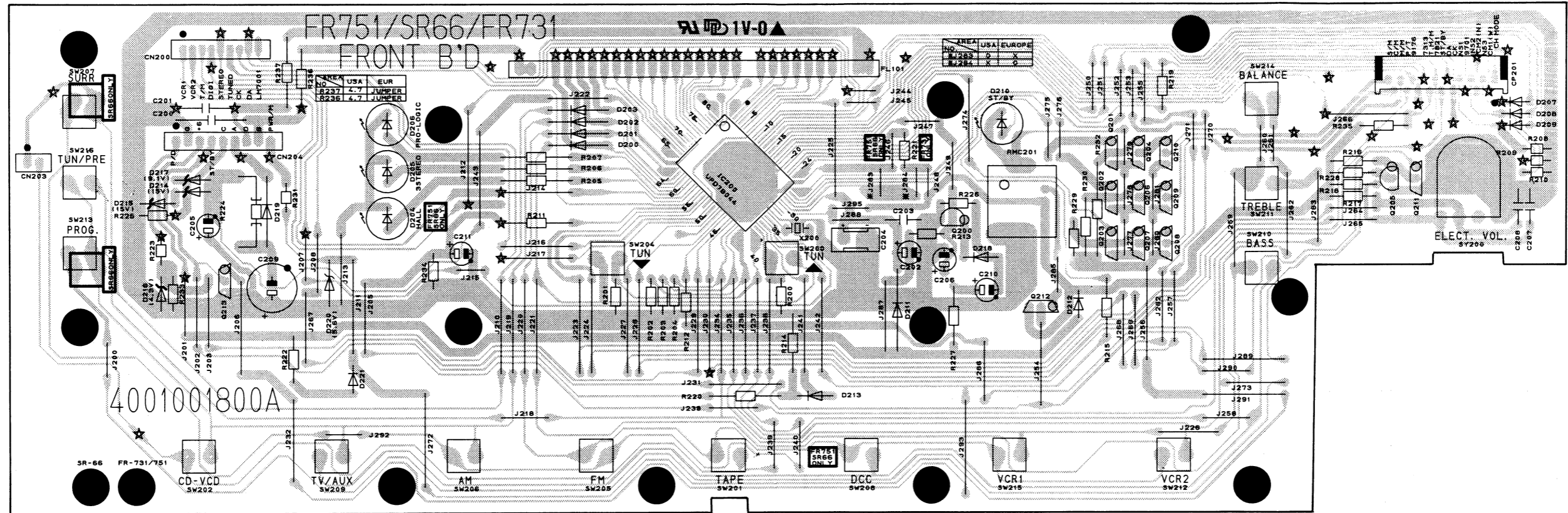
FR751/SR66/FR731
FRONT B' D
4001001800

NO	AREA	U	/02B
R236		4.7	JUMPER
R237		4.7	JUMPER

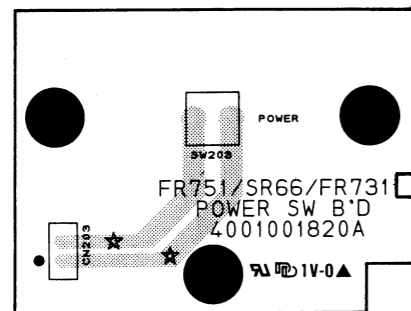
NOTES
 1. Resistor values are indicated in ohms unless otherwise specified (K=1,000 M=1,000,000)
 2. Capacitor values are indicated in microfarads unless otherwise specified. (p=micro-microfarads)

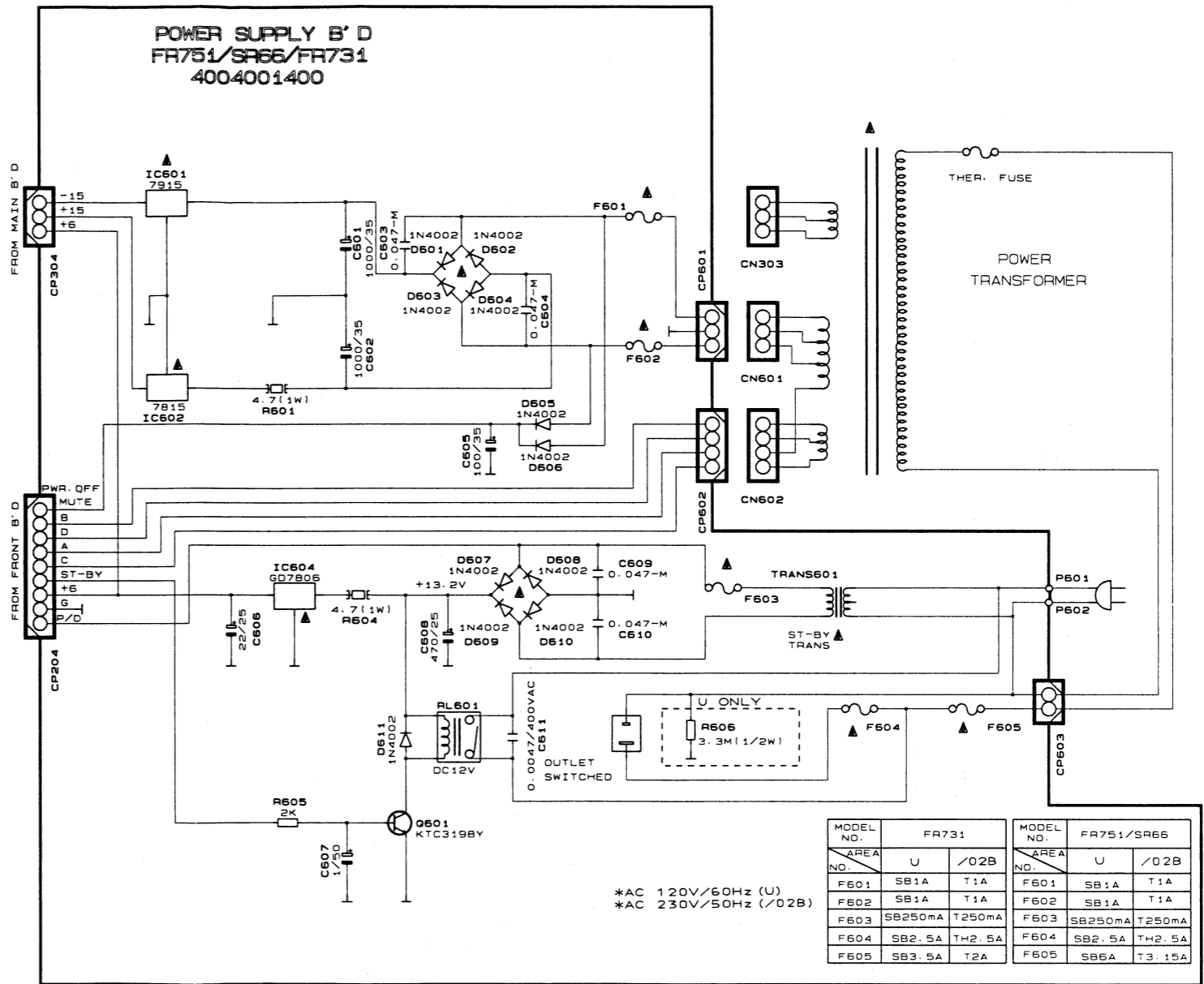
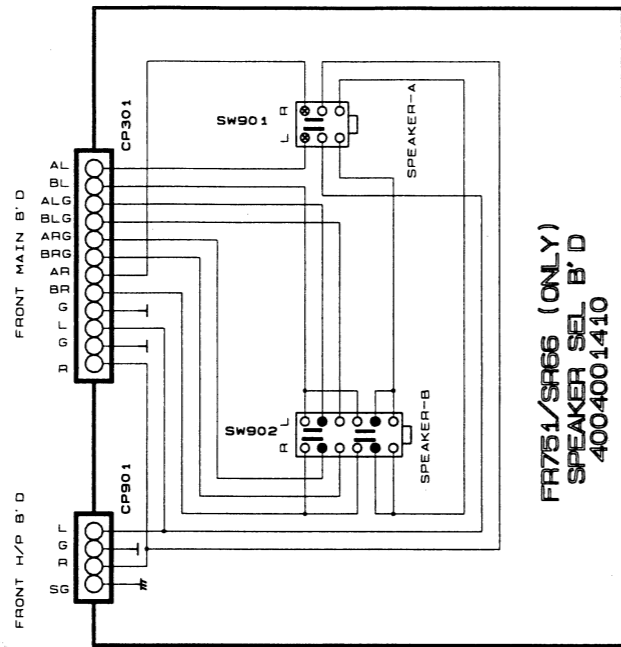
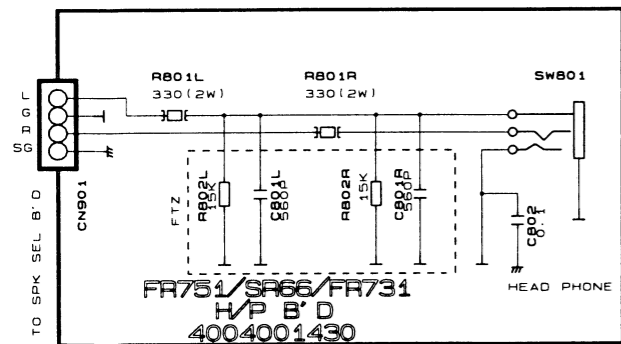
CAUTION
 Safety precaution to be followed during servicing
 1) Since those parts marked with are critical parts for safety, use only the one described in the parts list
 2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts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

P.C.Board Front(4001001800)



P.C.Board Power Switch (4001001820)






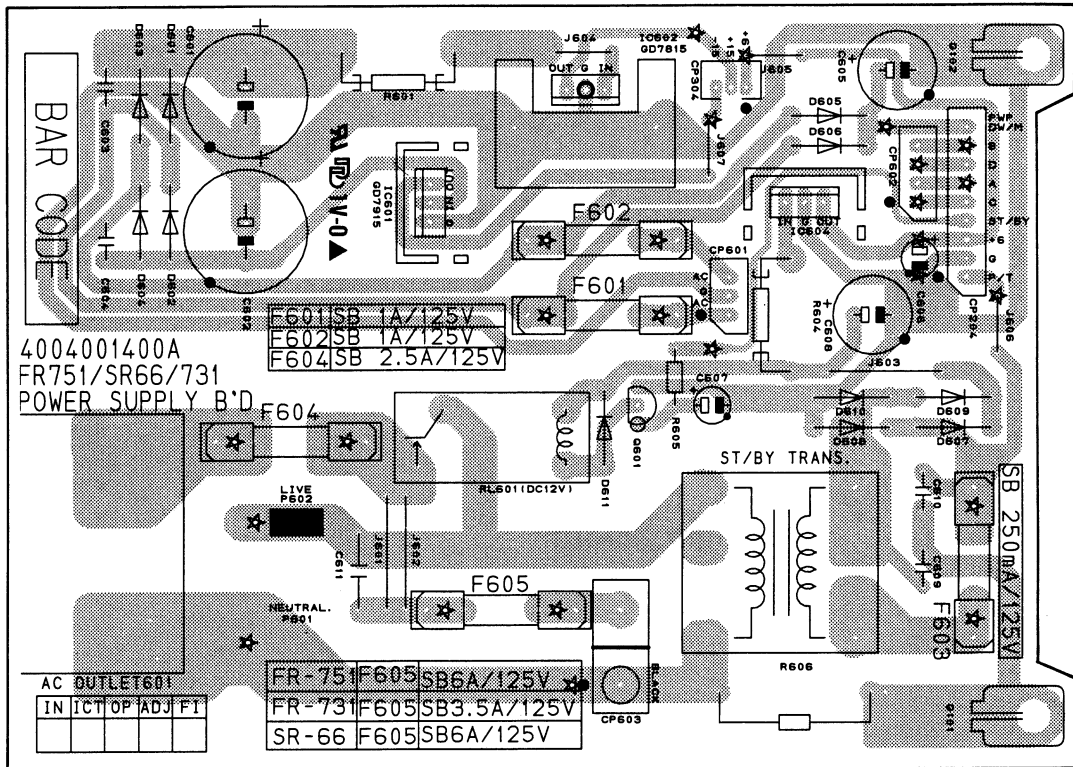
MODEL NO.	FR731		MODEL NO.	FR751/SR66	
AREA NO.	U	/02B	AREA NO.	U	/02B
F601	SB1A	T1A	F601	SB1A	T1A
F602	SB1A	T1A	F602	SB1A	T1A
F603	SB250mA	T250mA	F603	SB250mA	T250mA
F604	SB2.5A	TH2.5A	F604	SB2.5A	TH2.5A
F605	SB3.5A	T2A	F605	SB6A	T3.15A

*AC 120V/60Hz (U)
*AC 230V/50Hz (/02B)

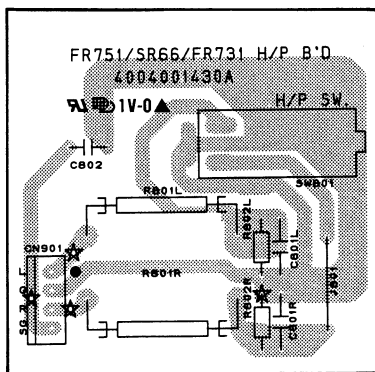
NOTES
1. Resistor values are indicated in ohms unless otherwise specified (K=1,000 M=1,000,000)
2. Capacitor values are indicated in microfarads unless otherwise specified. (p=micro-microfarads)

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

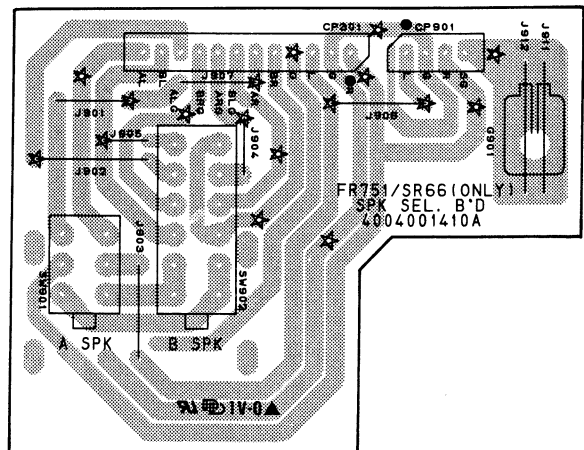
**P.C.Board Power Supply
(4004001400)**



**P.C.Board Headphone
(4004001430)**



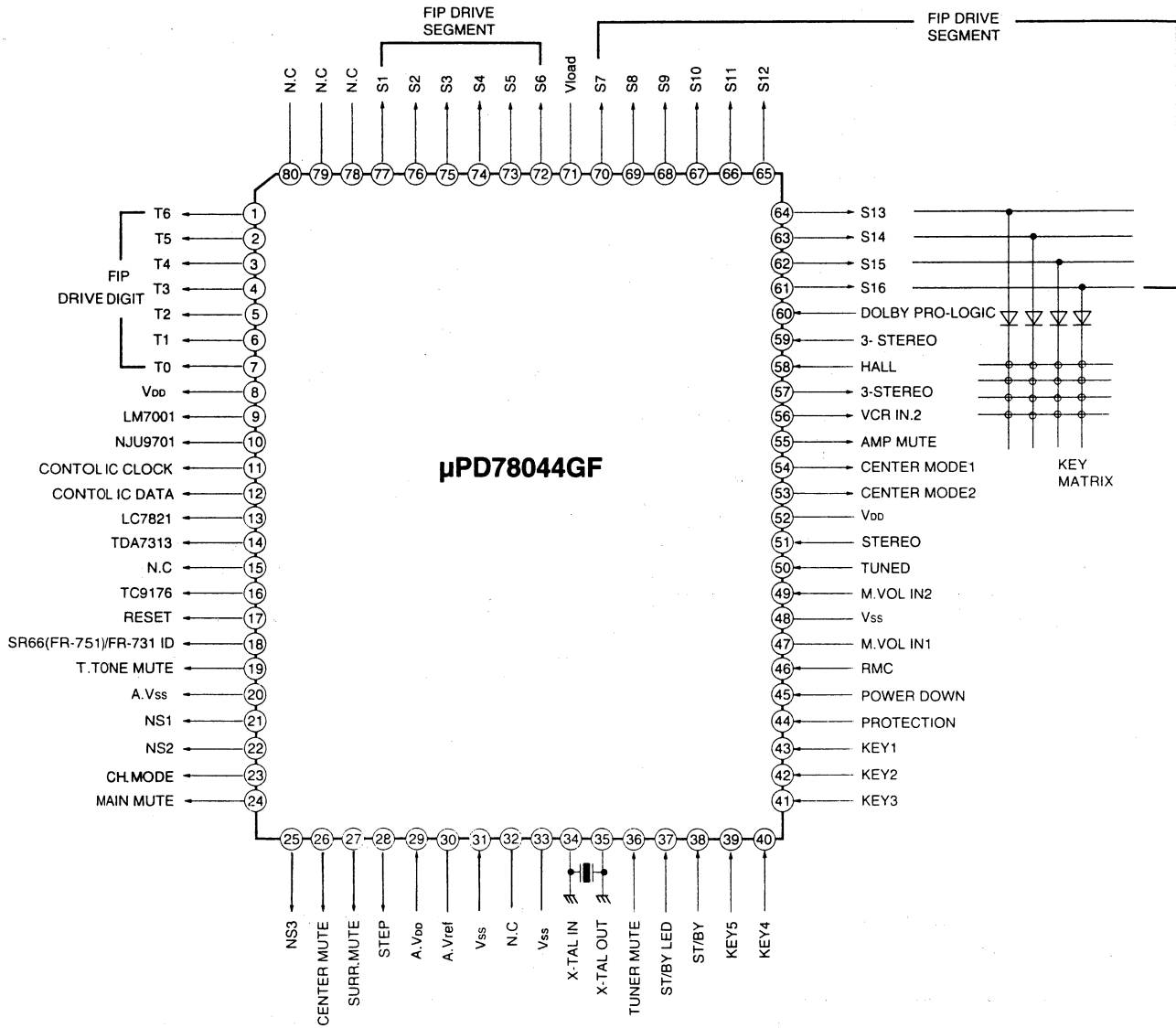
**P.C.Board Speaker Selector
(4004001410)**



5. SERVICE TEST PROGRAM OF THE MICROPROCESSOR

IC200 : μ PD78044GF (8-bit CMOS Microprocessor)

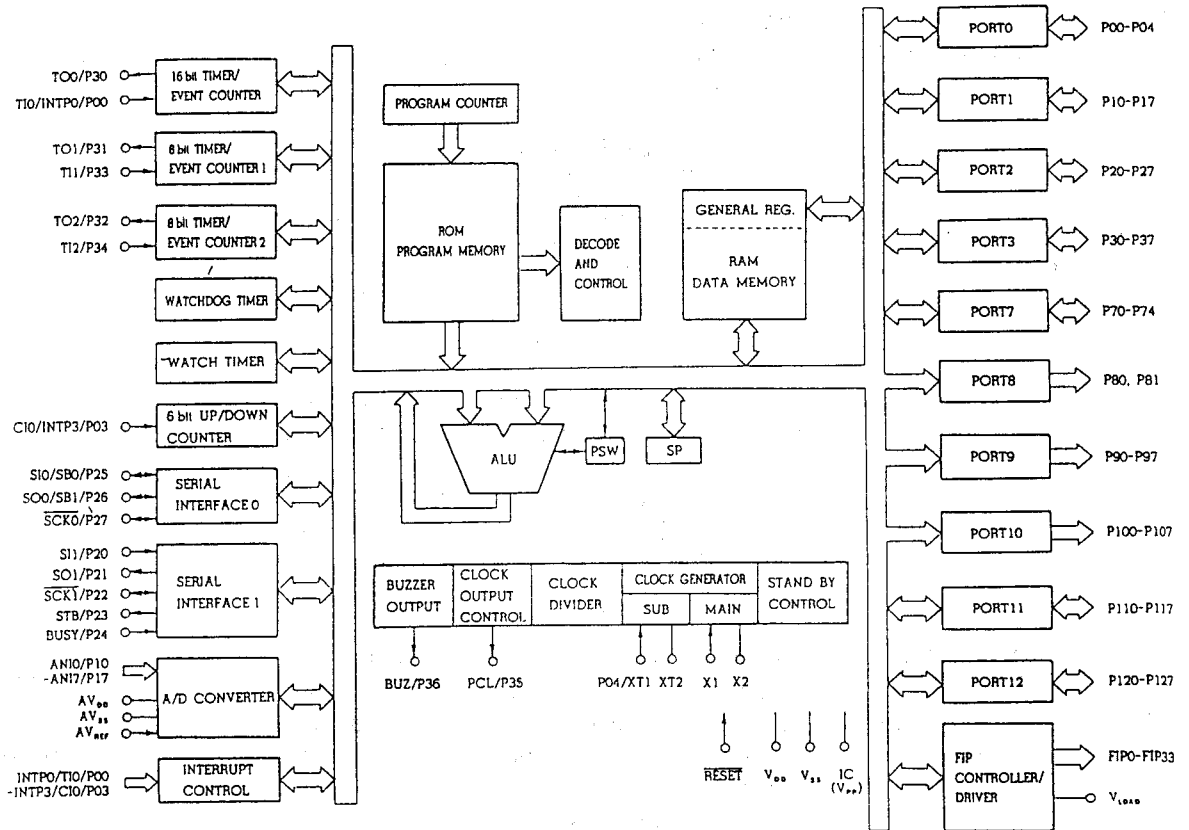
1. Pin Configuration



2. Key Matrix

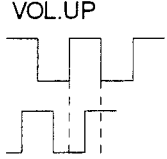
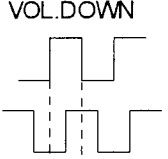
IN \ OUT	K. SCAN0 PIN 61	K. SCAN1 PIN 62	K. SCAN2 PIN 63	K. SCAN3 PIN 64
KEY IN1 PIN 43	BALANCE	VCR1	TUNING/ PRESET	-
KEY IN2 PIN 42	TREBLE	VCR2	PROGRAM	-
KEY IN3 PIN 41	BASS	DCC	TV/AUX	-
KEY IN4 PIN 40	TUNING DOWN	FM	AM	SURROUND
KEY IN5 PIN 39	TUNING UP	TAPE	CD	POWER

3. Block Diagram



4. Pin Functions

Pin No.	Symbol	Description																								
1 - 7	$T_6 - T_0$	Grid signal output for FIP.																								
8	V_{DD}	+5V power supply.																								
9	LM7001	Chip enable output for LM7001.																								
10	NJU9701	Chip enable output for NJU9701.																								
11/12	CLK/DATA	CLOCK/DATA output for TDA7313, TC9176, NJU9701, LC7821, TC9176 and LM7001.																								
13	LC7821	Chip enable output for LC7821.																								
14	TDA7313	Chip enable output for TDA7313.																								
15	NC	Not used !																								
16	TC9176	Chip enable output for TC 9176.																								
17	RESET	Input for resetting CPU.(At "H", it is active.)																								
18	SR-66(FR-751) / FR-731 ID	Input for selecting SR-66(FR-751) or FR-731 mode. According to each mode, data input is as follows. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>MODE</th> <th>INPUT</th> </tr> </thead> <tbody> <tr> <td>SR-66(FR-751)</td> <td>L</td> </tr> <tr> <td>FR-731</td> <td>H</td> </tr> </tbody> </table>	MODE	INPUT	SR-66(FR-751)	L	FR-731	H																		
MODE	INPUT																									
SR-66(FR-751)	L																									
FR-731	H																									
19	T. TONE MUTE	Output for PRO-LOGIC test tone mute. (At "H", it is active.)																								
20	$A.V_{SS}$	Analog ground.																								
21/22/25	NS1/NS2/NS3	Control data output for selectings channel in the test tone mode. Setting are as follows. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>SELECTION</th> <th>NS 1</th> <th>NS 2</th> <th>NS 3</th> </tr> </thead> <tbody> <tr> <td>TEST TONE(OFF)</td> <td>H</td> <td>Δ</td> <td>Δ</td> </tr> <tr> <td>LEFT</td> <td>L</td> <td>L</td> <td>L</td> </tr> <tr> <td>CENTER</td> <td>L</td> <td>L</td> <td>H</td> </tr> <tr> <td>RIGHT</td> <td>L</td> <td>H</td> <td>L</td> </tr> <tr> <td>SURROUND</td> <td>L</td> <td>H</td> <td>H</td> </tr> </tbody> </table> <p style="text-align: center;">Δ: Previous states</p>	SELECTION	NS 1	NS 2	NS 3	TEST TONE(OFF)	H	Δ	Δ	LEFT	L	L	L	CENTER	L	L	H	RIGHT	L	H	L	SURROUND	L	H	H
SELECTION	NS 1	NS 2	NS 3																							
TEST TONE(OFF)	H	Δ	Δ																							
LEFT	L	L	L																							
CENTER	L	L	H																							
RIGHT	L	H	L																							
SURROUND	L	H	H																							
23	CH. MODE	Port for settings of PRO-LOGIC and 3-STEREO mode. According to each mode, data output is as follows. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>MODE</th> <th>OUTPUT</th> </tr> </thead> <tbody> <tr> <td>3-STEREO</td> <td>High impedance</td> </tr> <tr> <td>PRO-LOGIC</td> <td>H</td> </tr> <tr> <td>OTHERS</td> <td>L</td> </tr> </tbody> </table>	MODE	OUTPUT	3-STEREO	High impedance	PRO-LOGIC	H	OTHERS	L																
MODE	OUTPUT																									
3-STEREO	High impedance																									
PRO-LOGIC	H																									
OTHERS	L																									
24	MAIN MUTE	Output for main mute.(At "H", it is active.)																								
26	CENTER MUTE	Output for center mute.(At "H", it is active.)																								
27	SURR. MUTE	Output for surround mute.(At "H", it is active.)																								
28	STEP	According to region, input for selecting the frequency band and the steps of FM and AM. Settings are as follows. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>REGION</th> <th>FREQUENCY BANDS</th> <th>STEPS</th> <th>STEP</th> </tr> </thead> <tbody> <tr> <td rowspan="2">AMERICA</td> <td>FM: 87.5 - 108 MHz</td> <td>100 kHz</td> <td rowspan="2">L</td> </tr> <tr> <td>AM: 520 - 1710 kHz</td> <td>10 kHz</td> </tr> <tr> <td rowspan="2">EUROPE</td> <td>FM: 87.5 - 108 MHz</td> <td>50 kHz</td> <td rowspan="2">H</td> </tr> <tr> <td>AM: 522 - 1611 kHz</td> <td>9 kHz</td> </tr> </tbody> </table>	REGION	FREQUENCY BANDS	STEPS	STEP	AMERICA	FM: 87.5 - 108 MHz	100 kHz	L	AM: 520 - 1710 kHz	10 kHz	EUROPE	FM: 87.5 - 108 MHz	50 kHz	H	AM: 522 - 1611 kHz	9 kHz								
REGION	FREQUENCY BANDS	STEPS	STEP																							
AMERICA	FM: 87.5 - 108 MHz	100 kHz	L																							
	AM: 520 - 1710 kHz	10 kHz																								
EUROPE	FM: 87.5 - 108 MHz	50 kHz	H																							
	AM: 522 - 1611 kHz	9 kHz																								
29	$A.V_{DD}$	Connected to V_{DD} .																								
30	$A.V_{ref}$	Reference Voltage.(Connected to +5V, Not VDD.)																								
31	V_{SS}	Ground.																								

Pin No.	Symbol	Description															
32	NC	Not used !															
33	V _{SS}	Ground.															
34	X-TAL IN	Input for crystal oscillator.															
35	X-TAL OUT	Output for crystal oscillator.															
36	TUNER MUTE	Output for tuner mute.(At "H", it is active.)															
37	ST/BY LED	Output for driving stand by LED.(At "H", it is active.)															
38	ST/BY	When the power is on, control data output is "H". When the power is off, control data output is "L" and last memory function is activated.															
39 - 43	KEY5 - KEY1	Data input for key scan.															
44	PROTECTION	Signal input for protection.															
45	POWER DOWN	Input for power down.(At "L", it is active.)															
46	RMC	Input for remocon data.(At "L", it is active.)															
47/49	M.VOL. IN1/IN2	Input for main volume up/down. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>M.VOL.IN 1</p>  </div> <div style="text-align: center;"> <p>M.VOL.IN 2</p>  </div> </div>															
48	V _{SS}	Ground															
50	TUNED	Input for detecting station during tuning. If "L" is inputed during tuning, tuning stops at that frequency.															
51	STEREO	Input for lighting the STEREO indicator.(At "L", it is active.)															
52	V _{DD}	+5V power supply.															
53/54	CENTER MODE 2/1	Control data output for center mode in the DOLBY PRO-LOGIC and the 3-STEREO mode. Settings are as follows. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>CENTER MODE</th> <th>C.M.1</th> <th>C.M.2</th> </tr> </thead> <tbody> <tr> <td>NORMAL, OFF</td> <td>L</td> <td>H</td> </tr> <tr> <td>WIDE</td> <td>H</td> <td>L</td> </tr> <tr> <td>PHANTOM</td> <td>L</td> <td>L</td> </tr> </tbody> </table>	CENTER MODE	C.M.1	C.M.2	NORMAL, OFF	L	H	WIDE	H	L	PHANTOM	L	L			
CENTER MODE	C.M.1	C.M.2															
NORMAL, OFF	L	H															
WIDE	H	L															
PHANTOM	L	L															
55	AMP MUTE	Output for Amp mute.(At "H", it is active.)															
56/57	VCR IN.1 / VCR IN.2	Control data output for selecting VCR1 or VCR2 video signal. According to each mode, data output is as follows. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>MODE</th> <th>VCR IN.1</th> <th>VCR IN.2</th> <th>REMARKS</th> </tr> </thead> <tbody> <tr> <td>VCR 1</td> <td>H</td> <td>L</td> <td rowspan="2">Enitial settings</td> </tr> <tr> <td>VCR 2</td> <td>L</td> <td>H</td> </tr> <tr> <td>OTHERS</td> <td>△</td> <td>△</td> <td>△: Previous state</td> </tr> </tbody> </table> <p>※Last memory function is available.</p>	MODE	VCR IN.1	VCR IN.2	REMARKS	VCR 1	H	L	Enitial settings	VCR 2	L	H	OTHERS	△	△	△: Previous state
MODE	VCR IN.1	VCR IN.2	REMARKS														
VCR 1	H	L	Enitial settings														
VCR 2	L	H															
OTHERS	△	△	△: Previous state														
58	HALL (FR-751/SR-66 Only)	Output for driving HALL LED.(At "H", it is active.)															
59	3-STEREO	Output for driving 3-STEREO LED.(At "H", it is active.)															
60	DOLBY PRO-LOGIC	Output for driving DOLBY PRO-LOGIC LED.(At "H", it is active.)															
61 - 70	S16 - S7	Segment signal output for FIP.															
71	V _{load}	-30V power supply for FIP.															
72 - 77	S6 - S1	Segment signal output for FIP.															
78 - 80	NC	Not used !															

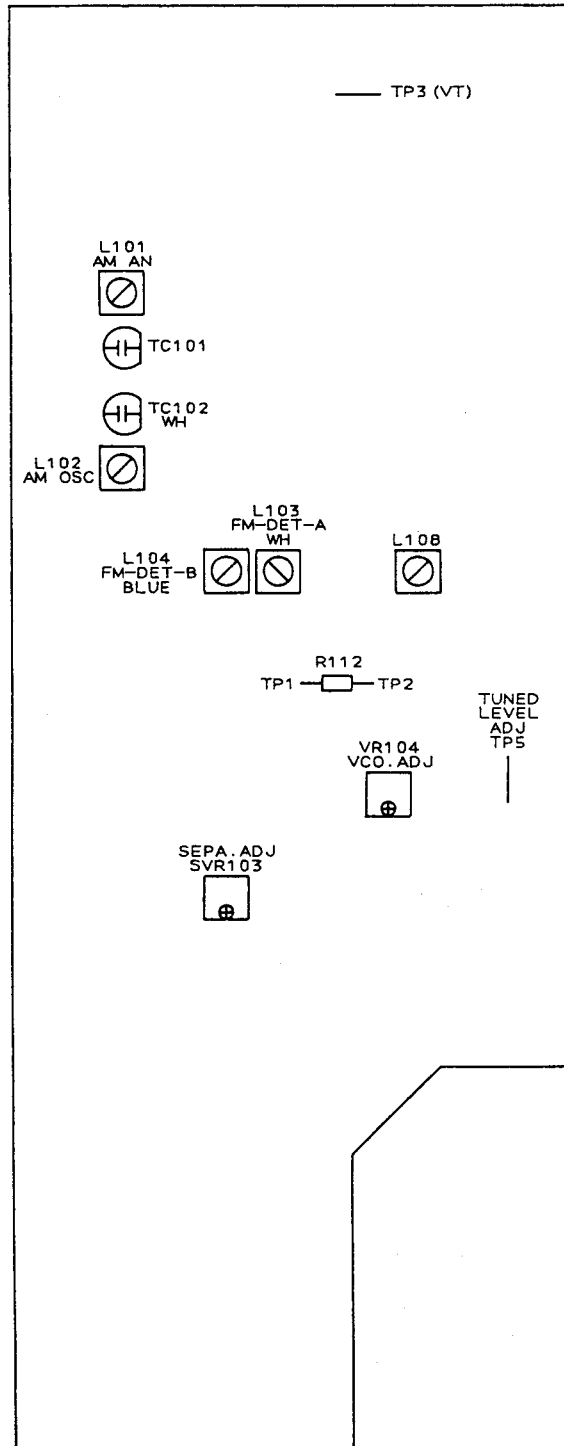
6. ALIGNMENT PROCEDURES

1. Equipment Required

- AM signal generator
- Oscilloscope
- AC voltmeter
- FM signal generator
- Stereo modulator
- Audio generator
- Distortion meter
- DC voltmeter
- Frequency counter

Note : Remove line cord antenna from FM external antenna terminal when aligning.

2. Alignment and Test Points (Tuner P.C.Board)



3. AM IF, RF and Tuning Voltage 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.

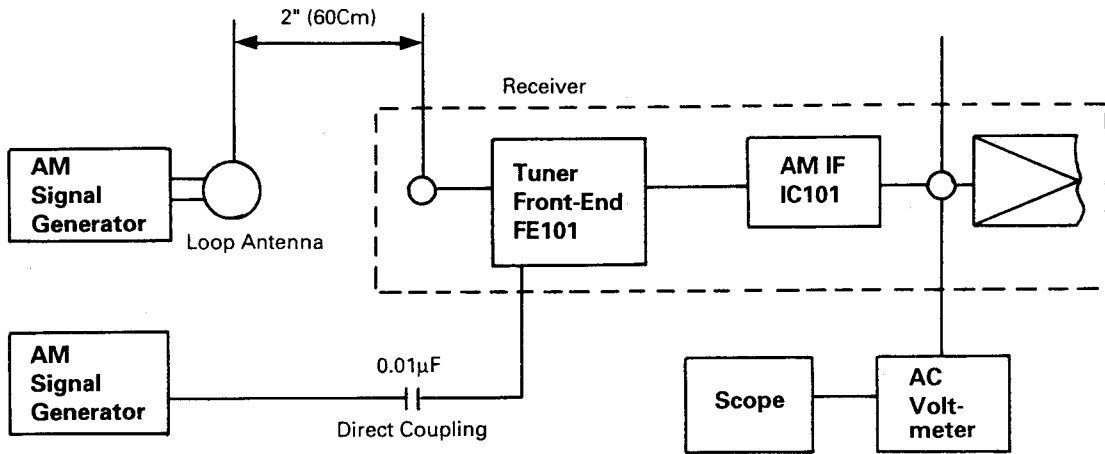
Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment point	Adjust for
AM RF ADJ	1000 kHz (EUR : 999 kHz) (400 Hz, Mod.)	Place at a noninterference spot around 1000 kHz(EUR 999 kHz)	AC voltmeter to TAPE OUT jack.	L106 (IFT)	Maximum reading
AM RF ADJ	600 kHz (EUR : 603 kHz) (400 Hz, Mod.)	EUR (603 kHz) 600 kHz	Same as Step 1.	L101 (ANT Coil)	Same as Step 1
	1400 kHz (EUR : 1404 kHz) (400 Hz, Mod.)	EUR (1404 kHz) 1400 kHz	Same as Step 1.	TC101 (ANT Trimmer)	Same as Step 1
	1000 kHz (EUR : 999 kHz) (400 Hz, Mod.)	EUR (999 kHz) 1000 kHz	DC Voltmeter to TP5	VR101 (AM ADJ)	DC Voltage 200 mV
AM Tuning Voltage ADJ	520 kHz (EUR : 522 kHz)	520 kHz (EUR : 522 kHz)	DC Voltmeter to TP3	L102 (AM OSC Coil)	DC Voltage 1.0~1.2V
	1710 kHz (EUR : 1611 kHz)	1710 kHz (EUR : 1611 kHz)	DC Voltmeter to TP3	TC102 (ANT Trimmer)	DC Voltage 8.5~9V

4. FM IF Alignment

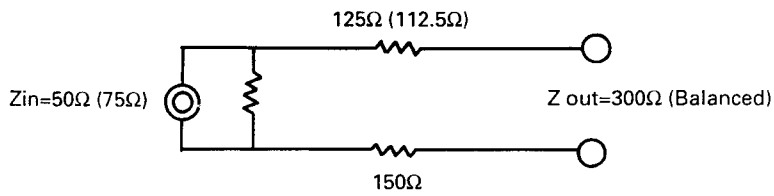
Preparation

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 : 75 kHz.
4. Be sure to disconnect FM line cord antenna during alignment.

Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment point	Adjust for
1	98.1 MHz (EUR : 98.0 MHz) (1 kHz, Mod.)	98.1 MHz (EUR : 98.0 MHz)	Distortion meter to TAPE OUT jack	L104 (FM DETECT -B Coil)	Minimum distortion
2	98.1 MHz (EUR : 98.0 MHz) (1 kHz, Mod.)	98.1 MHz (EUR : 98.0 MHz)	DC Voltmeter to TP5	VR102 (FM ADJ)	Zero reading on AC voltmeter with SSG output level of 28dBf
3	98.1 MHz (EUR : 98.0 MHz)	98.1 MHz (EUR : 98.0 MHz)	DC Voltmeter to TP2 (R112)	L103 (FM DETECT-A Coil)	Zero Voltage reading on DC Voltmeter



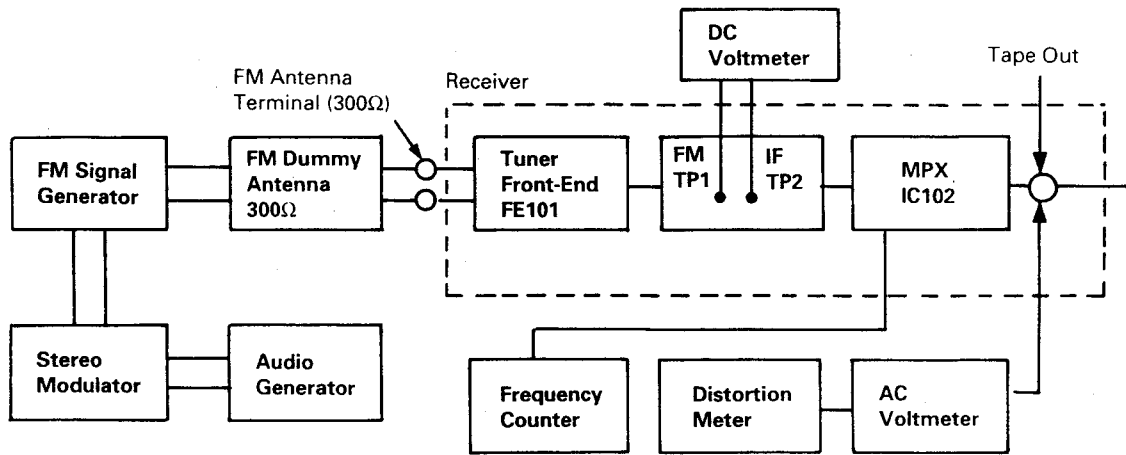
AM Alignment Connection



FM Dummy Antenna to 300 Ω Antenna terminal of receiver

FM Dummy Antenna

5. MPX Alignment



FM RF/IF and MPX Alignment Connection

Preparation :

1. Switch : Press to FM.
2. Tune for 98 MHz on band.
3. Signal Generator output level : 1mV
4. Deviation : 75 kHz, at 100% modulation of composite signal.
5. Connect Signal Generator to FM antenna terminal through FM dummy antenna (300Ω)

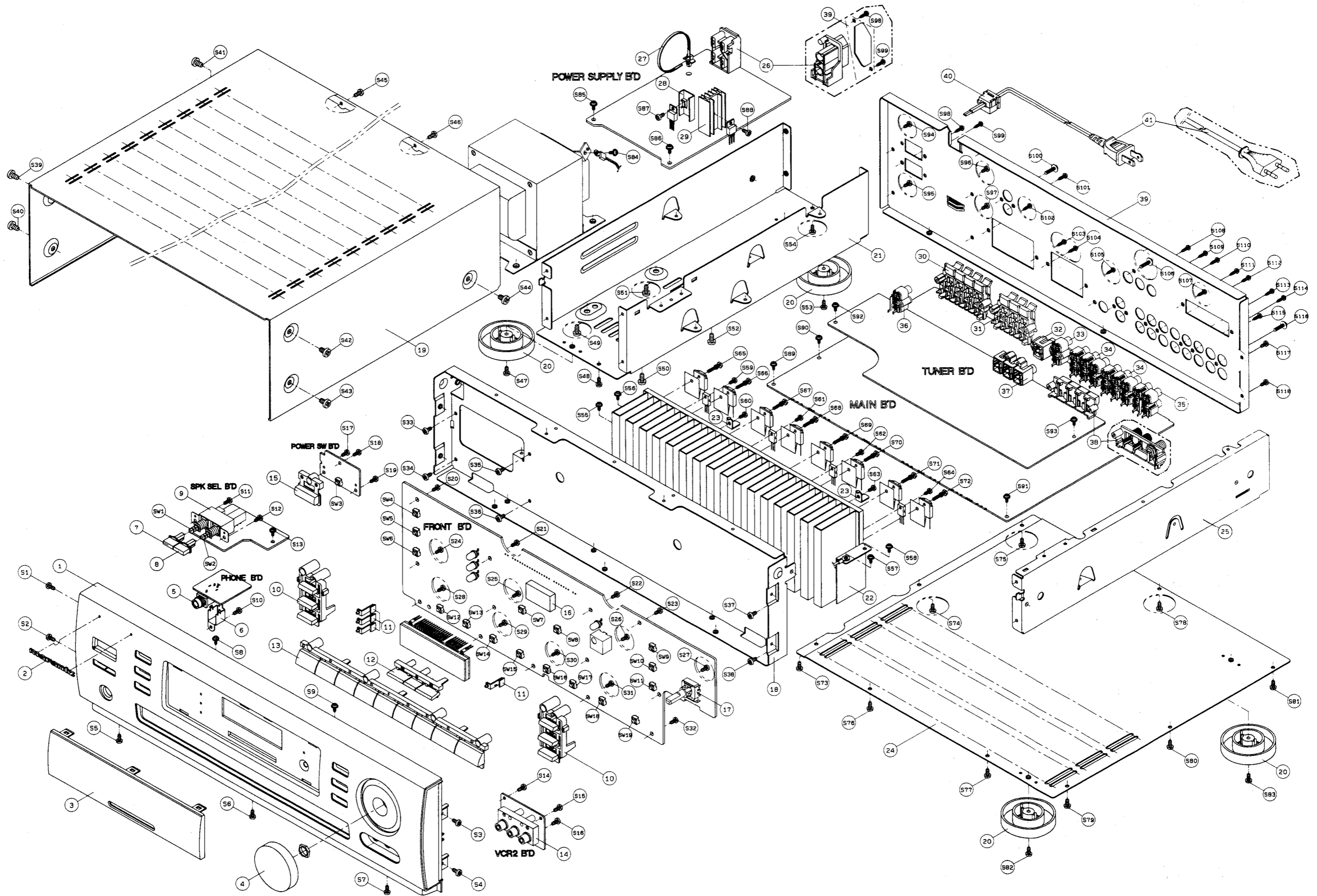
Step	19 kHz Modulation Level	Signal Generator Frequency Setting	Output Indicator Connection	Adjust Point	Adjust for
4	8% Mod.	Composite to channel 1 kHz "L" CH.	AC voltmeter to TAPE OUT jack of R channel	VR103 (SEP ADJ)	AC voltmeter reading should be at least -28 dB
5	8% Mod.	Composite to channel 1 kHz "R" CH.	AC voltmeter to TAPE OUT jack of L channel	VR103 (SEP ADJ)	Same as Step 3.

If you could not obtain -35dB readings in Steps 4 and 5 (compared with Step 2), readjust VR103 until you obtain -28 dB readings for both Steps 4 and 5. Nominal is -32 dB.

7. EXPLODED VIEW AND PARTS LIST

(VERS.:VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, **:EUROPE)

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJI)
Cabinet & Chassis				
1		4822 459 04136	Front Panel	168W248010
2		NSP	Badge Marantz AL	168W251010
3		4822 450 10095	Window Display	168W158010
4		4822 410 10382	Knob Main Volume	168W154010
5		4822 267 31992	Jack Phone Gold	*YT000830R
7		4822 410 10383	Push 1Key Speaker L	168W270050
8		4822 410 10384	Push 1Key Speaker R	168W270060
10		4822 410 10385	Button 3Key Control	168W270020
12		4822 410 10386	Button 3Key Tuning	198W270030
13		4822 410 10387	Button 9Key Function	168W270010
14		4822 265 31321	Jack RCA 3P Gold	*YT000870R
15		4822 410 10388	Button 1Key Power	168W270040
20		4822 462 10695	Foot	168W057010
26	U	NSP	Mains Outlet 2P	*YT000910R
26	/02B	4822 267 31994	Mains Outlet 1P	*YT000920R
30		4822 290 81739	Terminal Speaker 8P	*YT000790R
31		4822 290 81737	Terminal Speaker 6P	*YT000800R
32		4822 265 20743	Jack RCA 1P	*YT000890R
33		4822 265 20742	Jack RCA 2P	*YT000880R
34		4822 267 41251	Jack RCA 6P	*YT000840R
35		4822 265 20741	Jack RCA 4P	*YT000860R
36		4822 267 31993	Jack Remote 2P	*YT000850R
37		4822 267 41253	Jack RCA 3P	*YT000900R
38	U	NSP	Terminal Antenna 4P	*YT000810R
38	/02B	4822 290 81738	Terminal Antenna 4P	*YT000820R
41	U	NSP	Mains Cord	*YC000300R
41	/02B	4822 321 10364	Mains Cord	*YC000310R
Miscellaneous				
Q319L/R		4822 130 63899	2SC4137	*HT300410R
Q322L/R		4822 130 63895	2SC3854	*HT300420R
Q323L/R		4822 130 63894	2SA1490	*HT100240R
Q331		4822 130 63899	2SC4137	*HT300410R
Q334		4822 130 63895	2SC3854	*HT300420R
Q335		4822 130 63901	2SA1489	*HT100250R
Q343		4822 130 63899	2SC4137	*HT300410R
Q346		4822 130 63902	2SC3853	*HT300430R
Q347		4822 130 63901	2SA1489	*HT100250R
		NSP	FPC 19P 350mm	*YU000280R
T001	U	NSP	Mains Trans. 120V 60Hz	*TS000540R
T001	/02B	4822 146 31508	Mains Trans. 230V 50Hz	*TS000550R
Accessories				
	U	NSP	FM AERIAL	*ZA000080R
	U	NSP	AM AERIAL	*ZA000090R
001T	U	NSP	USER GUIDE (D.F.U.)	168W851250
001T	/02B	4822 736 14245	USER GUIDE (D.F.U.)	168W851310
003Z		4822 218 10719	REMOTE COMMANDER	ZK168W0010



(VERS.:VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, **:EUROPE)

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJI)
			P.C.B Tuner Part		VR101		4822 100 11351	Trim-Res. 10k(B)	RA01030780
			Capacitor		VR102		4822 100 12294	Trim-Res. 50k(B)	*RA000670R
TC101		4822 125 60227	Trim.-Cap. 20pF 50V J	*CT000080R	VR103	U		Trim-Res. 220k(B)	RA02240760
TC102		4822 125 60228	Trim.-Cap. 10pF 50V K	*CT000090R	VR103	/02B	4822 100 12295	Trim-Res. 500k(B)	*RA000680R
			Filter		VR104		4822 101 30707	Trim-Res. 2k(B)	RA02220760
CF101	U		Filter SFE10.7MA8-A-TF21	*FF100200R				Miscellaneous	
CF102	U		Filter SFE10.7MA8-A-TF21	*FF100200R	36		4822 267 31993	Jack Remote 2P	*YT000850R
CF101	/02B	4822 242 82235	Filter SFE10.7MS3G	*FF100210R	37		4822 267 41253	Jack RCA 3P	*YT000900R
CF102	/02B	4822 242 82235	Filter SFE10.7MS3G	*FF100210R	38	U		Terminal Antenna 4P	*YT000810R
CF103		4822 242 73951	Filter SFZ450B	FF10045200	38	/02B	4822 290 81738	Terminal Antenna 4P	*YT000820R
CF104		4822 242 82242	Filter BFU450C4N	*FF100190R	FE101	U		FTH3-505H 3GANG	*AW000070R
			Diode		FE101	/02B	4822 210 10676	FE407-G60	*AW000080R
D101			1N4148	QP13030621	X101		4822 242 82238	Resonator 7.2 MHz	*FQ000280R
D105		4822 130 30621	1N4148	QP13030621				P.C.B Front Part	
D106		4822 130 70044	UZ5.1BSB Diode Zener	*HD301080R				Capacitor	
D107		4822 130 81737	UZ5.1BSB Diode Zener	*HD301080R	C204		4822 124 11552	BACK-UP CAP. 0.047µF 5.5V	*EX000020R
D109		4822 130 30621	1N4148	QP13030621				Diode	
VD101		4822 130 81197	KV1236Z VARICAP	*HD400120R	D200		4822 130 30621	1N4148	QP13030621
VD102		4822 130 81197	KV1236Z VARICAP	*HD400120R	D203				
			IC		D204		4822 130 70051	SLR-54URCA49 LED	*HI100690R
IC101		4822 209 71785	LA1266G	HC10222030	D205		4822 130 70051	SLR-54URCF03 LED	*HI100690R
IC102		4822 209 91051	HA12016	*HC103600R	D206		4822 130 70051	SLR-54URCF03 LED	*HI100690R
IC103		4822 209 30152	LM7001	*HC101040R	D207		4822 130 30621	1N4148	QP13030621
IC104		4822 209 83067	GD4066B	HC406600B0	D209				
			Coil		D210		4822 130 70051	SLR-54URCF03 LED	*HI100690R
L101		4822 157 71881	Coil AM-ANT	*TC000150R	D211		4822 130 30621	1N4148	QP13030621
L102		4822 157 71888	Coil AM-OSC	*TC000160R	D213				
L103		4822 146 31508	Coil FM-DET-A	*TC000180R	D214		4822 130 83228	UZ15.0BSC Diode Zener	*HD301110R
L104		4822 157 71895	Coil FM-DET-B	*TC000190R	D215		4822 130 83228	UZ15.0BSC Diode Zener	*HD301110R
L105	/02B	4822 157 71893	Coil 20.8mH	*LC106500R	D216		4822 130 70043	UZ4.3BSB Diode Zener	*HD301070R
L106		4822 157 71896	Coil AM IFT	*TC000200R	D217		4822 130 70046	UZ9.1BSC Diode Zener	*HD301100R
L107/LR		4822 157 71894	Coil MPX 19KHz FB-7SG	*TC000170R	D218		4822 130 30621	1N4148	QP13030621
			Transistor		D219		5322 130 30684	1N4002 Rectifier	QP13030684
Q101		4822 130 62294	KTC3194Y/KTC1923Y/2SC1809	HT318091P0	D220		4822 130 70045	UZ5.6BSB Diode Zener	*HD301090R
Q102		4822 130 41312	KTC2240BL/KTC3200/2SC2240	HT322402A1	D221		4822 130 30621	1N4148	QP13030621
Q103		4822 130 63908	2SK-168DTZ FET	*HF200180R	Q200		4822 130 42298	KTC1815Y/KTC3198/2SC1740	HT30001000
Q104					Q201		4822 130 62503	KTC114YS/DTC114YS	*BA000210R
Q106		4822 130 62787	KTA107M/DTA114YS	*BA000190R	Q204				
Q108		4822 130 62787	KTA107M/DTA114YS	*BA000190R	Q205		4822 130 42298	KTC1815Y/KTC3198/2SC1740	HT30001000
Q109/LR		4822 130 63904	KTD1302S/2SD1302	HT413021A0	Q206		4822 130 62503	KTC114YS/DTC114YS	*BA000210R
Q110		4822 130 42715	KTA1266Y/KTA1015Y/2SA933	HT10001000	Q207		4822 130 62503	KTC114YS/DTC114YS	*BA000210R
Q111		4822 130 42298	KTC1815Y/KTC3198/2SC1740	HT30001000	Q208				
Q112		4822 130 42715	KTA1266Y/KTA1015Y/2SA933	HT10001000	Q210		4822 130 62787	KTA107M/DTA114YS	*BA000190R
Q113		4822 130 43546	2SK117Y FET	HF201172B0	Q211		4822 130 62503	KTC114YS/DTC114YS	*BA000210R
Q114		4822 130 42298	KTC1815Y/KTC3198/2SC1740	HT30001000	Q212		4822 130 62787	KTA107M/DTA114YS	*BA000190R
			Resistor		Q213		4822 130 62503	KTC114YS/DTC114YS	*BA000210R
R115		4822 116 60299	Metal Film 100Ω 1W J	NK05101010					
R139		NSP	Metal Film 330Ω 1W J	NK05331010					
R162		4822 116 83543	Metal Film 150Ω 1W J	NK05151010					
R177		NSP	Metal Film 330Ω 1W J	NK05331010					

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POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJI)
R224		NSP	Resistor Metal Film 470Ω 1W J	NK05471010	R601		4822 117 11462	Resistor Metal Film 4.7Ω 1W J	NK05047010
SW4			Miscellaneous		R604		4822 117 11462	Metal Film 4.7Ω 1W J	NK05047010
I					R606	U		Carbon 3.3MΩ 1/2W J	RC05471010
SW19		4822 276 13661	Switch Tact	*SP000610R	26	U		Miscellaneous AC Outlet 2P	*YT000910R
17		4822 276 13659	Switch Encoder	*SR000070R	26	/02B	4822 267 31994	AC Outlet 1P	*YT000920R
X200		4822 242 82236	Resonator 4.19MHz	*FQ000260R	RL601		4822 280 80794	SDT-SS-112DM RELAY	*LY000120R
FL101		4822 130 91528	5TM6 FIP	*HQ300180R				P.C.B Speaker Selector Part	
RMC201		4822 130 91529	KRN-34LI Remote Sensor	*HW100300R	SW1		4822 276 13658	Miscellaneous Switch Push 2/2	*SP000620R
IC200		4822 209 91036	μPD78044GF	*HU100250R	SW2		4822 276 13709	Switch Push 4/2	*SP000630R
			P.C.B Power Switch Part					P.C.B Headphone Part	
SW3		4822 276 13661	Miscellaneous Switch Tact	*SP000610R	R801L/R		4822 116 60494	Resistor Metal Film 330Ω 2W J	NK05331020
			P.C.B VCR2 Part		5		4822 267 31992	Miscellaneous Jack Phone Gold	*YT000830R
14		4822 265 31321	Miscellaneous Jack RCA 3P Gold	*YT000870R					
			P.C.B Power Supply Part						
C601		5322 124 22229	Capacitor E-Cap. 1000μF 35V M	EA10803510					
C602		5322 124 22229	E-Cap. 1000μF 35V M	EA10803510					
C608		4822 124 41289	E-Cap. 470μF 25V M	EA47702510					
D601			Diode						
I		5322 130 30684	1N4002 Rectifier	QP13030684					
D611									
F601	U		Fuse Fuse SB 1A 125V	*FS000240R					
F602	U		Fuse SB 1A 125V	*FS000240R					
F601	/02B	4822 070 31002	Fuse T 1A 250V	*FS000280R					
F602	/02B	4822 070 31002	Fuse T 1A 250V	*FS000280R					
F603	U		Fuse SB 250 mA 125V	*FS000230R					
F603	/02B	4822 070 32502	Fuse T 250 mA 250V	*FS000270R					
F604	U		Fuse SB 2.5A 125V	*FS000250R					
F604	/02B	4822 253 50167	Fuse TH 2.5A 250V	*FS000300R					
F605	U		Fuse SB 6A 125V	*FS000260R					
F605	/02B	4822 070 33152	Fuse T 3.15A 250V	*FS000290R					
IC601		4822 209 91032	IC KA7915 Regulator	*HC300130R					
IC602		4822 209 90536	KA7815 Regulator	HC38915060					
IC604		4822 209 91031	KA7806 Regulator	*HC300120R					
Q601		4822 130 42298	Transistor KTC1815Y/KTC3198/2SC1740	HT30001000					