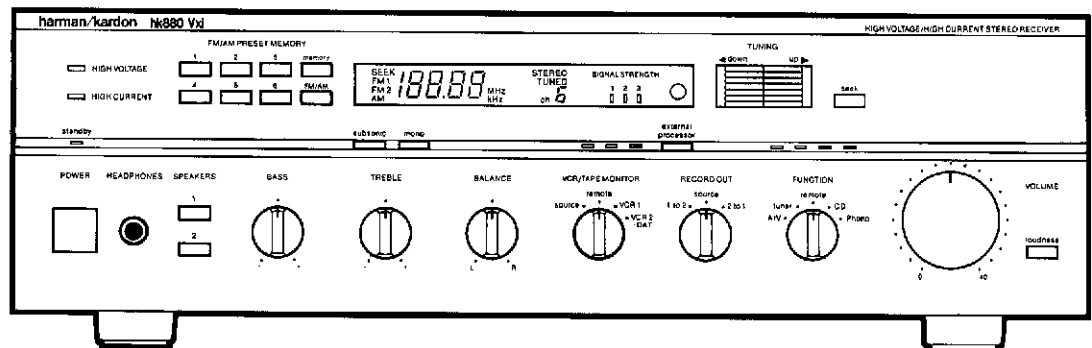


# The Harman Kardon Model hk880Vxi

Manual 134A

## HIGH VOLTAGE/HIGH CURRENT STEREO RECEIVER

# Technical Manual



The following marks found in the parts list of this manual identify the models as follows.

- UA : North America area model
- BK : North America area model Black version
- G : General model
- GB : General model Black version
- BB : Australia model Black version

hk880Vxi

**harman/kardon**

240 Crossways Park West, Woodbury, N.Y. 11797  
1112-3152134A8 P-078803 1500 Printed in Japan

**SPECIFICATIONS**

● **FM SECTION**

	Nominal	Limit
Tuning Range	87.5	~ 108.0MHz
50dB Quieting Sensitivity		
Mono	15.2dBf	≧ 19dBf
Stereo	37dBf	≧ 41dBf
Usable Sensitivity	10.7dBf	≧ 15dBf
Image Ratio	75dB	≧ 60dB
IF Rejection	100dB	≧ 85dB
Spurious Response Rejection	100dB	≧ 85dB
Capture Ratio	1.5dB	≧ 2.5dB
Alternate Channel Selectivity	70dB	≧ 60dB
AM Rejection	54.5dB	≧ 45dB
Signal to Noise Ratio		
Mono	80dB	≧ 74dB
Stereo	73.5dB	≧ 70dB
Total Harmonic Distortion (65dBf 1kHz Input)		
Mono	0.08%	≧ 0.3%
Stereo	0.08%	≧ 0.3%
Stereo Separation at 1kHz	53dB	≧ 45dB

● **AM SECTION**

Tuning Range		
North America area model	520	~ 1,620kHz
General and Australia models	531	~ 1,602kHz
Usable Sensitivity	16 $\mu$ Vm	≧ 40 $\mu$ Vm
Selectivity	32dB	≧ 25dB
Signal to Noise Ratio	53dB	≧ 48dB
Image Rejection	40dB	≧ 32dB
IF Rejection	62dB	≧ 50dB

● **AUDIO SECTION**

Usable Sensitivity		
Video/CD	135mV	± 25mV
Phono	2.2mV	± 0.2mV
Signal to Noise Ratio		
Video/CD	81dB	≧ 75dB
Phono	79.5dB	≧ 73dB
Channel Separation at 10kHz		
Video/CD	52.5dB	≧ 45dB
Phono	56dB	≧ 45dB

	Nominal	Limit
IM Distortion Ratio	0.06%	≧ 0.015%
RMS Output Power		
8 $\Omega$ , 1kHz, THD 0.1%	77.6W	≧ 60W
4 $\Omega$ , 1kHz, THD 0.3%	123.2W	≧ 60W
Damping Factor at 1kHz	58	≧ 50
Tone Control Characteristics		
Bass at 50Hz		
Boost	10dB	± 2dB
Cut	-10dB	± 2dB
Treble at 10kHz		
Boost	10dB	± 2dB
Cut	-10dB	± 2dB
Loudness Control		
at 10kHz	3dB	± 1dB
at 50Hz	10dB	± 2dB
Subsonic Control		
at 15Hz	-3.5dB	± 1.5dB
DC Output Voltage		
L channel	8mV	± 60mV
R channel	5mV	± 60mV
RIAA Equalization at Tape Out (20Hz/20kHz)	0.07dB	± 0.5dB/0.28dB ± 0.5dB

● **DIMENSIONS (W x H x D)** 17-3/8" x 5-1/4" x 14-1/2"  
(443 x 134 x 368 mm)

● **WEIGHT**

● **POWER SUPPLY**

North America area model AC120V, 60Hz  
General and Australia models AC220/240V, 50/60Hz

● **POWER CONSUMPTION**

North America area model 280W (340VA)  
General and Australia models 210W

These specifications are Service target specs.

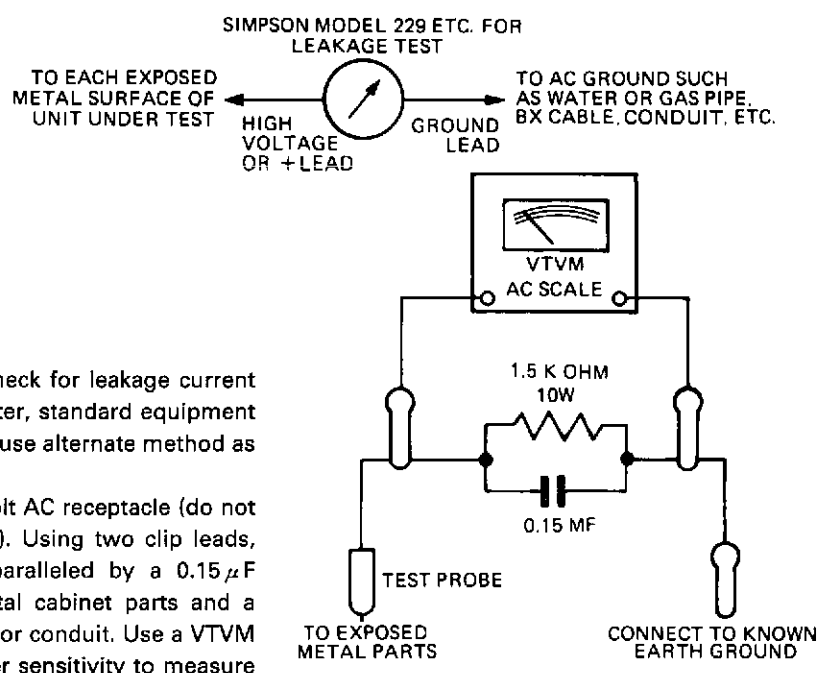
Specifications and components subject to change without notice.  
Overall performance will be maintained or improved.

**LEAKAGE TEST (FOR SERVICE ENGINEERS IN THE U.S.A.)**

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 metal parts in the unit.
2. Replace all protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
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 AC line cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect 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.



**DISASSEMBLY PROCEDURES (REFER TO PAGES 8, 9, 10, 11, 22 AND 23)****1 CABINET TOP (131) REMOVAL**

Remove 6 screws (A) and then remove the Cabinet Top (131).

**2 CABINET BOTTOM (135) REMOVAL**

Remove 6 screws (B) and then remove the Cabinet Bottom (135).

**3 FRONT PANEL ASSEMBLY (AA) REMOVAL**

1. Remove the Cabinet Top (131), referring to the previous step 1.
2. Remove 6 screws (C) and then remove the Front Panel Assembly (AA).

**4 TUNER P.C. BOARD (PCB-21) REMOVAL**

1. Remove the Front Panel Assembly (AA), referring to the previous step 3.
2. Disconnect the (CW804) from (CN107) on the Tuner P.C. Board (PCB-21).
3. Open the lid of connectors (CN101, CN102, CN103, CN105 and CN106) on the Tuner P.C. Board (PCB-21) and then disconnect the lead wires.
4. Remove 3 screws (D) and then remove the Tuner P.C. Board (PCB-21). If necessary, unsolder the lead wires.

**5 EQUALIZER P.C. BOARD (PCB-5) REMOVAL**

1. Remove the Tuner P.C. Board (PCB-21), referring to the previous step 4.
2. Remove 2 screws (E) and then remove the Metal Fitting (166).
3. Disconnect the (CW602) from (CN804) on the Control P.C. Board (PCB-6).
4. Open the lid of connector (CN401) on the Main P.C. Board (PCB-1) and (CN802) on the Control P.C. Board (PCB-6) and then disconnect the lead wires.
5. Open the lid of connector (CN601) on the Equalizer P.C. Board (PCB-5) and then disconnect the lead wire.
6. Remove 3 screws (F) and then remove the Equalizer P.C. Board (PCB-5). If necessary, unsolder the lead wires.

**6 CONTROL P.C. BOARD-D (PCB-6) REMOVAL**

1. Remove the Equalizer P.C. Board (PCB-5), referring to the previous step 6.
2. Disconnect the (CW801, CW802 and CW803) from (CN806, CN808 and CN810) on the Function P.C. Board (PCB-8).
3. Disconnect the (CW808 and CW813) from (CN803 and CN805) on the Control P.C. Board (PCB-6).
4. Remove 2 screws (G) and then remove the Control P.C. Board (PCB-6).  
If necessary, unsolder the lead wires.

**7 MAIN P.C. BOARD (PCB-1) REMOVAL**

1. Remove the Control P.C. Board (PCB-6), referring to the previous step 6.
2. Open the lid of connectors (CN402 and CN403) on the Main P.C. Board (PCB-1) and then disconnect the lead wires.
3. Remove 5 screws (H) and then remove the Main P.C. Board (PCB-1) with Metal Fittings (163 and 165) and Heat Sink (171).  
If necessary, unsolder the lead wires.

**8 VOLUME P.C. BOARD (PCB-11) REMOVAL**

1. Remove the Tuner P.C. Board (PCB-21), referring to the previous Step 4.
2. Open the lid of connector (CN402) on the Main P.C. Board (PCB-1) and (CN501) on the Tone Control P.C. Board (PCB-2) and then disconnect the lead wires.
3. Pull out Volume Knob (154).
4. Remove hexagon nut (I) and then remove the Volume P.C. Board (PCB-11).  
If necessary, unsolder the lead wires.

**9 FUNCTION P.C. BOARD (PCB-2) REMOVAL**

1. Remove the Tuner P.C. Board (PCB-21), referring to the previous step 4.
2. Disconnect the (CW801, CW802, CW803, CW805 and CW806) from (CN806, CN807, CN808, CN809 and CN810) on the Function P.C. Board (PCB-8).
3. Pull out VCR/TAPE Monitor, Record Out and Function Knob (155).
4. Remove 3 hexagon nuts (J) and then remove the Function P.C. Board (PCB-8).

**10 TONE CONTROL P.C. BOARD (PCB-2) REMOVAL**

1. Remove the Tuner P.C. Board (PCB-21), referring to the previous step 4.
2. Open the lid of connector (CN403) on the Main P.C. Board (PCB-1) and then disconnect the lead wires.
3. Open the lid of connector (CN501 and CN502) on the Tone Control P.C. Board (PCB-2) and then disconnect the lead wires.
4. Pull out Bass, Treble and Balance Knob (155).
5. Remove 3 hexagon nuts (K) and then remove the Tone Control P.C. Board (PCB-2).

**11 LED P.C. BOARD (PCB-7) REMOVAL**

1. Remove the Tuner P.C. Board (PCB-21), referring to the previous step 4.
2. Open the lid of connector (CN601) on the Equalizer P.C. Board (PCB-5) and (CN801) on the Control P.C. Board (PCB-6) and then disconnect the lead wires.
3. Disconnect the (CW807) from (CN811) on the Relay P.C. Board (PCB-9).
4. Remove 4 screws (L), then remove the Holder (176), and then remove the LED P.C. Board (PCB-7).

**12 RELAY P.C. BOARD (PCB-9) REMOVAL**

1. Remove the Cabinet Top (131), referring to the previous step 11.
2. Remove 2 screws (M) and then remove the Relay P.C. Board (PCB-9) with Metal Fitting (168).

**13 AV P.C. BOARD (PCB-10) REMOVAL**

1. Remove the Cabinet Top (131), referring to the previous Step 11.
2. Disconnect the (CW808) from (CN803) on the Control P.C. Board (PCB-6).
3. Remove 2 screws (N) and then remove the AV P.C. Board (PCB-10).

**14 ANTENNA TERMINAL P.C. BOARD (PCB-24) AND AM ADJUSTMENT P.C. BOARD (PCB-25) REMOVAL**

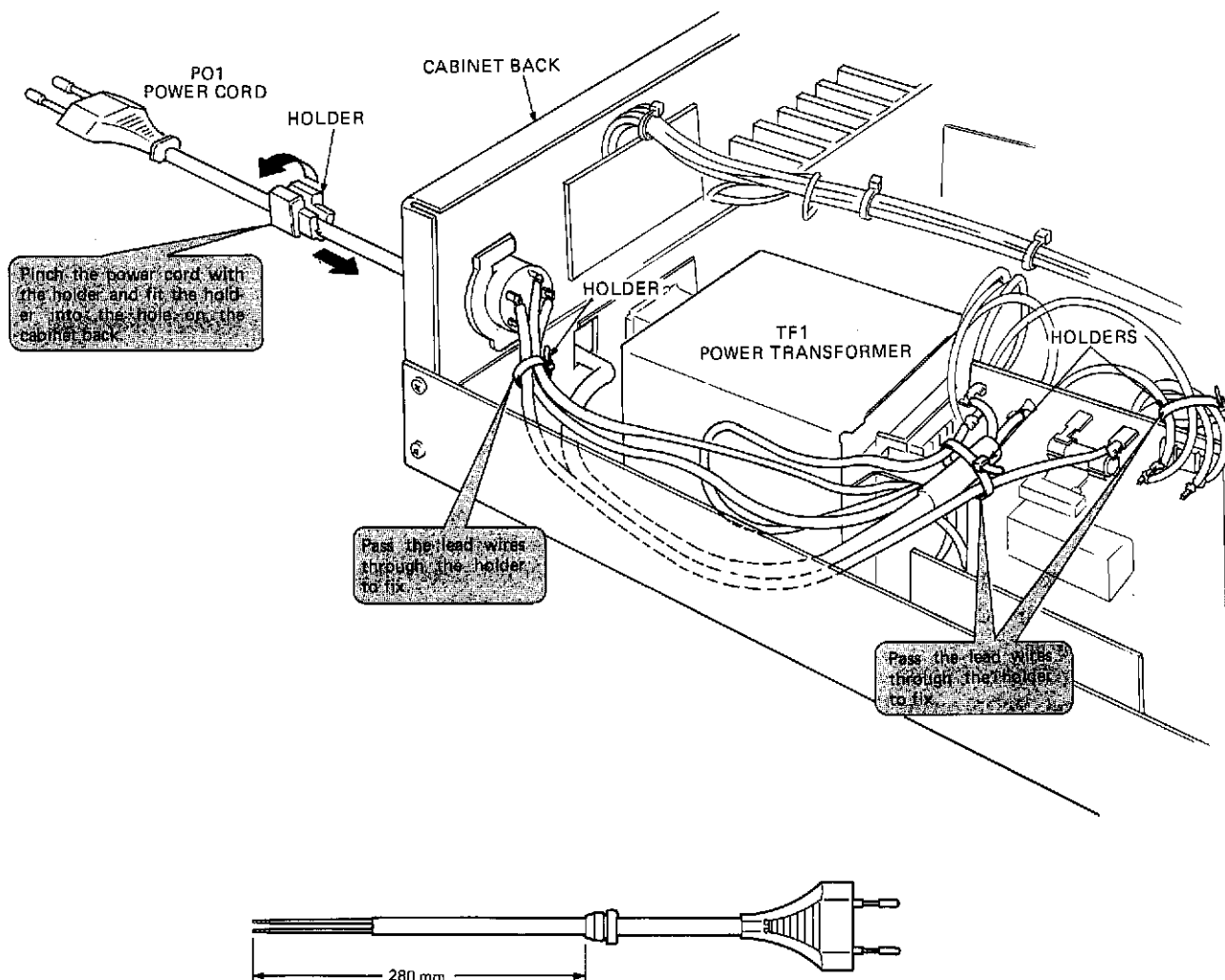
1. Remove the Cabinet Top (131), referring to the previous step 11.
2. Remove 3 screws (O) and then remove the Antenna Terminal P.C. Board (PCB-24) and AM Adjustment P.C. Board (PCB-25).  
If necessary, unsolder the lead wires.

**15 SPEAKER TERMINAL P.C. BOARD (PCB-14) REMOVAL**

1. Remove the Cabinet Top (131), referring to the previous step 11.
2. Remove 2 screws (P) and then remove the Speaker Terminal P.C. Board (PCB-14). If necessary, unsolder the lead wires.

**POWER CORD REPLACEMENT (FOR SERVICE ENGINEERS OTHER THAN NORTH AMERICA)**

In order to prevent fire or shock hazard when replacing the power cord, follow the Procedure below to replace the part with the standard supply parts.



## CIRCUIT DESCRIPTION

### ■FM TUNER SECTION

The FM signal which has entered through the antenna is high-frequency amplified in the front end. Then it is mixed with the output of the local oscillators and converted into the 10.7MHz intermediate-frequency.

The 10.7MHz signal is amplified in the intermediate frequency amplifying section which consists of CF201, Q201, CF202, Q202 and CF203 and fed to pin 1 of IC201. In IC201, the signal is sent through the IF amplifier and after being detected in the quadrature, it is sent through the post amplifier to pin 12 and then input to pin 2 of IC301. In IC301, the pilot signal is detected out of the signal which has been fed and 38kHz signal is produced. Then by this signal, stereo signal is demodulated, output from pin 4 for the left channel and from pin 7 for the right channel and transmitted to the input selector section.

### ■AM TUNER SECTION

The AM signal which has entered through the antenna passes through the tuning circuit consisting of L251 and TC251 and is inputted to pin 21 of IC201. In IC201, it undergoes radio-frequency amplification and local oscillation and is output from pin 20, and passed through the transformer (T251) and ceramic filter (CF251) and enters pin 18 of IC301. It is then passed through the IF amplification and detection and is output from pin 15. This signal is fed to IC301.

### ■AUDIO AMPLIFIER SECTION

The signal which has entered from each input terminal is selected by the input selector, passes through the audio mode switch, subsonic switch balance circuit, volume and loudness circuit and is fed into the pre-amplifier. Then it is fed into the power amplifier through the tone control circuit, power amplified and transmitted to the speaker terminal.

The power amplifier has an over-output protective circuit. If current exceeding the specification flows to Q431, Q433 (L ch), Q432, Q434 (R ch), it is detected at Q3 (L ch) and Q4 (R ch) and the protective circuit consisting of Q1 and Q7 draws in the base of Q5 (L ch) and Q6 (R ch), and thus the input signal is cut to protect the circuit.

### ■MUTING CIRCUIT

If FM or AM is received out of tuning or in a very weak field intensity, pin 41 of IC701 becomes high level. This is fed to the base of Q351, whose collector then becomes low level and the collector of Q356 high level. As a result, Q301 (L ch) and Q302 (R ch) are conducted to mute the output.

### ■SYNTHESIZER SECTION

#### ●FM

The local oscillation output at the front end is fed to pin 15 of the prescaler IC702 and after being frequency divided into 30 or 32, control output signal is fed from IC701, compared with the divided local oscillation output and output to pin 10. This voltage is level converted at Q701 and Q702, and fed to the front end.

#### ●AM

The local oscillation output is fed from pin 24 of IC201 to pin 13 of IC702. In IC702, control output signal is fed from IC701, compared with the local oscillation output and output to pin 10. This voltage is level converted at Q701 and Q702, and fed to the AM local oscillation section.

### ■INDICATOR SECTION

#### ●Frequency display

The indicator tube is turned ON by the output decoded in IC701.

#### ●Signal strength

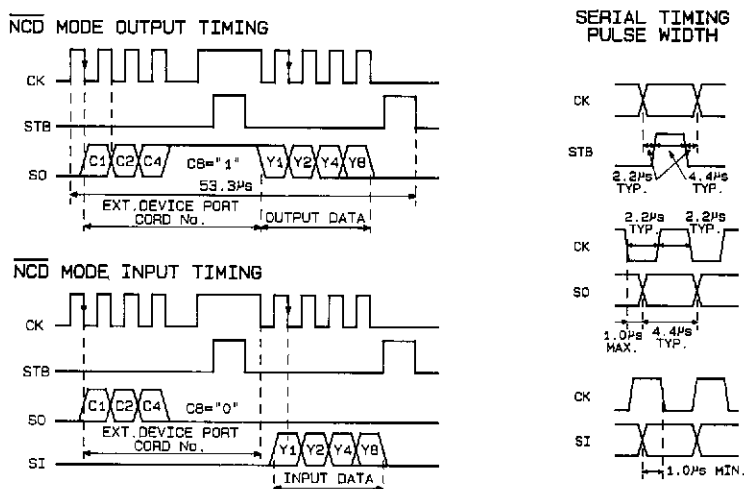
The voltage corresponding to the signal level is output from pin 16 of IC201 and fed into pin 8 of the level comparator IC351. Then D381, D383 and D385 of the signal strength indicator turn ON according to the signal level.

#### ●Tuning

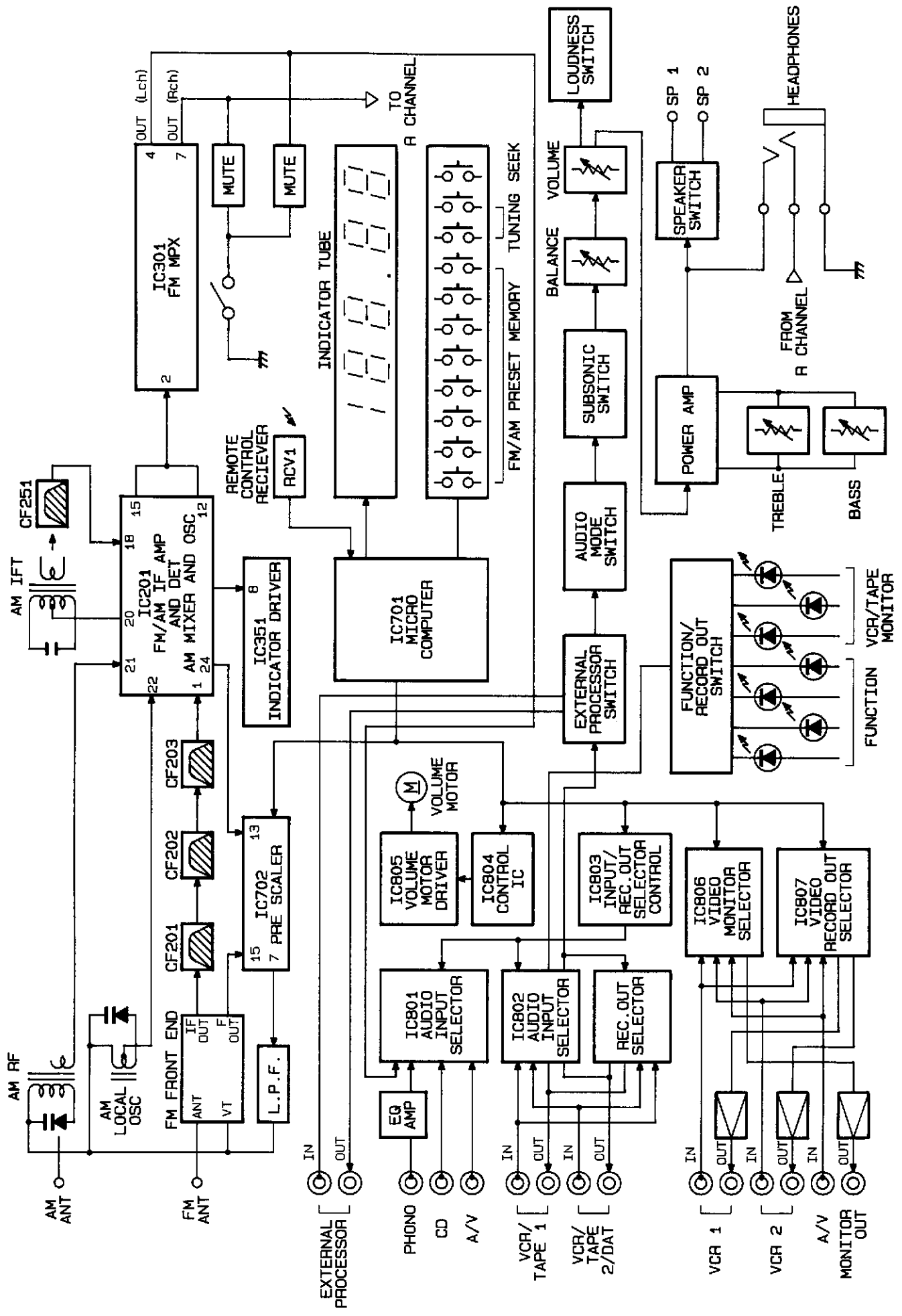
When broadcast is received, "Tuned" of the indicator tube is turned ON by the control signal in IC701. When FM or stereo broadcast is received, pin 9 of IC301 becomes low level, Q705 turns ON and "Stereo" of the indicator tube is turned ON by the control signal in IC701.

## TIMING CHART

Frequency display timing chart of IC701 (TC9306F-025)



BLOCK DIAGRAM



## ALIGNMENT PROCEDURES (REFER TO PAGES 19, 20, 21, 24, 27 AND 28)

### ■ IDLING CURRENT ADJUSTMENT

Conditions: ● Set the Volume control to minimum.

- Press the "Speakers 1 and 2" switches to on (button in) position.
- Set the Speaker Operating Mode switch to "8Ω" position.
- Make the adjustment at a room temperature of 77°F (25°C).
- After the Power switch is pushed on, wait for 30 minutes before measuring to be sure of the most stable operation.
- Set the Function switch to tuner position.

Step	Connection Equipments	Adjustment	For
1	Connect the Digital Volt Meter to TP1 and TP2.	VR401 (L ch)	40mV ±2mV
2	Connect the Digital Volt Meter to TP3 and TP4.	VR402 (R ch)	40mV ±2mV

### ■ AM ADJUSTMENT

Conditions: ● Set the AM mode by pressing the "FM/AM" button.

- Set the Seek switch to off (put out seek indicator) position.
- Standard modulation of the AM signal Generator is 400Hz at 30%.

Step	Alignment	Connection Equipments	Measurement Frequency	Station Display	Adjustment	For	
1	IF	<ul style="list-style-type: none"> <li>• Connect the AM Test Loop Antenna cable into the output jack of AM Signal Generator (80 dB<math>\mu</math>V signal).</li> <li>Place AM Test Loop Antenna close enough to couple signal into the AM Loop Antenna.</li> <li>• Connect the VTVM and oscilloscope to the OUTPUT jacks.</li> </ul>	1400kHz	1400kHz	T251	Maximum output level and symmetrical curve on scope.	
2	Tracking		※1404kHz	※1404kHz	TC251	Maximum output.	
3			600kHz	600kHz	L251	Maximum output.	
4			※603kHz	※603kHz	Repeat steps 2 and 3 for optimum sensitivity.		
5			Signal indicator	1000kHz	1000kHz		Confirm the all Signal indicators light at 5000 $\mu$ V/m input.
			※999kHz	※999kHz			

※General and Australia models

### ■ FM ADJUSTMENT

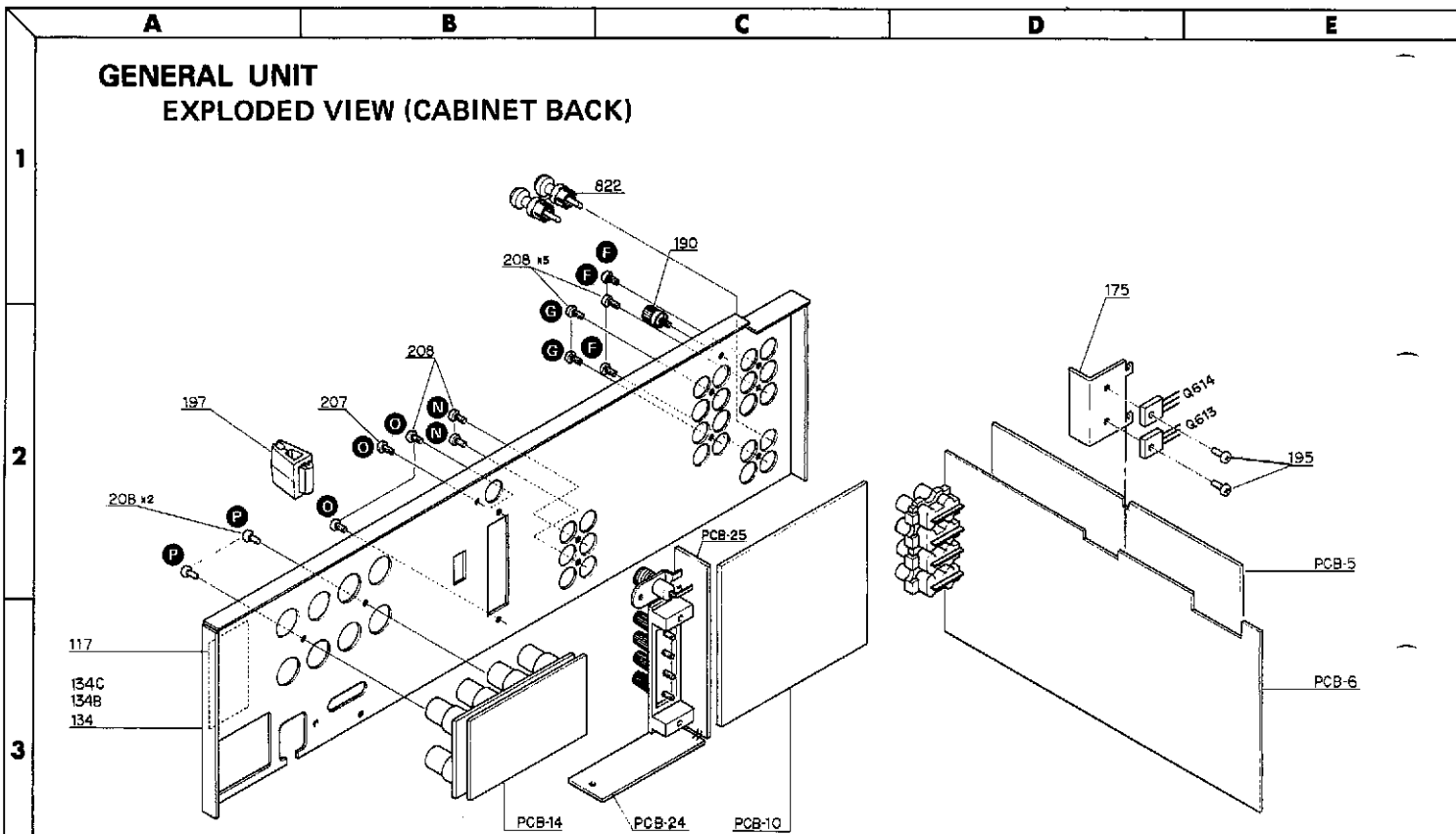
Conditions: ● Set the FM mode by pressing the "FM/AM" button.

- Set the Seek switch to off (put out seek indicator) position.

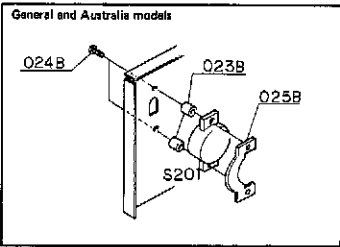
	U.S.A. model	General model
FM Signal Generator	1kHz, 100% modulation	1kHz, 45% modulation
Stereo Modulator	L+R=45.5%, L-R=45.5%, 19kHz=9%	L+R=22.5%, L-R=22.5%, 19kHz=8%

Step	Alignment	Connection Equipments	Measurement Frequency	Station Display	Adjustment	For
1	IF	<ul style="list-style-type: none"> <li>• Connect the FM Signal Generator to FM 300Ω BAL Antenna terminals through the 300Ω balanced dummy.</li> <li>[1mV(65dBf) input signal]</li> <li>• Connect the Oscilloscope and Distortion meter to the Tape 1 OUTPUT jacks.</li> <li>• Set the Seek switch to on (seek indicator lights) position.</li> </ul>	97.9MHz	97.9MHz	T201 T202	Maximum output level.
2	Discriminator		97.9MHz	97.9MHz	T203(A)	Adjust so that the TUNED indicator lights in the same range on both plus (+) and minus (-) sides of 97.9 MHz.
3			97.9MHz	97.9MHz	T203(B)	Minimum distortion.
4			Repeat steps 2 and 3 for optimum sensitivity.			
5	Muting level		97.9MHz	97.9MHz	VR251	Apply 30dBf signal, and adjust VR251 so that the waveform becomes undistorted.

Step	Alignment	Connection Equipments	Measurement Frequency	Station Display	Adjustment	For
6	Separation	<ul style="list-style-type: none"> <li>Connect the Stereo Modulator to FM Signal Generator. Connect FM Signal Generator to FM 300Ω BAL Antenna terminal through the 300Ω balanced dummy. (65 dBf input signal)</li> <li>Connect the VTVM and Oscilloscope to the Tape 1 OUTPUT jacks.</li> </ul>	97.9MHz	97.9MHz	VR301	Adjust so that the left channel output becomes minimum when only the right channel of the Stereo Modulator is modulated.
					VR301	Adjust so that the right channel output becomes minimum when only the left channel of the Stereo Modulator is modulated.
7	Signal indicator					Confirm the all signal indicators light at 1mV (65 dBf) input.



**GENERAL UNIT**  
**EXPLODED VIEW (CABINET BACK)**

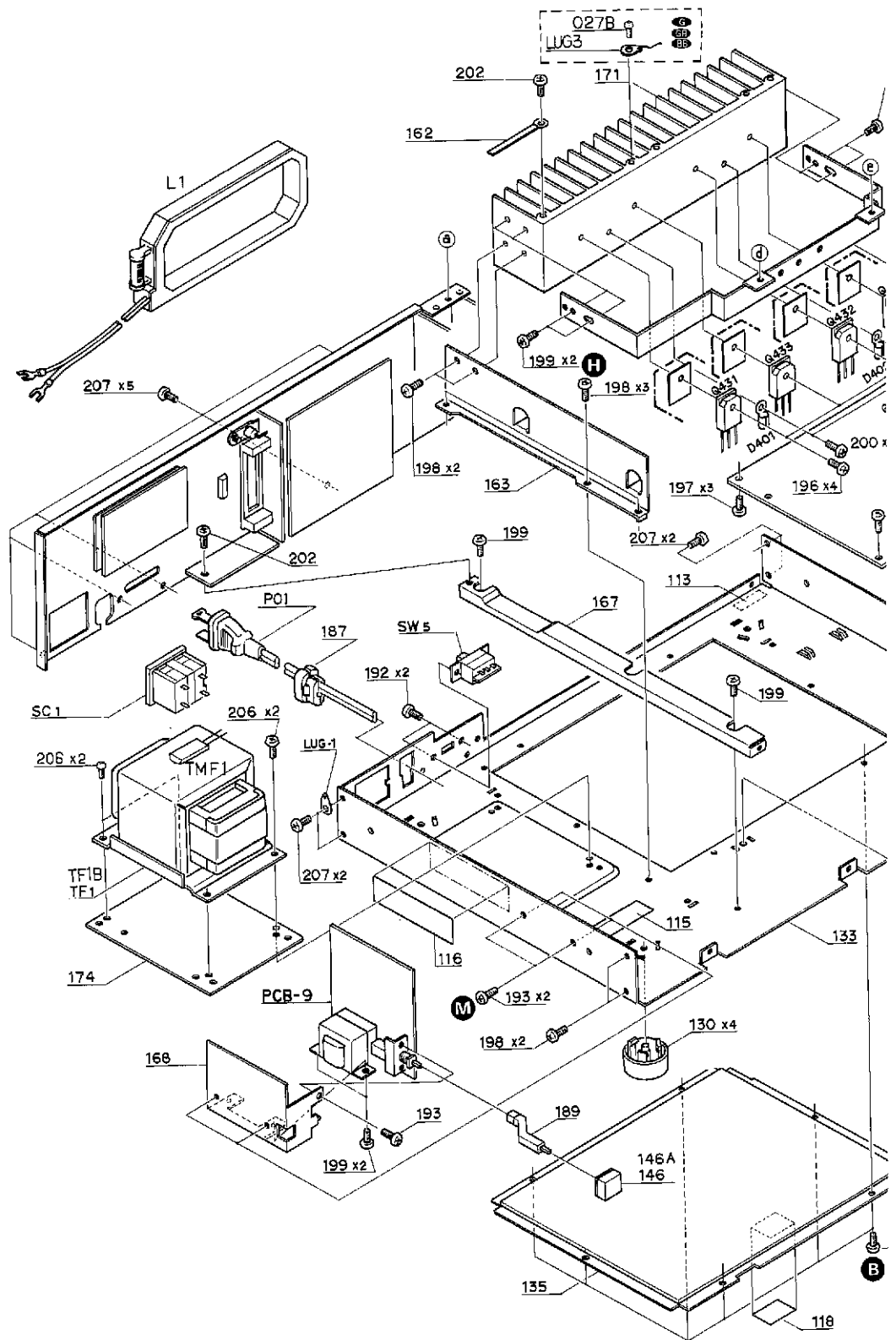


**PARTS LIST**

Ref. No.	Part No.	Description
023B	2132-7116	SPACER (G GB BB)
024B	2327-R0130124	SCREW (3 x 12mm) (G GB BB)
025B	2440-7017	SPECIAL NUT (G GB BB)
117	1756-CSA	LABEL CSA (UA BK)
134	1424-25301	CABI BACK REAR (UA BK)
134B	1424-25201	CABI BACK REAR (G)
134C	1424-25401	CABI BACK REAR (GB BB)
175	2222-7240	HEAT SINK
190	4214-168	TERMINAL
195	2327-R0130082	SCREW (3 x 8 mm)
197	2240-7208	HOLDER
207	2347-R0130064	SCREW (3 x 6 mm)
208	2347-R0130104	SCREW (3 x 10 mm)
822	2421-7004	PIN, SHORT
△S201	4411-102719	ROTARY SWITCH, VOLTAGE SELECTOR (G GB BB)



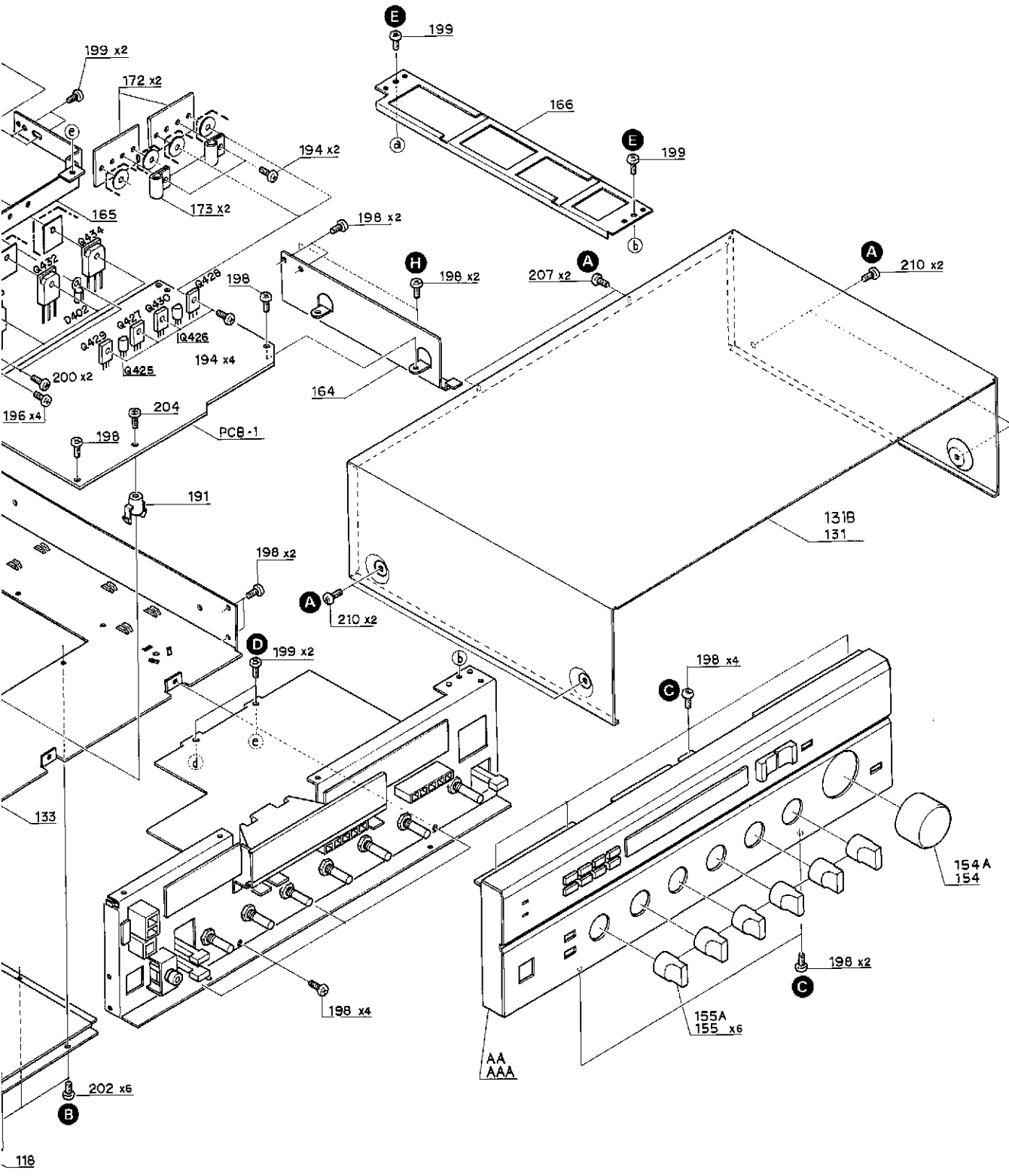
# GENERAL UNIT EXPLODED VIEW



## PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
AA	A443-HK880A	FRONT PANEL ASSY <b>UA G</b>	154A	1630-02603	ROTARY KNOB, VOLUME <b>BK GB BB</b>
AAA	A443-HK880B	FRONT PANEL ASSY <b>BK GB BB</b>	155	1632-16502	ROTARY KNOB, BASS, TREBLE, BALANCE, TAPE MONITOR, RECORD OUT, FUNCTION <b>UA</b>
027B	2347-R0130062	SCREW (3 x 6 mm) <b>G GB BB</b>	155A	1632-17101	ROTARY KNOB, BASS, TREBLE, BALANCE, TAPE MONITOR, RECORD OUT, FUNCTION <b>BK G</b>
113	1117-78	SERIAL LABEL, BOTTOM	162	2218-7011	BRACKET, FIX WIRING
115	1756-11301	LABEL	163	2219-8194	METAL FITTG L
116	1756-05910	LABEL	164	2219-8195	METAL FITTG R
118	1751-01018	LABEL	165	2219-8234	METAL FITTG
130	1319-0139	LEG	166	2219-8209	METAL FITTG
131	1414-11601	CABINET <b>UA BK</b>	167	2219-8212	METAL FITTG
131B	1414-04401	CABINET <b>G GB BB</b>	168	2219-8213	METAL FITTG
133	1424-25001	CABI BACK BOTTOM	171	2222-7237	HEAT SINK <b>UA BK</b>
135	1424-26101	CABI BACK	171B	2222-7247	HEAT SINK <b>G GB BB</b>
146	1660-00401	PUSH BUTTON, POWER <b>UA G</b>	172	2222-7214	HEAT SINK
146A	1660-00403	PUSH BUTTON, POWER <b>BK GB BB</b>			
154	1630-02601	ROTARY KNOB, VOLUME <b>UA G</b>			

E F G H I J



BB  
ANCE, UA G  
ANCE, BK GB BB

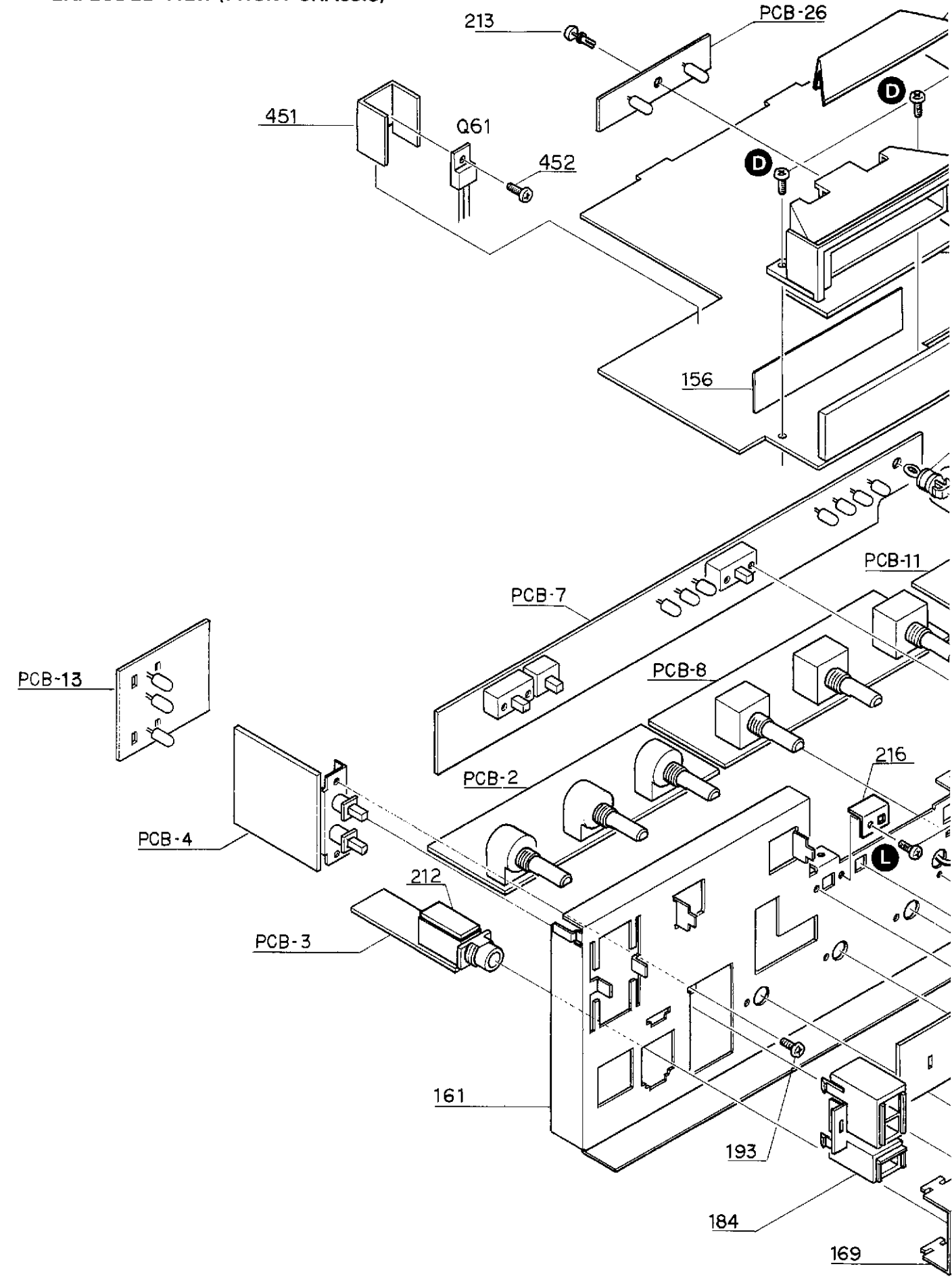
Ref. No.	Part No.	Description
173	2222-7067	HEAT SINK
174	2219-8240	METAL FITTING
187	2240-364	HOLDER, AC
189	2601-7174	SHAFT POWER
191	2360-7015	SPECIAL BOSS
192	2327-R0130064	SCREW (3 x 6 mm)
193	2327-R0130062	SCREW (3 x 6 mm)
194	2327-R0130082	SCREW (3 x 8 mm)
196	2320-34	SPECIAL SCREW
197	2347-R0130082	SCREW (3 x 8 mm)
198	2347-R0130062	SCREW (3 x 6 mm)
199	2347-R0130062	SCREW (3 x 6 mm)
200	2347-R0130062	SCREW (3 x 6 mm)
202	2347-R0130062	SCREW (3 x 6 mm)
204	2347-R0130102	SCREW (3 x 10 mm)

Ref. No.	Part No.	Description
206	2592-400826	SCREW (4 x 8 mm)
207	2347-R0130064	SCREW (3 x 6 mm)
210	2347-R0140064	SCREW (4 x 6 mm)
L1	5911-235	ANT COIL BC
LUG1	4211-4	LUG
LUG3	4211-4	LUG G GB BB
ΔTF1	5584-S1406	XFORMER, POWER UA BK
ΔTF1B	5584-S1407	XFORMER, POWER G GB BB
SW5	4421-0227230	SWITCH, SLIDE
ΔSC1	4474-157	SOCKET, AC OUTLET UA BK
ΔPO1	4161-71151	CORD W/PLUG, POWER UA BK
ΔPO1B	4161-7256	CORD W/PLUG, POWER G GB
ΔPO1D	4161-04100	CORD W/PLUG, POWER BB
ΔTMF1	4318-00101080	THERMAL FUSE

A B C D E

### GENERAL UNIT EXPLODED VIEW (FRONT CHASSIS)

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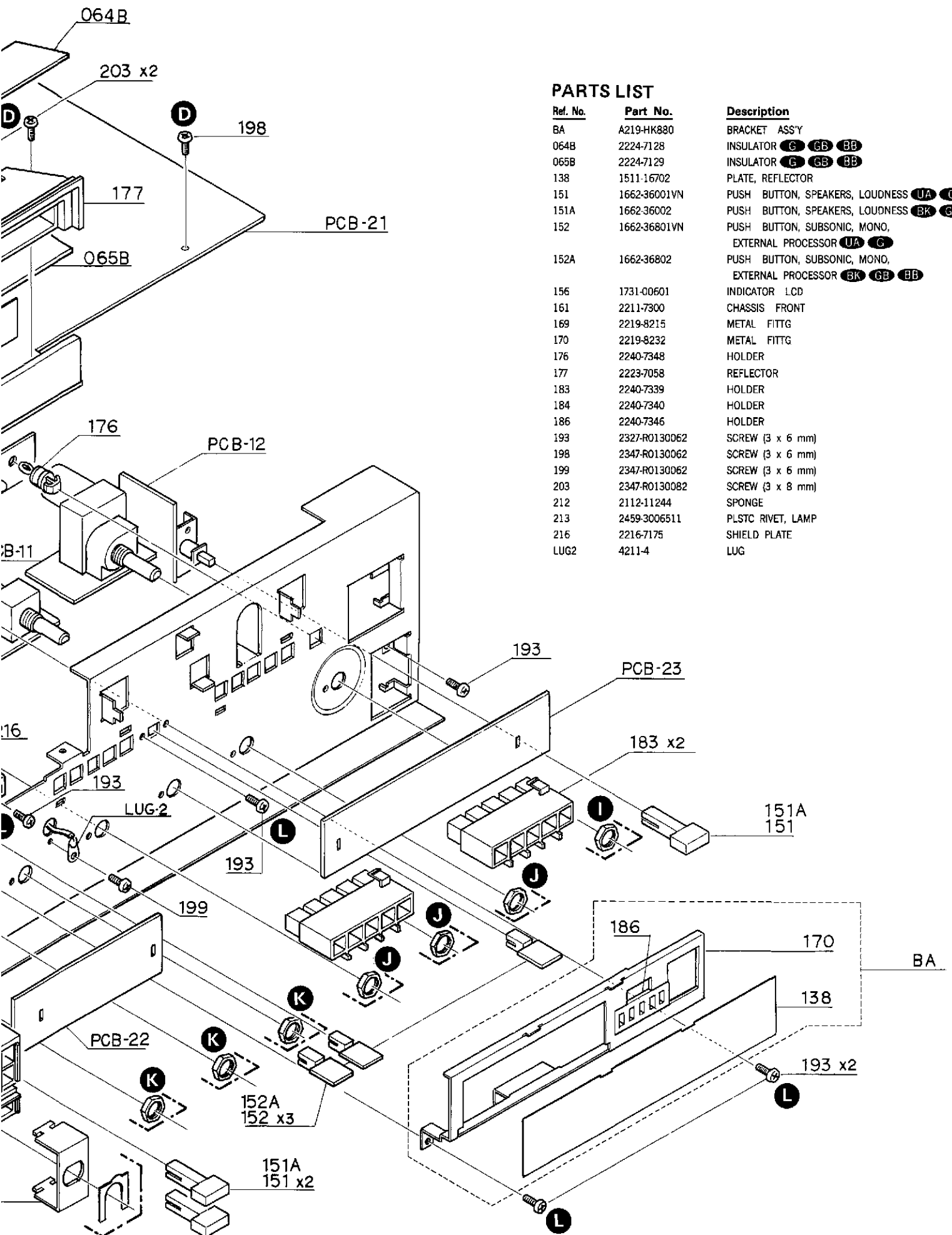
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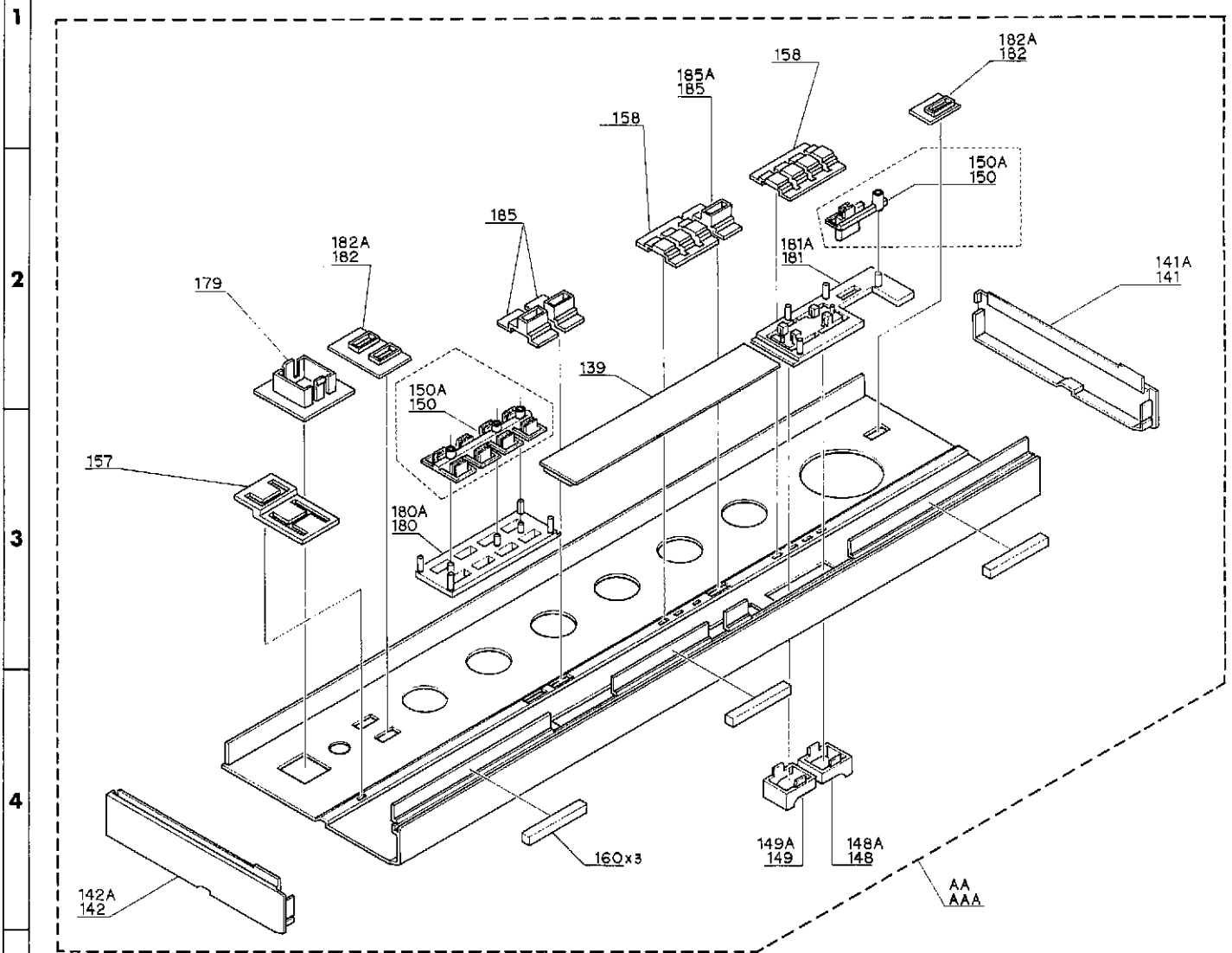
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## PARTS LIST

Ref. No.	Part No.	Description
BA	A219-HK880	BRACKET ASS'Y
064B	2224-7128	INSULATOR (G GB BB)
065B	2224-7129	INSULATOR (G GB BB)
138	1511-16702	PLATE, REFLECTOR
151	1662-36001VN	PUSH BUTTON, SPEAKERS, LOUDNESS (JA G)
151A	1662-36002	PUSH BUTTON, SPEAKERS, LOUDNESS (BK GB BB)
152	1662-36801VN	PUSH BUTTON, SUBSONIC, MONO, EXTERNAL PROCESSOR (JA G)
152A	1662-36802	PUSH BUTTON, SUBSONIC, MONO, EXTERNAL PROCESSOR (BK GB BB)
156	1731-00601	INDICATOR LCD
161	2211-7300	CHASSIS FRONT
169	2219-8215	METAL FITTG
170	2219-8232	METAL FITTG
176	2240-7348	HOLDER
177	2223-7058	REFLECTOR
183	2240-7339	HOLDER
184	2240-7340	HOLDER
186	2240-7346	HOLDER
193	2327-R0130062	SCREW (3 x 6 mm)
198	2347-R0130062	SCREW (3 x 6 mm)
199	2347-R0130062	SCREW (3 x 6 mm)
203	2347-R0130082	SCREW (3 x 8 mm)
212	2112-11244	SPONGE
213	2459-3006511	PLSTC RIVET, LAMP
216	2216-7175	SHIELD PLATE
LUG2	4211-4	LUG

**GENERAL UNIT**  
**EXPLODED VIEW (FRONT PANEL ASS'Y)**



**PARTS LIST**

Ref. No.	Part No.	Description
AA	A443-HK880A	FRONT PANEL ASSY UA G
AAA	A443-HK880B	FRONT PANEL ASSY BK GB BB
139	1531-12001	WINDOW, FRONT
141	1562-06601	FRAME R UA G
141A	1562-06602	FRAME R BK GB BB
142	1562-06701	FRAME L UA G
142A	1562-06702	FRAME L BK GB BB
148	1662-35701VN	PUSH BUTTON, TUNING UA G
148A	1662-35702	PUSH BUTTON, TUNING BK GB BB
149	1662-35801VN	PUSH BUTTON, TUNING UA G
149A	1662-35802	PUSH BUTTON, TUNING BK GB BB
150	1662-37201VN	PUSH BUTTON, FM/AM PRESET MEMORY, SEEK UA G
150A	1662-37202	PUSH BUTTON, FM/AM PRESET MEMORY, SEEK BK GB BB
157	1732-04301	INDICATOR 4/8
158	1732-05401	INDICATOR
160	2112-11762	SPONGE, PANEL
179	2240-7209	HOLDER
180	2240-7322	HOLDER UA G
180A	2240-7333	HOLDER BK GB BB
181	2240-7323	HOLDER UA G
181A	2240-7332	HOLDER BK GB BB
182	2240-7324	HOLDER UA G
182A	2240-7337	HOLDER BK GB BB
185	2240-7341	HOLDER UA G
185A	2240-7342	HOLDER BK GB BB

## IC TERMINAL FUNCTIONS

Terminal number	Port name	Terminal code	I/O	Outline of functions	
				Segment name COM1	Segment name COM2
1	S7	S7	O	Received frequency display	Point 2 on level meter
2	S8	S8	O	Received frequency display	Received frequency display
3	S9	S9	O	Point 1 on level meter	Received frequency display
4	S10	S10	O	Received frequency display	Received frequency display
5	S11	S11	O	Received frequency display	Received frequency display
6	S12	S12	O	Received frequency display	Received frequency display
7	S13	S13	O	Received frequency display	Received frequency display
8	S14	S14	O	Received frequency display	Received frequency display
9	S15	S15	O	Received frequency display	Received frequency display
10	S16	S16	O	Received frequency display	Received frequency display
11	S17	S17	O	Received frequency display	Received frequency display
12	S18	S18	O	Received frequency display	Received frequency display
13	S19	S19	O	Received frequency display	Received frequency display
14	S20	S20	O	Received frequency display	Received frequency display
15	S21	S21	O	Received frequency display	Received frequency display
16	S22	S22	O	Point 5 on level meter	Store mode (MEMORY)
17	S23	S23	O		Received frequency display
18	S24	S24	O	Received frequency display	Received frequency display
19	S25	S25	O	MW band	FM stereo
20	S26	S26	O	MW band	FM band
21	S27	S27	O	LW band	SW band
22	COM1	COM1	O	Common 1	
23	V <sub>DD</sub>	V <sub>DD</sub>	I	Power supply	
24	K0	K0	I	Key input	
25	K1	K1	I	Key input	
26	K2	K2	I	Key input	
27	K3	K3	I	Key input	
28	T0	T0	O	Key timing output	
29	T1	T1	O	Key timing output	
30	T2	T2	O	Key timing output	
31	T3	T3	O	Key timing output	
32	T4	T4	O	Key timing output	
33	T5	T5	O	Key timing output	

Terminal number	Port name	Terminal code	I/O	Outline of functions	
				Segment name COM1	Segment name COM2
34	T6	T6	O	Key timing output	
35	P3-2	AD IN	I	AD IN signal strength display input	
36	P3-1	VREF	I	AD IN reference voltage input	
37	P2-4	LOCAL IF	O	LOCAL DX select control output (FM, MW, LW)	
38	P2-3	MONO	O	Forced output of mono control (FM mode only)	
39	P2-2	AUTO-STOP	I	Stop signal input	
40	P2-1	R-I	I	Remote control serial data input	
41	MUTE	MUTE	O	Mute output	
42	STB	STB	I	Strobe signal input	
43	CK	CK	I	Serial clock signal input	
44	SO	SO	O	Serial data output	
45	SI	SI	I	Serial data input	
46	REF	REF	I	Reference frequency input	
47	$\overline{\text{INT}}$	$\overline{\text{INT}}$	I	Initialize input terminal	
48	$\overline{\text{INH}}$	$\overline{\text{INH}}$	I	Normal mode (H level) Inhibit mode (L level)	
49	TEST	TEST	I	Test terminal	
50	XT	XT	O	Clock output	
51	$\overline{\text{XT}}$	$\overline{\text{XT}}$	O	Clock output	
52	GND	GND	—	GND pin	
53	V <sub>DD</sub>	V <sub>DD</sub>	I	Power supply	
54	COM2	COM2	O		Common 2
55	S1	S1	O	Preset ch	Received frequency display
56	S2	S2	O	Received frequency display	Received frequency display
57	S3	S3	O	Received frequency display	Received frequency display
58	S4	S4	O	Received frequency display	Received frequency display
59	S5	S5	O	Point 4 on level meter	FM/SW unit
60	S6	S6	O	Point 3 on level meter	MW/LW unit

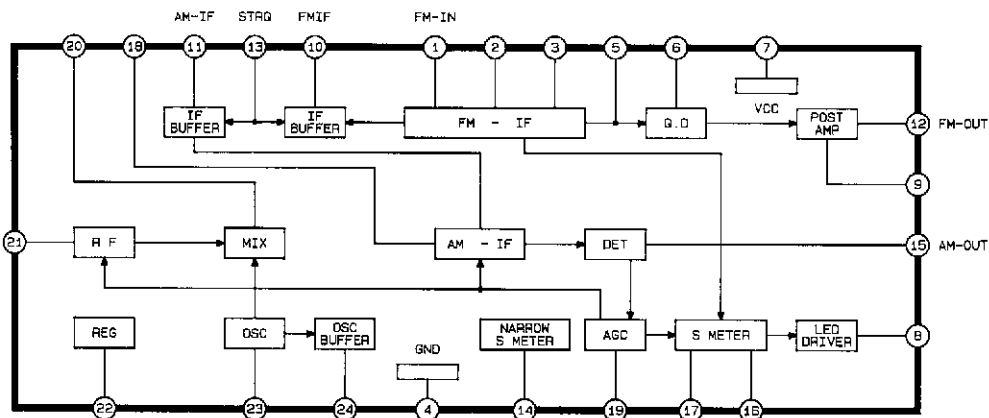




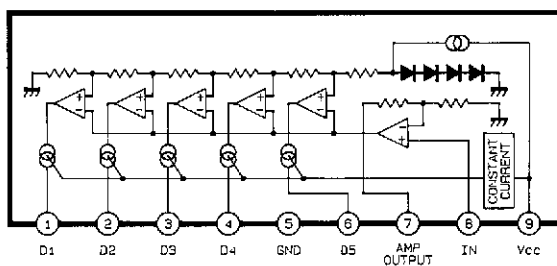
Terminal number	Port name	Terminal code	I/O	Outline of functions
1	GND	GND	—	GND pin
2	I/O-1	EX-OUT	O	This output terminal have no connection with Band, and reverse when EX-IN input.
3	I/O-2	EX-RESET	I	Reset EX-OUT
4	I/O-3	EX-IN	I	Whenever EX-IN input, EX-OUT reverse.
5	I/O-4	Moni-en	I	Permit to select source, T1, T2, V1 or V2.
6	I/O-5	Func-en	I	Permit to select a function from F1 through F5.
7	I/O-6	F-Mute	O	This is the Mute output terminal when select Moni or Function.
8	I/O-7	P-SW	I	Remote control receiver ON/OFF and P-Cont control input.
9	I/O-8	P-CONT	O	Power supply control
10	I/O-9	VR-UP	O	VR-UP output
11	I/O-10	VR-DN	O	VR-DOWN output
12	SO	SO	O	Serial data output
13	SI	SI	I	Serial data input
14	CK	CK	I	Serial clock signal input
15	STB	STB	I	Stroke signal input
16	V <sub>DD</sub>	V <sub>DD</sub>	I	5V ± 10% power supply terminal

**IC BLOCK DIAGRAM**

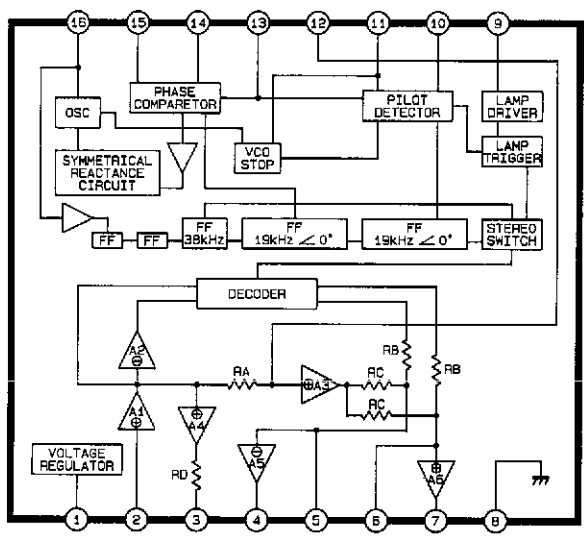
**IC201 : LA1266**  
 FM/AM IF Amp. and Det., AM Mixer and OSC



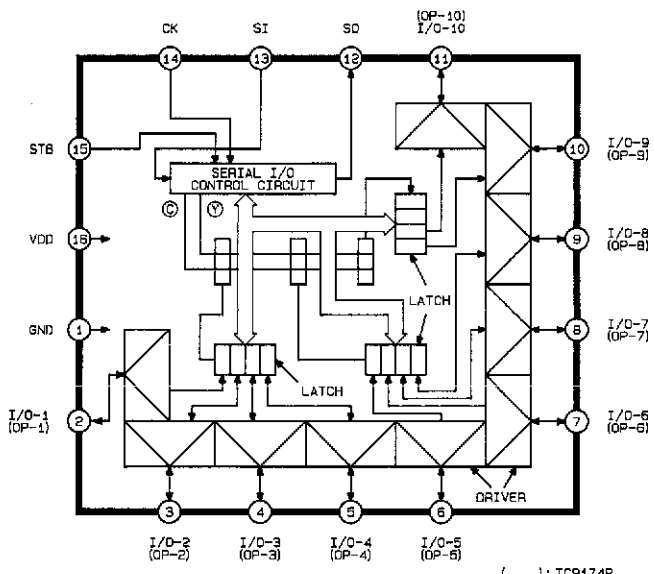
**IC351 : BA6124**  
 Indicator Driver



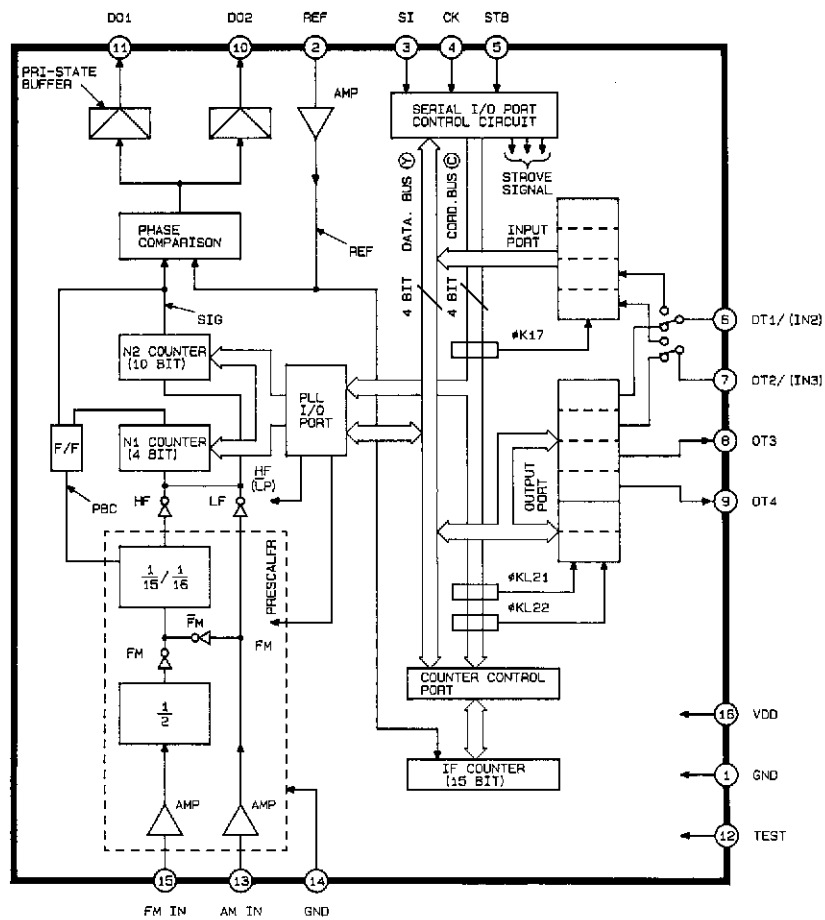
IC301 : LA3410  
FM MPX



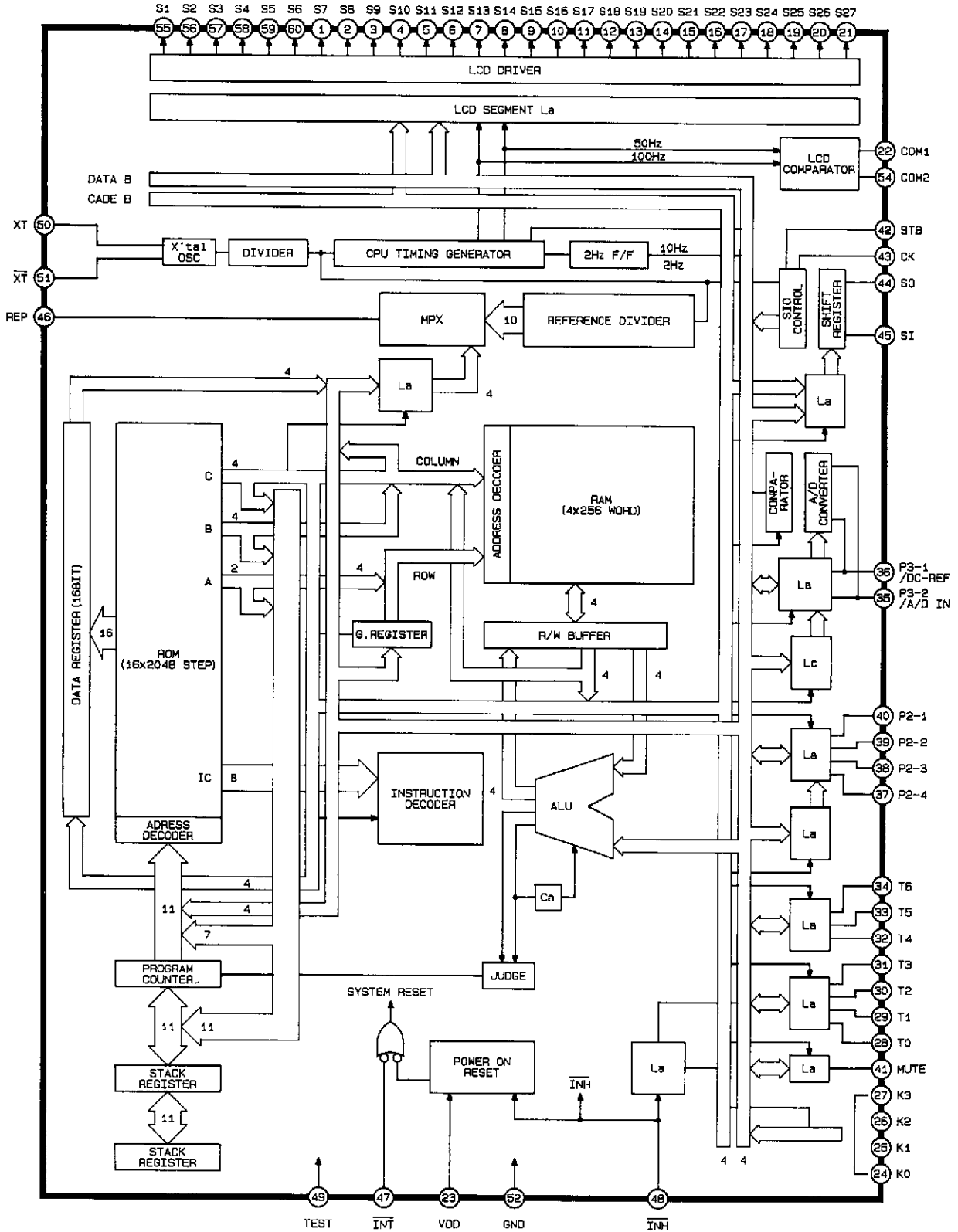
IC803 : TC9174P  
IC804 : TC9173P  
Audio Input Record  
Out Selector



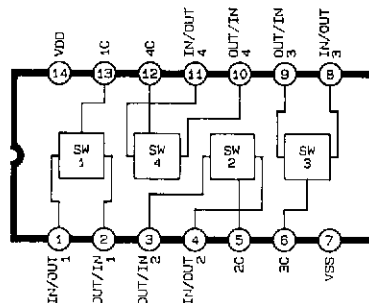
IC702 : TC9172AP  
Pre Scaler



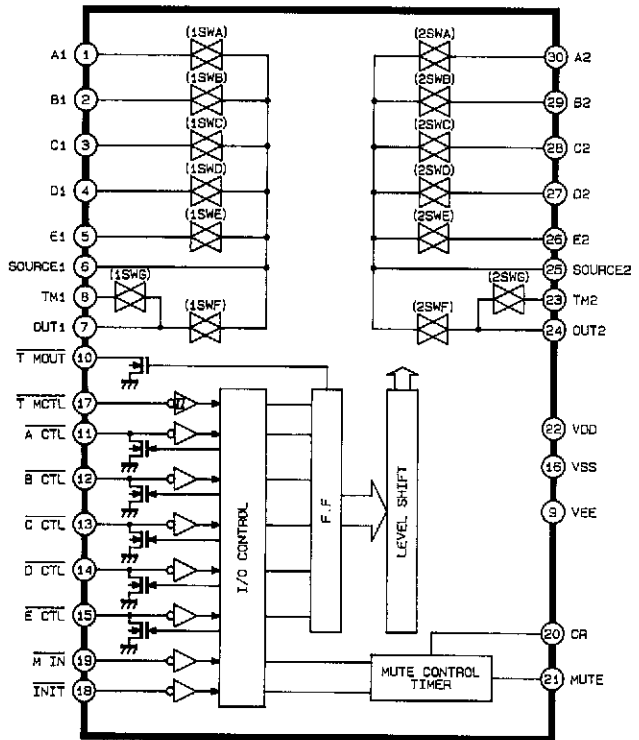
IC701 : TC9306F-025  
Micro Computer



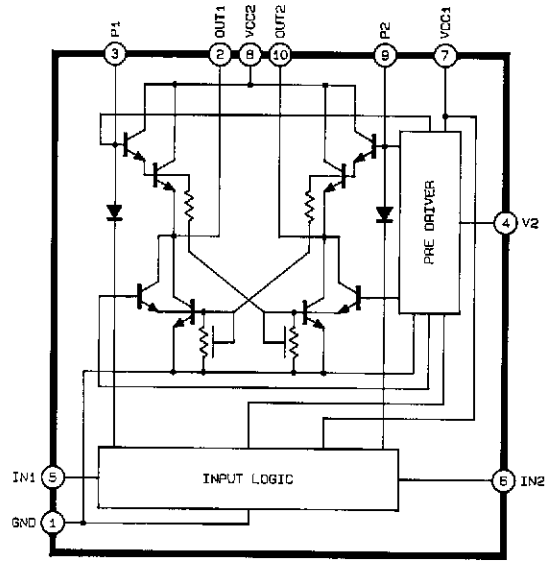
IC806, 807 : LC4966  
Video Input/Record Out Selector



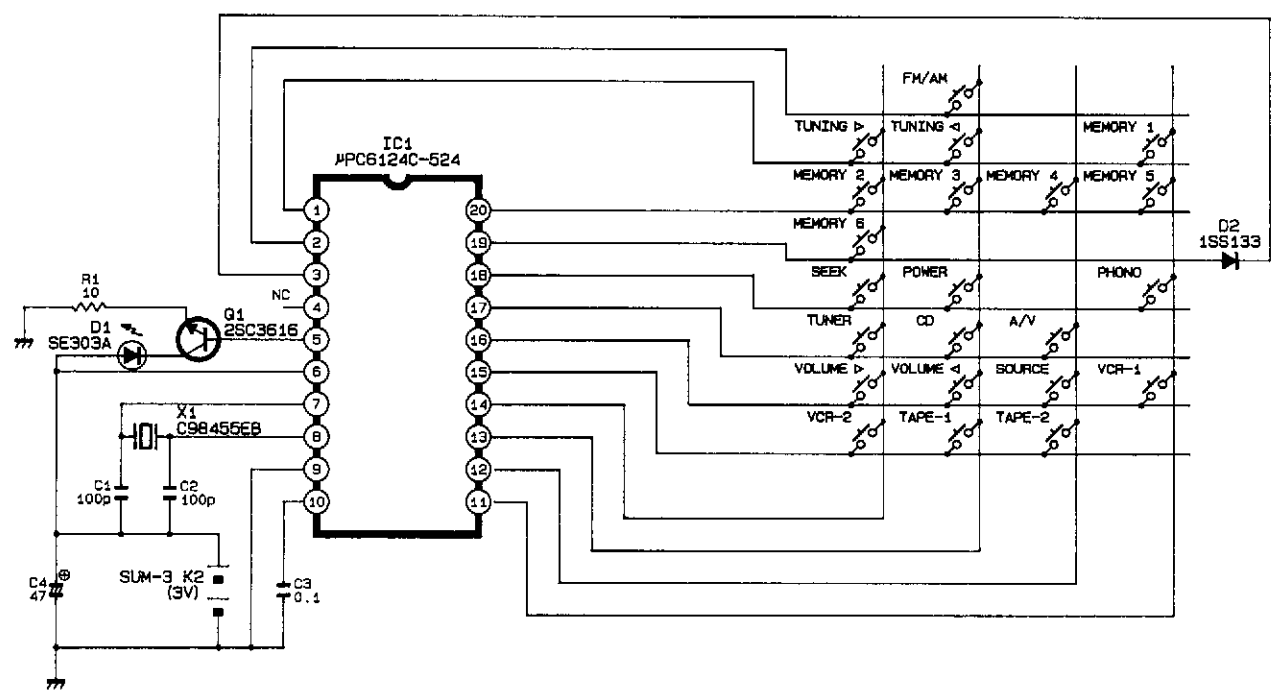
**IC801, 802 : LC7818**  
**Audio Input Record**  
**Out Selector**



**IC805 : LB1641**  
**Volume Motor Driver**



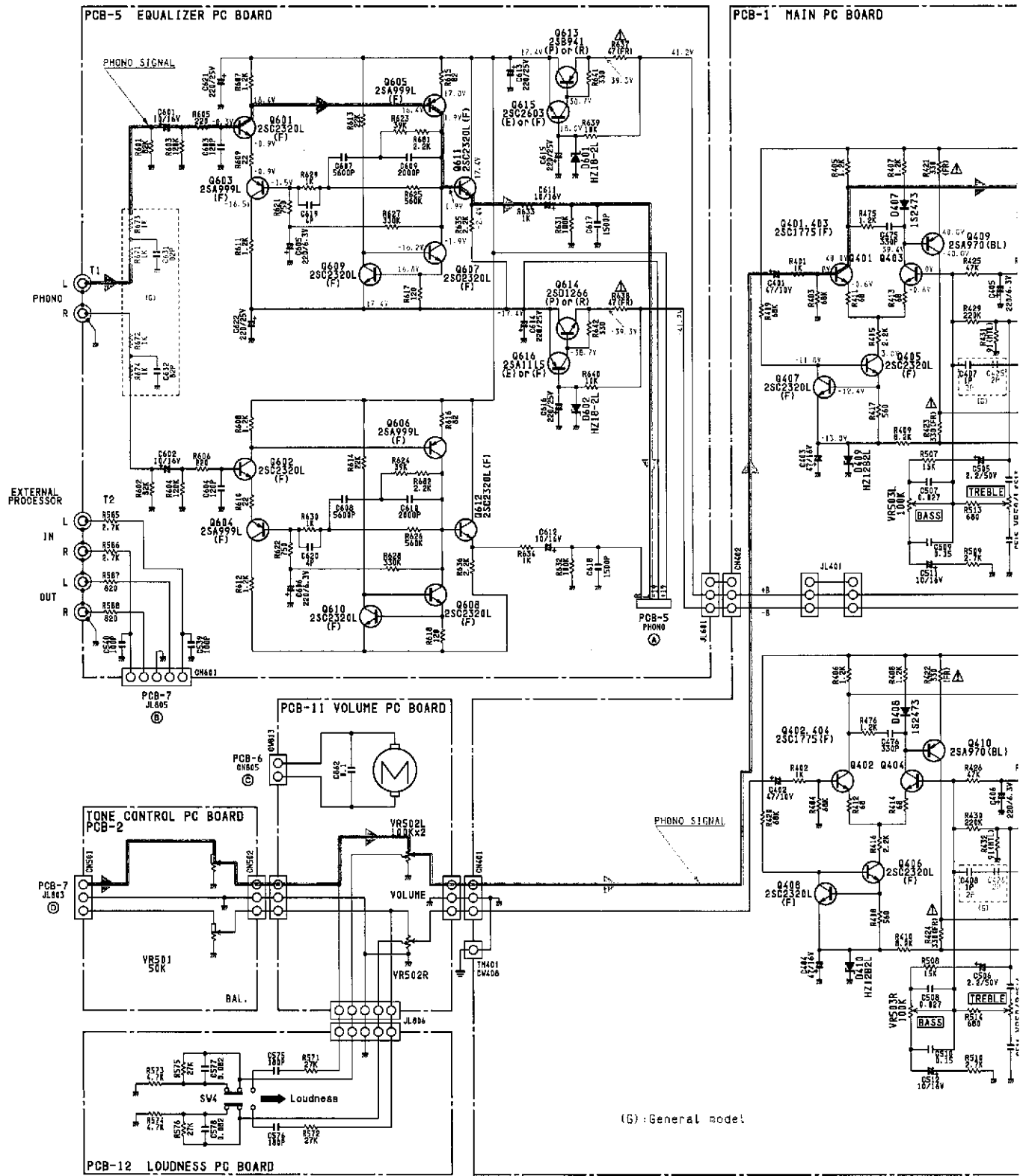
**SCHEMATIC DIAGRAM**  
**Infrared remote control**



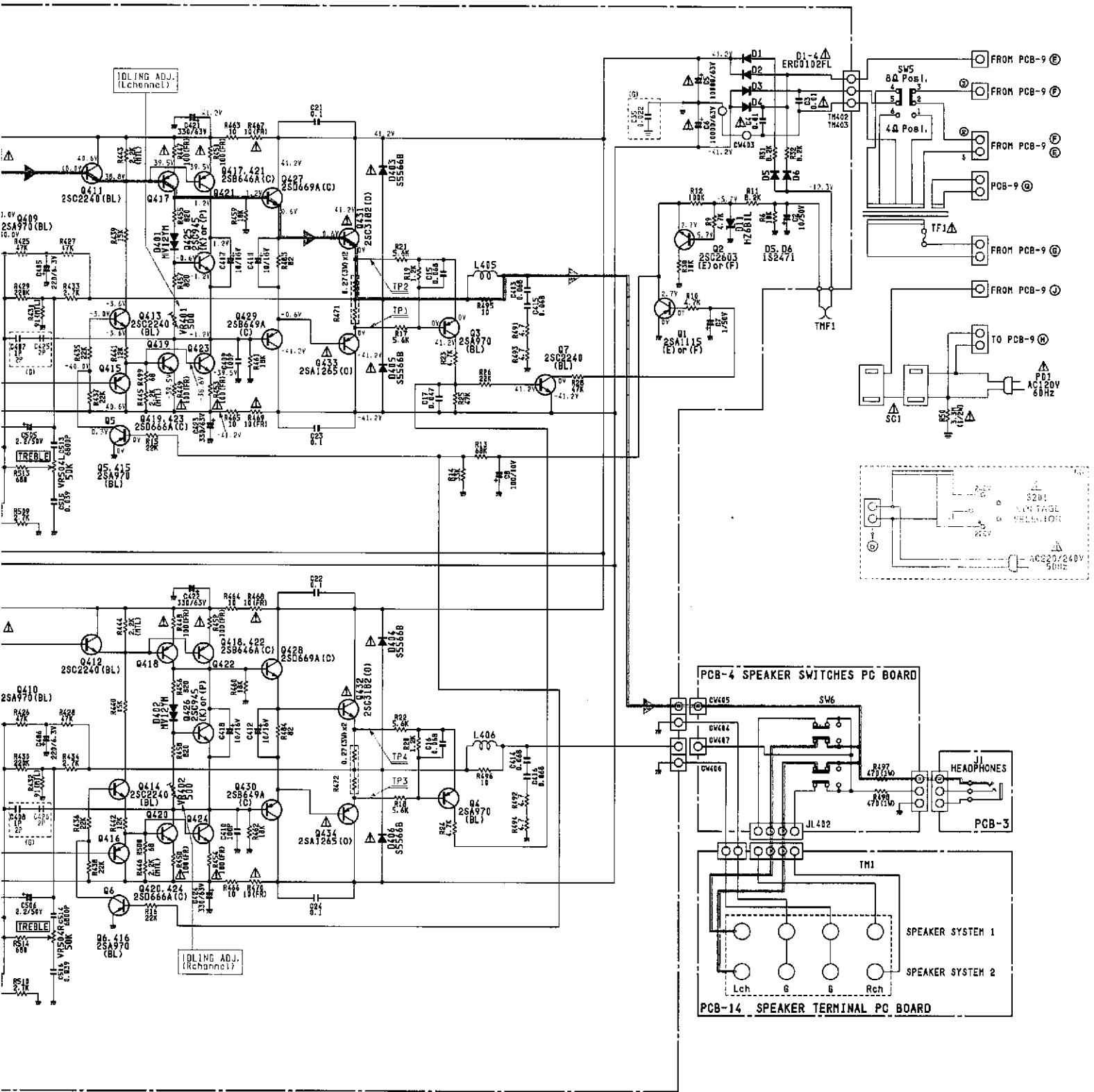
**NOTE:** Infrared remote control parts not available.  
 Schematic diagram supplied for reference only.

**SCHEMATIC DIAGRAM (1)**

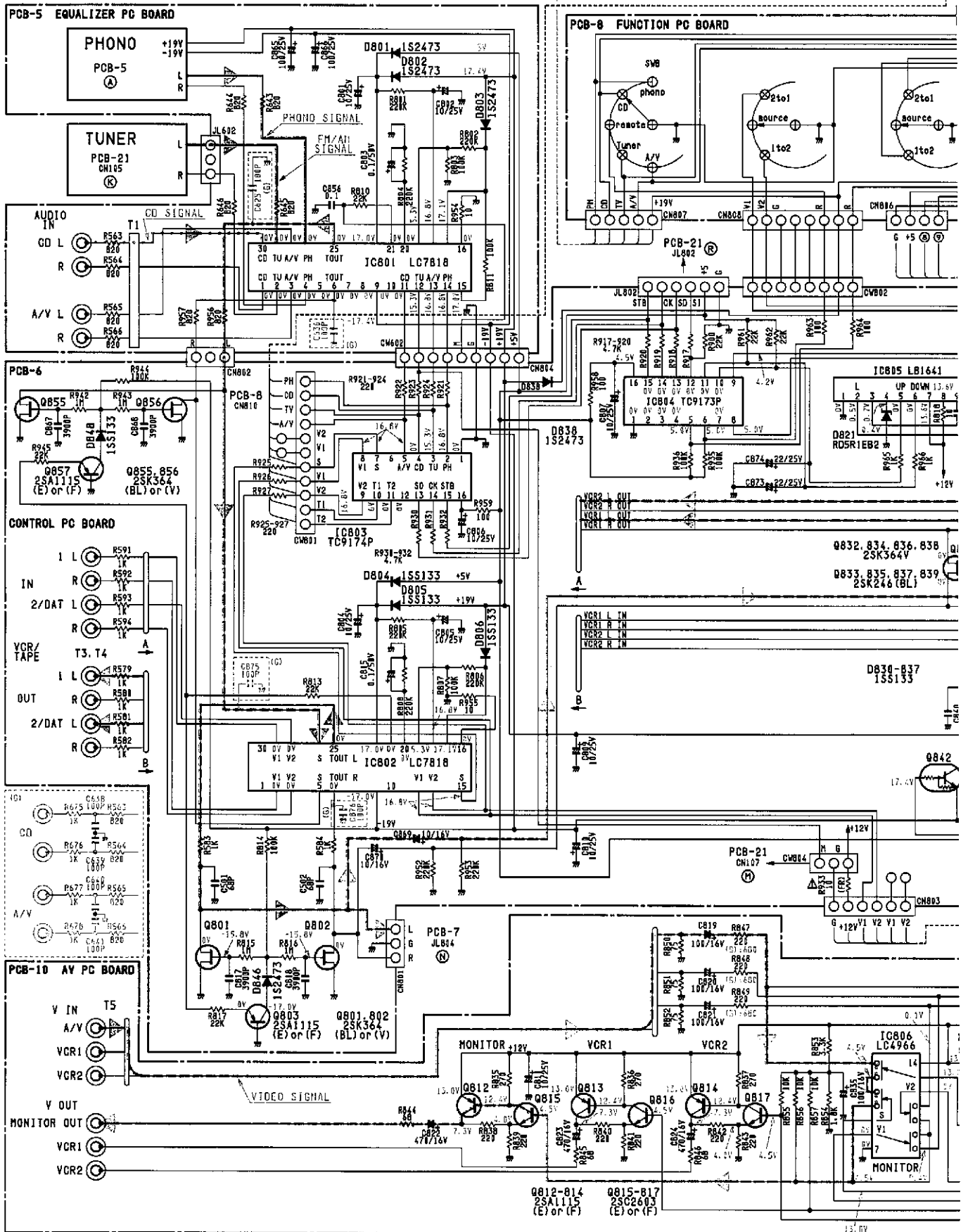
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(G) : General model



# SCHEMATIC DIAGRAM (2)



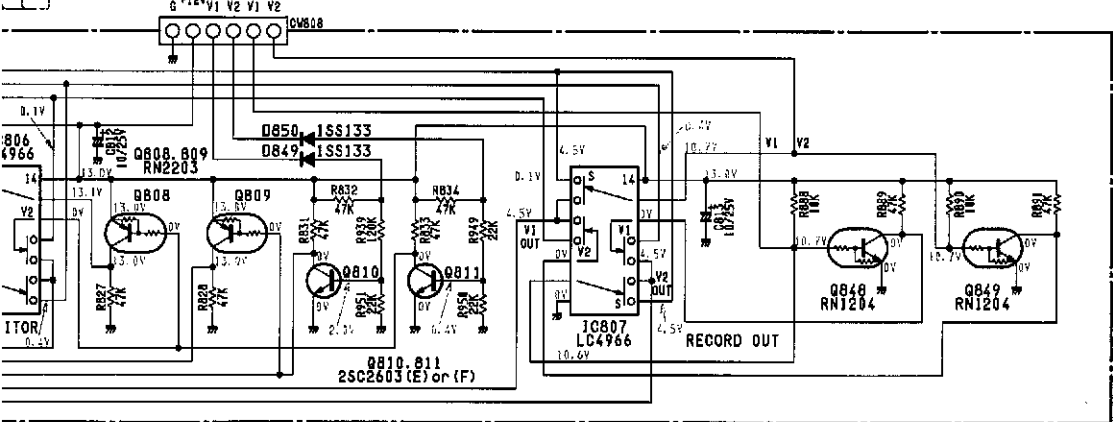
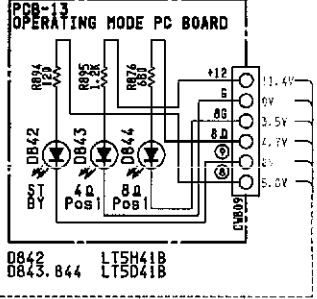
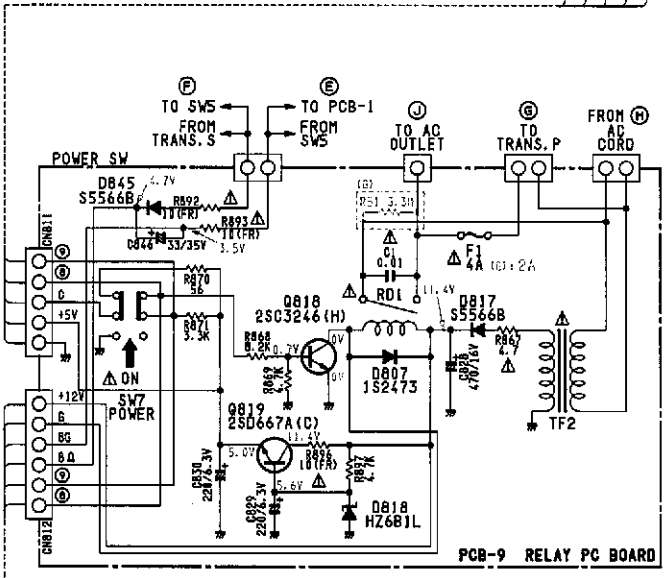
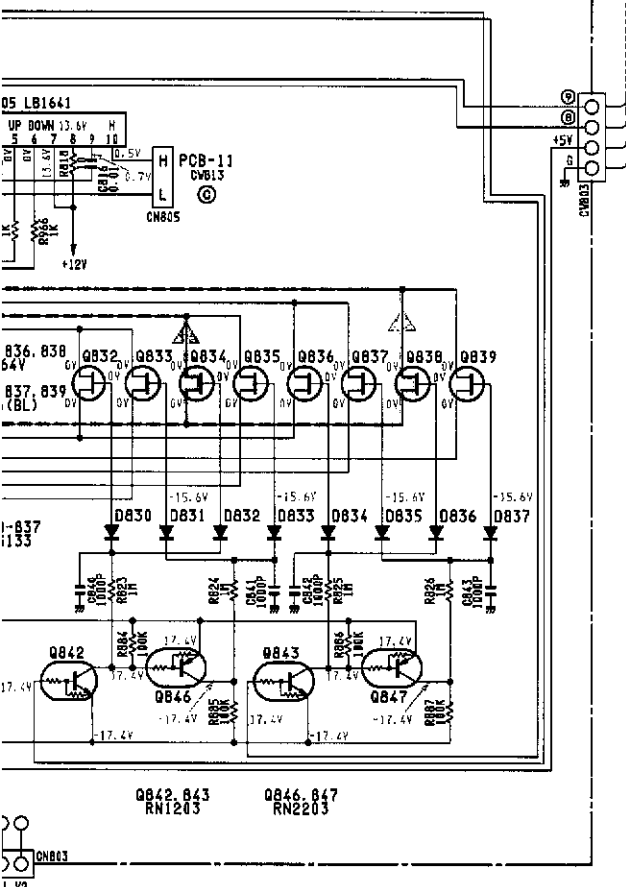
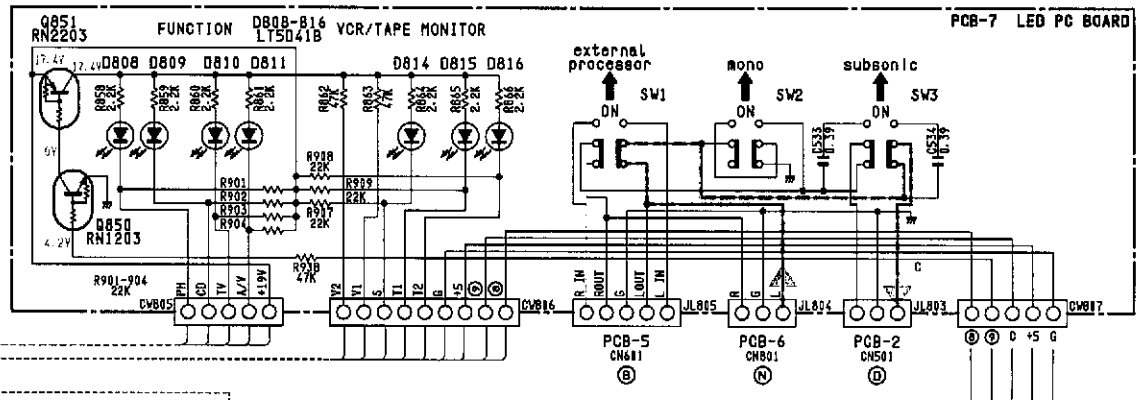
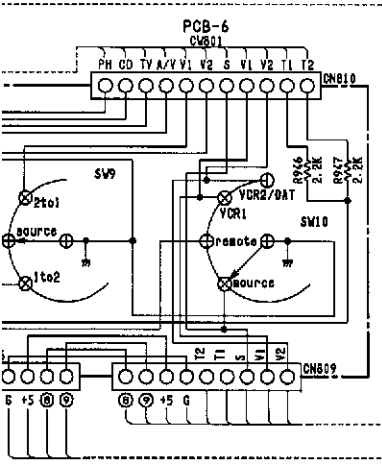
F

G

H

I

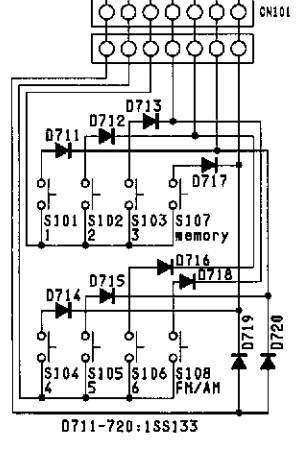
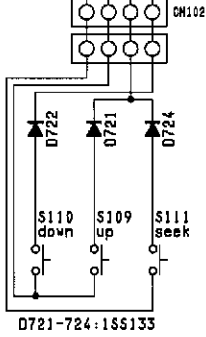
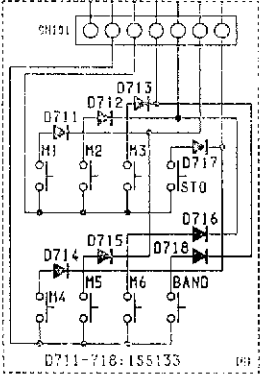
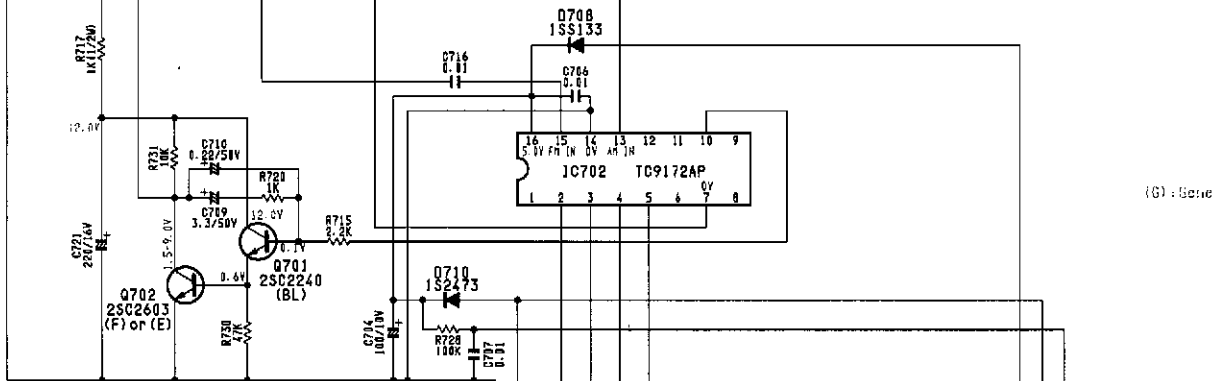
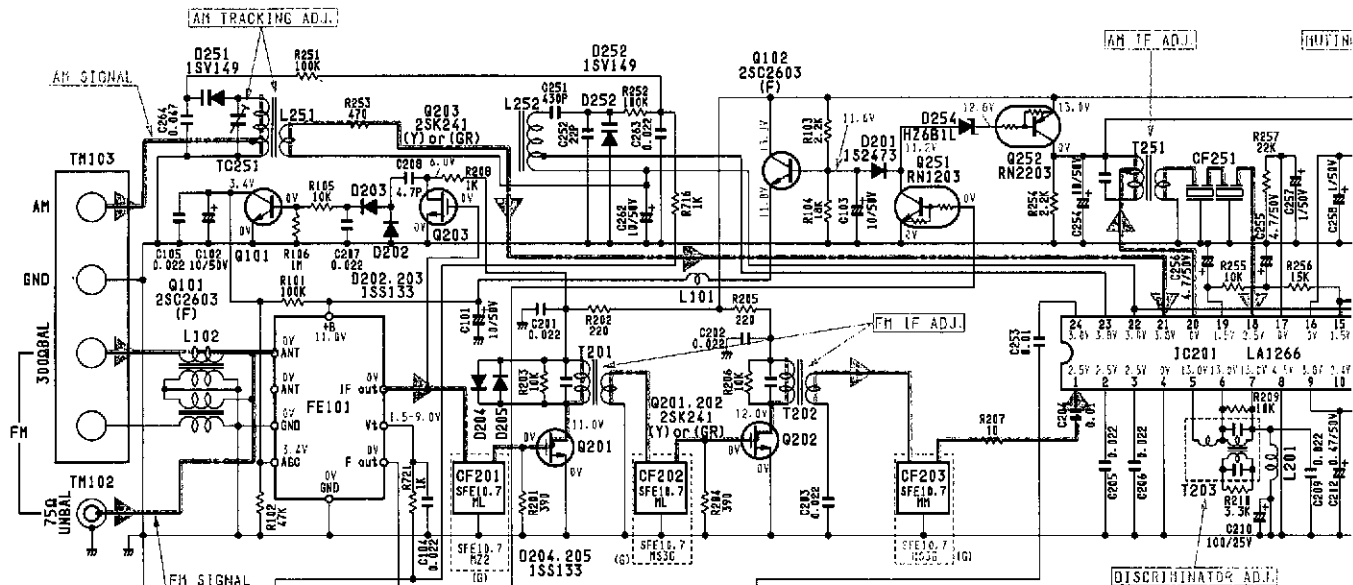
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(G) General panel

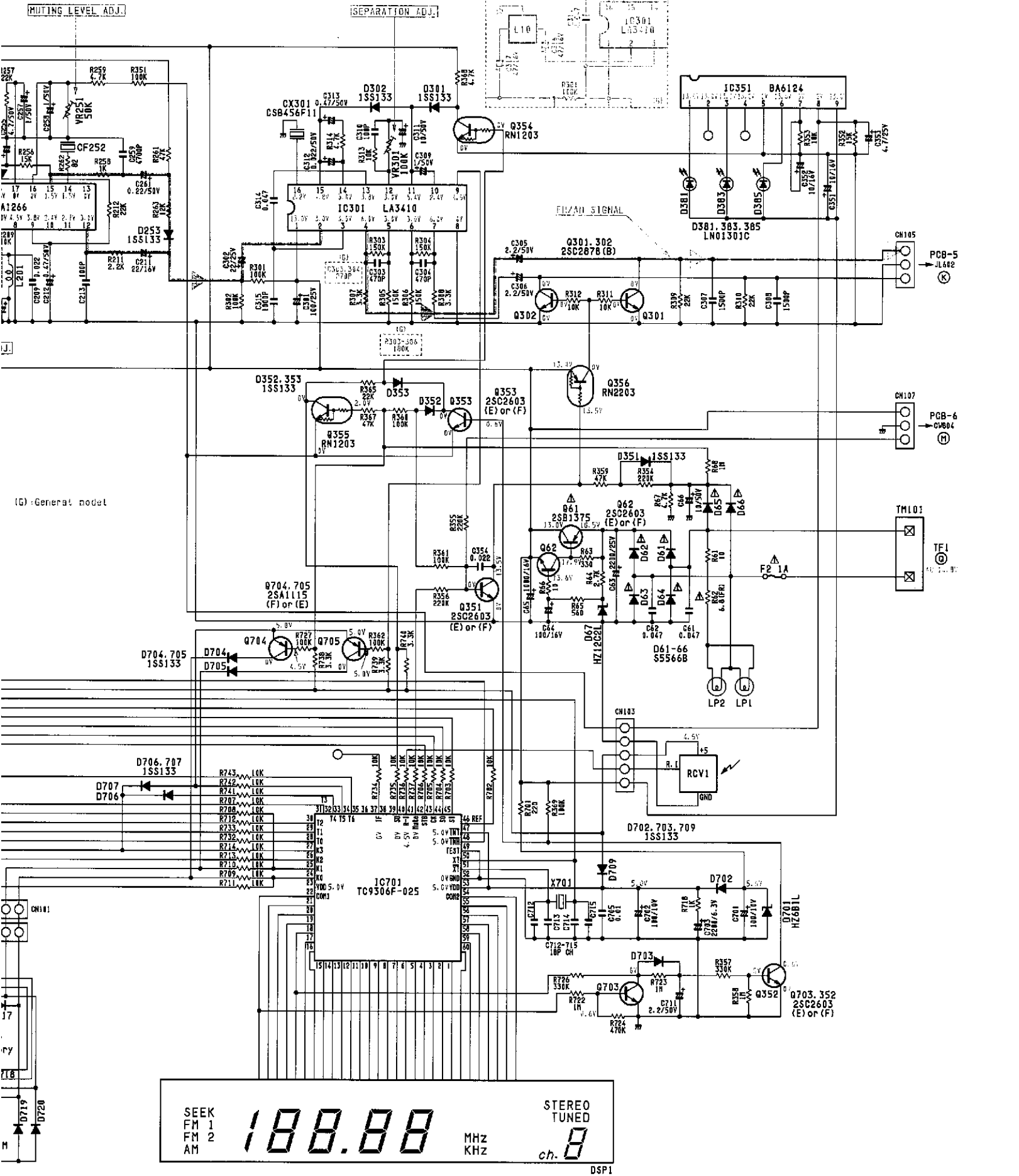


# SCHEMATIC DIAGRAM (3)

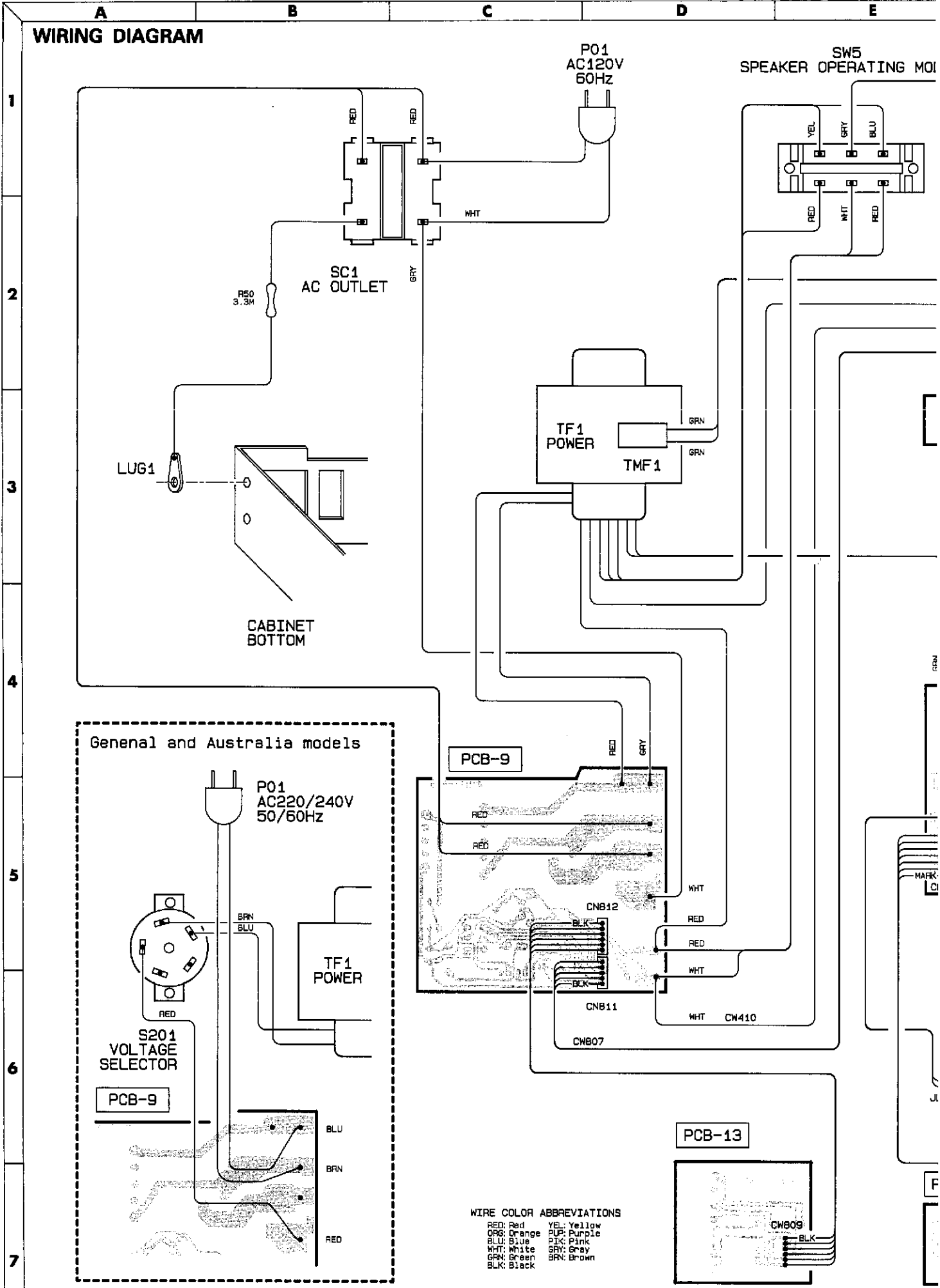


(G) - Gene

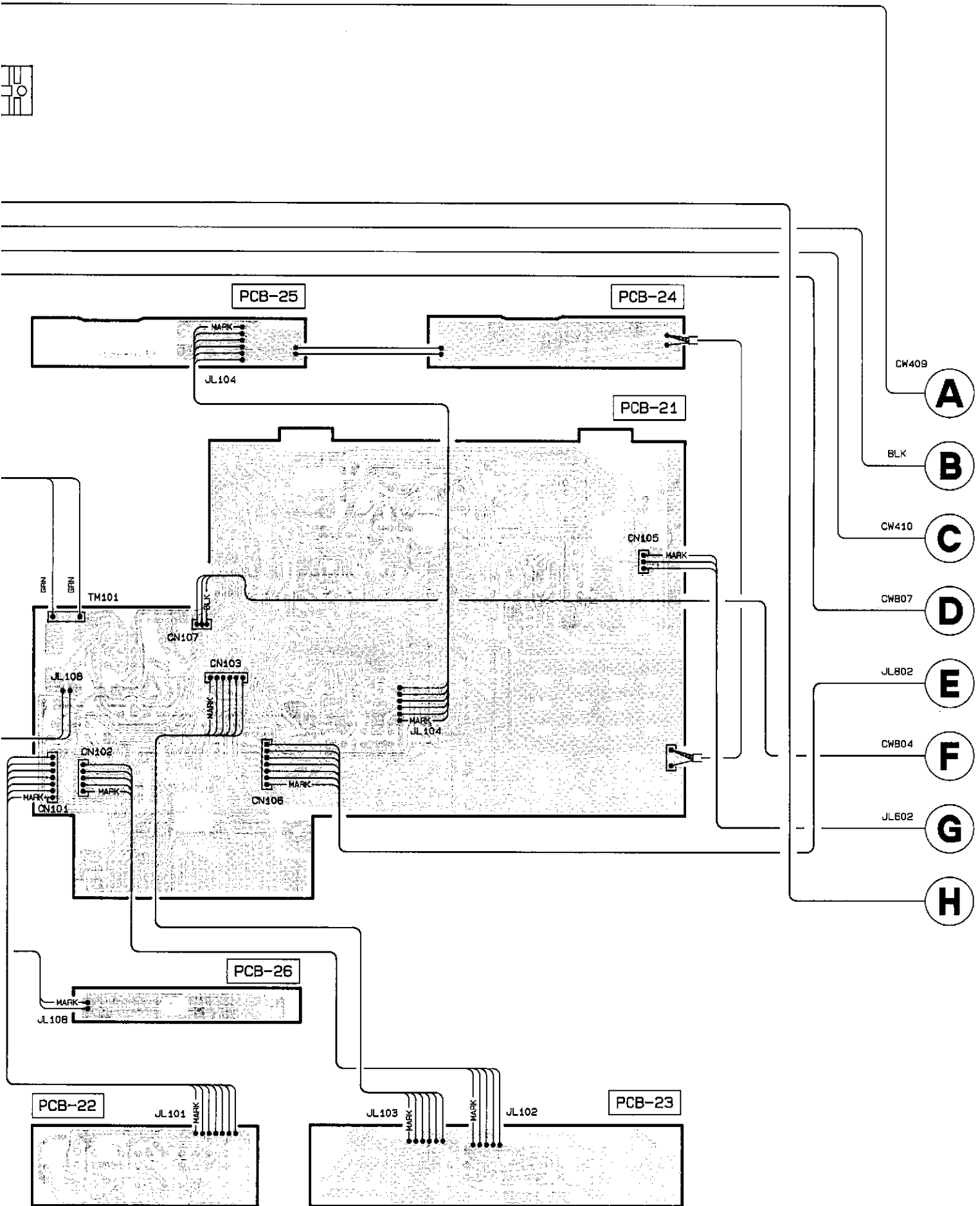
E F G H I J



(G) : General model



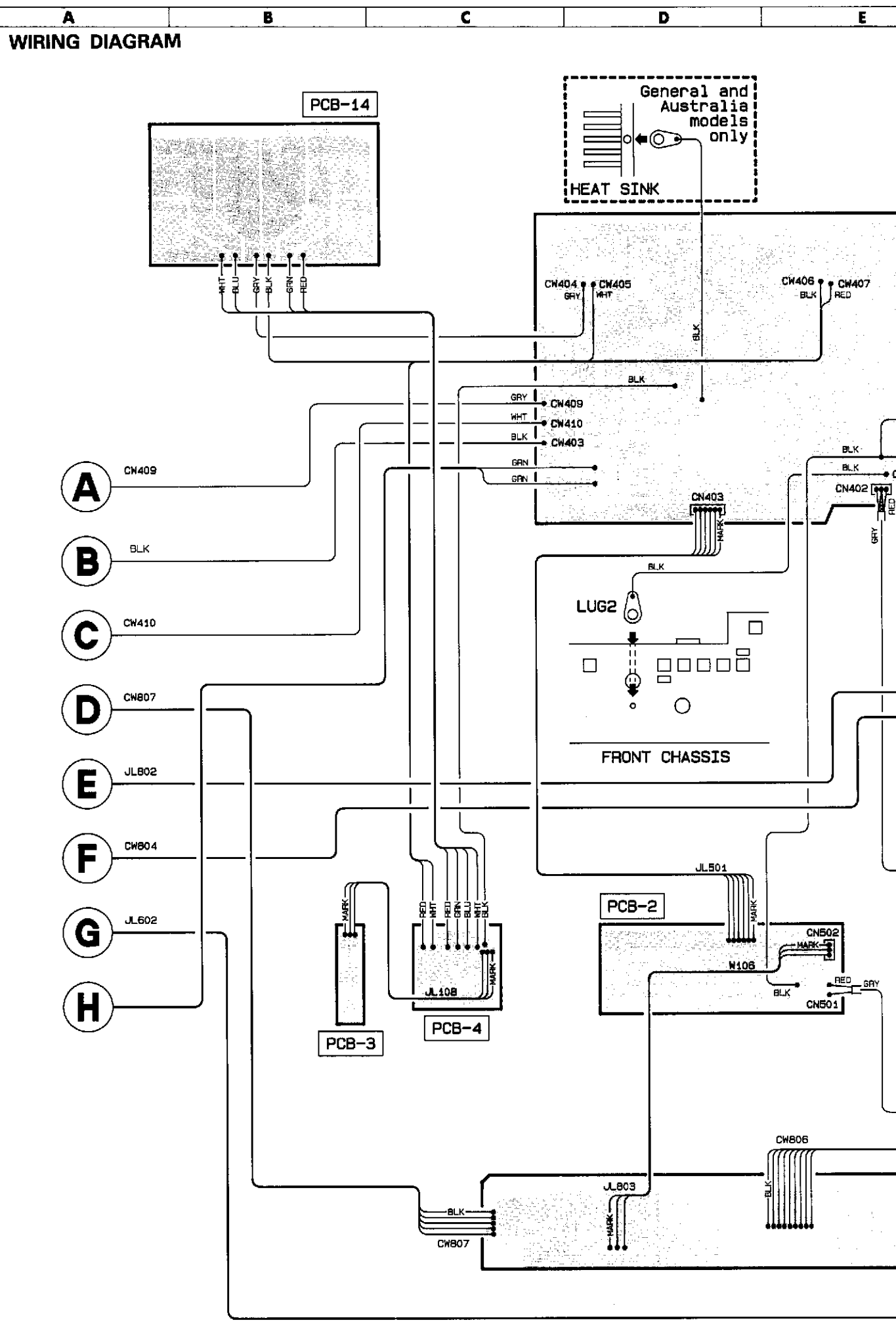
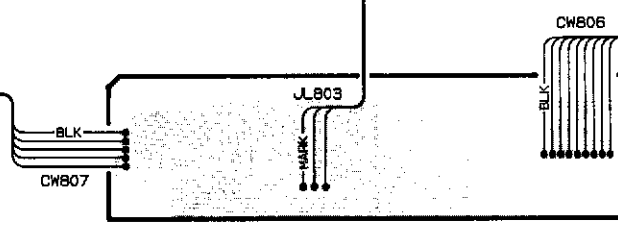
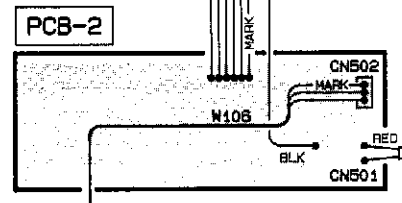
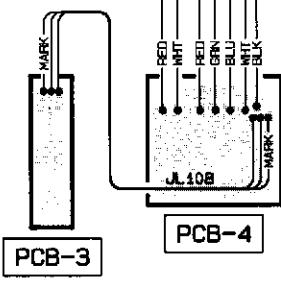
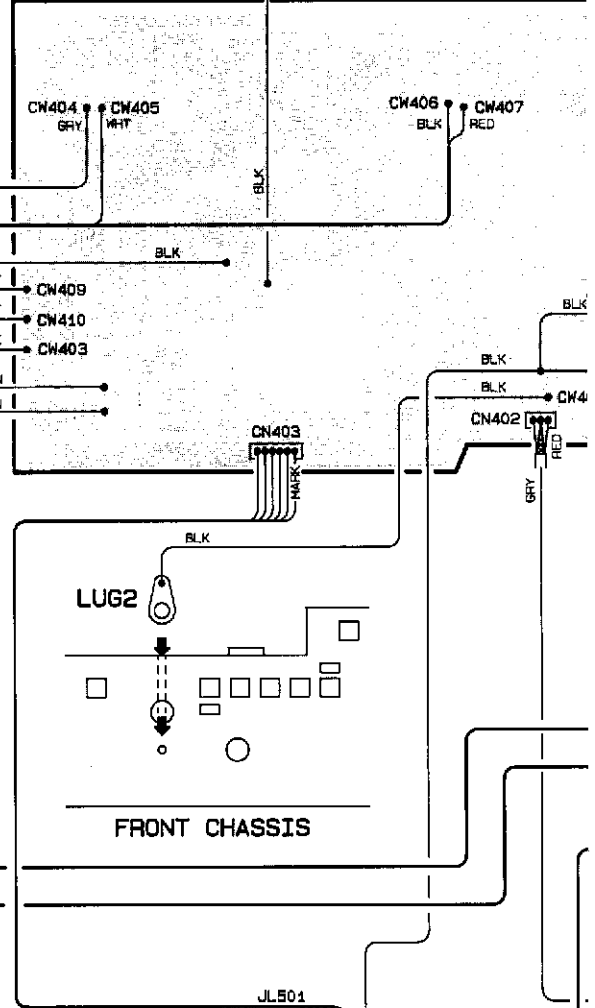
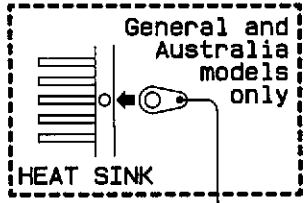
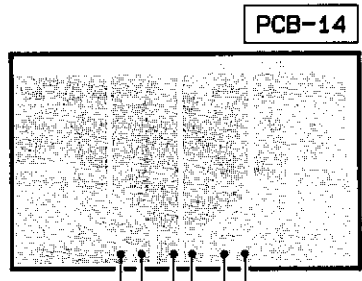
ING MODE

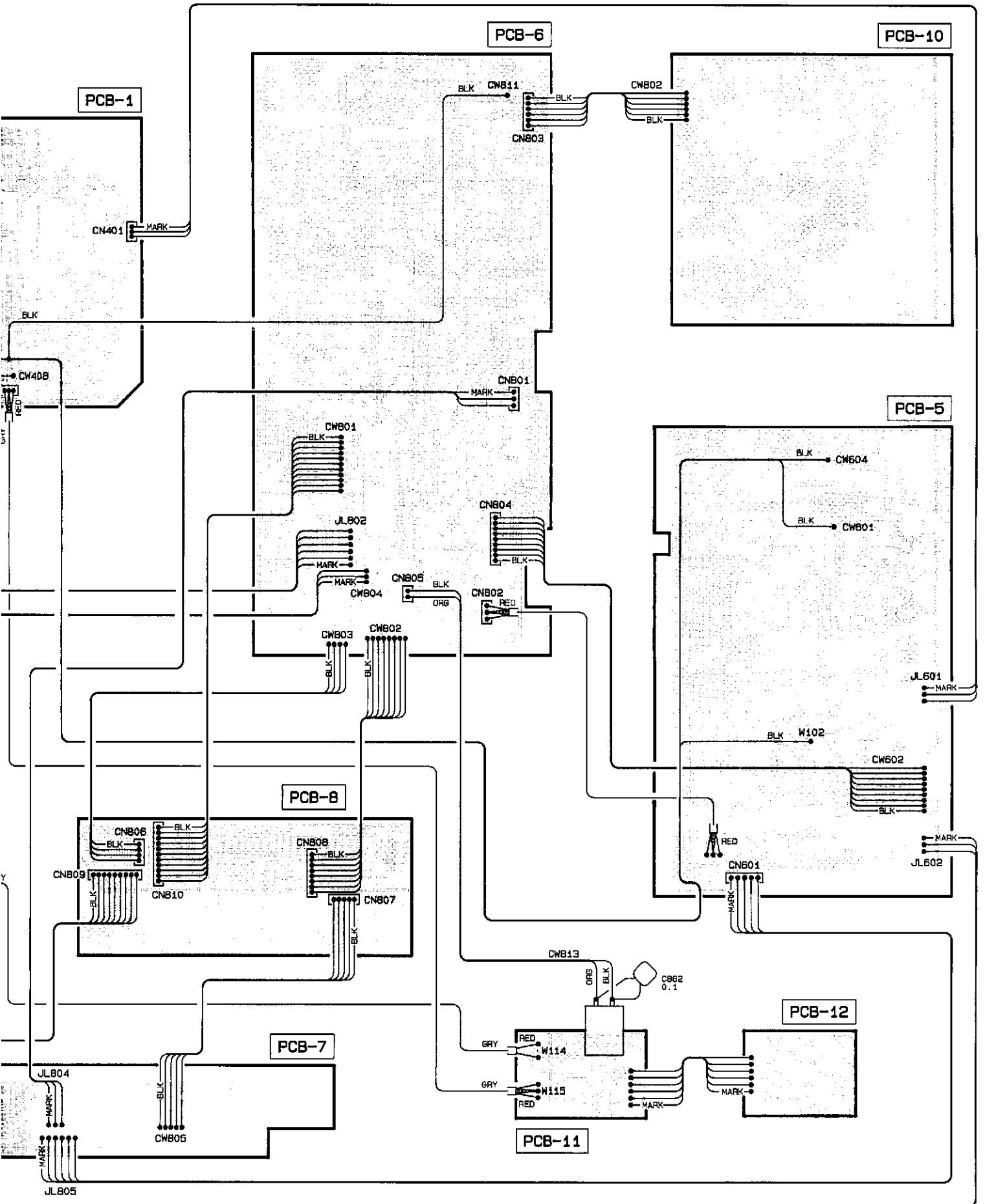


**WIRING DIAGRAM**

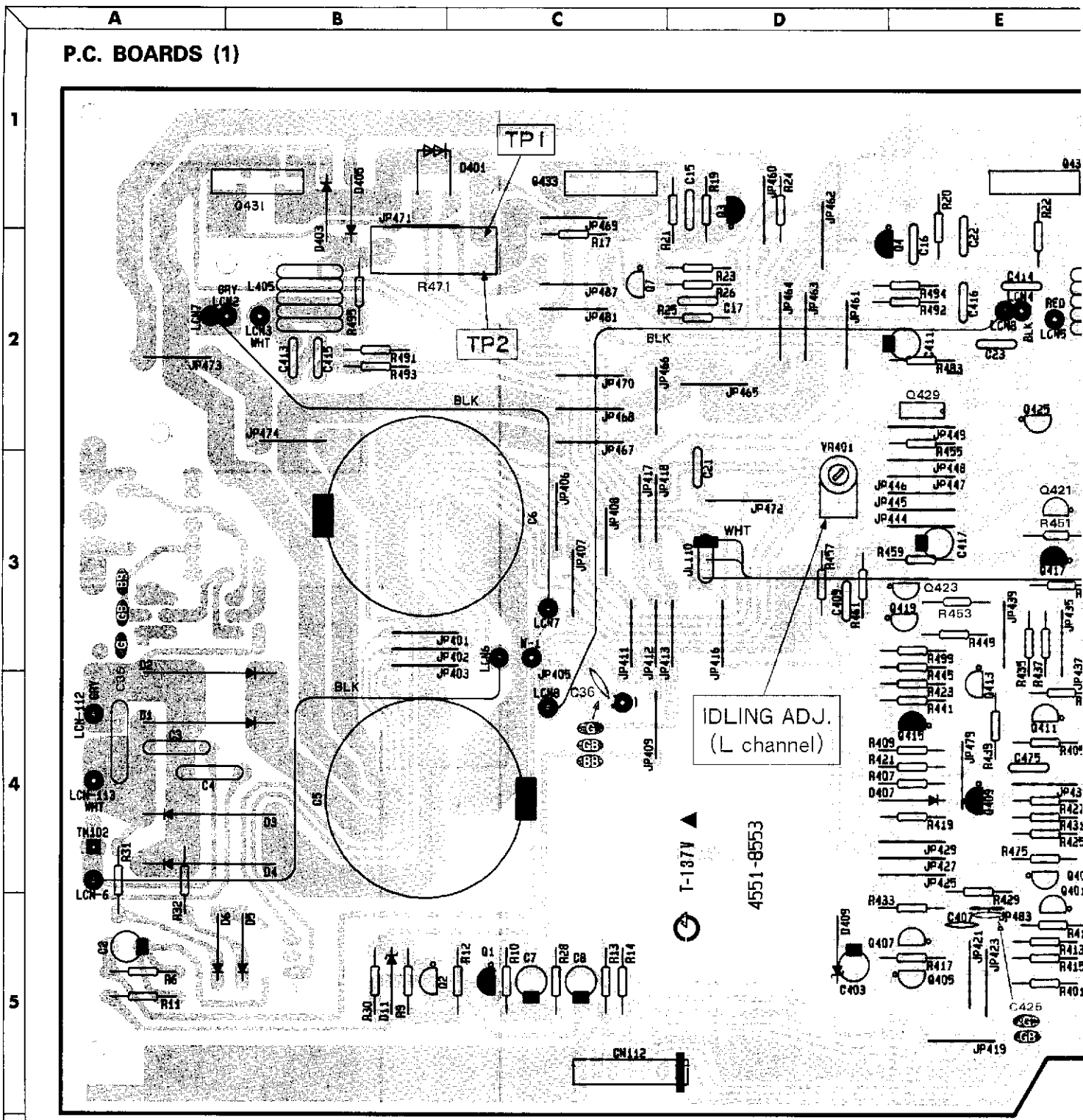
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- A** CW409
- B** BLK
- C** CW410
- D** CW807
- E** JLB02
- F** CW804
- G** JL602
- H**



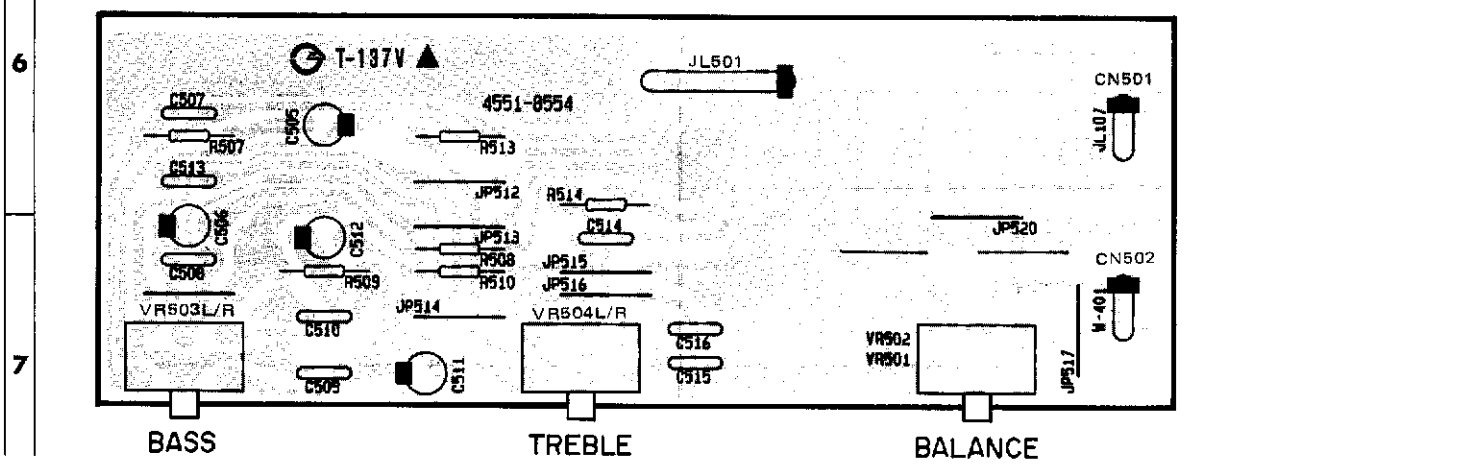


P.C. BOARDS (1)



PCB-2 Tone Control P.C. Board

PCB-3 Heat

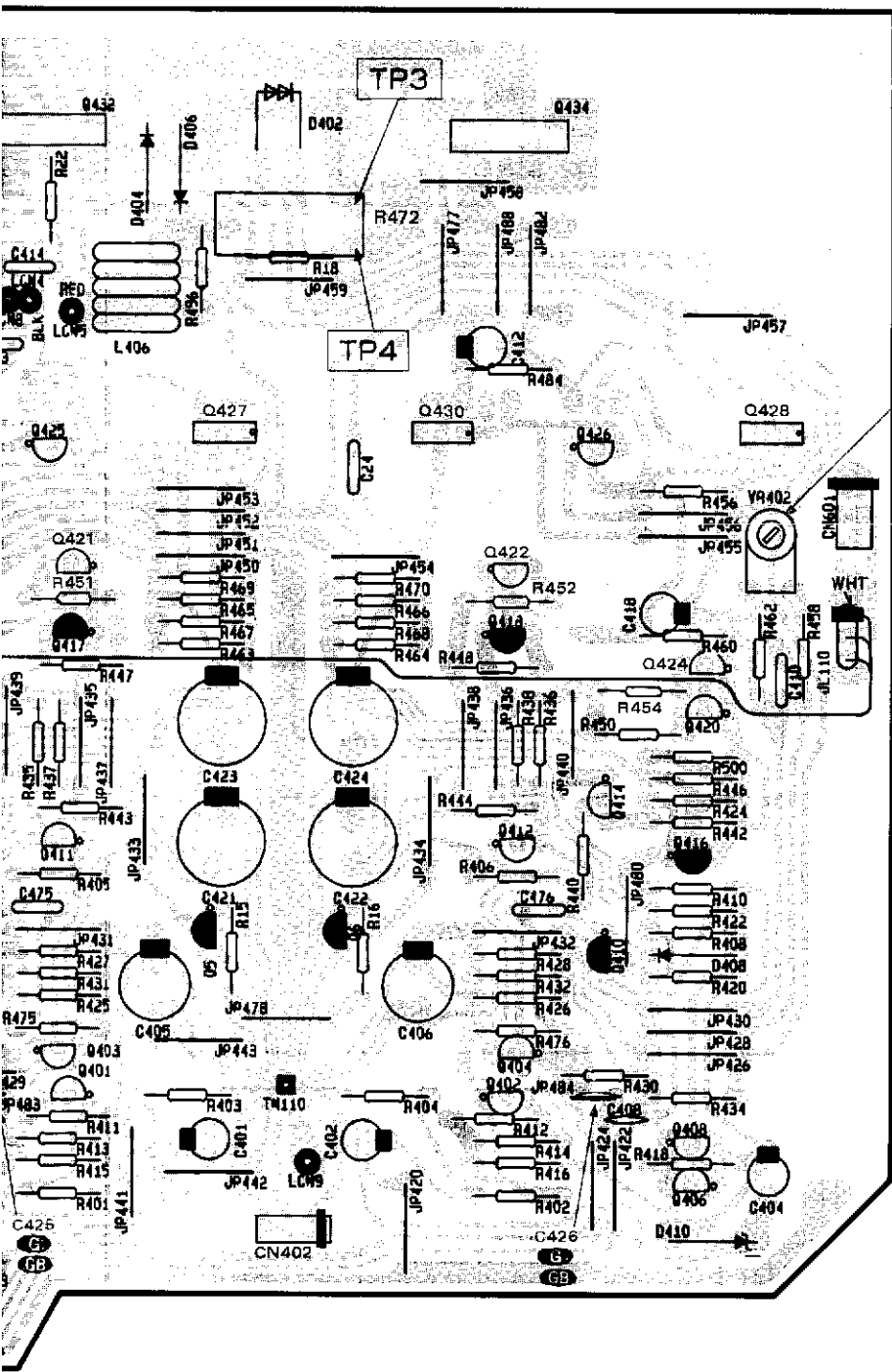


BASS

TREBLE

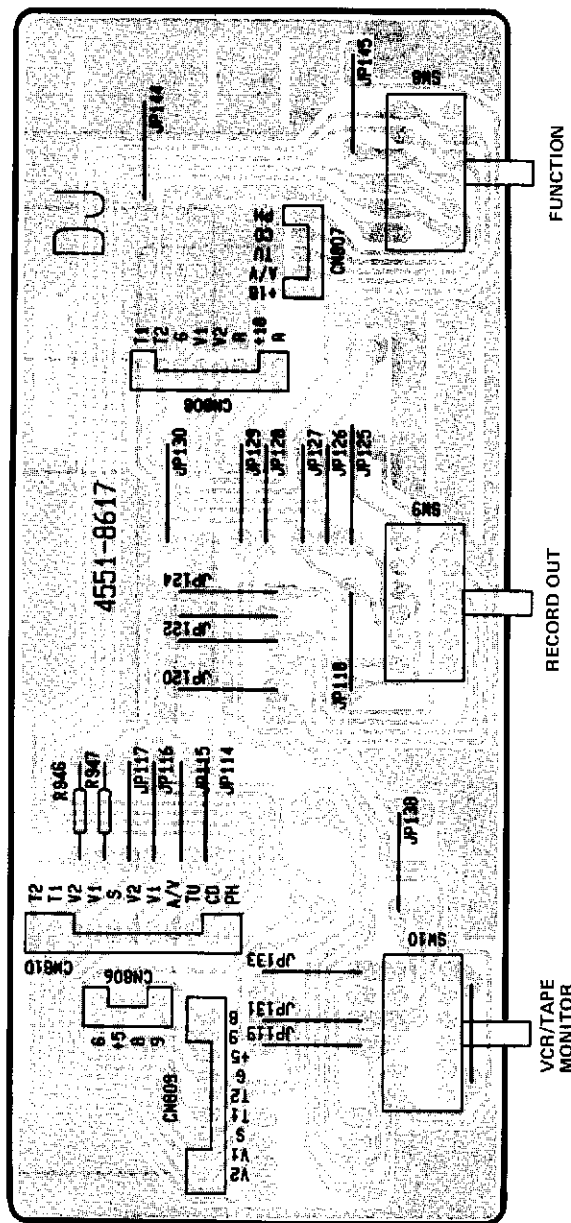
BALANCE

PCB-1 Main P.C. Board



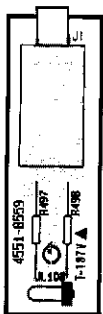
IDLING ADJ.  
(R channel)

PCB-8 Function P.C. Board



B-3 Headphone Jack P.C. Board

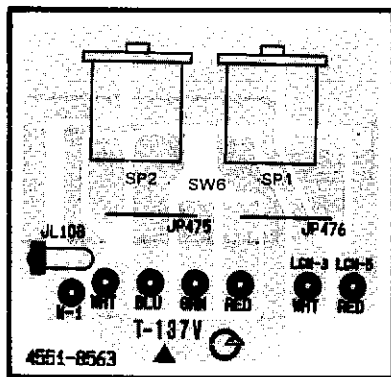
HEADPHONES



PCB-4 Speaker Switches P.C. Board

SPEAKERS

2 1



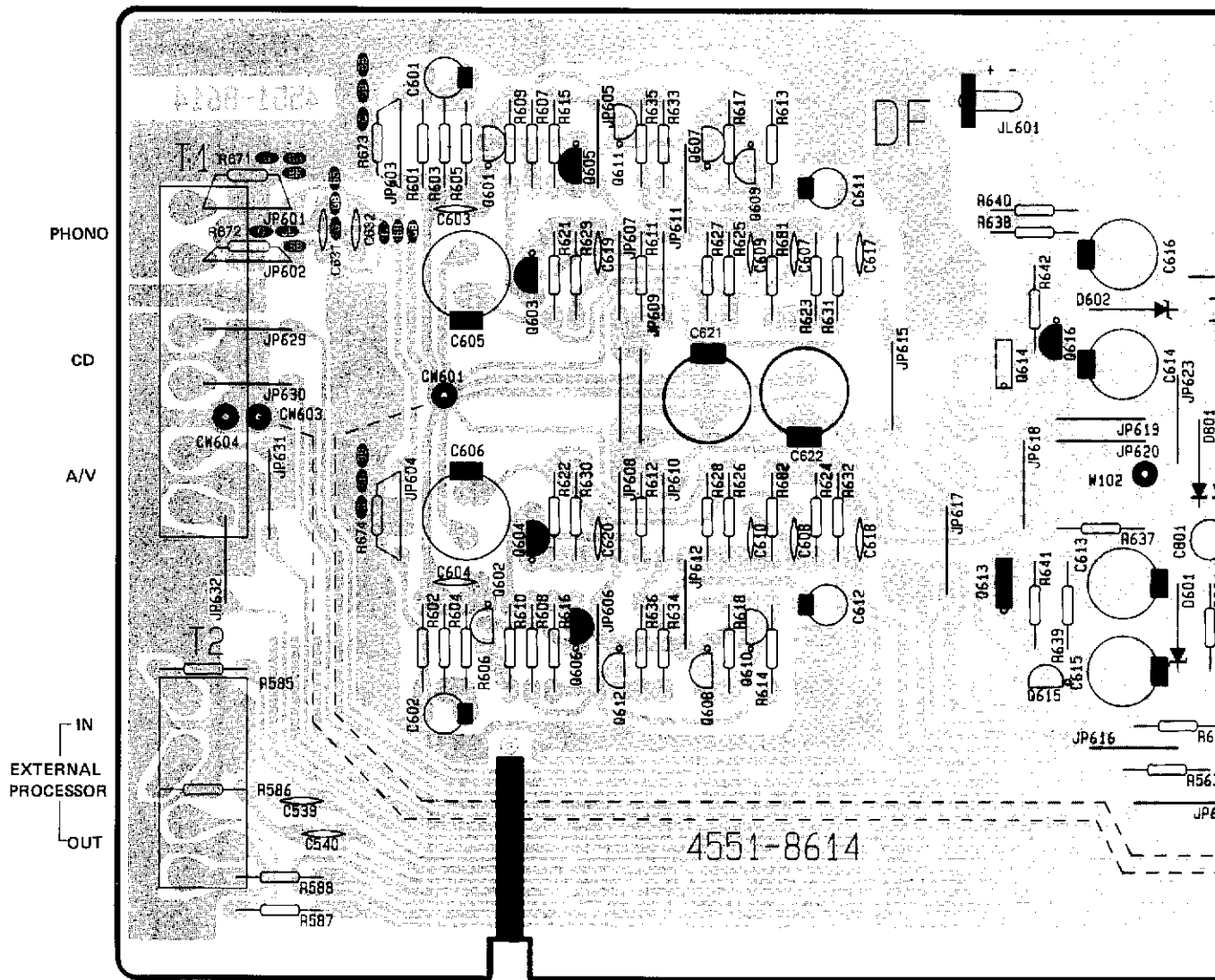
FUNCTION

RECORD OUT

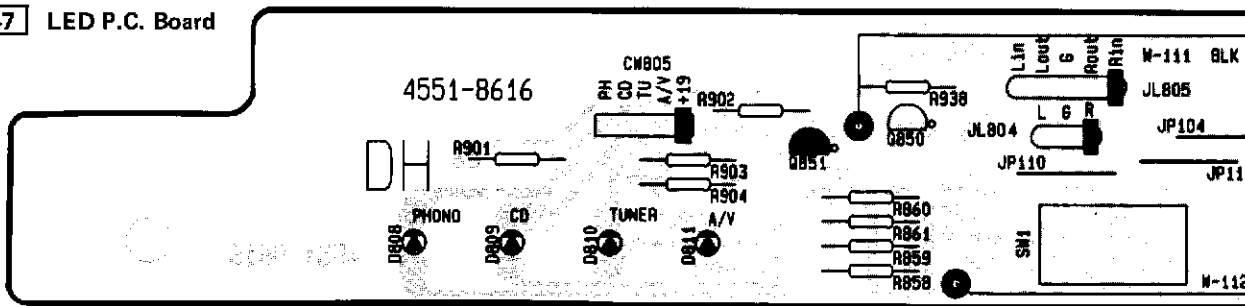
VCR/TAPE MONITOR



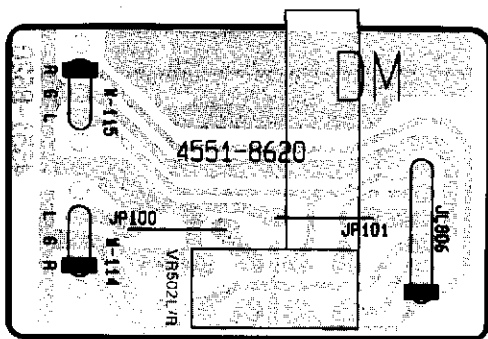
**P.C. BOARDS (2)**



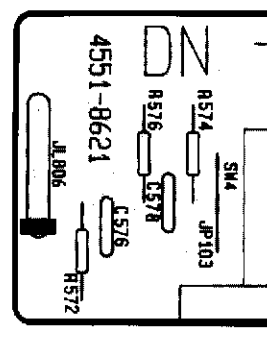
**PCB-7 LED P.C. Board**



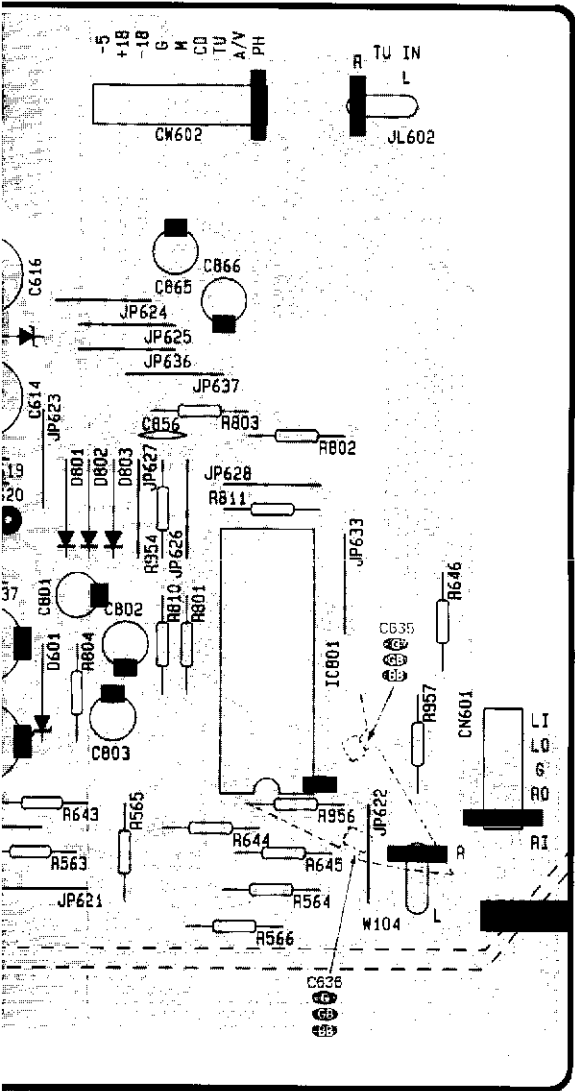
**PCB-11 Volume P.C. Board**



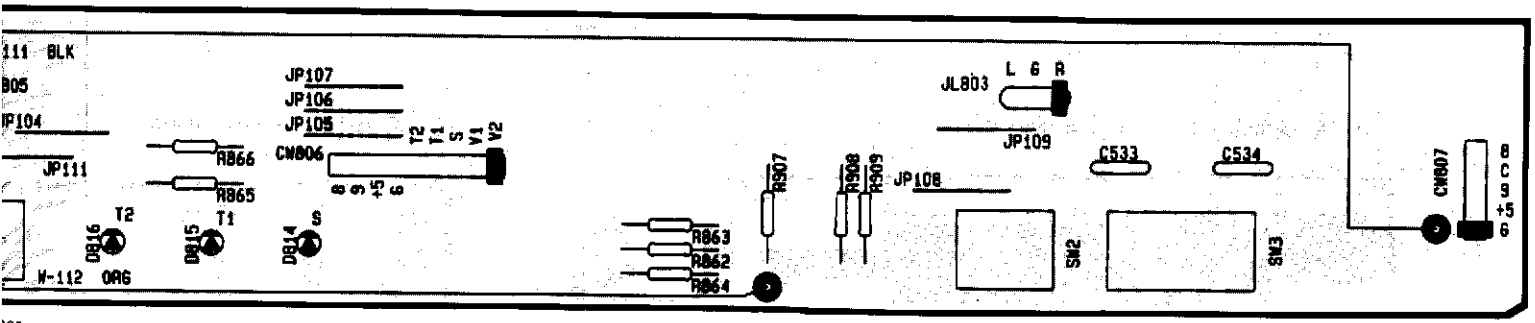
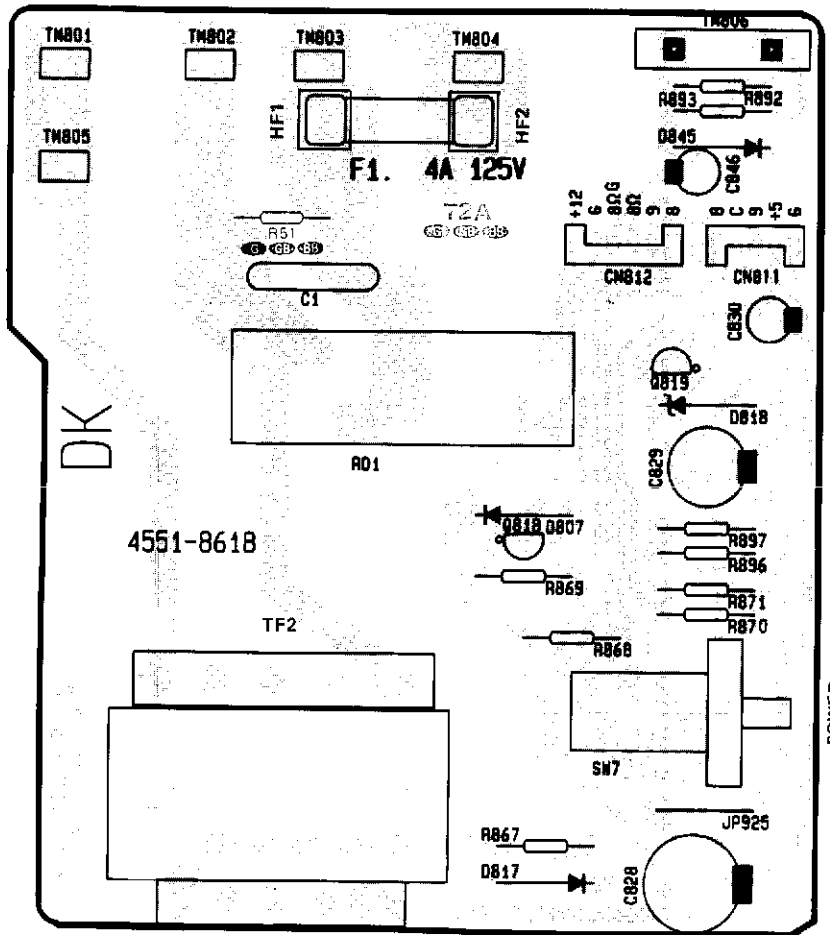
**PCB-12 Loudness P.C.**



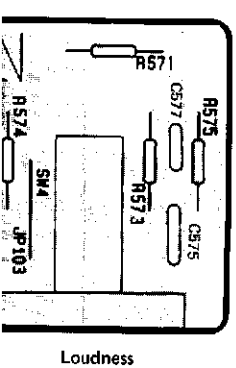
PCB-5 Equalizer P.C. Board



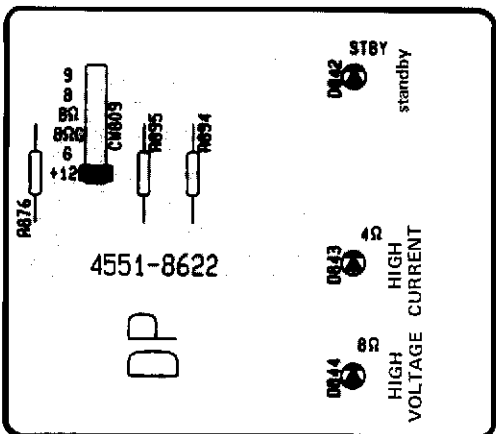
PCB-9 Relay P.C. Board



Less P.C. Board



PCB-13 Operating Mode P.C. BOARD

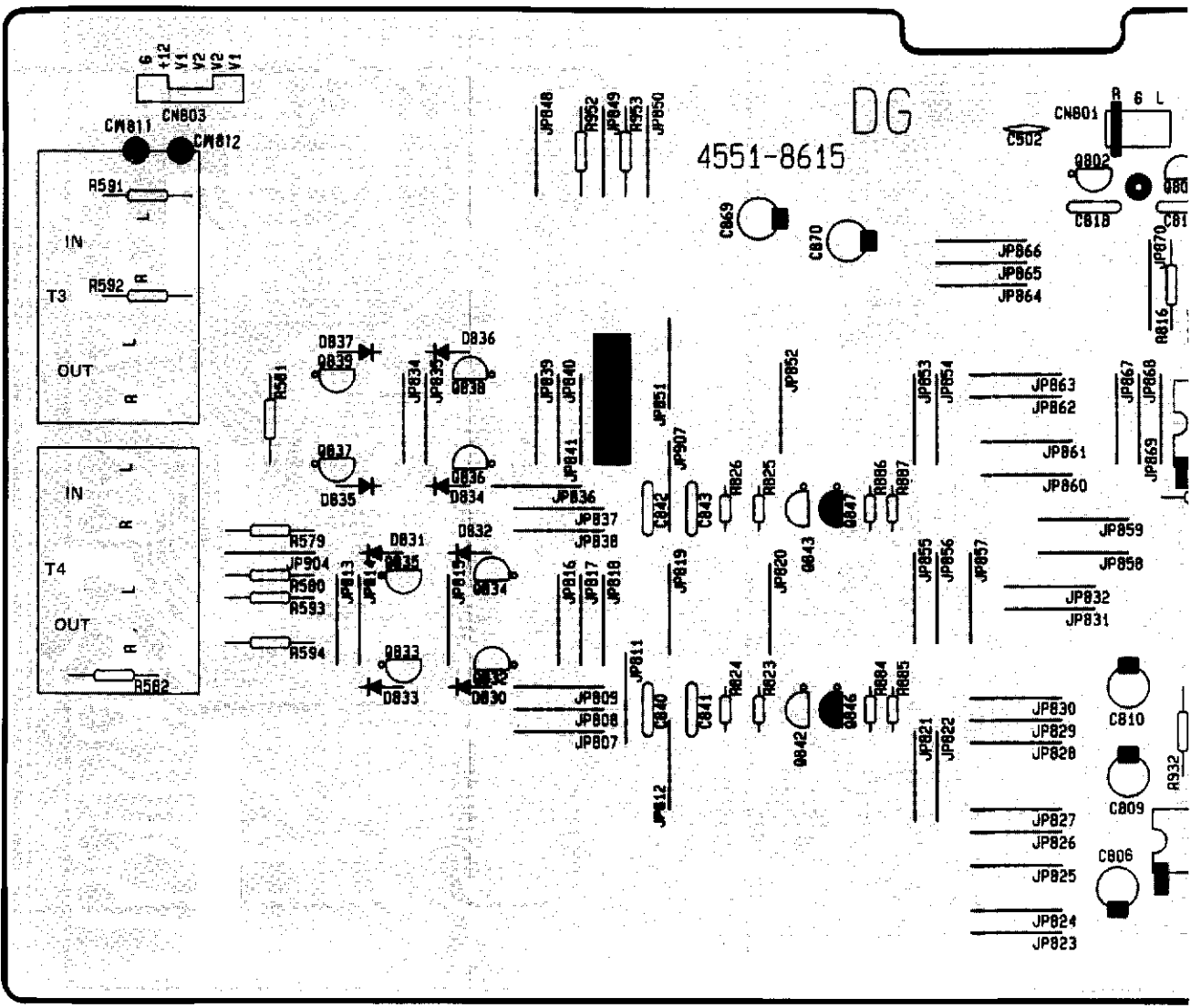


P.C. BOARDS (3)

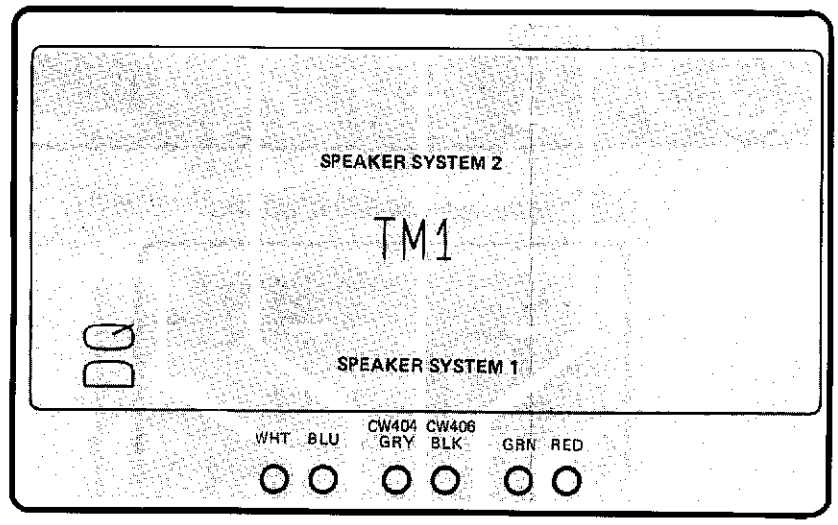
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VCR/  
TAPE

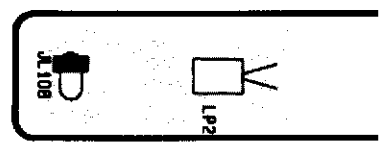
2/DAT



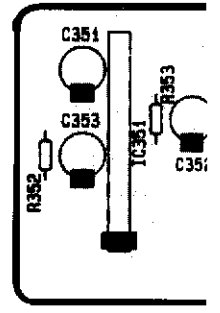
PCB-14 Speaker Terminal P.C. Board



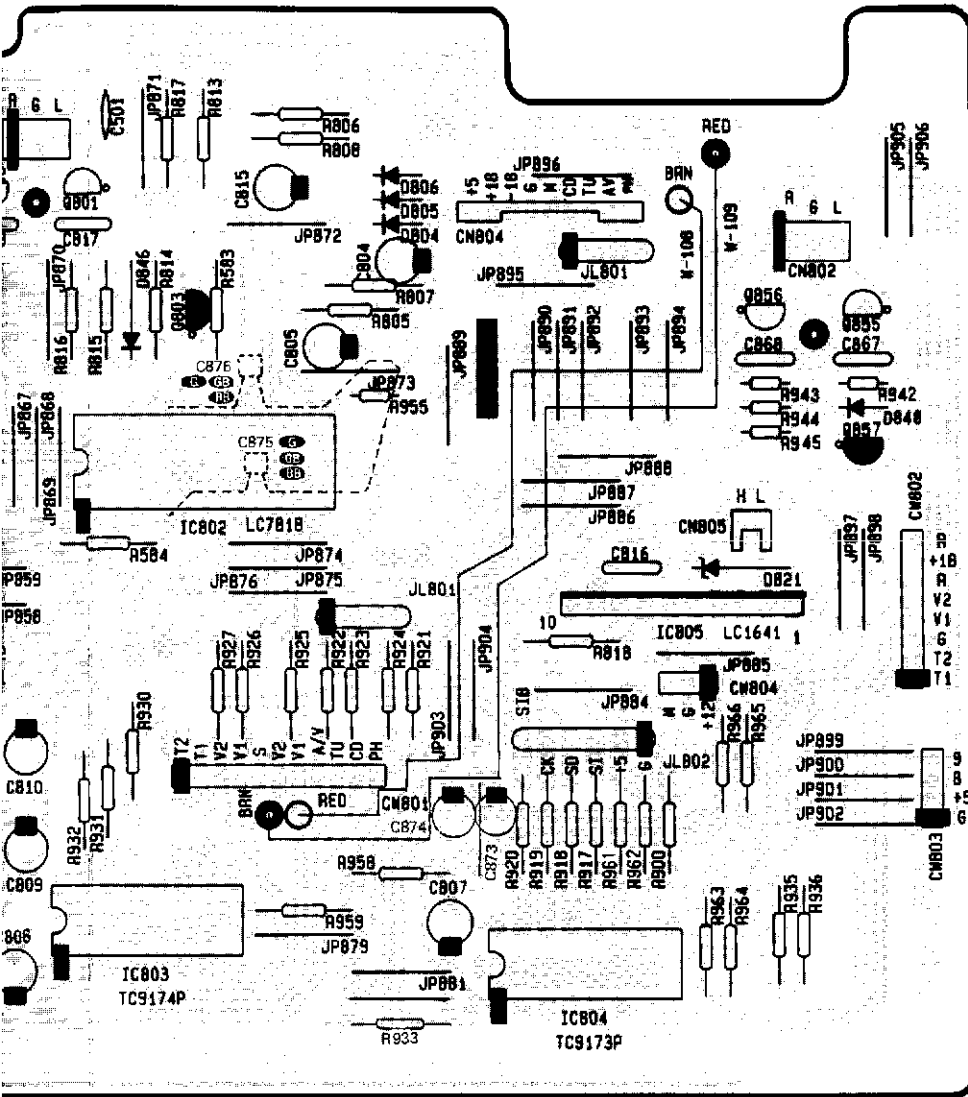
PCB-26 Lamp P.C. Board



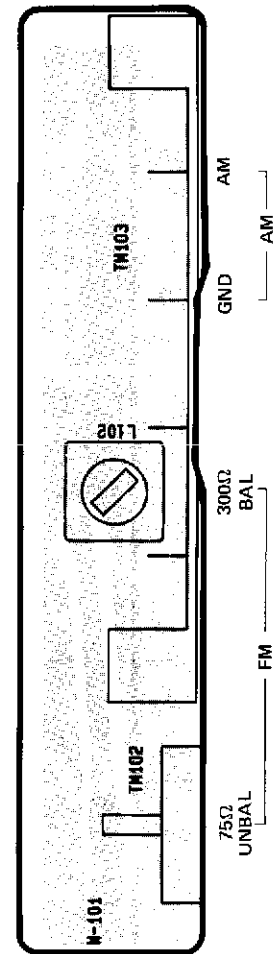
PCB-23 Tuner



PCB-6 Control P.C. Board

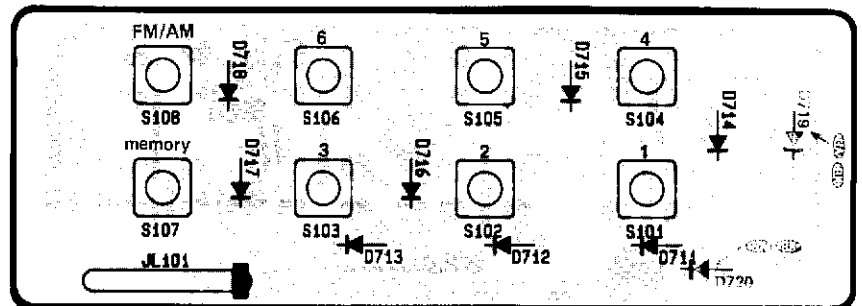


PCB-24 Antenna Terminal P.C. Board

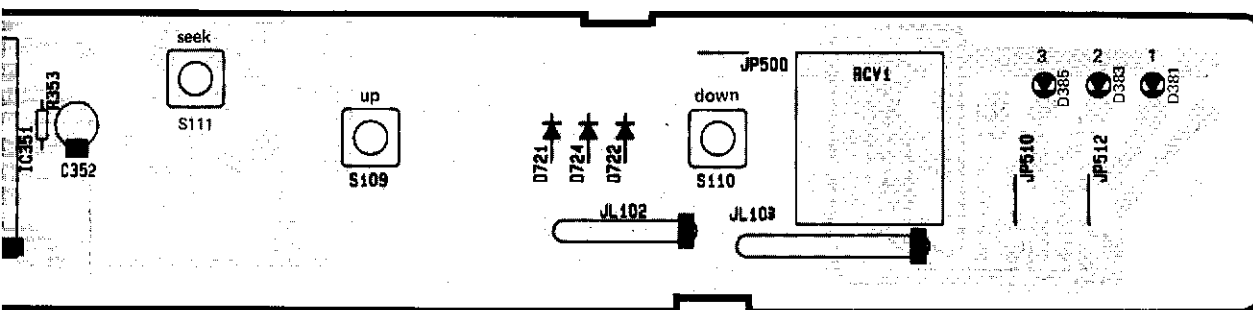


PCB-22 Tact Switches P.C. Board

FM/AM PRESET MEMORY



23 Tuning Switch P.C. Board



A

B

C

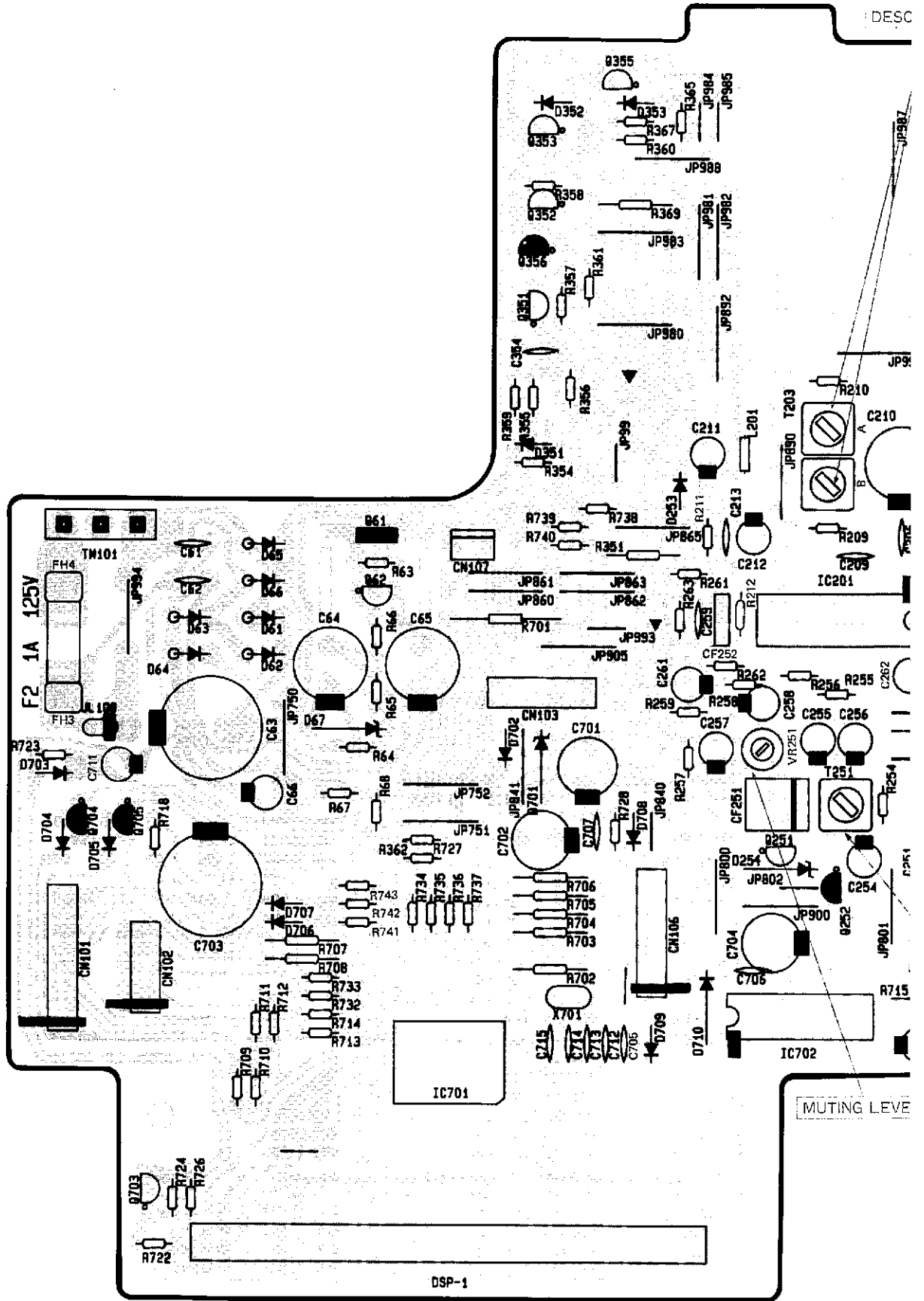
D

E

# P.C. BOARDS (4)

## PCB-21 Tuner P.C. Board

DESC

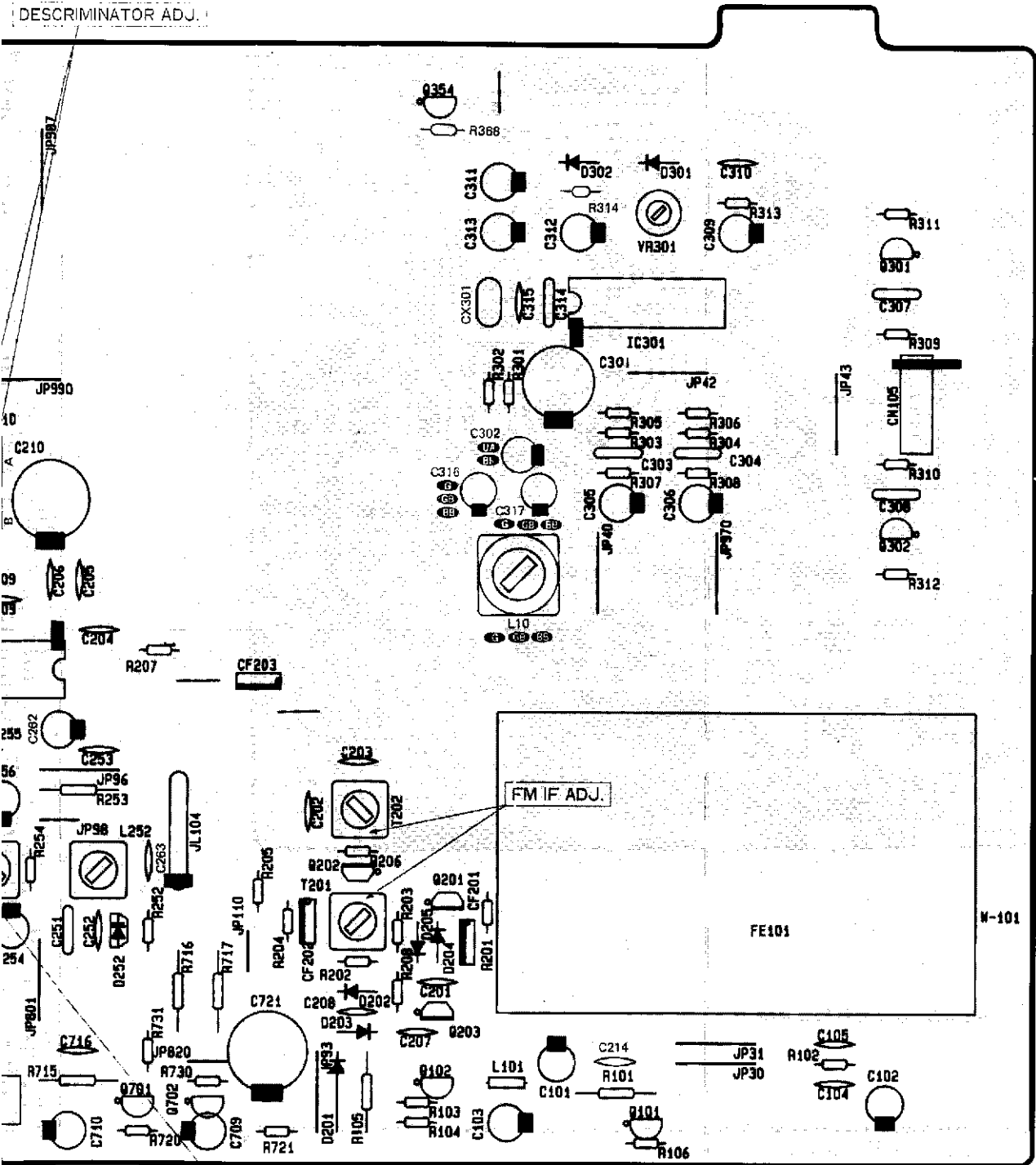


1  
2  
3  
4  
5  
6  
7

MUTING LEVEL

DSP-1

DISCRIMINATOR ADJ.



G LEVEL ADJ.

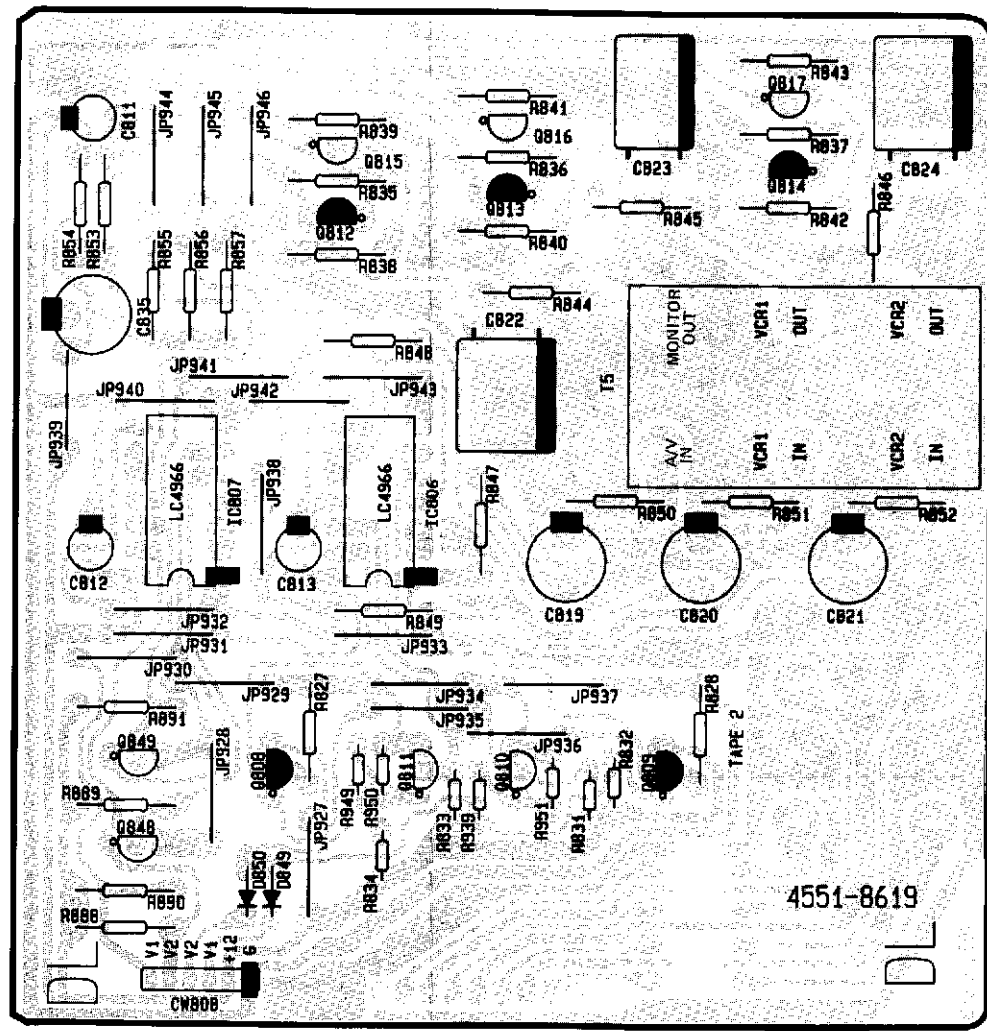
AM IF ADJ.

A B C D E

P.C. BOARDS (5)

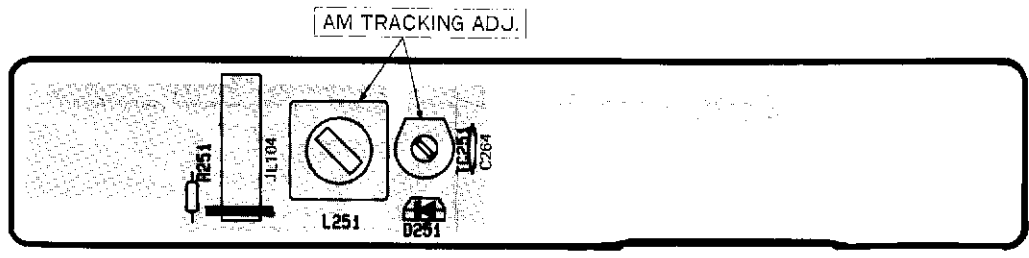
1  
2  
3  
4  
5  
6  
7

PCB-10 AV P.C. Board



4551-8619

PCB-25 AM adjustment P.C. Board





















Ser. No. Ref. No. Part No. Description

**ABBREVIATIONS IN PARTS LIST**

**CAPACITORS**

CAP, MINI ELE : Electrolytic  
 CAP, CER : Ceramic  
 CAP, PPP : Polypropylene  
 CAP, MYL : Mylar  
 CAP, MCA : Mica  
 CAP, MINI BP : Bipolar  
 CAP, ELE BP : Electrolytic Bipolar  
 CAP, STY : Polystyrene Film  
 CAP, SPE : Special  
 CAP, TAN : Tantalum  
 470  $\mu$  : 470  $\mu$  F  
 6800p : 6800pF  
 .047  $\mu$  : 0.047  $\mu$  F

**RESISTORS**

RES, CBN 1/6P : Carbon 1/6W  
 RES, FUSE : Fuse  
 RES, CEM 5P : Cement 5W  
 RES, MTL 1P : Metal 1W  
 2.2K : 2.2k $\Omega$   
 220 : 220  $\Omega$

**TRANSISTORS**

XISTOR : Transistor  
 FET : Field Effect Transistor

**CONTROLS**

RES, V CBN : Variable Carbon Resistor  
 RES, SEMI FIX : Semi-fixed Resistor

**CHASSIS MISCELLANEOUS**

947	$\Delta$ F1	5732-402031	FUSE	UA	BK	
947B	$\Delta$ F1	5732-202030	FUSE	G	GB	BB
395	$\Delta$ F2	5732-102031	FUSE			
683	$\Delta$ TF1	5584-S1406	XFORMER, POWER	UA	BK	
683B	$\Delta$ TF1	5584-S1407	XFORMER, POWER	G	GB	BB
051B	$\Delta$ S201	4411-102719	ROTRY SWITCH, VOLTAGE			
			SELECTOR	G	GB	BB
734	SW5	4421-0227230	SWITCH, SLIDE			
744	$\Delta$ SC1	4474-157	SOCKET, AC OUTLET	UA	BK	
745	$\Delta$ PO1	4161-71151	CORD W/PLUG, POWER	UA	BK	
745B	$\Delta$ PO1	4161-7255	CORD W/PLUG, POWER	G	GB	
745D	$\Delta$ PO1	4161-04100	CORD W/PLUG, POWER	BB		
820	R50	5135-335522	RES, CBN 1/2P 3.3M			
823	TMF1	4318-00101080	THERMAL FUSE			

**PACKAGE PARTS LIST**

021B	1756-06303	LABEL	G	GB	BB
022B	1756-03108	LABEL	G	GB	
022D	1756-03111	LABEL	BB		
026B	1756-01405	LABEL	G	GB	
027D	1756-08501	LABEL	BB		
106	1111-J90195	OWNER GUIDE, UL	UA	BK	
107	1111-J30283	OWNER GUIDE	UA	BK	
107B	1111-J30284	OWNER GUIDE	G	GB	BB
108	1113-717004	OWNER CARD	UA	BK	
109	1119-047	ATTACH SHEET	UA	BK	
110	1119-0137	ATTACH SHEET	UA	BK	
120	4191-0355	BATTERY, DRY UM-3X2			
121	1241-C12732	POLYETHY BAG OG			
122	1241-C1491	POLYETHY BAG SET			
123	1241-C1227	POLYETHY BAG ANT			
124	1221-757167	CARTON BOX	UA	G	
124A	1221-767167	CARTON BOX	BK	GB	BB
125	1222-7264	CUSHION L			
126	1222-7265	CUSHION R			
127	1223-11729	SOFT SHEET			
128	1397-6	T FEEDER ANT			
129	6142-02701	CONT BLOCK REMOCON			
822	2421-7004	PIN, SHORT			
195	5911-235	ANT COIL BC			

**NOTE**



SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.