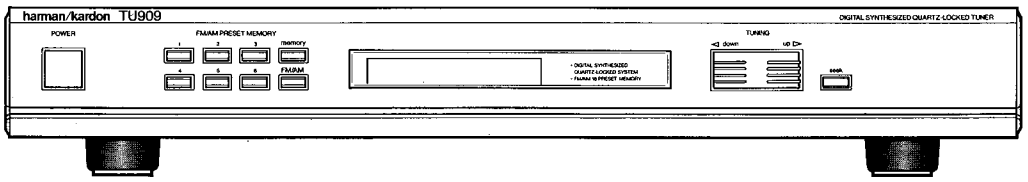
The Harman Kardon
Model TU909

Manual 139A

DIGITAL SYNTHESIZED QUARTZ-LOCKED TUNER

TU909

Technical Manual



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

- (BK): North America area model Black version
- (GB): General model Black version
- (BB): Australia model Black version

harman/kardon
240 Crossways Park West, Woodbury, N.Y. 11797
1112-3152139A2 P-088809 1500 Printed in Japan

SPECIFICATIONS

● FM SECTION	Nominal	Limit
Tuning Range	87.5 ~ 108.0 MHz	
50dB Quieting Sensitivity		
Mono	15.2dBf	≦ 19dBf
Stereo	37.2dBf	≦ 41dBf
Usable Sensitivity	10.7dBf	≦ 15dBf
Image Ratio	45dB	≧ 38dB
IF Rejection	87dB	≧ 70dB
Spurious Response Rejection	78dB	≧ 60dB
Capture Ratio	1.5dB	≦ 2dB
Alternate Channel Selectivity	76dB	≧ 60dB
AM Rejection	59dB	≧ 45dB
Signal to Noise Ratio		
Mono	80dB	≧ 75dB
Stereo	73dB	≧ 68dB
Total Harmonic Distortion		
Mono	0.09%	≦ 0.3%
Stereo	0.07%	≦ 0.4%
Stereo Separation at 1 kHz	42dB	≧ 35dB
Output Level/Impedance (Stereo)	790mV/2.2kΩ	

● AM SECTION	Nominal	Limit
Tuning Range		
North America area model	530 ~ 1,620kHz	
General and Australia models	531 ~ 1,602kHz	
Usable Sensitivity		
External Antenna	14μV	≦ 20μV
Loop Antenna	350μV/m	
Selectivity	29dB	≧ 25dB
Signal to Noise Ratio	53dB	≧ 48dB
Image Rejection	40dB	≧ 30dB
IF Rejection	67dB	≧ 50dB

● DIMENSION (W × H × D)	17-7/16'' × 2-11/16'' × 14-3/16'' (443 × 68 × 360 mm)
● WEIGHT	7.3 lbs.(3.3 kg)
● POWER SUPPLIES	
for North America area model	AC 120V, 60Hz
for General and Australia modles	AC 220/240V, 50/60Hz
● POWER CONSUMPTION	10W

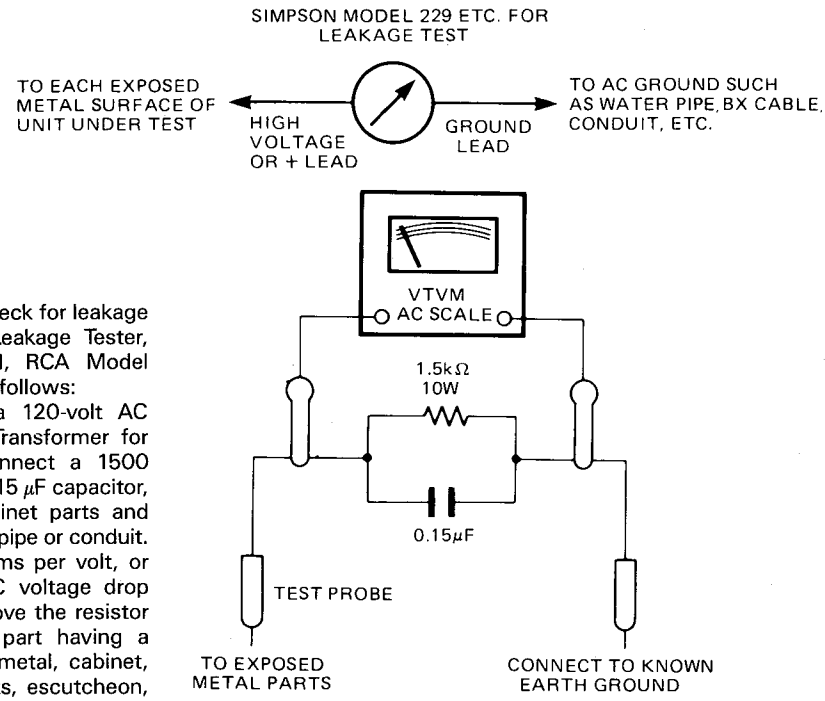
These specifications are service target specs.

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. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc. which were removed for servicing are properly reinstalled.
3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows:
   Plug the power cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 Ohm, 10-watt resistor paralleled by a 0.15 μF 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 correc before returning the unit to the owner.



DISASSEMBLY PROCEDURES (REFER TO PAGES 5,6 AND 12)

1 CABINET TOP REMOVAL

Remove 5 screws (A) and then remove the Cabinet Top (127).

2 FRONT PANEL ASS'Y (AA) REMOVAL

1. Remove the Cabinet Top (127), referring to the previous step 1.
2. Remove 5 screws (B) and then remove the Front Panel Ass'y (AA).

3 MAIN P. C. BOARD (PCB-1) REMOVAL

1. Remove the Front Panel Ass'y (AA), referring to the previous step 2.
2. Disconnect the lead wire (JL1) from CN5 on the Main P. C. Board (PCB-1).
3. Remove 8 screws (C) and pull the Main P. C. Board (PCB-1) forward with the PCB-3 and PCB-4.
4. Disconnect the connectors from CN3 of PCB-3 and CN4 of PCB-4 on the Main P. C. Board.

ALIGNMENT PROCEDURES (REFER TO PAGES 10, 11, 17 AND 18)

■ AM ADJUSTMENT

Conditions : • Make the adjustment at a room temperature of 77°F (25°C).
• Set the AM mode by pressing the "FM/AM" button.
• Standard modulation of the AM signal generator is 400Hz at 30%.
• Set the Seek switch to off (put out seek indicator) position.

* General and Australia models

Step	Alignment	Connection Equipments	Measurement Frequency	Station Display	Adjustment	For
1	IF	• Connect the AM Test Loop Antenna cable into the output jack of AM Signal Generator. Place AM Test Loop Antenna close enough to couple signal into the AM Loop Antenna. • Connect the VTVM and oscilloscope to the OUTPUT jacks.	1400kHz *1404kHz	1400kHz *1404kHz	T252	Maximum output level and symmetrical curve on scope.
2	Tracking		1400kHz *1404kHz	1400kHz *1404kHz	TC251	Maximum output.
3			600kHz *603kHz	600kHz *603kHz	T251	Maximum output.
4			Repeat steps 2 and 3 for optimum sensitivity.			

■ FM ADJUSTMENT

Conditions : • Set the FM mode by pressing the "FM/AM" button.
• Set the Seek switch to off (put out seek indicator) position.

	North America model	General and Australia models
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	Discriminator	• Connect the FM Signal Generator to FM 300Ω BAL Antenna terminals through the 300Ω balanced dummy. [1mV(65dBf) input signal] • Connect the Oscilloscope and Distortion meter to the OUTPUT jacks. • Set the Seek switch to on (seek indicator lights) position.	97.9MHz	97.9MHz	T201(A)	Adjust T201 (A) so that the voltage across the terminal of R217 come to DC 0V ± 20mV.
2			97.9MHz	97.9MHz	T201(B)	Minimum distortion.
3			Repeat steps 1 and 2 for optimum sensitivity.			
4	Muting level		97.9MHz	97.9MHz	VR251	Adjust VR251 so that the waveform is disappear at 35 dBf input.
5	Separation	• Connect the Stereo Modulator to FM Signal Generator. Connect the FM Signal Generator to FM 300Ω BAL Antenna terminal through the 300Ω balanced dummy. [1mV (65 dBf) input signal] • Connect the VTVM and Oscilloscope to the OUTPUT jacks.	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.

CIRCUIT DESCRIPTION

■ FM TUNER SECTION

The FM signal which has entered through the antenna is high-frequency amplified in the front end unit FE101, mixed with the output of the local oscillator 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 transmitted through the IF amplifier in two steps, and after being detected in the quadrature, it is transmitted 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 be fed to the amplifier.

■ AM TUNER SECTION

The AM signal which has entered through the antenna is transmitted through the tuning circuit consisting of T251 and TC251 to IC201. In IC201 it undergoes high-frequency amplification, intermediate-frequency amplification local oscillation, intermediate-frequency amplification and detection, and then output from pin 15. This signal is turned ON and OFF at Q703 and Q704 according to the signal from the input selector and fed to pin 2 of IC301.

■ MUTING CIRCUIT

If FM 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 Q706, whose collector then becomes low level and the collector of Q708 high level. As a result, Q301 (R ch) and Q302 (L ch) are conducted to mute the output.

■ SYNTHESIZER SECTION

● FM

The local oscillation output at the front end is fed to pin 15 of IC702 and after being frequency devided into 30 or 32, the standard frequency is oscillated by the crystal oscillator, compared with the devided local oscillation output signal and output to pin 10. This voltage is level converted at Q701 and Q702, and fed to the varicap diode at the front end.

● AM

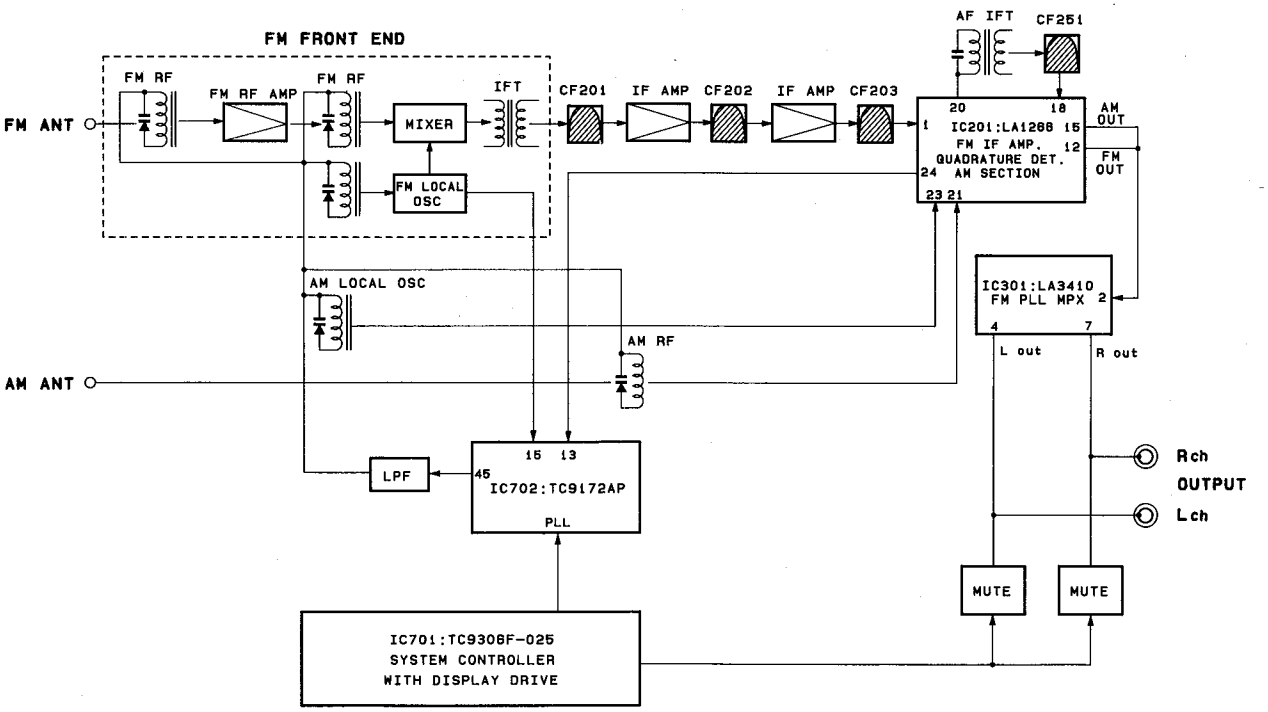
The local oscillation output is fed from pin 24 of IC201 to pin 13 of IC702. In IC702, the standard frequency is oscillated by the crystal oscillator, compared with the local oscillation output and output to pin 10.

■ INDICATOR SECTION

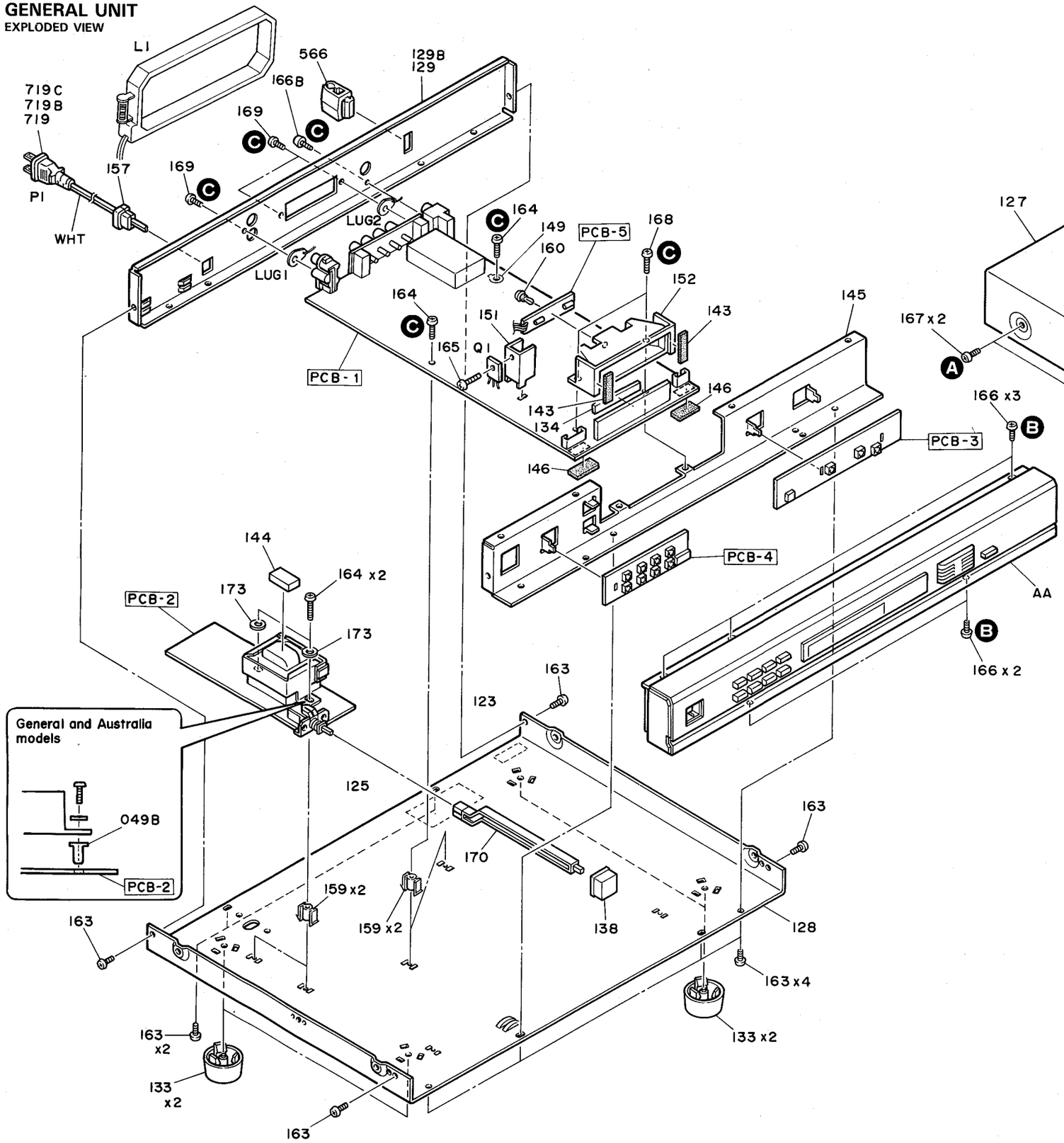
● Frequency display

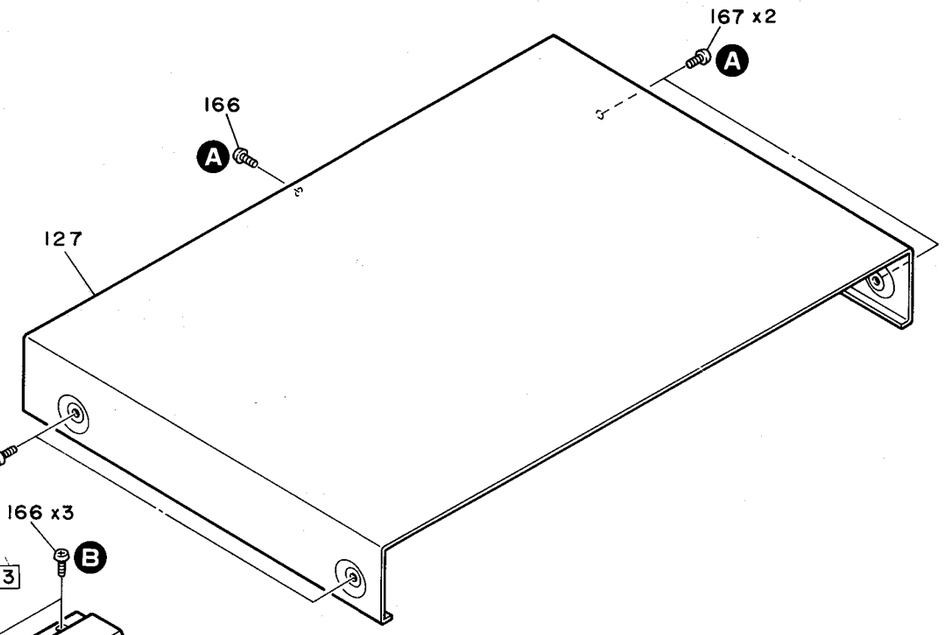
The serial data sent out of pins 1 to 22, 54 and 57 to 60 of IC701, where the data is decoded to provide a signal which turns ON the indicator.

BLOCK DIAGRAM



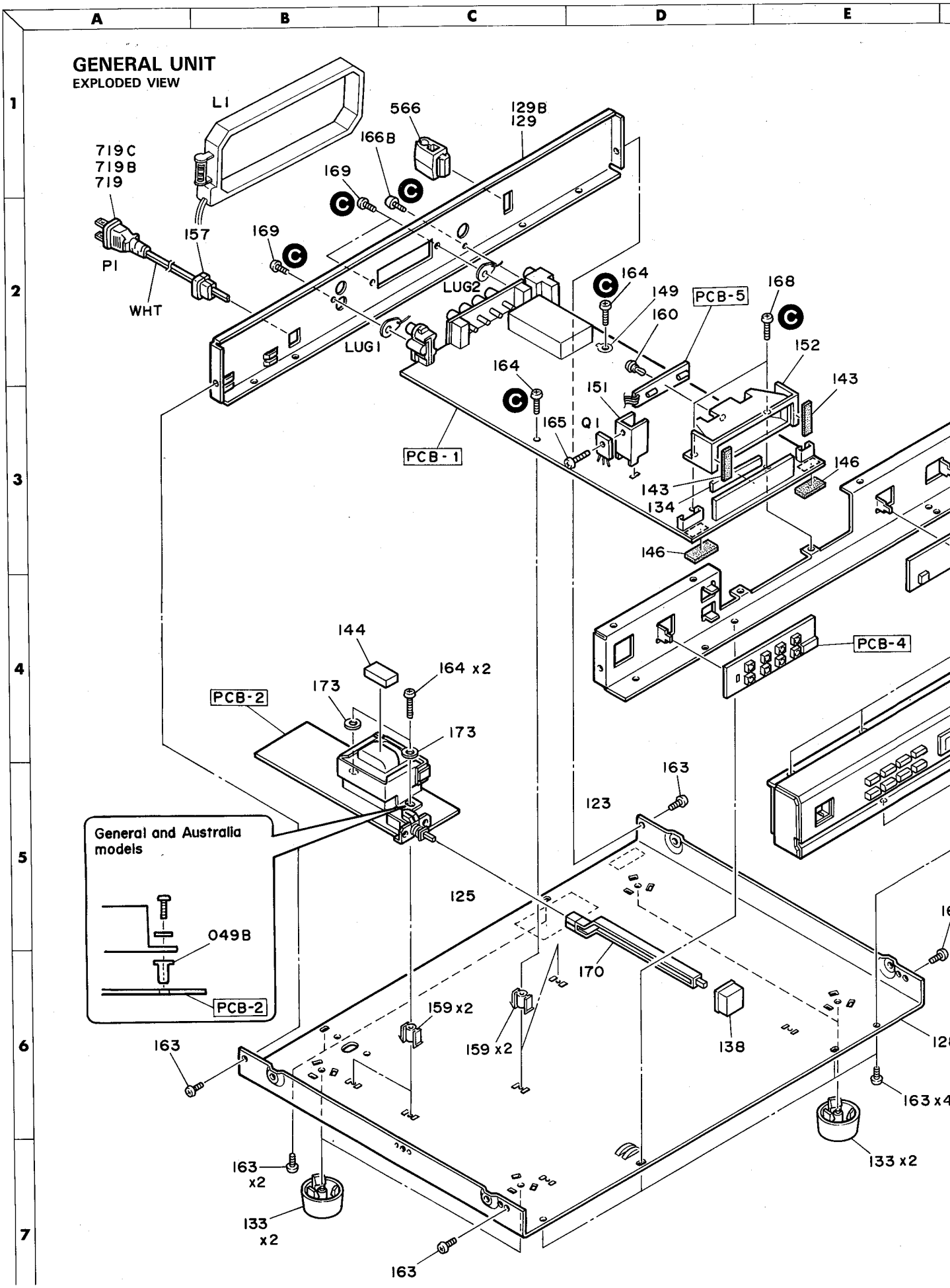
GENERAL UNIT
EXPLODED VIEW



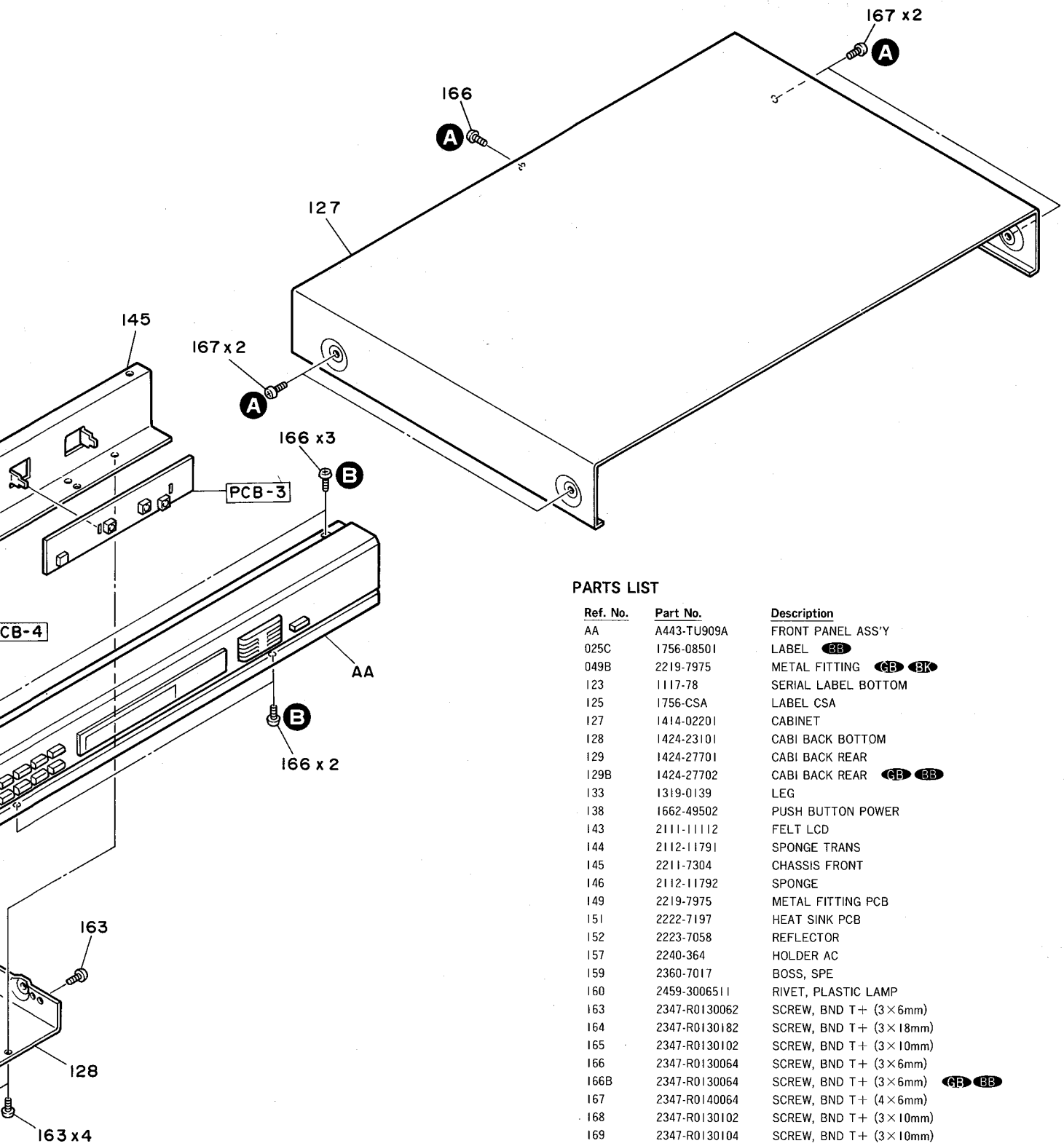


PARTS LIST

Ref. No.	Part No.	Description
AA	A443-TU909A	FRONT PANEL ASS'Y
025C	1756-08501	LABEL BB
049B	2219-7975	METAL FITTING GB BK
123	1117-78	SERIAL LABEL BOTTOM
125	1756-CSA	LABEL CSA
127	1414-02201	CABINET
128	1424-23101	CABI BACK BOTTOM
129	1424-27701	CABI BACK REAR
129B	1424-27702	CABI BACK REAR GB BB
133	1319-0139	LEG
138	1662-49502	PUSH BUTTON POWER
143	2111-11112	FELT LCD
144	2112-11791	SPONGE TRANS
145	2211-7304	CHASSIS FRONT
146	2112-11792	SPONGE
149	2219-7975	METAL FITTING PCB
151	2222-7197	HEAT SINK PCB
152	2223-7058	REFLECTOR
157	2240-364	HOLDER AC
159	2360-7017	BOSS, SPE
160	2459-3006511	RIVET, PLASTIC LAMP
163	2347-R0130062	SCREW, BND T+ (3×6mm)
164	2347-R0130182	SCREW, BND T+ (3×18mm)
165	2347-R0130102	SCREW, BND T+ (3×10mm)
166	2347-R0130064	SCREW, BND T+ (3×6mm)
166B	2347-R0130064	SCREW, BND T+ (3×6mm) GB BB
167	2347-R0140064	SCREW, BND T+ (4×6mm)
168	2347-R0130102	SCREW, BND T+ (3×10mm)
169	2347-R0130104	SCREW, BND T+ (3×10mm)
170	2601-7177	SHAFT POWER
173	2401-0317	WASHER, METAL TRANS
566	2240-7208	HOLDER
⚠719 (P1)	4161-71147	CORD W/PLUG
⚠719B (P1)	4161-7256	CORD W/PLUG AC GB
⚠719C (P1)	4161-04100	CORD W/PLUG AC BB
L1	5911-235	AM LOOP ANT
LUG1	4211-4	LUG GB BB
LUG2	4211-4	LUG BK


GENERAL UNIT
EXPLODED VIEW
A
B
C
D
E
1
2
3
4
5
6
7
L1
719C
719B
719
P1
WHT
157
566
166B
129B
129
169
LUG2
LUG1
164
149
160
PCB-5
168
152
143
151
Q1
165
PCB-1
146
134
PCB-4
144
164 x2
173
PCB-2
163
123
125
170
138
159 x2
General and Australia models
049B
PCB-2
163 x2
133 x2
163 x4

	F	G	H	I	J



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049B	2219-7975	METAL FITTING (GB) (BK)
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125	1756-CSA	LABEL CSA
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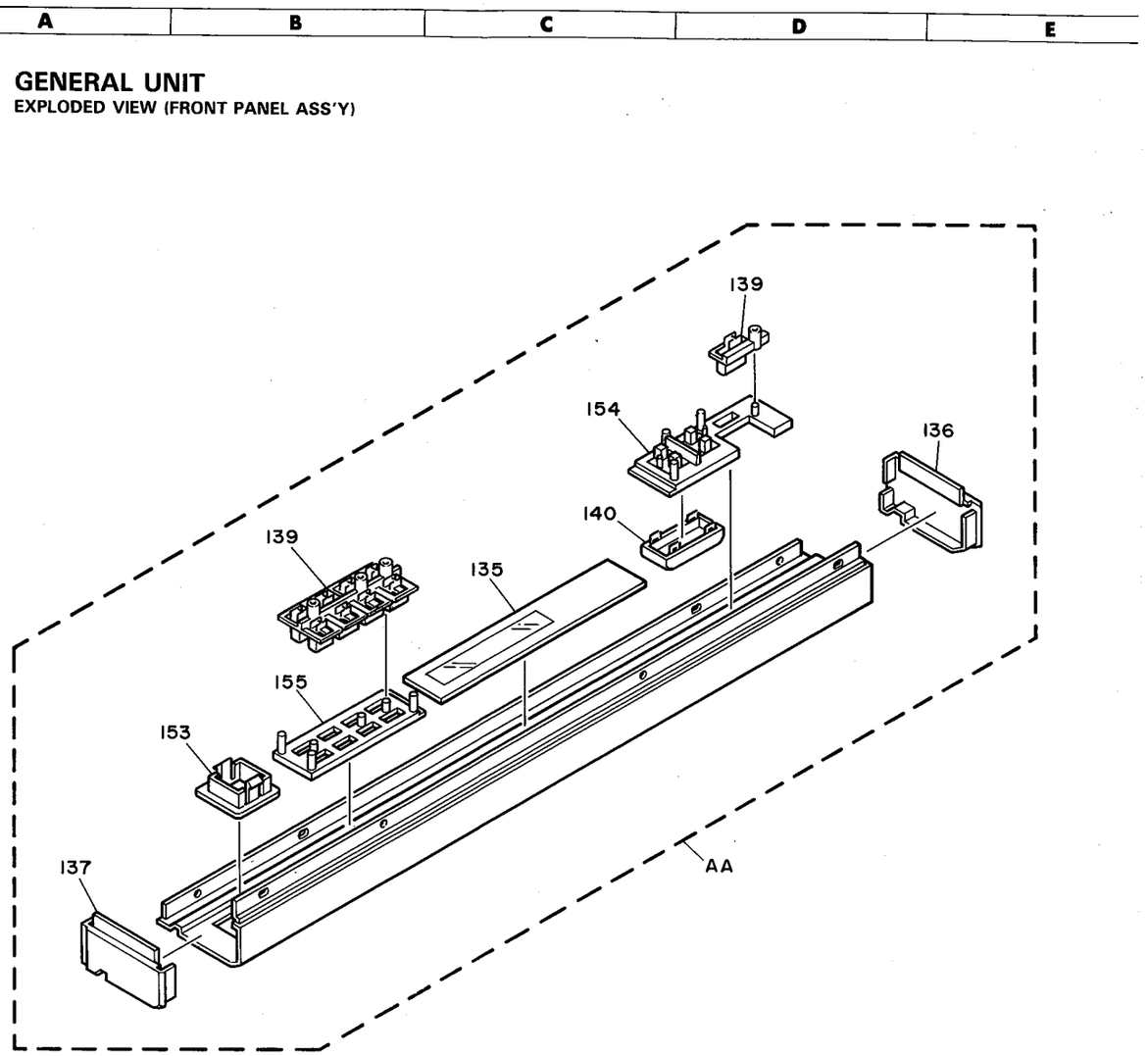
128	1424-23101	CABI BACK BOTTOM
129	1424-27701	CABI BACK REAR
129B	1424-27702	CABI BACK REAR (GB) (BB)
133	1319-0139	LEG
138	1662-49502	PUSH BUTTON POWER
143	2111-11112	FELT LCD
144	2112-11791	SPONGE TRANS
145	2211-7304	CHASSIS FRONT
146	2112-11792	SPONGE
149	2219-7975	METAL FITTING PCB
151	2222-7197	HEAT SINK PCB
152	2223-7058	REFLECTOR
157	2240-364	HOLDER AC
159	2360-7017	BOSS, SPE
160	2459-3006511	RIVET, PLASTIC LAMP
163	2347-R0130062	SCREW, BND T+ (3×6mm)
164	2347-R0130182	SCREW, BND T+ (3×18mm)
165	2347-R0130102	SCREW, BND T+ (3×10mm)
166	2347-R0130064	SCREW, BND T+ (3×6mm)
166B	2347-R0130064	SCREW, BND T+ (3×6mm) (GB) (BB)
167	2347-R0140064	SCREW, BND T+ (4×6mm)
168	2347-R0130102	SCREW, BND T+ (3×10mm)
169	2347-R0130104	SCREW, BND T+ (3×10mm)
170	2601-7177	SHAFT POWER
173	2401-0317	WASHER, METAL TRANS
566	2240-7208	HOLDER
⚠719 (P1)	4161-71147	CORD W/PLUG
⚠719B (P1)	4161-7256	CORD W/PLUG AC (GB)
⚠719C (P1)	4161-04100	CORD W/PLUG AC (BB)
L1	5911-235	AM LOOP ANT
LUG1	4211-4	LUG (GB) (BB)
LUG2	4211-4	LUG (BK)

GENERAL UNIT
EXPLODED VIEW (FRONT PANEL ASS'Y)

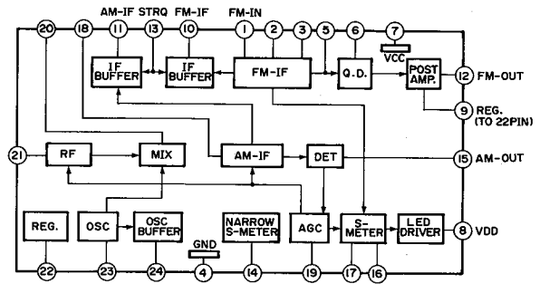


PARTS LIST

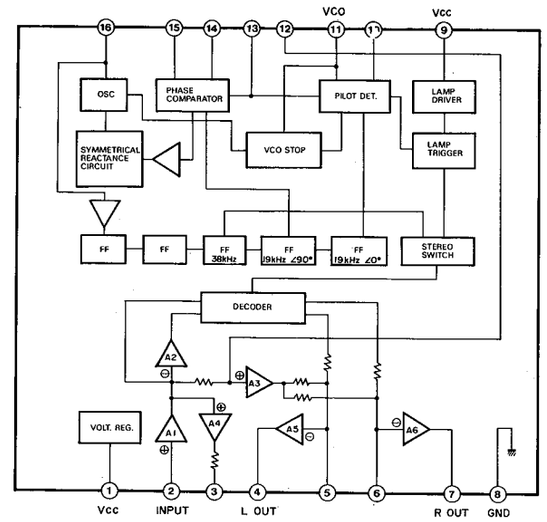
Ref. No.	Part No.	Description
AA	A443-TU909A	FRONT PANEL ASS'Y
135	1531-12002	WINDOW, FRONT
136	1562-06901	FRAME, R
137	1562-07001	FRAME, L
139	1662-37202	PUSH BUTTON, SEEK
140	1662-45002	PUSH BUTTON, UP/DOWN
153	2240-7209	HOLDER, POWER
154	2240-7332	HOLDER
155	2240-7333	HOLDER, PRESET

IC BLOCK DIAGRAM

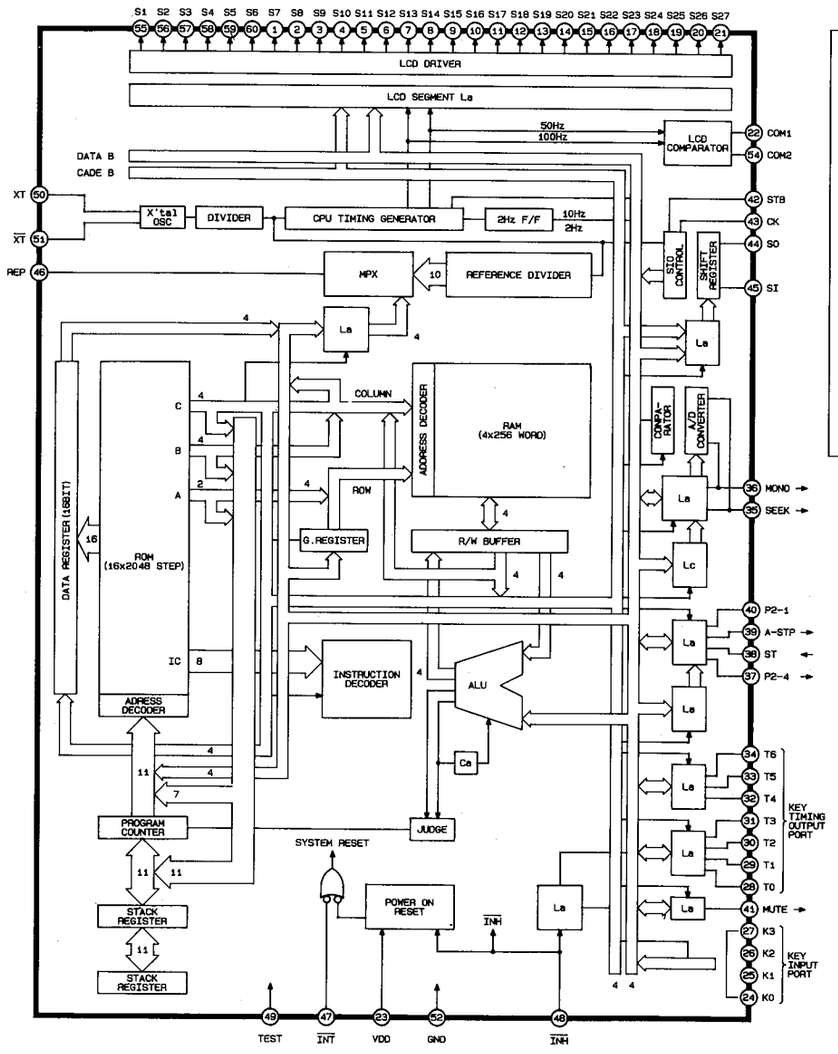
IC201 : LA1266 FM/AM IF



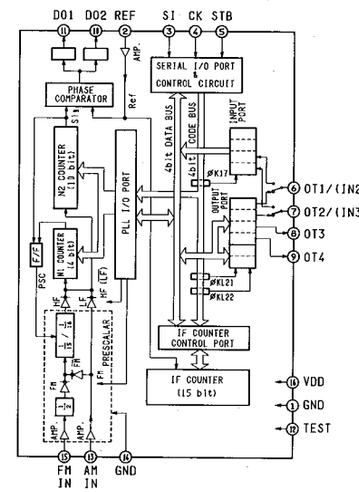
IC301 : LA3410 PLL FM STEREO MPX



IC701 : T9306F-025 MICRO PROCESSOR

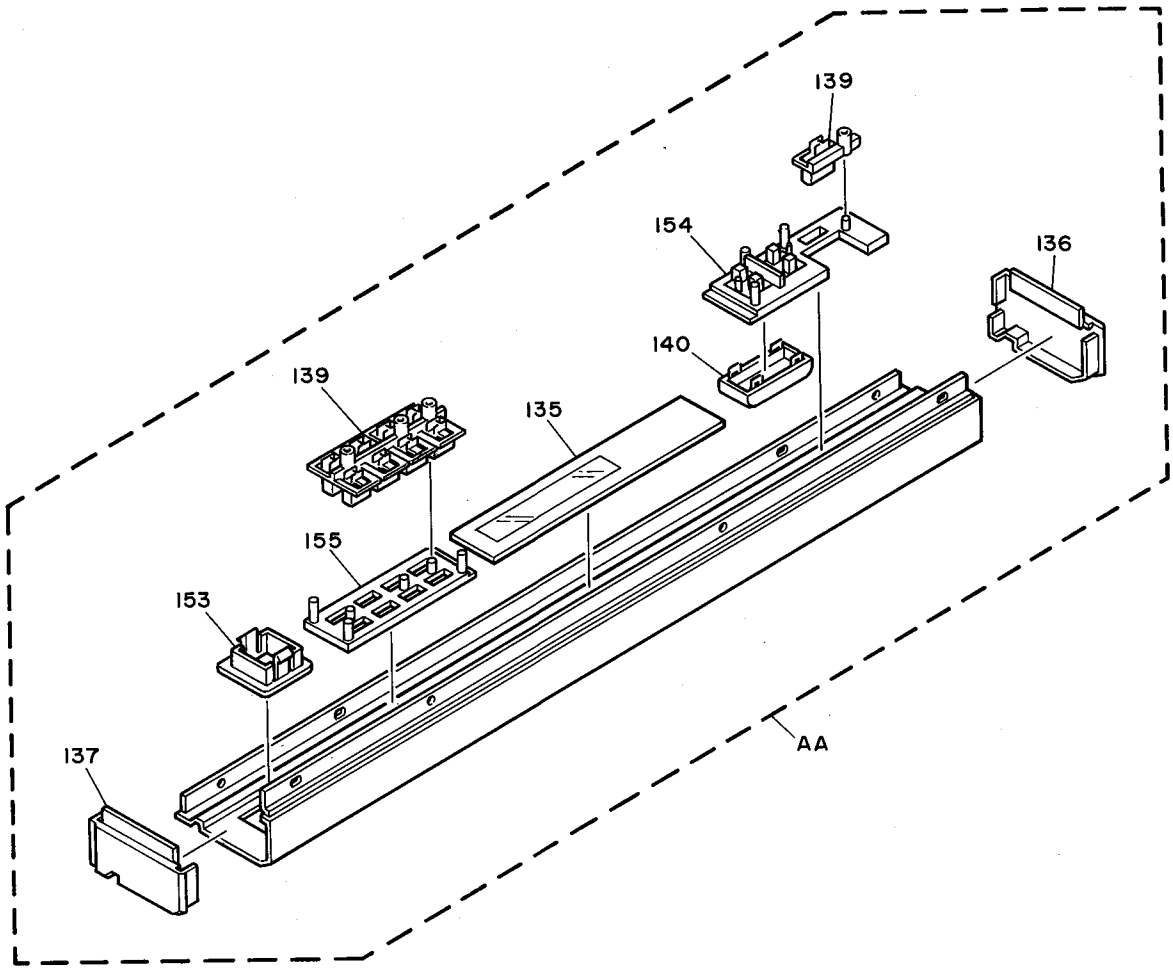


IC702 : TC9172AP PLL LSI



GENERAL UNIT

EXPLODED VIEW (FRONT PANEL ASS'Y)



PARTS LIST

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AA	A443-TU909A	FRONT PANEL ASS'Y
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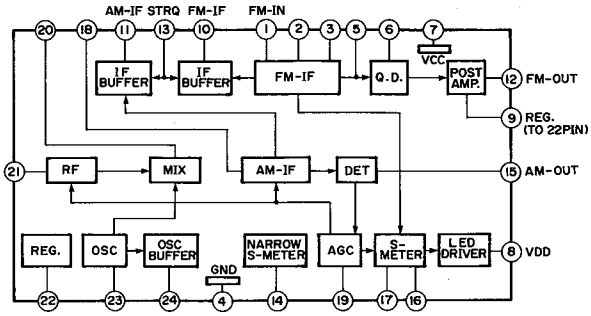
137	1562-07001	FRAME, L
139	1662-37202	PUSH BUTTON, SEEK
140	1662-45002	PUSH BUTTON, UP/DOWN
153	2240-7209	HOLDER, POWER
154	2240-7332	HOLDER
155	2240-7333	HOLDER, PRESET

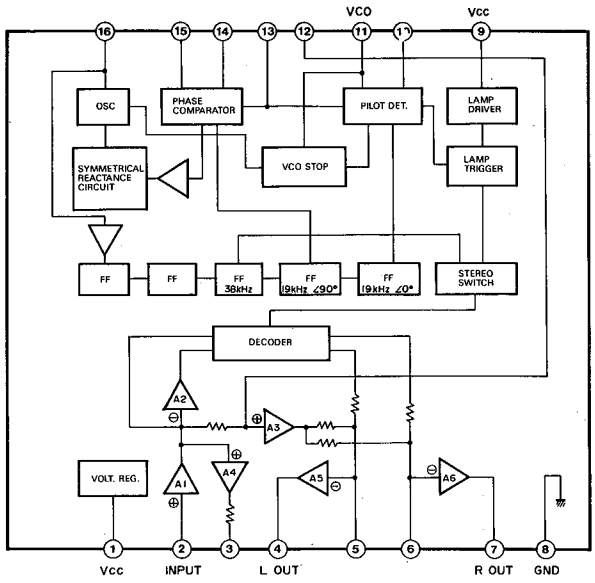
E

IC BLOCK DIAGRAM

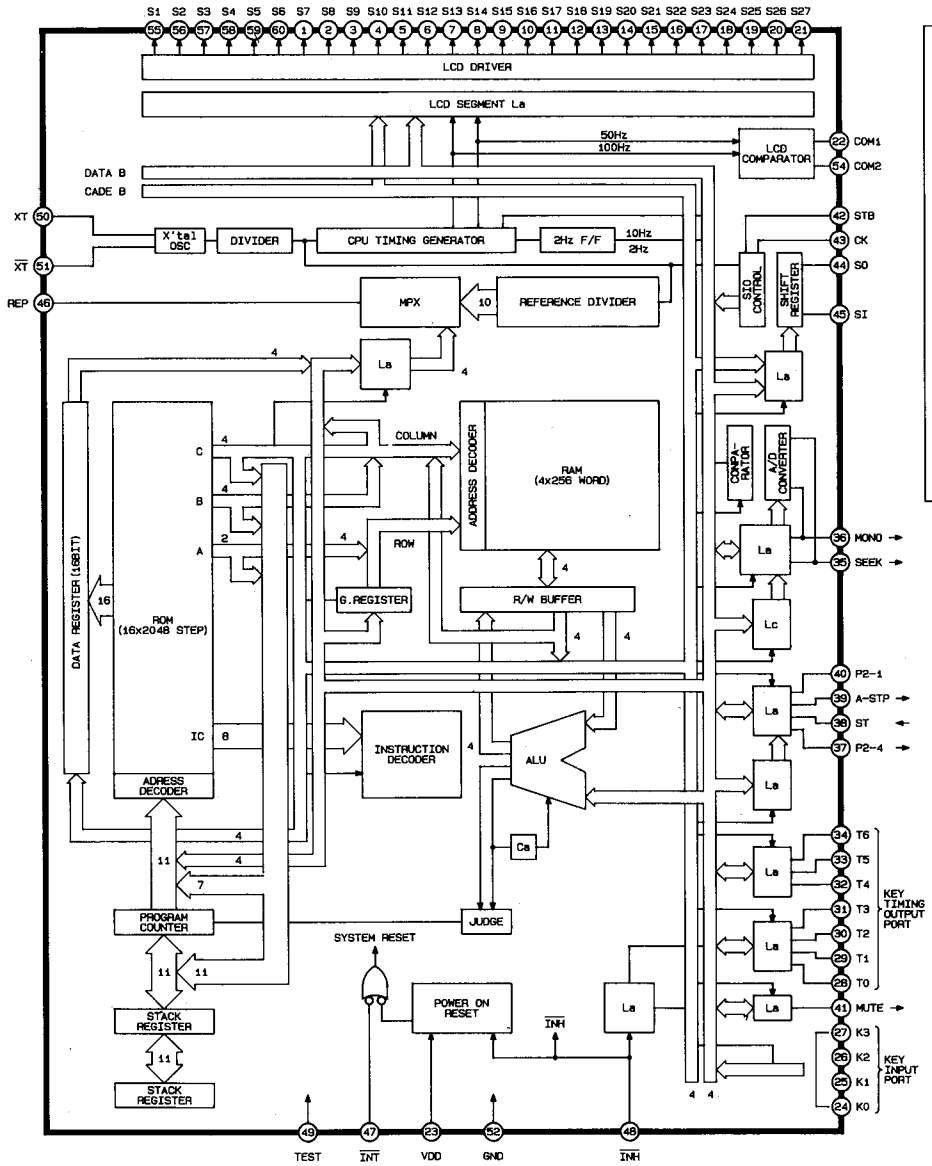
IC201 : LA1266 FM/AM IF



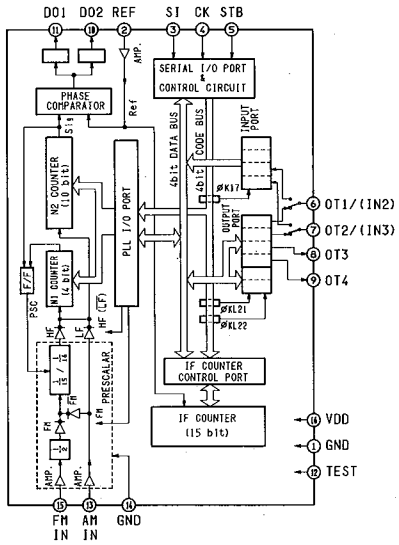
IC301 : LA3410 PLL FM STEREO MPX



IC701 : T9306F-025 MICRO PROCESSOR



IC702 : TC9172AP PLL LSI



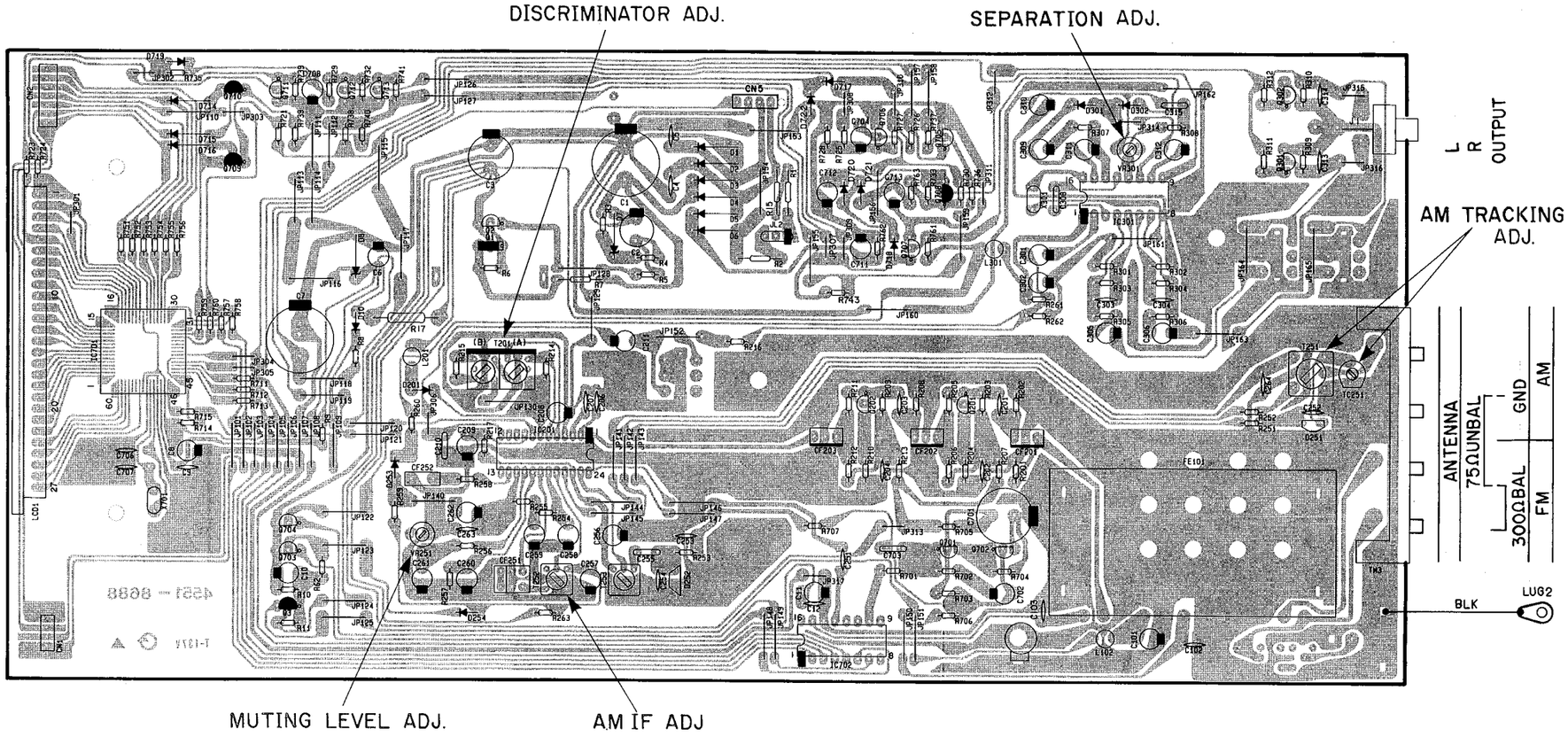
TERMINAL FUNCTION (IC701 and IC702)

IC number	Terminal number	Port name	Terminal code	I/O	Outline of functions	
					Segment name COM1	Segment name COM2
IC701	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_{DD}	V_{DD}	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	
	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	

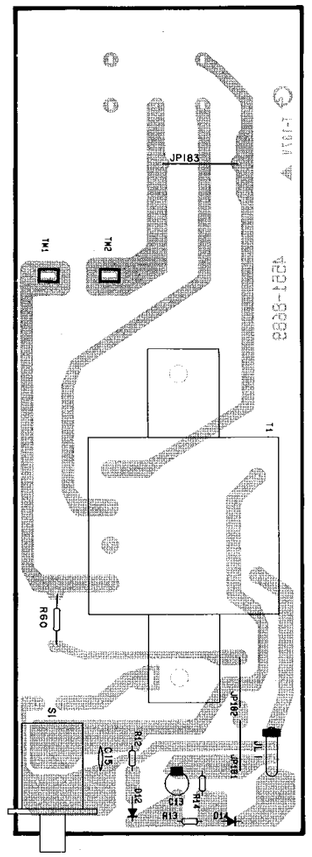
IC number	Terminal number	Port name	Terminal code	I/O	Outline of functions	
					Segment name COM1	Segment name COM2
IC701	44	SO	SO	O	Serial data output	
	45	SI	SI	I	Serial data input	
	46	REF	REF	I	Reference frequency input	
	47	$\overline{INT}$	$\overline{INT}$	I	Initialize input terminal	
	48	$\overline{INH}$	$\overline{INH}$	I	Normal mode (H level) Inhibit mode (L level)	
	49	TEST	TEST	I	Test terminal	
	50	XT	XT	O	Clock output	
	51	$\overline{XT}$	$\overline{XT}$	O	Clock output	
	52	GND	GND	—	GND pin	
	53	V_{DD}	V_{DD}	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	FW/SW unit
	60	S6	S6	O	Point 3 on level meter	MW/LW unit
IC702	1	GND	GND	I	GND terminal	
	2	REF	Reference frequency	I	Input signal (reference frequency) is supplied from controler side. Built-in amplifier, C coupling, small amplitude.	
	3	SI	Serial input	I/O	Serial I/O port Set divide order and divide means, data for control IF counter and I/O port transmit and receive between controler and this terminal. SI, CK, STB = schmidt trigger input.	
	4	CK	Clock signal input			
	5	STB	Strove signal input			
	6	FM	Output port	O	General purpose output port, use high frequency selector and control signal output.	
	7	AM				
	8	LOCAL				
	9					
	10	Phase Comp. Output	Phase comparater output	O	Tri-state output of phase comparater, is parallel output.	
	11					
	12	TEST	Test terminal	I	Test mode control input, with built-in pull down resistor. Normally, this terminal use "open" "or "GND".	
	13	AM_{IN}	AM local osc. input	I	Programable counter input, when AM band. Built-in amplifier, C coupling, small amplitude.	
	14	GND	Pre scaler section GND	I	Built-in pre scaler GND terminal.	
	15	FM_{IN}	FM local osc. input	I	Pre scaler input, when FM band. Built-in amplifier (f max = 120 MHz), C coupling, small amplitude.	
	16	V_{DD}	Power supply	I	Voltage supply (5V ±10%)	

P. C. BOARDS (For North America area model)

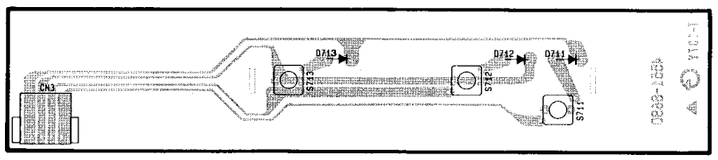
PCB-1 Main P. C. Board



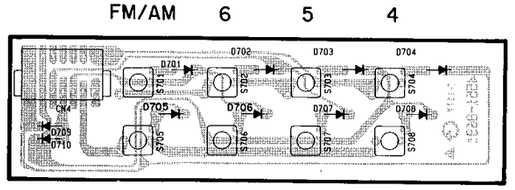
PCB-2 Power Supply P. C. Board



PCB-3 Up/Down P. C. Board



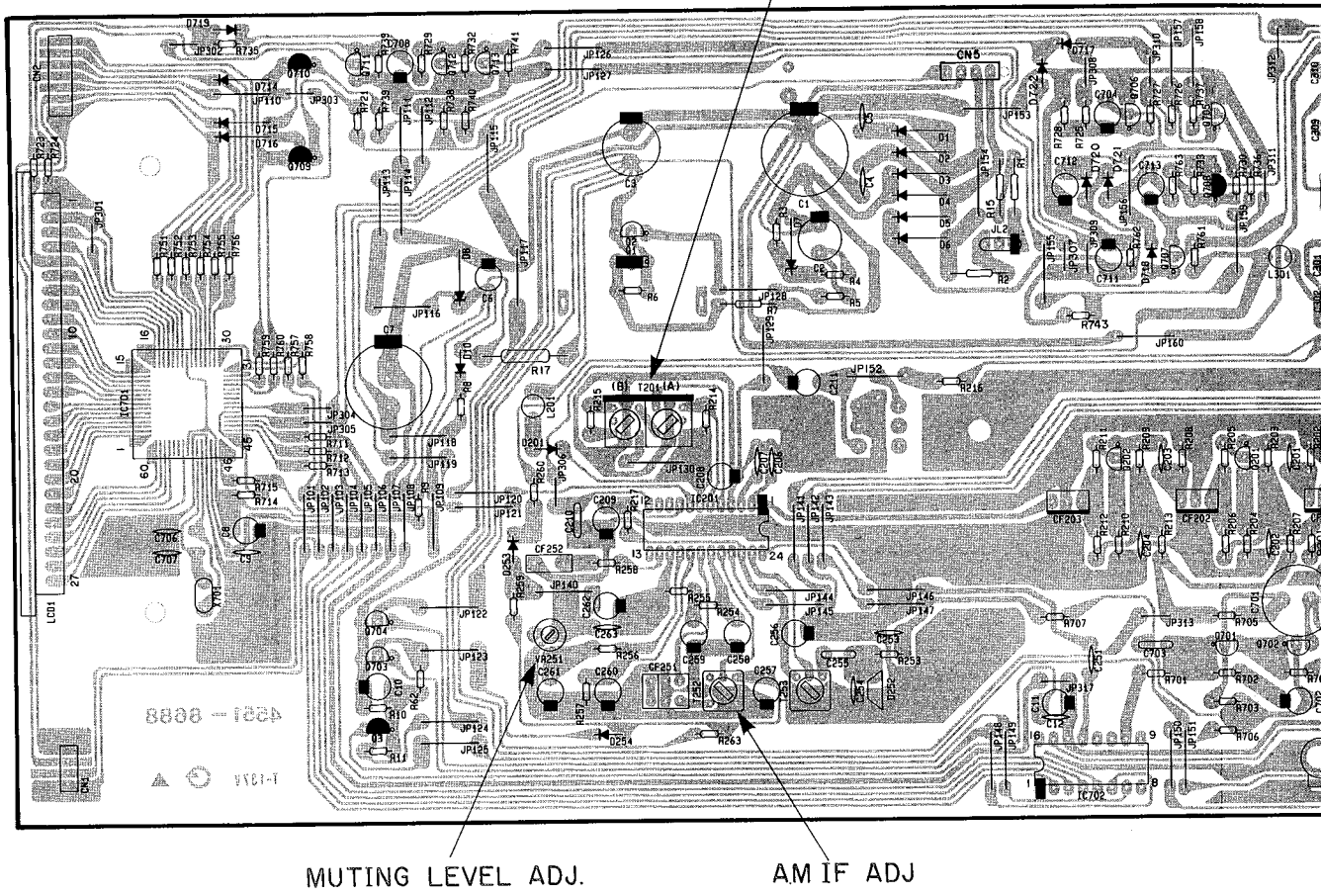
PCB-4 Preset P. C. Board



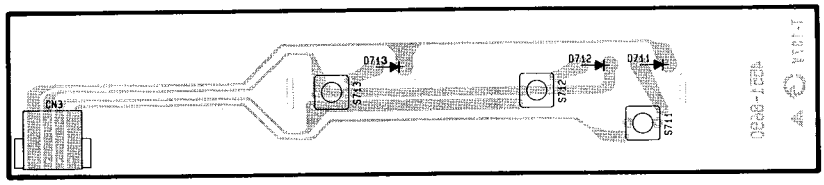
PCB-5 Lamp P. C. Board

P. C. BOARDS (For North America area model)

PCB-1 Main P. C. Board



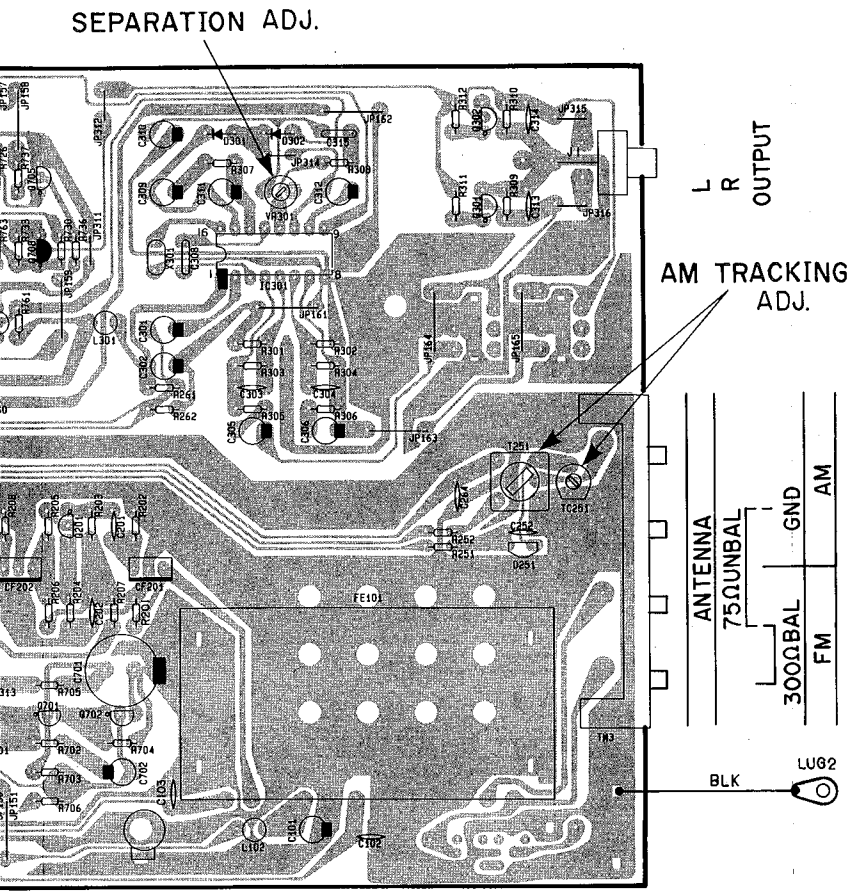
PCB-3 Up/Down P. C. Board

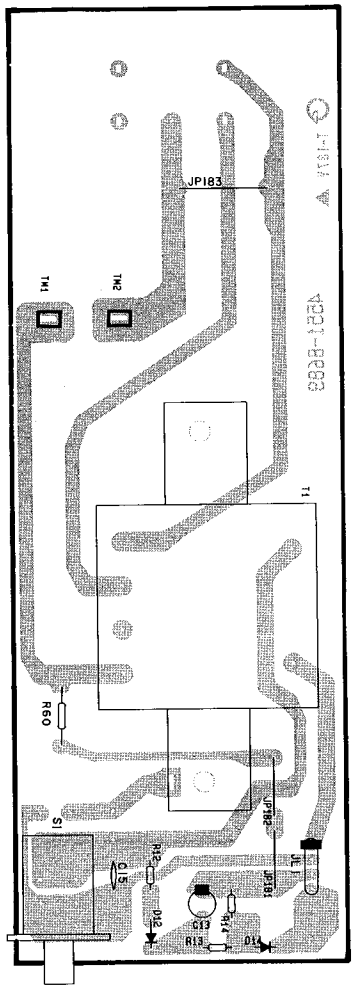


PCB-4 P

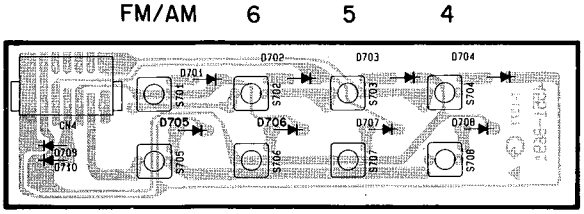
F G H I J

PCB-2 Power Supply P. C. Board

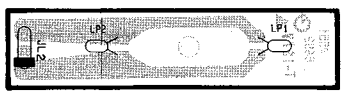




PCB-4 Preset P. C. Board

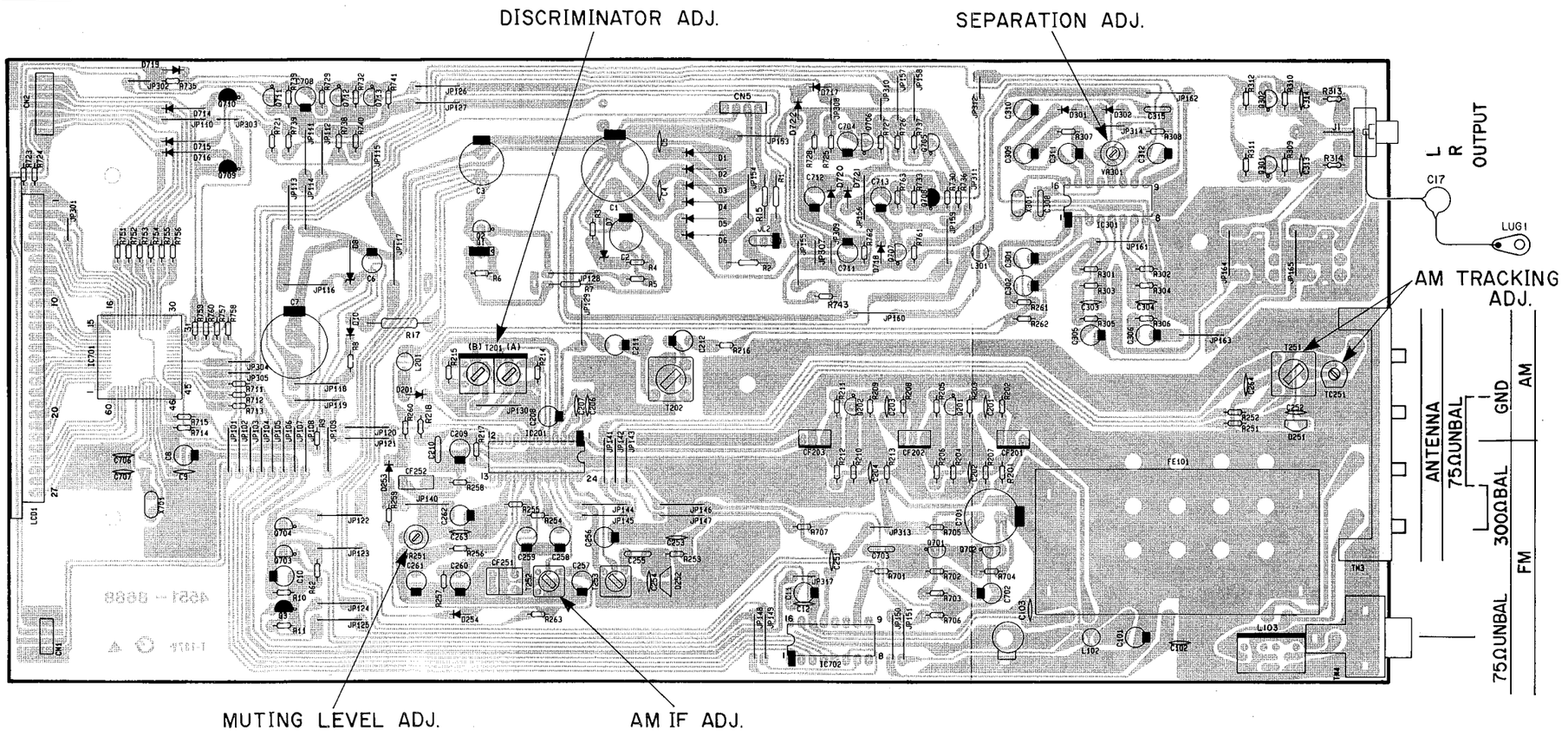


PCB-5 Lamp P. C. Board

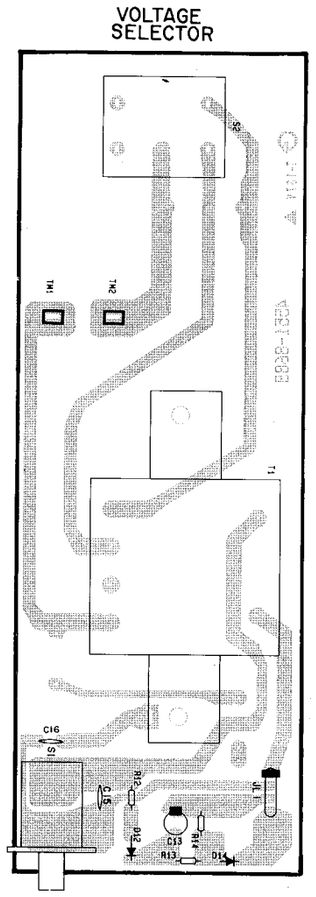


P. C. BOARDS (For General and Australia models)

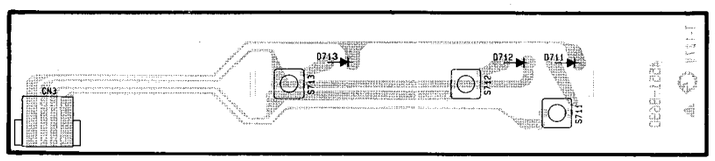
PCB-1 Main P. C. Board



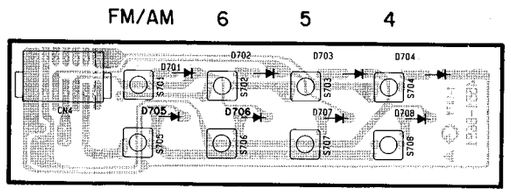
PCB-2 Power Supply P. C. Board



PCB-3 Tuning Switch P. C. Board



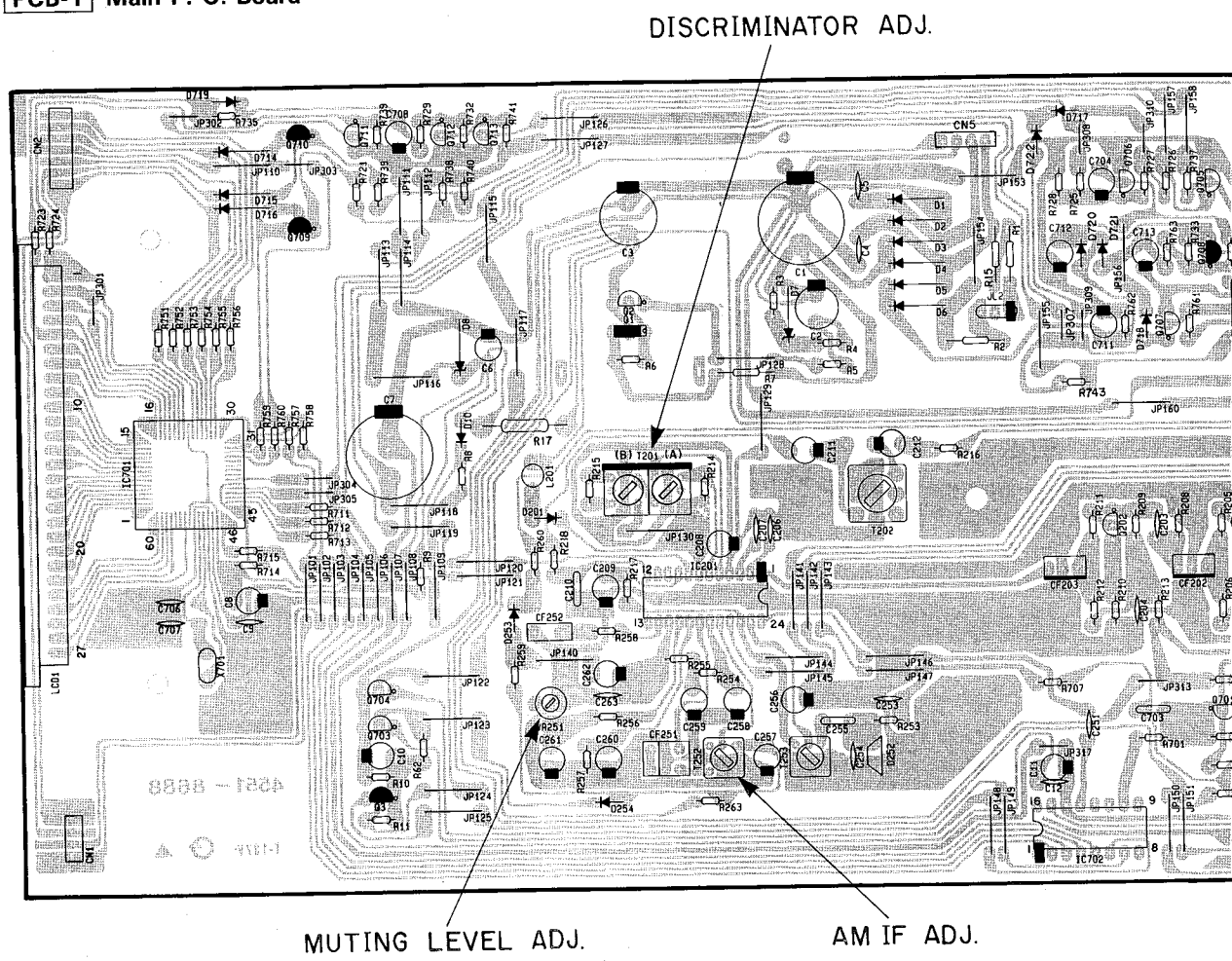
PCB-4 Preset P. C. Board



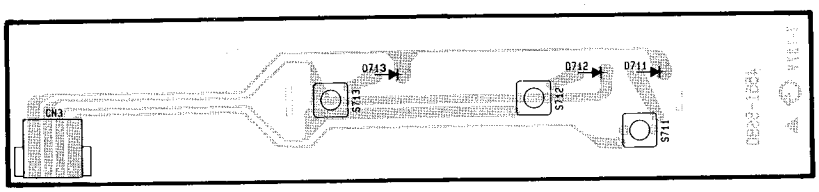
PCB-5 Lamp P. C. Board

P. C. BOARDS (For General and Australia models)

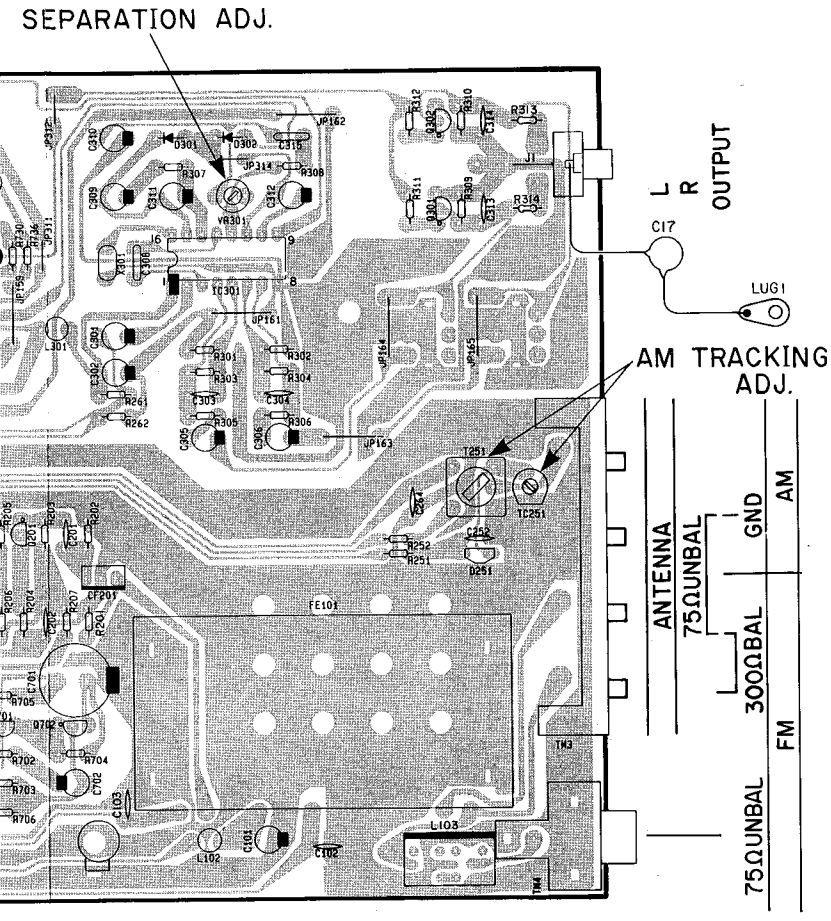
PCB-1 Main P. C. Board

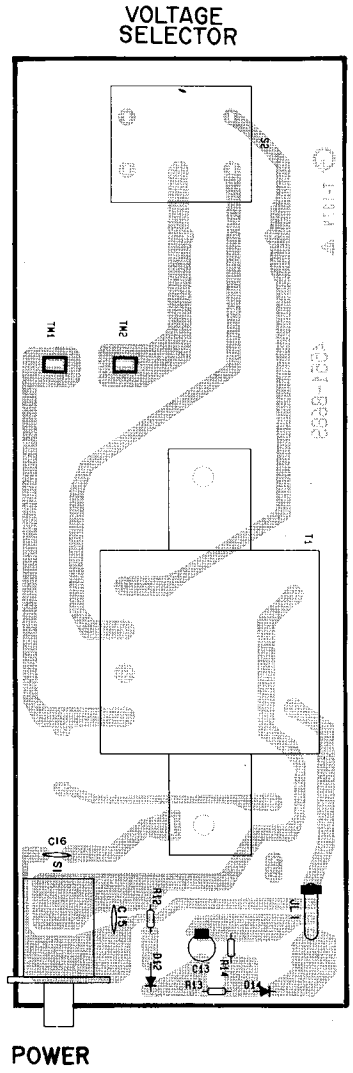


PCB-3 Tuning Switch P. C. Board

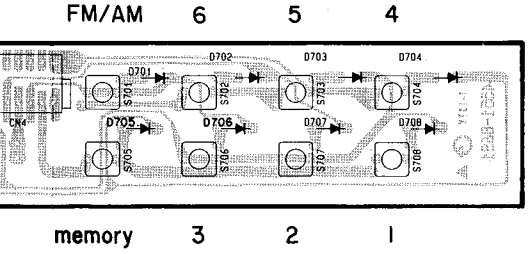


PCB-2 Power Supply P. C. Board

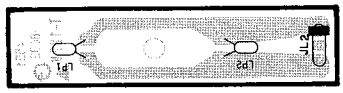




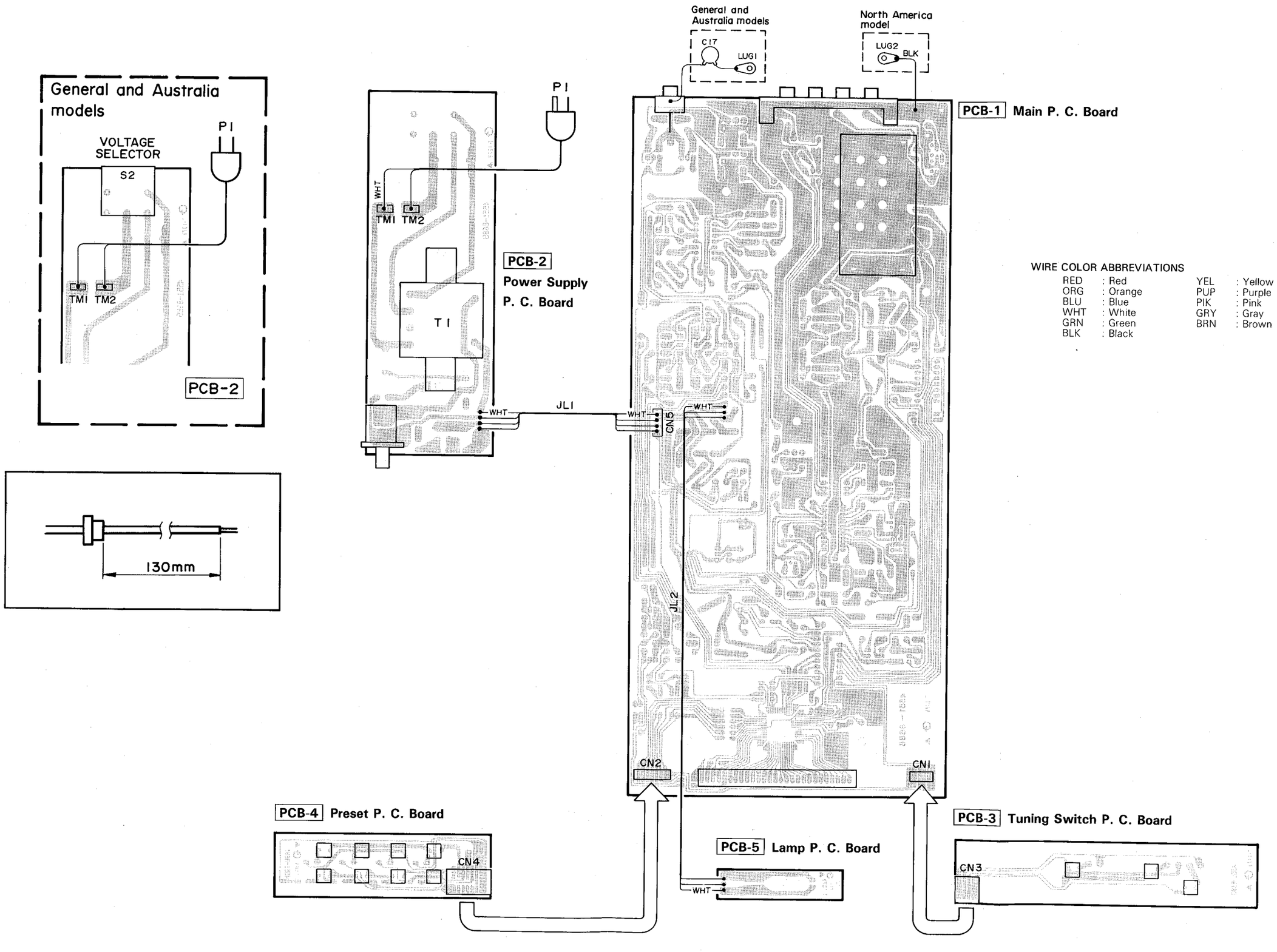
B-4 Preset P. C. Board



PCB-5 Lamp P. C. Board



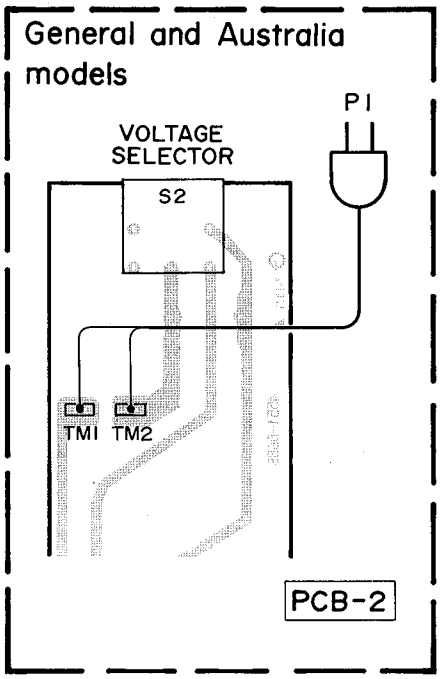
WIRING DIAGRAM

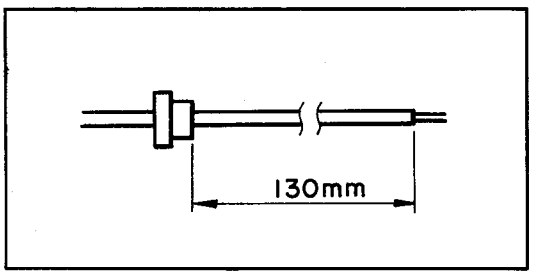


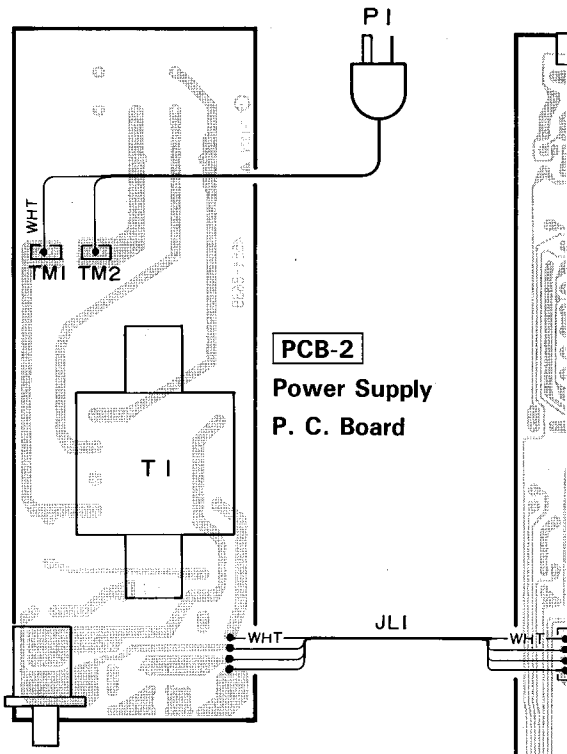
WIRE COLOR ABBREVIATIONS

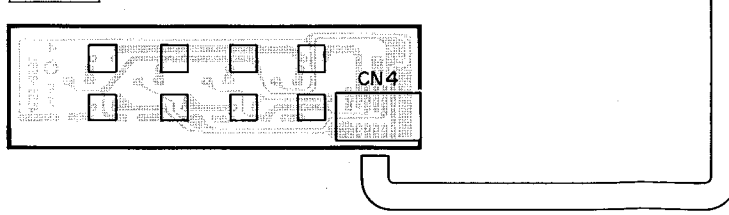
RED	: Red	YEL	: Yellow
ORG	: Orange	PUP	: Purple
BLU	: Blue	PIK	: Pink
WHT	: White	GRY	: Gray
GRN	: Green	BRN	: Brown
BLK	: Black		

WIRING DIAGRAM

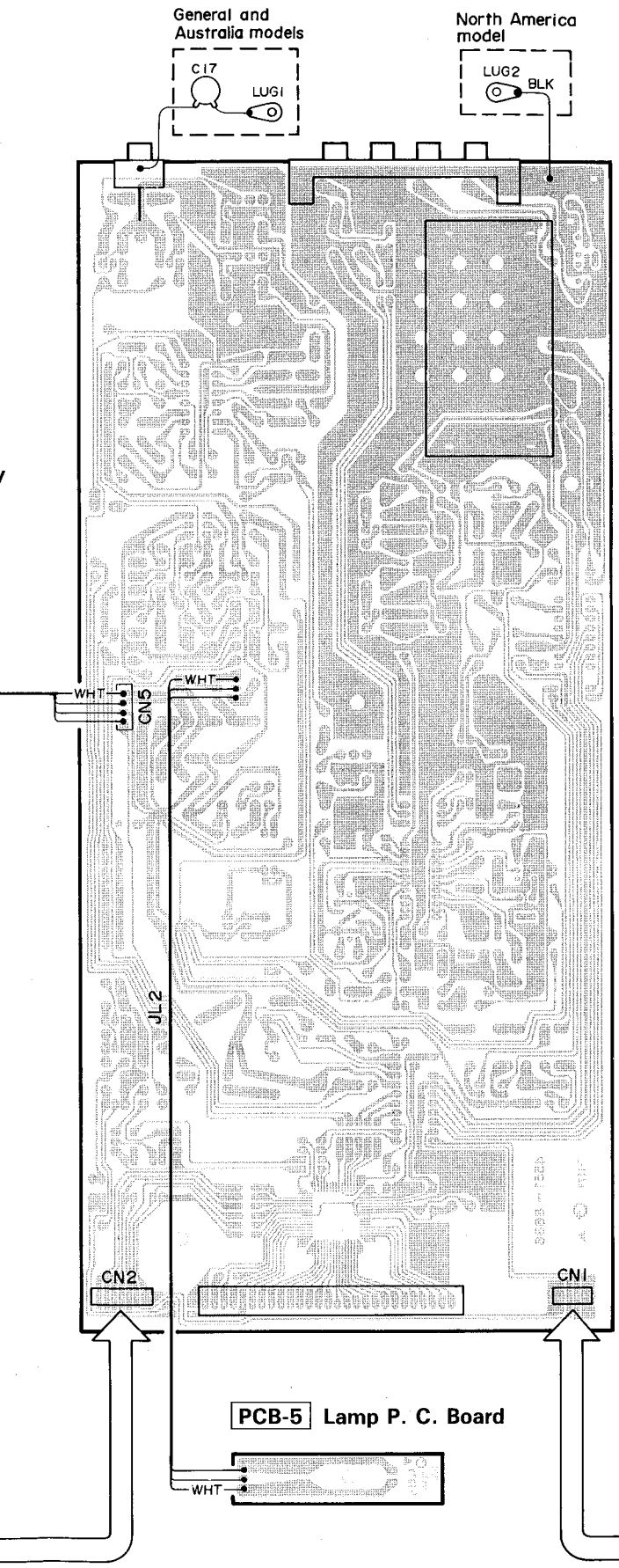








F G H I J

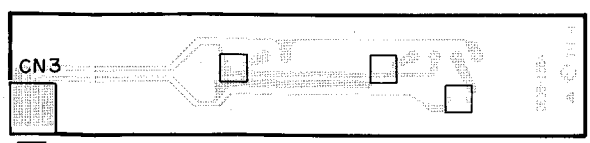


PCB-1 **Main P. C. Board**

WIRE COLOR ABBREVIATIONS

RED	: Red	YEL	: Yellow
ORG	: Orange	PUP	: Purple
BLU	: Blue	PIK	: Pink
WHT	: White	GRY	: Gray
GRN	: Green	BRN	: Brown
BLK	: Black		

PCB-3 **Tuning Switch P. C. Board**



PCB-5 **Lamp P. C. Board**

ELECTRICAL PARTS LIST

Ser. No.	Ref. No.	Part No.	Description
		PCB-1 MAIN P.C.BOARD	
		CAPACITORS	
661	C1	5345-228D045	CAP, MINI ELE 2200μ/25V
662	C2	5345-476D041	CAP, MINI ELE 47μ/25V
662	C3	5345-476D041	CAP, MINI ELE 47μ/25V
667	C4	5361-473ZF	CAP, CER .047μ
667	C5	5361-473ZF	CAP, CER .047μ
658	C6	5345-107B041	CAP, MINI ELE 100μ/10V
664	C7	5345-228A041	CAP, MINI ELE 2200μ/6.3V
658	C8	5345-107B041	CAP, MINI ELE 100μ/10V
692	C9	5361-223Z921	CAP, CER .022μ
506	C10	5345-226D041	CAP, MINI ELE 22μ/25V
658	C11	5345-107B041	CAP, MINI ELE 100μ/10V
665	C12	5361-102K918	CAP, CER 1000P
051B	C17	5361-223ZF	CAP, CER .022μ GB BB
505	C101	5345-476D041	CAP, MINI ELE 47μ/25V
507	C102	5361-223Z921	CAP, CER .022μ
508	C103	5361-150KSL	CAP, CER 15P
542	C201	5361-223Z921	CAP, CER .022μ
542	C202	5361-223Z921	CAP, CER .022μ
542	C203	5361-223Z921	CAP, CER .022μ
542	C204	5361-223Z921	CAP, CER .022μ
542	C206	5361-223Z921	CAP, CER .022μ
542	C207	5361-223Z921	CAP, CER .022μ
543	C208	5345-106F041	CAP, MINI ELE 10μ/50V
544	C209	5345-474F041	CAP, MINI ELE .47μ/50V
546	C210	5361-101K918	CAP, CER 100P
545	C211	5345-226D041	CAP, MINI ELE 22μ/25V
044B	C212	5345-226D041	CAP, MINI ELE 22μ/25V GB BB
576	C251	5361-103M920	CAP, CER .01μ
571	C252	5361-473ZF	CAP, CER .047μ
571	C253	5361-473ZF	CAP, CER .047μ
573	C254	5361-220JPH	CAP, CER 22P
572	C255	5359-4315851	CAP, PPP 430P
577	C256	5345-106F041	CAP, MINI ELE 10μ/50V
577	C257	5345-106F041	CAP, MINI ELE 10μ/50V
579	C258	5345-475F041	CAP, MINI ELE 4.7μ/50V
579	C259	5345-475F041	CAP, MINI ELE 4.7μ/50V
578	C260	5345-105F041	CAP, MINI ELE 1μ/50V
581	C261	5345-474F041	CAP, MINI ELE .47μ/50V
580	C262	5345-224F041	CAP, MINI ELE .22μ/50V
575	C263	5361-472M919	CAP, CER 4700P
571	C264	5361-473ZF	CAP, CER .047μ
599	C301	5345-226D041	CAP, MINI ELE 22μ/25V
600	C302	5345-476D041	CAP, MINI ELE 47μ/25V
605	C303	5361-471K918	CAP, CER 470P
605B	C303	5361-221K918	CAP, CER 220P GB BB
605	C304	5361-471K918	CAP, CER 470P
605B	C304	5361-221K918	CAP, CER 220P GB BB
604	C305	5345-225F041	CAP, MINI ELE 2.2μ/50V
604	C306	5345-225F041	CAP, MINI ELE 2.2μ/50V
608	C308	5354-473K1HM	CAP, MYL .047μ
601	C309	5345-474F095I	CAP, MINI ELE .47μ/50V
603	C310	5345-106F041	CAP, MINI ELE 10μ/50V
602	C311	5345-224F095I	CAP, MINI ELE .22μ/50V
604	C312	5345-225F041	CAP, MINI ELE 2.2μ/50V
610	C313	5361-472M919	CAP, CER 4700P
610	C314	5361-472M919	CAP, CER 4700P
609	C315	5361-101K918	CAP, CER 100P
635	C701	5345-227C041	CAP, MINI ELE 220μ/16V
633	C702	5345-684F095I	CAP, MINI ELE .68μ/50V
634	C703	5354-473K1HM	CAP, MYL .047μ
631	C704	5345-105F041	CAP, MINI ELE 1μ/50V
649	C706	5361-360J930	CAP, CER 36P
649	C707	5361-360J930	CAP, CER 36P
632	C708	5345-225F041	CAP, MINI ELE 2.2μ/50V
641	C711	5345-106F041	CAP, MINI ELE 10μ/50V
650	C712	5345-107D041	CAP, MINI ELE 100μ/25V
620	C713	5345-475F041	CAP, MINI ELE 4.7μ/50V

Ser. No.	Ref. No.	Part No.	Description
		RESISTORS	
679	R1	5135-4R7522	RES, CBN 1/2P 4.7
680	⚠R2	5102-6R85116	RES, FUSE 6.8
671	R3	5232-272J16P	RES, CBN 1/6P 2.7K
673	R4	5232-101J16P	RES, CBN 1/6P 100
673	R5	5232-101J16P	RES, CBN 1/6P 100
672	⚠R6	5232-331J16P	RES, CBN 1/6P 330
678	⚠R7	5102-2R25116	RES, FUSE 2.2
677	R8	5232-821J16P	RES, CBN 1/6P 820
648	R9	5232-104J16P	RES, CBN 1/6P 100K
670	R10	5232-183J16P	RES, CBN 1/6P 18K
671	R11	5232-272J16P	RES, CBN 1/6P 2.7K
679	R15	5135-4R7522	RES, CBN 1/2P 4.7
668	R17	5171-221593	RES, MTL 1 220
676	R62	5232-102J16P	RES, CBN 1/6P 1K
548	R201	5232-331J16P	RES, CBN 1/6P 330
549	R202	5232-391J16P	RES, CBN 1/6P 390
551	R203	5232-154J16P	RES, CBN 1/6P 150K
556	R204	5232-220J16P	RES, CBN 1/6P 22
556B	R204	5232-180J16P	RES, CBN 1/6P 18 GB BB
552	R205	5232-101J16P	RES, CBN 1/6P 100
549	R206	5232-391J16P	RES, CBN 1/6P 390
553	R207	5232-102J16P	RES, CBN 1/6P 1K
549	R208	5232-391J16P	RES, CBN 1/6P 390
551	R209	5232-154J16P	RES, CBN 1/6P 150K
556	R210	5232-220J16P	RES, CBN 1/6P 22
556B	R210	5232-180J16P	RES, CBN 1/6P 18 GB BB
552	R211	5232-101J16P	RES, CBN 1/6P 100
549	R212	5232-391J16P	RES, CBN 1/6P 390
553	R213	5232-102J16P	RES, CBN 1/6P 1K
555	R214	5232-103J16P	RES, CBN 1/6P 10K
559	R215	5232-332J16P	RES, CBN 1/6P 3.3K
558	R216	5232-472J16P	RES, CBN 1/6P 4.7K
558B	R216	5232-222J16P	RES, CBN 1/6P 2.2K GB BB
558C	R216	5232-222J16P	RES, CBN 1/6P 2.2K
557	R217	5232-123J16P	RES, CBN 1/6P 12K
557B	R217	5232-333J16P	RES, CBN 1/6P 33K GB BB
045B	R218	5232-222J16P	RES, CBN 1/6P 2.2K GB BB
583	R251	5232-104J16P	RES, CBN 1/6P 100K
587	R252	5232-471J16P	RES, CBN 1/6P 470
583	R253	5232-104J16P	RES, CBN 1/6P 100K
586	R254	5232-103J16P	RES, CBN 1/6P 10K
586	R255	5232-103J16P	RES, CBN 1/6P 10K
584	R256	5232-822J16P	RES, CBN 1/6P 8.2K
590	R257	5232-223J16P	RES, CBN 1/6P 22K
588	R258	5232-820J16P	RES, CBN 1/6P 82
589	R259	5232-473J16P	RES, CBN 1/6P 47K
582	R260	5232-123J16P	RES, CBN 1/6P 12K
582B	R260	5232-153J16P	RES, CBN 1/6P 15K GB BB
583	R261	5232-104J16P	RES, CBN 1/6P 100K
583	R262	5232-104J16P	RES, CBN 1/6P 100K
585	R263	5232-272J16P	RES, CBN 1/6P 2.7K
613	R301	5232-124J16P	RES, CBN 1/6P 120K
613B	R301	5232-154J16P	RES, CBN 1/6P 150K GB BB
613	R302	5232-124J16P	RES, CBN 1/6P 120K
613B	R302	5232-154J16P	RES, CBN 1/6P 150K GB BB
611	R303	5232-154J16P	RES, CBN 1/6P 150K
611B	R303	5232-184J16P	RES, CBN 1/6P 180K GB BB
611	R304	5232-154J16P	RES, CBN 1/6P 150K
611B	R304	5232-184J16P	RES, CBN 1/6P 180K GB BB
612	R305	5232-332J16P	RES, CBN 1/6P 3.3K
612	R306	5232-332J16P	RES, CBN 1/6P 3.3K
615	R307	5232-472J16P	RES, CBN 1/6P 4.7K
614	R308	5232-103J16P	RES, CBN 1/6P 10K
614	R309	5232-103J16P	RES, CBN 1/6P 10K
614	R310	5232-103J16P	RES, CBN 1/6P 10K
614	R311	5232-103J16P	RES, CBN 1/6P 10K
614	R312	5232-103J16P	RES, CBN 1/6P 10K
046B	R313	5232-102J16P	RES, CBN 1/6P 1K GB BB
046B	R314	5232-102J16P	RES, CBN 1/6P 1K GB BB
637	R701	5232-103J16P	RES, CBN 1/6P 10K
647	R702	5232-222J16P	RES, CBN 1/6P 2.2K

Ser. No.	Ref. No.	Part No.	Description
637	R703	5232-103J16P	RES, CBN 1/6P 10K
639	R704	5232-473J16P	RES, CBN 1/6P 47K
642	R705	5232-102J16P	RES, CBN 1/6P 1K
642	R706	5232-102J16P	RES, CBN 1/6P 1K
642	R707	5232-102J16P	RES, CBN 1/6P 1K
637	R711	5232-103J16P	RES, CBN 1/6P 10K
637	R712	5232-103J16P	RES, CBN 1/6P 10K
637	R713	5232-103J16P	RES, CBN 1/6P 10K
645	R714	5232-105J16P	RES, CBN 1/6P 1M
637	R715	5232-103J16P	RES, CBN 1/6P 10K
646	R717	5232-335J16P	RES, CBN 1/6P 3.3M
640	R721	5232-223J16P	RES, CBN 1/6P 22K
619	R723	5232-334J16P	RES, CBN 1/6P 330K
645	R724	5232-105J16P	RES, CBN 1/6P 1M
637	R725	5232-103J16P	RES, CBN 1/6P 10K
640	R726	5232-223J16P	RES, CBN 1/6P 22K
640	R727	5232-223J16P	RES, CBN 1/6P 22K
640	R728	5232-223J16P	RES, CBN 1/6P 22K
619	R729	5232-334J16P	RES, CBN 1/6P 330K
640	R730	5232-223J16P	RES, CBN 1/6P 22K
645	R732	5232-105J16P	RES, CBN 1/6P 1M
616	R733	5232-822J16P	RES, CBN 1/6P 8.2K
645	R735	5232-105J16P	RES, CBN 1/6P 1M
640	R736	5232-223J16P	RES, CBN 1/6P 22K
638	R737	5232-100J16P	RES, CBN 1/6P 10
642	R738	5232-102J16P	RES, CBN 1/6P 1K
640	R739	5232-223J16P	RES, CBN 1/6P 22K
640	R740	5232-223J16P	RES, CBN 1/6P 22K
640	R741	5232-223J16P	RES, CBN 1/6P 22K
618	R742	5232-474J16P	RES, CBN 1/6P 470K
640	R743	5232-223J16P	RES, CBN 1/6P 22K
637	R751	5232-103J16P	RES, CBN 1/6P 10K
637	R752	5232-103J16P	RES, CBN 1/6P 10K
637	R753	5232-103J16P	RES, CBN 1/6P 10K
637	R754	5232-103J16P	RES, CBN 1/6P 10K
637	R755	5232-103J16P	RES, CBN 1/6P 10K
637	R756	5232-103J16P	RES, CBN 1/6P 10K
637	R757	5232-103J16P	RES, CBN 1/6P 10K
637	R758	5232-103J16P	RES, CBN 1/6P 10K
617	R759	5232-332J16P	RES, CBN 1/6P 3.3K
637	R760	5232-103J16P	RES, CBN 1/6P 10K
644	R761	5232-332J16P	RES, CBN 1/6P 3.3K
643	R762	5232-682J16P	RES, CBN 1/6P 6.8K
639	R763	5232-473J16P	RES, CBN 1/6P 47K
		INTEGRATED CIRCUITS	
531	IC201	5653-LA1266	IC, LINEAR
591	IC301	5653-LA3410	IC, LINEAR
621	IC701	5654-T9306F25	IC, DIGITAL
627	IC702	5654-TC9172AP	IC, DIGITAL
		TRANSISTORS	
651	Q1	5612-1375	XISTOR, PNP A
652	Q2	5613-2603(E)or(F)	XISTOR, NPN R
653	Q3	5611-1115(E)or(F)	XISTOR, PNP R
532	Q201	5613-2058(N)or(P)	XISTOR, NPN R
532	Q202	5613-2058(N)or(P)	XISTOR, NPN R
592	Q301	5613-2878(B)	XISTOR, NPN R
592	Q302	5613-2878(B)	XISTOR, NPN R
624	Q701	5613-2240(BL)	XISTOR, NPN R
625	Q702	5613-2603(E)or(F)	XISTOR, NPN R
623	Q703	5613-RN1203	XISTOR, NPN R
623	Q704	5613-RN1203	XISTOR, NPN R
623	Q705	5613-RN1203	XISTOR, NPN R
625	Q706	5613-2603(E)or(F)	XISTOR, NPN R
623	Q707	5613-RN1203	XISTOR, NPN R
622	Q708	5611-1115(E)or(F)	XISTOR, PNP R
622	Q709	5611-1115(E)or(F)	XISTOR, PNP R
622	Q710	5611-1115(E)or(F)	XISTOR, PNP R
625	Q711	5613-2603(E)or(F)	XISTOR, NPN R
625	Q712	5613-2603(E)or(F)	XISTOR, NPN R
623	Q713	5613-RN1203	XISTOR, NPN R
		DIODES	
654	⚠D1	5632-S5566B	DIODE, RECT

Ser. No.	Ref. No.	Part No.	Description
654	⚠D2	5632-S5566B	DIODE, RECT
654	⚠D3	5632-S5566B	DIODE, RECT
654	⚠D4	5632-S5566B	DIODE, RECT
654	⚠D5	5632-S5566B	DIODE, RECT
654	⚠D6	5632-S5566B	DIODE, RECT
656	D7	5635-HZ12C2L	DIODE, ZENER
657	D8	5635-HZ6B1L	DIODE, ZENER
655	D10	5631-1SS133	DIODE, DET
538	D201	5631-1SS133	DIODE, DET
561	D251	5633-1SV149	DIODE, CAP
561	D252	5633-1SV149	DIODE, CAP
562	D253	5631-1SS133	DIODE, DET
562	D254	5631-1SS133	DIODE, DET
593	D301	5631-1SS133	DIODE, DET
593	D302	5631-1SS133	DIODE, DET
636	D714	5631-1S2473	DIODE, DET
636	D715	5631-1S2473	DIODE, DET
636	D716	5631-1S2473	DIODE, DET
628	D717	5631-1SS133	DIODE, DET
628	D718	5631-1SS133	DIODE, DET
628	D719	5631-1SS133	DIODE, DET
628	D720	5631-1SS133	DIODE, DET
628	D721	5631-1SS133	DIODE, DET
628	D722	5631-1SS133	DIODE, DET
		MISCELLANEOUS	
717	J1	4482-0133	PIN JACK, 2P
503	L102	5995-2R2J107	COIL W/CORE
050B	L103	5214-78	LC COMPOSITE GB BB
537	L201	5995-2R2J107	COIL W/CORE
596	L301	5995-2R2J107	COIL W/CORE
536	T201	5572-10201	DISCRI 7
043B	T202	5214-13101	LC COMPOSITE GB BB
570	T251	5933-S0102	COIL CASE, 10
565	T252	5552-70114	IFT, AM 7
564	T253	5922-00112	OSC COIL, 7
594	X301	5693-CSB456F1	OSC, CER
626	X701	5691-00720027	XTAL, OSC
535	CF201	5671-7147A	FILTER, CER S
535B	CF201	5671-7142A	FILTER, CER S GB BB
535	CF202	5671-7147A	FILTER, CER S
535B	CF202	5671-7142A	FILTER, CER S GB BB
539	CF203	5671-012A	FILTER, CER S
568	CF251	5671-7137C	FILTER, CER S
567	CF252	5671-0159	FILTER, CER S
711	CN1	4443-04501004	CONNECTOR
712	CN2	4443-04501007	CONNECTOR
705	⚠CN5	4443-040185	CONNECTOR
501	⚠FE101	6114-00401	FM TUNER
501B	FE101	6114-00402	FM TUNER GB BB
569	TC251	5371-93	TRIMMER, 1P
695	TM1	4214-122	TERMINAL
695	TM2	4214-122	TERMINAL
696	⚠TM3	4214-164	TERMINAL
042B	TM4	4214-167	TERMINAL GB BB
534	VR251	5101-10301934	RES, SEMI FIX 10K
595	VR301	5101-10401934	RES, SEMI FIX 100K
681	LCD1	5791-BP8A9041	LCD
047B	LUG1	4211-4	LUG GB BB
725	LUG2	4211-4	LUG BK
		PCB-2 POWER SUPPLY P.C.BOARD	
		CAPACITORS	
663	C13	5345-106F041	CAP, MINI ELE 10μ/50V
691	C15	5361-473ZF	CAP, CER .047μ
048B	C16	5361-223ZF	CAP, CER .022μ GB BB
051B	C17	5361-223ZF	CAP, CER .022μ GB BB
		RESISTORS	
669	R12	5232-102J16P	RES, CBN 1/6P 1K
674	R13	5232-105J16P	RES, CBN 1/6P 1M
675	R14	5232-224J16P	RES, CBN 1/6P 220K
699	⚠R60	5135-335522	RES, CBN 1/2P 3.3M BK

ELECTRICAL PARTS LIST

Ser. No.	Ref. No.	Part No.	Description
		PCB-1 MAIN P.C.BOARD	
		CAPACITORS	
661	C1	5345-228D045	CAP, MINI ELE 2200μ/25V
662	C2	5345-476D041	CAP, MINI ELE 47μ/25V
662	C3	5345-476D041	CAP, MINI ELE 47μ/25V
667	C4	5361-473ZF	CAP, CER .047μ
667	C5	5361-473ZF	CAP, CER .047μ
658	C6	5345-107B041	CAP, MINI ELE 100μ/10V
664	C7	5345-228A041	CAP, MINI ELE 2200μ/6.3V
658	C8	5345-107B041	CAP, MINI ELE 100μ/10V
692	C9	5361-223Z921	CAP, CER .022μ
506	C10	5345-226D041	CAP, MINI ELE 22μ/25V
658	C11	5345-107B041	CAP, MINI ELE. 100μ/10V
665	C12	5361-102K918	CAP, CER 1000P
051B	C17	5361-223ZF	CAP, CER .022μ GB BB
505	C101	5345-476D041	CAP, MINI ELE 47μ/25V
507	C102	5361-223Z921	CAP, CER .022μ
508	C103	5361-150KSL	CAP, CER 15P
542	C201	5361-223Z921	CAP, CER .022μ
542	C202	5361-223Z921	CAP, CER .022μ
542	C203	5361-223Z921	CAP, CER .022μ
542	C204	5361-223Z921	CAP, CER .022μ
542	C206	5361-223Z921	CAP, CER .022μ
542	C207	5361-223Z921	CAP, CER .022μ
543	C208	5345-106F041	CAP, MINI ELE 10μ/50V
544	C209	5345-474F041	CAP, MINI ELE .47μ/50V
546	C210	5361-101K918	CAP, CER 100P
545	C211	5345-226D041	CAP, MINI ELE 22μ/25V
044B	C212	5345-226D041	CAP, MINI ELE 22μ/25V GB BB
576	C251	5361-103M920	CAP, CER .01μ
571	C252	5361-473ZF	CAP, CER .047μ
571	C253	5361-473ZF	CAP, CER .047μ
573	C254	5361-220JPH	CAP, CER 22P
572	C255	5359-431585I	CAP, PPP 430P
577	C256	5345-106F041	CAP, MINI ELE 10μ/50V
577	C257	5345-106F041	CAP, MINI ELE 10μ/50V
579	C258	5345-475F041	CAP, MINI ELE 4.7μ/50V
579	C259	5345-475F041	CAP, MINI ELE 4.7μ/50V
578	C260	5345-105F041	CAP, MINI ELE 1μ/50V
581	C261	5345-474F041	CAP, MINI ELE .47μ/50V
580	C262	5345-224F041	CAP, MINI ELE .22μ/50V
575	C263	5361-472M919	CAP, CER 4700P
571	C264	5361-473ZF	CAP, CER .047μ
599	C301	5345-226D041	CAP, MINI ELE 22μ/25V
600	C302	5345-476D041	CAP, MINI ELE 47μ/25V
605	C303	5361-471K918	CAP, CER 470P
605B	C303	5361-221K918	CAP, CER 220P GB BB
605	C304	5361-471K918	CAP, CER 470P
605B	C304	5361-221K918	CAP, CER 220P GB BB
604	C305	5345-225F041	CAP, MINI ELE 2.2μ/50V
604	C306	5345-225F041	CAP, MINI ELE 2.2μ/50V
608	C308	5354-473K1HM	CAP, MYL .047μ
601	C309	5345-474F095I	CAP, MINI ELE .47μ/50V
603	C310	5345-106F041	CAP, MINI ELE 10μ/50V
602	C311	5345-224F095I	CAP, MINI ELE .22μ/50V
604	C312	5345-225F041	CAP, MINI ELE 2.2μ/50V
610	C313	5361-472M919	CAP, CER 4700P
610	C314	5361-472M919	CAP, CER 4700P
609	C315	5361-101K918	CAP, CER 100P
635	C701	5345-227C041	CAP, MINI ELE 220μ/16V
633	C702	5345-684F095I	CAP, MINI ELE .68μ/50V
634	C703	5354-473K1HM	CAP, MYL .047μ
631	C704	5345-105F041	CAP, MINI ELE 1μ/50V
649	C706	5361-360J930	CAP, CER 36P
649	C707	5361-360J930	CAP, CER 36P
632	C708	5345-225F041	CAP, MINI ELE 2.2μ/50V
641	C711	5345-106F041	CAP, MINI ELE 10μ/50V
650	C712	5345-107D041	CAP, MINI ELE 100μ/25V
620	C713	5345-475F041	CAP, MINI ELE 4.7μ/50V

Ser. No.	Ref. No.	Part No.	Description
		RESISTORS	
679	R1	5135-4R7522	RES, CBN 1/2P 4.7
680	⚠R2	5102-6R85116	RES, FUSE 6.8
671	R3	5232-272J16P	RES, CBN 1/6P 2.7K
673	R4	5232-101J16P	RES, CBN 1/6P 100
673	R5	5232-101J16P	RES, CBN 1/6P 100
672	⚠R6	5232-331J16P	RES, CBN 1/6P 330
678	⚠R7	5102-2R25116	RES, FUSE 2.2
677	R8	5232-821J16P	RES, CBN 1/6P 820
648	R9	5232-104J16P	RES, CBN 1/6P 100K
670	R10	5232-183J16P	RES, CBN 1/6P 18K
671	R11	5232-272J16P	RES, CBN 1/6P 2.7K
679	R15	5135-4R7522	RES, CBN 1/2P 4.7
668	R17	5171-221593	RES, MTL 1 220
676	R62	5232-102J16P	RES, CBN 1/6P 1K
548	R201	5232-331J16P	RES, CBN 1/6P 330
549	R202	5232-391J16P	RES, CBN 1/6P 390
551	R203	5232-154J16P	RES, CBN 1/6P 150K
556	R204	5232-220J16P	RES, CBN 1/6P 22
556B	R204	5232-180J16P	RES, CBN 1/6P 18 GB BB
552	R205	5232-101J16P	RES, CBN 1/6P 100
549	R206	5232-391J16P	RES, CBN 1/6P 390
553	R207	5232-102J16P	RES, CBN 1/6P 1K
549	R208	5232-391J16P	RES, CBN 1/6P 390
551	R209	5232-154J16P	RES, CBN 1/6P 150K
556	R210	5232-220J16P	RES, CBN 1/6P 22
556B	R210	5232-180J16P	RES, CBN 1/6P 18 GB BB
552	R211	5232-101J16P	RES, CBN 1/6P 100
549	R212	5232-391J16P	RES, CBN 1/6P 390
553	R213	5232-102J16P	RES, CBN 1/6P 1K
555	R214	5232-103J16P	RES, CBN 1/6P 10K
559	R215	5232-332J16P	RES, CBN 1/6P 3.3K
558	R216	5232-472J16P	RES, CBN 1/6P 4.7K
558B	R216	5232-222J16P	RES, CBN 1/6P 2.2K GB BB
558C	R216	5232-222J16P	RES, CBN 1/6P 2.2K
557	R217	5232-123J16P	RES, CBN 1/6P 12K
557B	R217	5232-333J16P	RES, CBN 1/6P 33K GB BB
045B	R218	5232-222J16P	RES, CBN 1/6P 2.2K GB BB
583	R251	5232-104J16P	RES, CBN 1/6P 100K
587	R252	5232-471J16P	RES, CBN 1/6P 470
583	R253	5232-104J16P	RES, CBN 1/6P 100K
586	R254	5232-103J16P	RES, CBN 1/6P 10K
586	R255	5232-103J16P	RES, CBN 1/6P 10K
584	R256	5232-822J16P	RES, CBN 1/6P 8.2K
590	R257	5232-223J16P	RES, CBN 1/6P 22K
588	R258	5232-820J16P	RES, CBN 1/6P 82
589	R259	5232-473J16P	RES, CBN 1/6P 47K
582	R260	5232-123J16P	RES, CBN 1/6P 12K
582B	R260	5232-153J16P	RES, CBN 1/6P 15K GB BB
583	R261	5232-104J16P	RES, CBN 1/6P 100K
583	R262	5232-104J16P	RES, CBN 1/6P 100K
585	R263	5232-272J16P	RES, CBN 1/6P 2.7K
613	R301	5232-124J16P	RES, CBN 1/6P 120K
613B	R301	5232-154J16P	RES, CBN 1/6P 150K GB BB
613	R302	5232-124J16P	RES, CBN 1/6P 120K
613B	R302	5232-154J16P	RES, CBN 1/6P 150K GB BB
611	R303	5232-154J16P	RES, CBN 1/6P 150K
611B	R303	5232-184J16P	RES, CBN 1/6P 180K GB BB
611	R304	5232-154J16P	RES, CBN 1/6P 150K
611B	R304	5232-184J16P	RES, CBN 1/6P 180K GB BB
612	R305	5232-332J16P	RES, CBN 1/6P 3.3K
612	R306	5232-332J16P	RES, CBN 1/6P 3.3K
615	R307	5232-472J16P	RES, CBN 1/6P 4.7K
614	R308	5232-103J16P	RES, CBN 1/6P 10K
614	R309	5232-103J16P	RES, CBN 1/6P 10K
614	R310	5232-103J16P	RES, CBN 1/6P 10K
614	R311	5232-103J16P	RES, CBN 1/6P 10K
614	R312	5232-103J16P	RES, CBN 1/6P 10K
046B	R313	5232-102J16P	RES, CBN 1/6P 1K GB BB
046B	R314	5232-102J16P	RES, CBN 1/6P 1K GB BB
637	R701	5232-103J16P	RES, CBN 1/6P 10K
647	R702	5232-222J16P	RES, CBN 1/6P 2.2K

Ser. No.	Ref. No.	Part No.	Description
637	R703	5232-103J16P	RES, CBN 1/6P 10K
639	R704	5232-473J16P	RES, CBN 1/6P 47K
642	R705	5232-102J16P	RES, CBN 1/6P 1K
642	R706	5232-102J16P	RES, CBN 1/6P 1K
642	R707	5232-102J16P	RES, CBN 1/6P 1K
637	R711	5232-103J16P	RES, CBN 1/6P 10K
637	R712	5232-103J16P	RES, CBN 1/6P 10K
637	R713	5232-103J16P	RES, CBN 1/6P 10K
645	R714	5232-105J16P	RES, CBN 1/6P 1M
637	R715	5232-103J16P	RES, CBN 1/6P 10K
646	R717	5232-335J16P	RES, CBN 1/6P 3.3M
640	R721	5232-223J16P	RES, CBN 1/6P 22K
619	R723	5232-334J16P	RES, CBN 1/6P 330K
645	R724	5232-105J16P	RES, CBN 1/6P 1M
637	R725	5232-103J16P	RES, CBN 1/6P 10K
640	R726	5232-223J16P	RES, CBN 1/6P 22K
640	R727	5232-223J16P	RES, CBN 1/6P 22K
640	R728	5232-223J16P	RES, CBN 1/6P 22K
619	R729	5232-334J16P	RES, CBN 1/6P 330K
640	R730	5232-223J16P	RES, CBN 1/6P 22K
645	R732	5232-105J16P	RES, CBN 1/6P 1M
616	R733	5232-822J16P	RES, CBN 1/6P 8.2K
645	R735	5232-105J16P	RES, CBN 1/6P 1M
640	R736	5232-223J16P	RES, CBN 1/6P 22K
638	R737	5232-100J16P	RES, CBN 1/6P 10
642	R738	5232-102J16P	RES, CBN 1/6P 1K
640	R739	5232-223J16P	RES, CBN 1/6P 22K
640	R740	5232-223J16P	RES, CBN 1/6P 22K
640	R741	5232-223J16P	RES, CBN 1/6P 22K
618	R742	5232-474J16P	RES, CBN 1/6P 470K
640	R743	5232-223J16P	RES, CBN 1/6P 22K
637	R751	5232-103J16P	RES, CBN 1/6P 10K
637	R752	5232-103J16P	RES, CBN 1/6P 10K
637	R753	5232-103J16P	RES, CBN 1/6P 10K
637	R754	5232-103J16P	RES, CBN 1/6P 10K
637	R755	5232-103J16P	RES, CBN 1/6P 10K
637	R756	5232-103J16P	RES, CBN 1/6P 10K
637	R757	5232-103J16P	RES, CBN 1/6P 10K
637	R758	5232-103J16P	RES, CBN 1/6P 10K
617	R759	5232-332J16P	RES, CBN 1/6P 3.3K
637	R760	5232-103J16P	RES, CBN 1/6P 10K
644	R761	5232-332J16P	RES, CBN 1/6P 3.3K
643	R762	5232-682J16P	RES, CBN 1/6P 6.8K
639	R763	5232-473J16P	RES, CBN 1/6P 47K
		INTEGRATED CIRCUITS	
531	IC201	5653-LA1266	IC, LINEAR
591	IC301	5653-LA3410	IC, LINEAR
621	IC701	5654-T9306F25	IC, DIGITAL
627	IC702	5654-TC9172AP	IC, DIGITAL
		TRANSISTORS	
651	Q1	5612-1375	XISTOR, PNP A
652	Q2	5613-2603(E)or(F)	XISTOR, NPN R
653	Q3	5611-1115(E)or(F)	XISTOR, PNP R
532	Q201	5613-2058(N)or(P)	XISTOR, NPN R
532	Q202	5613-2058(N)or(P)	XISTOR, NPN R
592	Q301	5613-2878(B)	XISTOR, NPN R
592	Q302	5613-2878(B)	XISTOR, NPN R
624	Q701	5613-2240(BL)	XISTOR, NPN R
625	Q702	5613-2603(E)or(F)	XISTOR, NPN R
623	Q703	5613-RN1203	XISTOR, NPN R
623	Q704	5613-RN1203	XISTOR, NPN R
623	Q705	5613-RN1203	XISTOR, NPN R
625	Q706	5613-2603(E)or(F)	XISTOR, NPN R
623	Q707	5613-RN1203	XISTOR, NPN R
622	Q708	5611-1115(E)or(F)	XISTOR, PNP R
622	Q709	5611-1115(E)or(F)	XISTOR, PNP R
622	Q710	5611-1115(E)or(F)	XISTOR, PNP R
625	Q711	5613-2603(E)or(F)	XISTOR, NPN R
625	Q712	5613-2603(E)or(F)	XISTOR, NPN R
623	Q713	5613-RN1203	XISTOR, NPN R
		DIODES	
654	⚠D1	5632-S5566B	DIODE, RECT
654	⚠D2	5632-S5566B	DIODE, RECT
654	⚠D3	5632-S5566B	DIODE, RECT
654	⚠D4	5632-S5566B	DIODE, RECT
654	⚠D5	5632-S5566B	DIODE, RECT
654	⚠D6	5632-S5566B	DIODE, RECT
656	D7	5635-HZ12C2L	DIODE, ZENER
657	D8	5635-HZ6B1L	DIODE, ZENER
655	D10	5631-1SS133	DIODE, DET
538	D201	5631-1SS133	DIODE, DET
561	D251	5633-1SV149	DIODE, CAP
561	D252	5633-1SV149	DIODE, CAP
562	D253	5631-1SS133	DIODE, DET
562	D254	5631-1SS133	DIODE, DET
593	D301	5631-1SS133	DIODE, DET
593	D302	5631-1SS133	DIODE, DET
636	D714	5631-1S2473	DIODE, DET
636	D715	5631-1S2473	DIODE, DET
636	D716	5631-1S2473	DIODE, DET
628	D717	5631-1SS133	DIODE, DET
628	D718	5631-1SS133	DIODE, DET
628	D719	5631-1SS133	DIODE, DET
628	D720	5631-1SS133	DIODE, DET
628	D721	5631-1SS133	DIODE, DET
628	D722	5631-1SS133	DIODE, DET
		MISCELLANEOUS	
717	J1	4482-0133	PIN JACK, 2P
503	L102	5995-2R2J107	COIL W/CORE
050B	L103	5214-78	LC COMPOSITE GB BB
537	L201	5995-2R2J107	COIL W/CORE
596	L301	5995-2R2J107	COIL W/CORE
536	T201	5572-10201	DISCRI 7
043B	T202	5214-13101	LC COMPOSITE GB BB
570	T251	5933-S0102	COIL CASE, 10
565	T252	5552-70114	IFT, AM 7
564	T253	5922-00112	OSC COIL, 7
594	X301	5693-CSB456F1	OSC, CER
626	X701	5691-00720027	XTAL, OSC
535	CF201	5671-7147A	FILTER, CER S
535B	CF201	5671-7142A	FILTER, CER S GB BB
535	CF202	5671-7147A	FILTER, CER S
535B	CF202	5671-7142A	FILTER, CER S GB BB
539	CF203	5671-012A	FILTER, CER S
568	CF251	5671-7137C	FILTER, CER S
567	CF252	5671-0159	FILTER, CER S
711	CN1	4443-04501004	CONNECTOR
712	CN2	4443-04501007	CONNECTOR
705	⚠CN5	4443-040185	CONNECTOR
501	⚠FE101	6114-00401	FM TUNER
501B	FE101	6114-00402	FM TUNER GB BB
569	TC251	5371-93	TRIMMER, 1P
695	TM1	4214-122	TERMINAL
695	TM2	4214-122	TERMINAL
696	⚠TM3	4214-164	TERMINAL
042B	TM4	4214-167	TERMINAL GB BB
534	VR251	5101-10301934	RES, SEMI FIX 10K
595	VR301	5101-10401934	RES, SEMI FIX 100K
681	LCD1	5791-BP8A9041	LCD
047B	LUG1	4211-4	LUG GB BB
725	LUG2	4211-4	LUG BK

PCB-2 POWER SUPPLY P.C.BOARD

		CAPACITORS	
663	C13	5345-106F041	CAP, MINI ELE 10μ/50V
691	C15	5361-473ZF	CAP, CER .047μ
048B	C16	5361-223ZF	CAP, CER .022μ GB BB
051B	C17	5361-223ZF	CAP, CER .022μ GB BB
		RESISTORS	
669	R12	5232-102J16P	RES, CBN 1/6P 1K
674	R13	5232-105J16P	RES, CBN 1/6P 1M
675	R14	5232-224J16P	RES, CBN 1/6P 220K
699	⚠R60	5135-335522	RES, CBN 1/2P 3.3M BK

Ser. No.	Ref. No.	Part No.	Description
		DIODES	
666	⚠D12	5631-ISS133	DIODE, DET
666	D14	5631-ISS133	DIODE, DET
		MISCELLANEOUS	
689	S1	4431-A02725	SWITCH, PUSH
689B	S1	4431-S0705102	SWITCH, PUSH GB BB
041B	⚠S2	4411-1047111	SWITCH, ROTARY GB BB
721	⚠T1	5584-S1804	XFORMER, POWER
721B	⚠T1	5584-S1805	XFORMER, POWER GB BB
701	JL1	4242-R0204101	JUMPER LEAD

PCB-3 UP/DOWN P.C.BOARD

		DIODES	
630	D711	5631-ISS133	DIODE, DET
630	D712	5631-ISS133	DIODE, DET
630	D713	5631-ISS133	DIODE, DET
		MISCELLANEOUS	
688	S711	4437-00604	SWITCH, PU-TC
688	S712	4437-00604	SWITCH, PU-TC
688	S713	4437-00604	SWITCH, PU-TC
713	CN3	4443-04401004	CONNECTOR

PCB-4 PRE SET P.C.BOARD

		DIODES	
629	D701	5631-ISS133	DIODE, DET
629	D702	5631-ISS133	DIODE, DET
629	D703	5631-ISS133	DIODE, DET
629	D704	5631-ISS133	DIODE, DET
629	D705	5631-ISS133	DIODE, DET
629	D706	5631-ISS133	DIODE, DET
629	D707	5631-ISS133	DIODE, DET
629	D708	5631-ISS133	DIODE, DET
629	D709	5631-ISS133	DIODE, DET BK BB
629	D710	5631-ISS133	DIODE, DET BK BB
		MISCELLANEOUS	
687	S701	4437-00604	SWITCH, PU-TC
687	S702	4437-00604	SWITCH, PU-TC
687	S703	4437-00604	SWITCH, PU-TC
687	S704	4437-00604	SWITCH, PU-TC
687	S705	4437-00604	SWITCH, PU-TC
687	S706	4437-00604	SWITCH, PU-TC
687	S707	4437-00604	SWITCH, PU-TC
687	S708	4437-00604	SWITCH, PU-TC
714	CN4	4443-04401007	CONNECTOR

PCB-5 LAMP P.C.BOARD

		MISCELLANEOUS	
702	JL2	4242-R0103201	JUMPER LEAD
682	LP1	5731-00101140	LAMP
682	LP2	5731-00101140	LAMP

CHASSIS MISCELLANEOUS

		MISCELLANEOUS	
047B		4211-4	LUG GB BB
719	⚠P1	4161-71147	CORD W/PLUG
719B	⚠P1	4161-7256	CORD W/PLUG GB BB

PACKAGE PARTS LIST

021B		1756-06303	LABEL GB BB
022B		1756-03108	LABEL GB
022C		1756-03111	LABEL BB
111		1221-867147	CARTON BOX
113		1222-7224	CUSHION
115		1223-R0120055	SOFT SHEET
116		1241-R0123350	POLYETHY BAG IB
117		1241-C1493	POLYETHY BAG SET
118		1111-J30299	OWNER GUIDE BK
118B		1111-J30300	OWNER GUIDE IB GB BB
119		1241-R0115300	POLYETHY BAG LOOP
120		1113-717004	OWNER CARD BK
120B		1111-J30235	OWNER GUIDE GB BB
121		1119-047	ATTACH SHEET
122		1119-01201	ATTACH SHEET
124		1119-0137	ATTACH SHEET BK
124B		1119-0135	ATTACH SHEET GB BB
683		1397-6	T FEEDER ANT T
684	L1	5911-235	ANT COIL, BC
720		4161-71184	CORD W/PLUG

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
470μ : 470μF
6800p : 6800pF
.047μ : 0.047μF

RESISTORS

RES, CBN 1/6P : Carbon 1/6W
RES, FUSE : Fuse
RES, CEM 5P : Cement 5W
RES, MTL 1P : Metal 1W
2.2K : 2.2kΩ
220 : 220Ω

TRANSISTORS

XISTOR : Transistor
FET : Field Effect Transistor

CONTROLS

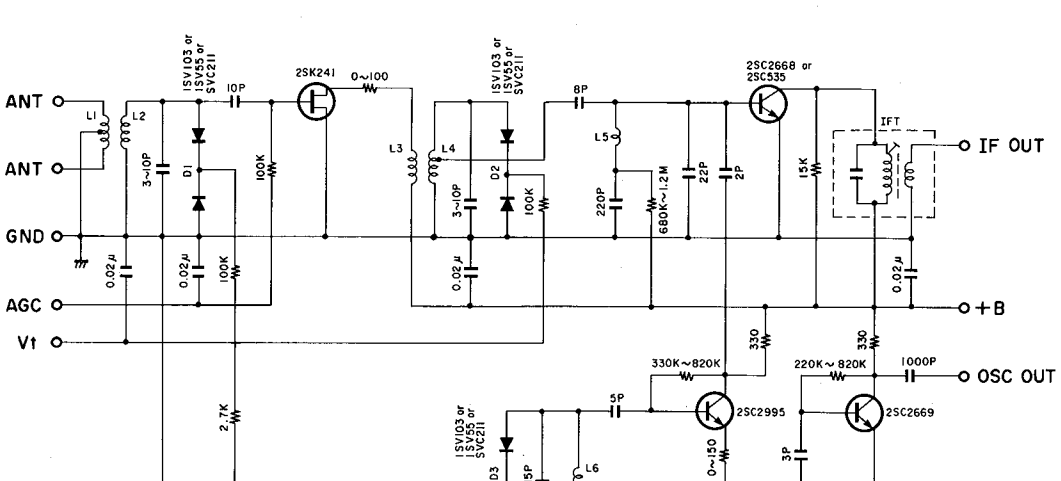
RES, V CBN : Variable Carbon Resistor

NOTE

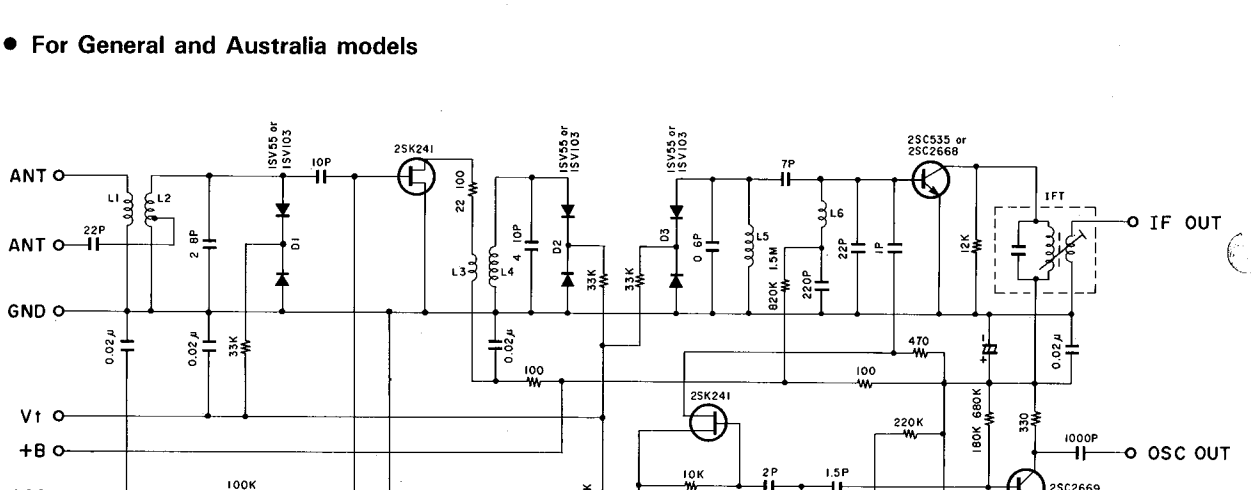
⚠ SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

SCHEMATIC DIAGRAM
(FM TUNER)

- For North America area model

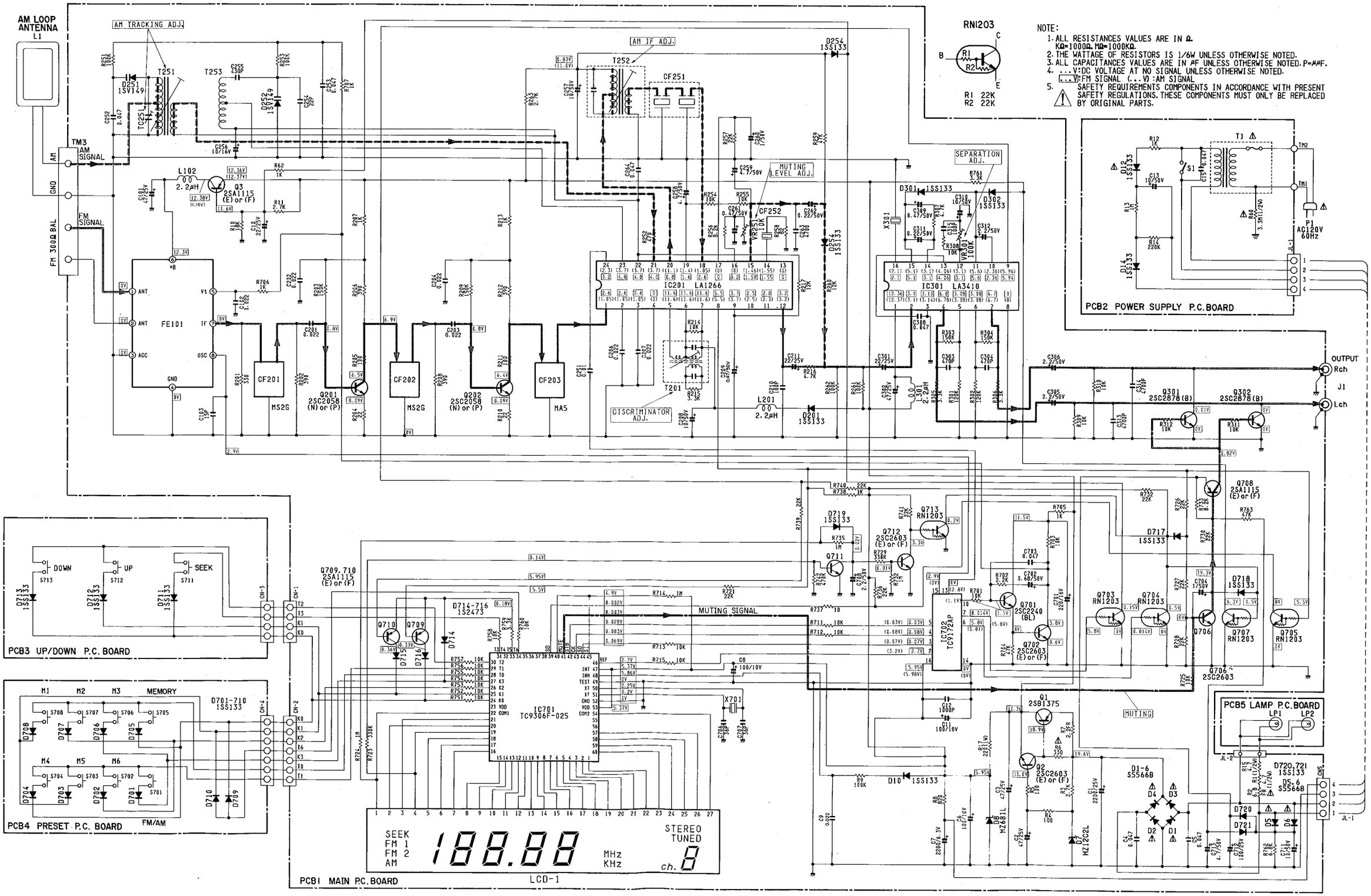


- For General and Australia models

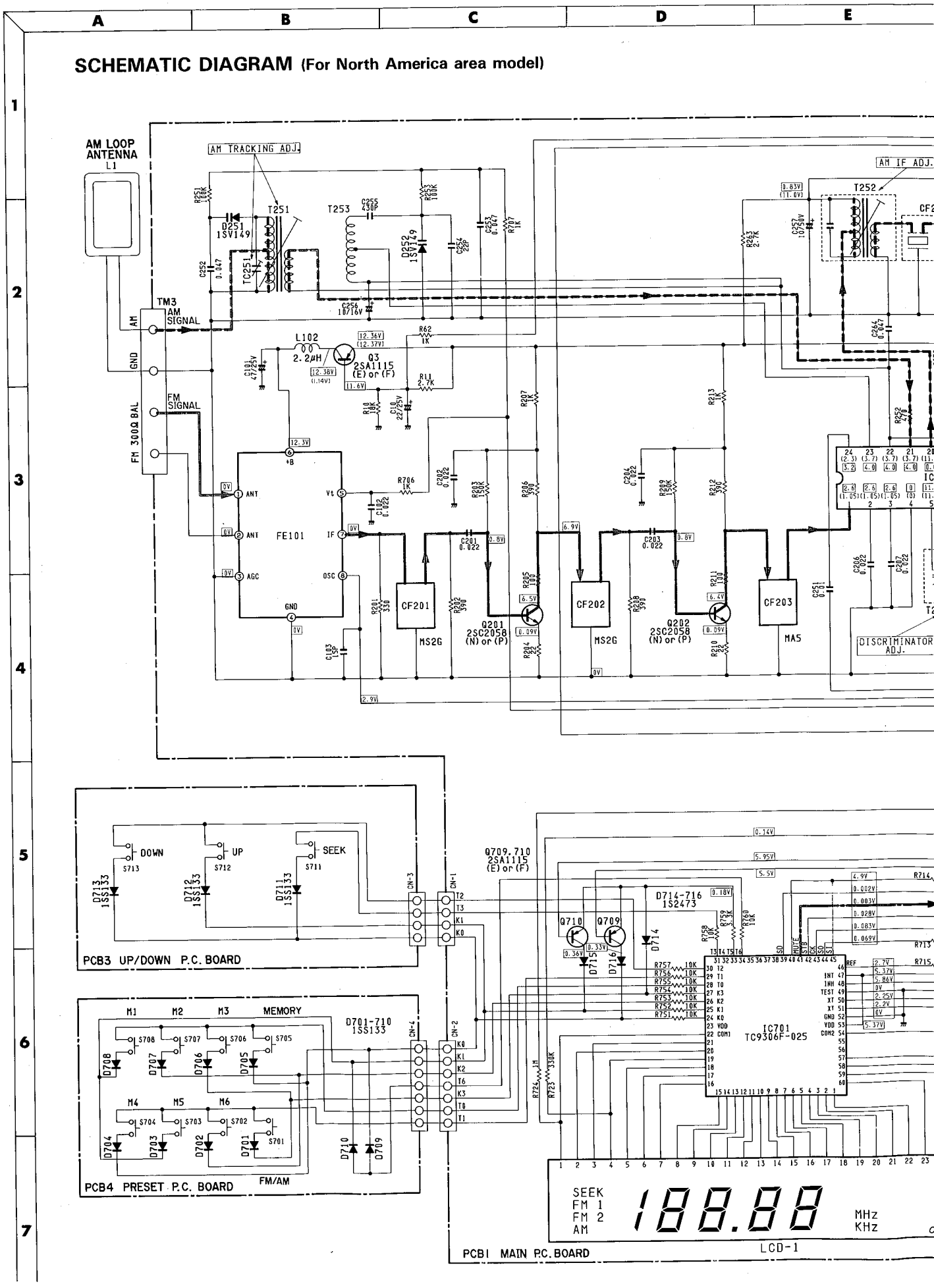


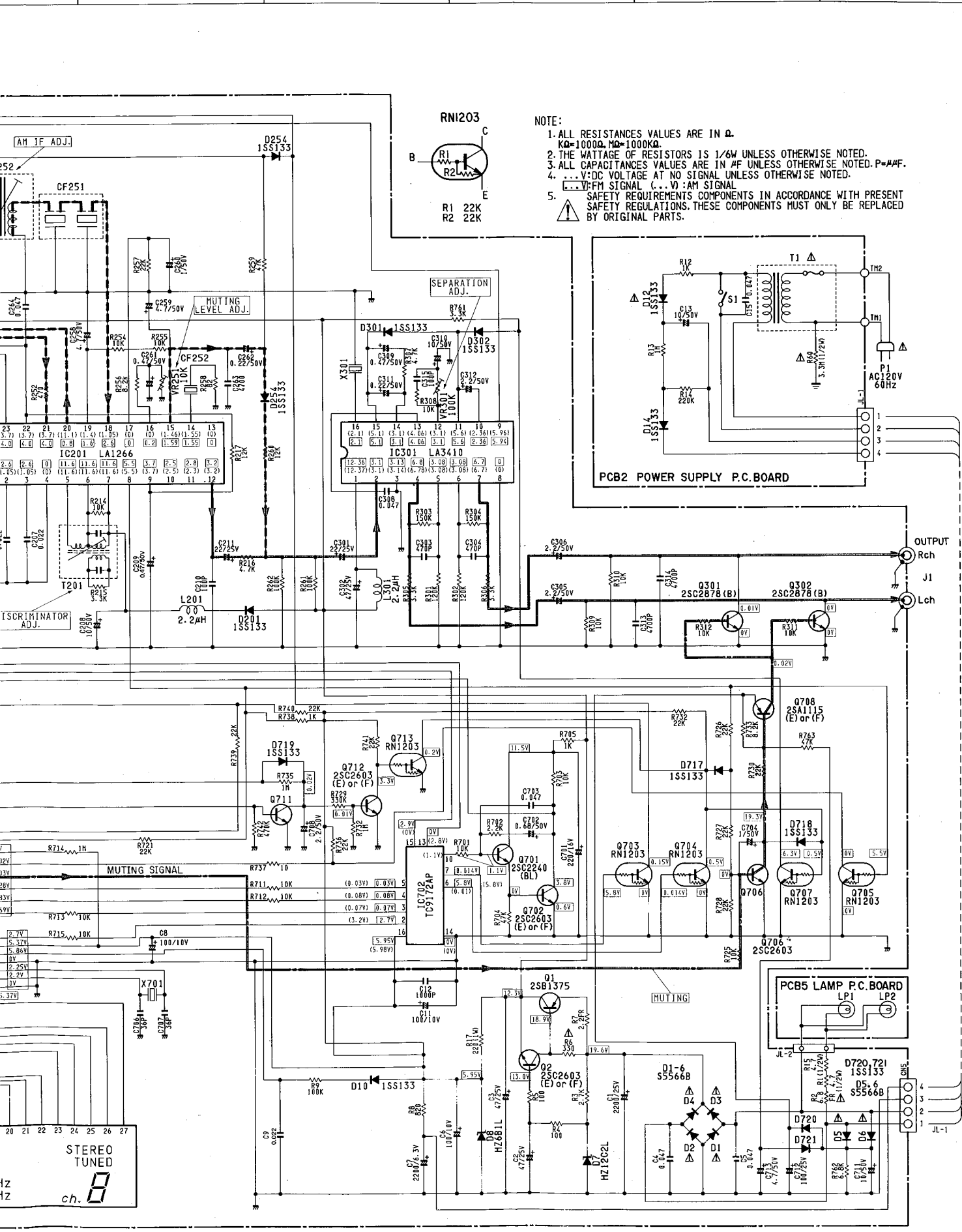
NOTE: Front End parts not available.
Schematic diagram supplied for reference only.

SCHEMATIC DIAGRAM (For North America area model)

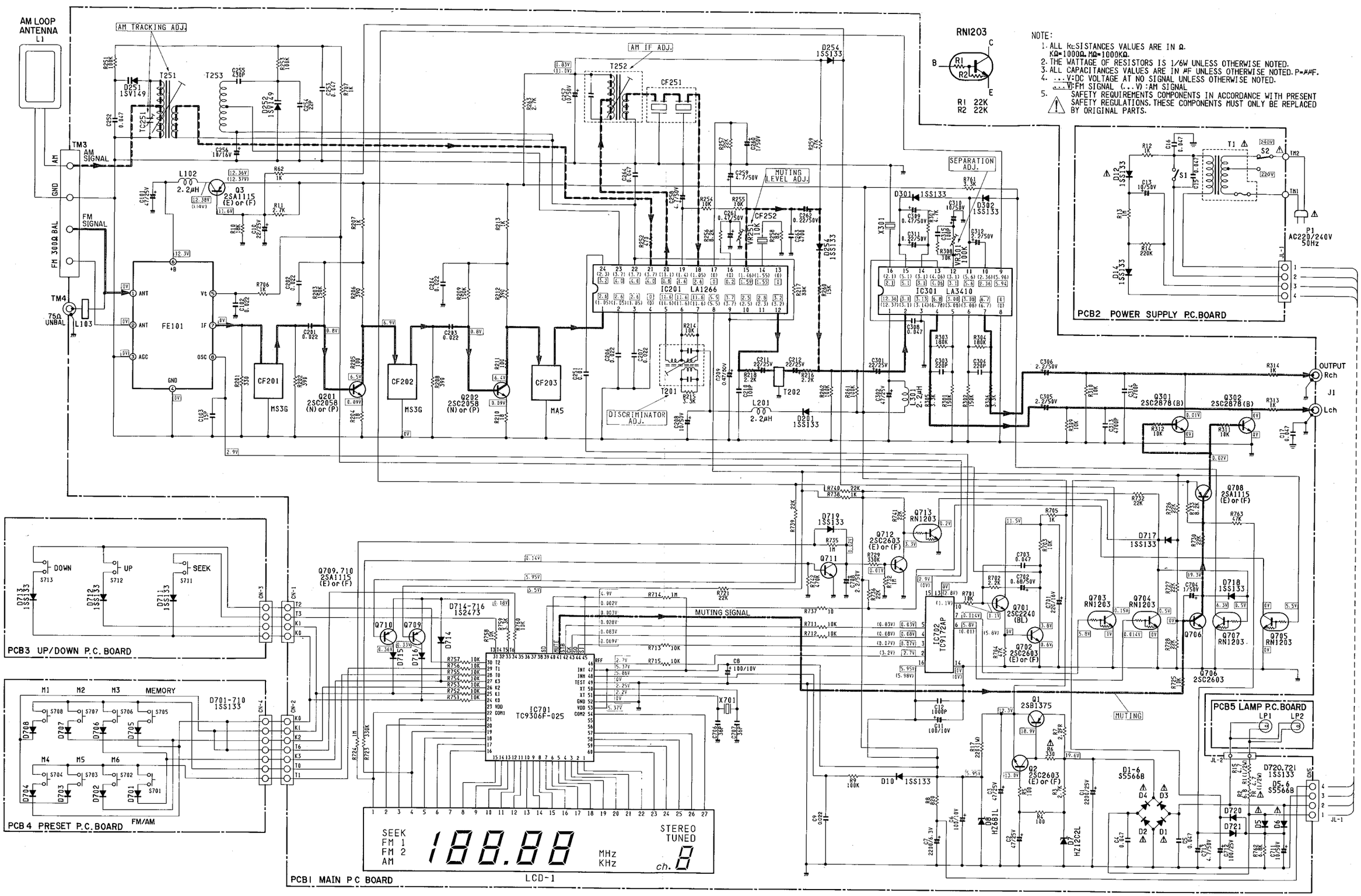


SCHEMATIC DIAGRAM (For North America area model)

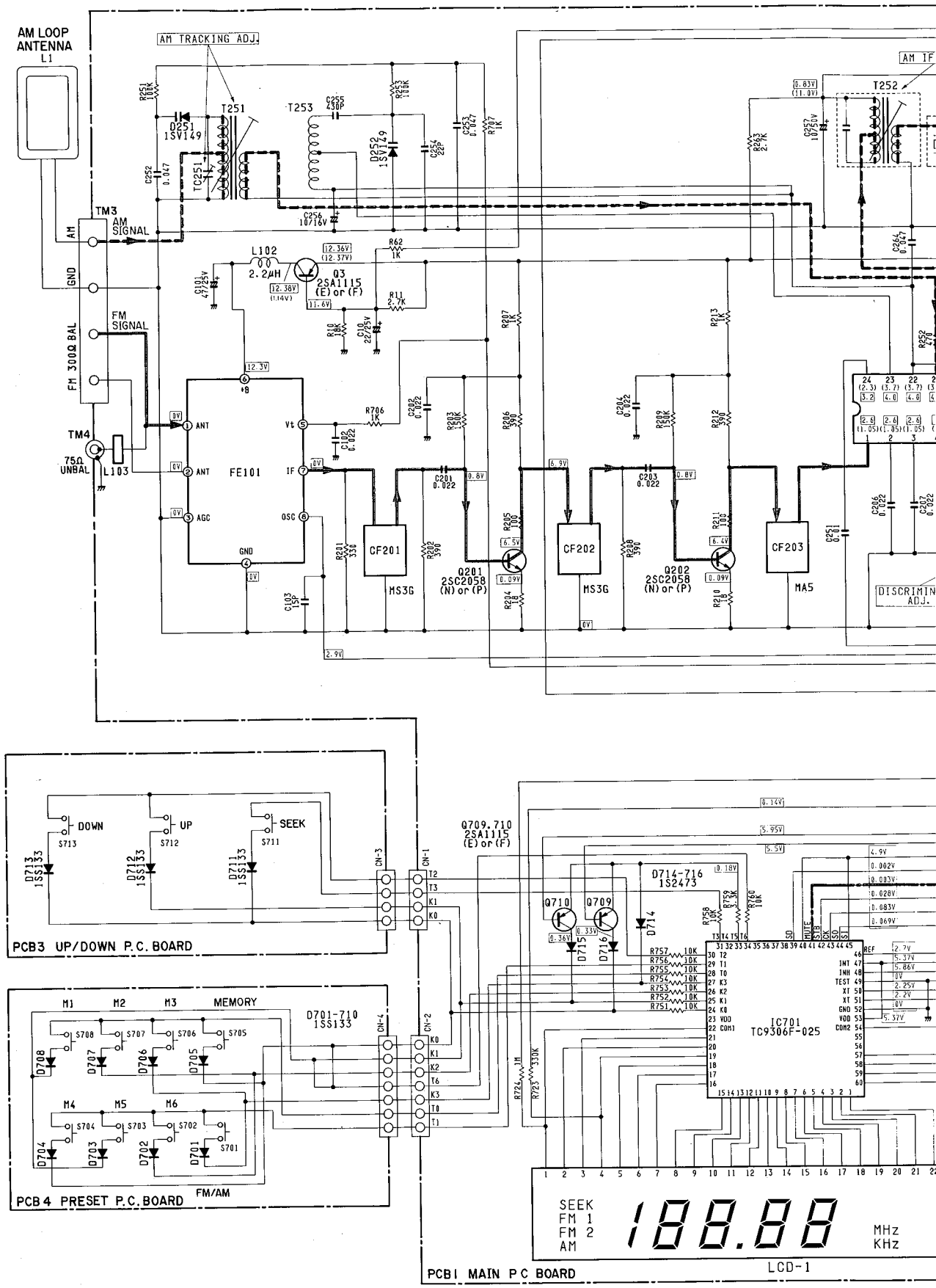


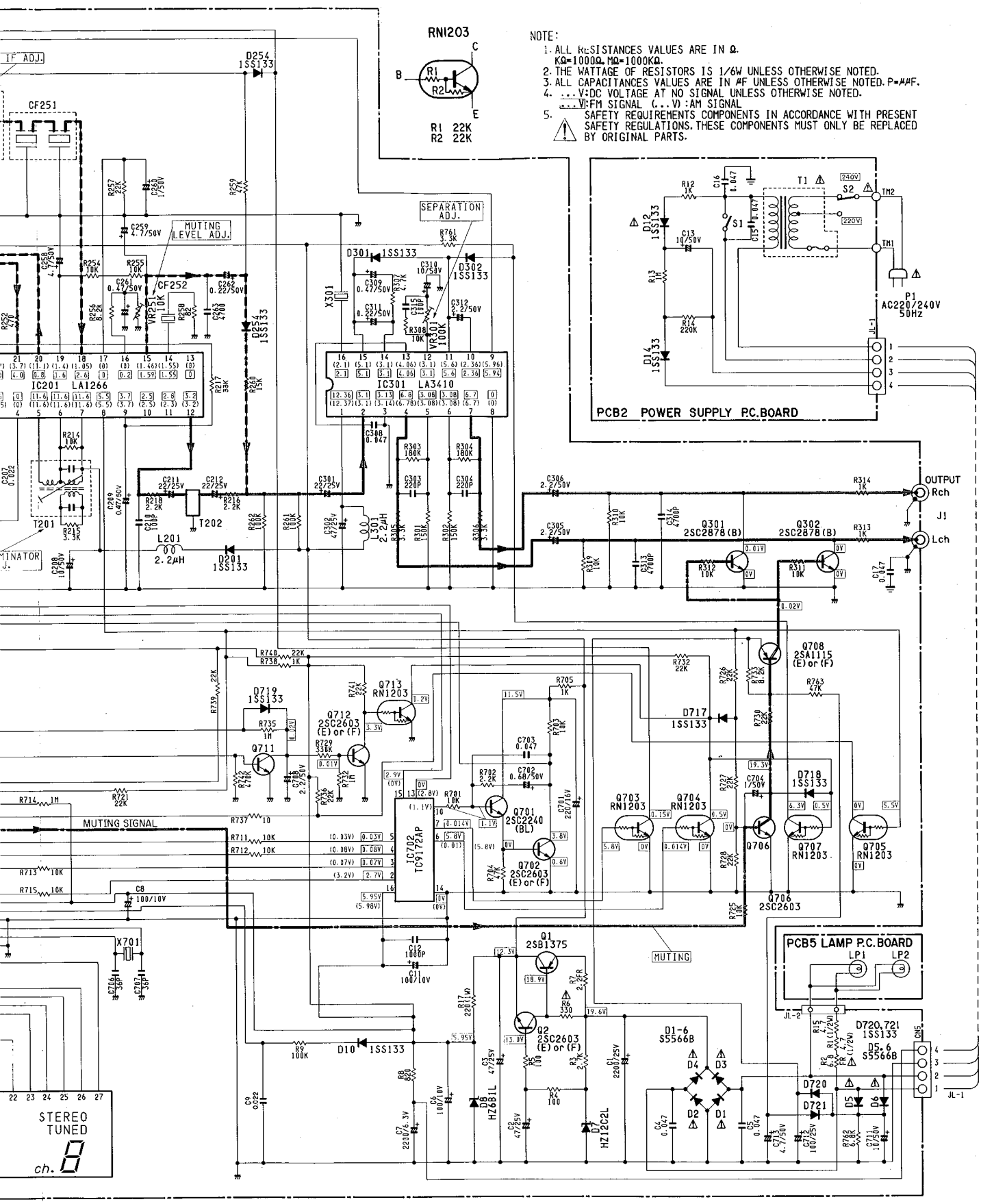

F
G
H
I
J
RNI203
R1 22K
R2 22K
NOTE:
1. ALL RESISTANCES VALUES ARE IN Ω.
KΩ=1000Ω, MΩ=1000KΩ.
2. THE WATTAGE OF RESISTORS IS 1/6W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUES ARE IN μF UNLESS OTHERWISE NOTED. P=μμF.
4. ...V:DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
(...V):FM SIGNAL (...V) :AM SIGNAL
5. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.
PCB2 POWER SUPPLY P.C.BOARD
PCB5 LAMP P.C.BOARD
AM IF ADJ.
CF251
CF252
MUTING LEVEL ADJ.
SEPARATION ADJ.
DISCRIMINATOR ADJ.
IC201 LA1266
IC301 LA3410
IC702 TC9172AP
T1
P1 AC120V 60Hz
OUTPUT Rch Lch
J1
Q301 2SC2878(B)
Q302 2SC2878(B)
Q708 2SA1115 (E) or (F)
Q712 2SC2603 (E) or (F)
Q713 RN1203
Q711
Q701 2SC2240 (BL)
Q702 2SC2603 (E) or (F)
Q703 RN1203
Q704 RN1203
Q705 RN1203
Q706
Q706 2SC2603
Q707 RN1203
Q718 1SS133
Q1 2SB1375
Q2 2SC2603 (E) or (F)
D1-6 S5566B
D5.6 S5566B
D720,721 1SS133
MUTING SIGNAL
MUTING
STEREO TUNED
ch. 8

SCHEMATIC DIAGRAM (For General and Australia models)



SCHEMATIC DIAGRAM (For General and Australia models)




RN1203
C
B
R1
R2
E
R1 22K
R2 22K
NOTE:
1. ALL RESISTANCES VALUES ARE IN Ω.
KΩ=1000Ω. MΩ=1000KΩ.
2. THE WATTAGE OF RESISTORS IS 1/6W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUES ARE IN μF UNLESS OTHERWISE NOTED. P=μμF.
4. ...V:DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
...V:FM SIGNAL (...V) :AM SIGNAL
5. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.
PCB2 POWER SUPPLY P.C.BOARD
PCB5 LAMP P.C.BOARD
IF ADJ.
CF251
CF252
MUTING LEVEL ADJ.
SEPARATION ADJ.
IC201 LA1266
IC301 LA3410
IC702 TC9172AP
T201
T202
L201
2.2μH
X301
X701
D254 1SS133
D301 1SS133
D302 1SS133
D201 1SS133
D719 1SS133
D717 1SS133
D718 1SS133
D10 1SS133
D12 1SS133
D13 1SS133
D14 1SS133
T1
S1
S2
TM1
TM2
P1
AC220/240V 50Hz
JL-1
JL-2
OUTPUT Rch
Lch
J1
Q301 2SC2878(B)
Q302 2SC2878(B)
Q708 2SA1115 (E) or (F)
Q713 RN1203
Q712 2SC2603 (E) or (F)
Q711
Q701 2SC2240 (BL)
Q702 2SC2603 (E) or (F)
Q703 RN1203
Q704 RN1203
Q705 RN1203
Q706
Q706 2SC2603
Q707 RN1203
Q1 2SB1375
Q2 2SC2603 (E) or (F)
D1-6 S5566B
D720,721 1SS133
D5,6 S5566B
D720
D721
D8 HZ6B1L
D7 HZ12C2L
MUTING SIGNAL
MUTING
STEREO TUNED
ch. 8