



Service Manual

ATS-606 A

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SPECIFICATIONS

FM

TEST ITEM	CONDITION	NOMINAL	LIMIT	UNIT	
Tuning Range	Min.	87.5		MHz	
	Max.	108.0			
Intermediate Freq.		10.7	± 0.05	MHz	
Max. Sensitivity	90MHz	16	20	emf dBu	
	98MHz	16	20		
	106MHz	16	20		
Usable sensitivity	90MHz	18	24	emf dBu	
	98MHz	18	24		
	106MHz	18	24		
Image Rejection	106MHz	36	30	dB	
I.F. Rejection	90MHz	60	50	dB	
3db Limiting (10mV)	98MHz	18	24	emf dBu	
Min. Output			3	mV	
Tuning Ind. Sens		18	24	emf dBu	
Auto. Scan. Stop. Sens.		18	24		
Stereo Indicator Sens.		18	24		
Stereo Separation		25	20	dB	
S/N Ratio		50	44	dB	
Current Consumption		98	120	mA	
Am. Suppression			30	dB	
Freq. Response (-3dB)				150	Hz
				8K	Hz
Output Power		180	160	mW	
T.H.D. (75kHz Dev.)		2	4	%	
Over Load Capacity				106	emf dBu
Calibration		90MHz		± 100	kHz
	98MHz		± 100		
	106MHz		± 100		
Lowest Batt. Volt	98MHz	3.0	3.2	V	
Supply Voltage : DC 4.5V	R.O.: 50mW	Load: 6 ohm	Modulation: 1kHz/22.5kHz Dev.		

LW

TEST ITEM	CONDITION	NOMINAL	LIMIT	UNIT	
Tuning Range	Min.	153		kHz	
	Max.	513			
Intermediate Freq.	1st IF	55845		kHz	
	2nd IF	450	± 1		
Max Sensitivity	171 kHz		66	dBu/m	
	216 kHz		64		
	279 kHz		64		
Usable Sensitivity	171 kHz	68	74	dBu/m	
	216 kHz	66	72		
	279 kHz	65	71		
Lowest Batt. Volt.	216 kHz	3.0	3.2	V	
Tuning Ind. Sens.		65	70	dBu/m	
Auto. Scan. Stop. Sens.		65	70	dBu/m	
Over Load Capacity				100	dBu/m
Supply Voltage : DC 4.5V		R.O.: 50mW	Load: 6 ohm	Modulation: 1000Hz/30%	

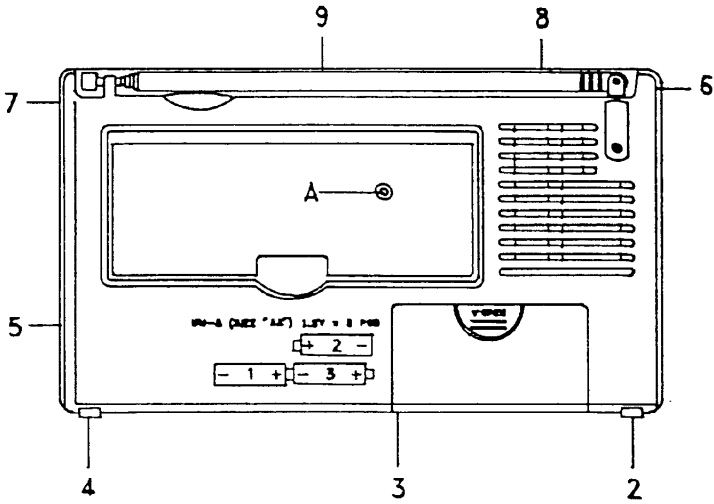
SW

TEST ITEM	CONDITION	NOMINAL	LIMIT	UNIT	
Tuning Range	Min.	1711		kHz	
	Max.	29999			
Audio Fidelity (-6 dB)	15100 kHz	86	150	Hz	
	15100 kHz		2200		
Maximum Sensitivity	2300 kHz		22	dB μ /m	
	15100 kHz		20		
	25600 kHz		20		
Usable Sensitivity	2300 kHz	22	28	emf/dB μ	
	15100 kHz	22	28		
	25600 kHz	22	28		
Over Load Capacity	15100 kHz	86	80	emf/dB μ	
A.C.A. (± 10 kHz)	15100 kHz		28	dB	
Bandwidth	15100 kHz	4.5	4 - 9	kHz	
T.H.D. (60 emf dB μ)		2	4	%	
A.G.C. F.O.M. (86 emf dB μ)			50	dB	
Image Rejection		26	20	dB	
I.F. Rejection (450 kHz)			50	dB	
Lowest Batt. Voltage		3.0	3.2	V	
Tuning Ind. Sens.			26	emf/dB μ	
S/N Ratio (60 emf dB μ)		42	36	dB	
Current Consumption at R.O.		110	130	mA	
Intermediate Frequency			554845		kHz
			450	± 1	
Supply Voltage : DC 6 V		R.O. : 50 mW	Load : 8 ohm	Modulation : 1000 Hz/30% Mod.	

MW

TEST ITEM	CONDITION	NOMINAL	LIMIT	UNIT	
Tuning Range	Min.	520/522		kHz	
	Max.	1710			
Over Load Capacity	1000kHz		100	dBu/m	
Max Sensitivity	600kHz		60	dBu/m	
	1000kHz		58		
	1400kHz		58		
Usable Sensitivity	600kHz	58	66	dBu/m	
	1000kHz	56	62		
	1400kHz	56	62		
Image Rejection	1000kHz		20	dB	
I.F. Rejection			40	dB	
Bandwidth (-6dB)		4.5	4-9	kHz	
T.H.D.		2	4	%	
Lowest Batt. Volt		3.0	3.2	V	
Tuning Ind. Sens.			62	dBu/m	
Auto Scan. Stop. Sens.			62	dBu/m	
S/N Ratio			30	dB	
Calibration		600kHz		± 5	kHz
		1000kHz		± 5	
		1400kHz		± 5	
Whistle Modulation		2IF/3IF		15	%
Intermediate Freq		1st IF	55845	± 1	kHz
		2nd IF	450		

DISASSEMBLY INSTRUCTIONS

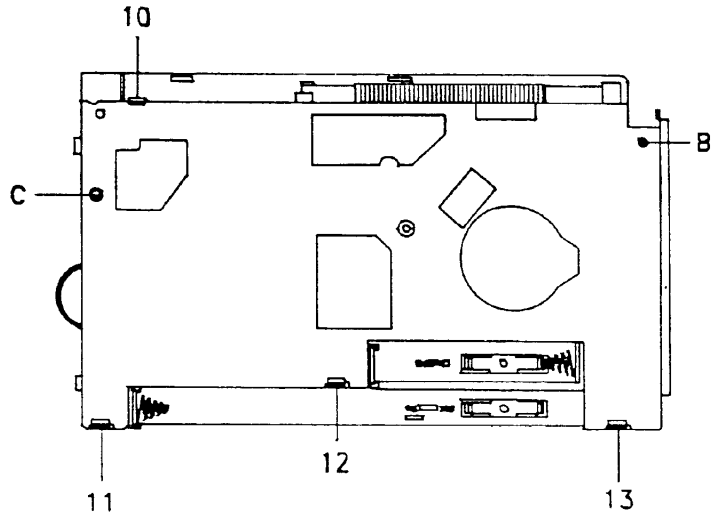


TO REMOVE BACK COVER

- a. Unscrew 1 PTP screw A.(2.6x24) & release back cover from hooks 2~9.
- b. Separate front and back cabinet.

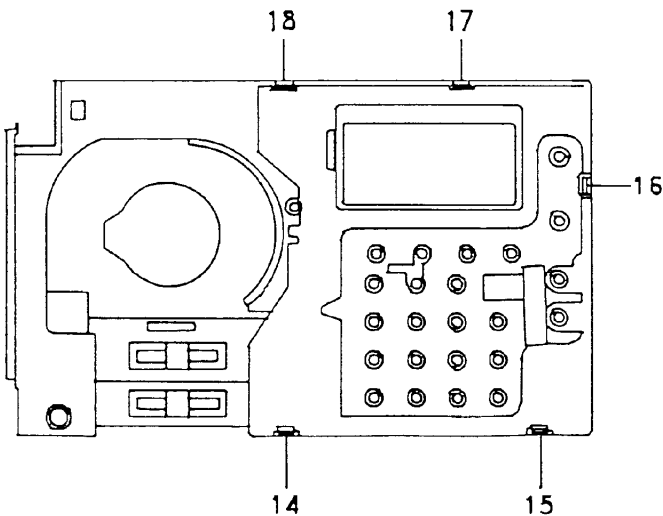
TO REMOVE MAIN PCB

- a. Remove screw B & C.
- b. Release Main PCB from hooks 10~13 to remove it.

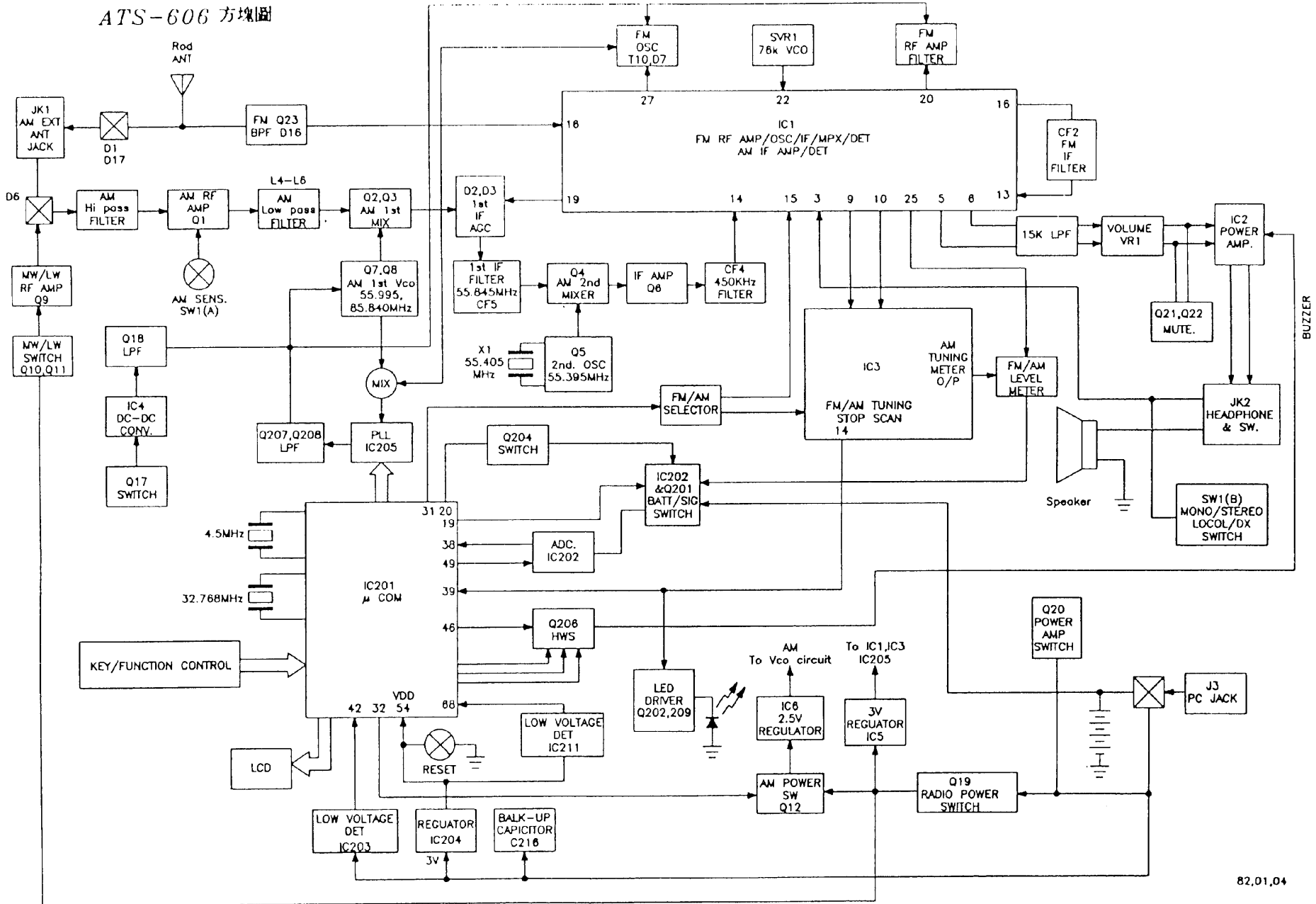


TO REMOVE CONTROL PCB

- a. Release Control PCB from hooks 14~18 to remove it.



ATS-606 方塊圖



BLOCK DIAGRAM

ALIGNMENT INSTRUCTIONS

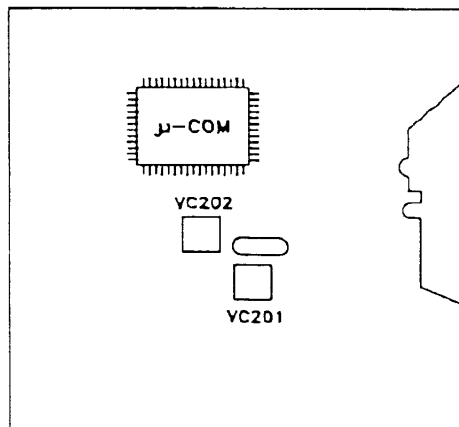
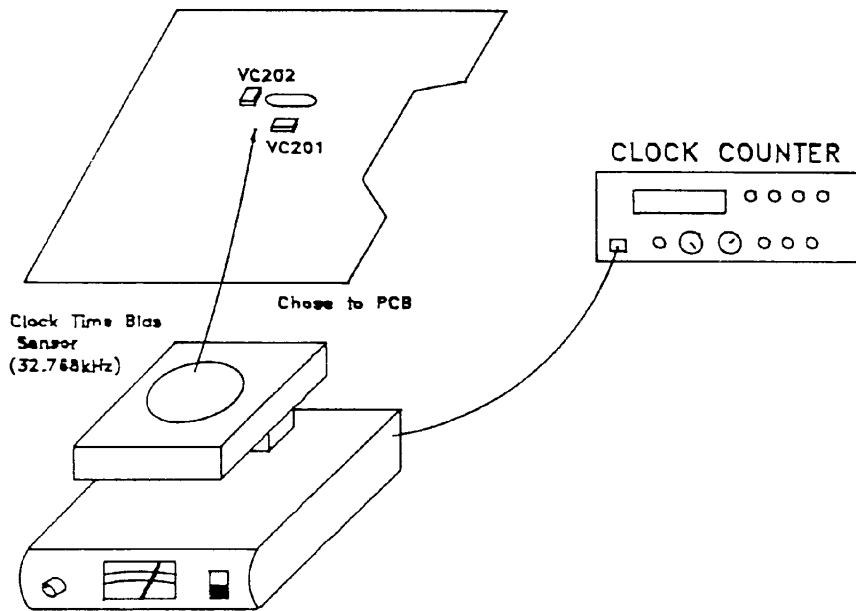
(1) ALIGNMENT FOR CLOCK TIME ACCURACY

a. Required Instrument
Clock counter and 32.768kHz sensor

b. Alignment Procedure

Mode	Adjustment	Procedure
FM	VC201	(1) Set the lock switch to ON. For lock all push buttons. (2) Let 32.768kHz sensor. Close to the PCB. Shown on figure 1-1. (3) Adjust VC202 to within ± 20 sec/month.

c. Instrument Connection



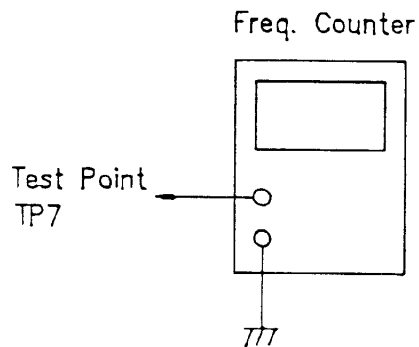
(2) ALIGNMENT FOR PLL FREQUENCY

a. Required Instrument
Frequency counter

b. Alignment procedure

Mode	Adjustment	Procedure
FM	VC202	(1) Turn the radio ON. (2) Select the tuner frequency at 108MHz. (3) Connect the test probe of frequency counter to TP7, The ground point should be on periphery as possible to the test point TP7. (4) Adjust VC201 to have a reading of 118.69975MHz~118.70025MHz.

c. Instrument Connection



(3) ALIGNMENT FOR AM 2ND LOCAL OSC

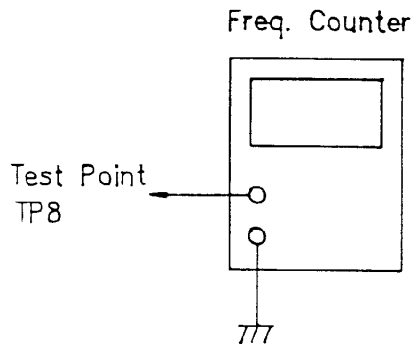
a. Required Instrument
Frequency counter with higher impedance probe

b. Alignment Procedure

Mode	Adjustment	Procedure
AM	T4	(1) Turn the radio ON. (2) Turn the frequency for away from any station to avoid interference. (3) Connect the test probes of frequency counter to TP8 and ground. (4) Adjust T4 to have a reading of 55.39485~55.39515MHz.

Caution: a loading effect could emerge in the circuit if inserted with a lower impedance probe of frequency counter.

c. Instrument Connection



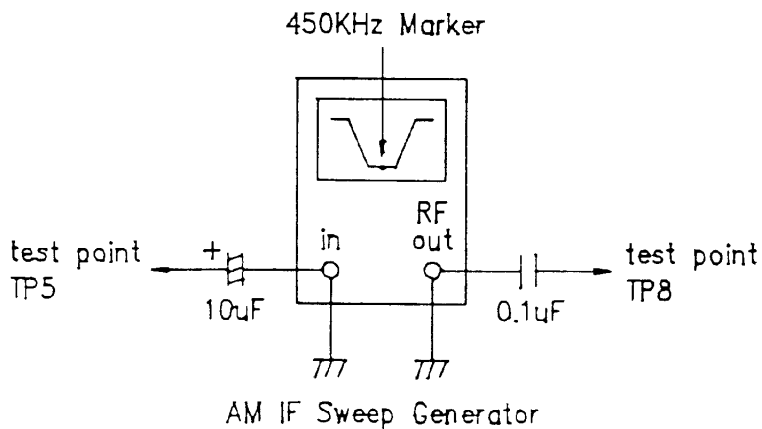
(4) ALIGNMENT FOR AM 2ND IF

a. Required Instrument
AM IF Sweep Generator with Scope

b. Alignment Procedure

Mode	Adjustment	Procedure
AM	T5	(1) Turn the radio NO. (2) Connect the input terminal of AM IF sweep generator in series with a capacitor of 10 μ F to the test point TP5. (3) Connect the RF output terminal of AM IF sweep generator in series with a capacitor 0.1 μ F to another test point TP8. (4) Adjust T5 to have a max. output with a marker frequency of 450kHz on the sweep scope.

c. Instrument Connection



(5) ALIGNMENT FOR AM SENSITIVITY

a. Required Instruments

AM Signal Generator

SSVM

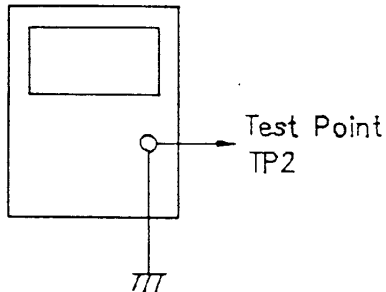
Frequency Counter (Hi impedance >100K Ω)

b. Alignment Procedure

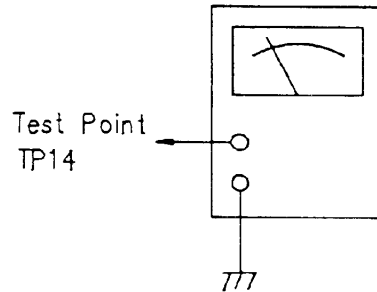
Mode	Adjustmen	Procedure
AM	T2 T3 T4	<ol style="list-style-type: none"> (1) Turn the radio ON. (2) Set the sens. switch to DX position. (3) Tune the radio band frequency to 15.100MHz. (4) Feed a signal with modulation from AM signal generator output to the test point TP2 and connect a SSVM to speaker (TP14). (5) Tune the generator frequency exactly the same as that of the radio frequency displayed. (6) Adjust T2 and T3 to have a max. audio output. (7) Connect the probe of frequency counter at the test point TP4. (8) Adjust T4 to meet the specification frequency 450kHz \pm 0.15kHz. (9) Remove the counter and repeat (6) to (8) until the specification frequency is met.

c. Instrument Connection

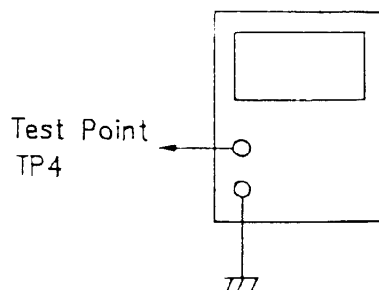
FM Signal Generator



SSVM



Freq. Counter

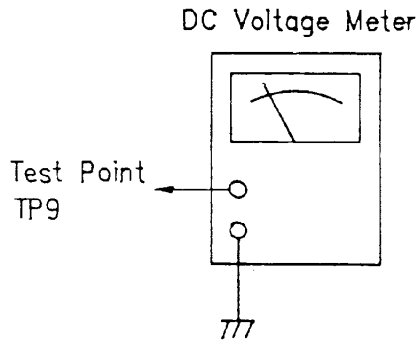


(6) ALIGNMENT FOR FM BAND PLL TUNING VOLTAGE (VT)

- a. Required Instrument
 - RF counter
 - DVM (Digital Voltmeter)
- b. Alignment Procedure

Mode	Adjustment	Procedure
FM	T10	<ul style="list-style-type: none">(1) Turn the radio ON and set frequency of receiver.(2) Set receiver frequency to 108MHz.(3) Connect a voltage meter to VT point (TP9)(4) Adjust T10, until the VT within $10.5 \pm 0.5V$.

- c. Instrument Connection



(7) ALIGNMENT FOR FM SENSITIVITY

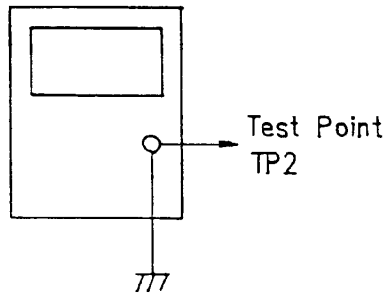
- a. Required Instruments
 FM Signal Generator
 SSVM

b. Alignment Procedure

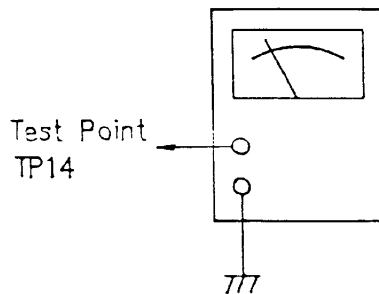
Mode	Adjustment	Procedure
FM	T13,T11 VC2,VC1	(1) Turn the radio NO. (2) Connect a SSVM to speaker (TP14). (3) Connect a FM signal generator to the input terminal of Rod Ant.(TP2). (4) Set the signal generator to 22.5kHz deviation with 1kHz modulation. (5) Tune the radio band frequency to 90MHz and adjust T11,T13 to have a max. reading on SSVM. (6) Return the radio band frequency to 106MHz and adjust VC1,VC2 to have a max. reading on SSVM. (7) Repeat (5) and (6) until a best sensitivity on these two frequencies are formed.

c. Instrument Connection

FM Signal Generator



SSVM



(8) ALIGNMENT FOR FM STATION DETECT

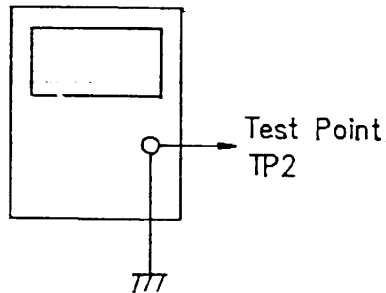
a. Required Instrument
FM Signal Generator

b. Alignment Procedure

Mode	Adjustmen	Procedure
FM	SVR2	<ul style="list-style-type: none">(1) Turn the radio ON.(2) Connect FM singal generator to the input terminal of Rod Ant.(TP2)(3) Set the signal generator to 98MHz with MOD=0% and 60 EMF dBu/75 ohm output level.(4) Tune the radio band frequency to 98MHz.(5) Set the frequency of FM signal generator and Adjust SVR2 to make the tuning LED light at frequency 97.975kHz and 98.025kHz of signal generator.

c. Instrument Connection

FM Signal Generator



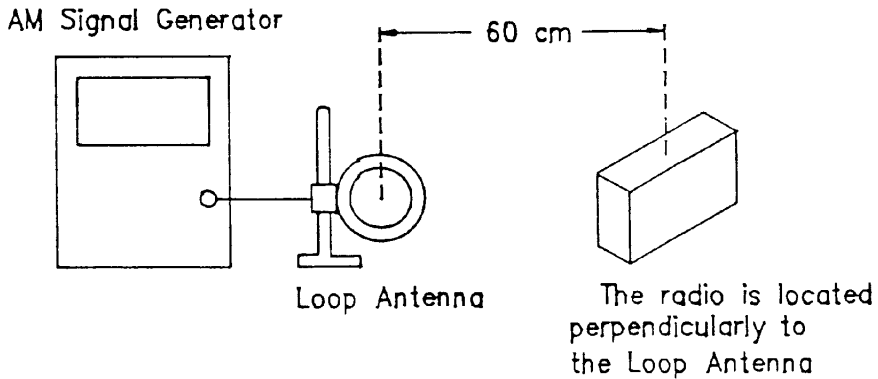
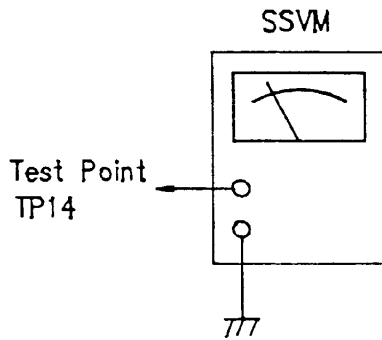
(9) ALIGNMENT FOR 450kHz TRAP

- a. Required Instruments
 - AM Signal Generator
 - Loop Antenna
 - SSVM

b. Alignment Procedure

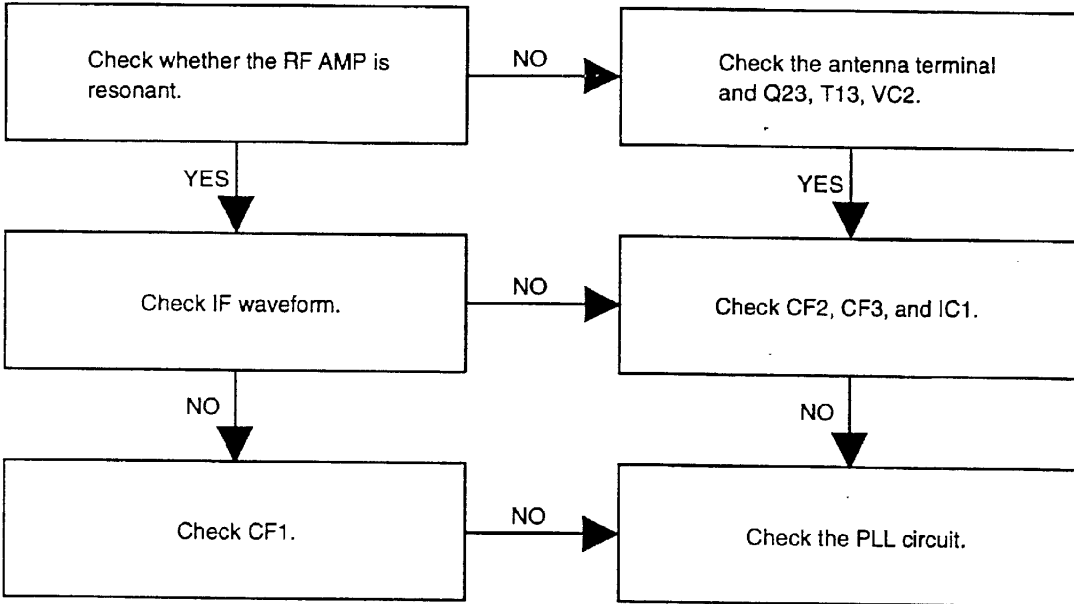
Mode	Adjustmen	Procedure
AM	T7	(1) Turn the radio ON. (2) Set the sens. switch to DX position. (3) Tune the radio band frequency to 450kHz. (4) Connect a AM signal generator together with standard loop dummy antenna and feed a stronger signal to the MW/LW ferrite bar antenna. (5) Tune the generator frequency to 450kHz and set modulation depth to 30%~50%. (6) Connect a SSVM to speaker(TP14). (7) Adjust T7 to have a min. audio output.

c. Instrument Connection

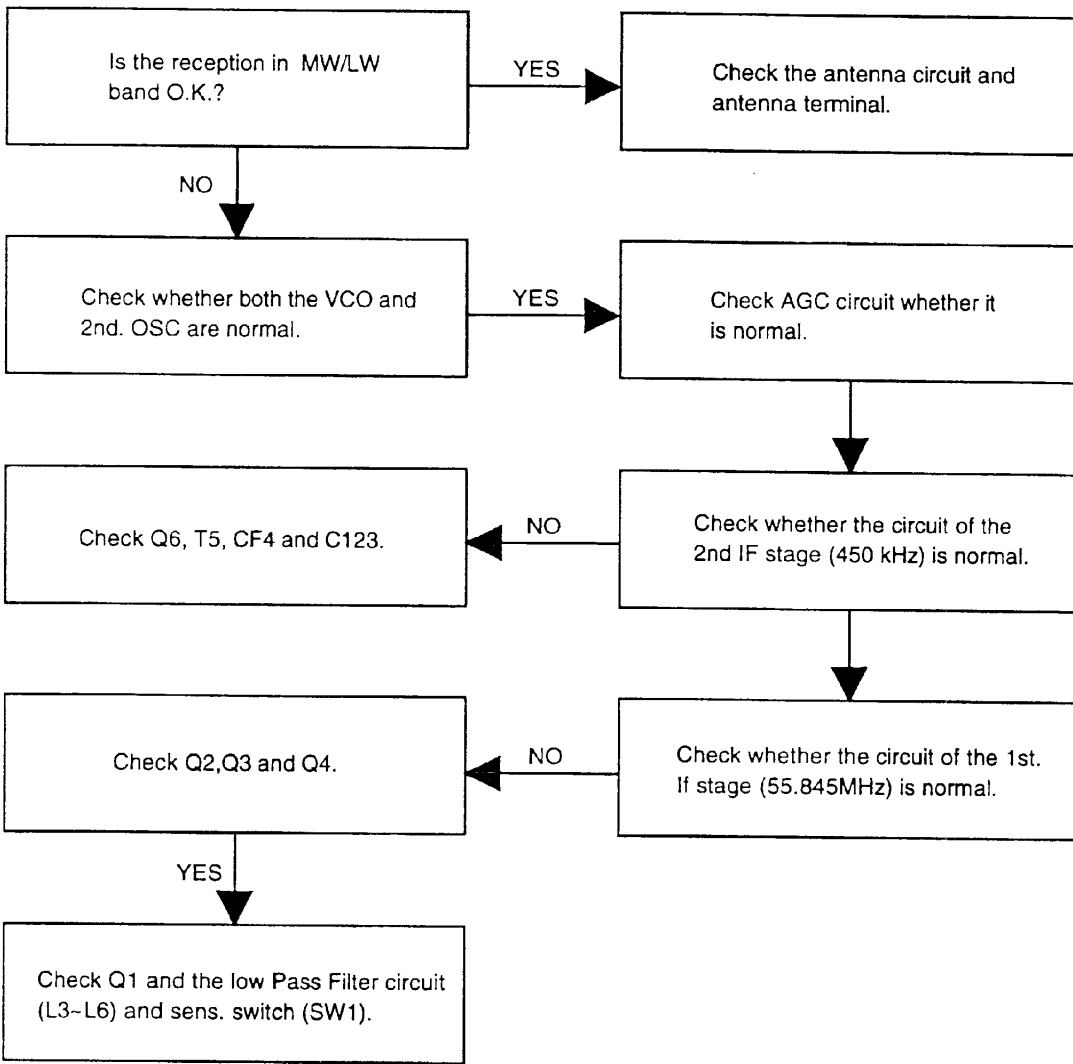


TROUBLESHOOTING FLOW CHART

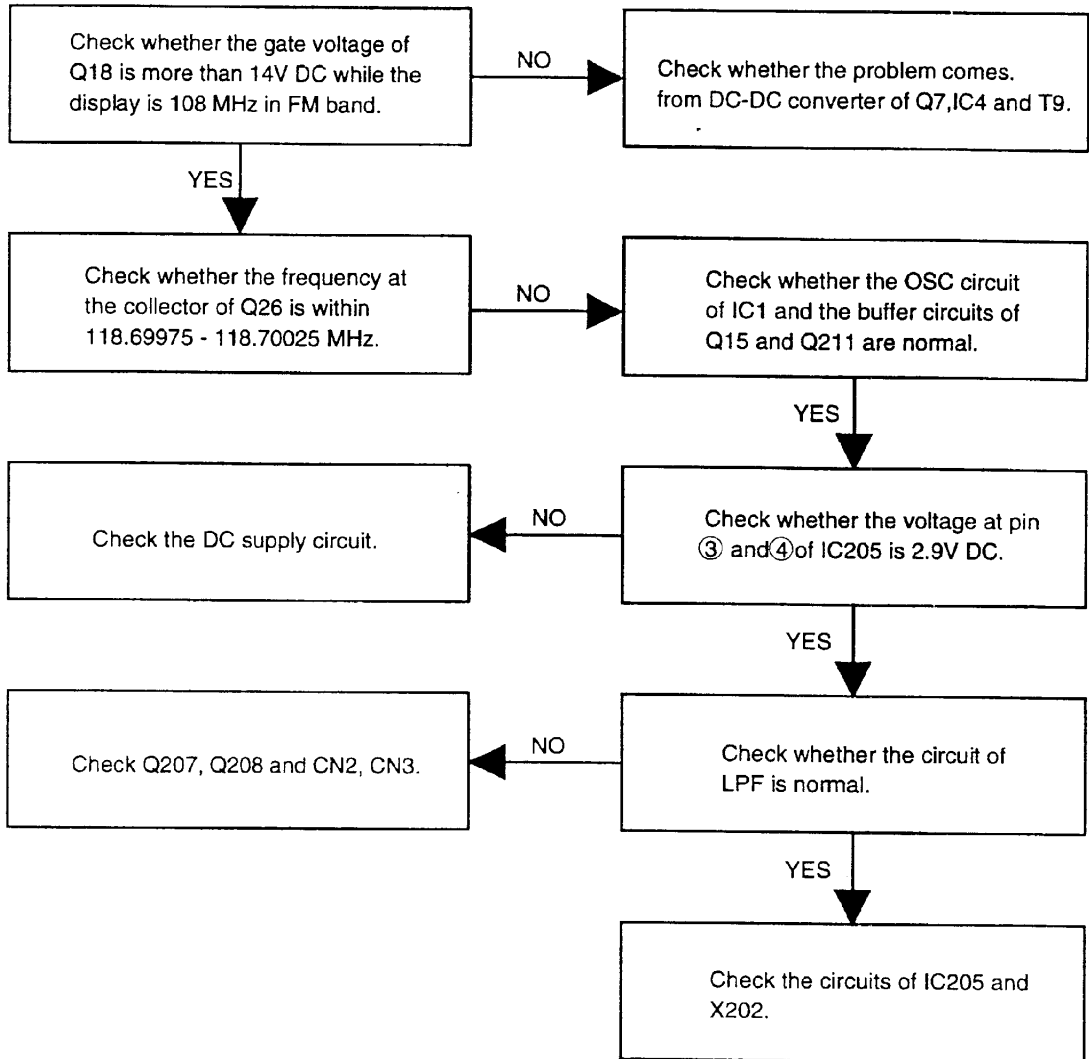
1. Weak sensitivity on FM mode



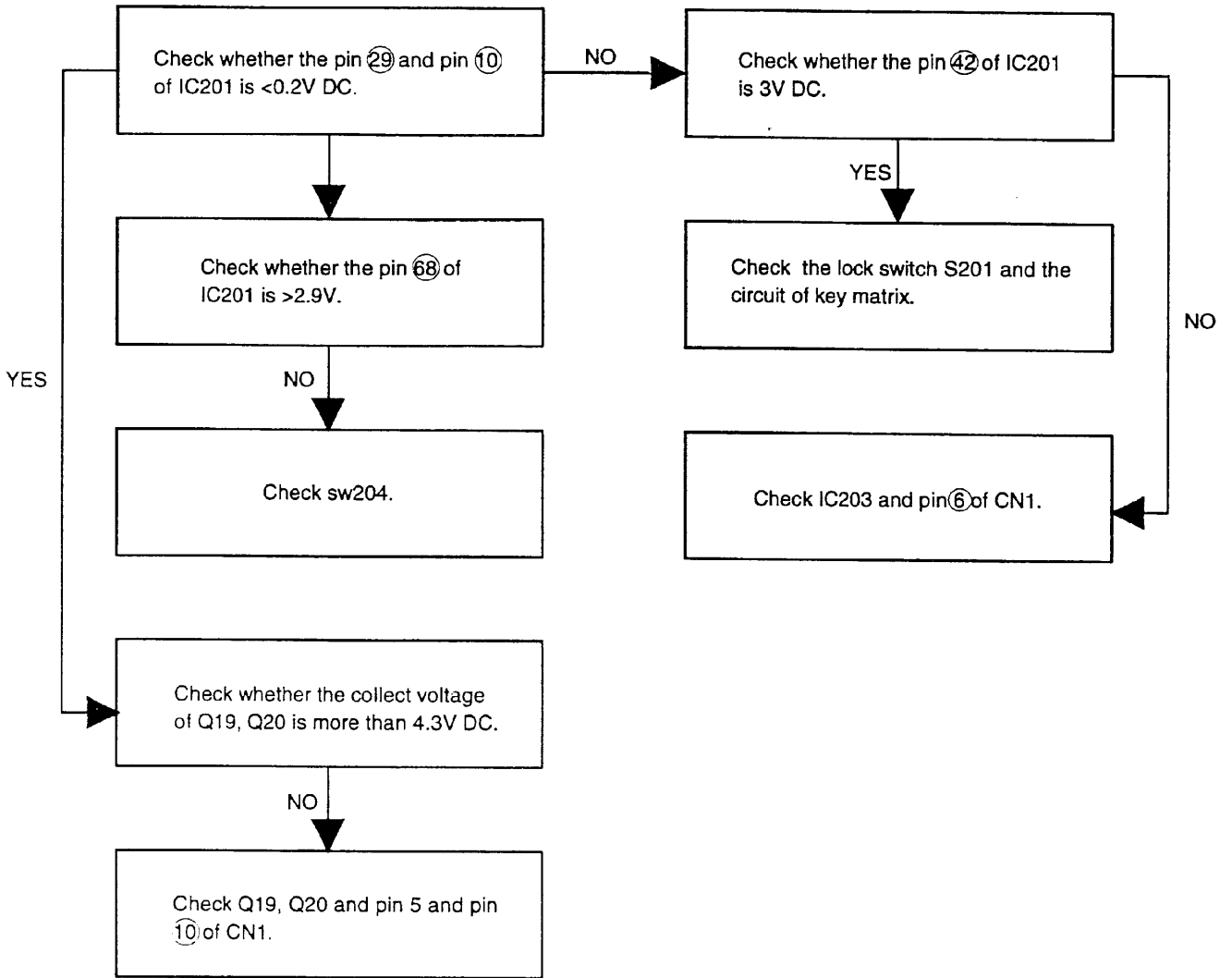
2. Weak sensitivity on AM band



3.PLL does not work



4. Power can not be turned on

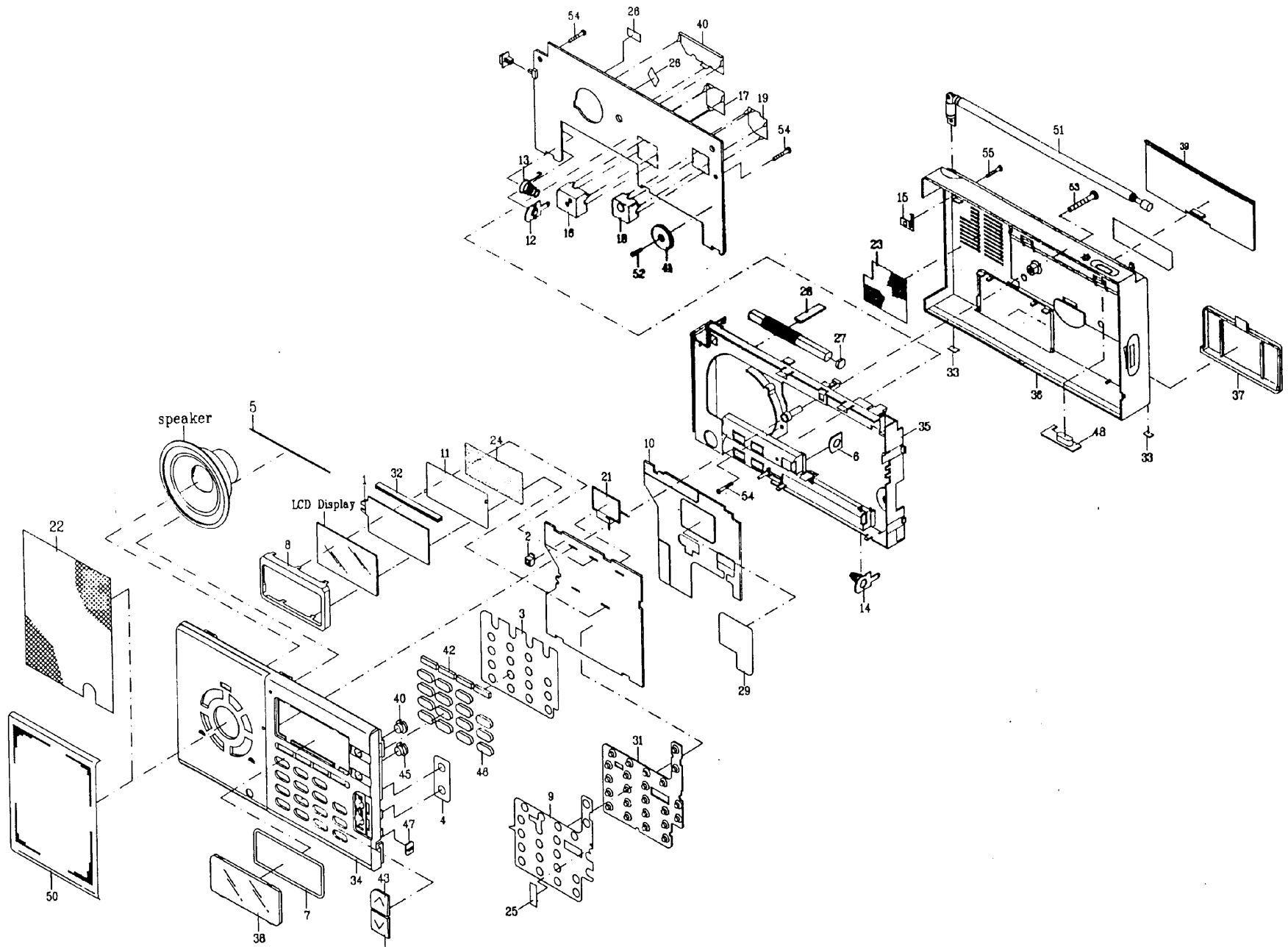


MECHANICAL PARTS LIST

ATS-606A (SANGEAN)

Ref. No.	Description		
1	LCD LIGHT LENS		2073000
2	LED HOLDER		2073010
3	KEY SPACER (A)		2073020
4	KEY SPACER (B)		2073030
5	SPEAKER FIXED BAR		2145060
6	BATTERY CONTACT (+)		2158040
7	LCD WINDOW PLATE		2173000
8	LCD HOLDER		2173010
9	KEYBOARD SHIELD		2173020
10	CONTROL PCB SHIELD		2173030
11	LCD SHIELD PLATE		2173040
12	BATTERY CONDUCT PLATE (+)		2173060
13	BATTERY SPRING (-)		2173070
14	BATTERY SPRING (-) ASS'Y		2173080
15	ROD ANT TERMINAL		2173090
16	VCO SHIELD (UP)		2173101
17	VCO SHIELD (DOWN)		2173110
18	DC/DC SHIELD (UP)		2173120
19	DC/DC SHIELD (DOWN)		2173130
20	2ND IF SHIELD		2173140
21	μ -COM SHIELD COVER		2173150
22	HEAT BONDING NET		2273000
23	BACK SALON NET		2273010
24	LCD SHIELD FIBER		2273020
25	HEMELON SPACER		2273030
26	HEMELON SHEET		2262020
27	BAR ANT SPACER II		2335060
28	EVA SPACER		2345020
29	μ -COM SHIELD MYLAR		2373010
30	PVC FILM		2373020
31	KEYBOARD RUBBER		2473001
32	CONDUCT RUBBER		2473010
33	PU FOOT		2473020
34	FRONT CABINET		301A101
35	MIDDLE CHASSIS		302A101
36	BACK COVER		303A101
37	BATTERY COVER		304A101
38	LCD WINDOW		3057301
39	BACK SUPPORTER		306A101
40	POWER KNOB		3107301
41	VOLUME KNOB		3117301
42	BAND KNOB ASS'Y		313A101
43	TUNING UP BUTTON		315A101
44	TUNING DOWN BUTTON		316A101
45	FINE KNOB		317A101
46	TEN KEY KNOB ASS'Y		318A101
47	LOCK KNOB		3197301
48	LIGHT KNOB		3207301
49	STEREO/MONO KNOB		3217301
50	SPEAKER GRILL		343A101
51	ROD ANT TY-9112-1401		3607300
52	SCREW JMP 1.4 x 5 (NI)		9005052
53	SCREW PTP 2 x 5 (NI)		9101052
54	SCREW PTP 2.6 x 22 (ZK)		9202221
55	SCREW JMP 2.6 x 3.5 (ZK)		9899002

EXPLODED VIEW



ELECTRICAL PARTS LIST

ATS-606A

Part No.	Description	Q'ty	Remark
1000250	IC μ PD75312GF-533-3B9	1	IC201
1010140	IC LA5003	1	IC5
1011010	IC TA7376P	1	IC2
1011040R	IC TA75339F	1	IC3
1011090	IC TA8126F	1	IC4
1011252	IC XC61AC3002PR DET 3V	1	IC203
1011272	IC XC62AP2502PR	1	IC6
1011362	IC XC62AP3002PL	1	IC204
1011421R	IC BA10393F	1	IC202
1011590	IC CXA1238M	1	IC1
1012410	IC MB15A01PFV1-G-BND-EF	1	IC205
1020211	CH TR 2SB815 B7	3	Q17,19,20
1020230/362	CH TR 2SA812 M6/2SA1162GR-SG	5	Q10,12,201,206,209
1020240/41/	CH TR 2SC1623 L6/L7/	5	Q11,16,204,208,210
1022142/43	CH TR 2SC2712GR-LG/BL-LL		
1020241/2143	CH TR 2SC1623 L7/2SC2712BL-LL	5	Q21,22,202,203,205
1020260	CH TR 2SC2223 F13	6	Q5-8, 15,211
1030122	FET 2SK435D	5	Q1-4,23
1030071	FET 2SK381B	1	Q18
1030081	FET 2SK715W	1	Q9
1030100	FET 2SK433B KC	1	Q207
1040020	DIODE 1N4148	1	D15
1040030	DIODE 1N60/1K60	1	D13
1042151	DIODE RB421D	1	D206
1043030	DIODE SVC201SP	3	D7,8,16
1043060	VARACTOR SVC203 (AA1/AA2)	1	D5
1045020	DIODE 1SS314	7	D1-4,6,17,18
1046010	CH DIODE RLS4148	16	D9-12,14,20,21,201-203,205,209,213,215,217,219
1050090S	LED RED 2mm(C) LTL-709RP	1	D221
1058040M	LED LAMP 3mm	1	D220
1110510	BAR & COIL 0510	1	T12
1122830	ADJ. COIL 2830	1	T8
1122860	ADJ. COIL 2860	1	T7
1122870	ADJ. COIL 2870	1	T5
1122880	ADJ. COIL 2880	1	T9
1122900	ADJ. COIL 2900	1	T11
1122920	ADJ. COIL 2920	1	T4
1122930	ADJ. COIL 2930	1	T13
1123010	ADJ. COIL 3010	2	T2,3
1130820	FIXED COIL 0.39 μ HK KR (B)	2	L2,8
1131110T	FIXED COIL 0.68 μ HK(A) TB	1	L4
1131380T	FIXED COIL 1 μ HK(C)(TB)	2	L5,7
1131510T	FIXED COIL 1.5 μ HK (B)	1	L6
1131710T	FIXED COIL 2.2 μ HK (B)	1	L9
1132420	FIXED COIL 8.2 μ HK KR (C)	1	L10
1132910T	FIXED COIL 22 μ HK (B) TB2x4	1	L1
1132920	FIXED COIL 22 μ HK (C)	1	L11
1133800	FIXED COIL 120 μ H	1	L14
1134110T	FIXED COIL 220 μ HK (B) TB	1	L3
1135910/1	FIXED COIL 6.8 MH	2	L12,13
1136101	FIXED COIL 10mH ANT COIL	1	T6

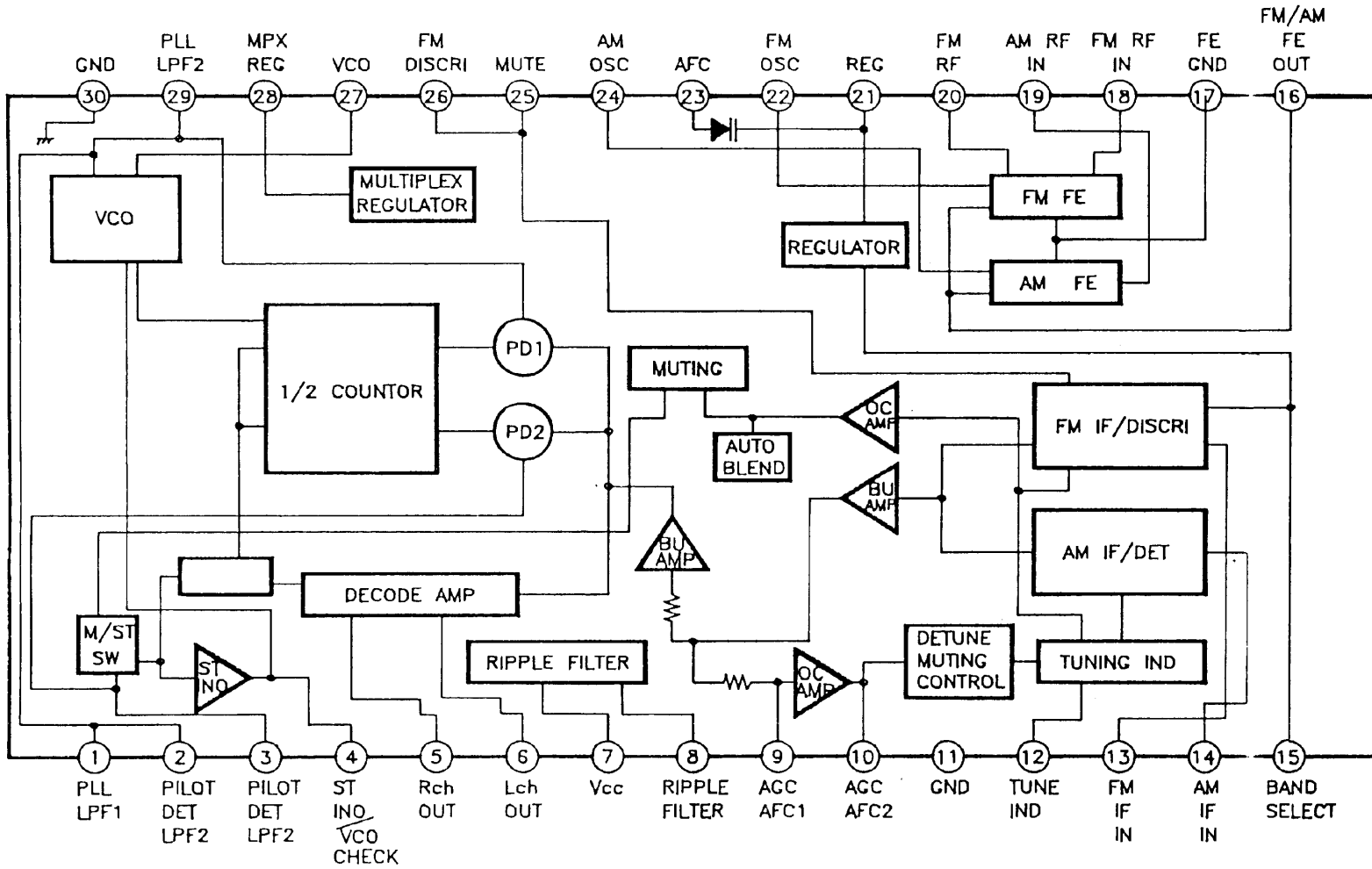
Part No.	Description	Q'ty	Remark
1144260	SP COIL 4.5 x 4.75 T x 0.7	1	T10
1150000	TOROID COIL 720 μ H	1	T1
1210003	TC 10P	2	VC1,2
1210210	CHIP TRIMMER 10P	2	VC201,202
1310140	R-VR 20KC x 2 (A) RK08H	1	VR1
1320240	S-VR 20KB (A) TB067A-0	1	SVR1
1320270	S-VR 200KB (A) TB067A-0	1	SVR2
1600320	LCD CT-071ZAS	1	LCD
1610902	PCB A	1	PCB A
1610912	PCB C	1	PCB C
1620280	SP. 60HM 2 " 0.5 W	1	SPK
1620490	SW 1P2C	1	SW202
1630510	SWITCH 2P2C (M)	1	SW1
1630530	SWITCH 1P2C (G)	1	SW201
1630560	SWITCH 1P1C (G)	1	SW203
1630690	JACK SW (B) HKW0601-01-311	1	SW204
1640030	JACK HEADPHONE (D)	1	JK2
1647050	DC JACK (F)	1	JK3
1649030	EXT ANT HSJ3062-01-422	1	JK1
1650020	XTAL 55.405MHz	1	X1
1650041	MCF 55.845MHz	1	CF5
1650140	XTAL 4.5 MHz (3.5 x 10.3)	1	X202
1650150	XTAL 32.768 KHz +/- 10PPM	1	X201
1660080	FILTER SFE10.7MA8-A	1	CF3
1660151	FILTER CDA10.7MG1-A	1	CF1
1660170	FILETER SFPS450I	1	CF4
1664000	FILTER SFE10.7MS2-A	1	CF2
1703380	CNT WIRE ASS'Y 2P (F)	1	CN3, (UL1354 AWG30)
1703390	CNT WIRE ASS'Y 2P (G)	1	CN2, (UL1533 AWG28)
1703400	CNT WIRE ASS'Y 15P (B)	1	CN1, (UL1095 AWG30)
4002001	CH CC 020C 50V NPO-A	4	C15,38,41,218
4003001	CH CC 030C 50V NPO-A	1	C54
4005001	CH CC 050C 50V NPO-A	3	C11,23,37
4007002	CH CC 070D 50V NPO-A	2	C58,221
4008002	CH CC 080D 50V NPO-A	2	C26,42
4010002	CH CC 100D 50V NPO-A	1	C219
4015001	CH CC 150J 50V NPO-A	1	C48
4027016	CH CC 270J 50V UJ-A	1	C33
4047001	CH CC 470J 50V NPO-A	5	C4,32,217,220,225
4047028	CH CC 470J 50V NPO-B	1	C211
4056016	CH CC 560J 50V UJ-A	2	C31,35
4068001	CH CC 680J 50V NPO-A	1	C12
4082001	CH CC 820J 50V NPO-A	1	C10
4022101	CH CC 221J 50V NPO-A	4	C6,43,134,244
4033101	CH CC 331J 50V NPO-A	2	C59,82
4047101	CH CC 471J 50V NPO-A	1	C40
4068119	CH CC 681J 50 SL-A	1	C7
4010261	CH CC 102K 50V X7R-A	9	C18,19,56,60,84,97,100,126,137
4022261	CH CC 222K 50V X7R-A	3	C1,14,139
4010367	CH CC 103K 25V X7R-A	42	C2,3,5,8,9,17,21,24,25,27-29,34,39,44,47,50 ,53,62,73,92,114-116,118,123,127,128,201 ,203-206,210,215,222-224,227,229-231

Part No.	Description	Q'ty	Remark
4015367	CH CC 153K 25V X7R-A	2	C107,110
4018367	CH CC 183K 25V X7R-A	4	C67,75,108,111
4047371	CH CC 473Z 25V Y5V-A	2	C45,138
4010467	CH CC 104K 25V X7R-A	1	C202
4010471	CH CC 104Z 25V Y5V-A	37	C13,49,51,52,72,74,77,79,80,83,87,93-95, 103,106,109,113,119,120,125,130-132, 207,226,228,232-237,239-241,243
4047472	CH CC 474Z 16V Y5V-A	1	C214
4010572	CH CC 105Z 16V Y5V-A	1	C209
4110482	CC 104K 50V R20X7R2L	2	C212,213
4447460	EL 474M 50V 4 x 7	2	C63,71
4410560	EL 105M 50V 4 x 7	1	C66
4422560	EL 225M 50V 4 x 7 (1.5)	3	C16,70,76
4447540	EL 475M 25V 4 x 7	3	C57,64,85
4447555	EL 475M 35V 4 ϕ x 5L (1.5)	1	C86
4410631	EL 106M 16V 4 x 7	5	C46,55,90,96,101
4410633	EL 106M 16V 4 ϕ x 5L (1.5)	4	C20,98,99,102
4447601	EL 476M 4V 4 x 7(1.5)	5	C36,91,124,136,121
4447602	EL 476M 4V 4 ϕ x 5L (1.5)	1	C30
4410700	EL 107M 4V 5 x 7 (2)	3	C61,69,208
4410724	EL 107M 10V 6.3 x 5	3	C65,81,135
4422711	EL 227M 6.3V 6.3 x 7(2.5)	2	C68,105
4422722	EL 227M 10V 8 x 7 (3.5)	1	C112
4447721	EL 477M 10V 8 x 11.5-3.5	2	C104,117
4922300	SUPER CAP. 223Z 5.5V	1	C216
6010163	RD 1/8W 180KJU	1	R72
6010512	RD 1/8W 10JSM5	1	R111
6110116	CH RD 1/8W 22J-B	2	R103,104
6110194	CH JUMP 0J-B	5	JP201,202,206-208
6160108	CH RD 1/10W 4.7J-A	2	R102,105
6160112	CH RD 1/10W 10J-A	1	R232
6160116	CH RD 1/10W 22J-A	4	R90,259-261
6160118	CH RD 1/10W 33J-A	3	R3,12,17
6160120	CH RD 1/10W 47J-A	1	R121
6160123	CH RD 1/10W 82J-A	2	R32,43
6160124	CH RD 1/10W 100J-A	5	R21,34,57,228,252
6160125	CH RD 1/10W 120J-A	2	R10,263
6160126	CH RD 1/10W 150J-A	2	R15,29
6160128	CH RD 1/10W 220J-A	11	R11,24,25,31,45,47,98,101,118,206,219
6160130	CH RD 1/10W 330J-A	2	R2,119
6160131	CH RD 1/10W 390J-A	4	R6,27,117,208
6160132	CH RD 1/10W 470J-A	10	R16,35,46,70,100,107-109,249,256
6160133	CH RD 1/10W 560J-A	1	R54
6160134	CH RD 1/10W 680J-A	3	R92-94
6160136	CH RD 1/10W 1KJ-A	8	R28,87,97,120,217,218,221,266
6160137	CH RD 1/10W 1.2KJ-A	1	R68
6160138	CH RD 1/10W 1.5KJ-A	2	R231,233
6160140	CH RD 1/10W 2.2KJ-A	13	R33,60,62,85,95,99,106,234,250 255,267-269
6160141	CH RD 1/10W 2.7KJ-A	3	R13,14,20

Part No.	Description	Q'ty	Remark
6160142	CH RD 1/10W 3.3KJ-A	4	R65,66,91,122
6160144	CH RD 1/10W 4.7KJ-A	8	R1,4,5,49,52,76,220,227
6160145	CH RD 1/10W 5.6KJ-A	1	R51
6160146	CH RD 1/10W 6.8KJ-A	3	R23,88,89
6160147	CH RD 1/10W 8.2KJ-A	1	R230
6160148	CH RD 1/10W 10KJ-A	12	R40,50,56,115,214,216,253,254,257,258 ,265,273
6160150	CH RD 1/10W 15KJ-A	1	R201
6160152	CH RD 1/10W 22KJ-A	8	R38,58,78,80,110,211,245,248
6160154	CH RD 1/10W 33KJ-A	2	R64,75
6160156	CH RD 1/10W 47KJ-A	10	R39,41,44,73,74,84,207,222,246,270
6160157	CH RD 1/10W 56KJ-A	5	R18,22,202,226,229
6160158	CH RD 1/10W 68KJ-A	1	R36
6160159	CH RD 1/10W 82KJ-A	1	R215
6160160	CH RD 1/10W 100KJ-A	11	R7,37,42,53,59,86,116,123,203,225,247
6160161	CH RD 1/10W 120KJ-A	1	R82
6160162	CH RD 1/10W 150KJ-A	9	R209,237-244
6160163	CH RD 1/10W 180KJ-A	2	R9,19
6160164	CH RD 1/10W 220KJ-A	7	R63,69,77,112,224,236,264
6160165	CH RD 1/10W 270KJ-A	2	R81,83
6160166	CH RD 1/10W 330KJ-A	3	R26,71,96
6160167	CH RD 1/10W 390KJ-A	1	R223
6160168	CH RD 1/10W 470KJ-A	1	R213
6160169	CH RD 1/10W 560KJ-A	1	R79
6160170	CH RD 1/10W 680KJ-A	1	R271
6160171	CH RD 1/10W 820KJ-A	1	R210
6160172	CH RD 1/10W 1MJ-A	6	R204,205,212,235,251,262
6160194	CH RD 1/10W 0J-A	10	JP1-7,203-205
8171126	W/PVC 75(3+6)	1	BATTERY (UL1095 AWG28)
8591720	W/PVC/2T100(6+6) RED/WHT	1	SPWIRE (UL1095 AWG28)

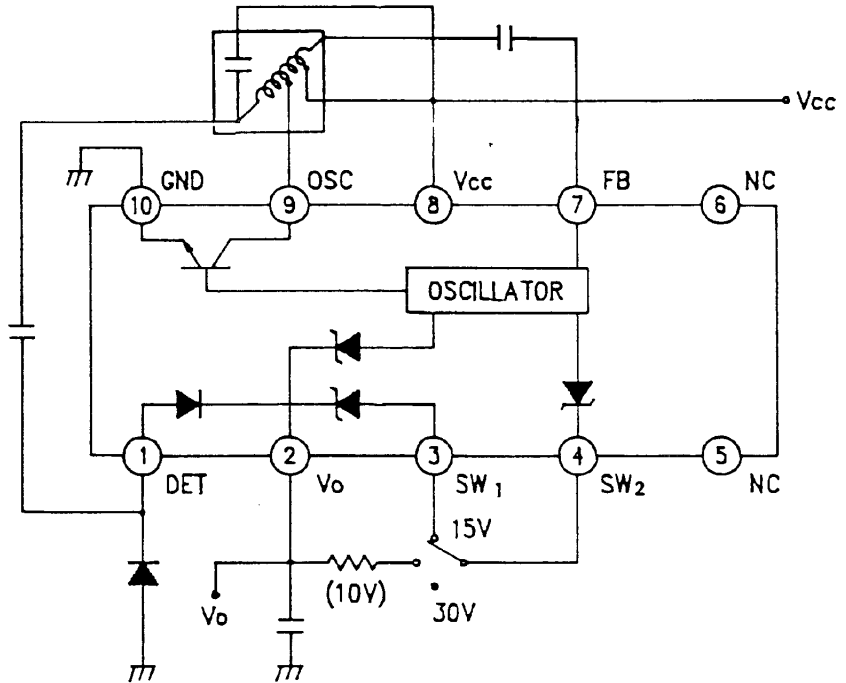
IC CIRCUIT BLOCK DIAGRAM

(1) IC1-CXA1238M

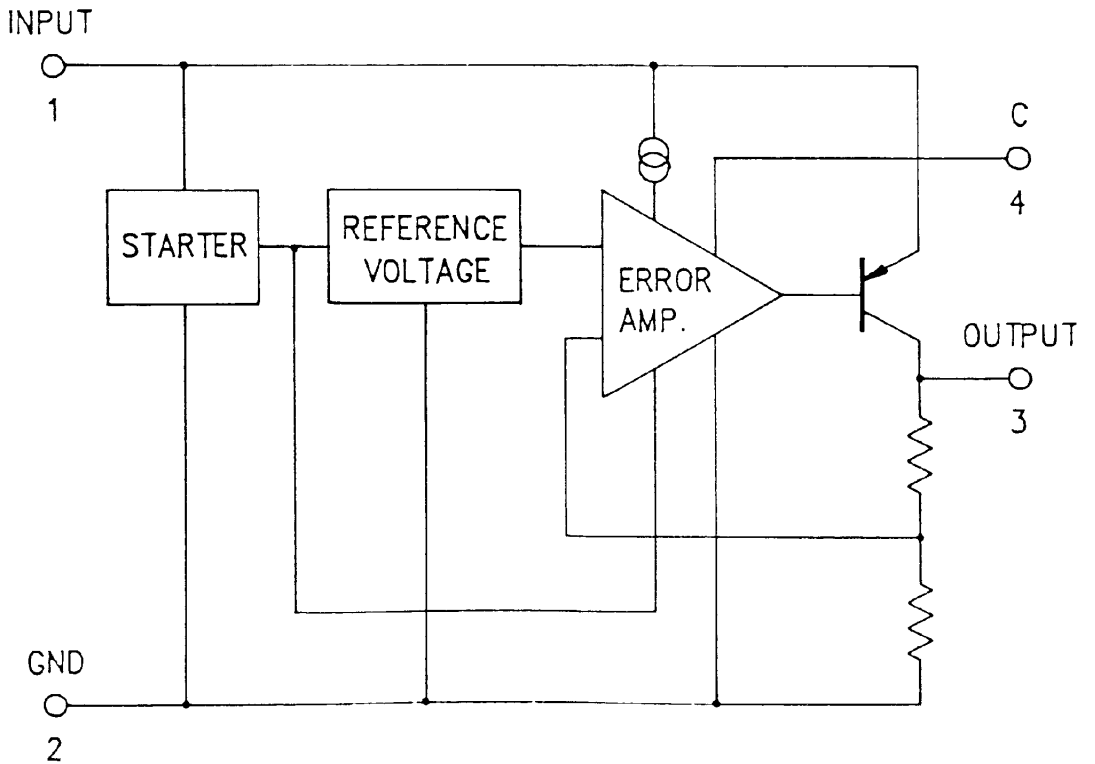


PD: PHASE DETECTOR DET: DETECTOR
 BU: BUFFER IND: INDICATOR
 FE: FRONT END

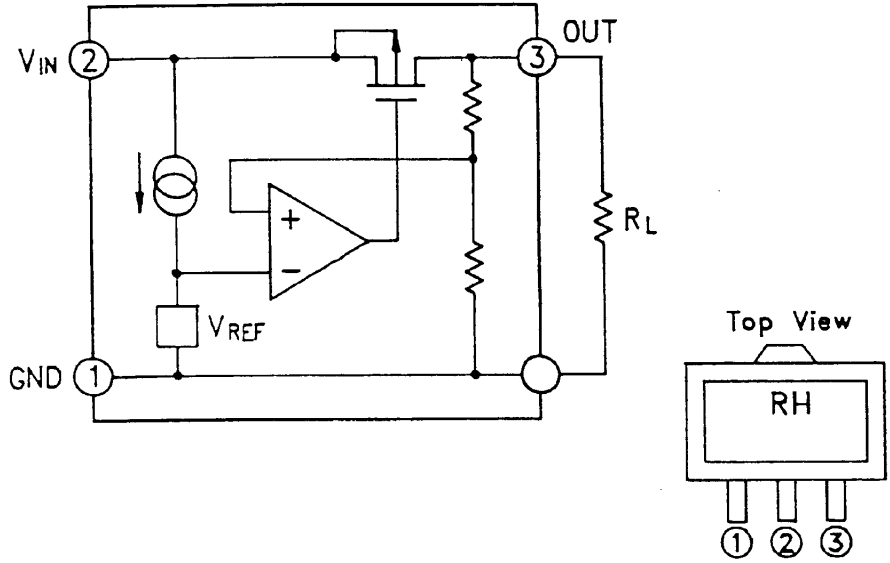
(4) IC4-TA8126F



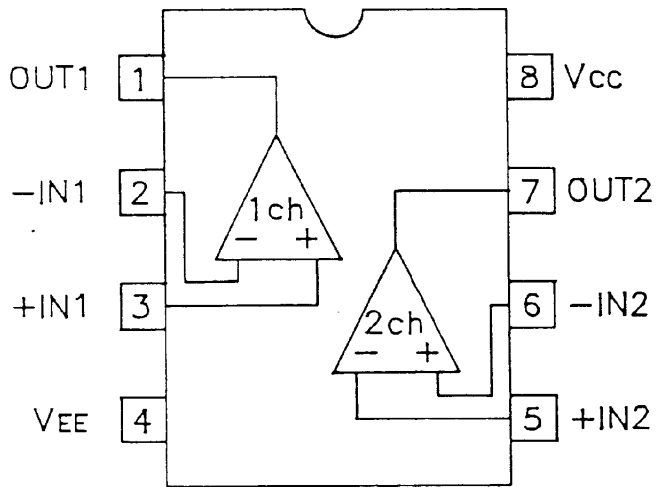
(5) IC5-LA5003



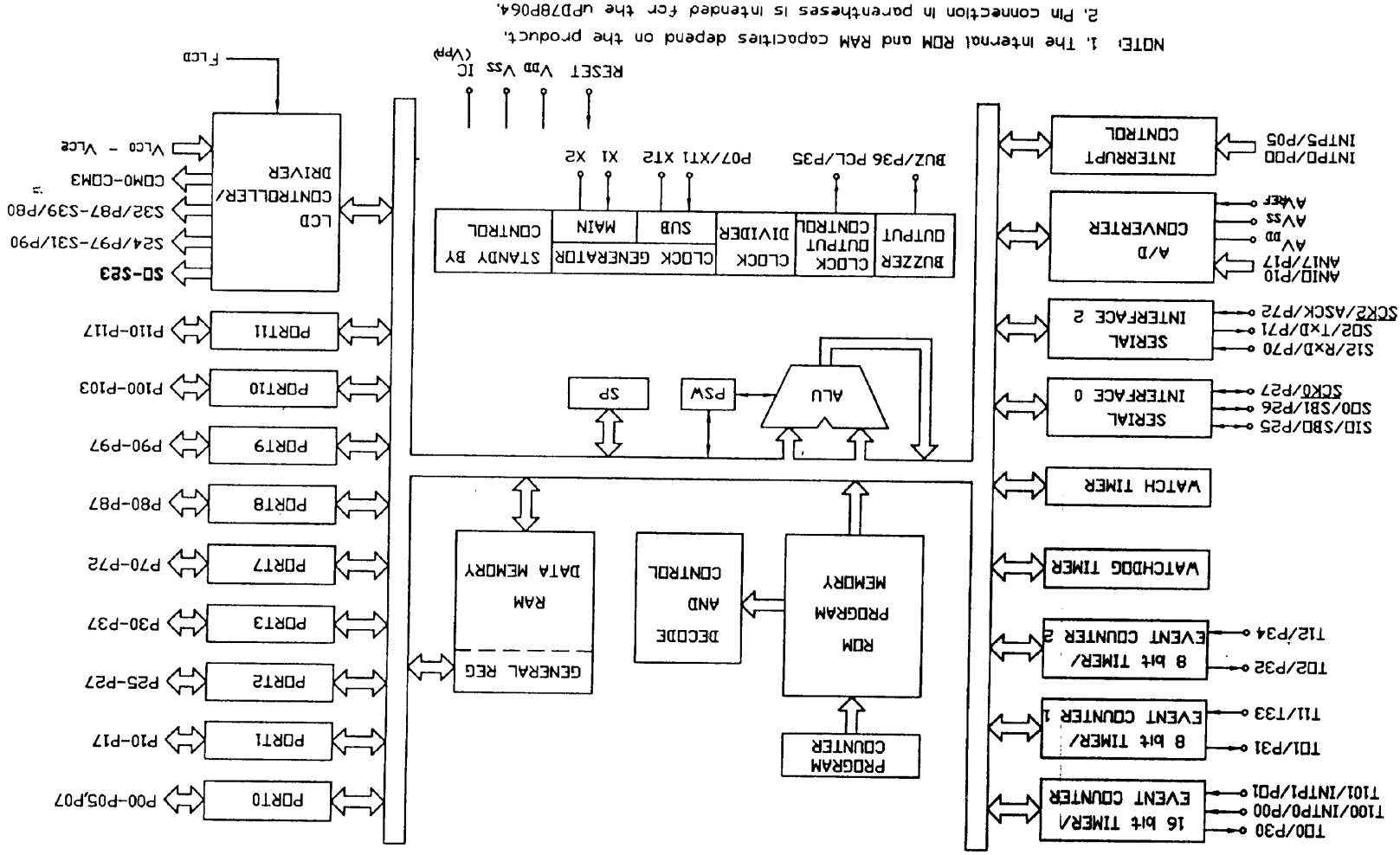
(6) IC6-S81225AG-RH-T2(REG2.5V)



(8) IC202-BA10393F

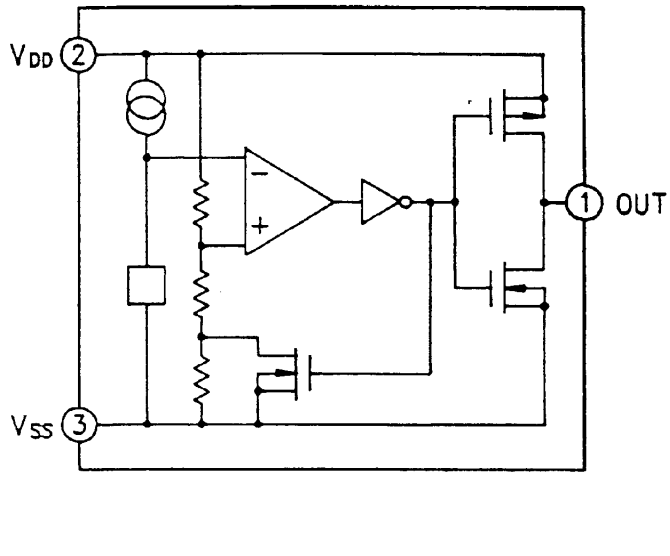


(7) IC201-75312GF-533-3B9

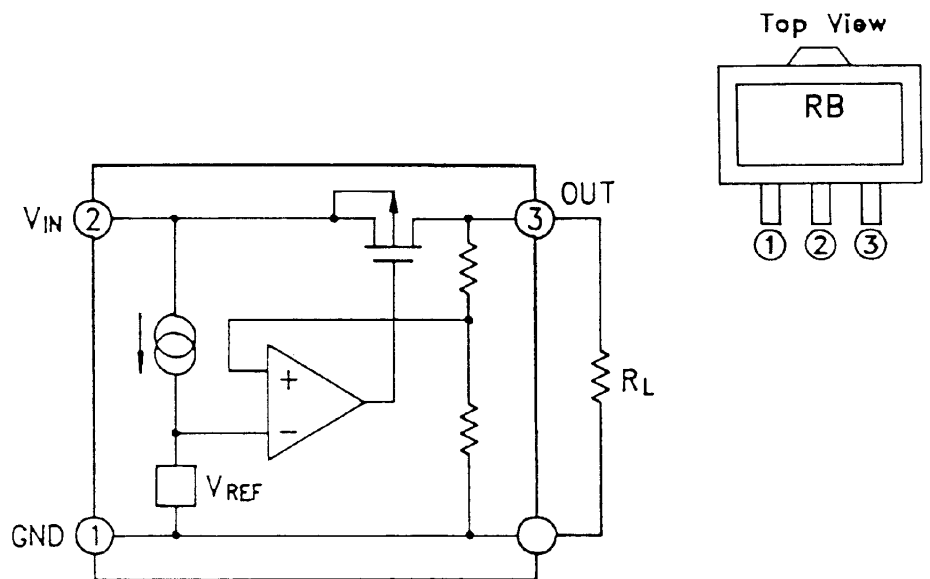


NOTE: 1. The internal ROM and RAM capacities depend on the product.
 2. Pin connection in parentheses is intended for the UPD78P064.

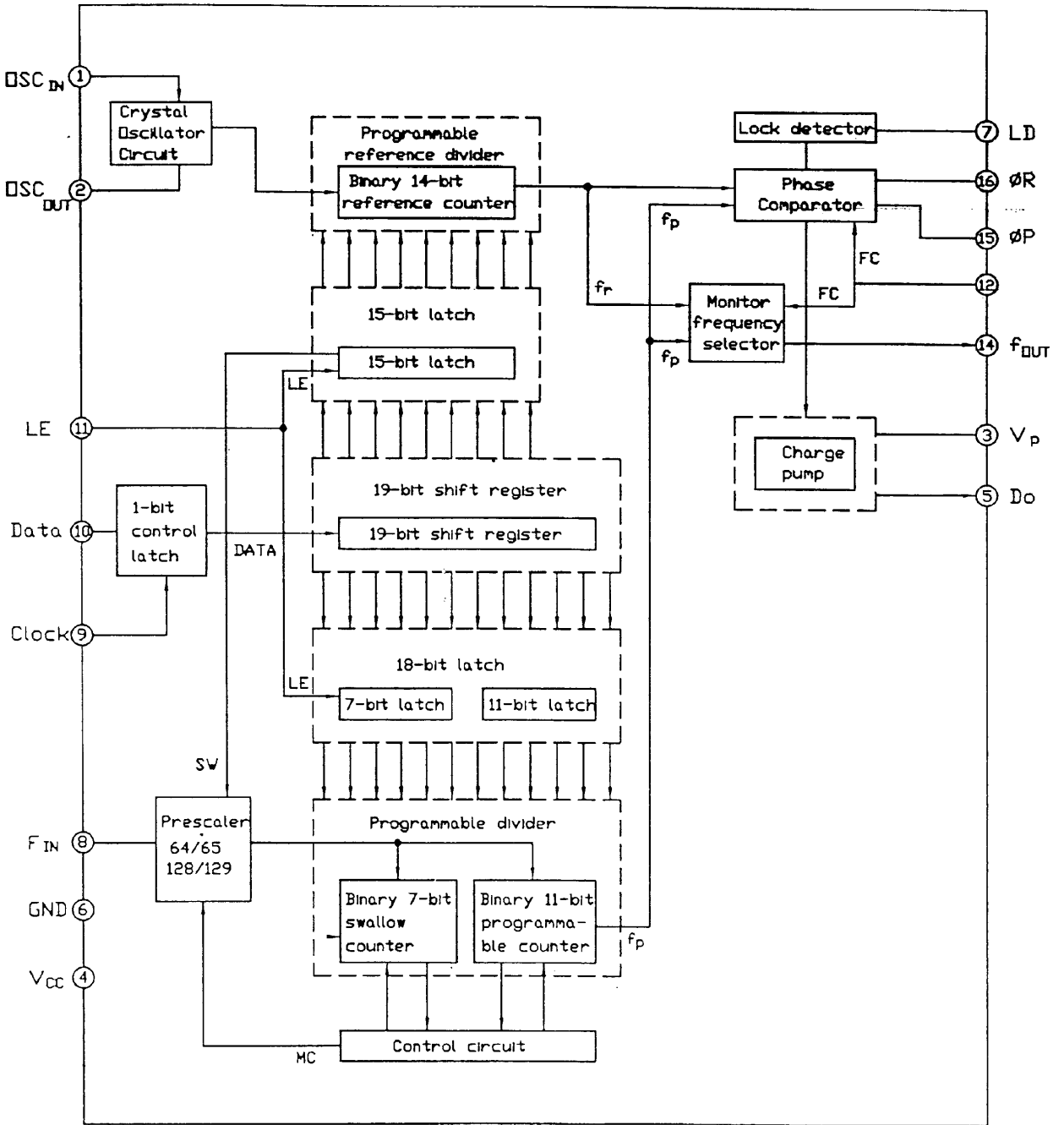
(9) IC203-S8053ALB-L1-T2(DET)



(10) IC204-S81230AG-RB-T1(REG3V)



(11) IC205-MB15A01PFV1-G-BND-EF



ICS' & TRANSISTORS' VOLTAGE LIST

IC1 CXA1238M

PIN.NO	FM	AM
1	0.87	0.869
2	0.96	0.96
3	0.59	0.59
4	1.87	1.87
5	0.67	0.75
6	0.67	0.75
7	3.02	3.02
8	2.72	2.72
*9	1.31	1.14
*10	1.05	1.3
11	0	0
*12	0.06	0.09
13	1.31	0.03
14	0	0
15	1.31	0.03
16	0.55	0.22
17	0	0
18	0.33	0
19	1.25	1.25
20	1.25	1.25
21	1.25	1.25
22	1.25	1.25
23	1.25	1.25
24	1.25	1.25
*25	0.75	0.18
26	2.16	2.73
27	1.4	1.4
28	1.65	1.65
29	0.86	0.86
30	0	0

IC2 TA7376P

PIN.NO	AM OR FM
1,9	0.006
2	0.61
3	2.00
4	4.5
5	0
6	2.00
7	1.28
8	0.61

IC4 TA8126F

PIN.NO	FM/SW	LW/MW
1	7.6	0
2	14.87	2.2
3	7.78	0
4	7.78	0
5	0	0
6	0.98	0.26
7	0.98	0.26
8	4.3	0.77
9	4.29	0.77
10	0	0

IC3 TA75339F

PIN.NO	FM	AM
1	0.028	0.028
2	0.028	0.028
3	3.0	3.0
*4	0.7	0.81
*5	0.84	0.74
*6	0.84	0.74
*7	1.035	1.2
*8	0.45	0.44
*9	0.1	0.1
*10	0.67	1.24
*11	0.37	1.21
12	0	0
*13	0.08	1.31
14	0.05	0.05

IC5 LA5003

PIN.NO	FM	AM
1	4.48	4.48
2	0	0
3	3.03	3.03
4	3.78	3.78

IC6 S81225AG

PIN.NO	FM	AM
1	0	0
2	0.02	4.155
3	0.5	2.47

TESTING CONDITION:

1. No input signal and volume is min.
2. Speaker is using.
3. Extension ANT. Is not using.
4. AM is received by 1710kHz.
5. FM is received by 98MHz and put on the stereo.
6. Load in main battery 4.5V DC.
7. Unit of voltage: V DC.

*The voltage value is variable by reception of radio.

IC201 uPD75308-J64

PIN.NO	FM	AM
1-12	LCD SEGMENT	
13	2.93	
14	2.91	2.91
15	2.91	2.91
16	2.91	2.91
17	2.93	2.93
18	2.63(LIGHT ON)	
19	0.01	0.01
20	0	0
21	1.5	1.5
22	1.5	1.5
23	1.5	1.5
24	1.5	1.5
25	2.93	2.93
26	2.93	2.93
27	1.9	1.9
28	1.0	1.0
29	0.05	0.05
30	0.045	4.14
31	0.006	1.628
32	4.48	0.018
33	0	0
34	0	0
35	0	0
36	0	0
37	2.67	2.67
38	0.015	0.015
39	0.46	0.46
41	2.66(9K STEP)	
42	3.51	3.51

PIN.NO	FM	AM
43	2.66	2.66
44	2.66(LOCK OFF)	
45	2.8V(MONO)	
46	2.93	2.93
47	2.93	2.93
48	2.93	2.93
49	0	0
50	2.93	2.93
51	0	0
52	0	0
53	0	0
54	2.98	2.98
55	0.48	0.48
56	1.34	1.34
58	1.39	1.39
59	1.39	1.39
60~67	2.93	2.93
68	2.98	2.98
69~80	LCD SEG MENT	

Transistors

	Pin No.	FM	AM
IC202	*1	0.6 ~ 1.6V	0.6 ~ 1.6V
	*2	0.1 ~ 1	0.1 ~ 1
	*3	0.1 ~ 1	0.1 ~ 1
	4	0	0
	*5	0.1 ~ 1	0.1 ~ 1
	6	2.75	2.75
	7	0.015	0.015
	8	2.99	2.99
IC203	1	4.495	4.495
	2	4.5	4.5
	3	0	0
IC204	1	0	0
	2	4.36	4.36
	3	2.99	2.99
IC205	1	1.24	1.24
	2	1.37	1.39
	3	3.03	3.03
	4	3.03	3.03
	5	0.75	0.75
	6	0	0
	7	3.03	3.03
	8	2.01	2.01
	9	0	0
	10	0	0
	11	0.18	0.18
	12	0	0
	13	0	0
	14	0	0
	15	0	0
	16	0	0

		FM	AM
Q201	B	2.98	2.98
	C	0.68	0.55
	E	3.48	3.48
Q202 (Tuning led on)	B	0.69	0.69
	C	0.05	0.05
	E	0	0
Q203 (Light led on)	B	0.69	0.69
	C	0.15	0.15
	E	0	0
Q204	B	0	0
	C	2.97	2.97
	E	0	0
Q205	B	0	0
	C	2.75	2.75
	E	0	0
Q206	B	2.59	2.59
	C	0	0
	E	2.93	2.93
Q207	G	0.69	0.69
	S	1.02	1.02
	D	2.91	2.91
Q208	B	0.60	0.60
	C	4.66	0.53
	E	0	0
Q209	B	2.4	2.4
	C	2.95	2.95
	E	3.0	3.0
Q210	B	0.65	0.65
	C	0.1	0.1
	E	0	0

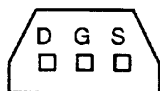
		FM	AM
Q211	B	0.72	0.74
	C	2.15	2.14
	E	0	0

		FM	AM
Q1	G	0	0
	S	0	0.65
	D	0	3.4
Q2	G	0	0~0.8
	S	0	1.27~2.0
	D	0	3.7
Q3	G	0	0~0.8
	S	0	1.27~2.0
	D	0	3.7
Q4	G	0	0
	S	0	1.2
	D	0	3.95
Q5	B	0	0.72
	C	0	1.8
	E	0	0
Q6	B	0	0.85
	C	0	3.2
	E	0	0.11
Q7	B	0	0.72
	C	0.5	2.33
	E	0	0
Q8	B	0	1.45
	C	0.5	2.1
	E	0	0.72
Q9	D	0	3.72
	G	0	0
	S	0	0.41
Q10	B	4.42	3.78
	C	0	4.40
	E	4.47	4.46

		FM	AM
Q11	B	0.12	0.59
	C	4.437	0.04
	E	0	0
Q12	B	4.46	3.75
	C	0.2	4.38
	E	4.47	4.46
Q15	B	0.74	0.75
	C	2.33	2.33
	E	0	0
Q16	B	0.02	0.56
	C	1.3	0.03
	E	0	0
Q17	B	3.77	4.12
	C	4.45	0.8
	E	4.46	4.46
Q18	D	14.5	2.24
	G	10.5	1.63
	S	10.7	1.84
Q19	B	3.78	3.78
	C	4.46	4.46
	E	4.5	4.5
Q20	B	3.79	3.79
	C	4.5	4.5
	E	4.5	4.5
Q21,22	B	0	0
	C	0	0
	E	0	0
Q23	G	0	0
	S	0.82	0.82
	D	2.56	2.56

SEMICONDUCTOR LEAD IDENTIFICATIONS

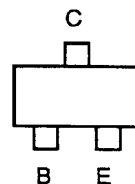
Transistors



2SK715W



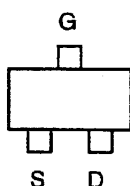
2SK381B



2SB815 B7
 2SC2812 L6/L7
 2SA812 M6
 2SC2223 F13
 2SC2712GR-LG/BL-LL
 2SA1162GR-SG



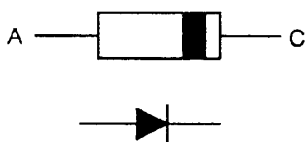
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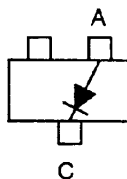
2SK433B KB

(E:Emitter C:Collector B:Base S:Source G:Gate D:Drain)

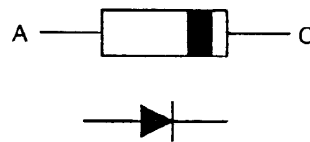
Diodes



1N4148
 IN60



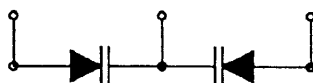
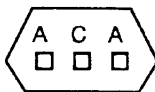
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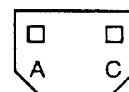
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RLS4148

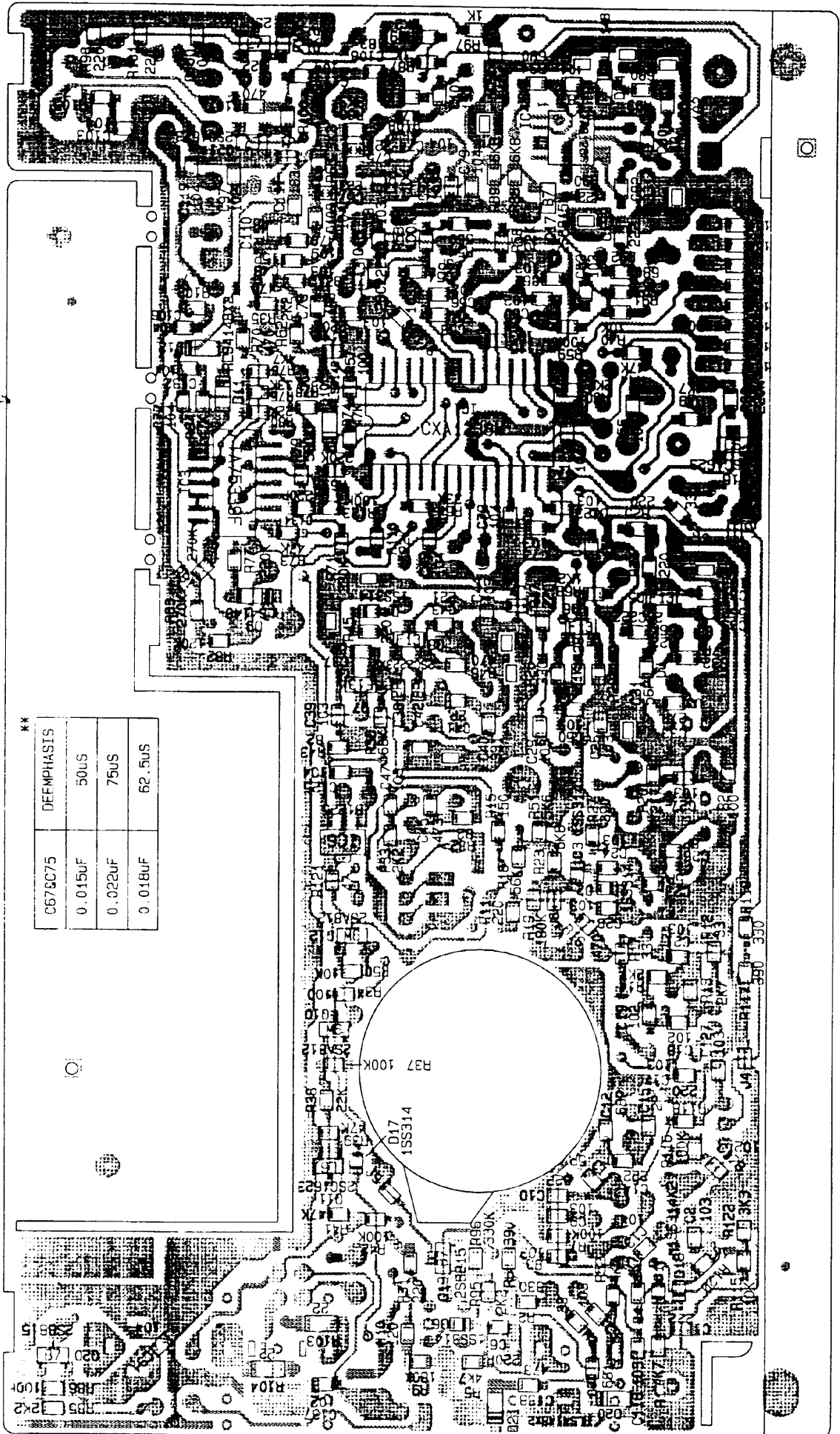


SVC203



SVC201 SP

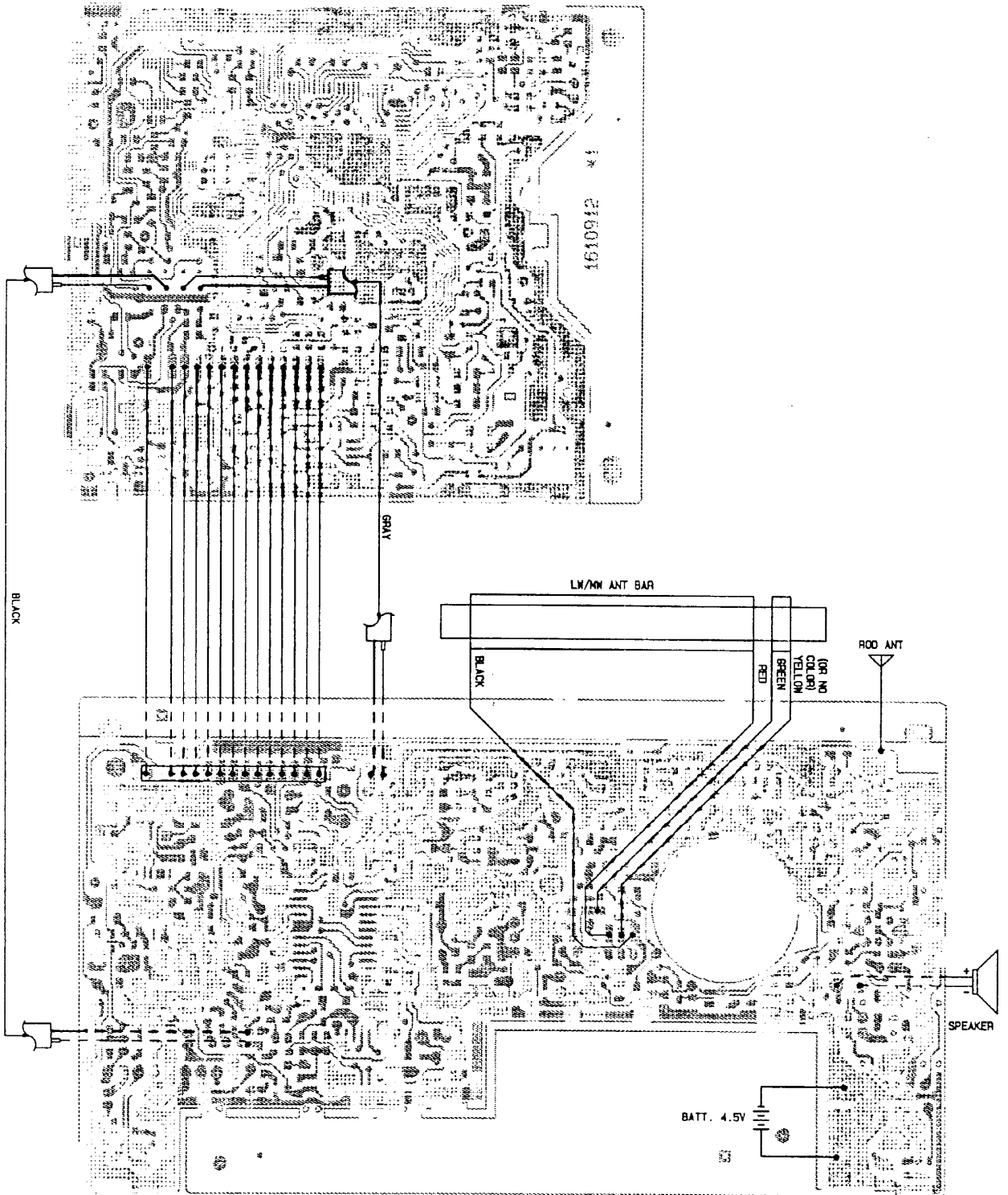
MAIN PCB BOTTOM VIEW



**

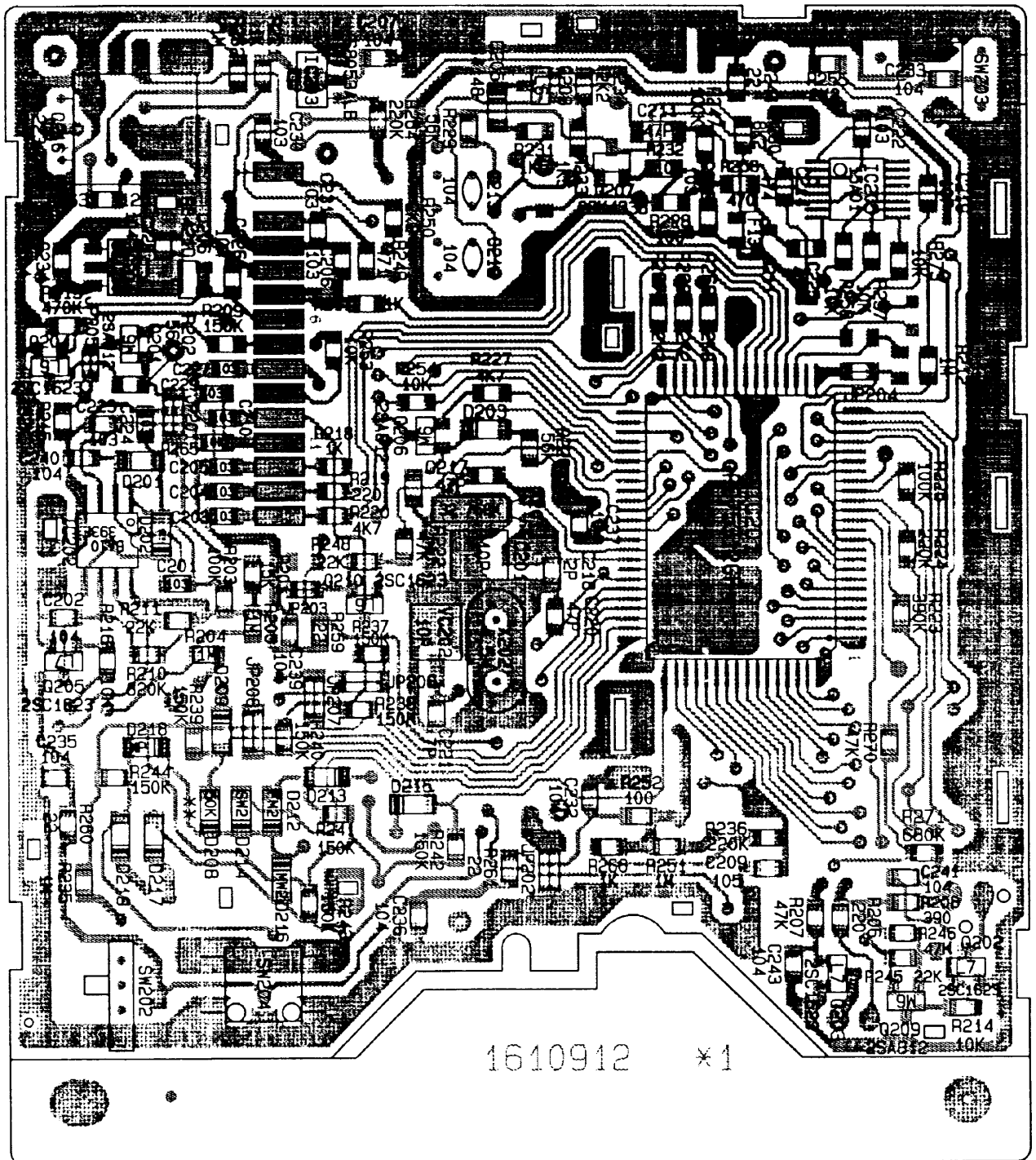
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0.015uF	50uS
0.022uF	75uS
0.018uF	62.5uS

WIRING DIAGRAM

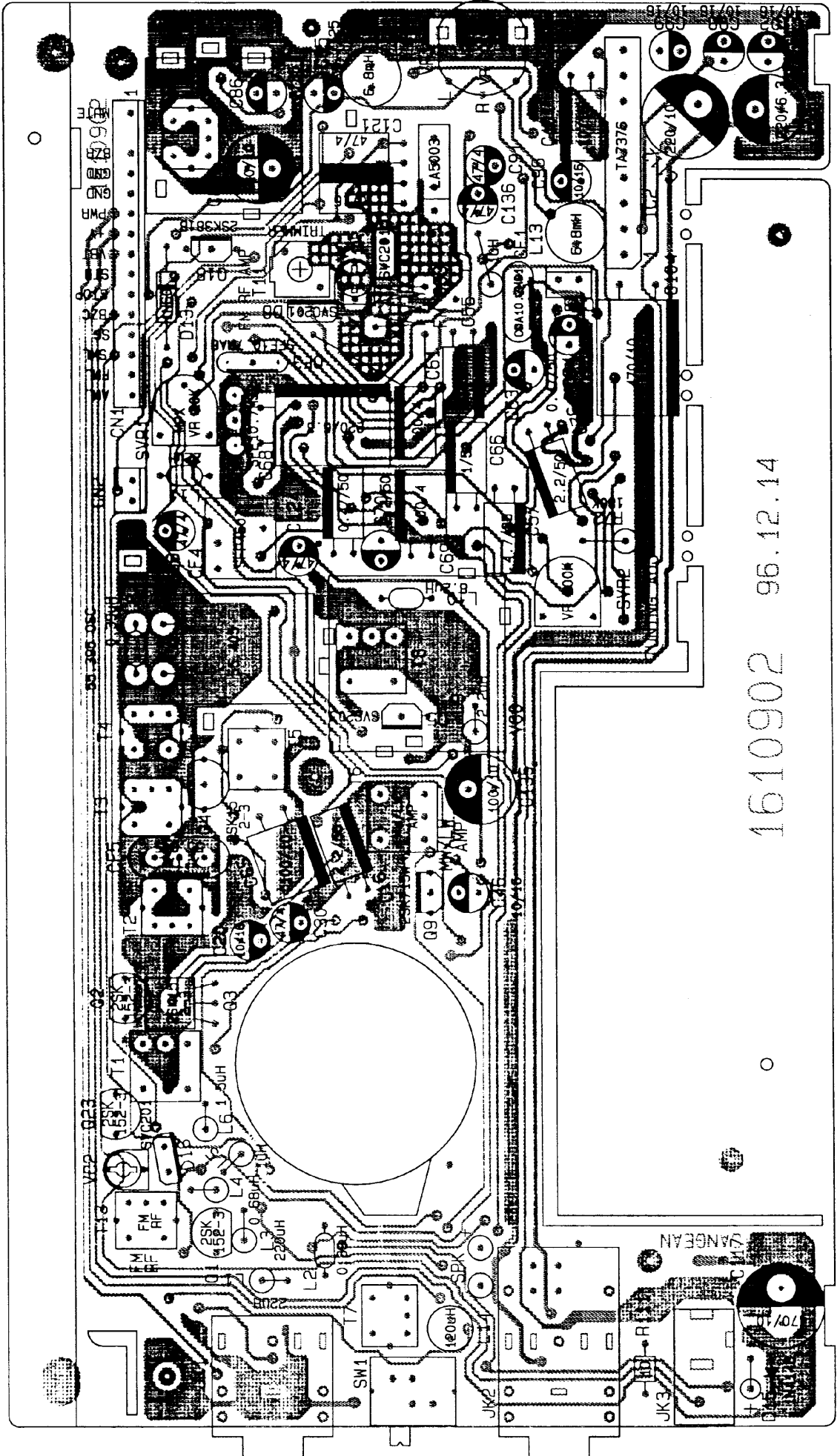


CONTROL PCB BOTTOM VIEW

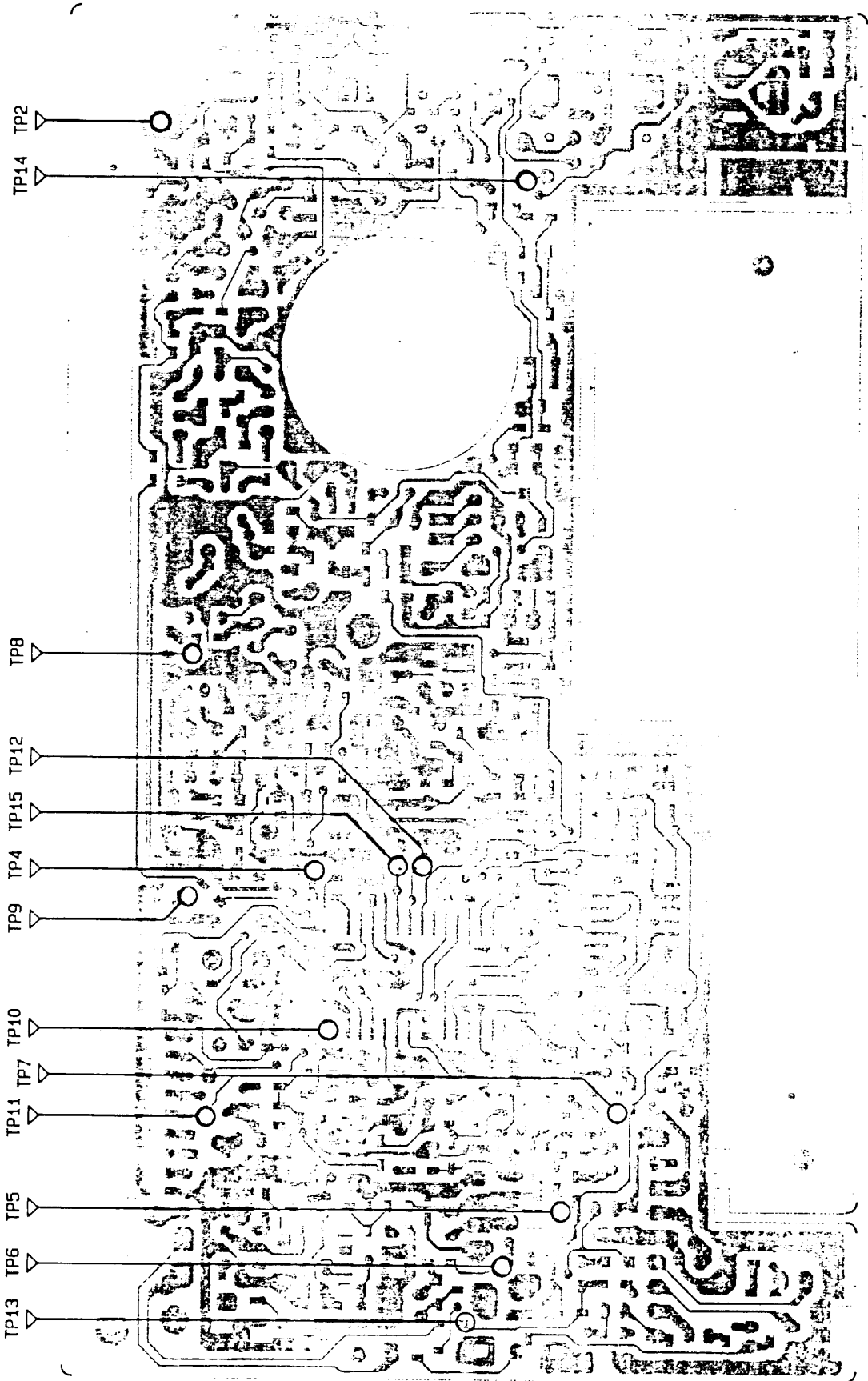
RLS4148: D201-D205, D207-D219



MAIN PCB TOP VIEW



1610902 96.12.14



TP14 TP2

TP8

TP12 TP15

TP4

TP9

TP10

TP7

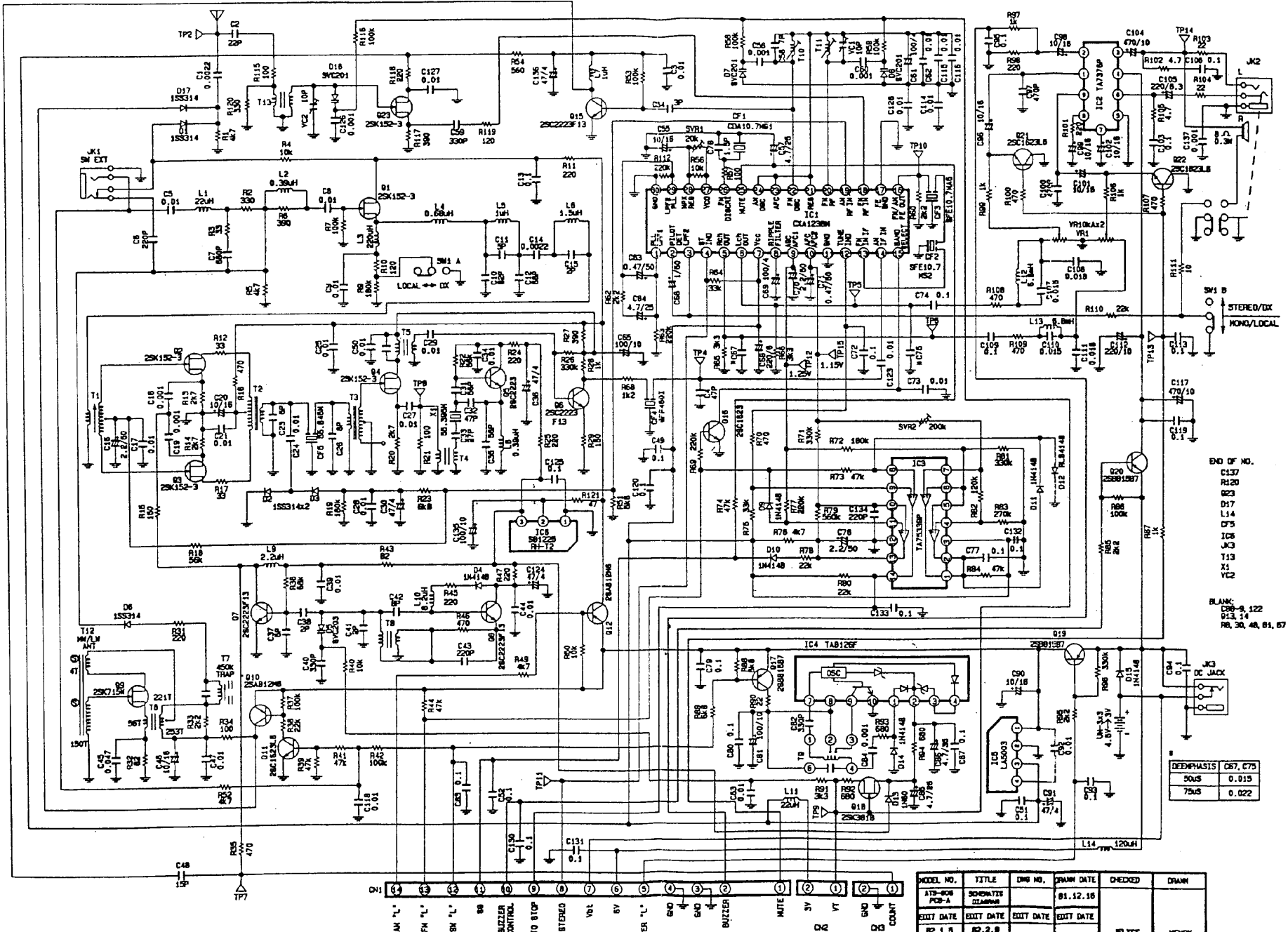
TP11

TP5

TP6

TP13

SCHEMATIC DIAGRAM



END OF NO.
 C17
 R120
 R23
 D17
 L14
 C75
 JCB
 X1
 Y1
 X2
 BLANK
 122
 123
 124
 125
 126
 127
 128
 129
 130

DEFPHASIS	C67, C75
50US	0.015
75US	0.022

MODEL NO.	TITLE	ENG NO.	DRWN DATE	CHECKED	DRWN
AT9-008 P2-4	SCHEMATIC DRAWING		81.12.18		
REV. 1.5	REV. 2.2				
EXIT DATE	EXIT DATE	EXIT DATE	EXIT DATE		

SANGEAN ELECTRONICS INC.

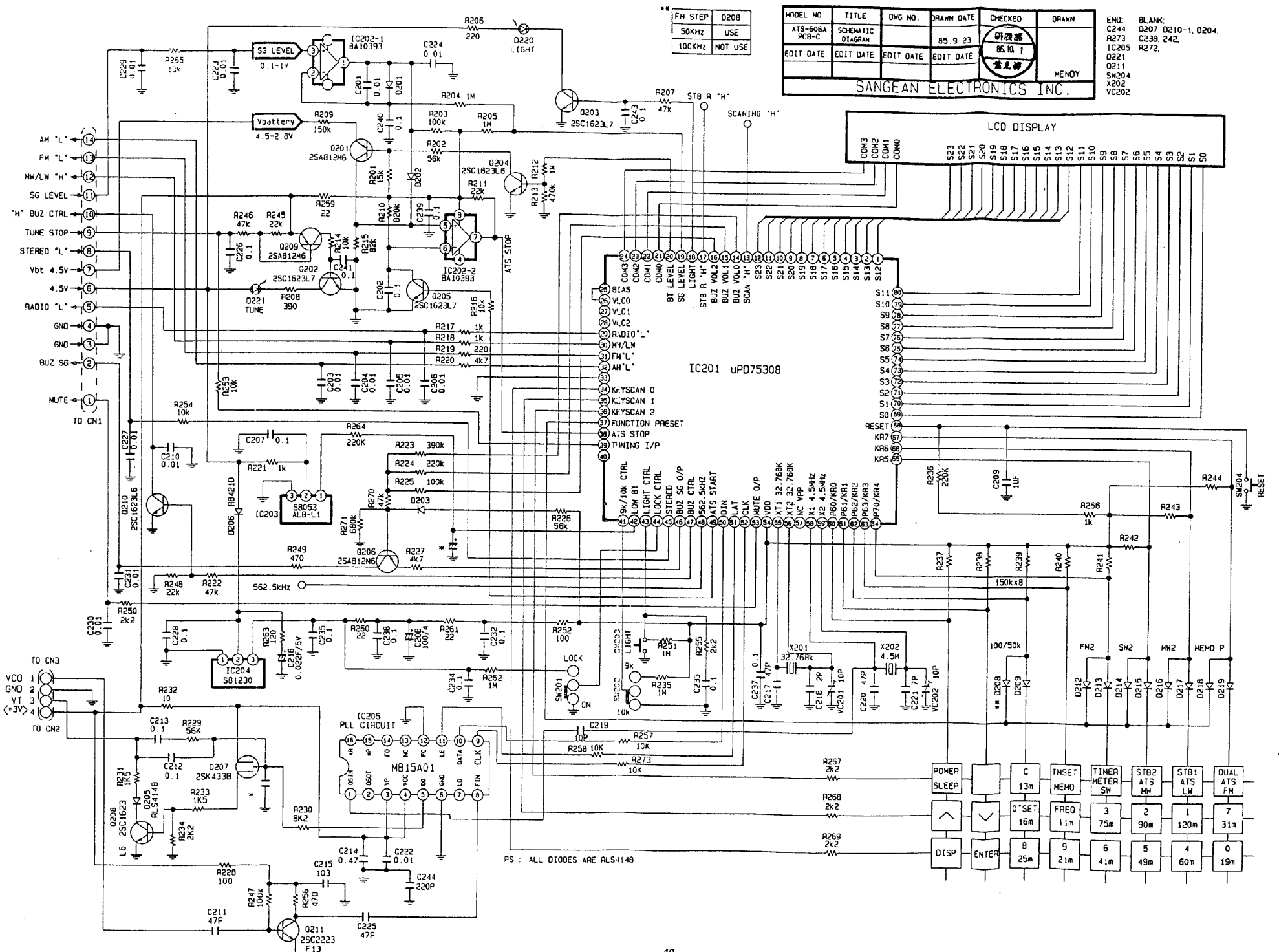
SCHEMATIC DIAGRAM

FH STEP	D208
50KHZ	USE
100KHZ	NOT USE

MODEL NO	TITLE	DWG NO.	DRWN DATE	CHECKED	DRWN
ATS-606A PCB-C	SCHEMATIC DIAGRAM		85.9.23	研 理 部 85.11.1	
EDIT DATE	EDIT DATE	EDIT DATE	EDIT DATE	黄 见 神	MEMO

SANGANE ELECTRONICS INC.

END. BLANK: 0207, 0210-1, 0204,
C244 C207, D210-1, D204,
R273 C238, 242,
IC205 R272,
D221
D211
SH304
X202
VC202



PS: ALL DIODES ARE RLS4148