



# Service Manual

**ATS-305**

# SPECIFICATION

## MW

TEST ITEM	CONDITION	NOMINAL	LIMIT	UNIT	
Tuning Range	Min.	520	±3.5	kHz	
	Max.	1710	±3.5		
Intermediate Frequency	Min.	450	±3.5	kHz	
Maximum Sensitivity	600 kHz	60	66	dB $\mu$ /m	
	1000 kHz	56	62		
	1400 kHz	56	62		
Usable Sensitivity	600 kHz	60	66	dB $\mu$ /m	
	1000 kHz	60	66		
	1400 kHz	60	66		
Image Rejection	1400 kHz	32	25	dB	
I.F. Rejection	600 kHz	30	25	dB	
Selectivity ( $\pm 10$ kHz)	1000 kHz	26	20	dB	
Bandwidth (-6 dB)		4-9	kHz		
T.H.D. 30% Mod.		5	7	%	
Lowest Battery Voltage		4.0	4.2	V	
Auto. Scan. Stop. Sens.		60	66	dB $\mu$ /m	
S/N Ratio		40	35	dB	
Current Consumption			70	mA	
Frequency Response (-6 dB)		150	250	Hz	
		2.4	2.0	kHz	
Output Power (30% Mod.)		250	220	mW	
		220	180		
Overload Capacity			106	dB $\mu$ /m	
A.G.C. F.O.M.		42	36	dB	
Whistle Modulation		2IF/3IF	4	10	%
Supply Voltage : DC 6 V		R.O. : 50 mW	Load : 8 ohm	Modulation : 1000 Hz/ 30%	

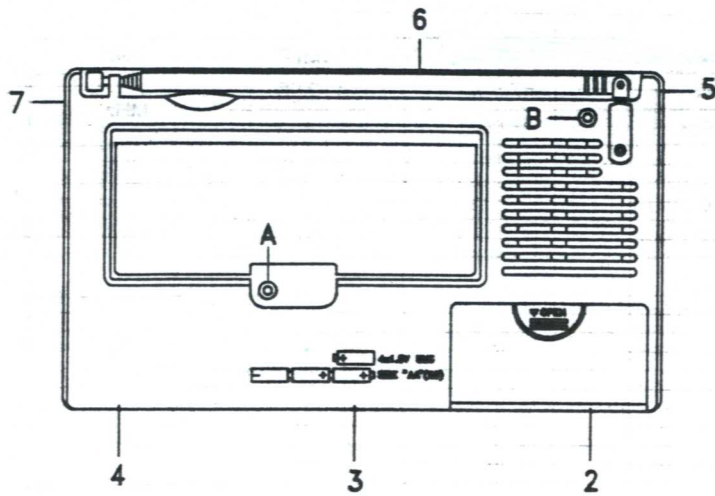
## SW1

TEST ITEM	CONDITION	NOMINAL	LIMIT	UNIT
Tuning Range	Min.	5.90	± 0.005	kHz
	Max.	17.90	± 0.005	
Intermediate Frequency				kHz
Maximum Sensitivity	7.1 kHz	24	30	dB $\mu$
	11.6 kHz	20	26	
	15.10 kHz	20	26	
Usable Sensitivity	7.1 kHz	28	34	dB $\mu$
	11.6 kHz	24	30	
	15.10 kHz	24	30	
Image Rejection	15.10 kHz	10	4	dB
S/N Ratio	11.6 kHz	45	40	dB $\mu$
Overload Capacity		80	70	dB
Tuning Indication Sensitivity		24	30	dB $\mu$
Auto. Scan.		24	30	dB $\mu$
Supply Voltage : DC 6 V	R.O. : 50 mW	Load : 8 ohm	Modulation : 1000 Hz/ 30%	

# FM

TEST ITEM	CONDITION	NOMINAL	LIMIT	UNIT	
Tuning Range	Min.	87.5	± 0.05	MHz	
	Max.	108.00	± 0.05		
Intermediate Frequency		10.70	± 0.05	MHz	
Maximum Sensitivity	90.1 MHz			dB $\mu$	
	98.1 MHz		20		
	106.1 MHz				
Usable Sensitivity	90.1 MHz			dB $\mu$	
	98.1 MHz	20	26		
	106.1 MHz				
Image Rejection	106.1 MHz	24	20	dB	
I.F. Rejection	90.1 MHz	55	50		
3dB Limiting (10 mV)	98.1 MHz	18	24	dB $\mu$	
Minimum Output		3	5	mV	
R.D.S. Sen					dB $\mu$
Auto. Scan. Stop. Sens.		22	26		
Stereo Indicator Sens.		18	24		
Stereo Separation		26	20	dB	
S/N Ratio		50	40	dB	
Current Consumption				80	mA
Am. Suppression		35	30	dB	
Freq. Response -3dB w/75 $\mu$ S				150	Hz
				6.3	kHz
Output Power			250	220	mW
75K Dev.			220	180	
T.H.D. 75 kHz			5	7	%
Overload Capacity			108	100	dB $\mu$
Tone. Action (6.3 kHz)		music		+5	dB
		news		-5	
Lowest Battery Voltage	98.1 MHz	4.0	4.2	V	
Battery Indicator (9)			5.6	V	
Supply Voltage : DC 6 V <input type="checkbox"/> R.O. : 50 mW Load : 8 ohm Modulation : 1 kHz/22.5 kHz Dev.					

# DISASSEMBLY INSTRUCTIONS

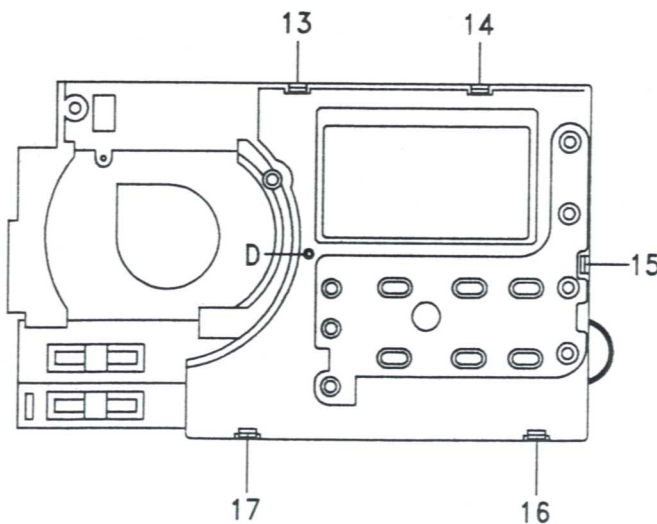
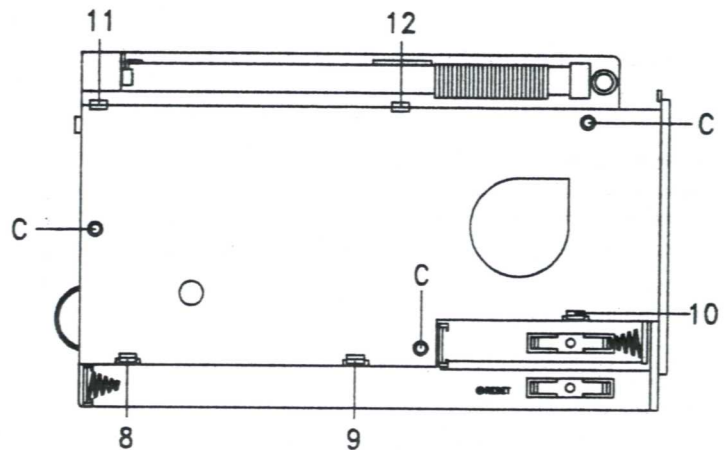


## TO REMOVE BACK COVER

- a. Unscrew 2 PTP screws A(2.6x16) ,B(2.6x28) & release back cover from hooks 2~7.
- b. Separate Front and Rear Cabinet.

## TO REMOVE MAIN PCB

- a. Unscrew 3 PTP screws C(2x6).
- b. Release Main PCB from hooks 8~12 to remove it.



## TO REMOVE CONTROL PCB

- a. Unscrew 1 PTF screw D(2x6).
- b. Release Control PCB from hooks 13~17 to remove it.



# ALIGNMENT INSTRUCTIONS

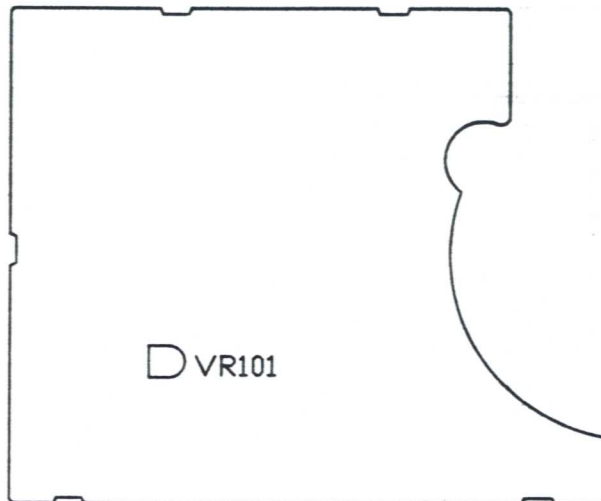
## (1) ALIGNMENT FOR INDICATION LEVEL OF BATTERY

a. Required Instrument  
DC Power Supply with voltage meter

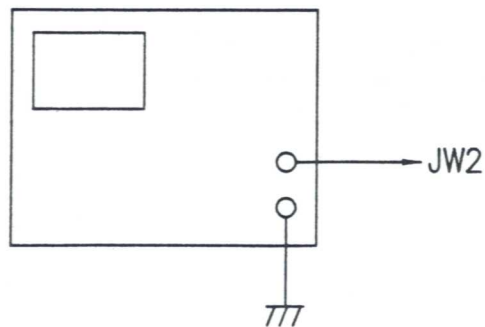
b. Alignment Procedure

Mode	Adjustment	Procedure
	VR101	(1) Remove batteries away from the RADIO BATTERY compartment. (2) Connect a DC power supply to the JW2. "2" (3) Set the voltage to a reading of 5.6V. (4) Turn the radio ON and adjust VR101. (5) Push POWER key again to shut off the radio and the BATTERY LEVEL INDICATOR will immediately appeared on LCD for a period of 6 seconds. (6) Repeat (4) and (5) until the level was indicated on the 9nd. scale.

c. Instrument Connection



Regulated DC Power Supply



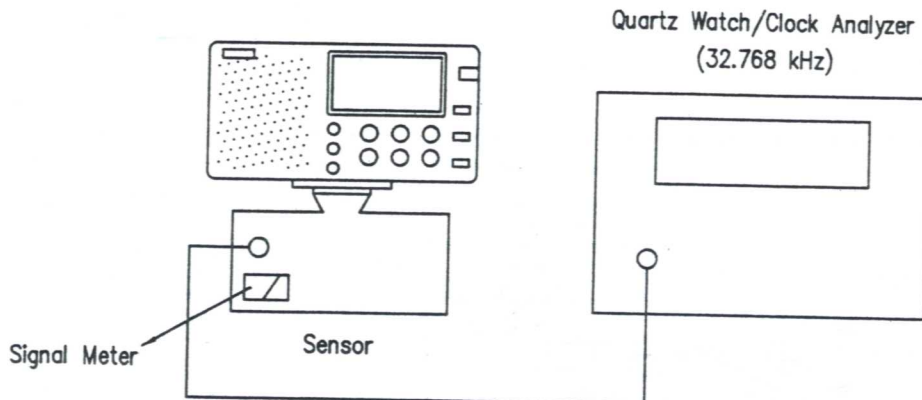
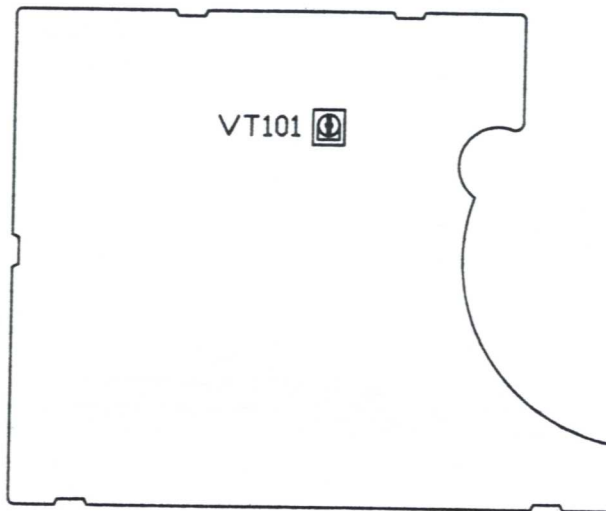
## (2) ALIGNMENT FOR CLOCK TIME ACCURACY

a. Required Instrument  
Quartz Watch/Clock Analyzer and Sensor

b. Alignment Procedure

Mode	Adjustment	Procedure
	VT101	(1) Set the power switch of the radio OFF. (2) Put the PCB-C (1611510) X103 of the set near the sensor of Quartz Watch/Clock Analyzer and move the Watch/Clock Analyzer. (3) Adjust VT101 to reach the range of zero error ( $\pm 7$ PPM or $\pm 20$ sec/month)

c. Instrument Connection



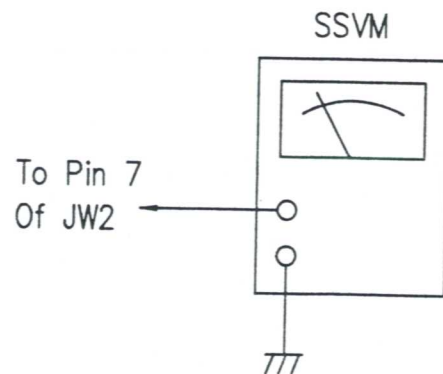
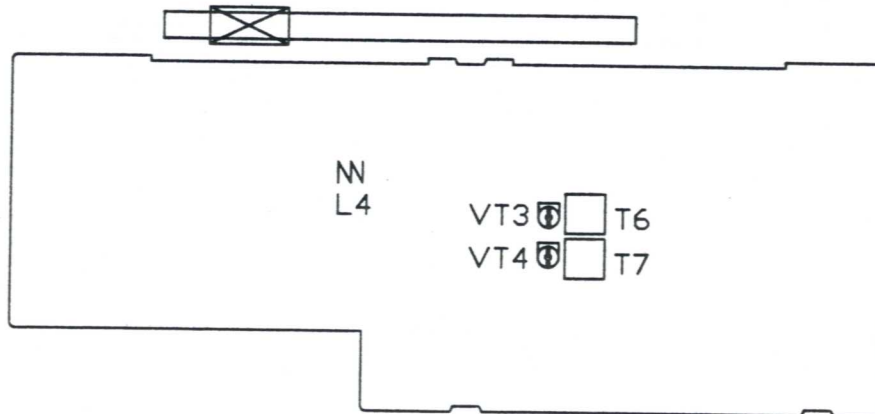
### (3) ALIGNMENT FOR TUNING CAPACITOR VOLTAGE RANGE

- a. Required Instruments  
 Signal Generator  
 SSVM

b. Alignment Procedure

Mode	Adjustment	Procedure
		(1) Set the power switch to ON. (2) Connect a SSVM to pin 7 of CN2.
FM	L4	(1) Tune FM to 108 MHz. (2) Adjust L4 to have a reading of 8.2V on the SSVM.
MW	T7 VT4	(1) Tune AM to 520 kHz. (2) Adjust T7 to have a reading of 1.2V on the SSVM. (3) Tune AM to 1710 kHz. (4) Adjust VT4 to have a reading of 8.2V on the SSVM. (5) Repeat Step 1-4.
SW	T6 VT3	(1) Tune SW1 to 5.9 MHz. (2) Adjust T6 to have a reading of 1.0V on the SSVM. (3) Tune LW to 17.9 MHz. (4) Adjust VT3 to have a reading of 9.0V on the SSVM. (5) Repeat Step 1-4.

c. Instrument Connection





#### (4) ALIGNMENT FOR AM IF

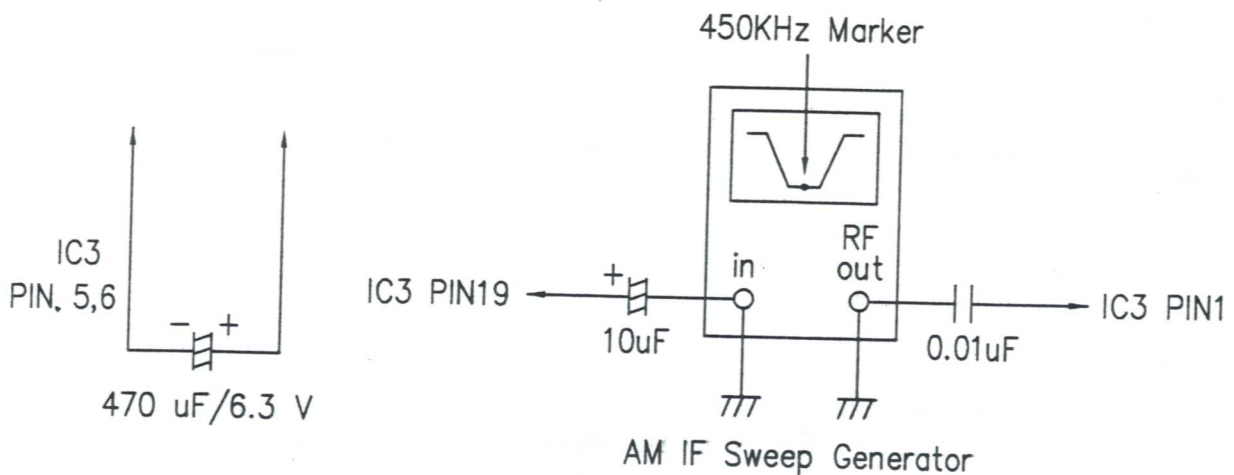
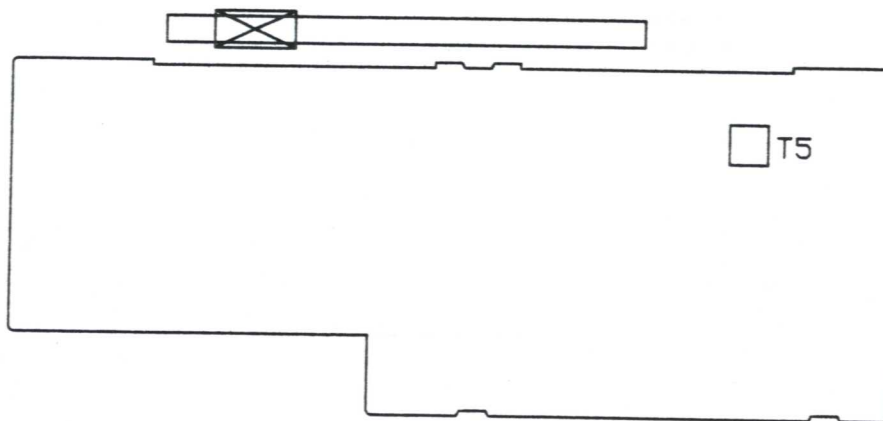
a. Required Instrument

AM IF Sweep Generator with Scope

b. Alignment Procedure

Mode	Adjustment	Procedure
AM	T5	(1) Set the power switch to ON position. (2) Connect the input terminal of the AM IF sweep generator in series with a $10\ \mu\text{F}$ capacitor to the IC3 pin19. (3) Connect the RF output terminal of the AM IF sweep generator in series with a $0.01\ \mu\text{F}$ capacitor to the IC3 pin1. (4) Connect a $470\ \mu\text{F}/6.3\text{V}$ capacitor to IC2 pin5 and 6. (5) Adjust T5 to have a maximum output with a marker frequency of 450 kHz on the sweep scope.

c. Instrument Connection



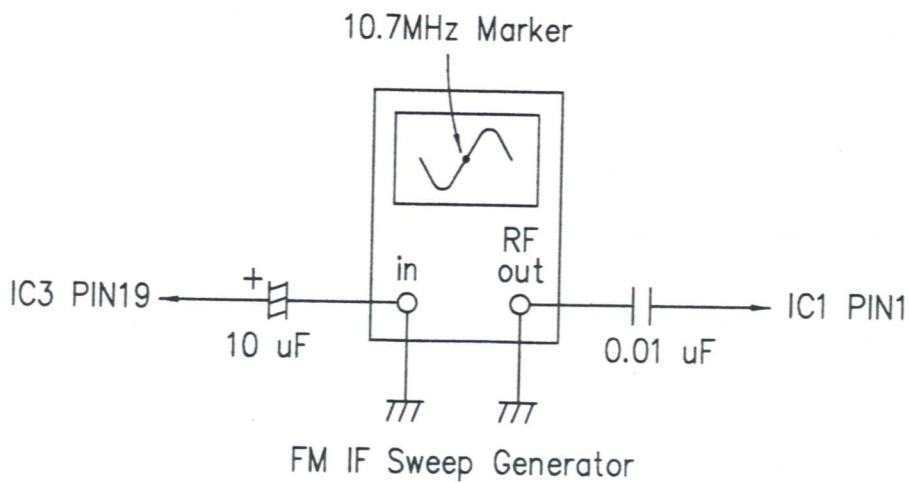
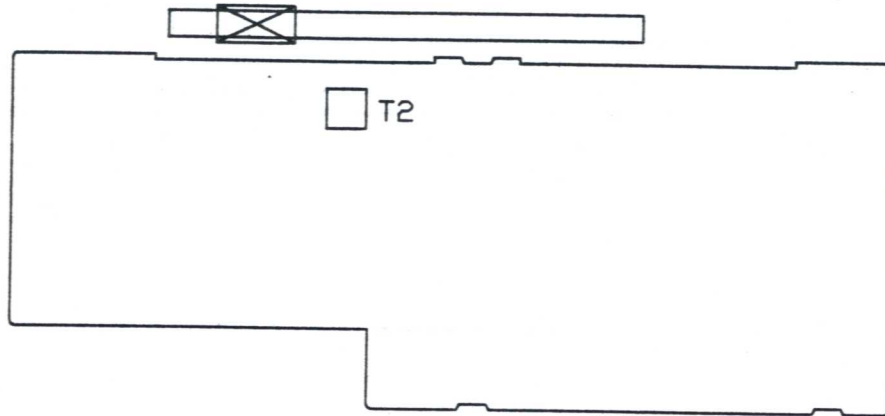
## (5) ALIGNMENT FOR FM IF

a. Required Instrument  
FM IF Sweep Generator with Scope

b. Alignment Procedure

Mode	Adjustment	Procedure
FM	T2	(1) Set the power switch to ON. (2) Connect the input of the FM IF sweep generator in series with a $10\ \mu\text{F}$ capacitor to the IC3 pin19. (3) Connect the RF output of the FM IF sweep generator to the IC1 pin1. (4) Adjust T2 for maximum output and best symmetrical S-curve with respect to the center marker frequency of 10.7 MHz.

c. Instrument Connection



## (6) ALIGNMENT FOR AM SENSITIVITY

### a. Required Instruments

Signal Generator

SSVM

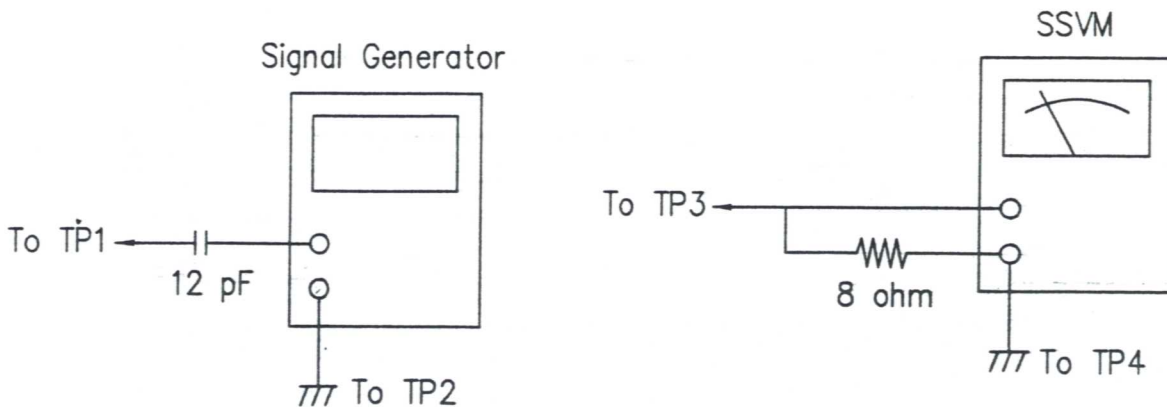
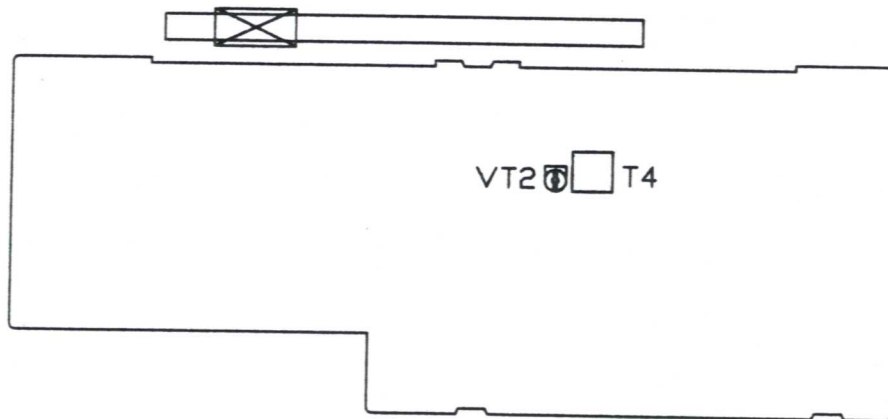
Frequency Counter

Loop Antenna

### b. Alignment Procedure

Mode	Adjustment	Procedure
AM	T4 VT2	<ol style="list-style-type: none"> <li>(1) Set the power switch to ON.</li> <li>(2) Connect a SSVM to the speaker.</li> <li>(3) Connect a signal generator to the loop antenna.</li> <li>(4) Set AM to 600 kHz (or 603 kHz).</li> <li>(5) Adjust T4 for maximum audio output.</li> <li>(6) Set AM to 1400 kHz (or 1404 kHz).</li> <li>(7) Adjust VT2 for a maximum audio output.</li> <li>(8) Repeat Steps 4-7 until maximum audio output is reached.</li> </ol>

### c. Instrument Connection

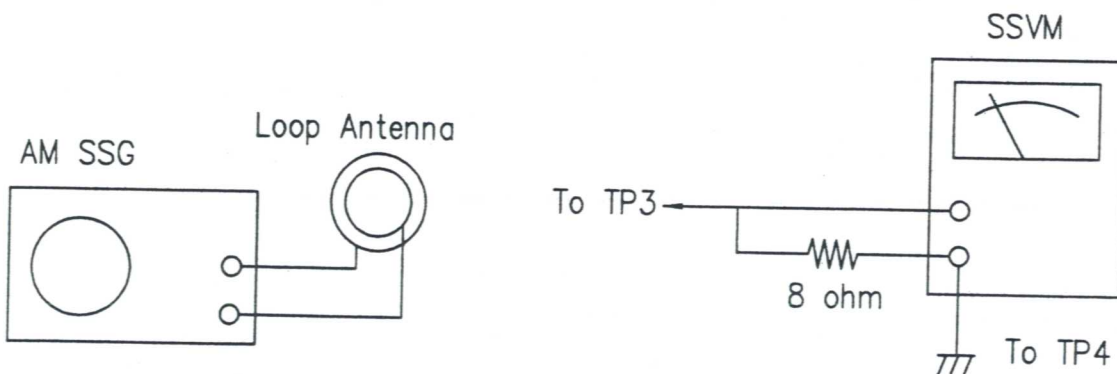
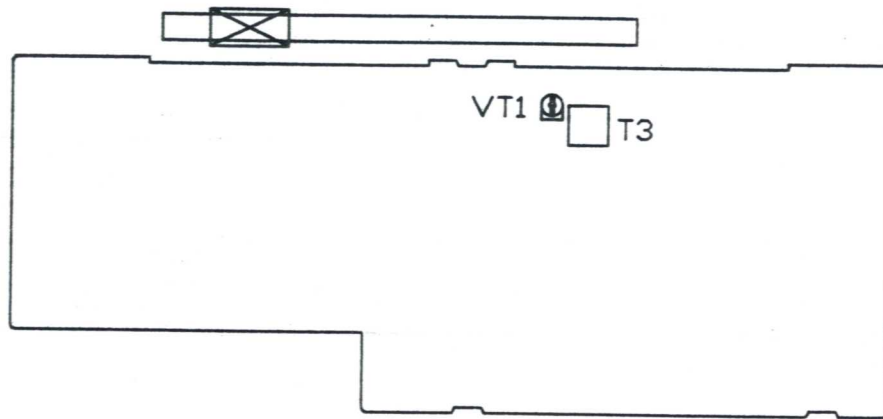


## (7) ALIGNMENT FOR SW SENSITIVITY

a. Required Instruments  
 Signal Generator  
 SSVM

b. Alignment Procedure

Mode	Adjustment	Procedure
SW	T3 VT1	(1) Set the power switch to ON position. (2) Connect a SSVM to the speaker.(TP4) (3) Connect the output of the FM signal generator in series with a 12pF capacitor to the test point (TP1). (4) Set SW TO 7.1 MHz. (5) Adjust T3 for maximum audio output. (6) Set SW to 13.57 MHz. (7) Adjust VT1 for maximum audio output. (8) Repeat Steps 4-7 until maximum audio output is reached.

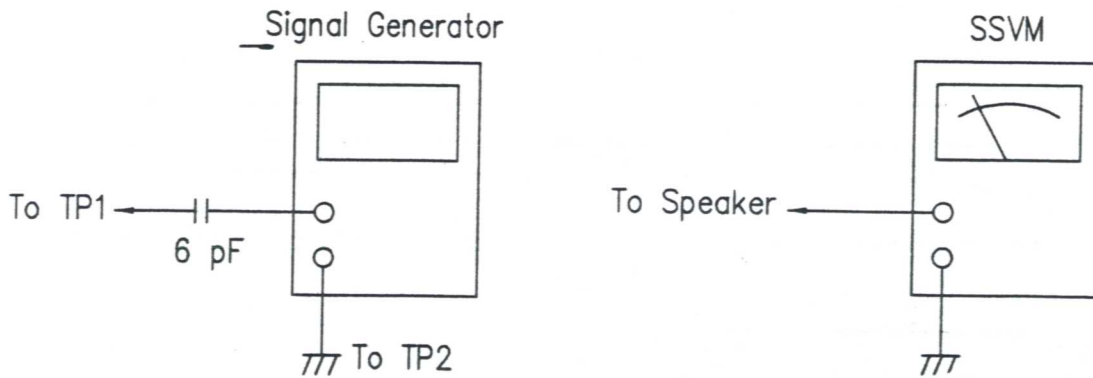
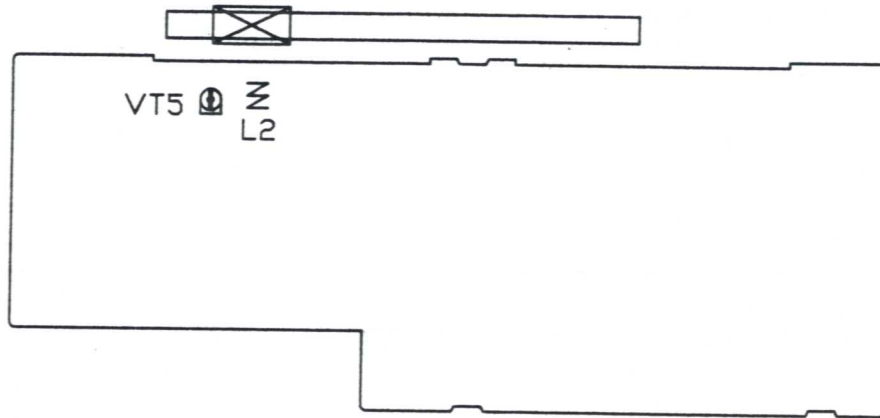


## (8) ALIGNMENT FOR FM SENSITIVITY

- a. Required Instruments  
 Signal Generator  
 SSVM

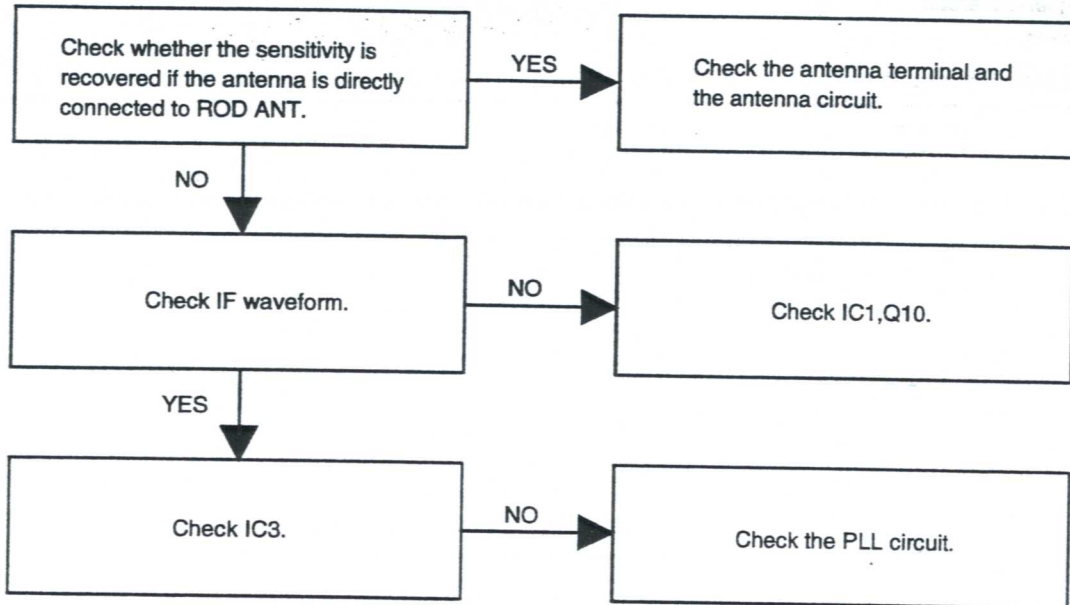
b. Alignment Procedure

Mode	Adjustment	Procedure
FM	L2 VT5	(1) Set the power switch to ON. (2) Connect a SSVM to the speaker. (3) Connect the output of the FM signal generator to the test point. (4) Set FM to 90 MHz. (5) Adjust L2 for maximum audio output. (6) Set FM to 106 MHz. (7) Adjust VT5 for maximum audio output. (8) Repeat Steps 4-7 until the best sensitivity on these two frequencies is normal.

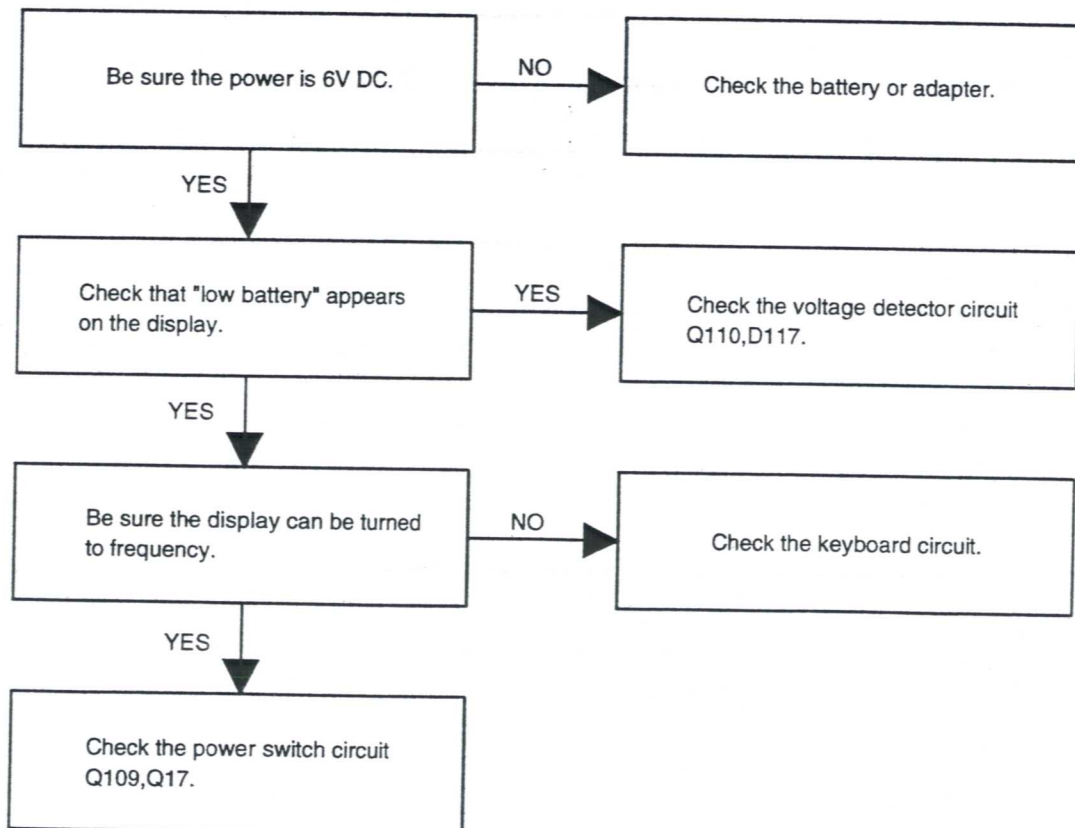


# TROUBLESHOOTING

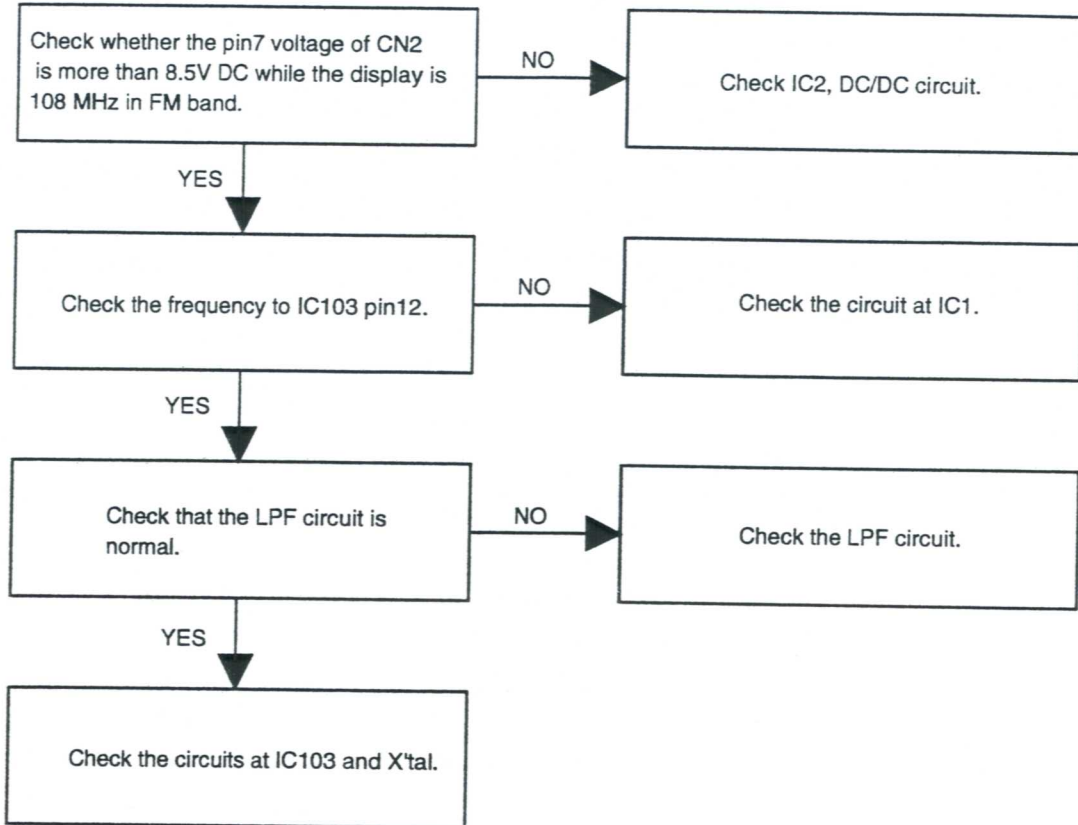
## 1. Weak sensitivity on FM broadcast band



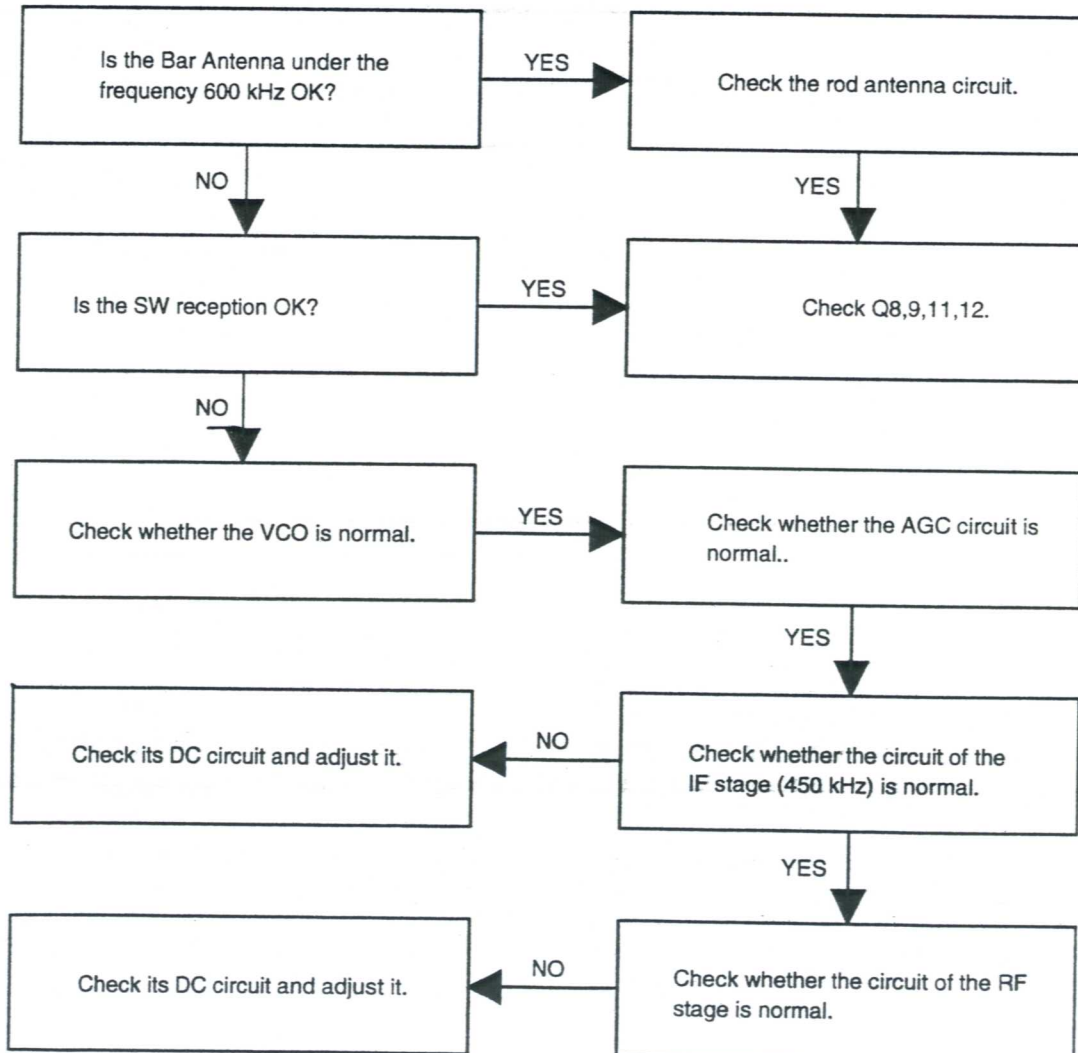
## 2. Power cannot be turned on



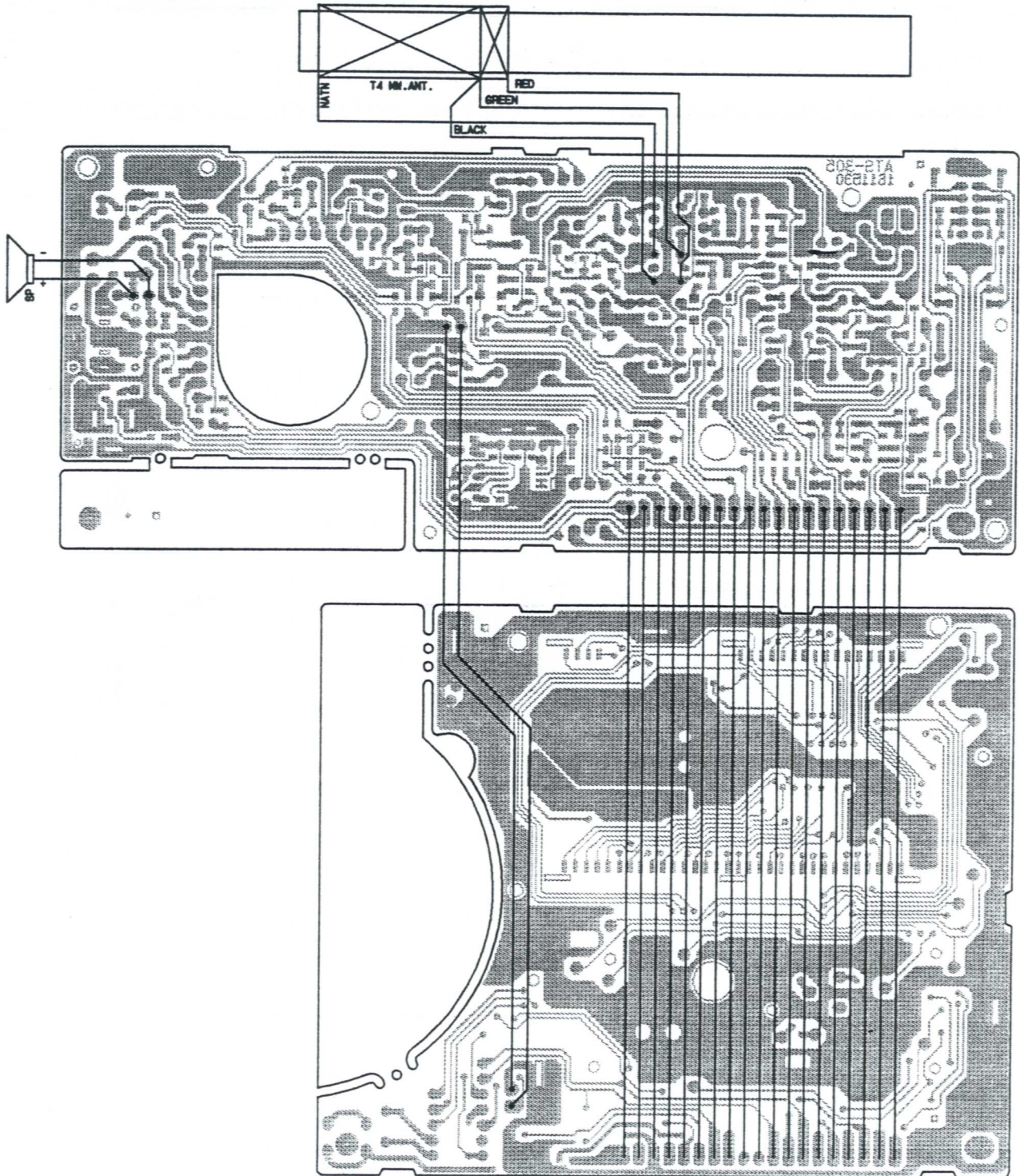
### 3. PLL does not work



### 4. Weak sensitivity in AM broadcast band



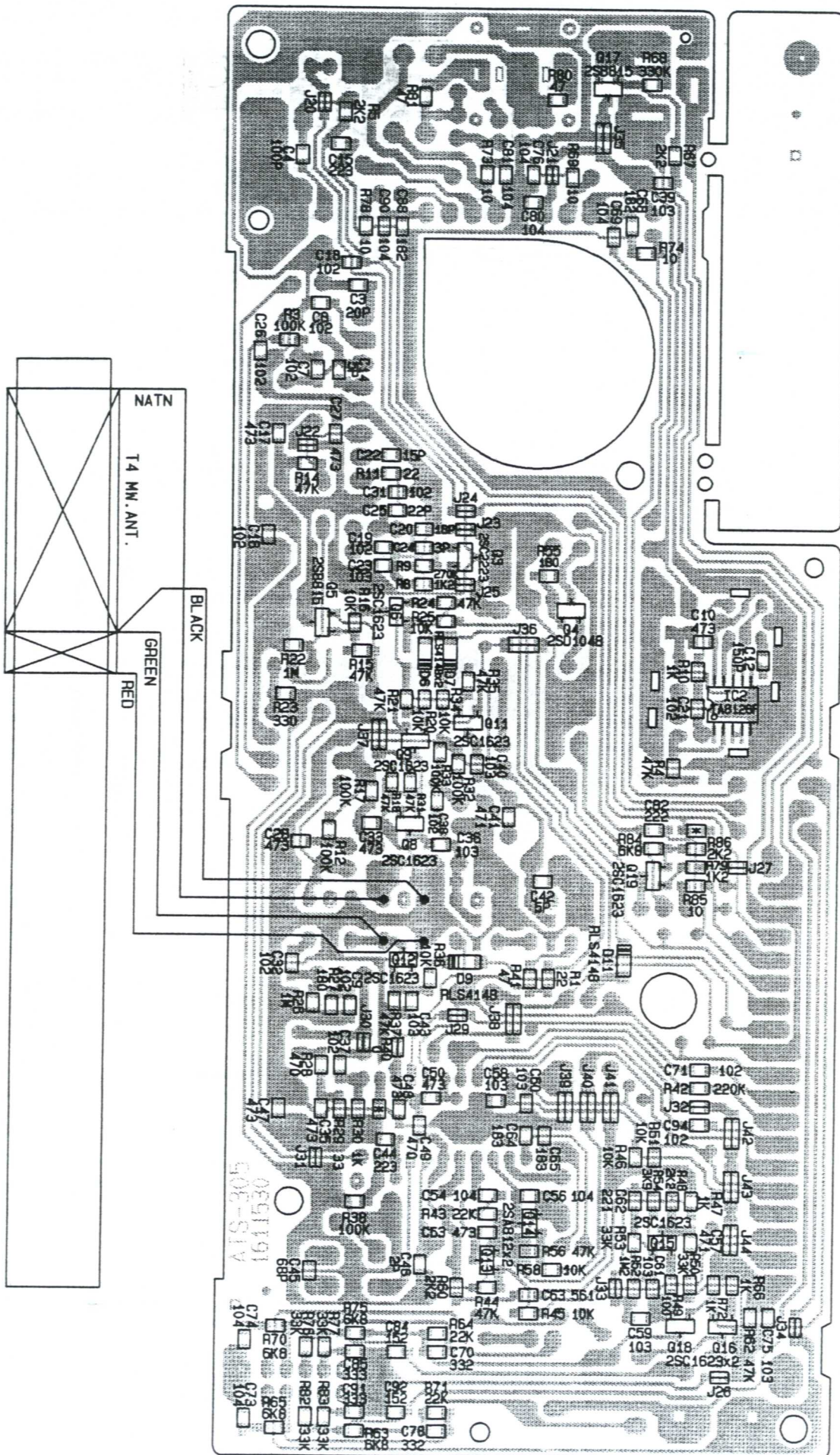
# WIRING DIAGRAM



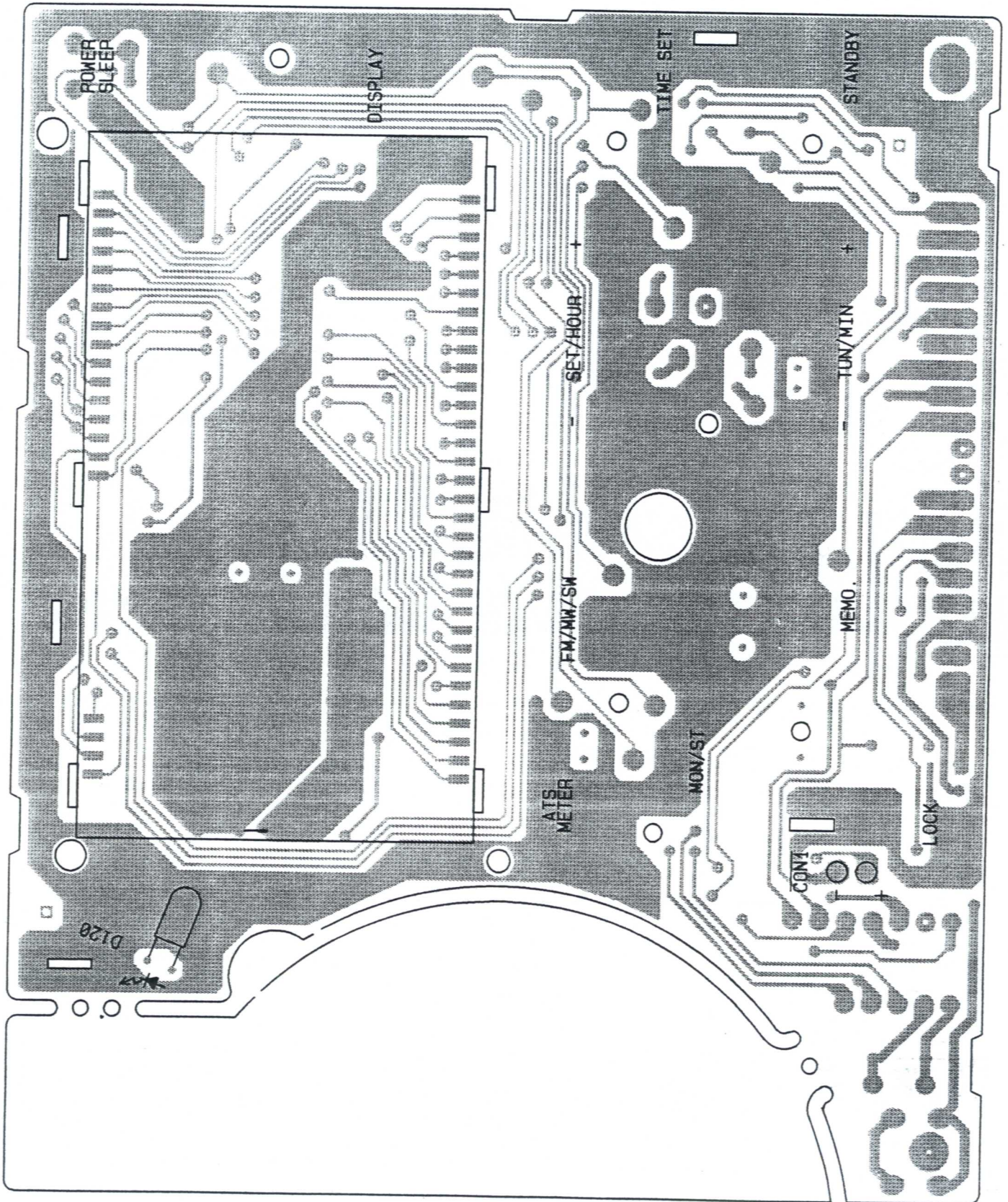




# MAIN PCB BOTTOM VIEW



# CONTROL PCB TOP VIEW







# MECHANICAL PARTS LIST

ATS-305

Ref. No.	Description		
1	LCD LIGHT LENS		2019000
2	SPEAKER FIXER		2111000
3	ROD ANT. TERMINAL		2119000
4	CONTROL PCB SHIELD		2120000
5	BATTERY CONDUCT PLATE (+)		2119020
6	BATTERY SPRING ASS'Y (-)		2119030
7	BATTERY SPRING (-)		2119040
8	LCD HOLDER		2119050
9	LCD SHIELD PLATE		2119060
10	SHIELD COVER		2119070
11	DC/DC SHIELD (DOWN)		2141060
12	BATTERY CONTACT (+)		2158040
13	DC/DC SHIELD (UP)		2159010
14	LCD SHIELD FIBER		2219000
15	BACK SALON NET		2219010
16	LCD HOLDER SPACER		2219020
17	P.C.B. HEMELON		2256000
18	EVA SPACER (A)		2310000
19	SHIELD MYLAR		2319010
20	BAR ANT SPACER II		2335060
21	KEYBOARD RUBBER		2420000
22	KEYBOARD SPACER		2420010
23	CONDUCT RUBBER		2419020
24	FRONT CABINET		3012001
25	MIDDLE CHASSIS		3021901
26	REAR CABINET		3031901
27	BATTERY COVER		3047301
28	LCD WINDOW		3051901
29	BACK SUPPORTER		3062001
30	POWER KNOB		3102031
31	VOLUME KNOB		3111901
32	BAND/TUNE/KNOB ASS'Y		3122031
33	FUNCTION/LOCK BUTTON		3152031
34	ADJUST KNOB		3171901
35	DISPLAY/STANDBY BUTTON		3182031
36	SIEMENTS BADGE		3240001
37	TONE KNOB		3221901
38	ROD ANT.		3601001
39	SCREW JMP 1.4 x 5 (NI)		9005052
40	SCREW JMB 2.5 x 5 (NI)		9062051
41	SCREW PTP 2 x 6 NI)		9101062
42	SCEW PTP 2.6 x6 (NI)		9102062
43	SCREW PTP 2.6 x 16 (ZK)		9102161
44	SCREW PTF (B) 2 x 6 (ZK)		9111061
45	SCREW PTP 2.6 x 28 (ZK) S		9202281

## ELECTRICAL PARTS LIST

Part No.	Description	Q'ty	Remark
1000201	LSI KS57C2616-23	1	IC101
1010210	IC TA7358AP	1	IC1
1011010	IC TA7376P	1	IC4
1011090	IC TA8126F	1	IC2
1011320	IC S-81240AG-RJ-T1	1	IC104
1011421R	IC BA10393F	1	IC102
1011510	IC TC9216P	1	IC103
1011600	IC TA8132AN	1	IC3
1012400	IC SAA6579T/V1	1	IC105
1020040	TR 2SB808F	1	Q20
1020210	CH TR 2SB815 B6	4	Q5,17,112,113
1020230	CH TR 2SA812 M6	5	Q13,14,101,110,111
1020240	CH TR 2SC1623 L6	16	Q6,8,9,11,12,15,16,18,19,102,103, 107-109,114,115
1020260	CH TR 2SC2223 F13	2	Q3,105
1023010	CH TR 2SD1048 X6	1	Q4
1030110	FET 2SK193K	2	Q7,10
1040020	DIODE 1N4148	1	D4
1042010	DIODE 1SS238	1	D1
1043070	VARICAP 1SV101	2	D2,3
1043080	VARICAP 1SV149-B	4	D5,8,10,12
1045000	ZENER 1N751(5.1V)	1	D13
1046010	CH DIODE RLS4148	17	D6,7,9,11,101,102,107,109-118
1058010M	LED 3 $\phi$ RT3-534 YGTS-C14	1	D120
1110750	ANT BAR & COIL 0750	1	T4, MW ANT
1122270	ADJ. COIL 2270	1	T5, AM MIX
1122310	ADJ. COIL 2310	1	T1, DC-DC
1122950	ADJ. COIL 2950	1	T7, MW-OSC
1122970	ADJ. COIL 2970	1	T2, FM. MIX
1123610	ADJ. COIL 3610	2	T3,6, SW-OSC & ANT
1131380	FIXED COIL 1 $\mu$ HK(C)	1	L3
1134500	FIXED COIL 470 $\mu$ HK	1	L5
1135100	FIXED COIL 1.5 mH	2	L6,8
1139000	FIXED COIL 11 $\mu$ HK(A)	1	L7
1145070	SP COIL 5 x 2.75T x 0.7	1	L4,FM OSC
1145160	SP COIL 5 $\phi$ x 3.75T x 0.7	1	L2,FM. ANT
1210000	TC 20P(A)	4	VT2-5
1210003	TC 10P	1	VT1
1210230T	TC 30P(A)	1	VT101
1310140	R-VR 20KC x 2 (A) RK08H	1	VR1
1321005	S.F-VR 50KV 6-2-444M	1	VR101
1600290	LCD BT-155ZAS	1	
1611530	PCB A ATS-305	1	
1611540	PCB C ATS-305	1	
1620030	SP. 3" 8 ohm 0.5W(C)	1	
1630290	TACK SW 1P1C(C)	1	S101
1630530	SWITCH 1P2C(G)	1	S1
1630560	SWITCH 1P1C(G)	1	S102
1630930	SCIDE SEITCH 2P3C	1	S2
1640060	JACK HEADPHONE(F)	1	JK1

Part No.	Description	Q'ty	Remark
1647000	DC JACK(A)	1	JK2
1650090	CSB456F18	1	CF5
1650140	X'TAL 4.5MHz (3.5 x 10.3)	1	X101
1650150	X'TAL 32.768 KHz +/- 10PPM	1	X103
1650230	RESONATOR CSA4.19MGU	1	X102
6150250	X'TAL 4.332MHz	1	X104
1660000	FILTER PFWB4 88-108M	1	CF1
1660080	FILTER SFE10.7MA8-A	1	CF2
1660370	FILTER CDA10.7MG18-A	1	CF4
1664040	FILTER SFZ450F	1	CF3
1700140	CNT HOUSING 2P (EH)	1	CN1
1703700	CNT. W/SHIELD ASS'Y 2P	1	JW1
4002001	CH CC 020C 50V NPO-A	1	C46
4003001	CH CC 030C 50V NPO-A	1	C24
4005001	CH CC 050C 50V NPO-A	2	C14,42
4010002	CH CC 100D 50V NPO-A	2	C114,134
4015001	CH CC 150J 50V NPO-A	1	C22
4018001	CH CC 180J 50V NPO-A	1	C20
4020001	CH CC 200J 50V NPO-Z	2	C3,148
4022001	CH CC 220J 50V NPO-A	1	C25
4030001	CH CC 300J 50V NPO-A	2	C102,103
4033001	CH CC 330J 50V NPO-A	1	C149
4047001	CH CC 470J 50V NPO-A	3	C132,133,135
4068001	CH CC 680J 50V NPO-A	1	C45
4010101	CH CC 101J 50V NPO-A	1	C4
4015101	CH CC 151J 50V NPO-A	1	C12
4022101	CH CC 221J 50V NPO-A	1	C62
4047101	CH CC 471J 50V NPO-A	4	C41,49,57,123
4056161	CH CC 561K 50V X7R-A	2	C63,146
4010261	CH CC 102K 50V X7R-A	16	C7-9,16,18,19,21,26,32,37,38,71,94
4015261	CH CC 152K 50V X7R-A	2	108,127,131
4018261	CH CC 182K 50V X7R-A	2	C84,92
4022261	CH CC 222K 50V X7R-A	1	C68,88
4033261	CH CC 332M 25V X7R-A	1	C82
4010368	CH CC 332M 25V X7R-A	2	C70,78
4010368	CH CC 103M 25V X7R-A	12	C23,36,39,40,43,58-61,75,125,153
4010385	CH CC 103M 50V X7R-B	1	C155
4018367	CH CC 183K 25V X7R-A	2	C64,65
4022368	CH CC 223M 25V X7R-A	2	C15,44
4033368	CH CC 333M 25V X7R-A	2	C85,91
4047371	CH CC 473Z 25V Y5V-A	29	C10,17,27,28,31,33,35,47,48,50,53,105,109 110,115,116,118-121,122,124,126,128,129 136,139,145,154
4010467	CH CC 104K 25V X7R-A	1	C101
4010471	CH CC 104Z 25V Y5V-A	16	C54,56,69,73,74,76,80,81,90,104 111,113,130,137,144,147
4333520	CH TA 335M 10V 5x11	2	C150,151
4410561	EL 105M 50V 5 x 11	3	C56,66,67
4422560	EL 225M 50V 4x7(1.5)	1	C143
4422561	EL 225M 50V 5 x 11 (2)	1	C52

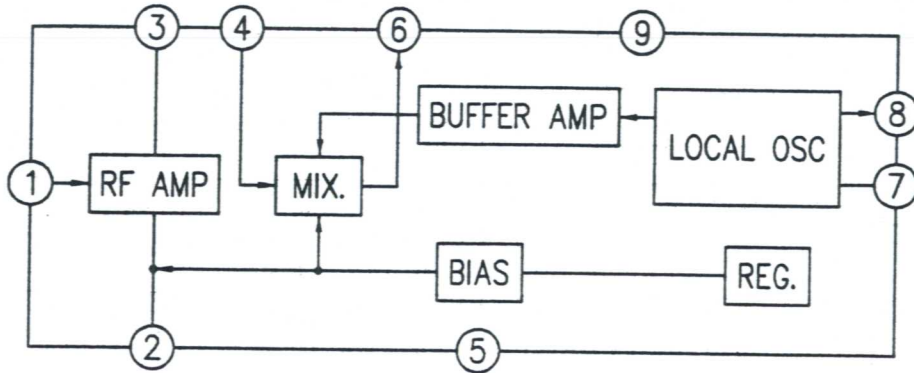


Part No.	Description	Q'ty	Remark
4447540	EL 475M 25V 4x7	1	C13
4410631	EL 106M 16V 4x7	1	C11
4422630	EL 226M 16V 5x11	3	C72,86,89
4447630	EL 476M 16V 5x11	1	C93
4410700	EL 107M 4V 5x7	1	C138
4422721	EL 227M 10V 6.3x11.5-2.5	2	C1,30
4447721	EL 477M 10V 8x11.5-3.5	4	C51,79,83,87
4922300	SUPER CAP. 223Z 5.5V	1	C140
6010345	RD 1/8W 5.6KJ SM7.5	1	R8
6110194	CH JUMP 0J-B	10	J35-44
6160108	CH RD 1/10W 4.7J-A	1	R119
6160112	CH RD 1/10W 10J-A	8	R11,69,73,74,78,85,159,168
6160118	CH RD 1/10W 33J-A	2	R29,166
6160120	CH RD 1/10W 47J-A	6	R41,80,81,134,164,165
6160123	CH RD 1/10W 82J-A	2	R135,137
6160124	CH RD 1/10W 100J-A	4	R49,133,138,141
6160127	CH RD 1/10W 180J-A	3	R27,55,129
6160129	CH RD 1/10W 270J-A	2	R131,132
6160130	CH RD 1/10W 330J-A	1	R23
6160132	CH RD 1/10W 470J-A	1	R28
6160136	CH RD 1/10W 1KJ-A	7	R10,30,47,66,72,124,170
6160137	CH RD 1/10W 1.2KJ-A	2	R6,79
6160140	CH RD 1/10W 2.2KJ-A	8	R5,48,60,67,86,123,126,156
6160142	CH RD 1/10W 3.3KJ-A	1	R118
6160143	CH RD 1/10W 3.9KJ-A	1	R54
6160144	CH RD 1/10W 4.7KJ-A	1	R167
6160146	CH RD 1/10W 6.8KJ-A	5	R63,65,70,75,84
6160148	CH RD 1/10W 10KJ-A	11	R16,20,25,34,36,45,46,51,58,110,111
6160152	CH RD 1/10W 22KJ-A	3	R43,64,71
6160154	CH RD 1/10W 33KJ-A	10	R50,53,76,77,82,83,147,153,158,171
6160156	CH RD 1/10W 47KJ-A	30	R4,14,15,18,21,24,31,35,37,44,56,62, 105,114,115,120-122,125,127,128,130 136,139,150-152,157,162,169
6160158	CH RD 1/10W 68KJ-A	1	R142
6160159	CH RD 1/10W 82KJ-A	1	R104
6160160	CH RD 1/10W 100KJ-A	16	R3,12,17,32,33,38,102,107,108,116,117 145,146,149,163,172
6160162	CH RD 1/10W 150KJ-A	1	R140
6160163	CH RD 1/10W 180KJ-A	1	R148
6160164	CH RD 1/10W 220KJ-A	5	R42,103,109,112,113
6160165	CH RD 1/10W 270KJ-A	2	R9,106
6160166	CH RD 1/10W 330KJ-A	1	R68
6160169	CH RD 1/10W 560KJ-A	1	R161
6160172	CH RD 1/10W 1MJ-A	5	R22,26,143,144,154
6160173	CH RD 1/10W 1.2MJ-A	1	R52
6160176	CH RD 1/10W 2.2MJ-A	1	R160
6160178	CH RD 1/10W 3.3MJ-A	1	R155
6160194	CH RD 1/10W 0J-A	16	R40,J20-34
6160196	CH RD 1/10W 51KJ-A	1	R101
8000030	W/JUMP 7.5(10) 0.6mm	18	J2-7,9-19,45

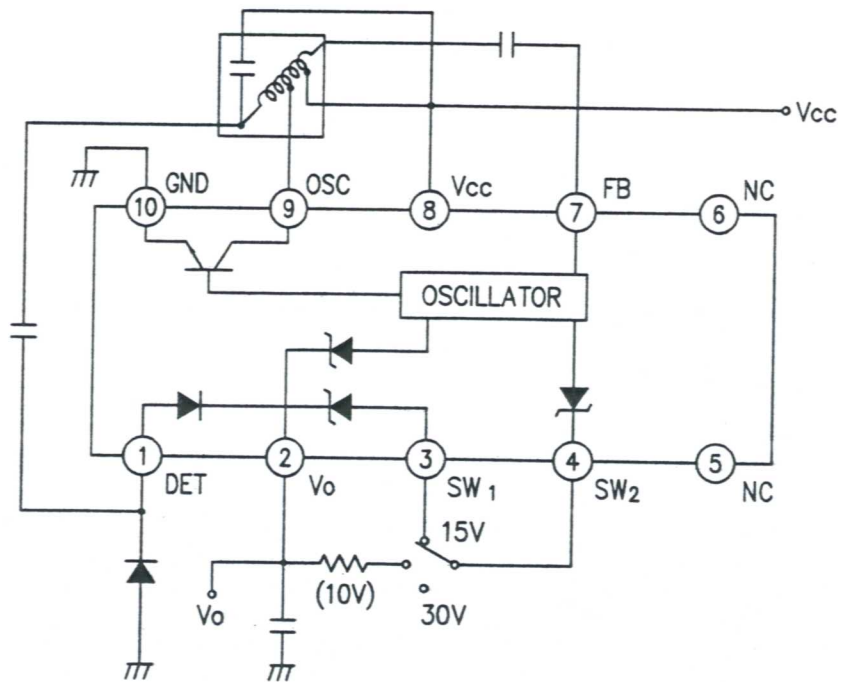
Part No.	Description	Q'ty	Remark
8000040	W/JUMP 10(10) 0.6 mm	1	J8
8000090	W/JUMP 15(10) 0.6 mm	1	J1
8140722	W/PVC 55 (6+3) T RED	1	BT+
8141920	W/PVC 115(3+3) T BLK	1	BT-- ~ BT+
8151820	W/PVC 110 (6+3) BLK	1	SP-
8151822	W/PVC 110 (3+6) RED	1	SP+
8182345	W/PVC 135 (6+6)T GRN	1	B
8182544	W/PVC 145(6+6) T YEL	1	A
8620649	W/19P 50(6+6) P=2.5 WHT	1	JW2

# IC CIRCUIT BLOCK DIAGRAM

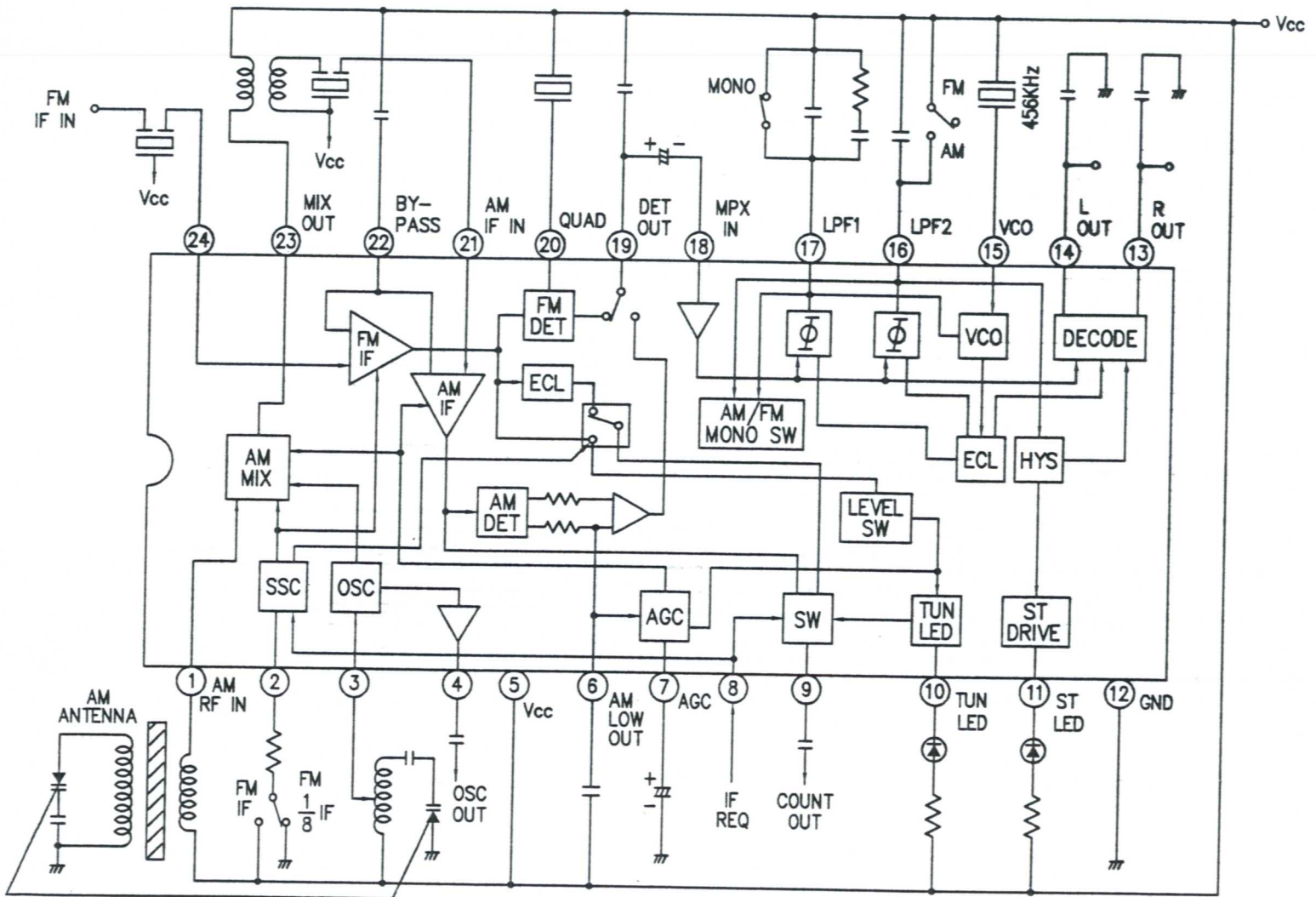
IC1-TA7358AP



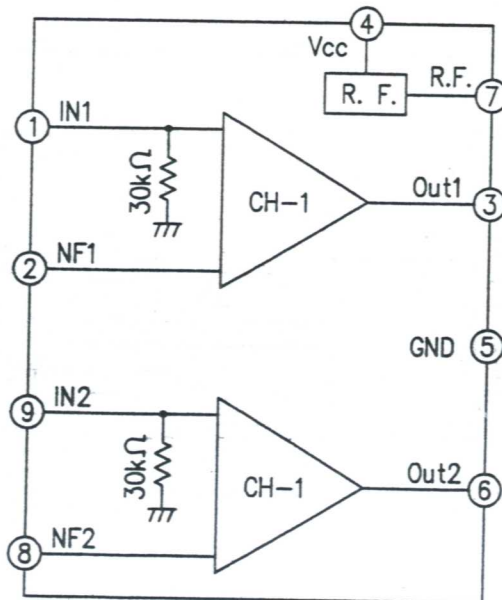
IC2-TA8126F



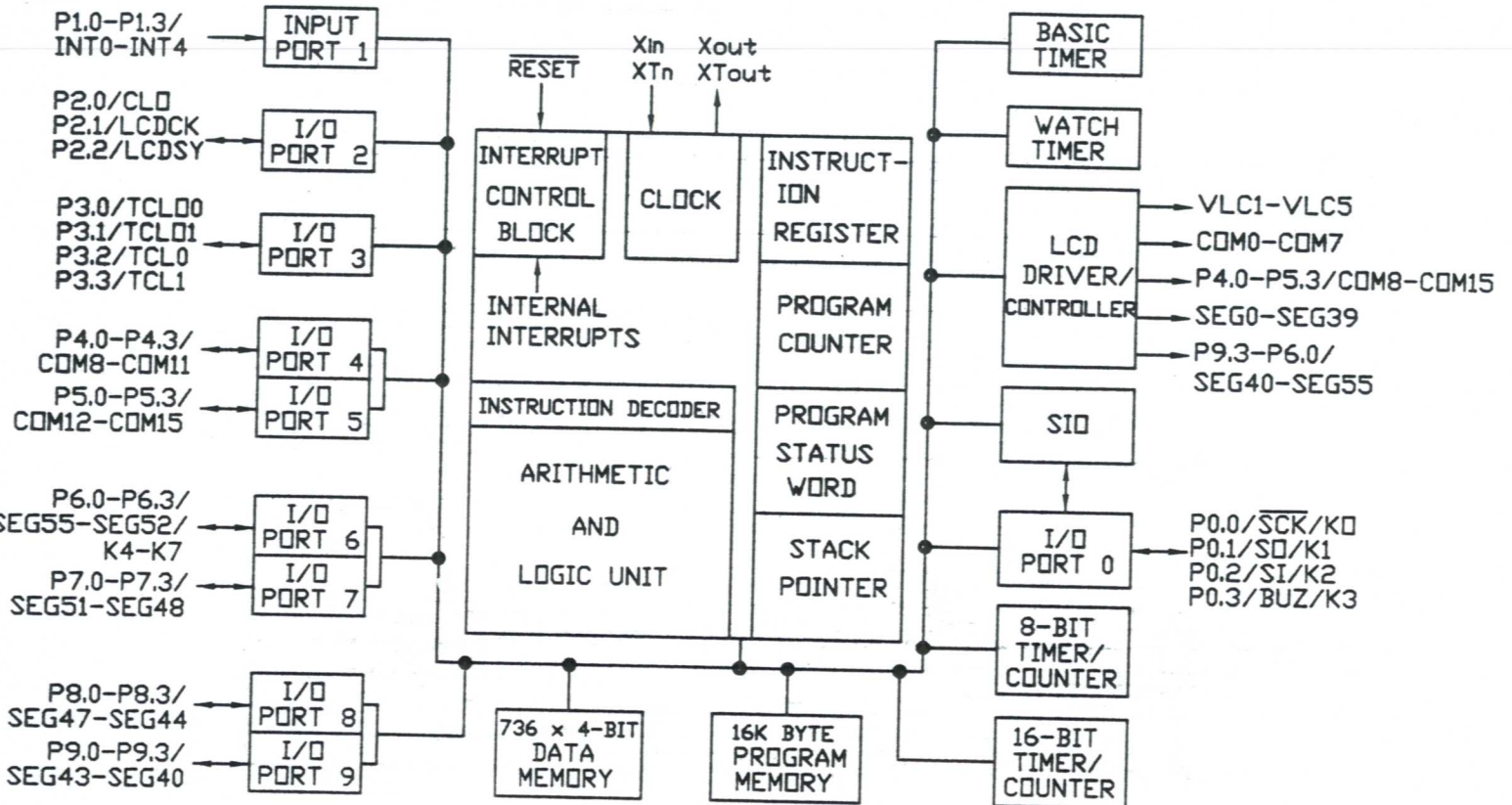
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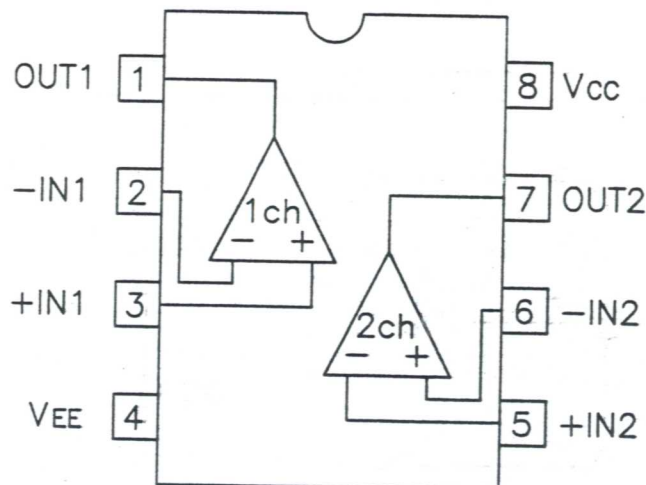
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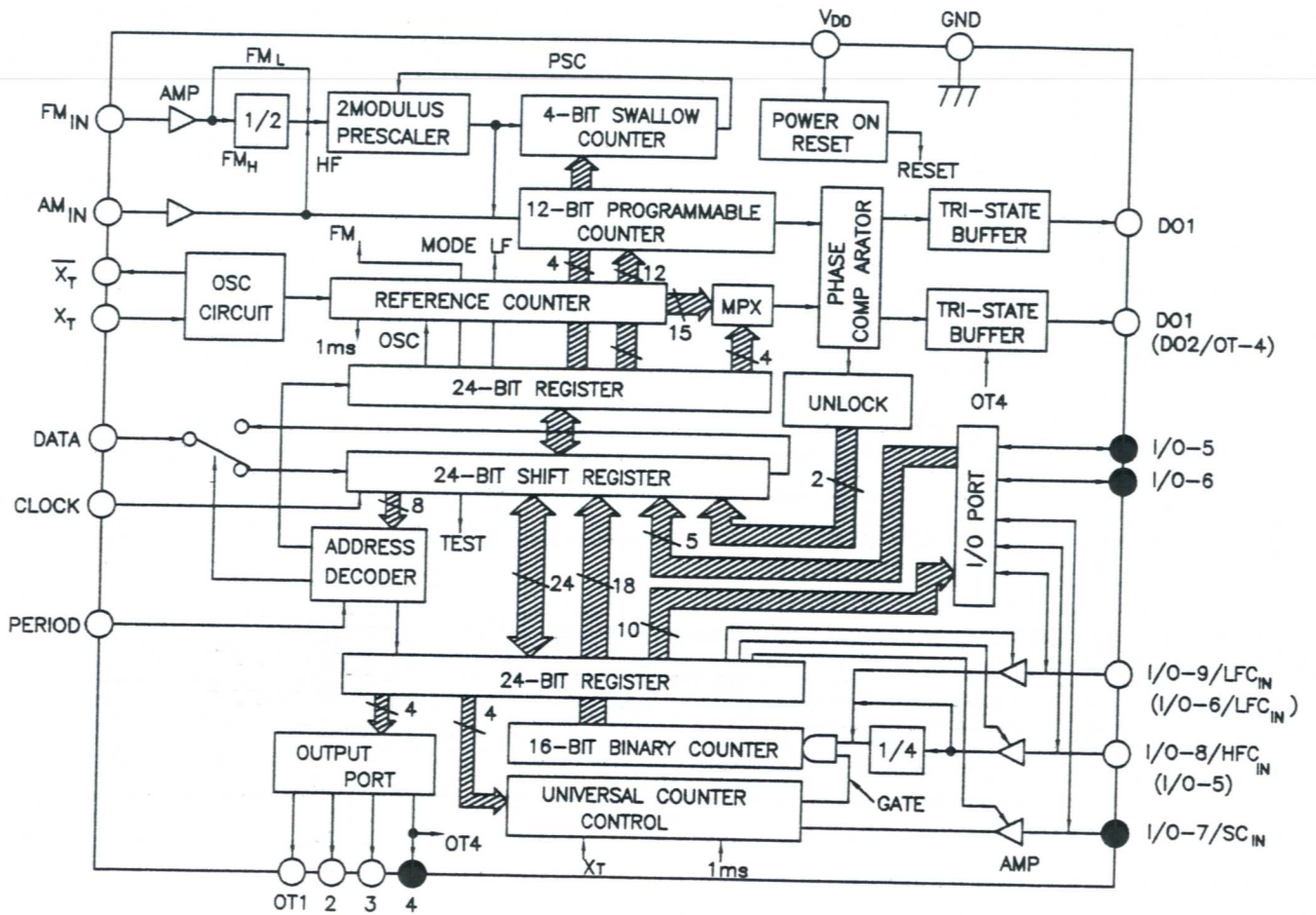
**IC101-KS57C2616-23**



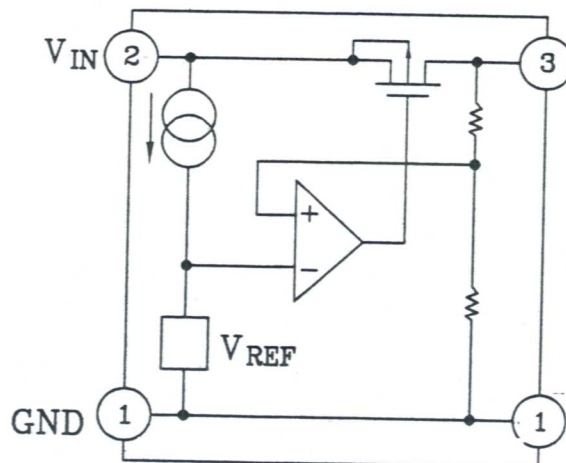
**IC102-BA10393F**



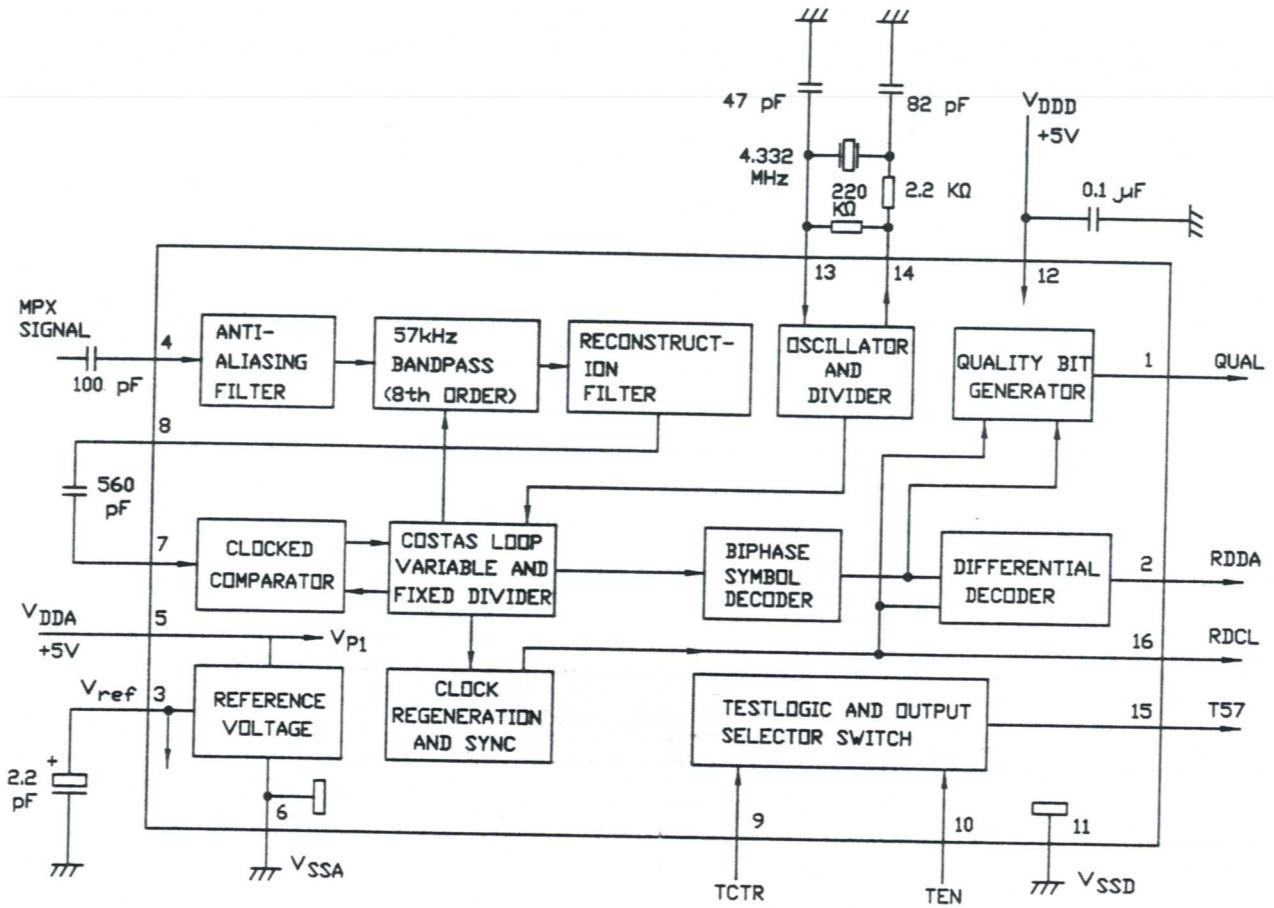
IC103-TC9216P



IC104-S-81240AG-RJ-T1



IC105-SAA6579T/V1



# ICS' & TRANSISTORS' VOLTAGE LIST

**IC1-TA7358P**

PIN	FM	MW/SW
1	0.77	0
2	1.50	0.12
3	2.83	0.54
4	1.46	0.09
5	0	0
6	2.84	0.52
7	2.13	0.41
8	2.79	0.52
9	2.84	0.51

**IC3-TA8132P**

PIN	FM	MW/SW
1	2.94	2.94
2	0.82	0.79
3	2.94	2.93
4	2.94	2.58
5	2.94	2.94
6	2.32	2.34
7	0.78	0.18
8	0	0
9	2.94	2.94
10	0	2.94
11	2.94	2.93
12	0	0
13	0.98	0.98
14	0.98	0.98
15	2.44	2.44
16	2.63	2.93
17	2.93	2.93
18	0.64	0.63
19	1.11	1.30
20	2.05	2.40
21	2.93	2.93
22	2.75	2.20
23	2.94	2.94
24	2.94	2.94

**IC4-TA7376P**

PIN	FM/MW/SW
1	0
2	0.6
3	2.73
4	5.95
5	0
6	2.73
7	1.3
8	0.6
9	0

**IC2-TA8126F**

PIN	FM	MW/SW
1	7.96	7.84
2	15.30	15.30
3	8.01	8.01
4	8.01	8.01
5	0	0
6	0	0
7	1.06	1.08
8	5.92	5.92
9	5.91	5.92
10	0	0

**IC105-SAA6579**

PIN	FM	MW/SW
1	1.40	0
2	1.80	0
3	1.80	0
4	1.75	0
5	3.70	0
6	0	0
7	1.70	0
8	1.88	0
9	0	0
10	0	0
11	0	0
12	3.70	0
13	1.00	0
14	1.80	0
15	1.86	0
16	1.86	0



**IC101-KS57C2616**

PIN	FM	MW
1-34	2.00	2.00
Seg 33 ? Seg 0		
35	0.25	0.25
36	1.10	1.10
37	1.98	1.98
38	1.98	1.98
39	2.90	2.90
40	3.96	3.96
41	1.96	1.96
42	1.71	1.71
43	0	0
44	1.00	1.00
45	2.10	2.10
46	2.00	2.00
47	1.00	1.00
48	0.75	0.75
49	0.75	0.75
50	0	0
51	4.44	4.44
52	1.61	3.21
53	2.30	0
54	1.2	1.2
55	0	0
56	0	0

PIN	FM	MW
57	0	0
58	1.43	3.94
59	3.94	3.95
60	0	0
61	3.93	0
62-69	2.00	2.00
Com 0 ? Com 7		
70	0	0
71	3.94	0
72	0	0
73	0	0
74	2.78	2.78
75	0	0
76	0	0
77	0	2.78
78	3.85	3.85
79	3.85	3.85
80	3.85	3.85
81	3.85	3.85
82	3.96	3.96
83	3.95	3.96
84	3.94	0
85	3.95	3.96
86	3.95	3.96

PIN	FM	MW
87	3.95	3.96
88	3.95	3.96
89	3.95	3.96
90	3.00	3.00
91	0	0
92	3.00	3.00
93	3.00	3.00
94	3.00	3.00
95-100	2.00	2.00
Seg 40 ? Seg 34		

**IC102-BA10393**

PIN	FM	MW/SW
1	0	0
2	0.45	0.45
3	0	0
4	0	0
5	0.55	0
6	0.67	0.67
7	0	0
8	3.80	3.80

**IC103-TC9216P**

PIN	FM	MW/SW
1	1.30	1.30
2	1.80	1.80
3	1.25	1.25
4	3.45	3.45
5	0	0
6	0	0
7	0	0
8	0	0
9	1.22	1.22
10	1.16	1.16
11	0	1.50
12	1.47	0
13	0	0
14	1.01	1.03
15	0	1.12
16	3.80	4.98

**IC104-S1204**

PIN	FM	MW
1	5.98	5.98
2	0	0
3	3.98	3.98

Transistors

		FM	MW	SW
Q1	C	2.74	1.10	1.10
	B	1.02	1.02	1.02
	E	0.59	0.58	0.58
Q2	C	2.74	1.10	1.10
	B	0.58	0.59	0.59
	E	0	0	0
Q3	C	3.0	0.50	0.50
	B	1.30	0	0
	E	0.70	0	0
Q4	C	5.97	5.97	5.97
	B	4.70	4.70	4.70
	E	4.00	4.00	4.00
Q5	C	3.00	0.50	0.50
	B	2.40	3.40	3.40
	E	3.00	3.30	3.30
Q6	C	0	3.0	3.00
	B	0.60	0	0
	E	0	0	0
Q7	D	2.37	2.50	2.50
	G	0	0	0
	S	0	0	0
Q8	C	0	0	0.35
	B	0.61	0.61	0
	E	0	0	0

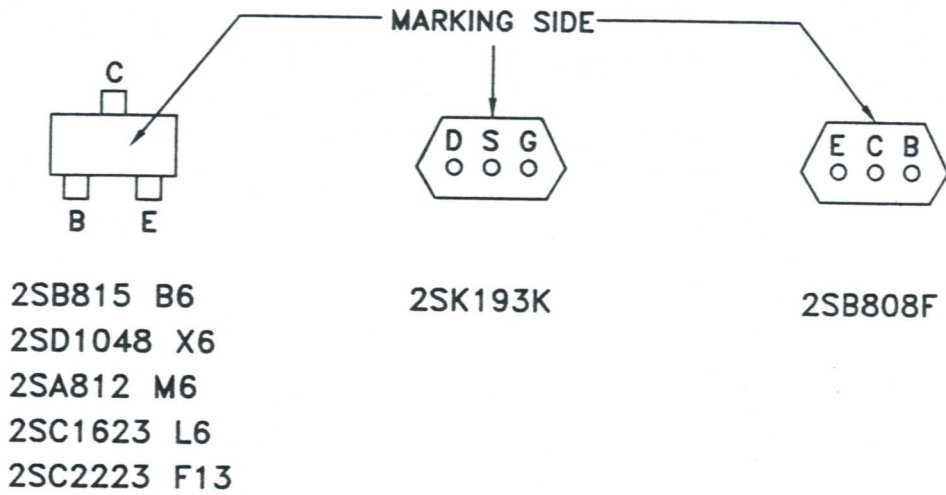
		FM	MW	SM
Q9	C	0.61	0.61	0
	B	0	0	0.56
	E	0	0	0
Q10	D	2.27	2.40	2.40
	G	0	0	0
	S	0	0	0
Q11	C	0.35	0.35	0
	B	0	0	0.53
	E	0	0	0
Q12	C	0	0	0
	B	0	0	0.53
	E	0	0	0
Q13	C	2.20	3.40	3.40
	B	3.40	2.80	2.84
	E	3.30	3.40	3.40
Q14	C	2.20	3.40	3.40
	B	3.40	2.80	2.80
	E	3.30	3.40	3.40
Q15	C	1.70	1.70	1.70
	B	0.38	0.38	0.38
	E	0	0	0
Q16	C	0	0	0
	B	0	0	0
	E	0	0	0

		FM	MW/SW
Q17	C	5.26	5.26
	B	5.97	5.97
	E	6.00	6.00
Q18	C	0	0
	B	0	0
	E	0	0
Q19	C	5.30	5.30
	B	0	0
	E	0	0
Q20	C	0	0
	B	5.30	5.30
	E	6.00	6.00
Q101	C	0	0
	B	3.76	3.76
	E	0	3.40
Q102	C	0	0
	B	0.52	0.52
	E	0	0
Q103	C	0	0
	B	0.52	0.52
	E	0	0
Q105	C	1.16	1.16
	B	0.74	0.74
	E	0	0

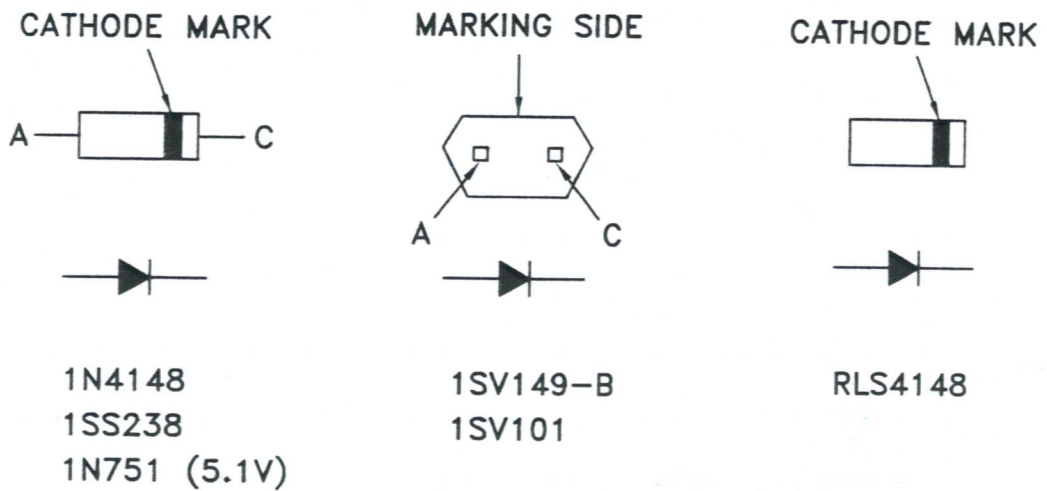
		FM	MW/SW
Q107	C	0	3.0
	B	0.63	0.25
	E	0	0
Q108	C	4.34	4.34
	B	0	0
	E	0	0
Q109	C	0	0
	B	0.65	0.65
	E	0	0
Q110	C	5.54	5.54
	B	4.99	4.99
	E	5.55	5.55
Q111	C	3.93	3.94
	B	3.95	3.96
	E	3.43	3.44
Q112	C	3.80	3.80
	B	3.20	3.20
	E	3.80	3.80
Q113	C	3.80	0.30
	B	3.20	3.30
	E	3.80	3.80

# SEMICONDUCTOR LEAD IDENTIFICATIONS

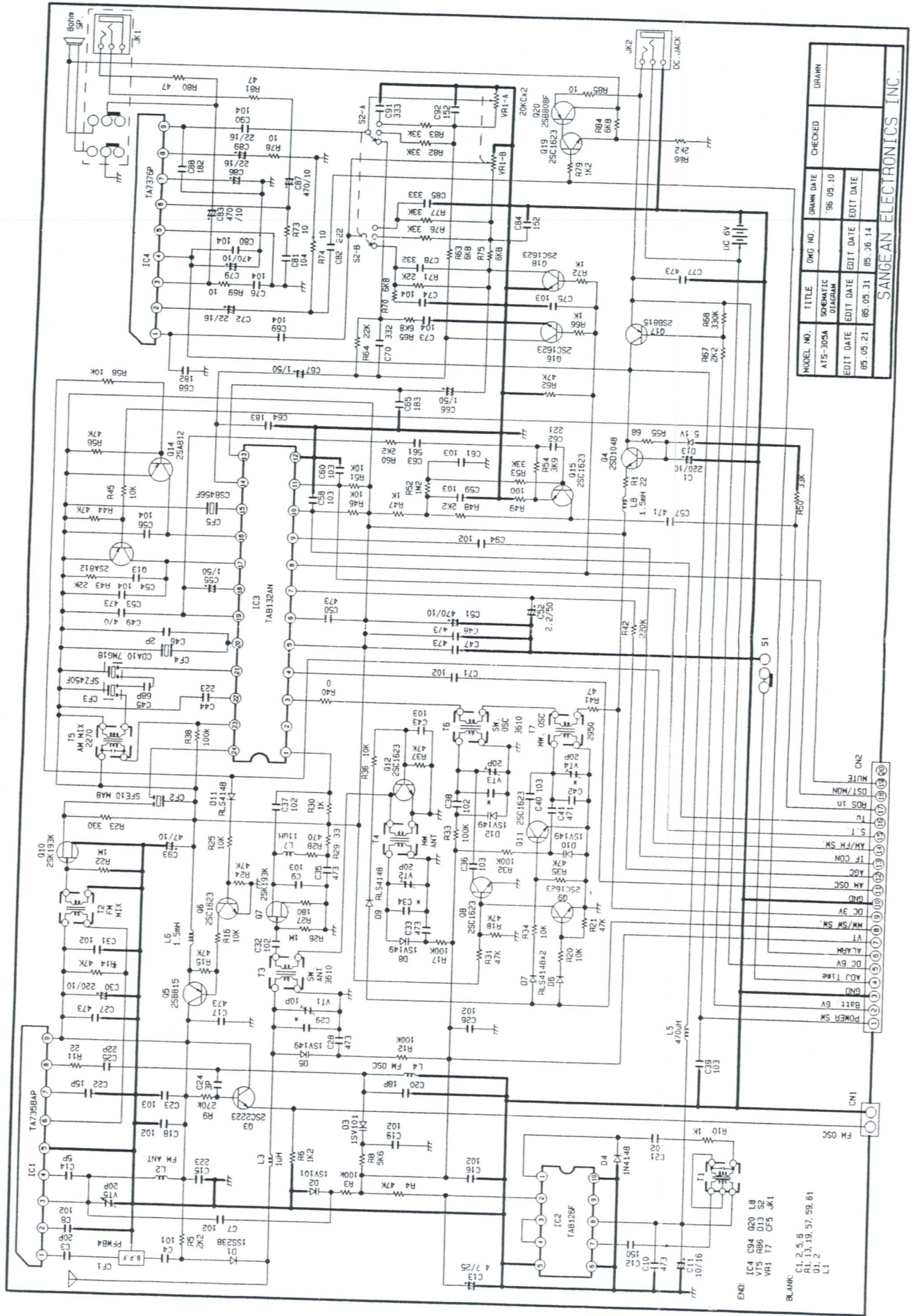
## Transistors



## Diodes



# SCHEMATIC DIAGRAM



MODEL NO.	TITLE	DWG NO.	DATE	CHECKED	DRAWN
ATS-300A	SCHEMATIC DIAGRAM		'96.05.10		
95.05.21	EDIT DATE	85.05.31	EDIT DATE	85.05.14	EDIT DATE

SANGHAN ELECTRONICS INC.

