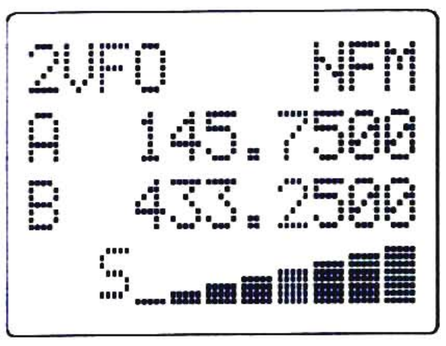
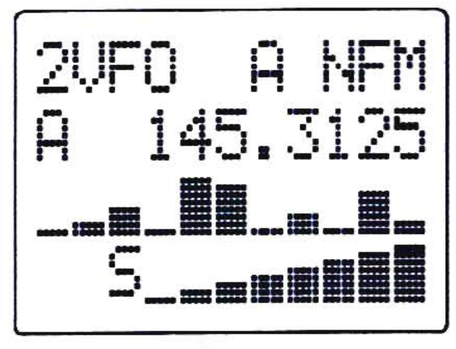
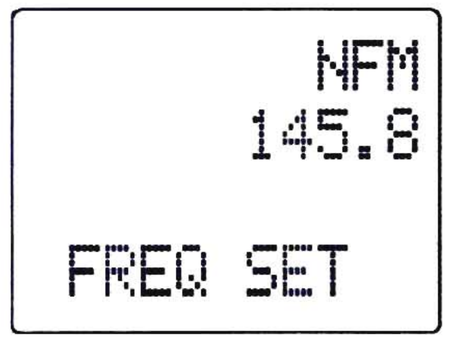
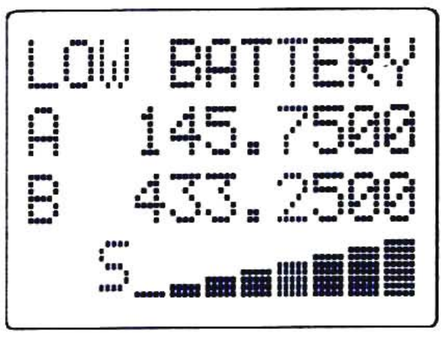








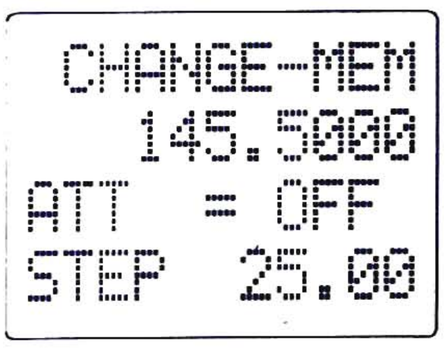
There are a variety of scan / search commands to link banks, scan by mode, programmable delay scan, priority, auto memory store, step offset and a programmable power save circuit to increase the duration of operation from the NiCads. Keypad illumination extends to the side panel keys and may be switched in a number of ways. Illumination "permanently On" for mobile operation is possible, a specially selected heavy duty regulator has been fitted to ensure the receiver will continue to operate reliably even with the illumination permanently On.

Mechanical Construction...

The mechanical assembly of the AR8000 will be a sheer revelation to any radio engineer. Surface mount technology has been employed throughout the receiver which is constructed of plug in modules. This will ensure the highest levels of performance, reliability and serviceability. The AR8000 will certainly stand out in a constructional beauty contest.

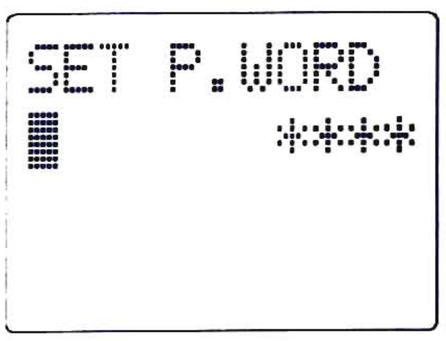
Main Features...

●FREQUENCY COVERAGE 500 kHz ~ 1900 MHz ●ALL MODE RECEPTION AM, NFM, WFM, USB, LSB & CW ●TRUE CARRIER RE-INSERTION AND SPECIFIC SSB FILTER WITH NON-OFFSET FREQUENCY READOUT ●1000 MEMORY CHANNELS ●20 SEARCH BANKS ●PRIORITY CHANNEL ●FREQUENCY PASS ●ROTARY TUNING DIAL ●STEP SIZES PROGRAMMABLE BETWEEN 50 Hz & 995 kHz IN 50 Hz STEPS ●SCAN & SEARCH SPEED UP TO 30 INCREMENTS PER SECOND ●SIGNAL STRENGTH METER ●BAND SCOPE ●BACKLIT LCD, KEYPAD & SIDE PANEL ●BATTERY SAVE FACILITY ●SEPARATE CONTROLS FOR VOLUME, SQUELCH & DIAL ●ATTENUATOR ●KEYPAD BEEP ON/OFF ●KEYPAD LOCK ●TOP PANEL 3.5mm EARPHONE SOCKET ●MONITOR SWITCH ●PASSWORD PROTECTED BANKS ●PROGRAMMABLE SCAN & SEARCH INCLUDING FREE, DELAY, AUDIO, LEVEL & MODE ●SELECT SCAN LIST ●CLONE (COPY) DATA FACILITY BETWEEN TWO AR8000 ●COMPUTER CONTROL ●EEPROM MEMORY BACKUP (NO BATTERY REQUIRED).



●SUPPLIED WITH: NICADS, CHARGER, HAND STRAP, BELT HOOK & SCREWS, SEMI-FLEXIBLE AERIAL, DC LEAD WITH CIGAR PLUG, COMPREHENSIVE OPERATING MANUAL WITH OVER 50 LCD ILLUSTRATIONS.

●OPTIONS: SC8000 SOFT CASE, CU-8232 RS232 INTERFACE etc.

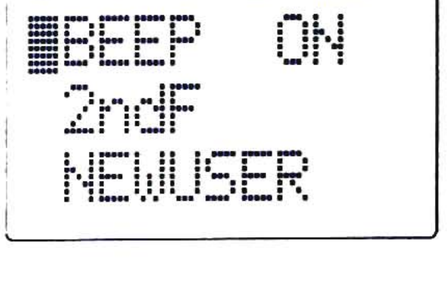


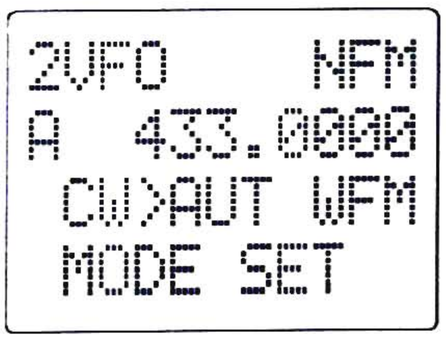
SPECIFICATION

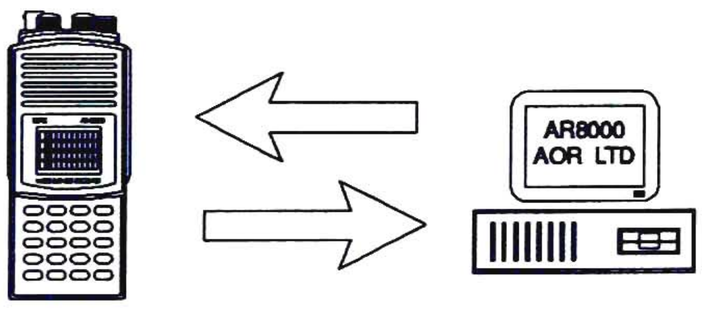
Frequency Range:	500 kHz to 1900 MHz
Receive Mode:	AM, NFM, WFM, USB, LSB, CW
Frequency Step Size:	50, 100, 200, 500 Hz, 1, 2, 5, 6.25, 9, 10, 12.5, 20, 25, 30, 50, 100, 200, 250, 500 kHz or any multiple of 50Hz up to 999.995 kHz
Receive Sensitivity:	**500 kHz to 2.0 MHz**
	SSB by field signal strength
	AM by field signal strength
	2.0 MHz to 30 MHz
	SSB 1.0uV
	AM 3.0uV
	NFM 1.5uV
	30 MHz to 1.0 GHz
	SSB 0.25uV
	AM 1.0uV
	NFM 0.35uV
	WFM 1.0uV
	1.0 GHz to 1.3 GHz
	NFM 1.0uV
	1.3 GHz to 1.9 GHz
	NFM 3.0uV
	AM/SSB S/N 10dB,
	NFM/WFM SINAD 12dB

Selectivity:	SSB 4 kHz (-6dB), 15 kHz (-50dB)
	AM/NFM 12 kHz (-6dB), 25 kHz (-60dB)
	WFM 180 kHz (-6dB), 800 kHz (-50dB)
Antenna Impedance:	50 ohm BNC
AF Output (at 4.8V):	120mW (8 OHM) THD 10%
Power Requirements:	4.8V Nicad
	6.0V Manganese Battery
	EXT 9.0 to 16V dc
Power Consumption:	160mA (nominal)
	110mA (stand by)
	20mA (power save)
Memory	
Memory channel:	50 channel x 20 bank - total 1000
Pass channel:	50 channel x 20 bank - total 1000
Priority channel:	One
Scan/Search Rate:	Approx. 30 channels per second (max)
Size:	153mm (H) 69mm (W) 40mm (D) excluding projections
Weight:	350 grammes including NiCads but not aerial

*** Specifications subject to change due to continuous development of the receiver. E&OE.**







COMPUTER CONTROL
USING THE OPTIONAL
CU-8232 INTERFACE

AOR, LTD.

2-6-4 Misuji, Taito-ku, Tokyo 111, Japan
Tel: 03 3865 1681

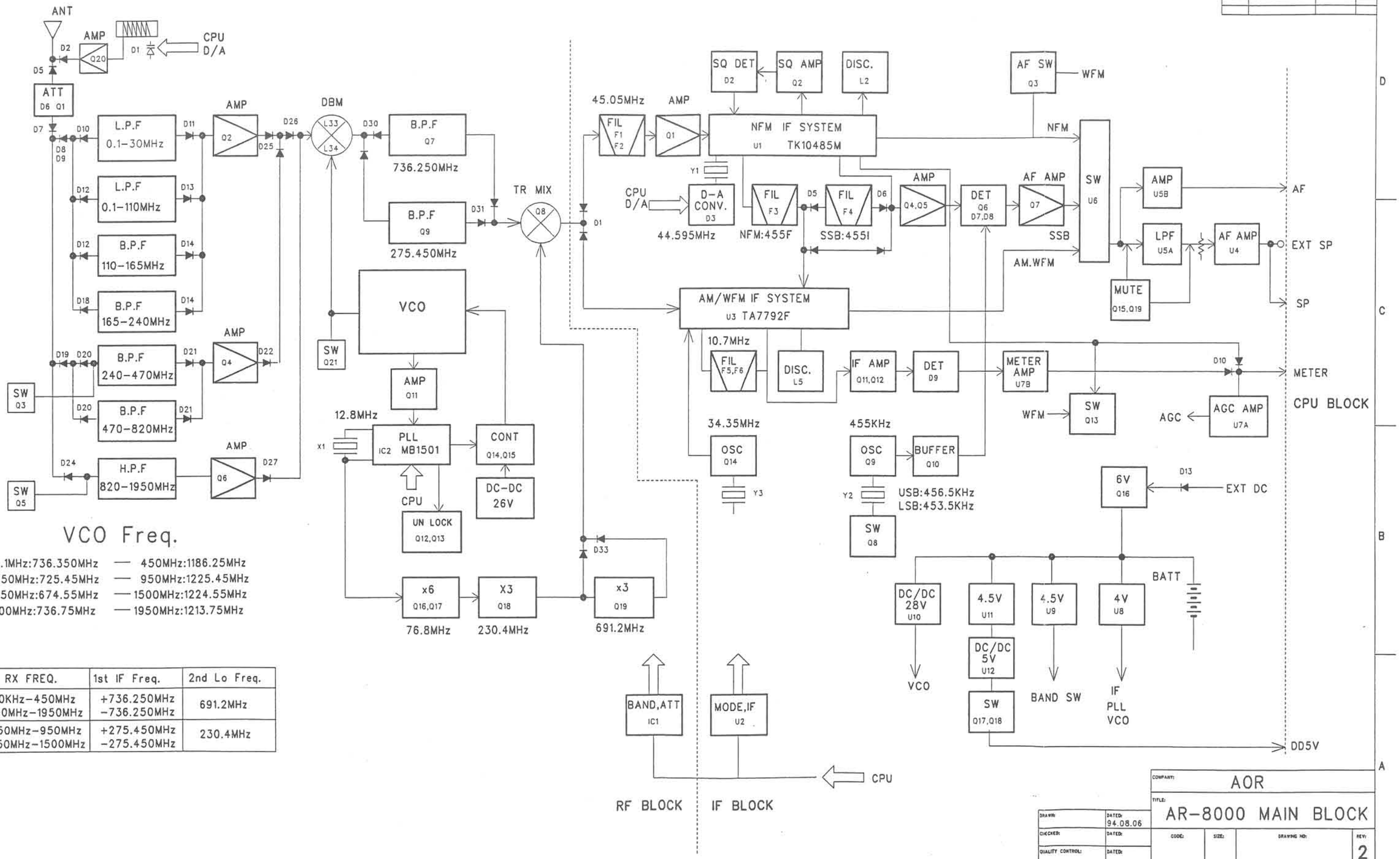
For further information please contact ☞

SPECIFICATION

Frequency range:	500kHz - 1900MHz
Receive mode:	AM, NFM, WFM, USB, LSB, CW
Frequency step size:	50,100,200,500Hz,1,2,5,6.25,9,10,12.5 20,25,30,50,100,200,250,500kHz or any multiple of 50Hz up to 999.995kHz
Receiver sensitivity:	500kHz - 2.0MHz SSB by practical field signal strength AM by practical field signal strength 2.0MHz - 30MHz SSB 1.0uV AM 3.0uV NFM 1.5uV 30MHz - 1.0GHz SSB 0.25uV SSB/AM: S/N 10dB AM 1.0uV NFM/WFM: SINAD 12dB NFM 0.35uV WFM 1.0uV 1.0GHz - 1.3GHz NFM 1.0uV 1.3GHz - 1.9GHz NFM 3.0uV
Selectivity:	SSB 4kHz(-6dB), 15kHz(-50dB) AM/NFM 12kHz(-6dB), 25kHz(-60dB) WFM 180kHz(-6dB), 800kHz(-50dB)
Antenna impedance:	50 ohm BNC
AF output(at 4.8V):	120mW (8 ohm) THD 10%
Power requirements:	4.8V Ni-Cad 6.0V Manganese battery 9.0 - 16V DC External
Power consumption:	160mA (nominal) 110mA (standby) 20mA (power save)
Memory	
Memory channel:	50 channel x 20 bank - total 1000
Pass channel:	50 channel x 20 bank - total 1000
Priority channel:	One
Scan/Search rate:	Approx. 30 channels per second (max)
Size:	153mm(H) 69mm(W) 40mm(D) excluding projections
Weight:	350 grammes including Ni-Cads but not antenna

* Specifications subject to change due to continuous development of the receiver. E&OE.

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



VCO Freq.

0.1MHz:736.350MHz — 450MHz:1186.25MHz
450MHz:725.45MHz — 950MHz:1225.45MHz
950MHz:674.55MHz — 1500MHz:1224.55MHz
1500MHz:736.75MHz — 1950MHz:1213.75MHz

RX FREQ.	1st IF Freq.	2nd Lo Freq.
100KHz–450MHz 1500MHz–1950MHz	+736.250MHz –736.250MHz	691.2MHz
450MHz–950MHz 950MHz–1500MHz	+275.450MHz –275.450MHz	230.4MHz

DRAWN:	DATE: 94.08.06
CHECKED:	DATE:
QUALITY CONTROL:	DATE:
RELEASED:	DATE:

COMPANY: AOR

TITLE: AR–8000 MAIN BLOCK

CODE: | SIZE: | DRAWING NO: | REV: 2

SCALE: | SHEET: OF

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

SP

SP

CONTROL

4.91MHz

Y1

KEY MATRIX

FUNC DOWN UP 2VFO SCAN SRCH

D12 MONI CLEAR 0 7 4 1

LAMP PASS . 8 5 2

D13 K.LOCK ENT LOCAL 9 6 3

D2 D3 D4

CPU

U1

RESET

U4

EEPROM

U6

LCD

LCD1

LCD DRIVER

U2

LCD DRIVER

U3

AF

AF DET

D1

POWER ON

Q1

EXT DC

4.5V

U5

LED

D5-D11

D14,D15

RS232C INTERFACE

J3

DRAWN:	DATED: 94.02.13	COMPANY: AOR	
CHECKED:	DATED: 94.08.06	TITLE: AR-8000 CPU BLOCK	
QUALITY CONTROL:	DATED:	CODE:	SIZE: DRAWING NO: REV: 2
RELEASED:	DATED:	SCALE:	SHEET: OF

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

ANT

0.1–30MHz

30–110MHz

110–165MHz

165–240MHz

240–470MHz

470–820MHz

820–1900MHz

736.250MHz

275.450MHz

AGC

VCO UNIT

VCO

J6-1	4.5V
J6-2	PLL.LE
J6-3	94.LE
J6-4	DATA
J6-5	CLOCK
J6-6	4V
J6-7	UN.LOCK
J6-8	DC.DC
J6-9	GND
J6-10	IF.OUT
J6-11	94DATA
J6-12	IF H/L
J6-13	AGC
J6-14	GND
J6-15	ANT

COMPANY:	AOR		
TITLE:	AR8000 RF		
DRAWN:	DATED: 94.04.08	CODE:	SIZE: / DRAWING NO: / REV:
CHECKED:	DATED: 94.09.01		
QUALITY CONTROL:	DATED: 94.09.12		
RELEASED:	DATED:	SCALE:	SHEET: OF

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

DRAWN: H.H	DATED: 94.08.10	COMPANY: AOR
CHECKED:	DATED: 94.02.19	TITLE: AR8000 IF
QUALITY CONTROL:	DATED: 94.03.11	CODE: / SIZE: / DRAWING NO: / REV: 1
RELEASED:	DATED: 94.04.08	SCALE: / SHEET: OF

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

SP J1-1
SP GND J1-2
BEEP J1-3
SAVE J1-4
METER J1-5
+BS J1-6
PLL LE J1-7
PO/CONT J1-8
94 LE J1-9
GND J1-10
DATA J1-11
CLOCK J1-12

UN LOCK J2-1
MUTE J2-2
AF J2-3
DC/DC 5V J2-4
VFO J2-5
SQ J2-6
UP J2-7
DOWN J2-8
ANT J2-9
GND J2-10

FUNC MONI LAMP K.LOCK
DOWN UP 2VFO SCAN SRCH
CLEAR PASS ENTER LOCAL
0 7 4 1
8 5 2
9 6 3

D1 1SS226
D2 1SS319
D3 1SS319
D4 1SS319
D12 1SS321
D13 1SS321
D14 D15 SLM13

U1 uPD78054
RESET
P14 P15 P16 P17 AVss AN00 AN01 AVref1 RxD TxD P20 P21 P22 P23
P127 P126 P125 P124 P123 P122 P121 P120 P34 P33 P32 P31 T00 P65
P40 P41 P42 P43 P44 P45 P46 P47 P50 P51 P52 P53 P54 P55 Vss P56 P60 P61 P62 P63 P64

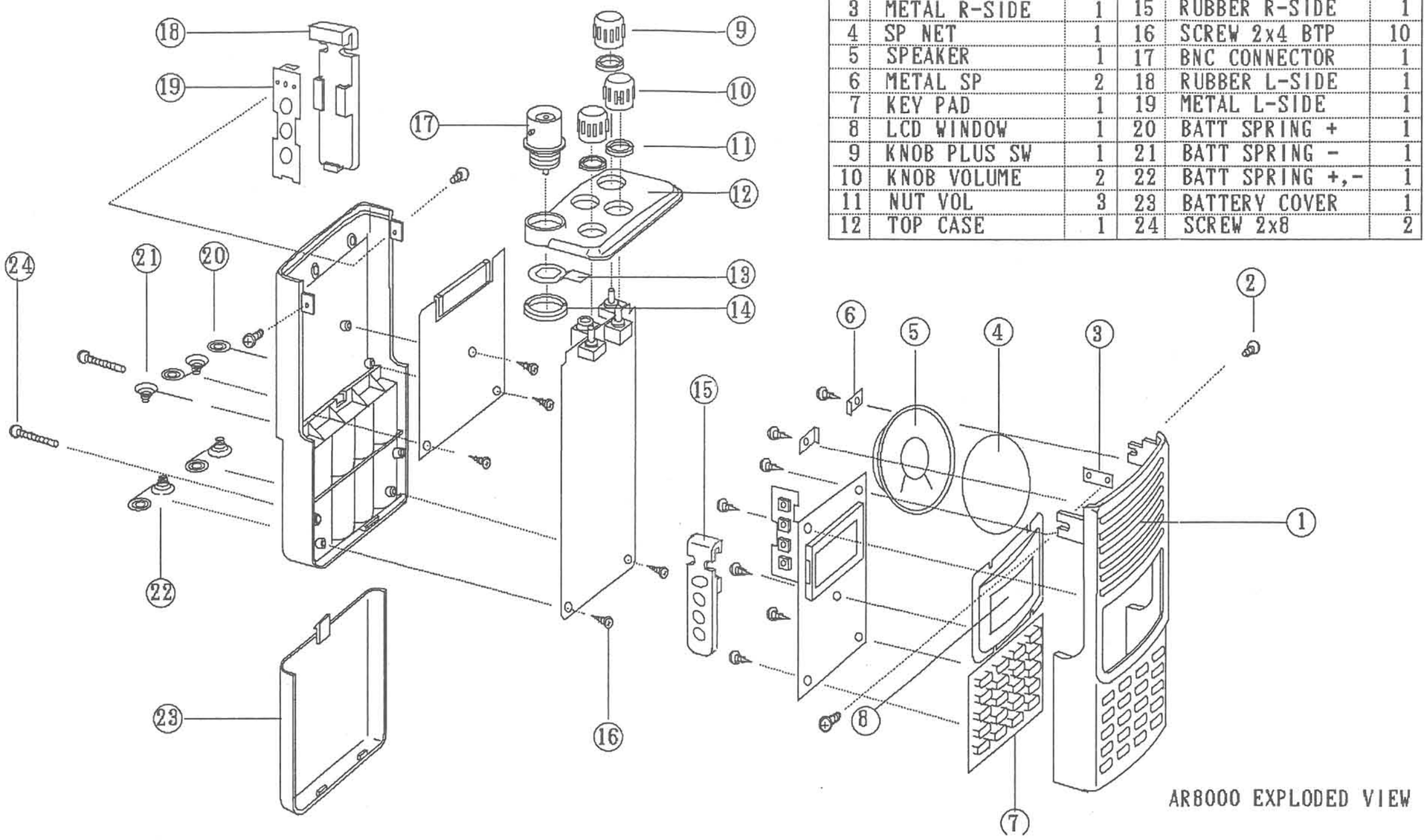
R2 100K
R1 1K
C1 0.001
C2 0.001
C3 *
J4-1 J4-2
R4 330K
R5 *
R7 100K
R6 1M
S-8054 U4
C8 0.1
C6 22P C7 22P
Y1 4.91MHz
R3 100K
C4 1/16
C5 0.1
C41 0.1
R8 4.7K
R9 4.7K
R10 4.7K
R11 4.7K
R12 R13 R14 R15 R16 R17 R18 R19 2.2Kx8
R20 100K
R21 100K
R22 100K
C9 0.1
R23 22K
R24 22K
C10 0.1
C11 0.1
TK11245 U5
R25 33K
R26 100K
Q1 RN1408
C12 0.1
C13 0.1
C14 0.1
C15 0.1
C16 1/16
R27 22
D5 SLE0022
D6 D8 D10
D7 D9 D11
R28 100K
R29 100K
R30 100K
L1 100uH
R31 1K
R32 1K
R33 1K
C34 0.1
J3-1 J3-2 J3-3 J3-4 J3-5 J3-6 J3-7
+5V TX IN RX OUT
GND REC REMOTE
RS232C REC

C17 10/10
C18 0.1
C19 0.1
C20 0.1
C21 0.1
C22 0.1
C23 0.1
C24 10/10
C25 0.001
C26 0.001
C27 0.001
C28 0.001
C29 0.001
C30 0.001
C31 0.001
C32 0.001
C33 0.001

U6 HN58C256FP
U2 HD44780
U3 HD66100
LCD1 LCD8000
SEG[31:55]
SEG[01:30]
SEG[56:95]
SEG[096:110]
COM[01:16]
V[00:04]
R34 9K
R35 10K
R36 10K
R37 10K
R38 10K
R39 10K
R40 JP
C35 0.1
C36 0.1
C37 0.1
C38 0.1
C39 0.1
C40 *

COMPANY:	AOR		
TITLE:	AR8000 CPU		
DRAWN:	DATED: 93.08.31	CODE:	SIZE:
CHECKED:	DATED: 94.01.22	DRAWING NO:	REV:
QUALITY CONTROL:	DATED: 94.04.20		
RELEASED:	DATED:	SCALE:	SHEET: OF

No.	Parts Name	Q'ty	No.	Parts Name	Q'ty
1	FRONT CASE	1	13	METAL BNC	1
2	SCREW #1 2x4	4	14	NUT BNC	1
3	METAL R-SIDE	1	15	RUBBER R-SIDE	1
4	SP NET	1	16	SCREW 2x4 BTP	10
5	SPEAKER	1	17	BNC CONNECTOR	1
6	METAL SP	2	18	RUBBER L-SIDE	1
7	KEY PAD	1	19	METAL L-SIDE	1
8	LCD WINDOW	1	20	BATT SPRING +	1
9	KNOB PLUS SW	1	21	BATT SPRING -	1
10	KNOB VOLUME	2	22	BATT SPRING +,-	1
11	NUT VOL	3	23	BATTERY COVER	1
12	TOP CASE	1	24	SCREW 2x8	2



AR8000 EXPLODED VIEW

1. RF UNIT

1.1 B.P.F.

Signal from antenna connector J1 (BNC) enters selected B.P.F. via attenuator unit. Band selection as follow:

BAND 1.	100kHz - 30MHz	L.P.F.
BAND 2.	30MHz - 110MHz	B.P.F.
BAND 3.	110MHz - 165MHz	B.P.F.
BAND 4.	165MHz - 240MHz	B.P.F.
BAND 5.	240MHz - 470MHz	B.P.F.
BAND 6.	470MHz - 820MHz	B.P.F.
BAND 7.	820MHz -1950MHz	H.P.F.

Band selection by IC1 controlled by CPU data.

1.2 Ferrite internal antenna

For Medium Wave, internal ferrite antenna is tuned by Varactor diode D1 controlled by CPU D/A voltage. Tuned signal is amplified and enters BAND 1. L.P.F.

1.3 Attenuator

Approx. 12dB attenuation by combination of D5,D6,D7.

1.4 RF amplifier

Q2 amplifier for BAND 1. through 4.
Q4 amplifier for BAND 5. through 7.
Q6 amplifier for BAND 8.

Q3 and Q5 disable unwanted circuits avoiding interferance among.

1.5 1st Mixer

L33,L34,D28,D29 work as double balanced mixer and makes 1st I.F. with injected local carrier by VCO.
Input signal frequency vs 1st I.F. as follow:

Receiving frequency range	1st I.F.
100kHz - 450MHz	+736.250MHz
1500MHz - 1950MHz	-736.250MHz
450MHz - 950MHz	+275.450MHz
950MHz - 1500MHz	-275.450MHz

1.6 P.L.L.

VCO carrier is amplified by Q11 and enters in prescaler of IC2. Phase detector of IC2 outputs control voltage through loop filter by Q14,Q15 to VCO. Reference crystal oscillator 12.8MHz is included in IC2.

1.7 1st I.F. amplifier

I.F. of +/-736.250MHz is amplified by L35,L36 and Q7.
I.F. of +/-275.450MHz is amplified by L38,L39,L40,L41 and Q9.

1.8 2nd Mixer

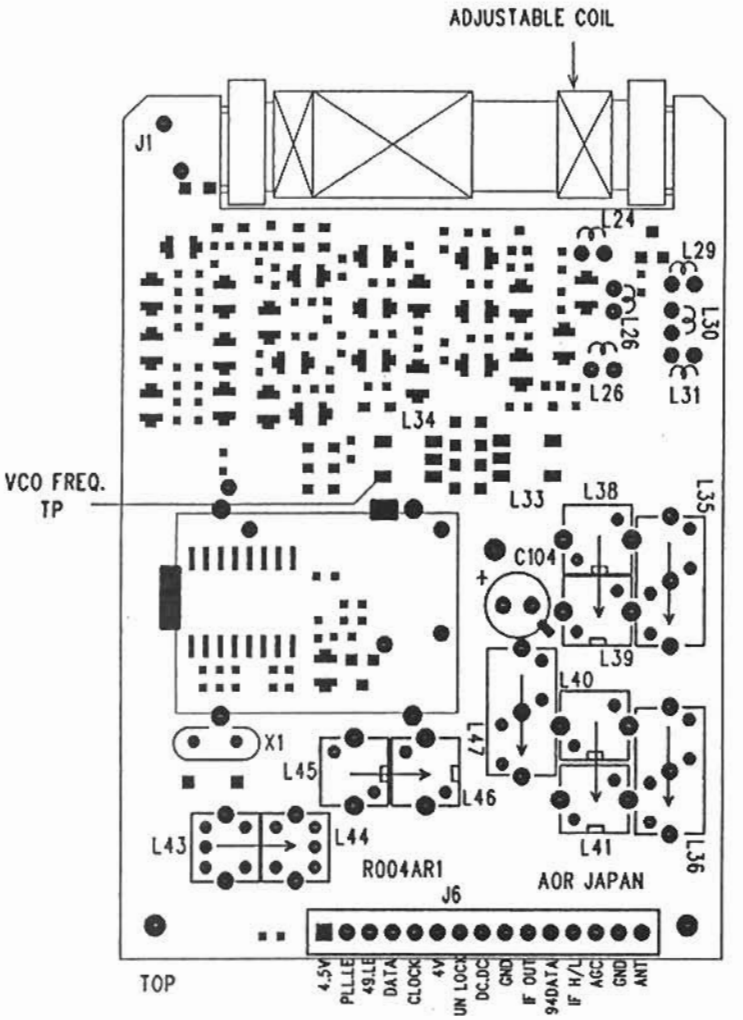
Q8 is 2nd mixer and makes 45.05MHz 2nd I.F. with injected 2nd local carrier.

1.9 2nd local carrier

Q16 buffers reference oscillation of 12.8MHz and Q17 multiples by six, Q18 multiples by three. (12.8 x 6 x 3=230.4MHz for 275.450MHz I.F.), Q19 multiples by three. (12.8x6x3x3=691.2MHz for 736.250MHz I.F.)

TESTING PROCEDURE RF UNIT 1/2

1. CONNECTIONS



TESTING PROCEDURE RF UNIT 2/2

2. ADJUSTMENTS

2.1 VCO frequency adjustment: Frequency 80.500MHz NFM

a. Connect frequency counter probe at L34 and adjust TC2 trimmer cap for correct 816.75MHz.

2.2 I.F./H adjustment: Frequency 80.500MHz NFM

a. Connect SG output to antenna input (SG 80.500MHz 1kHz tone +/-3kHz deviation -120dBm).
Adjust L43,L44,L45,L46,L47,L35,L36 in order for maximum sensitivity.

2.3 I.F./L adjustment: Frequency 460.5MHz NFM

a. Connect SG output to antenna input (SG 460.5MHz 1kHz tone +/-3kHz deviation -120dBm).
Adjust L38,L39,L40,L41 in order for maximum sensitivity.

2.4 1MHz adjustment: Frequency 1.0MHz NFM

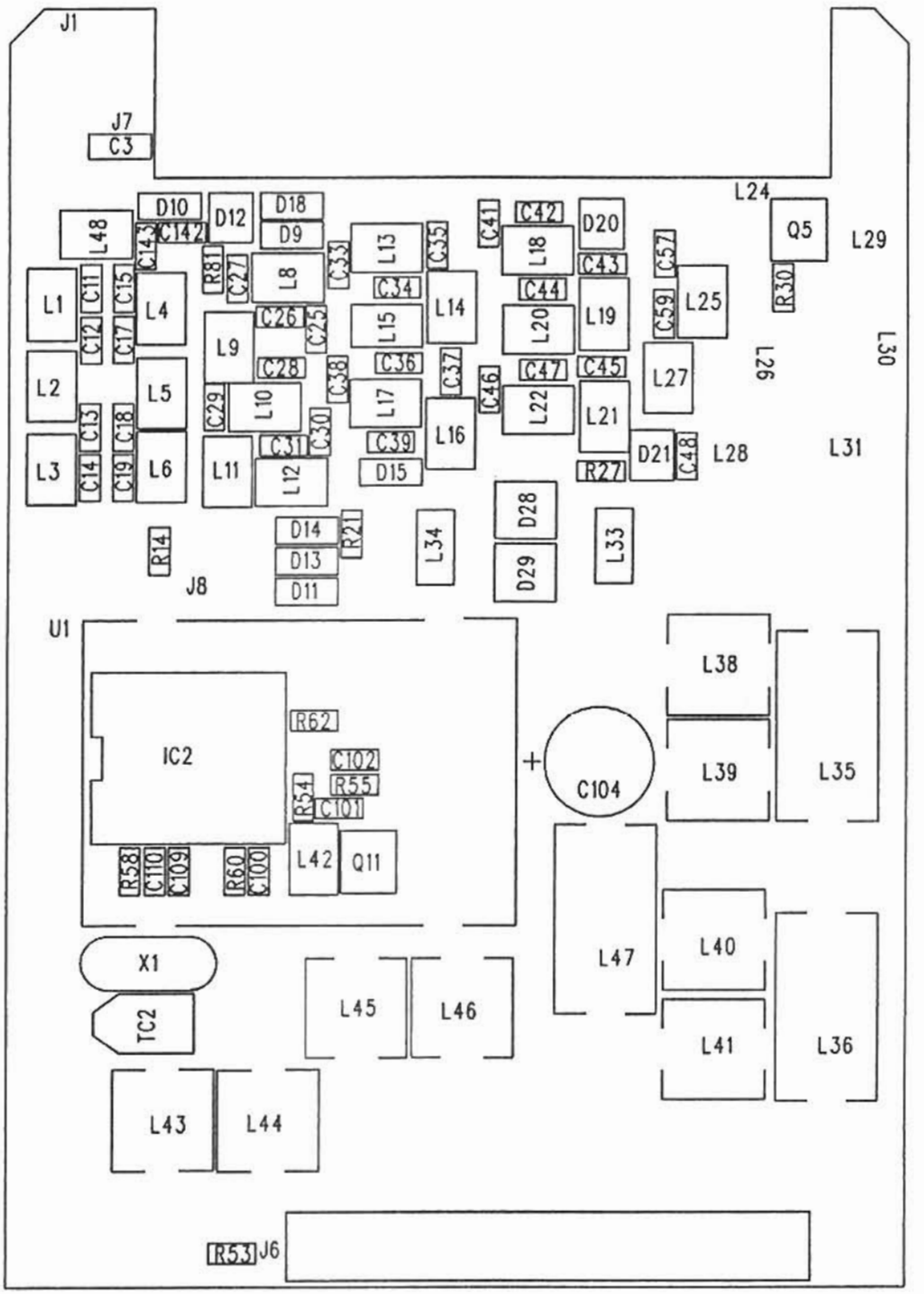
a. Connect SG output to antenna input (SG 1.0MHz 1kHz tone +/-3kHz deviation -90 dBm).
Adjust TC1 on solder foil side for maximum sensitivity.

2.5 Ferrite antenna adjustment: Frequency 954kHz AM

a. Press FUNC + 1 keys to make LCD indication "A".
b. Set SG at 954kHz and connect some antenna on the SG for certain field strength. Receive the signal on the unit under test, watch S meter level on the CPU unit, adjust movable coil of the ferrite antenna to get best sensitivity, then fix the coil with parafin.

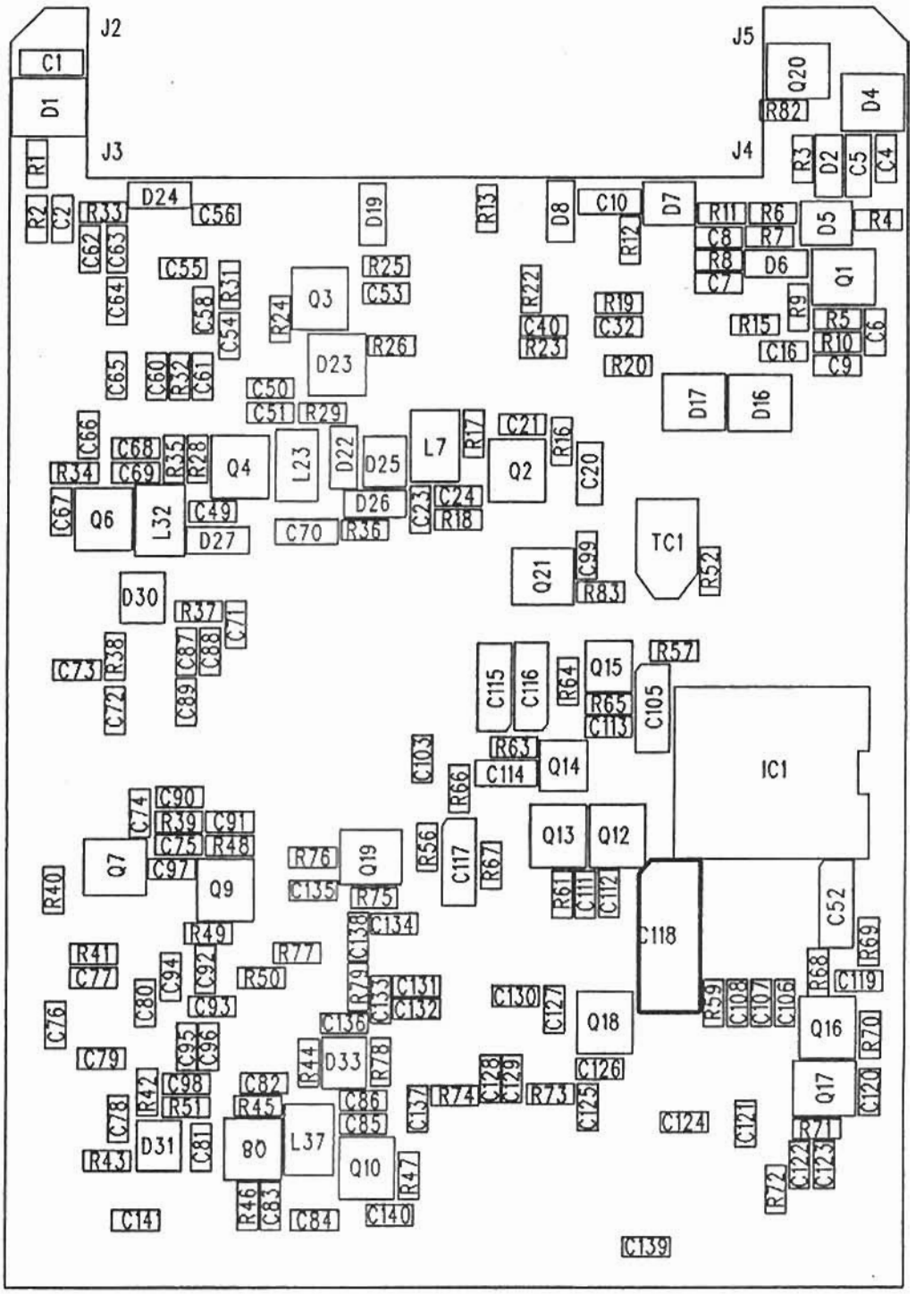
2.6 Sensitivity check in NFM mode for more than SINAD 12dB

a. 109.5MHz SG -117dBm
b. 111.5
c. 164.5
d. 165.5
e. 239.5
f. 241.5
g. 469.5
h. 471.5
i. 819.5
j. 821.5
k. 949.5
l. 951.5
m. 1301.5MHz SG -100dBm
n. 1901.5MHz SG -80dBm



TOP

RF UNIT AR8000



BOTTOM

RF UNIT AR8000

2. I.F. board

2.1 2nd I.F.

45.05MHz 2nd I.F. signal is switched by D1 for mode WFM direct input to U1 or for mode other than WFM through F1, F2 monolithic crystal filers and Q1 amplifier.

2.2 I.F. system circuit

For mode NFM,AM,USB,LSB,CW, signal is converted in U1 with Y1 44.595MHz crustal oscillator for 3rd I.F. of 455kHz. Y1 frequency is controlled by CPU D/A voltage for steps less than 10kHz.
For NFM mode, signal passes through F3 ceramic filter then amplified by Q4 and detected in U1 for output AF at pin 11.
For USB,LSB,CW mode, signal passes through F3, F4 ceramic filters then amplified by Q4,Q5,Q6 then product detected by D7,D8. AF output is amplified by Q7 and enters U6 AF switch. Y2 is local carrier oscillator crystal for product detector and it shifts its frequency 456.5kHz for USB,CW and 453.5kHz for LSB by switching transistor Q8.
For AM mode, Signal passes through F3 ceramic filter and U3 amplifier/detector to get audio output at pin 8.
For WFM mode, 2nd I.F. of 45.05MHz signal enters direct in U1 mixed down to 10.7MHz with Y3 34.35MHz crystal oscillator by Q14. 10.7MHz output at pin 14 of U1 passes through F5,F6 ceramic filters then amplified by Q11, enters U3 at pin 12 for WFM detection AF output at pin 8.

2.3 Level circuit

For NFM,USB,LSB,CW,AM mode, output voltage at pin 12 of U1 is DC amplified by U13B and compared with AGC voltage then directed to CPU.
For WFM mode, 10.7MHz signal is amplified by Q12, detected by D9 then DC amplified by U7B then directed to CPU.

2.4 AGC circuit

U7A works as AGC amplifier and it controls Q2,Q4,Q6,Q7,Q9 Q20 in RF unit board and Q1, Q4 in I.F. unit board.

2.5 Squelch circuit

For NFM,AM,USB,LSB,CW mode, noise components in AF output from U1 is amplified by Q2, detected by D2, compared at U1 pin 15 and makes SQ signal at pin 17 for CPU.
For WFM mode, noise components in AF output from U3 enters U1 similar to above for SQ signal to CPU.

2.6 AF circuit

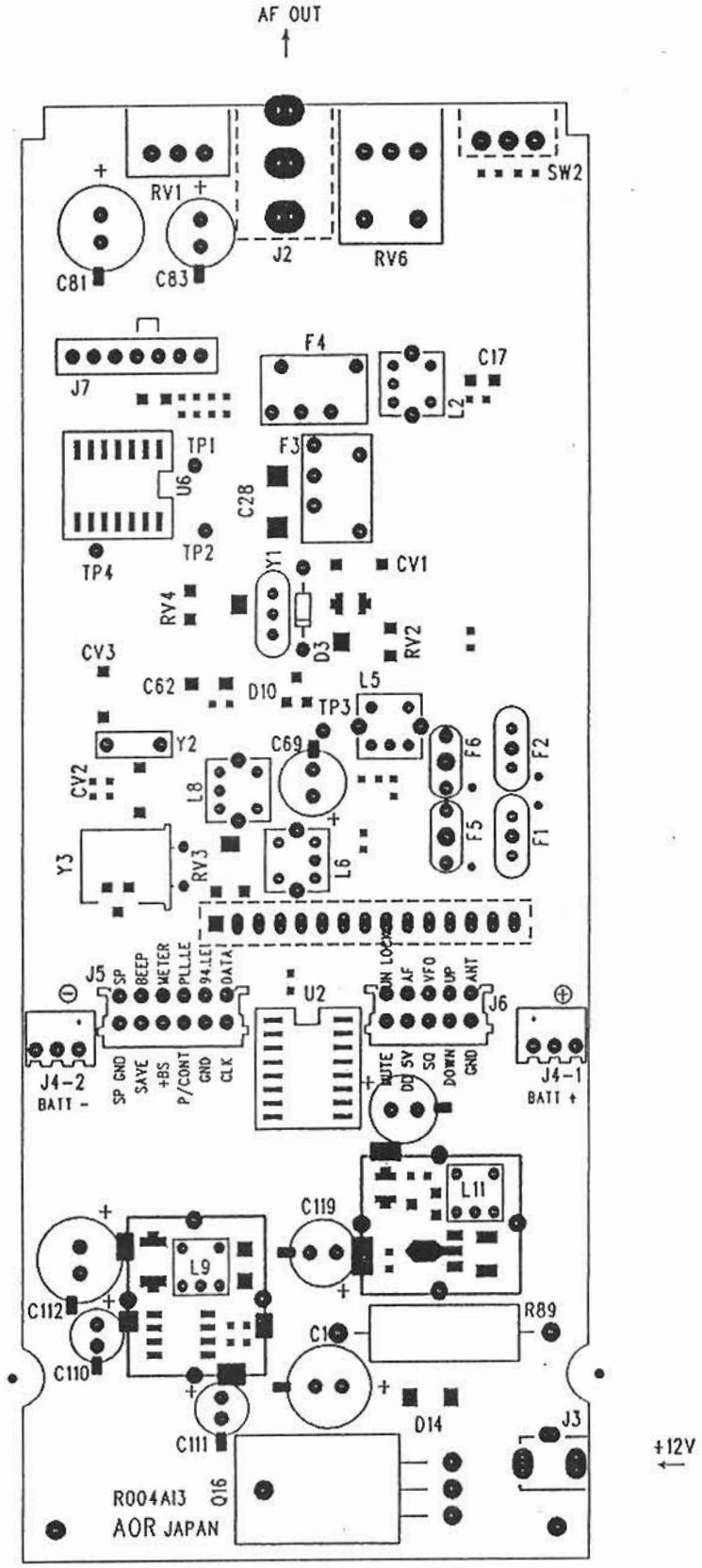
U6 is AF selector and switched signal passes through U5A H.P.F. then amplified in U4 for speaker drive. U5A cuts less than 400Hz unwanted signal like CTCSS tone.
Q15, Q19 work as audio mute switch and U5B is AF amplifier for AF SCAN.

2.7 Power supply circuit

Source from EXT DC jack is stabilized at +6.2V DC by Q16,D12. U11 makes +4.5V stabilized line and U12,D15 makes +5V line for CPU. Q17,Q18 control power supply for CPU and U8 makes +4V stabilized line for VCO, PLL, I.F.
U9 makes +4.5V stabilized line for BAND amplifiers in RF unit board. U10 makes +28V DC for VCO control voltage.

TESTING PROCEDURE I.F. UNIT 1/2

1. CONNECTIONS



TESTING PROCEDURE I.F. UNIT 2/2

2. ADJUSTMENTS

2.1 NFM adjustment: Frequency 80.500MHz NFM

a. Set SG at 45.050MHz -50dBm no modulation, connect SG output at Q8 base of RF unit board.
b. Connect frequency counter at TP3 and adjust CV1 for 455kHz.
c. Set SG modulation 1kHz +/-3kHz deviation, adjust L2 for maximum AF level.
d. Set the receiver frequency 80.5010MHz and set SG at 45.059MHz with no modulation.
e. Adjust RV2 for 455kHz on the counter at TP3.
f. Check if 455kHz when receiver frequency at 80.4990MHz and SG at 45.051MHz.

2.2 WFM adjustment: Frequency 80.500MHz WFM

a. Set SG at 45.050MHz 1kHz tone +/-30kHz deviation -85dBm injected at Q8 base of RF unit board.
b. Adjust L6,L8 for maximum sensitivity then set SG -60dBm adjust L5 for maximum AF output.
c. Check if more than one dot of S meter is on at SG -90dBm.

2.3 AM adjustment: Frequency 80.500MHz AM

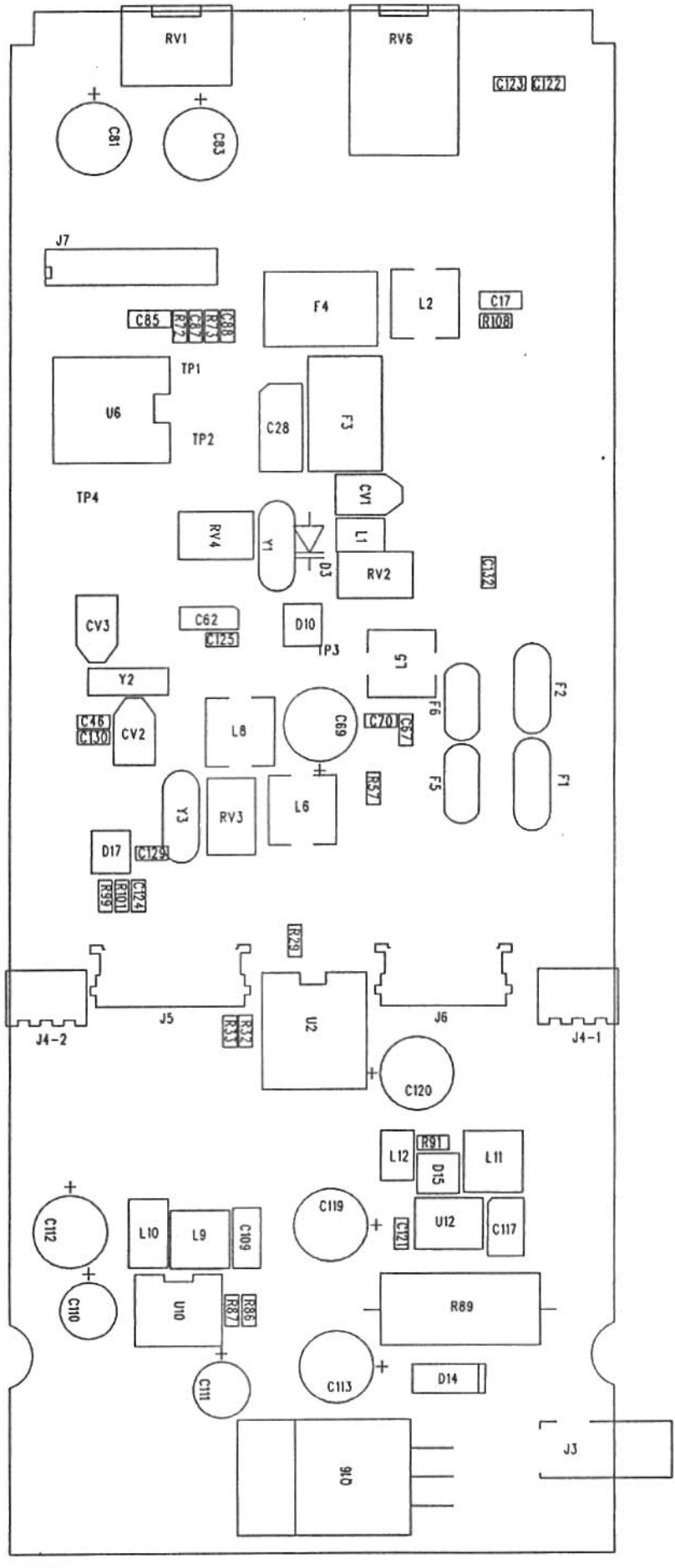
a. Set RV5 at center position.
b. Set SG 80.500MHz -103dBm 1kHz tone 30% modulation.
c. Connect digital voltmeter at TP1 and adjust RV4 for exact 2.0V DC.
d. Increase SG level to -63dBm and check if AF wave form remain free of distortion.

2.4 SSB adjustment: Frequency 80.500MHz USB

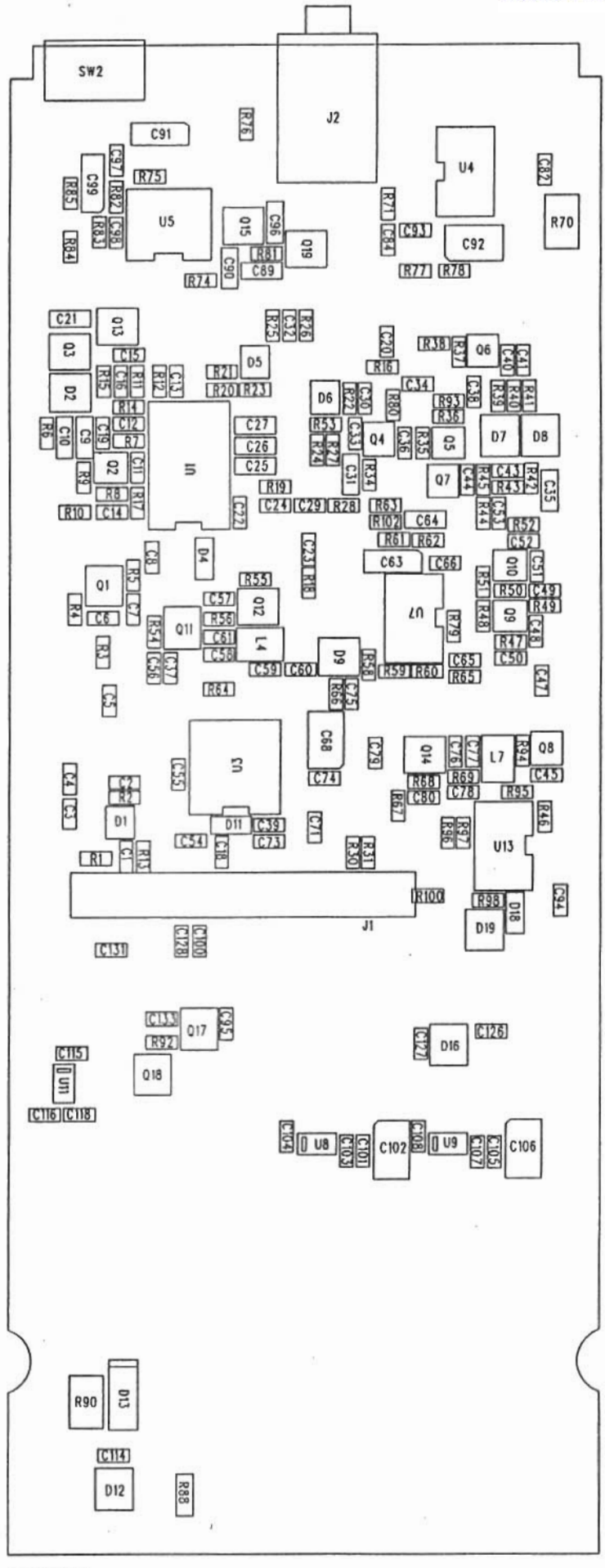
a. Connect frequency counter at TP4, adjust CV3 for exact 456.5kHz.
b. Change mode to LSB, adjust CV2 for exact 453.5kHz.
c. Frequency tolerance within +/-0.25kHz.
d. Set SG at 80.501MHz with no modulation, check if AF ouptut is approx. 1kHz.

2.5 S meter adjustment:

a. Set SG at -85dBm level and connect antenna input, adjust RV3 for full scale S meter level on the LCD screen.



I.F. UNIT AR8000



BOTTOM

I.F. UNIT AR8000

3. CPU control unit

3.1 LCD indicator
U2 is control/driver for dot matrix LCD with 1/5 bias, 1/16 duty including 192 fonts. U3 is segment driver for LCD.

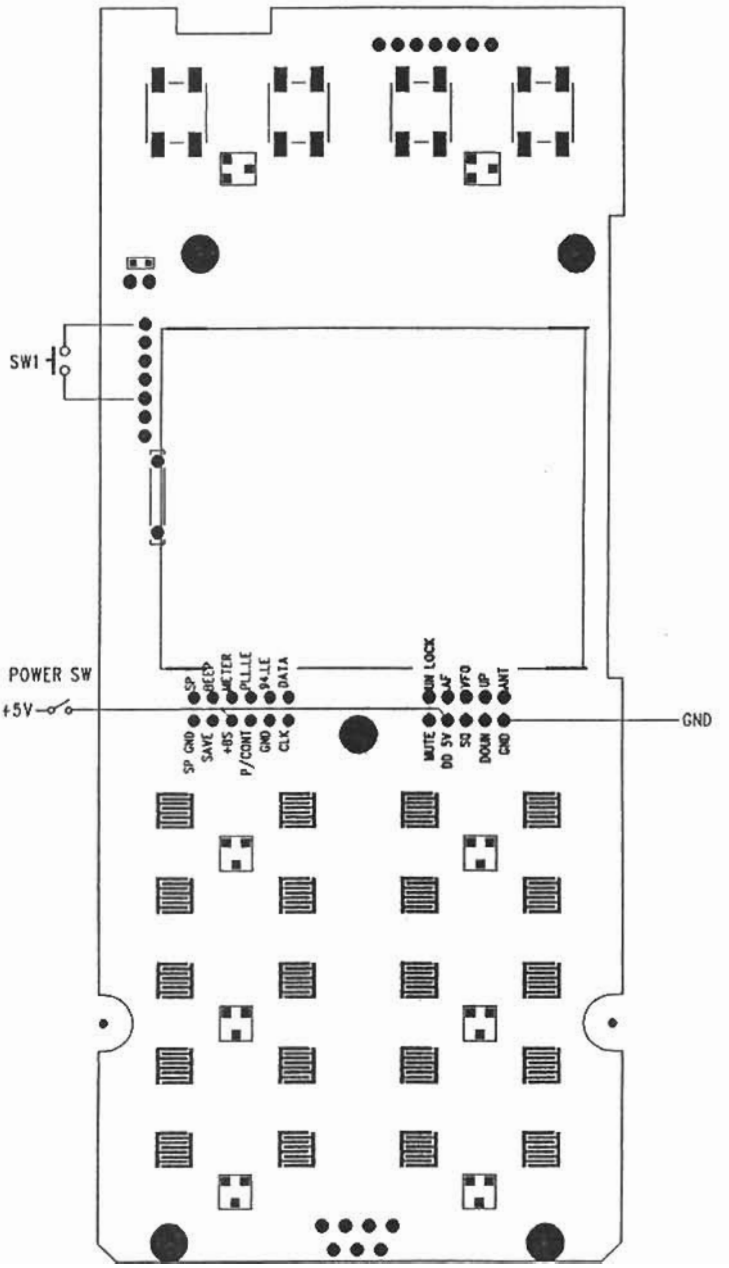
3.2 Memory unit
U6 is 256Kbit EEPROM and has all required data.

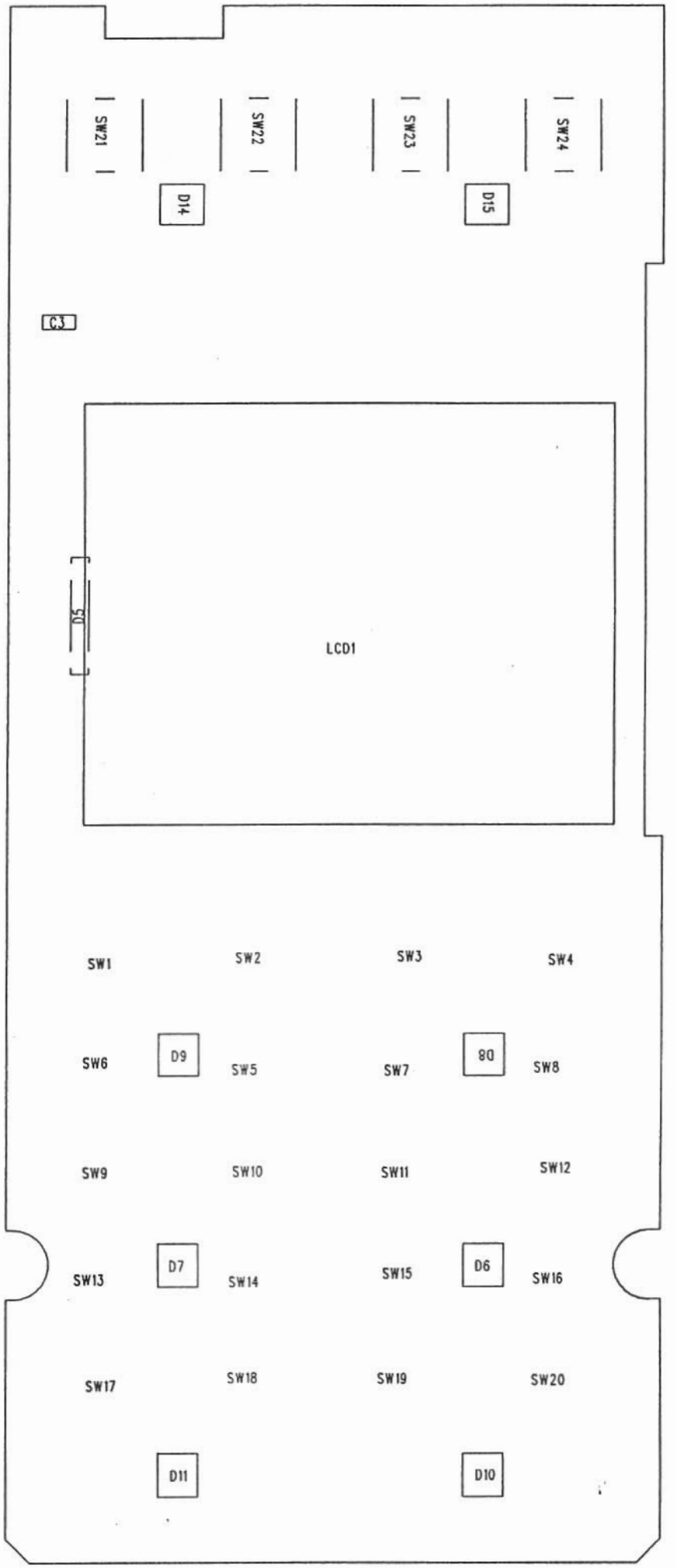
3.3 Illumination
Stabilized +4.5V DC by U5 and supplied for high intensity LED controlled by LAMP KEY information.

3.4 CPU unit
U1 is main CPU microprocessor 8 bit controlls all functions.
U4 gets start CPU by power on reset system.
Q1 transfer power off information to CPU.

TESTING PROCEDURE CPU CONTROL UNIT 1/1

1. Supply +5V to P/CONT, DD5V and connect diode at J5-1, J5-5.
2. Mount a keypad and press/hold "0" key and power on for +5V.
3. Check if all dots on the LCD light on.
4. Check all keys for correct functions.





TOP

CPU CONTROL UNIT AR8000

PARTS (Semi Conductors)

1. DIODES

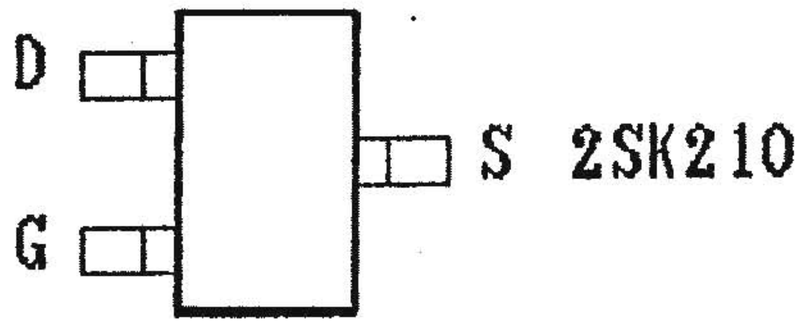
1SR154	Rectifier
1SS184	Switching
1SS226	Switching
1SS312	Band Switching
1SS319	Switching (Shottky)
RB425D	Switching (Shottky)
1SS356	Band Switching
MA721	Switching (Shottky)
ND411G	Mixer (pair)
SLE0022	LED
SLM-13	LED
KV1550	Vari Cap
1SV184	Vari Cap
02CZ6.8Y	Zener

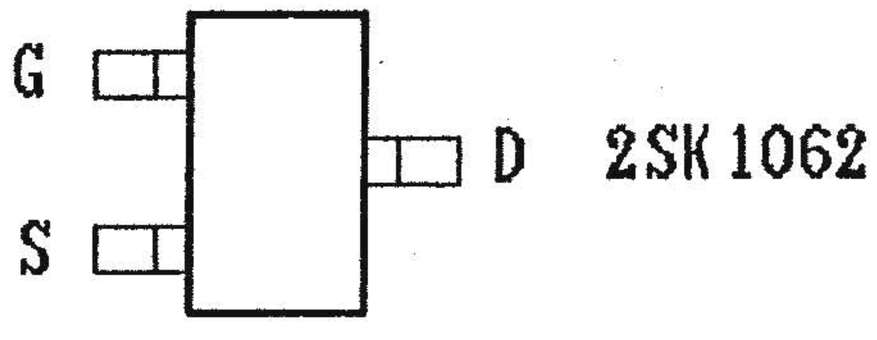
2.TRANSISTORS

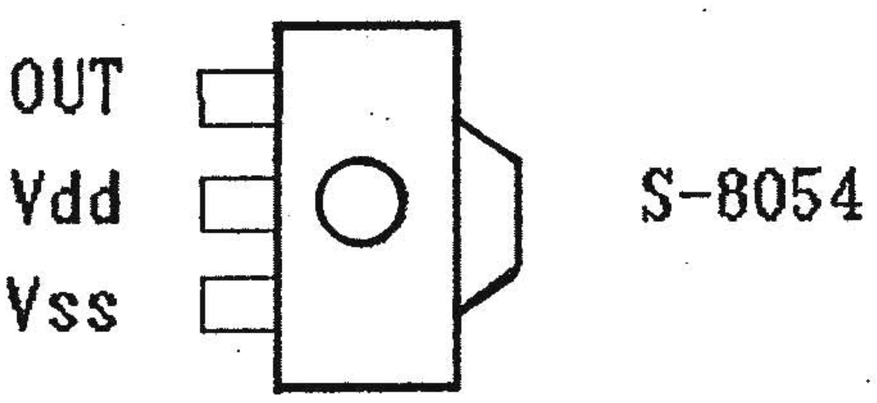
2SA1162	PNP Low Freq.
2SC2714	NPN Hi Freq.
2SC3123	"
2SC3356	"
2SC4094	"
2SC4116	NPN Low Freq.
2SD1593	NPN Audio Freq.
2SK210	Hi Freq. FET
2SK1062	Audio SW FET
RN2407	PNP Digital
RN1408	NPN Digital
DTB123	PNP Digital

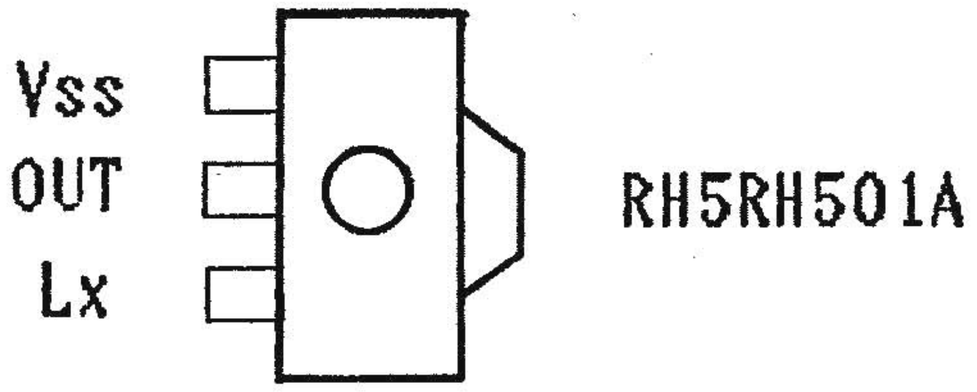
3. INTEGRATED CIRCUITS

HD44780	Dot Matrix LCD controler Driver
HD66100	40 CH LCD Driver
HN58C256	256Kbit EEPROM
MB1501	PLL Synthesizer
NJM2070	AF Power Amp
NJM2904	OP Amp
RH5RH501A	DC-DC Convertor
S-8054	Voltage Detector
TA7792	WFM-AM IF System
TC4066	Quad Bilateral SW
74HC4094	8bit Shift and Store Register
TK10489	NFM IF System
TK11240	4V Voltage Regulator
TK11245	4.5V "
TK11806	DC-DC Convertor
uPC358	OP Amp
uPD78054	8bit CPU

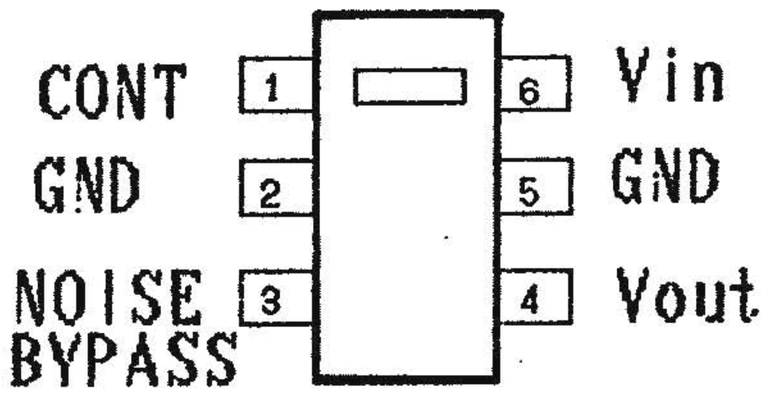




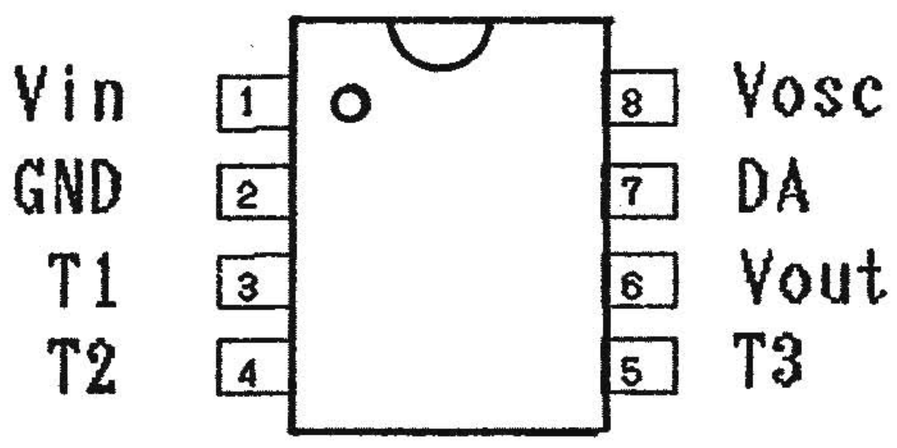




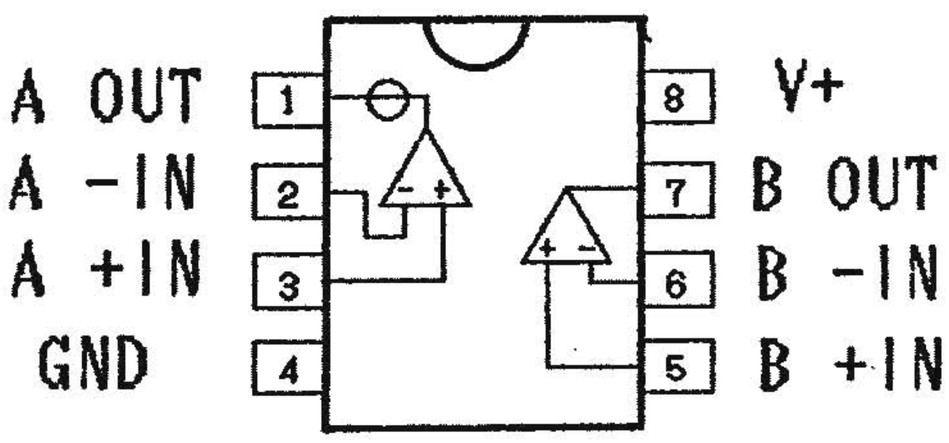
TK11240
TK11245



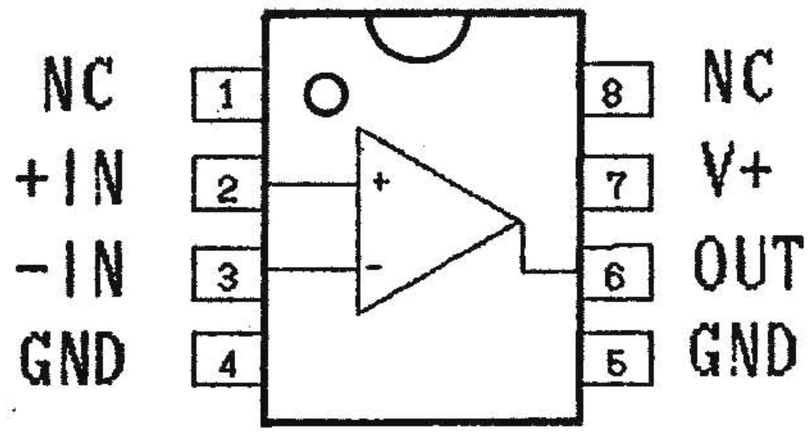
TK11806



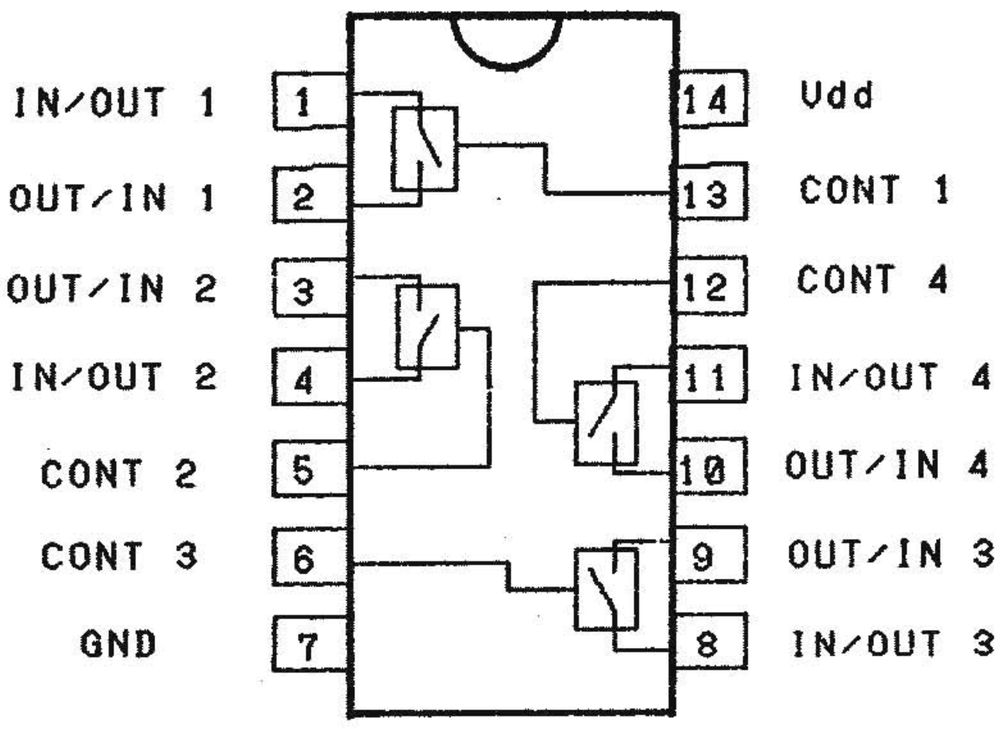
uPC358
NJM2904



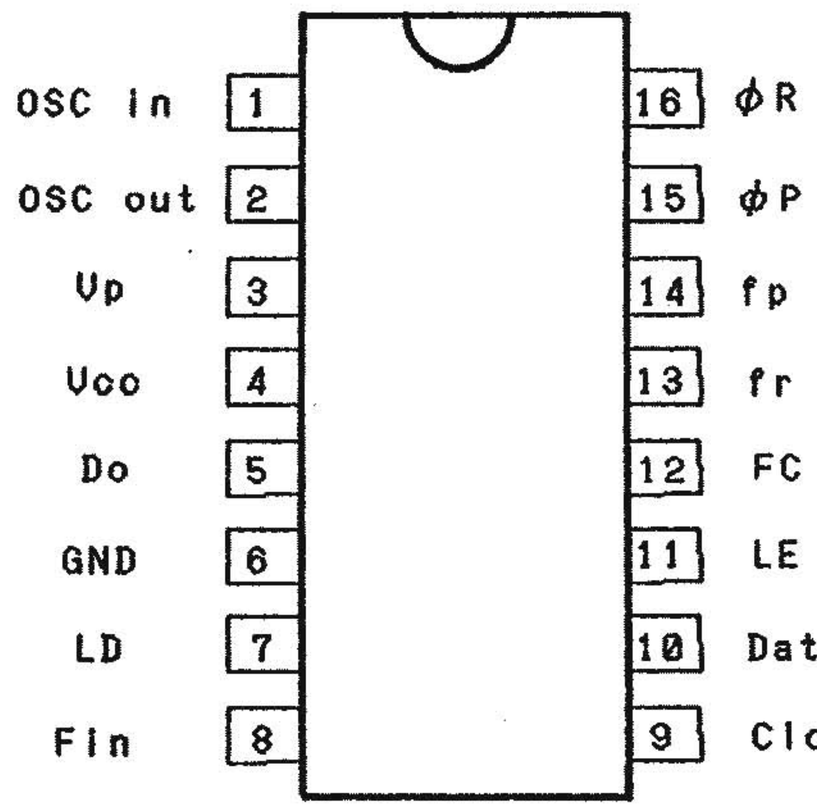
NJM2070



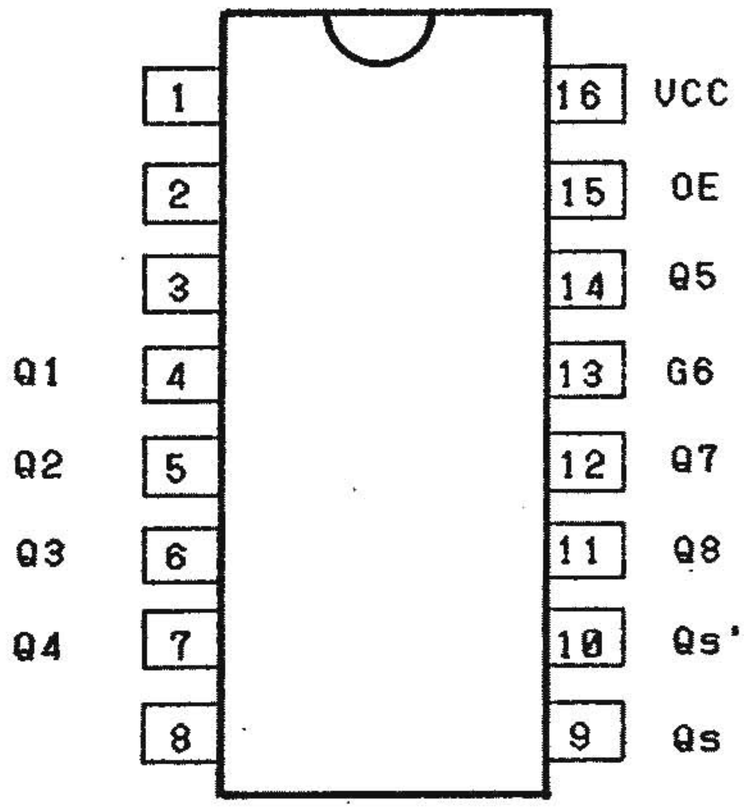
TC4066



MB1501



TC74HC4094



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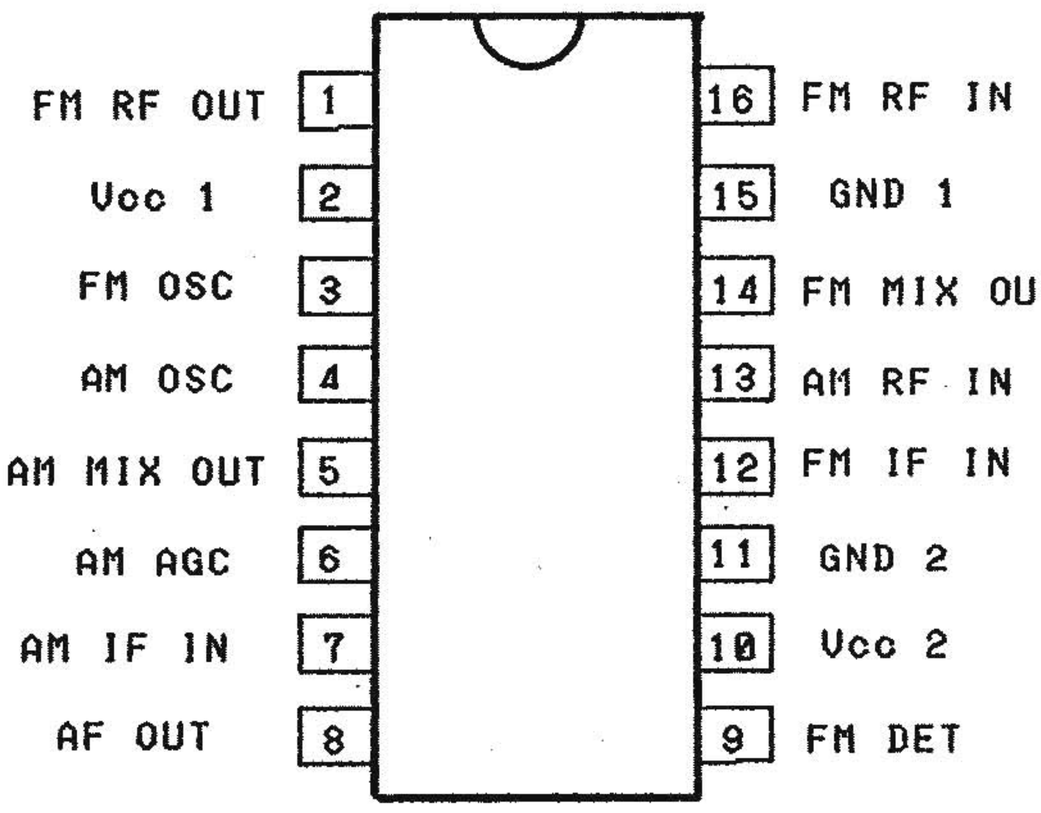
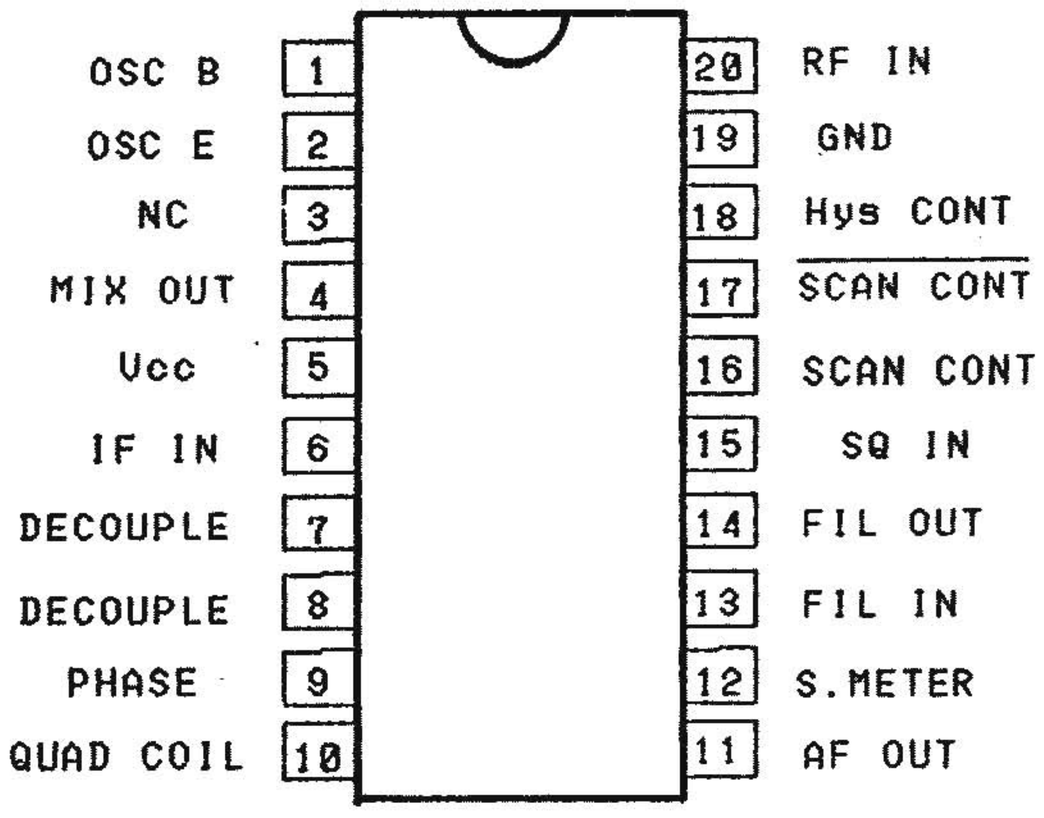
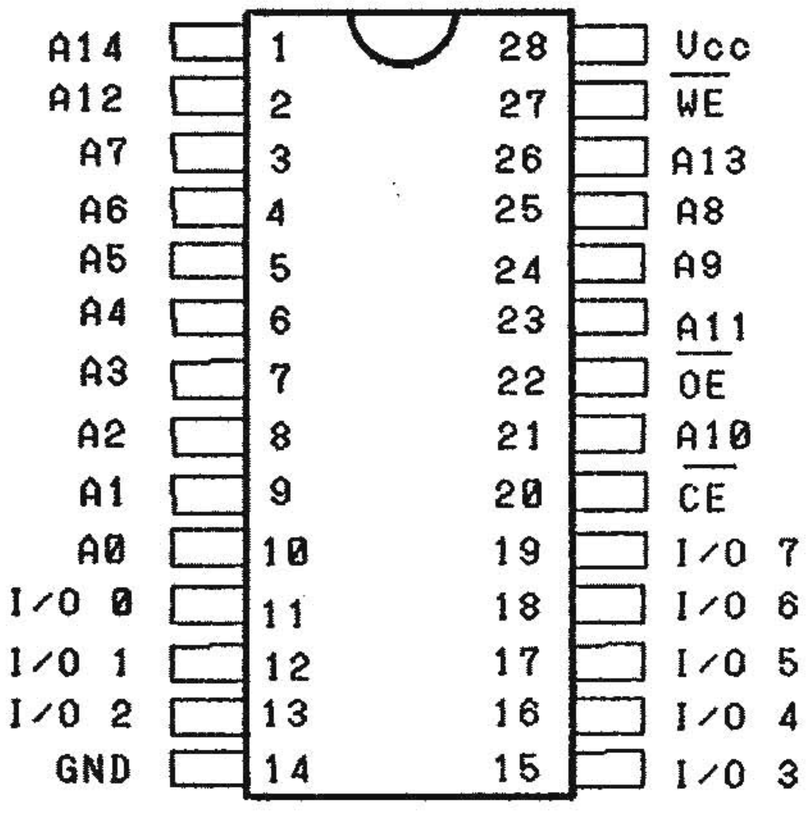
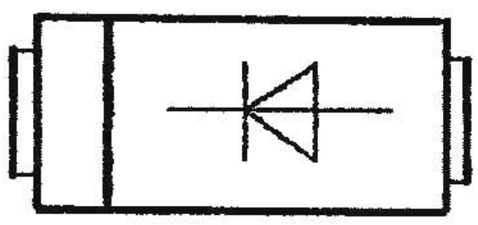


TK10489

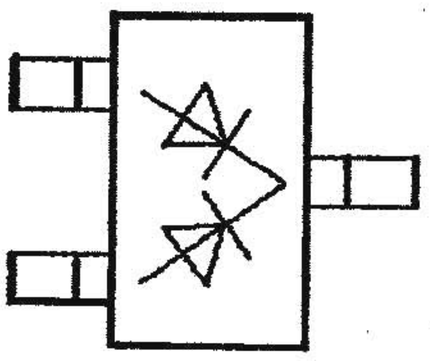


HN58C256





1SR154



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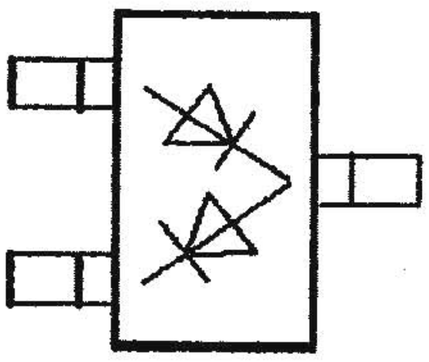
1SS312
RB425D
KV1550



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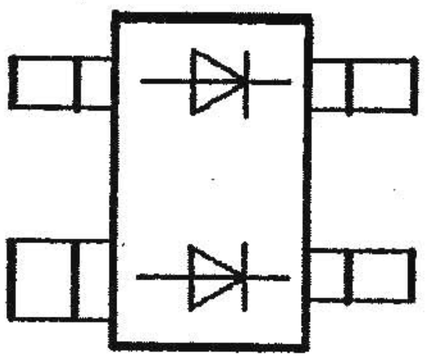

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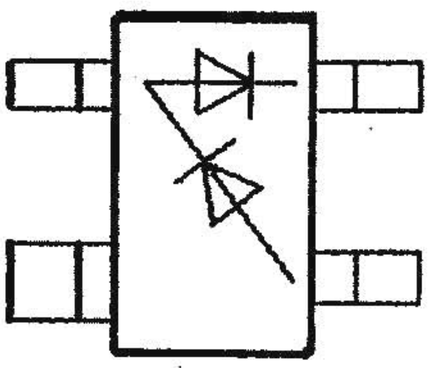
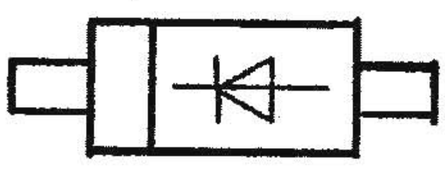
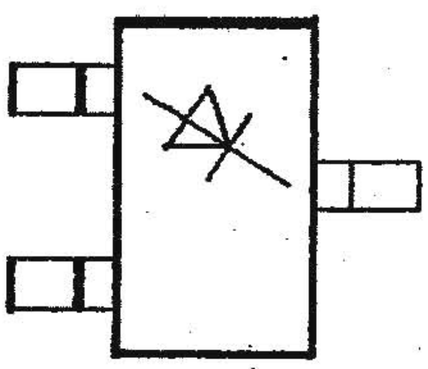


ND411G

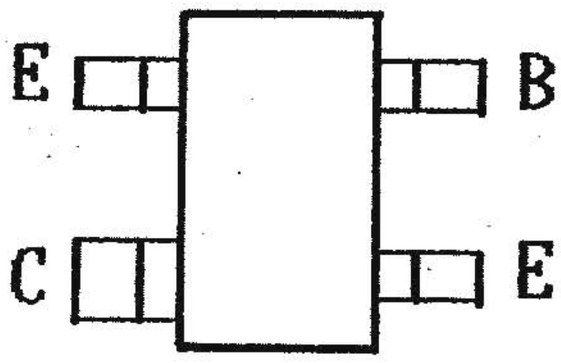


1SS356



MA721
SLM-13

02CZ6.8



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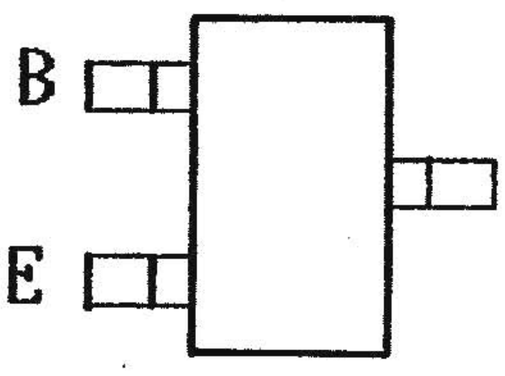
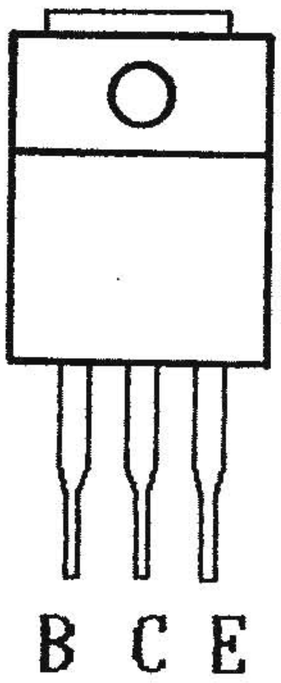


2SA1162 RN2407
2SC2714 RN1408
2SC3123 DTB123
2SC3356
2SC4116



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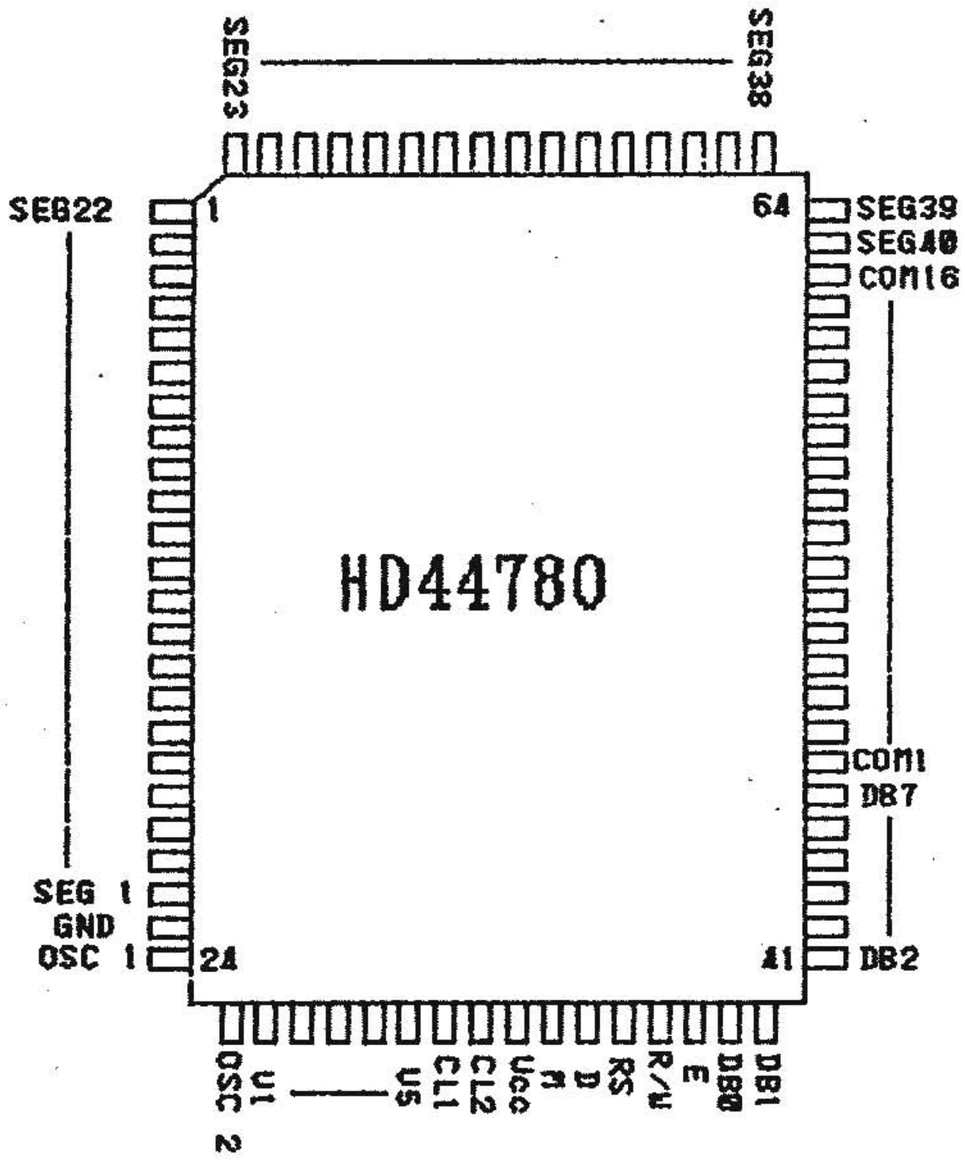

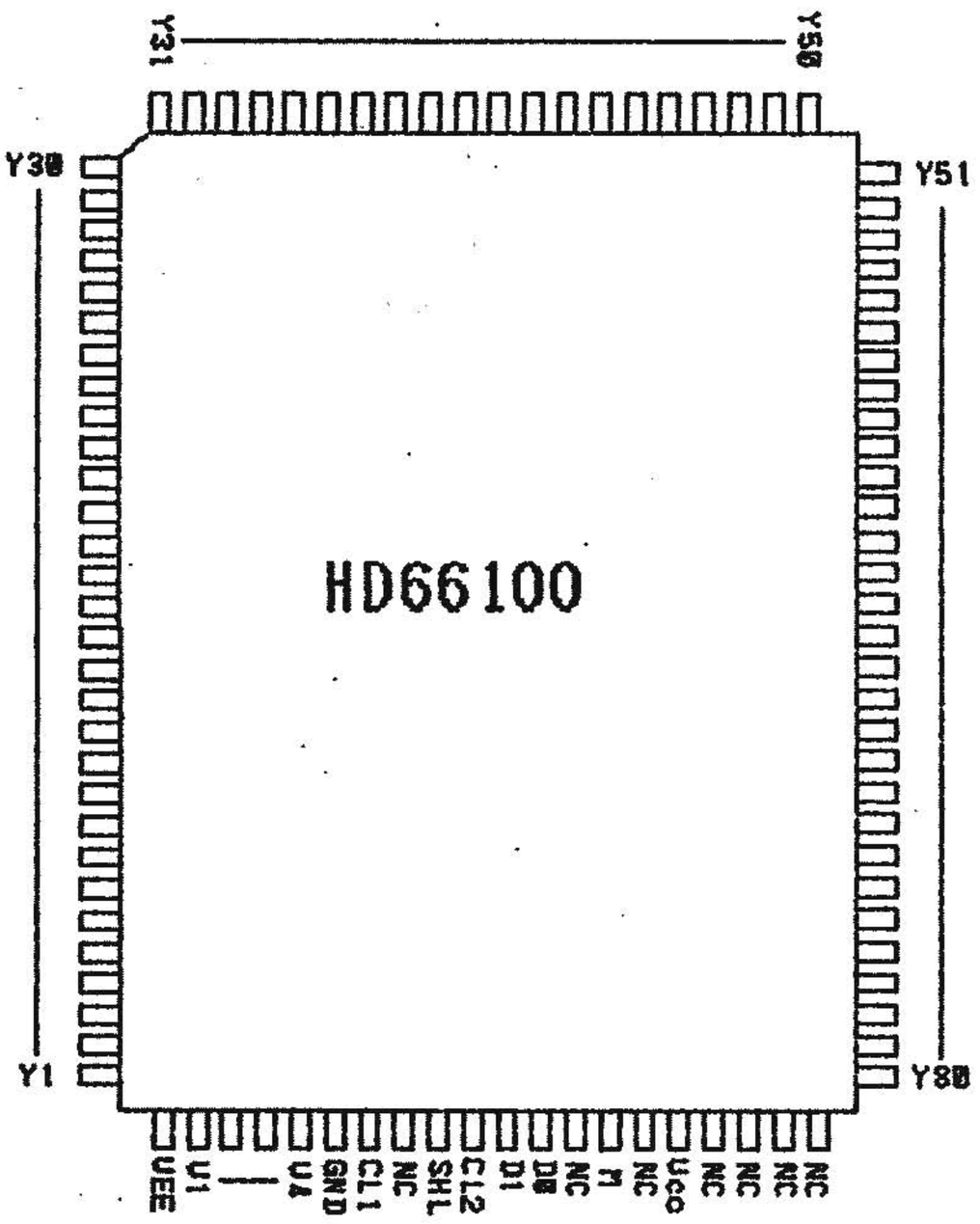

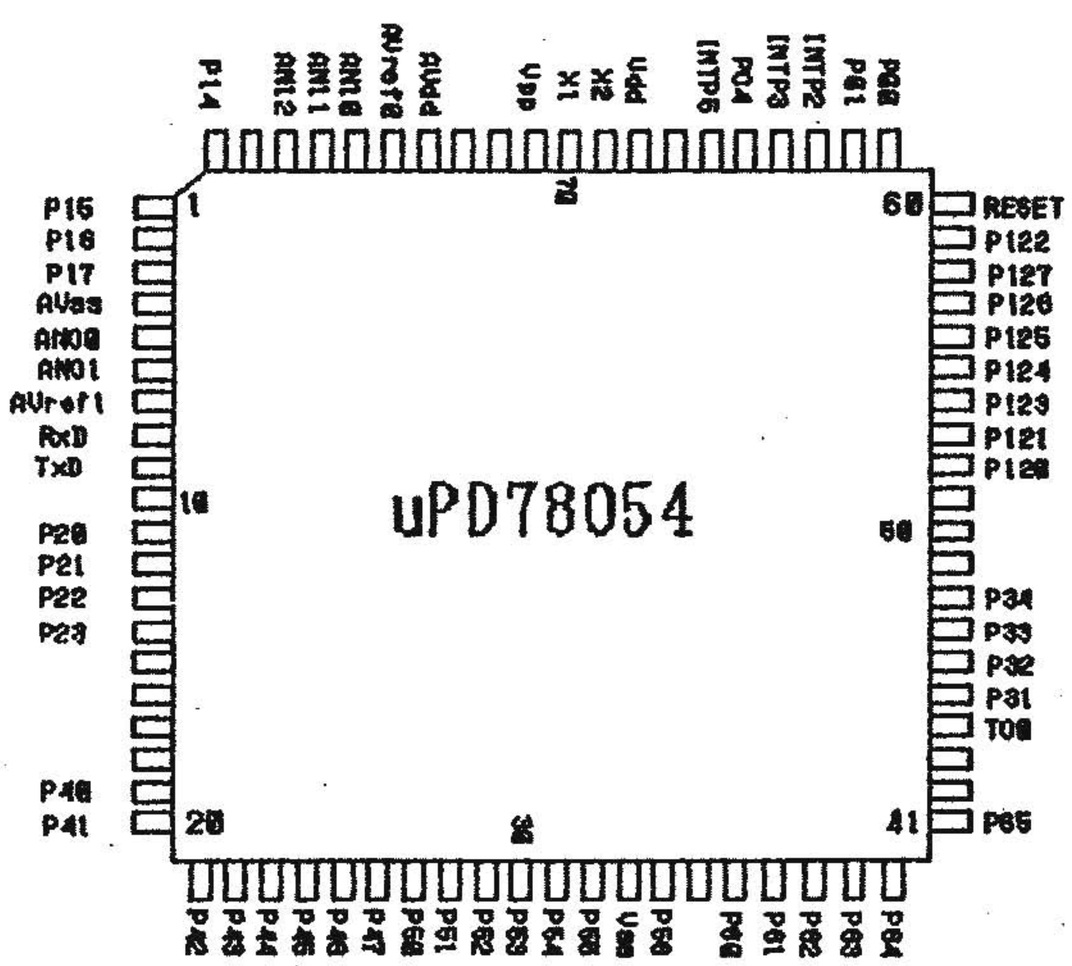

P14-P17: KEY MATRIX
P20: MUTE
P21: POWER CONT
P22: LAMP
P40-P47: DATA BUS
P23,AVref1: SAVE
P50-P56: ROM ADRESS BUS
P00-P02: LCD CONTROL
P03-P05: ROM CONTROL
T00: BEEP
TxD,RxD: RS232C
P31: SERIAL DATA
P32: CLOCK
P33: BAND,MODE LATCH
P34: PLL LATCH
P120-P127: ROM ADRESS BUS
RESET: POWER ON RESET
P00: POWER ON/OFF
P01: PTION
INTP2: SG INPUT
INTP3: PLL LOCK INPUT
P04,NTP5: ROTALY ENCODER
X1,X2: CPU CLOCK
AN10: METR INPUT (A/D)
AN11: BATT INPUT (A/D)
AN12: AF LEVEL(NPUT (A/D)
AN00: ANT ONTROL (D/A)
AN01:VFO CONTROL (D/A)